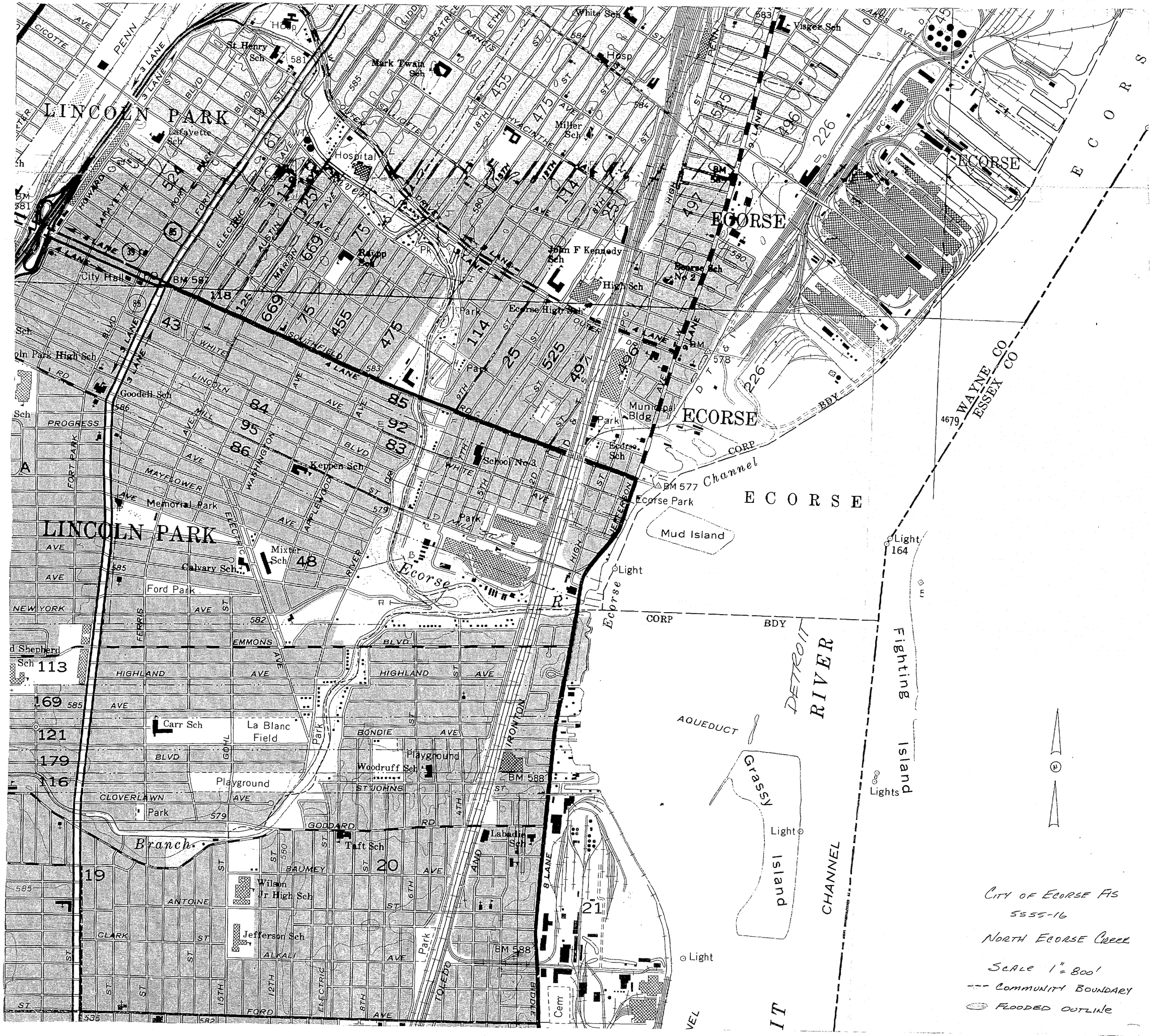
LINCOLN PARK
ECORSE
Ecorse Channel
Mud Island
Grassy Island
Fighting Island
DETROIT RIVER
CHANNEL
WAYNE CO
ESSEX CO
Ecorse Park
Memorial Park
Ford Park
Carr Sch
La Blanc Field
Playground
Woodruff Sch
Taft Sch
Wilson Jr High Sch
Jefferson Sch
Labadie Sch
Mixter Sch
Calvary Sch
Keppen Sch
Goodell Sch
Lafayette Sch
Mark Twain Sch
Miller Sch
John F Kennedy Sch
Ecorse High Sch
Ecorse Sch No 2
School No 3
Municipal Bldg
City Hall
Hospital
Visger Sch
White Sch
St Henry Sch
Rapp Sch
Lincoln Park High Sch
Cemetery
Light
Lights
AQUEDUCT
CORP BDY
CITY OF ECORSE FIS
5555-16
NORTH ECORSE CREEK
SCALE 1" = 800'
COMMUNITY BOUNDARY
FLOODED OUTLINE

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Ecorse

3) WATERCOURSE: North Ecorse Creek

4) DOCUMENT TYPE: 100 year

00BREAK00

100-year

WATERCOURSE: North Branch Ecorse Creek
CITY/TOWNSHIP: Ecorse
COUNTY: Wayne

| STATION | LOCATION | CWSEL | EG | Q |
|---|---|---|---|---|
| 1 | Confluence of Ecorse & Detroit Rivers | 574.90 | 575.51 | 4410 |
| 30 | 29' u/s of confluence | 574.95 | 575.55 | 4410 |
| 60 | 1' d/s of Jefferson Street Br. | 574.99 | 575.60 | 4410 |
| 61 | d/s face of Jefferson Street Br. | 574.93 | 575.66 | 4410 |
| 136 | u/s face of Jefferson Street Br. | 575.16 | 575.84 | 4410 |
| 137 | 1' u/s of Jefferson Street Br. | 575.34 | 575.88 | 4410 |
| 187 | 51' u/s of Jefferson Street Br. | 575.36 | 575.98 | 4410 |
| 362 | 226' u/s of Jefferson Street Br. | 575.94 | 576.25 | 4410 |
| 737 | 51' d/s of d/s face of R.R. Br. #1 | 576.24 | 576.50 | 4410 |
| 787 | 1' d/s of d/s face of R.R. Br. #1 | 576.20 | 576.48 | 4410 |
| 788 | d/s face of (T & I ) R.R. Br. #1 | 576.15 | 576.67 | 4410 |
| 797 | u/s face of (T & I) R.R. Br. #1 | 576.19 | 576.71 | 4410 |
| 798 | 1' u/s of (T & I) R.R. Br. #1 | 576.32 | 576.78 | 4410 |
| 844 | 47' u/s of (T & I) R.R. Br. #1 | 576.37 | 576.87 | 4410 |
| 845 | d/s face of (T & I) R.R. Br. #2 | 576.33 | 576.81 | 4410 |
| 859 | u/s face of (T & I) R.R. Br. #2 | 576.38 | 576.85 | 4410 |
| 860 | 1' u/s of (T & I) R.R. Br. #2 | 576.48 | 576.88 | 4410 |
| 910 | 50' u/s of (T & I) R.R. Br. #2 | 576.56 | 576.92 | 4410 |
| 911 | d/s face of (T & I) R.R. Br. #3 | 576.52 | 576.96 | 4410 |
| 921 | u/s face of (T & I) R.R. Br. #3 | 576.55 | 576.99 | 4410 |
| 922 | 1' u/s of (T & I) R.R. Br. #3 | 576.66 | 577.02 | 4410 |
| 953 | 1' d/s of (T & I) R.R. Br. #4 | 576.53 | 577.14 | 4410 |
| 954 | d/s face of (T & I) R.R. Br. #4 | 576.44 | 577.29 | 4410 |
| 985 | u/s face of (T & I) R.R. Br. #4 | 576.66 | 577.47 | 4410 |
| 986 | 1' u/s of (T & I) R.R. Br. #4 | 576.07 | 577.57 | 4410 |
| 1036 | 51' u/s of (T & I) R.R. Br. #4 | 577.24 | 577.64 | 4410 |
| 1736 | 700' d/s of confluence of N. Ecorse Ri. | 577.86 | 578.18 | 4410 |
| 2436 | Confluence of N. Ecorse Ri. & Sexton-Kilfoil | 578.27 | 578.57 | 4410 |
| 2736 | Confluence of N. Branch and Sexton-Kilfoil | 578.62 | 578.76 | 2100 |
| 3436 | 1000' u/s of confluence | 578.89 | 579.04 | 2100 |
| 3836 | 989' d/s of Mill Street Br. | 579.06 | 579.20 | 2100 |
| 4311 | 534' d/s of Mill Street Br. | 579.40 | 579.63 | 2100 |
| 4786 | 39' d/s of Mill Street Br. | 579.73 | 579.89 | 2100 |
| 4825 | d/s face of Mill Street Br. | 579.77 | 579.91 | 2100 |
| 4846 | u/s face of Mill Street Br. | 579.87 | 580.01 | 2100 |
| 4847 | 1' u/s of Mill Street Br. | 579.87 | 580.01 | 2100 |
| 5436 | 590' u/s of Mill Street Br. | 580.10 | 580.29 | 2100 |
| 5936 | 1090' u/s of Mill St. at White Street | 580.38 | 580.55 | 2100 |
| 6416 | 1200' d/s of Southfield Road | 580.60 | 580.87 | 2100 |
| 6786 | 50' d/s of Southfield Road | 580.88 | 581.24 | 2100 |
| 6836 | 1' d/s of Southfield Road | 581.08 | 581.29 | 2100 |
| 6917 | 1' u/s of Southfield Road | 581.54 | 581.83 | 2100 |
| 7436 | 520' u/s of Southfield Road | 582.00 | 582.23 | 2100 |
| 7936 | 1020' u/s of Southfield Rd @ Russell St. | 582.30 | 582.51 | 2100 |
| 8536 | 1620' u/s of Southfield Road | 582.63 | 582.80 | 2100 |
| 9136 | 2220' u/s of Southfield Rd. @ Montie Road | 582.87 | 583.01 | 2100 |
| 9586 | 2670' u/s of Southfield Road | 583.01 | 583.17 | 2100 |
| 9596 | 2680' u/s of Southfield Road | 583.04 | 583.18 | 2100 |
| 10286 | 3220' u/s of Southfield Rd. & 50' d/s of Empire | 583.37 | 583.48 | 2100 |
| 10336 | 3270' u/s of Southfield Rd. @ Empire St. | 583.35 | 583.55 | 2100 |
| 10636 | 3570' u/s of Southfield Rd. | 583.53 | 583.74 | 2100 |
| 11536 | 4270' u/s of Southfield Rd. | 584.34 | 584.46 | 2100 |

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C
C      25
C      61          D/S FACE JEFFERSON STREET BRIDGE
C     136          U/S FACE JEFFERSON STREET BRIDGE
C     788          D/S FACE RR BRIDGE #1
C     797          U/S FACE RR BRIDGE #1
C     845          D/S FACE RR BRIDGE #2
C     859          U/S FACE RR BRIDGE #2
C     911          D/S FACE RR BRIDGE #3
C     921          U/S FACE RR BRIDGE #3
C     954          D/S FACE RR BRIDGE #4
C     985          U/S FACE RR BRIDGE #4
C    2436   CONFLUENCE OF THE NORTH ECORSE RIVER @ SEXTON-KILFOIL DRAIN
C    2736          2089 FT D/S OF MILL ST BR
C    3836          989 FEET D/S OF MILL STREET BRIDGE
C    4786          39 FEET D/S OF MILL STREET BRIDGE
C    4825          D/S FACE OF MILL STREET BRIDGE-TRUSS BRIDGE
C    4846          U/S FACE OF MILL STREET BRIDGE
C    5936          1090 FEET U/S OF MILL STREET BRIDGE AT WHITE STREET
C    6786          49 FEET D/S OF SOUTHFIELD ROAD BRIDGE
C    6836          D/S FACE OF SOUTHFIELD ROAD BRIDGE-SINGLE PIER-CONCRETE
C    6916          U/S FACE OF SOUTHFIELD ROAD BRIDGE
C    7936          1020 FEET U/S OF SOUTHFIELD ROAD BRIDGE AT RUSSELL STREET
C    9136          2220 FEET U/S OF SOUTHFIELD ROAD BRIDGE AT MONTIE AVENUE
C   10286          50 FT D/S OF EMPIRE STREET
C   10336          AT EMPIRE STREET
C   11536          1200 FT U/S OF EMPIRE ST
T1        CITY OF ECORSE  5555-16
T2        NORTH BRANCH OF ECORSE CREEK
T3         10 YEAR FLOOD-1500 CFS
J1    -10        2                                                  574.90
J2      1                -1
J3      1       34        4       10       11       25       26
NC  0.035    0.035    0.032      0.3      0.5
QT      4     3165     4100     4410     5160
X1      1       41      500      619
GR  576.2        0    575.9      100    576.6      200    578.5      300    581.1      400
GR  584.6      500    582.8      500    582.6      505    581.9      510    581.1      515
GR  579.2      520    575.4      525    574.8      530    572.8      535    569.2      540
GR  569.2      540    565.5    543.5    565.5    543.5    565.5      545    563.9      555
GR  566.1      560    565.3      565    565.4      570    564.1      575    566.2      580
GR  566.2      580    565.3    583.5    565.3    583.5    565.3      585    563.4      590
GR  564.4      595    565.4      600    567.7      605    571.1      610    573.5      615
GR  574.0      619    584.6      619    582.3      700    579.6      800    579.0      890
GR  578.7     1000
X1     30                                 29       29       29
X1     60       41      500      619       30       30       30
GR  576.2        0    575.9      100    576.6      200    578.5      300    581.1      400
GR  584.6      500    582.8      500    582.6      505    581.9      510    581.1      515
GR  579.2      520    575.4      525    574.8      530    572.8      535    569.2      540
GR  569.2      540    565.5    543.5    565.5    543.5    565.5      545    563.9      555
GR  566.1      560    565.3      565    565.4      570    564.1      575    566.2      580
GR  566.2      580    565.3    583.5    565.3    583.5    565.3      585    563.4      590
GR  564.4      595    565.4      600    567.7      605    571.1      610    573.5      615
GR  574.0      619    584.6      619    582.3      700    579.6      800    579.0      890
GR  578.7     1000
X1     61       41      500      619        1        1        1
BT      9    500.0    584.3    579.8    500.0    587.7    579.8    540.0    588.1    580.3
BT  543.5    588.1    580.3    560.0    588.3    580.3    580.0    588.1    580.3    583.5
BT  588.1    580.3    619.0    587.7    579.7    619.0    584.4    579.7
GR  576.2        0    575.9      100    576.6      200    578.5      300    581.1      400
GR  584.6      500    582.8      500    582.6      505    581.9      510    581.1      515
    579.2      520    575.4      525    574.8      530    572.8      535    569.2      540
        3      540    580.3    543.5    565.5    543.5    565.5      545    563.9      555
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640

DNR COPY

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$$$$$$$$   $$$$$$   $$$$$ $  $$$$$$$$   $$$$$ $   $$$$$$   $$$$$$
$$         $$    $$  $$    $      $$     $$    $   $$    $$  $$    $$
$$         $$        $$   $$$      $$     $$   $$$  $$    $$  $$    $$
$$$$$      $$        $$  $ $$      $$     $$  $ $$  $$    $$  $$    $$
$$         $$        $$ $$ $$      $$     $$ $$ $$  $$    $$  $$    $$
$$         $$        $$ $  $$      $$     $$ $  $$   $$$$$$$   $$$$$$$
$$         $$        $$$   $$      $$     $$$   $$        $$        $$
$$         $$    $$  $    $$  $$ $$      $    $$  $$    $$  $$    $$
$$$$$$$$   $$$$$$   $ $$$$$   $$$      $ $$$$$   $$$$$$   $$$$$$
ECOJ099  JA DA          05/04/77  08.47.25  7600   JO
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CITY OF ECORSE FIS
NORTH ECORSE CREEK

Revision
Rec'd 8-11-77

S C O P E  2  L O A D  M A P

LOADER VERSION 1.0  05/04/77  08.47.30  PAGE  1

PROGRAM WILL BE ENTERED AT HEC2  ( 373)

SCM LENGTH  146657  LCM LENGTH  0

| BLOCK | ADDRESS | LENGTH |
|---|---|---|
| /ALPHA/ | 100 | 101 |
| HEC2 | 201 | 11606 |
| CARD | 12007 | 1673 |
| SUMPO | 13702 | 1063 |
| CHIMP | 14765 | 1645 |
| DC | 16632 | 703 |
| FLOOTS | 17535 | 444 |
| BLFLO | 20201 | 1003 |
| ADDPTS | 21204 | 334 |
| BWEIR | 21540 | 1356 |
| YCRIT | 23115 | 122 |
| SLARA | 23240 | 256 |
| SCALE | 23516 | 246 |
| XSEC | 23764 | 1264 |
| PROF | 25250 | 1142 |
| EXP | 26412 | 102 |
| /ECL.C./ | 26514 | 23 |
| /Q8.IO./ | 26537 | 137 |
| /HEADING/ | 26676 | 16 |
| OUTC= | 26714 | 1017 |
| Q8 TRY= | 27733 | 1 |
| CO IO= | 27734 | 44 |
| ENDFIL= | 30000 | 45 |
| FECMSK= | 30045 | 41 |
| FLTIN= | 30106 | 154 |
| FLTOUT= | 30262 | 314 |
| FWTAP= | 30576 | 372 |
| FORSYS= | 31170 | 556 |
| FORUTL= | 31746 | 16 |
| GETFIT= | 31764 | 43 |
| INCOM= | 32027 | 257 |
| INPC= | 32306 | 173 |
| KODER= | 32501 | 467 |
| KRAKER= | 33170 | 454 |
| OUTCOM= | 33644 | 203 |
| RELIND= | 34047 | 35 |
| GOTOFR= | 34104 | 14 |
| ALOG | 34120 | 77 |
| ITOJ* | 34217 | 52 |
| SYSAID= | 34271 | 1 |
| SYS=1ST | 34272 | 62 |
| XTOY* | 34354 | 55 |
| // | 34431 | 112225 |

```
*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************


C
1       CITY OF ECORSE    5555-16    DIC  ZANOTTI  P.M.
T2       10 YEAR FLOOD
T3       NORTH BRANCH OF ECORSE CREEK

J1  ICHECK    INO       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -0.        2.       -0.       -0. -0.000000     -0.00      -0.0      -0.   574.900   -0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBT       CHNIM     ITRACE

     1.000    -0.000    -1.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

J3      1.000     10.000     11.000     12.000     14.000      4.000      4.000     -0.000     -0.000     -0.000
NC       .035       .035       .030       .300       .500     -0.000     -0.000     -0.000     -0.000     -0.000
QT      4.000   3165.000   4100.000   4410.000   5160.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1      1.000     41.000    500.000    619.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
GR    576.200      0.000    575.900    100.000    576.600    200.000    578.500    300.000    581.100    400.000
GR    584.600    500.000    582.800    500.000    582.600    505.000    581.900    510.000    581.100    515.000
GR    579.200    520.000    575.400    525.000    574.800    530.000    572.800    535.000    569.200    540.000
GR    569.200    540.000    565.500    543.500    565.500    543.500    565.500    545.000    563.900    555.000
GR    566.100    560.000    565.300    565.000    565.400    570.000    564.100    575.000    566.200    580.000
GR    566.200    580.000    565.300    583.500    565.300    583.500    565.300    585.000    563.400    590.000
GR    564.400    595.000    565.400    600.000    567.700    605.000    571.100    610.000    573.500    615.000
GR    574.000    619.000    584.600    619.000    582.300    700.000    579.600    800.000    579.000    890.000
GR    578.700   1000.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     30.000     -0.000     -0.000     -0.000     29.000     29.000     29.000     -0.000     -0.000     -0.000

X1     60.000     41.000    500.000    619.000     30.000     30.000     30.000     -0.000     -0.000     -0.000
GR    576.200      0.000    575.900    100.000    576.600    200.000    578.500    300.000    581.100    400.000
GR    584.600    500.000    582.800    500.000    582.600    505.000    581.900    510.000    581.100    515.000
GR    579.200    520.000    575.400    525.000    574.800    530.000    572.800    535.000    569.200    540.000
GR    569.200    540.000    565.500    543.500    565.500    543.500    565.500    545.000    563.900    555.000
GR    566.100    560.000    565.300    565.000    565.400    570.000    564.100    575.000    566.200    580.000
GR    566.200    580.000    565.300    583.500    565.300    583.500    565.300    585.000    563.400    590.000
GR    564.400    595.000    565.400    600.000    567.700    605.000    571.100    610.000    573.500    615.000
GR    574.000    619.000    584.600    619.000    582.300    700.000    579.600    800.000    579.000    890.000
GR    578.700   1000.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     61.000     41.000    500.000    619.000      1.000      1.000      1.000     -0.000     -0.000     -0.000
BT      9.000    500.000    584.600    579.800    500.000    587.700    579.800    540.000    588.100    580.300
BT    543.500    588.100    580.300    560.000    583.300    580.300    580.000    585.100    580.300    583.500
BT    588.100    580.300    619.000    587.700    579.700    619.000    584.400    579.700     -0.000     -0.000
GR    576.200      0.000    575.900    100.000    576.600    200.000    578.500    300.000    581.100    400.000
GR    584.600    500.000    582.800    500.000    582.600    505.000    581.900    510.000    581.100    515.000
GR    579.200    520.000    575.400    525.000    574.800    530.000    572.800    535.000    569.200    540.000
GR    580.300    540.000    580.300    543.500    565.500    543.500    565.500    545.000    563.900    555.000
GR    566.100    560.000    565.300    565.000    565.400    570.000    564.100    575.000    566.200    580.000
GR    580.300    580.000    580.300    583.500    565.300    583.500    565.300    585.000    563.400    590.000
GR    564.400    595.000    565.400    600.000    567.700    605.000    571.100    610.000    573.500    615.000
GR    574.000    619.000    584.600    619.000    582.300    700.000    579.600    800.000    579.000    890.000
GR    578.700   1000.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 136.000 | -0.000 | 500.000 | 619.000 | 75.000 | 75.000 | 75.000 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| X1 | 137.000 | 41.000 | 500.000 | 619.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| GR | 576.200 | 0.000 | 575.900 | 100.000 | 576.600 | 200.000 | 578.500 | 300.000 | 581.100 | 400.000 |
| GR | 584.600 | 500.000 | 582.800 | 600.000 | 582.600 | 505.000 | 581.900 | 610.000 | 581.100 | 615.000 |
| GR | 579.200 | 520.000 | 575.400 | 525.000 | 574.800 | 530.000 | 572.800 | 535.000 | 569.200 | 540.000 |
| GR | 569.200 | 540.000 | 565.500 | 541.500 | 565.500 | 543.500 | 565.500 | 545.000 | 563.400 | 555.000 |
| GR | 566.100 | 560.000 | 565.300 | 565.000 | 565.400 | 570.000 | 564.100 | 575.000 | 566.200 | 580.000 |
| GR | 566.200 | 580.000 | 565.300 | 583.500 | 565.300 | 583.500 | 565.300 | 585.000 | 563.400 | 590.000 |
| GR | 564.400 | 595.000 | 565.400 | 600.000 | 567.700 | 605.000 | 571.100 | 610.000 | 573.500 | 615.000 |
| GR | 574.000 | 619.000 | 584.600 | 619.000 | 582.300 | 700.000 | 579.600 | 800.000 | 579.000 | 890.000 |
| GR | 578.700 | 1000.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .035 | .042 | .030 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 187.000 | 27.000 | 331.000 | 441.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 |
| GR | 575.800 | 0.000 | 576.600 | 41.000 | 578.500 | 141.000 | 580.600 | 241.000 | 583.100 | 331.000 |
| GR | 575.400 | 341.000 | 574.800 | 346.000 | 571.300 | 351.000 | 568.100 | 356.000 | 567.200 | 361.000 |
| GR | 565.700 | 366.000 | 565.100 | 371.000 | 565.500 | 376.000 | 565.100 | 381.000 | 564.700 | 391.000 |
| GR | 564.100 | 401.000 | 564.400 | 406.000 | 565.700 | 411.000 | 568.200 | 416.000 | 570.500 | 421.000 |
| GR | 572.800 | 426.000 | 574.800 | 432.000 | 580.200 | 441.000 | 583.600 | 454.000 | 581.000 | 541.000 |
| GR | 579.300 | 641.000 | 578.300 | 698.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NH | 4.000 | .035 | 244.000 | .030 | 360.000 | .070 | 400.000 | .045 | 400.000 | -0.000 |
| X1 | 362.000 | 35.000 | 244.000 | 400.000 | 175.000 | 175.000 | 175.000 | -0.000 | .270 | -0.000 |
| GR | 580.200 | 0.000 | 579.500 | 100.000 | 578.300 | 200.000 | 578.300 | 244.000 | 574.600 | 254.000 |
| GR | 573.600 | 255.000 | 571.500 | 260.000 | 569.800 | 265.000 | 568.500 | 270.000 | 567.600 | 275.000 |
| GR | 566.900 | 280.000 | 565.900 | 285.000 | 565.600 | 290.000 | 563.700 | 300.000 | 563.700 | 310.000 |
| GR | 564.300 | 320.000 | 565.800 | 330.000 | 568.200 | 340.000 | 569.800 | 345.000 | 571.100 | 350.000 |
| GR | 571.600 | 355.000 | 572.400 | 360.000 | 572.100 | 365.000 | 572.600 | 370.000 | 572.600 | 375.000 |
| GR | 572.800 | 380.000 | 572.800 | 385.000 | 572.900 | 390.000 | 574.600 | 395.000 | 576.900 | 400.000 |
| GR | 577.600 | 500.000 | 577.700 | 545.000 | 577.500 | 600.000 | 577.700 | 700.000 | 577.500 | 800.000 |
| X1 | 737.000 | 35.000 | 244.000 | 400.000 | 375.000 | 375.000 | 375.000 | -0.000 | -0.000 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | 244.000 | -0.000 | 373.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 580.200 | 0.000 | 579.500 | 100.000 | 578.300 | 200.000 | 578.300 | 244.000 | 574.600 | 254.000 |
| GR | 573.600 | 255.000 | 571.500 | 260.000 | 569.800 | 265.000 | 568.500 | 270.000 | 567.600 | 275.000 |
| GR | 566.900 | 280.000 | 565.900 | 285.000 | 565.600 | 290.000 | 563.700 | 300.000 | 563.700 | 310.000 |
| GR | 564.300 | 320.000 | 565.800 | 330.000 | 568.200 | 340.000 | 569.800 | 345.000 | 571.100 | 350.000 |
| GR | 571.600 | 355.000 | 572.400 | 360.000 | 572.100 | 365.000 | 572.600 | 370.000 | 572.600 | 375.000 |
| GR | 572.800 | 380.000 | 572.800 | 385.000 | 572.900 | 390.000 | 574.600 | 395.000 | 576.900 | 400.000 |
| GR | 577.600 | 500.000 | 577.700 | 545.000 | 577.500 | 600.000 | 577.700 | 700.000 | 577.500 | 800.000 |
| NC | .035 | .042 | .032 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 787.000 | 67.000 | 795.000 | 901.600 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 |
| GR | 581.500 | 0.000 | 581.400 | 95.000 | 581.300 | 195.000 | 581.200 | 295.000 | 581.100 | 395.000 |
| GR | 581.100 | 495.000 | 581.100 | 595.000 | 581.000 | 695.000 | 581.000 | 795.000 | 575.200 | 795.000 |
| GR | 574.500 | 800.000 | 574.500 | 800.000 | 574.500 | 801.000 | 574.500 | 801.000 | 574.000 | 805.000 |
| GR | 573.200 | 810.000 | 573.200 | 810.000 | 573.200 | 811.000 | 573.200 | 811.000 | 570.900 | 815.000 |
| GR | 569.300 | 820.000 | 570.100 | 825.000 | 570.100 | 825.000 | 570.100 | 826.000 | 570.100 | 826.000 |
| GR | 566.600 | 829.900 | 566.600 | 829.900 | 566.600 | 831.200 | 566.600 | 831.200 | 565.500 | 835.000 |
| GR | 565.500 | 835.000 | 565.500 | 836.000 | 565.500 | 836.000 | 563.900 | 840.000 | 564.500 | 845.000 |
| GR | 564.500 | 845.000 | 564.500 | 846.000 | 564.500 | 846.000 | 564.300 | 850.000 | 564.900 | 855.000 |
| GR | 564.900 | 855.000 | 564.900 | 856.000 | 564.900 | 856.000 | 565.500 | 860.000 | 565.200 | 865.000 |
| GR | 565.200 | 865.000 | 565.200 | 866.300 | 565.300 | 866.300 | 566.000 | 870.000 | 566.000 | 875.000 |
| GR | 566.000 | 875.000 | 566.000 | 876.000 | 566.000 | 876.000 | 566.700 | 880.000 | 568.700 | 885.000 |
| GR | 568.300 | 890.000 | 569.700 | 895.000 | 571.700 | 900.000 | 571.700 | 901.600 | 581.000 | 901.600 |
| GR | 580.800 | 995.000 | 580.800 | 1095.000 | 580.600 | 1195.000 | 580.400 | 1295.000 | 580.100 | 1395.000 |
| GR | 579.900 | 1495.000 | 580.000 | 1540.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 788.000 | 67.000 | 795.000 | 901.600 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| BT | 4.000 | 795.000 | 581.000 | 577.200 | 830.000 | 581.000 | 577.200 | 1.000 | 581.000 | 577.200 |
| BT | 901.600 | 581.000 | 577.200 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 581.500 | 0.000 | 581.400 | 95.000 | 581.300 | 195.000 | 581.200 | 295.000 | 581.100 | 395.000 |
| GR | 581.100 | 495.000 | 581.100 | 595.000 | 581.000 | 695.000 | 581.000 | 795.000 | 575.200 | 795.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 573.200 | 810.000 | 575.500 | 810.000 | 575.500 | 811.000 | 573.200 | 811.000 | 570.800 | 815.000 |
| GR | 569.300 | 820.000 | 570.100 | 825.000 | 575.500 | 825.000 | 575.500 | 826.000 | 570.100 | 826.000 |
| GR | 566.600 | 830.000 | 577.200 | 830.000 | 577.200 | 831.300 | 566.600 | 831.300 | 565.500 | 835.000 |
| GR | 575.500 | 835.000 | 575.500 | 836.000 | 565.500 | 836.000 | 563.900 | 840.000 | 564.500 | 845.000 |
| GR | 575.500 | 845.000 | 575.500 | 846.000 | 564.500 | 846.000 | 564.900 | 850.000 | 564.900 | 855.000 |
| GR | 575.500 | 855.000 | 575.500 | 856.000 | 564.900 | 856.000 | 565.500 | 860.000 | 565.200 | 865.000 |
| GR | 577.200 | 865.000 | 577.200 | 866.300 | 565.200 | 866.300 | 566.000 | 870.000 | 566.000 | 875.000 |
| GR | 575.500 | 875.000 | 575.500 | 876.000 | 566.000 | 876.000 | 566.700 | 880.000 | 568.700 | 885.000 |
| GR | 568.300 | 890.000 | 569.700 | 895.000 | 571.700 | 900.000 | 571.700 | 901.600 | 581.000 | 901.600 |
| GR | 580.800 | 995.000 | 580.800 | 1095.000 | 580.600 | 1195.000 | 580.400 | 1295.000 | 580.100 | 1395.000 |
| GR | 579.900 | 1495.000 | 580.000 | 1540.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 797.000 | 0.000 | 795.000 | 901.600 | 0.000 | 0.000 | 0.000 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| X1 | 798.000 | 67.000 | 795.000 | 901.600 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| GR | 581.500 | 0.000 | 581.400 | 95.000 | 581.300 | 195.000 | 581.200 | 295.000 | 581.100 | 395.000 |
| GR | 581.100 | 495.000 | 581.100 | 595.000 | 581.000 | 695.000 | 581.000 | 795.000 | 575.200 | 795.000 |
| GR | 574.500 | 800.000 | 574.500 | 800.000 | 574.500 | 801.000 | 574.500 | 801.000 | 574.000 | 805.000 |
| GR | 573.200 | 810.000 | 573.200 | 810.000 | 573.200 | 811.000 | 573.200 | 811.000 | 570.800 | 815.000 |
| GR | 569.300 | 820.000 | 570.100 | 825.000 | 570.100 | 825.000 | 570.100 | 826.000 | 570.100 | 826.000 |
| GR | 566.600 | 829.900 | 566.600 | 829.900 | 566.600 | 831.200 | 566.600 | 831.200 | 565.500 | 835.000 |
| GR | 565.500 | 835.000 | 565.500 | 836.000 | 565.500 | 836.000 | 563.900 | 840.000 | 564.500 | 845.000 |
| GR | 564.500 | 845.000 | 564.500 | 846.000 | 564.500 | 846.000 | 564.900 | 850.000 | 564.900 | 855.000 |
| GR | 564.900 | 855.000 | 564.900 | 856.000 | 564.900 | 856.000 | 565.500 | 860.000 | 565.200 | 865.000 |
| GR | 565.200 | 865.000 | 565.200 | 866.300 | 565.300 | 866.300 | 566.000 | 870.000 | 566.000 | 875.000 |
| GR | 566.000 | 875.000 | 566.000 | 876.000 | 566.000 | 876.000 | 566.700 | 880.000 | 568.700 | 885.000 |
| GR | 568.300 | 890.000 | 569.700 | 895.000 | 571.700 | 900.000 | 571.700 | 901.600 | 581.000 | 901.600 |
| GR | 580.800 | 995.000 | 580.800 | 1095.000 | 580.600 | 1195.000 | 580.400 | 1295.000 | 580.100 | 1395.000 |
| GR | 579.900 | 1495.000 | 580.000 | 1540.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 844.000 | 58.000 | 815.000 | 924.000 | 46.000 | 46.000 | 45.000 | -0.000 | -0.000 | -0.000 |
| GR | 583.400 | 0.000 | 583.400 | 15.000 | 583.100 | 115.000 | 582.900 | 215.000 | 582.800 | 315.000 |
| GR | 582.600 | 415.000 | 582.300 | 515.000 | 582.100 | 615.000 | 581.800 | 715.000 | 581.500 | 815.000 |
| GR | 576.100 | 815.000 | 574.200 | 820.000 | 572.700 | 825.000 | 570.000 | 829.000 | 570.000 | 829.000 |
| GR | 570.000 | 830.000 | 570.000 | 830.000 | 568.000 | 835.000 | 565.900 | 40.000 | 565.000 | 844.000 |
| GR | 565.000 | 844.000 | 565.000 | 845.000 | 565.000 | 845.000 | 565.000 | 55.000 | 566.000 | 854.000 |
| GR | 566.000 | 864.000 | 566.000 | 865.000 | 566.000 | 865.000 | 566.100 | 874.000 | 566.100 | 874.000 |
| GR | 566.100 | 875.000 | 566.100 | 875.000 | 565.800 | 884.000 | 565.300 | 884.000 | 565.400 | 885.000 |
| GR | 565.800 | 885.000 | 565.600 | 890.000 | 565.200 | 894.000 | 565.200 | 94.000 | 565.200 | 895.000 |
| GR | 565.200 | 895.000 | 567.600 | 900.000 | 570.300 | 905.000 | 572.000 | 909.000 | 572.000 | 909.000 |
| GR | 572.000 | 910.000 | 572.000 | 910.000 | 574.000 | 915.000 | 575.100 | 20.000 | 576.200 | 924.000 |
| GR | 581.400 | 924.000 | 581.300 | 1015.000 | 581.300 | 1115.000 | 581.100 | 1215.000 | 581.100 | 1315.000 |
| GR | 581.100 | 1415.000 | 581.200 | 1515.000 | 581.200 | 1565.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 845.000 | 58.000 | 815.000 | 924.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| BT | 16.000 | 815.000 | 581.500 | 578.400 | 829.000 | 581.500 | 579.100 | 840.000 | 581.500 | 578.100 |
| BT | 844.000 | 581.500 | 577.900 | 845.000 | 581.500 | 577.900 | 864.000 | 581.500 | 577.500 | 855.000 |
| BT | 581.500 | 577.500 | 874.000 | 581.400 | 577.400 | 575.000 | 581.400 | 577.400 | 864.000 | 581.400 |
| BT | 577.200 | 885.000 | 581.400 | 577.200 | 894.000 | 581.400 | 577.000 | 895.000 | 581.400 | 577.000 |
| BT | 909.000 | 581.400 | 576.800 | 910.000 | 581.400 | 576.800 | 924.000 | 581.400 | 575.500 | -0.000 |
| GR | 583.400 | 0.000 | 583.400 | 15.000 | 583.100 | 115.000 | 582.900 | 215.000 | 582.800 | 315.000 |
| GR | 582.600 | 415.000 | 582.300 | 515.000 | 582.100 | 615.000 | 581.800 | 715.000 | 581.500 | 815.000 |
| GR | 576.100 | 815.000 | 574.200 | 820.000 | 572.700 | 825.000 | 570.000 | 829.000 | 578.100 | 829.000 |
| GR | 578.100 | 830.000 | 570.000 | 830.000 | 568.000 | 835.000 | 565.900 | 40.000 | 565.000 | 844.000 |
| GR | 577.900 | 844.000 | 577.900 | 845.000 | 565.000 | 845.000 | 565.000 | 55.000 | 566.000 | 854.000 |
| GR | 577.500 | 864.000 | 577.500 | 865.000 | 566.000 | 865.000 | 566.100 | 874.000 | 577.400 | 874.000 |
| GR | 577.400 | 875.000 | 566.100 | 875.000 | 565.800 | 884.000 | 577.200 | 884.000 | 577.200 | 885.000 |
| GR | 565.800 | 885.000 | 565.600 | 890.000 | 565.200 | 894.000 | 577.000 | 894.000 | 577.000 | 885.000 |
| GR | 565.200 | 895.000 | 567.600 | 900.000 | 570.300 | 905.000 | 572.000 | 909.000 | 576.900 | 909.000 |
| GR | 576.800 | 910.000 | 572.000 | 910.000 | 574.000 | 915.000 | 575.100 | 20.000 | 578.200 | 924.000 |
| GR | 581.400 | 924.000 | 581.300 | 1015.000 | 581.300 | 1115.000 | 581.100 | 1215.000 | 581.100 | 1315.000 |
| GR | 581.100 | 1415.000 | 581.200 | 1515.000 | 581.200 | 1565.000 | -0.001 | -0.000 | -0.000 | -0.000 |
| X1 | 859.000 | -0.000 | 815.000 | 924.000 | 14.500 | 14.500 | 14.500 | -0.100 | -0.000 | -0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | X1 | 860.000 | 58.000 | 815.000 | 924.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| | GR | 583.400 | 0.000 | 583.400 | 15.000 | 583.100 | 115.000 | 582.900 | 215.000 | 582.800 | 315.000 |
| | GR | 582.600 | 415.000 | 582.300 | 515.000 | 582.100 | 615.000 | 581.800 | 715.000 | 581.500 | 815.000 |
| | GR | 576.100 | 815.000 | 574.200 | 820.000 | 572.700 | 825.000 | 570.000 | 824.000 | 570.000 | 829.000 |
| | GR | 570.000 | 830.000 | 570.000 | 830.000 | 568.000 | 835.000 | 565.900 | 840.000 | 565.000 | 844.000 |
| | GR | 565.000 | 844.000 | 565.000 | 845.000 | 565.000 | 845.000 | 565.000 | 855.000 | 566.000 | 854.000 |
| | GR | 566.000 | 864.000 | 566.000 | 865.000 | 566.000 | 865.000 | 566.100 | 874.000 | 566.100 | 874.000 |
| | GR | 566.100 | 875.000 | 566.100 | 875.000 | 565.800 | 884.000 | 565.800 | 884.000 | 565.800 | 885.000 |
| | GR | 565.800 | 885.000 | 565.600 | 890.000 | 565.200 | 894.000 | 565.200 | 894.000 | 565.200 | 895.000 |
| | GR | 565.200 | 895.000 | 567.600 | 900.000 | 570.300 | 905.000 | 572.000 | 909.000 | 572.000 | 909.000 |
| | GR | 572.000 | 910.000 | 572.000 | 910.000 | 574.000 | 915.000 | 575.100 | 920.000 | 576.200 | 924.000 |
| | GR | 581.400 | 924.000 | 581.300 | 1015.000 | 581.300 | 1115.000 | 581.100 | 1215.000 | 581.100 | 1315.000 |
| | GR | 581.100 | 1415.000 | 581.200 | 1515.000 | 581.200 | 1565.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 910.000 | 64.000 | 835.000 | 942.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 |
| | GR | 583.700 | 0.000 | 583.600 | 35.000 | 583.400 | 135.000 | 583.300 | 235.000 | 583.300 | 335.000 |
| | GR | 583.300 | 435.000 | 583.300 | 535.000 | 583.200 | 635.000 | 583.100 | 735.000 | 583.100 | 835.000 |
| | GR | 574.800 | 835.000 | 572.600 | 840.000 | 571.600 | 844.000 | 571.500 | 844.000 | 571.500 | 845.000 |
| | GR | 571.600 | 845.000 | 570.700 | 854.000 | 570.700 | 854.000 | 570.700 | 855.000 | 570.700 | 855.000 |
| | GR | 565.600 | 864.000 | 565.600 | 864.000 | 565.600 | 865.000 | 565.600 | 865.000 | 564.300 | 874.000 |
| | GR | 564.300 | 874.000 | 564.300 | 875.000 | 564.300 | 875.000 | 564.300 | 884.000 | 564.800 | 884.000 |
| | GR | 564.800 | 885.000 | 564.800 | 885.000 | 564.900 | 894.000 | 564.900 | 894.000 | 564.900 | 895.000 |
| | GR | 564.900 | 895.000 | 564.000 | 904.000 | 564.000 | 904.000 | 564.000 | 905.000 | 564.000 | 905.000 |
| | GR | 566.100 | 914.000 | 566.100 | 914.000 | 566.100 | 915.000 | 566.100 | 915.000 | 567.000 | 920.000 |
| | GR | 571.000 | 924.000 | 571.000 | 924.000 | 571.000 | 925.000 | 571.000 | 925.000 | 572.400 | 930.000 |
| | GR | 573.900 | 934.000 | 573.900 | 934.000 | 573.900 | 935.000 | 573.900 | 935.000 | 575.000 | 940.000 |
| | GR | 574.900 | 942.000 | 583.000 | 942.000 | 582.700 | 1035.000 | 582.600 | 1135.000 | 582.300 | 1235.000 |
| | GR | 582.100 | 1335.000 | 581.900 | 1435.000 | 581.800 | 1535.000 | 581.800 | 1585.000 | -0.000 | -0.000 |
| | X1 | 911.000 | 64.000 | 835.000 | 942.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| | BT | 6.000 | 835.000 | 583.100 | 578.600 | 874.000 | 583.100 | 578.600 | 875.000 | 583.100 | 578.600 |
| | BT | 904.000 | 583.000 | 578.600 | 905.000 | 583.000 | 578.600 | 942.000 | 583.000 | 578.600 | -0.000 |
| | GR | 583.700 | 0.000 | 583.600 | 35.000 | 583.400 | 135.000 | 583.300 | 235.000 | 583.300 | 335.000 |
| | GR | 583.300 | 435.000 | 583.300 | 535.000 | 583.200 | 635.000 | 583.100 | 735.000 | 583.100 | 835.000 |
| | GR | 574.800 | 835.000 | 572.600 | 840.000 | 571.600 | 844.000 | 575.500 | 844.000 | 575.500 | 845.000 |
| | GR | 571.600 | 845.000 | 570.700 | 854.000 | 575.500 | 854.000 | 575.500 | 855.000 | 570.700 | 855.000 |
| | GR | 565.600 | 864.000 | 575.500 | 864.000 | 575.500 | 865.000 | 565.600 | 865.000 | 564.300 | 874.000 |
| | GR | 578.600 | 874.000 | 578.600 | 875.000 | 564.300 | 875.000 | 564.800 | 884.000 | 575.500 | 884.000 |
| | GR | 575.500 | 885.000 | 564.800 | 885.000 | 564.900 | 894.000 | 575.500 | 894.000 | 575.500 | 895.000 |
| | GR | 564.900 | 895.000 | 564.000 | 904.000 | 578.600 | 904.000 | 578.600 | 905.000 | 564.000 | 905.000 |
| | GR | 566.100 | 914.000 | 575.500 | 914.000 | 575.500 | 915.000 | 566.100 | 915.000 | 567.000 | 920.000 |
| | GR | 571.000 | 924.000 | 575.500 | 924.000 | 575.500 | 925.000 | 571.000 | 925.000 | 572.400 | 930.000 |
| | GR | 573.900 | 934.000 | 575.500 | 934.000 | 575.500 | 935.000 | 573.900 | 935.000 | 575.000 | 940.000 |
| | GR | 574.900 | 942.000 | 583.000 | 942.000 | 582.700 | 1035.000 | 582.600 | 1135.000 | 582.300 | 1235.000 |
| | GR | 582.100 | 1335.000 | 581.900 | 1435.000 | 581.800 | 1535.000 | 581.800 | 1585.000 | -0.000 | -0.000 |
| | X1 | 921.000 | -0.000 | 835.000 | 942.000 | 10.000 | 10.000 | 10.000 | -0.000 | -0.000 | -0.000 |
| | X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 922.000 | 64.000 | 835.000 | 942.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| | GR | 583.700 | 0.000 | 583.600 | 35.000 | 583.400 | 135.000 | 583.300 | 235.000 | 583.300 | 335.000 |
| | GR | 583.300 | 435.000 | 583.300 | 535.000 | 583.200 | 635.000 | 583.100 | 735.000 | 583.100 | 835.000 |
| | GR | 574.800 | 835.000 | 572.600 | 840.000 | 571.600 | 844.000 | 571.500 | 844.000 | 571.500 | 845.000 |
| | GR | 571.600 | 845.000 | 570.700 | 854.000 | 570.700 | 854.000 | 571.700 | 855.000 | 570.700 | 855.000 |
| | GR | 565.600 | 864.000 | 565.600 | 864.000 | 565.600 | 865.000 | 565.500 | 865.000 | 564.300 | 874.000 |
| | GR | 564.300 | 874.000 | 564.300 | 875.000 | 564.300 | 875.000 | 564.300 | 884.000 | 564.800 | 884.000 |
| | GR | 564.800 | 885.000 | 564.800 | 885.000 | 564.900 | 894.000 | 564.900 | 894.000 | 564.900 | 895.000 |
| | GR | 564.900 | 895.000 | 564.000 | 904.000 | 564.000 | 904.000 | 564.000 | 905.000 | 564.000 | 905.000 |
| | GR | 566.100 | 914.000 | 566.100 | 914.000 | 566.100 | 915.000 | 566.100 | 915.000 | 567.000 | 920.000 |
| | GR | 571.000 | 924.000 | 571.000 | 924.000 | 571.000 | 925.000 | 571.000 | 925.000 | 572.400 | 930.000 |
| | GR | 573.900 | 934.000 | 573.900 | 934.000 | 573.900 | 935.000 | 573.900 | 935.000 | 575.000 | 940.000 |
| | GR | 574.900 | 942.000 | 583.000 | 942.000 | 582.700 | 1035.000 | 582.600 | 1135.000 | 582.300 | 1235.000 |
| | GR | 582.100 | 1335.000 | 581.900 | 1435.000 | 581.800 | 1535.000 | 581.800 | 1585.000 | -0.000 | -0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | [illegible] | 48.000 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 582.000 | 0.000 | 581.800 | 100.000 | 581.600 | 200.000 | 581.500 | 300.000 | 581.400 | 400.000 |
| GR | 581.200 | 500.000 | 581.000 | 600.000 | 571.000 | 600.000 | 568.100 | 605.000 | 566.900 | 610.000 |
| GR | 566.900 | 610.000 | 566.900 | 612.300 | 566.900 | 612.300 | 565.900 | 615.000 | 565.100 | 620.000 |
| GR | 565.100 | 620.000 | 565.100 | 622.300 | 565.100 | 622.300 | 566.300 | 625.000 | 566.200 | 630.000 |
| GR | 566.200 | 630.000 | 566.200 | 632.300 | 566.200 | 632.300 | 566.700 | 635.000 | 566.400 | 640.000 |
| GR | 566.100 | 645.000 | 566.400 | 650.000 | 566.400 | 650.000 | 566.400 | 652.300 | 566.400 | 652.300 |
| GR | 566.600 | 655.000 | 567.500 | 660.000 | 567.500 | 660.000 | 567.500 | 662.300 | 567.300 | 662.300 |
| GR | 567.500 | 665.000 | 569.900 | 670.000 | 569.900 | 670.000 | 569.900 | 672.300 | 569.900 | 672.300 |
| GR | 573.400 | 680.000 | 573.400 | 681.000 | 580.800 | 681.000 | 580.800 | 700.000 | 580.700 | 800.000 |
| GR | 580.600 | 900.000 | 590.600 | 1000.000 | 580.500 | 1100.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 954.000 | 48.000 | 600.000 | 681.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| BT | 14.000 | 600.000 | 581.000 | 577.700 | 610.000 | 581.000 | 577.700 | 612.300 | 581.000 | 577.700 |
| BT | 620.000 | 581.000 | 577.700 | 622.300 | 581.000 | 577.700 | 630.000 | 580.900 | 577.700 | 632.300 |
| BT | 580.900 | 577.700 | 650.000 | 580.900 | 577.600 | 652.300 | 580.900 | 577.600 | 660.000 | 580.900 |
| BT | 577.600 | 662.300 | 580.800 | 577.600 | 670.000 | 580.800 | 577.600 | 672.300 | 580.800 | 577.600 |
| BT | 681.000 | 580.800 | 577.600 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 582.000 | 0.000 | 581.800 | 100.000 | 581.600 | 200.000 | 581.500 | 300.000 | 581.400 | 400.000 |
| GR | 581.200 | 500.000 | 581.000 | 600.000 | 571.000 | 600.000 | 568.100 | 605.000 | 566.900 | 610.000 |
| GR | 577.700 | 610.000 | 577.700 | 612.300 | 566.900 | 612.300 | 565.900 | 615.000 | 565.100 | 620.000 |
| GR | 577.700 | 620.000 | 577.700 | 622.300 | 565.100 | 622.300 | 566.300 | 625.000 | 566.200 | 630.000 |
| GR | 577.700 | 630.000 | 577.700 | 632.300 | 566.200 | 632.300 | 566.700 | 635.000 | 566.400 | 640.000 |
| GR | 566.100 | 645.000 | 566.400 | 650.000 | 577.600 | 650.000 | 577.600 | 652.300 | 566.400 | 652.300 |
| GR | 566.600 | 655.000 | 567.500 | 660.000 | 577.600 | 660.000 | 577.600 | 662.300 | 567.300 | 662.300 |
| GR | 567.500 | 665.000 | 569.900 | 670.000 | 577.600 | 670.000 | 577.600 | 672.300 | 569.900 | 672.300 |
| GR | 573.400 | 680.000 | 573.400 | 681.000 | 580.800 | 681.000 | 580.800 | 700.000 | 580.700 | 800.000 |
| GR | 580.600 | 900.000 | 590.600 | 1000.000 | 580.500 | 1100.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 985.000 | -0.000 | 600.000 | 681.000 | 30.500 | 30.500 | 30.500 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| X1 | 986.000 | 48.000 | 600.000 | 681.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| GR | 582.000 | 0.000 | 581.800 | 100.000 | 581.600 | 200.000 | 581.500 | 300.000 | 581.400 | 400.000 |
| GR | 581.200 | 500.000 | 581.000 | 600.000 | 571.000 | 600.000 | 568.100 | 605.000 | 566.900 | 610.000 |
| GR | 566.900 | 610.000 | 566.900 | 612.300 | 566.900 | 612.300 | 565.900 | 615.000 | 565.100 | 620.000 |
| GR | 565.100 | 620.000 | 565.100 | 622.300 | 565.100 | 622.300 | 566.300 | 625.000 | 566.200 | 630.000 |
| GR | 566.200 | 630.000 | 566.200 | 632.300 | 566.200 | 632.300 | 566.700 | 635.000 | 566.400 | 640.000 |
| GR | 566.100 | 645.000 | 566.400 | 650.000 | 566.400 | 650.000 | 566.400 | 652.300 | 566.400 | 652.300 |
| GR | 566.600 | 655.000 | 567.500 | 660.000 | 567.500 | 660.000 | 567.500 | 662.300 | 567.500 | 662.300 |
| GR | 567.500 | 665.000 | 569.900 | 670.000 | 569.900 | 670.000 | 569.900 | 672.300 | 569.900 | 672.300 |
| GR | 573.400 | 680.000 | 573.400 | 681.000 | 580.800 | 681.000 | 580.800 | 700.000 | 580.700 | 800.000 |
| GR | 580.600 | 900.000 | 590.600 | 1000.000 | 580.500 | 1100.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .040 | .035 | .030 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 1036.000 | 37.000 | 565.000 | 700.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | 700.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 581.900 | 0.000 | 581.200 | 100.000 | 581.200 | 200.000 | 580.800 | 300.000 | 581.000 | 400.000 |
| GR | 579.900 | 500.000 | 581.100 | 555.000 | 575.400 | 587.300 | 574.900 | 590.000 | 574.400 | 595.000 |
| GR | 572.500 | 600.000 | 571.000 | 605.000 | 569.800 | 610.000 | 568.900 | 615.000 | 568.000 | 620.000 |
| GR | 567.400 | 625.000 | 566.600 | 630.000 | 566.300 | 635.000 | 566.200 | 640.000 | 566.300 | 650.000 |
| GR | 566.800 | 660.000 | 568.300 | 670.000 | 570.200 | 675.000 | 570.400 | 650.000 | 571.700 | 635.000 |
| GR | 573.100 | 690.000 | 574.800 | 695.000 | 574.900 | 696.000 | 577.700 | 700.000 | 577.500 | 800.000 |
| GR | 576.600 | 900.000 | 576.600 | 1000.000 | 577.000 | 1000.000 | 576.800 | 1100.000 | 577.500 | 1200.000 |
| GR | 578.300 | 1300.000 | 579.200 | 1345.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .060 | .035 | .030 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 1736.000 | 40.000 | 374.000 | 492.500 | 700.000 | 700.000 | 700.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 374.000 | -0.000 | 492.500 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 580.400 | 0.000 | 580.400 | 167.000 | 579.500 | 283.700 | 575.800 | 336.300 | 575.100 | 374.000 |
| GR | 577.200 | 377.900 | 576.100 | 381.900 | 575.100 | 389.600 | 574.100 | 389.600 | 573.200 | 393.700 |
| GR | 572.400 | 397.700 | 571.500 | 401.600 | 570.300 | 405.600 | 569.400 | 409.500 | 568.400 | 413.500 |
| GR | 567.600 | 417.400 | 566.900 | 421.400 | 566.500 | 425.300 | 566.300 | 429.200 | 565.700 | 433.200 |
| GR | 565.500 | 437.200 | 565.400 | 441.100 | 565.500 | 445.000 | 565.500 | 449.000 | 565.400 | 453.000 |
| GR | 566.500 | 456.900 | 567.200 | 460.800 | 569.000 | 464.800 | 569.100 | 468.700 | 569.400 | 472.700 |
| GR | 570.600 | 476.600 | 571.700 | 480.600 | 573.400 | 484.500 | 575.100 | 488.500 | 577.500 | 492.500 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2436.000 | 31.000 | 183.000 | 285.000 | 700.000 | 700.000 | 700.000 | -0.000 | -0.000 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | 183.000 | -0.000 | 285.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 579.000 | 0.000 | 579.900 | 85.000 | 578.500 | 135.000 | 577.100 | 183.000 | 575.100 | 185.000 |
| GR | 573.500 | 190.000 | 572.200 | 195.000 | 571.100 | 200.000 | 570.200 | 205.000 | 568.500 | 210.000 |
| GR | 567.700 | 215.000 | 566.400 | 220.000 | 565.600 | 225.000 | 565.300 | 230.000 | 565.000 | 235.000 |
| GR | 564.600 | 240.000 | 564.600 | 245.000 | 565.200 | 250.000 | 566.400 | 255.000 | 567.800 | 260.000 |
| GR | 568.800 | 265.000 | 569.900 | 270.000 | 571.500 | 275.000 | 574.700 | 280.000 | 575.100 | 281.000 |
| GR | 577.400 | 285.000 | 577.300 | 385.000 | 578.200 | 485.000 | 577.700 | 557.000 | 578.600 | 585.000 |
| GR | 579.800 | 605.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .035 | .035 | .033 | .300 | .500 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| QT | 4.000 | 1500.000 | 1950.000 | 2100.000 | 2495.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 2736.000 | 26.000 | 300.000 | 400.000 | 300.000 | 300.000 | 300.000 | -0.000 | -0.000 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | 300.000 | -0.000 | 400.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 578.400 | 0.000 | 577.700 | 100.000 | 578.500 | 200.000 | 578.600 | 300.000 | 575.100 | 310.000 |
| GR | 573.400 | 315.000 | 572.200 | 320.000 | 570.600 | 325.000 | 570.000 | 330.000 | 569.900 | 335.000 |
| GR | 569.700 | 340.000 | 569.100 | 350.000 | 569.100 | 360.000 | 569.700 | 370.000 | 570.400 | 375.000 |
| GR | 571.700 | 380.000 | 572.900 | 385.000 | 574.400 | 390.000 | 575.100 | 392.000 | 578.600 | 400.000 |
| GR | 581.000 | 500.000 | 581.300 | 600.000 | 581.400 | 700.000 | 581.300 | 800.000 | 582.100 | 900.000 |
| GR | 583.200 | 1100.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 3436.000 | -0.000 | -0.000 | -0.000 | 700.000 | 700.000 | 700.000 | -0.000 | .380 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 300.000 | -0.000 | 400.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 3836.000 | 27.000 | 200.000 | 300.000 | 400.000 | 400.000 | 400.000 | -0.000 | -0.000 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | 200.000 | -0.000 | 300.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 580.700 | 0.000 | 579.200 | 100.000 | 578.500 | 200.000 | 575.000 | 207.000 | 574.000 | 210.000 |
| GR | 573.000 | 215.000 | 572.600 | 220.000 | 571.900 | 225.000 | 571.000 | 230.000 | 570.400 | 235.000 |
| GR | 570.000 | 240.000 | 569.700 | 245.000 | 570.000 | 250.000 | 570.700 | 255.000 | 572.100 | 260.000 |
| GR | 573.400 | 265.000 | 573.700 | 270.000 | 575.000 | 275.000 | 575.400 | 278.000 | 579.800 | 290.000 |
| GR | 580.300 | 300.000 | 580.400 | 400.000 | 581.000 | 500.000 | 581.500 | 600.000 | 582.200 | 700.000 |
| GR | 581.800 | 800.000 | 581.900 | 843.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 4311.000 | -0.000 | -0.000 | -0.000 | 475.000 | 475.000 | 475.000 | -0.000 | .200 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | 200.000 | -0.000 | 290.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 4786.000 | 29.000 | 393.000 | 500.000 | 475.000 | 475.000 | 475.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 393.000 | -0.000 | 500.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 582.100 | 0.000 | 581.200 | 100.000 | 580.800 | 200.000 | 581.100 | 212.000 | 580.300 | 300.000 |
| GR | 580.100 | 393.000 | 578.600 | 400.000 | 574.800 | 408.000 | 574.100 | 410.000 | 573.600 | 415.000 |
| GR | 573.200 | 420.000 | 572.700 | 425.000 | 571.800 | 430.000 | 570.800 | 435.000 | 570.500 | 440.000 |
| GR | 570.400 | 445.000 | 570.200 | 450.000 | 570.100 | 455.000 | 570.400 | 460.000 | 570.600 | 465.000 |
| GR | 571.400 | 470.000 | 572.600 | 475.000 | 573.700 | 480.000 | 574.400 | 483.000 | 579.200 | 489.000 |
| GR | 579.500 | 500.000 | 579.700 | 600.000 | 579.600 | 653.000 | 581.200 | 700.000 | -0.000 | -0.000 |
| X1 | 4825.000 | 37.000 | 500.000 | 598.000 | 39.000 | 39.000 | 39.000 | -0.000 | -0.000 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | 500.000 | 585.000 | 598.000 | 585.000 | -0.000 | -0.000 | -0.000 |
| GR | 581.900 | 0.000 | 582.000 | 20.000 | 581.800 | 100.000 | 581.300 | 200.000 | 581.100 | 300.000 |
| GR | 580.500 | 400.000 | 579.400 | 500.000 | 576.800 | 500.000 | 576.300 | 505.000 | 575.300 | 510.000 |
| GR | 574.800 | 515.000 | 573.600 | 520.000 | 572.900 | 525.000 | 572.000 | 530.000 | 571.600 | 535.000 |
| GR | 571.600 | 540.000 | 571.200 | 545.000 | 570.800 | 550.000 | 571.200 | 555.000 | 571.200 | 560.000 |
| GR | 571.100 | 565.000 | 571.200 | 570.000 | 571.700 | 575.000 | 572.300 | 580.000 | 573.200 | 585.000 |
| GR | 574.000 | 590.000 | 574.300 | 595.000 | 574.300 | 598.000 | 579.600 | 598.000 | 579.700 | 600.000 |
| GR | 579.600 | 700.000 | 579.700 | 751.000 | 579.600 | 800.000 | 590.100 | 900.000 | 590.400 | 1000.000 |
| GR | 580.900 | 1100.000 | 581.200 | 1200.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| SB | -0.000 | 1.300 | 2.500 | -0.000 | 51.700 | -0.000 | 538.000 | 3.170 | 570.800 | 570.800 |
| X1 | 4846.000 | -0.000 | -0.000 | -0.000 | 21.000 | 21.000 | 21.000 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | 1.000 | 578.300 | 579.400 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | 500.000 | 585.000 | 598.000 | 585.000 | -0.000 | -0.000 | -0.000 |
| BT | 10.000 | 0.000 | 581.900 | 0.000 | 20.000 | 232.000 | 0.000 | 100.000 | 581.800 | 0.000 |
| BT | 200.000 | 581.300 | 0.000 | 300.000 | 581.100 | 0.000 | 400.000 | 560.500 | 0.000 | 500.000 |
| BT | 579.400 | 578.200 | 598.000 | 579.600 | 578.300 | 600.000 | 579.700 | 0.000 | 700.000 | 579.600 |
| BT | 0.000 | 751.000 | 579.700 | 0.000 | 800.000 | 579.600 | 0.000 | 900.000 | 580.100 | 0.000 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | X1 | 4847.000 | -0.000 | -0.000 | -0.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| | X3 | -0.000 | -0.000 | -0.000 | 500.000 | 585.000 | 598.000 | 585.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 5436.000 | 34.000 | 494.000 | 594.000 | 589.000 | 589.000 | 589.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 579.740 | 0.000 | 578.940 | 94.000 | 579.740 | 194.000 | 580.140 | 272.000 | 580.340 | 294.000 |
| | GR | 581.940 | 394.000 | 580.840 | 494.000 | 574.740 | 506.000 | 574.240 | 508.000 | 573.940 | 509.000 |
| | GR | 573.240 | 514.000 | 572.840 | 519.000 | 571.840 | 524.000 | 571.140 | 529.000 | 570.740 | 534.000 |
| | GR | 570.640 | 539.000 | 570.840 | 544.000 | 571.840 | 549.000 | 572.940 | 554.000 | 573.240 | 559.000 |
| | GR | 573.440 | 564.000 | 573.740 | 569.000 | 574.240 | 574.000 | 574.740 | 576.000 | 581.140 | 594.000 |
| | GR | 580.740 | 658.000 | 580.840 | 694.000 | 581.340 | 794.000 | 581.940 | 794.000 | 582.440 | 994.000 |
| | GR | 582.940 | 1094.000 | 583.240 | 1194.000 | 582.940 | 1294.000 | 582.640 | 1349.000 | -0.000 | -0.000 |
| | X1 | 5936.000 | 34.000 | 494.000 | 594.000 | 500.000 | 500.000 | 500.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | 400.000 | -0.000 | 600.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 579.600 | 0.000 | 578.800 | 94.000 | 579.600 | 194.000 | 580.000 | 272.000 | 580.200 | 294.000 |
| | GR | 581.800 | 394.000 | 580.700 | 494.000 | 574.600 | 506.000 | 574.200 | 508.000 | 573.800 | 509.000 |
| | GR | 573.100 | 514.000 | 572.700 | 519.000 | 571.700 | 524.000 | 571.000 | 529.000 | 570.600 | 534.000 |
| | GR | 570.500 | 539.000 | 570.700 | 544.000 | 571.700 | 549.000 | 572.800 | 554.000 | 573.100 | 559.000 |
| | GR | 573.300 | 564.000 | 573.600 | 569.000 | 574.100 | 574.000 | 574.600 | 576.000 | 581.000 | 594.000 |
| | GR | 580.600 | 658.000 | 580.700 | 694.000 | 581.200 | 794.000 | 581.800 | 894.000 | 582.300 | 994.000 |
| | GR | 582.800 | 1094.000 | 583.100 | 1194.000 | 582.800 | 1294.000 | 582.500 | 1349.000 | -0.000 | -0.000 |
| | X1 | 6416.000 | 28.000 | 560.000 | 660.000 | 480.000 | 480.000 | 480.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 581.430 | 0.000 | 581.930 | 60.000 | 581.530 | 160.000 | 581.330 | 260.000 | 581.630 | 360.000 |
| | GR | 581.930 | 460.000 | 581.930 | 560.000 | 581.130 | 577.000 | 574.830 | 592.000 | 573.230 | 593.000 |
| | GR | 572.230 | 595.000 | 570.930 | 600.000 | 570.330 | 605.000 | 570.830 | 610.000 | 571.830 | 615.000 |
| | GR | 572.430 | 620.000 | 572.930 | 625.000 | 573.130 | 630.000 | 573.430 | 635.000 | 574.130 | 640.000 |
| | GR | 574.230 | 642.000 | 574.830 | 644.000 | 581.930 | 660.000 | 581.230 | 716.000 | 582.230 | 760.000 |
| | GR | 581.930 | 860.000 | 582.030 | 960.000 | 581.730 | 1010.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 6786.000 | 28.000 | 560.000 | 660.000 | 370.000 | 370.000 | 370.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 581.300 | 0.000 | 581.800 | 60.000 | 581.400 | 160.000 | 581.200 | 260.000 | 581.500 | 360.000 |
| | GR | 581.800 | 460.000 | 581.600 | 560.000 | 581.000 | 577.000 | 574.700 | 592.000 | 573.100 | 593.000 |
| | GR | 572.100 | 595.000 | 570.800 | 600.000 | 570.200 | 605.000 | 570.700 | 610.000 | 571.700 | 615.000 |
| | GR | 572.300 | 620.000 | 572.800 | 625.000 | 573.000 | 630.000 | 573.300 | 635.000 | 574.000 | 640.000 |
| | GR | 574.100 | 642.000 | 574.700 | 644.000 | 581.800 | 660.000 | 581.100 | 716.000 | 582.100 | 760.000 |
| | GR | 581.800 | 860.000 | 581.900 | 960.000 | 581.600 | 1010.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 6835.000 | -0.000 | -0.000 | -0.000 | 49.000 | 49.000 | 49.000 | -0.000 | 1.370 | -0.000 |
| | NC | -0.000 | -0.000 | .025 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 6836.000 | 40.000 | 900.000 | 973.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 582.000 | 0.000 | 582.900 | 100.000 | 582.800 | 200.000 | 582.000 | 300.000 | 581.700 | 400.000 |
| | GR | 581.300 | 500.000 | 580.700 | 600.000 | 580.900 | 700.000 | 581.400 | 800.000 | 582.000 | 900.000 |
| | GR | 574.400 | 900.000 | 574.000 | 905.000 | 573.200 | 910.000 | 572.200 | 915.000 | 572.600 | 920.000 |
| | GR | 571.600 | 925.000 | 572.100 | 930.000 | 573.500 | 935.000 | 578.200 | 935.000 | 578.200 | 938.000 |
| | GR | 573.600 | 938.000 | 573.800 | 940.000 | 573.400 | 945.000 | 572.200 | 950.000 | 572.000 | 955.000 |
| | GR | 572.700 | 960.000 | 573.600 | 965.000 | 574.500 | 970.000 | 574.700 | 973.000 | 582.000 | 973.000 |
| | GR | 582.000 | 976.000 | 581.600 | 1000.000 | 581.200 | 1100.000 | 581.000 | 1200.000 | 580.900 | 1300.000 |
| | GR | 581.500 | 1400.000 | 582.000 | 1500.000 | 582.600 | 1600.000 | 582.800 | 1700.000 | 583.000 | 1807.000 |
| | SH | .900 | 1.500 | 2.900 | -0.000 | 73.000 | 2.800 | 385.100 | -0.000 | 571.600 | 571.600 |
| | X1 | 6916.000 | -0.000 | -0.000 | -0.000 | 80.000 | 80.000 | 80.000 | -0.000 | -0.000 | -0.000 |
| | X2 | -0.000 | -0.000 | 1.000 | 578.300 | 583.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 583.000 | 583.000 | -0.000 |
| | BT | 23.000 | 0.000 | 582.000 | 0.000 | 100.000 | 582.900 | 0.000 | 200.000 | 582.800 | 0.000 |
| | BT | 300.000 | 582.000 | 0.000 | 400.000 | 581.700 | 0.000 | 500.000 | 581.300 | 0.000 | 600.000 |
| | BT | 580.700 | 0.000 | 700.000 | 580.900 | 0.000 | 800.000 | 581.400 | 0.000 | 900.000 | 582.000 |
| | BT | 578.300 | 935.000 | 582.000 | 578.200 | 938.000 | 582.000 | 578.200 | 973.000 | 582.000 | 578.200 |
| | BT | 976.000 | 582.000 | 0.000 | 1000.000 | 581.600 | 0.000 | 1100.000 | 581.200 | 0.000 | 1200.000 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | BT | 0.000 | 1600.000 | 582.600 | 0.000 | 1700.000 | 582.800 | 0.000 | 1607.000 | 583.000 | 0.000 |
| | NC | -0.000 | -0.000 | .033 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 6917.000 | 28.000 | 560.000 | 660.000 | 1.000 | 1.000 | 1.000 | -0.000 | 1.400 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| 1 | GR | 581.300 | 0.000 | 581.800 | 60.000 | 581.400 | 160.000 | 581.200 | 260.000 | 581.500 | 360.000 |
| 2 | GR | 581.800 | 460.000 | 581.800 | 560.000 | 581.000 | 577.000 | 574.700 | 592.000 | 573.100 | 593.000 |
| 3 | GR | 572.100 | 595.000 | 570.800 | 600.000 | 570.200 | 605.000 | 570.700 | 610.000 | 571.700 | 615.000 |
| 4 | GR | 572.300 | 620.000 | 572.800 | 625.000 | 573.000 | 630.000 | 573.300 | 635.000 | 574.000 | 640.000 |
| 5 | GR | 574.100 | 642.000 | 574.700 | 644.000 | 581.800 | 660.000 | 581.100 | 716.000 | 582.100 | 760.000 |
| 6 | GR | 581.800 | 860.000 | 581.900 | 960.000 | 581.600 | 1010.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| 7 | | | | | | | | | | | |
| 8 | X1 | 7436.000 | -0.000 | -0.000 | -0.000 | 519.000 | 519.000 | 519.000 | -0.000 | -.400 | -0.000 |
| 9 | X3 | 10.000 | -0.000 | -0.000 | 560.000 | -0.000 | 660.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| 10 | | | | | | | | | | | |
| 11 | X1 | 7936.000 | 22.000 | 436.000 | 516.000 | 500.000 | 500.000 | 500.000 | -0.000 | -0.000 | -0.000 |
| 12 | X3 | 10.000 | -0.000 | -0.000 | 436.000 | -0.000 | 516.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| 13 | GR | 581.800 | 0.000 | 581.700 | 116.000 | 581.100 | 216.000 | 580.900 | 316.000 | 582.500 | 416.000 |
| 14 | GR | 582.600 | 436.000 | 574.900 | 453.000 | 573.800 | 456.000 | 572.400 | 461.000 | 571.800 | 466.000 |
| 15 | GR | 571.200 | 471.000 | 570.800 | 476.000 | 571.000 | 481.000 | 571.500 | 486.000 | 572.300 | 491.000 |
| 16 | GR | 573.700 | 494.000 | 574.900 | 495.000 | 583.100 | 516.000 | 582.800 | 616.000 | 582.200 | 716.000 |
| 17 | GR | 582.200 | 866.000 | 581.700 | 891.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| 18 | | | | | | | | | | | |
| 19 | X1 | 8536.000 | 40.000 | 305.500 | 383.000 | 600.000 | 600.000 | 600.000 | -0.000 | -0.000 | -0.000 |
| 20 | X3 | 10.000 | -0.000 | -0.000 | 150.000 | -0.000 | 400.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| 21 | GR | 583.000 | 0.000 | 582.400 | 100.000 | 581.600 | 221.200 | 581.800 | 260.000 | 581.700 | 305.500 |
| 22 | GR | 580.300 | 308.000 | 579.000 | 310.600 | 577.600 | 313.200 | 576.600 | 315.800 | 575.900 | 318.400 |
| 23 | GR | 575.200 | 320.900 | 574.600 | 323.500 | 573.900 | 326.100 | 573.300 | 328.700 | 572.900 | 331.300 |
| 24 | GR | 572.100 | 333.900 | 571.400 | 336.400 | 571.100 | 339.000 | 570.900 | 341.600 | 570.900 | 344.200 |
| 25 | GR | 571.100 | 346.800 | 571.300 | 349.400 | 571.600 | 351.900 | 572.200 | 354.500 | 572.800 | 357.100 |
| 26 | GR | 573.300 | 359.700 | 574.300 | 362.300 | 575.100 | 364.900 | 575.700 | 367.400 | 576.400 | 370.000 |
| 27 | GR | 577.200 | 372.600 | 578.400 | 375.200 | 579.600 | 377.800 | 580.800 | 380.400 | 582.100 | 383.000 |
| | GR | 582.000 | 400.000 | 581.800 | 490.000 | 581.600 | 598.000 | 581.800 | 705.000 | 582.400 | 813.000 |
| | X1 | 9136.000 | 24.000 | 175.000 | 250.000 | 600.000 | 600.000 | 600.000 | -0.000 | -0.000 | -0.000 |
| | X3 | -0.000 | -0.000 | -0.000 | 140.000 | -0.000 | 310.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 584.300 | 0.000 | 583.800 | 40.000 | 582.200 | 140.000 | 580.800 | 175.000 | 575.500 | 184.000 |
| | GR | 574.900 | 194.000 | 574.500 | 195.000 | 573.600 | 200.000 | 571.300 | 205.000 | 570.900 | 210.000 |
| | GR | 571.300 | 215.000 | 572.000 | 220.000 | 573.600 | 225.000 | 574.300 | 230.000 | 574.700 | 235.000 |
| | GR | 574.900 | 237.000 | 575.500 | 240.000 | 581.100 | 250.000 | 581.200 | 350.000 | 581.000 | 376.000 |
| | GR | 580.900 | 450.000 | 581.300 | 550.000 | 581.700 | 650.000 | 583.200 | 735.000 | -0.000 | -0.000 |
| | X1 | 9586.000 | 24.000 | 175.000 | 250.000 | 450.000 | 450.000 | 450.000 | -0.000 | .035 | -0.000 |
| | X3 | -0.000 | -0.000 | -0.000 | 50.000 | -0.000 | 250.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 584.300 | 0.000 | 583.800 | 40.000 | 582.200 | 140.000 | 580.800 | 175.000 | 575.500 | 184.000 |
| | GR | 574.900 | 194.000 | 574.500 | 195.000 | 573.600 | 200.000 | 571.300 | 205.000 | 570.900 | 210.000 |
| | GR | 571.300 | 215.000 | 572.000 | 220.000 | 573.600 | 225.000 | 574.300 | 230.000 | 574.700 | 235.000 |
| | GR | 574.900 | 237.000 | 575.500 | 240.000 | 581.100 | 250.000 | 581.200 | 350.000 | 581.000 | 376.000 |
| | GR | 580.900 | 450.000 | 581.300 | 550.000 | 581.700 | 650.000 | 583.200 | 735.000 | -0.000 | -0.000 |
| | X1 | 9596.000 | 20.000 | 345.000 | 445.000 | 10.000 | 10.000 | 10.000 | -0.000 | .030 | -0.000 |
| | X3 | -0.000 | -0.000 | -0.000 | 245.000 | -0.000 | 445.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 583.950 | 0.000 | 581.350 | 45.000 | 580.950 | 145.000 | 580.550 | 245.000 | 581.850 | 345.000 |
| | GR | 579.950 | 385.000 | 575.750 | 399.000 | 574.950 | 407.000 | 574.250 | 410.000 | 573.050 | 415.000 |
| | GR | 572.750 | 420.000 | 572.950 | 425.000 | 571.650 | 430.000 | 570.950 | 435.000 | 573.050 | 440.000 |
| | GR | 574.650 | 445.000 | 583.450 | 445.000 | 580.250 | 448.000 | 581.250 | 545.000 | 582.450 | 645.000 |
| | X1 | 10286.000 | 20.000 | 345.000 | 445.000 | 690.000 | 690.000 | 690.000 | -0.000 | -0.000 | -0.000 |
| | X3 | -0.000 | -0.000 | -0.000 | 245.000 | -0.000 | 445.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 584.000 | 0.000 | 581.400 | 45.000 | 581.000 | 145.000 | 580.900 | 245.000 | 581.900 | 345.000 |
| | GR | 580.000 | 385.000 | 575.800 | 399.000 | 575.000 | 407.000 | 574.300 | 410.000 | 573.100 | 415.000 |
| | GR | 572.800 | 420.000 | 573.000 | 425.000 | 571.700 | 430.000 | 571.000 | 435.000 | 571.500 | 440.000 |
| | GR | 574.700 | 445.000 | 583.500 | 445.000 | 580.300 | 448.000 | 581.300 | 545.000 | 582.500 | 645.000 |
| | X1 | 10336.000 | 22.000 | 400.000 | 445.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | XJ | -0.000 | -0.000 | -0.000 | 550.000 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| | GR | 583.100 | 0.000 | 581.300 | 100.000 | 580.900 | 200.000 | 580.200 | 300.000 | 579.800 | 400.000 |
| | GR | 573.000 | 401.000 | 573.000 | 405.000 | 573.000 | 410.000 | 573.000 | 415.000 | 573.000 | 420.000 |
| | GR | 572.500 | 430.000 | 572.600 | 435.000 | 573.700 | 440.000 | 574.800 | 444.000 | 580.000 | 445.000 |
| | GR | 580.500 | 500.000 | 581.300 | 600.000 | 582.300 | 700.000 | 582.700 | 800.000 | 583.000 | 900.000 |
| | GR | 583.000 | 908.000 | 584.200 | 960.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 10636.000 | 27.000 | 655.000 | 855.000 | 300.000 | 300.000 | 300.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | 655.000 | -0.000 | 800.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 582.670 | 0.000 | 582.670 | 55.000 | 584.370 | 155.000 | 585.670 | 255.000 | 586.070 | 355.000 |
| | GR | 586.270 | 455.000 | 585.470 | 555.000 | 584.570 | 655.000 | 583.370 | 677.000 | 574.870 | 697.000 |
| | GR | 573.770 | 700.000 | 573.070 | 705.000 | 572.470 | 710.000 | 572.470 | 715.000 | 573.670 | 720.000 |
| | GR | 574.570 | 725.000 | 575.070 | 727.000 | 575.970 | 738.000 | 582.570 | 755.000 | 583.870 | 855.000 |
| | GR | 583.270 | 955.000 | 583.670 | 1055.000 | 583.970 | 1068.000 | 583.570 | 1155.000 | 583.370 | 1255.000 |
| | GR | 583.070 | 1355.000 | 583.070 | 1455.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 11536.000 | 27.000 | 655.000 | 855.000 | 900.000 | 900.000 | 900.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | 655.000 | -0.000 | 855.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 582.600 | 0.000 | 582.600 | 55.000 | 584.300 | 155.000 | 585.600 | 255.000 | 586.000 | 355.000 |
| | GR | 586.200 | 455.000 | 585.400 | 555.000 | 584.500 | 655.000 | 583.300 | 677.000 | 574.800 | 697.000 |
| | GR | 573.700 | 700.000 | 573.000 | 705.000 | 572.400 | 710.000 | 572.400 | 715.000 | 573.600 | 720.000 |
| | GR | 574.500 | 725.000 | 575.000 | 727.000 | 575.900 | 738.000 | 582.600 | 755.000 | 583.800 | 855.000 |
| | GR | 583.200 | 955.000 | 583.600 | 1055.000 | 583.900 | 1068.000 | 583.500 | 1155.000 | 583.300 | 1255.000 |
| | GR | 583.000 | 1355.000 | 583.000 | 1455.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | EJ | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |

CCHV= .300 CEHV= .500

| SECNO | DEPTH | C/SEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TW | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 1.00 | 11.50 | 574.90 | 0.00 | 574.90 | 575.22 | .32 | 0.00 | 0.00 | 584.60 |
| 3165. | 0. | 3165. | 0. | 0. | 701. | 0. | 0. | 0. | 584.60 |
| 0.00 | 0.00 | 4.51 | 0.00 | .035 | .030 | .035 | 0.000 | 563.40 | 529.17 |
| .000601 | -0. | -0. | -0. | 0 | 0 | 1 | 0.00 | 89.83 | 619.00 |
| 30.00 | 11.52 | 574.92 | 0.00 | 0.00 | 575.23 | .31 | .02 | .00 | 584.60 |
| 3165. | 0. | 3165. | 0. | 0. | 703. | 0. | 0. | 0. | 584.60 |
| .00 | 0.00 | 4.50 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 529.02 |
| .000598 | 29. | 29. | 29. | 0 | 0 | 1 | 0.00 | 89.93 | 619.00 |
| 60.00 | 11.54 | 574.94 | 0.00 | 0.00 | 575.25 | .31 | .02 | .00 | 584.60 |
| 3165. | 0. | 3165. | 0. | 0. | 705. | 0. | 1. | 0. | 584.60 |
| .00 | 0.00 | 4.49 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 528.87 |
| .000595 | 30. | 30. | 30. | 0 | 0 | 1 | 0.00 | 90.13 | 619.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 534.30 MAX ELLC= 580.30

D/S FACE OF JEFFERSON STREET BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 61.00 | 11.51 | 574.91 | 0.00 | 0.00 | 575.28 | .38 | .00 | .03 | 584.60 |
| 3165. | 0. | 3165. | 0. | 0. | 644. | 0. | 1. | 0. | 584.60 |
| .00 | 0.00 | 4.92 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 529.09 |
| .001082 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 92.91 | 619.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 584.30 MAX ELLC= 580.30

U/S FACE OF JEFFERSON STREET BRIDGE SEC. A

CONCRETE TWO SPAN BRIDGE

CONCRETE RAILING, TWO PIERS, 75 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 136.00 | 11.60 | 575.00 | 0.00 | 0.00 | 575.37 | .37 | .08 | .00 | 584.60 |
| 3165. | 0. | 3165. | 0. | 0. | 651. | 0. | 2. | 0. | 584.60 |
| .01 | 0.00 | 4.86 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 528.33 |
| .001054 | 75. | 75. | 75. | 2 | 0 | 1 | 0.00 | 43.67 | 619.00 |

| SECNO | DEPTH | C/SEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|

| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
|---|---|---|---|---|---|---|---|---|---|
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 137.00 | 11.69 | 575.09 | 0.00 | 0.00 | 575.39 | .30 | .00 | .02 | 584.60 |
| 3165. | 0. | 3165. | 0. | 0. | 718. | 0. | 2. | 0. | 584.60 |
| .01 | 0.00 | 4.41 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 527.62 |
| .000569 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 91.38 | 619.00 |

50 FEET U/S OF JEFFERSON STREET BRIDGE SEC. B

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 187.00 | 10.99 | 575.09 | 0.00 | 0.00 | 575.44 | .34 | .03 | .02 | 583.10 |
| 3165. | 0. | 3165. | 0. | 0. | 672. | 0. | 3. | 0. | 580.20 |
| .01 | 0.00 | 4.71 | 0.00 | .035 | .030 | .042 | .029 | 564.10 | 343.54 |
| .000652 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 89.95 | 432.49 |

1490 NH CARD USED

REPEATED SECTION OF 737

DOCKS ON RIGHT BANK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 362.00 | 11.41 | 575.38 | 0.00 | 0.00 | 575.56 | .19 | .08 | .05 | 578.57 |
| 3165. | 0. | 3165. | 0. | 0. | 913. | 0. | 6. | 1. | 577.17 |
| .03 | 0.00 | 3.47 | 0.00 | .035 | .031 | .042 | .029 | 563.97 | 252.63 |
| .000321 | 175. | 175. | 175. | 2 | 0 | 1 | 0.00 | 143.47 | 396.10 |

3470 ENCROACHMENT STATIONS= 244.0 373.0 TYPE= 1 TARGET= 129.000

50 FEET D/S OF RAILROAD BRIDGE NO. 1 SEC. C

ENCROACHED FOR EXPANSION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 737.00 | 11.79 | 575.49 | 0.00 | 0.00 | 575.68 | .19 | .11 | .00 | 578.30 |
| 3165. | 0. | 3165. | 0. | 0. | 912. | 0. | 14. | 2. | 100000.00 |
| .06 | 0.00 | 3.47 | 0.00 | .035 | .030 | .042 | .030 | 563.70 | 251.60 |
| .000282 | 375. | 375. | 375. | 2 | 0 | 1 | 0.00 | 121.40 | 373.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 787.00 | 11.57 | 575.47 | 0.00 | 0.00 | 575.74 | .26 | .02 | .04 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 769. | 0. | 15. | 2. | 581.00 |
| .06 | 0.00 | 4.12 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .000624 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 106.60 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.20

D/S FACE OF RAILROAD BRIDGE NO. 1

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 788.00 | 11.54 | 575.44 | 0.00 | 0.00 | 575.77 | .33 | .00 | .03 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 691. | 0. | 15. | 2. | 581.00 |
| .06 | 0.00 | 4.58 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .002401 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 97.00 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.20

U/S FACE OF RAILROAD BRIDGE NO. 1 SEC. D

STEEL I-BEAM BRIDGE WITH 2-STEEL BENT PIERS

9 FEET WIDE, 7 OLD BENT PILES-CUTOFF

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 797.00 | 11.56 | 575.46 | 0.00 | 0.00 | 575.79 | .32 | .02 | .00 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 692. | 0. | 15. | 2. | 581.00 |
| .06 | 0.00 | 4.57 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .002389 | 9. | 9. | 9. | 0 | 0 | 1 | 0.00 | 97.00 | 801.60 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 798.00 | 11.65 | 575.55 | 0.00 | 0.00 | 575.81 | .26 | .00 | .02 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 777. | 0. | 15. | 2. | 581.00 |
| .06 | 0.00 | 4.07 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .000602 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 106.60 | 801.60 |
| 844.00 | 10.58 | 575.58 | 0.00 | 0.00 | 575.84 | .26 | .03 | .00 | 581.60 |
| 3165. | 0. | 3165. | 0. | 0. | 780. | 0. | 16. | 2. | 581.40 |
| .06 | 0.00 | 4.06 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 816.36 |
| .000559 | 46. | 46. | 46. | 2 | 0 | 1 | 0.00 | 105.39 | 921.75 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=16 MIN ELTRD= 581.40 MAX ELLC= 578.40

D/S FACE OF RAILROAD BRIDGE NO. 2

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 845.00 | 10.56 | 575.56 | 0.00 | 0.00 | 575.86 | .30 | .00 | .02 | 581.60 |
| 3165. | 0. | 3165. | 0. | 0. | 719. | 0. | 16. | 2. | 581.40 |
| .06 | 0.00 | 4.40 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 816.42 |
| .001856 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 98.26 | 921.67 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=16 MIN ELTRD= 581.40 MAX ELLC= 578.40

U/S FACE OF RAILROAD BRIDGE NO. 2 SEC. E

WOOD BRIDGE WITH BALLAST AND TIE DECK

14.5 FEET WIDE, 7 BENT PIERS OF WOOD

14.5 FEET WIDE, 7 BENT PIERS OF WOOD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 859.00 | 10.59 | 575.59 | 0.00 | 0.00 | 575.89 | .30 | .03 | .00 | 581.50 |
| 3165. | 0. | 3165. | 0. | 0. | 721. | 0. | 16. | 2. | 581.40 |
| .06 | 0.00 | 4.39 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 816.36 |
| .001842 | 15. | 15. | 15. | 1 | 0 | 1 | 0.00 | 98.40 | 921.76 |
| 860.00 | 10.65 | 575.65 | 0.00 | 0.00 | 575.90 | .25 | .00 | .01 | 581.50 |
| 3165. | 0. | 3165. | 0. | 0. | 788. | 0. | 16. | 2. | 581.40 |
| .06 | 0.00 | 4.02 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 815.17 |
| .000544 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 105.84 | 922.01 |
| 910.00 | 11.70 | 575.70 | 0.00 | 0.00 | 575.94 | .23 | .03 | .01 | 583.10 |
| 3165. | 0. | 3165. | 0. | 0. | 817. | 0. | 17. | 2. | 583.00 |
| .07 | 0.00 | 3.88 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .000501 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 107.00 | 942.00 |

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANKELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | FLMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 583.00 MAX ELLC= 578.60

D/S FACE OF RAILROAD BRIDGE NO. 3

D/S FACE OF RAILROAD BRIDGE NO. 3

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 911.00 | 11.68 | 575.68 | 0.00 | 0.00 | 575.96 | .29 | .00 | .03 | 583.10 |
| 3165. | 0. | 3165. | 0. | 0. | 735. | 0. | 17. | 2. | 583.00 |
| .07 | 0.00 | 4.31 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .002246 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 105.00 | 942.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 583.00 MAX ELLC= 578.60

U/S FACE OF RAILROAD BRIDGE NO. 3 SEC. F

STEEL I-BEAM BRIDGE WITH 2 STEEL PIERS

10 FEET WIDE, 8 SETS OF OLD PIER BENTS-CUTOFF

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 921.00 | 11.70 | 575.70 | 0.00 | 0.00 | 575.99 | .29 | .02 | .00 | 583.10 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 0. | 3165. | 0. | 0. | 757. | 0. | 17. | 2. | 583.00 |
| .07 | 0.00 | 4.30 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .002227 | 10. | 10. | 10. | 1 | 0 | 1 | 0.00 | 105.00 | 942.00 |
| 922.00 | 11.78 | 575.76 | 0.00 | 0.00 | 576.00 | .23 | .00 | .02 | 583.10 |
| 3165. | 0. | 3165. | 0. | 0. | 824. | 0. | 17. | 2. | 583.00 |
| .07 | 0.00 | 3.84 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .000487 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 107.00 | 942.00 |
| 953.00 | 10.63 | 575.73 | 0.00 | 0.00 | 576.08 | .35 | .02 | .06 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 669. | 0. | 18. | 3. | 580.80 |
| .07 | 0.00 | 4.73 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .000726 | 31. | 31. | 31. | 2 | 0 | 1 | 0.00 | 81.00 | 681.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=14 MIN ELTRD= 580.80 MAX ELLC= 577.70

D/S FACE OF RAILROAD BRIDGE NO. 4

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 954.00 | 10.55 | 575.65 | 0.00 | 0.00 | 576.17 | .53 | .00 | .09 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 542. | 0. | 18. | 3. | 580.80 |
| .07 | 0.00 | 5.84 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .003647 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 67.20 | 681.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=14 MIN ELTRD= 580.80 MAX ELLC= 577.70

U/S FACE OF RAILROAD BRIDGE NO. 4 SEC. 6

CONCRETE BRIDGE, BOX BEAM DECK

WITH BALLAST AND RAILS, 30.5 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 985.00 | 10.68 | 575.78 | 0.00 | 0.00 | 576.29 | .51 | .11 | .01 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 551. | 0. | 18. | 3. | 580.80 |
| .07 | 0.00 | 5.74 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .003504 | 31. | 31. | 31. | 2 | 0 | 1 | 0.00 | 67.20 | 681.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TW | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELTRD | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 986.00 | 10.92 | 576.02 | 0.00 | 0.00 | 576.35 | .32 | .00 | .06 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 692. | 0. | 18. | 3. | 580.80 |
| .07 | 0.00 | 4.57 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .000653 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 81.00 | 681.00 |

ENCROACHMENT STATIONS= .0 700.0 TYPE= 1 TARGET= 699.999

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 581.10 ELREA= 100000.00

50 FEET UPSTREAM OF RAILROAD BRIDGE NO. 4 SEC. H

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1036.00 | 9.90 | 576.10 | 0.00 | 0.00 | 576.39 | .29 | .03 | .01 | 581.10 |
| 3165. | 0. | 3165. | 0. | 0. | 734. | 0. | 19. | 3. | 100000.00 |
| .07 | 0.00 | 4.31 | 0.00 | .040 | .030 | .035 | .030 | 566.20 | 584.30 |
| .000647 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 113.42 | 647.71 |

3470 ENCROACHMENT STATIONS= 374.0 492.5 TYPE= 1 TARGET= 119.500

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 579.10 ELREA= 100000.00

AVERAGE SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1736.00 | 11.14 | 576.54 | 0.00 | 0.00 | 576.79 | .25 | .39 | .01 | 579.10 |
| 3165. | 0. | 3165. | 0. | 0. | 792. | 0. | 31. | 4. | 100000.00 |
| .12 | 0.00 | 4.00 | 0.00 | .060 | .030 | .035 | .030 | 565.40 | 350.26 |
| .000489 | 700. | 700. | 700. | 1 | 0 | 1 | 0.00 | 110.65 | 491.92 |

3470 ENCROACHMENT STATIONS= 183.0 285.0 TYPE= 1 TARGET= 102.000

1450 FEET U/S OF RAILROAD BRIDGE NO. 4 SEC. I

CONFLUENCE OF SEXTON-KILFOIL DRAIN, NORTH ECORSE CREEK

AND ECORSE CREEK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2436.00 | 12.27 | 576.87 | 0.00 | 0.00 | 577.11 | .24 | .31 | .00 | 577.10 |
| 3165. | 0. | 3165. | 0. | 0. | 812. | 0. | 44. | 6. | 100000.00 |
| .17 | 0.00 | 3.90 | 0.00 | .060 | .030 | .035 | .030 | 564.60 | 193.23 |
| .000405 | 700. | 700. | 700. | 2 | 0 | 1 | 0.00 | 100.85 | 264.08 |

CCHV= .300 CEHV= .500

3470 ENCROACHMENT STATIONS= 300.0 400.0 TYPE= 1 TARGET= 100.000

2089 FEET D/S OF MILL STREET BRIDGE SEC. A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2736.00 | 8.04 | 577.14 | 0.00 | 0.00 | 577.26 | .12 | .12 | .03 | 578.60 |
| 1500. | 0. | 1500. | 0. | 0. | 530. | 0. | 49. | 7. | 100000.00 |
| .20 | 0.00 | 2.83 | 0.00 | .035 | .033 | .035 | .030 | 569.10 | 304.18 |
| .000398 | 300. | 300. | 300. | 2 | 0 | 1 | 0.00 | 92.48 | 396.66 |

3470 ENCROACHMENT STATIONS= 300.0 400.0 TYPE= 1 TARGET= 100.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 578.98 ELREA= 100000.00

REPEATED SECTION OF 2736

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3436.00 | 7.94 | 577.42 | 0.00 | 0.00 | 577.55 | .13 | .29 | .00 | 578.98 |
| 1500. | 0. | 1500. | 0. | 0. | 521. | 0. | 57. | 8. | 100000.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .000419 | 700. | 700. | 700. | 0 | 0 | 1 | 0.00 | 91.97 | 396.43 |

3470 ENCROACHMENT STATIONS= 200.0 300.0 TYPE= 1 TARGET= 100.000

989 FEET D/S OF MILL STREET BRIDGE SEC. B

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3836.00 | 7.91 | 577.61 | 0.00 | 0.00 | 577.82 | .21 | .23 | .04 | 578.50 |
| 1500. | 0. | 1500. | 0. | 0. | 409. | 0. | 62. | 9. | 100000.00 |
| .30 | 0.00 | 3.66 | 0.00 | .035 | .033 | .035 | .031 | 569.70 | 201.79 |
| .000805 | 400. | 400. | 400. | 2 | 0 | 1 | 0.00 | 82.23 | 294.02 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 200.0 290.0 TYPE= 1 TARGET= 90.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4311.00 | 8.09 | 577.99 | 0.00 | 0.00 | 578.18 | .19 | .36 | .00 | 578.70 |
| 1500. | 0. | 1500. | 0. | 0. | 424. | 0. | 66. | 10. | 100000.00 |
| .34 | 0.00 | 3.53 | 0.00 | .035 | .033 | .035 | .031 | 569.90 | 201.42 |
| .000724 | 475. | 475. | 475. | 2 | 0 | 1 | 0.00 | 83.09 | 294.51 |

3470 ENCROACHMENT STATIONS= 393.0 500.0 TYPE= 1 TARGET= 107.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.10 ELREA= 100000.00

39 FEET D/S OF MILL STREET BRIDGE SEC. C

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4786.00 | 8.22 | 578.32 | 0.00 | 0.00 | 578.46 | .13 | .25 | .02 | 580.10 |
| 1500. | 0. | 1500. | 0. | 0. | 515. | 0. | 71. | 11. | 100000.00 |
| .38 | 0.00 | 2.91 | 0.00 | .035 | .033 | .035 | .031 | 570.10 | 400.58 |
| .000411 | 475. | 475. | 475. | 2 | 0 | 1 | 0.00 | 87.32 | 487.90 |

3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000
ELENCL= 585.00 ELENCR= 585.00

D/S FACE OF MILL STREET BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4825.00 | 7.56 | 578.36 | 0.00 | 0.00 | 578.48 | .12 | .02 | .00 | 579.40 |
| 1500. | 0. | 1500. | 0. | 0. | 548. | 0. | 72. | 11. | 585.00 |
| .39 | 0.00 | 2.74 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 |
| .000405 | 39. | 39. | 39. | 1 | 0 | 1 | 0.00 | 98.00 | 598.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | -0.00 | 1.30 | 2.50 | -0.00 | 51.70 | -0.00 | 538.00 | 3.17 | 570.80 | 570.80 |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|

578.52 578.48 0.00 0. 1500. 538. 578.30 579.40 10.00

3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000
ELENCL= 585.00 ELENCR= 585.00

U/S FACE OF MILL STREET BRIDGE SEC. D

STEEL TRUSS BRIDGE, SINGLE SPAN

9.5 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4846.00 | 7.60 | 578.40 | 0.00 | 0.00 | 578.52 | .11 | .04 | 0.00 | 579.40 |
| 1500. | 0. | 1500. | 0. | 0. | 553. | 0. | 72. | 11. | 585.00 |
| .39 | 0.00 | 2.71 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 |
| .000394 | 21. | 21. | 21. | 2 | 0 | 1 | 0.00 | 98.00 | 598.00 |

3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000
ELENCL= 585.00 ELENCR= 585.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4847.00 | 7.60 | 578.40 | 0.00 | 0.00 | 578.52 | .11 | .00 | .00 | 579.40 |
| 1500. | 0. | 1500. | 0. | 0. | 553. | 0. | 72. | 11. | 585.00 |
| .39 | 0.00 | 2.71 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 |
| .000393 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 98.00 | 598.00 |

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 580.84 ELREA= 581.14

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5436.00 | 8.02 | 578.66 | 0.00 | 0.00 | 578.82 | .16 | .28 | .02 | 580.84 |
| 1500. | 0. | 1500. | 0. | 0. | 468. | 0. | 79. | 12. | 581.14 |
| .44 | 0.00 | 3.21 | 0.00 | .035 | .033 | .035 | .032 | 570.64 | 498.30 |
| .000572 | 589. | 589. | 589. | 2 | 0 | 1 | 0.00 | 88.72 | 587.02 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | NSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 400.0 600.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 580.70 ELREA= 581.00

1090 FEET U/S OF MILL STREET BRIDGE SEC. E

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5936.00 | 8.44 | 578.94 | 0.00 | 0.00 | 579.08 | .14 | .25 | .01 | 580.70 |
| 1500. | 0. | 1500. | 0. | 0. | 506. | 0. | 84. | 13. | 581.00 |
| .49 | 0.00 | 2.97 | 0.00 | .035 | .033 | .035 | .032 | 570.50 | 497.46 |
| .000455 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 90.75 | 589.21 |

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 581.93 ELREA= 581.93

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6416.00 | 8.85 | 579.18 | 0.00 | 0.00 | 579.40 | .22 | .23 | .04 | 581.93 |
| 1500. | 0. | 1500. | 0. | 0. | 399. | 0. | 89. | 14. | 581.93 |
| .52 | 0.00 | 3.76 | 0.00 | .035 | .033 | .035 | .032 | 570.33 | 581.64 |
| .000757 | 480. | 480. | 480. | 1 | 0 | 1 | 0.00 | 72.17 | 653.81 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.80 ELREA= 581.80

49 FEET D/S OF SOUTHFIELD ROAD BRIDGE SEC. F

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6786.00 | 9.27 | 579.47 | 0.00 | 0.00 | 579.66 | .19 | .25 | .01 | 581.80 |
| 1500. | 0. | 1500. | 0. | 0. | 430. | 0. | 93. | 15. | 581.80 |
| .55 | 0.00 | 3.49 | 0.00 | .035 | .033 | .035 | .032 | 570.20 | 580.65 |
| .000615 | 370. | 370. | 370. | 2 | 0 | 1 | 0.00 | 74.09 | 654.74 |
| 6835.00 | 7.87 | 579.44 | 0.00 | 0.00 | 579.76 | .32 | .04 | .06 | 583.17 |
| 1500. | 0. | 1500. | 0. | 0. | 331. | 0. | 93. | 15. | 583.17 |
| .55 | 0.00 | 4.53 | 0.00 | .035 | .033 | .035 | .032 | 571.57 | 583.97 |
| .001293 | 49. | 49. | 49. | 2 | 0 | 1 | 0.00 | 67.64 | 651.60 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.00 ELREA= 582.00

D/S FACE OF SOUTHFIELD ROAD BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6836.00 | 8.05 | 579.65 | 0.00 | 0.00 | 579.81 | .16 | .00 | .05 | 582.00 |
| 1500. | 0. | 1500. | 0. | 0. | 471. | 0. | 93. | 15. | 582.00 |
| .55 | 0.00 | 3.19 | 0.00 | .035 | .025 | .035 | .032 | 571.60 | 900.00 |
| .000333 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 73.00 | 973.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | .90 | 1.50 | 2.90 | -0.00 | 73.00 | 2.50 | 385.10 | -0.00 | 571.60 | 571.60 |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 580.01 | 579.82 | .00 | 0. | 1500. | 385. | 578.30 | 583.00 | 10.00 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.00 ELREA= 583.00

U/S FACE OF SOUTHFIELD ROAD BRIDGE SEC. G

CONCRETE BRIDGE WITH I-BEAM STRINGERS

80 FEET WIDE, 1 PIER 2.5 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6916.00 | 8.26 | 579.86 | 0.00 | 0.00 | 580.01 | .15 | .20 | 0.00 | 582.00 |
| 1500. | 0. | 1500. | 0. | 0. | 485. | 0. | 94. | 15. | 582.00 |
| .56 | 0.00 | 3.09 | 0.00 | .035 | .025 | .035 | .032 | 571.60 | 900.00 |
| .000302 | 80. | 80. | 80. | 2 | 0 | 1 | 0.00 | 73.00 | 973.00 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | ROB | VOL | TOA | LEFT/RIGHT |

| TITLE | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
|---|---|---|---|---|---|---|---|---|---|
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.20 ELREA= 583.20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6917.00 | 8.19 | 579.79 | 0.00 | 0.00 | 580.07 | .28 | .00 | .07 | 583.20 |
| 1500. | 0. | 1500. | 0. | 0. | 353. | 0. | 94. | 15. | 583.20 |
| .56 | 0.00 | 4.25 | 0.00 | .035 | .033 | .035 | .032 | 571.60 | 583.20 |
| .001077 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 69.12 | 652.32 |

3470 ENCROACHMENT STATIONS= 560.0 660.0 TYPE= 1 TARGET= 100.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.80 ELREA= 100000.00

REPEATED SECTION OF 6917

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7436.00 | 9.13 | 580.33 | 0.00 | 0.00 | 580.53 | .20 | .43 | .02 | 582.40 |
| 1500. | 0. | 1500. | 0. | 0. | 420. | 0. | 99. | 16. | 100000.00 |
| .60 | 0.00 | 3.57 | 0.00 | .035 | .033 | .035 | .032 | 571.20 | 580.97 |
| .000657 | 519. | 519. | 519. | 2 | 0 | 1 | 0.00 | 73.46 | 654.44 |

3470 ENCROACHMENT STATIONS= 436.0 516.0 TYPE= 1 TARGET= 40.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.60 ELREA= 100000.00

1020 FEET U/S OF SOUTHFIELD ROAD BRIDGE SEC. H

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7936.00 | 9.85 | 580.65 | 0.00 | 0.00 | 580.83 | .18 | .29 | .01 | 582.60 |
| 1500. | 0. | 1500. | 0. | 0. | 441. | 0. | 104. | 17. | 100000.00 |
| .64 | 0.00 | 3.40 | 0.00 | .035 | .033 | .035 | .032 | 570.80 | 440.31 |
| .000521 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 69.40 | 509.72 |

3470 ENCROACHMENT STATIONS= 150.0 400.0 TYPE= 1 TARGET= 250.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.70 ELREA= 582.10

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8536.00 | 10.07 | 580.97 | 0.00 | 0.00 | 581.12 | .16 | .29 | .01 | 581.70 |
| 1500. | 0. | 1500. | 0. | 0. | 471. | 0. | 110. | 18. | 582.10 |
| .70 | 0.00 | 3.19 | 0.00 | .035 | .033 | .035 | .032 | 570.90 | 365.61 |
| .000450 | 600. | 600. | 600. | 2 | 0 | 1 | 0.00 | 73.92 | 380.73 |

3470 ENCROACHMENT STATIONS= 140.0 310.0 TYPE= 1 TARGET= 170.000

2220 FEET U/S OF SOUTHFIELD ROAD BRIDGE SEC. I

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9136.00 | 10.34 | 581.24 | 0.00 | 0.00 | 581.38 | .14 | .25 | .01 | 580.60 |
| 1500. | 1. | 1498. | 1. | 2. | 497. | 7. | 117. | 19. | 581.10 |
| .75 | .31 | 3.01 | .20 | .035 | .033 | .035 | .032 | 570.90 | 163.63 |
| .000385 | 600. | 600. | 600. | 1 | 0 | 1 | 0.00 | 146.17 | 310.00 |

3470 ENCROACHMENT STATIONS= 50.0 250.0 TYPE= 1 TARGET= 200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9586.00 | 10.48 | 581.41 | 0.00 | 0.00 | 581.55 | .14 | .17 | .00 | 580.84 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1200. | 1. | 1439. | 0. | 4. | 507. | 0. | 122. | 20. | 100000.04 |
| .79 | .35 | 2.96 | 0.00 | .035 | .033 | .035 | .032 | 570.94 | 160.58 |
| .000363 | 450. | 450. | 450. | 2 | 0 | 1 | 0.00 | 99.42 | 250.00 |

3265 DIVIDED FLOW

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 245.0 445.0 TYPE= 1 TARGET= 200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9596.00 | 10.42 | 581.40 | 0.00 | 0.00 | 581.57 | .18 | .01 | .02 | 581.86 |
| 1500. | 7. | 1493. | 0. | 14. | 443. | 0. | 122. | 21. | 100000.03 |
| .79 | .48 | 3.37 | 0.00 | .035 | .033 | .035 | .032 | 570.98 | 245.00 |
| .000754 | 10. | 10. | 10. | 1 | 0 | 1 | 0.00 | 142.67 | 445.00 |

3470 ENCROACHMENT STATIONS= 245.0 445.0 TYPE= 1 TARGET= 200.000

50 FEET D/S OF EMPIRE STREET SEC. J

WALL ON RIGHT BANK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10286.00 | 10.90 | 581.90 | 0.00 | 0.00 | 582.04 | .13 | .45 | .01 | 581.90 |
| 1500. | 32. | 1468. | 0. | 50. | 497. | 0. | 130. | 23. | 100000.00 |
| .86 | .64 | 2.96 | 0.00 | .035 | .033 | .035 | .032 | 571.00 | 245.00 |
| .000572 | 690. | 690. | 690. | 2 | 0 | 1 | 0.00 | 200.00 | 445.00 |

3470 ENCROACHMENT STATIONS= 350.0 445.0 TYPE= 1 TARGET= 95.000

EMPIRE STREET BRIDGE SEC. K

BRIDGE HAS BEEN REMOVED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10336.00 | 9.41 | 581.91 | 0.00 | 0.00 | 582.08 | .17 | .03 | .02 | 579.80 |
| 1500. | 145. | 1355. | 0. | 101. | 392. | 0. | 131. | 23. | 100000.00 |
| .86 | 1.44 | 3.46 | 0.00 | .035 | .033 | .035 | .032 | 572.50 | 350.00 |
| .000454 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 95.00 | 445.00 |

3470 ENCROACHMENT STATIONS= 655.0 800.0 TYPE= 1 TARGET= 145.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.57 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10636.00 | 9.59 | 582.06 | 0.00 | 0.00 | 582.24 | .18 | .15 | .00 | 584.57 |
| 1500. | 0. | 1500. | 0. | 0. | 440. | 0. | 134. | 24. | 100000.00 |
| .89 | 0.00 | 3.41 | 0.00 | .035 | .033 | .035 | .032 | 572.47 | 680.07 |
| .000557 | 300. | 300. | 300. | 0 | 0 | 1 | 0.00 | 73.39 | 753.46 |

3470 ENCROACHMENT STATIONS= 655.0 855.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.50 ELREA= 100000.00

1200 FEET U/S OF EMPIRE STREET SEC. 1

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11536.00 | 10.14 | 582.54 | 0.00 | 0.00 | 582.69 | .15 | .44 | .01 | 584.50 |
| 1500. | 0. | 1500. | 0. | 0. | 480. | 0. | 143. | 26. | 100000.00 |
| .97 | 0.00 | 3.13 | 0.00 | .035 | .033 | .035 | .032 | 572.40 | 673.42 |
| .000438 | 900. | 900. | 900. | 1 | 0 | 1 | 0.00 | 76.00 | 754.12 |

```
**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
**********************************************


T1       CITY OF ECORSE   5555-16   DICK ZANOTTI  P.M.
T2       100 YEAR FLOOD
T3       NORTH BRANCH OF ECORSE CREEK

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
       -10.       4.        -0.        -0. -0.000000      -0.00       -0.0       -0.    574.900     -0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
     3.000     -0.000     -1.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000


CCHV=     .300 CEHV=     .500
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
        Q      QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       VTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

     1.00     11.50    574.90      0.00    574.90    575.51      .61      0.00      0.00     584.60
     4410.       0.     4410.        0.        0.       701.       0.        0.        0.     584.60
      0.00      0.00      6.29      0.00      .035      .030      .035     0.000    563.40     529.17
   .001167        -0.       -0.       -0.         0         0         1      0.00     99.83     619.00

    30.00     11.54    574.94      0.00      0.00    575.55      .61       .03       .00     584.60
     4410.       0.     4410.        0.        0.       704.       0.        0.        0.     584.60
      .00      0.00      6.26      0.00      .035      .030      .035      .029    563.40     529.98
   .001155       29.       29.       29.         0         0         1      0.00     90.12     619.00

    60.00     11.58    574.98      0.00      0.00    575.59      .60       .03       .00     584.60
     4410.       0.     4410.        0.        0.       708.       0.        1.        0.     584.60
      .00      0.00      6.23      0.00      .035      .030      .035      .029    563.40     529.54
   .001141       30.       30.       30.         1         0         1      0.00     90.46     619.00


3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 9 MIN ELTRD=  584.30 MAX ELLC=  580.30

                D/S FACE OF JEFFERSON STREET BRIDGE

    61.00     11.52    574.92      0.00      0.00    575.65      .73       .00       .06     584.60
     4410.       0.     4410.        0.        0.       645.       0.        1.        0.     584.60
      .00      0.00      6.84      0.00      .035      .030      .035      .029    563.40     529.98
   .002091        1.        1.        1.         2         0         1      0.00     83.02     619.00
```

3203 DIVIDED FLOW

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 584.30 MAX ELLC= 580.30

U/S FACE OF JEFFERSON STREET BRIDGE SEC. 4

CONCRETE TWO SPAN BRIDGE

CONCRETE RAILING, TWO PIERS, 75 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 136.00 | 11.72 | 575.12 | 0.00 | 0.00 | 575.81 | .69 | .15 | .01 | 584.60 |
| 4410. | 0. | 4410. | 0. | 0. | 662. | 0. | 2. | 0. | 584.60 |
| .01 | 0.00 | 6.67 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 527.31 |
| .001976 | 75. | 75. | 75. | 2 | 0 | 1 | 0.00 | 84.69 | 619.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOP WD | ENDST |
| 137.00 | 11.90 | 575.30 | 0.00 | 0.00 | 575.85 | .55 | .00 | .04 | 584.60 |
| 4410. | 0. | 4410. | 0. | 0. | 738. | 0. | 2. | 0. | 584.60 |
| .01 | 0.00 | 5.98 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 525.83 |
| .001035 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 93.17 | 619.00 |

50 FEET U/S OF JEFFERSON STREET BRIDGE SEC. B

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 187.00 | 11.22 | 575.32 | 0.00 | 0.00 | 575.95 | .63 | .06 | .04 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 692. | 0. | 3. | 0. | 580.20 |
| .01 | 0.00 | 6.37 | 0.00 | .035 | .030 | .042 | .029 | 564.10 | 341.65 |
| .001185 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 91.18 | 432.86 |

1490 NH CARD USED

REPEATED SECTION OF 737

DOCKS ON RIGHT BANK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 362.00 | 11.89 | 575.86 | 0.00 | 0.00 | 576.17 | .31 | .13 | .10 | 578.57 |
| 4410. | 0. | 4410. | 0. | 0. | 983. | 0. | 6. | 1. | 577.17 |
| .02 | 0.00 | 4.48 | 0.00 | .035 | .031 | .042 | .029 | 563.97 | 251.32 |
| .000515 | 175. | 175. | 175. | 2 | 0 | 1 | 0.00 | 145.84 | 397.16 |

3470 ENCROACHMENT STATIONS= 244.0 373.0 TYPE= 1 TARGET= 129.000

50 FEET D/S OF RAILROAD BRIDGE NO. 1 SEC. C

ENCROACHED FOR EXPANSION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 737.00 | 12.34 | 576.04 | 0.00 | 0.00 | 576.35 | .31 | .18 | .00 | 578.50 |
| 4410. | 0. | 4410. | 0. | 0. | 979. | 0. | 15. | 2. | 100000.00 |
| .04 | 0.00 | 4.50 | 0.00 | .035 | .030 | .042 | .030 | 563.70 | 257.11 |
| .000448 | 375. | 375. | 375. | 2 | 0 | 1 | 0.00 | 122.89 | 373.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 787.00 | 12.11 | 576.01 | 0.00 | 0.00 | 576.45 | .44 | .03 | .06 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 826. | 0. | 16. | 2. | 581.00 |
| .04 | 0.00 | 5.34 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .000965 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 106.60 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.20

D/S FACE OF RAILROAD BRIDGE NO. 1

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 788.00 | 12.06 | 575.96 | 0.00 | 0.00 | 576.50 | .54 | .00 | .05 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 744. | 0. | 16. | 2. | 581.00 |
| .04 | 0.00 | 5.92 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .003859 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 104.00 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.20

U/S FACE OF RAILROAD BRIDGE NO. 1 SEC. D

STEEL I-BEAM BRIDGE WITH 2-STEEL BENT PIERS

9 FEET WIDE, 7 OLD BENT PILES-CUTOFF

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 797.00 | 12.10 | 576.00 | 0.00 | 0.00 | 576.54 | .54 | .03 | .00 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 749. | 0. | 16. | 2. | 581.00 |
| .05 | 0.00 | 5.89 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .003788 | 9. | 9. | 9. | 2 | 0 | 1 | 0.00 | 104.00 | 901.60 |

| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNP | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDSTA |
| 798.00 | 12.25 | 576.15 | 0.00 | 0.00 | 576.57 | .43 | .00 | .03 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 841. | 0. | 16. | 2. | 581.00 |
| .05 | 0.00 | 5.25 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .000912 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 106.60 | 901.60 |
| 844.00 | 11.20 | 576.20 | 0.00 | 0.00 | 576.62 | .42 | .04 | .00 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 846. | 0. | 17. | 2. | 581.40 |
| .05 | 0.00 | 5.21 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 815.00 |
| .000867 | 46. | 46. | 45. | 2. | 0 | 1 | 0.00 | 108.98 | 923.92 |

3265 DIVIDED FLOW

D/S FACE OF RAILROAD BRIDGE NO. 2

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 845.00 | 11.16 | 576.16 | 0.00 | 0.00 | 576.66 | .50 | .00 | .04 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 779. | 0. | 17. | 2. | 581.40 |
| .05 | 0.00 | 5.66 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 815.00 |
| .002965 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 101.85 | 923.85 |

3265 DIVIDED FLOW

NORMAL BRIDGE.NRD=16 MIN ELTRD= 581.40 MAX ELLC= 578.40

U/S FACE OF RAILROAD BRIDGE NO. 2 SEC. E

WOOD BRIDGE WITH BALLAST AND TIE DECK

14.5 FEET WIDE, 7 BENT PIERS OF WOOD

14.5 FEET WIDE, 7 BENT PIERS OF WOOD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 859.00 | 11.21 | 576.21 | 0.00 | 0.00 | 576.70 | .49 | .04 | .00 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 784. | 0. | 17. | 2. | 581.40 |
| .05 | 0.00 | 5.62 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 815.00 |
| .002915 | 15. | 15. | 15. | 2 | 0 | 1 | 0.00 | 102.00 | 924.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 860.00 | 11.32 | 576.32 | 0.00 | 0.00 | 576.73 | .41 | .00 | .02 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 859. | 0. | 17. | 2. | 581.40 |
| .05 | 0.00 | 5.13 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 815.00 |
| .000826 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 109.00 | 924.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 910.00 | 12.39 | 576.39 | 0.00 | 0.00 | 576.77 | .38 | .04 | .01 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 891. | 0. | 18. | 2. | 583.00 |
| .05 | 0.00 | 4.95 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .000739 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 107.00 | 942.00 |

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CHINS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

NORMAL BRIDGE.NRD= 6 MIN ELTRD= 583.00 MAX ELLC= 578.60

D/S FACE OF RAILROAD BRIDGE NO. 3

D/S FACE OF RAILROAD BRIDGE NO. 3

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 911.00 | 12.35 | 576.35 | 0.00 | 0.00 | 576.82 | .47 | .00 | .04 | 583.10 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ... | 0. | +410. | 3. | 0. | 806. | 0. | 13. | 2. | 583.00 |
| .05 | 0.00 | 5.47 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .003268 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 105.00 | 942.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 583.00 MAX ELLC= 578.60

U/S FACE OF RAILROAD BRIDGE NO. 3 SEC. F

STEEL I-BEAM BRIDGE WITH 2 STEEL PIERS

10 FEET WIDE, 8 SETS OF OLD PIER BENTS-CUTOFF

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 921.00 | 12.39 | 576.39 | 0.00 | 0.00 | 576.85 | .46 | .03 | .00 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 809. | 0. | 18. | 2. | 583.00 |
| .05 | 0.00 | 5.45 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .003232 | 10. | 10. | 10. | 1 | 0 | 1 | 0.00 | 105.00 | 942.00 |
| 922.00 | 12.51 | 576.51 | 0.00 | 0.00 | 576.88 | .37 | .00 | .03 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 902. | 0. | 18. | 2. | 583.00 |
| .05 | 0.00 | 4.89 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .000710 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 107.00 | 942.00 |
| 953.00 | 11.34 | 576.44 | 0.00 | 0.00 | 577.01 | .57 | .03 | .10 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 726. | 0. | 19. | 3. | 580.80 |
| .05 | 0.00 | 6.08 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .001096 | 31. | 31. | 31. | 2 | 0 | 1 | 0.00 | 81.00 | 681.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=14 MIN ELTRD= 580.80 MAX ELLC= 577.70

D/S FACE OF RAILROAD BRIDGE NO. 4

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 954.00 | 11.18 | 576.28 | 0.00 | 0.00 | 577.17 | .88 | .00 | .15 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 585. | 0. | 19. | 3. | 580.80 |
| .05 | 0.00 | 7.53 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .005859 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 67.20 | 681.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=14 MIN ELTRD= 580.80 MAX ELLC= 577.70

U/S FACE OF RAILROAD BRIDGE NO. 4 SEC. G

CONCRETE BRIDGE, BOX BEAM DECK

WITH BALLAST AND RAILS, 30.3 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 985.00 | 11.42 | 576.52 | 0.00 | 0.00 | 577.35 | .84 | .17 | .01 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 601. | 0. | 19. | 3. | 580.80 |
| .05 | 0.00 | 7.34 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .005491 | 31. | 31. | 31. | 2 | 0 | 1 | 0.00 | 67.20 | 681.00 |

| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOP WID | ENDST |
| 986.00 | 11.84 | 576.94 | 0.00 | 0.00 | 577.45 | .51 | .00 | .10 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 766. | 0. | 19. | 3. | 580.80 |
| .05 | 0.00 | 5.75 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .000927 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 81.00 | 681.00 |

3470 ENCROACHMENT STATIONS= .0 700.0 TYPE= 1 TARGET= 699.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.10 ELREA= 100000.00

50 FEET UPSTREAM OF RAILROAD BRIDGE NO. 4 SEC. H

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1036.00 | 10.90 | 577.10 | 0.00 | 0.00 | 577.52 | .42 | .04 | .03 | 581.10 |
| 4410. | 0. | 4410. | 0. | 0. | 850. | 0. | 20. | 3. | 100000.00 |
| .06 | 0.00 | 5.19 | 0.00 | .040 | .030 | .035 | .030 | 566.20 | 580.44 |
| .000822 | 50. | 50. | 50. | 0 | 0 | 1 | 0.00 | 118.70 | 699.14 |

3470 ENCROACHMENT STATIONS= 374.0 492.5 TYPE= 1 TARGET= 118.500

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 579.10 ELREA= 100000.00

AVERAGE SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1736.00 | 12.28 | 577.68 | 0.00 | 0.00 | 578.04 | .36 | .49 | .02 | 579.10 |
| 4410. | 0. | 4410. | 0. | 0. | 920. | 0. | 35. | 5. | 100000.00 |
| .10 | 0.00 | 4.79 | 0.00 | .060 | .030 | .035 | .030 | 565.40 | 376.92 |
| .000614 | 700. | 700. | 700. | 2 | 0 | 1 | 0.00 | 115.58 | 492.50 |

3470 ENCROACHMENT STATIONS= 183.0 285.0 TYPE= 1 TARGET= 102.000

1450 FEET U/S OF RAILROAD BRIDGE NO. 4 SEC. I

CONFLUENCE OF SEXTON-KILFOIL DRAIN, NORTH ECORSE CREEK

AND ECORSE CREEK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2436.00 | 13.48 | 578.08 | 0.00 | 0.00 | 578.43 | .35 | .39 | .00 | 577.10 |
| 4410. | 0. | 4410. | 0. | 0. | 936. | 0. | 49. | 5. | 100000.00 |
| .14 | 0.00 | 4.71 | 0.00 | .060 | .030 | .035 | .030 | 564.60 | 183.00 |
| .000510 | 700. | 700. | 700. | 2 | 0 | 1 | 0.00 | 102.00 | 285.00 |

CCHV= .300 CEHV= .500

3470 ENCROACHMENT STATIONS= 300.0 400.0 TYPE= 1 TARGET= 100.000

2089 FEET D/S OF MILL STREET BRIDGE SEC. A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2736.00 | 9.37 | 578.47 | 0.00 | 0.00 | 578.63 | .16 | .14 | .06 | 578.60 |
| 2100. | 0. | 2100. | 0. | 0. | 658. | 0. | 55. | 7. | 100000.00 |
| .17 | 0.00 | 3.19 | 0.00 | .035 | .033 | .035 | .030 | 569.10 | 300.37 |
| .000419 | 300. | 300. | 300. | 2 | 0 | 1 | 0.00 | 99.34 | 399.70 |

3470 ENCROACHMENT STATIONS= 300.0 400.0 TYPE= 1 TARGET= 100.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 578.98 ELREA= 100000.00

REPEATED SECTION OF 2736

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3436.00 | 9.29 | 578.77 | 0.00 | 0.00 | 578.93 | .16 | .30 | .00 | 578.98 |
| 2100. | 0. | 2100. | 0. | 0. | 649. | 0. | 65. | 9. | 100000.00 |
| .23 | 0.00 | 3.23 | 0.00 | .035 | .033 | .035 | .031 | 569.44 | 300.61 |
| .000435 | 700. | 700. | 700. | 2 | 0 | 1 | 0.00 | 98.91 | 399.51 |

3470 ENCROACHMENT STATIONS= 200.0 300.0 TYPE= 1 TARGET= 100.000

989 FEET D/S OF MILL STREET BRIDGE SEC. B

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3836.00 | 9.25 | 578.95 | 0.00 | 0.00 | 579.20 | .25 | .23 | .04 | 578.50 |
| 2100. | 0. | 2100. | 0. | 0. | 523. | 0. | 71. | 9. | 100000.00 |
| .25 | 0.00 | 4.01 | 0.00 | .035 | .033 | .035 | .031 | 569.70 | 200.00 |
| .000766 | 400. | 400. | 400. | 1 | 0 | 1 | 0.00 | 87.67 | 287.67 |

| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | STN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 200.0 290.0 TYPE= 1 TARGET= 90.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4311.00 | 9.42 | 579.32 | 0.00 | 0.00 | 579.55 | .24 | .35 | .00 | 578.70 |
| 2100. | 0. | 2100. | 0. | 0. | 539. | 0. | 77. | 10. | 100000.00 |
| .29 | 0.00 | 3.90 | 0.00 | .035 | .033 | .035 | .031 | 569.90 | 200.00 |
| .000703 | 475. | 475. | 475. | 2 | 0 | 1 | 0.00 | 88.14 | 288.14 |

3470 ENCROACHMENT STATIONS= 393.0 500.0 TYPE= 1 TARGET= 107.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.10 ELREA= 100000.00

39 FEET D/S OF MILL STREET BRIDGE SEC. C

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4786.00 | 9.59 | 579.69 | 0.00 | 0.00 | 579.85 | .17 | .28 | .02 | 580.10 |
| 2100. | 0. | 2100. | 0. | 0. | 641. | 0. | 83. | 11. | 100000.00 |
| .33 | 0.00 | 3.28 | 0.00 | .035 | .033 | .035 | .031 | 570.10 | 394.96 |
| .000497 | 475. | 475. | 475. | 1 | 0 | 1 | 0.00 | 105.02 | 500.00 |

3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000

ELENCL= 585.00 ELENCR= 585.00

D/S FACE OF MILL STREET BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4825.00 | 8.93 | 579.73 | 0.00 | 0.00 | 579.88 | .15 | .02 | .01 | 579.40 |
| 2100. | 0. | 2100. | 0. | 0. | 683. | 0. | 94. | 12. | 585.00 |
| .33 | 0.00 | 3.08 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 |
| .000394 | 39. | 39. | 39. | 2 | 0 | 1 | 0.00 | 96.00 | 598.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BNC | BWP | BAREA | SS | ELCRD | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | -0.00 | 1.30 | 2.50 | -0.00 | 51.70 | -0.00 | 538.00 | 3.17 | 570.80 | 570.80 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QBR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 580.04 | 579.88 | 0.00 | 207. | 1881. | 538. | 578.30 | 579.40 | 30.00 |

3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000
ELENCL= 585.00 ELENCR= 585.00

U/S FACE OF MILL STREET BRIDGE SEC. D

STEEL TRUSS BRIDGE, SINGLE SPAN

9.5 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4846.00 | 9.03 | 579.83 | 0.00 | 0.00 | 579.98 | .14 | .10 | 0.00 | 579.40 |
| 2100. | 0. | 2100. | 0. | 0. | 693. | 0. | 84. | 12. | 585.00 |
| .33 | 0.00 | 3.03 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 |
| .000376 | 21. | 21. | 21. | 2 | 0 | 3 | 0.00 | 98.00 | 598.00 |

3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000
ELENCL= 585.00 ELENCR= 585.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4847.00 | 9.03 | 579.83 | 0.00 | 0.00 | 579.98 | .14 | .00 | .00 | 579.40 |
| 2100. | 0. | 2100. | 0. | 0. | 693. | 0. | 84. | 12. | 585.00 |
| .33 | 0.00 | 3.03 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 |
| .000376 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 98.00 | 598.00 |

3280 CROSS SECTION 5436.00 EXTENDED .32 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.84 ELREA= 581.14

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5436.00 | 9.43 | 580.07 | 0.00 | 0.00 | 580.27 | .19 | .27 | .02 | 580.84 |
| 2100. | 0. | 2100. | 0. | 0. | 597. | 0. | 93. | 13. | 581.14 |
| .38 | 0.00 | 3.52 | 0.00 | .035 | .033 | .035 | .032 | 570.64 | 495.53 |
| .000550 | 589. | 589. | 589. | 1 | 0 | 1 | 0.00 | 95.45 | 598.48 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | ATW | ELMIN | SSTA |

SEC E XLOBL XLCH XLOBR ITRIAL IOC ICONT CORAR TOPWID ENDST

3470 ENCROACHMENT STATIONS= 400.0 600.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.70 ELREA= 581.00

1090 FEET U/S OF MILL STREET BRIDGE SEC. E

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5936.00 | 9.85 | 580.35 | 0.00 | 0.00 | 580.52 | .17 | .25 | .01 | 580.70 |
| 2100. | 0. | 2100. | 0. | 0. | 639. | 0. | 100. | 14. | 581.00 |
| .42 | 0.00 | 3.29 | 0.00 | .035 | .033 | .035 | .032 | 570.50 | 494.68 |
| .000453 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 97.50 | 592.18 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.93 ELREA= 581.93

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6416.00 | 10.25 | 580.58 | 0.00 | 0.00 | 580.85 | .27 | .28 | .05 | 581.93 |
| 2100. | 0. | 2100. | 0. | 0. | 505. | 0. | 106. | 15. | 581.93 |
| .45 | 0.00 | 4.16 | 0.00 | .035 | .033 | .035 | .032 | 570.33 | 578.29 |
| .000762 | 480. | 480. | 480. | 1 | 0 | 1 | 0.00 | 78.69 | 656.98 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.80 ELREA= 581.80

49 FEET D/S OF SOUTHFIELD ROAD BRIDGE SEC. F

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6786.00 | 10.68 | 580.88 | 0.00 | 0.00 | 581.12 | .24 | .26 | .01 | 581.80 |
| 2100. | 0. | 2100. | 0. | 0. | 539. | 0. | 111. | 16. | 581.80 |
| .48 | 0.00 | 3.90 | 0.00 | .035 | .033 | .035 | .032 | 570.20 | 577.26 |
| .000636 | 370. | 370. | 370. | 2 | 0 | 1 | 0.00 | 80.64 | 657.93 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6835.00 | 9.29 | 580.86 | 0.00 | 0.00 | 581.22 | .37 | .04 | .07 | 583.17 |
| 2100. | 0. | 2100. | 0. | 0. | 431. | 0. | 111. | 16. | 583.17 |
| .48 | 0.00 | 4.87 | 0.00 | .035 | .033 | .035 | .032 | 571.57 | 580.60 |
| .001194 | 49. | 49. | 49. | 2 | 0 | 1 | 0.00 | 74.18 | 654.79 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.00 ELREA= 582.00

D/S FACE OF SOUTHFIELD ROAD BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6836.00 | 9.46 | 581.06 | 0.00 | 0.00 | 581.27 | .21 | .00 | .05 | 582.00 |
| 2100. | 0. | 2100. | 0. | 0. | 573. | 0. | 111. | 16. | 582.00 |
| .48 | 0.00 | 3.66 | 0.00 | .035 | .025 | .035 | .032 | 571.60 | 900.00 |
| .000351 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 73.00 | 973.00 |

SPECIAL BRIDGE

| SBX | XKOR | COFQ | RDLEN | BAC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|
| .90 | 1.50 | 2.90 | -0.00 | 73.00 | 2.50 | 385.10 | -0.00 | 571.60 | 571.60 |

PRESSURE FLOW

| EGPRS | EGLWC | WS | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|

581.76 581.28 .01 0. 2100. 385. 578.30 583.00 10.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.00 ELREA= 583.00

U/S FACE OF SOUTHFIELD ROAD BRIDGE SEC. G

CONCRETE BRIDGE WITH I-BEAM STRINGERS

80 FEET WIDE, 1 PIER 2.5 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6916.00 | 9.97 | 581.57 | 0.00 | 0.00 | 581.76 | .18 | .48 | 0.00 | 582.00 |
| 2100. | 0. | 2100. | 0. | 0. | 611. | 0. | 112. | 16. | 582.00 |
| .49 | 0.00 | 3.44 | 0.00 | .035 | .025 | .035 | .032 | 571.60 | 900.00 |
| .000289 | 80. | 80. | 80. | 2 | 0 | 1 | 0.00 | 73.00 | 973.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.20 ELREA= 583.20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6917.00 | 9.92 | 581.52 | 0.00 | 0.00 | 581.82 | .30 | .00 | .06 | 583.20 |
| 2100. | 0. | 2100. | 0. | 0. | 479. | 0. | 112. | 16. | 583.20 |
| .49 | 0.00 | 4.39 | 0.00 | .035 | .033 | .035 | .032 | 571.60 | 579.10 |
| .000887 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 77.10 | 656.21 |

3470 ENCROACHMENT STATIONS= 560.0 660.0 TYPE= 1 TARGET= 100.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.80 ELREA= 100000.00

REPEATED SECTION OF 6917

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7436.00 | 10.79 | 581.99 | 0.00 | 0.00 | 582.21 | .23 | .38 | .02 | 582.80 |
| 2100. | 0. | 2100. | 0. | 0. | 548. | 0. | 118. | 17. | 100000.00 |
| .53 | 0.00 | 3.83 | 0.00 | .035 | .033 | .035 | .032 | 571.20 | 577.33 |
| .000609 | 519. | 519. | 519. | 2 | 0 | 1 | 0.00 | 81.13 | 658.17 |

3280 CROSS SECTION 7936.00 EXTENDED .58 FEET

3470 ENCROACHMENT STATIONS= 436.0 516.0 TYPE= 1 TARGET= 80.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.60 ELREA= 100000.00

1020 FEET U/S OF SOUTHFIELD ROAD BRIDGE SEC. H

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7936.00 | 11.48 | 582.28 | 0.00 | 0.00 | 582.50 | .22 | .24 | .00 | 582.60 |
| 2100. | 0. | 2100. | 0. | 0. | 561. | 0. | 125. | 18. | 100000.00 |
| .56 | 0.00 | 3.74 | 0.00 | .035 | .033 | .035 | .032 | 570.80 | 435.70 |
| .000529 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 77.21 | 513.91 |

3280 CROSS SECTION 8536.00 EXTENDED .23 FEET

3470 ENCROACHMENT STATIONS= 150.0 400.0 TYPE= 1 TARGET= 250.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8536.00 | 11.72 | 582.62 | 0.00 | 0.00 | 582.79 | .16 | .27 | .02 | 581.70 |
| 2100. | 100. | 1994. | 6. | 133. | 598. | 10. | 134. | 20. | 562.10 |
| .62 | .75 | 3.34 | .58 | .035 | .033 | .035 | .032 | 570.90 | 150.00 |
| .000384 | 600. | 600. | 600. | 0 | 0 | 1 | 0.00 | 250.00 | 400.00 |

3470 ENCROACHMENT STATIONS= 140.0 310.0 TYPE= 1 TARGET= 170.000

2220 FEET U/S OF SOUTHFIELD ROAD BRIDGE SEC. I

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9136.00 | 11.96 | 582.86 | 0.00 | 0.00 | 583.00 | .14 | .21 | .01 | 580.80 |
| 2100. | 44. | 1944. | 112. | 47. | 618. | 104. | 144. | 23. | 581.10 |
| .67 | .92 | 3.15 | 1.08 | .035 | .033 | .035 | .032 | 570.90 | 140.00 |
| .000314 | 600. | 600. | 600. | 2 | 0 | 1 | 0.00 | 170.00 | 310.00 |

3470 ENCROACHMENT STATIONS= 50.0 250.0 TYPE= 1 TARGET= 200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9586.00 | 12.06 | 583.00 | 0.00 | 0.00 | 583.16 | .16 | .15 | .01 | 580.84 |
| 2100. | 60. | 2040. | 0. | 70. | 626. | 0. | 152. | 25. | 100000.04 |
| .71 | .86 | 3.26 | 0.00 | .035 | .033 | .035 | .032 | 570.94 | 91.87 |
| .000341 | 450. | 450. | 450. | 1 | 0 | 1 | 0.00 | 154.13 | 250.00 |

3280 CROSS SECTION 9596.00 EXTENDED .58 FEET

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | KV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TRA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 245.0 445.0 TYPE= 1 TARGET= 200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9596.00 | 12.05 | 583.03 | 0.00 | 0.00 | 583.17 | .14 | .00 | .01 | 581.68 |
| 2100. | 218. | 1882. | 0. | 165. | 603. | 0. | 152. | 25. | 100000.03 |
| .71 | 1.32 | 3.12 | 0.00 | .035 | .033 | .035 | .032 | 570.98 | 245.00 |
| .000498 | 10. | 10. | 10. | 2 | 0 | 1 | 0.00 | 200.00 | 445.00 |

3280 CROSS SECTION 10286.00 EXTENDED .86 FEET

3470 ENCROACHMENT STATIONS= 245.0 445.0 TYPE= 1 TARGET= 200.000

50 FEET D/S OF EMPIRE STREET SEC. J

WALL ON RIGHT BANK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10286.00 | 12.36 | 583.36 | 0.00 | 0.00 | 583.48 | .12 | .30 | .01 | 581.90 |
| 2100. | 257. | 1843. | 0. | 196. | 642. | 0. | 165. | 24. | 100000.00 |
| .78 | 1.31 | 2.87 | 0.00 | .035 | .033 | .035 | .032 | 571.00 | 245.00 |
| .000389 | 690. | 690. | 690. | 2 | 0 | 1 | 0.00 | 200.00 | 445.00 |

3470 ENCROACHMENT STATIONS= 350.0 445.0 TYPE= 1 TARGET= 95.000

EMPIRE STREET BRIDGE SEC. K

BRIDGE HAS BEEN REMOVED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10336.00 | 10.84 | 583.34 | 0.00 | 0.00 | 583.54 | .20 | .02 | .04 | 579.80 |
| 2100. | 359. | 1741. | 0. | 172. | 457. | 0. | 165. | 28. | 100000.00 |
| .79 | 2.09 | 3.81 | 0.00 | .035 | .033 | .035 | .032 | 572.50 | 350.00 |
| .000466 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 95.00 | 445.00 |

3280 CROSS SECTION 10636.00 EXTENDED .46 FEET

3470 ENCROACHMENT STATIONS= 655.0 800.0 TYPE= 1 TARGET= 145.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.57 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10636.00 | 11.06 | 583.53 | 0.00 | 0.00 | 583.73 | .20 | .19 | .00 | 584.57 |
| 2100. | 0. | 2100. | 0. | 0. | 578. | 0. | 170. | 29. | 100000.00 |
| .81 | 0.00 | 3.63 | 0.00 | .035 | .033 | .035 | .032 | 572.47 | 674.15 |
| .000887 | 300. | 300. | 300. | 2 | 0 | 1 | 0.00 | 125.85 | 800.00 |

3280 CROSS SECTION 11536.00 EXTENDED 1.33 FEET

3470 ENCROACHMENT STATIONS= 655.0 855.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.50 ELREA= 100000.00

1200 FEET U/S OF EMPIRE STREET SEC. L

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11536.00 | 11.93 | 584.33 | 0.00 | 0.00 | 584.46 | .12 | .10 | .02 | 584.50 |
| 2100. | 0. | 2100. | 0. | 0. | 743. | 0. | 183. | 32. | 100000.00 |
| .90 | 0.00 | 2.83 | 0.00 | .035 | .033 | .035 | .032 | 572.40 | 658.08 |
| .000690 | 900. | 900. | 900. | 2 | 0 | 1 | 0.00 | 196.91 | 855.00 |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Ecorse

3) WATERCOURSE: North Ecorse Creek

4) DOCUMENT TYPE: Report

00BREAK00

# HYDRAULIC ANALYSIS

## Introduction

The North Ecorse Creek drains portions of Romulus, Wayne, Dearborn Heights, Taylor, Allen Park, Lincoln Park and Ecorse before discharging into the Sexton-Kilfoil Drain at Wyandotte. It has a drainage area of approximately 14,400 acres. The study includes the Sexton-Kilfoil Drain from the Jefferson Avenue Bridge to section 2436, approximately 2389' downstream from the Mill Street Bridge, and nearly two miles of the North Ecorse Creek up to the Outer Drive Hospital, nearly 4300' upstream of Southfield Road. The flows were determined by analysis of drainage and retention patterns from Detroit Metropolitan Airport to the Detroit River. The flows have been approved by the Michigan Department of Natural Resources.

## Method of Analysis

The flood profiles were calculated by the HEC-2 computer program developed by the U.S. Army Corps of Engineers. All bridges have been modeled by the requirements of the HEC-2 normal and special bridge routines.

## Variables and Coefficients

The roughness factors (Manning's "n") were determined by comparing the descriptions in Ven Te Chow's Open-Channel Hydraulics (Reference 1) with photographs and field descriptions taken in Ecorse by survey crews in 1975.

In order to reflect the generally gradual changes in cross section geometry, the expansion and contraction coefficients used in this study were .3 and .5, respectively

Starting Point

The profile computations for the North Ecorse Creek and the section of the Sexton-Kilfoil Drain studied began below the Jefferson Avenue Bridge by inputting the mean Detroit River elevation 574.90 (USC&GS) as a known water-surface elevation. Stationing was recorded as river feet beginning from the Detroit River. In the Final Flood Insurance Study Report, the 10-, 50-, 100- and 500-year Detroit River flood elevations will be extended horizontally upstream until the corresponding Sexton-Kilfoil Drain profiles are intersected.

Discussion

The floodway and flooded outline from the Sexton-Kilfoil will be continued upstream to the North Ecorse Creek.

If overland flow occurs due to overtopping of banks, it is assumed that streets will carry the flow away from the stream; therefore, the flooded outline has been foreshortened in locations along the North Ecorse Creek.

## References

1. Chow, Ven Te, Open-Channel Hydraulics, McGraw-Hill Engineering Series, 1959.

Cross Section Location

| Cross Section | SECNO | Location |
|---|---|---|
| A | 136 | u/s face Jefferson Street Bridge |
| B | 187 | 50' u/s of Jefferson Street Bridge |
| C | 737 | 50' d/s of Railroad Bridge #1 |
| D | 797 | u/s face Railroad Bridge #1 |
| E | 859 | u/s face Railroad Bridge #2 |
| F | 921 | u/s face Railroad Bridge #3 |
| G | 985 | u/s face Railroad Bridge #4 |
| H | 1036 | 50' u/s of Railroad Bridge #4 |
| I | 2436 | 1450' u/s Railroad Bridge #4 |
| J | 2736 | 2089' d/s of Mill Street Bridge |
| K | 3836 | 989' d/s of Mill Street Bridge |
| L | 4786 | 39' d/s of Mill Street Bridge |
| M | 4846 | u/s face of Mill Street Bridge |
| N | 5936 | 1090' u/s of Mill Street Bridge |
| O | 6786 | 49' d/s of Southfield Road Bridge |
| P | 6916 | u/s face of Southfield Road Bridge |
| Q | 7936 | 1020' u/s of Southfield Road Bridge |
| R | 9136 | 2420' u/s of Southfield Road Bridge |
| S | 10286 | 50' d/s of Empire Street |
| T | 10336 | At Empire Street |
| U | 11536 | 1200' u/s of Empire Street |

Changes in Reach Length

North Ecorse Creek

Section 1 was eliminated and the study was changed to include the Sexton-Kilfoil Drain from the Detroit River upstream to the confluence of the North Ecorse Creek and then about two miles up the North Ecorse Creek. Stationing starts at the Detroit River.

| Station (Corrected Number) | Change | Location |
|---|---|---|
| 2736 | 200' subtracted | 2089' D/S Mill St. Bridge |
| 3436 | 200' added | 1389' D/S Mill St. Bridge |
| 6416 | 170' subtracted | 420' D/S Southfield Road Bridge |
| 6786 | 130' subtracted | 50' D/S Southfield Road Bridge |
| 10286 | 150' added | 50' D/S Empire Street |
| 11536 | 200' added | 1200' U/S Empire Street |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Ecorse

3) WATERCOURSE: North Ecorse Creek

4) DOCUMENT TYPE: Summary

00BREAK00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

NORTH BRANCH OF ECORSE C

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | AV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.90 | .32 | 0.00 | 0.00 | 3165.00 | 11.50 | 89.83 |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.90 | .53 | 0.00 | 0.00 | 4100.00 | 11.50 | 89.83 |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.90 | .61 | 0.00 | 0.00 | 4410.00 | 11.50 | 89.83 |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 574.90 | .94 | 0.00 | 0.00 | 5160.00 | 11.50 | 89.83 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.92 | .31 | .02 | .00 | 3165.00 | 11.52 | 89.98 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.93 | .53 | .03 | .00 | 4100.00 | 11.53 | 90.06 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.94 | .61 | .03 | .00 | 4410.00 | 11.54 | 90.12 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 574.96 | .83 | .05 | .00 | 5160.00 | 11.56 | 90.27 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.94 | .31 | .02 | .00 | 3165.00 | 11.54 | 90.13 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.97 | .52 | .03 | .00 | 4100.00 | 11.57 | 90.37 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.98 | .60 | .03 | .00 | 4410.00 | 11.58 | 90.46 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 575.03 | .81 | .05 | .00 | 5160.00 | 11.63 | 90.90 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 3165.00 | 574.91 | .38 | .00 | .03 | 3165.00 | 11.51 | 82.91 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 4100.00 | 574.92 | .63 | .00 | .05 | 4100.00 | 11.52 | 82.99 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 4410.00 | 574.92 | .73 | .00 | .06 | 4410.00 | 11.52 | 83.02 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 5160.00 | 574.94 | .99 | .00 | .09 | 5160.00 | 11.54 | 83.18 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 3165.00 | 575.00 | .37 | .03 | .00 | 3165.00 | 11.60 | 83.67 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 4100.00 | 575.09 | .60 | .13 | .01 | 4100.00 | 11.69 | 84.38 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 4410.00 | 575.12 | .69 | .15 | .01 | 4410.00 | 11.72 | 84.69 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 5160.00 | 575.24 | .92 | .20 | .02 | 5160.00 | 11.84 | 85.68 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 575.09 | .30 | .00 | .02 | 3165.00 | 11.69 | 91.38 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 575.24 | .49 | .00 | .03 | 4100.00 | 11.84 | 92.64 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 575.30 | .55 | .00 | .04 | 4410.00 | 11.90 | 93.17 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 575.50 | .72 | .00 | .06 | 5160.00 | 12.10 | 94.13 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 3165.00 | 575.09 | .34 | .03 | .02 | 3165.00 | 10.99 | 88.95 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 4100.00 | 575.25 | .55 | .05 | .03 | 4100.00 | 11.15 | 90.51 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 4410.00 | 575.32 | .63 | .06 | .04 | 4410.00 | 11.22 | 91.18 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 5160.00 | 575.52 | .82 | .07 | .05 | 5160.00 | 11.42 | 92.35 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 3165.00 | 575.38 | .19 | .08 | .05 | 3165.00 | 11.41 | 143.47 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 4100.00 | 575.72 | .28 | .12 | .08 | 4100.00 | 11.75 | 145.17 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 4410.00 | 575.86 | .31 | .13 | .10 | 4410.00 | 11.89 | 145.84 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 5160.00 | 576.24 | .38 | .16 | .13 | 5160.00 | 12.27 | 147.72 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 3165.00 | 575.49 | .19 | .11 | .00 | 3165.00 | 11.79 | 121.40 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 4100.00 | 575.89 | .28 | .16 | .00 | 4100.00 | 12.19 | 122.47 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 4410.00 | 576.04 | .31 | .18 | .00 | 4410.00 | 12.34 | 122.89 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 5160.00 | 576.45 | .39 | .21 | .00 | 5160.00 | 12.75 | 123.99 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 3165.00 | 575.47 | .26 | .02 | .04 | 3165.00 | 11.57 | 106.60 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 4100.00 | 575.86 | .40 | .03 | .06 | 4100.00 | 11.96 | 106.60 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 4410.00 | 576.01 | .44 | .03 | .06 | 4410.00 | 12.11 | 106.60 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 5160.00 | 576.41 | .55 | .04 | .08 | 5160.00 | 12.51 | 106.60 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 3165.00 | 575.44 | .33 | .00 | .03 | 3165.00 | 11.54 | 97.00 |
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 4100.00 | 575.81 | .49 | .00 | .05 | 4100.00 | 11.91 | 104.00 |
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 4410.00 | 575.96 | .54 | .00 | .05 | 4410.00 | 12.06 | 104.00 |
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 5160.00 | 576.35 | .67 | .00 | .06 | 5160.00 | 12.45 | 104.00 |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 3165.00 | 575.46 | .32 | .02 | .00 | 3165.00 | 11.56 | 97.00 |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 4100.00 | 575.85 | .49 | .01 | .00 | 4100.00 | 11.95 | 104.00 |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 4410.00 | 576.00 | .54 | .03 | .00 | 4410.00 | 12.10 | 104.00 |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 5160.00 | 576.40 | .66 | .04 | .00 | 5160.00 | 12.50 | 104.00 |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 3165.00 | 575.55 | .26 | .00 | .02 | 3165.00 | 11.65 | 106.60 |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 4100.00 | 575.98 | .39 | .00 | .03 | 4100.00 | 12.08 | 106.60 |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 4410.00 | 576.15 | .43 | .00 | .03 | 4410.00 | 12.25 | 106.60 |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 5160.00 | 576.58 | .53 | .00 | .04 | 5160.00 | 12.68 | 106.60 |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 3165.00 | 575.58 | .26 | .03 | .00 | 3165.00 | 10.58 | 105.39 |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 4100.00 | 576.03 | .38 | .04 | .00 | 4100.00 | 11.03 | 108.18 |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 4410.00 | 576.20 | .42 | .04 | .00 | 4410.00 | 11.20 | 108.98 |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 5160.00 | 576.64 | .52 | .05 | .00 | 5160.00 | 11.64 | 109.00 |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 3165.00 | 575.56 | .30 | .00 | .02 | 3165.00 | 10.56 | 98.26 |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 4100.00 | 575.99 | .45 | .00 | .03 | 4100.00 | 10.99 | 100.93 |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 4410.00 | 576.16 | .50 | .00 | .04 | 4410.00 | 11.16 | 101.85 |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 5160.00 | 576.60 | .61 | .00 | .05 | 5160.00 | 11.60 | 102.00 |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 3165.00 | 575.59 | .30 | .03 | .00 | 3165.00 | 10.59 | 98.40 |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 4100.00 | 576.04 | .44 | .04 | .00 | 4100.00 | 11.04 | 101.26 |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 4410.00 | 576.21 | .49 | .04 | .00 | 4410.00 | 11.21 | 102.00 |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 5160.00 | 576.66 | .60 | .05 | .00 | 5160.00 | 11.66 | 102.00 |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 3165.00 | 575.65 | .25 | .00 | .01 | 3165.00 | 10.65 | 105.84 |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 4100.00 | 576.14 | .37 | .00 | .02 | 4100.00 | 11.14 | 108.77 |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 4410.00 | 576.32 | .41 | .00 | .02 | 4410.00 | 11.32 | 109.00 |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 5160.00 | 576.80 | .50 | .00 | .03 | 5160.00 | 11.80 | 109.00 |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 3165.00 | 575.70 | .23 | .03 | .01 | 3165.00 | 11.70 | 107.00 |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 4100.00 | 576.21 | .34 | .04 | .01 | 4100.00 | 12.21 | 107.00 |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 4410.00 | 576.39 | .38 | .04 | .01 | 4410.00 | 12.39 | 107.00 |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 5160.00 | 576.88 | .47 | .04 | .01 | 5160.00 | 12.88 | 107.00 |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 3165.00 | 575.68 | .29 | .00 | .03 | 3165.00 | 11.68 | 105.00 |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 4100.00 | 576.17 | .42 | .00 | .04 | 4100.00 | 12.17 | 105.00 |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 4410.00 | 576.35 | .47 | .00 | .04 | 4410.00 | 12.35 | 105.00 |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 5160.00 | 576.84 | .56 | .00 | .05 | 5160.00 | 12.84 | 105.00 |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 3165.00 | 575.70 | .29 | .02 | .00 | 3165.00 | 11.70 | 105.00 |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 4100.00 | 576.20 | .42 | .03 | .00 | 4100.00 | 12.20 | 105.00 |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 4410.00 | 576.39 | .46 | .03 | .00 | 4410.00 | 12.39 | 105.00 |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 5160.00 | 576.88 | .56 | .04 | .00 | 5160.00 | 12.88 | 105.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | OCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 3165.00 | 575.78 | .23 | .00 | .02 | 3165.00 | 11.78 | 107.00 |
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 4100.00 | 576.31 | .34 | .00 | .02 | 4100.00 | 12.31 | 107.00 |
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 4410.00 | 576.51 | .37 | .00 | .03 | 4410.00 | 12.51 | 107.00 |
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 5160.00 | 577.02 | .45 | .00 | .03 | 5160.00 | 13.02 | 107.00 |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 3165.00 | 575.73 | .3[illegible] | .02 | .06 | 3165.00 | 10.63 | 81.00 |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 4100.00 | 576.25 | .52 | .03 | .09 | 4100.00 | 11.15 | 81.00 |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 4410.00 | 576.44 | .57 | .03 | .10 | 4410.00 | 11.34 | 81.00 |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 5160.00 | 576.92 | .71 | .03 | .13 | 5160.00 | 11.82 | 81.00 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 3165.00 | 575.65 | .53 | .00 | .09 | 3165.00 | 10.55 | 67.20 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 4100.00 | 576.11 | .79 | .00 | .14 | 4100.00 | 11.01 | 67.20 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 4410.00 | 576.28 | .88 | .00 | .15 | 4410.00 | 11.18 | 67.20 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 5160.00 | 576.73 | 1.09 | .00 | .19 | 5160.00 | 11.63 | 67.20 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 3165.00 | 575.78 | .51 | .11 | .01 | 3165.00 | 10.68 | 67.20 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 4100.00 | 576.32 | .76 | .16 | .01 | 4100.00 | 11.22 | 67.20 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 4410.00 | 576.52 | .84 | .17 | .01 | 4410.00 | 11.42 | 67.20 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 5160.00 | 577.03 | 1.02 | .21 | .02 | 5160.00 | 11.93 | 67.20 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 3165.00 | 576.02 | .32 | .00 | .06 | 3165.00 | 10.92 | 81.00 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 4100.00 | 576.69 | .47 | .00 | .09 | 4100.00 | 11.59 | 81.00 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 4410.00 | 576.94 | .51 | .00 | .10 | 4410.00 | 11.84 | 81.00 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 5160.00 | 577.56 | .62 | .00 | .12 | 5160.00 | 12.46 | 81.00 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 3165.00 | 576.10 | .2[illegible] | .03 | .01 | 3165.00 | 9.90 | 113.42 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 4100.00 | 576.84 | .39 | .04 | .02 | 4100.00 | 10.64 | 117.34 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 4410.00 | 577.10 | .42 | .04 | .03 | 4410.00 | 10.90 | 118.70 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 5160.00 | 577.79 | .47 | .05 | .04 | 5160.00 | 11.59 | 122.23 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 3165.00 | 576.54 | .25 | .39 | .01 | 3165.00 | 11.14 | 110.65 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 4100.00 | 577.39 | .33 | .48 | .02 | 4100.00 | 11.99 | 114.80 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 4410.00 | 577.69 | .36 | .49 | .02 | 4410.00 | 12.28 | 115.58 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 5160.00 | 578.39 | .41 | .52 | .02 | 5160.00 | 12.99 | 117.05 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 3165.00 | 576.87 | .24 | .31 | .00 | 3165.00 | 12.27 | 100.85 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 4100.00 | 577.78 | .32 | .38 | .00 | 4100.00 | 13.18 | 102.00 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 4410.00 | 578.08 | .35 | .39 | .00 | 4410.00 | 13.48 | 102.00 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 5160.00 | 578.82 | .41 | .42 | .00 | 5160.00 | 14.22 | 102.00 |
| 2736.00 | 300.00 | 0.00 | 0.00 | 569.10 | 1500.00 | 577.14 | .12 | .12 | .03 | 1500.00 | 8.04 | 92.48 |
| 2736.00 | 300.00 | 0.00 | 0.00 | 569.10 | 1950.00 | 578.14 | .15 | .14 | .05 | 1950.00 | 9.04 | 97.63 |
| 2736.00 | 300.00 | 0.00 | 0.00 | 569.10 | 2100.00 | 578.47 | .16 | .14 | .06 | 2100.00 | 9.37 | 99.34 |
| 2736.00 | 300.00 | 0.00 | 0.00 | 569.10 | 2495.00 | 579.26 | .18 | .15 | .07 | 2495.00 | 10.16 | 100.00 |
| 3436.00 | 700.00 | 0.00 | 0.00 | 569.48 | 1500.00 | 577.42 | .13 | .29 | .00 | 1500.00 | 7.94 | 91.97 |
| 3436.00 | 700.00 | 0.00 | 0.00 | 569.48 | 1950.00 | 578.44 | .16 | .30 | .00 | 1950.00 | 8.96 | 97.20 |
| 3436.00 | 700.00 | 0.00 | 0.00 | 569.48 | 2100.00 | 578.77 | .16 | .30 | .00 | 2100.00 | 9.29 | 98.91 |
| 3436.00 | 700.00 | 0.00 | 0.00 | 569.48 | 2495.00 | 579.56 | .19 | .30 | .00 | 2495.00 | 10.08 | 100.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3836.00 | 400.00 | 0.00 | 0.00 | 569.70 | 1500.00 | 577.61 | .21 | .23 | .04 | 1500.00 | 7.91 | 82.23 |
| 3836.00 | 400.00 | 0.00 | 0.00 | 569.70 | 1950.00 | 578.62 | .24 | .23 | .04 | 1950.00 | 8.92 | 86.76 |
| 3836.00 | 400.00 | 0.00 | 0.00 | 569.70 | 2100.00 | 578.95 | .25 | .23 | .04 | 2100.00 | 9.25 | 87.67 |
| 3836.00 | 400.00 | 0.00 | 0.00 | 569.70 | 2495.00 | 579.73 | .27 | .22 | .05 | 2495.00 | 10.03 | 89.30 |
| 4311.00 | 475.00 | 0.00 | 0.00 | 569.90 | 1500.00 | 577.99 | .19 | .36 | .00 | 1500.00 | 8.09 | 83.09 |
| 4311.00 | 475.00 | 0.00 | 0.00 | 569.90 | 1950.00 | 578.99 | .23 | .35 | .00 | 1950.00 | 9.09 | 87.26 |
| 4311.00 | 475.00 | 0.00 | 0.00 | 569.90 | 2100.00 | 579.32 | .24 | .35 | .00 | 2100.00 | 9.42 | 88.14 |
| 4311.00 | 475.00 | 0.00 | 0.00 | 569.90 | 2495.00 | 580.09 | .26 | .34 | .00 | 2495.00 | 10.19 | 90.00 |
| 4786.00 | 475.00 | 0.00 | 0.00 | 570.10 | 1500.00 | 578.32 | .13 | .25 | .02 | 1500.00 | 8.22 | 87.32 |
| 4786.00 | 475.00 | 0.00 | 0.00 | 570.10 | 1950.00 | 579.35 | .16 | .27 | .02 | 1950.00 | 9.25 | 97.98 |
| 4786.00 | 475.00 | 0.00 | 0.00 | 570.10 | 2100.00 | 579.69 | .17 | .28 | .02 | 2100.00 | 9.59 | 105.02 |
| 4786.00 | 475.00 | 0.00 | 0.00 | 570.10 | 2495.00 | 580.47 | .18 | .27 | .02 | 2495.00 | 10.37 | 107.00 |
| 4825.00 | 39.00 | 0.00 | 0.00 | 570.80 | 1500.00 | 578.36 | .12 | .02 | .00 | 1500.00 | 7.56 | 98.00 |
| 4825.00 | 39.00 | 0.00 | 0.00 | 570.80 | 1950.00 | 579.40 | .14 | .02 | .01 | 1950.00 | 8.60 | 98.00 |
| 4825.00 | 39.00 | 0.00 | 0.00 | 570.80 | 2100.00 | 579.73 | .15 | .02 | .01 | 2100.00 | 8.93 | 98.00 |
| 4825.00 | 39.00 | 0.00 | 0.00 | 570.80 | 2495.00 | 580.50 | .17 | .02 | .00 | 2495.00 | 9.70 | 98.00 |
| 4846.00 | 21.00 | 579.40 | 578.30 | 570.80 | 1500.00 | 578.40 | .11 | .04 | 0.00 | 1500.00 | 7.60 | 98.00 |
| 4846.00 | 21.00 | 579.40 | 578.30 | 570.80 | 1950.00 | 579.52 | .13 | .12 | 0.00 | 1950.00 | 8.72 | 98.00 |
| 4846.00 | 21.00 | 579.40 | 578.30 | 570.80 | 2100.00 | 579.83 | .14 | .10 | 0.00 | 2100.00 | 9.03 | 98.00 |
| 4846.00 | 21.00 | 579.40 | 578.30 | 570.80 | 2495.00 | 580.50 | .17 | 0.00 | 0.00 | 2495.00 | 9.70 | 98.00 |
| 4847.00 | 1.00 | 0.00 | 0.00 | 570.80 | 1500.00 | 578.40 | .11 | .00 | .00 | 1500.00 | 7.60 | 98.00 |
| 4847.00 | 1.00 | 0.00 | 0.00 | 570.80 | 1950.00 | 579.52 | .13 | .00 | .00 | 1950.00 | 8.72 | 98.00 |
| 4847.00 | 1.00 | 0.00 | 0.00 | 570.80 | 2100.00 | 579.83 | .14 | .00 | .00 | 2100.00 | 9.03 | 98.00 |
| 4847.00 | 1.00 | 0.00 | 0.00 | 570.80 | 2495.00 | 580.50 | .17 | .00 | .00 | 2495.00 | 9.70 | 98.00 |
| 5436.00 | 589.00 | 0.00 | 0.00 | 570.64 | 1500.00 | 578.66 | .16 | .28 | .02 | 1500.00 | 8.02 | 88.72 |
| 5436.00 | 589.00 | 0.00 | 0.00 | 570.64 | 1950.00 | 579.76 | .18 | .27 | .02 | 1950.00 | 9.12 | 93.94 |
| 5436.00 | 589.00 | 0.00 | 0.00 | 570.64 | 2100.00 | 580.07 | .19 | .27 | .02 | 2100.00 | 9.43 | 95.45 |
| 5436.00 | 589.00 | 0.00 | 0.00 | 570.64 | 2495.00 | 580.76 | .22 | .28 | .03 | 2495.00 | 10.12 | 98.72 |
| 5936.00 | 500.00 | 0.00 | 0.00 | 570.50 | 1500.00 | 578.94 | .14 | .25 | .01 | 1500.00 | 8.44 | 90.75 |
| 5936.00 | 500.00 | 0.00 | 0.00 | 570.50 | 1950.00 | 580.04 | .16 | .25 | .01 | 1950.00 | 9.54 | 95.99 |
| 5936.00 | 500.00 | 0.00 | 0.00 | 570.50 | 2100.00 | 580.35 | .17 | .25 | .01 | 2100.00 | 9.85 | 97.50 |
| 5936.00 | 500.00 | 0.00 | 0.00 | 570.50 | 2495.00 | 581.05 | .19 | .25 | .01 | 2493.32 | 10.55 | 137.93 |
| 6416.00 | 480.00 | 0.00 | 0.00 | 570.33 | 1500.00 | 579.18 | .24 | .28 | .04 | 1500.00 | 8.85 | 72.17 |
| 6416.00 | 480.00 | 0.00 | 0.00 | 570.33 | 1950.00 | 580.26 | .26 | .29 | .05 | 1950.00 | 9.93 | 77.22 |
| 6416.00 | 480.00 | 0.00 | 0.00 | 570.33 | 2100.00 | 580.58 | .27 | .28 | .05 | 2100.00 | 10.25 | 78.69 |
| 6416.00 | 480.00 | 0.00 | 0.00 | 570.33 | 2495.00 | 581.29 | .31 | .29 | .06 | 2495.00 | 10.96 | 85.09 |
| 6786.00 | 370.00 | 0.00 | 0.00 | 570.20 | 1500.00 | 579.47 | .19 | .25 | .01 | 1500.00 | 9.27 | 74.02 |
| 6786.00 | 370.00 | 0.00 | 0.00 | 570.20 | 1950.00 | 580.56 | .22 | .25 | .01 | 1950.00 | 10.36 | 79.16 |
| 6786.00 | 370.00 | 0.00 | 0.00 | 570.20 | 2100.00 | 580.88 | .24 | .26 | .01 | 2100.00 | 10.68 | 80.64 |
| 6786.00 | 370.00 | 0.00 | 0.00 | 570.20 | 2495.00 | 581.64 | .26 | .30 | .01 | 2495.00 | 11.44 | 96.23 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6835.00 | 49.00 | 0.00 | 0.00 | 571.57 | 1500.00 | 579.44 | .32 | .04 | .06 | 1500.00 | 7.87 | 67.64 |
| 6835.00 | 49.00 | 0.00 | 0.00 | 571.57 | 1950.00 | 580.54 | .36 | .04 | .07 | 1950.00 | 8.97 | 72.70 |
| 6835.00 | 49.00 | 0.00 | 0.00 | 571.57 | 2100.00 | 580.86 | .37 | .04 | .07 | 2100.00 | 9.29 | 74.18 |
| 6835.00 | 49.00 | 0.00 | 0.00 | 571.57 | 2495.00 | 581.62 | .40 | .05 | .07 | 2495.00 | 10.05 | 77.70 |
| 6836.00 | 1.00 | 0.00 | 0.00 | 571.60 | 1500.00 | 579.65 | .16 | .00 | .05 | 1500.00 | 8.05 | 73.00 |
| 6836.00 | 1.00 | 0.00 | 0.00 | 571.60 | 1950.00 | 580.75 | .20 | .00 | .05 | 1950.00 | 9.15 | 73.00 |
| 6836.00 | 1.00 | 0.00 | 0.00 | 571.60 | 2100.00 | 581.06 | .21 | .00 | .05 | 2100.00 | 9.46 | 73.00 |
| 6836.00 | 1.00 | 0.00 | 0.00 | 571.60 | 2495.00 | 581.82 | .24 | .00 | .05 | 2495.00 | 10.22 | 73.00 |
| 6916.00 | 80.00 | 583.00 | 578.30 | 571.60 | 1500.00 | 579.86 | .15 | .20 | 0.00 | 1500.00 | 8.26 | 73.00 |
| 6916.00 | 80.00 | 583.00 | 578.30 | 571.60 | 1950.00 | 581.17 | .17 | .40 | 0.00 | 1950.00 | 9.57 | 73.00 |
| 6916.00 | 80.00 | 583.00 | 578.30 | 571.60 | 2100.00 | 581.57 | .18 | .48 | 0.00 | 2100.00 | 9.97 | 73.00 |
| 6916.00 | 80.00 | 583.00 | 578.30 | 571.60 | 2495.00 | 582.60 | .21 | .73 | 0.00 | 2495.00 | 11.00 | 73.00 |
| 6917.00 | 1.00 | 0.00 | 0.00 | 571.60 | 1500.00 | 579.79 | .28 | .00 | .07 | 1500.00 | 8.19 | 69.12 |
| 6917.00 | 1.00 | 0.00 | 0.00 | 571.60 | 1950.00 | 581.11 | .29 | .00 | .06 | 1950.00 | 9.51 | 75.21 |
| 6917.00 | 1.00 | 0.00 | 0.00 | 571.60 | 2100.00 | 581.52 | .30 | .00 | .06 | 2100.00 | 9.92 | 77.10 |
| 6917.00 | 1.00 | 0.00 | 0.00 | 571.60 | 2495.00 | 582.55 | .31 | .00 | .05 | 2495.00 | 10.95 | 84.62 |
| 7436.00 | 519.00 | 0.00 | 0.00 | 571.20 | 1500.00 | 580.33 | .20 | .43 | .02 | 1500.00 | 9.13 | 73.46 |
| 7436.00 | 519.00 | 0.00 | 0.00 | 571.20 | 1950.00 | 581.39 | .22 | .39 | .02 | 1950.00 | 10.39 | 79.31 |
| 7436.00 | 519.00 | 0.00 | 0.00 | 571.20 | 2100.00 | 581.99 | .23 | .38 | .02 | 2100.00 | 10.79 | 81.13 |
| 7436.00 | 519.00 | 0.00 | 0.00 | 571.20 | 2495.00 | 583.03 | .23 | .38 | .02 | 2495.00 | 11.83 | 100.00 |
| 7936.00 | 500.00 | 0.00 | 0.00 | 570.80 | 1500.00 | 580.65 | .18 | .29 | .01 | 1500.00 | 9.85 | 69.40 |
| 7936.00 | 500.00 | 0.00 | 0.00 | 570.80 | 1950.00 | 581.69 | .21 | .29 | .00 | 1950.00 | 11.09 | 75.35 |
| 7936.00 | 500.00 | 0.00 | 0.00 | 570.80 | 2100.00 | 582.28 | .22 | .29 | .00 | 2100.00 | 11.48 | 77.21 |
| 7936.00 | 500.00 | 0.00 | 0.00 | 570.80 | 2495.00 | 583.31 | .23 | .29 | .00 | 2495.00 | 12.51 | 80.00 |
| 8536.00 | 600.00 | 0.00 | 0.00 | 570.90 | 1500.00 | 580.97 | .16 | .29 | .01 | 1500.00 | 10.07 | 73.92 |
| 8536.00 | 600.00 | 0.00 | 0.00 | 570.90 | 1950.00 | 582.22 | .17 | .28 | .01 | 1911.49 | 11.32 | 250.00 |
| 8536.00 | 600.00 | 0.00 | 0.00 | 570.90 | 2100.00 | 582.62 | .16 | .27 | .02 | 1994.42 | 11.72 | 250.00 |
| 8536.00 | 600.00 | 0.00 | 0.00 | 570.90 | 2495.00 | 583.67 | .14 | .23 | .03 | 2141.66 | 12.77 | 250.00 |
| 9136.00 | 600.00 | 0.00 | 0.00 | 570.90 | 1500.00 | 581.24 | .14 | .25 | .01 | 1497.84 | 10.34 | 146.17 |
| 9136.00 | 600.00 | 0.00 | 0.00 | 570.90 | 1950.00 | 582.48 | .14 | .22 | .01 | 1846.95 | 11.58 | 170.00 |
| 9136.00 | 600.00 | 0.00 | 0.00 | 570.90 | 2100.00 | 582.86 | .14 | .21 | .01 | 1943.91 | 11.96 | 170.00 |
| 9136.00 | 600.00 | 0.00 | 0.00 | 570.90 | 2495.00 | 583.84 | .14 | .17 | .00 | 2174.64 | 12.94 | 170.00 |
| 9586.00 | 450.00 | 0.00 | 0.00 | 570.94 | 1500.00 | 581.41 | .14 | .17 | .00 | 1498.53 | 10.48 | 89.42 |
| 9586.00 | 450.00 | 0.00 | 0.00 | 570.94 | 1950.00 | 582.63 | .16 | .15 | .01 | 1916.40 | 11.70 | 134.70 |
| 9586.00 | 450.00 | 0.00 | 0.00 | 570.94 | 2100.00 | 583.00 | .16 | .15 | .01 | 2040.15 | 12.06 | 158.13 |
| 9586.00 | 450.00 | 0.00 | 0.00 | 570.94 | 2495.00 | 583.95 | .16 | .13 | .01 | 2312.51 | 13.02 | 200.00 |
| 9596.00 | 10.00 | 0.00 | 0.00 | 570.98 | 1500.00 | 581.40 | .18 | .01 | .02 | 1493.37 | 10.42 | 142.67 |
| 9596.00 | 10.00 | 0.00 | 0.00 | 570.98 | 1950.00 | 582.65 | .15 | .00 | .00 | 1801.51 | 11.67 | 200.00 |
| 9596.00 | 10.00 | 0.00 | 0.00 | 570.98 | 2100.00 | 583.03 | .14 | .00 | .01 | 1882.08 | 12.05 | 200.00 |
| 9596.00 | 10.00 | 0.00 | 0.00 | 570.98 | 2495.00 | 584.01 | .12 | .00 | .01 | 2084.12 | 13.03 | 200.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10286.00 | 690.00 | 0.00 | 0.00 | 571.00 | 1500.00 | 581.90 | .13 | .45 | .01 | 1467.59 | 10.90 | 200.00 |
| 10286.00 | 690.00 | 0.00 | 0.00 | 571.00 | 1950.00 | 583.02 | .12 | .34 | .01 | 1755.11 | 12.02 | 200.00 |
| 10286.00 | 690.00 | 0.00 | 0.00 | 571.00 | 2100.00 | 583.36 | .12 | .30 | .01 | 1842.56 | 12.36 | 200.00 |
| 10286.00 | 690.00 | 0.00 | 0.00 | 571.00 | 2495.00 | 584.26 | .11 | .24 | .00 | 2059.61 | 13.26 | 200.00 |
| 10336.00 | 50.00 | 0.00 | 0.00 | 572.50 | 1500.00 | 581.91 | .17 | .03 | .02 | 1355.21 | 9.41 | 95.00 |
| 10336.00 | 50.00 | 0.00 | 0.00 | 572.50 | 1950.00 | 583.01 | .19 | .02 | .04 | 1647.63 | 10.51 | 95.00 |
| 10336.00 | 50.00 | 0.00 | 0.00 | 572.50 | 2100.00 | 583.34 | .20 | .02 | .04 | 1740.58 | 10.84 | 95.00 |
| 10336.00 | 50.00 | 0.00 | 0.00 | 572.50 | 2495.00 | 584.23 | .21 | .02 | .05 | 1970.89 | 11.73 | 95.00 |
| 10636.00 | 300.00 | 0.00 | 0.00 | 572.47 | 1500.00 | 582.06 | .18 | .15 | .00 | 1500.00 | 9.59 | 73.39 |
| 10636.00 | 300.00 | 0.00 | 0.00 | 572.47 | 1950.00 | 583.19 | .20 | .19 | .01 | 1950.00 | 10.72 | 120.39 |
| 10636.00 | 300.00 | 0.00 | 0.00 | 572.47 | 2100.00 | 583.53 | .20 | .19 | .00 | 2100.00 | 11.06 | 125.85 |
| 10636.00 | 300.00 | 0.00 | 0.00 | 572.47 | 2495.00 | 584.43 | .20 | .18 | .00 | 2495.00 | 11.96 | 142.35 |
| 11536.00 | 900.00 | 0.00 | 0.00 | 572.40 | 1500.00 | 582.54 | .15 | .44 | .01 | 1500.00 | 10.14 | 76.00 |
| 11536.00 | 900.00 | 0.00 | 0.00 | 572.40 | 1950.00 | 584.04 | .13 | .75 | .02 | 1950.00 | 11.64 | 191.55 |
| 11536.00 | 900.00 | 0.00 | 0.00 | 572.40 | 2100.00 | 584.33 | .12 | .70 | .02 | 2100.00 | 11.93 | 196.91 |
| 11536.00 | 900.00 | 0.00 | 0.00 | 572.40 | 2495.00 | 585.11 | .12 | .58 | .02 | 2495.00 | 12.71 | 200.00 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 1.000 | 3165.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 4100.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 4410.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 5160.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 30.000 | 3165.000 | 574.919 | 0.000 | .019 | 0.000 | 89.979 | 0.000 | 29.000 |
| 30.000 | 4100.000 | 574.934 | .015 | .034 | 0.000 | 90.077 | -.098 | 29.000 |
| 30.000 | 4410.000 | 574.941 | .006 | .041 | 0.000 | 90.115 | -.137 | 29.000 |
| 30.000 | 5160.000 | 574.961 | .020 | .061 | 0.000 | 90.272 | -.293 | 29.000 |
| 60.000 | 3165.000 | 574.939 | 0.000 | .020 | 0.000 | 90.123 | 0.000 | 30.000 |
| 60.000 | 4100.000 | 574.970 | .031 | .036 | 0.000 | 90.370 | -.241 | 30.000 |
| 60.000 | 4410.000 | 574.983 | .013 | .043 | 0.000 | 90.461 | -.333 | 30.000 |
| 60.000 | 5160.000 | 575.028 | .044 | .067 | 0.000 | 90.398 | -.769 | 30.000 |
| 61.000 | 3165.000 | 574.909 | 0.000 | -.030 | 0.000 | 92.906 | 0.000 | 1.000 |
| 61.000 | 4100.000 | 574.913 | .010 | -.052 | 0.000 | 92.985 | -.080 | 1.000 |
| 61.000 | 4410.000 | 574.923 | .005 | -.061 | 0.000 | 93.023 | -.117 | 1.000 |
| 61.000 | 5160.000 | 574.942 | .019 | -.086 | 0.000 | 93.182 | -.276 | 1.000 |
| 136.000 | 3165.000 | 575.000 | 0.000 | .091 | 0.000 | 93.668 | 0.000 | 75.000 |
| 136.000 | 4100.000 | 575.085 | .085 | .167 | 0.000 | 84.376 | -.709 | 75.000 |
| 136.000 | 4410.000 | 575.122 | .037 | .200 | 0.000 | 84.688 | -1.020 | 75.000 |
| 136.000 | 5160.000 | 575.242 | .119 | .300 | 0.000 | 55.584 | -2.016 | 75.000 |
| 137.000 | 3165.000 | 575.086 | 0.000 | .085 | 0.000 | 91.381 | 0.000 | 1.000 |
| 137.000 | 4100.000 | 575.236 | .150 | .151 | 0.000 | 92.635 | -1.255 | 1.000 |
| 137.000 | 4410.000 | 575.300 | .064 | .178 | 0.000 | 93.172 | -1.791 | 1.000 |
| 137.000 | 5160.000 | 575.495 | .195 | .254 | 0.000 | 94.127 | -2.747 | 1.000 |
| 187.000 | 3165.000 | 575.095 | 0.000 | .009 | 0.000 | 88.947 | 0.000 | 50.000 |
| 187.000 | 4100.000 | 575.251 | .156 | .015 | 0.000 | 90.512 | -1.564 | 50.000 |
| 187.000 | 4410.000 | 575.318 | .066 | .018 | 0.000 | 91.177 | -2.229 | 50.000 |
| 187.000 | 5160.000 | 575.518 | .200 | .023 | 0.000 | 92.350 | -3.403 | 50.000 |
| 362.000 | 3165.000 | 575.377 | 0.000 | .283 | 0.000 | 143.475 | 0.000 | 175.000 |
| 362.000 | 4100.000 | 575.724 | .346 | .472 | 0.000 | 145.168 | -1.693 | 175.000 |
| 362.000 | 4410.000 | 575.862 | .138 | .544 | 0.000 | 145.843 | -2.368 | 175.000 |
| 362.000 | 5160.000 | 576.244 | .383 | .726 | 0.000 | 147.720 | -4.245 | 175.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 737.000 | 3165.000 | 575.490 | 0.000 | .113 | 0.000 | 121.404 | 0.000 | 375.000 |
| 737.000 | 4100.000 | 575.887 | .397 | .163 | 0.000 | 122.475 | -1.071 | 375.000 |
| 737.000 | 4410.000 | 576.040 | .153 | .179 | 0.000 | 122.886 | -1.483 | 375.000 |
| 737.000 | 5160.000 | 576.454 | .413 | .209 | 0.000 | 123.994 | -2.590 | 375.000 |
| 787.000 | 3165.000 | 575.472 | 0.000 | -.018 | 0.000 | 106.600 | 0.000 | 50.000 |
| 787.000 | 4100.000 | 575.858 | .387 | -.029 | 0.000 | 106.600 | 0.000 | 50.000 |
| 787.000 | 4410.000 | 576.008 | .149 | -.032 | 0.000 | 106.600 | 0.000 | 50.000 |
| 787.000 | 5160.000 | 576.412 | .404 | -.042 | 0.000 | 106.600 | 0.000 | 50.000 |
| 788.000 | 3165.000 | 575.442 | 0.000 | -.030 | 0.000 | 97.000 | 0.000 | 1.000 |
| 788.000 | 4100.000 | 575.814 | .372 | -.045 | 0.000 | 104.000 | -7.000 | 1.000 |
| 788.000 | 4410.000 | 575.958 | .145 | -.049 | 0.000 | 104.000 | -7.000 | 1.000 |
| 788.000 | 5160.000 | 576.353 | .394 | -.059 | 0.000 | 104.000 | -7.000 | 1.000 |
| 797.000 | 3165.000 | 575.465 | 0.000 | .023 | 0.000 | 97.000 | 0.000 | 9.000 |
| 797.000 | 4100.000 | 575.851 | .386 | .037 | 0.000 | 104.000 | -7.000 | 9.000 |
| 797.000 | 4410.000 | 576.001 | .151 | .043 | 0.000 | 104.000 | -7.000 | 9.000 |
| 797.000 | 5160.000 | 576.404 | .403 | .052 | 0.000 | 104.000 | -7.000 | 9.000 |
| 798.000 | 3165.000 | 575.553 | 0.000 | .088 | 0.000 | 106.600 | 0.000 | 1.000 |
| 798.000 | 4100.000 | 575.984 | .431 | .134 | 0.000 | 106.600 | 0.000 | 1.000 |
| 798.000 | 4410.000 | 576.147 | .163 | .146 | 0.000 | 106.600 | 0.000 | 1.000 |
| 798.000 | 5160.000 | 576.583 | .435 | .178 | 0.000 | 106.600 | 0.000 | 1.000 |
| 844.000 | 3165.000 | 575.582 | 0.000 | .029 | 0.000 | 105.391 | 0.000 | 46.000 |
| 844.000 | 4100.000 | 576.027 | .445 | .043 | 0.000 | 108.181 | -2.789 | 46.000 |
| 844.000 | 4410.000 | 576.195 | .168 | .048 | 0.000 | 108.983 | -3.592 | 46.000 |
| 844.000 | 5160.000 | 576.641 | .446 | .059 | 0.000 | 109.000 | -3.609 | 46.000 |
| 845.000 | 3165.000 | 575.561 | 0.000 | -.022 | 0.000 | 98.255 | 0.000 | 1.000 |
| 845.000 | 4100.000 | 575.995 | .434 | -.033 | 0.000 | 100.975 | -2.720 | 1.000 |
| 845.000 | 4410.000 | 576.159 | .164 | -.036 | 0.000 | 101.851 | -3.595 | 1.000 |
| 845.000 | 5160.000 | 576.596 | .437 | -.045 | 0.000 | 102.000 | -3.745 | 1.000 |
| 859.000 | 3165.000 | 575.590 | 0.000 | .029 | 0.000 | 99.400 | 0.000 | 14.500 |
| 859.000 | 4100.000 | 576.040 | .451 | .046 | 0.000 | 101.263 | -2.363 | 14.500 |
| 859.000 | 4410.000 | 576.210 | .170 | .051 | 0.000 | 102.000 | -3.600 | 14.500 |
| 859.000 | 5160.000 | 576.661 | .451 | .065 | 0.000 | 102.000 | -3.600 | 14.500 |
| 860.000 | 3165.000 | 575.653 | 0.000 | .064 | 0.000 | 105.838 | 0.000 | 1.000 |
| 860.000 | 4100.000 | 576.137 | .484 | .097 | 0.000 | 108.773 | -2.935 | 1.000 |
| 860.000 | 4410.000 | 576.318 | .181 | .108 | 0.000 | 109.000 | -3.162 | 1.000 |
| 860.000 | 5160.000 | 576.797 | .479 | .136 | 0.000 | 109.000 | -3.162 | 1.000 |
| 910.000 | 3165.000 | 575.702 | 0.000 | .049 | 0.000 | 107.000 | 0.000 | 50.000 |
| 910.000 | 4100.000 | 576.208 | .505 | .070 | 0.000 | 107.000 | 0.000 | 50.000 |
| 910.000 | 4410.000 | 576.395 | .187 | .076 | 0.000 | 107.000 | 0.000 | 50.000 |
| 910.000 | 5160.000 | 576.883 | .489 | .086 | 0.000 | 107.000 | 0.000 | 50.000 |
| 911.000 | 3165.000 | 575.676 | 0.000 | -.027 | 0.000 | 105.000 | 0.000 | 1.000 |
| 911.000 | 4100.000 | 576.170 | .494 | -.038 | 0.000 | 105.000 | 0.000 | 1.000 |
| 911.000 | 4410.000 | 576.354 | .184 | -.041 | 0.000 | 105.000 | 0.000 | 1.000 |
| 911.000 | 5160.000 | 576.836 | .482 | -.047 | 0.000 | 105.000 | 0.000 | 1.000 |
| 921.000 | 3165.000 | 575.700 | 0.000 | .024 | 0.000 | 105.000 | 0.000 | 10.000 |
| 921.000 | 4100.000 | 576.204 | .504 | .034 | 0.000 | 105.000 | 0.000 | 10.000 |
| 921.000 | 4410.000 | 576.390 | .186 | .037 | 0.000 | 105.000 | 0.000 | 10.000 |
| 921.000 | 5160.000 | 576.860 | .490 | .045 | 0.000 | 105.000 | 0.000 | 10.000 |
| 922.000 | 3165.000 | 575.776 | 0.000 | .076 | 0.000 | 107.000 | 0.000 | 1.000 |
| 922.000 | 4100.000 | 576.313 | .537 | .109 | 0.000 | 107.000 | 0.000 | 1.000 |
| 922.000 | 4410.000 | 576.510 | .197 | .119 | 0.000 | 107.000 | 0.000 | 1.000 |
| 922.000 | 5160.000 | 577.020 | .510 | .139 | 0.000 | 107.000 | 0.000 | 1.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 953.000 | 4100.000 | 576.248 | .513 | -.065 | 0.000 | 81.000 | 0.000 | 31.000 |
| 953.000 | 4410.000 | 576.436 | .188 | -.074 | 0.000 | 81.000 | 0.000 | 31.000 |
| 953.000 | 5160.000 | 576.924 | .488 | -.096 | 0.000 | 81.000 | 0.000 | 31.000 |
| 954.000 | 3165.000 | 575.646 | 0.000 | -.089 | 0.000 | 67.200 | 0.000 | 1.000 |
| 954.000 | 4100.000 | 576.112 | .466 | -.136 | 0.000 | 67.200 | 0.000 | 1.000 |
| 954.000 | 4410.000 | 576.284 | .172 | -.152 | 0.000 | 67.200 | 0.000 | 1.000 |
| 954.000 | 5160.000 | 576.733 | .450 | -.190 | 0.000 | 67.200 | 0.000 | 1.000 |
| 985.000 | 3165.000 | 575.776 | 0.000 | .131 | 0.000 | 67.200 | 0.000 | 30.500 |
| 985.000 | 4100.000 | 576.317 | .541 | .205 | 0.000 | 67.200 | 0.000 | 30.500 |
| 985.000 | 4410.000 | 576.515 | .198 | .232 | 0.000 | 67.200 | 0.000 | 30.500 |
| 985.000 | 5160.000 | 577.028 | .513 | .295 | 0.000 | 67.200 | 0.000 | 30.500 |
| 986.000 | 3165.000 | 576.021 | 0.000 | .245 | 0.000 | 81.000 | 0.000 | 1.000 |
| 986.000 | 4100.000 | 576.693 | .672 | .376 | 0.000 | 81.000 | 0.000 | 1.000 |
| 986.000 | 4410.000 | 576.936 | .243 | .421 | 0.000 | 81.000 | 0.000 | 1.000 |
| 986.000 | 5160.000 | 577.556 | .620 | .528 | 0.000 | 81.000 | 0.000 | 1.000 |
| 1036.000 | 3165.000 | 576.100 | 0.000 | .079 | 0.000 | 113.418 | 0.000 | 50.000 |
| 1036.000 | 4100.000 | 576.838 | .738 | .145 | 0.000 | 117.340 | -3.922 | 50.000 |
| 1036.000 | 4410.000 | 577.105 | .267 | .169 | 0.000 | 115.699 | -5.280 | 50.000 |
| 1036.000 | 5160.000 | 577.792 | .688 | .236 | 0.000 | 122.233 | -8.815 | 50.000 |
| 1736.000 | 3165.000 | 576.545 | 0.000 | .444 | 0.000 | 110.653 | 0.000 | 700.000 |
| 1736.000 | 4100.000 | 577.388 | .843 | .550 | 0.000 | 114.797 | -4.144 | 700.000 |
| 1736.000 | 4410.000 | 577.679 | .291 | .574 | 0.000 | 115.581 | -4.928 | 700.000 |
| 1736.000 | 5160.000 | 578.394 | .715 | .601 | 0.000 | 117.049 | -6.396 | 700.000 |
| 2436.000 | 3165.000 | 576.872 | 0.000 | .327 | 0.000 | 100.852 | 0.000 | 700.000 |
| 2436.000 | 4100.000 | 577.781 | .910 | .394 | 0.000 | 101.999 | -1.147 | 700.000 |
| 2436.000 | 4410.000 | 578.085 | .304 | .406 | 0.000 | 101.999 | -1.147 | 700.000 |
| 2436.000 | 5160.000 | 578.818 | .733 | .424 | 0.000 | 101.999 | -1.147 | 700.000 |
| 2736.000 | 1500.000 | 577.137 | 0.000 | .266 | 0.000 | 92.478 | 0.000 | 300.000 |
| 2736.000 | 1950.000 | 578.139 | 1.001 | .358 | 0.000 | 97.629 | -5.151 | 300.000 |
| 2736.000 | 2100.000 | 578.471 | .332 | .386 | 0.000 | 99.336 | -6.859 | 300.000 |
| 2736.000 | 2495.000 | 579.263 | .792 | .445 | 0.000 | 99.999 | -7.521 | 300.000 |
| 3436.000 | 1500.000 | 577.421 | 0.000 | .284 | 0.000 | 91.970 | 0.000 | 700.000 |
| 3436.000 | 1950.000 | 578.435 | 1.014 | .296 | 0.000 | 97.198 | -5.228 | 700.000 |
| 3436.000 | 2100.000 | 578.768 | .333 | .297 | 0.000 | 98.907 | -6.938 | 700.000 |
| 3436.000 | 2495.000 | 579.556 | .790 | .295 | 0.000 | 99.999 | -8.029 | 700.000 |
| 3836.000 | 1500.000 | 577.607 | 0.000 | .186 | 0.000 | 82.235 | 0.000 | 400.000 |
| 3836.000 | 1950.000 | 578.620 | 1.013 | .185 | 0.000 | 86.763 | -4.529 | 400.000 |
| 3836.000 | 2100.000 | 578.950 | .330 | .183 | 0.000 | 87.667 | -5.432 | 400.000 |
| 3836.000 | 2495.000 | 579.734 | .784 | .176 | 0.000 | 89.802 | -7.567 | 400.000 |
| 4311.000 | 1500.000 | 577.989 | 0.000 | .381 | 0.000 | 83.091 | 0.000 | 475.000 |
| 4311.000 | 1950.000 | 578.994 | 1.006 | .374 | 0.000 | 87.256 | -4.165 | 475.000 |
| 4311.000 | 2100.000 | 579.317 | .323 | .367 | 0.000 | 88.136 | -5.045 | 475.000 |
| 4311.000 | 2495.000 | 580.093 | .776 | .358 | 0.000 | 89.999 | -6.908 | 475.000 |
| 4786.000 | 1500.000 | 578.323 | 0.000 | .335 | 0.000 | 87.322 | 0.000 | 475.000 |
| 4786.000 | 1950.000 | 579.352 | 1.029 | .354 | 0.000 | 97.940 | -10.618 | 475.000 |
| 4786.000 | 2100.000 | 579.686 | .334 | .369 | 0.000 | 105.019 | -17.698 | 475.000 |
| 4786.000 | 2495.000 | 580.466 | .780 | .373 | 0.000 | 106.799 | -19.477 | 475.000 |
| 4825.000 | 1500.000 | 578.359 | 0.000 | .036 | 0.000 | 97.999 | 0.000 | 39.000 |
| 4825.000 | 1950.000 | 579.395 | 1.036 | .043 | 0.000 | 97.999 | -.000 | 39.000 |
| 4825.000 | 2100.000 | 579.729 | .333 | .043 | 0.000 | 98.000 | -.000 | 39.000 |
| 4825.000 | 2495.000 | 580.503 | .775 | .037 | 0.000 | 98.000 | -.000 | 39.000 |
| 4846.000 | 1500.000 | 578.402 | 0.000 | .043 | 0.000 | 97.999 | 0.000 | 21.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 4846.000 | 2100.000 | 579.833 | .316 | .104 | 0.000 | 98.000 | -.000 | 21.000 |
| 4846.000 | 2495.000 | 580.504 | .671 | .000 | 0.000 | 98.000 | -.000 | 21.000 |
| 4847.000 | 1500.000 | 578.402 | 0.000 | .000 | 0.000 | 97.999 | 0.000 | 1.000 |
| 4847.000 | 1950.000 | 579.517 | 1.115 | .000 | 0.000 | 98.000 | -.000 | 1.000 |
| 4847.000 | 2100.000 | 579.833 | .316 | .000 | 0.000 | 98.000 | -.000 | 1.000 |
| 4847.000 | 2495.000 | 580.504 | .671 | .000 | 0.000 | 98.000 | -.000 | 1.000 |
| 5436.000 | 1500.000 | 578.656 | 0.000 | .254 | 0.000 | 88.720 | 0.000 | 589.000 |
| 5436.000 | 1950.000 | 579.758 | 1.102 | .241 | 0.000 | 93.938 | -5.219 | 589.000 |
| 5436.000 | 2100.000 | 580.074 | .316 | .241 | 0.000 | 95.450 | -6.731 | 589.000 |
| 5436.000 | 2495.000 | 580.758 | .684 | .254 | 0.000 | 98.720 | -10.000 | 589.000 |
| 5936.000 | 1500.000 | 578.941 | 0.000 | .284 | 0.000 | 90.748 | 0.000 | 500.000 |
| 5936.000 | 1950.000 | 580.037 | 1.096 | .279 | 0.000 | 95.988 | -5.240 | 500.000 |
| 5936.000 | 2100.000 | 580.354 | .317 | .280 | 0.000 | 97.504 | -6.756 | 500.000 |
| 5936.000 | 2495.000 | 581.051 | .697 | .294 | 0.000 | 137.931 | -47.183 | 500.000 |
| 6416.000 | 1500.000 | 579.177 | 0.000 | .236 | 0.000 | 72.169 | 0.000 | 480.000 |
| 6416.000 | 1950.000 | 580.265 | 1.088 | .228 | 0.000 | 77.216 | -5.047 | 480.000 |
| 6416.000 | 2100.000 | 580.582 | .317 | .227 | 0.000 | 78.696 | -6.517 | 480.000 |
| 6416.000 | 2495.000 | 581.289 | .708 | .238 | 0.000 | 85.087 | -12.918 | 480.000 |
| 6786.000 | 1500.000 | 579.467 | 0.000 | .290 | 0.000 | 74.044 | 0.000 | 370.000 |
| 6786.000 | 1950.000 | 580.561 | 1.093 | .296 | 0.000 | 74.161 | -5.067 | 370.000 |
| 6786.000 | 2100.000 | 580.881 | .320 | .299 | 0.000 | 80.545 | -6.551 | 370.000 |
| 6786.000 | 2495.000 | 581.639 | .759 | .350 | 0.000 | 96.230 | -22.136 | 370.000 |
| 6835.000 | 1500.000 | 579.445 | 0.000 | -.023 | 0.000 | 67.640 | 0.000 | 49.000 |
| 6835.000 | 1950.000 | 580.536 | 1.092 | -.024 | 0.000 | 72.700 | -5.060 | 49.000 |
| 6835.000 | 2100.000 | 580.856 | .320 | -.025 | 0.000 | 74.181 | -6.541 | 49.000 |
| 6835.000 | 2495.000 | 581.615 | .759 | -.024 | 0.000 | 77.698 | -10.059 | 49.000 |
| 6836.000 | 1500.000 | 579.655 | 0.000 | .210 | 0.000 | 73.000 | 0.000 | 1.000 |
| 6836.000 | 1950.000 | 580.745 | 1.091 | .209 | 0.000 | 73.000 | 0.000 | 1.000 |
| 6836.000 | 2100.000 | 581.065 | .320 | .209 | 0.000 | 73.000 | 0.000 | 1.000 |
| 6836.000 | 2495.000 | 581.824 | .759 | .209 | 0.000 | 73.000 | 0.000 | 1.000 |
| 6916.000 | 1500.000 | 579.860 | 0.000 | .205 | 0.000 | 73.000 | 0.000 | 80.000 |
| 6916.000 | 1950.000 | 581.168 | 1.308 | .422 | 0.000 | 73.000 | 0.000 | 80.000 |
| 6916.000 | 2100.000 | 581.574 | .406 | .509 | 0.000 | 73.000 | 0.000 | 80.000 |
| 6916.000 | 2495.000 | 582.596 | 1.022 | .772 | 0.000 | 73.000 | 0.000 | 80.000 |
| 6917.000 | 1500.000 | 579.794 | 0.000 | -.065 | 0.000 | 69.129 | 0.000 | 1.000 |
| 6917.000 | 1950.000 | 581.108 | 1.314 | -.059 | 0.000 | 75.211 | -6.090 | 1.000 |
| 6917.000 | 2100.000 | 581.517 | .409 | -.057 | 0.000 | 77.134 | -7.984 | 1.000 |
| 6917.000 | 2495.000 | 582.545 | 1.029 | -.050 | 0.000 | 84.617 | -15.496 | 1.000 |
| 7436.000 | 1500.000 | 580.331 | 0.000 | .537 | 0.000 | 73.462 | 0.000 | 519.000 |
| 7436.000 | 1950.000 | 581.592 | 1.261 | .484 | 0.000 | 79.306 | -5.845 | 519.000 |
| 7436.000 | 2100.000 | 581.986 | .394 | .469 | 0.000 | 81.134 | -7.672 | 519.000 |
| 7436.000 | 2495.000 | 583.026 | 1.040 | .481 | 0.000 | 99.999 | -26.537 | 519.000 |
| 7936.000 | 1500.000 | 580.647 | 0.000 | .316 | 0.000 | 69.404 | 0.000 | 500.000 |
| 7936.000 | 1950.000 | 581.894 | 1.248 | .302 | 0.000 | 75.353 | -5.949 | 500.000 |
| 7936.000 | 2100.000 | 582.284 | .389 | .297 | 0.000 | 77.210 | -7.806 | 500.000 |
| 7936.000 | 2495.000 | 583.313 | 1.030 | .287 | 0.000 | 79.999 | -10.595 | 500.000 |
| 8536.000 | 1500.000 | 580.955 | 0.000 | .319 | 0.000 | 73.419 | 0.000 | 600.000 |
| 8536.000 | 1950.000 | 582.224 | 1.268 | .329 | 0.000 | 249.999 | -176.080 | 600.000 |
| 8536.000 | 2100.000 | 582.622 | .398 | .338 | 0.000 | 249.999 | -176.080 | 600.000 |
| 8536.000 | 2495.000 | 583.668 | 1.046 | .354 | 0.000 | 249.999 | -176.080 | 600.000 |
| 9136.000 | 1500.000 | 581.237 | 0.000 | .271 | 0.000 | 146.166 | 0.000 | 500.000 |
| 9136.000 | 1950.000 | 582.493 | 1.246 | .260 | 0.000 | 169.999 | -23.833 | 500.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 9136.000 | 2100.000 | 582.857 | .374 | .255 | 0.000 | 169.999 | -23.333 | 600.000 |
| 9136.000 | 2495.000 | 583.635 | .978 | .167 | 0.000 | 169.999 | -23.333 | 600.000 |
| 9586.000 | 1500.000 | 581.412 | 0.000 | .175 | 0.000 | 89.419 | 0.000 | 450.000 |
| 9586.000 | 1950.000 | 582.630 | 1.218 | .147 | 0.000 | 134.701 | -45.282 | 450.000 |
| 9586.000 | 2100.000 | 582.996 | .366 | .139 | 0.000 | 158.126 | -68.707 | 450.000 |
| 9586.000 | 2495.000 | 583.955 | .959 | .119 | 0.000 | 199.999 | -110.580 | 450.000 |
| 9596.000 | 1500.000 | 581.397 | 0.000 | -.015 | 0.000 | 142.669 | 0.000 | 10.000 |
| 9596.000 | 1950.000 | 582.646 | 1.249 | .016 | 0.000 | 199.999 | -57.330 | 10.000 |
| 9596.000 | 2100.000 | 583.029 | .383 | .033 | 0.000 | 199.999 | -57.330 | 10.000 |
| 9596.000 | 2495.000 | 584.008 | .979 | .053 | 0.000 | 199.999 | -57.330 | 10.000 |
| 10286.000 | 1500.000 | 581.904 | 0.000 | .507 | 0.000 | 199.999 | 0.000 | 690.000 |
| 10286.000 | 1950.000 | 583.020 | 1.116 | .374 | 0.000 | 199.999 | -.000 | 690.000 |
| 10286.000 | 2100.000 | 583.361 | .341 | .333 | 0.000 | 199.999 | -.000 | 690.000 |
| 10286.000 | 2495.000 | 584.262 | .901 | .255 | 0.000 | 199.999 | -.000 | 690.000 |
| 10336.000 | 1500.000 | 581.910 | 0.000 | .006 | 0.000 | 94.999 | 0.000 | 50.000 |
| 10336.000 | 1950.000 | 583.005 | 1.095 | -.015 | 0.000 | 94.999 | -.000 | 50.000 |
| 10336.000 | 2100.000 | 583.341 | .335 | -.020 | 0.000 | 94.999 | -.000 | 50.000 |
| 10336.000 | 2495.000 | 584.229 | .889 | -.033 | 0.000 | 94.999 | -.000 | 50.000 |
| 10636.000 | 1500.000 | 582.056 | 0.000 | .146 | 0.000 | 73.389 | 0.000 | 300.000 |
| 10636.000 | 1950.000 | 583.190 | 1.134 | .134 | 0.000 | 120.889 | -47.500 | 300.000 |
| 10636.000 | 2100.000 | 583.526 | .336 | .145 | 0.000 | 125.853 | -52.464 | 300.000 |
| 10636.000 | 2495.000 | 584.426 | .900 | .196 | 0.000 | 142.354 | -68.965 | 300.000 |
| 11536.000 | 1500.000 | 582.536 | 0.000 | .480 | 0.000 | 75.998 | 0.000 | 900.000 |
| 11536.000 | 1950.000 | 584.040 | 1.504 | .850 | 0.000 | 191.552 | -115.554 | 900.000 |
| 11536.000 | 2100.000 | 584.332 | .292 | .807 | 0.000 | 196.914 | -120.916 | 900.000 |
| 11536.000 | 2495.000 | 585.105 | .773 | .680 | 0.000 | 199.999 | -124.001 | 900.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 0.000 | 200.000 | 25.525 | 0.000 |
| 2 | 0.000 | 200.000 | 31.586 | 6.061 |
| 3 | 0.000 | 200.000 | 32.083 | 6.558 |
| 4 | 0.000 | 200.000 | 33.650 | 8.125 |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Cook and Gladding Drain

4) DOCUMENT TYPE: Floodway

00BREAK00

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**************************************************
  REC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

  T1      FLATROCK
  T2      ENCROACHMENT RUN
  T3      COOKE & GLADDING BRAIN

J1  ICHECK    INC       NINV      IDIR      STRT      METRIC    HVINS     Q         USEL      FQ
          0.        5.        0.        0.  0.000000      0.00      0.0       0.   585.500     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FK        ALPHA     THR       CHRIN     ITRACE
     15.000     0.000    -1.000     0.000     0.030     0.000     0.000     0.000     0.000     0.000
```

PRINTED IN U.S.A.
FORM 1611-GB PRINTED BY ROTARY MANIFOLD FORMS

*PROF 2

CCHV= 0.300 CEHV= 0.500

*SECNO ****

| SECNO | DEPTH | CWSEL | CRIWS | LSELK | FQ | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IN2 | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 1.0 151.0 TYPE= 1 TARGET= 150.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.00 ELREA= 586.00

D/S FACE OF HURON RIVER DRIVE.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 4.50 | 585.50 | 0.00 | 585.40 | 585.53 | 0.03 | 0.00 | 0.00 | 588.00 |
| 27. | 0. | 27. | 0. | 0. | 20. | 0. | 0. | 0. | 588.00 |
| 0.00 | 0.00 | 1.33 | 0.00 | 0.060 | 0.035 | 0.060 | 0.000 | 581.00 | 75.00 |
| 0.000574 | 3. | 0. | 0. | 0 | 0 | 0 | 0.00 | 4.50 | 79.50 |

SPECIAL BRIDGE

| SW | XK | XKOR | COFQ | RDLEN | BPC | XRP | BAREA | SS | ELCHD | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.50 | 3.00 | 0.00 | 3.53 | 0.00 | 10.90 | 0.00 | 581.10 | 581.00 |

*SECNO 54.000

OD/O,LOW FLOW BY NORMAL BRIDGE

EGPRS= 585.587 EGUNC= 585.633 ELLC= 535.000 POWER= 585.500 ELTRD= 588.000

5370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 588.00 MAX ELLC= 585.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.00 ELREA= 581.00

U/S FACE HURON RIVER DRIVE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 54.00 | 4.49 | 585.53 | 0.00 | 585.43 | 585.57 | 0.04 | 0.03 | 0.01 | 583.35 |
| 27. | 0. | 27. | 0. | 0. | 17. | 0. | 0. | 0. | 585.35 |
| 0.01 | 0.00 | 1.63 | 0.00 | 0.060 | 0.035 | 0.000 | 0.334 | 581.10 | 88.00 |
| 0.000702 | 54. | 54. | 54. | 2 | 0 | 0 | -11.23 | 4.50 | 92.50 |

*SECNO 300.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 300.00 | 26.33 | USEL= | 588.54 | EVC,01= | 26.32 | ,SEL= | 585.54 | RATIO= | 0.0000 |
| LAT 01= | 20. | RATIOS LOB/CH,ROB= | 0.1084 | 0.8033 | 0.0883 | USEL= | 585.64 | | |

3470 ENCROACHMENT STATIONS= 294.1 305.8 TYPE= 4 TARGET= 0.051

VALLEY SECTION BASED ON FIELD BOOK SECTION 10434

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 300.00 | 4.12 | 585.63 | 0.00 | 585.54 | 585.64 | 0.01 | 0.37 | 0.11 | 582.26 |
| 27. | 2. | 25. | 2. | 7. | 22. | 7. | 2. | 7. | 604.36 |
| 0.10 | 0.33 | 1.02 | 0.24 | 0.060 | 0.035 | 0.050 | 0.035 | 581.5 | 294.20 |
| 0.000175 | 300. | 300. | 300. | 1 | 0 | 0 | 0.00 | 4.75 | 305.00 |

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```
CCHV=   0.100 CEHV=   0.300
*SECNO 1300.000
 2800 NAT Q1=      15.45  WSEL=     585.69  ENC Q1=      15.45  WSEL=     585.79  RATIO=  0.0000
 NAT Q1=      17.  RATIOS LOB,CH,ROB=  0.0426  0.8977  0.0597  WSEL=     585.79

3470 ENCROACHMENT STATIONS=      275.9      285.1  TYPE=      4  TARGET=        0.081

        VALLEY SECTION BASED ON FIELD BOOK SECTION 9434

  1300.00      2.78    585.79      0.00    585.69    585.81      0.03      0.17      0.00    583.66
     27.        0.       26.        1.        0.       20.        2.        1.        0.    583.66
    0.31      0.08      1.35      0.26     0.060     0.035     0.080     0.035    583.01    275.92
 0.000311     1000.     1000.     1000.         2         0         0      0.00      9.17    285.09

CCHV=   0.300 CEHV=   0.500
*SECNO 1600.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HE        GLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=        1.0      600.0  TYPE=      1  TARGET=      599.000

        XSECTION D/S GIBRALTAR RD.BASED ON FIELD BOOK " QUAD MAP

  1600.00      2.68    585.97      0.00    585.88    586.06      0.09      0.22      0.03    584.50
     27.        1.       24.        2.        1.       10.        2.        1.        0.    584.50
    0.35      0.67      2.54      0.31     0.080     0.050     0.080     0.038    583.29    296.11
 0.003249      300.      300.      300.         2         2         0      0.00      9.35    305.46

*SECNO 1700.000

3470 ENCROACHMENT STATIONS=        1.0      600.0  TYPE=      1  TARGET=      599.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       590.00 ELREA=       590.00

        D/S FACE OF GIBRALTAR RD. REMOVED BEST [illegible]

  1700.00      2.35    586.49      0.00    586.48    586.78      0.29      0.62      0.10    585.14
     27.        0.       27.        0.        0.        6.        0.        1.        0.    585.14
    0.35      0.00      4.36      0.00     0.080     0.050     0.080     0.038    585.14    297.50
 0.015873      130.      100.      100.         3         0         0      0.00      4.60    302.10

SPECIAL BRIDGE

SL   [illegible]     XKOR      COPC      RULEN     BWC       BWF       BAR[illegible]     SS[illegible]     ELCHU     ELCHD
    0.00      2.98      3.00      0.00      [illegible]      0.00      9.[illegible]      0.00    586.2[illegible]    585.16

*SECNO 1835.000

[illegible] FLOW BY NORMAL BRIDGE

[illegible]=      0.005  FGLNC=    587.890  ELNC=    586.900  PCWSE=    586.487  ELTRD=    592.600

3570 NORMAL BRIDGE,[illegible]= [illegible] ELTRD=    592.00 MAX ELNC=    590.90
```

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 593.40 ELREA= 593.40

U/S FACE OF GIBRALTAR RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1836.00 | 1.94 | 588.18 | 0.00 | 589.19 | 588.34 | 0.16 | 1.52 | 0.04 | 586.90 |
| 27. | 0. | 27. | 0. | 0. | 8. | 0. | 1. | 0. | 586.90 |
| 0.36 | 0.00 | 3.20 | 0.00 | 0.080 | 0.045 | 0.080 | 0.039 | 586.24 | 295.00 |
| 0.008255 | 136. | 136. | 136. | 2 | 0 | 0 | -6.83 | 4.60 | 299.60 |

*SECNO 1861.000

3470 ENCROACHMENT STATIONS= 270.0 325.0 TYPE= 1 TARGET= 55.000

XCSECT.076 OF GIBRALTAR RD. REPEATED SECT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1861.00 | 2.16 | 588.42 | 0.00 | 589.43 | 588.46 | 0.04 | 0.59 | 0.03 | 586.90 |
| 27. | 2. | 19. | 6. | 2. | 10. | 9. | 1. | 0. | 586.90 |
| 0.37 | 0.64 | 1.96 | 0.69 | 0.080 | 0.050 | 0.080 | 0.039 | 586.24 | 291.92 |
| 0.002004 | 25. | 25. | 25. | 2 | 0 | 0 | 0.00 | 19.52 | 311.44 |

CCHV= 0.100 CEHV= 0.300

*SECNO 2284.000

2800 NAT Q1= 51.94 WSEL= 588.51 ENC Q1= 51.94 WSEL= 588.61 RATIO= 0.0000

NAT Q1= 57. RATIOS LOB,CH,ROB= 0.2150 0.4603 0.3247 WSEL= 588.61

3470 ENCROACHMENT STATIONS= 275.0 342.0 TYPE= 4 TARGET= 0.085

VALLEY SECTION BASED ON FIELD COOK SECTION 8450

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2284.00 | 3.01 | 589.51 | 0.00 | 588.51 | 588.51 | 0.00 | 0.04 | 0.00 | 585.60 |
| 27. | 5. | 14. | 0. | 25. | 47. | 57. | 2. | 1. | 585.60 |
| 0.85 | 0.15 | 0.34 | 0.17 | 0.050 | 0.053 | 0.080 | 0.041 | 585.50 | 275.05 |
| 0.000131 | 425. | 423. | 423. | 2 | 2 | 0 | 0.00 | 56.96 | 342.01 |

*SECNO 2941.000

| SECNO | DEPTH | CWSEL | CVELS | HSTL2 | SB | AV | AL | CLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| @ | WLOS | XSH | XSQS | XLOB | ACH | AROB | WOL | TOA | LEFT/RIGHT |
| TIME | WLOB | VCH | VSQS | XCH | AROB | XCH | WCH | WPEL | SSTA |
| SLOPE | XLOCL | XLCH | XLOCR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 191.0 254.0 TYPE= 1 TARGET= 36.000

100 FEET D/S OF 54" CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2941.00 | 3.04 | 588.54 | 0.00 | 588.54 | 588.54 | 0.00 | 0.03 | 0.00 | 585.90 |
| 27. | 4. | 13. | 4. | 23. | 29. | 37. | 3. | 2. | 585.90 |
| 1.33 | 0.17 | 0.32 | 0.27 | 0.065 | 0.750 | 0.080 | 0.043 | 585.50 | 191.00 |
| 0.000076 | 657. | 657. | 657. | 2 | 0 | 0 | 0.00 | 56.00 | 247.00 |

CCHV= 0.300 CEHV= 0.500

*SECNO 3041.000

3470 ENCROACHMENT STATIONS= 1.0 332.0 TYPE= 4 TARGET= 351.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 589.50 ELREA= 589.50

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D/S FACE OF 54" CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3041.00 | 3.23 | 588.53 | 0.00 | 588.53 | 588.59 | 0.06 | 0.02 | 0.03 | 585.55 |
| | 27. | 0. | 27. | 0. | 0. | 14. | 0. | 4. | 2. | 585.55 |
| | 1.34 | 0.00 | 1.89 | 0.00 | 0.080 | 0.050 | 0.030 | 0.043 | 585.30 | 214.00 |
| | 0.001527 | 100. | 100. | 100. | 1 | 0 | 0 | 0.00 | 4.50 | 218.50 |

SPECIAL BRIDGE

| SO | XK | XKOR | COFC | RDLEN | BNC | BWP | CAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 3.01 | 3.00 | 0.00 | 3.16 | 0.00 | 7.90 | 0.00 | 586.70 | 585.30 |

*SECNO 3210.000

60/0,LOW FLOW BY NORMAL BRIDGE

EGPRS= 589.077 EGLOC= 589.986 ELLC= 589.200 PCLSE= 588.531 ELTRD= 590.000

53/0 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 590.00 MAX ELLC= 589.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLOA= 591.00 ELROA= 591.00

U/S END 54) CULVERT REPEATED SECT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3210.00 | 2.27 | 588.97 | 0.00 | 588.97 | 589.11 | 0.14 | 0.44 | 0.04 | 586.95 |
| | 27. | 0. | 27. | 0. | 0. | 9. | 0. | 4. | 2. | 586.95 |
| | 1.36 | 0.00 | 2.99 | 0.00 | 0.080 | 0.050 | 0.090 | 0.043 | 586.70 | 214.00 |
| | 0.007626 | 169. | 169. | 169. | 4 | 0 | 0 | -20.00 | 4.50 | 218.50 |

*SECNO 3255.000

3470 ENCROACHMENT STATIONS= 191.0 247.0 TYPE= 1 TARGET= 55.000

XSECTION BETWEEN 54)CULVERT & SHEEKS RD CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3255.00 | 2.46 | 589.16 | 0.00 | 589.16 | 589.16 | 0.00 | 0.51 | 0.04 | 586.95 |
| 27. | 7. | 7. | 15. | 5. | 11. | 61. | 4. | 2. | 586.85 |
| 1.38 | 0.20 | 0.46 | 0.25 | 0.080 | 0.050 | 0.080 | 0.043 | 586.70 | 191.00 |
| 0.000370 | 25. | 25. | 25. | 2 | 0 | 0 | 0.00 | 36.00 | 247.00 |

*SECNO 3324.000

3470 ENCROACHMENT STATIONS= 217.0 305.0 TYPE= 1 TARGET= 88.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLOA= 589.50 ELROA= 589.50

D/S END SHEEKS RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3324.00 | 3.37 | 589.17 | 0.00 | 589.17 | 589.30 | 0.03 | 0.02 | 0.01 | 586.10 |
| | 27. | 0. | 27. | 0. | 0. | 19. | 0. | 4. | 2. | 586.10 |
| | 1.41 | 0.03 | 1.40 | 0.00 | 0.080 | 0.050 | 0.090 | 0.044 | 586.10 | 297.00 |
| | 0.000677 | 149. | 149. | 149. | 2 | 0 | 0 | 0.00 | 6.30 | 263.30 |

SPECIAL BRIDGE

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| SP | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 3.32 | 3.00 | 0.00 | 3.82 | 0.00 | 15.80 | 1.00 | 586.10 | 586.10 |

*SECNO 3548.000

| SECNO | DEPTH | CWSEL | CRIWS | MSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |

PRESSURE FLOW

| EGPRS | EGLWC | HJ | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 589.32 | 589.29 | 0.00 | 0. | 27. | 16. | 16. | 586.60 | 590.00 |

3470 ENCROACHMENT STATIONS= 217.0 305.0 TYPE= 1 TARGET= 88.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 590.00 ELREA= 590.00

U/S FACE OF SHEEKS RD CULVERT (76"X 43" ELLIPTICAL CONCRETE)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3548.00 | 3.19 | 589.29 | 0.00 | 589.29 | 589.32 | 0.03 | 0.12 | 0.00 | 586.10 |
| 27. | 3. | 27. | 0. | 0. | 20. | 0. | 4. | 2. | 586.10 |
| 1.45 | 0.00 | 1.34 | 0.00 | 0.080 | 0.050 | 0.080 | 0.044 | 586.10 | 257.00 |
| 0.000605 | 164. | 164. | 164. | 2 | 0 | 0 | 0.00 | 6.30 | 263.30 |

*SECNO 3600.000

3470 ENCROACHMENT STATIONS= 145.0 255.0 TYPE= 1 TARGET= 110.000

XSECT. U/S OF SHEEKS RD.AND D/S OF SENECA RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3600.00 | 2.93 | 589.33 | 0.00 | 589.33 | 589.33 | 0.00 | 0.01 | 0.01 | 586.50 |
| 27. | 2. | 9. | 15. | 11. | 23. | 39. | 4. | 2. | 586.50 |
| 1.51 | 0.15 | 0.47 | 0.10 | 0.030 | 0.050 | 0.000 | 0.044 | 586.40 | 183.65 |
| 0.000043 | 59. | 32. | 32. | 0 | | 1 | 0.00 | 60.39 | 253.00 |

*SECNO 3792.000

3470 ENCROACHMENT STATIONS= 1.0 310.0 TYPE= 1 TARGET= 309.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.30 ELREA= 590.10

D/S END SENECA RD. CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3792.00 | 1.51 | 589.21 | 0.00 | 589.21 | 589.32 | 0.31 | 0.03 | 0.16 | 588.75 |
| 27. | 0. | 27. | 0. | 0. | 6. | 0. | 4. | 2. | 588.75 |
| 1.52 | 0.00 | 4.50 | 0.00 | 0.080 | 0.050 | 0.080 | 0.044 | 587.70 | 223.00 |
| 0.022735 | 192. | 192. | 192. | 2 | 0 | 0 | 0.00 | 4.50 | 227.50 |

SPECIAL BRIDGE

| SP | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 1.63 | 3.00 | 0.00 | 2.71 | 0.00 | 12.20 | 0.00 | 587.70 | 587.70 |

*SECNO 3835.000

OC/D,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLOC= 589.521 ELLC= 591.000 PCWSE= 589.209 ELTRD= 590.500

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 590.50 MAX ELLC= 591.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.80 ELREA= 590.70

U/S FACE OF SENECA RD. CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3833.00 | 2.35 | 590.05 | 0.00 | 590.05 | 590.17 | 0.13 | 0.61 | 0.05 | 588.75 |
| 27. | 0. | 27. | 0. | 0. | 9. | 0. | 4. | 2. | 588.75 |
| 1.52 | 0.00 | 2.94 | 0.00 | 0.080 | 0.050 | 0.066 | 0.044 | 587.70 | 223.00 |
| 0.010612 | 41. | 41. | 41. | 4 | 3 | 0 | -1.66 | 4.50 | 227.50 |

*SECNO 3863.000

2800 NAT QI= 6.06 WSEL= 590.35 ENC QI= 6.09 WSEL= 590.45 RATIO= 0.0000

XAT QI= 7. RATIOS LOS,CH,ROB= 0.0328 0.7051 0.1921 WSEL= 590.45

3470 ENCROACHMENT STATIONS= 223.0 234.4 TYPE= 4 TARGET= 0.146

XSECT. U/S OF SENECA RD REPEATED SECT. 3833.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3863.00 | 2.70 | 590.40 | 0.00 | 590.35 | 590.46 | 0.07 | 0.26 | 0.02 | 588.75 |
| 27. | 0. | 25. | 2. | 0. | 11. | 6. | 4. | 2. | 588.75 |
| 1.53 | 0.00 | 2.17 | 0.66 | 0.080 | 0.050 | 0.030 | 0.044 | 587.70 | 223.00 |
| 0.002997 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 11.43 | 234.43 |

*SECNO 4337.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | ES | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TRA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | LTN | CLP IN | SSTA |
| SLOPE | XLOBL | XLCT | XLOBR | ITRIAL | IHZ | ICONT | KODE | TOPWID | BWDST |

3470 ENCROACHMENT STATIONS= 268.0 323.0 TYPE= 1 TARGET= 55.000

XSECT. D/S OF COOKE RD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4337.00 | 3.06 | 590.59 | 0.00 | 590.52 | 590.59 | 0.00 | 0.11 | 0.02 | 587.50 |
| 27. | 3. | 16. | 3. | 39. | 28. | 19. | 5. | 3. | 587.50 |
| 1.83 | 0.20 | 0.56 | 0.17 | 0.080 | 0.050 | 0.000 | 0.045 | 587.50 | 268.00 |
| 0.000060 | 350. | 454. | 500. | 3 | 3 | 0 | 0.00 | 55.00 | 323.00 |

*SECNO 4437.000

3470 ENCROACHMENT STATIONS= 1.0 525.0 TYPE= 1 TARGET= 525.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.00 ELREA= 591.00

D/S FACE OF COOKE RD CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4437.00 | 3.24 | 590.59 | 0.00 | 590.53 | 590.62 | 0.04 | 0.02 | 0.02 | 587.35 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 27. | 0. | 27. | 0. | 0. | 13. | 0. | 5. | 3. | 587.35 | |
| 1.85 | 0.00 | 1.52 | 0.00 | 0.080 | 0.050 | 0.080 | 0.045 | 587.35 | 293.00 | |
| 0.000937 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 5.50 | 298.50 | |

SPECIAL BRIDGE

| SD | XR | XXOR | COFQ | RDLEN | BWC | B-P | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.93 | 3.00 | 0.00 | 3.93 | 0.00 | 4.91 | 0.00 | 587.35 | 587.35 |

*SECND 4479.000
PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 591.49 | 590.62 | 0.00 | 0. | 27. | 5. | 5. | 588.60 | 591.70 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 592.00 ELREA= 592.00

U/S FACE OF COOKE RD. CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4479.00 | 4.12 | 591.47 | 0.00 | 591.41 | 591.49 | 0.02 | 0.87 | 0.00 | 587.35 |
| 27. | 0. | 27. | 0. | 0. | 23. | 0. | 5. | 3. | 587.35 |
| 1.86 | 0.00 | 1.19 | 0.00 | 0.080 | 0.050 | 0.080 | 0.045 | 587.35 | 293.00 |
| 0.000479 | 42. | 42. | 42. | 2 | 0 | 0 | 0.00 | 5.50 | 298.50 |

*SECND 4504.000

5470 ENCROACHMENT STATIONS= 268.0 523.0 TYPE= 1 TARGET= 55.000

XSECTION U/S COOKE RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 4504.00 | 4.15 | 591.50 | 0.07 | 591.44 | 591.50 | 0.00 | 0.00 | 0.01 | 587.35 | |
| 27. | 10. | 9. | 0. | 50. | 23. | 51. | 5. | 3. | 587.35 | |
| 1.80 | 0.18 | 0.41 | 0.19 | 0.300 | 0.050 | 0.080 | 0.045 | 587.35 | 268.00 | |
| 0.000029 | 25. | 25. | 25. | 1 | 0 | 0 | 0.00 | 55.00 | 323.00 | |

CCHV= 0.100 CEHV= 0.300
*SECND 4853.000

5470 ENCROACHMENT STATIONS= 438.0 543.0 TYPE= 1 TARGET= 125.000

VALLEY SECTION BASED ON FIELD BOOK SECT.5081

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 4853.00 | 3.80 | 591.51 | 0.00 | 591.46 | 591.51 | 0.00 | 0.01 | 0.00 | 589.41 | |
| 27. | 9. | 13. | 5. | 130. | 62. | 56. | 5. | 3. | 589.35 | |
| 2.56 | 0.09 | 0.31 | 0.09 | 0.100 | 0.050 | 0.150 | 0.043 | 587.71 | 438.00 | |
| 0.000016 | 349. | 349. | 349. | 2 | 0 | 0 | 0.01 | 103.07 | 541.07 | |

CCHV= 0.300 CEHV= 0.500
*SECND 5034.000
5800 WAT QT= 49.01 WSEL= 591.65 ENG CT= 49.01 WSEL= 591.55 RATIO= 0.3030
WAT QT= 51. RATIOS LOB,CH,ROB= 0.0936 0.3531 0.0936 WSEL= 589.59

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | ZEG | AREA | VOL | CLOSS | RANK SLOP |
|---|---|---|---|---|---|---|---|---|---|
| | FLOW | SCH | SROU | ALOB | ASC | ROBA | VOL | TAB | LEFT/RIGHT |
| | TOP | 6.03 | 630. | VTOP | KE | ANCH | PREV | PATH | PLAN | SE |

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   SLOPE    XLOBL    XLCH     XLCBR    ITRIAL   IH2      ICONT    CORAR    TOPWID    ENDST

3470 ENCROACHMENT STATIONS=      590.5     609.5  TYPE=     4  TARGET=       0.035

        XMSECTION D/S OF TELEGRAPH RD.

  5053.00     5.14   591.51     0.00   591.45   591.51     0.00     0.00     0.00   586.37
     27.       2.      23.       2.      14.      57.      14.       7.       4.   586.37
     2.69     0.13     0.41     0.13    0.100    0.060    0.100    0.047   586.37   590.55
 0.000031     200.     200.     200.        0        0        0     0.00    18.90   609.45

*SECNO 5253.000

3470 ENCROACHMENT STATIONS=        1.0    1200.0  TYPE=     1  TARGET=    1199.000

3475 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       592.00 ELREA=       592.00

        D/S FACE TELEGRAPH RD.

  5253.00     5.11   591.51     0.00   591.46   591.54     0.03     0.02     0.01   586.40
     27.       0.      27.       0.       0.      20.       0.       7.       4.   586.40
     2.73     0.00     1.32     0.00    0.100    0.050    0.100    0.047   586.40   495.00
 0.000426     200.     200.     200.        0        0        0     0.00     4.00   499.00

SPECIAL BRIDGE

SB   XK       XKOR      COFQ      RDLEN     BWC       BUP       BAREA     SS        ELCHU     ELCHD
     0.00      5.79      5.00      0.00      3.63      0.00      10.90     0.00     587.30    586.40

*SECNO 5299.000
 PRESS FLOW BECAUSE BSLMC OF     592.44  EXCEEDS 1.5 DEPTH
PRESSURE FLOW

 EGPRS      BSLMC      HS       [illegible]      [illegible]      BAREA    TRAPEZOID     ELLC      ELTTD
                                                                          AREA
   592.07    592.44     0.00        0.       27.       11.       11.      590.30    594.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       594.40 ELREA=       594.40

        U/S FACE OF TELEGRAPH RD.

  5299.00     4.73   592.03     0.00   591.98   592.07     0.03     0.52     0.00   588.50
     27.       0.      27.       0.       0.      19.       0.       7.       4.   588.50
     2.74     0.00     1.43     0.00    0.100    0.050    0.100    0.047   587.30   495.00
 0.000973      46.      46.      45.        2        0        0     0.00     4.00   499.00

*SECNO 5349.000
 2000 RATIO=      14.04  WSEL=     592.03  ENC CT=      14.04  HSEL=     592.13  RATIO=  0.2000
 RATIO=      15.  RATIOS LOB,CH,ROB=  0.1504  0.5797  0.1699  WSEL=     592.13

3470 ENCROACHMENT STATIONS=      491.3     503.2  TYPE=     4  TARGET=       0.046

        [illegible] U/S OF TELEGRAPH RD.
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 5349.00 | 4.79 | 592.09 | 0.00 | 592.03 | 592.10 | 0.01 | 0.03 | 0.01 | 588.50 | |
| 27. | 4. | 19. | 4. | 9. | 19. | 10. | 7. | 4. | 588.50 | |
| 2.75 | 0.40 | 1.00 | 0.41 | 0.100 | 0.060 | 0.100 | 0.047 | 587.30 | 491.27 | |
| 0.000376 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 17.93 | 303.19 | |

*SECNO 5676.000
2800 NAT Q1= 39.54 WSEL= 592.08 ENC Q1= 39.54 WSEL= 592.18 RATIO= 0.0000
NAT Q1= 51. RATIOS LOB,CH,ROB= 0.2631 0.6699 0.0669 WSEL= 592.18

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 328.6 405.0 TYPE= 4 TARGET= 0.227

XSECT. D/S OF R.R. TRACKS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5676.00 | 4.27 | 592.19 | 0.00 | 592.08 | 592.15 | 0.00 | 0.05 | 0.00 | 587.40 |
| 27. | 4. | 23. | 0. | 29. | 48. | 0. | 8. | 4. | 587.40 |
| 2.97 | 0.15 | 0.47 | 0.00 | 0.100 | 0.060 | 0.100 | 0.048 | 587.28 | 328.60 |
| 0.000075 | 527. | 527. | 527. | 0 | 0 | 0 | 0.00 | 35.67 | 405.00 |

CCHV= 0.300 CEHV= 0.300
*SECNO 5776.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTH | CLMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IM2 | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 1.0 436.0 TYPE= 1 TARGET= 485.000

3493 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEN= 597.00 ELREA= 594.00

D/S FACE OF R.R. CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5776.00 | 3.83 | 592.14 | 0.00 | 592.08 | 592.00 | 0.05 | 0.02 | 0.05 | 588.26 |
| 27. | 0. | 27. | 0. | 0. | 14. | 0. | 4. | 6. | 530.26 |
| 2.99 | 0.00 | 1.99 | 0.00 | 0.120 | 0.060 | 0.120 | 0.03 | 588.24 | 399.00 |
| 0.001005 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 3.50 | 402.50 |

SPECIAL BRIDGE

| SD | XK | XKOR | COPG | RDLEN | BLC | BHP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.85 | 3.00 | 0.00 | 2.74 | 0.00 | 2.40 | 0.00 | 589.00 | 588.26 |

*SECNO 5851.300
PRESSURE FLOW

| ESPRS | BSLNC | S3 | CWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 597.74 | 592.94 | 0.03 | 0. | 27. | 2. | 5. | 590.75 | 589.43 |

3493 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEN= 601.10 ELREA= 600.30

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U/S FACE OF 42" RAILROAD CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5851.00 | 8.73 | 597.73 | 0.00 | 597.65 | 597.74 | 0.01 | 5.54 | 0.00 | 589.00 |
| 27. | 0. | 27. | 0. | 0. | 31. | 0. | 5. | 4. | 589.00 |
| 3.01 | 0.00 | 0.88 | 0.00 | 0.120 | 0.060 | 0.120 | 0.040 | 589.00 | 699.00 |
| 0.000355 | 75. | 75. | 75. | 1 | 0 | 0 | 0.00 | 3.50 | 702.50 |

*SECNO 5876.000

3470 ENCROACHMENT STATIONS= 675.0 727.0 TYPE= 1 TARGET= 52.000

XSECT. U/S OF R.R. TRACKS " D/S OF ARSENAL

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5876.00 | 8.35 | 597.74 | 0.00 | 597.66 | 597.74 | 0.00 | 0.00 | 0.00 | 589.39 |
| 27. | 8. | 11. | 8. | 143. | 84. | 153. | 8. | 4. | 589.39 |
| 3.09 | 0.05 | 0.13 | 0.05 | 0.120 | 0.060 | 0.120 | 0.040 | 589.39 | 675.00 |
| 0.000002 | 25. | 25. | 25. | 1 | 0 | 0 | 0.00 | 52.00 | 727.00 |

*SECNO 5931.000

3470 ENCROACHMENT STATIONS= 760.0 840.0 TYPE= 1 TARGET= 80.000

D/S FACE ARSENAL CULVERTS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5931.00 | 8.34 | 597.74 | 0.00 | 597.66 | 597.75 | 0.00 | 0.00 | 0.00 | 589.40 |
| 27. | 5. | 14. | 8. | 39. | 25. | 50. | 0. | 4. | 589.40 |
| 3.13 | 0.13 | 0.55 | 0.18 | 0.120 | 0.060 | 0.120 | 0.048 | 589.40 | 732.82 |
| 0.000029 | 55. | 55. | 55. | 1 | 0 | 0 | 0.00 | 47.97 | 830.79 |

SPECIAL BRIDGE

DEPTH,VARIABLE ELCHU OR ELCHD ON CARD IN NOT SPECIFIED

| SB | XK | XKOR | COPO | RDLEN | BHC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 3.70 | 3.00 | 0.00 | 2.40 | 0.00 | 3.60 | 0.00 | 589.40 | 589.40 |

*SECNO 6006.000
WATER EL=XS CARD= 597.330

U/S FACE ARSENAL CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6006.00 | 8.43 | 597.83 | 0.00 | 597.73 | 597.84 | 0.01 | 0.00 | 0.00 | 589.40 |
| 27. | 6. | 18. | 3. | 38. | 25. | 20. | 9. | 4. | 589.40 |
| 3.17 | 0.15 | 0.73 | 0.10 | 0.120 | 0.060 | 0.120 | 0.041 | 589.40 | 782.46 |
| 0.000050 | 75. | 75. | 75. | 0 | 0 | 0 | 0.00 | 50.21 | 832.67 |

*SECNO 6050.000
2500 WAT QT= 36.70 WSEL= 597.71 INC QT= 36.70 WSEL= 597.81 RATIO= 0.0000
WAT QT= 38. RATIOS LOB,CH,ROB= 0.2157 0.6327 0.1026 WSEL= 597.85

| SECNO | DEPTH | CWSEL | CPINS | WSEL | E2 | HV | HI | CLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | ATM | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 789.5 809.5 TYPE= 4 TARGET= 0.031

XSECTION U/S OF ARSENAL

```
  6050.00     8.41   597.81     0.00   597.71   597.87     0.06     0.01     0.03   589.40
      85.      17.      60.       8.      32.      25.      19.       9.       4.   589.40
     3.18     0.54     2.38     0.40    0.120    0.060    0.120    0.049   589.40   789.49
 0.000538      44.      44.      44.        2        0        0     0.00    20.02   809.52

CCHV=   0.100 CEHV=   0.300
*SECNO 7934.000

3470 ENCROACHMENT STATIONS=      583.0     718.0  TYPE=      1  TARGET=      135.000

        VALLEY SECTION BASED ON FIELD BOOK SECT. 2800.

  7934.00     9.08   597.94     0.00   597.85   597.94     0.00     0.06     0.01   589.76
      85.      30.      24.      31.     280.      69.     288.      24.       7.   589.65
     6.19     0.11     0.34     0.11    0.120    0.060    0.120    0.051   588.86   583.00
 0.000011    1884.    1084.    1884.        2        0        0     0.00   135.00   718.00

*SECNO 8734.000

3470 ENCROACHMENT STATIONS=      382.0     518.0  TYPE=      1  TARGET=      136.000

        VALLEY SECTION BASED ON FIELD BOOK SECT. 2000.

  8734.00     6.77   597.96     0.00   597.86   597.96     0.00     0.01     0.00   591.49
      85.      37.      17.      31.     255.      40.     227.      35.      10.   591.29
     3.30     0.15     0.43     0.14    0.120    0.060    0.120    0.052   591.19   382.00
 0.000024     800.     800.     800.        2        0        0     0.00   136.00   518.00

*SECNO 9734.000

3470 ENCROACHMENT STATIONS=      245.0     620.0  TYPE=      1  TARGET=      135.000

        VALLEY SECTION BASED ON FIELD BOOK SECT. 1000.

  9734.00     5.65   597.99     0.00   597.90   597.99     0.00     0.05     0.00   592.64
      85.      27.      30.      26.     164.      55.     173.      45.      13.   592.54
     8.24     0.17     0.34     0.14    0.120    0.060    0.120    0.053   592.34   265.00
 0.000049    1000.    1000.    1000.        1        0        0     0.00   135.00   420.00

CCHV=   0.300 CEHV=   0.500
*SECNO 10613.000

3470 ENCROACHMENT STATIONS=      433.0     556.0  TYPE=      1  TARGET=      133.000

        XBSECT.D/S OF INKSTER RD

 10613.00     6.15   598.05     0.00   597.96   598.05     0.00     0.06     0.00   591.60
      85.      33.      17.      35.     116.      19.     116.      52.      15.   591.60
     8.53     0.29     0.89     0.30    0.080    0.060    0.080    0.053   591.60   633.00
 0.000107     879.     879.     879.        2        0        0     0.00   133.00   566.00

*SECNO 10713.000
   SECNO     DEPTH     CMSEL     CRIMS     HSELK     EG        HV        HL        CLOSS    BANK ELEV
   Q         BLCB      DCH       DROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   RIMS      VLOB      VCH       VROB      XNL       XCH       XNR       MTS       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITPIAL    IH2       ICONT     CURAR     TOPWID     FIDST
```

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3470 ENCROACHMENT STATIONS=      433.0      566.0  TYPE=      1  TARGET=      133.000

        D/S FACE OF INKSTER RD CULVERT

 10713.00      6.45    598.06      0.00    597.97    598.06      0.00      0.01      0.00    591.60
      85.       33.       17.       33.      117.       19.      116.       52.       16.    591.60
      8.90      0.29      0.88      0.30     0.080     0.060     0.060     0.053    591.60    433.00
 0.000105      100.      100.      100.         0         0         0      0.00    133.00    566.00

SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00      2.60       3.00       0.00      2.40       0.00       3.60       0.00     593.54     591.62

*SECNO 10754.000
PRESSURE AND WEIR FLOW

 EGPRS       ZGLWC       H3        QWEIR       QPR        BAREA    TRAPEZOID      ELLC      ELTRD
                                                                      AREA
   620.57    600.00      0.00       76.         9.         4.         4.       595.04     597.90

        U/S FACE OF INKSTER RD. CULVERT

 10754.00      4.76    598.30      0.00    598.30    598.31      0.00      0.24      0.00    593.54
      85.       42.       10.       33.      132.       14.      113.       53.       16.    593.54
      8.93      0.32      0.73      0.29     0.080     0.060     0.060     0.053    593.54    433.73
 0.000107       41.       41.       41.         0         0         0      0.00    132.42    566.20

*SECNO 10779.000
 2900 NAT Q1=      81.73  WSEL=     598.30  [illegible]  81.73  WSEL=     598.40  RATIO=  0.0000
 NAT Q1=      88.  RATIOS LOB,CH,ROB=  0.4922  0.1175  0.3903  WSEL=     598.40

3470 ENCROACHMENT STATIONS=      439.5      558.5  TYPE=      4  TARGET=        0.073

        XWSEC* U/S OF INKSTER RD.

 10779.00      4.77    598.31      0.00    598.30    598.31      0.00      0.00      0.00    593.54
      85.       42.       11.       32.      122.       14.      102.       53.       16.    593.54
      8.95      0.34      0.78      0.31     0.080     0.060     0.030     0.053    593.54    439.50
 0.000124       25.       25.       25.         0         0         0      0.00    119.01    558.30
```

**********
HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

COOKE & GLADDING RIVER,

SUMMARY PRINTOUT TABLE 110

| | SECNO | CHSEL | DIFKWS | ES | TOPWID | ALOB | ACH | ARCH | PERMEC | STENCL | STCHL | STCRP | STENDR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0.000 | 585.40 | 0.00 | 585.43 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 75.00 | 79.50 | 0.00 |
| | 0.000 | 585.50 | 0.10 | 585.53 | 4.50 | 0.00 | 27.00 | 0.00 | 150.00 | 1.00 | 75.00 | 79.50 | 151.00 |
| B | 54.000 | 585.45 | 0.00 | 585.47 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 88.00 | 92.50 | 0.00 |
| | 54.000 | 585.53 | 0.10 | 585.57 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 88.00 | 92.50 | 0.00 |
| C | 300.000 | 585.54 | 0.00 | 585.55 | 17.55 | 2.85 | 21.84 | 2.31 | 0.00 | 0.00 | 297.00 | 303.00 | 0.00 |
| | 300.000 | 585.63 | 0.09 | 585.64 | 11.75 | 2.33 | 22.88 | 1.74 | 0.05 | 294.38 | 297.00 | 303.00 | 305.55 |
| D | 1300.000 | 585.69 | 0.00 | 585.72 | 35.37 | 1.10 | 24.62 | 1.26 | 0.00 | 0.00 | 276.00 | 284.00 | 0.00 |
| | 1300.000 | 585.79 | 0.09 | 585.81 | 9.17 | 0.01 | 26.47 | 0.51 | 0.08 | 275.92 | 276.00 | 284.00 | 285.05 |
| E | 1600.000 | 585.88 | 0.00 | 585.98 | 9.04 | 0.63 | 24.53 | 1.84 | 0.00 | 0.00 | 297.50 | 302.10 | 0.00 |
| | 1600.000 | 585.97 | 0.09 | 586.06 | 9.35 | 0.69 | 24.30 | 2.01 | 599.00 | 1.00 | 297.50 | 302.10 | 600.00 |
| F | 1700.000 | 586.40 | 0.00 | 586.73 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 297.50 | 302.10 | 0.00 |
| | 1700.000 | 586.49 | 0.01 | 586.72 | 4.50 | 0.00 | 27.00 | 0.00 | 599.00 | 1.00 | 297.50 | 302.10 | 600.00 |
| G | 1836.000 | 588.19 | 0.00 | 588.35 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 295.00 | 299.60 | 0.00 |
| | 1836.000 | 588.18 | -0.01 | 588.34 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 295.00 | 299.60 | 0.00 |
| H | 1861.000 | 588.43 | 0.00 | 588.62 | 19.68 | 1.52 | 19.24 | 4.23 | 55.00 | 270.00 | 295.00 | 299.60 | 325.00 |
| | 1861.000 | 588.43 | -0.01 | 588.62 | 12.52 | 1.51 | 19.31 | 3.19 | 55.00 | 270.00 | 295.00 | 299.60 | 325.00 |
| I | 2284.000 | 588.51 | 0.00 | 588.51 | 136.93 | 5.60 | 12.04 | 3.68 | 0.00 | 0.00 | 293.00 | 307.00 | 0.00 |
| | 2284.000 | 588.51 | -0.00 | 588.51 | 66.90 | 5.02 | 13.31 | 2.17 | 0.03 | 275.03 | 293.00 | 307.00 | 342.01 |
| J | 2941.000 | 588.54 | 0.00 | 588.56 | 56.00 | 4.95 | 15.24 | 7.62 | 56.00 | 191.00 | 214.00 | 224.00 | 247.00 |
| | 2941.000 | 588.54 | -0.00 | 588.56 | 56.00 | 4.95 | 15.24 | 7.62 | 56.00 | 191.00 | 214.00 | 224.00 | 247.00 |
| K | 3041.000 | 588.53 | 0.00 | 588.59 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 214.00 | 218.50 | 0.00 |
| | 3041.000 | 588.53 | -0.00 | 588.59 | 4.50 | 0.00 | 27.00 | 0.00 | 351.00 | 1.00 | 214.00 | 218.50 | 352.00 |
| L | 3210.000 | 588.97 | 0.00 | 589.11 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 214.00 | 218.50 | 0.00 |
| | 3210.000 | 588.97 | -0.00 | 589.11 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 214.00 | 218.50 | 0.00 |
| M | 3235.000 | 589.16 | 0.00 | 589.16 | 56.00 | 6.94 | 4.82 | 15.24 | 56.00 | 191.00 | 214.00 | 218.50 | 247.00 |
| | 3235.000 | 589.16 | -0.00 | 589.16 | 56.00 | 6.94 | 4.82 | 15.24 | 56.00 | 191.00 | 214.00 | 218.50 | 247.00 |

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| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENG | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3384.000 | 589.17 | 0.00 | 589.20 | 6.30 | 0.00 | 27.00 | 0.00 | 68.00 | 217.00 | 257.00 | 263.30 | 305.00 |
| | 3384.000 | 589.17 | -0.00 | 589.20 | 6.30 | 0.00 | 27.00 | 0.00 | 68.00 | 217.00 | 257.00 | 263.30 | 305.00 |
| | 3548.000 | 589.29 | 0.00 | 589.32 | 6.30 | 0.00 | 27.00 | 0.00 | 68.00 | 217.00 | 257.00 | 263.30 | 305.00 |
| | 3548.000 | 589.29 | -0.00 | 589.32 | 6.30 | 0.00 | 27.00 | 0.00 | 68.00 | 217.00 | 257.00 | 263.30 | 305.00 |
| | 3620.000 | 589.33 | 0.00 | 589.33 | 69.35 | 2.20 | 9.09 | 15.72 | 110.00 | 145.00 | 196.00 | 204.00 | 255.00 |
| | 3620.000 | 589.33 | -0.00 | 589.33 | 69.35 | 2.20 | 9.09 | 15.72 | 110.00 | 145.00 | 196.00 | 204.00 | 255.00 |
| | 3792.000 | 589.21 | 0.00 | 589.52 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 223.00 | 227.50 | 0.00 |
| | 3792.000 | 589.21 | -0.00 | 589.52 | 4.50 | 0.00 | 27.00 | 0.00 | 309.00 | 1.00 | 223.00 | 227.50 | 310.00 |
| | 3833.000 | 590.05 | 0.00 | 590.19 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 223.00 | 227.50 | 0.00 |
| | 3833.000 | 590.05 | 0.00 | 590.19 | 4.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 223.00 | 227.50 | 0.00 |
| | 3883.000 | 590.35 | 0.00 | 590.40 | 68.07 | 0.60 | 23.39 | 3.31 | 0.00 | 0.00 | 223.00 | 227.50 | 0.00 |
| | 3883.000 | 590.40 | 0.05 | 590.46 | 11.43 | 0.00 | 24.63 | 2.37 | 0.15 | 223.00 | 223.00 | 227.50 | 234.43 |
| | 4337.000 | 590.52 | 0.00 | 590.53 | 55.00 | 7.81 | 15.99 | 3.20 | 55.00 | 268.00 | 295.50 | 304.50 | 323.00 |
| | 4337.000 | 590.58 | 0.06 | 590.59 | 55.00 | 7.97 | 15.71 | 3.32 | 55.00 | 268.00 | 295.50 | 304.50 | 323.00 |
| | 4437.000 | 590.53 | 0.00 | 590.57 | 5.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 293.00 | 298.50 | 0.00 |
| | 4437.000 | 590.59 | 0.06 | 590.62 | 5.50 | 0.00 | 27.00 | 0.00 | 525.00 | 1.00 | 293.00 | 298.50 | 526.00 |
| | 4479.000 | 591.41 | 0.00 | 591.43 | 5.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 293.00 | 298.50 | 0.00 |
| | 4479.000 | 591.47 | 0.06 | 591.49 | 5.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 293.00 | 298.50 | 0.00 |
| | 4504.000 | 591.44 | 0.00 | 591.46 | 55.00 | 9.51 | 9.50 | 7.99 | 55.00 | 268.00 | 293.00 | 298.50 | 323.00 |
| | 4504.000 | 591.50 | 0.06 | 591.50 | 55.00 | 9.56 | 9.39 | 8.06 | 55.00 | 268.00 | 293.00 | 298.50 | 323.00 |
| | 4853.000 | 591.65 | 0.00 | 591.45 | 102.93 | 8.77 | 13.36 | 4.87 | 125.00 | 434.00 | 491.00 | 510.90 | 563.00 |
| | 4853.000 | 591.31 | 0.06 | 591.31 | 103.07 | 8.06 | 13.27 | 4.92 | 25.00 | 434.00 | 491.00 | 512.00 | 563.00 |
| | 5053.000 | 591.45 | 0.00 | 591.43 | 24.30 | 2.42 | 22.57 | 3.23 | 0.00 | 0.00 | 594.50 | 598.50 | 0.00 |
| | 5053.000 | 591.51 | 0.06 | 591.51 | 18.90 | 1.90 | 23.20 | 2.90 | 0.03 | 599.55 | 596.50 | 602.30 | 609.45 |
| | 5253.000 | 591.46 | 0.00 | 591.48 | 4.00 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 495.00 | 499.00 | 0.00 |
| | 5253.000 | 591.51 | 0.00 | 591.54 | 4.00 | 0.00 | 27.00 | 0.00 | 1199.00 | 1.00 | 495.00 | 499.00 | 1200.00 |
| | 5299.000 | 591.93 | 0.00 | 592.01 | 4.00 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 495.00 | 499.00 | 0.00 |
| | 5299.000 | 592.03 | 0.06 | 592.07 | 4.00 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 495.00 | 499.00 | 0.00 |
| | 5349.000 | 592.03 | 0.00 | 592.04 | 16.51 | 3.95 | 18.58 | 4.47 | 0.00 | 0.00 | 495.00 | 499.00 | 0.00 |
| | 5349.000 | 592.09 | 0.06 | 592.10 | 11.03 | 3.67 | 19.10 | 4.23 | 0.05 | 491.27 | 495.05 | 499.00 | 503.19 |
| | 5676.000 | 592.08 | 0.00 | 592.01 | 22.30 | 2.21 | 23.58 | 2.21 | 55.00 | 373.00 | 395.00 | 405.00 | 430.00 |
| | 5676.000 | 592.15 | 0.07 | 592.13 | 35.67 | 4.39 | 22.61 | 0.00 | 0.23 | 328.60 | 395.00 | 405.00 | 405.00 |
| | 5775.000 | 592.06 | 0.00 | 592.12 | 3.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 399.00 | 402.50 | 0.00 |
| | 5775.000 | 592.12 | 0.06 | 592.20 | 3.50 | 0.00 | 27.00 | 0.00 | 405.00 | 1.00 | 399.00 | 402.50 | 466.00 |
| | 5851.000 | 597.65 | 0.00 | 597.65 | 3.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 699.00 | 702.50 | 0.00 |
| | 5851.000 | 597.73 | 0.08 | 597.74 | 3.50 | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 | 699.00 | 702.50 | 0.00 |
| | 5876.000 | 597.66 | 0.00 | 597.66 | 52.00 | 7.84 | 11.19 | 7.97 | 52.00 | 675.00 | 695.00 | 705.00 | 787.00 |
| | 5876.000 | 597.74 | 0.08 | 597.74 | 51.00 | 7.82 | 11.18 | 7.98 | 52.00 | 675.00 | 695.00 | 705.00 | 727.00 |

PRINTED IN U.S.A.
FORM 1411-08-PRINTED BY ROTARY MANIFOLD FORMS

| | SECNO | CHSEL | DIFKWS | EG | TOPWID | QLOS | QCH | QROD | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5931.000 | 597.66 | 0.00 | 597.67 | 45.20 | 5.15 | 13.77 | 8.08 | 80.00 | 760.00 | 799.00 | 802.00 | 840.00 |
| | 5931.000 | 597.74 | 0.08 | 597.75 | 47.97 | 5.22 | 13.66 | 0.43 | 80.00 | 760.00 | 799.00 | 802.00 | 840.00 |
| * | 6006.000 | 597.73 | 0.00 | 597.74 | 46.67 | 5.70 | 18.67 | 2.83 | 0.00 | 0.00 | 799.00 | 802.00 | 0.00 |
| * | 6006.000 | 597.83 | 0.10 | 597.84 | 50.21 | 5.82 | 18.38 | 2.80 | 0.00 | 0.00 | 799.00 | 802.00 | 0.00 |
| | 6050.000 | 597.71 | 0.00 | 597.77 | 46.41 | 17.93 | 58.83 | 8.25 | 0.00 | 0.00 | 799.00 | 802.00 | 0.00 |
| | 6050.000 | 597.81 | 0.10 | 597.87 | 20.02 | 17.36 | 59.98 | 7.65 | 0.03 | 789.49 | 799.00 | 802.00 | 859.52 |
| | 7934.000 | 597.85 | 0.00 | 597.85 | 135.00 | 29.69 | 24.10 | 31.21 | 135.00 | 583.00 | 646.00 | 654.00 | 718.00 |
| | 7934.000 | 597.94 | 0.10 | 597.94 | 135.00 | 29.84 | 23.82 | 31.34 | 135.00 | 583.00 | 646.00 | 654.00 | 718.00 |
| | 8734.000 | 597.86 | 0.00 | 597.86 | 136.00 | 37.19 | 17.38 | 30.43 | 136.00 | 382.00 | 447.00 | 453.00 | 518.00 |
| | 8734.000 | 597.96 | 0.10 | 597.96 | 136.00 | 37.24 | 17.13 | 30.63 | 136.00 | 382.00 | 447.00 | 453.00 | 518.00 |
| | 9734.000 | 597.90 | 0.00 | 597.90 | 135.00 | 24.90 | 31.43 | 27.61 | 135.00 | 285.00 | 345.00 | 353.00 | 420.00 |
| | 9734.000 | 597.99 | 0.09 | 597.99 | 135.00 | 27.15 | 29.92 | 27.95 | 135.00 | 285.00 | 345.00 | 353.00 | 420.00 |
| | 10613.000 | 597.96 | 0.00 | 597.97 | 133.00 | 32.93 | 17.87 | 34.20 | 133.00 | 433.00 | 498.00 | 501.00 | 566.00 |
| | 10613.000 | 598.05 | 0.09 | 598.05 | 133.00 | 33.33 | 17.14 | 34.52 | 133.00 | 433.00 | 498.00 | 501.00 | 566.00 |
| | 10713.000 | 597.97 | 0.00 | 597.98 | 133.00 | 32.97 | 17.60 | 34.24 | 133.00 | 433.00 | 498.00 | 501.00 | 566.00 |
| | 10713.000 | 598.06 | 0.09 | 598.06 | 133.00 | 33.37 | 17.08 | 34.55 | 133.00 | 433.00 | 498.00 | 501.00 | 566.00 |
| | 10754.000 | 598.30 | 0.00 | 598.30 | 132.42 | 41.81 | 10.41 | 32.77 | 0.00 | 0.00 | 498.00 | 501.00 | 0.00 |
| | 10754.000 | 598.30 | 0.01 | 598.31 | 132.42 | 41.82 | 10.38 | 32.80 | 0.00 | 0.00 | 498.00 | 501.00 | 0.00 |
| | 10779.000 | 598.30 | 0.00 | 598.30 | 132.42 | 41.82 | 10.41 | 32.78 | 0.00 | 0.00 | 498.00 | 501.00 | 0.00 |
| | 10779.000 | 598.31 | 0.01 | 598.31 | 119.01 | 41.76 | 11.16 | 52.09 | 0.07 | 439.50 | 498.00 | 501.00 | 558.50 |

PRINTED IN U.S.A.
FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

COOKE & GLADDING RIVER,

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | TOPWS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.00 | 0.00 | 0.00 | 581.00 | 27.00 | 585.40 | 0.00 | 585.43 | 6.07 | 1.36 | 19.80 | 10.96 |
| 0.000 | 0.00 | 0.00 | 0.00 | 581.00 | 27.00 | 585.50 | 0.00 | 585.53 | 5.74 | 1.33 | 20.25 | 11.27 |
| 54.000 | 54.00 | 588.00 | 585.60 | 581.10 | 27.00 | 585.43 | 0.00 | 585.47 | 7.48 | 1.57 | 16.19 | 9.87 |
| 54.000 | 54.00 | 588.00 | 585.60 | 581.10 | 27.00 | 585.53 | 0.00 | 585.57 | 7.00 | 1.53 | 16.58 | 10.21 |
| 300.000 | 300.00 | 0.00 | 0.00 | 581.51 | 27.00 | 585.54 | 0.00 | 585.55 | 1.09 | 1.00 | 40.35 | 26.33 |
| 300.000 | 300.00 | 0.00 | 0.00 | 581.51 | 27.00 | 585.63 | 0.00 | 585.66 | 1.05 | 1.02 | 36.85 | 26.33 |
| 1300.000 | 1000.00 | 0.00 | 0.00 | 583.01 | 27.00 | 585.69 | 0.00 | 585.72 | 3.06 | 1.30 | 27.69 | 15.45 |
| 1300.000 | 1000.00 | 0.00 | 0.00 | 583.01 | 27.00 | 585.77 | 0.00 | 585.81 | 3.11 | 1.35 | 21.74 | 15.31 |
| 1600.000 | 300.00 | 0.00 | 0.00 | 583.29 | 27.00 | 585.88 | 0.00 | 585.90 | 38.67 | 2.69 | 12.19 | 4.34 |
| 1600.000 | 300.00 | 0.00 | 0.00 | 583.29 | 27.00 | 585.97 | 0.00 | 586.00 | 32.49 | 2.54 | 13.05 | 4.74 |
| 1700.000 | 100.00 | 0.00 | 0.00 | 585.14 | 27.00 | 586.48 | 0.00 | 586.78 | 162.05 | 4.38 | 6.16 | 2.12 |
| 1700.000 | 100.00 | 0.00 | 0.00 | 585.14 | 27.00 | 586.49 | 0.00 | 586.76 | 158.73 | 4.36 | 6.20 | 2.14 |
| 1836.000 | 136.00 | 592.80 | 588.90 | 586.24 | 27.00 | 588.19 | 0.00 | 588.35 | 82.53 | 3.20 | 8.44 | 2.97 |
| 1836.000 | 136.00 | 592.80 | 588.90 | 586.24 | 27.00 | 588.18 | 0.00 | 588.34 | 82.55 | 3.20 | 8.44 | 2.97 |
| 1861.000 | 25.00 | 0.00 | 0.00 | 586.24 | 27.00 | 588.43 | 0.00 | 588.47 | 19.66 | 1.95 | 21.36 | 6.69 |
| 1861.000 | 25.00 | 0.00 | 0.00 | 586.24 | 27.00 | 588.42 | 0.00 | 588.46 | 20.04 | 1.96 | 21.18 | 6.63 |
| 2284.000 | 423.00 | 0.00 | 0.00 | 585.50 | 27.00 | 588.51 | 0.00 | 588.51 | 0.27 | 0.31 | 173.11 | 51.94 |
| 2284.000 | 423.00 | 0.00 | 0.00 | 585.50 | 27.00 | 588.51 | 0.00 | 588.51 | 0.31 | 0.36 | 130.66 | 48.14 |
| 2961.000 | 677.00 | 0.00 | 0.00 | 585.50 | 27.00 | 588.54 | 0.00 | 588.54 | 0.74 | 0.52 | 39.13 | 31.29 |
| 2961.000 | 677.00 | 0.00 | 0.00 | 585.50 | 27.00 | 588.54 | 0.00 | 588.54 | 0.74 | 0.52 | 39.12 | 31.29 |
| 3061.000 | 100.00 | 0.00 | 0.00 | 585.30 | 27.00 | 588.53 | 0.00 | 588.59 | 15.27 | 1.89 | 14.32 | 6.91 |
| 3061.000 | 100.00 | 0.00 | 0.00 | 585.30 | 27.00 | 588.53 | 0.00 | 588.59 | 15.27 | 1.89 | 14.32 | 6.91 |
| 3210.000 | 149.00 | 590.00 | 585.20 | 584.70 | 27.00 | 588.97 | 0.00 | 589.11 | 72.36 | 2.59 | 9.02 | 5.10 |
| 3210.000 | 149.00 | 590.00 | 585.20 | 584.70 | 27.00 | 588.97 | 0.00 | 589.11 | 72.36 | 2.59 | 9.02 | 5.10 |
| 3235.000 | 25.00 | 0.00 | 0.00 | 586.70 | 27.00 | 589.16 | 0.00 | 589.16 | 0.70 | 0.64 | 106.69 | 32.54 |
| 3235.000 | 25.00 | 0.00 | 0.00 | 586.70 | 27.00 | 589.16 | 0.00 | 589.16 | 0.70 | 0.64 | 106.68 | 32.53 |
| 3384.000 | 149.00 | 0.00 | 0.00 | 586.10 | 27.00 | 589.17 | 0.00 | 589.20 | 5.77 | 1.40 | 19.33 | 10.35 |
| 3384.000 | 149.00 | 0.00 | 0.00 | 586.10 | 27.00 | 589.17 | 0.00 | 589.20 | 5.77 | 1.40 | 19.33 | 10.35 |
| 3548.000 | 164.00 | 590.00 | 588.60 | 586.10 | 27.00 | 589.29 | 0.00 | 589.32 | 6.04 | 1.34 | 20.10 | 10.98 |
| 3548.000 | 164.00 | 590.00 | 588.60 | 586.10 | 27.00 | 589.29 | 0.00 | 589.32 | 6.05 | 1.34 | 20.10 | 10.98 |
| 3600.000 | 52.00 | 0.00 | 0.00 | 586.40 | 27.00 | 589.33 | 0.00 | 589.33 | 0.43 | 0.40 | 127.10 | 41.04 |
| 3600.000 | 52.00 | 0.00 | 0.00 | 586.40 | 27.00 | 589.33 | 0.00 | 589.33 | 0.43 | 0.40 | 127.09 | 41.03 |
| 3792.000 | 192.00 | 0.00 | 0.00 | 587.70 | 27.00 | 589.21 | 0.00 | 589.52 | 227.22 | 4.50 | 6.01 | 1.79 |
| 3792.000 | 192.00 | 0.00 | 0.00 | 587.70 | 27.00 | 589.21 | 0.00 | 589.52 | 227.35 | 4.50 | 6.00 | 1.79 |
| 3853.000 | 61.00 | 590.50 | 591.00 | 587.70 | 27.00 | 590.05 | 0.00 | 590.19 | 106.12 | 2.96 | 9.17 | 2.62 |
| 3853.000 | 61.00 | 590.50 | 591.00 | 587.70 | 27.00 | 590.05 | 0.00 | 590.19 | 106.12 | 2.94 | 9.17 | 2.62 |

PRINTED IN U.S.A.
FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CHSEL | CRIWS | EG | TOKAS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3883.000 | 50.00 | 0.00 | 0.00 | 587.70 | 27.00 | 590.35 | 0.00 | 590.40 | 19.85 | 2.08 | 22.87 | 6.06 |
| 3883.000 | 50.00 | 0.00 | 0.00 | 587.70 | 27.00 | 590.40 | 0.00 | 590.46 | 25.97 | 2.77 | 14.93 | 4.93 |
| 4337.000 | 454.00 | 0.00 | 0.00 | 587.50 | 27.00 | 590.32 | 0.00 | 590.53 | 0.89 | 0.59 | 82.76 | 28.05 |
| 4337.000 | 454.00 | 0.00 | 0.00 | 587.50 | 27.00 | 590.38 | 0.00 | 590.59 | 0.80 | 0.56 | 86.06 | 30.15 |
| 4437.000 | 100.00 | 0.00 | 0.00 | 587.35 | 27.00 | 590.53 | 0.00 | 590.57 | 9.87 | 1.54 | 17.48 | 3.59 |
| 4437.000 | 100.00 | 0.00 | 0.00 | 587.35 | 27.00 | 590.59 | 0.00 | 590.62 | 9.37 | 1.52 | 17.80 | 8.82 |
| 4479.000 | 42.00 | 591.70 | 588.61 | 587.35 | 27.00 | 591.41 | 0.00 | 591.43 | 4.99 | 1.21 | 22.34 | 12.09 |
| 4479.000 | 42.00 | 591.70 | 588.60 | 587.35 | 27.00 | 591.47 | 0.00 | 591.49 | 4.79 | 1.19 | 22.67 | 12.33 |
| 4504.000 | 25.00 | 0.00 | 0.00 | 587.35 | 27.00 | 591.46 | 0.00 | 591.44 | 0.31 | 0.42 | 120.09 | 48.49 |
| 4504.000 | 25.00 | 0.00 | 0.00 | 587.35 | 27.00 | 591.50 | 0.00 | 591.50 | 0.29 | 0.41 | 131.32 | 50.25 |
| 4853.000 | 349.00 | 0.00 | 0.00 | 587.71 | 27.00 | 591.45 | 0.00 | 591.45 | 0.17 | 0.22 | 248.72 | 65.42 |
| 4853.000 | 349.00 | 0.00 | 0.00 | 587.71 | 27.00 | 591.51 | 0.00 | 591.51 | 0.16 | 0.21 | 218.73 | 68.14 |
| 5053.000 | 200.00 | 0.00 | 0.00 | 586.37 | 27.00 | 591.45 | 0.00 | 591.46 | 0.30 | 0.40 | 89.82 | 49.01 |
| 5053.000 | 200.00 | 0.00 | 0.00 | 586.37 | 27.00 | 591.51 | 0.00 | 591.51 | 0.31 | 0.41 | 85.29 | 48.37 |
| 5253.000 | 200.00 | 0.00 | 0.00 | 586.40 | 27.00 | 591.46 | 0.00 | 591.48 | 4.39 | 1.33 | 20.23 | 12.89 |
| 5253.000 | 200.00 | 0.00 | 0.00 | 586.40 | 27.00 | 591.51 | 0.00 | 591.54 | 4.26 | 1.32 | 20.47 | 13.07 |
| 5299.000 | 46.00 | 594.40 | 590.30 | 587.30 | 27.00 | 591.98 | 0.00 | 592.01 | 10.07 | 1.44 | 13.70 | 8.51 |
| 5299.000 | 46.00 | 594.40 | 590.30 | 587.30 | 27.00 | 592.03 | 0.00 | 592.07 | 9.73 | 1.43 | 13.94 | 8.69 |
| 5349.000 | 50.00 | 0.00 | 0.00 | 587.30 | 27.00 | 592.03 | 0.00 | 592.04 | 3.70 | 0.92 | 41.05 | 14.04 |
| 5349.000 | 50.00 | 0.00 | 0.00 | 587.30 | 27.00 | 592.09 | 0.00 | 592.10 | 3.76 | 1.00 | 38.73 | 13.95 |
| 5676.000 | 327.00 | 0.00 | 0.00 | 587.26 | 27.00 | 592.08 | 0.00 | 592.08 | 0.47 | 0.68 | 76.12 | 39.56 |
| 5676.000 | 327.00 | 0.00 | 0.00 | 587.26 | 27.00 | 592.13 | 0.00 | 592.15 | 0.75 | 0.87 | 77.56 | 31.19 |
| 5776.000 | 100.00 | 0.00 | 0.00 | 586.26 | 27.00 | 592.06 | 0.00 | 592.12 | 19.05 | 2.05 | 13.80 | 6.19 |
| 5776.000 | 100.00 | 0.00 | 0.00 | 586.26 | 27.00 | 592.14 | 0.00 | 592.20 | 18.05 | 1.99 | 15.58 | 6.56 |
| 5851.000 | 75.00 | 599.40 | 590.73 | 589.00 | 27.00 | 597.65 | 0.00 | 597.66 | 3.73 | 0.89 | 30.29 | 13.94 |
| 5851.000 | 75.00 | 599.40 | 590.73 | 589.00 | 27.00 | 597.73 | 0.00 | 597.74 | 2.65 | 0.80 | 50.57 | 14.13 |
| 5876.000 | 25.00 | 0.00 | 0.00 | 589.39 | 27.00 | 597.66 | 0.00 | 597.66 | 0.08 | 0.14 | 275.58 | 202.57 |
| 5876.000 | 25.00 | 0.00 | 0.00 | 589.39 | 27.00 | 597.74 | 0.00 | 597.74 | 0.02 | 0.13 | 379.69 | 206.02 |
| 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 27.00 | 597.66 | 0.00 | 597.67 | 0.30 | 0.35 | 110.49 | 49.26 |
| 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 27.00 | 597.74 | 0.00 | 597.75 | 0.29 | 0.35 | 114.20 | 50.48 |
| 6036.000 | 75.00 | 100000.00 | 100000.00 | 589.40 | 27.00 | 597.75 | 0.00 | 597.74 | 0.54 | 0.73 | 34.70 | 56.79 |
| 6036.000 | 75.00 | 100000.00 | 100000.00 | 589.40 | 27.00 | 597.83 | 0.00 | 597.84 | 0.50 | 0.73 | 91.55 | 56.11 |
| 6050.000 | 64.00 | 0.00 | 0.00 | 589.40 | 85.00 | 597.71 | 0.00 | 597.77 | 5.36 | 2.36 | 86.36 | 36.70 |
| 6050.000 | 64.00 | 0.00 | 0.00 | 589.40 | 85.00 | 597.81 | 0.00 | 597.87 | 5.38 | 2.38 | 78.86 | 36.63 |
| 7934.000 | 1884.00 | 0.00 | 0.00 | 580.36 | 85.00 | 597.83 | 0.00 | 597.85 | 0.12 | 0.35 | 823.90 | 246.34 |
| 7934.000 | 1884.00 | 0.00 | 0.00 | 580.36 | 85.00 | 597.94 | 0.00 | 597.94 | 0.11 | 0.34 | 837.05 | 254.55 |
| 8734.000 | 800.00 | 0.00 | 0.00 | 591.19 | 85.00 | 597.86 | 0.00 | 597.86 | 0.26 | 0.44 | 501.13 | 167.17 |
| 8734.000 | 800.00 | 0.00 | 0.00 | 591.19 | 85.00 | 597.95 | 0.00 | 597.96 | 0.24 | 0.43 | 521.25 | 173.79 |

PRINTED IN U.S.A.
FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | LS | TOPAS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9734.000 | 1000.00 | 0.00 | 0.00 | 592.34 | 85.00 | 597.99 | 0.00 | 597.99 | 0.54 | 0.56 | 379.66 | 115.44 |
| 9734.000 | 1000.00 | 0.00 | 0.00 | 592.34 | 85.00 | 597.99 | 0.00 | 597.99 | 0.49 | 0.54 | 392.45 | 121.10 |
| 10613.000 | 879.00 | 0.00 | 0.00 | 591.60 | 85.00 | 597.99 | 0.00 | 597.97 | 1.21 | 0.94 | 239.69 | 77.19 |
| 10613.000 | 879.00 | 0.00 | 0.00 | 591.60 | 85.00 | 598.05 | 0.00 | 598.05 | 1.07 | 0.89 | 251.25 | 82.33 |
| 10713.000 | 100.00 | 0.00 | 0.00 | 591.60 | 85.00 | 597.97 | 0.00 | 597.98 | 1.20 | 0.93 | 240.89 | 77.72 |
| 10713.000 | 100.00 | 0.00 | 0.00 | 591.60 | 85.00 | 598.06 | 0.00 | 598.06 | 1.05 | 0.88 | 252.32 | 82.62 |
| 10754.000 | 41.00 | 597.90 | 595.04 | 593.54 | 85.00 | 598.30 | 0.00 | 598.30 | 1.08 | 0.73 | 258.17 | 81.68 |
| 10754.000 | 41.00 | 597.90 | 595.04 | 593.54 | 85.00 | 598.30 | 0.00 | 598.31 | 1.07 | 0.73 | 259.01 | 82.05 |
| 10779.000 | 25.00 | 0.00 | 0.00 | 593.54 | 85.00 | 598.30 | 0.00 | 598.30 | 1.08 | 0.73 | 258.27 | 81.73 |
| 10779.000 | 25.00 | 0.00 | 0.00 | 593.54 | 85.00 | 598.31 | 0.00 | 598.31 | 1.24 | 0.78 | 239.12 | 76.40 |

PRINTED IN U.S.A.
FORM 1411-OB-PRINTED BY ROTARY MANIFOLD FORMS.

FLOODWAY DATA, COOKE & GLADDING RIVER,
PROFILE NO. 2

| STATION | FLOODWAY WIDTH (FT) | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WATER SURFACE ELEVATION WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 0.030 | 5. | 20. | 1.3 | 585.5 | 585.4 | 0.1 |
| 54.000 | 5. | 17. | 1.6 | 585.5 | 585.4 | 0.1 |
| 500.000 | 12. | 37. | 0.7 | 585.6 | 585.5 | 0.1 |
| 1300.000 | 9. | 22. | 1.2 | 585.8 | 585.7 | 0.1 |
| 1600.000 | 9. | 13. | 2.1 | 586.0 | 585.9 | 0.1 |
| 1700.000 | 5. | 6. | 4.4 | 586.5 | 586.5 | 0.0 |
| 1856.000 | 5. | 3. | 3.2 | 588.2 | 588.2 | 0.0 |
| 1861.000 | 20. | 21 | 1.3 | 585.6 | 585.6 | 0.0 |
| 2264.000 | 67. | 131. | 0.2 | 535.3 | 535.5 | 0.0 |
| 2941.000 | 56. | 89. | 0.3 | 588.5 | 588.5 | 0.0 |
| 3041.000 | 5. | 14. | 1.9 | 588.5 | 588.5 | 0.0 |
| 3210.000 | 5. | 9. | 3.0 | 589.0 | 589.0 | 0.0 |
| 3285.000 | 58. | 107. | 0.3 | 539.2 | 589.2 | 0.0 |
| 3354.000 | 5. | 19. | 1.4 | 589.2 | 589.2 | 0.0 |
| 3543.000 | 6. | 20. | 1.3 | 589.3 | 589.3 | 0.0 |
| 3600.000 | 69. | 127. | 0.2 | 589.3 | 589.3 | 0.0 |
| 3742.000 | 5. | 6. | 4.5 | 589.2 | 589.2 | 0.0 |
| 3836.000 | 5. | 9. | 2.9 | 590.1 | 590.1 | 0.0 |
| 3894.000 | 11. | 15. | 1.8 | 590.3 | 590.3 | 0.0 |
| 4337.000 | 55. | 86. | 0.3 | 590.6 | 590.5 | 0.1 |
| 4427.000 | 6. | 18. | 1.5 | 590.6 | 590.5 | 0.1 |
| 4479.000 | 8. | 23. | 1.2 | 591.5 | 591.4 | 0.1 |
| 4504.000 | 55. | 131. | 0.2 | 591.5 | 591.4 | 0.1 |
| 4855.000 | 103. | 219. | 0.1 | 591.5 | 591.5 | 0.1 |
| 5353.000 | 12. | 35. | 0.5 | 591.6 | 591.5 | 0.1 |
| 5253.000 | 4. | 20. | 1.3 | 591.6 | 591.5 | 0.1 |
| 5299.000 | 8. | 19. | 1.4 | 591.6 | 591.5 | 0.1 |
| 5349.000 | 12. | 39. | 0.7 | 592.1 | 592.0 | 0.1 |
| 5676.000 | 50. | 78. | 0.3 | 592.2 | 592.1 | 0.1 |
| 5776.000 | 4. | 16. | 2.0 | 592.2 | 592.1 | 0.1 |
| 5851.000 | 6. | 31. | 0.9 | 597.7 | 597.6 | 0.1 |
| 5876.000 | 52. | 380. | 0.1 | 597.8 | 597.7 | 0.1 |
| 5951.000 | 40. | 114. | 0.4 | 597.8 | 597.7 | 0.1 |
| 6000.000 | 50. | 92. | 0.3 | 597.8 | 597.7 | 0.1 |
| 6050.000 | 20. | 77. | 1.1 | 597.8 | 597.7 | 0.1 |
| 7994.000 | 135. | 637. | 0.1 | 597.9 | 597.8 | 0.1 |
| 8434.000 | 136. | 521. | 0.2 | 598.0 | 597.9 | 0.1 |
| 9734.000 | 135. | 392. | 0.2 | 598.0 | 597.9 | 0.1 |
| 10439.000 | 133. | 251. | 0.3 | 598.1 | 598.0 | 0.1 |
| 10713.000 | 133. | 232. | 0.3 | 598.1 | 598.0 | 0.1 |
| 10756.000 | 132. | 259. | 0.3 | 598.3 | 598.3 | 0.3 |
| 10774.000 | 114. | 239. | 0.4 | 598.3 | 598.3 | 0.3 |

PRINTED IN U.S.A.
FORM 1411.08 PRINTED BY ROTARY MANIFOLD FORMS.

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Cook and Gladding Drain

4) DOCUMENT TYPE: 100 year

HUD200907
9/13/79

```
**************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
   ERROR CORR -  01
   MODIFICATION -  50,51,52
**************************************************

C
T1CITY OF FLAT ROCK FIS HUD 2000-07 COOKE & GLADDING FROM SOUTH TO HWY.STEP RD.
T2 @ 10YR=50,50YR=75,100YR=85,500YR=120,,SEL=MEAN ANNUAL FLOOD OF HURON
T3       COOKE & GLADDING RIVER, FLAT ROCK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q          WSEL      FQ
          0.        4.        3.        3.  0.000030     0.00      0.0       0.     565.400     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IDW        CHMIN     ITRACE
      1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000    15.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    110.000   150.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

QT      5.000    21.000    21.000    27.000    27.000    37.000     0.000     0.000     0.000     0.000
NC      0.360     0.060     0.035     0.300     0.500     0.060     0.000     0.000     0.000     0.000
ET      0.000     0.000     0.000     0.000     5.100     0.000     0.000     0.000     1.000   151.000

D/S FACE OF HURON RIVER DRIVE.

X1      0.300     5.000    75.000    77.500     0.030     5.000     0.000     0.000     1.000     5.000
X3     30.300     0.000     0.000     0.000     7.000     0.000     0.000   546.000   546.000     0.000
CH    597.000     5.000   598.300     0.000   545.000    75.000   581.000    75.000   581.000    75.000
GR    588.000    79.500   538.000   150.000   597.000   151.000     0.000     0.000     0.000     0.000
SI      0.000     1.500     3.000     0.000     3.530     6.000    15.900     0.000   581.100   581.000
MC      0.060     0.080     0.035     0.000     0.000     0.000     0.000     0.000     0.000     0.000

U/S FACE HURON RIVER DRIVE

X1     54.000    14.700    80.000    92.500    54.000    54.000    54.000     0.300     0.000     0.300
X2      0.000     0.005     1.000   585.000   538.000     0.300     0.050     0.300     0.000     0.000
X3     10.000     0.000     0.030     0.000     0.300     0.300     0.000   588.300   588.000     0.300
CH     12.000     0.300   597.000     0.300     1.300   538.000     0.030    25.300   598.000     0.300
GR     56.000   597.000     0.000    58.300   597.300     0.300    67.000   568.000     0.000    54.000
OT    300.000   533.350    69.000   538.300   585.600    91.500   568.000   585.600    92.500   583.000
BT    583.350   175.300   308.000     0.000   176.000   597.000     0.000     0.000     0.000     0.000
FQ    597.000     0.000   308.000     1.000   585.700    35.000   597.000    36.000   597.000    66.000
ES    595.300    67.300   585.000    51.300   213.330    68.000   581.100    67.000   581.150    71.500
CO    583.350    92.500   584.000   100.000   597.000   175.000   597.000   175.000     0.000     0.000
EF      0.000     0.100     0.000     0.500     1.000     2.000     2.000     2.000     2.000     2.000

VALLEY SECTION BASED ON FIELD NOTE SECTION 10+36

X1    540.000    21.000   297.000   555.000   505.000   505.000   500.000     0.000     0.000     0.000
CH    597.000     0.000   590.000   543.100   505.000   111.000   596.000   110.100   594.000   585.900
GR    589.000                       0.000   597.000   200.000   586.140   290.000   542.260   297.000
GR    597.500   301.000   538.700   300.000   597.000   111.000   597.300   576.000   517.565   180.000
GR    595.500   552.100   535.500   300.000   597.000   376.000   538.700   290.000   594.      598.100
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 596.000 | 41 | | .000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECTION 9434

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 1300.000 | 17.000 | 276.300 | 284.000 | 1000.000 | 1000.000 | 1000.300 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 600.300 | 50.000 | 608.000 | 50.100 | 608.000 | 79.900 | 599.940 | 0.000 |
| GR | 593.490 | 180.000 | 585.810 | 273.000 | 583.660 | 276.000 | 593.010 | 280.000 | 583.660 | 284.000 |
| GR | 585.460 | 287.000 | 586.310 | 365.000 | 588.510 | 401.000 | 596.500 | 401.100 | 596.300 | 431.000 |
| GR | 588.600 | 431.100 | 590.000 | 990.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.080 | 0.080 | 0.050 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.800 | 0.000 | 0.000 | 0.200 | 0.100 | 0.000 | 0.300 | 0.000 | 1.000 | 600.000 |

XSECTION D/S GIBRALTAR RD.BASED ON FIELD BOOK " QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 1600.000 | 17.000 | 297.500 | 302.100 | 300.000 | 300.000 | 300.000 | 0.000 | 0.000 | 0.000 |
| GR | 604.300 | 0.000 | 396.000 | 0.100 | 555.430 | 80.000 | 603.400 | 80.100 | 603.400 | 310.000 |
| GR | 595.000 | 110.100 | 593.000 | 289.500 | 584.500 | 297.500 | 583.290 | 300.000 | 584.500 | 302.100 |
| GR | 589.500 | 313.500 | 590.000 | 400.000 | 590.500 | 450.000 | 598.500 | 450.100 | 598.500 | 480.000 |
| GR | 592.000 | 480.100 | 590.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.100 | 0.000 | 0.000 | 0.000 | 1.000 | 600.000 |

D/S FACE OF GIBRALTAR RD. REPEATED SECT 1600

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1700.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 535.140 | 0.000 | 0.000 | 0.300 | 0.000 | 0.000 | 590.000 | 590.000 | 0.000 |
| SO | 0.000 | 2.980 | 3.000 | 0.000 | 3.590 | 0.000 | 9.540 | 0.000 | 596.240 | 585.140 |
| NC | 0.000 | 0.000 | 0.040 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF GIBRALTAR RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1086.000 | 10.000 | 295.000 | 299.600 | 134.200 | 134.000 | 134.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 561.300 | 552.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 586.240 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 593.000 | 593.000 | 0.000 |
| BT | 16.000 | 0.000 | 596.000 | 0.000 | 125.000 | 595.000 | 0.000 | 264.000 | 593.300 | 0.000 |
| BT | 295.000 | 592.800 | 586.900 | 295.300 | 592.800 | 567.900 | 295.000 | 592.000 | 588.500 | 296.500 |
| BT | 592.000 | 560.700 | 297.300 | 592.300 | 582.900 | 295.100 | 592.300 | 588.700 | 295.000 | 592.300 |
| BT | 588.900 | 299.400 | 592.400 | 587.300 | 299.600 | 592.800 | 586.900 | 323.000 | 592.000 | 0.000 |
| BT | 450.000 | 591.200 | 0.000 | 450.700 | 588.450 | 0.000 | 450.000 | 586.000 | 0.000 | 0.000 |
| GR | 596.000 | 0.000 | 595.000 | 135.000 | 593.300 | 262.000 | 586.900 | 295.000 | 585.700 | 295.300 |
| GR | 585.000 | 295.800 | 584.700 | 296.500 | 584.390 | 297.300 | 584.700 | 298.100 | 585.000 | 298.800 |
| GR | 585.700 | 299.400 | 586.900 | 299.600 | 589.900 | 323.000 | 590.000 | 450.000 | 592.000 | 600.000 |
| GR | 594.000 | 650.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.300 | 0.050 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.300 | 1.400 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 |

XSECT.U/S OF GIBRALTAR RD. REPEATED SECT.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1561.300 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 299.000 | 0.000 | 325.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.410 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECTION 8450

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2264.000 | 11.000 | 295.300 | 307.000 | 425.000 | 425.300 | 425.000 | 0.000 | 0.000 | 0.000 |
| GR | 598.970 | 0.000 | 594.620 | 100.000 | 590.890 | 200.000 | 586.510 | 299.000 | 593.690 | 299.000 |
| GR | 585.510 | 300.000 | 586.400 | 307.000 | 586.600 | 312.000 | 588.500 | 451.000 | 585.500 | 500.000 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 596.500 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

100 FEET D/S OF 54" CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 2941.000 | 15.000 | 214.000 | 224.000 | 657.000 | 657.000 | 657.000 | 0.000 | 0.000 | 0.000 |
| XB | 0.000 | 0.000 | 0.000 | 191.000 | 0.000 | 247.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 900.000 | 0.000 | 595.000 | 90.000 | 590.000 | 160.000 | 587.200 | 210.000 | 585.900 | 214.000 |
| GR | 585.500 | 217.250 | 585.500 | 220.750 | 585.900 | 224.000 | 587.000 | 226.000 | 587.500 | 350.000 |
| GR | 595.000 | 350.100 | 595.000 | 380.000 | 587.600 | 380.100 | 590.000 | 400.000 | 592.000 | 500.000 |
| NC | 0.300 | 0.000 | 0.300 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 382.000 |

D/S FACE OF 54" CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3041.000 | 12.000 | 214.000 | 218.500 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 585.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.010 | 589.500 | 589.500 | 0.000 |
| GR | 600.000 | 0.000 | 600.000 | 160.300 | 590.000 | 165.000 | 587.200 | 210.000 | 585.590 | 214.000 |
| GR | 563.300 | 215.000 | 583.300 | 217.500 | 585.550 | 218.500 | 587.000 | 228.000 | 587.500 | 350.000 |
| GR | 590.000 | 351.000 | 595.000 | 352.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 3.010 | 3.000 | 0.000 | 3.160 | 0.000 | 7.500 | 0.000 | 586.700 | 585.500 |

U/S END 54) CULVERT REPEATED SECT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3210.000 | 12.000 | 214.000 | 218.500 | 169.000 | 169.000 | 169.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 589.200 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 586.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 591.000 | 591.000 | 0.000 |
| GT | 9.000 | 0.000 | 600.000 | 0.000 | 160.000 | 600.000 | 0.000 | 165.000 | 590.000 | 0.000 |
| BT | 214.000 | 590.000 | 586.950 | 215.000 | 590.000 | 589.200 | 217.500 | 590.000 | 589.200 | 210.500 |
| BT | 590.000 | 586.950 | 351.000 | 590.000 | 0.000 | 352.000 | 595.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 600.000 | 160.000 | 590.000 | 165.000 | 587.200 | 210.000 | 586.950 | 214.000 |
| GR | 584.700 | 215.000 | 584.700 | 217.500 | 586.650 | 218.500 | 587.000 | 228.000 | 587.500 | 350.000 |
| GL | 590.000 | 351.000 | 595.000 | 352.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

XSECTION BETWEEN 54)CULVERT " SHEEKS RD CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3239.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 191.000 | 0.000 | 247.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 194.000 | 459.100 |

D/S END SHEEKS RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3384.000 | 11.000 | 257.000 | 263.300 | 149.000 | 149.000 | 149.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 217.000 | 0.000 | 264.000 | 0.000 | 589.500 | 589.500 | 0.000 |
| GR | 600.000 | 232.000 | 600.000 | 232.000 | 590.000 | 233.000 | 588.600 | 255.000 | 586.100 | 257.000 |
| GR | 586.100 | 259.000 | 586.100 | 261.500 | 586.100 | 263.300 | 588.600 | 265.000 | 589.300 | 405.000 |
| GR | 600.000 | 405.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 3.320 | 3.000 | 0.000 | 3.225 | 0.000 | 10.000 | 1.000 | 586.100 | 585.700 |

U/S FACE OF SHEEKS RD CULVERT (78"X 60" ELLIPTICAL CONCRETE)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3543.000 | 0.000 | 0.000 | 0.000 | 164.000 | 164.000 | 164.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 590.600 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 217.000 | 0.000 | 265.000 | 0.000 | 590.000 | 590.000 | 0.000 |
| GT | 12.000 | 232.000 | 600.000 | 0.000 | 232.000 | 600.000 | 0.000 | 255.000 | 590.000 | 0.000 |
| BT | 255.000 | 590.000 | 586.950 | 257.000 | 590.000 | 589.200 | 257.000 | 590.000 | 589.200 | 259.000 |
| BT | 590.000 | 586.600 | 261.500 | 590.000 | 0.000 | 263.300 | 590.000 | 587.600 | 263.300 | 591.000 |
| GR | 586.100 | 405.000 | 586.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

XSECT. U/S OF SHEEKS RD.AND D/S OF SENECA RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3600.000 | 9.000 | 196.000 | 204.000 | 52.000 | 52.000 | 52.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 145.000 | 0.000 | 255.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 100.000 | 589.500 | 135.000 | 586.500 | 196.000 | 586.400 | 200.000 |
| GR | 586.500 | 204.000 | 587.500 | 210.000 | 588.300 | 334.000 | 600.000 | 334.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.500 | 1.000 | 310.000 |

D/S END SENECA RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3792.000 | 10.000 | 223.000 | 227.500 | 192.000 | 192.000 | 192.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 591.300 | 590.100 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 100.000 | 591.000 | 221.000 | 588.750 | 223.000 | 587.700 | 224.000 |
| GR | 587.700 | 227.000 | 588.750 | 227.500 | 590.000 | 229.000 | 590.500 | 310.000 | 600.000 | 310.000 |
| BR | 0.000 | 1.530 | 3.000 | 0.000 | 2.710 | 0.000 | 12.200 | 0.000 | 587.705 | 587.700 |

U/S FACE OF SENECA RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3833.000 | 9.000 | 0.000 | 0.000 | 41.000 | 41.000 | 41.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 5.500 | 590.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 591.000 | 590.700 | 0.000 |
| BT | 0.000 | 0.000 | 600.000 | 0.000 | 100.000 | 595.000 | 0.000 | 223.000 | 591.800 | 588.750 |
| BT | 224.000 | 591.800 | 591.000 | 226.500 | 591.800 | 591.000 | 227.500 | 591.800 | 588.750 | 310.000 |
| BT | 590.500 | 0.000 | 310.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

XSECT. U/S OF SENECA RD REPEATED SECT. 3833.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3883.000 | 0.000 | 0.000 | 0.000 | 30.000 | 52.000 | 98.000 | 0.000 | 0.000 | 0.000 |

XSECT. D/S OF COOKE RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4337.000 | 11.000 | 295.500 | 306.500 | 350.000 | 300.000 | 454.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 260.000 | 0.000 | 323.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 130.000 | 590.000 | 200.000 | 589.200 | 290.000 | 587.350 | 293.000 |
| GR | 587.350 | 293.000 | 587.350 | 295.000 | 587.350 | 305.000 | 590.000 | 296.000 | 587.350 | 296.000 |
| BT | 587.350 | 293.000 | 587.350 | 296.500 | 587.700 | 305.000 | 590.000 | 300.000 | 590.000 | 416.000 |
| BT | 600.000 | 416.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 1.930 | 3.000 | 0.000 | 3.930 | 0.000 | 4.910 | 0.000 | 587.350 | 587.350 |

U/S FACE OF COOKE RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4434.000 | 0.000 | 0.000 | 0.000 | 47.000 | 47.000 | 47.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 589.600 | 590.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.000 | 590.800 | 0.000 |
| BT | 0.000 | 0.000 | 600.000 | 0.000 | 130.000 | 590.000 | 0.000 | 296.000 | 587.350 | 0.000 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 293.000 | 591.700 | 587.350 | 293.500 | 591.700 | 588.600 | 295.000 | 591.700 | 588.600 | 295.500 |
| BT | 591.700 | 587.350 | 296.000 | 591.700 | 587.350 | 296.500 | 591.700 | 588.600 | 298.000 | 591.700 |
| BT | 588.600 | 298.500 | 591.700 | 587.350 | 350.000 | 591.700 | 0.000 | 416.000 | 592.700 | 0.000 |
| BT | 416.000 | 600.000 | 0.000 | 416.000 | 600.000 | 0.000 | 416.000 | 600.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.450 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

XSECTION U/S COOKE RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4504.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 268.000 | 0.000 | 323.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.060 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT.5681

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4853.000 | 19.000 | 491.000 | 510.000 | 349.000 | 349.000 | 349.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 438.000 | 0.000 | 563.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GS | 600.000 | 0.000 | 595.650 | 200.000 | 595.990 | 300.000 | 594.060 | 370.000 | 590.060 | 341.000 |
| ST | 590.110 | 405.000 | 589.410 | 491.000 | 587.960 | 494.000 | 587.710 | 500.000 | 588.060 | 506.000 |
| GR | 589.850 | 510.000 | 589.300 | 536.000 | 596.710 | 553.000 | 594.420 | 591.000 | 594.370 | 600.000 |
| GR | 593.820 | 700.000 | 593.460 | 750.000 | 594.150 | 800.000 | 595.000 | 1050.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.600 | 0.300 | 0.500 | 0.000 | 0.500 | 0.000 | 0.000 | 0.000 |

XSECTION S/S OF TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5053.000 | 0.000 | 594.500 | 605.500 | 200.000 | 200.000 | 200.000 | 0.000 | 0.000 | 0.000 |
| GS | 600.000 | 0.000 | 595.000 | 150.000 | 594.000 | 584.500 | 586.370 | 594.300 | 586.370 | 605.500 |
| GR | 594.060 | 615.500 | 595.000 | 775.000 | 600.040 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.150 | 0.000 | 0.000 | 0.000 | 1.000 | 1200.000 |
| NC | 0.000 | 0.000 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

S/S FACE TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5295.000 | 0.000 | 595.000 | 615.000 | 200.000 | 200.000 | 200.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.000 | 592.000 | 0.000 |
| GS | 600.000 | 0.000 | 595.000 | 50.000 | 594.500 | 484.500 | 586.400 | 595.000 | 586.400 | 499.000 |
| GR | 594.400 | 590.000 | 595.000 | 700.000 | 600.000 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SP | 0.000 | 3.790 | 3.000 | 0.000 | 3.030 | 0.000 | 10.900 | 0.000 | 587.300 | 586.700 |

U/S FACE OF TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5299.000 | 12.000 | 495.000 | 499.000 | 46.000 | 46.000 | 46.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 1.000 | 570.300 | 594.463 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GS | 10.000 | 0.000 | 0.000 | 0.000 | 3.000 | 0.000 | 0.000 | 594.400 | 594.400 | 0.000 |
| SR | 1.000 | 594.400 | 445.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| DT | 11.000 | 0.000 | 600.000 | 0.000 | 485.000 | 600.000 | 587.300 | 485.000 | 594.400 | 587.300 |
| BT | 495.000 | 594.400 | 588.500 | 495.500 | 594.400 | 590.000 | 497.000 | 594.400 | 590.300 | 498.500 |
| BT | 594.400 | 590.000 | 499.000 | 594.400 | 508.500 | 499.000 | 594.400 | 587.300 | 510.000 | 594.400 |
| ET | 0.000 | 590.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| TP | 600.000 | 0.000 | 600.000 | 50.000 | 600.000 | 485.000 | 588.300 | 595.000 | 587.300 | 499.000 |
| SR | 587.300 | 499.500 | 587.300 | 587.000 | 587.300 | 496.500 | 587.200 | 589.500 | 588.500 | 599.500 |
| SR | 594.400 | 590.000 | 600.000 | 510.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.060 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

XSECT. U/S OF TELEGRAPH RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5349.000 | 4.000 | 0.000 | 0.000 | 50.000 | 99.000 | 99.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 7.100 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 0.000 | 575.000 | 413.000 |

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XSECT. D/S OF R.R. TRACKS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5676.000 | 10.000 | 395.000 | 405.000 | 327.000 | 327.000 | 327.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 250.000 | 590.000 | 320.000 | 595.000 | 385.000 | 587.400 | 395.000 |
| GR | 587.280 | 400.000 | 587.400 | 405.000 | 595.000 | 415.000 | 595.000 | 525.000 | 600.000 | 600.000 |
| NC | 0.120 | 0.120 | 0.060 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 486.000 |

D/S FACE OF R.R. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5776.000 | 11.000 | 399.000 | 402.500 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 597.000 | 594.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 250.000 | 590.000 | 320.000 | 590.000 | 385.000 | 588.260 | 395.000 |
| GR | 588.250 | 399.000 | 588.260 | 402.500 | 591.000 | 405.000 | 594.000 | 401.000 | 595.000 | 486.000 |
| GR | 600.000 | 486.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SS | 0.000 | 2.650 | 3.000 | 0.000 | 2.760 | 0.000 | 2.400 | 0.000 | 589.000 | 588.260 |

U/S FACE OF 42" RAILROAD CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5831.000 | 29.000 | 699.000 | 702.500 | 75.000 | 75.000 | 75.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.500 | 1.000 | 393.750 | 399.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 601.100 | 600.000 | 0.000 |
| BT | 16.000 | 0.000 | 604.000 | 0.000 | 200.000 | 603.000 | 0.000 | 300.000 | 602.600 | 0.000 |
| BT | 400.000 | 602.200 | 0.000 | 500.000 | 601.900 | 0.000 | 600.000 | 601.500 | 0.000 | 699.000 |
| BT | 601.100 | 589.000 | 699.250 | 601.100 | 589.250 | 700.750 | 601.100 | 590.750 | 702.250 | 601.100 |
| BT | 590.250 | 702.500 | 601.100 | 589.000 | 785.000 | 599.400 | 0.000 | 786.000 | 604.000 | 0.000 |
| BT | 876.000 | 604.000 | 0.000 | 876.000 | 604.000 | 0.000 | 876.000 | 604.000 | 0.000 | 0.000 |
| GR | 604.000 | 0.000 | 600.000 | 0.000 | 595.000 | 75.000 | 594.200 | 200.000 | 595.500 | 300.000 |
| GR | 592.900 | 400.000 | 592.200 | 500.000 | 591.600 | 600.000 | 591.000 | 685.000 | 589.000 | 695.000 |
| GR | 589.000 | 699.000 | 589.000 | 699.250 | 589.000 | 700.750 | 589.000 | 702.250 | 589.000 | 702.500 |
| GR | 591.000 | 705.000 | 595.000 | 795.000 | 595.000 | 785.000 | 606.000 | 786.000 | 604.000 | 876.000 |
| GR | 604.000 | 876.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.700 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 574.000 | 720.000 |

XSECT. U/S OF R.R. TRACKS " L/S OF ARSENAL

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1076.000 | 9.000 | 595.000 | 705.000 | 25.000 | 35.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 100.000 | 591.310 | 630.000 | 589.390 | 695.000 | 589.392 | 705.000 |
| GR | 591.010 | 715.000 | 595.000 | 800.000 | 600.000 | 950.000 | 950.000 | 1200.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 1100.000 |

D/S FACE ARSENAL CULVERTS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5931.000 | 13.000 | 799.000 | 802.000 | 55.000 | 55.000 | 55.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 750.000 | 0.000 | 840.000 | 0.000 | 593.000 | 593.400 | 0.000 |
| GR | 604.000 | 772.000 | 600.000 | 773.630 | 595.120 | 790.000 | 595.500 | 791.000 | 593.500 | 797.000 |
| GR | 589.430 | 799.000 | 589.400 | 802.000 | 591.000 | 801.000 | 596.500 | 810.000 | 597.100 | 811.000 |
| GR | 599.000 | 869.000 | 604.000 | 870.130 | 604.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SS | 0.000 | 3.700 | 3.000 | 0.000 | 2.400 | 0.000 | 3.400 | 0.000 | 0.000 | 0.000 |

U/S FACE ARSENAL CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6006.000 | 14.000 | 799.000 | 802.000 | 75.000 | 75.000 | 75.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 593.000 | 399.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 596.400 | 596.500 | 0.000 |
| GR | 596.000 | 596.000 | 596.000 | 597.750 | 597.000 | 599.400 | 0.000 | 0.000 | 0.000 | 0.000 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 13.000 | 772.000 | 604.000 | 0.000 | 772.000 | 604.000 | 0.000 | 773.000 | 600.000 | 0.000 |
| BT | 790.000 | 596.100 | 0.000 | 799.000 | 596.100 | 509.400 | 799.250 | 596.200 | 590.600 | 800.500 |
| BT | 596.300 | 590.900 | 801.750 | 596.400 | 590.600 | 802.000 | 596.500 | 589.400 | 805.000 | 596.500 |
| BT | 0.000 | 810.000 | 597.100 | 0.000 | 869.000 | 599.000 | 0.000 | 870.000 | 604.000 | 0.000 |
| GR | 604.000 | 772.000 | 600.000 | 773.000 | 600.000 | 772.000 | 596.100 | 790.000 | 595.500 | 795.000 |
| GR | 589.400 | 799.000 | 589.400 | 799.250 | 589.400 | 800.500 | 309.400 | 301.750 | 589.400 | 002.000 |
| GR | 596.500 | 805.000 | 597.100 | 810.000 | 599.000 | 869.000 | 604.000 | 870.000 | 0.000 | 0.000 |
| QT | 5.000 | 50.000 | 75.000 | 85.000 | 85.000 | 120.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X SECTION U/S OF ARSENAL.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6050.000 | 0.000 | 0.000 | 0.000 | 44.000 | 44.000 | 44.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.060 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT. 2000.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7934.000 | 12.000 | 646.000 | 654.000 | 1884.000 | 1884.000 | 1884.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 583.000 | 0.000 | 718.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X4 | 1.000 | 605.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 300.000 | 0.000 | 595.160 | 370.000 | 594.560 | 650.000 | 594.560 | 350.000 | 595.260 | 641.000 |
| GR | 589.760 | 646.000 | 590.860 | 650.000 | 589.650 | 654.000 | 595.150 | 661.000 | 594.850 | 750.000 |
| GR | 590.423 | 851.000 | 601.020 | 750.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT. 2000.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8734.000 | 13.000 | 647.000 | 655.000 | 800.000 | 800.000 | 800.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 582.000 | 0.000 | 518.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X4 | 2.000 | 605.000 | 0.000 | 605.000 | 1001.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.290 | 150.000 | 594.990 | 250.000 | 595.090 | 350.000 | 595.790 | 440.000 |
| GR | 591.490 | 447.000 | 591.190 | 450.000 | 591.290 | 453.000 | 594.190 | 458.000 | 595.490 | 550.000 |
| GR | 596.290 | 650.000 | 597.590 | 750.000 | 600.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT. 1050.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9734.000 | 13.000 | 345.000 | 355.000 | 1000.000 | 1000.000 | 1030.300 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 295.000 | 0.000 | 420.000 | 0.500 | 0.000 | 0.000 | 0.000 |
| X4 | 2.000 | 605.000 | 0.000 | 605.000 | 701.000 | 0.000 | 0.500 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 590.940 | 50.000 | 595.190 | 150.000 | 595.940 | 290.000 | 595.940 | 341.000 |
| GR | 592.640 | 345.000 | 592.440 | 350.000 | 592.540 | 355.000 | 595.340 | 358.000 | 595.470 | 450.000 |
| GR | 595.920 | 550.000 | 596.920 | 650.000 | 600.000 | 700.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.080 | 0.080 | 0.060 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X SECT. D/S OF INKSTER RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10613.000 | 16.000 | 490.000 | 501.000 | 879.000 | 879.000 | 879.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 435.000 | 0.000 | 566.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 604.000 | 0.000 | 600.900 | 1.000 | 599.000 | 130.000 | 599.830 | 200.000 | 597.230 | 300.000 |
| GR | 595.400 | 492.000 | 591.600 | 494.000 | 591.600 | 551.000 | 595.630 | 559.000 | 597.310 | 650.000 |
| GR | 597.500 | 930.000 | 596.300 | 1000.000 | 599.000 | 1130.000 | 599.550 | 1200.000 | 600.000 | 1300.000 |
| GR | 604.000 | 1301.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 0.000 | 0.000 | 0.000 | 0.000 | 9.105 | 0.000 | 0.000 | 0.000 | 1.000 | 1301.000 |

D/S FACE OF INKSTER RD CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10713.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 435.000 | 0.000 | 156.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SH | 0.000 | 2.000 | 3.000 | 0.000 | 2.400 | 0.000 | 0.000 | 0.000 | 555.540 | 0.000 |

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U/S FACE OF INKSTER RD. CULVERT

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10754.000 | 15.000 | 498.000 | 501.000 | 41.000 | 41.000 | 41.000 | 0.000 | 0.000 | 0.000 | |
| X2 | 0.000 | 0.000 | 1.000 | 595.040 | 597.900 | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.300 | 0.000 | 597.900 | 597.700 | 0.000 | |
| BT | 13.000 | 433.000 | 604.000 | 0.000 | 433.000 | 604.300 | 0.000 | 433.000 | 604.000 | 0.000 | |
| BT | 433.000 | 604.000 | 0.000 | 433.000 | 604.000 | 0.000 | 434.000 | 597.900 | 0.000 | 498.000 | |
| BT | 597.900 | 593.540 | 498.250 | 597.900 | 594.790 | 499.500 | 597.900 | 593.040 | 500.750 | 597.900 | |
| BT | 594.790 | 501.000 | 597.900 | 593.540 | 566.000 | 596.200 | 0.300 | 567.000 | 604.000 | 0.000 | |
| GR | 604.000 | 433.000 | 604.000 | 433.000 | 604.000 | 433.000 | 604.900 | 433.000 | 604.000 | 433.000 | |
| GR | 596.700 | 434.000 | 596.200 | 430.000 | 593.540 | 496.000 | 593.540 | 496.250 | 593.540 | 499.500 | |
| GR | 593.540 | 500.750 | 593.540 | 501.000 | 596.700 | 510.000 | 596.900 | 566.000 | 604.000 | 567.000 | |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

XSECT U/S OF INKSTER RD.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10779.000 | 0.000 | 0.000 | 0.300 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 | |
| EJ | 0.000 | 0.000 | 0.060 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

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*PROF 1

CCHV= 0.300 CEHV= 0.500

| *SECNO **** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | QWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| P | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TOA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IN2 | ICONT | CORAR | TOPWID | ENDST |
| | | | | | | | | | |
| 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= | | | | 586.00 ELREA= | | 586.00 | | | |
| | | | | | | | | | |
| D/S FACE OF HURON RIVER DRIVE. | | | | | | | | | |
| | | | | | | | | | |
| 0.30 | 5.40 | 585.40 | 0.00 | 585.40 | 585.43 | 0.05 | 0.00 | 0.00 | 568.00 |
| 27. | 0. | 27. | 0. | 0. | 20. | 0. | 0. | 0. | 580.00 |
| 0.00 | 0.00 | 1.36 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 581.00 | 75.00 |
| 0.000607 | 0. | 0. | 0. | 0 | 0 | 0 | 0.00 | 4.50 | 79.50 |

FLOW DISTRIBUTION FOR SECNO= 0.00 CWSEL= 585.40

STA= 75. 80.
PER Q= 100.0
AREA= 19.8
VEL= 1.4

SPECIAL BRIDGE

| SB KK | XKOR | COFA | XOLEN | BHC | BYP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 581.10 | 581.00 |

*SECNO 54.000

0.0/0.LOW FLOW BY NORMAL BRIDGE

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ESPRS= 0.000 | *SLOS= 585.387 | ELC= 585.000 | ECUSE= 585.400 | ELTOP= 586.000 | | | |

S3/D NORMAL BRIDGE,PROJ IS LOW ELTOP= 587.27000 SLLC= 585.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 568.00 ELREA= 568.00

U/S FACE HURON RIVER DRIVE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 54.00 | 4.33 | 585.43 | 0.30 | 0.00 | 585.47 | 0.04 | 0.14 | 0.01 | 583.35 |
| 27. | 0. | 27. | 0. | 0. | 16. | 0. | 0. | 0. | 583.35 |
| 0.01 | 1.00 | 1.33 | 0.30 | 0.063 | 0.15 | 1.000 | 0.003 | 581.10 | 96.00 |
| 0.020743 | 54. | 54. | 54. | 2 | 1 | 0 | -10.45 | 1.55 | 92.50 |

FLOW DISTRIBUTION FOR SECNO= 54.00 CWSEL= 585.43

STA= 69. 93.
PER Q= 100.0
AREA= 14.2
VEL= 1.4

W.ELEV 580.100

* The 27cfs occurs when Huron @ 100 yr. flood stage 590.83

Huron River 100 yr stage ≈ 590.4

Reasonable

VALLEY SECTION BASED ON FIELD BOOK SECTION 10434

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 300.00 | 4.03 | 585.54 | 0.00 | 0.00 | 585.55 | 0.01 | 0.07 | 0.01 | 582.26 |
| 27. | 3. | 22. | 2. | 9. | 22. | 10. | 6. | 6. | 582.36 |
| 0.11 | 0.32 | 1.00 | 0.24 | 0.060 | 0.035 | 0.080 | 0.035 | 581.51 | 291.54 |
| 0.000105 | 300. | 300. | 300. | 2 | 0 | 0 | 0.00 | 17.55 | 309.09 |

FLOW DISTRIBUTION FOR SECNO= 300.00 CHSEL= 585.54

| | | | | |
|---|---|---|---|---|
| STA= | 292. | 297. | 303. | 309. |
| PER Q= | 10.5 | 80.9 | 8.6 | |
| AREA= | 8.9 | 21.7 | 9.7 | |
| VEL= | 0.3 | 1.0 | 0.2 | |

CCHV= 0.100 CEHV= 0.300
*SECNO 1300.000

VALLEY SECTION BASED ON FIELD BOOK SECTION 9434

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1300.00 | 2.68 | 585.69 | 0.00 | 0.00 | 585.72 | 0.02 | 0.17 | 0.00 | 583.66 |
| 27. | 1. | 25. | 1. | 3. | 19. | 6. | 1. | 1. | 585.66 |
| 0.33 | 0.58 | 1.30 | 0.22 | 0.060 | 0.035 | 0.080 | 0.034 | 583.01 | 273.16 |
| 0.000505 | 1300. | 1000. | 1000. | 2 | 0 | 0 | 0.00 | 35.37 | 308.53 |

FLOW DISTRIBUTION FOR SECNO= 1300.00 CHSEL= 585.69

| | | | | | |
|---|---|---|---|---|---|
| STA= | 273. | 276. | 284. | 287. | 309. |
| PER Q= | 4.1 | 91.2 | 4.0 | 0.7 | |
| AREA= | 2.9 | 18.9 | 3.6 | 2.5 | |
| VEL= | 0.4 | 1.3 | 0.3 | 0.1 | |

CCHV= 0.300 CEHV= 0.500
*SECNO 1600.000

| SEC ID | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | BCHIN | C.BCH | CHL.S | US LS | LC | RV | LC | ULOSS | BANK ELEV |
| D | ALOB | QCH | QROB | ALOB | ACH | AROB | VOL | T.I | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XSL | XBCH | XNR | LCH | LLOSS | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IN2 | XCOLT | CONAR | TOPWID | ENDST |

X-SECTION D/S GIBRALTAR RD.BASED ON FIELD BOOK " QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1600.00 | 2.59 | 585.88 | 0.00 | 0.00 | 585.98 | 0.10 | 0.22 | 0.04 | 564.55 |
| 27. | 1. | 25. | 2. | 1. | 7. | 2. | 1. | 1. | 587.50 |
| 0.37 | 0.70 | 2.66 | 0.25 | 0.052 | 0.050 | 0.080 | 0.038 | 563.29 | 296.20 |
| 0.003857 | 300. | 300. | 300. | 2 | 0 | 0 | 0.00 | 9.05 | 305.24 |

FLOW DISTRIBUTION FOR SECNO= 1600.00 CHSEL= 585.88

| | | | | |
|---|---|---|---|---|
| STA= | 290. | 298. | 302. | 305. |
| PER Q= | 3.3 | 93.2 | 3.4 | |
| AREA= | 0.9 | 9.1 | 2.2 | |
| VEL= | 0.4 | 2.7 | 0.4 | |

*SECNO 1700.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,SLEA= 550.00 ELREA= 590.00

D/S EACH OF GIBRALTAR RD. REPEATED SECT 1600

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  1700.00      1.34    586.48      0.00      0.00    586.78      0.30      0.70      0.10    585.14
      27.        0.       27.        0.        0.        6.        0.        1.        1.    585.14
     0.37      0.00      4.38      0.00     0.000     0.050     0.080     0.038    585.14    297.50
 0.016205      100.      100.      100.         3         0         0      0.03      4.60    302.10

FLOW DISTRIBUTION FOR SECNO=    1700.00          CHSEL=     586.48

STA=      298.      302.
  PER Q=     100.0
   AREA=       6.2
    VEL=       4.4
```

54" RCP 136 L.F.

```
SPECIAL BRIDGE

CB  XK        XKJO      COFO      BDLEN     BHC       BEP       BAREA     CS        ELCHU     ELCHD
     0.00      2.98      3.00      0.00      3.59      0.00      9.54      0.00    585.24    585.14

*SECNO 1836.000

6070,LOW FLOW BY NORMAL BRIDGE

SGPRS=     0.000  EGLLC=   587.894  ELLC=   588.900  PCUSE=   586.479  ELTRD=   592.800

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  592.80 MAX ELLC=  588.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      593.40 ELREA=      593.40

        U/S FACE OF GIBRALTAR RD.

  1836.00      1.95    586.19      0.00      0.00    586.35      0.16      1.55      0.04    586.90
      27.        0.       27.        0.        0.        0.        0.        1.        1.    586.90
     0.39      0.00      3.20      0.00     0.000     0.045     0.080     0.039    585.24    295.00
 0.008253      136.      136.      136.         3         0         0     -6.04      4.60    299.60

FLOW DISTRIBUTION FOR SECNO=    1836.00          CHSEL=     586.19

STA=      293.      300.
  PER Q=     100.0
   AREA=       3.6
    VEL=       3.2

*SECNO 1861.000

3470 ENCROACHMENT STATIONS=      270.0      325.0  TYPE=      1  TARGET=      55.000

        XNSECT.U/S OF GIBRALTAR RD. REPEATED SECT.

  1861.00      2.19    586.43      0.00      0.00    586.47      0.04      0.09      0.03    586.90
      27.        2.       19.        6.        2.       10.       [illegible]        1.        1.    586.90
     0.39      0.64      1.95      0.60     0.000     0.050     0.080     0.039    586.26    291.90
 0.001965       25.       25.       25.         2         0         0      0.00     19.62    311.51

FLOW DISTRIBUTION FOR SECNO=    1861.00          CHSEL=     586.43

STA=      292.      295.      300.      312.
  PER Q=       5.6      71.3      23.1
   AREA=       [illegible]       9.9       [illegible]
```

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    VEL=      0.6       1.9       0.7

CCHV=   0.100 CEHV=   0.300
*SECNO 2284.000

        VALLEY SECTION BASED ON FIELD BOOK SECTION 8450

  2284.00      3.01    588.51      0.00      0.00    588.51      0.00      0.04      0.00    585.60
      27.        6.       13.        8.       51.       41.       81.        2.        2.    585.80
     0.95      0.11      0.31      0.10     0.080     0.050     0.080     0.041    585.50    248.21
 0.000027      423.      423.      423.         3         0         0      0.00    136.93    385.15

FLOW DISTRIBUTION FOR SECNO=   2284.00          CUSEL=    588.51

STA=      248.      289.      293.      307.      312.      385.
  PER Q=     14.7       6.3      47.5       7.2      24.3
  AREA=     41.0       9.3      40.6      11.6      69.9
   VEL=      0.1       0.2       0.3       0.2       0.1

*SECNO 2941.000
   SECNO     DEPTH     CUSEL     CRIWS     WSELK     EG        HV        HL        BLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       XTN       LLMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IR2       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      191.0      247.0  TYPE=      1  TARGET=      56.000

        100 FEET D/S OF  54" CULVERT

  2941.00      3.04    588.54      0.00      0.00    588.54      0.00      0.03      0.00    585.90
      27.        4.       15.        8.       23.       29.       37.        4.        3.    585.90
     1.44      0.17      0.52      0.21     0.050     0.030     0.080     0.043    585.50    191.00
 0.000074      657.      657.      657.         2         0         0      0.00     56.00    247.00

FLOW DISTRIBUTION FOR SECNO=   2941.00          CUSEL=    588.54

STA=      191.      210.      214.      224.      226.      247.
  PER Q=      7.0       7.2      56.1       7.9      21.1
  AREA=     15.5       7.2      23.1       6.3      28.5
   VEL=      0.1       0.2       0.5       0.3       0.2

CCHV=   0.300 CEHV=   0.500
*SECNO 3041.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE DELTA=      589.50 CLUSA=      589.50

        D/S FACE  OF 54" CULVERT

  3041.00      3.23    588.53      0.00      0.00    588.53      0.05      0.02      0.03    585.55
      27.        0.       27.        0.        0.       14.        0.        4.        3.    585.55
     1.46      0.00      1.89      0.00     0.080     0.050     0.080     0.043    585.30    274.00
 0.001527      100.      100.      100.         1         0         0      0.00      4.50    278.50

FLOW DISTRIBUTION FOR SECNO=   3041.00          CUSEL=    588.53

STA=      214.      219.
  PER Q=     100.0
  AREA=     114.3
```

```
VEL=      1.9

SPECIAL BRIDGE

SB  XK        XXOR      COPR      RD.EN     BRC       BWP       BAREA     SS        ELCHU     ELCHD
    0.00      3.01      3.00      0.00      3.16      0.00      7.90      0.00      586.70    585.30

*SECNO 3210.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=   589.077  EGLWC=   589.986  ELLC=   589.200  PCWSE=   588.552  ELTRD=   590.000

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  590.00 MAX ELLC=  589.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      591.00 ELREA=      591.00

        U/S END 540 CULVERT  REPEATED SECT

  3210.00     2.27   588.97     0.00      0.00   589.11     0.14     0.48     0.04   586.95
      27.       0.      27.       0.        0.       0.       0.       4.       3.    586.85
     1.67     0.00     2.79     0.00     0.080    0.050    0.020    0.043   586.70   214.00
 0.007226     169.     169.     169.         4        0        0   -20.00     4.50   218.50

FLOW DISTRIBUTION FOR SECNO=   3210.00          CWSEL=   588.97

STA=      214.      219.
  PER Q=     100.0
   AREA=       9.0
    VEL=       3.0

*SECNO 3235.000

3470 ENCROACHMENT STATIONS=      191.0      247.0  TYPE=      1  TARGET=      56.000

        "DISECTION BETWEEN 540CULVERT " SHEEKS RD CULVERT

  3235.00     2.46   589.16     0.00      0.00   589.16     0.00     0.01     0.04   586.95
      27.       7.       0.      15.       34.      11.       5.       4.       3.    586.08
     1.50     0.20     0.44     0.25     0.080    0.050    0.000    0.043   586.70   191.00
 0.000070      25.      25.      25.         2        0        0     0.00    56.00   247.00

FLOW DISTRIBUTION FOR SECNO=   3235.00          CWSEL=   589.16

STA=      191.      210.      214.      219.      228.      247.
  PER Q=      17.9       7.8      17.9      20.8      35.6
   AREA=      26.0       8.3      10.9      21.2      40.3
    VEL=       0.2       0.3       0.4       0.3       0.2

*SECNO 3384.000

3470 ENCROACHMENT STATIONS=      217.0      305.0  TYPE=      1  TARGET=      80.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      589.50 ELREA=      589.50

        D/S END SHEEKS RD. CULVERT

  3384.00     5.37   589.17     0.00      0.00   589.20     0.03     0.01     0.01   586.17
```

```
     27.       0.      27.       0.       0.      19.       0.       5.       3.    586.10
    1.53     0.00     1.40     0.00    0.080    0.050    0.080    0.044   586.10   257.00
0.000677     149.     149.     149.        2        0        0     0.00     6.30   263.30

FLOW DISTRIBUTION FOR SECNO=   3384.00          CWSEL=    589.17

STA=      257.      263.
  PER Q=     100.0
  AREA=      19.3
   VEL=       1.4

SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
    0.00       3.32       3.00       0.00       3.32       0.00      15.80      1.00      586.10     586.10

*SECNO 3548.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        NL        CLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCR      XLOBR     ITRSAL    XH2       ICONT     JORAR     TOPWID     ENDST

PRESSURE FLOW

 EWFRS      ECLWC      MS        PWEIR      QOR        BAREA    TRAPEZOID      ELLC      ELTRD
                                                                  AREA
  589.32     589.20     0.00        0.        27.       19.       16.       582.60     590.00

3470 ENCROACHMENT STATIONS=     217.0      305.0  TYPE=      1  TARGET=      80.000

3490 OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEAR      390.00 ERREA=      390.00

        U/S FACE OF SHEEKS RD  (CULVERT (76"X 48"  ELLIPTICAL CONCRETE)

  3548.00     3.19    589.29     0.00      0.00    589.32     0.03      0.12      0.00    586.10
     27.        0.      27.        0.        0.       20.       0.        5.        3.    586.10
    1.56     0.00     1.34     0.00    0.000    0.080    0.080    0.044   586.10   257.00
0.000604     164.     164.     164.        2        0        0     0.00     6.30   263.30

FLOW DISTRIBUTION FOR SECNO=   3548.00          CWSEL=    589.29

STA=      257.      263.
  PER Q=     100.0
  AREA=      20.1
   VEL=       1.5

*SECNO 3600.000

3470 ENCROACHMENT STATIONS=     145.0      255.0  TYPE=      1  TARGET=     110.000

        XSECT. U/S OF SHEEKS RD.AND D/S OF SENECA RD.

  3600.00     2.93    589.33     0.00      0.00    589.33     0.00      0.01      0.01    586.50
     27.        2.       9.       16.       15.       23.       39.       3.        3.    586.50
    1.62     0.15     0.40     0.13    0.000    0.150    0.000    0.044   586.40   183.65
0.000043       32.      52.      32.        0        0        0     0.00     59.33   255.00
```

FLOW DISTRIBUTION FOR SECNO= 3600.00 CWSEL= 589.33

| | | | | |
|---|---|---|---|---|
| STA= | 186. | 196. | 204. | 210. | 255. |
| PER Q= | 8.1 | 33.7 | 11.0 | 47.2 | |
| AREA= | 14.6 | 23.0 | 93.9 | 75.5 | |
| VEL= | 0.2 | 0.4 | 0.2 | 0.2 | |

*SECNO 3792.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.30 ELAREA= 590.10

D/S END SENECA RD. CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3792.00 | 1.51 | 589.21 | 0.00 | 0.70 | 589.52 | 0.31 | 0.03 | 0.16 | 588.75 |
| 27. | 0. | 27. | 0. | 0. | 6. | 0. | 5. | 4. | 580.75 |
| 1.63 | 0.00 | 4.50 | 0.00 | 0.090 | 0.052 | 0.000 | 0.044 | 587.70 | 223.00 |
| 0.022722 | 192. | 192. | 192. | 2 | 0 | 0 | 0.00 | 4.50 | 227.50 |

FLOW DISTRIBUTION FOR SECNO= 3792.00 CWSEL= 589.21

| | |
|---|---|
| STA= | 223. 228. |
| PER Q= | 100.0 |
| AREA= | 6.0 |
| VEL= | 4.5 |

SPECIAL BRIDGE

| SS | XK | XKOR | COFQ | RDLEN | BHC | BWP | BARCA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.63 | 3.00 | 0.00 | 2.71 | 0.00 | 12.20 | 0.00 | 587.70 | 587.70 |

*SECNO 3833.000

6070.LOW FLOW BY NORMAL BRIDGE

ESPRS= 0.000 EGLWC= 589.521 ELLC= 591.000 PCWSE= 589.206 SLTRD= 590.500

5370 NORMAL BRIDGE,WRD= 5 TIE CLTIW= 590.50 BAR ELLC= 591.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.00 ELAREA= 590.70

D/S FACE OF SENECA RD. CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3833.00 | 2.35 | 590.05 | 0.00 | 0.00 | 590.19 | 0.13 | 0.01 | 0.05 | 588.75 |
| 27. | 0. | 27. | 0. | 0. | 9. | 0. | 5. | 4. | 580.75 |
| 1.63 | 0.00 | 2.94 | 0.00 | 0.080 | 0.050 | 0.000 | 0.044 | 587.70 | 223.00 |
| 0.010612 | 61. | 61. | 61. | 4 | 0 | 0 | -1.66 | 4.50 | 227.50 |

FLOW DISTRIBUTION FOR SECNO= 3833.00 CWSEL= 590.05

| | |
|---|---|
| STA= | 223. 228. |
| PER Q= | 100.0 |
| AREA= | 9.2 |
| VEL= | 2.9 |

*SECNO 3883.000

X-SECT. U/S OF SENECA RD REPEATED SECT. 3833.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3883.00 | 2.65 | 590.35 | 0.00 | 0.00 | 590.40 | 0.06 | 0.19 | 0.02 | 588.75 |
| | 27. | 1. | 23. | 3. | 1. | 11. | 11. | 5. | 4. | 588.75 |
| 1 | 1.64 | 0.54 | 2.09 | 0.31 | 0.080 | 0.050 | 0.080 | 0.044 | 587.70 | 221.59 |
| 2 | 0.001985 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 62.07 | 280.66 |

FLOW DISTRIBUTION FOR SECNO= 3883.00 CWSEL= 590.35

| | | | | | |
|---|---|---|---|---|---|
| STA= | 222. | 223. | 228. | 229. | 234. |
| PER Q= | 2.2 | 85.5 | 3.6 | 8.6 | |
| AREA= | 1.1 | 11.1 | 1.4 | 9.2 | |
| VEL= | 0.5 | 2.1 | 0.7 | 0.3 | |

*SECNO 4337.000

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | KV | FL | QLOSS | BANK ELEV |
| | Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| | TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | STN | ELMIN | SSTA |
| | SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IN2 | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 258.0 323.0 TYPE= 1 TARGET= 55.000

X-SECT. D/S OF COOKE RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 4337.00 | 3.02 | 590.52 | 0.00 | 0.00 | 590.53 | 0.00 | 0.11 | 0.02 | 587.50 |
| | 27. | 8. | 16. | 3. | 37. | 27. | 18. | 6. | 4. | 587.50 |
| | 1.93 | 0.21 | 0.59 | 0.10 | 0.000 | 0.050 | 0.060 | 0.045 | 587.50 | 260.00 |
| | 0.000689 | 350. | 454. | 500. | 3 | 0 | 0 | 0.00 | 55.00 | 323.00 |

FLOW DISTRIBUTION FOR SECNO= 4337.00 CWSEL= 590.52

| | | | | | | |
|---|---|---|---|---|---|---|
| STA= | 268. | 293. | 296. | 305. | 308. | 323. |
| PER Q= | 32.3 | 5.6 | 52.2 | 7.1 | 0.7 | |
| AREA= | 30.6 | 3.6 | 27.3 | 5.0 | 12.4 | |
| VEL= | 0.2 | 0.3 | 0.6 | 0.2 | 0.1 | |

*SECNO 6437.000

6445 OVERBANK AREA ASSUMED LOW-EFFECTIVE FLOW= 591.00 ELMIN= 591.00

D/S FACE OF COOKE RD CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 6437.00 | 2.16 | 590.53 | 0.00 | 0.00 | 590.57 | 0.04 | 0.02 | 0.02 | 587.35 |
| | 27. | 0. | 27. | 0. | 0. | 17. | 6. | 0. | 4. | 587.35 |
| | 1.95 | 0.00 | 1.54 | 0.00 | 0.000 | 0.050 | 0.020 | 0.045 | 587.35 | 293.00 |
| | 0.000987 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 5.50 | 298.50 |

FLOW DISTRIBUTION FOR SECNO= 6437.00 CWSEL= 590.53

| | | |
|---|---|---|
| STA= | 293. | 299. |
| PER Q= | 100.0 | |
| AREA= | 17.5 | |
| VEL= | 1.5 | |

SPECIAL CROSS

SO XS 3400 CCRD REGIT D 3 0 BANK ES

```
     0.00      1.93      3.00      0.00      3.93      0.00      4.91      0.00    587.35    587.35

*SECNO 4479.000
PRESSURE FLOW

 EGPRS      EGLUC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                AREA
  591.43    590.57     0.00       0.        27.        5.        5.       588.60    591.70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      592.00 ELNEA=      592.00

          U/S FACE OF COOKE RD. CULVERT

 4479.00     4.06    591.41     0.00      0.00    591.43     0.02      0.37      0.00    587.35
     27.       0.       27.       0.        0.       22.       0.        6.        4.    587.35
    1.96      0.00      1.21      0.00     0.080     0.050     0.080     0.045    587.35    295.00
0.000499      42.       42.       42.        2         0         0      0.00      5.50    298.50

FLOW DISTRIBUTION FOR SECNO=    4479.00          CWSEL=    591.41

STA=      293.      299.
  PER Q=     100.0
   AREA=      22.5
    VEL=       1.2

*SECNO 4504.000

3470 ENCROACHMENT STATIONS=      268.0      323.0  TYPE=     1  TARGET=      55.000

          XSECTION U/S COOKE RD

 4504.00     4.09    591.44     0.00      0.00    591.44     0.01      0.01      0.01    587.35
     27.       10.       10.       6.       57.       22.       49.        6.        4.    587.35
    1.98      0.17      0.42      0.16     0.080     0.050     0.080     0.045    587.35    268.00
0.000391      25.       25.       25.        1         0         0      0.00     55.00    323.00

FLOW DISTRIBUTION FOR SECNO=    4504.00          CWSEL=    591.44

STA=      268.      290.      293.      299.      305.      323.
  PER Q=      28.2       7.0      35.2      14.2      15.4
   AREA=      47.0       9.5      22.5      18.9      30.2
    VEL=       0.2       0.2       0.4       0.2       0.1

CCHV=    0.100 CERV=    0.300
*SECNO 4853.000

3470 ENCROACHMENT STATIONS=      438.0      563.0  TYPE=     1  TARGET=     125.000

          VALLEY SECTION BASED ON FIELD DOCK SHOTSHEET

 4853.00     3.74    591.45     0.00      0.00    591.45     0.00      0.01      0.00    589.41
     27.       9.       13.       3.       97.       61.       54.        7.        5.    589.85
    2.62      0.09      0.22      0.09     0.100     0.060     0.100     0.046    587.71    428.03
0.000017      349.      349.      349.        2         0         0      0.00    102.93    560.93

FLOW DISTRIBUTION FOR SECNO=    4853.00          CWSEL=    591.45
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STA=      438.      491.      510.      536.      541.
  PER Q=      32.5      49.5      16.8       1.2
   AREA=      97.3      61.4      48.7       5.3
    VEL=       0.1       0.2       0.1       0.1

CCHV=   0.300 CEHV=   0.500
*SECNO 5053.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        CLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       SLMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    TN2       ICONT     CORAR     TOPWID      ENDST

        XOSECTION D/S OF TELEGRAPH RD.

  5053.00      5.08    591.45      0.00      0.00    591.46      0.00      0.00      0.00    586.37
      27.        2.       23.        2.       17.       56.       17.        1.        5.    586.37
     2.77      0.13      0.48      0.13     0.100     0.050     0.100     0.047    586.37    587.84
 0.000030      200.      200.      200.         0         0         0      0.00     24.33    612.16

FLOW DISTRIBUTION FOR SECNO=   5053.00          CWSEL=    591.45

STA=      580.      595.      606.      612.
  PER Q=       8.2      83.6       8.2
   AREA=      16.9      55.9      16.9
    VEL=       0.1       0.4       0.1

*SECNO 5253.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       592.00 ELREA=       592.00

        D/S FACE TELEGRAPH RD.

  5253.00      5.06    591.46      0.00      0.00    591.46      0.02      0.02      0.01    586.40
      27.        0.       27.        0.        0.       20.        0.        8.        5.    586.40
     2.81      0.00      1.33      0.00     0.100     0.050     0.100     0.047    586.40    495.20
 0.000439      200.      220.      200.         0         0         0      0.00      4.80    499.20

FLOW DISTRIBUTION FOR SECNO=   5253.00          CWSEL=    591.45

STA=      495.      499.
  PER Q=     100.0
   AREA=      20.2
    VEL=       1.3

SPECIAL BRIDGE

SS   XK        XKOR      COPP      ROLEW     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      5.79      3.00      3.00      3.53      0.50      10.97     0.00     587.50    586.40

*SECNO 5299.000
 PRESS FLOW BECAUSE EGLWC OF    592.38  EXCEEDS 1.5 DEPTH
PRESSURE FLOW

 EGPRS      EGLWC      KT        QWEIR     CPD       EAREA     TRAPEZOID     ELLC      ELTRD
                                                                AREA
  592.01     592.33     0.00        0.       07.       11.       11.       592.38    596.40
```

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3475 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 594.40 ELREA= 594.40

U/S FACE OF TELEGRAPH RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5299.00 | 4.68 | 591.98 | 0.00 | 0.00 | 592.01 | 0.03 | 0.52 | 0.00 | 588.50 |
| 27. | 0. | 27. | 0. | 0. | 19. | 0. | 8. | 5. | 588.50 |
| 2.82 | 0.00 | 1.44 | 0.00 | 0.100 | 0.090 | 0.130 | 0.047 | 587.30 | 493.00 |
| 0.301907 | 46. | 46. | 46. | 2 | 0 | 0 | 0.00 | 4.00 | 499.00 |

FLOW DISTRIBUTION FOR SECNO= 5299.00 CWSEL= 591.98

STA= 495. 499.

PER Q= 100.0
AREA= 28.7
VEL= 1.4

*SECNO 5349.000

XLSECT. U/S OF TELEGRAPH RD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5349.00 | 4.93 | 592.03 | 0.00 | 0.00 | 592.04 | 0.01 | 0.03 | 0.01 | 588.50 |
| 27. | 4. | 19. | 4. | 10. | 19. | 12. | 8. | 5. | 588.50 |
| 2.84 | 0.38 | 0.98 | 0.38 | 0.100 | 0.060 | 0.103 | 0.047 | 587.30 | 489.07 |
| 0.000370 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 16.51 | 505.59 |

FLOW DISTRIBUTION FOR SECNO= 5349.00 CWSEL= 592.03

STA= 489. 495. 499. 506.

PER Q= 14.6 68.8 16.5
AREA= 10.5 18.9 11.8
VEL= 0.6 1.0 0.4

*SECNO 5676.000

3470 ENCROACHMENT STATIONS= 375.0 430.0 TYPE= 1 TARGET= 55.000

XSECT. D/S OF R.R. TRACKS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5676.00 | 4.80 | 592.08 | 0.00 | 0.00 | 592.08 | 0.00 | 0.03 | 0.00 | 587.40 |
| 27. | 2. | 23. | 2. | 14. | 47. | 14. | 4. | 5. | 587.40 |
| 3.05 | 0.15 | 0.48 | 0.15 | 0.100 | 0.060 | 0.100 | 0.048 | 587.28 | 388.05 |
| 0.000047 | 327. | 327. | 327. | 2 | 0 | 0 | 0.00 | 22.30 | 411.15 |

FLOW DISTRIBUTION FOR SECNO= 5676.00 CWSEL= 592.08

STA= 389. 395. 405. 411.

PER Q= 3.2 83.6 6.2
AREA= 14.4 47.4 14.4
VEL= 0.2 3.5 0.2

CONV= 0.300 DIV= 0.500
*SECNO 5778.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | LOSS | BANK ELEV |
| Q | WLOB | WCR | CWSE | ALOB | ACR | AMOC | WOL | TW | LEFT/RIGHT |
| TIME | VLOB | VCR | VMOC | XL | CWCH | XNR | STA | ELMIN | SST |
| SLOPE | VLCH | ALCH | WLOB2 | ETRIA | IH2 | SSCNT | CORAR | TOPWID | ESSA |

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5495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      597.00 ELREA=      594.00

        D/S FACE OF R.R. CULVERT

  5776.00     3.80   592.06     0.00     0.00   592.12     0.06     0.01     0.03   588.26
      27.       0.      27.       0.       0.      13.       0.       9.       5.   588.26
     3.07     0.00     2.03     0.00    0.120    0.060    0.120    0.048   588.26   399.00
 0.001905     100.     100.     100.        2        0        0     0.00     3.50   402.50

FLOW DISTRIBUTION FOR SECNO=   5776.00          CUSEL=    592.06

STA=      599.      403.
  PER Q=     100.0
   AREA=      13.3
    VEL=       2.0

SPECIAL BRIDGE

SB   XK        XNOR      COFC      ROLEN     SLC       SNP       BAREA     SS        ELCHU     ELCFD
     0.00      2.83      3.00      0.00      2.74      0.00      2.40      0.00    589.06    588.26

*SECNO 5851.000
PRESSURE FLOW

 EGPRS      EGLWC      H3       QWEIR     OPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
   597.66    592.86     0.00       0.       27.       2.        5.      590.75    599.40

3493 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      601.10 ELREA=      600.00

        U/S FACE OF 42" RAILROAD CULVERT

  5851.00     8.63   597.65     0.00     0.00   597.66     0.01     0.01     0.00   589.00
      27.       0.      27.       0.       0.      30.       0.       9.       5.   589.00
     3.09     0.00     0.09     0.00    0.120    0.060    0.120    0.048   588.00   699.00
 0.000373      75.      75.      75.        1        0        0     0.00     3.50   702.50

FLOW DISTRIBUTION FOR SECNO=   5851.00          CUSEL=    597.65

STA=      699.      703.
  PER Q=     100.0
   AREA=      30.3
    VEL=       0.9

*SECNO 5876.000

3470 ENCROACHMENT STATIONS=      675.0     727.0  TYPE=      1  TARGET=      52.000

        XSECT. U/S OF R.R. TRACKS " D/S OF ARSENAL

  5876.00     8.27   597.66     0.00     0.00   597.66     0.00     0.00     0.00   589.39
      27.       0.      13.       0.      142.      83.      151.      9.       5.   589.39
     3.17     0.06     0.14     0.05    0.120    0.060    0.120    0.048   589.39   673.00
 0.003007      25.      25.      25.        1        0        0     0.00    52.00   727.00
```

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FLOW DISTRIBUTION FOR SECNO=   5876.00          CWSEL=    597.66

STA=      675.      680.      695.      705.      715.      727.
  PER Q=      3.9      25.2      41.4      17.3      12.2
  AREA=     31.7     109.8      82.8      74.7      74.5
   VEL=      0.0       0.1       0.1       0.1       0.0

*SECNO 5931.000

5870 ENCROACHMENT STATIONS=      750.0      840.0  TYPE=      1  TARGET=      80.000

        D/S FACE ARSENAL CULVERTS

  5931.00      8.26    597.66      0.00      0.00    597.67      0.00      0.00      0.00    589.40
      27.        5.       14.        8.       38.       25.       48.        9.        6.    589.40
     3.21      0.14      0.56      0.17     0.120     0.060     0.120     0.048    589.40    783.15
 0.000050       55.       35.       55.         1         0         0      0.00     45.20    828.55

FLOW DISTRIBUTION FOR SECNO=   5931.00          CWSEL=    597.66

STA=      783.      790.      795.      797.      799.      802.      805.      810.      811.      828.
  PER Q=      1.1       3.5       3.2      11.2      51.0      19.8       9.4       0.2       0.5
  AREA=      5.4       9.3       8.5      14.8      24.8      22.4      19.5       0.9       4.9
   VEL=      0.1       0.1       0.1       0.2       0.6       0.2       0.1       0.1       0.0

SPECIAL BRIDGE

5870,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK        XKOR       COFQ       BDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       3.70       3.00       0.00       2.40       0.00       3.60       0.00     589.40     589.40

*SECNO 6006.000
 WATER EL=XS CARD=   597.730  ?   Rating curve indicates overflow will pass 85's @ 596.05
                                                                  ↳ 100yr. discharge, why input 597.73

        D/S FACE ARSENAL CULVERT

  6006.00      8.33    597.73      0.00      0.00    597.73      0.01      0.00      0.00    589.40
      27.        5.       19.        3.       37.       25.       33.        9.        8.    589.40
     5.25      0.16      0.75      0.10     0.120     0.060     0.120     0.048    589.40    782.50
 0.000057       75.       75.       75.         0         0         0      0.00     45.27    829.56

FLOW DISTRIBUTION FOR SECNO=   6006.00          CWSEL=    597.73

STA=      783.      790.      795.      799.      802.      805.      810.      830.
  PER Q=      1.7       5.0      14.4      69.1       7.3       1.5       1.0
  AREA=      5.8       9.6      21.1      25.0      16.3       4.6       6.2
   VEL=      0.1       0.1       0.2       0.7       0.1       0.1       0.0

*SECNO 6050.000
  SECNO     DEPTH     CWSEL     CRIUS     HDELK     EQ        KV        HL        CLOSS     BANK ELEV
  Q         OLOB      OCH       CROB      XLOB      XCH       XROB      VOL       TVA       LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNW       XNCH      XNR       HTX       ELMIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBR     XTRIAL    [illegible]  ICONT     CORRP     XOFFID    ENDST

        X SECTION U/S [illegible]

  6050.00      8.31 [illegible]      0.00     597.77      3.05      0.01      0.03    589.40
      [illegible]
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```
      3.26      0.49      2.36      0.33     0.120     0.060     0.120     0.049    589.40    782.93
  0.000536       44.       44.       44.         1         0         0      0.00     46.41    829.33

 FLOW DISTRIBUTION FOR SECNO=   8050.00          CWSEL=    597.71

 STA=      783.      790.      795.      799.      803.      805.      810.      829.
   PER Q=    1.7       5.0      14.4      69.2       7.3       1.5       0.9
    AREA=    5.7       9.6      21.1      25.0      14.3       4.6       6.0
     VEL=    0.2       0.4       0.6       2.4       0.4       0.3       0.1

 CCH= 0.100 CEH= 0.300
 *SECNO 7934.000

 3470 ENCROACHMENT STATIONS=     583.0     718.0  TYPE=      1  TARGET=     135.000

          VALLEY SECTION BASED ON FIELD BOOK SECT. 2800.

   7934.00      3.99    597.35      0.00      0.00    597.85      0.00      0.07      0.01    589.76
        85.       30.       24.       31.      274.       69.      202.       25.       10.    589.65
      6.19      0.11      0.35      0.11     0.120     0.060     0.120     0.051    588.86    583.00
  0.000012      1884.     1884.     1884.         2         0         0      0.00    135.00    718.00

 FLOW DISTRIBUTION FOR SECNO=   7934.00          CWSEL=    597.85

 STA=      583.      641.      646.      654.      661.      718.
   PER Q=   30.2       4.8      28.4       7.3      29.4
    AREA=  212.0      31.7      68.5      15.1     236.6
     VEL=    0.1       0.1       0.4       0.1       0.1

 *SECNO 8734.000

 3470 ENCROACHMENT STATIONS=     382.0     518.0  TYPE=      1  TARGET=     135.000

          VALLEY SECTION BASED ON FIELD BOOK SECT. 2500.

   8734.00      6.67    597.86      0.00      0.00    597.86      0.00      0.01      0.00    591.49
        85.       37.       17.       30.      248.       39.      220.       35.       12.    591.29
      7.27      0.13      0.64      0.14     0.120     0.060     0.120     0.052    591.19    362.00
  0.000226       800.      800.      800.         3         0         0      0.00    135.00    518.00

 FLOW DISTRIBUTION FOR SECNO=   8734.00          CWSEL=    597.86

 STA=      382.      440.      447.      453.      459.      518.
   PER Q=   39.9       7.9      30.3       5.1      16.7
    AREA=  211.6      38.3      39.4      20.6     196.0
     VEL=    0.1       0.2       0.8       0.2       0.1

 *SECNO 9734.000

 3470 ENCROACHMENT STATIONS=     283.0     420.0  TYPE=      1  TARGET=     135.000

          VALLEY SECTION BASED ON FIELD BOOK SECT. 1000.

   9734.00      5.56    597.90      0.00      0.00    597.90      0.00      0.04      0.00    592.64
        85.       27.       30.       28.      158.       54.      167.       45.       15.    592.54
      8.17      0.17      0.56      0.17     0.120     0.060     0.120     0.052    592.34    285.00
  0.000056      1000.     1000.     1000.         4         0         0      0.00     35.00    430.00

 FLOW DISTRIBUTION FOR SECNO=   9734.00          CWSEL=    597.90
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 STA=      265.      341.      345.      355.      358.      420.
   PER Q=     27.7       4.0      35.9       2.6      29.9
    AREA=    142.2      16.2      54.2      11.8     155.2
     VEL=      0.2       0.2       0.6       0.2       0.2

 CCHV=   0.300 CEHV=   0.500
 *SECNO 10613.000

 5470 ENCROACHMENT STATIONS=      433.0      566.0  TYPE=      1  TARGET=      133.000

          XSECT.D/S OF INKSTER RD

 10613.00      6.36    597.96      0.00      0.70    597.97      0.00      0.07      0.00    591.60
       85.       33.       18.       34.      111.       19.      110.       52.       18.    591.60
     6.73      0.30      0.94      0.31     0.080     0.060     0.080     0.053    591.60    433.00
0.000121      879.      879.      879.         2         0         0      0.00    133.00    566.00


 FLOW DISTRIBUTION FOR SECNO=  10613.00          CWSEL=    597.96

 STA=      433.      492.      498.      501.      509.      566.
   PER Q=     25.6      12.1      21.0      17.2      23.0
    AREA=    85.0      23.7      19.1      31.7      78.4
     VEL=      0.3       0.4       0.5       0.5       0.2

 *SECNO 10713.000
    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        EL        CLOSS     BANK ELEV
    Q          Q:OB      QCH       QRCD      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME       VLOB      VCH       VRCD      XNL       X CH      XNR       WTR       ELMIN      ESTA
    SLOPE      XLOBL     XLCH      XLOBR     STRIKL    IA2       ICONT     CORAR     TOPWID     ENDSTA

 5470 ENCROACHMENT STATIONS=      433.0      566.0  TYPE=      1  TARGET=      133.000

          D/S FACE OF INKSTER RD CULVERT

 10713.00      6.37    597.97      0.00      0.00    597.98      0.00      0.01      0.00    591.60
       85.       33.       18.       34.      111.       19.      111.       52.       18.    591.60
     8.00      0.30      0.93      0.31     0.090     0.060     0.080     0.053    591.60    433.00
0.000120      100.      100.      100.         0         0         0      0.00    133.00    566.00


 FLOW DISTRIBUTION FOR SECNO=  10713.00          CWSEL=    597.97

 STA=      433.      492.      498.      501.      509.      566.
   PER Q=     26.7      12.1      20.9      17.2      23.1
    AREA=    87.5      23.9      19.1      31.1      78.9
     VEL=      0.3       0.4       0.5       0.5       0.2


 SPECIAL BRIDGE

 BR  XR        XKOR      CDFC      RDWR      D/C       B/P       BARLA     CD        ELUPW     ELCRE
       0.00      2.00      1.00      0.00      2.00      0.00      0.00      0.00    593.54    591.62

 *SECNO 10754.000
 PRESSURE AND WEIR FLOW

 CGRTB     BRLID     HI        QWEIR     NPR       BAREA     TRAPEZOID AREA    EL.C      ELTOP
 620.85    599.92    1.00      11        10.       4.        1.                593.54    594.00
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U/S FACE OF INKSTER RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 10754.00 | 4.76 | 598.30 | 0.00 | 0.00 | 598.30 | 0.00 | 0.32 | 0.30 | 593.54 | |
| 85. | 42. | 10. | 33. | 131. | 14. | 113. | 52. | 12. | 593.54 | |
| 0.83 | 0.32 | 0.73 | 0.29 | 0.080 | 0.060 | 0.000 | 0.055 | 593.54 | 453.76 | |
| 0.000108 | 41. | 41. | 41. | 0 | 0 | 8 | 0.00 | 132.42 | 566.20 | |

FLOW DISTRIBUTION FOR SECNO= 10754.00 CHSEL= 598.30

| STA= | 434. | 490. | 492. | 501. | 510. | 566. | 566. |
|---|---|---|---|---|---|---|---|
| PER Q= | 35.5 | 13.7 | 12.2 | 13.5 | 25.0 | 0.0 | |
| AREA= | 103.7 | 27.4 | 14.3 | 28.6 | 84.0 | 0.1 | |
| VEL= | 0.3 | 0.4 | 0.7 | 0.4 | 0.3 | 0.0 | |

*SECNO 10779.000

XSSECT U/S OF INKSTER RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10779.00 | 4.76 | 598.30 | 0.00 | 0.00 | 598.30 | 0.00 | 0.00 | 0.00 | 593.54 |
| 85. | 42. | 10. | 33. | 131. | 14. | 113. | 32. | 10. | 593.54 |
| 0.85 | 0.32 | 0.73 | 0.29 | 0.085 | 0.060 | 0.000 | 0.055 | 593.54 | 453.76 |
| 0.000108 | 25. | 25. | 25. | 0 | 0 | 0 | 0.00 | 132.42 | 566.20 |

FLOW DISTRIBUTION FOR SECNO= 10779.00 CHSEL= 598.30

| STA= | 434. | 490. | 490. | 501. | 510. | 566. | 566. |
|---|---|---|---|---|---|---|---|
| PER Q= | 35.5 | 13.7 | 12.2 | 13.5 | 25.0 | 0.0 | |
| AREA= | 103.8 | 27.4 | 14.3 | 28.6 | 84.0 | 0.1 | |
| VEL= | 0.5 | 0.4 | 0.7 | 0.4 | 0.3 | 0.0 | |

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FORM 1411-GB-PRINTED BY ROTARY MANIFOLD FORMS.

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Cook and Hadding Drain

4) DOCUMENT TYPE: Summary

00BREAK00

HUD 2009-07
9/13/79

```
*********************************************************
*  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977           *
*  ERROR CORR -  01                                     *
*  MODIFICATION -  50,51,52                             *
*********************************************************

C
C  CITY OF FLAT ROCK FIS HUD 2009-07 COOKE & GLADDING FROM MOUTH TO INKSTER RD.
C  FQ 10YR 59CTS 50YR 75 100YR 85 500YR 120 WATER ELEV HURON RIVER MEAN LEVEL
T3      COOKE & GLADDING DR.-FLAT ROCK

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     ITRANS     C          LSEL       FQ
          0.         2.         0.         0.    0.000000    0.00       0.0        .3.     585.400    0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
      1.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    150.000    201.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

J5  LPRNT      NUMSEC                    ********REQUESTED SECTION NUMBERS********
    -10.000    -10.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
CT      5.000     21.000     21.000     27.000     27.000     37.000      0.000      0.000      0.000      0.000
NC      3.060      0.060      0.035      0.300      0.500      0.000      0.000      0.000      0.000      0.000
ET     40.000      0.000      0.000      0.000      9.100      2.000      0.000      0.000      1.000    151.000

                D/S FACE OF HURON RIVER DRIVE.
X1      0.000      8.000     75.000     79.500      0.000      0.000      0.000      0.000      0.000      0.000
X3     10.000      0.000      0.000      0.000      0.000      0.000      0.000    586.000    586.000      0.000
SP    597.000      3.000    540.000      1.000    588.000     75.300    591.000     75.000    587.000     79.500
GF    581.000     79.500    586.000    130.000    597.000    131.300      0.000      0.000      0.000      0.000
XT      0.000      1.500      4.000      0.000      3.530      0.000     15.600      0.000    587.130    591.300
NC      0.060      0.030      0.035      0.030      0.000      0.000      0.000      0.000      0.000      0.000

                U/S FACE HURON RIVER DRIVE
X1     54.000     14.000     38.000     42.500     54.000     54.000     54.000      0.000      0.000      0.000
SP      2.000      0.300      1.000    595.600    300.000      0.000      0.300      0.300      0.000      0.000
X3     13.000      0.300      0.000      0.000      0.000      0.300      0.300    588.600    588.300      0.300
BT     12.000      0.300    597.000      0.000      1.000    588.700      0.300     34.300    588.600      0.000
BT     46.000    597.300      0.000     66.300    597.000      0.000     67.300    588.300      0.300     85.000
O     588.000    585.350     89.000    600.000    585.600     91.300    586.300    590.300     54.500    590.300
--    585.350    575.000    588.000      0.000    575.300    597.000      0.000      0.000      0.000      0.000
--    597.000      0.000    586.000      1.300    585.750     35.000    197.000     36.000    597.500     37.000
BB    585.300     67.000    585.000     39.300    589.350     38.000    591.000     39.000    587.400     91.500
CR    583.350     92.500    590.000    100.300    585.300     79.000    597.000    170.000      0.000      0.000
E       0.000      0.000      0.000      0.000      1.430      0.000      0.000      0.000      0.000      0.000

                VALLEY SECTION BASED ON FIELD BOOK SHEETS 10,32
```

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 589.000 | 140.000 | 508.660 | 158.[illegible] | | [illegible].000 | 586.460 | 290.000 | 582.260 | 297.000 |
| GR | 581.510 | 300.000 | 582.500 | 303.000 | 586.010 | 310.000 | 587.360 | 316.000 | 587.560 | 350.000 |
| GR | 595.500 | 359.100 | 595.500 | 369.900 | 587.600 | 370.000 | 588.000 | 390.000 | 596.000 | 390.100 |
| GR | 596.000 | 420.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECTION 9434

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1300.000 | 17.000 | 276.000 | 284.000 | 1000.000 | 1000.000 | 1000.000 | 0.000 | 0.000 | 0.000 |
| SR | 600.000 | 0.000 | 600.000 | 50.000 | 608.000 | 50.100 | 608.000 | 99.900 | 599.900 | 50.000 |
| GR | 593.490 | 180.000 | 585.810 | 273.000 | 583.660 | 274.000 | 583.010 | 280.000 | 583.660 | 284.000 |
| SR | 585.460 | 287.000 | 586.310 | 365.000 | 583.510 | 401.000 | 596.500 | 401.100 | 596.500 | 431.000 |
| GR | 588.600 | 431.100 | 590.000 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.080 | 0.080 | 0.050 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 600.000 |

XWSECTION D/S GIBRALTAR RD.BASED ON FIELD BOOK " QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1600.000 | 17.000 | 297.500 | 302.100 | 300.000 | 300.000 | 300.000 | 0.000 | 0.000 | 0.000 |
| GR | 604.000 | 0.000 | 596.000 | 0.100 | 595.400 | 80.000 | 603.400 | 80.100 | 603.400 | 110.000 |
| GR | 595.000 | 110.100 | 593.000 | 289.500 | 584.500 | 297.300 | 583.290 | 300.000 | 536.300 | 302.100 |
| GR | 589.500 | 313.900 | 590.000 | 400.000 | 590.500 | 430.000 | 598.500 | 450.100 | 598.500 | 480.000 |
| GR | 592.000 | 480.100 | 590.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 600.000 |

D/S FACE OF GIBRALTAR RD. REPEATED SECT 1600

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1700.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X5 | 10.000 | 585.140 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.000 | 590.000 | 0.000 |
| SB | 0.000 | 2.980 | 3.000 | 0.000 | 3.590 | 0.000 | 9.540 | 0.000 | 586.240 | 585.140 |
| NC | 0.000 | 0.000 | 0.045 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF GIBRALTAR RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1836.000 | 16.000 | 295.000 | 299.600 | 136.000 | 136.000 | 136.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 586.900 | 592.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 10.000 | 589.240 | 0.000 | 0.000 | 0.590 | 0.000 | 0.000 | 590.400 | 590.400 | 0.000 |
| BT | 16.000 | 0.000 | 596.000 | 0.100 | 124.000 | 595.000 | 0.000 | 262.000 | 595.300 | 0.000 |
| GT | 295.000 | 592.000 | 586.900 | 295.300 | 592.810 | 297.540 | 295.000 | 592.800 | 588.500 | 294.500 |
| BT | 592.000 | 588.700 | 297.300 | 592.800 | 588.900 | 298.100 | 592.800 | 588.700 | 298.200 | 592.300 |
| GT | 588.500 | 292.400 | 592.800 | 587.900 | 292.600 | 592.800 | 586.900 | 323.000 | 588.000 | 0.000 |
| ET | 450.000 | 594.300 | 0.000 | 600.000 | 593.500 | 0.000 | 650.000 | 594.000 | 0.000 | 0.000 |
| CB | 596.000 | 0.300 | 595.000 | 325.000 | 593.300 | 292.000 | 586.900 | 295.000 | 585.700 | 295.300 |
| BT | 585.000 | 299.300 | 584.700 | 294.500 | 584.390 | 297.300 | 584.700 | 298.100 | 585.200 | 293.900 |
| GT | 585.700 | 299.400 | 585.900 | 299.500 | 599.900 | 323.000 | 590.000 | 450.300 | 592.000 | 600.300 |
| ET | 594.000 | 650.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| XS | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/SECT.D/S OF GIBRALTAR RD. REPEATED SECT.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1661.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| X5 | 0.000 | 0.000 | 0.000 | 270.000 | 0.000 | 625.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BG | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECTION 9457

PRINTED IN U.S.A.
FORM 1411-BB-PRINTED BY ROTARY MANIFOLD FORMS.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2284.000 | 11.000 | 293.000 | 307.000 | 423.000 | 423.000 | 423.000 | 0.000 | 0.000 | 0.000 |
| GR | 598.970 | 0.000 | 598.620 | 100.000 | 590.890 | 200.000 | 586.500 | 289.000 | 585.600 | 293.000 |
| GR | 585.500 | 300.000 | 585.800 | 307.000 | 586.600 | 312.000 | 588.900 | 400.000 | 595.500 | 500.000 |
| GR | 596.500 | 630.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

100 FEET D/S OF 54" CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2941.000 | 15.000 | 214.000 | 224.000 | 657.000 | 657.000 | 657.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 191.000 | 0.000 | 247.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 500.000 | 0.000 | 595.000 | 90.000 | 590.000 | 160.000 | 587.200 | 210.000 | 585.900 | 214.000 |
| GR | 585.500 | 217.250 | 585.500 | 220.750 | 585.900 | 224.000 | 587.000 | 228.000 | 587.500 | 350.000 |
| GR | 593.000 | 350.100 | 593.000 | 380.000 | 587.600 | 380.100 | 590.000 | 400.000 | 592.000 | 500.000 |
| MC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 352.000 |

D/S FACE OF 54" CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3041.000 | 12.000 | 214.000 | 218.500 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 585.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 589.500 | 589.500 | 0.000 |
| GR | 600.000 | 0.000 | 600.000 | 160.000 | 590.000 | 165.000 | 587.200 | 210.000 | 585.550 | 214.000 |
| GR | 583.300 | 215.000 | 583.500 | 217.500 | 585.550 | 218.530 | 587.000 | 228.000 | 587.500 | 350.000 |
| GR | 590.000 | 351.000 | 595.000 | 352.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SL | 0.000 | 3.010 | 3.000 | 0.000 | 3.160 | 0.000 | 7.900 | 0.000 | 586.700 | 585.300 |

U/S END 54) CULVERT REPEATED SECT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3210.000 | 12.000 | 214.000 | 218.500 | 169.000 | 169.000 | 169.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 589.200 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 586.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 591.000 | 591.000 | 0.000 |
| BT | 9.000 | 0.000 | 600.000 | 0.000 | 160.000 | 400.000 | 0.000 | 165.000 | 590.000 | 0.000 |
| BT | 214.000 | 590.000 | 586.950 | 215.000 | 590.000 | 589.200 | 217.500 | 590.000 | 589.200 | 216.500 |
| BT | 590.000 | 583.950 | 351.000 | 597.000 | 0.000 | 352.000 | 595.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 600.000 | 160.000 | 590.000 | 165.000 | 587.200 | 210.000 | 586.950 | 214.000 |
| GR | 583.700 | 215.000 | 586.700 | 217.500 | 586.950 | 218.500 | 587.200 | 228.000 | 587.300 | 350.000 |
| GR | 590.000 | 351.000 | 595.000 | 352.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

XSECTION BETWEEN 54) CULVERT " SHIEKS RD CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3239.000 | 0.000 | 0.000 | 5.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 191.000 | 0.000 | 247.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 176.000 | 405.000 |

D/S END SHEZKS RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3394.000 | 11.000 | 257.000 | 263.300 | 149.000 | 149.000 | 149.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 217.000 | 0.000 | 385.000 | 0.000 | 589.500 | 589.500 | 0.000 |
| GR | 600.000 | 252.000 | 600.000 | 232.000 | 590.000 | 233.000 | 588.600 | 253.000 | 588.700 | 257.000 |
| GR | 586.100 | 259.000 | 586.100 | 261.500 | 586.102 | 263.300 | 588.600 | 265.000 | 589.500 | 405.000 |
| GR | 600.000 | 405.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 3.320 | 3.000 | 0.000 | 2.322 | 0.000 | 15.600 | 0.000 | 586.700 | 586.700 |

U/S FACE OF SHEEKS RD CULVERT TYPE "D" ELLIPTICAL CONCRETE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3548.000 | 0.000 | 0.000 | 0.000 | 144.000 | 134.000 | 134.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 589.200 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 217.000 | 0.000 | 383.000 | 0.000 | 590.000 | 591.000 | 0.000 |
| ET | 13.000 | 232.000 | 600.000 | 0.000 | 156.000 | 600.000 | 0.000 | 15.000 | 590.000 | 0.000 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 255.000 | 590.000 | 0.000 | 257.000 | 590.000 | 586.100 | 257.000 | 590.000 | 587.400 | 259.000 |
| BT | 590.000 | 588.600 | 261.500 | 590.000 | 588.600 | 263.300 | 590.000 | 587.400 | 263.300 | 590.000 |
| BT | 586.100 | 405.000 | 589.500 | 0.000 | 405.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

XSECT. U/S OF SHEEKS RD. AND D/S OF SENECA RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3600.000 | 9.000 | 196.000 | 204.000 | 52.000 | 52.000 | 52.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 145.000 | 0.000 | 255.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 100.000 | 589.500 | 185.000 | 586.500 | 196.000 | 586.400 | 200.000 |
| GR | 586.500 | 204.000 | 587.500 | 270.000 | 588.300 | 334.000 | 600.000 | 334.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 310.000 |

D/S END SENECA RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3792.000 | 10.000 | 223.000 | 227.500 | 192.000 | 192.000 | 192.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 591.300 | 590.700 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 100.000 | 591.000 | 221.000 | 588.750 | 223.000 | 587.700 | 224.000 |
| GR | 587.700 | 227.000 | 588.750 | 227.500 | 590.000 | 229.000 | 590.500 | 310.000 | 600.000 | 310.000 |
| SO | 0.000 | 1.630 | 3.000 | 0.000 | 2.710 | 0.000 | 12.200 | 0.300 | 587.700 | 587.700 |

U/S FACE OF SENECA RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3833.000 | 0.000 | 0.000 | 0.000 | 41.000 | 41.000 | 41.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 591.000 | 590.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 591.800 | 590.700 | 0.000 |
| BT | 0.000 | 0.000 | 600.000 | 0.000 | 100.000 | 595.000 | 0.000 | 223.000 | 591.800 | 588.750 |
| BT | 224.000 | 591.800 | 591.000 | 224.500 | 591.800 | 591.000 | 227.500 | 591.800 | 588.750 | 310.000 |
| BT | 590.500 | 0.000 | 310.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

XSECT. U/S OF SENECA RD REPEATED SEC'N 3833.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3883.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |

XSECT. D/S OF COOKE RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4337.000 | 11.000 | 595.500 | 304.500 | 370.000 | 590.000 | 454.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 268.000 | 0.000 | 325.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 130.000 | 590.000 | 200.000 | 589.170 | 292.500 | 587.500 | 295.500 |
| GR | 587.500 | 304.500 | 589.670 | 307.500 | 590.000 | 350.000 | 591.300 | 500.000 | 591.500 | 600.000 |
| GR | 593.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 526.000 |

D/S FACE OF COOKE RD CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4437.000 | 14.000 | 293.000 | 253.500 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 591.300 | 591.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 130.000 | 590.000 | 250.000 | 589.200 | 250.000 | 587.500 | 295.000 |
| GR | 587.350 | 293.000 | 587.350 | 295.000 | 587.350 | 293.500 | 587.350 | 296.000 | 587.500 | 298.000 |
| GR | 587.350 | 298.000 | 587.350 | 298.500 | 589.700 | 333.000 | 592.000 | 350.000 | 590.400 | 416.000 |
| GR | 600.000 | 416.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 1.957 | 3.000 | 0.000 | 5.950 | 0.000 | 2.970 | 0.000 | 587.350 | 587.350 |

U/S FACE OF COOKE RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4473.000 | 0.000 | 0.000 | 0.000 | 42.000 | 42.000 | 42.000 | 0.000 | 0.000 | 0.000 |

FORM 1411-08 PRINTED BY ROTARY MANIFOLD FORMS, PRINTED IN U.S.A.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X2 | 0.000 | 0.300 | 1.000 | 598.600 | 591.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.000 | 592.000 | 0.000 |
| BT | 16.000 | 0.300 | 600.000 | 0.000 | 130.000 | 598.000 | 0.000 | 200.000 | 594.000 | 0.000 |
| BT | 293.000 | 591.700 | 587.350 | 293.500 | 591.700 | 588.600 | 294.000 | 591.700 | 588.600 | 295.500 |
| BT | 591.700 | 587.350 | 296.000 | 591.700 | 587.350 | 296.500 | 591.700 | 588.600 | 298.000 | 591.700 |
| BT | 588.600 | 298.500 | 591.700 | 367.350 | 350.000 | 591.700 | 0.000 | 416.000 | 592.700 | 0.000 |
| BT | 416.000 | 600.000 | 0.000 | 416.000 | 600.000 | 0.000 | 416.000 | 600.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION U/S COOKE RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4504.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.300 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 268.000 | 0.000 | 323.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.060 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT.5301

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4853.000 | 19.000 | 491.000 | 510.000 | 349.000 | 349.000 | 349.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 438.000 | 0.000 | 563.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.660 | 200.000 | 595.910 | 300.000 | 594.060 | 378.000 | 590.060 | 391.000 |
| GR | 590.110 | 400.000 | 589.410 | 491.000 | 587.930 | 494.000 | 587.710 | 500.000 | 588.060 | 506.000 |
| GR | 589.850 | 510.000 | 589.300 | 336.000 | 586.710 | 553.000 | 594.420 | 591.000 | 594.370 | 630.000 |
| GR | 593.020 | 700.300 | 593.440 | 750.000 | 594.150 | 600.000 | 595.000 | 1050.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.060 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION D/S OF TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5053.000 | 8.000 | 594.500 | 605.500 | 200.000 | 200.000 | 200.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 150.000 | 594.000 | 594.500 | 586.370 | 594.500 | 586.370 | 605.500 |
| GR | 594.000 | 615.500 | 595.000 | 775.000 | 600.000 | 1230.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.500 | 1.000 | 1200.000 |
| NC | 0.000 | 0.000 | 0.350 | 0.000 | 0.300 | 0.300 | 0.000 | 0.500 | 0.300 | 0.000 |

D/S FACE TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5253.000 | 4.000 | 495.000 | 499.000 | 200.000 | 200.000 | 200.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.700 | 0.000 | 0.000 | 592.000 | 592.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 50.000 | 594.000 | 597.000 | 586.400 | 495.000 | 586.400 | 499.000 |
| GR | 594.400 | 515.000 | 595.000 | 775.000 | 600.000 | 1230.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 5.700 | 3.000 | 0.000 | 3.630 | 0.000 | 10.900 | 0.000 | 587.200 | 516.400 |

U/S FACE OF TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5299.000 | 12.000 | 495.000 | 499.000 | 40.000 | 40.100 | 40.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 590.300 | 594.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 594.400 | 594.400 | 0.000 |
| X4 | 1.000 | 594.400 | 485.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 11.000 | 0.100 | 600.000 | 0.000 | 485.000 | 600.000 | 307.300 | 525.000 | 594.400 | 587.200 |
| BT | 499.000 | 594.400 | 588.500 | 495.500 | 594.400 | 550.000 | 297.000 | 594.400 | 590.200 | 499.500 |
| BT | 594.400 | 300.000 | 499.000 | 594.400 | 580.500 | 799.000 | 594.400 | 587.200 | 613.000 | 594.400 |
| BT | 0.000 | 510.000 | 605.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 600.000 | 50.000 | 600.000 | 485.000 | 586.300 | 495.000 | 587.300 | 495.000 |
| GR | 587.300 | 495.300 | 587.300 | 497.000 | 587.300 | 498.500 | 587.300 | 499.000 | 586.500 | 499.000 |
| BP | 594.400 | 510.000 | 505.000 | 510.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.300 | 0.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECT. U/S OF TELEGRAPH RD

PRINTED IN U.S.A.
FORM 1411-BB-PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5349.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 9.100 | 9.100 | 9.100 | 0.000 | 9.100 | 0.000 | 0.000 | 375.000 | 430.000 |

X@SECT. D/S OF R.R. TRACKS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5676.000 | 10.000 | 395.000 | 405.000 | 327.000 | 327.000 | 327.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 250.000 | 590.000 | 320.000 | 595.000 | 385.000 | 587.400 | 395.000 |
| GR | 587.280 | 400.000 | 587.400 | 405.000 | 595.000 | 415.000 | 395.000 | 525.000 | 600.000 | 600.000 |
| MC | 0.120 | 0.120 | 0.060 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 486.000 |

D/S FACE OF R.R. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5776.000 | 11.000 | 399.000 | 602.500 | 100.000 | 100.200 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.050 | 0.000 | 0.000 | 0.000 | 597.000 | 594.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 250.000 | 590.000 | 320.000 | 320.000 | 385.000 | 588.260 | 395.000 |
| GR | 588.260 | 399.000 | 588.260 | 402.500 | 591.000 | 405.000 | 594.000 | 408.000 | 594.000 | 486.000 |
| GR | 600.000 | 486.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.850 | 3.000 | 0.000 | 2.740 | 0.000 | 2.400 | 0.000 | 589.000 | 588.260 |

U/S FACE OF 42" RAILROAD CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5851.000 | 21.000 | 699.000 | 702.500 | 75.000 | 75.000 | 75.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 590.750 | 599.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 601.100 | 600.000 | 0.000 |
| BT | 15.000 | 0.000 | 604.000 | 0.000 | 250.000 | 603.000 | 0.000 | 300.000 | 602.600 | 0.000 |
| BT | 400.000 | 602.200 | 0.000 | 500.000 | 601.900 | 0.000 | 600.000 | 601.500 | 0.000 | 699.000 |
| BT | 601.100 | 589.000 | 699.250 | 601.100 | 590.250 | 700.750 | 601.100 | 590.750 | 702.250 | 601.100 |
| BT | 590.250 | 702.500 | 601.100 | 589.000 | 785.000 | 599.400 | 0.000 | 786.000 | 604.000 | 0.000 |
| BT | 876.000 | 604.000 | 0.000 | 876.000 | 604.000 | 0.000 | 876.000 | 604.000 | 0.000 | 0.000 |
| GR | 604.000 | 0.000 | 600.000 | 0.000 | 595.000 | 75.000 | 594.200 | 200.000 | 592.600 | 350.000 |
| GR | 592.400 | 400.000 | 592.200 | 590.700 | 591.600 | 405.000 | 591.000 | 605.000 | 589.000 | 591.010 |
| GR | 589.000 | 699.200 | 589.000 | 699.250 | 595.000 | 700.750 | 589.000 | 702.250 | 589.000 | 702.500 |
| GR | 591.000 | 705.000 | 599.000 | 715.000 | 599.000 | 705.000 | 601.000 | 786.000 | 604.000 | 876.000 |
| GP | 604.000 | 876.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 9.100 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 674.000 | 728.000 |

X@SECT. U/S OF R.R. TRACKS " D/S OF ARSENAL

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5876.000 | 9.000 | 695.000 | 705.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 675.000 | 0.000 | 727.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 100.000 | 597.300 | 600.000 | 589.300 | 695.000 | 589.300 | 703.000 |
| GR | 597.010 | 715.000 | 595.000 | 800.000 | 650.000 | 957.000 | 600.000 | 1200.000 | 1.000 | 1.000 |
| ET | 0.000 | 0.000 | 9.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 1100.000 |

D/S FACE ARSENAL CULVERTS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5931.000 | 13.000 | 799.000 | 802.000 | 55.000 | 55.000 | 55.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 1.000 | 790.000 | 0.000 | 810.000 | 0.000 | 593.000 | 593.000 | 0.000 |
| GR | 604.000 | 772.000 | 600.000 | 773.000 | 596.100 | 790.000 | 595.000 | 795.000 | 591.000 | 797.000 |
| GR | 589.000 | 799.000 | 589.000 | 802.000 | 591.000 | 805.000 | 598.500 | 810.000 | 597.100 | 811.000 |
| GP | 599.000 | 809.000 | 604.000 | 870.000 | 604.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BU | 0.000 | 5.700 | 0.000 | 0.000 | 2.400 | 0.000 | 2.600 | 0.000 | 0.000 | 0.000 |

U/S FACE ARSENAL CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5986.000 | 14.000 | 799.000 | 802.000 | 75.000 | 75.000 | 75.000 | 0.000 | 0.000 | 0.000 |

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FORM 1411-08 PRINTED BY ROTARY MANIFOLD FORMS.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X2 | 0.000 | 0.000 | 1.000 | 590.900 | 596.100 | C.000 | 0.000 | 0.000 | C.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 596.100 | 596.500 | 0.000 |
| X5 | 5.000 | 596.000 | 596.000 | 597.730 | 597.830 | 599.860 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 13.000 | 772.000 | 604.000 | 0.000 | 772.000 | 604.000 | 0.000 | 773.000 | 606.000 | 0.000 |
| BT | 790.000 | 596.100 | 1.000 | 799.000 | 596.100 | $59.400 | 799.250 | 596.250 | 590.600 | 800.500 |
| BT | 596.300 | 590.900 | 801.750 | 596.400 | 590.600 | 802.000 | 596.500 | 589.400 | 805.000 | 596.510 |
| BT | 0.000 | 810.000 | 597.100 | 0.000 | 869.000 | 599.000 | 0.000 | 870.000 | 604.000 | 0.000 |
| GR | 604.000 | 772.000 | 600.000 | 773.000 | 600.000 | 773.000 | 596.100 | 790.000 | 595.500 | 795.000 |
| GR | 589.400 | 799.000 | 589.400 | 799.250 | 589.400 | 800.500 | 589.400 | 801.750 | 589.400 | 802.000 |
| GR | 596.500 | 805.000 | 597.100 | 810.000 | 599.000 | 869.000 | 604.000 | 870.000 | 0.000 | 0.000 |
| QT | 5.000 | 50.000 | 75.000 | 85.000 | 85.000 | 120.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 |

X SECTION U/S OF ARSENAL.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6050.000 | 0.000 | 0.000 | 0.000 | 44.000 | 44.000 | 44.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.060 | 0.100 | 0.300 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT. 2800.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7934.000 | 12.000 | 666.000 | 654.000 | 1864.000 | 1804.000 | 1884.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 583.000 | 0.000 | 716.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X4 | 1.000 | 605.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.160 | 350.000 | 594.560 | 450.000 | 594.560 | 550.000 | 593.260 | 641.000 |
| GR | 589.760 | 646.000 | 588.860 | 650.000 | 589.650 | 654.000 | 593.150 | 661.000 | 594.850 | 750.000 |
| GR | 598.820 | 850.000 | 601.020 | 950.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT. 2000.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8734.000 | 13.000 | 447.000 | 453.000 | 800.000 | 800.000 | 900.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 382.000 | 0.000 | 518.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X4 | 2.000 | 605.000 | 0.000 | 475.000 | 1001.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.290 | 50.000 | 596.590 | 850.000 | 595.090 | 950.000 | 593.790 | 440.000 |
| GR | 591.690 | 442.000 | 591.195 | 450.000 | 591.290 | 452.000 | 596.190 | 450.000 | 595.690 | 530.000 |
| GR | 596.290 | 650.000 | 597.590 | 750.000 | 600.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT. 1000.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9734.000 | 93.000 | 345.000 | 353.000 | 1005.000 | 1000.000 | 1050.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 285.000 | 0.000 | 420.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X6 | 2.000 | 605.000 | 0.000 | 605.000 | 701.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 598.940 | 50.000 | 598.140 | 150.000 | 596.040 | 250.000 | 595.240 | 341.000 |
| GR | 592.640 | 343.000 | 592.340 | 350.000 | 592.340 | 355.000 | 595.540 | 353.000 | 595.470 | 450.000 |
| GR | 595.920 | 550.000 | 596.920 | 650.000 | 600.000 | 730.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.060 | 0.060 | 0.060 | 0.100 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

XSECT.D/S OF INKSTER RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10513.000 | 15.000 | 498.000 | 504.000 | 879.000 | 879.000 | 879.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 433.000 | 0.000 | 556.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 604.000 | 0.000 | 600.000 | 0.000 | 599.000 | 100.000 | 598.000 | 200.000 | 597.000 | 300.000 |
| GR | 596.600 | 464.000 | 591.600 | 498.000 | 591.600 | 511.000 | 597.400 | 509.000 | 597.000 | 607.000 |
| GR | 597.500 | 900.000 | 598.000 | 1000.000 | 599.000 | 1100.000 | 599.500 | 1200.000 | 600.000 | 1300.000 |
| ET | 604.000 | 1301.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| CT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1301.000 |

D/S FACE OF INKSTER RD CULVERT

PRINTED IN U.S.A.
FORM 1411-60 PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10713.000 | 3.000 | 0.000 | 0.000 | 100.000 | 100.000 | 130.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 433.000 | 0.000 | 566.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.600 | 3.000 | 0.000 | 2.400 | 0.000 | 3.600 | 0.000 | 593.540 | 591.620 |

U/S FACE OF INKSTER RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10754.000 | 15.000 | 498.000 | 501.000 | 41.000 | 41.000 | 41.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 595.040 | 597.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 597.900 | 597.900 | 0.000 |
| BT | 13.000 | 433.000 | 604.000 | 0.000 | 433.000 | 604.000 | 0.000 | 433.000 | 604.000 | 0.000 |
| BT | 433.000 | 604.000 | 0.000 | 433.000 | 604.000 | 0.000 | 434.000 | 597.900 | 0.000 | 498.000 |
| BT | 597.900 | 593.540 | 498.250 | 597.900 | 594.790 | 499.500 | 597.900 | 595.040 | 500.750 | 597.900 |
| BT | 594.790 | 501.000 | 597.900 | 593.540 | 566.000 | 598.200 | 0.000 | 567.000 | 604.000 | 0.000 |
| GR | 604.000 | 433.000 | 604.000 | 433.000 | 604.000 | 438.000 | 604.000 | 433.000 | 604.000 | 433.000 |
| GR | 596.700 | 434.000 | 596.200 | 490.000 | 593.540 | 498.000 | 593.540 | 498.250 | 593.540 | 499.500 |
| GR | 593.540 | 500.750 | 593.540 | 501.000 | 596.700 | 510.000 | 596.900 | 566.000 | 604.000 | 567.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

XSECT U/S OF INKSTER RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10779.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| GJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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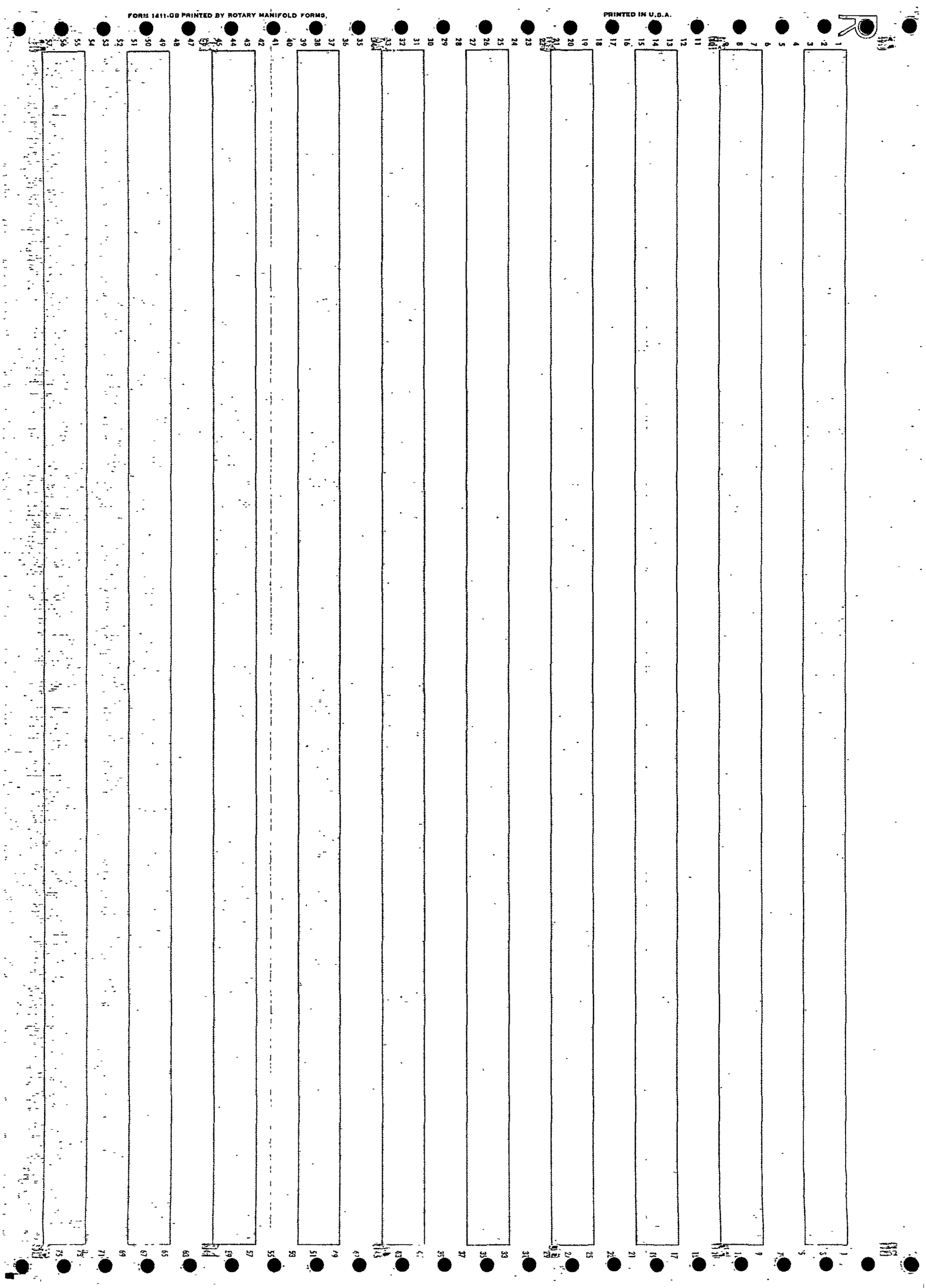
FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS,

PRINTED IN U.S.A.



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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

T1CITY OF FLAT ROCK FIS HUD 2009-07 COOKE & GLADDING FROM SOUTH TO INKETER RD.
T2       100 YR STORM
T3       COOKE & GLADDING DR.-FLAT ROCK

J1   ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVIAS      G          USEL       FQ

          0.        5.         0.         0.  0.003000       0.00       0.0         0.   585.400       0.000

J2   NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLOC      XDV        CHNIM      XTRACE

       2.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
```

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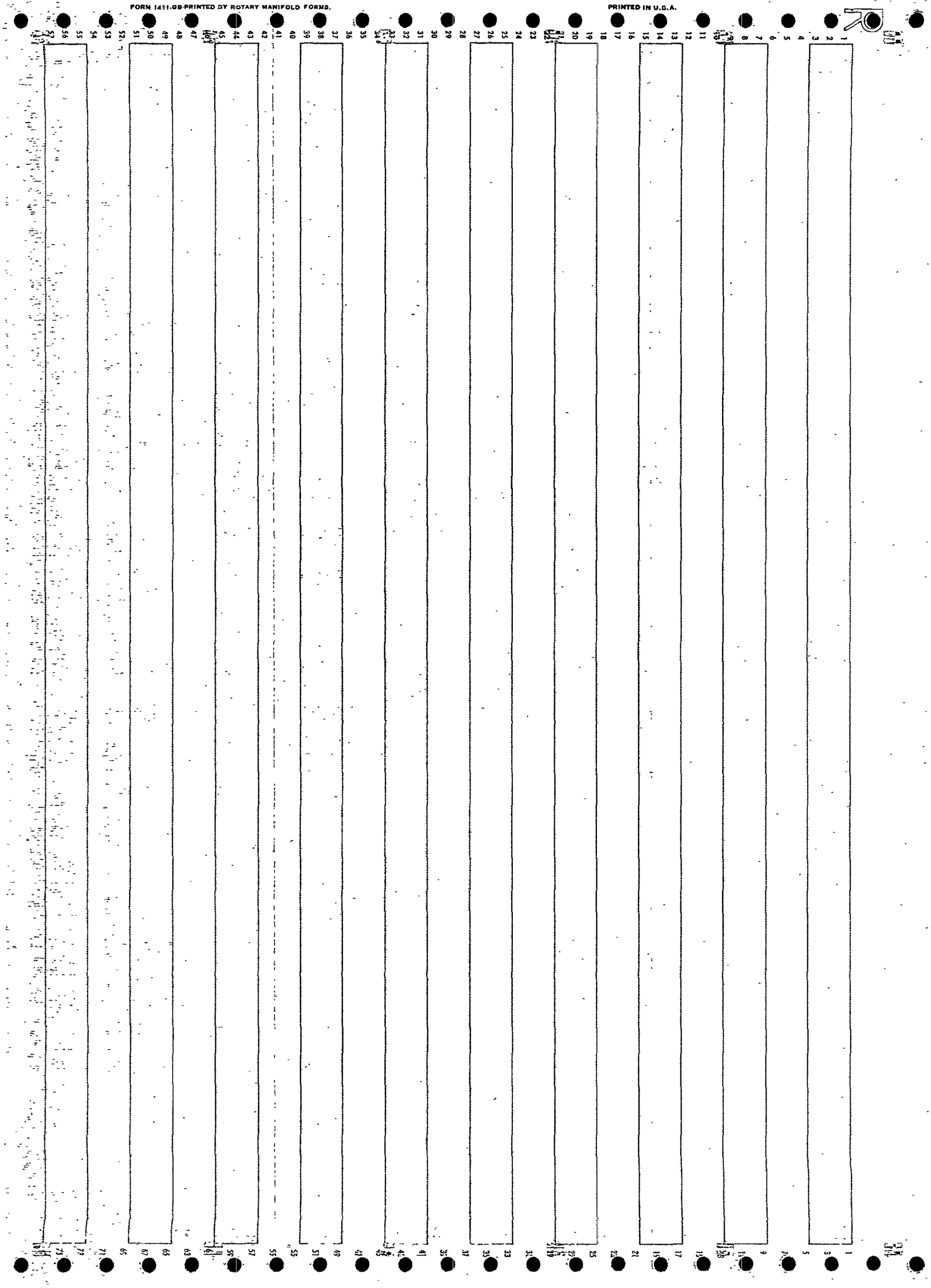

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

T1CITY OF FLAT ROCK FIS H00 2009-07 COOKE & GLADDING FROM MOUTH TO IRKSTER RD.
T2 0 10YR 50CTS 50YR 75 100YR 85 500YR 120 WATER ELEV HURON RIVER MEAN LEVEL
T3       COOKE & GLADDING DR.-FLAT ROCK

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
          0.        4.         0.         0.  0.000000       0.00       0.5        2.    585.400      0.000

J2   NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IEM       CHNIM     ITRACE
        3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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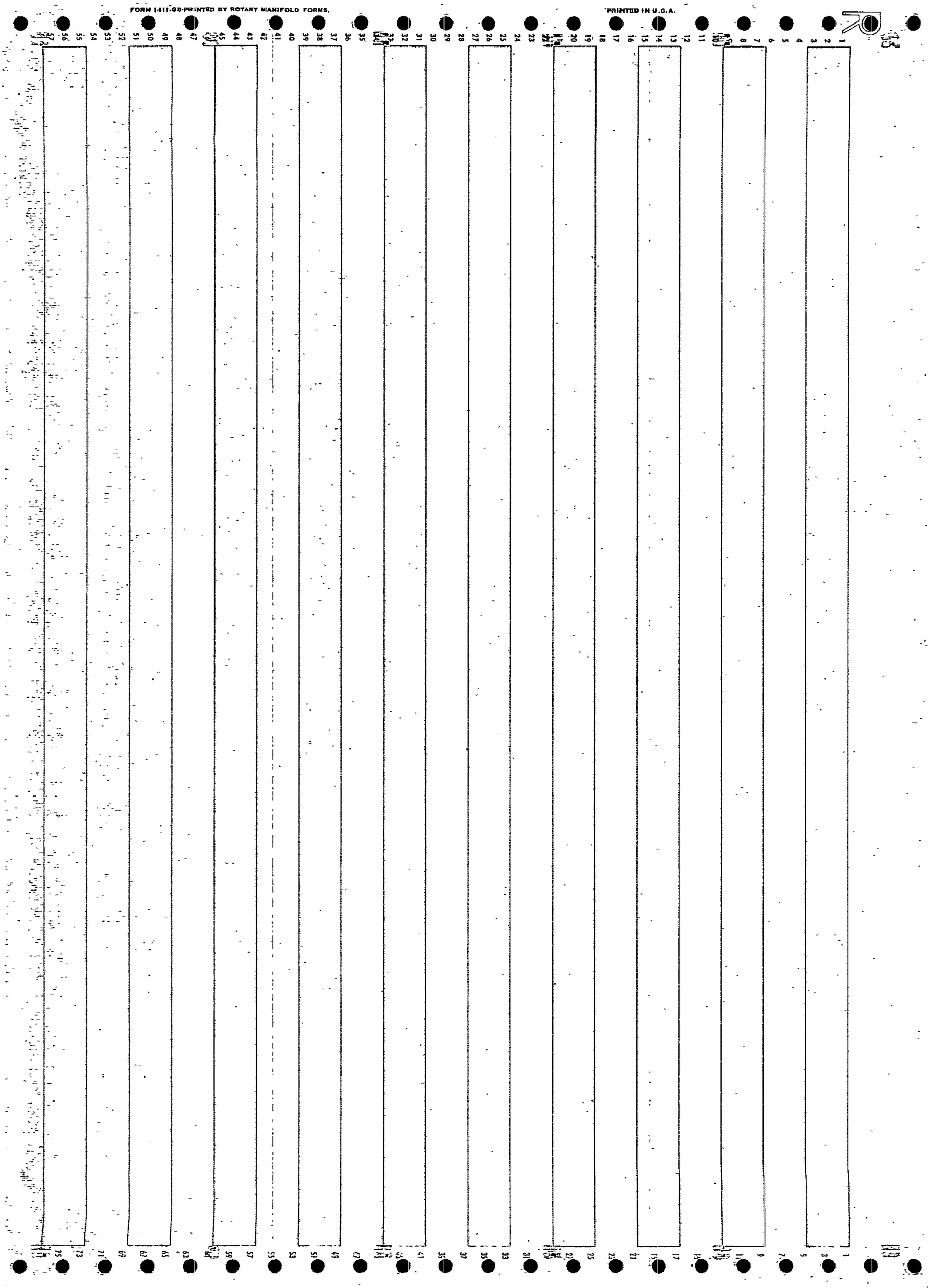

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
*****************************************************

T1CITY OF FLAT ROCK FIS HUD 2009-07 COOKE & GLADDING FROM MOUTH TO INKSTER RD.
T2 Q 10YR 50CTS 50YR 75 100YR 85 500YR 120 WATER ELEV HURON RIVER MEAN LEVEL
T3       COOKE & GLADDING DR.-FLAT ROCK

J1  ICHECK    INQ       NINV      IDIT      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        6.        0.        0.  0.000000      0.00       0.0        0.   585.400     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     [illegible]      ALLDC     IBW       CHNIM     ITHACE

     15.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

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**********

HEC2 RELEASE DATED NOV 75 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52

**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

COOKE & GLADDING DR.-FLA

SUMMARY PRINTOUT TABLE 150

| SECNO | XLOB | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | TOPWID | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.00 | 0.00 | 0.00 | 581.00 | 21.00 | 585.40 | 0.00 | 585.42 | 3.67 | 1.06 | 19.80 | 10.96 |
| 0.000 | 0.00 | 0.00 | 0.00 | 581.00 | 21.00 | 585.40 | 0.00 | 585.42 | 3.67 | 1.06 | 19.80 | 10.96 |
| 0.000 | 0.00 | 0.00 | 0.00 | 581.00 | 27.00 | 585.40 | 0.00 | 585.43 | 6.07 | 1.36 | 19.80 | 10.96 |
| 0.000 | 0.00 | 0.00 | 0.00 | 581.00 | 37.00 | 585.40 | 0.00 | 585.45 | 11.60 | 1.87 | 19.80 | 10.96 |
| 54.000 | 54.00 | 588.00 | 585.60 | 581.10 | 21.00 | 585.42 | 0.00 | 585.44 | 4.56 | 1.30 | 16.15 | 9.84 |
| 54.000 | 54.00 | 588.00 | 585.60 | 581.10 | 21.00 | 585.42 | 0.00 | 585.44 | 4.56 | 1.30 | 16.15 | 9.84 |
| 54.000 | 54.00 | 588.00 | 585.60 | 581.10 | 27.00 | 585.43 | 0.00 | 585.47 | 7.48 | 1.67 | 16.19 | 9.87 |
| 54.000 | 54.00 | 588.00 | 585.60 | 581.10 | 37.00 | 585.45 | 0.00 | 585.53 | 13.87 | 2.27 | 16.29 | 9.98 |
| 300.000 | 300.00 | 0.00 | 0.00 | 581.51 | 21.00 | 585.46 | 0.00 | 585.49 | 0.67 | 0.80 | 39.44 | 25.61 |
| 300.000 | 300.00 | 0.00 | 0.00 | 581.51 | 21.00 | 585.46 | 0.00 | 585.49 | 0.67 | 0.80 | 39.44 | 25.61 |
| 300.000 | 300.00 | 0.00 | 0.00 | 581.51 | 27.00 | 585.54 | 0.00 | 585.55 | 1.05 | 1.00 | 40.35 | 26.33 |
| 300.000 | 300.00 | 0.00 | 0.00 | 581.51 | 37.00 | 585.64 | 0.00 | 585.67 | 1.76 | 1.33 | 42.28 | 27.87 |
| 1300.000 | 1000.00 | 0.00 | 0.00 | 583.01 | 21.00 | 585.59 | 0.00 | 585.61 | 2.20 | 1.07 | 34.46 | 14.15 |
| 1300.000 | 1000.00 | 0.00 | 0.00 | 583.01 | 21.00 | 585.59 | 0.00 | 585.61 | 2.20 | 1.07 | 26.48 | 14.15 |
| 1300.000 | 1000.00 | 0.00 | 0.00 | 583.01 | 27.00 | 585.69 | 0.00 | 585.72 | 3.05 | 1.36 | 27.69 | 15.45 |
| 1300.000 | 1000.00 | 0.00 | 0.00 | 583.01 | 37.00 | 585.89 | 0.00 | 585.93 | 4.09 | 1.59 | 36.48 | 18.30 |
| 1600.000 | 300.00 | 0.00 | 0.00 | 585.29 | 21.00 | 585.73 | 0.00 | 585.84 | 51.59 | 2.30 | 10.82 | 3.74 |
| 1600.000 | 300.00 | 0.00 | 0.00 | 585.29 | 21.00 | 585.73 | 0.00 | 585.84 | 51.59 | 2.30 | 10.82 | 3.74 |
| 1600.000 | 300.00 | 0.00 | 0.00 | 585.29 | 27.00 | 585.83 | 0.00 | 585.93 | 36.67 | 2.49 | 12.19 | 4.34 |
| 1600.000 | 300.00 | 0.00 | 0.00 | 585.29 | 37.00 | 586.03 | 0.00 | 586.27 | 46.25 | 3.19 | 14.58 | 5.44 |
| 1700.000 | 100.00 | 0.00 | 0.00 | 585.14 | 21.00 | 586.26 | 0.00 | 586.52 | 175.39 | 4.09 | 5.13 | 1.59 |
| 1700.000 | 100.00 | 0.00 | 0.00 | 585.14 | 21.00 | 586.26 | 0.00 | 586.52 | 175.39 | 4.09 | 5.13 | 1.59 |
| 1700.000 | 100.00 | 0.00 | 0.00 | 585.14 | 27.00 | 586.40 | 0.00 | 586.78 | 162.05 | 4.33 | 6.26 | 2.12 |
| 1700.000 | 100.00 | 0.00 | 0.00 | 585.14 | 37.00 | 586.79 | 0.00 | 587.16 | 134.51 | 4.84 | 7.83 | 2.96 |
| 1836.000 | 136.00 | 592.80 | 588.90 | 586.24 | 21.00 | 587.91 | 0.00 | 588.03 | 73.57 | 2.84 | 7.40 | 2.45 |
| 1836.000 | 136.00 | 592.80 | 588.90 | 586.24 | 21.00 | 587.91 | 0.00 | 588.03 | 73.57 | 2.84 | 7.40 | 2.45 |
| 1836.000 | 136.00 | 592.80 | 588.90 | 586.24 | 27.00 | 588.09 | 0.00 | 588.25 | 82.53 | 3.22 | 8.44 | 2.97 |
| 1836.000 | 136.00 | 592.80 | 588.90 | 586.24 | 37.00 | 588.34 | 0.00 | 588.64 | 145.49 | 3.87 | 10.29 | 5.07 |
| 1861.000 | 25.00 | 0.00 | 0.00 | 586.24 | 21.00 | 588.10 | 0.00 | 588.15 | 24.53 | 1.95 | 15.54 | 4.24 |
| 1861.000 | 25.00 | 0.00 | 0.00 | 586.24 | 21.00 | 588.10 | 0.00 | 588.15 | 24.53 | 1.95 | 15.54 | 4.24 |
| 1861.000 | 25.00 | 0.00 | 0.00 | 586.24 | 27.00 | 588.43 | 0.00 | 588.47 | 19.66 | 1.95 | 21.36 | 6.09 |
| 1861.000 | 25.00 | 0.00 | 0.00 | 586.24 | 37.00 | 589.32 | 0.00 | 589.55 | 7.23 | 1.49 | 47.95 | 13.71 |

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| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2284.000 | 423.00 | 0.00 | 0.00 | 585.50 | 21.00 | 588.20 | 0.00 | 588.20 | 0.30 | 0.31 | 132.97 | 38.61 |
| | 2284.000 | 423.00 | 0.00 | 0.00 | 585.50 | 21.00 | 588.20 | 0.00 | 588.20 | 0.30 | 0.31 | 132.97 | 38.61 |
| | 2284.000 | 423.00 | 0.00 | 0.00 | 585.50 | 27.00 | 588.51 | 0.00 | 588.51 | 0.27 | 0.31 | 173.11 | 51.94 |
| | 2284.000 | 423.00 | 0.00 | 0.00 | 585.50 | 37.00 | 589.36 | 0.00 | 589.36 | 0.12 | 0.25 | 308.99 | 105.56 |
| | 2941.000 | 657.00 | 0.00 | 0.00 | 585.50 | 21.00 | 588.23 | 0.00 | 588.23 | 0.78 | 0.50 | 71.62 | 23.71 |
| | 2941.000 | 657.00 | 0.00 | 0.00 | 585.50 | 21.00 | 588.23 | 0.00 | 588.23 | 0.78 | 0.50 | 71.62 | 23.71 |
| | 2941.000 | 657.00 | 0.00 | 0.00 | 585.50 | 27.00 | 588.54 | 0.00 | 588.54 | 0.74 | 0.52 | 99.13 | 31.29 |
| | 2941.000 | 657.00 | 0.00 | 0.00 | 585.50 | 37.00 | 589.38 | 0.00 | 589.38 | 0.43 | 0.47 | 136.15 | 56.43 |
| | 3041.000 | 100.00 | 0.00 | 0.00 | 585.30 | 21.00 | 588.23 | 0.00 | 588.27 | 12.22 | 1.62 | 12.94 | 6.01 |
| | 3041.000 | 100.00 | 0.00 | 0.00 | 585.30 | 21.00 | 588.23 | 0.00 | 588.27 | 12.22 | 1.62 | 12.94 | 6.01 |
| | 3041.000 | 100.00 | 0.00 | 0.00 | 585.30 | 27.00 | 588.53 | 0.00 | 588.59 | 15.27 | 1.69 | 14.32 | 6.91 |
| | 3041.000 | 100.00 | 0.00 | 0.00 | 585.30 | 37.00 | 589.36 | 0.00 | 589.42 | 15.42 | 2.05 | 18.01 | 9.42 |
| | 3210.000 | 169.00 | 590.00 | 589.20 | 586.70 | 21.00 | 588.60 | 0.00 | 588.72 | 74.33 | 2.78 | 7.56 | 2.44 |
| | 3210.000 | 169.00 | 590.00 | 589.20 | 586.70 | 21.00 | 588.60 | 0.00 | 588.72 | 74.33 | 2.78 | 7.56 | 2.44 |
| | 3210.000 | 169.00 | 590.00 | 589.20 | 586.70 | 27.00 | 588.97 | 0.00 | 589.11 | 72.26 | 2.99 | 9.02 | 3.18 |
| | 3210.000 | 169.00 | 590.00 | 589.20 | 586.70 | 37.00 | 589.95 | 0.00 | 590.05 | 27.90 | 2.56 | 14.43 | 7.01 |
| | 3235.000 | 25.00 | 0.00 | 0.00 | 586.70 | 21.00 | 588.77 | 0.00 | 588.77 | 0.88 | 0.44 | 84.72 | 22.59 |
| | 3235.000 | 25.00 | 0.00 | 0.00 | 586.70 | 21.00 | 588.77 | 0.00 | 588.77 | 0.86 | 0.44 | 84.72 | 22.59 |
| | 3235.000 | 25.00 | 0.00 | 0.00 | 586.70 | 27.00 | 589.16 | 0.00 | 589.16 | 0.79 | 0.44 | 106.69 | 32.54 |
| | 3235.000 | 25.00 | 0.00 | 0.00 | 586.70 | 37.00 | 590.09 | 0.00 | 590.09 | 0.38 | 0.40 | 158.56 | 60.36 |
| | 3584.000 | 149.00 | 0.00 | 0.00 | 586.10 | 21.00 | 588.73 | 0.00 | 588.81 | 6.07 | 1.24 | 16.90 | 8.52 |
| | 3584.000 | 149.00 | 0.00 | 0.00 | 586.10 | 21.00 | 588.73 | 0.00 | 588.81 | 6.07 | 1.24 | 16.90 | 8.52 |
| | 3584.000 | 149.00 | 0.00 | 0.00 | 586.10 | 27.00 | 589.17 | 0.00 | 589.20 | 6.77 | 1.40 | 19.33 | 10.38 |
| | 3584.000 | 149.00 | 0.00 | 0.00 | 586.10 | 37.00 | 590.09 | 0.00 | 590.10 | 1.03 | 0.76 | 107.25 | 56.40 |
| | 3548.000 | 164.00 | 590.00 | 589.60 | 586.10 | 21.00 | 588.85 | 0.00 | 588.87 | 5.64 | 1.21 | 17.33 | 8.84 |
| | 3548.000 | 164.00 | 590.00 | 589.60 | 586.10 | 21.00 | 588.85 | 0.00 | 588.87 | 5.64 | 1.21 | 17.33 | 8.84 |
| | 3548.000 | 164.00 | 590.00 | 589.60 | 586.10 | 27.00 | 589.32 | 0.00 | 589.32 | 6.04 | 1.34 | 20.10 | 10.92 |
| | 3548.000 | 164.00 | 590.00 | 589.60 | 586.10 | 37.00 | 590.10 | 0.00 | 590.11 | 4.04 | 0.75 | 106.24 | 56.51 |
| | 3600.000 | 52.00 | 0.00 | 0.00 | 585.60 | 21.00 | 588.09 | 0.00 | 588.09 | 0.59 | 0.41 | 96.75 | 27.44 |
| | 3600.000 | 52.00 | 0.00 | 0.00 | 585.60 | 21.00 | 588.09 | 0.00 | 588.09 | 0.59 | 0.41 | 96.75 | 27.44 |
| | 3600.000 | 52.00 | 0.00 | 0.00 | 585.60 | 27.00 | 589.33 | 0.00 | 589.33 | 1.42 | 0.60 | 127.10 | 51.04 |
| | 3600.000 | 52.00 | 0.00 | 0.00 | 585.60 | 37.00 | 590.11 | 0.00 | 590.11 | 0.27 | 0.37 | 304.64 | 71.34 |
| * | 3792.000 | 192.00 | 0.00 | 0.00 | 587.70 | 21.00 | 588.75 | 585.73 | 589.19 | 523.02 | 5.36 | 3.92 | 3.92 |
| * | 3792.000 | 192.00 | 0.00 | 0.00 | 587.70 | 21.00 | 588.75 | 585.75 | 589.19 | 523.02 | 5.36 | 3.92 | 3.92 |
| | 3792.000 | 192.00 | 0.00 | 0.00 | 587.70 | 27.00 | 589.21 | 0.00 | 589.52 | 227.22 | 4.50 | 6.01 | 1.79 |
| | 3792.000 | 192.00 | 0.00 | 0.00 | 587.70 | 37.00 | 590.01 | 0.00 | 590.25 | 103.03 | 3.65 | 9.62 | 3.65 |
| | 3833.000 | 41.00 | 590.50 | 590.00 | 587.20 | 21.00 | 589.72 | 0.00 | 589.82 | 57.12 | 2.61 | 8.04 | 2.78 |
| | 3833.000 | 41.00 | 590.50 | 590.00 | 587.20 | 21.00 | 589.72 | 0.00 | 589.82 | 57.12 | 2.61 | 8.04 | 2.78 |
| | 3833.000 | 41.00 | 590.30 | 591.00 | 587.70 | 27.00 | 590.05 | 0.00 | 590.19 | 106.12 | 2.94 | 9.17 | 2.62 |
| | 3833.000 | 41.00 | 590.50 | 591.00 | 587.70 | 37.00 | 590.54 | 0.00 | 590.74 | 139.56 | 3.56 | 10.39 | 3.13 |
| | 3883.000 | 50.00 | 0.00 | 0.00 | 587.70 | 21.00 | 589.05 | 0.00 | 589.07 | 26.69 | 2.16 | 10.86 | 4.01 |
| | 3883.000 | 50.00 | 0.00 | 0.00 | 587.70 | 21.00 | 589.05 | 0.00 | 589.07 | 26.69 | 2.16 | 10.86 | 4.01 |
| | 3883.000 | 50.00 | 0.00 | 0.00 | 587.70 | 27.00 | 590.35 | 0.00 | 590.40 | 19.85 | 2.08 | 23.87 | 6.06 |
| | 3883.000 | 50.00 | 0.00 | 0.00 | 587.70 | 37.00 | 590.87 | 0.00 | 590.88 | 6.47 | 1.35 | 47.34 | 14.54 |

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| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4337.000 | 454.00 | 0.00 | 0.00 | 587.50 | 21.00 | 590.17 | 0.00 | 590.17 | 1.04 | 0.58 | 63.06 | 20.63 |
| 1 | 4337.000 | 454.00 | 0.00 | 0.00 | 587.50 | 21.00 | 590.17 | 0.00 | 590.17 | 1.04 | 0.58 | 63.06 | 20.63 |
| 2 | 4337.000 | 454.00 | 0.00 | 0.00 | 587.50 | 27.00 | 590.52 | 0.00 | 590.53 | 0.89 | 0.59 | 82.70 | 28.65 |
| 3 | 4337.000 | 454.00 | 0.00 | 0.00 | 587.50 | 37.00 | 590.97 | 0.00 | 590.97 | 0.85 | 0.63 | 136.78 | 40.22 |
| | | | | | | | | | | | | | |
| 5 | 4437.000 | 100.00 | 0.00 | 0.00 | 587.35 | 21.00 | 590.18 | 0.00 | 590.20 | 8.34 | 1.35 | 15.54 | 7.27 |
| 6 | 4437.000 | 100.00 | 0.00 | 0.00 | 587.35 | 21.00 | 590.18 | 0.00 | 590.20 | 8.34 | 1.35 | 15.54 | 7.27 |
| 7 | 4437.000 | 100.00 | 0.00 | 0.00 | 587.35 | 27.00 | 590.53 | 0.00 | 590.57 | 9.37 | 1.54 | 17.48 | 8.59 |
| 8 | 4437.000 | 100.00 | 0.00 | 0.00 | 587.35 | 37.00 | 590.96 | 0.00 | 591.02 | 12.95 | 1.86 | 19.86 | 10.98 |
| 9 | | | | | | | | | | | | | |
| 10 | 4479.000 | 42.00 | 591.70 | 588.60 | 587.35 | 21.00 | 590.70 | 0.00 | 590.72 | 5.13 | 1.14 | 18.45 | 9.27 |
| 11 | 4479.000 | 42.00 | 591.70 | 588.60 | 587.35 | 21.00 | 590.70 | 0.00 | 590.72 | 5.13 | 1.14 | 18.45 | 9.27 |
| 12 | 4479.000 | 42.00 | 591.70 | 588.60 | 587.35 | 27.00 | 591.41 | 0.00 | 591.43 | 4.99 | 1.21 | 22.34 | 12.09 |
| 13 | 4479.000 | 42.00 | 591.70 | 588.60 | 587.35 | 37.00 | 591.81 | 0.00 | 591.85 | 7.26 | 1.51 | 24.53 | 13.75 |
| 14 | | | | | | | | | | | | | |
| 15 | 4504.000 | 25.00 | 0.00 | 0.00 | 587.35 | 21.00 | 590.73 | 0.00 | 590.73 | 0.52 | 0.43 | 69.05 | 29.15 |
| 16 | 4504.000 | 25.00 | 0.00 | 0.00 | 587.35 | 21.00 | 590.73 | 0.00 | 590.73 | 0.52 | 0.48 | 69.05 | 29.15 |
| 17 | 4504.000 | 25.00 | 0.00 | 0.00 | 587.35 | 27.00 | 591.44 | 0.00 | 591.44 | 0.31 | 0.42 | 128.09 | 48.49 |
| 18 | 4504.000 | 25.00 | 0.00 | 0.00 | 587.35 | 37.00 | 591.86 | 0.00 | 591.86 | 0.36 | 0.49 | 151.18 | 61.51 |
| 19 | | | | | | | | | | | | | |
| 20 | 4853.000 | 349.00 | 0.00 | 0.00 | 587.71 | 21.00 | 590.75 | 0.00 | 590.75 | 0.33 | 0.26 | 140.89 | 36.30 |
| 21 | 4853.000 | 349.00 | 0.00 | 0.00 | 587.71 | 21.00 | 590.75 | 0.00 | 590.75 | 0.33 | 0.26 | 140.69 | 36.38 |
| 22 | 4853.000 | 349.00 | 0.00 | 0.00 | 587.71 | 27.00 | 591.45 | 0.00 | 591.45 | 0.17 | 0.22 | 212.72 | 65.42 |
| 23 | 4853.000 | 349.00 | 0.00 | 0.00 | 587.71 | 37.00 | 591.87 | 0.00 | 591.87 | 0.19 | 0.25 | 255.77 | 85.98 |
| 24 | | | | | | | | | | | | | |
| 25 | 5053.000 | 200.00 | 0.00 | 0.00 | 586.37 | 21.00 | 590.75 | 0.00 | 590.75 | 0.31 | 0.37 | 75.44 | 37.43 |
| 26 | 5053.000 | 200.00 | 0.00 | 0.00 | 586.37 | 21.00 | 590.75 | 0.00 | 590.75 | 0.31 | 0.37 | 75.44 | 37.43 |
| 27 | 5053.000 | 200.00 | 0.00 | 0.00 | 586.37 | 27.00 | 591.45 | 0.00 | 591.46 | 0.30 | 0.40 | 89.82 | 49.01 |
| 28 | 5053.000 | 200.00 | 0.00 | 0.00 | 586.37 | 37.00 | 591.87 | 0.00 | 591.87 | 0.43 | 0.50 | 100.12 | 56.64 |
| 29 | | | | | | | | | | | | | |
| 30 | 5253.000 | 200.00 | 0.00 | 0.00 | 586.40 | 21.00 | 590.76 | 0.00 | 590.78 | 3.09 | 1.20 | 17.44 | 10.65 |
| 31 | 5253.000 | 200.00 | 0.00 | 0.00 | 586.40 | 21.00 | 590.76 | 0.00 | 590.78 | 3.09 | 1.20 | 17.44 | 10.65 |
| 32 | 5253.000 | 200.00 | 0.00 | 0.00 | 586.40 | 27.00 | 591.46 | 0.00 | 591.48 | 4.59 | 1.53 | 20.33 | 12.69 |
| 33 | 5253.000 | 200.00 | 0.00 | 0.00 | 586.40 | 37.00 | 591.92 | 0.00 | 591.93 | 6.76 | 1.69 | 21.00 | 14.23 |
| 34 | | | | | | | | | | | | | |
| 35 | 5299.000 | 46.00 | 594.40 | 590.30 | 587.30 | 21.00 | 590.78 | 0.00 | 590.85 | 58.26 | 2.00 | 10.50 | 2.75 |
| 36 | 5299.000 | 46.00 | 594.40 | 590.30 | 587.30 | 21.00 | 590.78 | 0.00 | 590.85 | 58.26 | 2.00 | 10.50 | 2.75 |
| 37 | 5299.000 | 46.00 | 594.40 | 590.30 | 587.30 | 27.00 | 591.90 | 0.00 | 592.01 | 16.07 | 1.44 | 16.70 | 5.31 |
| 38 | 5299.000 | 46.00 | 594.40 | 590.30 | 587.30 | 37.00 | 592.46 | 0.00 | 592.51 | 11.80 | 1.46 | 22.76 | 10.71 |
| 39 | | | | | | | | | | | | | |
| 40 | 5349.000 | 50.00 | 0.00 | 0.00 | 587.30 | 21.00 | 590.92 | 0.00 | 590.94 | 7.21 | 1.15 | 24.97 | 7.82 |
| 41 | 5349.000 | 50.00 | 0.00 | 0.00 | 587.30 | 21.00 | 590.92 | 0.00 | 590.94 | 7.21 | 1.15 | 24.97 | 7.82 |
| 42 | 5349.000 | 50.00 | 0.00 | 0.00 | 587.30 | 27.00 | 592.03 | 0.00 | 592.04 | 3.70 | 0.98 | 41.03 | 14.04 |
| 43 | 5349.000 | 50.00 | 0.00 | 0.00 | 587.30 | 37.00 | 592.93 | 0.00 | 592.53 | 3.12 | 1.01 | 57.35 | 20.94 |
| 44 | | | | | | | | | | | | | |
| 45 | 5676.000 | 327.00 | 0.00 | 0.00 | 587.28 | 21.00 | 590.99 | 0.00 | 591.00 | 0.73 | 0.50 | 55.42 | 24.60 |
| 46 | 5676.000 | 327.00 | 0.00 | 0.00 | 587.28 | 21.00 | 590.99 | 0.00 | 591.00 | 0.73 | 0.50 | 55.42 | 24.60 |
| 47 | 5676.000 | 327.00 | 0.00 | 0.00 | 587.28 | 27.00 | 592.06 | 0.00 | 592.08 | 0.47 | 0.48 | 76.12 | 39.54 |
| 48 | 5676.000 | 327.00 | 0.00 | 0.00 | 587.28 | 37.00 | 592.97 | 0.00 | 592.98 | 0.46 | 0.53 | 97.23 | 54.52 |
| 49 | | | | | | | | | | | | | |
| 50 | 5776.000 | 100.00 | 0.00 | 0.00 | 586.26 | 21.00 | 590.92 | 0.00 | 591.05 | 28.66 | 2.21 | 9.59 | 5.62 |
| 51 | 5776.000 | 100.00 | 0.00 | 0.00 | 586.26 | 21.00 | 590.78 | 0.00 | 591.05 | 28.66 | 2.21 | 9.51 | 5.62 |
| 52 | 5776.000 | 100.00 | 0.00 | 0.00 | 586.26 | 27.00 | 592.56 | 0.00 | 592.72 | 19.05 | 2.03 | 13.30 | 8.19 |
| 53 | 5776.000 | 100.00 | 0.00 | 0.00 | 586.26 | 37.00 | 592.55 | 0.00 | 593.03 | 20.93 | 2.25 | 16.62 | 8.39 |
| 54 | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | |
| 56 | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | |

PRINTED IN U.S.A.
FORM 1411-OD-PRINTED BY ROTARY MANIFOLD FORMS.

| | SECNO. | XLCH | ELTRD | ELLC | ELMIN | Q | CLSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5851.000 | 75.00 | 599.40 | 590.75 | 589.00 | 21.00 | 594.35 | 0.00 | 594.37 | 7.28 | 1.12 | 18.71 | 7.78 |
| 1 | 5851.000 | 75.00 | 599.40 | 590.75 | 589.00 | 21.00 | 594.35 | 0.00 | 594.37 | 7.28 | 1.12 | 18.71 | 7.78 |
| 2 | 5851.000 | 75.00 | 599.40 | 590.75 | 589.00 | 27.00 | 597.64 | 0.00 | 597.66 | 3.73 | 0.89 | 30.29 | 13.98 |
| 3 | 5851.000 | 75.00 | 599.40 | 590.75 | 589.00 | 37.00 | 599.84 | 0.00 | 599.86 | 4.13 | 0.97 | 37.97 | 18.20 |
| 4 | | | | | | | | | | | | | |
| 5 | 5876.000 | 25.00 | 0.00 | 0.00 | 589.39 | 21.00 | 594.37 | 0.00 | 594.37 | 0.07 | 0.19 | 204.61 | 79.70 |
| 6 | 5876.000 | 25.00 | 0.00 | 0.00 | 589.39 | 21.00 | 594.37 | 0.00 | 594.37 | 0.07 | 0.19 | 204.61 | 79.70 |
| 7 | 5876.000 | 25.00 | 0.00 | 0.00 | 589.39 | 27.00 | 597.66 | 0.00 | 597.66 | 0.02 | 0.14 | 375.58 | 202.57 |
| 8 | 5876.000 | 25.00 | 0.00 | 0.00 | 589.39 | 37.00 | 599.86 | 0.00 | 599.86 | 0.01 | 0.11 | 489.32 | 306.08 |
| 9 | | | | | | | | | | | | | |
| 10 | 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 21.00 | 594.37 | 0.00 | 594.38 | 1.46 | 0.87 | 42.86 | 17.38 |
| 11 | 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 21.00 | 594.37 | 0.00 | 594.38 | 1.46 | 0.87 | 42.86 | 17.33 |
| 12 | 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 27.00 | 597.66 | 0.00 | 597.67 | 0.30 | 0.56 | 110.49 | 49.26 |
| 13 | 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 37.00 | 599.86 | 0.00 | 599.86 | 0.14 | 0.44 | 243.73 | 100.22 |
| 14 | | | | | | | | | | | | | |
| 15 | ☆ 6006.000 | 75.00 | 100000.00 | 100000.00 | 589.40 | 21.00 | 596.00 | 0.00 | 596.02 | 6.75 | 1.06 | 19.85 | 8.00 |
| 16 | ☆ 6006.000 | 75.00 | 100000.00 | 100000.00 | 589.40 | 21.00 | 596.00 | 0.00 | 596.02 | 6.75 | 1.06 | 19.80 | 8.08 |
| 17 | ☆ 6006.000 | 75.00 | 100000.00 | 100000.00 | 589.40 | 27.00 | 597.73 | 0.00 | 597.74 | 0.54 | 0.75 | 86.70 | 36.79 |
| 18 | ☆ 6006.000 | 75.00 | 100000.00 | 100000.00 | 589.40 | 37.00 | 599.86 | 0.00 | 599.86 | 0.18 | 0.50 | 255.03 | 87.18 |
| 19 | | | | | | | | | | | | | |
| 20 | 6050.000 | 44.00 | 0.00 | 0.00 | 589.40 | 50.00 | 596.01 | 0.00 | 596.06 | 5.42 | 2.03 | 44.43 | 21.40 |
| 21 | 6050.000 | 44.00 | 0.00 | 0.00 | 589.40 | 75.00 | 596.00 | 0.00 | 596.11 | 12.32 | 3.06 | 66.19 | 21.37 |
| 22 | 6050.000 | 44.00 | 0.00 | 0.00 | 589.40 | 85.00 | 597.71 | 0.00 | 597.77 | 5.36 | 2.36 | 86.36 | 36.70 |
| 23 | 6050.000 | 44.00 | 0.00 | 0.00 | 589.40 | 120.00 | 599.86 | 0.00 | 599.87 | 1.89 | 1.63 | 255.10 | 87.21 |
| 24 | | | | | | | | | | | | | |
| 25 | 7934.000 | 1304.00 | 0.00 | 0.00 | 585.86 | 50.00 | 596.15 | 0.00 | 596.15 | 6.15 | 0.32 | 393.45 | 125.24 |
| 26 | 7934.000 | 1304.00 | 0.00 | 0.00 | 588.86 | 75.00 | 596.29 | 0.00 | 596.29 | 0.30 | 0.49 | 414.55 | 137.61 |
| 27 | 7934.000 | 1304.00 | 0.00 | 0.00 | 588.86 | 85.00 | 597.85 | 0.00 | 597.85 | 0.12 | 0.35 | 623.90 | 246.84 |
| 28 | 7934.000 | 1984.00 | 0.00 | 0.00 | 588.86 | 120.00 | 599.92 | 0.00 | 599.92 | 0.08 | 0.33 | 903.36 | 429.84 |
| 29 | | | | | | | | | | | | | |
| 30 | 8736.000 | 802.00 | 0.00 | 0.00 | 591.19 | 50.00 | 596.17 | 0.00 | 596.17 | 0.52 | 0.52 | 278.10 | 69.03 |
| 31 | 8736.000 | 802.00 | 0.00 | 0.00 | 591.19 | 75.00 | 596.33 | 0.00 | 596.33 | 0.95 | 0.79 | 360.16 | 76.56 |
| 32 | 8736.000 | 802.00 | 0.00 | 0.00 | 591.19 | 85.00 | 597.86 | 0.00 | 597.86 | 0.26 | 0.64 | 509.13 | 167.17 |
| 33 | 8736.000 | 802.00 | 0.00 | 0.00 | 591.19 | 120.00 | 599.92 | 0.00 | 599.92 | 0.13 | 0.36 | 756.79 | 329.65 |
| 34 | | | | | | | | | | | | | |
| 35 | 9734.000 | 1000.00 | 0.00 | 0.00 | 592.34 | 50.00 | 596.25 | 0.00 | 596.26 | 4.75 | 0.80 | 159.04 | 27.79 |
| 36 | 9734.000 | 1000.00 | 0.00 | 0.00 | 592.34 | 75.00 | 596.46 | 0.00 | 596.49 | 2.67 | 1.02 | 169.13 | 45.91 |
| 37 | 9734.000 | 1000.00 | 0.00 | 0.00 | 592.34 | 85.00 | 597.91 | 0.00 | 597.90 | 0.55 | 0.36 | 379.66 | 115.26 |
| 38 | 9734.000 | 1000.00 | 0.00 | 0.00 | 592.34 | 120.00 | 599.94 | 0.00 | 599.94 | 0.21 | 0.46 | 656.02 | 260.06 |
| 39 | | | | | | | | | | | | | |
| 40 | 10613.000 | 879.00 | 0.00 | 0.00 | 591.60 | 50.00 | 596.50 | 0.00 | 596.52 | 5.64 | 1.70 | 51.91 | 21.06 |
| 41 | 10613.000 | 879.00 | 0.00 | 0.00 | 591.60 | 75.00 | 596.83 | 0.00 | 596.86 | 7.41 | 2.03 | 89.61 | 27.56 |
| 42 | 10613.000 | 879.00 | 0.00 | 0.00 | 591.60 | 85.00 | 597.96 | 0.00 | 597.97 | 1.21 | 0.94 | 239.69 | 77.19 |
| 43 | 10613.000 | 879.00 | 0.00 | 0.00 | 591.60 | 120.00 | 599.96 | 0.00 | 599.96 | 0.27 | 0.53 | 504.60 | 231.20 |
| 44 | | | | | | | | | | | | | |
| 45 | 10713.000 | 100.00 | 0.00 | 0.00 | 591.60 | 50.00 | 596.35 | 0.00 | 596.38 | 5.26 | 1.83 | 56.24 | 21.80 |
| 46 | 10713.000 | 100.00 | 0.00 | 0.00 | 591.60 | 75.00 | 596.91 | 0.00 | 596.93 | 6.31 | 1.91 | 99.29 | 29.83 |
| 47 | 10713.000 | 100.00 | 0.00 | 0.00 | 591.60 | 85.00 | 597.97 | 0.00 | 597.98 | 1.20 | 0.93 | 240.59 | 77.72 |
| 48 | 10713.000 | 100.00 | 0.00 | 0.00 | 591.60 | 120.00 | 599.96 | 0.00 | 599.96 | 0.27 | 0.53 | 505.75 | 232.02 |
| 49 | | | | | | | | | | | | | |
| 50 | 11754.000 | 41.00 | 597.90 | 595.04 | 593.54 | 50.00 | 596.13 | 0.00 | 596.13 | 0.49 | 0.48 | 235.91 | 71.17 |
| 51 | 11754.000 | 41.00 | 597.90 | 595.04 | 593.54 | 75.00 | 596.33 | 0.00 | 596.33 | 0.35 | 0.67 | 214.85 | 77.61 |
| 52 | 11754.000 | 41.00 | 597.90 | 595.04 | 593.54 | 85.00 | 596.80 | 0.00 | 596.80 | 1.00 | 0.73 | 258.77 | 61.68 |
| 53 | 11754.000 | 41.00 | 597.90 | 595.04 | 593.54 | 120.00 | 597.39 | 0.00 | 597.39 | 0.30 | 0.47 | 402.67 | 218.50 |
| 54 | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | |
| 56 | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | |

PRINTED IN U.S.A.
FORM 1417-6B-PRINTED BY ROTARY MANIFOLD FORMS.

| SECNO | XLCN | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | TOK*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10779.000 | 25.00 | 0.00 | 0.00 | 593.54 | 50.00 | 598.13 | 0.00 | 598.13 | 0.49 | 0.48 | 236.42 | 71.54 |
| 10779.000 | 25.00 | 0.00 | 0.00 | 593.54 | 75.00 | 598.24 | 0.00 | 598.24 | 0.92 | 0.67 | 250.57 | 73.07 |
| 10779.000 | 25.00 | 0.00 | 0.00 | 593.54 | 85.30 | 598.30 | 0.00 | 598.30 | 1.08 | 0.73 | 253.27 | 81.73 |
| 10779.000 | 25.00 | 0.00 | 0.00 | 593.56 | 120.00 | 599.99 | 0.00 | 599.99 | 0.30 | 0.47 | 482.44 | 218.48 |

COOKE & GLADDING DR.-FLA

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSE' | DIFWSP | DIFWSX | DIFRWS | TOPWID | XLOA |
|---|---|---|---|---|---|---|---|
| 0.000 | 21.00 | 585.40 | 0.00 | 0.00 | 0.00 | 4.50 | 0.00 |
| 0.000 | 21.00 | 585.40 | 0.00 | 0.00 | 0.00 | 4.50 | 0.00 |
| 0.000 | 27.00 | 585.40 | 0.00 | 0.00 | 0.00 | 4.50 | 0.00 |
| 0.000 | 37.00 | 585.40 | 0.00 | 0.00 | 0.00 | 4.50 | 0.00 |
| 54.000 | 21.00 | 585.42 | 0.00 | 0.02 | 0.00 | 4.50 | 54.00 |
| 54.000 | 21.00 | 585.42 | 0.00 | 0.02 | 0.00 | 4.50 | 54.00 |
| 54.000 | 27.00 | 585.43 | 0.00 | 0.03 | 0.00 | 4.50 | 54.00 |
| 54.000 | 37.00 | 585.45 | 0.00 | 0.05 | 0.00 | 4.50 | 54.00 |
| 300.000 | 21.00 | 585.48 | 0.00 | 0.07 | 0.00 | 17.36 | 300.00 |
| 300.000 | 21.00 | 585.48 | 0.00 | 0.07 | 0.00 | 17.36 | 300.00 |
| 300.000 | 27.00 | 585.54 | 0.00 | 0.11 | 0.00 | 17.55 | 300.00 |
| 300.000 | 37.00 | 585.64 | 0.00 | 0.19 | 0.00 | 17.94 | 300.00 |
| 1300.000 | 21.00 | 585.59 | 0.00 | 0.11 | 0.00 | 25.54 | 1000.00 |
| 1300.000 | 21.00 | 585.59 | 0.00 | 0.11 | 0.00 | 25.54 | 1000.00 |
| 1300.000 | 27.00 | 585.69 | 0.00 | 0.16 | 0.00 | 35.37 | 1000.00 |
| 1300.000 | 37.00 | 585.89 | 0.00 | 0.25 | 0.00 | 54.54 | 1000.00 |
| 1600.000 | 21.00 | 585.72 | 0.00 | 0.13 | 0.00 | 6.54 | 300.00 |
| 1600.000 | 21.00 | 585.72 | 0.00 | 0.13 | 0.00 | 6.54 | 300.00 |
| 1600.000 | 27.00 | 585.88 | 0.00 | 0.18 | 0.00 | 9.04 | 300.00 |
| 1300.000 | 37.00 | 586.13 | 0.00 | 0.24 | 0.00 | 9.86 | 300.00 |
| 1700.000 | 21.00 | 586.26 | 0.00 | 0.53 | 0.00 | 6.50 | 100.00 |
| 1700.000 | 21.00 | 586.26 | 0.01 | 0.53 | 0.00 | 6.50 | 100.00 |
| 1700.000 | 27.00 | 586.60 | 0.00 | 0.50 | 0.00 | 6.50 | 100.00 |
| 1700.000 | 37.00 | 586.79 | 0.00 | 0.66 | 0.00 | 6.50 | 100.00 |
| 1836.000 | 21.00 | 587.91 | 0.00 | 1.65 | 0.00 | 6.50 | 136.00 |
| 1836.000 | 21.00 | 587.91 | 0.00 | 1.65 | 0.00 | 6.50 | 136.00 |
| 1836.000 | 27.00 | 588.19 | 0.00 | 1.71 | 0.00 | 6.50 | 136.00 |
| 1836.000 | 37.00 | 589.04 | 0.01 | 2.20 | 0.00 | 6.50 | 136.00 |
| 1961.000 | 21.00 | 588.10 | 0.00 | 0.20 | 0.00 | 16.44 | 25.00 |
| 1961.000 | 21.00 | 588.10 | 0.00 | 0.20 | 0.00 | 16.44 | 25.00 |
| 1861.000 | 27.00 | 588.43 | 0.00 | 0.26 | 0.00 | 19.52 | 25.00 |
| 1861.000 | 37.00 | 589.32 | 0.00 | 0.28 | 0.00 | 20.44 | 25.00 |
| 2284.000 | 21.00 | 588.20 | 0.00 | 0.09 | 0.00 | 118.56 | 423.00 |
| 2284.000 | 21.00 | 588.20 | 0.00 | 0.09 | 0.00 | 118.56 | 423.00 |
| 2284.000 | 27.00 | 588.31 | 0.00 | 0.03 | 0.00 | 136.03 | 423.00 |
| 2284.000 | 37.00 | 589.36 | 0.00 | 0.04 | 0.00 | 176.10 | 423.00 |
| 2941.000 | 21.00 | 588.23 | 0.00 | 0.03 | 0.00 | 55.29 | 657.00 |
| 2941.000 | 21.00 | 588.23 | 0.00 | 0.03 | 0.00 | 55.29 | 657.00 |
| 2941.000 | 27.00 | 588.34 | 0.00 | 0.03 | 0.00 | 66.00 | 657.00 |
| 2941.000 | 37.00 | 589.38 | 0.00 | 0.01 | 0.00 | 56.70 | 657.00 |
| 3041.000 | 21.00 | 588.23 | 0.00 | 0.00 | 0.00 | 4.50 | 100.00 |
| 3041.000 | 21.00 | 588.23 | 0.00 | 0.00 | 0.00 | 4.50 | 100.00 |
| 3041.000 | 27.00 | 588.33 | 0.00 | 0.01 | 0.00 | 4.50 | 100.00 |
| 3041.000 | 37.00 | 589.36 | 0.00 | 0.02 | 0.00 | 4.50 | 100.00 |

PRINTED IN U.S.A.
FORM 1411-68-PRINTED BY ROTARY MANIFOLD FORMS

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 3210.000 | 21.00 | 588.60 | 0.00 | 0.38 | 0.00 | 4.50 | 169.00 |
| | 3210.000 | 21.00 | 588.60 | 0.00 | 0.38 | 0.00 | 4.50 | 169.00 |
| | 3210.000 | 27.00 | 588.97 | 0.00 | 0.44 | 0.00 | 4.50 | 169.00 |
| | 3210.000 | 37.00 | 589.95 | 0.00 | 0.99 | 0.00 | 4.50 | 169.00 |
| | 3235.000 | 21.00 | 588.77 | 0.00 | 0.16 | 0.00 | 56.00 | 25.00 |
| | 3235.000 | 21.00 | 588.77 | 0.00 | 0.16 | 0.00 | 56.00 | 25.00 |
| | 3235.000 | 27.00 | 589.16 | 0.00 | 0.19 | 0.00 | 56.00 | 25.00 |
| | 3235.000 | 37.00 | 590.09 | 0.00 | 0.13 | 0.00 | 56.00 | 25.00 |
| | 3384.000 | 21.00 | 588.78 | 0.00 | 0.02 | 0.00 | 6.30 | 149.00 |
| | 3384.000 | 21.00 | 588.78 | 0.00 | 0.02 | 0.00 | 6.30 | 149.00 |
| | 3384.000 | 27.00 | 589.17 | 0.00 | 0.01 | 0.00 | 6.30 | 149.00 |
| | 3384.000 | 37.00 | 590.09 | 0.00 | 0.01 | 0.00 | 72.01 | 149.00 |
| | 3548.000 | 21.00 | 588.85 | 0.00 | 0.07 | 0.00 | 6.30 | 164.00 |
| | 3548.000 | 21.00 | 588.85 | 0.00 | 0.07 | 0.00 | 6.30 | 164.00 |
| | 3548.000 | 27.00 | 589.29 | 0.00 | 0.12 | 0.00 | 6.30 | 164.00 |
| | 3548.000 | 37.00 | 590.10 | 0.00 | 0.01 | 0.00 | 72.01 | 164.00 |
| | 3600.000 | 21.00 | 588.89 | 0.00 | 0.03 | 0.00 | 67.73 | 52.00 |
| | 3600.000 | 21.00 | 588.89 | 0.00 | 0.03 | 0.00 | 67.73 | 52.00 |
| | 3600.000 | 27.00 | 589.33 | 0.00 | 0.04 | 0.00 | 69.35 | 52.00 |
| | 3600.000 | 37.00 | 590.11 | 0.00 | 0.01 | 0.00 | 79.37 | 52.00 |
| * | 3792.000 | 21.00 | 588.75 | 0.00 | -0.14 | 0.00 | 4.49 | 192.00 |
| * | 3792.000 | 21.00 | 588.75 | 0.00 | -0.14 | 0.00 | 4.49 | 192.00 |
| | 3792.000 | 27.00 | 589.21 | 0.00 | -0.13 | 0.00 | 4.50 | 192.00 |
| | 3792.000 | 37.00 | 590.01 | 0.00 | -0.10 | 0.00 | 4.50 | 192.00 |
| | 3883.000 | 21.00 | 588.72 | 0.00 | 0.97 | 0.00 | 4.50 | 41.00 |
| | 3883.000 | 21.00 | 588.72 | 0.00 | 0.97 | 0.00 | 4.50 | 41.00 |
| | 3883.000 | 27.00 | 589.05 | 0.00 | 0.85 | 0.00 | 4.50 | 41.00 |
| | 3883.000 | 37.00 | 590.54 | 0.00 | 1.39 | 0.00 | 4.50 | 41.00 |
| | 3883.000 | 21.00 | 588.95 | 0.00 | 0.24 | 0.00 | 7.01 | 50.00 |
| | 3883.000 | 21.00 | 588.95 | 0.00 | 0.24 | 0.00 | 7.01 | 50.00 |
| | 3883.000 | 27.00 | 589.35 | 0.00 | 0.25 | 0.00 | 82.27 | 50.00 |
| | 3883.000 | 37.00 | 590.67 | 0.00 | 0.35 | 0.00 | 88.98 | 50.00 |
| | 4337.000 | 21.00 | 588.17 | 0.00 | 0.21 | 0.00 | 55.00 | 454.00 |
| | 4337.000 | 21.00 | 588.17 | 0.00 | 0.21 | 0.00 | 55.00 | 454.00 |
| | 4337.000 | 27.00 | 588.52 | 0.00 | 0.16 | 0.00 | 55.00 | 454.00 |
| | 4337.000 | 37.00 | 588.97 | 0.00 | 0.10 | 0.00 | 55.00 | 454.00 |
| | 4437.000 | 21.00 | 588.18 | 0.00 | 0.01 | 0.00 | 5.50 | 100.00 |
| | 4437.000 | 21.00 | 588.18 | 0.00 | 0.01 | 0.00 | 5.50 | 100.00 |
| | 4437.000 | 27.00 | 588.53 | 0.00 | 0.00 | 0.00 | 5.50 | 100.00 |
| | 4437.000 | 37.00 | 588.96 | 0.00 | -0.00 | 0.00 | 5.50 | 100.00 |
| | 4479.000 | 21.00 | 588.70 | 0.00 | 0.88 | 0.00 | 5.50 | 42.00 |
| | 4479.000 | 21.00 | 588.70 | 0.00 | 0.88 | 0.00 | 5.50 | 42.00 |
| | 4479.000 | 27.00 | 589.41 | 0.00 | 0.86 | 0.00 | 5.50 | 42.00 |
| | 4479.000 | 37.00 | 590.41 | 0.00 | 0.85 | 0.00 | 5.50 | 42.00 |

PRINTED IN U.S.A.
FORM 1411-QD PRINTED BY ROTARY MANIFOLD FORMS.

| SECNO | Q | CRSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCN |
|---|---|---|---|---|---|---|---|
| 4504.000 | 21.00 | 590.73 | 0.00 | 0.03 | 0.00 | 55.00 | 25.00 |
| 4504.000 | 21.00 | 590.73 | 0.00 | 0.03 | 0.00 | 55.00 | 25.00 |
| 4504.000 | 27.00 | 591.44 | 0.00 | 0.03 | 0.00 | 55.00 | 25.00 |
| 4504.000 | 37.00 | 591.86 | 0.00 | 0.03 | 0.00 | 55.00 | 25.00 |
| | | | | | | | |
| 4853.000 | 21.00 | 590.75 | 0.00 | 0.02 | 0.00 | 101.32 | 349.00 |
| 4853.000 | 21.00 | 590.75 | 0.00 | 0.02 | 0.00 | 101.32 | 349.00 |
| 4853.000 | 27.00 | 591.45 | 0.00 | 0.01 | 0.00 | 102.93 | 349.00 |
| 4853.000 | 37.00 | 591.87 | 0.00 | 0.01 | 0.00 | 103.89 | 349.00 |
| | | | | | | | |
| 5053.000 | 21.00 | 590.75 | 0.00 | 0.01 | 0.00 | 22.49 | 200.00 |
| 5053.000 | 21.00 | 590.75 | 0.00 | 0.01 | 0.00 | 22.49 | 200.00 |
| 5053.000 | 27.00 | 591.45 | 0.00 | 0.00 | 0.00 | 24.33 | 200.00 |
| 5053.000 | 37.00 | 591.87 | 0.00 | 0.00 | 0.00 | 25.42 | 200.00 |
| | | | | | | | |
| 5253.000 | 21.00 | 590.76 | 0.00 | 0.01 | 0.00 | 4.00 | 200.00 |
| 5253.000 | 21.00 | 590.76 | 0.00 | 0.01 | 0.00 | 4.00 | 200.00 |
| 5253.000 | 27.00 | 591.46 | 0.00 | 0.00 | 0.00 | 4.00 | 200.00 |
| 5253.000 | 37.00 | 591.87 | 0.00 | 0.00 | 0.00 | 4.00 | 200.00 |
| | | | | | | | |
| 5299.000 | 21.00 | 590.78 | 0.00 | 0.04 | 0.00 | 4.00 | 46.00 |
| 5299.000 | 21.00 | 590.78 | 0.00 | 0.03 | 0.00 | 4.00 | 46.00 |
| 5299.000 | 27.00 | 591.98 | 0.00 | 0.52 | 0.00 | 4.00 | 46.00 |
| 5299.000 | 37.00 | 592.86 | 0.00 | 0.99 | 0.00 | 4.00 | 46.00 |
| | | | | | | | |
| 5349.000 | 21.00 | 590.92 | 0.01 | 0.14 | 0.00 | 12.61 | 50.00 |
| 5349.000 | 21.00 | 590.92 | 0.00 | 0.14 | 0.00 | 12.61 | 50.00 |
| 5349.000 | 27.00 | 592.03 | 0.00 | 0.03 | 0.00 | 16.51 | 50.00 |
| 5349.000 | 37.00 | 592.93 | 0.00 | 0.07 | 0.00 | 19.70 | 50.00 |
| | | | | | | | |
| 5676.000 | 21.00 | 590.92 | 0.00 | 0.07 | 0.00 | 19.46 | 327.00 |
| 5676.000 | 21.00 | 590.89 | 0.00 | 0.07 | 0.00 | 19.46 | 327.00 |
| 5676.000 | 27.00 | 592.01 | 0.00 | 0.03 | 0.00 | 22.30 | 327.00 |
| 5676.000 | 37.00 | 592.97 | 0.00 | 0.03 | 0.00 | 24.97 | 327.00 |
| | | | | | | | |
| 5776.000 | 21.00 | 590.98 | 0.00 | -0.01 | 0.00 | 3.50 | 100.00 |
| 5776.000 | 21.00 | 590.98 | 0.00 | -0.01 | 0.00 | 3.50 | 100.00 |
| 5776.000 | 27.00 | 592.06 | 0.00 | -0.02 | 0.00 | 3.50 | 100.00 |
| 5776.000 | 37.00 | 592.95 | 0.00 | -0.02 | 0.00 | 3.50 | 100.00 |
| | | | | | | | |
| 5851.000 | 21.00 | 594.35 | 0.00 | 3.37 | 0.00 | 3.50 | 75.00 |
| 5851.000 | 21.00 | 594.35 | 0.00 | 3.37 | 0.00 | 3.50 | 75.00 |
| 5851.000 | 27.00 | 597.65 | 0.00 | 5.59 | 0.00 | 3.50 | 75.00 |
| 5851.000 | 37.00 | 599.04 | 0.00 | 5.05 | 0.00 | 3.50 | 75.00 |
| | | | | | | | |
| 5876.000 | 21.00 | 594.37 | 0.00 | 0.03 | 0.00 | 52.00 | 25.00 |
| 5876.000 | 21.00 | 594.37 | 0.00 | 0.03 | 0.00 | 52.00 | 25.00 |
| 5876.000 | 27.00 | 597.66 | 0.00 | 0.02 | 0.00 | 52.00 | 25.00 |
| 5876.000 | 37.00 | 599.06 | 0.00 | 0.02 | 0.00 | 52.00 | 25.00 |
| | | | | | | | |
| 5931.000 | 21.00 | 594.37 | 0.00 | -0.00 | 0.00 | 12.37 | 55.00 |
| 5931.000 | 21.00 | 594.37 | 0.00 | -0.00 | 0.00 | 12.37 | 55.00 |
| 5931.000 | 27.00 | 597.66 | 0.00 | -0.00 | 0.00 | 45.30 | 55.00 |
| 5931.000 | 37.00 | 599.06 | 0.00 | -0.00 | 0.00 | 66.42 | 55.00 |

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| | SECNO | Q | CNSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| * | 6006.000 | 21.00 | 596.00 | 0.00 | 1.63 | 0.00 | 3.00 | 75.00 |
| * | 6006.000 | 21.00 | 596.00 | 0.00 | 1.63 | 0.00 | 3.00 | 75.00 |
| * | 6006.000 | 27.00 | 597.73 | 0.00 | 0.07 | 1.73 | 46.67 | 75.00 |
| * | 6006.000 | 37.00 | 599.86 | 0.00 | -0.00 | 3.86 | 95.56 | 75.00 |
| | 6050.000 | 50.00 | 596.01 | 0.00 | 0.01 | 0.00 | 14.07 | 44.00 |
| | 6050.000 | 75.00 | 596.00 | 0.00 | -0.00 | -0.01 | 13.92 | 44.00 |
| | 6050.000 | 85.00 | 597.71 | 0.00 | -0.02 | 1.71 | 46.41 | 44.00 |
| | 6050.000 | 120.00 | 599.86 | 0.00 | -0.00 | 3.85 | 95.57 | 44.00 |
| | 7934.000 | 50.00 | 596.15 | 0.00 | 0.14 | 0.00 | 135.00 | 1884.00 |
| | 7934.000 | 75.00 | 596.29 | 0.00 | 0.30 | 0.14 | 135.00 | 1884.00 |
| | 7934.000 | 85.00 | 597.85 | 0.00 | 0.13 | 1.70 | 135.00 | 1884.00 |
| | 7934.000 | 120.00 | 599.92 | 0.00 | 0.06 | 3.77 | 135.00 | 1884.00 |
| | 8734.000 | 50.00 | 596.17 | 0.00 | 0.12 | 0.00 | 136.00 | 800.00 |
| | 8734.000 | 75.00 | 596.33 | 0.00 | 0.04 | 0.16 | 136.00 | 800.00 |
| | 8734.000 | 85.00 | 597.86 | 0.00 | 0.01 | 1.69 | 136.00 | 800.00 |
| | 8734.000 | 120.00 | 599.92 | 0.00 | 0.01 | 3.76 | 136.00 | 800.00 |
| | 9734.000 | 50.00 | 596.25 | 0.00 | 0.00 | 0.00 | 135.00 | 1000.00 |
| | 9734.000 | 75.00 | 596.40 | 0.00 | 0.14 | 0.22 | 135.00 | 1000.00 |
| | 9734.000 | 85.00 | 597.90 | 0.00 | 0.04 | 1.64 | 135.00 | 1000.00 |
| | 9734.000 | 120.00 | 599.94 | 0.00 | 0.02 | 3.69 | 135.00 | 1000.00 |
| | 10613.000 | 50.00 | 596.50 | 0.00 | 0.24 | 0.00 | 63.04 | 879.00 |
| | 10613.000 | 75.00 | 596.83 | 0.00 | 0.36 | 0.33 | 133.00 | 879.00 |
| | 10613.000 | 85.00 | 597.96 | 0.00 | 0.07 | 1.47 | 133.00 | 879.00 |
| | 10613.000 | 120.00 | 599.96 | 0.00 | 0.02 | 3.46 | 133.00 | 879.00 |
| | 10713.000 | 50.00 | 596.55 | 0.00 | 0.06 | 0.00 | 89.78 | 100.00 |
| | 10713.000 | 75.00 | 596.91 | 0.00 | 0.00 | 0.39 | 133.00 | 100.00 |
| | 10713.000 | 85.00 | 597.97 | 0.00 | 0.01 | 1.42 | 133.00 | 100.00 |
| | 10713.000 | 120.00 | 599.96 | 0.00 | 0.00 | 3.41 | 133.00 | 100.00 |
| | 10754.000 | 50.00 | 596.13 | 0.00 | 1.57 | 0.00 | 132.37 | 41.00 |
| | 10754.000 | 75.00 | 596.23 | 0.00 | 1.33 | 0.10 | 132.40 | 41.00 |
| | 10754.000 | 85.00 | 597.30 | 0.00 | 0.23 | 0.97 | 132.42 | 41.00 |
| | 10754.000 | 120.00 | 599.99 | 0.00 | 0.01 | 1.96 | 132.39 | 41.00 |
| | 10779.000 | 50.00 | 596.13 | 0.00 | 0.00 | 0.00 | 132.37 | 25.00 |
| | 10779.000 | 75.00 | 596.24 | 0.00 | 0.00 | 0.11 | 132.40 | 25.00 |
| | 10779.000 | 85.00 | 598.30 | 0.00 | 0.00 | 0.17 | 132.42 | 25.00 |
| | 10779.000 | 120.00 | 599.99 | 0.00 | 0.00 | 1.96 | 132.39 | 25.00 |

SUMMARY OF ERRORS

CAUTION SECNO= 3792.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3792.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 3792.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3792.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

NOTE SECNO= 6006.000 PROFILE= 1 WSEL BASED ON XS CARD
NOTE SECNO= 6006.000 PROFILE= 2 WSEL BASED ON XS CARD
NOTE SECNO= 6006.000 PROFILE= 3 WSEL BASED ON XS CARD
NOTE SECNO= 6006.000 PROFILE= 4 WSEL BASED ON XS CARD

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FLOOD INSURANCE ZONE DATA FOR COOKE & GLADDING DR.-FLA

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

| SECTION NUMBER | CUMULATIVE DISTANCE | ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10¢ | 2¢ | 0.2¢ |
|---|---|---|---|---|
| 0.000 | 0. | 0.0 | 0.0 | 0.0 |
| 54.000 | 54. | -0.3 | -0.0 | 0.0 |
| 300.000 | 354. | -0.1 | -0.1 | 0.1 |
| 1300.000 | 1354. | -0.1 | -0.1 | 0.2 |
| 1600.000 | 1654. | -0.2 | -0.2 | 0.3 |
| 1700.000 | 1756. | -0.2 | -0.2 | 0.7 |
| 1836.000 | 1890. | -0.3 | -0.3 | 0.9 |
| 1841.000 | 1895. | -0.3 | -0.3 | 0.9 |
| 2284.000 | 2338. | -0.3 | -0.3 | 0.9 |
| 2941.000 | 2995. | -0.3 | -0.3 | 0.8 |
| 3041.000 | 3095. | -0.3 | -0.3 | 0.8 |
| 3210.000 | 3264. | -0.4 | -0.4 | 1.0 |
| 3255.000 | 3309. | -0.4 | -0.4 | 0.9 |
| 3384.000 | 3438. | -0.4 | -0.4 | 0.9 |
| 3548.000 | 3602. | -0.4 | -0.4 | 0.8 |
| 3600.000 | 3654. | -0.4 | -0.4 | 0.8 |
| 3792.000 | 3846. | -0.5 | -0.5 | 0.8 |
| 3835.000 | 3887. | -0.5 | -0.5 | 0.5 |
| 3883.000 | 3937. | -0.4 | -0.4 | 0.5 |
| 4357.000 | 4391. | -0.4 | -0.4 | 0.4 |
| 4437.000 | 4491. | -0.4 | -0.4 | 0.4 |
| 4479.000 | 4533. | -0.7 | -0.7 | 0.4 |
| 4504.000 | 4558. | -0.7 | -0.7 | 0.4 |
| 4853.000 | 4907. | -0.7 | -0.7 | 0.6 |
| 5055.000 | 5109. | -0.7 | -0.7 | 0.6 |
| 5253.000 | 5307. | -0.7 | -0.7 | 0.6 |
| 5299.000 | 5353. | -1.2 | -1.2 | 0.9 |
| 5349.000 | 5403. | -1.1 | -1.1 | 0.9 |
| 5676.000 | 5730. | -1.1 | -1.1 | 0.9 |
| 5776.000 | 5830. | -1.1 | -1.1 | 0.9 |
| 5851.000 | 5905. | -3.3 | -3.3 | 2.2 |
| 5876.000 | 5930. | -3.3 | -3.3 | 2.2 |
| 5951.000 | 5985. | -3.3 | -3.3 | 2.2 |
| 6006.000 | 6060. | -1.7 | -1.7 | 2.1 |
| 6050.000 | 6104. | -1.7 | -1.7 | 2.1 |
| 7934.000 | 7988. | -1.7 | -1.6 | 2.1 |
| 8734.000 | 8788. | -1.7 | -1.6 | 2.1 |
| 9716.000 | 9770. | -1.5 | -1.5 | 2.0 |
| 10613.000 | 10667. | -1.5 | -1.1 | 2.0 |
| 10713.000 | 10767. | -1.4 | -1.1 | 2.0 |
| 10754.000 | 10808. | -0.2 | -0.1 | 1.7 |
| 10779.200 | 10833. | -0.2 | -0.1 | 1.7 |
| WEIGHTED AVG FOR REACH | | -1.0 | -0.9 | 1.2 |

FHF FOR THE REACH = 010 WITH 13.73 OF THE REACH WITHIN 0.5 FEET

ZONE FOR THE REACH = A 2

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CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

| INC NO. | TOTAL LENGTH | AVG ELEVATION DATA 100 | 10 | DIFF. | WTD. AVG. | FHF | PERCENT WITHIN |
|---|---|---|---|---|---|---|---|
| | 0. | | | | SEC. | 0.000 | |
| 1 | 100. | 585.4 | 585.4 | -0.0 | -0.0 | 005 | 100. |
| | 54. | | | | SEC. | 54.000 | |
| 2 | 200. | 585.4 | 585.5 | -0.0 | -0.0 | 005 | 100. |
| 3 | 300. | 585.5 | 585.5 | -0.0 | -0.0 | 005 | 100. |
| | 54. | | | | SEC. | 300.000 | |
| 4 | 400. | 585.5 | 585.5 | -0.0 | -0.0 | 005 | 100. |
| 5 | 500. | 585.5 | 585.6 | -0.1 | -0.0 | 005 | 100. |
| 6 | 600. | 585.5 | 585.6 | -0.1 | -0.0 | 005 | 100. |
| 7 | 700. | 585.5 | 585.6 | -0.1 | -0.0 | 005 | 100. |
| 8 | 800. | 585.5 | 585.6 | -0.1 | -0.0 | 005 | 100. |
| 9 | 900. | 585.5 | 585.6 | -0.1 | -0.1 | 005 | 100. |
| 10 | 1000. | 585.5 | 585.6 | -0.1 | -0.1 | 005 | 100. |
| 11 | 1100. | 585.6 | 585.6 | -0.1 | -0.1 | 005 | 100. |
| 12 | 1200. | 585.6 | 585.7 | -0.1 | -0.1 | 005 | 100. |
| 13 | 1300. | 585.6 | 585.7 | -0.1 | -0.1 | 005 | 100. |
| | 1354. | | | | SEC. | 1300.000 | |
| 14 | 1400. | 585.6 | 585.7 | -0.1 | -0.1 | 005 | 100. |
| 15 | 1500. | 585.6 | 585.8 | -0.1 | -0.1 | 005 | 100. |
| 16 | 1600. | 585.7 | 585.8 | -0.1 | -0.1 | 005 | 100. |
| | 1654. | | | | SEC. | 1600.000 | |
| 17 | 1700. | 585.8 | 586.0 | -0.2 | -0.1 | 005 | 100. |
| | 1754. | | | | SEC. | 1700.000 | |
| 18 | 1800. | 586.4 | 586.6 | -0.2 | -0.1 | 005 | 100. |
| | 1890. | | | | SEC. | 1336.000 | |
| 19 | 1900. | 587.4 | 587.7 | -0.3 | -0.1 | 005 | 100. |
| | 1915. | | | | SEC. | 1861.000 | |
| 20 | 2000. | 588.1 | 588.4 | -0.3 | -0.1 | 005 | 100. |
| 21 | 2100. | 588.1 | 588.5 | -0.3 | -0.1 | 005 | 100. |
| 22 | 2200. | 588.2 | 588.5 | -0.3 | -0.1 | 005 | 100. |
| 23 | 2300. | 588.2 | 588.5 | -0.3 | -0.1 | 005 | 100. |
| | 2338. | | | | SEC. | 2284.000 | |
| 24 | 2400. | 588.2 | 588.5 | -0.3 | -0.1 | 005 | 100. |
| 25 | 2500. | 588.2 | 588.5 | -0.3 | -0.1 | 005 | 100. |
| 26 | 2600. | 588.2 | 588.5 | -0.3 | -0.2 | 005 | 100. |
| 27 | 2700. | 588.2 | 588.5 | -0.3 | -0.2 | 005 | 100. |
| 28 | 2800. | 588.2 | 588.5 | -0.3 | -0.2 | 005 | 100. |
| 29 | 2900. | 588.2 | 588.5 | -0.3 | -0.2 | 005 | 100. |
| | 2945. | | | | SEC. | 2841.000 | |
| 30 | 3000. | 588.2 | 588.5 | -0.3 | -0.2 | 005 | 100. |
| | 3045. | | | | SEC. | 3041.000 | |
| 31 | 3100. | 588.2 | 588.5 | -0.3 | -0.2 | 005 | 100. |
| 32 | 3200. | 588.3 | 588.7 | -0.4 | -0.2 | 005 | 100. |
| | 3264. | | | | SEC. | 3210.000 | |
| | 3289. | | | | SEC. | 3235.000 | |
| 33 | 3300. | 588.8 | 589.2 | -0.4 | -0.2 | 005 | 100. |
| 34 | 3400. | 588.8 | 589.2 | -0.4 | -0.2 | 005 | 100. |
| | 3438. | | | | SEC. | 3384.000 | |
| 35 | 3500. | 588.8 | 589.2 | -0.4 | -0.2 | 005 | 100. |
| 36 | 3600. | 588.8 | 589.3 | -0.4 | -0.2 | 005 | 100. |
| | 3652. | | | | SEC. | 3548.000 | |
| | 3654. | | | | SEC. | 3600.000 | |
| 37 | 3700. | 588.9 | 589.3 | -0.4 | -0.2 | 005 | 100. |
| 38 | 3800. | 588.9 | 589.3 | -0.5 | -0.2 | 005 | 100. |
| | 3842. | | | | SEC. | 3792.000 | |
| | 3867. | | | | SEC. | 3833.000 | |
| 39 | 3900. | 589.7 | 590.1 | -0.5 | -0.2 | 005 | 100. |
| | 3957 | | | | SEC. | 1803.000 | |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 40 | 4000. | 589.9 | 590.2 | -0.4 | -0.2 | 005 | 100. |
| | 41 | 4100. | 590.0 | 590.4 | -0.4 | -0.2 | 005 | 100. |
| | 42 | 4200. | 590.1 | 590.4 | -0.4 | -0.2 | 005 | 100. |
| | 43 | 4300. | 590.1 | 590.5 | -0.4 | -0.2 | 005 | 100. |
| | | 4391. | | | | SEC. | 4337.000 | |
| | 44 | 4400. | 590.1 | 590.5 | -0.4 | -0.2 | 005 | 100. |
| | | 4491. | | | | SEC. | 4437.000 | |
| | 45 | 4500. | 590.2 | 590.6 | -0.4 | -0.2 | 005 | 100. |
| | | 4533. | | | | SEC. | 4479.000 | |
| | | 4558. | | | | SEC. | 4504.000 | |
| | 46 | 4600. | 590.7 | 591.4 | -0.7 | -0.3 | 005 | 100. |
| | 47 | 4700. | 590.7 | 591.4 | -0.7 | -0.3 | 005 | 100. |
| | 48 | 4800. | 590.7 | 591.4 | -0.7 | -0.3 | 005 | 100. |
| | 49 | 4900. | 590.7 | 591.4 | -0.7 | -0.3 | 005 | 100. |
| | | 4907. | | | | SEC. | 4853.000 | |
| | 50 | 5000. | 590.7 | 591.5 | -0.7 | -0.3 | 005 | 100. |
| | 51 | 5100. | 590.8 | 591.5 | -0.7 | -0.3 | 005 | 100. |
| | | 5107. | | | | SEC. | 5053.000 | |
| | 52 | 5200. | 590.8 | 591.5 | -0.7 | -0.3 | 005 | 100. |
| | 53 | 5300. | 590.8 | 591.5 | -0.7 | -0.3 | 005 | 100. |
| | | 5307. | | | | SEC. | 5253.000 | |
| | | 5355. | | | | SEC. | 5299.000 | |
| | 54 | 5400. | 590.4 | 592.0 | -1.2 | -0.3 | 005 | 98. |
| | | 5439. | | | | SEC. | 5349.000 | |
| | 55 | 5500. | 590.9 | 592.0 | -1.1 | -0.3 | 005 | 96. |
| | 56 | 5600. | 591.0 | 592.1 | -1.1 | -0.4 | 005 | 95. |
| | 57 | 5700. | 591.0 | 592.1 | -1.1 | -0.4 | 005 | 93. |
| | | 5730. | | | | SEC. | 5676.000 | |
| | 58 | 5800. | 591.0 | 592.1 | -1.1 | -0.4 | 005 | 91. |
| | | 5850. | | | | SEC. | 5774.000 | |
| | 59 | 5900. | 592.6 | 594.7 | -2.1 | -0.4 | 005 | 90. |
| | | 5905. | | | | SEC. | 5851.000 | |
| | | 5950. | | | | SEC. | 5876.000 | |
| | | 5985. | | | | SEC. | 5931.000 | |
| | 60 | 6000. | 594.5 | 597.7 | -3.1 | -0.5 | 005 | 88. |
| | | 6050. | | | | SEC. | 6006.000 | |
| | 61 | 6100. | 595.4 | 597.7 | -2.3 | -0.5 | 005 | 87. |
| | | 6104. | | | | SEC. | 6050.000 | |
| | 62 | 6200. | 596.0 | 597.7 | -1.7 | -0.5 | 005 | 85. |
| | 63 | 6300. | 596.0 | 597.7 | -1.7 | -0.5 | 005 | 81. |
| | 64 | 6400. | 596.0 | 597.7 | -1.7 | -0.5 | 005 | 78. |
| | 65 | 6500. | 596.0 | 597.7 | -1.7 | -0.6 | 005 | 72. |
| | 66 | 6600. | 596.0 | 597.7 | -1.7 | -0.6 | 005 | 67. |
| | 67 | 6700. | 596.0 | 597.8 | -1.7 | -0.6 | 005 | 64. |
| | 68 | 6800. | 596.1 | 597.8 | -1.7 | -0.6 | 005 | 63. |
| | 69 | 6900. | 596.1 | 597.8 | -1.7 | -0.6 | 005 | 61. |
| | 70 | 7000. | 596.1 | 597.8 | -1.7 | -0.6 | 005 | 59. |
| | 71 | 7100. | 596.1 | 597.8 | -1.7 | -0.7 | 005 | 58. |
| | 72 | 7200. | 596.1 | 597.8 | -1.7 | -0.7 | 005 | 57. |
| | 73 | 7300. | 596.1 | 597.8 | -1.7 | -0.7 | 005 | 56. |
| | 74 | 7400. | 596.1 | 597.8 | -1.7 | -0.7 | 005 | 55. |
| | 75 | 7500. | 596.1 | 597.8 | -1.7 | -0.7 | 005 | 53. |
| | 76 | 7600. | 596.1 | 597.8 | -1.7 | -0.7 | 005 | 53. |
| | 77 | 7700. | 596.1 | 597.8 | -1.7 | -0.7 | 005 | 52. |
| | 78 | 7800. | 596.1 | 597.8 | -1.7 | -0.8 | 010 | 51. |
| | 79 | 7900. | 596.1 | 597.8 | -1.7 | -0.8 | 010 | 51. |
| | | 7983. | | | | SEC. | 7934.000 | |
| | 80 | 8000. | 596.1 | 597.8 | -1.7 | -0.8 | 010 | 49. |
| | 81 | 8100. | 596.2 | 597.8 | -1.7 | -0.8 | 010 | 48. |
| | 82 | 8200. | 596.2 | 597.8 | -1.7 | -0.8 | 010 | 48. |
| | 83 | 8300. | 596.2 | 597.9 | -1.7 | -0.8 | 010 | 46. |
| | 84 | 8400. | 596.2 | 597.9 | -1.7 | -0.8 | 010 | 32. |
| | 85 | 8500. | 596.2 | 597.9 | -1.7 | -0.8 | 010 | 30. |
| | 86 | 8600. | 596.2 | 597.9 | -1.7 | -0.8 | 010 | 30. |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 87 | 8700. | 596.2 | 597.9 | -1.7 | -0.9 | 010 | 29. |
| | 8780. | | | | SEC. | 8734.000 | |
| 88 | 8800. | 596.2 | 597.9 | -1.7 | -0.9 | 010 | 20. |
| 89 | 8900. | 596.2 | 597.9 | -1.7 | -0.9 | 010 | 25. |
| 90 | 9000. | 596.2 | 597.9 | -1.7 | -0.9 | 010 | 23. |
| 91 | 9100. | 596.2 | 597.9 | -1.7 | -0.9 | 010 | 22. |
| 92 | 9200. | 596.2 | 597.9 | -1.7 | -0.9 | 010 | 18. |
| 93 | 9300. | 596.2 | 597.9 | -1.7 | -0.9 | 010 | 17. |
| 94 | 9400. | 596.2 | 597.9 | -1.7 | -0.9 | 010 | 17. |
| 95 | 9500. | 596.2 | 597.9 | -1.7 | -0.9 | 010 | 17. |
| 96 | 9600. | 596.2 | 597.9 | -1.7 | -0.9 | 010 | 16. |
| 97 | 9700. | 596.2 | 597.9 | -1.6 | -0.9 | 010 | 15. |
| | 9788. | | | | SEC. | 9734.000 | |
| 98 | 9800. | 596.3 | 597.9 | -1.6 | -0.9 | 010 | 15. |
| 99 | 9900. | 596.3 | 597.9 | -1.6 | -0.9 | 010 | 14. |
| 100 | 10000. | 596.3 | 597.9 | -1.6 | -1.0 | 010 | 13. |
| 101 | 10100. | 596.3 | 597.9 | -1.6 | -1.0 | 010 | 13. |
| 102 | 10200. | 596.4 | 597.9 | -1.6 | -1.0 | 010 | 13. |
| 103 | 10300. | 596.4 | 597.9 | -1.5 | -1.0 | 010 | 13. |
| 104 | 10400. | 596.4 | 597.9 | -1.5 | -1.0 | 010 | 13. |
| 105 | 10500. | 596.4 | 597.9 | -1.5 | -1.0 | 010 | 12. |
| 106 | 10600. | 596.5 | 598.0 | -1.5 | -1.0 | 010 | 12. |
| | 10687. | | | | SEC. | 10613.000 | |
| 107 | 10700. | 596.5 | 598.0 | -1.5 | -1.0 | 010 | 16. |
| | 10797. | | | | SEC. | 10713.000 | |
| 108 | 10800. | 597.2 | 598.1 | -0.9 | -1.0 | 010 | 15. |
| | 10808. | | | | SEC. | 10754.000 | |
| | 10833. | | | | SEC. | 10779.000 | |

THIS REACH CAN BE SUBDIVIDED BY INC NO. TO MEET FIA REQUIREMENTS
INPUT 20N WHERE N IS THE NUMBER OF REACHES AND THEN INPUT THE END
OF EACH REACH BY INC NO. FOR EXAMPLE: 202 63 100
A NEGATIVE INC NO. WILL SUPPRESS INTERMEDIATE INC OUTPUT.

PRINTED IN U.S.A.
FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Cook and Gladding Drain

Rating

4) DOCUMENT TYPE: Curve

00BREAK00

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -- 01
  MODIFICATION -- 50,51,52
**************************************************
```

HUD 2009 07

9/13/79

T1OVERLAND FLOW RATING CURVE
T2COOKE & GLADDING DRAIN TO SILVER CREEK
T3 OVERLAND #1. RATING CURVE.

Appears to be 100 yr. flp. on Cooke, Gladding, reasonable ✓

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 2. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 597.800 | 0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| J5 | LPRNT | NUMSEC | ********REQUESTED SECTION NUMBERS******** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | -10.000 | -10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| QT | | 9.000 | 50.000 | 100.000 | 150.000 | 200.000 | 250.000 | 300.000 | 350.000 | 400.000 | 500.000 |
| NC | | 0.250 | 0.250 | 0.250 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | | 2.000 | 5.000 | 1.000 | 1200.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| GR | | 999.000 | 1.000 | 600.000 | 100.000 | 597.000 | 550.000 | 600.000 | 1000.000 | 999.000 | 1200.000 |
| X1 | | 3.000 | 5.000 | 1.000 | 450.000 | 350.000 | 700.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| GR | | 999.000 | 1.000 | 600.000 | 50.000 | 598.000 | 200.000 | 600.000 | 300.000 | 999.000 | 450.000 |
| X1 | | 4.000 | 8.000 | 250.000 | 253.000 | 1050.000 | 1250.000 | 1150.000 | 0.000 | 0.000 | 0.000 |
| X3 | | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 598.500 | 598.500 | 0.000 |
| GR | | 1000.000 | 1.000 | 598.000 | 1.000 | 598.000 | 250.000 | 592.000 | 250.000 | 592.000 | 253.000 |
| GR | | 598.000 | 253.000 | 598.000 | 800.000 | 1000.000 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | | 1.000 | 2.170 | 3.000 | 800.000 | 2.500 | 0.100 | 7.000 | 0.000 | 592.000 | 592.000 |
| X1 | | 5.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X2 | | 0.000 | 0.000 | 1.000 | 595.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 600.000 | 600.000 | 0.000 |
| EJ | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********
HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

OVERLAND #1, RATING CURV

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2.000 | 500.00 | 0.00 | 0.00 | 597.00 | 50.00 | 597.80 | 0.00 | 597.80 | 260.43 | 0.52 | 96.01 | 3.10 |
| | 2.000 | 500.00 | 0.00 | 0.00 | 597.00 | 100.00 | 597.80 | 0.00 | 597.82 | 1041.73 | 1.04 | 96.01 | 3.10 |
| | 2.000 | 500.00 | 0.00 | 0.00 | 597.00 | 150.00 | 597.80 | 0.00 | 597.84 | 2343.90 | 1.56 | 96.01 | 3.10 |
| | 2.000 | 500.00 | 0.00 | 0.00 | 597.00 | 200.00 | 597.80 | 0.00 | 597.87 | 4166.93 | 2.08 | 96.01 | 3.10 |
| | 2.000 | 500.00 | 0.00 | 0.00 | 597.00 | 250.00 | 597.80 | 0.00 | 597.91 | 6510.83 | 2.60 | 96.01 | 3.10 |
| | 2.000 | 500.00 | 0.00 | 0.00 | 597.00 | 300.00 | 597.80 | 0.00 | 597.95 | 9375.60 | 3.12 | 96.01 | 3.10 |
| | 2.000 | 500.00 | 0.00 | 0.00 | 597.00 | 350.00 | 597.80 | 597.80 | 598.01 | 12555.54 | 3.62 | 96.60 | 3.12 |
| | 2.000 | 500.00 | 0.00 | 0.00 | 597.00 | 500.00 | 597.93 | 597.93 | 598.16 | 11740.43 | 3.86 | 129.44 | 4.61 |
| | 3.000 | 500.00 | 0.00 | 0.00 | 598.00 | 50.00 | 599.87 | 0.00 | 599.87 | 16.08 | 0.23 | 219.21 | 12.47 |
| | 3.000 | 500.00 | 0.00 | 0.00 | 598.00 | 100.00 | 600.37 | 0.00 | 600.37 | 16.09 | 0.29 | 341.46 | 24.93 |
| | 3.000 | 500.00 | 0.00 | 0.00 | 598.00 | 150.00 | 600.71 | 0.00 | 600.72 | 16.87 | 0.35 | 429.82 | 36.52 |
| | 3.000 | 500.00 | 0.00 | 0.00 | 598.00 | 200.00 | 601.01 | 0.00 | 601.01 | 17.72 | 0.40 | 503.86 | 47.52 |
| | 3.000 | 500.00 | 0.00 | 0.00 | 598.00 | 250.00 | 601.27 | 0.00 | 601.28 | 18.54 | 0.44 | 568.76 | 58.07 |
| | 3.000 | 500.00 | 0.00 | 0.00 | 598.00 | 300.00 | 601.52 | 599.07 | 601.52 | 19.26 | 0.48 | 627.70 | 68.35 |
| | 3.000 | 500.00 | 0.00 | 0.00 | 598.00 | 350.00 | 601.73 | 599.14 | 601.73 | 19.82 | 0.51 | 683.18 | 78.62 |
| | 3.000 | 500.00 | 0.00 | 0.00 | 598.00 | 500.00 | 602.28 | 599.31 | 602.28 | 22.07 | 0.61 | 820.81 | 106.45 |
| | 4.000 | 1150.00 | 0.00 | 0.00 | 592.00 | 50.00 | 599.92 | 0.00 | 599.92 | 0.12 | 0.03 | 1550.85 | 141.62 |
| | 4.000 | 1150.00 | 0.00 | 0.00 | 592.00 | 100.00 | 600.45 | 0.00 | 600.45 | 0.22 | 0.04 | 1978.24 | 212.44 |
| | 4.000 | 1150.00 | 0.00 | 0.00 | 592.00 | 150.00 | 600.83 | 0.00 | 600.83 | 0.31 | 0.05 | 2280.40 | 269.19 |
| | 4.000 | 1150.00 | 0.00 | 0.00 | 592.00 | 200.00 | 601.15 | 0.00 | 601.15 | 0.39 | 0.06 | 2533.60 | 320.78 |
| | 4.000 | 1150.00 | 0.00 | 0.00 | 592.00 | 250.00 | 601.44 | 0.00 | 601.44 | 0.45 | 0.06 | 2763.78 | 370.75 |
| | 4.000 | 1150.00 | 0.00 | 0.00 | 592.00 | 300.00 | 601.70 | 598.53 | 601.70 | 0.51 | 0.07 | 2974.46 | 418.96 |
| | 4.000 | 500.00 | 0.00 | 0.00 | 597.00 | 400.00 | 597.84 | 597.84 | 598.06 | 12532.08 | 3.74 | 106.85 | 3.57 |
| | 4.000 | 1150.00 | 0.00 | 0.00 | 592.00 | 500.00 | 602.53 | 598.56 | 602.53 | 0.73 | 0.08 | 3636.91 | 585.36 |
| | 5.000 | 100.00 | 600.00 | 595.00 | 592.00 | 50.00 | 600.06 | 0.00 | 600.06 | 0.10 | 0.03 | 1664.38 | 159.31 |
| | 5.000 | 100.00 | 600.00 | 595.00 | 592.00 | 100.00 | 600.46 | 0.00 | 600.46 | 0.22 | 0.04 | 1981.75 | 213.06 |
| * | 5.000 | 100.00 | 600.00 | 595.00 | 592.00 | 150.00 | 600.84 | 0.00 | 600.84 | 0.31 | 0.05 | 2285.28 | 270.15 |
| * | 5.000 | 100.00 | 600.00 | 595.00 | 592.00 | 200.00 | 601.16 | 0.00 | 601.16 | 0.38 | 0.06 | 2541.40 | 322.42 |
| | 5.000 | 100.00 | 600.00 | 595.00 | 592.00 | 250.00 | 601.45 | 0.00 | 601.45 | 0.45 | 0.06 | 2772.56 | 372.71 |
| | 5.000 | 100.00 | 600.00 | 595.00 | 592.00 | 300.00 | 601.71 | 0.00 | 601.71 | 0.51 | 0.07 | 2984.01 | 421.20 |
| | 5.000 | 500.00 | 0.00 | 0.00 | 598.00 | 400.00 | 601.93 | 599.20 | 601.93 | 20.60 | 0.55 | 732.06 | 88.12 |
| | 5.000 | 100.00 | 600.00 | 595.00 | 592.00 | 500.00 | 602.55 | 0.00 | 602.55 | 0.72 | 0.08 | 3649.78 | 568.81 |

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR - 01
  MODIFICATION -  50,51,52
**************************************************
```

1140 200907
9/13/79

```
C
T1      OVERLAND FLOW RATING CURVE BETWEEN HURON RIVER & COOKE & GLADDING.
T2      FLATROCK FIS
T3      OVERLAND FL.RATING CURVE.
```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 2. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 596.000 | 0.000 |

50yr on Huron?

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| J3 | LPRNT | NUMSEC | ********REQUESTED SECTION NUMBERS******** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | -10.000 | -10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| QT | 9.000 | 10.000 | 25.000 | 50.000 | 75.000 | 100.000 | 150.000 | 175.000 | 200.000 | 250.000 | |
| NC | 0.200 | 0.200 | 0.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

```
        HURON RIVER DRIVE.
```

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2.000 | 6.000 | 1.000 | 2051.000 | 400.000 | 1200.000 | 900.000 | 0.000 | 0.000 | 0.000 | |
| GR | 605.000 | 1.000 | 600.000 | 400.000 | 595.000 | 800.000 | 595.000 | 1800.000 | 596.000 | 2050.000 | |
| GR | 605.000 | 2051.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

```
        CONTROL SECTION FOR OVERLAND FLOW RATING CURVE.
```

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3.000 | 5.000 | 1.000 | 2200.000 | 350.000 | 350.000 | 350.000 | 0.000 | 0.000 | 0.000 | |
| GR | 605.000 | 1.000 | 600.000 | 700.000 | 595.000 | 1350.000 | 595.000 | 2150.000 | 605.000 | 2200.000 | |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

FORM 1411 GB PRINTED BY ROTARY KIMFOLD FOR IS

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

OVERLAND FL,RATING CURVE

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 900.00 | 0.00 | 0.00 | 595.00 | 10.00 | 596.00 | 0.00 | 596.00 | 0.02 | 0.01 | 1165.00 |
| 2.000 | 900.00 | 0.00 | 0.00 | 595.00 | 25.00 | 596.00 | 0.00 | 596.00 | 0.10 | 0.02 | 1165.00 |
| 2.000 | 900.00 | 0.00 | 0.00 | 595.00 | 50.00 | 596.00 | 0.00 | 596.00 | 0.40 | 0.04 | 1165.00 |
| 2.000 | 900.00 | 0.00 | 0.00 | 595.00 | 75.00 | 596.00 | 0.00 | 596.00 | 0.90 | 0.06 | 1165.00 |
| 2.000 | 900.00 | 0.00 | 0.00 | 595.00 | 100.00 | 596.00 | 0.00 | 596.00 | 1.59 | 0.09 | 1165.00 |
| 2.000 | 900.00 | 0.00 | 0.00 | 595.00 | 150.00 | 596.00 | 0.00 | 596.00 | 3.58 | 0.13 | 1165.00 |
| 2.000 | 900.00 | 0.00 | 0.00 | 595.00 | 175.00 | 596.00 | 0.00 | 596.00 | 4.88 | 0.15 | 1165.00 |
| 2.000 | 900.00 | 0.00 | 0.00 | 595.00 | 200.00 | 596.00 | 0.00 | 596.00 | 6.37 | 0.17 | 1165.00 |
| 2.000 | 900.00 | 0.00 | 0.00 | 595.00 | 250.00 | 596.00 | 0.00 | 596.00 | 9.95 | 0.21 | 1165.00 |
| 3.000 | 350.00 | 0.00 | 0.00 | 595.00 | 10.00 | 596.00 | 0.00 | 596.00 | 0.03 | 0.01 | 867.96 |
| 3.000 | 350.00 | 0.00 | 0.00 | 595.00 | 25.00 | 596.00 | 0.00 | 596.00 | 0.16 | 0.03 | 870.70 |
| 3.000 | 350.00 | 0.00 | 0.00 | 595.00 | 50.00 | 596.02 | 0.00 | 596.02 | 0.63 | 0.06 | 880.52 |
| 3.000 | 350.00 | 0.00 | 0.00 | 595.00 | 75.00 | 596.04 | 0.00 | 596.04 | 1.35 | 0.08 | 896.78 |
| 3.000 | 350.00 | 0.00 | 0.00 | 595.00 | 100.00 | 596.06 | 0.00 | 596.07 | 2.21 | 0.11 | 919.76 |
| 3.000 | 350.00 | 0.00 | 0.00 | 595.00 | 150.00 | 596.13 | 0.00 | 596.13 | 4.00 | 0.15 | 985.89 |
| 3.000 | 350.00 | 0.00 | 0.00 | 595.00 | 175.00 | 596.17 | 0.00 | 596.17 | 4.76 | 0.17 | 1029.03 |
| 3.000 | 350.00 | 0.00 | 0.00 | 595.00 | 200.00 | 596.21 | 0.00 | 596.21 | 5.50 | 0.19 | 1070.32 |
| 3.000 | 350.00 | 0.00 | 0.00 | 595.00 | 250.00 | 596.29 | 0.00 | 596.29 | 6.99 | 0.22 | 1143.65 |

```
**************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
   ERROR CORR -  U1
   MODIFICATION -  50,51,52
**************************************************
```

Cooke + Gladding Rating Curve

```
C
T1CITY OF FLAT ROCK FIS HUD 2009 07 HURON RIVER WITHIN FLAT ROCK
T2 Q10YR#6480 50#8750 100#10390 500#12100 CFS   1968 STORM PROFILE Q# 7700 CFS.
T3       HURON R.-FLAT ROCK                FROM ROCKWOOD FIS

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
         0.       2.        0.        0.  0.000000      0.00      0.0       0.   585.600     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J5  LPRNT      NUMSEC                    ********REQUESTED SECTION NUMBERS********
    -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT    5.000    70.000    85.000   100.000   120.000   120.000     0.000     0.000     0.000     0.000
NC    0.060     0.060     0.035     0.300     0.500     0.000     0.000     0.000     0.000     0.000
ET    0.000     0.000     0.000     0.000     9.100     0.000     0.000     0.000     1.000   151.000


      D/S FACE OF HURON RIVER DRIVE.

X1    0.000     8.000    75.000    79.500     0.000     0.000     0.000     0.000     0.000     0.000
X3   10.000     0.000     0.000     0.000     0.000     0.000     0.000   586.000   586.000     0.000
GR  597.000     0.000   588.000     1.000   588.000    75.000   581.000    75.000   581.000    79.500
GR  588.000    79.500   588.000   150.000   597.000   151.000     0.000     0.000     0.000     0.000
SB    0.000     1.500     3.000     0.000     3.530     0.000    15.900     0.000   581.100   581.000
NC    0.060     0.080     0.035     0.000     0.000     0.000     0.000     0.000     0.000     0.000


                U/S FACE HURON RIVER DRIVE

X1   54.000    14.000    88.000    92.500    54.000    54.000    54.000     0.000     0.000     0.000
X2    0.000     0.000     1.000   585.600   588.000     0.000     0.000     0.000     0.000     0.000
X3   10.000     0.000     0.000     0.000     0.000     0.000     0.000   588.000   588.000     0.000
BT   12.000     0.000   597.000     0.000     1.000   588.000     0.000    35.000   588.000     0.000
BT   36.000   597.000     0.000    66.000   597.000     0.000    67.000   588.000     0.000    88.000
BT  588.000   583.350    89.000   588.000   585.600    91.500   588.000   585.600    92.500   588.000
BT  583.350   175.000   588.000     0.000   176.000   597.000     0.000     0.000     0.000     0.000
GR  597.000     0.000   588.000     1.000   585.700    35.000   597.000    36.000   597.000    66.000
GR  585.300    67.000   585.000    81.000   583.350    88.000   581.100    89.000   581.100    91.500
GR  583.350    92.500   585.000   100.000   588.000   175.000   597.000   176.000     0.000     0.000
ET    0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000     0.000


      VALLEY SECTION BASED ON FIELD BOOK SECTION 10434

X1  300.000    21.000   297.000   303.000   300.000   300.000   300.000     0.000     0.000     0.000
GR  597.000     0.000   590.000     0.100   589.000   110.000   596.000   110.100   596.000   139.900
GR  589.000   140.000   588.660   158.000   587.660   200.000   586.460   290.000   582.260   297.000
GR  581.510   300.000   582.360   303.000   586.010   310.000   587.360   318.000   587.560   350.000
GR  595.500   350.100   595.500   369.900   587.600   370.000   588.000   390.000   596.000   390.100
GR  596.000   420.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0.000 | 0.000 | 0.000 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECTION 9434

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1300.000 | 17.000 | 276.000 | 284.000 | 1000.000 | 1000.000 | 1000.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 600.000 | 50.000 | 608.000 | 50.100 | 608.000 | 79.900 | 599.940 | 80.000 |
| GR | 593.490 | 180.000 | 585.810 | 273.000 | 583.660 | 276.000 | 583.010 | 280.000 | 583.660 | 284.000 |
| GR | 585.460 | 287.000 | 586.310 | 365.000 | 588.510 | 401.000 | 596.500 | 401.100 | 596.500 | 431.000 |
| GR | 588.600 | 431.100 | 590.000 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.080 | 0.080 | 0.050 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X@SECTION D/S GIBRALTAR RD.BASED ON FIELD BOOK " QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1600.000 | 17.000 | 297.500 | 302.100 | 300.000 | 300.000 | 300.000 | 0.000 | 0.000 | 0.000 |
| GR | 604.000 | 0.000 | 596.000 | 0.100 | 595.400 | 80.000 | 603.400 | 80.100 | 603.400 | 110.000 |
| GR | 595.000 | 110.100 | 593.000 | 289.500 | 584.500 | 297.500 | 583.290 | 300.000 | 584.500 | 302.100 |
| GR | 589.500 | 313.500 | 590.000 | 400.000 | 590.500 | 450.000 | 598.500 | 450.100 | 598.500 | 480.000 |
| GR | 592.000 | 480.100 | 590.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 600.000 |

D/S FACE OF GIBRALTAR RD. REPEATED SECT 1600

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1700.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | [illegible] |
| X3 | 10.000 | 585.140 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.000 | 590.000 | [illegible] |
| SB | 0.000 | 2.980 | 3.000 | 0.000 | 3.590 | 0.000 | 9.540 | 0.000 | 586.240 | 58[illegible].140 |
| NC | 0.000 | 0.000 | 0.045 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | [illegible] |

U/S FACE OF GIBRALTAR RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1836.000 | 16.000 | 295.000 | 299.600 | 136.000 | 136.000 | 136.000 | 0.000 | 0.000 | [illegible] |
| X2 | 0.000 | 0.000 | 1.000 | 588.900 | 592.800 | 0.000 | 0.000 | 0.000 | 0.000 | [illegible] |
| X3 | 10.000 | 586.240 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 593.400 | 593.400 | [illegible] |
| BT | 16.000 | 0.000 | 596.000 | 0.000 | 125.000 | 595.000 | 0.000 | 282.000 | 593.300 | [illegible] |
| BT | 295.000 | 592.800 | 586.900 | 295.300 | 592.800 | 587.900 | 295.800 | 592.800 | 588.500 | 29[illegible] |
| BT | 592.800 | 588.700 | 297.300 | 592.800 | 588.900 | 298.100 | 592.800 | 588.700 | 298.800 | 59[illegible] |
| BT | 588.500 | 299.400 | 592.800 | 587.900 | 299.600 | 592.800 | 586.900 | 323.000 | 593.000 | [illegible] |
| BT | 450.000 | 593.300 | 0.000 | 600.000 | 593.500 | 0.000 | 650.000 | 594.000 | 0.000 | [illegible] |
| GR | 596.000 | 0.000 | 595.000 | 125.000 | 593.300 | 282.000 | 586.900 | 295.000 | 585.700 | 29[illegible] |
| GR | 585.000 | 295.800 | 584.700 | 296.500 | 584.390 | 297.300 | 584.700 | 298.100 | 585.000 | 29[illegible] |
| GR | 585.700 | 299.400 | 586.900 | 299.600 | 589.900 | 323.000 | 590.000 | 450.000 | 592.000 | 60[illegible] |
| GR | 594.000 | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | [illegible] |
| NC | 0.000 | 0.000 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | [illegible] |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | [illegible] |

X@SECT.U/S OF GIBRALTAR RD. REPEATED SECT.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1861.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | [illegible] |
| X3 | 0.000 | 0.000 | 0.000 | 270.000 | 0.000 | 325.000 | 0.000 | 0.000 | 0.000 | [illegible] |
| NC | 0.000 | 0.000 | 0.000 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | [illegible] |

VALLEY SECTION BASED ON FIELD BOOK SECTION 8450

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2284.000 | 11.000 | 293.000 | 307.000 | 423.000 | 423.000 | 423.000 | 0.000 | 0.000 | 0.[illegible] |
| GR | 598.970 | 0.000 | 598.620 | 100.000 | 590.890 | 200.000 | 586.500 | 289.000 | 585.600 | 293.[illegible] |
| GR | 585.500 | 300.000 | 585.300 | 307.000 | 586.600 | 312.000 | 588.900 | 400.000 | 595.500 | 500.[illegible] |
| GR | 596.500 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.[illegible] |

100 FEET D/S OF 54" CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2941.000 | 15.000 | 214.000 | 224.000 | 657.000 | 657.000 | 657.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 376.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 90.000 | 590.000 | 160.000 | 587.200 | 210.000 | 585.900 | 214.000 |
| GR | 585.500 | 217.250 | 585.500 | 220.750 | 585.900 | 224.000 | 587.000 | 228.000 | 587.500 | 350.000 |
| GR | 595.000 | 350.100 | 595.000 | 380.000 | 587.600 | 380.100 | 590.000 | 400.000 | 592.000 | 500.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 352.000 |

D/S FACE OF 54" CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3041.000 | 12.000 | 214.000 | 218.500 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 585.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 589.500 | 589.500 | 0.000 |
| GR | 600.000 | 0.000 | 600.000 | 160.000 | 590.000 | 165.000 | 587.200 | 210.000 | 585.550 | 214.000 |
| GR | 583.300 | 215.000 | 583.300 | 217.500 | 585.550 | 218.500 | 587.000 | 228.000 | 587.500 | 350.000 |
| GR | 590.000 | 351.000 | 595.000 | 352.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 3.010 | 3.000 | 0.000 | 3.160 | 0.000 | 7.900 | 0.000 | 586.700 | 585.300 |

U/S END 54) CULVERT REPEATED SECT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3210.000 | 12.000 | 214.000 | 218.500 | 169.000 | 169.000 | 169.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 589.200 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 586.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.000 | 590.000 | 0.000 |
| BT | 9.000 | 0.000 | 600.000 | 0.000 | 160.000 | 600.000 | 0.000 | 165.000 | 590.000 | 0.000 |
| BT | 214.000 | 590.000 | 586.950 | 215.000 | 590.000 | 589.200 | 217.500 | 590.000 | 589.200 | 218.500 |
| BT | 590.000 | 586.950 | 351.000 | 590.000 | 0.000 | 352.000 | 595.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 600.000 | 160.000 | 590.000 | 165.000 | 587.200 | 210.000 | 586.950 | 214.000 |
| GR | 584.700 | 215.000 | 584.700 | 217.500 | 586.850 | 218.500 | 587.000 | 228.000 | 587.500 | 350.000 |
| GR | 590.000 | 351.000 | 595.000 | 352.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X@SECTION BETWEEN 54)CULVERT " SHEEKS RD CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3255.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 176.000 | 405.000 |

D/S END SHEEKS RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3584.000 | 11.000 | 257.000 | 263.300 | 149.000 | 149.000 | 149.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 589.000 | 589.000 | 0.000 |
| GR | 600.000 | 232.000 | 600.000 | 232.000 | 590.000 | 233.000 | 588.600 | 255.000 | 586.100 | 257.000 |
| GR | 586.100 | 259.000 | 586.100 | 261.500 | 586.100 | 263.300 | 588.600 | 265.000 | 589.500 | 405.000 |
| GR | 600.000 | 405.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 3.320 | 3.000 | 0.000 | 3.820 | 0.000 | 15.800 | 1.000 | 586.100 | 586.100 |

U/S FACE OF SHEEKS RD CULVERT (76"X 48" ELLIPTICAL CONCRETE)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3548.000 | 0.000 | 0.000 | 0.000 | 164.000 | 164.000 | 164.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 588.600 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.000 | 590.000 | 0.000 |
| BT | 12.000 | 232.000 | 600.000 | 0.000 | 232.000 | 600.000 | 0.000 | 233.000 | 590.000 | 0.000 |
| BT | 255.000 | 590.000 | 0.000 | 257.000 | 590.000 | 586.100 | 257.000 | 590.000 | 587.400 | 259.000 |
| BT | 590.000 | 588.600 | 261.500 | 590.000 | 588.600 | 263.300 | 590.000 | 587.400 | 263.300 | 590.000 |
| BT | 586.100 | 405.000 | 589.500 | 0.000 | 405.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X@SECT. U/S OF SHEEKS RD.AND D/S OF SENECA RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3600.000 | 9.000 | 196.000 | 204.000 | 52.000 | 52.000 | 52.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 100.000 | 589.500 | 185.000 | 586.500 | 196.000 | 586.400 | 200.000 |
| GR | 586.500 | 204.000 | 587.500 | 210.000 | 588.300 | 334.000 | 600.000 | 334.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 310.000 |

D/S END SENECA RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3792.000 | 10.000 | 223.000 | 227.500 | 192.000 | 192.000 | 192.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 591.300 | 590.100 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 100.000 | 591.000 | 221.000 | 588.750 | 223.000 | 587.700 | 224.000 |
| GR | 587.700 | 227.000 | 588.750 | 227.500 | 590.000 | 229.000 | 590.500 | 310.000 | 600.000 | 310.000 |
| SB | 0.000 | 1.630 | 3.000 | 0.000 | 2.710 | 0.000 | 12.200 | 0.000 | 587.700 | 587.700 |

U/S FACE OF SENECA RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3833.000 | 0.000 | 0.000 | 0.000 | 41.000 | 41.000 | 41.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 591.000 | 590.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 591.800 | 590.500 | 0.000 |
| BT | 8.000 | 0.000 | 600.000 | 0.000 | 100.000 | 595.000 | 0.000 | 223.000 | 591.800 | 588.750 |
| BT | 224.000 | 591.800 | 591.000 | 226.500 | 591.800 | 591.000 | 227.500 | 591.800 | 588.750 | 310.000 |
| BT | 590.500 | 0.000 | 310.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X@SECT. U/S OF SENECA RD REPEATED SECT. 3833.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3883.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |

X@SECT. D/S OF COOKE RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4437.000 | 11.000 | 295.500 | 304.500 | 350.000 | 500.000 | 454.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 130.000 | 590.000 | 200.000 | 589.170 | 292.500 | 587.500 | 295.500 |
| GR | 587.500 | 304.500 | 589.670 | 307.500 | 590.000 | 350.000 | 591.000 | 500.000 | 591.500 | 600.000 |
| GR | 593.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 526.000 |

D/S FACE OF COOKE RD CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4437.000 | 16.000 | 293.000 | 298.500 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.500 | 590.500 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 130.000 | 590.000 | 200.000 | 589.200 | 290.000 | 587.350 | 293.000 |
| GR | 587.350 | 293.500 | 587.350 | 295.000 | 587.350 | 295.500 | 587.350 | 296.000 | 587.350 | 296.500 |
| GR | 587.350 | 298.000 | 587.350 | 298.500 | 589.700 | 305.000 | 590.000 | 350.000 | 590.400 | 416.000 |
| GR | 600.000 | 416.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.930 | 3.000 | 0.000 | 3.930 | 0.000 | 4.910 | 0.000 | 587.350 | 587.350 |

U/S FACE OF COOKE RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4479.000 | 0.000 | 0.000 | 0.000 | 42.000 | 42.000 | 42.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 588.600 | 591.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 591.700 | 591.700 | 0.000 |
| BT | 16.000 | 0.000 | 600.000 | 0.000 | 130.000 | 598.000 | 0.000 | 200.000 | 594.000 | 0.000 |
| BT | 293.000 | 591.700 | 587.350 | 293.500 | 591.700 | 588.600 | 295.000 | 591.700 | 588.600 | 295.500 |
| BT | 591.700 | 587.350 | 296.000 | 591.700 | 587.350 | 296.500 | 591.700 | 588.600 | 298.000 | 591.700 |
| BT | 588.600 | 298.500 | 591.700 | 587.350 | 350.000 | 591.700 | 0.000 | 416.000 | 592.700 | 0.000 |
| BT | 416.000 | 600.000 | 0.000 | 416.000 | 600.000 | 0.000 | 416.000 | 600.000 | 0.000 | 0.000 |
| | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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X@SECTION U/S COOKE RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4504.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.060 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT.5881

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4853.000 | 19.000 | 491.000 | 510.000 | 349.000 | 349.000 | 349.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.660 | 200.000 | 595.910 | 300.000 | 594.060 | 378.000 | 590.060 | 391.000 |
| GR | 590.110 | 400.000 | 589.410 | 491.000 | 587.960 | 494.000 | 587.710 | 500.000 | 588.060 | 506.000 |
| GR | 589.850 | 510.000 | 589.300 | 536.000 | 596.710 | 553.000 | 594.420 | 591.000 | 594.370 | 600.000 |
| GR | 593.820 | 700.000 | 593.440 | 750.000 | 594.150 | 800.000 | 595.000 | 1050.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.060 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X@SECTION D/S OF TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5053.000 | 8.000 | 594.500 | 605.500 | 200.000 | 200.000 | 200.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 150.000 | 594.000 | 584.500 | 586.370 | 594.500 | 586.370 | 605.500 |
| GR | 594.000 | 615.500 | 595.000 | 775.000 | 600.000 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 1200.000 |
| NC | 0.000 | 0.000 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5253.000 | 8.000 | 495.000 | 499.000 | 200.000 | 200.000 | 200.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.000 | 592.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 50.000 | 594.500 | 484.500 | 586.400 | 495.000 | 586.400 | 499.000 |
| GR | 594.400 | 510.000 | 595.000 | 700.000 | 600.000 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 5.790 | 3.000 | 0.000 | 3.630 | 0.000 | 10.900 | 0.000 | 587.300 | 586.400 |

U/S FACE OF TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5299.000 | 12.000 | 495.000 | 499.000 | 46.000 | 46.000 | 46.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 590.300 | 594.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 594.400 | 594.400 | 0.000 |
| X4 | 1.000 | 594.400 | 485.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 11.000 | 0.000 | 600.000 | 0.000 | 485.000 | 600.000 | 587.300 | 485.000 | 594.400 | 587.300 |
| BT | 495.000 | 594.400 | 588.500 | 495.500 | 594.400 | 590.000 | 497.000 | 594.400 | 590.300 | 498.500 |
| BT | 594.400 | 590.300 | 499.000 | 594.400 | 588.500 | 499.000 | 594.400 | 587.300 | 510.000 | 594.400 |
| BT | 0.000 | 510.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 600.000 | 50.000 | 600.000 | 485.000 | 588.500 | 495.000 | 587.300 | 495.000 |
| GR | 587.300 | 495.500 | 587.300 | 497.000 | 587.300 | 498.500 | 587.300 | 499.000 | 588.500 | 499.000 |
| GR | 594.400 | 510.000 | 600.000 | 510.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.060 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X@SECT. U/S OF TELEGRAPH RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5549.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 375.000 | 430.000 |

X@SECT. D/S OF R.R. TRACKS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5676.000 | 10.000 | 395.000 | 405.000 | 327.000 | 327.000 | 327.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 250.000 | 590.000 | 320.000 | 595.000 | 385.000 | 587.400 | 395.000 |
| GR | 587.280 | 400.000 | 587.400 | 405.000 | 595.000 | 415.000 | 595.000 | 525.000 | 600.000 | 600.000 |
| NC | 0.120 | 0.120 | 0.060 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 486.000 |

D/S FACE OF R.R. CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X1 | 5776.000 | 11.000 | 399.000 | 402.500 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 597.000 | 594.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 250.000 | 590.000 | 320.000 | 590.000 | 385.000 | 588.260 | 395.000 |
| GR | 588.260 | 399.000 | 588.260 | 402.500 | 591.000 | 405.000 | 594.000 | 408.000 | 594.000 | 486.000 |
| GR | 600.000 | 486.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.850 | 3.000 | 0.000 | 2.740 | 0.000 | 2.400 | 0.000 | 589.000 | 588.260 |

U/S FACE OF 42" RAILROAD CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X1 | 5851.000 | 21.000 | 699.000 | 702.500 | 75.000 | 75.000 | 75.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 590.750 | 599.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 601.100 | 599.400 | 0.000 |
| BT | 16.000 | 0.000 | 604.000 | 0.000 | 200.000 | 603.000 | 0.000 | 300.000 | 602.600 | 0.000 |
| BT | 400.000 | 602.200 | 0.000 | 500.000 | 601.900 | 0.000 | 600.000 | 601.500 | 0.000 | 699.000 |
| BT | 601.100 | 589.000 | 699.250 | 601.100 | 590.250 | 700.750 | 601.100 | 590.750 | 702.250 | 601.100 |
| BT | 590.250 | 702.500 | 601.100 | 589.000 | 785.000 | 599.400 | 0.000 | 786.000 | 604.000 | 0.000 |
| BT | 876.000 | 604.000 | 0.000 | 876.000 | 604.000 | 0.000 | 876.000 | 604.000 | 0.000 | 0.000 |
| GR | 604.000 | 0.000 | 600.000 | 0.000 | 595.000 | 75.000 | 594.200 | 200.000 | 593.500 | 300.000 |
| GR | 592.900 | 400.000 | 592.200 | 500.000 | 591.600 | 600.000 | 591.000 | 685.000 | 589.000 | 695.000 |
| GR | 589.000 | 699.000 | 589.000 | 699.250 | 589.000 | 700.750 | 589.000 | 702.250 | 589.000 | 702.500 |
| GR | 591.000 | 705.000 | 599.000 | 715.000 | 599.000 | 785.000 | 604.000 | 786.000 | 604.000 | 876.000 |
| GR | 604.000 | 876.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 9.100 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 674.000 | 728.000 |

XSECT. U/S OF R.R. TRACKS " D/S OF ARSENAL

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X1 | 5876.000 | 9.000 | 695.000 | 705.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 675.000 | 0.000 | 811.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 100.000 | 591.310 | 680.000 | 589.390 | 695.000 | 589.390 | 705.000 |
| GR | 591.010 | 715.000 | 595.000 | 800.000 | 600.000 | 950.000 | 600.000 | 1200.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 1100.000 |

D/S FACE ARSENAL CULVERTS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X1 | 5931.000 | 13.000 | 799.000 | 802.000 | 55.000 | 55.000 | 55.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 593.000 | 593.400 | 0.000 |
| GR | 604.000 | 772.000 | 600.000 | 773.000 | 596.100 | 790.000 | 595.500 | 795.000 | 591.300 | 797.000 |
| GR | 589.400 | 799.000 | 589.400 | 802.000 | 591.000 | 805.000 | 596.500 | 810.000 | 597.100 | 811.000 |
| GR | 599.000 | 869.000 | 604.000 | 870.000 | 604.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 3.700 | 3.000 | 0.000 | 2.400 | 0.000 | 3.600 | 0.000 | 0.000 | 0.000 |

U/S FACE ARSENAL CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X1 | 6006.000 | 14.000 | 799.000 | 802.000 | 75.000 | 75.000 | 75.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 590.900 | 596.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 596.100 | 596.500 | 0.000 |
| BT | 13.000 | 772.000 | 604.000 | 0.000 | 772.000 | 604.000 | 0.000 | 773.000 | 600.000 | 0.000 |
| BT | 790.000 | 596.100 | 0.000 | 799.000 | 596.100 | 589.400 | 799.250 | 596.200 | 590.600 | 800.500 |
| BT | 596.300 | 590.900 | 801.750 | 596.400 | 590.600 | 802.000 | 596.500 | 589.400 | 805.000 | 596.500 |
| BT | 0.000 | 810.000 | 597.100 | 0.000 | 869.000 | 599.000 | 0.000 | 870.000 | 604.000 | 0.000 |
| GR | 604.000 | 772.000 | 600.000 | 773.000 | 600.000 | 773.000 | 596.100 | 790.000 | 595.500 | 795.000 |
| GR | 589.400 | 799.000 | 589.400 | 799.250 | 589.400 | 800.500 | 589.400 | 801.750 | 589.400 | 802.500 |
| GR | 596.500 | 805.000 | 597.100 | 810.000 | 599.000 | 869.000 | 604.000 | 870.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | |

X SECTION U/S OF ARSENAL.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6050.000 | 0.000 | 0.000 | 0.000 | 44.000 | 44.000 | 44.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.060 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT. 2800.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7934.000 | 12.000 | 646.000 | 654.000 | 1884.000 | 1884.000 | 1884.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 583.000 | 0.000 | 718.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X4 | 1.000 | 605.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.160 | 350.000 | 594.560 | 450.000 | 594.560 | 550.000 | 593.260 | 641.000 |
| GR | 589.760 | 646.000 | 588.860 | 650.000 | 589.650 | 654.000 | 593.150 | 661.000 | 594.850 | 750.000 |
| GR | 598.820 | 850.000 | 601.020 | 950.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT. 2000.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8734.000 | 13.000 | 447.000 | 453.000 | 800.000 | 800.000 | 800.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 382.000 | 0.000 | 518.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X4 | 2.000 | 605.000 | 0.000 | 605.000 | 1001.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.290 | 150.000 | 594.990 | 250.000 | 595.090 | 350.000 | 593.790 | 440.000 |
| GR | 591.490 | 447.000 | 591.190 | 450.000 | 591.290 | 453.000 | 594.190 | 458.000 | 595.490 | 550.000 |
| GR | 596.290 | 650.000 | 597.590 | 750.000 | 600.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK SECT. 1000.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9734.000 | 13.000 | 345.000 | 355.000 | 1000.000 | 1000.000 | 1000.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 285.000 | 0.000 | 420.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X4 | 2.000 | 605.000 | 0.000 | 605.000 | 701.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 598.940 | 50.000 | 598.140 | 150.000 | 596.040 | 250.000 | 595.040 | 341.000 |
| GR | 592.640 | 345.000 | 592.340 | 350.000 | 592.540 | 355.000 | 595.340 | 358.000 | 595.470 | 450.000 |
| GR | 595.920 | 550.000 | 596.920 | 650.000 | 600.000 | 700.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.080 | 0.080 | 0.060 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X@SECT.D/S OF INKSTER RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10613.000 | 16.000 | 498.000 | 501.000 | 879.000 | 879.000 | 879.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 433.000 | 0.000 | 566.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 604.000 | 0.000 | 600.900 | 1.000 | 599.800 | 100.000 | 598.800 | 200.000 | 597.000 | 300.000 |
| GR | 596.400 | 492.000 | 591.600 | 498.000 | 591.600 | 501.000 | 596.400 | 509.000 | 597.000 | 600.000 |
| GR | 597.500 | 900.000 | 598.000 | 1000.000 | 599.000 | 1100.000 | 599.500 | 1200.000 | 600.000 | 1300.000 |
| GR | 604.000 | 1301.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 1301.000 |

D/S FACE OF INKSTER RD CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10713.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 433.000 | 0.000 | 566.000 | 0.000 | 597.000 | 596.300 | 0.000 |
| SB | 0.000 | 2.600 | 3.000 | 0.000 | 2.400 | 0.000 | 3.600 | 0.000 | 593.540 | 591.620 |

U/S FACE OF INKSTER RD. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10754.000 | 15.000 | 498.000 | 501.000 | 41.000 | 41.000 | 41.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 595.040 | 597.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 597.900 | 597.900 | 0.000 |
| BT | 13.000 | 433.000 | 604.000 | 0.000 | 433.000 | 604.000 | 0.000 | 433.000 | 604.000 | 0.000 |
| BT | 433.000 | 604.000 | 0.000 | 433.000 | 604.000 | 0.000 | 434.000 | 597.900 | 0.000 | 498.000 |
| BT | 597.900 | 593.540 | 498.250 | 597.900 | 594.790 | 498.500 | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 594.790 | 501.000 | 597.900 | 593.540 | 566.000 | 598.200 | 0.000 | 567.000 | 604.000 | 0.000 |
| GR | 604.000 | 433.000 | 604.000 | 433.000 | 604.000 | 433.000 | 604.000 | 433.000 | 604.000 | 433.000 |
| GR | 596.700 | 434.000 | 596.200 | 490.000 | 593.540 | 498.000 | 593.540 | 498.250 | 593.540 | 499.500 |
| GR | 593.540 | 500.750 | 593.540 | 501.000 | 596.700 | 510.000 | 596.900 | 566.000 | 604.000 | 567.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X@SECT U/S OF INKSTER RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10779.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

PRINTED IN U.S.A.

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 6006.000 | 70.00 | 600.35 | 0.00 | 0.01 | 0.00 | 96.36 | 75.00 |
| 6006.000 | 85.00 | 600.47 | 0.00 | 0.02 | 0.00 | 96.41 | 75.00 |
| 6006.000 | 100.00 | 600.57 | 0.00 | 0.02 | 0.00 | 96.46 | 75.00 |
| 6006.000 | 120.00 | 600.69 | 0.00 | 0.02 | 0.00 | 96.52 | 75.00 |
| 6050.000 | 70.00 | 600.35 | 0.00 | 0.00 | 0.00 | 96.36 | 44.00 |
| 6050.000 | 85.00 | 600.47 | 0.00 | 0.00 | 0.00 | 96.41 | 44.00 |
| 6050.000 | 100.00 | 600.57 | 0.00 | 0.00 | 0.00 | 96.46 | 44.00 |
| 6050.000 | 120.00 | 600.70 | 0.00 | 0.00 | 0.00 | 96.51 | 44.00 |
| 7934.000 | 70.00 | 600.36 | 0.00 | 0.02 | 0.00 | 135.00 | 1884.00 |
| 7934.000 | 85.00 | 600.49 | 0.00 | 0.02 | 0.00 | 135.00 | 1884.00 |
| 7934.000 | 100.00 | 600.60 | 0.00 | 0.03 | 0.00 | 135.00 | 1884.00 |
| 7934.000 | 120.00 | 600.73 | 0.00 | 0.04 | 0.00 | 135.00 | 1884.00 |
| 8734.000 | 70.00 | 600.37 | 0.00 | 0.00 | 0.00 | 136.00 | 800.00 |
| 8734.000 | 85.00 | 600.49 | 0.00 | 0.00 | 0.00 | 136.00 | 800.00 |
| 8734.000 | 100.00 | 600.61 | 0.00 | 0.00 | 0.00 | 136.00 | 800.00 |
| 8734.000 | 120.00 | 600.74 | 0.00 | 0.01 | 0.00 | 136.00 | 800.00 |
| 9734.000 | 70.00 | 600.37 | 0.00 | 0.00 | 0.00 | 135.00 | 1000.00 |
| 9734.000 | 85.00 | 600.50 | 0.00 | 0.01 | 0.00 | 135.00 | 1000.00 |
| 9734.000 | 100.00 | 600.61 | 0.00 | 0.01 | 0.00 | 135.00 | 1000.00 |
| 9734.000 | 120.00 | 600.75 | 0.00 | 0.01 | 0.00 | 135.00 | 1000.00 |
| 10613.000 | 70.00 | 600.38 | 0.00 | 0.01 | 0.00 | 133.00 | 879.00 |
| 10613.000 | 85.00 | 600.51 | 0.00 | 0.01 | 0.00 | 133.00 | 879.00 |
| 10613.000 | 100.00 | 600.62 | 0.00 | 0.01 | 0.00 | 133.00 | 879.00 |
| 10613.000 | 120.00 | 600.76 | 0.00 | 0.01 | 0.00 | 133.00 | 879.00 |
| 10713.000 | 70.00 | 600.38 | 0.00 | 0.00 | 0.00 | 133.00 | 100.00 |
| 10713.000 | 85.00 | 600.51 | 0.00 | 0.00 | 0.00 | 133.00 | 100.00 |
| 10713.000 | 100.00 | 600.62 | 0.00 | 0.00 | 0.00 | 133.00 | 100.00 |
| 10713.000 | 120.00 | 600.76 | 0.00 | 0.00 | 0.00 | 133.00 | 100.00 |
| 10754.000 | 70.00 | 600.39 | 0.00 | 0.01 | 0.00 | 133.00 | 41.00 |
| 10754.000 | 85.00 | 600.52 | 0.00 | 0.02 | 0.00 | 133.03 | 41.00 |
| 10754.000 | 100.00 | 600.64 | 0.00 | 0.02 | 0.00 | 133.07 | 41.00 |
| 10754.000 | 120.00 | 600.79 | 0.00 | 0.02 | 0.00 | 133.11 | 41.00 |
| 10779.000 | 70.00 | 600.39 | 0.00 | 0.00 | 0.00 | 133.00 | 25.00 |
| 10779.000 | 85.00 | 600.52 | 0.00 | 0.00 | 0.00 | 133.03 | 25.00 |
| 10779.000 | 100.00 | 600.64 | 0.00 | 0.00 | 0.00 | 133.07 | 25.00 |
| 10779.000 | 120.00 | 600.79 | 0.00 | 0.00 | 0.00 | 133.11 | 25.00 |

SUMMARY OF ERRORS

CAUTION SECNO= 3792.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3792.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

PRINTED IN U.S.A.
FORM 1411 GB PRINTED BY ROTARY MANIFOLD FORMS

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5851.000 | 75.00 | 599.40 | 590.75 | 589.00 | 10.00 | 590.27 | 0.00 | 590.35 | 152.70 | 2.35 | 4.25 | 0.81 |
| | 5851.000 | 75.00 | 599.40 | 590.75 | 589.00 | 20.00 | 593.92 | 0.00 | 593.94 | 8.14 | 1.16 | 17.23 | 7.01 |
| | 5851.000 | 75.00 | 599.40 | 590.75 | 589.00 | 30.00 | 599.37 | 0.00 | 599.38 | 3.01 | 0.83 | 36.32 | 17.29 |
| | 5851.000 | 75.00 | 599.40 | 590.75 | 589.00 | 40.00 | 599.92 | 0.00 | 599.93 | 0.57 | 0.36 | 177.14 | 52.97 |
| | 5876.000 | 25.00 | 0.00 | 0.00 | 589.39 | 10.00 | 590.43 | 0.00 | 590.44 | 9.51 | 0.78 | 17.95 | 3.24 |
| | 5876.000 | 25.00 | 0.00 | 0.00 | 589.39 | 20.00 | 593.95 | 0.00 | 593.95 | 0.09 | 0.20 | 182.56 | 67.09 |
| | 5876.000 | 25.00 | 0.00 | 0.00 | 589.39 | 30.00 | 599.39 | 0.00 | 599.39 | 0.01 | 0.12 | 465.14 | 282.40 |
| | 5876.000 | 25.00 | 0.00 | 0.00 | 589.39 | 40.00 | 599.93 | 0.00 | 599.93 | 0.02 | 0.15 | 492.83 | 309.01 |
| | 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 10.00 | 590.50 | 0.00 | 590.64 | 143.13 | 3.03 | 3.30 | 0.84 |
| | 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 20.00 | 593.95 | 0.00 | 593.95 | 1.86 | 0.93 | 37.68 | 14.67 |
| | 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 30.00 | 599.39 | 0.00 | 599.39 | 0.12 | 0.40 | 212.87 | 86.61 |
| | 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 40.00 | 599.92 | 0.00 | 599.93 | 0.15 | 0.47 | 247.74 | 102.06 |
| | 6006.000 | 75.00 | 596.10 | 590.90 | 589.40 | 10.00 | 591.97 | 0.00 | 592.07 | 260.98 | 2.50 | 4.00 | 0.62 |
| | 6006.000 | 75.00 | 596.10 | 590.90 | 589.40 | 20.00 | 595.70 | 0.00 | 595.72 | 6.82 | 1.06 | 18.93 | 7.66 |
| * | 6006.000 | 75.00 | 596.10 | 590.90 | 589.40 | 30.00 | 599.39 | 0.00 | 599.40 | 0.18 | 0.48 | 211.22 | 71.52 |
| | 6006.000 | 75.00 | 596.10 | 590.90 | 589.40 | 40.00 | 599.93 | 0.00 | 599.94 | 0.20 | 0.53 | 262.35 | 89.97 |

| SECNO | CH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5551.000 | 75.00 | 599.40 | 590.75 | 589.00 | 10.00 | 590.27 | 0.00 | 590.35 | 152.70 | 2.35 | 4.25 | 0.81 |
| 5551.000 | 75.00 | 599.40 | 590.75 | 589.00 | 25.00 | 596.42 | 0.00 | 596.44 | 4.60 | 0.96 | 26.01 | 11.66 |
| 5551.000 | 75.00 | 599.40 | 590.75 | 589.00 | 40.00 | 599.92 | 0.00 | 599.92 | 0.57 | 0.36 | 177.03 | 52.94 |
| 5551.000 | 75.00 | 599.40 | 590.75 | 589.00 | 55.00 | 600.18 | 0.00 | 600.18 | 0.87 | 0.45 | 199.01 | 59.08 |
| 5576.000 | 25.00 | 0.00 | 0.00 | 589.39 | 10.00 | 590.43 | 0.00 | 590.44 | 9.51 | 0.78 | 17.95 | 3.24 |
| 5576.000 | 25.00 | 0.00 | 0.00 | 589.39 | 25.00 | 596.44 | 0.00 | 596.44 | 0.01 | 0.10 | 556.97 | 218.46 |
| 5576.000 | 25.00 | 0.00 | 0.00 | 589.39 | 40.00 | 599.92 | 0.00 | 599.92 | 0.01 | 0.09 | 1029.45 | 549.74 |
| 5576.000 | 25.00 | 0.00 | 0.00 | 589.39 | 55.00 | 600.18 | 0.00 | 600.18 | 0.01 | 0.11 | 1064.94 | 579.50 |
| 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 10.00 | 590.50 | 0.00 | 590.64 | 143.13 | 3.03 | 3.30 | 0.84 |
| 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 25.00 | 596.44 | 0.00 | 596.44 | 0.53 | 0.66 | 75.17 | 34.28 |
| 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 40.00 | 599.92 | 0.00 | 599.92 | 0.14 | 0.44 | 288.35 | 108.18 |
| 5931.000 | 55.00 | 0.00 | 0.00 | 589.40 | 55.00 | 600.18 | 0.00 | 600.18 | 0.21 | 0.56 | 312.98 | 118.68 |
| 6006.000 | 5.00 | 596.10 | 590.90 | 589.40 | 10.00 | 591.97 | 0.00 | 592.07 | 260.98 | 2.50 | 4.00 | 0.62 |
| 6006.000 | 5.00 | 596.10 | 590.90 | 589.40 | 25.00 | 596.70 | 0.00 | 596.71 | 0.89 | 0.88 | 55.84 | 26.57 |
| 6006.000 | 5.00 | 596.10 | 590.90 | 589.40 | 40.00 | 599.93 | 0.00 | 599.94 | 0.20 | 0.53 | 262.23 | 89.92 |
| 6006.000 | 5.00 | 596.10 | 590.90 | 589.40 | 55.00 | 600.19 | 0.00 | 600.19 | 0.30 | 0.67 | 287.10 | 99.95 |
| 6050.000 | 45.00 | 0.00 | 0.00 | 589.40 | 10.00 | 592.15 | 0.00 | 592.16 | 5.25 | 1.11 | 12.26 | 4.36 |
| 6050.000 | 45.00 | 0.00 | 0.00 | 589.40 | 25.00 | 596.71 | 0.00 | 596.72 | 0.89 | 0.88 | 55.72 | 26.52 |
| 6050.000 | 45.00 | 0.00 | 0.00 | 589.40 | 40.00 | 599.93 | 0.00 | 599.94 | 0.20 | 0.53 | 262.12 | 89.88 |
| 6050.000 | 45.00 | 0.00 | 0.00 | 589.40 | 55.00 | 600.19 | 0.00 | 600.20 | 0.30 | 0.67 | 286.94 | 99.88 |
| 7934.000 | 1000.00 | 0.00 | 0.00 | 588.86 | 10.00 | 592.37 | 0.00 | 592.38 | 0.47 | 0.36 | 37.07 | 14.51 |
| 7934.000 | 1000.00 | 0.00 | 0.00 | 588.86 | 25.00 | 596.73 | 0.00 | 596.73 | 0.02 | 0.14 | 473.25 | 165.58 |
| 7934.000 | 1000.00 | 0.00 | 0.00 | 588.86 | 40.00 | 599.94 | 0.00 | 599.94 | 0.01 | 0.11 | 906.72 | 432.27 |
| 7934.000 | 1000.00 | 0.00 | 0.00 | 588.86 | 55.00 | 600.20 | 0.00 | 600.20 | 0.01 | 0.14 | 942.05 | 458.13 |
| 8734.000 | 1000.00 | 0.00 | 0.00 | 591.19 | 10.00 | 592.47 | 0.00 | 592.50 | 21.14 | 1.27 | 9.80 | 2.17 |
| 8734.000 | 1000.00 | 0.00 | 0.00 | 591.19 | 25.00 | 596.73 | 0.00 | 596.73 | 0.07 | 0.20 | 354.73 | 97.69 |
| 8734.000 | 1000.00 | 0.00 | 0.00 | 591.19 | 40.00 | 599.94 | 0.00 | 599.94 | 0.01 | 0.13 | 792.21 | 331.86 |
| 8734.000 | 1000.00 | 0.00 | 0.00 | 591.19 | 55.00 | 600.20 | 0.00 | 600.20 | 0.02 | 0.16 | 827.64 | 355.28 |
| 9734.000 | 1000.00 | 0.00 | 0.00 | 592.34 | 10.00 | 593.69 | 0.00 | 593.70 | 7.75 | 0.79 | 13.89 | 3.59 |
| 9734.000 | 1000.00 | 0.00 | 0.00 | 592.34 | 25.00 | 596.74 | 0.00 | 596.74 | 0.20 | 0.29 | 224.36 | 56.51 |
| 9734.000 | 1000.00 | 0.00 | 0.00 | 592.34 | 40.00 | 599.94 | 0.00 | 599.94 | 0.02 | 0.14 | 657.21 | 261.56 |
| 9734.000 | 1000.00 | 0.00 | 0.00 | 592.34 | 55.00 | 600.21 | 0.00 | 600.21 | 0.04 | 0.19 | 692.70 | 283.47 |
| 10613.000 | 879.00 | 0.00 | 0.00 | 591.60 | 10.00 | 594.14 | 0.00 | 594.15 | 3.55 | 0.87 | 17.02 | 5.31 |
| 10613.000 | 879.00 | 0.00 | 0.00 | 591.60 | 25.00 | 596.77 | 0.00 | 596.78 | 0.94 | 0.72 | 80.27 | 25.76 |
| 10613.000 | 879.00 | 0.00 | 0.00 | 591.60 | 40.00 | 599.95 | 0.00 | 599.95 | 0.03 | 0.18 | 503.41 | 230.36 |
| 10613.000 | 879.00 | 0.00 | 0.00 | 591.60 | 55.00 | 600.21 | 0.00 | 600.21 | 0.05 | 0.22 | 538.51 | 255.76 |
| 10713.000 | 100.00 | 0.00 | 0.00 | 591.60 | 10.00 | 594.19 | 0.00 | 594.21 | 10.96 | 1.28 | 7.78 | 3.02 |
| 10713.000 | 100.00 | 0.00 | 0.00 | 591.60 | 25.00 | 596.79 | 0.00 | 596.79 | 2.67 | 0.76 | 48.68 | 15.31 |
| 10713.000 | 100.00 | 0.00 | 0.00 | 591.60 | 40.00 | 599.95 | 0.00 | 599.95 | 0.03 | 0.18 | 503.51 | 230.43 |
| 10713.000 | 100.00 | 0.00 | 0.00 | 591.60 | 55.00 | 600.21 | 0.00 | 600.21 | 0.05 | 0.22 | 538.71 | 255.91 |
| * 10754.000 | 41.00 | 597.90 | 595.04 | 593.54 | 10.00 | 594.27 | 0.00 | 594.59 | 640.13 | 4.57 | 2.19 | 0.40 |
| 10754.000 | 41.00 | 597.90 | 595.04 | 593.54 | 25.00 | 597.99 | 0.00 | 597.99 | 0.16 | 0.27 | 216.61 | 62.83 |
| * 10754.000 | 41.00 | 597.90 | 595.04 | 593.54 | 40.00 | 599.95 | 0.00 | 599.96 | 0.03 | 0.16 | 477.80 | 215.10 |
| 10754.000 | 41.00 | 597.90 | 595.04 | 593.54 | 55.00 | 600.22 | 0.00 | 600.22 | 0.05 | 0.20 | 513.33 | 241.51 |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Cook and Gladding Drain

4) DOCUMENT TYPE: Report

00BREAK00

# HYDRAULIC REPORT
# CITY OF FLAT ROCK-MICHIGAN

## I. INTRODUCTION

The City of Flat Rock covers approximately 7 square miles. The City is basically a rural/residential community. This report summarizes the hydraulic studies taken to support detailed studies of approximately 3 miles of the Silver Creek, 2 miles of the Cook and Gladding Drain, and 4 miles of the Huron River. Furthermore, this report summarizes the approximate hydraulic study of approximately 3 miles of Smith Creek.

This study was conducted by Wade, Trim & Associates, Inc., Consulting Engineers, and Glen Roberts served as Project Manager.

## III. COOK & GLADDING DRAIN (DETAILED)

Detailed studies of the Cook and Gladding Drain were performed from its confluence with the Huron River to the corporate boundary of Flat Rock at Inkster Road. A total of 7 valley and 9 bridge cross sections were field surveyed and completed in July, 1978. An additional 18 cross sections were used in this analysis. Field cross section data were supplemented by U.S.G.S. Quad Maps of the study area which consists of 5 foot interval contour data (Reference 2). The flood plain of the Cook and Gladding Drain within the study reach ranges from heavy brush to grassy lawns.

Cross section locations are shown in Exhibit 1. Table 3 cross references section designations by showing the computer section number which corresponds to the cross section letters shown in Exhibit 1.

Exhibit 5 contains bridge sketches as well as computations for total bridge loss coefficients. None of the 9 bridges are considered to be skewed.

Table 4 lists discharges that have been approved by the Michigan Department of Natural Resources (MDNR) for this Drain.

### A. METHOD OF ANALYSIS

The HEC-2 backwater program was used in developing water surface profiles (Reference 3).

Table 4 also contains selected flood elevations from the HEC-2 printouts. HEC-2 printouts including computer cross section plots are presented as Exhibit 6. Water surface profiles resulting from the backwater analyses are presented as Exhibit 7. (Exhibit 6 is contained in the 11" x 15" folder enclosed with this report).

B. VARIABLES AND COEFFICIENTS

Roughness coefficients (Mannings "n") were estimated by field inspection at each cross section. Typical roughness values used for the main channel ranged from .015 to 0.06; roughness values for the overbank areas varied between .06 to .12 for all floods. These values are indicative of summer month conditions and are consistent with roughness values recommended and used in engineering practice.

C. HIGH WATER MARKS

No documented high water data exists for flood elevations on the Cook and Gladding Drain.

D. STARTING CONDITIONS

The starting water surface elevation used in all backwater computations which begin at the Huron River is the mean annual flood elevation of the Huron River (see Exhibit 5) at the confluence with Cooke and Gladding Drain. Since the drainage basin for Cooke and Gladding Drain is minor compared with that of the Huron River, it is unlikely that a major storm will occur in both basins at the same time.

E. SPECIAL PROBLEMS

The Arsenal Road and D.T.&I Railroad culverts cause extensive restrictions to flow on Cooke and Gladding Drain due to inadequate pipe sizing and siltation.

These restrictions cause a severe backwater condition and subsequent transfer of floodwater to the Huron River. Therefore, flow rates and elevations for the various floods investigated are controlled by the amount of flow diverted to the Huron River. Futhermore, flood elevations experienced on the Huron River are also experienced on Cooke and Gladding Drain when flow diversion occurs between the two streams.

Thus, the following flow diversion analysis (Exhibit 12) was performed to determine flow distributions and flood elevaions for Cooke and Gladding Drain:

1. A stage/discharge rating curve was developed upstream of the Arsenal Road culvert on Cooke and Gladding Drain (Exhibit 12, Page 1).

2. An overland flow stage/discharge rating curve was developed for flow that diverts from the Cooke and Gladding Drain to the Huron River (Exhibit 12, Page 1).

3. The two rating curves above were combined to form a total rating curve (Exhibit 12, Page 1) for the area upstream of the Arsenal Road culvert.

4. The 10, 50, 100 and 500 year flow rates for Cooke and Gladding Drain were applied to the total rating curve to determine the various flood elevations.

5. The flood elevations were applied to the rating curves for each flow area to determine the distribution of flow.

6. The 10, 50, 100 and 500 year elevations from the Huron River portion of the Flood Insurance Study were then compared with the elevations determined in the flow diversion analysis for Cooke and Gladding Drain. The higher of the two elevations was used for Cooke and Gladding Drain. Where Huron River elevations controlled, flow distribution was revised by application of the elevations to the rating curves. As modeled, 230cfs would be diverted to Cook-Gladding from Silver Creek

Results of this analysis (Exhibit 12, Page 2) indicate that Cooke and Gladding Drain flow rates are substantially reduced downstream of the Arsenal Road culvert. Flow which is diverted from Cooke and Gladding is negligible with respect to the magnitude of flows in the Huron River; therefore, there will be no impact on flood elevations to the Huron River.

F. GENERAL

Computed water-surface elevations were developed to an accuracy of 0.5 foot for floods of the selected recurrence intervals.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). This datum is equivalent to the U.S. Geological Survey (USGS) datum.

The hydraulic analyses for this study are based only on the effects of flow unobstructed by ice or debris. The flood elevations are considered valid only if hydraulic structures, in general, remain unobstructed and do not fail.

TABLE 3
CITY OF FLAT ROCK
COOK & GLADDING DRAIN

| CROSS SECTION | COMPUTER NO. | WTA FIELD BOOK NO. | DESCRIPTION |
|---|---|---|---|
| A | 0 | | @ Huron River |
| B | 54 | | u/s Face of Huron River Dri |
| C | 300 | 10434 | Valley Seciton |
| D | 1300 | 9434 | Valley Section |
| E | 1700 | | d/s End of 54" Conc. Culver |
| | | 8973 | ℄ Gibraltar Road |
| F | 1836 | | u/s End of 54" Conc. Culver |
| G | 2284 | 8450 | Valley Section |
| H | 3041 | 7693 | d/s End of 54" Conc. Culver |
| I | 3210 | 7524 | u/s End of 54" Conc. Culver |
| J | 3384 | | d/s End of 48"X76" Conc. Culvert |
| | | 7271 | ℄ Sheeks Road |
| K | 3548 | | u/s End of 48"X76" Conc. Culvert |
| L | 3792 | | d/s End of 54" Culvert |
| | | 6921 | ℄ Seneca Road |
| M | 3833 | | u/s End of 54" Culvert |
| N | 4437 | | d/s End of Twin 30" Conc. Culverts |
| | | 6269 | ℄ of Cooke Road |
| O | 4479 | | u/s End of Twin 30" Conc. Culverts |
| P | 4853 | 5881 | Valley Section |
| Q | 5253 | | d/s End 48" Conc. Culvert |
| | | 5481 | ℄ Telegraph Road |
| R | 5299 | | u/s End of 48" Conc. Culver |
| S | 5776 | | d/s End of 42" Conc. Culver |
| T | | 4915 | ℄ D.T. & I. R.R. |
| U | 5931 | | d/s End of 36" Conc. Culver |
| | | 4769 | ℄ Arsenal Road |
| V | 6006 | | u/s End of 36" Conc. Culver |
| W | 7934 | 2800 | Valley Section |
| X | 8734 | 2000 | Valley Section |
| Y | 9734 | 1000 | Valley Section |
| Z | 10713 | | d/s End of 36" Conc. Culver |
| | | 0 | ℄ Inkster Road |
| AA | 10754 | | u/s End of 36" Conc. Culver |

TABLE 4
CITY OF FLAT ROCK
COOK & GLADDING DRAIN FLOOD ELEVATIONS*

| LOCATION | SELECTED FREQUENCIES 10 Yr. Q=21 CFS | 50 Yr. Q=21 CFS | 100 Yr. Q=27 CFS | 500 Yr. Q=37 CFS |
|---|---|---|---|---|
| d/s of Gibraltar Road (0.3 Mi.) | 586.3 | 586.3 | 586.5 | 586.8 |
| d/s of Telegraph Road (1.0 Mi.) | 590.8 | 590.8 | 591.5 | 591.9 |
| u/s of Telegraph Road (1.0 Mi.) | 590.8 | 590.8 | 592.0 | 592.9 |
| d/s of R.R. (1.1 Mi.) | 591.0 | 591.0 | 592.1 | 593.0 |
| u/s of R.R. (1.1 Mi.) | 594.4 | 594.4 | 597.7 | 599.8 |
| | Q=50 CFS | Q=75 CFS | Q=75 CFS | Q=120 CFS |
| @ Corp. Limit (2.0 Mi.) | 598.1 | 598.2 | 598.3 | 600.0 |

*N.G.V.D.

CITY OF FLAT ROCK

EXHIBIT 1

FIELD CROSS-SECTION LOCATION
AND 100 YEAR FLOOD PLAIN -
FLOODWAY MAP

HUD 2009-07

CITY OF FLAT ROCK
COOK AND GLADDING DRAIN

EXHIBIT 6

COMPUTER PRINTOUTS
HEC-2 BACKWATER ANALYSIS
(See Separate Folder)

CITY OF FLAT ROCK
COOK AND GLADDING DRAIN

EXHIBIT 7

STREAM PROFILE

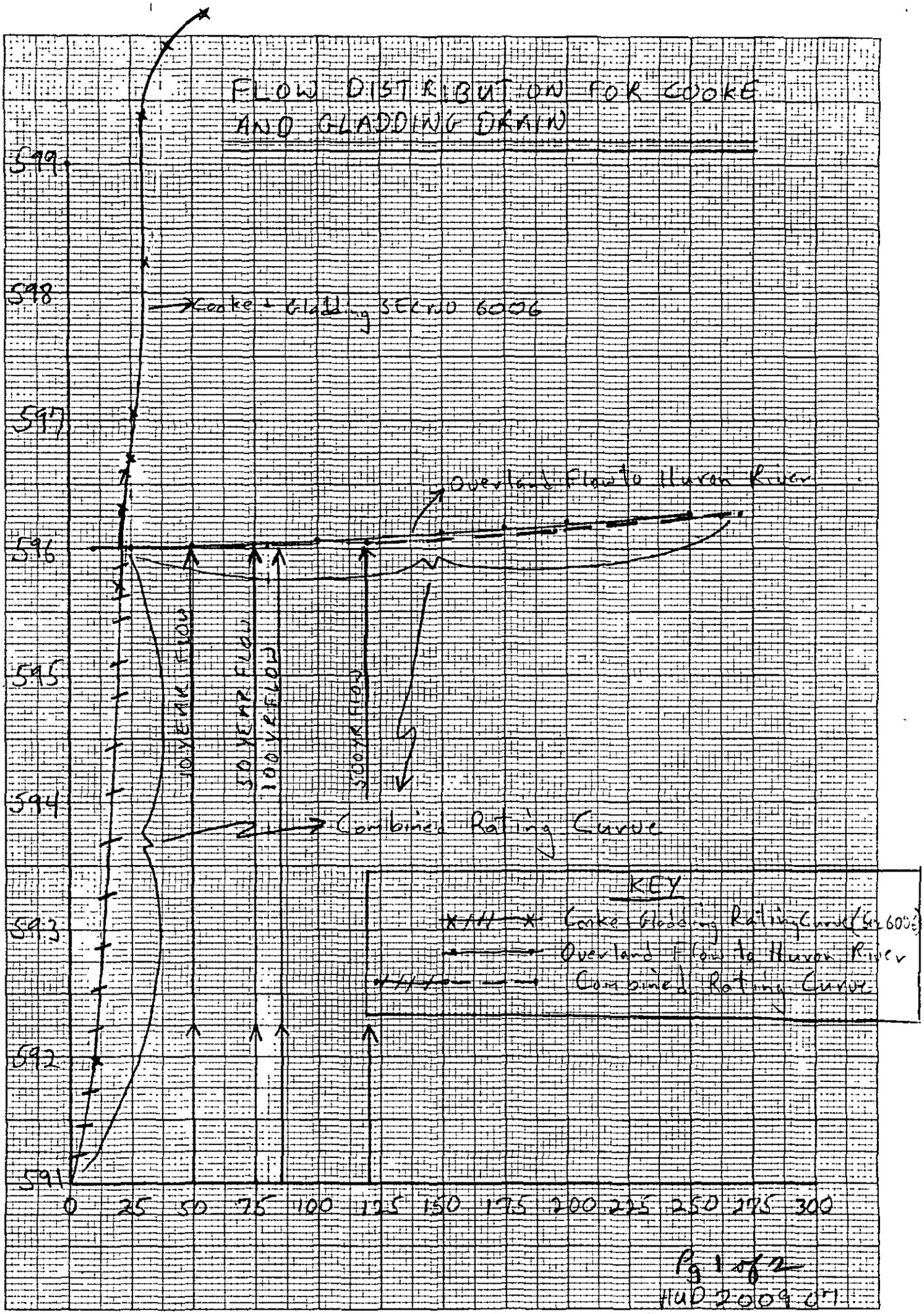
HUD 2009-07

CITY OF FLATROCK

COOKE AND GLADING DRAIN

EXHIBIT 12

FLOW DIVERSION ANALYSIS




Pg 1 of 2
HUD 2009 07

Exhibit 12

W.J Weaver
9/7/79

46 1320
K+E 10 X 10 TO ½ INCH 7 X 10 INCHES KEUFFEL & ESSER CO MADE IN U.S.A.

REFERENCE

# Cooke + Gladding Flowrates

[A] Elev. 596 controls for all 4 storms (10, 50, 100, + 500) at the Arsenal Rd. Culvert (See Rating Curve pg. ___). This produces a flow distribution as follows:

① 21 cfs to Cooke + Gladding for all floods.

② The following flows divert to the Huron:

10 year – 29 cfs
50 year – .54 cfs
100 year – 64 cfs
500 year – 94 cfs

[B] Cooke + Gladding Drain will experience the following elevations due to floods on the Huron River:

| Flood | Elev | Cooke + Gladding Q (See Intl. Curve) |
|---|---|---|
| 10 year | – 594.10 | 0 |
| 50 year | – 595.95 | 20 cfs |
| 100 year | – 597.73 | 27 cfs |
| 500 year | – 599.86 | 37 cfs |

[C] Analysis of the results in [A] + [B] above produces the following flows for Cooke + Gladding Drain and flood elevations upstream of the Arsenal Road Culvert:

| Flood Event | Elev. | Q below Arsenal Culvert |
|---|---|---|
| 10 yr. | 596.0 | 21 cfs |
| 50 yr. | 596.0 | 21 cfs |
| 100 yr. | 597.73 | 20 cfs |
| 500 yr. | 599.86 | 39 cfs |

| SUBJECT | BY | CHK. | SHEET NO. | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| Exhibit 12 | W.J. Weaver | | 2 OF 2 | HUD • 2009 • 07 |
| | DATE 9/13/79 | DATE | | |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Huron River

4) DOCUMENT TYPE: 100 year

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  31
  MODIFICATION -  50,51,52
**************************************************

C
T1      CITY OF FLATROCK
T2      100 YEAR FLOW
T3      HURON RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
         0.        5.        0.        0.  0.000000      0.00      0.0         0.   587.660     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
   150.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

ET     0.000     0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000
QT     6.000  7700.000  6480.000  8750.000 10390.000 12100.000 10390.000     0.000     0.000     0.000
NC     0.120     0.120     0.035     0.300     0.500     0.000     0.000     0.000     0.000     0.000

      VALLEY SECTION FROM ROCKWOOD FIS

X1   500.000    21.000   100.000   218.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   594.100     0.000   593.400    51.000   579.500   100.000   574.300   102.000   573.000   103.000
GR   572.800   108.000   571.100   113.000   569.600   118.000   569.200   128.000   569.200   138.000
GR   569.100   148.000   569.500   158.000   570.200   168.000   570.500   178.000   570.800   188.000
GR   570.900   193.000   571.100   198.000   571.200   203.000   572.300   208.000   582.300   218.000
GR   590.200   268.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC     0.000     0.000     0.050     0.000     0.000     0.000     0.000     0.000     0.000     0.000

      VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V10

X1  1800.000    19.000  1460.000  1590.000   650.000   500.000  1300.000     0.000     0.000     0.000
GR   597.500     0.000   585.800   150.000   585.000   190.000   586.700   390.000   581.500   590.000
GR   581.000   790.000   579.700   890.000   580.000   990.000   581.900  1190.000   580.600  1290.000
GR   581.900  1460.000   571.900  1490.000   571.400  1530.000   573.000  1570.000   576.000  1580.000
GR   586.700  1590.000   586.000  1890.000   586.300  1990.000   591.000  2060.000     0.000     0.000

      VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V9

X1  4400.000    22.000    39.000   130.000  1000.000  1400.000  2600.000     0.000     0.000     0.000
GR   596.800     0.000   582.200    80.000   580.600    39.000   575.900    41.000   572.000    50.000
GR   569.900    80.000   569.400   100.000   570.600   120.000   575.900   128.000   581.100   130.000
GR   582.900   300.000   583.100   500.000   583.700   700.000   584.000   850.000   584.200  1000.000
GR   584.500  1150.000   584.800  1300.000   585.000  1470.000   588.800  1600.000   590.000  1670.000
GR   592.200  1800.000   595.000  1970.000     0.000     0.000     0.000     0.000     0.000     0.000
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VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V8

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6200.000 | 18.000 | 1385.000 | 1485.000 | 600.000 | 600.000 | 1800.000 | 0.000 | 0.000 | 0.000 |
| GR | 593.200 | 0.000 | 590.000 | 180.000 | 585.000 | 210.000 | 584.000 | 300.000 | 584.000 | 450.000 |
| GR | 584.000 | 550.000 | 584.000 | 650.000 | 583.000 | 800.000 | 583.000 | 950.000 | 582.900 | 1100.000 |
| GR | 582.900 | 1250.000 | 582.900 | 1385.000 | 575.300 | 1395.000 | 571.300 | 1425.000 | 573.300 | 1455.000 |
| GR | 590.400 | 1485.000 | 590.400 | 1585.000 | 595.000 | 1945.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V7

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8200.000 | 26.000 | 810.000 | 930.000 | 1000.000 | 850.000 | 2000.000 | 0.000 | 0.000 | 0.000 |
| GR | 595.000 | 0.000 | 588.970 | 150.000 | 587.000 | 230.000 | 586.000 | 330.000 | 583.800 | 430.000 |
| GR | 582.300 | 630.000 | 583.000 | 810.000 | 573.800 | 820.000 | 571.800 | 830.000 | 571.800 | 840.000 |
| GR | 571.500 | 850.000 | 575.400 | 890.000 | 575.700 | 900.000 | 575.000 | 910.000 | 581.200 | 930.000 |
| GR | 581.500 | 960.000 | 583.500 | 1030.000 | 582.200 | 1080.000 | 582.000 | 1130.000 | 580.000 | 1180.000 |
| GR | 581.900 | 1230.000 | 582.400 | 1280.000 | 583.000 | 1480.000 | 579.200 | 1535.000 | 594.000 | 1565.000 |
| GR | 594.600 | 1680.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V6

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10300.000 | 26.000 | 1025.900 | 1177.000 | 900.000 | 900.000 | 2100.000 | 0.000 | 0.000 | 0.000 |
| GR | 595.000 | 0.000 | 590.000 | 550.000 | 589.030 | 595.000 | 588.100 | 625.000 | 588.000 | 725.000 |
| GR | 586.000 | 775.000 | 583.000 | 795.000 | 583.400 | 1025.000 | 578.800 | 1032.000 | 573.200 | 1055.000 |
| GR | 572.900 | 1075.000 | 573.500 | 1125.000 | 578.200 | 1155.000 | 578.800 | 1165.000 | 581.400 | 1177.000 |
| GR | 583.900 | 1200.000 | 582.500 | 1825.000 | 583.100 | 1875.000 | 587.200 | 1895.000 | 587.200 | 1925.000 |
| GR | 587.200 | 2025.000 | 587.200 | 2125.000 | 587.200 | 2275.000 | 587.200 | 2295.000 | 587.200 | 2310.000 |
| GR | 595.000 | 2325.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V5

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12900.000 | 16.000 | 730.000 | 860.000 | 1900.000 | 1300.000 | 2600.000 | 0.000 | 0.000 | 0.000 |
| GR | 595.000 | 0.000 | 590.000 | 250.000 | 588.200 | 700.000 | 588.000 | 730.000 | 580.000 | 740.000 |
| GR | 576.000 | 741.000 | 573.400 | 760.000 | 577.000 | 830.000 | 584.100 | 860.000 | 585.000 | 880.000 |
| GR | 585.300 | 950.000 | 5853.000 | 1100.000 | 585.300 | 1200.000 | 587.000 | 1375.000 | 590.000 | 1500.000 |
| GR | 595.000 | 1700.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V4

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15800.000 | 21.000 | 640.000 | 795.030 | 2300.000 | 2900.000 | 2100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 315.030 | 0.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.540 | 0.000 | 599.200 | 100.000 | 593.300 | 150.000 | 590.500 | 200.000 | 585.000 | 230.000 |
| GR | 586.400 | 260.000 | 583.900 | 280.000 | 583.800 | 300.000 | 582.800 | 400.000 | 584.500 | 500.000 |
| GR | 585.100 | 600.000 | 586.700 | 640.000 | 580.400 | 650.000 | 577.500 | 670.000 | 574.200 | 770.000 |
| GR | 576.800 | 790.000 | 585.300 | 795.000 | 585.800 | 1000.000 | 583.000 | 1125.000 | 595.800 | 1155.000 |
| GP | 597.000 | 1175.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION D/S OF TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17080.000 | 16.000 | 570.000 | 750.000 | 1280.000 | 1280.000 | 1280.000 | 0.766 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 550.000 | 0.000 | 760.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 597.700 | 25.000 | 590.000 | 525.000 | 585.000 | 553.000 | 597.300 | 570.000 |

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FORM 141: GO PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 578.000 | 600.000 | 577.400 | 650.000 | 576.200 | 664.000 | 577.500 | 680.000 | 574.200 | 690.000 |
| GR | 573.300 | 710.000 | 575.500 | 730.000 | 578.600 | 750.000 | 581.300 | 774.000 | 590.000 | 821.000 |
| GR | 597.000 | 910.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 133.000 | 795.000 |

D/S FACE OF TELEGRAPH RD.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17180.000 | 16.000 | 565.000 | 664.200 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 595.000 | 595.000 | 0.000 |
| GR | 600.000 | 133.000 | 597.700 | 152.000 | 597.170 | 183.000 | 590.000 | 535.000 | 585.000 | 556.000 |
| GR | 578.000 | 565.000 | 577.000 | 593.700 | 577.000 | 593.800 | 577.000 | 635.500 | 577.000 | 636.600 |
| GR | 573.300 | 650.000 | 579.000 | 664.200 | 581.300 | 689.000 | 590.000 | 725.000 | 597.170 | 794.000 |
| GR | 600.000 | 795.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 1.250 | 1.650 | 3.000 | 0.000 | 88.730 | 42.000 | 822.400 | 0.000 | 0.000 | 0.000 |

U/S FACE OF TELEGRAPH RD.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17246.000 | 0.000 | 0.000 | 0.000 | 66.000 | 66.000 | 66.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 590.900 | 597.170 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 597.170 | 597.170 | 0.000 |
| BT | 13.000 | 133.000 | 600.000 | 0.000 | 152.000 | 597.700 | 0.000 | 183.000 | 597.170 | 0.000 |
| BT | 565.000 | 597.170 | 578.000 | 565.000 | 597.170 | 590.900 | 593.700 | 597.170 | 590.900 | 593.800 |
| BT | 597.170 | 577.000 | 635.500 | 597.170 | 577.000 | 635.600 | 597.170 | 590.900 | 664.200 | 597.170 |
| BT | 590.900 | 664.200 | 597.170 | 0.000 | 794.000 | 597.170 | 0.000 | 795.000 | 600.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 |

X-SECTION U/S OF TELEGRAPH RD.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17271.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 380.000 | 0.000 | 680.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 1350.000 |

D/S FACE OF FOOTBRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18700.000 | 13.000 | 400.000 | 520.000 | 1369.000 | 1369.000 | 1369.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.400 | 590.500 | 0.000 |
| GR | 608.000 | 0.000 | 600.000 | 0.100 | 595.000 | 110.000 | 590.000 | 310.000 | 590.500 | 400.000 |
| GR | 580.300 | 412.000 | 580.300 | 511.500 | 590.600 | 520.000 | 594.000 | 620.000 | 594.500 | 720.000 |
| GR | 595.000 | 1000.000 | 595.000 | 1200.000 | 600.000 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18701.000 | 21.000 | 400.000 | 520.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.400 | 590.500 | 0.000 |
| BT | 19.000 | 0.000 | 608.000 | 0.000 | 0.100 | 600.000 | 0.000 | 110.000 | 595.000 | 0.000 |
| BT | 310.000 | 590.000 | 0.000 | 400.000 | 590.500 | 590.300 | 448.000 | 590.500 | 590.300 | 448.100 |
| BT | 590.500 | 582.700 | 448.900 | 590.500 | 582.700 | 449.000 | 590.500 | 590.300 | 485.000 | 590.600 |
| BT | 590.300 | 485.100 | 590.600 | 582.700 | 485.900 | 590.600 | 582.700 | 486.000 | 590.600 | 590.300 |
| BT | 520.000 | 590.600 | 590.300 | 620.000 | 594.000 | 0.000 | 720.000 | 594.500 | 0.000 | 1000.000 |
| BT | 593.000 | 0.000 | 1200.000 | 595.000 | 0.000 | 1200.000 | 600.000 | 0.000 | 0.000 | 0.000 |
| GR | 608.000 | 0.000 | 600.000 | 0.100 | 595.000 | 110.000 | 590.000 | 310.000 | 590.500 | 400.000 |
| GR | 582.670 | 412.000 | 582.680 | 448.000 | 582.700 | 448.100 | 582.700 | 448.900 | 582.680 | 449.000 |
| GR | 582.700 | 485.000 | 582.700 | 485.100 | 582.700 | 485.900 | 582.700 | 486.000 | 582.710 | 511.500 |
| GR | 590.600 | 520.000 | 594.000 | 620.000 | 594.500 | 720.000 | 595.000 | 1000.000 | 595.000 | 1200.000 |
| GR | 600.000 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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FORM 4411-00 PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18711.000 | 0.000 | 0.000 | 0.000 | 10.000 | 10.000 | 10.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.500 | 590.600 | 0.000 |

U/S FACE OF FOOTBRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18712.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.500 | 590.600 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 |

X-SECT. D/S OF R.R.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19600.000 | 22.000 | 400.000 | 520.000 | 900.000 | 900.000 | 900.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 270.000 | 0.000 | 930.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 608.000 | 0.000 | 600.000 | 0.100 | 595.000 | 110.000 | 590.000 | 310.000 | 590.500 | 400.000 |
| GR | 582.670 | 412.000 | 580.900 | 430.000 | 580.300 | 440.000 | 580.000 | 450.000 | 580.400 | 460.000 |
| GR | 580.600 | 470.000 | 580.200 | 480.000 | 580.700 | 484.000 | 580.000 | 490.000 | 580.000 | 500.000 |
| GR | 582.710 | 511.500 | 593.400 | 520.000 | 594.000 | 620.000 | 594.500 | 720.000 | 595.000 | 1000.000 |
| GR | 595.000 | 1200.000 | 600.000 | 1350.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.070 | 0.070 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 1125.100 |

D/S FACE OF R.R. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19700.000 | 80.000 | 265.000 | 870.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 598.000 | 598.000 | 0.000 |
| GR | 600.000 | 0.000 | 598.000 | 260.000 | 598.000 | 265.000 | 583.200 | 265.100 | 582.300 | 290.000 |
| GR | 594.040 | 291.000 | 594.040 | 294.000 | 582.300 | 295.000 | 582.300 | 320.000 | 594.040 | 321.000 |
| GR | 594.040 | 324.000 | 582.300 | 325.000 | 582.300 | 350.000 | 594.040 | 351.000 | 594.040 | 354.000 |
| GR | 582.300 | 355.000 | 582.300 | 380.000 | 594.040 | 381.000 | 594.040 | 384.000 | 582.300 | 385.000 |
| GR | 582.300 | 410.000 | 594.040 | 411.000 | 594.040 | 414.000 | 582.300 | 415.000 | 582.300 | 440.000 |
| GR | 594.040 | 441.000 | 594.040 | 444.000 | 582.300 | 445.000 | 582.300 | 470.000 | 594.040 | 471.000 |
| GR | 594.040 | 474.000 | 582.300 | 475.000 | 582.300 | 500.000 | 594.040 | 501.000 | 594.040 | 504.000 |
| GR | 582.300 | 505.000 | 582.300 | 530.000 | 594.040 | 531.000 | 594.040 | 534.000 | 582.300 | 535.000 |
| GR | 582.300 | 560.000 | 594.040 | 561.000 | 594.040 | 564.000 | 582.300 | 565.000 | 582.300 | 590.000 |
| GR | 594.040 | 591.000 | 594.040 | 594.000 | 582.300 | 595.000 | 582.300 | 620.000 | 594.040 | 621.000 |
| GR | 594.040 | 624.000 | 582.300 | 625.000 | 582.300 | 650.000 | 594.040 | 651.000 | 594.040 | 654.000 |
| GR | 582.300 | 655.000 | 582.300 | 680.000 | 594.040 | 681.000 | 594.040 | 684.000 | 582.300 | 685.000 |
| GR | 582.300 | 710.000 | 594.040 | 711.000 | 594.040 | 714.000 | 582.300 | 715.000 | 582.300 | 740.000 |
| GR | 594.040 | 741.000 | 594.040 | 744.000 | 582.300 | 745.000 | 582.300 | 770.000 | 594.040 | 771.000 |
| GR | 594.040 | 774.000 | 582.300 | 775.000 | 582.300 | 800.000 | 594.100 | 801.000 | 594.100 | 806.000 |
| GR | 582.300 | 806.100 | 582.300 | 831.000 | 592.370 | 832.000 | 594.020 | 870.000 | 598.340 | 1125.100 |
| SB | 1.250 | 1.610 | 3.000 | 0.000 | 517.350 | 51.000 | 5475.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF R.R. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19747.000 | 0.000 | 0.000 | 0.000 | 47.000 | 47.000 | 47.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 594.040 | 599.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 599.200 | 599.200 | 0.000 |
| BT | 9.000 | 0.000 | 600.000 | 0.000 | 265.000 | 601.350 | 0.000 | 265.100 | 601.350 | 594.040 |
| BT | 800.000 | 601.360 | 594.040 | 800.000 | 601.350 | 0.000 | 870.000 | 601.410 | 0.000 | 870.000 |
| BT | 598.920 | 0.000 | 1125.100 | 599.200 | 0.000 | 1125.100 | 600.970 | 0.000 | 0.000 | 0.000 |
| NC | 0.070 | 0.070 | 0.020 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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FORM 1411 GO PRINTED BY NOTARY MANIFOLD FORMS.

DUMMY X-SECT.U/S OF R.R.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19748.000 | 12.000 | 265.000 | 870.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 600.000 | 600.000 | 0.000 |
| GR | 600.000 | 0.000 | 598.000 | 265.000 | 591.700 | 266.600 | 582.300 | 269.000 | 582.300 | 771.000 |
| GR | 594.100 | 771.100 | 594.100 | 776.000 | 582.300 | 776.100 | 582.300 | 802.000 | 592.370 | 802.100 |
| GR | 594.020 | 870.000 | 598.340 | 1125.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.500 | 3.000 | 0.000 | 1.000 | 0.000 | 9.400 | 0.000 | 0.000 | 0.000 |

X-SECT.AT CREST OF DAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19753.000 | 0.000 | 0.000 | 0.000 | 3.000 | 3.000 | 3.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 591.700 | 591.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 600.000 | 600.000 | 0.000 |
| BT | 4.000 | 265.000 | 600.000 | 0.000 | 265.000 | 591.700 | 0.000 | 870.000 | 591.700 | 0.000 |
| BT | 870.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. AT CORP. LIMITS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 22300.000 | 11.000 | 50.000 | 1300.000 | 2547.000 | 2547.000 | 2547.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 25.000 | 592.000 | -50.000 | 587.000 | 60.000 | 587.000 | 1290.000 |
| GR | 592.000 | 1300.000 | 595.000 | 1325.000 | 596.000 | 1350.000 | 595.000 | 1400.000 | 595.000 | 1600.000 |
| GR | 600.000 | 1650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

FORM 1411-09 PRINTED BY ROTARY MASTER FOLD FORMS
PRINTED IN U.S.A.

*PROF 1

CCHV= 0.300 CEHV= 0.500

*SECNO 500.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | DLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |
| | | | | | | | | | |
| | | | | | | | | | |
| A | | | | | | | | | |
| VALLEY SECTION FROM ROCKWOOD FIS | | | | | | | | | |
| | | | | | | | | | |
| 500.00 | 18.56 | 587.66 | 0.00 | 587.66 | 588.08 | 0.42 | 0.00 | 0.00 | 579.50 |
| 10390. | 72. | 10276. | 43. | 117. | 1965. | 91. | 0. | 0. | 582.30 |
| 0.00 | 0.61 | 5.23 | 0.47 | 0.120 | 0.035 | 0.120 | 0.000 | 569.10 | 71.23 |
| 0.000394 | 0. | 0. | 0. | 0 | 0 | 0 | 0.00 | 180.69 | 251.92 |

*SECNO 1800.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| B | | | | | | | | | |
| VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V10 | | | | | | | | | |
| 1800.00 | 17.07 | 588.47 | 0.00 | 0.00 | 588.51 | 0.05 | 0.32 | 0.11 | 581.90 |
| 10390. | 5339. | 4777. | 274. | 8131. | 1881. | 901. | 125. | 17. | 586.70 |
| 0.21 | 0.66 | 2.54 | 0.30 | 0.120 | 0.050 | 0.120 | 0.058 | 571.40 | 115.84 |
| 0.000222 | 650. | 1300. | 500. | 2 | 0 | 0 | 0.00 | 1906.41 | 2022.24 |

*SECNO 4400.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| C | | | | | | | | | |
| VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V9 | | | | | | | | | |
| 4400.00 | 19.54 | 588.94 | 0.00 | 0.00 | 589.04 | 0.10 | 0.50 | 0.02 | 580.60 |
| 10390. | 79. | 5462. | 4848. | 115. | 1607. | 7252. | 454. | 70. | 581.10 |
| 0.45 | 0.69 | 3.40 | 0.67 | 0.120 | 0.050 | 0.120 | 0.065 | 569.40 | 16.15 |
| 0.000323 | 1000. | 2600. | 1400. | .2 | 0 | 0 | 0.00 | 1592.11 | 1608.26 |

*SECNO 6200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | | | | | | | | | |
| VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V8 | | | | | | | | | |
| 6200.00 | 18.10 | 589.40 | 0.00 | 0.00 | 589.48 | 0.08 | 0.43 | 0.01 | 582.90 |
| 10390. | 5962. | 4428. | 0. | 7054. | 1326. | 0. | 614. | 92. | 590.40 |
| 0.62 | 0.85 | 3.34 | 0.00 | 0.120 | 0.050 | 0.120 | 0.068 | 571.30 | 183.60 |
| 0.000431 | 600. | 1800. | 600. | 2 | 0 | 0 | 0.00 | 1299.65 | 1483.25 |

*SECNO 8200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | DLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |
| | | | | | | | | | |
| E | | | | | | | | | |
| VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V7 | | | | | | | | | |

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FORM 1411-CO PRINTED BY SCRANTON MANIFOLD FORMS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8200.00 | 18.35 | 589.85 | 0.00 | 0.00 | 589.91 | 0.05 | 0.42 | 0.01 | 583.00 |
| 10390. | 2202. | 4753. | 3435. | 3648. | 1827. | 4831. | 857. | 125. | 581.20 |
| 0.88 | 0.60 | 2.60 | 0.71 | 0.120 | 0.050 | 0.120 | 0.069 | 571.50 | 128.00 |
| 0.000214 | 1000. | 2000. | 850. | 2 | 0 | 0 | 0.00 | 1428.59 | 1556.60 |

*SECNO 10300.000

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V6

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10300.00 | 17.26 | 590.16 | 0.00 | 0.00 | 590.21 | 0.05 | 0.31 | 0.00 | 583.40 |
| 10390. | 1211. | 5575. | 3605. | 2161. | 2246. | 6228. | 1129. | 162. | 581.40 |
| 1.14 | 0.56 | 2.48 | 0.58 | 0.120 | 0.050 | 0.120 | 0.069 | 572.90 | 532.38 |
| 0.000197 | 900. | 2100. | 900. | 2 | 0 | 0 | 0.00 | 1783.31 | 2315.69 |

*SECNO 12900.000

3265 DIVIDED FLOW

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V5

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12900.00 | 17.43 | 590.83 | 0.00 | 0.00 | 591.11 | 0.27 | 0.78 | 0.11 | 588.00 |
| 10390. | 454. | 8356. | 1580. | 879. | 1790. | 1649. | 1433. | 216. | 584.10 |
| 1.30 | 0.52 | 4.67 | 0.96 | 0.120 | 0.050 | 0.120 | 0.067 | 573.40 | 208.41 |
| 0.000801 | 1900. | 2600. | 1300. | 2 | 0 | 0 | 0.00 | 1075.12 | 1533.27 |

*SECNO 15800.000

3470 ENCROACHMENT STATIONS= 315.0 1000.0 TYPE= 1 TARGET= 685.000

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V4

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15800.00 | 17.66 | 591.86 | 0.00 | 0.00 | 591.97 | 0.11 | 0.82 | 0.05 | 586.70 |
| 10390. | 2073. | 7334. | 933. | 2698. | 2323. | 1293. | 1720. | 266. | 585.30 |
| 1.54 | 0.83 | 3.18 | 0.72 | 0.100 | 0.040 | 0.100 | 0.061 | 574.20 | 315.00 |
| 0.000210 | 2300. | 2100. | 2900. | 2 | 0 | 0 | 0.00 | 685.00 | 1000.00 |

*SECNO 17080.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 421.3 582.2 TYPE= 1 TARGET= 210.000

X-SECTION D/S OF TELEGRAPH RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17080.00 | 18.82 | 592.12 | 0.00 | 0.00 | 592.56 | 0.43 | 0.43 | 0.16 | 597.30 |
| 10390. | 27. | 10258. | 105. | 43. | 1931. | 99. | 1840. | 278. | 578.60 |
| 1.61 | 0.63 | 3.31 | 1.06 | 0.100 | 0.040 | 0.100 | 0.059 | 573.30 | 421.30 |
| 0.000607 | 1280. | 1280. | 1280. | 2 | 0 | 0 | 0.00 | 149.22 | 582.16 |

CCHV= 0.300 CEHV= 0.500

*SECNO 17180.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | RL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |

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FORM 561 CO PRINTED BY ROTARY MANIFOLD FORMS.

| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
|---|---|---|---|---|---|---|---|---|---|
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 595.00 ELREA= 595.00

J D/S FACE OF TELEGRAPH RD.BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17180.00 | 18.74 | 592.04 | 0.00 | 0.00 | 592.77 | 0.73 | 0.07 | 0.15 | 578.00 |
| 10390. | 0. | 10390. | 0. | 0. | 1515. | 0. | 1844. | 278. | 579.00 |
| 1.62 | 0.00 | 6.86 | 0.00 | 0.100 | 0.035 | 0.100 | 0.059 | 573.30 | 565.00 |
| 0.000739 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 99.20 | 664.20 |

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.65 | 3.00 | 0.00 | 88.73 | 42.00 | 822.40 | 0.00 | 573.30 | 573.30 |

*SECNO 17246.000
PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 596.13 | 594.92 | 2.33 | 0. | 10390. | 822. | 822. | 590.90 | 597.17 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 597.17 ELREA= 597.17

U/S FACE OF TELEGRAPH RD.BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17246.00 | 22.35 | 595.65 | 0.00 | 0.00 | 596.13 | 0.48 | 3.36 | 0.00 | 578.00 |
| 10390. | 0. | 10390. | 0. | 0. | 1873. | 0. | 1847. | 278. | 579.00 |
| 1.62 | 0.00 | 5.55 | 0.00 | 0.100 | 0.035 | 0.100 | 0.059 | 573.30 | 565.00 |
| 0.000372 | 66. | 66. | 66. | 2 | 0 | 0 | 0.00 | 99.20 | 664.20 |

*SECNO 17271.000

3470 ENCROACHMENT STATIONS= 580.0 680.0 TYPE= 1 TARGET= 300.000

X-SECTION U/S OF TELEGRAPH RD.BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17271.00 | 22.56 | 595.86 | 0.00 | 0.00 | 596.20 | 0.35 | 0.03 | 0.04 | 578.00 |
| 10390. | 758. | 9379. | 253. | 968. | 1893. | 255. | 1852. | 279. | 579.00 |
| 1.62 | 0.78 | 4.95 | 0.99 | 0.100 | 0.035 | 0.100 | 0.058 | 573.30 | 380.00 |
| 0.000273 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 300.00 | 680.00 |

*SECNO 18700.000

D/S FACE OF FOOTBRIDGE

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 18700.00    16.05   596.35     0.00     0.00   596.65     0.29     0.43     0.02   590.50
   10390.    1065.    8665.     660.    1340.    1822.    1336.    1972.     301.   590.60
     1.72     0.79     4.76     0.49    0.100    0.035    0.100    0.056   580.30    80.24
 0.000366    1369.    1369.    1369.        2        0        0     0.00  1119.76  1200.00

*SECNO 18701.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  590.00 MAX ELLC=  590.30

 18701.00    13.80   596.47     0.00     0.00   596.68     0.20     0.00     0.03   590.50
   10390.    2219.    6734.    1437.    1378.    1533.    1415.    1972.     301.   590.60
     1.72     1.61     4.39     1.02    0.100    0.035    0.100    0.056   582.67    77.66
 0.001462       1.       1.       1.        2        0        0   -40.50  1122.34  1200.00

*SECNO 18711.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EC        HV        HL        CLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOE      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPWID      ENDST

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  590.00 MAX ELLC=  590.30

 18711.00    13.82   596.49     0.00     0.00   596.69     0.20     0.01     0.00   590.50
   10390.    2221.    6726.    1443.    1381.    1534.    1421.    1973.     302.   590.60
     1.72     1.61     4.39     1.02    0.100    0.035    0.100    0.056   582.67    77.48
 0.001456      10.      10.      10.        0        0        0   -40.50  1122.52  1200.00

*SECNO 18712.000

          U/S FACE OF FOOTBRIDGE

 18712.00    13.75   596.42     0.00     0.00   596.76     0.34     0.00     0.07   590.50
   10390.    1310.    8248.     832.    1360.    1567.    1378.    1973.     302.   590.60
     1.72     0.96     5.26     0.60    0.100    0.035    0.100    0.056   582.67    78.86
 0.000530       1.       1.       1.        2        0        0     0.00  1121.14  1200.00

*SECNO 19600.000

3470 ENCROACHMENT STATIONS=     270.0     930.0  TYPE=     1  TARGET=     660.000

          X-SECT. D/S OF R.R.BRIDGE

 19600.00    16.85   596.85     0.00     0.00   597.18     0.33     0.41     0.00   590.50
   10390.     859.    8959.     572.     848.    1804.    1028.    2056.     320.   593.40
     1.78     1.01     4.97     0.56    0.100    0.035    0.100    0.055   580.00   270.00
 0.000402     900.     900.     900.        2        0        0     0.00   660.00   930.00

CCHV=   0.300 CEHV=   0.500
*SECNO 19700.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       598.00 ELREA=       598.00
```

D/S FACE OF R.R. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 19700.00 | 14.95 | 597.25 | 0.00 | 0.00 | 597.28 | 0.03 | 0.01 | 0.09 | 598.00 | |
| 10390. | 0. | 10390. | 0. | 0. | 7753. | 0. | 2069. | 321. | 594.02 | |
| 1.80 | 0.00 | 1.34 | 0.00 | 0.070 | 0.035 | 0.070 | 0.055 | 582.30 | 265.01 | |
| 0.000066 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 604.99 | 870.00 | |

West spillway not considered as stated in write up

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

| SB XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|
| 1.25 | 1.61 | 3.00 | 0.00 | 517.35 | 51.00 | 5475.00 | 0.00 | 582.30 | 582.30 |

*SECNO 19747.000

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 597.34 | 597.29 | 0.00 | 0. | 10390. | 5475. | 5475. | 594.04 | 599.20 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 599.20 ELREA= 599.20

U/S FACE OF R.R. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 19747.00 | 15.02 | 597.32 | 0.00 | 0.00 | 597.34 | 0.03 | 0.06 | 0.00 | 598.00 | |
| 10390. | 0. | 10390. | 0. | 0. | 7790. | 0. | 2077. | 322. | 594.02 | |
| 1.81 | 0.00 | 1.33 | 0.00 | 0.070 | 0.035 | 0.070 | 0.055 | 582.30 | 265.00 | |
| 0.000065 | 47. | 47. | 47. | 2 | 0 | 0 | 0.00 | 605.00 | 870.00 | |

CCHV= 0.300 CEHV= 0.500

*SECNO 19748.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.00 ELREA= 600.00

DUMMY X-SECT.U/S OF R.R.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 19748.00 | 15.02 | 597.32 | 0.00 | 0.00 | 597.35 | 0.02 | 0.00 | 0.00 | 598.00 | |
| 10390. | 0. | 10390. | 0. | 0. | 8255. | 0. | 2077. | 322. | 594.02 | |
| 1.81 | 0.00 | 1.26 | 0.00 | 0.070 | 0.020 | 0.070 | 0.055 | 582.30 | 265.17 | |
| 0.000010 | 1. | 1. | 1. | 0 | 0 | 0 | 0.00 | 604.83 | 870.00 | |

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

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| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.50 | 3.00 | 0.00 | 1.00 | 0.00 | 9.40 | 0.00 | 582.30 | 582.30 |

*SECNO 19753.000

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 29053.78 | 597.35 | 0.00 | 10389. | 34. | 9. | 9. | 591.70 | 591.70 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 600.00 ELREA= 600.00

X-SECT.AT CREST OF DAM

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19753.00 | 15.30 | 597.60 | 0.00 | 0.00 | 597.63 | 0.02 | 0.28 | 0.00 | 598.00 |
| 10390. | 0. | 10390. | 0. | 0. | 8428. | 0. | 2078. | 322. | 594.02 |
| 1.81 | 0.00 | 1.23 | 0.00 | 0.070 | 0.020 | 0.070 | 0.055 | 582.30 | 265.10 |
| 0.000009 | 3. | 3. | 3. | 2 | 0 | 10 | 0.00 | 604.90 | 870.00 |

*SECNO 22300.000

VALLEY SECT. AT CORP. LIMITS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22300.00 | 10.64 | 597.64 | 0.00 | 0.00 | 597.65 | 0.01 | 0.02 | 0.00 | 592.00 |
| 10390. | 13. | 10304. | 73. | 121. | 13241. | 824. | 2739. | 387. | 592.00 |
| 2.72 | 0.11 | 0.78 | 0.09 | 0.070 | 0.020 | 0.070 | 0.050 | 587.00 | 11.84 |
| 0.000005 | 2547. | 2547. | 2547. | 1 | 0 | 0 | 0.00 | 1614.49 | 1626.33 |

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

T1      HURON RIVER
T2      100 YEAR ENCROACHMENT RUN
T3      CITY OF FLATROCK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.      7.        0.        0.  0.000000      0.00      0.0       0.   587.760     0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    15.000    0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     15.000
```

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FORM 1411-00 PRINTED BY WOVARY MANIFOLD FORMS

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*PROF 2

CCHV=   0.300 CEHV=   0.500
*SECNO 500.000
 2800 NAT Q1=    5236.06  WSEL=     587.66  ENC Q1=   5236.06  WSEL=     587.76  RATIO=  0.0000
 NAT Q1=    5290.  RATIOS LOB,CH,ROB=  0.0071  0.9887  0.0043  WSEL=     587.76
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=       98.0      218.0  TYPE=      4  TARGET=        0.010

          VALLEY SECTION FROM ROCKWOOD FIS

    500.00    18.66    587.76     0.00    587.66    588.19     0.43      0.00      0.00    579.50
     10390.       5.    10385.       0.       16.     1976.       0.        0.        0.    582.30
      0.00     0.35      5.25     0.00     0.120     0.035     0.120     0.000    569.10     98.02
  0.000417       0.        0.       0.         0         0         0      0.00    119.98    218.00


 FLOW DISTRIBUTION FOR SECNO=    500.00          CWSEL=    587.76

 STA=       98.      100.      218.
  PER Q=      0.1      99.9
  AREA=      15.8    1976.5
   VEL=       0.3       5.3

*SECNO 1800.000
 2800 NAT Q1=    6980.31  WSEL=     588.47  ENC Q1=   6980.31  WSEL=     588.57  RATIO=  0.0000
 NAT Q1=    7124.  RATIOS LOB,CH,ROB=  0.5163  0.4558  0.0279  WSEL=     588.57

 3470 ENCROACHMENT STATIONS=      221.3     1867.4  TYPE=      4  TARGET=        0.020

          VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V10

    1800.00    17.18    588.58     0.00    588.47    588.63     0.05      0.33      0.11    581.90
     10390.    5372.     4826.      191.     8005.     1896.      617.      121.       15.    586.70
      0.20     0.67      2.55     0.31     0.120     0.050     0.120     0.058    571.40    221.30
  0.000220      650.      1300.     500.         2         0         0      0.00   1648.06   1869.36


 FLOW DISTRIBUTION FOR SECNO=   1800.00          CWSEL=    588.58

 STA=      221.      390.      590.      790.      890.      990.     1190.     1290.     1460.     1590.     1869.
  PER Q=      1.4       4.3       9.8       5.9       6.5      10.5       4.9       8.3      46.5       1.8
  AREA=     438.6     896.6    1466.6     823.3     873.3    1526.6     733.3    1246.6    1896.3     617.1
   VEL=       0.3       0.5       0.7       0.7       0.8       0.7       0.7       0.7       2.5       0.3

*SECNO 4400.000
 2800 NAT Q1=    5778.86  WSEL=     588.94  ENC Q1=   5778.86  WSEL=     589.04  RATIO=  0.0000
 NAT Q1=    5897.  RATIOS LOB,CH,ROB=  0.0077  0.5201  0.4722  WSEL=     589.04

 3470 ENCROACHMENT STATIONS=       39.0     1460.7  TYPE=      4  TARGET=        0.020

          VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V9
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4400.00 | 19.67 | 589.07 | 0.00 | 588.94 | 589.16 | 0.09 | 0.51 | 0.02 | 580.60 |
| 10390. | 0. | 5356. | 5034. | 0. | 1619. | 7122. | 442. | 61. | 581.10 |
| 0.46 | 0.00 | 3.31 | 0.71 | 0.120 | 0.050 | 0.120 | 0.065 | 569.40 | 39.00 |
| 0.000338 | 1000. | 2600. | 1400. | 2 | 0 | 0 | 0.00 | 1421.69 | 1460.69 |

FLOW DISTRIBUTION FOR SECNO= 4400.00 CWSEL= 589.07

| STA= | 39. | 130. | 300. | 500. | 700. | 850. | 1000. | 1150. | 1300. | 1461. |
|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 51.5 | 9.7 | 8.9 | 7.9 | 5.2 | 4.8 | 4.4 | 3.9 | 3.8 | |
| AREA= | 1619.0 | 1202.2 | 1214.3 | 1134.3 | 783.2 | 745.7 | 708.2 | 663.2 | 671.2 | |
| VEL= | 3.3 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | |

*SECNO 6200.000
2800 NAT Q1= 5004.65 WSEL= 589.40 ENC Q1= 5004.65 WSEL= 589.50 RATIO= 0.0000
NAT Q1= 5109. RATIOS LOB,CH,ROB= 0.5779 0.4221 0.0000 WSEL= 589.50

3470 ENCROACHMENT STATIONS= 261.2 1485.0 TYPE= 4 TARGET= 0.020

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V8

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6200.00 | 18.23 | 589.53 | 0.00 | 589.40 | 589.61 | 0.08 | 0.44 | 0.00 | 582.90 |
| 10390. | 5924. | 4466. | 0. | 6899. | 1339. | 0. | 600. | 82. | 590.40 |
| 0.63 | 0.86 | 3.34 | 0.00 | 0.120 | 0.050 | 0.120 | 0.068 | 571.30 | 261.20 |
| 0.000426 | 600. | 1800. | 600. | 2 | 0 | 0 | 0.00 | 1222.27 | 1483.47 |

FLOW DISTRIBUTION FOR SECNO= 6200.00 CWSEL= 589.53

| STA= | 261. | 300. | 450. | 550. | 650. | 800. | 950. | 1100. | 1250. | 1385. | 1485. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 1.4 | 6.4 | 4.3 | 4.3 | 7.4 | 8.4 | 8.5 | 8.6 | 7.8 | 43.0 | |
| AREA= | 206.1 | 829.1 | 552.7 | 552.7 | 904.1 | 979.1 | 986.6 | 994.1 | 894.7 | 1338.9 | |
| VEL= | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 0.9 | 3.3 | |

*SECNO 8200.000
2800 NAT Q1= 7098.40 WSEL= 589.85 ENC Q1= 7098.40 WSEL= 589.95 RATIO= 0.0000
NAT Q1= 7227. RATIOS LOB,CH,ROB= 0.2140 0.4543 0.3317 WSEL= 589.95

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | GLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IN2 | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 266.5 1536.0 TYPE= 4 TARGET= 0.018

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V7

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8200.00 | 18.48 | 589.98 | 0.00 | 589.85 | 590.03 | 0.05 | 0.41 | 0.01 | 583.00 |
| 10390. | 2167. | 4782. | 3441. | 3445. | 1842. | 4802. | 839. | 112. | 581.20 |
| 0.88 | 0.63 | 2.60 | 0.72 | 0.120 | 0.050 | 0.120 | 0.069 | 571.50 | 266.46 |
| 0.000211 | 1000. | 2000. | 850. | 2 | 0 | 0 | 0.00 | 1269.56 | 1536.01 |

FLOW DISTRIBUTION FOR SECNO= 8200.00 CWSEL= 589.98

| STA= | 266. | 430. | 630. | 810. | 930. | 980. | 1080. | 1180. | 1230. | 1480. | 1535. | 1536. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 3.5 | 8.7 | 8.6 | 46.0 | 3.1 | 4.8 | 6.1 | 3.4 | 12.1 | 3.6 | 0.0 | |
| AREA= | 740.3 | 1385.5 | 1319.0 | 1841.8 | 431.4 | 730.3 | 842.8 | 451.4 | 1846.9 | 488.3 | 10.7 | |
| VEL= | 0.5 | 0.7 | 0.7 | 2.6 | 0.8 | 0.7 | 0.7 | 0.8 | 0.7 | 0.8 | 0.2 | |

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*SECNO 10300.000
2800 NAT Q1= 7404.08 WSEL= 590.16 ENC Q1= 7404.08 WSEL= 590.26 RATIO= 0.0000
NAT Q1= 7548. RATIOS LOB,CH,ROB= 0.1178 0.5323 0.3499 WSEL= 590.26

3470 ENCROACHMENT STATIONS= 743.2 2224.0 TYPE= 4 TARGET= 0.019

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V6

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10300.00 | 17.38 | 590.28 | 0.00 | 590.16 | 590.34 | 0.05 | 0.30 | 0.00 | 583.40 |
| 10390. | 1149. | 5629. | 3612. | 1860. | 2264. | 6092. | 1105. | 144. | 581.40 |
| 1.14 | 0.62 | 2.49 | 0.59 | 0.120 | 0.050 | 0.120 | 0.069 | 572.90 | 743.18 |
| 0.000195 | 900. | 2100. | 900. | 2 | 0 | 0 | 0.00 | 1480.84 | 2224.02 |

FLOW DISTRIBUTION FOR SECNO= 10300.00 CWSEL= 590.28

| STA= | 743. | 775. | 795. | 1025. | 1177. | 1200. | 1825. | 1875. | 1895. | 1925. | 2025. | 2125. | 2224. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 0.4 | 0.6 | 10.0 | 54.2 | 1.1 | 27.2 | 2.4 | 0.5 | 0.3 | 1.1 | 1.1 | 1.1 | |
| AREA= | 116.0 | 115.6 | 1628.7 | 2264.4 | 175.5 | 4425.8 | 374.1 | 102.6 | 92.4 | 308.1 | 308.1 | 305.1 | |
| VEL= | 0.4 | 0.6 | 0.6 | 2.5 | 0.7 | 0.6 | 0.7 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | |

*SECNO 12900.000
2800 NAT Q1= 3670.26 WSEL= 590.83 ENC Q1= 3670.26 WSEL= 590.93 RATIO= 0.0000
NAT Q1= 3742. RATIOS LOB,CH,ROB= 0.0469 0.7983 0.1548 WSEL= 590.93

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 447.8 1409.7 TYPE= 4 TARGET= 0.019

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V5

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12900.00 | 17.55 | 590.95 | 0.00 | 590.83 | 591.23 | 0.28 | 0.78 | 0.11 | 588.00 |
| 10390. | 397. | 8452. | 1541. | 651. | 1805. | 1496. | 1394. | 185. | 584.10 |
| 1.29 | 0.61 | 4.68 | 1.03 | 0.120 | 0.050 | 0.120 | 0.066 | 573.40 | 447.75 |
| 0.000797 | 1900. | 2600. | 1300. | 2 | 0 | 0 | 0.00 | 712.19 | 1409.67 |

FLOW DISTRIBUTION FOR SECNO= 12900.00 CWSEL= 590.95

| STA= | 448. | 700. | 730. | 860. | 880. | 950. | 1375. | 1410. |
|---|---|---|---|---|---|---|---|---|
| PER Q= | 3.2 | 0.6 | 81.3 | 1.5 | 4.4 | 8.0 | 0.9 | |
| AREA= | 565.7 | 85.4 | 1805.3 | 127.9 | 405.8 | 840.2 | 122.4 | |
| VEL= | 0.6 | 0.7 | 4.7 | 1.2 | 1.1 | 1.0 | 0.8 | |

*SECNO 15800.000

3470 ENCROACHMENT STATIONS= 315.0 1000.0 TYPE= 1 TARGET= 685.000

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V4

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15800.00 | 17.76 | 591.96 | 0.00 | 591.86 | 592.08 | 0.11 | 0.80 | 0.05 | 586.70 |
| 10390. | 2088. | 7357. | 944. | 2533. | 2340. | 1315. | 1672. | 225. | 585.30 |
| 1.54 | 0.82 | 3.14 | 0.72 | 0.100 | 0.040 | 0.100 | 0.061 | 574.20 | 315.00 |
| 0.000204 | 2300. | 2100. | 2900. | 2 | 0 | 0 | 0.00 | 685.00 | 1000.00 |

FLOW DISTRIBUTION FOR SECNO= 15800.00 CWSEL= 591.96

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FORM 121-68 PRINTED BY ROTARY BURSTFOLD FORMS.

```
 STA=      315.      400.      500.      600.      640.      795.     1000.
   PER Q=     6.0       7.0       5.4       1.6      70.8       9.1
    AREA=   742.8     831.4     716.4     242.6    2339.7    1314.8
     VEL=     0.8       0.9       0.8       0.7       3.1       0.7

 *SECNO 17080.000

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=      421.3      582.2  TYPE=     1  TARGET=      210.000

          X-SECTION D/S OF TELEGRAPH RD.

  17080.00     18.92    592.22      0.00    592.12    592.65      0.43      0.42      0.16    597.30
   10390.        27.     10257.      105.       44.      1944.      100.      1794.      237.     578.60
      1.61      0.63      5.28      1.05     0.100     0.040     0.100     0.059    573.30    421.30
 0.000595     1280.     1280.     1280.         2         0         0      0.00    149.44    582.16

 FLOW DISTRIBUTION FOR SECNO=  17080.00          CWSEL=     592.22

 STA=      421.      424.      431.      575.      582.
   PER Q=     0.1       0.2      98.7       1.0
    AREA=    16.0      27.6    1944.2     100.0
     VEL=     0.5       0.7       5.3       1.1

 CCHV=   0.300 CEHV=   0.500
 *SECNO 17180.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPWID      ENDST

 3470 ENCROACHMENT STATIONS=      133.0      795.0  TYPE=     1  TARGET=      662.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      595.00 ELREA=      595.00

          D/S FACE OF TELEGRAPH RD.BRIDGE

  17180.00     18.84    592.14      0.00    592.04    592.86      0.72      0.07      0.15    576.00
   10390.         0.     10390.        0.        0.      1524.        0.      1798.      237.     579.00
      1.62      0.00      6.82      0.00     0.100     0.035     0.100     0.059    573.30    565.00
 0.000724      100.      100.      100.         2         0         0      0.00     99.20    664.20

 FLOW DISTRIBUTION FOR SECNO=  17180.00          CWSEL=     592.14

 STA=      565.      664.
   PER Q=   100.0
    AREA=  1524.3
     VEL=     6.4

 SPECIAL BRIDGE

 5070 VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
```

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FORM 1411 GO PRINTED BY ROTARY MANIFOLD FORMS.

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.65 | 3.00 | 0.00 | 88.73 | 42.00 | 822.40 | 0.00 | 573.30 | 573.30 |

*SECNO 17246.000

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 596.23 | 594.97 | 2.28 | 0. | 10390. | 822. | 822. | 590.90 | 597.17 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 597.17 ELREA= 597.17

U/S FACE OF TELEGRAPH RD.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 17246.00 | 22.46 | 595.76 | 0.00 | 595.65 | 596.23 | 0.47 | 3.37 | 0.00 | 578.00 | |
| 10390. | 0. | 10390. | 0. | 0. | 1883. | 0. | 1800. | 238. | 579.00 | |
| 1.62 | 0.00 | 5.52 | 0.00 | 0.100 | 0.035 | 0.100 | 0.059 | 573.30 | 565.00 | |
| 0.000366 | 66. | 66. | 66. | 2 | 0 | 0 | 0.00 | 99.20 | 664.20 | |

FLOW DISTRIBUTION FOR SECNO= 17246.00 CWSEL= 595.76

| STA= | 565. | 664. |
|---|---|---|
| PER Q= | 100.0 | |
| AREA= | 1883.1 | |
| VEL= | 5.5 | |

*SECNO 17271.000

3470 ENCROACHMENT STATIONS= 380.0 680.0 TYPE= 1 TARGET= 300.000

X-SECTION U/S OF TELEGRAPH RD.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 17271.00 | 22.66 | 595.96 | 0.00 | 595.86 | 596.30 | 0.34 | 0.03 | 0.04 | 578.00 | |
| 10390. | 772. | 9365. | 253. | 987. | 1903. | 256. | 1806. | 238. | 579.00 | |
| 1.62 | 0.78 | 4.92 | 0.99 | 0.100 | 0.035 | 0.100 | 0.058 | 573.30 | 380.00 | |
| 0.000267 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 300.00 | 680.00 | |

FLOW DISTRIBUTION FOR SECNO= 17271.00 CWSEL= 595.96

| STA= | 380. | 535. | 556. | 565. | 664. | 680. |
|---|---|---|---|---|---|---|
| PER Q= | 4.2 | 1.7 | 1.5 | 90.1 | 2.4 | |
| AREA= | 679.1 | 177.7 | 130.1 | 1903.3 | 256.4 | |
| VEL= | 0.6 | 1.0 | 1.2 | 4.9 | 1.0 | |

*SECNO 18700.000

D/S FACE OF FOOTBRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 18700.00 | 16.15 | 596.45 | 0.00 | 596.35 | 596.73 | 0.29 | 0.42 | 0.02 | 590.50 | |
| 10390. | 1084. | 8610. | 696. | 1371. | 1833. | 1600. | 1928. | 260. | 590.60 | |
| 1.72 | 0.79 | 4.70 | 0.50 | 0.100 | 0.035 | 0.100 | 0.056 | 580.30 | 78.15 | |
| 0.000354 | 1369. | 1369. | 1369. | 2 | 0 | 0 | 0.00 | 1121.85 | 1200.00 | |

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FORM 141-80 PRINTED BY ROTARY MARIFOLD FORMS

FLOW DISTRIBUTION FOR SECNO= 18700.00 CWSEL= 596.45

| STA= | 78. | 110. | 310. | 400. | 520. | 620. | 720. | 1000. | 1200. |
|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 0.1 | 5.3 | 5.1 | 82.9 | 2.9 | 1.0 | 1.8 | 1.0 | |
| AREA= | 23.1 | 789.8 | 557.9 | 1832.9 | 414.9 | 219.9 | 475.8 | 289.8 | |
| VEL= | 0.2 | 0.7 | 0.9 | 4.7 | 0.7 | 0.5 | 0.4 | 0.4 | |

*SECNO 18701.000

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 590.00 MAX ELLC= 590.30

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18701.00 | 13.90 | 596.57 | 0.00 | 596.47 | 596.76 | 0.20 | 0.00 | 0.03 | 590.50 |
| 10390. | 2239. | 6650. | 1501. | 1409. | 1545. | 1481. | 1928. | 260. | 590.60 |
| 1.72 | 1.59 | 4.31 | 1.01 | 0.100 | 0.035 | 0.100 | 0.056 | 582.67 | 75.54 |
| 0.001391 | 1. | 1. | 1. | 2 | 0 | 0 | -40.50 | 1124.46 | 1200.00 |

FLOW DISTRIBUTION FOR SECNO= 18701.00 CWSEL= 596.57

| STA= | 76. | 110. | 310. | 400. | 520. | 620. | 720. | 1000. | 1200. |
|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 0.1 | 11.1 | 10.4 | 64.0 | 6.0 | 2.2 | 4.0 | 2.2 | |
| AREA= | 27.0 | 813.6 | 568.6 | 1544.5 | 426.8 | 231.8 | 509.0 | 313.6 | |
| VEL= | 0.5 | 1.4 | 1.9 | 4.3 | 1.5 | 1.0 | 0.8 | 0.7 | |

*SECNO 18711.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 590.00 MAX ELLC= 590.30

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18711.00 | 13.91 | 596.58 | 0.00 | 596.49 | 596.78 | 0.19 | 0.01 | 0.00 | 590.50 |
| 10390. | 2240. | 6643. | 1506. | 1412. | 1546. | 1487. | 1929. | 261. | 590.60 |
| 1.72 | 1.59 | 4.30 | 1.01 | 0.100 | 0.035 | 0.100 | 0.056 | 582.67 | 75.36 |
| 0.001385 | 10. | 10. | 10. | 0 | 0 | 0 | -40.50 | 1124.64 | 1200.00 |

FLOW DISTRIBUTION FOR SECNO= 18711.00 CWSEL= 596.58

| STA= | 75. | 110. | 310. | 400. | 520. | 620. | 720. | 1000. | 1200. |
|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 0.1 | 11.1 | 10.4 | 63.9 | 6.0 | 2.2 | 4.1 | 2.3 | |
| AREA= | 27.3 | 815.2 | 569.4 | 1545.5 | 427.6 | 232.6 | 511.3 | 315.2 | |
| VEL= | 0.5 | 1.4 | 1.9 | 4.3 | 1.5 | 1.0 | 0.8 | 0.7 | |

*SECNO 18712.000

U/S FACE OF FOOTBRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18712.00 | 13.84 | 596.51 | 0.00 | 596.42 | 596.85 | 0.33 | 0.00 | 0.07 | 590.50 |
| 10390. | 1330. | 8185. | 875. | 1392. | 1579. | 1445. | 1929. | 261. | 590.60 |
| 1.72 | 0.96 | 5.19 | 0.51 | 0.100 | 0.035 | 0.100 | 0.056 | 582.67 | 76.71 |
| 0.000509 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 1123.29 | 1200.00 |

FLOW DISTRIBUTION FOR SECNO= 18712.00 CWSEL= 596.51

| STA= | 77. | 110. | 310. | 400. | 520. | 620. | 720. | 1000. | 1200. |
|---|---|---|---|---|---|---|---|---|---|

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| PER Q= | 0.1 | 6.5 | 6.2 | 78.8 | 3.5 | 1.3 | 2.3 | 1.3 |
| AREA= | 25.2 | 802.9 | 563.8 | 1578.6 | 421.4 | 226.4 | 494.0 | 302.9 |
| VEL= | 0.3 | 0.8 | 1.1 | 5.2 | 0.9 | 0.6 | 0.5 | 0.4 |

*SECNO 19600.000

3470 ENCROACHMENT STATIONS= 270.0 930.0 TYPE= 1 TARGET= 660.000

X-SECT. D/S OF R.R.BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19600.00 | 16.92 | 596.92 | 0.00 | 596.85 | 597.25 | 0.33 | 0.40 | 0.00 | 590.50 |
| 10390. | 865. | 8931. | 594. | 858. | 1813. | 1060. | 2013. | 279. | 593.40 |
| 1.78 | 1.01 | 4.93 | 0.56 | 0.100 | 0.035 | 0.100 | 0.055 | 580.00 | 270.00 |
| 0.000392 | 900. | 900. | 900. | 2 | 0 | 0 | 0.00 | 660.00 | 930.00 |

FLOW DISTRIBUTION FOR SECNO= 19600.00 CWSEL= 596.92

| STA= | 270. | 310. | 400. | 520. | 620. | 720. | 930. |
|---|---|---|---|---|---|---|---|
| PER Q= | 2.3 | 6.0 | 86.0 | 2.0 | 1.5 | 2.3 | |
| AREA= | 257.0 | 600.7 | 1813.3 | 322.4 | 267.4 | 469.7 | |
| VEL= | 0.9 | 1.0 | 4.9 | 0.6 | 0.6 | 0.5 | |

CCHV= 0.300 CEHV= 0.500

*SECNO 19700.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 598.00 ELREA= 598.00

D/S FACE OF R.R. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19700.00 | 15.02 | 597.32 | 0.00 | 597.25 | 597.35 | 0.03 | 0.01 | 0.09 | 598.00 |
| 10390. | 0. | 10390. | 0. | 0. | 7794. | 0. | 2026. | 281. | 594.02 |
| 1.80 | 0.00 | 1.33 | 0.00 | 0.070 | 0.035 | 0.070 | 0.055 | 582.30 | 265.00 |
| 0.000065 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 605.00 | 870.00 |

FLOW DISTRIBUTION FOR SECNO= 19700.00 CWSEL= 597.32

| STA= | 265. | 870. |
|---|---|---|
| PER Q= | 100.0 | |
| AREA= | 7794.4 | |
| VEL= | 1.3 | |

SPECIAL BRIDGE

507C,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.61 | 3.00 | 0.00 | 517.35 | 51.00 | 5475.00 | 0.00 | 582.30 | 582.30 |

*SECNO 19747.000

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 597.41 | 597.36 | 0.00 | 0. | 10390. | 5475. | 5475. | 594.04 | 599.20 |

FORM 1311 SO PRINTED BY ROPAKY MANIFOLD FORMS
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 599.20 ELREA= 599.20

U/S FACE OF R.R. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19747.00 | 15.09 | 597.39 | 0.00 | 597.32 | 597.41 | 0.03 | 0.06 | 0.00 | 598.00 |
| 10390. | 0. | 10390. | 0. | 0. | 7832. | 0. | 2035. | 281. | 594.02 |
| 1.81 | 0.00 | 1.33 | 0.00 | 0.070 | 0.035 | 0.070 | 0.055 | 582.30 | 265.00 |
| 0.000064 | 47. | 47. | 47. | 2 | 0 | 0 | 0.00 | 605.00 | 870.00 |

FLOW DISTRIBUTION FOR SECNO= 19747.00 CWSEL= 597.39

STA= 265. 870.
PER Q= 100.0
AREA= 7832.1
VEL= 1.3

CCHV= 0.300 CEHV= 0.500

*SECNO 19748.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | II2 | ICONT | CORAR | TOPWID | ENDST |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.00 ELREA= 600.00

DUMMY X-SECT.U/S OF R.R.BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19748.00 | 15.09 | 597.39 | 0.00 | 597.32 | 597.41 | 0.02 | 0.00 | 0.00 | 598.00 |
| 10390. | 0. | 10390. | 0. | 0. | 8297. | 0. | 2035. | 281. | 594.02 |
| 1.81 | 0.00 | 1.25 | 0.00 | 0.070 | 0.020 | 0.070 | 0.055 | 582.30 | 265.16 |
| 0.000010 | 1. | 1. | 1. | 0 | 0 | 0 | 0.00 | 604.84 | 870.00 |

FLOW DISTRIBUTION FOR SECNO= 19748.00 CWSEL= 597.39

STA= 265. 870.
PER Q= 100.0
AREA= 8296.5
VEL= 1.3

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.50 | 3.00 | 0.00 | 1.00 | 0.00 | 9.40 | 0.00 | 582.30 | 582.30 |

*SECNO 19753.000
PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 29053.85 | 597.41 | 0.00 | 10356. | 34. | 9. | 9. | 591.70 | 591.70 |

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FORM 1411 CO-PRINTED BY ROTARY MANIFOLD FORMS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.00 ELREA= 600.00

X-SECT.AT CREST OF DAM

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19753.00 | 15.37 | 597.67 | 0.00 | 597.60 | 597.69 | 0.02 | 0.28 | 0.00 | 598.00 |
| 10390. | 0. | 10390. | 0. | 0. | 8468. | 0. | 2036. | 281. | 594.02 |
| 1.81 | 0.00 | 1.23 | 0.00 | 0.070 | 0.020 | 0.070 | 0.055 | 582.30 | 265.08 |
| 0.000009 | 3. | 3. | 3. | 2 | 0 | 10 | 0.00 | 604.92 | 870.00 |

FLOW DISTRIBUTION FOR SECNO= 19753.00 CWSEL= 597.67

STA= 265. 870.
PER Q= 100.0
AREA= 8467.9
VEL= 1.2

*SECNO 22300.000
2800 NAT Q1= 47788.79 WSEL= 597.64 ENC Q1= 48182.97 WSEL= 597.74 RATIO= -0.0082
NAT Q1= 48603. RATIOS LOB,CH,ROB= 0.0013 0.9914 0.0073 WSEL= 597.74

3470 ENCROACHMENT STATIONS= 50.0 1300.0 TYPE= 4 TARGET= 0.009

VALLEY SECT. AT CORP. LIMITS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22300.00 | 10.70 | 597.70 | 0.00 | 597.64 | 597.71 | 0.01 | 0.02 | 0.00 | 592.00 |
| 10390. | 0. | 10390. | 0. | 0. | 13319. | 0. | 2673. | 335. | 592.00 |
| 2.72 | 0.00 | 0.78 | 0.00 | 0.070 | 0.020 | 0.070 | 0.050 | 587.00 | 50.00 |
| 0.000005 | 2547. | 2547. | 2547. | 1 | 0 | 0 | 0.00 | 1250.00 | 1300.00 |

FLOW DISTRIBUTION FOR SECNO= 22300.00 CWSEL= 597.70

STA= 50. 1300.
PER Q= 100.0
AREA= 13319.5
VEL= 0.8

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FORM 1471-SD PRINTED BY ROTARY MANIFOLD FORMS.

**********
HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

HURON RIVER

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 500.000 | 0.00 | 0.00 | 0.00 | 569.10 | 10390.00 | 587.66 | 0.00 | 588.08 | 3.94 | 5.23 | 2172.94 | 5236.06 |
| 500.000 | 0.00 | 0.00 | 0.00 | 569.10 | 10390.00 | 587.76 | 0.00 | 588.19 | 4.17 | 5.25 | 1992.25 | 5085.80 |
| 1800.000 | 1300.00 | 0.00 | 0.00 | 571.40 | 10390.00 | 588.47 | 0.00 | 588.51 | 2.22 | 2.54 | 10912.77 | 6980.31 |
| 1800.000 | 1300.00 | 0.00 | 0.00 | 571.40 | 10390.00 | 588.58 | 0.00 | 588.63 | 2.20 | 2.55 | 10518.36 | 7003.59 |
| 4400.000 | 2600.00 | 0.00 | 0.00 | 569.40 | 10390.00 | 588.94 | 0.00 | 589.04 | 3.23 | 3.40 | 8974.02 | 5778.86 |
| 4400.000 | 2600.00 | 0.00 | 0.00 | 569.40 | 10390.00 | 589.07 | 0.00 | 589.16 | 3.38 | 3.31 | 8741.37 | 5648.41 |
| 6200.000 | 1800.00 | 0.00 | 0.00 | 571.30 | 10390.00 | 589.40 | 0.00 | 589.48 | 4.31 | 3.34 | 8380.36 | 5004.65 |
| 6200.000 | 1800.00 | 0.00 | 0.00 | 571.30 | 10390.00 | 589.53 | 0.00 | 589.61 | 4.26 | 3.34 | 8238.18 | 5032.06 |
| 8200.000 | 2000.00 | 0.00 | 0.00 | 571.50 | 10390.00 | 589.85 | 0.00 | 589.91 | 2.14 | 2.60 | 10306.11 | 7098.40 |
| 8200.000 | 2000.00 | 0.00 | 0.00 | 571.50 | 10390.00 | 589.98 | 0.00 | 590.03 | 2.11 | 2.60 | 10088.16 | 7151.21 |
| 10300.000 | 2100.00 | 0.00 | 0.00 | 572.90 | 10390.00 | 590.16 | 0.00 | 590.21 | 1.97 | 2.48 | 10635.29 | 7404.08 |
| 10300.000 | 2100.00 | 0.00 | 0.00 | 572.90 | 10390.00 | 590.28 | 0.00 | 590.34 | 1.95 | 2.49 | 10216.48 | 7432.29 |
| 12900.000 | 2600.00 | 0.00 | 0.00 | 573.40 | 10390.00 | 590.83 | 0.00 | 591.11 | 8.01 | 4.67 | 4317.61 | 3670.26 |
| 12900.000 | 2600.00 | 0.00 | 0.00 | 573.40 | 10390.00 | 590.95 | 0.00 | 591.23 | 7.97 | 4.68 | 3952.79 | 3679.54 |
| 15800.000 | 2100.00 | 0.00 | 0.00 | 574.20 | 10390.00 | 591.86 | 0.00 | 591.97 | 2.10 | 3.18 | 6113.84 | 7164.33 |
| 15800.000 | 2100.00 | 0.00 | 0.00 | 574.20 | 10390.00 | 591.96 | 0.00 | 592.08 | 2.04 | 3.14 | 6187.59 | 7276.57 |
| 17080.000 | 1280.00 | 0.00 | 0.00 | 573.30 | 10390.00 | 592.12 | 0.00 | 592.56 | 6.07 | 5.31 | 2073.29 | 4217.47 |
| 17080.000 | 1280.00 | 0.00 | 0.00 | 573.30 | 10390.00 | 592.22 | 0.00 | 592.65 | 5.95 | 5.28 | 2087.80 | 4261.25 |
| 17180.000 | 100.00 | 0.00 | 0.00 | 573.30 | 10390.00 | 592.04 | 0.00 | 592.77 | 7.39 | 6.86 | 1514.65 | 3823.11 |
| 17180.000 | 100.00 | 0.00 | 0.00 | 573.30 | 10390.00 | 592.14 | 0.00 | 592.86 | 7.24 | 6.82 | 1524.31 | 3862.74 |
| 17246.000 | 66.00 | 597.17 | 590.90 | 573.30 | 10390.00 | 595.65 | 0.00 | 596.13 | 3.72 | 5.55 | 1872.99 | 5384.04 |
| 17246.000 | 66.00 | 597.17 | 590.90 | 573.30 | 10390.00 | 595.76 | 0.00 | 596.23 | 3.66 | 5.52 | 1883.14 | 5430.84 |
| 17271.000 | 100.00 | 0.00 | 0.00 | 573.30 | 10390.00 | 595.86 | 0.00 | 596.20 | 2.73 | 4.95 | 3115.86 | 6291.47 |
| 17271.000 | 100.00 | 0.00 | 0.00 | 573.30 | 10390.00 | 595.96 | 0.00 | 596.30 | 2.67 | 4.92 | 3146.55 | 6357.10 |
| 18700.000 | 1369.00 | 0.00 | 0.00 | 580.30 | 10390.00 | 596.35 | 0.00 | 596.65 | 3.66 | 4.76 | 4497.53 | 5429.03 |
| 18700.000 | 1369.00 | 0.00 | 0.00 | 580.30 | 10390.00 | 596.45 | 0.00 | 596.73 | 3.54 | 4.70 | 4604.25 | 5520.80 |

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| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18701.000 | 1.00 | 590.00 | 590.30 | 582.67 | 10390.00 | 596.47 | 0.00 | 596.68 | 14.62 | 4.39 | 4326.28 | 2716.91 |
| 18701.000 | 1.00 | 590.00 | 590.30 | 582.67 | 10390.00 | 596.57 | 0.00 | 596.76 | 13.91 | 4.31 | 4434.89 | 2785.62 |
| 18711.000 | 10.00 | 590.00 | 590.30 | 582.67 | 10390.00 | 596.49 | 0.00 | 596.69 | 14.56 | 4.39 | 4335.60 | 2722.76 |
| 18711.000 | 10.00 | 590.00 | 590.30 | 582.67 | 10390.00 | 596.58 | 0.00 | 596.78 | 13.85 | 4.30 | 4444.23 | 2791.58 |
| 18712.000 | 1.00 | 0.00 | 0.00 | 582.67 | 10390.00 | 596.42 | 0.00 | 596.76 | 5.30 | 5.26 | 4305.71 | 4512.52 |
| 18712.000 | 1.00 | 0.00 | 0.00 | 582.67 | 10390.00 | 596.51 | 0.00 | 596.85 | 5.09 | 5.19 | 4415.31 | 4603.54 |
| 19600.000 | 900.00 | 0.00 | 0.00 | 580.00 | 10390.00 | 596.85 | 0.00 | 597.18 | 4.02 | 4.97 | 3679.82 | 5183.51 |
| 19600.000 | 900.00 | 0.00 | 0.00 | 580.00 | 10390.00 | 596.92 | 0.00 | 597.25 | 3.92 | 4.93 | 3730.58 | 5244.45 |
| 19700.000 | 100.00 | 0.00 | 0.00 | 582.30 | 10390.00 | 597.25 | 0.00 | 597.28 | 0.66 | 1.34 | 7752.53 | 12747.58 |
| 19700.000 | 100.00 | 0.00 | 0.00 | 582.30 | 10390.00 | 597.32 | 0.00 | 597.35 | 0.65 | 1.33 | 7794.44 | 12862.06 |
| 19747.000 | 47.00 | 599.20 | 594.04 | 582.30 | 10390.00 | 597.32 | 0.00 | 597.34 | 0.65 | 1.33 | 7790.47 | 12851.20 |
| 19747.000 | 47.00 | 599.20 | 594.04 | 582.30 | 10390.00 | 597.39 | 0.00 | 597.41 | 0.64 | 1.33 | 7832.10 | 12965.27 |
| 19748.000 | 1.00 | 0.00 | 0.00 | 582.30 | 10390.00 | 597.32 | 0.00 | 597.35 | 0.10 | 1.26 | 8254.76 | 33391.87 |
| 19748.000 | 1.00 | 0.00 | 0.00 | 582.30 | 10390.00 | 597.39 | 0.00 | 597.41 | 0.10 | 1.25 | 8296.55 | 33671.61 |
| 19753.000 | 3.00 | 591.70 | 591.70 | 582.30 | 10390.00 | 597.60 | 0.00 | 597.63 | 0.09 | 1.23 | 8427.54 | 34554.44 |
| 19753.000 | 3.00 | 591.70 | 591.70 | 582.30 | 10390.00 | 597.67 | 0.00 | 597.69 | 0.09 | 1.23 | 8467.86 | 34827.92 |
| 22300.000 | 2547.00 | 0.00 | 0.00 | 587.00 | 10390.00 | 597.64 | 0.00 | 597.65 | 0.05 | 0.78 | 14185.77 | 47788.79 |
| 22300.000 | 2547.00 | 0.00 | 0.00 | 587.00 | 10390.00 | 597.70 | 0.00 | 597.71 | 0.05 | 0.78 | 13319.46 | 47571.48 |

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HURON RIVER

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 500.000 | 10390.00 | 587.66 | 0.00 | 0.00 | 0.00 | 180.69 | 0.00 |
| 500.000 | 10390.00 | 587.76 | 0.00 | 0.00 | 0.10 | 119.98 | 0.00 |
| 1800.000 | 10390.00 | 588.47 | 0.00 | 0.81 | 0.00 | 1906.41 | 1300.00 |
| 1800.000 | 10390.00 | 588.58 | 0.00 | 0.82 | 0.12 | 1648.06 | 1300.00 |
| 4400.000 | 10390.00 | 588.94 | 0.00 | 0.48 | 0.00 | 1592.11 | 2600.00 |
| 4400.000 | 10390.00 | 589.07 | 0.00 | 0.49 | 0.13 | 1421.69 | 2600.00 |
| 6200.000 | 10390.00 | 589.40 | 0.00 | 0.46 | 0.00 | 1299.65 | 1800.00 |
| 6200.000 | 10390.00 | 589.53 | 0.00 | 0.46 | 0.13 | 1222.27 | 1800.00 |
| 8200.000 | 10390.00 | 589.85 | 0.00 | 0.45 | 0.00 | 1428.59 | 2000.00 |
| 8200.000 | 10390.00 | 589.98 | 0.00 | 0.45 | 0.12 | 1269.56 | 2000.00 |
| 10300.000 | 10390.00 | 590.16 | 0.00 | 0.31 | 0.00 | 1783.31 | 2100.00 |
| 10300.000 | 10390.00 | 590.23 | 0.00 | 0.30 | 0.12 | 1480.84 | 2100.00 |
| 12900.000 | 10390.00 | 590.83 | 0.00 | 0.67 | 0.00 | 1075.12 | 2600.00 |
| 12900.000 | 10390.00 | 590.95 | 0.00 | 0.67 | 0.12 | 712.19 | 2600.00 |
| 15800.000 | 10390.00 | 591.86 | 0.00 | 1.03 | 0.00 | 685.00 | 2100.00 |
| 15800.000 | 10390.00 | 591.96 | 0.00 | 1.02 | 0.11 | 685.00 | 2100.00 |
| 17080.000 | 10390.00 | 592.12 | 0.00 | 0.27 | 0.00 | 149.22 | 1280.00 |
| 17080.000 | 10390.00 | 592.22 | 0.00 | 0.26 | 0.10 | 149.44 | 1280.00 |
| 17180.000 | 10390.00 | 592.04 | 0.00 | -0.08 | 0.00 | 99.20 | 100.00 |
| 17180.000 | 10390.00 | 592.14 | 0.00 | -0.08 | 0.10 | 99.20 | 100.00 |
| 17246.000 | 10390.00 | 595.65 | 0.00 | 3.61 | 0.00 | 99.20 | 66.00 |
| 17246.000 | 10390.00 | 595.76 | 0.00 | 3.62 | 0.10 | 99.20 | 66.00 |
| 17271.000 | 10390.00 | 595.86 | 0.00 | 0.20 | 0.00 | 300.00 | 100.00 |
| 17271.000 | 10390.00 | 595.96 | 0.00 | 0.20 | 0.10 | 300.00 | 100.00 |
| 18700.000 | 10390.00 | 596.35 | 0.00 | 0.50 | 0.00 | 1119.76 | 1369.00 |
| 18700.000 | 10390.00 | 596.45 | 0.00 | 0.49 | 0.10 | 1121.85 | 1369.00 |
| 18701.000 | 10390.00 | 596.47 | 0.00 | 0.12 | 0.00 | 1122.34 | 1.00 |
| 18701.000 | 10390.00 | 596.57 | 0.00 | 0.12 | 0.10 | 1124.46 | 1.00 |
| 18711.000 | 10390.00 | 596.49 | 0.00 | 0.02 | 0.00 | 1122.52 | 10.00 |
| 18711.000 | 10390.00 | 596.58 | 0.00 | 0.02 | 0.10 | 1124.64 | 10.00 |
| 18712.000 | 10390.00 | 596.42 | 0.00 | -0.07 | 0.00 | 1121.14 | 1.00 |
| 18712.000 | 10390.00 | 596.51 | 0.00 | -0.07 | 0.10 | 1123.29 | 1.00 |
| 19600.000 | 10390.00 | 596.85 | 0.00 | 0.43 | 0.00 | 660.00 | 900.00 |
| 19600.000 | 10390.00 | 596.92 | 0.00 | 0.41 | 0.08 | 660.00 | 900.00 |
| 19700.000 | 10390.00 | 597.25 | 0.00 | 0.41 | 0.00 | 604.99 | 100.00 |

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19700.000 10390.00 597.32 0.00 0.40 0.07 605.00 100.00

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FORM 1411.00 PRINTED BY NOTARY MANIFOLD FORMS.

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 19747.000 | 10390.00 | 597.32 | 0.00 | 0.06 | 0.00 | 605.00 | 47.00 |
| 19747.000 | 10390.00 | 597.39 | 0.00 | 0.06 | 0.07 | 605.00 | 47.00 |
| 19748.000 | 10390.00 | 597.32 | 0.00 | 0.00 | 0.00 | 604.83 | 1.00 |
| 19748.000 | 10390.00 | 597.39 | 0.00 | 0.00 | 0.07 | 604.84 | 1.00 |
| 19753.000 | 10390.00 | 597.60 | 0.00 | 0.28 | 0.00 | 604.90 | 3.00 |
| 19753.000 | 10390.00 | 597.67 | 0.00 | 0.28 | 0.07 | 604.92 | 3.00 |
| 22300.000 | 10390.00 | 597.64 | 0.00 | 0.03 | 0.00 | 1614.49 | 2547.00 |
| 22300.000 | 10390.00 | 597.70 | 0.00 | 0.03 | 0.07 | 1250.00 | 2547.00 |

SUMMARY OF ERRORS

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FORM 1411 GO PRINTED BY ROTARY MANIFOLD FORMS.

FLOODWAY DATA, HURON RIVER
PROFILE NO. 2

| STATION | FLOODWAY WIDTH (FT) | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 500.000 | 120. | 1992. | 5.2 | 587.8 | 587.7 | 0.1 |
| 1800.000 | 1648. | 10518. | 1.0 | 588.6 | 588.5 | 0.1 |
| 4400.000 | 1422. | 8741. | 1.2 | 589.0 | 588.9 | 0.1 |
| 6200.000 | 1222. | 8238. | 1.3 | 589.5 | 589.4 | 0.1 |
| 8200.000 | 1270. | 10088. | 1.0 | 590.0 | 589.9 | 0.1 |
| 10300.000 | 1481. | 10216. | 1.0 | 590.3 | 590.2 | 0.1 |
| 12900.000 | 712. | 3953. | 2.6 | 590.9 | 590.8 | 0.1 |
| 15800.000 | 685. | 6188. | 1.7 | 592.0 | 591.9 | 0.1 |
| 17080.000 | 149. | 2088. | 5.0 | 592.2 | 592.1 | 0.1 |
| 17180.000 | 99. | 1524. | 6.8 | 592.1 | 592.0 | 0.1 |
| 17246.000 | 99. | 1883. | 5.5 | 595.8 | 595.7 | 0.1 |
| 17271.000 | 300. | 3147. | 3.3 | 596.0 | 595.9 | 0.1 |
| 18700.000 | 1122. | 4604. | 2.3 | 596.5 | 596.4 | 0.1 |
| 18701.000 | 1124. | 4435. | 2.3 | 596.6 | 596.5 | 0.1 |
| 18711.000 | 1125. | 4444. | 2.3 | 596.6 | 596.5 | 0.1 |
| 18712.000 | 1123. | 4415. | 2.4 | 596.5 | 596.4 | 0.1 |
| 19600.000 | 660. | 3731. | 2.8 | 596.9 | 596.8 | 0.1 |
| 19700.000 | 605. | 7794. | 1.3 | 597.4 | 597.3 | 0.1 |
| 19747.000 | 605. | 7832. | 1.3 | 597.4 | 597.3 | 0.1 |
| 19748.000 | 605. | 8297. | 1.3 | 597.4 | 597.3 | 0.1 |
| 19753.000 | 605. | 8468. | 1.2 | 597.7 | 597.6 | 0.1 |
| 22300.000 | 1250. | 13319. | 0.8 | 597.7 | 597.6 | 0.1 |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Huron River

4) DOCUMENT TYPE: Report

00BREAK00

## IV. HURON RIVER (DETAILED)

Detailed studies of the Huron River were performed from the corporate boundary of Flat Rock/Rockwood to the west corporate boundary of Flat Rock at Inkster Road. The downstream cross-section was the most upstream section used in the Rockwood FIS (Reference 1). Cross section information was obtained from U.S. Army Corps of Engineer survey data on the Huron River (Reference 4). This additional information was supplemented by U.S.G.S. Quad Maps of the study area which consist of 5 foot interval contour data (Reference 2). The flood plain of the Huron River within the study reach varies from grassy lawns to woods.

Cross section locations are shown in Exhibit 1. Table 5 cross references section designations by showing computer section numbers which corresponds to the cross section letters shown in Exhibit 1.

Exhibit 8 contains bridge sketches as well as computations for total bridge loss coefficients.

Table 6 lists discharges that have been approved by the MDNR for the Huron River.

### A. METHOD OF ANALYSIS

The HEC-2 backwater program was used in developing water surface profiles (Reference 3).

Table 6 also contains selected flood elevations from the HEC-2 printouts. HEC-2 printouts including computer cross section plots are presented as Exhibit 9. Water surface profiles resulting from the backwater analyses are presented as Exhibit 10. (Exhibit 9 is contained in the 11" x 15" folder enclosed with this report).

## B. VARIABLES AND COEFFICIENTS

Roughness coefficients (Mannings "n") were estimated by field inspection at each cross section. The roughness values vary from .02 to .05 for the channel and .07 to .12 for the overbanks. These values are consistent with roughness values recommended and used in engineering practice.

Expansion and contraction coefficients are .3 and .1 respectively for mild transitions and .3 and .5 respectively for abrubt transitions. Expansion and contraction ratios for effective flow areas are 4:1 and 1:1 respectively.

All weirs were assigned a coefficient of 3.0. Pier shape coefficients varied from 1.05 to 1.25.

## C. HIGH WATER MARKS

The Army Corps of Engineers (Reference 4) lists the water levels measured during the April, 1947 flood as:

| FIS x-Section | Elevation |
|---|---|
| D | 586.7 |
| E | 587.2 |
| F | 587.8 |
| G | 588.8 |
| H | 589.2 |
| J | 589.5 |
| K | 590.7 |

The 10 year flood profile as presented in this report generally runs slightly higher than the 1947 flood elevations. Losses through Telegraph Road for the 10 year storm are the same as the losses experienced in the 1947 storm.

The past Flood Report of Southeast Michigan Flood of June, 1968, (Reference 5) lists the following two within the City of Flat Rock:

| Location | H.W.M. Elev. |
|---|---|
| 29645 Evergreen (Approximately at FIS x-Section G) | 589.30 |
| 269161 James St. (Between Dam and Western Corp. Limit Between FIS x-Section Q & R | 593.01 |

A flood profile for the 1968 storm was developed with the HEC-2 computer program (see Exhibit 9) and the historical flood elevation at cross section G was matched to insure the accuracy of the computer model.

The flood elevation between sections Q and R are considerably higher than the 1968 high water mark due to changes in the hydraulic characteristics of the Huron River upstream of Telegraph Road. Within the past 10 years, the gates on the control structure for the diversion channel located west of the main channel have been ordered closed by the Michigan Department of Natural Resources. Therefore, flood flows which were once divided between the two channels must now discharge in the main channel; thus, present day floods will produce higher flood elevations than the historical floods.

D. STARTING CONDITIONS

The starting water surface elevation used in all backwater computations were the water surface elevations computed for cross section A in the Rockwood FIS.

E. SPECIAL PROBLEMS

Divided flow occurs upstream of Telegraph Road; however, as explained in section C above, the main gates on the control structure for the westerly channel have been closed for years and will remain closed as ordered by the Michigan Department of Natural Resources. A small amount of flow is maintained in the west channel due to an overflow spillway and a fish raceway. These spillways are 9 feet wide compared to the 180 foot wide spillway in the main channel. Furthermore, during major storms these secondary spillways will not act as free flowing weirs due to the configuration of the structure; therefore, flow in the west channel is a small percentage of the total flood flow and is neglected. However, a floodway is maintained at the banks of the west channel.

F. GENERAL

Computed water-surface elevations were developed to an accuracy of .5 foot for floods of the selected recurrence intervals.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). This datum is equivalent to the U.S. Geological Survey (USGS) datum.

The hydraulic analyses for this study are based only on the effects of flow unobstructed by ice or debris. The flood elevations are considered valid only if hydraulic structures, in general, remain unobstructed and do not fail.

TABLE 5
CITY OF FLAT ROCK
HURON RIVER

| CROSS SECTION | COMPUTER NO. | ARMY CORPS OF ENGINEERS NO. | DESCRIPTION |
|---|---|---|---|
| A | 500 | | + 500' u/s of Rockwood/Flat Rock Corp. Limits(sect. from Rockwood FIS) |
| B | 1,800 | V-10 (40800) | + 1800' u/s of Rockwood/ Flat Rock Corp. Limits |
| C | 4,400 | V-9 (42900) | +4400' u/s of Rockwood/ Flat Rock Corp. Limits |
| D | 6,200 | V-8 (44700) | +6200' u/s of Rockwood/ Flat Rock Corp. Limits |
| E | 8,200 | V-7 (46700) | + 8200' u/s of Rockwood/ Flat Rock Corp. Limits |
| F | 10,300 | V-6 (48800) | + 10300' u/s of Rockwood/ Flat Rock Corp. Limits |
| G | 12,900 | V-5 (51400) | + 12900' |
| H | 15,800 | V-4 (54300) | + 15800' |
| I | 17,080 | | + 100' d/s of d/s face of Telegraph Rd. |
| J | 17,180 | B-4 (55680) | d/s face of Telegraph Rd. |
| K | 17,246 | | u/s face of Telegraph Rd. |
| L | 18,700 | B-3 (57200) | d/s face of Footbridge |
| M | 18,712 | | u/s face of Footbridge |
| N | 19,600 | | + 100' d/s of d/s face of R.R. Bridge |
| O | 19,700 | B-2 (58200) | d/s face of R.R. Bridge |
| P | 19,747 | | u/s face of R.R. Bridge |
| Q | 19,753 | | Crest of dam |
| R | 22,300 | | At Flat Rock Corp. Limit (extension of Inkster Rd.) |

TABLE 6
CITY OF FLAT ROCK
HURON RIVER

| LOCATION | SELECTED FREQUENCIES 10 Yr. Q= 6480 CFS | 50 Yr. 8750 CFS | 100 Yr. 10390 CFS | 500 Yr. 12100 CFS |
|---|---|---|---|---|
| @ Corp. Limits (0 Mi.) | 584.2 | 586.6 | 587.7 | 590.2 |
| @ Telegraph Road (3.3 Mi.) | 590.9 | 593.6 | 595.7 | 598.0 |
| @ Dam (3.7 Mi.) | 594.1 | 596.0 | 597.7 | 599.9 |
| @ Corp. Limits (ext. Inkster Rd.) (4.2 Mi.) | 594.1 | 596.0 | 597.8 | 599.9 |

## V. SMITH CREEK (APPROXIMATE)

An approximate study of Smith Creek was performed from the downstream corporate boundary of Flat Rock/Brownstown to the north corporate boundary of Flat Rock. The Rockwood FIS (Reference 1) was used for the downstream portion of the study. The Smith Creek flood plain study (Reference 6) was used for the upstream portion of the study.

Following are two locations on Smith Creek with their respective 100 year elevations:

| Location | 100 Year Elevation |
|---|---|
| Flat Rock/Brownstown Corporate Limit | 577.9 |
| u/s of D. T. & I. Railroad Corridor | 597.9 |

## REFERENCES


1. U.S. Department of Housing and Urban Development, Flood Insurance Study - City of Rockwood, Michigan.

2. U.S. Geological Survey Topographical Maps - Flat Rock Quadrangle, Wayne County, Michigan, 7.5 Minute Series - Photorevised 1973.

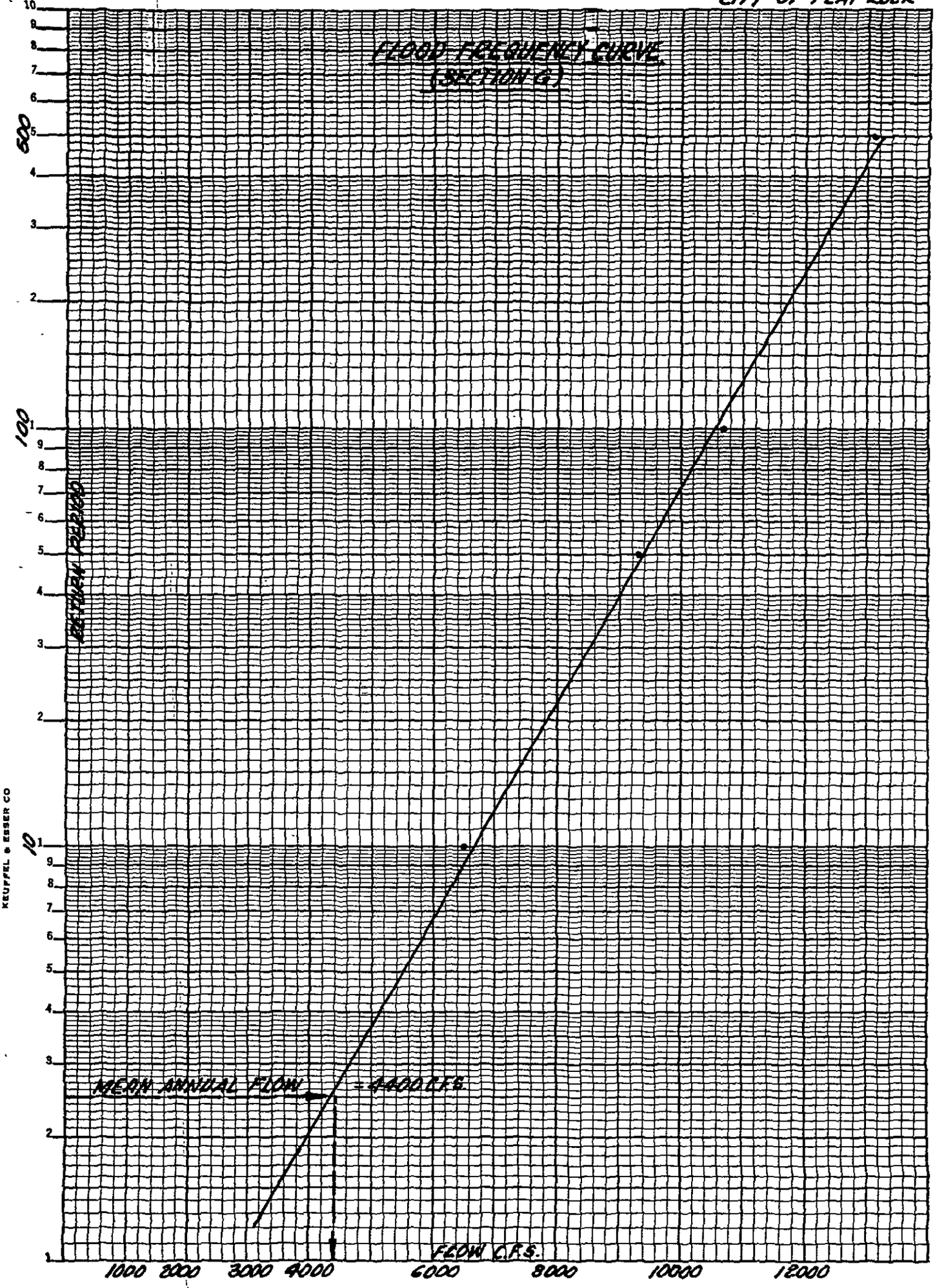
3. HEC-2 - Water Surface Profile - Users Manual - U.S. Army Corps of Engineers - 1976.

4. Huron River Survey, U.S. Army Corps of Engineers - Detroit District, No Date Provided.

5. Post Flood Report of Southeast Michigan Flood 25-27 June 1968, U.S. Army Engineer District, Detroit Corps of Engineers, Detroit, Michigan, 1969.

6. Wade, Trim & Associates, Inc., Smith Creek - Flood Plain Study - City of Flatrock, Wayne County, Michigan, June, 1974.

HURON RIVER
CITY OF FLAT ROCK

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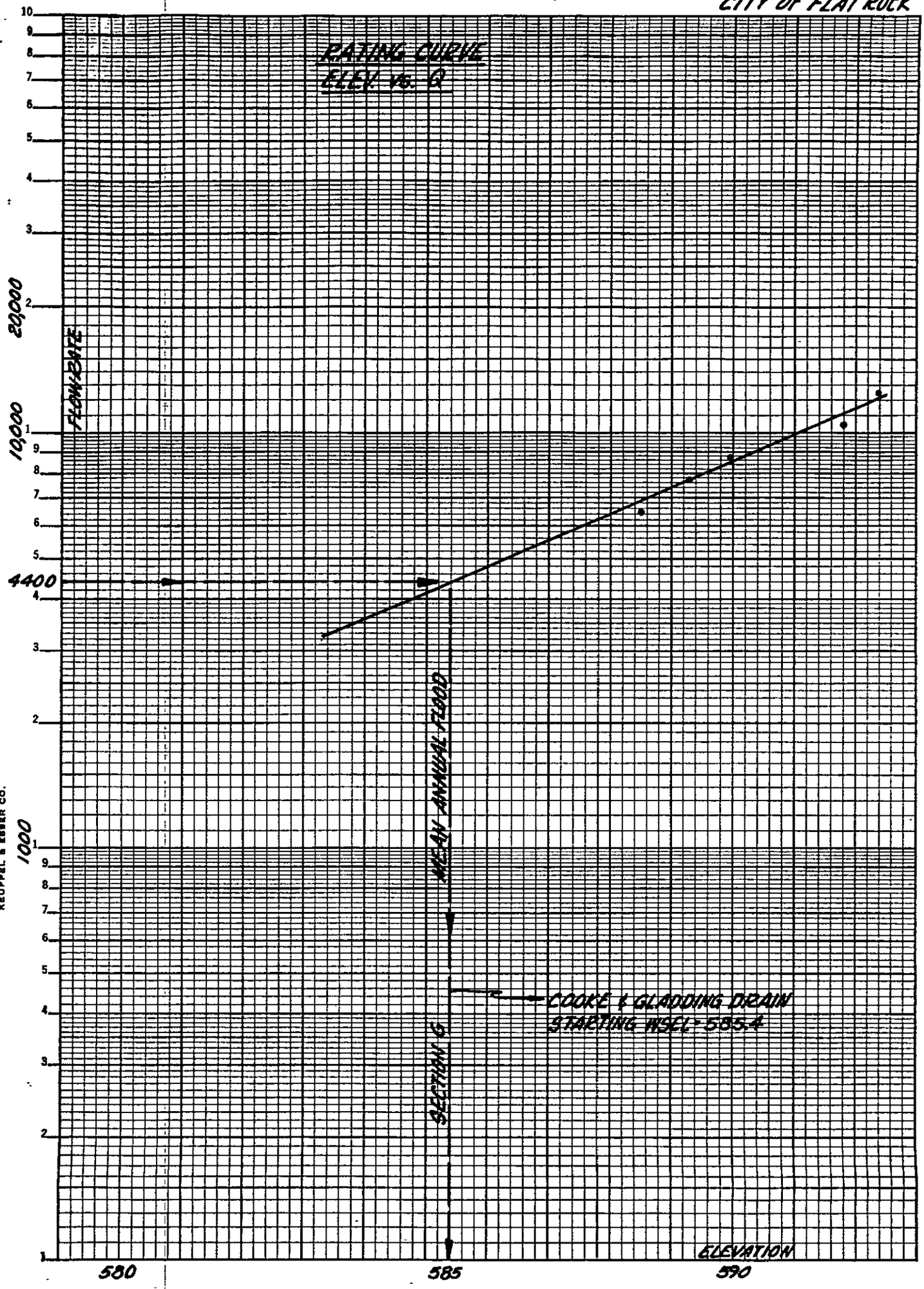


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(313) 291-5400
Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

WORK SHEET

Bridge Location : Huron River Drive - Cooke + Cladding Drain

Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) = 0 — HEC-2 Manual

XKOR (Loss Coefficient) = $1.0 + \Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area $= \pi r^2 = \pi\left(\frac{4.5}{2}\right)^2 = 15.9\ ft^2$ $Wp = 2\pi r = 4.5\pi = 14.14$

$R = A/wp = 1.125$ $R^{4/3} = 1.17$ $L = 54'$

$n$ (composite) = .015

$K_f = 29.1 \times (.015)^2 \times 54 \;/\; 1.17 = .302$

$K_e = .2$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

$K_p = 0$

2. XKOR = $1 + .2 + .3 + 0 = 1.5$
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 3.53
6. BWP = total width of obstruction = 0 — field data
7. BAREA = bridge opening inc. piers = 15.9
8. SS = side slope = 0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = _____ (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = _____ (0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY / DATE | CHK. / DATE | SHEET NO. ____ OF ____ | File Code No (Job No) Owner • Project • Suffix |
|---|---|---|---|---|

CITY OF FLAT ROCK

HURON RIVER

EXHIBIT 8

BRIDGE NOTES

Wade Trim & Associates, Inc.
Civil Engineers • Land Surveyors
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

WORK SHEET

Bridge Location : TELEGRAPH RD.

Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) = 1.25 — HEC-2 Manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge :

$K_f = 29.1 n^2 L / R^{4/3}$ for English units

Area = 822.4 WP = 169

$R = A/wp$ = $R^{4/3}$ = 8.246 L = 66'

n (composite) =

$K_f = 29.1 \times (.021)^2 \times 66' / 8.246 = .10$

$K_e$ = HEADWALL PARALLEL TO EMBANKMENT = 0.5 — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p$ = 0 if bridge has no intermediate piers

$K_p = 0.05$ if bridge has ▬ intermediate piers — HEC-2 manual

$n_{composite} = \frac{110(.015) + 59(.03)}{169} = .021$

2. XKOR = 1 + .15 + 0.5 + 0.05 = 1.65
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 88.73
6. BWP = total width of obstruction = 4.2 — field data
7. BAREA = bridge opening inc. piers = 822.4
8. SS = side slope = 0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 873.3 (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 873.3 (0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK. | SHEET NO. | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| HURON RIVER CITY OF FLAT ROCK | DATE | DATE | ___ OF ___ | HUD • 2009 • 07 |

FORM 25-0
(313) 291-5400

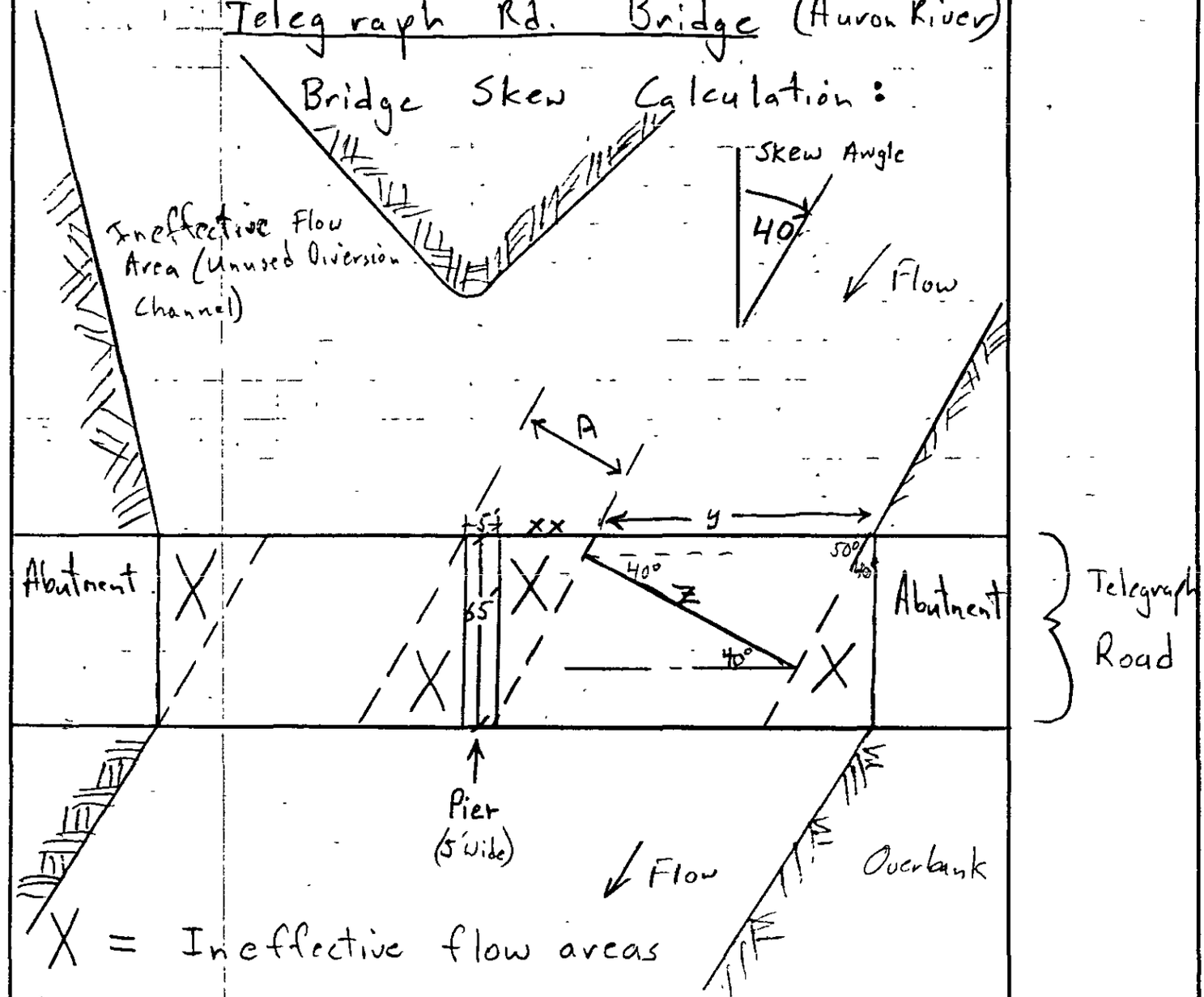
**Wade, Trim & Associates, Inc.**
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

REFERENCE

# Telegraph Rd. Bridge (Huron River)

## Bridge Skew Calculation:




X = Ineffective flow areas

z = Effective flow width

A = Effective pier width

$xx = 65 \tan 40° = 54.54'$

$y = 92 - 54.5 = 37.5'$

$z = 37.5 \cos 40° = 28.7'$

$A = 54.54 \cos 40° = 41.78'$

u/s channel $= A + 2z = 99.18$

1160 ft²
-70 ft ~ 5'×14'
1030 ft²
× cos 40
836

28.7
2
5.4

| SUBJECT | BY | CHK. | SHEET NO. | File Code No. (Job No.) Owner • Project • Suffix |
|---|---|---|---|---|
| Huron River – Telegraph Rd. | Weaver | | ___ OF ___ | |
| | DATE 5/18/79 | DATE | | |

FORM 25-0
(313) 291-5400

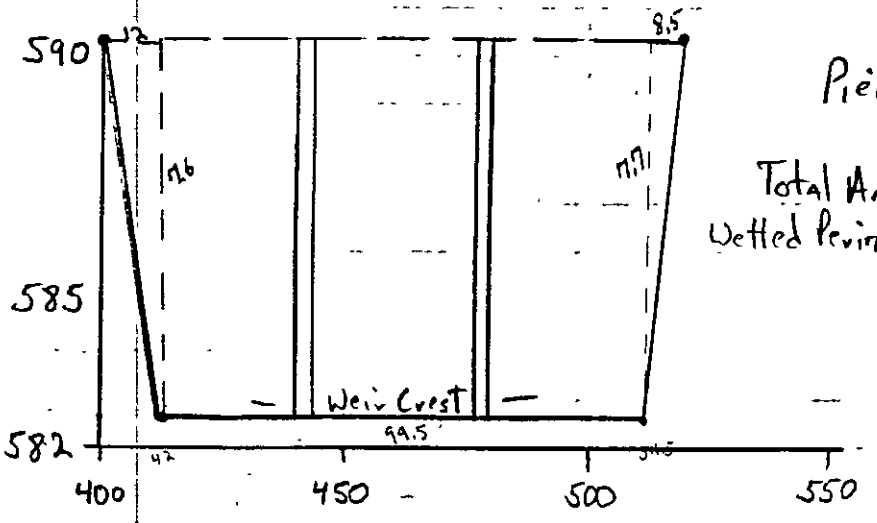
Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

REFERENCE

Foot Bridge w/ Weir, Huron River

Calcs. for SB Card:




Pier Width = 1.0 ft

Total Area = 824.2 ft²

Wetted Perimeter = 271.8 ft

"X- Section 18710"

Pier shape coefficient = 1.25

Total Loss Coefficient (XKOR):

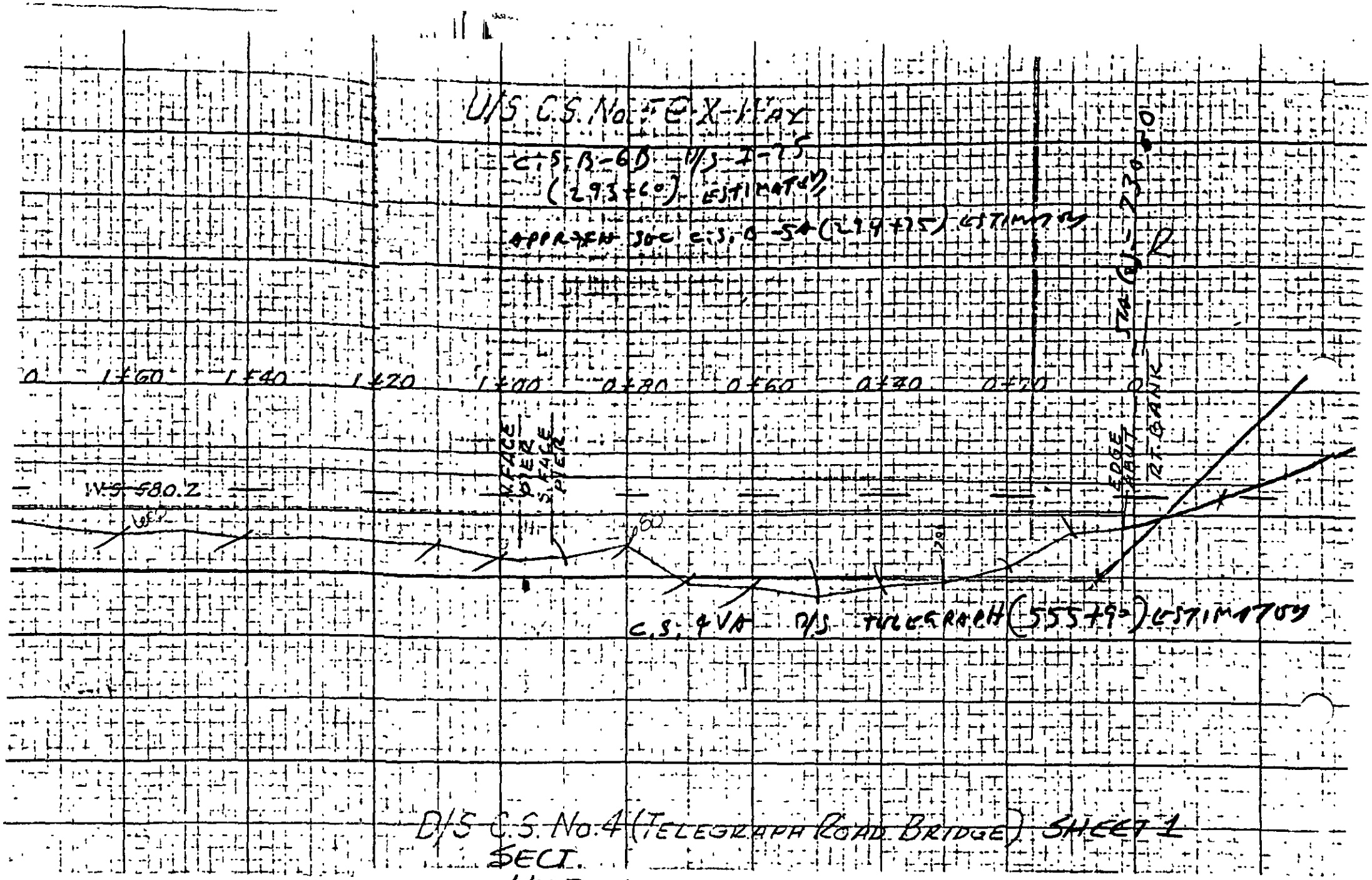
$$XKOR = 1.0 + \overset{\text{Intake}}{.5} + \frac{29.1\, n^2\, L}{R^{4/3}} + 2(.05)$$

$$XKOR = 1.6 + \frac{29.1\,(.025)^2\, 10}{\left(\frac{824.2}{271.8}\right)^{4/3}} = 1.64$$

~~Use minimum allowable value of 1.5~~

Weir Flow coefficient = 2.8

| SUBJECT | BY | CHK. | SHEET NO. | File Code No. (Job No.) Owner • Project • Suffix |
|---|---|---|---|---|
| | DATE | DATE | ____ OF ____ | |

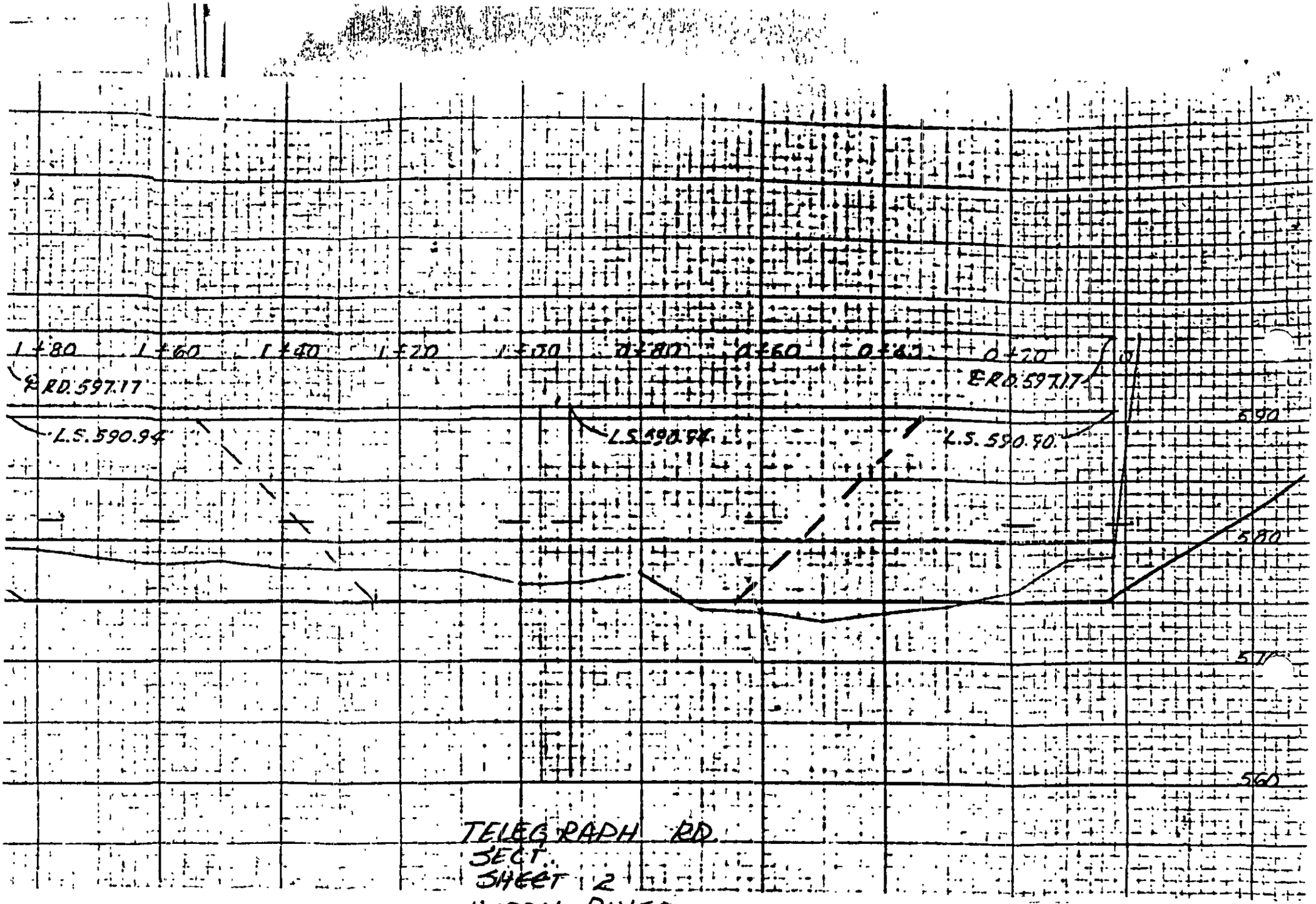



D/S C.S. No. 4 (TELEGRAPH ROAD BRIDGE) SHEET 1

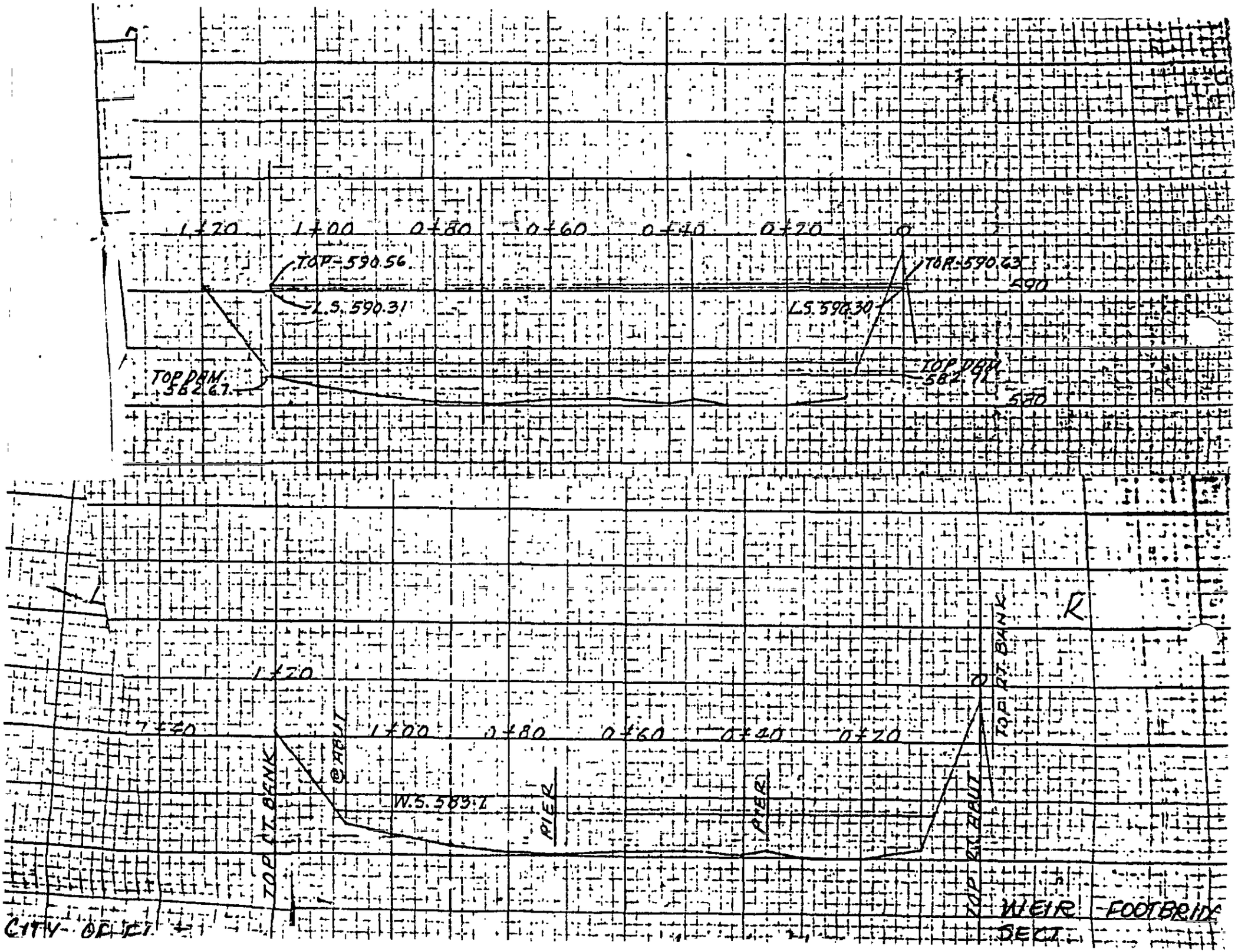
SECT.

HURON RIVER

CITY OF FLAT ROCK




TELEGRAPH RD.
SECT.
SHEET 2
HURON RIVER
CITY OF FLAT ROCK


1+20
1+00
0+80
0+60
0+40
0+20
0
TOP-590.56
L.S. 590.31
TOP-590.63
L.S. 590.30
590
TOP DAM 582.67
TOP DAM 582.71
580
L
R
TOP RT. BANK
1+20
1+40
1+00
0+80
0+60
0+40
0+20
0
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@ ABUT
W.S. 583.7
PIER
PIER
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WEIR FOOTBRIDGE
SECT.
CITY OF FI

FORM 25-0
(313) 291-5400
Wade Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location : R.R. BRIDGE

Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient): Sq. nose and tail 1.25 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_c + k_p$

where $k_f$ = friction loss coefficient
$k_c$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 25 x 11.7 = 292.5 Wp = 2(25 + 11.7) = 73.4

$R = A/wp = 292.5/73.4 = 4$. $R^{4/3} = 6.35$ $L = 47'$

n (composite) = 12(2)(0.013) + 25(2)(0.034) / 73.4 = 0.027

$K_f = 29.1 \times (0.027)^2 \times 47' / 6.35 = 0.16$

$K_e$ = 0.4 — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has ▬ intermediate piers — HEC-2 manual

2. XKOR = 1 + 0.16 + 0.4 + 0.05 = 1.61
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers): 5060.
6. BWP = total width of obstruction = 51 — field data
7. BAREA = bridge opening inc. piers = 5475.
8. SS = side slope = 0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 0 (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 0 (0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK. | SHEET NO. | File Code No (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| HURON RIVER CITY OF FLAT ROCK | DATE | DATE | ___ OF ___ | HUD • 2009 • 07 |

HUR 2009-07

957

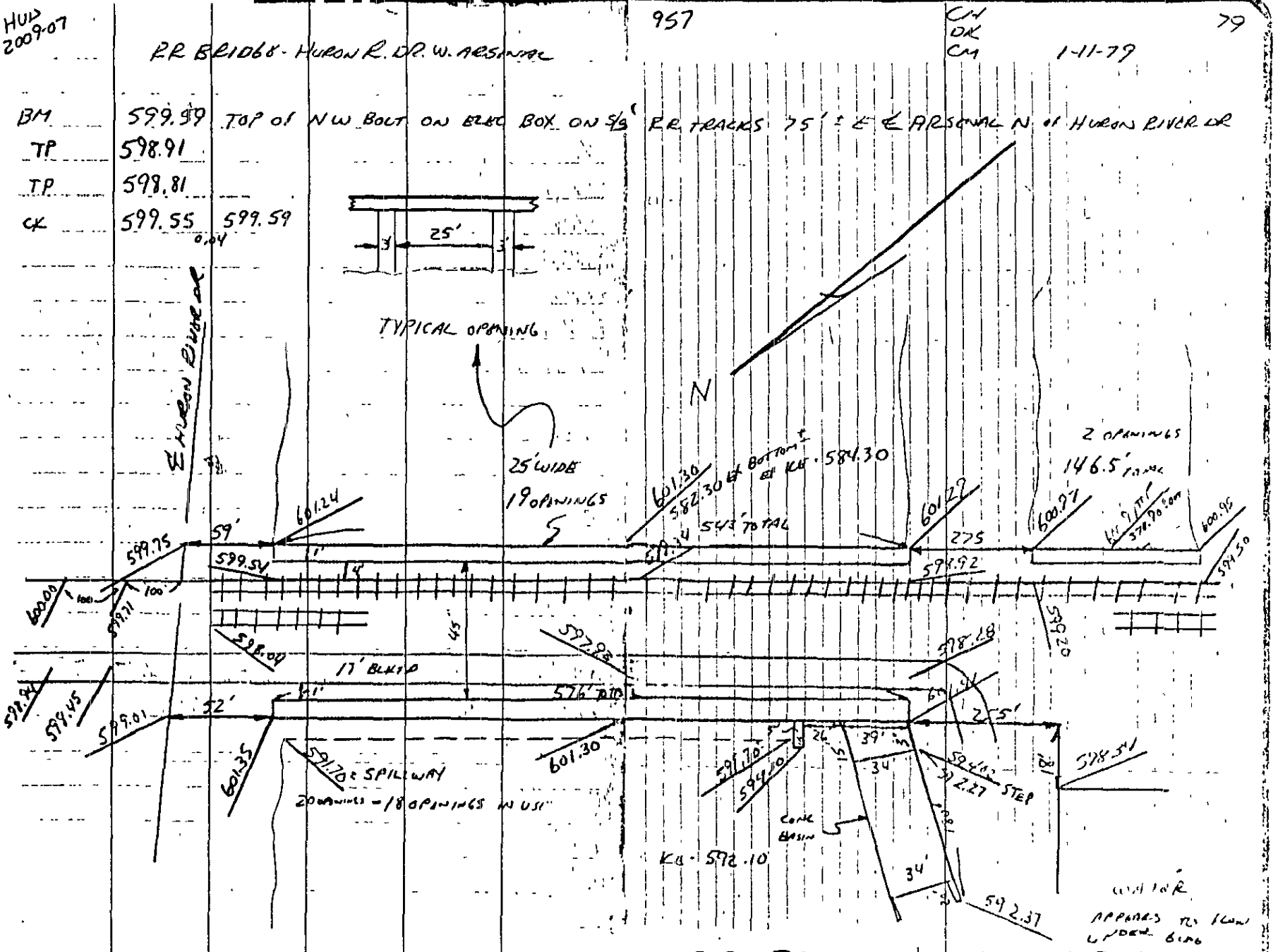
CH OR CM

79

1-11-79

RR BRIDGE - HURON R. DR. W. ARSENAL

| | | |
|---|---|---|
| BM | 599.99 | TOP of NW BOLT ON BLUE BOX ON S/S RR TRACKS 75' ± E ∈ ARSENAL N. of HURON RIVER DR |
| TP | 598.91 | |
| TP | 598.81 | |
| CK | 599.55 | 599.59 |




# R.R. BRIDGE - HURON RIVER
## SECT. 1974?

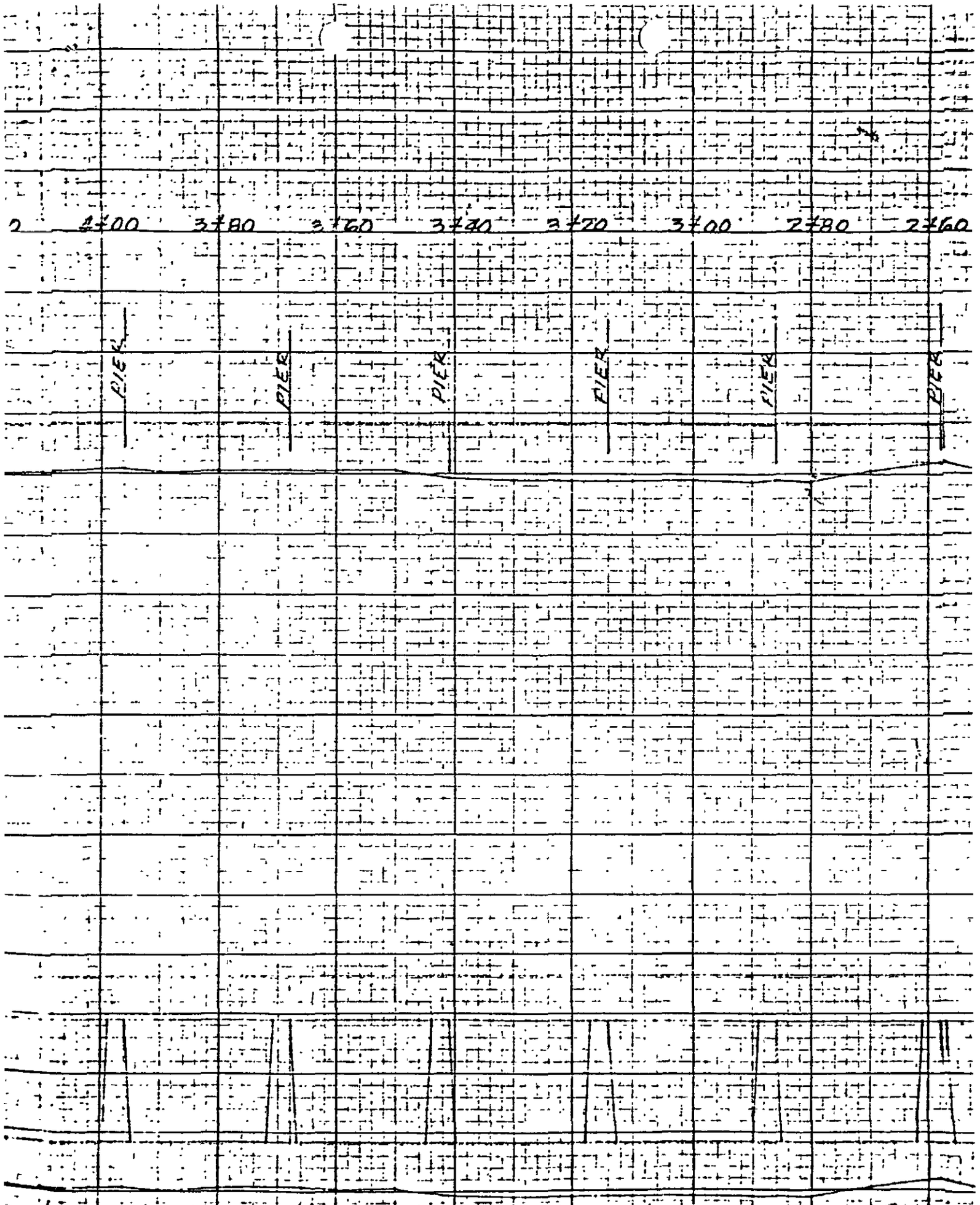



HURON RIVER

R.R. BRIDGE

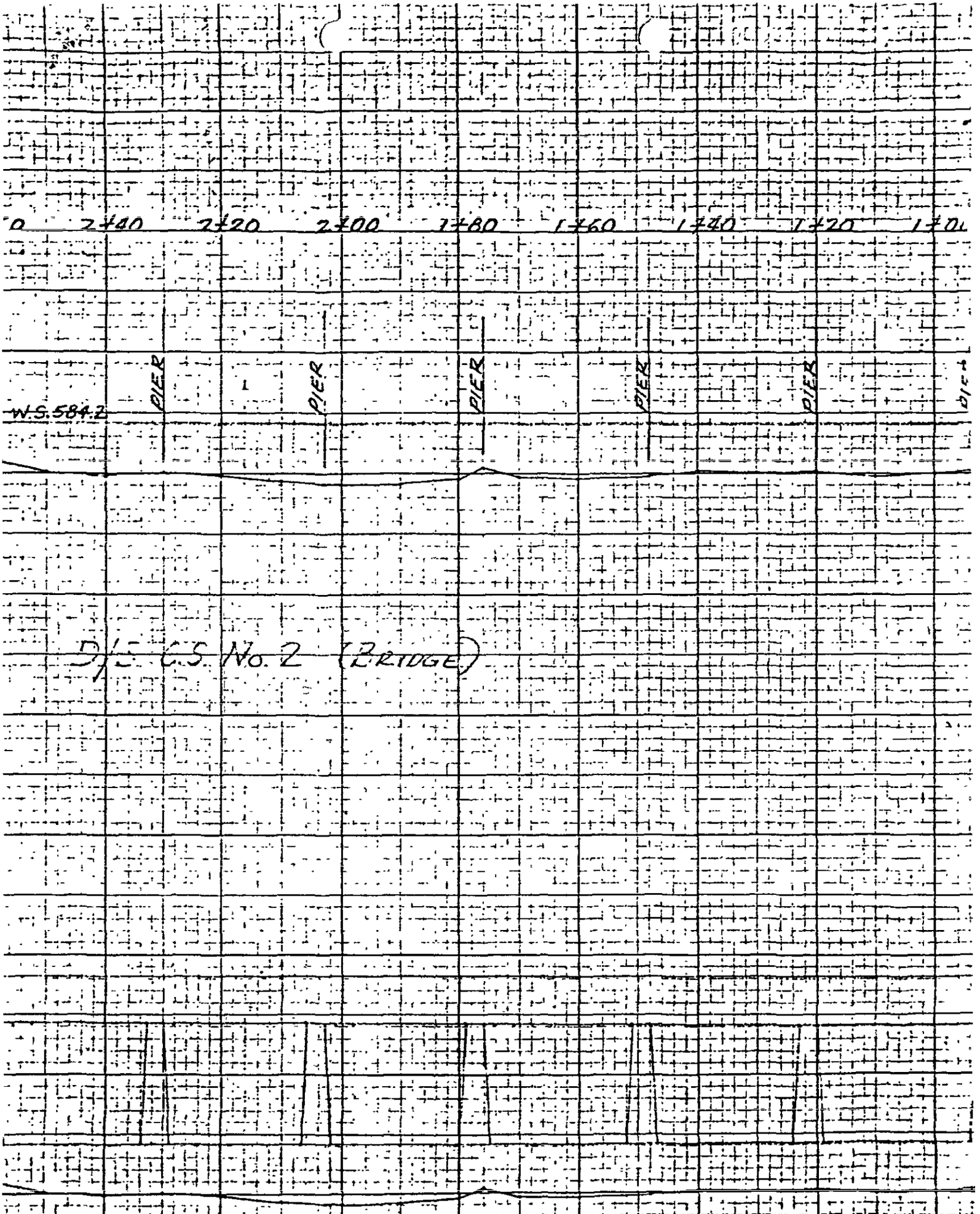
SECT.

SHEET 1




CITY OF FLAT ROCK HURON RIVER R.R. BRIDGE SECT.

SHEET 2


2+40
2+20
2+00
1+80
1+60
1+40
1+20
1+01
W.S. 584.2
PIER
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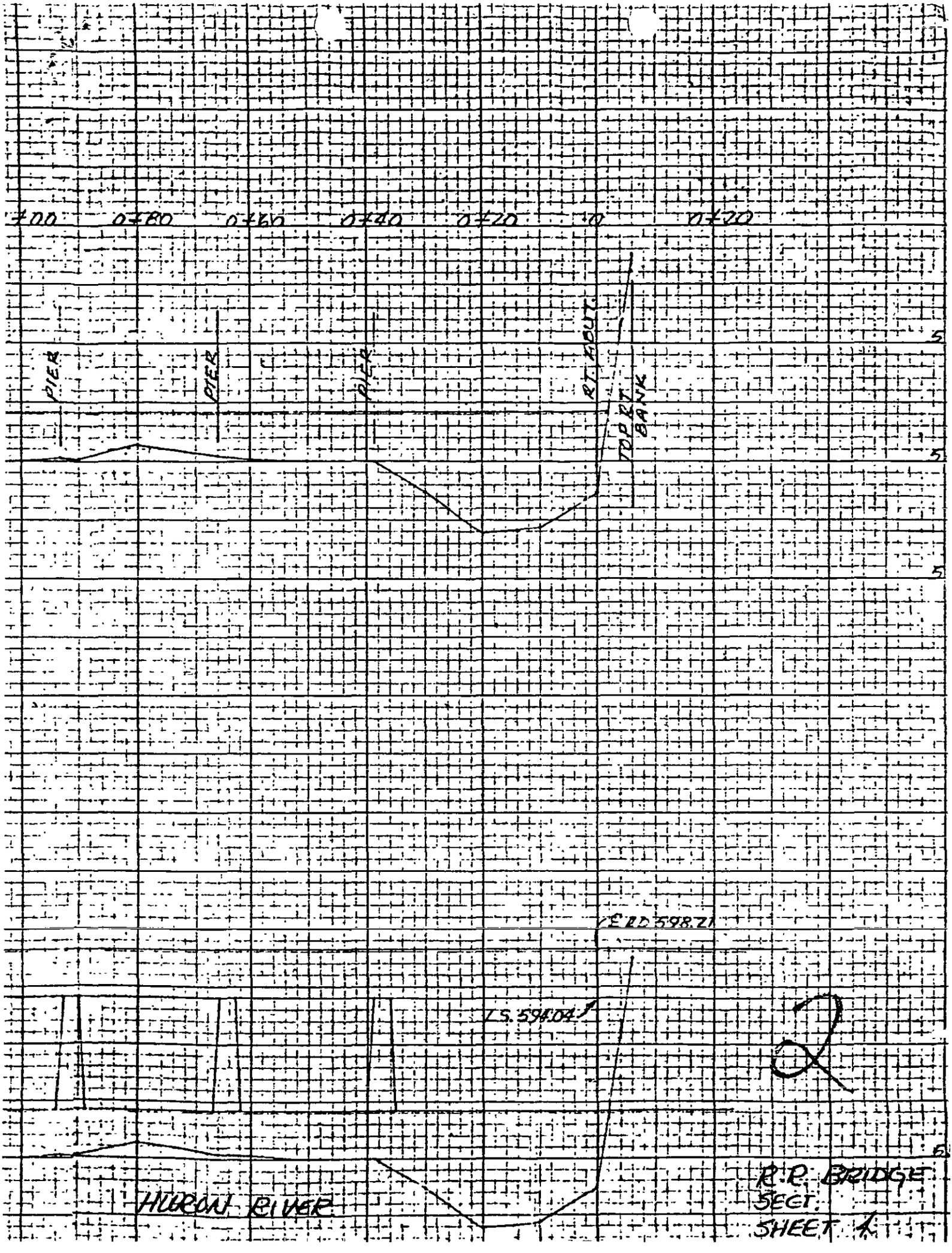
D/S C.S. No. 2 (BRIDGE)
CITY OF FLAT ROCK
HURON RIVER
R.R. BRIDGE

SECT. 2


7+00
0+80
0+60
0+40
0+20
10
11+20
PIER
PIER
PIER
RT. OUT
TOP RT. BANK
EL. 598.21
L.S. 594.04
HURON RIVER
R.R. BRIDGE
SECT.
SHEET 1

CITY OF FLAT ROCK

HURON RIVER

EXHIBIT 9

COMPUTER PRINTOUTS

HEC-2 BACKWATER ANALYSIS

(See Separate Folder)

CITY OF FLAT ROCK

HURON RIVER

EXHIBIT 10

STREAM PROFILE

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Huron River

4) DOCUMENT TYPE: Summary

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

C
T1      10 YEAR FLOW
T2      HURON  RIVER
T3      CITY OF FLATROCK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        3.        0.        0.  0.000000      0.00      0.0       0.   584.210     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    1.000      0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    150.000   201.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J5  LPRNT     NUMSEC                        ********REQUESTED SECTION NUMBERS********
    -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET    0.000     0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000
QT    6.000  7700.000  6480.000  8750.000 10390.000 12100.000 10390.000     0.000     0.000     0.000
NC    0.120     0.120     0.035     0.300     0.500     0.000     0.000     0.000     0.000     0.000

      VALLEY SECTION FROM ROCKWOOD FIS

X1  500.000    21.000   100.000   218.000     0.000     0.000     0.000     0.000     0.000     0.000
GR  594.100     0.000   593.400    51.000   579.500   100.000   574.300   102.000   573.000   103.000
GR  572.800   108.000   571.100   113.000   569.600   118.000   569.200   128.000   569.200   138.000
GR  569.100   148.000   569.500   158.000   570.200   168.000   570.500   178.000   570.800   188.000
GR  570.900   193.000   571.100   198.000   571.200   203.000   572.300   208.000   582.300   218.000
GR  590.200   268.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC    0.000     0.000     0.050     0.000     0.000     0.000     0.000     0.000     0.000     0.000

      VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V10

X1 1800.000    19.000  1460.000  1590.000   650.000   500.000  1300.000     0.000     0.000     0.000
GR  597.500     0.000   585.800   150.000   585.000   190.000   586.700   390.000   581.500   590.000
GR  581.000   790.000   579.700   890.000   580.000   990.000   581.900  1190.000   580.600  1290.000
GR  581.900  1460.000   571.900  1490.000   571.400  1530.000   573.000  1570.000   576.000  1580.000
GR  586.700  1590.000   586.000  1890.000   586.300  1990.000   591.000  2060.000     0.000     0.000

      VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V9
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4400.000 | 22.000 | 39.000 | 130.000 | 1000.000 | 1400.000 | 2600.000 | 0.000 | 0.000 | 0.000 |
| GR | 596.800 | 0.000 | 582.200 | 30.000 | 580.600 | 39.000 | 575.900 | 41.000 | 572.000 | 50.000 |
| GR | 569.900 | 80.000 | 569.400 | 100.000 | 570.600 | 120.000 | 575.900 | 128.000 | 581.100 | 130.000 |
| GR | 582.900 | 300.000 | 583.100 | 500.000 | 583.700 | 700.000 | 584.000 | 850.000 | 584.200 | 1000.000 |
| GR | 584.500 | 1150.000 | 584.800 | 1300.000 | 585.000 | 1470.000 | 588.800 | 1600.000 | 590.000 | 1670.000 |
| GR | 592.200 | 1800.000 | 595.000 | 1970.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V8

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6200.000 | 18.000 | 1385.000 | 1485.000 | 600.000 | 600.000 | 1800.000 | 0.000 | 0.000 | 0.000 |
| GR | 593.200 | 0.000 | 590.000 | 180.000 | 585.000 | 210.000 | 584.000 | 300.000 | 584.000 | 450.000 |
| GR | 584.000 | 550.000 | 584.600 | 650.000 | 583.000 | 800.000 | 583.000 | 950.000 | 582.900 | 1100.000 |
| GR | 582.900 | 1250.000 | 582.900 | 1385.000 | 575.300 | 1395.000 | 571.300 | 1425.000 | 573.300 | 1455.000 |
| GR | 590.400 | 1485.000 | 590.400 | 1585.000 | 595.000 | 1945.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V7

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8200.000 | 26.000 | 810.000 | 930.000 | 1000.000 | 850.000 | 2000.000 | 0.000 | 0.000 | 0.000 |
| GR | 595.000 | 0.000 | 588.970 | 150.000 | 587.000 | 230.000 | 586.000 | 330.000 | 583.800 | 430.000 |
| GR | 582.300 | 630.000 | 583.000 | 810.000 | 573.800 | 820.000 | 571.800 | 830.000 | 571.800 | 840.000 |
| GR | 571.500 | 850.000 | 575.400 | 890.000 | 575.700 | 900.000 | 575.000 | 910.000 | 581.200 | 930.000 |
| GR | 581.500 | 980.000 | 583.500 | 1030.000 | 582.200 | 1080.000 | 582.000 | 1130.000 | 580.000 | 1180.000 |
| GR | 581.900 | 1230.000 | 582.400 | 1280.000 | 583.000 | 1480.000 | 579.200 | 1535.000 | 594.000 | 1565.000 |
| GR | 594.600 | 1680.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V6

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10300.000 | 26.000 | 1025.000 | 1177.000 | 900.000 | 900.000 | 2100.000 | 0.000 | 0.000 | 0.000 |
| GR | 595.000 | 0.000 | 590.000 | 550.000 | 589.030 | 595.000 | 588.100 | 625.000 | 588.000 | 725.000 |
| GR | 586.000 | 775.000 | 583.000 | 795.000 | 583.400 | 1025.000 | 578.800 | 1032.000 | 573.200 | 1055.000 |
| GR | 572.900 | 1075.000 | 573.500 | 1125.000 | 578.200 | 1155.000 | 578.800 | 1165.000 | 581.400 | 1177.000 |
| GR | 583.900 | 1200.000 | 582.500 | 1825.000 | 583.100 | 1875.000 | 587.200 | 1895.000 | 587.200 | 1925.000 |
| GR | 587.200 | 2025.000 | 587.200 | 2125.000 | 587.200 | 2275.000 | 587.200 | 2295.000 | 587.200 | 2310.000 |
| GR | 595.000 | 2325.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V5

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12900.000 | 16.000 | 730.000 | 860.000 | 1900.000 | 1300.000 | 2600.000 | 0.000 | 0.000 | 0.000 |
| GR | 595.000 | 0.000 | 590.000 | 250.000 | 588.200 | 700.000 | 588.000 | 730.000 | 580.000 | 740.000 |
| GR | 576.000 | 741.000 | 573.400 | 760.000 | 577.000 | 830.000 | 584.100 | 860.000 | 585.000 | 880.000 |
| GR | 585.300 | 950.000 | 5853.000 | 1100.000 | 585.300 | 1200.000 | 587.000 | 1375.000 | 590.000 | 1500.000 |
| GR | 595.000 | 1700.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION FROM CORPS OF ENGINEERS SECTION V4

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15800.000 | 21.000 | 640.000 | 795.000 | 2300.000 | 2900.000 | 2100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 315.000 | 0.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.540 | 0.000 | 599.200 | 100.000 | 593.300 | 150.000 | 590.500 | 200.000 | 585.000 | 230.000 |

PRINTED IN U.S.A.
FORM 761-GD PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 586.400 | 260.000 | 583.900 | 280.000 | 583.800 | 300.000 | 582.800 | 400.000 | 584.500 | 500.000 |
| GR | 585.100 | 600.000 | 586.700 | 640.000 | 580.400 | 650.000 | 577.500 | 670.000 | 574.200 | 770.000 |
| GR | 576.800 | 790.000 | 585.300 | 795.000 | 585.800 | 1000.000 | 583.000 | 1125.000 | 595.800 | 1155.000 |
| GR | 597.000 | 1175.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION D/S OF TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17080.000 | 16.000 | 570.000 | 750.000 | 1280.000 | 1280.000 | 1280.000 | 0.766 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 550.000 | 0.000 | 760.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 597.700 | 25.000 | 590.000 | 525.000 | 585.000 | 553.000 | 597.300 | 570.000 |
| GR | 578.000 | 600.000 | 577.400 | 650.000 | 576.200 | 664.000 | 577.500 | 680.000 | 574.200 | 690.000 |
| GR | 573.300 | 710.000 | 575.500 | 730.000 | 578.600 | 750.000 | 581.300 | 774.000 | 590.000 | 821.000 |
| GR | 597.000 | 910.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 133.000 | 795.000 |

D/S FACE OF TELEGRAPH RD.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17180.000 | 16.000 | 565.000 | 664.200 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 595.000 | 595.000 | 0.000 |
| GR | 599.000 | 565.000 | 599.000 | 565.000 | 599.000 | 565.000 | 599.000 | 565.000 | 599.000 | 565.000 |
| GR | 578.000 | 565.000 | 577.000 | 593.700 | 577.000 | 593.800 | 577.000 | 635.500 | 577.000 | 636.600 |
| GR | 573.300 | 650.000 | 579.000 | 664.200 | 599.000 | 664.200 | 599.000 | 664.200 | 599.000 | 664.200 |
| GR | 600.000 | 795.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 1.250 | 1.650 | 3.000 | 0.000 | 88.730 | 42.000 | 822.400 | 0.000 | 0.000 | 0.000 |

U/S FACE OF TELEGRAPH RD.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17246.000 | 0.000 | 0.000 | 0.000 | 66.000 | 66.000 | 66.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 590.900 | 597.170 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 597.170 | 597.170 | 0.000 |
| BT | 13.000 | 565.000 | 599.000 | 0.000 | 565.000 | 599.000 | 0.000 | 565.000 | 599.000 | 0.000 |
| BT | 565.000 | 597.170 | 578.000 | 565.000 | 597.170 | 590.900 | 593.700 | 597.170 | 590.900 | 593.800 |
| BT | 597.170 | 577.000 | 635.500 | 597.170 | 577.000 | 635.600 | 597.170 | 590.900 | 664.200 | 597.170 |
| BT | 590.900 | 664.200 | 597.170 | 0.000 | 664.200 | 599.000 | 0.000 | 795.000 | 600.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 |

X-SECTION U/S OF TELEGRAPH RD.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17271.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 380.000 | 0.000 | 680.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 1350.000 |

D/S FACE OF FOOTBRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18700.000 | 13.000 | 400.000 | 520.000 | 1369.000 | 1369.000 | 1369.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.400 | 590.500 | 0.000 |
| GR | 608.000 | 0.000 | 600.000 | 0.100 | 595.000 | 110.000 | 590.000 | 310.000 | 590.500 | 400.000 |
| GR | 580.300 | 412.000 | 580.300 | 511.500 | 590.600 | 520.000 | 594.000 | 620.000 | 594.500 | 720.000 |
| GR | 595.000 | 1000.000 | 595.000 | 1200.000 | 600.000 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18701.000 | 21.000 | 400.000 | 520.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.400 | 590.500 | 0.000 |
| BT | 19.000 | 0.000 | 608.000 | 0.000 | 0.100 | 600.000 | 0.000 | 110.000 | 595.000 | 0.000 |
| BT | 310.000 | 590.000 | 0.000 | 400.000 | 590.500 | 590.300 | 448.000 | 590.500 | 590.300 | 448.100 |
| BT | 590.500 | 582.700 | 448.900 | 590.500 | 582.700 | 449.000 | 590.500 | 590.300 | 485.000 | 590.600 |
| BT | 590.300 | 485.100 | 590.600 | 582.700 | 485.900 | 590.600 | 582.700 | 486.000 | 590.600 | 590.300 |
| BT | 520.000 | 590.600 | 590.300 | 620.000 | 594.000 | 0.000 | 720.000 | 594.500 | 0.000 | 1000.000 |
| BT | 593.000 | 0.000 | 1200.000 | 595.000 | 0.000 | 1200.000 | 600.000 | 0.000 | 0.000 | 0.000 |
| GR | 608.000 | 0.000 | 600.000 | 0.100 | 595.000 | 110.000 | 590.000 | 310.000 | 590.500 | 400.000 |
| GR | 582.670 | 412.000 | 582.680 | 448.000 | 582.700 | 448.100 | 582.700 | 448.900 | 582.680 | 449.000 |
| GR | 582.700 | 485.000 | 582.700 | 485.100 | 582.700 | 485.900 | 582.700 | 486.000 | 582.710 | 511.500 |
| GR | 590.600 | 520.000 | 594.000 | 620.000 | 594.500 | 720.000 | 595.000 | 1000.000 | 595.000 | 1200.000 |
| GR | 600.000 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18711.000 | 0.000 | 0.000 | 0.000 | 10.000 | 10.000 | 10.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.500 | 590.600 | 0.000 |

U/S FACE OF FOOTBRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18712.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 590.500 | 590.600 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 |

X-SECT. D/S OF R.R.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19600.000 | 22.000 | 400.000 | 520.000 | 900.000 | 900.000 | 900.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 270.000 | 0.000 | 930.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 608.000 | 0.000 | 600.000 | 0.100 | 595.000 | 110.000 | 590.000 | 310.000 | 590.500 | 400.000 |
| GR | 582.670 | 412.000 | 580.900 | 430.000 | 580.300 | 440.000 | 580.000 | 450.000 | 580.400 | 460.000 |
| GR | 580.600 | 470.000 | 580.200 | 480.000 | 580.700 | 484.000 | 580.000 | 490.000 | 580.000 | 500.000 |
| GR | 582.710 | 511.500 | 593.400 | 520.000 | 594.000 | 620.000 | 594.500 | 720.000 | 595.000 | 1000.000 |
| GR | 595.000 | 1200.000 | 600.000 | 1350.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.070 | 0.070 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 1125.100 |

D/S FACE OF R.R. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19700.000 | 80.000 | 265.000 | 870.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 600.000 | 600.000 | 0.000 |
| GR | 600.000 | 0.000 | 598.000 | 260.000 | 598.000 | 265.000 | 583.200 | 265.100 | 582.300 | 290.000 |
| GR | 594.040 | 291.000 | 594.040 | 294.000 | 582.300 | 295.000 | 582.300 | 320.000 | 594.040 | 321.000 |
| GR | 594.040 | 324.000 | 582.300 | 325.000 | 582.300 | 350.000 | 594.040 | 351.000 | 594.040 | 354.000 |
| GR | 582.300 | 355.000 | 582.300 | 380.000 | 594.040 | 381.000 | 594.040 | 384.000 | 582.300 | 385.000 |
| GR | 582.300 | 410.000 | 594.040 | 411.000 | 594.040 | 414.000 | 582.300 | 415.000 | 582.300 | 440.000 |
| GR | 594.040 | 441.000 | 594.040 | 444.000 | 582.300 | 445.000 | 582.300 | 470.000 | 594.040 | 471.000 |
| GR | 594.040 | 474.000 | 582.300 | 475.000 | 582.300 | 500.000 | 594.040 | 501.000 | 594.040 | 504.000 |
| GR | 582.300 | 505.000 | 582.300 | 530.000 | 594.040 | 531.000 | 594.040 | 534.000 | 582.300 | 535.000 |
| GR | 582.300 | 560.000 | 594.040 | 561.000 | 594.040 | 564.000 | 582.300 | 565.000 | 582.300 | 590.000 |
| GR | 594.040 | 591.000 | 594.040 | 594.000 | 582.300 | 595.000 | 582.300 | 620.000 | 594.040 | 621.000 |
| GR | 594.040 | 624.000 | 582.300 | 625.000 | 582.300 | 650.000 | 594.040 | 651.000 | 594.040 | 654.000 |

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FORM 1411 GD PRINTED BY POTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 582.300 | 655.000 | 582.300 | 680.000 | 594.040 | 681.000 | 594.040 | 684.000 | 582.300 | 685.000 |
| GR | 582.300 | 710.000 | 594.040 | 711.000 | 594.040 | 714.000 | 582.300 | 715.000 | 582.300 | 740.000 |
| GR | 594.040 | 741.000 | 594.040 | 744.000 | 582.300 | 745.000 | 582.300 | 770.000 | 594.040 | 771.000 |
| GR | 594.040 | 774.000 | 582.300 | 775.000 | 582.300 | 800.000 | 594.100 | 801.000 | 594.100 | 806.000 |
| GR | 582.300 | 806.100 | 582.300 | 831.000 | 592.370 | 832.000 | 594.020 | 870.000 | 598.340 | 1125.100 |
| SB | 1.250 | 1.610 | 3.000 | 0.000 | 517.350 | 51.000 | 5475.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF R.R. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19747.000 | 0.000 | 0.000 | 0.000 | 47.000 | 47.000 | 47.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 594.040 | 599.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 600.000 | 600.000 | 0.000 |
| BT | 9.000 | 0.000 | 600.000 | 0.000 | 265.000 | 601.350 | 0.000 | 265.100 | 601.350 | 594.040 |
| BT | 800.000 | 601.360 | 594.040 | 800.000 | 601.350 | 0.000 | 870.000 | 601.410 | 0.000 | 870.000 |
| BT | 598.920 | 0.000 | 1125.100 | 599.200 | 0.000 | 1125.100 | 600.970 | 0.000 | 0.000 | 0.000 |
| NC | 0.070 | 0.070 | 0.020 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

DUMMY X-SECT.U/S OF R.R.BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19748.000 | 12.000 | 265.000 | 870.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 600.000 | 600.000 | 0.000 |
| GR | 600.000 | 0.000 | 598.000 | 265.000 | 591.700 | 266.600 | 582.300 | 269.000 | 582.300 | 771.000 |
| GR | 594.100 | 771.100 | 594.100 | 776.000 | 582.300 | 776.100 | 582.300 | 802.000 | 592.370 | 802.100 |
| GR | 594.020 | 870.000 | 598.340 | 1125.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.500 | 3.000 | 0.000 | 1.000 | 0.000 | 9.400 | 0.000 | 0.000 | 0.000 |

X-SECT.AT CREST OF DAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19753.000 | 0.000 | 0.000 | 0.000 | 3.000 | 3.000 | 3.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 591.700 | 591.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 600.000 | 600.000 | 0.000 |
| BT | 4.000 | 265.000 | 600.000 | 0.000 | 265.000 | 591.700 | 0.000 | 870.000 | 591.700 | 0.000 |
| BT | 870.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. AT CORP. LIMITS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 22300.000 | 11.000 | 50.000 | 1300.000 | 2547.000 | 2547.000 | 2547.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 595.000 | 25.000 | 592.000 | 50.000 | 587.000 | 60.000 | 587.000 | 1290.000 |
| GR | 592.000 | 1300.000 | 595.000 | 1325.000 | 596.000 | 1350.000 | 595.000 | 1400.000 | 595.000 | 1600.000 |
| GR | 600.000 | 1650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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FORM 1411-GB PRINTED BY RITARY MANIFOLD FORMS

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

T1      HURON RIVER
T2      50 YEAR FLOW
T3      CITY OF FLATROCK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
          0.        4.        0.        0.  1.000000      0.00      0.0        0.   586.590     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

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FORM 1411-00 PRINTED BY ROTARY MANIFOLD FORMS

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

T1      CITY OF FLATROCK
T2      100 YEAR FLOW
T3      HURON RIVER
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.      5.        0.        0.  0.000000      0.00      0.0       0.    587.660     0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    3.000     0.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

PRINTED IN U.S.A.
FORM 1411 GO PRINTED BY ROTARY MASTER OLD FORMS

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

T1      HURON RIVER
T2      500 YEAR FLOW
T3      CITY OF FLATROCK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       6.        0.        0.  0.000000      0.00      0.0       0.    590.230     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
        4.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

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FORM 1411-GO PRINTED BY ROTARY MANIFOLD FORMS.

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
 ERROR CORR -  01
 MODIFICATION -  50,51,52
**************************************************

T1CITY OF FLAT ROCK FIS HUD 2009 07 HURON RIVER WITHIN FLAT ROCK
T2 Q10YR#6480 50#8750 100#10390 500#12100 CFS   1968 STORM PROFILE Q# 7700 CFS.
T3      HURON R.-FLAT ROCK                FROM ROCKWOOD FIS

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
          0.        2.         0.         0.  0.000000       0.00       0.0         0.    585.600    0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
     15.000     0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
```

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FORM 141-0D PRINTED BY ROTARY MANIFOLD FORMS.

**********
HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CITY OF FLATROCK

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 500.000 | 0.00 | 0.00 | 0.00 | 569.10 | 6480.00 | 584.21 | 0.00 | 584.48 | 3.38 | 4.15 | 1608.22 | 3526.31 |
| | 500.000 | 0.00 | 0.00 | 0.00 | 569.10 | 8750.00 | 586.59 | 0.00 | 586.93 | 3.51 | 4.72 | 1985.28 | 4672.51 |
| A | 500.000 | 0.00 | 0.00 | 0.00 | 569.10 | 10390.00 | 587.66 | 0.00 | 588.08 | 3.94 | 5.23 | 2172.94 | 5236.06 |
| | 500.000 | 0.00 | 0.00 | 0.00 | 569.10 | 12100.00 | 590.23 | 0.00 | 590.65 | 3.25 | 5.23 | 2669.87 | 6714.48 |
| | 500.000 | 0.00 | 0.00 | 0.00 | 569.10 | 7700.00 | 585.60 | 0.00 | 585.91 | 3.40 | 4.45 | 1821.66 | 4177.83 |
| | 1800.000 | 1300.00 | 0.00 | 0.00 | 571.40 | 6480.00 | 584.89 | 0.00 | 584.98 | 4.24 | 2.94 | 5092.41 | 3147.26 |
| | 1800.000 | 1300.00 | 0.00 | 0.00 | 571.40 | 8750.00 | 587.30 | 0.00 | 587.36 | 2.58 | 2.59 | 8716.95 | 5452.58 |
| B | 1800.000 | 1300.00 | 0.00 | 0.00 | 571.40 | 10390.00 | 588.47 | 0.00 | 588.51 | 2.22 | 2.54 | 10912.77 | 6980.31 |
| | 1800.000 | 1300.00 | 0.00 | 0.00 | 571.40 | 12100.00 | 590.94 | 0.00 | 590.97 | 1.21 | 2.09 | 15709.46 | 10979.02 |
| | 1800.000 | 1300.00 | 0.00 | 0.00 | 571.40 | 7700.00 | 586.29 | 0.00 | 586.35 | 3.14 | 2.72 | 6876.78 | 4346.40 |
| | 4400.000 | 2600.00 | 0.00 | 0.00 | 569.40 | 6480.00 | 585.86 | 0.00 | 586.03 | 5.12 | 3.76 | 4246.72 | 2864.88 |
| | 4400.000 | 2600.00 | 0.00 | 0.00 | 569.40 | 8750.00 | 587.87 | 0.00 | 587.98 | 3.60 | 3.44 | 7292.26 | 4610.28 |
| C | 4400.000 | 2600.00 | 0.00 | 0.00 | 569.40 | 10390.00 | 588.94 | 0.00 | 589.04 | 3.23 | 3.40 | 8974.02 | 5778.86 |
| | 4400.000 | 2600.00 | 0.00 | 0.00 | 569.40 | 12100.00 | 591.19 | 0.00 | 591.24 | 1.91 | 2.83 | 12704.18 | 8758.04 |
| | 4400.000 | 2600.00 | 0.00 | 0.00 | 569.40 | 7700.00 | 586.99 | 0.00 | 587.12 | 4.17 | 3.57 | 5943.73 | 3772.95 |
| | 6200.000 | 1800.00 | 0.00 | 0.00 | 571.30 | 6480.00 | 586.72 | 0.00 | 586.84 | 6.17 | 3.58 | 4920.88 | 2608.56 |
| | 6200.000 | 1800.00 | 0.00 | 0.00 | 571.30 | 8750.00 | 588.41 | 0.00 | 588.50 | 4.72 | 3.36 | 7097.53 | 4027.54 |
| D | 6200.000 | 1800.00 | 0.00 | 0.00 | 571.30 | 10390.00 | 589.40 | 0.00 | 589.48 | 4.31 | 3.34 | 8380.36 | 5004.65 |
| | 6200.000 | 1800.00 | 0.00 | 0.00 | 571.30 | 12100.00 | 591.43 | 0.00 | 591.49 | 2.68 | 2.86 | 11236.89 | 7385.13 |
| | 6200.000 | 1800.00 | 0.00 | 0.00 | 571.30 | 7700.00 | 587.65 | 0.00 | 587.75 | 5.29 | 3.46 | 6112.84 | 3346.53 |
| | 8200.000 | 2000.00 | 0.00 | 0.00 | 571.50 | 6480.00 | 587.36 | 0.00 | 587.41 | 2.28 | 2.38 | 6840.55 | 4287.65 |
| | 8200.000 | 2000.00 | 0.00 | 0.00 | 571.50 | 8750.00 | 588.91 | 0.00 | 588.96 | 2.17 | 2.51 | 8965.30 | 5942.94 |
| E | 8200.000 | 2000.00 | 0.00 | 0.00 | 571.50 | 10390.00 | 589.85 | 0.00 | 589.91 | 2.14 | 2.60 | 10306.11 | 7098.40 |
| | 8200.000 | 2000.00 | 0.00 | 0.00 | 571.50 | 12100.00 | 591.72 | 0.00 | 591.76 | 1.56 | 2.40 | 13031.66 | 9692.68 |
| | 8200.000 | 2000.00 | 0.00 | 0.00 | 571.50 | 7700.00 | 588.20 | 0.00 | 588.25 | 2.23 | 2.46 | 7985.28 | 5152.91 |
| | 10300.000 | 2100.00 | 0.00 | 0.00 | 572.90 | 6480.00 | 587.72 | 0.00 | 587.77 | 2.14 | 2.30 | 6463.79 | 4425.20 |
| | 10300.000 | 2100.00 | 0.00 | 0.00 | 572.90 | 8750.00 | 589.23 | 0.00 | 589.28 | 2.03 | 2.41 | 9003.54 | 6148.82 |
| F | 10300.000 | 2100.00 | 0.00 | 0.00 | 572.90 | 10390.00 | 590.16 | 0.00 | 590.21 | 1.97 | 2.48 | 10635.29 | 7404.08 |
| | 10300.000 | 2100.00 | 0.00 | 0.00 | 572.90 | 12100.00 | 591.93 | 0.00 | 591.97 | 1.41 | 2.27 | 13974.38 | 10188.12 |
| | 10300.000 | 2100.00 | 0.00 | 0.00 | 572.90 | 7700.00 | 588.54 | 0.00 | 588.60 | 2.10 | 2.37 | 7825.61 | 5315.09 |

PRINTED IN U.S.A.
FORM 1611-UD PRINTED BY ROYARY MANIFOLD (ORM)

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | TOK*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12900.000 | 2600.00 | 0.00 | 0.00 | 573.40 | 6480.00 | 588.49 | 0.00 | 588.72 | 7.62 | 4.02 | 2276.56 | 2347.82 |
| | 12900.000 | 2600.00 | 0.00 | 0.00 | 573.40 | 8750.00 | 589.94 | 0.00 | 590.21 | 8.07 | 4.48 | 3393.50 | 3079.83 |
| 6 | 12900.000 | 2600.00 | 0.00 | 0.00 | 573.40 | 10390.00 | 590.83 | 0.00 | 591.11 | 8.01 | 4.67 | 4317.61 | 3670.26 |
| | 12900.000 | 2600.00 | 0.00 | 0.00 | 573.40 | 12100.00 | 592.40 | 0.00 | 592.61 | 6.01 | 4.34 | 6109.48 | 4936.98 |
| | 12900.000 | 2600.00 | 0.00 | 0.00 | 573.40 | 7700.00 | 589.29 | 0.00 | 589.54 | 7.99 | 4.30 | 2815.94 | 2724.31 |
| | 15800.000 | 2100.00 | 0.00 | 0.00 | 574.20 | 6480.00 | 589.39 | 0.00 | 589.48 | 1.81 | 2.62 | 4425.09 | 4817.74 |
| | 15800.000 | 2100.00 | 0.00 | 0.00 | 574.20 | 8750.00 | 590.93 | 0.00 | 591.03 | 1.97 | 2.95 | 5481.56 | 6234.46 |
| TA | 15800.000 | 2100.00 | 0.00 | 0.00 | 574.20 | 10390.00 | 591.86 | 0.00 | 591.97 | 2.10 | 3.18 | 6113.84 | 7164.33 |
| | 15800.000 | 2100.00 | 0.00 | 0.00 | 574.20 | 12100.00 | 593.24 | 0.00 | 593.35 | 1.95 | 3.25 | 7058.40 | 8660.05 |
| | 15800.000 | 2100.00 | 0.00 | 0.00 | 574.20 | 7700.00 | 590.25 | 0.00 | 590.34 | 1.90 | 2.80 | 5013.77 | 5585.69 |
| | 17080.000 | 1280.00 | 0.00 | 0.00 | 573.30 | 6480.00 | 589.65 | 0.00 | 589.89 | 4.19 | 3.98 | 1710.89 | 3166.86 |
| | 17080.000 | 1280.00 | 0.00 | 0.00 | 573.30 | 8750.00 | 591.20 | 0.00 | 591.55 | 5.28 | 4.78 | 1935.90 | 3809.28 |
| A | 17080.000 | 1280.00 | 0.00 | 0.00 | 573.30 | 10390.00 | 592.12 | 0.00 | 592.56 | 6.07 | 5.31 | 2073.29 | 4217.47 |
| | 17080.000 | 1280.00 | 0.00 | 0.00 | 573.30 | 12100.00 | 593.46 | 0.00 | 593.95 | 6.26 | 5.66 | 2274.46 | 4835.16 |
| | 17080.000 | 1280.00 | 0.00 | 0.00 | 573.30 | 7700.00 | 590.51 | 0.00 | 590.81 | 4.79 | 4.42 | 1835.99 | 3519.89 |
| | 17180.000 | 100.00 | 0.00 | 0.00 | 573.30 | 6480.00 | 589.62 | 0.00 | 590.02 | 6.35 | 5.08 | 1274.47 | 2571.11 |
| | 17180.000 | 100.00 | 0.00 | 0.00 | 573.30 | 8750.00 | 591.14 | 0.00 | 591.73 | 8.23 | 6.14 | 1425.67 | 3049.20 |
| B | 17180.000 | 100.00 | 0.00 | 0.00 | 573.30 | 10390.00 | 592.05 | 0.00 | 592.78 | 9.65 | 6.86 | 1515.57 | 3344.38 |
| | 17180.000 | 100.00 | 0.00 | 0.00 | 573.30 | 12100.00 | 593.36 | 0.00 | 594.20 | 10.22 | 7.35 | 1645.77 | 3785.22 |
| | 17180.000 | 100.00 | 0.00 | 0.00 | 573.30 | 7700.00 | 590.47 | 0.00 | 590.97 | 7.37 | 5.67 | 1359.14 | 2835.89 |
| | 17246.000 | 66.00 | 597.17 | 590.90 | 573.30 | 6480.00 | 590.88 | 0.00 | 591.21 | 4.78 | 4.63 | 1399.30 | 2964.10 |
| | 17246.000 | 66.00 | 597.17 | 590.90 | 573.30 | 8750.00 | 593.62 | 0.00 | 594.05 | 5.10 | 5.24 | 1671.22 | 3873.15 |
| K | 17246.000 | 66.00 | 597.17 | 590.90 | 573.30 | 10390.00 | 595.66 | 0.00 | 596.14 | 5.12 | 5.54 | 1873.89 | 4592.25 |
| | 17246.000 | 66.00 | 597.17 | 590.90 | 573.30 | 12100.00 | 597.98 | 0.00 | 598.49 | 4.94 | 5.75 | 2103.72 | 5445.12 |
| | 17246.000 | 66.00 | 597.17 | 590.90 | 573.30 | 7700.00 | 592.33 | 0.00 | 592.72 | 5.02 | 4.99 | 1543.64 | 3438.13 |
| | 17271.000 | 100.00 | 0.00 | 0.00 | 573.30 | 6480.00 | 590.93 | 0.00 | 591.26 | 4.72 | 4.61 | 1404.79 | 2981.78 |
| | 17271.000 | 100.00 | 0.00 | 0.00 | 573.30 | 8750.00 | 593.67 | 0.00 | 594.10 | 5.05 | 5.22 | 1677.21 | 3893.90 |
| L | 17271.000 | 100.00 | 0.00 | 0.00 | 573.30 | 10390.00 | 595.72 | 0.00 | 596.19 | 5.07 | 5.53 | 1880.30 | 4615.54 |
| | 17271.000 | 100.00 | 0.00 | 0.00 | 573.30 | 12100.00 | 598.03 | 0.00 | 598.54 | 4.90 | 5.74 | 2108.86 | 5464.59 |
| | 17271.000 | 100.00 | 0.00 | 0.00 | 573.30 | 7700.00 | 592.39 | 0.00 | 592.77 | 4.96 | 4.97 | 1549.72 | 3458.52 |
| | 18700.000 | 1369.00 | 0.00 | 0.00 | 580.30 | 6480.00 | 591.67 | 0.00 | 592.06 | 6.83 | 5.08 | 1459.28 | 2479.96 |
| | 18700.000 | 1369.00 | 0.00 | 0.00 | 580.30 | 8750.00 | 594.43 | 0.00 | 594.80 | 5.01 | 5.08 | 2590.62 | 3909.45 |
| M | 18700.000 | 1369.00 | 0.00 | 0.00 | 580.30 | 10390.00 | 596.54 | 0.00 | 596.82 | 3.43 | 4.64 | 4705.95 | 5609.32 |
| | 18700.000 | 1369.00 | 0.00 | 0.00 | 580.30 | 12100.00 | 598.89 | 0.00 | 599.07 | 2.13 | 4.02 | 7404.35 | 8294.70 |
| | 18700.000 | 1369.00 | 0.00 | 0.00 | 580.30 | 7700.00 | 593.12 | 0.00 | 593.51 | 5.90 | 5.15 | 1980.14 | 3170.01 |
| | 18701.000 | 1.00 | 590.00 | 590.30 | 582.67 | 6480.00 | 591.53 | 0.00 | 592.20 | 64.39 | 6.66 | 1116.35 | 807.53 |
| | 18701.000 | 1.00 | 590.00 | 590.30 | 582.67 | 8750.00 | 594.42 | 0.00 | 594.82 | 29.44 | 5.55 | 2284.79 | 1612.63 |
| N | 18701.000 | 1.00 | 590.00 | 590.30 | 582.67 | 10390.00 | 596.66 | 0.00 | 596.84 | 13.28 | 4.23 | 4537.11 | 2851.31 |
| | 18701.000 | 1.00 | 590.00 | 590.30 | 582.67 | 12100.00 | 599.01 | 0.00 | 599.09 | 6.07 | 3.19 | 7242.22 | 4909.65 |
| | 18701.000 | 1.00 | 590.00 | 590.30 | 582.67 | 7700.00 | 593.06 | 0.00 | 593.58 | 42.91 | 6.12 | 1651.80 | 1175.45 |
| | 18711.000 | 10.00 | 590.00 | 590.30 | 582.67 | 6480.00 | 591.63 | 0.00 | 592.27 | 61.42 | 6.55 | 1144.38 | 826.81 |
| | 18711.000 | 10.00 | 590.00 | 590.30 | 582.67 | 8750.00 | 594.45 | 0.00 | 594.85 | 29.20 | 5.53 | 2295.02 | 1619.21 |
| C | 18711.000 | 10.00 | 590.00 | 590.30 | 582.67 | 10390.00 | 596.67 | 0.00 | 596.86 | 13.22 | 4.22 | 4546.18 | 2857.19 |
| | 18711.000 | 10.00 | 590.00 | 590.30 | 582.67 | 12100.00 | 599.01 | 0.00 | 599.10 | 6.06 | 3.19 | 7247.10 | 4913.87 |
| | 18711.000 | 10.00 | 590.00 | 590.30 | 582.67 | 7700.00 | 593.11 | 0.00 | 593.63 | 41.77 | 6.06 | 1674.93 | 1191.44 |

588.8

580.2

589.3

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PRINTED IN U.S.A.

FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | TOK*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18712.000 | 1.00 | 0.00 | 0.00 | 582.67 | 6480.00 | 591.66 | 0.00 | 592.28 | 14.27 | 6.38 | 1193.93 | 1715.21 |
| 18712.000 | 1.00 | 0.00 | 0.00 | 582.67 | 8750.00 | 594.40 | 0.00 | 594.90 | 8.50 | 5.96 | 2311.41 | 3000.68 |
| 18712.000 | 1.00 | 0.00 | 0.00 | 582.67 | 10390.00 | 596.61 | 0.00 | 596.93 | 4.91 | 5.11 | 4518.51 | 4690.37 |
| 18712.000 | 1.00 | 0.00 | 0.00 | 582.67 | 12100.00 | 598.96 | 0.00 | 599.15 | 2.74 | 4.26 | 7230.97 | 7315.59 |
| 18712.000 | 1.00 | 0.00 | 0.00 | 582.67 | 7700.00 | 593.09 | 0.00 | 593.66 | 10.99 | 6.23 | 1704.48 | 2322.82 |
| 19600.000 | 900.00 | 0.00 | 0.00 | 580.00 | 6480.00 | 592.78 | 0.00 | 593.12 | 5.60 | 4.77 | 1634.21 | 2737.64 |
| 19600.000 | 900.00 | 0.00 | 0.00 | 580.00 | 8750.00 | 595.14 | 0.00 | 595.51 | 4.87 | 5.04 | 2555.76 | 3966.93 |
| 19600.000 | 900.00 | 0.00 | 0.00 | 580.00 | 10390.00 | 597.00 | 0.00 | 597.32 | 3.84 | 4.89 | 3778.60 | 5302.53 |
| 19600.000 | 900.00 | 0.00 | 0.00 | 580.00 | 12100.00 | 599.18 | 0.00 | 599.43 | 2.80 | 4.56 | 5217.51 | 7230.20 |
| 19600.000 | 900.00 | 0.00 | 0.00 | 580.00 | 7700.00 | 594.02 | 0.00 | 594.39 | 5.35 | 4.99 | 1976.09 | 3327.70 |
| 19700.000 | 100.00 | 0.00 | 0.00 | 582.30 | 6480.00 | 593.21 | 0.00 | 593.24 | 0.76 | 1.21 | 5363.39 | 7437.47 |
| 19700.000 | 100.00 | 0.00 | 0.00 | 582.30 | 8750.00 | 595.60 | 0.00 | 595.62 | 0.75 | 1.30 | 6750.16 | 10131.70 |
| 19700.000 | 100.00 | 0.00 | 0.00 | 582.30 | 10390.00 | 597.39 | 0.00 | 597.42 | 0.64 | 1.33 | 7833.88 | 12970.16 |
| 19700.000 | 100.00 | 0.00 | 0.00 | 582.30 | 12100.00 | 599.49 | 0.00 | 599.51 | 0.53 | 1.33 | 9102.52 | 16633.82 |
| 19700.000 | 100.00 | 0.00 | 0.00 | 582.30 | 7700.00 | 594.48 | 0.00 | 594.51 | 0.82 | 1.27 | 6074.63 | 8505.02 |
| 19747.000 | 47.00 | 599.20 | 594.04 | 582.30 | 6480.00 | 593.22 | 0.00 | 593.24 | 0.76 | 1.21 | 5365.45 | 7440.93 |
| 19747.000 | 47.00 | 599.20 | 594.04 | 582.30 | 8750.00 | 595.64 | 0.00 | 595.66 | 0.74 | 1.29 | 6773.37 | 10189.56 |
| 19747.000 | 47.00 | 599.20 | 594.04 | 582.30 | 10390.00 | 597.45 | 0.00 | 597.48 | 0.63 | 1.32 | 7871.70 | 13074.15 |
| 19747.000 | 47.00 | 599.20 | 594.04 | 582.30 | 12100.00 | 599.58 | 0.00 | 599.60 | 0.52 | 1.32 | 9157.06 | 16799.27 |
| 19747.000 | 47.00 | 599.20 | 594.04 | 582.30 | 7700.00 | 594.51 | 0.00 | 594.53 | 0.81 | 1.26 | 6089.67 | 8540.00 |
| 19748.000 | 1.00 | 0.00 | 0.00 | 582.30 | 6480.00 | 593.22 | 0.00 | 593.24 | 0.11 | 1.12 | 5795.34 | 19401.80 |
| 19748.000 | 1.00 | 0.00 | 0.00 | 582.30 | 8750.00 | 595.64 | 0.00 | 595.66 | 0.11 | 1.21 | 7238.32 | 26872.09 |
| 19748.000 | 1.00 | 0.00 | 0.00 | 582.30 | 10390.00 | 597.46 | 0.00 | 597.48 | 0.09 | 1.25 | 8336.13 | 33937.42 |
| 19748.000 | 1.00 | 0.00 | 0.00 | 582.30 | 12100.00 | 599.58 | 0.00 | 599.60 | 0.08 | 1.26 | 9621.28 | 43005.77 |
| 19748.000 | 1.00 | 0.00 | 0.00 | 582.30 | 7700.00 | 594.51 | 0.00 | 594.53 | 0.11 | 1.17 | 6555.29 | 22807.53 |
| 19753.000 | 3.00 | 591.70 | 591.70 | 582.30 | 6480.00 | 594.10 | 0.00 | 594.12 | 0.09 | 1.03 | 6314.90 | 21439.70 |
| 19753.000 | 3.00 | 591.70 | 591.70 | 582.30 | 8750.00 | 595.95 | 0.00 | 595.97 | 0.10 | 1.18 | 7425.43 | 28030.61 |
| 19753.000 | 3.00 | 591.70 | 591.70 | 582.30 | 10390.00 | 597.73 | 0.00 | 597.76 | 0.09 | 1.22 | 8506.70 | 35092.18 |
| 19753.000 | 3.00 | 591.70 | 591.70 | 582.30 | 12100.00 | 599.86 | 0.00 | 599.88 | 0.07 | 1.24 | 9791.43 | 44268.34 |
| 19753.000 | 3.00 | 591.70 | 591.70 | 582.30 | 7700.00 | 594.95 | 0.00 | 594.97 | 0.10 | 1.13 | 6823.44 | 24372.12 |
| 22300.000 | 2547.00 | 0.00 | 0.00 | 587.00 | 6480.00 | 594.13 | 0.00 | 594.14 | 0.07 | 0.73 | 8894.20 | 24254.23 |
| 22300.000 | 2547.00 | 0.00 | 0.00 | 587.00 | 8750.00 | 595.98 | 0.00 | 595.99 | 0.06 | 0.78 | 11524.62 | 35759.64 |
| 22300.000 | 2547.00 | 0.00 | 0.00 | 587.00 | 10390.00 | 597.77 | 0.00 | 597.78 | 0.05 | 0.77 | 14395.20 | 48790.82 |
| 22300.000 | 2547.00 | 0.00 | 0.00 | 587.00 | 12100.00 | 599.89 | 0.00 | 599.90 | 0.03 | 0.74 | 17857.15 | 66422.69 |
| 22300.000 | 2547.00 | 0.00 | 0.00 | 587.00 | 7700.00 | 594.98 | 0.00 | 594.99 | 0.07 | 0.78 | 9994.86 | 29315.27 |

PRINTED IN U.S.A.
FORM 1611-DS PRINTED BY ROYAL MANIFOLD FORMS.

CITY OF FLATROCK

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 500.000 | 6480.00 | 584.21 | 0.00 | 0.00 | 0.00 | 146.69 | 0.00 |
| 500.000 | 8750.00 | 586.59 | 0.00 | 0.00 | 0.00 | 170.15 | 0.00 |
| 500.000 | 10390.00 | 587.66 | 0.00 | 0.00 | 0.00 | 180.69 | 0.00 |
| 500.000 | 12100.00 | 590.23 | 0.00 | 0.00 | 0.00 | 205.83 | 0.00 |
| 500.000 | 7700.00 | 585.60 | 0.00 | 0.00 | 0.00 | 160.39 | 0.00 |
| 1800.000 | 6480.00 | 584.89 | 0.00 | 0.68 | 0.00 | 1128.58 | 1300.00 |
| 1800.000 | 8750.00 | 587.30 | 0.00 | 0.71 | 0.00 | 1874.21 | 1300.00 |
| 1800.000 | 10390.00 | 588.47 | 0.00 | 0.81 | 0.00 | 1906.41 | 1300.00 |
| 1800.000 | 12100.00 | 590.94 | 0.00 | 0.71 | 0.00 | 1974.91 | 1300.00 |
| 1800.000 | 7700.00 | 586.29 | 0.00 | 0.69 | 0.00 | 1600.15 | 1300.00 |
| 4400.000 | 6480.00 | 585.86 | 0.00 | 0.97 | 0.00 | 1476.86 | 2600.00 |
| 4400.000 | 8750.00 | 587.87 | 0.00 | 0.57 | 0.00 | 1549.84 | 2600.00 |
| 4400.000 | 10390.00 | 588.94 | 0.00 | 0.48 | 0.00 | 1592.11 | 2600.00 |
| 4400.000 | 12100.00 | 591.19 | 0.00 | 0.25 | 0.00 | 1728.70 | 2600.00 |
| 4400.000 | 7700.00 | 586.99 | 0.00 | 0.70 | 0.00 | 1517.96 | 2600.00 |
| 6200.000 | 6480.00 | 586.72 | 0.00 | 0.86 | 0.00 | 1278.84 | 1800.00 |
| 6200.000 | 8750.00 | 588.41 | 0.00 | 0.54 | 0.00 | 1291.97 | 1800.00 |
| 6200.000 | 10390.00 | 589.40 | 0.00 | 0.46 | 0.00 | 1299.65 | 1800.00 |
| 6200.000 | 12100.00 | 591.43 | 0.00 | 0.25 | 0.00 | 1566.67 | 1800.00 |
| 6200.000 | 7700.00 | 587.65 | 0.00 | 0.65 | 0.00 | 1286.04 | 1800.00 |
| 8200.000 | 6480.00 | 587.36 | 0.00 | 0.64 | 0.00 | 1335.96 | 2000.00 |
| 8200.000 | 8750.00 | 589.91 | 0.00 | 0.50 | 0.00 | 1402.13 | 2000.00 |
| 8200.000 | 10390.00 | 589.85 | 0.00 | 0.45 | 0.00 | 1428.59 | 2000.00 |
| 8200.000 | 12100.00 | 591.72 | 0.00 | 0.29 | 0.00 | 1479.03 | 2000.00 |
| 8200.000 | 7700.00 | 588.20 | 0.00 | 0.55 | 0.00 | 1372.00 | 2000.00 |
| 10300.000 | 6480.00 | 587.72 | 0.00 | 0.36 | 0.00 | 1578.88 | 2100.00 |
| 10300.000 | 8750.00 | 589.23 | 0.00 | 0.32 | 0.00 | 1728.11 | 2100.00 |
| 10300.000 | 10390.00 | 590.16 | 0.00 | 0.31 | 0.00 | 1783.31 | 2100.00 |
| 10300.000 | 12100.00 | 591.93 | 0.00 | 0.21 | 0.00 | 1981.83 | 2100.00 |
| 10300.000 | 7700.00 | 588.54 | 0.00 | 0.34 | 0.00 | 1701.81 | 2100.00 |
| 12900.000 | 6480.00 | 588.49 | 0.00 | 0.77 | 0.00 | 559.67 | 2600.00 |
| 12900.000 | 8750.00 | 589.94 | 0.00 | 0.71 | 0.00 | 982.28 | 2600.00 |
| 12900.000 | 10390.00 | 590.83 | 0.00 | 0.67 | 0.00 | 1075.12 | 2600.00 |
| 12900.000 | 12100.00 | 592.40 | 0.00 | 0.46 | 0.00 | 1215.98 | 2600.00 |
| 12900.000 | 7700.00 | 589.29 | 0.00 | 0.75 | 0.00 | 792.41 | 2600.00 |
| 15800.000 | 6480.00 | 589.39 | 0.00 | 0.90 | 0.00 | 685.00 | 2100.00 |
| 15800.000 | 8750.00 | 590.93 | 0.00 | 0.99 | 0.00 | 685.00 | 2100.00 |
| 15800.000 | 10390.00 | 591.86 | 0.00 | 1.03 | 0.00 | 685.00 | 2100.00 |
| 15800.000 | 12100.00 | 593.24 | 0.00 | 0.84 | 0.00 | 685.00 | 2100.00 |
| 15800.000 | 7700.00 | 590.25 | 0.00 | 0.96 | 0.00 | 685.00 | 2100.00 |

PRINTED IN U.S.A.
FORM 1411 OD PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 17080.000 | 6480.00 | 589.65 | 0.00 | 0.26 | 0.00 | 143.65 | 1280.00 |
| 1 | 17080.000 | 8750.00 | 591.20 | 0.00 | 0.26 | 0.00 | 147.13 | 1280.00 |
| 2 | 17080.000 | 10390.00 | 592.12 | 0.00 | 0.27 | 0.00 | 149.22 | 1280.00 |
| 3 | 17080.000 | 12100.00 | 593.46 | 0.00 | 0.22 | 0.00 | 152.22 | 1280.00 |
| 4 | 17080.000 | 7700.00 | 590.51 | 0.00 | 0.26 | 0.00 | 145.60 | 1280.00 |

PRINTED IN U.S.A.

FORM 1411 GD PRINTED BY ROTARY MANIFOLD FORMS.

| SECNO | Q | CUSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 17180.000 | 6480.00 | 589.62 | 0.00 | -0.03 | 0.00 | 99.20 | 100.00 |
| 17180.000 | 8750.00 | 591.14 | 0.00 | -0.05 | 0.00 | 99.20 | 100.00 |
| 17180.000 | 10390.00 | 592.05 | 0.00 | -0.07 | 0.00 | 99.20 | 100.00 |
| 17180.000 | 12100.00 | 593.36 | 0.00 | -0.10 | 0.00 | 99.20 | 100.00 |
| 17180.000 | 7700.00 | 590.47 | 0.00 | -0.04 | 0.00 | 99.20 | 100.00 |
| 17246.000 | 6480.00 | 590.88 | 0.00 | 1.26 | 0.00 | 99.20 | 66.00 |
| 17246.000 | 8750.00 | 593.62 | 0.00 | 2.47 | 0.00 | 99.20 | 66.00 |
| 17246.000 | 10390.00 | 595.66 | 0.00 | 3.61 | 0.00 | 99.20 | 66.00 |
| 17246.000 | 12100.00 | 597.98 | 0.00 | 4.62 | 0.00 | 99.20 | 66.00 |
| 17246.000 | 7700.00 | 592.33 | 0.00 | 1.86 | 0.00 | 99.20 | 66.00 |
| 17271.000 | 6480.00 | 590.93 | 0.00 | 0.05 | 0.00 | 99.20 | 100.00 |
| 17271.000 | 8750.00 | 593.67 | 0.00 | 0.05 | 0.00 | 99.20 | 100.00 |
| 17271.000 | 10390.00 | 595.72 | 0.00 | 0.06 | 0.00 | 99.20 | 100.00 |
| 17271.000 | 12100.00 | 598.03 | 0.00 | 0.05 | 0.00 | 99.20 | 100.00 |
| 17271.000 | 7700.00 | 592.39 | 0.00 | 0.05 | 0.00 | 99.20 | 100.00 |
| 18700.000 | 6480.00 | 591.67 | 0.00 | 0.74 | 0.00 | 308.14 | 1369.00 |
| 18700.000 | 8750.00 | 594.43 | 0.00 | 0.76 | 0.00 | 573.13 | 1369.00 |
| 18700.000 | 10390.00 | 596.54 | 0.00 | 0.82 | 0.00 | 1123.85 | 1369.00 |
| 18700.000 | 12100.00 | 598.89 | 0.00 | 0.86 | 0.00 | 1175.44 | 1369.00 |
| 18700.000 | 7700.00 | 593.12 | 0.00 | 0.73 | 0.00 | 408.98 | 1369.00 |
| 18701.000 | 6480.00 | 591.53 | 0.00 | -0.13 | 0.00 | 298.93 | 1.00 |
| 18701.000 | 8750.00 | 594.42 | 0.00 | -0.01 | 0.00 | 571.78 | 1.00 |
| 18701.000 | 10390.00 | 596.66 | 0.00 | 0.12 | 0.00 | 1126.46 | 1.00 |
| 18701.000 | 12100.00 | 599.01 | 0.00 | 0.12 | 0.00 | 1178.06 | 1.00 |
| 18701.000 | 7700.00 | 593.06 | 0.00 | -0.06 | 0.00 | 404.59 | 1.00 |
| 18711.000 | 6480.00 | 591.63 | 0.00 | 0.09 | 0.00 | 305.37 | 10.00 |
| 18711.000 | 8750.00 | 594.45 | 0.00 | 0.03 | 0.00 | 576.05 | 10.00 |
| 18711.000 | 10390.00 | 596.67 | 0.00 | 0.01 | 0.00 | 1126.64 | 10.00 |
| 18711.000 | 12100.00 | 599.01 | 0.00 | 0.01 | 0.00 | 1178.15 | 10.00 |
| 18711.000 | 7700.00 | 593.11 | 0.00 | 0.06 | 0.00 | 408.54 | 10.00 |
| 18712.000 | 6480.00 | 591.66 | 0.00 | 0.03 | 0.00 | 307.42 | 1.00 |
| 18712.000 | 8750.00 | 594.40 | 0.00 | -0.05 | 0.00 | 565.92 | 1.00 |
| 18712.000 | 10390.00 | 596.61 | 0.00 | -0.07 | 0.00 | 1125.30 | 1.00 |
| 18712.000 | 12100.00 | 598.96 | 0.00 | -0.05 | 0.00 | 1177.09 | 1.00 |
| 18712.000 | 7700.00 | 593.09 | 0.00 | -0.03 | 0.00 | 406.67 | 1.00 |
| 19600.000 | 6480.00 | 592.78 | 0.00 | 1.12 | 0.00 | 249.50 | 900.00 |
| 19600.000 | 8750.00 | 595.14 | 0.00 | 0.74 | 0.00 | 660.00 | 900.00 |
| 19600.000 | 10390.00 | 597.00 | 0.00 | 0.39 | 0.00 | 660.00 | 900.00 |
| 19600.000 | 12100.00 | 599.18 | 0.00 | 0.22 | 0.00 | 660.00 | 900.00 |
| 19600.000 | 7700.00 | 594.02 | 0.00 | 0.93 | 0.00 | 353.52 | 900.00 |
| 19700.000 | 6480.00 | 593.21 | 0.00 | 0.43 | 0.00 | 527.94 | 100.00 |
| 19700.000 | 8750.00 | 595.60 | 0.00 | 0.46 | 0.00 | 604.98 | 100.00 |
| 19700.000 | 10390.00 | 597.39 | 0.00 | 0.39 | 0.00 | 605.00 | 100.00 |
| 19700.000 | 12100.00 | 599.49 | 0.00 | 0.31 | 0.00 | 605.00 | 100.00 |
| 19700.000 | 7700.00 | 594.48 | 0.00 | 0.46 | 0.00 | 604.98 | 100.00 |

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FORM 1411 GD PRINTED BY ROTARY MANIFOLD 4 OPMS

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 19747.000 | 6480.00 | 593.22 | 0.00 | 0.00 | 0.00 | 528.04 | 47.00 |
| 19747.000 | 8750.00 | 595.64 | 0.00 | 0.04 | 0.00 | 604.98 | 47.00 |
| 19747.000 | 10390.00 | 597.45 | 0.00 | 0.06 | 0.00 | 605.00 | 47.00 |
| 19747.000 | 12100.00 | 599.58 | 0.00 | 0.09 | 0.00 | 605.00 | 47.00 |
| 19747.000 | 7700.00 | 594.51 | 0.00 | 0.02 | 0.00 | 604.98 | 47.00 |
| 19748.000 | 6480.00 | 593.22 | 0.00 | 0.00 | 0.00 | 565.88 | 1.00 |
| 19748.000 | 8750.00 | 595.64 | 0.00 | 0.00 | 0.00 | 604.40 | 1.00 |
| 19748.000 | 10390.00 | 597.46 | 0.00 | 0.00 | 0.00 | 604.86 | 1.00 |
| 19748.000 | 12100.00 | 599.58 | 0.00 | 0.00 | 0.00 | 605.00 | 1.00 |
| 19748.000 | 7700.00 | 594.51 | 0.00 | 0.00 | 0.00 | 604.11 | 1.00 |
| 19753.000 | 6480.00 | 594.10 | 0.00 | 0.88 | 0.00 | 604.01 | 3.00 |
| 19753.000 | 8750.00 | 595.95 | 0.00 | 0.31 | 0.00 | 604.48 | 3.00 |
| 19753.000 | 10390.00 | 597.73 | 0.00 | 0.28 | 0.00 | 604.93 | 3.00 |
| 19753.000 | 12100.00 | 599.86 | 0.00 | 0.28 | 0.00 | 605.00 | 3.00 |
| 19753.000 | 7700.00 | 594.95 | 0.00 | 0.44 | 0.00 | 604.23 | 3.00 |
| 22300.000 | 6480.00 | 594.13 | 0.00 | 0.03 | 0.00 | 1285.42 | 2547.00 |
| 22300.000 | 8750.00 | 595.98 | 0.00 | 0.03 | 0.00 | 1587.43 | 2547.00 |
| 22300.000 | 10390.00 | 597.77 | 0.00 | 0.03 | 0.00 | 1616.43 | 2547.00 |
| 22300.000 | 12100.00 | 599.89 | 0.00 | 0.03 | 0.00 | 1648.25 | 2547.00 |
| 22300.000 | 7700.00 | 594.98 | 0.00 | 0.03 | 0.00 | 1299.61 | 2547.00 |

SUMMARY OF ERRORS

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FORM 141, 80 PRINTED BY ROSARY MANIFOLD FORMS

FLOOD INSURANCE ZONE DATA FOR CITY OF FLATROCK

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

| SECTION NUMBER | CUMULATIVE DISTANCE | ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND¢ 10¢ | 2¢ | 0.2¢ |
|---|---|---|---|---|
| 500.000 | 0. | -3.4 | -1.1 | 2.6 |
| 1800.000 | 1300. | -3.6 | -1.2 | 2.5 |
| 4400.000 | 3900. | -3.1 | -1.1 | 2.2 |
| 6200.000 | 5700. | -2.7 | -1.0 | 2.0 |
| 8200.000 | 7700. | -2.5 | -0.9 | 1.9 |
| 10300.000 | 9800. | -2.4 | -0.9 | 1.8 |
| 12900.000 | 12400. | -2.3 | -0.9 | 1.6 |
| 15800.000 | 14500. | -2.5 | -0.9 | 1.4 |
| 17080.000 | 15780. | -2.5 | -0.9 | 1.3 |
| 17180.000 | 15880. | -2.4 | -0.9 | 1.3 |
| 17246.000 | 15946. | -4.8 | -2.0 | 2.3 |
| 17271.000 | 16046. | -4.8 | -2.0 | 2.3 |
| 18700.000 | 17415. | -4.9 | -2.1 | 2.3 |
| 18701.000 | 17416. | -5.1 | -2.2 | 2.3 |
| 18711.000 | 17426. | -5.0 | -2.2 | 2.3 |
| 18712.000 | 17427. | -4.9 | -2.2 | 2.4 |
| 19600.000 | 18327. | -4.2 | -1.9 | 2.2 |
| 19700.000 | 18427. | -4.2 | -1.8 | 2.1 |
| 19747.000 | 18474. | -4.2 | -1.8 | 2.1 |
| 19748.000 | 18475. | -4.2 | -1.8 | 2.1 |
| 19753.000 | 18478. | -3.6 | -1.8 | 2.1 |
| 22300.000 | 21025. | -3.6 | -1.8 | 2.1 |
| WEIGHTED AVG FOR REACH | | -3.1 | -1.2 | 2.0 |

FHF FOR THE REACH = 030 WITH 88.0¢ OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 6

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FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Silver Creek

4) DOCUMENT TYPE: 10 year

00BREAK00

State Copy

14:46:35 X406 HILL HW2UD907 HUDFROCK DEC 20, 1979

FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

PRINTED IN U.S.A.

Hudfrock

10-20

14:40:35 X406 BILL RU200907 RUSFROCK DEC 20, 1979

PRINTED IN U.S.A.

FORM 1410-GO PRINTED BY ROTARY MANIFOLD FORMS

```
JOBID=HU200907          USER=BILL                PROJECT=HUDFROCK          BILLING=HUDFROCK          RUN=X6400
==========================================================================================================

14:44:40                                  JOB INTRODUCED FROM                                    DEC 20, 1979
                                                CD01 JCL

==========================================================================================================

14:44:51  START OF TRANSLATION

          $JOB HU200907,USER=BILL,PROJECT=HUDFROCK;
          $INPUT TR20;
          RECORD COUNT: 41
          $ENDINPUT;
           VALUES WTAPAK;
           CREATE INFILE=*TR20,OUTFILE=(TR20IN,TEMPRY,END=PASS,DVC=MS/M400,MD=81),
                        OUTDEF=(RECSIZE=80,BLKSIZE=960,RECFORM=FB,FILEFORM=BFAS);
           SEND 'START OF TR20 EXECUTION';
           STEP TR20,,THEN=LK,OPTIONS='FILE=A 2,FILE=B 4';
           ALC FILE=A,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=A,FILE=A,TEMPRY,DVC=MS/M400,MD=81;
           ALC FILE=B,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=B,FILE=B,TEMPRY,DVC=MS/M400,MD=81;
           ASG HARD,TR20IN,TEMPRY,DVC=MS/M400,MD=81;
           ENDSTEP;
          $ENDJOB;

          RECORD COUNT :     56

14:44:52  END OF TRANSLATION
```

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FORM 1411 GE-PRINTED BY ROTARY MANIFOLD FORMS

```
JOBID=HU200V07          USER=BILL          PROJECT=HUDFROCK          BILLING=HUDFROCK          HO\=X0400
14:44:53                              JOB EXECUTION LISTING                              DEC 20, 1979

        STEP 1 CREATE
        LOAD MODULE = M=UTILITY (79/10/9 12:57) PREINITIALIZED
        LIBRARY = SYS.HLMLIB
14:44:56 STEP STARTED XPRTY=9
        D000.01         CREATE    VERSION= 10.0C  RELEASE 20  EXECUTED ON DEC 20, 1979
        D000.30         INFILE    = SYS.IN
        *E06.   5 CYLINDER(S) ALLOCATED ON JOLDUE; MTAPAK FOR EFN: JOLD4D6.T320;N
        D000.30         OUTFILE   = TR2DIN
        D003.00         INFILE    : NUMBER OF READ RECORDS    : 41
        D003.01         OUTFILE   : NUMBER OF WRITTEN RECORDS  : 41
        TASK MAIN J=02 P=00 COMPLETED
        TEMPORARY FILES USED=    76 TRACKS
        OUTFILE  ON  MTAPAK ; NO OF IO CONNECTS=          5
        CPU          0.043                    PROG MISSING SLOTS      20    STACKOV      9
        ELAPSED      0.285                    SYS MISSING SLOTS       59
        LINES            0   LIMIT    NOLIM  BACKING STORE        39072
        CARDS            0   LIMIT    NOLIM  BUFFER SIZE           2096    CPSIZE     1552
14:45:14 STEP COMPLETED

        START OF TR2D EXECUTION
        STEP 2
        LOAD MODULE = TR2D (79/4 /5 00:10)
        LIBRARY = MTAENGLIB
14:45:35 STEP STARTED XPRTY=9
        FP04.   2 CYLINDER(S) ALLOCATED ON VOLUME: MTAPAK FOR EFN: JOLD4D6.FILE04
        FP04.   2 CYLINDER(S) ALLOCATED ON VOLUME: MTAPAK FOR EFN: JOLD4D6.FILE04
        TASK MAIN J=02 P=00 COMPLETED
        OUF01,RP=FILE04         BLOCK CLR RATE=          0
        OUF01,SAV=FILE05        REMEMBER FILE=           0    UNLOCK BUFFER=      3    CREATE BUFFER=      4
        TEMPORARY FILES USED=    152  TRACKS
        WORK     ON  MTAPAK ; NO OF IO CONNECTS=          4
        FILE04   ON  MTAPAK ; NO OF IO CONNECTS=         46
        FILE05   ON  MTAPAK ; NO OF IO CONNECTS=         14
        OUTP     ON  LGO1V4 ; NO OF IO CONNECTS=         13
        CPU          5.314                    PROG MISSING SLOTS     130    STACKOV     31
        ELAPSED      9.982                    SYS MISSING SLOTS      248
        LINES          178   LIMIT    NOLIM  BACKING STORE        547056
        CARDS            0   LIMIT    NOLIM  BUFFER SIZE           10512   CPSIZE     2272
14:46:23 STEP COMPLETED

        START    14:44:53  LINES          178
        STOP     14:46:25  CARDS            0
        CPU          5.344
        ELAPSE       1.532
14:46:25 RESULT: JOB COMPLETED
```

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FORM 161-GB PRINTED BY ROTARY MANIFOLD FORM.

ROMULUS-HURON DIVERSION 11001079

TR-20 HYDROLOGY

PROGRAM DATE - FEB. 14, 1974 67360

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FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

EXECUTIVE CONTROL CARD  OPERATION LIST

LISTING OF DATA IN CORE

10 ROMULUS-HURON DIVERSION

VELOCITY INCREMENT

| | | | | | |
|---|---|---|---|---|---|
| 1 CTABLE | | 0.2000 | | | |
| 8 | 0.0000 | 0.0800 | 0.1800 | 0.2500 | 0.3200 |
| 8 | 0.3700 | 0.4100 | 0.4500 | 0.4900 | 0.5100 |
| 8 | 0.5400 | 0.5700 | 0.5900 | 0.6100 | 0.6300 |
| 8 | 0.6500 | 0.6600 | 0.6700 | 0.6900 | 0.7000 |
| 8 | 0.7100 | 0.7200 | 0.7300 | 0.7400 | 0.7300 |
| 8 | 0.7600 | 0.7700 | 0.7700 | 0.7800 | 0.7900 |
| 8 | 0.7900 | 0.8000 | 0.8100 | 0.8100 | 0.8200 |
| 8 | 0.8200 | 0.8300 | 0.8300 | 0.8400 | 0.8400 |
| 8 | 0.8400 | 0.8500 | 0.8500 | 0.8600 | 0.8600 |
| 8 | 0.8600 | 0.8600 | 0.8700 | 0.8700 | 0.8700 |
| 8 | 0.8800 | 0.8800 | 0.8800 | 0.8900 | 0.8900 |
| 8 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.9000 |
| 8 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9100 |
| 8 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| 8 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| 8 | 0.9200 | 0.9200 | 0.9200 | 0.9300 | 0.9300 |
| 9 ENDTOL | | | | | |

STRUCT NO.

| | | | |
|---|---|---|---|
| 3 STRUCT | 1 | | |
| | ELEVATION | DISCHARGE | STORAGE |
| 8 | 593.5000 | 0.0000 | 0.0000 |
| 8 | 593.2000 | 50.0000 | 0.1000 |
| 8 | 593.8999 | 100.0000 | 0.2000 |
| 8 | 595.2000 | 200.0000 | 2.0000 |
| 8 | 596.6001 | 300.0000 | 50.0000 |
| 8 | 599.2000 | 400.0000 | 182.0000 |
| 8 | 599.7000 | 500.0000 | 222.0000 |
| 8 | 600.0500 | 600.0000 | 252.0000 |
| 8 | 600.3000 | 700.0000 | 296.0000 |
| 8 | 600.7000 | 800.0000 | 355.0000 |
| 9 ENDTBL | | | |

TIME INCREMENT

| | | | | | |
|---|---|---|---|---|---|
| 4 DIMHYD | | | | | |
| 8 | 0.0000 | 0.0300 | 0.1000 | 0.1900 | 0.3100 |

| | | | | | |
|---|---|---|---|---|---|
| 0.4700 | 0.6400 | 0.8200 | 0.9300 | 0.9900 | |
| 1.0000 | 0.9900 | 0.9300 | 0.8600 | 0.7800 | |
| 0.6900 | 0.5600 | 0.4600 | 0.3900 | 0.3500 | |
| 0.2900 | 0.2410 | 0.2070 | 0.1740 | 0.1470 | |
| 0.1260 | 0.1070 | 0.0910 | 0.0770 | 0.0660 | |
| 0.0550 | 0.0470 | 0.0400 | 0.0340 | 0.0290 | |
| 0.0250 | 0.0210 | 0.0180 | 0.0150 | 0.0130 | |
| 0.0110 | 0.0090 | 0.0080 | 0.0070 | 0.0060 | |
| 0.0050 | 0.0040 | 0.0030 | 0.0020 | 0.0010 | |
| 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | |

Y ENDTBL

COMPUTED PEAK K FACTOR = 404.00

TIME INCREMENT
5 RAINFL T 0.5000

| | | | | | |
|---|---|---|---|---|---|
| 0.0030 | 0.0080 | 0.0170 | 0.0260 | 0.0350 | |
| 0.0450 | 0.0550 | 0.0650 | 0.0760 | 0.0870 | |
| 0.0990 | 0.1120 | 0.1250 | 0.1400 | 0.1560 | |
| 0.1740 | 0.1940 | 0.2190 | 0.2540 | 0.3030 | |
| 0.3150 | 0.3830 | 0.4240 | 0.4540 | 0.4820 | |
| 0.5050 | 0.5270 | 0.5480 | 0.5670 | 0.5840 | |
| 0.6030 | 0.6160 | 0.6300 | 0.6440 | 0.6570 | |
| 0.6700 | 0.6820 | 0.6930 | 0.7050 | 0.7160 | |
| 0.7260 | 0.7360 | 0.7460 | 0.7550 | 0.7650 | |
| 0.7750 | 0.7850 | 0.7920 | 1.0000 | 1.0000 | |

Y ENDTBL

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STANDARD CONTROL INSTRUCTIONS

6 RESVOR 2 1 6 7 592.5000 1 1 1 1 0 0

ENDATA

END OF LISTING

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FORM IBM-GO PRINTED BY BOTANY MANIFOLD FORMS

PASS=21(

EXECUTIVE CONTROL CARD  OPERATION INCREM  MAIN TIME INCREMENT= 0.20

DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 6

STARTING TIME= 0.00  TIME INCREMENT= 1.00  DRAINAGE AREA= 2.34  BASE FLOW= 0.00

| | | | | | |
|---|---|---|---|---|---|
| H | 2.0000 | 10.0000 | 30.0000 | 65.0300 | 250.0000 |
| G | 390.0000 | 455.0000 | 440.0000 | 425.0000 | 415.0000 |
| F | 400.0000 | 375.0000 | 345.0000 | 320.0000 | 290.0000 |
| E | 270.0000 | 250.0000 | 235.0000 | 215.0000 | 160.0000 |
| J | 145.0000 | 110.0000 | 2.0000 | 0.0000 | 0.0000 |

* END*OF
EXECUTIVE CONTROL CARD  OPERATION COMPUT, FROM XSECTN/STRUCT 0/ 1  TO XSECTN/STRUCT 0/ 1

STARTING TIME= 0.00  RAIN DEPTH= 3.00  RAIN DURATION= 1.00  RAIN TABLE NO.= 1  SOIL CONDITION= 2
ALTERNATE NO.= 2  STORM NO.= 1

SUBROUTINE RLSVOR  STRUCTURE 1
SURFACE ELEVATIONS= 592.50

| PEAK TIMES | PEAK DISCHARGES | PEAK ELEVATIONS |
|---|---|---|
| 12.96 | 326.852 | 597.14 |
| 23.42 | 7.654 | 592.61 |
| 23.82 | 2.051 | 592.54 |
| 24.22 | 1.002 | 592.51 |
| 24.62 | 0.396 | 592.51 |
| 25.02 | 0.147 | 592.50 |
| 25.42 | 0.055 | 592.50 |
| 25.82 | 0.020 | 592.50 |
| 26.25 | 0.008 | 592.50 |

HYDROGRAPH, TZERO= 0.00  DELTA T= 0.20  DRAINAGE AREA= 2.34

| TIME | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | DISCHG | 0.00 | 1.31 | 3.85 | 5.70 | 7.79 | 9.74 | 13.58 | 17.60 | 21.67 | 25.55 |
| 0.00 | ELEV | 592.50 | 592.52 | 592.53 | 592.53 | 592.54 | 592.56 | 592.59 | 592.75 | 592.80 | 592.86 |
| 2.00 | DISCHG | 29.50 | 30.16 | 30.93 | 31.68 | 32.43 | 33.50 | 35.60 | 179.27 | 180.23 | 170.30 |
| 2.00 | ELEV | 592.91 | 593.05 | 593.21 | 593.36 | 593.52 | 593.67 | 593.95 | 596.13 | 596.46 | 594.42 |
| 4.00 | DISCHG | 196.32 | 201.52 | 205.56 | 206.26 | 210.00 | 215.02 | 221.32 | 236.99 | 238.02 | 231.99 |
| 4.00 | ELEV | 595.10 | 595.22 | 595.25 | 595.30 | 595.35 | 595.42 | 595.50 | 595.58 | 595.66 | 595.79 |
| 6.00 | DISCHG | 245.31 | 251.58 | 257.58 | 262.31 | 268.27 | 273.98 | 278.64 | 283.66 | 286.14 | 292.61 |
| 6.00 | ELEV | 595.83 | 595.95 | 596.01 | 596.09 | 596.16 | 596.24 | 596.31 | 596.37 | 596.43 | 596.49 |
| 8.00 | DISCHG | 294.45 | 300.13 | 301.72 | 303.24 | 304.75 | 306.25 | 307.60 | 308.96 | 310.23 | 311.45 |
| 8.00 | ELEV | 596.55 | 596.60 | 596.64 | 596.68 | 596.72 | 596.76 | 596.80 | 596.84 | 596.87 | 596.91 |
| 10.00 | DISCHG | 312.63 | 313.79 | 314.78 | 315.71 | 316.58 | 317.37 | 318.05 | 318.71 | 319.25 | 319.76 |
| 10.00 | ELEV | 596.93 | 596.96 | 596.98 | 597.01 | 597.03 | 597.05 | 597.07 | 597.09 | 597.10 | 597.11 |
| 12.00 | DISCHG | 320.17 | 320.36 | 320.59 | 320.74 | 320.49 | 320.85 | 320.80 | 320.67 | 320.47 | 320.19 |
| 12.00 | ELEV | 597.12 | 597.13 | 597.14 | 597.14 | 597.14 | 597.14 | 597.14 | 597.14 | 597.13 | 597.13 |
| 14.00 | DISCHG | 319.83 | 319.42 | 318.96 | 318.45 | 317.90 | 317.30 | 316.66 | 315.97 | 315.26 | 314.47 |
| 14.00 | ELEV | 597.12 | 597.11 | 597.09 | 597.08 | 597.07 | 597.05 | 597.02 | 597.00 | 596.98 | 596.95 |
| 16.00 | DISCHG | 313.66 | 312.81 | 311.95 | 311.02 | 310.09 | 309.13 | 308.14 | 307.11 | 306.06 | 304.93 |
| 16.00 | ELEV | 596.96 | 596.93 | 596.91 | 596.89 | 596.86 | 596.84 | 596.81 | 596.78 | 596.76 | 596.73 |
| 18.00 | DISCHG | 303.72 | 302.58 | 301.30 | 299.89 | 298.39 | 296.84 | 295.24 | 293.64 | 292.01 | 290.49 |
| 18.00 | ELEV | 596.70 | 596.67 | 596.63 | 596.60 | 596.55 | 596.50 | 596.45 | 596.40 | 596.35 | 596.30 |
| 20.00 | DISCHG | 274.57 | 270.56 | 266.46 | 262.27 | 258.00 | 253.64 | 249.23 | 244.79 | 240.15 | 235.52 |
| 20.00 | ELEV | 596.24 | 596.17 | 596.13 | 596.07 | 596.01 | 595.95 | 595.89 | 595.81 | 595.73 | 595.65 |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22.00 | DISCHG | 225.26 | 218.67 | 211.88 | 205.69 | 185.36 | 19.93 | -12.16 | 7.42 | -4.53 | 2.77 |
| 22.00 | ELEV | 595.35 | 595.46 | 595.57 | 595.28 | 595.01 | 592.78 | 592.33 | 592.50 | 592.44 | 592.56 |
| 24.00 | DISCHG | -1.69 | 1.03 | -0.63 | 0.38 | -0.25 | 0.14 | -0.07 | 0.05 | -0.03 | 0.02 |
| 24.00 | ELEV | 592.48 | 592.51 | 592.49 | 592.51 | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 |
| 26.00 | DISCHG | -0.01 | 0.01 | 0.00 | | | | | | | |
| 26.00 | ELEV | 592.50 | 592.50 | 592.50 | | | | | | | |

TOTAL WATER ON UNCPES/ON DRAINAGE AREA= 3.7162 CFS-HRS= 5612.15 ACRE-FT= 463.79

ENDCMP

ENDJOB CARD ENCOUNTERED. END OF JOB.

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FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

END OF JOBS IN THIS BOX

PRINTED IN U.S.A.

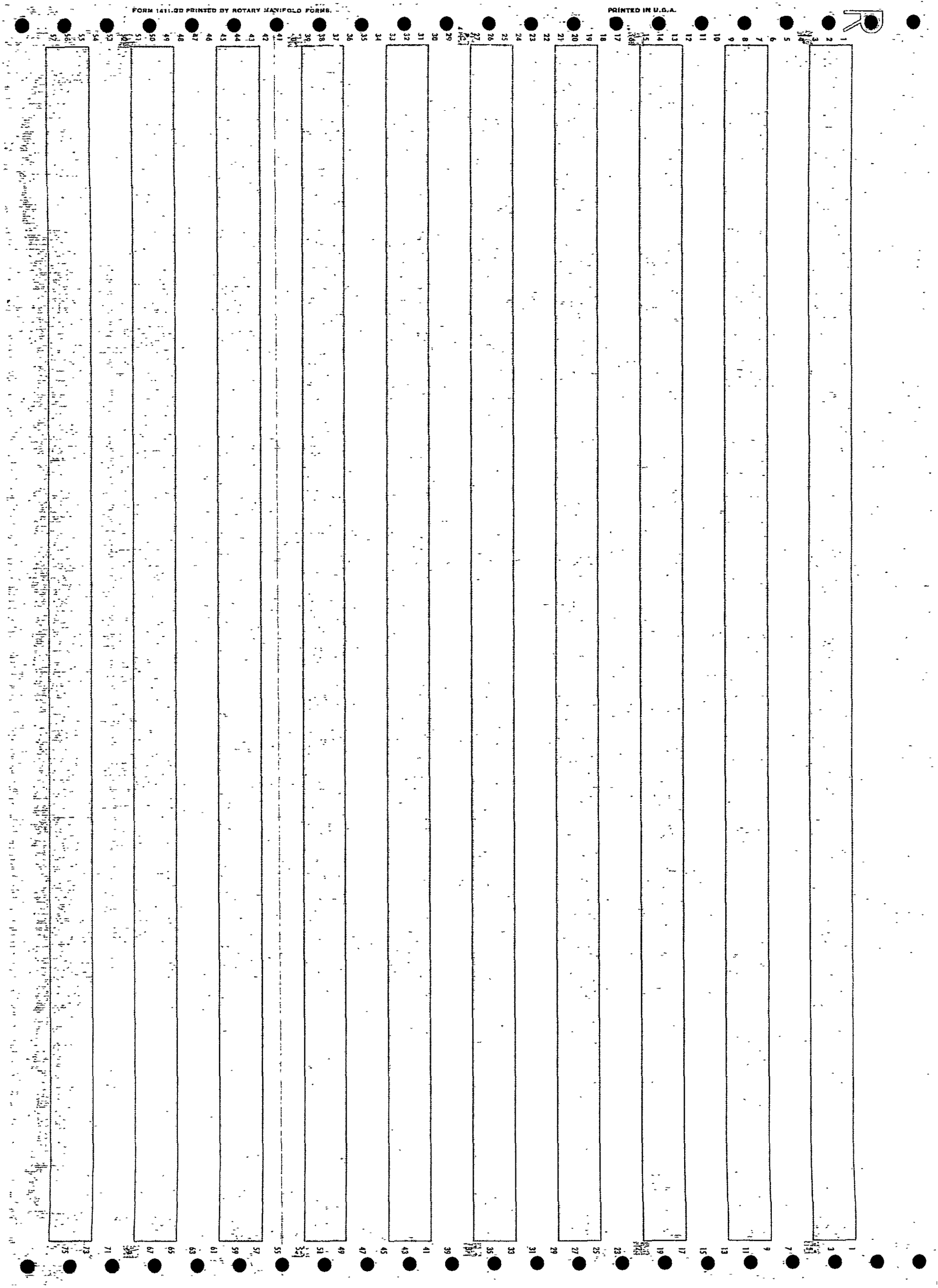
FORM 1411-GO-PRINTED BY ROTARY MANIFOLD FORMS

```
*****************************************************************
*                                                               *
*                    E R R O R   S U M M A R Y                  *
*                                                               *
*                                                               *
*       0  ERROR(S) DETECTED BY THE USER PROGRAM                *
*       0  ERROR(S) DETECTED BY THE MATHEMATICAL PACKAGE        *
*       0  ERROR(S) DETECTED FOR INPUT/OUPUT STATEMENTS         *
*                                                               *
*****************************************************************
```

PRINTED IN U.S.A.
FORM 1411-3B PRINTED BY ROTARY MANIFOLD FORMS

FORM 1411-SD PRINTED BY ROTARY MANIFOLD FORMS.

PRINTED IN U.S.A.



14:47:12 X406 BILL NU20C907 HUDFROCK DEC 20, 1979

R400 TO*T SM:TO** LN:TO*T FN:25-V17 22AD0D64 P901 PR/M112/F2/63/[illegible]/[illegible]132

FORM 1811-GD PRINTED BY ROTARY MANIFOLD FORMS
PRINTED IN U.S.A.

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Silver Creek

4) DOCUMENT TYPE: 50 year

00BREAK00

State Copy

14:50:04 X407 BILL HU200907 HUDFROCK DEC 20, 1979

ELKIFOCK

TR-20

PRINTED IN U.S.A.

FORM 1411-60-PRINTED BY ROTARY MANIFOLD FORMS

```
JOBID=HU200907          USER=BILL                PROJECT=MUDFROCK          BILLING=MUDFROCK          RON=X0407
```

```
14:47:39                                  JOB INTRODUCED FROM                                  DEC 20, 1979
                                                  CD01 JCL
```

```
14:47:49  START OF TRANSLATION

          $JOB HU200907,USER=BILL,PROJECT=MUDFROCK;
          $INPUT TR20;
          RECORD COUNT: 41
          $ENDINPUT;
           VALUES NTAPAK;
           CREATE INFILE=*TR20,OUTFILE=(TR20IN,TEMPRY,END=PASS,DVC=MS/M400,MD=81),
                          OUTDEF=(RECSIZE=80,BLKSIZE=960,RECFORM=FB,FILEFORM=BFAS);
           SEND 'START OF TR20 EXECUTION';
           STEP TR20,NTAENGLN,OPTIONS='FILE=A 2,FILE=B 4';
           ALL FILE=A,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=A,FILE=A,TEMPRY,DVC=MS/M400,MD=81;
           ALC FILE=B,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=B,FILE=B,TEMPRY,DVC=MS/M400,MD=81;
           ASG NORD,TR20IN,TEMPRY,DVC=MS/M400,MD=81;
           ENDSTEP;
          $ENDJOB;

          RECORD COUNT :     56

14:48:51  END OF TRANSLATION
```

```
JOBID=HU2U0907          USER=BILL          PROJECT=RUDFROCK          BILLING=RUDFROCK          ROP=X0407

14:47:52                        JOB EXECUTION LISTING                        DEC 20, 1979

        STEP 1 CREATE
        LOAD MODULE = HOUTILITY (79/10/9 12:57) PREINITIALIZED
        LIBRARY = SYS.RLMLIB
14:47:55 STEP STARTED XPRTY=9
        0000.07         CREATE    VERSION: 10.00  RELEASE 19 ,EXECUTED ON DEC 20, 1979
        0000.30         INFILE    = SYS.IN
        FP04,   4 CYLINDER(S) ALLOCATED ON VOLUME: HTAPAK FOR EFN: J0U0407.TR20J9
        0000.30         OUTFILE   = TR20I9
        0L03.00         INFILE    : NUMBER OF READ RECORDS   : 41
        0N03.01         OUTFILE   : NUMBER OF WRITTEN RECORDS  : 41
        TASK MAIN J=02 P=00 COMPLETED
        TEMPORARY FILES USED=     75 TRACKS
        OUTFILE  ON  STEP#1  : ID  OF  ID  CONNECTS=          3
        CPU          0.044                    PROG MISSING SEGTS        24   STACKOV      9
        ELAPSED      0.291                    SYS  MISSING SEGTS        89
        LINES        0   LIMIT     NOLIM     BACKING STORE          117216
        CARDS        0   LIMIT     NOLIM     BUFFER SIZE              2005   CPSIZE     582
14:49:13 STEP COMPLETED

        START OF TR20 EXECUTION
        STEP 2
        LOAD MODULE = TR20 (79/1/25 05:15)
        LIBRARY = RTREHGLB
14:49:35 STEP STARTED XPRTY=95
        FP04,   2 CYLINDER(S) ALLOCATED ON VOLUME: HTAPAK FOR EFN: J0U0407.FILE0A
        FP04,   2 CYLINDER(S) ALLOCATED ON VOLUME: HTAPAK FOR EFN: J0U0407.FILE0B
        TASK MAIN J=02 P=00 COMPLETED
        OUTFIL,TYP=FILE0A       REPEATER RECSZ=          0
        OUTFIL,IFI=FILE0B       FIXEDSET RECSZ=          0     SHADOW BUFFER=      1   CRSIZE BUFFER=      2
        TEMPORARY FILES USED=   153 TRACKS
        JOBS     ON  HTAPAK ;  NO  OF  10  CONNECTS=          4
        FILE0A   ON  HTAPAK ;  NO  OF  10  CONNECTS=          6
        FILE0B   ON  HTAPAK ;  NO  OF  10  CONNECTS=          4
        USER     ON  LSTAK4 ;  NO  OF  10  CONNECTS=          3
        CPU          1.389                    PROG MISSING SEGTS       103   STACKOV     33
        ELAPSED      3.106                    SYS  MISSING SEGTS       435
        LINES      183   LIMIT     NOLIM     BACKING STORE          547028
        CARDS        0   LIMIT     NOLIM     BUFFER SIZE             10512   CPSIZE     4272
14:49:46 STEP COMPLETED

        START  14:47:52   LINES      183
        STOP   14:49:43   CARDS        0
        CPU          1.414
        ELAPST       3.857
14:49:46 RESULT: JOB COMPLETED
```

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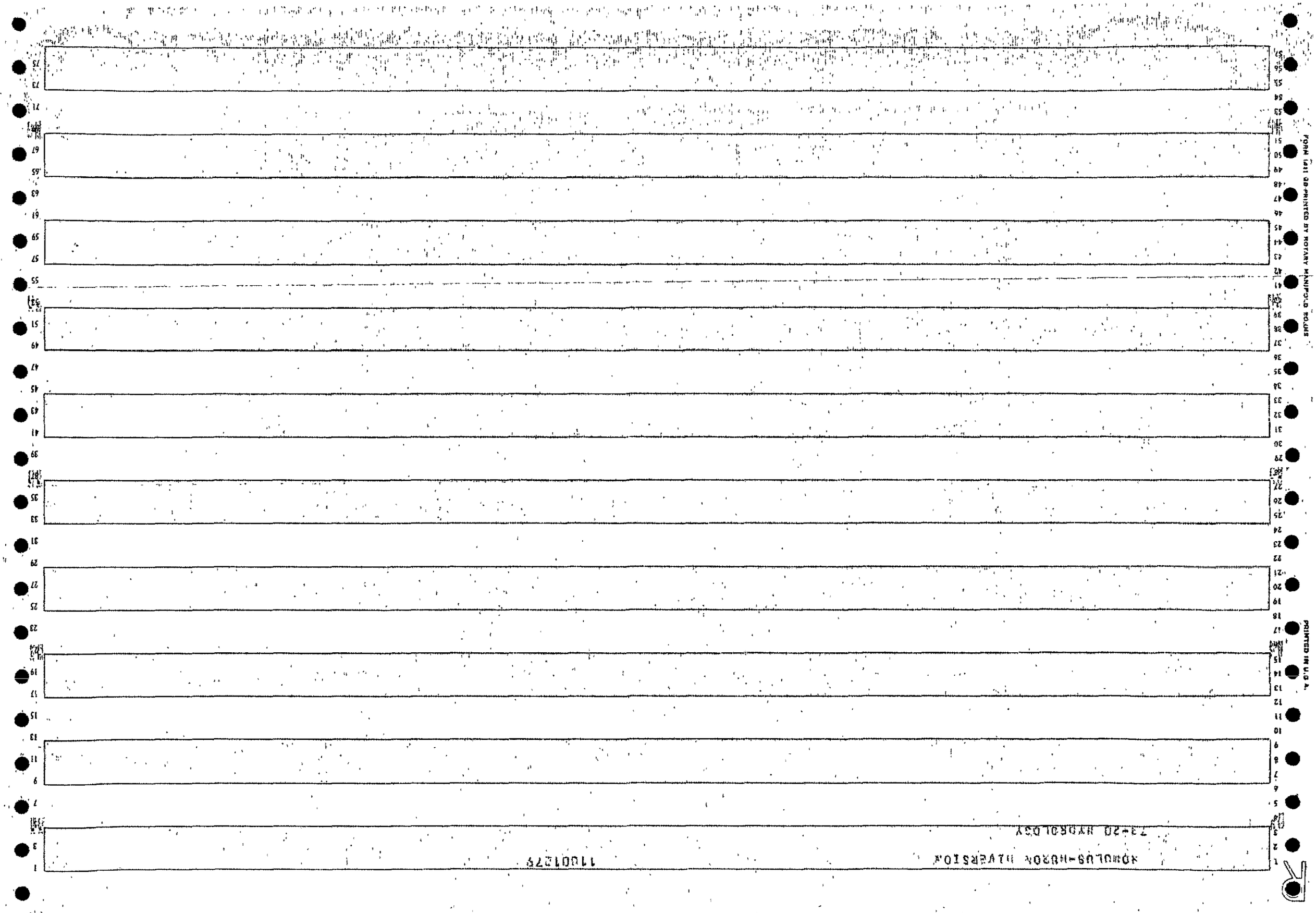
FORM 1011-08-PRINTED BY ROTARY MANIFOLD FORMS.



KOMULUS-HURON DIVERSION 11001279

73-20 HYDROLOGY

FORM 1411 GB-PRINTED BY ROTARY MANIFOLD BOOKS

PRINTED IN U.S.A.

PROGRAM DATE = FEB. 14, 1974 S/360

PRINTED IN U.S.A.
FORM 1411-GD-PRINTED BY ROTARY MANIFOLD FORMS.

EXECUTIVE CONTROL CARD OPERATION LIST PASS=210

LISTING OF DATA IN CORE

CO ROMULUS-HURON DIVERSION

VELOCITY INCREMENT

1 STABLE 0.2000

| | | | | | |
|---|---|---|---|---|---|
| 8 | 0.0000 | 0.0000 | 0.1800 | 0.2500 | 0.3200 |
| 8 | 0.3700 | 0.4100 | 0.4500 | 0.4900 | 0.5100 |
| 8 | 0.5400 | 0.5700 | 0.5900 | 0.6100 | 0.6300 |
| 8 | 0.6300 | 0.6500 | 0.6700 | 0.6900 | 0.7000 |
| 8 | 0.7100 | 0.7150 | 0.7300 | 0.7400 | 0.7500 |
| 8 | 0.7600 | 0.7700 | 0.7700 | 0.7800 | 0.7900 |
| 8 | 0.7900 | 0.8000 | 0.8100 | 0.8100 | 0.8200 |
| 8 | 0.8200 | 0.8300 | 0.8300 | 0.8400 | 0.8400 |
| 8 | 0.8500 | 0.8500 | 0.8500 | 0.8600 | 0.8600 |
| 8 | 0.8650 | 0.8700 | 0.8750 | 0.8700 | 0.8700 |
| 8 | 0.8800 | 0.8800 | 0.8800 | 0.8900 | 0.8900 |
| 8 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.9000 |
| 8 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9100 |
| 8 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| 8 | 0.9150 | 0.9200 | 0.9250 | 0.9200 | 0.9200 |
| 4 | 0.9250 | 0.9300 | 0.9250 | 0.9300 | 0.9300 |

V ENDTBL

STRUCT NO.

S STRUCT

| | FLOW RATIO | DISCHARGE | STORAGE |
|---|---|---|---|
| 8 | 392.5000 | 1.0000 | 0.0050 |
| 8 | 593.2000 | 50.0000 | 0.1000 |
| 8 | 595.3999 | 100.0000 | 0.2000 |
| 8 | 595.8000 | 200.0000 | 2.0000 |
| 8 | 596.5001 | 300.0000 | 56.0000 |
| 8 | 599.2000 | 400.0000 | 108.0000 |
| 8 | 599.7000 | 500.0000 | 222.0000 |
| 8 | 600.0500 | 600.0000 | 252.0000 |
| 8 | 600.3000 | 700.0000 | 296.0000 |
| 8 | 600.7000 | 800.0000 | 355.0000 |

V ENDTBL

TIME INCREMENT

6 DT=HYD

| | | | | | |
|---|---|---|---|---|---|
| 8 | 0.2000 | 0.0400 | 0.1000 | 0.1500 | 0.3100 |

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FORM 151130 PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | |
|---|---|---|---|---|---|
| 8 | 0.4700 | 0.6600 | 0.8200 | 0.9300 | 0.9900 |
| 8 | 1.0000 | 0.9900 | 0.9300 | 0.8600 | 0.7800 |
| 8 | 0.6800 | 0.5900 | 0.4800 | 0.3900 | 0.3300 |
| 8 | 0.2800 | 0.2410 | 0.2070 | 0.1740 | 0.1470 |
| 8 | 0.1250 | 0.1070 | 0.0910 | 0.0770 | 0.0660 |
| 8 | 0.0550 | 0.0470 | 0.0400 | 0.0340 | 0.0290 |
| 8 | 0.0250 | 0.0210 | 0.0180 | 0.0150 | 0.0130 |
| 8 | 0.0110 | 0.0090 | 0.0080 | 0.0070 | 0.0060 |
| 8 | 0.0050 | 0.0040 | 0.0030 | 0.0020 | 0.0020 |
| 8 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

9 ENDTBL

COMPUTED PEAK K FACTOR = 484.00

TIME INCREMENT

5 RAINFL 1 0.3000

| | | | | | |
|---|---|---|---|---|---|
| 8 | 0.0000 | 0.0000 | 0.0170 | 0.0240 | 0.0350 |
| 8 | 0.0450 | 0.0550 | 0.0560 | 0.0760 | 0.0970 |
| 8 | 0.0990 | 0.1120 | 0.1250 | 0.1400 | 0.1580 |
| 8 | 0.1760 | 0.1940 | 0.2190 | 0.2540 | 0.3030 |
| 8 | 0.3150 | 0.5830 | 0.6240 | 0.6540 | 0.6820 |
| 8 | 0.7050 | 0.7270 | 0.7480 | 0.7670 | 0.7840 |
| 8 | 0.8000 | 0.8160 | 0.8300 | 0.8440 | 0.8570 |
| 8 | 0.8700 | 0.8820 | 0.8930 | 0.9050 | 0.9150 |
| 8 | 0.9260 | 0.9360 | 0.9460 | 0.9550 | 0.9650 |
| 8 | 0.9740 | 0.9830 | 0.9920 | 1.0000 | 1.0000 |

9 ENDTBL

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FORM 1611-68 PRINTED BY ROTARY MANIFOLD FORMS

STANDARD CONTROL INSTRUCTIONS

6 RESVOR 2 1 6 7 592.5000 1 1 1 1 0 0

RUDATA

END OF LISTING

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FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

EXECUTIVE CONTROL CARD  OPERATION INCREM  MAIN TIME INCREMENT= 0.20  PASS=210.

DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 6

STARTING TIME= 0.00  TIME INCREMENT= 1.00  DRAINAGE AREA= 2.34  BASE FLOW= 0.00

| | | | | | |
|---|---|---|---|---|---|
| 8 | 0.0000 | 15.0000 | 35.0000 | 65.0000 | 220.0000 |
| 8 | 460.0000 | 630.0000 | 665.0000 | 640.0000 | 620.0000 |
| 8 | 600.0000 | 570.0000 | 535.0000 | 495.0000 | 455.0000 |
| 8 | 415.0000 | 385.0000 | 355.0000 | 325.0000 | 290.0000 |
| 8 | 265.0000 | 190.0000 | 0.0000 | 0.0000 | 0.0000 |

9 ENDTBL

EXECUTIVE CONTROL CARD  OPERATION COMPUT  FROM ASECTN/STRUCT U/ 1  TO ASECTN/STRUCT U/ 1

STARTING TIME= 0.00  RAIN DEPTH= 4.00  RAIN DURATION= 1.00  RAIN TABLE NO.= 1  SOIL CONDITION= 2
ALTERNATE NO.= 2  STORM NO.= 1

SUBROUTINE RESVOR  STRUCTURE 1
INCREASE ELEVATION= 592.50

| PEAK TIMES | PEAK DISCHARGES | PEAK ELEVATIONS |
|---|---|---|
| 15.00 | 415.508 | 599.28 |
| 27.82 | 36.705 | 593.01 |
| 28.22 | 13.677 | 592.69 |
| 28.62 | 5.092 | 592.57 |
| 29.02 | 1.897 | 592.53 |
| 29.42 | 0.706 | 592.51 |
| 29.82 | 0.263 | 592.50 |
| 30.22 | 0.098 | 592.50 |
| 30.62 | 0.037 | 592.50 |
| 31.02 | 0.014 | 592.50 |

HYDROGRAPH TIME= 0.00  DELTA T= 0.20  DRAINAGE AREA= 2.36

| TIME | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | DISCHG | 0.00 | 2.48 | 5.77 | 10.55 | 11.09 | 16.61 | 18.46 | 22.55 | 26.90 | 30.53 |
| 0.00 | ELEV | 592.50 | 592.53 | 592.56 | 592.62 | 592.66 | 592.70 | 592.76 | 592.82 | 592.87 | 592.93 |
| 2.00 | DISCHG | 34.91 | 43.23 | 54.23 | 65.63 | 75.69 | 89.72 | 102.96 | 117.15 | 132.39 | 144.53 |
| 2.00 | ELEV | 592.98 | 593.12 | 593.25 | 593.34 | 593.52 | 593.67 | 593.76 | 593.15 | 593.41 | 593.76 |
| 4.00 | DISCHG | 190.98 | 201.17 | 209.90 | 218.01 | 215.43 | 220.14 | 227.39 | 230.42 | 243.73 | 255.77 |
| 4.00 | ELEV | 595.38 | 595.22 | 595.25 | 595.29 | 595.29 | 595.43 | 595.59 | 595.71 | 595.84 | 595.96 |
| 6.00 | DISCHG | 256.56 | 277.61 | 288.55 | 299.37 | 304.56 | 309.01 | 313.62 | 318.15 | 322.46 | 326.59 |
| 6.00 | ELEV | 596.13 | 596.29 | 596.44 | 596.58 | 596.71 | 596.83 | 596.95 | 597.07 | 597.19 | 597.29 |
| 8.00 | DISCHG | 330.31 | 334.03 | 338.71 | 343.51 | 346.20 | 349.60 | 353.29 | 356.69 | 359.49 | 362.20 |
| 8.00 | ELEV | 597.40 | 597.51 | 597.61 | 597.71 | 597.84 | 597.89 | 597.99 | 598.07 | 598.15 | 598.24 |
| 10.00 | DISCHG | 366.31 | 369.32 | 372.21 | 374.98 | 377.64 | 380.18 | 382.61 | 384.92 | 387.13 | 389.17 |
| 10.00 | ELEV | 598.32 | 598.40 | 598.48 | 598.55 | 598.62 | 598.68 | 598.73 | 598.81 | 598.86 | 598.92 |
| 12.00 | DISCHG | 391.19 | 392.93 | 394.63 | 396.20 | 397.84 | 398.96 | 400.59 | 403.35 | 406.73 | 409.17 |
| 12.00 | ELEV | 598.97 | 599.02 | 599.06 | 599.10 | 599.14 | 599.17 | 599.23 | 599.22 | 599.23 | 599.25 |
| 14.00 | DISCHG | 414.19 | 412.80 | 414.02 | 414.83 | 414.30 | 415.57 | 415.37 | 414.99 | 414.38 | 413.55 |
| 14.00 | ELEV | 599.25 | 599.23 | 599.27 | 599.27 | 599.26 | 599.26 | 599.25 | 599.27 | 599.27 | 599.27 |
| 16.00 | DISCHG | 412.52 | 411.28 | 409.06 | 406.24 | 403.45 | 404.49 | 402.66 | 400.08 | 399.24 | 394.59 |
| 16.00 | ELEV | 599.26 | 599.26 | 599.25 | 599.26 | 599.25 | 599.22 | 599.21 | 599.20 | 599.18 | 599.16 |
| 18.00 | DISCHG | 397.46 | 396.49 | 395.42 | 394.27 | 393.05 | 391.75 | 390.37 | 388.88 | 387.30 | 385.62 |
| 18.00 | ELEV | 599.13 | 599.11 | 599.08 | 599.05 | 599.04 | 598.99 | 598.99 | 598.91 | 598.87 | 598.83 |
| 20.00 | DISCHG | 383.85 | 381.99 | 379.97 | 377.85 | 375.62 | 373.27 | 370.83 | 367.96 | 365.99 | 366.98 |

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FORM 141-0D PRINTED BY ROTARY MANIFOLD WORKS.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20.00 | ELEV | 598.73 | 598.73 | 598.68 | 598.62 | 598.57 | 598.50 | 598.44 | 598.36 | 598.26 | 598.16 |
| 22.00 | DISCHG | 355.54 | 350.91 | 346.33 | 341.82 | 337.37 | 332.97 | 328.63 | 324.35 | 320.12 | 315.95 |
| 22.00 | ELEV | 598.04 | 597.92 | 597.80 | 597.69 | 597.57 | 597.46 | 597.34 | 597.23 | 597.12 | 597.01 |
| 24.00 | DISCHG | 311.83 | 307.77 | 303.75 | 299.53 | 290.50 | 281.74 | 273.25 | 265.01 | 257.02 | 249.27 |
| 24.00 | ELEV | 596.91 | 596.80 | 596.70 | 596.59 | 596.47 | 596.34 | 596.23 | 596.11 | 596.00 | 595.89 |
| 26.00 | DISCHG | 241.76 | 234.47 | 227.40 | 220.54 | 213.89 | 207.45 | 201.19 | 95.57 | -56.33 | 35.60 |
| 26.00 | ELEV | 595.78 | 595.68 | 595.58 | 595.49 | 595.39 | 595.50 | 595.22 | 595.84 | 591.66 | 593.00 |
| 28.00 | DISCHG | -29.72 | 13.26 | -2.09 | 4.94 | -3.01 | 1.64 | -1.12 | 0.69 | -0.42 | 0.26 |
| 28.00 | ELEV | 592.20 | 592.69 | 592.39 | 592.57 | 592.46 | 592.53 | 592.48 | 592.51 | 592.49 | 592.50 |
| 30.00 | DISCHG | -0.16 | 0.10 | -0.06 | 0.04 | -0.02 | 0.01 | -0.01 | 0.00 | | |
| 30.00 | ELEV | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | | |

TOTAL WATER, IN INCHES OF DRAINAGE AREA= 5.6560 CFS-HRS= 8239.68 ACRE-FT= 680.91

ENDCRP

END.OF CARD ENCOUNTERED. END OF JOB.

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FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS.

END OF 1 JOBS IN THIS RUN

PRINTED IN U.S.A.

FORM 1611-GO-PRINTED BY ROTARY MANIFOLD FORMS.

```
*****************************************************************
*                                                               *
*                    E R R O R   S U M M A R Y                  *
*                                                               *
*                                                               *
*       0  ERROR(S) DETECTED BY THE USER PROGRAM                *
*       0  ERROR(S) DETECTED BY THE MATHEMATICAL PACKAGE        *
*       0  ERROR(S) DETECTED FOR INPUT/OUPUT STATEMENTS         *
*                                                               *
*****************************************************************
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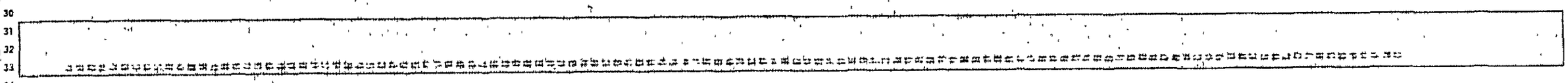
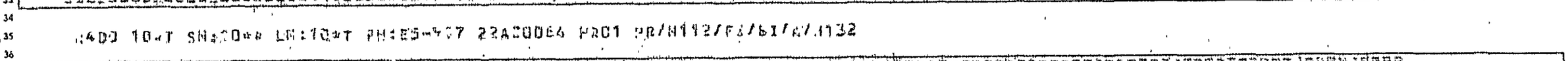
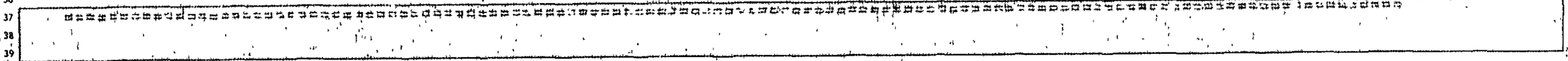
FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS

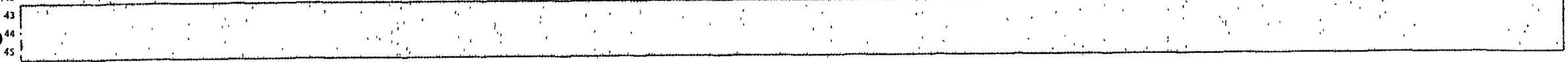
14:57:27 X407 HILL HU200907 HUDFROCK DEC 20, 1979



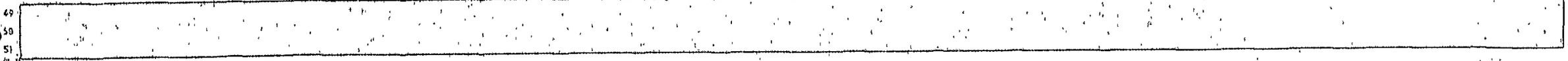


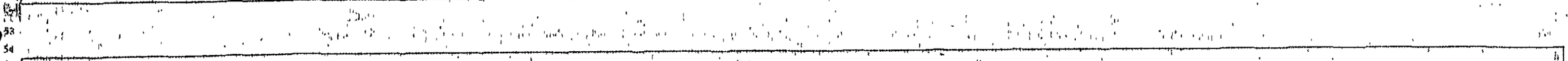


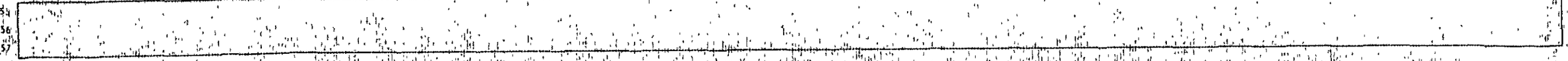


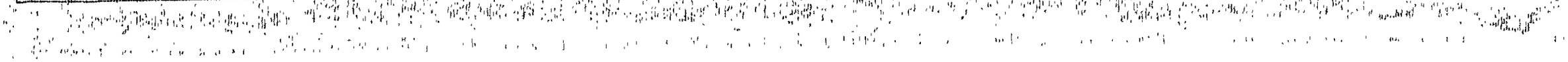




















































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FORM TAB-02 PRINTED BY ROTARY MARIFOLD FORMS.

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Silver Creek

4) DOCUMENT TYPE: 100 year

00BREAK00

State Copy

14:09:41 X400 BILL HU2J0907 HUDFROCK DEC 20, 1979

100 YR STORM

TR-20

PRINTED IN U.S.A.
FORM 7411-00 PRINTED BY ROTARY MANIFOLD FORMS

FORM 1411-09 PRINTED BY ROTARY MANIFOLD FORMS

PRINTED IN U.S.A.

```
JOBID=HU200907          USER=BILL                PROJECT=HUDFROCK          BILLING=HUDFROCK          RON=XU400
```

```
14:07:48                                JOB INTRODUCED FROM                                    DEC 20, 1979
                                                CD01 JCL
```

```
14:07:39  START OF TRANSLATION

          $JOB HU200907,USER=BILL,PROJECT=HUDFROCK;
          $INPUT TR20;
          RECORD COUNT: 4
          $ENDINPUT;
           VALUES UTAPAK;
           CREATE INFILE=*TR20,OUTFILE=(TR20IN,TEMPRY,END=PASS,DVC=MS/M400,MD=81),
                        OUTDEF=(RECSIZE=80,BLKSIZE=960,RECFORM=FB,FILEFORM=BFAS);
           SEND 'START OF TREB EXECUTION';
           STEP TREB,WTAPEBLK,OPTIONS='FILE=A 2,FILE=B 4';
           ALC FILE=A,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=A,FILE=A,TEMPRY,DVC=MS/M400,MD=81;
           ALC FILE=B,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=B,FILE=B,TEMPRY,DVC=MS/M400,MD=81;
           ASG H=MD,TR20IN,TEMPRY,DVC=MS/M400,MD=81;
           ENDSTEP;
          $ENDJOB;

          RECORD COUNT :     56

14:08:05  END OF TRANSLATION
```

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FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

```
JOBID=HU200907          USER=BILL          PROJECT=HUDFROCK          BILLING=HUDFROCK          JOB=X0400

14:08:01                          JOB EXECUTION LISTING                          DEC 20, 1979

          STEP 1 CREATE
          LOAD MODULE = HUTILITY (79/10/9 12:57) PREINITIALIZED
          LIBRARY = SYS.HLMLIB
14:08:05  STEP STARTED XPRTY=9
          0000.01      CREATE   VERSION: 10.00  RELEASE 10 EXECUTED ON DEC 20, 1979
          0030.30      INFILE   = SYS.IN
          FP04.    5 CYLINDER(S) ALLOCATED ON VOLUME: HTAPAK FOR DFN: J0800S03.TR20IN
          0000.30      OUTFILE  = TR20IN
          0003.00      INFILE   : NUMBER OF READ RECORDS   : 41
          0003.01      OUTFILE  : NUMBER OF WRITTEN RECORDS  : 41
          TASK MAIN.J=03 P=00 COMPLETED
          TEMPORARY FILES USED=    75 TRACKS
          OUTFILE  ON HTAPAK :  NO. OF IO  CONNECTS=        5
          CPU          0.045                    PROG MISSING SEGTS       22   STACKOV     9
          ELAPSED      0.289                    SYS MISSING SEGTS        91
          LINES          0   LIMIT    NOLIM     BACKING STORE        117216
          CARDS          0   LIMIT    NOLIM     BUFFER SIZE            2096   CPSIZE    1552
14:08:25  STEP COMPLETED


          START OF TR20 EXECUTION
          STEP 2
          LOAD MODULE = TR20  (79/4 15:03:36)
          LIBRARY = SYS.RELLIB
14:08:26  STEP STARTED XPRTY=9
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: HTAPAK FOR DFN: J0800400.FILE=A
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: HTAPAK FOR DFN: J0800400.FILE=B
          TASK MAIN.J=02 P=00 COMPLETED
          DUF01.IF=PI.CMD      REMEMBER, REUSE=
          DUF01.IF=PI.CMD      REMEMBER, REUSE=        0   U'LOC: BUFFERS=        0   CREATE BUFFERS=        2
          TEMPORARY FILES USED=    152 TRACKS
          WORK     ON HTAPAK :  NO. OF IO  CONNECTS=          4
          FILE=A   ON HTAPAK :  NO. OF IO  CONNECTS=         46
          FILE=B   ON HTAPAK :  NO. OF IO  CONNECTS=         14
          LOPR     ON LOOKUP :  NO. OF IO  CONNECTS=         15
          CPU          0.300                    PROG MISSING SEGTS      117   STACKOV     31
          ELAPSED      0.411                    SYS MISSING SEGTS       268
          LINES          152   LIMIT    NOLIM     BACKING STORE        806080
          CARDS            0   LIMIT    NOLIM     BUFFER SIZE            10512   CPSIZE    2272
14:09:32  STEP COMPLETED


          START    14:08:01   LINES        152
          STOP     14:09:54   CARDS          0
          CPU          0.350
          ELAPSE       1.257
14:09:54  RESULT:  JOB COMPLETED
```

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FORM 1411-GO PRINTED BY ROTARY MANIFOLD FORMS.

TR-50 HYDROLOGY

ROMULUS-HURON DIVERSION 11021079

FORM 1411-QD PRINTED BY ROTARY MANIFOLD FORMS.
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PROGRAM DATE - FEB. 14, 1974 S/360

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FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

EXECUTIVE CONTROL CARD OPERATION LIST

LISTING OF DATA IN CORE

10 ROMULUS-HURON DIVERSION

VELOCITY INCREMENT

1 START 2.2000

| | | | | | |
|---|---|---|---|---|---|
| 8 | 0.0000 | 0.0800 | 0.1800 | 0.2500 | 0.3200 |
| 8 | 0.3700 | 0.4100 | 0.4300 | 0.4900 | 0.5100 |
| 8 | 0.5400 | 0.5700 | 0.5900 | 0.6100 | 0.6300 |
| 8 | 0.6500 | 0.6600 | 0.6700 | 0.6800 | 0.7000 |
| 8 | 0.7100 | 0.7200 | 0.7300 | 0.7400 | 0.7500 |
| 8 | 0.7600 | 0.7700 | 0.7700 | 0.7800 | 0.7900 |
| 8 | 0.7900 | 0.8000 | 0.8100 | 0.8100 | 0.8200 |
| 8 | 0.8200 | 0.8300 | 0.8300 | 0.8400 | 0.8400 |
| 8 | 0.8400 | 0.8500 | 0.8500 | 0.8600 | 0.8600 |
| 8 | 0.8600 | 0.8600 | 0.8700 | 0.8700 | 0.8700 |
| 8 | 0.8800 | 0.8800 | 0.8800 | 0.8900 | 0.8900 |
| 8 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.9000 |
| 8 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9100 |
| 8 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| 8 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| 8 | 0.9200 | 0.9200 | 0.9200 | 0.9300 | 0.9300 |

7 ENDTBL

STRUCT NO.

5 STRUCT

| | ELEVATION | DISCHARGE | STORAGE |
|---|---|---|---|
| 8 | 592.5000 | 0.0000 | 0.0000 |
| 8 | 593.2000 | 30.0000 | 0.1000 |
| 8 | 593.6999 | 100.0000 | 0.2000 |
| 8 | 595.2000 | 200.0000 | 2.0000 |
| 8 | 596.6000 | 300.0000 | 56.0000 |
| 8 | 598.2000 | 400.0000 | 102.0000 |
| 8 | 599.7000 | 500.0000 | 222.0000 |
| 8 | 600.0500 | 600.0000 | 252.0000 |
| 8 | 600.3000 | 700.0000 | 290.0000 |
| 8 | 600.7000 | 800.0000 | 355.0000 |

7 ENDTBL

TIME INCREMENT

4 DTMHYD

| | | | | | |
|---|---|---|---|---|---|
| 8 | 0.0000 | 0.0100 | 0.0000 | 0.1900 | 0.5100 |

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| | | | | | |
|---|---|---|---|---|---|
| 0.6700 | 0.6500 | 0.6200 | 0.9300 | 0.9900 |
| 1.0000 | 0.9900 | 0.9300 | 0.0600 | 0.7800 |
| 0.6870 | 0.5600 | 0.4600 | 0.3900 | 0.3500 |
| 0.2800 | 0.2410 | 0.2070 | 0.1740 | 0.1470 |
| 0.1260 | 0.1070 | 0.0910 | 0.0770 | 0.0660 |
| 0.0550 | 0.0470 | 0.0400 | 0.0340 | 0.0290 |
| 0.0250 | 0.0215 | 0.0190 | 0.0150 | 0.0130 |
| 0.0110 | 0.0092 | 0.0080 | 0.0070 | 0.0060 |
| 0.0050 | 0.0040 | 0.0030 | 0.0020 | 0.0010 |
| 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Y ENDTBL

COMPUTED PEAK K FACTOR = 437.00

TIME INCREMENT

5 RAINFL 1 0.5000

| | | | | |
|---|---|---|---|---|
| 0.0000 | 0.0300 | 0.0570 | 0.0230 | 0.0360 |
| 0.0430 | 0.0550 | 0.0650 | 0.0700 | 0.0670 |
| 0.0990 | 0.1120 | 0.1250 | 0.1400 | 0.1560 |
| 0.1740 | 0.1940 | 0.2190 | 0.2540 | 0.3030 |
| 0.3150 | 0.3830 | 0.6240 | 0.6540 | 0.6620 |
| 0.7050 | 0.7270 | 0.7460 | 0.7570 | 0.7840 |
| 0.8000 | 0.8160 | 0.8300 | 0.8440 | 0.8570 |
| 0.8700 | 0.8820 | 0.8920 | 0.9050 | 0.9160 |
| 0.9260 | 0.9360 | 0.9460 | 0.9550 | 0.9650 |
| 0.9740 | 0.9830 | 0.9920 | 1.0000 | 1.0000 |

Y ENDTBL

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STANDARD CONTROL INSTRUCTIONS

```
6 RESVOR 2     1 6    7.      592.5000                    1 1 1 1 0 0
  ENDATA

END OF LISTING
```

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FORM 1411-00 PRINTED BY ROTARY MANIFOLD FORMS.

EXECUTIVE CONTROL CARD  OPERATION INCRSM  MAIN TIME INCREMENT= 0.20  PASS=210

DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 5

STARTING TIME= 0.30  TIME INCREMENT= 1.00  DRAINAGE AREA= 2.34  BASE F.O.= 0.00

| | | | | | |
|---|---|---|---|---|---|
| 8 | 0.0000 | 20.0000 | 40.0000 | 95.0000 | 245.0000 |
| 8 | 505.0000 | 695.0000 | 735.0000 | 705.0000 | 685.0000 |
| 8 | 665.0000 | 655.0000 | 595.0000 | 550.0000 | 505.0000 |
| 8 | 465.0000 | 430.0000 | 395.0000 | 365.0000 | 325.0000 |
| 9 | 275.0000 | 215.0000 | 0.0000 | 0.0000 | 0.0000 |

9 ENDTBL

EXECUTIVE CONTROL CARD  OPERATION COMPUT, FROM RSECTAYSTRUCT 07 1  TO RSECTHASTRUCT 07 1

STARTING TIME= 0.00  RAIN DEPTH= 4.60  RAIN DURATION= 1.00  RAIN TABLE NO.= 1  SOIL CONDITION= 2

ALTERNATE NO.= 2  STORM NO.= 1

SUBROUTINE RESVOR  STRUCTURE 1

SURFACE ELEVATION= 592.50

| PEAK TIMES | PEAK DISCHARGES | PEAK ELEVATIONS |
|---|---|---|
| 14.50 | 481.016 | 599.61 |
| 28.02 | 0.196 | 592.54 |
| 29.02 | 5.033 | 592.54 |
| 29.42 | 1.157 | 592.52 |
| 29.82 | 0.424 | 592.51 |
| 30.22 | 0.150 | 592.50 |
| 30.62 | 0.059 | 592.50 |
| 31.02 | 0.022 | 592.50 |
| 31.45 | 0.009 | 592.50 |

| TIME | | HYDROGRAPH, TZERO= 0.00 | | | | DELTA T= 0.20 | | | DRAINAGE AREA= 2.34 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | DISCHG | 0.00 | 3.42 | 7.72 | 11.41 | 15.54 | 19.43 | 23.36 | 27.50 | 31.53 | 35.51 |
| 0.00 | ELEV | 592.50 | 592.55 | 592.61 | 592.65 | 592.72 | 592.77 | 592.83 | 592.89 | 592.94 | 593.00 |
| 2.00 | DISCHG | 39.32 | 49.17 | 61.99 | 71.43 | 82.72 | 93.50 | 104.32 | 115.27 | 124.65 | 135.72 |
| 2.00 | ELEV | 593.05 | 593.19 | 593.25 | 593.30 | 593.36 | 593.41 | 593.46 | 593.52 | 593.57 | 593.62 |
| 4.00 | DISCHG | 200.13 | 212.73 | 223.35 | 231.44 | 241.71 | 225.81 | 234.10 | 242.16 | 250.37 | 256.91 |
| 4.00 | ELEV | 593.21 | 593.24 | 593.29 | 593.36 | 593.43 | 593.56 | 593.69 | 593.83 | 593.98 | 594.14 |
| 6.00 | DISCHG | 270.24 | 281.90 | 301.91 | 307.29 | 312.71 | 318.29 | 321.55 | 331.40 | 335.90 | 338.85 |
| 6.00 | ELEV | 596.31 | 596.49 | 596.69 | 596.79 | 596.93 | 597.07 | 597.21 | 597.35 | 597.48 | 597.61 |
| 8.00 | DISCHG | 343.36 | 348.34 | 352.94 | 357.37 | 361.73 | 365.96 | 370.09 | 374.13 | 378.08 | 381.96 |
| 8.00 | ELEV | 597.74 | 597.86 | 597.98 | 598.09 | 598.20 | 598.31 | 598.42 | 598.53 | 598.65 | 598.73 |
| 10.00 | DISCHG | 385.78 | 389.46 | 392.95 | 396.31 | 399.54 | 402.80 | 416.36 | 424.73 | 432.43 | 439.50 |
| 10.00 | ELEV | 598.83 | 598.92 | 599.01 | 599.10 | 599.18 | 599.24 | 599.28 | 599.32 | 599.36 | 599.40 |
| 12.00 | DISCHG | 445.98 | 451.91 | 457.06 | 461.73 | 465.93 | 469.46 | 472.52 | 475.19 | 477.33 | 478.90 |
| 12.00 | ELEV | 599.43 | 599.46 | 599.49 | 599.51 | 599.53 | 599.55 | 599.56 | 599.58 | 599.59 | 599.59 |
| 14.00 | DISCHG | 480.19 | 480.99 | 481.57 | 481.42 | 481.45 | 480.83 | 480.14 | 479.10 | 477.47 | 478.37 |
| 14.00 | ELEV | 599.60 | 599.61 | 599.61 | 599.61 | 599.61 | 599.60 | 599.60 | 599.60 | 599.59 | 599.58 |
| 16.00 | DISCHG | 476.58 | 472.53 | 470.40 | 468.13 | 465.80 | 463.36 | 460.81 | 457.[illegible] | 453.90 | 450.46 |
| 16.00 | ELEV | 599.57 | 599.56 | 599.55 | 599.54 | 599.53 | 599.51 | 599.50 | 599.48 | 599.47 | 599.45 |
| 18.00 | DISCHG | 447.32 | 443.32 | 440.76 | 438.29 | 436.27 | 426.09 | 428.72 | 419.11 | 414.20 | 409.26 |
| 18.00 | ELEV | 599.44 | 599.42 | 599.40 | 599.38 | 599.36 | 599.34 | 599.32 | 599.30 | 599.27 | 599.25 |
| 20.00 | DISCHG | 404.02 | 399.34 | 397.46 | 395.69 | 393.97 | 391.32 | 388.74 | 385.56 | 382.01 | 377.07 |
| 20.00 | ELEV | 599.22 | 599.19 | 599.14 | 599.09 | 599.03 | 598.97 | 598.91 | 598.85 | 598.73 | 598.62 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 22.00 | DISCHG | 371.23 | 368.37 | 363.57 | 358.83 | 354.15 | 349.54 | 344.98 | 340.48 | 336.05 | 331.67 |
| 22.00 | ELEV | 598.50 | 598.38 | 598.25 | 598.13 | 598.01 | 597.89 | 597.77 | 597.65 | 597.54 | 597.42 |
| 24.00 | DISCHG | 347.36 | 323.58 | 318.87 | 314.21 | 310.61 | 306.56 | 302.57 | 298.62 | 287.87 | 279.19 |
| 24.00 | ELEV | 597.31 | 597.20 | 597.09 | 596.99 | 596.88 | 596.77 | 596.67 | 596.56 | 596.43 | 596.31 |
| 26.00 | DISCHG | 270.77 | 262.61 | 254.69 | 247.01 | 239.57 | 232.34 | 225.34 | 218.55 | 211.96 | 205.57 |
| 26.00 | ELEV | 596.19 | 596.08 | 595.97 | 595.86 | 595.75 | 595.65 | 595.55 | 595.46 | 595.37 | 595.26 |
| 28.00 | DISCHG | 186.85 | 21.34 | -15.02 | 7.95 | -4.55 | 2.96 | -1.81 | 1.10 | -0.67 | 0.41 |
| 28.00 | ELEV | 595.03 | 593.83 | 592.32 | 592.67 | 592.63 | 592.54 | 592.47 | 592.52 | 592.45 | 592.51 |
| 30.00 | DISCHG | -0.25 | 0.15 | -0.09 | 0.06 | -0.03 | 0.02 | -0.01 | 0.01 | 0.00 | |
| 30.00 | ELEV | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | |

TOTAL WATER IN INCHES ON DRAINAGE AREA= 6.0542 CFS-HRS= 9142.91 ACRE-FT= 755.37

ENDCOP

ENDJOB CARD ENCOUNTERED. END OF JOB.

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R

END OF [illegible]JOUS IN THIS RUN

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FORM 9411-00 PRINTED BY ROTARY MANIFOLD FORMS

```
*****************************************************************
*                                                               *
*                    E R R O R   S U M M A R Y                  *
*                                                               *
*                                                               *
*      0  ERROR(S) DETECTED BY THE USER PROGRAM                 *
*      0  ERROR(S) DETECTED BY THE MATHEMATICAL PACKAGE         *
*      0  ERROR(S) DETECTED FOR INPUT/OUPUT STATEMENTS          *
*                                                               *
*****************************************************************
```

FORM 1411-GB-PRINTED BY ROTARY MANIFOLD FORMS. PRINTED IN U.S.A.

14:10:20 X400 BILL HU2009J7 HUDFROCK DEC 26, 1979

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FORM 1411-SG PRINTED BY ROTARY MANIFOLD FORMS

14:10:20 X400 BILL HU2009J7 HUDFROCK DEC 26, 1979

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Silver Creek

4) DOCUMENT TYPE: 100 year encroachment

00BREAK00

State Copy

09:19:47 X34 GILL NU2C0907 HUDFROCK JAN 23, 1980

Final Flat Rock

100 YR w/

Encroachment Run

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FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS

09:19:47 X34 BILL HU200907 HUDFROCK JAN 23, 1980

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FORM 1411-00 PRINTED BY ROTARY MANIFOLD FORMS.

P400 10*T SM:10**LM:10*T PU:FS-977 R2:00064 PR01 PR/1112/FI/SI/A/H132

```
JOBID=HU200907          USER=BILL          PROJECT=HUDFROCK          BILLING=HUDFROCK          RON=XG034

09:00:12                                JOB INTRODUCED FROM                                JAN 23, 1980
                                          CDC1 JCL

09:01:30  START OF TRANSLATION

          $JOB HU200907,USER=BILL,PROJECT=HUDEROCK;
          $INPUT HEC2;
          RECORD COUNT: 391
          $ENDINPUT;
           VALUES HTAPAK,HTAPAK;
           SEND 'START OF HEC-2 EXECUTION';
           STEP HEC2,HTAPUSLH,OPTIONS='FILE-A 91,FILE-B 92,FILE-C 93,FILE-D 94,
                                       FILE-E 95,FILE-F 96';
           ALC FILE-A,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE-A,FILE-A,TEMPRY,DVC=MS/M400,MD=91;
           ALC FILE-B,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE-B,FILE-B,TEMPRY,DVC=MS/M400,MD=32;
           ALC FILE-C,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE-C,FILE-C,TEMPRY,DVC=MS/M400,MD=82;
           ALC FILE-D,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE-D,FILE-D,TEMPRY,DVC=MS/M400,MD=82;
           ALC FILE-E,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE-E,FILE-E,TEMPRY,DVC=MS/M400,MD=82;
           ALC FILE-F,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE-F,FILE-F,TEMPRY,DVC=MS/M400,MD=82;
           ASG HUMD,HEC2,FILESTAT=IN;
          DEFINE,INPR,
           PRINTER=(FORMHT=66,HOF=1,FF1=66);
           ENDSTEP;
          $END,03;

          RECORD COUNT :   415

09:21:38  END OF TRANSLATION
```

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FORM 1411-D PRINTED BY ROTARY MANIFOLD FORM

```
JOBID=HU200907          USER=BILL          PROJECT=HUDFROCK          BILLING=HUDFROCK          RON=X0034

MOT  : PERSEVERANCE IS A STRONG WILL, COMPLACENCY A STRONG WON'T

09:05:47                                  JOB EXECUTION LISTING                                  JAN 23, 1980

          START OF HEC□2 EXECUTION
          STEP 1
          LOAD MODULE = HSC□2 (79/2 /22 23:58)
          LIBRARY = WTAGNCLM
09:06:10  STEP STARTED XPRTY=9
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000034.FILE□B
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000034.FILE□C
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000034.FILE□D
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000034.FILE□A
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000034.FILE□E
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000034.FILE□F
          TASK MAIN J=01 P=00 COMPLETED
          DUF01.IFN=FILE□B       REMEMBER REUSE=        0
          DUF01.IFN=FILE□A       REMEMBER REUSE=        0
          DUF01.IFN=FILE□C       REMEMBER REUSE=        0
          DUF01.IFN=FILE□E       REMEMBER REUSE=        0
          DUF01.IFN=FILE□F       REMEMBER REUSE=        0
          DUF01.IFN=FILE□D       REMEMBER REUSE=        0    UNLOCK BUFFER=        0    CREATE BUFFER=        26
          TEMPORARY  FILES USED=    220 TRACKS
          FILE□B     ON   WTAPAK :  NB  OF  IO  CONNECTS=        133
          FILE□A     ON   WTAPAK :  NB  OF  IO  CONNECTS=        370
          FILE□C     ON   WTAPAK :  NB  OF  IO  CONNECTS=         96
          H□P□       ON   L64RV4 :  NB  OF  IO  CONNECTS=         69
          H□R□       ON   L64RV4 :  NB  OF  IO  CONNECTS=         53
          FILE□E     ON   WTAPAK :  NB  OF  IO  CONNECTS=        595
          FILE□F     ON   WTAPAK :  NB  OF  IO  CONNECTS=         30
          FILE□D     ON   WTAPAK :  NB  OF  IO  CONNECTS=        123
          CPU        6.317                     PROG MISSING SEGTS      2090   STACKOV      77
          ELAPSED   12.691                     SYS  MISSING SEGTS      3766
          LINES        2993   LIMIT     NOLIM  BACKING STORE         664224
          CARDS           0   LIMIT     NOLIM  BUFFER SIZE            13640   CPSIZE     2272
09:18:40  STEP COMPLETED

          START     09:05:47   LINES       2993
          STOP      09:18:42   CARDS          0
          CPU          6.317
          ELAPSED     12.691
09:18:42  RESULT:  JOB COMPLETED
```

FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS.

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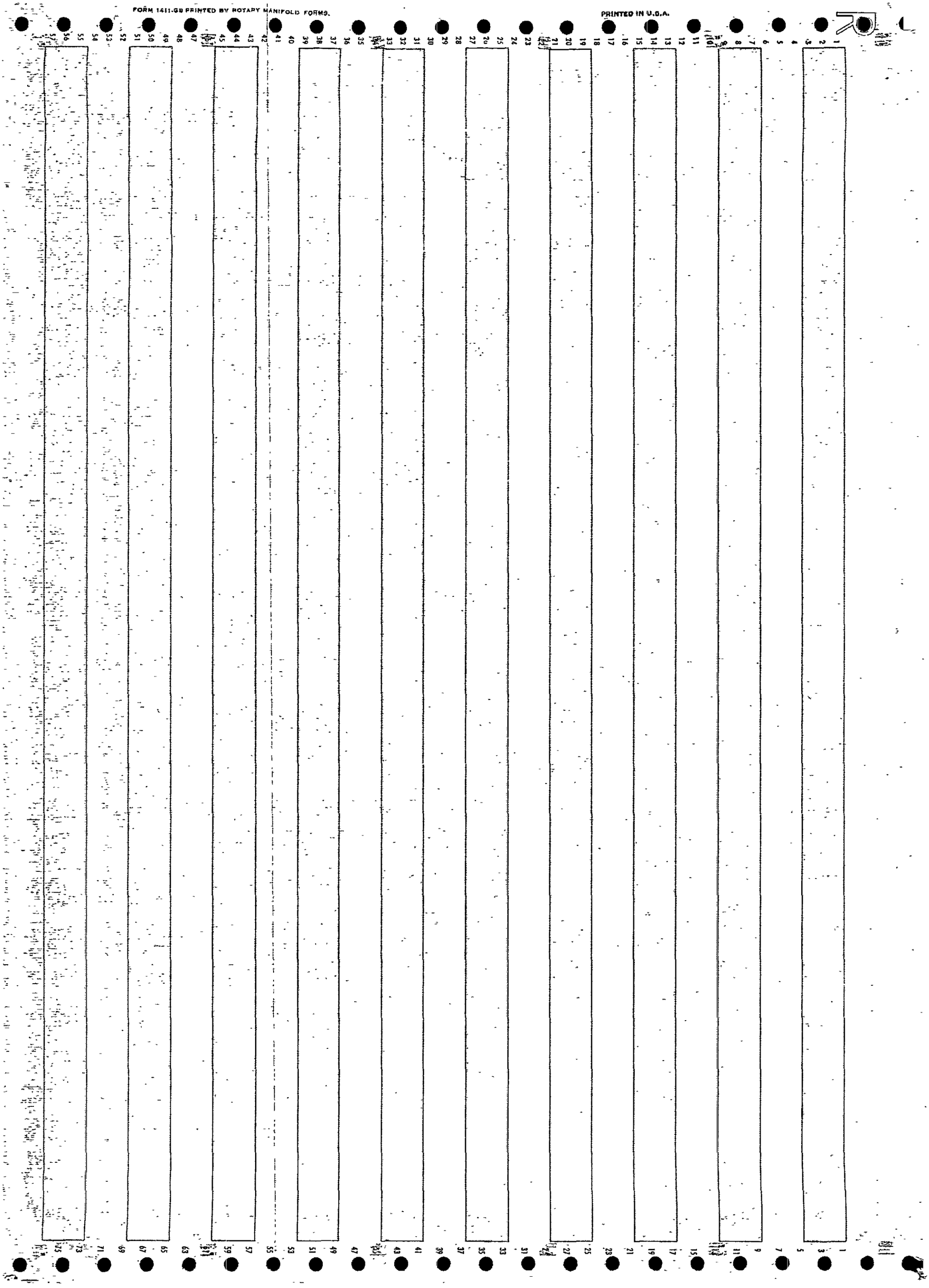

FORM 1414-3D-PRINTED BY ROTARY MANIFOLD FORMS

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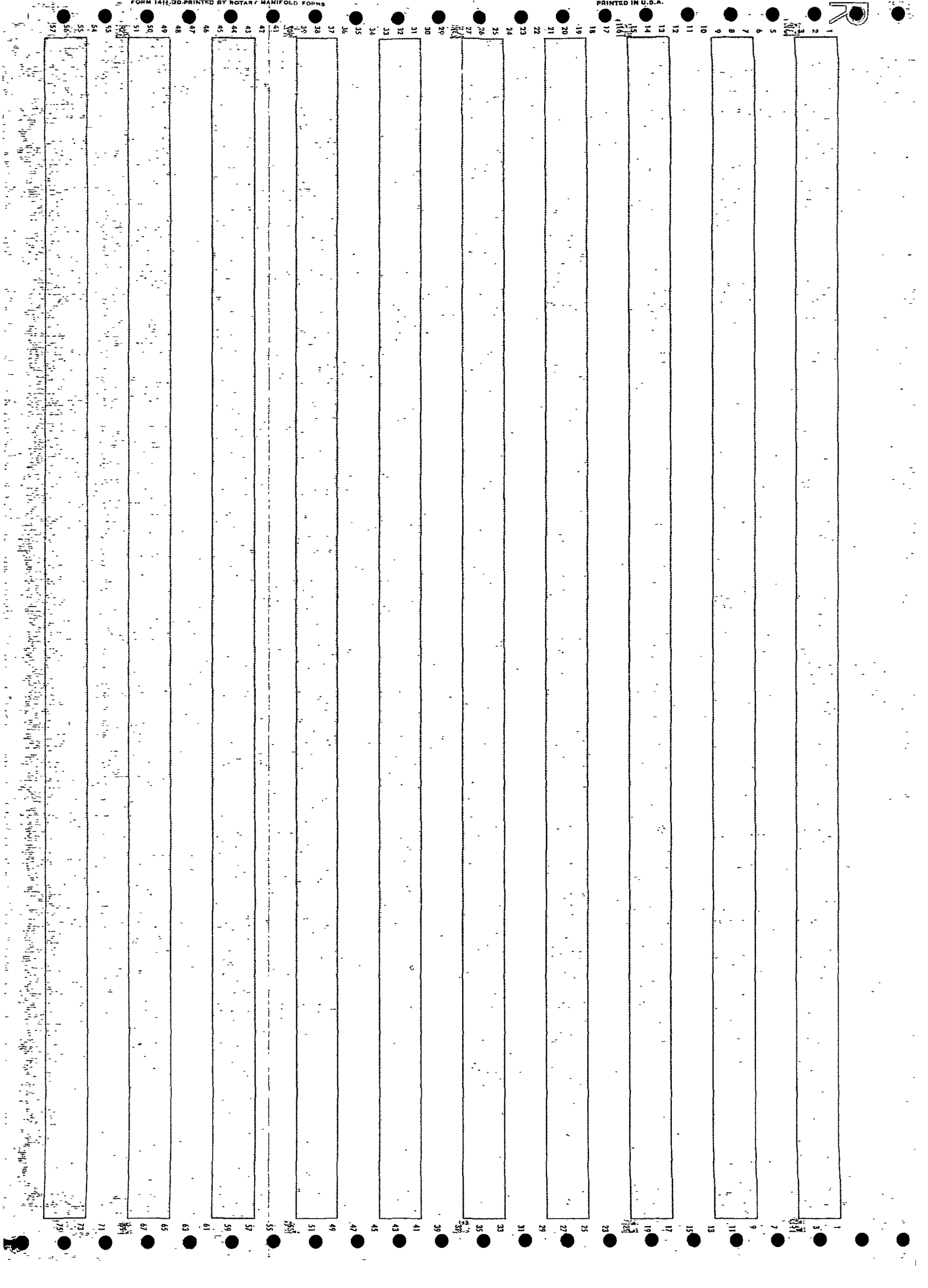

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  U1
  MODIFICATION -  50,51,52
*****************************************************

C
T1      FLAT ROCK FLOOD INSURANCE STUDY                    WILLIAM J. WEAVER
T2      100 YR STORE - NATURAL RUN
T3      SILVER CREEK                    1/22/80

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        4.        0.        0.  0.000000      0.00      0.0       0.   586.430    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000    15.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

ET      0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000     0.000
QT      5.000   530.000   675.000   705.000   705.000   735.000     0.000     0.000     0.000     0.000
NC      0.035     0.035     0.035     0.100     0.300     0.000     0.000     0.000     0.000     0.000

        400. FEET D/S OF D/S FACE OF OLMSTEAD RD. ROCKWOOD SECT. 19073.

X1      0.000    32.000   500.000  1525.000     0.000     0.000     0.000     0.000     0.000     0.000
X3      0.000     0.000     0.000  1350.000     0.000  1600.000     0.000     0.000     0.000     0.000
GR    588.700     0.000   588.500   100.000   300.000   200.000   587.700   300.000   586.100   400.000
GR    584.500   500.000   585.000   600.000   585.700   700.000   586.800   800.000   587.600   900.000
GR    587.700  1000.000   588.800  1100.000   586.500  1200.000   584.900  1300.000   582.300  1400.000
GR    583.300  1419.000   579.300  1430.000   580.600  1500.000   579.000  1502.000   577.700  1514.000
GR    577.700  1523.000   581.000  1532.000   580.600  1600.000   581.800  1700.000   580.800  1800.000
GR    585.800  1900.000   585.100  2000.000   587.800  2100.000   588.800  2200.000   589.600  2300.000
GR    589.400  2400.000   589.500  2500.000     0.000     0.000     0.000     0.000     0.000     0.000

        D/S FACE OF OLMSTEAD ROAD                ROCKWOOD SECT. 19523.

X1      1.000    18.000   692.400   707.600   400.000   500.000   450.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   584.500   584.500     0.000
GR    650.000   550.000   586.700   550.000   586.300   600.000   585.800   692.400   577.100   692.400
GR    577.100   694.000   577.000   696.000   577.000   698.000   576.900   700.000   577.000   702.000
GR    577.000   704.000   577.100   706.000   577.100   707.600   585.800   707.600   585.200   800.000
GR    584.600   900.000   584.600   950.000   650.000   950.000     0.000     0.000     0.000     0.000
NC      0.018     0.018     0.031     0.000     0.000     0.000     0.000     0.000     0.000     0.000

        1.FOOT INSIDE BRIDGE D/S END             ROCKWOOD SECT. 19524.

X1      2.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
QT     23.000   550.000   650.000     0.000   550.000   650.000     0.000   550.000   650.000     0.000
QT    550.000   650.000     0.000   550.000   650.000     0.000   550.000   650.000     0.000   550.000
QT    585.700     0.000   600.000   585.300     0.000   692.400   585.800   577.100   692.400   585.800
QT    577.600   694.000   585.800   581.200   696.000   585.800   582.800   698.000   585.800   583.900
QT    [illegible]   585.300   583.900   702.000   [illegible]   [illegible]   704.000   [illegible]   582.800   [illegible]
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 585.800 | 581.200 | 707.600 | 585.800 | 577.600 | 707.600 | 585.800 | 577.100 | 800.000 | 585.200 |
| BT | 0.000 | 900.000 | 584.600 | 0.000 | 950.000 | 584.200 | 0.000 | 950.000 | 650.000 | 0.000 |

1.FOOT INSIDE BRIDGE U/S END ROCKWOOD SECT. 19570.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3.000 | 0.000 | 0.000 | 0.000 | 46.000 | 46.000 | 46.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 585.800 | 584.600 | 0.000 |
| NC | 0.045 | 0.045 | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF OLMSTEAD ROAD ROCKWOOD SECT. 19571.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 585.800 | 585.200 | 0.000 |
| QT | 9.000 | 545.000 | 695.000 | 730.000 | 730.000 | 785.000 | 0.000 | 0.000 | 0.000 | 0.000 |

750.FEET U/S OF U/S FACE OF OLMSTEAD RD.ROCKWOOD SECT. 20321.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5.000 | 18.000 | 210.000 | 230.000 | 775.000 | 725.000 | 750.000 | 0.000 | 0.000 | 0.000 |
| GR | 589.700 | 0.000 | 537.900 | 30.000 | 939.900 | 30.000 | 582.300 | 110.000 | 582.000 | 210.000 |
| GR | 570.600 | 217.000 | 578.600 | 221.000 | 578.900 | 225.000 | 580.600 | 230.000 | 582.000 | 310.000 |
| GR | 581.600 | 410.000 | 582.800 | 510.000 | 585.400 | 610.000 | 309.700 | 710.000 | 585.700 | 810.000 |
| GR | 588.700 | 910.000 | 589.800 | 1010.000 | 589.200 | 1030.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1450.FEET U/S OF U/S FACE OF OLMSTEAD ROCKWOOD SECT. 21021. CORP.LIMIT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6.000 | 16.000 | 400.000 | 434.000 | 675.000 | 725.000 | 700.000 | 0.000 | 0.000 | 0.000 |
| GR | 570.800 | 0.000 | 589.900 | 40.000 | 590.900 | 100.000 | 561.800 | 200.000 | 561.900 | 300.000 |
| GR | 583.700 | 400.000 | 579.400 | 417.000 | 578.900 | 424.000 | 579.200 | 423.000 | 582.400 | 434.000 |
| GR | 581.300 | 502.000 | 583.500 | 605.000 | 590.000 | 700.000 | 590.500 | 800.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.040 | 0.300 | 0.500 | 0.200 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION D/S OF WOODRUFF RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1964.000 | 15.000 | 301.250 | 318.750 | 1400.000 | 1944.000 | 2450.000 | 0.000 | 0.000 | 0.000 |
| GR | 590.000 | 75.000 | 586.000 | 76.000 | 585.000 | 200.000 | 585.000 | 296.000 | 582.130 | 301.250 |
| GR | 583.130 | 301.250 | 581.000 | 304.000 | 580.700 | 310.000 | 581.000 | 316.000 | 584.070 | 318.750 |
| GR | 586.070 | 318.750 | 585.000 | 321.000 | 586.700 | 410.000 | 586.000 | 430.000 | 590.000 | 451.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 94.000 | 428.000 |

D/S FACE OF WOODRUFF RD. BRIDGE REPEATED SECT. 1944

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2364.000 | 15.000 | 301.250 | 318.750 | 100.000 | 102.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 585.600 | 585.400 | 0.000 |
| GR | 590.000 | 75.000 | 586.000 | 76.000 | 585.630 | 200.000 | 586.680 | 296.000 | 585.000 | 301.200 |
| GR | 583.130 | 301.250 | 581.000 | 304.000 | 580.700 | 310.000 | 581.000 | 316.000 | 584.070 | 318.750 |
| GR | 586.070 | 318.000 | 586.000 | 321.000 | 586.000 | 405.000 | 586.000 | 430.000 | 590.000 | 451.000 |
| NC | 0.070 | 0.070 | 0.025 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

4 FOOT INSIDE OF D/S FACE OF BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2045.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| ST | 8.000 | 75.000 | 586.000 | 0.000 | 200.000 | 585.630 | 0.000 | 301.200 | 585.630 | 0.000 |
| ST | 301.250 | 582.130 | 585.130 | 318.750 | 589.130 | 584.070 | 318.800 | 586.000 | 0.000 | 321.000 |
| ST | 586.000 | 0.000 | 400.000 | 586.000 | 0.000 | 450.000 | 586.000 | 0.000 | 0.000 | 0.000 |
| ST | 0.000 | 395.000 | 460.000 | 495.000 | 495.000 | 535.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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1 FOOT INSIDE OF U/S FACE OF BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2074.000 | 0.000 | 0.000 | 0.000 | 29.000 | 29.000 | 29.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF WOODRUFF RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2075.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 585.630 | 586.330 | 0.000 |

X-SECTION U/S OF WOODRUFF RD. REPEATED SECT. 2075.5

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2100.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X2 | 3073.000 | 14.000 | 294.000 | 306.000 | 973.000 | 973.000 | 973.000 | 0.000 | 0.000 | 0.000 |
| GR | 591.910 | 0.000 | 592.060 | 100.050 | 591.360 | 200.000 | 591.260 | 210.000 | 563.710 | 254.030 |
| GR | 580.510 | 277.000 | 581.780 | 294.050 | 581.060 | 300.200 | 581.780 | 306.000 | 565.880 | 316.000 |
| GR | 585.533 | 414.000 | 585.630 | 516.050 | 585.030 | 616.000 | 590.000 | 1000.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.040 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4573.000 | 15.000 | 1193.000 | 1207.000 | 1350.000 | 1650.000 | 1500.000 | 0.000 | 0.000 | 0.000 |
| GR | 591.000 | 0.000 | 590.000 | 850.000 | 587.600 | 900.000 | 587.550 | 1000.000 | 587.200 | 1100.000 |
| GR | 587.900 | 1105.000 | 583.100 | 1193.000 | 581.900 | 1200.000 | 583.100 | 1207.000 | 587.400 | 1215.000 |
| GR | 586.680 | 1300.000 | 587.380 | 1400.000 | 591.080 | 1500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.070 | 0.070 | 0.035 | 0.300 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION D/S OF BRIDGE S. OF GIBRALTAR RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6337.500 | 16.000 | 265.000 | 203.000 | 1764.500 | 1764.500 | 1766.500 | 0.000 | 0.000 | 0.000 |
| GR | 591.300 | 0.000 | 590.200 | 60.000 | 593.260 | 208.000 | 586.730 | 244.000 | 585.550 | 260.000 |
| GR | 584.980 | 265.000 | 584.630 | 275.000 | 584.380 | 283.000 | 586.530 | 288.000 | 586.560 | 314.000 |
| GR | 592.400 | 357.000 | 590.500 | 402.000 | 590.300 | 525.000 | 591.000 | 600.000 | 591.500 | 630.000 |
| GR | 592.000 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.040 | 0.040 | 0.350 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

10' D/S OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6527.000 | 12.000 | 110.000 | 138.000 | 190.000 | 190.000 | 190.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 60.000 | 0.000 | 170.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 592.700 | 10.000 | 592.900 | 37.000 | 593.300 | 58.000 | 586.900 | 94.000 | 585.500 | 110.000 |
| GR | 585.000 | 115.000 | 586.300 | 125.000 | 586.900 | 133.000 | 585.500 | 138.000 | 586.600 | 164.000 |
| GR | 592.400 | 197.000 | 592.600 | 218.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

10' D/S OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6537.500 | 26.000 | 99.000 | 183.450 | 10.000 | 10.000 | 10.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.400 | 592.400 | 0.000 |
| GR | 592.700 | 10.000 | 592.900 | 37.000 | 593.200 | 58.000 | 586.500 | 99.000 | 586.500 | 99.100 |
| GR | 586.300 | 114.600 | 586.500 | 114.700 | 586.300 | 115.850 | 586.500 | 115.950 | 585.800 | 131.500 |
| GR | 585.800 | 131.600 | 585.000 | 132.700 | 585.800 | 132.850 | 585.000 | 160.600 | 585.800 | 248.600 |
| GR | 586.600 | 248.700 | 585.300 | 149.650 | 585.800 | 166.250 | 586.300 | 165.400 | 586.500 | 165.400 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 586.300 | 166.600 | 586.300 | 166.700 | 586.400 | 183.300 | 586.400 | 183.400 | 593.100 | 188.000 |
| GR | 592.600 | 218.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.040 | 0.040 | 0.025 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6538.500 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.400 | 592.400 | 0.000 |
| BT | 25.000 | 10.000 | 592.700 | 0.000 | 37.000 | 592.900 | 0.000 | 94.000 | 593.200 | 0.000 |
| BT | 99.000 | 593.600 | 586.500 | 99.100 | 593.600 | 591.800 | 114.600 | 593.600 | 591.800 | 114.700 |
| BT | 593.600 | 585.300 | 115.800 | 593.600 | 586.300 | 115.900 | 593.600 | 591.800 | 131.500 | 593.600 |
| BT | 591.800 | 131.600 | 593.600 | 585.800 | 132.700 | 593.600 | 585.800 | 132.800 | 593.600 | 591.800 |
| BT | 146.400 | 593.600 | 591.800 | 148.500 | 593.600 | 585.800 | 149.600 | 593.600 | 585.800 | 149.700 |
| BT | 593.600 | 591.800 | 165.300 | 593.600 | 591.800 | 165.400 | 593.600 | 586.300 | 166.600 | 593.600 |
| BT | 586.300 | 166.700 | 593.600 | 591.800 | 183.300 | 593.600 | 591.800 | 183.400 | 593.600 | 586.400 |
| BT | 188.000 | 593.150 | 0.000 | 218.000 | 592.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6578.000 | 0.000 | 0.000 | 0.000 | 39.500 | 39.500 | 39.500 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.500 | 592.500 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.040 | 0.040 | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1: U/S OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6579.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.700 | 592.600 | 0.000 |

50: U/S OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6609.000 | 10.000 | 117.000 | 163.800 | 93.000 | 50.000 | 53.000 | 0.000 | 0.000 | 0.000 |
| GR | 592.700 | 10.300 | 592.900 | 37.200 | 593.200 | 94.300 | 617.000 | 117.000 | 594.500 | 132.000 |
| GR | 584.900 | 140.300 | 585.300 | 140.900 | 589.100 | 165.000 | 593.100 | 188.000 | 592.600 | 218.000 |
| NC | 0.070 | 0.070 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION D/S OF GIBRALTAR RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7174.000 | 14.000 | 207.000 | 252.500 | 567.000 | 547.300 | 547.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 242.000 | 0.000 | 307.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 595.000 | 0.300 | 590.000 | 110.600 | 590.000 | 231.000 | 585.600 | 267.500 | 965.050 | 275.000 |
| GR | 585.600 | 202.500 | 589.900 | 313.000 | 590.000 | 340.300 | 595.050 | 469.000 | 593.020 | 450.000 |
| GR | 593.000 | 480.300 | 390.200 | 480.100 | 591.000 | 730.300 | 593.060 | 1001.000 | 0.000 | 0.000 |
| BT | 0.000 | 0.300 | 0.000 | 0.000 | 9.100 | 0.300 | 0.000 | 0.000 | 1.000 | 1000.000 |

D/S FACE OF GIBRALTAR RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7274.000 | 14.300 | 209.150 | 354.100 | 100.000 | 100.600 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.300 | 0.000 | 119.000 | 0.000 | 319.000 | 0.000 | 593.300 | 593.300 | 0.000 |
| GR | 595.000 | 37.000 | 590.800 | 135.000 | 590.800 | 275.000 | 585.600 | 289.150 | 585.050 | 300.000 |
| GR | 585.600 | 334.100 | 590.300 | 340.000 | 590.800 | 416.000 | 590.300 | 433.000 | 595.000 | 434.000 |
| GR | 595.000 | 434.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BD | 0.000 | 0.370 | 3.000 | 0.000 | 12.200 | 0.000 | 04.000 | 0.000 | 582.500 | 585.050 |

U/S FACE OF GIBRALTAR RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7573.000 | 10.300 | 394.150 | 504.100 | 99.300 | 99.000 | 99.300 | 0.000 | 0.000 | 0.000 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X2 | 0.000 | 0.000 | 1.000 | 589.360 | 592.370 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 585.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.530 | 592.370 | 0.000 |
| BT | 13.000 | 287.000 | 593.600 | 0.000 | 287.000 | 593.600 | 0.000 | 287.000 | 593.600 | 0.000 |
| BT | 300.000 | 593.170 | 0.000 | 400.000 | 592.620 | 0.000 | 489.150 | 592.530 | 582.900 | 489.160 |
| BT | 595.300 | 389.360 | 504.100 | 595.300 | 589.360 | 504.100 | 592.470 | 582.900 | 533.000 | 592.370 |
| BT | 0.000 | 600.000 | 592.410 | 0.000 | 633.000 | 592.500 | 0.000 | 633.000 | 605.000 | 0.000 |
| GR | 593.600 | 287.000 | 593.600 | 287.000 | 593.600 | 287.000 | 593.000 | 300.000 | 592.600 | 400.000 |
| GR | 592.000 | 476.000 | 582.900 | 489.150 | 582.900 | 489.160 | 582.500 | 500.000 | 582.900 | 504.000 |
| GR | 582.900 | 504.100 | 592.000 | 518.000 | 592.000 | 533.000 | 592.000 | 600.000 | 592.000 | 633.000 |
| GR | 592.000 | 633.000 | 593.000 | 633.000 | 605.000 | 633.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 2.090 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION U/S OF GIBRALTAR RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7398.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 430.000 | 0.000 | 633.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.070 | 0.070 | 0.035 | 0.100 | 0.300 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION N. OF GIBRALTAR RD. BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8573.000 | 42.000 | 1347.000 | 1050.000 | 1175.000 | 1175.000 | 1175.000 | 0.000 | 0.000 | 0.000 |
| GR | 595.000 | 0.000 | 592.056 | 750.000 | 590.250 | 900.000 | 591.650 | 1035.000 | 589.750 | 1047.000 |
| GR | 585.500 | 1350.000 | 585.700 | 1053.000 | 586.750 | 1636.000 | 587.600 | 1059.000 | 591.450 | 1060.000 |
| GR | 592.100 | 1200.000 | 595.100 | 1350.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.090 | 0.090 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 9000.000 | 0.000 | 0.000 | 0.000 | 427.000 | 427.000 | 427.000 | 0.000 | 0.400 | 0.000 |
| X1 | 9500.000 | 0.000 | 0.000 | 0.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.560 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10773.000 | 12.000 | 296.000 | 304.000 | 673.000 | 673.000 | 673.000 | 0.000 | 0.000 | 0.000 |
| GR | 599.300 | 0.000 | 593.500 | 150.000 | 592.800 | 253.000 | 591.900 | 287.000 | 587.200 | 296.000 |
| GR | 587.300 | 306.000 | 587.100 | 304.000 | 593.300 | 306.000 | 580.300 | 310.000 | 593.200 | 318.000 |
| GR | 592.400 | 363.000 | 593.500 | 513.000 | 593.200 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NT | 0.000 | 320.000 | 363.000 | 390.000 | 390.000 | 415.000 | 0.000 | 0.000 | 0.000 | 0.100 |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 11673.000 | 12.000 | 295.000 | 304.000 | 1500.000 | 1500.000 | 1500.000 | 0.000 | 0.000 | 0.000 |
| GR | 598.510 | 0.000 | 593.710 | 150.000 | 593.610 | 253.000 | 594.560 | 253.000 | 595.910 | 272.000 |
| GR | 596.310 | 287.000 | 588.610 | 295.000 | 520.750 | 300.000 | 590.760 | 535.000 | 594.070 | 313.000 |
| GR | 595.460 | 450.000 | 597.010 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.110 | 0.110 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

R@SECT.U/S OF R.R CULVERTS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12356.000 | 12.000 | 745.000 | 755.000 | 683.000 | 683.000 | 683.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.330 | 0.000 | 692.000 | 0.000 | 306.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 598.000 | 290.000 | 596.000 | 550.000 | 595.000 | 680.000 | 596.200 | 737.000 |
| GR | 590.000 | 745.000 | 589.680 | 755.000 | 590.000 | 755.000 | 595.500 | 770.000 | 596.000 | 925.000 |
| GR | 595.000 | 1025.000 | 600.000 | 1250.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.330 | 0.000 | 0.000 | 5.150 | 0.000 | 1.000 | 0.000 | 1.000 | 125.000 |

D/S FACE OF DIALOG: X76.5; CMP:S

PRINTED IN U.S.A.
FORM 141-1 RED PRINTED BY ROTARY WAX-O-LOG FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12456.000 | 24.000 | 739.000 | 761.000 | 191.000 | 191.000 | 191.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 602.600 | 602.600 | 0.000 |
| GR | 605.000 | 0.000 | 602.700 | 1.000 | 601.000 | 2.000 | 598.000 | 290.000 | 596.000 | 550.000 |
| GR | 595.000 | 680.000 | 596.000 | 730.000 | 592.000 | 739.000 | 591.000 | 740.500 | 590.000 | 742.000 |
| GR | 590.000 | 743.500 | 590.100 | 745.000 | 591.500 | 747.000 | 592.000 | 748.000 | 592.000 | 752.000 |
| GR | 590.200 | 754.000 | 590.000 | 756.500 | 591.000 | 759.000 | 592.000 | 761.000 | 595.000 | 767.000 |
| GR | 596.000 | 900.000 | 600.000 | 1200.000 | 602.700 | 1250.000 | 605.000 | 1251.000 | 0.000 | 0.000 |
| SB | 0.000 | 3.230 | 3.000 | 0.000 | 11.850 | 0.000 | 77.000 | 0.000 | 590.400 | 590.000 |

DUAL CMPTS MEET DUAL BOX CULVERTS HERE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12612.000 | 26.000 | 739.000 | 756.000 | 156.000 | 156.000 | 156.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 596.400 | 602.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 602.600 | 602.600 | 0.000 |
| BT | 16.000 | 0.000 | 605.000 | 0.000 | 1.000 | 602.700 | 0.000 | 739.000 | 602.600 | 591.400 |
| BT | 739.100 | 602.600 | 595.000 | 740.500 | 602.600 | 595.400 | 744.300 | 602.600 | 596.400 | 746.000 |
| BT | 602.600 | 595.000 | 747.000 | 602.600 | 592.600 | 748.000 | 602.600 | 592.400 | 749.000 | 602.600 |
| BT | 595.000 | 750.500 | 602.600 | 596.400 | 754.500 | 602.600 | 596.400 | 755.900 | 602.600 | 595.000 |
| DT | 756.000 | 602.600 | 591.400 | 1250.000 | 602.700 | 0.000 | 1251.000 | 605.000 | 0.000 | 0.000 |
| GR | 605.000 | 0.000 | 602.700 | 1.000 | 601.000 | 2.000 | 598.000 | 290.000 | 596.000 | 550.000 |
| GR | 595.000 | 680.000 | 596.000 | 730.000 | 591.600 | 739.000 | 591.400 | 739.100 | 590.650 | 740.500 |
| GR | 590.400 | 743.500 | 590.600 | 744.300 | 591.400 | 746.000 | 592.400 | 747.000 | 592.600 | 748.000 |
| GR | 591.400 | 749.000 | 590.600 | 750.500 | 592.400 | 752.500 | 590.600 | 754.500 | 591.400 | 755.900 |
| GR | 591.400 | 756.000 | 595.000 | 767.000 | 596.000 | 900.000 | 600.000 | 1200.000 | 602.700 | 1250.000 |
| GR | 605.000 | 1251.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 1.250 | 1.760 | 3.000 | 0.000 | 16.670 | 1.000 | 94.000 | 0.000 | 590.400 | 590.400 |

U/S FACE OF R.R. CULVERTS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12647.000 | 24.000 | 739.000 | 756.000 | 35.000 | 35.000 | 35.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 596.400 | 602.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 602.600 | 602.600 | 0.000 |
| BT | 16.000 | 0.000 | 605.000 | 0.000 | 1.000 | 602.700 | 0.000 | 739.000 | 602.600 | 590.400 |
| BT | 739.100 | 602.600 | 595.000 | 740.500 | 602.600 | 596.400 | 746.000 | 602.600 | 596.400 | 747.100 |
| BT | 602.600 | 595.400 | 747.100 | 602.600 | 590.400 | 748.000 | 602.600 | 590.400 | 748.100 | 602.600 |
| BT | 595.400 | 749.000 | 602.600 | 596.400 | 755.000 | 602.600 | 596.400 | 755.900 | 602.600 | 595.400 |
| BT | 756.000 | 602.600 | 590.400 | 1250.000 | 602.700 | 0.000 | 1251.000 | 605.000 | 0.000 | 0.000 |
| GR | 605.000 | 0.000 | 602.700 | 1.000 | 601.000 | 2.000 | 598.000 | 290.000 | 596.000 | 550.000 |
| GR | 595.000 | 680.000 | 596.000 | 730.000 | 590.400 | 739.000 | 590.600 | 739.100 | 590.400 | 740.000 |
| GR | 590.400 | 744.000 | 590.600 | 747.000 | 590.400 | 747.900 | 592.400 | 748.000 | 590.600 | 748.100 |
| GR | 590.400 | 749.000 | 590.400 | 755.000 | 590.400 | 758.900 | 590.600 | 756.000 | 595.000 | 767.000 |
| GR | 596.000 | 900.000 | 600.000 | 1200.000 | 602.700 | 1250.000 | 605.000 | 1251.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

PROJECT U/S OF R.R.CULVERT & D/S OF 96 CMP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12680.000 | 0.000 | 0.000 | 0.000 | 33.000 | 33.000 | 33.000 | 0.000 | 0.340 | 0.000 |
| X3 | 0.000 | 0.000 | 0.300 | 730.000 | 0.000 | 765.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 5.000 | 0.000 | 0.100 | 0.000 | 0.100 | 0.000 | 0.000 | 0.000 | 1.000 | 1251.000 |

D/S FACE OF 96 CMP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12715.000 | 15.000 | 739.000 | 756.000 | 35.000 | 35.000 | 35.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 596.500 | 596.500 | 0.000 |
| X4 | 1.000 | 805.000 | 486.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ER | 598.000 | 662.000 | 592.000 | 730.000 | 592.000 | 735.000 | 590.900 | 738.900 | 590.900 | 740.700 |
| GR | 592.000 | 747.000 | 592.000 | 748.000 | 591.200 | 760.100 | 591.200 | 756.900 | 592.000 | 756.000 |
| GR | 598.000 | 767.000 | 598.000 | 808.000 | 605.000 | 805.000 | 605.000 | 808.000 | 605.000 | 808.000 |
| SF | 0.000 | 5.000 | 3.000 | 0.000 | 11.230 | 0.000 | 68.500 | 0.000 | 591.130 | 590.900 |

PRINTED IN U.S.A.
FORM 1411-DD PRINTED BY ROTARY MANIFOLD FORMS

U/S FACE OF 96 CMP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12979.000 | 19.000 | 739.000 | 756.000 | 264.000 | 264.000 | 264.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 597.200 | 602.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 602.600 | 602.600 | 0.000 |
| X4 | 1.000 | 605.000 | 686.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X5 | 5.000 | 597.200 | 599.300 | 599.600 | 599.600 | 600.100 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 18.000 | 687.000 | 605.000 | 0.000 | 687.000 | 602.700 | 0.000 | 739.000 | 602.600 | 593.200 |
| BT | 739.500 | 602.600 | 595.500 | 741.000 | 602.600 | 597.000 | 743.000 | 602.600 | 597.200 | 743.000 |
| BT | 602.600 | 597.000 | 746.500 | 602.600 | 595.500 | 747.000 | 602.600 | 595.200 | 740.000 | 602.700 |
| BT | 593.000 | 748.500 | 602.600 | 595.000 | 749.500 | 602.600 | 596.500 | 752.000 | 602.600 | 597.000 |
| BT | 754.500 | 602.600 | 596.500 | 755.500 | 602.600 | 595.000 | 756.000 | 602.600 | 593.000 | 840.000 |
| BT | 602.700 | 0.000 | 840.000 | 605.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 687.000 | 596.000 | 730.000 | 593.200 | 739.000 | 591.100 | 739.500 | 591.100 | 741.000 |
| GP | 591.100 | 743.000 | 591.100 | 745.000 | 591.100 | 746.500 | 595.200 | 747.000 | 593.000 | 748.000 |
| GR | 591.100 | 748.500 | 591.100 | 749.500 | 591.100 | 752.000 | 591.100 | 754.500 | 591.100 | 755.500 |
| GR | 593.000 | 756.000 | 600.000 | 757.000 | 600.000 | 808.000 | 605.000 | 809.000 | 0.000 | 0.000 |
| QT | 5.000 | 455.000 | 665.000 | 735.000 | 735.000 | 840.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

XSECT. U/S OF 84 CMP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13030.000 | 16.000 | 795.000 | 805.000 | 51.000 | 51.000 | 51.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 740.000 | 0.000 | 860.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X4 | 2.000 | 605.000 | 1.000 | 605.000 | 1401.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 601.300 | 2.000 | 595.090 | 500.000 | 595.900 | 650.000 | 595.300 | 764.000 | 598.200 | 773.000 |
| GR | 595.400 | 780.000 | 590.200 | 795.000 | 589.340 | 800.000 | 590.200 | 805.000 | 595.000 | 816.000 |
| GP | 595.900 | 821.000 | 597.300 | 828.530 | 596.860 | 842.000 | 598.090 | 903.000 | 600.000 | 1300.000 |
| GR | 601.300 | 1403.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 2.000 | 0.000 | 7.100 | 9.100 | 0.000 | 295.000 | 1300.000 | 650.000 | 950.000 |

VALLEY SECTION DATED 01 FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13473.000 | 17.000 | 795.300 | 805.000 | 443.000 | 443.000 | 443.000 | 0.000 | 0.000 | 0.000 |
| X4 | 1.000 | 601.000 | 296.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GP | 605.000 | 295.000 | 590.390 | 500.000 | 595.930 | 653.000 | 595.300 | 764.000 | 598.200 | 773.000 |
| GR | 595.840 | 780.000 | 590.340 | 795.000 | 590.190 | 800.000 | 590.540 | 805.000 | 595.440 | 816.000 |
| GP | 595.940 | 821.000 | 597.340 | 828.530 | 596.860 | 842.000 | 598.090 | 903.000 | 599.400 | 951.000 |
| GR | 609.400 | 958.100 | 609.400 | 1001.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 7.100 | 7.100 | 7.100 | 9.100 | 7.100 | 400.000 | 1100.000 | 600.000 | 900.000 |

XSECT. D/S OF VREELAND RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13909.000 | 9.000 | 745.000 | 755.000 | 436.000 | 436.000 | 436.000 | 0.000 | 0.000 | 0.000 |
| X6 | 1.000 | 601.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.000 | 0.000 | 597.100 | 500.000 | 595.900 | 750.000 | 590.900 | 765.000 | 590.460 | 750.000 |
| GP | 590.900 | 755.000 | 595.400 | 786.000 | 600.000 | 1300.000 | 610.300 | 1301.000 | 0.000 | 0.000 |
| ET | 0.000 | 2.000 | 0.300 | 0.000 | 9.100 | 2.000 | 499.300 | 1102.000 | 550.000 | 650.000 |

D/S FACE OF VREELAND RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14009.000 | 9.000 | 595.300 | 705.000 | 100.000 | 100.000 | 100.300 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.300 | 597.000 | 597.000 | 0.000 |
| GR | 610.000 | 496.000 | 597.000 | 500.000 | 596.000 | 500.000 | 596.300 | 695.000 | 591.210 | 700.000 |
| GP | 591.300 | 705.000 | 595.400 | 716.000 | 600.000 | 1250.000 | 610.300 | 1251.000 | 0.300 | 0.000 |
| NC | 0.100 | 0.100 | 0.322 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

PRINTED IN U.S.A.
FORM 1411 GO-PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.000 | 3.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 550.000 | 850.000 |

1 FOOT INSIDE OF D/S FACE OF CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14010.000 | 14.000 | 694.500 | 705.500 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X4 | 3.000 | 596.000 | 800.000 | 597.500 | 950.000 | 595.000 | 1100.000 | 0.000 | 0.000 | 0.000 |
| BT | 8.000 | 493.020 | 610.000 | 0.000 | 500.000 | 559.520 | 596.000 | 600.000 | 599.780 | 598.500 |
| BT | 694.500 | 599.190 | 590.900 | 694.580 | 599.190 | 596.210 | 705.415 | 599.190 | 596.210 | 705.500 |
| BT | 599.190 | 590.900 | 1250.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.000 | 493.000 | 597.300 | 500.000 | 596.500 | 600.000 | 591.300 | 694.500 | 591.300 | 694.585 |
| GR | 591.210 | 700.000 | 591.300 | 705.415 | 591.300 | 705.500 | 595.400 | 716.000 | 596.020 | 800.000 |
| GR | 597.500 | 950.000 | 599.000 | 1100.000 | 600.000 | 1250.000 | 610.000 | 1251.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.300 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 500.000 | 900.000 |

1 FOOT INSIDE OF U/S FACE OF CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14090.000 | 0.700 | 0.000 | 0.000 | 30.000 | 30.000 | 30.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.030 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.300 | 0.300 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 500.000 | 900.000 |

U/S FACE OF VREELAND RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14091.000 | 0.300 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 597.500 | 597.500 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 599.190 | 599.190 | 0.300 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 450.000 | 950.000 |

XSECT. U/S OF VREELAND RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14016.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 275.000 | 675.000 |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14079.000 | 16.000 | 571.000 | 579.000 | 597.000 | 597.000 | 597.000 | 0.000 | 0.000 | 0.000 |
| X4 | 1.000 | 602.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.000 | 0.000 | 599.370 | 275.000 | 596.520 | 425.000 | 596.070 | 611.000 | 596.720 | 559.000 |
| GR | 592.670 | 571.000 | 592.370 | 575.000 | 592.970 | 579.100 | 597.970 | 586.000 | 597.120 | 603.000 |
| GR | 597.500 | 830.000 | 604.500 | 603.100 | 604.500 | 629.400 | 597.500 | 830.000 | 603.000 | 1000.000 |
| GR | 610.000 | 1031.500 | 0.300 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.093 | 0.000 | 0.040 | 0.300 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 9.100 | 9.100 | 0.000 | 625.000 | 2852.000 | 1000.000 | 1600.000 |

X-SECTION D/S OF TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15262.000 | 13.000 | 596.000 | 1404.000 | 700.000 | 500.000 | 589.300 | 0.000 | 0.000 | 0.000 |
| GR | 610.000 | 1049.000 | 610.000 | 1049.000 | 593.300 | 1050.000 | 597.300 | 1200.000 | 599.660 | 1377.000 |
| GR | 594.160 | 1380.000 | 592.600 | 1396.000 | 592.810 | 1400.000 | 592.600 | 1404.000 | 594.160 | 1412.000 |
| GR | 596.160 | 2415.000 | 596.530 | 1550.000 | 600.000 | 1550.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1129.000 | 1600.000 |

D/S FACE OF TELEGRAPH RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5362.000 | 15.000 | 1390.400 | 1409.400 | 100.000 | 400.000 | 130.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.000 | 1000.000 | 600.000 | 1110.000 | 592.310 | 1200.000 | 599.920 | 1350.300 | 597.200 | 1390.400 |

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FORM 1411-6 PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Silver Creek

4) DOCUMENT TYPE: 500 year

00BREAK00

State Copy

11001679

TA-23 HYDROLOGY

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FORM 3411-SD-PRINTED BY ROTARY MANIFOLD FORMS

PROGRAM DATE - FEB. 14, 1974 2/306

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FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS

EXECUTIVE CONTROL CARD OPERATION LIST

LISTING OF DATA IN CORE

10 [illegible]

VELOCITY INCREMENT

7 CTABLE 0.2000

| | | | | | |
|---|---|---|---|---|---|
| 8 | 0.0000 | 0.0300 | 0.1800 | 0.2500 | 0.3200 |
| 8 | 0.3700 | 0.4100 | 0.4500 | 0.4900 | 0.5100 |
| 8 | 0.5400 | 0.5700 | 0.5900 | 0.6100 | 0.6300 |
| 8 | 0.6500 | 0.6600 | 0.6700 | 0.6900 | 0.7000 |
| 8 | 0.7100 | 0.7200 | 0.7200 | 0.7300 | 0.7500 |
| 8 | 0.7600 | 0.7700 | 0.7700 | 0.7800 | 0.7900 |
| 8 | 0.7900 | 0.8000 | 0.8100 | 0.8100 | 0.8200 |
| 8 | 0.8200 | 0.8300 | 0.8300 | 0.8400 | 0.8400 |
| 8 | 0.8400 | 0.8500 | 0.8500 | 0.8600 | 0.8600 |
| 8 | 0.8600 | 0.8600 | 0.8700 | 0.8700 | 0.8700 |
| 8 | 0.8700 | 0.8800 | 0.8800 | 0.8900 | 0.8900 |
| 8 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.9000 |
| 8 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9100 |
| 8 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| 8 | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| 8 | 0.9200 | 0.9200 | 0.9200 | 0.9300 | 0.9300 |

9 ENDTBL

STRUCT NO.

3 STRUCT 1

| | ELEVATION | DISCHARGE | STORAGE |
|---|---|---|---|
| 8 | 592.5000 | 0.0000 | 0.0000 |
| 8 | 595.2000 | 50.0000 | 0.1000 |
| 8 | 597.0999 | 100.0000 | 0.2000 |
| 8 | 595.2000 | 200.0000 | 2.0000 |
| 8 | 596.6001 | 300.0000 | 56.5000 |
| 8 | 599.2000 | 400.0000 | 182.5000 |
| 8 | 599.7000 | 500.0000 | 222.5000 |
| 8 | 600.0500 | 600.0000 | 292.5000 |
| 8 | 600.3000 | 700.0000 | 298.0000 |
| 8 | 600.7000 | 800.0000 | 353.0000 |

9 ENDTBL

TIME INCREMENT

4 DELAY

| | | | | | |
|---|---|---|---|---|---|
| 8 | 0.0000 | 0.0300 | 0.1000 | 0.1900 | 0.3100 |

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```
8          0.4700     0.6600     0.8200     0.9300     0.9900
8          1.0000     0.9900     0.9300     0.8600     0.7800
8          0.6800     0.5500     0.4600     0.3900     0.3300
8          0.2800     0.2410     0.2070     0.1740     0.1470
8          0.1260     0.1070     0.0910     0.0770     0.0660
8          0.0550     0.0470     0.0400     0.0340     0.0290
8          0.0230     0.0210     0.0180     0.0150     0.0130
8          0.0110     0.0090     0.0080     0.0070     0.0060
8          0.0050     0.0040     0.0030     0.0020     0.0010
8          0.0000     0.0000     0.0000     0.0000     0.0000
9 ENDTBL

   COMPUTED PEAK K FACTOR =  404.00


                  TIME INCREMENT
5 RAINFL 1                0.5000

8          0.0000     0.0030     0.0170     0.0260     0.0350
8          0.0450     0.0530     0.0650     0.0760     0.0870
8          0.0990     0.1120     0.1250     0.1400     0.1560
8          0.1740     0.1940     0.2190     0.2540     0.3030
8          0.5150     0.5830     0.6240     0.6540     0.6820
8          0.7050     0.7270     0.7480     0.7670     0.7840
8          0.8000     0.8160     0.8300     0.8440     0.8570
8          0.8700     0.8820     0.8930     0.9050     0.9100
8          0.9250     0.9360     0.9460     0.9550     0.9650
8          0.9740     0.9830     0.9920     1.0000     1.0000
9 ENDTBL
```

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STANDARD CONTROL INSTRUCTIONS

```
6 RESVOR 2      1 6   7      592.5000                    1 1 1 1 0 0
  ENDATA

END OF LISTING
```

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FORM 1411-GD PRINTED BY ROTARY-MANIFOLD FORMS.

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FORM 1611-00 PRINTED BY ROTARY MANIFOLD FORMS.

EXECUTIVE CONTROL CARD  OPERATION INCREM  MAIN TIME INCREMENT= 0.20  PASS=2 10

DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 6

STARTING TIME= 0.00  TIME INCREMENT= 1.00  DRAINAGE AREA= 2.36  BASE FLO.= 0.00

| | | | | | |
|---|---|---|---|---|---|
| 8 | 0.0003 | 25.0000 | 50.0000 | 335.0000 | 265.0000 |
| 8 | 570.0000 | 790.0000 | 840.0000 | 810.0000 | 790.0000 |
| 8 | 765.0000 | 740.0000 | 700.0000 | 660.0000 | 615.0000 |
| 8 | 575.0000 | 530.0000 | 490.0000 | 455.0000 | 415.0000 |
| 8 | 385.0000 | 350.7000 | 0.0000 | 0.0000 | 0.0000 |

9 END OF
EXECUTIVE CONTROL CARD  OPERATION COMPUT  FROM XSECTN/STRUCT 0/ 1  TO XSECTN/STRUCT 0/ 1

STARTING TIME= 0.00  RAIN DEPTH= 5.90  RAIN DURATION= 1.00  RAIN TABLE NO.= 1  SOIL CONDITION= 2
ALTERNATE NO.= 2  STORM NO.= 1

SUBROUTINE RESVOR  STRUCTURE 1
SURFACE ELEVATION= 592.50

| PEAK TIMES | PEAK DISCHARGES | PEAK ELEVATIONS |
|---|---|---|
| 14.40 | 399.258 | 606.05 |
| 29.62 | 33.094 | 592.97 |
| 30.02 | 12.625 | 592.61 |
| 30.42 | 4.702 | 592.57 |
| 30.82 | 1.751 | 592.52 |
| 31.22 | 0.652 | 592.51 |
| 31.62 | 0.243 | 592.50 |
| 32.02 | 0.091 | 592.50 |
| 32.42 | 0.034 | 592.50 |
| 32.82 | 0.013 | 592.50 |

HYDROGRAPH, TZERO= 0.00  DELTA T= 0.20  DRAINAGE AREA= 2.36

| TIME | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | DISCHG | 0.00 | 4.05 | 9.52 | 16.26 | 19.46 | 24.34 | 29.63 | 34.52 | 39.41 | 44.39 |
| 0.00 | ELEV | 592.50 | 592.50 | 592.55 | 592.70 | 592.77 | 592.86 | 592.91 | 592.91 | 592.95 | 592.96 |
| 2.00 | DISCHG | 69.40 | 80.35 | 76.79 | 87.21 | 100.22 | 105.63 | 122.15 | 140.35 | 181.37 | 200.09 |
| 2.00 | ELEV | 592.79 | 592.85 | 592.88 | 592.92 | 592.90 | 592.97 | 592.15 | 592.53 | 592.96 | 592.21 |
| 4.00 | DISCHG | 212.72 | 206.06 | 211.02 | 217.93 | 225.59 | 235.12 | 243.08 | 257.04 | 270.37 | 284.05 |
| 4.00 | ELEV | 595.24 | 595.26 | 595.35 | 595.45 | 595.56 | 595.69 | 595.84 | 596.01 | 596.19 | 596.35 |
| 6.00 | DISCHG | 298.34 | 308.38 | 312.39 | 318.24 | 328.53 | 332.17 | 338.75 | 345.17 | 351.42 | 357.51 |
| 6.00 | ELEV | 596.50 | 596.75 | 596.92 | 597.09 | 597.26 | 597.43 | 597.61 | 597.77 | 597.94 | 598.10 |
| 8.00 | DISCHG | 363.43 | 369.24 | 374.91 | 380.45 | 385.86 | 391.16 | 396.32 | 404.21 | 409.35 | 403.42 |
| 8.00 | ELEV | 598.29 | 598.40 | 598.58 | 598.49 | 598.85 | 598.97 | 599.10 | 599.23 | 599.30 | 599.37 |
| 10.00 | DISCHG | 447.14 | 439.91 | 471.96 | 483.31 | 494.21 | 505.29 | 517.76 | 529.03 | 539.27 | 548.53 |
| 10.00 | ELEV | 599.44 | 599.50 | 599.36 | 599.82 | 599.87 | 599.72 | 599.76 | 599.86 | 599.84 | 599.67 |
| 12.00 | DISCHG | 556.67 | 564.33 | 570.96 | 576.81 | 581.91 | 586.31 | 590.02 | 593.05 | 595.43 | 597.21 |
| 12.00 | ELEV | 599.90 | 599.93 | 599.95 | 599.97 | 599.99 | 600.00 | 600.02 | 600.03 | 600.03 | 600.04 |
| 14.00 | DISCHG | 598.40 | 598.34 | 599.29 | 599.06 | 598.41 | 597.37 | 595.93 | 594.08 | 591.83 | 589.26 |
| 14.00 | ELEV | 600.04 | 600.03 | 600.03 | 600.05 | 600.05 | 600.06 | 600.06 | 600.06 | 600.05 | 600.04 |
| 16.00 | DISCHG | 586.33 | 583.09 | 579.60 | 575.87 | 571.91 | 567.73 | 563.36 | 558.80 | 554.05 | 549.49 |
| 16.00 | ELEV | 600.00 | 599.98 | 599.98 | 599.97 | 599.95 | 599.94 | 599.92 | 599.91 | 599.89 | 599.87 |
| 18.00 | DISCHG | 544.69 | 539.59 | 534.47 | 529.38 | 523.61 | 518.20 | 512.21 | 506.19 | 499.57 | 495.11 |
| 18.00 | ELEV | 599.80 | 599.84 | 599.82 | 599.80 | 599.78 | 599.76 | 599.76 | 599.78 | 599.78 | 599.58 |
| 20.00 | DISCHG | 490.23 | 484.72 | 479.39 | 473.13 | 466.93 | 460.44 | 452.78 | 444.90 | 437.64 | 417.24 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 20.00 | ELEV | 599.65 | 599.62 | 599.60 | 599.57 | 599.53 | 599.50 | 599.46 | 599.41 | 599.36 | 599.29 |
| 22.00 | DISCHG | 401.58 | 395.27 | 390.12 | 385.03 | 380.02 | 375.06 | 370.18 | 365.35 | 360.59 | 355.89 |
| 22.00 | ELEV | 599.21 | 599.08 | 598.94 | 598.81 | 596.68 | 598.55 | 598.42 | 598.30 | 598.18 | 598.05 |
| 24.00 | DISCHG | 351.25 | 346.67 | 342.16 | 337.70 | 333.30 | 328.95 | 324.66 | 320.43 | 316.26 | 312.14 |
| 24.00 | ELEV | 597.93 | 597.81 | 597.70 | 597.58 | 597.47 | 597.35 | 597.24 | 597.13 | 597.02 | 596.92 |
| 26.00 | DISCHG | 308.07 | 304.05 | 300.09 | 291.16 | 282.38 | 273.87 | 265.61 | 257.61 | 249.64 | 242.31 |
| 26.00 | ELEV | 595.81 | 596.71 | 596.60 | 596.48 | 596.35 | 596.23 | 596.12 | 596.01 | 595.90 | 595.79 |
| 28.00 | DISCHG | 235.03 | 227.92 | 221.05 | 214.36 | 207.92 | 201.65 | 107.56 | -00.86 | 32.07 | -20.06 |
| 28.00 | ELEV | 595.69 | 595.59 | 595.49 | 595.40 | 595.31 | 595.22 | 594.00 | 591.75 | 596.96 | 592.22 |
| 30.00 | DISCHG | 12.24 | -7.47 | 4.56 | -2.78 | 1.70 | -1.04 | 0.65 | -0.39 | 0.24 | -0.14 |
| 30.00 | ELEV | 592.67 | 592.40 | 592.56 | 592.46 | 592.52 | 592.49 | 592.51 | 592.49 | 592.50 | 592.50 |
| 32.00 | DISCHG | 0.09 | -0.05 | 0.03 | -0.02 | 0.01 | -0.01 | 0.00 | | | |
| 32.00 | ELEV | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | 592.50 | | | |

TOTAL RATES, 30 INCHES OF RAINFALL ARE= 7.2013 CFS-HRS= 11075.09 ACRE-FT= 898.72

```
ENDCMP

ENDJOB CARD ENCOUNTERED.  END OF JOB.
```

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FORM 1411-GB-PRINTED BY ROTARY MANIFOLD FORMS

R

END OF JOBS IN THIS RUN

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FORM 141-GS PRINTED BY ROTARY MANIFOLD FORMS.

```
*****************************************************************
*                                                               *
*                    E R R O R   S U M M A R Y                  *
*                                                               *
*                                                               *
*       0  ERROR(S) DETECTED BY THE USER PROGRAM                *
*       0  ERROR(S) DETECTED BY THE MATHEMATICAL PACKAGE        *
*       0  ERROR(S) DETECTED FOR INPUT/OUPUT STATEMENTS         *
*                                                               *
*****************************************************************
```

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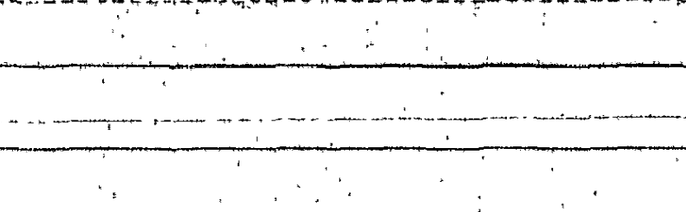
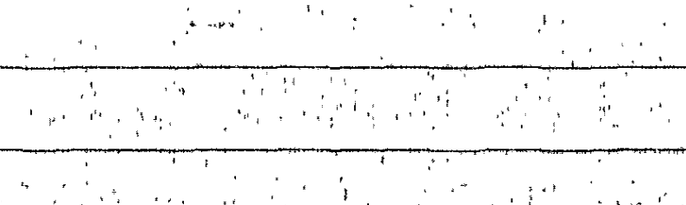
FORM 1011-GB-PRINTED BY ROTARY MANIFOLD FORMS

14:56:13 X408 BILL HU2009D7 HUDFROCK DEC 20, 1979





A400 10*T SN:10** LN:10*T FH:65-917 22A00064 P001 RN/1112/F1/S1/0/K152

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FORM 1411-OB-PRINTED BY ROTARY MANIFOLD FORMS.

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Silver Creek

4) DOCUMENT TYPE: Floodway

00BREAK00

Floodway

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR - 01
  MODIFICATION - 50,51,52
*****************************************************

T1      FLAT ROCK FLOOD INSURANCE STUDY
T2      100YR. ENCROACHMENT RUN
T3      SILVER CREEK

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

       0.       5.       0.       0.  0.000000     0.00      0.0      0.   586.580    0.000

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH     FN      ALLDC    IBH      CHNIM    ITRACE

     15.000    0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
```

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```
*PROF 2

CCHV=   0.100 CEHV=   0.300
*SECNO ****
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QRCB     ALOB     ACH      AROB     VOL      TWA     LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IHZ      ICONT    CORAR    TOPWID     ENDST

3470 ENCROACHMENT STATIONS=    1350.0    1600.0  TYPE=     1  TARGET=     250.000

        450. FEET D/S OF D/S FACE OF OLMSTEAD RD. ROCKWOOD SECT. 19073.

     0.00     0.88   586.58     0.00   586.48   586.58     0.00     0.00     0.00   580.60
     705.     368.     118.     259.     776.     191.     457.       0.       0.   577.90
     0.00     0.47     0.62     0.43    0.035    0.035    0.035    0.000   577.70  1350.00
 0.000013       0.       0.       0.        0        0        0     0.00   250.00  1600.00

*SECNO 1.000
 2800 NAT Q1=    361.65  WSEL=    586.47  ENC Q1=    361.66  WSEL=    586.57  RATIO=  0.0000
 NAT Q1=    330.  RATIOS LOB,CH,ROB=  0.0353  0.4296  0.5351  WSEL=    586.57

3470 ENCROACHMENT STATIONS=     690.7     940.1  TYPE=     4  TARGET=       0.068

        D/S FACE OF OLMSTEAD ROAD                ROCKWOOD SECT. 19523.

     1.00     9.57   586.57     0.00   586.47   586.61     0.03     0.02     0.01   585.80
     705.       1.     325.     379.       1.     145.     344.      10.       3.   585.80
     0.06     0.54     2.24     1.10    0.035    0.035    0.035    0.034   576.90   690.68
 0.000301     400.     650.     500.        2        0        0     0.00   249.30   940.05

*SECNO 2.000
 2800 NAT Q1=    435.41  WSEL=    586.47  ENC Q1=    435.41  WSEL=    586.57  RATIO=  0.0000
 NAT Q1=    490.  RATIOS LOB,CH,ROB=  0.0552  0.1162  0.3286  WSEL=    586.57

3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD=  584.20 MAX ELLC=  583.90

3470 ENCROACHMENT STATIONS=     692.4     939.5  TYPE=     4  TARGET=       0.111

        1.FOOT INSIDE BRIDGE D/S END             ROCKWOOD SECT. 19524.

     2.00     9.57   586.57     0.00   586.47   586.61     0.05     0.00     0.00   585.80
     705.       1.      92.     613.       0.      92.     343.      10.       3.   585.80
     0.06     0.30     1.00     1.79    0.018    0.031    0.018    0.034   576.90   692.40
 0.000266       1.       1.       1.        0        0        0   -53.08   247.10   939.50

*SECNO 3.000
 2800 NAT Q1=    444.91  WSEL=    586.69  ENC Q1=    444.91  WSEL=    586.59  RATIO=  0.0000
 NAT Q1=    497.  RATIOS LOB,CH,ROB=  0.0568  0.1149  0.8282  WSEL=    586.59

3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD=  584.20 MAX ELLC=  583.90

3470 ENCROACHMENT STATIONS=     887.9     940.1  TYPE=     4  TARGET=       0.104

        1.FOOT INSIDE BRIDGE U/S END             ROCKWOOD SECT. 19570.
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.00 | 9.68 | 586.58 | 0.00 | 586.49 | 586.63 | 0.04 | 0.01 | 0.00 | 585.80 |
| 705. | 3. | 91. | 611. | 3. | 92. | 347. | 10. | 3. | 585.80 |
| 0.09 | 1.00 | 0.99 | 1.76 | 0.018 | 0.031 | 0.018 | 0.034 | 576.90 | 687.91 |
| 0.000254 | 46. | 46. | 46. | 0 | 0 | 0 | -53.08 | 252.23 | 940.14 |

*SECNO 4.000
2800 NAT Q1= 318.43 WSEL= 586.47 ENC Q1= 318.43 WSEL= 586.58 RATIO= 0.0000
NAT Q1= 340. RATIOS LOB,CH,ROB= 0.0319 0.4906 0.4775 WSEL= 586.58

| SECNO | DEPTH | CNSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | Q ROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | V ROB | XWL | XNCH | XNR | WTN | EL TOP | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | FRICTL | JH2 | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 692.4 939.5 TYPE= 4 TARGET= 0.064

U/S FACE OF OLDSTEAD ROAD ROCKWOOD SECT. 19371.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.00 | 9.67 | 586.57 | 0.00 | 586.47 | 586.63 | 0.06 | 0.00 | 0.00 | 585.80 |
| 705. | 0. | 365. | 340. | 0. | 145. | 347. | 10. | 3. | 585.80 |
| 0.09 | 0.06 | 2.51 | 0.90 | 0.045 | 0.035 | 0.045 | 0.034 | 576.90 | 692.40 |
| 0.000464 | 1. | 1. | 1. | 0 | 0 | 0 | 0.00 | 247.15 | 939.50 |

*SECNO 5.000
2800 NAT Q1= 2108.51 WSEL= 586.56 ENC Q1= 2108.51 WSEL= 586.66 RATIO= 0.0000
NAT Q1= 2191. RATIOS LOB,CH,ROB= 0.2355 0.0993 0.6652 WSEL= 586.66

3470 ENCROACHMENT STATIONS= 85.1 566.9 TYPE= 4 TARGET= 0.037

750.FEET D/S OF D/S FACE OF OLDSTEAD RD.ROCKWOOD SECT. 20321.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.00 | 9.06 | 586.66 | 0.00 | 586.56 | 586.66 | 0.00 | 0.03 | 0.01 | 582.60 |
| 750. | 196. | 75. | 480. | 563. | 143. | 1539. | 35. | 9. | 580.00 |
| 0.79 | 1.30 | 0.53 | 0.32 | 0.043 | 0.035 | 0.043 | 0.035 | 576.90 | 63.06 |
| 0.000012 | 775. | 750. | 725. | 2 | 0 | 0 | 0.00 | 481.84 | 566.90 |

*SECNO 6.000
2800 NAT Q1= 1756.51 WSEL= 586.57 ENC Q1= 1756.55 WSEL= 586.67 RATIO= 0.0000
NAT Q1= 1338. RATIOS LOB,CH,ROB= 0.4410 0.1543 0.3847 WSEL= 586.67

3470 ENCROACHMENT STATIONS= 106.9 600.2 TYPE= 4 TARGET= 0.037

1450.FEET D/S OF D/S FACE OF OLDSTEAD ROCKWOOD SECT. 21621., CORP.LIMIT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.00 | 9.77 | 586.67 | 0.00 | 586.57 | 586.67 | 0.02 | 0.01 | 0.20 | 583.70 |
| 730. | 336. | 117. | 278. | 925. | 205. | 746. | 67. | 16. | 582.40 |
| 1.19 | 0.36 | 0.97 | 0.37 | 0.045 | 0.035 | 0.045 | 0.035 | 578.90 | 186.96 |
| 0.000017 | 675. | 700. | 725. | 0 | 0 | 0 | 0.00 | 413.27 | 600.22 |

CONV= 0.300 SPLV= 0.50

*SECNO 1944.000
2800 NAT Q1= 471.23 WSEL= 586.59 ENC Q1= 471.23 WSEL= 586.69 RATIO= 0.0000
NAT Q1= 183. RATIOS LOB,CH,ROB= 0.3421 0.5439 0.1140 WSEL= 586.69

3470 ENCROACHMENT STATIONS= 127.9 379.3 TYPE= 4 TARGET= 0.066

X-SECTION D/S OF WOODRUFF RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1944.00 | 5.99 | 586.69 | 0.00 | 586.59 | 586.07 | 0.19 | 0.11 | 0.09 | 583.15 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 730. | 241. | 426. | 63. | 276. | 94. | 82. | 113. | 29. | 584.07 |
| 1.36 | 0.87 | 4.52 | 0.77 | 0.100 | 0.040 | 0.100 | 0.043 | 580.70 | 127.95 |
| 0.001830 | 1400. | 2450. | 1944. | 3 | 0 | 0 | 0.00 | 251.33 | 379.28 |

*SECNO 2044.000

3470 ENCROACHMENT STATIONS= 94.0 428.0 TYPE= 1 TARGET= 334.000

D/S FACE OF HOODRUFF RD. BRIDGE REPEATED SECT. 1944

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2044.00 | 6.12 | 586.62 | 0.00 | 586.71 | 587.10 | 0.36 | 0.22 | 0.09 | 583.13 |
| 730. | 127. | 940. | 63. | 179. | 97. | 92. | 114. | 30. | 584.07 |
| 1.37 | 0.71 | 5.59 | 0.69 | 0.100 | 0.040 | 0.100 | 0.043 | 580.70 | 94.00 |
| 0.002706 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 334.00 | 428.00 |

*SECNO 2045.000

| SECNO | DEPTH | CHSEL | CCHNS | ASELK | ES | HV | NL | WLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | UTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | XH2 | ICONT | CORAR | TOPWID | EXDST |

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 585.63 MAX ELLC= 584.07

1 FOOT INSIDE OF D/S FACE OF BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2045.00 | 6.51 | 587.21 | 0.00 | 587.13 | 587.27 | 0.06 | 0.00 | 0.09 | 583.13 |
| 730. | 378. | 144. | 208. | 280. | 40. | 159. | 114. | 30. | 584.07 |
| 1.37 | 1.35 | 3.59 | 1.31 | 0.070 | 0.025 | 0.070 | 0.043 | 580.70 | 75.70 |
| 0.002972 | 1. | 1. | 1. | 4 | 0 | 0 | -67.14 | 374.61 | 450.30 |

*ECNO 2074.000

3370 NORMAL BRIDGE,NRD= 3 MIN ELTRD= 585.63 MAX ELLC= 584.07

1 FOOT INSIDE OF D/S FACE OF BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2074.00 | 6.62 | 587.32 | 0.00 | 587.26 | 587.34 | 0.02 | 0.05 | 0.01 | 583.13 |
| 403. | 262. | 67. | 145. | 304. | 43. | 173. | 114. | 30. | 584.07 |
| 1.48 | 0.86 | 2.13 | 0.84 | 0.070 | 0.025 | 0.070 | 0.043 | 580.70 | 75.67 |
| 0.001290 | 20. | 20. | 20. | 2 | 0 | 0 | -69.08 | 374.66 | 450.35 |

*SECNO 2075.000

D/S FACE OF HOODRUFF RD. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2075.00 | 6.39 | 587.29 | 0.00 | 587.24 | 587.33 | 0.07 | 0.00 | 0.02 | 583.13 |
| 445. | 182. | 209. | 74. | 301. | 105. | 172. | 114. | 30. | 584.07 |
| 1.33 | 0.44 | 2.75 | 0.43 | 0.100 | 0.040 | 0.100 | 0.043 | 580.70 | 75.68 |
| 0.000588 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 374.65 | 650.32 |

*SECNO 2100.000

D-SECTION D/S OF HOODRUFF RD. REPEATED SECT. 2075.5

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2100.30 | 6.61 | 587.31 | 0.00 | 587.25 | 587.38 | 0.07 | 0.01 | 0.00 | 583.13 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 495. | 134. | 286. | 75. | 306. | 105. | 175. | 114. | 30. | 584.07 |
| 1.38 | 0.44 | 2.72 | 0.43 | 0.100 | 0.040 | 0.100 | 0.043 | 580.70 | 75.67 |
| 0.000571 | 25. | 25. | 25. | 0 | 0 | 0 | 0.00 | 374.66 | 450.33 |

*SECNO 3073.000

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3073.00 | 6.66 | 587.74 | 0.00 | 587.71 | 587.77 | 0.02 | 0.38 | 0.01 | 581.78 |
| 695. | 22. | 199. | 314. | 45. | 76. | 829. | 132. | 40. | 581.78 |
| 1.67 | 0.49 | 2.10 | 0.36 | 0.100 | 0.045 | 0.100 | 0.042 | 581.08 | 278.96 |
| 0.000277 | 973. | 973. | 973. | 2 | 0 | 0 | 0.00 | 515.28 | 792.22 |

CCHV= 0.100 CEHV= 0.300

*SECNO 4573.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | AL | LOSS | BANK ELEV |
| 0 | SQOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IN2 | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4573.00 | 6.47 | 588.37 | 0.00 | 588.36 | 588.47 | 0.10 | 0.68 | 0.02 | 583.10 |
| 495. | 97. | 280. | 118. | 279. | 82. | 272. | 160. | 59. | 583.10 |
| 1.37 | 0.35 | 3.40 | 0.43 | 0.120 | 0.040 | 0.120 | 0.041 | 581.90 | 835.85 |
| 0.000636 | 1350. | 1500. | 1650. | 1 | 0 | 0 | 0.00 | 536.07 | 1422.72 |

CCHV= 0.300 CEHV= 0.500

*SECNO 6337.500

X-SELTION D/S OF BRIDGE S. OF GIBRALTAR RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6337.50 | 4.77 | 589.60 | 0.00 | 589.60 | 589.67 | 0.07 | 1.19 | 0.01 | 584.96 |
| 495. | 103. | 242. | 150. | 96. | 65. | 132. | 179. | 72. | 584.68 |
| 2.12 | 1.37 | 2.65 | 1.94 | 0.070 | 0.033 | 0.070 | 0.040 | 584.83 | 228.87 |
| 0.000571 | 1763. | 1765. | 1763. | 2 | 2 | 0 | 0.00 | 97.00 | 925.37 |

*SECNO 6527.000

3429 ENCROACHMENT STATIONS= 80.0 170.0 TYPE= 1 TARGET= 90.000

1: D/S OF ORDINWAY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6527.00 | 4.93 | 589.73 | 0.00 | 589.73 | 589.81 | 0.08 | 0.13 | 0.00 | 585.50 |
| 495. | 175. | 47. | 273. | 79. | 132. | 110. | 181. | 72. | 585.50 |
| 2.13 | 2.23 | 0.35 | 2.48 | 0.040 | 0.350 | 0.040 | 0.047 | 584.60 | 80.00 |
| 0.000839 | 193. | 190. | 190. | 0 | 0 | 0 | 0.00 | 90.00 | 170.00 |

*SECNO 6537.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 592.40 ELREA= 592.40

1: D/S OF DAIRE RD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6537.50 | 4.81 | 589.91 | 0.00 | 589.81 | 589.85 | 0.04 | 0.02 | 0.01 | 586.50 |
| 495. | 0. | 495. | 0. | 0. | 317. | 0. | 181. | 72. | 586.50 |

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     2.15      0.00      1.56      0.00     0.040     0.350     0.040     0.047    585.00     99.00
 0.024439       10.       10.       10.         2         0         0      0.00     84.40    183.40

*SECNO 6538.500

3370 NORMAL BRIDGE,NBD= 25 MIN ELTRD=  592.60 MAX ELLC=  591.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       592.40 ELREA=       592.40

          D/S FACE OF DRIVEWAY

  6538.50      4.81    589.81      0.00    589.81    589.85      0.04      0.00      0.00    586.50
      495.        0.      495.        0.        0.      299.        0.      181.       72.    586.40
     2.15      0.00      1.66      0.00     0.040     0.025     0.040     0.047    585.00     99.00
 0.000152        1.        1.        1.         1         0         0    -22.59     84.40    183.40

*SECNO 6578.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        BLOSS    BANK ELEV
   H         CLOB      QCH       QROB      ALOB      ACH       AROB      VOL       THA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NBD= 25 MIN ELTRD=  592.60 MAX ELLC=  591.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       592.50 ELREA=       592.50

          U/S FACE OF DRIVEWAY

  6578.00      4.81    589.81      0.00    589.82    589.86      0.04      0.01      0.00    586.50
      495.        0.      495.        0.        0.      299.        0.      181.       72.    586.40
     2.16      0.00      1.66      0.00     0.040     0.025     0.040     0.047    585.00     99.00
 0.000152       40.       40.       40.         2         0         0    -22.56     84.40    183.40

*SECNO 6579.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       592.70 ELREA=       592.60

          1: U/S OF DRIVEWAY

  6579.00      4.82    589.82      0.00    589.82    589.86      0.04      0.00      0.00    586.50
      495.        0.      495.        0.        0.      317.        0.      181.       72.    586.40
     2.16      0.00      1.56      0.00     0.040     0.035     0.040     0.047    585.00     99.00
 0.000263        1.        1.        1.         0         0         0      0.00     84.40    183.40

*SECNO 6609.000

          50: U/S OF DRIVEWAY

  6609.00      4.88    589.78      0.00    589.79    589.94      0.16      0.02      0.06    589.00
      495.        1.      495.        1.        2.      150.        1.      181.       72.    589.40
     2.16      0.65      3.12      0.69     0.040     0.035     0.040     0.047    584.90    112.72
 0.001077       50.       50.       50.         2         0         0      0.00     54.56    167.28
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```
CCHV=   0.300 CEHV=   0.500
*SECNO 7174.000

3470 ENCROACHMENT STATIONS=      242.0      307.0  TYPE=      1  TARGET=      65.000

          X-SECTION D/S OF GIBRALTAR RD. BRIDGE

  7174.00      5.33    590.38      0.00    590.38    590.57      0.19      0.61      0.02    585.60
     495.       58.      322.      115.       46.       76.       77.      184.       73.    585.60
     2.21      1.26      4.26      1.49     0.070     0.035     0.070     0.046    505.05    242.00
 0.001163      547.      547.      547.         2         0         0      0.00     65.00    307.00

*SECNO 7274.000

3470 ENCROACHMENT STATIONS=      169.0      389.0  TYPE=      1  TARGET=     200.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      593.30 ELREA=      393.30

          D/S FACE OF GIBRALTAR RD. BRIDGE

  7274.00      5.26    590.31      0.00    590.31    591.00      0.53      0.18      0.25    585.60
     495.        0.      495.        0.        0.       73.        0.      184.       73.    585.60
     2.21      0.00      6.64      0.00     0.070     0.035     0.070     0.046    505.05    289.15
 0.003195      100.      100.      100.         2         0         0      0.00     14.95    304.10

SPECIAL BRIDGE

SB   XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       2.57       3.00       0.00      12.20       0.00      84.00      0.00      582.50     585.05

*SECNO 7373.000
   SECNO     DEPTH     CWSEL     CRIMS     WSELK     BG        KV        EL        OLCSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTX       QLMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    EH2       ICONT     CORAR     TOPWID    ENDST

PRESSURE FLOW

 EGPRS      EBLWC      FB        OWEIR      GPR       BAREA     TRAPEZOID      ELLC      ELTRD
                                                                  AREA
  591.70     590.08     0.00        0.      495.       84.        84.       589.36     592.37

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      592.53 ELREA=      592.37

                                                                  Δ=1.4

          U/S FACE OF GIBRALTAR RD. BRIDGE

  7373.00      6.20    591.25      0.00    591.26    591.70      0.44      0.70      0.00    585.05
     495.        0.      495.        0.        0.       93.        0.      184.       73.    585.05
     2.22      0.00      5.33      0.00     0.070     0.035     0.070     0.046    505.05    489.15
 0.002196       99.       99.       99.         2         0         0      0.00     14.95    504.10

*SECNO 7398.000
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3470 ENCROACHMENT STATIONS=      400.0      633.0  TYPE=      1  TARGET=      233.000

          X-SECTION U/S OF GIBRALTAR RD. BRIDGE

   7328.00      6.54    591.59      0.00    591.59    591.80      0.21      0.03      0.07    585.05
      495.       48.      396.       51.       40.       98.       43.      134.       73.    585.05
      2.82      1.18      4.05      1.19     0.070     0.035     0.070     0.046    585.05    476.78
  0.00075       25.       25.       25.         2         0         0      0.00     40.40    517.18

 CCHV=   0.100 CEHV=   0.300
 *SECNO 8573.000
  2800 NAT Q1=    240.43  WSEL=    592.40  ENC Q1=    240.43  WSEL=    592.50  RATIO=  0.0000
  NAT Q1=    262.  RATIOS LOB,CH,ROB=  0.4866  0.4164  0.0970  WSEL=    592.50

 3470 ENCROACHMENT STATIONS=      818.6     1098.4  TYPE=      4  TARGET=        0.081

          VALLEY SECTION N. OF GIBRALTAR RD. BASED ON FIELD BOOK AND QUAD MAP

   8573.00      6.93    592.43      0.00    592.40    592.50      0.07      0.69      0.01    585.75
      495.      234.      231.       30.      364.       75.       49.      193.       78.    587.60
      2.40      0.64      3.07      0.60     0.070     0.035     0.070     0.045    585.50    818.63
  0.000469     1175.     1175.     1175.         2         0         0      0.00    279.76   1098.39

 CCHV=   0.100 CEHV=   0.300
 *SECNO 9000.000
  2800 NAT Q1=    166.72  WSEL=    592.59  ENC Q1=    166.72  WSEL=    592.69  RATIO=  0.0000
  NAT Q1=    181.  RATIOS LOB,CH,ROB=  0.3816  0.5575  0.0609  WSEL=    592.69

 3470 ENCROACHMENT STATIONS=      363.3     1063.7  TYPE=      4  TARGET=        0.077
   9000.00      6.65    592.63      0.00    592.59    592.80      0.17      0.26      0.03    586.23
      495.      178.      304.       13.      275.       72.       15.      197.       80.    588.08
      2.45      0.65      4.22      0.03     0.090     0.035     0.090     0.044    585.98    843.26
  0.000941      427.      427.      427.         2         0         0      0.00    220.45   1063.70

 *SECNO 9500.000
  2800 NAT Q1=    153.93  WSEL=    593.04  ENC Q1=    153.93  WSEL=    593.14  RATIO=  0.0000
  NAT Q1=    166.  RATIOS LOB,CH,ROB=  0.3591  0.5891  0.0518  WSEL=    593.14

 3470 ENCROACHMENT STATIONS=      849.2     1061.7  TYPE=      4  TARGET=        0.073
   9500.00      6.57    593.11      0.00    593.04    593.31      0.20      0.50      0.01    586.79
      495.      178.      318.        8.      252.       71.       10.      201.       82.    588.64
      2.49      0.67      4.47      0.76     0.090     0.035     0.090     0.044    586.54    849.16
  0.001074      500.      500.      500.         2         0         0      0.00    212.56   1061.75

 *SECNO 10173.000
  2800 NAT Q1=    144.45  WSEL=    593.76  ENC Q1=    144.45  WSEL=    593.86  RATIO=  0.0000
  NAT Q1=    153.  RATIOS LOB,CH,ROB=  0.2381  0.5190  0.2429  WSEL=    593.86
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        BLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IR2       ICONT     CORAR     TOPWID     ENCST

 3470 ENCROACHMENT STATIONS=      216.5      360.4  TYPE=      4  TARGET=        0.097

          VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

  10173.00      6.75    593.85      0.00    593.76    594.08      0.23      0.76      0.01    587.20
      495.      118.      278.      112.      125.       53.      103.      206.       85.    587.10
```

```
     2.55      0.89      5.16      1.09     0.090     0.035     0.090     0.043    587.10    216.47
 0.001186      673.      673.      673.         2         0         0      0.00    143.88    360.35

*SECNO 11673.000
 2800 NAT Q1=    153.09  WSEL=    595.17  ENC Q1=    153.09  WSEL=    595.27  RATIO=  0.0000
 NAT Q1=    162.  RATIOS LOB,CH,ROB=  0.3421  0.5931  0.0649  WSEL=    595.27

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      145.4      309.2  TYPE=      4  TARGET=        0.055

          VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

 11673.00      6.51    595.27      0.00    595.17    595.41      0.16      1.32      0.01    588.81
     390.      129.      245.       15.      215.       65.       21.      215.       90.    588.76
     2.71      0.68      3.77      0.73     0.090     0.035     0.090     0.043    588.76    146.38
 0.000650      1300.     1530.     1800.         2         0         0      0.00    145.44    309.16

CCHV=   0.300 CEHV=   0.500
*SECNO 12355.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      692.0      808.0  TYPE=      1  TARGET=      116.000

          SECT.D/S OF R.R CULVERTS

 12356.00      5.93    595.81      0.00    595.71    596.14      0.33      0.63      0.09    590.00
     390.       21.      305.       64.       29.       59.       76.      219.       92.    590.00
     2.75      0.72      5.20      0.85     0.110     0.035     0.110     0.042    589.88    692.00
 0.001415      603.      603.      603.         2         0         0      0.00     96.91    808.00

*SECNO 12456.000

3670 ENCROACHMENT STATIONS=        1.0     1251.0  TYPE=      1  TARGET=     1250.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      602.60 ELRLA=      602.60

          D/S FACE OF DUAL 9: X 6.5: CMP:S

 12456.00      6.23    596.23      0.00    596.17    596.40      0.18      0.22      0.05    592.00
     390.        0.      390.        0.        0.      116.        0.      220.       92.    592.00
     2.77      0.00      3.37      0.00     0.110     0.035     0.110     0.042    590.00    739.00
 0.000943      191.      191.      191.         2         0         0      0.00     22.00    761.00

SPECIAL BRIDGE

SW  SK      XKOR      COFD      BDLEN      EUC       SWP       BAREA      SS       ELCHU     ELCHD
     0.00      3.23      3.00      0.00     11.65      0.00     77.00      0.00    590.40    590.00

*SECNO 12612.000
PRESSURE FLOW

EGRRS  [illegible]EGLWC      43      QWEIR      QPR      BAREA   TRA=CROID      ELLC      ELTRD
                                                                AREA
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  597.51    596.88      0.00        0.      390.       77.       71.      596.40    602.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      602.60 ELREA=      602.60

        DUAL CMP:S MEET DUAL BOX CULVERTS HERE.

 12612.00     6.91   597.31     0.00   597.25   597.51     0.20     1.11     0.00   591.40
     390.       0.     390.       0.       0.     108.       0.     220.      92.   591.40
     2.78     0.00     3.61     0.00    0.110    0.035    0.110    0.042   590.40   739.00
 0.001003     155.     156.     156.        2        0        0     0.00    17.00   756.00

SPECIAL BRIDGE

SB  XK        XKOR      CUFO      NDXEN     B.C       BWP       BAREA     SS        SLCHU     ELCHD
     1.25      1.74      3.00      0.00     16.67      1.00     94.00     0.00    590.40    590.40

*SECNO 12647.000
   SECNO     DEPTH     CWSEL     CRIHC     WSELK     EG        MV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XXR       WTH       GLMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPWID     ENDST

PRESSURE FLOW

 EGPRS      EGLWC      H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
  597.78    597.51     0.03        0.      390.       94.       94.      596.40    602.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      602.60 ELREA=      602.60

        U/S FACE OF R.R. CULVERTS

 12647.00     7.22   597.62     0.00   597.55   597.70     0.15     0.[illegible]     0.00   590.40
     390.       0.     393.       0.       0.     123.       0.     220.      92.   590.40
     2.78     0.00     3.18     0.00    0.110    0.035    0.110    0.042   590.40   739.00
 0.000640      35.      35.      35.        2        0        0     0.00    17.00   756.00

*SECNO 12680.000

3470 ENCROACHMENT STATIONS=      730.0     765.0  TYPE=      1  TARGET=      35.000

        XSECT.U/S OF R.R.CULVERT " D/S OF 98 CMP

 12680.00     6.95   597.67     0.00   597.62   597.80     0.12     0.02     0.01   590.74
     390.      20.     343.      27.      37.     118.      48.     221.      92.   590.74
     2.78     0.56     2.90     0.59    0.110    0.035    0.110    0.042   590.74   730.00
 0.000353      33.      33.      33.        2        0        0     0.00    35.00   765.00

*SECNO 12719.000

3470 ENCROACHMENT STATIONS=        1.0    1251.0  TYPE=      1  TARGET=    1250.000
```

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 598.50 ELREA= 598.50

D/S FACE OF 96 CMP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12715.00 | 6.77 | 597.67 | 0.00 | 597.60 | 597.86 | 0.19 | 0.02 | 0.04 | 592.00 |
| 390. | 0. | 390. | 0. | 0. | 111. | 0. | 221. | 92. | 592.00 |
| 2.79 | 0.00 | 3.50 | 0.00 | 0.110 | 0.035 | 0.110 | 0.042 | 590.90 | 739.00 |
| 0.000977 | 35. | 35. | 35. | 2 | 0 | 0 | 0.00 | 17.00 | 756.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 5.01 | 3.00 | 0.00 | 11.23 | 0.00 | 68.50 | 0.00 | 591.10 | 590.90 |

*SECNO 12979.000
WATER EL=X3 CARD= 593.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 602.60 ELREA= 602.60

D/S FACE OF 96 C.P

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12979.00 | 8.50 | 599.60 | 0.00 | 599.60 | 599.72 | 0.12 | 0.19 | 0.02 | 593.20 |
| 390. | 0. | 390. | 0. | 0. | 141. | 0. | 221. | 92. | 593.00 |
| 2.31 | 0.00 | 2.78 | 0.00 | 0.110 | 0.035 | 0.110 | 0.042 | 591.10 | 739.00 |
| 0.000534 | 264. | 264. | 264. | 0 | 0 | 0 | 0.00 | 17.00 | 756.00 |

*SECNO 13030.000

3470 ENCROACHMENT STATIONS= 747.0 860.0 TYPE= 1 TARGET= 120.000

ADJECT. U/S OF 96 CMP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13030.00 | 9.70 | 599.62 | 0.00 | 599.62 | 599.79 | 0.14 | 0.02 | 0.01 | 590.23 |
| 735. | 203. | 357. | 146. | 259. | 86. | 201. | 222. | 92. | 590.20 |
| 2.82 | 0.78 | 4.03 | 0.72 | 0.110 | 0.035 | 0.110 | 0.042 | 589.04 | 740.00 |
| 0.009444 | 51. | 51. | 51. | 2 | 0 | 0 | 0.00 | 18P.00 | 360.00 |

CCHV= 0.100 CEHV= 0.300
*SECNO 13473.000

| SECNO | DEPTH | CWSE | CRITWS | USELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | ALOB | WSEL | ORDB | ALOB | ACH | AROB | VOL | TRN | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XTR | HTS | ELMIN | SSTA |
| SLOPE | KLOB | KLCH | KROB | STRICL | FRP | ICONT | COARE | TOPWID | ELMST |

3470 ENCROACHMENT STATIONS= 950.0 950.0 TYPE= 3 TARGET= 350.000

VALLEY SECTION BASED ON FIELD BOOK A-3 GRID MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13473.00 | 9.66 | 599.85 | 0.00 | 599.83 | 599.80 | 5.04 | 0.12 | 0.01 | 590.54 |
| 735. | 344. | 244. | 147. | 642. | 95. | 350. | 230. | 95. | 590.54 |
| 2.92 | 0.53 | 2.56 | 0.42 | 0.100 | 0.035 | 0.100 | 0.042 | 590.79 | 690.00 |
| 0.000131 | 443. | 443. | 443. | 1 | 0 | 0 | 0.00 | 300.00 | 950.00 |

CCHV= 0.300 CEHV= 0.500
*SECNO 13909.000

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3470 ENCROACHMENT STATIONS= 600.0 900.0 TYPE= 1 TARGET= 300.000

XSECT. D/S OF VREELAND RD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13909.00 | 9.67 | 599.93 | 0.20 | 599.08 | 599.95 | 0.02 | 0.07 | 0.00 | 590.90 |
| 735. | 258. | 294. | 271. | 502. | 93. | 605. | 242. | 98. | 590.90 |
| 3.05 | 0.44 | 2.20 | 0.45 | 0.100 | 0.035 | 0.100 | 0.041 | 590.46 | 600.00 |
| 0.000139 | 436. | 436. | 436. | 2 | 0 | 0 | 0.00 | 300.00 | 900.00 |

*SECNO 14009.000

3470 ENCROACHMENT STATIONS= 550.0 850.0 TYPE= 1 TARGET= 300.000

D/S FACE OF VREELAND RD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14009.00 | 3.74 | 599.95 | 0.00 | 599.99 | 599.97 | 0.02 | 0.01 | 0.00 | 591.30 |
| 735. | 255. | 193. | 286. | 561. | 87. | 605. | 245. | 90. | 591.30 |
| 3.08 | 0.46 | 2.22 | 0.47 | 0.100 | 0.035 | 0.100 | 0.041 | 591.21 | 550.00 |
| 0.000153 | 100. | 100. | 100. | 0 | 0 | 0 | 0.00 | 300.00 | 850.00 |

SCHV= 0.300 CE(0= 0.500
*SECNO 14010.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 3 MIN ELTRD= 599.19 MAX ELLC= 598.50

3470 ENCROACHMENT STATIONS= 550.0 850.0 TYPE= 1 TARGET= 300.000

1 FOOT INSIDE OF D/S FACE OF CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14010.00 | 0.37 | 599.68 | 597.41 | 599.59 | 600.34 | 0.76 | 0.50 | 0.37 | 591.30 |
| 735. | 210. | 494. | 22. | 173. | 58. | 49. | 225. | 96. | 591.30 |
| 3.08 | 1.24 | 0.57 | 0.55 | 0.100 | 0.022 | 0.100 | 0.041 | 591.21 | 550.00 |
| 0.002308 | 1. | 1. | 1. | 6 | 0 | 0 | 1059.25 | 300.00 | 1100.00 |

*SECNO 14090.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 3 MIN ELTRD= 599.19 MAX ELLC= 598.50

3470 ENCROACHMENT STATIONS= 300.0 900.0 TYPE= 1 TARGET= 600.000

1 FOOT INSIDE OF D/S FACE OF CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14090.00 | 9.42 | 600.83 | 0.00 | 600.58 | 600.75 | 0.12 | 0.02 | 0.19 | 591.30 |
| 735. | 273. | 399. | 162. | 401. | 76. | 252. | 246. | 99. | 591.30 |
| 3.09 | 0.66 | 4.22 | 0.66 | 0.100 | 0.022 | 0.100 | 0.041 | 591.21 | 500.00 |
| 0.001427 | 80. | 81. | 80. | 4 | 0 | 0 | 1308.06 | 600.00 | 900.00 |

CSHV= 0.300 CE(0= 0.500

```
*SECNO 14091.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCR      XLOBR     ITRIAL    IW2       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      500.0      900.0  TYPE=      1  TARGET=      400.000

        U/S FACE OF VREELAND RD

 14091.00      9.56    600.77      0.00    600.64    600.78      0.01      0.00      0.03    591.30
     735.      325.      152.      257.     1052.      105.      931.      246.       99.    591.30
     3.09      0.31      1.46      0.28     0.100     0.030     0.100     0.041    591.21    500.00
 0.000043        1.        1.        1.         2         0         0      0.00    400.00    900.00

*SECNO 14116.000

3470 ENCROACHMENT STATIONS=      450.0      950.0  TYPE=      1  TARGET=      500.000

        X-SECT. U/S OF VREELAND RD

 14116.00      9.57    600.25      0.00    600.64    600.78      0.01      0.00      0.00    591.30
     735.      310.      144.      281.     1057.      105.     1110.      247.       99.    591.30
     3.11      0.29      1.37      0.25     0.100     0.030     0.100     0.041    591.21    498.54
 0.000030       25.       25.       25.         1         0         0      0.00    451.45    950.00

CCHV=   0.100 CBHV=   0.300
*SECNO 14673.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      375.0      375.0  TYPE=      1  TARGET=      600.000

        VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

 14673.00      5.74    600.31      0.00    600.66    600.52      0.01      0.03      0.00    592.67
     735.      290.      184.      322.      542.       68.      915.      275.      106.    592.57
     3.07      0.34      1.03      0.31     0.100     0.030     0.100     0.041    592.07    275.00
 0.000109      557.      557.      557.         0         0         0      0.00    570.09    875.00

CCHV=   0.300 CBHV=   0.300
*SECNO 15262.000

3470 ENCROACHMENT STATIONS=     1050.0     1600.0  TYPE=      1  TARGET=      550.000

        X-SECTION D/S OF TELEGRAPH RD.

 15262.00      8.55    600.38      0.00    600.72    600.87      0.01      0.05      0.00    592.60
     735.      344.       95.      296.     1033.       67.      589.      295.      112.    592.60
     3.65      0.33      1.41      0.43     0.090     0.040     0.090     0.041    592.31   1050.00
 0.000084      700.      589.      300.         1         0         0      0.00    500.32   1550.32

*SECNO 15362.000

3470 ENCROACHMENT STATIONS=     1125.0     1600.0  TYPE=      1  TARGET=      475.000

        D/S FACE OF TELEGRAPH RD. BRIDGE
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15362.00 | 8.53 | 600.84 | 0.00 | 600.70 | 600.93 | 0.09 | 0.02 | 0.04 | 597.20 |
| 735. | 163. | 449. | 123. | 340. | 151. | 236. | 298. | 113. | 597.20 |
| 3.66 | 0.48 | 2.98 | 0.52 | 0.090 | 0.040 | 0.090 | 0.041 | 592.31 | 1125.00 |
| 0.000611 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 450.14 | 1575.14 |

*SECNO 15363.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | KLOSL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 599.90 MAX ELLC= 597.20

3470 ENCROACHMENT STATIONS= 1125.0 1600.0 TYPE= 1 TARGET= 475.000

1 FOOT INSIDE D/S TELEGRAPH BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15363.00 | 0.39 | 600.90 | 0.00 | 600.77 | 600.94 | 0.04 | 0.00 | 0.01 | 597.20 |
| 735. | 272. | 350. | 203. | 354. | 705. | 244. | 296. | 113. | 597.20 |
| 3.66 | 0.76 | 2.62 | 0.32 | 0.060 | 0.025 | 0.060 | 0.041 | 592.31 | 1125.00 |
| 0.000644 | 1. | 1. | 1. | 2 | 0 | 0 | -44.40 | 450.15 | 1575.15 |

*SECNO 15434.000

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 599.90 MAX ELLC= 597.20

3470 ENCROACHMENT STATIONS= 1125.0 1600.0 TYPE= 1 TARGET= 475.000

1 FOOT INSIDE U/S END TELEGRAPH BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15434.00 | 8.64 | 600.95 | 0.00 | 600.82 | 600.99 | 0.04 | 0.04 | 0.00 | 597.20 |
| 735. | 276. | 234. | 205. | 364. | 103. | 254. | 295. | 114. | 597.20 |
| 3.68 | 0.75 | 2.34 | 0.31 | 0.060 | 0.025 | 0.060 | 0.041 | 592.31 | 1125.00 |
| 0.000597 | 71. | 71. | 71. | 0 | 0 | - | -44.41 | 450.15 | 1575.15 |

*SECNO 15435.000

3470 ENCROACHMENT STATIONS= 1125.0 1600.0 TYPE= 1 TARGET= 475.000

U/S FACE TELEGRAPH RD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15435.00 | 8.64 | 600.95 | 0.00 | 600.81 | 600.97 | 0.04 | 0.00 | 0.00 | 597.20 |
| 735. | 217. | 356. | 161. | 369. | 153. | 254. | 299. | 114. | 597.20 |
| 3.68 | 0.59 | 2.33 | 0.63 | 0.060 | 0.040 | 0.060 | 0.041 | 592.31 | 1125.00 |
| 0.000566 | 1. | 1. | 1. | 0 | 0 | - | 0.00 | 450.15 | 1575.15 |

*SECNO 15460.000

3470 ENCROACHMENT STATIONS= 1125.0 1600.0 TYPE= 1 TARGET= 475.000

PROJECT. U/S OF TELEGRAPH RD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15460.00 | 8.65 | 600.96 | 0.00 | 600.82 | 601.00 | 0.04 | 0.01 | 0.00 | 597.20 |
| 735. | 218. | 358. | 162. | 371. | 153. | 256. | 300. | 115. | 597.20 |
| 3.68 | 0.59 | 2.32 | 0.33 | 0.060 | 0.040 | 0.060 | 0.041 | 592.31 | 1125.00 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.000363 | 25. | 25. | 25. | 0 | 0 | 0 | 0.00 | 450.16 | 1575.16 |

CCHV= 0.100 CEHV= 0.300

*SECNO 16873.000

3470 ENCROACHMENT STATIONS= 275.0 775.0 TYPE= 1 TARGET= 500.000

VALLEY SECT BASED ON FIELD BOOK NO 800

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16873.00 | 8.63 | 601.[illegible] | 0.00 | 601.32 | 601.46 | 0.00 | 0.46 | 0.00 | 592.80 |
| 735. | 369. | 110. | 134. | 544. | 69. | 456. | 330. | 129. | 592.35 |
| 4.04 | 0.68 | 2.66 | 0.40 | 0.090 | 0.040 | 0.090 | 0.041 | 592.80 | 299.60 |
| 0.000292 | 1413. | 1413. | 1413. | 2 | 0 | 0 | 0.00 | 450.45 | 750.14 |

*SECNO 17673.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CLSEL | SRIUS | MSELX | EG | HV | FL | BLOWS | BANK ELEV |
| 0 | OLOB | BCH | BROB | ALOB | ACH | AROB | VOL | T.A | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IPZ | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 285.0 600.0 TYPE= 1 TARGET= 318.000

VALLEY SECTION AT CORP/LIMIT BROWNSTOWN/FLAT ROCK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17673.00 | 8.36 | 601.56 | 0.00 | 601.58 | 601.73 | 0.07 | 0.26 | 0.01 | 594.37 |
| 735. | 174. | 275. | 286. | 244. | 81. | 422. | 342. | 134. | 593.40 |
| 4.15 | 0.71 | 3.62 | 0.68 | 0.090 | 0.040 | 0.090 | 0.041 | 593.32 | 287.52 |
| 0.000533 | 900. | 800. | 300. | 1 | 0 | 0 | 0.00 | 314.13 | 601.65 |

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**********
HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SILVER CREEK

SUMMARY PRINTOUT TABLE 150

| SECNO | MLCH | ELTRD | ELLC | ELMIN | Q | CUSEL | CRIWS | EG | TOKAS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.00 | 0.00 | 0.00 | 577.70 | 705.00 | 586.48 | 0.00 | 586.48 | 0.14 | 0.63 | 1399.03 | 1895.45 |
| 0.000 | 0.00 | 0.00 | 0.00 | 577.70 | 705.00 | 586.58 | 0.00 | 586.58 | 0.13 | 0.62 | 1424.05 | 1949.05 |
| 1.000 | 450.00 | 0.00 | 0.00 | 576.90 | 705.00 | 586.47 | 0.00 | 586.51 | 3.80 | 2.23 | 527.43 | 361.68 |
| 1.000 | 450.00 | 0.00 | 0.00 | 576.90 | 705.00 | 586.57 | 0.00 | 586.61 | 3.81 | 2.24 | 490.70 | 361.31 |
| 2.000 | 1.00 | 586.20 | 583.90 | 576.90 | 705.00 | 586.47 | 0.00 | 586.51 | 2.62 | 0.99 | 471.26 | 435.41 |
| 2.000 | 1.00 | 586.20 | 583.90 | 576.90 | 705.00 | 586.57 | 0.00 | 586.61 | 2.66 | 1.00 | 435.21 | 432.56 |
| 3.000 | 46.00 | 584.20 | 583.90 | 576.90 | 705.00 | 586.49 | 0.00 | 586.53 | 2.51 | 0.97 | 476.26 | 444.91 |
| 3.000 | 46.00 | 584.20 | 583.90 | 576.90 | 705.00 | 586.56 | 0.00 | 586.63 | 2.54 | 0.99 | 442.85 | 441.96 |
| 4.000 | 1.00 | 0.00 | 0.00 | 576.90 | 705.00 | 586.47 | 0.00 | 586.53 | 4.90 | 2.53 | 528.52 | 318.43 |
| 4.000 | 1.00 | 0.00 | 0.00 | 576.90 | 705.00 | 586.57 | 0.00 | 586.63 | 4.96 | 2.51 | 492.03 | 317.18 |
| 5.000 | 730.00 | 0.00 | 0.00 | 578.60 | 730.00 | 586.56 | 0.00 | 586.56 | 0.12 | 0.52 | 2341.72 | 2108.51 |
| 5.000 | 730.00 | 0.00 | 0.00 | 578.60 | 730.00 | 586.66 | 0.00 | 586.66 | 0.12 | 0.53 | 2224.84 | 2106.99 |
| 6.000 | 700.00 | 0.00 | 0.00 | 578.90 | 730.00 | 586.57 | 0.00 | 586.57 | 0.17 | 0.56 | 1977.91 | 1766.85 |
| 6.000 | 700.00 | 0.00 | 0.00 | 578.90 | 730.00 | 586.67 | 0.00 | 586.67 | 0.17 | 0.57 | 1876.30 | 1763.33 |
| 1944.000 | 2450.00 | 0.00 | 0.00 | 580.70 | 730.00 | 586.39 | 0.00 | 586.77 | 18.13 | 4.46 | 517.61 | 171.23 |
| 1944.000 | 2450.00 | 0.00 | 0.00 | 580.70 | 730.00 | 586.69 | 0.00 | 586.88 | 18.30 | 4.52 | 459.36 | 170.67 |
| 2044.000 | 100.00 | 0.00 | 0.00 | 580.70 | 730.00 | 586.71 | 0.00 | 587.11 | 29.94 | 5.80 | 360.40 | 133.41 |
| 2044.000 | 100.00 | 0.00 | 0.00 | 580.70 | 730.00 | 586.82 | 0.00 | 587.18 | 27.09 | 5.59 | 366.96 | 140.33 |
| 2045.000 | 1.00 | 585.63 | 584.07 | 580.70 | 730.00 | 587.13 | 586.70 | 587.21 | 34.84 | 3.09 | 453.20 | 123.68 |
| 2045.000 | 1.00 | 585.63 | 584.07 | 580.70 | 730.00 | 587.21 | 0.00 | 587.27 | 29.72 | 3.59 | 479.00 | 133.91 |
| 2074.000 | 29.00 | 585.63 | 584.07 | 580.70 | 495.00 | 587.26 | 0.00 | 587.29 | 12.29 | 2.31 | 496.78 | 141.20 |
| 2074.000 | 29.00 | 585.63 | 584.07 | 580.70 | 495.00 | 587.32 | 0.00 | 587.34 | 10.92 | 2.18 | 517.45 | 149.91 |
| 2075.000 | 1.00 | 0.00 | 0.00 | 580.70 | 495.00 | 587.24 | 0.00 | 587.31 | 6.32 | 2.85 | 535.69 | 195.94 |
| 2075.000 | 1.00 | 0.00 | 0.00 | 580.70 | 495.00 | 587.29 | 0.00 | 587.36 | 5.88 | 2.75 | 578.00 | 204.16 |
| 2100.000 | 25.00 | 0.00 | 0.00 | 580.70 | 495.00 | 587.25 | 0.00 | 587.33 | 6.18 | 2.81 | 564.47 | 199.14 |
| 2100.000 | 25.00 | 0.00 | 0.00 | 580.70 | 495.00 | 587.31 | 0.00 | 587.38 | 5.71 | 2.72 | 585.87 | 207.08 |

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| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 1UK*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3073.000 | 973.00 | 0.00 | 0.00 | 581.08 | 495.00 | 587.71 | 0.00 | 587.74 | 2.89 | 2.14 | 934.53 | 291.38 |
| 3073.000 | 973.00 | 0.00 | 0.00 | 581.08 | 495.00 | 587.74 | 0.00 | 587.77 | 2.77 | 2.10 | 950.03 | 297.15 |
| 4573.000 | 1500.00 | 0.00 | 0.00 | 581.90 | 495.00 | 588.36 | 0.00 | 588.47 | 8.23 | 3.43 | 626.93 | 172.57 |
| 4573.000 | 1500.00 | 0.00 | 0.00 | 581.90 | 495.00 | 588.37 | 0.00 | 588.47 | 8.06 | 3.40 | 633.77 | 174.30 |
| 6337.500 | 1764.50 | 0.00 | 0.00 | 584.83 | 495.00 | 589.60 | 0.00 | 589.68 | 5.69 | 2.85 | 313.04 | 207.45 |
| 6337.500 | 1764.50 | 0.00 | 0.00 | 584.83 | 495.00 | 589.60 | 0.00 | 589.67 | 5.71 | 2.85 | 312.68 | 207.12 |
| 6527.000 | 190.00 | 0.00 | 0.00 | 584.80 | 495.00 | 589.73 | 0.00 | 589.81 | 8.65 | 0.35 | 321.53 | 168.34 |
| 6527.000 | 190.00 | 0.00 | 0.00 | 584.80 | 495.00 | 589.73 | 0.00 | 589.81 | 8.69 | 0.35 | 321.09 | 167.93 |
| 6537.500 | 10.00 | 0.00 | 0.00 | 585.00 | 495.00 | 589.81 | 0.00 | 589.85 | 243.71 | 1.56 | 317.06 | 31.71 |
| 6537.500 | 10.00 | 0.00 | 0.00 | 585.00 | 495.00 | 589.81 | 0.00 | 589.85 | 244.39 | 1.56 | 316.79 | 31.68 |
| 6538.500 | 1.00 | 592.60 | 591.80 | 585.00 | 495.00 | 589.81 | 0.00 | 589.85 | 1.51 | 1.66 | 298.09 | 402.31 |
| 6538.500 | 1.00 | 592.60 | 591.80 | 585.00 | 495.00 | 589.81 | 0.00 | 589.85 | 1.52 | 1.66 | 298.68 | 401.84 |
| 6578.000 | 39.50 | 592.60 | 591.80 | 585.00 | 495.00 | 589.82 | 0.00 | 589.86 | 1.51 | 1.66 | 298.85 | 402.23 |
| 6578.000 | 39.50 | 592.60 | 591.80 | 585.00 | 495.00 | 589.81 | 0.00 | 589.86 | 1.52 | 1.66 | 298.64 | 401.76 |
| 6579.000 | 1.00 | 0.00 | 0.00 | 585.00 | 495.00 | 589.82 | 0.00 | 589.86 | 2.43 | 1.56 | 317.43 | 317.68 |
| 6579.000 | 1.00 | 0.00 | 0.00 | 585.00 | 495.00 | 589.82 | 0.00 | 589.86 | 2.43 | 1.56 | 317.18 | 317.28 |
| 6609.000 | 30.00 | 0.00 | 0.00 | 584.90 | 495.00 | 589.79 | 0.00 | 589.94 | 10.73 | 3.12 | 161.18 | 151.08 |
| 6609.000 | 30.00 | 0.00 | 0.00 | 584.90 | 495.00 | 589.78 | 0.00 | 589.94 | 10.77 | 3.12 | 161.01 | 150.84 |
| 7174.000 | 567.00 | 0.00 | 0.00 | 585.05 | 495.00 | 590.36 | 0.00 | 590.57 | 11.62 | 4.25 | 198.96 | 145.20 |
| 7174.000 | 567.00 | 0.00 | 0.00 | 585.05 | 495.00 | 590.36 | 0.00 | 590.57 | 11.63 | 4.26 | 198.80 | 145.12 |
| 7274.000 | 100.00 | 0.00 | 0.00 | 585.05 | 495.00 | 590.31 | 0.00 | 591.00 | 31.91 | 8.64 | 74.57 | 87.62 |
| 7274.000 | 100.00 | 0.00 | 0.00 | 585.05 | 495.00 | 590.31 | 0.00 | 591.03 | 31.75 | 8.64 | 74.54 | 87.57 |
| 7373.000 | 99.00 | 592.37 | 589.36 | 585.05 | 495.00 | 591.26 | 0.00 | 591.70 | 21.26 | 5.35 | 92.34 | 105.67 |
| 7373.000 | 99.00 | 592.37 | 589.36 | 585.05 | 495.00 | 591.25 | 0.00 | 591.70 | 21.96 | 5.35 | 92.81 | 105.62 |
| 7398.000 | 25.00 | 0.00 | 0.00 | 585.05 | 495.00 | 591.59 | 0.00 | 591.80 | 7.53 | 4.05 | 181.02 | 180.62 |
| 7398.000 | 25.00 | 0.00 | 0.00 | 585.05 | 495.00 | 591.59 | 0.00 | 591.80 | 7.52 | 4.05 | 180.94 | 180.52 |
| 8573.000 | 1175.00 | 0.00 | 0.00 | 585.50 | 495.00 | 592.40 | 0.00 | 592.46 | 4.54 | 2.91 | 600.60 | 240.43 |
| 8573.000 | 1175.00 | 0.00 | 0.00 | 585.50 | 495.00 | 592.43 | 0.00 | 592.50 | 4.69 | 3.07 | 480.76 | 228.68 |
| 9000.000 | 427.00 | 0.00 | 0.00 | 586.98 | 495.00 | 592.59 | 0.00 | 592.74 | 8.82 | 4.07 | 439.27 | 166.72 |
| 9000.000 | 427.00 | 0.00 | 0.00 | 586.98 | 495.00 | 592.63 | 0.00 | 592.80 | 9.41 | 4.22 | 382.32 | 161.39 |
| 9500.000 | 500.00 | 0.00 | 0.00 | 586.54 | 495.00 | 593.06 | 0.00 | 593.23 | 10.34 | 4.36 | 412.81 | 153.93 |
| 9500.000 | 500.00 | 0.00 | 0.00 | 586.54 | 495.00 | 593.11 | 0.00 | 593.31 | 10.74 | 4.47 | 333.22 | 151.07 |
| 10173.000 | 673.00 | 0.00 | 0.00 | 587.10 | 495.00 | 593.76 | 0.00 | 593.90 | 11.74 | 5.08 | 325.43 | 144.45 |
| 10173.000 | 673.00 | 0.00 | 0.00 | 587.10 | 495.00 | 593.69 | 0.00 | 594.06 | 11.06 | 5.16 | 279.09 | 143.72 |
| 11673.000 | 1500.00 | 0.00 | 0.00 | 588.76 | 495.00 | 595.17 | 0.00 | 595.31 | 6.49 | 3.73 | 336.41 | 155.09 |
| 11673.000 | 1500.00 | 0.00 | 0.00 | 588.76 | 495.00 | 595.27 | 0.00 | 595.41 | 6.50 | 3.77 | 300.37 | 152.98 |
| 12356.000 | 683.00 | 0.00 | 0.00 | 589.68 | 495.00 | 595.71 | 0.00 | 596.06 | 15.26 | 5.34 | 154.51 | 99.84 |
| 12356.000 | 683.00 | 0.00 | 0.00 | 589.68 | 495.00 | 595.81 | 0.00 | 596.14 | 14.15 | 5.20 | 163.52 | 103.69 |

PRINTED IN U.S.A.
FORM 1411-OD PRINTED BY ROTARY MANIFOLD FORMS

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12456.000 | 191.00 | 0.00 | 0.00 | 590.00 | 390.00 | 596.17 | 0.00 | 596.35 | 9.77 | 3.40 | 114.55 | 124.79 |
| | 12456.000 | 191.00 | 0.00 | 0.00 | 590.00 | 390.00 | 596.23 | 0.00 | 596.40 | 9.43 | 3.37 | 115.88 | 127.03 |
| | 12612.000 | 156.00 | 602.60 | 596.40 | 590.40 | 390.00 | 597.25 | 0.00 | 597.45 | 10.34 | 3.65 | 106.82 | 121.30 |
| | 12612.000 | 156.00 | 602.60 | 596.40 | 590.40 | 390.00 | 597.31 | 0.00 | 597.51 | 10.03 | 3.61 | 107.91 | 123.17 |
| | 12647.000 | 35.00 | 602.60 | 596.40 | 590.40 | 390.00 | 597.55 | 0.00 | 597.71 | 6.58 | 3.21 | 121.59 | 152.06 |
| | 12647.000 | 35.00 | 602.60 | 596.40 | 590.40 | 390.00 | 597.62 | 0.00 | 597.78 | 6.40 | 3.18 | 122.73 | 154.16 |
| | 12660.000 | 33.00 | 0.00 | 0.00 | 590.74 | 390.00 | 597.62 | 0.00 | 597.74 | 3.65 | 2.95 | 198.71 | 204.24 |
| | 12660.000 | 33.00 | 0.00 | 0.00 | 590.74 | 390.00 | 597.69 | 0.00 | 597.80 | 3.53 | 2.90 | 201.04 | 207.65 |
| | 12715.000 | 55.00 | 0.00 | 0.00 | 590.90 | 390.00 | 597.60 | 0.00 | 597.80 | 10.07 | 3.54 | 110.16 | 122.92 |
| | 12715.000 | 55.00 | 0.00 | 0.00 | 590.90 | 390.00 | 597.67 | 0.00 | 597.86 | 9.77 | 3.50 | 111.28 | 124.80 |
| * | 12979.000 | 264.00 | 100000.00 | 100000.00 | 591.10 | 390.00 | 599.60 | 0.00 | 599.72 | 5.36 | 2.78 | 140.50 | 168.41 |
| * | 12979.000 | 264.00 | 100000.00 | 100000.00 | 591.10 | 390.00 | 599.60 | 0.00 | 599.72 | 5.36 | 2.78 | 140.50 | 168.41 |
| | 13030.000 | 51.00 | 0.00 | 0.00 | 589.84 | 735.00 | 599.62 | 0.00 | 599.75 | 4.44 | 4.03 | 556.75 | 348.93 |
| | 13030.000 | 51.00 | 0.00 | 0.00 | 589.84 | 735.00 | 599.62 | 0.00 | 599.75 | 4.44 | 4.03 | 556.75 | 348.93 |
| | 13473.000 | 443.00 | 0.00 | 0.00 | 590.19 | 735.00 | 599.83 | 0.00 | 599.83 | 1.99 | 2.01 | 1671.77 | 697.10 |
| | 13473.000 | 443.00 | 0.00 | 0.00 | 590.19 | 735.00 | 599.85 | 0.00 | 599.88 | 1.81 | 2.56 | 1087.73 | 546.56 |
| | 13909.000 | 436.00 | 0.00 | 0.00 | 590.46 | 735.00 | 599.88 | 0.00 | 599.89 | 0.71 | 1.57 | 2229.33 | 872.95 |
| | 13909.000 | 436.00 | 0.00 | 0.00 | 590.46 | 735.00 | 599.93 | 0.00 | 599.95 | 1.39 | 2.20 | 1279.78 | 622.90 |
| | 14009.000 | 100.00 | 0.00 | 0.00 | 591.21 | 735.00 | 599.89 | 0.00 | 599.90 | 0.99 | 1.76 | 2036.33 | 739.82 |
| | 14009.000 | 100.00 | 0.00 | 0.00 | 591.21 | 735.00 | 599.96 | 0.00 | 599.97 | 1.53 | 2.22 | 1252.31 | 593.47 |
| | 14010.000 | 1.00 | 599.19 | 598.50 | 591.21 | 735.00 | 599.55 | 598.11 | 600.25 | 70.46 | 8.28 | 314.24 | 87.57 |
| | 14010.000 | 1.00 | 599.19 | 598.50 | 591.21 | 735.00 | 599.58 | 597.41 | 600.34 | 73.00 | 8.47 | 274.56 | 85.96 |
| | 14090.000 | 80.00 | 599.19 | 598.50 | 591.21 | 735.00 | 600.56 | 0.00 | 600.62 | 11.41 | 3.71 | 907.61 | 219.48 |
| | 14090.000 | 80.00 | 599.19 | 598.50 | 591.21 | 735.00 | 600.63 | 0.00 | 600.75 | 14.27 | 4.22 | 723.50 | 194.57 |
| | 14091.000 | 1.00 | 1.00 | 0.00 | 591.21 | 735.00 | 600.66 | 0.00 | 600.64 | 0.34 | 1.20 | 2732.65 | 1262.78 |
| | 14091.000 | 1.00 | 1.00 | 0.00 | 591.21 | 735.00 | 600.77 | 0.00 | 600.78 | 0.43 | 1.46 | 2037.79 | 1120.60 |
| | 14116.000 | 25.00 | 1.00 | 0.00 | 591.21 | 735.00 | 600.66 | 0.00 | 600.64 | 0.34 | 1.20 | 2736.72 | 1266.35 |
| | 14116.000 | 25.00 | 1.00 | 0.00 | 591.21 | 735.00 | 600.78 | 0.00 | 600.78 | 0.38 | 1.37 | 2271.58 | 1168.91 |
| | 14673.000 | 557.00 | 0.00 | 0.00 | 592.07 | 735.00 | 600.66 | 0.00 | 600.67 | 1.10 | 1.81 | 1986.87 | 701.04 |
| | 14673.000 | 557.00 | 0.00 | 0.00 | 592.07 | 735.00 | 600.81 | 0.00 | 600.82 | 1.09 | 1.83 | 1826.94 | 703.37 |
| | 15262.000 | 589.00 | 0.00 | 0.00 | 592.31 | 735.00 | 600.72 | 0.00 | 600.73 | 0.95 | 1.47 | 1730.69 | 758.41 |
| | 15262.000 | 589.00 | 0.00 | 0.00 | 592.31 | 735.00 | 600.86 | 0.00 | 600.87 | 0.84 | 1.41 | 1809.72 | 799.64 |
| | 15362.000 | 100.00 | 0.00 | 0.00 | 592.31 | 735.00 | 600.70 | 0.00 | 600.79 | 6.50 | 3.04 | 767.30 | 288.37 |
| | 15362.000 | 100.00 | 0.00 | 0.00 | 592.31 | 735.00 | 600.84 | 0.00 | 600.93 | 6.11 | 2.98 | 726.29 | 297.38 |
| | 15363.000 | 1.00 | 599.90 | 597.20 | 592.31 | 735.00 | 600.77 | 0.00 | 600.80 | 6.72 | 2.43 | 761.26 | 283.36 |
| | 15363.000 | 1.00 | 599.90 | 597.20 | 592.31 | 735.00 | 600.90 | 0.00 | 600.94 | 6.44 | 2.42 | 710.13 | 289.61 |
| | 15434.000 | 71.00 | 599.90 | 597.20 | 592.31 | 735.00 | 600.82 | 0.00 | 600.83 | 6.13 | 2.34 | 787.76 | 296.85 |
| | 15434.000 | 71.00 | 599.90 | 597.20 | 592.31 | 735.00 | 600.95 | 0.00 | 600.99 | 5.97 | 2.34 | 729.92 | 306.76 |

PRINTED IN U.S.A.
FORM 1011-DD-PRINTED BY ROTARY MANIFOLD FORMS

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15435.000 | 1.00 | 0.00 | 0.00 | 592.31 | 735.00 | 600.81 | 0.00 | 600.86 | 3.76 | 2.34 | 834.37 | 378.96 |
| 15435.000 | 1.00 | 0.00 | 0.00 | 592.31 | 735.00 | 600.95 | 0.00 | 600.99 | 3.66 | 2.33 | 776.19 | 303.93 |
| 15460.000 | 25.00 | 0.00 | 0.00 | 592.31 | 735.00 | 600.82 | 0.00 | 600.87 | 3.72 | 2.32 | 838.78 | 361.31 |
| 15460.000 | 25.00 | 0.00 | 0.00 | 592.31 | 735.00 | 600.96 | 0.00 | 601.00 | 3.63 | 2.32 | 779.59 | 385.94 |
| 16873.000 | 1413.00 | 0.00 | 0.00 | 592.80 | 735.00 | 601.32 | 0.00 | 601.36 | 3.26 | 2.78 | 1020.79 | 407.15 |
| 16073.000 | 1413.00 | 0.00 | 0.00 | 592.80 | 735.00 | 601.43 | 0.00 | 601.46 | 2.92 | 2.66 | 1068.52 | 430.56 |
| 17673.000 | 800.00 | 0.00 | 0.00 | 593.32 | 735.00 | 601.58 | 0.00 | 601.66 | 5.74 | 3.53 | 723.95 | 306.85 |
| 17673.000 | 800.00 | 0.00 | 0.00 | 593.32 | 735.00 | 601.66 | 0.00 | 601.73 | 5.33 | 3.42 | 746.57 | 318.44 |

PRINTED IN U.S.A.
FORM 1811-GS PRINTED BY ROTARY-MANIFOLD FORMS

SILVER CREEK

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CHSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 0.050 | 705.00 | 586.48 | 0.00 | 0.00 | 0.00 | 250.00 | 0.00 |
| 0.000 | 705.00 | 586.58 | 0.00 | 0.00 | 0.10 | 250.00 | 0.00 |
| 1.000 | 705.00 | 586.47 | 0.00 | -0.01 | 0.00 | 372.28 | 450.00 |
| 1.000 | 705.00 | 586.57 | 0.00 | -0.01 | 0.10 | 249.38 | 450.00 |
| 2.000 | 705.00 | 586.47 | 0.00 | 0.00 | 0.00 | 371.25 | 1.00 |
| 2.000 | 705.00 | 586.57 | 0.00 | 0.00 | 0.09 | 247.10 | 1.00 |
| 3.000 | 705.00 | 586.49 | 0.00 | 0.01 | 0.00 | 373.60 | 46.00 |
| 3.000 | 705.00 | 586.59 | 0.00 | 0.01 | 0.10 | 252.23 | 46.00 |
| 4.000 | 705.00 | 586.47 | 0.00 | -0.01 | 0.00 | 372.65 | 1.00 |
| 4.000 | 705.00 | 586.57 | 0.00 | -0.01 | 0.10 | 247.10 | 1.00 |
| 5.000 | 730.00 | 586.56 | 0.00 | 0.09 | 0.00 | 595.87 | 730.00 |
| 5.000 | 730.00 | 586.66 | 0.00 | 0.09 | 0.10 | 451.56 | 730.00 |
| 6.000 | 730.00 | 586.57 | 0.00 | 0.01 | 0.00 | 499.70 | 700.00 |
| 6.000 | 730.00 | 586.67 | 0.00 | 0.01 | 0.10 | 413.27 | 700.00 |
| 1944.000 | 730.00 | 586.59 | 0.00 | 0.02 | 0.00 | 374.50 | 2450.00 |
| 1944.000 | 730.00 | 586.69 | 0.00 | 0.02 | 0.09 | 251.33 | 2450.00 |
| 2044.000 | 730.00 | 586.71 | 0.00 | 0.12 | 0.00 | 374.36 | 100.00 |
| 2044.000 | 730.00 | 586.82 | 0.00 | 0.13 | 0.11 | 334.30 | 100.00 |
| 2045.000 | 730.00 | 587.13 | 0.00 | 0.42 | 0.00 | 374.57 | 1.00 |
| 2045.000 | 730.00 | 587.23 | 0.00 | 0.39 | 0.06 | 373.61 | 1.00 |
| 2074.000 | 495.00 | 587.26 | 0.00 | 0.13 | 0.00 | 374.63 | 29.00 |
| 2074.000 | 495.00 | 587.32 | 0.00 | 0.11 | 0.06 | 374.66 | 29.00 |
| 2075.000 | 495.00 | 587.24 | 0.00 | -0.02 | 0.00 | 374.62 | 1.00 |
| 2075.000 | 495.00 | 587.29 | 0.00 | -0.02 | 0.06 | 374.65 | 1.00 |
| 2100.000 | 495.00 | 587.25 | 0.00 | 0.02 | 0.00 | 374.65 | 25.00 |
| 2100.000 | 495.00 | 587.31 | 0.00 | 0.02 | 0.06 | 374.66 | 25.00 |
| 3073.000 | 495.00 | 587.71 | 0.00 | 0.48 | 0.00 | 510.42 | 973.00 |
| 3073.000 | 495.00 | 587.74 | 0.00 | 0.45 | 0.03 | 515.25 | 973.00 |
| 4573.000 | 495.00 | 588.36 | 0.00 | 0.63 | 0.00 | 538.24 | 1500.00 |
| 4573.000 | 495.00 | 588.37 | 0.00 | 0.63 | 0.01 | 538.87 | 1500.00 |
| 6337.500 | 495.00 | 589.60 | 0.00 | 1.24 | 0.00 | 97.03 | 1764.50 |
| 6537.500 | 495.00 | 589.60 | 0.00 | 1.23 | -0.20 | 97.00 | 1764.50 |
| 6527.000 | 495.00 | 589.73 | 0.00 | 0.13 | 0.00 | 90.00 | 190.00 |
| 6527.000 | 495.00 | 589.73 | 0.00 | 0.13 | -0.00 | 90.00 | 190.00 |
| 6537.500 | 495.00 | 589.81 | 0.00 | 0.08 | 0.00 | 34.60 | 10.00 |
| 6537.500 | 495.00 | 589.81 | 0.00 | 0.08 | -0.00 | 34.40 | 10.00 |

PRINTED IN U.S.A.
FORM 1415-D PRINTED BY ROTARY MANIFOLD FORMS.

| SECNO | Q | CWSEL | DIFXSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 6538.500 | 495.00 | 589.81 | 0.00 | -0.00 | 0.00 | 84.40 | 1.00 |
| 6538.500 | 495.00 | 589.81 | 0.00 | -0.00 | -0.00 | 84.40 | 1.00 |
| 6578.000 | 495.00 | 589.82 | 0.00 | 0.01 | 0.00 | 84.40 | 39.50 |
| 6578.000 | 495.00 | 589.81 | 0.00 | 0.01 | -0.00 | 84.40 | 39.50 |
| 6579.000 | 495.00 | 589.82 | 0.00 | 0.01 | 0.00 | 84.40 | 1.00 |
| 6579.000 | 495.00 | 589.82 | 0.00 | 0.01 | -0.00 | 84.40 | 1.00 |
| 6609.000 | 495.00 | 589.79 | 0.00 | -0.03 | 0.00 | 54.62 | 50.00 |
| 6609.000 | 495.00 | 589.78 | 0.00 | -0.03 | -0.00 | 54.58 | 50.00 |
| 7174.000 | 495.00 | 590.38 | 0.00 | 0.59 | 0.00 | 65.00 | 547.00 |
| 7174.000 | 495.00 | 590.30 | 0.00 | 0.59 | -0.00 | 65.00 | 547.00 |
| 7274.000 | 495.00 | 590.31 | 0.00 | -0.06 | 0.00 | 14.95 | 100.00 |
| 7274.000 | 495.00 | 590.31 | 0.00 | -0.06 | -0.00 | 14.95 | 100.00 |
| 7373.000 | 495.00 | 591.26 | 0.00 | 0.94 | 0.00 | 14.95 | 99.00 |
| 7373.000 | 495.00 | 591.26 | 0.00 | 0.94 | -0.00 | 14.95 | 99.00 |
| 7398.000 | 495.00 | 591.59 | 0.00 | 0.33 | 0.00 | 40.41 | 25.00 |
| 7398.000 | 495.00 | 591.59 | 0.00 | 0.33 | -0.00 | 40.40 | 25.00 |
| 8573.000 | 495.00 | 592.40 | 0.00 | 0.81 | 0.00 | 554.68 | 1175.00 |
| 8573.000 | 495.00 | 592.43 | 0.00 | 0.84 | 0.02 | 279.76 | 1175.00 |
| 9030.000 | 495.00 | 592.59 | 0.00 | 0.15 | 0.00 | 465.62 | 427.00 |
| 9030.000 | 495.00 | 592.63 | 0.00 | 0.20 | 0.04 | 223.45 | 427.00 |
| 9530.000 | 495.00 | 593.04 | 0.00 | 0.45 | 0.00 | 426.66 | 500.00 |
| 9530.000 | 495.00 | 593.11 | 0.00 | 0.48 | 0.07 | 212.56 | 500.00 |
| 10173.000 | 495.00 | 593.74 | 0.00 | 0.72 | 0.00 | 252.86 | 673.00 |
| 10173.000 | 495.00 | 593.15 | 0.00 | 0.76 | 0.09 | 163.88 | 673.00 |
| 11673.000 | 390.00 | 595.17 | 0.00 | 1.41 | 0.00 | 270.19 | 1500.00 |
| 11673.000 | 390.00 | 595.27 | 0.00 | 1.42 | 0.10 | 166.46 | 1500.00 |
| 12356.000 | 390.00 | 595.71 | 0.00 | 0.34 | 0.00 | 92.37 | 683.00 |
| 12356.000 | 390.00 | 595.81 | 0.00 | 0.54 | 0.10 | 96.91 | 683.00 |
| 12656.000 | 390.00 | 596.17 | 0.00 | 0.45 | 0.00 | 22.00 | 191.00 |
| 12656.000 | 390.00 | 596.25 | 0.00 | 0.42 | 0.08 | 22.00 | 191.00 |
| 12612.000 | 390.00 | 597.25 | 0.00 | 1.08 | 0.00 | 17.00 | 156.00 |
| 12612.000 | 390.00 | 597.31 | 0.00 | 1.08 | 0.06 | 17.00 | 156.00 |
| 12647.000 | 390.00 | 597.55 | 0.00 | 0.31 | 0.00 | 17.00 | 35.00 |
| 12647.000 | 390.00 | 597.62 | 0.00 | 0.31 | 0.07 | 17.00 | 35.00 |
| 12661.000 | 390.00 | 597.62 | 0.00 | 0.07 | 0.00 | 35.00 | 14.00 |
| 12661.000 | 390.00 | 597.69 | 0.00 | 0.07 | 0.07 | 35.00 | 14.00 |
| 12715.000 | 390.00 | 597.60 | 0.00 | -0.02 | 0.00 | 17.00 | 35.00 |
| 12715.000 | 390.00 | 597.67 | 0.00 | -0.02 | 0.07 | 17.00 | 35.00 |

PRINTED IN U.S.A.
FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| * | 12979.000 | 390.00 | 599.60 | 0.00 | 2.00 | 0.00 | 17.00 | 264.00 |
| * | 12979.000 | 390.00 | 599.60 | 0.00 | 1.93 | 0.00 | 17.00 | 264.00 |
| | 13030.000 | 735.00 | 599.62 | 0.00 | 0.02 | 0.00 | 120.00 | 51.00 |
| | 13030.000 | 735.00 | 599.62 | 0.00 | 0.02 | 0.00 | 120.00 | 51.00 |
| | 13473.000 | 735.00 | 599.83 | 0.00 | 0.22 | 0.00 | 657.12 | 443.00 |
| | 13473.000 | 735.00 | 599.83 | 0.00 | 0.23 | 0.01 | 300.00 | 443.00 |
| | 13909.000 | 735.00 | 599.88 | 0.00 | 0.05 | 0.00 | 700.00 | 436.00 |
| | 13909.000 | 735.00 | 599.93 | 0.00 | 0.09 | 0.05 | 300.00 | 436.00 |
| | 14009.000 | 735.00 | 599.89 | 0.00 | 0.01 | 0.00 | 738.73 | 100.00 |
| | 14009.000 | 735.00 | 599.95 | 0.00 | 0.02 | 0.06 | 300.00 | 100.00 |
| | 14010.000 | 735.00 | 599.95 | 0.00 | -0.34 | 0.00 | 603.12 | 1.00 |
| | 14010.000 | 735.00 | 599.58 | 0.00 | -0.37 | 0.03 | 300.00 | 1.00 |
| | 14090.000 | 735.00 | 600.34 | 0.00 | 1.00 | 0.00 | 751.62 | 80.00 |
| | 14090.000 | 735.00 | 600.43 | 0.00 | 1.05 | 0.09 | 400.00 | 80.00 |
| | 14091.000 | 735.00 | 600.66 | 0.00 | 0.09 | 0.00 | 751.43 | 1.00 |
| | 14091.000 | 735.00 | 600.77 | 0.00 | 0.14 | 0.14 | 400.00 | 1.00 |
| | 14116.000 | 735.00 | 600.64 | 0.00 | 0.00 | 0.00 | 751.47 | 25.00 |
| | 14116.000 | 735.00 | 600.78 | 0.00 | 0.00 | 0.14 | 451.45 | 25.00 |
| | 14673.000 | 735.00 | 600.66 | 0.00 | 0.03 | 0.00 | 790.53 | 557.00 |
| | 14673.000 | 735.00 | 600.81 | 0.00 | 0.03 | 0.14 | 570.09 | 557.00 |
| | 15262.000 | 735.00 | 600.72 | 0.00 | 0.06 | 0.00 | 500.54 | 589.00 |
| | 15262.000 | 735.00 | 600.86 | 0.00 | 0.03 | 0.14 | 501.32 | 589.00 |
| | 15362.000 | 735.00 | 600.70 | 0.00 | -0.02 | 0.00 | 565.24 | 100.00 |
| | 15362.000 | 735.00 | 600.84 | 0.00 | -0.02 | 0.14 | 450.14 | 100.00 |
| | 15365.000 | 735.00 | 600.77 | 0.00 | 0.07 | 0.00 | 565.21 | 1.00 |
| | 15365.000 | 735.00 | 600.90 | 0.00 | 0.06 | 0.14 | 450.15 | 1.00 |
| | 15434.000 | 735.00 | 600.32 | 0.00 | -0.05 | 0.00 | 565.25 | 71.00 |
| | 15434.000 | 735.00 | 600.95 | 0.00 | 0.05 | 0.13 | 450.15 | 71.00 |
| | 15435.000 | 735.00 | 600.81 | 0.00 | -0.00 | 0.00 | 565.22 | 1.00 |
| | 15435.000 | 735.00 | 600.95 | 0.00 | -0.00 | 0.13 | 450.15 | 1.00 |
| | 15460.000 | 735.00 | 600.38 | 0.00 | 0.01 | 0.00 | 565.23 | 25.00 |
| | 15460.000 | 735.00 | 600.96 | 0.00 | 0.01 | 0.13 | 450.16 | 25.00 |
| | 16873.000 | 735.00 | 601.32 | 0.00 | 0.50 | 0.00 | 450.46 | 1413.00 |
| | 16873.000 | 735.00 | 601.43 | 0.00 | 0.47 | 0.11 | 450.46 | 1413.00 |
| | 17673.000 | 735.00 | 601.63 | 0.00 | 0.26 | 0.00 | 343.95 | 800.00 |
| | 17673.000 | 735.00 | 601.86 | 0.00 | 0.23 | 0.13 | 336.13 | 800.00 |

SUMMARY OF ERRORS

NOTE SECNO=12979.000 PROFILE# 1 ,SEL BASED ON XS CARD

NOTE SECNO=12979.000 PROFILE# 2 ,SEL BASED ON XS CARD

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FORM 1A1-08-PRINTED BY ROTARY MANIFOLD FORMS.

FLOODWAY DATA, SILVER CREEK
PROFILE NO. 2

| STATION | FLOODWAY WIDTH (FT) | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WATER SURFACE ELEVATION WITHOUT FLOODWAY | WATER SURFACE ELEVATION DIFFERENCE |
|---|---|---|---|---|---|---|
| 0.000 | 250. | 1424. | 0.5 | 586.6 | 586.5 | 0.1 |
| 1.000 | 249. | 491. | 1.4 | 586.6 | 586.5 | 0.1 |
| 2.000 | 267. | 435. | 1.6 | 586.6 | 586.5 | 0.1 |
| 3.000 | 252. | 443. | 1.6 | 586.6 | 586.5 | 0.1 |
| 4.000 | 247. | 492. | 1.4 | 586.6 | 586.5 | 0.1 |
| 5.000 | 682. | 2225. | 0.3 | 586.7 | 586.6 | 0.1 |
| 6.000 | 413. | 1876. | 0.4 | 586.7 | 586.6 | 0.1 |
| 1844.000 | 251. | 452. | 1.6 | 586.7 | 586.6 | 0.1 |
| 2044.000 | 324. | 367. | 2.0 | 586.8 | 586.7 | 0.1 |
| 2045.000 | 375. | 479. | 1.5 | 587.2 | 587.1 | 0.1 |
| 2074.000 | 375. | 517. | 1.0 | 587.4 | 587.3 | 0.1 |
| 2075.000 | 375. | 578. | 0.9 | 587.3 | 587.2 | 0.1 |
| 2100.000 | 373. | 586. | 0.8 | 587.4 | 587.3 | 0.1 |
| 3073.000 | 513. | 951. | 0.5 | 587.7 | 587.7 | 0.0 |
| 4573.000 | 459. | 634. | 0.8 | 589.4 | 589.4 | 0.0 |
| 6337.500 | 97. | 313. | 1.6 | 589.6 | 589.6 | 0.0 |
| 6527.000 | 90. | 321. | 1.5 | 589.7 | 589.7 | 0.0 |
| 6537.500 | 84. | 317. | 1.6 | 589.8 | 589.8 | 0.0 |
| 6550.500 | 86. | 299. | 1.7 | 589.8 | 589.8 | 0.0 |
| 6573.000 | 84. | 299. | 1.7 | 589.8 | 589.8 | 0.0 |
| 6579.000 | 84. | 317. | 1.6 | 589.8 | 589.8 | 0.0 |
| 6609.000 | 53. | 161. | 3.1 | 589.8 | 589.8 | 0.0 |
| 7174.000 | 65. | 199. | 2.5 | 590.4 | 590.4 | 0.0 |
| 7273.000 | 15. | 75. | 6.0 | 590.3 | 590.3 | 0.0 |
| 7373.000 | 15. | 95. | 5.3 | 591.3 | 591.3 | 0.0 |
| 7378.000 | 60. | 101. | 2.7 | 591.6 | 591.6 | 0.0 |
| 8529.000 | 230. | 459. | 1.1 | 592.6 | 592.6 | 0.0 |
| 9000.000 | 220. | 362. | 1.4 | 592.6 | 592.6 | 0.0 |
| 9500.000 | 213. | 333. | 1.5 | 593.1 | 593.0 | 0.1 |
| 10173.000 | 166. | 279. | 1.6 | 593.9 | 593.8 | 0.1 |
| 11673.000 | 110. | 500. | 1.3 | 595.3 | 595.2 | 0.1 |
| 12356.000 | 97. | 164. | 2.4 | 595.8 | 595.7 | 0.1 |
| 12456.000 | 32. | 116. | 3.4 | 596.3 | 596.2 | 0.1 |
| 12612.000 | 17. | 108. | 3.6 | 597.3 | 597.2 | 0.1 |
| 12647.000 | 17. | 123. | 3.2 | 597.7 | 597.6 | 0.1 |
| 12680.000 | 35. | 204. | 1.9 | 597.7 | 597.6 | 0.1 |
| 12715.000 | 17. | 111. | 3.5 | 597.7 | 597.6 | 0.1 |
| 12979.000 | 67. | 141. | 2.0 | 599.6 | 599.6 | 0.0 |
| 13030.000 | 120. | 562. | 1.0 | 599.6 | 599.6 | 0.0 |
| 13473.000 | 300. | 1068. | 0.7 | 599.8 | 599.8 | 0.0 |
| 13909.000 | 300. | 1279. | 0.6 | 599.9 | 599.9 | 0.0 |
| 14009.000 | 300. | 1352. | 0.6 | 600.0 | 599.9 | 0.1 |
| 14010.000 | 100. | 2356. | 2.7 | 599.5 | 599.5 | 0.0 |
| 14090.000 | 400. | 724. | 1.0 | 600.6 | 600.5 | 0.1 |
| 14091.000 | 400. | 2085. | 0.4 | 600.7 | 600.6 | 0.1 |
| 14116.000 | 451. | 2272. | 0.3 | 600.7 | 600.6 | 0.1 |
| 14673.000 | 570. | 1025. | 0.4 | 600.8 | 600.7 | 0.1 |
| 15262.000 | 500. | 1810. | 0.4 | 600.8 | 600.7 | 0.1 |
| 15362.000 | 450. | 726. | 1.0 | 600.8 | 600.7 | 0.1 |
| 15363.000 | 450. | 710. | 1.0 | 600.9 | 600.8 | 0.1 |

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FORM 1411-00 PRINTED BY ROTARY MANIFOLD FORMS.

FLOODWAY DATA, SILVER CREEK
PROFILE NO. 2

| STATION | FLOODWAY WIDTH (FT) | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 15434.000 | 450. | 730. | 1.0 | 600.9 | 600.8 | 0.1 |
| AB15435.000 | 450. | 775. | 0.9 | 600.9 | 600.8 | 0.1 |
| 15660.000 | 450. | 760. | 0.9 | 600.9 | 600.8 | 0.1 |
| AC16873.000 | 450. | 1069. | 0.7 | 601.4 | 601.3 | 0.1 |
| AD17673.000 | 314. | 747. | 1.0 | 601.7 | 601.6 | 0.1 |

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FORM 1811-QD PRINTED BY ROTARY MANIFOLD FORMS.

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**************************************************
  REC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR - 01
  MODIFICATION - 50,51,52
**************************************************
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FORM 1411-GG PRINTED BY ROTARY MANIFOLD FORMS.

```
*****************************************************************
*                                                               *
*                  E R R O R   S U M M A R Y                    *
*                                                               *
*                                                               *
*      0  ERROR(S) DETECTED BY THE USER PROGRAM                 *
*      0  ERROR(S) DETECTED BY THE MATHEMATICAL PACKAGE         *
*      0  ERROR(S) DETECTED FOR INPUT/OUPUT STATEMENTS          *
*                                                               *
*****************************************************************
```

PRINTED IN U.S.A.
FORM 1411-GE PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Silver Creek

4) DOCUMENT TYPE: Rating Curve

00BREAK00

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

C
T1OVERLAND FLOW BETWEEN SILVER AND SMITH CREEKS
T2CITY OF FLAT ROCK FIS, FLOW DIVERSION ANALYSIS
T3      SILVER TO SMITH RAT.CURVE.

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
        0.       2.       0.       0.  0.000000     0.00     0.0      0.   598.600   0.000

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    1.000     0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000

J5  LPRNT     NUMSEC                    ********REQUESTED SECTION NUMBERS********
   -10.000   -10.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
QT   5.000    50.000   100.000   200.000   300.000   400.000    0.000    0.000    0.000    0.000
NC   0.200     0.200     0.200     0.100     0.300     0.000    0.000    0.000    0.000    0.000

      LOCATION IS 200' RT.& PARALLEL TO SMITH CREEK FROM WTA FL.PLAIN STUDY.
X1    1.000    10.000   100.000  1025.000     0.000     0.000     0.000     0.000     0.000     0.000
GR  600.000     0.000   598.600   100.000   598.000   150.000   597.000   230.000   596.600   300.000
GR  597.000   400.000   598.000   635.000   598.600  1025.000   599.000  1075.000   600.000  1150.000

      RIDGE LINE BETWEEN SMITH & SILVER CREEK BASINS.
X1    2.000     5.000     1.000  1250.000   800.000  1000.000   900.000     0.000     0.000     0.000
GR  603.000     1.000   600.000   400.000   599.000   600.000   600.000   850.000   603.000  1250.000
EJ    0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

***** H2MAIN                SOURCE LINE:  3086        ERROR:    9
ERROR STATEMENT APPLIES TO SECTION
```

**********
HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
**********

HUD200907
9/13/79

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SILVER TO SMITH RAT.CURV

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 0.00 | 0.00 | 0.00 | 596.60 | 50.00 | 598.60 | 0.00 | 598.60 | 0.92 | 0.06 | 784.56 | 52.23 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 596.60 | 100.00 | 598.60 | 0.00 | 598.60 | 3.67 | 0.13 | 784.56 | 52.23 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 596.60 | 200.00 | 598.60 | 0.00 | 598.60 | 14.66 | 0.25 | 784.56 | 52.23 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 596.60 | 300.00 | 598.60 | 0.00 | 598.60 | 32.99 | 0.38 | 784.56 | 52.23 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 596.60 | 400.00 | 598.60 | 0.00 | 598.60 | 58.65 | 0.51 | 784.56 | 52.23 |
| * | 2.000 | 900.00 | 0.00 | 0.00 | 599.00 | 50.00 | 599.31 | 599.31 | 599.39 | 10868.00 | 2.25 | 22.18 | 0.48 |
| | 2.000 | 900.00 | 0.00 | 0.00 | 599.00 | 100.00 | 599.72 | 0.00 | 599.73 | 520.04 | 0.86 | 116.63 | 4.39 |
| | 2.000 | 900.00 | 0.00 | 0.00 | 599.00 | 200.00 | 600.54 | 0.00 | 600.55 | 34.95 | 0.40 | 506.27 | 33.83 |
| | 2.000 | 900.00 | 0.00 | 0.00 | 599.00 | 300.00 | 600.99 | 0.00 | 600.99 | 21.88 | 0.38 | 799.79 | 64.14 |
| | 2.000 | 900.00 | 0.00 | 0.00 | 599.00 | 400.00 | 601.31 | 0.00 | 601.32 | 18.31 | 0.38 | 1050.50 | 93.49 |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Silver Creek

4) DOCUMENT TYPE: Report

00BREAK00

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors • Community Planners
Taylor, Michigan

February 12, 1980

Michigan Department of Natural Resources
Flood Insurance and Flood Plain Delineation Unit
Water Management Division
Stevens T. Mason Building
P. O. Box 30028
Lansing, Michigan 48909

FEB 15 1980

Attention: Mr. Dan Morgan

Re: Engineering Contract H-4542
Silver Creek Hydraulic Analysis

Gentlemen:

Enclosed is a report which describes the amended hydraulic study for Silver Creek which is associated with the City of Flat Rock - Michigan Flood Insurance Administration Study performed by this office. This report incorporates your comments of December 13, 1979, and is supplemental to the report which was submitted to you on October 17, 1979. Your review and approval of this report are requested.

Please contact William J. Weaver of this office if you have any questions.

Very truly yours,

WADE, TRIM & ASSOCIATES, INC.

Glen A. Roberts

GAR:WJW:gf
HUD 2009-07
Enclosures
cc: Mr. Martin Gunn, Federal Emergency Management Agency
Mr. Wallace Weaver, Federal Emergency Management Agency

TABLE OF CONTENTS

SILVER CREEK EXHIBITS


| EXHIBIT NO. | DESCRIPTION |
|---|---|
| 1. | Flood Hazard, Floodway and Cross Section Location Map |
| 2. | Bridge Sketches, Notes and Computations (In 10/17/79 Submittal) |
| 3. | Computer Printouts, HEC-2 Backwater Analysis (See Separate Folder) |
| 4. | Stream Profile |
| 11. | Flow Diversion Analysis |
| 13. | TR-20 Flood Routing Analysis (See Separate Folder) |

## II. SILVER CREEK (DETAILED)

Detailed studies of the Silver Creek were performed from the corporate boundary of Flat Rock/Rockwood to the corporate boundary of Flat Rock/Brownstown. To ensure continuity, initial cross sections were the upstream sections used in the Rockwood Flood Insurance Study (FIS) of Silver Creek (Reference 1). A total of 8 valley and 6 bridge cross sections were field surveyed and completed in May, 1978. An additional 24 cross sections were used in this analysis. These sections were based on interpolation of field survey data and U.S.G.S. Quad Maps of the study area which consist of 5 foot interval contour data (Reference 2). The flood plain of the Silver Creek within the study reach varies from grassy to heavy woods.

Cross section locations are shown in Exhibit 1. Table 1 cross references section designations by showing the computer section number which corresponds to the cross section letters shown in Exhibit 1.

Exhibit 2 contains bridge sketches as well as computations of total bridge loss coefficients. The Gibraltar Road and the Telegraph Road bridges were considered to be skewed.

Table 2 lists discharges that have been approved by the Michigan Department of Natural Resources (MDNR) for this Creek.

### A. METHOD OF ANALYSIS

The HEC-2 backwater program was used in developing water surface profiles (Reference 3).

Table 2 also contains selected flood elevations from the HEC-2 printouts. HEC-2 printouts including computer cross section plots are presented as Exhibit 3. Water surface profiles resulting from the backwater analyses are presented as Exhibit 4. (Exhibit 3 is contained in the 11" x 15" folder enclosed with this report.)

B. VARIABLES AND COEFFICIENTS

Roughness coefficients (Mannings "n") were estimated by field inspection at each cross section. Typical roughness values for the main channel range from .015 to .040; roughness values for the overbank areas vary between .018 to .12 for all floods. These values are indicative of summer month conditions and are consistent with roughness values recommended and used in engineering practice.

Expansion coefficients vary from .3 to .5 and contraction coefficients vary from .1 to .3. Expansion and contraction ratios used in effective flow modeling for all bridge sections and natural constrictions are 1:4 and 1:1 respectively.

C. HIGH WATER MARKS

No documented high water data exists for flood elevations on Silver Creek.

D. STARTING CONDITIONS

Starting water surface elevations used in all backwater computations were the flood elevations at the Flat Rock/Rockwood corporate boundary as determined in the Rockwood FIS (Reference 1).

## E. SPECIAL PROBLEMS

The D.T.&I. Railroad corridor causes a major constriction to flow on Silver Creek due to inadequately designed culverts. This constriction is so extensive that it causes a transfer of flow between the Silver Creek, Smith Creek, Cook and Gladding Drain and Huron River basins during major floods. Analysis of inflow hydrographs and resulting peak elevations for all the basins involved and review of a flood routing study on Smith Creek (Reference 6) indicates the following:

1. A 100 year flood in the Smith Creek basin will not cause a diversion of flow to Silver Creek and alter peak flow rates.

2. The 10, 50, 100 and 500 year floods in the Silver Creek basin will create flow diversions to Cook and Gladding Drain, Huron River and Smith Creek.

Therefore, a flow diversion analysis (Exhibit 11) was performed to determine the effect on peak flow rates in the Silver Creek basin and to establish flow distributions for all floods analyzed in this report. The flow diversion analysis was performed as follows:

1. Flood elevations were determined on Silver Creek with the assumption that there would be no diversions of flow (See WTA submittal dated June 20, 1979, Exhibit 3). The resulting 100 year flood elevation upstream of the D.T.&I. Railroad corridor was 602.51.

2. Stage/discharge rating curves were developed for the following:

   a. Overland flow from the Silver Creek basin to the Cook and Gladding Drain basin (Exhibit 11, Page 4).

   b. Overland flow from the Silver Creek basin to the Smith Creek basin (Exhibit 11, Page 6).

   c. A 42" culvert on a tributary to Silver Creek upstream of the D.T.&I. Railroad corridor (Exhibit 11, Page 5).

   d. D.T.&I. Railroad culverts on Silver Creek (Exhibit 11, Page 7).

3. All four of the stage/discharge rating curves above were combined to form a total rating curve for the area upstream of the D.T.&I. Railroad corridor (Exhibit 11, Page 9).

4. A stage/storage curve (Exhibit 11, Page 8) was developed for the areas upstream of the railroad corridor in the Silver Creek basin which will be inundated during major floods.

5. A flood routing analysis (Exhibit 11, Pages 10-15) was performed for Silver Creek and curves developed in 2 and 4 above were used to determine what effect storage would have on peak flow rates.

6. Peak flow rates obtained in the flood routing analysis were applied to the total stage/discharge rating curve to determine the 10 year, 50 year, 100 year and 500 year flood elevations upstream of the railroad corridor.

7. The new flood elevations were then applied to the four stage/discharge rating curves to determine the distribution of flow between the various diversion areas and Silver Creek (Exhibit 11, Page 16).

8. The Silver Creek computer model (HEC-2) was then rerun with the new flow rates and flood elevations were externally input to the computer model upstream of the D.T.&I Railroad corridor. The resulting 100 year flood elevation is 599.6.

Results of this analysis indicate that storage upstream of the D.T.&I. Railroad corridor and the overland flow diversion to Smith Creek substantially reduce flow rates downstream of the railroad corridor on Silver Creek (approximately 47% during the 100 year flood). Furthermore, the overland flow diversion and storage created by constrictions at the railroad corridor reduce flood elevations 2.91 feet for the 100 year flood.

The flood routing analysis was performed with the TR-20 hydrologic computer model (Reference 7) and computer printouts resulting from this analysis are presented as Exhibit 13.

## F. GENERAL

Computed water-surface elevations were developed to an accuracy of 0.5 foot for floods of the selected recurrence intervals.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). This datum is equivalent to the U.S. Geological Survey (USGS) datum.

The hydraulic analyses for this study are based only on the effects of flow unobstructed by ice or debris. The flood elevations are considered valid only if hydraulic structures, in general, remain unobstructed and do not fail.

TABLE 1
CITY OF FLAT ROCK
SILVER CREEK

| CROSS SECTION | COMPUTER NO. | WTA FIELD BOOK NO. | DESCRIPTION |
|---|---|---|---|
| | 0 | | + 450' d/s of d/s face of Olmstead Rd. |
| | 1.0 | | d/s face of Olmstead Rd. |
| | 2 | | |
| | 3 | | |
| | 4 | | u/s face of Olmstead Rd. |
| | 5 | | + 750' u/s of u/s face of Olmstead Rd. |
| A | 6.0 | | + 1450' u/s of u/s face of Olmstead Rd. (Rockwood/Flat Rock Corp. Limit) |
| B | 2,044 | | d/s face of Woodruff Rd. Bridge |
| | | 156 + 29 | Center Line of Woodruff Rd. |
| C | 2,075 | | u/s face of Woodruff Rd. Bridge |
| D | 3,073 | 146 + 00 | + 1000' u/s of u/s face of Woodruff Rd. |
| E | 4,573 | 131 + 00 | + 2500' u/s of u/s face of Woodruff Rd. |
| | 6,337.5 | | + 200' d/s of d/s face of Bridge S. of Gibraltar Rd. |
| G | 6,537.5 | 111 + 35.5 | d/s face of Bridge S. of Gibraltar Rd. |
| H | 6,579 | 110 + 96 | u/s face of Bridge S. of Gibraltar Rd. |
| I | 7,174 | | + 100' d/s of d/s face of Gibraltar Rd. |
| J | 7,274 | 103 + 99 | d/s face of Gibraltar Rd. |
| K | 7,373 | 103 + 00 | u/s face of Gibraltar Rd. Bridge |
| L | 8,573 | 91 + 00 | + 1200' u/s of u/s face of Gibraltar Rd. |
| M | 9,000 | | Valley Section |
| N | 9,500 | | Valley Section |
| O | 10,173 | 75 + 00 | + 1600' u/s of u/s face of Gibraltar Rd. |
| P | 11,673 | 60 + 00 | + 1500' u/s of u/s face of Gibraltar Rd. |
| Q | 12,356 | | + 100' d/s of d/s end of culverts under R.R. |

TABLE 1
CITY OF FLAT ROCK
SILVER CREEK

Continued

| CROSS SECTION | COMPUTER NO. | WTA FIELD BOOK NO. | DESCRIPTION |
|---|---|---|---|
| R | 12,456 | 52 + 17 | d/s end of R.R. culverts |
| S | 12,647 | 50 + 26 | u/s end of R.R. culverts |
| T | 12,680 | | + 33' u/s of u/s end of R.R. culverts |
| U | 12,715 | 49 + 58.5 | d/s end of 96" CMP |
| V | 12,979 | 46 + 94 | u/s end of 96" CMP |
| W | 13,473 | 42 + 00 | 494' u/s of u/s end of 96" CMP |
| X | 14,009 | 36 + 64 | d/s end Vreeland Rd. culvert |
| Y | 14,091 | 35 + 82 | u/s end of Vreeland Rd. culvert |
| Z | 14,673 | 30 + 00 | 582' u/s of u/s end Vreeland Rd. culvert |
| AA | 15,362 | 23 + 11 | d/s face Telegraph Rd. Bridge |
| AB | 15,435 | 22 + 38 | u/s face Telegraph Rd. Bridge |
| AC | 16,873 | 8 + 00 | + 1438' u/s of Telegraph Rd. Bridge |
| AD | 17,673 | | Brownstown/Flat Rock Corp. limit |

TABLE 2
CITY OF FLAT ROCK
SILVER CREEK FLOOD ELEVATIONS*

| LOCATION | SELECTED FREQUENCIES 10 Yr. | 50 Yr. | 100 Yr. | 500 Yr. |
|---|---|---|---|---|
| | Q= 395 CFS | 460 CFS | 495 CFS | 535 CFS |
| u/s of Woodruff Rd. (0.4 Mi.) | 587.0 | 587.2 | 587.3 | 587.4 |
| | Q= 320 CFS | 365 CFS | 390 CFS | 415 CFS |
| d/s of D.T. & I. Railroad (2.4 Mi.) | 595.4 | 595.6 | 595.7 | 595.8 |
| | Q= 455 CFS | 665 CFS | 735 CFS | 840 CFS |
| u/s of D.T. & I. Railroad Corridor (2.6 Mi.) | 597.2 | 599.3 | 599.6 | 600.1 |
| @ Flat Rock/Brownstown Corp. Limit (3.3 Mi.) | 600.7 | 601.4 | 601.6 | 601.8 |

*N.G.V.D.

CITY OF FLAT ROCK

SILVER CREEK EXHIBIT 3

COMPUTER PRINTOUTS

HEC-2 BACKWATER ANALYSIS

(SEE SEPARATE FOLDER)

HUD 2009-07

CITY OF FLAT ROCK

SILVER CREEK

EXHIBIT 4

STREAM PROFILE

HUD 2009-07

CITY OF FLATROCK

SILVER CREEK

EXHIBIT 11

FLOW DIVERSION ANALYSIS

CITY OF FLATROCK

SILVER CREEK

EXHIBIT 13

TR-20 FLOOD ROUTING ANALYSIS

(See Separate Folder)

REFERENCE

# Flatrock Routing Analysis (Silver Creek)

## Stage Storage Curve Development:

① Storage = 0 at elevation 595.0

② Storage at Elevation 598.5:

= $\frac{3.5}{5}$ × Storage to 600.0 in Center Storage Area

= 2.5 (2975976) $\frac{3.5}{5}$ $ft^3$ = **5207958 $ft^3$**

= 2.5 (68.319) $\frac{3.5}{5}$ acre-ft = **119.56 acre-ft**

③ Storage at Elev. 600.0: → = **1434.7 acre-in.** ✱

= 2.5(9975976) + .8(2530224) + .8(1654296) $ft^3$

= **28,287,556 $ft^3$**

= 2.5 (68.319) + .8 (58.086) + .8 (37.9774) acre-ft

= **247.65 acre-ft** **2971.8 = acre-in.** ✱

④ Storage at Elev. 603.0:

= 28,287,556 + 3.0(2975976 + 2530224 + 1654296)

= **49,769,044 $ft^3$**

= 247.65 + 3.0(68.319 + 58.086 + 37.9774)

= **740.8 acre-ft** = **8889.6 acre-in.** ✱

Conversion: 1 acre-inch ≈ 1 cfs-hr.

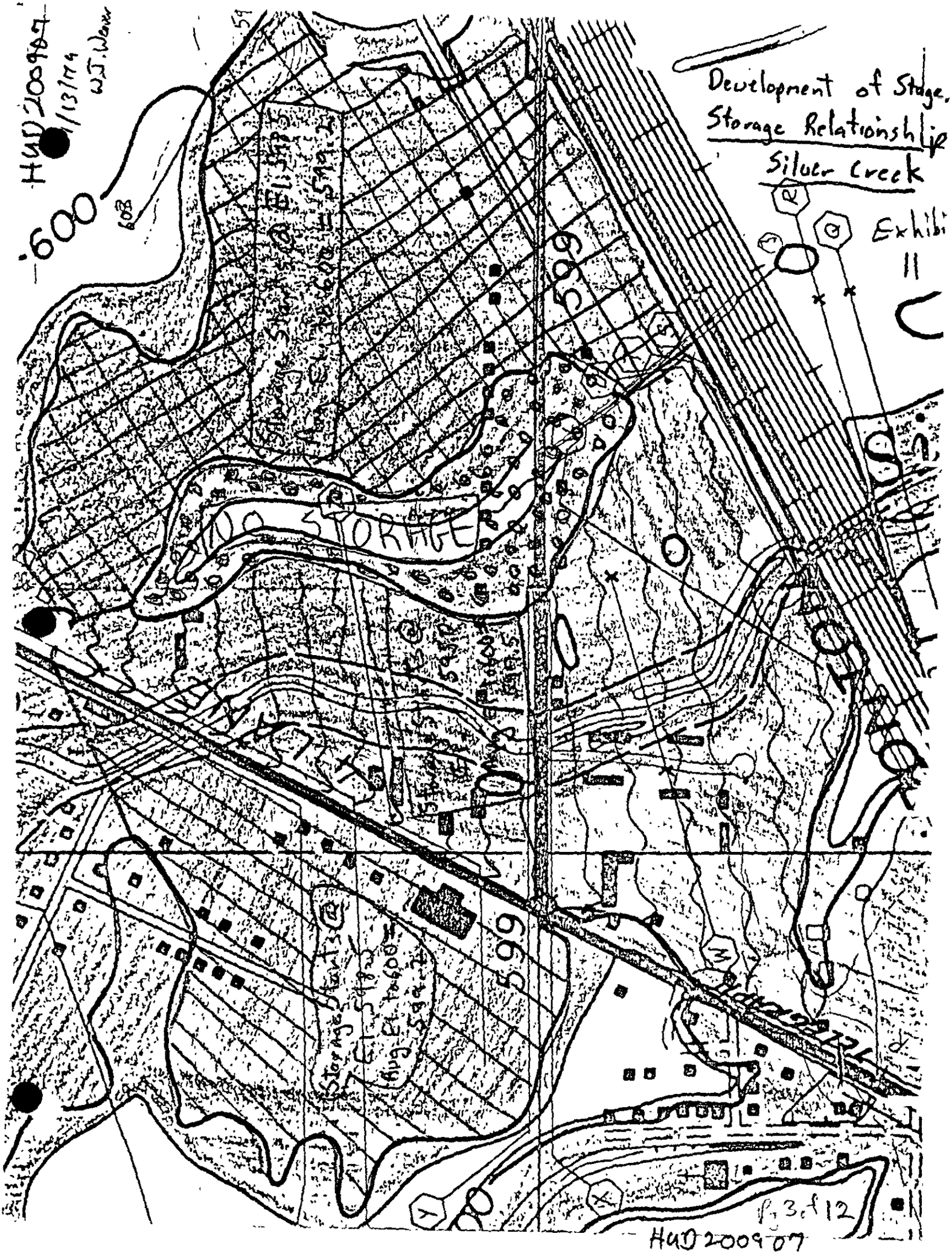
✱ See Attached Digitizer results for area calculations

| SUBJECT | BY | CHK. | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| Exhibit 11 | DATE 1/12/00 | DATE | 1 OF 12 | HUD • 203 • 00 |

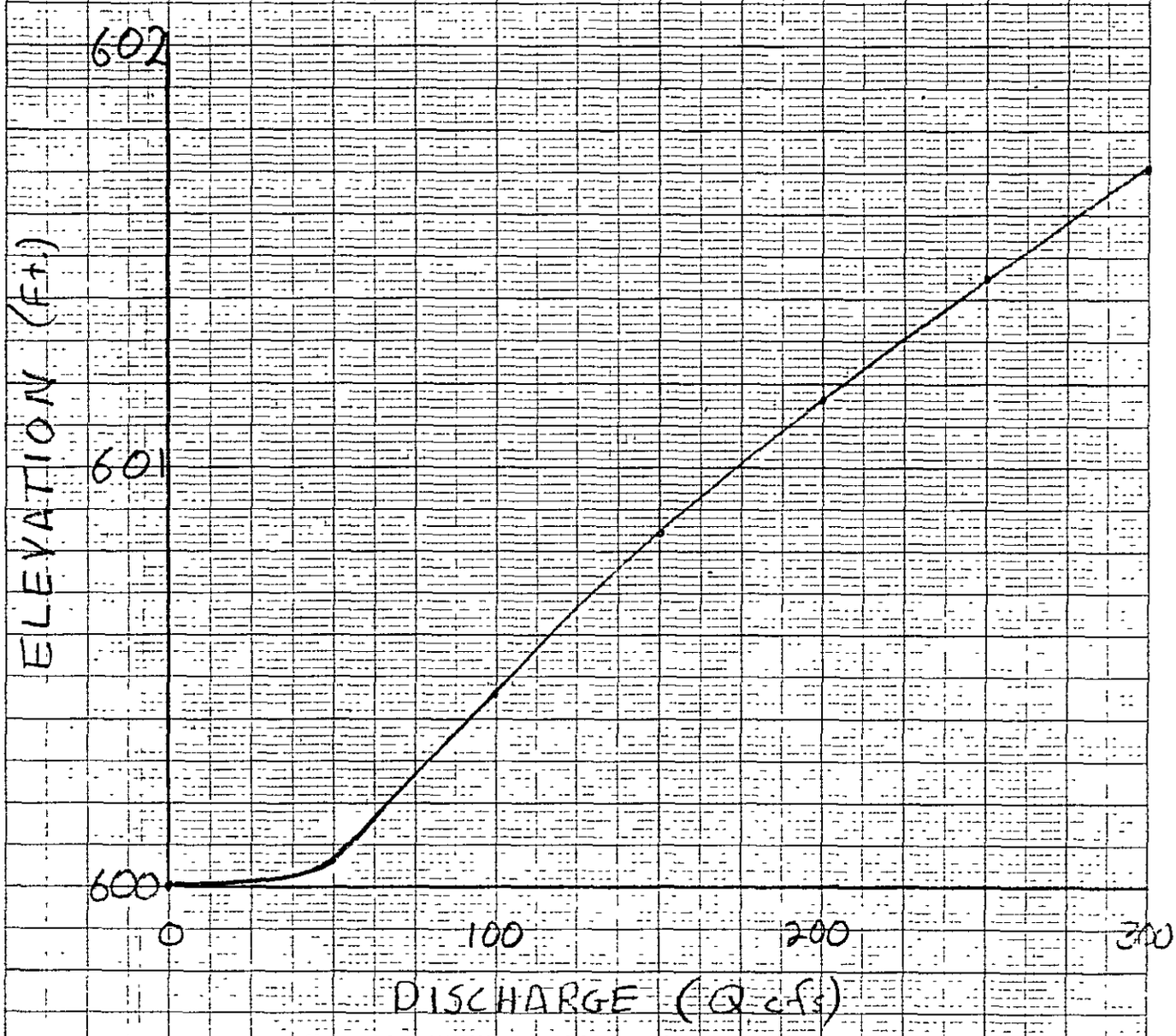
REFERENCE

Exhibit 11
Pg 2 of 12

| SUBJECT | BY | CHK. | SHEET NO. | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| | DATE | DATE | 2 OF 12 | HUD • 2009 • 07 |


HUD 200907
1/13/74
W.J. Weaver
Development of Stage,
Storage Relationship
Silver Creek
Exhibi
II
600
NO STORAGE
599
599
Storage Starts @ El. 598.5
Avg. El. to 600 = 599.2
Storage Starts @ El. 598.5
Avg. El. to 600 = 599.2
Pg 3 of 12
HUD 200907

DISCHARGE / ELEVATION RATING CURVE
OVERLAND FLOW
COOKE + GLADDING DRAIN TO
SILVER CREEK



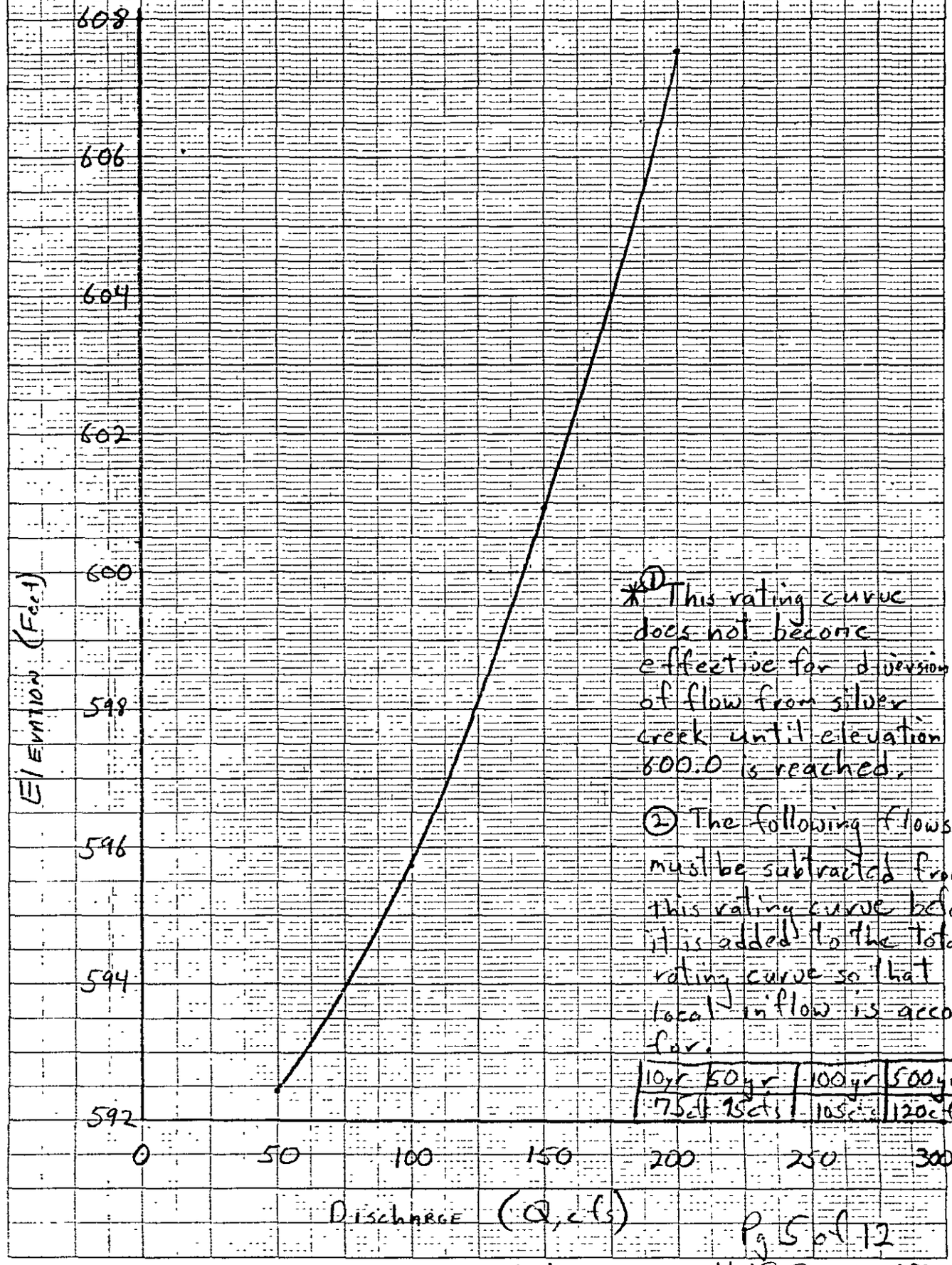

Pg 4 of 12

Exhibit 11

HUD 200907
9/13/79
D. J. Weaver

46 1320
K+E 10 X 10 TO ½ INCH 7 X 10 INCHES KEUFFEL & ESSER CO. MADE IN U.S.A.

# DISCHARGE/ELEVATION RATING CURVE
## TRIBUTARY TO SILVER CREEK
## DT&I RAILROAD CORRIDOR




*(1) This rating curve does not become effective for diversion of flow from silver creek until elevation 600.0 is reached.

(2) The following flows must be subtracted from this rating curve before it is added to the total rating curve so that local inflow is account for.

| 10yr | 50yr | 100yr | 500yr |
|---|---|---|---|
| 75cfs | 95cfs | 105cfs | 120cfs |

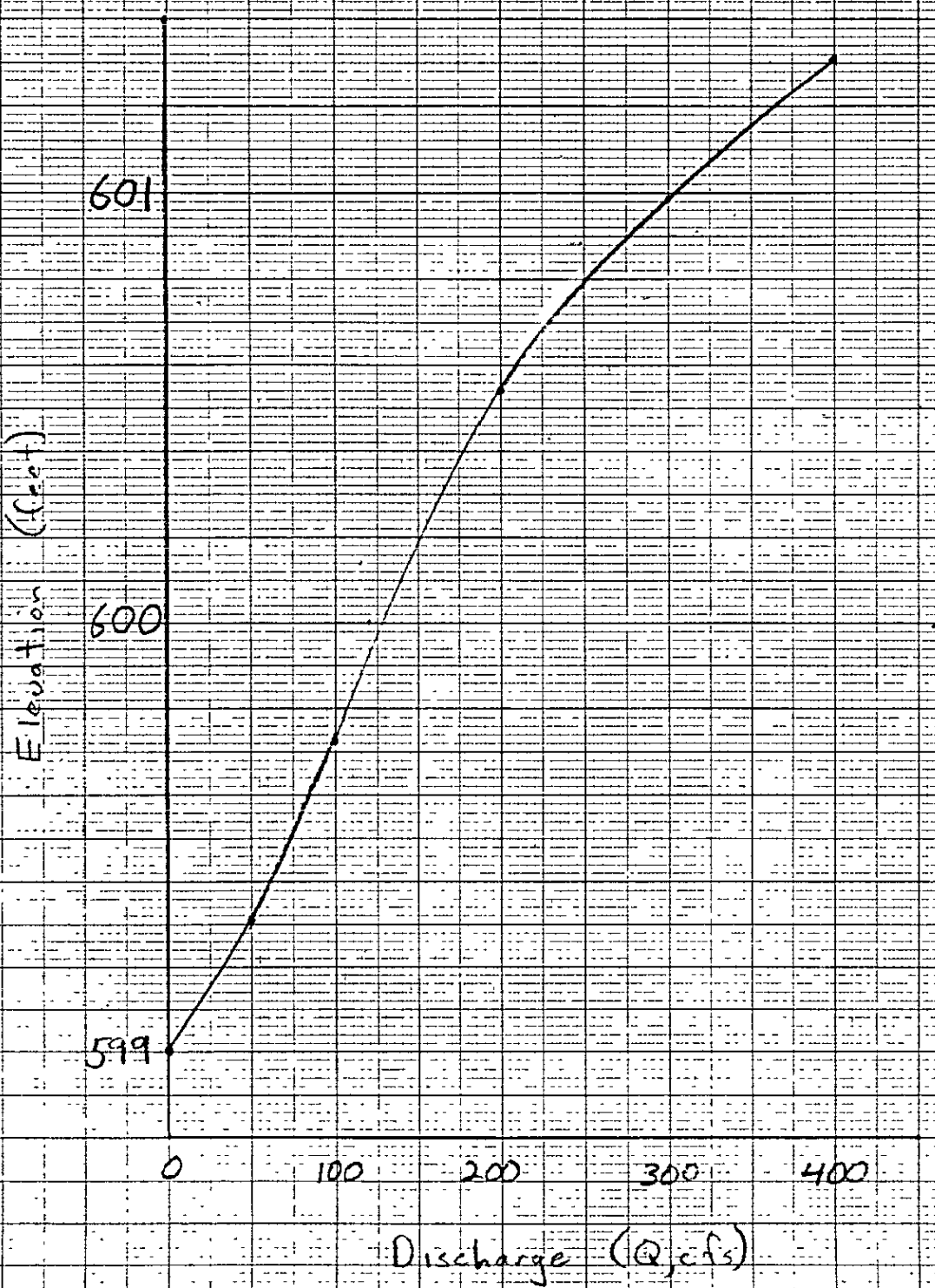
46 1320
K&E 10 X 10 TO ½ INCH 7 X 10 INCHES KEUFFEL & ESSER CO MADE IN U.S.A.



Exhibit 11

HUD 2007 07
9/13/79

DISCHARGE/ELEVATION RATING CURVE
OVERLAND FLOW
SILVER CREEK TO SMITH CREEK



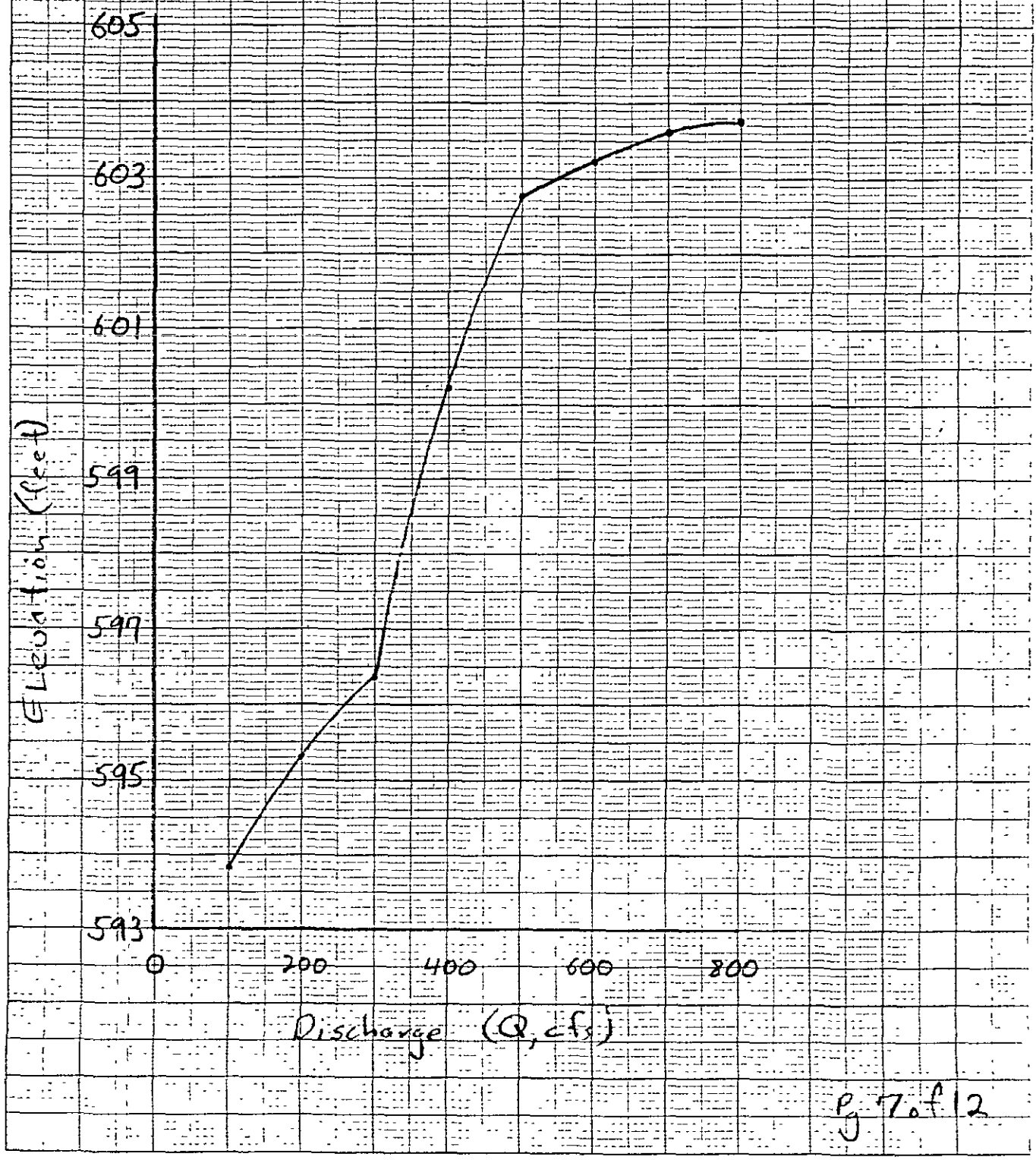



HUD 2009 [illegible]
9/13/79
[illegible]

Exhibit 11

46 1320
K+E 10 X 10 TO ½ INCH 7 X 10 INCHES KEUFFEL & ESSER CO. MADE IN U.S.A.

# DISCHARGE/ELEVATION RATING CURVE
## SILVER CREEK
## DT&I RAILROAD CORRIDOR



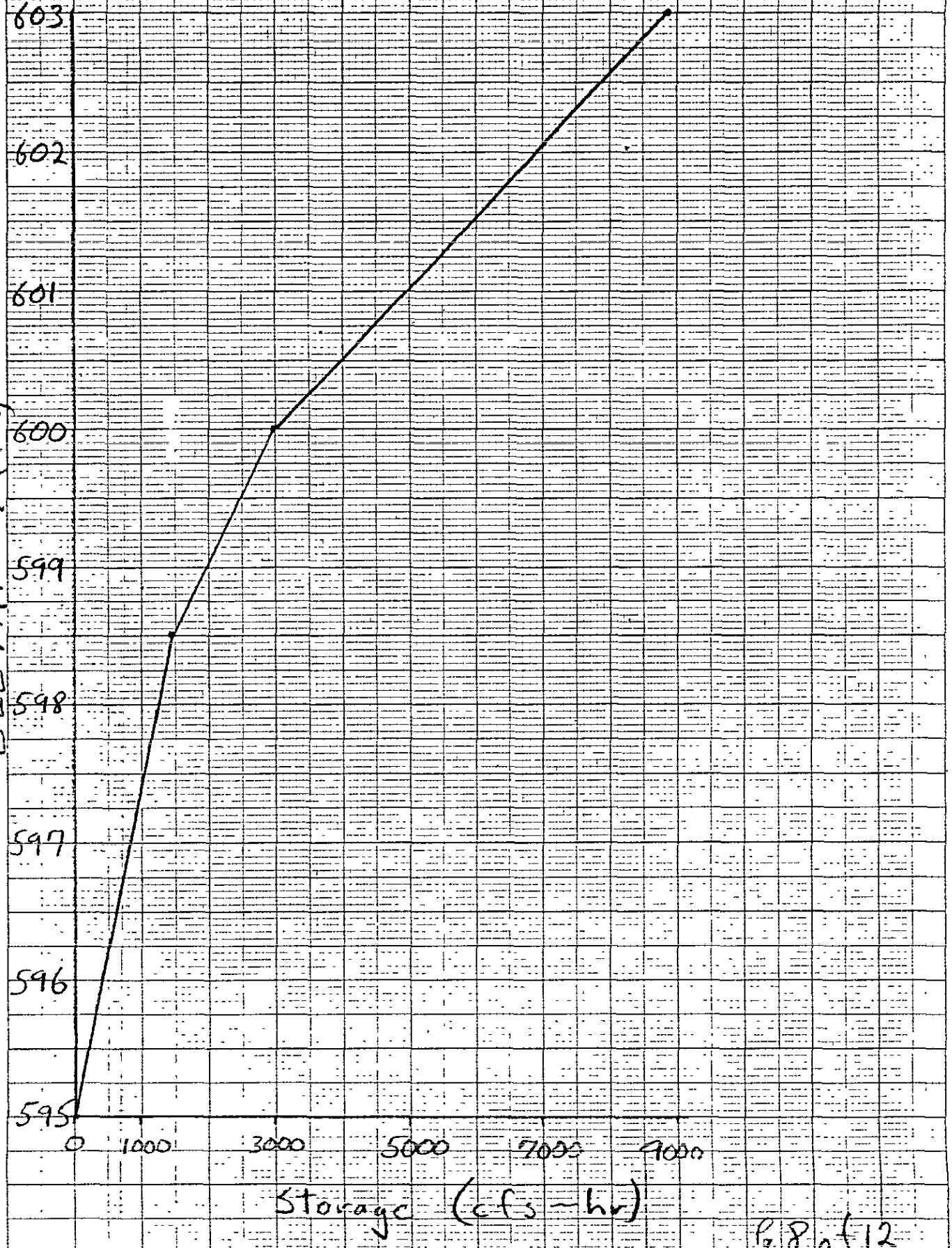

Pg 7 of 12

Exhibit 11

46 1320

K+E 10 X 10 TO ½ INCH 7 X 10 INCHES KEUFFEL & ESSER CO MADE IN U.S.A.

# STAGE / STORAGE CURVE
## SILVER CREEK




46 1320

KE 10 X 10 TO ½ INCH 7 X 10 INCHES KEUFFEL & ESSER CO MADE IN U.S.A.



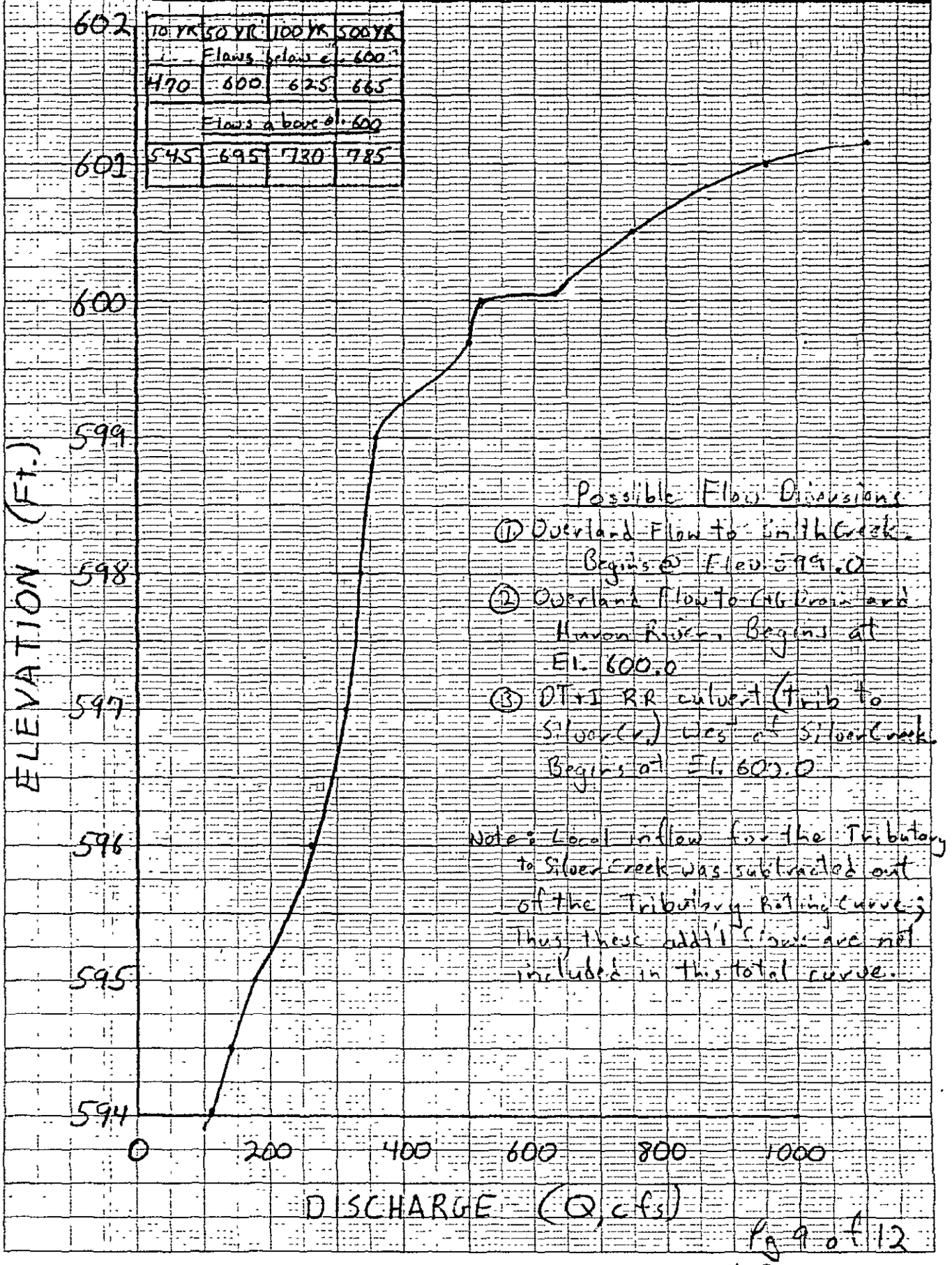
HUD 200907

9/13/79

Exhibit 11

# TOTAL DISCHARGE/ELEVATION RATING CURVE
## SILVER CREEK + DIVERSION OF FLOW TO OTHER BASINS

| | 10 YR | 50 YR | 100 YR | 500 YR |
|---|---|---|---|---|
| | Flows below el. 600 | | | |
| H70 | 600 | 625 | 665 | |
| | Flows above el. 600 | | | |
| 545 | 695 | 730 | 785 | |




Possible Flow Diversions

① Overland Flow to Smith Creek. Begins @ Elev. 599.0

② Overland Flow to Gibbons and Huron River. Begins at El. 600.0

③ DT+I RR culvert (Trib to Silver Cr.) West of Silver Creek. Begins at El. 600.0

Note: Local inflow for the Tributary to Silver Creek was subtracted out of the Tributary Rating Curve; Thus these addl flows are not included in this total curve.



Exhibit 11

HUD 2009 07
9/13/79

46 1320
K+E 10 X 10 TO ½ INCH 7 X 10 INCHES KEUFFEL & ESSER CO MADE IN U.S.A.

REFERENCE

# Inflow Hydrographs Silver Creek

| Time (hr.) | 10 yr Storm Q | 50 yr. Storm Q | 100 yr. storm Q | 500 yr. Storm Q |
|---|---|---|---|---|
| 0 | 10 | 15 | 20 | 25 |
| 1.0 | 30 | 35 | 40 | 50 |
| 2.0 | 85 | 85 | 95 | 115 |
| 3.0 | 230 | 220 | 245 | 285 |
| 4.0 | 390 | 460 | 505 | 570 |
| 5.0 | 455 | 630 | 695 | 790 |
| 6.0 | 440 | 665 | 735 | 840 |
| 7.0 | 425 | 640 | 705 | 810 |
| 8.0 | 415 | 620 | 685 | 790 |
| 9.0 | 400 | 600 | 665 | 765 |
| 10.0 | 375 | 570 | 635 | 740 |
| 11.0 | 345 | 535 | 595 | 700 |
| 12.0 | 320 | 495 | 550 | 660 |
| 13.0 | 290 | 455 | 505 | 615 |
| 14.0 | 270 | 415 | 465 | 575 |
| 15.0 | 250 | 385 | 430 | 530 |
| 16.0 | 235 | 355 | 395 | 490 |
| 17.0 | 215 | 325 | 365 | 455 |
| 18.0 | 180 | 290 | 325 | 415 |
| 19.0 | 145 | 245 | 275 | 365 |
| 20.0 | 110 | 190 | 215 | 300 |

*See Hydrology File (HUD 2009 06) for these Inflow Hydrographs which were obtained from the [illegible] report on Rockwood (FEMA).

Exhibit 11

| SUBJECT | BY | CHK. | SHEET NO. | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| Flood Routing - Silver Creek | WJ Weaver | | 10 OF 12 | HUD • 2009 • 07 |
| | DATE 9/13/10 | DATE | | |

REFERENCE

# FLOOD ROUTING SUMMARY

| Storm Event | Peak (cfs) Inflow | Peak (cfs) Outflow | Flood Elevation U/s of D.T.+I. |
|---|---|---|---|
| 10 yr. | 455 | 320 | 597.2 |
| 50 yr. | 665 | 415 | 599.3 |
| 100 yr. | 735 | 480 | 599.6 |
| 500 yr. | 840 | 599 | 600.1 |

Results of this analysis indicates that storage and diversion from the basin play a large part in the reduction of flowrates. The peak flowrates (Outflow) listed above were used in the hydraulic analysis of Silver Creek and the elevations are input for the computer model (HEC-2) upstream of the D.T.+I. railroad corridor. The flood routing analysis utilized the S.C.S. TR-20 hydrologic computer models. Computer printouts for this analysis are contained in Exhibit 13.

EXHIBIT # 11

| SUBJECT | BY | CHK. | SHEET NO | File Code No (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| FLAT ROCK - F.I.S. | U. Wraver | | 11 OF 12 | 440 • 2009 07 |
| | DATE 1/23/86 | DATE | | |

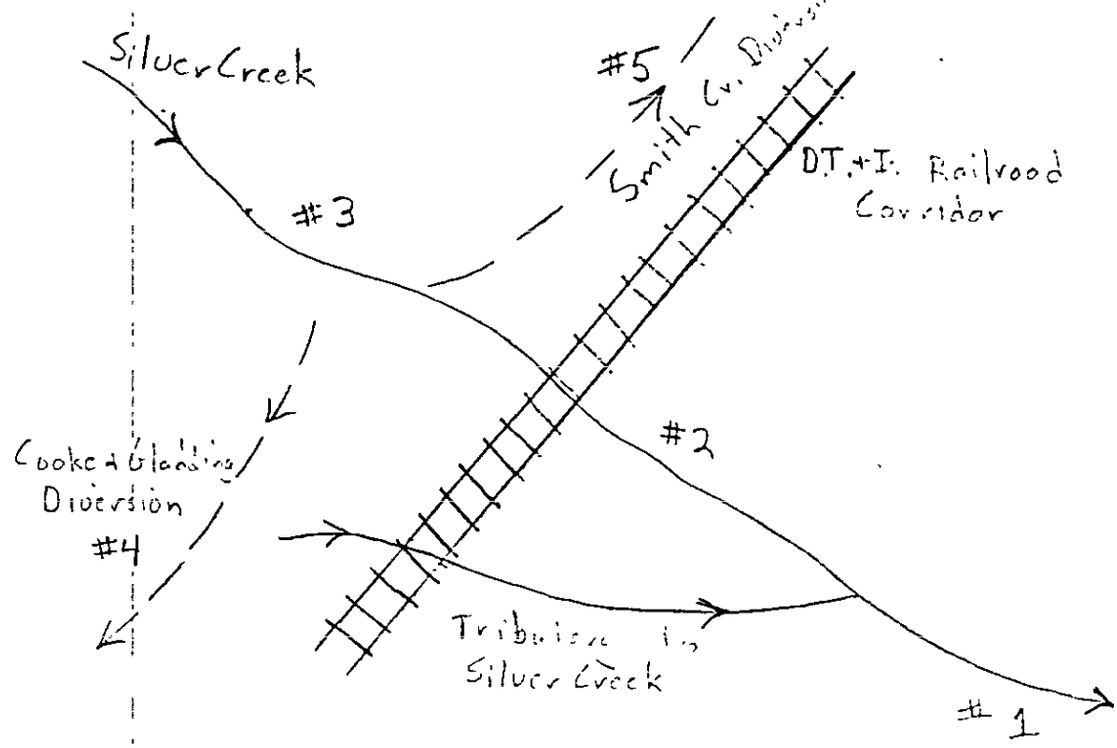
FORM 25-0
(313) 291-5400

**Wade, Trim & Associates, Inc.**
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

REFERENCE

## FLOW NETWORK




## FLOW DISTRIBUTION

| Location | Flood Frequency / Discrete (cfs) | | | |
|---|---|---|---|---|
| | 10 yr. | 50 yr. | 100 yr. | 500 yr. |
| #1 Silver Cr. + Tributary [illegible] D/S of D.T.+I. Railroad | [illegible] | 460 | 495 | 535 |
| #2 [illegible] D/S of DT.+I. | 320 | 365 | [illegible] | [illegible] |
| #3 Silver Cr. U/S of D.T.+I. | 455 | 665 | [illegible] | 840 |
| #4 Cooke + Gladding Cr. Diversion | 0 | 0 | 0 | [illegible] |
| #5 Smith Creek Diversion | 0 | 50 | 90 | 155 |

EXHIBIT #11

| SUBJECT | BY | CHK | SHEET NO | File Code No. (Job No.) Owner • Project • Suffix |
|---|---|---|---|---|
| [illegible] F.I.S. | [illegible] | | 12 OF 12 | [illegible] • [illegible] • 07 |
| | DATE [illegible] | DATE | | |

# REFERENCES


1. U.S. Department of Housing and Urban Development, Flood Insurance Study - City of Rockwood, Michigan.

2. U.S. Geological Survey Topographical Maps - Flat Rock Quadrangle, Wayne County, Michigan, 7.5 Minute Series - Photorevised 1973.

3. HEC-2 - Water Surface Profile - Users Manual - U.S. Army Corps of Engineers - 1976.

4. Huron River Survey, U.S. Army Corps of Engineers - Detroit District, No Date Provided.

5. Post Flood Report of Southeast Michigan Flood 25-27 June 1968, U.S. Army Engineer District, Detroit Corps of Engineers, Detroit, Michigan, 1969.

6. Wade, Trim & Associates, Inc., Smith Creek - Flood Plain Study - City of Flatrock, Wayne County, Michigan, June, 1974.

7. U.S. Department of Agriculture, Soil Conservation Service, Computer Program for Project Formulation, Hydrology, Technical Release No. 20, May, 1965.

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Flat Rock

3) WATERCOURSE: Silver Creek

4) DOCUMENT TYPE: Summary

00BREAK00

State Copy

10:50:21 X48 BILL HU200907 HUDFROCK JAN 23, 1980

This is the approved Master Submittal. 3/28/80

PRINTED IN U.S.A.

FORM 1411-GD-PRINTED BY ROTARY MANIFOLD FORMS

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JOB10=HU200907          USER=BILL          PROJECT=HUDFROCK          BILLING=HUDFROCK          ROOM=XC04L

10:39:00                                JOB INTRODUCED FROM                                JAN 23, 1980
                                          CD01 JCL

10:40:04  START OF TRANSLATION

          $JOB HU200907,USER=BILL,PROJECT=HUDFROCK;
          $INPUT REC2;
          RECORD COUNT: 401
          $ENDINPUT;
           VALUES WTAPAK,WTAPAK;
           SEND 'START OF REC=2 EXECUTION';
           STEP REC=2,WTAENGLH,OPTIONS='FILE=A 91,FILE=B 92,FILE=C 93,FILE=D 94,
                                        FILE=E 95,FILE=F 96';
           ALC FILE=A,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=A,FILE=A,TEMPRY,DVC=MS/M400,MD=B1;
           ALC FILE=B,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=B,FILE=B,TEMPRY,DVC=MS/M400,MD=B2;
           ALC FILE=C,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=C,FILE=C,TEMPRY,DVC=MS/M400,MD=B2;
           ALC FILE=D,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=D,FILE=D,TEMPRY,DVC=MS/M400,MD=B2;
           ALC FILE=E,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=E,FILE=E,TEMPRY,DVC=MS/M400,MD=B2;
           ALC FILE=F,SIZE=2,UNIT=CYL,INCRSIZE=1;
           ASG FILE=F,FILE=F,TEMPRY,DVC=MS/M400,MD=B2;
           ASG MMRD,REC2,FILESTAT=10;
          DEFINE PRPR,
           PRINTER=(FORMAT=66,NOF=1,PFT=641);
           ENDSTEP;
          SENDJOB;

          RECORD COUNT :   425

10:40:06  END OF TRANSLATION
```

```
JOBID=HU200907          USER=BILL          PROJECT=HUDFROCK          BILLING=HUDFROCK          RUN=X0045

MOT  : PERSERVERANCE IS A STRONG WILL, COMPLACENCY A STRONG WON'T


10:40:47                                  JOB EXECUTION LISTING                                  JAN 23, 1980


          START OF NEC=2 EXECUTION
          STEP 1
          LOAD MODULE = NEC=2 (79/2 /22 23:58)
          LIBRARY = WTAENGLM
10:41:09  STEP STARTED XPRTY=9
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000048.FILE=B
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000048.FILE=C
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000048.FILE=D
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000048.FILE=A
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000048.FILE=E
          FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: WTAPAK FOR EFN: ;000048.FILE=F
          TASK MAIN J=01 P=00 COMPLETED
          DUFD1.IFN=FILE=B       REMEMBER REUSE=        0
          DUFD1.IFN=FILE=E       REMEMBER REUSE=        0
          DUFD1.IFN=FILE=C       REMEMBER REUSE=        0
          DUFD1.IFN=FILE=F       REMEMBER REUSE=        0
          DUFD1.IFN=FILE=D       REMEMBER REUSE=        0
          DUFD1.IFN=FILE=A       REMEMBER REUSE=        0    UNLOCK BUFFER=        0    CREATE BUFFER=       32
          TEMPORARY FILES USED=    220 TRACKS
          FILE=B    ON  WTAPAK :  NB  OF  IO  CONNECTS=       135
          FILE=E    ON  WTAPAK :  NB  OF  IO  CONNECTS=      1143
          FILE=C    ON  WTAPAK :  NB  OF  IO  CONNECTS=       166
          H=PR      ON  L64RV4 :  NB  OF  IO  CONNECTS=        32
          H=RD      ON  L64RV4 :  NB  OF  IO  CONNECTS=        34
          FILE=F    ON  WTAPAK :  NB  OF  IO  CONNECTS=        30
          FILE=D    ON  WTAPAK :  NB  OF  IO  CONNECTS=       165
          FILE=A    ON  WTAPAK :  NB  OF  IO  CONNECTS=       [illegible]
          CPU          6.561                    PROG MISSING SECTS      603   STACKOV      78
          ELAPSED      9.035                    SYS  MISSING SECTS     1093
          LINES         2052   LIMIT    NOLIM   BACKING STORE        625152
          CARDS            0   LIMIT    NOLIM   BUFFER SIZE           13040   CPSIZE     2272
10:50:12  STEP COMPLETED


          START    10:40:47   LINES       2052
          STOP     10:50:14   CARDS          0
          CPU          6.561
          ELAPSE       9.462
10:50:14  RESULT:  JOB COMPLETED
```

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
*****************************************************

C
TICITY OF FLAT ROCK FIS
T2       DATEOF RUN = 1/80
T3       SILVER CR. MULTI PROFILE

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.  0.000000      0.00       0.0       0.   506.600     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150.000   201.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J5  LPRNT     NUMSEC                    ********REQUESTED SECTION NUMBERS********

    -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000     0.000
QT      5.000   530.000   675.000   705.000   705.000   735.000     0.000     0.000     0.000     0.000
NC      0.035     0.035     0.035     0.100     0.300     0.000     0.000     0.000     0.000     0.000

        650. FEET D/S OF D/S FACE OF OLMSTEAD RD. ROCKWOOD SECT. 19073.

X1      0.000    32.000  1500.000  1523.000     0.000     0.000     0.000     0.000     0.000     0.000
X3      0.000     0.000     0.000  1350.000     0.000  1600.000     0.000     0.000     0.000     0.000
GR    588.700     0.000   588.900   100.000   588.300   200.000   587.700   300.000   586.100   400.000
GR    586.500   500.000   583.000   600.000   583.700   700.000   586.800   800.000   587.600   900.000
GR    587.700  1000.000   588.600  1100.000   586.500  1200.000   584.900  1300.000   582.200  1400.000
GR    583.300  1619.000   579.300  1430.000   580.600  1500.000   579.000  1532.000   577.700  1514.000
GR    577.900  1323.000   581.000  1532.000   580.600  1600.000   581.800  1700.000   586.800  1800.000
GR    585.800  1900.000   585.100  2000.000   587.800  2100.000   588.800  2200.000   589.600  2300.000
GR    589.600  2400.000   589.500  2500.000     0.000     0.000     0.000     0.000     0.000     0.000

        D/S FACE OF OLMSTEAD ROAD                ROCKWOOD SECT. 19523.

X1      1.000    18.000   692.400   707.600   600.000   500.000   450.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   584.500   584.500     0.000
GR    530.000   550.000   586.700   550.000   583.300   600.000   586.800   692.400   577.100   692.400
GR    577.100   694.000   577.000   696.000   577.000   690.000   576.900   700.000   577.000   702.000
GR    577.000   704.000   577.100   706.000   577.100   707.600   585.800   707.600   585.200   800.000
GR    584.600   900.000   584.600   950.000   650.000   950.000     0.000     0.000     0.000     0.000
NC      0.018     0.018     0.031     0.000     0.000     0.000     0.000     0.000     0.000     0.000

        1.FOOT INSIDE BRIDGE D/S END             ROCKWOOD SECT. 19524.

X1      2.000     0.000     0.000     0.000     0.000     1.000     1.000     0.000     0.000     0.000
ET     23.000   550.000   650.000     0.000   550.000   650.000     0.000   550.000   650.000     0.000
ET    550.000   650.000     0.000   550.000   650.000     0.000   550.000   650.000     0.000   550.000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 586.700 | 0.000 | 600.000 | 586.300 | 0.000 | 692.400 | 585.800 | 577.100 | 692.400 | 585.800 |
| BT | 577.600 | 694.000 | 585.800 | 581.200 | 696.000 | 585.800 | 582.800 | 698.000 | 585.800 | 583.900 |
| BT | 700.000 | 585.800 | 583.900 | 702.000 | 585.800 | 583.900 | 704.000 | 585.800 | 582.800 | 706.000 |
| BT | 585.800 | 581.200 | 707.600 | 585.800 | 577.600 | 707.600 | 585.800 | 577.100 | 800.000 | 585.200 |
| BT | 0.000 | 900.000 | 584.600 | 0.000 | 950.000 | 584.200 | 0.000 | 950.000 | 650.000 | 0.000 |

1.FOOT INSIDE BRIDGE U/S END ROCKWOOD SECT. 19570.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3.000 | 0.000 | 0.000 | 0.000 | 46.000 | 46.000 | 46.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 585.800 | 584.600 | 0.000 |
| NC | 0.045 | 0.045 | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF OLMSTEAD ROAD ROCKWOOD SECT. 19571.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 585.800 | 585.200 | 0.000 |
| BT | 5.000 | 545.000 | 695.000 | 730.000 | 730.000 | 785.000 | 0.000 | 0.000 | 0.000 | 0.000 |

750.FEET U/S OF U/S FACE OF OLMSTEAD RD.ROCKWOOD SECT. 20321.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5.000 | 13.000 | 210.000 | 250.000 | 775.000 | 725.000 | 750.000 | 0.000 | 0.000 | 0.000 |
| GR | 589.700 | 0.000 | 587.900 | 30.000 | 585.500 | 50.000 | 582.300 | 110.000 | 582.000 | 210.000 |
| GR | 578.600 | 217.000 | 378.600 | 221.000 | 578.900 | 225.000 | 580.600 | 230.000 | 582.000 | 310.000 |
| GR | 581.600 | 410.000 | 582.800 | 510.000 | 585.400 | 610.000 | 589.700 | 710.000 | 588.700 | 810.000 |
| GR | 588.700 | 910.000 | 589.800 | 1010.000 | 589.200 | 1030.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1450.FEET U/S OF U/S FACE OF OLMSTEAD ROCKWOOD SECT. 21021. CORP.LIMIT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6.000 | 14.000 | 400.000 | 434.000 | 675.000 | 725.000 | 700.000 | 0.000 | 0.000 | 0.000 |
| GR | 590.800 | 0.000 | 589.600 | 40.000 | 590.900 | 100.000 | 581.000 | 200.000 | 581.900 | 303.000 |
| GR | 583.700 | 430.300 | 575.000 | 417.000 | 575.900 | 424.000 | 579.200 | 420.300 | 582.400 | 434.300 |
| GR | 581.330 | 530.300 | 583.500 | 610.000 | 590.000 | 710.000 | 593.500 | 610.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.040 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION D/S OF GOODRUFF RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3944.000 | 35.100 | 301.250 | 318.750 | 1400.000 | 1944.300 | 2682.000 | 0.000 | 0.000 | 0.000 |
| GR | 590.000 | 75.000 | 586.000 | 76.000 | 585.000 | 200.000 | 585.000 | 296.000 | 583.130 | 301.200 |
| GR | 583.130 | 301.250 | 581.000 | 304.000 | 580.700 | 340.000 | 581.000 | 316.000 | 584.070 | 318.750 |
| GR | 584.070 | 318.800 | 585.000 | 321.000 | 586.000 | 400.000 | 586.000 | 450.000 | 590.000 | 451.000 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 94.000 | 428.000 |

D/S FACE OF GOODRUFF RD. BRIDGE REPEATED SECT. 1944

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2044.000 | 15.000 | 301.250 | 318.750 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 585.400 | 585.400 | 0.000 |
| GR | 590.000 | 75.000 | 586.000 | 76.000 | 585.650 | 200.000 | 586.660 | 296.000 | 585.000 | 301.200 |
| GR | 583.130 | 301.250 | 581.000 | 304.000 | 580.700 | 340.000 | 581.000 | 316.000 | 584.070 | 318.750 |
| GR | 584.070 | 318.800 | 586.000 | 321.000 | 586.000 | 400.000 | 586.000 | 450.000 | 590.000 | 451.000 |
| NC | 0.070 | 0.070 | 0.025 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1 FOOT INSIDE OF D/S FACE OF BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2045.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 0.000 | 76.000 | 586.000 | 0.000 | 200.000 | 585.650 | 0.000 | 301.200 | 585.650 | 0.000 |
| BT | 301.250 | 589.130 | 583.130 | 318.750 | 589.130 | 584.070 | 318.800 | 586.000 | 0.000 | 321.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| BT | 586.000 | 0.000 | 400.000 | 586.000 | 0.000 | 450.000 | 586.000 | 0.000 | 0.000 | 0.000 |
| QT | 5.000 | 395.000 | 460.000 | 495.000 | 495.000 | 535.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1 FOOT INSIDE OF U/S FACE OF BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2074.000 | 0.000 | 0.000 | 0.000 | 29.000 | 29.000 | 29.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF WOODRUFF RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2075.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 585.630 | 586.330 | 0.000 |

X-SECTION U/S OF WOODRUFF RD. REPEATED SECT. 2075.5

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2100.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3073.000 | 14.000 | 294.000 | 300.000 | 973.000 | 973.000 | 973.000 | 0.000 | 0.000 | 0.000 |
| GR | 591.910 | 0.000 | 592.060 | 100.000 | 591.860 | 200.000 | 591.260 | 210.000 | 588.710 | 254.000 |
| GR | 588.510 | 277.000 | 581.780 | 294.000 | 581.080 | 300.000 | 581.780 | 306.000 | 585.880 | 316.000 |
| GR | 585.530 | 416.000 | 585.630 | 516.000 | 585.830 | 616.000 | 590.000 | 1000.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.040 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4573.000 | 15.000 | 1195.000 | 1207.000 | 1350.000 | 1650.000 | 1500.000 | 0.000 | 0.000 | 0.000 |
| GR | 591.000 | 0.000 | 590.300 | 350.000 | 587.600 | 900.000 | 587.550 | 1000.000 | 587.200 | 1100.000 |
| GR | 587.900 | 1155.000 | 193.100 | 1199.000 | 591.950 | 1202.000 | 583.100 | 1207.000 | 587.400 | 1215.000 |
| GR | 586.600 | 1300.000 | 587.500 | 1400.000 | 587.050 | 1500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.070 | 0.070 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION D/S OF BRIDGE S. OF GIBRALTAR RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X3 | 6337.500 | 15.000 | 265.000 | 283.000 | 1764.500 | 1764.500 | 1764.500 | 0.000 | 0.000 | 0.000 |
| GR | 591.000 | 0.000 | 590.000 | 80.000 | 593.280 | 208.000 | 586.930 | 244.000 | 585.550 | 260.000 |
| GR | 584.980 | 265.000 | 584.030 | 275.000 | 584.080 | 283.000 | 585.530 | 280.000 | 586.380 | 314.000 |
| GR | 592.430 | 337.000 | 590.000 | 400.000 | 590.500 | 525.000 | 591.000 | 600.000 | 591.500 | 630.000 |
| GR | 592.000 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.040 | 0.060 | 0.350 | 0.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.100 | 0.100 |

10: D/S OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6527.000 | 12.000 | 110.000 | 138.000 | 190.000 | 190.000 | 190.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 20.000 | 0.000 | 170.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 592.700 | 10.000 | 592.900 | 97.000 | 593.300 | 50.000 | 586.900 | 94.000 | 585.500 | 110.000 |
| GR | 585.000 | 110.000 | 584.000 | 125.000 | 584.900 | 133.000 | 585.500 | 158.000 | 586.000 | 164.000 |
| GR | 592.400 | 137.000 | 592.600 | 218.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

10: D/S OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6537.500 | 26.000 | 99.000 | 165.400 | 190.000 | 190.000 | 190.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.400 | 592.400 | 0.000 |
| GR | 592.700 | 10.000 | 592.900 | 97.000 | 593.200 | 94.000 | 586.900 | 99.000 | 586.500 | 99.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 586.300 | 114.600 | 586.300 | 114.700 | 586.300 | 115.800 | 586.300 | 115.900 | 585.800 | 131.500 |
| GR | 585.800 | 131.600 | 585.800 | 132.700 | 585.800 | 132.800 | 585.000 | 140.600 | 585.800 | 148.400 |
| GR | 585.800 | 148.500 | 585.800 | 149.600 | 585.800 | 149.700 | 586.300 | 165.300 | 586.300 | 165.400 |
| GR | 586.300 | 166.600 | 586.300 | 166.700 | 586.400 | 183.300 | 586.400 | 183.400 | 593.100 | 188.000 |
| GR | 592.600 | 210.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.040 | 0.060 | 0.025 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6538.500 | 0.300 | 0.000 | 0.000 | 1.800 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.400 | 592.400 | 0.000 |
| GT | 25.000 | 10.500 | 592.700 | 0.000 | 37.000 | 592.900 | 0.000 | 94.000 | 593.200 | 0.000 |
| BT | 99.000 | 593.600 | 586.500 | 99.100 | 593.600 | 591.800 | 114.600 | 593.600 | 591.800 | 114.700 |
| BT | 593.600 | 586.300 | 115.800 | 593.600 | 586.300 | 115.900 | 593.600 | 591.800 | 131.500 | 593.600 |
| BT | 591.800 | 131.600 | 593.600 | 585.800 | 132.700 | 593.600 | 585.800 | 132.800 | 593.600 | 591.800 |
| BT | 148.400 | 593.600 | 591.800 | 148.500 | 593.600 | 585.800 | 149.600 | 593.600 | 585.800 | 149.700 |
| BT | 593.600 | 591.800 | 165.300 | 593.600 | 591.800 | 165.400 | 593.600 | 586.300 | 166.400 | 593.600 |
| BT | 586.300 | 166.700 | 593.600 | 591.800 | 183.300 | 593.600 | 591.800 | 183.400 | 593.000 | 586.400 |
| BT | 188.000 | 593.100 | 0.000 | 218.000 | 592.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6528.000 | 0.000 | 0.000 | 0.000 | 39.500 | 39.500 | 39.500 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.500 | 592.500 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.040 | 0.040 | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1: U/S OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6579.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.700 | 592.600 | 0.000 |

30: U/S OF DRIVEWAY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6509.000 | 10.000 | 117.000 | 163.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| GT | 592.700 | 11.000 | 592.900 | 37.000 | 593.200 | 94.000 | 589.000 | 117.000 | 534.900 | 132.000 |
| GR | 534.900 | 149.000 | 585.500 | 166.000 | 589.100 | 183.000 | 595.700 | 130.000 | 592.000 | 290.000 |
| NC | 0.370 | 0.070 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION, U/S OF GIBRALTAR RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7174.000 | 14.000 | 267.300 | 282.500 | 547.000 | 547.000 | 547.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 242.000 | 0.000 | 307.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 595.000 | 0.000 | 590.000 | 110.000 | 590.000 | 251.000 | 505.400 | 267.500 | 585.050 | 275.000 |
| GR | 585.600 | 282.500 | 589.900 | 315.000 | 590.000 | 390.000 | 590.000 | 449.900 | 596.000 | 450.000 |
| GR | 590.000 | 480.000 | 590.200 | 480.100 | 591.000 | 700.000 | 593.000 | 1000.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.100 | 0.000 | 0.000 | 0.000 | 1.000 | 1000.000 |

D/S FACE OF GIBRALTAR RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7274.000 | 11.000 | 289.150 | 304.100 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 189.000 | 0.000 | 349.000 | 0.000 | 593.300 | 593.300 | 0.000 |
| GR | 595.000 | 87.000 | 590.300 | 133.000 | 590.000 | 275.000 | 585.600 | 289.150 | 585.050 | 308.050 |
| GR | 585.600 | 304.100 | 590.300 | 340.000 | 590.000 | 415.000 | 590.000 | 452.000 | 595.000 | 454.000 |
| GR | 595.000 | 454.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.570 | 3.000 | 0.000 | 12.200 | 0.000 | 84.000 | 0.000 | 582.500 | 585.050 |

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U/S FACE OF GIBRALTAR RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7373.000 | 18.000 | 489.150 | 504.100 | 99.000 | 99.000 | 99.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 589.360 | 592.370 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 585.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 592.530 | 592.370 | 0.000 |
| BT | 13.000 | 287.000 | 593.600 | 0.000 | 287.000 | 593.600 | 0.000 | 287.000 | 593.600 | 0.000 |
| BT | 300.000 | 593.170 | 3.000 | 400.000 | 592.620 | 0.000 | 489.150 | 592.530 | 582.900 | 489.160 |
| BT | 595.300 | 589.360 | 504.000 | 595.300 | 589.360 | 504.100 | 592.470 | 582.900 | 533.000 | 592.370 |
| BT | 0.000 | 600.000 | 592.410 | 0.000 | 633.000 | 592.500 | 0.000 | 633.000 | 605.000 | 0.000 |
| GR | 593.600 | 287.000 | 593.600 | 287.000 | 593.600 | 287.000 | 593.000 | 300.000 | 592.600 | 400.000 |
| GR | 592.000 | 476.000 | 582.900 | 489.150 | 582.900 | 489.160 | 582.500 | 500.000 | 582.900 | 504.000 |
| GR | 582.900 | 504.100 | 592.000 | 518.000 | 592.000 | 533.000 | 592.000 | 500.000 | 592.000 | 633.000 |
| GR | 592.000 | 633.000 | 595.000 | 633.000 | 605.000 | 633.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECTION U/S OF GIBRALTAR RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7398.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 400.000 | 0.000 | 633.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.070 | 0.070 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION N. OF GIBRALTAR RD. BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8573.000 | 12.000 | 1047.000 | 1059.000 | 1175.000 | 1175.000 | 1175.000 | 0.000 | 0.000 | 0.000 |
| GR | 595.000 | 0.000 | 592.050 | 750.000 | 590.250 | 900.000 | 591.850 | 1036.000 | 585.750 | 1047.000 |
| GR | 585.500 | 1050.000 | 585.700 | 1053.000 | 586.750 | 1056.000 | 587.600 | 1059.000 | 591.450 | 1066.000 |
| GR | 592.100 | 1200.000 | 595.100 | 1350.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.090 | 0.090 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9000.000 | 0.000 | 0.000 | 0.000 | 427.000 | 427.000 | 427.000 | 0.000 | 0.460 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9500.000 | 0.000 | 0.000 | 0.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.360 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10173.000 | 13.000 | 295.000 | 304.000 | 673.500 | 673.000 | 673.000 | 0.000 | 0.200 | 0.000 |
| GR | 599.300 | 0.000 | 593.500 | 130.000 | 592.800 | 233.000 | 591.900 | 287.000 | 587.200 | 296.000 |
| GR | 587.300 | 300.000 | 587.100 | 304.000 | 588.300 | 306.000 | 586.300 | 310.000 | 595.200 | 316.000 |
| GR | 592.400 | 363.000 | 593.550 | 593.000 | 590.200 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 5.000 | 320.000 | 365.000 | 390.000 | 590.030 | 415.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 11673.000 | 12.000 | 295.000 | 305.000 | 1300.000 | 1800.000 | 1500.000 | 0.000 | 0.000 | 0.000 |
| GR | 598.310 | 0.000 | 593.710 | 150.000 | 593.810 | 253.000 | 594.560 | 263.000 | 596.910 | 272.000 |
| GR | 596.310 | 280.100 | 588.810 | 295.500 | 588.760 | 300.000 | 583.760 | 303.000 | 594.810 | 313.000 |
| GR | 595.460 | 450.200 | 597.010 | 600.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.110 | 0.110 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X-SECT. U/S OF R.R. CULVERTS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X | 12356.000 | 12.000 | 745.000 | 755.000 | 903.000 | 663.000 | 663.000 | 0.000 | 0.000 | 0.000 |
| X1 | 0.000 | 0.000 | 0.000 | 692.000 | 0.000 | 808.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 630.300 | 31.000 | 598.000 | 295.000 | 596.000 | 553.000 | 595.000 | 500.000 | 596.200 | 737.000 |
| GR | 590.300 | 745.000 | 589.830 | 750.000 | 590.000 | 755.000 | 595.000 | 770.000 | 596.000 | 828.000 |
| GR | 598.000 | 1025.000 | 600.000 | 1250.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.400 | 0.000 | 0.000 | 0.000 | 1.000 | 421.000 |

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D/S FACE OF DUAL 9: X 6.5: CMP:S

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12456.000 | 24.000 | 739.000 | 761.000 | 191.000 | 191.000 | 191.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 602.600 | 602.600 | 0.000 |
| GR | 605.000 | 0.000 | 602.700 | 1.000 | 601.000 | 2.000 | 598.000 | 290.000 | 596.000 | 550.000 |
| GR | 595.000 | 680.000 | 596.000 | 730.000 | 592.000 | 739.000 | 591.000 | 740.500 | 590.000 | 742.000 |
| GR | 590.000 | 743.500 | 590.100 | 745.000 | 591.500 | 747.000 | 592.000 | 748.000 | 592.000 | 752.000 |
| GR | 590.200 | 754.000 | 590.000 | 756.500 | 591.000 | 759.000 | 592.000 | 761.000 | 595.000 | 767.000 |
| GR | 596.000 | 900.000 | 600.000 | 1200.000 | 602.700 | 1250.000 | 605.000 | 1251.000 | 0.000 | 0.000 |
| SB | 0.000 | 3.250 | 3.000 | 0.000 | 11.350 | 0.000 | 77.000 | 0.000 | 590.400 | 590.000 |

DUAL CMP:S MEET DUAL BOX CULVERTS HERE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12612.000 | 26.000 | 739.000 | 756.000 | 156.000 | 156.000 | 156.000 | 0.300 | 0.900 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 596.600 | 602.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 602.600 | 602.600 | 0.000 |
| BT | 16.000 | 0.000 | 605.000 | 0.000 | 1.000 | 602.700 | 0.000 | 739.000 | 602.600 | 591.400 |
| BT | 739.100 | 602.600 | 595.000 | 740.500 | 602.600 | 596.400 | 744.300 | 602.600 | 596.400 | 746.000 |
| BT | 602.600 | 595.000 | 747.000 | 602.600 | 592.400 | 748.000 | 602.600 | 592.400 | 749.000 | 602.600 |
| BT | 595.000 | 750.500 | 602.600 | 596.400 | 754.500 | 602.600 | 596.400 | 755.900 | 602.600 | 595.000 |
| BT | 756.000 | 602.600 | 591.400 | 1250.000 | 602.700 | 0.000 | 1251.000 | 605.000 | 0.000 | 0.000 |
| GR | 605.000 | 0.000 | 602.700 | 1.000 | 601.000 | 2.000 | 598.000 | 290.000 | 596.000 | 550.000 |
| GR | 595.000 | 680.000 | 596.000 | 730.000 | 591.400 | 739.000 | 591.400 | 739.100 | 590.600 | 740.500 |
| GR | 590.400 | 742.500 | 590.600 | 744.300 | 591.400 | 746.000 | 592.400 | 747.000 | 592.400 | 748.000 |
| GR | 591.400 | 749.000 | 590.600 | 750.500 | 590.400 | 752.500 | 590.600 | 754.500 | 591.600 | 755.900 |
| GR | 591.400 | 756.000 | 593.000 | 767.000 | 596.000 | 900.000 | 600.000 | 1200.000 | 602.700 | 1250.000 |
| GR | 605.000 | 1251.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 1.250 | 1.740 | 3.000 | 0.000 | 16.670 | 1.500 | 94.000 | 0.000 | 590.600 | 590.400 |

U/S FACE OF R.R. CULVERTS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12667.000 | 24.000 | 739.000 | 756.000 | 35.000 | 35.000 | 35.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 596.400 | 602.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 602.600 | 602.600 | 0.000 |
| BT | 16.000 | 0.000 | 605.000 | 0.000 | 1.000 | 602.700 | 0.000 | 739.000 | 602.600 | 590.400 |
| BT | 739.100 | 602.600 | 595.400 | 740.000 | 602.600 | 596.400 | 746.000 | 602.600 | 596.400 | 747.000 |
| BT | 602.600 | 595.400 | 747.100 | 602.600 | 595.600 | 746.000 | 602.600 | 590.400 | 748.100 | 602.600 |
| BT | 595.400 | 749.000 | 602.600 | 596.600 | 755.000 | 602.600 | 596.400 | 755.900 | 602.600 | 595.400 |
| BT | 756.000 | 602.600 | 590.400 | 1250.000 | 602.700 | 0.000 | 1251.000 | 605.000 | 0.000 | 0.000 |
| GR | 605.000 | 0.000 | 602.700 | 1.000 | 601.000 | 2.000 | 598.000 | 290.000 | 596.000 | 550.000 |
| GR | 595.000 | 600.000 | 596.000 | 730.000 | 590.400 | 739.000 | 590.400 | 739.100 | 590.400 | 740.000 |
| GR | 590.400 | 764.000 | 590.400 | 747.000 | 590.400 | 747.100 | 590.400 | 748.000 | 590.400 | 748.100 |
| GR | 590.400 | 749.000 | 590.400 | 755.000 | 590.400 | 755.900 | 590.400 | 756.000 | 595.000 | 767.000 |
| GR | 596.000 | 900.000 | 600.000 | 1200.000 | 602.700 | 1250.000 | 605.000 | 1251.000 | 0.000 | 0.000 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X@SECT.U/S OF R.R.CULVERT & D/S OF 9: CMP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12600.000 | 0.000 | 0.000 | 0.000 | 59.000 | 35.000 | 35.000 | 0.000 | 0.340 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 750.000 | 0.000 | 795.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 1251.000 |

D/S FACE OF 9: CMP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12765.000 | 115.000 | 739.000 | 756.000 | 95.000 | 95.000 | 95.000 | 0.000 | 0.000 | 0.000 |
| X2 | 10.000 | 0.000 | 10.000 | 10.000 | 0.000 | 0.000 | 0.000 | 598.500 | 596.500 | 0.000 |
| X4 | 1.000 | 605.000 | 685.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 595.000 | 687.000 | 596.000 | 730.000 | 592.000 | 739.000 | 590.900 | 739.100 | 590.900 | 746.790 |

PRINTED IN U.S.A.
FORM 1411-80 PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 592.000 | 747.000 | 592.000 | 748.000 | 591.200 | 748.100 | 591.200 | 755.900 | 592.000 | 756.000 |
| GR | 598.000 | 767.000 | 598.000 | 808.000 | 605.000 | 808.000 | 605.000 | 808.000 | 605.000 | 808.000 |
| SR | 0.000 | 5.010 | 3.000 | 0.000 | 11.230 | 0.000 | 68.500 | 0.000 | 591.100 | 590.900 |

U/S FACE OF 96 CNP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12979.000 | 19.000 | 739.000 | 756.000 | 264.000 | 264.000 | 264.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 597.200 | 602.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 602.600 | 602.600 | 0.000 |
| X4 | 1.000 | 605.000 | 606.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X5 | 5.000 | 597.200 | 599.300 | 599.600 | 599.800 | 600.100 | 0.000 | 0.000 | 0.000 | 0.000 |
| ST | 18.000 | 687.000 | 605.000 | 0.000 | 687.000 | 602.700 | 0.000 | 739.000 | 602.600 | 593.200 |
| BT | 739.500 | 602.600 | 595.500 | 741.000 | 602.600 | 597.000 | 743.000 | 602.600 | 597.200 | 745.000 |
| BT | 602.600 | 597.000 | 746.500 | 602.600 | 595.500 | 747.000 | 602.600 | 593.200 | 748.000 | 602.700 |
| BT | 593.000 | 748.500 | 602.600 | 595.000 | 749.500 | 602.600 | 596.500 | 752.000 | 602.600 | 597.000 |
| BT | 754.500 | 602.600 | 596.500 | 755.500 | 602.600 | 595.000 | 756.000 | 602.600 | 595.000 | 840.000 |
| BT | 602.700 | 0.000 | 840.000 | 605.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 603.000 | 687.700 | 596.000 | 730.300 | 593.250 | 739.000 | 591.100 | 739.500 | 591.100 | 741.000 |
| GR | 591.100 | 743.000 | 591.100 | 745.000 | 591.100 | 746.500 | 593.200 | 747.000 | 593.000 | 748.000 |
| GR | 591.100 | 748.500 | 591.100 | 749.500 | 591.100 | 752.000 | 591.100 | 754.500 | 591.100 | 755.500 |
| GR | 593.000 | 756.000 | 600.000 | 767.000 | 600.000 | 808.000 | 605.000 | 809.000 | 0.000 | 0.000 |
| QT | 5.000 | 455.000 | 665.000 | 735.000 | 735.000 | 340.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

X@SECT. U/S OF 96 CNP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13030.000 | 16.000 | 795.000 | 805.000 | 51.000 | 51.000 | 51.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 740.000 | 0.000 | 660.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X4 | 2.300 | 605.500 | 1.000 | 605.000 | 1401.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 601.000 | 2.000 | 598.090 | 500.000 | 595.900 | 650.000 | 595.360 | 764.000 | 596.200 | 773.000 |
| GR | 595.840 | 780.000 | 590.200 | 795.000 | 589.840 | 800.000 | 590.200 | 805.000 | 595.000 | 816.000 |
| GR | 595.900 | 821.000 | 597.300 | 828.500 | 596.840 | 842.000 | 598.090 | 900.000 | 600.000 | 1300.000 |
| GR | 601.500 | 1405.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 2.300 | 9.100 | 0.000 | 295.000 | 1300.000 | 650.000 | 950.000 |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13473.000 | 19.000 | 799.000 | 305.000 | 445.000 | 445.000 | 445.300 | 0.000 | 0.000 | 0.000 |
| X4 | 1.000 | 600.000 | 295.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 605.000 | 295.000 | 598.090 | 500.000 | 595.930 | 650.000 | 595.360 | 764.000 | 596.200 | 773.000 |
| GR | 595.840 | 780.000 | 590.340 | 795.000 | 590.190 | 800.000 | 590.340 | 805.000 | 595.440 | 816.000 |
| GR | 595.940 | 821.000 | 597.340 | 828.500 | 596.840 | 842.000 | 598.090 | 900.000 | 599.400 | 951.000 |
| GR | 609.430 | 951.100 | 609.400 | 1001.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.500 | 0.500 |
| ET | 0.000 | 2.100 | 2.105 | 2.100 | 9.100 | 1.100 | 490.300 | 1130.300 | 620.000 | 920.000 |

X@SECT. U/S OF WHEELAND RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13909.000 | 0.000 | 745.000 | 759.500 | 436.000 | 436.000 | 436.000 | 0.000 | 0.000 | 0.000 |
| X4 | 1.000 | 821.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.000 | 0.000 | 597.000 | 500.000 | 595.900 | 730.000 | 590.900 | 745.000 | 590.460 | 750.000 |
| GR | 590.900 | 755.000 | 595.400 | 766.000 | 600.000 | 1300.000 | 610.000 | 1307.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 499.000 | 1182.000 | 550.000 | 850.000 |

U/S FACE OF WHEELAND RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14009.000 | 9.000 | 695.000 | 705.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X4 | 15.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

PRINTED IN U.S.A.
FORM 141-GSPRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 610.000 | 495.000 | 597.000 | 500.000 | 596.000 | 680.000 | 591.300 | 695.000 | 591.210 | 700.000 |
| GR | 591.300 | 705.000 | 595.400 | 716.000 | 600.000 | 1250.000 | 610.000 | 1251.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.022 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 550.000 | 850.000 |

1 FOOT INSIDE OF D/S FACE OF CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14010.000 | 14.000 | 694.500 | 705.500 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X4 | 3.000 | 596.030 | 800.000 | 597.500 | 950.000 | 599.000 | 1100.000 | 0.000 | 0.000 | 0.000 |
| GR | 0.000 | 495.030 | 610.000 | 0.000 | 500.000 | 599.520 | 596.000 | 600.000 | 599.780 | 598.500 |
| GR | 694.500 | 599.190 | 590.900 | 694.580 | 599.190 | 596.210 | 705.413 | 599.190 | 596.210 | 705.500 |
| GR | 599.190 | 590.900 | 1250.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.000 | 495.000 | 597.000 | 500.000 | 596.500 | 600.000 | 591.300 | 694.500 | 591.300 | 694.585 |
| GR | 591.210 | 700.000 | 591.300 | 705.415 | 591.300 | 705.500 | 595.400 | 716.000 | 596.000 | 800.000 |
| GR | 597.500 | 950.000 | 599.000 | 1100.000 | 600.200 | 1250.000 | 610.000 | 1251.000 | 0.000 | 0.000 |
| ET | 0.300 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 500.000 | 900.000 |

1 FOOT INSIDE OF U/S FACE OF CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14090.000 | 0.000 | 0.000 | 0.000 | 80.000 | 60.000 | 60.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.030 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 500.000 | 900.000 |

U/S FACE OF VREELAND RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14091.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 9.000 | 0.000 | 0.000 | 597.500 | 597.500 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 450.000 | 950.000 |

SUBJECT, U/S OF VREELAND RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14114.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 275.000 | 875.000 |

VALLEY SECTION BASED ON FIELD BOOK AND QUAD. MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14073.000 | 16.000 | 571.000 | 579.300 | 557.000 | 557.000 | 557.300 | 0.000 | 0.000 | 0.000 |
| X4 | 1.000 | 602.500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.000 | 0.000 | 599.670 | 275.000 | 596.520 | 425.000 | 596.070 | 510.000 | 596.720 | 559.000 |
| GR | 592.670 | 579.330 | 592.070 | 579.050 | 592.570 | 579.000 | 567.970 | 566.000 | 597.120 | 603.300 |
| GR | 597.500 | 000.230 | 602.500 | 000.130 | 604.500 | 624.900 | 597.500 | 652.000 | 602.000 | 1000.000 |
| GR | 610.000 | 2001.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.090 | 0.090 | 0.040 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 7.100 | 9.100 | 0.000 | 623.000 | 2852.000 | 1050.000 | 1600.000 |

X-SECTION D/S OF TELEGRAPH RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15262.000 | 13.000 | 1396.000 | 1404.300 | 700.000 | 800.000 | 589.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.000 | 1049.000 | 610.000 | 1049.000 | 598.000 | 1030.000 | 597.300 | 1200.000 | 599.660 | 1377.000 |
| GR | 594.160 | 1388.300 | 592.600 | 1396.000 | 592.316 | 1400.000 | 592.600 | 1404.000 | 594.160 | 1412.000 |
| GR | 596.160 | 1416.300 | 596.500 | 1550.000 | 610.000 | 1551.000 | 0.500 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1125.000 | 1600.000 |

D/S FACE OF TELEGRAPH RD. BRIDGE

PRINTED IN U.S.A.
FORM 1411 GU-PRINTED BY ROTARY MANIFOLD FORMS.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15362.000 | 15.000 | 1390.400 | 1409.600 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.000 | 1009.000 | 600.000 | 1010.000 | 599.310 | 1200.000 | 599.900 | 1390.300 | 597.200 | 1390.400 |
| GR | 594.160 | 1390.410 | 592.600 | 1396.000 | 592.310 | 1400.000 | 592.600 | 1404.000 | 594.160 | 1409.590 |
| GR | 597.200 | 1409.600 | 599.900 | 1409.610 | 599.200 | 1500.000 | 599.300 | 1575.000 | 610.000 | 1576.000 |
| NC | 0.060 | 0.060 | 0.025 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1125.000 | 1600.000 |

1 FOOT INSIDE D/S TELEGRAPH BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15363.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.920 | 0.000 |
| BT | 5.000 | 1390.400 | 599.900 | 597.200 | 1390.410 | 599.900 | 597.200 | 1400.000 | 599.900 | 597.200 |
| BT | 1409.600 | 599.900 | 597.200 | 1409.610 | 599.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1125.000 | 1600.000 |

1 FOOT INSIDE U/S END TELEGRAPH BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15434.000 | 0.000 | 0.000 | 0.000 | 71.000 | 71.000 | 71.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.360 | 0.060 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.300 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1125.000 | 1600.000 |

U/S FACE TELEGRAPH RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15435.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 599.900 | 599.900 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1125.000 | 1600.000 |

XSECT. U/S OF TELEGRAPH RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15460.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.020 | 0.090 | 0.040 | 0.100 | 0.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.250 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 275.000 | 775.000 |

VALLEY SECT BASED ON FIELD BOOK NO 800

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16873.000 | 12.000 | 446.000 | 454.000 | 1413.000 | 1413.000 | 1413.000 | 0.000 | 0.000 | 0.000 |
| BR | 410.000 | 299.000 | 410.000 | 299.000 | 392.460 | 350.000 | 598.300 | 635.000 | 392.630 | 446.000 |
| GR | 592.900 | 430.000 | 592.350 | 454.000 | 390.950 | 463.000 | 603.350 | 463.000 | 599.930 | 600.000 |
| GR | 600.000 | 750.000 | 610.000 | 751.000 | 0.000 | 0.000 | 2.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.300 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 265.000 | 603.000 |

VALLEY SECTION AT CORP/LIMIT @DOWNTOWN/FLAT ROCK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17673.000 | 9.000 | 395.000 | 405.000 | 900.000 | 900.000 | 900.000 | 0.000 | 0.000 | 0.000 |
| BR | 610.000 | 273.000 | 600.000 | 290.000 | 599.500 | 900.000 | 594.370 | 395.000 | 593.320 | 400.000 |
| GR | 593.400 | 405.000 | 597.500 | 420.000 | 600.000 | 900.000 | 610.000 | 610.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 594.160 | 1390.410 | 592.600 | 1396.000 | 592.310 | 1400.000 | 592.600 | 1404.000 | 594.160 | 1409.590 |
| GR | 597.200 | 1409.600 | 599.900 | 1409.610 | 599.200 | 1500.000 | 599.300 | 1575.000 | 610.000 | 1576.000 |
| NC | 0.060 | 0.060 | 0.025 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1125.000 | 1600.000 |

1 FOOT INSIDE D/S TELEGRAPH BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15363.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.920 | 0.000 |
| DT | 5.000 | 1390.400 | 599.950 | 597.200 | 1390.410 | 599.900 | 597.200 | 1400.000 | 599.900 | 597.200 |
| BT | 1409.600 | 599.900 | 597.200 | 1409.610 | 599.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1125.000 | 1600.000 |

1 FOOT INSIDE U/S END TELEGRAPH BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15434.000 | 0.000 | 0.000 | 0.000 | 71.000 | 71.000 | 71.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.060 | 0.060 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1125.000 | 1600.000 |

U/S FACE TELEGRAPH RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15435.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 599.900 | 599.900 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1125.000 | 1600.000 |

ROBERT, U/S OF TELEGRAPH RD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15460.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.060 | 0.060 | 0.040 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 275.000 | 775.000 |

VALLEY SECT BASED ON FIELD BOOK NO 600

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16873.000 | 12.300 | 646.000 | 654.000 | 1413.000 | 1413.000 | 1413.000 | 0.000 | 0.000 | 0.000 |
| GR | 613.000 | 299.000 | 615.000 | 299.000 | 597.400 | 300.300 | 595.500 | 435.000 | 592.000 | 646.000 |
| GR | 592.900 | 450.000 | 592.650 | 454.000 | 593.930 | 463.000 | 603.350 | 483.000 | 599.930 | 650.000 |
| GR | 600.300 | 750.000 | 610.000 | 751.000 | 2.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 285.000 | 603.000 |

VALLEY SECTION AT CORP/LIMIT BROWNSTOWN/FLAT ROCK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17673.000 | 9.600 | 395.000 | 405.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.000 | 275.300 | 600.000 | 290.000 | 599.500 | 380.000 | 596.370 | 395.000 | 593.320 | 400.000 |
| GR | 593.400 | 405.000 | 599.500 | 620.000 | 600.000 | 600.000 | 610.000 | 610.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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*PROF 1

CCHV=   0.100 CEHV=   0.300
*SECNO ****
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TLA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=    1350.0    1600.0  TYPE=     1  TARGET=     250.000

        450. FEET D/S OF D/S FACE OF OLMSTEAD RD. ROCKWOOD SECT. 19073.

     0.00      0.78    586.48      0.00    586.48    586.48      0.00      0.00      0.00    580.60
     705.      367.      119.      219.      760.      109.      450.        0.        0.    577.90
     0.00      0.40      0.63      0.49     0.035     0.035     0.035     0.000    577.70   1350.00
 0.000014        0.        0.        0.         0         0         0      0.00    250.00   1600.00

FLOW DISTRIBUTION FOR SECNO=      0.00          CWSEL=    586.48

STA=    1350.    1430.    1419.    1430.    1500.    1523.    1532.    1600.
  PER Q=       8.8       3.7       3.7      35.8      16.9       5.0      26.1
   AREA=     176.5      69.9      57.0     457.1     189.0      63.3     386.2
    VEL=       0.4       0.4       0.5       0.6       0.6       0.6       0.5

*SECNO 1.000

        D/S FACE OF OLMSTEAD ROAD                ROCKWOOD SECT. 19523.

     1.00      9.57    586.47      0.00      0.00    586.51      0.04      0.02      0.01    585.80
     705.       19.      320.      365.       42.      144.      342.       10.        3.    585.80
     0.00      0.46      0.22      1.07     0.035     0.035     0.035     0.034    578.93    577.72
 0.000320       400.      450.      500.         0         0         0      0.00    372.29    950.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    586.47

STA=     578.     600.     692.     700.     800.     900.     950.
  PER Q=       0.0       0.0      65.4      10.5      25.1      16.4
   AREA=       2.0      89.6     143.0      90.4     157.0      93.9
    VEL=       0.2       0.5       2.2       0.8       1.1       1.2

*SECNO 2.000

3370 NORMAL BRIDGE,NO= 25 MIN ELTRD=  584.20 MAX ELNC=  585.90

        1.FOOT INSIDE BRIDGE D/S END             ROCKWOOD SECT. 19524.

     2.00      9.57    586.47      0.00      0.00    586.51      0.04      0.00      0.00    585.80
     705.       30.       89.      386.       41.       91.      340.       10.        3.    585.80
     0.00      0.73      8.09      1.72     0.018     0.031     0.010     0.034    578.90    578.75
 0.000262        1.        1.        1.         0         0         0    -53.08    371.25    950.00

FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    586.47

STA=     579.     600.     692.     700.     800.     900.     950.
  PER Q=       0.1       4.1      12.7      16.7      40.2      26.3
   AREA=       1.8      38.0
```

VEL= 0.3 0.7 1.0 1.3 1.8 2.0

*SECNO 3.000

3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD= 584.20 MAX ELLC= 583.90

1.FOOT INSIDE BRIDGE U/S END ROCKWOOD SECT. 19570.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.00 | 9.59 | 586.49 | 0.00 | 0.00 | 586.53 | 0.04 | 0.01 | 0.00 | 585.00 |
| 705. | 31. | 88. | 586. | 43. | 91. | 345. | 10. | 4. | 585.80 |
| 0.09 | 0.73 | 0.97 | 1.79 | 0.016 | 0.031 | 0.018 | 0.034 | 576.90 | 576.60 |
| 0.000251 | 66. | 66. | 66. | 0 | 0 | 0 | -53.08 | 373.30 | 950.00 |

FLOW DISTRIBUTION FOR SECNO= 3.00 CWSEL= 586.49

| | | | | | | |
|---|---|---|---|---|---|---|
| STA= | 376. | 500. | 692. | 708. | 800. | 900. | 959. |
| PER Q= | 0.1 | 4.3 | 12.5 | 16.8 | 40.1 | 26.1 | |
| AREA= | 2.2 | 40.5 | 90.8 | 91.4 | 158.9 | 94.4 | |
| VEL= | 0.3 | 0.8 | 1.0 | 1.3 | 1.8 | 2.0 | |

*SECNO 4.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRITS | SSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | SLOB | QCH | QROB | ALOB | ACH | AROB | VOL | THA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IN2 | ICONT | CORAR | TOPWID | ENDST |

U/S FACE OF OLDSTEAD ROAD ROCKWOOD SECT. 19571.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.00 | 9.57 | 586.47 | 0.00 | 0.00 | 586.53 | 0.06 | 0.00 | 0.01 | 585.80 |
| 705. | 17. | 363. | 325. | 42. | 144. | 343. | 10. | 4. | 585.80 |
| 0.09 | 0.50 | 2.53 | 1.95 | 0.045 | 0.035 | 0.045 | 0.035 | 576.90 | 577.33 |
| 0.000490 | 1. | 1. | 1. | 1 | 3 | 0 | 0.00 | 372.85 | 950.00 |

FLOW DISTRIBUTION FOR SECNO= 4.00 CWSEL= 586.47

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| STA= | 577. | 600. | 692. | 750. | 805. | 900. | 930. | | | |
| PER Q= | 0.0 | 2.4 | 51.5 | 9.3 | 22.3 | 14.3 | | | | |
| AREA= | 2.1 | 39.0 | 163.3 | 90.7 | 158.1 | 94.1 | | | | |
| VEL= | 0.1 | 0.4 | 2.5 | 0.7 | 1.0 | 1.1 | | | | |

*SECNO 5.000

750.FEET U/S OF C/S FACE OF OLDSTEAD RD.ROCKWOOD SECT. 20521.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.00 | 7.96 | 586.56 | 0.00 | 0.00 | 586.56 | 0.00 | 0.03 | 0.01 | 582.00 |
| 750. | 171. | 74. | 405. | 606. | 161. | 1595. | 85. | 12. | 580.60 |
| 0.73 | 0.28 | 0.92 | 0.35 | 0.045 | 0.035 | 0.045 | 0.035 | 578.60 | 41.85 |
| 0.000312 | 773. | 755. | 725. | 2 | 3 | 0 | 0.00 | 595.87 | 637.02 |

FLOW DISTRIBUTION FOR SECNO= 5.00 CWSEL= 586.56

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| STA= | 41. | 50. | 110. | 210. | 230. | 310. | 410. | 510. | 610. | 637. |
| PER Q= | 0.0 | 4.6 | 18.6 | 13.1 | 19.9 | 21.1 | 14.2 | 7.0 | 0.2 | |
| AREA= | 4.7 | 159.7 | 461.2 | 141.0 | 420.9 | 476.4 | 436.2 | 246.2 | 15.7 | |
| VEL= | 0.1 | 2.2 | 0.5 | 3.5 | 0.5 | 0.5 | 0.5 | 0.2 | 0.1 | |

*SECNO 6.000

1450.FEET U/S OF U/S FACE OF OLMSTEAD  ROCKWOOD SECT. 21021. CORP.LIMIT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 6.00 | 7.67 | 586.57 | 0.00 | 0.00 | 586.57 | 0.00 | 0.01 | 0.00 | 583.70 |
| | 730. | 336. | 113. | 280. | 974. | 202. | 801. | 70. | 21. | 582.40 |
| | 1.24 | 0.35 | 0.56 | 0.35 | 0.045 | 0.035 | 0.045 | 0.035 | 576.90 | 147.56 |
| | 0.000017 | 675. | 700. | 725. | 2 | 0 | 0 | 0.00 | 499.70 | 647.26 |

FLOW DISTRIBUTION FOR SECNO= 6.00 CWSEL= 586.57

| STA= | 148. | 200. | 300. | 400. | 434. | 500. | 600. | 647. |
|---|---|---|---|---|---|---|---|---|
| PER Q= | 4.2 | 24.8 | 17.1 | 15.5 | 16.4 | 20.2 | 1.8 | |
| AREA= | 125.1 | 472.2 | 377.2 | 202.0 | 311.6 | 417.2 | 72.6 | |
| VEL= | 0.2 | 0.4 | 0.3 | 0.6 | 0.4 | 0.4 | 0.2 | |

CCHV= 0.300 CEHV= 0.500

*SECNO 1944.000

A-SECTION D/S OF WOODRUFF RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1944.00 | 5.89 | 586.59 | 0.00 | 0.00 | 586.77 | 0.18 | 0.11 | 0.09 | 583.13 |
| 730. | 240. | 413. | 77. | 303. | 93. | 122. | 119. | 38. | 584.07 |
| 1.43 | 0.79 | 4.36 | 0.63 | 0.100 | 0.040 | 0.100 | 0.043 | 550.70 | 75.85 |
| 0.001813 | 1400. | 2430. | 1944. | 0 | 0 | 0 | 0.00 | 374.30 | 650.18 |

FLOW DISTRIBUTION FOR SECNO= 1944.00 CWSEL= 586.59

| STA= | 76. | 203. | 296. | 301. | 301. | 319. | 319. | 321. | 400. | 450. |
|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 12.6 | 18.2 | 2.0 | 0.0 | 56.8 | 0.0 | 0.6 | 0.0 | 1.9 | |
| AREA= | 136.4 | 153.6 | 13.2 | 0.2 | 92.6 | 0.1 | 4.5 | 30.9 | 30.0 | |
| VEL= | 0.7 | 0.9 | 1.1 | 0.9 | 4.5 | 0.7 | 1.0 | 0.7 | 0.5 | |

*SECNO 2044.000

D/S FACE OF WOODRUFF RD. BRIDGE REPEATED SCOT. 1976

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2044.00 | 6.01 | 593.71 | 0.00 | 0.00 | 587.11 | 0.40 | 0.23 | 0.11 | 585.13 |
| 730. | 117. | 549. | 63. | 170. | 95. | 96. | 120. | 38. | 584.07 |
| 1.44 | 0.69 | 5.80 | 0.66 | 0.100 | 0.040 | 0.100 | 0.043 | 530.70 | 75.82 |
| 0.038994 | 100. | 100. | 100. | 2 | 5 | 0 | 0.00 | 374.36 | 650.10 |

FLOW DISTRIBUTION FOR SECNO= 2044.00 CWSEL= 586.71

| STA= | 76. | 203. | 296. | 301. | 301. | 319. | 319. | 321. | 400. | 450. |
|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 11.6 | 4.1 | 0.4 | 0.3 | 75.3 | 0.0 | 0.5 | 3.0 | 3.2 | |
| AREA= | 111.4 | 93.6 | 4.3 | 0.1 | 94.6 | 0.1 | 3.7 | 56.4 | 35.7 | |
| VEL= | 2.1 | 0.8 | 0.7 | 0.4 | 5.0 | 1.0 | 0.6 | 0.3 | 0.6 | |

*SECNO 2045.000

| SECNO | DEPTH | CWSEL | CRIWS | HSELJ | EG | KV | IL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | LOB | TCA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XAL | XNCH | XAR | WTH | ELTRN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IHS | XCONT | COORR | TOPWID | ENDST |

3370 NORMAL BRIDGE/NRB= 1 MIN ELTRD= 585.63 MAX FLLC= 586.27

1 FOOT INSIDE OF D/S FACE OF BRIDGE

2045.00 6.03 587.55 586.70 1 0.00 587.21 0.047 0.000 0.10 583.13

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 730. | 371. | 156. | 203. | 264. | 40. | 149. | 120. | 38. | 584.07 |
| | 1.44 | 1.41 | 3.89 | 1.36 | 0.070 | 0.025 | 0.070 | 0.043 | 580.70 | 75.72 |
| | 0.003484 | 1. | 1. | 1. | 16 | 6 | 0 | -65.91 | 374.57 | 450.28 |

FLOW DISTRIBUTION FOR SECNO= 2045.00 CWSEL= 587.13

| STA= | 76. | 200. | 296. | 301. | 319. | 321. | 400. | 450. | 450. |
|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 33.9 | 16.0 | 0.8 | 21.4 | 0.4 | 16.8 | 10.6 | 0.0 | |
| AREA= | 164.2 | 94.3 | 5.1 | 40.2 | 2.5 | 89.9 | 56.9 | 0.2 | |
| VEL= | 1.5 | 1.2 | 0.2 | 3.9 | 1.1 | 1.4 | 1.4 | 0.3 | |

*SECNO 2074.000

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 585.63 MAX ELLC= 584.37

1 FOOT INSIDE OF U/S FACE OF BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2074.00 | 6.56 | 587.26 | 0.00 | 0.00 | 587.29 | 0.03 | 0.06 | 0.01 | 583.13 |
| | 495. | 259. | 93. | 143. | 291. | 40. | 165. | 121. | 39. | 584.07 |
| | 1.44 | 0.89 | 2.31 | 0.86 | 0.070 | 0.025 | 0.070 | 0.043 | 580.70 | 75.69 |
| | 0.001229 | 20. | 20. | 29. | 3 | 0 | 0 | -68.05 | 374.65 | 450.31 |

FLOW DISTRIBUTION FOR SECNO= 2074.00 CWSEL= 587.26

| STA= | 76. | 200. | 296. | 301. | 319. | 321. | 400. | 450. | 450. |
|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 34.4 | 17.0 | 0.9 | 18.7 | 0.4 | 17.4 | 11.0 | 0.0 | |
| AREA= | 179.3 | 106.0 | 5.7 | 40.2 | 2.6 | 99.5 | 63.0 | 0.2 | |
| VEL= | 1.0 | 0.6 | 0.8 | 2.3 | 0.7 | 0.9 | 0.9 | 0.2 | |

*SECNO 2075.000

U/S FACE OF WOODRUFF RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2073.00 | 6.55 | 587.24 | 0.00 | 0.00 | 587.31 | 0.08 | 0.00 | 0.03 | 583.13 |
| | 495. | 128. | 296. | 71. | 287. | 104. | 165. | 121. | 39. | 584.07 |
| | 1.46 | 0.44 | 2.65 | 0.43 | 0.100 | 0.040 | 0.100 | 0.043 | 580.70 | 75.69 |
| | 0.000630 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 374.62 | 450.31 |

FLOW DISTRIBUTION FOR SECNO= 2073.00 CWSEL= 587.24

| STA= | 76. | 200. | 296. | 301. | 301. | 319. | 319. | 321. | 400. | 450. | 450. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 16.9 | 8.3 | 0.7 | 0.2 | 59.7 | 0.0 | 0.3 | 8.5 | 5.4 | 0.0 | |
| AREA= | 176.3 | 103.7 | 7.3 | 0.2 | 103.8 | 0.2 | 6.8 | 97.6 | 61.0 | 3.2 | |
| VEL= | 0.5 | 0.4 | 0.3 | 0.1 | 2.0 | 0.3 | 0.3 | 0.4 | 0.4 | 0.1 | |

*SECNO 2100.000

K-SECTION U/S OF WOODRUFF RD. REPEATED SECT. 2075.5

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2100.00 | 6.55 | 587.25 | 0.00 | 0.00 | 587.33 | 0.07 | 0.02 | 0.00 | 583.13 |
| | 495. | 128. | 296. | 71. | 293. | 104. | 164. | 121. | 39. | 584.07 |
| | 1.45 | 0.44 | 2.61 | 0.43 | 0.100 | 0.040 | 0.100 | 0.043 | 580.70 | 75.69 |
| | 0.000630 | 25. | 25. | 25. | 0 | 0 | 0 | 0.00 | 374.63 | 450.31 |

FLOW DISTRIBUTION FOR SECNO= 2100.00 CWSEL= 587.25

| STA= | 76. | 200. | 296. | 301. | 301. | 319. | 319. | 321. | 400. | 450. | 450. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 17.1 | 8.4 | 0.7 | 0.2 | 59.2 | 0.0 | 0.3 | 8.6 | 5.5 | 0.0 | |
| AREA= | 179.2 | 105.9 | 7.4 | 0.2 | 104.2 | 0.2 | 6.8 | 99. | 62.9 | 3.2 | |

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VEL=      0.5      0.4      0.5      0.1      2.8      0.5      0.5      0.4      0.4      0.1

*SECNO 3073.000

          VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

  3073.00     6.63   587.71     0.00     0.00   587.74     0.02     0.40     0.01   581.78
     495.      22.     161.     312.      44.      75.     815.     138.      49.   581.78
     1.73     0.50     2.14     0.33    0.100    0.040    0.100    0.042   581.08   279.01
 0.000289     973.     973.     973.        2        0        0     0.00   510.42   789.43

FLOW DISTRIBUTION FOR SECNO=   3073.00          CWSEL=    587.71

STA=      279.     294.     306.     316.     416.     516.     616.     789.
 PER Q=      4.5     32.5      4.6     16.3     18.0     16.0      8.0
  AREA=     44.5     75.4     30.8    200.8    213.3    198.3    133.3
   VEL=      0.5      2.1      0.6      0.6      0.4      0.4      0.2

CCHV=   0.100 CEHV=   0.300
*SECNO 4573.000
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       ULOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA     LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
   SLOPE    XLOBL    XLCH     XLOBR    IERIAL   IHR      ICONT    CORAR    TOPWID    ENDST

          VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

  4573.00     6.46   588.36     0.00     0.00   588.47     0.11     0.70     0.02   583.10
     495.      96.     282.     117.     276.      82.     269.     166.      67.   583.10
     1.93     0.35     3.43     0.44    0.120    0.040    0.120    0.041   581.90   884.12
 0.000323     1350.    1300.    1650.        2        0        0     0.00   538.24  1422.36

FLOW DISTRIBUTION FOR SECNO=   4573.00          CWSEL=    588.36

STA=      884.     900.    1000.    1100.    1185.    1195.    1207.    1215.    1300.    1430.    1422.
 PER Q=      0.2      4.8      7.0      4.3      3.0     56.9      3.5      9.7     10.2      0.3
  AREA=      6.1     78.7     95.0     69.1     22.9     82.1     24.9    112.4    123.8      0.7
   VEL=      0.2      0.3      0.4      0.3      0.6      0.6      0.7      0.4      0.4      0.2

CCHV=   0.300 CEHV=   0.300
*SECNO 6337.500

          X-SECTION D/S OF BRIDGE 3. OF GIBRALTAR RD.

  6337.50     4.77   589.68     0.00     0.00   589.68     0.07     1.20     0.01   584.98
     495.     103.     242.     150.      95.      85.     132.     185.      80.   584.38
     2.18     1.07     7.85     1.14    0.070    0.035    0.070    0.040   584.83   228.85
 0.000569     1765.    1765.    1765.        2        0        0     0.00    97.03   325.88

FLOW DISTRIBUTION FOR SECNO=   6337.50          CWSEL=    589.68

STA=      229.     244.     260.     255.     283.     280.     314.     326.
 PER Q=      2.3     12.4      5.9     48.9      6.0     21.9      2.4
  AREA=     20.2     54.0     21.7     84.9     22.0     92.2     10.0
   VEL=      0.6      1.1      1.3      2.9      1.4      1.2      0.7

*SECNO 6527.000

3470 ENCROACHMENT STATIONS=      80.0     131.0  TYPE=      1  TARGET=      90.000
```

```
          10: D/S OF DRIVEWAY

   6527.00      4.93    589.73      0.00      0.00    589.81      0.08      0.13      0.00    585.50
      495.      175.       47.      273.       79.      133.      110.      186.       81.    585.50
      2.20      2.22      0.35      2.48     0.040     0.350     0.040     0.047    584.80     80.00
  0.000865      190.      190.      190.         0         0         0      0.00     90.00    170.00

 FLOW DISTRIBUTION FOR SECNO=    6527.00          CWSEL=     589.73

 STA=       80.       94.      110.      138.      164.      170.
   PER Q=      6.5      28.9       9.4      50.4       4.7
    AREA=     22.3      56.6     132.6      95.8      14.3
     VEL=      1.5       2.5       0.4       2.6       1.6

 *SECNO 6537.500

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      592.40 ELREA=      592.40

          1: D/S OF DRIVEWAY

   6537.50      6.81    589.81      0.00      0.00    589.85      0.04      0.02      0.01    586.50
      495.        0.      495.        0.        0.      317.        0.      186.       81.    586.40
      2.21      0.00      1.56      0.00     0.040     0.350     0.040     0.047    585.00     99.00
  0.024371       10.       10.       10.         2         0         0      0.00     84.40    183.40

 FLOW DISTRIBUTION FOR SECNO=    6537.50          CWSEL=     589.81

 STA=       99.      183.
   PER Q=     100.0
    AREA=     317.1
     VEL=       1.6

 *SECNO 6530.500

 3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  592.60 MAX ELLC=  591.80

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      592.40 ELREA=      592.40

          D/S FACE OF DRIVEWAY

   6538.50      6.81    589.81      0.00      0.00    589.85      0.04      0.00      0.00    586.50
      495.        0.      495.        0.        0.      299.        0.      186.       81.    586.40
      2.21      0.00      1.66      0.00     0.040     0.025     0.040     0.047    585.00     99.00
  0.000151        1.        1.        1.         1         0         0    -22.61     84.40    183.40

 FLOW DISTRIBUTION FOR SECNO=    6538.50          CWSEL=     589.81

 STA=       99.      183.
   PER Q=     100.0
    AREA=     298.9
     VEL=       1.7

 *SECNO 6578.000
   SECNO     DEPTH     CWSEL     CHIAS     WSELK     EG        KV        HL        QLOSS     TAN. ELEV
   Q         QLOB      QCH       QROB      XLOB      XCH       XROB      VEL       TWA       LEFT/RIGHT
   TIME      XLOB      XCH       XROB      XNL       XMCH      XMP       WTN       ELTIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    CH2       IQUNT     CORAR     TOPWID    ENDST
```

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD= 592.60 MAX ELLC= 591.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 592.50 ELREA= 592.50

U/S FACE OF DRIVEWAY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6578.00 | 4.82 | 589.82 | 0.00 | 0.00 | 589.86 | 0.04 | 0.01 | 0.00 | 586.50 |
| 495. | 0. | 495. | 0. | 0. | 299. | 0. | 187. | 81. | 586.40 |
| 2.21 | 0.00 | 1.66 | 0.00 | 0.040 | 0.025 | 0.040 | 0.047 | 585.00 | 99.00 |
| 0.000151 | 40. | 40. | 40. | 2 | 0 | 0 | -22.60 | 84.40 | 183.40 |

FLOW DISTRIBUTION FOR SECNO= 6578.00 CWSEL= 589.82

STA= 99. 198.
PER Q= 100.0
AREA= 290.9
VEL= 1.7

*SECNO 6579.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 592.70 ELREA= 592.60

1: U/S OF DRIVEWAY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6579.00 | 4.82 | 589.82 | 0.00 | 0.00 | 589.86 | 0.04 | 0.00 | 0.00 | 586.50 |
| 495. | 0. | 495. | 0. | 0. | 317. | 0. | 187. | 81. | 586.40 |
| 2.21 | 0.00 | 1.56 | 0.00 | 0.040 | 0.035 | 0.040 | 0.047 | 585.00 | 99.00 |
| 0.000263 | 1. | 1. | 1. | 0 | 1 | 0 | 0.00 | 32.40 | 183.40 |

FLOW DISTRIBUTION FOR SECNO= 6579.00 CWSEL= 589.82

STA= 99. 198.
PER Q= 100.0
AREA= 317.4
VEL= 1.6

*SECNO 6609.000

50: U/S OF DRIVEWAY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6609.00 | 4.89 | 589.79 | 0.03 | 0.06 | 589.96 | 0.15 | 0.02 | 0.06 | 589.01 |
| 495. | 1. | 493. | 1. | 2. | 153. | 1. | 187. | 81. | 589.10 |
| 2.22 | 0.65 | 3.12 | 0.59 | 0.040 | 0.035 | 0.040 | 0.047 | 584.90 | 112.68 |
| 0.001073 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 54.62 | 167.30 |

FLOW DISTRIBUTION FOR SECNO= 6609.00 CWSEL= 589.79

STA= 198. 117. 133. 167.
PER Q= 0.2 99.4 0.2
AREA= 1.7 198.3 1.5
VEL= 0.5 3.1 0.6

DCHV= 0.300 CEHV= 0.500
*SECNO 7174.000

PRINTED IN U.S.A.
FORM 1311-00 PRINTED BY ROTARY MANIFOLD FORMS.

3470 ENCROACHMENT STATIONS= 242.0 307.0 TYPE= 1 TARGET= 65.000

X-SECTION D/S OF GIBRALTAR RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 7174.00 | 5.33 | 590.38 | 0.00 | 0.00 | 590.57 | 0.19 | 0.41 | 0.02 | 585.60 |
| | 495. | 58. | 322. | 115. | 45. | 76. | 77. | 189. | 82. | 585.60 |
| | 2.26 | 1.26 | 4.25 | 1.49 | 0.070 | 0.035 | 0.070 | 0.046 | 585.05 | 242.00 |
| | 0.001162 | 547. | 547. | 547. | 2 | 0 | 0 | 0.00 | 65.00 | 307.00 |

FLOW DISTRIBUTION FOR SECNO= 7174.00 CWSEL= 590.38

| STA= | 242. | 251. | 268. | 283. | 307. |
|---|---|---|---|---|---|
| PER Q= | 0.3 | 11.4 | 65.1 | 23.2 | |
| AREA= | 3.4 | 42.5 | 75.8 | 77.3 | |
| VEL= | 0.4 | 1.3 | 4.3 | 1.5 | |

*SECNO 7274.000

3470 ENCROACHMENT STATIONS= 189.0 389.0 TYPE= 1 TARGET= 200.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 593.30 ELREA= 593.30

D/S FACE OF GIBRALTAR RD. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7274.00 | 5.26 | 590.31 | 0.00 | 0.00 | 591.00 | 0.68 | 0.18 | 0.25 | 585.60 |
| 495. | 0. | 495. | 0. | 0. | 75. | 0. | 189. | 82. | 585.60 |
| 2.27 | 0.00 | 6.64 | 0.00 | 0.070 | 0.035 | 0.070 | 0.046 | 585.05 | 209.15 |
| 0.003191 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 14.95 | 304.10 |

FLOW DISTRIBUTION FOR SECNO= 7274.00 CWSEL= 590.31

| STA= | 209. | 304. |
|---|---|---|
| PER Q= | 100.0 | |
| AREA= | 76.8 | |
| VEL= | 6.6 | |

SPECIAL BRIDGE

| SD | AK | AKOR | COEF | ROLEN | SKC | HLD | DAREA | SS | ELCHD | ELCHU |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.57 | 3.00 | 0.00 | 12.20 | 0.00 | 34.00 | 0.00 | 582.30 | 585.05 |

*SECNO 7275.000

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | MSELK | BO | HV | IL | ELOSS | BANK ELEV | |
| Q | ELOB | ACH | QROD | ALOB | ACH | AROD | VOL | TWA | LEFT/RIGHT | |
| TIME | WLOB | WCH | VROB | XNL | XNCH | XNR | MTN | ELMIN | SSTA | |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IN2 | ICONT | CORAR | TOPWID | ENDST | |

PRESSURE FLOW

| BOPRS | EGLWC | HB | QWEIR | QPR | DAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 591.70 | 590.08 | 2.00 | 0. | 495. | 84. | 84. | 539.36 | 592.37 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 592.93 ELREA= 592.37

PRINTED IN U.S.A.
FORM 1411-GO PRINTED BY ROTARY MANIFOLD FORMS

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        U/S FACE OF GIBRALTAR RD. BRIDGE

  7373.00      6.21    591.26      0.00      0.00    591.70      0.44      0.70      0.00    585.05
     495.        0.      495.        0.        0.       93.        0.      190.       82.    585.05
     2.27      0.00      5.33      0.00     0.070     0.035     0.070     0.046    585.05    469.15
 0.002194       99.       99.       99.         2         0         0      0.00     14.95    504.10

FLOW DISTRIBUTION FOR SECNO=    7373.00          CWSEL=     591.26

STA=      489.      504.
  PER Q=    100.0
   AREA=     92.8
    VEL=      5.3

*SECNO 7398.000

3470 ENCROACHMENT STATIONS=      400.0      633.0  TYPE=      1  TARGET=      233.000

        X-SECTION U/S OF GIBRALTAR RD. BRIDGE

  7398.00      6.54    591.59      0.00      0.00    591.80      0.21      0.03      0.07    585.05
     495.       43.      396.       31.       40.       92.       63.      190.       82.    585.05
     2.28      1.18      4.33      1.19     0.070     0.035     0.070     0.046    585.05    476.78
 0.000751       25.       25.       25.         2         0         0      0.00     40.41    517.18

FLOW DISTRIBUTION FOR SECNO=    7398.00          CWSEL=     591.59

STA=      477.      489.      504.      517.
  PER Q=      9.7      80.1      10.3
   AREA=     40.5      97.8      42.8
    VEL=      1.2       4.1       1.2

CCHV=   0.100 CEHV=   0.300
*SECNO 8573.000

        VALLEY SECTION N. OF GIBRALTAR RD. BASED ON FIELD BOOK AND QUAD MAP

  8573.00      6.90    592.40      0.00      0.00    592.46      0.06      0.65      0.01    585.75
     495.      233.      219.       46.      427.       73.      106.      200.       90.    587.65
     2.48      0.55      2.91      0.49     0.070     0.035     0.070     0.046    585.50    660.43
 0.000424     1175.     1175.     1175.         3         0         0      0.00    554.68   1215.11

FLOW DISTRIBUTION FOR SECNO=    8573.00          CWSEL=     592.40

STA=      660.      750.      900.     1036.     1047.     1059.     1066.     1200.     1215.
  PER Q=      0.6      19.3      19.5       7.3      44.1       3.3       5.6       0.1
   AREA=     15.8     187.8     183.9      39.6      75.0      20.1      84.1       2.3
    VEL=      0.1       0.5       0.5       0.9       2.9       0.8       0.3       0.1

CCHV=   0.100 CEHV=   0.300
*SECNO 9000.000
  9000.00      6.61    592.59      0.00      0.00    592.74      0.15      0.25      0.03    585.23
     495.      178.      291.       26.      325.       71.       68.      203.       95.    588.08
     2.53      0.35      4.07      0.41     0.070     0.035     0.090     0.044    585.98    734.85
 0.000882      627.      427.      427.         2         0         0      0.00    465.62   1200.48

FLOW DISTRIBUTION FOR SECNO=    9000.00          CWSEL=     592.59

STA=      735.      900.     1036.     1047.     1059.     1066.     1200.
  PER Q=      15.9      14.6       7.3      58.0       3.1       2.0
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   AREA=    144.4    144.1     36.4     71.4     18.1     44.8
    VEL=      0.5      0.5      1.0      4.1      0.8      0.2

*SECNO 9500.000
  9500.00     6.50   593.04     0.00     0.00   593.23     0.18     0.48     0.01   586.79
     495.     167.     306.      23.     293.      70.      49.     211.     100.   583.64
     2.58     0.57     4.36     0.46    0.090    0.035    0.090    0.044   586.54   753.74
 0.001034     500.     500.     500.        2        0        0     0.00   426.68  1180.43

FLOW DISTRIBUTION FOR SECNO=   9500.00          CHSEL=    593.04

STA=     754.     900.    1036.    1047.    1059.    1066.    1180.
  PER Q=     12.6     13.5      7.5     61.8      3.1      1.4
   AREA=    128.3    129.9     35.3     70.2     17.4     31.8
    VEL=      0.5      0.5      1.1      4.4      0.9      0.2

*SECNO 10173.000
   SECNO    DEPTH    CHSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA     LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IH2      ICONT    CORAR    TOPWID    ENDST

        VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

 10173.00     6.36   593.76     0.00     0.00   593.98     0.22     0.74     0.01   587.20
     495.     119.     266.     110.     149.      52.     124.     216.     105.   587.10
     2.64     0.74     5.08     0.95    0.090    0.035    0.090    0.044   587.10   143.29
 0.001176     673.     673.     673.        2        0        0     0.00   252.06   396.15

FLOW DISTRIBUTION FOR SECNO=  10173.00          CHSEL=    593.76

STA=     143.     150.     253.     287.     290.     315.     305.     310.     318.     363.     396.
  PER Q=      0.0      3.2      3.9     10.6     33.7      4.2      7.7      5.2      7.0      2.0
   AREA=      0.9     62.8     47.9     37.9     32.3     12.1     21.0     24.1     43.2     22.5
    VEL=      0.7      0.4      0.7      1.2      5.1      1.7      1.8      1.1      0.6      0.4

*SECNO 11673.000

3265 DIVIDED FLOW

        VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

 11673.00     6.41   595.17     0.00     0.00   595.38     0.13     1.32     0.01   588.01
     390.     127.     239.      24.     239.      64.      41.     227.     114.   588.76
     2.80     0.35     3.73     0.59    0.090    0.035    0.090    0.043   588.76   102.31
 0.000649    1360.    1500.    1800.        2        0        0     0.00   270.19   389.43

FLOW DISTRIBUTION FOR SECNO=  11673.00          CHSEL=    595.17

STA=     102.     150.     253.     283.     255.     295.     305.     313.     369.
  PER Q=      3.0     19.0      1.1      0.0      8.8     61.8      5.7      0.5
   AREA=     34.9    145.5      9.9      0.7     40.5     64.0     27.1     13.9
    VEL=      0.3      0.5      0.4      0.2      0.8      5.7      0.8      0.1

CCHV=   0.300 CEHV=   0.500
*SECNO 12356.000

3265 DIVIDED FLOW
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3470 ENCROACHMENT STATIONS=      692.0      808.0  TYPE=      1  TARGET=      116.000

          X@SECT.D/S OF R.R CULVERTS

 12356.00      5.83    595.71      0.00      0.00    596.04      0.35      0.65      0.11    590.00
     390.       20.      308.       62.       26.       58.       71.      231.      117.    590.00
     2.84      0.77      5.34      0.87     0.110     0.035     0.110     0.042    589.88    692.00
 0.001526      683.      683.      683.         2         0         0      0.00     92.27    808.00

FLOW DISTRIBUTION FOR SECNO=  12356.00          CWSEL=     595.71

STA=      692.      714.      745.      755.      770.      808.
  PER Q=      0.3       4.9      79.0      13.7       2.1
   AREA=      5.0      21.1      57.7      48.2      22.5
    VEL=      0.2       0.9       5.3       1.1       0.4

*SECNO 12456.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       602.60 ELREA=       602.60

          D/S FACE OF DUAL 7:X 6.5: CMP:S

 12456.00      6.17    596.17      0.00      0.00    596.35      0.18      0.23      0.05    592.00
     390.        0.      390.        0.        0.      115.        0.      232.      117.    592.00
     2.66      0.00      3.40      0.00     0.110     0.035     0.110     0.042    590.00    739.00
 0.000977      191.      191.      191.         2         0         0      0.00     22.00    761.00

FLOW DISTRIBUTION FOR SECNO=  12456.00          CWSEL=     596.17

STA=      739.      761.
  PER Q=    100.0
   AREA=     14.3
    VEL=      3.4

SPECIAL BRIDGE

SB  XK        XTOR      CSTQ      RDLEN     BLC       BLP       BAREA     SS        ELCMU     ELCMD
     0.00      3.23      3.00      0.00     11.85      0.00     77.00      0.00    590.40    390.00

*SECNO 12412.000
PRESSURE FLOW

 EGPRS      EGLUC      H3       QWEIR      QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                                AREA
  597.45    596.83     0.00        0.      390.       77.       71.      596.40    602.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       602.60 ELREA=       602.60

          DUAL CMP:S MEET DUAL BOX CULVERTS HERE.

 12412.00      6.85    597.25      0.00      0.00    597.45      0.21      1.11      0.00    591.40
     390.        0.      390.        0.        0.      107.        0.      232.      117.    591.40
     2.87      0.00      3.65      0.00     0.110     0.035     0.110     0.042    590.40    739.00
 0.000103      156.      156.      156.         2         0         0      0.00     17.00    756.00
```

FLOW DISTRIBUTION FOR SECNO= 12612.00 CWSEL= 597.25

STA= 739. 756.
PER Q= 100.0
AREA= 106.3
VEL= 3.7

SPECIAL BRIDGE

| SB | XK | XRDR | CDFO | RDLEN | DUC | DWP | BAREA | SS | ELCHN | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.74 | 3.00 | 0.00 | 16.67 | 1.00 | 94.00 | 0.00 | 590.40 | 590.40 |

*SECNO 12647.000

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | VSELK | EG | HV | HL | DLOSS | BANK ELEV | |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT | |
| TIME | VLOB | VCH | VROB | XNL | XNCL | XNR | WTN | ELMIN | SSTA | |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IM2 | ICONT | CORAR | TOPWID | ENDST | |

PRESSURE FLOW

| EGPRS | EGLOC | WS | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 597.71 | 597.45 | 0.03 | 0. | 390. | 94. | 94. | 596.40 | 602.60 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 602.60 ELREA= 602.60

U/S FACE OF R.R. CULVERTS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12647.00 | 7.55 | 597.55 | 0.00 | 0.00 | 597.71 | 0.16 | 3.26 | 0.00 | 590.40 |
| 390. | 0. | 390. | 0. | 0. | 122. | 0. | 232. | 117. | 590.40 |
| 2.87 | 0.00 | 3.21 | 0.00 | 0.110 | 0.035 | 0.110 | 0.042 | 590.40 | 739.00 |
| 0.000658 | 35. | 35. | 35. | 2 | 0 | 0 | 0.00 | 17.00 | 756.00 |

FLOW DISTRIBUTION FOR SECNO= 12647.00 CWSEL= 597.55

STA= 739. 756.
PER Q= 100.0
AREA= 121.6
VEL= 3.2

*SECNO 12680.000

3470 ENCROACHMENT STATIONS= 730.0 765.0 TYPE= 1 TARGET= 35.000

XSECT.U/S OF R.R.CULVERT & D/S OF 96 CMP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12680.00 | 6.80 | 597.62 | 0.00 | 0.00 | 597.74 | 0.12 | 0.62 | 0.01 | 590.74 |
| 590. | 20. | 343. | 27. | 37. | 117. | 48. | 232. | 117. | 590.74 |
| 2.88 | 0.55 | 2.93 | 0.59 | 0.110 | 0.035 | 0.110 | 0.042 | 590.74 | 730.00 |
| 0.000365 | 33. | 33. | 33. | 2 | 0 | 0 | 0.00 | 35.00 | 765.00 |

FLOW DISTRIBUTION FOR SECNO= 12680.00 CWSEL= 597.62

STA= 730. 739. 756. 765.

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| | | | |
|---|---|---|---|
| PER Q= | 5.2 | 88.0 | 6.9 |
| AREA= | 36.7 | 117.0 | 45.0 |
| VEL= | 0.5 | 2.9 | 0.6 |

*SECNO 12715.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 598.50 ELREA= 598.50

D/S FACE OF 96 CMP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12715.00 | 6.70 | 597.60 | 0.00 | 0.00 | 597.80 | 0.19 | 0.02 | 0.04 | 592.00 |
| 390. | 0. | 390. | 0. | 0. | 110. | 0. | 233. | 117. | 592.00 |
| 2.88 | 0.00 | 3.54 | 0.00 | 0.110 | 0.035 | 0.110 | 0.042 | 590.90 | 739.00 |
| 0.001007 | 35. | 35. | 35. | 2 | 0 | 0 | 0.00 | 17.00 | 756.00 |

FLOW DISTRIBUTION FOR SECNO= 12715.00 CWSEL= 597.80

STA= 739. 756.
PER Q= 100.0
AREA= 110.2
VEL= 3.5

SPECIAL BRIDGE

| SS | XR | XKOR | CORO | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 5.00 | 5.01 | 5.00 | 0.00 | 11.23 | 0.00 | 68.50 | 0.00 | 591.10 | 590.90 |

*SECNO 12679.000

LATER EL=X5 CARD= 599.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 602.60 ELREA= 602.60

U/S FACE OF 96 CMP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12979.00 | 8.50 | 599.62 | 0.00 | 0.00 | 599.72 | 0.12 | 0.19 | 0.02 | 593.20 |
| 390. | 0. | 390. | 0. | 0. | 141. | 0. | 233. | 117. | 593.00 |
| 2.91 | 0.00 | 3.7 | 0.00 | 0.110 | 0.035 | 0.110 | 0.042 | 591.10 | 739.00 |
| 0.000536 | 264. | 264. | 264. | 0. | 3 | 0 | 0.00 | 17.00 | 756.00 |

FLOW DISTRIBUTION FOR SECNO= 12979.00 CWSEL= 599.60

STA= 739. 756.
PER Q= 100.0
AREA= 140.5
VEL= 2.8

*SECNO 13030.000

3495 ENCROACHMENT STATIONS= 740.0 880.0 TYPE= 1 TARGET= 120.000

XSECT. U/S OF 96 CMP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13030.00 | 9.78 | 599.62 | 0.00 | 0.00 | 599.75 | 0.14 | 0.02 | 0.01 | 590.20 |
| 735. | 203. | 337. | 446. | 259. | 96. | 201. | 234. | 117. | 590.20 |
| 2.97 | 0.78 | 4.03 | 0.72 | 0.110 | 0.035 | 0.110 | 0.042 | 589.04 | 740.00 |
| 0.000844 | 51. | 51. | 51. | 2 | 0 | 0 | 3.00 | 120.00 | 860.00 |

FLOW DISTRIBUTION FOR SECNO= 13030.00 CWSEL= 599.52

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STA=      740.      764.      773.      780.      795.      805.      816.      821.      829.      842.      860.
  PER Q=      9.1       3.3       2.3      12.9      52.6      10.3       2.1       1.8       2.5       3.1
   AREA=    100.8      34.5      25.2      98.9      96.0      77.2      20.8      22.6      34.4      46.5
    VEL=      0.7       0.7       0.7       1.0       4.0       1.0       0.7       0.6       0.5       0.5

CCHV=   0.100 CEHV=   0.300
*SECNO 13473.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IHZ       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      295.0     1300.0  TYPE=      1  TARGET=     1005.000

         VALLEY SECTION BASED ON FIELD BOOK AND QUAD MAP

 13473.00      9.64    599.83      0.00      0.00    599.85      0.02      0.09      0.01    590.34
     735.      429.      191.      115.     1227.       95.      350.      245.      121.    590.54
      3.07      0.35      2.01      0.33     0.100     0.035     0.100     0.042    590.19    313.89
 0.000111      443.      443.      443.         0         0         0      0.00    637.12    951.00

FLOW DISTRIBUTION FOR SECNO=  13473.00          CWSEL=     599.83

STA=      314.      500.      650.      764.      780.      795.      805.      816.      842.      900.      951.
  PER Q=      3.2      18.3      26.6       3.3       7.4      26.0       5.4       3.8       5.2       1.3
   AREA=    162.1     423.4     477.4      62.3     101.1      95.2      75.3      81.7     137.3      55.5
    VEL=      0.1       0.3       0.4       0.4       0.5       2.0       0.5       0.3       0.3       0.2

CCHV=   0.300 CEHV=   0.500
*SECNO 13909.000

3470 ENCROACHMENT STATIONS=      400.0     1100.0  TYPE=      1  TARGET=      700.000

         XQSECT. D/S OF VREELAND RD

 13909.00      9.42    599.88      0.00      0.00    599.89      0.01      0.04      0.00    590.90
     735.      293.      164.      290.     1045.       92.     1092.      265.      128.    590.90
      3.30      0.20      1.57      0.27     0.100     0.035     0.100     0.041    590.45    400.00
 0.000071      434.      436.      436.         2         0         0      0.00    700.00   1100.00

FLOW DISTRIBUTION FOR SECNO=  13909.00          CWSEL=     599.89

STA=      400.      500.      730.      745.      755.      766.     1100.
  PER Q=      3.7      30.6       5.6      19.6       4.3      36.3
   AREA=    158.5     790.0      97.3      92.0      74.1    1017.4
    VEL=      0.2       0.3       0.4       1.6       0.4       0.3

*SECNO 14009.000

         D/S FACE OF VREELAND RD

 14009.00      8.68    599.89      0.00      0.00    599.90      0.01      0.01      0.00    591.30
     735.      249.      153.      332.      706.       86.     1244.      269.      130.    591.30
      3.35      0.35      1.78      0.27     0.100     0.035     0.100     0.041    591.21    490.89
 0.000099      100.      100.      100.         0         0         0      0.00    738.73   1237.62

FLOW DISTRIBUTION FOR SECNO=  14009.00          CWSEL=     599.89
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```
STA=      499.      500.      680.      695.      705.      716.     1238.
  PER Q=      0.0      27.7       6.2      20.9       4.8      40.4
   AREA=      1.6     610.8      93.6      86.4      72.0    1171.9
    VEL=      0.1       0.3       0.5       1.8       0.5       0.3

CCHV=   0.300 CEHV=   0.500
*SECNO 14010.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD=  8 MIN ELTRD=  599.19 MAX ELLC=  598.50

        1 FOOT INSIDE OF D/S FACE OF CULVERT

 14010.00      8.34    599.55    593.11      0.00    600.25      0.70      0.00      0.35    591.30
     735.      235.      680.       19.      213.       58.       43.      269.      130.    591.30
     3.35      1.11      8.20      0.44     0.100     0.022     0.100     0.041    591.21    499.02
 0.007044        1.        1.        1.         6         9         0 -1616.73    683.12   1132.14

FLOW DISTRIBUTION FOR SECNO=  14010.00          CWSEL=     599.35

STA=      499.      500.      695.      706.      716.      800.      950.
  PER Q=     10.9      21.1      65.4       0.3       1.7       0.6
   AREA=    101.4     111.4      58.0       3.7      23.5      16.3
    VEL=      0.8       1.4       8.3       0.6       0.5       0.3

*SECNO 14090.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD=  8 MIN ELTRD=  599.19 MAX ELLC=  598.50

        1 FOOT INSIDE OF U/S FACE OF CULVERT

 14090.00      9.33    600.56      0.00      0.00    600.82      0.00      0.18      0.19    591.30
     735.      225.      256.      254.      384.       69.      315.      271.      131.    591.30
     3.36      0.59      3.71      0.43     0.100     0.022     0.100     0.041    591.21    490.64
 0.001121       80.       80.       80.         4         0         0 -1093.69    731.42   1280.05

FLOW DISTRIBUTION FOR SECNO=  14090.00          CWSEL=     600.56

STA=      499.      500.      600.      695.      700.      716.      800.      950.     1100.     1250.
  PER Q=      0.0       9.4      21.2      34.8       1.1       8.5      11.9       8.1       5.0
   AREA=      0.7     189.0     194.2      68.9      14.1     106.9     164.7     131.3      97.8
    VEL=      0.2       0.4       0.8       3.7       0.6       0.6       0.5       0.5       0.4

CCHV=   0.300 CEHV=   0.500
*SECNO 14091.000
   SECNO     DEPTH     CWSEL     CRIMS     SFLK      EG        HV        HL        BLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNC       XNR       XTN       ELMIN    SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IA2       ICONT     CORAR     TOPWID   ENDST

        U/S FACE OF VREELAND RD

 14091.00      9.43    600.64      0.00      0.00    600.6      0.01      0.00      0.02    591.30
```

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 735. | 279. | 132. | 324. | 1028. | 103. | 1602. | 271. | 131. | 591.30 |
| 3.36 | 0.27 | 1.28 | 0.20 | 0.100 | 0.030 | 0.100 | 0.041 | 591.21 | 498.60 |
| 0.000034 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 751.46 | 1250.06 |

FLOW DISTRIBUTION FOR SECNO= 14091.00 CHSEL= 602.64

| STA= | 499. | 500. | 600. | 695. | 706. | 716. | 800. | 950. | 1100. | 1250. |
|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 0.0 | 11.3 | 26.7 | 18.0 | 3.2 | 14.1 | 17.0 | 7.5 | 2.2 | |
| AREA= | 2.5 | 388.5 | 636.5 | 103.2 | 76.5 | 414.6 | 582.8 | 357.8 | 170.3 | |
| VEL= | 0.1 | 0.2 | 0.3 | 1.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | |

*SECNO 14116.003

XSECT. U/S OF VREELAND RD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14116.00 | 9.43 | 600.64 | 0.00 | 0.00 | 600.64 | 0.01 | 0.00 | 0.00 | 591.30 |
| 735. | 279. | 132. | 324. | 1029. | 103. | 1606. | 272. | 131. | 591.30 |
| 3.36 | 0.27 | 1.28 | 0.20 | 0.100 | 0.030 | 0.100 | 0.041 | 591.21 | 498.60 |
| 0.000034 | 25. | 25. | 25. | 1 | 0 | 0 | 0.00 | 751.47 | 1250.06 |

FLOW DISTRIBUTION FOR SECNO= 14116.00 CHSEL= 600.64

| STA= | 499. | 500. | 600. | 695. | 706. | 716. | 800. | 950. | 1100. | 1250. |
|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 0.0 | 11.3 | 26.7 | 17.9 | 3.2 | 14.1 | 17.0 | 7.5 | 2.2 | |
| AREA= | 2.6 | 389.3 | 637.2 | 103.3 | 76.6 | 415.2 | 584.0 | 359.0 | 171.5 | |
| VEL= | 3.1 | 0.2 | 0.3 | 1.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | |

CCHV= 0.100 CEHV= 0.300
*SECNO 14673.000

3265 DIVIDED FLOW

VALLEY SECTION GIVEN BY FIELD BOOK AND CUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14673.00 | 8.59 | 600.66 | 0.80 | 0.00 | 600.67 | 0.01 | 0.03 | 0.00 | 592.67 |
| 735. | 276. | 121. | 340. | 867. | 66. | 1374. | 302. | 141. | 592.57 |
| 3.65 | 3.32 | 1.81 | 0.32 | 0.100 | 0.035 | 0.100 | 0.061 | 592.07 | 179.62 |
| 0.000119 | 557. | 557. | 557. | 6 | 0 | 5 | 0.00 | 790.83 | 1030.07 |

FLOW DISTRIBUTION FOR SECNO= 14673.00 CHSEL= 600.65

| STA= | 100. | 425. | 510. | 559. | 571. | 579. | 805. | 800. | 1030. |
|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 7.9 | 13.0 | 11.6 | 4.0 | 16.4 | 4.5 | 31.2 | 11.5 | |
| AREA= | 201.0 | 283.6 | 208.7 | 71.5 | 46.5 | 90.6 | 659.0 | 323.9 | |
| VEL= | 0.2 | 0.5 | 0.6 | 0.3 | 1.8 | 0.6 | 0.3 | 0.2 | |

CCHV= 0.300 CEHV= 0.500
*SECNO 15262.000

3470 ENCROACHMENT STATIONS= 823.0 2052.0 TYPE= 1 TARGET= 2228.000

X-SECTION D/S OF TELEGRAPH RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15262.00 | 8.41 | 600.72 | 0.00 | 0.30 | 600.72 | 0.01 | 0.05 | 0.00 | 592.60 |
| 735. | 340. | 97. | 298. | 1004. | 66. | 660. | 524. | 149. | 592.30 |
| 5.92 | 0.54 | 1.47 | 0.46 | 0.090 | 0.040 | 0.090 | 0.046 | 592.31 | 1049.77 |
| 0.000095 | 750. | 569. | 300. | 3 | 0 | 0 | 0.00 | 800.54 | 1530.31 |

FLOW DISTRIBUTION FOR SECNO= 15262.00 CHSEL= 600.72

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| STA= | 1050. | 1200. | 1377. | 1388. | 1396. | 1404. | 1412. | 1416. | 1550. | 1550. |
| PER Q= | 22.9 | 16.4 | 2.1 | 4.8 | 13.2 | 4.3 | 1.4 | 34.4 | 0.0 | |
| AREA= | 482.0 | 421.5 | 41.8 | 58.7 | 66.1 | 58.7 | 22.2 | 587.1 | 0.7 | |
| VEL= | 0.3 | 0.3 | 0.4 | 0.6 | 1.5 | 0.6 | 0.5 | 0.4 | 0.0 | |

*SECNO 15362.000

D/S FACE OF TELEGRAPH RD. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15362.00 | 8.39 | 600.70 | 0.00 | 0.00 | 600.79 | 0.09 | 0.02 | 0.04 | 597.20 |
| 735. | 179. | 650. | 107. | 407. | 148. | 213. | 327. | 150. | 597.20 |
| 3.93 | 0.64 | 3.04 | 0.50 | 0.090 | 0.040 | 0.090 | 0.041 | 592.31 | 1009.93 |
| 0.000650 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 565.20 | 1575.13 |

FLOW DISTRIBUTION FOR SECNO= 15362.00 CHSEL= 600.70

| STA= | 1010. | 1200. | 1390. | 1390. | 1410. | 1560. | 1575. |
|---|---|---|---|---|---|---|---|
| PER Q= | 11.7 | 12.7 | 0.0 | 61.2 | 6.5 | 8.0 | |
| AREA= | 193.3 | 208.2 | 0.2 | 147.9 | 103.9 | 108.7 | |
| VEL= | 0.4 | 0.6 | 0.1 | 3.0 | 0.5 | 0.5 | |

*SECNO 15363.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CLSEL | CNTWS | WSELR | EG | HV | TL | CLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IK2 | ICONT | CORAR | TOPWID | ENDST |

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 599.90 MAX ELLC= 597.20

1 FOOT INSIDE D/S TELEGRAPH BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15363.00 | 8.46 | 600.77 | 0.00 | 0.00 | 600.80 | 0.04 | 0.00 | 0.02 | 597.20 |
| 735. | 303. | 255. | 177. | 432. | 105. | 226. | 327. | 150. | 597.20 |
| 3.93 | 0.70 | 2.43 | 0.79 | 0.060 | 0.025 | 0.060 | 0.041 | 592.31 | 1009.92 |
| 0.000673 | 1. | 1. | 1. | 2 | 0 | 0 | -44.40 | 565.21 | 1575.14 |

FLOW DISTRIBUTION FOR SECNO= 15363.00 CHSEL= 600.77

| STA= | 1010. | 1200. | 1390. | 1470. | 1560. | 1575. | 1575. |
|---|---|---|---|---|---|---|---|
| PER Q= | 19.8 | 22.6 | 34.7 | 11.2 | 13.1 | 0.0 | |
| AREA= | 215.2 | 221.1 | 104.9 | 110.3 | 119.0 | 0.1 | |
| VEL= | 0.7 | 0.7 | 2.4 | 0.7 | 0.8 | 0.1 | |

*SECNO 15434.000

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 599.90 MAX ELLC= 597.20

1 FOOT INSIDE U/S E.J. TELEGRAPH BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15436.00 | 8.51 | 600.82 | 0.00 | 0.00 | 600.85 | 0.03 | 0.00 | 0.00 | 597.20 |
| 735. | 309. | 247. | 179. | 450. | 106. | 232. | 328. | 151. | 597.20 |
| 3.95 | 0.69 | 2.54 | 0.77 | 0.060 | 0.025 | 0.060 | 0.041 | 592.31 | 1009.92 |
| 0.000613 | 71. | 71. | 71. | 0 | 0 | 0 | -44.44 | 565.22 | 1575.14 |

FLOW DISTRIBUTION FOR SECNO= 15434.00 CHSEL= 600.82

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STA=     1010.     1200.     1390.     1410.     1500.     1575.     1575.
  PER Q=      20.3      21.8      33.6      11.1      13.2       0.0
   AREA=     220.2     230.0     105.8     114.2     117.3       0.1
    VEL=       0.7       0.7       2.3       0.7       0.8       0.1

*SECNO 15435.000

        U/S FACE TELEGRAPH RD

 15435.00      8.50    600.81      0.00      0.00    600.86      0.04      0.00      0.00    597.20
     735.      243.      351.      141.      452.      150.      232.      328.      151.    597.20
     3.95      0.54      2.34      0.61     0.060     0.040     0.060     0.041    592.31   1009.92
 0.000376        1.        1.        1.         0         0         0      0.00    565.22   1575.14

FLOW DISTRIBUTION FOR SECNO=  15435.00          CWSEL=     600.81

STA=     1010.     1200.     1390.     1390.     1410.     1500.     1575.     1575.
  PER Q=      16.0      17.2       0.0      47.7       8.8      10.4       0.0
   AREA=     220.9     230.8       0.2     150.2     114.6     117.6       0.1
    VEL=       0.5       0.5       0.1       2.3       0.5       0.6       0.1

*SECNO 15460.000

        XBSECT. U/S OF TELEGRAPH RD.

 15460.00      8.51    600.82      0.00      0.00    600.87      0.04      0.01      0.00    597.20
     735.      245.      349.      141.      455.      150.      234.      329.      152.    597.20
     3.95      0.54      2.32      0.60     0.060     0.040     0.060     0.041    592.31   1009.92
 0.000372       25.       25.       25.         0         0         0      0.00    565.23   1575.14

FLOW DISTRIBUTION FOR SECNO=  15460.00          CWSEL=     600.82

STA=     1010.     1200.     1390.     1390.     1410.     1500.     1575.     1575.
  PER Q=      16.0      17.2       0.0      47.5       8.8      10.4       0.0
   AREA=     222.6     232.3       0.2     150.3     115.3     118.2       0.1
    VEL=       0.5       0.5       0.1       2.3       0.6       0.6       0.1

CCHV=   0.100 CEHV=   0.300
*SECNO 16873.000

        VALLEY SEC. BASED ON FIELD BOOK NO 300

 16873.00      8.52    601.32      0.00      0.00    601.36      0.04      0.49      0.00    592.80
     735.      372.      188.      174.      529.       68.      424.      359.      168.    592.85
     4.29      0.70      2.70      0.41     0.090     0.040     0.090     0.041    592.80    299.69
 0.000326      1413.     1413.     1413.         2         0         0      0.00    450.44    730.13

FLOW DISTRIBUTION FOR SECNO=  16873.00          CWSEL=     601.32

STA=      300.      433.      448.      454.      483.      483.      600.      750.
  PER Q=      40.0       7.7      25.6       5.4       1.9       6.5      10.4
   AREA=     469.2      63.5      67.7      48.9      35.6     130.3     203.5
    VEL=       0.7       0.9       2.8       0.8       0.4       0.3       0.4

*SECNO 17673.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       CL IN      SETA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPWID     ENDST
```

VALLEY SECTION AT CORP/LIMIT BROWNSTOWN/FLAT ROCK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17673.00 | 8.26 | 601.58 | 0.00 | 0.00 | 601.66 | 0.08 | 0.29 | 0.01 | 594.37 |
| 735. | 172. | 281. | 261. | 236. | 80. | 408. | 371. | 173. | 593.40 |
| 4.39 | 0.73 | 3.53 | 0.69 | 0.090 | 0.040 | 0.090 | 0.041 | 593.32 | 287.63 |
| 0.000574 | 900. | 830. | 300. | 2 | 0 | 0 | 0.00 | 313.95 | 601.58 |

FLOW DISTRIBUTION FOR SECNO= 17673.00 CWSEL= 601.58

| STA= | 288. | 290. | 380. | 395. | 405. | 420. | 600. | 602. |
|---|---|---|---|---|---|---|---|---|
| PER Q= | 0.1 | 13.3 | 10.1 | 38.3 | 11.7 | 26.5 | 0.0 | |
| AREA= | 1.9 | 164.8 | 69.7 | 79.8 | 77.0 | 329.6 | 1.2 | |
| VEL= | 0.3 | 0.6 | 1.1 | 3.5 | 1.1 | 0.6 | 0.3 | |

PRINTED IN U.S.A.
FORM 141-80 PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Gibralter

3) WATERCOURSE: Brownstown Creek

4) DOCUMENT TYPE: 100 Year

00BREAK00

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**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
**********************************************
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Revised 8/17/77

8/11/77
IGL datum
+1.43 ft = USGS

```
C
1       CITY OF GIBRALTER          5555-23-01      PM = RICHARD ZANOTTI
T2          10 YEAR FLOOD
T3          BROWNSTOWN CREEK
```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -1. | 2. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 578.200 | 0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J3 | 1.000 | 10.000 | 11.000 | 12.000 | 14.000 | 8.000 | 4.000 | 0.000 | 0.000 | 0.000 |
| NC | .045 | .045 | .030 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 710.000 | 900.000 | 985.000 | 1190.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 10764.000 | 13.000 | 560.000 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 415.000 | 0.000 | 980.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 581.600 | 0.000 | 580.700 | 225.000 | 580.700 | 400.000 | 578.600 | 425.000 | 577.100 | 475.000 |
| GR | 576.900 | 560.000 | 573.600 | 563.000 | 572.300 | 575.000 | 573.300 | 585.000 | 576.800 | 590.000 |
| GR | 577.100 | 765.000 | 578.600 | 1025.000 | 580.600 | 1185.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 480.000 | 650.000 | 710.000 | 860.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 11134.000 | 8.000 | 310.000 | 440.000 | 500.000 | 100.000 | 370.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 160.000 | 0.000 | 680.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 578.000 | 0.000 | 577.600 | 210.000 | 576.600 | 310.000 | 574.600 | 325.000 | 574.600 | 350.000 |
| GR | 576.600 | 440.000 | 578.600 | 650.000 | 579.600 | 782.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .040 | .050 | .038 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 11734.000 | 11.000 | 35.000 | 76.000 | 690.000 | 350.000 | 600.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 420.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 583.600 | 0.000 | 582.600 | 10.000 | 580.600 | 15.000 | 578.600 | 21.000 | 576.600 | 35.000 |
| GR | 575.200 | 46.000 | 575.200 | 60.000 | 576.600 | 76.000 | 578.600 | 190.000 | 579.600 | 295.000 |
| GR | 579.600 | 535.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 12164.000 | 15.000 | 440.000 | 535.000 | 550.000 | 350.000 | 430.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 585.600 | 0.000 | 584.600 | 20.000 | 583.600 | 30.000 | 581.600 | 135.000 | 580.600 | 235.000 |
| GR | 578.600 | 350.000 | 576.600 | 440.000 | 575.500 | 467.000 | 575.500 | 477.000 | 576.600 | 535.000 |
| GR | 578.600 | 578.000 | 580.600 | 600.000 | 581.100 | 650.000 | 580.600 | 725.000 | 579.600 | 800.000 |
| NC | .050 | .050 | .040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 12884.000 | 11.000 | 255.000 | 287.000 | 520.000 | 670.000 | 720.000 | 0.000 | 0.000 | 0.000 |
| GR | 581.600 | 0.000 | 580.600 | 90.000 | 578.600 | 230.000 | 576.600 | 255.000 | 576.000 | 265.000 |
| GR | 576.000 | 280.000 | 576.600 | 287.000 | 578.600 | 300.000 | 580.600 | 352.000 | 581.100 | 455.000 |
| GR | 581.600 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 13324.000 | 11.000 | 420.000 | 460.000 | 300.000 | 700.000 | 440.000 | 0.000 | 0.000 | 0.000 |
| GR | 581.600 | 0.000 | 582.100 | 110.000 | 580.600 | 320.000 | 578.600 | 410.000 | 576.600 | 420.000 |
| GR | 576.200 | 425.000 | 576.200 | 440.000 | 576.600 | 460.000 | 578.600 | 485.000 | 580.600 | 535.000 |
| GR | 582.100 | 640.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .045 | .050 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | X1 | [illegible] | 9.000 | 215.000 | 260.000 | 300.000 | 650.000 | 400.000 | 0.000 | 0.000 | 0.000 |
| | X3 | 0.000 | 0.000 | 0.000 | 140.000 | 0.000 | 350.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | GR | 581.600 | 0.000 | 580.600 | 92.000 | 578.600 | 215.000 | 576.700 | 225.000 | 576.700 | 237.000 |
| | GR | 578.600 | 260.000 | 580.600 | 385.000 | 581.600 | 570.000 | 582.000 | 760.000 | 0.000 | 0.000 |
| | X1 | 13894.000 | 8.000 | 200.000 | 230.000 | 170.000 | 170.000 | 170.000 | 0.000 | 0.000 | 0.000 |
| 6 | X3 | 0.000 | 0.000 | 0.000 | 146.000 | 0.000 | 250.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | GR | 582.100 | 0.000 | 580.600 | 90.000 | 578.600 | 200.000 | 576.800 | 210.000 | 576.800 | 220.000 |
| | GR | 578.600 | 230.000 | 580.600 | 235.000 | 582.600 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | X1 | 14024.000 | 0.000 | 0.000 | 0.000 | 130.000 | 130.000 | 130.000 | 0.000 | 0.000 | 0.000 |
| | X3 | 0.000 | 0.000 | 0.000 | 191.000 | 0.000 | 230.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | X1 | 14044.000 | 0.000 | 0.000 | 0.000 | 20.000 | 20.000 | 20.000 | 0.000 | 0.000 | 0.000 |
| | X3 | 0.000 | 0.000 | 0.000 | 201.000 | 0.000 | 230.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | X1 | 14054.000 | 0.000 | 0.000 | 0.000 | 10.000 | 10.000 | 10.000 | 0.000 | 0.000 | 0.000 |
| | X3 | 0.000 | 0.000 | 0.000 | 203.000 | 0.000 | 227.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | X1 | 14060.000 | 0.000 | 0.000 | 0.000 | 6.000 | 6.000 | 6.000 | 0.000 | 0.000 | 0.000 |
| | X3 | 0.000 | 0.000 | 0.000 | 205.000 | 0.000 | 226.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | NC | .050 | .050 | .030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | X1 | 14064.000 | 24.000 | 1000.000 | 1019.000 | 4.000 | 4.000 | 4.000 | 0.000 | 0.000 | 0.000 |
| | GR | 585.200 | 0.000 | 585.400 | 100.000 | 585.700 | 200.000 | 585.800 | 300.000 | 586.200 | 400.000 |
| | GR | 586.300 | 500.000 | 586.400 | 600.000 | 586.600 | 700.000 | 586.800 | 800.000 | 587.000 | 900.000 |
| | GR | 587.300 | 1000.000 | 578.400 | 1000.000 | 577.200 | 1005.000 | 576.800 | 1010.000 | 577.100 | 1013.000 |
| | GR | 577.400 | 1019.000 | 587.300 | 1019.000 | 587.500 | 1100.000 | 587.600 | 1200.000 | 587.800 | 1300.000 |
| | GR | 587.900 | 1400.000 | 588.000 | 1500.000 | 588.000 | 1600.000 | 588.100 | 1700.000 | 0.000 | 0.000 |
| | NC | .035 | .035 | .020 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X | X1 | 14065.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| | BT | 21.000 | 0.000 | 585.200 | 0.000 | 100.000 | 585.400 | 0.000 | 200.000 | 585.700 | 0.000 |
| | BT | 300.000 | 585.800 | 0.000 | 400.000 | 586.200 | 0.000 | 500.000 | 586.300 | 0.000 | 600.000 |
| | BT | 586.400 | 0.000 | 700.000 | 586.600 | 0.000 | 800.000 | 586.800 | 0.000 | 900.000 | 587.000 |
| | BT | 0.000 | 1000.000 | 587.300 | 0.000 | 1000.000 | 587.300 | 582.400 | 1019.000 | 587.300 | 582.500 |
| | BT | 1019.000 | 587.300 | 0.000 | 1100.000 | 587.500 | 0.000 | 1200.000 | 587.600 | 0.000 | 1300.000 |
| | BT | 587.800 | 0.000 | 1400.000 | 587.900 | 0.000 | 1500.000 | 588.000 | 0.000 | 1600.000 | 588.000 |
| | BT | 0.000 | 1700.000 | 588.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | X1 | 14079.000 | 0.000 | 0.000 | 0.000 | 14.000 | 14.000 | 14.000 | 0.000 | 0.000 | 0.000 |
| | X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| | NC | .045 | .040 | .032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | X1 | 14080.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| | X1 | 14083.000 | 24.000 | 1000.000 | 1019.000 | 3.000 | 3.000 | 3.000 | 0.000 | 0.000 | 0.000 |
| | X3 | 0.000 | 0.000 | 0.000 | 997.000 | 0.000 | 1022.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | GR | 585.200 | 0.000 | 585.400 | 100.000 | 585.700 | 200.000 | 585.800 | 300.000 | 586.200 | 400.000 |
| | GR | 586.300 | 500.000 | 586.400 | 600.000 | 586.600 | 700.000 | 586.800 | 800.000 | 587.000 | 900.000 |
| | GR | 578.400 | 1000.000 | 578.400 | 1000.000 | 577.200 | 1005.000 | 576.800 | 1010.000 | 577.100 | 1013.000 |
| | GR | 577.400 | 1019.000 | 577.400 | 1019.000 | 587.500 | 1100.000 | 587.600 | 1200.000 | 587.800 | 1300.000 |
| | GR | 587.900 | 1400.000 | 588.000 | 1500.000 | 588.000 | 1600.000 | 588.100 | 1700.000 | 0.000 | 0.000 |
| X | X1 | 14420.000 | 14.000 | 357.000 | 375.000 | 220.000 | 350.000 | 337.000 | 0.000 | 0.000 | 0.000 |
| | X3 | 0.000 | 0.000 | 0.000 | 175.000 | 0.000 | 470.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | GR | 586.800 | 0.000 | 582.600 | 13.000 | 583.100 | 75.000 | 583.600 | 105.000 | 580.300 | 175.000 |
| | GR | 580.200 | 275.000 | 579.100 | 357.000 | 576.800 | 361.000 | 576.600 | 364.000 | 577.400 | 369.000 |
| | GR | 581.100 | 375.000 | 582.800 | 475.000 | 584.400 | 575.000 | 584.200 | 592.000 | 0.000 | 0.000 |
| | NC | .045 | .055 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | X1 | 14800.000 | 11.000 | 302.000 | 325.000 | 620.000 | 375.000 | 380.000 | 0.000 | 0.000 | 0.000 |
| | GR | 583.600 | 0.000 | 583.400 | 25.000 | 584.600 | 125.000 | 583.300 | 225.000 | 580.800 | 302.000 |
| | GR | 577.400 | 308.000 | 577.400 | 311.000 | 577.900 | 319.000 | 581.000 | 325.000 | 581.600 | 425.000 |
| | GR | 582.200 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | NH | 3.000 | .045 | 793.700 | .032 | 806.300 | .055 | 1500.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 793.700 | 806.300 | 500.000 | 1100.000 | 0.000 |
| X1 | 15020.000 | 24.000 | 750.000 | 850.000 | 220.000 | 220.000 | 220.000 | 0.000 | 0.000 | 0.000 |
| GR | 583.400 | 0.000 | 584.000 | 100.000 | 584.500 | 200.000 | 585.000 | 300.000 | 585.200 | 400.000 |
| GR | 585.400 | 500.000 | 585.400 | 600.000 | 585.200 | 700.000 | 585.000 | 750.000 | 576.500 | 793.700 |
| GR | 575.500 | 794.700 | 575.100 | 796.800 | 574.900 | 800.000 | 575.100 | 803.200 | 575.500 | 805.300 |
| GR | 576.500 | 806.300 | 584.700 | 850.000 | 584.600 | 900.000 | 584.400 | 1000.000 | 584.300 | 1100.000 |
| GR | 584.400 | 1200.000 | 584.400 | 1300.000 | 584.700 | 1400.000 | 585.000 | 1500.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 793.700 | .031 | 806.300 | .040 | 1500.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 793.700 | 806.300 | 500.000 | 1100.000 | 0.000 |
| X1 | 15021.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 793.700 | 806.300 | 500.000 | 1100.000 | 0.000 |
| SB | 0.000 | 1.870 | 3.000 | 0.000 | 9.750 | 0.000 | 77.000 | 0.000 | 574.900 | 574.900 |
| X1 | 15061.000 | 0.000 | 0.000 | 0.000 | 40.000 | 40.000 | 40.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 582.800 | 584.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 15.000 | 500.000 | 585.400 | 0.000 | 600.000 | 585.400 | 0.000 | 700.000 | 585.200 | 0.000 |
| BT | 793.700 | 584.800 | 576.500 | 793.700 | 584.800 | 578.600 | 794.700 | 584.800 | 580.100 | 796.800 |
| BT | 584.800 | 582.000 | 800.000 | 584.800 | 582.800 | 803.200 | 584.800 | 582.000 | 805.300 | 584.800 |
| BT | 580.100 | 806.300 | 584.800 | 578.600 | 806.300 | 584.800 | 576.500 | 900.000 | 584.600 | 0.000 |
| BT | 1000.000 | 584.400 | 0.000 | 1100.000 | 584.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | SB .050 | 793.700 | .032 | 806.300 | .050 | 1500.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 793.700 | 806.300 | 500.000 | 1100.000 | 0.000 |
| X1 | 15062.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

BK

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**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
**********************************************


T1      CITY OF GIBRALTER        5555-23-01     PM = RICHARD ZANOTTI
T2      100-YEAR FLOOD
T3      BROWNSTOWN CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -1.       4.        0.        0.  0.000000      0.00      0.0       0.   578.440     0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

CCHV= .300 CEHV= .500

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| | | | | | | | | | |
| 3470 ENCROACHMENT STATIONS= | | 415.0 | 980.0 | TYPE= | 1 | TARGET= | 565.000 | | |
| 250' D/S FROM INTERSECTION OF MARSH & BROWNSTOWN CREEKS | | | | | | SEC. W | | | |
| 10764.00 | 6.14 | 578.44 | 0.00 | 578.44 | 578.53 | .09 | 0.00 | 0.00 | 576.90 |
| 985. | 140. | 481. | 364. | 152. | 149. | 416. | 0. | 0. | 576.80 |
| 0.00 | .92 | 3.23 | .88 | .045 | .030 | .045 | 0.000 | 572.30 | 430.33 |
| .000563 | 0. | 0. | 0. | 0 | 0 | 1 | 0.00 | 549.67 | 980.00 |
| 3470 ENCROACHMENT STATIONS= | | 160.0 | 680.0 | TYPE= | 1 | TARGET= | 520.000 | | |
| 120' U/S FROM INTERSECTION OF MARSH & BROWNSTOWN CREEKS | | | | | | SEC. BA | | | |
| MANUFACTURE SECTION FROM 2-FOOT CONTOUR MAP | | | | | | | | | |
| 11134.00 | 4.01 | 578.61 | 0.00 | 0.00 | 578.63 | .02 | .09 | .02 | 576.60 |
| 710. | 97. | 529. | 84. | 201. | 418. | 215. | 5. | 3. | 576.60 |
| .08 | .48 | 1.27 | .39 | .045 | .030 | .045 | .034 | 574.60 | 160.00 |
| .000138 | 500. | 370. | 100. | 0 | 0 | 1 | 0.00 | 492.93 | 652.93 |
| 3470 ENCROACHMENT STATIONS= | | .0 | 420.0 | TYPE= | 1 | TARGET= | 419.999 | | |
| 720' U/S FROM INTERSECTION OF MARSH & BROWNSTOWN CREEKS | | | | | | SEC. BB | | | |
| MANUFACTURE SECTION FROM 2-FOOT CONTOUR MAP | | | | | | | | | |
| 11734.00 | 3.54 | 578.74 | 0.00 | 0.00 | 578.91 | .17 | .20 | .07 | 576.60 |
| 710. | 30. | 485. | 196. | 16. | 126. | 131. | 12. | 7. | 576.60 |
| .13 | 1.87 | 3.84 | 1.50 | .040 | .038 | .050 | .038 | 575.20 | 20.59 |
| .002168 | 690. | 600. | 350. | 2 | 0 | 1 | 0.00 | 183.81 | 204.40 |
| 3470 ENCROACHMENT STATIONS= | | .0 | 650.0 | TYPE= | 1 | TARGET= | 649.999 | | |
| 1150' U/S FROM INTERSECTION OF MARSH & BROWNSTOWN CREEKS | | | | | | SEC. BC | | | |
| MANUFACTURE SECTION FROM 2-FOOT CONTOUR MAP | | | | | | | | | |
| 12164.00 | 3.73 | 579.23 | 0.00 | 0.00 | 579.26 | .03 | .32 | .04 | 576.60 |
| 710. | 149. | 505. | 56. | 159. | 308. | 73. | 16. | 9. | 576.60 |
| .22 | .94 | 1.64 | .77 | .040 | .038 | .050 | .038 | 575.50 | 313.37 |
| .000365 | 550. | 430. | 350. | 1 | 0 | 1 | 0.00 | 271.64 | 585.01 |

1870' U/S FROM INTERSECTION OF MARSH & BROWNSTOWN CREEKS SEC BD

MANUFACTURE SECTION FROM 2-FOOT CONTOUR MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12884.00 | 3.65 | 579.65 | 0.00 | 0.00 | 579.86 | .20 | .51 | .08 | 576.60 |
| 710. | 160. | 473. | 77. | 91. | 112. | 41. | 22. | 12. | 576.60 |
| .27 | 1.76 | 4.23 | 1.87 | .050 | .040 | .050 | .040 | 576.00 | 155.92 |
| .002441 | 520. | 720. | 670. | 2 | 0 | 1 | 0.00 | 171.59 | 327.51 |

2310' U/S FROM INTERSECTION OF MARSH & BROWNSTOWN CREEKS SEC. BE

MANUFACTURE SECTION FROM 2-FOOT CONTOUR MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13324.00 | 4.22 | 580.42 | 0.00 | 0.00 | 580.50 | .08 | .61 | .04 | 576.60 |
| 710. | 107. | 449. | 153. | 102. | 164. | 112. | 25. | 14. | 576.60 |
| .33 | 1.05 | 2.75 | 1.38 | .050 | .040 | .050 | .040 | 576.20 | 328.31 |
| .000836 | 300. | 440. | 700. | 2 | 0 | 1 | 0.00 | 202.08 | 530.38 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNP | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 140.0 350.0 TYPE= 1 TARGET= 210.000

340' D/S FROM D/S FACE OF PENN CENTRAL RR BRIDGE #2 SEC. BF

MANUFACTURE SECTION FROM 2-FOOT CONTOUR MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13724.00 | 4.08 | 580.78 | 0.00 | 0.00 | 580.86 | .08 | .36 | .00 | 578.60 |
| 710. | 151. | 415. | 144. | 118. | 152. | 132. | 29. | 16. | 578.60 |
| .39 | 1.28 | 2.73 | 1.09 | .045 | .035 | .050 | .038 | 576.70 | 140.00 |
| .000818 | 300. | 400. | 650. | 2 | 0 | 1 | 0.00 | 210.00 | 350.00 |

3470 ENCROACHMENT STATIONS= 146.0 250.0 TYPE= 1 TARGET= 104.000

170' D/S FORM D/S FACE OF PENN CENTRAL RR BRIDGE #2 SEC. BG

MANUFACTURE SECTION FROM 2-FOOT CONTOUR MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13894.00 | 4.12 | 580.92 | 0.00 | 0.00 | 581.15 | .23 | .21 | .08 | 578.60 |
| 710. | 224. | 473. | 12. | 99. | 106. | 10. | 30. | 17. | 578.60 |
| .40 | 2.27 | 4.48 | 1.20 | .045 | .035 | .050 | .038 | 576.80 | 146.00 |
| .002108 | 170. | 170. | 170. | 0 | 0 | 1 | 0.00 | 104.00 | 250.00 |

3470 ENCROACHMENT STATIONS= 191.0 230.0 TYPE= 1 TARGET= 39.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14024.00 | 4.35 | 581.15 | 0.00 | 0.00 | 581.60 | .46 | .34 | .11 | 578.60 |
| 710. | 78. | 632. | 0. | 22. | 112. | 0. | 31. | 17. | 100000.00 |
| .41 | 3.52 | 5.62 | 0.00 | .045 | .035 | .050 | .038 | 576.80 | 191.00 |
| .003405 | 130. | 130. | 130. | 2 | 0 | 1 | 0.00 | 39.00 | 230.00 |

3470 ENCROACHMENT STATIONS= 201.0 230.0 TYPE= 1 TARGET= 29.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14044.00 | 4.33 | 581.13 | 0.00 | 0.00 | 581.79 | .66 | .08 | .10 | 100000.00 |
| 710. | 0. | 710. | 0. | 0. | 109. | 0. | 31. | 17. | 100000.00 |
| .41 | 0.00 | 6.50 | 0.00 | .045 | .035 | .050 | .038 | 576.80 | 201.00 |
| .005043 | 20. | 20. | 20. | 2 | 0 | 1 | 0.00 | 29.00 | 230.00 |

6

3470 ENCROACHMENT STATIONS= 203.0 227.0 TYPE= 1 TARGET= 24.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14054.00 | 4.27 | 581.07 | 0.00 | 0.00 | 581.96 | .89 | .06 | .12 | 100000.00 |
| 710. | 0. | 710. | 0. | 0. | 94. | 0. | 31. | 17. | 100000.00 |
| .41 | 0.00 | 7.58 | 0.00 | .045 | .035 | .050 | .038 | 576.80 | 203.00 |
| .007055 | 10. | 10. | 10. | 2 | 0 | 1 | 0.00 | 24.00 | 227.00 |

3470 ENCROACHMENT STATIONS= 205.0 226.0 TYPE= 1 TARGET= 21.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14060.00 | 4.19 | 580.99 | 0.00 | 0.00 | 582.14 | 1.15 | .05 | .13 | 100000.00 |
| 710. | 0. | 710. | 0. | 0. | 83. | 0. | 31. | 17. | 100000.00 |
| .41 | 0.00 | 8.60 | 0.00 | .045 | .035 | .050 | .038 | 576.80 | 205.00 |
| .009517 | 6. | 6. | 6. | 2 | 0 | 1 | 0.00 | 21.00 | 226.00 |

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 14064.00 | 4.00 | 580.80 | 580.80 | 0.00 | 582.55 | 1.76 | .04 | 0.00 | 587.30 |
| 710. | 0. | 710. | 0. | 0. | 67. | 0. | 31. | 17. | 587.30 |
| .41 | 0.00 | 10.63 | 0.00 | .050 | .030 | .050 | .038 | 576.80 | 1000.00 |
| .012413 | 4. | 4. | 4. | 3 | 8 | 1 | 0.00 | 19.00 | 1019.00 |

3301 HV CHANGED MORE THAN HVINS

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

NORMAL BRIDGE,NRD=21 MIN ELTRD= 585.20 MAX ELLC= 582.50

D/S FACE OF PENN CENTRAL RR BRIDGE #2, BS#7 SEC. BH

CONCRETE & I-BEAM BRIDGE, WITH WINGWALLS

LENGTH = 14 FT, SPAN = 19 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14065.00 | 4.67 | 581.47 | 580.78 | 0.00 | 582.71 | 1.24 | .01 | .15 | 587.30 |
| 710. | 0. | 710. | 0. | 0. | 79. | 0. | 31. | 17. | 587.30 |
| .41 | 0.00 | 8.93 | 0.00 | .035 | .020 | .035 | .038 | 576.80 | 1000.00 |
| .003311 | 1. | 1. | 1. | 34 | 16 | 1 | 0.00 | 19.00 | 1019.00 |

NORMAL BRIDGE, NRD=21 MIN ELTRD= 585.20 MAX ELLC= 582.50

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14079.00 | 4.85 | 581.65 | 0.00 | 0.00 | 582.79 | 1.13 | .04 | .03 | 587.30 |
| 710. | 0. | 710. | 0. | 0. | 83. | 0. | 31. | 17. | 587.30 |
| .41 | 0.00 | 8.55 | 0.00 | .035 | .020 | .035 | .038 | 576.80 | 1000.00 |
| .002910 | 14. | 14. | 14. | 2 | 0 | 1 | 0.00 | 19.00 | 1019.00 |
| 14080.00 | 4.86 | 581.66 | 0.00 | 0.00 | 582.79 | 1.13 | .00 | .00 | 587.30 |
| 710. | 0. | 710. | 0. | 0. | 83. | 0. | 31. | 17. | 587.30 |
| .41 | 0.00 | 8.54 | 0.00 | .045 | .032 | .040 | .038 | 576.80 | 1000.00 |
| .007433 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 19.00 | 1019.00 |

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 997.0 1022.0 TYPE= 1 TARGET= 25.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14083.00 | 5.65 | 582.45 | 0.00 | 0.00 | 582.98 | .53 | .01 | .18 | 578.40 |
| 710. | 43. | 599. | 68. | 12. | 98. | 15. | 31. | 17. | 577.40 |
| .41 | 3.63 | 6.11 | 4.70 | .045 | .032 | .040 | .038 | 576.80 | 997.00 |
| .001964 | 3. | 3. | 3. | 3 | 0 | 1 | 0.00 | 25.00 | 1022.00 |

3301 HV CHANGED MOPE THAN HVINS

3470 ENCROACHMENT STATIONS= 175.0 470.0 TYPE= 1 TARGET= 295.000

340' U/S FROM U/S FACE OF PENN CENTRAL RR BRIDGE #2, VS#1 SEC. BI

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14420.00 | 6.62 | 583.22 | 0.00 | 0.00 | 583.24 | .02 | .10 | .16 | 579.10 |
| 710. | 498. | 148. | 64. | 589. | 95. | 124. | 34. | 18. | 581.10 |
| .50 | .85 | 1.55 | .52 | .045 | .032 | .040 | .038 | 576.60 | 175.00 |
| .000136 | 220. | 337. | 350. | 2 | 0 | 1 | 0.00 | 295.00 | 470.00 |

3280 CROSS SECTION 14800.00 EXTENDED 1.12 FEET

220' D/S FROM D/S FACE OF FORT STREET BRIDGE, VS#2 SEC. BJ

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14800.00 | 5.92 | 583.32 | 0.00 | 0.00 | 583.38 | .06 | .12 | .02 | 580.80 |
| 710. | 92. | 317. | 301. | 98. | 112. | 308. | 42. | 21. | 581.00 |
| .57 | .94 | 2.84 | .98 | .045 | .035 | .055 | .037 | 577.40 | 223.65 |
| .000597 | 620. | 380. | 375. | 2 | 0 | 1 | 0.00 | 276.35 | 500.00 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELR | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 500.0 1100.0 TYPE= 1 TARGET= 600.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15020.00 | 8.52 | 583.42 | 0.00 | 0.00 | 583.49 | .06 | .11 | .00 | 585.00 |
| 710. | 0. | 710. | 0. | 0. | 354. | 0. | 44. | 22. | 584.70 |
| .60 | 0.00 | 2.01 | 0.00 | .045 | .040 | .055 | .036 | 574.90 | 758.11 |
| .000394 | 220. | 220. | 220. | 2 | 0 | 1 | 0.00 | 85.09 | 843.20 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 500.0 1100.0 TYPE= 1 TARGET= 600.000

D/S FACE OF FORT STREET BRIDGE, BS#3 SEC. BK

12'-6"X7'-11" CMP, WITH WINGWALLS & HEADWALLS

LENGTH = 40 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15021.00 | 8.52 | 583.42 | 0.00 | 0.00 | 583.49 | .06 | .00 | .00 | 585.00 |
| 710. | 0. | 710. | 0. | 0. | 354. | 0. | 44. | 22. | 584.70 |
| .60 | 0.00 | 2.01 | 0.00 | .045 | .036 | .055 | .036 | 574.90 | 758.10 |
| .000308 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 85.10 | 843.20 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.87 | 3.00 | 0.00 | 9.75 | 0.00 | 77.00 | 0.00 | 574.90 | 574.90 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 585.89 | 583.49 | 0.00 | 178. | 538. | 77. | 582.80 | 584.30 | 30.00 |

3470 ENCROACHMENT STATIONS= 500.0 1100.0 TYPE= 1 TARGET= 600.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15061.00 | 9.91 | 584.81 | 0.00 | 0.00 | 584.84 | .03 | 1.35 | 0.00 | 585.00 |
| 710. | 0. | 691. | 19. | 0. | 482. | 85. | 44. | 22. | 584.70 |
| .61 | 0.00 | 1.43 | .22 | .045 | .036 | .040 | .036 | 574.90 | 750.98 |
| .000135 | 40. | 40. | 40. | 2 | 0 | 4 | 0.00 | 349.02 | 1100.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 500.0 1100.0 TYPE= 1 TARGET= 600.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15062.00 | 9.91 | 584.81 | 0.00 | 0.00 | 584.84 | .03 | .00 | .00 | 585.00 |
| 710. | 0. | 693. | 17. | 0. | 482. | 85. | 44. | 22. | 584.70 |
| .61 | 0.00 | 1.44 | .21 | .045 | .042 | .050 | .036 | 574.90 | 750.98 |
| .000178 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 349.02 | 1100.00 |

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

BROWNSTOWN CREEK

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10764.00 | 0.00 | 0.00 | 0.00 | 572.30 | 710.00 | 578.20 | .07 | 0.00 | 0.00 | 393.92 | 5.90 | 517.33 |
| 10764.00 | 0.00 | 0.00 | 0.00 | 572.30 | 900.00 | 578.34 | .09 | 0.00 | 0.00 | 464.00 | 6.04 | 546.27 |
| 10764.00 | 0.00 | 0.00 | 0.00 | 572.30 | 985.00 | 578.44 | .09 | 0.00 | 0.00 | 480.63 | 6.14 | 549.67 |
| 10764.00 | 0.00 | 0.00 | 0.00 | 572.30 | 1190.00 | 578.78 | .07 | 0.00 | 0.00 | 488.74 | 6.48 | 557.14 |
| 11134.00 | 370.00 | 0.00 | 0.00 | 574.60 | 480.00 | 578.34 | .01 | .07 | .02 | 377.87 | 3.74 | 463.16 |
| 11134.00 | 370.00 | 0.00 | 0.00 | 574.60 | 650.00 | 578.52 | .02 | .09 | .02 | 494.03 | 3.92 | 481.78 |
| 11134.00 | 370.00 | 0.00 | 0.00 | 574.60 | 710.00 | 578.61 | .02 | .09 | .02 | 528.90 | 4.01 | 492.93 |
| 11134.00 | 370.00 | 0.00 | 0.00 | 574.60 | 860.00 | 578.92 | .02 | .08 | .01 | 600.23 | 4.32 | 520.00 |
| 11734.00 | 600.00 | 0.00 | 0.00 | 575.20 | 480.00 | 578.43 | .12 | .14 | .05 | 354.78 | 3.23 | 158.16 |
| 11734.00 | 600.00 | 0.00 | 0.00 | 575.20 | 650.00 | 578.64 | .16 | .19 | .07 | 457.36 | 3.44 | 173.00 |
| 11734.00 | 600.00 | 0.00 | 0.00 | 575.20 | 710.00 | 578.74 | .17 | .20 | .07 | 484.56 | 3.54 | 183.81 |
| 11734.00 | 600.00 | 0.00 | 0.00 | 575.20 | 860.00 | 579.03 | .16 | .18 | .07 | 539.34 | 3.83 | 215.56 |
| 12164.00 | 430.00 | 0.00 | 0.00 | 575.50 | 480.00 | 578.81 | .02 | .26 | .03 | 367.44 | 3.31 | 242.88 |
| 12164.00 | 430.00 | 0.00 | 0.00 | 575.50 | 650.00 | 579.12 | .03 | .31 | .04 | 471.27 | 3.62 | 263.67 |
| 12164.00 | 430.00 | 0.00 | 0.00 | 575.50 | 710.00 | 579.23 | .03 | .32 | .04 | 504.80 | 3.73 | 271.64 |
| 12164.00 | 430.00 | 0.00 | 0.00 | 575.50 | 860.00 | 579.51 | .04 | .31 | .04 | 585.63 | 4.01 | 290.06 |
| 12884.00 | 720.00 | 0.00 | 0.00 | 576.00 | 480.00 | 579.19 | .17 | .45 | .07 | 355.18 | 3.19 | 126.31 |
| 12884.00 | 720.00 | 0.00 | 0.00 | 576.00 | 650.00 | 579.54 | .19 | .50 | .08 | 444.67 | 3.54 | 160.88 |
| 12884.00 | 720.00 | 0.00 | 0.00 | 576.00 | 710.00 | 579.65 | .20 | .51 | .08 | 473.27 | 3.65 | 171.59 |
| 12884.00 | 720.00 | 0.00 | 0.00 | 576.00 | 860.00 | 579.94 | .21 | .52 | .09 | 535.22 | 3.94 | 198.93 |
| 13324.00 | 440.00 | 0.00 | 0.00 | 576.20 | 480.00 | 579.86 | .07 | .55 | .03 | 335.44 | 3.66 | 163.46 |
| 13324.00 | 440.00 | 0.00 | 0.00 | 576.20 | 650.00 | 580.29 | .08 | .59 | .03 | 421.01 | 4.09 | 193.08 |
| 13324.00 | 440.00 | 0.00 | 0.00 | 576.20 | 710.00 | 580.42 | .08 | .61 | .04 | 449.23 | 4.22 | 202.08 |
| 13324.00 | 440.00 | 0.00 | 0.00 | 576.20 | 860.00 | 580.71 | .09 | .62 | .04 | 512.94 | 4.51 | 237.98 |
| 13724.00 | 400.00 | 0.00 | 0.00 | 576.70 | 480.00 | 580.22 | .08 | .37 | .01 | 333.24 | 3.52 | 210.00 |
| 13724.00 | 400.00 | 0.00 | 0.00 | 576.70 | 650.00 | 580.65 | .08 | .36 | .00 | 393.83 | 3.95 | 210.00 |
| 13724.00 | 400.00 | 0.00 | 0.00 | 576.70 | 710.00 | 580.78 | .08 | .36 | .00 | 415.45 | 4.08 | 210.00 |
| 13724.00 | 400.00 | 0.00 | 0.00 | 576.70 | 860.00 | 581.08 | .08 | .36 | .00 | 469.54 | 4.38 | 210.00 |
| 13894.00 | 170.00 | 0.00 | 0.00 | 576.80 | 480.00 | 580.40 | .19 | .23 | .05 | 351.16 | 3.60 | 88.50 |
| 13894.00 | 170.00 | 0.00 | 0.00 | 576.80 | 650.00 | 580.79 | .22 | .21 | .07 | 443.30 | 3.99 | 104.00 |
| 13894.00 | 170.00 | 0.00 | 0.00 | 576.80 | 710.00 | 580.92 | .23 | .21 | .08 | 473.46 | 4.12 | 104.00 |
| 13894.00 | 170.00 | 0.00 | 0.00 | 576.80 | 860.00 | 581.20 | .26 | .21 | .09 | 548.70 | 4.40 | 104.00 |
| 14024.00 | 130.00 | 0.00 | 0.00 | 576.80 | 480.00 | 580.64 | .29 | .29 | .05 | 434.03 | 3.84 | 39.00 |
| 14024.00 | 130.00 | 0.00 | 0.00 | 576.80 | 650.00 | 581.03 | .41 | .33 | .09 | 580.55 | 4.23 | 39.00 |
| 14024.00 | 130.00 | 0.00 | 0.00 | 576.80 | 710.00 | 581.15 | .46 | .34 | .11 | 632.02 | 4.35 | 39.00 |
| 14024.00 | 130.00 | 0.00 | 0.00 | 576.80 | 860.00 | 581.42 | .58 | .37 | .16 | 760.09 | 4.62 | 39.00 |
| 14044.00 | 20.00 | 0.00 | 0.00 | 576.80 | 480.00 | 580.64 | .39 | .06 | .05 | 480.00 | 3.84 | 29.00 |
| 14044.00 | 20.00 | 0.00 | 0.00 | 576.80 | 650.00 | 581.02 | .58 | .08 | .09 | 650.00 | 4.22 | 29.00 |
| 14044.00 | 20.00 | 0.00 | 0.00 | 576.80 | 710.00 | 581.13 | .66 | .08 | .10 | 710.00 | 4.33 | 29.00 |
| 14044.00 | 20.00 | 0.00 | 0.00 | 576.80 | 860.00 | 581.38 | .85 | .10 | .14 | 860.00 | 4.58 | 29.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14054.00 | 10.00 | 0.00 | 0.00 | 576.80 | 480.00 | 580.62 | .52 | .04 | .06 | 480.00 | 3.82 | 24.00 |
| 14054.00 | 10.00 | 0.00 | 0.00 | 576.80 | 650.00 | 580.97 | .79 | .05 | .10 | 650.00 | 4.17 | 24.00 |
| 14054.00 | 10.00 | 0.00 | 0.00 | 576.80 | 710.00 | 581.07 | .89 | .06 | .12 | 710.00 | 4.27 | 24.00 |
| 14054.00 | 10.00 | 0.00 | 0.00 | 576.80 | 860.00 | 581.29 | 1.17 | .07 | .16 | 860.00 | 4.49 | 24.00 |
| 14060.00 | 6.00 | 0.00 | 0.00 | 576.80 | 480.00 | 580.59 | .65 | .03 | .07 | 480.00 | 3.79 | 21.00 |
| 14060.00 | 6.00 | 0.00 | 0.00 | 576.80 | 650.00 | 580.91 | 1.01 | .04 | .11 | 650.00 | 4.11 | 21.00 |
| 14060.00 | 6.00 | 0.00 | 0.00 | 576.80 | 710.00 | 580.99 | 1.15 | .05 | .13 | 710.00 | 4.19 | 21.00 |
| 14060.00 | 6.00 | 0.00 | 0.00 | 576.80 | 860.00 | 581.17 | 1.54 | .06 | .19 | 860.00 | 4.37 | 21.00 |
| 14064.00 | 4.00 | 0.00 | 0.00 | 576.80 | 480.00 | 580.45 | .99 | .03 | .17 | 480.00 | 3.65 | 19.00 |
| 14064.00 | 4.00 | 0.00 | 0.00 | 576.80 | 650.00 | 580.65 | 1.59 | .04 | .29 | 650.00 | 3.85 | 19.00 |
| 14064.00 | 4.00 | 0.00 | 0.00 | 576.80 | 710.00 | 580.80 | 1.76 | .04 | 0.00 | 710.00 | 4.00 | 19.00 |
| 14064.00 | 4.00 | 0.00 | 0.00 | 576.80 | 860.00 | 581.28 | 1.99 | .05 | 0.00 | 860.00 | 4.48 | 19.00 |
| 14065.00 | 1.00 | 585.20 | 582.50 | 576.80 | 480.00 | 580.46 | .98 | .00 | .00 | 480.00 | 3.66 | 19.00 |
| 14065.00 | 1.00 | 585.20 | 582.50 | 576.80 | 650.00 | 580.67 | 1.58 | .01 | .00 | 650.00 | 3.87 | 19.00 |
| 14065.00 | 1.00 | 585.20 | 582.50 | 576.80 | 710.00 | 581.47 | 1.24 | .01 | .15 | 710.00 | 4.67 | 19.00 |
| 14065.00 | 1.00 | 585.20 | 582.50 | 576.80 | 860.00 | 582.05 | 1.40 | .01 | .18 | 860.00 | 5.25 | 19.00 |
| 14079.00 | 14.00 | 585.20 | 582.50 | 576.80 | 480.00 | 580.64 | .88 | .04 | .03 | 480.00 | 3.84 | 19.00 |
| 14079.00 | 14.00 | 585.20 | 582.50 | 576.80 | 650.00 | 581.37 | 1.09 | .05 | .15 | 650.00 | 4.57 | 19.00 |
| 14079.00 | 14.00 | 585.20 | 582.50 | 576.80 | 710.00 | 581.65 | 1.13 | .04 | .03 | 710.00 | 4.85 | 19.00 |
| 14079.00 | 14.00 | 585.20 | 582.50 | 576.80 | 860.00 | 582.23 | 1.30 | .04 | .03 | 860.00 | 5.43 | 19.00 |
| 14080.00 | 1.00 | 0.00 | 0.00 | 576.80 | 480.00 | 580.65 | .88 | .00 | .00 | 480.00 | 3.85 | 19.00 |
| 14080.00 | 1.00 | 0.00 | 0.00 | 576.80 | 650.00 | 581.38 | 1.08 | .00 | .00 | 650.00 | 4.58 | 19.00 |
| 14080.00 | 1.00 | 0.00 | 0.00 | 576.80 | 710.00 | 581.66 | 1.13 | .00 | .00 | 710.00 | 4.86 | 19.00 |
| 14080.00 | 1.00 | 0.00 | 0.00 | 576.80 | 860.00 | 582.24 | 1.30 | .00 | .00 | 860.00 | 5.44 | 19.00 |
| 14083.00 | 3.00 | 0.00 | 0.00 | 576.80 | 480.00 | 581.24 | .43 | .01 | .13 | 410.09 | 4.44 | 25.00 |
| 14083.00 | 3.00 | 0.00 | 0.00 | 576.80 | 650.00 | 582.13 | .51 | .01 | .17 | 549.89 | 5.33 | 25.00 |
| 14083.00 | 3.00 | 0.00 | 0.00 | 576.80 | 710.00 | 582.45 | .53 | .01 | .18 | 599.02 | 5.65 | 25.00 |
| 14083.00 | 3.00 | 0.00 | 0.00 | 576.80 | 860.00 | 583.15 | .60 | .01 | .21 | 721.90 | 6.35 | 25.00 |
| 14420.00 | 337.00 | 0.00 | 0.00 | 576.60 | 480.00 | 581.95 | .03 | .19 | .12 | 141.17 | 5.35 | 250.22 |
| 14420.00 | 337.00 | 0.00 | 0.00 | 576.60 | 650.00 | 582.89 | .02 | .12 | .15 | 146.55 | 6.29 | 295.00 |
| 14420.00 | 337.00 | 0.00 | 0.00 | 576.60 | 710.00 | 583.22 | .02 | .10 | .16 | 147.72 | 6.62 | 295.00 |
| 14420.00 | 337.00 | 0.00 | 0.00 | 576.60 | 860.00 | 583.99 | .01 | .07 | .18 | 154.03 | 7.39 | 295.00 |
| 14800.00 | 380.00 | 0.00 | 0.00 | 577.40 | 480.00 | 582.16 | .19 | .29 | .08 | 349.11 | 4.76 | 235.81 |
| 14800.00 | 380.00 | 0.00 | 0.00 | 577.40 | 650.00 | 583.01 | .08 | .15 | .03 | 324.42 | 5.61 | 266.04 |
| 14800.00 | 380.00 | 0.00 | 0.00 | 577.40 | 710.00 | 583.32 | .06 | .12 | .02 | 316.66 | 5.92 | 276.35 |
| 14800.00 | 380.00 | 0.00 | 0.00 | 577.40 | 860.00 | 584.05 | .04 | .08 | .01 | 297.77 | 6.65 | 412.69 |
| 15020.00 | 220.00 | 0.00 | 0.00 | 574.90 | 480.00 | 582.33 | .45 | .30 | .13 | 480.00 | 7.43 | 12.60 |
| 15020.00 | 220.00 | 0.00 | 0.00 | 574.90 | 650.00 | 583.15 | .06 | .12 | .01 | 650.00 | 8.25 | 82.27 |
| 15020.00 | 220.00 | 0.00 | 0.00 | 574.90 | 710.00 | 583.42 | .06 | .11 | .00 | 710.00 | 8.52 | 85.09 |
| 15020.00 | 220.00 | 0.00 | 0.00 | 574.90 | 860.00 | 584.12 | .07 | .08 | .02 | 860.00 | 9.22 | 92.28 |

BJ
Browns Town Cr.

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15021.00 | 1.00 | 0.00 | 0.00 | 574.90 | 480.00 | 582.33 | .45 | .00 | .00 | 480.00 | 7.43 | 12.60 |
| 15021.00 | 1.00 | 0.00 | 0.00 | 574.90 | 650.00 | 583.15 | .06 | .00 | .00 | 650.00 | 8.25 | 82.27 |
| 15021.00 | 1.00 | 0.00 | 0.00 | 574.90 | 710.00 | 583.42 | .06 | .00 | .00 | 710.00 | 8.52 | 85.10 |
| 15021.00 | 1.00 | 0.00 | 0.00 | 574.90 | 860.00 | 584.12 | .07 | .00 | .00 | 860.00 | 9.22 | 92.29 |
| 15061.00 | 40.00 | 584.30 | 582.80 | 574.90 | 480.00 | 582.31 | .61 | .06 | .08 | 480.00 | 7.41 | 12.60 |
| 15061.00 | 40.00 | 584.30 | 582.80 | 574.90 | 650.00 | 584.67 | .03 | 1.48 | 0.00 | 641.63 | 9.77 | 332.34 |
| 15061.00 | 40.00 | 584.30 | 582.80 | 574.90 | 710.00 | 584.81 | .03 | 1.35 | 0.00 | 691.10 | 9.91 | 349.02 |
| 15061.00 | 40.00 | 584.30 | 582.80 | 574.90 | 860.00 | 585.06 | .04 | .91 | 0.00 | 810.54 | 10.16 | 364.15 |
| 15062.00 | 1.00 | 0.00 | 0.00 | 574.90 | 480.00 | 582.55 | .42 | .00 | .06 | 480.00 | 7.65 | 12.60 |
| 15062.00 | 1.00 | 0.00 | 0.00 | 574.90 | 650.00 | 584.67 | .03 | .00 | .00 | 642.31 | 9.77 | 332.45 |
| 15062.00 | 1.00 | 0.00 | 0.00 | 574.90 | 710.00 | 584.81 | .03 | .00 | .00 | 692.59 | 9.91 | 349.02 |
| 15062.00 | 1.00 | 0.00 | 0.00 | 574.90 | 860.00 | 585.06 | .04 | .00 | .00 | 814.24 | 10.16 | 364.21 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 10764.000 | 710.000 | 578.200 | 0.000 | 0.000 | 0.000 | 517.332 | 0.000 | 0.000 |
| 10764.000 | 900.000 | 578.340 | .140 | 0.000 | 0.000 | 546.266 | -28.933 | 0.000 |
| 10764.000 | 985.000 | 578.440 | .100 | 0.000 | 0.000 | 549.666 | -32.333 | 0.000 |
| 10764.000 | 1190.000 | 578.780 | .340 | 0.000 | 0.000 | 557.142 | -39.809 | 0.000 |
| 11134.000 | 480.000 | 578.343 | 0.000 | .143 | 0.000 | 463.159 | 0.000 | 370.000 |
| 11134.000 | 650.000 | 578.517 | .174 | .177 | 0.000 | 481.779 | -18.620 | 370.000 |
| 11134.000 | 710.000 | 578.615 | .098 | .175 | 0.000 | 492.926 | -29.767 | 370.000 |
| 11134.000 | 860.000 | 578.921 | .306 | .141 | 0.000 | 519.999 | -56.840 | 370.000 |
| 11734.000 | 480.000 | 578.431 | 0.000 | .087 | 0.000 | 158.164 | 0.000 | 600.000 |
| 11734.000 | 650.000 | 578.637 | .206 | .120 | 0.000 | 173.002 | -14.838 | 600.000 |
| 11734.000 | 710.000 | 578.737 | .100 | .122 | 0.000 | 183.807 | -25.643 | 600.000 |
| 11734.000 | 860.000 | 579.031 | .294 | .110 | 0.000 | 215.564 | -57.400 | 600.000 |
| 12164.000 | 480.000 | 578.810 | 0.000 | .380 | 0.000 | 242.879 | 0.000 | 430.000 |
| 12164.000 | 650.000 | 579.121 | .310 | .484 | 0.000 | 263.669 | -20.790 | 430.000 |
| 12164.000 | 710.000 | 579.229 | .108 | .492 | 0.000 | 271.641 | -28.762 | 430.000 |
| 12164.000 | 860.000 | 579.511 | .282 | .480 | 0.000 | 290.064 | -47.185 | 430.000 |
| 12884.000 | 480.000 | 579.185 | 0.000 | .375 | 0.000 | 126.312 | 0.000 | 720.000 |
| 12884.000 | 650.000 | 579.544 | .358 | .423 | 0.000 | 160.880 | -34.567 | 720.000 |
| 12884.000 | 710.000 | 579.655 | .111 | .426 | 0.000 | 171.593 | -45.281 | 720.000 |
| 12884.000 | 860.000 | 579.941 | .286 | .429 | 0.000 | 198.926 | -72.614 | 720.000 |
| 13324.000 | 480.000 | 579.864 | 0.000 | .679 | 0.000 | 163.456 | 0.000 | 440.000 |
| 13324.000 | 650.000 | 580.287 | .423 | .744 | 0.000 | 193.082 | -29.626 | 440.000 |
| 13324.000 | 710.000 | 580.416 | .129 | .761 | 0.000 | 202.075 | -38.619 | 440.000 |
| 13324.000 | 860.000 | 580.710 | .294 | .769 | 0.000 | 237.982 | -74.526 | 440.000 |
| 13724.000 | 480.000 | 580.223 | 0.000 | .359 | 0.000 | 209.999 | 0.000 | 400.000 |
| 13724.000 | 650.000 | 580.650 | .427 | .362 | 0.000 | 209.999 | -.000 | 400.000 |
| 13724.000 | 710.000 | 580.783 | .133 | .367 | 0.000 | 209.999 | -.000 | 400.000 |
| 13724.000 | 860.000 | 581.083 | .300 | .373 | 0.000 | 209.999 | -.000 | 400.000 |
| 13894.000 | 480.000 | 580.398 | 0.000 | .175 | 0.000 | 88.495 | 0.000 | 170.000 |
| 13894.000 | 650.000 | 580.790 | .392 | .141 | 0.000 | 103.999 | -15.504 | 170.000 |
| 13894.000 | 710.000 | 580.915 | .125 | .133 | 0.000 | 103.999 | -15.504 | 170.000 |
| 13894.000 | 860.000 | 581.200 | .285 | .118 | 0.000 | 103.999 | -15.504 | 170.000 |
| 14024.000 | 480.000 | 580.637 | 0.000 | .239 | 0.000 | 38.999 | 0.000 | 130.000 |
| 14024.000 | 650.000 | 581.028 | .391 | .238 | 0.000 | 38.999 | -.000 | 130.000 |
| 14024.000 | 710.000 | 581.146 | .118 | .231 | 0.000 | 38.999 | -.000 | 130.000 |
| 14024.000 | 860.000 | 581.419 | .273 | .219 | 0.000 | 38.999 | -.000 | 130.000 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 14044.000 | 480.000 | 580.645 | 0.000 | .008 | 0.000 | 28.999 | 0.000 | 20.000 | |
| | 14044.000 | 650.000 | 581.019 | .374 | -.009 | 0.000 | 28.999 | -.000 | 20.000 | |
| | 14044.000 | 710.000 | 581.130 | .111 | -.017 | 0.000 | 28.999 | -.000 | 20.000 | |
| | 14044.000 | 860.000 | 581.381 | .251 | -.038 | 0.000 | 28.999 | -.000 | 20.000 | |
| 6 | | | | | | | | | | |
| 1 | 14054.000 | 480.000 | 580.622 | 0.000 | -.023 | 0.000 | 23.999 | 0.000 | 10.000 | |
| 2 | 14054.000 | 650.000 | 580.971 | .349 | -.048 | 0.000 | 23.999 | -.000 | 10.000 | |
| 3 | 14054.000 | 710.000 | 581.071 | .100 | -.059 | 0.000 | 23.999 | -.000 | 10.000 | |
| 4 | 14054.000 | 860.000 | 581.290 | .219 | -.091 | 0.000 | 23.999 | -.000 | 10.000 | |
| 5 | | | | | | | | | | |
| 6 | 14060.000 | 480.000 | 580.588 | 0.000 | -.034 | 0.000 | 20.999 | 0.000 | 6.000 | |
| 7 | 14060.000 | 650.000 | 580.905 | .317 | -.066 | 0.000 | 20.999 | -.000 | 6.000 | |
| 8 | 14060.000 | 710.000 | 580.991 | .086 | -.080 | 0.000 | 20.999 | -.000 | 6.000 | |
| 9 | 14060.000 | 860.000 | 581.166 | .175 | -.124 | 0.000 | 20.999 | -.000 | 6.000 | |
| 10 | | | | | | | | | | |
| 11 | 14064.000 | 480.000 | 580.447 | 0.000 | -.140 | 0.000 | 19.000 | 0.000 | 4.000 | |
| 12 | 14064.000 | 650.000 | 580.653 | .206 | -.252 | 0.000 | 19.000 | 0.000 | 4.000 | |
| 13 | 14064.000 | 710.000 | 580.796 | .143 | -.195 | 0.000 | 19.000 | 0.000 | 4.000 | |
| 14 | 14064.000 | 860.000 | 581.276 | .480 | .110 | 0.000 | 19.000 | 0.000 | 4.000 | |
| 15 | | | | | | | | | | |
| 16 | 14065.000 | 480.000 | 580.458 | 0.000 | .010 | 0.000 | 19.000 | 0.000 | 1.000 | |
| 17 | 14065.000 | 650.000 | 580.673 | .215 | .020 | 0.000 | 19.000 | 0.000 | 1.000 | |
| 18 | 14065.000 | 710.000 | 581.473 | .800 | .677 | 0.000 | 19.000 | 0.000 | 1.000 | |
| 19 | 14065.000 | 860.000 | 582.049 | .576 | .773 | 0.000 | 19.000 | 0.000 | 1.000 | |
| 20 | | | | | | | | | | |
| 21 | 14079.000 | 480.000 | 580.640 | 0.000 | .182 | 0.000 | 19.000 | 0.000 | 14.000 | |
| 22 | 14079.000 | 650.000 | 581.370 | .730 | .697 | 0.000 | 19.000 | 0.000 | 14.000 | |
| 23 | 14079.000 | 710.000 | 581.653 | .284 | .181 | 0.000 | 19.000 | 0.000 | 14.000 | |
| 24 | 14079.000 | 860.000 | 582.230 | .576 | .181 | 0.000 | 19.000 | 0.000 | 14.000 | |
| 25 | | | | | | | | | | |
| 26 | 14080.000 | 480.000 | 580.646 | 0.000 | .006 | 0.000 | 19.000 | 0.000 | 1.000 | |
| 27 | 14080.000 | 650.000 | 581.377 | .731 | .007 | 0.000 | 19.000 | 0.000 | 1.000 | |
| 28 | 14080.000 | 710.000 | 581.660 | .283 | .007 | 0.000 | 19.000 | 0.000 | 1.000 | |
| 29 | 14080.000 | 860.000 | 582.236 | .577 | .007 | 0.000 | 19.000 | 0.000 | 1.000 | |
| 30 | | | | | | | | | | |
| 31 | 14083.000 | 480.000 | 581.239 | 0.000 | .593 | 0.000 | 24.999 | 0.000 | 3.000 | |
| 32 | 14083.000 | 650.000 | 582.133 | .894 | .756 | 0.000 | 24.999 | -.000 | 3.000 | |
| 33 | 14083.000 | 710.000 | 582.448 | .315 | .788 | 0.000 | 24.999 | -.000 | 3.000 | |
| 34 | 14083.000 | 860.000 | 583.153 | .705 | .916 | 0.000 | 24.999 | -.000 | 3.000 | |
| 35 | | | | | | | | | | |
| 36 | 14420.000 | 480.000 | 581.953 | 0.000 | .714 | 0.000 | 250.223 | 0.000 | 337.000 | |
| 37 | 14420.000 | 650.000 | 582.891 | .938 | .758 | 0.000 | 294.999 | -44.776 | 337.000 | |
| 38 | 14420.000 | 710.000 | 583.221 | .330 | .773 | 0.000 | 294.999 | -44.776 | 337.000 | Brownstown Cr. |
| 39 | 14420.000 | 860.000 | 583.989 | .768 | .837 | 0.000 | 294.999 | -44.776 | 337.000 | |
| 40 | | | | | | | | | | |
| 41 | 14800.000 | 480.000 | 582.158 | 0.000 | .204 | 0.000 | 235.812 | 0.000 | 380.000 | |
| 42 | 14800.000 | 650.000 | 583.007 | .849 | .116 | 0.000 | 266.042 | -30.230 | 380.000 | BJ |
| 43 | 14800.000 | 710.000 | 583.316 | .309 | .095 | 0.000 | 276.351 | -40.539 | 380.000 | |
| 44 | 14800.000 | 860.000 | 584.055 | .738 | .065 | 0.000 | 412.694 | -176.882 | 380.000 | |
| 45 | | | | | | | | | | |
| 46 | 15020.000 | 480.000 | 582.326 | 0.000 | .169 | 0.000 | 12.599 | 0.000 | 220.000 | |
| 47 | 15020.000 | 650.000 | 583.154 | .827 | .146 | 0.000 | 82.266 | -69.667 | 220.000 | |
| 48 | 15020.000 | 710.000 | 583.423 | .270 | .107 | 0.000 | 85.092 | -72.493 | 220.000 | |
| 49 | 15020.000 | 860.000 | 584.119 | .695 | .064 | 0.000 | 92.282 | -79.683 | 220.000 | |
| 50 | | | | | | | | | | |
| 51 | 15021.000 | 480.000 | 582.328 | 0.000 | .001 | 0.000 | 12.599 | 0.000 | 1.000 | |
| 52 | 15021.000 | 650.000 | 583.154 | .826 | .000 | 0.000 | 82.272 | -69.673 | 1.000 | BK |
| 53 | 15021.000 | 710.000 | 583.424 | .270 | .000 | 0.000 | 85.097 | -72.498 | 1.000 | |
| 54 | 15021.000 | 860.000 | 584.119 | .695 | .000 | 0.000 | 92.286 | -79.687 | 1.000 | |
| 55 | | | | | | | | | | |
| 56 | 15061.000 | 480.000 | 582.310 | 0.000 | -.018 | 0.000 | 12.599 | 0.000 | 40.000 | |
| 57 | 15061.000 | 650.000 | 584.668 | 2.359 | 1.514 | 0.000 | 332.339 | -319.740 | 40.000 | |
| | 15061.000 | 710.000 | 584.809 | .141 | 1.386 | 0.000 | 349.019 | -336.420 | 40.000 | |
| | 15061.000 | 860.000 | 585.057 | .247 | .938 | 0.000 | 364.149 | -351.550 | 40.000 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 15062.000 | 480.000 | 582.552 | 0.000 | .242 | 0.000 | 12.599 | 0.000 | 1.000 |
| 15062.000 | 650.000 | 584.669 | 2.117 | .000 | 0.000 | 332.449 | -319.850 | 1.000 |
| 15062.000 | 710.000 | 584.809 | .141 | .000 | 0.000 | 349.020 | -336.421 | 1.000 |
| 15062.000 | 860.000 | 585.057 | .247 | -.000 | 0.000 | 364.208 | -351.609 | 1.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 1.000 | 12.600 | 19.585 | 0.000 |
| 2 | 1.000 | 600.000 | 21.865 | 2.280 |
| 3 | 1.000 | 600.000 | 22.453 | 2.868 |
| 4 | 1.000 | 600.000 | 25.121 | 5.536 |

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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Revised 8/17/77

8/11/77

IGL datum +1.43 ft = USGS

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C
1      CITY OF GIBRALTER        5555-23-01      PM = RICHARD ZANOTTI
T2         10 YEAR FLOOD
T3         BROWNSTOWN CREEK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.        2.        0.        0.  0.000000      0.00       0.0        0.   573.100     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN       ALLDC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3      1.000     10.000     11.000     12.000     14.000      8.000      4.000      0.000      0.000      0.000
NC       .050       .040       .030       .300       .500      0.000      0.000      0.000      0.000      0.000
QT      4.000   1080.000   1290.000   1345.000   1460.000      0.000      0.000      0.000      0.000      0.000

X1   1613.000     64.000   1130.000   1212.000      0.000      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    920.000      0.000   1212.000      0.000      0.000      0.000      0.000
GR    576.300      0.000    576.300     30.000    574.800    130.000    574.800    230.000    573.200    330.000
GR    573.400    430.000    574.000    530.000    574.700    630.000    572.700    730.000    573.300    830.000
GR    573.100    919.000    571.800    930.000    570.100    980.000    572.100   1000.000    574.500   1001.000
GR    574.400   1004.000    571.800   1005.000    570.100   1010.000    568.400   1030.000    568.000   1040.000
GR    567.900   1050.000    568.400   1060.000    570.300   1070.000    571.100   1075.000    572.300   1080.000
GR    572.100   1090.000    571.600   1100.000    571.600   1110.000    570.600   1120.000    573.100   1130.000
GR    571.300   1132.000    570.300   1135.000    569.000   1140.000    568.300   1145.000    567.500   1150.000
GR    566.600   1155.000    565.900   1160.000    565.600   1165.000    565.600   1170.000    565.400   1175.000
GR    565.200   1180.000    565.000   1185.000    565.500   1190.000    566.800   1195.000    567.800   1200.000
GR    569.500   1205.000    572.200   1211.000    575.000   1212.000    574.100   1230.000    572.500   1330.000
GR    573.600   1430.000    573.400   1530.000    572.700   1630.000    573.900   1730.000    573.100   1830.000
GR    572.900   1915.000    573.500   1930.000    575.900   2030.000    578.100   2130.000    578.700   2230.000
GR    578.600   2330.000    578.500   2430.000    578.800   2530.000    578.900   2630.000      0.000      0.000

X1   1783.000      0.000      0.000      0.000    130.000    200.000    170.000      0.000     -.370      0.000
X3      0.000      0.000      0.000    920.000      0.000   1212.000      0.000      0.000      0.000      0.000

X1   1953.000      0.000      0.000      0.000    130.000    200.000    170.000      0.000     -.370      0.000
X3      0.000      0.000      0.000    920.000      0.000   1212.000      0.000      0.000      0.000      0.000
NH      3.000       .050    570.000       .030    594.500       .045   1200.000      0.000      0.000      0.000
ET      0.000      6.100      8.100      8.100      8.100    570.000    594.500    300.000    594.500      0.000

X1   2113.000     34.000    500.000    594.500    130.000    200.000    160.000      0.000     -2.600      0.000
GR    573.700      0.000    574.200    100.000    572.900    150.000    572.500    200.000    572.500    300.000
GR    573.800    400.000    573.700    500.000    570.900    502.000    570.200    505.000    569.600    510.000
GR    569.000    515.000    568.800    520.000    568.500    525.000    567.800    540.000    567.100    560.000
GR    566.800    570.000    566.500    580.000    566.800    594.500    566.900    600.000    567.400    620.000
GR    567.200    640.000    569.800    660.000    570.000    665.000    570.400    670.000    570.600    675.000
GR    570.900    680.000    571.100    685.000    571.400    690.000    572.400    700.000    573.200    800.000
GR    573.200    900.000    573.400   1000.000    574.700   1100.000    576.100   1200.000      0.000      0.000
NH      3.000       .035    570.000       .015    594.500       .025   1200.000      0.000      0.000      0.000
ET      0.000      6.100      8.100      8.100      8.100    570.000    594.500    300.000    594.500      0.000

X1   2114.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
NH      3.000       .035    800.000       .015    824.500       .025   1600.000      0.000      0.000      .000
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SB | 0.000 | 1.430 | 3.020 | 0.000 | 19.270 | 0.000 | 183.100 | 0.000 | 563.900 | 563.900 |
| | ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 800.000 | 824.500 | 500.000 | 824.500 | 0.000 |
| | X1 | 2131.000 | 20.000 | 700.000 | 824.500 | 17.000 | 17.000 | 17.000 | 0.000 | 0.000 | 0.000 |
| | X2 | 0.000 | 0.000 | 1.000 | 573.200 | 574.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6 | BT | 8.000 | 500.000 | 574.200 | 0.000 | 600.000 | 574.200 | 0.000 | 700.000 | 574.500 | 0.000 |
| 1 | BT | 800.000 | 575.100 | 567.000 | 800.000 | 575.100 | 573.700 | 824.500 | 575.900 | 573.300 | 824.500 |
| 2 | BT | 575.900 | 566.500 | 900.000 | 574.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 3 | GR | 574.400 | 0.000 | 574.100 | 100.000 | 574.100 | 300.000 | 574.200 | 400.000 | 574.200 | 500.000 |
| 4 | GR | 574.200 | 600.000 | 574.500 | 700.000 | 569.000 | 725.000 | 567.000 | 800.000 | 563.900 | 810.000 |
| 5 | GR | 566.500 | 824.500 | 570.000 | 895.000 | 574.800 | 900.000 | 574.200 | 1000.000 | 574.300 | 1100.000 |
| 6 | GR | 574.600 | 1200.000 | 574.900 | 1300.000 | 575.500 | 1400.000 | 575.400 | 1500.000 | 578.400 | 1600.000 |
| 7 | ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 800.000 | 824.500 | 500.000 | 824.500 | 0.000 |
| 8 | NH | 3.000 | .045 | 800.000 | .030 | 824.500 | .045 | 1600.000 | 0.000 | 0.000 | 0.000 |
| 9 | | | | | | | | | | | |
| 10 | X1 | 2132.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| 11 | NC | .045 | .045 | .030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 12 | ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 535.000 | 600.000 | 360.000 | 700.000 | 0.000 |
| 13 | | | | | | | | | | | |
| 14 | X1 | 2182.000 | 32.000 | 500.000 | 700.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| 15 | GR | 573.700 | 0.000 | 574.200 | 100.000 | 572.900 | 150.000 | 572.500 | 200.000 | 572.500 | 300.000 |
| 16 | GR | 573.800 | 400.000 | 573.700 | 500.000 | 570.900 | 502.000 | 570.200 | 505.000 | 569.600 | 510.000 |
| 17 | GR | 569.000 | 515.000 | 568.800 | 520.000 | 568.500 | 525.000 | 567.800 | 540.000 | 567.100 | 560.000 |
| 18 | GR | 566.500 | 580.000 | 566.900 | 600.000 | 567.400 | 620.000 | 567.200 | 640.000 | 569.800 | 660.000 |
| 19 | GR | 570.000 | 665.000 | 570.400 | 670.000 | 570.600 | 675.000 | 570.900 | 680.000 | 571.100 | 685.000 |
| 20 | GR | 571.400 | 690.000 | 572.400 | 700.000 | 573.200 | 800.000 | 573.200 | 900.000 | 573.400 | 1000.000 |
| 21 | GR | 574.700 | 1100.000 | 576.100 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 22 | | | | | | | | | | | |
| 23 | X1 | 2632.000 | 23.000 | 300.000 | 395.000 | 550.000 | 250.000 | 450.000 | 0.000 | 0.000 | 0.000 |
| 24 | X3 | 10.000 | 0.000 | 0.000 | 240.000 | 0.000 | 450.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 25 | GR | 576.300 | 0.000 | 574.800 | 100.000 | 574.800 | 200.000 | 574.300 | 210.000 | 574.100 | 300.000 |
| 26 | GR | 570.400 | 304.000 | 568.400 | 310.000 | 567.500 | 315.000 | 566.200 | 320.000 | 565.800 | 325.000 |
| 27 | GR | 566.400 | 345.000 | 568.200 | 360.000 | 569.300 | 365.000 | 570.000 | 370.000 | 570.800 | 375.000 |
| 28 | GR | 571.400 | 380.000 | 572.400 | 395.000 | 572.600 | 400.000 | 573.500 | 500.000 | 572.800 | 600.000 |
| 29 | GR | 573.300 | 700.000 | 574.500 | 800.000 | 573.600 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 30 | | | | | | | | | | | |
| 31 | X1 | 2932.000 | 31.000 | 155.000 | 251.000 | 300.000 | 300.000 | 300.000 | 0.000 | 0.000 | 0.000 |
| 32 | X3 | 0.000 | 0.000 | 0.000 | 175.000 | 0.000 | 235.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 33 | GR | 576.500 | 0.000 | 575.000 | 55.000 | 576.000 | 142.000 | 574.000 | 155.000 | 572.400 | 161.000 |
| 34 | GR | 571.500 | 163.000 | 570.100 | 165.000 | 569.000 | 170.000 | 568.300 | 175.000 | 567.600 | 180.000 |
| 35 | GR | 567.300 | 185.000 | 566.900 | 195.000 | 566.800 | 205.000 | 567.100 | 210.000 | 567.600 | 215.000 |
| 36 | GR | 567.500 | 220.000 | 567.500 | 225.000 | 567.900 | 230.000 | 568.300 | 235.000 | 568.900 | 240.000 |
| 37 | GR | 571.400 | 245.000 | 572.400 | 250.000 | 573.500 | 251.000 | 573.700 | 255.000 | 573.400 | 355.000 |
| 38 | GR | 575.100 | 455.000 | 576.400 | 555.000 | 576.800 | 655.000 | 577.500 | 755.000 | 579.500 | 855.000 |
| 39 | GR | 580.400 | 955.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 40 | | | | | | | | | | | |
| 41 | X1 | 2982.000 | 30.000 | 800.000 | 843.000 | 50.000 | 50.000 | 50.000 | .710 | 0.000 | 0.000 |
| 42 | X3 | 10.000 | 0.000 | 0.000 | 700.000 | 0.000 | 843.000 | 0.000 | 575.000 | 575.000 | 0.000 |
| 43 | GR | 575.600 | 0.000 | 575.700 | 100.000 | 575.800 | 200.000 | 575.800 | 300.000 | 575.700 | 400.000 |
| 44 | GR | 575.700 | 500.000 | 575.700 | 600.000 | 576.000 | 700.000 | 575.900 | 765.000 | 569.000 | 800.000 |
| 45 | GR | 567.900 | 805.000 | 567.500 | 810.000 | 567.200 | 815.000 | 567.200 | 820.000 | 567.300 | 825.000 |
| 46 | GR | 567.200 | 830.000 | 567.000 | 835.000 | 567.100 | 840.000 | 567.100 | 843.000 | 573.500 | 875.000 |
| 47 | GR | 577.200 | 900.000 | 576.100 | 1000.000 | 576.400 | 1200.000 | 577.100 | 1300.000 | 577.900 | 1400.000 |
| 48 | GR | 578.900 | 1500.000 | 579.800 | 1600.000 | 580.200 | 1700.000 | 580.700 | 1800.000 | 581.800 | 1900.000 |
| 49 | NC | .018 | .018 | .015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 50 | | | | | | | | | | | |
| 51 | X1 | 2983.000 | 30.000 | 800.000 | 843.000 | 1.000 | 1.000 | 1.000 | .710 | 0.000 | 0.000 |
| 52 | X3 | 10.000 | 0.000 | 0.000 | 700.000 | 0.000 | 843.000 | 0.000 | 575.000 | 575.000 | 0.000 |
| 53 | GR | 575.600 | 0.000 | 575.700 | 100.000 | 575.800 | 200.000 | 575.800 | 300.000 | 575.700 | 400.000 |
| 54 | GR | 575.700 | 500.000 | 575.700 | 600.000 | 576.000 | 700.000 | 575.900 | 765.000 | 569.000 | 800.000 |
| 55 | GR | 567.900 | 805.000 | 567.500 | 810.000 | 567.200 | 815.000 | 567.200 | 820.000 | 567.300 | 825.000 |
| 56 | GR | 567.200 | 830.000 | 567.000 | 835.000 | 567.100 | 840.000 | 567.100 | 843.000 | 573.500 | 875.000 |
| 57 | GR | 577.200 | 900.000 | 576.100 | 1000.000 | 576.400 | 1200.000 | 577.100 | 1300.000 | 577.900 | 1400.000 |
| | GR | 578.900 | 1500.000 | 579.800 | 1600.000 | 580.200 | 1700.000 | 580.700 | 1800.000 | 581.800 | 1900.000 |
| | SB | 0.000 | 1.610 | 3.000 | 0.000 | 28.740 | 0.000 | 195.400 | 0.000 | 567.000 | 567.000 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | X1 | 3049.000 | 30.000 | 800.000 | 843.000 | 66.000 | 66.000 | 66.000 | .710 | 0.000 | 0.000 |
| | X2 | 0.000 | 0.000 | 1.000 | 573.800 | 577.600 | 0.000 | 0.000 | 0.000 | .710 | 0.000 |
| | X3 | 10.000 | 0.000 | 0.000 | 700.000 | 0.000 | 843.000 | 0.000 | 577.600 | 577.600 | 0.000 |
| | BT | 6.000 | 700.000 | 576.000 | 0.000 | 800.000 | 577.400 | 569.000 | 800.000 | 577.400 | 573.800 |
| | BT | 843.000 | 577.600 | 573.800 | 843.000 | 577.600 | 567.100 | 900.000 | 577.200 | 0.000 | 0.000 |
| 6 | GR | 575.600 | 0.000 | 575.700 | 100.000 | 575.800 | 200.000 | 575.800 | 300.000 | 575.700 | 400.000 |
| 1 | GR | 575.700 | 500.000 | 575.700 | 600.000 | 576.000 | 700.000 | 575.900 | 765.000 | 569.000 | 800.000 |
| 2 | GR | 567.900 | 805.000 | 567.500 | 810.000 | 567.200 | 815.000 | 567.200 | 820.000 | 567.300 | 825.000 |
| 3 | GR | 567.200 | 830.000 | 567.000 | 835.000 | 567.100 | 840.000 | 567.100 | 843.000 | 573.500 | 875.000 |
| 4 | GR | 577.200 | 900.000 | 576.100 | 1000.000 | 576.400 | 1200.000 | 577.100 | 1300.000 | 577.900 | 1400.000 |
| 5 | GR | 578.900 | 1500.000 | 579.800 | 1600.000 | 580.200 | 1700.000 | 580.700 | 1800.000 | 581.800 | 1900.000 |
| 6 | NC | .045 | .045 | .030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 7 | | | | | | | | | | | |
| 8 | X1 | 3050.000 | 30.000 | 800.000 | 843.000 | 1.000 | 1.000 | 1.000 | .710 | 0.000 | 0.000 |
| 9 | X3 | 10.000 | 0.000 | 0.000 | 700.000 | 0.000 | 843.000 | 0.000 | 577.600 | 577.600 | 0.000 |
| 10 | GR | 575.600 | 0.000 | 575.700 | 100.000 | 575.800 | 200.000 | 575.800 | 300.000 | 575.700 | 400.000 |
| 11 | GR | 575.700 | 500.000 | 575.700 | 600.000 | 576.000 | 700.000 | 575.900 | 765.000 | 569.000 | 800.000 |
| 12 | GR | 567.900 | 805.000 | 567.500 | 810.000 | 567.200 | 815.000 | 567.200 | 820.000 | 567.300 | 825.000 |
| 13 | GR | 567.200 | 830.000 | 567.000 | 835.000 | 567.100 | 840.000 | 567.100 | 843.000 | 573.500 | 875.000 |
| 14 | GR | 577.200 | 900.000 | 576.100 | 1000.000 | 576.400 | 1200.000 | 577.100 | 1300.000 | 577.900 | 1400.000 |
| 15 | GR | 578.900 | 1500.000 | 579.800 | 1600.000 | 580.200 | 1700.000 | 580.700 | 1800.000 | 581.800 | 1900.000 |
| 16 | | | | | | | | | | | |
| 17 | X1 | 3250.000 | 40.000 | 70.000 | 338.000 | 100.000 | 300.000 | 200.000 | 0.000 | 0.000 | 0.000 |
| 18 | X3 | 0.000 | 0.000 | 0.000 | 52.000 | 0.000 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 19 | GR | 576.600 | 0.000 | 574.100 | 1.000 | 574.100 | 25.000 | 575.400 | 30.000 | 576.100 | 52.000 |
| 20 | GR | 575.700 | 70.000 | 571.200 | 91.000 | 570.200 | 95.000 | 569.600 | 100.000 | 569.500 | 105.000 |
| 21 | GR | 568.600 | 120.000 | 567.500 | 130.000 | 567.500 | 140.000 | 567.500 | 150.000 | 567.800 | 160.000 |
| 22 | GR | 567.800 | 170.000 | 568.300 | 180.000 | 568.700 | 190.000 | 568.900 | 200.000 | 569.500 | 210.000 |
| 23 | GR | 569.200 | 220.000 | 570.100 | 230.000 | 570.000 | 240.000 | 570.000 | 250.000 | 569.900 | 260.000 |
| 24 | GR | 570.600 | 270.000 | 570.500 | 280.000 | 570.500 | 290.000 | 571.000 | 300.000 | 571.000 | 305.000 |
| 25 | GR | 570.800 | 310.000 | 571.400 | 315.000 | 571.700 | 320.000 | 573.400 | 338.000 | 574.600 | 370.000 |
| 26 | GR | 575.500 | 470.000 | 576.100 | 575.000 | 576.500 | 670.000 | 578.100 | 770.000 | 581.600 | 1070.000 |
| 27 | QT | 4.000 | 1085.000 | 1290.000 | 1345.000 | 1460.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 28 | | | | | | | | | | | |
| 29 | X1 | 3750.000 | 41.000 | 500.000 | 800.000 | 550.000 | 450.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| 30 | X3 | 0.000 | 0.000 | 0.000 | 400.000 | 0.000 | 1050.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 31 | GR | 575.600 | 0.000 | 572.900 | 15.000 | 573.400 | 100.000 | 573.000 | 200.000 | 574.700 | 300.000 |
| 32 | GR | 577.000 | 400.000 | 574.300 | 500.000 | 571.500 | 537.000 | 570.900 | 545.000 | 570.100 | 550.000 |
| 33 | GR | 571.400 | 555.000 | 570.100 | 570.000 | 569.300 | 580.000 | 568.300 | 590.000 | 567.900 | 600.000 |
| 34 | GR | 567.800 | 610.000 | 567.800 | 620.000 | 568.100 | 630.000 | 568.500 | 640.000 | 569.100 | 650.000 |
| 35 | GR | 569.500 | 660.000 | 569.500 | 670.000 | 568.900 | 680.000 | 570.000 | 690.000 | 570.300 | 700.000 |
| 36 | GR | 570.200 | 710.000 | 570.400 | 720.000 | 570.400 | 730.000 | 570.600 | 740.000 | 570.500 | 750.000 |
| 37 | GR | 570.500 | 760.000 | 570.500 | 770.000 | 570.600 | 780.000 | 571.500 | 790.000 | 572.400 | 800.000 |
| 38 | GR | 572.600 | 900.000 | 572.900 | 1000.000 | 573.900 | 1100.000 | 574.300 | 1200.000 | 575.200 | 1300.000 |
| 39 | GR | 577.700 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 40 | | | | | | | | | | | |
| 41 | X1 | 4225.000 | 90.000 | 650.000 | 861.000 | 550.000 | 300.000 | 475.000 | 0.000 | -.700 | 0.000 |
| 42 | X3 | 0.000 | 0.000 | 0.000 | 515.000 | 0.000 | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 43 | GR | 575.300 | 0.000 | 574.000 | 22.400 | 574.000 | 44.800 | 574.100 | 67.200 | 574.100 | 89.600 |
| 44 | GR | 574.000 | 112.000 | 573.900 | 134.400 | 573.800 | 156.800 | 573.700 | 179.300 | 573.700 | 201.700 |
| 45 | GR | 573.700 | 224.100 | 573.600 | 246.500 | 573.500 | 268.900 | 573.600 | 291.300 | 573.600 | 313.700 |
| 46 | GR | 573.600 | 336.200 | 573.700 | 358.600 | 573.700 | 381.000 | 573.800 | 403.400 | 574.000 | 425.800 |
| 47 | GR | 574.200 | 448.200 | 574.400 | 470.600 | 574.600 | 493.100 | 574.800 | 515.500 | 574.700 | 537.900 |
| 48 | GR | 574.500 | 560.300 | 574.200 | 582.700 | 573.900 | 605.100 | 573.600 | 627.500 | 573.300 | 650.000 |
| 49 | GR | 572.700 | 657.000 | 572.200 | 664.000 | 571.700 | 671.100 | 571.300 | 678.100 | 570.600 | 685.100 |
| 50 | GR | 571.000 | 692.200 | 570.500 | 699.200 | 570.000 | 706.200 | 569.500 | 713.300 | 569.300 | 720.300 |
| 51 | GR | 569.100 | 727.300 | 568.900 | 734.400 | 568.900 | 741.400 | 569.000 | 748.400 | 569.100 | 755.500 |
| 52 | GR | 569.100 | 762.500 | 568.900 | 769.500 | 568.500 | 776.500 | 569.100 | 783.600 | 569.200 | 790.600 |
| 53 | GR | 569.000 | 797.600 | 569.100 | 804.700 | 569.100 | 811.700 | 569.200 | 818.700 | 569.300 | 825.800 |
| 54 | GR | 569.600 | 832.800 | 569.900 | 839.800 | 570.300 | 846.900 | 571.100 | 853.900 | 572.300 | 861.000 |
| 55 | GR | 572.800 | 888.900 | 572.800 | 916.900 | 572.800 | 944.800 | 572.800 | 972.800 | 572.800 | 1000.800 |
| 56 | GR | 573.000 | 1028.700 | 573.300 | 1056.700 | 573.500 | 1084.700 | 573.900 | 1112.600 | 574.400 | 1140.600 |
| 57 | GR | 574.800 | 1168.600 | 575.200 | 1196.500 | 575.600 | 1224.500 | 575.900 | 1252.500 | 576.100 | 1280.400 |
| | GR | 576.300 | 1308.400 | 576.400 | 1336.400 | 576.600 | 1364.300 | 576.700 | 1392.300 | 576.900 | 1420.300 |
| | GR | 577.100 | 1448.200 | 577.300 | 1476.200 | 577.500 | 1504.200 | 577.600 | 1532.100 | 577.700 | 1560.100 |
| | GR | 577.900 | 1588.100 | 578.200 | 1616.000 | 578.400 | 1644.000 | 578.700 | 1672.00 | 579.000 | 170[illegible] 0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4700.000 | 34.000 | 800.000 | 922.000 | 550.000 | 300.000 | 475.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 300.000 | 0.000 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 575.100 | 0.000 | 575.100 | 100.000 | 574.300 | 200.000 | 574.300 | 300.000 | 573.500 | 400.000 |
| GR | 572.800 | 500.000 | 572.700 | 600.000 | 572.900 | 700.000 | 572.300 | 800.000 | 571.600 | 810.000 |
| GR | 571.300 | 820.000 | 570.900 | 830.000 | 570.800 | 840.000 | 570.000 | 850.000 | 569.300 | 860.000 |
| GR | 568.300 | 870.000 | 568.200 | 880.000 | 567.800 | 890.000 | 568.000 | 900.000 | 569.500 | 910.000 |
| GR | 571.200 | 920.000 | 572.300 | 922.000 | 573.100 | 925.000 | 573.300 | 1000.000 | 573.100 | 1100.000 |
| GR | 574.200 | 1200.000 | 576.300 | 1300.000 | 577.900 | 1400.000 | 578.700 | 1500.000 | 579.300 | 1600.000 |
| GR | 580.100 | 1700.000 | 580.400 | 1800.000 | 580.200 | 1900.000 | 580.400 | 2000.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 5750.000 | 30.000 | 600.000 | 670.000 | 300.000 | 1100.000 | 1050.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 450.000 | 0.000 | 1250.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 572.800 | 0.000 | 574.200 | 100.000 | 575.100 | 200.000 | 574.600 | 300.000 | 574.800 | 400.000 |
| GR | 574.700 | 500.000 | 573.900 | 600.000 | 572.300 | 601.000 | 570.400 | 606.000 | 569.500 | 610.000 |
| GR | 568.900 | 620.000 | 568.600 | 630.000 | 569.400 | 640.000 | 569.900 | 645.000 | 570.500 | 650.000 |
| GR | 570.700 | 655.000 | 571.600 | 660.000 | 572.700 | 670.000 | 572.800 | 700.000 | 573.000 | 800.000 |
| GR | 573.100 | 900.000 | 574.800 | 1000.000 | 576.400 | 1100.000 | 576.200 | 1200.000 | 574.900 | 1300.000 |
| GR | 574.900 | 1400.000 | 575.400 | 1500.000 | 575.300 | 1600.000 | 575.400 | 1700.000 | 575.600 | 1800.000 |
| | | | | | | | | | | |
| X1 | 6750.000 | 37.000 | 855.000 | 905.000 | 600.000 | 600.000 | 1000.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 650.000 | 0.000 | 1050.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 572.700 | 0.000 | 573.800 | 14.000 | 574.000 | 55.000 | 573.500 | 155.000 | 574.300 | 255.000 |
| GR | 577.900 | 355.000 | 575.300 | 455.000 | 574.700 | 555.000 | 574.400 | 655.000 | 574.200 | 755.000 |
| GR | 573.700 | 790.000 | 573.300 | 800.000 | 573.400 | 855.000 | 572.700 | 856.000 | 571.100 | 860.000 |
| GR | 570.000 | 865.000 | 569.400 | 870.000 | 569.500 | 875.000 | 569.000 | 880.000 | 568.800 | 885.000 |
| GR | 568.600 | 890.000 | 568.600 | 895.000 | 570.600 | 900.000 | 573.200 | 905.000 | 573.800 | 910.000 |
| GR | 572.900 | 955.000 | 577.200 | 1055.000 | 577.200 | 1155.000 | 576.100 | 1255.000 | 575.200 | 1355.000 |
| GR | 575.900 | 1455.000 | 577.900 | 1555.000 | 576.100 | 1655.000 | 576.700 | 1755.000 | 578.400 | 1855.000 |
| GR | 580.700 | 1955.000 | 583.400 | 2055.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 1090.000 | 1590.000 | 1770.000 | 2225.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 7200.000 | 30.000 | 700.000 | 746.000 | 400.000 | 400.000 | 450.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 665.000 | 0.000 | 782.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 574.500 | 0.000 | 574.500 | 100.000 | 574.300 | 200.000 | 575.400 | 300.000 | 574.800 | 400.000 |
| GR | 574.100 | 500.000 | 573.200 | 600.000 | 573.500 | 700.000 | 572.100 | 703.000 | 571.900 | 705.000 |
| GR | 570.100 | 710.000 | 568.900 | 715.000 | 568.400 | 720.000 | 568.200 | 725.000 | 568.800 | 730.000 |
| GR | 569.500 | 735.000 | 570.700 | 740.000 | 572.000 | 745.000 | 573.400 | 746.000 | 573.100 | 800.000 |
| GR | 575.200 | 900.000 | 578.000 | 1000.000 | 577.800 | 1100.000 | 576.900 | 1200.000 | 575.900 | 1300.000 |
| GR | 576.200 | 1400.000 | 577.500 | 1500.000 | 578.500 | 1600.000 | 577.600 | 1700.000 | 578.800 | 1900.000 |
| | | | | | | | | | | |
| X1 | 7250.000 | 17.000 | 982.000 | 1100.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| GR | 580.600 | 0.000 | 580.500 | 885.000 | 580.100 | 982.000 | 579.600 | 982.000 | 579.600 | 985.500 |
| GR | 573.900 | 998.200 | 573.900 | 1020.500 | 569.600 | 1029.000 | 569.600 | 1052.000 | 573.300 | 1061.200 |
| GR | 573.300 | 1084.400 | 579.200 | 1097.200 | 579.200 | 1100.000 | 579.700 | 1100.000 | 578.000 | 1505.000 |
| GR | 580.000 | 2005.000 | 585.500 | 2445.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .018 | .018 | .018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 7251.000 | 32.000 | 982.000 | 1100.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 13.000 | 0.000 | 580.600 | 0.000 | 885.000 | 580.500 | 0.000 | 982.000 | 580.100 | 0.000 |
| BT | 982.000 | 583.100 | 580.100 | 994.300 | 583.100 | 580.100 | 994.300 | 583.100 | 578.600 | 1087.600 |
| BT | 582.800 | 578.300 | 1087.600 | 582.800 | 579.800 | 1100.000 | 582.700 | 579.700 | 1100.000 | 579.700 |
| BT | 0.000 | 1505.000 | 578.000 | 0.000 | 2005.000 | 580.000 | 0.000 | 2445.000 | 585.500 | 0.000 |
| GR | 580.600 | 0.000 | 580.500 | 885.000 | 580.100 | 982.000 | 579.600 | 982.000 | 579.600 | 985.500 |
| GR | 576.100 | 994.300 | 578.600 | 994.300 | 578.600 | 997.600 | 574.600 | 997.600 | 573.900 | 998.200 |
| GR | 573.900 | 1020.500 | 572.300 | 1023.200 | 578.500 | 1023.200 | 578.500 | 1025.700 | 571.300 | 1025.700 |
| GR | 569.600 | 1029.000 | 569.600 | 1052.000 | 571.100 | 1056.200 | 578.400 | 1056.200 | 578.400 | 1058.800 |
| GR | 572.000 | 1058.800 | 573.300 | 1061.200 | 573.300 | 1084.400 | 578.300 | 1084.400 | 578.300 | 1087.600 |
| GR | 574.800 | 1087.600 | 579.200 | 1097.200 | 579.200 | 1100.000 | 579.700 | 1100.000 | 578.000 | 1505.000 |
| GR | 580.000 | 2005.000 | 585.500 | 2445.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 7298.000 | 0.000 | 0.000 | 0.000 | 47.000 | 47.000 | 47.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .050 | .050 | .030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | X1 | 7299.000 | 17.000 | 982.000 | 1100.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 |
| | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | GR | 580.600 | 0.000 | 580.500 | 885.000 | 580.100 | 982.000 | 579.600 | 982.000 | 579.600 | 985.500 |
| | GR | 573.900 | 998.200 | 573.900 | 1020.500 | 569.600 | 1029.000 | 569.600 | 1052.000 | 573.300 | 1061.200 |
| | GR | 573.300 | 1084.400 | 579.200 | 1097.200 | 579.200 | 1100.000 | 579.700 | 1100.000 | 578.000 | 1505.000 |
| 6 | GR | 580.000 | 2005.000 | 585.500 | 2445.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1 | NC | .050 | .050 | .030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 | | | | | | | | | | | |
| 3 | X1 | 7355.000 | 13.000 | 330.000 | 370.000 | 56.000 | 56.000 | 56.000 | 0.000 | 0.000 | 0.000 |
| 4 | X3 | 0.000 | 0.000 | 0.000 | 250.000 | 0.000 | 450.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5 | GR | 574.600 | 0.000 | 574.600 | 130.000 | 574.600 | 200.000 | 572.500 | 330.000 | 571.400 | 335.000 |
| 6 | GR | 569.100 | 350.000 | 570.900 | 365.000 | 572.500 | 370.000 | 574.600 | 540.000 | 576.500 | 565.000 |
| 7 | GR | 578.600 | 590.000 | 578.600 | 610.000 | 576.500 | 675.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 8 | | | | | | | | | | | |
| 9 | X1 | 7805.000 | 13.000 | 669.000 | 728.000 | 450.000 | 450.000 | 450.000 | 0.000 | 0.000 | 0.000 |
| 10 | X3 | 0.000 | 0.000 | 0.000 | 500.000 | 0.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 11 | GR | 576.800 | 0.000 | 576.500 | 159.000 | 576.200 | 399.000 | 575.900 | 614.000 | 575.800 | 669.000 |
| 12 | GR | 572.100 | 679.000 | 569.300 | 702.000 | 571.600 | 727.000 | 573.600 | 727.000 | 574.600 | 728.000 |
| 13 | GR | 576.600 | 820.000 | 576.600 | 1050.000 | 576.600 | 1380.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 14 | | | | | | | | | | | |
| 15 | X1 | 8305.000 | 12.000 | 680.000 | 745.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| 16 | X3 | 0.000 | 0.000 | 0.000 | 550.000 | 0.000 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 17 | GR | 575.500 | 0.000 | 575.500 | 330.000 | 575.500 | 680.000 | 572.300 | 692.000 | 570.300 | 705.000 |
| 18 | GR | 571.800 | 719.000 | 575.300 | 722.000 | 575.400 | 730.000 | 576.500 | 745.000 | 578.600 | 745.000 |
| 19 | GR | 577.100 | 940.000 | 576.600 | 1130.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 20 | | | | | | | | | | | |
| 21 | X1 | 8605.000 | 27.000 | 582.000 | 630.000 | 300.000 | 300.000 | 300.000 | 0.000 | 0.000 | 0.000 |
| 22 | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 23 | GR | 583.400 | 0.000 | 583.200 | 200.000 | 582.800 | 400.000 | 582.600 | 500.000 | 582.500 | 582.000 |
| 24 | GR | 571.500 | 582.000 | 571.500 | 586.500 | 571.500 | 591.000 | 571.500 | 591.000 | 571.600 | 593.000 |
| 25 | GR | 571.600 | 593.000 | 571.600 | 599.000 | 571.500 | 605.000 | 571.500 | 605.000 | 571.400 | 607.000 |
| 26 | GR | 571.400 | 607.000 | 571.300 | 613.000 | 571.200 | 619.000 | 571.200 | 619.000 | 571.100 | 621.000 |
| 27 | GR | 571.100 | 621.000 | 571.000 | 625.500 | 571.000 | 630.000 | 582.500 | 630.000 | 582.400 | 680.000 |
| 28 | GR | 582.000 | 840.000 | 581.600 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 29 | NC | .020 | .020 | .015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 30 | | | | | | | | | | | |
| 31 | X1 | 8606.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| 32 | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 33 | SB | 1.150 | 1.530 | 3.000 | 0.000 | 48.000 | 6.000 | 274.500 | 0.000 | 571.000 | 571.000 |
| 34 | | | | | | | | | | | |
| 35 | X1 | 8658.000 | 0.000 | 0.000 | 0.000 | 52.000 | 52.000 | 52.000 | 0.000 | 0.000 | 0.000 |
| 36 | X2 | 0.000 | 0.000 | 1.000 | 577.900 | 581.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 37 | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 38 | BT | 27.000 | 0.000 | 583.400 | 0.000 | 200.000 | 583.200 | 0.000 | 400.000 | 582.800 | 0.000 |
| 39 | BT | 500.000 | 582.600 | 0.000 | 582.000 | 582.500 | 0.000 | 582.000 | 582.500 | 577.900 | 586.500 |
| 40 | BT | 582.500 | 577.900 | 591.000 | 582.500 | 577.900 | 591.000 | 582.500 | 571.500 | 593.000 | 582.500 |
| 41 | BT | 571.600 | 593.000 | 582.500 | 577.900 | 599.000 | 582.500 | 577.900 | 605.000 | 582.500 | 577.900 |
| 42 | BT | 605.000 | 582.500 | 571.500 | 607.000 | 582.500 | 571.400 | 607.000 | 582.500 | 577.900 | 613.000 |
| 43 | BT | 582.500 | 577.900 | 619.000 | 582.500 | 577.900 | 619.000 | 582.500 | 571.200 | 621.000 | 582.500 |
| 44 | BT | 571.100 | 621.000 | 582.500 | 577.900 | 625.500 | 582.500 | 577.900 | 630.000 | 582.500 | 577.900 |
| 45 | BT | 630.000 | 582.500 | 0.000 | 680.000 | 582.400 | 0.000 | 840.000 | 582.000 | 0.000 | 1000.000 |
| 46 | BT | 581.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 47 | NC | .050 | .045 | .032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 48 | | | | | | | | | | | |
| 49 | X1 | 8659.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| 50 | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 51 | | | | | | | | | | | |
| 52 | X1 | 8816.000 | 19.000 | 299.000 | 331.000 | 157.000 | 157.000 | 157.000 | 0.000 | 0.000 | 0.000 |
| 53 | X3 | 0.000 | 0.000 | 0.000 | 235.000 | 0.000 | 425.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 54 | GR | 582.700 | 0.000 | 582.000 | 180.000 | 581.900 | 235.000 | 578.400 | 242.000 | 576.400 | 265.000 |
| 55 | GR | 574.400 | 280.000 | 574.200 | 299.000 | 571.900 | 302.000 | 569.900 | 315.000 | 570.400 | 328.000 |
| 56 | GR | 574.300 | 331.000 | 574.400 | 365.000 | 576.400 | 380.000 | 578.400 | 390.000 | 580.400 | 415.000 |
| 57 | GR | 582.400 | 425.000 | 582.400 | 465.000 | 580.400 | 480.000 | 578.400 | 505.000 | 0.000 | 0.000 |
| | QT | 4.000 | 960.000 | 1355.000 | 1520.000 | 1960.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | | |
| | X1 | 9106.000 | 19.000 | 441.000 | 500.000 | 290.000 | 290.000 | 290.000 | 0.000 | .000 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | .00 | .0 | 0.0 |
| GR | 583.900 | 0.000 | 583.800 | 120.000 | 583.700 | 240.000 | 583.600 | 360.000 | 583.600 | 441.000 |
| GR | 572.600 | 441.000 | 572.000 | 458.500 | 572.000 | 458.500 | 571.900 | 461.500 | 571.900 | 461.500 |
| GR | 571.500 | 470.500 | 571.900 | 479.500 | 571.900 | 479.500 | 572.000 | 482.500 | 572.000 | 482.500 |
| GR | 572.600 | 500.000 | 583.600 | 500.000 | 583.600 | 700.000 | 583.600 | 900.000 | 0.000 | 0.000 |
| NC | .020 | .020 | .018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 9107.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 19.000 | 0.000 | 583.900 | 0.000 | 120.000 | 583.800 | 0.000 | 240.000 | 583.700 | 0.000 |
| BT | 360.000 | 583.600 | 0.000 | 441.000 | 583.600 | 572.600 | 441.000 | 583.600 | 580.100 | 458.500 |
| BT | 583.600 | 580.100 | 458.500 | 583.600 | 572.000 | 461.500 | 583.600 | 571.900 | 461.500 | 583.600 |
| BT | 580.100 | 470.500 | 583.600 | 580.100 | 479.500 | 583.600 | 580.100 | 479.500 | 583.600 | 571.900 |
| BT | 482.500 | 583.600 | 572.000 | 482.500 | 583.600 | 580.100 | 500.000 | 583.600 | 580.100 | 500.000 |
| BT | 583.600 | 572.600 | 700.000 | 583.600 | 0.000 | 900.000 | 583.600 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 9127.000 | 0.000 | 0.000 | 0.000 | 20.000 | 20.000 | 20.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .050 | .045 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 9128.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 9264.000 | 14.000 | 680.000 | 725.000 | 136.000 | 136.000 | 136.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 536.000 | 0.000 | 868.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 582.700 | 0.000 | 582.600 | 350.000 | 580.700 | 360.000 | 578.700 | 550.000 | 576.600 | 600.000 |
| GR | 576.300 | 680.000 | 572.600 | 690.000 | 571.500 | 700.000 | 572.800 | 715.000 | 576.900 | 725.000 |
| GR | 577.100 | 970.000 | 577.400 | 1335.000 | 578.600 | 1360.000 | 581.800 | 1400.000 | 0.000 | 0.000 |
| QT | 4.000 | 1015.000 | 1370.000 | 1465.000 | 1700.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 9764.000 | 12.000 | 365.000 | 402.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 150.000 | 0.000 | 700.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 580.600 | 0.000 | 578.600 | 85.000 | 576.800 | 150.000 | 576.600 | 160.000 | 576.500 | 365.000 |
| GR | 572.400 | 370.000 | 571.500 | 380.000 | 572.800 | 390.000 | 576.500 | 402.000 | 577.100 | 1010.000 |
| GR | 579.700 | 1040.000 | 583.500 | 1080.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .045 | .045 | .030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 10264.000 | 14.000 | 665.000 | 700.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 510.000 | 0.000 | 1230.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 583.700 | 0.000 | 582.600 | 345.000 | 582.600 | 515.000 | 580.700 | 523.000 | 578.500 | 535.000 |
| GR | 576.600 | 570.000 | 576.600 | 665.000 | 572.500 | 670.000 | 571.100 | 680.000 | 572.600 | 690.000 |
| GR | 576.600 | 700.000 | 576.700 | 710.000 | 577.600 | 1110.000 | 578.100 | 1380.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 10764.000 | 13.000 | 560.000 | 590.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 415.000 | 0.000 | 980.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 581.600 | 0.000 | 580.700 | 225.000 | 580.700 | 400.000 | 578.600 | 425.000 | 577.100 | 475.000 |
| GR | 576.900 | 560.000 | 573.600 | 563.000 | 572.300 | 575.000 | 573.300 | 585.000 | 576.800 | 590.000 |
| GR | 577.100 | 765.000 | 578.600 | 1025.000 | 580.600 | 1185.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 760.000 | 1015.000 | 1100.000 | 1265.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 11264.000 | 13.000 | 684.000 | 718.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 550.000 | 0.000 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 583.200 | 0.000 | 582.600 | 115.000 | 582.000 | 375.000 | 578.600 | 525.000 | 578.000 | 630.000 |
| GR | 577.600 | 684.000 | 572.600 | 688.000 | 570.900 | 700.000 | 572.700 | 712.000 | 578.400 | 718.000 |
| GR | 578.400 | 1160.000 | 579.100 | 1300.000 | 579.300 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 11364.000 | 9.000 | 670.000 | 730.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 595.000 | 0.000 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 583.300 | 0.000 | 580.600 | 220.000 | 578.600 | 420.000 | 576.600 | 670.000 | 570.900 | 700.000 |
| GR | 576.600 | 730.000 | 576.600 | 1150.000 | 578.600 | 1280.000 | 578.700 | 1400.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 11644.000 | 15.000 | 420.000 | 535.000 | 280.000 | 280.000 | 280.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 390.000 | 0.000 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 580.600 | 0.000 | 582.600 | 175.000 | 582.600 | 280.000 | 580.600 | 340.000 | 578.600 | 365.000 |
| GR | 576.500 | 420.000 | 575.100 | 500.000 | 574.400 | 515.000 | 575.200 | 530.00 | 576.600 | 535.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 578.600 | 700.000 | 580.500 | 720.000 | 582.600 | 740.000 | 582.600 | 835.000 | 580.500 | [illegible] |
| X1 | 11714.000 | 10.000 | 310.000 | 338.000 | 70.000 | 70.000 | 70.000 | 0.000 | 0.000 | 0.000 |
| GR | 583.200 | 0.000 | 582.900 | 200.000 | 582.900 | 310.000 | 578.200 | 310.000 | 573.200 | 310.500 |
| GR | 573.200 | 337.500 | 578.200 | 338.000 | 582.900 | 338.000 | 582.900 | 700.000 | 582.900 | 1100.000 |
| NC | .018 | .018 | .018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 11715.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.750 | 3.000 | 0.000 | 28.500 | 0.000 | 140.500 | 0.000 | 573.200 | 573.200 |
| X1 | 11729.000 | 0.000 | 0.000 | 0.000 | 14.000 | 14.000 | 14.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 578.200 | 582.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 4.000 | 310.000 | 582.900 | 578.200 | 338.000 | 582.900 | 578.200 | 700.000 | 582.900 | 0.000 |
| BT | 1100.000 | 582.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .050 | .045 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 11730.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 810.000 | 1100.000 | 1210.000 | 1450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 11765.000 | 10.000 | 610.000 | 655.000 | 35.000 | 35.000 | 35.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 585.000 | 0.000 | 683.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 584.400 | 0.000 | 583.600 | 130.000 | 582.500 | 430.000 | 578.100 | 610.000 | 573.700 | 615.000 |
| GR | 571.700 | 630.000 | 573.000 | 645.000 | 582.000 | 655.000 | 583.600 | 1130.000 | 584.100 | 1250.000 |
| NC | .055 | .070 | .400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 12005.000 | 14.000 | 480.000 | 513.000 | 240.000 | 240.000 | 240.000 | 0.000 | -.600 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 350.000 | 0.000 | 670.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 584.000 | 0.000 | 582.800 | 100.000 | 583.200 | 200.000 | 582.300 | 300.000 | 581.900 | 400.000 |
| GR | 580.100 | 480.000 | 573.900 | 490.000 | 572.700 | 498.000 | 573.900 | 505.000 | 578.500 | 513.000 |
| GR | 581.000 | 600.000 | 581.200 | 700.000 | 581.300 | 800.000 | 581.700 | 835.000 | 0.000 | 0.000 |
| X1 | 12365.000 | 14.000 | 480.000 | 513.000 | 360.000 | 360.000 | 360.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 450.000 | 0.000 | 780.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 584.000 | 0.000 | 582.800 | 100.000 | 583.200 | 200.000 | 582.300 | 300.000 | 581.900 | 400.000 |
| GR | 580.100 | 480.000 | 573.900 | 490.000 | 572.700 | 498.000 | 573.900 | 505.000 | 578.500 | 513.000 |
| GR | 581.000 | 600.000 | 581.200 | 700.000 | 581.300 | 800.000 | 581.700 | 835.000 | 0.000 | 0.000 |
| X1 | 12440.000 | 0.000 | 0.000 | 0.000 | 75.000 | 75.000 | 75.000 | 0.000 | .200 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 480.000 | 0.000 | 835.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .020 | .020 | .018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 12441.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 480.000 | 0.000 | 835.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.680 | 3.040 | 0.000 | 27.650 | 0.000 | 179.750 | 0.000 | 572.900 | 572.900 |
| X1 | 12489.000 | 20.000 | 700.000 | 735.000 | 48.000 | 48.000 | 48.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 579.400 | 582.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 700.000 | 0.000 | 1030.000 | 0.000 | 582.500 | 582.500 | 0.000 |
| BT | 15.000 | 0.000 | 585.700 | 0.000 | 100.000 | 585.700 | 0.000 | 200.000 | 585.500 | 0.000 |
| BT | 300.000 | 585.200 | 0.000 | 400.000 | 584.900 | 0.000 | 500.000 | 584.400 | 0.000 | 600.000 |
| BT | 584.000 | 0.000 | 700.000 | 583.500 | 577.500 | 700.000 | 583.500 | 579.400 | 735.000 | 583.500 |
| BT | 579.400 | 735.000 | 583.500 | 573.900 | 800.000 | 583.100 | 0.000 | 900.000 | 582.700 | 0.000 |
| BT | 1000.000 | 582.500 | 0.000 | 1030.000 | 582.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 585.700 | 0.000 | 585.700 | 100.000 | 585.500 | 200.000 | 585.200 | 300.000 | 584.900 | 400.000 |
| GR | 584.400 | 500.000 | 584.000 | 600.000 | 583.700 | 660.000 | 577.500 | 700.000 | 573.800 | 715.000 |
| GR | 572.900 | 720.000 | 573.000 | 728.000 | 573.900 | 735.000 | 583.400 | 750.000 | 583.100 | 800.000 |
| GR | 582.700 | 900.000 | 582.500 | 1000.000 | 582.500 | 1100.000 | 582.700 | 1200.000 | 583.000 | 1300.000 |
| NC | .065 | .050 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 12490.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 700.000 | 0.000 | 1030.000 | 0.000 | 582.500 | 582.500 | 0.000 |
| NC | .050 | .045 | .032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 1090.000 | 1590.000 | 1770.000 | 2225.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | -8816.000 | 19.000 | 299.000 | 331.000 | 157.000 | 157.000 | 157.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 235.000 | 0.000 | 425.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | GR | 582.700 | 0.000 | 582.000 | 180.000 | 581.900 | 235.000 | 578.400 | 242.000 | 576.400 | 265.000 |
| | GR | 574.400 | 280.000 | 574.200 | 299.000 | 571.900 | 302.000 | 569.900 | 315.000 | 570.400 | 328.000 |
| | GR | 574.300 | 331.000 | 574.400 | 365.000 | 576.400 | 380.000 | 578.400 | 390.000 | 580.400 | 415.000 |
| | GR | 582.400 | 425.000 | 582.400 | 465.000 | 580.400 | 480.000 | 578.400 | 505.000 | 0.000 | 0.000 |
| | QT | 4.000 | 145.000 | 235.000 | 255.000 | 270.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6 | NC | .040 | .040 | .040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1 | | | | | | | | | | | |
| 2 | X1 | 9546.000 | 10.000 | 0.000 | 130.000 | 730.000 | 730.000 | 730.000 | 0.000 | 0.000 | 0.000 |
| 3 | GR | 579.600 | 0.000 | 578.600 | 30.000 | 577.600 | 33.000 | 578.600 | 35.000 | 578.600 | 45.000 |
| 4 | GR | 577.600 | 60.000 | 578.600 | 70.000 | 580.600 | 111.000 | 582.600 | 119.000 | 582.900 | 130.000 |
| 5 | | | | | | | | | | | |
| 6 | X1 | 10246.000 | 9.000 | 0.000 | 110.000 | 700.000 | 700.000 | 700.000 | 0.000 | 0.000 | 0.000 |
| 7 | GR | 578.600 | 0.000 | 577.600 | 16.000 | 574.600 | 23.000 | 574.600 | 65.000 | 576.600 | 80.000 |
| 8 | GR | 578.600 | 92.000 | 580.600 | 96.000 | 582.600 | 103.000 | 582.600 | 110.000 | 0.000 | 0.000 |
| 9 | | | | | | | | | | | |
| 10 | X1 | 10846.000 | 9.000 | 0.000 | 110.000 | 600.000 | 600.000 | 600.000 | 0.000 | 0.000 | 0.000 |
| 11 | GR | 578.600 | 0.000 | 578.600 | 7.000 | 576.600 | 15.000 | 574.600 | 18.000 | 574.600 | 80.000 |
| 12 | GR | 576.600 | 85.000 | 578.600 | 91.000 | 580.600 | 98.000 | 582.400 | 110.000 | 0.000 | 0.000 |
| 13 | | | | | | | | | | | |
| 14 | X1 | 11846.000 | 12.000 | 0.000 | 110.000 | 1000.000 | 1000.000 | 1000.000 | 0.000 | 0.000 | 0.000 |
| 15 | GR | 580.600 | 0.000 | 580.600 | 6.000 | 578.600 | 14.000 | 576.600 | 18.000 | 574.600 | 23.000 |
| 16 | GR | 572.600 | 26.000 | 572.600 | 79.000 | 574.600 | 83.000 | 576.600 | 88.000 | 578.600 | 90.000 |
| 17 | GR | 580.600 | 96.000 | 580.600 | 110.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 18 | NC | .050 | .045 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 19 | QT | 4.000 | 960.000 | 1355.000 | 1520.000 | 1960.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 20 | | | | | | | | | | | |
| 21 | X1 | -9264.000 | 14.000 | 680.000 | 725.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 22 | X3 | 0.000 | 0.000 | 0.000 | 536.000 | 0.000 | 868.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 23 | GR | 582.700 | 0.000 | 582.600 | 350.000 | 580.700 | 360.000 | 578.700 | 550.000 | 576.600 | 600.000 |
| 24 | GR | 576.300 | 680.000 | 572.600 | 690.000 | 571.500 | 700.000 | 572.800 | 715.000 | 576.900 | 725.000 |
| 25 | GR | 577.100 | 970.000 | 577.400 | 1335.000 | 578.600 | 1360.000 | 581.800 | 1400.000 | 0.000 | 0.000 |
| 26 | NC | .040 | .040 | .040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 27 | QT | 4.000 | 25.000 | 155.000 | 220.000 | 435.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 28 | | | | | | | | | | | |
| 29 | X1 | 9594.000 | 6.000 | 0.000 | 145.000 | 330.000 | 330.000 | 330.000 | 0.000 | 0.000 | 0.000 |
| 30 | GR | 582.900 | 0.000 | 582.600 | 22.000 | 580.600 | 28.000 | 579.500 | 57.000 | 580.600 | 86.000 |
| 31 | GR | 581.600 | 145.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 32 | | | | | | | | | | | |
| 33 | X1 | 10294.000 | 6.000 | 0.000 | 205.000 | 700.000 | 700.000 | 700.000 | 0.000 | 0.000 | 0.000 |
| 34 | GR | 582.900 | 0.000 | 582.600 | 11.000 | 580.600 | 16.000 | 578.600 | 24.000 | 578.600 | 31.000 |
| 35 | GR | 579.600 | 205.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 36 | | | | | | | | | | | |
| 37 | X1 | 10894.000 | 10.000 | 0.000 | 255.000 | 600.000 | 600.000 | 600.000 | 0.000 | 0.000 | 0.000 |
| 38 | GR | 582.400 | 0.000 | 580.600 | 15.000 | 578.600 | 21.000 | 576.600 | 25.000 | 574.600 | 31.000 |
| 39 | GR | 574.100 | 90.000 | 574.600 | 145.000 | 576.600 | 170.000 | 578.600 | 205.000 | 579.600 | 255.000 |
| 40 | | | | | | | | | | | |
| 41 | X1 | 11894.000 | 7.000 | 0.000 | 335.000 | 1000.000 | 1000.000 | 1000.000 | 0.000 | 0.000 | 0.000 |
| 42 | GR | 582.600 | 0.000 | 580.600 | 9.000 | 578.600 | 15.000 | 576.600 | 19.000 | 574.600 | 21.000 |
| 43 | GR | 574.100 | 100.000 | 573.600 | 335.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 44 | EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 45 | | | | | | | | | | | |
| 46 | | | | | | | | | | | |
| 47 | | | | | | | | | | | |
| 48 | | | | | | | | | | | |
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| 55 | | | | | | | | | | | |
| 56 | | | | | | | | | | | |
| 57 | | | | | | | | | | | |

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**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1       CITY OF GIBRALTER          5555-23-01      PM = RICHARD ZANOTTI
T2       100-YEAR FLOOD
T3       BROWNSTOWN CREEK

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        -1.       4.         0.         0.  0.000000       0.00       0.0         0.    573.100    0.000
J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
       3.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
```

8-17-77 Run follows this run extension of Brownstown Cr.

CCHV= .300 CEHV= .500

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 920.0 1212.0 TYPE= 1 TARGET= 292.000

500' D/S FROM D/S FACE OF S. GIBRALTAR RD BRIDGE SEC. A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1613.00 | 8.10 | 573.10 | 0.00 | 573.10 | 573.15 | .05 | 0.00 | 0.00 | 573.10 |
| 1345. | 417. | 928. | 0. | 518. | 469. | 0. | 0. | 0. | 100000.00 |
| 0.00 | .80 | 1.98 | 0.00 | .050 | .030 | .040 | 0.000 | 565.00 | 920.00 |
| .000162 | 0. | 0. | 0. | 0 | 0 | 1 | 0.00 | 287.24 | 1211.32 |

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 920.0 1212.0 TYPE= 1 TARGET= 292.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1783.00 | 8.50 | 573.13 | 0.00 | 0.00 | 573.17 | .04 | .02 | .00 | 572.73 |
| 1345. | 447. | 898. | 0. | 600. | 501. | 0. | 4. | 1. | 100000.00 |
| .03 | .74 | 1.79 | 0.00 | .050 | .030 | .040 | .032 | 564.63 | 920.00 |
| .000123 | 130. | 170. | 200. | 0 | 0 | 1 | 0.00 | 287.70 | 1211.46 |

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 920.0 1212.0 TYPE= 1 TARGET= 292.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1953.00 | 8.90 | 573.16 | 0.00 | 0.00 | 573.19 | .03 | .02 | .00 | 572.36 |
| 1345. | 473. | 872. | 0. | 681. | 533. | 0. | 7. | 2. | 100000.00 |
| .06 | .69 | 1.63 | 0.00 | .050 | .030 | .040 | .032 | 564.26 | 920.00 |
| .000094 | 130. | 170. | 200. | 0 | 0 | 1 | 0.00 | 288.15 | 1211.60 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 300.0 594.5 TYPE= 1 TARGET= 294.500

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2113.00 | 9.28 | 573.18 | 0.00 | 0.00 | 573.20 | .03 | .01 | .00 | 571.10 |
| 1345. | 247. | 1098. | 0. | 464. | 746. | 0. | 12. | 3. | 99997.40 |
| .10 | .53 | 1.47 | 0.00 | .050 | .041 | .040 | .032 | 563.90 | 300.00 |
| .000103 | 130. | 160. | 200. | 0 | 0 | 1 | 0.00 | 294.50 | 594.50 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 300.0 594.5 TYPE= 1 TARGET= 294.500

D/S FACE OF S. GIBRALTAR RD BRIDGE, BS #1 SEC. B

CONCRETE BOX CULVERT BRIDGE, WITH HEADWALLS, WINGWALLS AND

SOLID CO CRETE RAILING, LENGTH=17', SPAN=24.5'

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2114.00 | 9.27 | 573.17 | 0.00 | 0.00 | 573.21 | .03 | .00 | .00 | 571.10 |
| 1345. | 216. | 1129. | 0. | 464. | 746. | 0. | 12. | 3. | 100000.00 |
| .10 | .46 | 1.51 | 0.00 | .035 | .024 | .040 | .032 | 563.90 | 300.00 |
| .000038 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 294.50 | 594.50 |

1490 NH CARD USED

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.43 | 3.02 | 0.00 | 19.27 | 0.00 | 183.10 | 0.00 | 563.90 | 563.90 |

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 574.37 | 573.25 | 0.00 | 17. | 1322. | 183. | 573.20 | 574.20 | 30.00 |

3470 ENCROACHMENT STATIONS= 500.0 824.5 TYPE= 1 TARGET= 324.500

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2131.00 | 10.38 | 574.28 | 0.00 | 0.00 | 574.33 | .05 | 1.13 | 0.00 | 574.50 |
| 1345. | 1. | 1344. | 0. | 10. | 755. | 0. | 12. | 3. | 100000.00 |
| .10 | .06 | 1.78 | 0.00 | .035 | .024 | .040 | .032 | 563.90 | 500.00 |
| .000066 | 17. | 17. | 17. | 2 | 0 | 3 | 0.00 | 251.38 | 824.50 |

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 500.0 824.5 TYPE= 1 TARGET= 324.500

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2132.00 | 10.38 | 574.28 | 0.00 | 0.00 | 574.33 | .05 | .00 | .00 | 574.50 |
| 1345. | 1. | 1344. | 0. | 10. | 755. | 0. | 12. | 3. | 100000.00 |
| .10 | .08 | 1.78 | 0.00 | .045 | .038 | .040 | .032 | 563.90 | 500.00 |
| .000170 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 251.40 | 824.50 |

3470 ENCROACHMENT STATIONS= 360.0 700.0 TYPE= 1 TARGET= 340.000

50' U/S FROM U/S FACE OF S. GIBRALTAR RD, VS #2 SEC. C

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2182.00 | 7.83 | 574.33 | 0.00 | 0.00 | 574.35 | .02 | .00 | .01 | 573.70 |
| 1345. | 15. | 1330. | 0. | 89. | 1188. | 0. | 13. | 3. | 100000.00 |
| .11 | .17 | 1.12 | 0.00 | .045 | .030 | .045 | .032 | 566.50 | 360.00 |
| .000049 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 340.00 | 700.00 |

3280 CROSS SECTION 2632.00 EXTENDED .74 FEET

3470 ENCROACHMENT STATIONS= 240.0 450.0 TYPE= 1 TARGET= 210.000

500' U/S FROM U/S FACE OF S. GIBRALTAR RD, VS #3 SEC. D

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2632.00 | 8.54 | 574.34 | 0.00 | 0.00 | 574.42 | .08 | .04 | .03 | 574.10 |
| 1345. | 2. | 1287. | 57. | 10. | 543. | 85. | 23. | 6. | 572.40 |
| .17 | .15 | 2.37 | .67 | .045 | .030 | .045 | .031 | 565.80 | 240.00 |
| .000232 | 550. | 450. | 250. | 2 | 0 | 1 | 0.00 | 210.00 | 450.00 |

574.37
1.03
575.7

3470 ENCROACHMENT STATIONS= 175.0 235.0 TYPE= 1 TARGET= 60.000

50' D/S OF JEFFERSON AVE BRIDGE, VS #4 SEC. E

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2932.00 | 7.59 | 574.39 | 0.00 | 0.00 | 574.55 | .16 | .09 | .04 | 100000.00 |
| 1345. | 0. | 1345. | 0. | 0. | 420. | 0. | 27. | 7. | 100000.00 |
| .19 | 0.00 | 3.20 | 0.00 | .045 | .030 | .045 | .031 | 566.80 | 175.00 |
| .000399 | 300. | 300. | 300. | 0 | 0 | 1 | 0.00 | 60.00 | 235.00 |

3470 ENCROACHMENT STATIONS= 497.0 598.5 TYPE= 1 TARGET= 143.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 575.00 ELREA= 575.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2982.00 | 7.18 | 574.18 | 0.00 | 0.00 | 574.83 | .66 | .04 | .25 | 569.00 |
| 1345. | 0. | 1345. | 0. | 0. | 207. | 0. | 27. | 7. | 100000.00 |
| .19 | 0.00 | 6.50 | 0.00 | .045 | .030 | .045 | .031 | 567.00 | 568.00 |
| .002006 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 30.53 | 598.53 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 497.0 598.5 TYPE= 1 TARGET= 143.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 575.00 ELREA= 575.00

D/S FACE OF JEFFERSON AVE BRIDGE, BS #5 SEC. F

CONCRETE BRIDGE WITH CONCRETE STRINGERS, CONCRETE RAILING

LENGTH=66', SPAN=43', SKEW=0.71

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2983.00 | 7.18 | 574.18 | 0.00 | 0.00 | 574.83 | .66 | .00 | .00 | 569.00 |
| 1345. | 0. | 1345. | 0. | 0. | 207. | 0. | 27. | 7. | 100000.00 |
| .19 | 0.00 | 6.50 | 0.00 | .018 | .015 | .018 | .031 | 567.00 | 568.00 |
| .000501 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 30.53 | 598.53 |

SPECIAL BRIDGE

| SB | XK | XKOR | COEQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.61 | 3.00 | 0.00 | 28.74 | 0.00 | 195.40 | 0.00 | 567.00 | 567.00 |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 575.36 | 574.83 | 0.00 | 0. | 1345. | 195. | 573.80 | 577.60 | 10.00 |

3470 ENCROACHMENT STATIONS= 497.0 598.5 TYPE= 1 TARGET= 143.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 577.60 ELREA= 577.60

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3049.00 | 7.82 | 574.82 | 0.00 | 0.00 | 575.36 | .55 | .53 | 0.00 | 569.00 |
| 1345. | 0. | 1345. | 0. | 0. | 227. | 0. | 27. | 7. | 100000.00 |
| .20 | 0.00 | 5.93 | 0.00 | .018 | .015 | .018 | .030 | 567.00 | 568.00 |
| .000385 | 66. | 66. | 66. | 2 | 0 | 1 | 0.00 | 30.53 | 598.53 |

3470 ENCROACHMENT STATIONS= 497.0 598.5 TYPE= 1 TARGET= 143.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 577.60 ELREA= 577.60

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3050.00 | 7.82 | 574.82 | 0.00 | 0.00 | 575.36 | .55 | .00 | .00 | 569.00 |
| 1345. | 0. | 1345. | 0. | 0. | 227. | 0. | 27. | 7. | 100000.00 |
| .20 | 0.00 | 5.93 | 0.00 | .045 | .030 | .045 | .030 | 567.00 | 568.00 |
| .001541 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 30.53 | 598.53 |

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 52.0 400.0 TYPE= 1 TARGET= 348.000

200' U/S FROM U/S FACE OF JEFFERSON AVE., VS #1A SEC. G

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3250.00 | 8.03 | 575.53 | 0.00 | 0.00 | 575.54 | .01 | .02 | .16 | 575.70 |
| 1345. | 0. | 1329. | 16. | 0. | 1515. | 73. | 32. | 8. | 573.40 |
| .26 | 0.00 | .88 | .22 | .045 | .030 | .045 | .030 | 567.50 | 70.79 |
| .000031 | 100. | 200. | 300. | 2 | 0 | 1 | 0.00 | 329.21 | 400.00 |

3470 ENCROACHMENT STATIONS= 400.0 1050.0 TYPE= 1 TARGET= 650.000

700' U/S FROM U/S FACE OF JEFFERSON AVE., VS #2A SEC. H

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3750.00 | 7.75 | 575.55 | 0.00 | 0.00 | 575.56 | .01 | .01 | .00 | 574.30 |
| 1345. | 3. | 1128. | 214. | 29. | 1616. | 705. | 54. | 13. | 572.40 |
| .48 | .11 | .70 | .30 | .045 | .030 | .045 | .030 | 567.80 | 453.67 |
| .000021 | 550. | 500. | 450. | 2 | 0 | 1 | 0.00 | 596.33 | 1050.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 515.0 1300.0 TYPE= 1 TARGET= 785.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4225.00 | 7.76 | 575.56 | 0.00 | 0.00 | 575.57 | .01 | .01 | .00 | 572.60 |
| 1345. | 68. | 981. | 296. | 284. | 1335. | 1012. | 78. | 20. | 571.60 |
| .68 | .24 | .73 | .29 | .045 | .030 | .045 | .030 | 567.80 | 515.00 |
| .000019 | 550. | 475. | 300. | 0 | 0 | 1 | 0.00 | 785.00 | 1300.00 |

3470 ENCROACHMENT STATIONS= 300.0 1200.0 TYPE= 1 TARGET= 900.000

1650' U/S FROM U/S FACE OF JEFFERSON AVE, VS #3A SEC. I

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4700.00 | 7.77 | 575.57 | 0.00 | 0.00 | 575.58 | .01 | .01 | .00 | 572.30 |
| 1345. | 473. | 664. | 208. | 1266. | 702. | 616. | 104. | 28. | 572.30 |
| .87 | .37 | .95 | .34 | .045 | .030 | .045 | .030 | 567.80 | 300.00 |
| .000036 | 550. | 475. | 300. | 0 | 0 | 1 | 0.00 | 900.00 | 1200.00 |

3265 DIVIDED FLOW

3280 CROSS SECTION 5750.00 EXTENDED .02 FEET

3470 ENCROACHMENT STATIONS= 450.0 1250.0 TYPE= 1 TARGET= 800.000

2700' U/S FROM U/S FACE OF JEFFERSON AVE, VS #4A SEC. J

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5750.00 | 7.02 | 575.62 | 0.00 | 0.00 | 575.65 | .03 | .06 | .01 | 573.90 |
| 1345. | 79. | 700. | 566. | 176. | 385. | 802. | 140. | 41. | 572.70 |
| 1.07 | .45 | 1.82 | .71 | .045 | .030 | .045 | .031 | 568.60 | 450.00 |
| .000144 | 300. | 1050. | 1100. | 2 | 0 | 1 | 0.00 | 606.29 | 1250.00 |

3470 ENCROACHMENT STATIONS= 650.0 1050.0 TYPE= 1 TARGET= 400.000

500' D/S FROM D/S FACE OF M. GIBRALTAR RD BRIDGE SEC. K

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6750.00 | 7.16 | 575.76 | 0.00 | 0.00 | 575.84 | .08 | .17 | .02 | 573.40 |
| 1345. | 331. | 819. | 195. | 372. | 294. | 215. | 159. | 48. | 573.20 |
| 1.19 | .89 | 2.78 | .91 | .045 | .030 | .045 | .032 | 568.60 | 650.00 |
| .000311 | 600. | 1000. | 600. | 2 | 0 | 1 | 0.00 | 371.55 | 1021.55 |

3470 ENCROACHMENT STATIONS= 665.0 782.0 TYPE= 1 TARGET= 117.000

50' D/S FROM D/S FACE OF M. GIBRALTAR RD BRIDGE, VS #5A SEC. L

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7200.00 | 7.68 | 575.88 | 0.00 | 0.00 | 576.22 | .35 | .25 | .13 | 573.50 |
| 1770. | 167. | 1414. | 189. | 85. | 272. | 93. | 165. | 50. | 573.40 |
| 1.21 | 1.96 | 5.19 | 2.04 | .045 | .030 | .045 | .032 | 568.20 | 665.00 |
| .001081 | 400. | 450. | 400. | 2 | 0 | 1 | 0.00 | 117.00 | 782.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7250.00 | 6.31 | 575.91 | 0.00 | 0.00 | 576.34 | .42 | .07 | .04 | 580.10 |
| 1770. | 0. | 1770. | 0. | 0. | 339. | 0. | 166. | 51. | 579.70 |
| 1.22 | 0.00 | 5.22 | 0.00 | .045 | .030 | .045 | .032 | 569.60 | 993.72 |
| .002156 | 50. | 50. | 50. | 0 | 0 | 1 | 0.00 | 96.35 | 1090.07 |

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD=13 MIN ELTRD= 578.00 MAX ELLC= 580.10

D/S FACE OF GIBRALTAR RD BRIDGE, RS #6 SEC. M

CONCRETE BRIDGE, 2 CONCRETE PIERS, HEADWALLS

LENGTH= 47FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7251.00 | 6.27 | 575.87 | 0.00 | 0.00 | 576.39 | .52 | .00 | .05 | 580.10 |
| 1770. | 0. | 1770. | 0. | 0. | 306. | 0. | 166. | 51. | 579.70 |
| 1.22 | 0.00 | 5.79 | 0.00 | .018 | .018 | .018 | .032 | 569.60 | 997.60 |
| .001220 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 84.03 | 1089.93 |

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

NORMAL BRIDGE,NRD=13 MIN ELTRD= 578.00 MAX ELLC= 580.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.10 ELREA= 579.70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7298.00 | 6.35 | 575.95 | 0.00 | 0.00 | 576.45 | .50 | .06 | .01 | 580.10 |
| 1770. | 0. | 1770. | 0. | 0. | 313. | 0. | 166. | 51. | 579.70 |
| 1.22 | 0.00 | 5.66 | 0.00 | .018 | .018 | .018 | .032 | 569.60 | 997.60 |
| .001146 | 47. | 47. | 47. | 0 | 0 | 1 | 0.00 | 84.20 | 1090.10 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.10 ELREA= 579.70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7299.00 | 6.50 | 576.10 | 0.00 | 0.00 | 576.48 | .38 | .00 | .04 | 580.10 |
| 1770. | 0. | 1770. | 0. | 0. | 358. | 0. | 166. | 51. | 579.70 |
| 1.22 | 0.00 | 4.95 | 0.00 | .050 | .030 | .050 | .032 | 569.60 | 993.28 |
| .001823 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 97.21 | 1090.49 |

3470 ENCROACHMENT STATIONS= 250.0 450.0 TYPE= 1 TARGET= 200.000

57' U/S FROM U/S FACE OF M. GIBRALTAR RD. BRIDGE, STA 6+00 SEC. N

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7355.00 | 7.38 | 576.48 | 0.00 | 0.00 | 576.61 | .13 | .05 | .07 | 572.50 |
| 1770. | 418. | 901. | 451. | 267. | 237. | 279. | 167. | 51. | 572.50 |
| 1.22 | 1.57 | 3.80 | 1.62 | .050 | .030 | .050 | .032 | 569.10 | 250.00 |
| .000560 | 56. | 56. | 56. | 2 | 0 | 1 | 0.00 | 200.00 | 450.00 |

3280 CROSS SECTION 7805.00 EXTENDED .12 FEET

3470 ENCROACHMENT STATIONS= 500.0 1000.0 TYPE= 1 TARGET= 500.000

507' U/S FROM U/S FACE OF M. GIBRALTAR RD. BRIDGE, STA 10+50 SEC. O

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7805.00 | 7.42 | 576.72 | 0.00 | 0.00 | 577.03 | .31 | .33 | .09 | 575.80 |
| 1770. | 108. | 1551. | 111. | 133. | 326. | 126. | 174. | 54. | 574.60 |
| 1.25 | .81 | 4.76 | .89 | .050 | .030 | .050 | .032 | 569.30 | 500.00 |
| .001019 | 45. | 450. | 450. | 2 | 0 | 1 | 0.00 | 500.0 | 1000. |

3280 CROSS SECTION 8305.00 EXTENDED .78 FEET

3470 ENCROACHMENT STATIONS= 550.0 800.0 TYPE= 1 TARGET= 250.000

300' D/S FROM D/S FACE OF D.T.S.L. RR BRIDGE, STA 15+50 SEC. P

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8305.00 | 7.08 | 577.38 | 0.00 | 0.00 | 577.69 | .31 | .66 | .00 | 575.50 |
| 1770. | 464. | 1306. | 0. | 244. | 259. | 0. | 180. | 58. | 578.60 |
| 1.29 | 1.90 | 5.05 | 0.00 | .050 | .030 | .050 | .032 | 570.30 | 550.00 |
| .001757 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 195.00 | 745.00 |

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 582.50 ELREA= 582.50

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8605.00 | 6.78 | 577.78 | 0.00 | 0.00 | 578.29 | .51 | .50 | .10 | 582.50 |
| 1770. | 0. | 1770. | 0. | 0. | 308. | 0. | 183. | 59. | 582.50 |
| 1.30 | 0.00 | 5.75 | 0.00 | .050 | .030 | .050 | .032 | 571.00 | 582.00 |
| .001561 | 300. | 300. | 300. | 2 | 0 | 1 | 0.00 | 48.00 | 630.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 582.50 ELREA= 582.50

D/S FACE OF D.T.S.L. RR BRIDGE, STA 18+50 SEC. Q

CONCRETE BRIDGE WITH 3 PIERS, 2' WIDE FOR EACH PIER

TOTAL SPAN=48.5 FT, LENGTH=52 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8606.00 | 6.78 | 577.78 | 0.00 | 0.00 | 578.29 | .51 | .00 | .00 | 582.50 |
| 1770. | 0. | 1770. | 0. | 0. | 308. | 0. | 183. | 59. | 582.50 |
| 1.30 | 0.00 | 5.75 | 0.00 | .020 | .015 | .020 | .032 | 571.00 | 582.00 |
| .000390 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 48.00 | 630.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.15 | 1.53 | 3.00 | 0.00 | 48.00 | 6.00 | 274.50 | 0.00 | 571.00 | 571.00 |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 578.76 | 578.46 | .20 | 0. | 1770. | 275. | 577.90 | 581.60 | 10.00 |

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 582.50 ELREA= 582.50

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8658.00 | 7.33 | 578.33 | 0.00 | 0.00 | 578.76 | .44 | .47 | 0.00 | 582.50 |
| 1770. | 0. | 1770. | 0. | 0. | 334. | 0. | 183. | 59. | 582.50 |
| 1.30 | 0.00 | 5.29 | 0.00 | .020 | .015 | .020 | .031 | 571.00 | 582.00 |
| .000303 | 52. | 52. | 52. | 2 | 0 | 1 | 0.00 | 48.00 | 630.00 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.50 ELREA= 582.50

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8659.00 | 7.33 | 578.33 | 0.00 | 0.00 | 578.76 | .44 | .00 | .00 | 582.50 |
| 1770. | 0. | 1770. | 0. | 0. | 334. | 0. | 183. | 59. | 582.50 |
| 1.30 | 0.00 | 5.29 | 0.00 | .050 | .032 | .045 | .031 | 571.00 | 582.00 |
| .001379 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 48.00 | 630.00 |

3280 CROSS SECTION 8816.00 EXTENDED .39 FEET

3470 ENCROACHMENT STATIONS= 235.0 425.0 TYPE= 1 TARGET= 190.000

158' U/S FROM U/S FACE OF D.T.S.L. RR BRIDGE, STA 20+60 SEC. R

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8816.00 | 8.89 | 578.79 | 0.00 | 0.00 | 578.97 | .19 | .14 | .07 | 574.20 |
| 1770. | 279. | 1059. | 433. | 168. | 251. | 217. | 185. | 60. | 574.30 |
| 1.32 | 1.66 | 4.21 | 2.00 | .050 | .032 | .045 | .031 | 569.90 | 241.22 |
| .00590 | 157. | 157. | 157. | 2 | 0 | 1 | 0.00 | 153.65 | 394.87 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.60 ELREA= 583.60

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9106.00 | 7.45 | 578.95 | 0.00 | 0.00 | 579.17 | .22 | .18 | .02 | 583.60 |
| 1520. | 0. | 1520. | 0. | 0. | 405. | 0. | 188. | 60. | 583.60 |
| 1.34 | 0.00 | 3.75 | 0.00 | .050 | .032 | .045 | .031 | 571.50 | 441.00 |
| .00648 | 290. | 290. | 290. | 2 | 0 | 1 | 0.00 | 59.00 | 500.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

NORMAL BRIDGE,NRD=19 MIN ELTRD= 583.60 MAX ELLC= 580.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.60 ELREA= 583.60

D/S FACE OF PENN CENTRAL RR BRIDGE #1, STA 23+50 SEC. S

CONCRETE BRIDGE, WITH 2 PIERS, WINGWALLS & HEADWALLS

TOTAL SPAN=59.5 FT, LENGTH=20 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9107.00 | 7.42 | 578.92 | 0.00 | 0.00 | 579.20 | .27 | .00 | .03 | 583.60 |
| 1520. | 0. | 1520. | 0. | 0. | 362. | 0. | 188. | 60. | 583.60 |
| 1.34 | 0.00 | 4.20 | 0.00 | .020 | .018 | .020 | .031 | 571.50 | 441.00 |
| .000299 | 1. | 1. | 1. | 2 | 0 | 1 | -41.84 | 59.00 | 500.00 |

NORMAL BRIDGE,NRD=19 MIN ELTRD= 583.60 MAX ELLC= 580.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.60 ELREA= 583.60

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9127.00 | 7.43 | 578.93 | 0.00 | 0.00 | 579.20 | .27 | .01 | .00 | 583.60 |
| 1520. | 0. | 1520. | 0. | 0. | 362. | 0. | 189. | 60. | 583.60 |
| 1.34 | 0.00 | 4.20 | 0.00 | .020 | .018 | .020 | .031 | 571.50 | 441.00 |
| .000298 | 20. | 20. | 20. | 0 | 0 | 1 | -41.90 | 59.00 | 500.00 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.60 ELREA= 583.60

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9128.00 | 7.51 | 579.01 | 0.00 | 0.00 | 579.22 | .21 | .00 | .02 | 583.60 |
| 1520. | 0. | 1520. | 0. | 0. | 409. | 0. | 189. | 60. | 583.60 |
| 1.34 | 0.00 | 3.72 | 0.00 | .050 | .035 | .045 | .031 | 571.50 | 441.00 |
| .000756 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 59.00 | 500.00 |

3470 ENCROACHMENT STATIONS= 536.0 868.0 TYPE= 1 TARGET= 332.000

135' U/S FROM U/S FACE OF PENN CENTRAL RR BRIDGE #1, STA 25+00SEC. T

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9264.00 | 7.76 | 579.26 | 0.00 | 0.00 | 579.34 | .07 | .08 | .04 | 576.30 |
| 1520. | 349. | 775. | 396. | 313. | 271. | 330. | 191. | 61. | 576.90 |
| 1.36 | 1.12 | 2.86 | 1.20 | .050 | .035 | .045 | .031 | 571.50 | 536.00 |
| .000433 | 136. | 136. | 136. | 2 | 0 | 1 | 0.00 | 332.00 | 868.00 |

3470 ENCROACHMENT STATIONS= 150.0 700.0 TYPE= 1 TARGET= 550.000

635' U/S FROM U/S FACE OF PENN CENTRAL RR BRIDGE #1, STA 30+00SEC. U

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9764.00 | 7.95 | 579.45 | 0.00 | 0.00 | 579.47 | .02 | .11 | .02 | 576.50 |
| 1465. | 443. | 376. | 646. | 623. | 231. | 836. | 206. | 66. | 576.50 |
| 1.50 | .71 | 1.63 | .77 | .050 | .035 | .045 | .032 | 571.50 | 150.00 |
| .000138 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 550.00 | 700.00 |

3280 CROSS SECTION 10264.00 EXTENDED 1.42 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 510.0 1230.0 TYPE= 1 TARGET= 720.000

1135' U/S FROM U/S FACE OF PENN CENTRAL RR BRIDGE 1, STA 35+00SEC. V

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10264.00 | 8.42 | 579.52 | 0.00 | 0.00 | 579.54 | .02 | .07 | .00 | 576.60 |
| 1465. | 255. | 430. | 779. | 349. | 228. | 1193. | 225. | 73. | 576.60 |
| 1.64 | .73 | 1.89 | .65 | .045 | .030 | .045 | .032 | 571.10 | 529.44 |
| .000131 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 700.56 | 1230.00 |

3470 ENCROACHMENT STATIONS= 415.0 980.0 TYPE= 1 TARGET= 565.000

950' D/S FROM D/S FACE OF PENN CENTRAL RR BRIDGE #2, STA 40+00SEC. W

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10764.00 | 7.30 | 579.60 | 0.00 | 0.00 | 579.63 | .03 | .09 | .01 | 576.90 |
| 1465. | 275. | 437. | 753. | 313. | 183. | 865. | 243. | 81. | 576.80 |
| 1.74 | .88 | 2.38 | .87 | .045 | .030 | .045 | .031 | 572.30 | 415.00 |
| .000233 | 500. | 500. | 500. | 1 | 0 | 1 | 0.00 | 565.00 | 980.00 |

3280 CROSS SECTION 11264.00 EXTENDED .39 FEET

3470 ENCROACHMENT STATIONS= 550.0 900.0 TYPE= 1 TARGET= 350.000

450' D/S FROM D/S FACE OF PENN CENTRAL RR BRIDGE #2, STA 45+00SEC. X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11264.00 | 8.80 | 579.70 | 0.00 | 0.00 | 579.81 | .10 | .14 | .03 | 577.60 |
| 1100. | 194. | 729. | 176. | 219. | 233. | 235. | 255. | 86. | 578.40 |
| 1.80 | .89 | 3.13 | .75 | .045 | .030 | .045 | .031 | 570.90 | 550.00 |
| .000366 | 500. | 500. | 500. | 1 | 0 | 1 | 0.00 | 350.00 | 900.00 |

3280 CROSS SECTION 11364.00 EXTENDED 1.12 FEET

3470 ENCROACHMENT STATIONS= 595.0 900.0 TYPE= 1 TARGET= 305.000

350' D/S FROM D/S FACE OF PENN CENTRAL RR BRIDGE #2, STA 46+00SEC. Y

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11364.00 | 8.92 | 579.82 | 0.00 | 0.00 | 579.85 | .02 | .02 | .02 | 576.60 |
| 1100. | 143. | 575. | 382. | 219. | 364. | 548. | 257. | 87. | 576.60 |
| 1.82 | .65 | 1.58 | .70 | .045 | .030 | .045 | .031 | 570.90 | 595.00 |
| .000094 | 100. | 100. | 100. | 2 | 0 | 1 | 0.00 | 305.00 | 900.00 |

3470 ENCROACHMENT STATIONS= 390.0 550.0 TYPE= 1 TARGET= 160.000

70' D/S FROM D/S FACE OF PENN CENTRAL RR BRIDGE #2, STA 48+80 SEC. Z

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11644.00 | 5.45 | 579.85 | 0.00 | 0.00 | 579.90 | .05 | .04 | .02 | 576.50 |
| 1100. | 81. | 969. | 50. | 83. | 496. | 47. | 263. | 88. | 576.60 |
| 1.87 | .97 | 1.95 | 1.06 | .045 | .030 | .045 | .031 | 574.40 | 390.00 |
| .000223 | 280. | 280. | 280. | 2 | 0 | 1 | 0.00 | 160.00 | 550.00 |

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11714.00 | 6.41 | 579.61 | 0.00 | 0.00 | 580.21 | .60 | .04 | .27 | 582.90 |
| 1100. | 0. | 1100. | 0. | 0. | 177. | 0. | 264. | 88. | 582.90 |
| 1.87 | 0.00 | 6.21 | 0.00 | .045 | .030 | .045 | .031 | 573.20 | 310.00 |
| .002157 | 70. | 70. | 70. | 2 | 0 | 1 | 0.00 | 28.00 | 338.00 |

Marsh Creek (Blakely Drain)

D/S FACE OF PENN CENTRAL RR BRIDGE #2, STA 49+50 SEC. AA

CONCRETE BRIDGE WITH WINGWALLS & HEADWALLS, WINGWALLS PARALLEL

LENGTH=14 FT, SPAN=28.5 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11715.00 | 6.41 | 579.61 | 0.00 | 0.00 | 580.21 | .60 | .00 | .00 | 582.90 |
| 110 | 0 | 1100 | 0 | 0 | 177 | 0 | 264 | 88 | 582.90 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.87 | 0.00 | 6.21 | 0.00 | .018 | .018 | .018 | .031 | 573.20 | 310.00 |
| .000776 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 28.00 | 338.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.75 | 3.00 | 0.00 | 28.50 | 0.00 | 140.50 | 0.00 | 573.20 | 573.20 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 581.28 | 580.21 | 0.00 | 0. | 1100. | 141. | 578.20 | 582.90 | 10.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11729.00 | 7.66 | 580.86 | 0.00 | 0.00 | 581.28 | .42 | 1.07 | 0.00 | 582.90 |
| 1100. | 0. | 1100. | 0. | 0. | 212. | 0. | 264. | 88. | 582.90 |
| 1.87 | 0.00 | 5.19 | 0.00 | .018 | .018 | .018 | .031 | 573.20 | 310.00 |
| .000461 | 14. | 14. | 14. | 2 | 0 | 1 | 0.00 | 28.00 | 338.00 |
| 11730.00 | 7.66 | 580.86 | 0.00 | 0.00 | 581.28 | .42 | .00 | .00 | 582.90 |
| 1100. | 0. | 1100. | 0. | 0. | 212. | 0. | 264. | 88. | 582.90 |
| 1.87 | 0.00 | 5.19 | 0.00 | .050 | .035 | .045 | .031 | 573.20 | 310.00 |
| .001744 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 28.00 | 338.00 |

3470 ENCROACHMENT STATIONS= 585.0 683.0 TYPE= 1 TARGET= 98.000

35' U/S FROM U/S FACE OF PENN CENTRAL RR BRIDGE #2, STA 50+00 SEC. AB

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11765.00 | 9.51 | 581.21 | 0.00 | 0.00 | 581.38 | .17 | .03 | .07 | 578.10 |
| 1210. | 95. | 1115. | 0. | 70. | 325. | 0. | 264. | 88. | 582.00 |
| 1.87 | 1.36 | 3.43 | 0.00 | .050 | .035 | .045 | .031 | 571.70 | 585.00 |
| .000527 | 35. | 35. | 35. | 2 | 0 | 1 | 0.00 | 69.12 | 654.12 |

3470 ENCROACHMENT STATIONS= 350.0 670.0 TYPE= 1 TARGET= 320.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12005.00 | 9.52 | 581.62 | 0.00 | 0.00 | 581.70 | .08 | .29 | .03 | 579.50 |
| 1210. | 232. | 223. | 755. | 109. | 234. | 296. | 267. | 89. | 577.90 |
| 1.90 | 2.12 | .95 | 2.55 | .055 | .400 | .070 | .040 | 572.10 | 350.00 |
| .005423 | 240. | 240. | 240. | 2 | 0 | 1 | 0.00 | 320.00 | 670.00 |

3280 CROSS SECTION 12365.00 EXTENDED 1.08 FEET

3470 ENCROACHMENT STATIONS= 450.0 780.0 TYPE= 1 TARGET= 330.000

635' U/S FROM U/S FACE OF PENN CENTRAL RR BRIDGE #2, VS#5, SEC. AC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12365.00 | 10.09 | 582.79 | 0.00 | 0.00 | 582.83 | .04 | 1.11 | .01 | 580.10 |
| 1210. | 150. | 153. | 907. | 70. | 253. | 556. | 273. | 92. | 578.50 |
| 1.97 | 2.13 | .61 | 1.63 | .055 | .400 | .070 | .060 | 572.70 | 450.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .001997 | 360. | 360. | 360. | 1 | 0 | 1 | 0.00 | 330.00 | 780.00 |

3280 CROSS SECTION 12440.00 EXTENDED 1.05 FEET

3470 ENCROACHMENT STATIONS= 480.0 835.0 TYPE= 1 TARGET= 355.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12440.00 | 10.05 | 582.95 | 0.00 | 0.00 | 582.99 | .04 | .16 | .00 | 580.30 |
| 1210. | 0. | 158. | 1052. | 0. | 252. | 620. | 275. | 93. | 578.70 |
| 1.98 | 0.00 | .63 | 1.70 | .055 | .400 | .070 | .055 | 572.90 | 480.00 |
| .002353 | 75. | 75. | 75. | 2 | 0 | 1 | 0.00 | 355.00 | 835.00 |

3280 CROSS SECTION 12441.00 EXTENDED 1.05 FEET

3470 ENCROACHMENT STATIONS= 480.0 835.0 TYPE= 1 TARGET= 355.000

D/S FACE OF FORT STREET BRIDGE, BS#4 SEC. AD

CONCRETE BRIDGE, HEADWALL PARALLEL TO EMBANKMENT

LENGTH = 48 FT, SPAN = 35 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12441.00 | 10.05 | 582.95 | 0.00 | 0.00 | 583.00 | .05 | .00 | .00 | 580.30 |
| 1210. | 0. | 590. | 620. | 0. | 252. | 621. | 275. | 93. | 578.70 |
| 1.98 | 0.00 | 2.34 | 1.00 | .020 | .018 | .020 | .055 | 572.90 | 480.00 |
| .000067 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 355.00 | 835.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.68 | 3.04 | 0.00 | 27.65 | 0.00 | 179.75 | 0.00 | 572.90 | 572.90 |

3265 DIVIDED FLOW

3280 CROSS SECTION 12489.00 EXTENDED .31 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 584.13 | 583.00 | 0.00 | 441. | 780. | 180. | 579.40 | 582.50 | 30.00 |

3470 ENCROACHMENT STATIONS= 700.0 1030.0 TYPE= 1 TARGET= 330.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12489.00 | 10.41 | 583.31 | 0.00 | 0.00 | 583.44 | .13 | .44 | 0.00 | 577.50 |
| 1210. | 0. | 1007. | 203. | 0. | 316. | 209. | 275. | 93. | 573.90 |
| 1.99 | 0.00 | 3.18 | .97 | .020 | .018 | .020 | .055 | 572.90 | 700.00 |
| .000099 | 48. | 48. | 48. | 2 | 0 | 3 | 0.00 | 314.07 | 1030.00 |

3265 DIVIDED FLOW

3280 CROSS SECTION 12490.00 EXTENDED .31 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 700.0 | 1030.0 | TYPE= | 1 | TARGET= | 330.000 | |
| 12490.00 | 10.40 | 583.30 | 0.00 | 0.00 | 583.45 | .15 | .00 | .01 | 577.50 |
| 1210. | 0. | 1046. | 164. | 0. | 316. | 209. | 275. | 93. | 573.90 |
| 1.99 | 0.00 | 3.31 | .79 | .065 | .035 | .050 | .055 | 572.90 | 700.00 |
| .000402 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 314.08 | 1030.00 |

START TRIB COMP
-8816.000 8816.000 57878.793 578.788
3280 CROSS SECTION -8816.00 EXTENDED .39 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 235.0 425.0 TYPE= 1 TARGET= 190.000

SEC. R AS STARTING SECTION OF "TRIBUTARY"

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| -8816.00 | 8.89 | 578.79 | 0.00 | 0.00 | 578.97 | .19 | .08 | 0.00 | 574.20 |
| 1770. | 279. | 1059. | 432. | 168. | 251. | 217. | 277. | 94. | 574.30 |
| 2.00 | 1.66 | 4.21 | 2.00 | .050 | .032 | .045 | .055 | 569.90 | 241.22 |
| .000591 | 157. | 157. | 157. | 0 | 0 | 1 | 0.00 | 153.62 | 394.85 |

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

730' EAST OF SEC. R, BETWEEN PENN CENCTAR @ D.T.S.L. RR SEC. BB

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9546.00 | 1.66 | 579.26 | 579.26 | 0.00 | 579.63 | .37 | .54 | 0.00 | 579.60 |
| 255. | 0. | 255. | 0. | 0. | 52. | 0. | 283. | 96. | 582.90 |
| 2.04 | 0.00 | 4.89 | 0.00 | .040 | .040 | .040 | .054 | 577.60 | 10.30 |
| .027463 | 730. | 730. | 730. | 0 | 25 | 1 | 0.00 | 73.16 | 83.46 |

3280 CROSS SECTION 10246.00 EXTENDED 1.28 FEET

1430' E. OF SEC. R, BETWEEN PENN CENTRAL @ D.T.S.L. RR SEC. CC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10246.00 | 5.28 | 579.88 | 0.00 | 0.00 | 579.88 | .01 | .15 | .11 | 578.60 |
| 255. | 0. | 255. | 0. | 0. | 370. | 0. | 287. | 97. | 582.60 |
| 2.32 | 0.00 | .69 | 0.00 | .040 | .040 | .040 | .053 | 574.60 | 0.00 |
| .000058 | 700. | 700. | 700. | 4 | 0 | 1 | 0.00 | 94.57 | 94.57 |

3280 CROSS SECTION 10846.00 EXTENDED 1.31 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

2030' E. OF SEC. R, BETWEEN PENN CENTRAL @ D.T.S.L. RR SEC. DD

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 10846.00 | 5.31 | 579.91 | 0.00 | 0.00 | 579.91 | .01 | .03 | .00 | 578.60 | |
| 255. | 0. | 255. | 0. | 0. | 408. | 0. | 292. | 98. | 582.40 | |
| 2.59 | 0.00 | .62 | 0.00 | .040 | .040 | .040 | .052 | 574.60 | 0.00 | |
| .000043 | 600. | 600. | 600. | 3 | 0 | 1 | 0.00 | 95.58 | 95.58 | |

3030' E. OF SEC. R, BETWEEN PENN CENTRAL @ D.T.S.L. RR SEC. EE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11846.00 | 7.34 | 579.94 | 0.00 | 0.00 | 579.94 | .00 | .03 | .00 | 580.60 |
| 255. | 0. | 255. | 0. | 0. | 497. | 0. | 302. | 100. | 580.60 |
| 3.13 | 0.00 | .51 | 0.00 | .040 | .040 | .040 | .051 | 572.60 | 8.64 |
| .000019 | 1000. | 1000. | 1000. | 2 | 0 | 1 | 0.00 | 85.37 | 94.02 |

START TRIB COMP
-9264.000 9264.000 57926.473 579.265

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 536.0 868.0 TYPE= 1 TARGET= 332.000

SEC. I AS STARTING SECTION OF "TRIBUTARY"

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| -9264.00 | 7.76 | 579.26 | 0.00 | 0.00 | 579.34 | .08 | 0.00 | 0.00 | 576.30 |
| 1520. | 349. | 775. | 396. | 313. | 271. | 330. | 302. | 100. | 576.90 |
| 3.13 | 1.12 | 2.86 | 1.20 | .050 | .035 | .045 | .051 | 571.50 | 536.00 |
| .000433 | 0. | 0. | 0. | 0 | 0 | 1 | 0.00 | 332.00 | 868.00 |

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

330' EAST OF SEC. T, EXACT NORTH OF PENN CENTRAL RR SEC. FF

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9594.00 | 1.34 | 580.84 | 580.84 | 0.00 | 581.17 | .34 | .18 | 0.00 | 582.90 |
| 220. | 0. | 220. | 0. | 0. | 47. | 0. | 306. | 102. | 581.60 |
| 3.15 | 0.00 | 4.65 | 0.00 | .040 | .040 | .040 | .051 | 579.50 | 27.29 |
| .027729 | 330. | 330. | 330. | 30 | 25 | 1 | 0.00 | 72.66 | 99.95 |

3280 CROSS SECTION 10294.00 EXTENDED 1.82 FEET

1030' E. OF SEC. T, EXACT N. OF PENN CENTRAL RR SEC. GG

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10294.00 | 2.82 | 581.42 | 0.00 | 0.00 | 581.42 | .00 | .15 | .10 | 582.90 |
| 220. | 0. | 220. | 0. | 0. | 439. | 0. | 310. | 104. | 579.60 |
| 3.54 | 0.00 | .50 | .00 | .040 | .040 | .040 | .051 | 578.60 | 13.95 |
| .000060 | 700. | 700. | 700. | 5 | 0 | 1 | 0.00 | 191.06 | 205.00 |

3280 CROSS SECTION 10894.00 EXTENDED 1.83 FEET

1630' E. OF SEC. T, EXACT N. OF PENN CENTRAL RR SEC. HH

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10894.00 | 7.33 | 581.43 | 0.00 | 0.00 | 581.43 | .00 | .00 | .00 | 582.40 |
| 220. | 0. | 220. | 0. | 0. | 1267. | 0. | 322. | 107. | 579.60 |
| 4.50 | 0.00 | .17 | .00 | .040 | .040 | .040 | .050 | 574.10 | 8.11 |
| .000002 | 600. | 600. | 600. | 2 | 0 | 1 | 0.00 | 346.89 | 355.00 |

3280 CROSS SECTION 11894.00 EXTENDED 7.83 FEET

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| | | | | | | | | | |
| 2630' E. OF SEC. T, EXACT N. OF PENN CENTRAL RR | | | | | | | SEC. II | | |
| 11894.00 | 7.83 | 581.43 | 0.00 | 0.00 | 581.43 | .00 | .00 | .00 | 582.60 |
| 220. | 0. | 220. | 0. | 0. | 2380. | 0. | 364. | 114. | 573.60 |
| 7.50 | 0.00 | .09 | .00 | .040 | .040 | .040 | .049 | 573.60 | 5.26 |
| .000000 | 1000. | 1000. | 1000. | 2 | 0 | 1 | 0.00 | 329.74 | 335.00 |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Gibralter

3) WATERCOURSE: Brownstown Creek

4) DOCUMENT TYPE: Summary

00BREAK00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

BROWNSTOWN CREEK

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1613.00 | 0.00 | 0.00 | 0.00 | 565.00 | 1080.00 | 573.10 | .03 | 0.00 | 0.00 | 745.40 | 8.10 | 287.24 |
| 1613.00 | 0.00 | 0.00 | 0.00 | 565.00 | 1290.00 | 573.10 | .04 | 0.00 | 0.00 | 890.33 | 8.10 | 287.24 |
| 1613.00 | 0.00 | 0.00 | 0.00 | 565.00 | 1345.00 | 573.10 | .05 | 0.00 | 0.00 | 928.29 | 8.10 | 287.24 |
| 1613.00 | 0.00 | 0.00 | 0.00 | 565.00 | 1460.00 | 573.10 | .05 | 0.00 | 0.00 | 1007.66 | 8.10 | 287.24 |
| 1783.00 | 170.00 | 0.00 | 0.00 | 564.63 | 1080.00 | 573.12 | .02 | .01 | .00 | 721.89 | 8.49 | 287.69 |
| 1783.00 | 170.00 | 0.00 | 0.00 | 564.63 | 1290.00 | 573.13 | .03 | .02 | .00 | 861.74 | 8.50 | 287.70 |
| 1783.00 | 170.00 | 0.00 | 0.00 | 564.63 | 1345.00 | 573.13 | .04 | .02 | .00 | 898.33 | 8.50 | 287.70 |
| 1783.00 | 170.00 | 0.00 | 0.00 | 564.63 | 1460.00 | 573.14 | .04 | .03 | .00 | 974.76 | 8.51 | 287.70 |
| 1953.00 | 170.00 | 0.00 | 0.00 | 564.26 | 1080.00 | 573.14 | .02 | .01 | .00 | 700.90 | 8.88 | 288.13 |
| 1953.00 | 170.00 | 0.00 | 0.00 | 564.26 | 1290.00 | 573.15 | .03 | .02 | .00 | 836.33 | 8.89 | 288.15 |
| 1953.00 | 170.00 | 0.00 | 0.00 | 564.26 | 1345.00 | 573.16 | .03 | .02 | .00 | 871.72 | 8.90 | 288.15 |
| 1953.00 | 170.00 | 0.00 | 0.00 | 564.26 | 1460.00 | 573.17 | .03 | .02 | .00 | 945.63 | 8.91 | 288.16 |
| 2113.00 | 160.00 | 0.00 | 0.00 | 563.90 | 1080.00 | 572.98 | .38 | .02 | .18 | 1080.00 | 9.08 | 24.50 |
| 2113.00 | 160.00 | 0.00 | 0.00 | 563.90 | 1290.00 | 573.17 | .03 | .01 | .00 | 1053.71 | 9.27 | 294.50 |
| 2113.00 | 160.00 | 0.00 | 0.00 | 563.90 | 1345.00 | 573.18 | .03 | .01 | .00 | 1098.07 | 9.28 | 294.50 |
| 2113.00 | 160.00 | 0.00 | 0.00 | 563.90 | 1460.00 | 573.19 | .03 | .02 | .00 | 1190.62 | 9.29 | 294.50 |
| 2114.00 | 1.00 | 0.00 | 0.00 | 563.90 | 1080.00 | 572.98 | .38 | .00 | .00 | 1080.00 | 9.08 | 24.50 |
| 2114.00 | 1.00 | 0.00 | 0.00 | 563.90 | 1290.00 | 573.17 | .03 | .00 | .00 | 1083.74 | 9.27 | 294.50 |
| 2114.00 | 1.00 | 0.00 | 0.00 | 563.90 | 1345.00 | 573.17 | .03 | .00 | .00 | 1129.44 | 9.27 | 294.50 |
| 2114.00 | 1.00 | 0.00 | 0.00 | 563.90 | 1460.00 | 573.19 | .04 | .00 | .00 | 1224.79 | 9.29 | 294.50 |
| 2131.00 | 17.00 | 574.20 | 573.20 | 563.90 | 1080.00 | 573.28 | .47 | .39 | 0.00 | 1080.00 | 9.38 | 24.50 |
| 2131.00 | 17.00 | 574.20 | 573.20 | 563.90 | 1290.00 | 574.21 | .05 | 1.05 | 0.00 | 1289.99 | 10.31 | 224.86 |
| 2131.00 | 17.00 | 574.20 | 573.20 | 563.90 | 1345.00 | 574.28 | .05 | 1.13 | 0.00 | 1344.40 | 10.38 | 251.38 |
| 2131.00 | 17.00 | 574.20 | 573.20 | 563.90 | 1460.00 | 574.42 | .06 | 1.25 | 0.00 | 1456.44 | 10.52 | 297.31 |
| 2132.00 | 1.00 | 0.00 | 0.00 | 563.90 | 1080.00 | 573.28 | .47 | .00 | .00 | 1080.00 | 9.38 | 24.50 |
| 2132.00 | 1.00 | 0.00 | 0.00 | 563.90 | 1290.00 | 574.21 | .05 | .00 | .00 | 1289.99 | 10.31 | 224.87 |
| 2132.00 | 1.00 | 0.00 | 0.00 | 563.90 | 1345.00 | 574.28 | .05 | .00 | .00 | 1344.25 | 10.38 | 251.40 |
| 2132.00 | 1.00 | 0.00 | 0.00 | 563.90 | 1460.00 | 574.42 | .06 | .00 | .00 | 1455.56 | 10.52 | 297.33 |
| 2182.00 | 50.00 | 0.00 | 0.00 | 566.50 | 1080.00 | 573.79 | .09 | .02 | .11 | 1080.00 | 7.29 | 65.00 |
| 2182.00 | 50.00 | 0.00 | 0.00 | 566.50 | 1290.00 | 574.25 | .02 | .00 | .01 | 1277.90 | 7.75 | 340.00 |
| 2182.00 | 50.00 | 0.00 | 0.00 | 566.50 | 1345.00 | 574.33 | .02 | .00 | .01 | 1329.61 | 7.83 | 340.00 |
| 2182.00 | 50.00 | 0.00 | 0.00 | 566.50 | 1460.00 | 574.47 | .02 | .00 | .01 | 1437.74 | 7.97 | 340.00 |
| 2632.00 | 450.00 | 0.00 | 0.00 | 565.80 | 1080.00 | 573.93 | .07 | .10 | .01 | 1048.56 | 8.13 | 149.81 |
| 2632.00 | 450.00 | 0.00 | 0.00 | 565.80 | 1290.00 | 574.25 | .08 | .04 | .03 | 1238.23 | 8.45 | 210.00 |
| 2632.00 | 450.00 | 0.00 | 0.00 | 565.80 | 1345.00 | 574.34 | .08 | .04 | .03 | 1286.56 | 8.54 | 210.00 |
| 2632.00 | 450.00 | 0.00 | 0.00 | 565.80 | 1460.00 | 574.48 | .09 | .04 | .04 | 1387.41 | 8.68 | 210.00 |
| 2932.00 | 300.00 | 0.00 | 0.00 | 566.80 | 1080.00 | 573.98 | .11 | .07 | .02 | 1080.00 | 7.18 | 60.00 |
| 2932.00 | 300.00 | 0.00 | 0.00 | 566.80 | 1290.00 | 574.31 | .15 | .09 | .03 | 1290.00 | 7.51 | 60.00 |
| 2932.00 | 300.00 | 0.00 | 0.00 | 566.80 | 1345.00 | 574.39 | .16 | .09 | .04 | 1345.00 | 7.59 | 60.00 |
| 2932.00 | 300.00 | 0.00 | 0.00 | 566.80 | 1460.00 | 574.53 | .18 | .10 | .04 | 1460.00 | 7.73 | 60.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2982.00 | 50.00 | 0.00 | 0.00 | 567.00 | 1080.00 | 573.83 | .47 | .03 | .18 | 1080.00 | 6.83 | 30.53 |
| 2982.00 | 50.00 | 0.00 | 0.00 | 567.00 | 1290.00 | 574.11 | .62 | .04 | .23 | 1290.00 | 7.11 | 30.53 |
| 2982.00 | 50.00 | 0.00 | 0.00 | 567.00 | 1345.00 | 574.18 | .66 | .04 | .25 | 1345.00 | 7.18 | 30.53 |
| 2982.00 | 50.00 | 0.00 | 0.00 | 567.00 | 1460.00 | 574.29 | .75 | .04 | .28 | 1460.00 | 7.29 | 30.53 |
| 2983.00 | 1.00 | 0.00 | 0.00 | 567.00 | 1080.00 | 573.83 | .47 | .00 | .00 | 1080.00 | 6.83 | 30.53 |
| 2983.00 | 1.00 | 0.00 | 0.00 | 567.00 | 1290.00 | 574.11 | .61 | .00 | .00 | 1290.00 | 7.11 | 30.53 |
| 2983.00 | 1.00 | 0.00 | 0.00 | 567.00 | 1345.00 | 574.18 | .66 | .00 | .00 | 1345.00 | 7.18 | 30.53 |
| 2983.00 | 1.00 | 0.00 | 0.00 | 567.00 | 1460.00 | 574.29 | .75 | .00 | .00 | 1460.00 | 7.29 | 30.53 |
| 3049.00 | 66.00 | 577.60 | 573.80 | 567.00 | 1080.00 | 574.17 | .42 | .29 | 0.00 | 1080.00 | 7.17 | 30.53 |
| 3049.00 | 66.00 | 577.60 | 573.80 | 567.00 | 1290.00 | 574.68 | .52 | .47 | 0.00 | 1290.00 | 7.68 | 30.53 |
| 3049.00 | 66.00 | 577.60 | 573.80 | 567.00 | 1345.00 | 574.82 | .55 | .53 | 0.00 | 1345.00 | 7.82 | 30.53 |
| 3049.00 | 66.00 | 577.60 | 573.80 | 567.00 | 1460.00 | 575.09 | .60 | .65 | 0.00 | 1460.00 | 8.09 | 30.53 |
| 3050.00 | 1.00 | 0.00 | 0.00 | 567.00 | 1080.00 | 574.17 | .42 | .00 | .00 | 1080.00 | 7.17 | 30.53 |
| 3050.00 | 1.00 | 0.00 | 0.00 | 567.00 | 1290.00 | 574.68 | .52 | .00 | .00 | 1290.00 | 7.68 | 30.53 |
| 3050.00 | 1.00 | 0.00 | 0.00 | 567.00 | 1345.00 | 574.82 | .55 | .00 | .00 | 1345.00 | 7.82 | 30.53 |
| 3050.00 | 1.00 | 0.00 | 0.00 | 567.00 | 1460.00 | 575.09 | .60 | .00 | .00 | 1460.00 | 8.09 | 30.53 |
| 3250.00 | 200.00 | 0.00 | 0.00 | 567.50 | 1080.00 | 574.73 | .01 | .02 | .12 | 1076.39 | 7.23 | 309.49 |
| 3250.00 | 200.00 | 0.00 | 0.00 | 567.50 | 1290.00 | 575.36 | .01 | .02 | .15 | 1277.48 | 7.86 | 328.42 |
| 3250.00 | 200.00 | 0.00 | 0.00 | 567.50 | 1345.00 | 575.53 | .01 | .02 | .16 | 1329.21 | 8.03 | 329.21 |
| 3250.00 | 200.00 | 0.00 | 0.00 | 567.50 | 1460.00 | 575.87 | .01 | .02 | .18 | 1436.81 | 8.37 | 337.62 |
| 3750.00 | 500.00 | 0.00 | 0.00 | 567.80 | 1085.00 | 574.75 | .01 | .01 | .00 | 949.32 | 6.95 | 566.52 |
| 3750.00 | 500.00 | 0.00 | 0.00 | 567.80 | 1290.00 | 575.38 | .01 | .01 | .00 | 1090.58 | 7.58 | 590.05 |
| 3750.00 | 500.00 | 0.00 | 0.00 | 567.80 | 1345.00 | 575.55 | .01 | .01 | .00 | 1127.55 | 7.75 | 596.33 |
| 3750.00 | 500.00 | 0.00 | 0.00 | 567.80 | 1460.00 | 575.89 | .01 | .01 | .00 | 1204.62 | 8.09 | 608.84 |
| 4225.00 | 475.00 | 0.00 | 0.00 | 567.80 | 1085.00 | 574.76 | .01 | .01 | .00 | 857.93 | 6.96 | 699.64 |
| 4225.00 | 475.00 | 0.00 | 0.00 | 567.80 | 1290.00 | 575.39 | .01 | .01 | .00 | 956.31 | 7.59 | 764.46 |
| 4225.00 | 475.00 | 0.00 | 0.00 | 567.80 | 1345.00 | 575.56 | .01 | .01 | .00 | 980.66 | 7.76 | 785.00 |
| 4225.00 | 475.00 | 0.00 | 0.00 | 567.80 | 1460.00 | 575.90 | .01 | .01 | .00 | 1030.79 | 8.10 | 785.00 |
| 4700.00 | 475.00 | 0.00 | 0.00 | 567.80 | 1085.00 | 574.77 | .01 | .02 | .00 | 643.23 | 6.97 | 900.00 |
| 4700.00 | 475.00 | 0.00 | 0.00 | 567.80 | 1290.00 | 575.40 | .01 | .01 | .00 | 659.28 | 7.60 | 900.00 |
| 4700.00 | 475.00 | 0.00 | 0.00 | 567.80 | 1345.00 | 575.57 | .01 | .01 | .00 | 664.42 | 7.77 | 900.00 |
| 4700.00 | 475.00 | 0.00 | 0.00 | 567.80 | 1460.00 | 575.91 | .01 | .01 | .00 | 678.08 | 8.11 | 900.00 |
| 5750.00 | 1050.00 | 0.00 | 0.00 | 568.60 | 1085.00 | 574.85 | .05 | .09 | .02 | 687.96 | 6.25 | 552.94 |
| 5750.00 | 1050.00 | 0.00 | 0.00 | 568.60 | 1290.00 | 575.45 | .03 | .06 | .01 | 698.24 | 6.85 | 590.84 |
| 5750.00 | 1050.00 | 0.00 | 0.00 | 568.60 | 1345.00 | 575.62 | .03 | .06 | .01 | 700.08 | 7.02 | 606.29 |
| 5750.00 | 1050.00 | 0.00 | 0.00 | 568.60 | 1460.00 | 575.95 | .03 | .05 | .01 | 707.22 | 7.35 | 650.86 |
| 6750.00 | 1000.00 | 0.00 | 0.00 | 568.60 | 1085.00 | 575.08 | .10 | .26 | .03 | 777.52 | 6.48 | 355.77 |
| 6750.00 | 1000.00 | 0.00 | 0.00 | 568.60 | 1290.00 | 575.61 | .08 | .18 | .03 | 811.98 | 7.01 | 368.10 |
| 6750.00 | 1000.00 | 0.00 | 0.00 | 568.60 | 1345.00 | 575.76 | .08 | .17 | .02 | 818.71 | 7.16 | 371.55 |
| 6750.00 | 1000.00 | 0.00 | 0.00 | 568.60 | 1460.00 | 576.07 | .07 | .14 | .02 | 833.03 | 7.47 | 378.64 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7200.00 | 450.00 | 0.00 | 0.00 | 568.20 | 1090.00 | 575.27 | .19 | .23 | .04 | 916.12 | 7.07 | 117.00 |
| 7200.00 | 450.00 | 0.00 | 0.00 | 568.20 | 1590.00 | 575.75 | .30 | .24 | .11 | 1283.06 | 7.55 | 117.00 |
| 7200.00 | 450.00 | 0.00 | 0.00 | 568.20 | 1770.00 | 575.88 | .35 | .25 | .13 | 1413.84 | 7.68 | 117.00 |
| 7200.00 | 450.00 | 0.00 | 0.00 | 568.20 | 2225.00 | 576.13 | .48 | .27 | .20 | 1742.58 | 7.93 | 117.00 |
| 7250.00 | 50.00 | 0.00 | 0.00 | 569.60 | 1090.00 | 575.29 | .23 | .05 | .02 | 1090.00 | 5.69 | 93.64 |
| 7250.00 | 50.00 | 0.00 | 0.00 | 569.60 | 1590.00 | 575.78 | .37 | .07 | .03 | 1590.00 | 6.18 | 95.77 |
| 7250.00 | 50.00 | 0.00 | 0.00 | 569.60 | 1770.00 | 575.91 | .42 | .07 | .04 | 1770.00 | 6.31 | 96.35 |
| 7250.00 | 50.00 | 0.00 | 0.00 | 569.60 | 2225.00 | 576.18 | .58 | .10 | .05 | 2225.00 | 6.58 | 97.54 |
| 7251.00 | 1.00 | 578.00 | 580.10 | 569.60 | 1090.00 | 575.27 | .28 | .00 | .02 | 1090.00 | 5.67 | 82.72 |
| 7251.00 | 1.00 | 578.00 | 580.10 | 569.60 | 1590.00 | 575.74 | .45 | .00 | .04 | 1590.00 | 6.14 | 83.75 |
| 7251.00 | 1.00 | 578.00 | 580.10 | 569.60 | 1770.00 | 575.87 | .52 | .00 | .05 | 1770.00 | 6.27 | 84.03 |
| 7251.00 | 1.00 | 578.00 | 580.10 | 569.60 | 2225.00 | 576.11 | .72 | .00 | .07 | 2225.00 | 6.51 | 84.58 |
| 7298.00 | 47.00 | 578.00 | 580.10 | 569.60 | 1090.00 | 575.32 | .27 | .04 | .00 | 1090.00 | 5.72 | 82.84 |
| 7298.00 | 47.00 | 578.00 | 580.10 | 569.60 | 1590.00 | 575.81 | .43 | .05 | .01 | 1590.00 | 6.21 | 83.91 |
| 7298.00 | 47.00 | 578.00 | 580.10 | 569.60 | 1770.00 | 575.95 | .50 | .06 | .01 | 1770.00 | 6.35 | 84.20 |
| 7298.00 | 47.00 | 578.00 | 580.10 | 569.60 | 2225.00 | 576.24 | .67 | .07 | .01 | 2225.00 | 6.64 | 85.20 |
| 7299.00 | 1.00 | 0.00 | 0.00 | 569.60 | 1090.00 | 575.38 | .22 | .00 | .02 | 1090.00 | 5.78 | 94.03 |
| 7299.00 | 1.00 | 0.00 | 0.00 | 569.60 | 1590.00 | 575.94 | .34 | .00 | .03 | 1590.00 | 6.34 | 96.47 |
| 7299.00 | 1.00 | 0.00 | 0.00 | 569.60 | 1770.00 | 576.10 | .38 | .00 | .04 | 1770.00 | 6.50 | 97.21 |
| 7299.00 | 1.00 | 0.00 | 0.00 | 569.60 | 2225.00 | 576.48 | .49 | .00 | .05 | 2225.00 | 6.88 | 98.87 |
| 7355.00 | 56.00 | 0.00 | 0.00 | 569.10 | 1090.00 | 575.59 | .09 | .04 | .04 | 617.47 | 6.49 | 200.00 |
| 7355.00 | 56.00 | 0.00 | 0.00 | 569.10 | 1590.00 | 576.27 | .12 | .05 | .06 | 827.63 | 7.17 | 200.00 |
| 7355.00 | 56.00 | 0.00 | 0.00 | 569.10 | 1770.00 | 576.48 | .13 | .05 | .07 | 900.92 | 7.38 | 200.00 |
| 7355.00 | 56.00 | 0.00 | 0.00 | 569.10 | 2225.00 | 576.97 | .16 | .06 | .10 | 1081.26 | 7.87 | 200.00 |
| 7805.00 | 450.00 | 0.00 | 0.00 | 569.30 | 1090.00 | 575.80 | .24 | .28 | .07 | 1069.19 | 6.50 | 114.09 |
| 7805.00 | 450.00 | 0.00 | 0.00 | 569.30 | 1590.00 | 576.50 | .31 | .32 | .09 | 1451.90 | 7.20 | 315.34 |
| 7805.00 | 450.00 | 0.00 | 0.00 | 569.30 | 1770.00 | 576.72 | .31 | .33 | .09 | 1551.00 | 7.42 | 500.00 |
| 7805.00 | 450.00 | 0.00 | 0.00 | 569.30 | 2225.00 | 577.25 | .28 | .34 | .06 | 1715.54 | 7.95 | 500.00 |
| 8305.00 | 500.00 | 0.00 | 0.00 | 570.30 | 1090.00 | 576.42 | .30 | .66 | .03 | 931.60 | 6.12 | 194.05 |
| 8305.00 | 500.00 | 0.00 | 0.00 | 570.30 | 1590.00 | 577.18 | .30 | .66 | .00 | 1206.24 | 6.88 | 195.00 |
| 8305.00 | 500.00 | 0.00 | 0.00 | 570.30 | 1770.00 | 577.38 | .31 | .66 | .00 | 1306.07 | 7.08 | 195.00 |
| 8305.00 | 500.00 | 0.00 | 0.00 | 570.30 | 2225.00 | 577.84 | .34 | .62 | .03 | 1558.52 | 7.54 | 195.00 |
| 8605.00 | 300.00 | 0.00 | 0.00 | 571.00 | 1090.00 | 576.88 | .26 | .41 | .01 | 1090.00 | 5.88 | 48.00 |
| 8605.00 | 300.00 | 0.00 | 0.00 | 571.00 | 1590.00 | 577.57 | .44 | .47 | .07 | 1590.00 | 6.57 | 48.00 |
| 8605.00 | 300.00 | 0.00 | 0.00 | 571.00 | 1770.00 | 577.78 | .51 | .50 | .10 | 1770.00 | 6.78 | 48.00 |
| 8605.00 | 300.00 | 0.00 | 0.00 | 571.00 | 2225.00 | 578.21 | .71 | .56 | .19 | 2225.00 | 7.21 | 48.00 |
| 8606.00 | 1.00 | 0.00 | 0.00 | 571.00 | 1090.00 | 576.88 | .26 | .00 | .00 | 1090.00 | 5.88 | 48.00 |
| 8606.00 | 1.00 | 0.00 | 0.00 | 571.00 | 1590.00 | 577.57 | .44 | .00 | .00 | 1590.00 | 6.57 | 48.00 |
| 8606.00 | 1.00 | 0.00 | 0.00 | 571.00 | 1770.00 | 577.78 | .51 | .00 | .00 | 1770.00 | 6.78 | 48.00 |
| 8606.00 | 1.00 | 0.00 | 0.00 | 571.00 | 2225.00 | 578.22 | .71 | .00 | .00 | 2225.00 | 7.22 | 48.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8658.00 | 52.00 | 581.60 | 577.90 | 571.00 | 1090.00 | 576.96 | .26 | .07 | 0.00 | 1090.00 | 5.96 | 48.00 |
| 8658.00 | 52.00 | 581.60 | 577.90 | 571.00 | 1590.00 | 577.98 | .39 | .36 | 0.00 | 1590.00 | 6.98 | 48.00 |
| 8658.00 | 52.00 | 581.60 | 577.90 | 571.00 | 1770.00 | 578.33 | .44 | .47 | 0.00 | 1770.00 | 7.33 | 48.00 |
| 8658.00 | 52.00 | 581.60 | 577.90 | 571.00 | 2225.00 | 579.24 | .54 | .85 | 0.00 | 2225.00 | 8.24 | 48.00 |
| 8659.00 | 1.00 | 0.00 | 0.00 | 571.00 | 1090.00 | 576.96 | .26 | .00 | .00 | 1090.00 | 5.96 | 48.00 |
| 8659.00 | 1.00 | 0.00 | 0.00 | 571.00 | 1590.00 | 577.98 | .39 | .00 | .00 | 1590.00 | 6.98 | 48.00 |
| 8659.00 | 1.00 | 0.00 | 0.00 | 571.00 | 1770.00 | 578.33 | .44 | .00 | .00 | 1770.00 | 7.33 | 48.00 |
| 8659.00 | 1.00 | 0.00 | 0.00 | 571.00 | 2225.00 | 579.24 | .54 | .00 | .00 | 2225.00 | 8.24 | 48.00 |
| 8816.00 | 157.00 | 0.00 | 0.00 | 569.90 | 1090.00 | 577.20 | .17 | .13 | .02 | 771.92 | 7.30 | 128.13 |
| 8816.00 | 157.00 | 0.00 | 0.00 | 569.90 | 1590.00 | 578.38 | .19 | .14 | .06 | 990.53 | 8.48 | 147.74 |
| 8816.00 | 157.00 | 0.00 | 0.00 | 569.90 | 1770.00 | 578.79 | .19 | .14 | .07 | 1058.72 | 8.89 | 153.65 |
| 8816.00 | 157.00 | 0.00 | 0.00 | 569.90 | 2225.00 | 579.83 | .18 | .13 | .11 | 1210.67 | 9.93 | 168.81 |
| 9106.00 | 290.00 | 0.00 | 0.00 | 571.50 | 960.00 | 577.41 | .14 | .18 | .01 | 960.00 | 5.91 | 59.00 |
| 9106.00 | 290.00 | 0.00 | 0.00 | 571.50 | 1355.00 | 578.56 | .20 | .18 | .00 | 1355.00 | 7.06 | 59.00 |
| 9106.00 | 290.00 | 0.00 | 0.00 | 571.50 | 1520.00 | 578.95 | .22 | .18 | .02 | 1520.00 | 7.45 | 59.00 |
| 9106.00 | 290.00 | 0.00 | 0.00 | 571.50 | 1960.00 | 579.96 | .28 | .17 | .05 | 1960.00 | 8.46 | 59.00 |
| 9107.00 | 1.00 | 583.60 | 580.10 | 571.50 | 960.00 | 577.39 | .18 | .00 | .02 | 960.00 | 5.89 | 59.00 |
| 9107.00 | 1.00 | 583.60 | 580.10 | 571.50 | 1355.00 | 578.53 | .24 | .00 | .02 | 1355.00 | 7.03 | 59.00 |
| 9107.00 | 1.00 | 583.60 | 580.10 | 571.50 | 1520.00 | 578.92 | .27 | .00 | .03 | 1520.00 | 7.42 | 59.00 |
| 9107.00 | 1.00 | 583.60 | 580.10 | 571.50 | 1960.00 | 579.92 | .35 | .00 | .04 | 1960.00 | 8.42 | 59.00 |
| 9127.00 | 20.00 | 583.60 | 580.10 | 571.50 | 960.00 | 577.40 | .18 | .01 | .00 | 960.00 | 5.90 | 59.00 |
| 9127.00 | 20.00 | 583.60 | 580.10 | 571.50 | 1355.00 | 578.54 | .24 | .01 | .00 | 1355.00 | 7.04 | 59.00 |
| 9127.00 | 20.00 | 583.60 | 580.10 | 571.50 | 1520.00 | 578.93 | .27 | .01 | .00 | 1520.00 | 7.43 | 59.00 |
| 9127.00 | 20.00 | 583.60 | 580.10 | 571.50 | 1960.00 | 579.93 | .35 | .01 | .00 | 1960.00 | 8.43 | 59.00 |
| 9128.00 | 1.00 | 0.00 | 0.00 | 571.50 | 960.00 | 577.45 | .14 | .00 | .01 | 960.00 | 5.95 | 59.00 |
| 9128.00 | 1.00 | 0.00 | 0.00 | 571.50 | 1355.00 | 578.61 | .19 | .00 | .02 | 1355.00 | 7.11 | 59.00 |
| 9128.00 | 1.00 | 0.00 | 0.00 | 571.50 | 1520.00 | 579.01 | .21 | .00 | .02 | 1520.00 | 7.51 | 59.00 |
| 9128.00 | 1.00 | 0.00 | 0.00 | 571.50 | 1960.00 | 580.03 | .27 | .00 | .02 | 1960.00 | 8.53 | 59.00 |
| 9264.00 | 136.00 | 0.00 | 0.00 | 571.50 | 960.00 | 577.54 | .21 | .12 | .03 | 781.21 | 6.04 | 290.42 |
| 9264.00 | 136.00 | 0.00 | 0.00 | 571.50 | 1355.00 | 578.83 | .09 | .08 | .03 | 764.32 | 7.33 | 329.96 |
| 9264.00 | 136.00 | 0.00 | 0.00 | 571.50 | 1520.00 | 579.26 | .07 | .08 | .04 | 775.19 | 7.76 | 332.00 |
| 9264.00 | 136.00 | 0.00 | 0.00 | 571.50 | 1960.00 | 580.37 | .06 | .06 | .06 | 821.07 | 8.87 | 332.00 |
| 9764.00 | 500.00 | 0.00 | 0.00 | 571.50 | 1015.00 | 578.08 | .04 | .32 | .05 | 412.43 | 6.58 | 550.00 |
| 9764.00 | 500.00 | 0.00 | 0.00 | 571.50 | 1370.00 | 579.06 | .02 | .15 | .02 | 389.30 | 7.56 | 550.00 |
| 9764.00 | 500.00 | 0.00 | 0.00 | 571.50 | 1465.00 | 579.45 | .02 | .11 | .02 | 376.01 | 7.95 | 550.00 |
| 9764.00 | 500.00 | 0.00 | 0.00 | 571.50 | 1700.00 | 580.49 | .01 | .07 | .01 | 356.82 | 8.99 | 550.00 |
| 10264.00 | 500.00 | 0.00 | 0.00 | 571.10 | 1015.00 | 578.26 | .06 | .19 | .01 | 511.42 | 7.16 | 690.55 |
| 10264.00 | 500.00 | 0.00 | 0.00 | 571.10 | 1370.00 | 579.15 | .03 | .09 | .00 | 457.42 | 8.05 | 698.53 |
| 10264.00 | 500.00 | 0.00 | 0.00 | 571.10 | 1465.00 | 579.52 | .02 | .07 | .00 | 430.31 | 8.42 | 700.56 |
| 10264.00 | 500.00 | 0.00 | 0.00 | 571.10 | 1700.00 | 580.53 | .01 | .03 | .00 | 384.00 | 9.43 | 706.05 |

| | SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 10764.00 | 500.00 | 0.00 | 0.00 | 572.30 | 1015.00 | 578.48 | .08 | .23 | .01 | 485.56 | 6.18 | 550.90 |
| 1 | 10764.00 | 500.00 | 0.00 | 0.00 | 572.30 | 1370.00 | 579.26 | .05 | .12 | .01 | 461.49 | 6.96 | 562.71 |
| 2 | 10764.00 | 500.00 | 0.00 | 0.00 | 572.30 | 1465.00 | 579.60 | .03 | .09 | .01 | 437.31 | 7.30 | 565.00 |
| 3 | 10764.00 | 500.00 | 0.00 | 0.00 | 572.30 | 1700.00 | 580.56 | .02 | .04 | .00 | 392.04 | 8.26 | 565.00 |
| 4 | Confluence | | | | | | | | | | | | |
| 5 | 11264.00 | 500.00 | 0.00 | 0.00 | 570.90 | 760.00 | 578.71 | .17 | .28 | .04 | 686.07 | 7.81 | 350.00 |
| 6 | 11264.00 | 500.00 | 0.00 | 0.00 | 570.90 | 1015.00 | 579.40 | .13 | .18 | .04 | 738.41 | 8.50 | 350.00 |
| 7 | 11264.00 | 500.00 | 0.00 | 0.00 | 570.90 | 1100.00 | 579.70 | .10 | .14 | .03 | 729.30 | 8.80 | 350.00 |
| 8 | 11264.00 | 500.00 | 0.00 | 0.00 | 570.90 | 1265.00 | 580.62 | .05 | .07 | .02 | 654.84 | 9.72 | 350.00 |
| 9 | | | | | | | | | | | | | |
| 10 | 11364.00 | 100.00 | 0.00 | 0.00 | 570.90 | 760.00 | 578.92 | .02 | .02 | .04 | 452.75 | 8.02 | 305.00 |
| 11 | 11364.00 | 100.00 | 0.00 | 0.00 | 570.90 | 1015.00 | 579.55 | .02 | .02 | .03 | 549.54 | 8.65 | 305.00 |
| 12 | 11364.00 | 100.00 | 0.00 | 0.00 | 570.90 | 1100.00 | 579.82 | .02 | .02 | .02 | 574.60 | 8.92 | 305.00 |
| 13 | 11364.00 | 100.00 | 0.00 | 0.00 | 570.90 | 1265.00 | 580.67 | .02 | .01 | .01 | 603.44 | 9.77 | 305.00 |
| 14 | | | | | | | | | | | | | |
| 15 | 11644.00 | 280.00 | 0.00 | 0.00 | 574.40 | 760.00 | 578.95 | .04 | .04 | .01 | 685.90 | 4.55 | 160.00 |
| 16 | 11644.00 | 280.00 | 0.00 | 0.00 | 574.40 | 1015.00 | 579.57 | .05 | .04 | .01 | 899.80 | 5.17 | 160.00 |
| 17 | 11644.00 | 280.00 | 0.00 | 0.00 | 574.40 | 1100.00 | 579.85 | .05 | .04 | .02 | 968.88 | 5.45 | 160.00 |
| 18 | 11644.00 | 280.00 | 0.00 | 0.00 | 574.40 | 1265.00 | 580.69 | .05 | .03 | .01 | 1096.64 | 6.29 | 160.00 |
| 19 | | | | | | | | | | | | | |
| 20 | 11714.00 | 70.00 | 0.00 | 0.00 | 573.20 | 760.00 | 578.82 | .37 | .03 | .17 | 760.00 | 5.62 | 28.00 |
| 1 | 11714.00 | 70.00 | 0.00 | 0.00 | 573.20 | 1015.00 | 579.36 | .55 | .04 | .25 | 1015.00 | 6.16 | 28.00 |
| 22 | 11714.00 | 70.00 | 0.00 | 0.00 | 573.20 | 1100.00 | 579.61 | .60 | .04 | .27 | 1100.00 | 6.41 | 28.00 |
| 23 | 11714.00 | 70.00 | 0.00 | 0.00 | 573.20 | 1265.00 | 580.43 | .62 | .03 | .29 | 1265.00 | 7.23 | 28.00 |
| 24 | | | | | | | | | | | | | |
| 25 | 11715.00 | 1.00 | 0.00 | 0.00 | 573.20 | 760.00 | 578.82 | .37 | .00 | .00 | 760.00 | 5.62 | 28.00 |
| 26 | 11715.00 | 1.00 | 0.00 | 0.00 | 573.20 | 1015.00 | 579.36 | .55 | .00 | .00 | 1015.00 | 6.16 | 28.00 |
| 27 | 11715.00 | 1.00 | 0.00 | 0.00 | 573.20 | 1100.00 | 579.61 | .60 | .00 | .00 | 1100.00 | 6.41 | 28.00 |
| 28 | 11715.00 | 1.00 | 0.00 | 0.00 | 573.20 | 1265.00 | 580.43 | .62 | .00 | .00 | 1265.00 | 7.23 | 28.00 |
| 29 | | | | | | | | | | | | | |
| 30 | 11729.00 | 14.00 | 582.90 | 578.20 | 573.20 | 760.00 | 579.30 | .32 | .42 | 0.00 | 760.00 | 6.10 | 28.00 |
| 31 | 11729.00 | 14.00 | 582.90 | 578.20 | 573.20 | 1015.00 | 580.37 | .41 | .86 | 0.00 | 1015.00 | 7.17 | 28.00 |
| 32 | 11729.00 | 14.00 | 582.90 | 578.20 | 573.20 | 1100.00 | 580.86 | .42 | 1.07 | 0.00 | 1100.00 | 7.66 | 28.00 |
| 33 | 11729.00 | 14.00 | 582.90 | 578.20 | 573.20 | 1265.00 | 582.24 | .40 | 1.58 | 0.00 | 1265.00 | 9.04 | 28.00 |
| 34 | | | | | | | | | | | | | |
| 35 | 11730.00 | 1.00 | 0.00 | 0.00 | 573.20 | 760.00 | 579.30 | .32 | .00 | .00 | 760.00 | 6.10 | 28.00 |
| 36 | 11730.00 | 1.00 | 0.00 | 0.00 | 573.20 | 1015.00 | 580.37 | .41 | .00 | .00 | 1015.00 | 7.17 | 28.00 |
| 37 | 11730.00 | 1.00 | 0.00 | 0.00 | 573.20 | 1100.00 | 580.86 | .42 | .00 | .00 | 1100.00 | 7.66 | 28.00 |
| 38 | 11730.00 | 1.00 | 0.00 | 0.00 | 573.20 | 1265.00 | 582.24 | .40 | .00 | .00 | 1265.00 | 9.04 | 28.00 |
| 39 | | | | | | | | | | | | | |
| 40 | 11765.00 | 35.00 | 0.00 | 0.00 | 571.70 | 810.00 | 579.55 | .15 | .03 | .05 | 787.84 | 7.85 | 67.28 |
| 41 | 11765.00 | 35.00 | 0.00 | 0.00 | 571.70 | 1100.00 | 580.71 | .17 | .03 | .07 | 1029.36 | 9.01 | 68.57 |
| 42 | 11765.00 | 35.00 | 0.00 | 0.00 | 571.70 | 1210.00 | 581.21 | .17 | .03 | .07 | 1114.73 | 9.51 | 69.12 |
| 43 | 11765.00 | 35.00 | 0.00 | 0.00 | 571.70 | 1450.00 | 582.57 | .16 | .02 | .07 | 1282.16 | 10.87 | 98.00 |
| 44 | | | | | | | | | | | | | |
| 45 | 12005.00 | 240.00 | 0.00 | 0.00 | 572.10 | 810.00 | 579.96 | .22 | .44 | .04 | 437.85 | 7.86 | 125.17 |
| 46 | 12005.00 | 240.00 | 0.00 | 0.00 | 572.10 | 1100.00 | 581.15 | .11 | .35 | .02 | 275.65 | 9.05 | 263.20 |
| 47 | 12005.00 | 240.00 | 0.00 | 0.00 | 572.10 | 1210.00 | 581.62 | .08 | .29 | .03 | 222.78 | 9.52 | 320.00 |
| 48 | 12005.00 | 240.00 | 0.00 | 0.00 | 572.10 | 1450.00 | 582.88 | .04 | .16 | .03 | 145.87 | 10.78 | 320.00 |
| 49 | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | |
| 56 | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12365.00 | 360.00 | 0.00 | 0.00 | 572.70 | 810.00 | 582.24 | .03 | 2.03 | .06 | 136.76 | 9.54 | 330.00 |
| 12365.00 | 360.00 | 0.00 | 0.00 | 572.70 | 1100.00 | 582.64 | .04 | 1.40 | .02 | 149.14 | 9.94 | 330.00 |
| 12365.00 | 360.00 | 0.00 | 0.00 | 572.70 | 1210.00 | 582.79 | .04 | 1.11 | .01 | 153.31 | 10.09 | 330.00 |
| 12365.00 | 360.00 | 0.00 | 0.00 | 572.70 | 1450.00 | 583.38 | .04 | .49 | .00 | 144.59 | 10.68 | 330.00 |
| 12440.00 | 75.00 | 0.00 | 0.00 | 572.90 | 810.00 | 582.41 | .03 | .17 | .00 | 146.06 | 9.51 | 355.00 |
| 12440.00 | 75.00 | 0.00 | 0.00 | 572.90 | 1100.00 | 582.80 | .04 | .17 | .00 | 155.42 | 9.90 | 355.00 |
| 12440.00 | 75.00 | 0.00 | 0.00 | 572.90 | 1210.00 | 582.95 | .04 | .16 | .00 | 157.68 | 10.05 | 355.00 |
| 12440.00 | 75.00 | 0.00 | 0.00 | 572.90 | 1450.00 | 583.49 | .04 | .11 | .00 | 147.38 | 10.59 | 355.00 |
| 12441.00 | 1.00 | 0.00 | 0.00 | 572.90 | 810.00 | 582.40 | .04 | .00 | .01 | 471.67 | 9.50 | 355.00 |
| 12441.00 | 1.00 | 0.00 | 0.00 | 572.90 | 1100.00 | 582.80 | .05 | .00 | .01 | 561.63 | 9.90 | 355.00 |
| 12441.00 | 1.00 | 0.00 | 0.00 | 572.90 | 1210.00 | 582.95 | .05 | .00 | .00 | 589.52 | 10.05 | 355.00 |
| 12441.00 | 1.00 | 0.00 | 0.00 | 572.90 | 1450.00 | 583.49 | .04 | .00 | .00 | 605.93 | 10.59 | 355.00 |
| 12489.00 | 48.00 | 582.50 | 579.40 | 572.90 | 810.00 | 582.77 | .08 | .41 | 0.00 | 718.47 | 9.87 | 196.16 |
| 12489.00 | 48.00 | 582.50 | 579.40 | 572.90 | 1100.00 | 583.17 | .12 | .45 | 0.00 | 935.24 | 10.27 | 291.65 |
| 12489.00 | 48.00 | 582.50 | 579.40 | 572.90 | 1210.00 | 583.31 | .13 | .44 | 0.00 | 1007.07 | 10.41 | 314.07 |
| 12489.00 | 48.00 | 582.50 | 579.40 | 572.90 | 1450.00 | 583.66 | .14 | .27 | 0.00 | 1124.38 | 10.76 | 330.00 |
| 12490.00 | 1.00 | 0.00 | 0.00 | 572.90 | 810.00 | 582.77 | .09 | .00 | .00 | 736.97 | 9.87 | 196.17 |
| 12490.00 | 1.00 | 0.00 | 0.00 | 572.90 | 1100.00 | 583.17 | .13 | .00 | .01 | 967.43 | 10.27 | 291.66 |
| 12490.00 | 1.00 | 0.00 | 0.00 | 572.90 | 1210.00 | 583.30 | .15 | .00 | .01 | 1046.05 | 10.40 | 314.08 |
| 12490.00 | 1.00 | 0.00 | 0.00 | 572.90 | 1450.00 | 583.65 | .17 | .00 | .01 | 1184.62 | 10.75 | 330.00 |
| -8816.00 | 157.00 | 0.00 | 0.00 | 569.90 | 1090.00 | 577.20 | .17 | .06 | 0.00 | 771.97 | 7.30 | 128.12 |
| -8816.00 | 157.00 | 0.00 | 0.00 | 569.90 | 1590.00 | 578.38 | .19 | .08 | 0.00 | 990.68 | 8.48 | 147.72 |
| -8816.00 | 157.00 | 0.00 | 0.00 | 569.90 | 1770.00 | 578.79 | .19 | .08 | 0.00 | 1058.94 | 8.89 | 153.62 |
| -8816.00 | 157.00 | 0.00 | 0.00 | 569.90 | 2225.00 | 579.83 | .18 | .08 | 0.00 | 1210.95 | 9.93 | 168.77 |
| 9546.00 | 730.00 | 0.00 | 0.00 | 577.60 | 145.00 | 578.97 | .30 | .60 | 0.00 | 145.00 | 1.37 | 58.65 |
| 9546.00 | 730.00 | 0.00 | 0.00 | 577.60 | 235.00 | 579.21 | .36 | .57 | 0.00 | 235.00 | 1.61 | 70.86 |
| 9546.00 | 730.00 | 0.00 | 0.00 | 577.60 | 255.00 | 579.26 | .37 | .54 | 0.00 | 255.00 | 1.66 | 73.16 |
| 9546.00 | 730.00 | 0.00 | 0.00 | 577.60 | 270.00 | 580.41 | .04 | .40 | .04 | 270.00 | 2.81 | 107.19 |
| 10246.00 | 700.00 | 0.00 | 0.00 | 574.60 | 145.00 | 579.42 | .00 | .07 | .09 | 145.00 | 4.82 | 93.65 |
| 10246.00 | 700.00 | 0.00 | 0.00 | 574.60 | 235.00 | 579.80 | .01 | .13 | .11 | 235.00 | 5.20 | 94.42 |
| 10246.00 | 700.00 | 0.00 | 0.00 | 574.60 | 255.00 | 579.88 | .01 | .15 | .11 | 255.00 | 5.28 | 94.57 |
| 10246.00 | 700.00 | 0.00 | 0.00 | 574.60 | 270.00 | 580.54 | .01 | .08 | .01 | 270.00 | 5.94 | 95.88 |
| 10846.00 | 600.00 | 0.00 | 0.00 | 574.60 | 145.00 | 579.44 | .00 | .01 | .00 | 145.00 | 4.84 | 93.91 |
| 10846.00 | 600.00 | 0.00 | 0.00 | 574.60 | 235.00 | 579.83 | .01 | .03 | .00 | 235.00 | 5.23 | 95.31 |
| 10846.00 | 600.00 | 0.00 | 0.00 | 574.60 | 255.00 | 579.91 | .01 | .03 | .00 | 255.00 | 5.31 | 95.58 |
| 10846.00 | 600.00 | 0.00 | 0.00 | 574.60 | 270.00 | 580.56 | .01 | .02 | .00 | 270.00 | 5.96 | 97.87 |
| 11846.00 | 1000.00 | 0.00 | 0.00 | 572.60 | 145.00 | 579.45 | .00 | .01 | .00 | 145.00 | 6.85 | 81.98 |
| 11846.00 | 1000.00 | 0.00 | 0.00 | 572.60 | 235.00 | 579.86 | .00 | .02 | .00 | 235.00 | 7.26 | 84.87 |
| 11846.00 | 1000.00 | 0.00 | 0.00 | 572.60 | 255.00 | 579.94 | .00 | .03 | .00 | 255.00 | 7.34 | 85.37 |
| 11846.00 | 1000.00 | 0.00 | 0.00 | 572.60 | 270.00 | 580.59 | .00 | .02 | .00 | 270.00 | 7.99 | 89.94 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -9264.00 | 0.00 | 0.00 | 0.00 | 571.50 | 960.00 | 577.54 | .21 | 0.00 | 0.00 | 781.22 | 6.04 | 290.42 |
| -9264.00 | 0.00 | 0.00 | 0.00 | 571.50 | 1355.00 | 578.83 | .09 | 0.00 | 0.00 | 764.47 | 7.33 | 329.89 |
| -9264.00 | 0.00 | 0.00 | 0.00 | 571.50 | 1520.00 | 579.26 | .08 | 0.00 | 0.00 | 775.33 | 7.76 | 332.00 |
| -9264.00 | 0.00 | 0.00 | 0.00 | 571.50 | 1960.00 | 580.37 | .06 | 0.00 | 0.00 | 821.14 | 8.87 | 332.00 |
| 9594.00 | 330.00 | 0.00 | 0.00 | 579.50 | 25.00 | 580.06 | .14 | .46 | 0.00 | 25.00 | .56 | 29.43 |
| 9594.00 | 330.00 | 0.00 | 0.00 | 579.50 | 155.00 | 580.66 | .29 | .22 | 0.00 | 155.00 | 1.16 | 61.80 |
| 9594.00 | 330.00 | 0.00 | 0.00 | 579.50 | 220.00 | 580.84 | .34 | .18 | 0.00 | 220.00 | 1.34 | 72.66 |
| 9594.00 | 330.00 | 0.00 | 0.00 | 579.50 | 435.00 | 581.25 | .43 | .13 | 0.00 | 435.00 | 1.75 | 98.09 |
| 10294.00 | 700.00 | 0.00 | 0.00 | 578.60 | 25.00 | 580.27 | .00 | .02 | .04 | 25.00 | 1.67 | 187.64 |
| 10294.00 | 700.00 | 0.00 | 0.00 | 578.60 | 155.00 | 581.16 | .00 | .12 | .09 | 155.00 | 2.56 | 190.40 |
| 10294.00 | 700.00 | 0.00 | 0.00 | 578.60 | 220.00 | 581.42 | .00 | .15 | .10 | 220.00 | 2.82 | 191.06 |
| 10294.00 | 700.00 | 0.00 | 0.00 | 578.60 | 435.00 | 582.06 | .01 | .26 | .13 | 435.00 | 3.46 | 192.65 |
| 10894.00 | 600.00 | 0.00 | 0.00 | 574.10 | 25.00 | 580.27 | .00 | .00 | .00 | 25.00 | 6.17 | 239.00 |
| 10894.00 | 600.00 | 0.00 | 0.00 | 574.10 | 155.00 | 581.16 | .00 | .00 | .00 | 155.00 | 7.06 | 244.67 |
| 10894.00 | 600.00 | 0.00 | 0.00 | 574.10 | 220.00 | 581.43 | .00 | .00 | .00 | 220.00 | 7.33 | 246.89 |
| 10894.00 | 600.00 | 0.00 | 0.00 | 574.10 | 435.00 | 582.08 | .00 | .01 | .00 | 435.00 | 7.98 | 252.27 |
| 11894.00 | 1000.00 | 0.00 | 0.00 | 573.60 | 25.00 | 580.27 | .00 | .00 | .00 | 25.00 | 6.67 | 325.01 |
| 11894.00 | 1000.00 | 0.00 | 0.00 | 573.60 | 155.00 | 581.16 | .00 | .00 | .00 | 155.00 | 7.56 | 328.53 |
| 11894.00 | 1000.00 | 0.00 | 0.00 | 573.60 | 220.00 | 581.43 | .00 | .00 | .00 | 220.00 | 7.83 | 329.74 |
| 11894.00 | 1000.00 | 0.00 | 0.00 | 573.60 | 435.00 | 582.08 | .00 | .00 | .00 | 435.00 | 8.48 | 332.67 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 1613.000 | 1080.000 | 573.100 | 0.000 | 0.000 | 0.000 | 287.238 | 0.000 | 0.000 |
| 1613.000 | 1290.000 | 573.100 | 0.000 | 0.000 | 0.000 | 287.238 | 0.000 | 0.000 |
| 1613.000 | 1345.000 | 573.100 | 0.000 | 0.000 | 0.000 | 287.238 | 0.000 | 0.000 |
| 1613.000 | 1460.000 | 573.100 | 0.000 | 0.000 | 0.000 | 287.238 | 0.000 | 0.000 |
| 1783.000 | 1080.000 | 573.122 | 0.000 | .022 | 0.000 | 287.686 | 0.000 | 170.000 |
| 1783.000 | 1290.000 | 573.131 | .009 | .031 | 0.000 | 287.695 | -.009 | 170.000 |
| 1783.000 | 1345.000 | 573.134 | .003 | .034 | 0.000 | 287.698 | -.011 | 170.000 |
| 1783.000 | 1460.000 | 573.140 | .006 | .040 | 0.000 | 287.703 | -.017 | 170.000 |
| 1953.000 | 1080.000 | 573.138 | 0.000 | .016 | 0.000 | 288.133 | 0.000 | 170.000 |
| 1953.000 | 1290.000 | 573.154 | .016 | .023 | 0.000 | 288.149 | -.016 | 170.000 |
| 1953.000 | 1345.000 | 573.159 | .005 | .025 | 0.000 | 288.154 | -.021 | 170.000 |
| 1953.000 | 1460.000 | 573.170 | .011 | .030 | 0.000 | 288.164 | -.031 | 170.000 |
| 2113.000 | 1080.000 | 572.980 | 0.000 | -.158 | 0.000 | 24.499 | 0.000 | 160.000 |
| 2113.000 | 1290.000 | 573.170 | .190 | .015 | 0.000 | 294.499 | -270.000 | 160.000 |
| 2113.000 | 1345.000 | 573.176 | .006 | .017 | 0.000 | 294.499 | -270.000 | 160.000 |
| 2113.000 | 1460.000 | 573.189 | .014 | .020 | 0.000 | 294.499 | -270.000 | 160.000 |
| 2114.000 | 1080.000 | 572.980 | 0.000 | .000 | 0.000 | 24.499 | 0.000 | 1.000 |
| 2114.000 | 1290.000 | 573.169 | .189 | -.001 | 0.000 | 294.499 | -270.000 | 1.000 |
| 2114.000 | 1345.000 | 573.175 | .006 | -.001 | 0.000 | 294.499 | -270.000 | 1.000 |
| 2114.000 | 1460.000 | 573.188 | .013 | -.001 | 0.000 | 294.499 | -270.000 | 1.000 |
| 2131.000 | 1080.000 | 573.278 | 0.000 | .299 | 0.000 | 24.499 | 0.000 | 17.000 |
| 2131.000 | 1290.000 | 574.205 | .927 | 1.036 | 0.000 | 224.857 | -200.358 | 17.000 |
| 2131.000 | 1345.000 | 574.284 | .079 | 1.109 | 0.000 | 251.382 | -226.883 | 17.000 |
| 2131.000 | 1460.000 | 574.420 | .136 | 1.232 | 0.000 | 297.309 | -272.810 | 17.000 |
| 2132.000 | 1080.000 | 573.279 | 0.000 | .000 | 0.000 | 24.499 | 0.000 | 1.000 |
| 2132.000 | 1290.000 | 574.205 | .926 | .000 | 0.000 | 224.873 | -200.374 | 1.000 |
| 2132.000 | 1345.000 | 574.284 | .079 | .000 | 0.000 | 251.400 | -226.901 | 1.000 |
| 2132.000 | 1460.000 | 574.420 | .136 | .000 | 0.000 | 297.329 | -272.830 | 1.000 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2182.000 | 1080.000 | 573.793 | 0.000 | .514 | 0.000 | 64.999 | 0.000 | 50.000 |
| | 2182.000 | 1290.000 | 574.246 | .453 | .041 | 0.000 | 339.999 | -275.000 | 50.000 |
| | 2182.000 | 1345.000 | 574.327 | .081 | .043 | 0.000 | 339.999 | -275.000 | 50.000 |
| | 2182.000 | 1460.000 | 574.468 | .141 | .048 | 0.000 | 339.999 | -275.000 | 50.000 |
| 6 | | | | | | | | | |
| 1 | 2632.000 | 1080.000 | 573.929 | 0.000 | .136 | 0.000 | 149.814 | 0.000 | 450.000 |
| 2 | 2632.000 | 1290.000 | 574.255 | .326 | .009 | 0.000 | 209.999 | -60.185 | 450.000 |
| 3 | 2632.000 | 1345.000 | 574.335 | .081 | .009 | 0.000 | 209.999 | -60.185 | 450.000 |
| 4 | 2632.000 | 1460.000 | 574.477 | .141 | .009 | 0.000 | 209.999 | -60.185 | 450.000 |
| 5 | | | | | | | | | |
| 6 | 2932.000 | 1080.000 | 573.977 | 0.000 | .048 | 0.000 | 59.999 | 0.000 | 300.000 |
| 7 | 2932.000 | 1290.000 | 574.306 | .329 | .051 | 0.000 | 59.999 | -.000 | 300.000 |
| 8 | 2932.000 | 1345.000 | 574.387 | .081 | .052 | 0.000 | 59.999 | -.000 | 300.000 |
| 9 | 2932.000 | 1460.000 | 574.530 | .143 | .053 | 0.000 | 59.999 | -.000 | 300.000 |
| 10 | | | | | | | | | |
| 11 | 2982.000 | 1080.000 | 573.828 | 0.000 | -.148 | 0.000 | 30.529 | 0.000 | 50.000 |
| 12 | 2982.000 | 1290.000 | 574.109 | .281 | -.197 | 0.000 | 30.529 | -.000 | 50.000 |
| 13 | 2982.000 | 1345.000 | 574.177 | .068 | -.210 | 0.000 | 30.529 | -.000 | 50.000 |
| 14 | 2982.000 | 1460.000 | 574.289 | .112 | -.241 | 0.000 | 30.529 | -.000 | 50.000 |
| 15 | | | | | | | | | |
| 16 | 2983.000 | 1080.000 | 573.829 | 0.000 | .001 | 0.000 | 30.529 | 0.000 | 1.000 |
| 17 | 2983.000 | 1290.000 | 574.111 | .281 | .001 | 0.000 | 30.529 | -.000 | 1.000 |
| 18 | 2983.000 | 1345.000 | 574.179 | .068 | .001 | 0.000 | 30.529 | -.000 | 1.000 |
| 19 | 2983.000 | 1460.000 | 574.290 | .112 | .001 | 0.000 | 30.529 | -.000 | 1.000 |
| 20 | | | | | | | | | |
| 21 | 3049.000 | 1080.000 | 574.170 | 0.000 | .340 | 0.000 | 30.529 | 0.000 | 66.000 |
| 22 | 3049.000 | 1290.000 | 574.678 | .508 | .567 | 0.000 | 30.529 | -.000 | 66.000 |
| 23 | 3049.000 | 1345.000 | 574.816 | .138 | .638 | 0.000 | 30.529 | -.000 | 66.000 |
| 24 | 3049.000 | 1460.000 | 575.086 | .270 | .796 | 0.000 | 30.529 | -.000 | 66.000 |
| 25 | | | | | | | | | |
| 26 | 3050.000 | 1080.000 | 574.170 | 0.000 | .001 | 0.000 | 30.529 | 0.000 | 1.000 |
| 27 | 3050.000 | 1290.000 | 574.679 | .508 | .001 | 0.000 | 30.529 | -.000 | 1.000 |
| 28 | 3050.000 | 1345.000 | 574.817 | .138 | .001 | 0.000 | 30.529 | -.000 | 1.000 |
| 29 | 3050.000 | 1460.000 | 575.087 | .270 | .001 | 0.000 | 30.529 | -.000 | 1.000 |
| 30 | | | | | | | | | |
| 31 | 3250.000 | 1080.000 | 574.727 | 0.000 | .556 | 0.000 | 309.495 | 0.000 | 200.000 |
| 32 | 3250.000 | 1290.000 | 575.362 | .635 | .683 | 0.000 | 328.420 | -18.925 | 200.000 |
| 33 | 3250.000 | 1345.000 | 575.532 | .170 | .715 | 0.000 | 329.212 | -19.717 | 200.000 |
| 34 | 3250.000 | 1460.000 | 575.869 | .338 | .782 | 0.000 | 337.616 | -28.121 | 200.000 |
| 35 | | | | | | | | | |
| 36 | 3750.000 | 1085.000 | 574.746 | 0.000 | .020 | 0.000 | 566.525 | 0.000 | 500.000 |
| 37 | 3750.000 | 1290.000 | 575.381 | .635 | .020 | 0.000 | 590.052 | -23.527 | 500.000 |
| 38 | 3750.000 | 1345.000 | 575.551 | .170 | .019 | 0.000 | 596.333 | -29.808 | 500.000 |
| 39 | 3750.000 | 1460.000 | 575.889 | .338 | .019 | 0.000 | 608.844 | -42.319 | 500.000 |
| 40 | | | | | | | | | |
| 41 | 4225.000 | 1085.000 | 574.757 | 0.000 | .011 | 0.000 | 699.644 | 0.000 | 475.000 |
| 42 | 4225.000 | 1290.000 | 575.391 | -.634 | .009 | 0.000 | 764.463 | -64.819 | 475.000 |
| 43 | 4225.000 | 1345.000 | 575.560 | .169 | .009 | 0.000 | 784.999 | -85.355 | 475.000 |
| 44 | 4225.000 | 1460.000 | 575.897 | .337 | .009 | 0.000 | 784.999 | -85.355 | 475.000 |
| 45 | | | | | | | | | |
| 46 | 4700.000 | 1085.000 | 574.770 | 0.000 | .013 | 0.000 | 899.999 | 0.000 | 475.000 |
| 47 | 4700.000 | 1290.000 | 575.402 | .632 | .011 | 0.000 | 899.999 | -.000 | 475.000 |
| 48 | 4700.000 | 1345.000 | 575.571 | .169 | .011 | 0.000 | 899.999 | -.000 | 475.000 |
| 49 | 4700.000 | 1460.000 | 575.907 | .336 | .010 | 0.000 | 899.999 | -.000 | 475.000 |
| 50 | | | | | | | | | |
| 51 | 5750.000 | 1085.000 | 574.847 | 0.000 | .077 | 0.000 | 552.942 | 0.000 | 1050.000 |
| 52 | 5750.000 | 1290.000 | 575.453 | .606 | .051 | 0.000 | 590.843 | -37.902 | 1050.000 |
| 53 | 5750.000 | 1345.000 | 575.618 | .164 | .047 | 0.000 | 606.294 | -53.352 | 1050.000 |
| 54 | 5750.000 | 1460.000 | 575.947 | .329 | .039 | 0.000 | 650.862 | -97.920 | 1050.000 |
| 55 | | | | | | | | | |
| 56 | 6750.000 | 1085.000 | 575.083 | 0.000 | .236 | 0.000 | 355.773 | 0.000 | 1000.000 |
| 57 | 6750.000 | 1290.000 | 575.613 | .530 | .160 | 0.000 | 368.100 | -12.327 | 1000.000 |
| | 6750.000 | 1345.000 | 575.762 | .148 | .144 | 0.000 | 371.552 | -15.780 | 1000.000 |
| | 6750.000 | 1460.000 | 576.066 | .305 | .120 | 0.000 | 378.637 | -22.865 | 1000.000 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 7200.000 | 1090.000 | 575.268 | 0.000 | .185 | 0.000 | 116.999 | 0.000 | 450.000 |
| | 7200.000 | 1590.000 | 575.747 | .479 | .134 | 0.000 | 116.999 | -.000 | 450.000 |
| | 7200.000 | 1770.000 | 575.877 | .130 | .115 | 0.000 | 116.999 | -.000 | 450.000 |
| | 7200.000 | 2225.000 | 576.134 | .257 | .067 | 0.000 | 116.999 | -.000 | 450.000 |
| | | | | | | | | | |
| 6 | 7250.000 | 1090.000 | 575.292 | 0.000 | .023 | 0.000 | 93.636 | 0.000 | 50.000 |
| 1 | 7250.000 | 1590.000 | 575.779 | .488 | .032 | 0.000 | 95.767 | -2.131 | 50.000 |
| 2 | 7250.000 | 1770.000 | 575.913 | .133 | .036 | 0.000 | 96.349 | -2.712 | 50.000 |
| 3 | 7250.000 | 2225.000 | 576.179 | .267 | .045 | 0.000 | 97.544 | -3.907 | 50.000 |
| 4 | | | | | | | | | |
| 5 | 7251.000 | 1090.000 | 575.269 | 0.000 | -.022 | 0.000 | 82.724 | 0.000 | 1.000 |
| 6 | 7251.000 | 1590.000 | 575.740 | .471 | -.039 | 0.000 | 83.752 | -1.027 | 1.000 |
| 7 | 7251.000 | 1770.000 | 575.866 | .126 | -.047 | 0.000 | 84.026 | -1.302 | 1.000 |
| 8 | 7251.000 | 2225.000 | 576.109 | .242 | -.071 | 0.000 | 84.578 | -1.853 | 1.000 |
| 9 | | | | | | | | | |
| 10 | 7298.000 | 1090.000 | 575.317 | 0.000 | .048 | 0.000 | 82.840 | 0.000 | 47.000 |
| 11 | 7298.000 | 1590.000 | 575.813 | .496 | .073 | 0.000 | 83.908 | -1.068 | 47.000 |
| 12 | 7298.000 | 1770.000 | 575.950 | .137 | .084 | 0.000 | 84.199 | -1.359 | 47.000 |
| 13 | 7298.000 | 2225.000 | 576.242 | .292 | .134 | 0.000 | 85.204 | -2.365 | 47.000 |
| 14 | | | | | | | | | |
| 15 | 7299.000 | 1090.000 | 575.384 | 0.000 | .066 | 0.000 | 94.028 | 0.000 | 1.000 |
| 16 | 7299.000 | 1590.000 | 575.939 | .555 | .126 | 0.000 | 96.474 | -2.446 | 1.000 |
| 17 | 7299.000 | 1770.000 | 576.105 | .166 | .155 | 0.000 | 97.206 | -3.178 | 1.000 |
| 18 | 7299.000 | 2225.000 | 576.479 | .374 | .237 | 0.000 | 98.865 | -4.838 | 1.000 |
| 19 | | | | | | | | | |
| 20 | 7355.000 | 1090.000 | 575.593 | 0.000 | .209 | 0.000 | 199.999 | 0.000 | 56.000 |
| 21 | 7355.000 | 1590.000 | 576.266 | .673 | .327 | 0.000 | 199.999 | -.000 | 56.000 |
| 22 | 7355.000 | 1770.000 | 576.477 | .211 | .372 | 0.000 | 199.999 | -.000 | 56.000 |
| 23 | 7355.000 | 2225.000 | 576.970 | .493 | .491 | 0.000 | 199.999 | -.000 | 56.000 |
| 24 | | | | | | | | | |
| 25 | 7805.000 | 1090.000 | 575.798 | 0.000 | .205 | 0.000 | 114.087 | 0.000 | 450.000 |
| 26 | 7805.000 | 1590.000 | 576.498 | .700 | .232 | 0.000 | 315.345 | -201.258 | 450.000 |
| 27 | 7805.000 | 1770.000 | 576.721 | .223 | .244 | 0.000 | 499.999 | -385.912 | 450.000 |
| 28 | 7805.000 | 2225.000 | 577.246 | .524 | .276 | 0.000 | 499.999 | -385.912 | 450.000 |
| 29 | | | | | | | | | |
| 30 | 8305.000 | 1090.000 | 576.425 | 0.000 | .627 | 0.000 | 194.048 | 0.000 | 500.000 |
| 31 | 8305.000 | 1590.000 | 577.175 | .750 | .677 | 0.000 | 195.000 | -.952 | 500.000 |
| 32 | 8305.000 | 1770.000 | 577.382 | .207 | .661 | 0.000 | 195.000 | -.952 | 500.000 |
| 33 | 8305.000 | 2225.000 | 577.836 | .454 | .590 | 0.000 | 195.000 | -.952 | 500.000 |
| 34 | | | | | | | | | |
| 35 | 8605.000 | 1090.000 | 576.882 | 0.000 | .457 | 0.000 | 48.000 | 0.000 | 300.000 |
| 36 | 8605.000 | 1590.000 | 577.574 | .692 | .399 | 0.000 | 48.000 | 0.000 | 300.000 |
| 37 | 8605.000 | 1770.000 | 577.775 | .201 | .393 | 0.000 | 48.000 | 0.000 | 300.000 |
| 38 | 8605.000 | 2225.000 | 578.215 | .440 | .379 | 0.000 | 48.000 | 0.000 | 300.000 |
| 39 | | | | | | | | | |
| 40 | 8606.000 | 1090.000 | 576.882 | 0.000 | .001 | 0.000 | 48.000 | 0.000 | 1.000 |
| 41 | 8606.000 | 1590.000 | 577.575 | .692 | .001 | 0.000 | 48.000 | 0.000 | 1.000 |
| 42 | 8606.000 | 1770.000 | 577.776 | .202 | .001 | 0.000 | 48.000 | 0.000 | 1.000 |
| 43 | 8606.000 | 2225.000 | 578.216 | .440 | .001 | 0.000 | 48.000 | 0.000 | 1.000 |
| 44 | | | | | | | | | |
| 45 | 8658.000 | 1090.000 | 576.960 | 0.000 | .077 | 0.000 | 48.000 | 0.000 | 52.000 |
| 46 | 8658.000 | 1590.000 | 577.983 | 1.023 | .408 | 0.000 | 48.000 | 0.000 | 52.000 |
| 47 | 8658.000 | 1770.000 | 578.329 | .346 | .553 | 0.000 | 48.000 | 0.000 | 52.000 |
| 48 | 8658.000 | 2225.000 | 579.239 | .911 | 1.023 | 0.000 | 48.000 | 0.000 | 52.000 |
| 49 | | | | | | | | | |
| 50 | 8659.000 | 1090.000 | 576.960 | 0.000 | .000 | 0.000 | 48.000 | 0.000 | 1.000 |
| 51 | 8659.000 | 1590.000 | 577.983 | 1.023 | .001 | 0.000 | 48.000 | 0.000 | 1.000 |
| 52 | 8659.000 | 1770.000 | 578.329 | .346 | .001 | 0.000 | 48.000 | 0.000 | 1.000 |
| 53 | 8659.000 | 2225.000 | 579.240 | .911 | .001 | 0.000 | 48.000 | 0.000 | 1.000 |
| 54 | | | | | | | | | |
| 55 | 8816.000 | 1090.000 | 577.195 | 0.000 | .235 | 0.000 | 128.130 | 0.000 | 157.000 |
| 56 | 8816.000 | 1590.000 | 578.383 | 1.188 | .399 | 0.000 | 147.743 | -19.613 | 157.000 |
| 57 | 8816.000 | 1770.000 | 578.788 | .405 | .459 | 0.000 | 153.655 | -25.525 | 157.000 |
| | 8816.000 | 2225.000 | 579.833 | 1.045 | .592 | 0.000 | 168.813 | -40.683 | 157.000 |
| | | | | | | | | | |
| | 9106.000 | 960.000 | 577.412 | 0.000 | .217 | 0.000 | 59.000 | 0.000 | 290.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 9106.000 | 1355.000 | 578.557 | 1.145 | .174 | 0.000 | 59.000 | 0.000 | 290.000 |
| 9106.000 | 1520.000 | 578.951 | .393 | .163 | 0.000 | 59.000 | 0.000 | 290.000 |
| 9106.000 | 1960.000 | 579.956 | 1.005 | .123 | 0.000 | 59.000 | 0.000 | 290.000 |
| 9107.000 | 960.000 | 577.394 | 0.000 | -.018 | 0.000 | 59.000 | 0.000 | 1.000 |
| 9107.000 | 1355.000 | 578.533 | 1.138 | -.024 | 0.000 | 59.000 | 0.000 | 1.000 |
| 9107.000 | 1520.000 | 578.923 | .391 | -.027 | 0.000 | 59.000 | 0.000 | 1.000 |
| 9107.000 | 1960.000 | 579.921 | .998 | -.035 | 0.000 | 59.000 | 0.000 | 1.000 |
| 9127.000 | 960.000 | 577.400 | 0.000 | .005 | 0.000 | 59.000 | 0.000 | 20.000 |
| 9127.000 | 1355.000 | 578.539 | 1.139 | .007 | 0.000 | 59.000 | 0.000 | 20.000 |
| 9127.000 | 1520.000 | 578.930 | .391 | .007 | 0.000 | 59.000 | 0.000 | 20.000 |
| 9127.000 | 1960.000 | 579.929 | .998 | .008 | 0.000 | 59.000 | 0.000 | 20.000 |
| 9128.000 | 960.000 | 577.450 | 0.000 | .050 | 0.000 | 59.000 | 0.000 | 1.000 |
| 9128.000 | 1355.000 | 578.607 | 1.158 | .068 | 0.000 | 59.000 | 0.000 | 1.000 |
| 9128.000 | 1520.000 | 579.006 | .399 | .076 | 0.000 | 59.000 | 0.000 | 1.000 |
| 9128.000 | 1960.000 | 580.026 | 1.019 | .097 | 0.000 | 59.000 | 0.000 | 1.000 |
| 9264.000 | 960.000 | 577.542 | 0.000 | .092 | 0.000 | 290.418 | 0.000 | 136.000 |
| 9264.000 | 1355.000 | 578.825 | 1.284 | .218 | 0.000 | 329.962 | -39.544 | 136.000 |
| 9264.000 | 1520.000 | 579.265 | .440 | .258 | 0.000 | 331.999 | -41.581 | 136.000 |
| 9264.000 | 1960.000 | 580.367 | 1.102 | .341 | 0.000 | 331.999 | -41.581 | 136.000 |
| 9764.000 | 1015.000 | 578.082 | 0.000 | .540 | 0.000 | 549.999 | 0.000 | 500.000 |
| 9764.000 | 1370.000 | 579.061 | .979 | .236 | 0.000 | 549.999 | -.000 | 500.000 |
| 9764.000 | 1465.000 | 579.454 | .393 | .189 | 0.000 | 549.999 | -.000 | 500.000 |
| 9764.000 | 1700.000 | 580.492 | 1.038 | .125 | 0.000 | 549.999 | -.000 | 500.000 |
| 10264.000 | 1015.000 | 578.259 | 0.000 | .177 | 0.000 | 690.551 | 0.000 | 500.000 |
| 10264.000 | 1370.000 | 579.148 | .889 | .087 | 0.000 | 698.534 | -7.984 | 500.000 |
| 10264.000 | 1465.000 | 579.519 | .371 | .065 | 0.000 | 700.558 | -10.007 | 500.000 |
| 10264.000 | 1700.000 | 580.527 | 1.007 | .034 | 0.000 | 706.053 | -15.502 | 500.000 |
| 10764.000 | 1015.000 | 578.477 | 0.000 | .218 | 0.000 | 550.897 | 0.000 | 500.000 |
| 10764.000 | 1370.000 | 579.256 | .779 | .108 | 0.000 | 562.710 | -11.813 | 500.000 |
| 10764.000 | 1465.000 | 579.598 | .342 | .079 | 0.000 | 564.999 | -14.102 | 500.000 |
| 10764.000 | 1700.000 | 580.565 | .967 | .038 | 0.000 | 564.999 | -14.102 | 500.000 |
| 11264.000 | 760.000 | 578.713 | 0.000 | .236 | 0.000 | 349.999 | 0.000 | 500.000 |
| 11264.000 | 1015.000 | 579.395 | .682 | .139 | 0.000 | 349.999 | -.000 | 500.000 |
| 11264.000 | 1100.000 | 579.703 | .307 | .105 | 0.000 | 349.999 | -.000 | 500.000 |
| 11264.000 | 1265.000 | 580.618 | .915 | .053 | 0.000 | 349.999 | -.000 | 500.000 |
| 11364.000 | 760.000 | 578.919 | 0.000 | .207 | 0.000 | 304.999 | 0.000 | 100.000 |
| 11364.000 | 1015.000 | 579.546 | .627 | .151 | 0.000 | 304.999 | -.000 | 100.000 |
| 11364.000 | 1100.000 | 579.824 | .278 | .121 | 0.000 | 304.999 | -.000 | 100.000 |
| 11364.000 | 1265.000 | 580.674 | .850 | .056 | 0.000 | 304.999 | -.000 | 100.000 |
| 11644.000 | 760.000 | 578.950 | 0.000 | .030 | 0.000 | 159.999 | 0.000 | 280.000 |
| 11644.000 | 1015.000 | 579.573 | .623 | .027 | 0.000 | 159.999 | -.000 | 280.000 |
| 11644.000 | 1100.000 | 579.847 | .274 | .023 | 0.000 | 159.999 | -.000 | 280.000 |
| 11644.000 | 1265.000 | 580.687 | .840 | .013 | 0.000 | 159.999 | -.000 | 280.000 |
| 11714.000 | 760.000 | 578.819 | 0.000 | -.130 | 0.000 | 28.000 | 0.000 | 70.000 |
| 11714.000 | 1015.000 | 579.360 | .541 | -.213 | 0.000 | 28.000 | 0.000 | 70.000 |
| 11714.000 | 1100.000 | 579.610 | .250 | -.237 | 0.000 | 28.000 | 0.000 | 70.000 |
| 11714.000 | 1265.000 | 580.427 | .817 | -.260 | 0.000 | 28.000 | 0.000 | 70.000 |
| 11715.000 | 760.000 | 578.820 | 0.000 | .001 | 0.000 | 28.000 | 0.000 | 1.000 |
| 11715.000 | 1015.000 | 579.361 | .541 | .001 | 0.000 | 28.000 | 0.000 | 1.000 |
| 11715.000 | 1100.000 | 579.612 | .250 | .002 | 0.000 | 28.000 | 0.000 | 1.000 |
| 11715.000 | 1265.000 | 580.428 | .817 | .001 | 0.000 | 28.000 | 0.000 | 1.000 |
| 11729.000 | 760.000 | 579.299 | 0.000 | .478 | 0.000 | 28.000 | 0.000 | 14.000 |
| 11729.000 | 1015.000 | 580.373 | 1.075 | 1.013 | 0.000 | 28.000 | 0.000 | 14.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 11729.000 | 1100.000 | 580.859 | .486 | 1.248 | 0.000 | 28.000 | 0.000 | 14.000 |
| 11729.000 | 1265.000 | 582.235 | 1.376 | 1.807 | 0.000 | 28.000 | 0.000 | 14.000 |
| 11730.000 | 760.000 | 579.300 | 0.000 | .001 | 0.000 | 28.000 | 0.000 | 1.000 |
| 11730.000 | 1015.000 | 580.374 | 1.075 | .001 | 0.000 | 28.000 | 0.000 | 1.000 |
| 11730.000 | 1100.000 | 580.860 | .486 | .001 | 0.000 | 28.000 | 0.000 | 1.000 |
| 11730.000 | 1265.000 | 582.236 | 1.376 | .001 | 0.000 | 28.000 | 0.000 | 1.000 |
| 11765.000 | 810.000 | 579.551 | 0.000 | .251 | 0.000 | 67.280 | 0.000 | 35.000 |
| 11765.000 | 1100.000 | 580.714 | 1.163 | .339 | 0.000 | 68.572 | -1.292 | 35.000 |
| 11765.000 | 1210.000 | 581.211 | .498 | .351 | 0.000 | 69.125 | -1.845 | 35.000 |
| 11765.000 | 1450.000 | 582.571 | 1.360 | .335 | 0.000 | 97.999 | -30.719 | 35.000 |
| 12005.000 | 810.000 | 579.960 | 0.000 | .409 | 0.000 | 125.170 | 0.000 | 240.000 |
| 12005.000 | 1100.000 | 581.145 | 1.185 | .432 | 0.000 | 263.196 | -138.026 | 240.000 |
| 12005.000 | 1210.000 | 581.625 | .480 | .414 | 0.000 | 319.999 | -194.829 | 240.000 |
| 12005.000 | 1450.000 | 582.883 | 1.258 | .312 | 0.000 | 319.999 | -194.829 | 240.000 |
| 12365.000 | 810.000 | 582.238 | 0.000 | 2.277 | 0.000 | 329.999 | 0.000 | 360.000 |
| 12365.000 | 1100.000 | 582.638 | .400 | 1.493 | 0.000 | 329.999 | -.000 | 360.000 |
| 12365.000 | 1210.000 | 582.789 | .151 | 1.164 | 0.000 | 329.999 | -.000 | 360.000 |
| 12365.000 | 1450.000 | 583.379 | .590 | .495 | 0.000 | 329.999 | -.000 | 360.000 |
| 12440.000 | 810.000 | 582.407 | 0.000 | .169 | 0.000 | 354.999 | 0.000 | 75.000 |
| 12440.000 | 1100.000 | 582.803 | .397 | .166 | 0.000 | 354.999 | -.000 | 75.000 |
| 12440.000 | 1210.000 | 582.952 | .148 | .163 | 0.000 | 354.999 | -.000 | 75.000 |
| 12440.000 | 1450.000 | 583.493 | .541 | .114 | 0.000 | 354.999 | -.000 | 75.000 |
| 12441.000 | 810.000 | 582.401 | 0.000 | -.005 | 0.000 | 354.999 | 0.000 | 1.000 |
| 12441.000 | 1100.000 | 582.798 | .397 | -.005 | 0.000 | 354.999 | -.000 | 1.000 |
| 12441.000 | 1210.000 | 582.947 | .149 | -.005 | 0.000 | 354.999 | -.000 | 1.000 |
| 12441.000 | 1450.000 | 583.491 | .543 | -.002 | 0.000 | 354.999 | -.000 | 1.000 |
| 12489.000 | 810.000 | 582.769 | 0.000 | .367 | 0.000 | 196.158 | 0.000 | 48.000 |
| 12489.000 | 1100.000 | 583.172 | .403 | .374 | 0.000 | 291.652 | -95.493 | 48.000 |
| 12489.000 | 1210.000 | 583.305 | .133 | .358 | 0.000 | 314.066 | -117.908 | 48.000 |
| 12489.000 | 1450.000 | 583.657 | .352 | .167 | 0.000 | 329.999 | -133.841 | 48.000 |
| 12490.000 | 810.000 | 582.766 | 0.000 | -.003 | 0.000 | 196.172 | 0.000 | 1.000 |
| 12490.000 | 1100.000 | 583.166 | .400 | -.006 | 0.000 | 291.664 | -95.492 | 1.000 |
| 12490.000 | 1210.000 | 583.298 | .132 | -.007 | 0.000 | 314.080 | -117.908 | 1.000 |
| 12490.000 | 1450.000 | 583.646 | .348 | -.011 | 0.000 | 329.999 | -133.827 | 1.000 |
| -8816.000 | 1090.000 | 577.195 | 0.000 | -5.571 | 0.000 | 128.121 | 0.000 | 157.000 |
| -8816.000 | 1590.000 | 578.383 | 1.188 | -4.783 | 0.000 | 147.717 | -19.596 | 157.000 |
| -8816.000 | 1770.000 | 578.788 | .405 | -4.510 | 0.000 | 153.625 | -25.504 | 157.000 |
| -8816.000 | 2225.000 | 579.833 | 1.045 | -3.814 | 0.000 | 168.773 | -40.651 | 157.000 |
| 9546.000 | 145.000 | 578.969 | 0.000 | 1.774 | 0.000 | 58.650 | 0.000 | 730.000 |
| 9546.000 | 235.000 | 579.211 | .242 | .828 | 0.000 | 70.858 | -12.209 | 730.000 |
| 9546.000 | 255.000 | 579.257 | .046 | .469 | 0.000 | 73.156 | -14.507 | 730.000 |
| 9546.000 | 270.000 | 580.412 | 1.155 | .579 | 0.000 | 107.190 | -48.540 | 730.000 |
| 10246.000 | 145.000 | 579.423 | 0.000 | .454 | 0.000 | 93.650 | 0.000 | 700.000 |
| 10246.000 | 235.000 | 579.803 | .381 | .592 | 0.000 | 94.417 | -.767 | 700.000 |
| 10246.000 | 255.000 | 579.877 | .074 | .621 | 0.000 | 94.566 | -.916 | 700.000 |
| 10246.000 | 270.000 | 580.541 | .663 | .129 | 0.000 | 95.878 | -2.228 | 700.000 |
| 10846.000 | 145.000 | 579.438 | 0.000 | .015 | 0.000 | 93.906 | 0.000 | 600.000 |
| 10846.000 | 235.000 | 579.831 | .394 | .028 | 0.000 | 95.310 | -1.405 | 600.000 |
| 10846.000 | 255.000 | 579.909 | .077 | .031 | 0.000 | 95.581 | -1.675 | 600.000 |
| 10846.000 | 270.000 | 580.563 | .654 | .022 | 0.000 | 97.869 | -3.963 | 600.000 |
| 11846.000 | 145.000 | 579.450 | 0.000 | .013 | 0.000 | 81.977 | 0.000 | 1000.000 |
| 11846.000 | 235.000 | 579.858 | .408 | .027 | 0.000 | 84.872 | -2.894 | 1000.000 |
| 11846.000 | 255.000 | 579.939 | .081 | .030 | 0.000 | 85.371 | -3.394 | 1000.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 11846.000 | 270.000 | 580.586 | .647 | .023 | 0.000 | 89.943 | -7.966 | 1000.000 |
| -9264.000 | 960.000 | 577.542 | 0.000 | -1.909 | 0.000 | 290.417 | 0.000 | 0.000 |
| -9264.000 | 1355.000 | 578.825 | 1.284 | -1.033 | 0.000 | 329.886 | -39.469 | 0.000 |
| -9264.000 | 1520.000 | 579.265 | .440 | -.674 | 0.000 | 331.999 | -41.582 | 0.000 |
| -9264.000 | 1960.000 | 580.367 | 1.102 | -.219 | 0.000 | 331.999 | -41.582 | 0.000 |
| 9594.000 | 25.000 | 580.058 | 0.000 | 2.517 | 0.000 | 29.435 | 0.000 | 330.000 |
| 9594.000 | 155.000 | 580.661 | .603 | 1.836 | 0.000 | 61.801 | -32.367 | 330.000 |
| 9594.000 | 220.000 | 580.836 | .175 | 1.572 | 0.000 | 72.662 | -43.227 | 330.000 |
| 9594.000 | 435.000 | 581.247 | .410 | .879 | 0.000 | 98.092 | -68.657 | 330.000 |
| 10294.000 | 25.000 | 580.266 | 0.000 | .208 | 0.000 | 187.641 | 0.000 | 700.000 |
| 10294.000 | 155.000 | 581.156 | .891 | .495 | 0.000 | 190.400 | -2.759 | 700.000 |
| 10294.000 | 220.000 | 581.421 | .264 | .584 | 0.000 | 191.055 | -3.414 | 700.000 |
| 10294.000 | 435.000 | 582.057 | .636 | .810 | 0.000 | 192.647 | -5.005 | 700.000 |
| 10894.000 | 25.000 | 580.266 | 0.000 | .000 | 0.000 | 238.998 | 0.000 | 600.000 |
| 10894.000 | 155.000 | 581.162 | .896 | .005 | 0.000 | 244.668 | -5.670 | 600.000 |
| 10894.000 | 220.000 | 581.429 | .268 | .009 | 0.000 | 246.891 | -7.892 | 600.000 |
| 10894.000 | 435.000 | 582.078 | .648 | .021 | 0.000 | 252.268 | -13.270 | 600.000 |
| 11894.000 | 25.000 | 580.266 | 0.000 | .000 | 0.000 | 325.011 | 0.000 | 1000.000 |
| 11894.000 | 155.000 | 581.163 | .896 | .001 | 0.000 | 328.533 | -3.522 | 1000.000 |
| 11894.000 | 220.000 | 581.431 | .268 | .001 | 0.000 | 329.740 | -4.729 | 1000.000 |
| 11894.000 | 435.000 | 582.081 | .651 | .004 | 0.000 | 332.668 | -7.657 | 1000.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 1.000 | 0.000 | 100.316 | 0.000 |
| 2 | 1.000 | 0.000 | 110.266 | 9.950 |
| 3 | 1.000 | 0.000 | 113.723 | 13.407 |
| 4 | 1.000 | 0.000 | 116.487 | 16.171 |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Gibralter

3) WATERCOURSE: Frank and Poet Drain

4) DOCUMENT TYPE: 100 year

00BREAK00

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
```

Rec'd
looks reasonable 8/17/77

8/11/77
IGL datum
+ 1.43 ft. - USGS

```
C
1      CITY OF GIBRALTER        5555-23-01      PM = RICHARD ZANOTTI
T2      10 YEAR FLOOD
T3      FRANK AND POET DRAIN

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL      FQ

      -1.       2.        0.       0.  0.000000     0.00      0.0       0.   573.100    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN       ALLDC     IBW      CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3      1.000     10.000     11.000     12.000     14.000      8.000      4.000      0.000      0.000      0.000
NC       .050       .040       .030       .300       .500      0.000      0.000      0.000      0.000      0.000
QT      4.000    580.000    890.000   1020.000   1385.000      0.000      0.000      0.000      0.000      0.000

X1    600.000     31.000     20.000    103.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    576.600      0.000    574.200      2.000    574.900     20.000    571.500     25.000    570.300     30.000
GR    569.000     35.000    567.900     40.000    567.300     45.000    566.800     50.000    566.700     55.000
GR    566.500     60.000    566.800     65.000    567.100     70.000    567.100     75.000    569.100     80.000
GR    569.100     85.000    569.100     90.000    570.100     95.000    572.400    101.000    573.500    103.000
GR    573.900    115.000    572.400    117.000    570.600    125.000    573.100    132.000    574.900    135.000
GR    573.300    220.000    573.400    320.000    575.900    420.000    575.300    520.000    574.700    620.000
GR    575.100    680.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1   1100.000     25.000    300.000    320.000    500.000    500.000    500.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    200.000      0.000    500.000      0.000      0.000      0.000      0.000
GR    574.300      0.000    574.600    100.000    574.400    200.000    576.100    300.000    566.900    300.000
GR    566.300    302.000    565.700    304.000    565.400    305.000    565.600    306.000    566.200    310.000
GR    565.200    314.000    565.000    315.000    565.000    316.000    564.900    318.000    564.800    320.000
GR    576.100    320.000    574.500    400.000    574.300    500.000    574.600    600.000    576.400    700.000
GR    576.500    800.000    575.100    900.000    574.300   1000.000    574.400   1100.000    574.400   1200.000
NC       .018       .018       .018      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1   1101.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    200.000      0.000    500.000      0.000      0.000      0.000      0.000
BT     23.000      0.000    574.300      0.000    100.000    574.600      0.000    200.000    574.400      0.000
BT    300.000    576.100    567.500    302.000    576.100    571.500    304.000    576.100    573.500    305.000
BT    576.100    574.000    306.000    576.100    574.500    310.000    576.100    575.500    314.000    576.100
BT    574.500    315.000    576.100    574.000    316.000    576.100    573.500    318.000    576.100    571.500
BT    320.000    576.100    567.500    400.000    574.500      0.000    500.000    574.300      0.000    600.000
BT    574.600      0.000    700.000    576.400      0.000    800.000    576.500      0.000    900.000    575.100
BT      0.000   1000.000    574.300      0.000   1100.000    574.400      0.000   1200.000    574.400      0.000

X1   1127.000     25.000    300.000    320.000     26.000     26.000     26.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    200.000      0.000    500.000      0.000      0.000      0.000      0.000
BT     23.000      0.000    574.300      0.000    100.000    574.600      0.000    200.000    574.400      0.000
BT    300.000    576.100    567.500    302.000    576.100    571.500    304.000    576.100    573.500    305.000
BT    576.100    574.000    306.000    576.100    574.500    310.000    576.100    575.500    314.000    576.100
BT    574.500    315.000    576.100    574.000    316.000    576.100    573.500    318.000    576.100    571.500
BT    320.000    576.100    567.500    400.000    574.500      0.000    500.000    574.300      0.000    600.000
BT    574.600      0.000    700.000    576.400      0.000    800.000    576.500      0.000    900.000    575.100
BT      0.000   1000.000    574.300      0.000   1100.000    574.400      0.000   1200.000    574.400      0.000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 574.300 | 0.000 | 574.600 | 100.000 | 574.400 | 200.000 | 576.100 | 300.000 | 566.900 | 300.000 |
| GR | 566.300 | 302.000 | 565.700 | 304.000 | 565.400 | 305.000 | 565.600 | 306.000 | 566.200 | 310.000 |
| GR | 565.200 | 314.000 | 565.000 | 315.000 | 565.000 | 316.000 | 564.900 | 318.000 | 564.800 | 320.000 |
| GR | 576.100 | 320.000 | 574.500 | 400.000 | 574.300 | 500.000 | 574.600 | 600.000 | 576.400 | 700.000 |
| GR | 576.500 | 800.000 | 575.100 | 900.000 | 574.300 | 1000.000 | 574.400 | 1100.000 | 574.400 | 1200.000 |
| NC | .050 | .050 | .030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 1128.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 1178.000 | 23.000 | 35.000 | 136.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 25.000 | 0.000 | 145.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 576.800 | 0.000 | 574.000 | 3.000 | 573.500 | 35.000 | 572.400 | 36.000 | 571.000 | 40.000 |
| GR | 569.600 | 45.000 | 567.700 | 50.000 | 566.600 | 55.000 | 566.200 | 60.000 | 566.200 | 75.000 |
| GR | 568.000 | 95.000 | 568.800 | 105.000 | 569.400 | 115.000 | 569.700 | 120.000 | 570.400 | 125.000 |
| GR | 570.900 | 130.000 | 572.400 | 135.000 | 573.400 | 136.000 | 573.200 | 235.000 | 574.600 | 335.000 |
| GR | 576.200 | 440.000 | 575.600 | 535.000 | 575.900 | 635.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 1628.000 | 28.000 | 11.000 | 219.000 | 450.000 | 450.000 | 450.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 576.400 | 0.000 | 573.600 | 1.000 | 573.500 | 11.000 | 572.500 | 14.000 | 572.200 | 16.000 |
| GR | 571.500 | 21.000 | 570.900 | 26.000 | 570.700 | 31.000 | 570.500 | 36.000 | 570.000 | 41.000 |
| GR | 569.600 | 61.000 | 569.300 | 81.000 | 569.200 | 111.000 | 568.300 | 131.000 | 567.600 | 151.000 |
| GR | 568.900 | 171.000 | 569.500 | 181.000 | 569.700 | 191.000 | 570.300 | 201.000 | 571.500 | 211.000 |
| GR | 572.500 | 214.000 | 574.100 | 219.000 | 576.800 | 311.000 | 575.300 | 426.000 | 576.100 | 511.000 |
| GR | 576.000 | 611.000 | 574.700 | 711.000 | 577.300 | 786.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .055 | .055 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 2428.000 | 41.000 | 72.000 | 262.000 | 800.000 | 800.000 | 800.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 576.700 | 0.000 | 574.000 | 2.000 | 573.100 | 72.000 | 570.700 | 73.000 | 570.500 | 77.000 |
| GR | 570.500 | 82.000 | 570.500 | 87.000 | 570.600 | 92.000 | 570.300 | 97.000 | 570.300 | 102.000 |
| GR | 570.300 | 112.000 | 570.200 | 122.000 | 570.100 | 132.000 | 570.000 | 142.000 | 569.900 | 152.000 |
| GR | 569.500 | 162.000 | 569.300 | 172.000 | 568.700 | 182.000 | 567.900 | 192.000 | 567.600 | 197.000 |
| GR | 567.900 | 202.000 | 567.200 | 207.000 | 567.500 | 212.000 | 567.700 | 217.000 | 568.500 | 222.000 |
| GR | 569.400 | 227.000 | 570.200 | 232.000 | 570.400 | 237.000 | 570.400 | 242.000 | 570.700 | 247.000 |
| GR | 569.700 | 252.000 | 570.200 | 257.000 | 571.000 | 259.000 | 574.300 | 262.000 | 575.400 | 372.000 |
| GR | 575.300 | 472.000 | 576.300 | 572.000 | 577.000 | 672.000 | 577.100 | 772.000 | 576.400 | 872.000 |
| GR | 576.400 | 897.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 3228.000 | 27.000 | 800.000 | 853.000 | 800.000 | 800.000 | 800.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 574.700 | 0.000 | 577.300 | 100.000 | 576.000 | 200.000 | 575.500 | 300.000 | 576.600 | 400.000 |
| GR | 576.800 | 500.000 | 577.000 | 600.000 | 576.300 | 700.000 | 576.000 | 800.000 | 572.800 | 803.000 |
| GR | 571.900 | 807.000 | 569.900 | 810.000 | 568.400 | 815.000 | 567.600 | 820.000 | 567.500 | 825.000 |
| GR | 567.900 | 830.000 | 568.700 | 835.000 | 570.200 | 840.000 | 571.800 | 843.000 | 573.300 | 850.000 |
| GR | 579.000 | 853.000 | 579.600 | 880.000 | 578.700 | 900.000 | 578.500 | 1000.000 | 578.900 | 1042.000 |
| GR | 575.000 | 1054.000 | 577.400 | 1094.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 580.000 | 610.000 | 615.000 | 635.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 3778.000 | 27.000 | 800.000 | 855.000 | 450.000 | 600.000 | 550.000 | 0.000 | 0.000 | 0.000 |
| GR | 579.600 | 0.000 | 580.300 | 100.000 | 579.500 | 200.000 | 576.700 | 300.000 | 577.900 | 400.000 |
| GR | 577.600 | 500.000 | 577.100 | 600.000 | 577.200 | 700.000 | 575.200 | 800.000 | 570.600 | 801.000 |
| GR | 569.500 | 805.000 | 568.400 | 810.000 | 568.000 | 815.000 | 567.800 | 820.000 | 567.200 | 825.000 |
| GR | 569.000 | 830.000 | 569.900 | 835.000 | 570.600 | 840.000 | 571.200 | 845.000 | 572.300 | 847.000 |
| GR | 573.400 | 850.000 | 574.400 | 855.000 | 575.400 | 900.000 | 574.700 | 981.000 | 573.000 | 995.000 |
| GR | 573.800 | 1000.000 | 575.300 | 1037.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 3828.000 | 29.000 | 1200.000 | 1225.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 1170.000 | 0.000 | 1400.000 | 0.000 | 574.650 | 574.650 | 0.000 |
| GR | 582.000 | 0.000 | 581.700 | 100.000 | 581.100 | 200.000 | 580.400 | 300.000 | 579.500 | 400.000 |
| GR | 578.400 | 500.000 | 577.400 | 600.000 | 576.400 | 700.000 | 575.400 | 800.000 | 575.000 | 900.000 |
| GR | 575.600 | 1000.000 | 576.400 | 1100.000 | 574.500 | 1120.000 | 569.500 | 1200.000 | 568.500 | 1205.000 |
| GR | 567.200 | 1210.000 | 567.100 | 1215.000 | 567.200 | 1220.000 | 568.100 | 1225.000 | 574.300 | 1290.000 |
| GR | 575.700 | 1300.000 | 575.100 | 1400.000 | 575.100 | 1500.000 | 575.300 | 1600.000 | 575.700 | 1700.000 |
| GR | 576.800 | 1800.000 | 577.200 | 1900.000 | 577.200 | 2000.000 | 577.200 | 2100.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | NC | .018 | .018 | .015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | X1 | 3829.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| | X3 | 10.000 | 0.000 | 0.000 | 1170.000 | 0.000 | 1400.000 | 0.000 | 574.650 | 574.650 | 0.000 |
| | SB | 0.000 | 1.596 | 3.000 | 0.000 | 22.730 | 0.000 | 165.900 | 0.000 | 567.100 | 567.100 |
| 6 | | | | | | | | | | | |
| 1 | X1 | 3884.000 | 0.000 | 0.000 | 0.000 | 55.000 | 55.000 | 55.000 | 0.000 | 0.000 | 0.000 |
| 2 | X2 | 0.000 | 0.000 | 1.000 | 574.400 | 575.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 3 | X3 | 10.000 | 0.000 | 0.000 | 1170.000 | 0.000 | 1400.000 | 0.000 | 575.100 | 575.100 | 0.000 |
| 4 | BT | 7.000 | 1170.000 | 577.100 | 0.000 | 1200.000 | 577.300 | 569.500 | 1200.000 | 577.300 | 574.400 |
| 5 | BT | 1225.000 | 577.300 | 574.400 | 1225.000 | 577.300 | 568.100 | 1300.000 | 575.700 | 0.000 | 1400.000 |
| 6 | BT | 575.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 7 | NC | .080 | .050 | .032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 8 | | | | | | | | | | | |
| 9 | X1 | 3885.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| 10 | X3 | 10.000 | 0.000 | 0.000 | 1170.000 | 0.000 | 1400.000 | 0.000 | 575.100 | 575.100 | 0.000 |
| 11 | | | | | | | | | | | |
| 12 | X1 | 4035.000 | 21.000 | 340.000 | 398.000 | 200.000 | 120.000 | 150.000 | 0.000 | 0.000 | 0.000 |
| 13 | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 14 | GR | 572.800 | 0.000 | 573.400 | 40.000 | 578.100 | 140.000 | 579.800 | 180.000 | 579.100 | 240.000 |
| 15 | GR | 576.000 | 340.000 | 572.300 | 356.000 | 569.600 | 356.000 | 568.400 | 360.000 | 567.600 | 365.000 |
| 16 | GR | 567.300 | 370.000 | 567.200 | 375.000 | 568.100 | 380.000 | 568.900 | 385.000 | 570.200 | 390.000 |
| 17 | GR | 572.000 | 395.000 | 572.300 | 396.000 | 573.500 | 398.000 | 574.100 | 440.000 | 575.100 | 540.000 |
| 18 | GR | 576.400 | 591.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 19 | | | | | | | | | | | |
| 20 | X1 | 4265.000 | 26.000 | 1000.000 | 1018.000 | 250.000 | 1.000 | 230.000 | .950 | 0.000 | 0.000 |
| 21 | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1315.000 | 0.000 | 574.000 | 574.000 | 0.000 |
| 22 | GR | 578.500 | 0.000 | 578.900 | 100.000 | 579.700 | 200.000 | 580.500 | 300.000 | 581.300 | 400.000 |
| 23 | GR | 581.500 | 500.000 | 581.300 | 600.000 | 579.700 | 700.000 | 577.500 | 800.000 | 575.700 | 900.000 |
| 24 | GR | 575.000 | 950.000 | 567.900 | 1000.000 | 567.100 | 1005.000 | 567.000 | 1009.000 | 567.500 | 1015.000 |
| 25 | GR | 567.500 | 1018.000 | 575.000 | 1060.000 | 575.000 | 1100.000 | 575.200 | 1200.000 | 575.200 | 1300.000 |
| 26 | GR | 575.500 | 1400.000 | 575.800 | 1500.000 | 576.100 | 1600.000 | 576.500 | 1700.000 | 577.500 | 1800.000 |
| 27 | GR | 576.600 | 1900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 28 | NC | .018 | .018 | .015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 29 | | | | | | | | | | | |
| 30 | X1 | 4266.000 | 26.000 | 1000.000 | 1018.000 | 1.000 | 1.000 | 1.000 | .950 | 0.000 | 0.000 |
| 31 | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1315.000 | 0.000 | 574.000 | 574.000 | 0.000 |
| 32 | GR | 578.500 | 0.000 | 578.900 | 100.000 | 579.700 | 200.000 | 580.500 | 300.000 | 581.300 | 400.000 |
| 33 | GR | 581.500 | 500.000 | 581.300 | 600.000 | 579.700 | 700.000 | 577.500 | 800.000 | 575.700 | 900.000 |
| 34 | GR | 575.000 | 950.000 | 567.900 | 1000.000 | 567.100 | 1005.000 | 567.000 | 1009.000 | 567.500 | 1015.000 |
| 35 | GR | 567.500 | 1018.000 | 575.000 | 1060.000 | 575.000 | 1100.000 | 575.200 | 1200.000 | 575.200 | 1300.000 |
| 36 | GR | 575.500 | 1400.000 | 575.800 | 1500.000 | 576.100 | 1600.000 | 576.500 | 1700.000 | 577.500 | 1800.000 |
| 37 | GR | 576.600 | 1900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 38 | SB | 0.000 | 1.610 | 3.000 | 0.000 | 16.170 | 0.000 | 95.400 | 0.000 | 567.000 | 567.000 |
| 39 | | | | | | | | | | | |
| 40 | X1 | 4313.000 | 26.000 | 1000.000 | 1018.000 | 47.000 | 47.000 | 47.000 | .950 | 0.000 | 0.000 |
| 41 | X2 | 0.000 | 0.000 | 1.000 | 572.900 | 575.000 | 0.000 | 0.000 | 0.000 | .950 | 0.000 |
| 42 | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1315.000 | 0.000 | 575.000 | 575.000 | 0.000 |
| 43 | BT | 17.000 | 0.000 | 578.500 | 0.000 | 100.000 | 578.900 | 0.000 | 200.000 | 579.700 | 0.000 |
| 44 | BT | 300.000 | 580.500 | 0.000 | 400.000 | 581.300 | 0.000 | 500.000 | 581.500 | 0.000 | 600.000 |
| 45 | BT | 581.300 | 0.000 | 700.000 | 579.700 | 0.000 | 800.000 | 577.500 | 0.000 | 900.000 | 575.700 |
| 46 | BT | 0.000 | 1000.000 | 575.000 | 567.900 | 1000.000 | 575.000 | 572.900 | 1018.000 | 575.000 | 572.900 |
| 47 | BT | 1018.000 | 575.000 | 567.500 | 1100.000 | 575.000 | 0.000 | 1200.000 | 575.200 | 0.000 | 1315.000 |
| 48 | BT | 575.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 49 | GR | 578.500 | 0.000 | 578.900 | 100.000 | 579.700 | 200.000 | 580.500 | 300.000 | 581.300 | 400.000 |
| 50 | GR | 581.500 | 500.000 | 581.300 | 600.000 | 579.700 | 700.000 | 577.500 | 800.000 | 575.700 | 900.000 |
| 51 | GR | 575.000 | 950.000 | 567.900 | 1000.000 | 567.100 | 1005.000 | 567.000 | 1009.000 | 567.500 | 1015.000 |
| 52 | GR | 567.500 | 1018.000 | 575.000 | 1060.000 | 575.000 | 1100.000 | 575.200 | 1200.000 | 575.200 | 1315.000 |
| 53 | GR | 575.500 | 1400.000 | 575.800 | 1500.000 | 576.100 | 1600.000 | 576.500 | 1700.000 | 577.500 | 1800.000 |
| 54 | GR | 576.600 | 1900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 55 | NC | .080 | .060 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 56 | | | | | | | | | | | |
| 57 | X1 | 4314.000 | 26.000 | 1000.000 | 1018.000 | 1.000 | 1.000 | 1.000 | .950 | 0.000 | 0.000 |
| | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1315.000 | 0.000 | 575.000 | 575.000 | 0.000 |
| | GR | 578.500 | 0.000 | 578.900 | 100.000 | 579.700 | 200.000 | 580.500 | 300.000 | 581.300 | 400.000 |
| | GR | 581.500 | 500.000 | 581.300 | 600.000 | 579.700 | 700.000 | 577.500 | 800.000 | 575.700 | 900.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 575.000 | 950.000 | 567.900 | 1000.000 | 567.100 | 1005.000 | 567.000 | 1009.000 | 567.500 | 1015.000 |
| GR | 567.500 | 1018.000 | 575.000 | 1060.000 | 575.000 | 1100.000 | 575.200 | 1200.000 | 575.200 | 1300.000 |
| GR | 575.500 | 1400.000 | 575.800 | 1500.000 | 576.100 | 1600.000 | 576.500 | 1700.000 | 577.500 | 1800.000 |
| GR | 576.600 | 1900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .045 | .045 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 4524.000 | 16.000 | 270.000 | 330.000 | 210.000 | 210.000 | 210.000 | 0.000 | 0.000 | 0.000 |
| GR | 580.700 | 0.000 | 580.600 | 40.000 | 578.700 | 130.000 | 576.600 | 180.000 | 574.600 | 210.000 |
| GR | 573.800 | 250.000 | 573.800 | 270.000 | 571.300 | 275.000 | 567.600 | 300.000 | 571.500 | 325.000 |
| GR | 573.200 | 330.000 | 573.200 | 440.000 | 574.600 | 540.000 | 576.600 | 625.000 | 578.600 | 690.000 |
| GR | 578.600 | 710.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 5024.000 | 14.000 | 540.000 | 605.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 453.000 | 0.000 | 687.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 581.100 | 0.000 | 580.600 | 160.000 | 580.600 | 360.000 | 578.600 | 410.000 | 576.500 | 430.000 |
| GR | 575.000 | 460.000 | 575.000 | 540.000 | 572.300 | 545.000 | 567.700 | 570.000 | 572.300 | 595.000 |
| GR | 575.100 | 605.000 | 575.200 | 670.000 | 575.200 | 800.000 | 576.600 | 1160.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 5524.000 | 16.000 | 640.000 | 755.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 550.000 | 0.000 | 780.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 582.100 | 0.000 | 582.100 | 335.000 | 580.100 | 375.000 | 578.200 | 445.000 | 576.000 | 490.000 |
| GR | 574.200 | 520.000 | 574.200 | 635.000 | 574.100 | 640.000 | 571.100 | 650.000 | 567.200 | 670.000 |
| GR | 570.500 | 695.000 | 572.500 | 755.000 | 574.000 | 820.000 | 576.000 | 850.000 | 576.000 | 1250.000 |
| GR | 580.100 | 1320.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 5924.000 | 12.000 | 675.000 | 725.000 | 400.000 | 400.000 | 400.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 625.000 | 0.000 | 817.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 584.400 | 0.000 | 584.700 | 240.000 | 576.600 | 410.000 | 574.600 | 560.000 | 572.700 | 675.000 |
| GR | 566.600 | 700.000 | 572.600 | 725.000 | 574.600 | 800.000 | 576.700 | 840.000 | 576.700 | 1220.000 |
| GR | 580.600 | 1285.000 | 582.600 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 6024.000 | 21.000 | 435.000 | 510.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 418.000 | 0.000 | 528.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 583.100 | 0.000 | 583.100 | 55.000 | 585.100 | 85.000 | 585.100 | 150.000 | 583.100 | 185.000 |
| GR | 578.300 | 220.000 | 576.300 | 240.000 | 575.300 | 310.000 | 575.300 | 425.000 | 575.200 | 435.000 |
| GR | 570.300 | 440.000 | 567.400 | 465.000 | 570.300 | 490.000 | 572.900 | 510.000 | 574.400 | 560.000 |
| GR | 576.500 | 570.000 | 578.500 | 600.000 | 578.500 | 675.000 | 576.600 | 740.000 | 576.600 | 825.000 |
| GR | 577.600 | 915.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 595.000 | 620.000 | 625.000 | 645.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 6199.000 | 30.000 | 1138.000 | 1162.000 | 175.000 | 175.000 | 175.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 975.000 | 0.000 | 1275.000 | 0.000 | 577.400 | 577.400 | 0.000 |
| GR | 582.600 | 0.000 | 583.600 | 400.000 | 584.600 | 800.000 | 585.000 | 980.000 | 585.200 | 1080.000 |
| GR | 582.000 | 1100.000 | 571.200 | 1138.000 | 569.600 | 1139.000 | 569.200 | 1140.000 | 569.200 | 1142.000 |
| GR | 569.700 | 1143.000 | 571.200 | 1144.000 | 571.200 | 1144.000 | 571.200 | 1147.000 | 571.200 | 1147.000 |
| GR | 569.700 | 1148.000 | 569.200 | 1149.000 | 569.200 | 1151.000 | 569.700 | 1152.000 | 571.200 | 1153.000 |
| GR | 571.200 | 1153.000 | 571.200 | 1156.000 | 571.200 | 1156.000 | 569.700 | 1157.000 | 569.200 | 1158.000 |
| GR | 569.200 | 1160.000 | 569.700 | 1161.000 | 571.200 | 1162.000 | 585.300 | 1200.000 | 585.500 | 1370.000 |
| NC | .020 | .020 | .032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 6200.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 975.000 | 0.000 | 1275.000 | 0.000 | 577.400 | 577.400 | 0.000 |
| SB | 0.000 | 3.490 | 3.000 | 0.000 | 14.140 | 0.000 | 84.820 | 0.000 | 569.200 | 569.200 |
| | | | | | | | | | | |
| X1 | 6290.000 | 0.000 | 0.000 | 0.000 | 90.000 | 90.000 | 90.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 575.200 | 585.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 975.000 | 0.000 | 1275.000 | 0.000 | 585.000 | 585.000 | 0.000 |
| BT | 27.000 | 975.000 | 585.000 | 0.000 | 1080.000 | 585.200 | 0.000 | 1138.000 | 585.300 | 571.200 |
| BT | 1138.000 | 585.400 | 572.200 | 1139.000 | 585.400 | 574.700 | 1140.000 | 585.400 | 575.200 | 1142.000 |
| BT | 585.400 | 575.200 | 1143.000 | 585.400 | 574.700 | 1144.000 | 585.400 | 572.200 | 1144.000 | 585.400 |
| BT | 571.200 | 1147.000 | 585.400 | 571.200 | 1147.000 | 585.400 | 572.200 | 1148.000 | 585.400 | 574.700 |
| BT | 1149.000 | 585.400 | 575.200 | 1151.000 | 585.400 | 575.200 | 1152.000 | 585.400 | 574.700 | 1153.000 |
| BT | 585.400 | 572.200 | 1153.000 | 585.400 | 571.200 | 1156.000 | 585.400 | 571.200 | 1156.000 | 585.400 |
| BT | 572.200 | 1157.000 | 585.400 | 574.700 | 1158.000 | 585.400 | 575.200 | 1160.000 | 585.400 | 575.200 |
| BT | 1161.000 | 585.400 | 574.700 | 1162.000 | 585.400 | 572.200 | 1162.000 | 585.400 | 571.200 | 1275.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | .050 | .050 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.0 0 | 0.000 |
| X1 | 6291.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 975.000 | 0.000 | 1275.000 | 0.000 | 585.000 | 585.000 | 0.000 |
| X1 | 6313.000 | 15.000 | 225.000 | 270.000 | 22.000 | 22.000 | 22.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 213.000 | 0.000 | 281.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 587.500 | 0.000 | 587.400 | 60.000 | 587.300 | 70.000 | 577.700 | 115.000 | 576.300 | 125.000 |
| GR | 575.400 | 175.000 | 575.400 | 210.000 | 575.300 | 225.000 | 570.100 | 230.000 | 569.100 | 250.000 |
| GR | 570.200 | 270.000 | 572.200 | 275.000 | 574.400 | 365.000 | 576.600 | 605.000 | 576.600 | 695.000 |
| X1 | 7013.000 | 15.000 | 220.000 | 295.000 | 700.000 | 700.000 | 700.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 415.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 587.500 | 0.000 | 587.400 | 10.000 | 580.500 | 40.000 | 578.500 | 75.000 | 576.500 | 125.000 |
| GR | 576.500 | 160.000 | 576.400 | 220.000 | 572.000 | 230.000 | 569.000 | 250.000 | 571.300 | 270.000 |
| GR | 573.300 | 295.000 | 573.500 | 415.000 | 574.500 | 535.000 | 574.500 | 605.000 | 574.500 | 800.000 |
| NC | .050 | .050 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 7513.000 | 17.000 | 230.000 | 270.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 420.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 587.700 | 0.000 | 587.600 | 10.000 | 581.600 | 30.000 | 581.600 | 55.000 | 580.600 | 90.000 |
| GR | 578.600 | 130.000 | 576.500 | 170.000 | 576.400 | 230.000 | 572.000 | 235.000 | 568.000 | 250.000 |
| GR | 571.000 | 265.000 | 574.700 | 270.000 | 573.700 | 430.000 | 573.600 | 735.000 | 574.600 | 860.000 |
| GR | 576.600 | 865.000 | 578.500 | 880.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 8013.000 | 30.000 | 230.000 | 290.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 150.000 | 0.000 | 350.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 587.900 | 0.000 | 587.800 | 10.000 | 577.900 | 45.000 | 577.900 | 115.000 | 576.900 | 150.000 |
| GR | 576.300 | 230.000 | 572.300 | 235.000 | 568.600 | 250.000 | 572.300 | 265.000 | 574.600 | 270.000 |
| GR | 574.800 | 275.000 | 576.800 | 280.000 | 578.800 | 290.000 | 576.900 | 300.000 | 574.800 | 305.000 |
| GR | 573.800 | 345.000 | 573.800 | 455.000 | 574.800 | 545.000 | 576.700 | 550.000 | 578.700 | 555.000 |
| GR | 579.100 | 575.000 | 578.500 | 595.000 | 574.700 | 600.000 | 574.700 | 680.000 | 579.400 | 690.000 |
| GR | 579.900 | 705.000 | 579.300 | 715.000 | 574.700 | 725.000 | 574.100 | 745.000 | 574.100 | 920.000 |
| X1 | 8445.000 | 21.000 | 280.000 | 360.000 | 432.000 | 432.000 | 432.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 283.000 | 0.000 | 310.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 582.700 | 0.000 | 582.700 | 30.000 | 580.600 | 100.000 | 578.600 | 140.000 | 576.700 | 175.000 |
| GR | 576.700 | 255.000 | 578.700 | 260.000 | 578.700 | 280.000 | 576.600 | 283.000 | 574.600 | 286.000 |
| GR | 573.200 | 289.000 | 573.200 | 292.000 | 568.600 | 300.000 | 573.300 | 310.000 | 573.400 | 315.000 |
| GR | 573.400 | 350.000 | 574.600 | 353.000 | 576.600 | 357.000 | 578.600 | 360.000 | 580.600 | 385.000 |
| GR | 580.600 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 8473.000 | 18.000 | 415.000 | 427.500 | 28.000 | 28.000 | 28.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 581.900 | 581.900 | 0.000 |
| GR | 583.200 | 0.000 | 582.900 | 100.000 | 582.500 | 200.000 | 582.200 | 300.000 | 581.900 | 350.000 |
| GR | 577.400 | 400.000 | 569.100 | 412.000 | 569.100 | 415.000 | 569.000 | 415.000 | 569.000 | 419.000 |
| GR | 569.000 | 423.000 | 569.000 | 427.500 | 569.100 | 427.500 | 569.100 | 431.000 | 573.400 | 437.000 |
| GR | 581.900 | 470.000 | 581.400 | 587.000 | 581.100 | 837.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .018 | .020 | .031 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 8474.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 581.900 | 581.900 | 0.000 |
| SB | 0.000 | 1.800 | 3.000 | 0.000 | 10.570 | 0.000 | 89.000 | 0.000 | 569.000 | 569.000 |
| X1 | 8510.000 | 0.000 | 0.000 | 0.000 | 36.000 | 36.000 | 36.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 577.400 | 581.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 581.900 | 581.900 | 0.000 |
| BT | 18.000 | 0.000 | 583.200 | 0.000 | 100.000 | 582.900 | 0.000 | 200.000 | 582.500 | 0.000 |
| BT | 300.000 | 582.200 | 0.000 | 400.000 | 581.900 | 0.000 | 400.000 | 581.900 | 0.000 | 412.000 |
| BT | 581.900 | 0.000 | 415.000 | 581.900 | 569.100 | 415.000 | 581.900 | 574.600 | 419.000 | 581.900 |
| BT | 577.400 | 423.000 | 581.900 | 577.400 | 427.500 | 581.900 | 574.600 | 427.500 | 581.900 | 569.100 |
| BT | 431.000 | 581.900 | 0.000 | 437.000 | 581.900 | 0.000 | 437.000 | 581.900 | 0.000 | 587.000 |
| BT | 581.400 | 0.000 | 837.000 | 581.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .050 | .050 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 8511.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 581.900 | 581.900 | .000 |
| QT | 4.000 | 740.000 | 855.000 | 880.000 | 915.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 8681.000 | 0.000 | 0.000 | 0.000 | 1.000 | 250.000 | 170.000 | 0.000 | .500 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 8851.000 | 9.000 | 400.000 | 415.000 | 250.000 | 1.000 | 170.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 584.200 | 584.200 | 0.000 |
| GR | 586.000 | 0.000 | 585.100 | 200.000 | 584.400 | 350.000 | 570.100 | 400.000 | 570.100 | 407.500 |
| GR | 570.100 | 415.000 | 584.100 | 455.000 | 584.000 | 615.000 | 583.900 | 815.000 | 0.000 | 0.000 |
| NC | .018 | .018 | .015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 8852.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 584.200 | 584.200 | 0.000 |
| SB | 0.000 | 1.530 | 3.000 | 0.000 | 15.000 | 0.000 | 127.400 | 0.000 | 570.100 | 570.100 |
| X1 | 8868.000 | 0.000 | 0.000 | 0.000 | 16.000 | 16.000 | 16.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 578.600 | 584.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 584.200 | 584.200 | 0.000 |
| BT | 10.000 | 0.000 | 586.000 | 0.000 | 200.000 | 585.100 | 0.000 | 400.000 | 584.200 | 570.100 |
| BT | 400.000 | 584.200 | 578.600 | 407.500 | 584.200 | 578.600 | 415.000 | 584.200 | 578.600 | 415.000 |
| BT | 584.200 | 570.100 | 455.000 | 584.100 | 0.000 | 615.000 | 584.000 | 0.000 | 815.000 | 583.900 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .050 | .040 | .030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 8869.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 584.200 | 584.200 | 0.000 |
| X1 | 8874.000 | 0.000 | 0.000 | 0.000 | 5.000 | 5.000 | 5.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 395.000 | 0.000 | 420.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 765.000 | 1010.000 | 1100.000 | 1350.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 9177.000 | 15.000 | 282.000 | 318.000 | 303.000 | 303.000 | 303.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 565.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 582.600 | 0.000 | 582.600 | 90.000 | 580.600 | 95.000 | 578.600 | 100.000 | 576.600 | 175.000 |
| GR | 575.400 | 267.000 | 575.400 | 277.000 | 575.300 | 282.000 | 572.600 | 285.000 | 569.700 | 300.000 |
| GR | 572.100 | 315.000 | 573.700 | 318.000 | 573.800 | 335.000 | 573.800 | 770.000 | 574.700 | 900.000 |
| X1 | 9677.000 | 19.000 | 472.000 | 507.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 755.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 584.700 | 0.000 | 584.700 | 130.000 | 582.600 | 200.000 | 580.600 | 240.000 | 578.600 | 280.000 |
| GR | 576.500 | 320.000 | 574.600 | 350.000 | 573.800 | 455.000 | 573.700 | 472.000 | 572.500 | 475.000 |
| GR | 569.500 | 490.000 | 572.000 | 504.000 | 573.500 | 507.000 | 573.600 | 512.000 | 573.600 | 890.000 |
| GR | 574.600 | 980.000 | 576.000 | 1130.000 | 576.700 | 1150.000 | 577.100 | 1190.000 | 0.000 | 0.000 |
| X1 | 10177.000 | 21.000 | 640.000 | 680.000 | 500.000 | 500.000 | 500.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 927.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 581.500 | 0.000 | 583.400 | 60.000 | 584.600 | 140.000 | 583.900 | 225.000 | 582.800 | 315.000 |
| GR | 580.600 | 355.000 | 578.600 | 380.000 | 576.600 | 400.000 | 574.600 | 420.000 | 573.900 | 630.000 |
| GR | 573.800 | 640.000 | 572.600 | 645.000 | 569.600 | 660.000 | 572.100 | 675.000 | 573.600 | 680.000 |
| GR | 573.700 | 690.000 | 573.700 | 1050.000 | 574.700 | 1130.000 | 576.700 | 1230.000 | 578.700 | 1255.000 |
| GR | 578.700 | 1360.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 10622.000 | 14.000 | 435.000 | 460.000 | 445.000 | 445.000 | 445.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 100.000 | 0.000 | 714.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 580.400 | 0.000 | 580.400 | 60.000 | 578.600 | 80.000 | 576.600 | 100.000 | 574.600 | 130.000 |
| GR | 573.700 | 410.000 | 573.600 | 435.000 | 569.300 | 450.000 | 573.700 | 460.000 | 573.800 | 475.000 |
| GR | 574.600 | 630.000 | 576.600 | 825.000 | 578.600 | 910.000 | 579.000 | 1030.000 | 0.000 | 0.000 |
| QT | 4.000 | 770.000 | 1015.000 | 1105.000 | 1365.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 10654.000 | 22.000 | 410.000 | 432.000 | 32.000 | 32.000 | 32.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 680.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 578.800 | 0.000 | 578.100 | 200.000 | 577.300 | 401.000 | 577.300 | 410.000 | 572.700 | 410.000 |
| GR | 570.700 | 412.000 | 570.700 | 414.000 | 570.700 | 416.000 | 570.700 | 416.000 | 570.700 | 418.000 |
| GR | 570.700 | 418.000 | 570.700 | 420.000 | 570.700 | 422.000 | 570.700 | 424.000 | 570.700 | 426.000 |
| GR | 570.70 | 428.000 | 570.700 | 430.000 | 572.700 | 432.000 | 577.300 | 432.000 | 577.300 | 450.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 577.400 | 800.000 | 578.600 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .020 | .018 | .012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.02 | 0.018 | 0.012 | | | | | | | |
| X1 | 10655.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 680.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 24.000 | 0.000 | 578.800 | 0.000 | 200.000 | 578.100 | 0.000 | 401.000 | 577.300 | 0.000 |
| BT | 401.000 | 577.300 | 0.000 | 406.000 | 577.300 | 0.000 | 410.000 | 577.300 | 572.700 | 412.000 |
| BT | 577.300 | 574.700 | 414.000 | 577.300 | 574.700 | 416.000 | 577.300 | 572.700 | 416.000 | 577.300 |
| BT | 570.700 | 418.000 | 577.300 | 570.700 | 418.000 | 577.300 | 572.700 | 420.000 | 577.300 | 574.700 |
| BT | 422.000 | 577.300 | 574.700 | 424.000 | 577.300 | 572.700 | 424.000 | 577.300 | 570.700 | 426.000 |
| BT | 577.300 | 570.700 | 426.000 | 577.300 | 572.700 | 428.000 | 577.300 | 574.700 | 430.000 | 577.300 |
| BT | 574.700 | 432.000 | 577.300 | 572.700 | 435.000 | 577.300 | 0.000 | 450.000 | 577.300 | 0.000 |
| BT | 680.000 | 577.350 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 10693.000 | 0.000 | 0.000 | 0.000 | 38.000 | 38.000 | 38.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 680.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .045 | .045 | .032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 10694.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 680.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .055 | .055 | .035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 580.000 | 890.000 | 1020.000 | 1385.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | -3228.000 | 25.000 | 800.000 | 853.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 574.700 | 0.000 | 577.300 | 100.000 | 576.000 | 200.000 | 575.500 | 300.000 | 576.600 | 400.000 |
| GR | 576.800 | 500.000 | 577.000 | 600.000 | 576.300 | 700.000 | 576.000 | 800.000 | 572.800 | 803.000 |
| GR | 571.900 | 807.000 | 569.900 | 810.000 | 568.400 | 815.000 | 567.600 | 820.000 | 567.500 | 825.000 |
| GR | 567.900 | 830.000 | 568.700 | 835.000 | 570.200 | 840.000 | 571.800 | 843.000 | 573.300 | 850.000 |
| GR | 579.000 | 853.000 | 579.600 | 880.000 | 578.700 | 900.000 | 578.500 | 1000.000 | 578.900 | 1042.000 |
| NC | .020 | .020 | .018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 5.000 | 300.000 | 425.000 | 765.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 3353.000 | 8.000 | 0.000 | 700.000 | 200.000 | 50.000 | 125.000 | 0.000 | 0.000 | 0.000 |
| GR | 575.100 | 0.000 | 575.100 | 100.000 | 575.300 | 200.000 | 575.700 | 300.000 | 576.800 | 400.000 |
| GR | 577.200 | 500.000 | 577.200 | 600.000 | 577.200 | 700.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

```
**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
**********************************************


T1       CITY OF GIBRALTER          5555-23-01      PM = RICHARD ZANOTTI
T2       100 YEAR FLOOD
T3          FRANK AND POET DRAIN

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
          0.        4.         0.         0.  0.000000       0.00       0.0         0.   573.100      0.000
J2   NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
        3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

CCHV= .300 CEHV= .500

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| | | | | | | | | | |
| | 500' D/S FROM D/S FACE OF S. GIBRALTAR RD BRIDGE | | | | | | SEC. A | | |
| 600.00 | 6.60 | 573.10 | 0.00 | 573.10 | 573.22 | .12 | 0.00 | 0.00 | 574.90 |
| 1020. | 0. | 999. | 21. | 0. | 362. | 22. | 0. | 0. | 573.50 |
| 0.00 | 0.00 | 2.76 | .95 | .050 | .030 | .040 | 0.000 | 566.50 | 22.65 |
| .000425 | 0. | 0. | 0. | 0 | 0 | 1 | 0.00 | 95.56 | 132.00 |

IGL Datum

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | 200.0 | 500.0 | TYPE= | 1 | TARGET= | 300.000 | | |
| 1100.00 | 8.44 | 573.24 | 0.00 | 0.00 | 573.94 | .69 | .43 | .29 | 576.10 |
| 1020. | 0. | 1020. | 0. | 0. | 152. | 0. | 3. | 1. | 576.10 |
| .02 | 0.00 | 6.69 | 0.00 | .050 | .030 | .040 | .030 | 564.80 | 300.00 |
| .002585 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 20.00 | 320.00 |

NORMAL BRIDGE,NRD=23 MIN ELTRD= 574.30 MAX ELLC= 575.50

3470 ENCROACHMENT STATIONS= 200.0 500.0 TYPE= 1 TARGET= 300.000

D/S FACE OF S. GIBRALTAR RD BRIDGE, BS #1 SEC. B

CONCRETE ARCH BRIDGE, WITH HEADWALLS, NO WINGWALLS

LENGTH=26.4 FT., SPAN=20 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1101.00 | 8.33 | 573.13 | 0.00 | 0.00 | 574.05 | .92 | .00 | .11 | 576.10 |
| 1020. | 0. | 1020. | 0. | 0. | 132. | 0. | 3. | 1. | 576.10 |
| .02 | 0.00 | 7.70 | 0.00 | .018 | .018 | .018 | .030 | 564.80 | 300.00 |
| .001820 | 1. | 1. | 1. | 2 | 0 | 1 | -17.78 | 20.00 | 320.00 |

NORMAL BRIDGE,NRD=23 MIN ELTRD= 574.30 MAX ELLC= 575.50

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | 200.0 | 500.0 | TYPE= | 1 | TARGET= | 300.000 | | |
| 1127.00 | 8.39 | 573.19 | 0.00 | 0.00 | 574.10 | .91 | .05 | .00 | 576.10 |
| 1020. | 0. | 1020. | 0. | 0. | 133. | 0. | 3. | 1. | 576.10 |
| .02 | 0.00 | 7.65 | 0.00 | .018 | .018 | .018 | .029 | 564.80 | 300.00 |
| .001791 | 26. | 26. | 26. | 0 | 0 | 1 | -18.13 | 20.00 | 320.00 |

3470 ENCROACHMENT STATIONS= 200.0 500.0 TYPE= 1 TARGET= 300.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1128.00 | 8.74 | 573.54 | 0.00 | 0.00 | 574.18 | .64 | .00 | .08 | 576.10 |
| 1020. | 0. | 1020. | 0. | 0. | 159. | 0. | 3. | 1. | 576.10 |
| .02 | 0.00 | 6.43 | 0.00 | .050 | .030 | .050 | .029 | 564.80 | 300.00 |
| .002322 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 20.00 | 320.00 |

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 25.0 145.0 TYPE= 1 TARGET= 120.000

50' U/S FROM U/S FACE OF S. GIBRALTAR RD BRIDGE, VS #2 SEC. C

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1178.00 | 8.13 | 574.33 | 0.00 | 0.00 | 574.38 | .05 | .02 | .18 | 573.50 |
| 1020. | 2. | 1015. | 3. | 8. | 593. | 8. | 4. | 1. | 573.40 |
| .03 | .27 | 1.71 | .31 | .050 | .030 | .050 | .029 | 566.20 | 25.00 |
| .000116 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 120.00 | 145.00 |

500' U/S FROM U/S FACE OF S. GIBRALTAR RD BRIDGE, VS #3 SEC. D

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1628.00 | 6.80 | 574.40 | 0.00 | 0.00 | 574.42 | .02 | .03 | .01 | 573.50 |
| 1020. | 2. | 1018. | 0. | 9. | 998. | 2. | 12. | 3. | 574.10 |
| .15 | .19 | 1.02 | .06 | .050 | .030 | .050 | .030 | 567.60 | .71 |
| .000053 | 450. | 450. | 450. | 2 | 0 | 1 | 0.00 | 228.65 | 229.37 |

1300' U/S OF S. GIBRALTAR RD BRIDGE, VS #4 SEC. E

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2428.00 | 7.26 | 574.46 | 0.00 | 0.00 | 574.47 | .02 | .05 | .00 | 573.10 |
| 1020. | 15. | 1005. | 0. | 64. | 921. | 1. | 30. | 7. | 574.30 |
| .36 | .23 | 1.09 | .05 | .055 | .035 | .055 | .032 | 567.20 | 1.66 |
| .000083 | 800. | 800. | 800. | 1 | 0 | 1 | 0.00 | 276.70 | 278.36 |

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 576.00 ELREA= 579.00

640' D/S FROM D/S FACE OF M. GIBRALTAR RD BRIDGE, VS #5 SEC. F

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3228.00 | 6.98 | 574.48 | 0.00 | 0.00 | 574.79 | .31 | .17 | .15 | 576.00 |
| 1020. | 0. | 1020. | 0. | 0. | 229. | 0. | 41. | 10. | 579.00 |
| .41 | 0.00 | 4.46 | 0.00 | .055 | .035 | .055 | .033 | 567.50 | 801.42 |
| .001549 | 800. | 800. | 800. | 2 | 0 | 1 | 0.00 | 49.20 | 850.62 |

3265 DIVIDED FLOW

50' D/S FROM D/S FACE OF M. GIBRALTAR RD BRIDGE, VS #6 SEC. G

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3778.00 | 7.97 | 575.17 | 0.00 | 0.00 | 575.23 | .06 | .36 | .07 | 575.20 |
| 615. | 0. | 586. | 29. | 0. | 294. | 77. | 45. | 12. | 574.40 |
| .49 | 0.00 | 2.00 | .37 | .055 | .035 | .055 | .033 | 567.20 | 800.01 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .000266 | 450. | 550. | 600. | 2 | 0 | 1 | 0.00 | 197.43 | 1033.87 |

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 1170.0 | 1400.0 | TYPE= | 1 | TARGET= | 230.000 | |
| 3828.00 | 8.12 | 575.22 | 0.00 | 0.00 | 575.25 | .03 | .01 | .01 | 569.50 |
| 615. | 115. | 313. | 187. | 143. | 186. | 265. | 46. | 12. | 568.10 |
| .50 | .80 | 1.68 | .70 | .055 | .035 | .055 | .033 | 567.10 | 1170.00 |
| .000110 | 50. | 50. | 50. | 0 | 0 | 1 | 0.00 | 146.33 | 1400.00 |

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 1170.0 | 1400.0 | TYPE= | 1 | TARGET= | 230.000 | |

D/S FACE OF M. GIBRALTAR RD BRIDGE, BS #7 SEC. H

CONCRETE BRIDGE, SINGLE SPAN, OPEN CONC. GUARD RAILING

LENGTH=55 FT. SPAN=25 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3829.00 | 8.13 | 575.23 | 0.00 | 0.00 | 575.25 | .02 | .00 | .00 | 569.50 |
| 615. | 131. | 272. | 212. | 144. | 187. | 266. | 46. | 12. | 568.10 |
| .50 | .91 | 1.46 | .80 | .018 | .015 | .018 | .033 | 567.10 | 1170.00 |
| .000015 | 1. | 1. | 1. | 1 | 0 | 1 | 0.00 | 147.47 | 1400.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.60 | 3.00 | 0.00 | 22.73 | 0.00 | 165.90 | 0.00 | 567.10 | 567.10 |

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 575.57 | 575.25 | 0.00 | 23. | 590. | 166. | 574.40 | 575.10 | 30.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 1170.0 | 1400.0 | TYPE= | 1 | TARGET= | 230.000 | |
| 3884.00 | 8.43 | 575.53 | 0.00 | 0.00 | 575.54 | .02 | .29 | 0.00 | 569.50 |
| 615. | 131. | 264. | 220. | 153. | 194. | 303. | 47. | 12. | 568.10 |
| .51 | .86 | 1.36 | .73 | .018 | .015 | .018 | .033 | 567.10 | 1170.00 |
| .000012 | 55. | 55. | 55. | 1 | 0 | 3 | 0.00 | 201.51 | 1400.00 |

3269 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1170.0 1400.0 TYPE= 1 TARGET= 230.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3885.00 | 8.42 | 575.52 | 0.00 | 0.00 | 575.55 | .03 | .00 | .00 | 569.50 |
| 615. | 78. | 327. | 209. | 153. | 194. | 302. | 47. | 12. | 568.10 |
| .51 | .51 | 1.69 | .69 | .080 | .032 | .050 | .033 | 567.10 | 1170.00 |
| .000087 | 1. | 1. | 1. | 1 | 0 | 1 | 0.00 | 200.36 | 1400.00 |

3280 CROSS SECTION 4035.00 EXTENDED 2.74 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 576.00 ELREA= 573.50

150' U/S FROM U/S FACE OF M. GIBRALTAR RD BRIDGE, VS #8 SEC. I

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4035.00 | 8.33 | 575.53 | 0.00 | 0.00 | 575.57 | .04 | .02 | .01 | 576.00 |
| 615. | 0. | 539. | 76. | 0. | 304. | 170. | 48. | 13. | 573.50 |
| .54 | 0.00 | 1.77 | .45 | .080 | .032 | .050 | .033 | 567.20 | 342.00 |
| .000169 | 200. | 150. | 120. | 0 | 0 | 1 | 0.00 | 215.15 | 557.15 |

3470 ENCROACHMENT STATIONS= .0 1249.3 TYPE= 1 TARGET= 1314.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4265.00 | 8.56 | 575.56 | 0.00 | 0.00 | 575.60 | .04 | .03 | .00 | 567.90 |
| 615. | 112. | 320. | 182. | 206. | 141. | 275. | 50. | 13. | 567.50 |
| .57 | .55 | 2.27 | .66 | .080 | .032 | .050 | .033 | 567.00 | 864.65 |
| .000145 | 250. | 230. | 1. | 0 | 0 | 1 | 0.00 | 384.60 | 1249.25 |

3470 ENCROACHMENT STATIONS= .0 1249.3 TYPE= 1 TARGET= 1314.999

D/S FACE OF JEFFERSON AVE (RIVER RD) BRIDGE, BS #9 SEC. J

CONCRETE BOX CULVERT, HEADWALLS, NO WINGWALLS

LENGTH=47 FT., SPAN=18 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4266.00 | 8.59 | 575.59 | 0.00 | 0.00 | 575.61 | .02 | .00 | .01 | 567.90 |
| 615. | 182. | 247. | 186. | 208. | 141. | 283. | 50. | 13. | 567.50 |
| .57 | .87 | 1.75 | .66 | .018 | .015 | .018 | .033 | 567.00 | 862.74 |
| .000019 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 386.51 | 1249.25 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.61 | 3.00 | 0.00 | 16.17 | 0.00 | 95.40 | 0.00 | 567.00 | 567.00 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 576.62 | 575.61 | 0.00 | 407. | 209. | 95. | 572.90 | 575.00 | 30.00 |

3470 ENCROACHMENT STATIONS= 0 1249.3 TYPE= 1 TARGET= 1314.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4313.00 | 8.68 | 575.68 | 0.00 | 0.00 | 575.71 | .02 | .10 | 0.00 | 567.90 |
| 615. | 181. | 241. | 193. | 217. | 143. | 311. | 51. | 14. | 567.50 |
| .59 | .84 | 1.69 | .62 | .018 | .015 | .018 | .033 | 567.00 | 856.10 |
| .000017 | 47. | 47. | 47. | 2 | 0 | 4 | 0.00 | 393.15 | 1249.25 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= .0 1249.3 TYPE= 1 TARGET= 1314.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4314.00 | 8.67 | 575.67 | 0.00 | 0.00 | 575.72 | .04 | .00 | .01 | 567.90 |
| 615. | 124. | 315. | 176. | 217. | 143. | 311. | 51. | 14. | 567.50 |
| .59 | .57 | 2.20 | .57 | .080 | .035 | .060 | .033 | 567.00 | 856.10 |
| .000159 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 393.15 | 1249.25 |

210' U/S FROM U/S FACE OF JEFFERSON RD BRIDGE, STA 10+00 SEC. K

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4524.00 | 8.13 | 575.73 | 0.00 | 0.00 | 575.74 | .01 | .02 | .01 | 573.80 |
| 615. | 39. | 365. | 212. | 110. | 344. | 489. | 55. | 16. | 573.20 |
| .66 | .35 | 1.06 | .43 | .045 | .035 | .045 | .033 | 567.60 | 193.01 |
| .000062 | 210. | 210. | 210. | 2 | 0 | 1 | 0.00 | 395.13 | 588.14 |

3470 ENCROACHMENT STATIONS= 453.0 687.0 TYPE= 1 TARGET= 234.000

710' U/S FROM U/S FACE OF JEFFERSON RD BRIDGE, STA 15+00 SEC. L

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5024.00 | 8.07 | 575.77 | 0.00 | 0.00 | 575.81 | .05 | .05 | .02 | 575.00 |
| 615. | 27. | 570. | 18. | 66. | 320. | 51. | 63. | 19. | 575.10 |
| .74 | .41 | 1.78 | .35 | .045 | .035 | .045 | .033 | 567.70 | 453.00 |
| .000218 | 500. | 500. | 500. | 1 | 0 | 1 | 0.00 | 234.00 | 687.00 |

3470 ENCROACHMENT STATIONS= 550.0 780.0 TYPE= 1 TARGET= 230.000

1210' U/S FROM U/S FACE OF JEFFERSON RD BRIDGE, STA 20+00 SEC. M

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5524.00 | 8.66 | 575.86 | 0.00 | 0.00 | 575.87 | .01 | .04 | .01 | 574.10 |
| 615. | 48. | 531. | 37. | 149. | 603. | 77. | 70. | 22. | 572.50 |
| .91 | .32 | .88 | .48 | .045 | .035 | .045 | .033 | 567.20 | 550.00 |
| .000048 | 500. | 500. | 500. | 1 | 0 | 1 | 0.00 | 230.00 | 780.00 |

3470 ENCROACHMENT STATIONS= 625.0 817.0 TYPE= 1 TARGET= 192.000

275' D/S FROM D/S FACE OF MCLOUTH STEEL RR ENTRY, STA 24+00 SEC. N

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5924.00 | 9.28 | 575.88 | 0.00 | 0.00 | 575.90 | .02 | .03 | .01 | 572.70 |
| 615. | 87. | 429. | 99. | 138. | 313. | 185. | 77. | 24. | 572.60 |
| 1.01 | .63 | 1.37 | .53 | .045 | .035 | .045 | .034 | 566.60 | 625.00 |
| .000094 | 400. | 400. | 400. | 2 | 0 | 1 | 0.00 | 192.00 | 817.00 |

3470 ENCROACHMENT STATIONS= 418.0 528.0 TYPE= 1 TARGET= 110.000

175' D/S FROM D/S FACE OF MCLOUTH STEEL RR ENTRY STA 25+00 SEC. O

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6024.00 | 8.49 | 575.89 | 0.00 | 0.00 | 575.91 | .02 | .01 | .00 | 575.20 |
| 615. | 2. | 583. | 29. | 10. | 453. | 49. | 78. | 24. | 572.90 |
| 1.03 | .22 | 1.29 | .60 | .045 | .035 | .045 | .034 | 567.40 | 418.00 |
| .000087 | 100. | 100. | 100. | 0 | 0 | 1 | 0.00 | 110.00 | 528.00 |

3470 ENCROACHMENT STATIONS= 975.0 1275.0 TYPE= 1 TARGET= 300.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 577.40 ELREA= 577.40

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6199.00 | 6.58 | 575.78 | 0.00 | 0.00 | 576.10 | .32 | .04 | .15 | 571.20 |
| 625. | 0. | 625. | 0. | 0. | 137. | 0. | 79. | 24. | 571.20 |
| 1.04 | 0.00 | 4.56 | 0.00 | .045 | .035 | .045 | .034 | 569.20 | 1138.00 |
| .001797 | 175. | 175. | 175. | 2 | 0 | 1 | 0.00 | 24.00 | 1174.34 |

3470 ENCROACHMENT STATIONS= 975.0 1275.0 TYPE= 1 TARGET= 300.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 577.40 ELREA= 577.40

D/S FACE OF MCLOUTH STEEL RR ENTRY BRIDGE, STA 26+75 SEC. P

3-72" CIRCULAR CMP CULVERTS, PROJECTED FROM FILL

LENGTH=90 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6200.00 | 6.58 | 575.78 | 0.00 | 0.00 | 576.10 | .32 | .00 | .00 | 571.20 |
| 625. | 0. | 625. | 0. | 0. | 137. | 0. | 79. | 24. | 571.20 |
| 1.04 | 0.00 | 4.56 | 0.00 | .020 | .032 | .020 | .034 | 569.20 | 1138.00 |
| .001501 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 24.00 | 1174.34 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 3.49 | 3.00 | 0.00 | 14.14 | 0.00 | 84.82 | 0.00 | 569.20 | 569.20 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 578.72 | 576.10 | 0.00 | 0. | 625. | 85. | 575.20 | 585.00 | 10.00 |

3470 ENCROACHMENT STATIONS= 975.0 1275.0 TYPE= 1 TARGET= 300.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.00 ELREA= 585.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6290.00 | 9.38 | 578.58 | 0.00 | 0.00 | 578.72 | .15 | 2.62 | 0.00 | 571.20 |
| 625. | 0. | 625. | 0. | 0. | 204. | 0. | 80. | 25. | 571.20 |
| 1.05 | 0.00 | 3.06 | 0.00 | .020 | .032 | .020 | .034 | 569.20 | 1138.00 |

$$\left[\left(\frac{625}{84.82}\right)^2/64.4\right](3.49) = H$$

$2.94' = H$

$EGWSEL_{D/S} = 575.78$

$+H = \underline{2.94}$

$EG = 578.72$

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .000441 | 90. | 90. | 90. | 2 | 0 | 1 | 0.00 | 24.00 | 1181.88 |

3470 ENCROACHMENT STATIONS= 975.0 1275.0 TYPE= 1 TARGET= 300.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.00 ELREA= 585.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6291.00 | 9.38 | 578.58 | 0.00 | 0.00 | 578.72 | .15 | .00 | .00 | 571.20 |
| 625. | 0. | 625. | 0. | 0. | 204. | 0. | 80. | 25. | 571.20 |
| 1.05 | 0.00 | 3.06 | 0.00 | .050 | .035 | .050 | .034 | 569.20 | 1138.00 |
| .000528 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 24.00 | 1181.88 |

3280 CROSS SECTION 6313.00 EXTENDED 2.14 FEET

3470 ENCROACHMENT STATIONS= 213.0 281.0 TYPE= 1 TARGET= 68.000

22' U/S FROM U/S FACE OF MCLOUTH STEEL RR ENTRY, STA 27+90 SEC. Q

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6313.00 | 9.64 | 578.74 | 0.00 | 0.00 | 578.76 | .03 | .00 | .04 | 575.30 |
| 625. | 21. | 540. | 63. | 41. | 395. | 76. | 80. | 25. | 570.20 |
| 1.06 | .53 | 1.37 | .83 | .050 | .035 | .050 | .034 | 569.10 | 213.00 |
| .000061 | 22. | 22. | 22. | 2 | 0 | 1 | 0.00 | 68.00 | 281.00 |

3280 CROSS SECTION 7013.00 EXTENDED 4.28 FEET

3470 ENCROACHMENT STATIONS= .0 415.0 TYPE= 1 TARGET= 414.999

722' U/S FROM U/S FACE OF MCLOUTH STEEL RR ENTRY, STA 34+90 SEC. R

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7013.00 | 9.78 | 578.78 | 0.00 | 0.00 | 578.79 | .00 | .02 | .01 | 576.40 |
| 625. | 54. | 339. | 232. | 285. | 546. | 646. | 96. | 28. | 573.30 |
| 1.46 | .19 | .62 | .36 | .050 | .035 | .050 | .034 | 569.00 | 70.03 |
| .000015 | 700. | 700. | 700. | 2 | 0 | 1 | 0.00 | 344.97 | 415.00 |

3280 CROSS SECTION 7513.00 EXTENDED .30 FEET

3470 ENCROACHMENT STATIONS= .0 420.0 TYPE= 1 TARGET= 419.999

960' D/S FROM D/S FACE OF D.T.S.L. RR BRIDGE, STA 39+90 SEC. S

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7513.00 | 10.79 | 578.79 | 0.00 | 0.00 | 578.80 | .01 | .01 | .00 | 576.40 |
| 625. | 48. | 278. | 298. | 191. | 324. | 685. | 111. | 32. | 574.70 |
| 1.69 | .25 | .86 | .44 | .050 | .035 | .050 | .034 | 568.00 | 126.04 |
| .000028 | 500. | 500. | 500. | 1 | 0 | 1 | 0.00 | 293.96 | 420.00 |

3280 CROSS SECTION 8013.00 EXTENDED 4.71 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 150.0 350.0 TYPE= 1 TARGET= 200.000

460' D/S FROM D/S FACE OF D.T.S.L. RR BRIDGE, STA 44+90 SEC. T

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8013.00 | 10.21 | 578.81 | 0.00 | 0.00 | 578.83 | .01 | .02 | .00 | 576.30 |
| 625. | 77. | 393. | 155. | 177. | 346. | 230. | 123. | 34. | 578.80 |
| 1.83 | .44 | 1.14 | .67 | .050 | .035 | .050 | .034 | 568.60 | 150.00 |
| .000075 | 500. | 500. | 500. | 0 | 0 | 1 | 0.00 | 200.00 | 350.00 |

3470 ENCROACHMENT STATIONS= 283.0 310.0 TYPE= 1 TARGET= 27.000

28' D/S FROM D/S FACE OF D.T.S.L. RR BRIDGE, STA 49+22 SEC. U

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8445.00 | 10.20 | 578.80 | 0.00 | 0.00 | 578.98 | .18 | .08 | .08100000.00 | |
| 625. | 0. | 625. | 0. | 0. | 183. | 0. | 127. | 36. | 100000.00 |
| 1.87 | 0.00 | 3.42 | 0.00 | .050 | .035 | .050 | .034 | 568.60 | 283.00 |
| .000795 | 432. | 432. | 432. | 2 | 0 | 1 | 0.00 | 27.00 | 310.00 |

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 581.90 ELREA= 581.90

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8473.00 | 9.72 | 578.72 | 0.00 | 0.00 | 579.13 | .41 | .03 | .11 | 569.10 |
| 625. | 0. | 625. | 0. | 0. | 121. | 0. | 127. | 36. | 569.10 |
| 1.87 | 0.00 | 5.15 | 0.00 | .050 | .035 | .050 | .034 | 569.00 | 415.00 |
| .001534 | 28. | 28. | 28. | 2 | 0 | 1 | 0.00 | 12.50 | 427.50 |

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 581.90 ELREA= 581.90

D/S FACE OF D.T.S.L. RR BRIDGE, STA 49+50 SEC. V

101"X161" STRUCTL PLATE ARCH CULVERT, HEADWALLS, NO WINGWALLS

LENGTH=36 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8474.00 | 9.72 | 578.72 | 0.00 | 0.00 | 579.13 | .41 | .00 | .00 | 569.10 |
| 625. | 0. | 625. | 0. | 0. | 121. | 0. | 127. | 36. | 569.10 |
| 1.87 | 0.00 | 5.14 | 0.00 | .018 | .031 | .020 | .034 | 569.00 | 415.00 |
| .001203 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 12.50 | 427.50 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.80 | 3.00 | 0.00 | 10.57 | 0.00 | 89.00 | 0.00 | 569.00 | 569.00 |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 580.10 | 579.13 | 0.00 | 0. | 625. | 89. | 577.40 | 581.90 | 10.00 |

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 581.90 ELREA= 581.90

8510.00 10.76 578.76 0.00 0.00 580.10 .34 .07 0.00 569.10

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 625. | 0. | 625. | 0. | 0. | 135. | 0. | 127. | 36. | 569.10 |
| | 1.87 | 0.00 | 4.65 | 0.00 | .018 | .031 | .020 | .034 | 569.00 | 415.00 |
| | .000910 | 36. | 36. | 36. | 2 | 0 | 1 | 0.00 | 12.50 | 427.50 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.90 ELREA= 581.90

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8511.00 | 10.76 | 579.76 | 0.00 | 0.00 | 580.10 | .34 | .00 | .00 | 569.10 |
| 625. | 0. | 625. | 0. | 0. | 135. | 0. | 127. | 36. | 569.10 |
| 1.87 | 0.00 | 4.64 | 0.00 | .050 | .035 | .050 | .034 | 569.00 | 415.00 |
| .001159 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 12.50 | 427.50 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 8681.00 | 10.64 | 580.14 | 0.00 | 0.00 | 580.24 | .10 | .07 | .07 | 569.60 |
| 880. | 198. | 435. | 247. | 136. | 133. | 163. | 128. | 36. | 569.60 |
| 1.89 | 1.45 | 3.27 | 1.52 | .050 | .035 | .050 | .034 | 569.50 | 375.12 |
| .000259 | 1. | 170. | 250. | 2 | 0 | 1 | 0.00 | 86.10 | 461.22 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.20 ELREA= 584.20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8851.00 | 9.89 | 579.99 | 0.00 | 0.00 | 580.54 | .55 | .08 | .22 | 570.10 |
| 880. | 0. | 880. | 0. | 0. | 148. | 0. | 129. | 36. | 570.10 |
| 1.90 | 0.00 | 5.93 | 0.00 | .050 | .035 | .050 | .034 | 570.10 | 400.00 |
| .001340 | 250. | 170. | 1. | 2 | 0 | 1 | 0.00 | 15.00 | 443.27 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.20 ELREA= 584.20

D/S FACE OF PENN CENTRAL RR BRIDGE, STA 53+30 SEC. W

104"X180" CONCRETE BOX CULVERT, HEADWALL & WINGWALLS

LENGTH=16 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8852.00 | 9.89 | 579.99 | 0.00 | 0.00 | 580.54 | .55 | .00 | .00 | 570.10 |
| 880. | 0. | 880. | 0. | 0. | 148. | 0. | 129. | 36. | 570.10 |
| 1.90 | 0.00 | 5.93 | 0.00 | .018 | .015 | .018 | .034 | 570.10 | 400.00 |
| .000246 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 15.00 | 443.27 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.53 | 3.00 | 0.00 | 15.00 | 0.00 | 127.40 | 0.00 | 570.10 | 570.10 |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 581.13 | 580.54 | 0.00 | 0. | 880. | 127. | 578.60 | 584.20 | 10.00 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.20 ELREA= 584.20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8868.00 | 10.55 | 580.65 | 0.00 | 0.00 | 581.13 | .48 | .59 | 0.00 | 570.10 |
| 880. | 0. | 880. | 0. | 0. | 158. | 0. | 129. | 36. | 570.10 |
| 1.90 | 0.00 | 5.56 | 0.00 | .018 | .015 | .018 | .034 | 570.10 | 400.00 |
| .000206 | 16. | 16. | 16. | 2 | 0 | 1 | 0.00 | 15.00 | 445.14 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.20 ELREA= 584.20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8869.00 | 10.55 | 580.65 | 0.00 | 0.00 | 581.13 | .48 | .00 | .00 | 570.10 |
| 880. | 0. | 880. | 0. | 0. | 158. | 0. | 129. | 36. | 570.10 |
| 1.90 | 0.00 | 5.56 | 0.00 | .050 | .030 | .040 | .034 | 570.10 | 400.00 |
| .000823 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 15.00 | 445.14 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 395.0 420.0 TYPE= 1 TARGET= 25.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8874.00 | 10.92 | 581.02 | 0.00 | 0.00 | 581.22 | .19 | .00 | .09 | 570.10 |
| 880. | 111. | 636. | 133. | 51. | 164. | 50. | 129. | 36. | 570.10 |
| 1.90 | 2.17 | 3.88 | 2.65 | .050 | .030 | .040 | .034 | 570.10 | 395.00 |
| .000254 | 5. | 5. | 5. | 2 | 0 | 1 | 0.00 | 25.00 | 420.00 |

3280 CROSS SECTION 9177.00 EXTENDED 6.58 FEET

3470 ENCROACHMENT STATIONS= .0 565.0 TYPE= 1 TARGET= 564.999

310' U/S FROM U/S FACE OF PENN CENTRAL BRIDGE, STA 56+55 SEC. X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9177.00 | 11.58 | 581.28 | 0.00 | 0.00 | 581.28 | .00 | .01 | .06 | 575.30 |
| 1100. | 192. | 208. | 700. | 858. | 355. | 1847. | 141. | 38. | 573.70 |
| 2.12 | .22 | .59 | .38 | .050 | .030 | .040 | .034 | 569.70 | 93.31 |
| .000007 | 303. | 303. | 303. | 2 | 0 | 1 | 0.00 | 471.69 | 565.00 |

3280 CROSS SECTION 9677.00 EXTENDED 4.18 FEET

3470 ENCROACHMENT STATIONS= .0 755.0 TYPE= 1 TARGET= 754.999

810' U/S FROM U/S FACE OF PENN CENTRAL BRIDGE, STA 61+55 SEC. Y

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9677.00 | 11.78 | 581.28 | 0.00 | 0.00 | 581.28 | .00 | .00 | .00 | 573.70 |
| 1100. | 288. | 182. | 630. | 1264. | 352. | 1905. | 179. | 43. | 573.50 |
| 2.53 | .23 | .52 | .33 | .050 | .030 | .040 | .034 | 569.50 | 226.40 |
| .000005 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 528.60 | 755.00 |

3280 CROSS SECTION 10177.00 EXTENDED 2.58 FEET

3470 ENCROACHMENT STATIONS= 0 927.0 TYPE= 1 TARGET= 926.999

477 FT. D/S FROM D/S FACE OF VREELAND RD BRIDGE, STA 66+55 SEC. Z

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10177.00 | 11.68 | 581.28 | 0.00 | 0.00 | 581.28 | .00 | .00 | .00 | 573.80 |
| 1100. | 379. | 177. | 544. | 1785. | 392. | 1874. | 222. | 50. | 573.60 |
| 3.01 | .21 | .45 | .29 | .050 | .030 | .040 | .033 | 569.60 | 342.58 |
| .000004 | 500. | 500. | 500. | 0 | 0 | 1 | 0.00 | 584.42 | 927.00 |

3280 CROSS SECTION 10622.00 EXTENDED 2.29 FEET

3470 ENCROACHMENT STATIONS= 100.0 714.0 TYPE= 1 TARGET= 614.000

32' D/S FROM D/S FACE OF VREELAND RD BRIDGE, STA 71+00 SEC. AA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10622.00 | 11.99 | 581.29 | 0.00 | 0.00 | 581.29 | .00 | .00 | .00 | 573.60 |
| 1100. | 521. | 108. | 470. | 2359. | 245. | 1737. | 265. | 56. | 573.70 |
| 3.48 | .22 | .44 | .27 | .050 | .030 | .040 | .033 | 569.30 | 100.00 |
| .000004 | 445. | 445. | 445. | 0 | 0 | 1 | 0.00 | 614.00 | 714.00 |

3280 CROSS SECTION 10654.00 EXTENDED 2.69 FEET

3470 ENCROACHMENT STATIONS= .0 680.0 TYPE= 1 TARGET= 679.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10654.00 | 10.58 | 581.28 | 0.00 | 0.00 | 581.29 | .00 | .00 | .00 | 577.30 |
| 1105. | 437. | 209. | 460. | 1324. | 229. | 981. | 268. | 56. | 577.30 |
| 3.50 | .33 | .91 | .47 | .050 | .030 | .040 | .033 | 570.70 | .00 |
| .000025 | 32. | 32. | 32. | 0 | 0 | 1 | 0.00 | 680.00 | 680.00 |

3280 CROSS SECTION 10655.00 EXTENDED 2.69 FEET

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

NORMAL BRIDGE,NRD=24 MIN ELTRD= 577.30 MAX ELLC= 574.70

3470 ENCROACHMENT STATIONS= .0 680.0 TYPE= 1 TARGET= 679.999

D/S FACE OF VREELAND RD BRIDGE, STA 71+33 SEC. BB

3-72" CIRCULAR CONCRETE CULVERT, PROJECTED FROM FILL

LENGTH=38 FT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10655.00 | 10.59 | 581.29 | 0.00 | 0.00 | 581.29 | .00 | .00 | .00 | 577.30 |
| 1105. | 536. | 67. | 502. | 1324. | 144. | 981. | 268. | 56. | 577.30 |
| 3.50 | .41 | .47 | .51 | .020 | .012 | .018 | .033 | 570.70 | .00 |
| .000006 | 1. | 1. | 1. | 0 | 0 | 1 | -85.20 | 680.00 | 680.00 |

3280 CROSS SECTION 10693.00 EXTENDED 2.69 FEET

NORMAL BRIDGE,NRD=24 MIN ELTRD= 577.30 MAX ELLC= 574.70

3470 ENCROACHMENT STATIONS= .0 680.0 TYPE= 1 TARGET= 679.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10693.00 | 10.59 | 581.29 | 0.00 | 0.00 | 581.29 | .00 | .00 | .00 | 577.30 |
| 1105. | 536. | 67. | 502. | 1324. | 144. | 981. | 270. | 57. | 577.30 |
| 3.52 | .41 | .47 | .51 | .020 | .012 | .018 | .033 | 570.70 | .00 |
| .000006 | 38. | 38. | 38. | 0 | 0 | 1 | -85.20 | 680.00 | 680.00 |

3280 CROSS SECTION 10694.00 EXTENDED 2.69 FEET

3470 ENCROACHMENT STATIONS= .0 680.0 TYPE= 1 TARGET= 679.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10694.00 | 10.59 | 581.29 | 0.00 | 0.00 | 581.29 | .00 | .00 | .00 | 577.30 |
| 1105. | 492. | 198. | 414. | 1324. | 229. | 981. | 270. | 57. | 577.30 |
| 3.52 | .37 | .87 | .42 | .045 | .032 | .045 | .033 | 570.70 | .00 |
| .000026 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 680.00 | 680.00 |

START TRIB COMP
-3228.000 3228.000 57448.482 574.485

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 576.00 ELREA= 579.00

SECTION F, USED AS STARTING SECTION OF "TRIBUTARY"

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| -3228.00 | 6.98 | 574.48 | 0.00 | 0.00 | 574.79 | .31 | 0.00 | 0.00 | 576.00 |
| 1020. | 0. | 1020. | 0. | 0. | 229. | 0. | 270. | 57. | 579.00 |
| 3.52 | 0.00 | 4.46 | 0.00 | .055 | .035 | .055 | .033 | 567.50 | 801.42 |
| .001549 | 0. | 0. | 0. | 0 | 0 | 1 | 0.00 | 49.20 | 850.62 |

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

3280 CROSS SECTION 3353.00 EXTENDED .56 FEET

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SOUTH PART OF SECTION H, (FROM INTERSECTION OF JEFFERSON AVE.

AND M. GIBRALTAR RD)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3353.00 | .56 | 575.66 | 575.66 | 0.00 | 575.86 | .21 | .27 | 0.00 | 575.10 |
| 425. | 0. | 425. | 0. | 0. | 117. | 0. | 270. | 57. | 577.20 |
| 3.53 | 0.00 | 3.64 | 0.00 | .020 | .018 | .020 | .033 | 575.10 | 0.00 |
| .006496 | 200. | 125. | 50. | 30 | 23 | 1 | 0.00 | 288.88 | 288.88 |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Gibralter

3) WATERCOURSE: Frank + Poet Drain, Brownstown Creek

4) DOCUMENT TYPE: Report

00BREAK00

# HYDRAULIC ANALYSIS

## Introduction

The streams being investigated are the Frank and Poet Drain and the Brownstown Creek in the City of Gibraltar, Wayne County, Michigan. The Frank and Poet Drain passes through the Detroit Metropolitan Wayne County Airport, the Township of Romulus and the cities of Taylor, Southgate, Riverview, Trenton, and Gibraltar before finally discharging into Lake Erie. The Brownstown Creek passes through Romulus Township, Huron Township, the City of Southgate, Brownstown Township, the City of Woodhaven, and finally the City of Gibraltar before discharging into Lake Erie.

For the Frank and Poet Drain, the study starts 500 feet downstream of the South Gibraltar Road Bridge and proceeds north to Vreeland Road, covering a distance of 2.03 miles. For the Brownstown Creek, the study starts 500 feet downstream of the South Gibraltar Road Bridge and proceeds northeast to Penn Central Railroad Bridge No. 2, about 700 feet downstream from the northwestern corporate boundary.

The 10-, 50-, 100- and 500-year flood frequency flows beyond the corporate boundary of the City of Gibraltar were calculated by Brater's unit hydrograph-infiltration capacity method after adjusting the slenderness ratio of the basin for the retention patterns from Detroit Metropolitan Wayne County Airport. The flows beyond the corporate boundary have been approved by the Michigan Department of Natural Resources. Within the corporate boundary, the flows were determined by combining the TR-20 computer program and HEC-2 computer program to take the following effects into consideration (by trial and error method):

1. Storage effect beyond Vreeland Road at Frank and Poet Drain

2. Storage effect beyond Penn Central Railroad Bridge #2 at Brownstown Creek

3. Storage effect between Penn Central Railroad Bridge #1 and Penn Central Railroad Bridge #2 at Brownstown Creek

4. Flow division from Frank and Poet Drain to Brownstown Creek at upstream side of Penn Central Railroad Bridge #1

5. Flow division from Frank and Poet Drain to Brownstown Creek between Penn Central Railroad Bridge #1 and Detroit & Toledo Shoreline Railroad

6. Flow division from Brownstown Creek to Frank and Poet Drain downstream of Middle Gibraltar Road

## Method of Analysis

The flood profiles were determined by the HEC-2 computer program developed by the U.S. Corps of Engineers (Reference 3). All bridges have been modeled by the requirements of the HEC-2 normal and special bridge routines with emphasis placed on the 100-year event.

## Variables and Coefficients

The roughness factors (Manning's "n") were established by comparison of photographs and descriptions found on pages 101 to 123, in Ven Te Chow's Open-Channel Hydraulics (Reference 1), with photographs and field descriptions taken in Gibraltar by survey crews in October, 1975. To reflect the generally gradual changes in cross-section geometry, the contraction and expansion coefficients used in this study were .3 and .5, respectively.

The inlet loss coefficients and outlet loss coefficients used in this study were taken from Hydraulic Charts for the Selection of Highway Culverts (Reference 2). The weir discharge coefficients were taken from charts of

the U.S. Geological Survey (Reference 4) and Bureau of Public Roads (Reference 5) supplied by the Michigan Department of Natural Resources.

Starting Conditions

The profile computations for both the Frank and Poet Drain and Brownstown Creek began 500 feet downstream from South Gibraltar Road. These two starting sections are so close to Lake Erie that the starting elevations were assumed to be the mean flood elevation as calculated by a gage analysis done by Johnson & Anderson, Inc., which is 573.10 International Great Lakes Datum (IGLD).

Stationing was recorded as river feet from the confluence of the two streams at Lake Erie, and all elevations used in this study are based on IGLD datum of 1929. In the final Flood Insurance Report, the 10-, 50-, 100- and 500-year lake elevations will be extended horizontally upstream until the corresponding profiles are intersected.

Discussion of Special Problems and Methods

1. Within the corporate boundaries, four separate areas are proposed to be filled. The areas are situated on property owned by McLouth Steel Company. The property is bounded by Vreeland Road on the north, West Jefferson Avenue on the west, Middle Gibraltar Road on the south, and Penn Central Railroad track No. 2 on the east. The total available fill volume is about 2,631,000 cubic yards. This study was based on the assumption that these areas are filled and the filled area is no longer available for storage. The dimensions were taken from plans provided by McLouth Steel Company.

2. Significant storage areas in the study occur upstream of Penn Central Railroad Bridge No. 1 on the Frank and Poet Drain and Penn Central Railroad Bridge No. 2 on the Brownstown Creek. The pool elevations herein were determined by both TR-20 and HEC-2 by iterative methods to ensure the elevations calculated by both programs matched each other.

3. The storage effect between the Penn Central Railroad Bridge No. 1 and No. 2 on the Brownstown Creek was not significant and is therefore included in the detailed study. The floodway was determined by expansion and contraction due to the culverts of both railroad embankments.

4. The criterion used for the three flow divisions is based upon TR-20 rating curves calibrated for various energy gradient elevations. This procedure was principally used at the Penn Central No. 2 and DTS&L Railroad tracks and downstream of Middle Gibraltar Road.

5. It is noted that those four filled areas within the corporate boundary completely change the flood situation of the basin. Both flood paths (divisions), discharges, and flood stages of the drains are quite different from the case without any filled areas. However, these differences are beyond the scope of this study and so are not investigated in detail.

6. Due to crossover of flow between drainage basins, areas have been designated as floodway without definite dimensions. This decision was made as a result of discussion with the Michigan Department of Natural Resources on March 24, 1977 (minutes by R. Zanotti are enclosed). These areas are located between Brownstown Creek and the Frank and Poet Drain bordered by fill areas #3 and #4 along the Penn Central and DTSL Railroad tracks and by North Gibraltar Road and River Road (Jefferson). Exact delineation will be made as these areas are developed.

## References


1. Chow, Ven Te, Open-Channel Hydraulics, McGraw-Hill, 1959, pp. 101-123.

2. Herr, Lester A., Hydraulic Charts for the Selection of Highway Culverts, Hydraulic Engineering Circular No. 5, Bureau of Public Roads, U.S. Department of Commerce, Dec. 1965.

3. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Manual, User's Manual, Oct. 1973.

4. U.S. Geological Survey, Measurements of Peak Discharge at Dams by Indirect Methods, Book 3, Chapter A5, 1976.

5. Bureau of Public Roads, Hydraulics of Bridge Waterways, 1970.

6. Johnson & Anderson, Inc., "Great Lakes Flood Elevation, Harrisville to Toledo Gages," January, 1977 (unpublished report).

Frank & Poet Drain
City of Gibraltar
5555-23-1
MSC 2-28-66



Cross Section Locations

| Cross Section | SECNO | Location |
|---|---|---|
| A | 600 | 500' d/s from d/s face of S. Gibraltar Road bridge |
| B | 1101 | d/s face of S. Gibraltar Road bridge |
| C | 1178 | 50' u/s from u/s face of S. Gibraltar Road bridge |
| D | 1628 | 500' u/s from u/s face of S. Gibraltar Road bridge |
| E | 2428 | 1300' u/s from u/s face of S. Gibraltar Road bridge |
| F | 3228 | 600' d/s from d/s face of Gibraltar Road bridge |
| G | 3778 | 50' d/s from d/s face of Gibraltar Road bridge |
| H | 3829 | d/s face of Gibraltar Road bridge |
| I | 4035 | 150' u/s from u/s face of Gibraltar Road bridge |
| J | 4266 | d/s face of Jefferson Ave. (River Road) bridge |
| K | 4524 | 210' u/s from u/s face of Jefferson Ave. bridge |
| L | 5024 | 710' u/s from u/s face of Jefferson Ave. bridge |
| M | 5524 | 1210' u/s from u/s face of Jefferson Ave. bridge |
| N | 5924 | 275' d/s from d/s face of McLouth Steel RR entry bridge |
| O | 6024 | 175' d/s from d/s face of McLouth Steel RR entry bridge |
| P | 6200 | d/s face of McLouth Steel RR entry bridge |
| Q | 6313 | 22' u/s from u/s face of McLouth Steel entry bridge |
| R | 7013 | 722' u/s from u/s face of McLouth Steel RR entry bridge |
| S | 7513 | 960' d/s from d/s face of DTSL Railroad bridge |
| T | 8013 | 460' d/s from d/s face of DTSL Railroad bridge |
| U | 8445 | 280' d/s from d/s face of DTSL Railroad bridge |

| Cross Section | SECNO | Location |
|---|---|---|
| V | 8474 | d/s face of DTSL Railroad bridge |
| W | 8852 | d/s face of Penn Central Railroad bridge |
| X | 9177 | 310' u/s from u/s face of Penn Central Railroad bridge |
| Y | 9677 | 810' u/s from u/s face of Penn Central Railroad bridge |
| Z | 10177 | 480' d/s from d/s face of Vreeland Road bridge |
| AA | 10622 | 32' d/s from d/s face of Vreeland Road bridge |
| BB | 10655 | d/s face of Vreeland Road bridge |

Cross Section Locations

| Cross Section | SECNO | Location |
|---|---|---|
| A | 1613 | 500' d/s from d/s face of S. Gibraltar Road bridge |
| B | 2114 | d/s face of S. Gibraltar Road bridge |
| C | 2182 | 50' u/s from u/s face of S. Gibraltar Road bridge |
| D | 2632 | 500' u/s from u/s face of S. Gibraltar Road bridge |
| E | 2932 | 50' d/s from d/s face of Jefferson Ave. bridge |
| F | 2983 | d/s face of Jefferson Ave. bridge |
| G | 3250 | 200' u/s from u/s face of Jefferson Ave. bridge |
| H | 3750 | 700' u/s from u/s face of Jefferson Ave. bridge |
| I | 4700 | 1650' u/s from u/s face of Jefferson Ave. bridge |
| J | 5750 | 2700' u/s from u/s face of Jefferson Ave. bridge |
| K | 6750 | 500' d/s from d/s face of Gibraltar Road bridge |
| L | 7200 | 50' d/s from d/s face of Gibraltar Road bridge |
| M | 7251 | d/s face of Gibraltar Road bridge |
| N | 7355 | 57' u/s from u/s face of Gibraltar Road bridge |
| O | 7805 | ±510' u/s from u/s face of Gibraltar Road bridge |
| P | 8305 | ±300' d/s from d/s face of DTSL Railroad bridge |
| Q | 8606 | d/s face of DTSL Railroad bridge |
| R | 8816 | ±160' u/s from u/s face of DTSL Railroad bridge |
| S | 9107 | d/s face of Penn Central Railroad bridge |
| T | 9264 | 135' u/s from u/s face of Penn Central RR bridge #1 |
| U | 9764 | ±635' u/s from u/s face of Penn Central RR bridge #1 |
| V | 10264 | ±1135' u/s from u/s face of Penn Central RR bridge #1 |
| W | 10764 | ±950' d/s from d/s face of Penn Central RR bridge #2 |

| Cross Section | SECNO | Location |
|---|---|---|
| X | 11264 | ±450' d/s from d/s face of Penn Central RR bridge #2 |
| Y | 11364 | 350' d/s from d/s face of Penn Central RR bridge #2 |
| Z | 11644 | 70' d/s from d/s face of Penn Central RR bridge |
| AA | 11715 | d/s face of Penn Central Railroad bridge |
| BB | 9546 | ±730' East of Section R, between Penn Central #1 and DTSL Railroad |
| CC | 10246 | ±1430' East of Section R, between Penn Central #1 and DTSL Railroad |
| DD | 10846 | ±2030' East of Section R, between Penn Central #1 and DTSL Railroad |
| EE | 11846 | ±3030' East of Section R, between Penn Central #1 and DTSL Railroad |
| FF | 9594 | ±330' East of Section T, exact North of Penn Central Railroad #1 |
| GG | 10294 | ±1030' East of Section T, exact North of Penn Central Railroad #1 |
| HH | 10894 | ±1630 East of Section T, exact North of Penn Central Railroad #1 |
| II | 11894 | ±2630 East of Section T, exact North of Penn Central Railroad #1 |

Johnson & Anderson, Inc.
Consulting Engineers
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

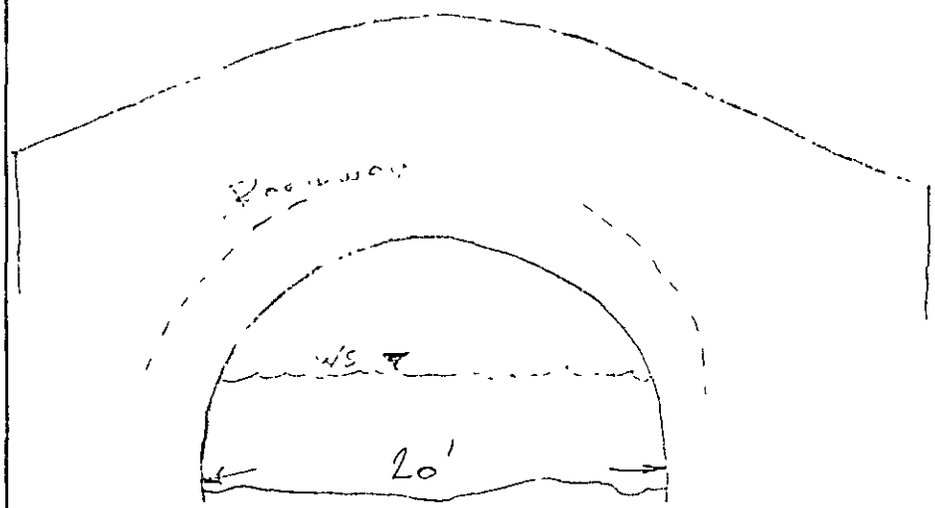
HYDRAULIC STRUCTURAL DATA

Code No. 5555.22.01-1

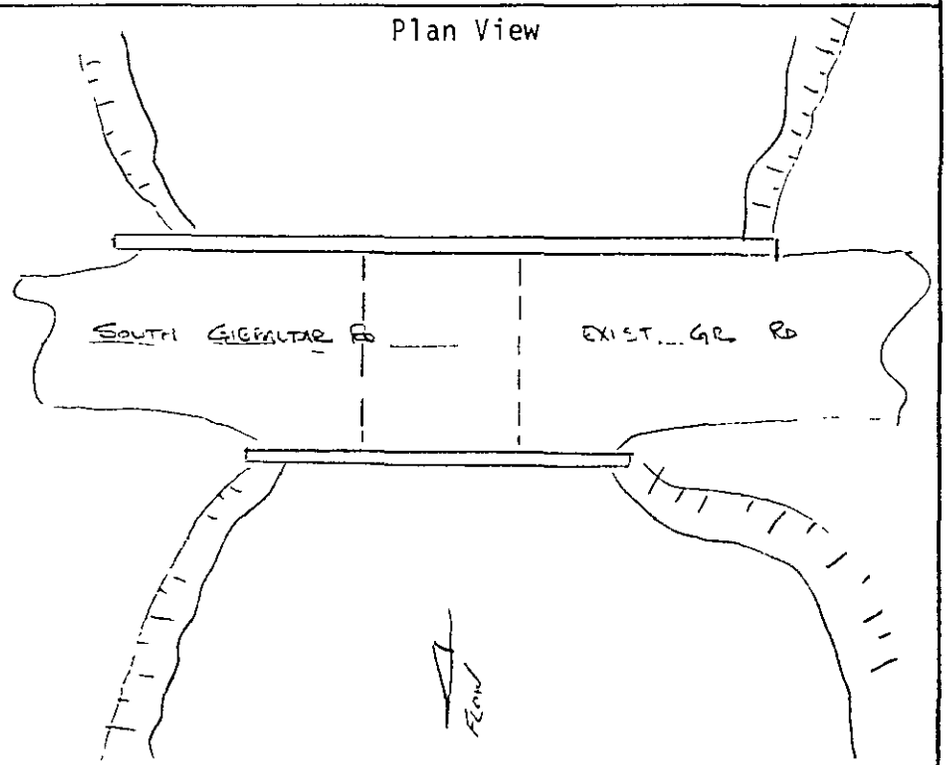
| | | | |
|---|---|---|---|
| Job Name: [illegible] | | | By: Mc [illegible] |
| Date: 9-30-75 | Feature: [illegible] | | Water Course: [illegible] |
| Remarks: [illegible] Bridge With Solid Conc. Railings | | | |
| | | | Photo Roll # 1 21-24 |
| Width of Piers: 0 | Pier Shape: — | No. of Piers: — | Area: |
| Water Elevation: | Length: 26.4' | Width of Deck: No Deck | Skew: 0° |

FIELD SKETCH

Profile View




Plan View



Johnson & Anderson, Inc.
Consulting Engineers
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

B.S. 7

# HYDRAULIC STRUCTURAL DATA

Downstream Lt.

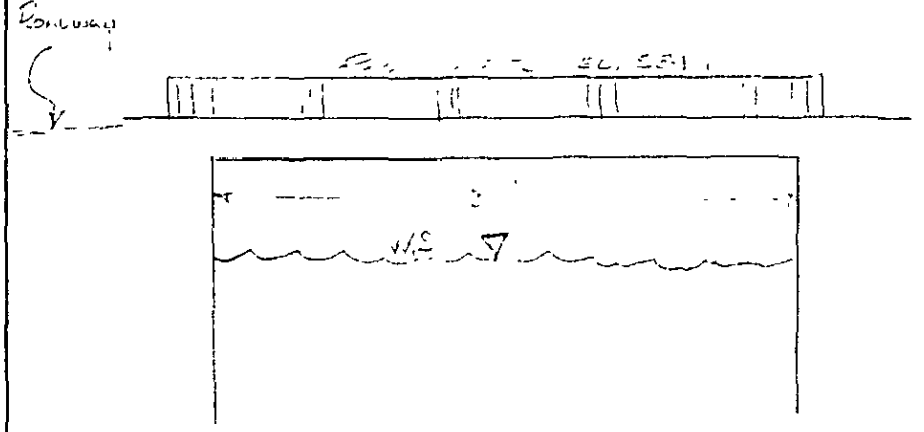
Code No. [illegible]-7

| | | |
|---|---|---|
| Job Name: City of Gibraltar F T S Franklin & Poet Drain | | By: McInnes |
| Date: 10-1-75 | Feature: North Gibraltar Road Bridge | Water Course: Franklin & Poet Drain |
| Remarks: Conc. Bridge Single Span. With [illegible] Conc. Guard Rail [illegible] | | |
| | | Roll #2 [illegible] |

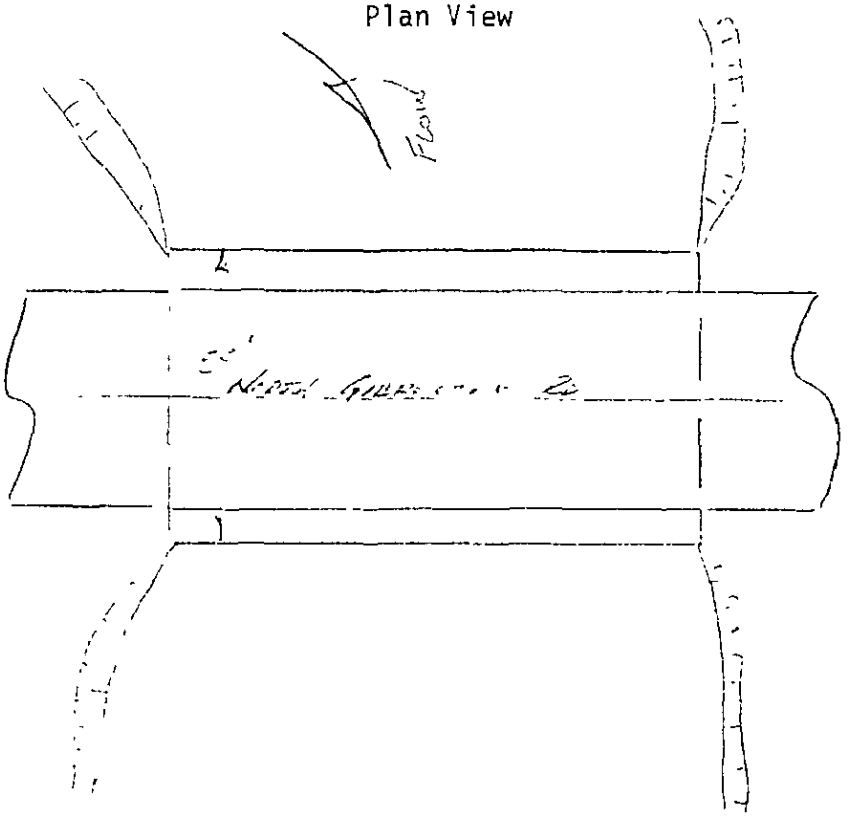
| | | | |
|---|---|---|---|
| Width of Piers: — | Pier Shape: — | No. of Piers: | Area: |
| Water Elevation: | Length: 25' | Width of Deck: 55' | Skew: 0° |

## FIELD SKETCH

Profile View




Plan View



```
X1   ~~3968.00~~ 3829.00   29   1200.00   1225.00   1.00   1.00   1.00   1.000

BT    14.00  1100.00  576.40    0.00  1200.00  577.30  569.50  1200.00  577.30  574.40

BT  1225.00   577.30  574.40 1225.00   577.30  568.10 1300.00   575.70    0.00 1400.00
BT   575.40     0.00 1500.00  575.10     0.00 1600.00  575.30     0.00 1700.00  575.70
BT     0.00  1800.00  576.80    0.00  1900.00  577.20    0.00  2000.00  577.20    0.00
BT  2100.00   577.20    0.00

GR   582.00     0.00  581.70  100.00   581.10  200.00  580.40   300.00  579.50  400.00
GR   578.40   500.00  577.40  600.00   576.40  700.00  575.40   800.00  575.00  900.00
GR   575.60  1000.00  576.40 1100.00   574.50 1190.00  569.50  1200.00  568.50 1205.00
GR   567.20  1210.00  567.10 1215.00   567.20 1220.00  568.10  1225.00  574.30 1250.00
GR   575.70  1300.00  575.40 1400.00   575.10 1500.00  575.30  1600.00  575.70 1700.00
GR   576.80  1800.00  577.20 1900.00   577.20 2000.00  577.20  2100.00

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

1200.00 569.50 1200.00 574.40 1225.00 574.40 1225.00 568.10

1200.00 569.50 1205.00 568.50 1210.00 567.20 1215.00 567.10 1220.00 567.20
1225.00 568.10
********** LISTING OF COORDINATES OF ORIFICE**********

1200.00 569.50 1200.00 574.40 1225.00 574.40 1225.00 568.10 1220.00 567.20
1215.00 567.10 1210.00 567.20 1205.00 568.50 1200.00 569.50

ORIFICE AREA      165.9 WETTED PERIMETER      61.5  29.1/R**1.333      7.7692
```

A = 165.9 ft²
P = 61.5 ft.
R = A/P = 2.70 ft
L = 55 ft
n = 0.015 (Concrete with Sand Bottom)
Ke = 0.5 (No Wingwalls)
$K_f = 29.1 n^2 L / R^{4/3} = 7.7692 n^2 L = 0.096$
$\sum K = 1 + K_e + K_f = 1.596$
D = 7.3 ft
BWC = A/D = 22.73 ft

Johnson & Anderson, Inc.
Consulting Engineers
P. O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

BS #9

# HYDRAULIC STRUCTURAL DATA

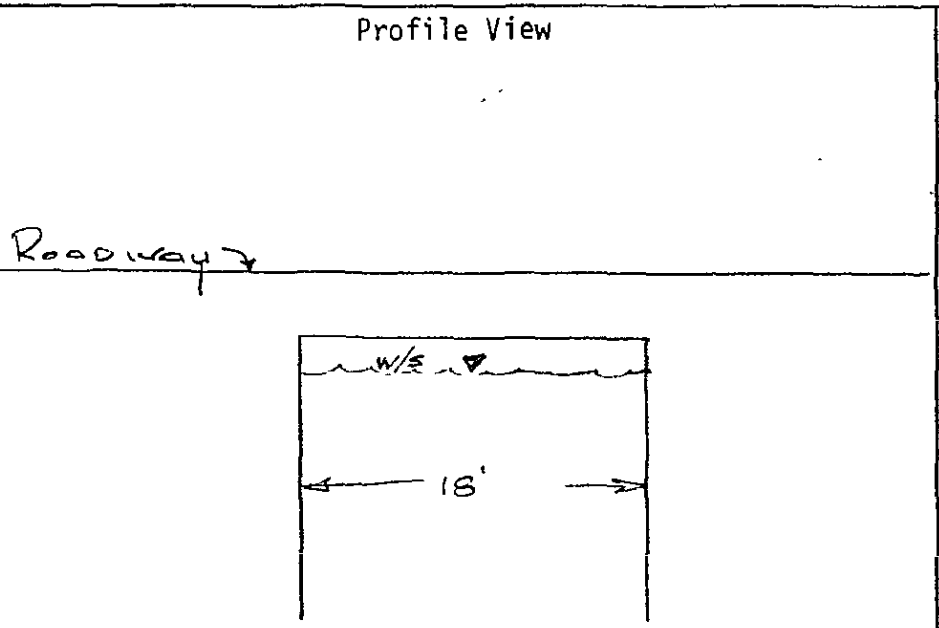
DOWNSTREAM Lt

Code No. 5555-23-01-9

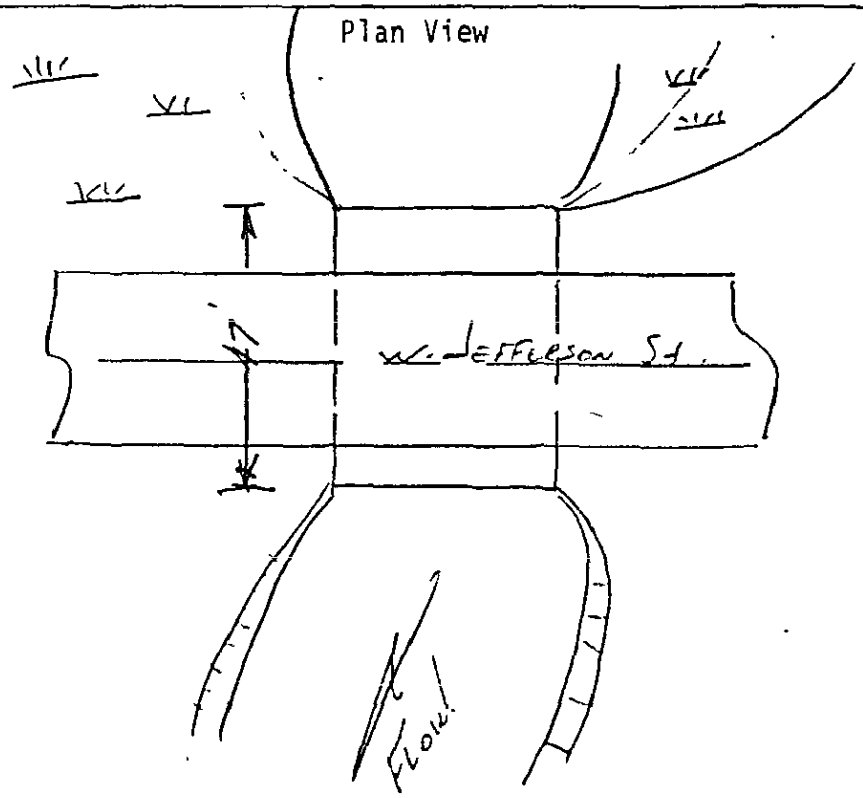
| | | | |
|---|---|---|---|
| Job Name: CITY OF GIBRALTAR FIS | | | By: MCINNES |
| Date: 10-1-75 | Feature: JEFFERSON ST BRIDGE | | Water Course: FRANK & POST DRAIN |
| Remarks: CONC BOX CULV. | | | |
| | | | ROLL # 2 # 17-20 |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: — |
| Water Elevation: 572.27 | Length: 18' | Width of Deck: 47' | Skew: 0° |

FIELD SKETCH

Profile View




Plan View



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | ~~[illegible]~~ 4266.00 | 26 | 1000.00 | 1018.00 | 1.00 | 1.00 | 1.00 | 0.950 | | |
| BT | 23.00 | 0.00 | 578.50 | 0.00 | 100.00 | 578.90 | 0.00 | 200.00 | 579.70 | 0.00 |
| BT | 300.00 | 580.50 | 0.00 | 400.00 | 581.30 | 0.00 | 500.00 | 581.50 | 0.00 | 600.00 |
| BT | 581.30 | 0.00 | 700.00 | 579.70 | 0.00 | 800.00 | 577.50 | 0.00 | 900.00 | 575.70 |
| BT | 0.00 | 1000.00 | 575.00 | 567.90 | 1000.00 | 575.00 | 572.90 | 1018.00 | 575.00 | 572.90 |
| BT | 1018.00 | 575.00 | 567.50 | 1100.00 | 575.00 | 0.00 | 1200.00 | 575.20 | 0.00 | 1300.00 |
| BT | 575.20 | 0.00 | 1400.00 | 575.50 | 0.00 | 1500.00 | 575.60 | 0.00 | 1600.00 | 576.10 |
| BT | 0.00 | 1700.00 | 576.50 | 0.00 | 1800.00 | 577.50 | 0.00 | 1900.00 | 576.60 | 0.00 |
| GR | 578.50 | 0.00 | 578.90 | 100.00 | 579.70 | 200.00 | 580.50 | 300.00 | 581.30 | 400.00 |
| GR | 581.50 | 500.00 | 581.30 | 600.00 | 579.70 | 700.00 | 577.50 | 800.00 | 575.70 | 900.00 |
| GR | 575.00 | 950.00 | 567.90 | 1000.00 | 567.10 | 1005.00 | 567.00 | 1009.00 | 567.50 | 1015.00 |
| GR | 567.50 | 1018.00 | 575.00 | 1060.00 | 575.00 | 1100.00 | 575.20 | 1200.00 | 575.20 | 1300.00 |
| GR | 575.50 | 1400.00 | 575.80 | 1500.00 | 576.10 | 1600.00 | 576.50 | 1700.00 | 577.50 | 1800.00 |
| GR | 576.60 | 1900.00 | | | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

1000.00 567.90 1000.00 572.90 1018.00 572.90 1018.00 567.50

1000.00 567.90 1005.00 567.10 1009.00 567.00 1015.00 567.50 1018.00 567.50

********** LISTING OF COORDINATES OF ORIFICE**********

1000.00 567.90 1000.00 572.90 1018.00 572.90 1018.00 567.50 1015.00 567.50
1009.00 567.00 1005.00 567.10 1000.00 567.90

ORIFICE AREA 95.4 WETTED PERIMETER 44.6 29.1/R**1.333 10.6008

$A = 95.4\ ft^2$

$P = 44.6\ ft$

$R = A/P = 2.14\ ft$

$L = 47\ ft$

$n = 0.015$ (concrete with sandy Bottom)

$K_e = 0.50$ (No Wingwalls)

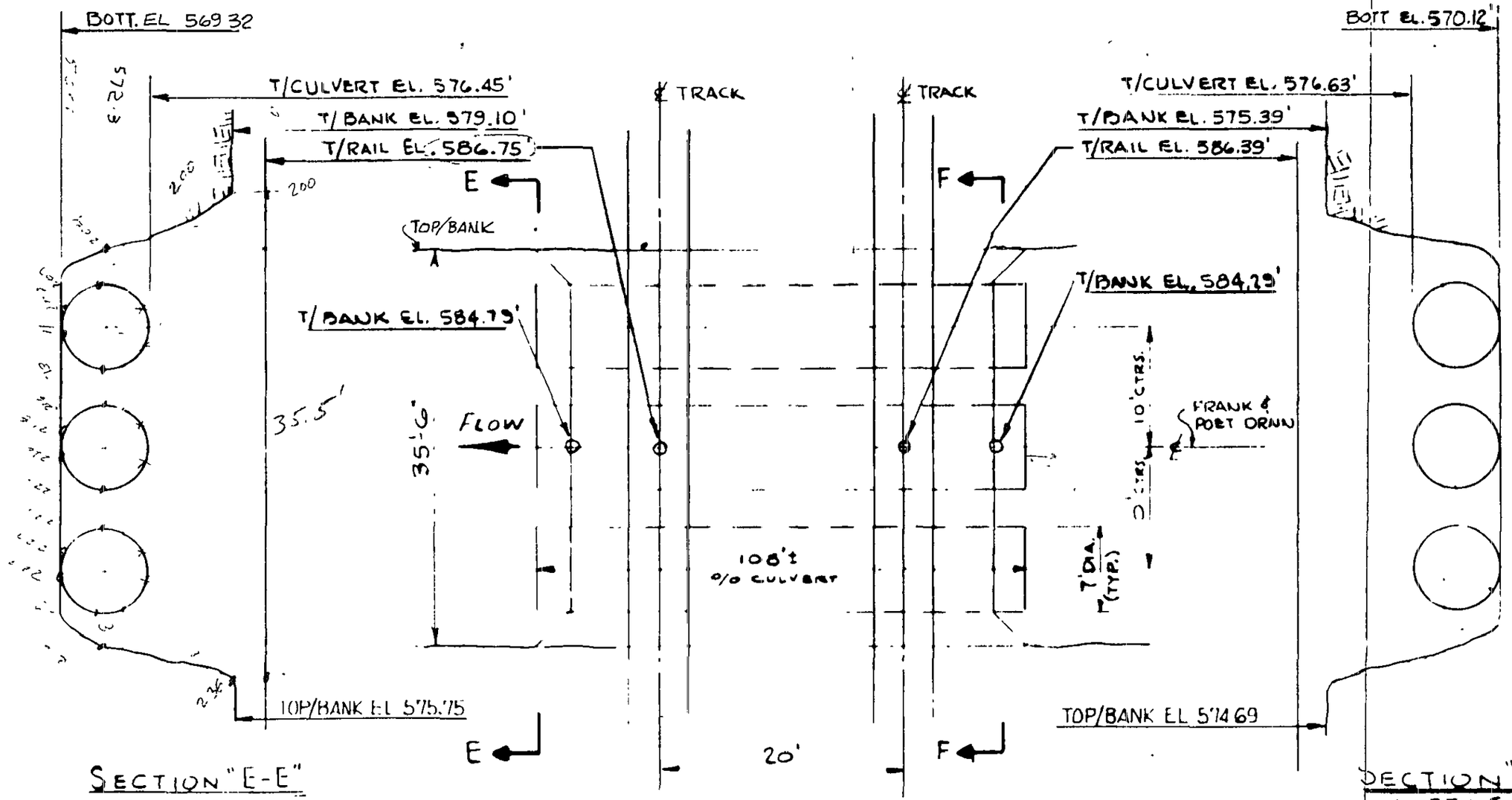
$K_f = 29.1 n^2 L / R^{4/3} = 10.6008\, n^2 L = 0.11$

$XK\phi R = 1 + K_e + K_f = 1.61$

$D = 5.9\ ft$

$BWC = A/D = 16.17\ ft$

FP




# PLAN - McLOUTH ENTRY TRACK AT THE FRANK & POET DRAIN

NO SCALE

```
****NEW FLOW =  775.0

**** STATION  2677 TO    2767   3   72" CIRCULAR CULVERT
                                                                                  LEFT   ** WEIR **   RIGHT
 FRICTION COEFF   LENGTH   EXIT INVERT   ENTRANCE INVERT   ENTRANCE LOSS COEFF          OVERBANK   FLOW   OVERBANK
     .025          90.0      569.17          569.47            .50          FLOW =   0.00              0.00
                                CULVERT FLOW =   775.00   ORIFICE COEFF =   .64  VELOCITY =   0.00              0.00
                            CULVERT VELOCITY =   9.14   DIST TO LAST STA =  277  TOP WIDTH =   0.00              0.00
          ENERGY = 584.11      CULVERT AREA =   84.8                          RDWY ELEV =  584.60   585.30   588.00
                            (PIPE FLOWING FULL                                 WEIR COEFF =   0.00              0.00
```

NOTE:
WATER SURFACES ARE
100 YR - FINAL FILL

Bridge Characteristics : 3 - 6' Circular Culverts

Area : $A = 3 \times \frac{\pi}{4} R_a^2 = 84.82$ ft²

Wet Perimeter : $P = 3 \times \pi R_a = 56.55$ ft.

Hydraulic Radius : $R = R/4 = 6/4 = 1.5$ ft. $R^{4/3} = 1.717$

Length : $L = 90$ ft.

Manning Coefficient : $n = 0.024$ 0.032 pg - 5-36

Entrance Loss Coefficient : $K_e = 0.9$ ( Projecting from fill )

$$K_f = \frac{29 n^2 L}{R^{4/3}} = 0.88$$

$$\Sigma K\Phi R = 1 + K_e + K_f = 1 + 0.9 + 0.88 = 2.78$$

Max. Depth : $D = 6.0$ ft

$BWC = A/D = 14.14$ ft.

$$K_f = \frac{(29.16)(0.032)^2(90')}{1.717} = 1.565$$

$$\Sigma K\Phi R = 1.9 + 1.565 = 3.465$$

$$H = \left[\left(\frac{670}{84.82}\right)^2 / 64.4\right](3.465)$$

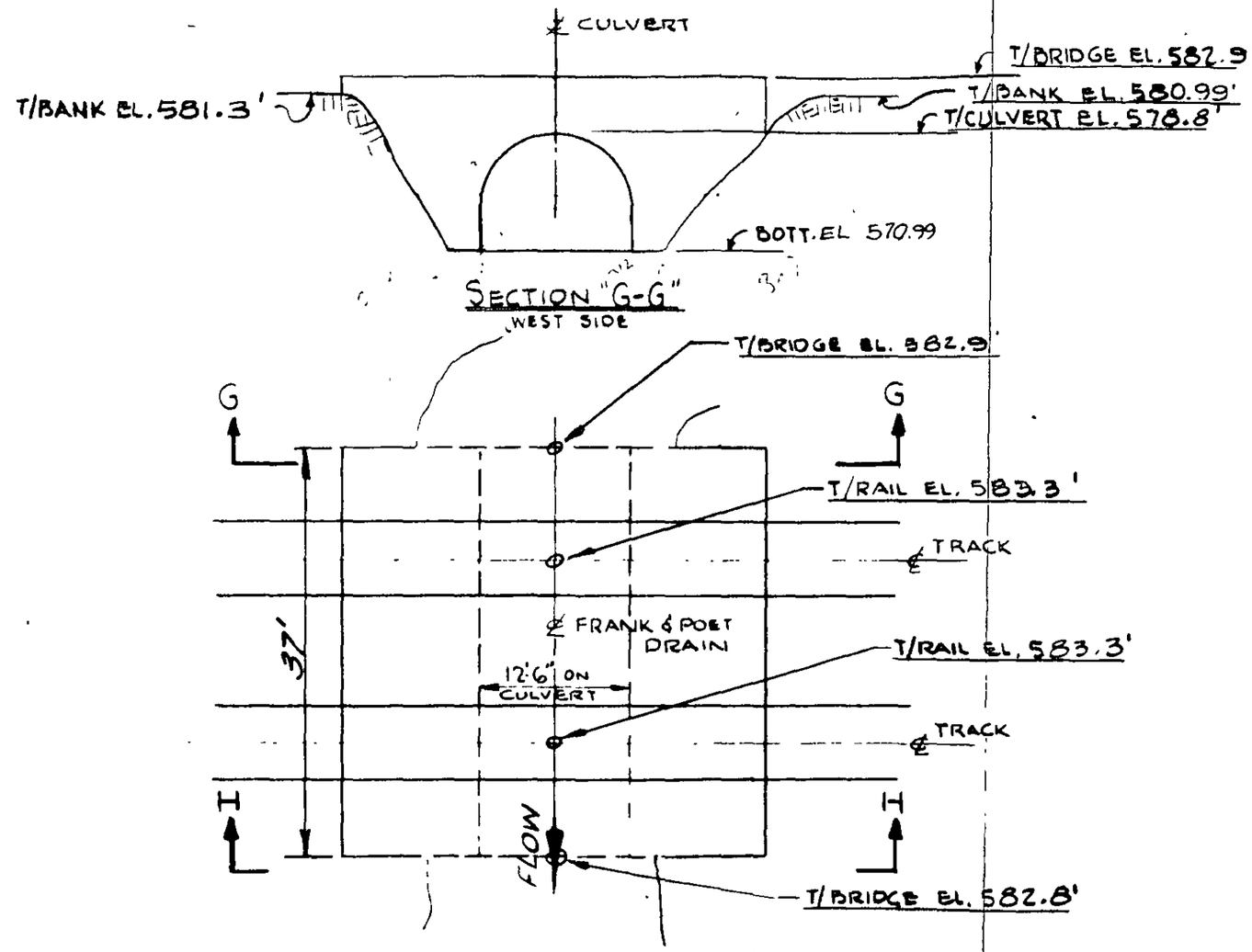
$H = 3.357' > 2.69$ (typ ent)

100 YR - FINAL FILL

**** STATION 4950 TO 4985 1 [illegible] STRUCTL PLATE ARCH CULVERT

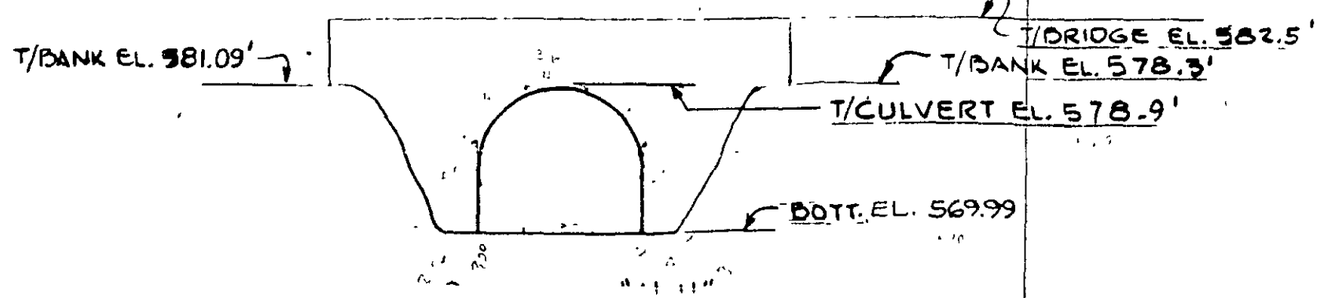
| FRICTION COEFF | LENGTH | EXIT INVERT | ENTRANCE INVERT | ENTRANCE LOSS COEFF | | LEFT OVERBANK | ** WEIR ** FLOW | RIGHT OVERBANK |
|---|---|---|---|---|---|---|---|---|
| .025 | 36.0 | 569.99 | 570.99 | .50 | FLOW = | 1944.54 | | 1528.35 |
| | | CULVERT FLOW = | 27.12 | ORIFICE COEFF = .13 | VELOCITY = | 1.67 | | 2.74 |
| | | CULVERT VELOCITY = | .30 | DIST TO LAST STA = 460 | TOP WIDTH = | 500.00 | | 589.91 |
| ENERGY = 584.30 | | CULVERT AREA = | 89.0 | | RDWY ELEV = | 581.90 | 582.30 | 585.00 |
| | | (PIPE FLOWING FULL) | | | WEIR COEFF = | 1.21 | | 2.32 |

FP




DETROIT-TOLEDO & SHORE LINE (EAST TRACKS) OVER THE FRANK & POET DRAIN

NO SCALE



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8474.00 | 18 | 415.00 | 427.50 | 28.00 | 28.00 | 28.00 | 1.000 | | |
| BT | 18.00 | 0.00 | 583.20 | 0.00 | 100.00 | 582.90 | 0.00 | 200.00 | 582.50 | 0.00 |
| BT | 300.00 | 582.20 | 0.00 | 400.00 | 581.90 | 0.00 | 400.00 | 581.90 | 0.00 | 412.00 |
| BT | 581.90 | 0.00 | 415.00 | 581.90 | 569.10 | 415.00 | 581.90 | 574.60 | 419.00 | 581.90 |
| BT | 577.40 | 423.00 | 581.90 | 577.40 | 427.50 | 581.90 | 574.60 | 427.50 | 581.90 | 569.10 |
| BT | 431.00 | 581.90 | 0.00 | 437.00 | 581.90 | 0.00 | 437.00 | 581.90 | 0.00 | 587.00 |
| BT | 581.40 | 0.00 | 837.00 | 581.10 | 0.00 | | | | | |
| GR | 583.20 | 0.00 | 582.90 | 100.00 | 582.50 | 200.00 | 582.20 | 300.00 | 581.90 | 350.00 |
| GR | 577.40 | 400.00 | 569.10 | 412.00 | 569.10 | 415.00 | 569.10 | 415.00 | 569.10 | 419.00 |
| GR | 569.10 | 423.00 | 569.10 | 427.50 | 569.10 | 427.50 | 569.10 | 431.00 | 573.40 | 437.00 |
| GR | 581.90 | 470.00 | 581.40 | 587.00 | 581.10 | 837.00 | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

pg 58

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 415.00 | 569.10 | 415.00 | 574.60 | 419.00 | 577.40 | 423.00 | 577.40 | 427.50 | 574.60 |
| 427.50 | 569.10 | | | | | | | | |

$A = 91.8\ ft^2$ 89 US steel

$P = 37.6\ ft$

$R = A/P = 2.44\ ft$ 2.48'

$L = 36\ ft.$

$n = \cancel{0.025}\ 0.031$ (structl Plate Arch Culvert)

$K_e = 0.50$

$K_f = 29.1 n^2 L / R^{4/3} = 8.8919\, n^2 L = \cancel{0.20}\ 0.30$

$XK\Phi R = 1 + 0.5 + \cancel{0.2}\ 0.3 = \cancel{1.70}\ 1.80$

$D = 8.3\ ft.$

$BWC = A/D = 91.8/8.3 = 11.06$

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 415.00 | 569.10 | 415.00 | 569.10 | 419.00 | 569.10 | 423.00 | 569.10 | 427.50 | 569.10 |
| 427.50 | 569.10 | | | | | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 415.00 | 569.10 | 415.00 | 574.60 | 419.00 | 577.40 | 423.00 | 577.40 | 427.50 | 574.60 |
| 427.50 | 569.10 | 427.50 | 569.10 | 423.00 | 569.10 | 419.00 | 569.10 | 415.00 | 569.10 |
| 415.00 | 569.10 | | | | | | | | |

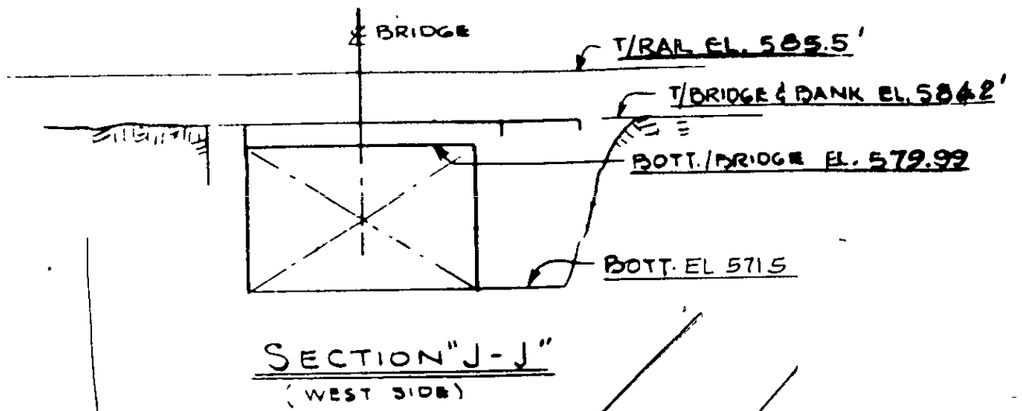
ORIFICE AREA 91.8 WETTED PERIMETER 37.6 29.1/R**1.333 8.8919

**** NEW FLOW = 3900.0

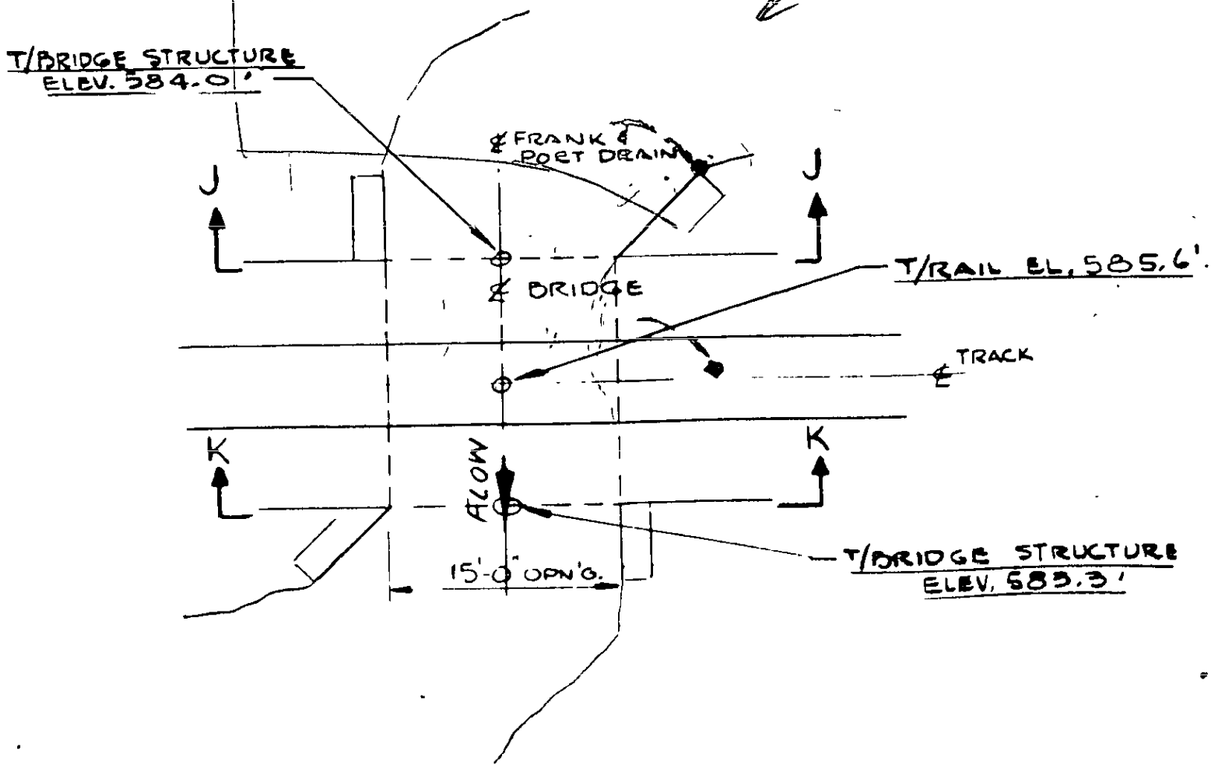
***STATION 5330 TO 5340 1 104"X 150" RECTANGULAR CULVERT

| FRICTION COEFF | LENGTH | EXIT INVERT | ENTRANCE INVERT | ENTRANCE LOSS COEFF | | LEFT OVERBANK | ** WEIR ** FLOW | RIGHT OVERBANK |
|---|---|---|---|---|---|---|---|---|
| .013 | 16.0 | 571.47 | 571.47 | .50 | FLOW = | 2564.52 | | 190.69 |
| | | CULVERT FLOW = | 1144.80 | ORIFICE COEFF = .81 | VELOCITY = | 3.22 | | 1.79 |
| | | CULVERT VELOCITY = | 8.81 | DIST TO LAST STA = 344 | TOP WIDTH = | 800.00 | | 418.75 |
| | ENERGY = 586.12 | CULVERT AREA = | 130.0 | | RDWY ELEV = | 584.60 | 585.60 | 587.20 |
| | | (PIPE FLOWING FULL) | | | WEIR COEFF = | 3.09 | | 3.09 |

FP

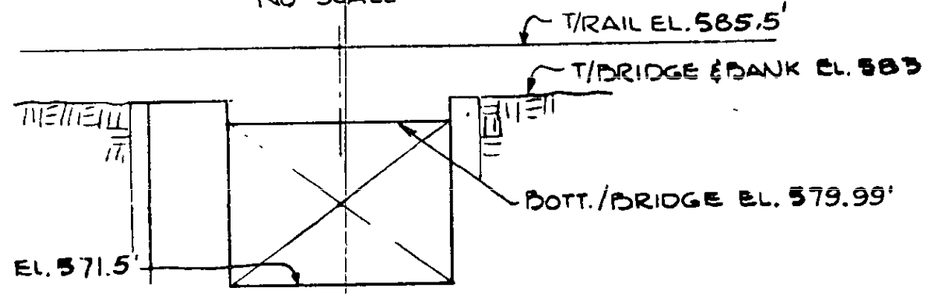



SECTION "J-J"
(WEST SIDE)




## NEW YORK CENTRAL (WEST TRACK) OVER THE FRANK & POET DRAIN

NO SCALE




SECTION "K-K"
(EAST SIDE)

```
X1   ~~8758.00~~ 8852.00   10   400.00   415.00   250.00   1.00   170.00   1.000

BT   10.00   0.00   586.00   0.00   200.00   585.10   0.00   400.00   584.20   0.00

BT   400.00   584.20   578.60   407.50   584.20   578.60   415.00   584.20   578.60   415.00
BT   584.20   0.00   455.00   584.10   0.00   615.00   584.00   0.00   815.00   583.90
BT   0.00

GR   586.00   0.00   585.10   200.00   584.20   400.00   570.10   400.00   570.10   407.50
GR   570.10   415.00   584.20   415.00   584.10   455.00   584.00   615.00   583.90   815.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*******************

400.00  578.60  407.50  578.60  415.00  578.60

400.00  584.20  400.00  570.10  407.50  570.10  415.00  570.10  415.00  584.20
************** LISTING OF COORDINATES OF ORIFICE********************

400.00  578.60  407.50  578.60  415.00  578.60  415.00  570.10  407.50  570.10
400.00  570.10  400.00  578.60

ORIFICE AREA      127.4 WETTED PERIMETER      46.9  29.1/R**1.333      7.7094
```

$A = 127.4\ ft^2$

$P = 46.9\ ft.$

$R = A/P = 2.72\ ft.$

$L = 16.0\ ft.$

$n = 0.015$ ( Concrete with Sandy Botto

$K_e = 0.50$

$K_f = 29.1 n^2 L / R^{4/3} = 7.7094\ n^2 L = 0.03$

$XK\phi R = 1 + 0.5 + 0.03 = 1.53$

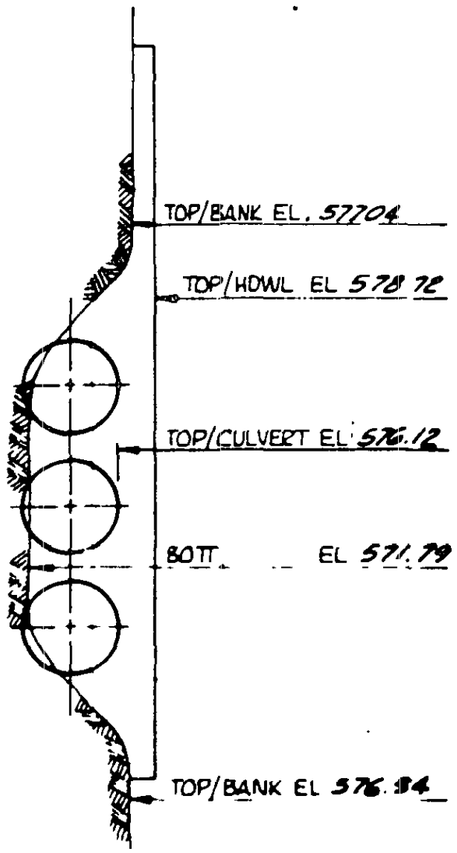
$D = 8.5\ ft$

$BWC = A/D = 127.4/8.5 = 15.0\ ft$

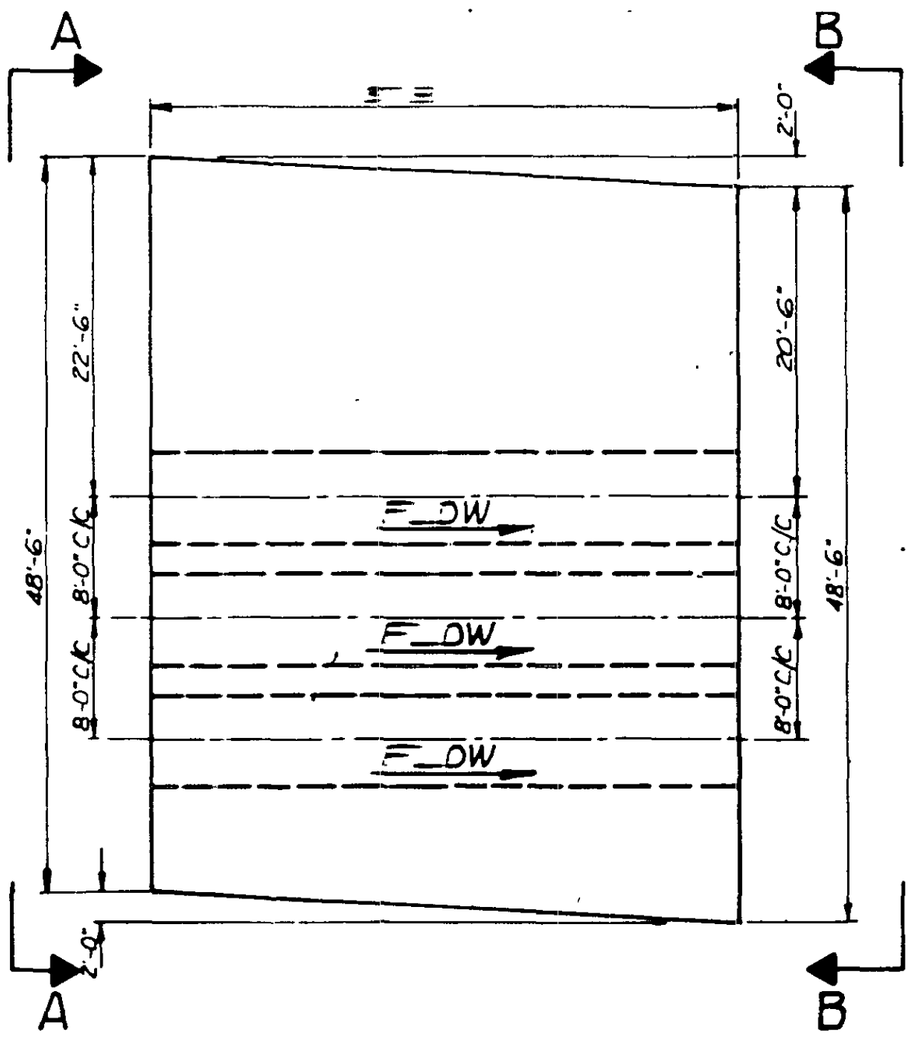
100 YR.-FINAL FI

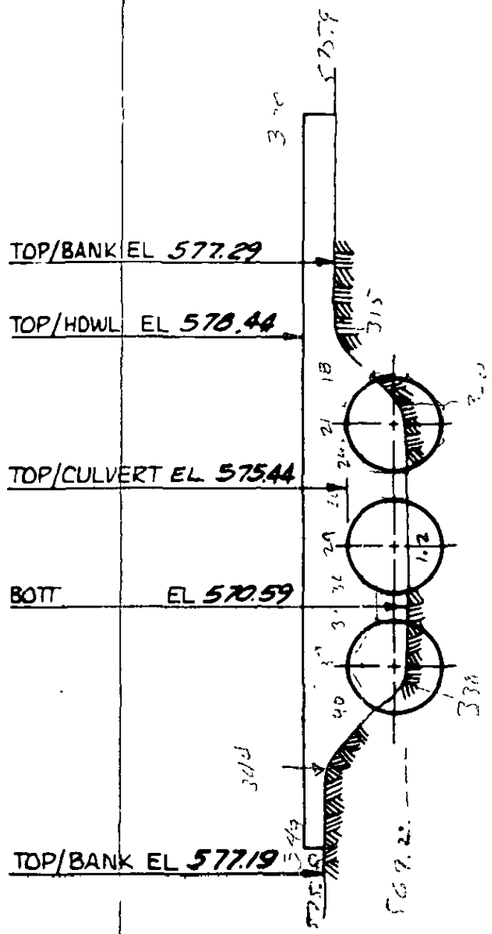
**** [illegible] 7133 [illegible] [illegible] 3 72" CIRCULAR CULVERT

[illegible] CULVERT [illegible] FLOW NEGLIGIBLE




SECTION "A-A"
(NORTH SIDE)




SECTION "B-B"
(SOUTH SIDE)

# VREELAND ROAD CROSSING OVER FRANK AND POET DRAIN

NO SCALE

Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

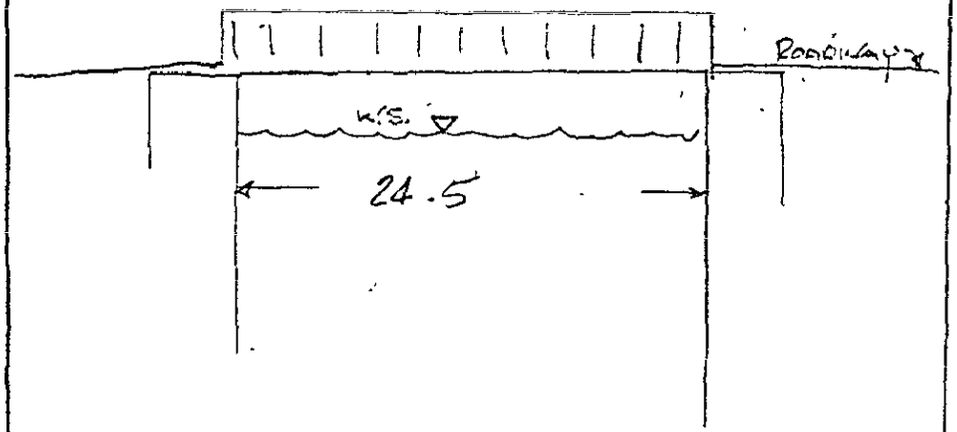
# HYDRAULIC STRUCTURAL DATA

Code No. 5555-23-02-

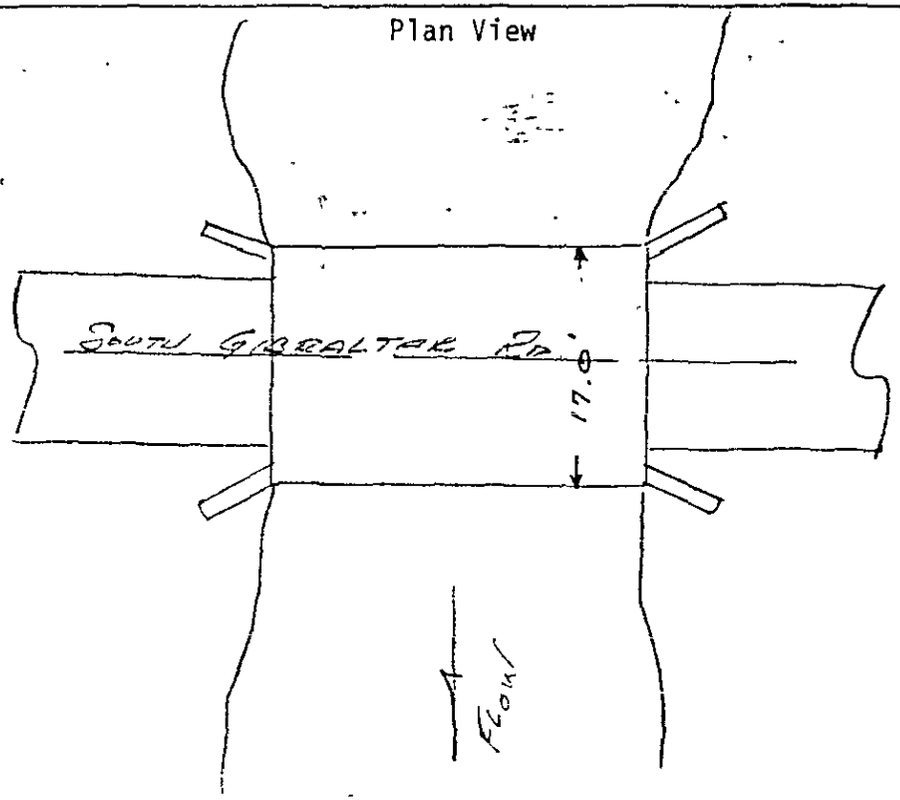
| | | | |
|---|---|---|---|
| Job Name: CITY OF GIBRALTAR. BROWNSTOWN CREEK | | | By: MCINNES |
| Date: 9-25-75 | Feature: SOUTH GIBRALTAR ROAD BRIDGE | | Water Course: BROWNSTOWN CREEK |
| Remarks: CONC BOX CULVERT BRIDGE. WITH HIGH SOLID CONCRETE RAILING. | | | |
| | | | Photo: 1-4 Roll #1 |
| Width of Piers: 0 | Pier Shape: | No. of Piers: 0 | Area: |
| Water Elevation: | Length: 24.5' | Width of Deck: 17.0' | Skew: 0° |

FIELD SKETCH

Profile View




Plan View



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| .1 | 2112.00 | 23 | 800.00 | 824.50 | 130.00 | 200.00 | 160.00 | 1.000 | | |
| BT | 17.00 | 0.00 | 574.40 | 0.00 | 100.00 | 574.10 | 0.00 | 300.00 | 574.10 | 0.00 |
| BT | 400.00 | 574.20 | 0.00 | 500.00 | 574.20 | 0.00 | 600.00 | 574.20 | 0.00 | 700.00 |
| BT | 574.50 | 0.00 | 800.00 | 575.10 | 573.70 | 824.50 | 575.90 | 573.30 | 900.00 | 574.80 |
| BT | 0.00 | 1000.00 | 574.20 | 0.00 | 1100.00 | 574.30 | 0.00 | 1200.00 | 574.60 | 0.00 |
| BT | 1300.00 | 574.90 | 0.00 | 1400.00 | 575.50 | 0.00 | 1500.00 | 575.40 | 0.00 | 1600.00 |
| BT | 578.40 | 0.00 | | | | | | | | |
| GR | 574.40 | 0.00 | 574.10 | 100.00 | 574.10 | 300.00 | 574.20 | 400.00 | 574.20 | 500.00 |
| GR | 574.20 | 600.00 | 574.50 | 700.00 | 575.10 | 800.00 | 571.40 | 800.00 | 565.60 | 805.00 |
| GR | 563.90 | 810.00 | 564.70 | 815.00 | 566.20 | 820.00 | 568.30 | 824.50 | 575.90 | 824.50 |
| GR | 574.80 | 900.00 | 574.20 | 1000.00 | 574.30 | 1100.00 | 574.60 | 1200.00 | 574.90 | 1300.00 |
| GR | 575.50 | 1400.00 | 575.40 | 1500.00 | 578.40 | 1600.00 | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | |
|---|---|---|---|
| 800.00 | 573.70 | 824.50 | 573.30 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 800.00 | 575.10 | 800.00 | 571.40 | 805.00 | 565.60 | 810.00 | 563.90 | 815.00 | 564.70 |
| 820.00 | 566.20 | 824.50 | 568.30 | 824.50 | 575.90 | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 800.00 | 573.70 | 824.50 | 573.30 | 824.50 | 568.30 | 820.00 | 566.20 | 815.00 | 564.70 |
| 810.00 | 563.90 | 805.00 | 565.60 | 800.00 | 571.40 | 800.00 | 573.70 | | |

$A = 183.1\ ft^2$

$P = 59.9\ ft$

$R = A/P = 3.06\ ft.$

$L = 17\ ft$

$n = 0.015$ (Concrete with Sandy Bottom)

$K_e = 0.40$

$K_f = 29.1 n^2 L / R^{4/3} = 6.5871\ n^2 L = 0.03$

$XK\phi R = 1 + 0.4 + 0.03 = 1.43$

$D = 9.5\ ft$

$BWC = A/D = 19.27\ ft.$

ORIFICE AREA 183.1 WETTED PERIMETER 59.9 29.1/R**1.333 6.5871

Johnson & Anderson, Inc.
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

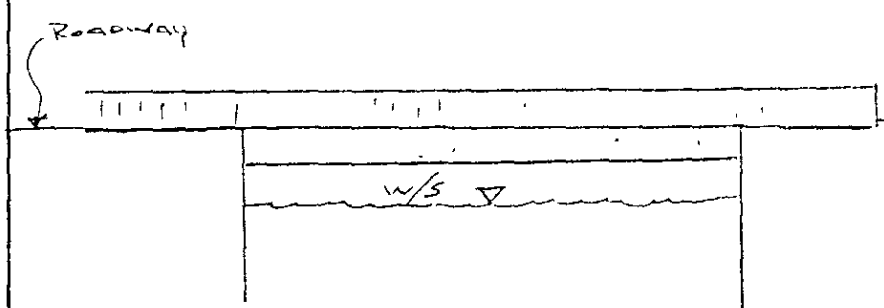
HYDRAULIC STRUCTURAL DATA

Code No. 5555-23-2-5

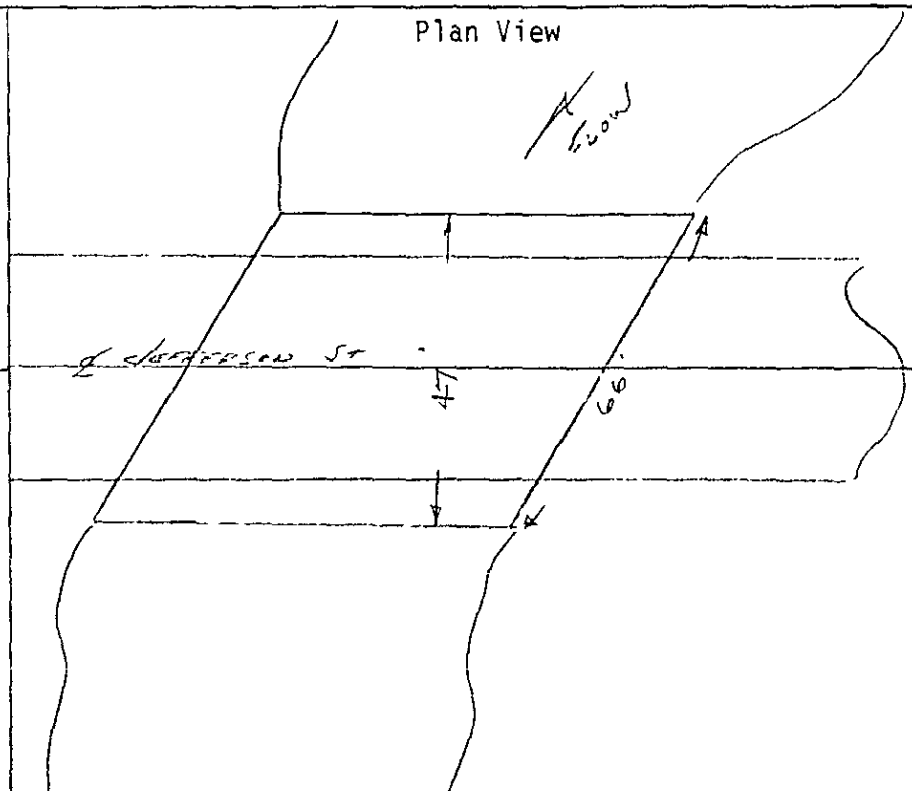
| | | | |
|---|---|---|---|
| Job Name: City of Gibraltar, F.I.S. Brownstown Creek | | | By: McInnes |
| Date: 9-29-75 | Feature: Jefferson St. Bridge | | Water Course: Brownstown Creek |
| Remarks: Concrete Bridge with Concrete Stringers Solid Concrete Railing | | | |
| | | | Photo 17-20 |
| Width of Piers: — | Pier Shape: — | No. of Piers: 0 | Area: |
| Water Elevation: | Length: 430' | Width of Deck: 47' | Skew: Cos θ = .71 |

FIELD SKETCH

Profile View




Plan View



5555-23-01-13
City of Gibraltar
Brownstown Creek

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | ~~2882~~ 2983.00 | 31 | 800.00 | 843.00 | 1.00 | 1.00 | 1.00 | 0.710 | | |
| BT | 21.00 | 0.00 | 575.60 | 0.00 | 100.00 | 575.70 | 0.00 | 200.00 | 575.80 | 0.00 |
| BT | 300.00 | 575.80 | 0.00 | 400.00 | 575.70 | 0.00 | 500.00 | 575.70 | 0.00 | 600.00 |
| BT | 575.70 | 0.00 | 700.00 | 576.00 | 0.00 | 800.00 | 577.40 | 573.80 | 843.00 | 577.60 |
| BT | 573.80 | 900.00 | 577.20 | 0.00 | 1000.00 | 576.10 | 0.00 | 1100.00 | 576.20 | 0.00 |
| BT | 1200.00 | 576.40 | 0.00 | 1300.00 | 577.10 | 0.00 | 1400.00 | 577.90 | 0.00 | 1500.00 |
| BT | 578.90 | 0.00 | 1600.00 | 579.80 | 0.00 | 1700.00 | 580.20 | 0.00 | 1800.00 | 580.70 |
| BT | 0.00 | 1900.00 | 581.80 | 0.00 | | | | | | |
| GR | 575.60 | 0.00 | 575.70 | 100.00 | 575.80 | 200.00 | 575.80 | 300.00 | 575.70 | 400.00 |
| GR | 575.70 | 500.00 | 575.70 | 600.00 | 576.00 | 700.00 | 577.40 | 800.00 | 569.00 | 800.00 |
| GR | 567.90 | 805.00 | 567.50 | 810.00 | 567.20 | 815.00 | 567.20 | 820.00 | 567.30 | 825.00 |
| GR | 567.20 | 830.00 | 567.00 | 835.00 | 567.10 | 840.00 | 567.10 | 843.00 | 577.60 | 843.00 |
| GR | 577.20 | 900.00 | 576.10 | 1000.00 | 576.20 | 1100.00 | 576.40 | 1200.00 | 577.10 | 1300.00 |
| GR | 577.90 | 1400.00 | 578.90 | 1500.00 | 579.80 | 1600.00 | 580.20 | 1700.00 | 580.70 | 1800.00 |
| GR | 581.80 | 1900.00 | | | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | |
|---|---|---|---|
| 800.00 | 573.80 | 843.00 | 573.80 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 800.00 | 577.40 | 800.00 | 569.00 | 805.00 | 567.90 | 810.00 | 567.50 | 815.00 | 567.20 |
| 820.00 | 567.20 | 825.00 | 567.30 | 830.00 | 567.20 | 835.00 | 567.00 | 840.00 | 567.10 |
| 843.00 | 567.10 | 843.00 | 577.60 | | | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 800.00 | 573.80 | 843.00 | 573.80 | 843.00 | 567.10 | 840.00 | 567.10 | 835.00 | 567.00 |
| 830.00 | 567.20 | 825.00 | 567.30 | 820.00 | 567.20 | 815.00 | 567.20 | 810.00 | 567.50 |
| 805.00 | 567.90 | 800.00 | 569.00 | 800.00 | 573.80 | | | | |

ORIFICE AREA 195.4 WETTED PERIMETER 72.7 29.1/R**1.333 7.8104

Area, $A = 195.4\ ft^2$

Wet Perimeter, $P = 727\ ft$

Hydraulic Radius, $R = A/P = 2.69\ ft$

Length, $L = 66\ ft.$

Manning Coefficient, $n = 0.015$

Entrance Loss, $K_e = 0.5$ (No wingwalls)

Max Depth, $D = 6.8\ ft$

$BWC = A/D = 2874\ ft.$

$$K_f = \frac{29\, n^2 L}{R^{4/3}} = 7.8104\, n^2 L = \cancel{0.07}\ 0.11$$

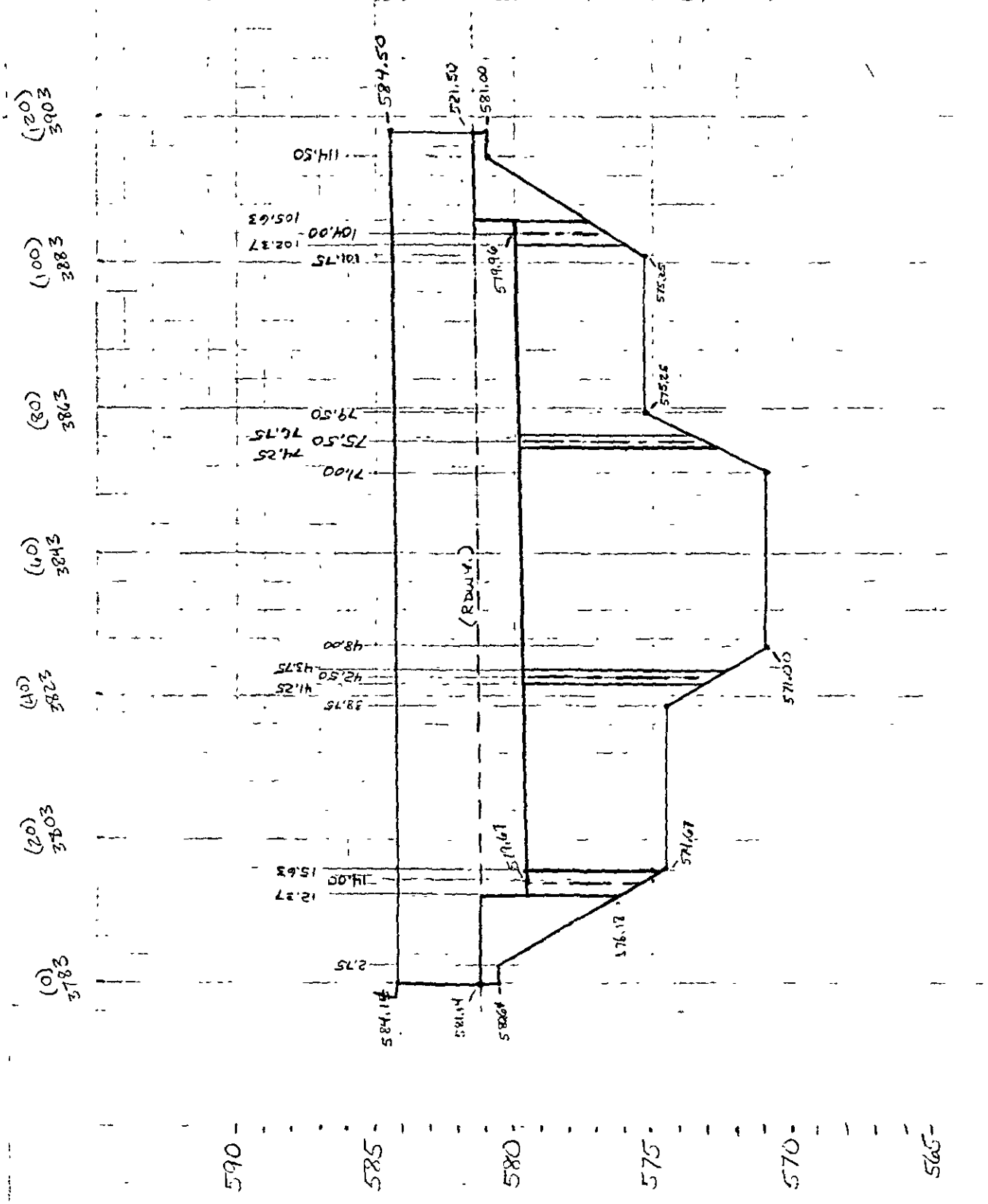
$$XK\phi R = 1 + K_e + K_f$$

$$= 1 + 0.5 + \cancel{0.07}\ 0.11 = \cancel{1.57}\ 1.61$$

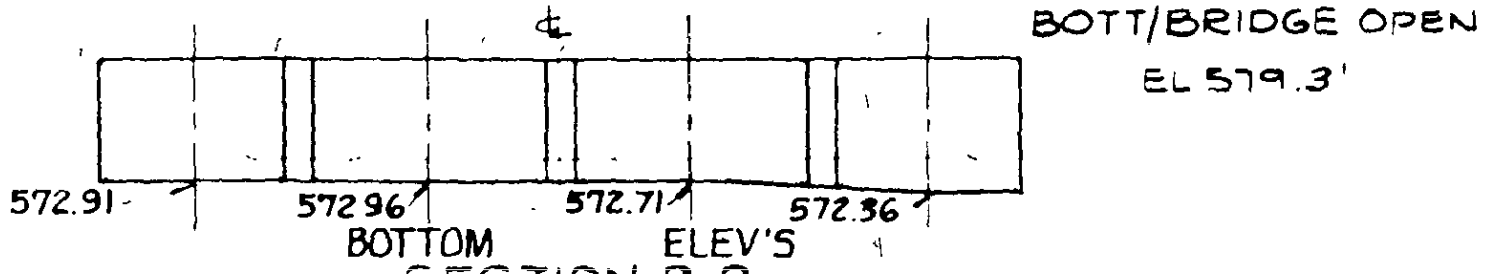
**JOHNSON & ANDERSON, INC.**
**CONSULTING ENGINEERS**

BY Tubby DATE _____ JOB DESCRIPTION GIBRALTAR F1S SHEET _____ OF _____
SUBJECT BLAKELY DRAIN BRIDGE (GIBRALTAR RD) JOB NO. 5555

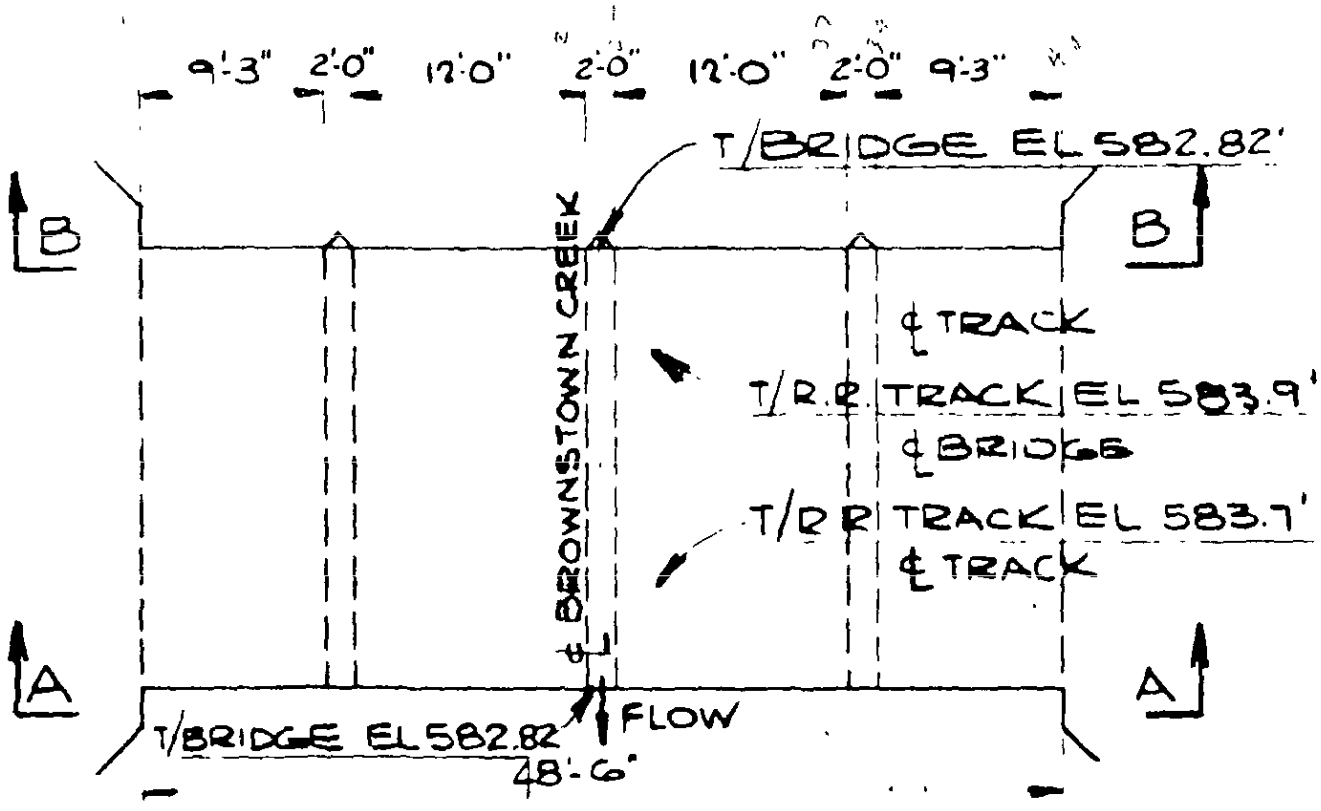
SECNO = 7251



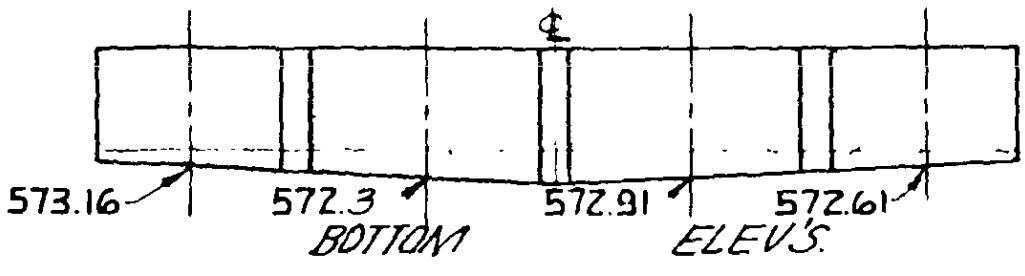
DISTANCE LEFT OR RIGHT OF CENTERLINE OF DRAIN (IN FEET)




SECTION B-B
WEST SIDE OF BRIDGE




PLAN
DETROIT & TOLEDO SHORE LINE R.R.
BRIDGE OVER BROWNSTOWN CREEK




SECTION A-A
EAST SIDE OF BRIDGE
NO SCALE

**** NEW FLOW = 6829.0

**** D.T.&S.L. R.R. @ STATION 18+50

| PROJEC CODE | TABLE 1 | N1 | TABLE 2 | N2 | TABLE 3 | N3 | N4 | IJ | LOW STEEL | | LEFT OVERBANK | ** WEIR ** FLOW | RIGHT OVERBANK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7 | 3 | 8 | 1 | 9 | 6 | 4 | 0 | 579.3 | FLOW = | 2159.00 | | 2993.00 |
| | | | | | | | | | | VELOCITY = | 5.27 | | 2.54 |
| | | | BRIDGE FLOW = | | 1680.00 | | | | | TOP WIDTH = | 733.38 | | 1016.74 |
| | | | BRIDGE VELOCITY = | | 12.07 | ORIFICE COEFF = | | | .85 | RDWY ELEV = | 586.00 | 582.30 | 584.50 |
| ENERGY BALANCE = 584.08 | | | BRDG FLOW AREA = | | 139.2 | | | | | WEIR COEFF = | 3.09 | | 3.09 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 8591.00 | 27 | 582.00 | 850.00 | 300.00 | 300.00 | 300.00 | 1.000 | | |
| BT | 27.00 | 0.00 | 583.40 | 0.00 | 200.00 | 583.20 | 0.00 | 400.00 | 582.80 | 0.00 |
| BT | 500.00 | 582.60 | 0.00 | 582.00 | 582.50 | 0.00 | 582.00 | 582.50 | 577.90 | 586.50 |
| BT | 582.50 | 577.90 | 591.00 | 582.50 | 577.90 | 591.00 | 582.50 | 571.50 | 593.00 | 582.50 |
| BT | 571.60 | 593.00 | 582.50 | 577.90 | 599.00 | 582.50 | 577.90 | 605.00 | 582.50 | 577.90 |
| BT | 605.00 | 582.50 | 571.50 | 607.00 | 582.50 | 571.40 | 607.00 | 582.50 | 577.90 | 613.00 |
| BT | 582.50 | 577.90 | 619.00 | 582.50 | 577.90 | 619.00 | 582.50 | 571.20 | 621.00 | 582.50 |
| BT | 571.10 | 621.00 | 582.50 | 577.90 | 625.50 | 582.50 | 577.90 | 630.00 | 582.50 | 577.90 |
| BT | 630.00 | 582.50 | 0.00 | 680.00 | 582.40 | 0.00 | 840.00 | 582.00 | 0.00 | 1000.00 |
| BT | 581.60 | 0.00 | | | | | | | | |
| GR | 583.40 | 0.00 | 583.20 | 200.00 | 582.80 | 400.00 | 582.60 | 500.00 | 582.50 | 582.00 |
| GR | 571.50 | 582.00 | 571.50 | 586.50 | 571.50 | 591.00 | 571.50 | 591.00 | 571.60 | 593.00 |
| GR | 571.60 | 593.00 | 571.60 | 599.00 | 571.50 | 605.00 | 571.50 | 605.00 | 571.40 | 607.00 |
| GR | 571.40 | 607.00 | 571.30 | 613.00 | 571.20 | 619.00 | 571.20 | 619.00 | 571.10 | 621.00 |
| GR | 571.10 | 621.00 | 571.00 | 625.50 | 571.00 | 630.00 | 582.50 | 630.00 | 582.40 | 680.00 |
| GR | 582.00 | 840.00 | 581.60 | 1000.00 | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 582.00 | 577.90 | 586.50 | 577.90 | 591.00 | 577.90 | 591.00 | 571.50 | 593.00 | 571.60 |
| 593.00 | 577.90 | 599.00 | 577.90 | 605.00 | 577.90 | 605.00 | 571.50 | 607.00 | 571.40 |
| 607.00 | 577.90 | 613.00 | 577.90 | 619.00 | 577.90 | 619.00 | 571.20 | 621.00 | 571.10 |
| 621.00 | 577.90 | 625.50 | 577.90 | 630.00 | 577.90 | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 582.00 | 582.50 | 582.00 | 571.50 | 586.50 | 571.50 | 591.00 | 571.50 | 591.00 | 571.50 |
| 593.00 | 571.60 | 593.00 | 571.60 | 599.00 | 571.60 | 605.00 | 571.50 | 605.00 | 571.50 |
| 607.00 | 571.40 | 607.00 | 571.40 | 613.00 | 571.30 | 619.00 | 571.20 | 619.00 | 571.20 |
| 621.00 | 571.10 | 621.00 | 571.10 | 625.50 | 571.00 | 630.00 | 571.00 | 630.00 | 582.50 |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 582.00 | 577.90 | 586.50 | 577.90 | 591.00 | 577.90 | 591.00 | 571.50 | 593.00 | 571.60 |
| 593.00 | 577.90 | 599.00 | 577.90 | 605.00 | 577.90 | 605.00 | 571.50 | 607.00 | 571.40 |
| 607.00 | 577.90 | 613.00 | 577.90 | 619.00 | 577.90 | 619.00 | 571.20 | 621.00 | 571.10 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 621.00 | 577.90 | 625.00 | 577.90 | 630.00 | 577.90 | 630.00 | 571.00 | 625.00 | 571.00 |
| 621.00 | 571.10 | 621.00 | 571.10 | 619.00 | 571.20 | 619.00 | 571.20 | 613.00 | 571.30 |
| 607.00 | 571.40 | 607.00 | 571.40 | 605.00 | 571.50 | 605.00 | 571.50 | 599.00 | 571.60 |
| 593.00 | 571.60 | 593.00 | 571.60 | 591.00 | 571.50 | 591.00 | 571.50 | 586.50 | 571.50 |
| 582.00 | 571.50 | 582.00 | 577.90 | | | | | | |

ORIFICE AREA 274.5 WETTED PERIMETER 136.4 29.1/R**1.333 11.4774

$A = 274.5\ ft^2$

$P = 136.4\ ft$

$R = A/P = 2.01\ ft.$

$L = 52\ ft$

$n = 0.015$ ( Concrete With Sandy Bottom )

$Ke = 0.40$ ( With Wingwalls )

$K_f = 29.1 n^2 L / R^{4/3} = 11.4774\, n^2 L = 0.13$

$XK\Phi R = 1 + Ke + K_f = 1.53$

$XK = 1.15$

$BWC = 48.0\ ft$

$BWP = 6.0\ ft$

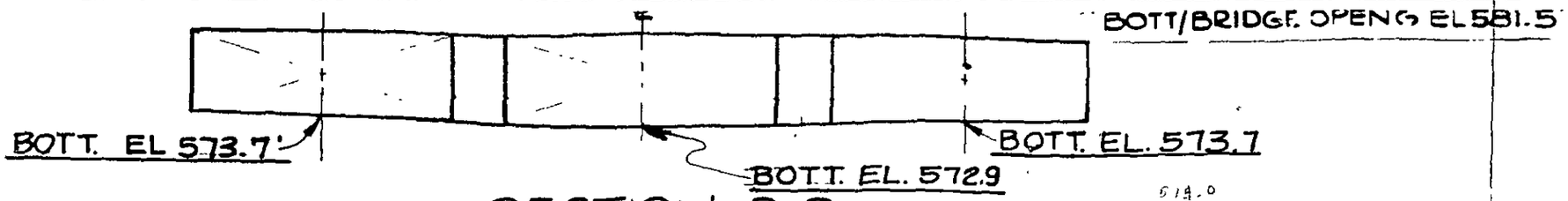
**** NEW FLOW = 3700.0

**** N.Y.C. R.R. & STA. 23+50

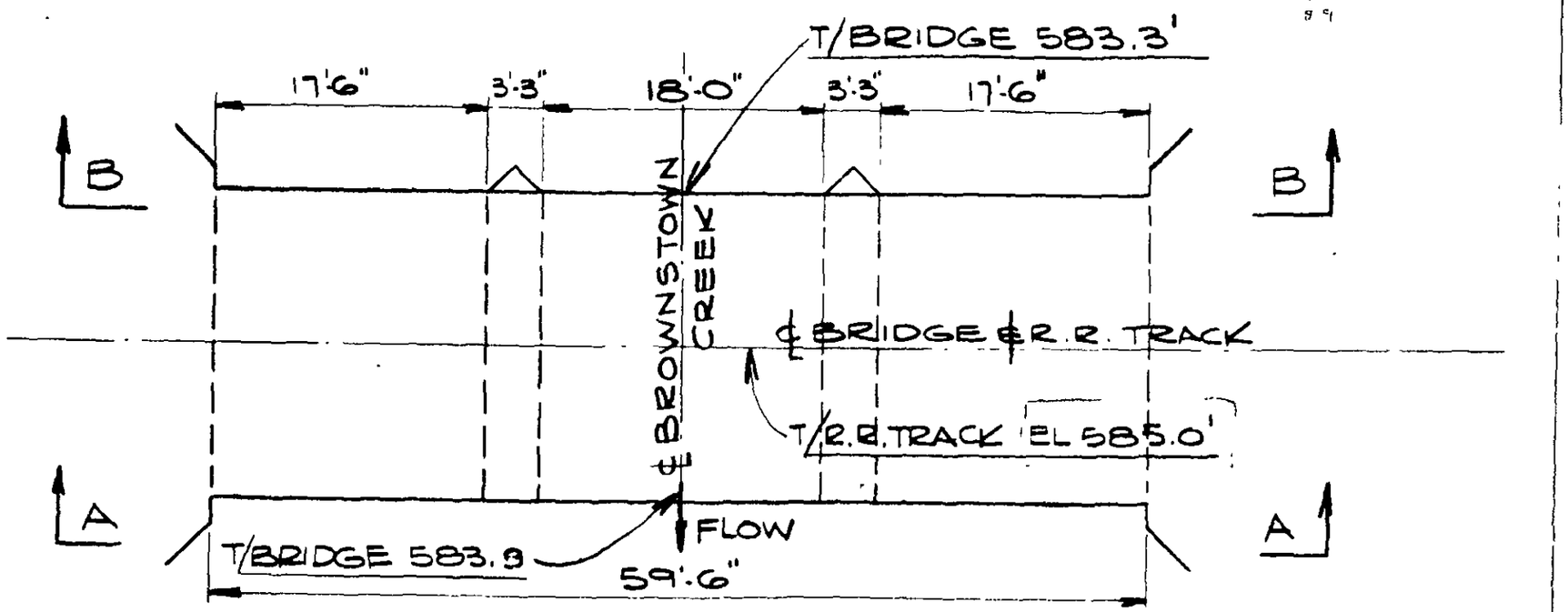
| FROUDE CODE | TABLE 1 | N1 | TABLE 2 | N2 | TABLE 3 | N3 | N4 | IJ | LOW STEEL |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 7 | 2 | 1 | 5 | * | 3 | 0 | 581.5 |

BRIDGE FLOW = 2930.00
BRIDGE VELOCITY = 5.99 ORIFICE COEFF = .95
ENERGY BALANCE = 584.58 BRDG FLOW AREA = 489.0

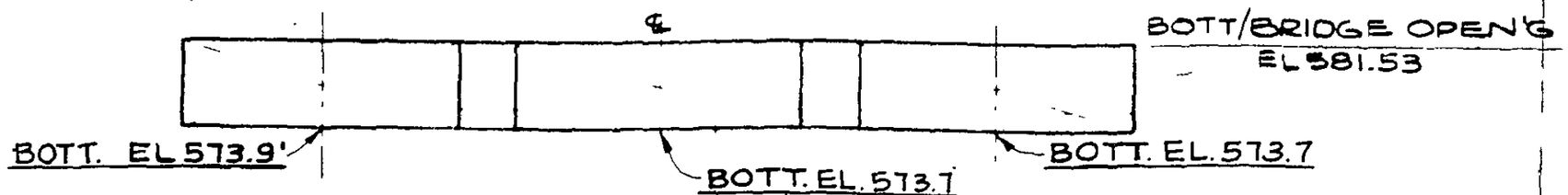
| ** WEIR ** | LEFT OVERBANK | FLOW | RIGHT OVERBANK |
|---|---|---|---|
| FLOW = | 236.00 | | 611.00 |
| VELOCITY = | 2.41 | | 2.68 |
| TOP WIDTH = | 436.82 | | 700.00 |
| RDWY ELEV = | 585.10 | 584.00 | 584.30 |
| WEIR COEFF = | 3.09 | | 3.09 |




## SECTION B-B
## WEST SIDE OF BRIDGE




## PLAN
## PENN CENTRAL R.R. BRIDGE OVER BROWNSTOWN CREEK

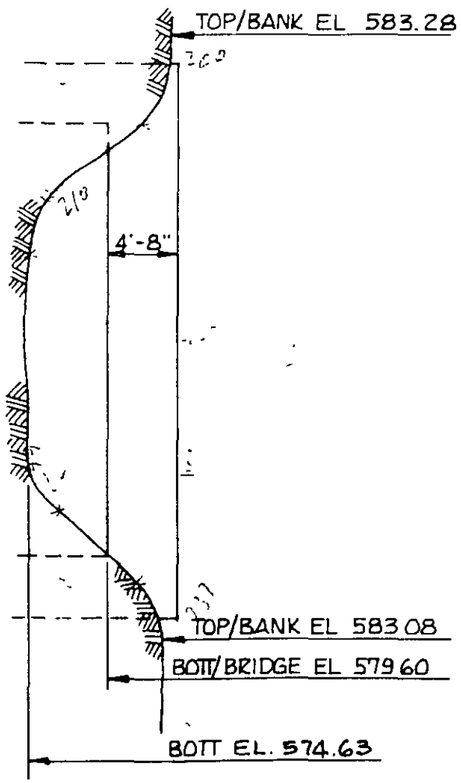



## SECTION A-A
## EAST SIDE OF BRIDGE
NO SCALE

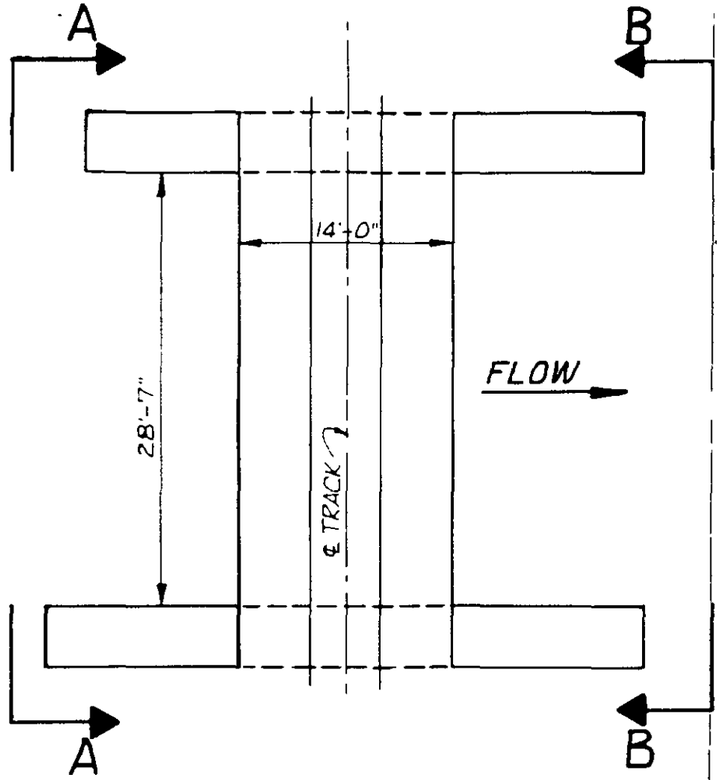
| ***STATION*** 4950 TO 4964 1 19"X 343" RECTANGULAR CULVERT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FRICTION COEFF | LENGTH | EXIT INVERT | ENTRANCE INVERT | ENTRANCE LOSS COEFF | | | LEFT OVERBANK | ** WEIR ** FLOW | RIGHT OVERBANK |
| .013 | 14.0 | 574.83 | 574.63 | .50 | | FLOW = | 1634.18 | | 450.22 |
| | | CULVERT FLOW = | 1119.60 | ORIFICE COEFF = | .81 | VELOCITY = | 5.51 | | 5.12 |
| | | CULVERT VELOCITY = | 7.99 | DIST TO LAST STA = | 350 | TOP WIDTH = | 700.00 | | 328.24 |
| | ENERGY = 536.27 | CULVERT AREA = | 140.5 | | | RDWY ELEV = | 585.70 | 585.20 | 587.40 |
| | | (PIPE FLOWING FULL) | | | | WEIR COEFF = | 3.09 | | 3.09 |

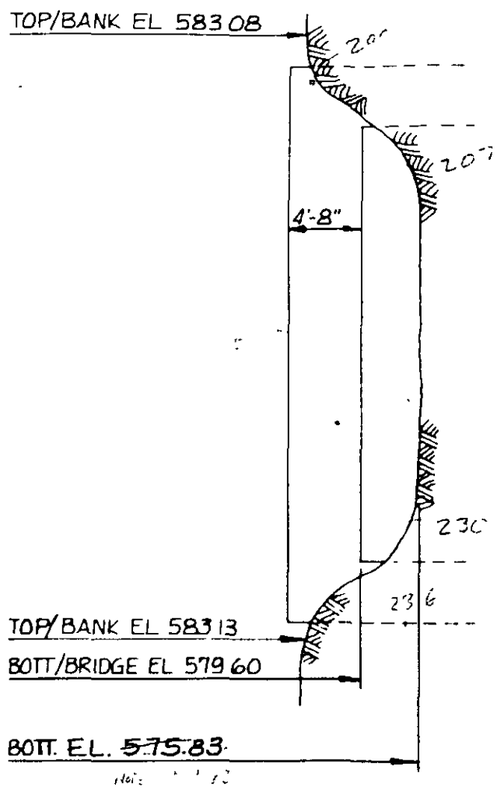
B

N




SECTION "A-A"
(WEST SIDE)




SECTION "B-B"
(EAST SIDE)

# PENN CENTRAL R.R. BRIDGE OVER BROWNSTOWN CREEK

NO SCALE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY MSC DATE 2/18/76 JOB DESCRIPTION FIS - Gibraltar SHEET ____ OF ____
SUBJECT Brownstown Drain BS 49+50 JOB NO. 5555-23-01

Culvert Characteristics : 59" x 343" Rectangular Concrete Culvert.

Area : $A = 140.5$ ft²

Wetted Perimeter : $P = 67.0$ ft.

Hydraulic Radius : $R = A/P = 2.10$ ft.

Length : $L = 14.0$ ft.

Manning n : $n = 0.018$ (with Sandy Bottom)

Entrance Loss : $K_e = 0.70$ (Wingwalls Parallel)

$$K_f = \frac{29.1\, n^2 L}{R^{4/3}} = 0.05$$

$$\Sigma K\phi R = 1 + K_e + K_f = 1.75$$

BWC = 28.5 ft.

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Gibralter

3) WATERCOURSE: Frank and Poet Drain

4) DOCUMENT TYPE: Summary

00BREAK00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

FRANK AND POET DRAIN

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 600.00 | 0.00 | 0.00 | 0.00 | 566.50 | 580.00 | 573.10 | .04 | 0.00 | 0.00 | 568.19 | 6.60 | 95.56 |
| 600.00 | 0.00 | 0.00 | 0.00 | 566.50 | 890.00 | 573.10 | .09 | 0.00 | 0.00 | 871.87 | 6.60 | 95.56 |
| 600.00 | 0.00 | 0.00 | 0.00 | 566.50 | 1020.00 | 573.10 | .12 | 0.00 | 0.00 | 999.23 | 6.60 | 95.56 |
| 600.00 | 0.00 | 0.00 | 0.00 | 566.50 | 1385.00 | 573.10 | .21 | 0.00 | 0.00 | 1356.79 | 6.60 | 95.56 |
| 1100.00 | 500.00 | 0.00 | 0.00 | 564.80 | 580.00 | 573.14 | .23 | .14 | .10 | 580.00 | 8.34 | 20.00 |
| 1100.00 | 500.00 | 0.00 | 0.00 | 564.80 | 890.00 | 573.21 | .53 | .33 | .22 | 890.00 | 8.41 | 20.00 |
| 1100.00 | 500.00 | 0.00 | 0.00 | 564.80 | 1020.00 | 573.24 | .69 | .43 | .29 | 1020.00 | 8.44 | 20.00 |
| 1100.00 | 500.00 | 0.00 | 0.00 | 564.80 | 1385.00 | 573.37 | 1.24 | .78 | .51 | 1385.00 | 8.57 | 20.00 |
| 1101.00 | 1.00 | 574.30 | 575.50 | 564.80 | 580.00 | 573.11 | .30 | .00 | .03 | 580.00 | 8.31 | 20.00 |
| 1101.00 | 1.00 | 574.30 | 575.50 | 564.80 | 890.00 | 573.12 | .70 | .00 | .08 | 890.00 | 8.32 | 20.00 |
| 1101.00 | 1.00 | 574.30 | 575.50 | 564.80 | 1020.00 | 573.13 | .92 | .00 | .11 | 1020.00 | 8.33 | 20.00 |
| 1101.00 | 1.00 | 574.30 | 575.50 | 564.80 | 1385.00 | 573.15 | 1.69 | .00 | .23 | 1385.00 | 8.35 | 20.00 |
| 1127.00 | 26.00 | 574.30 | 575.50 | 564.80 | 580.00 | 573.13 | .30 | .02 | .00 | 580.00 | 8.33 | 20.00 |
| 1127.00 | 26.00 | 574.30 | 575.50 | 564.80 | 890.00 | 573.17 | .70 | .04 | .00 | 890.00 | 8.37 | 20.00 |
| 1127.00 | 26.00 | 574.30 | 575.50 | 564.80 | 1020.00 | 573.19 | .91 | .05 | .00 | 1020.00 | 8.39 | 20.00 |
| 1127.00 | 26.00 | 574.30 | 575.50 | 564.80 | 1385.00 | 573.30 | 1.64 | .08 | .02 | 1385.00 | 8.50 | 20.00 |
| 1128.00 | 1.00 | 0.00 | 0.00 | 564.80 | 580.00 | 573.22 | .23 | .00 | .02 | 580.00 | 8.42 | 20.00 |
| 1128.00 | 1.00 | 0.00 | 0.00 | 564.80 | 890.00 | 573.42 | .51 | .00 | .06 | 890.00 | 8.62 | 20.00 |
| 1128.00 | 1.00 | 0.00 | 0.00 | 564.80 | 1020.00 | 573.54 | .64 | .00 | .08 | 1020.00 | 8.74 | 20.00 |
| 1128.00 | 1.00 | 0.00 | 0.00 | 564.80 | 1385.00 | 574.08 | 1.04 | .00 | .18 | 1385.00 | 9.28 | 20.00 |
| 1178.00 | 50.00 | 0.00 | 0.00 | 566.20 | 580.00 | 573.50 | .02 | .01 | .06 | 579.95 | 7.30 | 110.00 |
| 1178.00 | 50.00 | 0.00 | 0.00 | 566.20 | 890.00 | 574.04 | .04 | .01 | .14 | 887.84 | 7.84 | 120.00 |
| 1178.00 | 50.00 | 0.00 | 0.00 | 566.20 | 1020.00 | 574.33 | .05 | .02 | .18 | 1015.38 | 8.13 | 120.00 |
| 1178.00 | 50.00 | 0.00 | 0.00 | 566.20 | 1385.00 | 575.38 | .06 | .02 | .29 | 1366.98 | 9.18 | 120.00 |
| 1628.00 | 450.00 | 0.00 | 0.00 | 567.60 | 580.00 | 573.53 | .01 | .02 | .00 | 580.00 | 5.93 | 209.51 |
| 1628.00 | 450.00 | 0.00 | 0.00 | 567.60 | 890.00 | 574.10 | .01 | .03 | .01 | 889.22 | 6.50 | 218.20 |
| 1628.00 | 450.00 | 0.00 | 0.00 | 567.60 | 1020.00 | 574.40 | .02 | .03 | .01 | 1018.24 | 6.80 | 228.65 |
| 1628.00 | 450.00 | 0.00 | 0.00 | 567.60 | 1385.00 | 575.46 | .02 | .03 | .01 | 1370.31 | 7.86 | 374.45 |
| 2428.00 | 800.00 | 0.00 | 0.00 | 567.20 | 580.00 | 573.57 | .01 | .03 | .00 | 579.35 | 6.37 | 225.99 |
| 2428.00 | 800.00 | 0.00 | 0.00 | 567.20 | 890.00 | 574.15 | .02 | .05 | .00 | 882.70 | 6.95 | 259.98 |
| 2428.00 | 800.00 | 0.00 | 0.00 | 567.20 | 1020.00 | 574.46 | .02 | .05 | .00 | 1005.15 | 7.26 | 276.70 |
| 2428.00 | 800.00 | 0.00 | 0.00 | 567.20 | 1385.00 | 575.51 | .02 | .05 | .00 | 1320.98 | 8.31 | 491.80 |
| 3228.00 | 800.00 | 0.00 | 0.00 | 567.50 | 580.00 | 573.61 | .15 | .11 | .07 | 580.00 | 6.11 | 47.92 |
| 3228.00 | 800.00 | 0.00 | 0.00 | 567.50 | 890.00 | 574.19 | .27 | .17 | .13 | 890.00 | 6.69 | 48.78 |
| 3228.00 | 800.00 | 0.00 | 0.00 | 567.50 | 1020.00 | 574.48 | .31 | .17 | .15 | 1020.00 | 6.98 | 49.20 |
| 3228.00 | 800.00 | 0.00 | 0.00 | 567.50 | 1385.00 | 575.49 | .38 | .16 | .18 | 1385.00 | 7.99 | 50.67 |
| 3778.00 | 550.00 | 0.00 | 0.00 | 567.20 | 580.00 | 574.06 | .09 | .38 | .02 | 576.49 | 6.86 | 73.10 |
| 3778.00 | 550.00 | 0.00 | 0.00 | 567.20 | 610.00 | 574.83 | .07 | .39 | .06 | 593.83 | 7.63 | 133.71 |
| 3778.00 | 550.00 | 0.00 | 0.00 | 567.20 | 615.00 | 575.17 | .06 | .36 | .07 | 586.21 | 7.97 | 197.43 |
| 3778.00 | 550.00 | 0.00 | 0.00 | 567.20 | 635.00 | 576.21 | .03 | .26 | .11 | 528.09 | 9.01 | 287.36 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3828.00 | 50.00 | 0.00 | 0.00 | 567.10 | 580.00 | 574.03 | .21 | .03 | .06 | 580.00 | 6.93 | 25.00 |
| 3828.00 | 50.00 | 0.00 | 0.00 | 567.10 | 610.00 | 574.89 | .03 | .01 | .01 | 320.06 | 7.79 | 124.16 |
| 3828.00 | 50.00 | 0.00 | 0.00 | 567.10 | 615.00 | 575.22 | .03 | .01 | .01 | 313.38 | 8.12 | 146.33 |
| 3828.00 | 50.00 | 0.00 | 0.00 | 567.10 | 635.00 | 576.23 | .02 | .00 | .00 | 292.55 | 9.13 | 230.00 |
| 3829.00 | 1.00 | 0.00 | 0.00 | 567.10 | 580.00 | 574.03 | .21 | .00 | .00 | 580.00 | 6.93 | 25.00 |
| 3829.00 | 1.00 | 0.00 | 0.00 | 567.10 | 610.00 | 574.90 | .02 | .00 | .00 | 278.76 | 7.80 | 124.23 |
| 3829.00 | 1.00 | 0.00 | 0.00 | 567.10 | 615.00 | 575.23 | .02 | .00 | .00 | 271.90 | 8.13 | 147.47 |
| 3829.00 | 1.00 | 0.00 | 0.00 | 567.10 | 635.00 | 576.23 | .01 | .00 | .00 | 250.70 | 9.13 | 230.00 |
| 3884.00 | 55.00 | 575.10 | 574.40 | 567.10 | 580.00 | 574.04 | .21 | .01 | .00 | 580.00 | 6.94 | 25.00 |
| 3884.00 | 55.00 | 575.10 | 574.40 | 567.10 | 610.00 | 575.21 | .02 | .31 | 0.00 | 270.00 | 8.11 | 145.40 |
| 3884.00 | 55.00 | 575.10 | 574.40 | 567.10 | 615.00 | 575.53 | .02 | .29 | 0.00 | 263.61 | 8.43 | 201.51 |
| 3884.00 | 55.00 | 575.10 | 574.40 | 567.10 | 635.00 | 576.37 | .01 | .13 | 0.00 | 246.21 | 9.27 | 230.00 |
| 3885.00 | 1.00 | 0.00 | 0.00 | 567.10 | 580.00 | 574.04 | .21 | .00 | .00 | 580.00 | 6.94 | 25.00 |
| 3885.00 | 1.00 | 0.00 | 0.00 | 567.10 | 610.00 | 575.21 | .03 | .00 | .01 | 333.54 | 8.11 | 145.40 |
| 3885.00 | 1.00 | 0.00 | 0.00 | 567.10 | 615.00 | 575.52 | .03 | .00 | .00 | 327.30 | 8.42 | 200.36 |
| 3885.00 | 1.00 | 0.00 | 0.00 | 567.10 | 635.00 | 576.37 | .02 | .00 | .00 | 308.76 | 9.27 | 230.00 |
| 4035.00 | 150.00 | 0.00 | 0.00 | 567.20 | 580.00 | 574.27 | .09 | .07 | .04 | 572.86 | 7.07 | 109.52 |
| 4035.00 | 150.00 | 0.00 | 0.00 | 567.20 | 610.00 | 575.22 | .05 | .02 | .01 | 557.46 | 8.02 | 201.45 |
| 4035.00 | 150.00 | 0.00 | 0.00 | 567.20 | 615.00 | 575.53 | .04 | .02 | .01 | 539.03 | 8.33 | 215.15 |
| 4035.00 | 150.00 | 0.00 | 0.00 | 567.20 | 635.00 | 576.38 | .02 | .01 | .00 | 446.36 | 9.18 | 365.86 |
| 4265.00 | 230.00 | 0.00 | 0.00 | 567.00 | 580.00 | 574.35 | .08 | .07 | .00 | 344.80 | 7.35 | 96.71 |
| 4265.00 | 230.00 | 0.00 | 0.00 | 567.00 | 610.00 | 575.25 | .06 | .04 | .00 | 337.46 | 8.25 | 363.58 |
| 4265.00 | 230.00 | 0.00 | 0.00 | 567.00 | 615.00 | 575.56 | .04 | .03 | .00 | 320.47 | 8.56 | 384.60 |
| 4265.00 | 230.00 | 0.00 | 0.00 | 567.00 | 635.00 | 576.39 | .02 | .01 | .00 | 270.29 | 9.39 | 430.67 |
| 4266.00 | 1.00 | 0.00 | 0.00 | 567.00 | 580.00 | 574.39 | .05 | .00 | .01 | 274.94 | 7.39 | 97.18 |
| 4266.00 | 1.00 | 0.00 | 0.00 | 567.00 | 610.00 | 575.29 | .03 | .00 | .01 | 262.64 | 8.29 | 366.19 |
| 4266.00 | 1.00 | 0.00 | 0.00 | 567.00 | 615.00 | 575.59 | .02 | .00 | .01 | 247.24 | 8.59 | 386.51 |
| 4266.00 | 1.00 | 0.00 | 0.00 | 567.00 | 635.00 | 576.40 | .01 | .00 | .00 | 205.01 | 9.40 | 430.68 |
| 4313.00 | 47.00 | 575.00 | 572.90 | 567.00 | 580.00 | 575.17 | .03 | .76 | 0.00 | 255.01 | 8.17 | 233.86 |
| 4313.00 | 47.00 | 575.00 | 572.90 | 567.00 | 610.00 | 575.53 | .03 | .23 | 0.00 | 248.81 | 8.53 | 382.50 |
| 4313.00 | 47.00 | 575.00 | 572.90 | 567.00 | 615.00 | 575.68 | .02 | .10 | 0.00 | 241.09 | 8.68 | 393.15 |
| 4313.00 | 47.00 | 575.00 | 572.90 | 567.00 | 635.00 | 576.43 | .01 | .04 | 0.00 | 202.17 | 9.43 | 433.32 |
| 4314.00 | 1.00 | 0.00 | 0.00 | 567.00 | 580.00 | 575.16 | .06 | .00 | .01 | 326.82 | 8.16 | 230.73 |
| 4314.00 | 1.00 | 0.00 | 0.00 | 567.00 | 610.00 | 575.52 | .05 | .00 | .01 | 323.21 | 8.52 | 382.15 |
| 4314.00 | 1.00 | 0.00 | 0.00 | 567.00 | 615.00 | 575.67 | .04 | .00 | .01 | 314.78 | 8.67 | 393.15 |
| 4314.00 | 1.00 | 0.00 | 0.00 | 567.00 | 635.00 | 576.43 | .02 | .00 | .01 | 272.05 | 9.43 | 433.03 |
| 4524.00 | 210.00 | 0.00 | 0.00 | 567.60 | 580.00 | 575.24 | .02 | .03 | .01 | 385.54 | 7.64 | 366.58 |
| 4524.00 | 210.00 | 0.00 | 0.00 | 567.60 | 610.00 | 575.58 | .01 | .02 | .01 | 374.00 | 7.98 | 386.50 |
| 4524.00 | 210.00 | 0.00 | 0.00 | 567.60 | 615.00 | 575.73 | .01 | .02 | .01 | 364.77 | 8.13 | 395.13 |
| 4524.00 | 210.00 | 0.00 | 0.00 | 567.60 | 635.00 | 576.46 | .01 | .01 | .00 | 326.07 | 8.86 | 436.52 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5024.00 | 500.00 | 0.00 | 0.00 | 567.70 | 580.00 | 575.29 | .06 | .08 | .02 | 572.20 | 7.59 | 232.85 |
| 5024.00 | 500.00 | 0.00 | 0.00 | 567.70 | 610.00 | 575.62 | .05 | .06 | .02 | 578.15 | 7.92 | 234.00 |
| 5024.00 | 500.00 | 0.00 | 0.00 | 567.70 | 615.00 | 575.77 | .05 | .05 | .02 | 569.95 | 8.07 | 234.00 |
| 5024.00 | 500.00 | 0.00 | 0.00 | 567.70 | 635.00 | 576.48 | .03 | .03 | .01 | 528.08 | 8.78 | 234.00 |
| 5524.00 | 500.00 | 0.00 | 0.00 | 567.20 | 580.00 | 575.41 | .01 | .06 | .01 | 516.28 | 8.21 | 230.00 |
| 5524.00 | 500.00 | 0.00 | 0.00 | 567.20 | 610.00 | 575.72 | .01 | .05 | .01 | 530.79 | 8.52 | 230.00 |
| 5524.00 | 500.00 | 0.00 | 0.00 | 567.20 | 615.00 | 575.86 | .01 | .04 | .01 | 530.51 | 8.66 | 230.00 |
| 5524.00 | 500.00 | 0.00 | 0.00 | 567.20 | 635.00 | 576.53 | .01 | .03 | .01 | 525.51 | 9.33 | 230.00 |
| 5924.00 | 400.00 | 0.00 | 0.00 | 566.60 | 580.00 | 575.44 | .03 | .03 | .01 | 429.64 | 8.84 | 190.99 |
| 5924.00 | 400.00 | 0.00 | 0.00 | 566.60 | 610.00 | 575.75 | .02 | .03 | .01 | 432.94 | 9.15 | 192.00 |
| 5924.00 | 400.00 | 0.00 | 0.00 | 566.60 | 615.00 | 575.88 | .02 | .03 | .01 | 428.94 | 9.28 | 192.00 |
| 5924.00 | 400.00 | 0.00 | 0.00 | 566.60 | 635.00 | 576.54 | .02 | .02 | .00 | 408.44 | 9.94 | 192.00 |
| 6024.00 | 100.00 | 0.00 | 0.00 | 567.40 | 580.00 | 575.45 | .03 | .01 | .00 | 556.02 | 8.05 | 110.00 |
| 6024.00 | 100.00 | 0.00 | 0.00 | 567.40 | 610.00 | 575.76 | .03 | .01 | .00 | 580.49 | 8.36 | 110.00 |
| 6024.00 | 100.00 | 0.00 | 0.00 | 567.40 | 615.00 | 575.89 | .02 | .01 | .00 | 583.32 | 8.49 | 110.00 |
| 6024.00 | 100.00 | 0.00 | 0.00 | 567.40 | 635.00 | 576.55 | .02 | .01 | .00 | 592.11 | 9.15 | 110.00 |
| 6199.00 | 175.00 | 0.00 | 0.00 | 569.20 | 595.00 | 575.34 | .34 | .05 | .16 | 595.00 | 6.14 | 24.00 |
| 6199.00 | 175.00 | 0.00 | 0.00 | 569.20 | 620.00 | 575.65 | .33 | .04 | .15 | 620.00 | 6.45 | 24.00 |
| 6199.00 | 175.00 | 0.00 | 0.00 | 569.20 | 625.00 | 575.78 | .32 | .04 | .15 | 625.00 | 6.58 | 24.00 |
| 6199.00 | 175.00 | 0.00 | 0.00 | 569.20 | 645.00 | 576.45 | .28 | .03 | .13 | 645.00 | 7.25 | 24.00 |
| 6200.00 | 1.00 | 0.00 | 0.00 | 569.20 | 595.00 | 575.34 | .34 | .00 | .00 | 595.00 | 6.14 | 24.00 |
| 6200.00 | 1.00 | 0.00 | 0.00 | 569.20 | 620.00 | 575.65 | .33 | .00 | .00 | 620.00 | 6.45 | 24.00 |
| 6200.00 | 1.00 | 0.00 | 0.00 | 569.20 | 625.00 | 575.78 | .32 | .00 | .00 | 625.00 | 6.58 | 24.00 |
| 6200.00 | 1.00 | 0.00 | 0.00 | 569.20 | 645.00 | 576.45 | .28 | .00 | .00 | 645.00 | 7.25 | 24.00 |
| 6290.00 | 90.00 | 585.00 | 575.20 | 569.20 | 595.00 | 577.85 | .16 | 2.32 | 0.00 | 595.00 | 8.65 | 24.00 |
| 6290.00 | 90.00 | 585.00 | 575.20 | 569.20 | 620.00 | 578.39 | .15 | 2.56 | 0.00 | 620.00 | 9.19 | 24.00 |
| 6290.00 | 90.00 | 585.00 | 575.20 | 569.20 | 625.00 | 578.58 | .15 | 2.62 | 0.00 | 625.00 | 9.38 | 24.00 |
| 6290.00 | 90.00 | 585.00 | 575.20 | 569.20 | 645.00 | 579.46 | .13 | 2.86 | 0.00 | 645.00 | 10.26 | 24.00 |
| 6291.00 | 1.00 | 0.00 | 0.00 | 569.20 | 595.00 | 577.85 | .16 | .00 | .00 | 595.00 | 8.65 | 24.00 |
| 6291.00 | 1.00 | 0.00 | 0.00 | 569.20 | 620.00 | 578.39 | .15 | .00 | .00 | 620.00 | 9.19 | 24.00 |
| 6291.00 | 1.00 | 0.00 | 0.00 | 569.20 | 625.00 | 578.58 | .15 | .00 | .00 | 625.00 | 9.38 | 24.00 |
| 6291.00 | 1.00 | 0.00 | 0.00 | 569.20 | 645.00 | 579.46 | .13 | .00 | .00 | 645.00 | 10.26 | 24.00 |
| 6313.00 | 22.00 | 0.00 | 0.00 | 569.10 | 595.00 | 578.02 | .03 | .00 | .04 | 520.19 | 8.92 | 68.00 |
| 6313.00 | 22.00 | 0.00 | 0.00 | 569.10 | 620.00 | 578.56 | .03 | .00 | .04 | 537.33 | 9.46 | 68.00 |
| 6313.00 | 22.00 | 0.00 | 0.00 | 569.10 | 625.00 | 578.74 | .03 | .00 | .04 | 540.16 | 9.64 | 68.00 |
| 6313.00 | 22.00 | 0.00 | 0.00 | 569.10 | 645.00 | 579.60 | .02 | .00 | .03 | 550.61 | 10.50 | 68.00 |
| 7013.00 | 700.00 | 0.00 | 0.00 | 569.00 | 595.00 | 578.08 | .01 | .03 | .01 | 342.08 | 9.08 | 329.51 |
| 7013.00 | 700.00 | 0.00 | 0.00 | 569.00 | 620.00 | 578.61 | .00 | .02 | .01 | 341.12 | 9.61 | 341.88 |
| 7013.00 | 700.00 | 0.00 | 0.00 | 569.00 | 625.00 | 578.78 | .00 | .02 | .01 | 338.93 | 9.78 | 344.97 |
| 7013.00 | 700.00 | 0.00 | 0.00 | 569.00 | 645.00 | 579.64 | .00 | .01 | .01 | 327.92 | 10.64 | 359.88 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7513.00 | 500.00 | 0.00 | 0.00 | 568.00 | 595.00 | 578.09 | .01 | .01 | .00 | 290.50 | 10.09 | 280.46 |
| 7513.00 | 500.00 | 0.00 | 0.00 | 568.00 | 620.00 | 578.62 | .01 | .01 | .00 | 282.43 | 10.62 | 290.45 |
| 7513.00 | 500.00 | 0.00 | 0.00 | 568.00 | 625.00 | 578.79 | .01 | .01 | .00 | 278.45 | 10.79 | 293.96 |
| 7513.00 | 500.00 | 0.00 | 0.00 | 568.00 | 645.00 | 579.64 | .00 | .01 | .00 | 260.60 | 11.64 | 311.00 |
| 8013.00 | 500.00 | 0.00 | 0.00 | 568.60 | 595.00 | 578.12 | .02 | .03 | .01 | 403.99 | 9.52 | 192.97 |
| 8013.00 | 500.00 | 0.00 | 0.00 | 568.60 | 620.00 | 578.64 | .02 | .02 | .00 | 397.00 | 10.04 | 198.30 |
| 8013.00 | 500.00 | 0.00 | 0.00 | 568.60 | 625.00 | 578.81 | .01 | .02 | .00 | 393.06 | 10.21 | 200.00 |
| 8013.00 | 500.00 | 0.00 | 0.00 | 568.60 | 645.00 | 579.65 | .01 | .01 | .00 | 380.62 | 11.05 | 200.00 |
| 8445.00 | 432.00 | 0.00 | 0.00 | 568.60 | 595.00 | 578.14 | .20 | .11 | .09 | 595.00 | 9.54 | 27.00 |
| 8445.00 | 432.00 | 0.00 | 0.00 | 568.60 | 620.00 | 578.63 | .19 | .08 | .09 | 620.00 | 10.03 | 27.00 |
| 8445.00 | 432.00 | 0.00 | 0.00 | 568.60 | 625.00 | 578.80 | .18 | .08 | .08 | 625.00 | 10.20 | 27.00 |
| 8445.00 | 432.00 | 0.00 | 0.00 | 568.60 | 645.00 | 579.63 | .15 | .05 | .07 | 645.00 | 11.03 | 27.00 |
| 8473.00 | 28.00 | 0.00 | 0.00 | 569.00 | 595.00 | 578.06 | .43 | .04 | .11 | 595.00 | 9.06 | 12.50 |
| 8473.00 | 28.00 | 0.00 | 0.00 | 569.00 | 620.00 | 578.55 | .42 | .03 | .12 | 620.00 | 9.55 | 12.50 |
| 8473.00 | 28.00 | 0.00 | 0.00 | 569.00 | 625.00 | 578.72 | .41 | .03 | .11 | 625.00 | 9.72 | 12.50 |
| 8473.00 | 28.00 | 0.00 | 0.00 | 569.00 | 645.00 | 579.54 | .37 | .02 | .11 | 645.00 | 10.54 | 12.50 |
| 8474.00 | 1.00 | 0.00 | 0.00 | 569.00 | 595.00 | 578.06 | .43 | .00 | .00 | 595.00 | 9.06 | 12.50 |
| 8474.00 | 1.00 | 0.00 | 0.00 | 569.00 | 620.00 | 578.55 | .42 | .00 | .00 | 620.00 | 9.55 | 12.50 |
| 8474.00 | 1.00 | 0.00 | 0.00 | 569.00 | 625.00 | 578.72 | .41 | .00 | .00 | 625.00 | 9.72 | 12.50 |
| 8474.00 | 1.00 | 0.00 | 0.00 | 569.00 | 645.00 | 579.54 | .37 | .00 | .00 | 645.00 | 10.54 | 12.50 |
| 8510.00 | 36.00 | 581.90 | 577.40 | 569.00 | 595.00 | 578.95 | .36 | .82 | 0.00 | 595.00 | 9.95 | 12.50 |
| 8510.00 | 36.00 | 581.90 | 577.40 | 569.00 | 620.00 | 579.57 | .34 | .94 | 0.00 | 620.00 | 10.57 | 12.50 |
| 8510.00 | 36.00 | 581.90 | 577.40 | 569.00 | 625.00 | 579.76 | .34 | .97 | 0.00 | 625.00 | 10.76 | 12.50 |
| 8510.00 | 36.00 | 581.90 | 577.40 | 569.00 | 645.00 | 580.71 | .30 | 1.10 | 0.00 | 645.00 | 11.71 | 12.50 |
| 8511.00 | 1.00 | 0.00 | 0.00 | 569.00 | 595.00 | 578.95 | .36 | .00 | .00 | 595.00 | 9.95 | 12.50 |
| 8511.00 | 1.00 | 0.00 | 0.00 | 569.00 | 620.00 | 579.57 | .34 | .00 | .00 | 620.00 | 10.57 | 12.50 |
| 8511.00 | 1.00 | 0.00 | 0.00 | 569.00 | 625.00 | 579.76 | .34 | .00 | .00 | 625.00 | 10.76 | 12.50 |
| 8511.00 | 1.00 | 0.00 | 0.00 | 569.00 | 645.00 | 580.71 | .30 | .00 | .00 | 645.00 | 11.71 | 12.50 |
| 8681.00 | 170.00 | 0.00 | 0.00 | 569.50 | 740.00 | 579.37 | .09 | .07 | .08 | 381.90 | 9.87 | 74.56 |
| 8681.00 | 170.00 | 0.00 | 0.00 | 569.50 | 855.00 | 579.95 | .10 | .07 | .07 | 427.27 | 10.45 | 83.30 |
| 8681.00 | 170.00 | 0.00 | 0.00 | 569.50 | 880.00 | 580.14 | .10 | .07 | .07 | 435.09 | 10.64 | 86.10 |
| 8681.00 | 170.00 | 0.00 | 0.00 | 569.50 | 915.00 | 581.05 | .08 | .05 | .07 | 428.40 | 11.55 | 99.82 |
| 8851.00 | 170.00 | 0.00 | 0.00 | 570.10 | 740.00 | 579.26 | .45 | .07 | .18 | 740.00 | 9.16 | 15.00 |
| 8851.00 | 170.00 | 0.00 | 0.00 | 570.10 | 855.00 | 579.81 | .53 | .08 | .22 | 855.00 | 9.71 | 15.00 |
| 8851.00 | 170.00 | 0.00 | 0.00 | 570.10 | 880.00 | 579.99 | .55 | .08 | .22 | 880.00 | 9.89 | 15.00 |
| 8851.00 | 170.00 | 0.00 | 0.00 | 570.10 | 915.00 | 580.91 | .49 | .06 | .21 | 915.00 | 10.81 | 15.00 |
| 8852.00 | 1.00 | 0.00 | 0.00 | 570.10 | 740.00 | 579.27 | .45 | .00 | .00 | 740.00 | 9.17 | 15.00 |
| 8852.00 | 1.00 | 0.00 | 0.00 | 570.10 | 855.00 | 579.81 | .53 | .00 | .00 | 855.00 | 9.71 | 15.00 |
| 8852.00 | 1.00 | 0.00 | 0.00 | 570.10 | 880.00 | 579.99 | .55 | .00 | .00 | 880.00 | 9.89 | 15.00 |
| 8852.00 | 1.00 | 0.00 | 0.00 | 570.10 | 915.00 | 580.91 | .49 | .00 | .00 | 915.00 | 10.81 | 15.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8868.00 | 16.00 | 584.20 | 578.60 | 570.10 | 740.00 | 579.65 | .41 | .35 | 0.00 | 740.00 | 9.55 | 15.00 |
| 8868.00 | 16.00 | 584.20 | 578.60 | 570.10 | 855.00 | 580.41 | .47 | .54 | 0.00 | 855.00 | 10.31 | 15.00 |
| 8868.00 | 16.00 | 584.20 | 578.60 | 570.10 | 880.00 | 580.65 | .48 | .59 | 0.00 | 880.00 | 10.55 | 15.00 |
| 8868.00 | 16.00 | 584.20 | 578.60 | 570.10 | 915.00 | 581.70 | .43 | .73 | 0.00 | 915.00 | 11.60 | 15.00 |
| 8869.00 | 1.00 | 0.00 | 0.00 | 570.10 | 740.00 | 579.65 | .41 | .00 | .00 | 740.00 | 9.55 | 15.00 |
| 8869.00 | 1.00 | 0.00 | 0.00 | 570.10 | 855.00 | 580.41 | .47 | .00 | .00 | 855.00 | 10.31 | 15.00 |
| 8869.00 | 1.00 | 0.00 | 0.00 | 570.10 | 880.00 | 580.65 | .48 | .00 | .00 | 880.00 | 10.55 | 15.00 |
| 8869.00 | 1.00 | 0.00 | 0.00 | 570.10 | 915.00 | 581.70 | .43 | .00 | .00 | 915.00 | 11.60 | 15.00 |
| 8874.00 | 5.00 | 0.00 | 0.00 | 570.10 | 740.00 | 579.97 | .17 | .00 | .07 | 537.04 | 9.87 | 25.00 |
| 8874.00 | 5.00 | 0.00 | 0.00 | 570.10 | 855.00 | 580.78 | .19 | .00 | .08 | 618.61 | 10.68 | 25.00 |
| 8874.00 | 5.00 | 0.00 | 0.00 | 570.10 | 880.00 | 581.02 | .19 | .00 | .09 | 636.17 | 10.92 | 25.00 |
| 8874.00 | 5.00 | 0.00 | 0.00 | 570.10 | 915.00 | 582.03 | .18 | .00 | .08 | 659.41 | 11.93 | 25.00 |
| 9177.00 | 303.00 | 0.00 | 0.00 | 569.70 | 765.00 | 580.20 | .00 | .01 | .05 | 156.76 | 10.50 | 468.99 |
| 9177.00 | 303.00 | 0.00 | 0.00 | 569.70 | 1010.00 | 581.03 | .00 | .01 | .06 | 194.12 | 11.33 | 471.08 |
| 9177.00 | 303.00 | 0.00 | 0.00 | 569.70 | 1100.00 | 581.28 | .00 | .01 | .06 | 207.93 | 11.58 | 471.69 |
| 9177.00 | 303.00 | 0.00 | 0.00 | 569.70 | 1350.00 | 582.26 | .00 | .00 | .05 | 240.55 | 12.56 | 474.16 |
| 9677.00 | 500.00 | 0.00 | 0.00 | 569.50 | 765.00 | 580.20 | .00 | .00 | .00 | 135.57 | 10.70 | 506.99 |
| 9677.00 | 500.00 | 0.00 | 0.00 | 569.50 | 1010.00 | 581.04 | .00 | .00 | .00 | 169.38 | 11.54 | 523.71 |
| 9677.00 | 500.00 | 0.00 | 0.00 | 569.50 | 1100.00 | 581.28 | .00 | .00 | .00 | 181.79 | 11.78 | 528.60 |
| 9677.00 | 500.00 | 0.00 | 0.00 | 569.50 | 1350.00 | 582.27 | .00 | .00 | .00 | 211.53 | 12.77 | 548.33 |
| 10177.00 | 500.00 | 0.00 | 0.00 | 569.60 | 765.00 | 580.20 | .00 | .00 | .00 | 131.49 | 10.60 | 567.03 |
| 10177.00 | 500.00 | 0.00 | 0.00 | 569.60 | 1010.00 | 581.04 | .00 | .00 | .00 | 164.95 | 11.44 | 579.97 |
| 10177.00 | 500.00 | 0.00 | 0.00 | 569.60 | 1100.00 | 581.28 | .00 | .00 | .00 | 177.26 | 11.68 | 584.42 |
| 10177.00 | 500.00 | 0.00 | 0.00 | 569.60 | 1350.00 | 582.27 | .00 | .00 | .00 | 207.27 | 12.67 | 626.66 |
| 10622.00 | 445.00 | 0.00 | 0.00 | 569.30 | 765.00 | 580.20 | .00 | .00 | .00 | 81.32 | 10.90 | 614.00 |
| 10622.00 | 445.00 | 0.00 | 0.00 | 569.30 | 1010.00 | 581.04 | .00 | .00 | .00 | 100.90 | 11.74 | 614.00 |
| 10622.00 | 445.00 | 0.00 | 0.00 | 569.30 | 1100.00 | 581.29 | .00 | .00 | .00 | 108.17 | 11.99 | 614.00 |
| 10622.00 | 445.00 | 0.00 | 0.00 | 569.30 | 1350.00 | 582.27 | .00 | .00 | .00 | 125.60 | 12.97 | 614.00 |
| 10654.00 | 32.00 | 0.00 | 0.00 | 570.70 | 770.00 | 580.20 | .01 | .00 | .00 | 200.49 | 9.50 | 680.00 |
| 10654.00 | 32.00 | 0.00 | 0.00 | 570.70 | 1015.00 | 581.04 | .00 | .00 | .00 | 204.04 | 10.34 | 680.00 |
| 10654.00 | 32.00 | 0.00 | 0.00 | 570.70 | 1105.00 | 581.28 | .00 | .00 | .00 | 208.57 | 10.58 | 680.00 |
| 10654.00 | 32.00 | 0.00 | 0.00 | 570.70 | 1365.00 | 582.27 | .00 | .00 | .00 | 208.52 | 11.57 | 680.00 |
| 10655.00 | 1.00 | 577.30 | 574.70 | 570.70 | 770.00 | 580.20 | .00 | .00 | .00 | 61.58 | 9.50 | 680.00 |
| 10655.00 | 1.00 | 577.30 | 574.70 | 570.70 | 1015.00 | 581.04 | .00 | .00 | .00 | 64.69 | 10.34 | 680.00 |
| 10655.00 | 1.00 | 577.30 | 574.70 | 570.70 | 1105.00 | 581.29 | .00 | .00 | .00 | 66.89 | 10.59 | 680.00 |
| 10655.00 | 1.00 | 577.30 | 574.70 | 570.70 | 1365.00 | 582.27 | .00 | .00 | .00 | 70.14 | 11.57 | 680.00 |
| 10693.00 | 38.00 | 577.30 | 574.70 | 570.70 | 770.00 | 580.20 | .00 | .00 | .00 | 61.56 | 9.50 | 680.00 |
| 10693.00 | 38.00 | 577.30 | 574.70 | 570.70 | 1015.00 | 581.04 | .00 | .00 | .00 | 64.68 | 10.34 | 680.00 |
| 10693.00 | 38.00 | 577.30 | 574.70 | 570.70 | 1105.00 | 581.29 | .00 | .00 | .00 | 66.88 | 10.59 | 680.00 |
| 10693.00 | 38.00 | 577.30 | 574.70 | 570.70 | 1365.00 | 582.27 | .00 | .00 | .00 | 70.14 | 11.57 | 680.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10694.00 | 1.00 | 0.00 | 0.00 | 570.70 | 770.00 | 580.20 | .00 | .00 | .00 | 192.52 | 9.50 | 680.00 |
| 10694.00 | 1.00 | 0.00 | 0.00 | 570.70 | 1015.00 | 581.04 | .00 | .00 | .00 | 194.34 | 10.34 | 680.00 |
| 10694.00 | 1.00 | 0.00 | 0.00 | 570.70 | 1105.00 | 581.29 | .00 | .00 | .00 | 198.29 | 10.59 | 680.00 |
| 10694.00 | 1.00 | 0.00 | 0.00 | 570.70 | 1365.00 | 582.27 | .00 | .00 | .00 | 197.18 | 11.57 | 680.00 |
| -3228.00 | 0.00 | 0.00 | 0.00 | 567.50 | 580.00 | 573.61 | .15 | 0.00 | 0.00 | 580.00 | 6.11 | 47.92 |
| -3228.00 | 0.00 | 0.00 | 0.00 | 567.50 | 890.00 | 574.19 | .27 | 0.00 | 0.00 | 890.00 | 6.69 | 48.77 |
| -3228.00 | 0.00 | 0.00 | 0.00 | 567.50 | 1020.00 | 574.48 | .31 | 0.00 | 0.00 | 1020.00 | 6.98 | 49.20 |
| -3228.00 | 0.00 | 0.00 | 0.00 | 567.50 | 1385.00 | 575.49 | .38 | 0.00 | 0.00 | 1385.00 | 7.99 | 50.67 |
| 3353.00 | 125.00 | 0.00 | 0.00 | 575.10 | 5.00 | 575.14 | .02 | .12 | 0.00 | 5.00 | .04 | 120.53 |
| 3353.00 | 125.00 | 0.00 | 0.00 | 575.10 | 300.00 | 575.56 | .17 | .24 | 0.00 | 300.00 | .46 | 264.67 |
| 3353.00 | 125.00 | 0.00 | 0.00 | 575.10 | 425.00 | 575.66 | .21 | .27 | 0.00 | 425.00 | .56 | 288.88 |
| 3353.00 | 125.00 | 0.00 | 0.00 | 575.10 | 765.00 | 575.98 | .20 | .25 | .06 | 765.00 | .88 | 324.83 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 600.000 | 580.000 | 573.100 | 0.000 | 0.000 | 0.000 | 95.559 | 0.000 | 0.000 |
| 600.000 | 890.000 | 573.100 | 0.000 | 0.000 | 0.000 | 95.559 | 0.000 | 0.000 |
| 600.000 | 1020.000 | 573.100 | 0.000 | 0.000 | 0.000 | 95.559 | 0.000 | 0.000 |
| 600.000 | 1385.000 | 573.100 | 0.000 | 0.000 | 0.000 | 95.559 | 0.000 | 0.000 |
| 1100.000 | 580.000 | 573.144 | 0.000 | .044 | 0.000 | 20.000 | 0.000 | 500.000 |
| 1100.000 | 890.000 | 573.206 | .062 | .106 | 0.000 | 20.000 | 0.000 | 500.000 |
| 1100.000 | 1020.000 | 573.241 | .035 | .141 | 0.000 | 20.000 | 0.000 | 500.000 |
| 1100.000 | 1385.000 | 573.370 | .129 | .270 | 0.000 | 20.000 | 0.000 | 500.000 |
| 1101.000 | 580.000 | 573.111 | 0.000 | -.033 | 0.000 | 20.000 | 0.000 | 1.000 |
| 1101.000 | 890.000 | 573.124 | .013 | -.082 | 0.000 | 20.000 | 0.000 | 1.000 |
| 1101.000 | 1020.000 | 573.130 | .006 | -.111 | 0.000 | 20.000 | 0.000 | 1.000 |
| 1101.000 | 1385.000 | 573.148 | .018 | -.222 | 0.000 | 20.000 | 0.000 | 1.000 |
| 1127.000 | 580.000 | 573.127 | 0.000 | .017 | 0.000 | 20.000 | 0.000 | 26.000 |
| 1127.000 | 890.000 | 573.168 | .041 | .044 | 0.000 | 20.000 | 0.000 | 26.000 |
| 1127.000 | 1020.000 | 573.192 | .023 | .061 | 0.000 | 20.000 | 0.000 | 26.000 |
| 1127.000 | 1385.000 | 573.303 | .111 | .155 | 0.000 | 20.000 | 0.000 | 26.000 |
| 1128.000 | 580.000 | 573.222 | 0.000 | .094 | 0.000 | 20.000 | 0.000 | 1.000 |
| 1128.000 | 890.000 | 573.417 | .195 | .249 | 0.000 | 20.000 | 0.000 | 1.000 |
| 1128.000 | 1020.000 | 573.540 | .124 | .349 | 0.000 | 20.000 | 0.000 | 1.000 |
| 1128.000 | 1385.000 | 574.083 | .543 | .780 | 0.000 | 20.000 | 0.000 | 1.000 |
| 1178.000 | 580.000 | 573.497 | 0.000 | .275 | 0.000 | 109.996 | 0.000 | 50.000 |
| 1178.000 | 890.000 | 574.037 | .541 | .621 | 0.000 | 119.999 | -10.003 | 50.000 |
| 1178.000 | 1020.000 | 574.332 | .295 | .792 | 0.000 | 119.999 | -10.003 | 50.000 |
| 1178.000 | 1385.000 | 575.375 | 1.043 | 1.292 | 0.000 | 119.999 | -10.003 | 50.000 |
| 1628.000 | 580.000 | 573.533 | 0.000 | .036 | 0.000 | 209.507 | 0.000 | 450.000 |
| 1628.000 | 890.000 | 574.101 | .568 | .063 | 0.000 | 218.198 | -8.691 | 450.000 |
| 1628.000 | 1020.000 | 574.404 | .304 | .072 | 0.000 | 228.654 | -19.147 | 450.000 |
| 1628.000 | 1385.000 | 575.460 | 1.055 | .084 | 0.000 | 374.454 | -164.947 | 450.000 |
| 2428.000 | 580.000 | 573.565 | 0.000 | .032 | 0.000 | 225.991 | 0.000 | 800.000 |
| 2428.000 | 890.000 | 574.149 | .584 | .049 | 0.000 | 259.985 | -33.994 | 800.000 |
| 2428.000 | 1020.000 | 574.455 | .306 | .051 | 0.000 | 276.699 | -50.709 | 800.000 |
| 2428.000 | 1385.000 | 575.507 | 1.051 | .047 | 0.000 | 491.801 | -265.810 | 800.000 |
| 3228.000 | 580.000 | 573.606 | 0.000 | .041 | 0.000 | 47.917 | 0.000 | 800.000 |
| 3228.000 | 890.000 | 574.190 | .584 | .041 | 0.000 | 48.785 | -.868 | 800.000 |
| 3228.000 | 1020.000 | 574.485 | .295 | .029 | 0.000 | 49.203 | -1.287 | 800.000 |
| 3228.000 | 1385.000 | 575.486 | 1.002 | .020 | 0.000 | 50.660 | -2.753 | 800.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3778.000 | 580.000 | 574.057 | 0.000 | .451 | 0.000 | 73.096 | 0.000 | 550.000 |
| 3778.000 | 610.000 | 574.830 | .773 | .640 | 0.000 | 133.708 | -60.612 | 550.000 |
| 3778.000 | 615.000 | 575.174 | .343 | .689 | 0.000 | 197.426 | -124.329 | 550.000 |
| 3778.000 | 635.000 | 576.208 | 1.034 | .721 | 0.000 | 287.356 | -214.259 | 550.000 |
| | | | | | | | | |
| 3828.000 | 580.000 | 574.030 | 0.000 | -.028 | 0.000 | 25.000 | 0.000 | 50.000 |
| 3828.000 | 610.000 | 574.892 | .862 | .062 | 0.000 | 124.165 | -99.165 | 50.000 |
| 3828.000 | 615.000 | 575.224 | .332 | .050 | 0.000 | 146.333 | -121.333 | 50.000 |
| 3828.000 | 635.000 | 576.229 | 1.005 | .021 | 0.000 | 229.999 | -204.999 | 50.000 |
| | | | | | | | | |
| 3829.000 | 580.000 | 574.030 | 0.000 | .000 | 0.000 | 25.000 | 0.000 | 1.000 |
| 3829.000 | 610.000 | 574.901 | .871 | .009 | 0.000 | 124.229 | -99.229 | 1.000 |
| 3829.000 | 615.000 | 575.232 | .331 | .008 | 0.000 | 147.468 | -122.468 | 1.000 |
| 3829.000 | 635.000 | 576.234 | 1.002 | .005 | 0.000 | 229.999 | -204.999 | 1.000 |
| | | | | | | | | |
| 3884.000 | 580.000 | 574.038 | 0.000 | .008 | 0.000 | 25.000 | 0.000 | 55.000 |
| 3884.000 | 610.000 | 575.213 | 1.176 | .312 | 0.000 | 145.401 | -120.401 | 55.000 |
| 3884.000 | 615.000 | 575.527 | .314 | .296 | 0.000 | 201.511 | -176.511 | 55.000 |
| 3884.000 | 635.000 | 576.369 | .842 | .135 | 0.000 | 229.999 | -204.999 | 55.000 |
| | | | | | | | | |
| 3885.000 | 580.000 | 574.038 | 0.000 | .000 | 0.000 | 25.000 | 0.000 | 1.000 |
| 3885.000 | 610.000 | 575.208 | 1.170 | -.005 | 0.000 | 145.404 | -120.404 | 1.000 |
| 3885.000 | 615.000 | 575.523 | .315 | -.004 | 0.000 | 200.363 | -175.363 | 1.000 |
| 3885.000 | 635.000 | 576.366 | .843 | -.003 | 0.000 | 229.999 | -204.999 | 1.000 |
| | | | | | | | | |
| 4035.000 | 580.000 | 574.270 | 0.000 | .232 | 0.000 | 109.525 | 0.000 | 150.000 |
| 4035.000 | 610.000 | 575.218 | .948 | .010 | 0.000 | 201.448 | -91.923 | 150.000 |
| 4035.000 | 615.000 | 575.532 | .314 | .009 | 0.000 | 215.154 | -105.629 | 150.000 |
| 4035.000 | 635.000 | 576.375 | .843 | .009 | 0.000 | 365.861 | -256.336 | 150.000 |
| | | | | | | | | |
| 4265.000 | 580.000 | 574.348 | 0.000 | .078 | 0.000 | 96.712 | 0.000 | 230.000 |
| 4265.000 | 610.000 | 575.254 | .906 | .036 | 0.000 | 363.580 | -266.868 | 230.000 |
| 4265.000 | 615.000 | 575.560 | .306 | .028 | 0.000 | 384.601 | -287.889 | 230.000 |
| 4265.000 | 635.000 | 576.386 | .826 | .010 | 0.000 | 430.674 | -333.962 | 230.000 |
| | | | | | | | | |
| 4266.000 | 580.000 | 574.391 | 0.000 | .043 | 0.000 | 97.184 | 0.000 | 1.000 |
| 4266.000 | 610.000 | 575.287 | .896 | .033 | 0.000 | 366.195 | -269.011 | 1.000 |
| 4266.000 | 615.000 | 575.586 | .299 | .026 | 0.000 | 386.508 | -289.324 | 1.000 |
| 4266.000 | 635.000 | 576.399 | .813 | .013 | 0.000 | 430.678 | -333.495 | 1.000 |
| | | | | | | | | |
| 4313.000 | 580.000 | 575.168 | 0.000 | .777 | 0.000 | 233.857 | 0.000 | 47.000 |
| 4313.000 | 610.000 | 575.527 | .359 | .240 | 0.000 | 382.500 | -148.643 | 47.000 |
| 4313.000 | 615.000 | 575.684 | .157 | .098 | 0.000 | 393.151 | -159.294 | 47.000 |
| 4313.000 | 635.000 | 576.435 | .751 | .036 | 0.000 | 433.315 | -199.458 | 47.000 |
| | | | | | | | | |
| 4314.000 | 580.000 | 575.157 | 0.000 | -.012 | 0.000 | 230.725 | 0.000 | 1.000 |
| 4314.000 | 610.000 | 575.517 | .360 | -.010 | 0.000 | 382.153 | -151.428 | 1.000 |
| 4314.000 | 615.000 | 575.675 | .158 | -.009 | 0.000 | 393.152 | -162.427 | 1.000 |
| 4314.000 | 635.000 | 576.429 | .755 | -.005 | 0.000 | 433.027 | -202.302 | 1.000 |
| | | | | | | | | |
| 4524.000 | 580.000 | 575.236 | 0.000 | .079 | 0.000 | 366.577 | 0.000 | 210.000 |
| 4524.000 | 610.000 | 575.583 | .346 | .066 | 0.000 | 386.498 | -19.921 | 210.000 |
| 4524.000 | 615.000 | 575.733 | .150 | .058 | 0.000 | 395.131 | -28.554 | 210.000 |
| 4524.000 | 635.000 | 576.460 | .727 | .031 | 0.000 | 436.520 | -69.943 | 210.000 |
| | | | | | | | | |
| 5024.000 | 580.000 | 575.293 | 0.000 | .057 | 0.000 | 232.852 | 0.000 | 500.000 |
| 5024.000 | 610.000 | 575.624 | .332 | .042 | 0.000 | 233.999 | -1.147 | 500.000 |
| 5024.000 | 615.000 | 575.769 | .144 | .036 | 0.000 | 233.999 | -1.147 | 500.000 |
| 5024.000 | 635.000 | 576.478 | .710 | .018 | 0.000 | 233.999 | -1.147 | 500.000 |
| | | | | | | | | |
| 5524.000 | 580.000 | 575.413 | 0.000 | .121 | 0.000 | 229.999 | 0.000 | 500.000 |
| 5524.000 | 610.000 | 575.725 | .312 | .101 | 0.000 | 229.999 | -.000 | 500.000 |
| 5524.000 | 615.000 | 575.858 | .133 | .090 | 0.000 | 229.999 | -.000 | 500.000 |
| 5524.000 | 635.000 | 576.531 | .673 | .053 | 0.000 | 229.999 | -.000 | 500.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 5924.000 | 580.000 | 575.440 | 0.000 | .026 | 0.000 | 190.990 | 0.000 | 400.000 |
| 5924.000 | 610.000 | 575.747 | .308 | .022 | 0.000 | 191.999 | -1.009 | 400.000 |
| 5924.000 | 615.000 | 575.879 | .132 | .020 | 0.000 | 191.999 | -1.009 | 400.000 |
| 5924.000 | 635.000 | 576.544 | .665 | .013 | 0.000 | 191.999 | -1.009 | 400.000 |
| | | | | | | | | |
| 6024.000 | 580.000 | 575.451 | 0.000 | .011 | 0.000 | 109.999 | 0.000 | 100.000 |
| 6024.000 | 610.000 | 575.756 | .305 | .009 | 0.000 | 109.999 | -.000 | 100.000 |
| 6024.000 | 615.000 | 575.886 | .130 | .008 | 0.000 | 109.999 | -.000 | 100.000 |
| 6024.000 | 635.000 | 576.548 | .662 | .004 | 0.000 | 109.999 | -.000 | 100.000 |
| | | | | | | | | |
| 6199.000 | 595.000 | 575.341 | 0.000 | -.110 | 0.000 | 24.000 | 0.000 | 175.000 |
| 6199.000 | 620.000 | 575.646 | .305 | -.110 | 0.000 | 24.000 | 0.000 | 175.000 |
| 6199.000 | 625.000 | 575.779 | .132 | -.108 | 0.000 | 24.000 | 0.000 | 175.000 |
| 6199.000 | 645.000 | 576.451 | .672 | -.097 | 0.000 | 24.000 | 0.000 | 175.000 |
| | | | | | | | | |
| 6200.000 | 595.000 | 575.343 | 0.000 | .002 | 0.000 | 24.000 | 0.000 | 1.000 |
| 6200.000 | 620.000 | 575.648 | .305 | .002 | 0.000 | 24.000 | 0.000 | 1.000 |
| 6200.000 | 625.000 | 575.780 | .132 | .002 | 0.000 | 24.000 | 0.000 | 1.000 |
| 6200.000 | 645.000 | 576.452 | .672 | .001 | 0.000 | 24.000 | 0.000 | 1.000 |
| | | | | | | | | |
| 6290.000 | 595.000 | 577.852 | 0.000 | 2.509 | 0.000 | 24.000 | 0.000 | 90.000 |
| 6290.000 | 620.000 | 578.394 | .542 | 2.746 | 0.000 | 24.000 | 0.000 | 90.000 |
| 6290.000 | 625.000 | 578.577 | .183 | 2.797 | 0.000 | 24.000 | 0.000 | 90.000 |
| 6290.000 | 645.000 | 579.458 | .881 | 3.006 | 0.000 | 24.000 | 0.000 | 90.000 |
| | | | | | | | | |
| 6291.000 | 595.000 | 577.853 | 0.000 | .001 | 0.000 | 24.000 | 0.000 | 1.000 |
| 6291.000 | 620.000 | 578.395 | .542 | .001 | 0.000 | 24.000 | 0.000 | 1.000 |
| 6291.000 | 625.000 | 578.578 | .183 | .001 | 0.000 | 24.000 | 0.000 | 1.000 |
| 6291.000 | 645.000 | 579.459 | .881 | .000 | 0.000 | 24.000 | 0.000 | 1.000 |
| | | | | | | | | |
| 6313.000 | 595.000 | 578.023 | 0.000 | .171 | 0.000 | 67.999 | 0.000 | 22.000 |
| 6313.000 | 620.000 | 578.557 | .534 | .162 | 0.000 | 67.999 | -.000 | 22.000 |
| 6313.000 | 625.000 | 578.736 | .179 | .158 | 0.000 | 67.999 | -.000 | 22.000 |
| 6313.000 | 645.000 | 579.597 | .862 | .138 | 0.000 | 67.999 | -.000 | 22.000 |
| | | | | | | | | |
| 7013.000 | 595.000 | 578.080 | 0.000 | .057 | 0.000 | 329.510 | 0.000 | 700.000 |
| 7013.000 | 620.000 | 578.607 | .527 | .051 | 0.000 | 341.878 | -12.368 | 700.000 |
| 7013.000 | 625.000 | 578.784 | .177 | .048 | 0.000 | 344.967 | -15.458 | 700.000 |
| 7013.000 | 645.000 | 579.636 | .852 | .039 | 0.000 | 359.877 | -30.367 | 700.000 |
| | | | | | | | | |
| 7513.000 | 595.000 | 578.093 | 0.000 | .013 | 0.000 | 280.458 | 0.000 | 500.000 |
| 7513.000 | 620.000 | 578.617 | .524 | .010 | 0.000 | 290.451 | -9.992 | 500.000 |
| 7513.000 | 625.000 | 578.793 | .176 | .009 | 0.000 | 293.959 | -13.501 | 500.000 |
| 7513.000 | 645.000 | 579.642 | .849 | .006 | 0.000 | 311.000 | -30.542 | 500.000 |
| | | | | | | | | |
| 8013.000 | 595.000 | 578.119 | 0.000 | .026 | 0.000 | 192.969 | 0.000 | 500.000 |
| 8013.000 | 620.000 | 578.637 | .517 | .020 | 0.000 | 198.302 | -5.333 | 500.000 |
| 8013.000 | 625.000 | 578.810 | .174 | .018 | 0.000 | 199.999 | -7.030 | 500.000 |
| 8013.000 | 645.000 | 579.652 | .842 | .011 | 0.000 | 199.999 | -7.030 | 500.000 |
| | | | | | | | | |
| 8445.000 | 595.000 | 578.136 | 0.000 | .016 | 0.000 | 26.999 | 0.000 | 432.000 |
| 8445.000 | 620.000 | 578.634 | .498 | -.003 | 0.000 | 26.999 | -.000 | 432.000 |
| 8445.000 | 625.000 | 578.803 | .169 | -.008 | 0.000 | 26.999 | -.000 | 432.000 |
| 8445.000 | 645.000 | 579.628 | .825 | -.024 | 0.000 | 26.999 | -.000 | 432.000 |
| | | | | | | | | |
| 8473.000 | 595.000 | 578.057 | 0.000 | -.078 | 0.000 | 12.500 | 0.000 | 28.000 |
| 8473.000 | 620.000 | 578.550 | .493 | -.084 | 0.000 | 12.500 | 0.000 | 28.000 |
| 8473.000 | 625.000 | 578.718 | .168 | -.085 | 0.000 | 12.500 | 0.000 | 28.000 |
| 8473.000 | 645.000 | 579.543 | .825 | -.085 | 0.000 | 12.500 | 0.000 | 28.000 |
| | | | | | | | | |
| 8474.000 | 595.000 | 578.059 | 0.000 | .002 | 0.000 | 12.500 | 0.000 | 1.000 |
| 8474.000 | 620.000 | 578.551 | .492 | .002 | 0.000 | 12.500 | 0.000 | 1.000 |
| 8474.000 | 625.000 | 578.719 | .168 | .001 | 0.000 | 12.500 | 0.000 | 1.000 |
| 8474.000 | 645.000 | 579.544 | .825 | .001 | 0.000 | 12.500 | 0.000 | 1.000 |
| | | | | | | | | |
| 8510.000 | 595.000 | 578.953 | 0.000 | .89[illegible] | 0.000 | 12.500 | 0.000 | 36.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8510.000 | 620.000 | 579.566 | .613 | 1.014 | 0.000 | 12.500 | 0.000 | 36.000 |
| 8510.000 | 625.000 | 579.763 | .197 | 1.043 | 0.000 | 12.500 | 0.000 | 36.000 |
| 8510.000 | 645.000 | 580.711 | .948 | 1.167 | 0.000 | 12.500 | 0.000 | 36.000 |
| | | | | | | | | |
| 8511.000 | 595.000 | 578.954 | 0.000 | .001 | 0.000 | 12.500 | 0.000 | 1.000 |
| 8511.000 | 620.000 | 579.567 | .612 | .001 | 0.000 | 12.500 | 0.000 | 1.000 |
| 8511.000 | 625.000 | 579.764 | .197 | .001 | 0.000 | 12.500 | 0.000 | 1.000 |
| 8511.000 | 645.000 | 580.712 | .948 | .001 | 0.000 | 12.500 | 0.000 | 1.000 |
| | | | | | | | | |
| 8681.000 | 740.000 | 579.369 | 0.000 | .415 | 0.000 | 74.561 | 0.000 | 170.000 |
| 8681.000 | 855.000 | 579.952 | .583 | .385 | 0.000 | 83.301 | -8.740 | 170.000 |
| 8681.000 | 880.000 | 580.139 | .187 | .375 | 0.000 | 86.099 | -11.539 | 170.000 |
| 8681.000 | 915.000 | 581.054 | .915 | .342 | 0.000 | 99.819 | -25.258 | 170.000 |
| | | | | | | | | |
| 8851.000 | 740.000 | 579.265 | 0.000 | -.104 | 0.000 | 15.000 | 0.000 | 170.000 |
| 8851.000 | 855.000 | 579.814 | .549 | -.138 | 0.000 | 15.000 | 0.000 | 170.000 |
| 8851.000 | 880.000 | 579.993 | .179 | -.146 | 0.000 | 15.000 | 0.000 | 170.000 |
| 8851.000 | 915.000 | 580.905 | .912 | -.149 | 0.000 | 15.000 | 0.000 | 170.000 |
| | | | | | | | | |
| 8852.000 | 740.000 | 579.265 | 0.000 | .001 | 0.000 | 15.000 | 0.000 | 1.000 |
| 8852.000 | 855.000 | 579.814 | .549 | .001 | 0.000 | 15.000 | 0.000 | 1.000 |
| 8852.000 | 880.000 | 579.994 | .179 | .001 | 0.000 | 15.000 | 0.000 | 1.000 |
| 8852.000 | 915.000 | 580.906 | .912 | .000 | 0.000 | 15.000 | 0.000 | 1.000 |
| | | | | | | | | |
| 8868.000 | 740.000 | 579.653 | 0.000 | .388 | 0.000 | 15.000 | 0.000 | 16.000 |
| 8868.000 | 855.000 | 580.410 | .757 | .596 | 0.000 | 15.000 | 0.000 | 16.000 |
| 8868.000 | 880.000 | 580.647 | .237 | .653 | 0.000 | 15.000 | 0.000 | 16.000 |
| 8868.000 | 915.000 | 581.702 | 1.055 | .796 | 0.000 | 15.000 | 0.000 | 16.000 |
| | | | | | | | | |
| 8869.000 | 740.000 | 579.653 | 0.000 | .000 | 0.000 | 15.000 | 0.000 | 1.000 |
| 8869.000 | 855.000 | 580.410 | .757 | .000 | 0.000 | 15.000 | 0.000 | 1.000 |
| 8869.000 | 880.000 | 580.647 | .237 | .000 | 0.000 | 15.000 | 0.000 | 1.000 |
| 8869.000 | 915.000 | 581.702 | 1.055 | .000 | 0.000 | 15.000 | 0.000 | 1.000 |
| | | | | | | | | |
| 8874.000 | 740.000 | 579.972 | 0.000 | .319 | 0.000 | 24.999 | 0.000 | 5.000 |
| 8874.000 | 855.000 | 580.779 | .806 | .368 | 0.000 | 24.999 | -.000 | 5.000 |
| 8874.000 | 880.000 | 581.020 | .242 | .373 | 0.000 | 24.999 | -.000 | 5.000 |
| 8874.000 | 915.000 | 582.034 | 1.013 | .332 | 0.000 | 24.999 | -.000 | 5.000 |
| | | | | | | | | |
| 9177.000 | 765.000 | 580.196 | 0.000 | .224 | 0.000 | 468.990 | 0.000 | 303.000 |
| 9177.000 | 1010.000 | 581.032 | .835 | .253 | 0.000 | 471.078 | -2.088 | 303.000 |
| 9177.000 | 1100.000 | 581.276 | .244 | .256 | 0.000 | 471.689 | -2.699 | 303.000 |
| 9177.000 | 1350.000 | 582.263 | .987 | .229 | 0.000 | 474.156 | -5.166 | 303.000 |
| | | | | | | | | |
| 9677.000 | 765.000 | 580.200 | 0.000 | .003 | 0.000 | 506.990 | 0.000 | 500.000 |
| 9677.000 | 1010.000 | 581.035 | .836 | .004 | 0.000 | 523.706 | -16.716 | 500.000 |
| 9677.000 | 1100.000 | 581.280 | .245 | .004 | 0.000 | 528.599 | -21.609 | 500.000 |
| 9677.000 | 1350.000 | 582.267 | .987 | .004 | 0.000 | 548.333 | -41.343 | 500.000 |
| | | | | | | | | |
| 10177.000 | 765.000 | 580.202 | 0.000 | .002 | 0.000 | 567.025 | 0.000 | 500.000 |
| 10177.000 | 1010.000 | 581.038 | .836 | .003 | 0.000 | 579.967 | -12.942 | 500.000 |
| 10177.000 | 1100.000 | 581.283 | .245 | .003 | 0.000 | 584.418 | -17.393 | 500.000 |
| 10177.000 | 1350.000 | 582.270 | .987 | .003 | 0.000 | 626.663 | -59.638 | 500.000 |
| | | | | | | | | |
| 10622.000 | 765.000 | 580.204 | 0.000 | .002 | 0.000 | 613.999 | 0.000 | 445.000 |
| 10622.000 | 1010.000 | 581.040 | .837 | .002 | 0.000 | 613.999 | -.000 | 445.000 |
| 10622.000 | 1100.000 | 581.285 | .245 | .002 | 0.000 | 613.999 | -.000 | 445.000 |
| 10622.000 | 1350.000 | 582.272 | .987 | .002 | 0.000 | 613.999 | -.000 | 445.000 |
| | | | | | | | | |
| 10654.000 | 770.000 | 580.201 | 0.000 | -.002 | 0.000 | 679.998 | 0.000 | 32.000 |
| 10654.000 | 1015.000 | 581.039 | .837 | -.001 | 0.000 | 679.998 | -.000 | 32.000 |
| 10654.000 | 1105.000 | 581.284 | .245 | -.001 | 0.000 | 679.998 | -.000 | 32.000 |
| 10654.000 | 1365.000 | 582.271 | .987 | -.001 | 0.000 | 679.998 | -.000 | 32.000 |
| | | | | | | | | |
| 10655.000 | 770.000 | 580.204 | 0.000 | .003 | 0.000 | 679.998 | 0.000 | 1.000 |
| 10655.000 | 1015.000 | 581.040 | .836 | .003 | 0.000 | 679.998 | -.000 | 1.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10655.000 | 1105.000 | 581.285 | .245 | .002 | 0.000 | 679.998 | -.000 | 1.000 |
| 10655.000 | 1365.000 | 582.272 | .987 | .001 | 0.000 | 679.998 | -.000 | 1.000 |
| | | | | | | | | |
| 10693.000 | 770.000 | 580.205 | 0.000 | .000 | 0.000 | 679.998 | 0.000 | 38.000 |
| 10693.000 | 1015.000 | 581.041 | .836 | .000 | 0.000 | 679.998 | -.000 | 38.000 |
| 10693.000 | 1105.000 | 581.285 | .245 | .000 | 0.000 | 679.998 | -.000 | 38.000 |
| 10693.000 | 1365.000 | 582.272 | .986 | .000 | 0.000 | 679.998 | -.000 | 38.000 |
| | | | | | | | | |
| 10694.000 | 770.000 | 580.204 | 0.000 | -.001 | 0.000 | 679.998 | 0.000 | 1.000 |
| 10694.000 | 1015.000 | 581.040 | .836 | -.000 | 0.000 | 679.998 | -.000 | 1.000 |
| 10694.000 | 1105.000 | 581.285 | .245 | -.000 | 0.000 | 679.998 | -.000 | 1.000 |
| 10694.000 | 1365.000 | 582.272 | .987 | -.000 | 0.000 | 679.998 | -.000 | 1.000 |
| | | | | | | | | |
| -3228.000 | 580.000 | 573.606 | 0.000 | -6.597 | 0.000 | 47.917 | 0.000 | 0.000 |
| -3228.000 | 890.000 | 574.190 | .584 | -6.850 | 0.000 | 48.772 | -.854 | 0.000 |
| -3228.000 | 1020.000 | 574.485 | .295 | -6.800 | 0.000 | 49.203 | -1.286 | 0.000 |
| -3228.000 | 1385.000 | 575.486 | 1.002 | -6.785 | 0.000 | 50.669 | -2.752 | 0.000 |
| | | | | | | | | |
| 3353.000 | 5.000 | 575.141 | 0.000 | 1.535 | 0.000 | 120.534 | 0.000 | 125.000 |
| 3353.000 | 300.000 | 575.559 | .418 | 1.369 | 0.000 | 264.669 | -144.135 | 125.000 |
| 3353.000 | 425.000 | 575.656 | .097 | 1.171 | 0.000 | 288.876 | -168.342 | 125.000 |
| 3353.000 | 765.000 | 575.976 | .321 | .490 | 0.000 | 324.834 | -204.301 | 125.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 0.000 | 0.000 | 52.312 | 0.000 |
| 2 | 0.000 | 0.000 | 55.888 | 3.577 |
| 3 | 0.000 | 0.000 | 57.420 | 5.108 |
| 4 | 0.000 | 0.000 | 66.697 | 14.386 |




1) COUNTY: Wayne

2) STUDY NAME: City of Lincoln Park

3) WATERCOURSE: Ecorse Creek

4) DOCUMENT TYPE: Report



FROM: Wade, Trim & Associates, Inc.

25185 Goddard Road P.O. Box 10
Taylor, Michigan 48180

TO:

CITY OF LINCOLN PARK, MICHIGAN

# HYDRAULIC REPORT

[redacted]

# HYDRAULIC REPORT
# LINCOLN PARK

## I. INTRODUCTION

The City of Lincoln Park is located in the southeastern corner of Michigan in Wayne County. It is approximately 6 miles south of the City of Detroit. The City of Lincoln Park is comprised of residential and industrial areas adjacent to the North Branch Ecorse Creek and the South Branch Ecorse Creek.

This report summarizes the hydraulic studies undertaken to support the detailed study of over 3 miles of the North Branch Ecorse Creek and nearly 3 miles of the South Branch Ecorse Creek.

This study was conducted by Wade, Trim & Associates, Inc., Consulting Engineers and Glen Roberts served as Project Manager.

## II. SOUTH BRANCH ECORSE CREEK (DETAILED)

Detailed studies were performed on the entire South Branch Ecorse Creek within the City of Lincoln Park. This study includes data and information developed for the Wyandotte, Michigan Flood Insurance Study (Reference 1). In addition a total of 7 cross sections, 3 bridge and 4 valley sections were field surveyed by Wade, Trim & Associates, Inc. and were supplemented by U.S.G.S. Quad Maps which have 5 foot contour intervals (Reference 2).

Table 1 cross references section designations by showing the computer section number which corresponds to the cross section letter shown in Exhibit 1. Table 2 lists discharges that have been approved by the Michigan Department of Natural Resources (M.D.N.R.) in the Wyandotte Flood Insurance Study. These discharges have been used for the South Branch Ecorse Creek within the City of Lincoln Park which extends approximately 1.0 mile west of Wyandotte. Exhibit 2 contains bridge sketches as well as bridge loss coefficients.

### A. METHOD OF ANALYSIS

The HEC-2 backwater program was used in developing water surface profiles (Reference 3). The HEC-2 analysis from the Wyandotte Flood Insurance Study was used from the downstream Lincoln Park Corporate Boundary to the end of the analysis, and is presented in Exhibit 3. The HEC-2 printouts including computer cross section plots from the end of the Wyandotte F.I.S. analysis to the upstream Lincoln Park Corporate Boundary are presented as Exhibit 4. (Exhibit 4 is contained in the 11" x 15" folder enclosed with this report.) Water surface profiles resulting from the backwater analyses are presented as Exhibit 5.

B. VARIABLES AND COEFFICIENTS

Roughness coefficients (Mannings "n") were estimated by field inspection at each cross section. Typical roughness values for the main channel of South Branch Ecorse Creek range from .03 to .035; roughness values for the overbank areas varied between .03 to .06 for all floods. These values are indicative of summer month conditions and are consistent with values recommended and used in engineering practice (Reference 4). Contraction and expansion coefficients selected are 0.3 and 0.5 at bridge sections and channel transitions.

C. HIGH WATER MARKS

There is no documented high water data on the South Branch Ecorse Creek.

D. STARTING CONDITIONS

The South Branch Ecorse Creek is a common borderline between Lincoln Park and the City of Wyandotte between cross sections H and W. Therefore, the HEC-2 computer run (Exhibit 3) from the Wyandotte F.I.S. was utilized for this segment of the hydraulic analysis. From cross section W to the upstream limit of this study, additional HEC-2 computer runs (Exhibit 4) were performed and flow rates and elevations from section W of the Wyandotte study were used as starting conditions.

E. SPECIAL PROBLEMS

The Method 4 encroachment option in the HEC-2 computer program was not used on the South Branch Ecorse Creek. The 100 year flood stays within the channel banks at all locations, therefore, the floodway was set at the top of banks.

F. GENERAL

Computed water surface elevations were developed to an accuracy of 0.5 feet for floods of the selected recurrence intervals.

All elevations are referred to the U.S. Geological and Coastal Survey (U.S.G.C.S.) Datum. This datum is equivalent to the National Vertical Datum of 1929 (N.G.V.D.).

The hydraulic analyses for this study were based only on the effects of flow unobstructed by ice or debris. The flood elevations are considered only if hydraulic structures, in general, remain unobstructured and do not fail.

TABLE 1

LINCOLN PARK, MICHIGAN

SOUTH BRANCH ECORSE CREEK

(SEXTON-KILFOIL DRAIN)

CROSS REFERENCE INDEX

| COMPUTER SECTION NUMBER | FIELD BOOK STATION | FW & FB LETTER | DESCRIPTION |
|---|---|---|---|
| 2436 | | I* | Confluence w/North Branch |
| 3186 | | J* | Valley Section |
| 4186 | | K* | 50 Ft. d/s Emmons St. Bridge |
| 4281 | | L* | u/s Face Emmons St. Bridge |
| 4931 | | M* | Valley Section |
| 6981 | | N* | Valley Section |
| 8031 | | O* | 51 Ft. d/s Harrison St. Bridge |
| 8147 | | P* | u/s Face Harrison St. Bridge |
| 9397 | | Q* | Valley Section |
| 10297 | | R* | Valley Section |
| 10897 | | S* | 76 Ft. d/s Harrison St. Bridge #2 |
| 11017 | | T* | u/s Face Harrison St. Bridge #2 |
| 11477 | | U* | 51 Ft. d/s North Bound Fort St. |
| 11528 | | V* | d/s Face North Bound Fort St. |
| 11721 | | W* | u/s Face South Bound Fort St. |
| 12689 | 44 + 95 | X | Valley Section |
| 13269 | 39 + 15 | Y | d/s Face Howard Avenue |
| 13309 | 38 + 75 | Z | u/s Face Howard Avenue |
| 15144 | 20 + 40 | AA | Valley Section |
| 15434 | 17 + 50 | AB | d/s Face Dix Avenue |
| 15555 | 16 + 29 | AC | u/s Face Dix Avenue |
| 15859 | 13 + 25 | AD | Valley Section |
| 16340 | 8 + 44 | AE | d/s Face Hazel Avenue |
| 16379 | 8 + 05 | AF | u/s Face Hazel Avenue |
| 17184 | 0 + 00 | AG | Valley Section Lincoln Park Corporate Boundary |

* Cross Section From Wyandotte F.I.S.

TABLE 2

CITY OF LINCOLN PARK

SOUTH BRANCH ECORSE CREEK FLOOD FLOW DATA

| LOCATION | | DISCHARGE - CFS 10 YR. | 50 YR. | 100 YR. | 500 YR. |
|---|---|---|---|---|---|
| Confluence w/ North Branch | | ~~3165~~ 3170 | 4100 | 4410 | 5160 |
| (X-Section I) | Elev. | 577.03 | 577.97 | 578.27 | 578.99 |
| Emmons Street | | 1120 | 1620 | 1760 | 2055 |
| (X-Section L) | Elev. | 577.76 | 578.93 | 579.28 | 580.06 |

## III. NORTH BRANCH ECORSE CREEK (DETAILED)

Detailed studies were performed on the entire North Branch Ecorse Creek within the City of Lincoln Park. This study includes data and information developed for the City of Ecorse, Michigan Flood Insurance Study (Reference 5). In addition a total of 15 cross sections, 11 bridge and 4 valley sections were field surveyed by Wade, Trim & Associates, Inc. and were supplemented by U.S.G.S. Quad Maps which have 5 foot contour intervals (Reference 2 and 6). One bridge cross section was obtained from construction plans (Reference 7). Table 3 cross references section designations by showing the computer section number which corresponds to the cross section letter shown in Exhibit 1. Table 4 lists discharges that have been approved by the Michigan Department of Natural Resources (M.D.N.R.). Exhibit 6 contains bridge sketches as well as bridge loss coefficients.

### A. METHOD OF ANALYSIS

The HEC-2 backwater program was used in developing water surface profiles (Reference 3). A portion of Lincoln Park has a common border with the City of Ecorse at the North Branch Ecorse Creek. Therefore, the HEC-2 computer analysis from the City of Ecorse Flood Insurance Study was used for the downstream portion of this study (Exhibit 7). From that point, which is the upstream corporate limit of the City of Ecorse, to the upstream limit of this study, this office performed the HEC-2 computer backwater analysis. The HEC-2 printouts including cross section plots from the end of the Ecorse F.I.S. analysis to the upstream Lincoln Park Corporate Boundary are presented as Exhibit 8. (Exhibit 8 is contained in the 11" x 15" folder enclosed with this report.) Water surface profiles resulting from the backwater analyses are presented as Exhibit 9.

not included

## B. VARIABLES AND COEFFICIENTS

Roughness coefficients (Mannings "n") were estimated by field inspection at each cross section. Typical roughness values for the main channel and the overbanks for all floods are as follows:

1. Reach between cross sections A and L, from City of Ecorse F.I.S.:

   a) main channel .025 - .033

   b) overbanks .035

2. Reach between cross sections M and AO:

   a) main channel 0.02 - 0.035

   b) overbanks 0.04 - 1.0

These values are indicative of summer month conditions and are consistent with values recommended and used in engineering practice (Reference 4). The high Mannings n values in the overbanks are representative of a single structure or a high density multiple structure area which is considered non-effective for flow. Contraction and expansion coefficients selected are:

1. Reach between cross sections A and L, from City of Ecorse F.I.S., 0.3 and 0.5.

2. Reach between cross sections M and AO, 0.1 and 0.3 for gradual channel transitions and 0.3 and 0.5 for bridge sections.

C. HIGH WATER MARKS

There is no documented high water data on the North Branch Ecorse Creek.

D. STARTING CONDITIONS

This report utilizes the HEC-2 computer run for the City of Ecorse F.I.S. (Exhibit 9) between cross sections A and K. At cross section L, the valley section data from the City of Ecorse F.I.S. was used as the starting cross section for the upstream reach of river. The starting flows were taken from Hydrology Report for the City of Lincoln Park and the starting elevations were taken from the City of Ecorse F.I.S.

E. SPECIAL PROBLEMS

The floodway for the North Branch Ecorse Creek is mostly controlled by allowable expansion and contraction ratios at bridges and densely developed areas along the creek which render overbank flow areas ineffective. Three of the valley sections in this study were considered unaffected by expansion and contraction ratio limits, therefore, the Method 4 encroachment option in the HEC-2 computer program was used. The results of this encroachment run were incorporated into the final floodway model.

F. GENERAL

Computed water surface elevations were developed to an accuracy of 0.5 feet for floods of the selected recurrence intervals.

All elevations are referenced to the U.S. Geological and Coastal Survey (U.S.G.C.S.) Datum. This datum is equivalent to the National Vertical Datum of 1929 (N.G.V.D.).

The hydraulic analyses for this study were based only on the effects of flow unobstructed by ice or debris. The flood elevations are considered only if hydraulic structures, in general, remain unobstructured and do not fail.

TABLE 3

LINCOLN PARK, MICHIGAN

NORTH BRANCH ECORSE CREEK

CROSS REFERENCE INDEX

| COMPUTER SECTION NUMBER | WTA STATION | FW & FB LETTER | DESCRIPTION |
|---|---|---|---|
| 2736 | | A | Valley Section 300' u/s Confluence w/South Branch Ecorse Creek |
| 3836 | | B | Valley Section |
| 4786 | | C | 39' d/s Mill Street |
| 4846 | | D | u/s Face Mill Street |
| 5936 | | E | Valley Section |
| 6786 | | F | 49' d/s Southfield Road |
| 6916 | | G | u/s Face Southfield Road |
| 7936 | | H | Valley Section |
| 9136 | | I | Valley Section |
| 10286 | | J | 50' d/s Empire Street |
| 10336 | | K | Empire Street, Bridge has been removed |
| 10636 | | L | Valley Section |
| 11536 | 86 + 03 | M | Valley Section |
| 12324 | | N | d/s Face Austin |
| | 78 + 03 | | Center Line Austin |
| 12368 | | O | u/s Face Austin |
| 13295 | 68 + 54 | P | Valley Section |
| 13726 | 64 + 23 | Q | d/s Fase Victoria |
| 13965 | 61 + 84 | R | u/s Face Victoria |
| 14337 | 58 + 12 | S | d/s Face North Bound Fort Street |
| 14403 | 57 + 46 | T | u/s Face North Bound Fort Street |
| 14460 | 56 + 89 | U | d/s Face South Bound Fort Street |
| 14522 | 56 + 27 | V | u/s Face South Bound Fort Street |
| 15292 | 48 + 57 | W | Valley Section |
| 15870 | | X | d/s Face Lafayette |
| | 42 + 57 | | Center Line Lafayette |
| 15914 | | Y | u/s Face Lafayette |
| 16244 | 39 + 05 | Z | d/s Face I-75 |
| 16504 | 36 + 45 | AA | u/s Face I-75 |
| 16876 | | AB | d/s Face Industrial Drive |
| 16963 | | AC | u/s Face Industrial Drive |
| 17305 | 28 + 44 | AD | d/s Face Penn Central R.R. Bridge |
| 17502 | 26 + 47 | AE | u/s Face Penn Central R.R. Bridge |
| 18156 | | AF | d/s Face Porter Street |
| | 19 + 73 | | Center Line Porter Street |
| 18196 | | AG | u/s Face Porter Street |
| 18545 | 16 + 04 | AH | Valley Section |
| 18879 | | AI | d/s Face Raupp Place |
| | 12 + 54 | | Center Line Raupp Place |
| 18911 | | AJ | u/s Face Raupp Place |
| 19162 | 9 + 87 | AK | d/s Face Dix Road |
| 19264 | 8 + 85 | AL | u/s Face Dix Road |
| 20130 | | AM | d/s Face Frank Avenue |
| | 0 + 00 | | Center Line Frank Avenue |
| 20169 | | AN | u/s Face Frank Avenue |
| 20269 | | AO | Valley Section |

TABLE 4

CITY OF LINCOLN PARK

NORTH BRANCH ECORSE CREEK FLOOD FLOW DATA

| LOCATION | | DISCHARGE - CFS 10 YR. | 50 YR. | 100 YR. | 500 YR. |
|---|---|---|---|---|---|
| Confluence w/ South Branch | | 1500 | 1950 | 2100 | 2495 |
| (X-Section A) | Elev. | 577.14 | 578.14 | 578.47 | 579.26 |
| Lincoln Park-Ecorse Boundary | | 850 | 1250 | 1410 (2200) | 1840 |
| (X-Section L) | Elev. | 582.06 | 583.19 | 583.53 | 584.43 |
| u/s I-75 | | 770 | 1160 | 1330 | 1940 |
| (X-Section AB) | Elev. | 585.47 | 587.30 | 587.75 | 588.78 |

## REFERENCES


1. City of Wyandotte, Michigan, Flood Insurance Study, Flood Insurance Administration, Draft.

2. U.S. Geological Survey Topographical Maps - Wyandotte Quadrangle, Michigan - Ontario, 7.5 Minute Series - Photo Revised 1973.

3. HEC-2 Water Surface Profile - Users Manual - U.S. Army Corps of Engineers - 1976.

4. Open Channel Hydraulics, Chow, Ven Te, McGraw-Hill Book Company, 1959.

5. City of Ecorse, Michigan, Flood Insurance Study, Flood Insurance Administration, Draft, February 1977.

6. U.S. Geological Survey Topographical Maps - Dearborn Quadrangle, Wayne County, Michigan, 7.5 Minute Series - Photo Revised 1973.

7. Industrial Drive Culvert, Pate, Hirn, Bogue, Sheets 13 and 14 of 15, June 8, 1979.

## INDEX OF EXHIBITS

| | |
|---|---|
| EXHIBIT 1 | Field Cross Section Location and 100 Year Flood Plain Floodway Map, 2 Sheets. |
| EXHIBIT 2 | Bridge Notes and Sketches, South Branch Ecorse Creek, 5 Sheets. |
| EXHIBIT 3 | HEC-2 Backwater Analysis from City of Wyandotte F.I.S., South Branch Ecorse Creek, 28 Sheets. |
| EXHIBIT 4 | HEC-2 Backwater Analysis with Cross Section Plots, South Branch Ecorse Creek (Separate Folder). |
| EXHIBIT 5 | Stream Profile, South Branch Ecorse Creek, 2 Sheets. |
| EXHIBIT 6 | Bridge Notes and Sketches, North Branch Ecorse Creek, 16 Sheets. |
| EXHIBIT 7 | HEC-2 Backwater Analysis from City of Ecorse F.I.S., North Branch Ecorse Creek, 41 Sheets. |
| EXHIBIT 8 | HEC-2 Backwater Analysis with Cross Section Plots, North Branch Ecorse Creek (Separate Folder). |
| EXHIBIT 9 | Stream Profile, North Branch Ecorse Creek, 2 Sheets. |

CITY OF LINCOLN PARK, MICHIGAN

SOUTH BRANCH ECORSE CREEK

AND NORTH BRANCH ECORSE CREEK

EXHIBIT 1

Field Cross Section Location and

100 Year Flood Plain Floodway

Map

CITY OF LINCOLN PARK, MICHIGAN

SOUTH BRANCH ECORSE CREEK

EXHIBIT 2

Bridge Notes and Sketches

FORM 25-0
(313) 291-5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: HOWARD AVE
Bridge Losses - SB Card

EXHIBIT 2

REFERENCE

1. XK (Pier Shape Coefficient) 1.25 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = = 414 $W_p$ = 128.

$R = A/W_p$ 414/128 $R^{4/3}$ = 4.78 $L$ = 40

n (composite) =

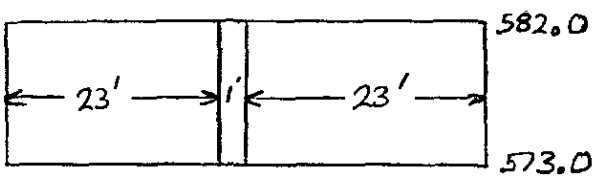
$K_f = 29.1 \times (0.02)^2 \times 40 / 4.78 = 0.10$

$K_e$ = 0.5 — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p$ = 0 if bridge has no intermediate piers

~~$K_p$~~ = 0.05 if bridge has intermediate piers — HEC-2 manual

TRD 584.5




2. XKOR = 1 + 0.10 + 0.5 + 0.05 = 1.65
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 47.
6. BWP = total width of obstruction = 1. — field data
7. BAREA = bridge opening inc. piers = 414.
8. SS = side slope = 0.
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 573.
(0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 573.
(0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK | SHEET NO. | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| LINCOLN PARK | DRB | | 1 OF 5 | HUD • 2010 • 07 |
| | DATE 9/79 | DATE | | |

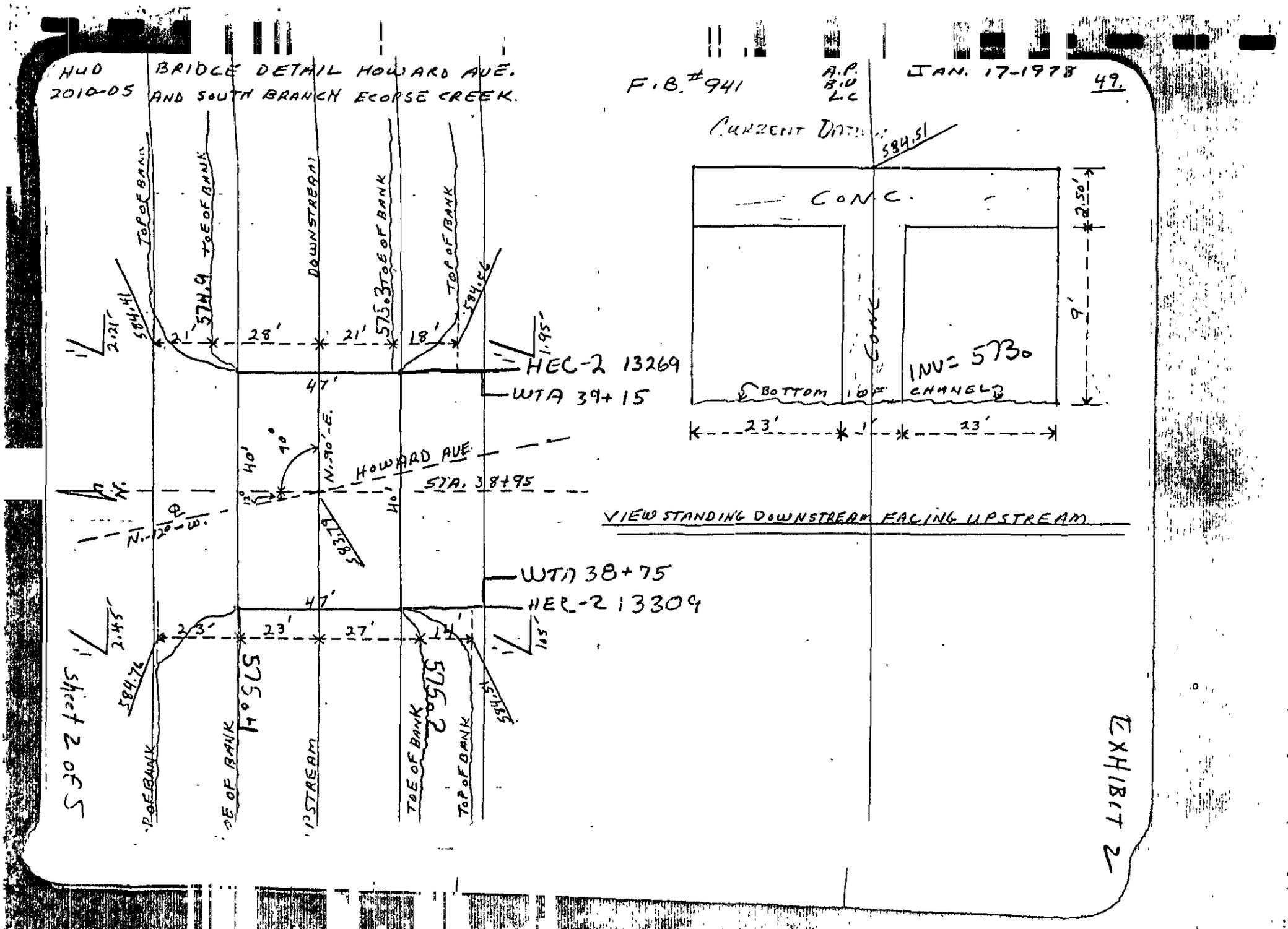
HUD 2010-05

BRIDGE DETAIL HOWARD AVE. AND SOUTH BRANCH ECORSE CREEK.

F.B. #941 A.P. B.O. L.C.

JAN. 17-1978






VIEW STANDING DOWNSTREAM FACING UPSTREAM

Bridge Location : DIX AVE
Bridge Losses - SB Card

EXHIBIT 2

REFERENCE

1. XK (Pier Shape Coefficient) 1.025 — HEC-2 Manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge :

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 409 Wp = 128

$R = A/wp$ 409/128 $R^{4/3} = 4.071$ $L = 121$

n (composite) =

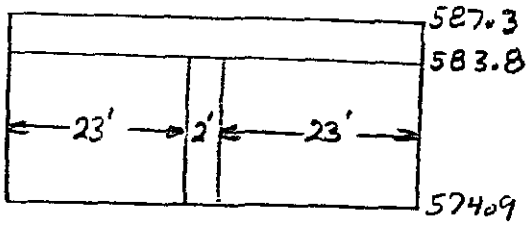
$K_f = 29.1 \times (0.02)^2 \times 121 \;/\; 4.071 = 0.30$

$K_e = 0.5$

Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual




2. XKOR = 1 + 0.30 + 0.50 + 0.05 = 1.85
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 48.0
6. BWP = total width of obstruction = 2.0 — field data
7. BAREA = bridge opening inc. piers = 409
8. SS = side slope = 0
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 574.09
(0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 574.09
(0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| LINCOLN PARK | DRB | | 3 OF 5 | HUD • 2010 • 07 |
| | DATE 9/29 | DATE | | |

EXHIBIT 2




sheet 4 of 5

EXHIBIT 2

VIEW STANDING DOWNSTREAM FACING UPSTREAM.

CURRENT DATA:

A.P. L.C. 43.

LT JAN. 13 - 1, 70

CONC.

3.5'

10.30'

35'

S75°35

S89.15

BOTTOM OF CHANNEL

BRIDGE 1 MI.

SOUTH BRANCH ECORSE CREEK

HAZEL AVE.

STA 8+124.5 N.

STA 8+111

STA 8+25

TOP OF BANK

TOE OF BANK

DOWNSTREAM

UPSTREAM

S89.60

S89.25

S89.42

S89.80

S89.20

S75°8

S76°

S76°5

S76°5

N- 90°- E.

90°

2.50'

2.03'

1.94'

34'

39'

16'

12'

15'

29'

9'

3'

sheet 5 of 5

2010-05

CITY OF LINCOLN PARK, MICHIGAN

SOUTH BRANCH ECORSE CREEK

EXHIBIT 3

HEC-2 Backwater Analysis From

City of Wyandotte F.I.S.

```
C      1
C     61          D/S FACE JEFFERSON STREET BRIDGE
C    136          U/S FACE JEFFERSON STREET BRIDGE
C    788          D/S FACE RR BRIDGE #1
C    797          U/S FACE RR BRIDGE #1
C    845          D/S FACE RR BRIDGE #2
C    859          U/S FACE RR BRIDGE #2
C    911          D/S FACE RR BRIDGE #3
C    921          U/S FACE RR BRIDGE #3
C    951          D/S FACE RR BRIDGE #4
C    995          U/S FACE RR BRIDGE #4
C   2436  CONFLUENCE OF THE NORTH ECORSE RIVER @ SEXTON-KILFOIL DRAIN
C   4236          D/S FACE OF EMMONS STREET BRIDGE
C   4261          U/S FACE OF EMMONS STREET BRIDGE
C   8082          D/S FACE OF HARRISON STREET BRIDGE
C   8147          U/S FACE OF HARRISON STREET BRIDGE
C  10973          D/S FACE OF HARRISON STREET BRIDGE #2
C  11017          U/S FACE OF HARRISON STREET BRIDGE #2
C  11528          D/S FACE OF NORTH BOUND FORT STREET
C  11599          U/S FACE OF NORTH BOUND FORT STREET
C  11650          D/S FACE OF SOUTH BOUND FORT STREET
C  11721          U/S FACE OF SOUTH BOUND FORT STREET
T1       CITY OF WYANDOTTE FIS 5555-73
T2       SEXTON-KILFOIL DRAIN
T3       10 YEAR FLOOD  3165 CFS
J1            2                                                  574.90
J2   -10             -1
NC 0.035   0.035   0.032     0.3     0.5
QT      4    3165    4100    4410    5160
X1      1      41     500     619
GR 576.2       0   575.9     100   576.6     200   578.5     300   581.1     400
GR 584.6     500   582.8     500   582.6     505   581.9     510   581.1     515
GR 579.2     520   575.4     525   574.8     530   572.8     535   569.2     540
GR 569.2     540   565.5   543.5   565.5   543.5   565.5     545   563.9     555
GR 566.1     560   565.3     565   565.4     570   564.1     575   566.2     580
GR 566.2     580   565.3   583.5   565.3   583.5   565.3     585   563.4     590
GR 564.4     595   565.4     600   567.7     605   571.1     610   573.5     615
GR 574.0     619   584.6     619   582.3     700   579.6     800   579.0     890
GR 578.7    1000
X1     30                              29      29      29
X1     60      41     500     619      30      30      30
GR 576.2       0   575.9     100   576.6     200   578.5     300   581.1     400
GR 584.6     500   582.8     500   582.6     505   581.9     510   581.1     515
GR 579.2     520   575.4     525   574.8     530   572.8     535   569.2     540
GR 569.2     540   565.5   543.5   565.5   543.5   565.5     545   563.9     555
GR 566.1     560   565.3     565   565.4     570   564.1     575   566.2     580
GR 566.2     580   565.3   583.5   565.3   583.5   565.3     585   563.4     590
GR 564.4     595   565.4     600   567.7     605   571.1     610   573.5     615
GR 574.0     619   584.6     619   582.3     700   579.6     800   579.0     890
GR 578.7    1000
X1     61      41     500     619       1       1       1
BT      9   500.0   584.3   579.8   500.0   587.7   579.8   540.0   580.1   580.3
BT 543.5    588.1   580.3   560.0   588.3   580.3   580.0   588.1   580.3   583.5
BT 588.1    580.3   619.0   587.7   579.7   619.0   584.4   579.7
GR 576.2       0   575.9     100   576.6     200   578.5     300   581.1     400
GR 584.6     500   582.8     500   582.6     505   581.9     510   581.1     515
GR 579.2     520   575.4     525   574.8     530   572.8     535   569.2     540
GR 580.3     540   580.3   543.5   565.5   543.5   565.5     545   563.9     555
GR 566.1     560   565.3     565   565.4     570   564.1     575   566.2     580
GR 580.3     580   580.3   583.5   565.3   583.5   565.3     585   563.4     590
GR 584.4     595   565.4     600   567.7     605   571.1     610   573.5     615
GR 574.0     619   584.6     619   582.3     700   579.6     800   579.0     890
```

Exhibit 3
1 of 28

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 137 | 41 | 500 | 619 | 1 | 1 | 1 | | | | |
| [redacted] | | | | | | | | | | | |
| | | 590 | 582.8 | 500 | 582.6 | 505 | 581.9 | 510 | 581.1 | 515 | |
| | | 620 | 575.4 | 525 | 574.8 | 530 | 572.8 | 535 | 569.2 | 540 | |
| | | 640 | 567.5 | 549.5 | 569.5 | 543.5 | 565.5 | 545 | 564.9 | 555 | |
| | | 580 | 565.3 | 583.5 | 565.4 | 570 | 564.1 | 575 | 563.2 | 580 | |
| GR | 564.4 | 595 | 565.4 | 600 | 567.7 | 605 | 571.1 | 610 | 573.5 | 615 | |
| GR | 574.3 | 619 | 584.6 | 619 | 582.3 | 700 | 579.6 | 800 | 579.0 | 890 | |
| GR | 576.7 | 1000 | | | | | | | | | |
| TC | 0.035 | 0.042 | 0.032 | | | | | | | | |
| X1 | 187 | 27 | 331 | 441 | 50 | 50 | 50 | | | | |
| GR | 575.8 | 0 | 576.6 | 41 | 578.5 | 141 | 580.6 | 241 | 583.1 | 331 | |
| GR | 575.4 | 341 | 574.8 | 346 | 571.3 | 351 | 568.1 | 356 | 567.2 | 361 | |
| GR | 565.7 | 366 | 565.1 | 371 | 565.5 | 376 | 565.1 | 381 | 564.7 | 391 | |
| GR | 564.1 | 401 | 564.4 | 406 | 565.7 | 411 | 568.2 | 416 | 570.5 | 421 | |
| GR | 572.8 | 426 | 574.8 | 432 | 580.2 | 441 | 583.6 | 454 | 581.0 | 541 | |
| GR | 579.3 | 641 | 578.3 | 698 | | | | | | | |
| X1 | 362 | 35 | 244 | 400 | 175 | 175 | 175 | | .27 | | |
| GR | 580.2 | 0 | 579.5 | 100 | 578.3 | 200 | 578.3 | 244 | 574.6 | 254 | |
| GR | 573.6 | 255 | 571.5 | 260 | 569.8 | 265 | 568.5 | 270 | 567.6 | 275 | |
| GR | 566.9 | 280 | 565.9 | 285 | 565.6 | 290 | 563.7 | 300 | 563.7 | 310 | |
| GR | 564.3 | 320 | 565.8 | 330 | 568.2 | 340 | 569.8 | 345 | 571.1 | 350 | |
| GR | 571.6 | 355 | 572.4 | 360 | 572.1 | 365 | 572.6 | 370 | 572.6 | 375 | |
| GR | 572.8 | 380 | 572.8 | 385 | 572.9 | 390 | 574.6 | 395 | 576.9 | 400 | |
| GR | 577.6 | 500 | 577.7 | 545 | 577.5 | 600 | 577.7 | 700 | 577.5 | 800 | |
| X1 | 737 | 35 | 244 | 400 | 375 | 375 | 375 | | | | |
| GR | 580.2 | 0 | 579.5 | 100 | 578.3 | 200 | 578.3 | 244 | 574.6 | 254 | |
| GR | 573.6 | 255 | 571.5 | 260 | 569.8 | 265 | 568.5 | 270 | 567.6 | 275 | |
| GR | 566.9 | 280 | 565.9 | 285 | 565.6 | 290 | 563.7 | 300 | 563.7 | 310 | |
| GR | 564.3 | 320 | 565.8 | 330 | 568.2 | 340 | 569.8 | 345 | 571.1 | 350 | |
| GR | 571.6 | 355 | 572.4 | 360 | 572.1 | 365 | 572.6 | 370 | 572.6 | 375 | |
| GR | 572.8 | 380 | 572.8 | 385 | 572.9 | 390 | 574.6 | 395 | 576.9 | 400 | |
| GR | 577.6 | 500 | 577.7 | 545 | 577.5 | 600 | 577.7 | 700 | 577.5 | 800 | |
| X1 | 787 | 67 | 795 | 901.6 | 50 | 50 | 50 | | | | |
| GR | 581.5 | 0 | 581.4 | 95 | 581.3 | 195 | 581.2 | 295 | 581.1 | 395 | |
| GR | 581.1 | 495 | 581.1 | 595 | 581.0 | 695 | 581.0 | 795 | 575.2 | 795 | |
| GR | 574.5 | 800 | 574.5 | 800 | 574.5 | 801 | 574.5 | 801 | 574.0 | 805 | |
| GR | 573.2 | 810 | 573.2 | 810 | 573.2 | 811 | 573.2 | 811 | 570.8 | 815 | |
| GR | 569.3 | 820 | 570.1 | 825 | 570.1 | 825 | 570.1 | 826 | 570.1 | 826 | |
| GR | 566.6 | 829.9 | 566.6 | 829.9 | 566.6 | 831.2 | 566.6 | 831.2 | 565.5 | 835 | |
| GR | 565.5 | 835 | 565.5 | 836 | 565.5 | 836 | 563.9 | 840 | 564.5 | 845 | |
| GR | 564.5 | 845 | 564.5 | 846 | 564.5 | 846 | 564.9 | 850 | 564.9 | 855 | |
| GR | 564.9 | 855 | 564.9 | 856 | 564.9 | 856 | 565.5 | 860 | 565.2 | 865 | |
| GR | 565.2 | 865 | 565.2 | 866.3 | 565.3 | 866.3 | 566.0 | 870 | 566.0 | 875 | |
| GR | 566.0 | 875 | 566.0 | 876 | 566.0 | 876 | 566.7 | 880 | 568.7 | 885 | |
| GR | 568.3 | 890 | 569.7 | 895 | 571.7 | 900 | 571.7 | 901.6 | 581.0 | 901.6 | |
| GR | 580.8 | 995 | 580.8 | 1095 | 580.6 | 1195 | 580.4 | 1295 | 580.1 | 1395 | |
| GR | 579.9 | 1495 | 580.0 | 1540 | | | | | | | |
| X1 | 788 | 67 | 795 | 901.6 | 1 | 1 | 1 | | | | |
| BT | 4 | 795.0 | 581.0 | 577.2 | 830.0 | 581.0 | 577.2 | 860.0 | 581.0 | 577.2 | |
| BT | 901.6 | 581.0 | 577.2 | | | | | | | | |
| GR | 581.5 | 0 | 581.4 | 95 | 581.3 | 195 | 581.2 | 295 | 581.1 | 395 | |
| GR | 581.1 | 495 | 581.1 | 595 | 581.0 | 695 | 581.0 | 795 | 575.2 | 795 | |
| GR | 574.5 | 800 | 575.5 | 800 | 575.5 | 801 | 574.5 | 801 | 574.0 | 805 | |
| GR | 573.2 | 810 | 575.5 | 810 | 575.5 | 811 | 573.2 | 811 | 570.8 | 815 | |
| GR | 569.3 | 820 | 570.1 | 825 | 575.5 | 825 | 575.5 | 826 | 570.1 | 826 | |
| GR | 566.6 | 830 | 577.2 | 830 | 577.2 | 831.3 | 566.6 | 831.3 | 565.5 | 835 | |
| GR | 575.5 | 835 | 575.5 | 836 | 565.5 | 836 | 563.9 | 840 | 564.5 | 845 | |
| GR | 575.5 | 845 | 575.5 | 846 | 564.5 | 846 | 564.9 | 850 | 564.9 | 855 | |
| GR | 575.5 | 855 | 575.5 | 856 | 564.9 | 856 | 565.5 | 860 | 565.2 | 865 | |
| GR | 577.2 | 865 | 577.2 | 866.3 | 565.2 | 866.3 | 566.0 | 870 | 566.0 | 875 | |
| GR | 575.5 | 875 | 575.5 | 876 | 566.0 | 876 | 566.7 | 880 | 568.7 | 885 | |
| GR | 568.3 | 890 | 569.7 | 895 | 571.7 | 900 | 571.7 | 901.6 | 581.0 | 901.6 | |
| GR | 580.8 | 995 | 580.8 | 1095 | 580.6 | 1195 | 580.4 | 1295 | 580.1 | 1395 | |
| GR | 579.9 | 1495 | 580.0 | 1540 | | | | | | | |
| X1 | 797 | 0 | 795 | 901.6 | 9 | 9 | 9 | | | | |
| X2 | | | | | | | 1 | | | | |
| X1 | 798 | 67 | 795 | 901.6 | | | | | | | |

Exhibit 3
2 of 28

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| X1 | 798 | 0 | 795 | 901.6 | 0 | 9 | 9 | | | | |
| X2 | | | | | | | 1 | | | | |
| X | 798 | 67 | 795 | 901.6 | 1 | 1 | 1 | | | | |
| GR | 581.5 | 0 | 581.4 | 95 | 581.3 | 195 | 581.2 | 295 | 581.1 | 395 | |
| GR | 581.1 | 495 | 581.1 | 595 | 581.0 | 695 | 581.0 | 795 | 581.2 | 795 | |
| GR | 574.5 | 800 | 574.5 | 800 | 574.5 | 801 | 574.5 | 801 | 574.0 | 805 | |
| GR | 573.2 | 810 | 573.2 | 810 | 573.2 | 811 | 573.2 | 811 | 570.0 | 815 | |
| GR | 569.3 | 820 | 570.1 | 825 | 570.1 | 825 | 570.1 | 826 | 570.1 | 626 | |
| GR | 566.6 | 829.9 | 566.6 | 829.9 | 566.6 | 831.2 | 566.6 | 831.2 | 565.5 | 835 | |
| GR | 565.5 | 835 | 565.5 | 836 | 565.5 | 836 | 563.9 | 840 | 564.5 | 845 | |
| GR | 564.5 | 845 | 564.5 | 846 | 564.5 | 846 | 564.9 | 850 | 564.9 | 854 | |
| GR | 564.9 | 855 | 564.9 | 856 | 564.9 | 856 | 565.5 | 860 | 565.2 | 865 | |
| GR | 565.2 | 865 | 565.2 | 866.3 | 565.3 | 866.3 | 566.0 | 870 | 566.0 | 875 | |
| GR | 566.0 | 875 | 566.0 | 876 | 566.0 | 876 | 566.7 | 880 | 568.7 | 885 | |
| GR | 568.3 | 890 | 569.7 | 895 | 571.7 | 900 | 571.7 | 901.6 | 581.0 | 901.6 | |
| GR | 580.8 | 995 | 580.8 | 1095 | 580.6 | 1195 | 580.4 | 1295 | 580.1 | 1395 | |
| GR | 579.9 | 1495 | 580.0 | 1540 | | | | | | | |
| X1 | 844 | 58 | 815 | 924 | 46 | 46 | 46 | | | | |
| GR | 583.4 | 0 | 583.4 | 15 | 583.1 | 115 | 582.9 | 215 | 582.8 | 315 | |
| GR | 582.6 | 415 | 582.3 | 515 | 582.1 | 615 | 581.8 | 715 | 581.5 | 815 | |
| GR | 576.1 | 815 | 574.2 | 820 | 572.7 | 825 | 570.0 | 829 | 570.0 | 829 | |
| GR | 570.0 | 830 | 570.0 | 830 | 568.0 | 835 | 565.9 | 840 | 565.0 | 844 | |
| GR | 565.0 | 844 | 565.0 | 845 | 565.0 | 845 | 565.0 | 855 | 566.0 | 864 | |
| GR | 566.0 | 864 | 566.0 | 865 | 566.0 | 865 | 566.1 | 874 | 566.1 | 874 | |
| GR | 566.1 | 875 | 566.1 | 875 | 565.8 | 884 | 565.8 | 884 | 565.8 | 885 | |
| GR | 565.8 | 885 | 565.6 | 890 | 565.2 | 894 | 565.2 | 894 | 565.2 | 895 | |
| GR | 565.2 | 895 | 567.6 | 900 | 570.3 | 905 | 572.0 | 909 | 572.0 | 909 | |
| GR | 572.0 | 910 | 572.0 | 910 | 574.0 | 915 | 575.1 | 920 | 576.2 | 924 | |
| GR | 581.4 | 924 | 581.3 | 1015 | 581.3 | 1115 | 581.1 | 1215 | 581.1 | 1315 | |
| GR | 581.1 | 1415 | 581.2 | 1515 | 581.2 | 1565 | | | | | |
| X1 | 845 | 58 | 815 | 924 | 1 | 1 | 1 | | | | |
| BT | 16 | 815.0 | 581.5 | 578.4 | 829.0 | 581.5 | 578.1 | 830.0 | 581.5 | 578.1 | |
| BT | 864.0 | 581.5 | 577.9 | 845.0 | 581.5 | 577.9 | 864.0 | 581.5 | 577.5 | 865.0 | |
| BT | 581.5 | 577.5 | 874.0 | 581.4 | 577.4 | 875.0 | 581.4 | 577.4 | 884.0 | 581.4 | |
| BT | 577.2 | 885.0 | 581.4 | 577.2 | 894.0 | 581.4 | 577.0 | 895.0 | 581.4 | 577.0 | |
| BT | 909.0 | 581.4 | 576.8 | 910.0 | 581.4 | 576.8 | 924.0 | 581.4 | 576.5 | | |
| GR | 583.4 | 0 | 583.4 | 15 | 583.1 | 115 | 582.9 | 215 | 582.8 | 315 | |
| GR | 582.6 | 415 | 582.3 | 515 | 582.1 | 615 | 581.8 | 715 | 581.5 | 815 | |
| GR | 576.1 | 815 | 574.2 | 820 | 572.7 | 825 | 570.0 | 829 | 578.1 | 829 | |
| GR | 578.1 | 830 | 570.0 | 830 | 568.0 | 835 | 565.9 | 840 | 565.0 | 844 | |
| GR | 577.9 | 844 | 577.9 | 845 | 565.0 | 845 | 565.0 | 855 | 566.0 | 864 | |
| GR | 577.5 | 864 | 577.5 | 865 | 566.0 | 865 | 566.1 | 874 | 577.4 | 874 | |
| GR | 577.4 | 875 | 566.1 | 875 | 565.8 | 884 | 577.2 | 884 | 577.2 | 885 | |
| GR | 565.8 | 885 | 565.6 | 890 | 565.2 | 894 | 577.0 | 894 | 577.0 | 895 | |
| GR | 565.2 | 895 | 567.6 | 900 | 570.3 | 905 | 572.0 | 909 | 576.8 | 909 | |
| GR | 576.8 | 910 | 572.0 | 910 | 574.0 | 915 | 575.1 | 920 | 576.2 | 924 | |
| GR | 581.4 | 924 | 581.3 | 1015 | 581.3 | 1115 | 581.1 | 1215 | 581.1 | 1315 | |
| GR | 581.1 | 1415 | 581.2 | 1515 | 581.2 | 1565 | | | | | |
| X1 | 859 | | 815 | 924 | 14.5 | 14.5 | 14.5 | | | | |
| X2 | | | | | | | 1 | | | | |
| X1 | 860 | 58 | 815 | 924 | 1 | 1 | 1 | | | | |
| GR | 583.4 | 0 | 583.4 | 15 | 583.1 | 115 | 582.9 | 215 | 582.8 | 315 | |
| GR | 582.6 | 415 | 582.3 | 515 | 582.1 | 615 | 581.8 | 715 | 581.5 | 815 | |
| GR | 576.1 | 815 | 574.2 | 820 | 572.7 | 825 | 570.0 | 829 | 570.0 | 829 | |
| GR | 570.0 | 830 | 570.0 | 830 | 568.0 | 835 | 565.9 | 840 | 565.0 | 844 | |
| GR | 565.0 | 844 | 565.0 | 845 | 565.0 | 845 | 565.0 | 855 | 566.0 | 864 | |
| GR | 566.0 | 864 | 566.0 | 865 | 566.0 | 865 | 566.1 | 874 | 566.1 | 874 | |
| GR | 566.1 | 875 | 566.1 | 875 | 565.8 | 884 | 565.8 | 884 | 565.8 | 885 | |
| GR | 565.8 | 885 | 565.6 | 890 | 565.2 | 894 | 565.2 | 894 | 565.2 | 895 | |
| GR | 565.2 | 895 | 567.6 | 900 | 570.3 | 905 | 572.0 | 909 | 572.0 | 909 | |
| GR | 572.0 | 910 | 572.0 | 910 | 574.0 | 915 | 575.1 | 920 | 576.2 | 924 | |
| GR | 581.4 | 924 | 581.3 | 1015 | 581.3 | 1115 | 581.1 | 1215 | 581.1 | 1315 | |
| GR | 581.1 | 1415 | 581.2 | 1515 | 581.2 | 1565 | | | | | |
| | 810 | 64 | 835 | 942 | 50 | 50 | 50 | | | | |

Exhibit 3
3 of 28

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [redacted] | | | | | | | | | | |
| | 54.3 | 874 | 564.3 | 875 | 564.3 | 875 | 564.8 | 884 | 564.8 | 884 |
| | 564.9 | 894 | 564.9 | 894 | 564.9 | 894 | 564.9 | 895 | 564.9 | 895 |
| | 564.9 | 894 | 564.9 | 904 | 564.9 | 904 | 564.9 | 905 | 564.9 | 905 |
| | 566.1 | 914 | 566.1 | 914 | 566.1 | 915 | 566.1 | 915 | 567.0 | 920 |
| GR | 571.0 | 924 | 571.0 | 924 | 571.0 | 925 | 571.0 | 925 | 572.4 | 930 |
| GR | 573.9 | 934 | 573.9 | 934 | 573.9 | 935 | 573.9 | 935 | 575.0 | 940 |
| GR | 574.9 | 942 | 583.0 | 942 | 582.7 | 1035 | 582.6 | 1135 | 582.3 | 1235 |
| GR | 582.1 | 1335 | 581.9 | 1435 | 581.8 | 1535 | 581.8 | 1585 | | |
| X1 | 911 | 64 | 835 | 942 | 1 | 1 | 1 | | | |
| BT | 6 | 835.0 | 583.1 | 578.6 | 874.0 | 583.1 | 578.6 | 875.0 | 583.1 | 578.6 |
| BT | 904.0 | 583.0 | 578.6 | 905.0 | 583.0 | 578.6 | 942.0 | 583.0 | 578.6 | |
| GR | 583.7 | 0 | 583.6 | 35 | 583.4 | 135 | 583.3 | 235 | 583.3 | 335 |
| GR | 583.3 | 435 | 583.3 | 535 | 583.2 | 635 | 583.1 | 735 | 583.1 | 835 |
| GR | 574.8 | 835 | 572.6 | 840 | 571.6 | 844 | 575.5 | 844 | 575.5 | 845 |
| GR | 571.6 | 845 | 570.7 | 854 | 575.5 | 854 | 575.5 | 855 | 570.7 | 855 |
| GR | 565.6 | 864 | 575.5 | 864 | 575.5 | 865 | 565.6 | 865 | 564.3 | 874 |
| GR | 578.6 | 874 | 578.6 | 875 | 564.3 | 875 | 564.8 | 884 | 575.5 | 884 |
| GR | 575.5 | 885 | 564.8 | 885 | 564.9 | 894 | 575.5 | 894 | 575.5 | 895 |
| GR | 564.9 | 895 | 564.0 | 904 | 578.6 | 904 | 578.6 | 905 | 564.0 | 905 |
| GR | 566.1 | 914 | 575.5 | 914 | 575.5 | 915 | 566.1 | 915 | 567.0 | 920 |
| GR | 571.0 | 924 | 575.5 | 924 | 575.5 | 925 | 571.0 | 925 | 572.4 | 930 |
| GR | 573.9 | 934 | 575.5 | 934 | 575.5 | 935 | 573.9 | 935 | 575.0 | 940 |
| GR | 574.9 | 942 | 583.0 | 942 | 582.7 | 1035 | 582.6 | 1135 | 582.3 | 1235 |
| GR | 582.1 | 1335 | 581.9 | 1435 | 581.8 | 1535 | 581.8 | 1585 | | |
| X1 | 921 | | 835 | 942 | 10 | 10 | 10 | | | |
| X2 | | | | | | | 1 | | | |
| X1 | 922 | 64 | 835 | 942 | 1 | 1 | 1 | | | |
| GR | 583.7 | 0 | 583.6 | 35 | 583.4 | 135 | 583.3 | 235 | 583.3 | 335 |
| GR | 583.3 | 435 | 583.3 | 535 | 583.2 | 635 | 583.1 | 735 | 583.1 | 835 |
| GR | 574.8 | 835 | 572.6 | 840 | 571.6 | 844 | 571.6 | 844 | 571.6 | 845 |
| GR | 571.6 | 845 | 570.7 | 854 | 570.7 | 854 | 570.7 | 855 | 570.7 | 855 |
| GR | 565.6 | 864 | 565.6 | 864 | 565.6 | 865 | 565.6 | 865 | 564.3 | 874 |
| GR | 564.3 | 874 | 564.3 | 875 | 564.3 | 875 | 564.8 | 884 | 564.8 | 884 |
| GR | 564.8 | 885 | 564.8 | 885 | 564.9 | 894 | 564.9 | 894 | 564.9 | 895 |
| GR | 564.9 | 895 | 564.0 | 904 | 564.0 | 904 | 564.0 | 905 | 564.0 | 905 |
| GR | 566.1 | 914 | 566.1 | 914 | 566.1 | 915 | 566.1 | 915 | 567.0 | 920 |
| GR | 571.0 | 924 | 571.0 | 924 | 571.0 | 925 | 571.0 | 925 | 572.4 | 930 |
| GR | 573.9 | 934 | 573.9 | 934 | 573.9 | 935 | 573.9 | 935 | 575.0 | 940 |
| GR | 574.9 | 942 | 583.0 | 942 | 582.7 | 1035 | 582.6 | 1135 | 582.3 | 1235 |
| GR | 582.1 | 1335 | 581.9 | 1435 | 581.8 | 1535 | 581.8 | 1585 | | |
| X1 | 953 | 48 | 600 | 681 | 31 | 31 | 31 | | | |
| GR | 582.0 | 0 | 581.8 | 100 | 581.6 | 200 | 581.5 | 300 | 581.4 | 400 |
| GR | 581.2 | 500 | 581.0 | 600 | 571.0 | 600 | 568.1 | 605 | 566.9 | 610 |
| GR | 566.9 | 610 | 566.9 | 612.3 | 566.9 | 612.3 | 565.9 | 615 | 565.1 | 620 |
| GR | 565.1 | 620 | 565.1 | 622.3 | 565.1 | 622.3 | 566.3 | 625 | 566.2 | 630 |
| GR | 566.2 | 630 | 566.2 | 632.3 | 566.2 | 632.3 | 566.7 | 635 | 566.4 | 640 |
| GR | 566.1 | 645 | 566.4 | 650 | 566.4 | 650 | 566.4 | 652.3 | 566.4 | 652.3 |
| GR | 566.6 | 655 | 567.5 | 660 | 567.5 | 660 | 567.5 | 662.3 | 567.5 | 662.3 |
| GR | 567.5 | 665 | 569.9 | 670 | 569.9 | 670 | 569.9 | 672.3 | 569.9 | 672.3 |
| GR | 573.4 | 680 | 573.4 | 681 | 580.8 | 681 | 580.8 | 700 | 580.7 | 800 |
| GR | 580.6 | 900 | 580.6 | 1000 | 580.5 | 1100 | | | | |
| X1 | 954 | 48 | 600 | 681 | 1 | 1 | 1 | | | |
| BT | 14 | 600.0 | 581.0 | 577.7 | 610.0 | 581.0 | 577.7 | 612.3 | 581.0 | 577.7 |
| BT | 620.0 | 581.0 | 577.7 | 622.3 | 581.0 | 577.7 | 630.0 | 580.9 | 577.7 | 632.3 |
| BT | 580.9 | 577.7 | 650.0 | 580.9 | 577.6 | 652.3 | 580.9 | 577.6 | 660.0 | 580.9 |
| BT | 577.6 | 662.3 | 580.8 | 577.6 | 670.0 | 580.8 | 577.6 | 672.3 | 580.8 | 577.6 |
| BT | 681.0 | 580.8 | 577.6 | | | | | | | |
| GR | 582.0 | 0 | 581.8 | 100 | 581.6 | 200 | 581.5 | 300 | 581.4 | 400 |
| GR | 581.2 | 500 | 581.0 | 600 | 571.0 | 600 | 568.1 | 605 | 566.9 | 610 |
| GR | 577.7 | 610 | 577.7 | 612.3 | 566.9 | 612.3 | 565.9 | 615 | 565.1 | 620 |
| GR | 577.7 | 620 | 577.7 | 622.3 | 565.1 | 622.3 | 566.3 | 625 | 566.2 | 630 |
| GR | 566.2 | 630 | 577.7 | 632.3 | 566.2 | 632.3 | 566.7 | 635 | 566.4 | 640 |
| | | | | | 577.6 | 650 | 577.6 | 652.3 | 566.4 | 652.3 |
| | | | | | | | | 662.3 | 567.5 | 662.3 |

Exhibit 3
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 56 .6 | 655 | 567.5 | 660 | 77.6 | 660 | 577.6 | 662.3 | 567.5 | 662.3 |
| [redacted] | | | | | | | | | | |
| | | 680 | 573.4 | 681 | 580.8 | 681 | 580.8 | 700 | 580.7 | 800 |
| | 580.6 | 900 | 580.6 | 1000 | 580.5 | 1100 | | | | |
| X1 | 985 | | | 600 | 681 | 30.5 | 30.5 | 30.5 | | |
| X3 | | | | | | | 1 | | | |
| X1 | 986 | 48 | 600 | 681 | 1 | 1 | 1 | | | |
| GR | 582.0 | 0 | 581.8 | 100 | 581.6 | 200 | 581.5 | 300 | 581.4 | 400 |
| GR | 581.2 | 500 | 581.0 | 600 | 571.0 | 600 | 568.1 | 605 | 566.9 | 610 |
| GR | 566.9 | 610 | 566.9 | 612.3 | 566.9 | 612.3 | 565.9 | 615 | 565.1 | 620 |
| GR | 565.1 | 620 | 565.1 | 622.3 | 565.1 | 622.3 | 566.3 | 625 | 566.2 | 630 |
| GR | 566.2 | 630 | 566.2 | 632.3 | 566.2 | 632.3 | 566.7 | 635 | 566.4 | 640 |
| GR | 566.1 | 645 | 566.4 | 650 | 566.4 | 650 | 566.4 | 652.3 | 566.4 | 652.3 |
| GR | 566.6 | 655 | 567.5 | 660 | 567.5 | 660 | 567.5 | 662.3 | 567.5 | 662.3 |
| GR | 567.5 | 665 | 569.9 | 670 | 569.9 | 670 | 569.9 | 672.3 | 569.9 | 672.3 |
| GR | 573.4 | 680 | 573.4 | 681 | 580.8 | 681 | 580.8 | 700 | 580.7 | 800 |
| GR | 580.6 | 900 | 580.6 | 1000 | 580.5 | 1100 | | | | |
| NC | 0.040 | 0.035 | 0.032 | | | | | | | |
| X1 | 1036 | 37 | 565 | 700 | 50 | 50 | 50 | | | |
| X3 | 10 | | | | | 700 | | | | |
| GR | 581.9 | 0 | 581.2 | 100 | 581.2 | 200 | 580.8 | 300 | 581.0 | 400 |
| GR | 579.9 | 500 | 581.1 | 565 | 575.4 | 587 | 574.9 | 590 | 573.9 | 595 |
| GR | 572.5 | 600 | 571.0 | 605 | 569.8 | 610 | 568.8 | 615 | 568.0 | 620 |
| GR | 567.4 | 625 | 566.6 | 630 | 566.3 | 635 | 566.2 | 640 | 566.3 | 650 |
| GR | 566.8 | 660 | 568.3 | 670 | 570.2 | 675 | 570.4 | 680 | 571.7 | 685 |
| GR | 573.1 | 690 | 574.8 | 695 | 574.9 | 696 | 577.7 | 700 | 577.5 | 800 |
| GR | 576.6 | 900 | 576.6 | 1000 | 577.0 | 1030 | 576.8 | 1100 | 577.5 | 1200 |
| GR | 578.3 | 1300 | 579.2 | 1345 | | | | | | |
| NC | 0.060 | 0.035 | 0.032 | | | | | | | |
| X1 | 1736 | 40 | 374 | 492.5 | 700 | 700 | 700 | | | |
| X3 | 10 | | | | | | | | | |
| GR | 580.4 | 0.0 | 580.4 | 167 | 579.5 | 283.7 | 578.8 | 335.3 | 579.1 | 374 |
| GR | 577.2 | 377.9 | 576.1 | 381.9 | 575.1 | 385.8 | 574.1 | 389.8 | 573.2 | 393.7 |
| GR | 572.4 | 397.7 | 571.5 | 401.6 | 570.3 | 405.6 | 569.4 | 409.5 | 568.4 | 413.5 |
| GR | 567.6 | 417.4 | 566.9 | 421.4 | 566.5 | 425.3 | 566.0 | 429.2 | 565.7 | 433.2 |
| GR | 565.5 | 437.2 | 565.4 | 441.1 | 565.5 | 445.0 | 565.6 | 449.0 | 565.9 | 453.0 |
| GR | 566.5 | 456.9 | 567.2 | 460.8 | 568.0 | 464.8 | 569.0 | 468.7 | 569.8 | 472.7 |
| GR | 570.6 | 476.6 | 571.7 | 480.6 | 573.4 | 484.5 | 575.1 | 488.5 | 577.5 | 492.5 |
| GR | 577.4 | 550 | 577.3 | 650 | 577.4 | 750 | 577.7 | 890 | 579.5 | 975 |
| X1 | 2436 | 31 | 183 | 285 | 700 | 700 | 700 | | | |
| X3 | | | | | | 485.0 | | | | |
| GR | 579.0 | 0 | 579.9 | 85 | 578.5 | 135 | 577.1 | 183 | 575.1 | 185 |
| GR | 573.5 | 190 | 572.2 | 195 | 571.1 | 200 | 570.2 | 205 | 568.5 | 210 |
| GR | 567.7 | 215 | 566.4 | 220 | 565.6 | 225 | 565.3 | 230 | 565.0 | 235 |
| GR | 564.6 | 240 | 564.8 | 245 | 565.2 | 250 | 566.4 | 255 | 567.8 | 260 |
| GR | 568.8 | 265 | 569.9 | 270 | 571.5 | 275 | 574.7 | 280 | 575.1 | 281 |
| GR | 577.4 | 285 | 577.3 | 385 | 578.2 | 485 | 577.7 | 557 | 578.6 | 585 |
| GR | 579.8 | 605 | | | | | | | | |
| QT | 4 | 1120 | 1620 | 1760 | 2055 | | | | | |
| X1 | 3186 | 25 | 200 | 300 | 750 | 750 | 750 | | | |
| X3 | 10 | | | | | 500 | | | | |
| GR | 580.6 | 0 | 583.1 | 100 | 581.3 | 200 | 579.6 | 208 | 575.2 | 216 |
| GR | 573.9 | 220 | 571.6 | 225 | 569.9 | 230 | 569.9 | 235 | 569.3 | 240 |
| GR | 569.1 | 245 | 568.8 | 250 | 569.2 | 260 | 570.8 | 270 | 571.1 | 280 |
| GR | 571.7 | 285 | 573.0 | 290 | 574.1 | 295 | 576.4 | 300 | 577.9 | 400 |
| GR | 579.0 | 500 | 579.1 | 600 | 578.7 | 625 | 578.7 | 700 | 578.9 | 800 |
| X1 | 3686 | | | | 500 | 500 | 500 | | .6 | |
| X3 | 10 | | | | | 500 | | | | |
| NC | 0.040 | 0.037 | 0.032 | | | | | | | |
| X1 | 4186 | 27 | 417 | 500 | 500 | 500 | 500 | | | |
| X3 | 10 | | | 350 | | 550 | | | | |
| GR | 581.8 | 0 | 580.9 | 100 | 580.6 | 200 | 580.0 | 300 | 578.9 | 400 |
| GR | 578.2 | 417 | 575.0 | 419 | 574.7 | 420 | 573.0 | 425 | 571.2 | 430 |
| GR | 570.5 | 435 | 570.4 | 440 | 570.4 | 445 | 570.3 | 450 | 570.0 | 455 |

578.18

578.93

578.83

579.55

578.93 579.64

Exhibit 3

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GR | 581.0 | 700 | 583.0 | 770 | | | | | | | |
| [redacted] | 0. | 0 | 0 | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | |
| X1 | 4236 | 32 | 592 | 644 | 50 | 50 | 50 | | | | |
| X3 | 10 | | | 592 | | 644 | | | | | |
| GR | 582.0 | 0 | 581.6 | 92 | 581.2 | 192 | 580.8 | 292 | 580.7 | 392 | |
| GR | 580.1 | 492 | 580.1 | 592 | 570.2 | 592 | 569.2 | 597 | 570.0 | 602 | 579.05 |
| GR | 569.7 | 607 | 569.0 | 612 | 568.1 | 617 | 568.1 | 617 | 568.1 | 618.5 | |
| GR | 568.1 | 618.5 | 568.9 | 622 | 568.8 | 627 | 569.2 | 632 | 570.0 | 637 | |
| GR | 570.6 | 642 | 570.6 | 644 | 580.0 | 644 | 579.3 | 692 | 579.6 | 792 | 579.73 |
| GR | 580.4 | 892 | 580.7 | 992 | 580.5 | 1092 | 580.3 | 1192 | 580.0 | 1292 | |
| GR | 579.6 | 1392 | 579.3 | 1492 | | | | | | | |
| SP | 1.25 | 1.37 | 2.5 | | 50.5 | 1.5 | 400 | 0 | 568.1 | 568.1 | |
| X1 | 4281 | 32 | 592 | 644 | 45 | 45 | 45 | | | | |
| X2 | | | 1 | 577.4 | 580.0 | | | | | | |
| X3 | 10 | | | 592 | | 644 | | | | | |
| BT | 6 | 592.0 | 580.1 | 577.4 | 617 | 580.0 | 577.3 | 617 | 580.0 | 568.1 | |
| BT | 618.5 | 580.0 | 568.1 | 618.5 | 580.0 | 577.3 | 644.0 | 580.0 | 577.3 | | |
| GR | 582.0 | 0 | 581.6 | 92 | 581.2 | 192 | 580.8 | 292 | 580.7 | 392 | |
| GR | 580.0 | 492 | 580.1 | 592 | 570.2 | 592 | 569.2 | 597 | 570.0 | 602 | 579.28 |
| GR | 569.7 | 607 | 569.0 | 612 | 568.1 | 617 | 568.1 | 617 | 568.1 | 618.5 | |
| GR | 568.1 | 618.5 | 568.9 | 622 | 568.8 | 627 | 569.2 | 632 | 570.0 | 637 | |
| GR | 570.6 | 642 | 570.6 | 644 | 580.0 | 644 | 579.3 | 692 | 579.6 | 792 | 580.06 |
| GR | 580.4 | 892 | 580.7 | 992 | 580.5 | 1092 | 580.3 | 1192 | 580.0 | 1292 | |
| GR | 579.6 | 1392 | 579.3 | 1492 | | | | | | | |
| NC | 0.040 | 0.037 | 0.032 | | | | | | | | |
| X1 | 4931 | 23 | 115 | 200 | 650 | 650 | 650 | | | | |
| X3 | 10 | | | 115 | | 200 | | | | | |
| GR | 582.2 | 0 | 581.6 | 37 | 580.8 | 100 | 580.9 | 115 | 575.3 | 124 | 579.55 |
| GR | 574.6 | 125 | 571.5 | 130 | 570.8 | 135 | 570.5 | 140 | 570.3 | 145 | 580.36 |
| GR | 570.3 | 150 | 570.3 | 155 | 570.4 | 160 | 570.6 | 165 | 570.8 | 170 | |
| GR | 571.1 | 175 | 571.3 | 180 | 573.1 | 185 | 573.6 | 190 | 575.3 | 195 | |
| GR | 579.0 | 200 | 579.1 | 300 | 580.1 | 400 | | | | | 579.06 |
| X1 | 5956 | | | | 1025 | 1025 | 1025 | | .35 | | |
| X3 | 10 | | | 115 | | 200 | | | | | 580.67 |
| X1 | 6981 | 29 | 505 | 600 | 1025 | 1025 | 1025 | | | | |
| X3 | 10 | | | | | | | 582.6 | 582.0 | | |
| GR | 582.8 | 0 | 581.3 | 100 | 581.3 | 200 | 580.9 | 300 | 579.7 | 400 | |
| GR | 579.4 | 425 | 582.7 | 500 | 582.6 | 505 | 576.0 | 517 | 575.2 | 520 | 580.19 |
| GR | 572.0 | 525 | 571.8 | 530 | 572.2 | 535 | 572.3 | 540 | 571.1 | 545 | |
| GR | 571.1 | 550 | 571.0 | 560 | 571.2 | 570 | 572.4 | 575 | 572.5 | 580 | 580.99 |
| GR | 574.2 | 584 | 575.2 | 588 | 582.0 | 600 | 579.1 | 700 | 581.5 | 800 | |
| GR | 580.8 | 900 | 581.0 | 920 | 581.3 | 1000 | 581.2 | 1100 | | | |
| X1 | 8031 | 27 | 150 | 246 | 1050 | 1050 | 1050 | | | | |
| X3 | | | | 150 | | 246 | | | | | |
| GR | 580.3 | 0 | 580.4 | 50 | 580.7 | 78 | 578.9 | 114 | 580.7 | 150 | 580.52 |
| GR | 579.0 | 155 | 575.2 | 162 | 573.8 | 166 | 572.8 | 170 | 572.3 | 175 | |
| GR | 572.0 | 180 | 571.7 | 190 | 571.5 | 200 | 571.5 | 210 | 571.7 | 215 | 581.37 |
| GR | 571.8 | 220 | 572.5 | 225 | 573.6 | 230 | 575.2 | 235 | 577.8 | 238 | |
| GR | 579.4 | 246 | 579.4 | 250 | 578.6 | 336 | 578.5 | 350 | 579.2 | 450 | |
| GR | 578.9 | 492 | 580.5 | 550 | | | | | | | |
| NC | 0.030 | 0.030 | 0.030 | | | | | | | | |
| X1 | 8082 | 39 | 580 | 655 | 51 | 51 | 51 | | | | |
| X3 | 10 | | | 580 | | 655 | | | | | |
| GR | 578.6 | 0 | 578.1 | 80 | 578.0 | 180 | 577.7 | 280 | 577.6 | 380 | |
| GR | 577.9 | 480 | 580.9 | 580 | 571.8 | 580 | 572.2 | 585 | 571.7 | 590 | |
| GR | 571.5 | 595 | 571.2 | 600 | 570.4 | 605 | 578.3 | 605 | 578.3 | 606.5 | |
| GR | 570.4 | 606.5 | 571.4 | 610 | 571.0 | 615 | 570.9 | 620 | 571.0 | 625 | |
| GR | 571.0 | 630 | 578.3 | 630 | 578.3 | 631.5 | 571.0 | 631.5 | 571.1 | 635 | |
| GR | 570.9 | 640 | 570.8 | 645 | 570.3 | 650 | 569.9 | 655 | 581.1 | 655 | |
| GR | 580.3 | 680 | 578.9 | 780 | 578.5 | 830 | 578.3 | 880 | 577.9 | 980 | |
| GR | 577.5 | 1080 | 577.3 | 1180 | 577.7 | 1280 | 577.6 | 1380 | | | |
| SP | 1.25 | 1.56 | 2.6 | | 75 | 3 | 519 | | 569.9 | 569.9 | 580.73 |
| X1 | 8147 | | 580 | 655 | 65 | 65 | 65 | | | | |
| | | | 1 | 578.4 | 580.9 | | | | .631 | | 581.43 |

400 580.9
340 580.19
300 579.7

60 .071
100 1.2

200 581.3
275 581
300 580.9

100 .41

Exh. 67
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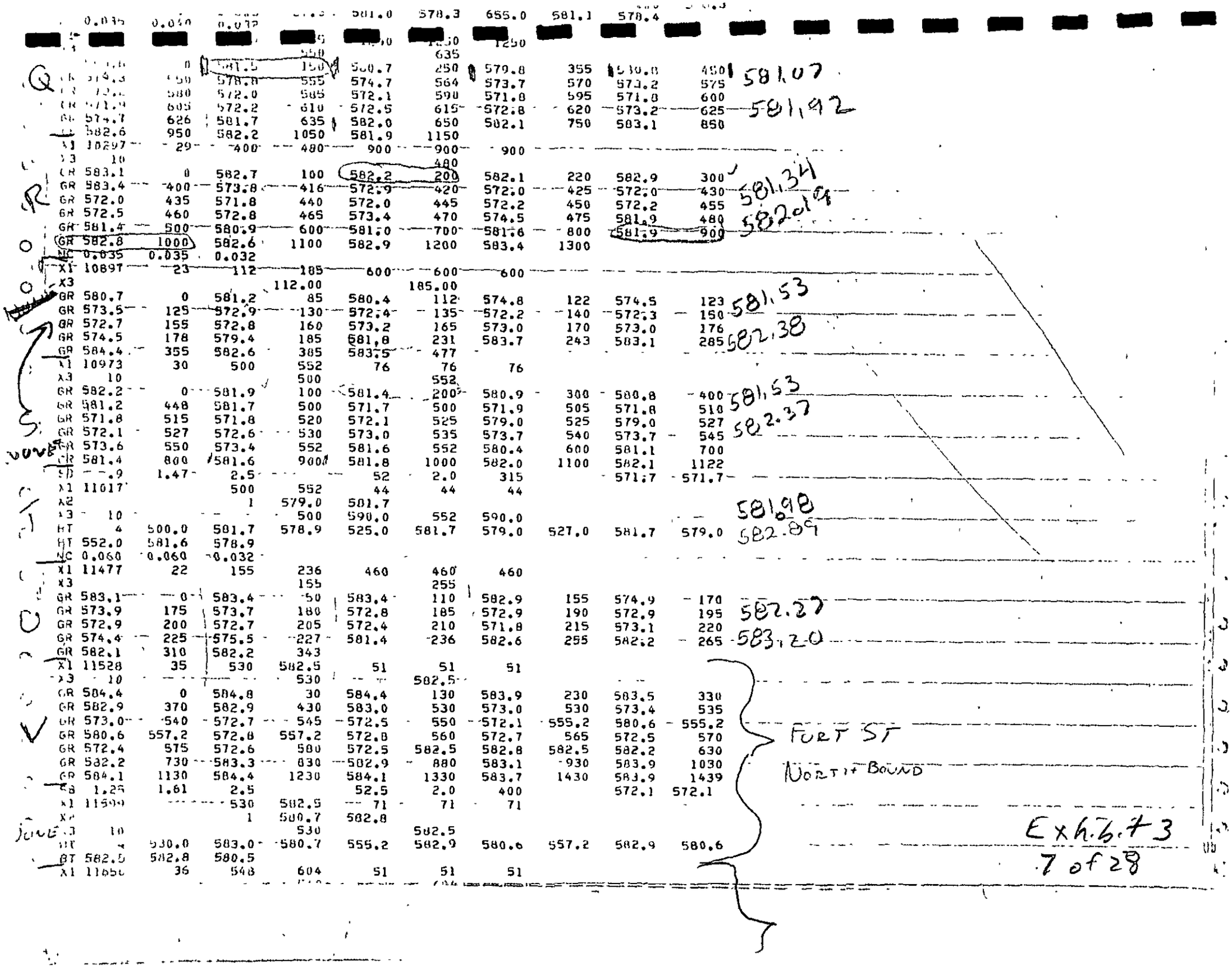

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.035 | 0.040 | 0.032 | | 581.0 | 578.3 | 655.0 | 581.1 | 578.4 | | |
| | | | | | | 635 | | | | | |
| | | 0 | 581.5 | 150 | 580.7 | 250 | 579.8 | 355 | 580.8 | 450 | 581.07 |
| | | 450 | 578.8 | 555 | 574.7 | 564 | 573.7 | 570 | 573.2 | 575 | |
| | | 580 | 572.0 | 585 | 572.1 | 590 | 571.8 | 595 | 571.8 | 600 | |
| | | 605 | 572.2 | 610 | 572.5 | 615 | 572.8 | 620 | 573.2 | 625 | 581.92 |
| | 574.7 | 626 | 581.7 | 635 | 582.0 | 650 | 582.1 | 750 | 583.1 | 850 | |
| | 582.6 | 950 | 582.2 | 1050 | 581.9 | 1150 | | | | | |
| X1 | 10297 | 29 | 400 | 480 | 900 | 900 | 900 | | | | |
| X3 | 10 | | | | | 480 | | | | | |
| GR | 583.1 | 0 | 582.7 | 100 | 582.2 | 200 | 582.1 | 220 | 582.9 | 300 | |
| GR | 583.4 | 400 | 573.8 | 416 | 572.9 | 420 | 572.0 | 425 | 572.0 | 430 | 581.34 |
| GR | 572.0 | 435 | 571.8 | 440 | 572.0 | 445 | 572.2 | 450 | 572.2 | 455 | |
| GR | 572.5 | 460 | 572.8 | 465 | 573.4 | 470 | 574.5 | 475 | 581.9 | 480 | 582.04 |
| GR | 581.4 | 500 | 580.9 | 600 | 581.0 | 700 | 581.6 | 800 | 581.9 | 900 | |
| GR | 582.8 | 1000 | 582.6 | 1100 | 582.9 | 1200 | 583.4 | 1300 | | | |
| NC | 0.035 | 0.035 | 0.032 | | | | | | | | |
| X1 | 10897 | 23 | 112 | 185 | 600 | 600 | 600 | | | | |
| X3 | | | | 112.00 | | 185.00 | | | | | |
| GR | 580.7 | 0 | 581.2 | 85 | 580.4 | 112 | 574.8 | 122 | 574.5 | 123 | 581.53 |
| GR | 573.5 | 125 | 572.9 | 130 | 572.4 | 135 | 572.2 | 140 | 572.3 | 150 | |
| GR | 572.7 | 155 | 572.8 | 160 | 573.2 | 165 | 573.0 | 170 | 573.0 | 176 | |
| GR | 574.5 | 178 | 579.4 | 185 | 581.8 | 231 | 583.7 | 243 | 583.1 | 285 | 582.38 |
| GR | 584.4 | 355 | 582.6 | 385 | 583.5 | 477 | | | | | |
| X1 | 10973 | 30 | 500 | 552 | 76 | 76 | 76 | | | | |
| X3 | 10 | | | 500 | | 552 | | | | | |
| GR | 582.2 | 0 | 581.9 | 100 | 581.4 | 200 | 580.9 | 300 | 580.8 | 400 | 581.53 |
| GR | 581.2 | 448 | 581.7 | 500 | 571.7 | 500 | 571.9 | 505 | 571.8 | 510 | |
| GR | 571.8 | 515 | 571.8 | 520 | 572.1 | 525 | 579.0 | 525 | 579.0 | 527 | 582.37 |
| GR | 572.1 | 527 | 572.6 | 530 | 573.0 | 535 | 573.7 | 540 | 573.7 | 545 | |
| GR | 573.6 | 550 | 573.4 | 552 | 581.6 | 552 | 580.4 | 600 | 581.1 | 700 | |
| GR | 581.4 | 800 | 581.6 | 900 | 581.8 | 1000 | 582.0 | 1100 | 582.1 | 1122 | |
| SD | .9 | 1.47 | 2.5 | | 52 | 2.0 | 315 | | 571.7 | 571.7 | |
| X1 | 11017 | | 500 | 552 | 44 | 44 | 44 | | | | |
| X2 | | | 1 | 579.0 | 581.7 | | | | | | 581.98 |
| X3 | 10 | | | 500 | 590.0 | 552 | 590.0 | | | | |
| BT | 4 | 500.0 | 581.7 | 578.9 | 525.0 | 581.7 | 579.0 | 527.0 | 581.7 | 579.0 | 582.89 |
| BT | 552.0 | 581.6 | 578.9 | | | | | | | | |
| NC | 0.060 | 0.060 | 0.032 | | | | | | | | |
| X1 | 11477 | 22 | 155 | 236 | 460 | 460 | 460 | | | | |
| X3 | | | | 155 | | 255 | | | | | |
| GR | 583.1 | 0 | 583.4 | 50 | 583.4 | 110 | 582.9 | 155 | 574.9 | 170 | |
| GR | 573.9 | 175 | 573.7 | 180 | 572.8 | 185 | 572.9 | 190 | 572.9 | 195 | 582.27 |
| GR | 572.9 | 200 | 572.7 | 205 | 572.4 | 210 | 571.8 | 215 | 573.1 | 220 | |
| GR | 574.4 | 225 | 575.5 | 227 | 581.4 | 236 | 582.6 | 255 | 582.2 | 265 | 583.20 |
| GR | 582.1 | 310 | 582.2 | 343 | | | | | | | |
| X1 | 11528 | 35 | 530 | 582.5 | 51 | 51 | 51 | | | | |
| X3 | 10 | | | 530 | | 582.5 | | | | | |
| GR | 584.4 | 0 | 584.8 | 30 | 584.4 | 130 | 583.9 | 230 | 583.5 | 330 | |
| GR | 582.9 | 370 | 582.9 | 430 | 583.0 | 530 | 573.0 | 530 | 573.4 | 535 | |
| GR | 573.0 | 540 | 572.7 | 545 | 572.5 | 550 | 572.1 | 555.2 | 580.6 | 555.2 | |
| GR | 580.6 | 557.2 | 572.8 | 557.2 | 572.8 | 560 | 572.7 | 565 | 572.5 | 570 | |
| GR | 572.4 | 575 | 572.6 | 580 | 572.5 | 582.5 | 582.8 | 582.5 | 582.2 | 630 | |
| GR | 582.2 | 730 | 583.3 | 830 | 582.9 | 880 | 583.1 | 930 | 583.9 | 1030 | |
| GR | 584.1 | 1130 | 584.4 | 1230 | 584.1 | 1330 | 583.7 | 1430 | 583.9 | 1439 | |
| SD | 1.25 | 1.61 | 2.5 | | 52.5 | 2.0 | 400 | | 572.1 | 572.1 | |
| X1 | 11599 | | 530 | 582.5 | 71 | 71 | 71 | | | | |
| X2 | | | 1 | 580.7 | 582.8 | | | | | | |
| X3 | 10 | | | 530 | | 582.5 | | | | | |
| BT | 4 | 530.0 | 583.0 | 580.7 | 555.2 | 582.9 | 580.6 | 557.2 | 582.9 | 580.6 | |
| BT | 582.5 | 582.8 | 580.5 | | | | | | | | |
| X1 | 11650 | 36 | 548 | 604 | 51 | 51 | 51 | | | | |

FORT ST
NORTH BOUND

Exh. 6.43
7 of 28

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 5 3.0 | 44 | 583.4 | 4 | 73.4 | 548 | 573.7 | 553 | 573.3 | 558 |
| GR | 572.0 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 580.7 | 573.5 | 572.5 | 575.5 | 572.4 | 578 | 572.1 | 583 | 572.6 | 588 |
| GR | 572.1 | 593 | 572.6 | 598 | 572.4 | 601 | 580.5 | 604 | 583.2 | 604 |
| GR | 582.4 | 648 | 581.9 | 748 | 582.4 | 823 | 582.9 | 848 | 583.3 | 948 |
| GR | 583.8 | 1048 | 584.1 | 1148 | 584.5 | 1248 | 584.3 | 1348 | 583.9 | 1448 |
| GR | 584.3 | 1558 | | | | | | | | |
| SB | 1.25 | 1.61 | 2.5 | | 56 | 2.0 | 400 | | 572.1 | 572.1 |
| X1 | 11721 | | 548 | 604 | 71 | 71 | 71 | | | |
| X2 | | | 1 | 580.7 | 583.2 | | | | | |
| X3 | 10 | | | 548 | | 604 | | | | |
| BT | 4 | 548.0 | 583.4 | 580.7 | 573.5 | 583.3 | 580.7 | 575.5 | 583.3 | 580.7 |
| BT | 604.0 | 583.2 | 580.5 | | | | | | | |
| EJ | | | | | | | | | | |

NONE

W

FORT SOUTH BOUND

```
T1      CITY OF WYANDOTTE FIS 5555-73
T2      SEXTON-KILFOIL DRAIN
T3      50 YEAR FLOOD  4100 CFS
J1   -10       3                    1                                574.90
J2     2                -1
T1      CITY OF WYANDOTTE FIS 5555-73
T2      SEXTON-KILFOIL DRAIN
T3      100 YEAR FLOOD 4410 CFS
J1   -10       4                                                     574.90
J2     3                -1
T1      CITY OF WYANDOTTE 5555-73
T2      SEXTON-KILFOIL DRAIN
T3      500 YEAR FLOOD 5160 CFS
J1   -10       5                                                     574.90
J2    15                -1

ER
```

Exhibit 3
8 of 28

DDDDDDDD EEEEEEEEEE CCCCCCCC HH HH 00000000
EEEEEEEEEE CCCCCCCCCC HH HH

```
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
**********

T1      CITY OF WYANDOTTE FIS 5555-73
T2      SEXTON-KILFOIL DRAIN
T3      100-YEAR FLOOD,4410 CFS

J1  ICHECK     INQ     NINV     IDIR     STRT     METRIC     HVINS     Q     WSEL     FQ
        -10.      4.       0.       0.  -0.000000     -0.00      -0.0      -0.  574.900    -0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN     ALLDC     IBW     CHNIM     ITRACE
        3.000    -0.000    -1.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

CCHV=  .300 CEHV=  .500
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG     HV     HL     OLOSS     BANK ELEV
    Q     QLOB     QCH     QROB     ALOB     ACH     AROB     VOL     TWA     LEFT/RIGHT
    TIME     VLOB     VCH     VROB     XNL     XNCH     XNR     WTN     ELMIN     SSTA
    SLOPE     XLOBL     XLCH     XLOBR     ITRIAL     IDC     ICONT     CORAR     TOPWID     ENDST

      1.00     11.50     574.90      0.00     574.90     575.51      .61      0.00      0.00     584.60
      4410.      0.      4410.      0.      0.      701.      0.      0.      0.      584.60
      0.00      0.00      6.29      0.00      .035      .032      .035      0.000      563.40      529.17
      .001328      -0.      -0.      -0.      0      0      1      0.00      89.83      619.00

     30.00     11.55     574.95      0.00      0.00     575.55      .61      .04      .00     584.60
     4410.      0.      4410.      0.      0.      705.      0.      0.      0.      584.60
      .00      0.00      6.26      0.00      .035      .032      .035      .031      563.40      528.85
      .001312      29.      29.      29.      0      0      1      0.00      90.15      619.00

     60.00     11.59     574.99      0.00      0.00     575.60      .60      .04      .00     584.60
     4410.      0.      4410.      0.      0.      709.      0.      1.      0.      584.60
      .00      0.00      6.22      0.00      .035      .032      .035      .031      563.40      528.45
      .001294      30.      30.      30.      1      0      1      0.00      90.55      619.00

3265-DIVIDED FLOW

NORMAL BRIDGE,NRD=  0 MIN.EL.TRD=  584.30 MAX.ELLC=  580.30

     61.00     11.53     574.93      0.00      0.00     575.66      .72      .00      .06     584.60
     4410.      0.      4410.      0.      0.      646.      0.      1.      0.      584.60
      .00      0.00      6.83      0.00      .035      .032      .035      .030      563.40      528.88
      .002372      1.      1.      1.      2      0      1      0.00      83.12      619.00

3265 DIVIDED FLOW

PRESSURE FLOW

  SRRPS     SQWC     QWEIR     QPR     BAREA     ELLC
```

Exhibit 3
9 of 28

100-YEAR

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4410. | 0. | 4410. | 0 | 0.00 | 0.00 | 575.84 | .68 | .17 | .01 | 584.6 |
| [redacted] | [redacted] | 0 | 4410. | 0 | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | 0. | 584.60 |
| | .002224 | 75. | 75. | 75. | 0.00 | 2 | 0 | 1 | 0.00 | .85.00 | 619.00 |

| SECNO | DEPTH | CHSEL | CRIWS | HSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 137.00 | 11.94 | 575.34 | 0.00 | 0.00 | 575.88 | .55 | .00 | .04 | 584.60 |
| 4410. | 0. | 4410. | 0. | 0. | 741. | 0. | 2. | 0. | 584.60 |
| .01 | 0.00 | 5.95 | 0.00 | .035 | .032 | .035 | .031 | 563.40 | 525.53 |
| .001166 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 93.47 | 619.00 |
| 187.00 | 11.26 | 575.36 | 0.00 | 0.00 | 575.98 | .62 | .06 | .04 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 696. | 0. | 3. | 0. | 580.20 |
| .01 | 0.00 | 6.33 | 0.00 | .035 | .032 | .042 | .031 | 564.10 | 341.32 |
| .001331 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 91.61 | 432.94 |
| 362.00 | 11.97 | 575.94 | 0.00 | 0.00 | 576.25 | .30 | .17 | .10 | 578.57 |
| 4410. | 0. | 4410. | 0. | 0. | 995. | 0. | 6. | 1. | 577.17 |
| .02 | 0.00 | 4.43 | 0.00 | .035 | .032 | .042 | .031 | 563.97 | 251.10 |
| .000728 | 175. | 175. | 175. | 2 | 0 | 1 | 0.00 | 146.24 | 397.33 |
| 737.00 | 12.54 | 576.24 | 0.00 | 0.00 | 576.50 | .26 | .24 | .01 | 578.30 |
| 4410. | 0. | 4410. | 0. | 0. | 1079. | 0. | 15. | 2. | 576.90 |
| .04 | 0.00 | 4.09 | 0.00 | .035 | .032 | .042 | .032 | 563.70 | 249.56 |
| .000570 | 375. | 375. | 375. | 2 | 0 | 1 | 0.00 | 149.01 | 398.57 |
| 787.00 | 12.30 | 576.20 | 0.00 | 0.00 | 576.62 | .42 | .04 | .08 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 846. | 0. | 16. | 2. | 581.00 |
| .05 | 0.00 | 5.21 | 0.00 | .035 | .032 | .042 | .032 | 563.90 | 795.00 |
| .000895 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 106.60 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 788.00 | 12.25 | 576.15 | 0.00 | 0.00 | 576.67 | .52 | .00 | .05 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 764. | 0. | 16. | 2. | 581.00 |
| .05 | 0.00 | 5.77 | 0.00 | .035 | .032 | .042 | .032 | 563.90 | 795.00 |
| .003554 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 104.00 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 797.00 | 12.29 | 576.19 | 0.00 | 0.00 | 576.70 | .51 | .03 | .00 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 767. | 0. | 17. | 2. | 581.00 |
| .05 | 0.00 | 5.75 | 0.00 | .035 | .032 | .042 | .032 | 563.90 | 795.00 |
| .003513 | 9. | 9. | 9. | 1 | 0 | 1 | 0.00 | 104.00 | 901.60 |

Exh. b. 15
10 of 28

100-YEAR

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 798.00 | 12.42 | 576.32 | 0.00 | 0.00 | 576.73 | .41 | .00 | .03 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 859. | 0. | 17. | 2. | 581.00 |
| .05 | 0.00 | 5.13 | 0.00 | .035 | .032 | .042 | .032 | 563.90 | 795.00 |
| .000851 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 106.60 | 901.60 |
| 844.00 | 11.37 | 576.37 | 0.00 | 0.00 | 576.77 | .40 | .04 | .00 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 865. | 0. | 17. | 2. | 581.40 |
| .05 | 0.00 | 5.10 | 0.00 | .035 | .032 | .042 | .032 | 565.00 | 815.00 |
| .000809 | 46. | 46. | 46. | 2 | 0 | 1 | 0.00 | 109.00 | 924.00 |
| 3269 DIVIDED FLOW | | | | | | | | | |
| NORMAL BRIDGE NRD=16 MIN EL TRD= 581.40 MAX ELLC= 578.40 | | | | | | | | | |
| 845.00 | 11.33 | 576.33 | 0.00 | 0.00 | 576.81 | .48 | .00 | .04 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 797. | 0. | 17. | 2. | 581.40 |
| .05 | 0.00 | 5.53 | 0.00 | .035 | .032 | .042 | .031 | 565.00 | 815.00 |
| .002795 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 102.00 | 924.00 |
| 3269 DIVIDED FLOW | | | | | | | | | |
| NORMAL BRIDGE NRD=16 MIN EL TRD= 581.40 MAX ELLC= 578.40 | | | | | | | | | |
| 859.00 | 11.38 | 576.38 | 0.00 | 0.00 | 576.85 | .47 | .04 | .00 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 802. | 0. | 18. | 2. | 581.40 |
| .05 | 0.00 | 5.50 | 0.00 | .035 | .032 | .042 | .031 | 565.00 | 815.00 |
| .002751 | 15. | 15. | 15. | 2 | 0 | 1 | 0.00 | 102.00 | 924.00 |
| 860.00 | 11.48 | 576.48 | 0.00 | 0.00 | 576.88 | .39 | .00 | .02 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 877. | 0. | 18. | 2. | 581.40 |
| .05 | 0.00 | 5.03 | 0.00 | .035 | .032 | .042 | .031 | 565.00 | 815.00 |
| .000773 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 109.00 | 924.00 |
| 910.00 | 12.56 | 576.56 | 0.00 | 0.00 | 576.92 | .37 | .04 | .01 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 908. | 0. | 19. | 3. | 583.00 |
| .05 | 0.00 | 4.86 | 0.00 | .035 | .032 | .042 | .031 | 564.00 | 835.00 |
| .000696 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 107.00 | 942.00 |
| 3269 DIVIDED FLOW | | | | | | | | | |
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

Exh 6.F3
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [redacted] | 12.[redacted] | 576.52 | 0.00 | 0.00 | 576.96 | .45 | .00 | .04 | 583.10 |
| 4410. | [redacted] | [redacted] | [redacted] | [redacted] | 0. | [redacted]823[redacted] | [redacted] | [redacted] | [redacted].00 |
| .05 | 0.00 | 5.36 | 0.00 | .035 | .032 | .042 | .031 | 564.00 | [redacted] |
| .003062 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 105.00 | 942.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 583.00 MAX ELLC= 578.60

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 921.00 | 12.55 | 576.55 | 0.00 | 0.00 | 576.99 | .44 | .03 | .00 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 826. | 0. | 19. | 3. | 583.00 |
| .05 | 0.00 | 5.34 | 0.00 | .035 | .032 | .042 | .031 | 564.00 | 835.00 |
| .003030 | 10. | 10. | 10. | 1 | 0 | 1 | 0.00 | 105.00 | 942.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 922.00 | 12.66 | 576.66 | 0.00 | 0.00 | 577.02 | .36 | .00 | .03 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 919. | 0. | 19. | 3. | 583.00 |
| .05 | 0.00 | 4.80 | 0.00 | .035 | .032 | .042 | .031 | 564.00 | 835.00 |
| .000671 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 107.00 | 942.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 953.00 | 11.49 | 576.59 | 0.00 | 0.00 | 577.14 | .55 | .03 | .10 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 738. | 0. | 20. | 3. | 580.80 |
| .06 | 0.00 | 5.97 | 0.00 | .035 | .032 | .042 | .031 | 565.10 | 600.00 |
| .001040 | 31. | 31. | 31. | 2 | 0 | 1 | 0.00 | 81.00 | 681.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=14 MIN ELTRD= 580.80 MAX ELLC= 577.70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 954.00 | 11.34 | 576.44 | 0.00 | 0.00 | 577.29 | .85 | .00 | .15 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 596. | 0. | 20. | 3. | 580.80 |
| .06 | 0.00 | 7.40 | 0.00 | .035 | .032 | .042 | .031 | 565.10 | 600.00 |
| .005600 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 67.20 | 681.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=14 MIN ELTRD= 580.80 MAX ELLC= 577.70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 985.00 | 11.56 | 576.66 | 0.00 | 0.00 | 577.47 | .81 | .17 | .01 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 611. | 0. | 20. | 3. | 580.80 |
| .06 | 0.00 | 7.22 | 0.00 | .035 | .032 | .042 | .031 | 565.10 | 600.00 |
| .005274 | 31. | 31. | 31. | 2 | 0 | 1 | 0.00 | 67.20 | 681.00 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 986.00 | 11.97 | 577.07 | 0.00 | 0.00 | 577.57 | .50 | .00 | .09 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 777. | 0. | 20. | 3. | 580.80 |
| .06 | 0.00 | 5.68 | 0.00 | .035 | .032 | .042 | .031 | 565.10 | 600.00 |
| | | | | 2 | 0 | 1 | 0.00 | 81.00 | 681.00 |

Exhibit B
12 of 28

3470 ENCROACHMENT STATIONS= .0 700.0 TYPE= 1 TARGET= 699.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.10 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1036.00 | 11.04 | 577.24 | 0.00 | 0.00 | 577.64 | .40 | .04 | .03 | 581.10 |
| 4410. | 0. | 4410. | 0. | 0. | 866. | 0. | 21. | 3. | 100000.00 |
| .06 | 0.00 | 5.10 | 0.00 | .040 | .032 | .035 | .031 | 566.20 | 579.94 |
| .000887 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 119.39 | 699.33 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 579.10 ELREA= 577.50

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1736.00 | 12.46 | 577.86 | 0.00 | 0.00 | 578.18 | .32 | .52 | .03 | 579.10 |
| 4410. | 0. | 4308. | 102. | 0. | 941. | 168. | 37. | 8. | 577.50 |
| .10 | 0.00 | 4.58 | .61 | .060 | .032 | .035 | .032 | 568.40 | 376.55 |
| .000620 | 700. | 700. | 700. | 1 | 0 | 1 | 0.00 | 520.85 | 897.40 |

3470 ENCROACHMENT STATIONS= .0 485.0 TYPE= 1 TARGET= 484.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2436.00 | 13.67 | 578.27 | 0.00 | 0.00 | 578.57 | .30 | .39 | .00 | 577.10 |
| 4410. | 9. | 4286. | 115. | 23. | 954. | 144. | 55. | 15. | 577.40 |
| .15 | .39 | 4.49 | .80 | .060 | .032 | .035 | .032 | 564.60 | 142.88 |
| .000502 | 700. | 700. | 700. | 2 | 0 | 1 | 0.00 | 342.12 | 485.00 |

CONFLUENCE
NORTH + SOUTH BRANCH
FW+FB I

3470 ENCROACHMENT STATIONS= .0 500.0 TYPE= 1 TARGET= 499.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.30 ELREA= 576.40

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3186.00 | 10.03 | 578.83 | 0.00 | 0.00 | 578.92 | .08 | .27 | .07 | 581.30 |
| 1760. | 0. | 1605. | 155. | 0. | 668. | 208. | 72. | 20. | 576.40 |
| .24 | 0.00 | 2.40 | .75 | .060 | .032 | .035 | .032 | 568.80 | 209.39 |
| .000195 | 750. | 750. | 750. | 2 | 0 | 1 | 0.00 | 275.40 | 484.80 |

VALLEY
FW+FB(I)

3470 ENCROACHMENT STATIONS= .0 500.0 TYPE= 1 TARGET= 499.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.90 ELREA= 577.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3686.00 | 9.53 | 578.93 | 0.00 | 0.00 | 579.04 | .11 | .11 | .01 | 581.90 |
| 1760. | 0. | 1667. | 93. | 0. | 623. | 127. | 81. | 23. | 577.00 |
| .29 | 0.00 | 2.68 | .73 | .060 | .032 | .035 | .032 | 569.40 | 210.30 |
| .000261 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 229.09 | 439.39 |

VALLEY
No FW+FB II

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CHWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

Exhibit 3
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3470 ENCROACHMENT STATIONS= 350.0 550.0 TYPE= 1 TARGET= 200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4186.00 | 9.06 | 579.06 | 0.00 | 0.00 | 579.19 | .13 | .14 | .01 | 578.20 |
| 1760. | 4. | 1755. | 2. | 10. | 598. | 8. | 89. | 25. | 578.70 |
| .34 | .38 | 2.93 | .22 | .040 | .032 | .037 | .032 | 570.00 | 385.99 |
| .000306 | 500. | 500. | 500. | 1 | 0 | 1 | 0.00 | 158.27 | 544.28 |

50 FT. D/STEMMONS
FW+FB K

3470 ENCROACHMENT STATIONS= 592.0 644.0 TYPE= 1 TARGET= 52.00

[redacted] AREA [redacted] SUMED NON-EFFECTIVE,ELLEA= [redacted] 580.10 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4236.00 | 10.95 | 579.05 | 0.00 | 0.00 | 579.24 | .19 | .02 | .03 | 580.10 |
| 1760. | 0. | 1760. | 0. | 0. | 504. | 0. | 90. | 29. | 100000.00 |
| .35 | 0.00 | 3.69 | 0.00 | .030 | .030 | .030 | .032 | 568.10 | 592.00 |
| .000356 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 52.00 | 644.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | CDFQ | RDLEN | BNC | BNP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.37 | 2.50 | 0.00 | 50.50 | 1.50 | 400.00 | 0.00 | 568.10 | 568.10 |

PRESSURE FLOW

| EGPRS | EGLBC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 579.46 | 579.25 | .01 | 0. | 1760. | 400. | 577.40 | 580.00 | 10.00 |

3470 ENCROACHMENT STATIONS= 592.0 644.0 TYPE= 1 TARGET= 52.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.10 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4281.00 | 11.18 | 579.28 | 0.00 | 0.00 | 579.46 | .18 | .22 | 0.00 | 580.10 |
| 1760. | 0. | 1760. | 0. | 0. | 515. | 0. | 90. | 26. | 100000.00 |
| .35 | 0.00 | 3.41 | 0.00 | .030 | .030 | .030 | .032 | 568.10 | 592.00 |
| .000333 | 45. | 45. | 45. | 2 | 0 | 1 | 0.00 | 52.00 | 644.00 |

EMMONS ST Eastbound FW&FB [redacted]

3470 ENCROACHMENT STATIONS= 115.0 200.0 TYPE= 1 TARGET= 85.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.90 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4931.00 | 9.25 | 579.55 | 0.00 | 0.00 | 579.68 | .13 | .21 | .01 | 580.90 |
| 1760. | 0. | 1760. | 0. | 0. | 600. | 0. | 99. | 27. | 100000.00 |
| .41 | 0.00 | 2.93 | 0.00 | .040 | .032 | .037 | .032 | 570.30 | 117.17 |
| .000305 | 650. | 650. | 650. | 2 | 0 | 1 | 0.00 | 82.55 | 199.72 |

VALLEY FW&FB M

3470 ENCROACHMENT STATIONS= 115.0 200.0 TYPE= 1 TARGET= 85.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.25 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5956.00 | 9.21 | 579.86 | 0.00 | 0.00 | 580.00 | .13 | .31 | .00 | 581.25 |
| 1760. | 0. | 1760. | 0. | 0. | 597. | 0. | 113. | 28. | 100000.00 |
| .51 | 0.00 | 2.95 | 0.00 | .040 | .032 | .037 | .032 | 570.65 | 117.22 |
| .000309 | 1025. | 1025. | 1025. | 1 | 0 | 1 | 0.00 | 82.47 | 199.69 |

VALLEY NO FW&FB. SECTION REPEATED.

| SECNO | DEPTH | CHSEL | CRIWS | HSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | THA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | HTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

[redacted] AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.60 ELREA= 582.00

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 6901.00 | 9.19 | 580.19 | 0.00 | 0.00 | 580.32 | .13 | .32 | | | |
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| .000314 | 1025. | 1025. | 1025. | 0 | 0 | 1 | 0.00 | 87.40 | 596.80 | |

VALLEY
FW & FB N

3280 CROSS SECTION 8031.00 EXTENDED .01 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 150.0 | 246.0 | TYPE= | 1 | TARGET= | 96.000 | | | |
| 8031.00 | 9.02 | 580.52 | 0.00 | 0.00 | 580.63 | .11 | .31 | .01 | 580.70 |
| 1760. | 0. | 1760. | 0. | 0. | 653. | 0. | 142. | 33. | 100000.00 |
| .71 | 0.00 | 2.70 | 0.00 | .040 | .032 | .037 | .032 | 571.50 | 150.56 |
| .000275 | 1050. | 1050. | 1050. | 0 | 0 | 1 | 0.00 | 95.44 | 246.00 |

VALLEY
FW & FB O
[redacted]
50' D/S HARRISON ST

3280 CROSS SECTION 8082.00 EXTENDED 2.95 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 580.0 | 655.0 | TYPE= | 1 | TARGET= | 75.000 | | | |
| OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= | | 580.90 | ELREA= | 100000.00 | | | | | |
| 8082.00 | 10.65 | 580.55 | 0.00 | 0.00 | 580.65 | .10 | .01 | .00 | 580.90 |
| 1760. | 0. | 1760. | 0. | 0. | 688. | 0. | 143. | 33. | 100000.00 |
| .72 | 0.00 | 2.56 | 0.00 | .030 | .030 | .030 | .032 | 569.90 | 580.00 |
| .000275 | 51. | 51. | 51. | 2 | 0 | 1 | 0.00 | 75.00 | 655.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.56 | 2.60 | -0.00 | 75.00 | 3.00 | 519.00 | -0.00 | 569.90 | 569.90 |

HARRISON ST
FW & FB
P

3280 CROSS SECTION 8147.00 EXTENDED 3.13 FEET

PRESSURE FLOW

| EGPRS | EGLWC | WH3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 580.83 | 580.66 | .01 | 0. | 1760. | 519. | 578.40 | 580.90 | 10.00 |

Harrison St

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 580.0 | 655.0 | TYPE= | 1 | TARGET= | 75.000 | | | |
| OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= | | 580.90 | ELREA= | 100000.00 | | | | | |
| 8147.00 | 10.83 | 580.73 | 0.00 | 0.00 | 580.83 | .10 | .18 | 0.00 | 580.90 |
| 1760. | 0. | 1760. | 0. | 0. | 701. | 0. | 144. | 33. | 100000.00 |
| .73 | 0.00 | 2.51 | 0.00 | .030 | .030 | .030 | .032 | 569.90 | 580.00 |
| .000259 | 65. | 65. | 65. | 2 | 0 | 1 | 0.00 | 75.00 | 655.00 |

Exhibit 3
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 550.0 | 635.0 | TYPE= | 1 | TARGET= | 85.000 | | | |
| 9397.00 | 9.27 | 581.07 | 0.00 | 0.00 | 581.20 | .13 | .36 | .02 | 579.30 |
| 1760. | 0. | 1760. | 0. | 0. | 602. | 0. | 163. | 35. | 100000.00 |
| .84 | 0.00 | 2.92 | 0.00 | .035 | .032 | .040 | .032 | 571.80 | 550.00 |
| .000315 | 1250. | 1250. | 1250. | 0 | 0 | 1 | 0.00 | 84.18 | 634.18 |

VALLEY
FW & FB Q

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [redacted] | DEPTH | CHSEL | [redacted] | [redacted] | EG | HV[redacted] | [redacted] | [redacted] | FL[redacted] |
| Q [redacted] | Q[redacted] | [redacted] | [redacted] | [redacted] | ACH | ARDB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= .0 480.0 TYPE= 1 TARGET= 479.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.40 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10297.00 | 9.54 | 581.34 | 0.00 | 0.00 | 581.48 | .14 | .28 | .00 | 583.40 |
| 1760. | 0. | 1760. | 0. | 0. | 586. | 0. | 175. | 37. | 100000.00 |
| .93 | 0.00 | 3.00 | 0.00 | .035 | .032 | .040 | .032 | 571.80 | 403.43 |
| .000305 | 900. | 900. | 900. | 2 | 0 | 1 | 0.00 | 76.19 | 479.62 |

VALLEY FW&FB R

3470 ENCROACHMENT STATIONS= 112.0 185.0 TYPE= 1 TARGET= 73.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10897.00 | 9.33 | 581.53 | 0.00 | 0.00 | 581.68 | .15 | .19 | .01 | 580.40 |
| 1760. | 0. | 1760. | 0. | 0. | 559. | 0. | 183. | 38. | 100000.00 |
| .98 | 0.00 | 3.15 | 0.00 | .035 | .032 | .035 | .032 | 572.20 | 112.00 |
| .000345 | 600. | 600. | 600. | 0 | 0 | 1 | 0.00 | 73.00 | 185.00 |

76' D/S HARRISON ST S

3470 ENCROACHMENT STATIONS= 500.0 552.0 TYPE= 1 TARGET= 52.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.70 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10973.00 | 9.83 | 581.53 | 0.00 | 0.00 | 581.76 | .23 | .04 | .04 | 581.70 |
| 1760. | 0. | 1760. | 0. | 0. | 454. | 0. | 184. | 38. | 100000.00 |
| .99 | 0.00 | 3.88 | 0.00 | .035 | .032 | .035 | .032 | 571.70 | 500.00 |
| .000734 | 76. | 76. | 76. | 2 | 0 | 1 | 0.00 | 52.00 | 552.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | .90 | 1.47 | 2.50 | -0.00 | 52.00 | 2.00 | 315.00 | -0.00 | 571.70 | 571.70 |

Harrison HARRISON ST #2

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 582.24 | 581.77 | .01 | 48. | 1702. | 315. | 579.00 | 581.70 | 30.00 |

3470 ENCROACHMENT STATIONS= 500.0 552.0 TYPE= 1 TARGET= 52.000
ELENCL= 590.00 ELENCR= 590.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.70 ELREA= 590.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11017.00 | 10.28 | 581.98 | 0.00 | 0.00 | 582.19 | .21 | .43 | 0.00 | 581.70 |
| 1760. | 0. | 1760. | 0. | 0. | 478. | 0. | 184. | 38. | 590.00 |
| .99 | 0.00 | 3.69 | 0.00 | .035 | .032 | .035 | .032 | 571.70 | 500.00 |
| .000[illegible] | 44. | 44. | 44. | 2 | 0 | 3 | 0.00 | 52.00 | 552.00 |

[illegible] SECTION 11017.00 EXTENDED .07 FEET

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[redacted]70 [redacted]OAC[redacted] ST[redacted]NS= [redacted]155[redacted] 2[redacted] TY[redacted] [redacted]ARO[redacted] [redacted]000[redacted]

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11477.00 | 10.47 | 582.27 | 0.00 | 0.00 | 582.40 | .13 | .19 | .02 | 582.90 |
| 1760. | 0. | 1759. | 1. | 0. | 606. | 6. | 190. | 39. | [illegible] |
| 1.03 | 0.00 | 2.90 | .24 | .060 | .032 | .060 | .032 | 571.80 | [illegible] |
| .000[illegible] | [illegible] | 460. | 450. | 2 | 0 | 1 | 0.00 | 93.65 | [illegible] |

VALLEY
FW & FB U
± 50 FT D/S FORT

| SECNO | DEPTH | CUSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 530.0 582.5 TYPE= 1 TARGET= 52.500

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.00 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11528.00 | 10.16 | 582.26 | 0.00 | 0.00 | 582.46 | .20 | .02 | .04 | 583.00 |
| 1760. | 0. | 1760. | 0. | 0. | 485. | 0. | 191. | 39. | 100000.00 |
| 1.04 | 0.00 | 3.63 | 0.00 | .060 | .032 | .060 | .032 | 572.10 | 530.00 |
| .000625 | 51. | 51. | 51. | 2 | 0 | 1 | 0.00 | 52.50 | 582.50 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.61 | 2.50 | -0.00 | 52.50 | 2.00 | 400.00 | -0.00 | 572.10 | 572.10 |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 582.74 | 582.48 | .02 | 0. | 1760. | 400. | 580.70 | 582.80 | 10.00 |

North Bound
Fort St.

FORT NORTH BOUND

3470 ENCROACHMENT STATIONS= 530.0 582.5 TYPE= 1 TARGET= 52.500

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.00 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11599.00 | 10.45 | 582.55 | 0.00 | 0.00 | 582.74 | .19 | .28 | 0.00 | 583.00 |
| 1760. | 0. | 1760. | 0. | 0. | 501. | 0. | 191. | 39. | 100000.00 |
| 1.04 | 0.00 | 3.52 | 0.00 | .060 | .032 | .060 | .032 | 572.10 | 530.00 |
| .000568 | 71. | 71. | 71. | 2 | 0 | 1 | 0.00 | 52.50 | 582.50 |

3470 ENCROACHMENT STATIONS= 548.0 604.0 TYPE= 1 TARGET= 56.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.40 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11650.00 | 10.50 | 582.60 | 0.00 | 0.00 | 582.77 | .17 | .03 | .01 | 583.40 |
| 1760. | 0. | 1760. | 0. | 0. | 525. | 0. | 192. | 39. | 100000.00 |
| 1.05 | 0.00 | 3.35 | 0.00 | .060 | .032 | .060 | .032 | 572.10 | 548.00 |
| .000492 | 51. | 51. | 51. | 1 | 0 | 1 | 0.00 | 56.00 | 604.00 |

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SPECIAL BRIDGE

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CL/SS |
|---|---|---|---|---|---|---|---|---|
| 583.08 | 582.78 | .01 | 0. | 1760. | 400. | 580.70 | 583.20 | 10.00 |

3470 ENCROACHMENT STATIONS= 548.0 604.0 TYPE= 1 TARGET= 56.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.40 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11721.00 | 10.82 | 582.92 | 0.00 | 0.00 | 583.08 | .16 | .31 | 0.00 | 583.40 |
| 1760. | 0. | 1760. | 0. | 0. | 543. | 0. | 193. | 39. | 100000.00 |
| 1.05 | 0.00 | 3.24 | 0.00 | .060 | .032 | .060 | .032 | 572.10 | 548.00 |
| .000443 | 71. | 71. | 71. | 2 | 0 | 1 | 0.00 | 56.00 | 604.00 |

FORT SOUTH BOUND

OK BEM 1/14/80

Exhibit 3
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SUMMARY PRINTOUT FOR MULTIPLE PROFILES

500 YEAR FLOOD 5160 CFS

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | CRIWS | EG | TOPWID | VOLS | TIME | VOL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.90 | 0.00 | 575.22 | 89.83 | 6.84 | 0.00 | 0.06 |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.90 | 0.00 | 575.48 | 89.83 | 11.48 | 0.00 | 0.09 |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.90 | 0.00 | 575.51 | 89.83 | 13.28 | 0.00 | 0.09 |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 574.90 | 0.00 | 575.74 | 89.83 | 18.28 | 0.00 | 0.00 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.92 | 0.00 | 575.24 | 90.00 | 6.80 | .00 | .97 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.94 | 0.00 | 575.47 | 90.11 | 11.36 | .00 | .97 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.95 | 0.00 | 575.55 | 90.15 | 13.12 | .00 | .97 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 574.97 | 0.00 | 575.80 | 90.33 | 17.85 | .00 | .97 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.94 | 0.00 | 575.26 | 90.17 | 6.76 | .00 | .97 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.98 | 0.00 | 575.50 | 90.44 | 11.23 | .00 | .98 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.99 | 0.00 | 575.60 | 90.55 | 12.94 | .00 | .98 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 575.04 | 0.00 | 575.85 | 91.04 | 17.41 | .00 | .98 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 3165.00 | 574.91 | 0.00 | 575.29 | 82.95 | 12.29 | .00 | .97 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 4100.00 | 574.93 | 0.00 | 575.56 | 83.07 | 20.54 | .00 | .97 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 4410.00 | 574.93 | 0.00 | 575.66 | 83.12 | 23.72 | .00 | .97 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 5160.00 | 574.96 | 0.00 | 575.94 | 83.33 | 32.24 | .00 | .97 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 3165.00 | 575.02 | 0.00 | 575.38 | 83.82 | 11.93 | .01 | 2.08 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 4100.00 | 575.12 | 0.00 | 575.71 | 84.64 | 19.46 | .01 | 2.09 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 4410.00 | 575.16 | 0.00 | 575.84 | 85.00 | 22.24 | .01 | 2.10 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 5160.00 | 575.30 | 0.00 | 576.20 | 86.14 | 29.29 | .01 | 2.11 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 575.10 | 0.00 | 575.40 | 91.53 | 6.44 | .01 | 2.10 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 575.27 | 0.00 | 575.75 | 92.89 | 10.29 | .01 | 2.11 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 575.34 | 0.00 | 575.88 | 93.47 | 11.66 | .01 | 2.11 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 575.54 | 0.00 | 576.26 | 94.19 | 14.81 | .01 | 2.13 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 3165.00 | 575.12 | 0.00 | 575.46 | 89.16 | 7.37 | .01 | 2.90 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 4100.00 | 575.29 | 0.00 | 575.84 | 90.88 | 11.75 | .01 | 2.93 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 4410.00 | 575.36 | 0.00 | 575.98 | 91.61 | 13.31 | .01 | 2.94 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 5160.00 | 575.58 | 0.00 | 576.38 | 92.53 | 16.82 | .01 | 2.98 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 3165.00 | 575.42 | 0.00 | 575.61 | 143.71 | 4.75 | .03 | 6.10 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 4100.00 | 575.80 | 0.00 | 576.07 | 145.52 | 6.71 | .02 | 6.27 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 4410.00 | 575.94 | 0.00 | 576.25 | 146.24 | 7.28 | .02 | 6.34 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 5160.00 | 576.34 | 0.00 | 576.71 | 148.20 | 8.37 | .02 | 6.53 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 3165.00 | 575.62 | 0.00 | 575.78 | 145.95 | 3.85 | .06 | 14.31 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 4100.00 | 576.07 | 0.00 | 576.31 | 148.18 | 5.30 | .05 | 15.00 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 4410.00 | 576.24 | 0.00 | 576.50 | 149.01 | 5.70 | .04 | 15.27 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 5160.00 | 576.69 | 0.00 | 577.01 | 151.21 | 6.51 | .04 | 16.01 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 3165.00 | 575.59 | 0.00 | 575.85 | 106.60 | 5.92 | .06 | 15.32 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 4100.00 | 576.03 | 0.00 | 576.41 | 106.60 | 8.26 | .05 | 16.08 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 4410.00 | 576.20 | 0.00 | 576.62 | 106.60 | 8.95 | .05 | 16.37 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 5160.00 | 576.63 | 0.00 | 577.15 | 106.60 | 10.35 | .04 | 17.18 |

Exhibit 3

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| [redacted]CTIO | [redacted]HANN | [redacted]IN | [redacted] | M[redacted]L OF | [redacted]N E | [redacted]SCH | [redacted] | [redacted]EL | [redacted] | [redacted]HS | [redacted] | EG | [redacted] | TOPWID | [redacted] | 10[redacted]S | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NUMBER | LENGTH | ROADWAY | | LOW CHORD | | GROUND | | (CFS) | | | | | | | | | | | | | | | |
| 788.00 | 1.00 | 581.00 | | 577.20 | | 563.90 | | 3165.00 | | 575.56 | | 0.00 | | 575.88 | | 104.00 | | 23.72 | | .06 | | 15.37 | |
| 788.00 | 1.00 | 581.00 | | 577.20 | | 563.90 | | 4100.00 | | 575.99 | | 0.00 | | 576.46 | | 104.00 | | 32.91 | | .05 | | 16.10 | |
| 788.00 | 1.00 | 581.00 | | 577.20 | | 563.90 | | 4410.00 | | 576.15 | | 0.00 | | 576.67 | | 104.00 | | 35.54 | | .05 | | 16.29 | |
| 788.00 | 1.00 | 581.00 | | 577.20 | | 563.90 | | 5160.00 | | 576.58 | | 0.00 | | 577.21 | | 104.00 | | 40.06 | | .04 | | 17.30 | |
| 797.00 | 9.00 | 581.00 | | 577.20 | | 563.90 | | 3165.00 | | 575.59 | | 0.00 | | 575.90 | | 104.00 | | 23.58 | | .04 | | 15.44 | |
| 797.00 | 9.00 | 581.00 | | 577.20 | | 563.90 | | 4100.00 | | 576.02 | | 0.00 | | 576.49 | | 104.00 | | 32.55 | | .05 | | 16.21 | |
| 797.00 | 9.00 | 581.00 | | 577.20 | | 563.90 | | 4410.00 | | 576.19 | | 0.00 | | 576.70 | | 104.00 | | 35.13 | | .05 | | 16.55 | |
| 797.00 | 9.00 | 581.00 | | 577.20 | | 563.90 | | 5160.00 | | 576.62 | | 0.00 | | 577.25 | | 104.00 | | 40.12 | | .04 | | 17.37 | |
| 798.00 | 1.00 | 0.00 | | 0.00 | | 563.90 | | 3165.00 | | 575.67 | | 0.00 | | 575.92 | | 106.60 | | 5.72 | | .07 | | 16.50 | |
| 798.00 | 1.00 | 0.00 | | 0.00 | | 563.90 | | 4100.00 | | 576.15 | | 0.00 | | 576.52 | | 106.60 | | 7.89 | | .05 | | 16.82 | |
| 798.00 | 1.00 | 0.00 | | 0.00 | | 563.90 | | 4410.00 | | 576.32 | | 0.00 | | 576.73 | | 106.60 | | 8.51 | | .05 | | 16.97 | |
| 798.00 | 1.00 | 0.00 | | 0.00 | | 563.90 | | 5160.00 | | 576.79 | | 0.00 | | 577.29 | | 106.60 | | 9.78 | | .04 | | 17.30 | |
| 844.00 | 46.00 | 0.00 | | 0.00 | | 565.00 | | 3165.00 | | 575.70 | | 0.00 | | 575.95 | | 106.11 | | 5.36 | | .06 | | 16.63 | |
| 844.00 | 46.00 | 0.00 | | 0.00 | | 565.00 | | 4100.00 | | 576.19 | | 0.00 | | 576.55 | | 108.96 | | 7.52 | | .05 | | 17.16 | |
| 844.00 | 46.00 | 0.00 | | 0.00 | | 565.00 | | 4410.00 | | 576.37 | | 0.00 | | 576.77 | | 109.00 | | 8.09 | | .05 | | 17.48 | |
| 844.00 | 46.00 | 0.00 | | 0.00 | | 565.00 | | 5160.00 | | 576.84 | | 0.00 | | 577.33 | | 109.00 | | 9.24 | | .05 | | 18.35 | |
| 845.00 | 1.00 | 581.40 | | 578.40 | | 565.00 | | 3165.00 | | 575.68 | | 0.00 | | 575.97 | | 98.98 | | 17.86 | | .07 | | 16.38 | |
| 845.00 | 1.00 | 581.40 | | 578.40 | | 565.00 | | 4100.00 | | 576.16 | | 0.00 | | 576.59 | | 101.84 | | 25.65 | | .05 | | 17.18 | |
| 845.00 | 1.00 | 581.40 | | 578.40 | | 565.00 | | 4410.00 | | 576.33 | | 0.00 | | 576.81 | | 102.00 | | 27.95 | | .05 | | 17.50 | |
| 845.00 | 1.00 | 581.40 | | 578.40 | | 565.00 | | 5160.00 | | 576.80 | | 0.00 | | 577.38 | | 102.00 | | 35.77 | | .05 | | 18.37 | |
| 859.00 | 14.50 | 581.40 | | 578.40 | | 565.00 | | 3165.00 | | 575.70 | | 0.00 | | 575.99 | | 99.12 | | 17.73 | | .07 | | 16.40 | |
| 859.00 | 14.50 | 581.40 | | 578.40 | | 565.00 | | 4100.00 | | 576.20 | | 0.00 | | 576.63 | | 101.96 | | 25.38 | | .05 | | 17.44 | |
| 859.00 | 14.50 | 581.40 | | 578.40 | | 565.00 | | 4410.00 | | 576.38 | | 0.00 | | 576.85 | | 102.00 | | 27.51 | | .05 | | 17.76 | |
| 859.00 | 14.50 | 581.40 | | 578.40 | | 565.00 | | 5160.00 | | 576.86 | | 0.00 | | 577.43 | | 103.00 | | 37.02 | | .05 | | 18.65 | |
| 860.00 | 1.00 | 0.00 | | 0.00 | | 565.00 | | 3165.00 | | 575.77 | | 0.00 | | 576.01 | | 106.54 | | 5.22 | | .07 | | 16.62 | |
| 860.00 | 1.00 | 0.00 | | 0.00 | | 565.00 | | 4100.00 | | 576.29 | | 0.00 | | 576.65 | | 109.00 | | 7.21 | | .05 | | 17.46 | |
| 860.00 | 1.00 | 0.00 | | 0.00 | | 565.00 | | 4410.00 | | 576.48 | | 0.00 | | 576.88 | | 109.00 | | 7.73 | | .05 | | 17.78 | |
| 860.00 | 1.00 | 0.00 | | 0.00 | | 565.00 | | 5160.00 | | 576.99 | | 0.00 | | 577.47 | | 109.00 | | 8.74 | | .05 | | 18.67 | |
| 910.00 | 60.00 | 0.00 | | 0.00 | | 564.00 | | 3165.00 | | 575.81 | | 0.00 | | 576.04 | | 107.00 | | 4.79 | | .07 | | 17.55 | |
| 910.00 | 50.00 | 0.00 | | 0.00 | | 564.00 | | 4100.00 | | 576.36 | | 0.00 | | 576.69 | | 107.00 | | 6.48 | | .06 | | 18.46 | |
| 910.00 | 50.00 | 0.00 | | 0.00 | | 564.00 | | 4410.00 | | 576.56 | | 0.00 | | 576.92 | | 107.00 | | 6.96 | | .05 | | 18.81 | |
| 910.00 | 50.00 | 0.00 | | 0.00 | | 564.00 | | 5160.00 | | 577.07 | | 0.00 | | 577.52 | | 107.00 | | 7.95 | | .05 | | 19.76 | |
| 911.00 | 1.00 | 583.00 | | 578.60 | | 564.00 | | 3165.00 | | 575.79 | | 0.00 | | 576.07 | | 105.00 | | 21.37 | | .07 | | 17.57 | |
| 911.00 | 1.00 | 583.00 | | 578.60 | | 564.00 | | 4100.00 | | 576.32 | | 0.00 | | 576.73 | | 105.00 | | 28.62 | | .06 | | 18.48 | |
| 911.00 | 1.00 | 583.00 | | 578.60 | | 564.00 | | 4410.00 | | 576.52 | | 0.00 | | 576.96 | | 105.00 | | 30.62 | | .05 | | 18.83 | |
| 911.00 | 1.00 | 583.00 | | 578.60 | | 564.00 | | 5160.00 | | 577.03 | | 0.00 | | 577.56 | | 105.00 | | 34.49 | | .05 | | 19.78 | |
| 921.00 | 10.00 | 583.00 | | 578.60 | | 564.00 | | 3165.00 | | 575.81 | | 0.00 | | 576.09 | | 105.00 | | 21.25 | | .07 | | 17.74 | |
| 921.00 | 10.00 | 583.00 | | 578.60 | | 564.00 | | 4100.00 | | 576.35 | | 0.00 | | 576.76 | | 105.00 | | 28.34 | | .06 | | 18.66 | |
| 921.00 | 10.00 | 583.00 | | 578.60 | | 564.00 | | 4410.00 | | 576.55 | | 0.00 | | 576.99 | | 105.00 | | 30.30 | | .05 | | 19.02 | |
| 921.00 | 10.00 | 583.00 | | 578.60 | | 564.00 | | 5160.00 | | 577.07 | | 0.00 | | 577.60 | | 105.00 | | 34.11 | | .05 | | 19.98 | |

Exhibit 3
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| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [redacted] | LENGTH | ROADWAY | LOW CHORD | GROUND | (CFS) | | | | | | | | |
| 522.00 | 1.00 | 0.00 | 0.00 | 564.00 | 3165.00 | 575.88 | 0.00 | 576.11 | 107.00 | 4.00 | [illegible] | [illegible] | |
| 2.00 | 1.00 | 0.00 | 0.00 | 564.00 | 4100.00 | 576.56 | 0.00 | 576.78 | 107.00 | 6.28 | [illegible] | [illegible] | |
| [illegible] | 1.00 | 0.00 | 0.00 | 564.00 | 4410.00 | 576.66 | 0.00 | 577.02 | 107.00 | 6.71 | [illegible] | [illegible] | |
| 22.00 | 1.00 | 0.00 | 0.00 | 564.00 | 5160.00 | 577.20 | 0.00 | 577.63 | 107.00 | 7.61 | [illegible] | [illegible] | |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 3165.00 | 575.84 | 0.00 | 576.18 | 81.00 | 6.97 | .07 | 18.20 | |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 4100.00 | 576.39 | 0.00 | 576.89 | 81.00 | 9.62 | .06 | 19.26 | |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 4410.00 | 576.59 | 0.00 | 577.14 | 81.00 | 10.48 | .06 | 19.62 | |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 5160.00 | 577.10 | 0.00 | 577.78 | 81.00 | 12.04 | .05 | 20.69 | |
| 953.00 | 1.00 | 580.80 | 577.70 | 565.10 | 3165.00 | 575.76 | 0.00 | 576.27 | 67.20 | 35.26 | .07 | 18.31 | |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 4100.00 | 576.26 | 0.00 | 577.03 | 67.20 | 50.97 | .06 | 19.27 | |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 4410.00 | 576.44 | 0.00 | 577.29 | 67.20 | 56.00 | .06 | 19.64 | |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 5160.00 | 576.92 | 0.00 | 577.97 | 67.20 | 67.38 | .05 | 20.65 | |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 3165.00 | 575.88 | 0.00 | 576.38 | 67.20 | 33.95 | .07 | 18.70 | |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 4100.00 | 576.46 | 0.00 | 577.19 | 67.20 | 48.26 | .06 | 19.68 | |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 4410.00 | 576.66 | 0.00 | 577.47 | 67.20 | 52.74 | .06 | 20.06 | |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 5160.00 | 577.20 | 0.00 | 578.19 | 67.20 | 62.75 | .05 | 21.09 | |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 3165.00 | 576.12 | 0.00 | 576.44 | 81.00 | 6.31 | .07 | 18.71 | |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 4100.00 | 576.82 | 0.00 | 577.27 | 81.00 | 8.33 | .06 | 19.70 | |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 4410.00 | 577.07 | 0.00 | 577.57 | 81.00 | 8.89 | .06 | 20.08 | |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 5160.00 | 577.70 | 0.00 | 578.30 | 81.00 | 10.00 | .05 | 21.11 | |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 3165.00 | 576.20 | 0.00 | 576.48 | 114.00 | 7.01 | .08 | 19.55 | |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 4100.00 | 576.96 | 0.00 | 577.34 | 117.96 | 8.55 | .06 | 20.61 | |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 4410.00 | 577.24 | 0.00 | 577.64 | 119.39 | 8.87 | .06 | 21.02 | |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 5160.00 | 577.94 | 0.00 | 578.40 | 122.80 | 9.24 | .05 | 22.13 | |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 3165.00 | 576.68 | 0.00 | 576.92 | 111.33 | 5.29 | .13 | 32.02 | |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 4100.00 | 577.55 | 0.00 | 577.87 | 443.28 | 6.28 | .11 | 35.00 | |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 4410.00 | 577.86 | 0.00 | 578.18 | 520.85 | 6.20 | .10 | 36.89 | |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 5160.00 | 578.65 | 0.00 | 578.93 | 560.01 | 5.29 | .10 | 42.14 | |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 3165.00 | 577.03 | 0.00 | 577.26 | 101.28 | 4.35 | .18 | 45.15 | |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 4100.00 | 577.97 | 0.00 | 578.26 | 306.47 | 4.98 | .15 | 50.91 | |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 4410.00 | 578.27 | 0.00 | 578.57 | 342.12 | 5.02 | .15 | 54.81 | |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 5160.00 | 578.99 | 0.00 | 579.30 | 367.49 | 4.87 | .15 | 65.56 | |
| 3186.00 | 750.00 | 0.00 | 0.00 | 568.80 | 1120.00 | 577.49 | 0.00 | 577.55 | 160.65 | 1.72 | .28 | 57.33 | |
| 3186.00 | 750.00 | 0.00 | 0.00 | 568.80 | 1620.00 | 578.52 | 0.00 | 578.60 | 246.47 | 1.98 | .24 | 66.56 | |
| 3186.00 | 750.00 | 0.00 | 0.00 | 568.80 | 1760.00 | 578.83 | 0.00 | 578.92 | 275.40 | 1.95 | .24 | 72.01 | |
| 3186.00 | 750.00 | 0.00 | 0.00 | 568.80 | 2055.00 | 579.55 | 0.00 | 579.63 | 291.91 | 1.73 | .24 | 86.75 | |
| 3686.00 | 500.00 | 0.00 | 0.00 | 569.40 | 1120.00 | 577.58 | 0.00 | 577.66 | 125.85 | 2.30 | .34 | 63.65 | |
| 3686.00 | 500.00 | 0.00 | 0.00 | 569.40 | 1620.00 | 578.62 | 0.00 | 578.73 | 200.38 | 2.66 | .30 | 75.04 | |
| 3686.00 | 500.00 | 0.00 | 0.00 | 569.40 | 1760.00 | 578.93 | 0.00 | 579.04 | 229.09 | 2.61 | .29 | 81.33 | |
| 3686.00 | 500.00 | 0.00 | 0.00 | 569.40 | 2055.00 | 579.64 | 0.00 | 579.74 | 290.98 | 2.35 | .30 | 98.33 | |

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| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | CRITS | EG | TOPWID | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4186.00 | 500.00 | 0.00 | 0.00 | 570.00 | 1120.00 | 577.69 | 0.00 | 577.78 | 81.04 | [illegible] | [illegible] | [illegible] |
| 4186.00 | 500.00 | 0.00 | 0.00 | 570.00 | 1620.00 | 578.75 | 0.00 | 578.88 | 102.22 | 3.01 | [illegible] | [illegible] |
| 4186.00 | 500.00 | 0.00 | 0.00 | 570.00 | 1760.00 | 579.06 | 0.00 | 579.19 | 158.27 | 3.06 | [illegible] | [illegible] |
| 4186.00 | 500.00 | 0.00 | 0.00 | 570.00 | 2055.00 | 579.75 | 0.00 | 579.89 | 200.00 | 2.94 | [illegible] | [illegible] |
| 4236.00 | 50.00 | 0.00 | 0.00 | 568.10 | 1120.00 | 577.69 | 0.00 | 577.80 | 52.00 | 2.27 | [illegible] | [illegible] |
| 4236.00 | 50.00 | 0.00 | 0.00 | 568.10 | 1620.00 | 578.75 | 0.00 | 578.92 | 52.00 | 3.32 | [illegible] | [illegible] |
| 4236.00 | 50.00 | 0.00 | 0.00 | 568.10 | 1760.00 | 579.05 | 0.00 | 579.24 | 52.00 | 3.56 | [illegible] | [illegible] |
| 4236.00 | 50.00 | 0.00 | 0.00 | 568.10 | 2055.00 | 579.73 | 0.00 | 579.95 | 52.00 | 3.99 | [illegible] | [illegible] |
| 4281.00 | 45.00 | 580.00 | 577.40 | 568.10 | 1120.00 | 577.76 | 0.00 | 577.86 | 52.00 | 2.22 | [illegible] | [illegible] |
| 4281.00 | 45.00 | 580.00 | 577.40 | 568.10 | 1620.00 | 578.93 | 0.00 | 579.10 | 52.00 | 3.14 | [illegible] | [illegible] |
| 4281.00 | 45.00 | 580.00 | 577.40 | 568.10 | 1760.00 | 579.28 | 0.00 | 579.46 | 52.00 | 3.33 | [illegible] | [illegible] |
| 4281.00 | 45.00 | 580.00 | 577.40 | 568.10 | 2055.00 | 580.06 | 0.00 | 580.27 | 52.00 | 3.64 | [illegible] | [illegible] |
| 4931.00 | 650.00 | 0.00 | 0.00 | 570.30 | 1120.00 | 577.93 | 0.00 | 578.02 | 78.15 | 2.56 | [illegible] | [illegible] |
| 4931.00 | 650.00 | 0.00 | 0.00 | 570.30 | 1620.00 | 579.18 | 0.00 | 579.31 | 81.55 | 3.01 | [illegible] | [illegible] |
| 4931.00 | 650.00 | 0.00 | 0.00 | 570.30 | 1760.00 | 579.55 | 0.00 | 579.68 | 82.55 | 3.05 | [illegible] | [illegible] |
| 4931.00 | 650.00 | 0.00 | 0.00 | 570.30 | 2055.00 | 580.36 | 0.00 | 580.50 | 84.13 | 3.03 | [illegible] | [illegible] |
| 5956.00 | 1025.00 | 0.00 | 0.00 | 570.65 | 1120.00 | 578.20 | 0.00 | 578.29 | 77.93 | 2.67 | [illegible] | [illegible] |
| 5956.00 | 1025.00 | 0.00 | 0.00 | 570.65 | 1620.00 | 579.49 | 0.00 | 579.62 | 81.48 | 3.06 | [illegible] | [illegible] |
| 5956.00 | 1025.00 | 0.00 | 0.00 | 570.65 | 1760.00 | 579.86 | 0.00 | 580.00 | 82.47 | 3.09 | [illegible] | [illegible] |
| 5956.00 | 1025.00 | 0.00 | 0.00 | 570.65 | 2055.00 | 580.67 | 0.00 | 580.82 | 84.07 | 3.07 | [illegible] | [illegible] |
| 6981.00 | 1025.00 | 0.00 | 0.00 | 571.00 | 1120.00 | 578.48 | 0.00 | 578.57 | 81.27 | 2.83 | [illegible] | [illegible] |
| 6981.00 | 1025.00 | 0.00 | 0.00 | 571.00 | 1620.00 | 579.81 | 0.00 | 579.94 | 86.06 | 3.13 | [illegible] | [illegible] |
| 6981.00 | 1025.00 | 0.00 | 0.00 | 571.00 | 1760.00 | 580.19 | 0.00 | 580.32 | 87.40 | 3.14 | [illegible] | [illegible] |
| 6981.00 | 1025.00 | 0.00 | 0.00 | 571.00 | 2055.00 | 580.99 | 0.00 | 581.14 | 90.28 | 3.10 | [illegible] | [illegible] |
| 8031.00 | 1050.00 | 0.00 | 0.00 | 571.50 | 1120.00 | 578.77 | 0.00 | 578.85 | 87.41 | 2.50 | [illegible] | [illegible] |
| 8031.00 | 1050.00 | 0.00 | 0.00 | 571.50 | 1620.00 | 580.14 | 0.00 | 580.25 | 94.35 | 2.75 | [illegible] | [illegible] |
| 8031.00 | 1050.00 | 0.00 | 0.00 | 571.50 | 1760.00 | 580.52 | 0.00 | 580.63 | 95.44 | 2.75 | [illegible] | [illegible] |
| 8031.00 | 1050.00 | 0.00 | 0.00 | 571.50 | 2055.00 | 581.32 | 0.00 | 581.44 | 96.00 | 2.66 | [illegible] | [illegible] |
| 8082.00 | 51.00 | 0.00 | 0.00 | 569.90 | 1120.00 | 578.81 | 0.00 | 578.87 | 75.00 | 2.16 | [illegible] | [illegible] |
| 8082.00 | 51.00 | 0.00 | 0.00 | 569.90 | 1620.00 | 580.17 | 0.00 | 580.27 | 75.00 | 2.65 | [illegible] | [illegible] |
| 8082.00 | 51.00 | 0.00 | 0.00 | 569.90 | 1760.00 | 580.55 | 0.00 | 580.65 | 75.00 | 2.75 | [illegible] | [illegible] |
| 8082.00 | 51.00 | 0.00 | 0.00 | 569.90 | 2055.00 | 581.34 | 0.00 | 581.46 | 75.00 | 2.90 | [illegible] | [illegible] |
| 8147.00 | 65.00 | 580.90 | 578.40 | 569.90 | 1120.00 | 578.86 | 0.00 | 578.92 | 75.00 | 2.12 | [illegible] | [illegible] |
| 8147.00 | 65.00 | 580.90 | 578.40 | 569.90 | 1620.00 | 580.32 | 0.00 | 580.41 | 75.00 | 2.52 | [illegible] | [illegible] |
| 8147.00 | 65.00 | 580.90 | 578.40 | 569.90 | 1760.00 | 580.73 | 0.00 | 580.83 | 75.00 | 2.59 | [illegible] | [illegible] |
| 8147.00 | 65.00 | 580.90 | 578.40 | 569.90 | 2055.00 | 581.58 | 0.00 | 581.70 | 75.00 | 2.68 | [illegible] | [illegible] |
| 9397.00 | 1250.00 | 0.00 | 0.00 | 571.80 | 1120.00 | 579.16 | 0.00 | 579.26 | 80.35 | 3.19 | 1.01 | 126.37 |
| 9397.00 | 1250.00 | 0.00 | 0.00 | 571.80 | 1620.00 | 580.66 | 0.00 | 580.78 | 83.65 | 3.20 | [illegible] | [illegible] |
| 9397.00 | 1250.00 | 0.00 | 0.00 | 571.80 | 1760.00 | 581.07 | 0.00 | 581.20 | 84.18 | 3.15 | [illegible] | [illegible] |
| 9397.00 | 1250.00 | 0.00 | 0.00 | 571.80 | 2055.00 | 581.92 | 0.00 | 582.07 | 85.00 | 3.02 | [illegible] | [illegible] |

Exhibit 3
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| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | CRIWS | EG | TOPWID | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10297.00 | 900.00 | 0.00 | 0.00 | 571.80 | 1120.00 | 579.43 | 0.00 | 579.53 | 71.72 | [illegible] | 1.11 | [illegible] |
| 10297.00 | 900.00 | 0.00 | 0.00 | 571.80 | 1620.00 | 580.93 | 0.00 | 581.07 | 75.23 | [illegible] | .96 | [illegible] |
| 10297.00 | 900.00 | 0.00 | 0.00 | 571.80 | 1760.00 | 581.34 | 0.00 | 581.48 | 76.19 | 3.05 | .93 | [illegible] |
| 10297.00 | 900.00 | 0.00 | 0.00 | 571.80 | 2055.00 | 582.19 | 0.00 | 582.35 | 77.98 | 3.05 | .90 | 207.20 |
| 10697.00 | 600.00 | 0.00 | 0.00 | 572.20 | 1120.00 | 579.61 | 0.00 | 579.72 | 71.59 | 3.36 | 1.17 | 141.50 |
| 10897.00 | 600.00 | 0.00 | 0.00 | 572.20 | 1620.00 | 581.12 | 0.00 | 581.27 | 73.00 | 3.47 | 1.01 | 171.67 |
| 10897.00 | 600.00 | 0.00 | 0.00 | 572.20 | 1760.00 | 581.53 | 0.00 | 581.68 | 73.00 | 3.45 | .98 | [illegible] |
| 10897.00 | 600.00 | 0.00 | 0.00 | 572.20 | 2055.00 | 582.38 | 0.00 | 582.55 | 73.00 | 3.42 | .96 | [illegible] |
| 10973.00 | 76.00 | 0.00 | 0.00 | 571.70 | 1120.00 | 579.62 | 0.00 | 579.78 | 52.00 | 6.33 | 1.18 | [illegible] |
| 10973.00 | 76.00 | 0.00 | 0.00 | 571.70 | 1620.00 | 581.12 | 0.00 | 581.34 | 52.00 | 7.20 | 1.01 | 171.90 |
| 10973.00 | 76.00 | 0.00 | 0.00 | 571.70 | 1760.00 | 581.53 | 0.00 | 581.76 | 52.00 | 7.34 | .99 | 183.66 |
| 10973.00 | 76.00 | 0.00 | 0.00 | 571.70 | 2055.00 | 582.37 | 0.00 | 582.63 | 52.00 | 7.57 | .96 | 212.97 |
| 11017.00 | 44.00 | 581.70 | 579.00 | 571.70 | 1120.00 | 579.76 | 0.00 | 579.91 | 52.00 | 5.96 | 1.18 | 162.54 |
| 11017.00 | 44.00 | 581.70 | 579.00 | 571.70 | 1620.00 | 581.51 | 0.00 | 581.71 | 52.00 | 6.25 | 1.01 | 172.38 |
| 11017.00 | 44.00 | 581.70 | 579.00 | 571.70 | 1760.00 | 581.98 | 0.00 | 582.19 | 52.00 | 6.29 | .99 | 184.11 |
| 11017.00 | 44.00 | 581.70 | 579.00 | 571.70 | 2055.00 | 582.89 | 0.00 | 583.13 | 52.00 | 6.43 | .96 | 213.46 |
| 11477.00 | 460.00 | 0.00 | 0.00 | 571.80 | 1120.00 | 580.01 | 0.00 | 580.12 | 73.47 | 3.12 | 1.23 | 146.73 |
| 11477.00 | 460.00 | 0.00 | 0.00 | 571.80 | 1620.00 | 581.80 | 0.00 | 581.92 | 85.22 | 2.91 | 1.06 | 177.75 |
| 11477.00 | 460.00 | 0.00 | 0.00 | 571.80 | 1760.00 | 582.27 | 0.00 | 582.40 | 93.69 | 2.81 | 1.03 | 189.87 |
| 11477.00 | 460.00 | 0.00 | 0.00 | 571.80 | 2055.00 | 583.20 | 0.00 | 583.34 | 100.00 | 2.63 | 1.01 | 219.94 |
| 11528.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1120.00 | 580.01 | 0.00 | 580.16 | 50.50 | 5.60 | 1.29 | 147.20 |
| 11528.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1620.00 | 581.79 | 0.00 | 581.98 | 52.50 | 6.21 | 1.06 | 178.36 |
| 11528.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1760.00 | 582.26 | 0.00 | 582.46 | 52.50 | 6.25 | 1.04 | 190.51 |
| 11528.00 | 51.00 | 0.00 | 0.00 | 572.10 | 2055.00 | 583.18 | 0.00 | 583.41 | 52.50 | 6.38 | 1.01 | 220.67 |
| 11599.00 | 71.00 | 582.80 | 580.70 | 572.10 | 1120.00 | 580.02 | 0.00 | 580.17 | 50.50 | 5.57 | 1.24 | 147.80 |
| 11599.00 | 71.00 | 582.80 | 580.70 | 572.10 | 1620.00 | 582.01 | 0.00 | 582.20 | 52.50 | 5.74 | 1.07 | 179.12 |
| 11599.00 | 71.00 | 582.80 | 580.70 | 572.10 | 1760.00 | 582.55 | 0.00 | 582.74 | 52.50 | 5.68 | 1.04 | 191.32 |
| 11599.00 | 71.00 | 582.80 | 580.70 | 572.10 | 2055.00 | 583.55 | 0.00 | 583.76 | 52.50 | 5.73 | 1.02 | 221.56 |
| 11650.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1120.00 | 580.07 | 0.00 | 580.20 | 53.84 | 4.93 | 1.25 | 148.24 |
| 11650.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1620.00 | 582.06 | 0.00 | 582.23 | 56.00 | 5.00 | 1.07 | 179.68 |
| 11650.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1760.00 | 582.60 | 0.00 | 582.77 | 56.00 | 4.92 | 1.05 | 191.92 |
| 11650.00 | 51.00 | 0.00 | 0.00 | 572.10 | 2055.00 | 583.60 | 0.00 | 583.79 | 56.00 | 4.91 | 1.02 | 222.22 |
| 11721.00 | 71.00 | 583.20 | 580.70 | 572.10 | 1120.00 | 580.08 | 0.00 | 580.21 | 53.84 | 4.90 | 1.25 | 148.87 |
| 11721.00 | 71.00 | 583.20 | 580.70 | 572.10 | 1620.00 | 582.31 | 0.00 | 582.47 | 56.00 | 4.57 | 1.08 | 180.50 |
| 11721.00 | 71.00 | 583.20 | 580.70 | 572.10 | 1760.00 | 582.92 | 0.00 | 583.08 | 56.00 | 4.43 | 1.05 | 192.79 |
| 11721.00 | 71.00 | 583.20 | 580.70 | 572.10 | 2055.00 | 584.00 | 0.00 | 584.18 | 56.00 | 4.39 | 1.03 | 223.19 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 1.000 | 3165.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 4100.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 4410.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 5160.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 30.000 | 3165.000 | 574.922 | 0.000 | .022 | 0.000 | 89.999 | 0.000 | 29.000 |
| 30.000 | 4100.000 | 574.939 | .017 | .039 | 0.000 | 90.111 | -.112 | 29.000 |
| 30.000 | 4410.000 | 574.946 | .007 | .046 | 0.000 | 90.154 | -.156 | 29.000 |
| 30.000 | 5160.000 | 574.969 | .023 | .069 | 0.000 | 90.332 | -.333 | 29.000 |
| 60.000 | 3165.000 | 574.944 | 0.000 | .022 | 0.000 | 90.169 | 0.000 | 30.000 |
| 60.000 | 4100.000 | 574.980 | .035 | .041 | 0.000 | 90.443 | -.274 | 30.000 |
| [illegible] | [illegible] | [illegible] | .015 | .040 | 0.000 | 90.547 | .378 | 30.000 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 51.000 | 4410.000 | 574.935 | .008 | -.060 | 0.000 | 83.122 | -.117 | 1.000 |
| 51.000 | 5160.000 | 574.960 | .025 | -.085 | 0.000 | 83.331 | -.379 | 1.000 |
| 136.000 | 3165.000 | 575.018 | 0.000 | .104 | 0.000 | 83.815 | 0.000 | 1.000 |
| 136.000 | 4100.000 | 575.117 | .099 | .188 | 0.000 | 84.639 | -.824 | 1.000 |
| 136.000 | 4410.000 | 575.160 | .043 | .225 | 0.000 | 84.999 | -1.183 | 1.000 |
| 136.000 | 5160.000 | 575.296 | .136 | .336 | 0.000 | 86.136 | -2.320 | 1.000 |
| 137.000 | 3165.000 | 575.103 | 0.000 | .085 | 0.000 | 91.525 | 0.000 | 1.000 |
| 137.000 | 4100.000 | 575.266 | .163 | .149 | 0.000 | 92.887 | -1.361 | 1.000 |
| 137.000 | 4410.000 | 575.335 | .069 | .176 | 0.000 | 93.466 | -1.940 | 1.000 |
| 137.000 | 5160.000 | 575.545 | .209 | .249 | 0.000 | 94.192 | -2.667 | 1.000 |
| 187.000 | 3165.000 | 575.116 | 0.000 | .013 | 0.000 | 89.164 | 0.000 | 50.000 |
| 187.000 | 4100.000 | 575.288 | .172 | .022 | 0.000 | 90.884 | -1.720 | 50.000 |
| 187.000 | 4410.000 | 575.361 | .073 | .026 | 0.000 | 91.611 | -2.446 | 50.000 |
| 187.000 | 5160.000 | 575.577 | .216 | .033 | 0.000 | 92.526 | -3.362 | 50.000 |
| 362.000 | 3165.000 | 575.425 | 0.000 | .308 | 0.000 | 143.706 | 0.000 | 175.000 |
| 362.000 | 4100.000 | 575.796 | .372 | .508 | 0.000 | 145.523 | -1.816 | 175.000 |
| 362.000 | 4410.000 | 575.943 | .146 | .582 | 0.000 | 146.238 | -2.532 | 175.000 |
| 362.000 | 5160.000 | 576.343 | .400 | .766 | 0.000 | 148.198 | -4.492 | 175.000 |
| 737.000 | 3165.000 | 575.616 | 0.000 | .191 | 0.000 | 145.954 | 0.000 | 375.000 |
| 737.000 | 4100.000 | 576.071 | .456 | .275 | 0.000 | 148.176 | -2.222 | 375.000 |
| 737.000 | 4410.000 | 576.243 | .171 | .300 | 0.000 | 149.010 | -3.057 | 375.000 |
| 737.000 | 5160.000 | 576.694 | .451 | .351 | 0.000 | 151.210 | -5.257 | 375.000 |
| 787.000 | 3165.000 | 575.592 | 0.000 | -.024 | 0.000 | 106.600 | 0.000 | 50.000 |
| 787.000 | 4100.000 | 576.031 | .440 | -.040 | 0.000 | 106.600 | 0.000 | 50.000 |
| 787.000 | 4410.000 | 576.196 | .165 | -.046 | 0.000 | 106.600 | 0.000 | 50.000 |
| 787.000 | 5160.000 | 576.632 | .435 | -.062 | 0.000 | 106.600 | 0.000 | 50.000 |
| 788.000 | 3165.000 | 575.563 | 0.000 | -.029 | 0.000 | 104.000 | 0.000 | 1.000 |
| 788.000 | 4100.000 | 575.990 | .427 | -.042 | 0.000 | 104.000 | 0.000 | 1.000 |
| 788.000 | 4410.000 | 576.151 | .161 | -.046 | 0.000 | 104.000 | 0.000 | 1.000 |
| 788.000 | 5160.000 | 576.577 | .426 | -.055 | 0.000 | 104.000 | 0.000 | 1.000 |
| 797.000 | 3165.000 | 575.586 | 0.000 | .023 | 0.000 | 104.000 | 0.000 | 9.000 |
| 797.000 | 4100.000 | 576.023 | .437 | .034 | 0.000 | 104.000 | 0.000 | 9.000 |
| 797.000 | 4410.000 | 576.188 | .164 | .037 | 0.000 | 104.000 | 0.000 | 9.000 |
| 797.000 | 5160.000 | 576.623 | .436 | .046 | 0.000 | 104.000 | 0.000 | 9.000 |
| 798.000 | 3165.000 | 575.670 | 0.000 | .084 | 0.000 | 106.600 | 0.000 | 1.000 |
| 798.000 | 4100.000 | 576.147 | .477 | .124 | 0.000 | 106.600 | 0.000 | 1.000 |
| 798.000 | 4410.000 | 576.324 | .177 | .137 | 0.000 | 106.600 | 0.000 | 1.000 |
| 798.000 | 5160.000 | 576.786 | .462 | .163 | 0.000 | 106.600 | 0.000 | 1.000 |
| 844.000 | 3165.000 | 575.698 | 0.000 | .028 | 0.000 | 106.114 | 0.000 | 46.000 |
| 844.000 | 4100.000 | 576.188 | .490 | .041 | 0.000 | 108.956 | -2.842 | 46.000 |
| 844.000 | 4410.000 | 576.369 | .181 | .045 | 0.000 | 109.000 | -2.886 | 46.000 |
| 844.000 | 5160.000 | 576.840 | .471 | .054 | 0.000 | 109.000 | -2.886 | 46.000 |
| 845.000 | 3165.000 | 575.677 | 0.000 | -.021 | 0.000 | 98.982 | 0.000 | 1.000 |
| 845.000 | 4100.000 | 576.157 | .480 | -.031 | 0.000 | 101.842 | -2.860 | 1.000 |
| 845.000 | 4410.000 | 576.335 | .178 | -.035 | 0.000 | 102.000 | -3.018 | 1.000 |
| 845.000 | 5160.000 | 576.797 | .462 | -.044 | 0.000 | 102.000 | -3.018 | 1.000 |
| 859.000 | 3165.000 | 575.705 | 0.000 | .028 | 0.000 | 99.122 | 0.000 | 14.500 |
| 859.000 | 4100.000 | 576.198 | .494 | .042 | 0.000 | 101.960 | -2.838 | 14.500 |
| 859.000 | 4410.000 | 576.382 | .184 | .048 | 0.000 | 102.000 | -2.878 | 14.500 |
| 859.000 | 5160.000 | 576.859 | .477 | .062 | 0.000 | 103.000 | -3.878 | 14.500 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| [illegible] | 4100.000 | 576.292 | .526 | .094 | 0.000 | 109.000 | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | 5160.000 | 576.991 | .507 | .133 | 0.000 | 109.000 | -2.57 | [illegible] |
| 910.000 | 3165.000 | 575.813 | 0.000 | .047 | 0.000 | 107.000 | 0.000 | 10.000 |
| 910.000 | 4100.000 | 576.357 | .545 | .065 | 0.000 | 107.000 | 0.000 | 50.000 |
| 910.000 | 4410.000 | 576.555 | .198 | .071 | 0.000 | 107.000 | 0.000 | 50.000 |
| 910.000 | 5160.000 | 577.071 | .515 | .079 | 0.000 | 107.000 | 0.000 | 50.000 |
| 911.000 | 3165.000 | 575.787 | 0.000 | -.025 | 0.000 | 105.000 | 0.000 | 1.000 |
| 911.000 | 4100.000 | 576.322 | .535 | -.036 | 0.000 | 105.000 | 0.000 | 1.000 |
| 911.000 | 4410.000 | 576.517 | .195 | -.039 | 0.000 | 105.000 | 0.000 | 1.000 |
| 911.000 | 5160.000 | 577.026 | .510 | -.044 | 0.000 | 105.000 | 0.000 | 1.000 |
| 921.000 | 3165.000 | 575.810 | 0.000 | .023 | 0.000 | 105.000 | 0.000 | 10.000 |
| 921.000 | 4100.000 | 576.354 | .544 | .032 | 0.000 | 105.000 | 0.000 | 10.000 |
| 921.000 | 4410.000 | 576.551 | .197 | .034 | 0.000 | 105.000 | 0.000 | 10.000 |
| 921.000 | 5160.000 | 577.065 | .515 | .039 | 0.000 | 105.000 | 0.000 | 10.000 |
| 922.000 | 3165.000 | 575.882 | 0.000 | .073 | 0.000 | 107.000 | 0.000 | 1.000 |
| 922.000 | 4100.000 | 576.486 | .574 | .103 | 0.000 | 107.000 | 0.000 | 1.000 |
| 922.000 | 4410.000 | 576.663 | .207 | .112 | 0.000 | 107.000 | 0.000 | 1.000 |
| 922.000 | 5160.000 | 577.197 | .534 | .132 | 0.000 | 107.000 | 0.000 | 1.000 |
| 953.000 | 3165.000 | 575.842 | 0.000 | -.040 | 0.000 | 81.000 | 0.000 | 31.000 |
| 953.000 | 4100.000 | 576.392 | .550 | -.064 | 0.000 | 81.000 | 0.000 | 31.000 |
| 953.000 | 4410.000 | 576.590 | .198 | -.073 | 0.000 | 81.000 | 0.000 | 31.000 |
| 953.000 | 5160.000 | 577.104 | .513 | -.094 | 0.000 | 81.000 | 0.000 | 31.000 |
| 954.000 | 3165.000 | 575.795 | 0.000 | -.087 | 0.000 | 67.200 | 0.000 | 1.000 |
| 954.000 | 4100.000 | 576.261 | .506 | -.131 | 0.000 | 67.200 | 0.000 | 1.000 |
| 954.000 | 4410.000 | 576.444 | .183 | -.146 | 0.000 | 67.200 | 0.000 | 1.000 |
| 954.000 | 5160.000 | 576.922 | .478 | -.182 | 0.000 | 67.200 | 0.000 | 1.000 |
| 985.000 | 3165.000 | 575.881 | 0.000 | .126 | 0.000 | 67.200 | 0.000 | 30.500 |
| 985.000 | 4100.000 | 576.456 | .575 | .194 | 0.000 | 67.200 | 0.000 | 30.500 |
| 985.000 | 4410.000 | 576.663 | .207 | .218 | 0.000 | 67.200 | 0.000 | 30.500 |
| 985.000 | 5160.000 | 577.197 | .535 | .275 | 0.000 | 67.200 | 0.000 | 30.500 |
| 986.000 | 3165.000 | 576.119 | 0.000 | .238 | 0.000 | 81.000 | 0.000 | 1.000 |
| 986.000 | 4100.000 | 576.817 | .699 | .362 | 0.000 | 81.000 | 0.000 | 1.000 |
| 986.000 | 4410.000 | 577.066 | .249 | .404 | 0.000 | 81.000 | 0.000 | 1.000 |
| 986.000 | 5160.000 | 577.701 | .635 | .504 | 0.000 | 81.000 | 0.000 | 1.000 |
| 1036.000 | 3165.000 | 576.202 | 0.000 | .083 | 0.000 | 114.004 | 0.000 | 50.000 |
| 1036.000 | 4100.000 | 576.964 | .762 | .146 | 0.000 | 117.965 | -3.961 | 50.000 |
| 1036.000 | 4410.000 | 577.237 | .273 | .171 | 0.000 | 119.388 | -5.384 | 50.000 |
| 1036.000 | 5160.000 | 577.939 | .702 | .237 | 0.000 | 122.798 | -8.794 | 50.000 |
| 1736.000 | 3165.000 | 576.677 | 0.000 | .475 | 0.000 | 111.327 | 0.000 | 700.000 |
| 1736.000 | 4100.000 | 577.553 | .876 | .589 | 0.000 | 443.285 | -331.958 | 700.000 |
| 1736.000 | 4410.000 | 577.863 | .310 | .626 | 0.000 | 520.849 | -409.522 | 700.000 |
| 1736.000 | 5160.000 | 578.652 | .789 | .713 | 0.000 | 560.015 | -448.688 | 700.000 |
| 2436.000 | 3165.000 | 577.029 | 0.000 | .351 | 0.000 | 101.283 | 0.000 | 700.000 |
| 2436.000 | 4100.000 | 577.971 | .943 | .418 | 0.000 | 306.469 | -205.186 | 700.000 |
| 2436.000 | 4410.000 | 578.270 | .299 | .407 | 0.000 | 342.121 | -240.838 | 700.000 |
| 2436.000 | 5160.000 | 578.990 | .720 | .338 | 0.000 | 367.491 | -266.208 | 700.000 |
| 3186.000 | 1120.000 | 577.487 | 0.000 | .459 | 0.000 | 160.647 | 0.000 | 750.000 |
| 3186.000 | 1620.000 | 578.521 | 1.033 | .549 | 0.000 | 246.467 | -85.820 | 750.000 |
| 3186.000 | 1760.000 | 578.833 | .312 | .563 | 0.000 | 275.404 | -114.756 | 750.000 |
| [illegible] | [illegible] | [illegible] | .719 | .562 | 0.000 | 291.912 | -131.264 | 750.000 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 5105.000 | 1120.000 | 577.694 | 0.000 | .114 | 0.000 | 81.036 | 0.000 | 500.000 |
| 5186.000 | 1620.000 | 578.755 | 1.061 | .131 | 0.000 | 102.218 | -21.182 | 500.000 |
| 5186.000 | 1760.000 | 579.061 | .306 | .128 | 0.000 | 158.272 | -77.236 | 500.000 |
| 5186.000 | 2055.000 | 579.751 | .690 | .111 | 0.000 | 199.999 | -118.963 | 500.000 |
| 4236.000 | 1120.000 | 577.695 | 0.000 | .001 | 0.000 | 51.999 | 0.000 | 50.000 |
| 4236.000 | 1620.000 | 578.747 | 1.053 | -.008 | 0.000 | 51.999 | -.000 | 50.000 |
| 4236.000 | 1760.000 | 579.049 | .302 | -.012 | 0.000 | 51.999 | -.000 | 50.000 |
| 4236.000 | 2055.000 | 579.725 | .676 | -.025 | 0.000 | 51.999 | -.000 | 50.000 |
| 4281.000 | 1120.000 | 577.759 | 0.000 | .064 | 0.000 | 51.999 | 0.000 | 45.000 |
| 4281.000 | 1620.000 | 578.931 | 1.172 | .184 | 0.000 | 51.999 | -.000 | 45.000 |
| 4281.000 | 1760.000 | 579.280 | .349 | .231 | 0.000 | 51.999 | -.000 | 45.000 |
| 4281.000 | 2055.000 | 580.058 | .778 | .332 | 0.000 | 51.999 | -.000 | 45.000 |
| 4931.000 | 1120.000 | 577.932 | 0.000 | .173 | 0.000 | 78.154 | 0.000 | 650.000 |
| 4931.000 | 1620.000 | 579.182 | 1.250 | .251 | 0.000 | 81.552 | -3.398 | 650.000 |
| 4931.000 | 1760.000 | 579.549 | .367 | .269 | 0.000 | 82.548 | -4.395 | 650.000 |
| 4931.000 | 2055.000 | 580.358 | .809 | .300 | 0.000 | 84.127 | -5.973 | 650.000 |
| 5956.000 | 1120.000 | 578.198 | 0.000 | .266 | 0.000 | 77.927 | 0.000 | 1025.000 |
| 5956.000 | 1620.000 | 579.493 | 1.294 | .310 | 0.000 | 81.457 | -3.531 | 1025.000 |
| 5956.000 | 1760.000 | 579.863 | .370 | .314 | 0.000 | 82.468 | -4.542 | 1025.000 |
| 5956.000 | 2055.000 | 580.669 | .806 | .312 | 0.000 | 84.066 | -6.139 | 1025.000 |
| 6981.000 | 1120.000 | 578.480 | 0.000 | .281 | 0.000 | 81.273 | 0.000 | 1025.000 |
| 6981.000 | 1620.000 | 579.813 | 1.334 | .321 | 0.000 | 86.057 | -4.784 | 1025.000 |
| 6981.000 | 1760.000 | 580.187 | .374 | .325 | 0.000 | 87.402 | -6.130 | 1025.000 |
| 6981.000 | 2055.000 | 580.993 | .806 | .324 | 0.000 | 90.282 | -9.009 | 1025.000 |
| 8031.000 | 1120.000 | 578.773 | 0.000 | .293 | 0.000 | 87.408 | 0.000 | 1050.000 |
| 8031.000 | 1620.000 | 580.143 | 1.370 | .330 | 0.000 | 94.346 | -6.938 | 1050.000 |
| 8031.000 | 1760.000 | 580.519 | .376 | .332 | 0.000 | 95.443 | -8.035 | 1050.000 |
| 8031.000 | 2055.000 | 581.320 | .800 | .326 | 0.000 | 95.999 | -8.591 | 1050.000 |
| 8082.000 | 1120.000 | 578.808 | 0.000 | .035 | 0.000 | 74.999 | 0.000 | 51.000 |
| 8082.000 | 1620.000 | 580.174 | 1.366 | .031 | 0.000 | 74.999 | -.000 | 51.000 |
| 8082.000 | 1760.000 | 580.548 | .374 | .029 | 0.000 | 74.999 | -.000 | 51.000 |
| 8082.000 | 2055.000 | 581.341 | .793 | .021 | 0.000 | 74.999 | -.000 | 51.000 |
| 8147.000 | 1120.000 | 578.859 | 0.000 | .051 | 0.000 | 74.999 | 0.000 | 65.000 |
| 8147.000 | 1620.000 | 580.320 | 1.461 | .145 | 0.000 | 74.999 | -.000 | 65.000 |
| 8147.000 | 1760.000 | 580.729 | .409 | .181 | 0.000 | 74.999 | -.000 | 65.000 |
| 8147.000 | 2055.000 | 581.585 | .856 | .244 | 0.000 | 74.999 | -.000 | 65.000 |
| 9397.000 | 1120.000 | 579.162 | 0.000 | .303 | 0.000 | 80.354 | 0.000 | 1250.000 |
| 9397.000 | 1620.000 | 580.655 | 1.494 | .336 | 0.000 | 83.648 | -3.294 | 1250.000 |
| 9397.000 | 1760.000 | 581.067 | .412 | .339 | 0.000 | 84.179 | -3.825 | 1250.000 |
| 9397.000 | 2055.000 | 581.924 | .857 | .339 | 0.000 | 84.999 | -4.645 | 1250.000 |
| 10297.000 | 1120.000 | 579.431 | 0.000 | .269 | 0.000 | 71.716 | 0.000 | 900.000 |
| 10297.000 | 1620.000 | 580.933 | 1.502 | .278 | 0.000 | 75.234 | -3.519 | 900.000 |
| 10297.000 | 1760.000 | 581.343 | .410 | .276 | 0.000 | 76.193 | -4.478 | 900.000 |
| 10297.000 | 2055.000 | 582.191 | .849 | .267 | 0.000 | 77.982 | -6.266 | 900.000 |
| 10897.000 | 1120.000 | 579.609 | 0.000 | .178 | 0.000 | 71.589 | 0.000 | 600.000 |
| 10897.000 | 1620.000 | 581.121 | 1.512 | .188 | 0.000 | 72.999 | -1.410 | 600.000 |
| 10897.000 | 1760.000 | 581.530 | .409 | .188 | 0.000 | 72.999 | -1.410 | 600.000 |
| 10897.000 | 2055.000 | 582.377 | .847 | .186 | 0.000 | 72.999 | -1.410 | 600.000 |
| 10973.000 | 1120.000 | 579.621 | 0.000 | .012 | 0.000 | 51.999 | [illegible] | [illegible] |

Exhibit 3
26 of 28

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 11617.000 | 1120.000 | 579.761 | 0.000 | .140 | 0.000 | 51.999 | 0.000 | [illegible] |
| 11617.000 | 1620.000 | 581.514 | 1.753 | .393 | 0.000 | 51.999 | -.000 | [illegible] |
| 11617.000 | 1760.000 | 581.983 | .469 | .455 | 0.000 | 52.000 | -.000 | [illegible] |
| 11617.000 | 2055.000 | 582.895 | .912 | .528 | 0.000 | 52.000 | -.000 | [illegible] |
| 11677.000 | 1120.000 | 580.012 | 0.000 | .251 | 0.000 | 73.467 | 0.000 | 460.000 |
| 11677.000 | 1620.000 | 581.797 | 1.785 | .283 | 0.000 | 85.222 | -11.755 | 460.000 |
| 11677.000 | 1760.000 | 582.273 | .476 | .290 | 0.000 | 93.646 | -20.179 | 460.000 |
| 11677.000 | 2055.000 | 583.204 | .931 | .309 | 0.000 | 99.999 | -26.532 | 460.000 |
| 11528.000 | 1120.000 | 580.013 | 0.000 | .001 | 0.000 | 50.499 | 0.000 | 51.000 |
| 11528.000 | 1620.000 | 581.785 | 1.772 | -.012 | 0.000 | 52.499 | -2.000 | 51.000 |
| 11528.000 | 1760.000 | 582.257 | .472 | -.016 | 0.000 | 52.499 | -2.000 | 51.000 |
| 11528.000 | 2055.000 | 583.178 | .921 | -.026 | 0.000 | 52.499 | -2.000 | 51.000 |
| 11599.000 | 1120.000 | 580.025 | 0.000 | .011 | 0.000 | 50.499 | 0.000 | 71.000 |
| 11599.000 | 1620.000 | 582.013 | 1.988 | .228 | 0.000 | 52.499 | -2.000 | 71.000 |
| 11599.000 | 1760.000 | 582.549 | .536 | .292 | 0.000 | 52.499 | -2.000 | 71.000 |
| 11599.000 | 2055.000 | 583.546 | .997 | .368 | 0.000 | 52.499 | -2.000 | 71.000 |
| 11650.000 | 1120.000 | 580.066 | 0.000 | .041 | 0.000 | 53.836 | 0.000 | 51.000 |
| 11650.000 | 1620.000 | 582.061 | 1.995 | .048 | 0.000 | 55.999 | -2.163 | 51.000 |
| 11650.000 | 1760.000 | 582.598 | .537 | .049 | 0.000 | 55.999 | -2.163 | 51.000 |
| 11650.000 | 2055.000 | 583.600 | 1.002 | .054 | 0.000 | 55.999 | -2.163 | 51.000 |
| 11721.000 | 1120.000 | 580.075 | 0.000 | .010 | 0.000 | 53.842 | 0.000 | 71.000 |
| 11721.000 | 1620.000 | 582.314 | 2.239 | .253 | 0.000 | 55.999 | -2.157 | 71.000 |
| 11721.000 | 1760.000 | 582.919 | .605 | .321 | 0.000 | 55.999 | -2.157 | 71.000 |
| 11721.000 | 2055.000 | 583.996 | 1.077 | .397 | 0.000 | 55.999 | -2.157 | 71.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 0.000 | 56.000 | 24.359 | 0.000 |
| 2 | 0.000 | 56.000 | 35.978 | 11.619 |
| 3 | 0.000 | 56.000 | 39.108 | 14.749 |
| 4 | 0.000 | 56.000 | 41.659 | 17.300 |

Exhibit 15
220 of 66

[illegible]
[illegible] VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
[illegible]

Exhibit 3
28 of 28

CITY OF LINCOLN PARK, MICHIGAN

SOUTH BRANCH ECORSE CREEK

EXHIBIT 4

HEC-2 Backwater Analysis with

Cross Section Plots (See Separate Folder)

CITY OF LINCOLN PARK, MICHIGAN

SOUTH BRANCH ECORSE CREEK

EXHIBIT 5

Stream Profile

CITY OF LINCOLN PARK, MICHIGAN

NORTH BRANCH ECORSE CREEK

EXHIBIT 6

Bridge Notes and Sketches

HUD
.010-1.5

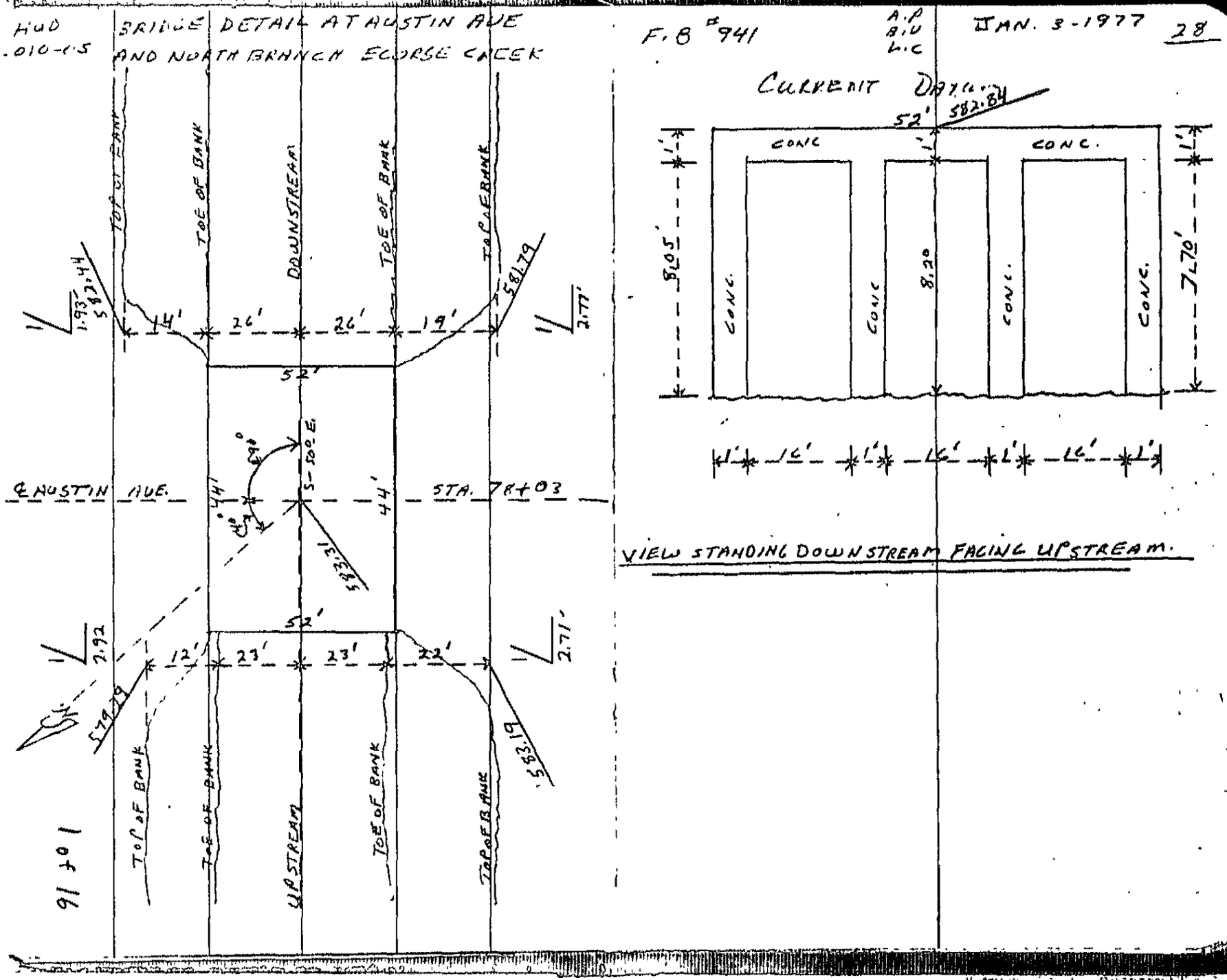
BRIDGE DETAIL AT AUSTIN AVE
AND NORTH BRANCH ECORSE CREEK

F.B # 941

A.P
B.U
L.C

JAN. 3-1977

28




CURRENT DATA




VIEW STANDING DOWNSTREAM FACING UPSTREAM.

HUD 2010-05

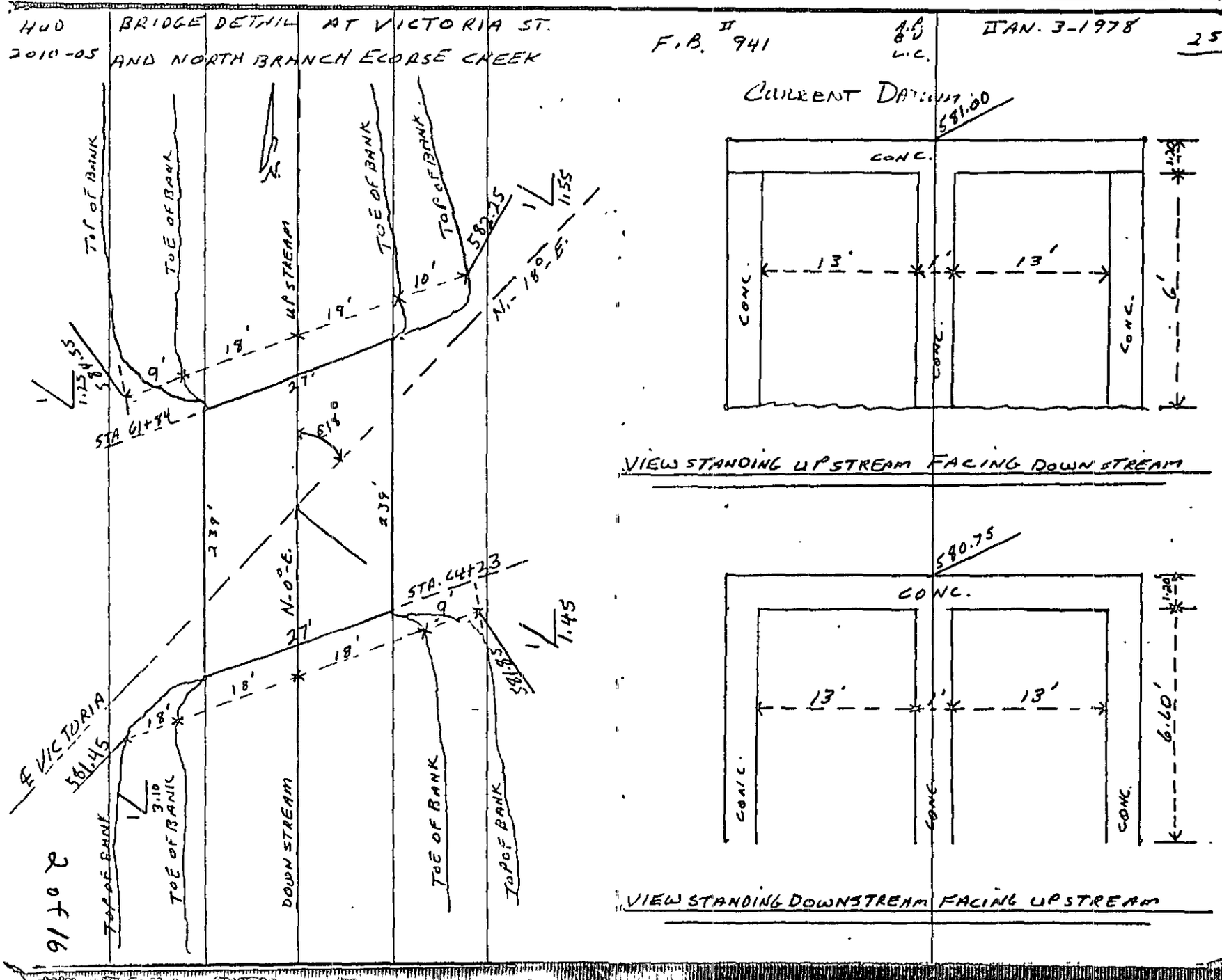
BRIDGE DETAIL AT VICTORIA ST. AND NORTH BRANCH ECORSE CREEK

F.B. II 941

A.P. & U. L.C.

JAN. 3-1978

25

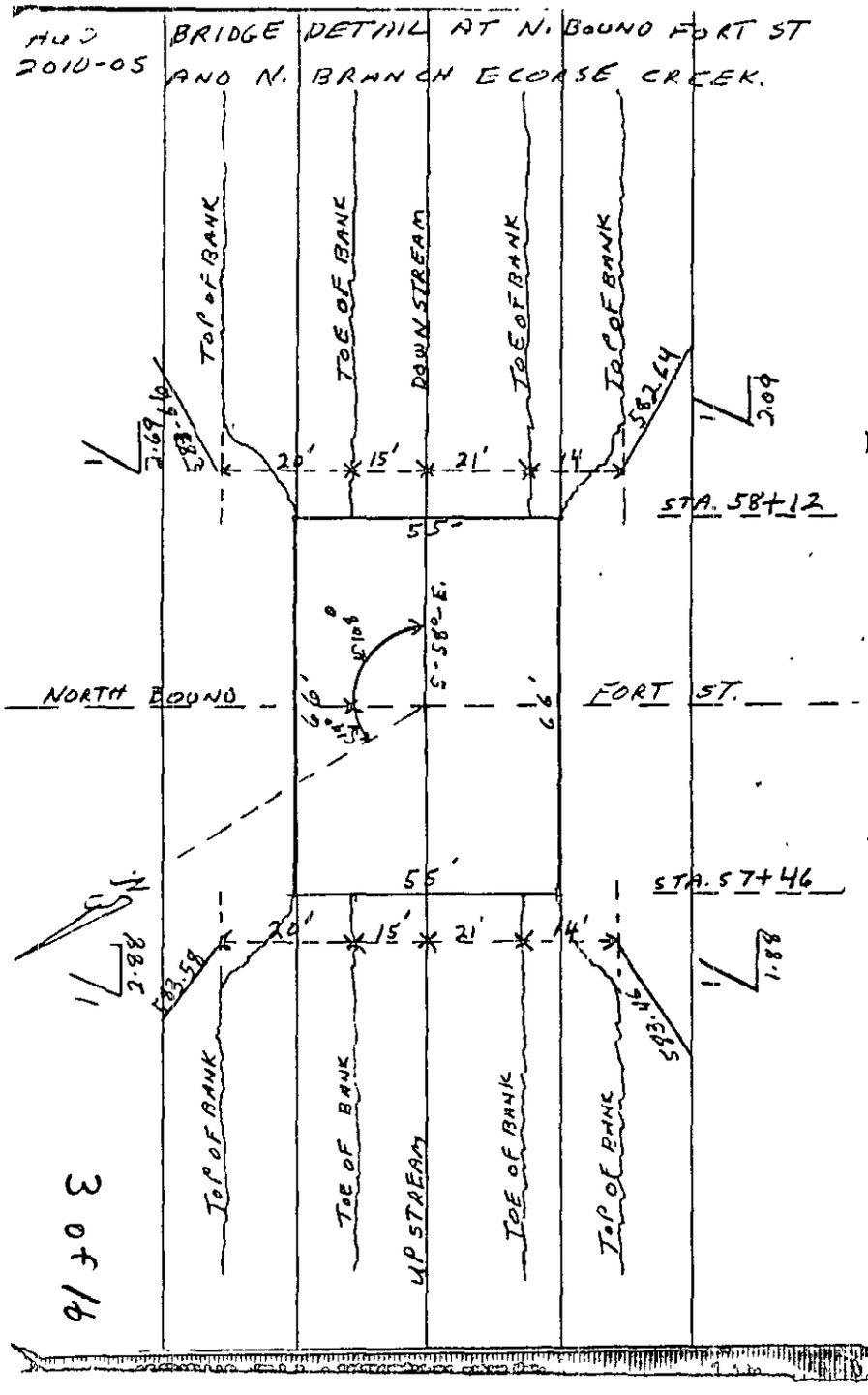


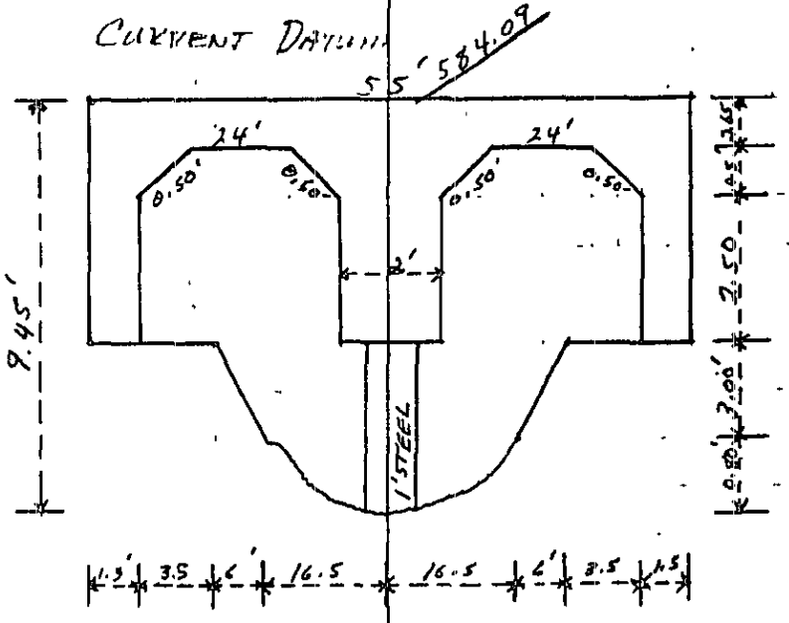

9 of 10

HUD 2010-05

# BRIDGE DETAIL AT N. BOUND FORT ST AND N. BRANCH ECORSE CREEK.

F.B # 941 A.P MIS. DEC. 29-1977 22




NOTE: THERE ARE 14 STEEL PILLERS WITH 4'± BETWEEN PILLERS

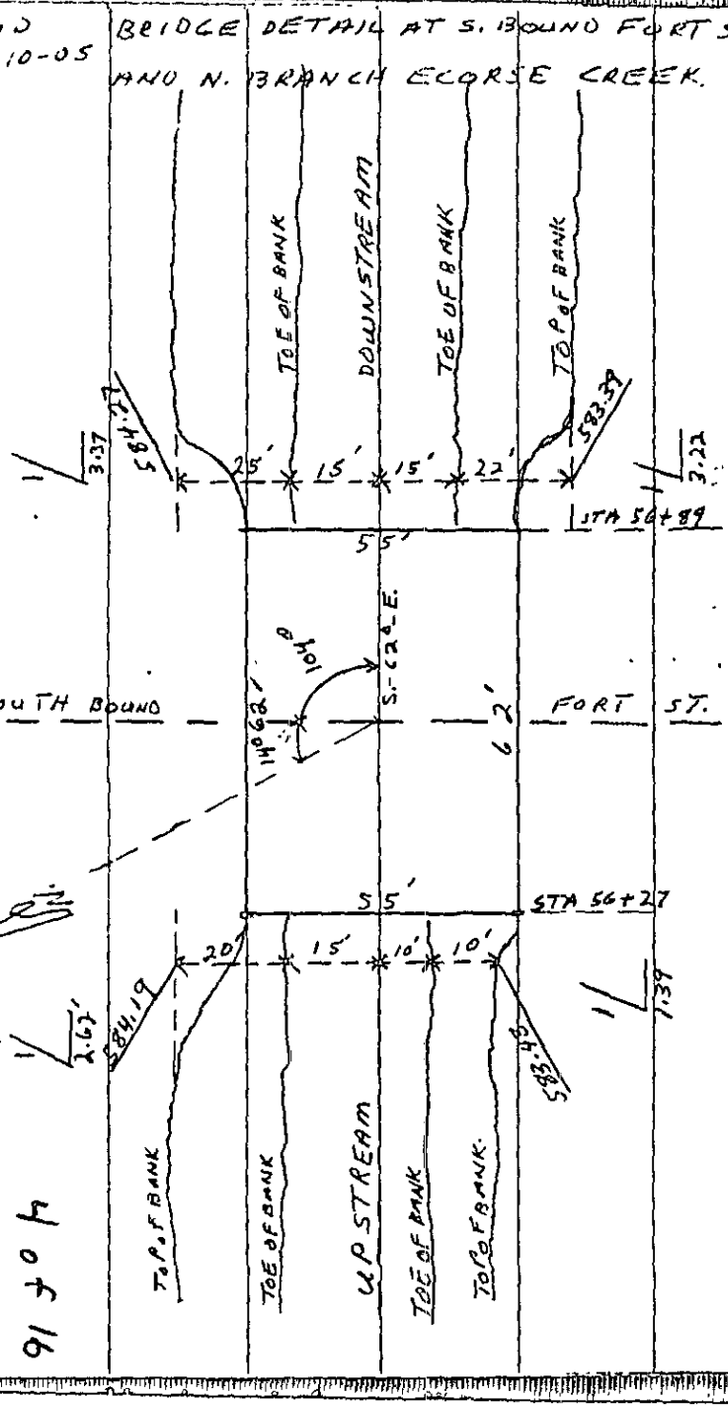
VIEW STANDING DOWNSTREAM FACING UPSTREAM

9/703

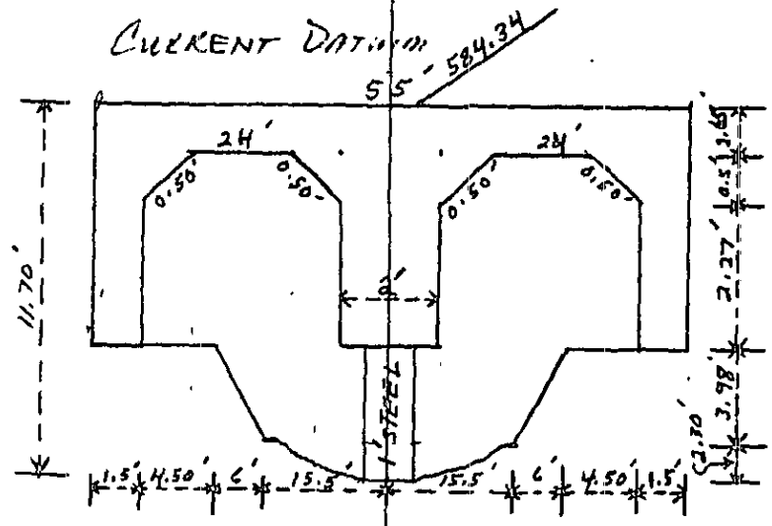
MD
2010-05

BRIDGE DETAIL AT S. BOUND FORT ST
AND N. BRANCH ECORSE CREEK.

F.B. # 941 A.P. M.S. DEC 29-1977 19.




CURRENT DATUM




NOTE: THEAR ARE 13 STEEL PILLERS WITH 4 'BETWEEN PILLERS

VIEW STANDING DOWNSTREAM FACING UPSTREAM

Bridge Location: N. Branch Ecorse Creek Lafayette

REFERENCE

## Bridge Losses - SB Card

1. XK (Pier Shape Coefficient): 0 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 168 = ____ Wp = 68

$R = A/wp = 2.47$ $R^{4/3} = 3.34$ $L = 44$

n (composite) = .02

$K_f = 29.1 \times (.02)^2 \times 44/3.34 = .15$

$K_e = .5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 4

(Kp = 0) if bridge has no intermediate piers

Kp = 0.05 if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + .5 + .15 + 0 = 1.65
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 100. (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers): 28
6. BWP = total width of obstruction = 0 — field data
7. BAREA = bridge opening = 168
8. SS = side slope = 0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 577. (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 577. (0 if equal to minimum elevation in previous X-sect.)

HUD BRIDGE DETAIL AT LAFAYETTE BLVD.

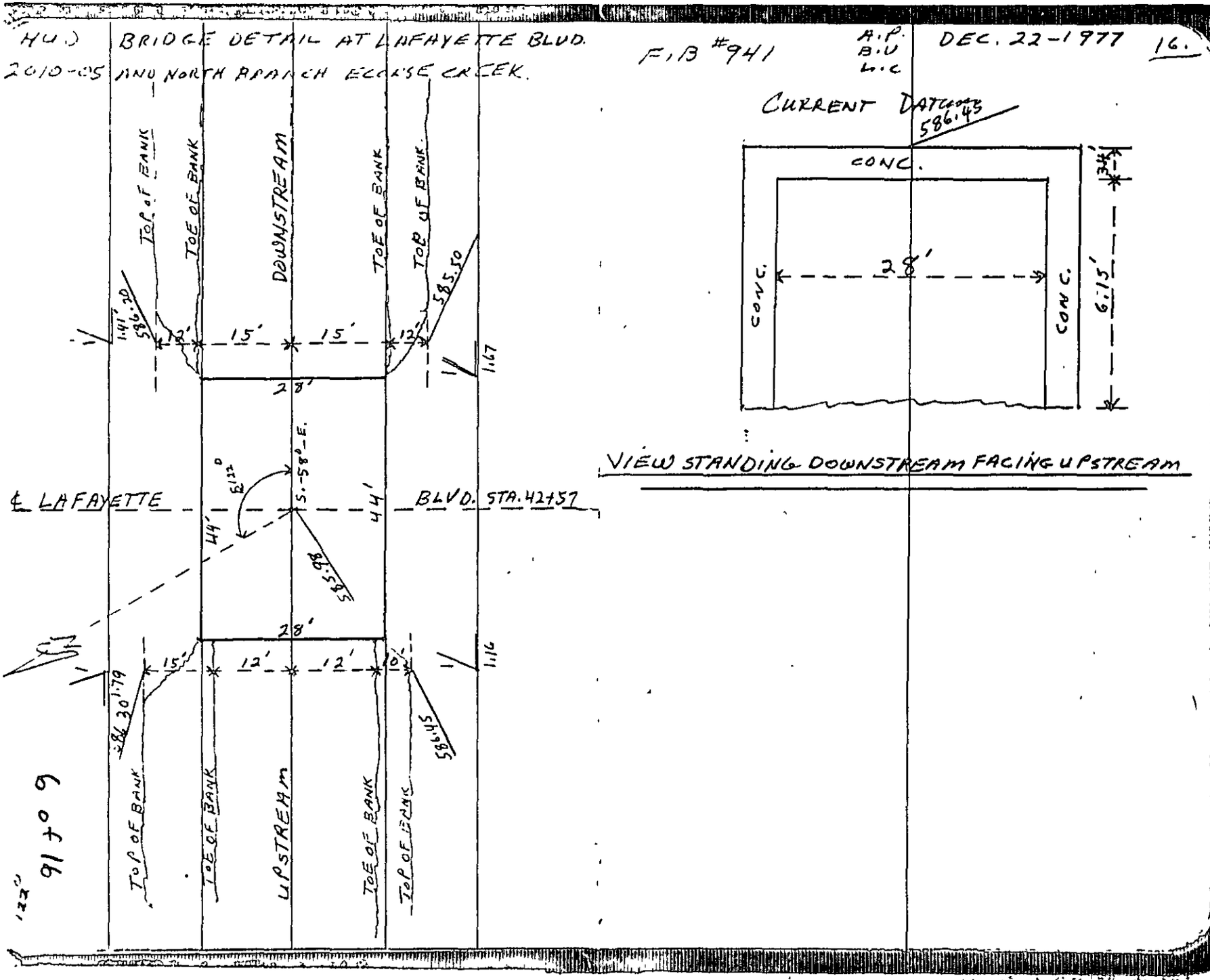
2010-05 MNU NORTH BRANCH ECORSE CREEK.

F.B #941

A:P.
B:U
L:C

DEC. 22-1977

16.




CURRENT DATE 586.45

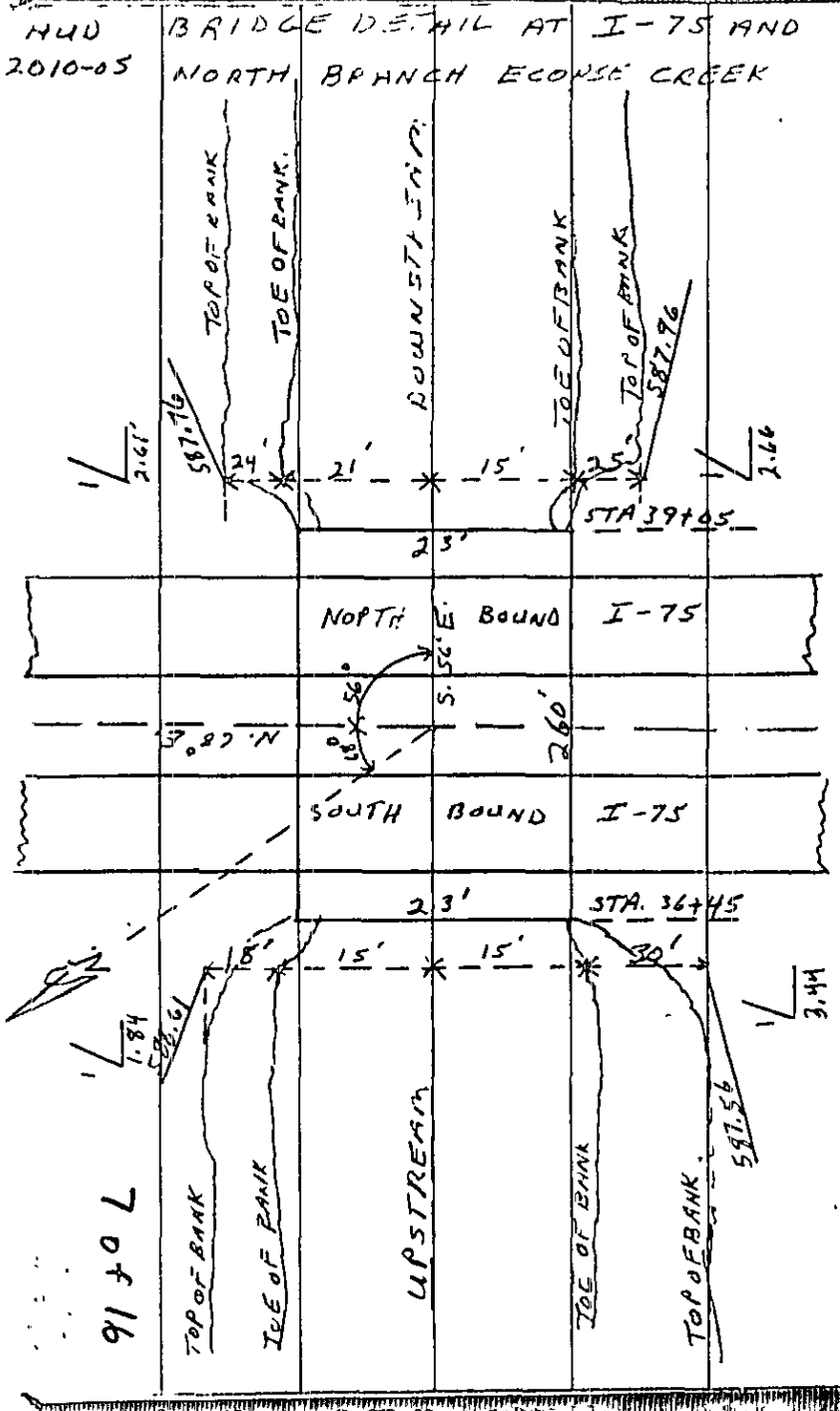



VIEW STANDING DOWNSTREAM FACING UPSTREAM

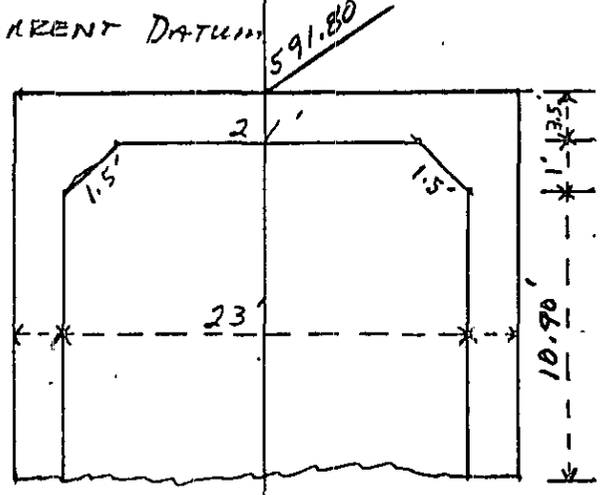
HUD 2010-05

# BRIDGE DETAIL AT I-75 AND NORTH BRANCH ECORSE CREEK

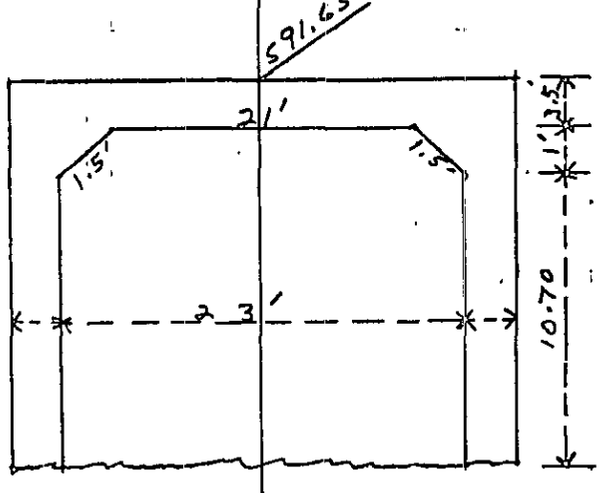
F.B # 941 A.P. B.V L.C DEC. 22-1977 14.




CURRENT DATUM




VIEW STANDING UPSTREAM FACING DOWNSTREAM




VIEW STANDING DOWNSTREAM FACING UPSTREAM

Bridge Location: N. Branch Ecorse + Industrial Drive

Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient): 0 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 330 = _____ WP = 79.1

$R = A/wp = \frac{330}{79.1} = 4.17$ $R^{4/3} = 6.71$ $L = 41$

$n$ (composite) $= \frac{(.033 \cdot 46.5) + (.015 \cdot 32.6)}{79.1} = .026$

$K_f = 29.1 \times (.026)^2 \times 41/6.71 = .12$

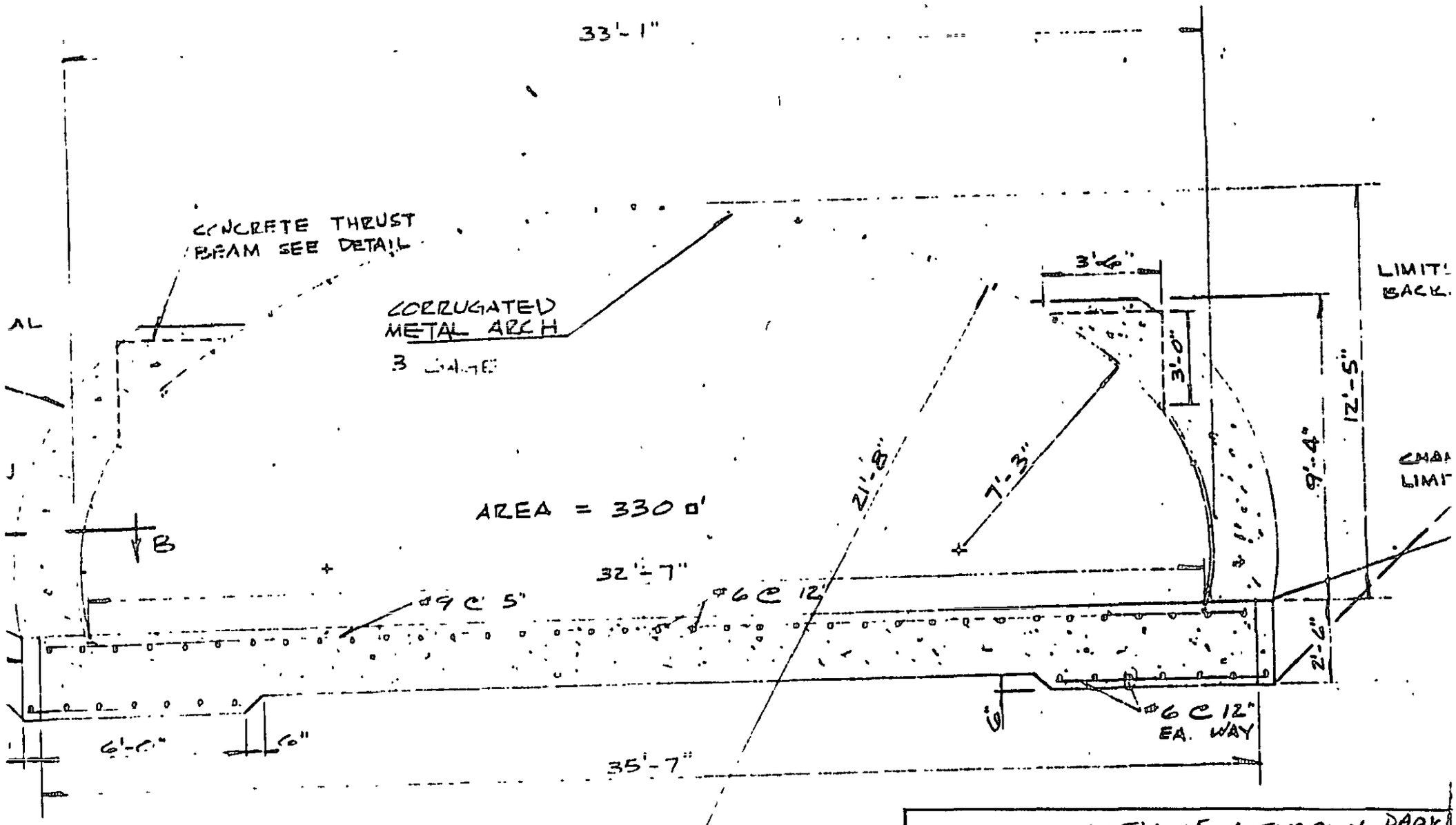
$K_e = .7$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + .12 + .7 + 0 = 1.82
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers): 26.83
6. BWP = total width of obstruction = 0 — field data
7. BAREA = bridge opening = 330.0
8. SS = side slope = 0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 574.9 (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 574.6 (0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK. | SHEET NO | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| Lincoln Park - Hydraulics | T.G. | | 8 OF 16 | HUD 2010 07 |
| | DATE 10-1-79 | DATE | | |

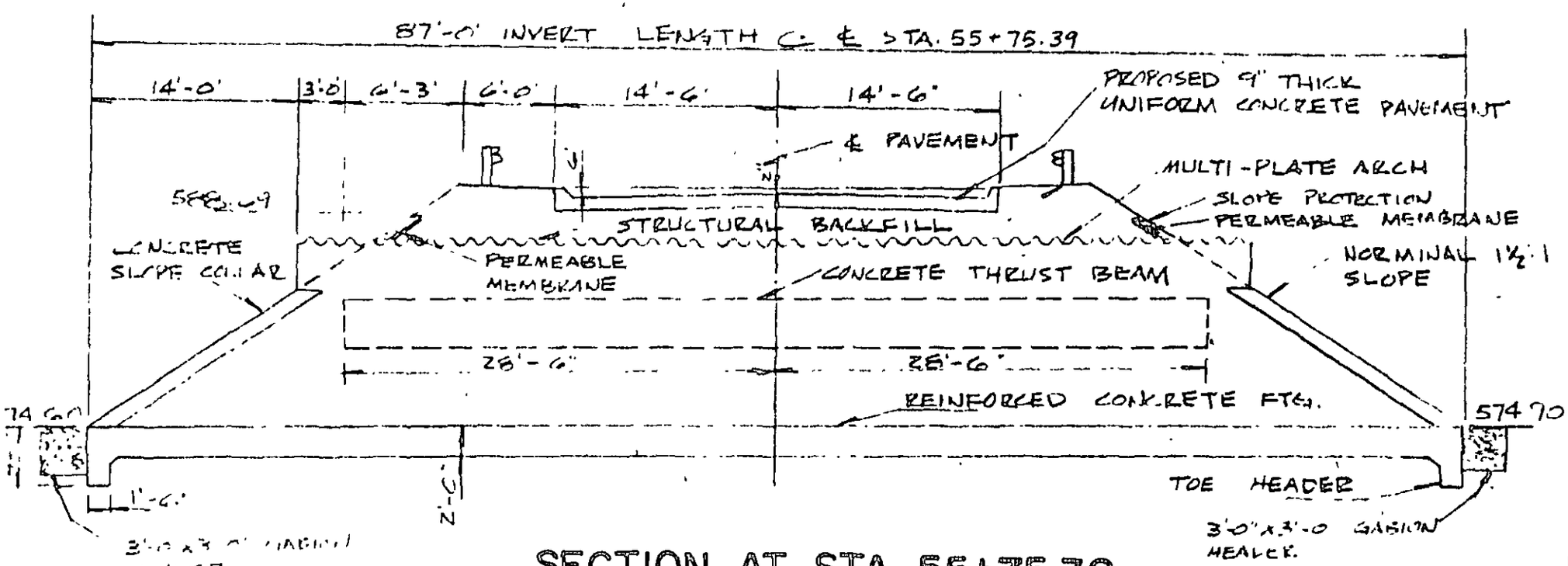



SECTION C-C

sheet 14 of 15
6-8-79

CITY OF LINCOLN PARK, MICHIGAN: INDUSTRIAL DRIVE CULVERT, Culvert Details + Location Plan
Pate, Hirn + Bogue, Inc., Civil Engineers

9 of 16




## SECTION AT STA. 55+75.39

N.T.S.

sheet 13 of 15
6-8-79

CITY OF LINCOLN PARK, MICHIGAN: INDUSTRIAL DRIVE CULVERT, Plan, Profile + Soil Borings by Pate, Hira + Bogue - Civil Engineers

91 of 101

FORM 25-0
(313) 291-5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: Dean Central R.R.
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient): 1.25 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 182 = _____ $W_p$ = 78.4

$R = A/w_p = 2.32$ $R^{4/3} = 3.07$ $L = 197$

n (composite) = $\frac{0.018(54) + 0.035(24)}{78} = .023$

$K_f = 29.1 \times (.023)^2 \times 197/3.07 = .99$

$K_e = 0.5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + .99 + .5 + 0 = 2.49
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = _____ (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 27.2
6. BWP = total width of obstruction = 32 — field data
7. BAREA = bridge opening = 182
8. SS = side slope = _____ (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 577.9 (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 577.9 (0 if equal to minimum elevation in previous x-sect.)

SUBJECT Lincoln Park Hydraulics | BY T.G. | DATE 10/21/79 | CHK. | DATE | SHEET NO. 11 - 16 | File Code No. (Job No.) Owner AUD • Project 2010 • Suffix 07

ITUD
2010-05

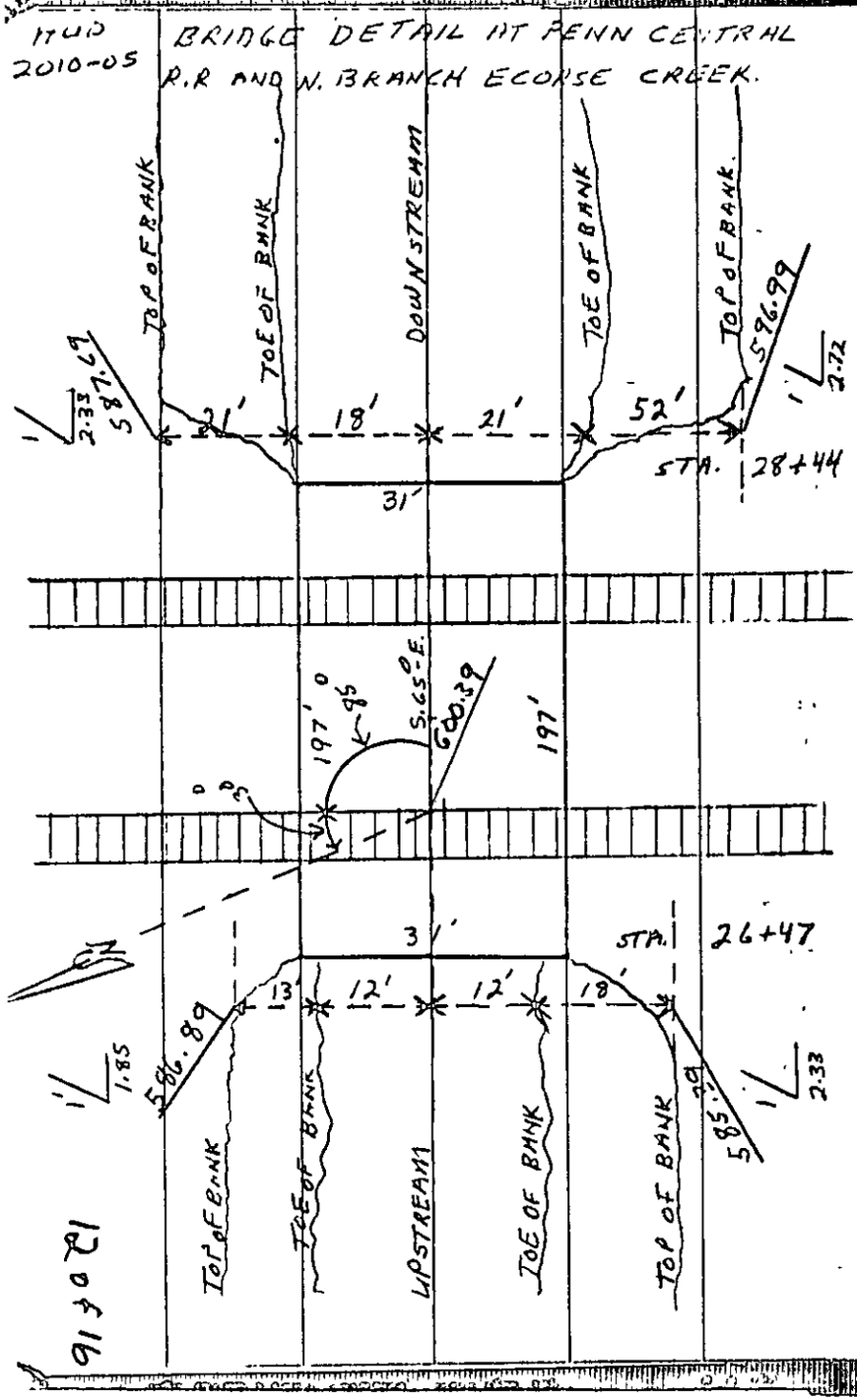
# BRIDGE DETAIL AT PENN CENTRAL R.R AND N. BRANCH ECORSE CREEK.

F.B #941

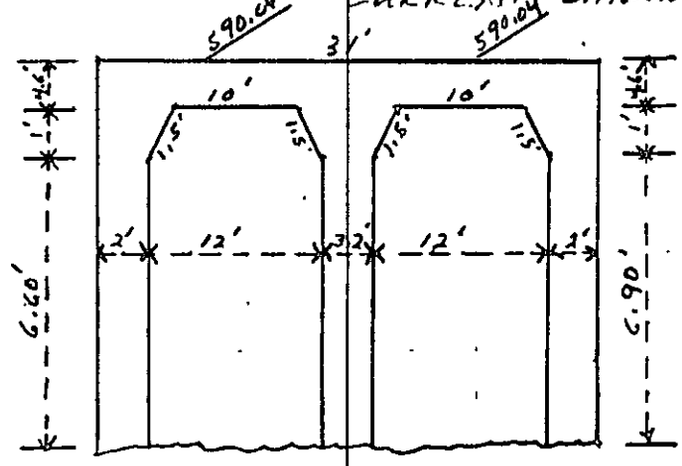
A.P
13.U
L.C

DEC 15-1977
DEC 16-1977

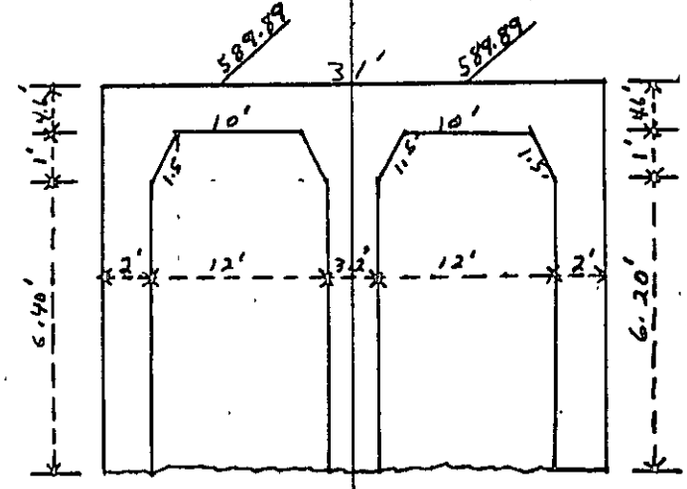
10




CURRENT CONDITION




VIEW STANDING UPSTREAM FACING DOWNSTREAM




VIEW STANDING DOWNSTREAM FACING UPSTREAM

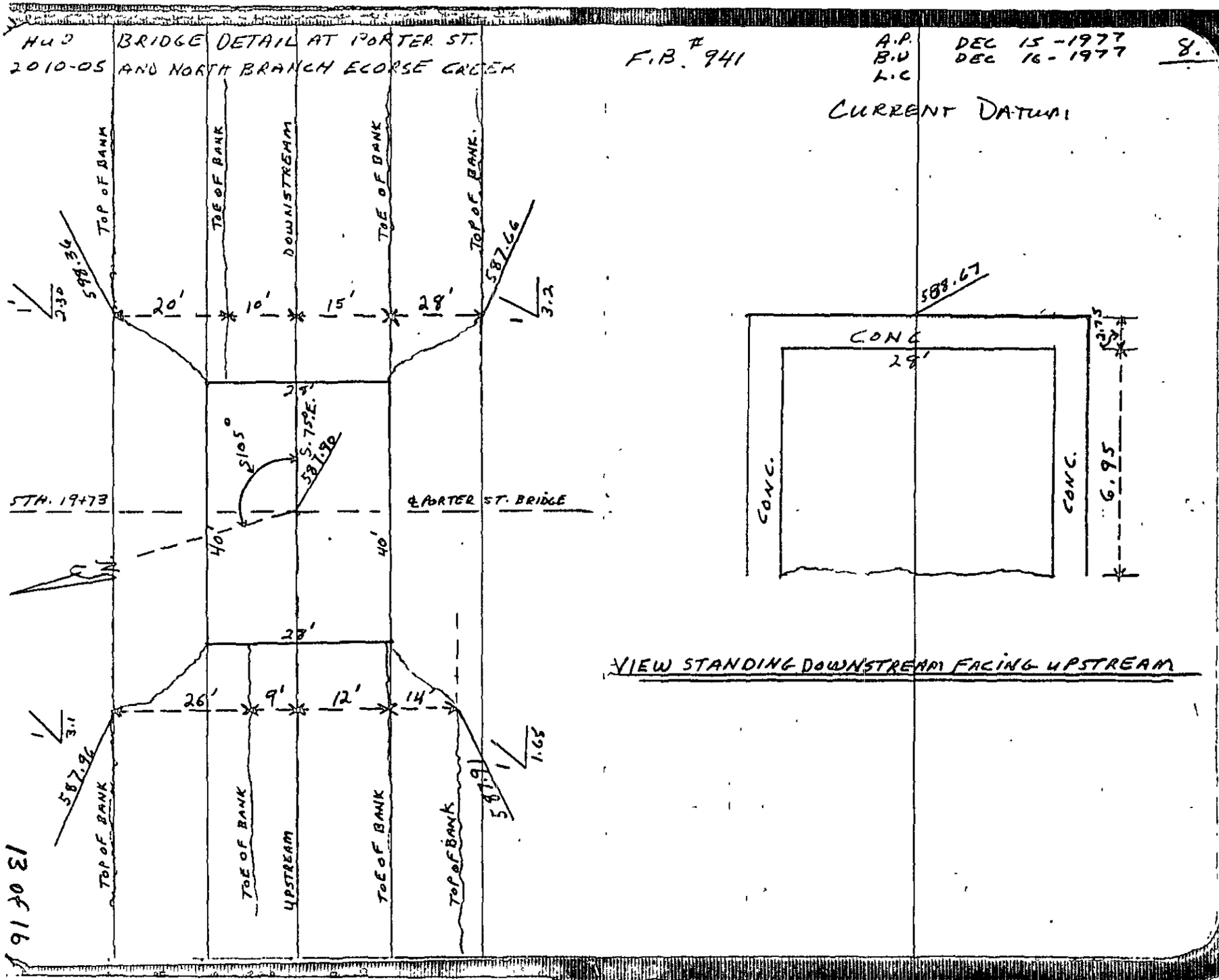
HUD 2010-05

# BRIDGE DETAIL AT PORTER ST. AND NORTH BRANCH ECORSE CREEK

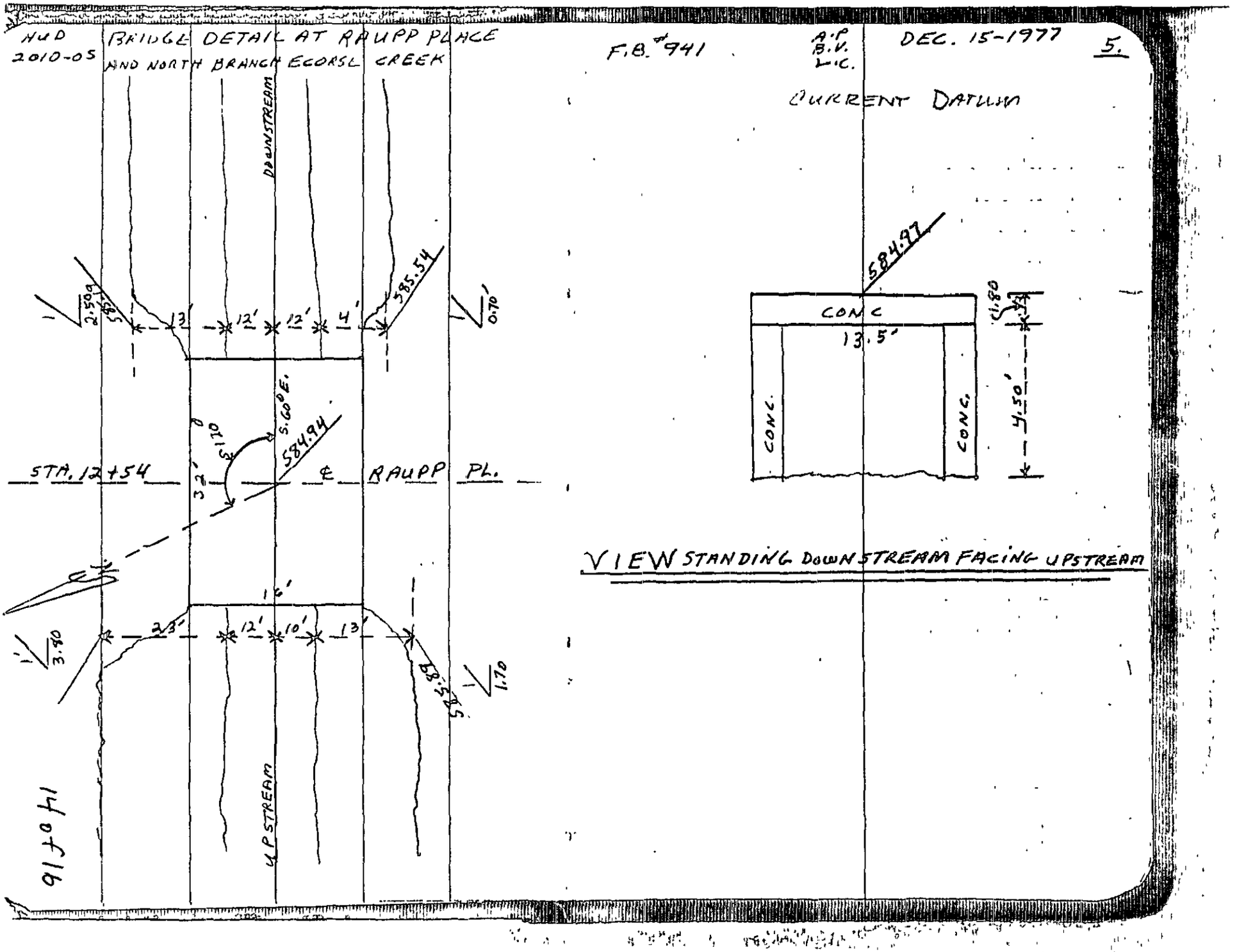
F.B. # 941

A.P. DEC 15 - 1977
B.U
L.C DEC 16 - 1977

8.




13 OF 16


NUD 2010-05
BRIDGE DETAIL AT RAUPP PLACE AND NORTH BRANCH ECORSE CREEK
F.B. #941
A.P.
B.V.
L.C.
DEC. 15-1977
5.
CURRENT DATUM
DOWNSTREAM
595.54
584.97
CONC
13.5'
CONC.
CONC.
1.80
4.50'
S.60°E.
584.94
STA. 12+54
℄ RAUPP PL.
16'
UPSTREAM
VIEW STANDING DOWNSTREAM FACING UPSTREAM
91+01

HUD 2010-05

BRIDGE DETAIL AT DIX-TOLEDO RD. AND NORTH BRANCH ECORSE CREEK

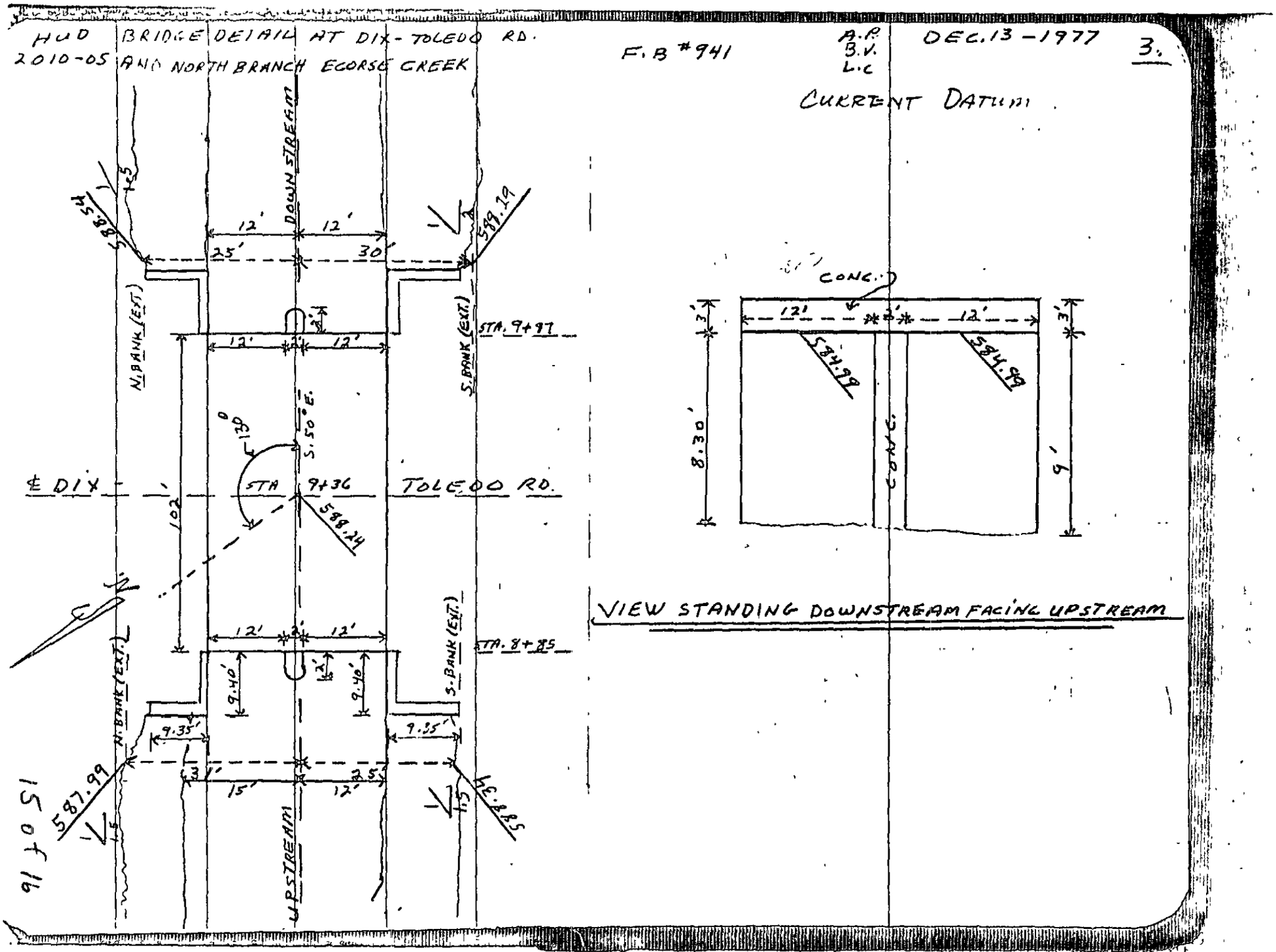
F.B #941

A.P.
B.V.
L.C

DEC. 13 - 1977

3.

CURRENT DATUM



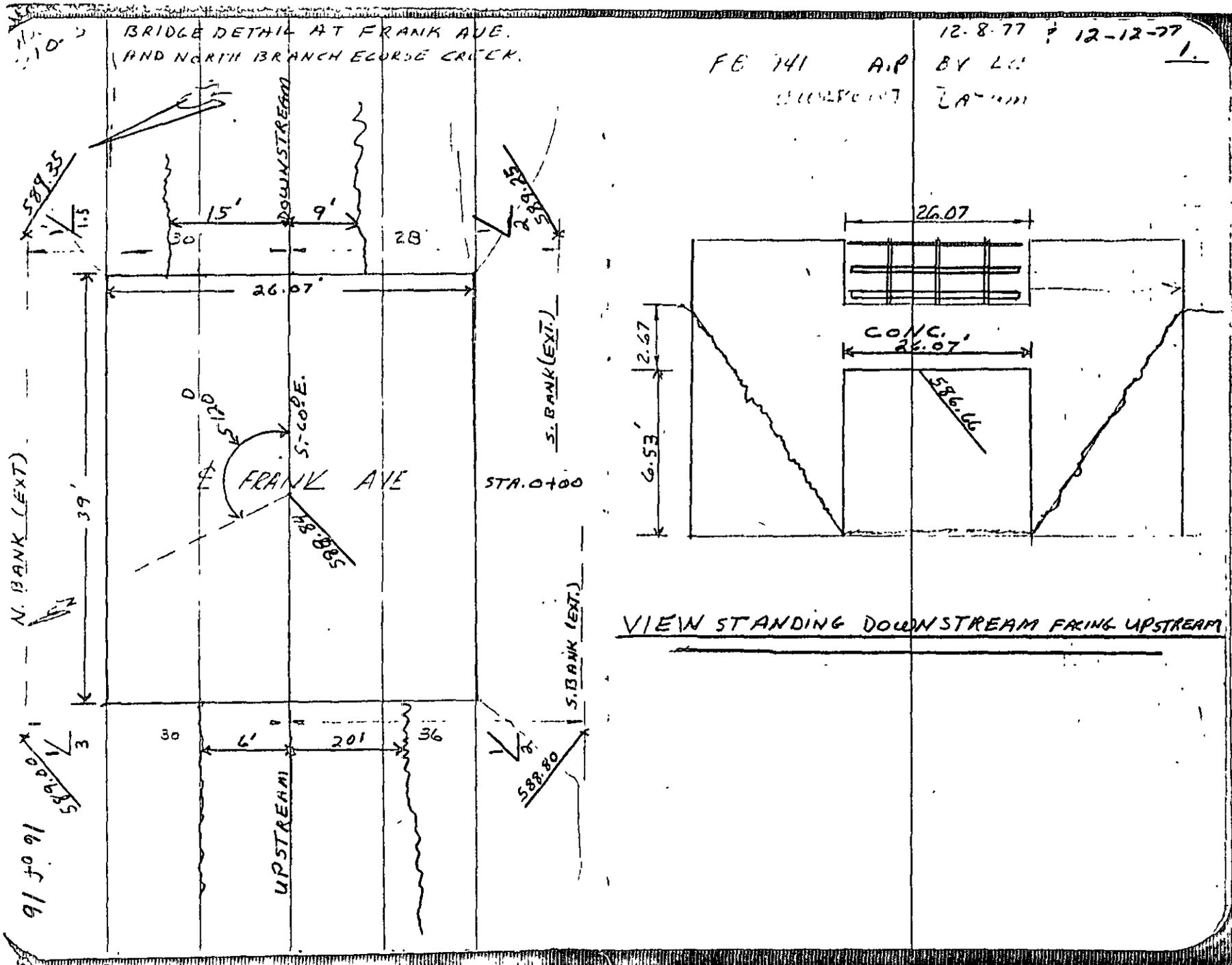

15 of 16

BRIDGE DETAIL AT FRANK AVE.
AND NORTH BRANCH ECORSE CREEK.

12-8-77 & 12-12-77

1.

FE 141 A.P BY L.C.




VIEW STANDING DOWNSTREAM FACING UPSTREAM

CITY OF LINCOLN PARK, MICHIGAN

NORTH BRANCH ECORSE CREEK

EXHIBIT 7

HEC-2 Backwater Analysis

From City of Ecorse F.I.S.

```
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
**********
C
I      CITY OF ECORSE   5555-16   DICK ZANOTTI  P.M.
T2     10 YEAR FLOOD.
T3     NORTH BRANCH OF ECORSE CREEK
```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -0. | 2. | -0. | -0. | -0.000000 | -0.00 | -0.0 | -0. | 574.900 | -0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | -0.000 | -1.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J3 | 1.000 | 10.000 | 11.000 | 12.000 | 14.000 | 8.000 | 4.000 | -0.000 | -0.000 | -0.000 |
| NC | .035 | .035 | .030 | .100 | .500 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| BT | 4.000 | 3165.000 | 4100.000 | 4410.000 | 5150.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 1.000 | 41.000 | 500.000 | 61[illegible].000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 576.200 | 0.000 | 575.900 | 100.000 | 576.600 | 200.000 | 578.500 | 300.000 | 581.100 | 400.000 |
| GR | 584.600 | 500.000 | 582.800 | 600.000 | 582.600 | 605.000 | 581.900 | 610.000 | 581.100 | 615.000 |
| GR | 579.200 | 520.000 | 575.400 | 525.000 | 574.800 | 530.000 | 572.800 | 535.000 | 569.200 | 540.000 |
| GR | 569.200 | 540.000 | 565.500 | 543.500 | 565.500 | 543.500 | 565.500 | 545.000 | 563.900 | 555.000 |
| GR | 566.100 | 560.000 | 565.300 | 565.000 | 565.400 | 570.000 | 564.100 | 575.000 | 566.200 | 580.000 |
| GR | 566.200 | 580.000 | 565.300 | 583.500 | 565.300 | 583.500 | 565.300 | 585.000 | 563.400 | 590.000 |
| GR | 564.400 | 595.000 | 565.400 | 600.000 | 567.700 | 605.000 | 571.100 | 610.000 | 573.500 | 615.000 |
| GR | 574.000 | 619.000 | 584.600 | 619.000 | 582.300 | 700.000 | 579.600 | 800.000 | 579.000 | 890.000 |
| GR | 578.700 | 1000.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 30.000 | -0.000 | -0.000 | -0.000 | [illegible].000 | [illegible].000 | [illegible].000 | -0.000 | -0.000 | -0.000 |
| X1 | 60.000 | 41.000 | 500.000 | 619.000 | 30.000 | 30.000 | 30.000 | -0.000 | -0.000 | -0.000 |
| GR | 576.200 | 0.000 | 575.900 | 100.000 | 576.600 | 200.000 | 578.500 | 300.000 | 581.100 | 400.000 |
| GR | 584.600 | 500.000 | 582.800 | 600.000 | 582.600 | 605.000 | 581.900 | 610.000 | 581.100 | 615.000 |
| GR | 579.200 | 520.000 | 575.400 | 525.000 | 574.800 | 530.000 | 572.800 | 535.000 | 569.200 | 540.000 |
| GR | 569.200 | 540.000 | 565.500 | 543.500 | 565.500 | 543.500 | 565.500 | 545.000 | 563.900 | 555.000 |
| GR | 566.100 | 560.000 | 565.300 | 565.000 | 565.400 | 570.000 | 564.100 | 575.000 | 566.200 | 580.000 |
| GR | 566.200 | 580.000 | 565.300 | 583.500 | 565.300 | 583.500 | 565.300 | 585.000 | 563.400 | 590.000 |
| GR | 564.400 | 595.000 | 565.400 | 600.000 | 567.700 | 605.000 | 571.100 | 610.000 | 573.500 | 615.000 |
| GR | 574.000 | 619.000 | 584.600 | 619.000 | 582.300 | 700.000 | 579.600 | 800.000 | 579.000 | 890.000 |
| GR | 578.700 | 1000.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 61.000 | 41.000 | 500.000 | 519.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| BT | 9.000 | 500.000 | 584.300 | 579.800 | 500.000 | 587.700 | 579.800 | 540.000 | 588.100 | 580.300 |
| BT | 543.500 | 588.100 | 580.300 | 560.000 | 583.300 | 590.300 | 580.000 | 588.100 | 580.300 | 583.500 |
| BT | 588.100 | 580.300 | 619.000 | 587.700 | 579.700 | 619.000 | 584.400 | 579.700 | -0.000 | -0.000 |
| GR | 576.200 | 0.000 | 575.900 | 100.000 | 576.600 | 200.000 | 578.500 | 300.000 | 581.100 | 400.000 |
| GR | 584.600 | 500.000 | 582.800 | 600.000 | 582.600 | 605.000 | 581.900 | 610.000 | 581.100 | 615.000 |
| GR | 579.200 | 520.000 | 575.400 | 525.000 | 574.800 | 530.000 | 572.800 | 535.000 | 569.200 | 540.000 |
| GR | 580.300 | 540.000 | 580.300 | 543.500 | 565.500 | 543.500 | 565.500 | 545.000 | 563.900 | 555.000 |
| GR | 566.100 | 560.000 | 565.300 | 565.000 | 565.400 | 570.000 | 564.100 | 575.000 | 566.200 | 580.000 |
| GR | 580.300 | 580.000 | 580.300 | 583.500 | 565.300 | 583.500 | 565.300 | 585.000 | 563.400 | 590.000 |
| GR | 564.400 | 595.000 | 565.400 | 600.000 | 567.700 | 605.000 | 571.100 | 610.000 | 573.500 | 615.000 |
| GR | 574.000 | 619.000 | 584.600 | 619.000 | 582.300 | 700.000 | 579.600 | 800.000 | 579.000 | 890.000 |
| GR | 578.700 | 1000.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |

Exhibit 7
1 of 41

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [redacted] | | | | | | | | | | | |
| X1 | 187.000 | 41.000 | 500.000 | 619.000 | 1.000 | 1.000 | 1.000 | -0.000 | [redacted] | | |
| GR | 576.200 | 0.000 | 575.900 | 100.000 | 576.600 | 200.000 | 578.300 | 200.000 | | | |
| [redacted] | 4.600 | 500.000 | 542.000 | 500.000 | 572.600 | 505.000 | 1.900 | 510.000 | | | |
| [redacted] | 575.200 | 520.000 | 575.400 | 525.000 | 574.800 | 530.000 | 572.800 | 535.000 | | | |
| GR | 560.200 | 540.000 | 565.500 | 543.500 | 565.500 | 543.500 | 565.500 | 545.000 | [redacted] | | |
| GR | 566.100 | 560.000 | 565.300 | 565.000 | 565.400 | 570.000 | 564.100 | 575.000 | 560.300 | [redacted] | |
| GR | 566.200 | 580.000 | 565.300 | 583.500 | 565.300 | 583.500 | 565.300 | 585.000 | 563.400 | [redacted] | |
| GR | 564.400 | 595.000 | 565.400 | 600.000 | 567.700 | 605.000 | 571.100 | 610.000 | 573.500 | [redacted] | |
| GR | 574.000 | 619.000 | 584.600 | 619.000 | 582.300 | 700.000 | 579.600 | 800.000 | 575.000 | [redacted] | |
| GR | 578.700 | 1000.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| NC | .035 | .042 | .030 | ±0.000 | ±0.000 | -0.000 | -0.000 | -0.000 | ±0.000 | -0.000 | |
| | | | | | | | | | | | |
| X1 | 187.000 | 27.000 | 331.000 | 441.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 | |
| GR | 575.800 | 0.000 | 576.600 | 41.000 | 578.500 | 141.000 | 580.600 | 241.000 | 583.100 | 331.000 | |
| GR | 575.400 | 341.000 | 574.800 | 346.000 | 571.300 | 351.000 | 568.100 | 356.000 | 567.200 | 361.000 | |
| GR | 565.700 | 366.000 | 565.100 | 371.000 | 565.500 | 376.000 | 565.100 | 381.000 | 564.700 | 391.000 | |
| GR | 564.100 | 401.000 | 564.400 | 406.000 | 565.700 | 411.000 | 568.200 | 416.000 | 570.500 | 421.000 | |
| GR | 572.800 | 426.000 | 574.800 | 432.000 | 580.200 | 441.000 | 583.600 | 454.000 | 581.000 | 541.000 | |
| GR | 579.300 | 641.000 | 578.300 | 698.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| NH | 4.000 | .035 | 244.000 | .030 | 360.000 | .070 | 400.000 | .035 | 800.000 | ±0.000 | |
| | | | | | | | | | | | |
| X1 | 362.000 | 35.000 | 244.000 | 400.000 | 175.000 | 175.000 | 175.000 | -0.000 | .270 | -0.000 | |
| GR | 580.200 | 0.000 | 579.500 | 100.000 | 578.300 | 200.000 | 578.300 | 244.000 | 574.600 | 254.000 | |
| GR | 573.600 | 255.000 | 571.500 | 260.000 | 569.400 | 265.000 | 568.500 | 270.000 | 567.600 | 275.000 | |
| GR | 566.900 | 280.000 | 565.900 | 285.000 | 563.600 | 290.000 | 563.700 | 300.000 | 563.700 | 310.000 | |
| GR | 564.300 | 320.000 | 565.400 | 330.000 | 568.200 | 340.000 | 569.400 | 345.000 | 571.100 | 350.000 | |
| GR | 571.600 | 355.000 | 572.400 | 360.000 | 572.100 | 365.000 | 572.600 | 370.000 | 572.600 | 375.000 | |
| GR | 572.800 | 380.000 | 572.800 | 385.000 | 572.400 | 390.000 | 574.600 | 395.000 | 576.900 | 400.000 | |
| GR | 577.600 | 500.000 | 577.700 | 545.000 | 577.500 | 600.000 | 577.700 | 700.000 | 577.500 | 800.000 | |
| | | | | | | | | | | | |
| X1 | 737.000 | 35.000 | 244.000 | 400.000 | 375.000 | 375.000 | 375.000 | -0.000 | -0.000 | -0.000 | |
| X3 | -0.000 | -0.000 | -0.000 | 244.000 | -0.000 | 375.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| GR | 580.200 | 0.000 | 579.500 | 100.000 | 578.300 | 200.000 | 578.300 | 244.000 | 574.600 | 254.000 | |
| GR | 573.600 | 255.000 | 571.500 | 260.000 | 569.400 | 265.000 | 568.500 | 270.000 | 567.600 | 275.000 | |
| GR | 566.900 | 280.000 | 565.900 | 285.000 | 563.600 | 290.000 | 563.700 | 300.000 | 563.700 | 310.000 | |
| GR | 564.300 | 320.000 | 565.400 | 330.000 | 568.200 | 340.000 | 569.400 | 345.000 | 571.100 | 350.000 | |
| GR | 571.600 | 355.000 | 572.400 | 360.000 | 572.100 | 365.000 | 572.600 | 370.000 | 572.600 | 375.000 | |
| GR | 572.800 | 380.000 | 572.800 | 385.000 | 572.400 | 390.000 | 574.600 | 395.000 | 576.900 | 400.000 | |
| GR | 577.600 | 500.000 | 577.700 | 545.000 | 577.500 | 600.000 | 577.700 | 700.000 | 577.500 | 800.000 | |
| NC | .035 | .042 | .032 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | | | | | | | | | | | |
| X1 | 787.000 | 67.000 | 795.000 | 901.600 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 | |
| GR | 581.500 | 0.000 | 581.400 | 95.000 | 581.300 | 195.000 | 581.200 | 295.000 | 581.100 | 395.000 | |
| GR | 581.100 | 495.000 | 581.100 | 595.000 | 581.000 | 695.000 | 581.000 | 795.000 | 575.200 | 795.000 | |
| GR | 574.500 | 800.000 | 574.500 | 800.000 | 574.500 | 801.000 | 574.500 | 801.000 | 574.000 | 805.000 | |
| GR | 573.200 | 810.000 | 573.200 | 810.000 | 573.200 | 811.000 | 573.200 | 811.000 | 570.800 | 815.000 | |
| GR | 569.300 | 820.000 | 570.100 | 825.000 | 570.100 | 826.000 | 570.100 | 826.000 | 570.100 | 826.000 | |
| GR | 566.600 | 829.900 | 566.600 | 829.900 | 566.600 | 831.200 | 566.600 | 831.200 | 565.500 | 835.000 | |
| GR | 565.500 | 835.000 | 565.500 | 836.000 | 565.500 | 836.000 | 563.900 | 840.000 | 564.500 | 845.000 | |
| GR | 564.500 | 845.000 | 564.500 | 846.000 | 564.500 | 846.000 | 564.900 | 850.000 | 564.900 | 855.000 | |
| GR | 564.900 | 855.000 | 564.900 | 856.000 | 564.900 | 856.000 | 565.500 | 860.000 | 565.200 | 865.000 | |
| GR | 565.200 | 865.000 | 565.200 | 866.300 | 565.300 | 866.300 | 566.000 | 870.000 | 566.000 | 875.000 | |
| GR | 566.000 | 875.000 | 566.000 | 876.000 | 566.000 | 876.000 | 566.700 | 880.000 | 568.700 | 885.000 | |
| GR | 568.300 | 890.000 | 569.700 | 895.000 | 571.700 | 900.000 | 571.700 | 901.600 | 581.000 | 901.600 | |
| GR | 580.800 | 995.000 | 580.800 | 1095.000 | 580.600 | 1195.000 | 580.400 | 1295.000 | 580.100 | 1395.000 | |
| GR | 579.900 | 1495.000 | 580.000 | 1540.000 | -0.000 | -0.000 | -0.000 | ±0.000 | ±0.000 | ±0.000 | |
| | | | | | | | | | | | |
| X1 | 788.000 | 67.000 | 795.000 | 901.600 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 | |
| B1 | 4.000 | 795.000 | 581.000 | 577.200 | 830.000 | 581.000 | 577.200 | 860.000 | 581.000 | 577.200 | |
| B1 | 901.600 | 581.000 | 577.200 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |

Ex 6.17
2 of 41

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | GR | 573.200 | 810.000 | 575.500 | 810.000 | 575.500 | 811.000 | 573.200 | 811.000 | [illegible] | [illegible] |
| [redacted] | GR | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| | GR | 566.600 | 830.000 | 577.200 | 830.000 | 577.200 | 831.300 | 566.500 | [illegible] | [illegible] | [illegible] |
| | GR | 575.500 | 835.000 | 575.500 | 836.000 | 565.500 | 836.000 | 563.900 | [illegible] | [illegible] | [illegible] |
| | GR | 575.500 | 845.000 | 575.500 | 846.000 | 564.500 | 846.000 | 564.900 | [illegible] | [illegible] | [illegible] |
| | GR | 575.500 | 855.000 | 575.500 | 856.000 | 564.900 | 856.000 | 565.500 | [illegible] | [illegible] | [illegible] |
| | GR | 577.200 | 865.000 | 577.200 | 866.300 | 565.200 | 866.300 | 566.000 | [illegible] | [illegible] | [illegible] |
| | GR | 575.500 | 875.000 | 575.500 | 876.000 | 566.000 | 876.000 | 566.100 | [illegible] | [illegible] | [illegible] |
| | GR | 568.300 | 890.000 | 569.700 | 895.000 | 571.700 | 900.000 | 571.700 | 901.600 | [illegible] | [illegible] |
| | GR | 580.800 | 995.000 | 580.800 | 1095.000 | 580.600 | 1195.000 | 580.400 | 1295.000 | [illegible] | [illegible] |
| | GR | 579.900 | 1495.000 | 580.000 | 1540.000 | -0.000 | -0.000 | -0.000 | -0.000 | [illegible] | [illegible] |
| | X1 | 797.000 | 0.000 | 795.000 | 901.600 | 9.000 | 9.000 | 9.000 | -0.000 | [illegible] | [illegible] |
| | X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | [illegible] | [illegible] |
| | X1 | 798.000 | 67.000 | 795.000 | 901.600 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | [illegible] |
| | GR | 581.500 | 0.000 | 581.400 | 95.000 | 581.300 | 195.000 | 581.200 | 295.000 | 581.100 | [illegible] |
| | GR | 581.100 | 495.000 | 581.100 | 595.000 | 581.000 | 695.000 | 581.000 | 795.000 | 575.200 | [illegible] |
| | GR | 574.500 | 800.000 | 574.500 | 800.000 | 574.500 | 801.000 | 574.500 | 801.000 | 574.000 | [illegible] |
| | GR | 573.200 | 810.000 | 573.200 | 810.000 | 573.200 | 811.000 | 573.200 | 811.000 | 570.800 | [illegible] |
| | GR | 569.300 | 820.000 | 570.100 | 825.000 | 570.100 | 825.000 | 570.100 | 826.000 | 570.100 | 826.000 |
| | GR | 566.600 | 829.900 | 566.600 | 829.900 | 566.600 | 831.200 | 566.600 | 831.200 | 565.500 | 835.000 |
| | GR | 565.500 | 835.000 | 565.500 | 836.000 | 565.500 | 836.000 | 563.900 | 840.000 | 564.500 | 845.000 |
| | GR | 564.500 | 845.000 | 564.500 | 846.000 | 564.500 | 846.000 | 564.900 | 850.000 | 564.900 | 855.000 |
| | GR | 564.900 | 855.000 | 564.900 | 856.000 | 564.900 | 856.000 | 565.500 | 860.000 | 565.200 | 865.000 |
| | GR | 565.200 | 865.000 | 565.200 | 866.300 | 565.300 | 866.300 | 566.000 | 870.000 | 566.100 | 875.000 |
| | GR | 566.000 | 875.000 | 566.000 | 875.000 | 566.000 | 876.000 | 566.700 | 880.000 | 568.700 | 885.000 |
| | GR | 568.300 | 890.000 | 569.700 | 895.000 | 571.700 | 900.000 | 571.700 | 901.600 | 581.000 | 901.600 |
| | GR | 580.800 | 995.000 | 580.800 | 1095.000 | 580.600 | 1195.000 | 580.400 | 1295.000 | 580.100 | 1395.000 |
| | GR | 579.900 | 1495.000 | 580.000 | 1540.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 844.000 | 58.000 | 815.000 | 924.000 | 45.000 | 46.000 | 46.000 | -0.000 | -0.000 | -0.000 |
| | GR | 583.400 | 0.000 | 583.400 | 15.000 | 583.100 | 115.000 | 582.900 | 215.000 | 582.600 | 315.000 |
| | GR | 582.600 | 415.000 | 582.300 | 515.000 | 582.100 | 615.000 | 581.900 | 715.000 | 581.500 | 815.000 |
| | GR | 576.100 | 815.000 | 574.200 | 820.000 | 572.700 | 825.000 | 570.000 | 829.000 | 570.000 | 829.000 |
| | GR | 570.000 | 830.000 | 570.000 | 831.000 | 568.000 | 835.000 | 565.900 | 840.000 | 565.000 | 844.000 |
| | GR | 565.000 | 844.000 | 565.000 | 845.000 | 565.000 | 845.000 | 565.000 | 855.000 | 566.000 | 864.000 |
| | GR | 566.000 | 864.000 | 566.000 | 865.000 | 566.000 | 865.000 | 566.100 | 874.000 | 568.100 | 874.000 |
| | GR | 566.100 | 875.000 | 566.100 | 875.000 | 565.800 | 884.000 | 565.400 | 884.000 | 565.800 | 885.000 |
| | GR | 565.800 | 885.000 | 565.600 | 890.000 | 565.200 | 894.000 | 565.200 | 894.000 | 565.200 | 895.000 |
| | GR | 565.200 | 895.000 | 567.600 | 900.000 | 570.300 | 905.000 | 572.000 | 909.000 | 572.000 | 909.000 |
| | GR | 572.000 | 910.000 | 572.000 | 910.100 | 574.000 | 915.000 | 575.100 | 920.000 | 576.200 | 924.000 |
| | GR | 581.400 | 924.000 | 581.300 | 1015.000 | 581.300 | 1115.000 | 581.100 | 1215.000 | 581.100 | 1315.000 |
| | GR | 581.100 | 1415.000 | 581.200 | 1515.000 | 581.200 | 1565.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 845.000 | 58.000 | 815.000 | 924.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| | BT | 16.000 | 815.000 | 581.500 | 578.400 | 824.000 | 581.500 | 578.100 | 830.000 | 581.500 | 578.100 |
| | BT | 844.000 | 581.500 | 577.900 | 845.000 | 581.500 | 577.900 | 864.000 | 581.500 | 577.500 | 865.000 |
| | BT | 581.500 | 577.500 | 874.000 | 581.400 | 577.400 | 875.000 | 581.400 | 577.400 | 884.000 | 581.400 |
| | BT | 577.200 | 885.000 | 581.400 | 577.200 | 894.000 | 581.400 | 577.000 | 895.000 | 581.400 | 577.000 |
| | BT | 909.000 | 581.400 | 576.800 | 910.000 | 581.400 | 576.800 | 924.000 | 581.400 | 576.500 | -0.000 |
| | GR | 583.400 | 0.000 | 583.400 | 15.000 | 583.100 | 115.000 | 582.900 | 215.000 | 582.800 | 315.000 |
| | GR | 582.600 | 415.000 | 582.300 | 515.000 | 582.100 | 615.000 | 581.900 | 715.000 | 581.500 | 815.000 |
| | GR | 576.100 | 815.000 | 574.200 | 820.000 | 572.700 | 825.000 | 570.000 | 829.000 | 578.100 | 829.000 |
| | GR | 578.100 | 830.000 | 570.000 | 830.000 | 568.000 | 835.000 | 565.900 | 840.000 | 565.000 | 844.000 |
| | GR | 577.900 | 844.000 | 577.900 | 845.000 | 565.000 | 845.000 | 565.000 | 855.000 | 566.000 | 864.000 |
| | GR | 577.500 | 864.000 | 577.500 | 865.000 | 566.000 | 865.000 | 566.100 | 874.000 | 577.400 | 874.000 |
| | GR | 577.400 | 875.000 | 566.100 | 875.000 | 565.800 | 884.000 | 577.200 | 884.000 | 577.200 | 885.000 |
| | GR | 565.800 | 885.000 | 565.600 | 890.000 | 565.200 | 894.000 | 577.000 | 894.000 | 577.000 | 895.000 |
| | GR | 565.200 | 895.000 | 567.600 | 900.000 | 570.300 | 905.000 | 572.000 | 909.000 | 576.800 | 909.000 |
| | GR | 576.800 | 910.000 | 572.000 | 910.000 | 574.000 | 915.000 | 575.100 | 920.000 | 576.200 | 924.000 |
| | GR | 581.400 | 924.000 | 581.300 | 1015.000 | 581.300 | 1115.000 | 581.100 | 1215.000 | 581.100 | 1315.000 |
| | GR | 581.100 | 1415.000 | 581.200 | 1515.000 | 581.200 | 1565.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 859.000 | 58.000 | 815.000 | 924.000 | 14.500 | 14.500 | 14.500 | -0.000 | -0.000 | -0.000 |

Exhibit 7
3 of 11

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GR | 583.400 | 0.000 | 533.400 | 15.000 | 583.100 | 115.000 | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| GR | 576.100 | 815.000 | 574.200 | 820.000 | 572.700 | 825.000 | 570.900 | 825.000 | [redacted] | [redacted] | [redacted] |
| GR | 570.000 | 830.000 | 570.000 | 830.000 | 568.000 | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| GR | 565.000 | 844.000 | 565.000 | 845.000 | 565.000 | 845.000 | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| GR | 566.000 | 864.000 | 566.000 | 865.000 | 566.000 | 865.000 | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| GR | 566.100 | 875.000 | 566.100 | 875.000 | 565.800 | 884.000 | 565.800 | [redacted] | [redacted] | [redacted] | [redacted] |
| GR | 565.800 | 885.000 | 565.600 | 890.000 | 565.200 | 894.000 | 565.200 | [redacted] | [redacted] | [redacted] | [redacted] |
| GR | 565.200 | 895.000 | 567.600 | 900.000 | 570.300 | 905.000 | 572.000 | [redacted] | [redacted] | [redacted] | [redacted] |
| GR | 572.000 | 910.000 | 572.000 | 910.000 | 574.000 | 915.000 | 575.100 | 920.000 | [redacted] | [redacted] | [redacted] |
| GR | 581.400 | 924.000 | 581.300 | 1015.000 | 581.300 | 1115.000 | 581.100 | 1215.000 | [redacted] | [redacted] | [redacted] |
| GR | 581.100 | 1415.000 | 581.200 | 1515.000 | 581.200 | 1565.000 | -0.000 | -0.000 | -0.000 | -0.000 | [redacted] |
| X1 | 910.000 | 64.000 | 835.000 | 942.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | [redacted] | [redacted] |
| GR | 583.700 | 0.000 | 583.600 | 35.000 | 583.400 | 135.000 | 583.300 | 235.000 | 583.300 | [redacted] | [redacted] |
| GR | 583.300 | 435.000 | 583.300 | 535.000 | 583.200 | 635.000 | 583.100 | 735.000 | 583.100 | [redacted] | [redacted] |
| GR | 574.800 | 835.000 | 572.600 | 840.000 | 571.600 | 844.000 | 571.600 | 844.000 | 571.000 | [redacted] | [redacted] |
| GR | 571.600 | 845.000 | 570.700 | 854.000 | 570.700 | 854.000 | 570.700 | 855.000 | 570.700 | [redacted] | [redacted] |
| GR | 565.600 | 864.000 | 565.600 | 864.000 | 565.600 | 865.000 | 565.600 | 865.000 | 564.300 | [redacted] | [redacted] |
| GR | 564.300 | 874.000 | 564.300 | 875.000 | 564.300 | 875.000 | 564.800 | 884.000 | 564.800 | [redacted] | [redacted] |
| GR | 564.800 | 885.000 | 564.800 | 895.000 | 564.900 | 894.000 | 564.900 | 894.000 | 564.900 | [redacted] | [redacted] |
| GR | 564.900 | 895.000 | 564.000 | 904.000 | 564.000 | 904.000 | 564.000 | 905.000 | 564.000 | [redacted] | [redacted] |
| GR | 566.100 | 914.000 | 566.100 | 914.000 | 566.100 | 915.000 | 566.100 | 915.000 | 567.000 | [redacted] | [redacted] |
| GR | 571.000 | 924.000 | 571.000 | 924.000 | 571.000 | 925.000 | 571.000 | 925.000 | 572.400 | [redacted] | [redacted] |
| GR | 573.900 | 934.000 | 573.900 | 934.000 | 573.900 | 935.000 | 573.900 | 935.000 | 575.000 | [redacted] | [redacted] |
| GR | 574.900 | 942.000 | 583.000 | 942.000 | 582.700 | 1035.000 | 582.600 | 1135.000 | 582.300 | [redacted] | [redacted] |
| GR | 582.100 | 1335.000 | 581.900 | 1435.000 | 581.800 | 1535.000 | 581.800 | 1585.000 | -0.000 | -0.000 | [redacted] |
| X1 | 911.000 | 64.000 | 835.000 | 942.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | [redacted] | [redacted] |
| BT | 6.000 | 835.000 | 583.100 | 578.600 | 874.000 | 583.100 | 578.600 | 875.000 | 583.100 | [redacted] | [redacted] |
| BT | 904.000 | 583.000 | 578.600 | 905.000 | 583.000 | 578.600 | 942.000 | 583.000 | 578.600 | -0.000 | [redacted] |
| GR | 583.700 | 0.000 | 583.600 | 35.000 | 583.400 | 135.000 | 583.300 | 235.000 | 583.300 | [redacted] | [redacted] |
| GR | 583.300 | 435.000 | 583.300 | 535.000 | 583.200 | 635.000 | 583.100 | 735.000 | 583.100 | [redacted] | [redacted] |
| GR | 574.800 | 835.000 | 572.600 | 840.000 | 571.600 | 844.000 | 575.500 | 844.000 | 575.500 | [redacted] | [redacted] |
| GR | 571.600 | 845.000 | 570.700 | 854.000 | 575.500 | 854.000 | 575.500 | 855.000 | 570.700 | [redacted] | [redacted] |
| GR | 565.600 | 864.000 | 575.500 | 864.000 | 575.500 | 865.000 | 565.600 | 865.000 | 564.300 | 874.000 | [redacted] |
| GR | 578.600 | 874.000 | 578.600 | 875.000 | 564.300 | 875.000 | 564.800 | 884.000 | 575.500 | 884.000 | [redacted] |
| GR | 575.500 | 885.000 | 564.800 | 845.000 | 564.900 | 894.000 | 575.500 | 894.000 | 575.500 | 895.000 | [redacted] |
| GR | 564.900 | 895.000 | 564.000 | 904.000 | 578.600 | 904.000 | 578.600 | 905.000 | 564.000 | 905.000 | [redacted] |
| GR | 566.100 | 914.000 | 575.500 | 914.000 | 575.500 | 915.000 | 566.100 | 915.000 | 567.000 | 920.000 | [redacted] |
| GR | 571.000 | 924.000 | 575.500 | 924.000 | 575.500 | 925.000 | 571.000 | 925.000 | 572.400 | 930.000 | [redacted] |
| GR | 573.900 | 934.000 | 575.500 | 934.000 | 575.500 | 935.000 | 573.900 | 935.000 | 575.000 | 940.000 | [redacted] |
| GR | 574.900 | 942.000 | 583.000 | 942.000 | 582.700 | 1035.000 | 582.600 | 1135.000 | 582.300 | 1235.000 | [redacted] |
| GR | 582.100 | 1335.000 | 581.900 | 1435.000 | 581.800 | 1535.000 | 581.800 | 1585.000 | -0.000 | -0.000 | [redacted] |
| X1 | 921.000 | -0.000 | 835.000 | 942.000 | 10.000 | 10.000 | 10.000 | -0.000 | -0.000 | -0.000 | [redacted] |
| X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | -0.000 | -0.000 | [redacted] |
| X1 | 922.000 | 64.000 | 835.000 | 942.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 | [redacted] |
| GR | 583.700 | 0.000 | 583.600 | 35.000 | 583.400 | 135.000 | 583.300 | 235.000 | 583.300 | 335.000 | [redacted] |
| GR | 583.300 | 435.000 | 583.300 | 535.000 | 583.200 | 635.000 | 583.100 | 735.000 | 583.100 | 835.000 | [redacted] |
| GR | 574.800 | 835.000 | 572.600 | 840.000 | 571.600 | 844.000 | 571.600 | 844.000 | 571.000 | 845.000 | [redacted] |
| GR | 571.600 | 845.000 | 570.700 | 854.000 | 570.700 | 854.000 | 570.700 | 855.000 | 570.700 | 855.000 | [redacted] |
| GR | 565.600 | 864.000 | 565.600 | 864.000 | 565.600 | 865.000 | 565.600 | 865.000 | 564.300 | 874.000 | [redacted] |
| GR | 564.300 | 874.000 | 564.300 | 875.000 | 564.300 | 875.000 | 564.900 | 884.000 | 564.800 | 884.000 | [redacted] |
| GR | 564.800 | 885.000 | 564.800 | 895.000 | 564.900 | 894.000 | 564.900 | 894.000 | 564.900 | 895.000 | [redacted] |
| GR | 564.900 | 895.000 | 564.000 | 904.000 | 564.000 | 904.000 | 564.000 | 905.000 | 564.000 | 905.000 | [redacted] |
| GR | 566.100 | 914.000 | 566.100 | 914.000 | 566.100 | 915.000 | 566.100 | 915.000 | 567.000 | 920.000 | [redacted] |
| GR | 571.000 | 924.000 | 571.000 | 924.000 | 571.000 | 925.000 | 571.000 | 925.000 | 572.400 | 930.000 | [redacted] |
| GR | 573.900 | 934.000 | 573.900 | 934.000 | 573.900 | 935.000 | 573.900 | 935.000 | 575.000 | 940.000 | [redacted] |
| GR | 574.900 | 942.000 | 583.000 | 942.000 | 582.700 | 1035.000 | 582.600 | 1135.000 | 582.300 | 1235.000 | [redacted] |
| GR | 582.100 | 1335.000 | 581.900 | 1435.000 | 581.800 | 1535.000 | 581.800 | 1585.000 | -0.000 | -0.000 | [redacted] |
| X1 | 953.000 | 48.000 | 600.000 | 691.000 | 31.000 | 31.000 | 31.000 | -0.000 | -0.000 | -0.000 | [redacted] |
| GR | 582.000 | 0.000 | 581.800 | 100.000 | 581.600 | 200.000 | 581.500 | 300.000 | 581.400 | 400.000 | [redacted] |
| GR | 581.200 | 500.000 | 581.000 | 600.000 | 571.000 | 600.000 | 568.100 | 605.000 | 566.900 | 610.000 | [redacted] |
| GR | 566.900 | 610.000 | 566.900 | 612.300 | 566.300 | 612.300 | 565.900 | 615.000 | 565.100 | 620.000 | [redacted] |
| GR | 565.100 | 620.000 | 565.100 | 622.300 | 565.100 | 622.300 | 566.300 | 625.000 | 566.200 | 631.000 | [redacted] |
| GR | 566.200 | 630.000 | 566.200 | 632.300 | 566.300 | 634.300 | 566.700 | 635.000 | 566.300 | 640.000 | [redacted] |

Exhibit 7
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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 953.000 | 44.000 | 600.000 | 641.000 | 31.000 | 31.000 | [illegible] | [illegible] | [illegible] | [illegible] | |
| [illegible] | 592.000 | 0.000 | 581.800 | 100.000 | 581.600 | 200.000 | 581.500 | 300.000 | [illegible] | [illegible] | |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | |
| GR | 566.900 | 610.000 | 566.900 | 612.300 | 566.900 | 612.300 | 565.900 | [illegible] | [illegible] | | |
| GR | 565.100 | 620.000 | 565.100 | 622.300 | 565.100 | 622.300 | 566.300 | [illegible] | [illegible] | | |
| GR | 566.200 | 630.000 | 566.200 | 632.300 | 566.200 | 632.300 | 566.700 | [illegible] | [illegible] | | |
| GR | 566.100 | 645.000 | 566.400 | 651.000 | 566.400 | 650.300 | 566.400 | [illegible] | [illegible] | | |
| GR | 566.600 | 655.000 | 567.500 | 660.000 | 567.500 | 650.000 | 567.500 | [illegible] | [illegible] | | |
| GR | 567.500 | 665.000 | 569.900 | 670.000 | 569.900 | 670.000 | 569.900 | [illegible] | [illegible] | | |
| GR | 573.400 | 680.000 | 573.400 | 681.000 | 580.800 | 681.000 | 580.800 | 700.000 | 580.700 | [illegible] | |
| GR | 580.600 | 900.000 | 580.600 | 1000.000 | 580.500 | 1100.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| X1 | 954.000 | 48.000 | 600.000 | 681.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 | |
| BT | 14.000 | 600.000 | 581.000 | 577.700 | 610.000 | 581.000 | 577.700 | 612.300 | 581.000 | [illegible] | |
| BT | 620.000 | 581.000 | 577.700 | 622.300 | 581.000 | 577.700 | 630.000 | 580.500 | 577.700 | [illegible] | |
| BT | 580.900 | 577.700 | 650.000 | 580.900 | 577.600 | 652.300 | 580.900 | 577.600 | 660.000 | [illegible] | |
| BT | 577.600 | 662.300 | 580.800 | 577.600 | 670.000 | 580.800 | 577.600 | 672.300 | 580.800 | [illegible] | |
| BT | 681.000 | 580.800 | 577.600 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| GR | 582.000 | 0.000 | 581.800 | 100.000 | 581.600 | 200.000 | 581.500 | 300.000 | 581.400 | [illegible] | |
| GR | 581.200 | 500.000 | 581.000 | 600.000 | 571.000 | 600.000 | 568.100 | 605.000 | 566.500 | [illegible] | |
| GR | 577.700 | 610.000 | 577.700 | 612.300 | 566.900 | 612.300 | 565.900 | 615.000 | 565.100 | 620.000 | |
| GR | 577.700 | 620.000 | 577.700 | 622.300 | 565.100 | 622.300 | 566.300 | 625.000 | 566.200 | 630.000 | |
| GR | 577.700 | 630.000 | 577.700 | 632.300 | 566.200 | 632.300 | 566.700 | 635.000 | 566.400 | 640.000 | |
| GR | 566.100 | 645.000 | 566.400 | 650.000 | 577.600 | 650.000 | 577.600 | 652.300 | 566.400 | 652.300 | |
| GR | 566.600 | 655.000 | 567.500 | 660.000 | 577.600 | 660.000 | 577.600 | 662.300 | 567.500 | 662.300 | |
| GR | 567.500 | 665.000 | 569.900 | 670.000 | 577.600 | 670.000 | 577.600 | 672.300 | 569.900 | 672.300 | |
| GR | 573.400 | 680.000 | 573.400 | 681.000 | 580.800 | 681.000 | 580.800 | 700.000 | 580.700 | 800.000 | |
| GR | 580.600 | 900.000 | 580.600 | 1000.000 | 580.500 | 1100.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| X1 | 985.000 | -0.000 | 600.000 | 681.000 | 30.500 | 30.500 | 30.500 | -0.000 | -0.000 | -0.000 | |
| X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | -0.000 | -0.000 | |
| X1 | 996.000 | 48.000 | 600.000 | 681.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 | |
| GR | 582.000 | 0.000 | 581.600 | 100.000 | 581.600 | 200.000 | 581.500 | 300.000 | 581.400 | 400.000 | |
| GR | 581.200 | 500.000 | 581.000 | 600.000 | 571.000 | 600.000 | 568.100 | 605.000 | 566.900 | 610.000 | |
| GR | 566.900 | 610.000 | 566.900 | 612.300 | 565.900 | 612.300 | 565.900 | 615.000 | 565.100 | 620.000 | |
| GR | 565.100 | 620.000 | 565.100 | 622.300 | 565.100 | 622.300 | 566.300 | 625.000 | 566.200 | 630.000 | |
| GR | 566.200 | 630.000 | 566.200 | 632.300 | 566.200 | 632.300 | 566.700 | 635.000 | 566.400 | 640.000 | |
| GR | 566.100 | 645.000 | 566.400 | 650.000 | 566.400 | 650.000 | 566.400 | 652.300 | 566.400 | 652.300 | |
| GR | 566.600 | 655.000 | 567.500 | 660.000 | 567.500 | 660.000 | 567.500 | 662.300 | 567.500 | 662.300 | |
| GR | 567.500 | 665.000 | 569.900 | 670.000 | 569.900 | 670.000 | 569.900 | 672.300 | 569.900 | 672.300 | |
| GR | 573.400 | 680.000 | 573.400 | 681.000 | 580.800 | 681.000 | 580.800 | 700.000 | 580.700 | 800.000 | |
| GR | 580.600 | 900.000 | 580.600 | 1000.000 | 580.500 | 1100.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| NC | .040 | .035 | .030 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| X1 | 1036.000 | 37.000 | 565.000 | 700.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 | |
| X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| GR | 581.900 | 0.000 | 581.200 | 100.000 | 581.200 | 200.000 | 580.900 | 300.000 | 581.000 | 400.000 | |
| GR | 579.900 | 500.000 | 581.100 | 565.000 | 575.400 | 547.000 | 574.900 | 590.000 | 573.900 | 595.000 | |
| GR | 572.500 | 600.000 | 571.000 | 605.000 | 569.800 | 610.000 | 568.800 | 615.000 | 568.000 | 620.000 | |
| GR | 567.400 | 625.000 | 566.600 | 630.000 | 566.300 | 635.000 | 566.200 | 640.000 | 566.300 | 650.000 | |
| GR | 566.800 | 660.000 | 568.300 | 670.000 | 570.200 | 675.000 | 570.400 | 680.000 | 571.700 | 685.000 | |
| GR | 573.100 | 690.000 | 574.800 | 695.000 | 574.900 | 695.000 | 577.700 | 700.000 | 577.500 | 800.000 | |
| GR | 576.600 | 900.000 | 576.600 | 1000.000 | 577.000 | 1040.000 | 576.900 | 1100.000 | 577.500 | 1200.000 | |
| GR | 578.300 | 1300.000 | 579.200 | 1345.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| NC | .060 | .035 | .030 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| X1 | 1716.000 | 40.000 | 374.000 | 492.500 | 700.000 | 700.000 | 700.000 | -0.000 | -0.000 | -0.000 | |
| X3 | 10.000 | -0.000 | -0.000 | 374.000 | -0.000 | 492.500 | -0.000 | -0.000 | -0.000 | -0.000 | |
| GR | 580.400 | 0.000 | 580.400 | 167.000 | 579.500 | 283.700 | 575.300 | 335.300 | 579.100 | 374.000 | |
| GR | 577.200 | 377.900 | 576.100 | 381.900 | 575.100 | 385.800 | 574.100 | 389.800 | 573.200 | 393.700 | |
| GR | 572.400 | 397.700 | 571.500 | 401.600 | 570.300 | 405.600 | 569.400 | 409.500 | 568.400 | 413.500 | |
| GR | 567.600 | 417.400 | 566.900 | 421.400 | 566.500 | 425.300 | 566.000 | 429.200 | 565.700 | 433.200 | |
| GR | 565.500 | 437.200 | 565.400 | 441.100 | 565.500 | 445.000 | 565.500 | 449.000 | 565.900 | 453.000 | |
| GR | 566.500 | 456.900 | 567.200 | 460.800 | 568.000 | 464.800 | 569.000 | 468.700 | 569.800 | 472.700 | |
| GR | 570.600 | 476.600 | 571.700 | 480.600 | 573.400 | 484.500 | 575.100 | 488.500 | 577.500 | 492.500 | |

Exh 6-17

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | X3 | -0.000 | -0.000 | -0.000 | 193.000 | -0.000 | 285.000 | -0.000 | -0.000 | | | |
| | GR | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| | GR | 573.500 | 190.000 | 572.200 | 195.000 | 571.100 | 200.000 | 570.200 | 205.000 | | | |
| | GR | 567.700 | 215.000 | 566.400 | 220.000 | 565.600 | 225.000 | 565.300 | 230.000 | | | |
| | GR | 564.600 | 240.000 | 564.900 | 245.000 | 565.200 | 250.000 | 566.400 | 255.000 | | | |
| | GR | 568.800 | 265.000 | 569.900 | 270.000 | 571.500 | 275.000 | 574.700 | 280.000 | | | |
| | GR | 577.400 | 285.000 | 577.300 | 385.000 | 578.200 | 485.000 | 577.700 | 557.000 | | | |
| | GR | 579.800 | 605.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | | | |
| | NC | .035 | .035 | .033 | .300 | .500 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | OT | 4.000 | 1500.000 | 1950.000 | 2100.000 | 2495.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | | | 578.47 | 579.26 | | | | | | | | |
| | X1 | A 2736.000 | 20.000 | 300.000 | 400.000 | 300.000 | 300.000 | 300.000 | -0.000 | -0.000 | -0.000 | |
| | X3 | -0.000 | -0.000 | -0.000 | 300.000 | -0.000 | 400.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 578.400 | 0.000 | 577.700 | 100.000 | 578.500 | 200.000 | 578.600 | 300.000 | 575.100 | 310.000 | |
| | GR | 573.400 | 315.000 | 572.200 | 320.000 | 570.600 | 325.000 | 570.000 | 330.000 | 569.900 | 335.000 | |
| | GR | 569.700 | 340.000 | 569.100 | 350.000 | 569.100 | 360.000 | 569.700 | 370.000 | 570.400 | 375.000 | |
| | GR | 571.700 | 380.000 | 572.900 | 385.000 | 574.400 | 390.000 | 575.100 | 392.000 | 578.600 | 400.000 | |
| | GR | 581.000 | 500.000 | 581.300 | 500.000 | 581.400 | 700.000 | 581.300 | 800.000 | 582.100 | 930.000 | |
| | GR | 583.200 | 1100.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | X1 | 3436.000 | -0.000 | -0.000 | -0.000 | 700.000 | 700.000 | 700.000 | -0.000 | 380 | -0.000 | |
| | X3 | 10.000 | -0.000 | -0.000 | 300.000 | -0.000 | 400.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | | | | 578.95 | 579.73 | | | | | | | |
| | X1 | B 3836.000 | 27.000 | 200.000 | 300.000 | 400.000 | 400.000 | 400.000 | -0.000 | -0.000 | -0.000 | |
| | X3 | -0.000 | -0.000 | -0.000 | 200.000 | -0.000 | 300.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 580.700 | 0.000 | 579.200 | 100.000 | 578.500 | 200.000 | 575.000 | 207.000 | 574.000 | 210.000 | |
| | GR | 573.000 | 215.000 | 572.600 | 220.000 | 571.900 | 225.000 | 571.000 | 230.000 | 570.400 | 235.000 | |
| | GR | 570.000 | 240.000 | 569.700 | 245.000 | 570.000 | 250.000 | 570.700 | 255.000 | 572.100 | 260.000 | |
| | GR | 573.400 | 265.000 | 573.700 | 270.000 | 575.000 | 275.000 | 575.400 | 278.000 | 579.800 | 290.000 | |
| | GR | 580.300 | 300.000 | 580.400 | 400.000 | 581.000 | 500.000 | 581.500 | 600.000 | 582.200 | 700.000 | |
| | GR | 581.800 | 800.000 | 581.900 | 884.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | X1 | 4311.000 | -0.000 | -0.000 | -0.000 | 475.000 | 475.000 | 475.000 | -0.000 | .200 | -0.000 | |
| | X3 | -0.000 | -0.000 | -0.000 | 200.000 | -0.000 | 300.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | | | | 579.69 | 580.17 | | | | | | | |
| | X1 | C 4786.000 | 29.000 | 393.000 | 500.000 | 475.000 | 475.000 | 475.000 | -0.000 | -0.000 | -0.000 | |
| | X3 | 10.000 | -0.000 | -0.000 | 394.000 | -0.000 | 500.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 582.100 | 0.000 | 581.200 | 100.000 | 580.000 | 200.000 | 581.100 | 212.000 | 580.300 | 300.000 | |
| | GR | 580.100 | 393.000 | 579.600 | 400.000 | 578.800 | 408.000 | 578.100 | 410.000 | 578.500 | 415.000 | |
| | GR | 573.200 | 420.000 | 572.700 | 425.000 | 571.800 | 430.000 | 570.800 | 435.000 | 570.500 | 440.000 | |
| | GR | 570.400 | 445.000 | 570.200 | 450.000 | 570.100 | 455.000 | 570.400 | 460.000 | 570.600 | 465.000 | |
| | GR | 571.400 | 470.000 | 572.600 | 475.000 | 573.700 | 480.000 | 574.400 | 483.000 | 579.200 | 489.000 | |
| | GR | 579.500 | 500.000 | 579.700 | 600.000 | 579.600 | 653.000 | 581.200 | 700.000 | -0.000 | -0.000 | |
| | X1 | 4825.000 | 37.000 | 500.000 | 593.000 | 19.000 | 38.000 | 38.000 | -0.000 | -0.000 | -0.000 | |
| | X3 | -0.000 | -0.000 | -0.000 | 500.000 | 585.000 | 594.000 | 585.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 581.900 | 0.000 | 582.000 | 20.000 | 581.800 | 100.000 | 581.300 | 200.000 | 581.100 | 300.000 | |
| | GR | 580.500 | 400.000 | 579.400 | 500.000 | 576.800 | 500.000 | 576.300 | 505.000 | 575.300 | 510.000 | |
| | GR | 574.800 | 515.000 | 573.600 | 520.000 | 572.400 | 525.000 | 572.000 | 530.000 | 571.600 | 535.000 | |
| | GR | 571.600 | 540.000 | 571.200 | 545.000 | 570.800 | 550.000 | 571.200 | 555.000 | 571.200 | 560.000 | |
| | GR | 571.100 | 565.000 | 571.200 | 570.000 | 571.700 | 575.000 | 572.300 | 580.000 | 573.200 | 585.000 | |
| | GR | 574.000 | 590.000 | 574.300 | 595.000 | 574.300 | 598.000 | 579.600 | 598.000 | 579.700 | 600.000 | |
| | GR | 579.600 | 700.000 | 579.700 | 751.000 | 579.600 | 800.000 | 580.100 | 900.000 | 580.400 | 1000.000 | |
| | GR | 580.900 | 1100.000 | 581.200 | 1200.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | SB | -0.000 | 1.300 | 2.500 | -0.000 | 51.700 | -0.000 | 338.000 | 3.170 | 370.800 | 570.800 | |
| | | | | 579.83 | 580.50 | | | | | | | |
| | X1 | D 4866.000 | -0.000 | -0.000 | -0.000 | 21.000 | 21.000 | 21.000 | -0.000 | -0.000 | -0.000 | |
| | X2 | -0.000 | -0.000 | 1.000 | 578.300 | 579.400 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | X3 | -0.000 | -0.000 | -0.000 | 500.000 | 585.000 | 594.000 | 585.000 | -0.000 | -0.000 | -0.000 | |
| | BT | 16.000 | 0.000 | 581.900 | 0.000 | 20.000 | 582.000 | 0.000 | 100.000 | 581.800 | 0.000 | |
| | BT | 200.000 | 581.300 | 0.000 | 300.000 | 581.100 | 0.000 | 400.000 | 580.500 | 0.000 | 500.000 | |
| | BT | 579.400 | 579.200 | 598.000 | 579.600 | 578.300 | 600.000 | 579.700 | 0.000 | 700.000 | 579.600 | |
| | BT | 0.000 | 751.000 | 579.700 | 0.000 | 800.000 | 579.600 | 0.000 | 900.000 | 580.100 | 0.000 | |
| | BT | 1000.000 | 580.400 | 0.000 | 1100.000 | 580.900 | 0.000 | 1200.000 | 581.200 | 0.000 | -0.000 | |
| | X1 | 4947.000 | -0.000 | -0.000 | -0.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 | |
| | X3 | -0.000 | -0.000 | -0.000 | 500.000 | 585.000 | 598.000 | 585.000 | -0.000 | -0.000 | -0.000 | |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [redacted] | X1 | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| | X3 | -0.000 | -0.000 | -0.000 | 500.000 | 585.000 | 598.000 | 585.000 | -0.000 | -0.000 | |
| | X1 | 5436.000 | 34.000 | 494.000 | 594.000 | 589.000 | 539.000 | 589.000 | -0.000 | -0.000 | |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 579.740 | 0.000 | 578.940 | 94.000 | 579.740 | 194.000 | 580.140 | 212.000 | 580.200 | 250.000 |
| | GR | 581.940 | 394.000 | 580.840 | 494.000 | 574.740 | 506.000 | 574.240 | 508.000 | 573.900 | 600.000 |
| | GR | 573.240 | 514.000 | 572.840 | 519.000 | 571.840 | 524.000 | 571.140 | 529.000 | 570.500 | 544.000 |
| | GR | 570.640 | 539.000 | 570.840 | 544.000 | 571.840 | 549.000 | 572.940 | 554.000 | 573.100 | 559.000 |
| | GR | 573.440 | 564.000 | 573.740 | 569.000 | 574.240 | 574.000 | 574.740 | 576.000 | 581.100 | 594.000 |
| | GR | 580.740 | 658.000 | 580.840 | 694.000 | 581.340 | 794.000 | 581.940 | 894.000 | 582.340 | 994.000 |
| | GR | 582.940 | 1094.000 | 583.240 | 1194.000 | 582.940 | 1294.000 | 582.640 | 1349.000 | -0.000 | -0.000 |
| E | X1 | 5936.000 | 34.000 | 580.435 494.000 | 581.05 594.000 | 500.000 | 500.000 | 500.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | 400.000 | -0.000 | 600.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 579.600 | 0.000 | 578.800 | 94.000 | 579.600 | 194.000 | 580.000 | 212.000 | 580.200 | 250.000 |
| | GR | 581.800 | 394.000 | 580.700 | 494.000 | 574.600 | 506.000 | 574.200 | 508.000 | 573.900 | 600.000 |
| | GR | 573.100 | 514.000 | 572.700 | 519.000 | 571.700 | 524.000 | 571.000 | 529.000 | 570.500 | 544.000 |
| | GR | 570.500 | 539.000 | 570.700 | 544.000 | 571.700 | 549.000 | 572.800 | 554.000 | 573.100 | 559.000 |
| | GR | 573.300 | 564.000 | 573.600 | 569.000 | 574.100 | 574.000 | 574.600 | 576.000 | 581.000 | 594.000 |
| | GR | 580.600 | 658.000 | 580.700 | 694.000 | 581.200 | 794.000 | 581.800 | 894.000 | 582.300 | 994.000 |
| | GR | 582.800 | 1094.000 | 583.100 | 1194.000 | 582.800 | 1294.000 | 582.500 | 1349.000 | -0.000 | -0.000 |
| | X1 | 6416.000 | 28.000 | 560.000 | 650.000 | 480.000 | 480.000 | 480.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 581.430 | 0.000 | 581.930 | 50.000 | 581.530 | 160.000 | 581.330 | 260.000 | 581.630 | 360.000 |
| | GR | 581.930 | 460.000 | 581.930 | 550.000 | 581.130 | 577.000 | 574.830 | 592.000 | 573.230 | 593.000 |
| | GR | 572.230 | 595.000 | 570.930 | 600.000 | 570.330 | 605.000 | 570.830 | 610.000 | 571.030 | 615.000 |
| | GR | 572.430 | 620.000 | 572.930 | 625.000 | 573.130 | 630.000 | 573.430 | 635.000 | 574.130 | 640.000 |
| | GR | 574.230 | 642.000 | 574.830 | 644.000 | 581.930 | 660.000 | 581.230 | 716.000 | 582.230 | 760.000 |
| | GR | 581.930 | 860.000 | 582.830 | 950.000 | 581.730 | 1010.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| F | X1 | 6786.000 | 28.000 | 580.88 560.000 | 581.64 650.000 | 470.000 | 470.000 | 470.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 581.300 | 0.000 | 581.800 | 50.000 | 581.400 | 150.000 | 581.200 | 260.000 | 581.500 | 360.000 |
| | GR | 581.800 | 460.000 | 581.800 | 550.000 | 581.000 | 577.000 | 574.700 | 592.000 | 573.100 | 593.000 |
| | GR | 572.100 | 595.000 | 570.800 | 600.000 | 570.200 | 605.000 | 570.700 | 610.000 | 571.700 | 615.000 |
| | GR | 572.300 | 620.000 | 572.400 | 625.000 | 573.000 | 630.000 | 573.300 | 635.000 | 574.000 | 640.000 |
| | GR | 574.100 | 642.000 | 574.700 | 644.000 | 581.400 | 650.000 | 581.100 | 716.000 | 582.100 | 760.000 |
| | GR | 581.800 | 860.000 | 581.900 | 950.000 | 581.500 | 1010.000 | -0.100 | -0.000 | -0.000 | -0.000 |
| | X1 | 6835.000 | -0.000 | -0.000 | -0.000 | 49.000 | 49.000 | 49.000 | -0.000 | 1.370 | -0.000 |
| | NC | -0.000 | -0.000 | .023 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X1 | 6836.000 | 40.000 | 900.000 | 73.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | GR | 582.000 | 0.000 | 582.900 | 100.000 | 582.800 | 200.000 | 582.000 | 300.000 | 581.700 | 400.000 |
| | GR | 581.300 | 500.000 | 580.700 | 600.000 | 580.900 | 700.000 | 581.400 | 800.000 | 582.000 | 900.000 |
| | GR | 574.400 | 900.000 | 574.000 | 905.000 | 573.200 | 910.000 | 572.200 | 915.000 | 572.600 | 920.000 |
| | GR | 571.600 | 925.000 | 572.100 | 930.000 | 573.500 | 935.000 | 578.200 | 935.000 | 578.200 | 938.000 |
| | GR | 573.600 | 939.000 | 573.800 | 940.000 | 573.400 | 945.000 | 572.200 | 950.000 | 572.000 | 955.000 |
| | GR | 572.700 | 960.000 | 573.600 | 965.000 | 574.500 | 970.000 | 574.700 | 973.000 | 582.000 | 973.000 |
| | GR | 582.000 | 976.000 | 581.600 | 1000.000 | 581.200 | 1100.000 | 581.000 | 1200.000 | 580.900 | 1300.000 |
| | GR | 581.500 | 1400.000 | 582.000 | 1500.000 | 582.600 | 1400.000 | 582.800 | 1700.000 | 583.000 | 1807.000 |
| | SB | .900 | 1.500 | 2.900 | -0.000 | 73.000 | 2.500 | 385.100 | -0.000 | 571.600 | 571.600 |
| G | X1 | 6916.000 | -0.000 | 581.57 -0.000 | 582.60 -0.000 | 80.000 | 80.000 | 80.000 | -0.000 | -0.000 | -0.000 |
| | X2 | -0.000 | -0.000 | 1.000 | 578.300 | 583.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 583.000 | 583.000 | -0.000 |
| | BT | 23.000 | 0.000 | 582.000 | 0.000 | 100.000 | 582.900 | 0.000 | 200.000 | 582.800 | 0.000 |
| | BT | 300.000 | 582.000 | 0.000 | 400.000 | 581.700 | 0.000 | 500.000 | 581.300 | 0.000 | 600.000 |
| | BT | 580.700 | 0.000 | 700.000 | 580.900 | 0.000 | 800.000 | 581.400 | 0.000 | 900.000 | 582.000 |
| | BT | 578.300 | 935.000 | 582.000 | 578.200 | 938.000 | 582.000 | 578.200 | 973.000 | 582.000 | 578.200 |
| | BT | 976.000 | 582.000 | 0.000 | 1000.000 | 581.600 | 0.000 | 1100.000 | 581.200 | 0.000 | 1200.000 |

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7 of 41

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [redacted] | X1 | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| | X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | | | |
| | GR | 581.300 | 0.000 | 581.800 | 50.000 | 581.400 | 1[illegible]0.000 | [illegible] | [illegible] | | | |
| | GR | 581.800 | 460.000 | 581.800 | 560.000 | 581.000 | 577.000 | [illegible] | [illegible] | | | |
| | GR | 572.100 | 595.000 | 570.800 | 600.000 | 570.200 | 605.000 | 570.700 | 610.000 | 571.[illegible] | | |
| | GR | 572.300 | 620.000 | 572.800 | 625.000 | 573.000 | 630.000 | 573.300 | 635.000 | 574.000 | | |
| | GR | 574.100 | 642.000 | 574.700 | 644.000 | 581.800 | 660.000 | 581.100 | 716.000 | 582.100 | | |
| | GR | 581.800 | 860.000 | 581.900 | 960.000 | 581.600 | 1010.000 | -0.000 | -0.000 | -0.000 | | |
| | X1 | 7436.000 | -0.000 | -0.000 | -0.000 | 519.000 | 519.000 | 519.000 | -0.000 | [illegible] | | |
| | X3 | 10.000 | -0.000 | -0.000 | 560.000 | -0.000 | 660.000 | -0.000 | -0.000 | -0.000 | | |
| | X1 H | 7936.000 | 22.000 | 436.000 | 516.000 | 500.000 | 500.000 | 500.000 | -0.000 | -0.000 | -0.000 | |
| | X3 | 10.000 | -0.000 | -0.000 | 436.000 | -0.000 | 516.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 581.800 | 0.000 | 581.700 | 116.000 | 581.100 | 216.000 | 580.900 | 316.000 | 582.500 | [illegible] | |
| | GR | 582.600 | 436.000 | 574.900 | 453.000 | 573.800 | 456.000 | 572.400 | 461.000 | 571.[illegible] | [illegible] | |
| | GR | 571.200 | 471.000 | 570.800 | 475.000 | 571.000 | 481.000 | 571.500 | 486.000 | 572.300 | 491.000 | |
| | GR | 573.700 | 494.000 | 574.900 | 495.000 | 583.100 | 516.000 | 582.800 | 616.000 | 582.200 | 716.000 | |
| | GR | 582.200 | 866.000 | 581.700 | 891.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | X1 | 8536.000 | 40.000 | 305.500 | 483.000 | 600.000 | 600.000 | 600.000 | -0.000 | -0.000 | -0.000 | |
| | X3 | 10.000 | -0.000 | -0.000 | 150.000 | -0.000 | 400.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 583.000 | 0.000 | 582.400 | 100.000 | 581.600 | 221.200 | 581.800 | 280.000 | 581.200 | 305.400 | |
| | GR | 580.300 | 308.000 | 579.000 | 310.600 | 577.600 | 313.200 | 576.600 | 315.800 | 575.900 | 318.400 | |
| | GR | 575.200 | 320.900 | 574.600 | 323.500 | 573.900 | 326.100 | 573.300 | 328.700 | 572.900 | 331.300 | |
| | GR | 572.100 | 333.900 | 571.400 | 336.400 | 571.100 | 339.000 | 570.900 | 341.600 | 570.900 | 344.200 | |
| | GR | 571.100 | 346.800 | 571.300 | 349.400 | 571.500 | 351.900 | 572.200 | 354.500 | 572.800 | 357.100 | |
| | GR | 573.300 | 359.700 | 574.300 | 362.300 | 575.100 | 364.900 | 575.700 | 367.400 | 576.400 | 370.000 | |
| | GR | 577.200 | 372.600 | 578.400 | 375.200 | 579.600 | 377.800 | 580.800 | 380.400 | 582.100 | 383.000 | |
| | GR | 582.000 | 400.000 | 581.000 | 430.000 | 581.000 | 598.000 | 581.900 | 705.000 | 582.400 | 813.000 | |
| | X1 I | 9136.000 | 24.000 | 175.000 | 250.000 | 500.000 | 500.100 | 500.000 | -0.000 | -0.000 | -0.000 | |
| | X3 | -0.000 | -0.000 | -0.000 | 140.100 | -0.000 | 510.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 584.300 | 0.000 | 583.800 | 40.000 | 582.200 | 140.000 | 580.900 | 175.000 | 575.500 | 184.000 | |
| | GR | 574.900 | 194.000 | 574.500 | 135.000 | 573.600 | 200.000 | 571.300 | 205.000 | 570.900 | 210.000 | |
| | GR | 571.300 | 215.000 | 572.000 | 220.000 | 573.600 | 225.000 | 574.300 | 30.000 | 574.700 | 235.000 | |
| | GR | 574.900 | 237.000 | 575.500 | 240.000 | 581.100 | 250.000 | 581.200 | 350.000 | 581.000 | 376.000 | |
| | GR | 590.900 | 450.000 | 591.300 | 550.000 | 581.700 | 650.000 | 583.200 | 735.000 | -0.000 | -0.000 | |
| | X1 | 9586.000 | 24.000 | 175.000 | 250.000 | 450.000 | 450.000 | 450.000 | -0.000 | .035 | -0.000 | |
| | X3 | -0.000 | -0.000 | -0.000 | 50.000 | -0.000 | 250.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 584.300 | 0.000 | 583.800 | 40.000 | 582.200 | 140.000 | 580.800 | 175.000 | 575.500 | 184.000 | |
| | GR | 574.900 | 194.000 | 574.500 | 135.000 | 573.600 | 200.000 | 571.300 | 205.000 | 570.900 | 210.000 | |
| | GR | 571.300 | 215.000 | 572.000 | 220.000 | 573.600 | 225.000 | 574.300 | 230.000 | 574.700 | 235.000 | |
| | GR | 574.900 | 237.000 | 575.500 | 240.000 | 581.100 | 250.000 | 581.200 | 350.000 | 581.000 | 376.000 | |
| | GR | 590.900 | 450.000 | 591.300 | 550.000 | 581.700 | 650.000 | 583.200 | 735.000 | -0.000 | -0.000 | |
| | X1 | 9596.000 | 20.000 | 345.000 | 445.000 | 10.000 | 10.000 | 10.000 | -0.000 | .030 | -0.000 | |
| | X3 | -0.000 | -0.000 | -0.000 | 245.000 | -0.000 | 445.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 583.950 | 0.000 | 581.850 | 45.000 | 580.950 | 145.000 | 580.850 | 245.000 | 581.850 | 345.000 | |
| | GR | 579.950 | 385.000 | 575.750 | 399.000 | 574.950 | 407.000 | 574.250 | 410.000 | 573.050 | 415.000 | |
| | GR | 572.750 | 420.000 | 572.950 | 425.000 | 571.650 | 430.000 | 570.950 | 435.000 | 573.050 | 440.000 | |
| | GR | 574.650 | 445.000 | 583.450 | 445.000 | 580.250 | 440.000 | 581.250 | 545.000 | 582.450 | 645.000 | |
| | X1 J | 10286.000 | 20.000 | 345.000 | 445.000 | 650.000 | 650.000 | 650.000 | -0.000 | -0.000 | -0.000 | |
| | X3 | -0.000 | -0.000 | -0.000 | 245.000 | -0.000 | 445.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 584.000 | 0.000 | 581.400 | 45.000 | 581.000 | 145.000 | 580.900 | 245.000 | 581.900 | 345.000 | |
| | GR | 580.000 | 385.000 | 575.800 | 399.000 | 575.000 | 407.000 | 574.300 | 410.000 | 573.100 | 415.000 | |
| | GR | 572.800 | 420.000 | 573.000 | 425.000 | 571.700 | 430.000 | 571.000 | 435.000 | 571.500 | 440.000 | |
| | GR | 574.700 | 445.000 | 583.500 | 445.000 | 580.300 | 440.000 | 581.300 | 545.000 | 582.500 | 645.000 | |
| | X1 K | 10336.000 | 22.000 | 400.000 | 445.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 | |
| | X3 | -0.000 | -0.000 | -0.000 | 350.000 | -0.000 | 445.000 | -0.000 | -0.000 | -0.000 | -0.000 | |
| | GR | 583.100 | 0.000 | 581.300 | 100.000 | 580.900 | 200.000 | 580.200 | 300.000 | 579.800 | 400.000 | |
| | GR | 573.000 | 401.000 | 573.000 | 405.000 | 573.000 | 410.000 | 573.000 | 415.000 | 573.000 | 420.000 | |
| | GR | 572.500 | 430.000 | 572.600 | 435.000 | 574.700 | 440.000 | 574.800 | 444.000 | 590.000 | [illegible] | |
| | GR | 580.500 | 500.000 | 581.300 | 600.000 | 582.300 | 700.000 | 582.700 | 800.000 | 583.000 | 900.000 | |

582.28 582.1

582.86 583.74

583.36 584.26

583.34 584.23

Exhibit 1
8 of 41

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | 0.000 | 591.300 | 100.000 | 590.900 | 200.000 | 580.200 | 300.000 | [illegible] | [illegible] |
| GR | 573.000 | 401.000 | 573.000 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | [illegible] | [illegible] | [illegible] | [illegible] | 573.700 | 440.000 | 574.800 | 444.000 | [illegible] | [illegible] |
| GR | 580.500 | 500.000 | 581.300 | 600.000 | 582.300 | 700.000 | 582.700 | 00.000 | [illegible] | [illegible] |
| GR | 583.000 | 908.000 | 584.200 | 960.000 | -0.000 | -0.000 | -0.000 | -0.000 | [illegible] | [illegible] |

start, SEC 583.53 584.43

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10636.000 | 27.000 | 655.000 | 855.000 | 300.000 | 300.000 | 300.000 | -0.000 | [illegible] | [illegible] |
| X3 | 10.000 | -0.000 | -0.000 | 655.000 | -0.000 | 800.000 | -0.000 | -0.000 | [illegible] | [illegible] |
| GR | 582.670 | 0.000 | 582.670 | 55.000 | 584.370 | 155.000 | 585.670 | 255.000 | [illegible] | [illegible] |
| GR | 586.270 | 455.000 | 585.470 | 555.000 | 584.570 | 655.000 | 583.370 | 677.000 | [illegible] | [illegible] |
| GR | 573.770 | 700.000 | 573.070 | 705.000 | 572.470 | 710.000 | 572.470 | 715.000 | [illegible] | [illegible] |
| GR | 574.570 | 725.000 | 575.070 | 727.000 | 575.970 | 738.000 | 582.670 | 755.000 | [illegible] | [illegible] |
| GR | 583.270 | 955.000 | 583.670 | 1055.000 | 583.970 | 1068.000 | 583.570 | 1155.000 | [illegible] | [illegible] |
| GR | 583.070 | 1355.000 | 583.070 | 1455.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |

670
710 7 ℄
715
830
860 7

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 11536.000 | 27.000 | 655.000 | 855.000 | 900.000 | 900.000 | 900.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 655.000 | -0.000 | 855.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 582.600 | 0.000 | 582.600 | 55.000 | 584.300 | 155.000 | 585.600 | 255.000 | 586.000 | 355.000 |
| GR | 586.200 | 455.000 | 585.400 | 555.000 | 584.500 | 655.000 | 583.300 | 677.000 | 574.800 | [illegible] |
| GR | 573.700 | 700.000 | 573.000 | 705.000 | 572.400 | 710.000 | 572.400 | 715.000 | 573.600 | 720.000 |
| GR | 574.500 | 725.000 | 575.000 | 727.000 | 575.900 | 738.000 | 582.600 | 755.000 | 583.800 | 855.000 |
| GR | 583.200 | 955.000 | 583.600 | 1055.000 | 583.900 | 1068.000 | 583.500 | 1155.000 | 583.300 | 1255.000 |
| GR | 583.000 | 1355.000 | 583.000 | 1455.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| EJ | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |

710
112 2

Exhibit 17
9 of 41

CCHV= .300 CEHV= .500

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 1.00 | 11.50 | 574.90 | 0.00 | 574.90 | 575.22 | .32 | 0.00 | 0.00 | 584.60 |
| 3165. | 0. | 3165. | 0. | 0. | 701. | 0. | 0. | 0. | 584.60 |
| 0.00 | 0.00 | 4.51 | 0.00 | .035 | .030 | .035 | 0.000 | 563.40 | 529.17 |
| .000601 | -0. | -0. | -0. | 0 | 0 | 1 | 0.00 | 89.83 | 619.00 |
| 30.00 | 11.52 | 574.92 | 0.00 | 0.00 | 575.23 | .31 | .02 | .00 | 584.60 |
| 3165. | 0. | 3165. | 0. | 0. | 703. | 0. | 0. | 0. | 584.60 |
| .00 | 0.00 | 4.50 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 529.02 |
| .000598 | 29. | 29. | 29. | 0 | 0 | 1 | 0.00 | 89.98 | 619.00 |
| 60.00 | 11.54 | 574.94 | 0.00 | 0.00 | 575.25 | .31 | .02 | .00 | 584.60 |
| 3165. | 0. | 3165. | 0. | 0. | 705. | 0. | 1. | 0. | 584.60 |
| .00 | 0.00 | 4.49 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 528.87 |
| .000595 | 30. | 30. | 30. | 0 | 0 | 1 | 0.00 | 90.13 | 619.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 584.30 MAX ELLC= 5[illegible].40

D/S FACE OF JEFFERSON STREET BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 61.00 | 11.51 | 574.91 | 0.00 | 0.00 | 575.25 | .38 | .09 | .03 | 584.60 |
| 3165. | 0. | 3165. | 0. | 0. | 744. | 1. | 1. | 0. | 584.60 |
| .00 | 0.00 | 4.92 | 0.00 | .035 | .040 | .035 | .029 | 563.40 | 529.09 |
| .001042 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 42.91 | 619.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 584.30 MAX ELLC= 580.40

U/S FACE OF JEFFERSON STREET BRIDGE SEC. A

CONCRETE TWO SPAN BRIDGE

CONCRETE RAILING, TWO PIERS, 75 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 136.00 | 11.60 | 575.00 | 0.00 | 0.00 | 575.37 | .37 | .08 | .00 | 584.60 |
| 3165. | 0. | 3165. | 0. | 0. | 851. | 0. | 2. | 0. | 584.60 |
| .01 | 0.00 | 4.86 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 528.33 |
| .001054 | 75. | 75. | 75. | 2 | 0 | 1 | 0.00 | 83.67 | 619.00 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

Exhibit 7
10 of 41

| Q | QLOB | QCH | QROB | ALOB | ACH | AHOB | VOL | OLOSS | BANK ELEV LEFT/RIGHT |
|---|---|---|---|---|---|---|---|---|---|
| TI | | | OB | NL | XNC | XN | | TWA | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | SMDST |
| 137.00 | 11.69 | 575.09 | 0.00 | 0.00 | 575.39 | .30 | .00 | .02 | 584.40 |
| 3165. | 0. | 3165. | 0. | 0. | 718. | 0. | 2. | 0. | 574.60 |
| .01 | 0.00 | 4.41 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 527.62 |
| .000569 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 91.38 | 610.00 |

50 FEET U/S OF JEFFERSON STREET BRIDGE SEC. 8

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 187.00 | 10.99 | 575.09 | 0.00 | 0.00 | 575.44 | .34 | .03 | .02 | 583.10 |
| 3165. | 0. | 3165. | 0. | 0. | 672. | 0. | 3. | 0. | 580.20 |
| .01 | 0.00 | 4.71 | 0.00 | .035 | .030 | .042 | .029 | 564.10 | 343.54 |
| .000652 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 88.95 | 432.49 |

1490 NH CARD USED

EFFECTED SECTION OF 747

DOCKS ON RIGHT BANK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 362.00 | 11.41 | 575.39 | 0.00 | 0.00 | 575.56 | .17 | .01 | .05 | 578.57 |
| 3165. | 0. | 3165. | 0. | 0. | 911. | 1. | 6. | 1. | 577.17 |
| .03 | 0.00 | 4.47 | 0.00 | .035 | .031 | .042 | .029 | 564.97 | 252.63 |
| .000321 | 175. | 175. | 175. | 2 | 0 | 1 | 0.00 | 143.47 | 396.10 |

3470 ENCROACHMENT STATIONS= 244.0 373.0 TYPE= 1 IA OPT= 139.000

50 FEET D/S OF RAILROAD BRIDGE NO. 1 SEC. 7

ENCROACHED FOR EXPANSION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 737.00 | 11.79 | 575.45 | 0.00 | 0.00 | 575.74 | .29 | .11 | .01 | 574.30 |
| 3165. | 0. | 3165. | 0. | 0. | 912. | 0. | 14. | 2. | 100000.00 |
| .06 | 0.00 | 3.47 | 0.00 | .035 | .030 | .042 | .030 | 563.70 | 251.60 |
| .000282 | 375. | 375. | 375. | 2 | 0 | 1 | 0.00 | 121.40 | 373.00 |
| 787.00 | 11.57 | 575.47 | 0.00 | 0.00 | 575.74 | .26 | .02 | .04 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 769. | 0. | 15. | 2. | 581.00 |
| .06 | 0.00 | 4.12 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .000624 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 106.60 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.29

D/S FACE OF RAILROAD BRIDGE NO. 1

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 788.00 | 11.54 | 575.44 | 0.00 | 0.00 | 575.77 | .33 | .00 | .03 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 691. | 0. | 1. | 2. | 581.00 |
| .06 | 0.00 | 4.58 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .002401 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 97.00 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.20

U/S FACE OF RAILROAD BRIDGE NO. 1 SEC. D

STEEL I-BEAM BRIDGE WITH 2-STEEL BENT PIERS

9 FEET WIDE, 7 OLD BENT PILES-CUTOFF

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 797.00 | 11.56 | 575.46 | 0.00 | 0.00 | 575.79 | .32 | .02 | .00 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 692. | 0. | 15. | 2. | 581.00 |
| .06 | 0.00 | 4.57 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .002389 | 9. | 9. | 9. | 0 | 0 | 1 | 0.00 | 97.00 | 901.60 |

| SECNO | DEPTH | CUSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNP | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |
| 798.00 | 11.65 | 575.55 | 0.00 | 0.00 | 575.81 | .26 | .00 | .02 | 581.00 |
| 3165. | 0. | 3165. | 0. | 0. | 777. | 0. | 15. | 2. | 581.00 |
| .06 | 0.00 | 4.07 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .000602 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 106.60 | 901.60 |
| 844.00 | 10.58 | 575.58 | 0.00 | 0.00 | 575.84 | .26 | .03 | .00 | 581.50 |
| 3165. | 0. | 3165. | 0. | 0. | 780. | 0. | 16. | 2. | 581.40 |
| .06 | 0.00 | 4.06 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 816.36 |
| .000559 | 46. | 46. | 46. | 2 | 0 | 1 | 0.00 | 105.39 | 921.75 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=16 MIN ELTRD= 581.40 MAX ELLC= 578.40

D/S FACE OF RAILROAD BRIDGE NO. 2

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 845.00 | 10.56 | 575.56 | 0.00 | 0.00 | 575.86 | .30 | .00 | .02 | 581.50 |
| 3165. | 0. | 3165. | 0. | 0. | 719. | 0. | 16. | 2. | 581.40 |
| .06 | 0.00 | 4.40 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 816.42 |
| .001856 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 98.26 | 921.67 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=16 MIN ELTRD= 581.40 MAX ELLC= 578.40

U/S FACE OF RAILROAD BRIDGE NO. 2 SEC. F

WOOD BRIDGE WITH BALLAST AND TIE DECK

14.5 FEET WIDE, 7 BENT PIERS OF WOOD

Exhibit 1
12 of 91

[redacted]S F[redacted]IDE[redacted]ENT[redacted]RS [redacted]OD [redacted]

14.5 FEET WIDE, 7 BENT PIERS OF WOOD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 859.00 | 10.59 | 575.59 | 0.00 | 0.00 | 575.89 | .30 | .03 | .00 | 581.50 |
| 3165. | 0. | 3165. | 0. | 0. | 721. | 0. | 16. | 2. | 581.40 |
| .06 | 0.00 | 4.39 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 816.36 |
| .001842 | 15. | 15. | 15. | 1 | 0 | 1 | 0.00 | 98.40 | 921.76 |
| | | | | | | | | | |
| 860.00 | 10.65 | 575.65 | 0.00 | 0.00 | 575.90 | .25 | .00 | .01 | 581.50 |
| 3165. | 0. | 3165. | 0. | 0. | 788. | 0. | 16. | 2. | 581.40 |
| .06 | 0.00 | 4.02 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 816.17 |
| .000544 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 105.84 | 922.01 |
| | | | | | | | | | |
| 910.00 | 11.70 | 575.70 | 0.00 | 0.00 | 575.94 | .23 | .03 | .01 | 583.10 |
| 3165. | 0. | 3165. | 0. | 0. | 817. | 0. | 17. | 2. | 583.00 |
| .07 | 0.00 | 3.88 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .000501 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 107.00 | 942.00 |

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | FW | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WIN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDSTA |

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 583.00 MA ELLC= 578.60

D/S FACE OF RAILROAD BRIDGE NO. 4

D/S FACE OF RAILROAD BRIDGE NO. 3

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 911.00 | 11.68 | 575.68 | 0.00 | 0.00 | 575.96 | .29 | .00 | .03 | 583.10 |
| 3165. | 0. | 3165. | 0. | 0. | 735. | 0. | 17. | 2. | 583.00 |
| .07 | 0.00 | 4.31 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .002246 | 1. | 1. | 1. | 2 | 3 | 1 | 0.00 | 105.60 | 942.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 583.00 MAX ELLC= 578.60

U/S FACE OF RAILROAD BRIDGE NO. 4 SEC. F

STEEL I-BEAM BRIDGE WITH 2 STEEL PIERS

10 FEET WIDE, 8 SETS OF OLD PIER BENTS-CUTOFF

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 921.00 | 11.70 | 575.70 | 0.00 | 0.00 | 575.90 | .29 | .02 | .00 | 583.10 |

3470 ENCROACHMENT STATIONS= 200.0 300.0 TYPE= 1 TARGET= 100.000

919 FEET D/S OF MILL STREET BRIDGE SEC. B

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3836.00 | 7.91 | 577.61 | 0.00 | 0.00 | 577.82 | .21 | .23 | .04 | 578.50 |
| 1500. | 0. | 1500. | 0. | 0. | 409. | 0. | 62. | 9. | 100000.00 |
| .30 | 0.00 | 3.66 | 0.00 | .035 | .033 | .035 | .031 | 569.70 | 201.79 |
| .000805 | 400. | 400. | 400. | 2 | 0 | 1 | 0.00 | 82.23 | 284.02 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | OWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | APOB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 200.0 290.0 TYPE= 1 TARGET= 90.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4311.00 | 8.09 | 577.99 | 0.00 | 0.00 | 578.18 | .19 | .36 | .00 | 578.70 |
| 1500. | 0. | 1500. | 0. | 0. | 424. | 0. | 66. | 10. | 100000.00 |
| .34 | 0.00 | 3.53 | 0.00 | .035 | .033 | .035 | .031 | 569.90 | 201.42 |
| .000724 | 475. | 475. | 475. | 2 | 0 | 1 | 0.00 | 83.09 | 284.51 |

3470 ENCROACHMENT STATIONS= 393.0 500.0 TYPE= 1 TARGET= 107.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.10 ELREA= 100000.00

39 FEET D/S OF MILL STREET BRIDGE SEC. C

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4786.00 | 8.22 | 578.32 | 0.00 | 0.00 | 578.46 | .13 | .25 | .02 | 580.10 |
| 1500. | 0. | 1500. | 0. | 0. | 515. | 0. | 71. | 11. | 100000.00 |
| .38 | 0.00 | 2.91 | 0.00 | .035 | .033 | .035 | .031 | 570.10 | 400.58 |
| .000411 | 475. | 475. | 475. | 2 | 0 | 1 | 0.00 | 87.32 | 487.90 |

3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000
ELENCL= 585.00 ELENCR= 585.00

D/S FACE OF MILL STREET BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4825.00 | 7.56 | 578.36 | 0.00 | 0.00 | 578.48 | .12 | .02 | .00 | 579.40 |
| 1500. | 0. | 1500. | 0. | 0. | 548. | 0. | 72. | 11. | 585.00 |
| .39 | 0.00 | 2.74 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 |
| .000405 | 39. | 39. | 39. | 1 | 0 | 1 | 0.00 | 95.00 | 548.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.30 | 2.50 | 0.00 | 51.70 | 0.00 | 538.00 | 3.17 | 570.80 | 570.80 |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 578.52 | 578.48 | 0.00 | 0. | 1500. | 538. | 578.30 | 579.40 | 10.00 |

TIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000

578.52 578.48 0.00 0. 1500. 538. 578.30 579.40 10.00

3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000
ELENCL= 585.00 ELENCR= 585.00

U/S FACE OF MILL STREET BRIDGE SEC. D

STEEL TRUSS BRIDGE, SINGLE SPAN

9.5 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4846.00 | 7.60 | 578.40 | 0.00 | 0.00 | 578.52 | .11 | .04 | 0.00 | 579.40 |
| 1500. | 0. | 1500. | 0. | 0. | 553. | 0. | 72. | 11. | 585.00 |
| .39 | 0.00 | 2.71 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 |
| .000394 | 21. | 21. | 21. | 2 | 0 | 1 | 0.00 | 98.00 | 598.00 |

3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000
ELENCL= 585.00 ELENCR= 585.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4847.00 | 7.60 | 578.40 | 0.00 | 0.00 | 578.52 | .11 | .00 | .00 | 579.40 |
| 1500. | 0. | 1500. | 0. | 0. | 553. | 0. | 72. | 11. | 585.00 |
| .39 | 0.00 | 2.71 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 |
| .000393 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 98.00 | 598.00 |

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 580.84 ELREA= 581.14

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5436.00 | 8.02 | 578.66 | 0.00 | 0.00 | 578.82 | .16 | .24 | .02 | 580.84 |
| 1500. | 0. | 1500. | 0. | 0. | 468. | 0. | 79. | 12. | 581.14 |
| .44 | 0.00 | 3.21 | 0.00 | .035 | .033 | .035 | .032 | 570.64 | 499.30 |
| .000572 | 589. | 589. | 589. | 2 | 0 | 1 | 0.00 | 88.72 | 587.02 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CHINS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TRA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | ANL | XNCH | ANR | ATA | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | INITIAL | IDC | ICONT | CONAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 400.0 600.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 580.70 ELREA= 581.00

1090 FEET U/S OF MILL STREET BRIDGE SEC. E

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5936.00 | 8.44 | 578.94 | 0.00 | 0.00 | 579.08 | .14 | .25 | .01 | 580.70 |
| 1500. | 0. | 1500. | 0. | 0. | 506. | 0. | 84. | 13. | 581.00 |
| .49 | 0.00 | 2.97 | 0.00 | .035 | .033 | .035 | .032 | 570.50 | 497.46 |
| .000455 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 90.75 | 588.21 |

Exh. 3.7
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OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 581.93 ELREA= 581.93

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6416.00 | 8.85 | 579.18 | 0.00 | 0.00 | 579.40 | .22 | .29 | .04 | 581.93 |
| 1500. | 0. | 1500. | 0. | 0. | 399. | 0. | 89. | 14. | 581.93 |
| .52 | 0.00 | 3.76 | 0.00 | .035 | .033 | .035 | .032 | 570.33 | 581.64 |
| .000757 | 480. | 480. | 480. | 1 | 0 | 1 | 0.00 | 72.17 | 653.81 |

[redacted]VERB[redacted]AREA[redacted]SUME[redacted]ON-EF[redacted]IVF[redacted]A= [redacted]581[redacted]ELRE[redacted] [redacted]80[redacted]

49 FEET D/S OF SOUTHFIELD ROAD BRIDGE SEC. F

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6786.00 | 9.27 | 579.47 | 0.00 | 0.00 | 579.66 | .19 | .25 | .01 | 581.00 |
| 1500. | 0. | 1500. | 0. | 0. | 430. | 0. | 93. | 15. | 581.80 |
| .55 | 0.00 | 3.49 | 0.00 | .035 | .033 | .035 | .032 | 570.20 | 580.65 |
| .000615 | 370. | 370. | 370. | 2 | 0 | 1 | 0.00 | 74.09 | 654.74 |
| 6835.00 | 7.87 | 579.44 | 0.00 | 0.00 | 579.76 | .32 | .04 | .06 | 583.17 |
| 1500. | 0. | 1500. | 0. | 0. | 331. | 0. | 93. | 15. | 583.17 |
| .55 | 0.00 | 4.53 | 0.00 | .035 | .033 | .035 | .032 | 571.57 | 583.97 |
| .001293 | 49. | 49. | 49. | 2 | 0 | 1 | 0.00 | 67.64 | 651.60 |

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 582.00 ELREA= 582.00

D/S FACE OF SOUTHFIELD ROAD BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6836.00 | 8.05 | 579.65 | 0.00 | 0.00 | 579.31 | .16 | .00 | .05 | 582.00 |
| 1500. | 0. | 1500. | 0. | 0. | 471. | 0. | 93. | 15. | 582.00 |
| .55 | 0.00 | 3.19 | 0.00 | .035 | .025 | .035 | .036 | 571.60 | 900.00 |
| .000333 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 73.00 | 973.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | SKP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | .90 | 1.50 | 2.90 | -0.00 | 73.00 | 2.50 | 395.10 | -0.00 | 571.60 | 571.60 |

PRESSURE FLOW

| EGPRS | EGLWC | HI | DWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 580.01 | 579.82 | .00 | 0. | 1500. | 385. | 578.30 | 583.00 | 10.00 |

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 583.00 ELREA= 583.00

D/S FACE OF SOUTHFIELD ROAD BRIDGE SEC. G

CONCPETE BRIDGE WITH I-BEAM STRINGERS

80 FEET WIDE, 1 PIER 2.5 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6916.00 | 8.26 | 579.86 | 0.00 | 0.00 | 580.01 | .15 | .20 | 0.00 | 582.00 |
| 1500. | 0. | 1500. | 0. | 0. | 485. | 0. | 94. | 15. | 582.00 |
| .56 | 0.00 | 3.09 | 0.00 | .035 | .025 | .035 | .032 | 571.60 | 900.00 |
| .000302 | 80. | 80. | 80. | 2 | 0 | 1 | 0.00 | 73.00 | 973.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | XTI | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | TITIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

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| SLOPE | XLOBL | XLCH | XLOBR | [illegible] | [illegible] | [illegible] | CORAR | [illegible] | ENDST |
|---|---|---|---|---|---|---|---|---|---|

OVERHANK AREA ASSUMED NON-EFFECTIVE•ELLEA= 583.20 ELREA= 583.20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6917.00 | 8.19 | 579.79 | 0.00 | 0.00 | 580.07 | .28 | .00 | .07 | 583.20 |
| 1500. | 0. | 1500. | 0. | 0. | 353. | 0. | 94. | 15. | 583.20 |
| .56 | 0.00 | 4.25 | 0.00 | .035 | .033 | .035 | .032 | 571.60 | 583.20 |
| .001077 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 69.12 | 652.32 |

3470 ENCROACHMENT STATIONS= 560.0 660.0 TYPE= 1 TARGET= 100.000

OVERBANK AREA ASSUMED NON-EFFECTIVE•ELLEA= 582.80 ELREA= 100000.00

REPEATED SECTION OF 6917

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7436.00 | 9.13 | 580.33 | 0.00 | 0.00 | 580.53 | .20 | .43 | .02 | 582.80 |
| 1500. | 0. | 1500. | 0. | 0. | 420. | 0. | 99. | 16. | 100000.00 |
| .60 | 0.00 | 3.57 | 0.00 | .035 | .033 | .035 | .032 | 571.20 | 580.97 |
| .000657 | 519. | 519. | 519. | 2 | 0 | 1 | 0.00 | 73.46 | 654.44 |

3470 ENCROACHMENT STATIONS= 436.0 516.0 TYPE= 1 TARGET= 80.000

OVERBANK AREA ASSUMED NON-EFFECTIVE•ELLEA= 582.60 ELREA= 100000.00

1020 FEET U/S OF SOUTHFIELD ROAD BRIDGE SEC. H

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7936.00 | 9.85 | 580.65 | 0.00 | 0.00 | 580.83 | .18 | .29 | .01 | 582.60 |
| 1500. | 0. | 1500. | 0. | 0. | 441. | 0. | 104. | 17. | 100000.00 |
| .64 | 0.00 | 3.40 | 0.00 | .035 | .033 | .035 | .032 | 570.80 | 440.31 |
| .000521 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 69.40 | 509.72 |

3470 ENCROACHMENT STATIONS= 150.0 480.0 TYPE= 1 TARGET= 330.000

OVERBANK AREA ASSUMED NON-EFFECTIVE•ELLEA= 581.70 ELREA= 582.10

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8536.00 | 10.07 | 580.97 | 0.00 | 0.00 | 581.13 | .16 | .29 | .01 | 581.70 |
| 1500. | 0. | 1500. | 0. | 0. | 471. | 0. | 110. | 18. | 582.10 |
| .70 | 0.00 | 3.19 | 0.00 | .035 | .033 | .035 | .032 | 570.90 | 306.81 |
| .000450 | 600. | 600. | 600. | 2 | 0 | 1 | 0.00 | 73.92 | 380.73 |

3470 ENCROACHMENT STATIONS= 140.0 310.0 TYPE= 1 TARGET= 170.000

2220 FEET U/S OF SOUTHFIELD ROAD BRIDGE SEC. I

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9136.00 | 10.34 | 581.24 | 0.00 | 0.00 | 581.38 | .14 | .25 | .01 | 581.80 |
| 1500. | 1. | 1498. | 1. | 2. | 497. | 7. | 117. | 1. | 581.10 |
| .75 | .31 | 3.01 | .20 | .035 | .033 | .035 | .03 | 570.90 | 163.83 |
| .000385 | 600. | 600. | 600. | 1 | 0 | 1 | 0.00 | 146.17 | 310.00 |

3470 ENCROACHMENT STATIONS= 50.0 250.0 TYPE= 1 TARGET= 200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9586.00 | 10.48 | 581.41 | 0.00 | 0.00 | 581.55 | .14 | .17 | .03 | 580.84 |

Exhibit 7

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .7 | .35 | 2.96 | 0.00 | .035 | .033 | .035 | .032 | 570.94 | 160.58 |
| .000363 | 450. | 450. | 450. | [illegible] | [illegible] | [illegible] | [illegible] | [illegible]2 | [illegible]0 |

3265 DIVIDED FLOW

| SECNO | DEPTH | CUSEL | CRIWS | USELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | COPAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 245.0 445.0 TYPE= 1 TARGET= 200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9596.00 | 10.42 | 581.40 | 0.00 | 0.00 | 581.57 | .18 | .01 | .02 | 581.88 |
| 1500. | 7. | 1493. | 0. | 14. | 443. | 0. | 122. | 21. | 100000.03 |
| .79 | .48 | 3.37 | 0.00 | .035 | .033 | .035 | .032 | 570.98 | 245.00 |
| .000754 | 10. | 10. | 10. | 1 | 0 | 1 | 0.00 | 142.67 | 445.00 |

3470 ENCROACHMENT STATIONS= 245.0 445.0 TYPE= 1 TARGET= 200.000

50 FEET D/S OF EMPIRE STREET SEC. J

WALL ON RIGHT BANK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10286.00 | 10.90 | 581.90 | 0.00 | 0.00 | 582.04 | .13 | .45 | .01 | 581.90 |
| 1500. | 32. | 1468. | 0. | 50. | 497. | 0. | 130. | 23. | 100000.00 |
| .86 | .64 | 2.96 | 0.00 | .035 | .033 | .035 | .032 | 571.00 | 245.00 |
| .000572 | 690. | 690. | 690. | [illegible] | 0 | 1 | 0.00 | 200.00 | 445.00 |

3470 ENCROACHMENT STATIONS= 350.0 445.0 TYPE= 1 TARGET= 95.000

EMPIRE STREET BRIDGE SEC. K

BRIDGE HAS BEEN REMOVED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10336.00 | 9.41 | 581.91 | 0.00 | 0.00 | 582.08 | .17 | .03 | .02 | 579.80 |
| 1500. | 145. | 1355. | 0. | 1[illegible]1. | 3[illegible]2. | 0. | 131. | 23. | 100000.00 |
| .86 | 1.44 | 3.46 | 0.00 | .035 | .033 | .035 | .032 | 572.50 | 350.00 |
| .000454 | 50. | 50. | 50. | [illegible] | 0 | 1 | 0.00 | 95.00 | 445.00 |

3470 ENCROACHMENT STATIONS= 655.0 800.0 TYPE= 1 TARGET= 145.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.57 ELLEA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10636.00 | 9.59 | 582.06 | 0.00 | 0.00 | 582.24 | .18 | .15 | .00 | 584.57 |
| 1500. | 0. | 1500. | 0. | 0. | 440. | 0. | 134. | 24. | 100000.00 |
| .89 | 0.00 | 3.41 | 0.00 | .035 | .033 | .035 | .032 | 572.47 | 690.07 |
| .000557 | 300. | 300. | 300. | 0 | 0 | 1 | 0.00 | 73.39 | 753.46 |

3470 ENCROACHMENT STATIONS= 655.0 855.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.50 ELLEA= 100000.00

1200 FEET U/S OF EMPIRE STREET SEC. L

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11536.00 | 10.14 | 582.54 | 0.00 | 0.00 | 582.69 | .15 | .44 | .01 | 584.50 |
| [illegible] | [illegible] | 150 | [illegible] | [illegible] | [illegible] | 0 | [illegible] | [illegible] | [illegible] |

✓ O.K. BE

680

753

Exhibit 7

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[redacted] [redacted] [redacted] [

HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58

T1 CITY OF ECORSE 5555-16 DICK ZANOTTI P.M.
T2 100 YEAR FLOOD
T3 NORTH BRANCH OF ECORSE CREEK

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -10. | 4. | -0. | -0. | -0.000000 | -0.00 | -0.0 | -0. | 574.900 | -0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | -0.000 | -1.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |

CCHV= .300 CEHV= .500

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | STN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 1.00 | 11.50 | 574.90 | 0.00 | 574.90 | 575.51 | .61 | 0.00 | 0.00 | 584.60 |
| 4410. | 0. | 4410. | 0. | 0. | 701. | 0. | 0. | 0. | 584.60 |
| 0.00 | 0.00 | 6.29 | 0.00 | .035 | .030 | .035 | 0.000 | 563.40 | 528.17 |
| .001167 | -0. | -0. | -0. | 0 | 0 | 1 | 0.00 | 89.83 | 619.00 |
| 30.00 | 11.54 | 574.94 | 0.00 | 0.00 | 575.55 | .61 | .03 | .00 | 584.60 |
| 4410. | 0. | 4410. | 0. | 0. | 704. | 0. | 0. | 0. | 584.60 |
| .00 | 0.00 | 6.26 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 528.88 |
| .001155 | 29. | 29. | 29. | 0 | 0 | 1 | 0.00 | 90.12 | 619.00 |
| 60.00 | 11.58 | 574.98 | 0.00 | 0.00 | 575.59 | .60 | .03 | .00 | 584.60 |
| 4410. | 0. | 4410. | 0. | 0. | 708. | 0. | 1. | 0. | 584.60 |
| .00 | 0.00 | 6.23 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 528.54 |
| .001141 | 30. | 30. | 30. | 1 | 0 | 1 | 0.00 | 90.46 | 619.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 584.30 MAX ELLC= 580.30

D/S FACE OF JEFFERSON STREET BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 61.00 | 11.52 | 574.92 | 0.00 | 0.00 | 575.65 | .73 | .00 | .06 | 584.60 |
| 4410. | 0. | 4410. | 0. | 0. | 645. | 0. | 1. | 0. | 584.60 |
| .00 | 0.00 | 6.84 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 528.98 |
| .002091 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 83.02 | 619.00 |

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3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 584.30 MAX ELLC= 580.30

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 9 MIN ELTRD= 584.30 MAX ELLC= 580.30

U/S FACE OF JEFFERSON STREET BRIDGE SEC. A

CONCRETE TWO SPAN BRIDGE

CONCRETE RAILING, TWO PIERS, 75 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 136.00 | 11.72 | 575.12 | 0.00 | 0.00 | 575.81 | .69 | .15 | .01 | 584.60 |
| 4410. | 0. | 4410. | 0. | 0. | 662. | 0. | 2. | 0. | 584.60 |
| .01 | 0.00 | 6.67 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 527.31 |
| .001976 | 75. | 75. | 75. | 2 | 0 | 1 | 0.00 | 84.69 | 619.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | OLOB | OCH | OROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICOUNT | CORAR | TOPWID | ENDST |
| 137.00 | 11.90 | 575.30 | 0.00 | 0.00 | 575.95 | .65 | .00 | .04 | 584.60 |
| 4410. | 0. | 4410. | 0. | 0. | 738. | 0. | 2. | 0. | 584.60 |
| .01 | 0.00 | 5.98 | 0.00 | .035 | .030 | .035 | .029 | 563.40 | 525.83 |
| .001035 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 93.17 | 619.00 |

50 FEET U/S OF JEFFERSON STREET BRIDGE SEC. B

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 187.00 | 11.22 | 575.32 | 0.00 | 0.00 | 575.93 | .61 | .05 | .04 | 581.10 |
| 4410. | 0. | 4410. | 0. | 0. | 592. | 0. | 3. | 0. | 580.20 |
| .01 | 0.00 | 6.37 | 0.00 | .035 | .030 | .042 | .029 | 564.10 | 341.89 |
| .001185 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 91.13 | 432.36 |

1490 NH CARD USED

REPEATED SECTION OF 737

DOCKS ON RIGHT BANK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 362.00 | 11.89 | 575.86 | 0.00 | 0.00 | 576.17 | .31 | .14 | .10 | 578.57 |
| 4410. | 0. | 4410. | 0. | 0. | 984. | 0. | 6. | 1. | 577.17 |
| .02 | 0.00 | 4.40 | 0.00 | .035 | .031 | .042 | .029 | 563.87 | 251.32 |
| .000515 | 175. | 175. | 175. | 2 | 0 | 1 | 0.00 | 145.84 | 397.16 |

3470 ENCROACHMENT STATIONS= 244.0 373.0 TYPE= 1 TARGET= 129.000

50 FEET D/S OF RAILROAD BRIDGE NO. 1 SEC. C

ENCROACHED FOR EXPANSION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 737.00 | 12.34 | 576.04 | 0.00 | 0.00 | 576.35 | .31 | .18 | .00 | 578.30 |
| 4410. | 0. | 4410. | 0. | 0. | 979. | 0. | 14. | 2. | 100000.00 |
| .04 | 0.00 | 4.50 | 0.00 | .035 | .030 | .042 | .030 | 563.70 | 250.11 |
| .000448 | 375. | 375. | 375. | 2 | 0 | 1 | 0.00 | 122.89 | 373.00 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 787.00 | 12.11 | 576.01 | 0.00 | 0.00 | 576.45 | .44 | .03 | .06 | 581.00 |
| [redacted] | | | | | | | | | |
| .04 | 0.00 | 5.34 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .000965 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 106.60 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.20

D/S FACE OF RAILROAD BRIDGE NO. 1

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 788.00 | 12.06 | 575.96 | 0.00 | 0.00 | 576.50 | .54 | .00 | .05 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 744. | 0. | 16. | 2. | 581.00 |
| .04 | 0.00 | 5.92 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .003859 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 104.00 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.20

U/S FACE OF RAILROAD BRIDGE NO. 1 SEC. D

STEEL I-BEAM BRIDGE WITH 2-STEEL BENT PIERS

9 FEET WIDE, 7 OLD BENT PILES-CUTOFF

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 797.00 | 12.10 | 576.00 | 0.00 | 0.00 | 576.54 | .54 | .00 | .00 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 744. | 0. | 16. | 2. | 581.00 |
| .05 | 0.00 | 5.99 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .003788 | 9. | 9. | 9. | 2 | 0 | 1 | 0.00 | 104.00 | 901.60 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | HANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | ITR | ELTRD | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPID | ENDSTA |
| 798.00 | 12.25 | 576.15 | 0.00 | 0.00 | 576.57 | .43 | .00 | .03 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 741. | 0. | 16. | 2. | 581.00 |
| .05 | 0.00 | 5.25 | 0.00 | .035 | .032 | .042 | .030 | 563.90 | 795.00 |
| .000912 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 106.60 | 901.60 |
| 844.00 | 11.20 | 576.20 | 0.00 | 0.00 | 576.63 | .42 | .04 | .00 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 846. | 0. | 17. | 2. | 581.40 |
| .05 | 0.00 | 5.21 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 813.00 |
| .000867 | 46. | 46. | 46. | 2 | 0 | 1 | 0.00 | 108.98 | 923.98 |



3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=16 MIN ELTRD= 581.40 MAX ELLC= 578.40

D/S FACE OF RAILROAD BRIDGE NO. 2

[illegible]

D/S FACE OF RAILROAD BRIDGE NO. 2

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 845.00 | 11.16 | 576.16 | 0.00 | 0.00 | 576.66 | .50 | .00 | .04 | 581.50 | |
| 4410. | 0. | 4410. | 0. | 0. | 779. | 0. | 17. | 2. | 581.40 | |
| .05 | 0.00 | 5.66 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 815.00 | |
| .002965 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 101.81 | 923.5 | |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=16 MIN ELTRD= 581.40 MAX ELLC= 578.40

U/S FACE OF RAILROAD BRIDGE NO. 2 SEC. E

WOOD BRIDGE WITH BALLAST AND TIE DECK

14.5 FEET WIDE, 7 BENT PIERS OF WOOD

14.5 FEET WIDE, 7 BENT PIERS OF WOOD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 859.00 | 11.21 | 576.21 | 0.00 | 0.00 | 576.70 | .49 | .04 | .00 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 784. | 0. | 17. | 2. | 581.40 |
| .05 | 0.00 | 5.62 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 815.00 |
| .002915 | 15. | 15. | 15. | 2 | 0 | 1 | 0.00 | 102.00 | 924.00 |
| | | | | | | | | | |
| 860.00 | 11.32 | 576.32 | 0.00 | 0.00 | 576.73 | .41 | .00 | .02 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 854. | 0. | 17. | 2. | 581.40 |
| .05 | 0.00 | 5.13 | 0.00 | .035 | .032 | .042 | .030 | 565.00 | 815.00 |
| .000826 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 104.00 | 924.00 |
| | | | | | | | | | |
| 910.00 | 12.39 | 576.39 | 0.00 | 0.00 | 576.77 | .38 | .04 | .01 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 791. | 0. | 17. | 2. | 583.00 |
| .05 | 0.00 | 4.95 | 0.00 | .035 | .032 | .04 | .030 | 564.00 | 835.00 |
| .000739 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 107.00 | 942.00 |

3265 DIVIDED FLOW

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TYA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | INITIAL | IDC | ICODE | COMAR | TOPWID | ENDST |

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 583.00 MAX ELLC= 574.63

D/S FACE OF RAILROAD BRIDGE NO. 3

D/S FACE OF RAILROAD BRIDGE NO. 3

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 911.00 | 12.35 | 576.35 | 0.00 | 0.00 | 576.82 | .47 | .00 | .04 | 583.10 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .05 | 0.00 | 5.47 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .003268 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 105.00 | 942.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD= 6 MIN EL TRD= 583.00 MAX ELLC= 578.60

U/S FACE OF RAILROAD BRIDGE NO. 3 SEC. F

STEEL I-BEAM BRIDGE WITH 2 STEEL PIERS

10 FEET WIDE, 8 SETS OF OLD PIER BENTS-CUTOFF

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 921.00 | 12.39 | 576.39 | 0.00 | 0.00 | 576.85 | .46 | .03 | .00 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 809. | 0. | 19. | 2. | 583.00 |
| .05 | 0.00 | 5.45 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .003232 | 10. | 10. | 10. | 1 | 0 | 1 | 0.00 | 105.00 | 942.00 |
| | | | | | | | | | |
| 922.00 | 12.51 | 576.51 | 0.00 | 0.00 | 576.84 | .37 | .00 | .03 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 902. | 0. | 19. | 2. | 583.00 |
| .05 | 0.00 | 4.89 | 0.00 | .035 | .032 | .042 | .030 | 564.00 | 835.00 |
| .000710 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 107.00 | 942.00 |
| | | | | | | | | | |
| 953.00 | 11.34 | 576.44 | 0.00 | 0.00 | 577.01 | .57 | .07 | .10 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 726. | 0. | 19. | 3. | 580.80 |
| .05 | 0.00 | 6.08 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .001096 | 31. | 31. | 31. | 2 | 0 | 1 | 0.00 | 81.00 | 681.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD=14 MIN EL TRD= 580.40 MAX ELLC= 577.70

U/S FACE OF RAILROAD BRIDGE NO. 4

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 954.00 | 11.18 | 576.28 | 0.00 | 0.00 | 577.17 | .88 | .00 | .15 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 585. | 0. | 19. | 3. | 580.80 |
| .05 | 0.00 | 7.53 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .005859 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 87.20 | 681.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD=14 MIN EL TRD= 580.80 MAX ELLC= 577.70

U/S FACE OF RAILROAD BRIDGE NO. 4 SEC. G

CONCRETE BRIDGE, BOX BEAM DECK

WITH BALLAST AND RAILS, 30.5 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 904.00 | 11.42 | 576.52 | 0.00 | 0.00 | 577.39 | .86 | .17 | .01 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 601. | 0. | 19. | 3. | 580.80 |
| .05 | 0.00 | 7.34 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |

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WITH BALLAST AND RAILS, 30.5 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 986.00 | 11.42 | 576.52 | 0.00 | 0.00 | 577.35 | .84 | .17 | .01 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 601. | 0. | 19. | 3. | 580.80 |
| .05 | 0.00 | 7.34 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .005491 | 31. | 31. | 31. | 2 | 0 | 1 | 0.00 | 67.20 | 631.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | AV | HL | OLOSS | BANK ELEV |
| Q | QLOB | VCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAB | TOPWID | ENDST |
| 986.00 | 11.84 | 576.94 | 0.00 | 0.00 | 577.45 | .51 | .00 | .10 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 766. | 0. | 19. | 3. | 580.80 |
| .05 | 0.00 | 5.75 | 0.00 | .035 | .032 | .042 | .030 | 565.10 | 600.00 |
| .000927 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 81.00 | 681.00 |

3470 ENCROACHMENT STATIONS= .0 700.0 TYPE= 1 TARGET= 599.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.10 ELREA= 100000.00

50 FEET UPSTREAM OF RAILROAD BRIDGE NO. 4 SEC. 8

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1035.00 | 10.90 | 577.10 | 0.00 | 0.00 | 577.52 | .42 | .08 | .01 | 581.10 |
| 4410. | 0. | 4410. | 0. | 0. | 50. | 0. | 20. | 3. | 100000.00 |
| .06 | 0.00 | 5.19 | 0.00 | .040 | .030 | .035 | .030 | 566.20 | 580.44 |
| .000822 | 50. | 50. | 50. | 0 | 0 | 1 | 0.00 | 118.70 | 699.14 |

3470 ENCROACHMENT STATIONS= 374.0 442.5 TYPE= 1 TARGET= 118.500

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 579.10 ELREA= 100000.00

AVERAGE SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1730.00 | 12.28 | 577.68 | 0.00 | 0.00 | 578.04 | .36 | .41 | .02 | 579.10 |
| 4410. | 0. | 4410. | 0. | 0. | 520. | 0. | 35. | 5. | 100000.00 |
| .10 | 0.00 | 4.79 | 0.00 | .060 | .050 | .035 | .031 | 565.40 | 376.92 |
| .000614 | 700. | 700. | 700. | 3 | 0 | 1 | 0.00 | 115.50 | 492.50 |

3470 ENCROACHMENT STATIONS= 183.0 295.0 TYPE= 1 TARGET= 102.000

1450 FEET U/S OF RAILROAD BRIDGE NO. 4 SEC. 1

CONFLUENCE OF SEXTON-KILFOIL DRAIN, NORTH ECORSE CREEK

AND ECORSE CREEK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2430.00 | 13.48 | 578.08 | 0.00 | 0.00 | 578.43 | .35 | .37 | .00 | 577.10 |
| 4410. | 0. | 4410. | 0. | 0. | 430. | 0. | 49. | 5. | 100000.00 |
| .14 | 0.00 | 4.71 | 0.00 | .050 | .040 | .035 | .030 | 564.60 | 183.00 |
| .000510 | 700. | 700. | 700. | 2 | 0 | 1 | 0.00 | 102.00 | 285.00 |

CCHV= .300 CEHV= .500

Exhibit 7
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3470 ENCROACHMENT STATIONS= 300.0 400.0 TYPE= 1 TARGET= 100.000

2089 FEET D/S OF MILL STREET BRIDGE SEC. A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2736.00 | 9.37 | 578.47 | 0.00 | 0.00 | 578.63 | .16 | .14 | .06 | 578.[illegible] |
| 2100. | 0. | 2100. | 0. | 0. | 658. | 0. | 55. | 7. | 100000.00 |
| .17 | 0.00 | 3.19 | 0.00 | .035 | .033 | .035 | .030 | 569.10 | 301.37 |
| .000419 | 300. | 300. | 300. | 2 | 0 | 1 | 0.00 | 99.34 | 399.[illegible] |

3470 ENCROACHMENT STATIONS= 300.0 400.0 TYPE= 1 TARGET= 100.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 578.98 ELREA= 100000.00

REPEATED SECTION OF 2735

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3436.00 | 9.29 | 578.77 | 0.00 | 0.00 | 578.93 | .16 | .30 | .00 | 578.98 |
| 2100. | 0. | 2100. | 0. | 0. | 649. | 0. | 65. | 9. | 100000.00 |
| .23 | 0.00 | 3.23 | 0.00 | .035 | .033 | .035 | .031 | 569.48 | 300.61 |
| .000435 | 700. | 700. | 700. | 2 | 0 | 1 | 0.00 | 98.91 | 399.51 |

3470 ENCROACHMENT STATIONS= 200.0 300.0 TYPE= 1 TARGET= 100.000

999 FEET D/S OF MILL STREET BRIDGE SEC. B

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3836.00 | 9.25 | 578.95 | 0.00 | 0.00 | 579.20 | .25 | .23 | .04 | 579.50 |
| 2100. | 0. | 2100. | 0. | 0. | 523. | 0. | 71. | 9. | 100000.00 |
| .25 | 0.00 | 4.01 | 0.00 | .035 | .033 | .035 | .031 | 569.70 | 200.00 |
| .000766 | 400. | 400. | 400. | 1 | 0 | 1 | 0.00 | 87.67 | 287.67 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EV | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | FNDST |

3470 ENCROACHMENT STATIONS= 200.0 290.0 TYPE= 1 TARGET= 90.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4311.00 | 9.42 | 579.32 | 0.00 | 0.00 | 579.55 | .24 | .35 | .00 | 578.70 |
| 2100. | 0. | 2100. | 0. | 0. | 539. | 0. | 77. | 10. | 100000.00 |
| .29 | 0.00 | 3.90 | 0.00 | .035 | .033 | .035 | .031 | 569.90 | 200.00 |
| .000703 | 475. | 475. | 475. | 2 | 0 | 1 | 0.00 | 88.14 | 288.14 |

3470 ENCROACHMENT STATIONS= 393.0 500.0 TYPE= 1 TARGET= 107.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.10 ELREA= 100000.00

39 FEET D/S OF MILL STREET BRIDGE SEC. C

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4786.00 | 9.59 | 579.69 | 0.00 | 0.00 | 579.85 | .17 | .28 | .02 | 580.10 |
| 2100. | 0. | 2100. | 0. | 0. | 641. | 0. | 83. | 11. | 100000.00 |
| .33 | 0.00 | 3.28 | 0.00 | .035 | .033 | .035 | .031 | 570.10 | 394.98 |
| .000497 | 475. | 475. | 475. | 1 | 0 | 1 | 0.00 | 105.02 | 500.00 |

393 LB
500 RB
℄ 455
ERV 7
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3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000
FLENCL= 585.00 ELENCR= 585.00

D/S FACE OF MILL STREET BRIDGE

D/S FACE OF MILL STREET BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 4825.00 | 8.93 | 579.73 | 0.00 | 0.00 | 579.88 | .15 | .02 | .01 | 579.40 | |
| 2100. | 0. | 2100. | 0. | 0. | 683. | 0. | 84. | 12. | 585.00 | |
| .33 | 0.00 | 3.03 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 | |
| .000394 | 39. | 39. | 39. | 2 | 0 | 1 | 0.00 | 98.00 | 598.00 | |

SPECIAL BRIDGE

| SK | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | -0.00 | 1.30 | 2.50 | 50.00 | 51.70 | -0.00 | 538.00 | 3.17 | 570.80 | 570.80 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 580.04 | 579.88 | 0.00 | 207. | 1881. | 538. | 578.30 | 579.40 | 30.00 |

3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000
ELENCL= 585.00 ELENCR= 585.00

D/S FACE OF MILL STREET BRIDGE SEC. D

STEEL TRUSS BRIDGE, SINGLE SPAN

9.5 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4846.00 | 9.03 | 579.83 | 0.00 | 0.00 | 579.98 | .14 | .10 | 0.00 | 579.40 |
| 2100. | 0. | 2100. | 0. | 0. | 693. | 0. | 84. | 12. | 585.00 |
| .33 | 0.00 | 3.03 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 |
| .000376 | 21. | 21. | 21. | 2 | 0 | 1 | 0.00 | 98.00 | 598.00 |

3470 ENCROACHMENT STATIONS= 500.0 598.0 TYPE= 1 TARGET= 98.000
ELENCL= 585.00 ELENCR= 585.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4847.00 | 9.03 | 579.83 | 0.00 | 0.00 | 579.98 | .14 | .00 | .00 | 579.40 |
| 2100. | 0. | 2100. | 0. | 0. | 693. | 0. | 84. | 12. | 585.00 |
| .33 | 0.00 | 3.03 | 0.00 | .035 | .033 | .035 | .031 | 570.80 | 500.00 |
| .000376 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 98.00 | 598.00 |

3280 CROSS SECTION 5436.00 EXTENDED .32 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 580.84 ELREA= 581.14

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5436.00 | 9.43 | 580.07 | 0.00 | 0.00 | 580.27 | .19 | .27 | .02 | 580.84 |
| 2100. | 0. | 2100. | 0. | 0. | 497. | 0. | 93. | 13. | 581.14 |
| .38 | 0.00 | 3.52 | 0.00 | .035 | .033 | .035 | .032 | 570.54 | 495.53 |
| .000450 | 589. | 589. | 589. | 1 | 0 | 1 | 0.00 | 95.45 | 590.98 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |

Exhibit 7
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3470 ENCROACHMENT STATIONS= 400.0 500.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.70 ELREA= 581.00

1090 FEET U/S OF HILL STREET BRIDGE SEC. E

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5936.00 | 9.85 | 580.35 | 0.00 | 0.00 | 580.52 | .17 | .25 | .01 | 580.70 |
| 2100. | 0. | 2100. | 0. | 0. | 639. | 0. | 100. | 14. | 581.00 |
| .42 | 0.00 | 3.29 | 0.00 | .035 | .033 | .035 | .032 | 570.50 | 494.68 |
| .000453 | 500. | 500. | 500. | 2 | 0 | .1 | 0.00 | 97.50 | 592.18 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.93 ELREA= 581.93

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6416.00 | 10.25 | 580.58 | 0.00 | 0.00 | 580.85 | .27 | .28 | .05 | 581.93 |
| 2100. | 0. | 2100. | 0. | 0. | 505. | 0. | 105. | 15. | 581.93 |
| .45 | 0.00 | 4.16 | 0.00 | .035 | .033 | .035 | .032 | 570.33 | 578.29 |
| .000762 | 480. | 480. | 480. | 1 | 0 | 1 | 0.00 | 78.69 | 656.98 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.80 ELREA= 581.80

49 FEET D/S OF SOUTHFIELD ROAD BRIDGE SEC. F

605 Q

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6786.00 | 10.68 | 580.88 | 0.00 | 0.00 | 581.12 | .24 | .26 | .01 | 581.80 |
| 2100. | 0. | 2100. | 0. | 0. | 539. | 0. | 111. | 16. | 581.80 |
| .48 | 0.00 | 3.90 | 0.00 | .035 | .033 | .035 | .032 | 570.20 | 577.28 |
| .000636 | 370. | 370. | 370. | 2 | 0 | 1 | 0.00 | 80.64 | 657.93 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6835.00 | 9.29 | 580.86 | 0.00 | 0.00 | 581.22 | .37 | .04 | .07 | 583.17 |
| 2100. | 0. | 2100. | 0. | 0. | 431. | 0. | 111. | 16. | 583.17 |
| .48 | 0.00 | 4.87 | 0.00 | .035 | .033 | .035 | .032 | 571.57 | 580.60 |
| .001194 | 49. | 49. | 49. | 2 | 0 | 1 | 0.00 | 74.18 | 654.79 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.00 ELREA= 582.00

D/S FACE OF SOUTHFIELD ROAD BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6836.00 | 9.46 | 581.06 | 0.00 | 0.00 | 581.27 | .21 | .00 | .05 | 582.00 |
| 2100. | 0. | 2100. | 0. | 0. | 573. | 0. | 111. | 16. | 582.00 |
| .48 | 0.00 | 3.66 | 0.00 | .035 | .025 | .035 | .032 | 571.60 | 900.00 |
| .000351 | 1. | 1. | 1. | 2 | 0 | .1 | 0.00 | 73.00 | 973.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | .90 | 1.50 | 2.90 | -0.00 | 73.00 | 2.50 | 385.10 | -0.00 | 571.60 | 571.60 |

PRESSURE FLOW

| FGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 581.76 | 581.28 | .01 | 0. | 2100. | 395. | 574.31 | 583.00 | 10.00 |

Exhibit 7
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581.76 581.28 .01 0. 2100. [redacted]

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.00 ELREA= 583.00

U/S FACE OF SOUTHFIELD ROAD BRIDGE SEC. G

CONCRETE BRIDGE WITH I-BEAM STRINGERS

130.FEET WIDE, 1 PIER 2.5 FEET WIDE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6916.00 | 9.97 | 581.57 | 0.00 | 0.00 | 581.76 | .18 | .48 | 0.00 | 582.00 |
| 2100. | 0. | 2100. | 0. | 0. | 611. | 0. | 112. | 16. | 582.00 |
| .49 | 0.00 | 3.44 | 0.00 | .035 | .025 | .035 | .032 | 571.60 | 900.00 |
| .000289 | 80. | 80. | 80. | 2 | 0 | 1 | 0.00 | 73.00 | 973.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | KLOBL | KLCH | KLOBR | ITRIAL | IDC | ICONT | COPAR | TOPWID | ENDST |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.20 ELREA= 583.20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6917.00 | 9.92 | 581.52 | 0.00 | 0.00 | 581.82 | .30 | .00 | .06 | 583.20 |
| 2100. | 0. | 2100. | 0. | 0. | 479. | 0. | 112. | 16. | 583.20 |
| .49 | 0.00 | 4.39 | 0.00 | .035 | .033 | .035 | .032 | 571.60 | 579.10 |
| .000887 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 77.10 | 656.21 |

3470 ENCROACHMENT STATIONS= 560.0 660.0 TYPE= 1 TARGET= 100.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.80 ELREA= 100000.00

REPEATED SECTION OF 6917

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7436.00 | 10.79 | 581.99 | 0.00 | 0.00 | 582.21 | .23 | .38 | .02 | 582.80 |
| 2100. | 0. | 2100. | 0. | 0. | 548. | 0. | 118. | 17. | 100000.00 |
| .53 | 0.00 | 3.83 | 0.00 | .035 | .033 | .035 | .032 | 571.20 | 577.03 |
| .000609 | 519. | 519. | 519. | 2 | 0 | 1 | 0.00 | 81.13 | 658.17 |

3280 CROSS SECTION 7936.00 EXTENDED .58 FEET

3470 ENCROACHMENT STATIONS= 436.0 516.0 TYPE= 1 TARGET= 90.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.60 ELREA= 100000.00

1020 FEET U/S OF SOUTHFIELD ROAD BRIDGE SEC. H

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7936.00 | 11.48 | 582.29 | 0.00 | 0.00 | 582.50 | .22 | .28 | .00 | 582.60 |
| 2100. | 0. | 2100. | 0. | 0. | 561. | 0. | 125. | 18. | 100000.00 |
| .56 | 0.00 | 3.74 | 0.00 | .035 | .033 | .035 | .032 | 570.80 | 436.70 |
| .000529 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 77.21 | 513.91 |

3280 CROSS SECTION 9536.00 EXTENDED .23 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 150.0 | 400.0 | TYPE= | 1 | TARGET= | 250.000 | | | |
| 9536.00 | 11.72 | 582.62 | 0.00 | 0.00 | 582.79 | .16 | .27 | .02 | 581.77 |
| 2100. | 100. | 1994. | 6. | 133. | 598. | 10. | 134. | 20. | 582.10 |
| .62 | .75 | 3.34 | .58 | .035 | .033 | .035 | .032 | 570.90 | 150.00 |
| .000384 | 600. | 600. | 600. | 0 | 0 | 1 | 0.00 | 250.00 | 400.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 140.0 | 310.0 | TYPE= | 1 | TARGET= | 170.000 | | | |
| 2220 FEET U/S OF SOUTHFIELD ROAD BRIDGE | | | | | SEC. I | | | | |
| 9136.00 | 11.96 | 582.86 | 0.00 | 0.00 | 583.00 | .14 | .21 | .01 | 580.80 |
| 2100. | 44. | 1944. | 112. | 47. | 618. | 104. | 144. | 23. | 581.10 |
| .67 | .92 | 3.15 | 1.08 | .035 | .033 | .035 | .032 | 570.90 | 140.00 |
| .000314 | 600. | 600. | 600. | 2 | 0 | 1 | 0.00 | 170.00 | 310.00 |

210 4

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 50.0 | 250.0 | TYPE= | 1 | TARGET= | 200.000 | | | |
| 9586.00 | 12.06 | 583.00 | 0.00 | 0.00 | 583.16 | .16 | .15 | .01 | 580.84 |
| 2100. | 50. | 2040. | 0. | 70. | 626. | 0. | 152. | 25. | 100000.04 |
| .71 | .86 | 3.26 | 0.00 | .035 | .033 | .035 | .032 | 570.94 | 91.87 |
| .000341 | 450. | 450. | 450. | 1 | 0 | 1 | 0.00 | 158.13 | 250.00 |

3280 CROSS SECTION 9596.00 EXTENDED .58 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSEL | E | FF | HL | OLOSS | BANK ELEV. |
| Q | OLOB | OCH | OROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XTOCH | XNR | XTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 245.0 | 445.0 | TYPE= | 1 | TARGET= | 200.000 | | | |
| 9596.00 | 12.05 | 583.03 | 0.00 | 0.00 | 583.17 | .14 | .00 | .01 | 581.88 |
| 2100. | 218. | 1882. | 0. | 165. | 583. | 0. | 152. | 25. | 100000.03 |
| .71 | 1.32 | 3.12 | 0.00 | .035 | .033 | .035 | .032 | 570.98 | 245.00 |
| .000498 | 10. | 10. | 10. | 2 | 0 | 1 | 0.00 | 200.00 | 445.00 |

3280 CROSS SECTION 10286.00 EXTENDED .96 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 245.0 | 445.0 | TYPE= | 1 | TARGET= | 200.000 | | | |
| 50 FEET D/S OF EMPIRE STREET | | | | | SEC. J | | | | |
| WALL ON RIGHT BANK | | | | | | | | | |
| 10286.00 | 12.36 | 583.36 | 0.00 | 0.00 | 583.48 | .12 | .30 | .01 | 581.90 |
| 2100. | 257. | 1843. | 0. | 196. | 642. | 0. | 165. | 28. | 100000.00 |
| .78 | 1.31 | 2.87 | 0.00 | .035 | .033 | .035 | .032 | 571.00 | 245.00 |
| .000389 | 690. | 690. | 690. | 2 | 0 | 1 | 0.00 | 200.00 | 445.00 |

435 4

Exh. J 7
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 350.0 | 445.0 | TYPE= | 1 | TARGET= | 95.000 | | | |
| EMPIRE STREET BRIDGE | | | | | SEC. K | | | | |

3470 ENCROACHMENT STATIONS= 350.0 445.0 TYPE= 1 TARGET= 95.000

EMPIRE STREET BRIDGE SEC. K

BRIDGE HAS BEEN REMOVED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10336.00 | 10.84 | 583.34 | 0.00 | 0.00 | 583.54 | .20 | .02 | .04 | 579.80 |
| 2100. | 359. | 1741. | 0. | 172. | 457. | 0. | 165. | 28. | 100000.00 |
| .79 | 2.09 | 3.81 | 0.00 | .035 | .033 | .035 | .032 | 572.50 | 350.00 |
| .000466 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 95.00 | 445.00 |

430 L

3280 CROSS SECTION 10636.00 EXTENDED .46 FEET

3470 ENCROACHMENT STATIONS= 655.0 800.0 TYPE= 1 TARGET= 145.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 584.57 ELREA= 100000.00

START SEC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10636.00 | 11.06 | 583.53 | 0.00 | 0.00 | 583.73 | .20 | .19 | .00 | 584.57 |
| 2100. | 0. | 2100. | 0. | 0. | 378. | 0. | 170. | 29. | 100000.00 |
| .81 | 0.00 | 3.63 | 0.00 | .035 | .033 | .035 | .032 | 572.47 | 674.15 |
| .000887 | 300. | 300. | 300. | 2 | 0 | 1 | 0.00 | 145.85 | 800.00 |

3280 CROSS SECTION 11536.00 EXTENDED 1.33 FEET

3470 ENCROACHMENT STATIONS= 655.0 855.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 584.50 ELREA= 100000.00

1200 FEET U/S OF EMPIRE STREET SEC. L

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11536.00 | 11.93 | 584.33 | 0.00 | 0.00 | 584.45 | .12 | .08 | .02 | 584.50 |
| 2100. | 0. | 2100. | 0. | 0. | 744. | 0. | 143. | 32. | 100000.00 |
| .90 | 0.00 | 2.83 | 0.00 | .035 | .033 | .035 | .032 | 572.49 | 658.08 |
| .000690 | 900. | 900. | 900. | 2 | 0 | 1 | 0.00 | 196.91 | 855.00 |

EXHIBIT 7
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SUMMARY PRINTOUT FOR [redacted] PLE [redacted] TLE [redacted]

NORTH BRANCH OF FOURSE C

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | V | HL | BLOSS | QCR | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.90 | .32 | 0.00 | 0.00 | 3165.00 | 11.50 | [illegible] |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.90 | .53 | 0.00 | 0.00 | 4100.00 | 11.50 | [illegible] |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.90 | .61 | 0.00 | 0.00 | 4410.00 | 11.50 | [illegible] |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 574.90 | .84 | 0.00 | 0.00 | 5160.00 | 11.50 | [illegible] |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.92 | .31 | .02 | .00 | 3165.00 | 11.52 | [illegible] |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.93 | .53 | .03 | .00 | 4100.00 | 11.53 | [illegible] |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.94 | .61 | .03 | .00 | 4410.00 | 11.54 | [illegible] |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 574.96 | .83 | .05 | .00 | 5160.00 | 11.56 | [illegible] |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.94 | .31 | .02 | .00 | 3165.00 | 11.54 | [illegible] |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.97 | .52 | .03 | .00 | 4100.00 | 11.57 | [illegible] |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.9[illegible] | .60 | .03 | .00 | 4410.00 | 11.58 | [illegible] |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 575.01 | .81 | .05 | .00 | 5160.00 | 11.63 | [illegible] |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 3165.00 | 574.91 | .31 | .00 | .03 | 3165.00 | 11.51 | 82.91 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 4100.00 | 574.92 | .53 | .00 | .05 | 4100.00 | 11.52 | 82.99 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 4410.00 | 574.92 | .75 | .00 | .06 | 4410.00 | 11.52 | 83.02 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 5160.00 | 574.94 | .99 | .00 | .09 | 5160.00 | 11.54 | 83.18 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 3165.00 | 575.00 | .37 | .00 | .00 | 3165.00 | 11.60 | [illegible] |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 4100.00 | 575.09 | .60 | .13 | .01 | 4100.00 | 11.69 | 84.38 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 4410.00 | 575.1[illegible] | .69 | .15 | .01 | 4410.00 | 11.72 | 84.69 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 5160.00 | 575.24 | .92 | .20 | .02 | 5160.00 | 11.84 | 85.68 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 575.07 | .30 | .00 | .02 | 3165.00 | 11.67 | 91.38 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 575.24 | .45 | .00 | .03 | 4100.00 | 11.84 | 92.64 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 575.30 | .55 | .00 | .04 | 4410.00 | 11.90 | 93.17 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 575.50 | .76 | .00 | .06 | 5160.00 | 12.10 | 94.13 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 3165.00 | 575.09 | .34 | .03 | .02 | 3165.00 | 10.99 | [illegible] |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 4100.00 | 575.25 | .55 | .05 | .03 | 4100.00 | 11.15 | 90.51 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 4410.00 | 575.32 | .63 | .06 | .04 | 4410.00 | 11.22 | 91.10 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 5160.00 | 575.52 | .82 | .07 | .05 | 5160.00 | 11.42 | 92.3[illegible] |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 3165.00 | 575.38 | .19 | .08 | .05 | 3165.00 | 11.41 | 143.47 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 4100.00 | 575.72 | .28 | .12 | .08 | 4100.00 | 11.75 | 145.17 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 4410.00 | 575.86 | .31 | .13 | .10 | 4410.00 | 11.89 | 145.84 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 5160.00 | 576.24 | .38 | .16 | .13 | 5160.00 | 12.27 | 147.72 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 3165.00 | 575.49 | .19 | .11 | .00 | 3165.00 | 11.79 | 121.40 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 4100.00 | 575.89 | .28 | .16 | .00 | 4100.00 | 12.19 | 122.47 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 4410.00 | 576.04 | .31 | .18 | .00 | 4410.00 | 12.34 | 122.89 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 5160.00 | 576.45 | .39 | .21 | .00 | 5160.00 | 12.75 | 123.99 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 3165.00 | 575.47 | .26 | .02 | .04 | 3165.00 | 11.57 | 106.60 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 4100.00 | 575.86 | .41 | .03 | .06 | 4100.00 | 11.96 | 106.60 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 4410.00 | 576.01 | .46 | .03 | .06 | 4410.00 | 12.11 | 106.60 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 5160.00 | 576.41 | .58 | .04 | .08 | 5160.00 | 12.51 | 106.60 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | V | HL | BLOSS | QCR | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

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| [redacted] NUMBER | CHA[redacted] LENGTH | MI[redacted] OF ROADWAY | [redacted] LOW CHORD | EL[redacted] MIN[redacted] GROUND | [redacted] DISCHARGE (CFS) | [redacted] W/SEL | HV | PL | [redacted] | [redacted] | [redacted] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 3165.00 | 575.44 | .33 | .00 | .03 | 3[redacted] | [redacted] |
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 4100.00 | 575.81 | .49 | .00 | .03 | [redacted] | [redacted] |
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 4410.00 | 575.96 | .54 | .00 | .03 | [redacted] | [redacted] |
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 5160.00 | 576.35 | .67 | .00 | .05 | [redacted] | [redacted] |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 3165.00 | 575.46 | .32 | .02 | .00 | 3165.00 | [redacted] |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 4100.00 | 575.85 | .49 | .03 | .00 | 4100.00 | [redacted] |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 4410.00 | 576.00 | .54 | .03 | .00 | 4410.00 | [redacted] |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 5160.00 | 576.40 | .66 | .04 | .00 | 5160.00 | [redacted] |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 3165.00 | 575.55 | .26 | .00 | .02 | 3165.00 | 11.65 | [redacted] |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 4100.00 | 575.98 | .39 | .00 | .03 | 4100.00 | 12.08 | [redacted] |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 4410.00 | 576.15 | .43 | .00 | .03 | 4410.00 | 12.25 | [redacted] |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 5160.00 | 576.53 | .53 | .00 | .04 | 5160.00 | [redacted] | [redacted] |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 3165.00 | 575.58 | .26 | .03 | .00 | 3165.00 | 10.58 | [redacted] |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 4100.00 | 576.03 | .48 | .04 | .00 | 4100.00 | 11.03 | [redacted] |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 4410.00 | 576.20 | .42 | .04 | .00 | 4410.00 | 11.20 | [redacted] |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 5160.00 | 576.64 | .52 | .05 | .00 | 5160.00 | 11.64 | [redacted] |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 3165.00 | 575.56 | .30 | .00 | .02 | 3165.00 | 10.56 | [redacted] |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 4100.00 | 575.99 | .45 | .00 | .03 | 4100.00 | 10.99 | [redacted] |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 4410.00 | 576.16 | .50 | .00 | .04 | 4410.00 | 11.16 | [redacted] |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 5160.00 | 576.61 | .61 | .00 | .05 | 5160.00 | 11.60 | [redacted] |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 3165.00 | 575.54 | .30 | .03 | .00 | 3165.00 | 10.59 | [redacted] |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 4100.00 | 576.03 | .44 | .04 | .00 | 4100.00 | 11.04 | [redacted] |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 4410.00 | 576.21 | .49 | .04 | .00 | 4410.00 | 11.21 | [redacted] |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 5160.00 | 576.66 | .60 | .05 | .00 | 5160.00 | 11.66 | [redacted] |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 3165.00 | 575.65 | .35 | .00 | .01 | 3165.00 | 10.65 | [redacted] |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 4100.00 | 576.14 | .47 | .00 | .02 | 4100.00 | 11.14 | [redacted] |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 4410.00 | 576.32 | .41 | .00 | .02 | 4410.00 | 11.32 | [redacted] |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 5160.00 | 576.80 | .50 | .00 | .03 | 5160.00 | 11.80 | [redacted] |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 3165.00 | 575.68 | .33 | .03 | .01 | 3165.00 | 11.70 | [redacted] |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 4100.00 | 576.21 | .44 | .04 | .01 | 4100.00 | 12.21 | [redacted] |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 4410.00 | 576.39 | .48 | .04 | .01 | 4410.00 | 12.39 | [redacted] |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 5160.00 | 576.88 | .57 | .04 | .01 | 5160.00 | 12.88 | [redacted] |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 3165.00 | 575.68 | .29 | .00 | .03 | 3165.00 | 11.68 | [redacted] |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 4100.00 | 576.17 | .42 | .00 | .04 | 4100.00 | 12.17 | [redacted] |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 4410.00 | 576.35 | .47 | .00 | .04 | 4410.00 | 12.35 | [redacted] |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 5160.00 | 576.84 | .56 | .00 | .05 | 5160.00 | 12.84 | [redacted] |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 3165.00 | 575.70 | .29 | .02 | .00 | 3165.00 | 11.70 | [redacted] |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 4100.00 | 576.20 | .42 | .03 | .00 | 4100.00 | 12.20 | [redacted] |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 4410.00 | 576.39 | .46 | .03 | .00 | 4410.00 | 12.39 | [redacted] |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 5160.00 | 576.88 | .56 | .04 | .00 | 5160.00 | 12.88 | [redacted] |

Exh. 6, f)

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 3165.00 | 575.78 | .23 | .00 | .02 | 3165.00 | | |
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 4100.00 | 576.31 | .34 | .00 | .03 | 4100.00 | | |
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 4410.00 | 576.51 | .37 | .00 | .04 | 4410.00 | | |
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 5160.00 | 577.02 | .45 | .00 | .05 | 5160.00 | | |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 3165.00 | 575.73 | .35 | .02 | .06 | 3165.00 | 10.64 | |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 4100.00 | 576.25 | .52 | .03 | .09 | 4100.00 | 11.13 | |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 4410.00 | 576.44 | .57 | .03 | .10 | 4410.00 | 11.34 | |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 5160.00 | 576.92 | .71 | .03 | .13 | 5160.00 | 11.82 | 81.00 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 3165.00 | 575.65 | .53 | .00 | .09 | 3165.00 | 10.55 | 67.20 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 4100.00 | 576.11 | .74 | .00 | .14 | 4100.00 | 11.01 | 67.20 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 4410.00 | 576.28 | .88 | .00 | .15 | 4410.00 | 11.18 | 67.20 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 5160.00 | 576.73 | 1.09 | .00 | .19 | 5160.00 | 11.63 | 67.20 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 3165.00 | 575.78 | .51 | .11 | .01 | 3165.00 | 10.68 | 67.20 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 4100.00 | 576.32 | .76 | .16 | .01 | 4100.00 | 11.22 | 67.20 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 4410.00 | 576.52 | .84 | .17 | .01 | 4410.00 | 11.42 | 67.20 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 5160.00 | 577.03 | 1.02 | .21 | .02 | 5160.00 | 11.93 | 67.20 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 3165.00 | 576.02 | .32 | .00 | .06 | 3165.00 | 10.92 | 81.00 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 4100.00 | 576.64 | .47 | .00 | .09 | 4100.00 | 11.59 | 81.00 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 4410.00 | 576.94 | .51 | .00 | .10 | 4410.00 | 11.84 | 81.00 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 5160.00 | 577.56 | .67 | .00 | .12 | 5160.00 | 12.46 | 81.00 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 3165.00 | 576.10 | .29 | .03 | .01 | 3165.00 | 9.90 | 113.42 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 4100.00 | 576.74 | .39 | .04 | .02 | 4100.00 | 10.64 | 117.39 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 4410.00 | 577.10 | .42 | .04 | .03 | 4410.00 | 10.90 | 118.70 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 5160.00 | 577.79 | .47 | .05 | .04 | 5160.00 | 11.59 | 122.23 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 3165.00 | 576.54 | .25 | .34 | .01 | 3165.00 | 11.14 | 110.69 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 4100.00 | 577.19 | .33 | .48 | .02 | 4100.00 | 11.99 | 114.80 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 4410.00 | 577.65 | .40 | .49 | .02 | 4410.00 | 12.20 | 115.58 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 5160.00 | 578.39 | .41 | .52 | .02 | 5160.00 | 12.99 | 117.05 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 3165.00 | 576.16 | .24 | .31 | .00 | 3165.00 | 12.27 | 100.85 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 4100.00 | 577.14 | .32 | .38 | .00 | 4100.00 | 13.18 | 102.00 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 4410.00 | 578.08 | .35 | .39 | .00 | 4410.00 | 13.48 | 102.00 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 5160.00 | 578.82 | .41 | .42 | .00 | 5160.00 | 14.22 | 102.00 |
| 2736.00 | 300.00 | 0.00 | 0.00 | 569.10 | 1500.00 | 577.14 | .12 | .12 | .03 | 1500.00 | 8.04 | 92.48 |
| 2736.00 | 300.00 | 0.00 | 0.00 | 569.10 | 1950.00 | 578.14 | .15 | .14 | .05 | 1950.00 | 9.04 | 97.63 |
| 2736.00 | 300.00 | 0.00 | 0.00 | 569.10 | 2100.00 | 578.47 | .15 | .14 | .06 | 2100.00 | 9.37 | 99.34 |
| 2736.00 | 300.00 | 0.00 | 0.00 | 569.10 | 2495.00 | 579.26 | .18 | .15 | .07 | 2495.00 | 10.16 | 100.00 |
| 3436.00 | 700.00 | 0.00 | 0.00 | 569.48 | 1500.00 | 577.42 | .13 | .29 | .00 | 1500.00 | 7.94 | 91.97 |
| 3436.00 | 700.00 | 0.00 | 0.00 | 569.48 | 1950.00 | 578.44 | .16 | .30 | .00 | 1950.00 | 8.96 | 97.20 |
| 3436.00 | 700.00 | 0.00 | 0.00 | 569.48 | 2100.00 | 578.77 | .16 | .30 | .00 | 2100.00 | 9.29 | 98.91 |
| 3436.00 | 700.00 | 0.00 | 0.00 | 569.48 | 2495.00 | 579.56 | .18 | .30 | .00 | 2495.00 | 10.08 | 100.00 |

A

Exhibit 7

SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF LOAD | MAX EL OF L OB CHORD | MIN EL GROUND | SCH (CFS) | [redacted] | [redacted]HV | [redacted]PL | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3836.00 | 400.00 | 0.00 | 0.00 | 569.70 | 1500.00 | 577.61 | .21 | .23 | .04 | 1500.00 | | | | |
| 3836.00 | 400.00 | 0.00 | 0.00 | 569.70 | 1950.00 | 578.62 | .24 | .23 | .04 | 1950.00 | | | | |
| 3836.00 | 400.00 | 0.00 | 0.00 | 569.70 | 2100.00 | 578.95 | .25 | .23 | .04 | 2100.00 | | | | |
| 3836.00 | 400.00 | 0.00 | 0.00 | 569.70 | 2495.00 | 579.73 | .27 | .22 | .03 | 2495.00 | | | | |
| 4311.00 | 475.00 | 0.00 | 0.00 | 569.90 | 1500.00 | 577.99 | .19 | .36 | .00 | 1500.00 | | | | |
| 4311.00 | 475.00 | 0.00 | 0.00 | 569.90 | 1950.00 | 578.99 | .23 | .35 | .00 | 1950.00 | | | | |
| 4311.00 | 475.00 | 0.00 | 0.00 | 569.90 | 2100.00 | 579.32 | .24 | .35 | .00 | 2100.00 | | | | |
| 4311.00 | 475.00 | 0.00 | 0.00 | 569.90 | 2495.00 | 580.09 | .26 | .34 | .00 | 2495.00 | | | | |
| 4786.00 | 475.00 | 0.00 | 0.00 | 570.10 | 1500.00 | 578.32 | .13 | .25 | .02 | 1500.00 | 8.22 | 87.36 | | |
| 4786.00 | 475.00 | 0.00 | 0.00 | 570.10 | 1950.00 | 579.35 | .16 | .27 | .02 | 1950.00 | 9.29 | 97.98 | | |
| 4786.00 | 475.00 | 0.00 | 0.00 | 570.10 | 2100.00 | 579.69 | .17 | .28 | .02 | 2100.00 | 9.59 | 105.02 | | |
| 4786.00 | 475.00 | 0.00 | 0.00 | 570.10 | 2495.00 | 580.47 | .18 | .27 | .02 | 2495.00 | 10.37 | 107.00 | | |
| 4825.00 | 39.00 | 0.00 | 0.00 | 570.80 | 1500.00 | 578.36 | .12 | .02 | .00 | 1500.00 | 7.56 | 98.00 | | |
| 4825.00 | 39.00 | 0.00 | 0.00 | 570.80 | 1950.00 | 579.40 | .14 | .02 | .01 | 1950.00 | 8.60 | 98.00 | | |
| 4825.00 | 39.00 | 0.00 | 0.00 | 570.80 | 2100.00 | 579.73 | .15 | .02 | .01 | 2100.00 | 8.93 | 98.00 | | |
| 4825.00 | 39.00 | 0.00 | 0.00 | 570.80 | 2495.00 | 580.50 | .17 | .02 | .00 | 2495.00 | 9.70 | 98.00 | | |
| 4846.00 | 21.00 | 579.40 | 578.30 | 570.80 | 1500.00 | 578.40 | .11 | .04 | 0.00 | 1500.00 | 7.60 | 98.00 | | |
| 4846.00 | 21.00 | 579.40 | 578.30 | 570.80 | 1950.00 | 579.52 | .13 | .12 | 0.00 | 1950.00 | 8.72 | 98.00 | | |
| 4846.00 | 21.00 | 579.40 | 578.30 | 570.80 | 2100.00 | 579.83 | .14 | .10 | 0.00 | 2100.00 | 9.03 | 98.00 | | |
| 4846.00 | 21.00 | 579.40 | 578.30 | 570.80 | 2495.00 | 580.50 | .17 | 0.00 | 0.00 | 2495.00 | 9.70 | 98.00 | | |
| 4847.00 | 1.00 | 0.00 | 0.00 | 570.80 | 1500.00 | 578.40 | .11 | .00 | .00 | 1500.00 | 7.60 | 98.00 | | |
| 4847.00 | 1.00 | 0.00 | 0.00 | 570.80 | 1950.00 | 579.52 | .13 | .00 | .00 | 1950.00 | 8.72 | 98.00 | | |
| 4847.00 | 1.00 | 0.00 | 0.00 | 570.80 | 2100.00 | 579.83 | .14 | .00 | .00 | 2100.00 | 9.03 | 98.00 | | |
| 4847.00 | 1.00 | 0.00 | 0.00 | 570.80 | 2495.00 | 580.50 | .17 | .00 | .00 | 2495.00 | 9.70 | 98.00 | | |
| 5436.00 | 589.00 | 0.00 | 0.00 | 570.64 | 1500.00 | 578.69 | .16 | .26 | .02 | 1500.00 | 8.02 | 88.72 | | |
| 5436.00 | 589.00 | 0.00 | 0.00 | 570.64 | 1950.00 | 579.75 | .18 | .27 | .02 | 1950.00 | 9.12 | 93.94 | | |
| 5436.00 | 589.00 | 0.00 | 0.00 | 570.64 | 2100.00 | 580.07 | .19 | .27 | .02 | 2100.00 | 9.43 | 95.45 | | |
| 5436.00 | 589.00 | 0.00 | 0.00 | 570.64 | 2495.00 | 580.76 | .22 | .28 | .03 | 2495.00 | 10.12 | 98.72 | | |
| 5936.00 | 500.00 | 0.00 | 0.00 | 570.50 | 1500.00 | 578.94 | .14 | .25 | .01 | 1500.00 | 8.44 | 90.75 | | |
| 5936.00 | 500.00 | 0.00 | 0.00 | 570.50 | 1950.00 | 580.04 | .17 | .25 | .01 | 1950.00 | 9.54 | 95.99 | | |
| 5936.00 | 500.00 | 0.00 | 0.00 | 570.50 | 2100.00 | 580.35 | .17 | .25 | .01 | 2100.00 | 9.85 | 97.50 | | |
| 5936.00 | 500.00 | 0.00 | 0.00 | 570.50 | 2495.00 | 581.05 | .19 | .26 | .01 | 2493.32 | 10.55 | 137.93 | | |
| 6416.00 | 480.00 | 0.00 | 0.00 | 570.33 | 1500.00 | 579.18 | .22 | .28 | .04 | 1500.00 | 8.85 | 72.17 | | |
| 6416.00 | 480.00 | 0.00 | 0.00 | 570.33 | 1950.00 | 580.29 | .26 | .28 | .05 | 1950.00 | 9.93 | 77.22 | | |
| 6416.00 | 480.00 | 0.00 | 0.00 | 570.33 | 2100.00 | 580.64 | .27 | .28 | .05 | 2100.00 | 10.25 | 78.69 | | |
| 6416.00 | 480.00 | 0.00 | 0.00 | 570.33 | 2495.00 | 581.29 | .31 | .29 | .06 | 2495.00 | 10.96 | 85.09 | | |
| 6786.00 | 370.00 | 0.00 | 0.00 | 570.20 | 1500.00 | 579.47 | .19 | .25 | .01 | 1500.00 | 9.27 | 74.09 | | |
| 6786.00 | 370.00 | 0.00 | 0.00 | 570.20 | 1950.00 | 580.56 | .22 | .25 | .01 | 1950.00 | 10.36 | 79.16 | | |
| 6786.00 | 370.00 | 0.00 | 0.00 | 570.20 | 2100.00 | 580.88 | .24 | .26 | .01 | 2100.00 | 10.68 | 80.64 | | |
| 6786.00 | 370.00 | 0.00 | 0.00 | 570.20 | 2495.00 | 581.64 | .28 | .30 | .01 | 2495.00 | 11.44 | 96.23 | | |

B

C

D

L

Y

Exhibit 1
35 of 41

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6835.00 | 49.00 | 0.00 | 0.00 | 571.57 | 1500.00 | 579.44 | .[illegible] | .04 | .[illegible] | [illegible] | |
| 6835.00 | 49.00 | 0.00 | 0.00 | 571.57 | 1950.00 | 580.54 | .36 | .04 | .[illegible] | [illegible] | |
| 6835.00 | 49.00 | 0.00 | 0.00 | 571.57 | 2100.00 | 580.85 | .37 | .04 | .[illegible] | [illegible] | |
| 6835.00 | 49.00 | 0.00 | 0.00 | 571.57 | 2495.00 | 581.82 | .40 | .05 | .[illegible] | [illegible] | |
| 6836.00 | 1.00 | 0.00 | 0.00 | 571.60 | 1500.00 | 579.65 | .16 | .00 | .05 | 1500.00 | [illegible] |
| 6836.00 | 1.00 | 0.00 | 0.00 | 571.60 | 1950.00 | 580.75 | .20 | .00 | .05 | 1950.00 | 9.15 |
| 6836.00 | 1.00 | 0.00 | 0.00 | 571.60 | 2100.00 | 581.06 | .21 | .01 | .05 | 2100.00 | [illegible] |
| 6836.00 | 1.00 | 0.00 | 0.00 | 571.60 | 2495.00 | 581.82 | .24 | .00 | .05 | 2495.00 | 10.20 |
| 6916.00 | 80.00 | 583.00 | 578.30 | 571.60 | 1500.00 | 579.86 | .15 | .20 | 0.00 | 1500.00 | 8.25 |
| 6916.00 | 80.00 | 583.00 | 578.30 | 571.60 | 1950.00 | 581.17 | .17 | .40 | 0.00 | 1950.00 | 9.57 |
| 6916.00 | 80.00 | 583.00 | 578.30 | 571.60 | 2100.00 | 581.57 | .18 | .48 | 0.00 | 2100.00 | 9.97 |
| 6916.00 | 80.00 | 583.00 | 578.30 | 571.60 | 2495.00 | 582.60 | .21 | .73 | 0.00 | 2495.00 | 11.00 |
| 6917.00 | 1.00 | 0.00 | 0.00 | 571.60 | 1500.00 | 579.79 | .28 | .00 | .07 | 1500.00 | 8.19 |
| 6917.00 | 1.00 | 0.00 | 0.00 | 571.60 | 1950.00 | 581.11 | .29 | .00 | .06 | 1950.00 | 9.51 |
| 6917.00 | 1.00 | 0.00 | 0.00 | 571.60 | 2100.00 | 581.52 | .30 | .00 | .06 | 2100.00 | 9.92 |
| 6917.00 | 1.00 | 0.00 | 0.00 | 571.60 | 2495.00 | 582.53 | .31 | .00 | .05 | 2495.00 | 10.95 |
| 7436.00 | 519.00 | 0.00 | 0.00 | 571.20 | 1500.00 | 580.33 | .20 | .43 | .02 | 1500.00 | [illegible] |
| 7436.00 | 519.00 | 0.00 | 0.00 | 571.20 | 1950.00 | 581.53 | .22 | .39 | .02 | 1950.00 | 10.39 |
| 7436.00 | 519.00 | 0.00 | 0.00 | 571.20 | 2100.00 | 581.99 | .23 | .38 | .02 | 2100.00 | 10.79 |
| 7436.00 | 519.00 | 0.00 | 0.00 | 571.20 | 2495.00 | 583.03 | .23 | .38 | .02 | 2495.00 | 11.83 |
| 7936.00 | 500.00 | 0.00 | 0.00 | 570.80 | 1500.00 | 580.61 | .18 | .29 | .01 | 1500.00 | [illegible] |
| 7936.00 | 500.00 | 0.00 | 0.00 | 570.80 | 1950.00 | 581.69 | .21 | .29 | .00 | 1950.00 | 11.09 |
| 7936.00 | 500.00 | 0.00 | 0.00 | 570.80 | 2100.00 | 582.24 | .22 | .29 | .00 | 2100.00 | 11.64 |
| 7936.00 | 500.00 | 0.00 | 0.00 | 570.80 | 2495.00 | 583.31 | .23 | .29 | .00 | 2495.00 | 12.51 |
| 8536.00 | 600.00 | 0.00 | 0.00 | 570.90 | 1500.00 | 580.47 | .16 | .29 | .01 | 1500.00 | 10.07 |
| 8536.00 | 600.00 | 0.00 | 0.00 | 570.90 | 1950.00 | 582.22 | .17 | .28 | .01 | 1911.49 | 11.32 |
| 8536.00 | 600.00 | 0.00 | 0.00 | 570.90 | 2100.00 | 582.62 | .16 | .27 | .02 | 1994.42 | 11.72 |
| 8536.00 | 600.00 | 0.00 | 0.00 | 570.90 | 2495.00 | 583.67 | .14 | .23 | .03 | 2141.66 | 12.77 |
| 9136.00 | 600.00 | 0.00 | 0.00 | 570.90 | 1500.00 | 581.21 | .14 | .25 | .01 | 1497.84 | 10.34 |
| 9136.00 | 600.00 | 0.00 | 0.00 | 570.90 | 1950.00 | 582.48 | .14 | .22 | .01 | 1846.95 | 11.58 |
| 9136.00 | 600.00 | 0.00 | 0.00 | 570.90 | 2100.00 | 582.86 | .14 | .21 | .01 | 1943.91 | 11.96 |
| 9136.00 | 600.00 | 0.00 | 0.00 | 570.90 | 2495.00 | 583.84 | .14 | .17 | .00 | 2174.64 | 12.94 |
| 9586.00 | 450.00 | 0.00 | 0.00 | 570.94 | 1500.00 | 581.41 | .14 | .17 | .00 | 1498.53 | 10.48 |
| 9586.00 | 450.00 | 0.00 | 0.00 | 570.94 | 1950.00 | 582.63 | .16 | .15 | .01 | 1916.40 | 11.70 |
| 9586.00 | 450.00 | 0.00 | 0.00 | 570.94 | 2100.00 | 583.00 | .16 | .15 | .01 | 2040.15 | 12.06 |
| 9586.00 | 450.00 | 0.00 | 0.00 | 570.94 | 2495.00 | 583.95 | .16 | .13 | .01 | 2312.51 | 13.02 |
| 9596.00 | 10.00 | 0.00 | 0.00 | 570.98 | 1500.00 | 581.40 | .18 | .01 | .02 | 1493.37 | 10.42 |
| 9596.00 | 10.00 | 0.00 | 0.00 | 570.98 | 1950.00 | 582.65 | .15 | .00 | .00 | 1801.51 | 11.67 |
| 9596.00 | 10.00 | 0.00 | 0.00 | 570.98 | 2100.00 | 583.03 | .14 | .00 | .01 | 1882.08 | 12.05 |
| 9596.00 | 10.00 | 0.00 | 0.00 | 570.98 | 2495.00 | 584.01 | .12 | .00 | .01 | 2084.12 | 13.03 |

Exhibit 9
36 of 41

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|

| SECTION NUMBER | CHANNEL LENGTH | MIN ROADWAY | OF LOW CHORD | EL MIN GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | LOSS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10286.00 | 690.00 | 0.00 | 0.00 | 571.00 | 1500.00 | 581.90 | .13 | .45 | .01 | | | |
| 10286.00 | 690.00 | 0.00 | 0.00 | 571.00 | 1950.00 | 583.02 | .12 | .34 | .01 | | | |
| 10286.00 | 690.00 | 0.00 | 0.00 | 571.00 | 2100.00 | 583.36 | .12 | .31 | .01 | | | |
| 10286.00 | 690.00 | 0.00 | 0.00 | 571.00 | 2495.00 | 584.26 | .11 | .24 | .00 | | | |
| 10336.00 | 50.00 | 0.00 | 0.00 | 572.50 | 1500.00 | 581.91 | .17 | .03 | .02 | | | |
| 10336.00 | 50.00 | 0.00 | 0.00 | 572.50 | 1950.00 | 583.01 | .19 | .02 | .04 | | | |
| 10336.00 | 50.00 | 0.00 | 0.00 | 572.50 | 2100.00 | 583.34 | .20 | .02 | .04 | | | |
| 10336.00 | 50.00 | 0.00 | 0.00 | 572.50 | 2495.00 | 584.23 | .21 | .02 | .05 | | | |
| 10636.00 | 300.00 | 0.00 | 0.00 | 572.47 | 1500.00 | 582.06 | .18 | .15 | .00 | 1500.00 | | |
| 10636.00 | 300.00 | 0.00 | 0.00 | 572.47 | 1950.00 | 583.17 | .20 | .19 | .01 | 1950.00 | | |
| 10636.00 | 300.00 | 0.00 | 0.00 | 572.47 | 2100.00 | 583.53 | .20 | .19 | .00 | 2100.00 | | |
| 10636.00 | 300.00 | 0.00 | 0.00 | 572.47 | 2495.00 | 584.41 | .20 | .18 | .00 | 2495.00 | | |
| 11536.00 | 900.00 | 0.00 | 0.00 | 572.40 | 1500.00 | 582.54 | .15 | .44 | .01 | 1500.00 | | |
| 11536.00 | 900.00 | 0.00 | 0.00 | 572.40 | 1950.00 | 584.04 | .13 | .75 | .02 | 1950.00 | | |
| 11536.00 | 900.00 | 0.00 | 0.00 | 572.40 | 2100.00 | 584.31 | .12 | .79 | .02 | 2100.00 | | |
| 11536.00 | 900.00 | 0.00 | 0.00 | 572.40 | 2495.00 | 585.11 | .12 | .58 | .02 | 2495.00 | | |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH | CWSEL DIFF EACH SECTION | CWSEL-VSEL | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 1.000 | 3165.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 4100.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 4410.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 5160.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 30.000 | 3165.000 | 574.919 | 0.000 | .019 | 0.000 | 89.979 | -0.000 | 29.000 |
| 30.000 | 4100.000 | 574.934 | .015 | .034 | 0.000 | 90.077 | -.098 | 29.000 |
| 30.000 | 4410.000 | 574.941 | .008 | .041 | 0.000 | 90.111 | -.137 | 29.000 |
| 30.000 | 5160.000 | 574.961 | .020 | .061 | 0.000 | 90.272 | -.293 | 29.000 |
| 60.000 | 3165.000 | 574.939 | 0.000 | .019 | 0.000 | 90.123 | 0.000 | 30.000 |
| 60.000 | 4100.000 | 574.978 | .041 | .059 | 0.000 | 90.370 | -.241 | 30.000 |
| 60.000 | 4410.000 | 574.983 | .014 | .043 | 0.000 | 90.461 | -.333 | 30.000 |
| 60.000 | 5160.000 | 575.028 | .046 | .087 | 0.000 | 90.898 | -.769 | 30.000 |
| 61.000 | 3165.000 | 574.909 | 0.000 | -.030 | 0.000 | 82.905 | 0.000 | 1.000 |
| 61.000 | 4100.000 | 574.919 | .010 | -.052 | 0.000 | 82.985 | -.040 | 1.000 |
| 61.000 | 4410.000 | 574.923 | .005 | -.061 | 0.000 | 83.023 | -.117 | 1.000 |
| 61.000 | 5160.000 | 574.942 | .019 | -.068 | 0.000 | 83.184 | -.276 | 1.000 |
| 136.000 | 3165.000 | 575.000 | 0.000 | .041 | 0.000 | 93.663 | 0.000 | 75.000 |
| 136.000 | 4100.000 | 575.085 | .085 | .167 | 0.000 | 84.376 | -.709 | 75.000 |
| 136.000 | 4410.000 | 575.122 | .037 | .200 | 0.000 | 84.688 | -1.060 | 75.000 |
| 136.000 | 5160.000 | 575.242 | .119 | .300 | 0.000 | 85.684 | -2.016 | 75.000 |
| 137.000 | 3165.000 | 575.046 | 0.000 | .085 | 0.000 | 91.381 | 0.000 | 1.000 |
| 137.000 | 4100.000 | 575.236 | .190 | .151 | 0.000 | 92.635 | -1.255 | 1.000 |
| 137.000 | 4410.000 | 575.300 | .064 | .178 | 0.000 | 93.172 | -1.791 | 1.000 |
| 137.000 | 5160.000 | 575.495 | .195 | .254 | 0.000 | 94.127 | -2.747 | 1.000 |
| 187.000 | 3165.000 | 575.095 | 0.000 | .009 | 0.000 | 88.947 | 0.000 | 50.000 |
| 187.000 | 4100.000 | 575.251 | .155 | .015 | 0.000 | 90.512 | -1.564 | 50.000 |
| 187.000 | 4410.000 | 575.318 | .066 | .018 | 0.000 | 91.177 | -2.229 | 50.000 |
| 187.000 | 5160.000 | 575.510 | .200 | .023 | 0.000 | 92.350 | -3.403 | 50.000 |
| 362.000 | 3165.000 | 575.377 | 0.000 | .283 | 0.000 | 143.475 | 0.000 | 175.000 |
| 362.000 | 4100.000 | 575.724 | .346 | .472 | 0.000 | 145.168 | -1.693 | 175.000 |
| 362.000 | 4410.000 | 575.862 | .138 | .544 | 0.000 | 145.843 | -2.368 | 175.000 |
| 362.000 | 5160.000 | 576.244 | .383 | .726 | 0.000 | 147.720 | -4.245 | 175.000 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 737.000 | 4100.000 | 575.887 | .397 | .163 | 0.000 | 121.404 | 0.000 | |
| [redacted] | 737.000 | 4410.000 | 576.040 | .495 | .179 | 0.000 | 122.393 | -1.000 | |
| | 737.000 | 5160.000 | 576.454 | .413 | .209 | 0.000 | 113.394 | -7.000 | |
| | 787.000 | 3165.000 | 575.472 | 0.000 | -.018 | 0.000 | 106.600 | 0.000 | 1.000 |
| | 787.000 | 4100.000 | 575.958 | .387 | -.029 | 0.000 | 106.600 | 0.000 | 1.000 |
| | 787.000 | 4410.000 | 576.008 | .149 | -.032 | 0.000 | 106.600 | 0.000 | 1.000 |
| | 787.000 | 5160.000 | 576.412 | .404 | -.042 | 0.000 | 106.600 | 0.000 | 50.000 |
| | 788.000 | 3165.000 | 575.442 | 0.000 | -.030 | 0.000 | 97.000 | 0.000 | 1.000 |
| | 788.000 | 4100.000 | 575.814 | .372 | -.045 | 0.000 | 104.000 | -7.000 | 1.000 |
| | 788.000 | 4410.000 | 575.958 | .145 | -.049 | 0.000 | 104.000 | -7.000 | 1.000 |
| | 788.000 | 5160.000 | 576.353 | .394 | -.059 | 0.000 | 104.000 | -7.000 | 1.000 |
| | 797.000 | 3165.000 | 575.465 | 0.000 | .023 | 0.000 | 97.000 | 0.000 | 9.000 |
| | 797.000 | 4100.000 | 575.851 | .386 | .037 | 0.000 | 104.000 | -7.000 | 9.000 |
| | 797.000 | 4410.000 | 576.001 | .151 | .043 | 0.000 | 104.000 | -7.000 | 9.000 |
| | 797.000 | 5160.000 | 576.404 | .403 | .052 | 0.000 | 104.000 | -7.000 | 9.000 |
| | 798.000 | 3165.000 | 575.553 | 0.000 | .088 | 0.000 | 106.600 | 0.000 | 1.000 |
| | 798.000 | 4100.000 | 575.984 | .431 | .134 | 0.000 | 106.600 | 0.000 | 1.000 |
| | 798.000 | 4410.000 | 576.147 | .163 | .146 | 0.000 | 106.600 | -0.000 | 1.000 |
| | 798.000 | 5160.000 | 576.583 | .435 | .178 | 0.000 | 106.600 | 0.000 | 1.000 |
| | 844.000 | 3165.000 | 575.582 | 0.000 | .029 | 0.000 | 105.391 | 0.000 | 46.000 |
| | 844.000 | 4100.000 | 576.027 | .445 | .043 | 0.000 | 108.181 | -2.789 | 46.000 |
| | 844.000 | 4410.000 | 576.195 | .168 | .048 | 0.000 | 108.983 | -3.592 | 46.000 |
| | 844.000 | 5160.000 | 576.641 | .446 | .059 | 0.000 | 109.000 | -3.609 | 46.000 |
| | 845.000 | 3165.000 | 575.561 | 0.000 | -.022 | 0.000 | 98.255 | 0.000 | 1.000 |
| | 845.000 | 4100.000 | 575.945 | .384 | -.033 | 0.000 | 100.975 | -2.720 | 1.000 |
| | 845.000 | 4410.000 | 576.150 | .204 | -.038 | 0.000 | 101.751 | -3.595 | 1.000 |
| | 845.000 | 5160.000 | 576.596 | .447 | -.045 | 0.000 | 102.001 | -3.745 | 1.000 |
| | 859.000 | 3165.000 | 575.590 | 0.000 | .029 | 0.000 | 94.400 | 0.000 | 14.500 |
| | 859.000 | 4100.000 | 576.040 | .451 | .045 | 0.000 | 101.263 | -2.863 | 14.500 |
| | 859.000 | 4410.000 | 576.210 | .170 | .051 | 0.000 | 102.001 | -3.600 | 14.500 |
| | 859.000 | 5160.000 | 576.661 | .451 | .061 | 0.000 | 102.000 | -3.600 | 14.500 |
| | 860.000 | 3165.000 | 575.653 | 0.000 | .064 | 0.000 | 105.835 | 0.000 | 1.000 |
| | 860.000 | 4100.000 | 576.137 | .484 | .097 | 0.000 | 108.773 | -2.935 | 1.000 |
| | 860.000 | 4410.000 | 576.318 | .181 | .104 | 0.000 | 109.000 | -3.162 | 1.000 |
| | 860.000 | 5160.000 | 576.797 | .479 | .135 | 0.000 | 109.000 | -3.162 | 1.000 |
| | 910.000 | 3165.000 | 575.702 | 0.000 | .049 | 0.000 | 107.000 | 0.000 | 50.000 |
| | 910.000 | 4100.000 | 576.291 | .589 | .070 | 0.000 | 107.000 | 0.000 | 50.000 |
| | 910.000 | 4410.000 | 576.495 | .187 | .076 | 0.000 | 107.000 | 0.000 | 50.000 |
| | 910.000 | 5160.000 | 576.883 | .389 | .085 | 0.000 | 107.000 | 0.000 | 50.000 |
| | 911.000 | 3165.000 | 575.676 | 0.000 | -.027 | 0.000 | 105.000 | 0.000 | 1.000 |
| | 911.000 | 4100.000 | 576.170 | .494 | -.038 | 0.000 | 105.000 | 0.000 | 1.000 |
| | 911.000 | 4410.000 | 576.354 | .184 | -.041 | 0.000 | 105.000 | 0.000 | 1.000 |
| | 911.000 | 5160.000 | 576.839 | .485 | -.047 | 0.000 | 105.000 | 0.000 | 1.000 |
| | 921.000 | 3165.000 | 575.700 | 0.000 | .024 | 0.000 | 105.000 | -0.000 | 10.000 |
| | 921.000 | 4100.000 | 576.204 | .504 | .034 | 0.000 | 105.000 | 0.000 | 10.000 |
| | 921.000 | 4410.000 | 576.390 | .186 | .038 | 0.000 | 105.000 | 0.000 | 10.000 |
| | 921.000 | 5160.000 | 576.869 | .479 | .048 | 0.000 | 105.000 | -0.000 | 10.000 |
| | 922.000 | 3165.000 | 575.770 | 0.000 | .070 | 0.000 | 107.000 | 0.000 | 1.000 |
| | 922.000 | 4100.000 | 576.313 | .543 | .119 | 0.000 | 107.000 | 0.000 | 1.000 |
| | 922.000 | 4410.000 | 576.519 | .206 | .131 | 0.000 | 107.000 | 0.000 | 1.000 |
| | 922.000 | 5160.000 | 577.120 | .601 | .141 | 0.000 | 107.000 | 0.000 | 1.000 |
| | 953.000 | 3165.000 | 575.735 | 0.000 | -.041 | 0.000 | 105.000 | 0.000 | 1.000 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 953.000 | 4410.000 | 576.436 | .189 | -.074 | 0.000 | 81.000 | 0.000 | [illegible] | |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | |
| 954.000 | 3165.000 | 575.646 | 0.000 | -.089 | 0.000 | 67.200 | 0.000 | [illegible] | |
| 954.000 | 4100.000 | 576.112 | .466 | -.136 | 0.000 | 67.200 | 0.000 | [illegible] | |
| 954.000 | 4410.000 | 576.284 | .172 | -.152 | 0.000 | 67.200 | 0.000 | [illegible] | |
| 954.000 | 5160.000 | 576.733 | .450 | -.190 | 0.000 | 67.200 | 0.000 | [illegible] | |
| 985.000 | 3165.000 | 575.776 | 0.000 | .131 | 0.000 | 67.200 | 0.000 | [illegible] | |
| 985.000 | 4100.000 | 576.317 | .541 | .205 | 0.000 | 67.200 | 0.000 | [illegible] | |
| 985.000 | 4410.000 | 576.515 | .198 | .232 | 0.000 | 67.200 | 0.000 | [illegible] | |
| 985.000 | 5160.000 | 577.028 | .513 | .295 | 0.000 | 67.200 | 0.000 | [illegible] | |
| 986.000 | 3165.000 | 576.021 | 0.000 | .245 | 0.000 | 81.000 | 0.000 | 1.000 | |
| 986.000 | 4100.000 | 576.693 | .672 | .376 | 0.000 | 81.000 | 0.000 | 1.000 | |
| 986.000 | 4410.000 | 576.936 | .243 | .421 | 0.000 | 81.000 | 0.000 | 1.000 | |
| 986.000 | 5160.000 | 577.556 | .620 | .528 | 0.000 | 81.000 | 0.000 | 1.000 | |
| 1036.000 | 3165.000 | 576.100 | 0.000 | .079 | 0.000 | 113.418 | 0.000 | 50.000 | |
| 1036.000 | 4100.000 | 576.838 | .738 | .145 | 0.000 | 117.340 | -3.922 | 50.000 | |
| 1036.000 | 4410.000 | 577.105 | .267 | .169 | 0.000 | 118.599 | -5.180 | 50.000 | |
| 1036.000 | 5160.000 | 577.792 | .688 | .236 | 0.000 | 122.233 | -8.815 | 50.000 | |
| 1736.000 | 3165.000 | 576.545 | 0.000 | .444 | 0.000 | 110.653 | 0.000 | 700.000 | |
| 1736.000 | 4100.000 | 577.388 | .843 | .550 | 0.000 | 114.797 | -4.144 | 700.000 | |
| 1736.000 | 4410.000 | 577.679 | .291 | .574 | 0.000 | 115.581 | -4.928 | 700.000 | |
| 1736.000 | 5160.000 | 578.394 | .715 | .681 | 0.000 | 117.049 | -6.396 | 700.000 | |
| 2436.000 | 3165.000 | 576.872 | 0.000 | .327 | 0.000 | 100.852 | 0.000 | 700.000 | |
| 2436.000 | 4100.000 | 577.781 | .910 | .394 | 0.000 | 101.999 | -1.147 | 700.000 | |
| 2436.000 | 4410.000 | 578.085 | .304 | .406 | 0.000 | 101.999 | -1.147 | 700.000 | |
| 2436.000 | 5160.000 | 578.813 | .733 | .474 | 0.000 | 101.999 | -1.147 | 700.000 | |
| 2736.000 | 1500.000 | 577.137 | 0.000 | .265 | 0.000 | 92.478 | 0.000 | 300.000 | |
| 2736.000 | 1950.000 | 578.139 | 1.001 | .338 | 0.000 | 97.629 | -5.151 | 300.000 | |
| 2736.000 | 2100.000 | 578.471 | .332 | .359 | 0.000 | 99.136 | -6.658 | 300.000 | |
| 2736.000 | 2495.000 | 579.263 | .792 | .445 | 0.000 | 99.999 | -7.521 | 300.000 | |
| 3436.000 | 1500.000 | 577.421 | 0.000 | .284 | 0.000 | 91.970 | 0.000 | 700.000 | |
| 3436.000 | 1950.000 | 578.445 | 1.024 | .296 | 0.000 | 97.198 | -5.228 | 700.000 | |
| 3436.000 | 2100.000 | 578.788 | .343 | .297 | 0.000 | 98.907 | -6.938 | 700.000 | |
| 3436.000 | 2495.000 | 579.558 | .770 | .295 | 0.000 | 99.999 | -8.029 | 700.000 | |
| 3836.000 | 1500.000 | 577.507 | 0.000 | .156 | 0.000 | 82.235 | 0.000 | 400.000 | |
| 3836.000 | 1950.000 | 578.521 | 1.013 | .145 | 0.000 | 86.763 | -4.529 | 400.000 | |
| 3836.000 | 2100.000 | 578.951 | .430 | .183 | 0.000 | 87.667 | -5.432 | 400.000 | |
| 3836.000 | 2495.000 | 579.734 | .784 | .176 | 0.000 | 89.802 | -7.567 | 400.000 | |
| 4311.000 | 1500.000 | 577.984 | 0.000 | .361 | 0.000 | 83.071 | 0.000 | 475.000 | |
| 4311.000 | 1950.000 | 578.994 | 1.009 | .374 | 0.000 | 87.256 | -4.185 | 475.000 | |
| 4311.000 | 2100.000 | 579.317 | .323 | .367 | 0.000 | 88.146 | -5.045 | 475.000 | |
| 4311.000 | 2495.000 | 580.092 | .775 | .358 | 0.000 | 89.999 | -6.998 | 475.000 | |
| 4786.000 | 1500.000 | 578.323 | 0.000 | .338 | 0.000 | 87.322 | 0.000 | 475.000 | |
| 4786.000 | 1950.000 | 579.352 | 1.029 | .358 | 0.000 | 97.980 | -10.658 | 475.000 | |
| 4786.000 | 2100.000 | 579.686 | .334 | .369 | 0.000 | 105.019 | -17.698 | 475.000 | |
| 4786.000 | 2495.000 | 580.466 | .780 | .373 | 0.000 | 106.499 | -19.677 | 475.000 | |
| 4825.000 | 1500.000 | 578.359 | 0.000 | .335 | 0.000 | 97.999 | 0.000 | 39.000 | |
| 4825.000 | 1950.000 | 579.395 | 1.036 | .343 | 0.000 | 97.999 | -.000 | 39.000 | |
| 4825.000 | 2100.000 | 579.729 | .333 | .343 | 0.000 | 98.000 | -.000 | 39.000 | |
| 4825.000 | 2495.000 | 580.503 | .775 | .347 | 0.000 | 98.000 | -.000 | 39.000 | |
| 4846.000 | 1500.000 | 578.402 | 0.000 | .043 | 0.000 | 97.999 | 0.000 | 21.000 | |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 4846.000 | 2100.000 | 579.833 | .716 | .104 | 0.000 | 98.000 | -.000 | 21.000 |
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| | 4847.000 | 1500.000 | 578.402 | 0.000 | .000 | 0.000 | 97.999 | 0.000 | 1.000 |
| | 4847.000 | 1950.000 | 579.517 | 1.115 | .000 | 0.000 | 98.000 | -.000 | 1.000 |
| | 4847.000 | 2100.000 | 579.833 | .316 | .000 | 0.000 | 98.000 | -.000 | 1.000 |
| | 4847.000 | 2495.000 | 580.350 | .517 | .000 | 0.000 | 98.000 | -.000 | 1.000 |
| | 5436.000 | 1500.000 | 578.656 | 0.000 | .254 | 0.000 | 88.720 | 0.000 | 500.000 |
| | 5436.000 | 1950.000 | 579.758 | 1.102 | .241 | 0.000 | 93.938 | -5.219 | 500.000 |
| | 5436.000 | 2100.000 | 580.074 | .316 | .241 | 0.000 | 95.450 | -6.731 | 500.000 |
| | 5436.000 | 2495.000 | 580.758 | .684 | .254 | 0.000 | 98.720 | -10.000 | 500.000 |
| | 5936.000 | 1500.000 | 579.941 | 0.000 | .284 | 0.000 | 90.748 | 0.000 | 500.000 |
| E | 5936.000 | 1950.000 | 580.037 | 1.096 | .279 | 0.000 | 95.988 | -5.240 | 500.000 |
| | 5936.000 | 2100.000 | 580.354 | .317 | .280 | 0.000 | 97.504 | -6.756 | 500.000 |
| | 5936.000 | 2495.000 | 581.051 | .697 | .294 | 0.000 | 137.931 | -47.183 | 500.000 |
| | 6416.000 | 1500.000 | 579.177 | 0.000 | .236 | 0.000 | 72.169 | 0.000 | 480.000 |
| | 6416.000 | 1950.000 | 580.265 | 1.088 | .228 | 0.000 | 77.216 | -5.047 | 480.000 |
| | 6416.000 | 2100.000 | 580.582 | .317 | .227 | 0.000 | 78.686 | -6.517 | 480.000 |
| | 6416.000 | 2495.000 | 581.289 | .708 | .238 | 0.000 | 85.087 | -12.918 | 480.000 |
| | 6786.000 | 1500.000 | 579.467 | 0.000 | .290 | 0.000 | 74.094 | 0.000 | 370.000 |
| F | 6786.000 | 1950.000 | 580.561 | 1.093 | .296 | 0.000 | 79.161 | -5.067 | 370.000 |
| | 6786.000 | 2100.000 | 580.881 | .320 | .299 | 0.000 | 80.645 | -6.551 | 370.000 |
| | 6786.000 | 2495.000 | 581.639 | .759 | .350 | 0.000 | 96.230 | -22.136 | 370.000 |
| | 6835.000 | 1500.000 | 579.445 | 0.000 | -.019 | 0.000 | 67.640 | 0.000 | 49.000 |
| | 6835.000 | 1950.000 | 580.536 | 1.092 | -.024 | 0.000 | 72.700 | -5.060 | 49.000 |
| | 6835.000 | 2100.000 | 580.856 | .320 | -.025 | 0.000 | 74.181 | -6.541 | 49.000 |
| | 6835.000 | 2495.000 | 581.615 | .759 | -.024 | 0.000 | 77.698 | -10.059 | 49.000 |
| | 6836.000 | 1500.000 | 579.655 | 0.000 | .210 | 0.000 | 73.000 | 0.000 | 1.000 |
| | 6836.000 | 1950.000 | 580.745 | 1.091 | .209 | 0.000 | 73.000 | 0.000 | 1.000 |
| | 6836.000 | 2100.000 | 581.065 | .320 | .209 | 0.000 | 73.000 | 0.000 | 1.000 |
| | 6836.000 | 2495.000 | 581.824 | .759 | .209 | 0.000 | 73.000 | 0.000 | 1.000 |
| | 6916.000 | 1500.000 | 579.860 | 0.000 | .205 | 0.000 | 74.000 | 0.000 | 80.000 |
| | 6916.000 | 1950.000 | 581.168 | 1.308 | .202 | 0.000 | 73.000 | 0.000 | 80.000 |
| G | 6916.000 | 2100.000 | 581.574 | .406 | .209 | 0.000 | 73.000 | 0.000 | 80.000 |
| | 6916.000 | 2495.000 | 582.596 | 1.022 | .772 | 0.000 | 73.000 | 0.000 | 80.000 |
| | 6917.000 | 1500.000 | 579.794 | 0.000 | -.166 | 0.000 | 69.129 | 0.000 | 1.000 |
| | 6917.000 | 1950.000 | 581.108 | 1.314 | -.159 | 0.000 | 75.211 | -6.090 | 1.000 |
| | 6917.000 | 2100.000 | 581.517 | .409 | -.157 | 0.000 | 77.184 | -7.984 | 1.000 |
| | 6917.000 | 2495.000 | 582.545 | 1.029 | -.150 | 0.000 | 84.517 | -15.496 | 1.000 |
| | 7436.000 | 1500.000 | 580.331 | 0.000 | .237 | 0.000 | 73.462 | 0.000 | 519.000 |
| | 7436.000 | 1950.000 | 581.592 | 1.261 | .444 | 0.000 | 79.306 | -5.845 | 519.000 |
| | 7436.000 | 2100.000 | 581.986 | .394 | .459 | 0.000 | 81.134 | -7.672 | 519.000 |
| | 7436.000 | 2495.000 | 583.026 | 1.040 | .491 | 0.000 | 99.993 | -26.537 | 519.000 |
| | 7936.000 | 1500.000 | 580.647 | 0.000 | .318 | 0.000 | 69.404 | 0.000 | 500.000 |
| H | 7936.000 | 1950.000 | 581.894 | 1.248 | .302 | 0.000 | 75.353 | -5.949 | 500.000 |
| | 7936.000 | 2100.000 | 582.284 | .389 | .297 | 0.000 | 77.210 | -7.806 | 500.000 |
| | 7936.000 | 2495.000 | 583.313 | 1.030 | .287 | 0.000 | 75.993 | -10.595 | 500.000 |
| | 8536.000 | 1500.000 | 580.965 | 0.000 | .314 | 0.000 | 74.414 | 0.000 | 600.000 |
| | 8536.000 | 1950.000 | 582.224 | 1.259 | .329 | 0.000 | 249.209 | -174.080 | 600.000 |
| | 8536.000 | 2100.000 | 582.622 | .398 | .334 | 0.000 | 249.909 | -174.080 | 600.000 |
| | 8536.000 | 2495.000 | 583.668 | 1.046 | .354 | 0.000 | 249.393 | -176.090 | 600.000 |
| I | 9136.000 | 1500.000 | 581.237 | -.139 | .271 | 0.000 | 143.183 | 0.000 | 500.000 |
| | 9136.000 | 1950.000 | 582.483 | 1.246 | .259 | 0.000 | 152.799 | -24.133 | 600.000 |
| | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 0.000 | 169.999 | | |
| 9586.000 | 1500.000 | 581.[illegible] | [illegible].00[illegible] | [illegible] | 0.000 | 43.419 | 0.[illegible] | [illegible] |
| [illegible]586.000 | [illegible]000 | 582.[illegible] | 1.218 | .147 | 0.000 | 134.701 | -6[illegible].[illegible] | [illegible].0 |
| 9586.000 | 2100.000 | 582.946 | .366 | .139 | 0.000 | 158.126 | -6[illegible].[illegible] | [illegible].0 |
| 9586.000 | 2495.000 | 583.955 | .979 | .119 | 0.000 | 199.[illegible] | -[illegible].[illegible] | |
| 9596.000 | 1500.000 | 581.397 | 0.000 | -.015 | 0.000 | 142.[illegible] | 0.[illegible] | [illegible].000 |
| 9596.000 | 1950.000 | 582.646 | 1.249 | .016 | 0.000 | 199.999 | -57.[illegible] | [illegible].000 |
| 9596.000 | 2100.000 | 583.029 | .383 | .033 | 0.000 | 199.999 | -57.330 | [illegible].000 |
| 9596.000 | 2495.000 | 584.008 | .979 | .053 | 0.000 | 199.999 | -57.[illegible] | [illegible].000 |
| 10286.000 | 1500.000 | 581.904 | 0.000 | .507 | 0.000 | 199.[illegible] | 0.000 | [illegible].000 |
| 10286.000 | 1950.000 | 583.020 | 1.116 | .374 | 0.000 | 199.999 | -.000 | [illegible].000 |
| 10286.000 | 2100.000 | 583.361 | .341 | .333 | 0.000 | 199.999 | -.000 | 690.000 |
| 10286.000 | 2495.000 | 584.262 | .901 | .255 | 0.000 | 199.999 | -.000 | 690.000 |
| 10336.000 | 1500.000 | 581.910 | 0.000 | .000 | 0.000 | 94.999 | 0.000 | 50.000 |
| 10336.000 | 1950.000 | 583.005 | 1.095 | -.015 | 0.000 | 94.999 | -.000 | 50.000 |
| 10336.000 | 2100.000 | 583.341 | .335 | -.020 | 0.000 | 94.999 | -.000 | 50.000 |
| 10336.000 | 2495.000 | 584.229 | .889 | -.053 | 0.000 | 94.999 | -.000 | 50.000 |
| 10636.000 | 1500.000 | 582.050 | 0.000 | .146 | 0.000 | 73.389 | 0.000 | 300.000 |
| 10636.000 | 1950.000 | 583.190 | 1.134 | .144 | 0.000 | 120.889 | -47.500 | 300.000 |
| 10636.000 | 2100.000 | 583.526 | .336 | .145 | 0.000 | 125.353 | -52.464 | 300.000 |
| 10636.000 | 2495.000 | 584.420 | .900 | .136 | 0.000 | 142.354 | -68.965 | 300.000 |
| 11536.000 | 1500.000 | 582.536 | 0.000 | .480 | 0.000 | 75.398 | 0.000 | 900.000 |
| 11536.000 | 1950.000 | 584.040 | 1.504 | .450 | 0.000 | 191.552 | -115.554 | 900.000 |
| 11536.000 | 2100.000 | 584.332 | .292 | .807 | 0.000 | 196.314 | -120.916 | 900.000 |
| 11536.000 | 2495.000 | 585.105 | .773 | .660 | 0.000 | 199.999 | -124.001 | 900.000 |

DATA FOR LAST CROSS SECTIO

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH OFF |
|---|---|---|---|---|
| 1 | 0.000 | 200.000 | 25.525 | .000 |
| 2 | 0.000 | 200.000 | 31.[illegible] | .061 |
| 3 | 0.000 | 200.000 | 32.[illegible] | .[illegible] |
| 4 | 0.000 | 200.000 | [illegible].[illegible] | .1[illegible] |

Exhibit 1
41 of 41

CITY OF LINCOLN PARK, MICHIGAN

NORTH BRANCH ECORSE CREEK

EXHIBIT 8

HEC-2 Backwater Analysis

with Cross Section Plots

(See Separate Folder)

CITY OF LINCOLN PARK, MICHIGAN

NORTH BRANCH ECORSE CREEK

EXHIBIT 9

Stream Profile

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Lincoln Park

3) WATERCOURSE: North Branch Ecorse Creek

4) DOCUMENT TYPE: Summary

00BREAK00

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
*****************************************************

C
T1 NORTH BRANCH ECORSE CR. FIS HUD 2010 07 LINCOLN PARK
T2 30 YR FLOW
T5       N.BR.ECORSE CR.LINC.PK.

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      0.        2.        0.        0.  0.000000      0.00      0.0       0.   582.060     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    150.000   201.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J5  LPRNT     NUMSEC                  ********REQUESTED SECTION NUMBERS********
    -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
UC      0.035     0.035     0.033     0.300     0.500     0.000     0.000     0.000     0.000     0.000
QT      5.000   850.000  1250.000  1410.000  1410.000  1840.000     0.000     0.000     0.000     0.000

        VALLEY SECT. FROM JOH ECORSE FIS

XT  10636.000    27.000   683.000   835.000     0.000     0.000     0.000     0.000     0.000     0.000
XS      0.000     0.000     0.000   695.000     0.000   800.000     0.000     0.000     0.000     0.000
GR    582.670     0.000   582.670    55.000   584.370   155.000   585.670   255.000   586.070   355.000
GR    586.270   455.000   585.470   555.000   584.570   655.000   583.370   677.000   574.870   697.000
GR    573.770   700.000   573.070   705.000   572.470   710.000   572.470   715.000   575.670   720.000
GR    574.570   725.000   575.070   727.000   575.970   730.000   582.670   735.000   573.370   853.000
GR    583.270   955.000   583.070  1055.000   583.970  1065.000   583.370  1135.000   583.370  1255.000
GR    583.070  1355.000   583.070  1455.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.000     0.000     0.000     0.100     0.300     0.000     0.000     0.000     0.000     0.000
NH      7.000     0.200   340.000     0.100   680.000     1.000   900.000     0.050   983.000     0.035
NH   1054.000     0.100  1375.000     0.500  1970.000     0.000     0.000     0.000     0.000     0.000

        VALLEY SECTION

XT  11556.000    15.000   983.000  1054.000   900.000   900.000   900.000     0.000     0.000     0.000
XS      0.000     0.000     0.000   580.000     0.000  1110.000     0.000     0.000     0.000     0.000
GR    585.000     0.000   582.600   340.000   588.000   680.000   587.000   900.000   586.600   910.000
GR    585.200   983.000   575.400  1028.000   572.000  1010.000   575.400  1028.000   576.400  1043.000
GR    583.500  1054.000   584.200  1118.000   583.000  1210.000   584.000  1375.000   585.000  1970.000
NC      0.000     0.000     0.000     0.300     0.500     0.000     0.000     0.000     0.000     0.000
NH      5.000     0.200   250.000     0.300   920.000     0.030   994.000     0.035  1046.000     0.500
NH   1580.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

        VALLEY SECT. 50' D/S OF AUSTIN

XT  12277.000    11.000   994.000  1046.000   730.000   738.000   738.000     0.000     0.000     0.000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X3 | 0.000 | 0.000 | 0.000 | 900.000 | 0.000 | 1050.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X4 | 1.000 | 582.000 | 920.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 585.000 | 0.000 | 583.300 | 250.000 | 580.000 | 650.000 | 582.400 | 980.000 | 575.200 | 994.000 |
| GR | 575.500 | 1020.000 | 574.900 | 1046.000 | 581.800 | 1065.000 | 580.000 | 1130.000 | 580.000 | 1250.000 |
| GR | 585.000 | 1580.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.200 | 250.000 | 0.300 | 930.000 | 0.050 | 1014.000 | 0.035 | 1064.100 | 0.500 |
| NH | 1600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE OF AUSTIN

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12324.000 | 22.000 | 1014.000 | 1064.100 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 920.000 | 0.000 | 1065.000 | 0.000 | 583.300 | 583.300 | 0.000 |
| GR | 585.000 | 0.000 | 583.300 | 250.000 | 583.600 | 430.000 | 580.400 | 930.000 | 582.400 | 1000.000 |
| GR | 574.100 | 1014.000 | 574.100 | 1014.100 | 574.100 | 1030.000 | 574.100 | 1030.100 | 574.100 | 1031.000 |
| GR | 574.100 | 1031.100 | 573.600 | 1039.000 | 573.800 | 1047.000 | 573.800 | 1047.100 | 573.800 | 1048.000 |
| GR | 573.800 | 1048.100 | 573.800 | 1064.000 | 573.800 | 1064.100 | 581.600 | 1083.000 | 583.100 | 1140.000 |
| GR | 583.400 | 1240.000 | 584.600 | 1600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.200 | 250.000 | 0.300 | 930.000 | 0.050 | 1014.000 | 0.025 | 1064.100 | 0.500 |
| NH | 1600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1' INSIDE D/S FACE OF AUSTIN BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12325.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 920.000 | 0.000 | 1065.000 | 0.000 | 583.300 | 583.300 | 0.000 |
| BT | 20.000 | 0.000 | 585.000 | 0.000 | 250.000 | 583.300 | 0.000 | 430.000 | 583.600 | 0.000 |
| BT | 930.000 | 580.400 | 0.000 | 1014.000 | 583.300 | 574.100 | 1014.100 | 583.300 | 581.800 | 1030.000 |
| BT | 583.500 | 581.800 | 1030.700 | 583.300 | 574.100 | 1047.000 | 583.300 | 574.100 | 1031.100 | 583.300 |
| BT | 581.800 | 1047.000 | 583.300 | 581.800 | 1047.100 | 583.500 | 573.800 | 1048.000 | 583.300 | 573.800 |
| BT | 1064.100 | 583.300 | 581.800 | 1064.000 | 583.300 | 581.800 | 1064.100 | 583.300 | 573.800 | 1063.000 |
| BT | 581.600 | 0.000 | 1140.000 | 583.100 | 0.000 | 1240.000 | 583.400 | 0.000 | 1600.000 | 584.600 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.200 | 250.000 | 0.300 | 930.000 | 0.050 | 1014.000 | 0.025 | 1064.100 | 0.500 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

1' INSIDE D/S FACE OF AUSTIN BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12367.000 | 0.000 | 0.000 | 0.000 | 42.000 | 42.000 | 42.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 920.000 | 0.000 | 1065.000 | 0.000 | 583.300 | 583.300 | 0.000 |
| NH | 5.000 | 0.200 | 250.000 | 0.300 | 930.000 | 0.050 | 1014.000 | 0.025 | 1064.100 | 0.500 |
| NH | 1600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE OF AUSTIN

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12300.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 920.000 | 0.000 | 1065.000 | 0.000 | 583.300 | 583.300 | 0.000 |
| NH | 5.000 | 0.200 | 250.000 | 0.300 | 930.000 | 0.050 | 1014.000 | 0.035 | 1064.100 | 0.500 |
| NH | 1600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 33' L/S OF AUSTIN

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12470.000 | 0.000 | 0.000 | 0.000 | 53.000 | 30.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 920.000 | 0.000 | 1065.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 0.000 | 0.300 | 0.000 | 0.300 | 0.300 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.200 | 250.000 | 0.300 | 930.000 | 0.320 | 928.000 | 0.255 | 965.000 | 0.300 |
| NH | 1063.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. BETWEEN AUSTIN AND [illegible]

PRINTED IN U.S.A.
FORM 1411.00 PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13295.000 | 13.000 | 828.000 | 905.000 | 600.000 | 950.000 | 877.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 594.000 | 0.000 | 992.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 585.000 | 0.000 | 584.000 | 260.000 | 583.100 | 660.000 | 583.800 | 760.000 | 584.000 | 828.000 |
| GR | 579.800 | 448.000 | 573.300 | 860.000 | 576.300 | 372.000 | 576.800 | 892.000 | 580.700 | 905.000 |
| GR | 582.000 | 960.000 | 582.000 | 1060.000 | 590.000 | 1060.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.150 | 200.000 | 0.120 | 472.000 | 0.035 | 508.000 | 0.100 | 526.000 | 0.300 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 50' D/S OF VICTORIA

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13676.000 | 10.000 | 472.000 | 508.000 | 301.000 | 100.000 | 361.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 348.000 | 0.000 | 543.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 585.000 | 0.000 | 584.600 | 200.000 | 580.000 | 420.000 | 581.800 | 462.000 | 574.900 | 472.000 |
| GR | 572.900 | 490.000 | 575.600 | 508.000 | 501.400 | 526.300 | 560.000 | 650.200 | 585.000 | 1300.000 |
| NH | 5.000 | 0.150 | 150.000 | 0.120 | 466.500 | 0.035 | 465.800 | 0.100 | 512.000 | 0.300 |
| NH | 1450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE OF VICTORIA

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13726.000 | 14.000 | 466.500 | 493.600 | 50.000 | 1.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 350.000 | 0.000 | 520.000 | 0.000 | 581.400 | 581.400 | 0.000 |
| GR | 585.000 | 0.000 | 584.600 | 150.000 | 581.800 | 453.000 | 573.000 | 466.500 | 573.000 | 466.600 |
| GR | 573.000 | 479.500 | 573.000 | 479.600 | 573.000 | 480.500 | 573.000 | 480.600 | 573.000 | 493.500 |
| GR | 573.000 | 493.600 | 581.400 | 512.000 | 581.500 | 720.000 | 585.000 | 1450.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.150 | 150.000 | 0.120 | 466.500 | 0.020 | 493.600 | 0.100 | 512.000 | 0.300 |
| NH | 1450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1' INSIDE D/S FACE OF VICTORIA BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13727.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 350.000 | 0.000 | 520.000 | 0.000 | 581.400 | 581.400 | 0.000 |
| GR | 14.000 | 0.000 | 585.000 | 0.000 | 580.000 | 514.000 | 0.000 | 552.000 | 582.600 | 0.000 |
| BT | 466.500 | 581.400 | 573.000 | 466.600 | 581.400 | 579.600 | 479.500 | 581.400 | 579.600 | 479.600 |
| BT | 581.400 | 575.000 | 480.500 | 581.400 | 573.000 | 480.600 | 581.400 | 579.600 | 493.500 | 581.400 |
| BT | 579.600 | 493.600 | 581.400 | 573.000 | 512.000 | 581.400 | 0.000 | 810.000 | 581.500 | 0.000 |
| BT | 1450.000 | 585.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.150 | 150.000 | 0.120 | 466.500 | 0.020 | 493.600 | 0.100 | 512.000 | 0.300 |
| NH | 1450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1' INSIDE U/S FACE OF VICTORIA BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13964.000 | 0.000 | 0.000 | 0.000 | 237.000 | 237.000 | 237.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 350.000 | 0.000 | 520.000 | 0.000 | 581.400 | 581.400 | 0.000 |
| NH | 5.000 | 0.150 | 150.000 | 0.120 | 466.500 | 0.035 | 493.600 | 0.100 | 512.000 | 0.300 |
| NH | 1450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF VICTORIA

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13965.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 350.000 | 0.000 | 520.000 | 0.000 | 581.400 | 581.400 | 0.000 |
| NH | 5.000 | 0.150 | 150.000 | 0.120 | 466.500 | 0.035 | 493.600 | 0.100 | 520.000 | 0.300 |
| NH | 1450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 50' U/S OF VICTORIA

FORM 1411 CO-PRINTED BY ROTARY MANIFOLD FORMS
PRINTED IN U.S.A.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14015.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 350.000 | 0.000 | 520.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.200 | 150.000 | 0.080 | 275.000 | 0.035 | 345.000 | 0.040 | 520.000 | 0.500 |
| NH | 1160.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 50' D/S OF N.B. FORT ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14287.000 | 13.000 | 275.000 | 345.000 | 272.000 | 272.000 | 272.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 200.000 | 0.000 | 520.000 | 0.000 | 583.200 | 583.200 | 0.000 |
| GR | 585.000 | 0.000 | 304.500 | 150.000 | 583.700 | 275.000 | 576.300 | 295.000 | 574.500 | 313.000 |
| GR | 575.900 | 331.000 | 582.600 | 345.000 | 503.000 | 360.000 | 502.800 | 400.000 | 582.200 | 520.000 |
| GR | 581.900 | 750.000 | 500.000 | 1160.000 | 590.000 | 1160.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.200 | 150.000 | 0.080 | 449.700 | 0.035 | 501.800 | 0.040 | 700.000 | 0.500 |
| NH | 1580.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE OF N.B. FORT ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14337.000 | 20.000 | 449.700 | 501.800 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 380.000 | 0.000 | 700.000 | 0.000 | 583.200 | 583.200 | 0.000 |
| GR | 585.000 | 0.000 | 585.000 | 150.000 | 584.300 | 300.000 | 583.600 | 440.000 | 576.400 | 449.700 |
| GR | 578.400 | 449.000 | 576.400 | 433.000 | 574.600 | 475.000 | 574.600 | 475.100 | 574.000 | 476.400 |
| GR | 574.600 | 476.500 | 578.400 | 498.200 | 578.400 | 500.700 | 573.400 | 501.600 | 502.600 | 516.000 |
| GR | 582.800 | 575.000 | 582.200 | 700.000 | 581.200 | 950.000 | 581.000 | 1360.000 | 590.000 | 1380.000 |
| NH | 5.000 | 0.200 | 150.000 | 0.080 | 449.700 | 0.020 | 501.800 | 0.040 | 700.000 | 0.500 |
| NH | 1380.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1' INSIDE D/S FACE OF N.B. FORT ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14338.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 380.000 | 0.000 | 700.000 | 0.000 | 583.200 | 583.200 | 0.000 |
| GR | 17.000 | 0.000 | 585.000 | 0.000 | 150.000 | 585.000 | 0.000 | 300.000 | 586.300 | 0.000 |
| GR | 440.000 | 581.600 | 0.000 | 469.700 | 550.200 | 576.400 | 469.500 | 550.200 | 581.400 | 475.300 |
| GR | 583.200 | 581.400 | 475.100 | 583.200 | 574.600 | 476.400 | 585.200 | 574.600 | 476.300 | 583.200 |
| GR | 581.400 | 583.700 | 583.200 | 581.400 | 581.800 | 582.200 | 576.400 | 576.000 | 582.600 | 0.000 |
| GR | 575.000 | 582.800 | 0.000 | 700.000 | 582.200 | 0.000 | 950.300 | 581.200 | 0.000 | 1380.000 |
| GR | 580.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.200 | 150.000 | 0.080 | 449.700 | 0.020 | 501.800 | 0.040 | 700.000 | 0.500 |
| NH | 1380.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1' INSIDE U/S FACE OF N.B. FORT ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14402.000 | 0.000 | 0.000 | 0.000 | 64.000 | 64.000 | 64.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 360.000 | 0.000 | 700.000 | 0.000 | 583.200 | 583.200 | 0.000 |
| NH | 5.000 | 0.200 | 150.000 | 0.080 | 449.700 | 0.020 | 501.800 | 0.040 | 700.000 | 0.500 |
| NH | 1540.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF N.B. FORT ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14403.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 360.000 | 0.000 | 700.000 | 0.000 | 583.200 | 583.200 | 0.000 |
| NH | 5.000 | 0.200 | 300.000 | 0.080 | 473.300 | 0.080 | 520.700 | 0.100 | 800.000 | 0.300 |
| NH | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF S.B. FORT ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14460.000 | 20.000 | 473.300 | 526.700 | 57.000 | 57.000 | 57.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 370.000 | 0.000 | 700.000 | 0.000 | 583.200 | 583.200 | 0.000 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 585.800 | 0.000 | 584.600 | 300.000 | 584.300 | 460.000 | 578.900 | 473.300 | 578.900 | 473.400 |
| GR | 578.900 | 477.800 | 574.900 | 483.800 | 572.600 | 499.300 | 572.600 | 499.400 | 572.600 | 500.600 |
| GR | 572.600 | 500.700 | 574.900 | 516.100 | 578.900 | 522.100 | 578.900 | 526.600 | 578.900 | 526.700 |
| GR | 583.400 | 538.000 | 581.800 | 300.000 | 581.200 | 1050.000 | 580.000 | 1400.000 | 590.000 | 1400.000 |
| NH | 5.000 | 0.200 | 300.000 | 0.080 | 473.300 | 0.030 | 526.700 | 0.100 | 800.000 | 0.500 |
| NH | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1' INSIDE D/S FACE OF S.B. FORT ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14461.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 370.000 | 0.000 | 770.000 | 0.000 | 583.600 | 583.600 | 0.000 |
| NH | 15.000 | 0.000 | 385.800 | 0.000 | 300.600 | 584.600 | 0.000 | 460.000 | 586.300 | 0.000 |
| BT | 473.300 | 583.600 | 578.900 | 473.400 | 583.600 | 581.600 | 499.300 | 583.600 | 581.600 | 499.400 |
| BT | 583.600 | 572.600 | 500.600 | 583.600 | 572.600 | 500.700 | 583.600 | 581.600 | 526.600 | 583.600 |
| BT | 581.600 | 526.700 | 583.600 | 578.900 | 538.000 | 583.400 | 0.000 | 800.000 | 581.800 | 0.000 |
| BT | 1050.000 | 581.200 | 1.000 | 1400.000 | 580.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.200 | 300.000 | 0.080 | 473.300 | 0.020 | 526.700 | 0.100 | 800.000 | 0.500 |
| NH | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1' INSIDE U/S FACE OF S.B. FORT ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14521.000 | 0.000 | 0.000 | 0.000 | 60.000 | 50.000 | 60.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 370.000 | 0.000 | 770.000 | 0.000 | 583.600 | 583.600 | 0.000 |
| NH | 5.000 | 0.200 | 300.000 | 0.080 | 473.300 | 0.030 | 526.700 | 0.100 | 800.000 | 0.500 |
| NH | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF S.B. FORT ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14522.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 370.000 | 0.000 | 770.000 | 0.000 | 583.600 | 583.600 | 0.000 |
| NH | 5.000 | 0.200 | 300.000 | 0.120 | 473.300 | 0.035 | 470.500 | 0.120 | 630.300 | 0.500 |
| NH | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 50' U/S OF S.B. FORT ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14572.000 | 10.000 | 415.000 | 470.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 370.000 | 0.000 | 770.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 385.000 | 0.000 | 534.400 | 200.000 | 584.200 | 650.000 | 526.650 | 473.000 | 572.750 | 450.000 |
| GR | 576.200 | 460.000 | 585.400 | 470.000 | 580.000 | 1050.000 | 580.000 | 1150.000 | 590.000 | 1150.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 5.000 | 0.100 | 159.000 | 0.035 | 225.000 | 0.100 | 272.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15292.000 | 5.000 | 159.000 | 225.000 | 720.000 | 650.000 | 720.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 166.700 | 0.000 | 225.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 586.250 | 0.000 | 589.500 | 100.000 | 587.200 | 1.000 | 577.150 | 159.000 | 574.450 | 200.000 |
| GR | 577.250 | 210.000 | 582.800 | 225.300 | 586.500 | 272.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 5.000 | 0.100 | 0.035 | 0.300 | 0.527 | 0.000 | 0.000 | 0.000 | 0.300 | 0.000 |

VALLEY SECT. 50' D/S OF LAFAYETTE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15420.000 | 0.000 | 45.000 | 115.000 | 350.000 | 350.000 | 325.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 50.000 | 0.000 | 142.200 | 0.000 | 583.000 | 583.000 | 0.000 |
| GR | 586.000 | 0.000 | 586.200 | 75.000 | 577.700 | 88.000 | 577.000 | 400.000 | 579.300 | 15.000 |
| GR | 585.500 | 127.000 | 585.400 | 200.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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D/S FACE OF LAFAYETTE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15670.000 | 8.000 | 86.000 | 114.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 50.000 | 0.000 | 150.000 | 0.000 | 583.000 | 583.000 | 0.000 |
| GR | 586.000 | 0.000 | 586.400 | 66.000 | 577.000 | 86.000 | 577.000 | 86.100 | 577.000 | 113.900 |
| GR | 577.000 | 114.000 | 586.400 | 134.000 | 585.400 | 200.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.650 | 3.000 | 100.300 | 26.000 | 0.000 | 168.000 | 0.000 | 577.000 | 577.000 |

U/S FACE OF LAFAYETTE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15914.000 | 0.000 | 0.000 | 0.000 | 44.000 | 44.000 | 44.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 583.000 | 585.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 50.000 | 0.000 | 150.000 | 0.000 | 586.000 | 585.400 | 0.000 |
| BT | 8.000 | 0.000 | 586.000 | 0.000 | 66.000 | 586.400 | 0.000 | 86.000 | 586.400 | 577.000 |
| BT | 86.100 | 586.400 | 593.000 | 113.900 | 586.400 | 583.000 | 114.000 | 586.400 | 577.000 | 134.300 |
| BT | 586.400 | 0.000 | 200.000 | 585.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.300 |

VALLEY SECT. 50' U/S OF LAFAYETTE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15964.000 | 7.000 | 80.000 | 112.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 150.000 | 0.000 | 586.000 | 585.400 | 0.000 |
| GR | 586.000 | 0.000 | 586.400 | 73.000 | 577.000 | 86.000 | 577.000 | 100.000 | 577.000 | 113.000 |
| GR | 586.400 | 122.000 | 585.400 | 200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NB | 3.000 | 0.000 | 799.000 | 0.035 | 835.000 | 0.000 | 860.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 50' D/S OF I-75

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16196.000 | 5.000 | 799.000 | 835.000 | 230.000 | 230.000 | 230.000 | 0.000 | 0.000 | 0.000 |
| X5 | 0.000 | 0.000 | 0.000 | 795.000 | 0.000 | 645.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 587.800 | 775.000 | 578.600 | 799.000 | 576.500 | 820.000 | 578.600 | 835.000 | 588.000 | 860.000 |
| NB | 0.000 | 0.000 | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE OF I-75 BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16246.000 | 5.000 | 818.500 | 841.500 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X4 | 10.000 | 0.000 | 5.000 | 0.000 | 0.000 | 0.000 | 0.000 | 603.600 | 603.600 | 0.000 |
| GR | 603.600 | 818.500 | 578.600 | 818.600 | 578.600 | 818.700 | 578.500 | 830.000 | 578.600 | 841.400 |
| GR | 578.500 | 841.500 | 603.600 | 841.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.020 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16245.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 603.600 | 603.600 | 0.000 |
| BT | 0.300 | 818.500 | 603.600 | 0.000 | 818.600 | 603.600 | 578.600 | 818.700 | 603.600 | 586.100 |
| BT | 841.400 | 603.600 | 588.100 | 841.500 | 603.600 | 578.600 | 841.600 | 603.600 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16503.000 | 0.000 | 0.000 | 0.000 | 258.000 | 258.000 | 258.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 603.600 | 603.600 | 0.000 |
| RC | 0.000 | 0.000 | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE OF I-75 BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16246.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 603.600 | 603.600 | 0.000 |
| BT | 0.300 | 770.000 | 1162.000 | 1330.000 | 1330.000 | 1945.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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VALLEY SECT. 50' U/S OF I-75

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16554.000 | 10.000 | 605.000 | 635.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 558.000 | 0.000 | 603.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 585.300 | 0.000 | 585.300 | 100.000 | 590.000 | 300.000 | 580.500 | 587.000 | 578.800 | 605.000 |
| GR | 576.600 | 620.000 | 578.900 | 635.000 | 587.600 | 600.000 | 583.000 | 700.000 | 590.000 | 1250.000 |
| NH | 4.000 | 0.040 | 100.000 | 0.060 | 410.000 | 0.035 | 442.000 | 0.060 | 480.000 | 0.000 |

VALLEY SECT. 50' D/S OFINDUSTRIAL DRIVE?

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16826.000 | 10.000 | 410.000 | 462.000 | 272.000 | 272.000 | 272.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 394.000 | 0.000 | 456.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 587.300 | 0.000 | 587.300 | 100.000 | 587.000 | 170.000 | 589.000 | 220.000 | 586.000 | 380.000 |
| GR | 575.400 | 410.000 | 575.300 | 426.000 | 575.400 | 442.000 | 586.000 | 462.000 | 593.000 | 480.000 |
| NH | 4.000 | 0.040 | 100.000 | 0.060 | 290.000 | 0.035 | 323.100 | 0.060 | 540.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.004 | 539.000 |

D/S FACE OF INDUSTRIAL DRIVE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16870.000 | 9.300 | 290.000 | 323.100 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 595.500 | 590.500 | 0.000 |
| GR | 587.300 | 0.000 | 587.300 | 100.000 | 589.700 | 240.200 | 574.600 | 290.000 | 574.600 | 290.100 |
| GR | 574.600 | 323.000 | 574.600 | 323.100 | 591.000 | 358.000 | 593.000 | 540.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.820 | 3.000 | 0.000 | 26.830 | 0.000 | 330.000 | 0.000 | 574.900 | 574.600 |
| NH | 3.000 | 0.060 | 290.000 | 0.035 | 323.100 | 0.060 | 358.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF INDUSTRIAL DRIVE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16963.000 | 15.100 | 290.000 | 323.100 | 87.000 | 87.000 | 87.000 | 0.000 | 0.000 | 0.000 |
| XP | 0.000 | 0.000 | 1.000 | 587.200 | 589.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.300 | 0.000 | 0.300 | 0.000 | 591.500 | 590.500 | 0.000 |
| BT | 15.000 | 240.000 | 588.700 | 0.000 | 290.000 | 590.500 | 574.900 | 290.100 | 590.500 | 578.500 |
| BT | 292.000 | 320.500 | 592.000 | 296.300 | 595.500 | 595.300 | 293.000 | 591.400 | 595.600 | 302.000 |
| BT | 590.500 | 587.000 | 306.500 | 590.500 | 587.200 | 311.000 | 590.500 | 587.000 | 315.000 | 590.500 |
| BT | 585.600 | 319.000 | 590.500 | 583.300 | 321.000 | 590.300 | 582.000 | 323.000 | 590.500 | 578.500 |
| BT | 323.100 | 590.500 | 374.900 | 350.000 | 591.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 589.700 | 260.000 | 574.900 | 290.000 | 574.900 | 290.000 | 574.900 | 292.000 | 574.000 | 294.000 |
| BT | 577.900 | 298.000 | 574.900 | 302.000 | 574.900 | 304.500 | 574.900 | 311.000 | 575.500 | 315.000 |
| BT | 574.300 | 319.000 | 574.900 | 591.000 | 574.900 | 323.000 | 574.900 | 323.100 | 592.000 | 353.000 |
| NH | 4.000 | 0.040 | 100.000 | 0.000 | 394.000 | 0.035 | 387.000 | 0.060 | 437.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.410 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 50' U/S OF INDUSTRIAL DRIVE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17013.000 | 7.000 | 354.000 | 387.300 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 304.000 | 0.000 | 437.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 587.300 | 0.000 | 587.300 | 100.000 | 585.000 | 324.200 | 576.200 | 354.000 | 576.200 | 387.000 |
| BT | 585.000 | 407.000 | 587.000 | 437.200 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | 0.040 | 100.000 | 0.000 | 422.000 | 0.035 | 461.000 | 0.000 | 600.000 | 0.000 |

VALLEY SECT. 50' D/S OF PENN CENTRAL R.R.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17295.000 | 9.000 | 422.000 | 461.300 | 242.000 | 242.300 | 243.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 424.200 | 0.000 | 466.500 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 587.300 | 0.000 | 587.300 | 100.000 | 590.000 | 290.300 | 587.700 | 401.000 | 378.100 | 422.000 |
| GR | 577.900 | 440.000 | 578.100 | 461.300 | 597.000 | 575.000 | 590.000 | 600.000 | 0.000 | 0.000 |
| VE | 0.000 | 0.000 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

PRINTED IN U.S.A.
FORM 141.00 PRINTED BY NOTARY MANIFOLD FORMS

D/S FACE OF PENN CENTRAL R.R. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17305.000 | 10.000 | 356.400 | 383.600 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| XS | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 600.400 | 600.400 | 0.000 |
| GR | 600.400 | 356.300 | 577.900 | 356.400 | 577.900 | 356.500 | 577.900 | 368.400 | 577.900 | 368.500 |
| GR | 577.900 | 371.500 | 577.900 | 371.600 | 577.900 | 383.900 | 577.900 | 383.800 | 600.400 | 383.700 |
| SB | 1.250 | 2.490 | 3.000 | 0.000 | 27.200 | 3.200 | 182.000 | 0.000 | 577.900 | 577.900 |

D/S F . E OF PENN CENTRAL R.R. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17502.000 | 0.000 | 0.000 | 0.300 | 197.000 | 197.000 | 197.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 585.500 | 600.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 600.400 | 600.400 | 0.000 |
| BT | 10.000 | 356.300 | 600.400 | 0.000 | 356.400 | 600.400 | 577.900 | 356.500 | 600.400 | 585.500 |
| ST | 368.400 | 600.400 | 585.500 | 368.500 | 600.400 | 577.900 | 371.500 | 600.400 | 577.900 | 371.600 |
| QT | 600.400 | 585.500 | 383.500 | 600.400 | 585.500 | 383.600 | 600.400 | 577.900 | 383.700 | 600.400 |
| RT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.040 | 100.000 | 0.000 | 328.000 | 0.035 | 352.000 | 0.000 | 470.000 | 1.000 |
| NH | 1060.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 50' U/S OF PENN CENTRAL R.R.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17552.000 | 10.000 | 320.000 | 352.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 277.000 | 0.000 | 434.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 100.000 | 587.200 | 100.000 | 586.900 | 315.000 | 577.800 | 328.000 | 577.500 | 340.000 |
| GR | 577.500 | 352.000 | 585.400 | 370.000 | 595.000 | 470.000 | 585.000 | 1060.000 | 600.000 | 1360.000 |
| NC | 0.050 | 0.050 | 0.035 | 0.100 | 0.300 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY FROM SUBD'N PLANS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17417.000 | 17.000 | 301.000 | 102.000 | 250.000 | 250.000 | 335.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 230.400 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 600.000 | 0.000 | 587.200 | 0.000 | 588.500 | 0.000 | 587.300 | 301.000 | 575.400 | 130.000 |
| GR | 576.900 | 139.000 | 576.500 | 148.000 | 595.500 | 162.000 | 589.100 | 225.000 | 589.100 | 275.000 |
| GR | 600.000 | 275.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | 0.040 | 100.000 | 0.000 | 130.000 | 1.000 | 250.000 | 0.000 | 340.000 | 0.035 |
| NH | 565.000 | 0.000 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 50' D/S OF PORTER AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18106.000 | 17.000 | 340.000 | 365.000 | 289.000 | 289.000 | 289.000 | 0.000 | 0.000 | 0.000 |
| XS | 10.000 | 0.000 | 0.000 | 265.000 | 0.000 | 434.000 | 0.000 | 587.900 | 587.900 | 0.000 |
| GR | 588.000 | 0.000 | 588.000 | 100.000 | 568.000 | 191.000 | 585.000 | 250.000 | 588.400 | 320.000 |
| GR | 579.000 | 360.000 | 579.000 | 350.000 | 579.000 | 365.000 | 587.700 | 333.000 | 586.700 | 410.000 |
| BR | 586.700 | 660.000 | 587.500 | 650.000 | 587.500 | 660.000 | 588.500 | 910.000 | 588.500 | 960.000 |
| GR | 588.700 | 1180.000 | 588.700 | 1230.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | 1.000 | 280.000 | 0.060 | 350.000 | 0.032 | 375.100 | 0.500 | 500.000 | 0.000 |

D/S FACE OF POTTER AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18196.000 | 11.000 | 550.000 | 375.100 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| XS | 10.000 | 0.000 | 0.000 | 275.000 | 0.000 | 450.000 | 0.000 | 587.900 | 587.900 | 0.000 |
| BR | 600.000 | 425.000 | 588.600 | 229.000 | 586.400 | 290.000 | 587.900 | 530.000 | 579.000 | 350.000 |
| GR | 579.000 | 350.100 | 579.000 | 375.000 | 579.000 | 375.100 | 587.900 | 409.000 | 586.700 | 300.000 |
| GR | 600.000 | 500.000 | 588.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | 1.000 | 280.000 | 0.040 | 350.000 | 0.020 | 375.100 | 0.500 | 500.000 | 0.000 |

1' INSIDE OF D/S FACE OF PORTER AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18157.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 275.000 | 0.000 | 450.000 | 0.000 | 587.900 | 587.900 | 0.000 |
| BT | 10.000 | 225.000 | 600.000 | 0.000 | 220.000 | 588.600 | 0.000 | 330.000 | 587.900 | 0.000 |
| BT | 350.000 | 587.900 | 579.000 | 350.100 | 587.900 | 585.900 | 375.000 | 587.900 | 585.900 | 375.100 |
| BT | 587.900 | 579.000 | 435.000 | 587.900 | 3.000 | 500.000 | 586.700 | 0.000 | 500.000 | 600.000 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MH | 4.000 | 1.000 | 280.000 | 0.060 | 350.000 | 0.020 | 375.100 | 0.500 | 500.000 | 0.000 |

1' INSDIE OF U/S FACE OF PORTER AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18195.000 | 0.000 | 0.000 | 0.000 | 38.000 | 38.000 | 38.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 275.000 | 0.000 | 450.000 | 0.000 | 587.900 | 587.900 | 0.000 |
| MH | 4.000 | 1.000 | 280.000 | 0.060 | 350.000 | 0.030 | 375.100 | 0.500 | 500.000 | 0.000 |

U/S FACE OF PORTER AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18196.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 275.000 | 0.000 | 450.000 | 0.000 | 587.900 | 587.900 | 0.000 |
| MH | 5.000 | 0.040 | 100.000 | 1.200 | 275.000 | 0.100 | 351.000 | 0.035 | 372.000 | 0.500 |
| MH | 1500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 50' U/S OF PORTER AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18240.000 | 16.000 | 351.000 | 372.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 320.000 | 0.000 | 470.000 | 0.000 | 587.900 | 587.900 | 0.000 |
| GR | 588.000 | 0.000 | 588.000 | 100.000 | 585.000 | 220.000 | 586.000 | 270.000 | 588.000 | 335.000 |
| GR | 579.000 | 351.000 | 579.000 | 372.000 | 587.900 | 386.000 | 586.700 | 410.000 | 586.700 | 460.000 |
| GR | 587.500 | 700.000 | 587.500 | 750.000 | 588.500 | 970.000 | 588.500 | 1020.000 | 588.700 | 1250.000 |
| GR | 588.700 | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MC | 2.050 | 0.050 | 0.035 | 0.100 | 0.300 | 0.000 | 0.300 | 0.010 | 0.000 | 0.000 |

VALLEY SECT. BETW. PORTER AND RAUPP PLACE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18243.000 | 11.000 | 134.000 | 220.000 | 259.000 | 295.000 | 339.500 | 0.300 | 0.300 | 0.300 |
| X3 | 10.000 | 0.000 | 0.300 | 159.000 | 0.000 | 301.000 | 0.500 | 588.000 | 530.000 | 0.300 |
| BT | 588.000 | 0.000 | 587.700 | 0.000 | 587.900 | 200.000 | 588.520 | 174.300 | 540.300 | 170.300 |
| GR | 578.600 | 200.000 | 500.600 | 210.000 | 586.600 | 220.000 | 588.200 | 300.000 | 589.600 | 400.000 |
| GR | 600.000 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MC | 0.000 | 0.000 | 0.300 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MH | 5.000 | 0.040 | 100.000 | 0.005 | 250.000 | 0.000 | 351.000 | 0.035 | 582.900 | 0.300 |
| MH | 1410.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 50' D/S OF RAUPP PL.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18289.000 | 19.500 | 363.300 | 377.100 | 294.000 | 294.000 | 294.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.300 | 0.001 | 299.000 | 0.000 | 455.000 | 0.300 | 595.000 | 595.000 | 0.000 |
| GR | 587.500 | 0.300 | 587.900 | 100.000 | 585.600 | 197.000 | 595.200 | 345.000 | 370.700 | 345.500 |
| GR | 578.700 | 363.600 | 578.700 | 370.000 | 578.700 | 377.000 | 578.700 | 377.100 | 595.500 | 386.000 |
| GR | 588.500 | 470.000 | 590.100 | 660.000 | 590.100 | 710.000 | 589.000 | 760.000 | 589.000 | 810.000 |
| GR | 589.900 | 1100.300 | 589.900 | 1150.000 | 590.000 | 1360.000 | 590.000 | 1410.000 | 0.000 | 0.000 |
| MC | 5.000 | 0.040 | 100.000 | 0.000 | 250.000 | 0.000 | 356.300 | 0.050 | 332.900 | 0.300 |
| MH | 1410.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 |

D/S FACE OF RAUPP PL. BRIDGE

PRINTED IN U.S.A.
FORM 1411-OD-PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18879.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 290.000 | 0.000 | 455.000 | 0.000 | 585.000 | 585.000 | 0.000 |
| NH | 5.000 | 0.040 | 100.000 | 0.800 | 250.000 | 0.080 | 358.000 | 0.020 | 382.100 | 0.500 |
| NH | 1410.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1' INSIDE OF D/S FACE RAUPP PL.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18880.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 290.000 | 0.000 | 455.000 | 0.000 | 585.000 | 585.000 | 0.000 |
| BT | 18.000 | 0.000 | 587.900 | 0.000 | 100.000 | 587.900 | 0.000 | 137.000 | 585.600 | 0.000 |
| BT | 345.000 | 585.200 | 0.000 | 363.500 | 585.000 | 578.700 | 363.600 | 585.000 | 503.200 | 377.000 |
| BT | 585.000 | 583.200 | 577.100 | 585.000 | 578.700 | 366.300 | 585.500 | 0.000 | 470.000 | 388.500 |
| BT | 0.000 | 660.000 | 590.100 | 0.000 | 710.000 | 590.100 | 0.000 | 760.000 | 589.000 | 0.000 |
| BT | 810.000 | 589.000 | 0.000 | 1130.000 | 589.900 | 0.000 | 1150.000 | 589.900 | 0.000 | 1360.000 |
| BT | 590.000 | 0.000 | 1410.000 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.040 | 100.000 | 0.800 | 250.000 | 0.080 | 358.000 | 0.020 | 382.100 | 0.500 |
| NH | 1410.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1' INSIDE OF U/S FACE RAUPP PL.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18910.000 | 0.000 | 0.000 | 0.000 | 30.000 | 30.000 | 30.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 290.000 | 0.000 | 455.000 | 0.000 | 585.000 | 585.000 | 0.000 |
| NH | 5.000 | 0.040 | 100.000 | 0.800 | 250.000 | 0.080 | 358.000 | 0.020 | 382.100 | 0.500 |
| NH | 1410.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF RAUPP PL. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18911.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 290.000 | 0.000 | 455.000 | 0.000 | 585.000 | 585.000 | 0.000 |
| NH | 5.000 | 0.040 | 100.000 | 0.800 | 250.000 | 0.040 | 358.000 | 0.035 | 382.100 | 0.500 |
| NH | 1410.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 50' U/S OF RAUPP PL.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18961.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 290.000 | 0.000 | 455.000 | 0.000 | 585.000 | 585.000 | 0.000 |
| NH | 4.300 | 0.040 | 100.000 | 0.800 | 307.000 | 0.035 | 333.100 | 0.500 | 1430.000 | 0.000 |

VALLEY SECT. 50' D/S OF DIX

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19112.000 | 20.000 | 307.000 | 333.100 | 151.000 | 141.300 | 151.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 220.000 | 0.000 | 400.300 | 0.000 | 584.200 | 583.200 | 0.000 |
| X3 | 588.700 | 0.000 | 582.900 | 100.000 | 583.500 | 285.300 | 579.000 | 367.000 | 579.000 | 307.100 |
| C1 | 579.000 | 319.000 | 579.000 | 319.100 | 579.000 | 321.000 | 579.000 | 321.100 | 579.000 | 333.000 |
| C3 | 579.000 | 333.100 | 588.300 | 351.000 | 589.200 | 750.000 | 589.200 | 800.000 | 589.700 | 840.000 |
| C3 | 589.700 | 840.000 | 590.600 | 1110.000 | 590.600 | 1160.000 | 590.600 | 1380.000 | 590.600 | 1430.000 |
| NH | 4.000 | 0.040 | 100.000 | 0.800 | 307.000 | 0.035 | 333.100 | 0.500 | 1430.000 | 0.000 |

D/S FACE OF DIX RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19162.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 220.000 | 0.000 | 400.000 | 0.000 | 584.200 | 583.200 | 0.000 |
| NH | 4.300 | 0.040 | 100.000 | 0.800 | 307.000 | 0.035 | 333.100 | 0.500 | 1430.000 | 0.000 |

1' INSIDE D/S FACE OF DIX

PRINTED IN U.S.A.
FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19163.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 220.000 | 0.000 | 400.000 | 0.000 | 588.200 | 588.200 | 0.000 |
| BT | 20.000 | 0.000 | 588.900 | 0.000 | 100.000 | 588.900 | 0.000 | 295.000 | 588.500 | 0.000 |
| BT | 307.000 | 588.200 | 579.000 | 307.100 | 588.200 | 585.000 | 319.000 | 588.200 | 585.000 | 319.100 |
| BT | 588.200 | 579.000 | 321.000 | 588.200 | 579.000 | 321.100 | 583.200 | 585.000 | 333.000 | 588.200 |
| BT | 585.000 | 333.100 | 583.200 | 579.000 | 351.000 | 588.300 | 0.000 | 750.000 | 589.200 | 0.000 |
| BT | 600.000 | 589.200 | 0.000 | 840.300 | 589.700 | 0.000 | 890.000 | 589.700 | 0.000 | 1110.000 |
| BT | 590.600 | 0.000 | 1160.000 | 590.600 | 0.000 | 1380.000 | 590.600 | 0.000 | 1430.000 | 590.600 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | 0.040 | 100.000 | 0.800 | 307.000 | 0.020 | 333.100 | 0.500 | 1430.000 | 0.000 |

1' INSIDE U/S FACE OF DIX

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19263.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 220.000 | 0.000 | 400.000 | 0.000 | 588.200 | 588.200 | 0.000 |
| NH | 4.000 | 0.040 | 100.000 | 0.800 | 307.000 | 0.020 | 333.100 | 0.500 | 1430.000 | 0.000 |

U/S FACE OF DIX RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19264.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 220.000 | 0.000 | 400.000 | 0.000 | 588.200 | 588.200 | 0.000 |

VALLEY SECT. 50' U/S OF DIX

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19514.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 220.000 | 0.000 | 400.000 | 0.000 | 588.200 | 588.200 | 0.000 |
| NH | 4.000 | 0.040 | 100.000 | 0.500 | 365.000 | 0.035 | 589.000 | 0.500 | 1320.000 | 0.000 |

VALLEY SECT. 50' D/S OF FRANK AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 20080.000 | 12.000 | 585.000 | 589.000 | 766.000 | 766.000 | 766.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 220.000 | 0.000 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 588.300 | 0.000 | 583.300 | 100.000 | 585.000 | 200.000 | 589.400 | 350.000 | 580.100 | 365.000 |
| GR | 585.100 | 389.000 | 589.200 | 406.000 | 590.000 | 550.000 | 590.800 | 730.000 | 590.800 | 780.000 |
| GR | 589.600 | 1000.000 | 589.600 | 1320.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.040 | 100.000 | 0.500 | 357.000 | 0.100 | 387.000 | 0.020 | 413.100 | 0.200 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

DOS FACE OF FRANK AVE. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 20130.000 | 13.000 | 587.000 | 413.100 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 372.000 | 0.000 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 588.400 | 0.000 | 588.300 | 100.000 | 590.800 | 372.000 | 590.800 | 372.100 | 580.100 | 387.000 |
| GR | 580.100 | 387.100 | 580.100 | 413.000 | 580.100 | 413.100 | 586.800 | 428.000 | 586.600 | 428.100 |
| GR | 590.800 | 710.000 | 589.600 | 1000.000 | 589.600 | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.040 | 100.000 | 0.500 | 357.000 | 0.100 | 387.000 | 0.020 | 413.100 | 0.200 |
| X1 | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1' INSIDE D/S OF FRANK AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 20131.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 372.000 | 0.000 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GT | 13.000 | 0.000 | 588.300 | 0.300 | 100.000 | 588.300 | 0.000 | 372.000 | 588.600 | 0.000 |
| GT | 372.100 | 592.100 | 0.000 | 387.000 | 592.100 | 430.100 | 387.100 | 593.400 | 586.700 | 413.000 |
| GT | 590.400 | 586.700 | 413.100 | 592.100 | 580.100 | 426.000 | 592.100 | 0.000 | 428.100 | 588.800 |
| GT | 0.000 | 710.000 | 590.600 | 0.000 | 1000.000 | 589.600 | 0.000 | 1300.000 | 589.600 | 0.000 |
| NH | 5.000 | 0.040 | 100.000 | 0.500 | 357.000 | 0.100 | 387.000 | 0.020 | 413.100 | 0.200 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

1' INSIDE U/S OF FRANK AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 20168.000 | 0.000 | 0.000 | 0.000 | 37.000 | 37.000 | 37.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 372.000 | 0.000 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.040 | 100.000 | 0.500 | 357.000 | 0.100 | 387.000 | 0.030 | 413.100 | 0.200 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

U/S FACE OF FRANK AVE. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 20169.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 372.000 | 0.000 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | 0.040 | 100.000 | 0.500 | 357.000 | 0.100 | 387.000 | 0.030 | 413.100 | 0.200 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECT. 100'U/S OF FRANK AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 20269.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 372.000 | 0.000 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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*PROF 1

CONV= 0.300 CENV= 0.500

*SECNO 10636.000

SECD CROSS SECTION 10636.00 EXTENDED 0.0 FEET

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | AV | | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| 0. | 0.03 | 0CH | 0BOB | ALOB | 0CH | ABCH | WOI | T.O. | LEFT/RIGHT |
| TIME | VICI | VCH | VROT | XML | XLCH | XMR | .TM | REMIP | SETZ |
| SLOPE | XLOBL | XLCP | ALOBR | ITRIAL | ISP | ICOUT | CORAC | TOPWID | ELOST |

3470 ENCROACHMENT STATIONS= 655.0 800.0 TYPE= 1 TARGET= 145.000

VALLEY SECT. ARCH USA SCOTIA FIS

Q100 USA = 2100 cfs

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10636.00 | 11.06 | 583.53 | 0.00 | 583.53 | 583.60 | 0.17 | 3.00 | 0.00 | 584.53 |
| 1410. | 0. | 1410. | 0. | 0. | 680. | 0. | 0. | 0. | 100000.00 |
| 0.00 | 0.00 | 2.07 | 0.00 | 0.035 | 0.033 | 0.035 | 0.003 | 572.47 | 674.07 |
| 0.000344 | 0. | 0. | 0. | 0 | 0 | 0 | 0.03 | 125.03 | 100.0 |

FLOW DISTRIBUTION FOR SECNO= 10636.00 CWSEL= 583.53

STA= 674. 855.

| | | |
|---|---|---|
| PER Q= | 100.0 | |
| AREA= | 680.0 | |
| VEL= | 2.1 | |

CONV= 0.300 CENV= 0.500

1490 CU CARD USED

*SECNO 11535.000

3470 ENCROACHMENT STATIONS= 900.0 1350.0 TYPE= 1 TARGET= 145.000

VALLEY SECTION USA XSEC Corresponds to XSEC M (near hospital)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11535.00 | 11.77 | 583.77 | 0.00 | 0.00 | 583.92 | 3.15 | 0.00 | 0.0 | 585.30 |
| 1410. | 0. | 1410. | 0. | 0. | 460. | 0. | 0. | 0. | 100000.00 |
| 0.00 | 0.00 | 3.34 | 0.00 | 0.035 | 0.033 | 0.035 | 0.003 | 622.60 | 900.40 |
| 0.000874 | 900. | 900. | 900. | 1 | 0 | 0 | 0.00 | 51.05 | 5077.70 |

FLOW DISTRIBUTION FOR SECNO= 11535.00 CWSEL= 584.77

| | | | |
|---|---|---|---|
| STA= | 854. | 1254. | 1270. |
| PER Q= | 100.0 | 0.0 | |
| AREA= | 460.1 | 3.1 | |
| VEL= | 3.1 | 0.1 | |

CONV= 0.300 CENV= 0.500

1490 CU CARD USED

*SECNO 12274.000

3470 ENCROACHMENT STATIONS= 900.0 1350.0 TYPE= 1 TARGET= 145.000

VALLEY SECT. 50' D/S OF AUST

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12274.00 | 10.55 | 584.05 | 0.00 | 0.00 | 584.12 | 2.09 | 0.00 | 0.4 | 585.80 |
| 1410. | 145. | 1262. | 3. | 220. | 308. | 34. | 22. | 4. | 674.00 |
| 0.14 | 0.05 | 2.79 | 0.01 | 0.037 | 0.048 | 0.037 | 0.007 | 623.60 | 97.20 |

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0.000165 738. 738. 738. 1 0 0 0.00 150.00 1050.00

FLOW DISTRIBUTION FOR SECNO= 12274.00 CUSEL= 584.05

STA= 900. 920. 980. 994. 1046. 1050.
PER %= 0.3 4.5 5.5 39.5 0.2
AREA= 42.6 110.4 73.4 507.8 35.6
VEL= 0.3 0.6 1.1 2.5 0.1

*** .. CARD USED
*SECNO 12324.000

3470 ENCROACHMENT STATIONS= 920.0 1065.0 TYPE= 1 TARGET= 145.000

S/S FACE OF AUSTIN

12324.00 11.47 384.07 0.30 0.00 1304.14 0.07 [illegible] 0.00 924.50
1810. 212. 1137. 3. 904. 500. 3. 25. 4. 28.13
0.18 0.71 2.35 0.04 0.055 0.035 0.500 0.033 573.60 920.00
0.000139 50. 50. 50. 0 0 0 0.01 145.00 1065.00

FLOW DISTRIBUTION FOR SECNO= 12324.01 CUSEL= 584.07

STA= 920. 1000. 1014. 1064. 1065.
PER %= 9.2 5.9 84.9 0.0
AREA= 222.6 81.6 509.4 9.1
VEL= 0.6 1.0 2.3 0.0

*** .. CARD USED
*SECNO 12325.003

| SECNO | DEPTH | CUSEL | CRIMP | *SELK | CA | HV | HI | QLOSS | HARS FLEV |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| TYPE | 0.0 | 0.0 | 0.0 | XNL | X CO | XWR | CW | D-IN | SA |
| 4 | 0.0 | 0.0 | 0.0 | STATE | .0 | ICONT | SOPAR | 0.0 | FLOAT |

3470 OLD BRIDGE.XSN= 2 DIA.EQV= 540.60 MAX ELEV= 581.00

3471 CONSTRICTION STATIONS= 920. 1013. CMIN= 1 CMAX= 1065. CDEL=

1' INSIDE D/S FACE OF AUSTIN BRIDGE

12325.00 10.34 [illegible] 0.00 0.00 584.15 0.11 0.50 0.02 [illegible]
1810. 259. 1493. 0. 242. [illegible] 1. 25. 4. 573.60
0.11 1.06 2.87 1.01 0.030 0.045 0.500 0.01 [illegible] 920.00
0.000561 1. 1. 1. 1 1 1 -161.35 145.00 1065.00

FLOW DISTRIBUTION FOR SECNO= 12325.00 CUSEL= 584.15

STA= 920. 1000. 1014. 1064. 1065.
PER %= -10.0 0.5 83.3 0.0
AREA= 204.1 4.5 [illegible] 0.7
VEL= 1.1 0.4 2.8 0.3

*** .. CARD USED

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3470 ENCROACHMENT STATIONS=      920.0     1065.0  TYPE=      1  TARGET=      145.000

          1' INSIDE U/S FACE OF AUSTIN BRIDGE

 12367.00     10.48    584.08      0.00      0.[illegible]    584.18      0.10      0.12      0.00    574.10
    1410.       216.     1174.        0.       22[illegible]      41[illegible]        1.       24.        5.    573.80
      0.18      1.06      2.81      0.01     0.059     0.025     0.500     0.033    573.60    920.00
 0.000530       42.       42.       42.         0         0         0   -181.88    145.00   1065.00

FLOW DISTRIBUTION FOR SECNO=  12367.00          CWSEL=     584.08

STA=      920.     1000.     1014.     1064.     1065.
  PER Q=      16.1       0.6      83.3       0.0
   AREA=     208.6      14.1     418.1       0.7
    VEL=       1.1       0.5       2.0       0.0

1490 NH CARD USED
+SECNO 12368.000

3470 ENCROACHMENT STATIONS=      920.0     1065.0  TYPE=      1  TARGET=      145.000

          U/S FACE OF AUSTIN

 12368.00     10.52    584.12      0.00      0.00    584.19      0.07      0.00      0.01    574.10
    1410.       216.     1193.        0.       309.      512.        9.       24.        5.    573.80
      0.19      0.70      2.33      0.03     0.055     0.035     0.500     0.033    573.60    920.00
 0.000[illegible]        1.        1.        1.         2         [illegible]         0      0.00    145.00   1065.00

FLOW DISTRIBUTION FOR SECNO=  12368.00          CWSEL=     584.12

STA=      920.     1000.     1014.     1064.     1065.
  PER Q=       [illegible]       5.9      [illegible]       [illegible]
   AREA=     227.3      82.2     [illegible]       [illegible]
    VEL=       [illegible]       [illegible]       [illegible]       [illegible]

1490 NH CARD USED
+SECNO 12418.000

3470 ENCROACHMENT STATIONS=      920.0     1065.0  TYPE=      1  TARGET=      145.000

          VALLEY SECT. 50' U/S OF AUSTIN

 12418.00     10.53    584.13      0.00      0.00    584.20      0.07      0.01      0.00    574.10
    1410.       217.     1194.        0.       311.      513.        9.       [illegible]       [illegible]    573.80
      0.19      0.70      2.32      0.03     0.055     0.035     0.500     0.033    573.60    920.00
 0.000[illegible]        50.       50.       50.         [illegible]         0         [illegible]    [illegible]    1065.00

FLOW DISTRIBUTION FOR SECNO=  12418.00          CWSEL=     584.15

STA=      920.     1000.     1014.     1064.     1065.
  PER Q=       [illegible]       5.[illegible]       [illegible]       [illegible]
   AREA=     228.7      82.4     513.2       9.1
    VEL=       0.6       1.3       2.3       0.0

[illegible]=    0.100 CSHW=    0.[illegible]
[illegible] CARD USED
+SECNO 13295.000

3470 ENCROACHMENT STATIONS=      594.[illegible]     972.[illegible]  TYPE=      1  TARGET=      398.000
```

VALLEY SECT. BETWEEN AUSTIN AND VICTORIA

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 13295.00 | 10.97 | 584.27 | 0.00 | 0.00 | 584.36 | 0.09 | 0.16 | 0.01 | 584.00 |
| 1610. | 23. | 1351. | 36. | 180. | 544. | 233. | 41. | 9. | 580.70 |
| 0.39 | 0.53 | 2.48 | 0.15 | 0.168 | 0.035 | 0.300 | 0.033 | 572.90 | 996.00 |
| 0.000265 | 670. | 877. | 950. | 2 | 1 | 0 | 0.00 | 195.00 | 992.00 |

FLOW DISTRIBUTION FOR SECNO= 13295.00 CUSEL= 584.27

| | | | | | | |
|---|---|---|---|---|---|---|
| STA= | 594. | 660. | 750. | 829. | 905. | 960. | 994. |
| PER Q= | 0.4 | 1.0 | 0.2 | 95.0 | 1.9 | 0.7 | |
| AREA= | 52.4 | 42.1 | 25.2 | 543.9 | 160.7 | 72.7 | |
| VEL= | 0.1 | 0.2 | 0.1 | 2.5 | 0.2 | 0.1 | |

CQAV= 0.700 CEHV= 0.500

*READ INPUT USED
*SECNO 13674.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CUSEL | SQ*IS | USELX | DS | AN | L | QLOSS | DATA ELEV |
| 0 | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TIA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | LTN | PLMIN | SSTA |
| SLOPE | KLOW | KLCH | KLOBR | ITRIAL | IA2 | ICONT | COPAR | TOPELV | ENDST |

3470 ENCROACHMENT STATIONS= 348.0 543.0 TYPE= 1 TARGET= 195.000

VALLEY SECT. 50' D/S OF VICTORIA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13674.00 | 11.45 | 584.55 | 0.00 | 0.00 | 584.46 | 0.11 | 0.10 | 0.01 | 574.90 |
| 1610. | 206. | 1122. | 72. | 464. | 420. | 152. | 43. | 11. | 575.60 |
| 0.33 | 0.45 | 3.03 | 0.52 | 0.120 | 0.035 | 0.118 | 0.033 | 572.90 | 948.00 |
| 0.000231 | 381. | 391. | 100. | 2 | 0 | 0 | 0.00 | 195.00 | 943.00 |

FLOW DISTRIBUTION FOR SECNO= 13674.00 CUSEL= 584.35

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| STA= | 348. | 420. | 462. | 472. | 508. | 526. | 543. |
| PER Q= | 7.9 | 4.6 | 2.3 | 77.5 | 5.3 | 0.5 | |
| AREA= | 259.5 | 144.9 | 60.0 | 369.9 | 105.3 | 31.8 | |
| VEL= | 0.4 | 0.4 | 0.3 | 3.0 | 0.7 | 0.1 | |

*READ INPUT USED
*SECNO 13726.000

3467 ENCROACHMENT STATIONS= 350.0 527.0 TYPE= 1 TARGET= 170.000

D/S FACE OF VICTORIA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13726.00 | 11.35 | 584.33 | 0.00 | 0.00 | 584.51 | 0.18 | 0.03 | 0.03 | 573.00 |
| 1610. | 130. | 1169. | 122. | 505. | 307. | 155. | 58. | 12. | 573.80 |
| 0.33 | 0.45 | 3.24 | 0.79 | 0.120 | 0.035 | 0.116 | 0.033 | 572.90 | 941.00 |
| 0.000195 | 50. | 91. | 60. | 2 | 1 | 0 | 0.00 | 195.00 | 938.00 |

FLOW DISTRIBUTION FOR SECNO= 13726.00 CUSEL= 584.33

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| STA= | 350. | 453. | 467. | 496. | 512. | 527. | |
| PER Q= | 5.2 | 4.8 | 61.5 | 6.4 | 3.2 | | |
| AREA= | 211.3 | 95.5 | 307.1 | 131.2 | 43.6 | | |
| VEL= | 0.5 | 0.2 | 3.1 | 0.3 | 0.1 | | |

*READ INPUT CARD NEED
*SECNO 13825.000

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3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 581.40 MAX ELLC= 579.60

3470 ENCROACHMENT STATIONS= 350.0 520.0 TYPE= 1 TARGET= 170.000

1' INSIDE D/S FACE OF VICTORIA BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13727.00 | 11.26 | 584.26 | 0.00 | 0.00 | 584.58 | 0.32 | 0.00 | 0.07 | 573.00 |
| 1410. | 144. | 1215. | 51. | 241. | 249. | 76. | 50. | 12. | 573.00 |
| 0.33 | 0.60 | 4.88 | 0.67 | 0.120 | 0.020 | 0.122 | 0.033 | 573.00 | 350.00 |
| 0.000932 | 1. | 1. | 1. | 2 | 0 | 0 | -190.01 | 170.00 | 820.00 |

skew?

top width indicates skew has been applied

Input does not

FLOW DISTRIBUTION FOR SECNO= 13727.00 CWSEL= 584.26

| | | | | | |
|---|---|---|---|---|---|
| STA= | 350. | 453. | 467. | 494. | 512. | 520. |
| [illegible] | 3.6 | 1.0 | 80.[illegible] | 3.2 | 0.4 |
| [illegible] | 265.6 | 35.9 | 249.2 | 52.7 | 22.9 |
| VEL= | 0.6 | 0.6 | 4.9 | 0.9 | 0.2 |

1490 NY CARD USED

[illegible] 13964.000

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 581.40 MAX ELLC= 579.60

3470 ENCROACHMENT STATIONS= 350.0 520.0 TYPE= 1 TARGET= 170.000

1' INSIDE U/S FACE OF VICTORIA BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13964.00 | 11.51 | 584.51 | 0.00 | 0.00 | 584.80 | 0.29 | 0.21 | 0.01 | 573.00 |
| 1410. | 163. | 1192. | 55. | 270. | 256. | 82. | 33. | 13. | 573.00 |
| 0.35 | 0.61 | 4.66 | 0.67 | 0.120 | 0.020 | 0.122 | 0.033 | 573.00 | 350.00 |
| 0.000[illegible] | 237. | 237. | 237. | 2 | 0 | 0 | -190.01 | 170.00 | 820.00 |

FLOW DISTRIBUTION FOR SECNO= 13964.00 CWSEL= 584.51

| | | | | | |
|---|---|---|---|---|---|
| STA= | 350. | 453. | 467. | 494. | 512. | 520. |
| [illegible] | 9.0 | 1.2 | 84.5 | 3.5 | 0.4 |
| [illegible] | 235.4 | 39.3 | 256.0 | 57.3 | 24.9 |
| VEL= | 0.6 | 0.6 | [illegible] | [illegible] | 0.2 |

1490 NY CARD USED

[illegible] 13965.000

3470 ENCROACHMENT STATIONS= 350.0 520.0 TYPE= 1 TARGET= 170.000

U/S FACE OF VICTORIA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13965.00 | 11.68 | 584.68 | 0.00 | 0.00 | 584.84 | 0.16 | 0.05 | 0.04 | 573.00 |
| 1410. | 155. | 1131. | 164. | 245. | 216. | 164. | 53. | [illegible] | 573.00 |
| 0.35 | 0.45 | 3.36 | 0.76 | 0.120 | 0.035 | 0.126 | 0.033 | 573.00 | 350.00 |
| 0.000[illegible] | 1. | 1. | 1. | 2 | 0 | 0 | [illegible] | 170.00 | 820.00 |

FLOW DISTRIBUTION FOR SECNO= 13965.00 CWSEL= 584.66

| | | | | | |
|---|---|---|---|---|---|
| STA= | 350. | 453. | 467. | 494. | 512. | 520. |
| [illegible] | [illegible] | [illegible] | 80.2 | 3.5 | 0.[illegible] |
| [illegible] | 247.2 | 98.[illegible] | 376.4 | 137.6 | 26.2 |
| VEL= | 0.4 | 0.7 | 3.5 | 0.9 | 0.1 |

1490 NH CARD USED
*SECNO 14015.000

| SECNO | DEPTH | CWSEL | CRIWS | VSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | LWA | LEFT/RIGHT |
| TYPE | VICD | WCH | VBCH | XNL | XNCH | XAR | WTX | ELTRM | SSTA |
| SLOPE | XLCOL | XLCH | XLOBR | TTRIAL | XH2 | ICONT | CORIOP | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 350.0 520.0 TYPE= 1 TARGET= 170.000

VALLEY SECT. 50' U/S OF VICTORIA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14015.00 | 11.77 | 584.77 | 0.00 | 0.00 | 584.87 | 0.10 | 0.01 | 0.02 | 573.00 |
| 1410. | 199. | 937. | 274. | 356. | 319. | 166. | 54. | 13. | 573.00 |
| 0.35 | 0.56 | 2.94 | 1.65 | 0.060 | 0.035 | 0.040 | 0.013 | 573.00 | 350.00 |
| 0.030179 | 52. | 30. | 50. | 2 | 2 | 0 | 0.00 | 170.00 | 520.00 |

FLOW DISTRIBUTION FOR SECNO= 14015.00 C.SEL= 584.77

| STA= | 350. | 453. | 467. | 494. | 512. | 520. |
|---|---|---|---|---|---|---|
| Q= | 8.2 | 5.9 | 65.5 | 17.3 | 1.7 | |
| AREA= | 256.6 | 99.5 | 313.9 | 139.2 | 26.9 | |
| VEL= | 0.3 | 0.6 | 2.9 | 1.1 | 0.9 | |

1490 NH CARD USED
*SECNO 14287.000

3470 ENCROACHMENT STATIONS= 200.0 520.0 TYPE= 1 TARGET= 320.000

VALLEY SECT. 50' D/S OF N.B. FORT ST.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14267.00 | 10.37 | 584.87 | 0.00 | 0.00 | 584.93 | 0.05 | 0.05 | 0.01 | 563.71 |
| 1910. | 91. | 1067. | 325. | 79. | 322. | 395. | 66. | 2. | 562.50 |
| 0.66 | 0.34 | 2.05 | 0.33 | 0.062 | 0.045 | 0.040 | 0.023 | 574.50 | 200.00 |
| 0.029139 | 272. | 222. | 246. | 2 | 0 | 0 | 0.00 | 320.00 | 320.00 |

FLOW DISTRIBUTION FOR SECNO= 14267.00 CWSEL= 584.87

| STA= | 200. | 275. | 345. | 361. | 408. | 520. |
|---|---|---|---|---|---|---|
| Q= | 1.3 | 75.7 | 4.2 | 4.3 | 14.5 | |
| AREA= | 74.6 | 521.3 | 31.1 | 79.0 | 264.9 | |
| VEL= | 0.2 | 2.0 | 0.8 | 0.3 | 0.3 | |

1490 NH CARD USED
*SECNO 14537.000

3470 ENCROACHMENT STATIONS= 380.0 700.0 TYPE= 1 TARGET= 320.000

D/S FACE OF N.B. FORT ST.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14501.00 | 13.28 | 584.78 | 0.62 | 0.05 | 584.78 | 0.00 | 0.01 | 0.00 | 574.74 |
| 1.41 | 0.36 | 2.20 | 0.58 | 0.060 | 0.035 | 0.040 | 0.033 | 574.50 | 380.00 |
| 0.30 168 | 50. | 90. | 80. | 0 | 0 | 7 | 2100 | 320.00 | 700.00 |

Buildings in 20B have not been considered

FLOW DISTRIBUTION FOR SECNO= 14537.00 CWSEL= 584.78

| STA= | 380. | 450. | 502. | 575. | 630. |
|---|---|---|---|---|---|
| Q= | 5.5 | 66.5 | 5.5 | 14.5 | |
| AREA= | 102.7 | 426.1 | 51.1 | 264.9 | |
| VEL= | 0.5 | 2.6 | 0.5 | 0.3 | |

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VEL= 0.4 2.2 1.2 0.8 0.8

1410 WI CARD USED
ASECNO 14338.000

3370 NORTAL BRIDGE,NRD= 17 NEW ELTRD= 580.00 MAX ELLC= 581.40

3470 ENCROACHMENT STATIONS= 380.0 700.0 TYPE= 1 TARGET= 320.000

1' INSIDE D/S FACE OF N.B. FORT ST.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14338.00 | 10.28 | 584.36 | 0.00 | 0.00 | 584.76 | 0.06 | 0.00 | 0.00 | 320.00 |
| 1410. | 34. | 790. | 586. | 82. | 322. | 455. | 61. | 95. | 578.40 |
| 0.41 | 0.41 | 2.45 | 1.29 | 0.000 | 0.020 | 0.040 | 0.033 | 574.60 | 380.00 |
| 1.000400 | 1. | 1. | 1. | 0 | 0 | 0 | -160.96 | 320.00 | 700.00 |

FLOW DISTRIBUTED FOR SECNO= 14338.00 CHSEL= 586.06

STA= 380. 450. 502. 575. 700.
PER Q= 2.4 55.0 13.8 27.8
AREA= 32.3 322.5 156.9 297.5
VEL= 0.4 2.5 1.2 1.3

1490 WH CARD USED
ASECNO 14402.000

3370 NORMAL BRIDGE,NRD= 17 NEW ELTRD= 580.00 MAX ELLC= 581.40

3470 ENCROACHMENT STATIONS= 380.0 700.0 TYPE= 1 TARGET= 320.000

1' INSIDE U/S FACE OF N.B. FORT ST.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14402.00 | 10.30 | 584.90 | 1.00 | 0.00 | 584.97 | 0.06 | 0.00 | 0.00 | 320.00 |
| 1420. | 34. | 791. | 586. | 82. | 323. | 457. | 61. | 95. | 578.40 |
| 0.42 | 0.41 | 2.44 | 1.29 | 0.000 | 0.020 | 0.040 | 0.033 | 574.60 | 380.00 |
| 0.000400 | 65. | 64. | 64. | 0 | 0 | 0 | -160.96 | 320.00 | 700.00 |

FLOW DISTRIBUTION FOR SECNO= 14402.00 CHSEL= 584.97

STA= 380. 450. 502. 575. 700.
PER Q= 2.4 55.0 13.8 27.8
AREA= 33.2 323.2 157.9 299.5
VEL= 0.4 2.4 1.2 1.3

1410 WH CARD USED
ASECNO 14403.000

| SECNO | DEPTH | CHSEL | CRIWS | ASELX | EG | HV | KI | CLOSS | BASIC FLOW |
|---|---|---|---|---|---|---|---|---|---|
| | QLOB | QCH | QROB | AFLOB | AFCH | AROB | WSEL | TRA | LEFT/RIGHT |
| TIME | VLOB | WSEL | VLOB | BSL | LAOB | RNK | LTN | FLOTS | SSTA |
| SLOPE | HLOB | WLOB | WCHAN | SINIAL | IHP | IOBST | CD SPH | TOPWID | ERRST |

3470 ENCROACHMENT STATIONS= 380.0 700.0 TYPE= 1 TARGET= 320.000

U/S FACE OF N.B. FORT ST.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14403.00 | 10.32 | 584.98 | 0.00 | 0.00 | 584.97 | 0.06 | 0.00 | 0.00 | 320.00 |
| 1421. | 34. | 791. | 436. | 88. | 428. | 494. | 62. | 95. | 578.40 |
| 0.42 | 0.41 | 2.44 | 0.33 | 0.00 | 0.020 | 0.040 | 0.033 | 574.60 | 380.00 |

0.000163 1. 1. 1. 1 0. 3 0.00 320.00 700.00

FLOW DISTRIBUTION FOR SECNO= 14403.00 CWSEL= 584.92

| | | | | | |
|---|---|---|---|---|---|
| STA= | 380. | 450. | 502. | 515. | 575. | 700. |
| PER Q= | 2.7 | 66.3 | 8.5 | 2.4 | 18.0 | |
| AREA= | 107.6 | 427.6 | 62.6 | 130.4 | 301.3 | |
| VEL= | 0.4 | 2.2 | 1.2 | 0.8 | 0.8 | |

1490 HH CARD USED
*SECNO 14460.000

3470 ENCROACHMENT STATIONS= 370.0 770.0 TYPE= 1 TARGET= 600.000

D/S FACE OF S.B. FORT ST. 55569

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14460.00 | 12.31 | 584.91 | 0.00 | 0.00 | 582.99 | 0.08 | 0.01 | 0.01 | 578.91 |
| 1440. | 25. | 1226. | 459. | 92. | 513. | 356. | 44. | 16. | 526.84 |
| 0.62 | 0.28 | 2.39 | 0.28 | 0.000 | 0.030 | 0.100 | 0.033 | 572.60 | 320.00 |
| 0.000122 | 57. | 57. | 57. | 2 | 0 | 0 | 0.00 | 400.00 | 770.00 |

FLOW DISTRIBUTION FOR SECNO= 14460.00 CWSEL= 584.91

| | | | | |
|---|---|---|---|---|
| STA= | 370. | 473. | 527. | 770. |
| PER Q= | 1.3 | 85.9 | 11.3 | |
| AREA= | 91.5 | 513.0 | 557.7 | |
| VEL= | 0.3 | 2.4 | 0.3 | |

1490 HH CARD USED
*SECNO 14461.000

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 580.00 MAX ELLC= 581.66

3470 ENCROACHMENT STATIONS= 370.0 770.0 TYPE= 1 TARGET= 600.000

I/S INSIDE D/S FACE OF S.B. FORT ST.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14461.00 | 12.00 | 584.90 | 2.00 | 0.20 | 565.65 | 2.12 | 0.080 | 0.11 | 578.90 |
| 1440. | 96. | 1118. | 276. | 67. | 394. | 330. | 25. | 15. | 526.90 |
| 1.29 | 0.87 | 3.87 | 1.45 | 1.000 | 1.000 | 0.100 | 0.111 | 572.40 | 320.00 |
| 0.000439 | 1. | 1. | 1. | 1 | 0 | 0 | -176.56 | 400.00 | 770.00 |

FLOW DISTRIBUTION FOR SECNO= 14321.50 CWSEL= 583.90

| | | | | |
|---|---|---|---|---|
| STA= | 370. | 473. | 527. | 770. |
| PER Q= | 1.2 | 79.3 | 19.6 | |
| AREA= | 59.3 | 394.0 | 529.9 | |
| VEL= | 0.3 | 2.3 | 0.5 | |

1490 HH CARD USED
*SECNO 14321.001

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 580.00 MAX ELLC= 581.66

3470 ENCROACHMENT STATIONS= 370.0 770.0 TYPE= 1 TARGET= 600.000

I INSIDE U/S FACE OF S.B. FORT ST.

14321.00 12.30 584.91 0.00 0.00 579.09 0.11 0.003 0.01 578.91

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1410. | 17. | 1115. | 277. | 61. | 395. | 534. | 65. | 16. | 578.90 |
| | 0.43 | 0.29 | 2.83 | 0.52 | 0.080 | 0.020 | 0.100 | 0.039 | 572.60 | 320.00 |
| | 0.000434 | 60. | 60. | 40. | 1 | 0 | 0 | -176.58 | 400.00 | 770.00 |

FLOW DISTRIBUTION FOR SECNO= 14521.00 CWSEL= 584.93

| STA= | 370. | 473. | 527. | 770. |
|---|---|---|---|---|
| PER Q= | 1.2 | 79.1 | 19.7 | |
| AREA= | 41.4 | 396.8 | 533.8 | |
| VEL= | 0.3 | 2.7 | 0.5 | |

1490 NH CARD USED

*SECNO 14522.000

3470 ENCROACHMENT STATIONS= 370.0 770.0 TYPE= 1 INCRST= 400.000

U/S FACE OF U.S. FORT ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 14522.00 | 12.36 | 584.96 | 0.00 | 0.00 | 585.03 | 0.08 | 0.06 | 0.01 | 576.90 |
| | 1410. | 27. | 1221. | 162. | 96. | 516. | 569. | 65. | 16. | 578.90 |
| | 0.43 | 0.28 | 2.37 | 0.28 | 0.040 | 0.030 | 0.100 | 0.033 | 572.60 | 320.00 |
| | 0.000119 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 401.05 | 770.00 |

FLOW DISTRIBUTION FOR SECNO= 14522.00 CWSEL= 584.96

| STA= | 370. | 473. | 527. | 770. |
|---|---|---|---|---|
| PER Q= | 1.9 | 86.6 | 11.5 | |
| AREA= | 96.6 | 515.5 | 569.1 | |
| VEL= | 0.3 | 2.4 | 0.3 | |

1490 NH CARD USED

*SECNO 14572.000

| | ECHO | DEPTH | CWSEL | CVINS | WSELK | FD | HV | AT | FLOAT | BACK WTR |
|---|---|---|---|---|---|---|---|---|---|---|
| | O | QTOT | ZCH | SLOB | XLOB | ACH | CROS | XNL | CD | EFF/ZTOP |
| | TYPE | VLOB | AT1 | WSEL | XNCH | XLCH | XR | DT | FLARE | SRT |
| | SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | I.12 | ICONT | CURAR | TOP.TO | BLAST |

3470 ENCROACHMENT STATIONS= 290.0 710.0 TYPE= 1 INCRST= 420.000

VALLEY SECT. 50' U/S OF S.B. FORT ST. 5858

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 14572.00 | 12.25 | 584.95 | 0.00 | 0.00 | 585.06 | 0.11 | 0.01 | 0.02 | 584.20 |
| | 1410. | 14. | 1175. | 221. | 79. | 402. | 541. | 66. | 17. | 581.20 |
| | 0.44 | 0.18 | 2.92 | 0.41 | 0.120 | 0.035 | 0.120 | 0.033 | 572.70 | 260.00 |
| | 0.003423 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 420.10 | 710.00 |

FLOW DISTRIBUTION FOR SECNO= 14572.00 CWSEL= 584.45

| STA= | 290. | 415. | 470. | 710. |
|---|---|---|---|---|
| PER Q= | 1.0 | 97.3 | 1.7 | |
| AREA= | 79.4 | 402.1 | 541.1 | |
| VEL= | 0.2 | 2.9 | 0.4 | |

CFS= 0.100 CCHV= 0.500

1490 NH CARD USED

*SECNO 14592.000

3470 ENCROACHMENT STATIONS= 159.0 2210 TYPE= 1 INCRST= 60.000

VALLEY SECT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15292.00 | 10.84 | 585.24 | 0.00 | 0.00 | 585.46 | .21 | 0.36 | 0.03 | 587.20 |
| 1410. | 0. | 1410. | 0. | 0. | 380. | 0. | 77 | 20. | 100000.00 |
| 0.49 | 0.00 | 3.71 | 0.00 | 0.120 | 0.035 | 0.120 | 0.033 | 574.40 | 164.81 |
| 0.000735 | 720. | 720. | 650. | 2 | 0 | 0 | 0.00 | 60.19 | 225.00 |

FLOW DISTRIBUTION FOR SECNO= 15292.00 CWSEL= 585.24

STA= 185. 225.
PER Q= 100.0
AREA= 380.2
VEL= 3.7

CCHV= 0.300 CEHV= 0.500
*SECNO 15820.000
3280 CROSS SECTION 15820.00 EXTENDED 0.19 FEET

3470 ENCROACHMENT STATIONS= 50.0 162.0 TYPE= 1 TARGET= 112.000

VALLEY SECT. 50' D/S OF LAFAYETTE 582.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15820.00 | 8.59 | 585.59 | 0.00 | 0.00 | 585.97 | 0.39 | 0.43 | 0.09 | 577.70 |
| 1410. | 87. | 1269. | 55. | 44. | 243. | 48. | 81. | 21. | 578.30 |
| 0.52 | 1.98 | 5.23 | 1.14 | 0.050 | 0.035 | 0.080 | 0.033 | 577.00 | 73.86 |
| 0.000[illegible] | 350. | 520. | 550. | 2 | 0 | 0 | 0.00 | 68.14 | 162.00 |

FLOW DISTRIBUTION FOR SECNO= 15820.00 CWSEL= 585.59

STA= 74 85 115 127 162
PER Q= 5.2 89.9 5.3 0.0
AREA= 63.9 242.7 44.3 1.9
VEL= 2.0 [illegible] [illegible] [illegible]

*SECNO 15870.000
3280 CROSS SECTION 15870.00 EXTENDED 0.36 FEET

3470 ENCROACHMENT STATIONS= 50.0 150.0 TYPE= 1 TARGET= 100.000

D/S FACE OF LAFAYETTE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15870.00 | 8.75 | 585.75 | 0.00 | 0.00 | 586.04 | 0.29 | 0.04 | 0.03 | 577.00 |
| 1410. | 158. | 1153. | 99. | 82. | 243. | 82. | 82. | 21. | 577.00 |
| 0.52 | 1.94 | 4.75 | 1.21 | 0.050 | 0.035 | 0.080 | 0.033 | 577.00 | 67.37 |
| 0.020680 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 65.26 | 132.63 |

FLOW DISTRIBUTION FOR SECNO= 15870.00 CWSEL= 585.75

STA= 67. 86. 114. 153.
PER Q= 11.2 81.8 7.0
AREA= 81.5 245.1 81.5
VEL= 1.9 4.7 1.2

SPECIAL BRIDGE=

[illegible]

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 1.65 | 3.00 | 100.00 | 23.00 | 0.00 | 169.00 | 0.00 | 577.00 | 577.00 |

*SECNO 15914.000
3280 CROSS SECTION 15914.00 EXTENDED 1.19 FEET

PRESSURE AND WEIR FLOW

| YCRRS | EGLOC | H3 | QWEIR | QBR | BAREA | TRAPEZOID AREA | ELLC | ELTWD |
|---|---|---|---|---|---|---|---|---|
| 587.36 | 586.04 | 0.00 | 326. | 1682. | 152. | 168. | 586.00 | 585.47 |

3471 ENCROACHMENT STATIONS= 50.0 150.0 TYPE= 1 TARGET= 100.000

U/S FACE OF LAFAYETTE 587.35 +.78

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15914.00 | 9.59 | 586.59 | 0.00 | 0.00 | 586.82 | 0.23 | 0.77 | 0.00 | 577.06 |
| 1410. | 173. | 1129. | 108. | 102. | 269. | 103. | 62. | 22. | 577.00 |
| 0.53 | 1.20 | 4.20 | 1.05 | 0.050 | 0.035 | 0.080 | 1.033 | 577.00 | 50.00 |
| 0.000481 | 44. | 44. | 44. | 2 | 0 | 3 | 0.00 | 100.00 | 150.00 |

FLOW DISTRIBUTION FOR SECNO= 15914.00 CHSEL= 586.59

| STA= | 50. | 66. | 86. | 116. | 134. | 150. |
|---|---|---|---|---|---|---|
| FLOW= | 0.9 | 12.2 | 85.1 | 7.5 | 0.1 | |
| AREA= | 3.9 | 57.6 | 269.6 | 97.3 | 5.0 | |
| VEL= | 0.2 | 1.1 | 4.2 | 1.1 | 0.2 | |

*SECNO 15964.000
3280 CROSS SECTION 15964.00 EXTENDED 1.14 FEET

| SECNO | STCHL | CHSEL | LOBCNS | WSEL | FB | WV | ALPHA | DELTA SLEV |
|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TOA | LEFTWEIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTI | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IHP | ICOUT | CONAP | TOPIN | ELMAX |

3471 ENCROACHMENT STATIONS= 0.0 150.0 TYPE= 1 TARGET= 149.999

VALLEY SECT. 50' U/S OF LAFAYETTE 587.3

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15964.00 | 9.54 | 586.56 | 0.00 | 0.00 | 586.94 | 0.38 | 1.00 | 0.19 | 577.30 |
| 1410. | 157. | 1196. | 57. | 95. | 215. | 93. | 63. | 22. | 577.00 |
| 0.33 | 1.66 | 5.47 | 1.07 | 0.050 | 0.035 | 0.080 | 0.033 | 577.30 | 0.00 |
| 0.000874 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 150.00 | 150.00 |

FLOW DISTRIBUTION FOR SECNO= 15964.00 CHSEL= 586.56

| STA= | 0. | 75. | 83. | 118. | 122. | 150. |
|---|---|---|---|---|---|---|
| FLOW= | 0.9 | 10.8 | 84.0 | 3.9 | 0.2 | |
| AREA= | 20.3 | 46.6 | 218.7 | 66.4 | 8.9 | |
| VEL= | 0.3 | 3.2 | 5.5 | 1.2 | 0.3 | |

*SECNO 16194.000

3471 ENCROACHMENT STATIONS= 0.0 150.0 TYPE= 1 TARGET= 150.000

VALLEY SECT. 50' D/S OF I-75

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16194.00 | 10.40 | 586.90 | 0.00 | 0.00 | 587.13 | 0.23 | 0.14 | 0.05 | 578.60 |
| 1410. | 23. | 1322. | 65. | 30. | 337. | 64. | 85. | 22. | 578.60 |
| 0.55 | 0.76 | 3.93 | 1.31 | 0.080 | 0.035 | 0.080 | 0.033 | 576.50 | 795.00 |
| 0.000438 | 230. | 230. | 230. | 2 | 0 | 0 | 0.00 | 50.00 | 845.00 |

587.68 587.93

FLOW DISTRIBUTION FOR SECNO= 16194.00 CUSEL= 586.90

STA= 793. 799. 835. 845.
PER Q= 4.6 91.0 4.6
AREA= 30.1 336.7 64.2
VEL= 0.8 3.9 1.0

*SECNO 16244.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,BLEA= 603.60 BLRA= 603.60

D/S FACE OF I-75 BRIDGE 588.4

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16244.00 | 10.20 | 586.70 | 0.00 | 0.00 | 587.41 | 0.70 | 0.04 | 0.24 | 603.60 |
| 1410. | 0. | 1410. | 0. | 0. | 215. | 0. | 85. | 22. | 578.60 |
| 0.55 | 0.00 | 6.73 | 0.00 | 0.030 | 0.035 | 0.080 | 0.033 | 576.50 | 818.57 |
| 0.001998 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 22.93 | 841.50 |

FLOW DISTRIBUTION FOR SECNO= 16244.00 CUSEL= 586.70

STA= 819. 842.
PER Q= 100.0
AREA= 209.5
VEL= 6.7

*SECNO 16245.000

3370 NORMAL BRIDGE,NRD= 6 MIN ELTRD= 603.60 MAX ELLC= 568.10

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,BLEA= 603.60 BLRA= 603.60

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16245.00 | 10.20 | 586.70 | 0.00 | 0.30 | 587.61 | 0.71 | 0.00 | 0.00 | 603.60 |
| 1410. | 0. | 1410. | 0. | 0. | 205. | 0. | 85. | 22. | 578.60 |
| 0.55 | 0.00 | 6.76 | 0.00 | 0.080 | 0.020 | 0.080 | 0.033 | 576.50 | 818.57 |
| 0.000652 | 1. | 1. | 1. | 0 | 0 | 0 | 1.00 | 22.93 | 841.50 |

FLOW DISTRIBUTION FOR SECNO= 16245.00 CUSEL= 586.70

STA= 819. 842.
PER Q= 100.0
AREA= 209.5
VEL= 6.8

*SECNO 16503.000

3370 NORMAL BRIDGE,NRD= 6 MIN ELTRD= 603.60 MAX ELLC= 590.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,BLEA= 603.60 BLRA= 603.60

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16502.00 | 10.40 | 586.90 | 0.00 | 0.00 | 587.61 | 0.71 | 0.00 | 0.01 | 603.6 |

```
   1410.      0.    1410.      0.      0.     213.      0.      86.     22.    578.60
    0.56     0.00     6.61    0.00   0.080    0.020   0.060   0.033   576.50   818.57
0.000621     258.     258.    258.       2        0       0   -1.11    22.93   841.50

FLOW DISTRIBUTION FOR SECNO=  16503.00          CWSEL=    586.91

STA=      819.      842.
  PER Q=     100.0
  AREA=     213.2
   VEL=       6.6

*SECNO 16504.000
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       WL       DLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA     LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      LTH      ELMIN      SST
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IHZ      ICONT    CTRLR    TOPWID     ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603.60 ELREA=      603.60

          U/S FACE OF I-75 BRIDGE

16504.00    10.41   586.91     0.00     0.00   587.59     0.67     0.00     0.00   603.60
   1410.      0.    1410.      0.      0.     214.      0.      86.     22.    578.60
    0.56     0.00     6.58    0.00   0.080    0.035   0.060   0.033   576.50   818.57
0.000070       1.       1.      1.       0        0       0    0.00    22.93   841.50

FLOW DISTRIBUTION FOR SECNO=  16504.00          CWSEL=    586.91

STA=      819.      842.
  PER Q=     100.0
  AREA=     214.2
   VEL=       6.6

*SECNO 16554.000

3465 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      530.0     683.0  TYPE=      1  TARGET=      125.000

          VALLEY SECT. 50' U/S OF I-75          5884

16554.00    10.97   587.57     0.00     0.00   587.77     0.20     0.06     0.14   578.60
   1330      66.    1539      127      71      295      161      37       22     578.95
    0.56     0.91     3.86    0.90   0.080    0.035   0.060   0.033   576.60   588.89
0.000396      50.      50.     50.       2        2       0    0.00    93.61   683.00

FLOW DISTRIBUTION FOR SECNO=  16554.00          CWSEL=    587.57

STA=      589.      605.      635.      663.      683.
  PER Q=       4.8      85.6      9.3      0.2
  AREA=      70.6     295.6     129.6     11.5
   VEL=       0.9       3.9      1.0      1.3

1470 [illegible]

*SECNO 16626.000

3470 ENCROACHMENT STATIONS=      594.0     655.0  TYPE=      1  TARGET=      [illegible]
```

A= A loss appear reasonable

VALLEY SECT. 50' D/S OFINDUSTRIAL DRIVE7

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 16826.00 | 12.67 | 587.77 | 0.00 | 0.00 | 587.86 | 0.09 | 0.06 | 0.03 | 575.40 |
| | 1330. | 154. | 1362. | 114. | 135. | 397. | 121. | 91. | 23. | 575.40 |
| | 0.60 | 1.01 | 2.67 | 0.94 | 0.060 | 0.035 | 0.060 | 0.033 | 575.50 | 594.00 |
| | 0.000138 | 222 | 222 | 222 | 2 | 1 | 0 | 0.00 | 82.00 | 456.00 |

FLOW DISTRIBUTION FOR SECNO= 16826.00 CWSEL= 587.77

| | | | |
|---|---|---|---|
| STA= | 594. | 440. | 442. | 456. |
| PCT Q= | 11.5 | 79.5 | 9.0 |
| AREA= | 152.7 | 397.4 | 121.2 |
| VEL= | 1.0 | 2.7 | 0.9 |

1495 NH CARD USED
*SECNO 16876.000
3280 CROSS SECTION 16876.00 CRTELOED 0.25 BEST

3493 OVERBANK AREA ASSUMED NON-EFFECTIVE,FLLEA= 590.50 E AREA= 550.50

D/S FACE OF INDUSTRIAL DRIVE 588.8

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 16276.00 | 13.15 | 587.75 | 0.00 | 0.00 | 587.90 | 0.16 | 0.01 | 0.03 | 524.60 |
| | 1330. | 0. | 1330. | 0. | 0. | 435. | 0. | 91. | 23. | 574.60 |
| | 0.60 | 0.00 | 3.06 | 0.00 | 0.060 | 0.035 | 0.060 | 0.033 | 574.60 | 590.00 |
| | 0.000260 | 50 | 50 | 50 | 2 | 0 | 0 | 0.51 | 33.13 | 503.90 |

FLOW DISTRIBUTION FOR SECNO= 16876.00 CWSEL= 587.75

| | | |
|---|---|---|
| STA= | 490. | 335. |
| PCT Q= | 100.0 |
| AREA= | 435.3 |
| VEL= | 3.1 |

SPECIAL BRIDGE

| SS | XR | XRCD | CCFO | RDLEN | SWC | BHP | OPSEA | SR | ALCAH | FLOID |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.32 | 3.00 | 3.00 | 26.83 | 0.00 | 350.00 | 1.00 | 574.90 | 574.60 |

1495 NH CARD USED
*SECNO 16993.100
PRESSURE FLOW

| EGPRS | EGLWC | WR | QWEIR | QPR | BAREA | TRAPEZOID | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 598.21 | 598.20 | 0.00 | 0. | 1550. | 330. | 350. | 587.50 | 589.75 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,FLLEA= 590.50 E AREA= 550.50

D/S FACE OF INDUSTRIAL DRIVE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 16993.00 | 13.17 | 587.75 | 0.00 | 0.00 | 588.91 | 0.16 | 0.01 | 0.03 | 574.90 |
| | 1330. | 0. | 1330. | 0. | 0. | 435. | 0. | 91. | 23. | 574.90 |

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    0.61      0.00      3.05      0.00     0.060     0.035     0.[illegible]     0.[illegible]   574.90   290.00
0.000259       87.       87.       87.         2         [illegible]         0.00    33.10   323.[illegible]

FLOW DISTRIBUTION FOR SECNO= 16763.00          CWSEL=    588.[illegible]

STA=      290.      323.
  PER Q=     100.0
   AREA=     435.8
    VEL=       3.1

1490 NH CARD USED
*SECNO 17013.000
   SECNO     DEPTH     CWSEL     CRIWS     USELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IHR       ICONT     LOBIN     TOPWTD     ENDST

3470 ENCROACHMENT STATIONS=      304.0      437.0  TYPE=      1  TARGET=      133.000

          VALLEY SECT.50' U/S OF INDUSTRIAL DRIVE                                                  587.9
 17013.00     11.28    588.13     0.00      0.00    588.24      0.00      0.01      0.[illegible]   576.20
    1330.      254.      927.      148.      289.      395.      164.       93.       23.    576.20
     0.62      0.88      2.35      0.90     0.060     0.035     0.060     0.033   576.20   304.00
 0.000111       50.       50.       50.         2         0         0      0.00   110.95   414.95

FLOW DISTRIBUTION FOR SECNO= 17013.00          CWSEL=    588.10

STA=      304.      324.      354.      387.      407.      415.
  PER Q=       2.3      16.8      69.7      10.8       0.3
   AREA=      61.5     237.4     395.3     151.6      12.[illegible]
    VEL=       0.5       1.0       2.3       1.0       0.3

1490 NH CARD USED
*SECNO 17255.000

3470 ENCROACHMENT STATIONS=      414.0      466.0  TYPE=      1  TARGET=      52.000

          VALLEY SECT. 50' U/S OF RE[illegible] CENTRAL D.F.

 17255.00     10.28    588.10     0.00      0.00    588.32      0.14      0.04      0.06   578.20
    1330.       51.      1248       38.       66.      397.       66.       97.       24.    576.10
     0.64      0.78      3.18      0.[illegible]     0.030     0.035     0.060     0.033   577.90   414.00
 0.000249      242.      242.      242.         2         0         [illegible]      0.00    32.30   465.00

FLOW DISTRIBUTION FOR SECNO=  17255.00          CWSEL=    588.18

STA=      414.      422.      [illegible]      [illegible]
  PER Q=       3.9      93.9       2.3
   AREA=      66.0     396.[illegible]      [illegible]
    VEL=       0.8       3.[illegible]       0.7

CCMN=   0.300 CSMN=   0.500
*SECNO 17305.000

[illegible]
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17305.00 | 10.19 | 588.09 | 0.00 | 0.00 | 588.45 | 0.36 | 0.02 | 0.11 | 577.90 |
| 1330. | 0. | 1330. | 0. | 0. | 277. | 0. | 97. | 24. | 577.90 |
| 0.64 | 0.00 | 4.80 | 0.00 | 0.080 | 0.035 | 0.080 | 0.033 | 577.90 | 356.40 |
| 0.000860 | 50. | 50. | 90. | 2 | 5 | 0 | 0.00 | 27.20 | 383.60 |

FLOW DISTRIBUTION FOR SECNO= 17305.00 CWSEL= 588.09

STA= 356. 384.
PER Q= 100.0
AREA= 277.2
VEL= 4.8

SPECIAL BRIDGE

| SE | WK | AXOB | COEC | BALE | S.C | BCP | LARFA | SS | E.CHN | CLCHE |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.25 | | 2.49 | 3.00 | 5.00 | 24.20 | 3.21 | 112.0 | .05 | 577.50 | 577.90 |

*SECNO 17502.000
PRESSURE FLOW

| SUBES | BALIE | 'LS | ASTIO | ORF | BAREA | TRAJECTORY AREA | ELLC | ELTRA |
|---|---|---|---|---|---|---|---|---|
| 590.16 | 588.55 | 0.11 | 0. | 1330. | 182. | 182. | 585.50 | 600.40 |

3/95 OVERBANK AREA ASSIGNED TO =EFFECTIVE FLOW= 600.40 ELEV= 600.40

U/S FACE OF PENN CENTRAL R.R. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17502.00 | 12.11 | 588.00 | 0.00 | 0.20 | 588.19 | 0.26 | 1.29 | 0.08 | 577.91 |
| 1330. | 0. | 1330. | 0. | 0. | 826. | 0. | 0. | 24. | 577.90 |
| 0.65 | 0.80 | 4.08 | 0.00 | 0.080 | 0.035 | 0.080 | 0.033 | 577.90 | 356.40 |
| 0.000544 | 197. | 197. | 197. | 2 | 3 | 0 | 0.00 | 27.20 | 383.60 |

FLOW DISTRIBUTION FOR SECNO= 17502.00 CWSEL= 588.90

STA= 356. 384.
PER Q= 100.0
AREA= 326.4
VEL= 4.1

CARD OR CALC USED
*SECNO 17552.000

367D ENCROACHMENT STATIONS= 277.0 454.0 TYPE= 1 TARGET= 127.000

VALLEY SECT. 30' D/S OF PENN CENTRAL R.R.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17552.00 | 12.61 | 590.11 | 0.00 | 0.20 | 587.82 | 0.50 | 0.21 | 0.05 | 577.80 |
| 1330. | 148. | 823. | 259. | 222. | 831. | 314. | 99. | 34. | 577.50 |
| 0.66 | 0.67 | 3.67 | 0.61 | 0.080 | 0.035 | 0.080 | 0.033 | 577.50 | 277.00 |
| 0.000179 | 50. | 54. | 150. | 2 | 3 | 0 | 0.00 | 127.00 | 404.00 |

FLOW DISTRIBUTION FOR SECNO= 17552.00 CWSEL= 590.11

STA= 277. 313. 328. 354. 393. 454. 460.

```
  PER Q=      4.6       6.5      69.4      11.6       7.9
   AREA=    121.1     100.9     300.9     155.9     162.5
    VEL=      0.5       0.9       3.1       1.0       0.6

CCHV=   0.100 CEHV=    0.300
*SECNO 17817.000
   SECNO     DEPTH     CWSEL     COTHS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOOL     XLCH      XLOMR     ITRIAL    IH2       ICONT     COBAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=        8.8      230.4  TYPE=      1  TARGET=      221.600

          VALLEY FROM SUBOIL PLANS

 17817.00     13.31    590.21      0.00      0.00    590.26      0.05      0.04      0.00    590.30
    1330.      130.     1101.       99.       213.      532.      158.      1[illegible]       25.     586.00
     0.70      0.61      2.07      0.63     0.050     0.035     0.053     0.033    576.90      8.80
 0.000146      265.      265.      265.         0         0         0      0.00    221.60    230.40

FLOW DISTRIBUTION FOR SECNO=  17817.00          CWSEL=     590.21

STA=        9.       50.      101.      162.      225.      230.
  PER Q=      5.2       4.6      62.8       7.3       0.2
   AREA=    108.0     105.0     532.4     151.7       6.0
    VEL=      0.6       0.6       2.1       0.6       0.3

1420 NH CARD USED
*SECNO 18106.000
3280 CROSS SECTION  18106.00 EXTENDED       1.49 FEET

3470 ENCROACHMENT STATIONS=      203.0      438.0  TYPE=      1  TARGET=      221.000

          VALLEY SECT. 50' D/S OF PORTER AVE.

 18106.00     11.19    590.19      0.00      0.00    590.35      0.16      0.06      0.03    579.00
    1330.      254.     1025.       [illegible]      391.      200.      340.      1[illegible]       26.     579.00
     3.73      0.[illegible]      3.66      [illegible]     0.030     0.035     0.5[illegible]     0.0[illegible]    579.00    2[illegible]3.00
 0.000298      289.      289.      289.         2         0         0      0.00    175.00    450.00

FLOW DISTRIBUTION FOR SECNO=  18106.00          CWSEL=     590.19

STA=      233.      320.      340.      365.      393.      410.      435.
  PER Q=      8.9      10.2      77.1       2.6       0.4       0.6
   AREA=    181.0     129.8     279.8     191.5      50.8      97.7
    VEL=      0.7       1.0       3.7       0.2       0.1       0.1

1490 NH CARD USED
*SECNO 18156.000

3470 ENCROACHMENT STATIONS=      275.0      450.0  TYPE=      1  TARGET=      175.000

          D/S FACE OF PORTER AVE.

 18156.00     11.19    590.19      0.00      0.00    590.37      0.10      0.04      0.00    579.00
    1350.      233.     1050.       439.      247.      281.      310.      1111.       22.     579.00
     1.75      0.95      3.76      0.1[illegible]     0.061     0.030     0.900     0.033    579.00    275.00
 0.000237      [illegible]      [illegible]      50.[illegible]      [illegible]      [illegible]      [illegible]      175.00    450.00
```

FLOW DISTRIBUTION FOR SECNO= 18156.00 CWSEL= 590.19

| STA= | 275. | 280. | 332. | 350. | 375. | 403. | 450. |
|---|---|---|---|---|---|---|---|
| PER Q= | 0.0 | 4.7 | 12.8 | 79.5 | 2.2 | 0.7 | |
| AREA= | 9.0 | 122.6 | 135.0 | 201.2 | 130.4 | 121.9 | |
| VEL= | 0.0 | 0.6 | 1.3 | 3.1 | 0.2 | 0.1 | |

1490 NH CARD USED
*SECNO 18157.000

3370 NORMAL BRIDGE,NPR= 10 MIN ELEV= 585.20 MAX ELEV= 585.90

3470 ENCROACHMENT STATIONS= 275.0 450.0 TYPE= 1 TARGET= 175.000

(1 INSIDE OF OAS TYPE OF ARTER AVE.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18157.00 | 11.09 | 590.09 | 0.00 | 0.00 | 590.62 | 0.33 | 0.00 | 0.04 | 579.00 |
| 1330. | 174. | 1127. | 29. | 149. | 227. | 178. | 111. | 26. | 579.00 |
| 0.73 | 1.17 | 4.95 | 0.16 | 0.063 | 0.020 | 0.500 | 0.033 | 575.00 | 275.00 |
| 0.001014 | 1. | 4. | 1. | 2 | 0 | 0 | -264.04 | 175.00 | 450.00 |

FLOW DISTRIBUTION FOR SECNO= 18157.00 CWSEL= 590.09

| STA= | 275 | 280 | 330 | 350 | 375 | 403 | 450 |
|---|---|---|---|---|---|---|---|
| PER Q= | 3.0 | 9.0 | 4.9 | 84.7 | 2.7 | 1.5 | |
| AREA= | 9.4 | 97.0 | 43.0 | 227.5 | 69.1 | 116.6 | |
| VEL= | 0.1 | 1.2 | 1.3 | 5.0 | 0.2 | 0.2 | |

1490 NH CARD USED
*SECNO 18195.000

3370 NORMAL BRIDGE,NPR= 10 MIN ELEV= 585.70 MAX ELEV= 585.90

3470 ENCROACHMENT STATIONS= 275.0 450.0 TYPE= 1 TARGET= 175.000

(1 INSIDE OF OAS TYPE OF ARTER AVE.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18195.00 | 11.12 | 590.16 | 0.00 | 0.00 | 590.45 | 0.32 | 0.00 | 0.00 | 575.00 |
| 1330. | 179. | 1122. | 29. | 153. | 229. | 181. | 112. | 27. | 579.00 |
| 0.73 | 1.17 | 4.91 | 0.16 | 0.063 | 0.020 | 0.500 | 0.033 | 579.00 | 275.00 |
| 0.003988 | 38. | 38. | 38. | 2 | 0 | 0 | -264.04 | 175.00 | 450.00 |

3520 LAST NOT OK OF CARD 720.00

FLOW DISTRIBUTION FOR SECNO= 18195.00 CWSEL= 590.16

| STA= | 275 | 280 | 330 | 350 | 375 | 403 | 450 |
|---|---|---|---|---|---|---|---|
| PER Q= | 0.7 | 9.2 | 4.2 | 84.0 | 0.7 | 1.1 | |
| AREA= | 8.6 | 99.3 | 44.2 | 227.6 | 62.4 | 113.8 | |
| VEL= | 0.1 | 1.2 | 1.2 | 4.9 | 0.2 | 0.2 | |

1490 NH CARD USED
*SECNO 18196.000

| SECNO | DEPTH | CWSEL | CRITWS | AESEL | EG | HV | AL | FLOPR | BACK STEP |
|---|---|---|---|---|---|---|---|---|---|
| | 0.06 | QCH | QROB | FLOB | ACH | AROB | WPL | TW | LEFTWTR.T |
| FLOBE | W.OS | QC1 | WSEL | TOPW | WCH | XNR | TIME | WTR | BST |
| SLOPE | XLOBL | XLOB | KLOBR | STORAGE | TRD | ACONT | QDFAC | TOPWID | ELOST |

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3470 ENCROACHMENT STATIONS=      275.0      450.0  TYPE=      1  TARGET=      175.000

        U/S FACE OF PORTER AVE.

 18496.00     11.30    590.30      0.00      0.00    590.47      0.17      0.00      0.01    579.00
    1330.       238.     1053.       40.       254.      284.      317.      192.       27.    579.00
     0.73      0.94      3.71      0.13     0.061     0.030     0.500     0.033    579.00    275.00
 0.000221        1.        1.        1.         2         0         0      0.00    175.00    450.00

FLOW DISTRIBUTION FOR SECNO=  18496.00          CUSEL=     590.30

STA=      275.      280.      330.      350.      375.      403.      450.
  PER Q=      0.0       5.0      12.9      79.1       2.2       0.8
   AREA=      9.6     107.4     137.0     283.6     191.1     126.4
    VEL=      0.0       0.6       1.3       3.7       0.2       0.1

3490 NH CARD USED
*SECNO 18246.000
3280 CROSS SECTION  18245.00 EXTENDED       1.52 FEET

3470 ENCROACHMENT STATIONS=      320.0      470.0  TYPE=      1  TARGET=      150.000

        VALLEY SECT. 50' U/S OF PORTER AVE.

 18246.00     11.22    590.22      0.00      0.00    590.53      0.31      0.00      0.04    579.00
    1330.       137.     1131.       62.       144.      236.      376.      113.       27.    579.00
     0.74      0.95      4.80      0.16     0.100     0.035     0.500     0.033    579.00    320.00
 0.000309       50.       50.       50.         2         0         0      0.00    150.00    470.00

FLOW DISTRIBUTION FOR SECNO=  18246.00          CUSEL=     590.22

STA=      320.      335.      351.      372.      386.      410.      460.      470.
  PER Q=      1.5       8.5      85.0       1.5       0.7       2.1       0.3
   AREA=     36.8     107.5     235.6      94.8      70.1     176.0      35.0
    VEL=      0.5       1.1       4.8       0.2       0.1       0.2       0.1

CCHV=  0.105 CEHV=   0.300
*SECNO 18545.000

3470 ENCROACHMENT STATIONS=      159.0      309.0  TYPE=      1  TARGET=      150.000

        VALLEY SECT. BET. PORTER AND HAPPY PLACE

 18545.00     11.96    590.56      0.00      0.00    590.66      0.11      0.12      0.02    578.00
    1330.       59.      971.      300.       64.      333.      273.      116.       28.    586.60
     0.77      0.92      2.95      0.10     0.050     0.035     0.050     0.033    578.60    159.00
 0.001307      299.      299.      299.         2         0         0      0.00    150.00    309.00

FLOW DISTRIBUTION FOR SECNO=  18545.00          CUSEL=     590.56

STA=      159.      184.      220.      300.      309.
  PER Q=      4.4      73.0      21.3       1.2
   AREA=     64.4     339.8     852.0      20.7
    VEL=      0.9       2.9       3.1       0.8

CCHV=  0.300 CEHV=   0.500
*90 NH CARD USED
*SECNO 18829.000
```

3280 CROSS SECTION 19829.00 EXTENDED 0.64 FEET

3470 ENCROACHMENT STATIONS= 290.0 455.0 TYPE= 1 TARGET= 165.000

VALLEY SECT. 5'! D/S OF RAUP? F!

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 18829.00 | 11.94 | 590.64 | 0.00 | 0.00 | 590.74 | 0.11 | 0.08 | 0.00 | 578.70 | |
| 1330. | 704. | 581. | 44. | 457. | 162. | 346. | 125. | 29. | 578.70 | |
| 0.80 | 1.54 | 3.58 | 0.14 | 0.051 | 0.035 | 0.500 | 0.099 | 578.70 | 290.00 | |
| 0.000261 | 284. | 284. | 284. | 2 | 0 | 0 | 0.00 | 165.10 | 455.00 | |

FLOW DISTRIBUTION FOR SECNO= 18829.00 CWSEL= 590.64

| STA= | 290. | 345. | 366. | 377. | 390. | 455. |
|---|---|---|---|---|---|---|
| PER Q= | 19.3 | 35.7 | 43.7 | 1.0 | 2.4 | |
| AREA= | 206.2 | 160.7 | 162.6 | 76.0 | 249.5 | |
| VEL= | 0.9 | 2.8 | 3.6 | 0.2 | 0.1 | |

1490 NN CARD USED
SECNO 18879.000
3280 CROSS SECTION 18879.00 EXTENDED 0.55 FEET

3470 ENCROACHMENT STATIONS= 290.0 455.0 TYPE= 1 TARGET= 165.000

U/S FACE OF RAUP? P.. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18879.00 | 11.95 | 590.65 | 0.00 | 0.00 | 590.76 | 0.11 | 0.81 | 0.00 | 578.70 |
| 1330. | 690. | 600. | 39. | 456. | 163. | 347. | 124. | 29. | 470.70 |
| 0.80 | 1.51 | 3.69 | 0.11 | 0.046 | 0.030 | 0.500 | 0.035 | 578.70 | 290.00 |
| 0.000260 | 290. | 290. | 290. | 3 | 1 | 0 | 0.00 | 164.80 | 455.00 |

FLOW DISTRIBUTION FOR SECNO= 18879.00 CWSEL= 590.65

| STA= | 290. | 345. | 366. | 377. | 390. | 455. |
|---|---|---|---|---|---|---|
| PER Q= | 17.1 | 36.3 | 44.1 | 1.0 | 2.4 | |
| AREA= | 207.0 | 161.3 | 162.9 | 76.1 | 270.5 | |
| VEL= | 1.0 | 2.9 | 3.7 | 0.2 | 0. | |

1490 NN CARD USED
SECNO 18850.000
3280 CROSS SECTION 18850.00 EXTENDED 0.65 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRWS | WSELK | FQ | KV | HL | ALOSS | BANK STA |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TW= | LEFT/RIGHT |
| TYPE | VLOB | VCH | VROB | XR | XNCH | XXH | WT | ELMIN | SSTA |
| SLOPE | XLOBL | XLOBR | XLOBR | TTTIAL | ZHI | ZCOR | QCORTR | TOPWID | ESTA |

3370 NORMAL BRIDGE,NRD= 18 MIN SLOPE= 565.00 MAX ALLOW= 583.27

3470 ENCROACHMENT STATIONS= 290.0 455.0 TYPE= 1 TARGET= 165.000

1' INSIDE OF D/S FACE RAUP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18850.00 | 11.95 | 590.64 | 0.00 | 0.00 | 590.74 | 0.11 | 0.08 | 0.00 | 578.70 |

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   1330.     805.     477.      48.     400.     138.     319.     1[illegible]      29.     578.70
    0.81     2.01     3.46     0.15    0.045    0.020    0.500    0.[illegible]33   578.70   290.00
0.000427       1.       1.       1.       1        0        0  -111.24   165.00   455.00

FLOW DISTRIBUTION FOR SECNO=  18880.00          CWSEL=    590.66

STA=      290.     345.     364.     377.     386.     455.
  PER Q=     24.8     35.8     35.8      0.6      3.0
   AREA=    297.0    102.7    137.6     48.1    270.5
    VEL=      1.1      4.6      3.5      0.2      0.1

1450 NH CARD USED
*SECNO 18910.000
3280 CROSS SECTION  18910.00 EXTENDED      0.67 FEET

3370 NORMAL BRIDGE,NRD= 13 MIN ELTED=  585.00 MAX ELEC=  583.20

3470 ENCROACHMENT STATIONS=      290.0     455.0  TYPE=      1  TARGET=     165.000

          1' INSIDE OF U/S FACE RAUPP PL.

 18910.00     11.97    590.67     0.00     0.00    590.78     0.10     0.01     0.00    578.70
    1330.     806.     476.      48.     401.     138.     320.     125.      29.     578.70
     0.81     2.01     3.45     0.13    0.045    0.020    0.500    0.033   578.70   290.00
 0.000425      30.      30.      30.        0        0        0  -111.24   165.00   455.00

FLOW DISTRIBUTION FOR SECNO=  18910.00          CWSEL=    590.67

STA=      290.     345.     364.     377.     386.     455.
  PER Q=     24.8     35.8     35.8      0.6      3.0
   AREA=    297.9    103.0    137.3     48.2    271.5
    VEL=      1.1      4.6      3.5      0.2      0.1

1490 NH CARD USED
*SECNO 18911.000
3280 CROSS SECTION  18911.00 EXTENDED      0.67 FEET

3470 ENCROACHMENT STATIONS=      290.0     455.0  TYPE=      1  TARGET=     165.000

          U/S FACE OF RAUPP PL. BRIDGE

 18911.00     11.97    590.67     0.00     0.00    590.78     0.11     0.00     0.00    578.70
    1330.     691.     500.      39.     459.     163.     348.     125.      29.     578.70
     0.81     1.50     3.68     0.11    0.047    0.030    0.500    0.033   578.70   290.00
 0.000202       1.       1.       1.        0        0        0     0.00   165.00   455.00

FLOW DISTRIBUTION FOR SECNO=  18911.00          CWSEL=    590.67

STA=      290.     345.     364.     377.     386.     455.
  PER Q=     17.1     34.8     45.1      0.9      2.1
   AREA=    298.1    101.4    112.3     75.3    271.9
    VEL=      0.8      2.9      3.7      0.2      0.1

1490 NH CARD USED
*SECNO 18961.000
3280 CROSS SECTION  18961.00 EXTENDED      [illegible]
```

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3470 ENCROACHMENT STATIONS= 290.0 455.0 TYPE= 1 TARGET= 165.000

VALLEY SECT. 50' U/S OF RAUPP PL.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18961.00 | 11.99 | 590.69 | 0.00 | 0.00 | 590.79 | 0.11 | 0.01 | 0.00 | 578.70 |
| 1330. | 706. | 580. | 45. | 460. | 163. | 349. | 126. | 29. | 576.70 |
| 0.82 | 1.53 | 3.56 | 0.13 | 0.051 | 0.035 | 0.500 | 0.033 | 578.70 | 290.00 |
| 0.000656 | 50. | 50. | 50. | 3 | 0 | 0 | 0.00 | 165.00 | 455.00 |

FLOW DISTRIBUTION FOR SECNO= 18961.00 CWSEL= 590.69

| STA= | 290 | 345 | 364 | 377 | 396 | 455 |
|---|---|---|---|---|---|---|
| PER C= | 19.4 | 33.7 | 43.6 | 1.0 | 2.4 | |
| AREA= | 258.7 | 161.6 | 163.0 | 74.4 | 272.6 | |
| VEL= | 0.9 | 2.6 | 3.0 | 0.2 | 1.1 | |

1490 NN CARD USED
*SECNO 19112.000
3261 CROSS SECTION 19112.00 EXTENDED 0.01 FEET

3470 ENCROACHMENT STATIONS= 220.0 400.0 TYPE= 1 TARGET= 180.000

VALLEY SECT. 50' U/S OF DIK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19112.00 | 11.66 | 590.66 | 1.00 | 0.00 | 590.42 | 0.26 | 0.04 | 0.00 | 579.00 |
| 1330. | 18. | 1277. | 35. | 239. | 304. | 230. | 129. | 30. | 579.00 |
| 0.05 | 0.08 | 4.20 | 0.15 | 0.800 | 0.035 | 0.500 | 0.033 | 579.00 | 220.00 |
| 0.000470 | 151. | 151. | 151. | 2 | 0 | 0 | 0.00 | 180.00 | 400.00 |

STA= 220. 275. 307. 335. 351. 400.

| | | | | | |
|---|---|---|---|---|---|
| PER Q= | 0.7 | 0.7 | 96.0 | 1.6 | 0.1 |
| AREA= | 106.3 | 68.9 | 304.2 | 165.9 | 112.7 |
| VEL= | 0.1 | 0.1 | 6.2 | 0.3 | 0.1 |

1490 NN CARD USED
*SECNO 19162.000
3261 CROSS SECTION 19162.00 EXTENDED 0.07 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ERMS | DSTG | QWSEL | CWS-S | USALE | EG | EJ | | QLOB | AMS RLEN |
| Q | QLOB | QCH | QROS | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROS | XNL | XNCH | XNR | WTN | FLTP | ASTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IBR | ICONT | CONVR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 220.0 400.0 TYPE= 1 TARGET= 180.000

D/S FACE OF DIK BD. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19062.00 | 11.30 | 590.08 | 0.00 | 0.00 | 590.94 | 0.86 | 0.16 | 0.00 | 579.00 |
| 1330. | 18. | 1277. | 35. | 240. | 305. | 256. | 129. | 30. | 579.00 |
| 0.83 | 1.04 | 4.19 | 0.15 | 0.800 | 0.035 | 0.500 | 0.033 | 579.00 | 220.00 |
| 0.000360 | 50. | 50. | 50. | 0 | 0 | 0 | 0.00 | 180.00 | 400.00 |

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FLOW DISTRIBUTION FOR SECNO= 19162.00 CWSEL= 596.68

| STA= | 220. | 295. | 307. | 333. | 351. | 400. |
|---|---|---|---|---|---|---|
| PER Q= | 0.7 | 0.7 | 96.0 | 1.6 | 0.8 | |
| AREA= | 157.1 | 83.1 | 304.6 | 123.7 | 113.5 | |
| VEL= | 0.1 | 0.1 | 6.2 | 0.2 | 0.1 | |

1490 NH CARD USED
*SECNO 19163.000

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD= 588.20 MAX ELLC= 585.00

3470 ENCROACHMENT STATIONS= 220.0 400.0 TYPE= 1 TARGET= 180.000

1' INSIDE D/S FACE OF DIK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19163.00 | 11.52 | 590.52 | 0.00 | 0.00 | 591.10 | 0.54 | [illegible] | 0.16 | 579.00 |
| 1330. | 21. | 1279. | 30. | 171. | 204. | 143. | 130. | 30. | 579.00 |
| 0.83 | 0.12 | 6.26 | 0.21 | 0.800 | 0.020 | 0.500 | 0.033 | 579.00 | 220.00 |
| 0.001833 | 1. | 1. | 1. | 2. | 0. | 0. | -233.66 | 180.00 | 400.00 |

1979 H.W.M
15 ft below top of
head wall ≈ 587.9 - 588
Significant w/s storage appeared to
reduce peak

FLOW DISTRIBUTION FOR SECNO= 19163.00 CWSEL= 590.52

| STA= | 220. | 295. | 307. | 333. | 351. | 400. |
|---|---|---|---|---|---|---|
| PER Q= | 1.3 | 0.2 | 96.2 | 0.6 | 1.6 | |
| AREA= | 145.4 | 26.0 | 204.4 | 40.6 | 105.8 | |
| VEL= | 0.1 | 0.1 | 6.3 | 0.2 | 0.2 | |

1490 NH CARD USED
*SECNO 19263.000
3280 CROSS SECTION 19263.00 EXTENDED 0.14 FEET

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD= 588.20 MAX ELLC= 585.00

3470 ENCROACHMENT STATIONS= 220.0 400.0 TYPE= 1 TARGET= 180.000

1' INSIDE D/S FACE OF DIK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19263.00 | 11.74 | 590.74 | 0.00 | 0.00 | 591.29 | 0.54 | 0.17 | 0.01 | 579.00 |
| 1330. | 23. | 1273. | 34. | 191. | 210. | 162. | 130. | 31. | 579.00 |
| 0.84 | 0.12 | 6.05 | 0.21 | 0.800 | 0.020 | 0.500 | 0.033 | 579.00 | 220.00 |
| 0.001650 | 130. | 130. | 130. | 2. | 0. | 0. | -233.66 | 180.00 | 400.00 |

FLOW DISTRIBUTION FOR SECNO= 19263.00 CWSEL= 590.74

| STA= | 220. | 295. | 307. | 333. | 351. | 400. |
|---|---|---|---|---|---|---|
| PER Q= | 1.3 | 0.2 | 96.7 | 0.7 | 1.8 | |
| AREA= | 162.4 | 20.9 | 210.4 | 44.6 | 112.0 | |
| VEL= | 0.1 | 0.1 | 6.5 | 0.2 | 0.2 | |

1490 NH CARD USED
*SECNO 19264.000
3280 CROSS SECTION 19264.00 EXTENDED 0.36 FEET

3470 ENCROACHMENT STATIONS= 220.0 400.0 TYPE= 1 TARGET= 180.000

U/S FACE OF DIX RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 19264.00 | 12.14 | 591.14 | 0.00 | 0.00 | 591.38 | 0.24 | 0.00 | 0.09 | 579.00 |
| | 1330. | 21. | 1270. | 39. | 281. | 317. | 271. | 191. | 31. | 579.00 |
| | 0.84 | 0.09 | 4.01 | 0.14 | 0.800 | 0.035 | 0.500 | 0.033 | 579.00 | 220.00 |
| | 0.000319 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 100.00 | 400.00 |

FLOW DISTRIBUTION FOR SECNO= 19264.00 CWSEL= 591.14

| | | | | | | |
|---|---|---|---|---|---|---|
| STA= | 220. | 295. | 307. | 333. | 351. | 400. |
| PER %= | 0.9 | 0.7 | 95.5 | 1.9 | 1.0 | |
| AREA= | 192.3 | 83.7 | 316.9 | 134.1 | 136.5 | |
| VEL= | 0.1 | 0.1 | 4.0 | 0.2 | 0.1 | |

#SECNO 19314.000
3280 CROSS SECTION 19314.00 EXTENDED 0.56 FEET

3470 ENCROACHMENT STATIONS= 220.0 400.0 TYPE= 1 TARGET= 150.000

VALLEY SECT. 50' U/S OF DIX

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 19314.00 | 12.16 | 591.16 | 0.00 | 0.00 | 591.39 | 0.24 | 0.02 | 0.00 | 579.00 |
| | 1330. | 21. | 1270. | 39. | 282. | 317. | 272. | 132. | 31. | 579.00 |
| | 0.84 | 0.00 | 4.00 | 0.14 | 0.800 | 0.035 | 0.500 | 0.033 | 579.00 | 220.00 |
| | 0.000318 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 130.00 | 400.00 |

FLOW DISTRIBUTION FOR SECNO= 19314.00 CWSEL= 591.16

| | | | | | | |
|---|---|---|---|---|---|---|
| STA= | 220. | 295. | 307. | 333. | 351. | 400. |
| PER %= | 0.9 | 0.7 | 95.5 | 1.9 | 1.0 | |
| AREA= | 192.3 | 83.9 | 317.1 | 134.4 | 137.2 | |
| VEL= | 0. | 0. | 4.1 | 2.2 | 0.1 | |

1490 NH CARD USED
#SECNO 20380.002
3280 CROSS SECTION 20380.00 EXTENDED 1. 11 FEET

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | USELK | ES | AV | AI | QLOSS | BANK ELEV | |
| Q | WLOB | QCH | QROB | ALOB | ACH | AROB | VCH | TWA | LEFT/RIGHT | |
| TYPE | WLOB | VCH | WROB | XMI | XNCL | ZLO | KCH | ELCTR | SSTA | |
| SLOPE | WLOBL | XLOB | XLOBR | ITRIAL | ICR | ICONT | FCR,R | TCHNTO | FMULT | |

3470 ENCROACHMENT STATIONS= 338.0 405.0 TYPE= 1 TARGET= 151.000

VALLEY SECT. 50' U/S OF FRANK ST.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 20030.00 | 11.32 | 591.32 | 0.00 | 0.00 | 591.71 | 0.39 | 0.23 | 0.04 | 580.10 |
| | 1330. | 23. | 1263. | 46. | 126. | 271. | 208. | 146. | 34. | 360.10 |
| | 0.99 | 0.18 | 4.66 | 0.15 | 0.500 | 0.035 | 0.500 | 0.034 | 580.10 | 356.00 |
| | 0.000476 | 766. | 766. | 766. | 0 | 2 | 0 | 0.00 | 151.00 | 439.00 |

FLOW DISTRIBUTION FOR SECNO= 20030.00 CWSEL= 591.32

| | | | | | | |
|---|---|---|---|---|---|---|
| STA= | 338. | 350. | 385. | 399. | 405. | |
| PER %= | 0.2 | 1. | 95.0 | 2.1 | 1.7 | |
| AREA= | 266.0 | 1. | 1. | 1. | 1. | |
| VEL= | 0. | 0. | 4.7 | 2.4 | 0.1 | |

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```
   AREA=      26.1      99.8     271.2     128.3     1[illegible].8
    VEL=       0.1       0.2       4.7       0.2       [illegible].1

1490 NH CARD USED
*SECNO 20130.000
3280 CROSS SECTION  20130.00 EXTENDED       1.97 FEET


3470 ENCROACHMENT STATIONS=      372.0      500.0  TYPE=      1  TARGET=      128.000

          DOS FACE OF FRANK AVE. BRIDGE

 20130.00     11.47    591.57      0.00      0.00    591.78      0.21      0.02      0.03    580.10
    1330.       82.     1169.       79.      106.      299.      287.      147.       34.    580.10
     0.89      0.77      3.90      0.27     0.100     0.030     0.200     0.034    580.10    372.00
 0.000240       50.       30.       50.         2         0         0      0.00    128.00    500.00

FLOW DISTRIBUTION FOR SECNO=  20130.00          CUSEL=     591.57

STA=      372.      387.      413.      428.      500.
  PER Q=       6.2      87.9       3.1       2.8
   AREA=     106.4     299.4     105.1     181.2
    VEL=       0.8       1.9       3.4       0.2

1490 NH CARD USED
*SECNO 20131.000
3280 CROSS SECTION  20131.00 EXTENDED       1.30 FEET


3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  588.30 MAX ELLC=  586.70

3470 ENCROACHMENT STATIONS=      372.0      500.0  TYPE=      1  TARGET=      128.000

          1' INSIDE D/S OF FRANK AVE.

 20131.00     11.30    591.40      0.00      0.00    591.96      0.56      0.00      0.18    580.10
    1330.        0.     1232.       98.        0.      198.      162.      147.       34.    580.10
     0.89      0.39      6.24      0.58     0.100     0.020     0.270     0.024    580.10    372.00
 0.002046        1.        1.        1.         2         0         0      [illegible]    [illegible]    500.00

FLOW DISTRIBUTION FOR SECNO=  20131.00          CUSEL=     591.40

STA=      372.      387.      413.      500.
  PER Q=       0.0      92.6       7.4
   AREA=       0.1     197.5     168.5
    VEL=       0.1       6.2       0.6

1490 NH CARD USED
*SECNO 20168.000
3280 CROSS SECTION  20168.00 EXTENDED       [illegible] FEET


3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  588.30 MAX ELLC=  586.70

3470 ENCROACHMENT STATIONS=      372.0      500.0  TYPE=      1  TARGET=      128.000

          1' INSIDE D/S OF FRANK AVE.
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20168.00 | 11.34 | 591.44 | 0.00 | 0.30 | 592.07 | 0.63 | 0.08 | 0.04 | 580.10 |
| 1330. | 0. | 1286. | 42. | 0. | 199. | 172. | 147. | 34. | 580.10 |
| 0.90 | 0.09 | 4.49 | 0.24 | 0.100 | 0.020 | 0.500 | 0.034 | 580.10 | 372.00 |
| 0.002195 | 37. | 37. | 37. | 0 | 0 | 1 | -305.66 | 125.00 | 500.00 |

FLOW DISTRIBUTION FOR SECNO= 20168.00 CWSEL= 591.44

| STA= | 372. | 387. | 413. | 500. |
|---|---|---|---|---|
| PER Q= | 0.0 | 96.9 | 3.1 | |
| AREA= | 0.1 | 190.6 | 121.5 | |
| VEL= | 0.1 | 5.8 | 1.0 | |

1490 NH CARD USED
*SECNO 20169.000
3290 CROSS SECTION 20169.00 EXTENDED 2.42 FEET

3470 ENCROACHMENT STATIONS= 372.0 500.0 TYPE= 1 TARGET= 125.000

D/S FACE OF FRANK AVE. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20169.00 | 11.92 | 592.33 | 0.00 | 0.00 | 592.41 | 0.08 | 0.00 | 0.04 | 580.10 |
| 1330. | 84. | 1157. | 88. | 113. | 311. | 326. | 147. | 34. | 580.10 |
| 0.90 | 0.75 | 3.72 | 0.27 | 0.100 | 0.030 | 0.200 | 0.034 | 580.10 | 372.00 |
| 0.000237 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 125.00 | 500.00 |

FLOW DISTRIBUTION FOR SECNO= 20169.00 CWSEL= 592.04

| STA= | 372. | 387. | 413. | 428. | 500. |
|---|---|---|---|---|---|
| PER Q= | 6.3 | 87.0 | 3.2 | 3.5 | |
| AREA= | 113.1 | 311.1 | 112.5 | 213.5 | |
| VEL= | 0.7 | 3.7 | 0.4 | 1.2 | |

1490 NH CARD USED
*SECNO 20269.000
3290 CROSS SECTION 20269.00 EXTENDED 2.47 FEET

| SECNO | DSNT | CLSEL | CRWS | LSLOP | SS | RN | N | BLOSS | BANK FLOW |
|---|---|---|---|---|---|---|---|---|---|
| Q | Q.CH | CCH | GROB | ALOB | ACH | AROB | VOL | THA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XXCH | XNR | UTA | XLOIN | SRTA |
| SLOPE | YLOBL | YLCH | XLOBR | ITRIAL | XNP | ICONT | ICRAP | TOPLTO | ENDST |

3470 ENCROACHMENT STATIONS= 372.0 525.0 TYPE= 1 TARG.T= 153.000

VALLEY SECT. 100'U/S OF FRANK AVE.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20269.00 | 11.97 | 592.07 | 0.00 | 0.30 | 592.23 | 0.17 | 0.00 | 0.01 | 580.10 |
| 1330. | 95. | 1119. | 116. | 114. | 312. | 392. | 147. | 34. | 580.10 |
| 0.90 | 0.84 | 4.58 | 0.29 | 0.100 | 0.035 | 0.200 | 0.034 | 580.10 | 372.00 |
| 0.000260 | 100. | 100. | 100. | 2 | 2 | 0 | 0.00 | 153.00 | 525.00 |

FLOW DISTRIBUTION FOR SECNO= 20269.00 CWSEL= 592.07

| STA= | 372. | 387. | 413. | 428. | 525. |
|---|---|---|---|---|---|
| PER Q= | 7.2 | 84.5 | 3.5 | 4.8 | |
| AREA= | 113.6 | 312.5 | 113.5 | 214.4 | |

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M2C2 RELEASE DATED NOV 76 ADOPTED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52

**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

N.BR.ECORSE CR.LINC.PK.

SUMMARY PRINTOUT TABLE 150

| SECNO | YLCH | FLTRD | FLC | FLM1 | | CASE | LOI S | FS | LOSS | VCA | SRSA | TLIK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10636.000 | 0.00 | 0.00 | 0.00 | 572.47 | 1410.00 | 585.53 | 0.00 | 585.60 | 2.44 | 2.07 | 679.97 | 901.82 |
| 11534.000 | 900.00 | 0.00 | 0.00 | 572.00 | 1410.00 | 585.77 | 0.00 | 585.92 | 6.76 | 3.13 | 469.16 | 667.76 |
| 12274.000 | 730.00 | 0.00 | 0.00 | 573.30 | 1410.00 | 584.05 | 0.00 | 584.68 | 1.65 | 2.49 | 747.78 | 1009.15 |
| 12324.000 | 50.00 | 0.00 | 0.00 | 573.60 | 1410.00 | 584.07 | 0.00 | 584.14 | 1.39 | 2.39 | 822.47 | 1195.65 |
| 12362.000 | 1.00 | 530.40 | 581.80 | 573.60 | 1410.00 | 584.09 | 0.00 | 584.16 | 5.51 | 2.01 | 820.67 | 600.41 |
| 12367.000 | 42.00 | 580.40 | 581.80 | 573.60 | 1410.00 | 584.10 | 0.00 | 584.16 | 5.55 | 2.31 | 641.59 | 461.50 |
| 12368.000 | 1.00 | 0.00 | 0.00 | 573.60 | 1410.00 | 584.12 | 0.00 | 584.19 | 1.36 | 2.39 | 830.89 | 1210.49 |
| 12418.000 | 50.00 | 0.00 | 0.00 | 573.60 | 1410.00 | 584.17 | 0.00 | 584.20 | 1.39 | 2.32 | 836.41 | 1214.94 |
| 13294.000 | 372.00 | 0.00 | 0.00 | 572.30 | 1410.00 | 584.[illegible] | 0.00 | 584.[illegible] | 2.65 | 2.63 | 936.94 | 668.57 |
| 13576.000 | 341.00 | 0.00 | 0.00 | 572.90 | 1410.00 | 584.45 | 0.00 | 584.46 | 2.31 | 3.03 | 990.91 | 927.92 |
| 13724.000 | 50.00 | 0.00 | 0.00 | 573.00 | 1410.00 | 584.33 | 0.00 | 584.51 | 2.05 | 3.74 | 737.32 | 807.03 |
| 13727.000 | 1.00 | 581.40 | 579.60 | 573.00 | 1410.00 | 584.[illegible] | 0.00 | 584.51 | 0.58 | 4.58 | 513.28 | 461.39 |
| 13964.000 | 237.00 | 581.40 | 579.60 | 573.00 | 1410.00 | 584.51 | 0.00 | 584.80 | 0.20 | 4.64 | 667.86 | 492.32 |
| 13965.000 | 1.00 | 0.00 | 0.00 | 573.30 | 1410.30 | 584.56 | 0.00 | 584.84 | 2.61 | 3.58 | 825.37 | 881.85 |
| 14015.000 | 50.00 | 0.00 | 0.00 | 573.00 | 1410.30 | 584.77 | 0.00 | 584.87 | 1.79 | 2.94 | 645.96 | 1054.16 |
| 14287.000 | 272.00 | 0.00 | 0.00 | 574.50 | 1410.00 | 584.87 | 0.00 | 584.93 | 1.69 | 2.05 | 991.14 | 1065.72 |
| 14337.000 | 50.00 | 0.00 | 0.00 | 574.60 | 1410.00 | 584.86 | 0.00 | 584.94 | 1.66 | 2.20 | 1020.89 | 1098.40 |
| 14339.000 | 1.00 | 580.20 | 582.40 | 574.60 | 1410.00 | 584.[illegible] | 0.00 | 584.94 | 6.36 | 2.65 | 869.40 | 700.60 |
| 14402.000 | 54.00 | 580.00 | 581.40 | 574.50 | 1410.00 | 584.90 | 0.00 | 584.97 | 6.00 | 2.66 | 863.77 | 704.65 |
| 14403.000 | 1.00 | 0.00 | 0.00 | 574.50 | 1410.00 | 584.91 | 0.00 | 584.97 | 1.65 | 2.19 | 1084.52 | 1104.14 |

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FORM 1411-00-PRINTED BY ROTARY MANIFOLD FORMS

| SECNO | XLCH | ELTRD. | ELLC | ELMIN | Q | CWSEL | CRIWS | FG | TOK*S | VCH | AREA | TOTK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14460.000 | 57.00 | 0.00 | 0.00 | 572.60 | 1410.00 | 584.91 | 0.00 | 584.99 | 1.22 | 2.39 | 1162.23 | 1277.23 |
| 14461.000 | 1.00 | 580.00 | 581.60 | 572.60 | 1410.00 | 584.90 | 0.00 | 585.00 | 4.39 | 2.84 | 903.60 | 672.77 |
| 14521.000 | 60.00 | 580.00 | 581.60 | 572.60 | 1410.00 | 584.93 | 0.00 | 585.03 | 4.34 | 2.83 | 990.05 | 676.68 |
| 14522.000 | 1.00 | 0.00 | 0.00 | 572.60 | 1410.00 | 584.96 | 0.00 | 585.03 | 1.19 | 2.37 | 1181.08 | 1292.50 |
| 14572.000 | 50.00 | 0.00 | 0.00 | 572.70 | 1410.00 | 584.96 | 0.00 | 585.06 | 3.73 | 2.92 | 1122.54 | 729.59 |
| 15292.000 | 720.00 | 0.00 | 0.00 | 574.40 | 1410.00 | 585.24 | 0.00 | 585.46 | 7.34 | 3.71 | 380.17 | 520.16 |
| 15820.000 | 528.00 | 0.00 | 0.00 | 577.00 | 1410.00 | 585.59 | 0.00 | 585.97 | 9.36 | 5.23 | 334.79 | 460.85 |
| 15870.000 | 50.00 | 0.00 | 0.00 | 577.00 | 1410.00 | 585.71 | 0.00 | 586.04 | 6.80 | 4.70 | 408.24 | 560.77 |
| 15914.000 | 44.00 | 585.40 | 583.00 | 577.00 | 1410.00 | 586.59 | 0.00 | 586.82 | 6.81 | 4.20 | 473.12 | 663.10 |
| 15964.000 | 50.00 | 0.00 | 0.00 | 577.00 | 1410.00 | 586.54 | 0.00 | 586.94 | 8.74 | 5.47 | 366.78 | 476.92 |
| 16194.000 | 230.00 | 0.00 | 0.00 | 576.50 | 1410.00 | 586.20 | 0.00 | 587.13 | 6.38 | 3.93 | 431.21 | 673.62 |
| 16244.000 | 50.00 | 0.00 | 0.00 | 576.50 | 1410.00 | 586.70 | 0.00 | 587.41 | 19.98 | 6.73 | 209.58 | 315.41 |
| 16245.000 | 1.00 | 603.60 | 588.10 | 576.50 | 1410.00 | 586.70 | 0.00 | 587.41 | 6.62 | 6.76 | 208.61 | 547.91 |
| 16503.000 | 258.00 | 603.60 | 588.10 | 576.50 | 1410.00 | 586.91 | 0.00 | 587.38 | 6.21 | 6.61 | 218.19 | 565.72 |
| 16504.000 | 1.00 | 0.00 | 0.00 | 576.50 | 1410.00 | 586.91 | 0.00 | 587.59 | 18.75 | 6.58 | 214.18 | 325.27 |
| 16554.000 | 50.00 | 0.00 | 0.00 | 576.60 | 1330.00 | 587.57 | 0.00 | 587.77 | 3.96 | 3.86 | 507.13 | 667.94 |
| 16825.000 | 272.00 | 0.00 | 0.00 | 575.30 | 1330.00 | 587.77 | 0.00 | 587.96 | 1.38 | 2.67 | 671.22 | 1132.04 |
| 16876.000 | 50.00 | 0.00 | 0.00 | 574.60 | 1330.00 | 587.79 | 0.00 | 587.90 | 2.60 | 3.06 | 495.28 | 825.04 |
| 16963.000 | 87.00 | 589.70 | 587.20 | 574.90 | 1330.00 | 588.05 | 0.00 | 588.21 | 2.59 | 3.05 | 435.76 | 826.40 |
| 17013.000 | 50.00 | 0.00 | 0.00 | 575.20 | 1330.00 | 588.13 | 0.00 | 588.24 | 1.11 | 2.36 | 843.78 | 1240.16 |
| 17255.000 | 242.00 | 0.00 | 0.00 | 577.90 | 1330.00 | 583.18 | 0.00 | 588.32 | 2.49 | 3.15 | 505.68 | 863.06 |
| 17305.000 | 50.00 | 0.00 | 0.00 | 577.90 | 1330.00 | 588.09 | 0.00 | 588.45 | 9.80 | 6.80 | 277.22 | 468.33 |
| 17502.000 | 197.00 | 603.40 | 585.50 | 577.90 | 1330.00 | 589.60 | 0.00 | 589.16 | 5.44 | 4.08 | 525.36 | 670.21 |
| 17552.000 | 50.00 | 0.00 | 0.00 | 577.50 | 1330.00 | 590.11 | 0.00 | 590.22 | 1.79 | 3.07 | 841.38 | 993.62 |
| 17817.000 | 265.00 | 0.00 | 0.00 | 576.90 | 1330.00 | 590.21 | 0.00 | 590.26 | 1.44 | 2.07 | 902.98 | 1309.58 |
| 18106.000 | 289.00 | 0.00 | 0.00 | 579.00 | 1330.00 | 590.14 | 0.00 | 590.35 | 2.91 | 3.66 | 950.79 | 771.01 |
| 18156.000 | 50.00 | 0.00 | 0.00 | 579.00 | 1330.00 | 590.19 | 0.00 | 590.37 | 2.30 | 3.76 | 850.00 | 876.96 |
| 18157.000 | 1.00 | 566.70 | 585.90 | 579.00 | 1330.00 | 590.09 | 0.00 | 590.42 | 10.16 | 6.95 | 556.52 | 617.74 |
| 18195.000 | 38.00 | 586.70 | 585.90 | 579.00 | 1330.00 | 590.14 | 0.00 | 590.45 | 8.06 | 6.91 | 562.67 | 623.00 |

PRINTED IN U.S.A.
FORM 1411-GU-PRINTED BY ROTARY MANIFOLD FORMS.

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | TOK*S | VCH | AREA | TOTK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18196.000 | 1.00 | 0.00 | 0.00 | 579.00 | 1330.00 | 590.30 | 0.00 | 590.47 | 2.21 | 3.71 | 854.92 | 893.35 |
| 18240.000 | 50.00 | 0.00 | 0.00 | 579.00 | 1330.00 | 590.22 | 0.00 | 590.53 | 5.09 | 4.80 | 755.94 | 549.65 |
| 18545.000 | 299.00 | 0.00 | 0.00 | 578.60 | 1330.00 | 590.56 | 0.00 | 590.66 | 3.07 | 2.95 | 667.37 | 758.67 |
| 18329.000 | 284.00 | 0.00 | 0.00 | 578.70 | 1330.00 | 590.66 | 0.00 | 590.74 | 2.61 | 3.58 | 964.83 | 823.99 |
| 18379.000 | 50.00 | 0.00 | 0.00 | 578.70 | 1330.00 | 590.65 | 0.00 | 590.76 | 2.03 | 3.69 | 967.17 | 932.77 |
| 18860.000 | 1.00 | 585.00 | 583.20 | 578.70 | 1330.00 | 590.66 | 0.00 | 590.76 | 4.27 | 3.46 | 855.84 | 643.78 |
| 18910.000 | 50.00 | 585.00 | 583.20 | 578.70 | 1330.00 | 590.67 | 0.00 | 590.78 | 4.23 | 3.45 | 858.38 | 644.30 |
| 18911.000 | 1.00 | 0.00 | 0.00 | 578.70 | 1330.00 | 590.63 | 0.00 | 590.76 | 2.02 | 3.68 | 970.39 | 936.29 |
| 18961.000 | 50.00 | 0.00 | 0.00 | 578.70 | 1330.00 | 590.69 | 0.00 | 590.79 | 2.56 | 3.56 | 972.16 | 831.13 |
| 19112.000 | 151.00 | 0.00 | 0.00 | 579.00 | 1330.00 | 590.66 | 0.00 | 590.92 | 3.70 | 4.20 | 781.30 | 691.80 |
| 19162.000 | 50.00 | 0.00 | 0.00 | 579.00 | 1330.00 | 590.68 | 0.00 | 590.94 | 3.68 | 4.19 | 784.86 | 695.44 |
| 19163.000 | 1.00 | 588.20 | 585.00 | 579.00 | 1330.00 | 590.52 | 0.00 | 591.10 | 18.33 | 6.26 | 522.19 | 310.64 |
| 19263.000 | 100.00 | 588.20 | 585.00 | 579.00 | 1330.00 | 590.74 | 0.00 | 591.29 | 16.53 | 6.05 | 563.02 | 327.39 |
| 19263.000 | 1.00 | 0.00 | 0.00 | 579.00 | 1330.00 | 591.14 | 0.00 | 591.36 | 3.19 | 4.01 | 368.48 | 744.47 |
| 19314.000 | 50.00 | 0.00 | 0.00 | 579.00 | 1330.00 | 591.16 | 0.00 | 591.39 | 3.18 | 4.00 | 871.38 | 746.25 |
| 20080.000 | 766.00 | 0.00 | 0.00 | 580.10 | 1330.00 | 591.41 | 0.00 | 591.73 | 4.74 | 4.66 | 685.24 | 610.62 |
| 20130.000 | 50.00 | 0.00 | 0.00 | 580.10 | 1330.00 | 591.57 | 0.00 | 591.76 | 2.66 | 3.90 | 695.03 | 658.10 |
| 20131.000 | 1.00 | 588.30 | 586.70 | 580.10 | 1330.00 | 591.60 | 0.00 | 591.96 | 20.46 | 6.24 | 366.11 | 254.05 |
| 20168.000 | 37.00 | 588.30 | 586.70 | 580.10 | 1330.00 | 591.64 | 0.00 | 592.07 | 21.95 | 6.69 | 370.25 | 253.85 |
| 20169.000 | 1.00 | 0.00 | 0.00 | 580.10 | 1330.00 | 592.00 | 0.00 | 592.21 | 2.07 | 3.73 | 760.41 | 823.09 |
| 20269.000 | 100.00 | 0.00 | 0.00 | 580.10 | 1330.00 | 592.07 | 0.00 | 592.23 | 2.60 | 3.58 | 823.06 | 826.86 |

FORM 1411.08 PRINTED BY ROTARY MANIFOLD FORMS.

N.BR.ECORSE CR.LINC.PK.

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIF SP | DIFWSX | DIFKWS | TOPWID | XLOB |
|---|---|---|---|---|---|---|---|
| 10636.000 | 1410.00 | 583.53 | 0.00 | 0.00 | 0.00 | 125.93 | 0.00 |
| 11536.000 | 1410.00 | 583.77 | 0.00 | 0.24 | 0.00 | 91.08 | 900.00 |
| 12274.000 | 1410.00 | 584.95 | 0.00 | 0.28 | 0.00 | [illegible] | [illegible] |
| 12324.000 | 1410.00 | 584.07 | 0.00 | 0.02 | 0.00 | 145.00 | 50.00 |
| 12325.000 | 1410.00 | 584.05 | 0.00 | -0.02 | 0.00 | 145.00 | 1.00 |
| 12367.000 | 1410.00 | 584.04 | 0.00 | 0.02 | 0.00 | [illegible] | 42.00 |
| 12368.000 | 1410.00 | 584.12 | 0.00 | 0.04 | 0.00 | 145.00 | 1.00 |
| 12418.000 | 1410.00 | 584.13 | 0.00 | 0.01 | 0.00 | 145.00 | 50.00 |
| 13295.000 | 1410.00 | 584.27 | 0.00 | 0.14 | 0.00 | 320.00 | 877.00 |
| 13676.000 | 1410.00 | 584.35 | 0.00 | 0.08 | 0.00 | 195.00 | 381.00 |
| 13725.000 | 1410.00 | 584.33 | 0.00 | -0.02 | 0.00 | 170.00 | 50.00 |
| 13727.000 | 1410.00 | 584.26 | 0.00 | -0.07 | 0.00 | 170.00 | 1.00 |
| 13964.000 | 1410.00 | 584.51 | 0.00 | 0.25 | 0.00 | 170.00 | 237.00 |
| 13965.000 | 1410.00 | 584.66 | 0.00 | 0.16 | 0.00 | 170.00 | 1.00 |
| 14015.000 | 1410.00 | 584.77 | 0.00 | [illegible] | 0.00 | 170.00 | 50.00 |
| 14287.000 | 1410.00 | 584.87 | 0.00 | 0.11 | 0.00 | 320.00 | 272.00 |
| 14337.000 | 1410.00 | 584.88 | 0.00 | 0.01 | 0.00 | 320.00 | 50.00 |
| 14338.000 | 1410.00 | 584.85 | 0.00 | -0.05 | 0.00 | 320.00 | 1.00 |
| 14402.000 | 1410.00 | 584.90 | 0.00 | 0.03 | 0.00 | 320.00 | 64.00 |
| 14403.000 | 1410.00 | 584.92 | 0.00 | 0.01 | 0.00 | 320.00 | 1.00 |
| 14460.000 | 1410.00 | 584.91 | 0.00 | -0.02 | 0.00 | 400.00 | 57.00 |
| 14461.000 | 1410.00 | 584.90 | 0.00 | -0.01 | 0.00 | 400.00 | 1.00 |
| 14521.000 | 1410.00 | 584.93 | 0.00 | 0.03 | 0.00 | 400.00 | 60.00 |
| 14522.000 | 1410.00 | 584.96 | 0.00 | [illegible] | 0.00 | 400.00 | 1.00 |
| 14572.000 | 1410.00 | 584.95 | 0.00 | -0.01 | 0.00 | 420.00 | 50.00 |
| 14292.000 | 1410.00 | 585.24 | 0.00 | 0.29 | 0.00 | 60.19 | 720.00 |
| 14820.000 | 1410.00 | 585.39 | 0.00 | [illegible] | 0.00 | [illegible] | 523.00 |

FORM 1411-GB-PRINTED BY ROTARY MANIFOLD FORMS
PRINTED IN U.S.A.

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 15870.000 | 1410.00 | 585.75 | 0.00 | 0.17 | 0.00 | 65.26 | 50.00 |
| 15914.000 | 1410.00 | 586.59 | 0.00 | 0.84 | 0.00 | 100.00 | 44.00 |
| 15964.000 | 1410.00 | 586.54 | 0.00 | -0.05 | 0.00 | 130.00 | 50.00 |
| 16194.000 | 1410.00 | 586.90 | 0.00 | 0.36 | 0.00 | 50.00 | 230.00 |
| 16244.000 | 1410.00 | 586.77 | 0.00 | -0.20 | 0.00 | 22.93 | 50.00 |
| 16245.000 | 1410.00 | 536.70 | 0.00 | -0.00 | 0.00 | 22.93 | 1.00 |
| 16503.000 | 1410.00 | 586.91 | 0.00 | 0.20 | 0.00 | 22.93 | 258.00 |
| 16504.000 | 1410.00 | 586.91 | 0.00 | 0.01 | 0.00 | 22.93 | 1.00 |
| 16554.000 | 1330.00 | 587.57 | 0.00 | 0.65 | 0.00 | 93.61 | 50.00 |
| 16826.000 | 1330.00 | 587.77 | 0.00 | 0.20 | 0.00 | 62.00 | 272.00 |
| 16876.000 | 1330.00 | 587.75 | 0.00 | -0.02 | 0.00 | 33.11 | 50.00 |
| 16963.000 | 1330.00 | 588.06 | 0.00 | 0.31 | 0.00 | 33.10 | 87.00 |
| 17013.000 | 1330.00 | 588.15 | 0.00 | 0.11 | 0.00 | 110.55 | 50.00 |
| 17255.000 | 1330.00 | 588.12 | 0.00 | -0.03 | 0.00 | 54.00 | 242.00 |
| 17305.000 | 1330.00 | 588.09 | 0.00 | -0.03 | 0.00 | 27.20 | 50.00 |
| 17502.000 | 1330.00 | 589.90 | 0.00 | 1.81 | 0.00 | 27.20 | 197.00 |
| 17552.000 | 1330.00 | 590.11 | 0.00 | 0.21 | 0.00 | 187.00 | 50.00 |
| 17817.000 | 1330.00 | 590.21 | 0.00 | 0.10 | 0.00 | 221.60 | 265.00 |
| 17867.000 | 1330.00 | 590.19 | 0.00 | -0.02 | 0.00 | 175.00 | 283.00 |
| 18156.000 | 1330.00 | 590.09 | 0.00 | 0.00 | 0.00 | 175.00 | 1.00 |
| 18157.000 | 1330.00 | 590.09 | 0.00 | -0.10 | 0.00 | 175.00 | 1.00 |
| 18195.000 | 1330.00 | 590.14 | 0.00 | 0.05 | 0.00 | 175.00 | 38.00 |
| 18196.000 | 1330.00 | 590.10 | 0.00 | 0.96 | 0.00 | 175.00 | 1.00 |
| 18246.000 | 1330.00 | 590.22 | 0.00 | -0.08 | 0.00 | 150.00 | 50.00 |
| 18545.000 | 1330.00 | 590.56 | 0.00 | 0.34 | 0.00 | 150.00 | 299.00 |
| 18829.000 | 1330.00 | 590.84 | 0.00 | 0.28 | 0.00 | 125.00 | 284.00 |
| 18879.000 | 1330.00 | 590.85 | 0.00 | 0.01 | 0.00 | 100.00 | 50.00 |
| 18880.000 | 1330.00 | 590.86 | 0.00 | 0.01 | 0.00 | 100.00 | 1.00 |
| 18930.000 | 1330.00 | 590.87 | 0.00 | 0.01 | 0.00 | 100.00 | 50.00 |

PRINTED IN U.S.A.
FORM 1411-OD PRINTED BY ROTARY MANIFOLD FORMS.

| SECNO | Q | CUSEL | DIFMSP | DIFMSX | DIFKWS | TOPMTD | XI CH |
|---|---|---|---|---|---|---|---|
| 18911.000 | 1330.00 | 590.57 | 0.00 | -0.00 | 0.00 | 165.00 | 1.00 |
| 18961.000 | 1330.00 | 590.59 | 0.00 | 0.02 | 0.00 | 165.00 | 50.00 |
| 19112.000 | 1330.00 | 590.66 | 0.00 | -0.03 | 0.00 | 180.00 | 151.00 |
| 19162.000 | 1330.00 | 590.68 | 0.00 | 0.02 | 0.00 | 180.00 | 50.00 |
| 19163.000 | 1330.00 | 590.52 | 0.00 | -0.16 | 0.00 | 180.00 | 1.00 |
| 19263.000 | 1330.00 | 590.74 | 0.00 | 0.23 | 0.00 | 180.00 | 100.00 |
| 19264.000 | 1330.00 | 591.14 | 0.00 | 0.40 | 0.00 | 180.00 | 1.00 |
| 19314.000 | 1330.00 | 591.16 | 0.00 | 0.02 | 0.00 | 180.00 | 50.00 |
| 20080.000 | 1330.00 | 591.41 | 0.00 | 0.25 | 0.00 | 151.00 | 766.00 |
| 20130.000 | 1330.00 | 591.57 | 0.00 | 0.16 | 0.00 | 128.00 | 50.00 |
| 20131.000 | 1330.00 | 591.40 | 0.00 | -0.18 | 0.00 | 128.00 | 1.00 |
| 20168.000 | 1330.00 | 591.44 | 0.00 | 0.04 | 0.00 | 128.00 | 37.00 |
| 20169.000 | 1330.00 | 592.02 | 0.00 | 0.58 | 0.00 | 128.00 | 1.00 |
| 20269.000 | 1330.00 | 592.07 | 0.00 | 0.05 | 0.00 | 154.00 | 100.00 |

SUMMARY OF ERRORS

PRINTED IN U.S.A.

FORM 1411.00-PRINTED BY ROTARY MANIFOLD FORMS

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**************************************************
      REC2 RELEASE DATED NOV 76 UPDATED FEB 1977
      ERROR CORR -  01
      MODIFICATION -  50,51,52
**************************************************
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PRINTED IN U.S.A.
FORM 1411-00 PRINTED BY ROTARY MANIFOLD FORMS

```
*****************************************************************
*                                                               *
*                  E R R O R   S U M M A R Y                    *
*                                                               *
*                                                               *
*      0  ERROR(S) DETECTED BY THE USER PROGRAM                 *
*      0  ERROR(S) DETECTED BY THE MATHEMATICAL PACKAGE         *
*      0  ERROR(S) DETECTED FOR INPUT/OUPUT STATEMENTS          *
*                                                               *
*****************************************************************
```

PRINTED IN U.S.A.
FORM 1411-00-PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Lincoln Park

3) WATERCOURSE: South Branch Ecorse Creek

4) DOCUMENT TYPE: Input

00BREAK00

Da

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**************************************************
  FEC2 RELEASE DATED NOV 75 UPDATED FEB 1977
  ERROR CODE =  01
  MODIFICATION =  50,51,52
**************************************************

C
T1 CITY OF LINCOLN PARK FIS NO 2015-01
T2 100 YR FLOW
T3       SOUTH BRANCH ECORSE CR.
J1  ICHECK    INQ      NRNG     IDIR      STIT     METRIC   HVINP      Q          MSEL     TA
          0.       0.       1.       2.  0.200000   0.10      2.0        0.     502.300     1.000
J2  NPROF     IPLOT    PONDS    XSECV     XSECH     FN      ALLOC     IBW        CHNL     XTRACE
       -1.000    1.000   -1.000    3.000    0.000    1.000    3.000    0.100    0.001    0.002
J*  AVAILABLE CODES FOR SUMMARY PRINTOUT
     150.000    3.000    0.000    0.000    0.000    3.000    0.000    0.100    0.001    0.000
CC       5.000  1125.000  1620.000  1764.000  1780.000   200.000     .030     3.000    3.000    3.000
C        0.060     2.10     3.05      .50     -0.20      0.20     0.50     3.000    3.000    3.000
D/S OF CE SOUTH DOUG FOR ST. FRO MYANDOTTE FIS
X1  11650.000    30.000   564.000   624.500    51.000     1.000    31.000    0.500    0.200    0.600
X1       0.00      .020     1.00     50.0      6.00       .00      0.00      0.00     0.00     0.00
X1       .00      .020     5.00     90.0     60.00      1.00     20.00     2.50     3.50     3.50
X1       .00      .020     8.00     90.0     70.00      1.00     20.00     3.00     3.50     3.50
X1   375.000  383.000  572.500  590.500  582.000  572.000  572.000  570.000  570.700  573.500
X1   560.700  575.500  572.700  572.500  572.000  570.000  572.100  575.000  572.600  586.000
X1   572.100  598.000  572.500  573.000  572.000  611.000  590.500  900.000  563.200  604.000
X1   582.50   942.00   1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
X1   561.000  10.000   1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
X1   566.00   55.00    1.00     1.00     1.00     1.00     1.00     1.00     1.00     1.00
X1     1.250     .610    2.300    0.500    52.000     2.300   450.000    1.250   572.100   572.100
X1 D/S OF CE ROUTE 100 IN FRONT OF FOX THEATRE AIR
X1  11734.000    0.000    0.00     0.000    0.000    0.000    0.00     0.00     0.00     0.000
X1       0.00     1.000    1.00   570.700  563.200    0.000    0.00     1.150    3.000    3.000
X1     10.00      1.000    0.00   568.200    1.000    0.000    1.150    3.000    3.000    3.000
X1       1.00   568.700  585.400  581.300  572.000  570.000  580.700  570.000  563.300  587.700
X1   574.00   582.000  570.500    1.000    0.000    0.000    0.00     1.150    3.000    3.000
X1       1.00     1.000    1.00     1.000    0.000    0.000    0.00     1.150    3.000    3.000
X1       1.00     1.000    0.00     1.000    0.000    0.000    0.00     1.150    3.000    3.000
X1 WEST SECTION                    FLOW FROM 31 =  4455
X1   570.00     0.000  101.00   250.00   346.00     0.00     0.00     0.00     0.00     0.00
X1   144.00     1.000    1.00     1.000    0.00     0.00     0.00     0.00     0.00     0.00
X1   572.000  572.000  572.000  572.000  572.000  572.000  572.000  572.000  572.000  572.000
```

50FT D/S HOWARD AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13269.000 | 15.000 | 233.500 | 280.500 | 530.000 | 560.000 | 560.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | 595.400 | 0.000 | 525.000 | 57.000 | 584.700 | 157.000 | 264.400 | 208.000 | 574.900 | 229.000 |
| [illegible] | 573.300 | 233.500 | 575.000 | 256.500 | 573.300 | 257.500 | 579.000 | 262.500 | 575.300 | 261.000 |
| [illegible] | 584.500 | 293.000 | 584.800 | 357.000 | 584.200 | 487.000 | 584.200 | 557.000 | 264.600 | 577.000 |

D/S FACE HOWARD AVE. FIELD BOOK STA. 36+15

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13269.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 584.800 | 584.800 | 0.000 |
| SW | 1.250 | 1.650 | 3.000 | 0.000 | 67.000 | 1.000 | 614.000 | 0.000 | 573.000 | 573.000 |

D/S FACE HOWARD AVE. FIELD BOOK STA. 32+75

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13300.000 | 15.000 | 233.500 | 250.500 | 60.000 | 60.000 | 60.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 582.000 | 584.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 112.000 | 0.000 | 402.000 | 0.000 | 584.500 | 584.500 | 0.000 |
| UT | 17.000 | 0.000 | 585.400 | 0.000 | 57.000 | 585.000 | 0.000 | 157.300 | 584.700 | 0.000 |
| BY | 211.000 | 584.700 | 0.100 | 253.500 | 584.200 | 0.000 | 285.300 | 584.500 | 582.000 | 256.500 |
| BY | 584.500 | 582.300 | 210.300 | 584.500 | 0.000 | 257.300 | 584.500 | 0.000 | 257.500 | 582.500 |
| BY | 582.000 | 290.500 | 584.200 | 582.000 | 262.500 | 584.200 | 0.200 | 290.000 | 584.500 | 0.300 |
| BY | 357.000 | 584.600 | 0.000 | 457.000 | 584.200 | 0.000 | 557.000 | 584.200 | 0.000 | 577.000 |
| GT | 584.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 585.400 | 0.000 | 585.000 | 57.500 | 584.700 | 157.000 | 584.700 | 211.000 | 574.400 | 233.500 |
| GR | 573.000 | 235.000 | 572.000 | 256.500 | 573.000 | 292.000 | 575.000 | 280.000 | 575.200 | 294.000 |
| GR | 584.500 | 296.000 | 584.600 | 357.000 | 584.200 | 457.000 | 587.200 | 557.000 | 584.400 | 577.000 |

100 FT D/S HOWARD AVE.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 15403.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | 5.000 | 0.040 | 152.000 | 0.000 | 174.000 | 1.000 | 224.000 | 0.000 | 340.000 | 0.000 |
| [illegible] | 422.000 | 0.000 | 0.000 | 0.000 | 2.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION FIELD BOOK STA. 20+50

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 15144.000 | 10.000 | 0.000 | 224.000 | 1735.000 | 1735.000 | 1735.000 | 0.000 | 0.000 | 0.000 |
| | 0.000 | 0.000 | 1.000 | 132.000 | 2.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 585.100 | 0.000 | 585.100 | 0.000 | 585.100 | 200.000 | 585.000 | 157.000 | 577.200 | 176.000 |
| GR | 573.700 | 200.000 | 576.000 | 224.000 | 585.920 | 260.000 | 585.000 | 320.000 | 586.200 | 400.000 |
| NC | 0.040 | 0.060 | 0.039 | 0.000 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE DIX AVE FIELD BOOK STA. 17+50

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15434.000 | 11.000 | 276.000 | 324.000 | 290.000 | 290.000 | 290.000 | 0.000 | 0.000 | 0.000 |
| X2 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 587.300 | 587.300 | 0.000 |
| GR | 588.000 | 0.000 | 587.400 | 150.000 | 586.900 | 230.000 | 527.300 | 280.000 | 575.200 | 294.000 |
| GR | 574.900 | 300.000 | 575.000 | 324.000 | 587.000 | 330.000 | 587.400 | 400.000 | 583.100 | 530.000 |
| GR | 586.600 | 575.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SW | 1.250 | 1.350 | 3.000 | 0.000 | 48.000 | 2.000 | 459.000 | 0.000 | 574.900 | 574.900 |

D/S FACE DIX AVE. FIELD BOOK STA. 15+29

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15555.000 | 20.000 | 276.000 | 329.000 | 321.000 | 181.000 | 125.000 | 0.000 | 330.000 | 1.000 |
| X2 | 0.000 | 0.000 | 1.000 | 585.600 | 587.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 10.000 | 0.000 | 10.000 | 0.000 | 0.000 | 587.300 | 587.300 | 0.000 |
| UT | 16.000 | 0.000 | 584.000 | 0.000 | 100.000 | 587.400 | 0.000 | 200.000 | 587.000 | 0.000 |

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FORM 1411-00-PRINTED BY ROTARY MANIFOLD FORMS

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | BT | 256.000 | 587.300 | 0.000 | 276.000 | 587.300 | 0.000 | 276.000 | 587.300 | 583.800 | 299.000 |
| | BT | 587.300 | 583.800 | 299.000 | 587.300 | 0.000 | 301.000 | 587.300 | 0.000 | 301.000 | 587.300 |
| | BT | 583.800 | 324.000 | 587.300 | 583.800 | 324.000 | 587.300 | 0.000 | 343.000 | 588.200 | 0.000 |
| | BT | 400.000 | 587.300 | 0.000 | 500.000 | 588.100 | 0.000 | 575.000 | 588.300 | 0.000 | 0.000 |
| 1 | GR | 588.000 | 0.000 | 587.600 | 130.000 | 587.000 | 200.000 | 587.300 | 256.000 | 575.300 | 276.000 |
| 2 | GF | 574.900 | 299.000 | 574.900 | 301.000 | 575.900 | 324.000 | 586.200 | 343.000 | 587.600 | 400.000 |
| 3 | GL | 588.100 | 300.000 | 588.500 | 575.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | NR | 5.000 | 0.040 | 60.000 | 0.060 | 78.000 | 0.035 | 108.000 | 0.060 | 129.000 | 0.040 |
| 5 | NR | 253.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | VALLEY SECTION | | | | FIELD BOOK STA. 13+25 | | | | | |
| 9 | | | | | | | | | | | |
| 10 | X1 | 15859.000 | 9.000 | 78.000 | 108.000 | 304.000 | 304.000 | 304.000 | 0.000 | 0.000 | 0.000 |
| 11 | GR | 588.100 | 0.000 | 588.100 | 0.000 | 586.200 | 60.000 | 576.200 | 78.000 | 574.300 | 93.000 |
| 12 | GF | 575.900 | 108.000 | 588.400 | 129.000 | 589.700 | 145.000 | 589.600 | 253.000 | 0.000 | 0.000 |
| 13 | GL | 0.000 | 0.060 | 0.005 | 0.300 | 0.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| 16 | | D/S HAZEL AVE. | | | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | X1 | 16339.000 | 12.000 | 262.500 | 297.500 | 480.000 | 480.000 | 480.000 | 0.000 | 0.000 | 0.000 |
| 19 | X3 | 10.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 589.200 | 589.200 | 0.000 |
| 20 | GR | 593.100 | 0.000 | 591.900 | 60.000 | 589.700 | 180.000 | 180.000 | 253.000 | 575.600 | 262.500 |
| 21 | GF | 575.600 | 262.500 | 575.200 | 297.500 | 589.600 | 420.000 | 589.500 | 360.000 | 591.600 | 480.000 |
| 22 | GL | 594.100 | 480.000 | 594.500 | 607.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 23 | | | | | | | | | | | |
| 24 | | | | | | | | | | | |
| 25 | | D/S FACE HAZEL AVE. | | | | FIELD BOOK STA. 6+76 | | | | | |
| 26 | | | | | | | | | | | |
| 27 | X1 | 16340.000 | 0.000 | 0.100 | 0.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 28 | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 589.200 | 589.200 | 0.000 |
| 29 | BT | 10.000 | 0.000 | 593.100 | 0.000 | 60.000 | 391.900 | 0.000 | 180.000 | 589.700 | 0.000 |
| 30 | BT | 256.000 | 589.200 | 0.000 | 262.500 | 589.200 | 0.000 | 262.500 | 589.200 | 585.700 | 297.500 |
| 31 | BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 32 | BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 33 | | | | | | | | | | | |
| 34 | | | | | | | | | | | |
| 35 | | D/S FACE HAZEL AVE. | | | | FIELD BOOK STA. 5+05 | | | | | |
| 36 | | | | | | | | | | | |
| 37 | X1 | 16340.000 | 12.000 | 262.500 | 297.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 38 | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 589.200 | 589.200 | 0.000 |
| 39 | BT | 0.000 | 0.000 | 593.100 | 0.000 | 60.000 | 391.900 | 0.000 | 180.000 | 589.700 | 0.000 |
| 40 | BT | 256.000 | 589.200 | 0.000 | 262.500 | 589.200 | 0.000 | 262.500 | 589.200 | 585.700 | 297.500 |
| 41 | BT | 589.200 | 585.700 | 297.500 | 589.200 | 0.000 | 321.000 | 589.300 | 0.000 | 302.000 | 589.300 |
| 42 | BT | 0.000 | 400.000 | 591.300 | 0.000 | 540.000 | 594.100 | 0.000 | 607.000 | 594.500 | 0.000 |
| 43 | GR | 595.100 | 0.000 | 594.500 | 60.000 | 589.700 | 180.000 | 180.000 | 256.000 | 576.500 | 262.500 |
| 44 | GF | 575.400 | 262.500 | 575.200 | 297.500 | 589.600 | 420.000 | 589.500 | 360.000 | 591.600 | 480.000 |
| 45 | GL | 594.100 | 480.000 | 594.500 | 607.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 46 | | | | | | | | | | | |
| 47 | | | | | | | | | | | |
| 48 | | D/S HAZEL AVE. | | | | | | | | | |
| 49 | | | | | | | | | | | |
| 50 | X1 | 16340.000 | 0.100 | 0.000 | 0.300 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| 51 | X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 589.200 | 589.200 | 0.000 |
| 52 | NR | 5.000 | 0.040 | 140.000 | 0.060 | 193.000 | 0.035 | 537.000 | 0.060 | 252.000 | 0.040 |
| 53 | NR | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 54 | | | | | | | | | | | |
| 55 | | | | | | | | | | | |
| 56 | | VALLEY SECTION LOOKING AWAY FROM BOUNDARY | | | | FIELD BOOK STA. 0+00 | | | | | |
| 57 | | | | | | | | | | | |
| 58 | X1 | 16340.000 | 0.000 | 82.000 | 297.500 | 605.000 | 605.000 | 605.000 | 0.000 | 0.000 | 0.000 |
| 59 | GR | 594.000 | 0.000 | 593.600 | 180.000 | 589.900 | 180.000 | 576.700 | 193.000 | 576.500 | 420.000 |
| 60 | GF | 576.700 | 82.000 | 591.300 | 262.500 | 594.000 | 420.000 | 576.700 | 450.000 | 0.000 | 0.000 |

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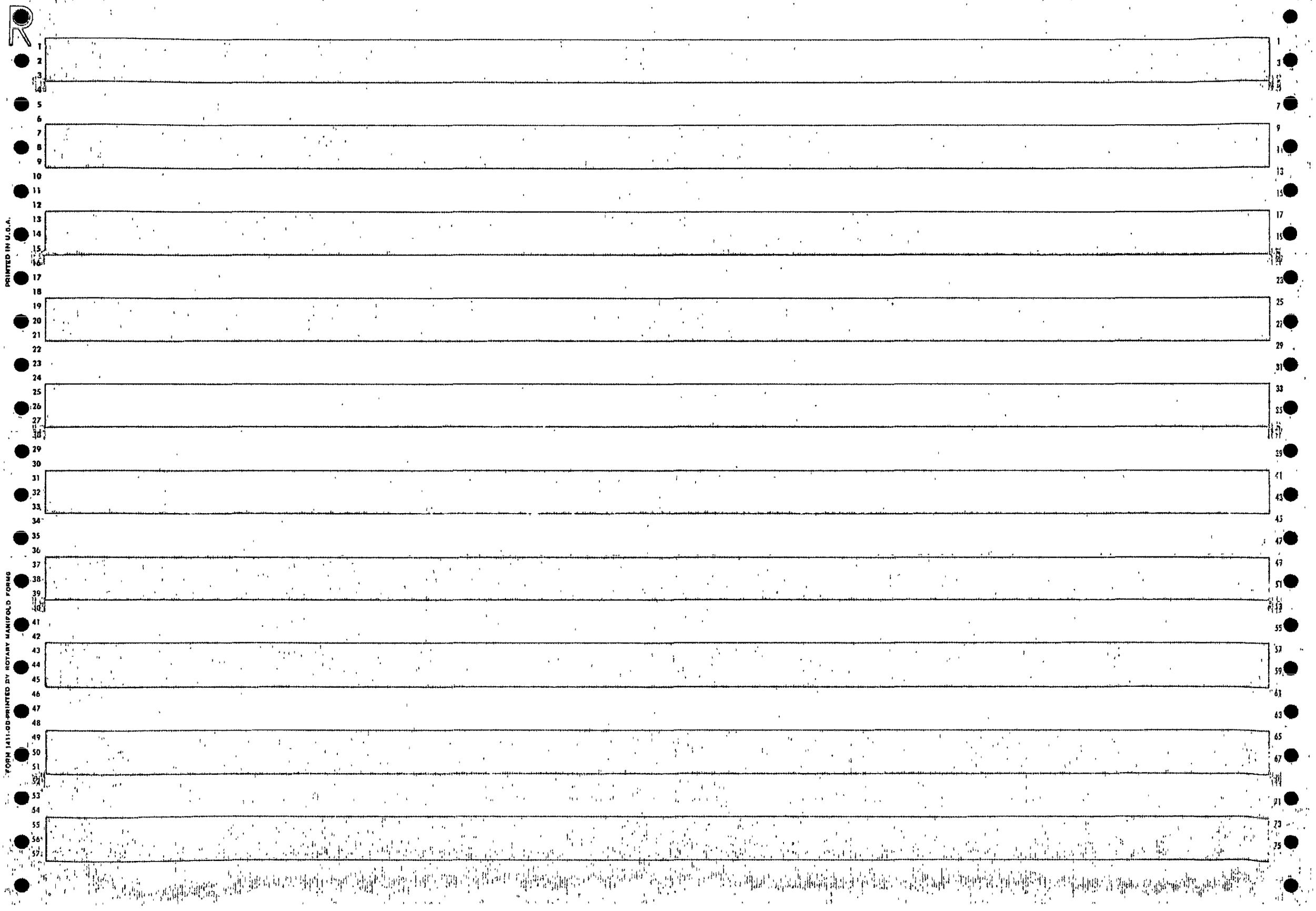
EJ 0.000 0.300 0.000 0.300 3.000 0.000 0.000 0.000 0.000 0.000



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FORM 1411-OD-PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Beitz Drain

4) DOCUMENT TYPE: 100 Year

00BREAK00

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**********
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********

C
T1 BEITZ DRAIN FIS HUD 2014 07 LIVONIA CITY FROM BELL BRANCH TO CURTIS RD.
T2 100 YR FLOW
T3      BEITZ DRAIN LIVONIA CITY

J1  ICHECK    INQ       NINV      IOIR      SIRI      METRIC    HVINS     Q         WSEL      FQ
        0.        4.        0.        0.  0.0           0.0       0.0       0.  639.800     0.0
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE
    1.000     1.000    -1.000     0.0       0.0       0.0       0.0       0.0       0.0       0.0
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
  110.000   150.000   200.000     0.0       0.0       0.0       0.0       0.0       0.0       0.0

ET    0.0       0.0       0.0       0.0       1.410     0.0       0.0       0.0       0.0       0.0
OT    5.000   180.000   310.000   380.000   380.000   560.000     0.0       0.0       0.0       0.0
NC    0.120     0.120     0.035     0.100     0.300     0.0       0.0       0.0       0.0       0.0

        SECNO 70

X1   70.000     9.000    89.000   111.000     0.0       0.0       0.0       0.0       0.0       0.0
GR  650.000     0.0     640.000    70.000   638.100    89.000   634.100    94.000   634.100   100.000
GR  634.200   106.000   637.200   111.000   640.000   130.000   650.000   265.000     0.0       0.0
ET    0.0       0.0       0.0       0.0       9.100     0.0       0.0       0.0       1.000   264.000

X1  297.000     0.0       0.0       0.0     227.000   227.000   227.000     0.0       0.900     0.0

X1  524.000     9.000   115.000   135.000   227.000   227.000   227.000     0.0      -1.000     0.0
GR  655.000     0.0     643.000    85.000   640.500   115.000   637.000   120.000   636.900   125.000
GR  637.000   130.000   640.000   135.000   643.000   220.000   650.000   275.000     0.0       0.0

        SECNO 752.X

X1  752.000     0.0       0.0       0.0     228.000   228.000   228.000     0.0       1.000     0.0

X1  979.000     0.0       0.0       0.0     227.000   227.000   227.000     0.0       0.900     0.0

X1 1207.000    10.000   132.000   150.000   228.000   228.000   228.000     0.0      -1.000     0.0
GR  660.000     0.0     653.000    50.000   642.500   125.000   642.500   132.000   640.000   135.000
GR  639.600   140.000   640.000   145.000   643.000   150.000   647.000   285.000   654.000   325.000

        SECNO 1 3 . X
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1434.000 | 0.0 | 0.0 | 0.0 | 227.000 | 227.000 | 227.000 | 0.0 | 1.000 | 0.0 |
| X1 | 1661.000 | 0.0 | 0.0 | 0.0 | 227.000 | 227.000 | 227.000 | 0.0 | 0.900 | 0.0 |
| X1 | 1888.000 | 11.000 | 148.000 | 166.000 | 227.000 | 227.000 | 227.000 | 0.0 | -1.000 | 0.0 |
| GR | 666.100 | 0.0 | 660.200 | 68.000 | 647.000 | 134.000 | 645.400 | 141.000 | 645.500 | 148.000 |
| GR | 642.700 | 152.000 | 642.300 | 156.000 | 642.600 | 160.000 | 645.400 | 166.000 | 648.600 | 299.000 |
| GR | 654.700 | 358.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 2115 STA 24=50 FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2115.000 | 0.0 | 0.0 | 0.0 | 227.000 | 227.000 | 227.000 | 0.0 | 1.000 | 0.0 |

SECNO 2359 50: D/S 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2359.000 | 7.000 | 133.500 | 146.500 | 300.000 | 210.000 | 244.000 | 0.0 | 0.0 | 0.0 |
| GR | 660.000 | 0.0 | 651.100 | 120.000 | 644.400 | 133.500 | 644.300 | 140.000 | 644.400 | 146.500 |
| GR | 653.600 | 165.000 | 660.000 | 250.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.0 | 0.0 | 0.0 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 2409 STA 21=56 D/S FACE 6 MILE BR. FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2409.000 | 0.0 | 0.0 | 0.0 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 660.500 | 660.500 | 0.0 |
| SB | 0.0 | 2.030 | 3.000 | 0.0 | 12.750 | 0.0 | 89.300 | 0.0 | 643.800 | 644.300 |

SECNO 2526 STA 20=39 U/S FACE 6 MILE BR. FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2526.000 | 7.000 | 133.400 | 146.500 | 117.000 | 117.000 | 117.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 1.000 | 650.800 | 660.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 660.700 | 660.700 | 0.0 |
| X4 | 2.000 | 643.900 | 133.500 | 643.900 | 146.400 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BT | 0.000 | 0.0 | 660.000 | 0.0 | 119.000 | 660.700 | 0.0 | 133.400 | 660.700 | 643.900 |
| BT | 133.500 | 660.700 | 650.800 | 146.400 | 660.700 | 650.800 | 146.500 | 660.700 | 643.900 | 165.000 |
| BT | 660.000 | 0.0 | 250.000 | 660.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 660.000 | 0.0 | 649.700 | 119.000 | 643.900 | 133.400 | 643.800 | 140.000 | 643.900 | 146.500 |
| GR | 653.100 | 165.000 | 660.000 | 250.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 2576 50: U/S 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2576.000 | 0.0 | 0.0 | 0.0 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X1 | 2824.000 | 0.0 | 0.0 | 0.0 | 248.000 | 248.000 | 248.000 | 0.0 | 1.300 | 0.0 |
| NC | 0.060 | 0.100 | 0.035 | 0.100 | 0.300 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X1 | 3072.000 | 7.000 | 128.000 | 142.000 | 248.000 | 248.000 | 248.000 | 0.0 | -1.300 | 0.0 |
| X4 | 2.000 | 648.500 | 122.000 | 648.500 | 150.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 665.000 | 0.0 | 655.000 | 110.000 | 648.000 | 128.000 | 647.700 | 135.000 | 648.000 | 142.000 |
| GR | 655.000 | 168.000 | 665.000 | 240.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.410 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 3321 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3321.000 | 0.0 | 0.0 | 0.0 | 249.000 | 249.000 | 249.000 | 0.0 | 1.300 | 0.0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3569.000 | 0.0 | 0.0 | 0.0 | 248.000 | 248.000 | 248.000 | 0.0 | 1.300 | 0.0 |
| X1 | 3817.000 | 9.000 | 114.000 | 137.000 | 248.000 | 248.000 | 248.000 | 0.0 | -1.300 | 0.0 |
| GR | 668.900 | 0.0 | 660.700 | 50.000 | 658.100 | 61.000 | 655.000 | 114.000 | 651.700 | 130.000 |
| GR | 651.600 | 133.000 | 652.000 | 137.000 | 665.800 | 180.000 | 667.200 | 210.000 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 9.100 | 0.0 | 0.0 | 0.0 | 1.000 | 209.000 |

SECNO 4065 STA 5=00 FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4065.000 | 0.0 | 0.0 | 0.0 | 248.000 | 248.000 | 248.000 | 0.0 | 1.300 | 0.0 |

SECNO 4250 BASED ON QUAD MAP AND SUBD. MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4250.000 | 9.000 | 77.000 | 85.000 | 185.000 | 185.000 | 185.000 | 0.0 | 0.0 | 0.0 |
| GR | 663.000 | 0.0 | 661.000 | 48.000 | 654.000 | 76.000 | 651.100 | 77.000 | 651.000 | 81.000 |
| GR | 651.100 | 85.000 | 654.000 | 115.000 | 660.000 | 145.000 | 665.000 | 300.000 | 0.0 | 0.0 |
| NC | 0.060 | 0.100 | 0.020 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 4490 75± D/S FRANCAVILLA CULVERT BASED ON QUAD MAP " SUBD. MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4490.000 | 13.000 | 112.000 | 120.000 | 240.000 | 240.000 | 240.000 | 0.0 | 0.0 | 0.0 |
| GR | 668.000 | 0.0 | 662.000 | 1.000 | 660.000 | 56.000 | 658.000 | 92.000 | 656.100 | 97.000 |
| GR | 651.200 | 112.000 | 651.100 | 116.000 | 651.200 | 120.000 | 656.100 | 131.000 | 658.000 | 146.000 |
| GR | 660.000 | 152.000 | 664.000 | 166.000 | 670.000 | 191.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 4515 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4515.000 | 0.0 | 0.0 | 0.0 | 25.000 | 25.000 | 25.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 101.000 | 0.0 | 127.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 4540 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4540.000 | 0.0 | 0.0 | 0.0 | 25.000 | 25.000 | 25.000 | 0.0 | 0.100 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 106.000 | 0.0 | 122.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.0 | 0.0 | 0.020 | 0.400 | 0.600 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 9.100 | 0.0 | 0.0 | 0.0 | 1.000 | 185.000 |

SECNO 4564 D/S FRANCAVILLA CULVERT FROM FIELD BOOK AND SUBD. MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4564.000 | 15.000 | 116.000 | 124.000 | 24.000 | 24.000 | 24.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 659.200 | 659.200 | 0.0 |
| GR | 665.000 | 0.0 | 660.000 | 1.000 | 660.200 | 64.000 | 655.200 | 116.000 | 654.200 | 116.010 |
| GR | 653.200 | 116.500 | 652.200 | 117.300 | 651.200 | 120.000 | 652.200 | 122.700 | 653.200 | 123.500 |
| GR | 654.200 | 123.900 | 655.200 | 124.000 | 660.000 | 164.000 | 665.000 | 170.000 | 670.000 | 186.000 |
| NC | 0.0 | 0.0 | 0.015 | 0.400 | 0.600 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 4565 D/S FACE FRANCAVILLA CULV. FROM F.B." SUBD. MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4565.000 | 0.0 | 0.0 | 0.0 | 1.000 | 1.000 | 1.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 659.200 | 659.200 | 0.0 |
| BT | 11.000 | 0.0 | 665.000 | 0.0 | 116.000 | 665.000 | 0.0 | 116.100 | 665.000 | 656.200 |
| BT | 116.500 | 665.000 | 657.200 | 117.300 | 665.000 | 658.200 | 120.000 | 665.000 | 659.200 | 122.700 |
| BT | 665.000 | 658.200 | 123.500 | 665.000 | 657.200 | 123.900 | 665.000 | 656.200 | 124.000 | 665.000 |
| BT | 655.200 | 170.000 | 665.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 4595 BASED ON QUAD MAP " SUBD. MAP

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4925.000 | 0.0 | 0.0 | 0.0 | 360.000 | 360.000 | 360.000 | 0.0 | 1.430 | 0.0 |
| X2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.530 | 1.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 668.300 | 668.300 | 0.0 |

SECNO 5280 BASED ON QUAD MAP " SUBD. MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5280.000 | 0.0 | 0.0 | 0.0 | 355.000 | 355.000 | 355.000 | 0.0 | 1.430 | 0.0 |
| X2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.230 | 1.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 668.300 | 668.300 | 0.0 |

SECNO 5640 U/S FACE FRANCAVILLA CULVERT AT U/S FACE CURTIS RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5640.000 | 15.000 | 99.000 | 107.000 | 360.000 | 360.000 | 360.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 668.300 | 668.300 | 0.0 |
| BT | 14.000 | 0.0 | 670.900 | 0.0 | 28.000 | 670.000 | 0.0 | 92.000 | 668.300 | 0.0 |
| BT | 99.000 | 668.300 | 0.0 | 99.100 | 668.500 | 660.500 | 99.500 | 668.500 | 661.500 | 100.200 |
| BT | 668.500 | 662.500 | 103.000 | 668.500 | 663.500 | 105.800 | 668.500 | 662.500 | 106.500 | 668.500 |
| BT | 661.500 | 106.900 | 668.500 | 660.500 | 107.000 | 668.500 | 0.0 | 115.000 | 669.000 | 0.0 |
| BT | 143.000 | 670.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 670.900 | 0.0 | 670.000 | 28.000 | 669.500 | 72.000 | 665.300 | 92.000 | 659.500 | 99.000 |
| GR | 658.500 | 99.100 | 657.500 | 99.500 | 656.500 | 100.200 | 655.500 | 103.000 | 656.500 | 105.800 |
| GR | 657.500 | 106.500 | 658.500 | 106.900 | 659.500 | 107.000 | 665.300 | 115.000 | 670.000 | 143.000 |
| NC | 0.0 | 0.0 | 0.080 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 5641 U/S FRANCAVILLA CULVERT FROM FIELD BOOK AND SUBD. MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5641.000 | 0.0 | 0.0 | 0.0 | 1.000 | 1.000 | 1.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 668.300 | 668.300 | 0.0 |
| EJ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

*PROF 1

CCHV= 0.100 CEHV= 0.300

*SECNO 70.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| | | | | | | | | | |
| | SECNO 70 | | | | | | | | |
| 70.00 | 5.70 | 639.80 | 0.0 | 639.80 | 639.97 | 0.17 | 0.0 | 0.0 | 638.10 |
| 380. | 5. | 365. | 10. | 14. | 107. | 23. | 0. | 0. | 637.20 |
| 0.0 | 0.33 | 3.41 | 0.44 | 0.120 | 0.035 | 0.120 | 0.0 | 634.10 | 72.00 |
| 0.000889 | 0. | 0. | 0. | 0 | 0 | 0 | 0.0 | 56.64 | 128.64 |
| *SECNO 297.000 | | | | | | | | | |
| 297.00 | 5.01 | 640.01 | 0.0 | 0.0 | 640.26 | 0.25 | 0.26 | 0.02 | 639.00 |
| 380. | 2. | 373. | 6. | 5. | 92. | 12. | 1. | 0. | 638.10 |
| 0.02 | 0.31 | 4.06 | 0.47 | 0.120 | 0.035 | 0.120 | 0.035 | 635.00 | 78.98 |
| 0.001552 | 227. | 227. | 227. | 0 | 0 | 0 | 0.0 | 44.92 | 123.91 |
| *SECNO 524.000 | | | | | | | | | |
| 524.00 | 4.49 | 640.39 | 0.0 | 0.0 | 640.77 | 0.38 | 0.47 | 0.04 | 639.50 |
| 380. | 2. | 364. | 14. | 5. | 72. | 27. | 1. | 1. | 639.00 |
| 0.03 | 0.39 | 5.05 | 0.52 | 0.120 | 0.035 | 0.120 | 0.035 | 635.90 | 104.35 |
| 0.002904 | 227. | 227. | 227. | 2 | 0 | 0 | 0.0 | 69.97 | 174.32 |
| *SECNO 752.000 | | | | | | | | | |
| | SECNO 752.X | | | | | | | | |
| 752.00 | 4.19 | 641.09 | 0.0 | 0.0 | 641.57 | 0.48 | 0.77 | 0.03 | 640.50 |
| 380. | 1. | 370. | 9. | 2. | 66. | 17. | 2. | 1. | 640.00 |
| 0.04 | 0.35 | 5.60 | 0.52 | 0.120 | 0.035 | 0.120 | 0.035 | 636.90 | 107.88 |
| 0.004000 | 228. | 228. | 228. | 2 | 0 | 0 | 0.0 | 58.08 | 165.97 |
| *SECNO 979.000 | | | | | | | | | |
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 979.00 | 4.20 | 642.00 | 0.0 | 0.0 | 642.47 | 0.47 | 0.90 | 0.00 | 641.40 |
| 380. | 1. | 370. | 9. | 2. | 66. | 17. | 2. | 1. | 640.90 |
| 0.05 | 0.35 | 5.59 | 0.52 | 0.120 | 0.035 | 0.120 | 0.035 | 637.80 | 107.81 |
| 0.003973 | 227. | 227. | 227. | 2 | 0 | 0 | 0.0 | 56.33 | 166.14 |
| *SECNO 1207.000 | | | | | | | | | |
| 1207.00 | 4.31 | 642.91 | 0.0 | 0.0 | 643.42 | 0.51 | 0.94 | 0.01 | 641.50 |
| 380. | 15. | 359. | 7. | 17. | 61. | 14. | 3. | 2. | 642.00 |
| 0.06 | 0.86 | 5.87 | 0.48 | 0.120 | 0.035 | 0.120 | 0.035 | 638.60 | 114.94 |
| 0.00[illegible]9 | 228. | 228. | 228 | [illegible] | [illegible]0 | 0 | 0. | 65.73 | 166.27 |

100yr. fp. on Bell Branch is 642.53

*SECNO 1434.000

SECNO 1434 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1434.00 | 4.28 | 643.88 | 0.0 | 0.0 | 644.40 | 0.52 | 0.98 | 0.00 | 642.50 |
| 380. | 14. | 360. | 6. | 17. | 61. | 13. | 3. | 2. | 643.00 |
| 0.07 | 0.86 | 5.93 | 0.47 | 0.120 | 0.035 | 0.120 | 0.035 | 639.60 | 115.12 |
| 0.004371 | 227. | 227. | 227. | 2 | 0 | 0 | 0.0 | 64.71 | 179.83 |

*SECNO 1661.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1661.00 | 4.37 | 644.87 | 0.0 | 0.0 | 645.35 | 0.48 | 0.95 | 0.00 | 643.40 |
| 380. | 15. | 357. | 8. | 18. | 62. | 16. | 4. | 2. | 643.90 |
| 0.09 | 0.85 | 5.76 | 0.68 | 0.120 | 0.035 | 0.120 | 0.035 | 640.50 | 114.56 |
| 0.004000 | 227. | 227. | 227. | 0 | 0 | 0 | 0.0 | 67.91 | 182.46 |

*SECNO 1888.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1888.00 | 4.49 | 645.79 | 0.0 | 0.0 | 646.23 | 0.44 | 0.87 | 0.00 | 644.50 |
| 380. | 11. | 345. | 24. | 14. | 62. | 40. | 4. | 3. | 644.40 |
| 0.10 | 0.81 | 5.57 | 0.59 | 0.120 | 0.035 | 0.120 | 0.035 | 641.30 | 134.92 |
| 0.003685 | 227. | 227. | 227. | 2 | 0 | 0 | 0.0 | 88.85 | 223.77 |

*SECNO 2115.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WIN | ELMIN | SSIA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

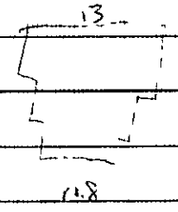
SECNO 2115 STA 24=50 FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2115.00 | 4.35 | 646.65 | 0.0 | 0.0 | 647.15 | 0.49 | 0.90 | 0.02 | 645.50 |
| 380. | 10. | 350. | 20. | 12. | 60. | 33. | 5. | 3. | 645.40 |
| 0.11 | 0.83 | 5.87 | 0.60 | 0.120 | 0.035 | 0.120 | 0.035 | 642.30 | 135.40 |
| 0.004303 | 227. | 227. | 227. | 0 | 0 | 0 | 0.0 | 82.98 | 218.46 |

*SECNO 2359.000

SECNO 2359 50: D/S 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2359.00 | 3.39 | 647.69 | 0.0 | 0.0 | 648.62 | 0.94 | 1.34 | 0.13 | 644.40 |
| 380. | 15. | 350. | 15. | 11. | 43. | 11. | 5. | 3. | 644.40 |
| 0.12 | 1.37 | 8.08 | 1.37 | 0.120 | 0.035 | 0.120 | 0.035 | 644.30 | 126.88 |
| 0.007265 | 300. | 244. | 210. | 2 | 0 | 0 | 0.0 | 26.23 | 153.11 |




CCHV= 0.300 CEHV= 0.500
*SECNO 2409.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 660.50 ELREA= 660.50

SECNO 2409 STA 21=56 D/S FACE 6 MILE BR. FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2409.00 | 3.71 | 648.01 | 0.0 | 0.0 | 649.00 | 0.99 | 0.35 | 0.03 | 644.40 |
| 380. | 0. | 380. | 0. | 0. | 48. | 0. | 5. | 3. | 644.40 |
| 0.12 | 0.0 | 7.98 | 0.0 | 0.120 | 0.035 | 0.120 | 0.035 | 644.30 | 133.50 |
| 0.006894 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 13.00 | 146.50 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 2.03 | 3.00 | 0.0 | 12.75 | 0.0 | 89.30 | 0.0 | 643.80 | 644.30 |

*SECNO 2526.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.0 EGLWC= 648.487 ELLC= 650.800 PCWSE= 648.013 ELTRD= 660.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 660.00 MAX ELLC= 650.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 660.70 ELREA= 660.70

649.31 from Hyd. report (Q=420 cfs)
file No. 2387-31

SECNO 2526 STA 20=39 U/S FACE 6 MILE BR. FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2526.00 | 5.38 | 649.18 | 0.0 | 0.0 | 649.65 | 0.46 | 0.49 | 0.16 | 643.90 |
| 380. | 0. | 380. | 0. | 0. | 70. | 0. | 5. | 3. | 643.90 |
| 0.13 | 0.0 | 5.47 | 0.0 | 0.120 | 0.035 | 0.120 | 0.035 | 643.80 | 133.40 |
| 0.002794 | 117. | 117. | 117. | 3 | 0 | 0 | -28.26 | 13.10 | 146.50 |

*SECNO 2576.000

SECNO 2576 50: U/S 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2576.00 | 5.73 | 649.53 | 0.0 | 0.0 | 649.79 | 0.26 | 0.08 | 0.06 | 643.90 |
| 380. | 30. | 326. | 24. | 39. | 74. | 32. | 6. | 3. | 643.90 |
| 0.13 | 0.76 | 4.38 | 0.74 | 0.120 | 0.035 | 0.120 | 0.035 | 643.80 | 119.41 |
| 0.001051 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 38.41 | 157.83 |

*SECNO 2824.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2824.00 | 4.72 | 649.82 | 0.0 | 0.0 | 650.23 | 0.41 | 0.36 | 0.08 | 645.20 |
| 380. | 25. | 335. | 20. | 26. | 61. | 21. | 6. | 4. | 645.20 |
| 0.14 | 0.95 | 5.48 | 0.93 | 0.120 | 0.035 | 0.120 | 0.035 | 645.10 | 121.94 |
| 0.002138 | 248. | 248. | 248. | 2 | 0 | 0 | 0.0 | 33.84 | 155.78 |

CCHV= 0.100 CEHV= 0.300

*SECNO 3072.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3072.00 | 4.06 | 650.46 | 0.0 | 0.0 | 650.82 | 0.36 | 0.58 | 0.01 | 646.70 |
| 380. | 48. | 293. | 39. | 22. | 55. | 29. | 7. | 4. | 646.70 |
| 0.16 | 2.20 | 5.36 | 1.33 | 0.060 | 0.035 | 0.100 | 0.035 | 646.40 | 117.48 |
| 0.002596 | 248. | 248. | 248. | 2 | 0 | 0 | 0.0 | 39.29 | 156.77 |

channel
load
several
n = .1
651.24 @ 3206 from Hyd rept.

*SECNO 3321.000

SECNO 3321 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3321.00 | 3.48 | 651.18 | 0.0 | 0.0 | 651.72 | 0.54 | 0.85 | 0.05 | 648.00 |
| 3[illegible]0. | 2. | 3[illegible]4. | 34. | 1[illegible]. | 47. | [illegible] | 7. | 4. | 4[illegible].00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .1 | 2.64 | 6.50 | 1.5 | 0.060 | 0.035 | 0.100 | .035 | 641.70 | 11 .1 |
| 0.004716 | 249. | 249. | 249. | 2 | 0 | 0 | 0.0 | 35.98 | 154.79 |

*SECNO 3569.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3569.00 | 3.39 | 652.39 | 0.0 | 0.0 | 652.97 | 0.58 | 1.23 | 0.01 | 649.30 |
| 380. | 41. | 305. | 34. | 15. | 45. | 20. | 8. | 4. | 649.30 |
| 0.18 | 2.73 | 6.74 | 1.65 | 0.060 | 0.035 | 0.100 | 0.035 | 649.00 | 119.03 |
| 0.005261 | 248. | 248. | 248. | 2 | 0 | 0 | 0.0 | 35.43 | 154.46 |

651.85@3406

*SECNO 3817.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3817.00 | 3.62 | 653.92 | 0.0 | 0.0 | 654.53 | 0.61 | 1.55 | 0.01 | 653.70 |
| 380. | 0. | 352. | 28. | 0. | 54. | 16. | 8. | 4. | 650.70 |
| 0.19 | 0.50 | 6.47 | 1.72 | 0.060 | 0.035 | 0.100 | 0.035 | 650.30 | 110.19 |
| 0.007534 | 248. | 248. | 248. | 2 | 0 | 0 | 0.0 | 36.86 | 147.04 |

*SECNO 4065.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECNO 4065 STA 5=00 FROM FIELD BOOK AND QUAD MAP

654.94@4006

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4065.00 | 3.96 | 655.56 | 0.0 | 0.0 | 656.01 | 0.46 | 1.47 | 0.02 | 655.00 |
| 380. | 2. | 349. | 29. | 3. | 62. | 20. | 9. | 5. | 652.00 |
| 0.21 | 0.73 | 5.63 | 1.46 | 0.060 | 0.035 | 0.100 | 0.035 | 651.60 | 104.50 |
| 0.004784 | 248. | 248. | 248. | 2 | 0 | 0 | 0.0 | 43.58 | 148.08 |

*SECNO 4250.000

SECNO 4250 BASED ON QUAD MAP AND SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4250.00 | 5.27 | 656.27 | 0.0 | 0.0 | 656.49 | 0.21 | 0.45 | 0.02 | 651.10 |
| 380. | 15. | 205. | 160. | 14. | 42. | 125. | 9. | 5. | 651.10 |
| 0.22 | 1.03 | 4.91 | 1.29 | 0.060 | 0.035 | 0.100 | 0.035 | 651.00 | 66.91 |
| 0.001475 | 185. | 185. | 185. | 2 | 0 | 0 | 0.0 | 54.45 | 126.36 |

CCHV= 0.300 CEHV= 0.500

*SECNO 4490.000

SECNO 4490 75: D/S FRANCAVILLA CULVERT BASED ON QUAD MAP & SUBD. MAP

657.19 @ 4456 (325

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4490.00 | 5.27 | 656.37 | 0.0 | 0.0 | 656.97 | 0.60 | 0.29 | 0.19 | 651.20 |
| 380. | 60. | 294. | 26. | 41. | 42. | 30. | 10. | 5. | 651.20 |
| 0.23 | 1.47 | 7.04 | 0.85 | 0.060 | 0.020 | 0.100 | 0.034 | 651.10 | 96.29 |
| 0.000992 | 240. | 240. | 240. | 2 | 0 | 0 | 0.0 | 36.86 | 133.14 |

*SECNO 4515.000

3470 ENCROACHMENT STATIONS= 101.0 127.0 TYPE= 1 TARGET= 26.000

SECNO 4515 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4515.00 | 5.28 | 656.38 | 0.0 | 0.0 | 657.00 | 0.63 | 0.03 | 0.01 | 651.20 |
| 380. | 59. | 298. | 23. | 37. | 42. | 25. | 10. | 5. | 651.20 |
| 0.24 | 1.58 | 7.12 | 0.90 | 0.060 | 0.020 | 0.100 | 0.034 | 651.10 | 101.00 |
| 0.001010 | 25. | 25. | 25. | 1 | 0 | 0 | 0.0 | 26.00 | 127.00 |

*SECNO 4540.000

3470 ENCROACHMENT STATIONS= 106.0 122.0 TYPE= 1 TARGET= 16.000

SECNO 4540 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4540.00 | 5.06 | 656.26 | 0.0 | 0.0 | 657.19 | 0.93 | 0.03 | 0.15 | 651.30 |
| 380. | 42. | 331. | 7. | 24. | 40. | 9. | 10. | 5. | 651.30 |
| 0.24 | 1.77 | 8.27 | 0.72 | 0.060 | 0.020 | 0.100 | 0.034 | 651.20 | 106.00 |
| 0.001448 | 25. | 25. | 25. | 2 | 0 | 0 | 0.0 | 16.00 | 122.00 |

CCHV= 0.400 CEHV= 0.600

*SECNO 4564.000

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | IOPWID | ENDST |

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 659.20 ELREA= 659.20

SECNO 4564 D/S FRANCAVILLA CULVERT FROM FIELD BOOK AND SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4564.00 | 5.07 | 656.27 | 656.27 | 0.0 | 658.35 | 2.08 | 0.07 | 0.69 | 655.20 |
| 380. | 0. | 380. | 0. | 0. | 33. | 0. | 10. | 5. | 655.20 |
| 0.24 | 0.0 | 11.56 | 0.0 | 0.060 | 0.020 | 0.100 | 0.034 | 651.20 | 116.00 |
| 0.007455 | 24. | 24. | 24. | 5 | 5 | 0 | 0.0 | 8.00 | 124.00 |

CCHV= 0.400 CEHV= 0.600

*SECNO 4565.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | IOPWID | ENDST |

3370 NORMAL BRIDGE.NRD= 11 MIN ELTRD= 665.00 MAX ELLC= 659.20

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 659.20 ELREA= 659.20

SECNO 4565 D/S FACE FRANCAVILLA CULV. FROM F.B." SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4565.00 | 5.06 | 656.26 | 656.26 | 0.0 | 658.42 | 2.17 | 0.01 | 0.06 | 655.20 |
| 380. | 0. | 380. | 0. | 0. | 32. | 0. | 10. | 5. | 655.20 |
| 0.24 | 0.0 | 11.82 | 0.0 | 0.060 | 0.015 | 0.100 | 0.034 | 651.20 | 116.00 |
| 0.004680 | 1. | 1. | 1. | 2 | 17 | 0 | -5.23 | 8.00 | 124.00 |

664.32 from Hyd. report

96" RCCP L = 1075' with 3 bends

8930.RDST NOT ON GR CARD 116.10

*SECNO 4925.000

*TEST EL CHANGE FROM XS CARD

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 665.00 MAX ELLC= 660.63

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 668.30 ELREA= 668.30

SECNO 4925 BASED ON QUAD MAP " SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4925.00 | 5.06 | 657.69 | 657.69 | 0.0 | 659.85 | 2.16 | 1.68 | 0.00 | 656.63 |
| 380. | 0. | 380. | 0. | 0. | 32. | 0. | 11. | 5. | 656.63 |
| 0.25 | 0.0 | 11.80 | 0.0 | 0.060 | 0.015 | 0.100 | 0.032 | 652.63 | 116.00 |
| 0.004664 | 360. | 360. | 360. | 0 | 17 | 0 | -5.28 | 8.00 | 124.00 |

8930,RDST NOT ON GR CARD 116.10
*SECNO 5280.000
WATER EL CHANGE FROM X2 CARD

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 665.00 MAX ELLC= 662.06

96" RCCP

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 668.30 ELREA= 668.30

SECNO 5280 BASED ON QUAD MAP " SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5280.00 | 5.06 | 659.12 | 659.12 | 0.0 | 661.28 | 2.16 | 1.66 | 0.00 | 658.06 |
| 380. | 0. | 380. | 0. | 0. | 32. | 0. | 11. | 5. | 658.06 |
| 0.25 | 0.0 | 11.80 | 0.0 | 0.060 | 0.015 | 0.100 | 0.031 | 654.06 | 116.00 |
| 0.004665 | 355. | 355. | 355. | 0 | 17 | 0 | -5.28 | 8.00 | 124.00 |

8930,RDST NOT ON GR CARD 116.10
*SECNO 5640.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 668.30 MAX ELLC= 663.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 668.30 ELREA= 668.30

SECNO 5640 U/S FACE FRANCAVILLA CULVERT AT U/S FACE CURTIS RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5640.00 | 5.79 | 661.29 | 0.0 | 0.0 | 662.83 | 1.54 | 1.29 | 0.25 | 659.50 |
| 380. | 0. | 380. | 0. | 0. | 38. | 0. | 11. | 5. | 659.50 |
| 0.26 | 0.0 | 9.95 | 0.0 | 0.060 | 0.015 | 0.100 | 0.030 | 655.50 | 99.00 |
| 0.002858 | 360. | 360. | 360. | 3 | 0 | 0 | -2.68 | 8.00 | 107.00 |

CCHV= 0.300 CEHV= 0.500
*SECNO 5641.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WIN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 668.30 ELREA= 668.30

SECNO 5641 U/S FRANCAVILLA CULVERT FROM FIELD BOOK AND SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5641.00 | 6.03 | 661.53 | 0.0 | 0.0 | 662.89 | 1.36 | 0.01 | 0.05 | 659.50 |
| 380. | 0. | 380. | 0. | 0. | 41. | 0. | 11. | 5. | 659.50 |
| 0.26 | 0.0 | 9.35 | 0.0 | 0.060 | 0.080 | 0.100 | 0.030 | 655.50 | 99.00 |
| 0.064664 | 1. | 1. | 1. | 3 | 0 | 0 | 0.0 | 8.00 | 107.00 |

W/S EG appears reasonable




1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Beitz Drain

4) DOCUMENT TYPE: Encroachment



```
**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01.02
  MODIFICATION -  50,51,52,53
**********************************************************
T1 BEITZ DRAIN FIS HUD 2014 07 LIVONIA CITY FROM BELL BRANCH TO CURTIS RD.
T2ENCROACHMENT RUN
T3      BEITZ DRAIN LIVONIA CITY
```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 5. | 0. | 0. | 0.0 | 0.0 | 0.0 | 0. | 639.900 | 0.0 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 15.000 | 0.0 | -1.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.000 |

*PROF 2

CCHV= 0.100 CEHV= 0.300
*SECNO 70.000
2800 NAT Q1= 127.42 WSEL= 639.80 ENC Q1= 127.42 WSEL= 639.90 RATIO= 0.0000
NAT Q1= 132. RATIOS LOB,CH,ROB= 0.0141 0.9578 0.0281 WSEL= 639.90

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 89.0 112.5 TYPE= 4 TARGET= 0.037

SECNO 70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 70.00 | 5.80 | 639.90 | 0.0 | 639.80 | 640.09 | 0.19 | 0.0 | 0.0 | 638.10 |
| 380. | 0. | 379. | 1. | 0. | 109. | 4. | 0. | 0. | 637.20 |
| 0.0 | 0.0 | 3.46 | 0.38 | 0.120 | 0.035 | 0.120 | 0.0 | 634.10 | 89.00 |
| 0.000987 | 0. | 0. | 0. | 0 | 0 | 0 | 0.0 | 23.69 | 112.49 |

FLOW DISTRIBUTION FOR SECNO= 70.00 CWSEL= 639.90

| | | | |
|---|---|---|---|
| STA= | 89. | 111. | 112. |
| PER Q= | 99.6 | 0.4 | |
| AREA= | 109.3 | 3.9 | |
| VEL= | 3.5 | 0.4 | |

*SECNO 297.000

3470 ENCROACHMENT STATIONS= 1.0 264.0 TYPE= 1 TARGET= 263.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 297.00 | 5.13 | 640.13 | 0.0 | 640.01 | 640.36 | 0.24 | 0.26 | 0.01 | 639.00 |
| 380. | 2. | 372. | 6. | 6. | 94. | 14. | 1. | 0. | 638.10 |
| 0.02 | 0.31 | 3.93 | 0.46 | 0.120 | 0.035 | 0.120 | 0.035 | 635.00 | 77.76 |
| 0.001401 | 227. | 227. | 227. | 0 | 0 | 0 | 0.0 | 46.98 | 124.74 |

FLOW DISTRIBUTION FOR SECNO= 297.00 CWSEL= 640.13

| | | | | |
|---|---|---|---|---|
| STA= | 78. | 89. | 111. | 125. |
| PER Q= | 0.5 | 97.8 | 1.7 | |
| AREA= | 6.3 | 94.4 | 13.9 | |
| VEL= | 0.3 | 3.9 | 0.5 | |

*SECNO 524.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 524.00 | 4.57 | 640.47 | 0.0 | 640.39 | 640.83 | 0.36 | 0.43 | 0.04 | 639.50 |
| 380. | 2. | 362. | 16. | 6. | 74. | 31. | 1. | 0. | 639.40 |
| 0.03 | 0.39 | 4.91 | 0.52 | 0.120 | 0.035 | 0.120 | 0.035 | 635.90 | 103.34 |
| 0.002659 | 227. | 227. | 227. | 2 | 0 | 0 | 0.0 | 73.36 | 176.70 |

FLOW DISTRIBUTION FOR SECNO= 524.00 CWSEL= 640.47

| | | | | |
|---|---|---|---|---|
| STA= | 103. | 115. | 135. | 177. |
| PER Q= | 0.6 | 95.2 | 4.2 | |
| AREA= | 5.7 | 73.7 | 30.7 | |
| VEL= | 0.4 | 4.9 | 0.5 | |

*SECNO 757.00

SECNO 752.X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 752.00 | 4.22 | 641.12 | 0.0 | 641.09 | 641.59 | 0.47 | 0.73 | 0.03 | 640.50 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 380. | 1. | 370. | 9. | 2. | 67. | 18. | 2. | 1. | 640.00 |
| 0.04 | 0.35 | 5.55 | 0.52 | 0.120 | 0.035 | 0.120 | 0.035 | 636.90 | 107.54 |
| 0.003876 | 228. | 228. | 228. | 2 | 0 | 0 | 0.0 | 59.23 | 166.77 |

FLOW DISTRIBUTION FOR SECNO= 752.00 CWSEL= 641.12

| STA= | 108. | 115. | 135. | 167. |
|---|---|---|---|---|
| PER Q= | 0.2 | 97.3 | 2.5 | |
| AREA= | 2.3 | 66.7 | 17.8 | |
| VEL= | 0.4 | 5.5 | 0.5 | |

*SECNO 979.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | HTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 979.00 | 4.20 | 642.00 | 0.0 | 642.00 | 642.48 | 0.47 | 0.89 | 0.00 | 641.40 |
| 380. | 1. | 370. | 9. | 2. | 66. | 17. | 2. | 1. | 640.90 |
| 0.05 | 0.35 | 5.58 | 0.52 | 0.120 | 0.035 | 0.120 | 0.035 | 637.80 | 107.74 |
| 0.003949 | 227. | 227. | 227. | 2 | 0 | 0 | 0.0 | 56.55 | 166.30 |

FLOW DISTRIBUTION FOR SECNO= 979.00 CWSEL= 642.00

| STA= | 108. | 115. | 135. | 166. |
|---|---|---|---|---|
| PER Q= | 0.2 | 97.4 | 2.4 | |
| AREA= | 2.2 | 66.3 | 17.3 | |
| VEL= | 0.3 | 5.6 | 0.5 | |

*SECNO 1207.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1207.00 | 4.31 | 642.91 | 0.0 | 642.91 | 643.42 | 0.51 | 0.93 | 0.01 | 641.50 |
| 380. | 14. | 359. | 7. | 17. | 61. | 14. | 3. | 1. | 642.00 |
| 0.06 | 0.86 | 5.88 | 0.48 | 0.120 | 0.035 | 0.120 | 0.035 | 638.60 | 114.95 |
| 0.004260 | 228. | 228. | 228. | 1 | 0 | 0 | 0.0 | 65.64 | 180.59 |

FLOW DISTRIBUTION FOR SECNO= 1207.00 CWSEL= 642.91

| STA= | 115. | 125. | 132. | 150. | 181. |
|---|---|---|---|---|---|
| PER Q= | 1.2 | 2.6 | 94.5 | 1.7 | |
| AREA= | 7.1 | 9.8 | 61.1 | 13.9 | |
| VEL= | 0.5 | 1.0 | 5.9 | 0.5 | |

*SECNO 1434.000

SECNO 1434 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1434.00 | 4.29 | 643.89 | 0.0 | 643.88 | 644.40 | 0.52 | 0.98 | 0.00 | 642.50 |
| 380. | 14. | 359. | 6. | 17. | 61. | 13. | 3. | 2. | 643.00 |
| 0.08 | 0.86 | 5.92 | 0.48 | 0.120 | 0.035 | 0.120 | 0.035 | 639.60 | 115.10 |
| 0.004359 | 227. | 227. | 227. | 2 | 0 | 0 | 0.0 | 64.81 | 179.91 |

FLOW DISTRIBUTION FOR SECNO= 1434.00 CWSEL= 643.89

| STA= | 115. | 125. | 132. | 150. | 180. |
|---|---|---|---|---|---|
| PER Q= | 1.1 | 2.6 | 94.6 | 1.7 | |
| AREA= | 6.9 | 9.7 | 60.7 | 13.3 | |
| VEL= | 0.6 | 1.0 | 5.9 | 0.5 | |

*SECNO 1661.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1661.00 | 4.37 | 644.87 | 0.0 | 644.87 | 645.35 | 0.48 | 0.95 | 0.00 | 643.40 |
| 380. | 15. | 357. | 8. | 18. | 62. | 16. | 4. | 2. | 643.90 |
| 0.09 | 0.85 | 5.75 | 0.48 | 0.120 | 0.035 | 0.120 | 0.035 | 640.50 | 114.54 |
| 0.003989 | 227. | 227. | 227. | 0 | 0 | 0 | 0.0 | 68.01 | 182.55 |

FLOW DISTRIBUTION FOR SECNO= 1661.00 CWSEL= 644.87

| STA= | 115. | 125. | 132. | 150. | 183. |
|---|---|---|---|---|---|
| PER Q= | 1.3 | 2.7 | 94.0 | 2.0 | |
| AREA= | 7.7 | 10.3 | 62.1 | 15.7 | |
| VEL= | 0.6 | 1.0 | 5.8 | 0.5 | |

*SECNO 1888.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1888.00 | 4.49 | 645.79 | 0.0 | 645.79 | 646.23 | 0.44 | 0.87 | 0.00 | 644.50 |
| 380. | 11. | 345. | 24. | 14. | 62. | 40. | 4. | 3. | 644.40 |
| 0.10 | 0.81 | 5.57 | 0.59 | 0.120 | 0.035 | 0.120 | 0.035 | 641.30 | 134.93 |
| 0.003695 | 227. | 227. | 227. | 2 | 0 | 0 | 0.0 | 88.75 | 223.68 |

FLOW DISTRIBUTION FOR SECNO= 1888.00 CWSEL= 645.79

| STA= | 135. | 141. | 148. | 166. | 224. |
|---|---|---|---|---|---|
| PER Q= | 0.6 | 2.3 | 90.9 | 6.2 | |
| AREA= | 4.2 | 9.4 | 62.0 | 40.0 | |
| VEL= | 0.6 | 0.9 | 5.6 | 0.6 | |

*SECNO 2115.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | OLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECNO 2115 STA 24=50 FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2115.00 | 4.35 | 646.65 | 0.0 | 646.65 | 647.15 | 0.49 | 0.91 | 0.02 | 645.50 |
| 380. | 10. | 350. | 20. | 12. | 60. | 33. | 5. | 3. | 645.40 |
| 0.11 | 0.83 | 5.87 | 0.60 | 0.120 | 0.035 | 0.120 | 0.035 | 642.30 | 135.49 |
| 0.004317 | 227. | 227. | 227. | 0 | 0 | 0 | 0.0 | 82.86 | 218.35 |

FLOW DISTRIBUTION FOR SECNO= 2115.00 CWSEL= 646.65

| STA= | 135. | 141. | 148. | 166. | 218. |
|---|---|---|---|---|---|
| PER Q= | 0.5 | 2.1 | 92.2 | 5.2 | |
| AREA= | 3.5 | 8.5 | 59.7 | 33.0 | |
| VEL= | 0.6 | 0.9 | 5.9 | 0.6 | |

*SECNO 2359.000

SECNO 2359 50: D/S 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2359.00 | 3.39 | 647.69 | 0.0 | 647.69 | 648.62 | 0.93 | 1.34 | 0.13 | 644.40 |
| 380. | 15. | 350. | 15. | 11. | 43. | 11. | 5. | 3. | 644.40 |
| 0.12 | 1.36 | 8.07 | 1.36 | 0.120 | 0.035 | 0.120 | 0.035 | 644.30 | 126.87 |
| 0.007240 | 300. | 244. | 210. | 2 | 0 | 0 | 0.0 | 26.24 | 153.11 |

FLOW DISTRIBUTION FOR SECNO= 2359.00 CWSEL= 647.69

| STA= | 127. | 134. | 147. | 153. |
|---|---|---|---|---|
| PER Q= | 3.0 | 9.[illegible] | 3.[illegible] | |

AREA= 10. 43. 10.
VEL= 1.4 8.1 1.4

CCHV= 0.300 CEHV= 0.500
*SECNO 2409.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 660.50 ELREA= 660.50

SECNO 2409 STA 21=56 D/S FACE 6 MILE BR. FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2409.00 | 3.72 | 648.02 | 0.0 | 648.01 | 649.00 | 0.99 | 0.35 | 0.03 | 644.40 |
| 380. | 0. | 380. | 0. | 0. | 48. | 0. | 5. | 3. | 644.40 |
| 0.12 | 0.0 | 7.98 | 0.0 | 0.120 | 0.035 | 0.120 | 0.035 | 644.30 | 133.50 |
| 0.006884 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 13.00 | 146.50 |

FLOW DISTRIBUTION FOR SECNO= 2409.00 CHSEL= 648.02

STA= 134. 147.
PER Q= 100.0
AREA= 47.6
VEL= 8.0

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BHC | BHP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 2.03 | 3.00 | 0.0 | 12.75 | 0.0 | 89.30 | 0.0 | 643.80 | 644.30 |

*SECNO 2526.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.0 EGLWC= 648.488 ELLC= 650.000 PCHSE= 648.015 ELTRD= 660.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 660.00 MAX ELLC= 650.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 660.70 ELHEA= 660.70

SECNO 2526 STA 20=39 U/S FACE 6 MILE BR. FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2526.00 | 5.38 | 649.18 | 0.0 | 649.18 | 649.65 | 0.46 | 0.49 | 0.16 | 643.90 |
| 380. | 0. | 380. | 0. | 0. | 70. | 0. | 5. | 3. | 643.90 |
| 0.13 | 0.0 | 5.47 | 0.0 | 0.120 | 0.035 | 0.120 | 0.035 | 643.80 | 133.40 |
| 0.002793 | 117. | 117. | 117. | 3 | 0 | 0 | -28.26 | 13.10 | 146.50 |

FLOW DISTRIBUTION FOR SECNO= 2526.00 CHSEL= 649.18

STA= 133. 147.
PER Q= 100.0
AREA= 69.5
VEL= 5.5

*SECNO 2576.000

SECNO 2576 50: U/S 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2576.00 | 5.73 | 649.53 | 0.0 | 649.53 | 649.79 | 0.26 | 0.08 | 0.06 | 643.90 |
| 3.0. | 38. | 3[illegible] | [illegible] | [illegible] | 7[illegible] | 3[illegible] | 6. | 3. | [illegible]3.90 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.13 | 0.16 | 4.3 | 0.14 | 0.120 | .035 | 0.120 | 0.035 | 643.80 | 117.41 |
| 0.001051 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 38.41 | 157.83 |

FLOW DISTRIBUTION FOR SECNO= 2576.00 CWSEL= 649.53

| STA= | 119. | 133. | 147. | 158. |
|---|---|---|---|---|
| PER Q= | 7.9 | 85.9 | 6.2 | |
| AREA= | 39.4 | 74.4 | 31.9 | |
| VEL= | 0.8 | 4.4 | 0.7 | |

*SECNO 2824.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | HTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 2824.00 | 4.72 | 649.82 | 0.0 | 649.82 | 650.23 | 0.41 | 0.36 | 0.08 | 645.20 |
| 380. | 25. | 335. | 20. | 26. | 61. | 21. | 6. | 4. | 645.20 |
| 0.15 | 0.95 | 5.48 | 0.93 | 0.120 | 0.035 | 0.120 | 0.035 | 645.10 | 121.94 |
| 0.002138 | 248. | 248. | 248. | 2 | 0 | 0 | 0.0 | 33.84 | 155.78 |

FLOW DISTRIBUTION FOR SECNO= 2824.00 CWSEL= 649.82

| STA= | 122. | 133. | 147. | 156. |
|---|---|---|---|---|
| PER Q= | 6.6 | 88.1 | 5.2 | |
| AREA= | 26.4 | 61.1 | 21.4 | |
| VEL= | 1.0 | 5.5 | 0.9 | |

CCHV= 0.100 CEHV= 0.300

*SECNO 3072.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3072.00 | 4.06 | 650.46 | 0.0 | 650.46 | 650.82 | 0.36 | 0.58 | 0.01 | 646.70 |
| 380. | 48. | 293. | 39. | 22. | 55. | 29. | 7. | 4. | 646.70 |
| 0.16 | 2.20 | 5.36 | 1.33 | 0.060 | 0.035 | 0.100 | 0.035 | 646.40 | 117.48 |
| 0.002597 | 248. | 248. | 248. | 2 | 0 | 0 | 0.0 | 39.29 | 156.77 |

FLOW DISTRIBUTION FOR SECNO= 3072.00 CWSEL= 650.46

| STA= | 117. | 122. | 128. | 142. | 150. | 157. |
|---|---|---|---|---|---|---|
| PER Q= | 1.4 | 11.1 | 77.2 | 9.0 | 1.3 | |
| AREA= | 4.4 | 17.1 | 54.7 | 22.9 | 6.6 | |
| VEL= | 1.2 | 2.5 | 5.4 | 1.5 | 0.7 | |

*SECNO 3321.000

2800 NAT QI= 55.33 WSEL= 651.18 ENC QI= 55.33 WSEL= 651.28 RATIO= 0.0000

NAT QI= 58. RATIOS LOB,CH,ROB= 0.1133 0.7939 0.0928 WSEL= 651.28

3470 ENCROACHMENT STATIONS= 122.3 148.7 TYPE= 4 TARGET= 0.054

SECNO 3321 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3321.00 | 3.47 | 651.17 | 0.0 | 651.18 | 651.79 | 0.63 | 0.89 | 0.08 | 648.00 |
| 380. | 35. | 319. | 27. | 13. | 46. | 16. | 7. | 4. | 648.00 |
| 0.17 | 2.64 | 6.86 | 1.66 | 0.060 | 0.035 | 0.100 | 0.035 | 647.70 | 122.34 |
| 0.005287 | 249. | 249. | 249. | 2 | 0 | 0 | 0.0 | 20.38 | 148.72 |

FLOW DISTRIBUTION FOR SECNO= 3321.00 CWSEL= 651.17

| STA= | 122. | 128. | 142. | 149. |
|---|---|---|---|---|
| PER Q= | 9.1 | 83.8 | 7.1 | |
| AREA= | 13.1 | 46.4 | 16.2 | |
| VEL= | 2. | .9 | 1.7 | |

*SECNO 3569.000
2800 NAT Q1= 52.39 WSEL= 652.39 ENC Q1= 52.39 WSEL= 652.49 RATIO= 0.0
NAT Q1= 55. RATIOS LOB,CH,ROB= 0.1108 0.7986 0.0906 WSEL= 652.49

3470 ENCROACHMENT STATIONS= 122.6 148.4 TYPE= 6 TARGET= 0.055

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3569.00 | 3.47 | 652.47 | 0.0 | 652.39 | 653.11 | 0.63 | 1.31 | 0.00 | 649.30 |
| 380. | 34. | 320. | 26. | 13. | 47. | 16. | 8. | 4. | 649.30 |
| 0.18 | 2.64 | 6.88 | 1.66 | 0.060 | 0.035 | 0.100 | 0.035 | 649.00 | 122.56 |
| 0.005299 | 248. | 248. | 248. | 2 | 0 | 0 | 0.0 | 25.82 | 148.38 |

FLOW DISTRIBUTION FOR SECNO= 3569.00 CWSEL= 652.47

| STA= | 123. | 128. | 142. | 148. |
|---|---|---|---|---|
| PER Q= | 8.9 | 84.2 | 6.8 | |
| AREA= | 12.8 | 46.5 | 15.7 | |
| VEL= | 2.6 | 6.9 | 1.7 | |

*SECNO 3817.000
2800 NAT Q1= 43.78 WSEL= 653.92 ENC Q1= 43.78 WSEL= 654.02 RATIO= 0.0
NAT Q1= 47. RATIOS LOB,CH,ROB= 0.0014 0.9248 0.0738 WSEL= 654.02

3470 ENCROACHMENT STATIONS= 114.0 137.6 TYPE= 4 TARGET= 0.066

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3817.00 | 3.71 | 654.01 | 0.0 | 653.92 | 654.71 | 0.69 | 1.58 | 0.02 | 653.70 |
| 380. | 0. | 379. | 1. | 0. | 56. | 2. | 8. | 4. | 650.70 |
| 0.19 | 0.0 | 6.70 | 0.81 | 0.060 | 0.035 | 0.100 | 0.035 | 650.30 | 114.00 |
| 0.007859 | 248. | 248. | 248. | 2 | 0 | 0 | 0.0 | 23.56 | 137.56 |

FLOW DISTRIBUTION FOR SECNO= 3817.00 CWSEL= 654.01

| STA= | 114. | 137. | 138. |
|---|---|---|---|
| PER Q= | 99.6 | 0.4 | |
| AREA= | 56.5 | 1.8 | |
| VEL= | 6.7 | 0.8 | |

*SECNO 4065.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | KV | ML | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | COBAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 1.0 209.0 TYPE= 1 TARGET= 2080.000

SECNO 4065 STA S=00 FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4065.00 | 4.09 | 655.69 | 0.0 | 655.56 | 656.10 | 0.41 | 1.36 | 0.03 | 655.00 |
| 380. | 3. | 348. | 29. | 4. | 65. | 21. | 9. | 4. | 652.00 |
| 0.21 | 0.77 | 5.34 | 1.37 | 0.060 | 0.035 | 0.100 | 0.035 | 651.60 | 102.22 |
| 0.004037 | 248. | 248. | 248. | 2 | 0 | 0 | 0.0 | 46.27 | 148.49 |

FLOW DISTRIBUTION FOR SECNO= 4065.00 CWSEL= 655.69

| STA= | 102. | 114. | 137. | 148. |
|---|---|---|---|---|
| PER Q= | 0.8 | 91.5 | 7.7 | |
| AREA= | 4.1 | 65.1 | 21.2 | |
| VEL= | 0.8 | 5.3 | 1.4 | |

*SECNO 4250.000

SECNO 4250 BASED ON QUAD MAP AND SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *4250.00 | 5.32 | 656.32 | 0.0 | 656.27 | 657.03 | 0.71 | 0.41 | 0.02 | 651.10 |
| 380. | 15. | 204. | 161. | 15. | 42. | 127. | 9. | 5. | 651.10 |
| 0.22 | 1.02 | 4.84 | 1.27 | 0.060 | 0.035 | 0.100 | 0.035 | 651.00 | 66.71 |
| 0.001414 | 185. | 185. | 185. | 2 | 0 | 0 | 0.0 | 59.91 | 126.62 |

FLOW DISTRIBUTION FOR SECNO= 4250.00 CWSEL= 656.32

| STA= | 67. | 76. | 77. | 85. | 115. | 127. |
|---|---|---|---|---|---|---|
| PER Q= | 2.9 | 1.1 | 53.7 | 40.2 | 2.2 | |
| AREA= | 10.8 | 3.8 | 42.2 | 113.2 | 13.5 | |
| VEL= | 1.0 | 1.1 | 4.8 | 1.4 | 0.6 | |

CCHV= 0.300 CEHV= 0.500

*SECNO 4490.000

SECNO 4490 75: D/S FRANCAVILLA CULVERT BASED ON QUAD MAP " SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4490.00 | 5.31 | 656.41 | 0.0 | 656.37 | 657.00 | 0.59 | 0.28 | 0.19 | 651.20 |
| 380. | 61. | 293. | 26. | 42. | 42. | 31. | 10. | 5. | 651.20 |
| 0.23 | 1.46 | 6.97 | 0.84 | 0.060 | 0.020 | 0.100 | 0.034 | 651.10 | 96.17 |
| 0.000961 | 240. | 240. | 240. | 2 | 0 | 0 | 0.0 | 37.30 | 133.48 |

FLOW DISTRIBUTION FOR SECNO= 4490.00 CWSEL= 656.41

| STA= | 96. | 112. | 120. | 131. | 133. |
|---|---|---|---|---|---|
| PER Q= | 16.0 | 77.2 | 6.8 | 0.0 | |
| AREA= | 41.6 | 42.1 | 30.4 | 0.4 | |
| VEL= | 1.5 | 7.0 | 0.9 | 0.1 | |

*SECNO 4515.000

3470 ENCROACHMENT STATIONS= 101.0 127.0 TYPE= 1 TARGET= 26.000

SECNO 4515 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4515.00 | 5.32 | 656.42 | 0.0 | 656.38 | 657.03 | 0.61 | 0.02 | 0.01 | 651.20 |
| 380. | 59. | 298. | 23. | 38. | 42. | 26. | 10. | 5. | 651.20 |
| 0.24 | 1.56 | 7.06 | 0.89 | 0.060 | 0.020 | 0.100 | 0.034 | 651.10 | 101.00 |
| 0.000982 | 25. | 25. | 25. | 1 | 0 | 0 | 0.0 | 26.00 | 127.00 |

FLOW DISTRIBUTION FOR SECNO= 4515.00 CWSEL= 656.42

| STA= | 101. | 112. | 120. | 127. |
|---|---|---|---|---|
| PER Q= | 15.5 | 78.5 | 6.0 | |
| AREA= | 37.8 | 42.2 | 25.7 | |
| VEL= | 1.6 | 7.1 | 0.9 | |

*SECNO 4540.000

3470 ENCROACHMENT STATIONS= 106.0 122.0 TYPE= 1 TARGET= 16.000

SECNO 4540 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4540.00 | 5.10 | 656.30 | 0.0 | 656.26 | 657.22 | 0.92 | 0.03 | 0.15 | 651.30 |
| 380. | 42. | 331. | 6. | 24. | 40. | 9. | 10. | 5. | 651.30 |
| 0.24 | 1.75 | 8.20 | 0.71 | 0.060 | 0.020 | 0.100 | 0.034 | 651.20 | 106.00 |
| 0.001408 | 25. | 25. | 25. | 2 | 0 | 0 | 0.0 | 16.00 | 122.00 |

FLOW DISTRIBUTION FOR SECNO= 4540.00 CWSEL= 656.30

| STA= | 106. | 112. | 120. | 122. |
|---|---|---|---|---|
| PER Q= | 11.1 | 87.[illegible] | 1.7 | |

```
AREA=      24.1      40.4       .1
 VEL=       1.7       8.2       0.7

CCHV=   0.400 CEHV=   0.600
*SECNO 4564.000

3301 HV CHANGED MORE THAN HVINS

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=       1.0     185.0  TYPE=     1  TARGET=     184.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      659.20 ELREA=      659.20

          SECNO 4564 D/S       FRANCAVILLA CULVERT FROM FIELD BOOK AND SUBD. MAP

  4564.00      5.06    656.26    656.26    656.27    658.35      2.08      0.07      0.70    655.20
    380.         0.       380.       0.        0.        33.       0.       10.        5.      655.20
     0.24       0.0      11.59      0.0     0.060     0.020     0.100     0.034    651.20    116.00
0.007506        24.       24.       24.         4         5         0       0.0      8.00    124.00

FLOW DISTRIBUTION FOR SECNO=    4564.00          CWSEL=     656.26

STA=      116.      124.
  PER Q=    100.0
   AREA=     32.8
    VEL=     11.6

CCHV=   0.400 CEHV=   0.600
*SECNO 4565.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  665.00 MAX ELLC=  659.20

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      659.20 ELREA=      659.20

          SECNO 4565          D/S FACE FRANCAVILLA CULV. FROM F.B." SUBD. MAP

  4565.00      5.06    656.26    656.26    656.26    658.42      2.17      0.01      0.05    655.20
    380.         0.       380.       0.        0.        32.       0.       10.        5.      655.20
     0.24       0.0      11.82      0.0     0.060     0.015     0.100     0.034    651.20    116.00
0.004680         1.        1.        1.         2        17         0     -5.23      0.00    124.00

FLOW DISTRIBUTION FOR SECNO=    4565.00          CWSEL=     656.26

STA=      116.      124.
  PER Q=    100.0
```

AREA= 32.2
VEL= 11.8

*SECNO 4925.000
WATER EL CHANGE FROM X2 CARD

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 665.00 MAX ELLC= 660.63

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 668.30 ELREA= 668.30

SECNO 4925 BASED ON QUAD MAP " SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4925.00 | 5.06 | 657.69 | 657.69 | 657.69 | 659.85 | 2.16 | 1.68 | 0.00 | 656.63 |
| 380. | 0. | 380. | 0. | 0. | 32. | 0. | 10. | 5. | 656.63 |
| 0.25 | 0.0 | 11.80 | 0.0 | 0.060 | 0.015 | 0.100 | 0.032 | 652.63 | 116.00 |
| 0.004664 | 360. | 360. | 360. | 0 | 17 | 0 | -5.28 | 8.00 | 126.00 |

FLOW DISTRIBUTION FOR SECNO= 4925.00 CWSEL= 657.69

STA= 116. 124.
PER Q= 100.0
AREA= 32.2
VEL= 11.8

*SECNO 5280.000
WATER EL CHANGE FROM X2 CARD

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 665.00 MAX ELLC= 662.06

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 668.30 ELREA= 668.30

SECNO 5280 BASED ON QUAD MAP " SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5280.00 | 5.06 | 659.12 | 659.12 | 659.12 | 661.28 | 2.16 | 1.66 | 0.00 | 658.06 |
| 380. | 0. | 380. | 0. | 0. | 32. | 0. | 11. | 5. | 658.06 |
| 0.25 | 0.0 | 11.80 | 0.0 | 0.060 | 0.015 | 0.100 | 0.031 | 654.06 | 116.00 |
| 0.004665 | 355. | 355. | 355. | 0 | 17 | 0 | -5.28 | 8.00 | 124.00 |

FLOW DISTRIBUTION FOR SECNO= 5280.00 CWSEL= 659.12

STA= 116. 124.
PER Q= 100.0
AREA= 32.2
VEL= 11.8

*SECNO 5640.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 668.30 MAX ELLC= 663.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 668.30 ELREA= 668.30

SECNO 5640 U/S FACE FRANCAVILLA CULVERT AT U/S FACE CURTIS RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5640.00 | 5.79 | 661.29 | 0.0 | 661.29 | 662.83 | 1.54 | 1.29 | 0.25 | 659.50 |
| 380. | 0. | 380. | 0. | 0. | 38. | 0. | 11. | 5. | 659.5 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.020 | 0.0 | 9.95 | .0 | 0.060 | 0.015 | 0.1 0 | 0.030 | 55.50 | 99.00 |
| 0.002858 | 360. | 360. | 360. | 3 | 0 | 0 | -2.68 | 8.00 | 107.00 |

FLOW DISTRIBUTION FOR SECNO= 5640.00 CWSEL= 661.29

STA= 99. 107.
PER Q= 100.0
AREA= 38.2
VEL= 9.9

CCHV= 0.300 CEHV= 0.500
*SECNO 5641.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 668.30 ELREA= 668.30

SECNO 5641 U/S FRANCAVILLA CULVERT FROM FIELD BOOK AND SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5641.00 | 6.03 | 661.53 | 0.0 | 661.53 | 662.89 | 1.36 | 0.01 | 0.05 | 659.50 |
| 380. | 0. | 380. | 0. | 0. | 41. | 0. | 11. | 5. | 659.50 |
| 0.26 | 0.0 | 9.35 | 0.0 | 0.060 | 0.080 | 0.100 | 0.030 | 655.50 | 99.00 |
| 0.064664 | 1. | 1. | 1. | 3 | 0 | 0 | 0.0 | 8.00 | 107.00 |

FLOW DISTRIBUTION FOR SECNO= 5641.00 CWSEL= 661.53

STA= 99. 107.
PER Q= 100.0
AREA= 40.6
VEL= 9.4

**********
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01.02
MODIFICATION - 50,51,52,53
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BEITZ DRAIN LIVONIA CITY

SUMMARY PRINTOUT TABLE 110

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70.000 | 639.80 | 0.0 | 639.97 | 56.64 | 4.77 | 365.21 | 10.02 | 0.0 | 0.0 | 89.00 | 111.00 | 0.0 |
| 70.000 | 639.90 | 0.10 | 640.09 | 23.49 | 0.0 | 378.53 | 1.47 | 0.04 | 89.00 | 89.00 | 111.00 | 112.49 |
| 297.000 | 640.01 | 0.0 | 640.26 | 44.92 | 1.54 | 372.71 | 5.75 | 0.0 | 0.0 | 89.00 | 111.00 | 0.0 |
| 297.000 | 640.13 | 0.12 | 640.36 | 46.98 | 1.99 | 371.56 | 6.45 | 263.00 | 1.00 | 89.00 | 111.00 | 264.00 |
| 524.000 | 640.39 | 0.0 | 640.77 | 69.97 | 1.83 | 363.90 | 14.26 | 0.0 | 0.0 | 115.00 | 135.00 | 0.0 |
| 524.000 | 640.47 | 0.08 | 640.83 | 73.36 | 2.23 | 361.81 | 15.96 | 0.0 | 0.0 | 115.00 | 135.00 | 0.0 |
| 752.000 | 641.09 | 0.0 | 641.57 | 58.08 | 0.73 | 370.41 | 8.86 | 0.0 | 0.0 | 115.00 | 135.00 | 0.0 |
| 752.000 | 641.12 | 0.03 | 641.59 | 59.23 | 0.82 | 369.84 | 9.34 | 0.0 | 0.0 | 115.00 | 135.00 | 0.0 |
| 979.000 | 642.00 | 0.0 | 642.47 | 58.33 | 0.75 | 370.29 | 8.96 | 0.0 | 0.0 | 115.00 | 135.00 | 0.0 |
| 979.000 | 642.00 | 0.00 | 642.48 | 58.55 | 0.77 | 370.18 | 9.05 | 0.0 | 0.0 | 115.00 | 135.00 | 0.0 |
| 1207.000 | 642.91 | 0.0 | 643.42 | 65.73 | 14.50 | 358.85 | 6.64 | 0.0 | 0.0 | 132.00 | 150.00 | 0.0 |
| 1207.000 | 642.91 | 0.00 | 643.42 | 65.64 | 14.47 | 358.92 | 6.61 | 0.0 | 0.0 | 132.00 | 150.00 | 0.0 |
| 1434.000 | 643.88 | 0.0 | 644.40 | 64.71 | 14.20 | 359.54 | 6.26 | 0.0 | 0.0 | 132.00 | 150.00 | 0.0 |
| 1434.000 | 643.89 | 0.00 | 644.40 | 64.81 | 14.23 | 359.47 | 6.30 | 0.0 | 0.0 | 132.00 | 150.00 | 0.0 |
| 1661.000 | 644.87 | 0.0 | 645.35 | 67.91 | 15.14 | 357.35 | 7.50 | 0.0 | 0.0 | 132.00 | 150.00 | 0.0 |
| 1661.000 | 644.87 | -0.00 | 645.35 | 68.01 | 15.17 | 357.28 | 7.55 | 0.0 | 0.0 | 132.00 | 150.00 | 0.0 |
| 1888.000 | 645.79 | 0.0 | 646.23 | 88.85 | 11.02 | 345.29 | 23.69 | 0.0 | 0.0 | 148.00 | 166.00 | 0.0 |
| 1888.000 | 645.79 | -0.00 | 646.23 | 88.75 | 11.00 | 345.38 | 23.62 | 0.0 | 0.0 | 148.00 | 166.00 | 0.0 |
| 2115.000 | 646.65 | 0.0 | 647.15 | 82.98 | 9.88 | 350.33 | 19.78 | 0.0 | 0.0 | 148.00 | 166.00 | 0.0 |
| 2115.000 | 646.65 | 0.00 | 647.15 | 82.86 | 9.86 | 350.44 | 19.70 | 0.0 | 0.0 | 148.00 | 166.00 | 0.0 |
| 2359.000 | 647.69 | 0.0 | 648.62 | 26.23 | 14.85 | 350.33 | 14.82 | 0.0 | 0.0 | 133.50 | 146.50 | 0.0 |
| 2359.000 | 647.69 | 0.00 | 648.62 | 26.24 | 14.87 | 350.30 | 14.83 | 0.0 | 0.0 | 133.50 | 146.50 | 0.0 |
| 2409.000 | 648.01 | 0.0 | 649.00 | 13.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 133.50 | 146.50 | 0.0 |
| 2409.000 | 648.02 | 0.00 | 649.00 | 13.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 133.50 | 146.50 | 0.0 |
| 2526.000 | 649.18 | 0.0 | 649.65 | 13.10 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 133.40 | 146.50 | 0.0 |
| 2526.000 | 649.18 | 0.00 | 649.65 | 13.10 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 133.40 | 146.50 | 0.0 |

FORM 6415

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | SLENCL | SICHL | SICHR | SLENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2576.000 | 649.53 | 0.0 | 649.79 | 38.41 | 30.00 | 326.27 | 23.73 | 0.0 | 0.0 | 133.40 | 146.50 | 0.0 |
| | 2576.000 | 649.53 | 0.00 | 649.79 | 38.41 | 30.00 | 326.27 | 23.73 | 0.0 | 0.0 | 133.40 | 146.50 | 0.0 |
| | 2824.000 | 649.82 | 0.0 | 650.23 | 33.84 | 25.16 | 334.94 | 19.90 | 0.0 | 0.0 | 133.40 | 146.50 | 0.0 |
| | 2824.000 | 649.82 | 0.0 | 650.23 | 33.84 | 25.16 | 334.94 | 19.90 | 0.0 | 0.0 | 133.40 | 146.50 | 0.0 |
| | 3072.000 | 650.46 | 0.0 | 650.82 | 39.29 | 47.52 | 293.39 | 39.10 | 0.0 | 0.0 | 128.00 | 142.00 | 0.0 |
| | 3072.000 | 650.46 | 0.0 | 650.82 | 39.29 | 47.51 | 293.39 | 39.09 | 0.0 | 0.0 | 128.00 | 142.00 | 0.0 |
| | 3321.000 | 651.18 | 0.0 | 651.72 | 35.98 | 42.06 | 303.56 | 34.39 | 0.0 | 0.0 | 128.00 | 142.00 | 0.0 |
| | 3321.000 | 651.17 | -0.02 | 651.79 | 26.38 | 34.67 | 318.52 | 26.81 | 0.05 | 122.36 | 128.00 | 142.00 | 148.72 |
| | 3569.000 | 652.39 | 0.0 | 652.97 | 35.63 | 41.05 | 305.41 | 33.53 | 0.0 | 0.0 | 128.00 | 142.00 | 0.0 |
| | 3569.000 | 652.47 | 0.09 | 653.11 | 25.82 | 33.92 | 320.15 | 25.93 | 0.06 | 122.56 | 128.00 | 142.00 | 148.38 |
| | 3817.000 | 653.92 | 0.0 | 654.53 | 36.86 | 0.21 | 352.02 | 27.77 | 0.0 | 0.0 | 114.00 | 137.00 | 0.0 |
| | 3817.000 | 654.01 | 0.09 | 654.71 | 23.56 | 0.0 | 378.52 | 1.48 | 0.07 | 114.00 | 114.00 | 137.00 | 137.56 |
| | 4065.000 | 655.56 | 0.0 | 656.01 | 43.58 | 1.92 | 349.32 | 28.76 | 0.0 | 0.0 | 114.00 | 137.00 | 0.0 |
| | 4065.000 | 655.69 | 0.13 | 656.10 | 46.27 | 3.13 | 347.73 | 29.14 | 208.00 | 1.00 | 114.00 | 137.00 | 209.00 |
| | 4250.000 | 656.27 | 0.0 | 656.49 | 59.45 | 14.51 | 205.00 | 160.49 | 0.0 | 0.0 | 77.00 | 85.00 | 0.0 |
| | 4250.000 | 656.32 | 0.05 | 656.53 | 59.91 | 14.92 | 204.01 | 161.06 | 0.0 | 0.0 | 77.00 | 85.00 | 0.0 |
| | 4490.000 | 656.37 | 0.0 | 656.97 | 36.86 | 60.02 | 294.22 | 25.75 | 0.0 | 0.0 | 112.00 | 120.00 | 0.0 |
| | 4490.000 | 656.41 | 0.04 | 657.00 | 37.30 | 60.61 | 293.38 | 26.01 | 0.0 | 0.0 | 112.00 | 120.00 | 0.0 |
| | 4515.000 | 656.38 | 0.0 | 657.00 | 26.00 | 58.81 | 298.45 | 22.74 | 26.00 | 101.00 | 112.00 | 120.00 | 127.00 |
| | 4515.000 | 656.42 | 0.04 | 657.03 | 26.00 | 59.05 | 298.16 | 22.79 | 26.00 | 101.00 | 112.00 | 120.00 | 127.00 |
| | 4540.000 | 656.26 | 0.0 | 657.19 | 16.00 | 42.12 | 331.37 | 6.51 | 16.00 | 106.00 | 112.00 | 120.00 | 122.00 |
| | 4540.000 | 656.30 | 0.04 | 657.22 | 16.00 | 42.14 | 331.37 | 6.49 | 16.00 | 106.00 | 112.00 | 120.00 | 122.00 |
| * | 4564.000 | 656.27 | 0.0 | 658.35 | 8.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 116.00 | 124.00 | 0.0 |
| * | 4564.000 | 656.26 | -0.01 | 658.35 | 8.00 | 0.0 | 380.00 | 0.0 | 184.00 | 1.00 | 116.00 | 124.00 | 185.00 |
| * | 4565.000 | 656.26 | 0.0 | 658.42 | 8.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 116.00 | 124.00 | 0.0 |
| * | 4565.000 | 656.26 | 0.0 | 658.42 | 8.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 116.00 | 124.00 | 0.0 |
| * | 4925.000 | 657.69 | 0.0 | 659.85 | 8.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 116.00 | 124.00 | 0.0 |
| * | 4925.000 | 657.69 | 0.0 | 659.85 | 8.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 116.00 | 124.00 | 0.0 |
| * | 5280.000 | 659.12 | 0.0 | 661.28 | 8.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 116.00 | 124.00 | 0.0 |
| * | 5280.000 | 659.12 | 0.0 | 661.28 | 8.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 116.00 | 124.00 | 0.0 |
| | 5640.000 | 661.29 | 0.0 | 662.83 | 8.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 99.00 | 107.00 | 0.0 |
| | 5640.000 | 661.29 | 0.0 | 662.83 | 8.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 99.00 | 107.00 | 0.0 |
| | 5641.000 | 661.53 | 0.0 | 662.89 | 8.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 99.00 | 107.00 | 0.0 |
| | 5641.000 | 661.53 | 0.0 | 662.89 | 8.00 | 0.0 | 380.00 | 0.0 | 0.0 | 0.0 | 99.00 | 107.00 | 0.0 |

FORM FG413

BEITZ DRAIN LIVONIA CITY

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70.000 | 0.0 | 0.0 | 0.0 | 634.10 | 380.00 | 639.80 | 0.0 | 639.97 | 8.89 | 3.41 | 144.49 | 127.42 |
| 70.000 | 0.0 | 0.0 | 0.0 | 634.10 | 380.00 | 639.90 | 0.0 | 640.09 | 9.87 | 3.46 | 113.16 | 120.93 |
| 297.000 | 227.00 | 0.0 | 0.0 | 635.00 | 380.00 | 640.01 | 0.0 | 640.26 | 15.52 | 4.06 | 109.03 | 96.46 |
| 297.000 | 227.00 | 0.0 | 0.0 | 635.00 | 380.00 | 640.13 | 0.0 | 640.36 | 14.01 | 3.93 | 114.65 | 101.53 |
| 524.000 | 227.00 | 0.0 | 0.0 | 635.90 | 380.00 | 640.39 | 0.0 | 640.77 | 29.04 | 5.05 | 104.01 | 70.51 |
| 524.000 | 227.00 | 0.0 | 0.0 | 635.90 | 380.00 | 640.47 | 0.0 | 640.83 | 26.59 | 4.91 | 110.03 | 73.70 |
| 752.000 | 228.00 | 0.0 | 0.0 | 636.90 | 380.00 | 641.09 | 0.0 | 641.57 | 40.00 | 5.60 | 85.14 | 60.08 |
| 752.000 | 228.00 | 0.0 | 0.0 | 636.90 | 380.00 | 641.12 | 0.0 | 641.59 | 38.76 | 5.55 | 86.81 | 61.04 |
| 979.000 | 227.00 | 0.0 | 0.0 | 637.80 | 380.00 | 642.00 | 0.0 | 642.47 | 39.73 | 5.59 | 85.51 | 60.29 |
| 979.000 | 227.00 | 0.0 | 0.0 | 637.80 | 380.00 | 642.00 | 0.0 | 642.48 | 39.49 | 5.58 | 85.82 | 60.47 |
| 1207.000 | 228.00 | 0.0 | 0.0 | 638.60 | 380.00 | 642.91 | 0.0 | 643.42 | 42.49 | 5.87 | 91.99 | 58.30 |
| 1207.000 | 228.00 | 0.0 | 0.0 | 638.60 | 380.00 | 642.91 | 0.0 | 643.42 | 42.60 | 5.88 | 91.84 | 58.22 |
| 1434.000 | 227.00 | 0.0 | 0.0 | 639.60 | 380.00 | 643.88 | 0.0 | 644.40 | 43.71 | 5.93 | 90.37 | 57.48 |
| 1434.000 | 227.00 | 0.0 | 0.0 | 639.60 | 380.00 | 643.89 | 0.0 | 644.40 | 43.59 | 5.92 | 90.52 | 57.56 |
| 1661.000 | 227.00 | 0.0 | 0.0 | 640.50 | 380.00 | 644.87 | 0.0 | 645.35 | 40.00 | 5.76 | 95.54 | 60.08 |
| 1661.000 | 227.00 | 0.0 | 0.0 | 640.50 | 380.00 | 644.87 | 0.0 | 645.35 | 39.89 | 5.75 | 95.71 | 60.16 |
| 1888.000 | 227.00 | 0.0 | 0.0 | 641.30 | 380.00 | 645.79 | 0.0 | 646.23 | 36.85 | 5.57 | 115.79 | 62.60 |
| 1888.000 | 227.00 | 0.0 | 0.0 | 641.30 | 380.00 | 645.79 | 0.0 | 646.23 | 36.95 | 5.57 | 115.59 | 62.52 |
| 2115.000 | 227.00 | 0.0 | 0.0 | 642.30 | 380.00 | 646.65 | 0.0 | 647.15 | 43.03 | 5.87 | 104.79 | 57.93 |
| 2115.000 | 227.00 | 0.0 | 0.0 | 642.30 | 380.00 | 646.65 | 0.0 | 647.15 | 43.17 | 5.87 | 104.57 | 57.83 |
| 2359.000 | 244.00 | 0.0 | 0.0 | 644.30 | 380.00 | 647.69 | 0.0 | 648.62 | 72.65 | 8.08 | 65.10 | 44.58 |
| 2359.000 | 244.00 | 0.0 | 0.0 | 644.30 | 380.00 | 647.69 | 0.0 | 648.62 | 72.40 | 8.07 | 65.18 | 44.66 |
| 2409.000 | 50.00 | 0.0 | 0.0 | 644.30 | 380.00 | 648.01 | 0.0 | 649.00 | 68.94 | 7.98 | 47.63 | 45.77 |
| 2409.000 | 50.00 | 0.0 | 0.0 | 644.30 | 380.00 | 648.02 | 0.0 | 649.00 | 68.84 | 7.98 | 47.65 | 45.80 |
| 2526.000 | 117.00 | 660.00 | 650.80 | 643.80 | 380.00 | 649.18 | 0.0 | 649.65 | 27.94 | 5.47 | 69.51 | 71.90 |
| 2526.000 | 117.00 | 660.00 | 650.80 | 643.80 | 380.00 | 649.18 | 0.0 | 649.65 | 27.93 | 5.47 | 69.51 | 71.90 |
| 2576.000 | 50.00 | 0.0 | 0.0 | 643.80 | 380.00 | 649.53 | 0.0 | 649.79 | 10.51 | 4.38 | 145.73 | 117.21 |
| 2576.000 | 50.00 | 0.0 | 0.0 | 643.80 | 380.00 | 649.53 | 0.0 | 649.79 | 10.51 | 4.38 | 145.74 | 117.22 |
| 2824.000 | 248.00 | 0.0 | 0.0 | 645.10 | 380.00 | 649.82 | 0.0 | 650.23 | 21.38 | 5.48 | 108.98 | 82.18 |
| 2824.000 | 248.00 | 0.0 | 0.0 | 645.10 | 380.00 | 649.82 | 0.0 | 650.23 | 21.38 | 5.48 | 108.99 | 82.18 |
| 3072.000 | 248.00 | 0.0 | 0.0 | 646.40 | 380.00 | 650.46 | 0.0 | 650.82 | 25.96 | 5.36 | 105.75 | 74.58 |
| 3072.000 | 248.00 | 0.0 | 0.0 | 646.40 | 380.00 | 650.46 | 0.0 | 650.82 | 25.97 | 5.36 | 105.74 | 74.57 |
| 3321.000 | 249.00 | 0.0 | 0.0 | 647.70 | 380.00 | 651.18 | 0.0 | 651.72 | 47.16 | 6.59 | 84.17 | 55.33 |
| 3321.000 | 249.00 | 0.0 | 0.0 | 647.70 | 380.00 | 651.17 | 0.0 | 651.79 | 52.07 | 6.86 | 75.74 | 52.26 |
| 3569.000 | 248.00 | 0.0 | 0.0 | 649.00 | 380.00 | 652.39 | 0.0 | 652.97 | 52.61 | 6.74 | 80.76 | 52.39 |
| 3569.000 | 248.00 | 0.0 | 0.0 | 649.00 | 380.00 | 652.47 | 0.0 | 653.11 | 52.99 | 6.88 | 75.03 | 52.20 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10KWS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3817.000 | 248.00 | 0.0 | 0.0 | 650.30 | 380.00 | 653.92 | 0.0 | 654.53 | 75.34 | 6.47 | 70.99 | 43.78 |
| | 3817.000 | 248.00 | 0.0 | 0.0 | 650.30 | 380.00 | 654.01 | 0.0 | 654.71 | 78.59 | 6.70 | 58.29 | 42.86 |
| | 4065.000 | 248.00 | 0.0 | 0.0 | 651.60 | 380.00 | 655.56 | 0.0 | 656.01 | 47.84 | 5.63 | 84.37 | 54.94 |
| | 4065.000 | 248.00 | 0.0 | 0.0 | 651.60 | 380.00 | 655.69 | 0.0 | 656.10 | 40.37 | 5.34 | 90.35 | 58.81 |
| | 4250.000 | 185.00 | 0.0 | 0.0 | 651.00 | 380.00 | 656.27 | 0.0 | 656.69 | 14.75 | 4.91 | 180.39 | 98.95 |
| | 4250.000 | 185.00 | 0.0 | 0.0 | 651.00 | 380.00 | 656.32 | 0.0 | 656.53 | 14.14 | 4.84 | 183.45 | 101.06 |
| | 4490.000 | 240.00 | 0.0 | 0.0 | 651.10 | 380.00 | 656.37 | 0.0 | 656.97 | 9.92 | 7.04 | 112.92 | 120.62 |
| | 4490.000 | 240.00 | 0.0 | 0.0 | 651.10 | 380.00 | 656.41 | 0.0 | 657.00 | 9.61 | 6.97 | 114.48 | 122.61 |
| | 4515.000 | 25.00 | 0.0 | 0.0 | 651.10 | 380.00 | 656.38 | 0.0 | 657.00 | 10.10 | 7.12 | 104.62 | 119.56 |
| | 4515.000 | 25.00 | 0.0 | 0.0 | 651.10 | 380.00 | 656.42 | 0.0 | 657.03 | 9.82 | 7.06 | 105.71 | 121.28 |
| | 4540.000 | 25.00 | 0.0 | 0.0 | 651.20 | 380.00 | 656.26 | 0.0 | 657.19 | 14.48 | 8.27 | 72.93 | 99.85 |
| | 4540.000 | 25.00 | 0.0 | 0.0 | 651.20 | 380.00 | 656.30 | 0.0 | 657.22 | 14.08 | 8.20 | 73.61 | 101.28 |
| * | 4564.000 | 24.00 | 0.0 | 0.0 | 651.20 | 380.00 | 656.27 | 656.27 | 658.35 | 74.55 | 11.56 | 32.87 | 44.01 |
| * | 4564.000 | 24.00 | 0.0 | 0.0 | 651.20 | 380.00 | 656.26 | 656.26 | 658.35 | 75.06 | 11.59 | 32.79 | 43.86 |
| * | 4565.000 | 1.00 | 665.00 | 659.20 | 651.20 | 380.00 | 656.26 | 656.26 | 658.42 | 46.80 | 11.82 | 32.16 | 55.55 |
| * | 4565.000 | 1.00 | 665.00 | 659.20 | 651.20 | 380.00 | 656.26 | 656.26 | 658.42 | 46.80 | 11.82 | 32.16 | 55.55 |
| * | 4925.000 | 360.00 | 665.00 | 660.63 | 652.63 | 380.00 | 657.69 | 657.69 | 659.85 | 46.64 | 11.80 | 32.20 | 55.64 |
| * | 4925.000 | 360.00 | 665.00 | 660.63 | 652.63 | 380.00 | 657.69 | 657.69 | 659.85 | 46.64 | 11.80 | 32.20 | 55.64 |
| * | 5280.000 | 355.00 | 665.00 | 662.06 | 654.06 | 380.00 | 659.12 | 659.12 | 661.28 | 46.65 | 11.80 | 32.20 | 55.64 |
| * | 5280.000 | 355.00 | 665.00 | 662.06 | 654.06 | 380.00 | 659.12 | 659.12 | 661.28 | 46.65 | 11.80 | 32.20 | 55.64 |
| | 5640.000 | 360.00 | 668.30 | 663.50 | 655.50 | 380.00 | 661.29 | 0.0 | 662.83 | 28.58 | 9.95 | 38.19 | 71.08 |
| | 5640.000 | 360.00 | 668.30 | 663.50 | 655.50 | 380.00 | 661.29 | 0.0 | 662.83 | 28.58 | 9.95 | 38.19 | 71.08 |
| | 5641.000 | 1.00 | 0.0 | 0.0 | 655.50 | 380.00 | 661.53 | 0.0 | 662.89 | 646.64 | 9.35 | 40.62 | 14.94 |
| | 5641.000 | 1.00 | 0.0 | 0.0 | 655.50 | 380.00 | 661.53 | 0.0 | 662.89 | 646.64 | 9.35 | 40.62 | 14.94 |

BEITZ DRAIN LIVONIA CITY

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 70.000 | 380.00 | 639.80 | 0.0 | 0.0 | 0.0 | 56.64 | 0.0 |
| 70.000 | 380.00 | 639.90 | 0.10 | 0.0 | 0.10 | 23.49 | 0.0 |
| 297.000 | 380.00 | 640.01 | 0.0 | 0.21 | 0.0 | 44.92 | 227.00 |
| 297.000 | 380.00 | 640.13 | 0.12 | 0.23 | 0.12 | 46.98 | 227.00 |
| 524.000 | 380.00 | 640.39 | 0.0 | 0.38 | 0.0 | 69.97 | 227.00 |
| 524.000 | 380.00 | 640.47 | 0.08 | 0.34 | 0.08 | 73.36 | 227.00 |
| 752.000 | 380.00 | 641.09 | 0.0 | 0.71 | 0.0 | 58.08 | 228.00 |
| 752.000 | 380.00 | 641.12 | 0.03 | 0.65 | 0.03 | 59.23 | 228.00 |
| 979.000 | 380.00 | 642.00 | 0.0 | 0.91 | 0.0 | 58.33 | 227.00 |
| 979.000 | 380.00 | 642.00 | 0.00 | 0.88 | 0.00 | 58.55 | 227.00 |
| 1207.000 | 380.00 | 642.91 | 0.0 | 0.91 | 0.0 | 65.73 | 228.00 |
| 1207.000 | 380.00 | 642.91 | 0.00 | 0.91 | 0.00 | 65.64 | 228.00 |
| 1434.000 | 380.00 | 643.88 | 0.0 | 0.97 | 0.0 | 64.71 | 227.00 |
| 1434.000 | 380.00 | 643.89 | 0.00 | 0.97 | 0.00 | 64.81 | 227.00 |
| 1661.000 | 380.00 | 644.87 | 0.0 | 0.98 | 0.0 | 67.91 | 227.00 |
| 1661.000 | 380.00 | 644.87 | -0.00 | 0.98 | -0.00 | 68.01 | 227.00 |
| 1888.000 | 380.00 | 645.79 | 0.0 | 0.92 | 0.0 | 88.85 | 227.00 |
| 1888.000 | 380.00 | 645.79 | -0.00 | 0.92 | -0.00 | 88.75 | 227.00 |
| 2115.000 | 380.00 | 646.65 | 0.0 | 0.86 | 0.0 | 82.98 | 227.00 |
| 2115.000 | 380.00 | 646.65 | 0.00 | 0.87 | 0.00 | 82.86 | 227.00 |
| 2359.000 | 380.00 | 647.69 | 0.0 | 1.03 | 0.0 | 26.23 | 244.00 |
| 2359.000 | 380.00 | 647.69 | 0.00 | 1.04 | 0.00 | 26.24 | 244.00 |
| 2409.000 | 380.00 | 648.01 | 0.0 | 0.33 | 0.0 | 13.00 | 50.00 |
| 2409.000 | 380.00 | 648.02 | 0.00 | 0.33 | 0.00 | 13.00 | 50.00 |
| 2526.000 | 380.00 | 649.18 | 0.0 | 1.17 | 0.0 | 13.10 | 117.00 |
| 2526.000 | 380.00 | 649.18 | 0.00 | 1.17 | 0.00 | 13.10 | 117.00 |
| 2576.000 | 380.00 | 649.53 | 0.0 | 0.35 | 0.0 | 38.41 | 50.00 |
| 2576.000 | 380.00 | 649.53 | 0.00 | 0.35 | 0.00 | 38.41 | 50.00 |
| 2824.000 | 380.00 | 649.82 | 0.0 | 0.28 | 0.0 | 33.84 | 248.00 |
| 2824.000 | 380.00 | 649.82 | 0.0 | 0.28 | 0.0 | 33.84 | 248.00 |
| 3072.000 | 380.00 | 650.46 | 0.0 | 0.64 | 0.0 | 39.29 | 248.00 |
| 3072.000 | 380.00 | 650.46 | 0.0 | 0.64 | 0.0 | 39.29 | 248.00 |
| 3321.000 | 380.00 | 651.18 | 0.0 | 0.72 | 0.0 | 35.98 | 249.00 |
| 3321.000 | 380.00 | 651.17 | -0.02 | 0.71 | -0.02 | 26.38 | 249.00 |
| 3569.000 | 380.00 | 652.39 | 0.0 | 1.20 | 0.0 | 35.43 | 248.00 |
| 3569.000 | 380.00 | 652.47 | 0.09 | 1.31 | 0.09 | 25.02 | 248.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 3817.000 | 380.00 | 653.92 | 0.0 | 1.53 | 0.0 | 36.86 | 248.00 |
| | 3817.000 | 380.00 | 654.01 | 0.09 | 1.54 | 0.09 | 23.56 | 248.00 |
| | 4065.000 | 380.00 | 655.56 | 0.0 | 1.64 | 0.0 | 43.58 | 248.00 |
| | 4065.000 | 380.00 | 655.69 | 0.13 | 1.67 | 0.13 | 46.27 | 248.00 |
| | 4250.000 | 380.00 | 656.27 | 0.0 | 0.72 | 0.0 | 59.45 | 185.00 |
| | 4250.000 | 380.00 | 656.32 | 0.05 | 0.63 | 0.05 | 59.91 | 185.00 |
| | 4490.000 | 380.00 | 656.37 | 0.0 | 0.09 | 0.0 | 36.86 | 240.00 |
| | 4490.000 | 380.00 | 656.41 | 0.04 | 0.09 | 0.04 | 37.30 | 240.00 |
| | 4515.000 | 380.00 | 656.38 | 0.0 | 0.01 | 0.0 | 26.00 | 25.00 |
| | 4515.000 | 380.00 | 656.42 | 0.04 | 0.01 | 0.04 | 26.00 | 25.00 |
| | 4540.000 | 380.00 | 656.26 | 0.0 | -0.12 | 0.0 | 16.00 | 25.00 |
| | 4540.000 | 380.00 | 656.30 | 0.04 | -0.12 | 0.04 | 16.00 | 25.00 |
| * | 4564.000 | 380.00 | 656.27 | 0.0 | 0.02 | 0.0 | 8.00 | 24.00 |
| * | 4564.000 | 380.00 | 656.26 | -0.01 | -0.04 | -0.01 | 8.00 | 24.00 |
| * | 4565.000 | 380.00 | 656.26 | 0.0 | -0.02 | 0.0 | 8.00 | 1.00 |
| * | 4565.000 | 380.00 | 656.26 | 0.0 | -0.01 | 0.0 | 8.00 | 1.00 |
| * | 4925.000 | 380.00 | 657.69 | 0.0 | 1.43 | 0.0 | 8.00 | 360.00 |
| * | 4925.000 | 380.00 | 657.69 | 0.0 | 1.43 | 0.0 | 8.00 | 360.00 |
| * | 5280.000 | 380.00 | 659.12 | 0.0 | 1.43 | 0.0 | 8.00 | 355.00 |
| * | 5280.000 | 380.00 | 659.12 | 0.0 | 1.43 | 0.0 | 8.00 | 355.00 |
| | 5640.000 | 380.00 | 661.29 | 0.0 | 2.17 | 0.0 | 8.00 | 360.00 |
| | 5640.000 | 380.00 | 661.29 | 0.0 | 2.17 | 0.0 | 8.00 | 360.00 |
| | 5641.000 | 380.00 | 661.53 | 0.0 | 0.24 | 0.0 | 8.00 | 1.00 |
| | 5641.000 | 380.00 | 661.53 | 0.0 | 0.24 | 0.0 | 8.00 | 1.00 |

SUMMARY OF ERRORS

CAUTION SECNO= 4564.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4564.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4564.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4564.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 4565.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4565.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4565.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4565.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

NOTE SECNO= 4925.000 PROFILE= 1 WSEL BASED ON X2 CARD
NOTE SECNO= 4925.000 PROFILE= 2 WSEL BASED ON X2 CARD

NOTE SECNO= 5280.000 PROFILE= 1 WSEL BASED ON X2 CARD
NOTE SECNO= 5280.000 PROFILE= 2 WSEL BASED ON X2 CARD

FLOODWAY DATA, BEITZ DRAIN LIVONIA CITY
PROFILE NO. 2

| STATION | FLOODWAY WIDTH (FT) | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 70.000 | 23. | 113. | 3.4 | 639.9 | 639.8 | 0.1 |
| 297.000 | 47. | 115. | 3.3 | 640.1 | 640.0 | 0.1 |
| 524.000 | 73. | 110. | 3.5 | 640.5 | 640.4 | 0.1 |
| 752.000 | 59. | 87. | 4.4 | 641.1 | 641.1 | 0.0 |
| 979.000 | 59. | 86. | 4.4 | 642.0 | 642.0 | 0.0 |
| 1207.000 | 66. | 92. | 4.1 | 642.9 | 642.9 | 0.0 |
| 1434.000 | 65. | 91. | 4.2 | 643.9 | 643.9 | 0.0 |
| 1661.000 | 68. | 96. | 4.0 | 644.9 | 644.9 | 0.0 |
| 1888.000 | 89. | 116. | 3.3 | 645.8 | 645.8 | 0.0 |
| 2115.000 | 83. | 105. | 3.6 | 646.7 | 646.7 | 0.0 |
| 2359.000 | 26. | 65. | 5.8 | 647.7 | 647.7 | 0.0 |
| 2409.000 | 13. | 48. | 8.0 | 648.0 | 648.0 | 0.0 |
| 2526.000 | 13. | 70. | 5.5 | 649.2 | 649.2 | 0.0 |
| 2576.000 | 38. | 146. | 2.6 | 649.5 | 649.5 | 0.0 |
| 2824.000 | 34. | 109. | 3.5 | 649.8 | 649.8 | 0.0 |
| 3072.000 | 39. | 106. | 3.6 | 650.5 | 650.5 | 0.0 |
| 3321.000 | 26. | 76. | 5.0 | 651.2 | 651.2 | 0.0 |
| 3569.000 | 26. | 75. | 5.1 | 652.5 | 652.4 | 0.1 |
| 3817.000 | 24. | 58. | 6.5 | 654.0 | 653.9 | 0.1 |
| 4065.000 | 46. | 90. | 4.2 | 655.7 | 655.6 | 0.1 |
| 4250.000 | 60. | 183. | 2.1 | 656.4 | 656.3 | 0.1 |
| 4490.000 | 37. | 114. | 3.3 | 656.4 | 656.4 | 0.0 |
| 4515.000 | 26. | 106. | 3.6 | 656.4 | 656.4 | 0.0 |
| 4540.000 | 16. | 74. | 5.2 | 656.3 | 656.3 | 0.0 |
| 4564.000 | 8. | 33. | 11.6 | 656.3 | 656.3 | 0.0 |
| 4565.000 | 8. | 32. | 11.8 | 656.3 | 656.3 | 0.0 |
| 4925.000 | 8. | 32. | 11.8 | 657.7 | 657.7 | 0.0 |
| 5280.000 | 8. | 32. | 11.8 | 659.1 | 659.1 | 0.0 |
| 5640.000 | 8. | 38. | 9.9 | 661.3 | 661.3 | 0.0 |
| 5641.000 | 8. | 41. | 9.4 | 661.5 | 661.5 | 0.0 |




1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Beitz Drain

4) DOCUMENT TYPE: Summary



HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BEITZ DRAIN LIVONIA CITY

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70.000 | 0.0 | 0.0 | 0.0 | 634.10 | 180.00 | 639.80 | 0.0 | 639.84 | 2.00 | 1.62 | 144.49 | 127.42 |
| 70.000 | 0.0 | 0.0 | 0.0 | 634.10 | 310.00 | 639.80 | 0.0 | 639.92 | 5.92 | 2.78 | 144.49 | 127.42 |
| 70.000 | 0.0 | 0.0 | 0.0 | 634.10 | 360.00 | 639.80 | 0.0 | 639.97 | 8.69 | 3.41 | 144.49 | 127.42 |
| 70.000 | 0.0 | 0.0 | 0.0 | 634.10 | 560.00 | 639.80 | 0.0 | 640.18 | 19.32 | 5.03 | 144.49 | 127.42 |
| 297.000 | 227.00 | 0.0 | 0.0 | 635.00 | 180.00 | 639.65 | 0.0 | 639.81 | 3.93 | 2.01 | 102.20 | 90.17 |
| 297.000 | 227.00 | 0.0 | 0.0 | 635.00 | 310.00 | 639.94 | 0.0 | 640.11 | 10.94 | 3.37 | 106.04 | 93.72 |
| 297.000 | 227.00 | 0.0 | 0.0 | 635.00 | 380.00 | 640.01 | 0.0 | 640.26 | 15.52 | 4.06 | 109.03 | 96.46 |
| 297.000 | 227.00 | 0.0 | 0.0 | 635.00 | 560.00 | 640.29 | 0.0 | 640.73 | 27.59 | 5.62 | 120.37 | 106.62 |
| 524.000 | 227.00 | 0.0 | 0.0 | 635.90 | 180.00 | 639.54 | 0.0 | 640.06 | 10.62 | 2.20 | 70.96 | 65.24 |
| 524.000 | 227.00 | 0.0 | 0.0 | 635.90 | 310.00 | 640.21 | 0.0 | 640.58 | 23.48 | 4.39 | 92.01 | 83.97 |
| 524.000 | 227.00 | 0.0 | 0.0 | 635.90 | 380.00 | 640.39 | 0.0 | 640.77 | 29.04 | 5.05 | 104.01 | 70.51 |
| 524.000 | 227.00 | 0.0 | 0.0 | 635.90 | 560.00 | 640.91 | 0.0 | 641.07 | 36.07 | 6.24 | 146.51 | 92.22 |
| 752.000 | 228.00 | 0.0 | 0.0 | 636.90 | 180.00 | 640.24 | 0.0 | 640.44 | 24.84 | 3.67 | 49.82 | 36.12 |
| 752.000 | 228.00 | 0.0 | 0.0 | 636.90 | 310.00 | 640.80 | 0.0 | 641.19 | 37.30 | 5.68 | 69.79 | 60.76 |
| 752.000 | 228.00 | 0.0 | 0.0 | 636.90 | 380.00 | 641.09 | 0.0 | 641.57 | 40.00 | 5.60 | 85.14 | 60.08 |
| 752.000 | 228.00 | 0.0 | 0.0 | 636.90 | 560.00 | 641.77 | 0.0 | 642.39 | 42.46 | 6.54 | 133.90 | 85.94 |
| 979.000 | 227.00 | 0.0 | 0.0 | 637.80 | 180.00 | 640.86 | 0.0 | 641.13 | 35.17 | 4.12 | 43.74 | 30.35 |
| 979.000 | 227.00 | 0.0 | 0.0 | 637.80 | 310.00 | 641.66 | 0.0 | 642.07 | 39.20 | 5.16 | 67.80 | 49.51 |
| 979.000 | 227.00 | 0.0 | 0.0 | 637.80 | 380.00 | 642.00 | 0.0 | 642.47 | 39.73 | 5.59 | 85.51 | 60.29 |
| 979.000 | 227.00 | 0.0 | 0.0 | 637.80 | 560.00 | 642.74 | 0.0 | 643.33 | 39.63 | 6.40 | 139.49 | 88.76 |
| 1207.000 | 228.00 | 0.0 | 0.0 | 638.60 | 180.00 | 641.71 | 0.0 | 642.03 | 43.31 | 4.53 | 41.29 | 27.35 |
| 1207.000 | 228.00 | 0.0 | 0.0 | 638.60 | 310.00 | 642.66 | 0.0 | 643.01 | 42.56 | 5.47 | 71.56 | 47.52 |
| 1207.000 | 228.00 | 0.0 | 0.0 | 638.60 | 380.00 | 642.91 | 0.0 | 643.42 | 42.49 | 5.87 | 91.99 | 58.30 |
| 1207.000 | 228.00 | 0.0 | 0.0 | 638.60 | 560.00 | 643.65 | 0.0 | 644.26 | 41.49 | 6.62 | 152.36 | 86.94 |
| 1434.000 | 227.00 | 0.0 | 0.0 | 639.60 | 180.00 | 642.70 | 0.0 | 643.02 | 44.00 | 4.55 | 40.99 | 27.14 |
| 1434.000 | 227.00 | 0.0 | 0.0 | 639.60 | 310.00 | 643.53 | 0.0 | 643.99 | 43.91 | 5.52 | 70.25 | 46.76 |
| 1434.000 | 227.00 | 0.0 | 0.0 | 639.60 | 380.00 | 643.88 | 0.0 | 644.40 | 43.71 | 5.93 | 90.37 | 57.46 |
| 1434.000 | 227.00 | 0.0 | 0.0 | 639.60 | 560.00 | 644.60 | 0.0 | 645.23 | 43.71 | 6.74 | 147.47 | 84.70 |
| 1661.000 | 227.00 | 0.0 | 0.0 | 640.50 | 180.00 | 643.67 | 0.0 | 643.97 | 39.50 | 4.39 | 43.07 | 30.64 |
| 1661.000 | 227.00 | 0.0 | 0.0 | 640.50 | 310.00 | 644.52 | 0.0 | 644.94 | 39.80 | 5.35 | 74.49 | 49.14 |
| 1661.000 | 227.00 | 0.0 | 0.0 | 640.50 | 380.00 | 644.87 | 0.0 | 645.35 | 40.00 | 5.76 | 96.54 | 60.08 |
| 1661.000 | 227.00 | 0.0 | 0.0 | 640.50 | 560.00 | 645.60 | 0.0 | 646.18 | 39.67 | 6.52 | 156.66 | 88.91 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | FG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1888.000 | 227.00 | 0.0 | 0.0 | 641.30 | 180.00 | 644.59 | 0.0 | 644.89 | 41.76 | 4.45 | 42.13 | 27.86 |
| 1888.000 | 227.00 | 0.0 | 0.0 | 641.30 | 310.00 | 645.43 | 0.0 | 645.84 | 38.51 | 5.28 | 86.45 | 49.96 |
| 1888.000 | 227.00 | 0.0 | 0.0 | 641.30 | 380.00 | 645.79 | 0.0 | 646.23 | 36.85 | 5.57 | 115.79 | 62.60 |
| 1888.000 | 227.00 | 0.0 | 0.0 | 641.30 | 560.00 | 646.54 | 0.0 | 647.02 | 34.00 | 6.11 | 195.90 | 95.92 |
| 2115.000 | 227.00 | 0.0 | 0.0 | 642.30 | 180.00 | 645.55 | 0.0 | 645.87 | 44.00 | 4.52 | 41.01 | 27.13 |
| 2115.000 | 227.00 | 0.0 | 0.0 | 642.30 | 310.00 | 646.33 | 0.0 | 646.78 | 43.97 | 5.52 | 79.28 | 46.75 |
| 2115.000 | 227.00 | 0.0 | 0.0 | 642.30 | 380.00 | 646.69 | 0.0 | 647.15 | 43.03 | 5.87 | 104.79 | 67.93 |
| 2115.000 | 227.00 | 0.0 | 0.0 | 642.30 | 560.00 | 647.34 | 0.0 | 647.91 | 42.04 | 6.61 | 171.37 | 85.76 |
| 2359.000 | 244.00 | 0.0 | 0.0 | 644.30 | 180.00 | 646.67 | 0.0 | 647.14 | 57.48 | 5.64 | 40.54 | 23.75 |
| 2359.000 | 244.00 | 0.0 | 0.0 | 644.30 | 310.00 | 647.41 | 0.0 | 648.17 | 65.17 | 7.23 | 58.07 | 38.40 |
| 2359.000 | 244.00 | 0.0 | 0.0 | 644.30 | 380.00 | 647.69 | 0.0 | 648.62 | 72.65 | 8.08 | 65.10 | 44.58 |
| 2359.000 | 244.00 | 0.0 | 0.0 | 644.30 | 560.00 | 648.21 | 648.62 | 649.67 | 94.84 | 10.17 | 79.31 | 67.50 |
| 2409.000 | 50.00 | 0.0 | 0.0 | 644.30 | 180.00 | 646.97 | 0.0 | 647.40 | 45.28 | 5.29 | 34.05 | 26.75 |
| 2409.000 | 50.00 | 0.0 | 0.0 | 644.30 | 310.00 | 647.71 | 0.0 | 648.49 | 60.24 | 7.09 | 43.71 | 39.94 |
| 2409.000 | 50.00 | 0.0 | 0.0 | 644.30 | 380.00 | 648.01 | 0.0 | 649.00 | 68.94 | 7.98 | 47.63 | 45.77 |
| 2409.000 | 50.00 | 0.0 | 0.0 | 644.30 | 560.00 | 648.62 | 0.0 | 650.20 | 92.85 | 10.10 | 55.46 | 68.12 |
| 2526.000 | 117.00 | 660.00 | 650.80 | 643.80 | 180.00 | 647.58 | 0.0 | 647.79 | 18.27 | 3.70 | 48.61 | 42.11 |
| 2526.000 | 117.00 | 660.00 | 650.80 | 643.80 | 310.00 | 648.67 | 0.0 | 649.05 | 25.04 | 4.93 | 62.85 | 61.95 |
| 2526.000 | 117.00 | 660.00 | 650.80 | 643.80 | 380.00 | 649.18 | 0.0 | 649.65 | 27.94 | 5.47 | 69.51 | 71.90 |
| 2526.000 | 117.00 | 660.00 | 650.80 | 643.80 | 560.00 | 650.42 | 0.0 | 651.08 | 33.06 | 6.54 | 85.69 | 97.39 |
| 2576.000 | 50.00 | 0.0 | 0.0 | 643.80 | 180.00 | 647.73 | 0.0 | 647.87 | 9.21 | 3.18 | 83.90 | 69.30 |
| 2576.000 | 50.00 | 0.0 | 0.0 | 643.80 | 310.00 | 648.95 | 0.0 | 649.17 | 10.36 | 4.05 | 124.03 | 40.34 |
| 2576.000 | 50.00 | 0.0 | 0.0 | 643.80 | 380.00 | 649.53 | 0.0 | 649.79 | 10.51 | 4.38 | 145.73 | 117.21 |
| 2576.000 | 50.00 | 0.0 | 0.0 | 643.80 | 560.00 | 650.96 | 0.0 | 651.27 | 9.42 | 4.92 | 212.44 | 178.74 |
| 2824.000 | 248.00 | 0.0 | 0.0 | 645.10 | 180.00 | 648.02 | 0.0 | 648.30 | 26.60 | 4.42 | 55.53 | 34.90 |
| 2824.000 | 248.00 | 0.0 | 0.0 | 645.10 | 310.00 | 649.24 | 0.0 | 649.61 | 22.78 | 5.18 | 90.21 | 64.96 |
| 2824.000 | 248.00 | 0.0 | 0.0 | 645.10 | 380.00 | 649.82 | 0.0 | 650.23 | 21.38 | 5.48 | 108.98 | 82.16 |
| 2824.000 | 248.00 | 0.0 | 0.0 | 645.10 | 560.00 | 651.20 | 0.0 | 651.64 | 18.12 | 6.00 | 160.32 | 131.55 |
| 3072.000 | 248.00 | 0.0 | 0.0 | 646.40 | 180.00 | 648.83 | 0.0 | 649.15 | 43.83 | 4.87 | 49.48 | 27.19 |
| 3072.000 | 248.00 | 0.0 | 0.0 | 646.40 | 310.00 | 649.91 | 0.0 | 650.27 | 30.55 | 5.26 | 84.94 | 56.00 |
| 3072.000 | 248.00 | 0.0 | 0.0 | 646.40 | 380.00 | 650.46 | 0.0 | 650.82 | 25.96 | 5.36 | 105.75 | 74.50 |
| 3072.000 | 248.00 | 0.0 | 0.0 | 646.40 | 560.00 | 651.79 | 0.0 | 652.14 | 18.50 | 5.51 | 163.22 | 130.20 |
| 3321.000 | 249.00 | 0.0 | 0.0 | 647.70 | 180.00 | 650.00 | 0.0 | 650.38 | 54.41 | 5.22 | 45.70 | 24.40 |
| 3321.000 | 249.00 | 0.0 | 0.0 | 647.70 | 310.00 | 650.78 | 0.0 | 651.28 | 51.04 | 6.21 | 70.06 | 43.39 |
| 3321.000 | 249.00 | 0.0 | 0.0 | 647.70 | 380.00 | 651.16 | 0.0 | 651.72 | 47.16 | 6.60 | 84.17 | 55.33 |
| 3321.000 | 249.00 | 0.0 | 0.0 | 647.70 | 560.00 | 652.26 | 0.0 | 652.83 | 35.53 | 6.81 | 126.43 | 93.95 |
| 3569.000 | 248.00 | 0.0 | 0.0 | 649.00 | 180.00 | 651.33 | 0.0 | 651.70 | 51.74 | 5.13 | 46.56 | 25.02 |
| 3569.000 | 248.00 | 0.0 | 0.0 | 649.00 | 310.00 | 652.05 | 0.0 | 652.57 | 52.64 | 6.27 | 69.25 | 42.73 |
| 3569.000 | 248.00 | 0.0 | 0.0 | 649.00 | 380.00 | 652.39 | 0.0 | 652.97 | 52.61 | 6.74 | 80.76 | 52.39 |
| 3569.000 | 248.00 | 0.0 | 0.0 | 649.00 | 560.00 | 653.19 | 0.0 | 653.90 | 49.37 | 7.57 | 111.31 | 76.76 |
| 3817.000 | 248.00 | 0.0 | 0.0 | 650.30 | 180.00 | 652.87 | 0.0 | 653.29 | 80.36 | 5.33 | 39.27 | 20.08 |
| 3817.000 | 248.00 | 0.0 | 0.0 | 650.30 | 310.00 | 653.61 | 0.0 | 654.15 | 76.42 | 6.09 | 60.56 | 35.01 |
| 3817.000 | 248.00 | 0.0 | 0.0 | 650.30 | 380.00 | 653.92 | 0.0 | 654.53 | 75.34 | 6.47 | 70.99 | 43.78 |
| 3817.000 | 248.00 | 0.0 | 0.0 | 650.30 | 560.00 | 654.59 | 0.0 | 655.34 | 66.16 | 7.27 | 100.32 | 67.83 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRINS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4065.000 | 248.00 | 0.0 | 0.0 | 651.60 | 160.00 | 654.52 | 0.0 | 654.80 | 46.89 | 4.37 | 48.43 | 26.29 |
| | 4065.000 | 248.00 | 0.0 | 0.0 | 651.60 | 310.00 | 655.27 | 0.0 | 655.66 | 67.36 | 5.19 | 72.47 | 45.04 |
| | 4065.000 | 248.00 | 0.0 | 0.0 | 651.60 | 380.00 | 655.56 | 0.0 | 656.01 | 87.84 | 5.63 | 84.37 | 54.96 |
| | 4065.000 | 248.00 | 0.0 | 0.0 | 651.60 | 560.00 | 656.18 | 0.0 | 656.78 | 48.96 | 6.55 | 115.64 | 00.03 |
| | 4250.000 | 185.00 | 0.0 | 0.0 | 651.00 | 160.00 | 655.05 | 0.0 | 655.17 | 10.62 | 3.49 | 114.33 | 55.77 |
| | 4250.000 | 185.00 | 0.0 | 0.0 | 651.00 | 310.00 | 655.52 | 0.0 | 655.10 | 13.32 | 4.45 | 159.74 | 84.94 |
| | 4250.000 | 185.00 | 0.0 | 0.0 | 651.00 | 380.00 | 656.27 | 0.0 | 656.49 | 14.75 | 4.91 | 180.39 | 98.95 |
| | 4250.000 | 185.00 | 0.0 | 0.0 | 651.00 | 560.00 | 657.03 | 0.0 | 657.32 | 17.75 | 5.89 | 228.27 | 132.94 |
| | 4490.000 | 240.00 | 0.0 | 0.0 | 651.10 | 160.00 | 655.16 | 0.0 | 655.44 | 8.04 | 4.61 | 73.81 | 73.25 |
| | 4490.000 | 240.00 | 0.0 | 0.0 | 651.10 | 310.00 | 656.02 | 0.0 | 656.51 | 8.71 | 6.30 | 100.62 | 105.04 |
| | 4490.000 | 240.00 | 0.0 | 0.0 | 651.10 | 380.00 | 656.37 | 0.0 | 656.97 | 9.92 | 7.04 | 112.92 | 120.82 |
| | 4490.000 | 240.00 | 0.0 | 0.0 | 651.10 | 560.00 | 657.10 | 0.0 | 657.97 | 12.65 | 8.88 | 142.87 | 157.46 |
| | 4515.000 | 25.00 | 0.0 | 0.0 | 651.10 | 160.00 | 655.19 | 0.0 | 655.45 | 5.88 | 4.56 | 73.31 | 74.24 |
| | 4515.000 | 25.00 | 0.0 | 0.0 | 651.10 | 310.00 | 656.04 | 0.0 | 656.53 | 8.58 | 6.27 | 95.68 | 105.82 |
| | 4515.000 | 25.00 | 0.0 | 0.0 | 651.10 | 380.00 | 656.38 | 0.0 | 657.00 | 10.10 | 7.12 | 104.62 | 119.56 |
| | 4515.000 | 25.00 | 0.0 | 0.0 | 651.10 | 560.00 | 657.05 | 0.0 | 657.68 | 14.34 | 9.19 | 121.95 | 147.86 |
| | 4540.000 | 25.00 | 0.0 | 0.0 | 651.20 | 160.00 | 655.16 | 0.0 | 655.51 | 7.43 | 5.03 | 55.45 | 66.04 |
| | 4540.000 | 25.00 | 0.0 | 0.0 | 651.20 | 310.00 | 655.96 | 0.0 | 656.66 | 11.81 | 7.17 | 68.21 | 90.21 |
| | 4540.000 | 25.00 | 0.0 | 0.0 | 651.20 | 380.00 | 656.26 | 0.0 | 657.19 | 14.48 | 8.27 | 72.93 | 99.85 |
| | 4540.000 | 25.00 | 0.0 | 0.0 | 651.20 | 560.00 | 656.79 | 0.0 | 657.44 | 22.45 | 11.02 | 81.47 | 118.20 |
| | 4564.000 | 24.00 | 0.0 | 0.0 | 651.20 | 180.00 | 654.93 | 0.0 | 655.95 | 52.49 | 8.11 | 22.18 | 24.84 |
| o | 4564.000 | 24.00 | 0.0 | 0.0 | 651.20 | 310.00 | 655.77 | 655.77 | 657.53 | 75.17 | 10.76 | 29.61 | 36.24 |
| o | 4564.000 | 24.00 | 0.0 | 0.0 | 651.20 | 380.00 | 656.27 | 656.27 | 656.35 | 74.55 | 11.56 | 32.67 | 44.01 |
| o | 4564.000 | 24.00 | 0.0 | 0.0 | 651.20 | 560.00 | 657.49 | 657.49 | 658.17 | 78.37 | 13.14 | 42.62 | 69.08 |
| | 4565.000 | 1.00 | 665.00 | 659.20 | 651.20 | 160.00 | 654.93 | 0.0 | 655.87 | 30.42 | 8.19 | 21.90 | 32.68 |
| o | 4565.000 | 1.00 | 665.00 | 659.20 | 651.20 | 310.00 | 655.75 | 655.75 | 657.02 | 43.72 | 10.96 | 28.28 | 46.89 |
| o | 4565.000 | 1.00 | 665.00 | 659.20 | 651.20 | 380.00 | 656.26 | 656.26 | 656.42 | 46.80 | 11.82 | 32.16 | 55.55 |
| | 4565.000 | 1.00 | 665.00 | 659.20 | 651.20 | 560.00 | 657.37 | 657.27 | 660.36 | 59.57 | 13.92 | 40.22 | 72.60 |
| o | 4525.000 | 360.00 | 665.00 | 660.63 | 652.63 | 180.00 | 656.07 | 656.06 | 657.36 | 41.05 | 9.14 | 19.68 | 28.09 |
| o | 4525.000 | 360.00 | 665.00 | 660.63 | 652.63 | 310.00 | 657.19 | 657.18 | 659.45 | 43.56 | 10.95 | 28.32 | 46.97 |
| o | 4525.000 | 360.00 | 665.00 | 660.63 | 652.63 | 380.00 | 657.69 | 657.69 | 659.35 | 48.64 | 11.80 | 32.20 | 55.64 |
| o | 4525.000 | 360.00 | 665.00 | 660.63 | 652.63 | 560.00 | 658.71 | 658.70 | 661.61 | 61.53 | 14.12 | 39.67 | 71.16 |
| o | 5280.000 | 355.00 | 665.00 | 662.06 | 654.06 | 180.00 | 657.50 | 657.49 | 658.79 | 41.05 | 9.14 | 19.68 | 28.09 |
| o | 5280.000 | 355.00 | 665.00 | 662.06 | 654.06 | 310.00 | 658.62 | 658.61 | 660.46 | 43.56 | 10.95 | 28.32 | 46.97 |
| o | 5280.000 | 355.00 | 665.00 | 662.06 | 654.06 | 380.00 | 659.12 | 659.12 | 661.28 | 46.65 | 11.80 | 32.20 | 55.64 |
| o | 5280.000 | 355.00 | 665.00 | 662.06 | 654.06 | 560.00 | 660.14 | 660.13 | 663.23 | 61.90 | 14.11 | 39.66 | 71.18 |
| | 5640.000 | 360.00 | 668.30 | 663.50 | 655.50 | 180.00 | 659.06 | 0.0 | 660.21 | 34.64 | 8.60 | 20.92 | 30.58 |
| | 5640.000 | 360.00 | 668.30 | 663.50 | 655.50 | 310.00 | 660.56 | 0.0 | 661.99 | 39.80 | 9.46 | 32.78 | 50.96 |
| | 5640.000 | 360.00 | 668.30 | 663.50 | 655.50 | 380.00 | 661.29 | 0.0 | 662.43 | 28.58 | 9.95 | 38.19 | 71.08 |
| | 5640.000 | 360.00 | 668.30 | 663.50 | 655.50 | 560.00 | 663.69 | 0.0 | 665.72 | 53.15 | 11.43 | 49.01 | 71.79 |
| | 5641.000 | 1.00 | 0.0 | 0.0 | 655.50 | 180.00 | 659.07 | 0.0 | 660.22 | 945.91 | 8.61 | 20.92 | 6.73 |
| | 5641.000 | 1.00 | 0.0 | 0.0 | 655.50 | 310.00 | 660.70 | 0.0 | 661.98 | 716.56 | 9.10 | 34.06 | 11.58 |
| | 5641.000 | 1.00 | 0.0 | 0.0 | 655.50 | 380.00 | 661.54 | 0.0 | 662.19 | 868.86 | 9.35 | 40.62 | 14.94 |
| | 5641.000 | 1.00 | 0.0 | 0.0 | 655.50 | 560.00 | 664.98 | 0.0 | 665.03 | 330.93 | 6.21 | 68.23 | 30.78 |

BEITZ DRAIN LIVONIA CITY

SUMMARY PRINTOUT TABLE 150

| SECMO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 70.000 | 180.00 | 639.80 | 0.0 | 0.0 | 0.0 | 56.64 | 0.0 |
| 70.000 | 310.00 | 639.80 | 0.0 | 0.0 | 0.0 | 56.64 | 0.0 |
| 70.000 | 380.00 | 639.80 | 0.0 | 0.0 | 0.0 | 56.64 | 0.0 |
| 70.000 | 560.00 | 639.80 | 0.0 | 0.0 | 0.0 | 56.64 | 0.0 |
| 297.000 | 180.00 | 639.85 | 0.0 | 0.05 | 0.0 | 42.30 | 227.00 |
| 297.000 | 310.00 | 639.94 | 0.09 | 0.14 | 0.0 | 43.79 | 227.00 |
| 297.000 | 380.00 | 640.01 | 0.07 | 0.21 | 0.0 | 44.92 | 227.00 |
| 297.000 | 560.00 | 640.25 | 0.24 | 0.45 | 0.0 | 46.98 | 227.00 |
| 524.000 | 180.00 | 639.94 | 0.0 | 0.10 | 0.0 | 52.09 | 227.00 |
| 524.000 | 310.00 | 640.21 | 0.26 | 0.27 | 0.0 | 62.67 | 227.00 |
| 524.000 | 380.00 | 640.39 | 0.18 | 0.38 | 0.0 | 69.97 | 227.00 |
| 524.000 | 560.00 | 640.91 | 0.53 | 0.67 | 0.0 | 91.23 | 227.00 |
| 752.000 | 180.00 | 640.24 | 0.0 | 0.29 | 0.0 | 26.33 | 228.00 |
| 752.000 | 310.00 | 640.80 | 0.56 | 0.59 | 0.0 | 46.21 | 228.00 |
| 752.000 | 380.00 | 641.09 | 0.29 | 0.71 | 0.0 | 58.03 | 228.00 |
| 752.000 | 560.00 | 641.77 | 0.68 | 0.86 | 0.0 | 85.48 | 228.00 |
| 979.000 | 180.00 | 640.86 | 0.0 | 0.63 | 0.0 | 19.17 | 227.00 |
| 979.000 | 310.00 | 641.66 | 0.79 | 0.86 | 0.0 | 44.52 | 227.00 |
| 979.000 | 380.00 | 642.00 | 0.34 | 0.91 | 0.0 | 58.33 | 227.00 |
| 979.000 | 560.00 | 642.74 | 0.74 | 0.96 | 0.0 | 88.02 | 227.00 |
| 1207.000 | 180.00 | 641.71 | 0.0 | 0.85 | 0.0 | 26.04 | 228.00 |
| 1207.000 | 310.00 | 642.56 | 0.85 | 0.90 | 0.0 | 51.47 | 228.00 |
| 1207.000 | 380.00 | 642.91 | 0.35 | 0.91 | 0.0 | 65.73 | 228.00 |
| 1207.000 | 560.00 | 643.65 | 0.74 | 0.92 | 0.0 | 96.22 | 228.00 |
| 1434.000 | 180.00 | 642.70 | 0.0 | 0.99 | 0.0 | 25.94 | 227.00 |
| 1434.000 | 310.00 | 643.53 | 0.83 | 0.97 | 0.0 | 50.42 | 227.00 |
| 1434.000 | 380.00 | 643.88 | 0.35 | 0.97 | 0.0 | 64.71 | 227.00 |
| 1434.000 | 560.00 | 644.60 | 0.72 | 0.95 | 0.0 | 94.12 | 227.00 |
| 1661.000 | 180.00 | 643.67 | 0.0 | 0.97 | 0.0 | 26.63 | 227.00 |
| 1661.000 | 310.00 | 644.52 | 0.84 | 0.98 | 0.0 | 53.75 | 227.00 |
| 1661.000 | 380.00 | 644.87 | 0.35 | 0.98 | 0.0 | 67.91 | 227.00 |
| 1661.000 | 560.00 | 645.60 | 0.73 | 1.00 | 0.0 | 98.03 | 227.00 |
| 1888.000 | 180.00 | 644.59 | 0.0 | 0.92 | 0.0 | 33.60 | 227.00 |
| 1888.000 | 310.00 | 645.43 | 0.84 | 0.91 | 0.0 | 72.11 | 227.00 |
| 1888.000 | 380.00 | 645.79 | 0.36 | 0.92 | 0.0 | 88.85 | 227.00 |
| 1888.000 | 560.00 | 646.54 | 0.75 | 0.94 | 0.0 | 123.85 | 227.00 |
| 2115.000 | 180.00 | 645.55 | 0.0 | 0.97 | 0.0 | 32.03 | 227.00 |
| 2115.000 | 310.00 | 646.33 | 0.78 | 0.90 | 0.0 | 67.39 | 227.00 |
| 2115.000 | 380.00 | 646.65 | 0.32 | 0.86 | 0.0 | 82.98 | 227.00 |
| 2115.000 | 560.00 | 647.34 | 0.68 | 0.79 | 0.0 | 114.22 | 227.00 |
| 2359.000 | 180.00 | 646.67 | 0.0 | 1.12 | 0.0 | 22.14 | 244.00 |
| 2359.000 | 310.00 | 647.41 | 0.74 | 1.06 | 0.0 | 25.13 | 244.00 |
| 2359.000 | 380.00 | 647.69 | 0.27 | 1.03 | 0.0 | 26.23 | 244.00 |
| 2[illegible]9.000 | [illegible].00 | [illegible].21 | 0.5[illegible] | 0.87 | 0.0 | 2[illegible].32 | 24[illegible].0[illegible] |

| SECNO | θ | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 2409.000 | 180.00 | 646.97 | 0.0 | 0.30 | 0.0 | 13.00 | 50.00 |
| 2409.000 | 310.00 | 647.71 | 0.74 | 0.30 | 0.0 | 13.00 | 50.00 |
| 2409.000 | 380.00 | 648.01 | 0.30 | 0.33 | 0.0 | 13.00 | 50.00 |
| 2409.000 | 560.00 | 648.62 | 0.60 | 0.41 | 0.0 | 13.00 | 50.00 |
| 2526.000 | 180.00 | 647.58 | 0.0 | 0.61 | 0.0 | 13.10 | 117.00 |
| 2526.000 | 310.00 | 648.67 | 1.09 | 0.96 | 0.0 | 13.10 | 117.00 |
| 2526.000 | 380.00 | 649.18 | 0.51 | 1.17 | 0.0 | 13.10 | 117.00 |
| 2526.000 | 560.00 | 650.42 | 1.23 | 1.80 | 0.0 | 13.10 | 117.00 |
| 2576.000 | 180.00 | 647.73 | 0.0 | 0.16 | 0.0 | 30.33 | 50.00 |
| 2576.000 | 310.00 | 648.95 | 1.22 | 0.28 | 0.0 | 35.76 | 50.00 |
| 2576.000 | 380.00 | 649.53 | 0.58 | 0.35 | 0.0 | 36.41 | 50.00 |
| 2576.000 | 560.00 | 650.96 | 1.43 | 0.54 | 0.0 | 56.28 | 50.00 |
| 2824.000 | 180.00 | 648.02 | 0.0 | 0.29 | 0.0 | 25.73 | 248.00 |
| 2824.000 | 310.00 | 649.24 | 1.22 | 0.29 | 0.0 | 31.25 | 248.00 |
| 2824.000 | 380.00 | 649.82 | 0.58 | 0.28 | 0.0 | 33.84 | 248.00 |
| 2824.000 | 560.00 | 651.20 | 1.38 | 0.24 | 0.0 | 41.80 | 248.00 |
| 3072.000 | 180.00 | 648.83 | 0.0 | 0.80 | 0.0 | 29.91 | 248.00 |
| 3072.000 | 310.00 | 649.91 | 1.08 | 0.67 | 0.0 | 36.11 | 248.00 |
| 3072.000 | 380.00 | 650.46 | 0.55 | 0.64 | 0.0 | 39.29 | 248.00 |
| 3072.000 | 560.00 | 651.79 | 1.33 | 0.99 | 0.0 | 46.98 | 248.00 |
| 3321.000 | 180.00 | 650.00 | 0.0 | 1.18 | 0.0 | 29.17 | 249.00 |
| 3321.000 | 310.00 | 650.78 | 0.77 | 0.86 | 0.0 | 33.64 | 249.00 |
| 3321.000 | 380.00 | 651.18 | 0.41 | 0.72 | 0.0 | 35.98 | 249.00 |
| 3321.000 | 560.00 | 652.25 | 1.08 | 0.48 | 0.0 | 42.22 | 249.00 |
| 3569.000 | 180.00 | 651.33 | 0.0 | 1.33 | 0.0 | 29.34 | 248.00 |
| 3569.000 | 310.00 | 652.05 | 0.72 | 1.28 | 0.0 | 33.51 | 248.00 |
| 3569.000 | 380.00 | 652.39 | 0.33 | 1.20 | 0.0 | 35.43 | 248.00 |
| 3569.000 | 560.00 | 653.19 | 0.81 | 0.93 | 0.0 | 40.10 | 248.00 |
| 3817.000 | 180.00 | 652.87 | 0.0 | 1.54 | 0.0 | 25.77 | 248.00 |
| 3817.000 | 310.00 | 653.61 | 0.74 | 1.56 | 0.0 | 31.67 | 248.00 |
| 3817.000 | 380.00 | 653.92 | 0.31 | 1.53 | 0.0 | 36.66 | 248.00 |
| 3817.000 | 560.00 | 654.59 | 0.67 | 1.40 | 0.0 | 50.44 | 248.00 |
| 4065.000 | 180.00 | 654.52 | 0.0 | 1.65 | 0.0 | 28.46 | 248.00 |
| 4065.000 | 310.00 | 655.27 | 0.75 | 1.65 | 0.0 | 37.68 | 248.00 |
| 4065.000 | 380.00 | 655.66 | 0.29 | 1.64 | 0.0 | 43.58 | 248.00 |
| 4065.000 | 560.00 | 656.18 | 0.63 | 1.59 | 0.0 | 66.24 | 248.00 |
| 4250.000 | 180.00 | 655.05 | 0.0 | 0.53 | 0.0 | 46.43 | 185.00 |
| 4250.000 | 310.00 | 655.92 | 0.86 | 0.65 | 0.0 | 56.24 | 185.00 |
| 4250.000 | 380.00 | 656.27 | 0.36 | 0.72 | 0.0 | 59.45 | 185.00 |
| 4250.000 | 560.00 | 657.03 | 0.76 | 0.85 | 0.0 | 66.30 | 185.00 |
| 4490.000 | 180.00 | 655.16 | 0.0 | 0.11 | 0.0 | 29.04 | 240.00 |
| 4490.000 | 310.00 | 656.02 | 0.85 | 0.10 | 0.0 | 33.56 | 240.00 |
| 4490.000 | 380.00 | 656.37 | 0.35 | 0.09 | 0.0 | 36.86 | 240.00 |
| 4490.000 | 560.00 | 657.10 | 0.73 | 0.06 | 0.0 | 44.60 | 240.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 4515.000 | 180.00 | 655.19 | 0.0 | 0.02 | 0.0 | 26.00 | 25.00 |
| | 4515.000 | 310.00 | 656.04 | 0.86 | 0.03 | 0.0 | 26.00 | 25.00 |
| | 4515.000 | 380.00 | 656.38 | 0.34 | 0.01 | 0.0 | 26.00 | 25.00 |
| | 4515.000 | 560.00 | 657.09 | 0.68 | -0.04 | 0.0 | 26.00 | 25.00 |
| | 4540.000 | 180.00 | 655.16 | 0.0 | -0.02 | 0.0 | 16.00 | 25.00 |
| | 4540.000 | 310.00 | 655.96 | 0.80 | -0.08 | 0.0 | 16.00 | 25.00 |
| | 4540.000 | 380.00 | 656.26 | 0.29 | -0.12 | 0.0 | 16.00 | 25.00 |
| | 4540.000 | 560.00 | 656.79 | 0.53 | -0.27 | 0.0 | 16.00 | 25.00 |
| | 4564.000 | 180.00 | 654.93 | 0.0 | -0.23 | 0.0 | 7.97 | 24.00 |
| o | 4564.000 | 310.00 | 655.77 | 0.83 | -0.20 | 0.0 | 8.00 | 24.00 |
| o | 4564.000 | 380.00 | 656.27 | 0.51 | 0.02 | 0.0 | 8.00 | 24.00 |
| o | 4564.000 | 560.00 | 657.49 | 1.22 | 0.71 | 0.0 | 8.00 | 24.00 |
| | 4565.000 | 180.00 | 654.93 | 0.0 | -0.00 | 0.0 | 7.97 | 1.00 |
| o | 4565.000 | 310.00 | 655.75 | 0.82 | -0.01 | 0.0 | 8.00 | 1.00 |
| o | 4565.000 | 380.00 | 656.26 | 0.51 | -0.02 | 0.0 | 8.00 | 1.00 |
| | 4565.000 | 560.00 | 657.37 | 1.11 | -0.13 | 0.0 | 8.00 | 1.00 |
| o | 4925.000 | 180.00 | 656.07 | 0.0 | 1.14 | 0.0 | 7.94 | 360.00 |
| o | 4925.000 | 310.00 | 657.19 | 1.12 | 1.43 | 0.0 | 8.00 | 360.00 |
| o | 4925.000 | 380.00 | 657.69 | 0.51 | 1.43 | 0.0 | 8.00 | 360.00 |
| o | 4925.000 | 560.00 | 658.71 | 1.02 | 1.34 | 0.0 | 8.00 | 360.00 |
| o | 5280.000 | 180.00 | 657.50 | 0.0 | 1.63 | 0.0 | 7.94 | 355.00 |
| o | 5280.000 | 310.00 | 658.62 | 1.12 | 1.43 | 0.0 | 8.00 | 355.00 |
| o | 5280.000 | 380.00 | 659.12 | 0.51 | 1.43 | 0.0 | 8.00 | 355.00 |
| o | 5280.000 | 560.00 | 660.14 | 1.02 | 1.43 | 0.0 | 8.00 | 355.00 |
| | 5640.000 | 180.00 | 659.06 | 0.0 | 1.56 | 0.0 | 7.91 | 360.00 |
| | 5640.000 | 310.00 | 660.56 | 1.50 | 1.94 | 0.0 | 8.00 | 360.00 |
| | 5640.000 | 380.00 | 661.29 | 0.73 | 2.17 | 0.0 | 8.00 | 360.00 |
| | 5640.000 | 560.00 | 663.69 | 2.40 | 3.55 | 0.0 | 8.00 | 360.00 |
| | 5641.000 | 180.00 | 659.07 | 0.0 | 0.01 | 0.0 | 7.91 | 1.00 |
| | 5641.000 | 310.00 | 660.70 | 1.63 | 0.14 | 0.0 | 8.00 | 1.00 |
| | 5641.000 | 380.00 | 661.53 | 0.83 | 0.24 | 0.0 | 8.00 | 1.00 |
| | 5641.000 | 560.00 | 664.98 | 3.45 | 1.29 | 0.0 | 8.00 | 1.00 |

SUMMARY OF ERRORS

CAUTION SECNO= 4564.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4564.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4564.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4564.000 PROFILE= 3 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4564.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4564.000 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4564.000 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 4565.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4565.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4565.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4565.000 PROFILE= 3 MINIMUM SPECIFIC ENERGY

NOTE SECNO= 4925.000 PROFILE= 1 WSEL BASED ON X2 CARD

NOTE SECNO= 4925.000 PROFILE= 3 WSEL BASED ON X2 CARD
NOTE SECNO= 4925.000 PROFILE= 4 WSEL BASED ON X2 CARD

NOTE SECNO= 5280.000 PROFILE= 1 WSEL BASED ON X2 CARD
NOTE SECNO= 5280.000 PROFILE= 2 WSEL BASED ON X2 CARD
NOTE SECNO= 5280.000 PROFILE= 3 WSEL BASED ON X2 CARD
NOTE SECNO= 5280.000 PROFILE= 4 WSEL BASED ON X2 CARD

FLOOD INSURANCE ZONE DATA FOR BEITZ DRAIN LIVONIA CITY

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

| SECTION NUMBER | CUMULATIVE DISTANCE | ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10 | 2 | 0.2 |
|---|---|---|---|---|
| 70.000 | 0. | 0.0 | 0.0 | 0.0 |
| 297.000 | 227. | -0.16 | -0.07 | 0.24 |
| 524.000 | 454. | -0.44 | -0.16 | 0.53 |
| 752.000 | 682. | -0.86 | -0.29 | 0.68 |
| 979.000 | 909. | -1.14 | -0.36 | 0.74 |
| 1207.000 | 1137. | -1.20 | -0.35 | 0.74 |
| 1434.000 | 1364. | -1.18 | -0.39 | 0.72 |
| 1661.000 | 1591. | -1.20 | -0.35 | 0.73 |
| 1888.000 | 1818. | -1.20 | -0.36 | 0.75 |
| 2115.000 | 2045. | -1.10 | -0.32 | 0.68 |
| 2359.000 | 2289. | -1.02 | -0.27 | 0.52 |
| 2409.000 | 2339. | -1.04 | -0.30 | 0.60 |
| 2526.000 | 2456. | -1.61 | -0.51 | 1.23 |
| 2576.000 | 2506. | -1.80 | -0.58 | 1.43 |
| 2824.000 | 2754. | -1.79 | -0.58 | 1.38 |
| 3072.000 | 3002. | -1.63 | -0.55 | 1.33 |
| 3321.000 | 3251. | -1.18 | -0.41 | 1.05 |
| 3569.000 | 3499. | -1.05 | -0.33 | 0.81 |
| 3817.000 | 3747. | -1.08 | -0.31 | 0.67 |
| 4065.000 | 3995. | -1.03 | -0.29 | 0.63 |
| 4250.000 | 4180. | -1.22 | -0.36 | 0.76 |
| 4490.000 | 4420. | -1.20 | -0.35 | 0.73 |
| 4515.000 | 4445. | -1.19 | -0.34 | 0.68 |
| 4540.000 | 4470. | -1.09 | -0.29 | 0.53 |
| 4564.000 | 4494. | -1.34 | -0.51 | 1.22 |
| 4565.000 | 4495. | -1.33 | -0.51 | 1.11 |
| 4925.000 | 4855. | -1.63 | -0.51 | 1.02 |
| 5280.000 | 5210. | -1.63 | -0.51 | 1.02 |
| 5640.000 | 5570. | -2.23 | -0.73 | 2.40 |
| 5641.000 | 5571. | -2.46 | -0.83 | 3.45 |
| WEIGHTED AVG FOR REACH | | -1.21 | -0.38 | 0.86 |

FHF FOR THE REACH = 010 WITH 76.8 OF THE REACH WITHIN 0.5 FEET
ZONE FOR THE REACH = A 2

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

| INC NO. | TOTAL LENGTH | AVG ELEVATION DATA 10 | I | DIFF. | WTD. AVG. | FHF | PERCENT WITHIN |
|---|---|---|---|---|---|---|---|
| | 0. | | | | SEC. | 70.000 | |
| 1 | 100. | 639.81 | 639.86 | -0.04 | -0.04 | 005 | 100. |
| 2 | 200. | 639.83 | 639.94 | -0.11 | -0.08 | 005 | 100. |
| | 27. | | | | SEC. | 297.0 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | 400. | 639.90 | 640.21 | -0.31 | -0.17 | 005 | 100. |
| | 454. | | | | SEC. | 524.000 | |
| 5 | 500. | 639.96 | 640.41 | -0.45 | -0.22 | 005 | 100. |
| 6 | 600. | 640.07 | 640.68 | -0.61 | -0.29 | 005 | 100. |
| | 662. | | | | SEC. | 752.000 | |
| 7 | 700. | 640.21 | 641.00 | -0.79 | -0.36 | 005 | 100. |
| 8 | 800. | 640.42 | 641.36 | -0.94 | -0.43 | 005 | 98. |
| 9 | 900. | 640.70 | 641.76 | -1.06 | -0.50 | 005 | 89. |
| | 909. | | | | SEC. | 979.000 | |
| 10 | 1000. | 641.02 | 642.16 | -1.14 | -0.57 | 005 | 80. |
| 11 | 1100. | 641.39 | 642.56 | -1.17 | -0.62 | 005 | 64. |
| | 1137. | | | | SEC. | 1207.000 | |
| 12 | 1200. | 641.78 | 642.97 | -1.19 | -0.67 | 005 | 76. |
| 13 | 1300. | 642.20 | 643.40 | -1.20 | -0.71 | 005 | 77. |
| | 1364. | | | | SEC. | 1434.000 | |
| 14 | 1400. | 642.64 | 643.82 | -1.18 | -0.74 | 005 | 79. |
| 15 | 1500. | 643.07 | 644.26 | -1.19 | -0.77 | 010 | 80. |
| | 1571. | | | | SEC. | 1661.000 | |
| 16 | 1600. | 643.50 | 644.69 | -1.19 | -0.80 | 010 | 81. |
| 17 | 1700. | 643.91 | 645.11 | -1.20 | -0.82 | 010 | 76. |
| 18 | 1800. | 644.31 | 645.51 | -1.20 | -0.84 | 010 | 78. |
| | 1818. | | | | SEC. | 1888.000 | |
| 19 | 1900. | 644.73 | 645.91 | -1.18 | -0.85 | 010 | 79. |
| 20 | 2000. | 645.15 | 646.29 | -1.14 | -0.87 | 010 | 80. |
| | 2045. | | | | SEC. | 2115.000 | |
| 21 | 2100. | 645.58 | 646.68 | -1.10 | -0.89 | 010 | 81. |
| 22 | 2200. | 646.03 | 647.10 | -1.07 | -0.89 | 010 | 82. |
| | 2269. | | | | SEC. | 2359.000 | |
| 23 | 2310. | 646.50 | 647.53 | -1.03 | -0.90 | 010 | 83. |
| | 2339. | | | | SEC. | 2409.000 | |
| 24 | 2400. | 647.01 | 648.19 | -1.18 | -0.91 | 010 | 93. |
| | 2456. | | | | SEC. | 2526.000 | |
| 25 | 2500. | 647.50 | 649.06 | -1.56 | -0.94 | 010 | 00. |
| | 2506. | | | | SEC. | 2576.000 | |
| 26 | 2600. | 647.78 | 649.56 | -1.78 | -0.97 | 010 | 73. |
| 27 | 2700. | 647.90 | 649.70 | -1.80 | -1.00 | 010 | 70. |
| | 2754. | | | | SEC. | 2824.000 | |
| 28 | 2800. | 648.07 | 649.34 | -1.77 | -1.03 | 010 | 68. |
| 29 | 2900. | 648.33 | 650.06 | -1.73 | -1.05 | 010 | 66. |
| 30 | 3000. | 648.66 | 650.32 | -1.66 | -1.07 | 010 | 67. |
| | 3002. | | | | SEC. | 3072.000 | |
| 31 | 3100. | 649.06 | 650.60 | -1.54 | -1.09 | 010 | 69. |
| 32 | 3200. | 649.53 | 650.69 | -1.36 | -1.10 | 010 | 69. |
| | 3251. | | | | SEC. | 3321.000 | |
| 33 | 3300. | 650.01 | 651.23 | -1.22 | -1.10 | 010 | 70. |
| 34 | 3400. | 650.53 | 651.66 | -1.13 | -1.10 | 010 | 71. |
| | 3499. | | | | SEC. | 3565.000 | |
| 35 | 3500. | 651.07 | 652.15 | -1.08 | -1.10 | 010 | 71. |
| 36 | 3600. | 651.65 | 652.70 | -1.05 | -1.10 | 010 | 72. |
| 37 | 3700. | 652.27 | 653.32 | -1.05 | -1.10 | 010 | 73. |
| | 3747. | | | | SEC. | 3817.000 | |
| 38 | 3800. | 652.90 | 653.95 | -1.05 | -1.10 | 010 | 74. |
| 39 | 3900. | 653.56 | 654.60 | -1.04 | -1.09 | 010 | 74. |
| | 3995. | | | | SEC. | 4065.000 | |
| 40 | 4000. | 654.21 | 655.25 | -1.04 | -1.09 | 010 | 75. |
| 41 | 4100. | 654.68 | 655.77 | -1.09 | -1.09 | 010 | 76. |
| | 41 [illegible]. | | | | SEC. | 4250.000 | |
| 42 | 4200. | 654.94 | 656.12 | -1.18 | -1.10 | 010 | 76. |
| 43 | 4300. | 655.09 | 656.30 | -1.21 | -1.10 | 010 | 77. |
| 44 | 4400. | 655.13 | 656.34 | -1.21 | -1.10 | 010 | 77. |
| | 4420. | | | | SEC. | 4490.000 | |
| | 4445. | | | | SEC. | 4515.000 | |
| | 4470. | | | | SEC. | 4540.000 | |
| | 4494. | | | | SEC. | 4564.000 | |
| | 4[illegible]5. | | | | SEC. | [illegible]65.000 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 45 | 4500. | 655.15 | 656.32 | -1.27 | -1.10 | 010 | 78. |
| 46 | 4600. | 655.10 | 655.48 | -1.38 | -1.11 | 010 | 78. |
| 47 | 4700. | 655.42 | 653.07 | -1.45 | -1.12 | 010 | 77. |
| 48 | 4800. | 655.73 | 657.27 | -1.54 | -1.13 | 010 | 77. |
| | 4855. | | | | SEC. | 4925.000 | |
| 49 | 4900. | 656.07 | 657.67 | -1.60 | -1.14 | 010 | 78. |
| 50 | 5000. | 656.45 | 658.07 | -1.62 | -1.15 | 010 | 78. |
| 51 | 5100. | 656.85 | 656.48 | -1.63 | -1.16 | 010 | 77. |
| 52 | 5200. | 657.25 | 658.88 | -1.63 | -1.16 | 010 | 78. |
| | 5251. | | | | SEC. | 5321.000 | |
| 53 | 5300. | 657.67 | 659.37 | -1.70 | -1.17 | 010 | 75. |
| 54 | 5400. | 658.10 | 659.97 | -1.87 | -1.19 | 010 | 76. |
| 55 | 5500. | 658.54 | 660.57 | -2.03 | -1.20 | 010 | 78. |
| | 5570. | | | | SEC. | 5640.000 | |
| | 5571. | | | | SEC. | 5641.000 | |

THIS REACH CAN BE SUBDIVIDED BY INC NO. TO MEET FIA REQUIREMENTS
INPUT 2 IN WHERE N IS THE NUMBER OF REACHES AND THEN INPUT THE END
OF EACH REACH BY INC NO. FOR EXAMPLE 202 52 55
A NEGATIVE INC NO. WILL SUPPRESS INTERMEDIATE INC OUTPUT.

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Bell Branch

4) DOCUMENT TYPE: 100 year

00BREAK00

EXHIBIT 3

Bell Branch
100 yr Natural
(use encroached for FIS)

```
**********************************************************
    FLOB RELEASE DATED NOV 76 UPDATED FEB 1977
    APPRX COUR = 01
    MODIFICATION - 31.57.52
**********************************************************

C
C  BELL BRANCH FIS AUG 2014 OF LIVONIA CITY FROM CONF. GROUND. TO ELLEN RD.
C  T2 = 10YR=1350 50YR=2900 100YR=3600 500YR=5500 AT CORE. GROUND.
T5      BELL BRANCH LIVONIA CITY

J1  JCHECK    INQ       NINV      IDIR      STRT      METRIC    ITYPE     Q         NSEL      EQ

            3.        5.        0.        1.  0.500000    0.20      0.0       0.   620.500    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        RLLOC     IBW       CHNID     ITWICE

        1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.030     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      110.000   150.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

LT      0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000     0.000
QT      3.000  1660.000  2900.000  3620.000  3600.000   500.000     0.000     0.000     0.000     0.000
NC      0.077     0.370     0.035     0.030     0.000     0.000     0.700     0.000     0.000     0.000

      SECND D FRO' REDFORD FIS. 50: D/S INKSTER

QT      0.000    19.000    30.000    65.000     0.000     0.000     0.000     0.000     0.000     0.000
QP    332.000     0.000   515.000    30.000   312.000    60.000   604.000    42.000   664.000    90.000
QR    609.104    47.000   906.000    65.000   613.300    92.000   613.500    79.000   826.000   332.000
QR    630.000   623.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.000     1.000     0.035     0.320     0.500     0.000     0.000     0.000     0.000     0.000

      SECND 50 D/S FACE INKSTER FROM FIELD BOOK AND QUAD MAP

X1     50.000    21.000   294.000   376.500    50.000    50.000    50.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   220.000     0.000   420.000     0.000     0.000     0.000     0.000
QR    524.000     0.000   622.000   780.000   636.000   294.000   636.000   294.100   636.000   299.000
QR    507.600   313.700   607.500   316.100   607.500   340.000   607.500   320.100   607.500   326.000
QP    504.100   327.000   604.000   355.000   606.100   591.000   607.500   351.100   607.800   353.000
QR    607.600   355.100   616.300   372.000   636.000   376.300   636.500   376.500   622.300   670.800
QR    524.000   600.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      1.250     1.710     3.000     0.000    35.000     4.000   750.000     1.150   604.000   634.000

      SECND 100 D/S FACE INKSTER FROM FIELD BOOK AND QUAD MAP

X1    120.000     0.000     0.000     0.000    70.000    70.000    70.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   619.200   620.400     0.200     0.000     0.000     1.000     0.000
X3      0.000     0.000     0.000   220.300     0.000   420.200     0.000     0.000     0.000     0.000
QT     16.000     0.000   624.000     0.300   150.000   622.200     0.000   299.000   625.000   512.000
QP    295.000   333.000   619.200   515.000   622.600   617.200   341.100   603.000   607.000   330.000
QR    620.500   607.000   321.100   622.600   619.200   341.000   500.000   311.200   401.100   642.600
QR    607.200   355.000   602.600   607.600   153.100   602.600   519.200   326.300   625.000   619.200
QP    326.100   527.400   116.000   151.600   522.000     0.000   301.000   334.000     0.000     0.000
      500.200   601.000   322.000     0.000   294.200   622.000     0.000   290.000   620.400     0.000
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 376.500 | 620.400 | 619.200 | 376.500 | 620.400 | 0.300 | 471.000 | 622.050 | 0.000 | 0.000 |
| XC | 0.100 | 0.100 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECND 170 50' U/S IKSTER FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 170.000 | 12.100 | 127.000 | 147.000 | 50.000 | 50.000 | 50.050 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 230.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 630.000 | 0.000 | 625.000 | 45.000 | 610.200 | 121.000 | 604.200 | 127.000 | 604.100 | 130.000 |
| GR | 604.200 | 147.000 | 614.200 | 167.000 | 615.000 | 470.300 | 615.000 | 680.000 | 620.000 | 740.000 |
| GR | 625.000 | 315.300 | 630.000 | 930.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |

SECND 640.CORPS XSEC 29 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 640.000 | 10.000 | 280.000 | 305.000 | 470.000 | 600.000 | 470.000 | 0.000 | 0.000 | 0.000 |
| GR | 650.000 | 0.000 | 625.000 | 170.000 | 620.000 | 230.300 | 615.000 | 270.000 | 606.500 | 260.000 |
| GR | 606.000 | 290.000 | 614.000 | 305.000 | 620.000 | 500.000 | 621.000 | 600.000 | 630.000 | 660.000 |
| BT | 0.080 | 0.080 | 0.035 | 0.130 | 0.300 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |

SECND 1950 CORPS X-SEC 31 FRO CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1950.000 | 11.000 | 415.000 | 435.000 | 1300.000 | 1430.000 | 1310.000 | 0.000 | 0.000 | 0.000 |
| GR | 630.000 | 0.000 | 620.000 | 60.000 | 615.000 | 110.300 | 615.000 | 410.000 | 610.500 | 415.000 |
| GR | 606.000 | 425.000 | 606.500 | 4_5.000 | 616.000 | 440.000 | 627.000 | 470.000 | 630.000 | 600.000 |

SECND 2750 CORPS X-SEC 32 FRO CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2750.000 | 11.000 | 405.000 | 430.000 | 800.000 | 900.000 | 850.500 | 0.300 | 0.000 | 0.000 |
| GR | 630.000 | 0.000 | 625.000 | 50.000 | 619.500 | 100.000 | 617.000 | 250.000 | 616.500 | 400.000 |
| GR | 611.000 | 405.000 | 609.500 | 420.000 | 611.500 | 430.000 | 617.000 | 440.000 | 625.000 | 515.000 |
| BT | 630.000 | 540.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECND 3450 CORPS X-SEC 33 FROM CORPS NOTES AND QUAD MAP OF CONFLUENCE WITH MONONGAHELA RIVER

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3450.000 | 11.000 | 625.000 | 645.000 | 1200.000 | 1200.000 | 1200.000 | 0.000 | 0.000 | 0.000 |
| GR | 630.000 | 0.000 | 625.000 | 40.000 | 620.300 | 70.000 | 617.000 | 305.000 | 611.500 | 615.000 |
| GR | 576.300 | 625.000 | 610.500 | 665.000 | 635.300 | 700.000 | 650.000 | 700.000 | 636.000 | 1150.000 |
| X1 | 635.300 | 705.000 | 0.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 0.300 | 711.000 | 1730.100 | 2126.000 | 2120.300 | 2120.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| XC | 0.030 | 0.100 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECND 4530 CORPS X-SEC 37 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 5520.000 | 1.000 | 783.120 | 785.000 | 630.030 | 635.000 | 570.300 | 0.300 | 0.300 | 0.000 |
| GR | 635.000 | 0.000 | 620.000 | 340.000 | 625.000 | 670.000 | 670.300 | 750.300 | 670.000 | 770.000 |
| GR | 615.300 | 780.000 | 617.500 | 790.000 | 625.000 | 635.000 | 630.000 | 655.200 | 630.000 | 1155.000 |
| BT | 635.000 | 1275.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECND 4810 CORPS X-SEC 38 FROM CORPS NOTES AND QUAD MAP OF

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5250.300 | 11.000 | 623.000 | 645.300 | 600.000 | 730.000 | 510.000 | 0.000 | 0.000 | 0.000 |
| GR | 630.300 | 0.000 | 625.000 | 150.300 | 620.000 | 130.000 | 620.000 | 625.000 | 615.000 | 655.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

SECND 5[illegible] CORPS [illegible] FROM CORPS NOTES AND QUAD MAP

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5520.000 | 11.000 | 120.000 | 155.000 | 500.000 | 520.000 | 470.000 | 0.010 | 0.000 | 0.000 |
| X3 | 635.000 | 0.000 | 630.000 | 20.000 | 625.000 | 0.000 | 620.000 | 60.000 | 620.000 | 120.000 |
| GR | 615.000 | 135.000 | 619.000 | 155.000 | 620.000 | 250.000 | 625.000 | 275.000 | 630.000 | 515.000 |
| [illegible] | 635.000 | 380.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 6100 CORPS X-SEC 41 FRO' CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6100.000 | 11.000 | 230.000 | 320.000 | 580.000 | 530.000 | 580.000 | 0.200 | 0.000 | 0.000 |
| X3 | 0.300 | 0.000 | 0.000 | 200.000 | 0.000 | 360.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 635.300 | 0.000 | 630.000 | 80.300 | 625.000 | 100.000 | 620.000 | 150.000 | 620.000 | 210.000 |
| GR | 616.500 | 315.000 | 621.000 | 320.000 | 620.000 | 440.000 | 625.000 | 420.000 | 630.000 | 530.000 |
| GR | 635.300 | 670.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 6320 50' D/S MIDDLEBELT FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6320.000 | 12.000 | 255.000 | 235.000 | 300.000 | 150.000 | 220.000 | 0.940 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 230.000 | 0.000 | 310.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 633.000 | 0.000 | 630.000 | 40.000 | 625.000 | 100.000 | 625.500 | 230.000 | 617.000 | 253.000 |
| GR | 616.000 | 275.000 | 617.000 | 235.000 | 617.000 | 305.000 | 620.500 | 320.000 | 625.000 | 430.000 |
| GR | 630.000 | 450.000 | 635.000 | 440.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EF | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 244.000 |
| NC | 0.000 | 0.000 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 6370 CORPS X-SEC 42 D/S FACE MIDDLEBELT FROM FIELD BOOK AND M.".

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6370.000 | 15.000 | 140.500 | 199.500 | 50.000 | 50.000 | 30.000 | 0.940 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.600 | 0.000 | 0.000 | 628.400 | 628.400 | 0.000 |
| GR | 630.000 | 0.000 | 628.000 | 60.000 | 629.100 | 124.000 | 620.600 | 130.000 | 615.100 | 140.500 |
| GR | 615.100 | 140.600 | 615.100 | 169.000 | 615.100 | 169.100 | 615.100 | 171.000 | 615.100 | 171.100 |
| GR | 615.100 | 199.500 | 615.100 | 199.500 | 620.100 | 212.000 | 629.100 | 231.000 | 650.000 | 245.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.000 | 0.500 | 0.000 | 0.000 | 0.000 | 615.100 | 615.100 |

SECNO 6446 U/S FACE MIDDLEBELT FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6446.000 | 15.000 | 140.500 | 199.500 | 70.000 | 70.000 | 70.000 | 0.940 | 0.000 | 0.000 |
| X2 | 0.300 | 0.000 | 0.000 | 627.600 | 629.100 | 0.000 | 0.000 | 0.300 | 0.940 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 629.100 | 629.100 | 0.000 |
| GR | 10.000 | 0.000 | 630.000 | 0.000 | 140.500 | 629.100 | 615.100 | 140.600 | 629.100 | 627.600 |
| GR | 169.000 | 629.100 | 627.600 | 169.100 | 629.100 | 615.100 | 171.000 | 629.100 | 615.100 | 171.100 |
| GR | 629.100 | 627.600 | 199.500 | 629.100 | 627.600 | 199.600 | 629.100 | 615.100 | 245.000 | 650.000 |
| GR | 0.000 | 0.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EF | 630.300 | 0.000 | 628.000 | 60.000 | 629.100 | 124.000 | 620.600 | 130.000 | 615.100 | 140.500 |
| GR | 615.100 | 140.600 | 615.100 | 169.000 | 615.100 | 169.100 | 615.100 | 171.000 | 615.100 | 171.100 |
| GR | 615.100 | 199.500 | 615.100 | 199.500 | 620.100 | 212.000 | 629.100 | 231.000 | 650.000 | 245.000 |
| EF | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.035 | 0.300 | 0.500 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 6496 50' U/S MIDDLEBELT FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6496.300 | 12.000 | 240.000 | 281.500 | 50.000 | 50.000 | 50.000 | 0.940 | 0.000 | 0.000 |
| X2 | 0.300 | 0.000 | 0.000 | 157.600 | 0.000 | 300.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 630.000 | 0.000 | 624.000 | 50.000 | 626.000 | 180.000 | 620.000 | 240.000 | 610.300 | 450.000 |
| GR | 614.100 | 240.000 | 615.100 | 280.000 | 615.300 | 300.000 | 616.500 | 300.300 | 620.300 | 450.000 |
| GR | 629.300 | 300.000 | 630.000 | 300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.120 | 0.035 | 0.300 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 7796 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7796.000 | 13.000 | 111.000 | 135.000 | 1300.000 | 1300.000 | 1330.000 | 0.000 | 0.000 | 0.000 |
| GP | 636.000 | 3.000 | 630.000 | 70.000 | 625.000 | 90.000 | 621.500 | 135.000 | 617.000 | 111.000 |
| GR | 614.900 | 125.000 | 616.300 | 135.000 | 621.900 | 145.000 | 620.600 | 155.000 | 620.000 | 375.000 |
| GR | 625.000 | 400.000 | 630.000 | 425.000 | 635.000 | 460.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 8096 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8096.000 | 11.000 | 176.000 | 200.000 | 300.000 | 300.000 | 300.000 | 0.000 | 0.000 | 0.000 |
| GP | 635.000 | 3.000 | 630.000 | 30.000 | 625.000 | 50.000 | 622.300 | 170.000 | 617.500 | 176.000 |
| GR | 615.500 | 190.000 | 616.800 | 200.000 | 622.500 | 210.000 | 625.000 | 335.000 | 630.000 | 325.000 |
| GR | 635.000 | 360.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MC | 0.120 | 0.120 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 8896 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8896.000 | 11.000 | 397.000 | 413.000 | 650.000 | 650.000 | 800.000 | 0.000 | 0.000 | 0.000 |
| GP | 635.000 | 3.000 | 630.000 | 100.000 | 625.000 | 125.000 | 622.700 | 391.000 | 617.100 | 397.000 |
| GR | 616.900 | 385.000 | 617.600 | 413.000 | 622.600 | 419.000 | 625.000 | 432.000 | 630.000 | 448.000 |
| GR | 635.000 | 404.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MC | 0.100 | 0.100 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 9546 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9546.000 | 11.000 | 242.000 | 278.000 | 630.000 | 650.000 | 650.000 | 0.000 | 0.000 | 0.000 |
| GP | 635.000 | 0.000 | 630.000 | 30.000 | 625.000 | 40.000 | 623.000 | 256.000 | 617.000 | 252.000 |
| GR | 617.300 | 270.000 | 618.000 | 278.000 | 623.000 | 284.000 | 625.000 | 396.000 | 630.000 | 420.000 |
| SP | 635.000 | 435.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 12076 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12076.000 | 11.000 | 396.000 | 424.000 | 2350.000 | 2350.000 | 2550.000 | 0.000 | 0.000 | 0.000 |
| SP | 635.000 | 0.000 | 630.000 | 30.000 | 626.000 | 90.000 | 625.900 | 396.000 | 621.900 | 431.000 |
| GR | 616.900 | 411.000 | 624.000 | 419.000 | 623.900 | 424.000 | 626.000 | 450.000 | 630.000 | 595.000 |
| SR | 635.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.410 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MC | 0.120 | 0.120 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 12326 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12326.000 | 11.000 | 357.000 | 383.000 | 750.000 | 640.000 | 750.000 | 0.000 | 0.000 | 0.000 |
| GP | 636.000 | 3.000 | 630.000 | 100.000 | 626.000 | 150.000 | 624.100 | 352.000 | 624.200 | 357.000 |
| GR | 621.700 | 370.000 | 623.400 | 383.000 | 627.000 | 389.000 | 630.000 | 405.000 | 635.000 | 425.000 |
| GR | 640.000 | 385.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MC | 0.000 | 0.000 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 15976.00 U/S HEADTOWN RUD FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15976.000 | 13.000 | 762.000 | 780.000 | 800.000 | 1150.000 | 1150.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 3.000 | 3.000 | 720.000 | 0.000 | 812.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GP | 650.000 | 3.000 | 645.000 | 50.000 | 645.000 | 190.000 | 645.000 | 645.000 | 640.000 | 609.000 |
| GR | 620.000 | 400.000 | 623.700 | 750.000 | 625.000 | 772.000 | 625.000 | 705.000 | 630.000 | 630.000 |
| GR | 630.000 | 625.000 | 645.000 | 1090.000 | 650.000 | 650.000 | 650.000 | 650.000 | 650.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 4.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MC | 0.000 | 0.000 | 0.000 | 0.000 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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SECNO 14026 D/S FACE MERRIMAN FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14026.000 | 10.000 | 680.000 | 739.000 | 50.000 | 50.000 | 50.000 | 0.900 | 0.000 | 0.000 |
| X3 | 10.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 634.300 | 634.300 | 0.000 |
| GT | 640.000 | 0.000 | 680.000 | 50.000 | 635.000 | 220.000 | 626.600 | 672.000 | 623.600 | 680.000 |
| GR | 623.600 | 680.100 | 623.600 | 708.000 | 623.600 | 708.100 | 625.300 | 710.500 | 625.300 | 710.600 |
| GR | 625.300 | 739.000 | 625.300 | 739.100 | 629.600 | 748.000 | 650.000 | 800.000 | 655.000 | 950.000 |
| GR | 640.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SR | 0.900 | 2.150 | 3.000 | 0.000 | 53.680 | 2.270 | 393.600 | 0.000 | 624.400 | 624.400 |

SECNO 14100 U/S FACE MERRIMAN FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14100.000 | 16.000 | 680.000 | 739.000 | 74.000 | 74.000 | 74.000 | 0.900 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 632.100 | 636.600 | 0.000 | 0.000 | 0.000 | 0.900 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 636.600 | 636.600 | 0.000 |
| GT | 12.000 | 0.000 | 640.000 | 0.300 | 220.000 | 636.000 | 0.000 | 680.000 | 636.600 | 623.600 |
| GT | 600.100 | 636.600 | 632.100 | 708.000 | 636.600 | 632.100 | 750.100 | 636.600 | 623.600 | 710.500 |
| BT | 636.600 | 625.300 | 710.600 | 636.600 | 632.100 | 739.000 | 636.600 | 632.100 | 739.100 | 636.600 |
| BT | 625.300 | 950.000 | 638.000 | 0.000 | 1100.000 | 640.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 640.000 | 0.000 | 638.000 | 50.000 | 635.000 | 220.000 | 628.600 | 672.000 | 623.600 | 680.000 |
| GR | 623.600 | 680.100 | 623.600 | 708.000 | 623.600 | 708.100 | 625.300 | 710.500 | 625.300 | 710.600 |
| GR | 625.300 | 739.000 | 625.300 | 739.100 | 629.600 | 748.000 | 650.000 | 800.000 | 655.000 | 950.000 |
| GR | 640.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RC | 0.120 | 0.120 | 0.040 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 14150 50' U/S MERRIMAN FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14150.000 | 12.000 | 328.000 | 412.000 | 50.000 | 50.000 | 50.000 | 0.900 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 315.000 | 0.000 | 439.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GT | 642.000 | 0.000 | 636.000 | 140.000 | 630.000 | 215.000 | 627.200 | 382.000 | 624.500 | 388.000 |
| GR | 623.700 | 400.000 | 624.500 | 412.000 | 629.600 | 417.000 | 630.000 | 580.000 | 630.000 | 620.000 |
| GR | 635.000 | 365.000 | 642.000 | 730.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RC | 0.100 | 0.100 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ST | 0.000 | 7.100 | 7.100 | 7.100 | 5.100 | 7.100 | 600.000 | 1110.000 | 646.000 | 1110.000 |

SECNO 14660 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 14660.000 | 18.000 | 390.000 | 910.000 | 510.000 | 510.000 | 510.000 | 0.000 | 0.000 | 0.000 |
| ST | 644.000 | 0.000 | 640.000 | 35.000 | 628.000 | 130.300 | 625.000 | 200.000 | 630.000 | 325.000 |
| GT | 650.000 | 385.000 | 628.000 | 570.000 | 625.000 | 675.300 | 630.000 | 685.000 | 630.000 | 735.000 |
| GR | 628.600 | 885.000 | 623.400 | 890.000 | 623.200 | 900.000 | 623.400 | 910.000 | 623.800 | 915.000 |
| GT | 630.000 | 1000.000 | 640.000 | 1035.000 | 642.000 | 1110.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RC | 0.000 | 0.700 | 0.000 | 0.000 | 1.400 | 0.600 | 0.000 | 0.000 | 0.000 | 0.000 |
| RC | 0.120 | 0.120 | 0.035 | 0.100 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 16305 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 16305.000 | 12.000 | 50.000 | 110.000 | 1803.000 | 1645.000 | 1645.000 | 0.000 | 0.000 | 0.000 |
| GT | 630.000 | 0.000 | 640.000 | 50.000 | 623.000 | 50.000 | 623.600 | 65.000 | 624.600 | 90.000 |
| GT | 625.400 | 80.000 | 624.600 | 110.000 | 629.600 | 115.000 | 630.000 | 150.000 | 632.000 | 240.000 |
| GR | 646.000 | 560.000 | 646.000 | 480.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RC | 0.100 | 0.100 | 0.040 | 0.100 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 17750 50' U/S MERRIMAN FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 17750.000 | 15.000 | 355.000 | 425.000 | 100.000 | 1500.000 | 1425.000 | 0.000 | 0.000 | 0.000 |
| RT | 0.000 | 0.000 | 0.000 | 35.000 | 0.000 | 431.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GT | 650.000 | 0.000 | 630.000 | 125.000 | 640.000 | 110.000 | 632.000 | 200.000 | 632.000 | 295.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 626.600 | 375.000 | 626.500 | 410.000 | 626.600 | 425.000 | 630.000 | 430.000 | 640.000 | 460.000 |
| GR | 644.000 | 480.000 | 646.000 | 600.000 | 648.000 | 650.000 | 650.000 | 675.000 | 652.000 | 365.000 |
| MC | 0.000 | 0.000 | 0.035 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 799.000 |

SECNO 17780.3/S FACE HUBBARD FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17780.000 | 24.000 | 426.000 | 513.100 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 3.000 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 641.200 | 641.200 | 0.000 |
| GT | 652.000 | 0.000 | 650.000 | 90.000 | 645.000 | 155.000 | 640.000 | 180.000 | 635.000 | 200.000 |
| GR | 638.000 | 425.000 | 637.500 | 426.000 | 637.000 | 426.100 | 650.000 | 643.000 | 628.500 | 451.500 |
| GR | 628.500 | 451.600 | 626.500 | 452.500 | 626.500 | 452.600 | 620.500 | 646.500 | 626.500 | 486.600 |
| GR | 626.500 | 487.500 | 626.500 | 487.600 | 630.000 | 493.500 | 657.000 | 513.000 | 637.000 | 513.100 |
| GP | 638.000 | 520.000 | 640.000 | 570.000 | 645.000 | 660.000 | 650.000 | 800.000 | 0.000 | 0.000 |
| SB | 1.250 | 1.240 | 3.000 | 0.000 | 36.000 | 2.000 | 867.000 | 2.240 | 626.500 | 626.500 |

SECNO 17826 U/S FACE HUBBARD FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17826.000 | 0.000 | 0.000 | 0.000 | 46.000 | 46.000 | 46.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 640.000 | 642.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.300 | 642.300 | 642.300 | 0.000 |
| BT | 16.000 | 90.000 | 650.000 | 0.000 | 155.000 | 645.000 | 0.200 | 426.000 | 642.500 | 637.000 |
| BT | 426.000 | 642.500 | 649.000 | 451.500 | 642.500 | 640.000 | 451.500 | 642.500 | 626.500 | 652.500 |
| BT | 642.500 | 626.500 | 452.600 | 642.500 | 640.000 | 486.500 | 642.500 | 640.000 | 486.600 | 642.500 |
| BT | 626.500 | 487.500 | 642.500 | 626.500 | 487.600 | 642.500 | 640.000 | 513.000 | 642.500 | 640.000 |
| BT | 513.100 | 642.300 | 637.000 | 660.000 | 645.000 | 0.000 | 500.000 | 650.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 3.000 | 0.000 | 0.000 |
| MC | 0.100 | 0.100 | 0.040 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 17876 50' U/S HUBBARD FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17876.000 | 12.000 | 370.000 | 302.000 | 90.000 | 90.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.200 | 0.000 | 244.000 | 0.000 | 424.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 652.300 | 0.000 | 650.300 | 55.000 | 632.000 | 280.000 | 650.000 | 305.000 | 626.600 | 470.000 |
| SR | 626.500 | 360.000 | 626.600 | 382.000 | 630.000 | 435.000 | 640.000 | 425.000 | 645.000 | 470.000 |
| GR | 650.000 | 635.000 | 652.000 | 770.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MC | 0.120 | 0.120 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 18500 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18500.000 | 10.000 | 285.000 | 305.000 | 560.000 | 624.000 | 624.000 | 0.000 | 0.000 | 0.000 |
| GT | 656.000 | 0.000 | 650.000 | 60.000 | 652.000 | 120.000 | 652.500 | 202.000 | 625.100 | 245.000 |
| GR | 627.300 | 295.000 | 628.600 | 305.000 | 631.100 | 534.000 | 652.000 | 302.000 | 626.000 | 470.000 |
| MC | 0.000 | 0.100 | 0.055 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 20180 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 20180.000 | 13.000 | 579.000 | 605.000 | 1400.000 | 1350.200 | 1662.000 | 0.000 | 0.000 | 0.000 |
| GR | 656.000 | 0.200 | 650.000 | 520.000 | 634.000 | 362.000 | 654.000 | 560.000 | 635.000 | 574.000 |
| GR | 631.000 | 579.000 | 640.000 | 590.000 | 631.200 | 625.100 | 654.000 | 610.000 | 638.000 | 652.000 |
| GR | 650.000 | 765.000 | 636.000 | 1159.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MC | 0.100 | 0.100 | 0.035 | 0.100 | 0.300 | 0.200 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 22013 51' U/S FAIRLINGTON FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 22010.000 | 51.200 | 370.000 | 410.000 | 1300.000 | 1510.200 | 1423.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.300 | 0.000 | 344.000 | 0.000 | 424.200 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 652.000 | 0.300 | 650.000 | 150.000 | 640.000 | 190.200 | 650.000 | 365.000 | 652.200 | 472.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 632.600 | 390.000 | 632.700 | 610.000 | 656.700 | 417.000 | 640.000 | 430.000 | 650.000 | 460.000 |
| GR | 660.000 | 555.000 | 0.000 | 0.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.300 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 912.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| | SECNO 22060 D/S FACE FARMINGTON FROM FIELD BOOK AND TOPO MAP SKEW 60. | | | | | | | | | |
| X1 | 22060.000 | 19.000 | 435.000 | 511.130 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 651.900 | 651.900 | 0.000 |
| GR | 659.000 | 0.000 | 655.000 | 152.250 | 650.000 | 278.400 | 644.600 | 435.000 | 646.600 | 437.160 |
| GR | 633.600 | 456.320 | 650.900 | 456.330 | 650.900 | 457.160 | 653.600 | 457.190 | 632.600 | 472.410 |
| GR | 633.600 | 488.070 | 650.900 | 488.080 | 650.900 | 488.930 | 653.600 | 468.940 | 644.600 | 568.080 |
| GR | 644.600 | 511.130 | 650.000 | 626.400 | 655.000 | 739.500 | 660.000 | 913.500 | 0.000 | 0.000 |
| SR | 1.050 | 1.340 | 3.000 | 0.000 | 32.000 | 1.740 | 1044.000 | 1.460 | 632.600 | 632.600 |
| | | | | | | | | | | |
| | SECNO 22146 U/S FACE FERMINGTON RD. BRIDGE, SKEW BRIDGE | | | | | | | | | |
| X1 | 22146.000 | 0.000 | 0.000 | 0.000 | 86.000 | 86.000 | 86.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 650.900 | 652.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 652.900 | 652.900 | 0.000 |
| DT | 0.000 | 158.230 | 655.000 | 0.000 | 435.000 | 652.900 | 0.000 | 435.000 | 652.900 | 650.900 |
| BT | 511.130 | 652.900 | 650.900 | 511.130 | 652.900 | 0.000 | 739.500 | 655.000 | 0.000 | 0.000 |
| AX | 0.000 | 0.000 | 0.000 | 0.000 | 1.680 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.040 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| | SECNO 22196 50' U/S FARMINGTON FROM FIELD BOOK AND TOPO MAP | | | | | | | | | |
| X1 | 22196.000 | 11.000 | 470.000 | 510.000 | 50.000 | 50.000 | 50.000 | 0.470 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 401.000 | 0.000 | 579.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 658.000 | 0.000 | 656.000 | 130.000 | 640.000 | 315.000 | 634.900 | 465.000 | 632.700 | 470.000 |
| GR | 632.600 | 490.000 | 632.900 | 510.000 | 634.800 | 517.000 | 640.000 | 530.000 | 650.000 | 620.000 |
| DT | 660.000 | 1050.200 | 0.000 | 0.000 | 0.000 | 0.500 | 0.000 | 0.500 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.300 | 0.300 | 0.300 | 0.000 | 0.200 | 0.000 | 0.000 |
| | | | | | | | | | | |
| | SECNO 23296 FROM FIELD BOOK AND TOPO MAP | | | | | | | | | |
| X1 | 23296.000 | 11.000 | 279.300 | 301.000 | 700.300 | 110.000 | 1400.000 | 0.000 | 0.000 | 0.000 |
| GR | 656.000 | 0.000 | 650.000 | 70.000 | 646.000 | 120.000 | 637.500 | 274.000 | 652.100 | 279.000 |
| GR | 633.000 | 290.000 | 633.400 | 301.000 | 637.000 | 306.130 | 636.000 | 340.000 | 640.000 | 440.000 |
| SR | 650.000 | 670.000 | 660.000 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| | SECNO 24096 CONFLUENCE WITH BEITZ BRAIN FROM FIELD BOOK AND TOPO MAP | | | | | | | | | |
| X1 | 24096.000 | 12.000 | 139.000 | 161.000 | 600.000 | 600.000 | 600.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.000 | 0.000 | 650.000 | 50.000 | 640.000 | 100.000 | 637.400 | 134.000 | 633.100 | 139.000 |
| GR | 652.700 | 150.000 | 633.200 | 161.000 | 638.400 | 166.000 | 640.000 | 190.000 | 642.000 | 420.000 |
| GR | 650.000 | 460.000 | 663.000 | 585.300 | 0.000 | 0.000 | 0.000 | 0.300 | 0.000 | 0.000 |
| GT | 5.000 | 300.000 | 8410.000 | 1740.300 | 1740.000 | 1510.000 | 0.000 | 0.300 | 0.000 | 0.000 |
| | | | | | | | | | | |
| | SECNO 25668 FROM FIELD BOOK AND TOPO MAP | | | | | | | | | |
| X1 | 25668.000 | 19.000 | 349.000 | 271.000 | 1700.000 | 1500.000 | 1571.000 | 0.000 | 0.000 | 0.000 |
| GR | 662.000 | 0.100 | 560.000 | 30.000 | 642.000 | 110.000 | 641.000 | 211.000 | 642.100 | 244.000 |
| GT | 633.000 | 284.300 | 633.300 | 271.000 | 636.400 | 281.000 | 635.000 | 274.000 | 640.000 | 301.000 |
| SR | 650.000 | 405.000 | 560.000 | 465.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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SECNO 28728 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 28728.000 | 9.000 | 50.000 | 67.000 | 1200.000 | 630.300 | 1060.000 | 0.000 | 0.000 | 0.000 |
| GR | 664.000 | 0.000 | 640.100 | 45.000 | 636.100 | 50.000 | 635.400 | 60.000 | 635.500 | 67.000 |
| GR | 643.300 | 75.000 | 640.000 | 290.000 | 640.000 | 315.000 | 660.000 | 405.000 | 0.000 | 0.000 |

SECNO 28628 CONFLUENCE WITH TRIBUTARY #1 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 28628.000 | 13.000 | 365.000 | 380.000 | 1600.000 | 2000.000 | 1900.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.000 | 0.000 | 656.000 | 250.000 | 650.000 | 310.000 | 664.400 | 350.000 | 640.100 | 355.000 |
| GR | 638.900 | 365.000 | 638.200 | 377.000 | 643.600 | 380.000 | 644.000 | 390.000 | 644.000 | 650.000 |
| GR | 650.000 | 683.000 | 658.000 | 710.000 | 659.500 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 5.000 | 500.000 | 890.000 | 1100.000 | 1100.000 | 1550.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 29480 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 29480.000 | 13.000 | 451.000 | 458.000 | 1500.000 | 1000.000 | 860.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.000 | 0.000 | 654.000 | 310.000 | 648.000 | 575.000 | 645.500 | 445.000 | 641.800 | 451.000 |
| GR | 641.900 | 458.000 | 642.100 | 465.000 | 645.800 | 471.000 | 648.000 | 476.000 | 646.000 | 495.000 |
| GR | 646.000 | 590.000 | 650.300 | 615.000 | 660.000 | 640.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| CT | 0.000 | 9.100 | 9.100 | 9.100 | 1.400 | 0.000 | 0.000 | 0.000 | 286.000 | 329.000 |
| QT | 5.000 | 500.000 | 710.000 | 860.000 | 800.000 | 1230.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.080 | 0.090 | 0.030 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 30818 50' D/S GLEN RD. FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 30818.000 | 9.000 | 300.000 | 316.000 | 1100.000 | 2000.000 | 1350.000 | 0.000 | 0.000 | 0.000 |
| GR | 662.000 | 0.000 | 660.000 | 110.000 | 650.000 | 266.000 | 643.300 | 300.000 | 643.200 | 308.000 |
| GR | 643.300 | 316.000 | 656.000 | 350.000 | 660.000 | 470.000 | 662.000 | 600.000 | 0.000 | 0.000 |
| CT | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 649.000 |

SECNO 30868 D/S FACE GLEN RD. FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 30868.000 | 19.000 | 322.000 | 338.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 651.200 | 651.200 | 0.000 |
| BT | 662.000 | 0.000 | 662.000 | 265.000 | 651.400 | 295.000 | 648.000 | 317.000 | 645.200 | 322.000 |
| BT | 665.200 | 293.000 | 643.200 | 324.000 | 643.200 | 328.000 | 643.200 | 326.000 | 643.200 | 330.000 |
| BT | 643.200 | 332.000 | 343.200 | 334.000 | 643.200 | 336.000 | 643.200 | 337.000 | 645.200 | 338.000 |
| GR | 648.000 | 343.000 | 651.600 | 367.000 | 662.000 | 367.000 | 662.000 | 650.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.100 | 3.000 | 0.000 | 15.800 | 0.000 | 99.500 | 0.000 | 644.900 | 644.900 |

SECNO 30921 D/S FACE GLEN FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 30921.000 | 0.000 | 0.000 | 0.000 | 53.000 | 53.000 | 55.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 651.200 | 653.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 653.200 | 653.200 | 0.000 |
| BT | 57.000 | 0.000 | 662.000 | 0.000 | 265.000 | 308.000 | 0.000 | 265.000 | 652.200 | 0.000 |
| BT | 322.000 | 653.200 | 648.200 | 323.000 | 653.200 | 647.800 | 324.000 | 653.200 | 649.000 | 326.000 |
| BT | 653.200 | 651.200 | 328.000 | 653.200 | 651.000 | 351.000 | 653.200 | 651.200 | 332.000 | 653.200 |
| BT | 651.000 | 334.000 | 653.200 | 650.000 | 336.000 | 653.200 | 649.000 | 337.000 | 653.200 | 647.800 |
| BT | 338.000 | 653.200 | 645.200 | 367.000 | 654.000 | 0.000 | 367.000 | 662.000 | 0.000 | 650.000 |
| BT | 662.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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*PROF 1

CCHV=   0.600 CEHV=   0.800
*SECNO ****
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        BLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IM2       ICONT     CORAR     TOPWID      ENDST

        SECNO 0 FROM REDFORD FIS, 50: D/S INKSTER

     0.00     15.40    620.50      0.00    620.50    621.01      0.31      0.00      0.00    615.00
    3600.       35.     2691.      874.       27.      409.      473.        0.        0.    613.50
     0.00      1.32      6.57      1.85     0.070     0.035     0.070     0.000    605.10     20.29
 0.001208        0.        0.        0.         0         0         0      0.00    169.87    190.16

CCHV=   0.500 CEHV=   0.500
*SECNO 50.000

3470 ENCROACHMENT STATIONS=     220.0     420.0  TYPE=     1  TARGET=     200.000

        SECNO 50 D/S FACE INKSTER FROM FIELD BOOK AND QUAD MAP

    50.00     16.97    620.97      0.00      0.00    621.14      0.17      0.03      0.10    616.00
    3600.      170.     3301.      129.      224.      951.      156.        1.        0.    616.00
     0.00      0.76      3.47      0.83     0.070     0.035     0.070     0.034    604.00    220.00
 0.000297       50.       50.       50.         2         0         0      0.00    200.00    420.00

SPECIAL BRIDGE

SO  XN        XKOR      COFQ      RDLEN     HWC       DWP       BAREA     SS        ELCHD     ELCHD
     1.25      1.71      3.00      0.00     35.00      4.00    750.00      1.16    604.00    604.00

*SECNO 120.000
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      HS        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD
                                                                AREA
  621.58    621.17      0.02      410.     3175.      750.      744.      619.20    620.40

3470 ENCROACHMENT STATIONS=     220.0     420.0  TYPE=     1  TARGET=     200.000

        SECNO 120 D/S FACE INKSTER FROM FIELD BOOK AND QUAD MAP

   120.00     17.29    621.29      0.00      0.00    621.45      0.16      0.00      0.10    616.00
    3600.      189.     3271.      130.      247.      977.      170.        3.        1.    616.00
     0.01      0.76      3.35      0.83     0.070     0.035     0.070     0.034    604.00    220.00
 0.000266       70.       70.       70.         2         0         5      0.00    200.00    420.00

CCHV=   0.500 CEHV=   0.500
*SECNO 170.000

3470 ENCROACHMENT STATIONS=      0.0     280.0  TYPE=     1  TARGET=     279.999
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SECNO 170 50' U/S INKSTER FROM FIELD BOOK AND QUAD MAP

  170.00    17.13   621.23     0.00     0.00   621.53     0.30     0.02     0.07   604.20
   3600.     416.    1991.    1194.     397.     342.    1019.       5.       1.   604.20
    0.01     1.05     5.83     1.17    0.100    0.035    0.100    0.034   604.10    64.34
0.000428      50.      50.      50.        2        0        0     0.00   215.46   280.00

*SECNO 640.000
  SECNO    DEPTH    CWSEL    CRIWS    WSELK    FG       HV       HL       ULOSS    BANK ELEV
  Q        QLOB     RCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WIN      ELMIN      SSTA
  SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IN2      ICONT    CORAR    TOPWID     ENDST

SECNO 640.CORPS X@SEC 29 FROM CORPS NOTES AND QUAD MAP

  640.00    15.51   621.51     0.00     0.00   621.83     0.33     0.29     0.01   606.50
   3600.     345.    1980.    1275.     281.     325.    1158.      28.       4.   614.00
    0.05     1.23     6.09     1.10    0.100    0.035    0.100    0.033   606.00   211.92
0.000745     470.     470.     500.        2        0        0     0.00   360.13   572.05

CCHV=   0.100 CEHV=   0.300
*SECNO 1950.000

SECNO 1950 CORPS X-SEC 31 FROM CORPS NOTES AND QUAD MAP

 1950.00    14.29   622.29     0.00     0.00   622.36     0.07     0.50     0.03   610.50
   3600.    2549.     975.      75.    2490.     271.     104.      98.      16.   606.50
    0.27     1.02     3.60     0.72    0.080    0.035    0.080    0.034   608.00    46.25
0.000228     1300.    1310.    1400.        0        0        0     0.00   410.90   457.16

*SECNO 2750.000

SECNO 2750 CORPS X-SEC 32 FROM CORPS NOTES AND QUAD MAP

 2750.00    12.98   622.48     0.00     0.00   622.65     0.18     0.26     0.03   611.50
   3600.    1831.    1503.     245.    1523.     299.     283.     143.      24.   611.50
    0.36     1.29     5.02     1.10    0.080    0.035    0.080    0.034   609.50    70.34
0.000559     800.     800.     800.        2        0        0     0.00   413.03   691.36

*SECNO 3950.000

SECNO 3950 X@SEC 35 200:D/S OF CONFLUENCE W/TARABUSI CREEK

 3950.00    11.79   623.29     0.00     0.00   623.33     0.04     0.66     0.01   616.00
   3600.    3115.     408.      77.    2527.     121.      97.     209.      38.   618.50
    0.57     1.23     3.38     0.80    0.080    0.035    0.080    0.034   611.50    50.29
0.000583     1200.    1200.    1200.        2        0        0     0.00   635.20   685.49

CCHV=   0.100 CEHV=   0.300
*SECNO 4520.000

SECNO 4520 CORPS X-SEC 37 FROM CORPS NOTES AND QUAD MAP

 4520.00    [illegible]   [illegible]     0.00     0.00   [illegible]     [illegible]     [illegible]     [illegible]   [illegible]
   2120.     904.     890.     243.     780.     132.     287.     238.      45.   615.50
    0.52     1.26     3.63     1.10    0.080    0.035    0.120    0.035   615.00   454.03
0.011326     630.     570.     451.        1        [illegible]     0.00   330.64   [illegible]
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*SECNO 5050.000
   SECNO     DEPTH     CNSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IN2       ICONT     CORAR     TOPWID    ENDST

        SECNO 5050 CORPS X-SEC 39 FROM CORPS NOTES AND QUAD MAP

  5050.00      9.27    624.27      0.00      0.00    624.39      0.12      0.54      0.01    615.00
    2120.      1031.      496.      594.      742.       93.      608.      252.       50.    615.00
     0.69      1.39      5.34      0.98     0.080     0.035     0.120     0.034    615.00    154.37
 0.000813      500.      530.      580.         2         0         0      0.00    334.08    468.45

CCHV=   0.100 CEHV=   0.300
*SECNO 5520.000

        SECNO 5520 CORPS X-SEC 60 FROM CORPS NOTES AND QUAD MAP

  5520.00      9.62    624.62      0.00      0.00    624.76      0.14      0.36      0.02    620.00
    2120.      319.     1061.      741.      270.      259.      540.      266.       53.    619.00
     0.74      1.18      4.09      1.37     0.080     0.035     0.080     0.034    615.00     43.06
 0.000674      500.      470.      500.         2         0         0      0.00    230.03    273.09

CCHV=   0.300 CEHV=   0.500
*SECNO 6100.000

3470 ENCROACHMENT STATIONS=      200.0      380.0  TYPE=      1  TARGET=      180.000

        SECNO 6100 CORPS X-SEC 41 FROM CORPS NOTES AND QUAD MAP

  6100.00      8.54    625.04      0.00      0.00    625.21      0.17      0.64      0.01    620.00
    2120.      617.     1152.      351.      404.      269.      250.      280.       56.    621.00
     0.80      1.53      4.27      1.36     0.080     0.035     0.080     0.034    616.50    200.00
 0.000347      580.      580.      580.         0         0         0      0.00    180.00    380.00

CCHV=   0.300 CEHV=   0.500
*SECNO 6320.000

3470 ENCROACHMENT STATIONS=      216.2      291.4  TYPE=      1  TARGET=      80.000

        SECNO 6320 50' D/S MIDDLEBELT FROM FIELD BOOK  AND QUAD MAP

  6320.00      9.06    625.06      0.00      0.00    625.70      0.64      0.25      0.24    617.00
    2120.       77.     1712.      330.       66.      241.      180.      283.       56.    617.00
     0.81      1.17      7.09      1.83     0.120     0.035     0.120     0.034    616.00    223.23
 0.001600      330.      220.      150.         2         0         0      0.00     68.17    291.40

CCHV=   0.300 CEHV=   0.500
*SECNO 6370.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLSA=      620.40 ELREA=      623.40

        SECNO 6370 CORPS X-SEC 42 D/S FACE MIDDLEBELT FROM FIELD BOOK AND Q.M.

  6370.00      10.76    625.66      0.00      0.00    625.87      0.20      0.04      2.03    615.1[illegible]
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   2120.       0.    2120.       0.       0.     586.       0.     284.      56.    615.10
    0.81     0.00     3.62     0.00    0.120    0.035    0.120    0.034    615.10    132.07
0.000395      50.      50.      50.        2        0        0     0.00     55.46    187.53

SPECIAL BRIDGE

SB  XK        XKOR      COFE      RDLEN     BHC       BWP       BAREA     SS        ELCHU     ELCHD
    0.90      2.05      3.00      0.00      55.46     1.88      669.75    0.00      615.10    615.10

*SECNO 6440.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EC        HV        WL        QLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPWID    ENDST

CLASS B LOW FLOW

3420 BRIDGE W.S.=     625.65 BRIDGE VELOCITY=       3.75      CALCULATED CHANNEL AREA=       565.

 FGPRS      ESLWC      HB        QWEIR      QPR       BAREA     TRAPEZOID     ELLC      ELTND
                                                                 AREA
    0.00     625.07     0.01        0.     2120.      670.      670.      627.80     629.10


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLBA=       629.10 ELREA=       629.10

        SECNO 6446 U/S FACE MIDDLEBELT FROM FIELD BOOK AND QUAD MAP

  6446.00     11.57    625.67     0.00     0.00    625.87     0.20     0.01     0.00    615.10
   2120.        0.     2120.       0.       0.     386.       0.     285.      57.    615.10
    0.82      0.00     3.62     0.00    0.120    0.033    0.120    0.034    615.10    132.07
0.000394       76.      76.      76.        0        0        0     0.00     55.46    187.53

CCHV=    0.300 CEHV=    0.500
*SECNO 6496.000

3471 ENCROACHMENT STATIONS=      147.6      298.0  TYPE=      1  TARGET=      160.000

        SECNO 6496 50' U/S MIDDLEBELT FROM FIELD BOOK AND TOPO MAP

  6496.00     10.60    625.73     0.00     0.00    625.89     0.19     0.02     0.00    618.60
   2120.      337.     3613.     173.      440.     402.     213.     286.      57.    615.20
    0.82      0.77     4.09     0.01    0.120    0.033    0.120    0.034    615.10    147.36
0.000409       50.      50.      50.        1        0        0     0.00    150.40    297.98

CCHV=    0.100 CEHV=    0.300
*SECNO 7796.000

        SECNO 7796 FROM FIELD BOOK AND TOPO MAP

  7796.00     11.36    626.28     0.00     0.00    626.37     0.09     0.46     0.01    617.00
   2120.       50.      893.     1135.      91.     257.     1605.     351.      62.    615.40
    1.01      0.66     5.56     0.73    0.100    0.033    0.120    0.034    614.90    14.36
0.000511     1300.     1300.     1300.        2        0        0     0.00    521.51    406.59

*SECNO 8096.000
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SECNO 8096 X

 8096.00    10.68   625.18     0.00     0.00   626.63     0.45     0.16     0.11   617.50
   2120.     361.    1503.     256.     363.     236.     299.     341.      66.   616.80
    1.02     0.99     5.37     0.85    0.100    0.035    0.120    0.034   615.50    45.26
0.001082     300.     300.     300.        2        0        0     0.00   264.67   309.76

CCHV=   0.100 CEHV=   0.300
*SECNO 8896.000

SECNO 8896 FROM FIELD BOOK AND TOPO MAP

 8896.00    10.22   627.12     0.00     0.00   627.52     0.40     0.88     0.60   617.10
   2120.     903.    1115.     102.     924.     160.      92.     358.      70.   617.60
    1.08     0.98     6.97     1.10    0.120    0.035    0.120    0.035   616.90   114.41
0.001257     650.     800.     850.        3        0        0     0.00   324.37   638.78

CCHV=   0.100 CEHV=   0.300
*SECNO 9546.000
  SECNO    DEPTH    CHSEL    CRIUS    ESELK    ES       HV       HL       BLOSS    BANK ELEV
  3        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      THA      LEFT/RIGHT
  TIME     VLOB     VCH      VROB     XNL      XNCH     XAR      WTA      ELAIN     SSTA
  SLOPE    XLOBL    XLCH     XLOOR    ITRIAL   IH2      ICONT    CORAR    TOPWID    ENDST

SECNO 9546 X

 9546.00    10.65   627.95     0.00     0.00   628.13     0.18     0.58     0.02   617.80
   2120.     782.     866.     472.     814.     166.     489.     377.      76.   618.00
    1.14     0.96     5.23     0.96    0.100    0.035    0.100    0.035   617.30    46.42
0.000675     650.     650.     650.        2        0        0     0.00   361.87   467.59

*SECNO 12076.000

SECNO 12076 FROM FIELD BOOK AND TOPO MAP

12076.00    10.73   629.63     0.00     0.00   629.72     0.09     1.53     0.01   625.90
   2120.    1069.     785.     296.    1221.     209.     394.     487.     101.   625.90
    1.49     0.86     3.75     0.73    0.100    0.035    0.100    0.035   618.90    35.71
0.000628    2350.    2530.    2350.        2        0        0     0.00   548.35   584.06

CCHV=   0.100 CEHV=   0.300
*SECNO 12826.000

SECNO 12826 FROM FIELD BOOK AND TOPO MAP

12826.00     8.41   630.11     0.00     0.00   630.57     0.46     0.77     0.11   624.20
   2120.     764.    1310.      47.     629.     491.      44.     489.     107.   623.40
    1.54     1.21     6.85     1.06    0.120    0.035    0.120    0.035   621.70   157.12
0.001849     750.     700.     800.        2        0        0     0.00   243.42   480.54

*SECNO 13975.000

BAYU ENCROACHMENT STATIONS=     655.2     730.8  TYPE=     3  [illegible]=     34.[illegible]

SECNO 13975 [illegible] FROM FIELD BOOK AND TOPO MAP
```

```
13976.00     8.66   632.26     0.00     0.00   632.80     0.54     2.28     0.03   623.70
   2120.      477.    1191.     452.     229.     155.     220.     505.     110.   623.70
    1.59     2.09     7.69     2.06    0.120    0.040    0.120    0.036   623.60   655.20
0.002430     800.    1150.    1150.        2        0        0     0.00    75.60   730.80

CCHV=   0.300 CEHV=   0.300
*SECNO 14026.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      634.30 ELREA=      634.30

        SECNO 14026 U/S FACE MERRIMAN FROM FIELD BOOK AND TOPO MAP

14026.00     8.97   632.57     0.00     0.00   632.94     0.36     0.09     0.05   623.60
   2120.       0.    2120.       0.       0.     431.       0.     506.     110.   625.30
    1.60     0.00     4.92     0.00    0.120    0.040    0.120    0.036   623.60   612.00
0.001341      50.      50.      50.        2        0        0     0.00    53.10   665.10

SPECIAL BRIDGE

SH   XK        KKOR      CCFQ      RDLEN     BUC       BUP       BAREA     SS        ELCHU     ELCHD
    0.90       2.15      5.00      0.00     53.68      2.27     393.60     0.00     624.40    624.40

*SECNO 14100.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        HLOSS     BANK ELEV
   [illegible]     QLOB      QCH       QROB      ALOB      ACH       AROB      VCL       TEA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       XTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPHID    ENDST

PRESSURE FLOW

 TGRMS      ECLMC      SS        QWEIR      OPR       SAREA     TRAPEZOID     ELLC      ELTRD
                                                                  AREA
  633.53    632.96     0.02        0.      2120.      394.       396.      632.10    636.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      636.60 ELREA=      636.60

        SECNO 14100 U/S FACE MERRIMAN FROM FIELD BOOK AND TOPO MAP

14100.00     7.61   633.21     0.00     0.00   633.53     0.32     0.53     0.00   623.60
   2120.       0.    2120.       0.       0.     465.       0.     507.     110.   625.30
    1.60     0.00     4.56     0.00    0.120    0.040    0.120    0.036   623.60   612.00
0.001053      74.      74.      74.        2        0        0     0.00    53.10   665.10

CCHV=   0.300 CEHV=   0.300
*SECNO 14150.000

3470 ENCROACHMENT STATIONS=      287.1      440.1  TYPE=      1  TARGET=      170.000

        SECNO 14150 50' U/S MERRIMAN FROM FIELD BOOK AND TOPO MAP

14150.00     7.53   633.28     0.00     0.00   633.65     0.42     0.06     0.05   624.50
   2120.      331.    1275.     394.     352.     197.     252.     307.     110.   624.50
    1.60     1.57     8.57     1.14    0.120    0.040    0.120    0.033   623.70   287.10
0.001[illegible]      50.      50.      50.        2        0        0     0.00   153.00   440.10
```

```
CCHV=   0.300 CEHV=   0.500
*SECNO 14660.000

3470 ENCROACHMENT STATIONS=      400.0     1110.0  TYPE=     1  TARGET=     710.000

        SECNO 14660 FROM FIELD BOOK AND TOPO MAP

 14660.00     10.72    633.92      0.00      0.00    633.95      0.05      0.19      0.12    623.40
    2120.     1342.      551.      227.     2447.      212.      450.      530.      115.    623.40
     1.74      0.55      2.39      0.50     0.100     0.035     0.100     0.036    623.20    400.03
 0.000160      510.      510.      510.         0         0         0      0.00    613.70   1013.75


CCHV=   0.100 CEHV=   0.300
*SECNO 16305.000

        SECNO 16305 FROM FIELD BOOK AND TOPO MAP

 16305.00     10.83    634.23      0.00      0.00    634.62      0.39      0.56      0.11    624.40
    2120.      256.     1303.      561.      229.      206.      634.      614.      132.    624.60
     1.85      1.12      6.34      0.89     0.120     0.035     0.120     0.035    623.40     41.54
 0.001004     1800.     1645.     1645.         3         0         0      0.00    261.47    303.01


CCHV=   0.100 CEHV=   0.300
*SECNO 17730.000

3470 ENCROACHMENT STATIONS=      358.0      461.0  TYPE=     1  TARGET=     903.000

        SECNO 17730 50' D/S HUBBARD FROM FIELD BOOK AND TOPO MAP

 17730.00      9.26    635.76      0.00      0.00    636.20      0.44      1.57      0.02    625.60
    2120.      345.     1454.      121.      214.      276.       87.      638.      137.    626.60
     1.92      1.60      5.98      1.39     0.100     0.040     0.100     0.036    623.50    358.02
 0.001344     1100.     1485.     1300.         2         0         0      0.00     89.28    647.28


CCHV=   0.300 CEHV=   0.500
*SECNO 17750.000
   SECNO     DEPTH     CWSEL     CRIWS     LSELK     EG        HV        NL        ULOSS     CAUR ELEV
   0         QLOB      QCH       QROB      ALOB      ACH       AROB      WOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       BTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     XTRIAL    IR2       ICONT     CORAR     TOPOID    ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      641.20 ELREA=      641.20


        SECNO 17780.D/S FACE HUBBARD FROM FIELD BOOK AND TOPO MAP

 17780.00      9.59    636.09      0.00      0.00    636.32      0.23      0.05      0.06    637.00
    2120.        0.      2120.        0.        0.      556.        0.      639.      137.    637.00
     1.93      0.00      3.02      0.00     0.120     0.035     0.100     0.036    626.50    428.30
 0.000672       50.       50.       50.         2         0         0      0.00     82.17    610.47


SPECIAL BRIDGE

SQ  NA        XKOR      COTC      ROLE      EQO       EWP       FAKES     SS        SLCHO     ELCHO
   1.25      1.24      0.00      0.00     35.00      7.00     [illegible]      1.20     [illegible]
```

*SECNO 17826.000
CLASS A LOW FLOW

| 3420 BRIDGE W.S.= | 636.07 | BRIDGE VELOCITY= | 4.00 | CALCULATED CHANNEL AREA= | 531. |
|---|---|---|---|---|---|

| FQPRS | FQLWC | KF | QWEIR | QPR | QAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 0.00 | 636.33 | 0.02 | 0. | 2120. | 867. | 867. | 640.00 | 642.30 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEN= 642.30 ELREA= 642.30

SECNO 17826 U/S FACE HUBBARD FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17826.00 | 9.61 | 636.11 | 0.00 | 0.00 | 636.33 | 0.23 | 0.02 | 0.00 | 637.00 |
| 2120. | 0. | 2120. | 0. | 0. | 557. | 0. | 649. | 138. | 637.00 |
| 1.93 | 0.00 | 3.81 | 0.00 | 0.100 | 0.035 | 0.100 | 0.036 | 626.50 | 420.26 |
| 0.000668 | 46. | 46. | 46. | 0 | 0 | 0 | 0.00 | 82.25 | 510.51 |

CCHV= 0.300 CEKV= 0.500
*SECNO 17876.000

3475 ENCROACHMENT STATIONS= 244.0 424.0 TYPE= 1 TARGET= 180.000

SECNO 17876 50' U/S HUBBARD FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17876.00 | 9.70 | 636.20 | 0.00 | 0.00 | 636.39 | 0.19 | 0.14 | 0.01 | 626.00 |
| 2120. | 1056. | 667. | 396. | 688. | 116. | 216. | 640. | 138. | 626.60 |
| 1.93 | 1.53 | 5.76 | 1.84 | 0.100 | 0.040 | 0.100 | 0.036 | 626.50 | 244.03 |
| 0.001170 | 50. | 55. | 50. | 2 | 0 | 0 | 0.00 | 172.15 | 416.15 |

CEKV= 0.500 CEHV= 0.350
*SECNO 18500.000

SECNO 18500 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18500.00 | 9.50 | 636.80 | 0.00 | 0.00 | 637.19 | 0.39 | 0.32 | 0.09 | 629.10 |
| 2120. | 935. | 1116. | 67. | 782. | 131. | 46. | 656. | 140. | 621.00 |
| 1.98 | 1.20 | 6.41 | 1.02 | 0.120 | 0.035 | 0.120 | 0.036 | 627.30 | 106.19 |
| 0.001287 | 540. | 524. | 624. | 2 | 0 | 0 | 0.00 | 217.50 | 323.69 |

CCHV= 0.100 CEHV= 0.350
*SECNO 20180.000

SECNO 20180 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20180.00 | 8.31 | 638.60 | 0.00 | 0.30 | 638.73 | 0.13 | 1.64 | 0.12 | 631.30 |
| 2120. | 1067. | 955. | 98. | 619. | 107. | 116. | 669. | 149. | 631.80 |
| 2.12 | 1.37 | 4.63 | 0.08 | 0.010 | 0.033 | 0.300 | 0.036 | 638.06 | 355.91 |
| 0.000881 | 1400. | 1660. | 1500. | 1 | 2 | 0 | 0.00 | 500.77 | 695.78 |

CLHV= 0.100 CEHV= 0.350
*SECNO 22030.000

3503 HW CRANED OUT STRAIN GAUGE

| SEQ | DEPTH | VELOC | QTOT | QPIER | EG | IW | ICASE | LEAKAGE |
|---|---|---|---|---|---|---|---|---|

| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
|---|---|---|---|---|---|---|---|---|---|
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IN2 | ICONT | CORAR | TOPWID | BUDST |

3470 ENCROACHMENT STATIONS= 299.3 379.3 TYPE= 1 TARGET= 0.000

SECNO 22010 50' D/S FARMINGTON FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22010.00 | 7.69 | 640.29 | 0.00 | 0.00 | 641.01 | 0.72 | 2.06 | 0.14 | 652.70 |
| 2120. | 135. | 1903. | 83. | 90. | 266. | 56. | 715. | 155. | 652.70 |
| 2.19 | 1.49 | 7.16 | 1.48 | 0.100 | 0.035 | 0.100 | 0.036 | 652.60 | 299.24 |
| 0.001888 | 1300. | 1830. | 1300. | 2 | 0 | 0 | 0.00 | 75.58 | 374.86 |

CONV= 0.300 CEHV= 0.500
*SECNO 22060.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEN= 651.90 ELKEN= 651.90

SECNO 22060 D/S FACE FARMINGTON FROM FIELD BOOK AND TOPO MAP SKEW LN.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22060.00 | 7.82 | 640.42 | 0.00 | 0.00 | 641.16 | 0.74 | 0.14 | 0.01 | 644.60 |
| 2120. | 0. | 2120. | 0. | 0. | 307. | 0. | 715. | 155. | 644.60 |
| 2.19 | 0.00 | 4.90 | 0.00 | 0.100 | 0.035 | 0.100 | 0.036 | 652.60 | 444.43 |
| 0.004816 | 50. | 50. | 50. | 2 | 0 | 0 | 5.00 | 54.63 | 500.31 |

SPECIAL BRIDGE

| BW | XK | XKOR | CURV | RADIUS | DNC | HWP | BARLA | CD | ELCHD | ELCHU |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.03 | 1.34 | 3.00 | 0.00 | 32.00 | 1.74 | 1044.00 | 1.46 | 652.60 | 652.60 |

*SECNO 22146.000

3265 DIVIDED FLOW

CLASS A LOW FLOW

3420 BRIDGE W.S.= 640.36 BRIDGE VELOCITY= 6.57 CALCULATED CHANNEL AREA= 323.

| ZGPRS | EGLWC | HS | QWEIR | QPR | QAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 0.00 | 641.23 | 0.09 | 0. | 2120. | 1044. | 1043. | 650.90 | 652.90 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEN= 652.90 ELKEN= 652.90

SECNO 22146 D/S FACE FARMINGTON RD. BRIDGE, SKEW BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22146.00 | 7.91 | 640.31 | 0.00 | 1.00 | 641.25 | 0.72 | 2.06 | 0.00 | 644.65 |
| 2120. | 0. | 2120. | 0. | 0. | 312. | 0. | 715. | 155. | 644.60 |
| 5.20 | 0.00 | 4.90 | 0.00 | 0.00 | 0.038 | 0.100 | 0.036 | 652.60 | 444.43 |
| 0.004824 | 50. | 50. | 50. | 0 | 0 | 0 | 5.00 | 54.94 | 500.96 |

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```
CCHV=   0.300 CEHV=   0.500
*SECNO 22196.000

3470 ENCROACHMENT STATIONS=      348.9      503.7  TYPE=      1  TARGET=      178.000

        SECNO 22196 50' U/S FARMINGTON FROM FIELD BOOK AND TOPO MAP

 22196.00      8.55    641.15      0.00      0.00    641.45      0.30      0.10      0.12    632.70
    2120.      476.     1514.      130.      324.      294.       92.      716.      155.    632.90
     2.20      1.47      5.15      1.41     0.100     0.040     0.100     0.036    632.60    348.87
 0.001116       50.       50.       50.         2         0         0      0.00    121.23    470.13

CCHV=   0.300 CEHV=   0.500
*SECNO 23296.000

        SECNO 23296 FROM FIELD BOOK AND TOPO MAP

 23296.00      9.16    642.16      0.00      0.00    642.31      0.16      0.82      0.04    633.10
    2120.      748.      923.      444.      749.      199.      501.      739.      160.    633.40
     2.31      1.00      4.67      0.39     0.100     0.035     0.100     0.037    633.00    102.68
 0.000644      700.     1100.     1100.         3         0         0      0.00    343.79    446.47

CCHV=   0.100 CEHV=   0.300
*SECNO 24096.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        BLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IL2       ICONT     CORAR     TOPWID      ENDST

        SECNO 24096 CONFLUENCE WITH BEITZ DRAIN FROM FIELD BOOK AND TOPO MAP

 24096.00      9.85    642.53      0.00      0.00    643.06      0.33      0.54      0.12    633.10
    2120.      244.     1475.      401.      183.      211.      447.      733.      364.    633.20
     2.35      1.33      6.98      0.86     0.100     0.035     0.100     0.037    632.70     67.33
 0.001323      600.      800.      600.         2         0         0      0.00    335.34    422.67

*SECNO 25668.000

        SECNO 25668 FROM FIELD BOOK AND TOPO MAP

 25668.00      9.96    644.36      0.00      0.00    644.63      0.27      1.54      0.03    635.60
    1740.      502.     1103.      435.      528.      213.      156.      736.      174.    634.40
     2.67      0.95      5.19      0.65     0.100     0.033     0.100     0.037    634.40     99.49
 0.000729     1700.     1572.     1300.         2         0         0      0.00    231.53    331.02

*SECNO 26728.000

        SECNO 26728 FROM FIELD BOOK AND TOPO MAP

 26728.00      9.65    645.05      0.00      0.00    645.13      0.06      0.46      0.02    636.10
    1740.       43.      502.     1295.       57.      160.     1295.      639.      179.    635.50
     2.60      0.75      3.76      0.05     0.100     0.035     0.100     0.037    635.40     35.68
 0.000394      200.     1060.      600.         2         0         0      0.00    302.05    337.73

*SECNO 26628.000

        SECNO 26628 CONFLUENCE WITH TRIBUTARY #1 FROM FIELD BOOK AND TOPO MAP
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28628.00 | 6.19 | 646.39 | 0.00 | 0.00 | 646.65 | 0.29 | 1.49 | 0.06 | 638.90 |
| 1743. | 213. | 720. | 810. | 164. | 111. | 666. | 895. | 193. | 643.60 |
| 2.74 | 2.02 | 6.50 | 1.22 | 0.100 | 0.035 | 0.100 | 0.037 | 656.20 | 355.74 |
| 0.002114 | 1600. | 1900. | 2000. | 2 | 0 | 0 | 0.00 | 326.27 | 661.99 |

CCHV= 0.100 CEHV= 0.300
*SECNO 29488.000

SECNO 29488 FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 29488.00 | 5.83 | 648.63 | 0.00 | 0.00 | 645.91 | 0.27 | 2.22 | 0.00 | 641.80 |
| 1100. | 198. | 343. | 559. | 164. | 47. | 386. | 881. | 200. | 641.90 |
| 2.85 | 1.21 | 7.22 | 1.45 | 0.100 | 0.035 | 0.100 | 0.036 | 641.80 | 368.14 |
| 0.002255 | 1500. | 860. | 1000. | 3 | 0 | 0 | 0.00 | 238.31 | 606.46 |

CCHV= 0.300 CEHV= 0.500
*SECNO 30818.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | MTI | ELPIM | SSTA |
| SLOPE | KLOBL | KLCH | KLOBR | ITRIAL | IN2 | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 288.0 329.0 TYPE= 1 TARGET= 41.000

SECNO 30818 90' D/S ELLEN RD. FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30818.30 | 7.54 | 650.74 | 0.00 | 0.00 | 651.16 | 0.42 | 2.16 | 0.07 | 643.30 |
| 850. | 94. | 694. | 92. | 65. | 120. | 65. | 897. | 206. | 643.30 |
| 2.93 | 1.44 | 5.79 | 1.42 | 0.080 | 0.030 | 0.080 | 0.036 | 643.20 | 288.00 |
| 0.002752 | 1100. | 1350. | 2000. | 3 | 0 | 0 | 0.00 | 31.00 | 329.00 |

*SECNO 30866.700

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 651.20 ELREA= 651.20

SECNO 30868 D/S FACE ELLEN RD. FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30868.00 | 7.38 | 650.58 | 0.00 | 0.00 | 651.47 | 0.89 | 3.08 | 0.24 | 645.20 |
| 880. | 0. | 880. | 0. | 0. | 116. | 0. | 897. | 206. | 643.20 |
| 2.93 | 0.00 | 7.58 | 0.00 | 0.080 | 0.030 | 0.080 | 0.036 | 643.20 | 324.00 |
| 0.002816 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 18.00 | 306.00 |

SPECIAL BRIDGE

| SK | KQ | XKOR | COPT | ROLEX | BWC | PAP | SAREA | BS | FLCHO | CLCHO |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.50 | 2.90 | 3.33 | 0.53 | 15.00 | 0.00 | 99.00 | 0.00 | 796.90 | 344.90 |

*SECNO 30921.000
PRESSURE FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 838.30 | 832.90 | 0.00 | 24 | 886. | 1054. | 666. | 668.25 | 643.60 | |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 653.20 ELREA= 653.20

SECND 30921.00 FACE ELLEN FROM FIELD BOOK AND TOPO MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30921.30 | 9.38 | 652.58 | 0.00 | 3.00 | 653.13 | 0.55 | 1.66 | 0.00 | 645.20 |
| 880. | 0. | 880. | 0. | 0. | 148. | 0. | 897. | 206. | 645.20 |
| 2.94 | 0.00 | 5.94 | 0.00 | 0.000 | 0.030 | 0.080 | 0.026 | 643.20 | 322.00 |
| 3.001390 | 93. | 93. | 53. | 2 | 0 | 0 | 0.00 | 10.00 | 338.00 |

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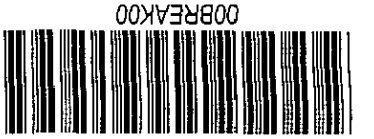
1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Bell Branch

4) DOCUMENT TYPE: Summary



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**************************************************
  RECP RELEASE DATED NOV 76 UPDATED AUG1977
  ERROR CORR =  01,02
  MODIFICATION =  50,51,52,53
**************************************************

C
T1 BELL BRANCH FIS HUD 2014 07 LIVONIA CITY FROM CORP. BOUND. TO ELLEN RD.
T2 Q 10YR=1650 50YR=2900 100YR=3600 500YR=5500 AT CORP. BOUND.
T3       BELL BRANCH LIVONIA CITY
```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FN |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1. | 2. | 0. | 0. | 0.0 | 0.0 | 0.0 | 0. | 616.700 | 0.0 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLOC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 0.0 | -1.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 150.000 | 201.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

J5 LPRNT NUMSEC ********REQUESTED SECTION NUMBERS********

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| -10.000 | -10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.400 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| QT | 5.000 | 1650.000 | 2900.000 | 3600.000 | 3600.000 | 5500.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| XC | 0.070 | 0.070 | 0.035 | 0.600 | 0.600 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 0 FROM REDFORD FIS. 50' D/S INKSTER

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 0.0 | 11.000 | 30.000 | 65.010 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 632.000 | 0.0 | 615.000 | 30.000 | 612.000 | 40.000 | 608.000 | 45.000 | 606.000 | 50.000 |
| GR | 605.100 | 60.000 | 608.000 | 65.000 | 613.500 | 65.010 | 613.500 | 75.000 | 629.000 | 330.000 |
| GR | 630.000 | 620.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| XC | 0.0 | 0.0 | 0.035 | 0.400 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 50 D/S FACE INKSTER FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 50.000 | 21.000 | 294.000 | 375.500 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 220.000 | 0.0 | 420.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 624.000 | 0.0 | 622.000 | 180.000 | 616.000 | 294.000 | 616.000 | 294.100 | 616.000 | 299.000 |
| GR | 607.600 | 318.000 | 607.600 | 318.100 | 607.600 | 320.000 | 607.600 | 320.100 | 607.600 | 326.000 |
| GR | 604.100 | 327.000 | 604.000 | 335.000 | 604.100 | 351.000 | 607.600 | 351.100 | 607.600 | 353.000 |
| GR | 607.600 | 353.100 | 616.000 | 372.000 | 616.000 | 375.500 | 616.000 | 375.600 | 622.000 | 470.000 |
| GR | 624.000 | 500.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SH | 1.257 | 1.710 | 3.000 | 0.0 | 35.000 | 4.000 | 750.000 | 1.130 | 604.000 | 604.000 |

SECNO 120 D/S FACE INKSTER FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 120.000 | 0.0 | 0.0 | 0.0 | 70.000 | 70.000 | 70.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 1.000 | 61.250 | 420.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 220.000 | 0.0 | 420.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GT | 15.000 | 0.0 | 624.000 | 0.0 | 180.000 | 622.000 | 0.0 | 294.000 | 620.400 | 616.000 |
| GT | 294.100 | 323.000 | 619.200 | 318.000 | 323.600 | 619.200 | 318.100 | 623.600 | 607.600 | 320.000 |

**********
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BELL BRANCH LIVONIA CITY

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRITWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 605.10 | 1650.00 | 616.70 | 0.0 | 617.12 | 13.96 | 5.44 | 395.05 | 441.69 |
| 0.0 | 0.0 | 0.0 | 0.0 | 605.10 | 2900.00 | 619.20 | 0.0 | 619.72 | 13.36 | 6.39 | 703.59 | 793.47 |
| 0.0 | 0.0 | 0.0 | 0.0 | 605.10 | 3600.00 | 620.50 | 0.0 | 621.01 | 12.05 | 6.57 | 909.03 | 1035.61 |
| 0.0 | 0.0 | 0.0 | 0.0 | 605.10 | 5500.00 | 624.00 | 0.0 | 624.42 | 8.18 | 6.44 | 1615.14 | 1923.06 |
| 50.000 | 50.00 | 0.0 | 0.0 | 604.00 | 1650.00 | 617.14 | 0.0 | 617.24 | 2.83 | 2.59 | 657.47 | 979.96 |
| 50.000 | 50.00 | 0.0 | 0.0 | 604.00 | 2900.00 | 619.69 | 0.0 | 619.85 | 3.08 | 3.27 | 1075.99 | 1653.59 |
| 50.000 | 50.00 | 0.0 | 0.0 | 604.00 | 3600.00 | 620.67 | 0.0 | 621.14 | 2.97 | 3.47 | 1330.90 | 2088.98 |
| 50.000 | 50.00 | 0.0 | 0.0 | 604.00 | 5500.00 | 624.32 | 0.0 | 624.51 | 2.50 | 3.76 | 2001.26 | 3477.01 |
| 120.000 | 70.00 | 620.40 | 619.20 | 604.00 | 1650.00 | 617.15 | 0.0 | 617.26 | 2.82 | 2.58 | 659.25 | 983.15 |
| 120.000 | 70.00 | 620.40 | 619.20 | 604.00 | 2900.00 | 619.94 | 0.0 | 620.09 | 2.80 | 3.17 | 1125.26 | 1732.53 |
| 120.000 | 70.00 | 620.40 | 619.20 | 604.00 | 3600.00 | 621.29 | 0.0 | 621.45 | 2.66 | 3.35 | 1394.21 | 2205.81 |
| 120.000 | 70.00 | 620.40 | 619.20 | 604.00 | 5500.00 | 624.40 | 0.0 | 624.52 | 2.45 | 3.75 | 2016.62 | 3512.45 |
| 170.000 | 50.00 | 0.0 | 0.0 | 604.10 | 1650.00 | 617.11 | 0.0 | 617.33 | 3.71 | 4.51 | 910.78 | 856.60 |
| 170.000 | 50.00 | 0.0 | 0.0 | 604.10 | 2900.00 | 619.69 | 0.0 | 620.16 | 4.19 | 5.46 | 1472.71 | 1416.05 |
| 170.000 | 50.00 | 0.0 | 0.0 | 604.10 | 3600.00 | 621.23 | 0.0 | 621.53 | 4.28 | 5.83 | 1757.22 | 1740.36 |
| 170.000 | 50.00 | 0.0 | 0.0 | 604.10 | 5500.00 | 624.34 | 0.0 | 624.68 | 4.41 | 6.61 | 2451.19 | 2620.44 |
| 640.000 | 470.00 | 0.0 | 0.0 | 606.00 | 1650.00 | 617.28 | 0.0 | 617.71 | 13.16 | 6.22 | 532.99 | 454.81 |
| 640.000 | 470.00 | 0.0 | 0.0 | 606.00 | 2900.00 | 620.15 | 0.0 | 620.55 | 9.56 | 6.40 | 1289.61 | 938.09 |
| 640.000 | 470.00 | 0.0 | 0.0 | 606.00 | 3600.00 | 621.51 | 0.0 | 621.83 | 7.45 | 6.09 | 1764.89 | 1318.58 |
| 640.000 | 470.00 | 0.0 | 0.0 | 606.00 | 5500.00 | 624.74 | 0.0 | 624.96 | 4.77 | 5.65 | 3034.14 | 2517.74 |
| 1950.000 | 1310.00 | 0.0 | 0.0 | 605.00 | 1650.00 | 617.52 | 0.0 | 617.62 | 3.53 | 3.61 | 1366.67 | 876.73 |
| 1950.000 | 1310.00 | 0.0 | 0.0 | 605.00 | 2900.00 | 621.09 | 0.0 | 621.16 | 2.52 | 3.56 | 2379.99 | 1627.50 |
| 1950.000 | 1310.00 | 0.0 | 0.0 | 605.00 | 3600.00 | 622.29 | 0.0 | 622.36 | 2.26 | 3.60 | 2865.10 | 2385.80 |
| 1950.000 | 1310.00 | 0.0 | 0.0 | 605.00 | 5500.00 | 625.26 | 0.0 | 625.34 | 1.82 | 3.68 | 4133.57 | 4078.60 |
| 2750.000 | 800.00 | 0.0 | 0.0 | 609.50 | 1650.00 | 618.79 | 0.0 | 619.19 | 11.61 | 5.87 | 651.91 | 484.22 |
| 2750.000 | 800.00 | 0.0 | 0.0 | 609.50 | 2900.00 | 621.30 | 0.0 | 621.51 | 6.46 | 5.23 | 1569.60 | 1140.56 |
| 2750.000 | 800.00 | 0.0 | 0.0 | 609.50 | 3600.00 | 622.46 | 0.0 | 622.65 | 5.19 | 5.02 | 2045.55 | 1580.06 |
| 2750.000 | 800.00 | 0.0 | 0.0 | 609.50 | 5500.00 | 625.43 | 0.0 | 625.56 | 3.32 | 4.65 | 3338.09 | 3018.89 |
| 3950.000 | 1200.00 | 0.0 | 0.0 | 611.50 | 1650.00 | 620.76 | 0.0 | 620.81 | 15.33 | 3.82 | 1184.05 | 421.41 |
| 3950.000 | 1200.00 | 0.0 | 0.0 | 611.50 | 2900.00 | 622.35 | 0.0 | 622.39 | 8.02 | 3.54 | 2151.97 | 1024.24 |
| 3950.000 | 1200.00 | 0.0 | 0.0 | 611.50 | 3600.00 | 623.29 | 0.0 | 623.33 | 5.83 | 3.38 | 2744.27 | 1490.88 |
| 3950.000 | 1200.00 | 0.0 | 0.0 | 611.50 | 5501.00 | 625.91 | 0.0 | 625.94 | 2.98 | 3.07 | 4465.59 | 3187.16 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4520.000 | 570.00 | 0.0 | 0.0 | 615.00 | 1110.00 | 621.52 | 0.0 | 621.91 | 20.14 | 5.88 | 508.58 | 247.32 |
| 2 | 4520.000 | 570.00 | 0.0 | 0.0 | 615.00 | 1720.00 | 622.75 | 0.0 | 623.08 | 16.50 | 6.06 | 853.13 | 423.42 |
| 3 | 4520.000 | 570.00 | 0.0 | 0.0 | 615.00 | 2120.00 | 623.61 | 0.0 | 623.84 | 13.27 | 5.86 | 1139.03 | 582.04 |
| 4 | 4520.000 | 570.00 | 0.0 | 0.0 | 615.00 | 3120.00 | 626.08 | 0.0 | 626.16 | 5.17 | 4.42 | 2256.81 | 1371.93 |
| 5 | | | | | | | | | | | | | |
| 6 | 5050.000 | 530.00 | 0.0 | 0.0 | 615.00 | 1110.00 | 622.48 | 0.0 | 622.61 | 9.02 | 4.88 | 868.45 | 369.56 |
| 7 | 5050.000 | 530.00 | 0.0 | 0.0 | 615.00 | 1720.00 | 623.33 | 0.0 | 623.71 | 8.69 | 5.24 | 1214.68 | 583.61 |
| 8 | 5050.000 | 530.00 | 0.0 | 0.0 | 615.00 | 2120.00 | 624.27 | 0.0 | 624.39 | 8.14 | 5.35 | 1442.74 | 743.26 |
| 9 | 5050.000 | 530.00 | 0.0 | 0.0 | 615.00 | 3120.00 | 626.36 | 0.0 | 626.45 | 5.41 | 4.99 | 2177.82 | 1340.84 |
| 10 | | | | | | | | | | | | | |
| 11 | 5520.000 | 470.00 | 0.0 | 0.0 | 615.00 | 1110.00 | 622.87 | 0.0 | 622.97 | 6.08 | 3.25 | 686.52 | 450.19 |
| 12 | 5520.000 | 470.00 | 0.0 | 0.0 | 615.00 | 1720.00 | 623.95 | 0.0 | 624.06 | 6.73 | 3.84 | 916.88 | 663.22 |
| 13 | 5520.000 | 470.00 | 0.0 | 0.0 | 615.00 | 2120.00 | 624.62 | 0.0 | 624.76 | 6.74 | 4.09 | 1068.66 | 816.58 |
| 14 | 5520.000 | 470.00 | 0.0 | 0.0 | 615.00 | 3120.00 | 626.59 | 0.0 | 626.73 | 5.21 | 4.21 | 1546.32 | 1367.21 |
| 15 | | | | | | | | | | | | | |
| 16 | 6100.000 | 580.00 | 0.0 | 0.0 | 616.50 | 1110.00 | 623.27 | 0.0 | 623.38 | 8.04 | 3.39 | 610.54 | 391.53 |
| 17 | 6100.000 | 580.00 | 0.0 | 0.0 | 616.50 | 1720.00 | 624.37 | 0.0 | 624.52 | 8.42 | 3.98 | 811.38 | 592.69 |
| 18 | 6100.000 | 580.00 | 0.0 | 0.0 | 616.50 | 2120.00 | 625.04 | 0.0 | 625.21 | 8.47 | 4.27 | 931.33 | 728.32 |
| 19 | 6100.000 | 580.00 | 0.0 | 0.0 | 616.50 | 3120.00 | 626.92 | 0.0 | 627.11 | 7.21 | 4.64 | 1265.79 | 1161.56 |
| 20 | | | | | | | | | | | | | |
| 21 | 6320.000 | 220.00 | 0.0 | 0.0 | 616.00 | 1110.00 | 623.37 | 0.0 | 623.60 | 9.34 | 4.68 | 376.20 | 363.23 |
| 22 | 6320.000 | 220.00 | 0.0 | 0.0 | 616.00 | 1720.00 | 624.43 | 0.0 | 624.93 | 13.68 | 6.24 | 445.89 | 465.02 |
| 23 | 6320.000 | 220.00 | 0.0 | 0.0 | 616.00 | 2120.00 | 625.06 | 0.0 | 625.70 | 16.00 | 7.10 | 488.05 | 529.93 |
| 24 | 6320.000 | 220.00 | 0.0 | 0.0 | 616.00 | 3120.00 | 626.79 | 0.0 | 627.72 | 18.34 | 8.59 | 609.18 | 728.53 |
| 25 | | | | | | | | | | | | | |
| 26 | 6370.000 | 50.00 | 0.0 | 0.0 | 615.10 | 1110.00 | 623.65 | 0.0 | 623.74 | 2.10 | 2.34 | 474.23 | 765.69 |
| 27 | 6370.000 | 50.00 | 0.0 | 0.0 | 615.10 | 1720.00 | 624.91 | 0.0 | 625.06 | 3.26 | 3.16 | 543.91 | 950.07 |
| 28 | 6370.000 | 50.00 | 0.0 | 0.0 | 615.10 | 2120.00 | 625.66 | 0.0 | 625.86 | 3.95 | 3.62 | 585.78 | 1066.86 |
| 29 | 6370.000 | 50.00 | 0.0 | 0.0 | 615.10 | 3120.00 | 627.65 | 0.0 | 627.95 | 5.03 | 4.49 | 695.24 | 1391.78 |
| 30 | | | | | | | | | | | | | |
| 31 | 6446.000 | 76.00 | 629.10 | 627.60 | 615.10 | 1110.00 | 623.65 | 0.0 | 623.74 | 2.10 | 2.34 | 474.32 | 766.11 |
| 32 | 6446.000 | 76.00 | 629.10 | 627.60 | 615.10 | 1720.00 | 624.91 | 0.0 | 625.07 | 3.27 | 3.16 | 544.13 | 950.68 |
| 33 | 6446.000 | 76.00 | 629.10 | 627.60 | 615.10 | 2120.00 | 625.67 | 0.0 | 625.87 | 3.94 | 3.62 | 586.08 | 1067.70 |
| 34 | 6446.000 | 76.00 | 629.10 | 627.60 | 615.10 | 3120.00 | 628.03 | 0.0 | 628.32 | 4.57 | 4.35 | 717.12 | 1459.88 |
| 35 | | | | | | | | | | | | | |
| 36 | 6496.000 | 50.00 | 0.0 | 0.0 | 615.10 | 1110.00 | 623.66 | 0.0 | 623.75 | 2.68 | 2.60 | 749.29 | 678.33 |
| 37 | 6496.000 | 50.00 | 0.0 | 0.0 | 615.10 | 1720.00 | 624.93 | 0.0 | 625.08 | 3.65 | 3.59 | 939.49 | 900.27 |
| 38 | 6496.000 | 50.00 | 0.0 | 0.0 | 615.10 | 2120.00 | 625.70 | 0.0 | 625.89 | 4.09 | 4.01 | 1054.84 | 1047.71 |
| 39 | 6496.000 | 50.00 | 0.0 | 0.0 | 615.10 | 3120.00 | 628.15 | 0.0 | 628.36 | 3.92 | 4.52 | 1421.38 | 1575.70 |
| 40 | | | | | | | | | | | | | |
| 41 | 7796.000 | 1300.00 | 0.0 | 0.0 | 614.90 | 1110.00 | 624.05 | 0.0 | 624.11 | 2.78 | 2.67 | 1252.30 | 665.57 |
| 42 | 7796.000 | 1300.00 | 0.0 | 0.0 | 614.90 | 1720.00 | 625.44 | 0.0 | 625.53 | 3.06 | 3.34 | 1682.05 | 983.14 |
| 43 | 7796.000 | 1300.00 | 0.0 | 0.0 | 614.90 | 2120.00 | 626.28 | 0.0 | 626.37 | 3.11 | 3.56 | 1947.11 | 1202.08 |
| 44 | 7796.000 | 1300.00 | 0.0 | 0.0 | 614.90 | 3120.00 | 628.70 | 0.0 | 628.79 | 2.56 | 3.71 | 2749.40 | 1949.48 |
| 45 | | | | | | | | | | | | | |
| 46 | 8096.000 | 300.00 | 0.0 | 0.0 | 615.50 | 1110.00 | 623.96 | 0.0 | 624.36 | 11.03 | 5.42 | 367.75 | 334.25 |
| 47 | 8096.000 | 300.00 | 0.0 | 0.0 | 615.50 | 1720.00 | 625.33 | 0.0 | 625.81 | 11.83 | 6.27 | 675.30 | 500.16 |
| 48 | 8096.000 | 300.00 | 0.0 | 0.0 | 615.50 | 2120.00 | 626.10 | 0.0 | 626.53 | 10.83 | 6.37 | 898.56 | 644.24 |
| 49 | 8096.000 | 300.00 | 0.0 | 0.0 | 615.50 | 3120.00 | 628.66 | 0.0 | 628.97 | 6.87 | 5.90 | 1578.73 | 1190.45 |
| 50 | | | | | | | | | | | | | |
| 51 | 8896.000 | 800.00 | 0.0 | 0.0 | 616.90 | 1110.00 | 624.81 | 0.0 | 625.30 | 17.66 | 7.00 | 480.28 | 268.15 |
| 52 | 8896.000 | 800.00 | 0.0 | 0.0 | 616.90 | 1720.00 | 626.34 | 0.0 | 626.79 | 14.01 | 6.97 | 924.88 | 459.60 |
| 53 | 8896.000 | 800.00 | 0.0 | 0.0 | 616.90 | 2120.00 | 627.12 | 0.0 | 627.52 | 12.57 | 6.97 | 1176.05 | 597.91 |
| 54 | 8896.000 | 800.00 | 0.0 | 0.0 | 616.90 | 3120.00 | 629.26 | 0.0 | 629.54 | 8.39 | 6.49 | 1891.43 | 1077.19 |
| 55 | | | | | | | | | | | | | |
| 56 | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9546.000 | 650.00 | 0.0 | 0.0 | 617.30 | 1110.00 | 626.04 | 0.0 | 626.25 | 7.45 | 4.79 | 805.80 | 406.74 |
| 9546.000 | 650.00 | 0.0 | 0.0 | 617.30 | 1720.00 | 627.26 | 0.0 | 627.45 | 7.02 | 5.09 | 1222.70 | 649.40 |
| 9546.000 | 650.00 | 0.0 | 0.0 | 617.30 | 2120.00 | 627.93 | 0.0 | 628.13 | 6.76 | 5.23 | 1469.02 | 815.34 |
| 9546.000 | 650.00 | 0.0 | 0.0 | 617.30 | 3120.00 | 629.85 | 0.0 | 629.98 | 5.22 | 5.14 | 2174.64 | 1365.70 |
| 12076.000 | 2530.00 | 0.0 | 0.0 | 618.90 | 1110.00 | 628.01 | 0.0 | 628.11 | 7.64 | 3.52 | 997.64 | 401.46 |
| 12076.000 | 2530.00 | 0.0 | 0.0 | 618.90 | 1720.00 | 629.03 | 0.0 | 629.12 | 6.71 | 3.67 | 1509.46 | 663.79 |
| 12076.000 | 2530.00 | 0.0 | 0.0 | 618.90 | 2120.00 | 629.63 | 0.0 | 629.72 | 6.28 | 3.75 | 1824.45 | 846.22 |
| 12076.000 | 2530.00 | 0.0 | 0.0 | 618.90 | 3120.00 | 631.11 | 0.0 | 631.18 | 4.76 | 3.69 | 2675.43 | 1426.71 |
| 12826.000 | 750.00 | 0.0 | 0.0 | 621.70 | 1110.00 | 628.63 | 0.0 | 628.93 | 14.49 | 5.22 | 533.06 | 291.58 |
| 12826.000 | 750.00 | 0.0 | 0.0 | 621.70 | 1720.00 | 629.56 | 0.0 | 629.97 | 17.43 | 6.32 | 735.80 | 411.93 |
| 12826.000 | 750.00 | 0.0 | 0.0 | 621.70 | 2120.00 | 630.11 | 0.0 | 630.57 | 18.50 | 6.85 | 863.67 | 492.92 |
| 12826.000 | 750.00 | 0.0 | 0.0 | 621.70 | 3120.00 | 631.43 | 0.0 | 631.93 | 18.18 | 7.58 | 1211.93 | 731.73 |
| 13976.000 | 1150.00 | 0.0 | 0.0 | 623.60 | 1110.00 | 630.30 | 0.0 | 630.56 | 15.95 | 5.24 | 455.42 | 277.94 |
| 13976.000 | 1150.00 | 0.0 | 0.0 | 623.60 | 1720.00 | 631.57 | 0.0 | 632.00 | 21.16 | 6.79 | 551.36 | 373.93 |
| 13976.000 | 1150.00 | 0.0 | 0.0 | 623.60 | 2120.00 | 632.26 | 0.0 | 632.80 | 24.31 | 7.69 | 603.28 | 429.99 |
| 13976.000 | 1150.00 | 0.0 | 0.0 | 623.60 | 3120.00 | 633.62 | 0.0 | 634.50 | 32.24 | 9.77 | 706.57 | 549.47 |
| 14026.000 | 50.00 | 0.0 | 0.0 | 623.60 | 1110.00 | 630.45 | 0.0 | 630.64 | 9.64 | 3.49 | 316.12 | 357.51 |
| 14026.000 | 50.00 | 0.0 | 0.0 | 623.60 | 1720.00 | 631.81 | 0.0 | 632.11 | 12.04 | 4.40 | 390.53 | 495.77 |
| 14026.000 | 50.00 | 0.0 | 0.0 | 623.60 | 2120.00 | 632.57 | 0.0 | 632.94 | 13.41 | 4.92 | 430.66 | 578.85 |
| 14026.000 | 50.00 | 0.0 | 0.0 | 623.60 | 3120.00 | 634.13 | 0.0 | 634.70 | 16.66 | 6.07 | 513.87 | 764.32 |
| 14100.000 | 74.00 | 636.60 | 632.10 | 623.60 | 1110.00 | 630.46 | 0.0 | 630.64 | 9.60 | 3.48 | 318.58 | 358.34 |
| 14100.000 | 74.00 | 636.60 | 632.10 | 623.60 | 1720.00 | 632.17 | 0.0 | 632.45 | 10.33 | 4.20 | 409.83 | 535.18 |
| 14100.000 | 74.00 | 636.60 | 632.10 | 623.60 | 2120.00 | 633.21 | 0.0 | 633.53 | 10.53 | 4.56 | 464.94 | 653.18 |
| 14100.000 | 74.00 | 636.60 | 632.10 | 623.60 | 3120.00 | 635.81 | 0.0 | 636.23 | 10.11 | 5.17 | 603.13 | 981.11 |
| 14150.000 | 50.00 | 0.0 | 0.0 | 623.70 | 1110.00 | 630.36 | 0.0 | 630.57 | 25.18 | 6.33 | 370.34 | 221.22 |
| 14150.000 | 50.00 | 0.0 | 0.0 | 623.70 | 1720.00 | 632.16 | 0.0 | 632.50 | 18.96 | 6.49 | 642.52 | 394.97 |
| 14150.000 | 50.00 | 0.0 | 0.0 | 623.70 | 2120.00 | 633.23 | 0.0 | 633.55 | 16.44 | 6.57 | 805.92 | 522.92 |
| 14150.000 | 50.00 | 0.0 | 0.0 | 623.70 | 3120.00 | 635.91 | 0.0 | 636.29 | 11.77 | 6.60 | 1216.75 | 909.55 |
| 14660.000 | 510.00 | 0.0 | 0.0 | 623.20 | 1110.00 | 631.27 | 0.0 | 631.33 | 2.92 | 2.89 | 1630.07 | 649.49 |
| 14660.000 | 510.00 | 0.0 | 0.0 | 623.20 | 1720.00 | 632.50 | 0.0 | 632.93 | 1.72 | 2.51 | 2790.32 | 1312.84 |
| 14660.000 | 510.00 | 0.0 | 0.0 | 623.20 | 2120.00 | 633.21 | 0.0 | 633.93 | 1.35 | 2.38 | 3508.16 | 1826.43 |
| 14660.000 | 510.00 | 0.0 | 0.0 | 623.20 | 3120.00 | 635.43 | 0.0 | 636.51 | 0.61 | 2.14 | 5358.59 | 3461.59 |
| 16305.000 | 1645.00 | 0.0 | 0.0 | 623.40 | 1110.00 | 631.89 | 0.0 | 632.31 | 11.45 | 5.70 | 479.35 | 328.02 |
| 16305.000 | 1645.00 | 0.0 | 0.0 | 623.40 | 1720.00 | 633.22 | 0.0 | 633.66 | 11.72 | 6.39 | 808.74 | 502.39 |
| 16305.000 | 1645.00 | 0.0 | 0.0 | 623.40 | 2120.00 | 634.14 | 0.0 | 634.55 | 10.54 | 6.45 | 1044.53 | 652.87 |
| 16305.000 | 1645.00 | 0.0 | 0.0 | 623.40 | 3120.00 | 636.50 | 0.0 | 636.90 | 7.15 | 6.14 | 1712.16 | 1166.63 |
| 17730.000 | 1425.00 | 0.0 | 0.0 | 626.50 | 1110.00 | 633.57 | 0.0 | 633.82 | 10.30 | 4.37 | 391.02 | 345.81 |
| 17730.000 | 1425.00 | 0.0 | 0.0 | 626.50 | 1720.00 | 634.95 | 0.0 | 635.32 | 12.50 | 5.43 | 508.48 | 486.57 |
| 17730.000 | 1425.00 | 0.0 | 0.0 | 626.50 | 2120.00 | 635.73 | 0.0 | 636.18 | 13.60 | 6.01 | 576.98 | 574.78 |
| 17730.000 | 1425.00 | 0.0 | 0.0 | 626.50 | 3120.00 | 638.72 | 0.0 | 639.30 | 14.15 | 6.98 | 760.58 | 829.37 |
| 17780.000 | 50.00 | 0.0 | 0.0 | 626.50 | 1110.00 | 633.78 | 0.0 | 633.89 | 5.34 | 2.94 | 378.10 | 480.15 |
| 17780.000 | 50.00 | 0.0 | 0.0 | 626.50 | 1720.00 | 635.22 | 0.0 | 635.42 | 6.38 | 3.54 | 486.42 | 680.82 |
| 17780.000 | 50.00 | 0.0 | 0.0 | 626.50 | 2120.00 | 636.06 | 0.0 | 636.29 | 6.80 | 3.83 | 553.39 | 813.22 |
| 17780.000 | 50.00 | 0.0 | 0.0 | 626.50 | 3120.00 | 638.16 | 0.0 | 638.44 | 6.34 | 4.25 | 733.42 | 1238.90 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17826.000 | 46.00 | 642.30 | 640.00 | 626.50 | 1110.00 | 633.77 | 0.0 | 633.90 | 5.32 | 2.93 | 378.80 | 481.39 |
| 2 | 17826.000 | 46.00 | 642.30 | 640.00 | 626.50 | 1720.00 | 635.24 | 0.0 | 635.43 | 6.34 | 3.53 | 487.52 | 682.94 |
| 3 | 17826.000 | 46.00 | 642.30 | 640.00 | 626.50 | 2120.00 | 636.06 | 0.0 | 636.31 | 6.75 | 3.82 | 554.75 | 815.97 |
| 4 | 17826.000 | 46.00 | 642.30 | 640.00 | 626.50 | 3120.00 | 638.18 | 0.0 | 638.46 | 6.30 | 4.24 | 735.07 | 1243.39 |
| 5 | | | | | | | | | | | | | |
| 6 | 17876.000 | 50.00 | 0.0 | 0.0 | 626.50 | 1110.00 | 633.74 | 0.0 | 633.97 | 13.56 | 5.12 | 612.05 | 301.41 |
| 7 | 17876.000 | 50.00 | 0.0 | 0.0 | 626.50 | 1720.00 | 635.29 | 0.0 | 635.48 | 12.41 | 5.55 | 865.20 | 488.23 |
| 8 | 17876.000 | 50.00 | 0.0 | 0.0 | 626.50 | 2120.00 | 636.17 | 0.0 | 636.36 | 11.86 | 5.79 | 1015.47 | 615.59 |
| 9 | 17876.000 | 50.00 | 0.0 | 0.0 | 626.50 | 3120.00 | 638.32 | 0.0 | 638.52 | 10.15 | 6.12 | 1390.38 | 979.45 |
| 10 | | | | | | | | | | | | | |
| 11 | 18500.000 | 624.00 | 0.0 | 0.0 | 627.30 | 1110.00 | 634.53 | 0.0 | 634.90 | 16.01 | 5.84 | 544.61 | 277.42 |
| 12 | 18500.000 | 624.00 | 0.0 | 0.0 | 627.30 | 1720.00 | 635.95 | 0.0 | 636.30 | 14.01 | 6.24 | 838.94 | 459.46 |
| 13 | 18500.000 | 624.00 | 0.0 | 0.0 | 627.30 | 2120.00 | 636.76 | 0.0 | 637.13 | 13.01 | 6.43 | 1018.46 | 587.84 |
| 14 | 18500.000 | 624.00 | 0.0 | 0.0 | 627.30 | 3120.00 | 638.83 | 0.0 | 639.16 | 10.51 | 6.65 | 1474.26 | 962.21 |
| 15 | | | | | | | | | | | | | |
| 16 | 20180.000 | 1680.00 | 0.0 | 0.0 | 630.60 | 1110.00 | 636.60 | 0.0 | 637.00 | 11.13 | 4.55 | 604.46 | 332.73 |
| 17 | 20180.000 | 1680.00 | 0.0 | 0.0 | 630.60 | 1720.00 | 637.92 | 0.0 | 638.11 | 9.72 | 4.79 | 922.42 | 551.74 |
| 18 | 20180.000 | 1680.00 | 0.0 | 0.0 | 630.60 | 2120.00 | 638.60 | 0.0 | 638.76 | 8.83 | 4.86 | 1123.81 | 713.41 |
| 19 | 20180.000 | 1680.00 | 0.0 | 0.0 | 630.60 | 3120.00 | 640.28 | 0.0 | 640.44 | 6.77 | 4.66 | 1647.10 | 1198.99 |
| 20 | | | | | | | | | | | | | |
| 21 | 22010.000 | 1830.00 | 0.0 | 0.0 | 632.60 | 1110.00 | 638.68 | 0.0 | 639.03 | 12.14 | 4.90 | 294.93 | 316.54 |
| 22 | 22010.000 | 1830.00 | 0.0 | 0.0 | 632.60 | 1720.00 | 639.73 | 0.0 | 640.30 | 10.38 | 6.33 | 370.36 | 425.00 |
| 23 | 22010.000 | 1830.00 | 0.0 | 0.0 | 632.60 | 2120.00 | 640.29 | 0.0 | 641.01 | 18.90 | 7.16 | 412.17 | 487.67 |
| 24 | 22010.000 | 1830.00 | 0.0 | 0.0 | 632.60 | 3120.00 | 641.51 | 0.0 | 642.60 | 23.86 | 8.88 | 506.77 | 638.71 |
| 25 | | | | | | | | | | | | | |
| 26 | 22060.000 | 50.00 | 0.0 | 0.0 | 632.60 | 1110.00 | 638.75 | 0.0 | 639.15 | 31.74 | 5.03 | 220.46 | 197.04 |
| 27 | 22060.000 | 50.00 | 0.0 | 0.0 | 632.60 | 1720.00 | 639.85 | 0.0 | 640.44 | 42.14 | 6.24 | 275.62 | 264.96 |
| 28 | 22060.000 | 50.00 | 0.0 | 0.0 | 632.60 | 2120.00 | 640.42 | 0.0 | 641.15 | 48.19 | 6.91 | 306.98 | 305.40 |
| 29 | 22060.000 | 50.00 | 0.0 | 0.0 | 632.60 | 3120.00 | 641.76 | 0.0 | 642.79 | 58.21 | 8.14 | 383.49 | 408.92 |
| 30 | | | | | | | | | | | | | |
| 31 | 22146.000 | 86.00 | 652.90 | 650.90 | 632.60 | 1110.00 | 638.72 | 0.0 | 639.16 | 30.93 | 4.99 | 222.61 | 199.60 |
| 32 | 22146.000 | 86.00 | 652.90 | 650.90 | 632.60 | 1720.00 | 639.90 | 0.0 | 640.49 | 40.76 | 6.16 | 279.13 | 269.42 |
| 33 | 22146.000 | 86.00 | 652.90 | 650.90 | 632.60 | 2120.00 | 640.71 | 0.0 | 641.22 | 46.27 | 6.80 | 311.75 | 311.66 |
| 34 | 22146.000 | 86.00 | 652.90 | 650.90 | 632.60 | 3120.00 | 641.69 | 0.0 | 642.68 | 55.24 | 7.97 | 391.26 | 419.79 |
| 35 | | | | | | | | | | | | | |
| 36 | 22196.000 | 50.00 | 0.0 | 0.0 | 632.60 | 1110.00 | 639.14 | 0.0 | 639.31 | 8.79 | 3.81 | 480.02 | 374.31 |
| 37 | 22196.000 | 50.00 | 0.0 | 0.0 | 632.60 | 1720.00 | 640.43 | 0.0 | 640.66 | 10.37 | 4.58 | 624.97 | 534.19 |
| 38 | 22196.000 | 50.00 | 0.0 | 0.0 | 632.60 | 2120.00 | 641.15 | 0.0 | 641.45 | 11.17 | 5.15 | 710.11 | 634.32 |
| 39 | 22196.000 | 50.00 | 0.0 | 0.0 | 632.60 | 3120.00 | 642.72 | 0.0 | 643.17 | 12.38 | 6.09 | 916.38 | 887.94 |
| 40 | | | | | | | | | | | | | |
| 41 | 23295.000 | 1100.00 | 0.0 | 0.0 | 633.00 | 1110.00 | 640.01 | 0.0 | 640.22 | 8.82 | 4.56 | 728.27 | 373.65 |
| 42 | 23295.000 | 1100.00 | 0.0 | 0.0 | 633.00 | 1720.00 | 641.38 | 0.0 | 641.55 | 7.66 | 4.62 | 1184.41 | 646.34 |
| 43 | 23295.000 | 1100.00 | 0.0 | 0.0 | 633.00 | 2120.00 | 642.10 | 0.0 | 642.31 | 6.44 | 4.67 | 1448.21 | 835.25 |
| 44 | 23295.000 | 1100.00 | 0.0 | 0.0 | 633.00 | 3120.00 | 643.87 | 0.0 | 644.01 | 5.45 | 4.83 | 2047.90 | 1336.12 |
| 45 | | | | | | | | | | | | | |
| 46 | 24095.000 | 800.00 | 0.0 | 0.0 | 632.70 | 1110.00 | 640.01 | 0.0 | 641.06 | 12.05 | 5.74 | 340.24 | 319.71 |
| 47 | 24095.000 | 800.00 | 0.0 | 0.0 | 632.70 | 1720.00 | 641.61 | 0.0 | 642.37 | 13.99 | 6.81 | 623.17 | 459.91 |
| 48 | 24095.000 | 800.00 | 0.0 | 0.0 | 632.70 | 2120.00 | 642.53 | 0.0 | 643.06 | 13.25 | 6.98 | 860.96 | 582.48 |
| 49 | 24095.000 | 800.00 | 0.0 | 0.0 | 632.70 | 3120.00 | 644.19 | 0.0 | 644.61 | 10.59 | 6.94 | 1429.64 | 956.55 |
| 50 | | | | | | | | | | | | | |
| 51 | 25665.000 | 1572.00 | 0.0 | 0.0 | 634.40 | 900.00 | 642.24 | 0.0 | 642.44 | 5.21 | 3.93 | 444.49 | 331.89 |
| 52 | 25665.000 | 1572.00 | 0.0 | 0.0 | 634.40 | 1410.00 | 643.71 | 0.0 | 643.96 | 6.98 | 4.85 | 748.21 | 533.53 |
| 53 | 25665.000 | 1572.00 | 0.0 | 0.0 | 634.40 | 1740.00 | 644.36 | 0.0 | 644.63 | 7.29 | 5.19 | 896.74 | 644.52 |
| 54 | 25665.000 | 1572.00 | 0.0 | 0.0 | 634.40 | 2610.00 | 645.74 | 0.0 | 646.06 | 8.09 | 5.98 | 1232.48 | 917.63 |
| 55 | | | | | | | | | | | | | |
| 56 | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | |

| SECNO | XLOB | ELTRD | ELLC | ELMIN | Q | CWSEL | CRITWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26728.000 | 1060.00 | 0.0 | 0.0 | 635.40 | 800.00 | 642.32 | 0.0 | 642.89 | 3.88 | 3.11 | 853.74 | 405.95 |
| 26728.000 | 1060.00 | 0.0 | 0.0 | 635.40 | 1410.00 | 644.37 | 0.0 | 644.45 | 3.89 | 3.55 | 1307.94 | 714.73 |
| 26728.000 | 1060.00 | 0.0 | 0.0 | 635.40 | 1740.00 | 645.05 | 0.0 | 645.13 | 3.95 | 3.76 | 1512.57 | 875.99 |
| 26728.000 | 1060.00 | 0.0 | 0.0 | 635.40 | 2610.00 | 646.50 | 0.0 | 646.60 | 4.24 | 4.29 | 1957.48 | 1267.68 |
| 28628.000 | 1900.00 | 0.0 | 0.0 | 638.20 | 800.00 | 644.10 | 642.81 | 644.99 | 57.31 | 8.35 | 160.20 | 105.67 |
| 28628.000 | 1900.00 | 0.0 | 0.0 | 638.20 | 1410.00 | 645.73 | 0.0 | 646.11 | 26.78 | 6.87 | 664.56 | 272.47 |
| 28628.000 | 1900.00 | 0.0 | 0.0 | 638.20 | 1740.00 | 646.39 | 0.0 | 646.66 | 21.14 | 6.50 | 881.10 | 378.43 |
| 28628.000 | 1900.00 | 0.0 | 0.0 | 638.20 | 2610.00 | 647.83 | 0.0 | 648.05 | 15.23 | 6.22 | 1365.55 | 668.76 |
| 29488.000 | 860.00 | 0.0 | 0.0 | 641.80 | 500.00 | 647.70 | 0.0 | 647.86 | 12.80 | 4.93 | 384.95 | 139.75 |
| 29488.000 | 860.00 | 0.0 | 0.0 | 641.80 | 890.00 | 648.31 | 0.0 | 648.56 | 20.47 | 6.67 | 523.09 | 196.71 |
| 29488.000 | 860.00 | 0.0 | 0.0 | 641.80 | 1100.00 | 648.63 | 0.0 | 648.91 | 22.55 | 7.22 | 597.55 | 231.64 |
| 29488.000 | 860.00 | 0.0 | 0.0 | 641.80 | 1550.00 | 649.55 | 0.0 | 649.78 | 19.46 | 7.31 | 824.39 | 351.33 |
| 30818.000 | 1330.00 | 0.0 | 0.0 | 643.20 | 400.00 | 648.91 | 0.0 | 649.08 | 5.23 | 3.60 | 175.31 | 174.90 |
| 30818.000 | 1330.00 | 0.0 | 0.0 | 643.20 | 710.00 | 650.19 | 0.0 | 650.51 | 7.95 | 5.08 | 227.49 | 251.82 |
| 30818.000 | 1330.00 | 0.0 | 0.0 | 643.20 | 880.00 | 650.74 | 0.0 | 651.16 | 9.32 | 5.79 | 250.15 | 288.29 |
| 30818.000 | 1330.00 | 0.0 | 0.0 | 643.20 | 1230.00 | 651.62 | 0.0 | 652.15 | 10.95 | 6.76 | 348.34 | 371.64 |
| 30868.000 | 50.00 | 0.0 | 0.0 | 643.20 | 400.00 | 648.82 | 0.0 | 649.19 | 12.84 | 4.50 | 88.86 | 111.64 |
| 30868.000 | 50.00 | 0.0 | 0.0 | 643.20 | 710.00 | 650.07 | 0.0 | 650.75 | 22.64 | 6.57 | 108.00 | 149.22 |
| 30868.000 | 50.00 | 0.0 | 0.0 | 643.20 | 880.00 | 650.56 | 0.0 | 651.47 | 28.16 | 7.58 | 116.04 | 165.82 |
| 30868.000 | 50.00 | 0.0 | 0.0 | 643.20 | 1230.00 | 651.63 | 0.0 | 652.28 | 15.53 | 7.27 | 329.65 | 312.08 |
| 30921.000 | 53.00 | 653.20 | 651.20 | 643.20 | 400.00 | 646.94 | 0.0 | 649.26 | 16.26 | 4.66 | 85.82 | 99.21 |
| 30921.000 | 53.00 | 653.20 | 651.20 | 643.20 | 710.00 | 650.16 | 0.0 | 650.97 | 39.79 | 7.19 | 98.72 | 112.55 |
| 30921.000 | 53.00 | 653.20 | 651.20 | 643.20 | 880.00 | 652.55 | 0.0 | 653.13 | 13.90 | 5.94 | 148.10 | 236.00 |
| 30921.000 | 53.00 | 653.20 | 651.20 | 643.20 | 1230.00 | 654.31 | 0.0 | 654.52 | 4.02 | 4.46 | 603.66 | 613.77 |

BELL BRANCH LIVONIA CITY

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 0.0 | 1650.00 | 616.70 | 0.0 | 0.0 | 0.0 | 100.64 | 0.0 |
| 0.0 | 2900.00 | 619.20 | 2.50 | 0.0 | 0.0 | 146.19 | 0.0 |
| 0.0 | 3600.00 | 620.50 | 1.30 | 0.0 | 0.0 | 169.87 | 0.0 |
| 0.0 | 5500.00 | 624.00 | 3.50 | 0.0 | 0.0 | 233.62 | 0.0 |
| 50.000 | 1650.00 | 617.14 | 0.0 | 0.44 | 0.0 | 121.92 | 50.00 |
| 50.000 | 2900.00 | 619.69 | 2.56 | 0.49 | 0.0 | 196.21 | 50.00 |
| 50.000 | 3600.00 | 620.97 | 1.28 | 0.47 | 0.0 | 200.00 | 50.00 |
| 50.000 | 5500.00 | 624.32 | 3.35 | 0.32 | 0.0 | 200.00 | 50.00 |
| 120.000 | 1650.00 | 617.15 | 0.0 | 0.01 | 0.0 | 122.45 | 70.00 |
| 120.000 | 2900.00 | 619.94 | 2.79 | 0.25 | 0.0 | 200.00 | 70.00 |
| 120.000 | 3600.00 | 621.29 | 1.34 | 0.32 | 0.0 | 200.00 | 70.00 |
| 120.000 | 5500.00 | 624.40 | 3.11 | 0.08 | 0.0 | 200.00 | 70.00 |
| 170.000 | 1650.00 | 617.11 | 0.0 | -0.05 | 0.0 | 194.47 | 50.00 |
| 170.000 | 2900.00 | 619.89 | 2.79 | -0.05 | 0.0 | 206.78 | 50.00 |
| 170.000 | 3600.00 | 621.23 | 1.34 | -0.05 | 0.0 | 215.66 | 50.00 |
| 170.000 | 5500.00 | 624.34 | 3.10 | -0.06 | 0.0 | 231.60 | 50.00 |
| 640.000 | 1650.00 | 617.28 | 0.0 | 0.17 | 0.0 | 192.32 | 470.00 |
| 640.000 | 2900.00 | 620.14 | 2.86 | 0.24 | 0.0 | 332.69 | 470.00 |
| 640.000 | 3600.00 | 621.51 | 1.37 | 0.27 | 0.0 | 360.13 | 470.00 |
| 640.000 | 5500.00 | 624.74 | 3.23 | 0.40 | 0.0 | 424.81 | 470.00 |
| 1950.000 | 1650.00 | 618.53 | 0.0 | 1.25 | 0.0 | 372.22 | 1310.00 |
| 1950.000 | 2900.00 | 621.09 | 2.56 | 0.96 | 0.0 | 400.46 | 1310.00 |
| 1950.000 | 3600.00 | 622.29 | 1.20 | 0.78 | 0.0 | 410.90 | 1310.00 |
| 1950.000 | 5500.00 | 625.28 | 2.99 | 0.54 | 0.0 | 437.01 | 1310.00 |
| 2750.000 | 1650.00 | 618.79 | 0.0 | 0.25 | 0.0 | 305.70 | 800.00 |
| 2750.000 | 2900.00 | 621.30 | 2.51 | 0.20 | 0.0 | 393.37 | 800.00 |
| 2750.000 | 3600.00 | 622.45 | 1.15 | 0.19 | 0.0 | 413.02 | 800.00 |
| 2750.000 | 5500.00 | 625.43 | 2.95 | 0.15 | 0.0 | 462.34 | 800.00 |
| 3950.000 | 1650.00 | 620.76 | 0.0 | 1.97 | 0.0 | 598.62 | 1200.00 |
| 3950.000 | 2900.00 | 622.35 | 1.59 | 1.05 | 0.0 | 621.56 | 1200.00 |
| 3950.000 | 3600.00 | 623.29 | 0.94 | 0.91 | 0.0 | 635.20 | 1200.00 |
| 3950.000 | 5500.00 | 625.91 | 2.62 | 0.48 | 0.0 | 685.41 | 1200.00 |
| 4520.000 | 1110.00 | 621.58 | 0.0 | 0.83 | 0.0 | 244.87 | 570.00 |
| 4520.000 | 1720.00 | 622.79 | 1.21 | 0.44 | 0.0 | 326.13 | 570.00 |
| 4520.000 | 2120.00 | 623.61 | 0.82 | 0.32 | 0.0 | 380.61 | 570.00 |
| 4520.000 | 3120.00 | 626.08 | 2.47 | 0.17 | 0.0 | 483.65 | 570.00 |
| 5050.000 | 1110.00 | 622.49 | 0.0 | 0.90 | 0.0 | 307.21 | 530.00 |
| 5050.000 | 1720.00 | 623.58 | 1.10 | 0.79 | 0.0 | 323.67 | 530.00 |
| 5050.000 | 2120.00 | 624.27 | 0.69 | 0.66 | 0.0 | 334.63 | 530.00 |
| 5050.000 | 3120.00 | 626.36 | 2.09 | 0.29 | 0.0 | 370.89 | 530.00 |
| 5520.000 | 1110.00 | 622.87 | 0.0 | 0.39 | 0.0 | 207.31 | 470.00 |
| 5520.000 | 1720.00 | 623.95 | 1.08 | 0.37 | 0.0 | 221.25 | 470.00 |
| 5520.000 | 2120.00 | 624.62 | 0.67 | 0.35 | 0.0 | 230.03 | 470.00 |
| 5520.000 | 3120.00 | 626.59 | 1.97 | 0.23 | 0.0 | 254.06 | 470.00 |

| | SECNO | U | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| 1 | 6100.000 | 1110.00 | 623.27 | 0.0 | 0.40 | 0.0 | 180.00 | 560.00 |
| 2 | 6100.000 | 1720.00 | 624.37 | 1.11 | 0.43 | 0.0 | 180.00 | 560.00 |
| 3 | 6100.000 | 2120.00 | 625.04 | 0.67 | 0.42 | 0.0 | 180.00 | 560.00 |
| 4 | 6100.000 | 3120.00 | 626.92 | 1.87 | 0.33 | 0.0 | 180.00 | 580.00 |
| 5 | | | | | | | | |
| 6 | 6320.000 | 1110.00 | 623.37 | 0.0 | 0.11 | 0.0 | 64.73 | 220.00 |
| 7 | 6320.000 | 1720.00 | 624.43 | 1.06 | 0.06 | 0.0 | 66.89 | 220.00 |
| 8 | 6320.000 | 2120.00 | 625.06 | 0.62 | 0.02 | 0.0 | 66.17 | 220.00 |
| 9 | 6320.000 | 3120.00 | 626.79 | 1.73 | -0.13 | 0.0 | 71.70 | 220.00 |
| 10 | | | | | | | | |
| 11 | 6370.000 | 1110.00 | 623.65 | 0.0 | 0.28 | 0.0 | 55.46 | 50.00 |
| 12 | 6370.000 | 1720.00 | 624.91 | 1.26 | 0.47 | 0.0 | 55.46 | 50.00 |
| 13 | 6370.000 | 2120.00 | 625.66 | 0.75 | 0.60 | 0.0 | 55.46 | 50.00 |
| 14 | 6370.000 | 3120.00 | 627.63 | 1.97 | 0.84 | 0.0 | 55.46 | 50.00 |
| 15 | | | | | | | | |
| 16 | 6446.000 | 1110.00 | 623.65 | 0.0 | 0.00 | 0.0 | 55.46 | 76.00 |
| 17 | 6446.000 | 1720.00 | 624.91 | 1.26 | 0.00 | 0.0 | 55.46 | 76.00 |
| 18 | 6446.000 | 2120.00 | 625.67 | 0.76 | 0.01 | 0.0 | 55.46 | 76.00 |
| 19 | 6446.000 | 3120.00 | 628.03 | 2.36 | 0.40 | 0.0 | 55.46 | 76.00 |
| 20 | | | | | | | | |
| 21 | 6496.000 | 1110.00 | 623.66 | 0.0 | 0.00 | 0.0 | 150.40 | 50.00 |
| 22 | 6496.000 | 1720.00 | 624.93 | 1.27 | 0.02 | 0.0 | 150.40 | 50.00 |
| 23 | 6496.000 | 2120.00 | 625.70 | 0.76 | 0.03 | 0.0 | 150.40 | 50.00 |
| 24 | 6496.000 | 3120.00 | 628.13 | 2.43 | 0.10 | 0.0 | 150.40 | 50.00 |
| 25 | | | | | | | | |
| 26 | 7796.000 | 1110.00 | 624.05 | 0.0 | 0.39 | 0.0 | 301.15 | 1300.00 |
| 27 | 7796.000 | 1720.00 | 625.44 | 1.40 | 0.52 | 0.0 | 314.00 | 1300.00 |
| 28 | 7796.000 | 2120.00 | 626.28 | 0.83 | 0.56 | 0.0 | 321.51 | 1300.00 |
| 29 | 7796.000 | 3120.00 | 628.70 | 2.42 | 0.57 | 0.0 | 343.23 | 1300.00 |
| 30 | | | | | | | | |
| 31 | 8096.000 | 1110.00 | 623.96 | 0.0 | -0.09 | 0.0 | 173.66 | 300.00 |
| 32 | 8096.000 | 1720.00 | 625.33 | 1.37 | -0.12 | 0.0 | 257.62 | 300.00 |
| 33 | 8096.000 | 2120.00 | 626.15 | 0.85 | -0.10 | 0.0 | 264.47 | 300.00 |
| 34 | 8096.000 | 3120.00 | 628.66 | 2.48 | -0.04 | 0.0 | 284.30 | 300.00 |
| 35 | | | | | | | | |
| 36 | 8896.000 | 1110.00 | 624.90 | 0.0 | 0.95 | 0.0 | 296.07 | 800.00 |
| 37 | 8896.000 | 1720.00 | 626.34 | 1.44 | 1.01 | 0.0 | 317.95 | 800.00 |
| 38 | 8896.000 | 2120.00 | 627.12 | 0.78 | 0.94 | 0.0 | 324.37 | 800.00 |
| 39 | 8896.000 | 3120.00 | 629.26 | 2.15 | 0.60 | 0.0 | 341.97 | 800.00 |
| 40 | | | | | | | | |
| 41 | 9546.000 | 1110.00 | 626.04 | 0.0 | 1.14 | 0.0 | 334.58 | 650.00 |
| 42 | 9546.000 | 1720.00 | 627.26 | 1.22 | 0.92 | 0.0 | 351.59 | 650.00 |
| 43 | 9546.000 | 2120.00 | 627.95 | 0.69 | 0.83 | 0.0 | 361.27 | 650.00 |
| 44 | 9546.000 | 3120.00 | 629.83 | 1.88 | 0.57 | 0.0 | 387.65 | 650.00 |
| 45 | | | | | | | | |
| 46 | 12075.000 | 1110.00 | 628.01 | 0.0 | 1.97 | 0.0 | 477.85 | 2530.00 |
| 47 | 12075.000 | 1720.00 | 629.03 | 1.02 | 1.77 | 0.0 | 522.62 | 2530.00 |
| 48 | 12075.000 | 2120.00 | 629.63 | 0.60 | 1.68 | 0.0 | 548.35 | 2530.00 |
| 49 | 12075.000 | 3120.00 | 631.11 | 1.49 | 1.28 | 0.0 | 586.10 | 2530.00 |
| 50 | | | | | | | | |
| 51 | 12282.000 | 1110.00 | 628.53 | 0.0 | 0.62 | 0.0 | 203.61 | 750.00 |
| 52 | 12226.000 | 1720.00 | 629.56 | 0.94 | 0.53 | 0.0 | 228.48 | 750.00 |
| 53 | 12825.000 | 2120.00 | 630.11 | 0.54 | 0.48 | 0.0 | 243.41 | 750.00 |
| 54 | 12826.000 | 3120.00 | 631.43 | 1.32 | 0.31 | 0.0 | 285.14 | 750.00 |
| 55 | | | | | | | | |
| 56 | | | | | | | | |
| 57 | | | | | | | | |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 13976.000 | 1110.00 | 630.30 | 0.0 | 1.67 | 0.0 | 75.60 | 1150.00 |
| 13976.000 | 1720.00 | 631.57 | 1.27 | 2.01 | 0.0 | 75.60 | 1150.00 |
| 13976.000 | 2120.00 | 632.26 | 0.69 | 2.15 | 0.0 | 75.60 | 1150.00 |
| 13976.000 | 3120.00 | 633.62 | 1.36 | 2.20 | 0.0 | 75.60 | 1150.00 |
| 14026.000 | 1110.00 | 630.45 | 0.0 | 0.15 | 0.0 | 53.10 | 50.00 |
| 14026.000 | 1720.00 | 631.81 | 1.36 | 0.24 | 0.0 | 53.10 | 50.00 |
| 14026.000 | 2120.00 | 632.57 | 0.76 | 0.31 | 0.0 | 53.10 | 50.00 |
| 14026.000 | 3120.00 | 634.13 | 1.57 | 0.51 | 0.0 | 53.10 | 50.00 |
| 14100.000 | 1110.00 | 630.46 | 0.0 | 0.01 | 0.0 | 53.10 | 74.00 |
| 14100.000 | 1720.00 | 632.17 | 1.72 | 0.36 | 0.0 | 53.10 | 74.00 |
| 14100.000 | 2120.00 | 633.21 | 1.04 | 0.65 | 0.0 | 53.10 | 74.00 |
| 14100.000 | 3120.00 | 635.81 | 2.60 | 1.68 | 0.0 | 53.10 | 74.00 |
| 14150.000 | 1110.00 | 630.38 | 0.0 | -0.08 | 0.0 | 153.00 | 50.00 |
| 14150.000 | 1720.00 | 632.16 | 1.78 | -0.01 | 0.0 | 153.00 | 50.00 |
| 14150.000 | 2120.00 | 633.23 | 1.07 | 0.02 | 0.0 | 153.00 | 50.00 |
| 14150.000 | 3120.00 | 635.91 | 2.69 | 0.10 | 0.0 | 153.00 | 50.00 |
| 14660.000 | 1110.00 | 631.27 | 0.0 | 0.89 | 0.0 | 704.43 | 510.00 |
| 14660.000 | 1720.00 | 632.90 | 1.63 | 0.74 | 0.0 | 710.17 | 510.00 |
| 14660.000 | 2120.00 | 633.91 | 1.01 | 0.68 | 0.0 | 713.70 | 510.00 |
| 14660.000 | 3120.00 | 636.49 | 2.58 | 0.58 | 0.0 | 722.72 | 510.00 |
| 16305.000 | 1110.00 | 631.89 | 0.0 | 0.62 | 0.0 | 235.39 | 1645.00 |
| 16305.000 | 1720.00 | 633.22 | 1.33 | 0.32 | 0.0 | 253.58 | 1645.00 |
| 16305.000 | 2120.00 | 634.14 | 0.92 | 0.23 | 0.0 | 260.76 | 1645.00 |
| 16305.000 | 3120.00 | 636.60 | 2.46 | 0.11 | 0.0 | 260.10 | 1645.00 |
| 17730.000 | 1110.00 | 633.57 | 0.0 | 1.68 | 0.0 | 82.70 | 1425.00 |
| 17730.000 | 1720.00 | 634.95 | 1.38 | 1.73 | 0.0 | 86.66 | 1425.00 |
| 17730.000 | 2120.00 | 635.73 | 0.78 | 1.59 | 0.0 | 89.19 | 1425.00 |
| 17730.000 | 3120.00 | 637.72 | 1.99 | 1.12 | 0.0 | 95.17 | 1425.00 |
| 17780.000 | 1110.00 | 633.76 | 0.0 | 0.19 | 0.0 | 70.05 | 50.00 |
| 17780.000 | 1720.00 | 635.22 | 1.47 | 0.27 | 0.0 | 77.67 | 50.00 |
| 17780.000 | 2120.00 | 636.06 | 0.84 | 0.33 | 0.0 | 82.03 | 50.00 |
| 17780.000 | 3120.00 | 638.16 | 2.10 | 0.44 | 0.0 | 87.10 | 50.00 |
| 17826.000 | 1110.00 | 633.77 | 0.0 | 0.01 | 0.0 | 70.10 | 46.00 |
| 17826.000 | 1720.00 | 635.24 | 1.47 | 0.02 | 0.0 | 77.75 | 46.00 |
| 17826.000 | 2120.00 | 636.08 | 0.84 | 0.02 | 0.0 | 82.12 | 46.00 |
| 17826.000 | 3120.00 | 638.18 | 2.10 | 0.02 | 0.0 | 87.10 | 46.00 |
| 17876.000 | 1110.00 | 633.79 | 0.0 | 0.02 | 0.0 | 167.83 | 50.00 |
| 17876.000 | 1720.00 | 635.29 | 1.51 | 0.05 | 0.0 | 170.52 | 50.00 |
| 17876.000 | 2120.00 | 636.17 | 0.88 | 0.09 | 0.0 | 172.10 | 50.00 |
| 17876.000 | 3120.00 | 638.32 | 2.15 | 0.14 | 0.0 | 175.95 | 50.00 |
| 18500.000 | 1110.00 | 634.53 | 0.0 | 0.75 | 0.0 | 203.30 | 624.00 |
| 18500.000 | 1720.00 | 635.95 | 1.42 | 0.66 | 0.0 | 212.16 | 624.00 |
| 18500.000 | 2120.00 | 636.78 | 0.84 | 0.62 | 0.0 | 217.39 | 624.00 |
| 18500.000 | 3120.00 | 638.83 | 2.05 | 0.51 | 0.0 | 230.12 | 624.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 20180.000 | 1110.00 | 636.80 | 0.0 | 2.27 | 0.0 | 274.41 | 1660.00 |
| 20180.000 | 1720.00 | 637.92 | 1.12 | 1.97 | 0.0 | 291.90 | 1660.00 |
| 20180.000 | 2120.00 | 638.60 | 0.68 | 1.82 | 0.0 | 300.73 | 1660.00 |
| 20180.000 | 3120.00 | 640.28 | 1.68 | 1.45 | 0.0 | 322.00 | 1660.00 |
| 22010.000 | 1110.00 | 638.68 | 0.0 | 1.88 | 0.0 | 70.30 | 1830.00 |
| 22010.000 | 1720.00 | 639.73 | 1.05 | 1.81 | 0.0 | 75.89 | 1830.00 |
| 22010.000 | 2120.00 | 640.29 | 0.56 | 1.69 | 0.0 | 75.57 | 1830.00 |
| 22010.000 | 3120.00 | 641.51 | 1.23 | 1.23 | 0.0 | 78.77 | 1830.00 |
| 22060.000 | 1110.00 | 638.75 | 0.0 | 0.07 | 0.0 | 48.80 | 50.00 |
| 22060.000 | 1720.00 | 639.83 | 1.08 | 0.11 | 0.0 | 52.59 | 50.00 |
| 22060.000 | 2120.00 | 640.42 | 0.58 | 0.13 | 0.0 | 54.63 | 50.00 |
| 22060.000 | 3120.00 | 641.76 | 1.34 | 0.25 | 0.0 | 59.30 | 50.00 |
| 22146.000 | 1110.00 | 638.79 | 0.0 | 0.04 | 0.0 | 48.95 | 86.00 |
| 22146.000 | 1720.00 | 639.90 | 1.11 | 0.07 | 0.0 | 52.82 | 86.00 |
| 22146.000 | 2120.00 | 640.51 | 0.61 | 0.09 | 0.0 | 54.93 | 86.00 |
| 22146.000 | 3120.00 | 641.69 | 1.39 | 0.13 | 0.0 | 59.76 | 86.00 |
| 22196.000 | 1110.00 | 639.14 | 0.0 | 0.35 | 0.0 | 110.35 | 50.00 |
| 22196.000 | 1720.00 | 640.43 | 1.29 | 0.53 | 0.0 | 115.59 | 50.00 |
| 22196.000 | 2120.00 | 641.15 | 0.72 | 0.64 | 0.0 | 121.22 | 50.00 |
| 22196.000 | 3120.00 | 642.76 | 1.61 | 0.87 | 0.0 | 133.88 | 50.00 |
| 23296.000 | 1110.00 | 640.01 | 0.0 | 0.86 | 0.0 | 326.44 | 1100.00 |
| 23296.000 | 1720.00 | 641.38 | 1.37 | 0.96 | 0.0 | 338.24 | 1100.00 |
| 23296.000 | 2120.00 | 642.16 | 0.77 | 1.01 | 0.0 | 343.79 | 1100.00 |
| 23296.000 | 3120.00 | 643.87 | 1.71 | 1.11 | 0.0 | 356.07 | 1100.00 |
| 24096.000 | 1110.00 | 640.61 | 0.0 | 0.60 | 0.0 | 162.61 | 800.00 |
| 24096.000 | 1720.00 | 641.61 | 1.20 | 0.43 | 0.0 | 307.16 | 800.00 |
| 24096.000 | 2120.00 | 642.53 | 0.72 | 0.38 | 0.0 | 335.33 | 800.00 |
| 24096.000 | 3120.00 | 644.19 | 1.66 | 0.32 | 0.0 | 351.88 | 800.00 |
| 25668.000 | 800.00 | 642.24 | 0.0 | 1.63 | 0.0 | 194.20 | 1572.00 |
| 25668.000 | 1410.00 | 643.71 | 1.47 | 1.90 | 0.0 | 219.57 | 1572.00 |
| 25668.000 | 1740.00 | 644.36 | 0.66 | 1.83 | 0.0 | 231.53 | 1572.00 |
| 25668.000 | 2610.00 | 645.74 | 1.38 | 1.56 | 0.0 | 255.74 | 1572.00 |
| 26728.000 | 800.00 | 642.82 | 0.0 | 0.58 | 0.0 | 287.79 | 1060.00 |
| 26728.000 | 1410.00 | 644.37 | 1.55 | 0.66 | 0.0 | 297.69 | 1060.00 |
| 26728.000 | 1740.00 | 645.05 | 0.68 | 0.69 | 0.0 | 302.05 | 1060.00 |
| 26728.000 | 2610.00 | 646.50 | 1.45 | 0.76 | 0.0 | 311.31 | 1060.00 |
| 28628.000 | 800.00 | 644.10 | 0.0 | 1.28 | 0.0 | 300.23 | 1900.00 |
| 28628.000 | 1410.00 | 645.73 | 1.63 | 1.36 | 0.0 | 319.59 | 1900.00 |
| 28628.000 | 1740.00 | 646.39 | 0.66 | 1.34 | 0.0 | 328.27 | 1900.00 |
| 28628.000 | 2610.00 | 647.83 | 1.44 | 1.33 | 0.0 | 346.89 | 1900.00 |
| 29488.000 | 500.00 | 647.70 | 0.0 | 3.50 | 0.0 | 213.33 | 860.00 |
| 29488.000 | 890.00 | 648.31 | 0.61 | 2.58 | 0.0 | 232.91 | 860.00 |
| 29488.000 | 1100.00 | 648.63 | 0.32 | 2.24 | 0.0 | 238.31 | 860.00 |
| 29488.000 | 1550.00 | 649.55 | 0.91 | 1.71 | 0.0 | 254.05 | 860.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 30818.000 | 400.00 | 648.91 | 0.0 | 1.21 | 0.0 | 41.00 | 1330.00 |
| 30818.000 | 710.00 | 650.19 | 1.27 | 1.67 | 1.27 | 41.00 | 1330.00 |
| 30818.000 | 880.00 | 650.74 | 0.55 | 2.11 | 1.53 | 41.00 | 1330.00 |
| 30818.000 | 1230.00 | 651.62 | 0.88 | 2.08 | 0.0 | 85.83 | 1330.00 |
| 30868.000 | 400.00 | 648.88 | 0.0 | -0.04 | 0.0 | 16.00 | 50.00 |
| 30868.000 | 710.00 | 650.07 | 1.20 | -0.11 | 1.20 | 16.00 | 50.00 |
| 30868.000 | 880.00 | 650.56 | 0.50 | -0.16 | 1.70 | 16.00 | 50.00 |
| 30868.000 | 1230.00 | 651.63 | 1.05 | 0.00 | 0.0 | 102.00 | 50.00 |
| 30921.000 | 400.00 | 648.94 | 0.0 | 0.06 | 0.0 | 16.00 | 53.00 |
| 30921.000 | 710.00 | 650.16 | 1.22 | 0.09 | 1.22 | 16.00 | 53.00 |
| 30921.000 | 880.00 | 652.58 | 2.42 | 2.00 | 3.64 | 16.00 | 53.00 |
| 30921.000 | 1230.00 | 654.31 | 1.74 | 2.69 | 0.0 | 102.00 | 53.00 |

SUMMARY OF ERRORS

FLOOD INSURANCE ZONE DATA FOR BELL BRANCH LIVONIA CITY

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

| SECTION NUMBER | CUMULATIVE DISTANCE | ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10 | 2 | 0.2 |
|---|---|---|---|---|
| 0.0 | 0. | -3.80 | -1.30 | 3.50 |
| 50.000 | 50. | -3.83 | -1.28 | 3.35 |
| 120.000 | 120. | -4.14 | -1.34 | 3.11 |
| 170.000 | 170. | -4.13 | -1.34 | 3.10 |
| 640.000 | 640. | -4.23 | -1.37 | 3.23 |
| 1950.000 | 1950. | -3.76 | -1.20 | 2.99 |
| 2750.000 | 2750. | -3.69 | -1.18 | 2.95 |
| 3950.000 | 3950. | -2.53 | -0.94 | 2.62 |
| 4520.000 | 4520. | -2.02 | -0.82 | 2.47 |
| 5050.000 | 5050. | -1.79 | -0.69 | 2.09 |
| 5520.000 | 5520. | -1.75 | -0.67 | 1.97 |
| 6100.000 | 6100. | -1.76 | -0.67 | 1.87 |
| 6320.000 | 6320. | -1.65 | -0.62 | 1.73 |
| 6370.000 | 6370. | -2.01 | -0.75 | 1.97 |
| 6446.000 | 6446. | -2.02 | -0.76 | 2.36 |
| 6496.000 | 6496. | -2.05 | -0.78 | 2.43 |
| 7796.000 | 7796. | -2.23 | -0.83 | 2.42 |
| 8096.000 | 8095. | -2.23 | -0.85 | 2.48 |
| 8896.000 | 8896. | -2.22 | -0.78 | 2.15 |
| 9546.000 | 9546. | -1.91 | -0.69 | 1.88 |
| 12076.000 | 12076. | -1.62 | -0.60 | 1.49 |
| 12826.000 | 12826. | -1.48 | -0.54 | 1.32 |
| 13976.000 | 13975. | -1.96 | -0.69 | 1.33 |
| 14026.000 | 14026. | -2.12 | -0.76 | 1.97 |
| 14100.000 | 14100. | -2.76 | -1.04 | 2.60 |
| 14150.000 | 14150. | -2.85 | -1.07 | 2.69 |
| 14660.000 | 14660. | -2.64 | -1.01 | 2.58 |
| 16305.000 | 16305. | -2.25 | -0.92 | 2.46 |
| 17730.000 | 17731. | -2.16 | -0.78 | 1.99 |
| 17780.000 | 17780. | -2.30 | -0.84 | 2.10 |
| 17826.000 | 17826. | -2.31 | -0.85 | 2.10 |
| 17876.000 | 17876. | -2.38 | -0.88 | 2.15 |
| 18500.000 | 18500. | -2.25 | -0.84 | 2.05 |
| 20180.000 | 20180. | -1.80 | -0.68 | 1.68 |
| 22010.000 | 22010. | -1.61 | -0.56 | 1.23 |
| 22060.000 | 22060. | -1.67 | -0.58 | 1.34 |
| 22146.000 | 22146. | -1.72 | -0.61 | 1.39 |
| 22196.000 | 22196. | -2.01 | -0.72 | 1.61 |
| 23296.000 | 23296. | -2.14 | -0.77 | 1.71 |
| 24096.000 | 24096. | -1.92 | -0.72 | 1.66 |
| 25668.000 | 25668. | -2.13 | -0.66 | 1.38 |
| 25728.000 | 25728. | -2.23 | -0.68 | 1.45 |
| 25826.000 | 25826. | -2.29 | -0.66 | 1.44 |
| 29488.000 | 29488. | -0.93 | -0.32 | 0.91 |
| 30818.000 | 30818. | -1.83 | -0.55 | 0.63 |
| 30868.000 | 30868. | -1.70 | -0.50 | 1.05 |
| 30921.000 | 30921. | -3.64 | -2.42 | 1.74 |
| WEIGHTED AVG FOR REACH | | -2.21 | -0.78 | 1.94 |

FHF FOR THE REACH = 020 WITH 91.1 OF THE REACH WITHIN 1.0 FEET

ZONE FOR THE REACH = A 4

```
**************************************************
  HEC2 -RELEASE DATED NOV 76 UPDATED AUG1977
  ERROR CORR - 01,02
  MODIFICATION - 50,51,52,53
**************************************************
```

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Tarabusi Creek

4) DOCUMENT TYPE: 100 - Year

00BREAK00

```
**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************************
C
T1 TARABUSI CREEK FIS HUD 2014 07 LIVONIA CITY FROM BELL BRANCH TO 8 MILE ROAD
T2 100YR FLOW
T3      TARABUSI CREEK LIVONIA C
```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 4. | 0. | 0. | 0.0 | 0.0 | 0.0 | 0. | 620.000 | 0.0 |

| J2 | NPROF | IPLOT | PREVS | XSECV | XSECH | FN | ALLOC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 0.0 | -1.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 110.000 | 150.000 | 200.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| QT | 5.000 | 1070.000 | 1560.000 | 1770.000 | 1770.000 | 2060.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.410 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.100 | 0.100 | 0.040 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 120 CORPS STA 050

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 120.000 | 13.000 | 405.000 | 440.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 250.000 | 0.0 | 540.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 630.000 | 0.0 | 625.000 | 30.000 | 622.000 | 300.000 | 620.000 | 320.000 | 610.200 | 340.000 |
| GR | 619.200 | 360.000 | 616.400 | 405.000 | 613.200 | 410.000 | 616.000 | 426.000 | 618.100 | 440.000 |
| GR | 620.000 | 665.000 | 625.000 | 715.000 | 630.000 | 750.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 370. X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 370.000 | 10.000 | 140.000 | 170.000 | 250.000 | 250.000 | 250.000 | 0.0 | 0.0 | 0.0 |
| GR | 630.000 | 0.0 | 625.000 | 35.000 | 620.000 | 70.000 | 618.000 | 140.000 | 617.000 | 150.000 |
| GR | 615.300 | 155.000 | 618.000 | 170.000 | 620.000 | 205.000 | 625.000 | 240.000 | 630.000 | 300.000 |

SECNO 745 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 745.000 | 9.000 | 126.000 | 155.000 | 375.000 | 375.000 | 375.000 | 0.0 | 0.0 | 0.0 |
| GR | 630.000 | 0.0 | 625.000 | 50.000 | 620.000 | 90.000 | 618.000 | 126.000 | 615.700 | 140.000 |
| GR | 618.000 | 155.000 | 620.000 | 180.000 | 625.000 | 220.000 | 630.000 | 270.000 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 9.100 | 0.0 | 0.0 | 0.0 | 1.000 | 264.000 |

SECNO 1120. STA 13+40

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1120.000 | 11.000 | 117.000 | 140.000 | 375.000 | 375.000 | 375.000 | 0.0 | 0.0 | 0.0 |
| GR | 635.000 | 0.0 | 630.000 | 25.000 | 625.000 | 65.000 | 620.000 | 110.000 | 618.000 | 117.000 |
| GR | 616.000 | 125.000 | 618.000 | 140.000 | 620.000 | 155.000 | 625.000 | 200.000 | 630.000 | 235.000 |
| GR | 635.000 | 265.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.410 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 1770 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1770.000 | 9.000 | 190.000 | 220.000 | 650.000 | 650.000 | 650.000 | 0.0 | 0.0 | 0.0 |
| GR | 635.000 | 0.0 | 630.000 | 50.000 | 625.000 | 150.000 | 618.000 | 190.000 | 617.000 | 205.000 |
| GR | 618.000 | 220.000 | 625.000 | 245.000 | 630.000 | 300.000 | 635.000 | 400.000 | 0.0 | 0.0 |
| NC | 0.120 | 0.120 | 0.040 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 2416 50' D/S 6 MILE FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2416.000 | 9.000 | 271.000 | 300.000 | 646.000 | 646.000 | 646.000 | 0.0 | 0.0 | 0.0 |
| GR | 635.000 | 0.0 | 630.000 | 160.000 | 630.500 | 248.000 | 618.000 | 271.000 | 617.900 | 288.000 |
| GR | 618.000 | 300.000 | 632.400 | 341.000 | 630.000 | 410.000 | 635.000 | 510.000 | 0.0 | 0.0 |

SECNO 2466 D/S FACE 6 MILE FROM FIELD BOOKS AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2466.000 | 21.000 | 371.600 | 445.400 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 631.000 | 631.000 | 0.0 |
| GR | 635.000 | 0.0 | 630.000 | 288.000 | 625.400 | 371.600 | 625.400 | 371.700 | 625.400 | 377.600 |
| GR | 619.400 | 392.600 | 619.400 | 392.700 | 619.400 | 393.600 | 619.400 | 393.700 | 618.000 | 397.600 |
| GR | 617.900 | 408.000 | 618.000 | 418.400 | 619.400 | 422.400 | 619.400 | 422.500 | 619.400 | 423.400 |
| GR | 619.400 | 423.500 | 625.400 | 439.400 | 625.400 | 445.400 | 625.400 | 445.500 | 630.000 | 568.000 |
| GR | 635.000 | 832.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SB | 1.050 | 1.790 | 3.000 | 0.0 | 22.800 | 2.000 | 582.000 | 2.910 | 617.900 | 617.900 |

SECNO 2554 U/S FACE 6 MILE FROM FIELD BOOKS AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2554.000 | 0.0 | 0.0 | 0.0 | 88.000 | 88.000 | 88.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 1.000 | 629.400 | 632.600 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 632.600 | 632.600 | 0.0 |
| BT | 16.000 | 0.0 | 635.000 | 0.0 | 288.000 | 632.600 | 0.0 | 371.600 | 632.600 | 625.400 |
| BT | 371.700 | 632.600 | 629.400 | 392.600 | 632.600 | 629.400 | 392.700 | 632.600 | 619.400 | 393.600 |
| BT | 632.600 | 619.400 | 393.700 | 632.600 | 629.400 | 422.400 | 632.600 | 629.400 | 422.500 | 632.600 |
| BT | 619.400 | 423.400 | 632.600 | 619.400 | 423.500 | 632.600 | 629.400 | 445.400 | 632.600 | 629.400 |
| BT | 445.500 | 632.600 | 625.400 | 568.000 | 632.600 | 0.0 | 832.000 | 635.000 | 0.0 | 0.0 |
| NC | 0.150 | 0.150 | 0.050 | 0.400 | 0.600 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 2604 STA 25+20 50' U/S 6 MILE FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2604.000 | 12.000 | 177.500 | 220.500 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 111.000 | 0.0 | 285.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 635.000 | 0.0 | 635.000 | 40.000 | 630.000 | 55.000 | 625.000 | 90.000 | 621.500 | 177.500 |
| GR | 618.000 | 192.500 | 617.900 | 200.000 | 618.000 | 212.500 | 622.200 | 220.500 | 625.000 | 250.000 |
| GR | 630.000 | 265.000 | 635.000 | 450.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 3360 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3360.000 | 10.000 | 180.000 | 223.000 | 600.000 | 550.000 | 756.000 | 0.0 | 0.0 | 0.0 |
| GR | 635.000 | 0.0 | 630.000 | 50.000 | 626.000 | 90.000 | 625.000 | 180.000 | 620.400 | 195.000 |
| GR | 620.300 | 200.000 | 620.400 | 215.000 | 625.000 | 223.000 | 627.500 | 300.000 | 635.000 | 340.000 |
| NC | 0.120 | 0.120 | 0.050 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 7.100 | 9.100 | 9.100 | 9.100 | 9.100 | 140.000 | 255.000 | 123.000 | 273.000 |

SECNO 4116 200'D/S MIDDLEBELT FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4116.000 | 9.000 | 177.000 | 219.000 | 600.000 | 550.000 | 756.000 | 0.0 | 0.0 | 0.0 |
| GR | 635.000 | 0.0 | 630.000 | 80.000 | 626.200 | 177.000 | 622.700 | 191.000 | 622.600 | 195.000 |
| GR | 622.700 | 212.000 | 627.100 | 219.000 | 630.000 | 400.000 | 635.000 | 440.000 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 9.100 | 0.0 | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| - | 0.100 | 0.100 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECNO 4316 STA 26+00 D/S FACE MIDDLEBELT SKEW BRIDGE FROM C.N. AND Q.M. | | | | | | | | | |
| X1 | 4316.000 | 13.000 | 42.300 | 57.800 | 300.000 | 100.000 | 200.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 629.600 | 629.600 | 0.0 |
| GR | 650.000 | 0.0 | 634.000 | 1.000 | 633.700 | 2.000 | 632.600 | 32.000 | 622.700 | 42.300 |
| GR | 622.700 | 42.400 | 622.600 | 50.000 | 622.700 | 57.700 | 622.700 | 57.800 | 632.600 | 68.000 |
| GR | 633.700 | 98.000 | 634.000 | 99.000 | 650.000 | 100.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| SB | 0.0 | 1.850 | 3.000 | 0.0 | 15.440 | 0.0 | 97.240 | 0.0 | 622.600 | 622.600 |
| | SECNO 4403 U/S FACE MIDDLEBELT FROM CORPS NOTES AND QUAD MAPSKEW BR. | | | | | | | | | |
| X1 | 4403.000 | 0.0 | 0.0 | 0.0 | 87.000 | 87.000 | 87.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 1.000 | 628.900 | 632.900 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 632.900 | 632.900 | 0.0 |
| BT | 8.000 | 0.0 | 650.000 | 0.0 | 1.000 | 634.000 | 0.0 | 42.300 | 632.900 | 622.700 |
| BT | 42.400 | 635.400 | 628.900 | 57.700 | 635.400 | 628.900 | 57.800 | 632.900 | 622.700 | 99.000 |
| BT | 634.000 | 0.0 | 100.000 | 650.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.0 | 0.0 | 0.0 | 0.400 | 0.600 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 7.100 | 9.100 | 9.100 | 9.100 | 9.100 | 215.000 | 471.000 | 122.000 | 550.000 |
| | SECNO 4453 STA 44+55 50' U/S MIDDLEBELT FROM CORPS NOTES AND QUAD MAP | | | | | | | | | |
| X1 | 4453.000 | 13.000 | 330.000 | 357.000 | 50.000 | 50.000 | 50.000 | 0.450 | 0.0 | 0.0 |
| GR | 640.000 | 0.0 | 635.000 | 100.000 | 630.000 | 150.000 | 630.000 | 260.000 | 625.000 | 310.000 |
| GR | 625.700 | 330.000 | 622.700 | 333.000 | 622.600 | 350.000 | 622.700 | 354.000 | 626.700 | 357.000 |
| GR | 625.000 | 480.000 | 630.000 | 510.000 | 635.000 | 550.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.410 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.100 | 0.100 | 0.040 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECNO 5950 STA 59+50 FROM CORPS NOTES AND QUAD MAP | | | | | | | | | |
| X1 | 5950.000 | 11.000 | 235.000 | 265.000 | 1497.000 | 1497.000 | 1497.000 | 0.0 | 0.0 | 0.0 |
| GR | 640.000 | 0.0 | 632.000 | 70.000 | 630.000 | 235.000 | 627.000 | 240.000 | 626.700 | 245.000 |
| GR | 626.600 | 250.000 | 626.700 | 255.000 | 627.000 | 260.000 | 630.000 | 265.000 | 632.000 | 370.000 |
| GR | 640.000 | 410.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECNO 6600 STA 66+00 FROM CORPS NOTES AND QUAD MAP | | | | | | | | | |
| X1 | 6600.000 | 7.000 | 110.000 | 165.000 | 650.000 | 500.000 | 650.000 | 0.0 | 0.0 | 0.0 |
| GR | 640.000 | 0.0 | 635.000 | 45.000 | 632.000 | 110.000 | 628.800 | 140.000 | 632.000 | 165.000 |
| GR | 635.000 | 350.000 | 640.000 | 400.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECNO 7340 STA 73+40 FROM CORPS NOTES AND QUAD MAP | | | | | | | | | |
| X1 | 7340.000 | 9.000 | 200.000 | 222.000 | 740.000 | 740.000 | 740.000 | 0.0 | 0.0 | 0.0 |
| GR | 645.000 | 0.0 | 634.000 | 60.000 | 634.000 | 200.000 | 631.700 | 210.000 | 631.700 | 218.000 |
| GR | 634.000 | 222.000 | 634.000 | 300.000 | 640.000 | 320.000 | 645.000 | 345.000 | 0.0 | 0.0 |
| | SECNO 8178 X | | | | | | | | | |
| X1 | 8178.000 | 9.000 | 210.000 | 240.000 | 837.000 | 808.000 | 730.000 | 0.0 | 0.0 | 0.0 |
| GR | 645.000 | 0.0 | 638.500 | 25.000 | 635.500 | 210.000 | 633.000 | 217.000 | 632.900 | 225.000 |
| GR | 633.000 | 232.000 | 635.500 | 240.000 | 640.000 | 365.000 | 645.000 | 425.000 | 0.0 | 0.0 |
| | SECNO 8815 STA 88+15 FROM CORPS NOTES AND QUAD MAP | | | | | | | | | |

Top of Trailing = 6354

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8815.000 | 10.000 | 210.000 | 253.000 | 840.000 | 810.000 | 737.000 | 0.0 | 0.0 | 0.0 |
| GR | 646.000 | 0.0 | 640.000 | 45.000 | 638.000 | 210.000 | 634.600 | 223.000 | 634.000 | 232.000 |
| GR | 634.600 | 242.000 | 638.000 | 253.000 | 640.000 | 355.000 | 644.000 | 415.000 | 646.000 | 590.000 |

SECNO 9276 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9276.000 | 10.000 | 205.000 | 250.000 | 461.000 | 461.000 | 461.000 | 0.0 | -1.000 | 0.0 |
| GR | 655.000 | 0.0 | 643.000 | 95.000 | 640.000 | 205.000 | 636.100 | 223.000 | 635.900 | 230.000 |
| GR | 636.100 | 237.000 | 640.000 | 250.000 | 645.000 | 300.000 | 650.000 | 320.000 | 655.000 | 350.000 |

SECNO 9737 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9737.000 | 0.0 | 0.0 | 0.0 | 461.000 | 461.000 | 461.000 | 0.0 | 1.000 | 0.0 |

SECNO 10198 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10198.000 | 0.0 | 0.0 | 0.0 | 450.000 | 300.000 | 461.000 | 0.0 | 1.000 | 0.0 |

SECNO 10658 STA 106+90 50' D/S MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10658.000 | 13.000 | 205.000 | 240.000 | 450.000 | 300.000 | 460.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 183.000 | 0.0 | 263.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 660.000 | 0.0 | 655.000 | 80.000 | 650.000 | 112.000 | 647.500 | 117.000 | 645.000 | 132.000 |
| GR | 642.500 | 205.000 | 637.900 | 226.000 | 637.800 | 232.000 | 637.900 | 238.000 | 642.500 | 240.000 |
| GR | 645.000 | 520.000 | 650.000 | 560.000 | 655.000 | 600.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 10708 STA 107+40 D/S FACE MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10708.000 | 18.000 | 208.000 | 272.000 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 653.600 | 653.600 | 0.0 |
| GR | 660.000 | 0.0 | 655.000 | 65.000 | 652.000 | 130.000 | 645.500 | 208.000 | 645.500 | 208.100 |
| GR | 645.500 | 212.000 | 638.000 | 227.000 | 638.000 | 227.100 | 638.000 | 229.000 | 638.000 | 229.100 |
| GR | 638.000 | 251.000 | 638.000 | 251.100 | 638.000 | 253.000 | 638.000 | 253.100 | 645.500 | 268.000 |
| GR | 645.500 | 272.000 | 645.500 | 272.100 | 656.000 | 350.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| SB | 1.250 | 1.300 | 3.000 | 0.0 | 26.000 | 2.000 | 793.700 | 2.280 | 638.000 | 638.000 |

SECNO 10782 U/S FACE MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10782.000 | 0.0 | 0.0 | 0.0 | 74.000 | 74.000 | 74.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 1.000 | 653.100 | 654.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 654.000 | 655.000 | 0.0 |
| BT | 16.000 | 0.0 | 660.000 | 0.0 | 65.000 | 655.000 | 0.0 | 130.000 | 654.000 | 0.0 |
| BT | 208.000 | 654.200 | 645.500 | 208.100 | 654.200 | 653.100 | 227.000 | 654.200 | 653.100 | 227.100 |
| BT | 654.200 | 638.000 | 229.000 | 654.200 | 638.000 | 229.100 | 654.200 | 653.100 | 251.000 | 655.000 |
| BT | 653.100 | 251.100 | 655.000 | 638.000 | 253.000 | 655.000 | 638.000 | 253.100 | 655.000 | 653.100 |
| BT | 272.000 | 655.000 | 653.100 | 272.100 | 655.000 | 645.500 | 350.000 | 656.000 | 0.0 | 0.0 |
| NC | 0.100 | 0.100 | 0.040 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| QT | 5.000 | 960.000 | 1410.000 | 1590.000 | 1590.000 | 1860.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 10832 50' U/S MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10832.000 | 13.000 | 197.000 | 247.000 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 145.000 | 0.0 | 300.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 660.000 | 0.0 | 655.000 | 80.000 | 650.000 | 112.000 | 647.500 | 117.000 | 645.000 | 132.000 |
| GR | 642.500 | 197.000 | 637.900 | 226.000 | 637.800 | 232.000 | 637.900 | 238.000 | 642.500 | 247.000 |
| GR | 645.000 | 520.000 | 650.000 | 560.000 | 655.000 | 600.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.150 | 0.150 | 0.050 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 11720

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 11720.000 | 9.000 | 530.000 | 580.000 | 888.000 | 888.000 | 888.000 | 0.0 | 0.0 | 0.0 |
| GR | 660.000 | 150.000 | 646.000 | 375.000 | 646.500 | 530.000 | 642.800 | 550.000 | 642.700 | 560.000 |
| GR | 642.800 | 565.000 | 646.000 | 580.000 | 647.000 | 675.000 | 660.000 | 800.000 | 0.0 | 0.0 |

SECNO 12145 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12145.000 | 0.0 | 0.0 | 0.0 | 425.000 | 425.000 | 425.000 | 0.0 | 0.900 | 0.0 |

SECNO 12570 STA 126+20 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12570.000 | 9.000 | 488.000 | 538.000 | 425.000 | 425.000 | 425.000 | 0.0 | 0.0 | 0.0 |
| GR | 660.000 | 0.0 | 650.000 | 272.000 | 648.800 | 412.000 | 647.800 | 483.000 | 645.800 | 488.000 |
| GR | 644.400 | 508.000 | 649.600 | 538.000 | 650.000 | 628.000 | 660.000 | 800.000 | 0.0 | 0.0 |

SECNO 12965 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12965.000 | 0.0 | 0.0 | 0.0 | 395.000 | 395.000 | 395.000 | 0.0 | 1.600 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 9.100 | 0.0 | 0.0 | 0.0 | 1.000 | 824.000 |
| NC | 0.150 | 0.150 | 0.050 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 13360 STA 159+20 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13360.000 | 12.000 | 270.000 | 310.000 | 430.000 | 250.000 | 395.000 | 0.0 | 0.0 | 0.0 |
| GR | 665.000 | 0.0 | 660.000 | 35.000 | 655.000 | 165.000 | 650.000 | 270.000 | 649.200 | 282.000 |
| GR | 647.600 | 286.000 | 647.500 | 290.000 | 647.600 | 294.000 | 649.500 | 298.000 | 650.000 | 310.000 |
| GR | 655.000 | 400.000 | 662.000 | 430.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 13704 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13704.000 | 0.0 | 0.0 | 0.0 | 209.000 | 344.000 | 344.000 | 0.0 | 1.800 | 0.0 |

SECNO 14047 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14047.000 | 0.0 | 0.0 | 0.0 | 208.000 | 343.000 | 343.000 | 0.0 | 1.800 | 0.0 |

VALLEY SECTION X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14219.000 | 7.000 | 447.000 | 476.000 | 104.000 | 172.000 | 172.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 400.000 | 0.0 | 524.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 665.000 | 0.0 | 659.500 | 257.000 | 653.300 | 447.000 | 652.000 | 462.000 | 653.300 | 476.000 |
| GR | 659.500 | 570.000 | 665.000 | 570.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.150 | 0.150 | 0.050 | 0.400 | 0.600 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 14390 50' D/S 7 MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14390.000 | 13.000 | 624.000 | 642.000 | 104.000 | 171.000 | 171.000 | 0.910 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 612.000 | 0.0 | 654.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 670.000 | 0.0 | 665.000 | 280.000 | 660.000 | 310.000 | 659.000 | 350.000 | 658.500 | 600.000 |
| GR | 653.000 | 624.000 | 652.900 | 634.000 | 653.000 | 642.000 | 655.400 | 655.000 | 656.500 | 660.000 |
| GR | 659.000 | 740.000 | 665.000 | 775.000 | 670.000 | 825.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 14440 STA 174+50 D/S FACE 7 MILE FROM CORPS NOTES AND QUAD MAPSKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14440.000 | 11.000 | 675.220 | 693.420 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | .0 | . | 0. | .0 | 0.0 | .0 | 6 .0 | 6 .0 | .0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 670.000 | 599.000 | 665.000 | 600.000 | 654.500 | 675.220 | 654.500 | 675.320 | 652.900 | 686.140 |
| GR | 653.500 | 693.420 | 653.500 | 693.520 | 664.000 | 733.000 | 664.000 | 764.000 | 665.000 | 780.000 |
| GR | 670.000 | 781.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SB | 0.0 | 1.710 | 3.000 | 0.0 | 18.200 | 0.0 | 121.900 | 0.0 | 652.800 | 652.800 |

SECNO 14501 U/S FACE 7 MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14501.000 | 0.0 | 0.0 | 0.0 | 61.000 | 61.000 | 61.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 1.000 | 659.500 | 663.400 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 663.600 | 663.600 | 0.0 |
| BT | 11.000 | 599.000 | 670.000 | 0.0 | 600.000 | 665.000 | 0.0 | 642.000 | 664.000 | 0.0 |
| BT | 675.220 | 663.400 | 654.500 | 675.320 | 663.400 | 659.500 | 693.420 | 663.400 | 659.500 | 693.520 |
| BT | 663.400 | 653.500 | 733.000 | 664.000 | 0.0 | 764.000 | 664.000 | 0.0 | 780.000 | 665.000 |
| BT | 0.0 | 781.000 | 670.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.410 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

635
725
x 90ft weir

SECNO 14570 STA 175+10 69° U/S 7 MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14570.000 | 7.000 | 325.000 | 346.000 | 69.000 | 69.000 | 69.000 | 0.910 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 241.000 | 0.0 | 429.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 670.000 | 0.0 | 660.000 | 140.000 | 655.600 | 325.000 | 651.800 | 342.000 | 655.600 | 346.000 |
| GR | 660.000 | 470.000 | 670.000 | 740.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 15360 STA 184+40 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15360.000 | 10.000 | 84.000 | 125.000 | 790.000 | 790.000 | 790.000 | 0.0 | 0.0 | 0.0 |
| GR | 670.000 | 0.0 | 660.000 | 30.000 | 658.000 | 40.000 | 657.500 | 84.000 | 656.500 | 110.000 |
| GR | 655.100 | 116.000 | 655.000 | 122.000 | 658.000 | 125.000 | 660.000 | 175.000 | 670.000 | 200.000 |

SECNO 16100 STA 192+60 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16100.000 | 13.000 | 115.000 | 140.000 | 740.000 | 740.000 | 740.000 | 0.0 | 0.0 | 0.0 |
| GR | 672.000 | 0.0 | 670.000 | 30.000 | 666.000 | 40.000 | 663.000 | 60.000 | 662.000 | 115.000 |
| GR | 658.000 | 130.000 | 660.000 | 140.000 | 662.000 | 170.000 | 662.600 | 240.000 | 664.000 | 250.000 |
| GR | 666.000 | 450.000 | 670.000 | 480.000 | 672.000 | 510.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 16500 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16500.000 | 8.000 | 173.000 | 209.000 | 550.000 | 275.000 | 400.000 | 0.0 | 0.0 | 0.0 |
| GR | 675.000 | 0.0 | 667.000 | 80.000 | 662.000 | 173.000 | 659.000 | 195.000 | 662.000 | 209.000 |
| GR | 663.500 | 310.000 | 670.000 | 510.000 | 675.000 | 600.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.0 | 0.0 | 0.0 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 16900 STA 201+70 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16900.000 | 13.000 | 228.000 | 276.000 | 550.000 | 275.000 | 400.000 | 0.0 | 0.0 | 0.0 |
| GR | 680.000 | 0.0 | 675.000 | 90.000 | 670.000 | 130.000 | 666.000 | 170.000 | 664.000 | 228.000 |
| GR | 660.000 | 256.000 | 660.000 | 260.000 | 662.000 | 264.000 | 664.000 | 276.000 | 665.000 | 350.000 |
| GR | 670.000 | 580.000 | 675.000 | 680.000 | 680.000 | 900.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.120 | 0.120 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 17295 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17295.000 | 8.000 | 392.000 | 443.000 | 75.000 | 425.000 | 395.000 | 0.0 | 0.0 | 0.0 |
| GR | 680.000 | 0.0 | 672.000 | 190.000 | 667.500 | 330.000 | 666.500 | 392.000 | 662.400 | 420.000 |
| GR | 665.000 | 443.000 | 666.000 | 500.000 | 680.000 | 650.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 17690 STA 210+80 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17690.000 | 10.000 | 555.000 | 610.000 | 75.000 | 425.000 | 395.000 | 0.0 | 0.0 | 0.0 |
| GR | 680.000 | 0.0 | 675.000 | 250.000 | 669.100 | 495.000 | 669.000 | 555.000 | 664.800 | 577.000 |
| GR | 664.700 | 581.000 | 664.800 | 585.000 | 667.000 | 610.000 | 667.500 | 650.000 | 680.000 | 715.000 |

SECNO 18215 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18215.000 | 0.0 | 0.0 | 0.0 | 615.000 | 488.000 | 525.000 | 0.0 | 2.000 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 9.100 | 0.0 | 0.0 | 0.0 | 1.000 | 574.000 |

SECNO 18739 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18739.000 | 10.000 | 415.000 | 465.000 | 614.000 | 488.000 | 524.000 | 0.0 | -0.900 | 0.0 |
| GR | 685.000 | 0.0 | 680.000 | 250.000 | 678.000 | 345.000 | 674.000 | 415.000 | 669.600 | 430.000 |
| GR | 669.500 | 640.000 | 669.600 | 450.000 | 674.000 | 465.000 | 678.000 | 540.000 | 685.000 | 575.000 |

SECNO 19001 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19001.000 | 0.0 | 0.0 | 0.0 | 307.000 | 243.000 | 262.000 | 0.0 | 0.900 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.410 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 19263 50' D/S FARMINGTON FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19263.000 | 11.000 | 288.000 | 321.000 | 307.000 | 243.000 | 262.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 277.000 | 0.0 | 332.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 685.000 | 0.0 | 680.000 | 60.000 | 675.000 | 130.000 | 675.600 | 285.000 | 670.600 | 288.000 |
| GR | 670.500 | 305.000 | 670.600 | 314.000 | 672.600 | 321.000 | 681.800 | 343.000 | 680.000 | 350.000 |
| GR | 690.000 | 350.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.0 | 0.0 | 0.0 | 0.400 | 0.600 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 9.100 | 0.0 | 0.0 | 0.0 | 1.000 | 354.000 |

SECNO 19313 STA 230+00 D/S FACE FARMINGTON FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19313.000 | 13.000 | 290.000 | 320.000 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 679.800 | 679.800 | 0.0 |
| GR | 685.000 | 0.0 | 680.000 | 60.000 | 675.000 | 265.000 | 675.600 | 287.000 | 670.600 | 290.000 |
| GR | 670.600 | 290.100 | 670.500 | 305.000 | 670.600 | 320.000 | 670.600 | 320.100 | 672.600 | 327.000 |
| GR | 681.800 | 349.000 | 680.000 | 355.000 | 690.000 | 355.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| SB | 0.0 | 1.710 | 3.000 | 0.0 | 30.000 | 0.0 | 210.000 | 0.0 | 670.500 | 670.500 |

SECNO 19387 U/S FACE FARMINGTON FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19387.000 | 0.0 | 0.0 | 0.0 | 74.000 | 74.000 | 74.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 1.000 | 677.500 | 681.100 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 681.100 | 681.100 | 0.0 |
| BT | 8.000 | 0.0 | 690.000 | 0.0 | 0.0 | 685.000 | 0.0 | 290.000 | 681.100 | 670.600 |
| BT | 290.100 | 681.100 | 677.500 | 320.000 | 681.100 | 677.500 | 320.100 | 681.100 | 670.600 | 355.000 |
| BT | 682.000 | 0.0 | 355.000 | 690.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| QT | 5.000 | 820.000 | 1200.000 | 1350.000 | 1350.000 | 1580.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.120 | 0.120 | 0.035 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.410 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 19437 50' U/S FARMINGTON FROM CORPS NOTES, FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19437.000 | 9.000 | 704.000 | 773.000 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 660.000 | 0.0 | 820.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 690.000 | 0.0 | 680.000 | 600.000 | 679.600 | 704.000 | 670.600 | 728.000 | 670.500 | 735.000 |
| GR | 670.0 | 751.0 | 680.00 | 773.00 | 6[illegible].000 | 91[illegible].0 | 795.000 | 1200.000 | 0.0 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| C | 0.095 | 0.095 | 0.048 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECNO 19517 | | | | | | | | | |
| X1 | 19517.000 | 13.000 | 100.000 | 180.000 | 80.000 | 80.000 | 80.000 | 0.0 | 0.0 | 0.0 |
| X4 | 1.000 | 677.500 | 1.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 690.000 | 0.0 | 677.000 | 100.000 | 674.000 | 140.000 | 672.400 | 155.000 | 671.600 | 160.000 |
| GR | 671.600 | 164.000 | 672.600 | 170.000 | 675.700 | 171.000 | 678.000 | 180.000 | 677.500 | 200.000 |
| GR | 678.300 | 226.000 | 681.800 | 245.000 | 682.600 | 280.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECNO 20117 | | | | | | | | | |
| X1 | 20117.000 | 12.000 | 275.000 | 330.000 | 450.000 | 750.000 | 600.000 | 0.0 | 0.0 | 0.0 |
| X4 | 1.000 | 680.000 | 1.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 690.000 | 0.0 | 680.000 | 124.000 | 681.500 | 150.000 | 681.500 | 152.000 | 680.000 | 185.000 |
| GR | 677.900 | 275.000 | 676.000 | 280.000 | 674.400 | 295.000 | 674.400 | 308.000 | 680.000 | 330.000 |
| GR | 682.000 | 368.000 | 684.000 | 385.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECNO 20617 X | | | | | | | | | |
| X1 | 20617.000 | 8.000 | 410.000 | 475.000 | 575.000 | 425.000 | 500.000 | 0.0 | 0.0 | 0.0 |
| GR | 690.000 | 0.0 | 684.000 | 275.000 | 680.000 | 410.000 | 676.000 | 432.000 | 676.000 | 445.000 |
| GR | 680.000 | 475.000 | 684.000 | 525.000 | 690.000 | 575.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 7.100 | 9.100 | 0.0 | 500.000 | 745.000 | 535.000 | 675.000 |
| | SECNO 21117 | | | | | | | | | |
| X1 | 21117.000 | 12.000 | 565.000 | 645.000 | 575.000 | 425.000 | 500.000 | 0.0 | 0.0 | 0.0 |
| GR | 690.200 | 0.0 | 688.100 | 65.000 | 685.900 | 265.000 | 684.000 | 335.000 | 682.000 | 565.000 |
| GR | 681.500 | 575.000 | 677.500 | 580.000 | 677.500 | 590.000 | 680.000 | 625.000 | 682.000 | 645.000 |
| GR | 684.000 | 785.000 | 685.000 | 1035.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.410 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECNO 21392 X | | | | | | | | | |
| X1 | 21392.000 | 7.000 | 355.000 | 435.000 | 200.000 | 350.000 | 275.000 | 0.0 | 0.0 | 0.0 |
| GR | 695.000 | 0.0 | 685.500 | 355.000 | 679.100 | 385.000 | 679.100 | 395.000 | 683.000 | 435.000 |
| GR | 686.000 | 500.000 | 695.000 | 850.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECNO 21667 | | | | | | | | | |
| X1 | 21667.000 | 7.000 | 130.000 | 230.000 | 200.000 | 350.000 | 275.000 | 0.0 | 0.0 | 0.0 |
| GR | 700.000 | 0.0 | 690.000 | 130.000 | 680.600 | 195.000 | 680.600 | 205.000 | 684.100 | 230.000 |
| GR | 690.000 | 378.000 | 700.000 | 1000.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECNO 22128 X | | | | | | | | | |
| X1 | 22128.000 | 10.000 | 300.000 | 355.000 | 461.000 | 461.000 | 461.000 | 0.0 | 0.0 | 0.0 |
| GR | 700.000 | 0.0 | 691.000 | 125.000 | 689.000 | 200.000 | 688.000 | 300.000 | 682.100 | 330.000 |
| GR | 681.900 | 335.000 | 682.100 | 340.000 | 686.500 | 355.000 | 693.000 | 380.000 | 700.000 | 600.000 |
| | SECNO 22589 X | | | | | | | | | |
| X1 | 22589.000 | 10.000 | 445.000 | 435.000 | 461.000 | 461.000 | 461.000 | 0.0 | 0.0 | 0.0 |
| GR | 700.000 | 50.000 | 691.000 | 200.000 | 689.000 | 300.000 | 688.000 | 445.000 | 685.000 | 465.000 |
| GR | 683.200 | 470.000 | 685.000 | 475.000 | 689.000 | 485.000 | 693.000 | 505.000 | 700.000 | 675.000 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 9.100 | 0.0 | 0.0 | 0.0 | 1.000 | 799.000 |

STCNO 23050

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 23050.000 | 16.000 | 600.000 | 613.000 | 461.000 | 461.000 | 461.000 | 0.0 | 0.0 | 0.0 |
| GR | 700.800 | 0.0 | 698.200 | 100.000 | 695.100 | 200.000 | 693.400 | 300.000 | 691.500 | 400.000 |
| GR | 690.400 | 500.000 | 690.600 | 575.000 | 689.000 | 600.000 | 685.500 | 602.000 | 684.500 | 606.000 |
| GR | 685.700 | 610.000 | 688.900 | 613.000 | 692.800 | 624.000 | 699.100 | 670.000 | 699.400 | 700.000 |
| GR | 700.800 | 800.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.400 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

STCNO 23550

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 23550.000 | 6.000 | 270.000 | 330.000 | 500.000 | 500.000 | 500.000 | 0.0 | 0.0 | 0.0 |
| GR | 701.000 | 0.0 | 690.000 | 270.000 | 687.500 | 295.000 | 687.500 | 305.000 | 690.000 | 330.000 |
| GR | 700.000 | 400.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| QT | 5.000 | 730.000 | 1070.000 | 1210.000 | 1210.000 | 1410.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.080 | 0.080 | 0.060 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

STCNO 24226 24° D/S 8 MILE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 24226.000 | 8.000 | 235.000 | 278.000 | 550.000 | 800.000 | 676.000 | 0.0 | -0.040 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 118.000 | 0.0 | 360.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 698.500 | 0.0 | 692.500 | 235.000 | 690.500 | 242.000 | 689.200 | 255.000 | 690.500 | 269.000 |
| GR | 692.500 | 278.000 | 695.500 | 430.000 | 696.000 | 530.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.050 | 0.050 | 0.030 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 7.100 | 9.100 | 9.100 | 9.100 | 9.100 | 249.000 | 261.000 | 0.500 | 354.000 |

STCNO 24250 D/S FACE 8 MILE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 24250.000 | 0.0 | 0.0 | 0.0 | 24.000 | 24.000 | 24.000 | 0.0 | 0.040 | 0.0 |
| EJ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

*PROF 1

CCHV= 0.300 CEHV= 0.500

*SECNO 120.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |
| 3470 ENCROACHMENT STATIONS= | | 250.0 | 540.0 | TYPE= | 1 | TARGET= | 290.000 | | |
| SECNO 120 CORPS STA 050 | | | | | | | | | |
| 120.00 | 6.80 | 620.00 | 0.0 | 620.00 | 620.76 | 0.76 | 0.0 | 0.0 | 616.40 |
| 1770. | 270. | 1261. | 239. | 143. | 154. | 148. | 0. | 0. | 618.10 |
| 0.0 | 1.89 | 8.21 | 1.62 | 0.100 | 0.040 | 0.100 | 0.0 | 613.20 | 320.00 |
| 0.007132 | 0. | 0. | 0. | 0 | 0 | 0 | 0.0 | 220.00 | 540.00 |

Mean Annual Flood in Bell Br.
100 yr elev. = 623.29

*SECNO 370.000

SECNO 370. X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 370.00 | 6.42 | 621.72 | 0.0 | 0.0 | 622.35 | 0.63 | 1.55 | 0.06 | 618.00 |
| 1770. | 418. | 1138. | 214. | 201. | 146. | 106. | 3. | 1. | 618.00 |
| 0.01 | 2.08 | 7.79 | 2.02 | 0.100 | 0.040 | 0.100 | 0.040 | 615.30 | 57.95 |
| 0.005459 | 250. | 250. | 250. | 2 | 0 | 0 | 0.0 | 159.10 | 217.05 |

*SECNO 745.000

SECNO 745 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 745.00 | 7.60 | 623.30 | 0.0 | 0.0 | 623.72 | 0.42 | 1.31 | 0.06 | 618.00 |
| 1770. | 343. | 1175. | 251. | 198. | 187. | 151. | 7. | 2. | 618.00 |
| 0.03 | 1.73 | 6.29 | 1.67 | 0.100 | 0.040 | 0.100 | 0.040 | 615.70 | 63.64 |
| 0.002429 | 375. | 375. | 375. | 2 | 0 | 0 | 0.0 | 142.72 | 206.36 |

*SECNO 1120.000

SECNO 1120. STA 13+40

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1120.00 | 8.21 | 624.21 | 0.0 | 0.0 | 624.88 | 0.67 | 1.03 | 0.12 | 618.00 |
| 1770. | 197. | 1271. | 302. | 116. | 166. | 158. | 11. | 4. | 618.00 |
| 0.05 | 1.70 | 7.67 | 1.92 | 0.100 | 0.040 | 0.100 | 0.040 | 616.00 | 72.14 |
| 0.003128 | 375. | 375. | 375. | 2 | 0 | 0 | 0.0 | 120.72 | 192.86 |

*SECNO 1770.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

SECNO 1770 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 770.00 | 8.81 | 625.[illegible] | 0.0 | 0.0 | 626.[illegible]1 | 0.37 | 1.2[illegible] | 0.09 | 618.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.09 | 1.36 | 5.48 | 1.35 | 0.100 | 0.040 | 0.100 | 0.040 | 617.00 | 133.14 |
| 0.001290 | 650. | 650. | 650. | 2 | 0 | 0 | 0.0 | 121.13 | 254.27 |

CCHV= 0.300 CEHV= 0.500
*SECNO 2416.000

SECNO 2416 50' D/S 6 MILE FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2416.00 | 8.77 | 626.67 | 0.0 | 0.0 | 627.19 | 0.52 | 0.91 | 0.08 | 618.00 |
| 1770. | 82. | 1556. | 133. | 69. | 253. | 107. | 26. | 7. | 618.00 |
| 0.12 | 1.18 | 6.15 | 1.24 | 0.120 | 0.040 | 0.120 | 0.040 | 617.90 | 255.06 |
| 0.001527 | 646. | 646. | 646. | 2 | 0 | 0 | 0.0 | 69.65 | 324.69 |

*SECNO 2466.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.00 ELREA= 631.00

SECNO 2466 D/S FACE 6 MILE FROM FIELD BOOKS AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| C 2466.00 | 9.19 | 627.09 | 0.0 | 0.0 | 627.34 | 0.25 | 0.07 | 0.08 | 625.40 |
| 1770. | 0. | 1770. | 0. | 0. | 438. | 0. | 26. | 7. | 625.40 |
| 0.13 | 0.0 | 4.04 | 0.0 | 0.120 | 0.040 | 0.120 | 0.040 | 617.90 | 371.60 |
| 0.001185 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 73.80 | 445.40 |

SPECIAL BRIDGE

| SB XR | XKOR | COEQ | RDLEN | BNC | BHP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|
| 1.05 | 1.79 | 3.00 | 0.0 | 22.80 | 2.00 | 582.00 | 2.91 | 617.90 | 617.90 |

*SECNO 2554.000
CLASS A LOW FLOW

3420 BRIDGE H.S.= 627.05 BRIDGE VELOCITY= 4.07 CALCULATED CHANNEL AREA= 435.

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 0.0 | 627.35 | 0.02 | 0. | 1770. | 582. | 624. | 629.40 | 632.60 |

.0118×88 = .10ft

friction loss may be ≈.10ft

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 632.60 ELREA= 632.60

SECNO 2554 U/S FACE 6 MILE FROM FIELD BOOKS AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2554.00 | 9.20 | 627.10 | 0.0 | 0.0 | 627.35 | 0.25 | 0.01 | 0.0 | 625.40 |
| 1770. | 0. | 1770. | 0. | 0. | 439. | 0. | 27. | 7. | 625.40 |
| 0.13 | 0.0 | 4.03 | 0.0 | 0.120 | 0.040 | 0.120 | 0.040 | 617.90 | 371.60 |
| 0.001176 | 88. | 88. | 88. | 0 | 0 | 0 | 0.0 | 73.80 | 445.40 |

CCHV= 0.400 CEHV= 0.600
*SECNO 2604.000

3470 ENCROACHMENT STATIONS= 111.0 205.0 TYPE= 1 TARGET= 174.000

SECNO 2604 STA 25+20 50' U/S 6 MILE FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2604.00 | 9.32 | 627.22 | 0.0 | 0.0 | 627.43 | 0.21 | 0.06 | 0.02 | 621.50 |
| 1770. | 256. | 1427. | 87. | 292. | 355. | 114. | 28. | 7. | 622.20 |
| 0.12 | 0.87 | 4.04 | 0.74 | 0.15 | 0.50 | 0.150 | 0.0.0 | 617.90 | 111.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.001150 | 50. | 50. | 50. | 2 | | 0 | 0.0 | [illegible] | [illegible] |

*SECNO 3360.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | IWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | IOPRID | ENDST |

SECNO 3360 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3360.00 | 8.01 | 628.31 | 0.0 | 0.0 | 628.61 | 0.29 | 1.13 | 0.05 | 625.00 |
| 1770. | 250. | 1399. | 121. | 280. | 288. | 161. | 39. | 10. | 625.00 |
| 0.19 | 0.89 | 4.85 | 0.75 | 0.150 | 0.050 | 0.150 | 0.063 | 620.30 | 66.86 |
| 0.002232 | 600. | 756. | 550. | 2 | 0 | 0 | 0.0 | 237.48 | 304.34 |

*SECNO 4116.000

3470 ENCROACHMENT STATIONS= 123.0 273.0 TYPE= 1 TARGET= 150.000

SECNO 4116 200'D/S MIDDLEBELT FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4116.00 | 7.47 | 630.07 | 0.0 | 0.0 | 630.42 | 0.35 | 1.78 | 0.03 | 626.20 |
| 1770. | 191. | 1418. | 160. | 151. | 270. | 137. | 49. | 13. | 627.10 |
| 0.23 | 1.26 | 5.25 | 1.17 | 0.120 | 0.050 | 0.120 | 0.045 | 622.60 | 123.00 |
| 0.002742 | 600. | 756. | 550. | 2 | 0 | 0 | 0.0 | 150.00 | 273.00 |

*SECNO 4316.000 2311'

3301 HV CHANGED MORE THAN HVINS 200

SECNO 4316 STA 26+00 D/S FACE MIDDLEBELT SKEW BRIDGE FROM C.N. AND Q.H.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4316.00 | 7.67 | 630.27 | 0.0 | 0.0 | 632.73 | 2.46 | 1.04 | 1.27 | 622.70 |
| 1770. | 100. | 1571. | 99. | 30. | 118. | 30. | 50. | 13. | 622.70 |
| 0.24 | 3.35 | 13.30 | 3.34 | 0.100 | 0.050 | 0.100 | 0.045 | 622.60 | 34.42 |
| 0.013358 | 300. | 200. | 100. | 2 | 0 | 0 | 0.0 | 31.10 | 65.60 |

channel is 155 ft wide which is width of bridge

SPECIAL BRIDGE

| SS | XK | XKOR | COEQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 1.35 | 3.00 | 0.0 | 15.44 | 0.0 | 97.24 | 0.0 | 622.60 | 622.60 |

*SECNO 4403.000

3301 HV CHANGED MORE THAN HVINS

Due to railing, all flow in channel must go pressure

PRESSURE AND WEIR FLOW

All weir flow is either LOB or ROB (≈ 260 cfs)

Top of Railing = 635.4

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 639.79 | 633.76 | 0.0 | 513. | 1266. | 97. | 97. | 628.90 | 632.90 |

SECNO 4403 U/S FACE MIDDLEBELT FROM CORPS NOTES AND QUAD MAPSKEW BR.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4403.00 | 11.70 | 634.30 | 0.0 | 0 | 635.07 | 0.77 | 1.35 | 0.0 | 622.70 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1770. | 178. | 1416. | 176. | 103. | 181. | 103. | 51. | 13. | 62[illegible] |
| 0.24 | 1.72 | 7.84 | 1.71 | 0.100 | 0.050 | 0.100 | 0.065 | 622.60 | 0.98 |
| 0.002637 | 87. | 87. | 87. | 3 | 0 | 4 | 0.0 | 98.04 | 99.02 |

CCHV= 0.400 CEHV= 0.600
*SECNO 4453.000
3280 CROSS SECTION 4453.00 EXTENDED 0.37 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 54.9 247.5 TYPE= 1 TARGET= 428.000

SECNO 4453 STA 44+55 50' U/S MIDDLEBELT FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4453.00 | 12.77 | 635.37 | 0.0 | 0.0 | 635.41 | 0.03 | 0.04 | 0.30 | 625.70 |
| 1770. | 582. | 366. | 822. | 583. | 150. | 685. | 52. | 13. | 626.70 |
| 0.25 | 1.00 | 2.44 | 1.20 | 0.100 | 0.050 | 0.100 | 0.045 | 622.60 | 54.90 |
| 0.000371 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 192.60 | 247.50 |

*SECNO 5950.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECNO 5950 STA 59+50 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5950.00 | 9.29 | 635.89 | 0.0 | 0.0 | 635.94 | 0.05 | 0.52 | 0.01 | 630.00 |
| 1770. | 656. | 699. | 415. | 873. | 257. | 551. | 105. | 23. | 630.00 |
| 0.52 | 0.75 | 2.72 | 0.75 | 0.100 | 0.040 | 0.100 | 0.044 | 626.60 | 35.95 |
| 0.000330 | 1497. | 1497. | 1497. | 3 | 0 | 0 | 0.0 | 353.51 | 389.46 |

*SECNO 6600.000

SECNO 6600 STA 66+00 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6600.00 | 7.38 | 636.18 | 0.0 | 0.0 | 636.32 | 0.14 | 0.32 | 0.06 | 632.00 |
| 1770. | 156. | 1172. | 442. | 180. | 318. | 502. | 123. | 27. | 632.00 |
| 0.58 | 0.87 | 3.69 | 0.88 | 0.100 | 0.040 | 0.100 | 0.044 | 628.80 | 34.42 |
| 0.000961 | 650. | 650. | 500. | 2 | 0 | 0 | 0.0 | 327.33 | 361.75 |

*SECNO 7340.000

SECNO 7340 STA 73+40 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7340.00 | 5.56 | 637.26 | 0.0 | 0.0 | 637.42 | 0.16 | 1.09 | 0.01 | 634.00 |
| 1770. | 781. | 553. | 436. | 485. | 106. | 272. | 139. | 32. | 634.00 |
| 0.66 | 1.61 | 5.21 | 1.61 | 0.100 | 0.040 | 0.100 | 0.043 | 631.70 | 42.23 |
| 0.002543 | 740. | 740. | 740. | 2 | 0 | 0 | 0.0 | 260.62 | 310.86 |

*SECNO 8078.000

SECNO 8078 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8078.00 | 6.34 | 639.24 | 0.0 | 0.0 | 639.56 | 0.32 | 2.04 | 0.10 | 635.50 |
| 1770. | 541. | 1005. | 225. | 415. | 169. | 194. | 154. | 38. | 635.50 |
| 71 | 1.30 | 5 | 1.16 | 0.100 | 0.040 | 0.100 | 0.043 | 632 | 33.17 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.002642 | 837. | 738. | 808. | | | | | | |

*SECNO 8815.000

SECNO 8815 STA 88+15 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8815.00 | 7.02 | 641.02 | 0.0 | 0.0 | 641.29 | 0.27 | 1.71 | 0.02 | 638.00 |
| 1770. | 345. | 1209. | 216. | 337. | 241. | 214. | 169. | 44. | 638.00 |
| 0.77 | 1.02 | 5.02 | 1.01 | 0.100 | 0.040 | 0.100 | 0.042 | 634.00 | 37.36 |
| 0.001890 | 840. | 737. | 810. | 2 | 0 | 0 | 0.0 | 332.93 | 370.29 |

*SECNO 9276.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECNO 9276 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9276.00 | 7.09 | 641.99 | 0.0 | 0.0 | 642.51 | 0.52 | 1.07 | 0.15 | 639.00 |
| 1770. | 171. | 1553. | 46. | 163. | 251. | 45. | 176. | 47. | 639.00 |
| 0.80 | 1.04 | 6.19 | 1.04 | 0.100 | 0.040 | 0.100 | 0.042 | 634.90 | 95.54 |
| 0.002895 | 461. | 461. | 461. | 2 | 0 | 0 | 0.0 | 184.31 | 279.85 |

*SECNO 9737.000

SECNO 9737 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9737.00 | 7.39 | 643.29 | 0.0 | 0.0 | 643.73 | 0.43 | 1.18 | 0.04 | 640.00 |
| 1770. | 207. | 1509. | 54. | 198. | 265. | 54. | 181. | 49. | 640.00 |
| 0.82 | 1.05 | 5.70 | 0.99 | 0.100 | 0.040 | 0.100 | 0.042 | 635.90 | 92.66 |
| 0.002282 | 461. | 461. | 461. | 2 | 0 | 0 | 0.0 | 190.30 | 282.96 |

*SECNO 10198.000

SECNO 10198 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10198.00 | 7.43 | 644.33 | 0.0 | 0.0 | 644.75 | 0.42 | 1.02 | 0.00 | 641.00 |
| 1770. | 212. | 1503. | 55. | 203. | 267. | 56. | 186. | 51. | 641.00 |
| 0.85 | 1.05 | 5.64 | 0.98 | 0.100 | 0.040 | 0.100 | 0.042 | 636.90 | 92.32 |
| 0.002210 | 450. | 461. | 300. | 0 | 0 | 0 | 0.0 | 191.07 | 283.39 |

*SECNO 10658.000

3470 ENCROACHMENT STATIONS= 183.0 263.0 TYPE= 1 TARGET= 80.000

SECNO 10658 STA 106+90 50' D/S MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10658.00 | 7.71 | 645.51 | 0.0 | 0.0 | 646.24 | 0.73 | 1.30 | 0.18 | 642.50 |
| 1770. | 96. | 1557. | 117. | 58. | 214. | 67. | 190. | 52. | 642.50 |
| 0.87 | 1.66 | 7.28 | 1.75 | 0.100 | 0.040 | 0.100 | 0.042 | 637.80 | 183.00 |
| 0.003903 | 450. | 460. | 300. | 2 | 0 | 0 | 0.0 | 80.00 | 263.00 |

*SECNO 10708.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 653.60 ELREA= 653.60

SECNO 10708 STA 107+40 D/S FACE MERRIMAN PRO.. CORPS NOTES AN...

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10708.00 | 8.10 | 646.10 | 0.0 | 0.0 | 646.51 | 0.40 | 0.14 | 0.13 | 645.50 |
| 1770. | 0. | 1770. | 0. | 0. | 347. | 0. | 191. | 52. | 645.50 |
| 0.87 | 0.0 | 5.10 | 0.0 | 0.100 | 0.040 | 0.100 | 0.042 | 638.00 | 208.00 |
| 0.002150 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 64.00 | 272.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | ROLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.30 | 3.00 | 0.0 | 26.00 | 2.00 | 793.70 | 2.28 | 638.00 | 638.00 |

*SECNO 10782.000

| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WIN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

CLASS A LOW FLOW

3420 BRIDGE W.S.E= 646.06 BRIDGE VELOCITY= 5.18 CALCULATED CHANNEL AREA= 342.

| EGPRS | EGLWC | H3 | QWEIR | QBR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 0.0 | 646.55 | 0.05 | 0. | 1770. | 794. | 882. | 653.10 | 654.00 |

22 x 74 = 16 ft.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 654.00 ELREA= 655.00

SECNO 10782 U/S FACE MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10782.00 | 8.16 | 646.16 | 0.0 | 0.0 | 646.55 | 0.40 | 0.05 | 0.0 | 645.50 |
| 1770. | 0. | 1770. | 0. | 0. | 350. | 0. | 191. | 52. | 645.50 |
| 0.87 | 0.0 | 5.06 | 0.0 | 0.100 | 0.040 | 0.100 | 0.042 | 638.00 | 208.00 |
| 0.002093 | 74. | 74. | 74. | 0 | 0 | 0 | 0.0 | 64.00 | 272.00 |

CCHV= 0.300 CEHV= 0.500

*SECNO 10832.000

3470 ENCROACHMENT STATIONS= 145.0 300.0 TYPE= 1 TARGET= 155.000

SECNO 10832.501 U/S MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10832.00 | 8.71 | 646.51 | 0.0 | 0.0 | 646.68 | 0.17 | 0.06 | 0.07 | 642.50 |
| 1590. | 132. | 1265. | 192. | 157. | 344. | 200. | 192. | 52. | 642.50 |
| 0.88 | 0.84 | 3.68 | 0.96 | 0.100 | 0.040 | 0.100 | 0.042 | 637.00 | 145.00 |
| 0.000780 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 155.00 | 300.00 |

CCHV= 0.300 CEHV= 0.500

*SECNO 11720.000

SECNO 11720

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11720.00 | 5.22 | 647.92 | 0.0 | 0.0 | 648.31 | 0.38 | 1.52 | 0.11 | 646.50 |
| 1590. | 311. | 1142. | 137. | 289. | 196. | 139. | 205. | 57. | 646.00 |
| 0.93 | 1.08 | 5.83 | 0.98 | 0.150 | 0.050 | 0.150 | 0.042 | 642.70 | 344.08 |
| 0.006333 | 888. | 888. | 888. | 2 | 0 | 0 | 0.0 | 339.81 | 683.09 |

*SECNO 12140.000

SECNO 12145 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12145.00 | 6.15 | 649.75 | 0.0 | 0.0 | 649.91 | 0.17 | 1.54 | 0.07 | 647.40 |
| 1590. | 405. | 989. | 198. | 468. | 242. | 239. | 213. | 61. | 646.90 |
| 0.97 | 0.87 | 4.08 | 0.82 | 0.150 | 0.050 | 0.150 | 0.043 | 643.60 | 329.24 |
| 0.002348 | 425. | 425. | 425. | 2 | 0 | 0 | 0.0 | 363.51 | 692.76 |

*SECNO 12570.000

SECNO 12570 STA 126+20 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12570.00 | 6.50 | 650.90 | 0.0 | 0.0 | 651.16 | 0.26 | 1.20 | 0.05 | 645.80 |
| 1590. | 397. | 1129. | 64. | 426. | 233. | 106. | 221. | 64. | 649.60 |
| 1.00 | 0.93 | 4.85 | 0.60 | 0.150 | 0.050 | 0.150 | 0.043 | 644.40 | 247.51 |
| 0.003461 | 425. | 425. | 425. | 3 | 0 | 0 | 0.0 | 395.98 | 643.49 |

*SECNO 12965.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECNO 12965 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12965.00 | 6.36 | 652.36 | 0.0 | 0.0 | 652.66 | 0.30 | 1.48 | 0.02 | 647.40 |
| 1590. | 378. | 1158. | 54. | 392. | 226. | 91. | 228. | 68. | 651.20 |
| 1.03 | 0.97 | 5.13 | 0.60 | 0.150 | 0.050 | 0.150 | 0.043 | 646.00 | 251.47 |
| 0.004042 | 395. | 395. | 395. | 2 | 0 | 0 | 0.0 | 389.52 | 640.98 |

CCHV= 0.300 CEHV= 0.500

*SECNO 13360.000

SECNO 13360 STA 159+20 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13360.00 | 6.54 | 654.04 | 0.0 | 0.0 | 654.50 | 0.46 | 1.76 | 0.08 | 650.00 |
| 1590. | 193. | 1232. | 165. | 171. | 201. | 147. | 234. | 70. | 650.00 |
| 1.05 | 1.12 | 6.12 | 1.12 | 0.150 | 0.050 | 0.150 | 0.043 | 647.50 | 185.16 |
| 0.005054 | 430. | 395. | 250. | 2 | 0 | 0 | 0.0 | 197.56 | 382.72 |

*SECNO 13704.000

SECNO 13704 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13704.00 | 6.45 | 655.75 | 0.0 | 0.0 | 656.23 | 0.48 | 1.72 | 0.01 | 651.80 |
| 1590. | 188. | 1241. | 161. | 164. | 197. | 140. | 237. | 72. | 651.80 |
| 1.07 | 1.15 | 6.28 | 1.15 | 0.150 | 0.050 | 0.150 | 0.044 | 649.30 | 187.12 |
| 0.005454 | 209. | 344. | 344. | 2 | 0 | 0 | 0.0 | 193.93 | 381.04 |

*SECNO 14047.000

SECNO 14047 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14047.00 | 6.44 | 657.54 | 0.0 | 0.0 | 658.02 | 0.49 | 1.79 | 0.00 | 653.60 |
| 1590. | 188. | 1242. | 161. | 163. | 197. | 139. | 240. | 73. | 653.60 |
| 1.09 | 1.15 | 6.30 | 1.15 | 0.150 | 0.050 | 0.150 | 0.044 | 651.10 | 187.33 |
| 0.005498 | 208. | 343. | 343. | 2 | 0 | 0 | 0.0 | 193.54 | 380.86 |

*SECNO 14219.000

3470 ENCROACHMENT STATIONS= 400.0 524.0 TYPE= 1 TARGET= 124.000

VALLEY SECTION X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14219.00 | 6.43 | 658.43 | 0.0 | 0.0 | 658.81 | 0.38 | 0.76 | 0.03 | 653.30 |
| 1590. | 329. | 1019. | 243. | 205. | 168. | 170. | 242. | 73. | 653.30 |
| 1.10 | 1.60 | 6.08 | 1.43 | 0.150 | 0.050 | 0.150 | 0.044 | 652.00 | 400.00 |
| 0.004052 | 104. | 172. | 172. | 2 | 0 | 0 | 0.0 | 124.00 | 524.00 |

CCHV= 0.400 CEHV= 0.600

*SECNO 14390.000

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 556.9 595.1 TYPE= 1 TARGET= 42.000

SECNO 14390 50' D/S 7 MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14390.00 | 6.01 | 658.91 | 0.0 | 0.0 | 661.08 | 2.17 | 1.20 | 1.07 | 653.00 |
| 1590. | 150. | 1279. | 162. | 50. | 98. | 52. | 244. | 74. | 653.00 |
| 1.10 | 3.02 | 13.09 | 3.08 | 0.150 | 0.050 | 0.150 | 0.044 | 652.90 | 556.92 |
| 0.017921 | 104. | 171. | 171. | 2 | 0 | 0 | 0.0 | 38.22 | 595.14 |

*SECNO 14440.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 660.00 ELREA= 660.00

SECNO 14440 STA 174+50 D/S FACE 7 MILE FROM CORPS NOTES AND QUAD MAPSKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14440.00 | 6.76 | 659.64 | 659.54 | 0.0 | 662.79 | 3.15 | 1.12 | 0.59 | 654.50 |
| 1590. | 0. | 1590. | 0. | 0. | 112. | 0. | 244. | 74. | 653.50 |
| 1.10 | 0.0 | 14.25 | 0.0 | 0.150 | 0.050 | 0.150 | 0.044 | 652.90 | 675.22 |
| 0.028591 | 50. | 50. | 50. | 4 | 11 | 0 | 0.0 | 18.20 | 693.42 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 1.71 | 3.00 | 0.0 | 18.20 | 0.0 | 121.90 | 0.0 | 652.80 | 652.00 |

*SECNO 14501.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|

664.15 662.79 0.0 40. [illegible]

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 663.60 ELREA= 663.60

SECNO 14501 U/S FACE 7 MILE FROM CORPS NOTES AND QUAD MAP SKEW

Owen ELTRD=663.4

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14501.00 | 9.48 | 662.38 | 0.0 | 0.0 | 663.88 | 1.50 | 1.10 | 0.0 | 654.50 |
| 1590. | 0. | 1590. | 0. | 0. | 162. | 0. | 244. | 74. | 653.50 |
| 1.11 | 0.0 | 9.83 | 0.0 | 0.150 | 0.050 | 0.150 | 0.044 | 652.90 | 675.22 |
| 0.009620 | 61. | 61. | 61. | 8 | 0 | 3 | 0.0 | 18.20 | 693.42 |

155.0

weir flow

*SECNO 14570.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 219.3 390.4 TYPE= 1 TARGET= 188.000

heavy shock loss with weir flow

$-\left(\left(\frac{61}{644}\right)^3 - .06\right).37 .09 = .24$

663.88 + .24 = 664.12

SECNO 14570 STA 175+10 69° U/S 7 MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14570.00 | 12.69 | 664.49 | 0.0 | 0.0 | 664.55 | 0.06 | 0.09 | 0.57 | 655.60 |
| 1590. | 505. | 631. | 453. | 603. | 206. | 560. | 245. | 74. | 655.60 |
| 1.12 | 0.84 | 3.06 | 0.81 | 0.150 | 0.050 | 0.150 | 0.044 | 651.80 | 219.31 |
| 0.000511 | 69. | 69. | 69. | 2 | 0 | 0 | 0.0 | 171.08 | 390.39 |

*SECNO 15360.000

SECNO 15360 STA 184+40 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15360.00 | 9.91 | 664.91 | 0.0 | 0.0 | 665.00 | 0.09 | 0.43 | 0.01 | 657.50 |
| 1590. | 342. | 1004. | 244. | 410. | 345. | 326. | 267. | 77. | 658.00 |
| 1.22 | 0.83 | 2.91 | 0.75 | 0.150 | 0.050 | 0.150 | 0.044 | 655.00 | 15.27 |
| 0.000587 | 790. | 790. | 790. | 3 | 0 | 0 | 0.0 | 172.01 | 187.28 |

*SECNO 16100.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | ULOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECNO 16100 STA 192+60 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16100.00 | 7.69 | 665.69 | 0.0 | 0.0 | 665.93 | 0.24 | 0.84 | 0.09 | 662.00 |
| 1590. | 165. | 821. | 604. | 160. | 152. | 545. | 284. | 82. | 660.00 |
| 1.28 | 1.03 | 5.39 | 1.11 | 0.150 | 0.050 | 0.150 | 0.045 | 658.00 | 44.12 |
| 0.003071 | 740. | 740. | 740. | 2 | 0 | 0 | 0.0 | 375.02 | 419.14 |

*SECNO 16500.000

SECNO 16500 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16500.00 | 7.66 | 666.66 | 0.0 | 0.0 | 666.83 | 0.17 | 0.87 | 0.03 | 662.00 |
| 1590. | 150. | 937. | 503. | 202. | 222. | 540. | 291. | 85. | 662.00 |
| 1.32 | 0.74 | 4.23 | 0.92 | 0.150 | 0.050 | 0.150 | 0.045 | 659.00 | 86.37 |
| 0.001828 | 550. | 400. | 275. | 2 | 0 | 0 | 0.0 | 320.77 | 407.15 |

CCHV= 0.300 CEHV= 0.500

*SECNO 16900.000

SECNO 16900 STA 201+70 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16900.00 | 7.43 | 667.43 | 0.0 | 0.0 | 667.66 | 0.23 | 0.80 | 0.03 | 664.00 |
| 1590. | 129. | 1168. | 293. | 151. | 261. | 352. | 299. | 87. | 664.00 |
| 1.35 | 0.85 | 4.48 | 0.83 | 0.150 | 0.050 | 0.150 | 0.045 | 660.00 | 155.72 |
| 0.002447 | 550. | 400. | 275. | 2 | 0 | 0 | 0.0 | 305.99 | 461.71 |

*SECNO 17295.000

SECNO 17295 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17295.00 | 6.16 | 668.56 | 0.0 | 0.0 | 668.86 | 0.30 | 1.17 | 0.03 | 666.50 |
| 1590. | 112. | 1156. | 323. | 114. | 227. | 210. | 304. | 89. | 665.00 |
| 1.37 | 0.98 | 5.09 | 1.54 | 0.120 | 0.050 | 0.120 | 0.045 | 662.40 | 297.01 |
| 0.004060 | 75. | 395. | 425. | 2 | 0 | 0 | 0.0 | 230.43 | 527.43 |

*SECNO 17690.000

SECNO 17690 STA 210+80 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17690.00 | 5.57 | 670.27 | 0.0 | 0.0 | 670.65 | 0.38 | 1.75 | 0.04 | 669.00 |
| 1590. | 92. | 1251. | 247. | 101. | 227. | 140. | 308. | 90. | 667.00 |
| 1.40 | 0.91 | 5.51 | 1.76 | 0.120 | 0.050 | 0.120 | 0.045 | 664.70 | 446.68 |
| 0.005240 | 75. | 395. | 425. | 2 | 0 | 0 | 0.0 | 217.69 | 664.37 |

*SECNO 18215.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECNO 18215 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18215.00 | 5.95 | 672.65 | 0.0 | 0.0 | 672.94 | 0.28 | 2.26 | 0.03 | 671.00 |
| 1590. | 130. | 1206. | 255. | 146. | 249. | 162. | 314. | 93. | 669.00 |
| 1.43 | 0.88 | 4.85 | 1.57 | 0.120 | 0.050 | 0.120 | 0.045 | 666.70 | 430.46 |
| 0.003602 | 615. | 525. | 488. | 2 | 0 | 0 | 0.0 | 235.94 | 666.40 |

*SECNO 18739.000

SECNO 18739 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18739.00 | 6.25 | 674.85 | 0.0 | 0.0 | 675.46 | 0.61 | 2.36 | 0.16 | 673.10 |
| 1590. | 23. | 1542. | 25. | 27. | 243. | 29. | 319. | 95. | 673.10 |
| 1.46 | 0.86 | 6.36 | 0.86 | 0.120 | 0.050 | 0.120 | 0.046 | 668.60 | 384.35 |
| 0.005762 | 614. | 524. | 488. | 2 | 0 | 0 | 0.0 | 113.48 | 497.83 |

*SECNO 19001.000

SECNO 19001 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19001.00 | 6.77 | 676.27 | 0.0 | 0.0 | 676.74 | 0.47 | 1.24 | 0.04 | 674.00 |
| 1590. | 38. | 1511. | 41. | 45. | 269. | 48. | 321. | 96. | 674.00 |
| 1.47 | 0.84 | 5.62 | 0.84 | 0.120 | 0.050 | 0.120 | 0.046 | 669.50 | 375.20 |
| 0.003930 | 307. | 262. | 243. | 2 | 0 | 0 | 0.0 | 132.44 | 507.64 |

*SECNO 19263.000

3470 ENCROACHMENT STATIONS= 277.0 332.0 TYPE= 1 TARGET= 55.000

SECNO 19263 50' D/S FARMINGTON FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19263.00 | 6.77 | 677.27 | 0.0 | 0.0 | 678.02 | 0.75 | 1.13 | 0.16 | 670.60 |
| 1590. | 32. | 1521. | 37. | 26. | 214. | 26. | 323. | 97. | 672.60 |
| 1.48 | 1.23 | 7.10 | 1.43 | 0.120 | 0.050 | 0.120 | 0.046 | 670.50 | 277.00 |
| 0.004761 | 307. | 262. | 243. | 2 | 0 | 0 | 0.0 | 55.00 | 332.00 |

CCHV= 0.400 CEHV= 0.600

*SECNO 19313.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 679.80 ELREA= 679.80

SECNO 19313 STA 230+00 D/S FACE FARMINGTON FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19313.00 | 6.98 | 677.48 | 0.0 | 0.0 | 678.39 | 0.91 | 0.28 | 0.09 | 670.60 |
| 1590. | 0. | 1590. | 0. | 0. | 208. | 0. | 323. | 97. | 670.60 |
| 1.48 | 0.0 | 7.64 | 0.0 | 0.120 | 0.050 | 0.120 | 0.046 | 670.50 | 290.00 |
| 0.006568 | 50. | 50. | 50. | 0 | 0 | 0 | 0.0 | 30.00 | 320.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 1.71 | 3.00 | 0.0 | 30.00 | 0.0 | 210.00 | 0.0 | 670.50 | 670.50 |

*SECNO 19387.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 679.00 | 678.39 | 0.0 | 0. | 1590. | 210. | 210. | 677.50 | 681.10 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 681.10 ELREA= 681.10

SECNO 19387 U/S FACE FARMINGTON FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19387.00 | 7.77 | 678.27 | 0.0 | 0.0 | 679.00 | 0.73 | 0.61 | 0.0 | 670.60 |
| 1590. | 0. | 1590. | 0. | 0. | 232. | 0. | 324. | 97. | 670.60 |
| 1.49 | 0.0 | 6.86 | 0.0 | 0.120 | 0.050 | 0.120 | 0.046 | 670.50 | 290.00 |
| 0.004700 | 74. | 74. | 74. | 2 | 0 | 0 | 0.0 | 30.00 | 320.00 |

CCHV= 0.300 CEHV= 0.500

*SECNO 19437.000

3301 HV CHANGED MORE THAN HVINS

ENCROACHMENT STATIONS= 660.0 820.0 TYPE= 1 TARGET= 160.000

SECNO 19437 50' U/S FARMINGTON FROM CORPS NOTES, FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19437.00 | 8.52 | 679.02 | 0.0 | 0.0 | 679.24 | 0.22 | 0.09 | 0.15 | 679.60 |
| 1350. | 0. | 1350. | 0. | 0. | 357. | 0. | 324. | 97. | 682.20 |
| 1.49 | 0.0 | 3.79 | 0.0 | 0.120 | 0.035 | 0.120 | 0.046 | 670.50 | 705.54 |
| 0.000822 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 61.43 | 766.97 |

CCHV= 0.300 CEHV= 0.500

*SECNO 19517.000

SECNO 19517

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19517.00 | 7.63 | 679.23 | 0.0 | 0.0 | 679.35 | 0.12 | 0.08 | 0.03 | 677.00 |
| 1350. | 173. | 1132. | 46. | 197. | 376. | 67. | 325. | 97. | 678.00 |
| 1.50 | 0.88 | 3.01 | 0.68 | 0.095 | 0.048 | 0.095 | 0.046 | 671.60 | 0.86 |
| 0.001254 | 80. | 80. | 80. | 0 | 0 | 0 | 0.0 | 230.24 | 231.10 |

*SECNO 20117.000

3265 DIVIDED FLOW

SECNO 20117

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20117.00 | 5.90 | 680.30 | 0.0 | 0.0 | 680.64 | 0.34 | 1.18 | 0.11 | 677.90 |
| 1350. | 161. | 1189. | 0. | 162. | 239. | 1. | 332. | 100. | 680.00 |
| 1.53 | 0.99 | 4.98 | 0.28 | 0.095 | 0.048 | 0.095 | 0.046 | 674.40 | 0.97 |
| 0.003758 | 450. | 600. | 750. | 2 | 0 | 0 | 0.0 | 286.06 | 335.87 |

*SECNO 20617.000

SECNO 20617 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20617.00 | 6.02 | 682.02 | 0.0 | 0.0 | 682.31 | 0.29 | 1.65 | 0.02 | 680.00 |
| 1350. | 57. | 1271. | 21. | 68. | 287. | 25. | 336. | 103. | 680.00 |
| 1.57 | 0.84 | 4.43 | 0.84 | 0.095 | 0.048 | 0.095 | 0.046 | 676.00 | 342.12 |
| 0.002872 | 575. | 500. | 425. | 2 | 0 | 0 | 0.0 | 156.01 | 500.14 |

*SECNO 21117.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | %SELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WIN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 500.0 745.0 TYPE= 1 TARGET= 245.000

SECNO 21117

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 21117.00 | 6.00 | 683.50 | 0.0 | 0.0 | 683.71 | 0.22 | 1.38 | 0.02 | 682.00 |
| 1350. | 72. | 1225. | 53. | 79. | 313. | 78. | 341. | 105. | 682.00 |
| 1.61 | 0.91 | 3.91 | 0.68 | 0.095 | 0.048 | 0.095 | 0.046 | 677.50 | 500.00 |
| 0.002649 | 575. | 500. | 425. | 2 | 0 | 0 | 0.0 | 245.00 | 745.00 |

*SECNO 21392.000

SECNO 21392 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 5.32 | 684.42 | 0.0 | 0.0 | 684.84 | 0.42 | 1.03 | 0.10 | 685.50 |
| 1350. | 0. | 1329. | 21. | 0. | 255. | 22. | 344. | 107. | 683.00 |
| 1.62 | 0.0 | 5.22 | 0.94 | 0.095 | 0.048 | 0.095 | 0.046 | 679.10 | 360.05 |
| 0.005648 | 200. | 275. | 350. | 2 | 0 | 0 | 0.0 | 105.79 | 465.83 |

*SECNO 21667.000

SECNO 21667

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 21667.00 | 5.40 | 686.00 | 0.0 | 0.0 | 686.42 | 0.42 | 1.58 | 0.00 | 690.00 |
| 1350. | 0. | 1298. | 52. | 0. | 246. | 45. | 346. | 107. | 684.10 |
| 1.64 | 0.0 | 5.28 | 1.15 | 0.095 | 0.048 | 0.095 | 0.046 | 680.60 | 157.67 |
| 0.005749 | 200. | 275. | 350. | 2 | 0 | 0 | 0.0 | 119.96 | 277.63 |

*SECNO 22128.000

SECNO 22128 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22128.00 | 6.59 | 688.49 | 0.0 | 0.0 | 689.00 | 0.51 | 2.54 | 0.05 | 688.00 |
| 1350. | 6. | 1336. | 9. | 12. | 231. | 8. | 348. | 109. | 686.50 |
| 1.66 | 0.45 | 5.77 | 1.11 | 0.095 | 0.048 | 0.095 | 0.046 | 681.90 | 250.12 |
| 0.005268 | 461. | 461. | 461. | 1 | 0 | 0 | 0.0 | 112.57 | 362.69 |

*SECNO 22589.000

SECNO 22589 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22589.00 | 7.46 | 690.66 | 0.0 | 0.0 | 690.88 | 0.21 | 1.78 | 0.09 | 688.00 |
| 1350. | 498. | 847. | 5. | 382. | 185. | 7. | 353. | 111. | 689.00 |
| 1.70 | 1.30 | 4.57 | 0.74 | 0.095 | 0.048 | 0.095 | 0.046 | 683.20 | 216.92 |
| 0.002965 | 461. | 461. | 461. | 2 | 0 | 0 | 0.0 | 276.38 | 493.31 |

*SECNO 23050.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECNO 23050

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 23050.00 | 7.97 | 692.47 | 0.0 | 0.0 | 692.86 | 0.39 | 1.90 | 0.09 | 689.00 |
| 1350. | 707. | 612. | 31. | 392. | 85. | 18. | 350. | 114. | 688.90 |
| 1.73 | 1.80 | 7.17 | 1.73 | 0.095 | 0.048 | 0.095 | 0.046 | 684.50 | 348.75 |
| 0.006098 | 461. | 461. | 461. | 2 | 0 | 0 | 0.0 | 274.33 | 623.08 |

*SECNO 23550.000

SECNO 23550

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 23550.00 | 6.49 | 693.99 | 0.0 | 0.0 | 694.15 | 0.16 | 1.21 | 0.07 | 690.00 |
| 1350. | 175. | 1126. | 49. | 196. | 327. | 56. | 365. | 116. | 690.00 |
| 1.77 | 0.89 | 3.44 | 0.89 | 0.095 | 0.048 | 0.095 | 0.046 | 687.50 | 172.01 |
| 0.001296 | 500. | 500. | 500. | 3 | 0 | 0 | 0.0 | 185.94 | 357.95 |

*SECNO 24226.000

3470 ENCROACHMENT STATIONS= 118.0 360.0 TYPE= 1 TARGET= 242.000

SECNO 24226 24 D/S 8 MILE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 24226.00 | 5.85 | 695.01 | 0.0 | 0.0 | 695.27 | 0.25 | 1.07 | 0.05 | 692.46 |
| 1210. | 127. | 910. | 173. | 128. | 197. | 143. | 373. | 119. | 692.46 |
| 1.82 | 0.99 | 4.61 | 1.21 | 0.080 | 0.040 | 0.080 | 0.046 | 689.16 | 134.96 |
| 0.002058 | 550. | 676. | 800. | 3 | 0 | 0 | 0.0 | 225.04 | 360.00 |

*SECNO 24250.000

3470 ENCROACHMENT STATIONS= 0.5 354.0 TYPE= 1 TARGET= 353.500

SECNO 24250 D/S FACE 8 MILE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 24250.00 | 5.90 | 695.09 | 0.0 | 0.0 | 695.31 | 0.22 | 0.03 | 0.01 | 692.50 |
| 1210. | 148. | 864. | 198. | 132. | 199. | 140. | 373. | 119. | 692.50 |
| 1.82 | 1.13 | 4.34 | 1.41 | 0.050 | 0.030 | 0.050 | 0.046 | 689.20 | 133.37 |
| 0.001013 | 24. | 24. | 24. | 2 | 0 | 0 | 0.0 | 220.63 | 354.00 |

will weir flow or CWR, if not, flw. be much narrower

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Tarabasi Creek

4) DOCUMENT TYPE: Enchroachment

00BREAK00

```
**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************************
T1 TARABUSI CREEK FIS HUD 2014 07 LIVONIA CITY FROM BELL BRANCH TO 8 MILE ROAD
T2ENCROACHMENT RUN
T3      TARABUSI CREEK LIVONIA C
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     U         WSEL      FQ
        0.        5.        0.        0.  0.0           0.0       0.0       0.  620.100     0.0
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     15.000     0.0      -1.000     0.0       0.0       0.0       0.0       0.0       0.0      15.000
```

*PROF 2

CCHV= 0.300 CEHV= 0.500
*SECNO 120.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | ULOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IUC | ICONT | CORAR | TOPWID | ENDST |
| 120.00 | 6.90 | 620.10 | 0.0 | 620.00 | 620.79 | 0.69 | 0.0 | 0.0 | 616.40 |
| 1770. | 279. | 1239. | 252. | 152. | 157. | 158. | 0. | 0. | 618.10 |
| 0.0 | 1.84 | 7.88 | 1.60 | 0.100 | 0.040 | 0.100 | 0.0 | 613.20 | 319.00 |
| 0.006385 | 0. | 0. | 0. | 0 | 0 | 0 | 0.0 | 221.00 | 540.00 |

3470 ENCROACHMENT STATIONS= 250.0 540.0 TYPE= 1 TARGET= 290.000

SECNO 120 CORPS STA 050

FLOW DISTRIBUTION FOR SECNO= 120.00 CWSEL= 620.10

| STA= | 319. | 340. | 360. | 405. | 440. | 540. |
|---|---|---|---|---|---|---|
| PER Q= | 1.3 | 2.3 | 12.1 | 70.0 | 14.2 | |
| AREA= | 20.0 | 28.0 | 103.5 | 157.2 | 157.8 | |
| VEL= | 1.2 | 1.5 | 2.1 | 7.9 | 1.6 | |

*SECNO 370.000

2800 NAT Q1= 239.55 WSEL= 621.72 ENC Q1= 239.55 WSEL= 621.82 RATIO= 0.0000
NAT Q1= 250. RATIOS LOB,CH,ROB= 0.2403 0.6364 0.1233 WSEL= 621.82

3470 ENCROACHMENT STATIONS= 76.7 199.3 TYPE= 4 TARGET= 0.043

SECNO 370. X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 370.00 | 6.35 | 621.65 | 0.0 | 621.72 | 622.39 | 0.74 | 1.58 | 0.03 | 618.00 |
| 1770. | 394. | 1191. | 185. | 174. | 144. | 83. | 2. | 1. | 618.00 |
| 0.01 | 2.26 | 8.26 | 2.24 | 0.100 | 0.040 | 0.100 | 0.040 | 615.30 | 76.67 |
| 0.006257 | 250. | 250. | 250. | 2 | 0 | 0 | 0.0 | 122.61 | 199.20 |

FLOW DISTRIBUTION FOR SECNO= 370.00 CWSEL= 621.65

| STA= | 77. | 140. | 170. | 199. |
|---|---|---|---|---|
| PER Q= | 22.3 | 67.3 | 10.5 | |
| AREA= | 174.1 | 144.1 | 82.5 | |
| VEL= | 2.3 | 8.3 | 2.2 | |

*SECNO 745.000

2800 NAT Q1= 359.15 WSEL= 623.30 ENC Q1= 359.15 WSEL= 623.40 RATIO= 0.0000
NAT Q1= 371. RATIOS LOB,CH,ROB= 0.1962 0.6596 0.1441 WSEL= 623.40

3470 ENCROACHMENT STATIONS= 85.8 184.2 TYPE= 4 TARGET= 0.033

SECNO 745 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 745.00 | 7.72 | 623.42 | 0.0 | 623.30 | 623.06 | 0.45 | 1.30 | 0.09 | 618.00 |
| 1770. | 327. | 1211. | 232. | 172. | 190. | 124. | 6. | 2. | 618.00 |
| 0.03 | 1.90 | 6.36 | 1.87 | 0.100 | 0.040 | 0.100 | 0.040 | 615.70 | |
| 0.002425 | 375. | 375. | 375. | 2 | 0 | 0 | | | |

FLOW DISTRIBUTION FOR SECNO= 745.00 CWSEL= 623.42

| STA= | 86. | 90. | 126. | 155. | 180. | 184. |
|---|---|---|---|---|---|---|
| PER Q= | 0.8 | 17.7 | 68.4 | 12.3 | 0.8 | |
| AREA= | 13.2 | 158.9 | 190.4 | 110.4 | 13.2 | |
| VEL= | 1.1 | 2.0 | 6.4 | 2.0 | 1.1 | |

*SECNO 1120.000

3470 ENCROACHMENT STATIONS= 1.0 264.0 TYPE= 1 TARGET= 263.000

B SECNO 1120. STA 13+40

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1120.00 | 8.32 | 624.32 | 0.0 | 624.21 | 624.96 | 0.64 | 1.00 | 0.09 | 618.00 |
| 1770. | 201. | 1262. | 307. | 121. | 168. | 164. | 10. | 3. | 618.00 |
| 0.05 | 1.66 | 7.50 | 1.87 | 0.100 | 0.040 | 0.100 | 0.040 | 616.00 | 71.14 |
| 0.002930 | 375. | 375. | 375. | 2 | 0 | 0 | 0.0 | 122.73 | 193.86 |

FLOW DISTRIBUTION FOR SECNO= 1120.00 CWSEL= 624.32

| STA= | 71. | 110. | 117. | 140. | 155. | 194. |
|---|---|---|---|---|---|---|
| PER Q= | 6.3 | 5.0 | 71.3 | 11.0 | 6.3 | |
| AREA= | 83.9 | 37.2 | 168.3 | 79.8 | 83.9 | |
| VEL= | 1.3 | 2.4 | 7.5 | 2.4 | 1.3 | |

*SECNO 1770.000
2800 NAT Q1= 492.76 WSEL= 625.84 ENC Q1= 492.76 WSEL= 625.94 RATIO= 0.0
NAT Q1= 505. RATIOS LOB,CH,ROB= 0.1415 0.7715 0.0870 WSEL= 625.94

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELR | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | INA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | IOPT1D | ENDST |

3470 ENCROACHMENT STATIONS= 161.3 237.3 TYPE= 4 TARGET= 0.024

SECNO 1770 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1770.00 | 8.87 | 625.87 | 0.0 | 625.84 | 626.26 | 0.38 | 1.23 | 0.08 | 618.00 |
| 1770. | 236. | 1395. | 139. | 154. | 251. | 94. | 17. | 4. | 618.00 |
| 0.09 | 1.54 | 5.55 | 1.47 | 0.100 | 0.040 | 0.100 | 0.040 | 617.00 | 161.34 |
| 0.001318 | 650. | 650. | 650. | 2 | 0 | 0 | 0.0 | 75.98 | 237.32 |

FLOW DISTRIBUTION FOR SECNO= 1770.00 CWSEL= 625.87

| STA= | 161. | 190. | 220. | 237. |
|---|---|---|---|---|
| PER Q= | 13.4 | 78.8 | 7.8 | |
| AREA= | 153.8 | 251.2 | 94.4 | |
| VEL= | 1.5 | 5.6 | 1.5 | |

CCHV= 0.300 CEHV= 0.500
*SECNO 2416.000
2800 NAT Q1= 452.96 WSEL= 626.67 ENC Q1= 452.96 WSEL= 626.77 RATIO= 0.0
NAT Q1= 462. RATIOS LOB,CH,ROB= 0.0466 0.8778 0.0756 WSEL= 626.77

3470 ENCROACHMENT STATIONS= 262.5 313.9 TYPE= 4 TARGET= 0.020

SECNO 2416 50' D/S 6 MILE FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2416.00 | 8.82 | 626.72 | 0.0 | 626.67 | 627.26 | 0.54 | 0.92 | 0.08 | 618.00 |
| 1770. | 66. | 1584. | 120. | 54. | 254. | 87. | 24. | 5. | 618.00 |
| 0.12 | 1.22 | 6.21 | 1.37 | 0.100 | 0.040 | 0.100 | 0.040 | 617.00 | 262.53 |

```
 0.001555     646.     646.     646.        2        0        0      0.0     51.39   313.92

FLOW DISTRIBUTION FOR SECNO=   2416.00          CWSEL=    626.72

STA=      263.      271.      300.      314.
  PER Q=       3.7      89.5       6.8
   AREA=      54.3     254.3      87.3
    VEL=       1.2       6.2       1.4

*SECNO 2466.000
 2800 NAT Q1=     514.15  WSEL=     627.09  ENC Q1=     527.92  WSEL=     627.19  RATIO= -0.0268
 NAT Q1=     528.  RATIOS LOB,CH,ROB=  0.0      1.0000  0.0      WSEL=     627.19

3470 ENCROACHMENT STATIONS=      371.6      445.4  TYPE=      4  TARGET=        0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       631.00 ELREA=       631.00

        SECNO 2466            D/S FACE 6 MILE FROM FIELD BOOKS AND QUAD MAP

C 2466.00      9.27    627.17      0.0    627.09    627.42      0.25      0.07      0.09    625.40
    1770.        0.     1770.        0.        0.      445.        0.       25.        5.    625.40
     0.12       0.0      3.98      0.0     0.120     0.040     0.120     0.040    617.90    371.60
 0.001170       50.       50.       50.         2         0         0       0.0     73.80    445.40

FLOW DISTRIBUTION FOR SECNO=   2466.00          CWSEL=    627.17

STA=      372.      445.
  PER Q=     100.0
   AREA=     444.5
    VEL=       4.0

SPECIAL BRIDGE

SB  XK        XKOR      COEQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.79      3.00       0.0      22.80      2.00     582.00      2.91    617.90    617.90

*SECNO 2554.000
     3700.   BRIDGE STENCL=     371.60     STENCR=     445.40
CLASS A LOW FLOW

3420 BRIDGE W.S.=     627.15 BRIDGE VELOCITY=,       4.01      CALCULATED CHANNEL AREA=,       441.

 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                                  AREA
     0.0     627.44      0.01        0.     1770.      582.       624.      629.40    632.60


3470 ENCROACHMENT STATIONS=      445.4        0.0  TYPE=      4  TARGET=        0.0
 ELENCL=       0.0   ELENCR=       0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       632.60 ELREA=       632.60

        SECNO 2554 U/S FACE 6 MILE FROM FIELD BOOKS AND QUAD MAP

  2554.00      9.30    627.20      0.0    627.10    627.44      0.24      0.03      0.0     625.40
    1770.        0.     1770.        0.        0.      447.        0.       25.        6.    625.40
     0.13       0.0      3.96      0.0     0.120     0.040     0.120     0.040    617.90    371.60
 0.001115       88.       88.       88.         0         0         0       0.0     73.80    445.40
```

FLOW DISTRIBUTION FOR SECNO= 2554.00 CWSEL= 627.20

STA= 372. 445.
PER Q= 100.0
AREA= 446.7
VEL= 4.0

CCHV= 0.400 CEHV= 0.600
*SECNO 2604.000

3470 ENCROACHMENT STATIONS= 111.0 285.0 TYPE= 1 TARGET= 174.000

SECNO 2604 STA 25+20 50' U/S 6 MILE FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2604.00 | 9.42 | 627.32 | 0.0 | 627.22 | 627.52 | 0.20 | 0.06 | 0.02 | 621.50 |
| 1770. | 259. | 1422. | 89. | 299. | 359. | 118. | 26. | 6. | 622.20 |
| 0.13 | 0.87 | 3.97 | 0.76 | 0.150 | 0.050 | 0.150 | 0.040 | 617.90 | 111.00 |
| 0.001100 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 145.96 | 256.96 |

FLOW DISTRIBUTION FOR SECNO= 2604.00 CWSEL= 627.32

STA= 111. 178. 221. 250. 257.
PER Q= 14.6 80.6 4.9 0.2
AREA= 298.5 358.7 109.7 8.1
VEL= 0.9 4.0 0.8 0.4

*SECNO 3360.000
2800 NAT Q1= 374.64 WSEL= 628.31 ENC Q1= 374.64 WSEL= 628.41 RATIO= 0.0
NAT Q1= 388. RATIOS LOB,CH,ROB= 0.1452 0.7832 0.0716 WSEL= 628.41

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | IOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 95.1 264.2 TYPE= 4 TARGET= 0.033

SECNO 3360 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3360.00 | 8.08 | 628.38 | 0.0 | 628.31 | 628.69 | 0.31 | 1.11 | 0.07 | 625.00 |
| 1770. | 234. | 1437. | 100. | 247. | 291. | 112. | 37. | 8. | 625.00 |
| 0.18 | 0.95 | 4.93 | 0.89 | 0.150 | 0.050 | 0.150 | 0.043 | 620.30 | 95.12 |
| 0.002277 | 600. | 756. | 550. | 2 | 0 | 0 | 0.0 | 169.12 | 264.24 |

FLOW DISTRIBUTION FOR SECNO= 3360.00 CWSEL= 628.38

STA= 95. 180. 223. 264.
PER Q= 13.2 81.2 5.6
AREA= 247.0 291.3 111.9
VEL= 0.9 4.9 0.9

*SECNO 4116.000

3470 ENCROACHMENT STATIONS= 123.0 273.0 TYPE= 1 TARGET= 150.000

SECNO 4116 200'D/S MIDDLEBELT FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4116.00 | 7.53 | 630.13 | 0.0 | 630.07 | 630.47 | 0.34 | 1.76 | 0.02 | 626.20 |
| 1770. | 194. | 1412. | 164. | 155. | 273. | 140. | 46. | 10. | 627.10 |
| 0.23 | 1.25 | 5.17 | 1.17 | 0.120 | 0.050 | 0.120 | 0.045 | 622.60 | 123.00 |
| 0.002628 | 600. | 756. | 550. | 2 | 0 | 0 | 0.0 | 150.00 | 273.00 |

FLOW DISTRIBUTION FOR SECNO= 4116.00 CWSEL= 630.13

STA= 123. 177. 219. 273.

| | | | |
|---|---|---|---|
| PER Q= | 11.0 | 79.8 | 9.2 |
| AREA= | 155.0 | 273.1 | 140.1 |
| VEL= | 1.3 | 5.2 | 1.2 |

*SECNO 4316.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1.0 415.0 TYPE= 1 TARGET= 414.000

SECNO 4316 STA 26+00 D/S FACE MIDDLEBELT SKEW BRIDGE FROM C.N. AND Q.M.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4316.00 | 7.70 | 630.30 | 0.0 | 630.27 | 632.74 | 2.43 | 1.01 | 1.26 | 622.70 |
| 1770. | 100. | 1570. | 99. | 30. | 119. | 30. | 48. | 11. | 622.70 |
| 0.23 | 3.34 | 13.23 | 3.33 | 0.100 | 0.050 | 0.100 | 0.045 | 622.60 | 34.39 |
| 0.013137 | 300. | 200. | 100. | 2 | 0 | 0 | 0.0 | 31.25 | 65.64 |

FLOW DISTRIBUTION FOR SECNO= 4316.00 CWSEL= 630.30

| STA= | 34. | 42. | 58. | 66. |
|---|---|---|---|---|
| PER Q= | 5.7 | 88.7 | 5.6 | |
| AREA= | 30.1 | 118.7 | 29.8 | |
| VEL= | 3.3 | 13.2 | 3.3 | |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 1.85 | 3.00 | 0.0 | 15.44 | 0.0 | 97.24 | 0.0 | 622.60 | 622.60 |

*SECNO 4403.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 639.82 | 633.76 | 0.0 | 517. | 1254. | 97. | 97. | 628.90 | 632.90 |

SECNO 4403 U/S FACE MIDDLEBELT FROM CORPS NOTES AND QUAD MAPSKEW BR.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4403.00 | 11.71 | 634.31 | 0.0 | 634.30 | 635.08 | 0.77 | 2.35 | 0.0 | 622.70 |
| 1770. | 178. | 1415. | 176. | 104. | 181. | 103. | 49. | 11. | 622.70 |
| 0.24 | 1.71 | 7.83 | 1.71 | 0.100 | 0.050 | 0.100 | 0.045 | 622.60 | 0.98 |
| 0.002625 | 87. | 87. | 87. | 3 | 0 | 4 | 0.0 | 98.04 | 99.02 |

FLOW DISTRIBUTION FOR SECNO= 4403.00 CWSEL= 634.31

| STA= | 1. | 2. | 32. | 42. | 58. | 68. | 98. | 99. |
|---|---|---|---|---|---|---|---|---|
| PER Q= | 0.0 | 1.7 | 8.4 | 80.0 | 8.3 | 1.7 | 0.0 | |
| AREA= | 0.5 | 34.9 | 68.6 | 180.7 | 68.0 | 34.9 | 0.5 | |
| VEL= | 0.4 | 0.8 | 2.2 | 7.8 | 2.2 | 0.8 | 0.4 | |

CCHV= 0.400 CEHV= 0.600

*SECNO 4453.000

*3280 CROSS SECTION 4453.00 E TENSION 0.28 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 54.9 247.5 TYPE= 1 TARGET= 428.000

SECNO 4453 STA 44+55 50' U/S MIDDLEBELT FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4453.00 | 12.78 | 635.38 | 0.0 | 635.37 | 635.42 | 0.03 | 0.04 | 0.29 | 625.70 |
| 1770. | 582. | 366. | 822. | 584. | 150. | 686. | 50. | 11. | 626.70 |
| 0.25 | 1.00 | 2.44 | 1.20 | 0.100 | 0.050 | 0.100 | 0.045 | 622.60 | 54.90 |
| 0.000370 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 192.60 | 247.50 |

FLOW DISTRIBUTION FOR SECNO= 4453.00 CWSEL= 635.38

| STA= | 55. | 67. | 117. | 139. | 148. | 161. | 216. | 229. | 247. |
|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 1.8 | 13.2 | 11.2 | 6.8 | 20.7 | 38.3 | 6.5 | 1.6 | |
| AREA= | 50.2 | 266.4 | 177.3 | 90.3 | 149.8 | 527.5 | 106.4 | 51.9 | |
| VEL= | 0.6 | 0.9 | 1.1 | 1.3 | 2.4 | 1.3 | 1.1 | 0.6 | |

*SECNO 5950.000
2800 NAT Q1= 974.24 WSEL= 635.89 ENC Q1= 974.24 WSEL= 635.99 RATIO= 0.0000
NAT Q1= 1003. RATIOS LOB,CH,ROB= 0.3727 0.3913 0.2360 WSEL= 635.99

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | IIRIAL | IOC | ICONT | CORAR | IOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 68.3 370.4 TYPE= 4 TARGET= 0.028

SECNO 5950 STA 59+50 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5950.00 | 9.31 | 635.91 | 0.0 | 635.89 | 635.96 | 0.05 | 0.53 | 0.01 | 630.00 |
| 1770. | 645. | 715. | 409. | 815. | 257. | 516. | 101. | 19. | 630.00 |
| 0.51 | 0.79 | 2.78 | 0.79 | 0.100 | 0.040 | 0.100 | 0.044 | 626.60 | 68.26 |
| 0.000344 | 1497. | 1497. | 1497. | 1 | 0 | 0 | 0.0 | 302.13 | 370.39 |

FLOW DISTRIBUTION FOR SECNO= 5950.00 CWSEL= 635.91

| STA= | 68. | 70. | 235. | 265. | 370. | 370. |
|---|---|---|---|---|---|---|
| PER Q= | 0.1 | 36.3 | 40.4 | 23.1 | 0.0 | |
| AREA= | 6.6 | 808.4 | 257.0 | 514.4 | 1.5 | |
| VEL= | 0.3 | 0.8 | 2.8 | 0.8 | 0.1 | |

*SECNO 6600.000
2800 NAT Q1= 570.98 WSEL= 636.18 ENC Q1= 570.98 WSEL= 636.28 RATIO= 0.0000
NAT Q1= 594. RATIOS LOB,CH,ROB= 0.0904 0.6547 0.2550 WSEL= 636.28

3470 ENCROACHMENT STATIONS= 71.2 306.3 TYPE= 4 TARGET= 0.039

SECNO 6600 STA 66+00 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6600.00 | 7.40 | 636.20 | 0.0 | 636.18 | 636.36 | 0.16 | 0.34 | 0.06 | 632.00 |
| 1770. | 130. | 1214. | 427. | 128. | 319. | 432. | 118. | 23. | 632.00 |
| 0.56 | 1.01 | 3.80 | 0.99 | 0.100 | 0.040 | 0.100 | 0.044 | 628.80 | 71.15 |
| 0.001014 | 650. | 650. | 500. | 2 | 0 | 0 | 0.0 | 235.13 | 306.29 |

FLOW DISTRIBUTION FOR SECNO= 6600.00 CWSEL= 636.20

```
STA=      71.      110.      165.      306.
  PER Q=      7.3      68.6      24.1
   AREA=    128.4     319.1     431.9
    VEL=      1.0       3.8       1.0

*SECNO 7340.000
 2800 NAT Q1=     350.98  WSEL=     637.26  ENC Q1=     350.98  WSEL=     637.36  RATIO=  0.0000
 NAT Q1=     368.  RATIOS LOB,CH,ROB=  0.4434  0.3088  0.2478  WSEL=     637.36

3470 ENCROACHMENT STATIONS=      59.7     298.0  TYPE=      4  TARGET=       0.046

        SECNO 7340 STA 73+40 FROM CORPS NOTES AND QUAD MAP

 7340.00      5.63   637.33      0.0    637.26    637.50      0.17      1.13      0.01    634.00
    1770.      785.      571.      414.      467.      108.      253.      133.       27.    634.00
    0.64      1.68      5.30      1.63     0.100     0.040     0.100     0.043    631.70     59.73
0.002575       740.      740.      740.         2         0         0       0.0    238.27    298.00

FLOW DISTRIBUTION FOR SECNO=    7340.00          CWSEL=     637.33

STA=      60.       60.      200.      222.      298.
  PER Q=       0.0      44.3      32.3      23.4
   AREA=       0.9     466.4     107.8     253.2
    VEL=       0.3       1.7       5.3       1.6

*SECNO 8078.000
 2800 NAT Q1=     344.33  WSEL=     639.24  ENC Q1=     344.33  WSEL=     639.34  RATIO=  0.0
 NAT Q1=     362.  RATIOS LOB,CH,ROB=  0.3134  0.5569  0.1298  WSEL=     639.34

3470 ENCROACHMENT STATIONS=      84.1     280.7  TYPE=      4  TARGET=       0.048

        SECNO 8078 X

 8078.00      6.43   639.33      0.0    639.24    639.68      0.35      2.07      0.11    635.50
    1770.      534.      1038.      198.      353.      172.      126.      146.       31.    635.50
    0.69      1.51      6.04      1.57     0.100     0.040     0.100     0.043    632.90     84.09
0.002680       837.      738.      808.         1         0         0       0.0    196.66    280.75

FLOW DISTRIBUTION FOR SECNO=    8078.00          CWSEL=     639.33

STA=      84.      210.      240.      281.
  PER Q=      30.2      58.6      11.2
   AREA=     352.8     171.7     125.9
    VEL=       1.5       6.0       1.6

*SECNO 8815.000
 2800 NAT Q1=     407.16  WSEL=     641.02  ENC Q1=     407.16  WSEL=     641.12  RATIO=  0.0
 NAT Q1=     427.  RATIOS LOB,CH,ROB=  0.2021  0.6714  0.1265  WSEL=     641.12

3470 ENCROACHMENT STATIONS=      88.0     320.6  TYPE=      4  TARGET=       0.046

        SECNO 8815 STA 88+15 FROM CORPS NOTES AND QUAD MAP

 8815.00      7.13   641.13      0.0    641.02    641.41      0.29      1.72      0.02    638.00
    1770.      332.      1245.      193.      291.      248.      167.      159.       35.    638.00
    0.74      1.14      5.07      1.16     0.100     0.040     0.100     0.042    634.00     88.02
0.001879       840.      737.      810.         2         0         0       0.0    232.62    320.64

FLOW DISTRIBUTION FOR SECNO=    8815.00          CWSEL=     641.13

STA=      88.      210.      253.      321.
  PER Q=      18.8      70.3      10.9
   AREA=     291.5     215.6     126.7
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 .EL=      1.1       5.1       1.2

*SECNO 9276.000
 2800 NAT Q1=    328.96  WSEL=    641.99  ENC Q1=    328.96  WSEL=    642.08  RATIO=  0.0
 NAT Q1=    342.  RATIOS LOB,CH,ROB=  0.1030  0.8695  0.0275  WSEL=    642.08
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG          HV          HL          QLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH         AROB        VOL         TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL        XNCH        XNR         HTN         ELMIN       SSIA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC         ICONT       CORAR       TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     161.2     253.9  TYPE=     4  TARGET=       0.038

        SECNO 9276 X

 9276.00      7.18    642.08       0.0    641.99    642.64      0.56      1.06      0.16    639.00
  1770.      156.     1602.       13.      109.      255.       11.       165.       37.    639.00
    0.77      1.43      6.28      1.14     0.100     0.040     0.100     0.042    634.90    161.18
0.002904      461.      461.      461.         2         0         0       0.0     92.70    253.88

FLOW DISTRIBUTION FOR SECNO=   9276.00          CWSEL=    642.08

STA=      161.      205.      250.      254.
  PER Q=      8.8      90.5       0.7
    AREA=   108.9     255.2      11.2
     VEL=     1.4       6.3       1.1

*SECNO 9737.000
 2800 NAT Q1=    370.52  WSEL=    643.29  ENC Q1=    370.52  WSEL=    643.39  RATIO=  0.0
 NAT Q1=    384.  RATIOS LOB,CH,ROB=  0.1234  0.8450  0.0316  WSEL=    643.39

3470 ENCROACHMENT STATIONS=     149.7     256.1  TYPE=     4  TARGET=       0.036

        SECNO 9737 X

 9737.00      7.51    643.41       0.0    643.29    643.86      0.46      1.18      0.04    640.00
  1770.      194.     1553.       22.      147.      270.       19.       169.       38.    640.00
    0.79      1.33      5.76      1.17     0.100     0.040     0.100     0.042    635.90    149.70
0.002273      461.      461.      461.         2         0         0       0.0    106.44    256.14

FLOW DISTRIBUTION FOR SECNO=   9737.00          CWSEL=    643.41

STA=      150.      205.      250.      256.
  PER Q=     11.0      87.8       1.3
    AREA=   146.6     269.7      19.0
     VEL=     1.3       5.8       1.2

*SECNO 10198.000
 2800 NAT Q1=    376.54  WSEL=    644.33  ENC Q1=    376.54  WSEL=    644.43  RATIO=  0.0000
 NAT Q1=    390.  RATIOS LOB,CH,ROB=  0.1257  0.8423  0.0321  WSEL=    644.43

3470 ENCROACHMENT STATIONS=     147.3     257.0  TYPE=     4  TARGET=       0.033

        SECNO 10198 X

10198.00      7.55    644.45       0.0    644.33    644.89      0.44      1.02      0.01    641.00
  1770.      201.     1544.       26.      153.      272.       22.       173.       39.    641.00
    0.82      1.31      5.68      1.18     0.100     0.040     0.100     0.042    636.90    147.31
0.002193      450.      461.      300.         3         0         0       0.0    109.70    257.01

FLOW DISTRIBUTION FOR SECNO=  10198.00          CWSEL=    644.45
```

```
STA=      147.      205.      250.      257.
  PER Q=     11.3      87.2       1.5
   AREA=    153.5     271.6      21.7
    VEL=      1.3       5.7       1.2

*SECNO 10658.000

3470 ENCROACHMENT STATIONS=      183.0      263.0  TYPE=      1  TARGET=      80.000

        SECNO 10658 STA 106+90 50° D/S MERRIMAN FROM CORPS NOTES AND QUAD MAP

10658.00     7.81   645.61      0.0   645.51   646.31     0.70     1.26     0.15   642.50
  1770.       99.     1552.      120.      60.      217.      69.      177.      40.   642.50
   0.83     1.64     7.14     1.73    0.100    0.040    0.100    0.042   637.80   183.00
0.003671      450.      460.      300.        2        0        0      0.0    80.00   263.00

FLOW DISTRIBUTION FOR SECNO=  10658.00          CWSEL=    645.61

STA=      183.      205.      240.      263.
  PER Q=      5.6      87.7       6.8
   AREA=     60.1     217.4      69.1
    VEL=      1.6       7.1       1.7

*SECNO 10708.000
 2800 NAT Q1=     381.74  WSEL=     646.10  ENC Q1=     392.36  WSEL=     646.20  RATIO= -0.0278
 NAT Q1=     392.  RATIOS LOB,CH,ROB=  0.0      1.0000  0.0      WSEL=     646.20

3470 ENCROACHMENT STATIONS=      208.0      272.0  TYPE=      4  TARGET=        0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       653.60 ELREA=       653.60
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        SECNO 10708 STA 107+40 D/S FACE MERRIMAN FROM CORPS NOTES AND QUAD MAP

10708.00     8.17   646.17      0.0   646.10   646.56     0.39     0.14     0.12   645.50
  1770.        0.     1770.       0.       0.      351.       0.      178.      40.   645.50
   0.84      0.0      5.04      0.0    0.100    0.040    0.100    0.042   638.00   208.00
0.002105       50.       50.       50.        2        0        0      0.0    64.00   272.00

FLOW DISTRIBUTION FOR SECNO=  10708.00          CWSEL=    646.17

STA=      208.      272.
  PER Q=    100.0
   AREA=    351.1
    VEL=      5.0

SPECIAL BRIDGE

SB  XK       XKOR      COEQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.30      3.00      0.0      26.00      2.00    793.70     2.28    638.00    638.00

*SECNO 10782.000
   3700.  BRIDGE STENCL=    208.00    STENCR=    272.00
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLUBR     ITRIAL    IUC       ICONT     CORAR     TOPWID      ENDST

CLASS A LOW FLOW

3420 BRIDGE W.S.=     646.13 BRIDGE VELOCITY=,       5.12      CALCULATED CHANNEL AREA=,       346.
```

| CWRS | EGLWC | HS | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 0.0 | 646.64 | 0.05 | 0. | 1770. | 794. | 882. | 653.10 | 654.00 |

3470 ENCROACHMENT STATIONS= 272.0 0.0 TYPE= 4 TARGET= 0.0
ELENCL= 0.0 ELENCR= 0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 654.00 ELREA= 655.00

SECNO 10782 U/S FACE MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10782.00 | 8.26 | 646.26 | 0.0 | 646.16 | 646.64 | 0.38 | 0.08 | 0.0 | 645.50 |
| 1770. | 0. | 1770. | 0. | 0. | 356. | 0. | 178. | 40. | 645.50 |
| 0.84 | 0.0 | 4.97 | 0.0 | 0.100 | 0.040 | 0.100 | 0.042 | 638.00 | 208.00 |
| 0.001974 | 76. | 76. | 76. | 0 | 0 | 0 | 0.0 | 64.00 | 272.00 |

FLOW DISTRIBUTION FOR SECNO= 10782.00 CWSEL= 646.26

STA= 208. 272.
PER Q= 100.0
AREA= 356.2
VEL= 5.0

CCHV= 0.300 CEHV= 0.500
*SECNO 10832.000

3470 ENCROACHMENT STATIONS= 145.0 300.0 TYPE= 1 TARGET= 155.000

SECNO 10832 50' U/S MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10832.00 | 8.80 | 646.60 | 0.0 | 646.51 | 646.76 | 0.16 | 0.06 | 0.07 | 642.50 |
| 1590. | 135. | 1260. | 195. | 161. | 348. | 204. | 179. | 40. | 642.50 |
| 0.85 | 0.84 | 3.62 | 0.95 | 0.100 | 0.040 | 0.100 | 0.042 | 637.80 | 145.00 |
| 0.000742 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 155.00 | 300.00 |

FLOW DISTRIBUTION FOR SECNO= 10832.00 CWSEL= 646.60

STA= 145. 197. 247. 300.
PER Q= 8.5 79.3 12.2
AREA= 161.2 348.2 204.4
VEL= 0.8 3.6 1.0

CCHV= 0.300 CEHV= 0.500
*SECNO 11720.000
2800 NAT Q1= 199.80 WSEL= 647.92 ENC Q1= 199.80 WSEL= 648.02 RATIO= 0.0000
NAT Q1= 212. RATIOS LOB,CH,ROB= 0.2036 0.7054 0.0910 WSEL= 648.02

3470 ENCROACHMENT STATIONS= 383.0 633.8 TYPE= 4 TARGET= 0.058

SECNO 11720

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11720.00 | 5.25 | 647.95 | 0.0 | 647.92 | 648.39 | 0.44 | 1.49 | 0.14 | 646.50 |
| 1590. | 287. | 1201. | 102. | 249. | 197. | 90. | 192. | 44. | 646.00 |
| 0.90 | 1.15 | 6.08 | 1.13 | 0.150 | 0.050 | 0.150 | 0.042 | 642.70 | 383.00 |
| 0.006834 | 888. | 888. | 888. | 2 | 0 | 0 | 0.0 | 250.76 | 633.76 |

FLOW DISTRIBUTION FOR SECNO= 11720.00 CWSEL= 647.95

STA= 383. 530. 580. 634.
PER Q= 13.0 77.6

```
    AREA=     248.7     197.5      89.9
     VEL=       1.2       6.1       1.1

*SECNO 12145.000
 2800 NAT Q1=     328.14  WSEL=     649.75  ENC Q1=     328.14  WSEL=     649.85  RATIO=  0.0
 NAT Q1=     344.  RATIOS LOB,CH,ROB=  0.2594  0.6138  0.1268  WSEL=     649.85

3470 ENCROACHMENT STATIONS=     373.2     657.5  TYPE=     4  TARGET=       0.047

        SECNO 12145 X

12145.00      6.27   649.87      0.0   649.75   650.04      0.17      1.57      0.08   647.40
    1590.      393.     1023.      174.      426.      248.      198.      199.       47.    646.90
     0.94      0.92      4.12      0.88     0.150     0.050     0.150     0.043   643.60   373.21
0.002315      425.      425.      425.         1         0         0       0.0   284.32   657.53

FLOW DISTRIBUTION FOR SECNO=  12145.00          CWSEL=    649.87

STA=     373.      375.      530.      580.      658.
  PER Q=       0.2      24.6      64.3      10.9
   AREA=       5.2     421.1     248.1     198.4
    VEL=       0.5       0.9       4.1       0.9

*SECNO 12570.000
 2800 NAT Q1=     270.28  WSEL=     650.90  ENC Q1=     270.28  WSEL=     651.00  RATIO=  0.0000
 NAT Q1=     285.  RATIOS LOB,CH,ROB=  0.2571  0.6986  0.0443  WSEL=     651.00

3470 ENCROACHMENT STATIONS=     320.9     573.1  TYPE=     4  TARGET=       0.050

        SECNO 12570 STA 126+20 FROM CORPS NOTES AND QUAD MAP

12570.00      6.60   651.00      0.0   650.90   651.28      0.28      1.19      0.05   645.80
    1590.      389.     1169.       32.      379.      239.       47.      206.       50.    649.60
     0.97      1.03      4.90      0.69     0.150     0.050     0.150     0.043   644.40   320.94
0.003420      425.      425.      425.         1         0         0       0.0   252.20   573.14

FLOW DISTRIBUTION FOR SECNO=  12570.00          CWSEL=    651.00

STA=     321.      412.      483.      488.      538.      573.
  PER Q=       8.9      13.6       1.9      73.5       2.0
   AREA=     165.8     192.5      21.1     238.5      46.8
    VEL=       0.9       1.1       1.4       4.9       0.7

*SECNO 12965.000
 2800 NAT Q1=     250.08  WSEL=     652.36  ENC Q1=     250.08  WSEL=     652.46  RATIO=  0.0000
 NAT Q1=     264.  RATIOS LOB,CH,ROB=  0.2461  0.7156  0.0383  WSEL=     652.46
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST

3470 ENCROACHMENT STATIONS=     330.1     561.9  TYPE=     4  TARGET=       0.053

        SECNO 12965 X

12965.00      6.45   652.45      0.0   652.36   652.77      0.32      1.47      0.02   647.40
    1590.      368.     1202.       20.      341.      231.       29.      212.       52.    651.20
     0.99      1.08      5.21      0.69     0.150     0.050     0.150     0.043   646.00   330.14
0.004061      395.      395.      395.         2         0         0       0.0   231.79   561.93

FLOW DISTRIBUTION FOR SECNO=  12965.00          CWSEL=    652.45
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```
STA=     330.     412.     483.     488.     538.     562.
  PER Q=     7.8     13.4      1.9     75.6      1.2
   AREA=   139.2    181.1     20.3    230.6     28.7
    VEL=     0.9      1.2      1.5      5.2      0.7

CCHV=   0.300 CEHV=   0.500
*SECNO 13360.000

3470 ENCROACHMENT STATIONS=       1.0     824.0  TYPE=     1  TARGET=     823.000

        SECNO 13360 STA 159+20 FROM CORPS NOTES AND QUAD MAP

13360.00     6.62   654.12      0.0   654.04   654.55     0.43     1.72     0.06   650.00
    1590.      196.    1225.      168.      178.      204.      152.      217.       54.   650.00
    1.02     1.10     6.00     1.10    0.150    0.050    0.150    0.043   647.50   183.56
0.004753      430.      395.      250.        2          0          0      0.0   200.53   384.09

FLOW DISTRIBUTION FOR SECNO=  13360.00          CWSEL=    654.12

STA=     184.     270.     310.     384.
  PER Q=    12.4     77.1     10.6
   AREA=   177.9    204.2    152.5
    VEL=     1.1      6.0      1.1

*SECNO 13704.000

        SECNO 13704 X

13704.00     6.46   655.76      0.0   655.75   656.24     0.48     1.66     0.02   651.80
    1590.      189.    1240.      162.      164.      198.      141.      220.       55.   651.80
    1.03     1.15     6.27     1.15    0.150    0.050    0.150    0.044   649.30   186.95
0.005419      209.      344.      344.        2          0          0      0.0   194.23   381.18

FLOW DISTRIBUTION FOR SECNO=  13704.00          CWSEL=    655.76

STA=     187.     270.     310.     381.
  PER Q=    11.9     78.0     10.2
   AREA=   164.2    197.8    140.8
    VEL=     1.1      6.3      1.1

*SECNO 14047.000

        SECNO 14047 X

14047.00     6.44   657.54      0.0   657.54   658.02     0.49     1.78     0.00   653.60
    1590.      188.    1242.      161.      163.      197.      140.      224.       56.   653.60
    1.05     1.15     6.30     1.15    0.150    0.050    0.150    0.044   651.10   187.32
0.005497      208.      343.      343.        2          0          0      0.0   193.55   380.87

FLOW DISTRIBUTION FOR SECNO=  14047.00          CWSEL=    657.54

STA=     187.     270.     310.     381.
  PER Q=    11.8     78.1     10.1
   AREA=   162.8    197.1    139.5
    VEL=     1.2      6.3      1.2

*SECNO 14219.000

3470 ENCROACHMENT STATIONS=     400.0     524.0  TYPE=     1  TARGET=     124.000

        VALLEY SECTION X
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14219.00 | 6.43 | 658.43 | 0.0 | 658.43 | 658.81 | 0.38 | 0.76 | 0.03 | 653.30 |
| 1590. | 329. | 1019. | 243. | 205. | 168. | 170. | 226. | 57. | 653.30 |
| 1.06 | 1.60 | 6.08 | 1.43 | 0.150 | 0.050 | 0.150 | 0.044 | 652.00 | 400.00 |
| 0.004053 | 104. | 172. | 172. | 2 | 0 | 0 | 0.0 | 124.00 | 524.00 |

FLOW DISTRIBUTION FOR SECNO= 14219.00 CWSEL= 658.43

| STA= | 400. | 447. | 476. | 524. |
|---|---|---|---|---|
| PER Q= | 20.7 | 64.1 | 15.3 | |
| AREA= | 205.1 | 167.6 | 170.2 | |
| VEL= | 1.6 | 6.1 | 1.6 | |

CCHV= 0.400 CEHV= 0.600

*SECNO 14390.000

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 556.9 595.1 TYPE= 1 TARGET= 42.000

SECNO 14390 50' D/S 7 MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14390.00 | 6.01 | 658.91 | 0.0 | 658.91 | 661.08 | 2.17 | 1.20 | 1.07 | 653.00 |
| 1590. | 150. | 1279. | 162. | 50. | 98. | 52. | 227. | 57. | 653.00 |
| 1.07 | 3.02 | 13.09 | 3.08 | 0.150 | 0.050 | 0.150 | 0.044 | 652.90 | 556.92 |
| 0.017925 | 104. | 171. | 171. | 2 | 0 | 0 | 0.0 | 38.22 | 595.14 |

FLOW DISTRIBUTION FOR SECNO= 14390.00 CWSEL= 658.91

| STA= | 557. | 568. | 584. | 595. |
|---|---|---|---|---|
| PER Q= | 9.4 | 80.4 | 10.2 | |
| AREA= | 49.6 | 97.7 | 52.5 | |
| VEL= | 3.0 | 13.1 | 3.1 | |

*SECNO 14440.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 660.00 ELREA= 660.00

SECNO 14440 STA 174+50 D/S FACE 7 MILE FROM CORPS NOTES AND QUAD MAPSKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14440.00 | 6.74 | 659.64 | 659.54 | 659.64 | 662.79 | 3.15 | 1.12 | 0.59 | 654.50 |
| 1590. | 0. | 1590. | 0. | 0. | 112. | 0. | 227. | 57. | 653.50 |
| 1.07 | 0.0 | 14.25 | 0.0 | 0.150 | 0.050 | 0.150 | 0.044 | 652.90 | 675.22 |
| 0.028597 | 50. | 50. | 50. | 4 | 11 | 0 | 0.0 | 10.20 | 693.42 |

FLOW DISTRIBUTION FOR SECNO= 14440.00 CWSEL= 659.64

| STA= | 675. | 693. |
|---|---|---|
| PER Q= | 100.0 | |
| AREA= | 111.6 | |
| VEL= | 14.2 | |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BUC | BUP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 1.71 | 3.00 | 0.0 | 18.20 | 0.0 | 121.90 | 0.0 | 652.80 | 652.80 |

*SECNO 14501.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 664.15 | 662.79 | 0.0 | 40. | 1542. | 122. | 122. | 659.50 | 663.40 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 663.60 ELREA= 663.60

SECNO 14501 U/S FACE 7 MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14501.00 | 9.48 | 662.38 | 0.0 | 662.38 | 663.88 | 1.50 | 1.10 | 0.0 | 654.50 |
| 1590. | 0. | 1590. | 0. | 0. | 162. | 0. | 227. | 57. | 653.50 |
| 1.07 | 0.0 | 9.83 | 0.0 | 0.150 | 0.050 | 0.150 | 0.044 | 652.90 | 675.22 |
| 0.009620 | 61. | 61. | 61. | 8 | 0 | 3 | 0.0 | 18.20 | 693.42 |

FLOW DISTRIBUTION FOR SECNO= 14501.00 CWSEL= 662.38

| STA= | 675. | 693. |
|---|---|---|
| PER Q= | 100.0 | |
| AREA= | 101.8 | |
| VEL= | 9.8 | |

*SECNO 14570.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 219.3 390.4 TYPE= 1 TARGET= 188.000

SECNO 14570 STA 175+10 69' U/S 7 MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14570.00 | 12.69 | 664.49 | 0.0 | 664.49 | 664.55 | 0.06 | 0.09 | 0.57 | 655.60 |
| 1590. | 505. | 631. | 453. | 603. | 206. | 560. | 220. | 57. | 655.60 |
| 1.08 | 0.84 | 3.06 | 0.81 | 0.150 | 0.050 | 0.150 | 0.044 | 651.80 | 219.31 |
| 0.000511 | 69. | 69. | 69. | 2 | 0 | 0 | 0.0 | 171.08 | 390.39 |

FLOW DISTRIBUTION FOR SECNO= 14570.00 CWSEL= 664.49

| STA= | 219. | 296. | 315. | 390. |
|---|---|---|---|---|
| PER Q= | 31.8 | 39.7 | 28.5 | |
| AREA= | 603.0 | 206.1 | 560.0 | |
| VEL= | 0.8 | 3.1 | 0.8 | |

*SECNO 15360.000

2800 NAT Q1= 656.25 WSEL= 664.91 ENC Q1= 656.25 WSEL= 665.01 RATIO= 0.0

NAT Q1= 671. RATIOS LOB,CH,ROB= 0.2157 0.6295 0.1548 WSEL= 665.01

3470 ENCROACHMENT STATIONS= 28.0 177.6 TYPE= 4 TARGET= 0.022

SECNO 15360 STA 184+40 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15360.00 | 9.21 | 60.21 | 0.0 | 384. | 345. | 307. | 250. | 60. | 658.00 |
| 1590. | 334. | 1017. | 239. | 0.150 | 0.050 | 0.150 | 0.044 | 655.00 | 27.96 |
| 1.18 | 0.87 | 2.95 | 0.78 | | | | | | |

```
 0.000603     790.     790.     790.        0        0        0     0.0   149.61   177.57

 FLOW DISTRIBUTION FOR SECNO=  15360.00          CWSEL=    664.91

 STA=      28.      30.      40.      84.     125.     175.     178.
   PER Q=      0.2      2.9     17.9     64.0     14.8      0.2
    AREA=      9.3     59.1    315.1    344.8    295.6     11.3
     VEL=      0.3      0.8      0.9      3.0      0.8      0.3

 *SECNO 16100.000
  2800 NAT Q1=    286.91  WSEL=    665.69  ENC Q1=    286.91  WSEL=    665.79  RATIO=  0.0
  NAT Q1=    299.  RATIOS LOB,CH,ROB=  0.1058  0.5087  0.3855  WSEL=    665.79
     SECNO     DEPTH     CWSEL     CRIWS     WSELR     EG        HV        HL        OLOSS     BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID    ENDST


 3470 ENCROACHMENT STATIONS=      79.3     293.0  TYPE=      4  TARGET=       0.041

        SECNO 16100 STA 192+60 FROM CORPS NOTES AND QUAD MAP

 16100.00     7.72   665.72      0.0   665.69   665.98     0.27     0.87     0.11   662.00
    1590.     139.     849.     601.     114.     153.     469.     265.      63.   660.00
     1.24     1.21     5.56     1.28    0.150    0.050    0.150    0.045   658.00    79.28
0.003245     740.     740.     740.        2        0        0      0.0   213.74   293.01

 FLOW DISTRIBUTION FOR SECNO=  16100.00          CWSEL=    665.72

 STA=      79.      80.     115.     140.     170.     240.     250.     293.
   PER Q=      0.0      8.7     53.4     14.1     19.2      1.5      2.9
    AREA=      1.9    112.6    152.9    141.5    239.1     24.2     64.5
     VEL=      0.4      1.2      5.6      1.6      1.3      1.0      0.7

 *SECNO 16500.000
  2800 NAT Q1=    371.86  WSEL=    666.66  ENC Q1=    371.86  WSEL=    666.76  RATIO=  0.0
  NAT Q1=    386.  RATIOS LOB,CH,ROB=  0.0962  0.5836  0.3202  WSEL=    666.76

 3470 ENCROACHMENT STATIONS=      138.8     340.1  TYPE=      4  TARGET=       0.036

        SECNO 16500 X

 16500.00     7.73   666.73      0.0   666.66   666.91     0.18     0.89     0.03   662.00
    1590.     128.     965.     497.     130.     224.     484.     272.      65.   662.00
     1.27     0.99     4.31     1.03    0.150    0.050    0.150    0.045   659.00   138.84
0.001868     550.     400.     275.        0        0        0      0.0   201.22   340.05

 FLOW DISTRIBUTION FOR SECNO=  16500.00          CWSEL=    666.73

 STA=      139.      173.      209.      310.      340.
   PER Q=      8.1      60.7      27.1       4.1
    AREA=    130.0     224.1     401.4      82.2
     VEL=      1.0       4.3       1.1       0.8

 CCHV=   0.300 CEHV=   0.500
 *SECNO 16900.000
  2800 NAT Q1=    321.42  WSEL=    667.43  ENC Q1=    321.42  WSEL=    667.53  RATIO=  0.0
  NAT Q1=    335.  RATIOS LOB,CH,ROB=  0.0834  0.7270  0.1896  WSEL=    667.53
```

3470 ENCROACHMENT STATIONS= 189.4 379.2 TYPE= 4 TARGET= 0.040

SECNO 16900 STA 201+70 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16900.00 | 7.51 | 667.51 | 0.0 | 667.43 | 667.76 | 0.25 | 0.81 | 0.03 | 664.00 |
| 1590. | 105. | 1205. | 280. | 110. | 264. | 287. | 278. | 67. | 664.00 |
| 1.30 | 0.95 | 4.56 | 0.98 | 0.150 | 0.050 | 0.150 | 0.045 | 660.00 | 189.43 |
| 0.002478 | 550. | 400. | 275. | 2 | 0 | 0 | 0.0 | 189.72 | 379.16 |

FLOW DISTRIBUTION FOR SECNO= 16900.00 CWSEL= 667.51

| STA= | 189. | 228. | 276. | 350. | 379. |
|---|---|---|---|---|---|
| PER Q= | 6.6 | 75.8 | 14.4 | 3.2 | |
| AREA= | 109.7 | 264.5 | 222.7 | 63.9 | |
| VEL= | 1.0 | 4.6 | 1.0 | 0.8 | |

*SECNO 17295.000
2800 NAT Q1= 249.53 WSEL= 668.56 ENC Q1= 249.53 WSEL= 668.66 RATIO= 0.0000
NAT Q1= 262. RATIOS LOB,CH,ROB= 0.0753 0.7193 0.2054 WSEL= 668.66

3470 ENCROACHMENT STATIONS= 351.0 501.5 TYPE= 4 TARGET= 0.047

SECNO 17295 *

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17295.00 | 6.26 | 668.66 | 0.0 | 668.56 | 668.98 | 0.32 | 1.19 | 0.04 | 666.50 |
| 1590. | 86. | 1196. | 308. | 75. | 232. | 184. | 283. | 68. | 665.00 |
| 1.32 | 1.15 | 5.15 | 1.67 | 0.120 | 0.050 | 0.120 | 0.045 | 662.40 | 350.95 |
| 0.004034 | 75. | 395. | 425. | 2 | 0 | 0 | 0.0 | 150.50 | 501.45 |

FLOW DISTRIBUTION FOR SECNO= 17295.00 CWSEL= 668.66

| STA= | 351. | 392. | 443. | 500. | 501. |
|---|---|---|---|---|---|
| PER Q= | 5.4 | 75.2 | 19.2 | 0.2 | |
| AREA= | 75.1 | 232.0 | 180.2 | 3.8 | |
| VEL= | 1.1 | 5.2 | 1.7 | 0.8 | |

*SECNO 17690.000
2800 NAT Q1= 219.66 WSEL= 670.27 ENC Q1= 219.66 WSEL= 670.37 RATIO= 0.0
NAT Q1= 231. RATIOS LOB,CH,ROB= 0.0641 0.7789 0.1569 WSEL= 670.37

3470 ENCROACHMENT STATIONS= 508.9 648.7 TYPE= 4 TARGET= 0.051

SECNO 17690 STA 210+80 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17690.00 | 5.68 | 670.38 | 0.0 | 670.27 | 670.78 | 0.41 | 1.76 | 0.04 | 669.00 |
| 1590. | 65. | 1304. | 221. | 61. | 233. | 121. | 286. | 69. | 667.00 |
| 1.35 | 1.06 | 5.59 | 1.82 | 0.120 | 0.050 | 0.120 | 0.045 | 664.70 | 508.94 |
| 0.005215 | 75. | 395. | 425. | 2 | 0 | 0 | 0.0 | 139.71 | 648.65 |

FLOW DISTRIBUTION FOR SECNO= 17690.00 CWSEL= 670.38

| STA= | 509. | 555. | 610. | 649. |
|---|---|---|---|---|
| PER Q= | 4.1 | 82.0 | 13.9 | |
| AREA= | 61.5 | 233.2 | 121.0 | |
| VEL= | 1.1 | 5.6 | 1.8 | |

*SECNO 18215.000
2800 NAT Q1= 264.93 WSEL= 672.65 ENC Q1= 264.93 WSEL= 672.75 RATIO= 0.0
NAT Q1= 277. RATIOS LOB,CH,ROB= 0.0875 0.7513 0.1612 WSEL= 672.75

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOB1 | XLCH | XLOBR | ITRIAL | IDF | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 494.0 650.5 TYPE= 4 TARGET= 0.045

SECNO 18215 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18215.00 | 6.05 | 672.75 | 0.0 | 672.65 | 673.05 | 0.30 | 2.24 | 0.03 | 671.00 |
| 1590. | 109. | 1242. | 239. | 104. | 254. | 142. | 292. | 71. | 669.00 |
| 1.38 | 1.04 | 4.89 | 1.69 | 0.120 | 0.050 | 0.120 | 0.045 | 666.70 | 493.96 |
| 0.003554 | 615. | 525. | 488. | 2 | 0 | 0 | 0.0 | 156.54 | 650.50 |

FLOW DISTRIBUTION FOR SECNO= 18215.00 CWSEL= 672.75

| STA= | 494. | 495. | 555. | 610. | 650. | 651. |
|---|---|---|---|---|---|---|
| PER Q= | 0.1 | 6.8 | 78.1 | 15.0 | 0.0 | |
| AREA= | 1.7 | 102.2 | 254.2 | 140.2 | 1.6 | |
| VEL= | 0.5 | 1.1 | 4.9 | 1.7 | 0.4 | |

*SECNO 18739.000

3470 ENCROACHMENT STATIONS= 1.0 574.0 TYPE= 1 TARGET= 573.000

SECNO 18739 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18739.00 | 6.31 | 674.91 | 0.0 | 674.85 | 675.50 | 0.59 | 2.30 | 0.15 | 673.10 |
| 1590. | 24. | 1539. | 26. | 28. | 245. | 31. | 297. | 72. | 673.10 |
| 1.41 | 0.86 | 6.28 | 0.86 | 0.120 | 0.050 | 0.120 | 0.046 | 668.60 | 383.42 |
| 0.005533 | 614. | 524. | 488. | 2 | 0 | 0 | 0.0 | 115.42 | 498.84 |

FLOW DISTRIBUTION FOR SECNO= 18739.00 CWSEL= 674.91

| STA= | 383. | 415. | 465. | 499. |
|---|---|---|---|---|
| PER Q= | 1.5 | 96.8 | 1.7 | |
| AREA= | 28.5 | 245.2 | 30.5 | |
| VEL= | 0.9 | 6.3 | 0.9 | |

*SECNO 19001.000

SECNO 19001 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19001.00 | 6.78 | 676.28 | 0.0 | 676.27 | 676.75 | 0.46 | 1.21 | 0.04 | 674.00 |
| 1590. | 39. | 1510. | 41. | 46. | 269. | 49. | 299. | 73. | 674.00 |
| 1.42 | 0.84 | 5.61 | 0.84 | 0.120 | 0.050 | 0.120 | 0.046 | 669.50 | 375.05 |
| 0.003906 | 307. | 262. | 243. | 2 | 0 | 0 | 0.0 | 132.76 | 507.80 |

FLOW DISTRIBUTION FOR SECNO= 19001.00 CWSEL= 676.28

| STA= | 375. | 415. | 465. | 508. |
|---|---|---|---|---|
| PER Q= | 2.4 | 95.0 | 2.6 | |
| AREA= | 45.6 | 269.1 | 48.9 | |
| VEL= | 0.8 | 5.6 | 0.8 | |

*SECNO 19263.000

3470 ENCROACHMENT STATIONS= 277.0 332.0 TYPE= 1 TARGET= 55.000

SECNO 19263 50' D/S FARMINGTON FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19263.00 | 6.77 | 677.27 | 0.0 | 677.27 | 678.02 | 0.75 | 1.13 | 0.14 | 670.60 |
| 1590. | 32. | 1521. | 37. | 26. | 214. | 26. | 301. | 74. | 672.60 |
| 1.43 | 1.23 | 7.09 | 1.43 | 0.120 | 0.050 | 0.120 | 0.046 | 670.50 | 277.00 |
| 0.007[illegible] | 307. | 262. | [illegible] | [illegible] | 0 | 0 | 0.0 | 55.00 | 332.00 |

FLOW DISTRIBUTION FOR SECNO= 19263.00 CWSEL= 677.27

| STA= | 277. | 285. | 288. | 321. | 332. |
|---|---|---|---|---|---|
| PER Q= | 0.9 | 1.1 | 95.6 | 2.3 | |
| AREA= | 13.5 | 12.5 | 214.4 | 26.1 | |
| VEL= | 1.1 | 1.4 | 7.1 | 1.4 | |

CCHV= 0.600 CEHV= 0.600
*SECNO 19313.000

3470 ENCROACHMENT STATIONS= 1.0 354.0 TYPE= 1 TARGET= 353.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 679.80 ELREA= 679.80

SECNO 19313 STA 230+00 D/S FACE FARMINGTON FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19313.00 | 6.98 | 677.48 | 0.0 | 677.48 | 678.39 | 0.91 | 0.28 | 0.10 | 670.60 |
| 1590. | 0. | 1590. | 0. | 0. | 208. | 0. | 301. | 74. | 670.60 |
| 1.43 | 0.0 | 7.64 | 0.0 | 0.120 | 0.050 | 0.120 | 0.046 | 670.50 | 290.00 |
| 0.006562 | 50. | 50. | 50. | 0 | 0 | 0 | 0.0 | 30.00 | 320.00 |

FLOW DISTRIBUTION FOR SECNO= 19313.00 CWSEL= 677.48

| STA= | 290. | 320. |
|---|---|---|
| PER Q= | 100.0 | |
| AREA= | 208.0 | |
| VEL= | 7.6 | |

SPECIAL BRIDGE

| SB | XK | XKOR | COEQ | ROLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 1.71 | 3.00 | 0.0 | 30.00 | 0.0 | 210.00 | 0.0 | 670.50 | 670.50 |

*SECNO 19387.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | *SELK | EG | HV | HL | ULOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNW | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE FLOW

| EGPRS | EGLOC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 679.00 | 678.39 | 0.0 | 0. | 1590. | 210. | 210. | 677.50 | 681.10 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 681.10 ELREA= 681.10

SECNO 19387 U/S FACE FARMINGTON FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19387.00 | 7.78 | 678.28 | 0.0 | 678.27 | 679.00 | 0.73 | 0.61 | 0.0 | 670.60 |
| 1590. | 0. | 1590. | 0. | 0. | 232. | 0. | 301. | 74. | 670.60 |
| 1.43 | 0.0 | 6.85 | 0.0 | 0.120 | 0.050 | 0.120 | 0.046 | 670.50 | 290.00 |
| 0.004694 | 74. | 74. | 74. | 2 | 0 | 0 | 0.0 | 30.00 | 320.00 |

FLOW DISTRIBUTIO FOR SECNO= 19387.00 CWSEL= 7[illegible]

STA= 290. 320.
PER Q= 100.0
AREA= 232.0
VEL= 6.9

CCHV= 0.300 CEHV= 0.500
*SECNO 19437.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 660.0 820.0 TYPE= 1 TARGET= 160.000

SECNO 19437 50' U/S FARMINGTON FROM CORPS NOTES,FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19437.00 | 8.52 | 679.02 | 0.0 | 679.02 | 679.24 | 0.22 | 0.09 | 0.15 | 679.60 |
| 1350. | 0. | 1350. | 0. | 0. | 357. | 0. | 302. | 74. | 682.20 |
| 1.44 | 0.0 | 3.78 | 0.0 | 0.120 | 0.035 | 0.120 | 0.046 | 670.50 | 705.54 |
| 0.000821 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 61.44 | 766.98 |

FLOW DISTRIBUTION FOR SECNO= 19437.00 CWSEL= 679.02

STA= 706. 773.
PER Q= 100.0
AREA= 356.8
VEL= 3.8

CCHV= 0.300 CEHV= 0.500
*SECNO 19517.000
2800 NAT Q1= 381.15 WSEL= 679.23 ENC Q1= 381.15 WSEL= 679.33 RATIO= 0.0000
NAT Q1= 397. RATIOS LOB,CH,ROB= 0.1325 0.8312 0.0363 WSEL= 679.33

3470 ENCROACHMENT STATIONS= 17.3 200.2 TYPE= 4 TARGET= 0.040

SECNO 19517

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19517.00 | 7.62 | 679.22 | 0.0 | 679.23 | 679.35 | 0.14 | 0.08 | 0.03 | 677.00 |
| 1350. | 151. | 1177. | 22. | 166. | 375. | 30. | 302. | 74. | 678.00 |
| 1.45 | 0.91 | 3.14 | 0.74 | 0.095 | 0.048 | 0.095 | 0.046 | 671.60 | 17.33 |
| 0.001376 | 80. | 80. | 80. | 2 | 0 | 0 | 0.0 | 102.85 | 200.18 |

FLOW DISTRIBUTION FOR SECNO= 19517.00 CWSEL= 679.22

STA= 17. 100. 180. 200. 200.
PER Q= 11.2 87.2 1.6 0.0
AREA= 166.2 374.7 29.4 0.3
VEL= 0.9 3.1 0.7 0.2

*SECNO 20117.000
2800 NAT Q1= 220.22 WSEL= 680.30 ENC Q1= 220.22 WSEL= 680.40 RATIO= 0.0000
NAT Q1= 231. RATIOS LOB,CH,ROB= 0.1317 0.8679 0.0003 WSEL= 680.40

3470 ENCROACHMENT STATIONS= 235.9 330.0 TYPE= 4 TARGET= 0.047

SECNO 20117

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20117.00 | 5.97 | 680.37 | 0.0 | 680.30 | 680.74 | 0.37 | 1.27 | 0.12 | 677.90 |
| 1350. | 119. | 1231. | 0. | 79. | 242. | 0. | 308. | 76. | 680.00 |
| 1.48 | 1.52 | 5.09 | 0.0 | 0.095 | 0.048 | 0.095 | 0.046 | 674.40 | 235.90 |
| 0.003891 | 450. | 600. | 750. | 2 | 0 | 0 | 0.0 | 94.10 | 330.00 |

FLOW DISTRIBUTION FOR SECNO= 20117.00 CWSEL= 680.37

STA= 236. 275. 330.
PER Q= 8.8 91.2
AREA= 78.7 242.0
VEL= 1.5 5.1

*SECNO 20617.000
2800 NAT Q1= 251.91 WSEL= 682.02 ENC Q1= 251.91 WSEL= 682.12 RATIO= 0.0000
NAT Q1= 264. RATIOS LOB,CH,ROB= 0.0467 0.9360 0.0173 WSEL= 682.12

3470 ENCROACHMENT STATIONS= 399.3 475.0 TYPE= 4 TARGET= 0.046

SECNO 20617 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20617.00 | 6.15 | 682.15 | 0.0 | 682.02 | 682.46 | 0.31 | 1.70 | 0.02 | 680.00 |
| 1350. | 26. | 1324. | 0. | 21. | 296. | 0. | 312. | 77. | 680.00 |
| 1.51 | 1.21 | 4.48 | 0.0 | 0.095 | 0.048 | 0.095 | 0.046 | 676.00 | 399.30 |
| 0.002942 | 575. | 500. | 425. | 2 | 0 | 0 | 0.0 | 75.70 | 475.00 |

FLOW DISTRIBUTION FOR SECNO= 20617.00 CWSEL= 682.15

STA= 399. 410. 475.
PER Q= 1.9 98.1
AREA= 21.3 295.7
VEL= 1.2 4.5

*SECNO 21117.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 535.0 675.0 TYPE= 1 TARGET= 140.000

SECNO 21117

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 21117.00 | 6.12 | 683.62 | 0.0 | 683.50 | 683.85 | 0.22 | 1.37 | 0.02 | 682.00 |
| 1350. | 48. | 1264. | 41. | 45. | 324. | 42. | 316. | 78. | 682.00 |
| 1.55 | 1.00 | 3.91 | 0.96 | 0.095 | 0.048 | 0.095 | 0.046 | 677.50 | 535.00 |
| 0.002539 | 575. | 500. | 425. | 2 | 0 | 0 | 0.0 | 140.00 | 675.00 |

FLOW DISTRIBUTION FOR SECNO= 21117.00 CWSEL= 683.62

STA= 535. 565. 645. 675.
PER Q= 3.3 93.7 3.0
AREA= 44.8 323.6 42.3
VEL= 1.0 3.9 1.0

*SECNO 21392.000
2800 NAT Q1= 179.63 WSEL= 684.42 ENC Q1= 184.89 WSEL= 684.52 RATIO= -0.0293
NAT Q1= 188. RATIOS LOB,CH,ROB= 0.0 0.9826 0.0174 WSEL= 684.52

3470 ENCROACHMENT STATIONS= 355.0 435.0 TYPE= 4 TARGET= 0.017

SECNO 21392 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 21392.00 | 5.42 | 684.52 | 0.0 | 684.42 | 684.93 | 0.41 | 0.99 | 0.09 | 665.50 |
| 1350. | 0. | 1350. | 0. | 0. | 262. | 0. | 318. | 79. | 683.00 |
| 1.56 | 0.0 | 5.16 | 0.0 | 0.095 | 0.048 | 0.095 | 0.046 | 679.10 | 359.60 |
| 0.005502 | 200. | 275. | 350. | 2 | 0 | 0 | 0.0 | 75.40 | 435.00 |

```
 FLOW DISTRIBUTION FOR SECNO=  21392.00          CWSEL=    684.52

 STA=      360.      435.
   PER Q=    100.0
    AREA=    261.8
     VEL=      5.2

 *SECNO 21667.000
  2800 NAT Q1=    178.05  WSEL=    686.00  ENC Q1=    178.85  WSEL=    686.10  RATIO= -0.0045
  NAT Q1=    187.  RATIOS LOB,CH,ROB=  0.0     0.9579  0.0421  WSEL=    686.10

 3470 ENCROACHMENT STATIONS=     130.0     230.0  TYPE=     4  TARGET=       0.042

        SECNO 21667

 21667.00     5.48   686.08     0.0    686.00   686.53     0.45     1.58     0.02   690.00
    1350.       0.    1350.      0.        0.     252.       0.      320.      79.   684.10
     1.5N      0.0     5.36     0.0     0.095    0.048    0.095    0.046   680.60   157.09
 0.006009      200.     275.     350.        2        0        0      0.0    72.92   230.00

 FLOW DISTRIBUTION FOR SECNO=  21667.00          CWSEL=    686.08

 STA=      157.      230.
   PER Q=    100.0
    AREA=    252.1
     VEL=      5.4

 *SECNO 22128.000
  2800 NAT Q1=    185.99  WSEL=    688.49  ENC Q1=    190.75  WSEL=    688.59  RATIO= -0.0256
  NAT Q1=    193.  RATIOS LOB,CH,ROB=  0.0062  0.9869  0.0069  WSEL=    688.59

 3470 ENCROACHMENT STATIONS=     300.0     355.0  TYPE=     4  TARGET=       0.013

        SECNO 22128 X

 22128.00     6.73   688.63     0.0    688.49   689.13     0.50     2.58     0.03   680.00
    1350.       0.    1350.      0.        0.     239.       0.      323.      80.   686.50
     1.60      0.0     5.66     0.0     0.095    0.048    0.095    0.046   681.90   300.00
 0.005210      461.     461.     461.        1        0        0      0.0    55.00   355.00

 FLOW DISTRIBUTION FOR SECNO=  22128.00          CWSEL=    688.63

 STA=      300.      355.
   PER Q=    100.0
    AREA=    238.5
     VEL=      5.7

 *SECNO 22589.000
  2800 NAT Q1=    247.92  WSEL=    690.66  ENC Q1=    247.92  WSEL=    690.76  RATIO=  0.0
  NAT Q1=    262.  RATIOS LOB,CH,ROB=  0.3805  0.6152  0.0042  WSEL=    690.76

 3470 ENCROACHMENT STATIONS=     303.0     485.0  TYPE=     4  TARGET=       0.054

        SECNO 22589 X

 22589.00     7.59   690.79     0.0    690.66   691.01     0.22     1.79     0.08   688.00
    1350.      484.     866.      0.      326.     190.       0.      327.      81.   689.00
     1.64      1.48     4.55     0.0     0.095    0.048    0.095    0.046   683.20   302.96
 0.003014      461.     461.     461.        2        0        0      0.0   182.04   485.00

 FLOW DISTRIBUTION FOR SECNO=  22589.00          CWSEL=    690.79

 STA=      303.      485.
```

| | | |
|---|---|---|
| PER Q= | 35.8 | 64.2 |
| AREA= | 326.2 | 190.5 |
| VEL= | 1.5 | 4.5 |

*SECNO 23050.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |
| | | | | | | | | | |
| 3470 ENCROACHMENT STATIONS= | | 1.0 | 799.0 | TYPE= | 1 | TARGET= | 798.000 | | |
| SECNO 23050 | | | | | | | | | |
| 23050.00 | 8.06 | 692.56 | 0.0 | 692.47 | 692.91 | 0.35 | 1.83 | 0.06 | 689.00 |
| 1350. | 725. | 593. | 31. | 414. | 86. | 19. | 332. | 84. | 688.90 |
| 1.67 | 1.75 | 6.86 | 1.67 | 0.095 | 0.048 | 0.095 | 0.046 | 684.50 | 344.30 |
| 0.005496 | 461. | 461. | 461. | 2 | 0 | 0 | 0.0 | 279.02 | 623.32 |
| FLOW DISTRIBUTION FOR SECNO= | | 23050.00 | | CWSEL= | 692.56 | | | | |

| STA= | 344. | 400. | 500. | 575. | 600. | 613. | 623. |
|---|---|---|---|---|---|---|---|
| PER Q= | 1.7 | 19.0 | 21.5 | 11.6 | 44.0 | 2.3 | |
| AREA= | 29.5 | 160.8 | 154.4 | 69.0 | 86.5 | 18.9 | |
| VEL= | 0.8 | 1.6 | 1.9 | 2.3 | 6.9 | 1.7 | |

*SECNO 23550.000

2800 NAT Q1= 374.96 WSEL= 693.99 ENC Q1= 374.96 WSEL= 694.09 RATIO= 0.0
NAT Q1= 389. RATIOS LOB,CH,ROB= 0.1332 0.8291 0.0377 WSEL= 694.09

3470 ENCROACHMENT STATIONS= 227.7 336.9 TYPE= 4 TARGET= 0.035

SECNO 23550

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 23550.00 | 6.51 | 694.01 | 0.0 | 693.99 | 694.10 | 0.17 | 1.22 | 0.05 | 690.00 |
| 1350. | 160. | 1165. | 25. | 133. | 328. | 24. | 338. | 86. | 690.00 |
| 1.71 | 1.20 | 3.55 | 1.05 | 0.095 | 0.048 | 0.095 | 0.046 | 687.50 | 227.69 |
| 0.001375 | 500. | 500. | 500. | 2 | 0 | 0 | 0.0 | 109.16 | 336.85 |

FLOW DISTRIBUTION FOR SECNO= 23550.00 CWSEL= 694.01

| STA= | 228. | 270. | 330. | 337. |
|---|---|---|---|---|
| PER Q= | 11.8 | 86.3 | 1.9 | |
| AREA= | 133.1 | 327.9 | 24.1 | |
| VEL= | 1.2 | 3.6 | 1.0 | |

*SECNO 24226.000

3470 ENCROACHMENT STATIONS= 118.0 360.0 TYPE= 1 TARGET= 242.000

SECNO 24226 24' D/S 8 MILE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 24226.00 | 5.90 | 695.06 | 0.0 | 695.01 | 695.30 | 0.24 | 1.08 | 0.04 | 692.46 |
| 1210. | 130. | 904. | 177. | 132. | 199. | 147. | 345. | 88. | 692.46 |
| 1.76 | 0.98 | 4.53 | 1.20 | 0.080 | 0.040 | 0.080 | 0.046 | 689.16 | 133.19 |
| 0.001964 | 550. | 676. | 800. | 3 | 0 | 0 | 0.0 | 226.81 | 360.00 |

FLOW DISTRIBUTION FOR SECNO= 24226.00 CWSEL= 695.06

| STA= | 133. | 235. | 278. | 360. |
|---|---|---|---|---|
| PER Q= | 10.7 | 7.7 | 1.1 | |

```
   AREA=     132.3     1[illegible].3     1[illegible]6.8
    VEL=       1.0       4.5       1.2

*SECNO 24250.000

3470 ENCROACHMENT STATIONS=        0.5      354.0  TYPE=      1  TARGET=      353.500

        SECNO 24250 D/S FACE 8 MILE

 24250.00      5.94    695.14      0.0    695.09    695.34      0.21      0.03      0.01    692.50
    1210.      151.      858.     200.     136.      201.     143.      345.       89.     692.50
     1.77      1.11      4.27     1.40    0.050     0.030    0.050     0.046    689.20    131.78
 0.000971       24.       24.      24.        2         0        0       0.0    222.22    354.00

FLOW DISTRIBUTION FOR SECNO=  24250.00          CWSEL=     695.14

STA=      132.      235.      278.      354.
  PER Q=      12.5      70.9      16.6
   AREA=     136.0     200.9     143.3
    VEL=       1.1       4.3       1.4
```

**********
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

TARABUSI CREEK LIVONIA C

SUMMARY PRINTOUT TABLE 110

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 120.000 | 620.00 | 0.0 | 620.76 | 220.00 | 269.75 | 1261.32 | 238.93 | 290.00 | 250.00 | 405.00 | 440.00 | 540.00 |
| 120.000 | 620.10 | 0.10 | 620.79 | 221.00 | 279.10 | 1238.97 | 251.92 | 290.00 | 250.00 | 405.00 | 440.00 | 540.00 |
| 370.000 | 621.72 | 0.0 | 622.35 | 159.10 | 417.80 | 1138.34 | 213.85 | 0.0 | 0.0 | 140.00 | 170.00 | 0.0 |
| 370.000 | 621.65 | -0.07 | 622.39 | 122.61 | 394.04 | 1190.91 | 185.04 | 0.04 | 76.67 | 140.00 | 170.00 | 199.28 |
| 745.000 | 623.30 | 0.0 | 623.72 | 142.72 | 343.06 | 1175.44 | 251.50 | 0.0 | 0.0 | 126.00 | 155.00 | 0.0 |
| 745.000 | 623.42 | 0.11 | 623.86 | 98.38 | 327.31 | 1211.17 | 231.52 | 0.03 | 85.81 | 126.00 | 155.00 | 184.19 |
| 1120.000 | 624.21 | 0.0 | 624.88 | 120.72 | 196.85 | 1271.08 | 302.06 | 0.0 | 0.0 | 117.00 | 140.00 | 0.0 |
| 1120.000 | 624.32 | 0.11 | 624.96 | 122.73 | 201.18 | 1262.14 | 306.68 | 263.00 | 1.00 | 117.00 | 140.00 | 264.00 |
| 1770.000 | 625.84 | 0.0 | 626.21 | 121.13 | 246.48 | 1371.91 | 151.60 | 0.0 | 0.0 | 190.00 | 220.00 | 0.0 |
| 1770.000 | 625.87 | 0.03 | 626.26 | 75.98 | 236.45 | 1394.94 | 138.60 | 0.02 | 161.34 | 190.00 | 220.00 | 237.33 |
| 2416.000 | 626.67 | 0.0 | 627.19 | 69.65 | 81.66 | 1555.83 | 132.51 | 0.0 | 0.0 | 271.00 | 300.00 | 0.0 |
| 2416.000 | 626.72 | 0.05 | 627.26 | 51.39 | 66.32 | 1584.02 | 119.66 | 0.02 | 262.53 | 271.00 | 300.00 | 313.92 |
| 2466.000 | 627.09 | 0.0 | 627.34 | 73.80 | 0.0 | 1770.00 | 0.0 | 0.0 | 0.0 | 371.60 | 445.40 | 0.0 |
| 2466.000 | 627.17 | 0.08 | 627.42 | 73.80 | 0.0 | 1770.00 | 0.0 | 0.0 | 371.60 | 371.60 | 445.40 | 445.40 |
| 2554.000 | 627.10 | 0.0 | 627.35 | 73.80 | 0.0 | 1770.00 | 0.0 | 0.0 | 0.0 | 371.60 | 445.40 | 0.0 |
| 2554.000 | 627.20 | 0.10 | 627.44 | 73.80 | 0.0 | 1770.00 | 0.0 | 0.0 | 445.40 | 371.60 | 445.40 | 0.0 |
| 2604.000 | 627.22 | 0.0 | 627.43 | 145.67 | 255.52 | 1427.38 | 87.10 | 174.00 | 111.00 | 177.50 | 220.50 | 285.00 |
| 2604.000 | 627.32 | 0.09 | 627.52 | 145.96 | 258.61 | 1422.31 | 89.08 | 174.00 | 111.00 | 177.50 | 220.50 | 285.00 |
| 3360.000 | 628.31 | 0.0 | 628.61 | 237.48 | 250.02 | 1398.99 | 120.99 | 0.0 | 0.0 | 180.00 | 223.00 | 0.0 |
| 3360.000 | 628.38 | 0.07 | 628.69 | 169.12 | 233.59 | 1436.87 | 99.55 | 0.03 | 95.12 | 180.00 | 223.00 | 264.24 |
| 4116.000 | 630.07 | 0.0 | 630.42 | 150.00 | 191.20 | 1418.41 | 160.39 | 150.00 | 123.00 | 177.00 | 219.00 | 273.00 |
| 4116.000 | 630.13 | 0.07 | 630.47 | 150.00 | 194.30 | 1412.03 | 163.67 | 150.00 | 123.00 | 177.00 | 219.00 | 273.00 |
| 4316.000 | 630.27 | 0.0 | 632.73 | 31.18 | 100.03 | 1571.22 | 98.75 | 0.0 | 0.0 | 42.30 | 57.80 | 0.0 |
| 4316.000 | 630.30 | 0.04 | 632.74 | 31.25 | 100.45 | 1570.38 | 99.17 | 414.00 | 1.00 | 42.30 | 57.80 | 415.00 |
| 4403.000 | 634.30 | 0.0 | 635.07 | 98.04 | 177.78 | 1416.34 | 175.88 | 0.0 | 0.0 | 42.30 | 57.80 | 0.0 |
| 4403.000 | 634.31 | 0.01 | 635.08 | 98.04 | 178.25 | 1415.41 | 176.35 | 0.0 | 0.0 | 42.30 | 57.80 | 0.0 |

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4453.000 | 635.37 | 0.0 | 635.41 | 192.60 | 582.18 | 366.03 | 821.80 | 428.00 | 54.90 | 148.50 | 160.65 | 247.50 |
| 4453.000 | 635.38 | 0.01 | 635.42 | 192.60 | 582.38 | 365.86 | 821.76 | 428.00 | 54.90 | 148.50 | 160.65 | 247.50 |
| 5950.000 | 635.89 | 0.0 | 635.94 | 353.51 | 655.60 | 699.16 | 415.23 | 0.0 | 0.0 | 235.00 | 265.00 | 0.0 |
| 5950.000 | 635.91 | 0.02 | 635.96 | 302.13 | 645.20 | 715.36 | 409.44 | 0.03 | 68.26 | 235.00 | 265.00 | 370.39 |
| 6600.000 | 636.18 | 0.0 | 636.32 | 327.33 | 156.26 | 1172.21 | 441.53 | 0.0 | 0.0 | 110.00 | 165.00 | 0.0 |
| 6600.000 | 636.20 | 0.03 | 636.36 | 235.13 | 129.50 | 1213.82 | 426.68 | 0.04 | 71.15 | 110.00 | 165.00 | 306.29 |
| 7340.000 | 637.26 | 0.0 | 637.42 | 268.62 | 780.52 | 553.34 | 406.14 | 0.0 | 0.0 | 200.00 | 222.00 | 0.0 |
| 7340.000 | 637.33 | 0.07 | 637.50 | 258.27 | 784.87 | 571.22 | 413.91 | 0.05 | 59.73 | 200.00 | 222.00 | 298.00 |
| 8078.000 | 639.24 | 0.0 | 639.56 | 321.62 | 540.82 | 1004.61 | 224.57 | 0.0 | 0.0 | 210.00 | 240.00 | 0.0 |
| 8078.000 | 639.33 | 0.09 | 639.68 | 196.66 | 534.41 | 1037.77 | 197.82 | 0.05 | 84.09 | 210.00 | 240.00 | 280.75 |
| 8815.000 | 641.02 | 0.0 | 641.29 | 332.93 | 345.36 | 1208.94 | 215.70 | 0.0 | 0.0 | 210.00 | 253.00 | 0.0 |
| 8815.000 | 641.13 | 0.11 | 641.41 | 232.62 | 332.44 | 1244.98 | 192.58 | 0.05 | 88.02 | 210.00 | 253.00 | 320.64 |
| 9276.000 | 641.99 | 0.0 | 642.51 | 184.31 | 170.59 | 1553.03 | 46.39 | 0.0 | 0.0 | 205.00 | 250.00 | 0.0 |
| 9276.000 | 642.08 | 0.10 | 642.64 | 92.70 | 155.65 | 1601.55 | 12.80 | 0.04 | 161.18 | 205.00 | 250.00 | 253.88 |
| 9737.000 | 643.29 | 0.0 | 643.73 | 190.30 | 207.19 | 1509.20 | 53.61 | 0.0 | 0.0 | 205.00 | 250.00 | 0.0 |
| 9737.000 | 643.41 | 0.11 | 643.86 | 106.44 | 194.48 | 1553.25 | 22.27 | 0.04 | 149.70 | 205.00 | 250.00 | 256.14 |
| 10198.000 | 644.33 | 0.0 | 644.75 | 191.07 | 212.12 | 1503.26 | 54.61 | 0.0 | 0.0 | 205.00 | 250.00 | 0.0 |
| 10198.000 | 644.45 | 0.12 | 644.89 | 109.70 | 200.72 | 1543.58 | 25.70 | 0.03 | 147.31 | 205.00 | 250.00 | 257.02 |
| 10658.000 | 645.51 | 0.0 | 646.24 | 80.00 | 95.86 | 1557.26 | 116.89 | 80.00 | 183.00 | 205.00 | 240.00 | 263.00 |
| 10658.000 | 645.61 | 0.10 | 646.31 | 80.00 | 98.66 | 1551.70 | 119.63 | 80.00 | 183.00 | 205.00 | 240.00 | 263.00 |
| 10708.000 | 646.10 | 0.0 | 646.51 | 64.00 | 0.0 | 1770.00 | 0.0 | 0.0 | 0.0 | 208.00 | 272.00 | 0.0 |
| 10708.000 | 646.17 | 0.07 | 646.56 | 64.00 | 0.0 | 1770.00 | 0.0 | 0.0 | 208.00 | 208.00 | 272.00 | 272.00 |
| 10782.000 | 646.16 | 0.0 | 646.55 | 64.00 | 0.0 | 1770.00 | 0.0 | 0.0 | 0.0 | 208.00 | 272.00 | 0.0 |
| 10782.000 | 646.26 | 0.10 | 646.64 | 64.00 | 0.0 | 1770.00 | 0.0 | 0.0 | 272.00 | 208.00 | 272.00 | 0.0 |
| 10832.000 | 646.51 | 0.0 | 646.68 | 155.00 | 132.20 | 1265.35 | 192.45 | 155.00 | 145.00 | 197.00 | 247.00 | 300.00 |
| 10832.000 | 646.60 | 0.09 | 646.76 | 155.00 | 135.03 | 1260.23 | 194.75 | 155.00 | 145.00 | 197.00 | 247.00 | 300.00 |
| 11720.000 | 647.92 | 0.0 | 648.31 | 339.81 | 311.27 | 1141.78 | 136.94 | 0.0 | 0.0 | 530.00 | 580.00 | 0.0 |
| 11720.000 | 647.95 | 0.03 | 648.39 | 250.76 | 286.64 | 1201.44 | 101.91 | 0.06 | 383.00 | 530.00 | 580.00 | 633.76 |
| 12145.000 | 649.75 | 0.0 | 649.91 | 363.51 | 404.59 | 988.95 | 196.46 | 0.0 | 0.0 | 530.00 | 580.00 | 0.0 |
| 12145.000 | 649.87 | 0.12 | 650.04 | 284.32 | 393.47 | 1022.84 | 173.69 | 0.05 | 373.21 | 530.00 | 580.00 | 657.53 |
| 12570.000 | 650.90 | 0.0 | 651.16 | 395.98 | 396.80 | 1129.30 | 63.90 | 0.0 | 0.0 | 488.00 | 538.00 | 0.0 |
| 12570.000 | 651.00 | 0.10 | 651.28 | 252.20 | 389.21 | 1168.65 | 32.14 | 0.05 | 320.94 | 488.00 | 538.00 | 573.15 |
| 12965.000 | 652.36 | 0.0 | 652.66 | 389.52 | 378.25 | 1157.65 | 54.10 | 0.0 | 0.0 | 488.00 | 538.00 | 0.0 |
| 12965.000 | 652.45 | 0.10 | 652.77 | 231.79 | 368.29 | 1201.92 | 19.79 | 0.05 | 330.14 | 488.00 | 538.00 | 561.93 |
| 13360.000 | 654.04 | 0.0 | 654.50 | 197.56 | 192.72 | 1232.12 | 165.16 | 0.0 | 0.0 | 270.00 | 310.00 | 0.0 |
| 13360.000 | 654.12 | 0.08 | 654.55 | 200.53 | 196.45 | 1225.20 | 168.35 | 823.00 | 1.00 | 270.00 | 310.00 | 824.00 |
| 13704.000 | 655.75 | 0.0 | 656.23 | 193.93 | 188.13 | 1240.66 | 161.21 | 0.0 | 0.0 | 270.00 | 310.00 | 0.0 |
| 13704.000 | 655.76 | 0.01 | 656.24 | 194.23 | 188.51 | 1239.94 | 161.55 | 0.0 | 0.0 | 270.00 | 310.00 | 0.0 |

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14047.000 | 657.54 | 0.0 | 658.02 | 193.54 | 187.63 | 1241.58 | 160.79 | 0.0 | 0.0 | 270.00 | 310.00 | 0.0 |
| 14047.000 | 657.54 | 0.00 | 658.02 | 193.55 | 187.65 | 1241.54 | 160.81 | 0.0 | 0.0 | 270.00 | 310.00 | 0.0 |
| 14219.000 | 658.43 | 0.0 | 658.81 | 124.00 | 328.63 | 1018.59 | 242.78 | 124.00 | 400.00 | 447.00 | 476.00 | 524.00 |
| 14219.000 | 658.43 | 0.00 | 658.81 | 124.00 | 328.63 | 1018.60 | 242.77 | 124.00 | 400.00 | 447.00 | 476.00 | 524.00 |
| 14390.000 | 658.91 | 0.0 | 661.08 | 38.22 | 149.74 | 1278.64 | 161.62 | 42.00 | 556.92 | 567.84 | 584.22 | 595.14 |
| 14390.000 | 658.91 | 0.00 | 661.08 | 38.22 | 149.74 | 1278.64 | 161.61 | 42.00 | 556.92 | 567.84 | 584.22 | 595.14 |
| 14440.000 | 659.64 | 0.0 | 662.79 | 18.20 | 0.0 | 1590.00 | 0.0 | 0.0 | 0.0 | 675.22 | 693.42 | 0.0 |
| 14440.000 | 659.64 | 0.00 | 662.79 | 18.20 | 0.0 | 1590.00 | 0.0 | 0.0 | 0.0 | 675.22 | 693.42 | 0.0 |
| 14501.000 | 662.38 | 0.0 | 663.88 | 18.20 | 0.0 | 1590.00 | 0.0 | 0.0 | 0.0 | 675.22 | 693.42 | 0.0 |
| 14501.000 | 662.38 | 0.0 | 663.88 | 18.20 | 0.0 | 1590.00 | 0.0 | 0.0 | 0.0 | 675.22 | 693.42 | 0.0 |
| 14570.000 | 664.49 | 0.0 | 664.55 | 171.08 | 505.28 | 631.35 | 453.37 | 188.00 | 219.31 | 295.75 | 314.86 | 390.39 |
| 14570.000 | 664.49 | 0.0 | 664.55 | 171.08 | 505.28 | 631.35 | 453.37 | 188.00 | 219.31 | 295.75 | 314.86 | 390.39 |
| 15360.000 | 664.91 | 0.0 | 665.00 | 172.01 | 342.06 | 1003.57 | 244.37 | 0.0 | 0.0 | 84.00 | 125.00 | 0.0 |
| 15360.000 | 664.91 | 0.00 | 665.01 | 149.61 | 334.10 | 1017.05 | 238.85 | 0.02 | 27.96 | 84.00 | 125.00 | 177.57 |
| 16100.000 | 665.69 | 0.0 | 665.93 | 375.02 | 165.15 | 820.87 | 603.98 | 0.0 | 0.0 | 115.00 | 140.00 | 0.0 |
| 16100.000 | 665.72 | 0.03 | 665.98 | 213.74 | 139.11 | 849.44 | 601.45 | 0.04 | 79.28 | 115.00 | 140.00 | 293.01 |
| 16500.000 | 666.66 | 0.0 | 666.83 | 320.77 | 149.98 | 937.30 | 502.73 | 0.0 | 0.0 | 173.00 | 209.00 | 0.0 |
| 16500.000 | 666.73 | 0.07 | 666.91 | 201.22 | 128.46 | 964.71 | 496.83 | 0.06 | 138.84 | 173.00 | 209.00 | 340.05 |
| 16900.000 | 667.43 | 0.0 | 667.66 | 305.99 | 128.64 | 1168.36 | 293.01 | 0.0 | 0.0 | 228.00 | 276.00 | 0.0 |
| 16900.000 | 667.51 | 0.08 | 667.76 | 189.72 | 104.69 | 1205.28 | 280.02 | 0.04 | 189.43 | 228.00 | 276.00 | 379.16 |
| 17295.000 | 668.56 | 0.0 | 668.86 | 230.43 | 111.74 | 1155.55 | 322.72 | 0.0 | 0.0 | 392.00 | 443.00 | 0.0 |
| 17295.000 | 668.66 | 0.10 | 668.98 | 150.50 | 86.31 | 1195.61 | 308.08 | 0.05 | 350.95 | 392.00 | 443.00 | 501.45 |
| 17690.000 | 670.27 | 0.0 | 670.65 | 217.69 | 91.82 | 1250.91 | 247.26 | 0.0 | 0.0 | 555.00 | 610.00 | 0.0 |
| 17690.000 | 670.38 | 0.11 | 670.78 | 139.71 | 65.45 | 1303.71 | 220.84 | 0.05 | 508.94 | 555.00 | 610.00 | 648.65 |
| 18215.000 | 672.65 | 0.0 | 672.94 | 235.94 | 129.53 | 1205.71 | 254.76 | 0.0 | 0.0 | 555.00 | 610.00 | 0.0 |
| 18215.000 | 672.75 | 0.10 | 673.05 | 156.54 | 108.62 | 1241.99 | 239.39 | 0.04 | 493.96 | 555.00 | 610.00 | 650.50 |
| 18739.000 | 674.85 | 0.0 | 675.46 | 113.48 | 23.06 | 1542.23 | 24.71 | 0.0 | 0.0 | 415.00 | 465.00 | 0.0 |
| 18739.000 | 674.91 | 0.05 | 675.50 | 115.42 | 24.49 | 1539.27 | 26.24 | 573.00 | 1.00 | 415.00 | 465.00 | 574.00 |
| 19001.000 | 676.27 | 0.0 | 676.74 | 132.44 | 38.23 | 1510.79 | 40.97 | 0.0 | 0.0 | 415.00 | 465.00 | 0.0 |
| 19001.000 | 676.28 | 0.01 | 676.75 | 132.76 | 38.51 | 1510.22 | 41.27 | 0.0 | 0.0 | 415.00 | 465.00 | 0.0 |
| 19263.000 | 677.27 | 0.0 | 678.02 | 55.00 | 32.04 | 1520.69 | 37.27 | 55.00 | 277.00 | 288.00 | 321.00 | 332.00 |
| 19263.000 | 677.27 | 0.00 | 678.02 | 55.00 | 32.08 | 1520.61 | 37.31 | 55.00 | 277.00 | 288.00 | 321.00 | 332.00 |
| 19313.000 | 677.48 | 0.0 | 678.39 | 30.00 | 0.0 | 1590.00 | 0.0 | 0.0 | 0.0 | 290.00 | 320.00 | 0.0 |
| 19313.000 | 677.48 | 0.00 | 678.39 | 30.00 | 0.0 | 1590.00 | 0.0 | 353.00 | 1.00 | 290.00 | 320.00 | 354.00 |
| 19387.000 | 678.27 | 0.0 | 679.00 | 30.00 | 0.0 | 1590.00 | 0.0 | 0.0 | 0.0 | 290.00 | 320.00 | 0.0 |
| 19387.000 | 678.28 | 0.00 | 679.00 | 30.00 | 0.0 | 1590.00 | 0.0 | 0.0 | 0.0 | 290.00 | 320.00 | 0.0 |
| 19437.000 | 679.02 | 0.0 | 679.24 | 61.43 | 0.0 | 1350.00 | 0.0 | 160.00 | 660.00 | 704.00 | 773.00 | 820.00 |
| 19437.000 | 679.02 | 0.00 | 679.24 | 61.44 | 0.0 | 1350.00 | 0.0 | 160.00 | 660.00 | 704.00 | 773.00 | 820.00 |

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19517.000 | 679.23 | 0.0 | 679.35 | 230.24 | 172.63 | 1131.62 | 45.75 | 0.0 | 0.0 | 100.00 | 180.00 | 0.0 |
| 19517.000 | 679.22 | -0.01 | 679.35 | 182.85 | 151.39 | 1176.54 | 22.08 | 0.04 | 17.33 | 100.00 | 180.00 | 200.18 |
| 20117.000 | 680.30 | 0.0 | 680.64 | 286.06 | 161.07 | 1188.68 | 0.25 | 0.0 | 0.0 | 275.00 | 330.00 | 0.0 |
| 20117.000 | 680.37 | 0.07 | 680.74 | 94.10 | 119.28 | 1230.72 | 0.0 | 0.05 | 235.90 | 275.00 | 330.00 | 330.00 |
| 20617.000 | 682.02 | 0.0 | 682.31 | 158.01 | 57.41 | 1271.36 | 21.23 | 0.0 | 0.0 | 410.00 | 475.00 | 0.0 |
| 20617.000 | 682.15 | 0.13 | 682.46 | 75.70 | 25.72 | 1324.28 | 0.0 | 0.05 | 399.30 | 410.00 | 475.00 | 475.00 |
| 21117.000 | 683.50 | 0.0 | 683.71 | 245.00 | 71.58 | 1225.00 | 53.42 | 245.00 | 500.00 | 565.00 | 645.00 | 745.00 |
| 21117.000 | 683.62 | 0.13 | 683.85 | 140.00 | 44.73 | 1264.50 | 40.77 | 140.00 | 535.00 | 565.00 | 645.00 | 675.00 |
| 21392.000 | 684.42 | 0.0 | 684.84 | 105.79 | 0.0 | 1329.46 | 20.54 | 0.0 | 0.0 | 355.00 | 435.00 | 0.0 |
| 21392.000 | 684.52 | 0.10 | 684.93 | 75.40 | 0.0 | 1350.00 | 0.0 | 0.04 | 355.00 | 355.00 | 435.00 | 435.00 |
| 21667.000 | 686.00 | 0.0 | 686.42 | 119.96 | 0.0 | 1298.22 | 51.78 | 0.0 | 0.0 | 130.00 | 230.00 | 0.0 |
| 21667.000 | 686.08 | 0.08 | 686.53 | 72.92 | 0.0 | 1350.00 | 0.0 | 0.04 | 130.00 | 130.00 | 230.00 | 230.00 |
| 22128.000 | 688.49 | 0.0 | 689.00 | 112.57 | 5.59 | 1335.87 | 8.53 | 0.0 | 0.0 | 300.00 | 355.00 | 0.0 |
| 22128.000 | 688.63 | 0.14 | 689.13 | 55.00 | 0.0 | 1350.00 | 0.0 | 0.01 | 300.00 | 300.00 | 355.00 | 355.00 |
| 22589.000 | 690.66 | 0.0 | 690.88 | 276.38 | 498.24 | 846.63 | 5.13 | 0.0 | 0.0 | 445.00 | 485.00 | 0.0 |
| 22589.000 | 690.79 | 0.12 | 691.01 | 182.04 | 483.64 | 866.36 | 0.0 | 0.05 | 302.96 | 445.00 | 485.00 | 485.00 |
| 23050.000 | 692.47 | 0.0 | 692.86 | 274.33 | 706.91 | 611.94 | 31.15 | 0.0 | 0.0 | 600.00 | 613.00 | 0.0 |
| 23050.000 | 692.56 | 0.08 | 692.91 | 279.02 | 725.07 | 593.46 | 31.47 | 798.00 | 1.00 | 600.00 | 613.00 | 799.00 |
| 23550.000 | 693.99 | 0.0 | 694.15 | 185.94 | 174.56 | 1125.96 | 49.48 | 0.0 | 0.0 | 270.00 | 330.00 | 0.0 |
| 23550.000 | 694.01 | 0.02 | 694.18 | 109.16 | 159.92 | 1164.87 | 25.21 | 0.04 | 227.69 | 270.00 | 330.00 | 336.85 |
| 24226.000 | 695.01 | 0.0 | 695.27 | 225.04 | 126.68 | 909.93 | 173.39 | 242.00 | 118.00 | 235.00 | 278.00 | 360.00 |
| 24226.000 | 695.06 | 0.04 | 695.30 | 226.81 | 129.69 | 903.60 | 176.71 | 242.00 | 118.00 | 235.00 | 278.00 | 360.00 |
| 24250.000 | 695.09 | 0.0 | 695.31 | 220.63 | 148.36 | 864.04 | 197.60 | 353.50 | 0.50 | 235.00 | 278.00 | 354.00 |
| 24250.000 | 695.14 | 0.04 | 695.34 | 222.22 | 151.36 | 858.15 | 200.49 | 353.50 | 0.50 | 235.00 | 278.00 | 354.00 |

TARABUSI CREEK LIVONIA C

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 120.000 | 0.0 | 0.0 | 0.0 | 613.20 | 1770.00 | 620.00 | 0.0 | 620.76 | 71.32 | 8.21 | 444.48 | 209.58 |
| 120.000 | 0.0 | 0.0 | 0.0 | 613.20 | 1770.00 | 620.10 | 0.0 | 620.79 | 63.85 | 7.88 | 466.50 | 221.51 |
| 370.000 | 250.00 | 0.0 | 0.0 | 615.30 | 1770.00 | 621.72 | 0.0 | 622.35 | 54.59 | 7.79 | 452.61 | 239.55 |
| 370.000 | 250.00 | 0.0 | 0.0 | 615.30 | 1770.00 | 621.65 | 0.0 | 622.39 | 62.57 | 8.26 | 400.78 | 223.76 |
| 745.000 | 375.00 | 0.0 | 0.0 | 615.70 | 1770.00 | 623.30 | 0.0 | 623.72 | 24.29 | 6.29 | 535.77 | 359.15 |
| 745.000 | 375.00 | 0.0 | 0.0 | 615.70 | 1770.00 | 623.42 | 0.0 | 623.86 | 24.25 | 6.36 | 486.11 | 359.41 |
| 1120.000 | 375.00 | 0.0 | 0.0 | 616.00 | 1770.00 | 624.21 | 0.0 | 624.88 | 31.28 | 7.67 | 439.56 | 316.47 |
| 1120.000 | 375.00 | 0.0 | 0.0 | 616.00 | 1770.00 | 624.32 | 0.0 | 624.96 | 29.30 | 7.50 | 453.14 | 326.98 |
| 1770.000 | 650.00 | 0.0 | 0.0 | 617.00 | 1770.00 | 625.84 | 0.0 | 626.21 | 12.90 | 5.48 | 543.58 | 492.76 |
| 1770.000 | 650.00 | 0.0 | 0.0 | 617.00 | 1770.00 | 625.87 | 0.0 | 626.26 | 13.18 | 5.55 | 499.33 | 487.56 |
| 2416.000 | 646.00 | 0.0 | 0.0 | 617.90 | 1770.00 | 626.67 | 0.0 | 627.19 | 15.27 | 6.15 | 429.16 | 452.96 |
| 2416.000 | 646.00 | 0.0 | 0.0 | 617.90 | 1770.00 | 626.72 | 0.0 | 627.26 | 15.55 | 6.23 | 395.95 | 448.85 |
| 2466.000 | 50.00 | 0.0 | 0.0 | 617.90 | 1770.00 | 627.09 | 0.0 | 627.34 | 11.85 | 4.04 | 438.30 | 514.15 |
| 2466.000 | 50.00 | 0.0 | 0.0 | 617.90 | 1770.00 | 627.17 | 0.0 | 627.42 | 11.70 | 3.98 | 444.54 | 517.37 |
| 2554.000 | 88.00 | 632.60 | 629.40 | 617.90 | 1770.00 | 627.10 | 0.0 | 627.35 | 11.76 | 4.03 | 439.30 | 516.03 |
| 2554.000 | 88.00 | 632.60 | 629.40 | 617.90 | 1770.00 | 627.20 | 0.0 | 627.44 | 11.15 | 3.96 | 446.67 | 530.09 |
| 2604.000 | 50.00 | 0.0 | 0.0 | 617.90 | 1770.00 | 627.22 | 0.0 | 627.43 | 11.50 | 4.03 | 761.17 | 521.87 |
| 2604.000 | 50.00 | 0.0 | 0.0 | 617.90 | 1770.00 | 627.32 | 0.0 | 627.52 | 11.00 | 3.97 | 774.98 | 533.79 |
| 3360.000 | 756.00 | 0.0 | 0.0 | 620.30 | 1770.00 | 628.31 | 0.0 | 628.61 | 22.32 | 4.85 | 729.12 | 374.64 |
| 3360.000 | 756.00 | 0.0 | 0.0 | 620.30 | 1770.00 | 628.38 | 0.0 | 628.69 | 22.77 | 4.93 | 650.21 | 370.94 |
| 4116.000 | 756.00 | 0.0 | 0.0 | 622.60 | 1770.00 | 630.07 | 0.0 | 630.42 | 27.42 | 5.25 | 558.51 | 337.99 |
| 4116.000 | 756.00 | 0.0 | 0.0 | 622.60 | 1770.00 | 630.13 | 0.0 | 630.47 | 26.28 | 5.17 | 568.24 | 345.24 |
| 4316.000 | 200.00 | 0.0 | 0.0 | 622.60 | 1770.00 | 630.27 | 0.0 | 632.73 | 133.58 | 13.30 | 177.47 | 153.15 |
| 4316.000 | 200.00 | 0.0 | 0.0 | 622.60 | 1770.00 | 630.30 | 0.0 | 632.74 | 131.37 | 13.23 | 178.59 | 154.43 |
| 4403.000 | 87.00 | 632.90 | 628.90 | 622.60 | 1770.00 | 634.30 | 0.0 | 635.07 | 26.37 | 7.84 | 386.90 | 344.69 |
| 4403.000 | 87.00 | 632.90 | 628.90 | 622.60 | 1770.00 | 634.31 | 0.0 | 635.08 | 26.25 | 7.83 | 387.96 | 345.45 |
| 4453.000 | 50.00 | 0.0 | 0.0 | 622.60 | 1770.00 | 635.37 | 0.0 | 635.41 | 3.71 | 2.44 | 1418.44 | 919.18 |
| 4453.000 | 50.00 | 0.0 | 0.0 | 622.60 | 1770.00 | 635.38 | 0.0 | 635.42 | 3.70 | 2.44 | 1419.76 | 920.44 |
| 5950.000 | 1497.00 | 0.0 | 0.0 | 626.60 | 1770.00 | 635.89 | 0.0 | 635.94 | 3.30 | 2.72 | 1681.50 | 974.24 |
| 5950.000 | 1497.00 | 0.0 | 0.0 | 626.60 | 1770.00 | 635.91 | 0.0 | 635.96 | 3.44 | 2.78 | 1587.85 | 953.63 |
| 6600.000 | 650.00 | 0.0 | 0.0 | 628.80 | 1770.00 | 636.18 | 0.0 | 636.32 | 9.61 | 3.69 | 999.54 | 570.98 |
| 6600.000 | 650.00 | 0.0 | 0.0 | 628.80 | 1770.00 | 636.20 | 0.0 | 636.36 | 10.14 | 3.80 | 879.46 | 555.76 |
| 7340.000 | 740.00 | 0.0 | 0.0 | 631.70 | 1770.00 | 637.26 | 0.0 | 637.42 | 25.43 | 5.21 | 862.79 | 350.98 |
| 7340.000 | 740.00 | 0.0 | 0.0 | 631.70 | 1770.00 | 637.33 | 0.0 | 637.50 | 25.75 | 5.30 | 828.32 | 348.81 |
| 8078.000 | 738.00 | 0.0 | 0.0 | 632.90 | 1770.00 | 639.24 | 0.0 | 639.56 | 26.42 | 5.94 | 777.75 | 344.33 |
| 8078.000 | 738.00 | 0.0 | 0.0 | 632.90 | 1770.00 | 639.33 | 0.0 | 639.68 | 26.80 | 6.04 | 650.43 | 341.93 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8815.000 | 737.00 | 0.0 | 0.0 | 634.00 | 1770.00 | 641.02 | 0.0 | 641.29 | 18.90 | 5.02 | 791.68 | 407.16 |
| 8815.000 | 737.00 | 0.0 | 0.0 | 634.00 | 1770.00 | 641.13 | 0.0 | 641.41 | 18.79 | 5.07 | 703.72 | 408.28 |
| 9276.000 | 461.00 | 0.0 | 0.0 | 634.90 | 1770.00 | 641.99 | 0.0 | 642.51 | 28.95 | 6.19 | 458.74 | 328.96 |
| 9276.000 | 461.00 | 0.0 | 0.0 | 634.90 | 1770.00 | 642.08 | 0.0 | 642.64 | 29.04 | 6.28 | 375.39 | 328.45 |
| 9737.000 | 461.00 | 0.0 | 0.0 | 635.90 | 1770.00 | 643.29 | 0.0 | 643.73 | 22.82 | 5.70 | 516.95 | 370.52 |
| 9737.000 | 461.00 | 0.0 | 0.0 | 635.90 | 1770.00 | 643.41 | 0.0 | 643.86 | 22.73 | 5.76 | 435.29 | 371.23 |
| 10198.000 | 461.00 | 0.0 | 0.0 | 636.90 | 1770.00 | 644.33 | 0.0 | 644.75 | 22.10 | 5.64 | 525.17 | 376.54 |
| 10198.000 | 461.00 | 0.0 | 0.0 | 636.90 | 1770.00 | 644.45 | 0.0 | 644.89 | 21.93 | 5.68 | 446.77 | 377.94 |
| 10658.000 | 460.00 | 0.0 | 0.0 | 637.80 | 1770.00 | 645.51 | 0.0 | 646.24 | 39.03 | 7.28 | 338.57 | 283.33 |
| 10658.000 | 460.00 | 0.0 | 0.0 | 637.80 | 1770.00 | 645.61 | 0.0 | 646.31 | 36.71 | 7.14 | 346.57 | 292.14 |
| 10708.000 | 50.00 | 0.0 | 0.0 | 638.00 | 1770.00 | 646.10 | 0.0 | 646.51 | 21.50 | 5.10 | 346.94 | 381.74 |
| 10708.000 | 50.00 | 0.0 | 0.0 | 638.00 | 1770.00 | 646.17 | 0.0 | 646.56 | 21.05 | 5.04 | 351.05 | 385.80 |
| 10782.000 | 74.00 | 654.00 | 653.10 | 638.00 | 1770.00 | 646.16 | 0.0 | 646.55 | 20.93 | 5.06 | 349.84 | 386.91 |
| 10782.000 | 74.00 | 654.00 | 653.10 | 638.00 | 1770.00 | 646.26 | 0.0 | 646.64 | 19.74 | 4.97 | 356.23 | 398.37 |
| 10832.000 | 50.00 | 0.0 | 0.0 | 637.80 | 1590.00 | 646.51 | 0.0 | 646.68 | 7.80 | 3.68 | 700.46 | 569.49 |
| 10832.000 | 50.00 | 0.0 | 0.0 | 637.80 | 1590.00 | 646.60 | 0.0 | 646.76 | 7.42 | 3.62 | 713.82 | 583.80 |
| 11720.000 | 888.00 | 0.0 | 0.0 | 642.70 | 1590.00 | 647.92 | 0.0 | 648.31 | 63.33 | 5.83 | 624.61 | 199.80 |
| 11720.000 | 888.00 | 0.0 | 0.0 | 642.70 | 1590.00 | 647.95 | 0.0 | 648.39 | 68.34 | 6.08 | 536.01 | 192.33 |
| 12145.000 | 425.00 | 0.0 | 0.0 | 643.60 | 1590.00 | 649.75 | 0.0 | 649.91 | 23.40 | 4.08 | 949.13 | 320.14 |
| 12145.000 | 425.00 | 0.0 | 0.0 | 643.60 | 1590.00 | 649.87 | 0.0 | 650.04 | 23.15 | 4.12 | 872.72 | 330.44 |
| 12570.000 | 425.00 | 0.0 | 0.0 | 644.40 | 1590.00 | 650.90 | 0.0 | 651.16 | 34.61 | 4.85 | 765.23 | 270.28 |
| 12570.000 | 425.00 | 0.0 | 0.0 | 644.40 | 1590.00 | 651.00 | 0.0 | 651.28 | 34.28 | 4.90 | 664.66 | 271.56 |
| 12965.000 | 395.00 | 0.0 | 0.0 | 646.00 | 1590.00 | 652.36 | 0.0 | 652.66 | 40.42 | 5.13 | 708.10 | 250.08 |
| 12965.000 | 395.00 | 0.0 | 0.0 | 646.00 | 1590.00 | 652.45 | 0.0 | 652.77 | 40.61 | 5.21 | 599.83 | 249.50 |
| 13360.000 | 395.00 | 0.0 | 0.0 | 647.50 | 1590.00 | 654.04 | 0.0 | 654.50 | 50.54 | 6.12 | 519.48 | 223.66 |
| 13360.000 | 395.00 | 0.0 | 0.0 | 647.50 | 1590.00 | 654.12 | 0.0 | 654.55 | 47.53 | 6.00 | 534.64 | 230.63 |
| 13704.000 | 344.00 | 0.0 | 0.0 | 649.30 | 1590.00 | 655.75 | 0.0 | 656.23 | 54.54 | 6.28 | 501.23 | 215.31 |
| 13704.000 | 344.00 | 0.0 | 0.0 | 649.30 | 1590.00 | 655.76 | 0.0 | 656.24 | 54.19 | 6.27 | 502.74 | 216.00 |
| 14047.000 | 343.00 | 0.0 | 0.0 | 651.10 | 1590.00 | 657.54 | 0.0 | 658.02 | 54.98 | 6.30 | 499.31 | 214.43 |
| 14047.000 | 343.00 | 0.0 | 0.0 | 651.10 | 1590.00 | 657.54 | 0.0 | 658.02 | 54.97 | 6.30 | 499.38 | 214.46 |
| 14219.000 | 172.00 | 0.0 | 0.0 | 652.00 | 1590.00 | 658.43 | 0.0 | 658.81 | 40.52 | 6.08 | 542.92 | 249.78 |
| 14219.000 | 172.00 | 0.0 | 0.0 | 652.00 | 1590.00 | 658.43 | 0.0 | 658.81 | 40.53 | 6.08 | 542.89 | 249.76 |
| 14390.000 | 171.00 | 0.0 | 0.0 | 652.90 | 1590.00 | 658.91 | 0.0 | 661.08 | 179.21 | 13.09 | 199.78 | 118.77 |
| 14390.000 | 171.00 | 0.0 | 0.0 | 652.90 | 1590.00 | 658.91 | 0.0 | 661.08 | 179.28 | 13.09 | 199.77 | 118.76 |
| 14440.000 | 50.00 | 0.0 | 0.0 | 652.90 | 1590.00 | 659.64 | 659.54 | 662.79 | 285.91 | 14.25 | 111.60 | 94.03 |
| 14440.000 | 50.00 | 0.0 | 0.0 | 652.90 | 1590.00 | 659.64 | 659.54 | 662.79 | 285.97 | 14.25 | 111.59 | 94.02 |
| 14501.000 | 61.00 | 663.40 | 659.50 | 652.90 | 1590.00 | 662.38 | 0.0 | 663.88 | 96.20 | 9.83 | 161.79 | 162.11 |
| 14501.000 | 61.00 | 663.40 | 659.50 | 652.90 | 1590.00 | 662.38 | 0.0 | 663.88 | 96.20 | 9.83 | 161.79 | 162.11 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14570.000 | 69.00 | 0.0 | 0.0 | 651.80 | 1590.00 | 664.49 | 0.0 | 664.55 | 5.11 | 3.06 | 1369.19 | 703.17 |
| 14570.000 | 69.00 | 0.0 | 0.0 | 651.80 | 1590.00 | 664.49 | 0.0 | 664.55 | 5.11 | 3.06 | 1369.19 | 703.17 |
| 15360.000 | 790.00 | 0.0 | 0.0 | 655.00 | 1590.00 | 664.91 | 0.0 | 665.00 | 5.87 | 2.91 | 1080.89 | 656.25 |
| 15360.000 | 790.00 | 0.0 | 0.0 | 655.00 | 1590.00 | 664.91 | 0.0 | 665.01 | 6.03 | 2.95 | 1035.12 | 647.51 |
| 16100.000 | 740.00 | 0.0 | 0.0 | 658.00 | 1590.00 | 665.69 | 0.0 | 665.93 | 30.71 | 5.39 | 857.37 | 286.91 |
| 16100.000 | 740.00 | 0.0 | 0.0 | 658.00 | 1590.00 | 665.72 | 0.0 | 665.98 | 32.45 | 5.56 | 736.66 | 279.11 |
| 16500.000 | 400.00 | 0.0 | 0.0 | 659.00 | 1590.00 | 666.66 | 0.0 | 666.83 | 18.28 | 4.23 | 971.39 | 371.86 |
| 16500.000 | 400.00 | 0.0 | 0.0 | 659.00 | 1590.00 | 666.73 | 0.0 | 666.91 | 18.68 | 4.31 | 837.69 | 367.85 |
| 16900.000 | 400.00 | 0.0 | 0.0 | 660.00 | 1590.00 | 667.43 | 0.0 | 667.66 | 24.47 | 4.48 | 763.95 | 321.42 |
| 16900.000 | 400.00 | 0.0 | 0.0 | 660.00 | 1590.00 | 667.51 | 0.0 | 667.76 | 24.78 | 4.56 | 660.88 | 319.42 |
| 17295.000 | 395.00 | 0.0 | 0.0 | 662.40 | 1590.00 | 668.56 | 0.0 | 668.86 | 40.60 | 5.09 | 550.70 | 249.53 |
| 17295.000 | 395.00 | 0.0 | 0.0 | 662.40 | 1590.00 | 668.66 | 0.0 | 668.98 | 40.34 | 5.15 | 491.09 | 250.33 |
| 17690.000 | 395.00 | 0.0 | 0.0 | 664.70 | 1590.00 | 670.27 | 0.0 | 670.65 | 52.40 | 5.51 | 468.54 | 219.66 |
| 17690.000 | 395.00 | 0.0 | 0.0 | 664.70 | 1590.00 | 670.38 | 0.0 | 670.78 | 52.15 | 5.59 | 415.77 | 220.17 |
| 18215.000 | 525.00 | 0.0 | 0.0 | 666.70 | 1590.00 | 672.65 | 0.0 | 672.94 | 36.02 | 4.85 | 557.13 | 264.93 |
| 18215.000 | 525.00 | 0.0 | 0.0 | 666.70 | 1590.00 | 672.75 | 0.0 | 673.05 | 35.54 | 4.89 | 499.90 | 266.73 |
| 18739.000 | 524.00 | 0.0 | 0.0 | 668.60 | 1590.00 | 674.85 | 0.0 | 675.46 | 57.62 | 6.36 | 298.14 | 209.47 |
| 18739.000 | 524.00 | 0.0 | 0.0 | 668.60 | 1590.00 | 674.91 | 0.0 | 675.50 | 55.33 | 6.28 | 304.27 | 213.76 |
| 19001.000 | 262.00 | 0.0 | 0.0 | 669.50 | 1590.00 | 676.27 | 0.0 | 676.74 | 39.30 | 5.62 | 362.45 | 253.62 |
| 19001.000 | 262.00 | 0.0 | 0.0 | 669.50 | 1590.00 | 676.28 | 0.0 | 676.75 | 39.06 | 5.61 | 363.61 | 254.40 |
| 19263.000 | 262.00 | 0.0 | 0.0 | 670.50 | 1590.00 | 677.27 | 0.0 | 678.02 | 47.61 | 7.10 | 266.23 | 230.44 |
| 19263.000 | 262.00 | 0.0 | 0.0 | 670.50 | 1590.00 | 677.27 | 0.0 | 678.02 | 47.53 | 7.09 | 266.40 | 230.63 |
| 19313.000 | 50.00 | 0.0 | 0.0 | 670.50 | 1590.00 | 677.48 | 0.0 | 678.39 | 65.68 | 7.64 | 207.98 | 196.19 |
| 19313.000 | 50.00 | 0.0 | 0.0 | 670.50 | 1590.00 | 677.48 | 0.0 | 678.39 | 65.62 | 7.64 | 208.05 | 196.28 |
| 19387.000 | 74.00 | 681.10 | 677.50 | 670.50 | 1590.00 | 678.27 | 0.0 | 679.00 | 47.00 | 6.86 | 231.92 | 231.92 |
| 19387.000 | 74.00 | 681.10 | 677.50 | 670.50 | 1590.00 | 678.28 | 0.0 | 679.00 | 46.94 | 6.85 | 232.02 | 232.06 |
| 19437.000 | 50.00 | 0.0 | 0.0 | 670.50 | 1350.00 | 679.02 | 0.0 | 679.24 | 8.22 | 3.79 | 356.64 | 470.87 |
| 19437.000 | 50.00 | 0.0 | 0.0 | 670.50 | 1350.00 | 679.02 | 0.0 | 679.24 | 8.21 | 3.78 | 356.81 | 471.17 |
| 19517.000 | 80.00 | 0.0 | 0.0 | 671.60 | 1350.00 | 679.23 | 0.0 | 679.35 | 12.54 | 3.01 | 640.45 | 381.15 |
| 19517.000 | 80.00 | 0.0 | 0.0 | 671.60 | 1350.00 | 679.22 | 0.0 | 679.35 | 13.76 | 3.14 | 570.58 | 363.93 |
| 20117.000 | 600.00 | 0.0 | 0.0 | 674.40 | 1350.00 | 680.30 | 0.0 | 680.64 | 37.58 | 4.98 | 401.77 | 220.22 |
| 20117.000 | 600.00 | 0.0 | 0.0 | 674.40 | 1350.00 | 680.37 | 0.0 | 680.74 | 38.91 | 5.09 | 320.67 | 216.42 |
| 20617.000 | 500.00 | 0.0 | 0.0 | 676.00 | 1350.00 | 682.02 | 0.0 | 682.31 | 28.72 | 4.43 | 380.26 | 251.91 |
| 20617.000 | 500.00 | 0.0 | 0.0 | 676.00 | 1350.00 | 682.15 | 0.0 | 682.46 | 29.42 | 4.48 | 316.95 | 248.88 |
| 21117.000 | 500.00 | 0.0 | 0.0 | 677.50 | 1350.00 | 683.50 | 0.0 | 683.71 | 26.49 | 3.91 | 470.56 | 262.31 |
| 21117.000 | 500.00 | 0.0 | 0.0 | 677.50 | 1350.00 | 683.62 | 0.0 | 683.85 | 25.39 | 3.91 | 410.58 | 267.92 |
| 21392.000 | 275.00 | 0.0 | 0.0 | 679.10 | 1350.00 | 684.42 | 0.0 | 684.84 | 56.48 | 5.22 | 276.50 | 179.63 |
| 21392.000 | 275.00 | 0.0 | 0.0 | 679.10 | 1350.00 | 684.52 | 0.0 | 684.93 | 55.02 | 5.16 | 281.77 | 182.00 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21667.000 | 275.00 | 0.0 | 0.0 | 680.60 | 1350.00 | 686.00 | 0.0 | 686.42 | 57.49 | 5.28 | 291.20 | 178.05 |
| 21667.000 | 275.00 | 0.0 | 0.0 | 680.60 | 1350.00 | 686.08 | 0.0 | 686.53 | 60.09 | 5.36 | 252.10 | 174.15 |
| 22128.000 | 461.00 | 0.0 | 0.0 | 681.90 | 1350.00 | 688.49 | 0.0 | 689.00 | 52.68 | 5.77 | 251.55 | 185.99 |
| 22128.000 | 461.00 | 0.0 | 0.0 | 681.90 | 1350.00 | 688.63 | 0.0 | 689.13 | 52.10 | 5.66 | 238.52 | 187.04 |
| 22589.000 | 461.00 | 0.0 | 0.0 | 683.20 | 1350.00 | 690.66 | 0.0 | 690.88 | 29.65 | 4.57 | 574.79 | 247.92 |
| 22589.000 | 461.00 | 0.0 | 0.0 | 683.20 | 1350.00 | 690.79 | 0.0 | 691.01 | 30.14 | 4.55 | 516.71 | 245.89 |
| 23050.000 | 461.00 | 0.0 | 0.0 | 684.50 | 1350.00 | 692.47 | 0.0 | 692.86 | 60.98 | 7.17 | 495.58 | 172.88 |
| 23050.000 | 461.00 | 0.0 | 0.0 | 684.50 | 1350.00 | 692.56 | 0.0 | 692.91 | 54.96 | 6.86 | 518.96 | 182.10 |
| 23550.000 | 500.00 | 0.0 | 0.0 | 687.50 | 1350.00 | 693.99 | 0.0 | 694.15 | 12.96 | 3.44 | 578.45 | 374.96 |
| 23550.000 | 500.00 | 0.0 | 0.0 | 687.50 | 1350.00 | 694.01 | 0.0 | 694.18 | 13.75 | 3.55 | 485.12 | 364.09 |
| 24226.000 | 676.00 | 0.0 | 0.0 | 689.16 | 1210.00 | 695.01 | 0.0 | 695.27 | 20.58 | 4.61 | 468.20 | 266.74 |
| 24226.000 | 676.00 | 0.0 | 0.0 | 689.16 | 1210.00 | 695.06 | 0.0 | 695.30 | 19.64 | 4.53 | 478.43 | 273.04 |
| 24250.000 | 24.00 | 0.0 | 0.0 | 689.20 | 1210.00 | 695.09 | 0.0 | 695.31 | 10.13 | 4.34 | 471.18 | 380.09 |
| 24250.000 | 24.00 | 0.0 | 0.0 | 689.20 | 1210.00 | 695.14 | 0.0 | 695.34 | 9.71 | 4.27 | 480.16 | 388.31 |

FORM E-413

TARABUSI CREEK LIVONIA C

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 120.000 | 1770.00 | 620.00 | 0.0 | 0.0 | 0.0 | 220.00 | 0.0 |
| 120.000 | 1770.00 | 620.10 | 0.10 | 0.0 | 0.10 | 221.00 | 0.0 |
| 370.000 | 1770.00 | 621.72 | 0.0 | 1.72 | 0.0 | 159.10 | 250.00 |
| 370.000 | 1770.00 | 621.65 | -0.07 | 1.55 | -0.07 | 122.61 | 250.00 |
| 745.000 | 1770.00 | 623.30 | 0.0 | 1.58 | 0.0 | 142.72 | 375.00 |
| 745.000 | 1770.00 | 623.42 | 0.11 | 1.76 | 0.11 | 98.38 | 375.00 |
| 1120.000 | 1770.00 | 624.21 | 0.0 | 0.91 | 0.0 | 120.72 | 375.00 |
| 1120.000 | 1770.00 | 624.32 | 0.11 | 0.90 | 0.11 | 122.73 | 375.00 |
| 1770.000 | 1770.00 | 625.84 | 0.0 | 1.64 | 0.0 | 121.13 | 650.00 |
| 1770.000 | 1770.00 | 625.87 | 0.03 | 1.56 | 0.03 | 75.98 | 650.00 |
| 2416.000 | 1770.00 | 626.67 | 0.0 | 0.83 | 0.0 | 69.65 | 646.00 |
| 2416.000 | 1770.00 | 626.72 | 0.05 | 0.84 | 0.05 | 51.39 | 646.00 |
| 2466.000 | 1770.00 | 627.09 | 0.0 | 0.41 | 0.0 | 73.80 | 50.00 |
| 2466.000 | 1770.00 | 627.17 | 0.08 | 0.45 | 0.08 | 73.80 | 50.00 |
| 2554.000 | 1770.00 | 627.10 | 0.0 | 0.02 | 0.0 | 73.80 | 88.00 |
| 2554.000 | 1770.00 | 627.20 | 0.10 | 0.03 | 0.10 | 73.80 | 88.00 |
| 2604.000 | 1770.00 | 627.22 | 0.0 | 0.12 | 0.0 | 145.67 | 50.00 |
| 2604.000 | 1770.00 | 627.32 | 0.09 | 0.12 | 0.09 | 145.96 | 50.00 |
| 3360.000 | 1770.00 | 628.31 | 0.0 | 1.09 | 0.0 | 237.48 | 756.00 |
| 3360.000 | 1770.00 | 628.38 | 0.07 | 1.06 | 0.07 | 169.12 | 756.00 |
| 4116.000 | 1770.00 | 630.07 | 0.0 | 1.75 | 0.0 | 150.00 | 756.00 |
| 4116.000 | 1770.00 | 630.13 | 0.07 | 1.75 | 0.07 | 150.00 | 756.00 |
| 4316.000 | 1770.00 | 630.27 | 0.0 | 0.20 | 0.0 | 31.18 | 200.00 |
| 4316.000 | 1770.00 | 630.30 | 0.04 | 0.17 | 0.04 | 31.25 | 200.00 |
| 4403.000 | 1770.00 | 634.30 | 0.0 | 4.03 | 0.0 | 98.04 | 87.00 |
| 4403.000 | 1770.00 | 634.31 | 0.01 | 4.01 | 0.01 | 98.04 | 87.00 |
| 4453.000 | 1770.00 | 635.37 | 0.0 | 1.07 | 0.0 | 192.60 | 50.00 |
| 4453.000 | 1770.00 | 635.38 | 0.01 | 1.07 | 0.01 | 192.60 | 50.00 |
| 5950.000 | 1770.00 | 635.89 | 0.0 | 0.62 | 0.0 | 353.51 | 1497.00 |
| 5950.000 | 1770.00 | 635.91 | 0.02 | 0.53 | 0.02 | 302.13 | 1497.00 |
| 6600.000 | 1770.00 | 636.18 | 0.0 | 0.28 | 0.0 | 327.33 | 650.00 |
| 6600.000 | 1770.00 | 636.20 | 0.03 | 0.30 | 0.03 | 235.13 | 650.00 |
| 7340.000 | 1770.00 | 637.26 | 0.0 | 1.08 | 0.0 | 268.62 | 740.00 |
| 7340.000 | 1770.00 | 637.33 | 0.07 | 1.13 | 0.07 | 238.27 | 740.00 |
| 8078.000 | 1770.00 | 639.24 | 0.0 | 1.98 | 0.0 | 321.62 | 738.00 |
| 8078.000 | 1770.00 | 639.33 | 0.09 | 2.00 | 0.09 | 196.66 | 738.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 8815.000 | 1770.00 | 641.02 | 0.0 | 1.78 | 0.0 | 332.93 | 737.00 |
| 8815.000 | 1770.00 | 641.13 | 0.11 | 1.80 | 0.11 | 232.62 | 737.00 |
| 9276.000 | 1770.00 | 641.99 | 0.0 | 0.97 | 0.0 | 184.31 | 461.00 |
| 9276.000 | 1770.00 | 642.08 | 0.10 | 0.96 | 0.10 | 92.70 | 461.00 |
| 9737.000 | 1770.00 | 643.29 | 0.0 | 1.31 | 0.0 | 190.30 | 461.00 |
| 9737.000 | 1770.00 | 643.41 | 0.11 | 1.32 | 0.11 | 106.44 | 461.00 |
| 10198.000 | 1770.00 | 644.33 | 0.0 | 1.04 | 0.0 | 191.07 | 461.00 |
| 10198.000 | 1770.00 | 644.45 | 0.12 | 1.04 | 0.12 | 109.70 | 461.00 |
| 10658.000 | 1770.00 | 645.51 | 0.0 | 1.18 | 0.0 | 80.00 | 460.00 |
| 10658.000 | 1770.00 | 645.61 | 0.10 | 1.16 | 0.10 | 80.00 | 460.00 |
| 10708.000 | 1770.00 | 646.10 | 0.0 | 0.60 | 0.0 | 64.00 | 50.00 |
| 10708.000 | 1770.00 | 646.17 | 0.07 | 0.56 | 0.07 | 64.00 | 50.00 |
| 10782.000 | 1770.00 | 646.16 | 0.0 | 0.05 | 0.0 | 64.00 | 74.00 |
| 10782.000 | 1770.00 | 646.26 | 0.10 | 0.09 | 0.10 | 64.00 | 74.00 |
| 10832.000 | 1590.00 | 646.51 | 0.0 | 0.36 | 0.0 | 155.00 | 50.00 |
| 10832.000 | 1590.00 | 646.60 | 0.09 | 0.34 | 0.09 | 155.00 | 50.00 |
| 11720.000 | 1590.00 | 647.92 | 0.0 | 1.41 | 0.0 | 339.81 | 888.00 |
| 11720.000 | 1590.00 | 647.95 | 0.03 | 1.35 | 0.03 | 250.76 | 888.00 |
| 12145.000 | 1590.00 | 649.75 | 0.0 | 1.83 | 0.0 | 363.51 | 425.00 |
| 12145.000 | 1590.00 | 649.87 | 0.12 | 1.92 | 0.12 | 284.32 | 425.00 |
| 12570.000 | 1590.00 | 650.90 | 0.0 | 1.15 | 0.0 | 395.98 | 425.00 |
| 12570.000 | 1590.00 | 651.00 | 0.10 | 1.13 | 0.10 | 262.20 | 425.00 |
| 12965.000 | 1590.00 | 652.36 | 0.0 | 1.46 | 0.0 | 389.52 | 395.00 |
| 12965.000 | 1590.00 | 652.45 | 0.10 | 1.45 | 0.10 | 231.79 | 395.00 |
| 13360.000 | 1590.00 | 654.04 | 0.0 | 1.69 | 0.0 | 197.56 | 395.00 |
| 13360.000 | 1590.00 | 654.12 | 0.08 | 1.67 | 0.08 | 200.53 | 395.00 |
| 13704.000 | 1590.00 | 655.75 | 0.0 | 1.71 | 0.0 | 193.93 | 344.00 |
| 13704.000 | 1590.00 | 655.76 | 0.01 | 1.64 | 0.01 | 194.23 | 344.00 |
| 14047.000 | 1590.00 | 657.54 | 0.0 | 1.79 | 0.0 | 193.54 | 343.00 |
| 14047.000 | 1590.00 | 657.54 | 0.00 | 1.78 | 0.00 | 193.55 | 343.00 |
| 14219.000 | 1590.00 | 658.43 | 0.0 | 0.89 | 0.0 | 124.00 | 172.00 |
| 14219.000 | 1590.00 | 658.43 | 0.00 | 0.89 | 0.00 | 124.00 | 172.00 |
| 14390.000 | 1590.00 | 658.91 | 0.0 | 0.48 | 0.0 | 38.22 | 171.00 |
| 14390.000 | 1590.00 | 658.91 | 0.00 | 0.48 | 0.00 | 38.22 | 171.00 |
| 14440.000 | 1590.00 | 659.64 | 0.0 | 0.72 | 0.0 | 18.20 | 50.00 |
| 14440.000 | 1590.00 | 659.64 | 0.00 | 0.72 | 0.00 | 18.20 | 50.00 |
| 14501.000 | 1590.00 | 662.38 | 0.0 | 2.75 | 0.0 | 18.20 | 61.00 |
| 14501.000 | 1590.00 | 662.38 | 0.0 | 2.75 | 0.0 | 18.20 | 61.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 14570.000 | 1590.00 | 664.49 | 0.0 | 2.10 | 0.0 | 171.08 | 69.00 |
| 14570.000 | 1590.00 | 664.49 | 0.0 | 2.10 | 0.0 | 171.08 | 69.00 |
| 15360.000 | 1590.00 | 664.91 | 0.0 | 0.42 | 0.0 | 172.01 | 790.00 |
| 15360.000 | 1590.00 | 664.91 | 0.00 | 0.43 | 0.00 | 149.61 | 790.00 |
| 16100.000 | 1590.00 | 665.69 | 0.0 | 0.78 | 0.0 | 375.02 | 740.00 |
| 16100.000 | 1590.00 | 665.72 | 0.03 | 0.80 | 0.03 | 213.74 | 740.00 |
| 16500.000 | 1590.00 | 666.66 | 0.0 | 0.97 | 0.0 | 320.77 | 400.00 |
| 16500.000 | 1590.00 | 666.73 | 0.07 | 1.01 | 0.07 | 201.22 | 400.00 |
| 16900.000 | 1590.00 | 667.43 | 0.0 | 0.77 | 0.0 | 305.99 | 400.00 |
| 16900.000 | 1590.00 | 667.51 | 0.08 | 0.78 | 0.08 | 189.72 | 400.00 |
| 17295.000 | 1590.00 | 668.56 | 0.0 | 1.13 | 0.0 | 230.43 | 395.00 |
| 17295.000 | 1590.00 | 668.66 | 0.10 | 1.15 | 0.10 | 150.50 | 395.00 |
| 17690.000 | 1590.00 | 670.27 | 0.0 | 1.71 | 0.0 | 217.69 | 395.00 |
| 17690.000 | 1590.00 | 670.38 | 0.11 | 1.71 | 0.11 | 139.71 | 395.00 |
| 18215.000 | 1590.00 | 672.65 | 0.0 | 2.39 | 0.0 | 235.94 | 525.00 |
| 18215.000 | 1590.00 | 672.75 | 0.10 | 2.38 | 0.10 | 156.54 | 525.00 |
| 18739.000 | 1590.00 | 674.85 | 0.0 | 2.20 | 0.0 | 113.48 | 524.00 |
| 18739.000 | 1590.00 | 674.91 | 0.05 | 2.15 | 0.05 | 115.42 | 524.00 |
| 19001.000 | 1590.00 | 676.27 | 0.0 | 1.42 | 0.0 | 132.44 | 262.00 |
| 19001.000 | 1590.00 | 676.28 | 0.01 | 1.38 | 0.01 | 132.76 | 262.00 |
| 19263.000 | 1590.00 | 677.27 | 0.0 | 0.99 | 0.0 | 55.00 | 262.00 |
| 19263.000 | 1590.00 | 677.27 | 0.00 | 0.99 | 0.00 | 55.00 | 262.00 |
| 19313.000 | 1590.00 | 677.48 | 0.0 | 0.21 | 0.0 | 30.00 | 50.00 |
| 19313.000 | 1590.00 | 677.48 | 0.00 | 0.21 | 0.00 | 30.00 | 50.00 |
| 19387.000 | 1590.00 | 678.27 | 0.0 | 0.79 | 0.0 | 30.00 | 74.00 |
| 19387.000 | 1590.00 | 678.28 | 0.00 | 0.79 | 0.00 | 30.00 | 74.00 |
| 19437.000 | 1350.00 | 679.02 | 0.0 | 0.75 | 0.0 | 61.43 | 50.00 |
| 19437.000 | 1350.00 | 679.02 | 0.00 | 0.75 | 0.00 | 61.44 | 50.00 |
| 19517.000 | 1350.00 | 679.23 | 0.0 | 0.21 | 0.0 | 230.24 | 80.00 |
| 19517.000 | 1350.00 | 679.22 | -0.01 | 0.20 | -0.01 | 182.86 | 80.00 |
| 20117.000 | 1350.00 | 680.30 | 0.0 | 1.07 | 0.0 | 286.06 | 600.00 |
| 20117.000 | 1350.00 | 680.37 | 0.07 | 1.15 | 0.07 | 94.10 | 600.00 |
| 20617.000 | 1350.00 | 682.02 | 0.0 | 1.72 | 0.0 | 158.01 | 500.00 |
| 20617.000 | 1350.00 | 682.15 | 0.13 | 1.78 | 0.13 | 75.70 | 500.00 |
| 21117.000 | 1350.00 | 683.50 | 0.0 | 1.48 | 0.0 | 245.00 | 500.00 |
| 21117.000 | 1350.00 | 683.62 | 0.13 | 1.47 | 0.13 | 140.00 | 500.00 |
| 21392.000 | 1350.00 | 684.42 | 0.0 | 0.93 | 0.0 | 105.79 | 275.00 |
| 21392.000 | 1350.00 | 684.52 | 0.10 | 0.89 | 0.10 | 75.40 | 275.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 21667.000 | 1350.00 | 686.00 | 0.0 | 1.58 | 0.0 | 119.96 | 275.00 |
| 21667.000 | 1350.00 | 686.08 | 0.08 | 1.56 | 0.08 | 72.92 | 275.00 |
| 22128.000 | 1350.00 | 688.49 | 0.0 | 2.49 | 0.0 | 112.57 | 461.00 |
| 22128.000 | 1350.00 | 688.63 | 0.14 | 2.55 | 0.14 | 55.00 | 461.00 |
| 22589.000 | 1350.00 | 690.66 | 0.0 | 2.17 | 0.0 | 276.38 | 461.00 |
| 22589.000 | 1350.00 | 690.79 | 0.12 | 2.16 | 0.12 | 182.06 | 461.00 |
| 23050.000 | 1350.00 | 692.47 | 0.0 | 1.81 | 0.0 | 274.33 | 461.00 |
| 23050.000 | 1350.00 | 692.56 | 0.08 | 1.77 | 0.08 | 279.02 | 461.00 |
| 23550.000 | 1350.00 | 693.99 | 0.0 | 1.52 | 0.0 | 185.94 | 500.00 |
| 23550.000 | 1350.00 | 694.01 | 0.02 | 1.45 | 0.02 | 109.16 | 500.00 |
| 24226.000 | 1210.00 | 695.01 | 0.0 | 1.02 | 0.0 | 225.04 | 676.00 |
| 24226.000 | 1210.00 | 695.06 | 0.04 | 1.05 | 0.04 | 226.81 | 676.00 |
| 24250.000 | 1210.00 | 695.09 | 0.0 | 0.08 | 0.0 | 220.63 | 24.00 |
| 24250.000 | 1210.00 | 695.14 | 0.04 | 0.08 | 0.04 | 222.22 | 24.00 |

SUMMARY OF ERRORS

FLOODWAY DATA. TARABUSI CREEK LIVONIA C

PROFILE NO. 2

| STATION | FLOODWAY WIDTH (FT) | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 120.000 | 221. | 666. | 3.8 | 620.1 | 620.0 | 0.1 |
| 370.000 | 123. | 401. | 4.4 | 621.7 | 621.7 | 0.0 |
| 745.000 | 98. | 486. | 3.6 | 623.4 | 623.3 | 0.1 |
| 1120.000 | 125. | 453. | 3.9 | 624.3 | 624.2 | 0.1 |
| 1770.000 | 76. | 499. | 3.5 | 625.8 | 625.8 | 0.0 |
| 2416.000 | 51. | 396. | 4.5 | 626.7 | 626.7 | 0.0 |
| 2466.000 | 74. | 445. | 4.0 | 627.2 | 627.1 | 0.1 |
| 2554.000 | 74. | 447. | 4.0 | 627.2 | 627.1 | 0.1 |
| 2604.000 | 146. | 775. | 2.3 | 627.3 | 627.2 | 0.1 |
| 3360.000 | 169. | 650. | 2.7 | 628.4 | 628.3 | 0.1 |
| 4116.000 | 150. | 568. | 3.1 | 630.2 | 630.1 | 0.1 |
| 4316.000 | 31. | 179. | 9.9 | 630.3 | 630.3 | 0.0 |
| 4403.000 | 98. | 388. | 4.6 | 634.3 | 634.3 | 0.0 |
| 4453.000 | 193. | 1420. | 1.2 | 635.4 | 635.4 | 0.0 |
| 5950.000 | 302. | 1588. | 1.1 | 635.9 | 635.9 | 0.0 |
| 6600.000 | 235. | 879. | 2.0 | 636.2 | 636.2 | 0.0 |
| 7340.000 | 238. | 828. | 2.1 | 637.4 | 637.3 | 0.1 |
| 8078.000 | 197. | 650. | 2.7 | 639.3 | 639.2 | 0.1 |
| 8815.000 | 233. | 704. | 2.5 | 641.1 | 641.0 | 0.1 |
| 9276.000 | 93. | 375. | 4.7 | 642.1 | 642.0 | 0.1 |
| 9737.000 | 106. | 435. | 4.1 | 643.4 | 643.3 | 0.1 |
| 10198.000 | 110. | 447. | 4.0 | 644.4 | 644.3 | 0.1 |
| 10658.000 | 80. | 347. | 5.1 | 645.6 | 645.5 | 0.1 |
| 10708.000 | 64. | 351. | 5.0 | 646.2 | 646.1 | 0.1 |
| 10782.000 | 64. | 356. | 5.0 | 646.3 | 646.2 | 0.1 |
| 10832.000 | 155. | 714. | 2.2 | 646.6 | 646.5 | 0.1 |
| 11720.000 | 251. | 536. | 3.0 | 647.9 | 647.9 | 0.0 |
| 12145.000 | 284. | 873. | 1.8 | 649.8 | 649.7 | 0.1 |
| 12570.000 | 252. | 665. | 2.4 | 651.0 | 650.9 | 0.1 |
| 12965.000 | 232. | 600. | 2.7 | 652.5 | 652.4 | 0.1 |
| 13360.000 | 201. | 535. | 3.0 | 654.1 | 654.0 | 0.1 |
| 13704.000 | 194. | 503. | 3.2 | 655.7 | 655.7 | 0.0 |
| 14047.000 | 194. | 499. | 3.2 | 657.6 | 657.5 | 0.0 |
| 14219.000 | 124. | 543. | 2.9 | 658.4 | 658.4 | 0.0 |
| 14390.000 | 38. | 200. | 8.0 | 658.9 | 658.9 | 0.0 |
| 14440.000 | 18. | 112. | 14.2 | 659.6 | 659.6 | 0.0 |
| 14501.000 | 18. | 162. | 9.8 | 662.4 | 662.4 | 0.0 |
| 14570.000 | 171. | 1369. | 1.2 | 664.5 | 664.5 | 0.0 |
| 15360.000 | 150. | 1035. | 1.5 | 664.9 | 664.9 | 0.0 |
| 16100.000 | 214. | 737. | 2.2 | 665.7 | 665.7 | 0.0 |
| 16500.000 | 201. | 838. | 1.9 | 666.8 | 666.7 | 0.1 |
| 16900.000 | 190. | 661. | 2.4 | 667.5 | 667.4 | 0.1 |
| 17295.000 | 150. | 491. | 3.2 | 668.7 | 668.6 | 0.1 |
| 17690.000 | 140. | 416. | 3.8 | 670.4 | 670.3 | 0.1 |
| 18215.000 | 157. | 500. | 3.2 | 672.8 | 672.7 | 0.1 |
| 18739.000 | 115. | 304. | 5.2 | 675.0 | 674.9 | 0.1 |
| 19001.000 | 133. | 364. | 4.4 | 676.3 | 676.3 | 0.0 |
| 19263.000 | 55. | 266. | 6.0 | 677.3 | 677.3 | 0.0 |
| 19313.000 | 30. | 208. | 7.6 | 677.5 | 677.5 | 0.0 |
| 19387.000 | 30. | 232. | 6.9 | 678.3 | 678.3 | 0.0 |

FLOODWAY DATA. TARABUSI CREEK LIVONIA C
PROFILE NO. 2

| STATION | FLOODWAY WIDTH (FT) | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 19437.000 | 61. | 357. | 3.8 | 679.0 | 679.0 | 0.0 |
| 19517.000 | 183. | 571. | 2.4 | 679.2 | 679.2 | 0.0 |
| 20117.000 | 94. | 321. | 4.2 | 680.4 | 680.3 | 0.1 |
| 20617.000 | 76. | 317. | 4.3 | 682.1 | 682.0 | 0.1 |
| 21117.000 | 140. | 611. | 3.3 | 683.6 | 683.5 | 0.1 |
| 21392.000 | 75. | 262. | 5.2 | 684.5 | 684.4 | 0.1 |
| 21667.000 | 73. | 252. | 5.4 | 686.1 | 686.0 | 0.1 |
| 22128.000 | 55. | 239. | 5.7 | 688.6 | 688.5 | 0.1 |
| 22589.000 | 182. | 517. | 2.6 | 690.8 | 690.7 | 0.1 |
| 23050.000 | 279. | 519. | 2.6 | 692.6 | 692.5 | 0.1 |
| 23550.000 | 109. | 485. | 2.8 | 694.0 | 694.0 | 0.0 |
| 24226.000 | 227. | 478. | 2.5 | 695.0 | 695.0 | 0.0 |
| 24250.000 | 222. | 480. | 2.5 | 695.1 | 695.1 | 0.0 |

FORM 0413

```
**************************************************
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
**************************************************
```

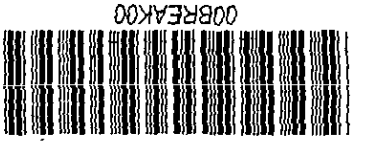



1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Tarabusi Creek

4) DOCUMENT TYPE: High Water Marks



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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CODE =  01
  VERIFICATION =  30,55,82
**************************************************

C
T1 TARABUSI CREEK CITY OF LIVONIA FIS MOD 2ND JD
T2 PROFILE VERIFICATION USING HIGH WATER MARKS
T3       TARABUSI CREEK LIVONIA C

J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
          0.         2.         0.         0.  0.000500     1.00       0.0        0.       685.120     0.005

J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
       -1.000     0.050     -1.000     0.000     0.000     0.000     0.000     0.000     3.000     0.000

ET      1.400    95.000     0.300     0.000     1.000     0.000     0.300     0.000     0.300     0.650
ES      0.020     0.120     0.040     0.300     0.550     0.000     0.001     0.000     0.000     0.000

          D/S FACE OLD 6 MILE BRIDGE

NC   2498.000     0.000   200.000   230.000     0.000     0.000     0.000     0.000     0.000     0.000
NC     70.000     0.000     0.000     0.000     0.000     0.000     0.000   625.930   625.950     0.000
GR    653.000     0.300   629.500   130.000   619.500   200.000   619.500   200.100   619.500   230.000
GR    619.500   230.500   629.500   250.000   639.000   350.000     0.000     0.000     0.000     0.000
SU      0.000     1.790     3.000   200.000    20.700     0.030   127.000     0.000   619.300   619.300

          D/S FACE OLD 6 MILE BRIDGE

X1   2554.000     0.300     0.000     0.300    56.000    56.000    56.000     0.710     0.000     0.300
X2      0.000     0.000     1.000   625.400   629.000     0.000     0.000     0.000     0.000     0.000
X3     10.000     0.200     0.050     0.000     0.000     0.000     0.000   625.000   625.000     0.000
NC      0.150     0.150     0.050     0.400     0.600     0.000     0.000     0.000     0.000     0.000

          SECND 2604 STA 25+27.50' D/S 6 MILE FROM CORPS NOTES AND QUAD MAP

X1   2604.000    32.000   177.500   220.500    50.000    50.000    50.000     0.000     0.000     0.000
X2      0.000     0.000     0.000   111.000     0.000   265.000     0.000     0.000     0.000     0.000
GR    635.000     0.000   635.000    60.000   610.000    55.000   625.000    92.000   621.300   177.900
GR    619.000   192.500   617.500   200.000   610.000   212.500   622.200   220.500   625.000   250.000
GR    650.000   265.000   639.000   450.000     0.000     0.000     0.000     0.000     0.000     0.000

          SECND 4116 END D/S CIVILENGT FROM CORPS NOTES AND QUAD MAP

X1   4116.000     0.000   177.500   219.000  1200.000  1100.000  1182.000     0.000     0.000     0.000
X2      0.000     0.000     0.000   140.000     0.000   255.000     0.000     0.000     0.000     0.300
GR    655.000    11.000   634.000    60.000   626.200   177.000   622.700   191.000   622.600   193.500
GR    622.200   212.000   627.100   279.000   633.000   300.000   551.000   560.000     0.000     0.000
SU      0.000     0.000     1.400     0.000     1.100     1.000     0.900     0.000     1.000     1.000
NC      0.050     0.050     0.050     0.300     0.300     0.000     0.000     0.000     0.000     0.000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4376.000 | 9.000 | 148.840 | 164.270 | 305.000 | 300.000 | 200.000 | 0.000 | 0.000 | 0.000 |
| X5 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 626.900 | 626.900 | 0.000 |
| GR | 655.000 | 0.000 | 655.000 | 139.000 | 622.700 | 148.840 | 622.700 | 146.740 | 622.600 | 156.560 |
| BR | 622.700 | 164.270 | 622.700 | 164.370 | 635.000 | 175.000 | 635.000 | 416.000 | 0.000 | 0.000 |
| SH | 0.000 | 1.950 | 3.000 | 292.000 | 15.440 | 0.000 | 97.265 | 0.000 | 622.600 | 622.600 |

SECNO 4403 U/S FACE MIDDLEBELT FROM CORPS NOTES AND QUAD MAPS;SH BR.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4403.000 | 0.000 | 0.000 | 0.000 | 87.000 | 87.000 | 87.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 921.900 | 632.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 632.900 | 632.900 | 0.000 |
| BT | 0.000 | 0.000 | 675.000 | 0.000 | 148.840 | 632.900 | 622.700 | 148.840 | 632.900 | 628.900 |
| BT | 164.270 | 632.900 | 628.900 | 164.370 | 632.900 | 622.700 | 416.000 | 635.200 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.400 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 7.100 | 7.100 | 7.100 | 7.100 | 9.150 | 201.000 | 400.000 | 200.000 | 490.000 |

SEC 0 4455 STA 44+55 50' U/S MIDDLEBELT FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4455.000 | 13.000 | 330.000 | 557.000 | 50.000 | 0.000 | 50.000 | 0.450 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 201.000 | 0.000 | 456.500 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 640.000 | 0.000 | 655.000 | 100.000 | 630.000 | 150.000 | 630.000 | 200.000 | 625.000 | 310.000 |
| GR | 625.700 | 350.000 | 622.700 | 335.000 | 622.600 | 350.000 | 622.700 | 554.000 | 626.700 | 357.000 |
| GR | 625.000 | 480.000 | 630.000 | 510.000 | 635.000 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.410 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.040 | 0.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 5950 STA 59+50 0FF[illegible] FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5950.000 | 13.000 | 255.000 | 255.000 | 1497.000 | 1497.000 | 1497.000 | 0.300 | 0.000 | 0.000 |
| X3 | 640.000 | 0.000 | 632.000 | 70.000 | 530.000 | 235.000 | 627.000 | 240.000 | 626.700 | 245.000 |
| GR | 626.300 | 350.000 | 625.700 | 255.000 | 527.000 | 200.000 | 630.000 | 253.000 | 625.000 | 375.000 |
| GR | 640.300 | 470.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 6600 STA 66+00 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6600.000 | 7.000 | 170.000 | 155.000 | 530.000 | 530.000 | 670.000 | 0.300 | 0.000 | 0.000 |
| GR | 640.000 | 0.000 | 625.000 | 45.000 | 355.000 | 130.000 | 625.000 | 140.000 | 623.000 | 165.000 |
| GR | 623.300 | 350.000 | 630.000 | 100.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SEC 0 7340 STA 73+40 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7340.000 | 9.000 | 200.000 | 322.000 | 740.000 | 740.000 | 740.000 | 0.000 | 0.000 | 0.000 |
| GR | 645.000 | 0.000 | 630.000 | 60.000 | 634.000 | 210.000 | 631.700 | 210.000 | 631.700 | 215.000 |
| GR | 634.000 | 222.000 | 634.000 | 300.000 | 640.200 | 320.000 | 625.000 | 365.000 | 0.000 | 0.000 |

SECNO 7915 STA 79+15 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7915.000 | 10.000 | 210.000 | 235.000 | 627.000 | 701.000 | 740.000 | 0.000 | 0.000 | 0.000 |
| GR | 641.000 | 0.000 | 625.000 | 65.000 | 653.000 | 211.000 | 540.000 | 225.000 | 634.000 | 252.000 |
| GR | 634.000 | 242.000 | 635.000 | 253.000 | 640.000 | 355.000 | 644.000 | 415.000 | 636.000 | 390.000 |

SECNO 8750 STA 87+50 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8750.000 | 9.000 | 205.000 | 250.000 | 922.000 | 922.000 | 922.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 640.000 | 74.000 | 321.000 | 0.000 | 0.000 | 625.700 | 633.000 | 221.000 |
| GR | 640.000 | 252.000 | 640.000 | 260.000 | 640.000 | 300.000 | 650.000 | 340.000 | 633.000 | 0.000 |

SECNO 10650 STA 105+90 50' D/S MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| XT | 10650.000 | 15.000 | 295.300 | 240.200 | 900.000 | 600.000 | 927.000 | 0.000 | 0.000 | 0.000 |
| XS | 0.000 | 0.000 | 0.000 | 155.000 | 0.000 | 263.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.000 | 0.000 | 655.000 | 80.000 | 650.000 | 112.000 | 647.500 | 117.000 | 645.000 | 132.000 |
| GR | 642.500 | 205.000 | 637.900 | 226.000 | 637.800 | 252.000 | 637.900 | 238.000 | 642.500 | 240.000 |
| GR | 645.000 | 520.000 | 650.000 | 560.000 | 655.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 10708 STA 107+40 D/S FACE MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 10708.000 | 18.000 | 208.000 | 272.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| XS | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 653.600 | 653.600 | 0.000 |
| GR | 660.000 | 0.000 | 655.000 | 65.000 | 652.000 | 130.000 | 645.500 | 208.000 | 645.500 | 208.100 |
| GR | 645.500 | 212.000 | 638.000 | 227.000 | 638.000 | 227.100 | 638.000 | 229.000 | 638.000 | 229.100 |
| GR | 638.000 | 251.000 | 638.000 | 251.100 | 638.000 | 253.000 | 638.000 | 253.100 | 645.500 | 268.000 |
| GR | 645.500 | 272.000 | 645.500 | 272.100 | 656.000 | 350.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SP | 1.250 | 1.300 | 3.000 | 0.000 | 26.000 | 2.300 | 793.700 | 2.280 | 638.000 | 638.000 |

SECNO 10732 D/S FACE MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 10732.000 | 0.000 | 0.000 | 0.000 | 74.000 | 74.000 | 74.000 | 0.000 | 0.000 | 0.000 |
| XS | 0.000 | 0.000 | 1.000 | 653.100 | 654.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| XS | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 654.000 | 655.000 | 0.000 |
| BT | 16.000 | 0.000 | 660.000 | 0.000 | 65.000 | 655.000 | 0.000 | 130.000 | 654.000 | 0.000 |
| BT | 206.000 | 654.200 | 645.500 | 206.100 | 654.200 | 653.100 | 227.000 | 654.200 | 653.100 | 227.100 |
| BT | 654.200 | 639.000 | 229.000 | 654.200 | 638.000 | 229.100 | 654.200 | 653.100 | 251.000 | 655.500 |
| BT | 653.100 | 251.100 | 655.000 | 638.000 | 253.000 | 658.000 | 638.000 | 253.100 | 639.000 | 653.100 |
| BT | 272.000 | 653.000 | 653.100 | 272.100 | 655.000 | 645.500 | 330.000 | 656.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.040 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 10832 D/S FACE MERRIMAN FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 10832.000 | 13.000 | 197.000 | 247.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| XS | 0.000 | 0.000 | 0.000 | 145.000 | 0.000 | 300.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.000 | 0.000 | 655.000 | 80.000 | 650.000 | 112.000 | 647.500 | 117.000 | 645.000 | 132.000 |
| GR | 642.500 | 197.800 | 637.900 | 226.000 | 637.800 | 252.000 | 637.900 | 238.000 | 642.500 | 247.000 |
| GR | 645.000 | 520.000 | 650.000 | 560.000 | 655.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SP | 0.150 | 0.150 | 0.050 | 0.950 | 0.300 | 0.300 | 0.000 | 0.000 | 0.500 | 0.000 |

SECNO 11720

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 11720.000 | 9.000 | 570.000 | 540.000 | 886.000 | 835.000 | 687.000 | 0.000 | 0.000 | 0.000 |
| GR | 650.000 | 350.000 | 646.000 | 375.000 | 646.500 | 650.000 | 642.000 | 650.000 | 642.700 | 660.000 |
| GR | 642.000 | 565.000 | 646.000 | 580.000 | 647.000 | 675.000 | 660.000 | 850.000 | 0.000 | 0.000 |

SECNO 12745 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 12745.000 | 0.000 | 0.000 | 0.000 | 425.000 | 425.000 | 425.000 | 0.000 | 0.000 | 0.000 |

SECNO 12570 STA 125+20 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XT | 12570.000 | 9.000 | 284.000 | 351.000 | 455.000 | 455.000 | 455.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.000 | 0.000 | 651.000 | 372.000 | 650.000 | 611.000 | 647.500 | 405.000 | 645.000 | 445.000 |
| GR | 645.000 | 900.000 | 647.000 | 951.000 | 650.000 | 674.000 | 652.000 | 901.000 | 0.000 | 0.000 |

SECNO 12965 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12965.000 | 0.000 | 0.000 | 0.000 | 395.000 | 395.000 | 395.000 | 0.000 | 1.600 | 0.000 |
| NC | 0.150 | 0.150 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 13360 STA 139+20, FROM CORPS NOTES AND QUAD MAP.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13360.000 | 12.000 | 270.000 | 510.000 | 430.000 | 250.000 | 395.000 | 0.000 | 0.000 | 0.000 |
| GR | 665.000 | 0.000 | 660.000 | 33.000 | 655.000 | 165.000 | 650.000 | 270.000 | 649.200 | 2,2.000 |
| ET | 647.600 | 280.000 | 647.500 | 290.000 | 647.600 | 294.000 | 649.500 | 298.000 | 650.000 | 310.000 |
| GR | 655.000 | 400.000 | 662.000 | 630.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 13704 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13704.000 | 0.000 | 0.000 | 0.000 | 208.000 | 344.000 | 344.000 | 0.000 | 1.300 | 0.000 |

SECNO 14067 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14067.000 | 0.000 | 0.000 | 0.000 | 208.000 | 343.000 | 343.000 | 0.000 | 1.400 | 0.000 |

VALLEY SECTION X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14219.000 | 7.000 | 447.000 | 476.000 | 104.000 | 172.000 | 172.000 | 0.000 | 0.000 | 0.000 |
| GR | 665.000 | 0.000 | 659.500 | 257.000 | 653.300 | 447.000 | 652.000 | 462.000 | 653.300 | 476.000 |
| GR | 659.500 | 570.000 | 665.000 | 570.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.150 | 0.150 | 0.000 | 0.400 | 0.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.100 | 0.000 | 0.000 | 0.000 | 1.000 | 324.000 |

SECNO 14390 50' D/S / MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14390.000 | 10.000 | 624.000 | 643.000 | 204.000 | 171.000 | 171.300 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 611.000 | 0.000 | 654.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 670.000 | 0.000 | 665.000 | 280.000 | 660.000 | 370.000 | 660.500 | 350.000 | 657.900 | 650.300 |
| GR | 655.000 | 624.000 | 652.900 | 634.000 | 653.000 | 542.000 | 655.400 | 655.000 | 650.000 | 660.000 |
| GR | 650.000 | 760.000 | 665.000 | 765.000 | 670.000 | 625.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 14440 STA 174+50, D/S FACE / MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14440.000 | 11.000 | 675.220 | 695.420 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 659.500 | 659.500 | 0.000 |
| GR | 670.000 | 599.300 | 659.000 | 600.000 | 655.500 | 675.220 | 654.500 | 675.320 | 652.970 | 666.140 |
| GR | 655.500 | 695.420 | 655.500 | 695.520 | 653.000 | 728.000 | 661.500 | 764.000 | 660.000 | 760.000 |
| GR | 670.000 | 781.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.710 | 3.000 | 0.000 | 10.220 | 0.000 | 121.900 | 0.000 | 652.000 | 652.000 |

SECNO 14501 D/S FACE / MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14501.000 | 7.000 | 0.000 | 2.000 | 61.000 | 51.000 | 51.200 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 6.000 | 1.000 | 659.500 | 660.000 | 0.000 | 0.200 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 663.400 | 663.400 | 0.000 |
| BT | 10.000 | 599.000 | 670.000 | 0.000 | 600.000 | 65.000 | 0.000 | 675.220 | 663.400 | 694.500 |
| GR | 670.000 | 599.300 | 659.500 | 599.420 | 663.000 | 695.500 | 670.220 | 675.320 | 65[illegible] | 771.250 |
| BT | 0.000 | 0.000 | 0.000 | 600.000 | 0.000 | 780.000 | 660.000 | 0.000 | 70.000 | 670.000 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 1.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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EQUIP WITH GUARANTEED & PROVEN MANIFOLD FORMS

SECNO 14570 STA 175+10 69' U/S 7 MILE FROM CORPS NOTES AND QUAD MAP SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 14570.000 | 7.000 | 325.000 | 366.000 | 69.000 | 69.000 | 69.000 | 0.910 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 295.000 | 0.000 | 415.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 670.000 | 0.000 | 660.000 | 140.000 | 655.600 | 325.000 | 657.600 | 342.000 | 655.600 | 346.000 |
| GR | 660.000 | 470.000 | 670.000 | 740.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 13360 STA 184+40 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13360.000 | 10.000 | 84.000 | 125.000 | 790.000 | 790.000 | 790.000 | 0.000 | 0.000 | 0.000 |
| GR | 670.000 | 0.000 | 660.000 | 30.000 | 658.000 | 40.000 | 657.500 | 85.000 | 656.500 | 110.000 |
| GR | 655.100 | 116.000 | 655.000 | 122.000 | 658.000 | 125.000 | 660.000 | 173.000 | 670.000 | 200.000 |

SECNO 16100 STA 192+60 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16100.000 | 13.000 | 115.000 | 140.000 | 740.000 | 740.000 | 740.000 | 0.000 | 0.000 | 0.000 |
| GR | 672.000 | 0.000 | 670.000 | 30.000 | 666.000 | 40.000 | 663.000 | 80.000 | 662.000 | 115.000 |
| GR | 658.000 | 130.000 | 660.000 | 140.000 | 662.000 | 170.000 | 662.600 | 240.000 | 664.000 | 250.000 |
| GR | 666.000 | 450.000 | 670.000 | 480.000 | 672.000 | 510.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 16500 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16500.000 | 8.000 | 173.000 | 209.000 | 550.000 | 275.000 | 400.000 | 0.000 | 0.000 | 0.000 |
| GR | 675.000 | 0.000 | 667.000 | 80.000 | 662.000 | 173.000 | 659.000 | 195.000 | 662.000 | 209.000 |
| GR | 663.500 | 310.000 | 670.000 | 510.000 | 675.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 16900 STA 201+70 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 16900.000 | 13.000 | 228.000 | 276.000 | 550.000 | 275.000 | 480.000 | 0.000 | 0.000 | 0.000 |
| GR | 680.000 | 0.000 | 671.000 | 90.000 | 670.000 | 130.000 | 665.000 | 170.000 | 658.000 | 228.000 |
| GR | 660.000 | 256.000 | 660.000 | 260.000 | 662.000 | 264.000 | 664.000 | 276.000 | 685.000 | 350.000 |
| GR | 670.000 | 580.000 | 670.000 | 600.000 | 600.000 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 17295 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17295.000 | 0.000 | 392.000 | 443.000 | 75.000 | 425.000 | 395.000 | 0.000 | 0.000 | 0.000 |
| GR | 680.000 | 0.000 | 672.000 | 190.000 | 667.500 | 330.000 | 666.500 | 392.000 | 662.400 | 420.000 |
| GR | 665.000 | 443.000 | 666.000 | 500.000 | 680.000 | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECNO 17690 STA 210+80 FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17690.000 | 10.000 | 555.000 | 610.000 | 75.000 | 425.000 | 395.000 | 0.000 | 0.000 | 0.000 |
| GR | 680.000 | 0.000 | 675.000 | 280.000 | 669.100 | 495.000 | 669.000 | 555.000 | 664.800 | 577.000 |
| GR | 664.700 | 581.000 | 664.800 | 585.000 | 667.000 | 610.000 | 667.500 | 650.000 | 680.000 | 715.000 |

SECNO 18215 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18215.000 | 0.000 | 0.000 | 0.000 | 615.000 | 480.000 | 525.000 | 0.000 | 0.000 | 0.000 |

SECNO 18739 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 18739.000 | 0.000 | 0.000 | 0.000 | 615.000 | 480.000 | 524.000 | 0.000 | 0.000 | 0.000 |

SECNO 19265 50' D/S FARMINGTON FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19265.000 | 11.000 | 285.000 | 345.000 | 1843.000 | 1463.000 | 1575.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 276.000 | 0.000 | 352.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 685.000 | 0.000 | 680.000 | 60.000 | 675.000 | 130.000 | 675.600 | 285.000 | 670.600 | 288.000 |
| GR | 670.500 | 305.000 | 670.600 | 314.000 | 672.600 | 321.000 | 684.600 | 343.000 | 690.000 | 350.000 |
| GR | 690.000 | 350.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.600 | 0.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 1.000 | 354.000 |

SECNO 19315 STA 230+00 D/S FACE FARMINGTON FROM CORPS NOTES AND QUAD MP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19315.000 | 13.000 | 287.000 | 349.000 | 50.000 | 0.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 679.800 | 679.800 | 0.000 |
| GR | 685.000 | 0.000 | 680.000 | 60.000 | 675.000 | 265.000 | 675.600 | 287.000 | 670.600 | 290.000 |
| GR | 670.500 | 293.100 | 670.500 | 305.000 | 670.600 | 320.000 | 670.600 | 320.100 | 672.600 | 327.000 |
| GR | 681.000 | 349.000 | 690.000 | 355.000 | 690.000 | 355.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.200 | 3.000 | 0.000 | 30.000 | 0.000 | 210.000 | 0.000 | 670.500 | 670.500 |

SECNO 19387 U/S FACE FARMINGTON FROM CORPS NOTES AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 19387.000 | 1.000 | 0.000 | 0.000 | 74.000 | 74.000 | 74.100 | 0.000 | 0.000 | 0.100 |
| X2 | 0.000 | 33.000 | 1.300 | 677.500 | 681.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 681.100 | 681.100 | 0.000 |
| BT | 8.000 | 0.000 | 690.000 | 0.000 | 0.000 | 685.000 | 0.000 | 290.000 | 681.100 | 670.600 |
| BT | 290.100 | 681.100 | 677.500 | 320.000 | 681.100 | 677.500 | 320.100 | 681.100 | 670.600 | 355.000 |
| BT | 502.000 | 0.000 | 355.300 | 690.000 | 5.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Tarabasi Creek

4) DOCUMENT TYPE: Summary

00BREAK00

HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01.02
MODIFICATION - 50.51.52.53

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

TARABUSI CREEK LIVONIA C

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CHSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 120.000 | 0.0 | 0.0 | 0.0 | 613.20 | 1070.00 | 620.00 | 0.0 | 620.28 | 26.09 | 4.96 | 444.48 | 209.58 |
| 120.000 | 0.0 | 0.0 | 0.0 | 613.20 | 1560.00 | 620.00 | 0.0 | 620.59 | 55.40 | 7.23 | 444.48 | 209.58 |
| 120.000 | 0.0 | 0.0 | 0.0 | 613.20 | 1770.00 | 620.00 | 0.0 | 620.76 | 71.32 | 8.21 | 444.48 | 209.58 |
| 120.000 | 0.0 | 0.0 | 0.0 | 613.20 | 2060.00 | 620.00 | 619.95 | 621.03 | 96.61 | 9.55 | 444.48 | 209.58 |
| 370.000 | 250.00 | 0.0 | 0.0 | 615.30 | 1070.00 | 620.70 | 0.0 | 621.28 | 51.55 | 6.56 | 309.41 | 149.03 |
| 370.000 | 250.00 | 0.0 | 0.0 | 615.30 | 1560.00 | 621.40 | 0.0 | 622.07 | 57.72 | 7.66 | 400.96 | 205.34 |
| 370.000 | 250.00 | 0.0 | 0.0 | 615.30 | 1770.00 | 621.72 | 0.0 | 622.35 | 54.89 | 7.79 | 452.61 | 239.56 |
| 370.000 | 250.00 | 0.0 | 0.0 | 615.30 | 2060.00 | 622.21 | 0.0 | 622.62 | 48.89 | 7.85 | 531.48 | 294.60 |
| 745.000 | 375.00 | 0.0 | 0.0 | 615.70 | 1070.00 | 622.16 | 0.0 | 622.46 | 19.56 | 4.97 | 386.48 | 241.91 |
| 745.000 | 375.00 | 0.0 | 0.0 | 615.70 | 1560.00 | 623.01 | 0.0 | 623.39 | 22.69 | 5.92 | 494.69 | 326.04 |
| 745.000 | 375.00 | 0.0 | 0.0 | 615.70 | 1770.00 | 623.36 | 0.0 | 623.72 | 24.29 | 6.29 | 535.77 | 359.15 |
| 745.000 | 375.00 | 0.0 | 0.0 | 615.70 | 2060.00 | 623.69 | 0.0 | 624.16 | 25.85 | 6.74 | 591.77 | 405.19 |
| 1120.000 | 375.00 | 0.0 | 0.0 | 616.00 | 1070.00 | 622.93 | 0.0 | 623.39 | 25.84 | 6.12 | 299.99 | 210.47 |
| 1120.000 | 375.00 | 0.0 | 0.0 | 616.00 | 1560.00 | 623.87 | 0.0 | 624.48 | 29.82 | 7.25 | 399.53 | 285.70 |
| 1120.000 | 375.00 | 0.0 | 0.0 | 616.00 | 1770.00 | 624.21 | 0.0 | 624.88 | 31.26 | 7.67 | 439.56 | 316.47 |
| 1120.000 | 375.00 | 0.0 | 0.0 | 616.00 | 2060.00 | 624.64 | 0.0 | 625.39 | 32.97 | 8.19 | 493.94 | 356.76 |
| 1770.000 | 650.00 | 0.0 | 0.0 | 617.00 | 1070.00 | 624.25 | 0.0 | 624.49 | 10.86 | 4.37 | 383.50 | 324.65 |
| 1770.000 | 650.00 | 0.0 | 0.0 | 617.00 | 1560.00 | 625.42 | 0.0 | 625.75 | 12.42 | 5.19 | 494.71 | 442.58 |
| 1770.000 | 650.00 | 0.0 | 0.0 | 617.00 | 1770.00 | 625.84 | 0.0 | 626.21 | 12.90 | 5.48 | 543.58 | 492.76 |
| 1770.000 | 650.00 | 0.0 | 0.0 | 617.00 | 2060.00 | 626.35 | 0.0 | 626.79 | 13.47 | 5.84 | 613.64 | 561.20 |
| 2416.000 | 646.00 | 0.0 | 0.0 | 617.90 | 1070.00 | 624.95 | 0.0 | 625.27 | 12.18 | 4.75 | 316.41 | 306.61 |
| 2416.000 | 646.00 | 0.0 | 0.0 | 617.90 | 1560.00 | 626.22 | 0.0 | 626.68 | 14.36 | 5.76 | 397.96 | 411.61 |
| 2416.000 | 646.00 | 0.0 | 0.0 | 617.90 | 1770.00 | 626.67 | 0.0 | 627.19 | 15.27 | 6.15 | 429.16 | 452.96 |
| 2416.000 | 646.00 | 0.0 | 0.0 | 617.90 | 2060.00 | 627.25 | 0.0 | 627.85 | 16.66 | 6.66 | 469.82 | 507.68 |
| 2466.000 | 50.00 | 0.0 | 0.0 | 617.90 | 1070.00 | 625.17 | 0.0 | 625.37 | 11.62 | 3.57 | 299.61 | 313.95 |
| 2466.000 | 50.00 | 0.0 | 0.0 | 617.90 | 1560.00 | 626.97 | 0.0 | 626.81 | 12.34 | 3.90 | 400.40 | 444.15 |
| 2466.000 | 50.00 | 0.0 | 0.0 | 617.90 | 1770.00 | 627.69 | 0.0 | 627.36 | 11.85 | 4.04 | 436.30 | 514.15 |
| 2466.000 | 50.00 | 0.0 | 0.0 | 617.90 | 2060.00 | 627.74 | 0.0 | 628.02 | 11.47 | 4.23 | 486.46 | 608.33 |
| 2554.000 | 88.00 | 632.60 | 629.40 | 617.90 | 1070.00 | 625.16 | 0.0 | 625.38 | 11.53 | 3.56 | 300.38 | 315.05 |
| 2554.000 | 88.00 | 632.60 | 629.40 | 617.90 | 1560.00 | 626.59 | 0.0 | 626.82 | 12.24 | 3.89 | 401.37 | 445.69 |
| 2554.000 | 88.00 | 632.60 | 629.40 | 617.90 | 1770.00 | 627.10 | 0.0 | 627.35 | 11.76 | 4.03 | 439.30 | 516.03 |
| 2554.000 | 88.00 | 632.60 | 629.40 | 617.90 | 2060.00 | 627.75 | 0.0 | 628.03 | 11.35 | 4.23 | 487.53 | 610.43 |

| SECNO | XLCH | ELTRO | ELLC | ELMIN | Q | CUSEL | CRIVS | EG | 10K*S | VCM | AREA | *01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2604.000 | 50.00 | 0.0 | 0.0 | 617.90 | 1070.00 | 625.28 | 0.0 | 625.45 | 12.30 | 3.48 | 404.00 | 305.03 |
| 2604.000 | 50.00 | 0.0 | 0.0 | 617.90 | 1560.00 | 626.70 | 0.0 | 626.90 | 11.57 | 3.87 | 685.86 | 458.59 |
| 2604.000 | 50.00 | 0.0 | 0.0 | 617.90 | 1770.00 | 627.22 | 0.0 | 627.43 | 11.50 | 4.03 | 761.17 | 521.67 |
| 2604.000 | 50.00 | 0.0 | 0.0 | 617.90 | 2060.00 | 627.89 | 0.0 | 628.11 | 11.48 | 4.23 | 850.46 | 607.91 |
| 3360.000 | 756.00 | 0.0 | 0.0 | 620.30 | 1070.00 | 626.59 | 0.0 | 626.90 | 30.07 | 4.65 | 352.37 | 193.85 |
| 3360.000 | 756.00 | 0.0 | 0.0 | 620.30 | 1560.00 | 627.84 | 0.0 | 628.14 | 24.27 | 4.02 | 617.69 | 316.64 |
| 3360.000 | 756.00 | 0.0 | 0.0 | 620.30 | 1770.00 | 628.31 | 0.0 | 628.61 | 22.32 | 4.85 | 729.12 | 370.64 |
| 3360.000 | 756.00 | 0.0 | 0.0 | 620.30 | 2060.00 | 628.93 | 0.0 | 629.22 | 20.22 | 4.90 | 879.10 | 450.13 |
| 4116.000 | 756.00 | 0.0 | 0.0 | 622.60 | 1070.00 | 628.76 | 0.0 | 629.05 | 27.27 | 4.49 | 332.01 | 204.90 |
| 4116.000 | 756.00 | 0.0 | 0.0 | 622.60 | 1560.00 | 629.70 | 0.0 | 630.03 | 27.46 | 5.04 | 502.54 | 297.69 |
| 4116.000 | 756.00 | 0.0 | 0.0 | 622.60 | 1770.00 | 630.07 | 0.0 | 630.42 | 27.42 | 5.25 | 550.51 | 337.99 |
| 4116.000 | 756.00 | 0.0 | 0.0 | 622.60 | 2060.00 | 630.56 | 0.0 | 630.93 | 27.17 | 5.49 | 632.91 | 366.17 |
| 4316.000 | 200.00 | 0.0 | 0.0 | 622.60 | 1070.00 | 629.30 | 0.0 | 630.97 | 155.99 | 10.39 | 102.99 | 85.67 |
| 4316.000 | 200.00 | 0.0 | 0.0 | 622.60 | 1560.00 | 630.00 | 0.0 | 632.08 | 117.06 | 12.20 | 168.19 | 143.70 |
| 4316.000 | 200.00 | 0.0 | 0.0 | 622.60 | 1770.00 | 630.27 | 0.0 | 632.73 | 133.56 | 13.30 | 177.47 | 153.15 |
| 4316.000 | 200.00 | 0.0 | 0.0 | 622.60 | 2060.00 | 630.59 | 630.31 | 633.61 | 155.87 | 14.78 | 187.73 | 165.00 |
| 4403.000 | 87.00 | 632.90 | 628.90 | 622.60 | 1070.00 | 631.91 | 0.0 | 632.77 | 59.93 | 7.45 | 143.54 | 138.22 |
| 4403.000 | 87.00 | 632.90 | 628.90 | 622.60 | 1560.00 | 633.99 | 0.0 | 634.66 | 23.14 | 7.22 | 357.64 | 324.26 |
| 4403.000 | 87.00 | 632.90 | 628.90 | 622.60 | 1770.00 | 634.30 | 0.0 | 635.07 | 26.37 | 7.04 | 386.90 | 364.69 |
| 4403.000 | 87.00 | 632.90 | 628.90 | 622.60 | 2060.00 | 634.67 | 0.0 | 635.59 | 30.68 | 6.64 | 423.51 | 371.92 |
| 4453.000 | 50.00 | 0.0 | 0.0 | 622.60 | 1070.00 | 633.12 | 0.0 | 633.17 | 5.94 | 2.70 | 751.40 | 438.99 |
| 4453.000 | 50.00 | 0.0 | 0.0 | 622.60 | 1560.00 | 634.92 | 0.0 | 634.95 | 3.47 | 2.31 | 1331.13 | 837.56 |
| 4453.000 | 50.00 | 0.0 | 0.0 | 622.60 | 1770.00 | 635.37 | 0.0 | 635.41 | 3.71 | 2.44 | 1418.44 | 919.16 |
| 4453.000 | 50.00 | 0.0 | 0.0 | 622.60 | 2060.00 | 635.95 | 0.0 | 635.99 | 4.02 | 2.62 | 1528.80 | 1027.16 |
| 5950.000 | 1497.00 | 0.0 | 0.0 | 626.60 | 1070.00 | 633.91 | 0.0 | 633.97 | 4.78 | 2.75 | 1007.46 | 489.29 |
| 5950.000 | 1497.00 | 0.0 | 0.0 | 626.60 | 1560.00 | 635.43 | 0.0 | 635.48 | 3.60 | 2.66 | 1318.67 | 846.45 |
| 5950.000 | 1497.00 | 0.0 | 0.0 | 626.60 | 1770.00 | 635.89 | 0.0 | 635.94 | 3.30 | 2.72 | 1681.50 | 974.24 |
| 5950.000 | 1497.00 | 0.0 | 0.0 | 626.60 | 2060.00 | 636.46 | 0.0 | 636.53 | 3.22 | 2.81 | 1891.66 | 1147.92 |
| 6600.000 | 650.00 | 0.0 | 0.0 | 628.80 | 1070.00 | 634.38 | 0.0 | 634.60 | 19.42 | 4.09 | 455.13 | 242.50 |
| 6600.000 | 650.00 | 0.0 | 0.0 | 628.80 | 1560.00 | 635.73 | 0.0 | 635.88 | 10.90 | 3.73 | 855.53 | 472.45 |
| 6600.000 | 650.00 | 0.0 | 0.0 | 628.80 | 1770.00 | 636.18 | 0.0 | 636.32 | 9.61 | 3.69 | 999.54 | 570.96 |
| 6600.000 | 650.00 | 0.0 | 0.0 | 628.80 | 2060.00 | 636.75 | 0.0 | 636.80 | 8.41 | 3.68 | 1139.23 | 710.49 |
| 7340.000 | 740.00 | 0.0 | 0.0 | 631.70 | 1070.00 | 636.22 | 0.0 | 636.36 | 28.73 | 4.72 | 590.06 | 159.64 |
| 7340.000 | 740.00 | 0.0 | 0.0 | 631.70 | 1560.00 | 636.94 | 0.0 | 637.10 | 27.16 | 5.14 | 775.09 | 299.32 |
| 7340.000 | 740.00 | 0.0 | 0.0 | 631.70 | 1770.00 | 637.26 | 0.0 | 637.42 | 25.43 | 5.21 | 862.79 | 350.92 |
| 7340.000 | 740.00 | 0.0 | 0.0 | 631.70 | 2060.00 | 637.71 | 0.0 | 637.86 | 23.21 | 5.26 | 983.51 | 427.57 |
| 8078.000 | 738.00 | 0.0 | 0.0 | 632.90 | 1070.00 | 638.29 | 0.0 | 638.59 | 26.22 | 5.24 | 490.13 | 204.97 |
| 8078.000 | 738.00 | 0.0 | 0.0 | 632.90 | 1560.00 | 638.90 | 0.0 | 639.30 | 26.48 | 5.77 | 697.03 | 303.16 |
| 8078.000 | 738.00 | 0.0 | 0.0 | 632.90 | 1770.00 | 639.24 | 0.0 | 639.56 | 26.42 | 5.94 | 777.75 | 344.33 |
| 8078.000 | 738.00 | 0.0 | 0.0 | 632.90 | 2060.00 | 639.58 | 0.0 | 639.90 | 26.02 | 6.13 | 888.81 | 403.03 |
| 8815.000 | 737.00 | 0.0 | 0.0 | 634.00 | 1070.00 | 640.05 | 0.0 | 640.30 | 19.12 | 4.44 | 477.43 | 244.69 |
| 8815.000 | 737.00 | 0.0 | 0.0 | 634.00 | 1560.00 | 640.76 | 0.0 | 641.03 | 18.89 | 4.86 | 705.59 | 358.96 |
| 8815.000 | 737.00 | 0.0 | 0.0 | 634.00 | 1770.00 | 641.02 | 0.0 | 641.29 | 18.90 | 5.02 | 791.60 | 407.16 |
| 8815.000 | 737.00 | 0.0 | 0.0 | 634.00 | 2060.00 | 641.35 | 0.0 | 641.63 | 18.94 | 5.22 | 903.51 | 473.40 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRWS | FG | 10*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9276.000 | 461.00 | 0.0 | 0.0 | 634.90 | 1070.00 | 640.98 | 0.0 | 641.33 | 23.47 | 4.88 | 297.32 | 220.08 |
| 9276.000 | 461.00 | 0.0 | 0.0 | 634.90 | 1560.00 | 641.72 | 0.0 | 642.19 | 27.53 | 5.84 | 411.08 | 297.29 |
| 9276.000 | 461.00 | 0.0 | 0.0 | 634.90 | 1770.00 | 641.99 | 0.0 | 642.51 | 28.95 | 6.19 | 458.74 | 328.90 |
| 9276.000 | 461.00 | 0.0 | 0.0 | 634.90 | 2060.00 | 642.32 | 0.0 | 642.90 | 30.32 | 6.59 | 521.09 | 374.13 |
| 9737.000 | 461.00 | 0.0 | 0.0 | 635.90 | 1070.00 | 642.05 | 0.0 | 642.39 | 22.15 | 4.79 | 306.83 | 227.35 |
| 9737.000 | 461.00 | 0.0 | 0.0 | 635.90 | 1560.00 | 642.96 | 0.0 | 643.37 | 22.90 | 5.49 | 454.28 | 326.00 |
| 9737.000 | 461.00 | 0.0 | 0.0 | 635.90 | 1770.00 | 643.29 | 0.0 | 643.73 | 22.62 | 5.70 | 516.95 | 370.52 |
| 9737.000 | 461.00 | 0.0 | 0.0 | 635.90 | 2060.00 | 643.70 | 0.0 | 644.16 | 23.08 | 5.99 | 594.90 | 428.83 |
| 10198.000 | 461.00 | 0.0 | 0.0 | 636.90 | 1070.00 | 643.07 | 0.0 | 643.40 | 21.91 | 4.78 | 308.63 | 228.57 |
| 10198.000 | 461.00 | 0.0 | 0.0 | 636.90 | 1560.00 | 644.00 | 0.0 | 644.41 | 22.22 | 5.64 | 461.75 | 330.97 |
| 10198.000 | 461.00 | 0.0 | 0.0 | 636.90 | 1770.00 | 644.33 | 0.0 | 644.75 | 22.10 | 5.64 | 525.17 | 376.54 |
| 10198.000 | 461.00 | 0.0 | 0.0 | 636.90 | 2060.00 | 644.74 | 0.0 | 645.19 | 22.35 | 5.92 | 603.88 | 435.72 |
| 10658.000 | 460.00 | 0.0 | 0.0 | 637.80 | 1070.00 | 644.26 | 0.0 | 644.74 | 34.66 | 5.87 | 236.92 | 181.74 |
| 10658.000 | 460.00 | 0.0 | 0.0 | 637.80 | 1560.00 | 645.18 | 0.0 | 645.84 | 37.29 | 6.86 | 312.56 | 255.47 |
| 10658.000 | 460.00 | 0.0 | 0.0 | 637.80 | 1770.00 | 645.51 | 0.0 | 646.26 | 39.03 | 7.28 | 338.57 | 283.33 |
| 10658.000 | 460.00 | 0.0 | 0.0 | 637.80 | 2060.00 | 645.93 | 0.0 | 646.76 | 41.18 | 7.82 | 372.11 | 321.00 |
| 10708.000 | 50.00 | 0.0 | 0.0 | 638.00 | 1070.00 | 644.69 | 0.0 | 644.94 | 19.08 | 4.06 | 263.77 | 275.57 |
| 10708.000 | 50.00 | 0.0 | 0.0 | 638.00 | 1560.00 | 645.73 | 0.0 | 646.09 | 21.15 | 4.64 | 322.48 | 339.17 |
| 10708.000 | 50.00 | 0.0 | 0.0 | 638.00 | 1770.00 | 646.10 | 0.0 | 646.51 | 21.50 | 5.10 | 346.94 | 361.74 |
| 10708.000 | 50.00 | 0.0 | 0.0 | 638.00 | 2060.00 | 646.59 | 0.0 | 647.05 | 22.05 | 5.45 | 370.22 | 436.73 |
| 10782.000 | 74.00 | 654.00 | 653.10 | 638.00 | 1070.00 | 644.72 | 0.0 | 644.97 | 14.82 | 4.03 | 265.38 | 277.93 |
| 10782.000 | 74.00 | 654.00 | 653.10 | 638.00 | 1560.00 | 645.77 | 0.0 | 646.13 | 20.65 | 4.79 | 325.39 | 364.15 |
| 10782.000 | 74.00 | 654.00 | 653.10 | 638.00 | 1770.00 | 646.16 | 0.0 | 646.53 | 20.93 | 5.06 | 349.84 | 386.91 |
| 10782.000 | 74.00 | 654.00 | 653.10 | 638.00 | 2060.00 | 646.65 | 0.0 | 647.10 | 21.45 | 5.40 | 381.47 | 444.81 |
| 10832.000 | 50.00 | 0.0 | 0.0 | 637.80 | 960.00 | 644.92 | 0.0 | 645.06 | 8.24 | 3.17 | 453.96 | 334.42 |
| 10832.000 | 50.00 | 0.0 | 0.0 | 637.80 | 1410.00 | 646.09 | 0.0 | 646.25 | 7.91 | 3.55 | 634.73 | 501.35 |
| 10832.000 | 50.00 | 0.0 | 0.0 | 637.80 | 1590.00 | 646.51 | 0.0 | 646.63 | 7.80 | 3.68 | 700.46 | 569.49 |
| 10832.000 | 50.00 | 0.0 | 0.0 | 637.80 | 1860.00 | 647.06 | 0.0 | 647.25 | 7.88 | 3.89 | 785.16 | 662.71 |
| 11720.000 | 888.00 | 0.0 | 0.0 | 642.70 | 960.00 | 646.57 | 646.57 | 647.33 | 167.70 | 7.16 | 197.05 | 74.13 |
| 11720.000 | 888.00 | 0.0 | 0.0 | 642.70 | 1410.00 | 647.57 | 0.0 | 648.01 | 78.58 | 6.09 | 505.48 | 159.06 |
| 11720.000 | 888.00 | 0.0 | 0.0 | 642.70 | 1590.00 | 647.92 | 0.0 | 648.31 | 63.33 | 5.63 | 624.61 | 195.60 |
| 11720.000 | 888.00 | 0.0 | 0.0 | 642.70 | 1860.00 | 648.42 | 0.0 | 648.74 | 49.42 | 5.57 | 735.71 | 264.59 |
| 12145.000 | 425.00 | 0.0 | 0.0 | 643.60 | 960.00 | 649.08 | 0.0 | 649.19 | 16.57 | 3.15 | 714.72 | 233.07 |
| 12145.000 | 425.00 | 0.0 | 0.0 | 643.60 | 1410.00 | 649.56 | 0.0 | 649.71 | 22.20 | 3.87 | 880.86 | 299.27 |
| 12145.000 | 425.00 | 0.0 | 0.0 | 643.60 | 1590.00 | 649.75 | 0.0 | 649.91 | 23.48 | 4.08 | 949.13 | 320.14 |
| 12145.000 | 425.00 | 0.0 | 0.0 | 643.60 | 1860.00 | 650.04 | 0.0 | 650.22 | 24.58 | 4.35 | 1056.16 | 375.20 |
| 12570.000 | 425.00 | 0.0 | 0.0 | 644.40 | 960.00 | 650.02 | 0.0 | 650.25 | 34.38 | 4.21 | 636.17 | 163.72 |
| 12570.000 | 425.00 | 0.0 | 0.0 | 644.40 | 1410.00 | 650.67 | 0.0 | 650.93 | 34.78 | 4.70 | 676.18 | 239.08 |
| 12570.000 | 425.00 | 0.0 | 0.0 | 644.40 | 1590.00 | 650.90 | 0.0 | 651.16 | 34.61 | 4.85 | 765.20 | 270.28 |
| 12570.000 | 425.00 | 0.0 | 0.0 | 644.40 | 1860.00 | 651.22 | 0.0 | 651.49 | 34.26 | 5.04 | 693.66 | 317.80 |
| 12965.000 | 395.00 | 0.0 | 0.0 | 646.00 | 960.00 | 651.48 | 0.0 | 651.74 | 40.75 | 4.47 | 386.46 | 150.02 |
| 12965.000 | 395.00 | 0.0 | 0.0 | 646.00 | 1410.00 | 652.14 | 0.0 | 652.43 | 40.60 | 4.97 | 623.21 | 221.28 |
| 12965.000 | 395.00 | 0.0 | 0.0 | 646.00 | 1590.00 | 652.36 | 0.0 | 652.66 | 40.42 | 5.13 | 708.10 | 250.08 |
| 12965.000 | 395.00 | 0.0 | 0.0 | 646.00 | 1860.00 | 652.66 | 0.0 | 652.97 | 40.08 | 5.34 | 829.80 | 293.81 |

| SECND | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13360.000 | 395.00 | 0.0 | 0.0 | 647.50 | 960.00 | 653.10 | 0.0 | 653.41 | 42.49 | 4.09 | 350.23 | 147.28 |
| 13360.000 | 395.00 | 0.0 | 0.0 | 647.50 | 1410.00 | 653.81 | 0.0 | 654.22 | 48.28 | 5.80 | 474.10 | 202.93 |
| 13360.000 | 395.00 | 0.0 | 0.0 | 647.50 | 1590.00 | 654.04 | 0.0 | 654.50 | 50.54 | 6.12 | 519.48 | 223.66 |
| 13360.000 | 395.00 | 0.0 | 0.0 | 647.50 | 1860.00 | 654.36 | 0.0 | 654.88 | 53.70 | 6.58 | 584.80 | 253.83 |
| 13704.000 | 344.00 | 0.0 | 0.0 | 649.30 | 960.00 | 654.65 | 0.0 | 655.02 | 54.10 | 5.29 | 312.32 | 130.52 |
| 13704.000 | 344.00 | 0.0 | 0.0 | 649.30 | 1410.00 | 655.47 | 0.0 | 655.92 | 54.27 | 6.03 | 448.70 | 191.41 |
| 13704.000 | 344.00 | 0.0 | 0.0 | 649.30 | 1590.00 | 655.76 | 0.0 | 656.23 | 54.54 | 6.22 | 501.23 | 215.31 |
| 13704.000 | 344.00 | 0.0 | 0.0 | 649.30 | 1860.00 | 656.13 | 0.0 | 656.65 | 55.01 | 6.63 | 570.23 | 250.77 |
| 14047.000 | 343.00 | 0.0 | 0.0 | 651.10 | 960.00 | 656.45 | 0.0 | 650.02 | 54.23 | 5.30 | 311.97 | 130.37 |
| 14047.000 | 343.00 | 0.0 | 0.0 | 651.10 | 1410.00 | 657.26 | 0.0 | 657.71 | 54.79 | 6.05 | 446.67 | 190.40 |
| 14047.000 | 343.00 | 0.0 | 0.0 | 651.10 | 1590.00 | 657.54 | 0.0 | 658.02 | 54.98 | 6.30 | 499.31 | 214.43 |
| 14047.000 | 343.00 | 0.0 | 0.0 | 651.10 | 1860.00 | 657.92 | 0.0 | 658.45 | 55.24 | 6.64 | 577.14 | 250.27 |
| 14219.000 | 172.00 | 0.0 | 0.0 | 652.00 | 960.00 | 657.30 | 0.0 | 657.55 | 36.52 | 4.85 | 402.44 | 163.38 |
| 14219.000 | 172.00 | 0.0 | 0.0 | 652.00 | 1410.00 | 650.14 | 0.0 | 658.49 | 38.76 | 5.74 | 507.28 | 226.48 |
| 14219.000 | 172.00 | 0.0 | 0.0 | 652.00 | 1590.00 | 658.43 | 0.0 | 658.81 | 40.52 | 6.00 | 542.92 | 249.78 |
| 14219.000 | 172.00 | 0.0 | 0.0 | 652.00 | 1860.00 | 658.82 | 0.0 | 659.26 | 43.26 | 6.53 | 591.28 | 282.80 |
| 14390.000 | 171.00 | 0.0 | 0.0 | 652.90 | 960.00 | 657.88 | 0.0 | 659.07 | 125.47 | 9.65 | 160.33 | 85.70 |
| 14390.000 | 171.00 | 0.0 | 0.0 | 652.90 | 1410.00 | 658.66 | 0.0 | 660.53 | 163.36 | 12.14 | 190.13 | 110.32 |
| 14390.000 | 171.00 | 0.0 | 0.0 | 652.90 | 1590.00 | 658.91 | 0.0 | 661.00 | 179.21 | 13.09 | 199.78 | 118.77 |
| 14390.000 | 171.00 | 0.0 | 0.0 | 652.90 | 1860.00 | 659.24 | 658.98 | 661.69 | 204.47 | 14.49 | 212.30 | 130.08 |
| 14440.000 | 50.00 | 0.0 | 0.0 | 652.90 | 960.00 | 653.63 | 0.0 | 660.21 | 201.44 | 10.71 | 89.66 | 67.64 |
| 14440.000 | 50.00 | 0.0 | 0.0 | 652.90 | 1410.00 | 659.33 | 659.20 | 662.08 | 261.84 | 13.30 | 106.05 | 87.14 |
| 14440.000 | 50.00 | 0.0 | 0.0 | 652.90 | 1590.00 | 659.64 | 659.54 | 662.79 | 285.91 | 14.25 | 111.60 | 94.03 |
| 14440.000 | 50.00 | 0.0 | 0.0 | 652.90 | 1860.00 | 660.14 | 660.14 | 662.14 | 144.39 | 12.54 | 259.78 | 154.79 |
| 14501.000 | 61.00 | 663.40 | 659.50 | 652.90 | 960.00 | 660.00 | 0.0 | 661.00 | 249.17 | 8.79 | 109.18 | 60.82 |
| 14501.000 | 61.00 | 663.40 | 659.50 | 652.90 | 1410.00 | 661.36 | 0.0 | 662.88 | 107.10 | 9.63 | 143.49 | 136.24 |
| 14501.000 | 61.00 | 663.40 | 659.50 | 652.90 | 1590.00 | 662.35 | 0.0 | 663.86 | 96.20 | 9.23 | 161.79 | 162.11 |
| 14501.000 | 61.00 | 663.40 | 659.50 | 652.90 | 1860.00 | 664.01 | 0.0 | 664.57 | 24.47 | 7.02 | 558.87 | 376.02 |
| 14570.000 | 69.00 | 0.0 | 0.0 | 651.80 | 960.00 | 662.32 | 0.0 | 662.37 | 4.76 | 2.55 | 998.18 | 439.85 |
| 14570.000 | 69.00 | 0.0 | 0.0 | 651.80 | 1410.00 | 663.50 | 0.0 | 663.56 | 5.97 | 3.10 | 1199.45 | 576.86 |
| 14570.000 | 69.00 | 0.0 | 0.0 | 651.80 | 1590.00 | 664.49 | 0.0 | 664.55 | 5.11 | 3.06 | 1369.19 | 703.17 |
| 14570.000 | 69.00 | 0.0 | 0.0 | 651.80 | 1860.00 | 664.76 | 0.0 | 664.84 | 6.33 | 3.47 | 1415.34 | 739.11 |
| 15360.000 | 790.00 | 0.0 | 0.0 | 655.00 | 960.00 | 662.75 | 0.0 | 662.82 | 6.64 | 2.54 | 722.21 | 372.46 |
| 15360.000 | 790.00 | 0.0 | 0.0 | 655.00 | 1410.00 | 664.00 | 0.0 | 664.09 | 7.13 | 2.97 | 926.70 | 520.12 |
| 15360.000 | 790.00 | 0.0 | 0.0 | 655.00 | 1590.00 | 664.91 | 0.0 | 665.00 | 6.87 | 2.91 | 1080.89 | 656.25 |
| 15360.000 | 790.00 | 0.0 | 0.0 | 655.00 | 1860.00 | 665.27 | 0.0 | 665.37 | 6.87 | 3.24 | 1142.20 | 709.49 |
| 16100.000 | 740.00 | 0.0 | 0.0 | 656.00 | 960.00 | 663.76 | 0.0 | 664.21 | 72.17 | 6.40 | 341.15 | 113.00 |
| 16100.000 | 740.00 | 0.0 | 0.0 | 656.00 | 1410.00 | 664.98 | 0.0 | 665.31 | 44.89 | 6.01 | 621.94 | 210.44 |
| 16100.000 | 740.00 | 0.0 | 0.0 | 656.00 | 1590.00 | 665.69 | 0.0 | 665.93 | 30.71 | 5.39 | 857.37 | 286.91 |
| 16100.000 | 740.00 | 0.0 | 0.0 | 656.00 | 1860.00 | 666.14 | 0.0 | 666.37 | 28.83 | 5.48 | 1035.34 | 346.38 |
| 16500.000 | 400.00 | 0.0 | 0.0 | 659.00 | 960.00 | 665.42 | 0.0 | 665.56 | 18.55 | 3.67 | 611.25 | 222.70 |
| 16500.000 | 400.00 | 0.0 | 0.0 | 659.00 | 1410.00 | 666.26 | 0.0 | 666.43 | 19.44 | 4.17 | 848.94 | 319.76 |
| 16500.000 | 400.00 | 0.0 | 0.0 | 659.00 | 1590.00 | 666.66 | 0.0 | 666.83 | 18.26 | 4.23 | 971.39 | 371.86 |
| 16500.000 | 400.00 | 0.0 | 0.0 | 659.00 | 1860.00 | 667.06 | 0.0 | 667.24 | 16.70 | 4.46 | 1104.20 | 430.13 |

| SECND | ALCH | ELTRD | ELLC | ELMIN | D | OBSEL | CRIVS | EG | 10K*S | VCM | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16900.000 | 400.00 | 0.0 | 0.0 | 660.00 | 960.00 | 666.24 | 0.0 | 666.45 | 26.80 | 3.98 | 439.27 | 185.40 |
| 16900.000 | 400.00 | 0.0 | 0.0 | 660.00 | 1410.00 | 667.09 | 0.0 | 667.32 | 25.87 | 4.41 | 661.27 | 277.24 |
| 16900.000 | 400.00 | 0.0 | 0.0 | 660.00 | 1590.00 | 667.43 | 0.0 | 667.66 | 24.47 | 4.48 | 763.95 | 321.42 |
| 16900.000 | 400.00 | 0.0 | 0.0 | 660.00 | 1860.00 | 667.83 | 0.0 | 668.08 | 24.20 | 4.68 | 892.66 | 378.12 |
| 17295.000 | 395.00 | 0.0 | 0.0 | 662.40 | 960.00 | 667.53 | 0.0 | 667.79 | 44.48 | 4.47 | 335.72 | 143.95 |
| 17295.000 | 395.00 | 0.0 | 0.0 | 662.40 | 1410.00 | 668.29 | 0.0 | 668.50 | 41.79 | 4.95 | 489.02 | 218.11 |
| 17295.000 | 395.00 | 0.0 | 0.0 | 662.40 | 1590.00 | 668.56 | 0.0 | 668.86 | 40.60 | 5.09 | 550.70 | 249.53 |
| 17295.000 | 395.00 | 0.0 | 0.0 | 662.40 | 1860.00 | 668.93 | 0.0 | 669.25 | 39.52 | 5.30 | 639.09 | 295.85 |
| 17690.000 | 395.00 | 0.0 | 0.0 | 664.70 | 960.00 | 669.38 | 0.0 | 669.67 | 49.98 | 4.58 | 298.09 | 135.77 |
| 17690.000 | 395.00 | 0.0 | 0.0 | 664.70 | 1410.00 | 670.04 | 0.0 | 670.40 | 51.91 | 5.28 | 420.46 | 195.70 |
| 17690.000 | 395.00 | 0.0 | 0.0 | 664.70 | 1590.00 | 670.27 | 0.0 | 670.65 | 52.40 | 5.51 | 466.54 | 219.66 |
| 17690.000 | 395.00 | 0.0 | 0.0 | 664.70 | 1860.00 | 670.59 | 0.0 | 671.00 | 52.80 | 5.81 | 539.82 | 255.98 |
| 18215.000 | 525.00 | 0.0 | 0.0 | 666.70 | 960.00 | 671.67 | 0.0 | 671.82 | 30.29 | 4.12 | 348.50 | 159.37 |
| 18215.000 | 525.00 | 0.0 | 0.0 | 666.70 | 1410.00 | 672.40 | 0.0 | 672.67 | 36.01 | 4.66 | 498.79 | 234.96 |
| 18215.000 | 525.00 | 0.0 | 0.0 | 666.70 | 1590.00 | 672.65 | 0.0 | 672.94 | 36.02 | 4.86 | 557.13 | 264.93 |
| 18215.000 | 525.00 | 0.0 | 0.0 | 666.70 | 1860.00 | 673.00 | 0.0 | 673.31 | 36.11 | 5.10 | 642.10 | 309.54 |
| 18739.000 | 524.00 | 0.0 | 0.0 | 668.60 | 960.00 | 673.60 | 0.0 | 674.19 | 50.19 | 9.04 | 198.53 | 135.50 |
| 18739.000 | 524.00 | 0.0 | 0.0 | 668.60 | 1410.00 | 674.58 | 0.0 | 675.13 | 55.80 | 6.02 | 268.89 | 188.76 |
| 18739.000 | 524.00 | 0.0 | 0.0 | 668.60 | 1590.00 | 674.85 | 0.0 | 675.46 | 57.62 | 6.36 | 298.14 | 209.47 |
| 18739.000 | 524.00 | 0.0 | 0.0 | 668.60 | 1860.00 | 675.22 | 0.0 | 675.91 | 60.03 | 6.82 | 342.47 | 240.06 |
| 19001.000 | 262.00 | 0.0 | 0.0 | 669.50 | 960.00 | 675.62 | 0.0 | 675.34 | 37.86 | 4.62 | 226.56 | 156.01 |
| 19001.000 | 262.00 | 0.0 | 0.0 | 669.50 | 1410.00 | 675.95 | 0.0 | 676.38 | 39.00 | 5.37 | 321.65 | 225.79 |
| 19001.000 | 262.00 | 0.0 | 0.0 | 669.50 | 1590.00 | 676.27 | 0.0 | 676.74 | 38.30 | 5.62 | 362.45 | 253.62 |
| 19001.000 | 262.00 | 0.0 | 0.0 | 669.50 | 1860.00 | 676.72 | 0.0 | 677.23 | 39.63 | 5.95 | 424.92 | 295.46 |
| 19263.000 | 262.00 | 0.0 | 0.0 | 670.50 | 960.00 | 675.95 | 0.0 | 676.41 | 38.38 | 5.48 | 195.82 | 154.96 |
| 19263.000 | 262.00 | 0.0 | 0.0 | 670.50 | 1410.00 | 676.93 | 0.0 | 677.60 | 45.07 | 6.67 | 248.03 | 210.03 |
| 19263.000 | 262.00 | 0.0 | 0.0 | 670.50 | 1590.00 | 677.27 | 0.0 | 676.02 | 47.61 | 7.10 | 266.23 | 230.44 |
| 19263.000 | 262.00 | 0.0 | 0.0 | 670.50 | 1860.00 | 677.72 | 0.0 | 678.59 | 51.37 | 7.71 | 290.90 | 259.51 |
| 19313.000 | 50.00 | 0.0 | 0.0 | 670.50 | 960.00 | 676.14 | 0.0 | 676.65 | 46.64 | 5.72 | 167.76 | 140.56 |
| 19313.000 | 50.00 | 0.0 | 0.0 | 670.50 | 1410.00 | 677.14 | 0.0 | 677.93 | 60.30 | 7.13 | 197.81 | 181.57 |
| 19313.000 | 50.00 | 0.0 | 0.0 | 670.50 | 1590.00 | 677.68 | 0.0 | 678.39 | 65.68 | 7.64 | 207.98 | 196.19 |
| 19313.000 | 50.00 | 0.0 | 0.0 | 670.50 | 1860.00 | 677.94 | 0.0 | 679.03 | 73.76 | 8.39 | 221.79 | 216.56 |
| 19387.000 | 74.00 | 681.10 | 677.50 | 670.50 | 960.00 | 676.54 | 0.0 | 676.99 | 37.52 | 5.34 | 179.90 | 156.72 |
| 19387.000 | 74.00 | 681.10 | 677.50 | 670.50 | 1410.00 | 677.66 | 0.0 | 678.34 | 47.53 | 6.60 | 213.67 | 204.62 |
| 19387.000 | 74.00 | 681.10 | 677.50 | 670.50 | 1590.00 | 678.27 | 0.0 | 679.00 | 47.00 | 6.66 | 231.98 | 231.92 |
| 19387.000 | 74.00 | 681.10 | 677.50 | 670.50 | 1860.00 | 679.23 | 0.0 | 680.02 | 45.10 | 7.14 | 260.59 | 276.96 |
| 19437.000 | 50.00 | 0.0 | 0.0 | 670.50 | 820.00 | 676.97 | 0.0 | 677.15 | 9.01 | 3.41 | 240.18 | 273.13 |
| 19437.000 | 50.00 | 0.0 | 0.0 | 670.50 | 1200.00 | 678.35 | 0.0 | 678.57 | 9.03 | 3.79 | 316.31 | 399.41 |
| 19437.000 | 50.00 | 0.0 | 0.0 | 670.50 | 1350.00 | 679.02 | 0.0 | 679.26 | 8.22 | 3.79 | 356.64 | 470.87 |
| 19437.000 | 50.00 | 0.0 | 0.0 | 670.50 | 1580.00 | 680.05 | 0.0 | 680.27 | 6.91 | 3.74 | 438.36 | 601.23 |
| 19517.000 | 80.00 | 0.0 | 0.0 | 671.60 | 820.00 | 677.07 | 0.0 | 677.32 | 47.09 | 4.00 | 205.33 | 119.50 |
| 19517.000 | 80.00 | 0.0 | 0.0 | 671.60 | 1200.00 | 678.53 | 0.0 | 678.69 | 19.66 | 3.38 | 478.48 | 270.62 |
| 19517.000 | 80.00 | 0.0 | 0.0 | 671.60 | 1350.00 | 679.23 | 0.0 | 679.35 | 12.54 | 3.01 | 640.45 | 381.15 |
| 19517.000 | 80.00 | 0.0 | 0.0 | 671.60 | 1580.00 | 680.28 | 0.0 | 680.36 | 7.55 | 2.66 | 880.10 | 575.05 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20117.000 | 600.00 | 0.0 | 0.0 | 674.40 | 820.00 | 679.41 | 0.0 | 679.66 | 33.10 | 4.13 | 238.42 | 142.52 |
| 20117.000 | 600.00 | 0.0 | 0.0 | 674.40 | 1200.00 | 680.03 | 0.0 | 680.38 | 39.77 | 4.91 | 326.04 | 190.29 |
| 20117.000 | 600.00 | 0.0 | 0.0 | 674.40 | 1350.00 | 680.30 | 0.0 | 680.64 | 37.50 | 4.98 | 401.77 | 220.22 |
| 20117.000 | 600.00 | 0.0 | 0.0 | 674.40 | 1580.00 | 680.93 | 0.0 | 681.19 | 26.66 | 4.59 | 591.09 | 305.80 |
| 20617.000 | 500.00 | 0.0 | 0.0 | 676.00 | 820.00 | 680.99 | 0.0 | 681.20 | 27.95 | 3.67 | 242.91 | 155.10 |
| 20617.000 | 500.00 | 0.0 | 0.0 | 676.00 | 1200.00 | 681.79 | 0.0 | 682.05 | 27.52 | 4.20 | 346.79 | 206.74 |
| 20617.000 | 500.00 | 0.0 | 0.0 | 676.00 | 1350.00 | 682.02 | 0.0 | 682.31 | 28.72 | 4.43 | 390.26 | 251.91 |
| 20617.000 | 500.00 | 0.0 | 0.0 | 676.00 | 1580.00 | 682.34 | 0.0 | 682.66 | 29.90 | 4.75 | 433.48 | 288.57 |
| 21117.000 | 500.00 | 0.0 | 0.0 | 677.50 | 820.00 | 682.49 | 0.0 | 682.68 | 30.99 | 3.48 | 256.69 | 147.30 |
| 21117.000 | 500.00 | 0.0 | 0.0 | 677.50 | 1200.00 | 683.20 | 0.0 | 683.45 | 27.52 | 3.61 | 435.07 | 228.77 |
| 21117.000 | 500.00 | 0.0 | 0.0 | 677.50 | 1350.00 | 683.50 | 0.0 | 683.71 | 26.49 | 3.91 | 470.56 | 262.31 |
| 21117.000 | 500.00 | 0.0 | 0.0 | 677.50 | 1580.00 | 683.64 | 0.0 | 684.05 | 24.36 | 3.96 | 656.34 | 320.25 |
| 21392.000 | 275.00 | 0.0 | 0.0 | 679.10 | 820.00 | 683.53 | 0.0 | 683.82 | 52.84 | 4.32 | 192.76 | 112.80 |
| 21392.000 | 275.00 | 0.0 | 0.0 | 679.10 | 1200.00 | 684.20 | 0.0 | 684.58 | 89.50 | 5.00 | 253.10 | 160.96 |
| 21392.000 | 275.00 | 0.0 | 0.0 | 679.10 | 1350.00 | 684.42 | 0.0 | 684.84 | 56.48 | 5.22 | 276.50 | 179.63 |
| 21392.000 | 275.00 | 0.0 | 0.0 | 679.10 | 1580.00 | 684.70 | 0.0 | 685.18 | 59.09 | 5.61 | 307.18 | 204.16 |
| 21667.000 | 275.00 | 0.0 | 0.0 | 680.60 | 820.00 | 685.03 | 0.0 | 685.35 | 56.99 | 4.54 | 109.84 | 100.62 |
| 21667.000 | 275.00 | 0.0 | 0.0 | 680.60 | 1200.00 | 685.75 | 0.0 | 686.15 | 57.47 | 5.16 | 262.42 | 156.29 |
| 21667.000 | 275.00 | 0.0 | 0.0 | 680.60 | 1350.00 | 686.00 | 0.0 | 686.42 | 57.49 | 5.28 | 291.20 | 178.05 |
| 21667.000 | 275.00 | 0.0 | 0.0 | 680.60 | 1580.00 | 686.36 | 0.0 | 686.81 | 56.71 | 5.69 | 337.11 | 206.80 |
| 22126.000 | 461.00 | 0.0 | 0.0 | 681.90 | 820.00 | 687.43 | 0.0 | 687.77 | 48.14 | 4.72 | 175.16 | 110.18 |
| 22126.000 | 461.00 | 0.0 | 0.0 | 681.90 | 1200.00 | 688.24 | 0.0 | 688.70 | 52.01 | 5.50 | 225.77 | 166.39 |
| 22126.000 | 461.00 | 0.0 | 0.0 | 681.90 | 1350.00 | 688.49 | 0.0 | 689.00 | 52.65 | 5.77 | 251.55 | 185.99 |
| 22126.000 | 461.00 | 0.0 | 0.0 | 681.90 | 1580.00 | 688.85 | 0.0 | 689.42 | 53.93 | 6.16 | 297.15 | 215.16 |
| 22589.000 | 461.00 | 0.0 | 0.0 | 683.20 | 820.00 | 689.60 | 0.0 | 689.85 | 41.21 | 4.52 | 311.57 | 127.74 |
| 22589.000 | 461.00 | 0.0 | 0.0 | 683.20 | 1200.00 | 690.40 | 0.0 | 690.82 | 31.82 | 4.53 | 503.41 | 213.42 |
| 22589.000 | 461.00 | 0.0 | 0.0 | 683.20 | 1350.00 | 690.66 | 0.0 | 690.88 | 29.65 | 4.57 | 574.79 | 247.92 |
| 22589.000 | 461.00 | 0.0 | 0.0 | 683.20 | 1580.00 | 691.04 | 0.0 | 691.25 | 27.20 | 4.61 | 683.65 | 302.95 |
| 23050.000 | 461.00 | 0.0 | 0.0 | 684.50 | 820.00 | 691.76 | 0.0 | 692.17 | 58.32 | 6.49 | 314.43 | 107.36 |
| 23050.000 | 461.00 | 0.0 | 0.0 | 684.50 | 1200.00 | 692.28 | 0.0 | 692.68 | 60.97 | 7.03 | 445.53 | 153.68 |
| 23050.000 | 461.00 | 0.0 | 0.0 | 684.50 | 1350.00 | 692.47 | 0.0 | 692.80 | 60.98 | 7.17 | 495.58 | 174.88 |
| 23050.000 | 461.00 | 0.0 | 0.0 | 684.50 | 1580.00 | 692.75 | 0.0 | 693.12 | 59.89 | 7.30 | 573.44 | 204.17 |
| 23550.000 | 500.00 | 0.0 | 0.0 | 687.50 | 820.00 | 693.13 | 0.0 | 693.22 | 9.42 | 2.62 | 429.60 | 267.12 |
| 23550.000 | 500.00 | 0.0 | 0.0 | 687.50 | 1200.00 | 693.77 | 0.0 | 693.91 | 12.07 | 3.23 | 538.10 | 345.37 |
| 23550.000 | 500.00 | 0.0 | 0.0 | 687.50 | 1350.00 | 693.99 | 0.0 | 694.15 | 12.96 | 3.44 | 578.45 | 374.96 |
| 23550.000 | 500.00 | 0.0 | 0.0 | 687.50 | 1580.00 | 694.29 | 0.0 | 694.47 | 14.33 | 3.75 | 635.61 | 417.41 |
| 24226.000 | 676.00 | 0.0 | 0.0 | 689.16 | 730.00 | 693.99 | 0.0 | 694.20 | 24.40 | 4.24 | 258.00 | 147.79 |
| 24226.000 | 676.00 | 0.0 | 0.0 | 689.16 | 1070.00 | 694.75 | 0.0 | 695.00 | 21.21 | 4.50 | 411.11 | 232.32 |
| 24226.000 | 676.00 | 0.0 | 0.0 | 689.16 | 1210.00 | 695.01 | 0.0 | 695.27 | 20.58 | 4.61 | 468.20 | 266.74 |
| 24226.000 | 676.00 | 0.0 | 0.0 | 689.16 | 1410.00 | 695.37 | 0.0 | 695.62 | 19.63 | 4.73 | 550.11 | 316.23 |
| * 24250.000 | 24.00 | 0.0 | 0.0 | 689.20 | 730.00 | 694.33 | 694.33 | 696.78 | 167.23 | 12.56 | 58.11 | 56.45 |
| 24250.000 | 24.00 | 0.0 | 0.0 | 689.20 | 1070.00 | 694.83 | 0.0 | 695.05 | 10.53 | 4.26 | 414.81 | 329.68 |
| 24250.000 | 24.00 | 0.0 | 0.0 | 689.20 | 1210.00 | 695.09 | 0.0 | 695.31 | 10.13 | 4.34 | 471.18 | 380.09 |
| 24250.000 | 24.00 | 0.0 | 0.0 | 689.20 | 1410.00 | 695.45 | 0.0 | 695.66 | 9.59 | 4.43 | 551.60 | 455.21 |

TARAEUST CREEK LIVONIA C

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKHS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 120.000 | 1070.00 | 620.00 | 0.0 | 0.0 | 0.0 | 220.00 | 0.0 |
| 120.000 | 1560.00 | 620.00 | 0.0 | 0.0 | 0.0 | 220.00 | 0.0 |
| 120.000 | 1770.00 | 620.00 | 0.0 | 0.0 | 0.0 | 220.00 | 0.0 |
| 120.000 | 2060.00 | 620.00 | 0.0 | 0.0 | 0.0 | 220.00 | 0.0 |
| 370.000 | 1070.00 | 620.78 | 0.0 | 0.78 | 0.0 | 145.95 | 250.00 |
| 370.000 | 1560.00 | 621.40 | 0.61 | 1.40 | 0.0 | 154.40 | 250.00 |
| 370.000 | 1770.00 | 621.72 | 0.33 | 1.72 | 0.0 | 159.10 | 250.00 |
| 370.000 | 2060.00 | 622.21 | 0.49 | 2.21 | 0.0 | 165.89 | 250.00 |
| 745.000 | 1070.00 | 622.10 | 0.0 | 1.40 | 0.0 | 124.07 | 375.00 |
| 745.000 | 1560.00 | 623.01 | 0.83 | 1.61 | 0.0 | 138.04 | 375.00 |
| 745.000 | 1770.00 | 623.30 | 0.29 | 1.58 | 0.0 | 142.72 | 375.00 |
| 745.000 | 2060.00 | 623.69 | 0.39 | 1.48 | 0.0 | 148.87 | 375.00 |
| 1120.000 | 1070.00 | 622.93 | 0.0 | 0.75 | 0.0 | 97.72 | 375.00 |
| 1120.000 | 1560.00 | 623.87 | 0.96 | 0.86 | 0.0 | 114.59 | 375.00 |
| 1120.000 | 1770.00 | 624.21 | 0.34 | 0.91 | 0.0 | 120.72 | 375.00 |
| 1120.000 | 2060.00 | 624.64 | 0.44 | 0.98 | 0.0 | 128.57 | 375.00 |
| 1770.000 | 1070.00 | 624.25 | 0.0 | 1.32 | 0.0 | 88.00 | 650.00 |
| 1770.000 | 1560.00 | 625.42 | 1.17 | 1.55 | 0.0 | 107.90 | 650.00 |
| 1770.000 | 1770.00 | 625.84 | 0.43 | 1.64 | 0.0 | 121.13 | 650.00 |
| 1770.000 | 2060.00 | 626.38 | 0.54 | 1.74 | 0.0 | 137.90 | 650.00 |
| 2416.000 | 1070.00 | 624.95 | 0.0 | 0.71 | 0.0 | 61.59 | 606.00 |
| 2416.000 | 1560.00 | 626.22 | 1.26 | 0.80 | 0.0 | 67.51 | 606.00 |
| 2416.000 | 1770.00 | 626.67 | 0.46 | 0.83 | 0.0 | 69.65 | 606.00 |
| 2416.000 | 2060.00 | 627.25 | 0.57 | 0.86 | 0.0 | 72.33 | 606.00 |
| 2466.000 | 1070.00 | 625.17 | 0.0 | 0.21 | 0.0 | 60.61 | 50.00 |
| 2466.000 | 1560.00 | 626.57 | 1.40 | 0.35 | 0.0 | 73.20 | 50.00 |
| 2466.000 | 1770.00 | 627.09 | 0.51 | 0.41 | 0.0 | 73.60 | 50.00 |
| 2466.000 | 2060.00 | 627.74 | 0.65 | 0.49 | 0.0 | 73.90 | 50.00 |
| 2554.000 | 1070.00 | 625.18 | 0.0 | 0.01 | 0.0 | 60.67 | 88.00 |
| 2554.000 | 1560.00 | 626.59 | 1.41 | 0.01 | 0.0 | 73.80 | 88.00 |
| 2554.000 | 1770.00 | 627.10 | 0.51 | 0.02 | 0.0 | 73.80 | 88.00 |
| 2554.000 | 2060.00 | 627.75 | 0.65 | 0.02 | 0.0 | 73.80 | 88.00 |
| 2604.000 | 1070.00 | 625.28 | 0.0 | 0.10 | 0.0 | 139.25 | 50.00 |
| 2604.000 | 1560.00 | 626.70 | 1.42 | 0.12 | 0.0 | 144.11 | 50.00 |
| 2604.000 | 1770.00 | 627.22 | 0.52 | 0.12 | 0.0 | 145.67 | 50.00 |
| 2604.000 | 2060.00 | 627.89 | 0.66 | 0.13 | 0.0 | 147.66 | 50.00 |
| 3360.000 | 1070.00 | 626.59 | 0.0 | 1.30 | 0.0 | 187.72 | 756.00 |
| 3360.000 | 1560.00 | 627.84 | 1.25 | 1.13 | 0.0 | 230.17 | 756.00 |
| 3360.000 | 1770.00 | 628.31 | 0.48 | 1.09 | 0.0 | 237.46 | 756.00 |
| 3360.000 | 2060.00 | 628.93 | 0.62 | 1.05 | 0.0 | 246.97 | 756.00 |
| 4116.000 | 1070.00 | 628.76 | 0.0 | 2.17 | 0.0 | 115.00 | 756.00 |
| 4116.000 | 1560.00 | 629.70 | 0.94 | 1.86 | 0.94 | 150.00 | 756.00 |
| 4116.000 | 1770.00 | 630.07 | 0.37 | 1.75 | 1.31 | 150.00 | 756.00 |
| 4116.000 | 2060.00 | 630.56 | 0.49 | 1.63 | 1.80 | 150.00 | 756.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 4316.000 | 1070.00 | 629.30 | 0.0 | 0.53 | 0.0 | 15.50 | 200.00 |
| 4316.000 | 1560.00 | 630.00 | 0.71 | 0.30 | 0.71 | 30.62 | 200.00 |
| 4316.000 | 1770.00 | 630.27 | 0.27 | 0.20 | 0.97 | 31.18 | 200.00 |
| 4316.000 | 2060.00 | 630.59 | 0.32 | 0.03 | 1.29 | 31.85 | 200.00 |
| 4403.000 | 1070.00 | 631.91 | 0.0 | 2.61 | 0.0 | 15.50 | 87.00 |
| 4403.000 | 1560.00 | 633.99 | 2.08 | 3.99 | 2.08 | 98.00 | 87.00 |
| 4403.000 | 1770.00 | 634.30 | 0.31 | 4.03 | 2.39 | 98.06 | 87.00 |
| 4403.000 | 2060.00 | 634.67 | 0.37 | 4.08 | 2.76 | 98.08 | 87.00 |
| 4453.000 | 1070.00 | 633.12 | 0.0 | 1.21 | 0.0 | 115.20 | 50.00 |
| 4453.000 | 1560.00 | 634.92 | 1.80 | 0.93 | 1.80 | 192.31 | 50.00 |
| 4453.000 | 1770.00 | 635.37 | 0.45 | 1.07 | 2.26 | 192.60 | 50.00 |
| 4453.000 | 2060.00 | 635.95 | 0.57 | 1.27 | 2.83 | 192.69 | 50.00 |
| 5950.000 | 1070.00 | 633.91 | 0.0 | 0.79 | 0.0 | 326.24 | 1497.00 |
| 5950.000 | 1560.00 | 635.43 | 1.52 | 0.51 | 1.52 | 347.11 | 1497.00 |
| 5950.000 | 1770.00 | 635.89 | 0.46 | 0.52 | 1.98 | 353.51 | 1497.00 |
| 5950.000 | 2060.00 | 636.48 | 0.59 | 0.63 | 2.57 | 361.59 | 1497.00 |
| 6600.000 | 1070.00 | 634.38 | 0.0 | 0.47 | 0.0 | 253.40 | 650.00 |
| 6600.000 | 1560.00 | 635.73 | 1.35 | 0.30 | 1.35 | 318.86 | 650.00 |
| 6600.000 | 1770.00 | 636.18 | 0.45 | 0.28 | 1.79 | 327.33 | 650.00 |
| 6600.000 | 2060.00 | 636.75 | 0.57 | 0.27 | 2.36 | 338.16 | 650.00 |
| 7340.000 | 1070.00 | 638.22 | 0.0 | 1.84 | 0.0 | 259.55 | 740.00 |
| 7340.000 | 1560.00 | 636.94 | 0.72 | 1.21 | 0.72 | 265.76 | 740.00 |
| 7340.000 | 1770.00 | 637.26 | 0.32 | 1.08 | 1.04 | 268.62 | 740.00 |
| 7340.000 | 2060.00 | 637.71 | 0.45 | 0.96 | 1.49 | 272.54 | 740.00 |
| 8078.000 | 1070.00 | 638.29 | 0.0 | 2.08 | 0.0 | 279.97 | 738.00 |
| 8078.000 | 1560.00 | 638.98 | 0.69 | 2.04 | 0.69 | 313.58 | 738.00 |
| 8078.000 | 1770.00 | 639.24 | 0.26 | 1.98 | 0.94 | 321.62 | 738.00 |
| 8078.000 | 2060.00 | 639.58 | 0.34 | 1.87 | 1.29 | 332.36 | 738.00 |
| 8815.000 | 1070.00 | 640.05 | 0.0 | 1.75 | 0.0 | 310.97 | 737.00 |
| 8815.000 | 1560.00 | 640.76 | 0.71 | 1.78 | 0.71 | 327.06 | 737.00 |
| 8815.000 | 1770.00 | 641.02 | 0.26 | 1.78 | 0.97 | 332.93 | 737.00 |
| 8815.000 | 2060.00 | 641.35 | 0.33 | 1.77 | 1.31 | 340.40 | 737.00 |
| 9276.000 | 1070.00 | 640.98 | 0.0 | 0.94 | 0.0 | 137.50 | 461.00 |
| 9276.000 | 1560.00 | 641.72 | 0.74 | 0.96 | 0.74 | 171.82 | 461.00 |
| 9276.000 | 1770.00 | 641.99 | 0.27 | 0.97 | 1.00 | 184.31 | 461.00 |
| 9276.000 | 2060.00 | 642.32 | 0.34 | 0.97 | 1.34 | 190.76 | 461.00 |
| 9737.000 | 1070.00 | 642.05 | 0.0 | 1.07 | 0.0 | 140.69 | 461.00 |
| 9737.000 | 1560.00 | 642.96 | 0.91 | 1.24 | 0.91 | 183.16 | 461.00 |
| 9737.000 | 1770.00 | 643.29 | 0.33 | 1.31 | 1.24 | 190.30 | 461.00 |
| 9737.000 | 2060.00 | 643.70 | 0.40 | 1.37 | 1.64 | 197.50 | 461.00 |
| 10198.000 | 1070.00 | 643.07 | 0.0 | 1.01 | 0.0 | 141.29 | 461.00 |
| 10198.000 | 1560.00 | 644.00 | 0.94 | 1.04 | 0.94 | 185.03 | 461.00 |
| 10198.000 | 1770.00 | 644.33 | 0.33 | 1.04 | 1.27 | 191.07 | 461.00 |
| 10198.000 | 2060.00 | 644.74 | 0.41 | 1.05 | 1.68 | 198.31 | 461.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSA | DIFXAS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 10658.000 | 1070.00 | 644.24 | 0.0 | 1.17 | 0.0 | 00.00 | 660.00 |
| 10658.000 | 1560.00 | 645.18 | 0.94 | 1.18 | 0.94 | 80.00 | 860.00 |
| 10658.000 | 1770.00 | 645.51 | 0.33 | 1.18 | 1.27 | 80.00 | 460.00 |
| 10658.000 | 2060.00 | 645.93 | 0.42 | 1.18 | 1.69 | 80.00 | 660.00 |
| 10708.000 | 1070.00 | 644.69 | 0.0 | 0.45 | 0.0 | 52.77 | 50.00 |
| 10708.000 | 1560.00 | 645.73 | 1.04 | 0.55 | 1.04 | 64.00 | 50.00 |
| 10708.000 | 1770.00 | 646.10 | 0.38 | 0.60 | 1.42 | 64.00 | 50.00 |
| 10708.000 | 2060.00 | 646.59 | 0.49 | 0.66 | 1.90 | 64.00 | 50.00 |
| 10782.000 | 1070.00 | 644.72 | 0.0 | 0.03 | 0.0 | 52.09 | 74.00 |
| 10782.000 | 1560.00 | 645.77 | 1.05 | 0.05 | 1.05 | 64.00 | 74.00 |
| 10782.000 | 1770.00 | 646.16 | 0.38 | 0.05 | 1.44 | 64.00 | 74.00 |
| 10782.000 | 2060.00 | 646.65 | 0.49 | 0.06 | 1.93 | 64.00 | 74.00 |
| 10832.000 | 960.00 | 644.92 | 0.0 | 0.20 | 0.0 | 155.00 | 50.00 |
| 10832.000 | 1410.00 | 646.09 | 1.17 | 0.32 | 1.17 | 155.00 | 50.00 |
| 10832.000 | 1590.00 | 646.51 | 0.42 | 0.36 | 1.59 | 155.00 | 50.00 |
| 10832.000 | 1860.00 | 647.06 | 0.55 | 0.41 | 2.14 | 155.00 | 50.00 |
| 11720.000 | 960.00 | 646.57 | 0.0 | 1.65 | 0.0 | 268.81 | 880.00 |
| 11720.000 | 1410.00 | 647.57 | 0.99 | 1.40 | 0.99 | 330.68 | 880.00 |
| 11720.000 | 1590.00 | 647.92 | 0.36 | 1.41 | 1.35 | 339.81 | 880.00 |
| 11720.000 | 1860.00 | 648.42 | 0.49 | 1.36 | 1.85 | 352.51 | 880.00 |
| 12145.000 | 960.00 | 649.08 | 0.0 | 2.51 | 0.0 | 346.56 | 425.00 |
| 12145.000 | 1410.00 | 649.56 | 0.48 | 1.99 | 0.48 | 350.66 | 425.00 |
| 12145.000 | 1590.00 | 649.75 | 0.19 | 1.83 | 0.67 | 363.51 | 425.00 |
| 12145.000 | 1860.00 | 650.04 | 0.29 | 1.62 | 0.96 | 371.00 | 425.00 |
| 12570.000 | 960.00 | 650.02 | 0.0 | 0.93 | 0.0 | 357.18 | 425.00 |
| 12570.000 | 1410.00 | 650.67 | 0.66 | 1.11 | 0.66 | 385.86 | 425.00 |
| 12570.000 | 1590.00 | 650.90 | 0.23 | 1.15 | 0.88 | 395.50 | 425.00 |
| 12570.000 | 1860.00 | 651.22 | 0.32 | 1.18 | 1.20 | 410.13 | 425.00 |
| 12965.000 | 960.00 | 651.46 | 0.0 | 1.46 | 0.0 | 315.82 | 395.00 |
| 12965.000 | 1410.00 | 652.14 | 0.66 | 1.46 | 0.66 | 379.72 | 395.00 |
| 12965.000 | 1590.00 | 652.36 | 0.22 | 1.46 | 0.88 | 389.52 | 395.00 |
| 12965.000 | 1860.00 | 652.66 | 0.31 | 1.44 | 1.19 | 403.15 | 395.00 |
| 13360.000 | 960.00 | 653.10 | 0.0 | 1.62 | 0.0 | 160.71 | 345.00 |
| 13360.000 | 1410.00 | 653.81 | 0.71 | 1.67 | 0.71 | 188.39 | 395.00 |
| 13360.000 | 1590.00 | 654.04 | 0.23 | 1.69 | 0.95 | 197.56 | 395.00 |
| 13360.000 | 1860.00 | 654.36 | 0.32 | 1.70 | 1.27 | 210.06 | 395.00 |
| 13704.000 | 960.00 | 654.65 | 0.0 | 1.56 | 0.0 | 151.24 | 344.00 |
| 13704.000 | 1410.00 | 655.47 | 0.82 | 1.66 | 0.82 | 183.06 | 344.00 |
| 13704.000 | 1590.00 | 655.75 | 0.28 | 1.71 | 1.09 | 193.63 | 344.00 |
| 13704.000 | 1860.00 | 656.13 | 0.38 | 1.77 | 1.48 | 208.84 | 344.00 |
| 14047.000 | 960.00 | 656.45 | 0.0 | 1.80 | 0.0 | 151.15 | 343.00 |
| 14047.000 | 1410.00 | 657.26 | 0.81 | 1.79 | 0.81 | 182.62 | 343.00 |
| 14047.000 | 1590.00 | 657.54 | 0.28 | 1.79 | 1.09 | 193.54 | 343.00 |
| 14047.000 | 1860.00 | 657.92 | 0.39 | 1.79 | 1.47 | 208.63 | 343.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 14219.000 | 960.00 | 657.30 | 0.0 | 0.85 | 0.0 | 124.00 | 172.00 |
| 14219.000 | 1410.00 | 658.14 | 0.85 | 0.88 | 0.85 | 124.00 | 172.00 |
| 14219.000 | 1590.00 | 658.43 | 0.29 | 0.89 | 1.13 | 124.00 | 172.00 |
| 14219.000 | 1860.00 | 658.82 | 0.39 | 0.90 | 1.52 | 124.00 | 172.00 |
| 14390.000 | 960.00 | 657.88 | 0.0 | 0.59 | 0.0 | 38.22 | 171.00 |
| 14390.000 | 1410.00 | 658.66 | 0.78 | 0.52 | 0.78 | 38.22 | 171.00 |
| 14390.000 | 1590.00 | 658.91 | 0.25 | 0.46 | 1.03 | 38.22 | 171.00 |
| 14390.000 | 1860.00 | 659.24 | 0.33 | 0.42 | 1.36 | 38.22 | 171.00 |
| 14440.000 | 960.00 | 658.43 | 0.0 | 0.55 | 0.0 | 18.20 | 50.00 |
| 14440.000 | 1410.00 | 659.33 | 0.90 | 0.67 | 0.90 | 18.20 | 50.00 |
| 14440.000 | 1590.00 | 659.64 | 0.31 | 0.72 | 1.21 | 18.20 | 50.00 |
| * 14440.000 | 1860.00 | 660.14 | 0.50 | 0.90 | 1.71 | 62.97 | 50.00 |
| 14501.000 | 960.00 | 660.60 | 0.0 | 2.17 | 0.0 | 18.20 | 61.00 |
| 14501.000 | 1410.00 | 661.38 | 0.78 | 2.05 | 0.78 | 18.20 | 61.00 |
| 14501.000 | 1590.00 | 662.38 | 1.00 | 2.75 | 1.78 | 18.20 | 61.00 |
| 14501.000 | 1860.00 | 664.01 | 1.63 | 3.87 | 3.41 | 122.82 | 61.00 |
| 14570.000 | 960.00 | 662.32 | 0.0 | 1.72 | 0.0 | 171.08 | 69.00 |
| 14570.000 | 1410.00 | 663.50 | 1.18 | 2.11 | 1.18 | 171.08 | 69.00 |
| 14570.000 | 1590.00 | 664.49 | 0.99 | 2.10 | 2.17 | 171.08 | 69.00 |
| 14570.000 | 1860.00 | 665.76 | 0.27 | 0.75 | 2.44 | 171.08 | 69.00 |
| 15360.000 | 960.00 | 662.75 | 0.0 | 0.93 | 0.0 | 160.13 | 790.00 |
| 15360.000 | 1410.00 | 664.00 | 1.25 | 0.50 | 1.25 | 167.01 | 790.00 |
| 15360.000 | 1590.00 | 664.91 | 0.91 | 0.42 | 2.16 | 172.01 | 790.00 |
| 15360.000 | 1860.00 | 665.27 | 0.36 | 0.51 | 2.52 | 173.96 | 790.00 |
| 16100.000 | 960.00 | 663.76 | 0.0 | 1.01 | 0.0 | 175.35 | 740.00 |
| 16100.000 | 1410.00 | 664.98 | 1.23 | 0.98 | 1.23 | 295.43 | 740.00 |
| 16100.000 | 1590.00 | 665.69 | 0.71 | 0.78 | 1.93 | 375.02 | 740.00 |
| 16100.000 | 1860.00 | 666.14 | 0.45 | 0.87 | 2.38 | 411.48 | 740.00 |
| 16500.000 | 960.00 | 665.42 | 0.0 | 1.66 | 0.0 | 259.49 | 400.00 |
| 16500.000 | 1410.00 | 666.26 | 0.85 | 1.28 | 0.85 | 301.34 | 400.00 |
| 16500.000 | 1590.00 | 666.66 | 0.39 | 0.97 | 1.24 | 320.77 | 400.00 |
| 16500.000 | 1860.00 | 667.06 | 0.40 | 0.92 | 1.64 | 340.16 | 400.00 |
| 16900.000 | 960.00 | 666.24 | 0.0 | 0.82 | 0.0 | 239.30 | 400.00 |
| 16900.000 | 1410.00 | 667.09 | 0.85 | 0.82 | 0.85 | 286.56 | 400.00 |
| 16900.000 | 1590.00 | 667.43 | 0.34 | 0.77 | 1.19 | 305.99 | 400.00 |
| 16900.000 | 1860.00 | 667.83 | 0.41 | 0.76 | 1.60 | 325.70 | 400.00 |
| 17295.000 | 960.00 | 667.53 | 0.0 | 1.30 | 0.0 | 187.38 | 395.00 |
| 17295.000 | 1410.00 | 668.29 | 0.75 | 1.20 | 0.75 | 218.95 | 395.00 |
| 17295.000 | 1590.00 | 668.56 | 0.27 | 1.13 | 1.03 | 230.43 | 395.00 |
| 17295.000 | 1860.00 | 668.93 | 0.37 | 1.10 | 1.40 | 245.95 | 395.00 |
| 17690.000 | 960.00 | 669.38 | 0.0 | 1.85 | 0.0 | 176.68 | 395.00 |
| 17690.000 | 1410.00 | 670.04 | 0.66 | 1.75 | 0.66 | 207.11 | 395.00 |
| 17690.000 | 1590.00 | 670.27 | 0.23 | 1.71 | 0.89 | 217.69 | 395.00 |
| 17690.000 | 1860.00 | 670.59 | 0.32 | 1.65 | 1.20 | 232.49 | 395.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 18215.000 | 960.00 | 671.67 | 0.0 | 2.28 | 0.0 | 189.45 | 525.00 |
| 18215.000 | 1410.00 | 672.40 | 0.74 | 2.36 | 0.74 | 224.09 | 525.00 |
| 18215.000 | 1590.00 | 672.65 | 0.25 | 2.39 | 0.99 | 235.94 | 525.00 |
| 18215.000 | 1860.00 | 673.00 | 0.35 | 2.42 | 1.34 | 252.21 | 525.00 |
| 18739.000 | 960.00 | 673.80 | 0.0 | 2.13 | 0.0 | 75.21 | 524.00 |
| 18739.000 | 1410.00 | 674.58 | 0.79 | 2.18 | 0.79 | 103.72 | 524.00 |
| 18739.000 | 1590.00 | 674.85 | 0.27 | 2.20 | 1.06 | 113.45 | 524.00 |
| 18739.000 | 1860.00 | 675.22 | 0.37 | 2.22 | 1.42 | 126.85 | 524.00 |
| 19001.000 | 960.00 | 675.02 | 0.0 | 1.22 | 0.0 | 86.05 | 262.00 |
| 19001.000 | 1410.00 | 675.95 | 0.94 | 1.37 | 0.94 | 120.76 | 262.00 |
| 19001.000 | 1590.00 | 676.27 | 0.32 | 1.42 | 1.26 | 132.44 | 262.00 |
| 19001.000 | 1860.00 | 676.72 | 0.46 | 1.50 | 1.70 | 148.56 | 262.00 |
| 19263.000 | 960.00 | 675.85 | 0.0 | 0.96 | 0.0 | 52.01 | 262.00 |
| 19263.000 | 1410.00 | 676.93 | 0.98 | 0.98 | 0.98 | 54.36 | 262.00 |
| 19263.000 | 1590.00 | 677.27 | 0.33 | 0.99 | 1.31 | 55.00 | 262.00 |
| 19263.000 | 1860.00 | 677.72 | 0.45 | 1.00 | 1.76 | 55.00 | 262.00 |
| 19313.000 | 960.00 | 676.14 | 0.0 | 0.19 | 0.0 | 30.00 | 50.00 |
| 19313.000 | 1410.00 | 677.14 | 1.00 | 0.21 | 1.00 | 30.00 | 50.00 |
| 19313.000 | 1590.00 | 677.48 | 0.34 | 0.21 | 1.34 | 30.00 | 50.00 |
| 19313.000 | 1860.00 | 677.94 | 0.46 | 0.22 | 1.79 | 30.00 | 50.00 |
| 19387.000 | 960.00 | 676.54 | 0.0 | 0.40 | 0.0 | 30.00 | 74.00 |
| 19387.000 | 1410.00 | 677.66 | 1.12 | 0.62 | 1.12 | 30.00 | 74.00 |
| 19387.000 | 1590.00 | 678.27 | 0.61 | 0.79 | 1.73 | 30.00 | 74.00 |
| 19387.000 | 1860.00 | 679.23 | 0.96 | 1.29 | 2.68 | 30.00 | 74.00 |
| 19437.000 | 820.00 | 676.97 | 0.0 | 0.43 | 0.0 | 52.06 | 50.00 |
| 19437.000 | 1200.00 | 678.35 | 1.38 | 0.68 | 1.38 | 56.35 | 50.00 |
| 19437.000 | 1350.00 | 679.02 | 0.67 | 0.75 | 2.05 | 61.43 | 50.00 |
| 19437.000 | 1580.00 | 680.05 | 1.03 | 0.82 | 3.08 | 108.93 | 50.00 |
| 19517.000 | 820.00 | 677.07 | 0.0 | 0.11 | 0.0 | 91.00 | 80.00 |
| 19517.000 | 1200.00 | 678.53 | 1.46 | 0.19 | 1.46 | 226.33 | 80.00 |
| 19517.000 | 1350.00 | 679.23 | 0.70 | 0.21 | 2.16 | 230.24 | 80.00 |
| 19517.000 | 1580.00 | 680.28 | 1.04 | 0.23 | 3.20 | 235.90 | 80.00 |
| 20117.000 | 820.00 | 679.41 | 0.0 | 2.34 | 0.0 | 117.26 | 600.00 |
| 20117.000 | 1200.00 | 680.03 | 0.62 | 1.50 | 0.62 | 270.15 | 600.00 |
| 20117.000 | 1350.00 | 680.30 | 0.27 | 1.07 | 0.89 | 286.06 | 600.00 |
| 20117.000 | 1580.00 | 680.93 | 0.63 | 0.65 | 1.52 | 322.42 | 600.00 |
| 20617.000 | 820.00 | 680.99 | 0.0 | 1.59 | 0.0 | 110.74 | 500.00 |
| 20617.000 | 1200.00 | 681.79 | 0.80 | 1.76 | 0.80 | 147.69 | 500.00 |
| 20617.000 | 1350.00 | 682.02 | 0.23 | 1.72 | 1.03 | 158.01 | 500.00 |
| 20617.000 | 1580.00 | 682.34 | 0.32 | 1.41 | 1.34 | 172.69 | 500.00 |
| 21117.000 | 820.00 | 682.49 | 0.0 | 1.50 | 0.0 | 172.30 | 500.00 |
| 21117.000 | 1200.00 | 683.24 | 0.75 | 1.45 | 0.75 | 309.33 | 500.00 |
| 21117.000 | 1350.00 | 683.50 | 0.26 | 1.48 | 1.00 | 245.00 | 500.00 |
| 21117.000 | 1580.00 | 683.84 | 0.34 | 1.50 | 1.35 | 420.40 | 500.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 21392.000 | 820.00 | 683.53 | 0.0 | 1.04 | 0.0 | 82.32 | 275.00 |
| 21392.000 | 1200.00 | 684.20 | 0.66 | 0.95 | 0.66 | 99.79 | 275.00 |
| 21392.000 | 1350.00 | 684.42 | 0.23 | 0.93 | 0.89 | 105.79 | 275.00 |
| 21392.000 | 1580.00 | 684.70 | 0.28 | 0.86 | 1.17 | 113.17 | 275.00 |
| 21667.000 | 820.00 | 685.03 | 0.0 | 1.50 | 0.0 | 88.90 | 275.00 |
| 21667.000 | 1200.00 | 685.75 | 0.72 | 1.56 | 0.72 | 112.02 | 275.00 |
| 21667.000 | 1350.00 | 686.00 | 0.25 | 1.58 | 0.97 | 119.96 | 275.00 |
| 21667.000 | 1580.00 | 686.36 | 0.36 | 1.66 | 1.33 | 131.64 | 275.00 |
| 22128.000 | 820.00 | 687.43 | 0.0 | 2.40 | 0.0 | 55.68 | 461.00 |
| 22128.000 | 1200.00 | 688.24 | 0.81 | 2.48 | 0.81 | 85.56 | 461.00 |
| 22128.000 | 1350.00 | 688.49 | 0.25 | 2.49 | 1.06 | 112.57 | 461.00 |
| 22128.000 | 1580.00 | 688.85 | 0.36 | 2.48 | 1.42 | 148.80 | 461.00 |
| 22589.000 | 820.00 | 689.60 | 0.0 | 2.17 | 0.0 | 217.79 | 461.00 |
| 22589.000 | 1200.00 | 690.40 | 0.80 | 2.16 | 0.80 | 261.79 | 461.00 |
| 22589.000 | 1350.00 | 690.66 | 0.27 | 2.17 | 1.07 | 276.38 | 461.00 |
| 22589.000 | 1580.00 | 691.04 | 0.38 | 2.20 | 1.45 | 295.89 | 461.00 |
| 23050.000 | 820.00 | 691.76 | 0.0 | 2.17 | 0.0 | 234.88 | 461.00 |
| 23050.000 | 1200.00 | 692.28 | 0.52 | 1.88 | 0.52 | 264.02 | 461.00 |
| 23050.000 | 1350.00 | 692.47 | 0.19 | 1.81 | 0.71 | 274.33 | 461.00 |
| 23050.000 | 1580.00 | 692.75 | 0.28 | 1.71 | 0.99 | 289.64 | 461.00 |
| 23550.000 | 820.00 | 693.13 | 0.0 | 1.36 | 0.0 | 158.71 | 500.00 |
| 23550.000 | 1200.00 | 693.77 | 0.64 | 1.49 | 0.64 | 178.98 | 500.00 |
| 23550.000 | 1350.00 | 693.99 | 0.22 | 1.52 | 0.86 | 185.96 | 500.00 |
| 23550.000 | 1580.00 | 694.29 | 0.30 | 1.54 | 1.17 | 195.40 | 500.00 |
| 24226.000 | 730.00 | 693.99 | 0.0 | 0.86 | 0.0 | 180.20 | 676.00 |
| 24226.000 | 1070.00 | 694.75 | 0.77 | 0.98 | 0.77 | 214.87 | 676.00 |
| 24226.000 | 1210.00 | 695.01 | 0.26 | 1.02 | 1.03 | 225.04 | 676.00 |
| 24226.000 | 1410.00 | 695.37 | 0.35 | 1.07 | 1.38 | 238.87 | 676.00 |
| * 24250.000 | 730.00 | 694.33 | 0.0 | 0.34 | 0.0 | 12.00 | 24.00 |
| 24250.000 | 1070.00 | 694.83 | 0.50 | 0.08 | 0.50 | 210.39 | 24.00 |
| 24250.000 | 1210.00 | 695.09 | 0.26 | 0.08 | 0.76 | 220.63 | 24.00 |
| 24250.000 | 1410.00 | 695.45 | 0.35 | 0.00 | 1.12 | 234.47 | 24.00 |

SUMMARY OF ERRORS

CAUTION SECNO=14440.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO=14440.000 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=24250.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO=24250.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=24250.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOOD INSURANCE ZONE DATA FOR TARABUSI CREEK LIVONIA C

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

| SECTION NUMBER | CUMULATIVE DISTANCE | ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10 | 2 | 0.2 |
|---|---|---|---|---|
| 120.000 | 0. | 0.0 | 0.0 | 0.0 |
| 370.000 | 250. | -0.94 | -0.33 | 0.49 |
| 745.000 | 625. | -1.12 | -0.29 | 0.39 |
| 1120.000 | 1000. | -1.28 | -0.34 | 0.46 |
| 1770.000 | 1650. | -1.60 | -0.43 | 0.54 |
| 2416.000 | 2296. | -1.72 | -0.46 | 0.57 |
| 2466.000 | 2346. | -1.92 | -0.51 | 0.65 |
| 2554.000 | 2434. | -1.92 | -0.51 | 0.65 |
| 2604.000 | 2484. | -1.94 | -0.52 | 0.66 |
| 3360.000 | 3240. | -1.73 | -0.48 | 0.62 |
| 4116.000 | 3996. | -1.31 | -0.37 | 0.49 |
| 4316.000 | 4196. | -0.97 | -0.27 | 0.32 |
| 4403.000 | 4283. | -2.39 | -0.31 | 0.37 |
| 4453.000 | 4333. | -2.26 | -0.48 | 0.57 |
| 5950.000 | 5830. | -1.98 | -0.46 | 0.59 |
| 6600.000 | 6480. | -1.79 | -0.45 | 0.57 |
| 7340.000 | 7220. | -1.04 | -0.32 | 0.45 |
| 8078.000 | 7958. | -0.94 | -0.28 | 0.39 |
| 8815.000 | 8695. | -0.97 | -0.28 | 0.33 |
| 9276.000 | 9156. | -1.00 | -0.27 | 0.36 |
| 9737.000 | 9617. | -1.24 | -0.33 | 0.40 |
| 10196.000 | 10078. | -1.27 | -0.33 | 0.41 |
| 10658.000 | 10538. | -1.27 | -0.33 | 0.42 |
| 10708.000 | 10588. | -1.42 | -0.38 | 0.49 |
| 10782.000 | 10662. | -1.44 | -0.38 | 0.49 |
| 10832.000 | 10712. | -1.59 | -0.42 | 0.55 |
| 11720.000 | 11600. | -1.35 | -0.36 | 0.44 |
| 12145.000 | 12025. | -0.67 | -0.19 | 0.29 |
| 12570.000 | 12450. | -0.88 | -0.23 | 0.32 |
| 12965.000 | 12845. | -0.88 | -0.22 | 0.31 |
| 13360.000 | 13240. | -0.95 | -0.23 | 0.32 |
| 13704.000 | 13584. | -1.09 | -0.28 | 0.38 |
| 14047.000 | 13927. | -1.09 | -0.28 | 0.39 |
| 14219.000 | 14099. | -1.13 | -0.29 | 0.39 |
| 14390.000 | 14270. | -1.03 | -0.29 | 0.33 |
| 14440.000 | 14320. | -1.21 | -0.31 | 0.50 |
| 14501.000 | 14381. | -1.78 | -1.00 | 1.63 |
| 14570.000 | 14450. | -2.17 | -0.99 | 0.27 |
| 15360.000 | 15240. | -2.16 | -0.91 | 0.36 |
| 16100.000 | 15980. | -1.93 | -0.71 | 0.45 |
| 16500.000 | 16380. | -1.24 | -0.39 | 0.40 |
| 16900.000 | 16780. | -1.19 | -0.34 | 0.41 |
| 17295.000 | 17175. | -1.03 | -0.27 | 0.37 |
| 17690.000 | 17570. | -0.89 | -0.23 | 0.32 |
| 18215.000 | 18095. | -0.99 | -0.25 | 0.35 |
| 18739.000 | 18619. | -1.06 | -0.27 | 0.37 |
| 19001.000 | 18881. | -1.26 | -0.32 | 0.44 |
| 19263.000 | 19143. | -1.31 | -0.33 | 0.45 |
| 19313.000 | 19193. | -1.34 | -0.34 | 0.46 |
| 19387.000 | 19267. | -1.73 | -0.61 | 0.96 |
| 19437.000 | 19317. | -2.05 | -0.67 | 1.03 |
| 19517.000 | 19397. | -2.1 | -0.7 | 1.05 |

| | | | | |
|---|---|---|---|---|
| 20617.000 | 20497. | -1.03 | -0.23 | 0.32 |
| 21117.000 | 20997. | -1.00 | -0.26 | 0.34 |
| 21392.000 | 21272. | -0.89 | -0.23 | 0.28 |
| 21667.000 | 21547. | -0.97 | -0.25 | 0.36 |
| 22128.000 | 22008. | -1.06 | -0.25 | 0.36 |
| 22589.000 | 22469. | -1.07 | -0.27 | 0.30 |
| 23050.000 | 22930. | -0.71 | -0.19 | 0.28 |
| 23550.000 | 23430. | -0.86 | -0.22 | 0.30 |
| 24226.000 | 24106. | -1.03 | -0.26 | 0.35 |
| 24250.000 | 24130. | -0.76 | -0.26 | 0.35 |
| WEIGHTED AVG FOR REACH | | -1.32 | -0.37 | 0.44 |

FHF FOR THE REACH = 015 WITH 75.2 OF THE REACH WITHIN 0.5 FEET
ZONE FOR THE REACH = A 3

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

| INC NO. | TOTAL LENGTH | AVG ELEVATION DATA 10 | 1 | DIFF. | WTD. AVG. | FHF | PERCENT WITHIN |
|---|---|---|---|---|---|---|---|
| | 0. | | | | SEC. | 120.000 | |
| 1 | 100. | 620.18 | 620.34 | -0.16 | -0.18 | 005 | 100. |
| 2 | 200. | 620.47 | 621.03 | -0.56 | -0.37 | 005 | 100. |
| | 250. | | | | SEC. | 370.000 | |
| 3 | 300. | 620.80 | 621.65 | -0.85 | -0.53 | 005 | 100. |
| 4 | 400. | 621.15 | 622.14 | -0.99 | -0.64 | 005 | 100. |
| 5 | 500. | 621.53 | 622.56 | -1.03 | -0.72 | 005 | 80. |
| 6 | 600. | 621.90 | 622.98 | -1.08 | -0.78 | 010 | 83. |
| | 625. | | | | SEC. | 745.000 | |
| 7 | 700. | 622.21 | 623.34 | -1.13 | -0.83 | 010 | 86. |
| 8 | 800. | 622.43 | 623.60 | -1.17 | -0.87 | 010 | 88. |
| 9 | 900. | 622.63 | 623.84 | -1.21 | -0.91 | 010 | 89. |
| | 1000. | | | | SEC. | 1120.000 | |
| 10 | 1000. | 622.83 | 624.09 | -1.26 | -0.95 | 010 | 90. |
| 11 | 1100. | 623.03 | 624.33 | -1.30 | -0.98 | 010 | 91. |
| 12 | 1200. | 623.23 | 624.58 | -1.35 | -1.01 | 010 | 92. |
| 13 | 1300. | 623.44 | 624.84 | -1.40 | -1.04 | 010 | 92. |
| 14 | 1400. | 623.64 | 625.09 | -1.45 | -1.07 | 010 | 66. |
| 15 | 1500. | 623.84 | 625.34 | -1.50 | -1.10 | 010 | 87. |
| 16 | 1600. | 624.04 | 625.59 | -1.55 | -1.13 | 010 | 88. |
| | 1650. | | | | SEC. | 1770.000 | |
| 17 | 1700. | 624.22 | 625.81 | -1.59 | -1.15 | 010 | 88. |
| 18 | 1800. | 624.36 | 625.97 | -1.61 | -1.18 | 010 | 89. |
| 19 | 1900. | 624.47 | 626.10 | -1.63 | -1.20 | 010 | 89. |
| 20 | 2000. | 624.58 | 626.23 | -1.65 | -1.22 | 010 | 90. |
| 21 | 2100. | 624.68 | 626.36 | -1.68 | -1.25 | 015 | 90. |
| 22 | 2200. | 624.79 | 626.49 | -1.70 | -1.27 | 015 | 91. |
| | 2290. | | | | SEC. | 2410.000 | |
| 23 | 2300. | 624.91 | 626.63 | -1.72 | -1.29 | 015 | 91. |
| | 2346. | | | | SEC. | 2466.000 | |
| 24 | 2400. | 625.07 | 626.90 | -1.83 | -1.31 | 015 | 88. |
| | 2436. | | | | SEC. | 2554.000 | |
| | 2454. | | | | SEC. | 2604.000 | |
| 25 | 2500. | 625.24 | 627.17 | -1.93 | -1.33 | 015 | 88. |
| 26 | 2600. | 625.40 | 627.32 | -1.92 | -1.36 | 015 | 81. |
| 27 | 2700. | 625.57 | 627.46 | -1.89 | -1.38 | 015 | 78. |
| 28 | 2800. | 625.74 | 627.61 | -1.87 | -1.39 | 015 | 82. |
| 29 | 2 [illegible] | [illegible] 91 | 7 79 | [illegible] | -1 41 | 015 | 83 |

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|---|---|---|---|---|---|---|---|
| 30 | 3000. | 626.09 | 627.90 | -1.81 | -1.42 | 015 | 89. |
| 31 | 3100. | 626.26 | 628.04 | -1.78 | -1.43 | 015 | 90. |
| 32 | 3200. | 626.43 | 628.18 | -1.75 | -1.44 | 015 | 91. |

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| | 3240. | | | | SEC. 3360.000 | | |
| 33 | 3300. | 626.64 | 628.36 | -1.72 | -1.45 | 015 | 91. |
| 34 | 3400. | 626.90 | 628.57 | -1.67 | -1.46 | 015 | 91. |
| 35 | 3500. | 627.19 | 628.80 | -1.61 | -1.46 | 015 | 91. |
| 36 | 3600. | 627.48 | 629.03 | -1.55 | -1.47 | 015 | 92. |
| 37 | 3700. | 627.77 | 629.27 | -1.50 | -1.47 | 015 | 92. |
| 38 | 3800. | 628.05 | 629.50 | -1.45 | -1.47 | 015 | 92. |
| 39 | 3900. | 628.34 | 629.73 | -1.39 | -1.46 | 015 | 92. |
| | 3996. | | | | SEC. 4116.000 | | |
| 40 | 4000. | 628.63 | 629.96 | -1.33 | -1.46 | 015 | 93. |
| 41 | 4100. | 628.91 | 630.12 | -1.21 | -1.45 | 015 | 93. |
| | 4196. | | | | SEC. 4316.000 | | |
| 42 | 4200. | 629.23 | 630.31 | -1.08 | -1.45 | 015 | 93. |
| | 4283. | | | | SEC. 4403.000 | | |
| 43 | 4300. | 630.87 | 632.56 | -1.69 | -1.45 | 015 | 93. |
| | 4333. | | | | SEC. 4453.000 | | |
| 44 | 4400. | 632.74 | 635.03 | -2.29 | -1.47 | 015 | 91. |
| 45 | 4500. | 633.18 | 635.41 | -2.23 | -1.49 | 015 | 89. |
| 46 | 4600. | 633.23 | 635.46 | -2.22 | -1.50 | 015 | 85. |
| 47 | 4700. | 633.28 | 635.48 | -2.20 | -1.52 | 015 | 83. |
| 48 | 4800. | 633.34 | 635.52 | -2.18 | -1.53 | 015 | 81. |
| 49 | 4900. | 633.39 | 635.55 | -2.16 | -1.54 | 015 | 78. |
| 50 | 5000. | 633.44 | 635.59 | -2.15 | -1.56 | 015 | 76. |
| 51 | 5100. | 633.50 | 635.62 | -2.12 | -1.57 | 015 | 75. |
| 52 | 5200. | 633.55 | 635.66 | -2.11 | -1.58 | 015 | 73. |
| 53 | 5300. | 633.60 | 635.69 | -2.09 | -1.59 | 015 | 70. |
| 54 | 5400. | 633.65 | 635.73 | -2.08 | -1.60 | 015 | 70. |
| 55 | 5500. | 633.71 | 635.76 | -2.05 | -1.61 | 015 | 73. |
| 56 | 5600. | 633.76 | 635.79 | -2.03 | -1.61 | 015 | 73. |
| 57 | 5700. | 633.81 | 635.83 | -2.02 | -1.62 | 015 | 75. |
| 58 | 5800. | 633.87 | 635.86 | -1.99 | -1.63 | 015 | 76. |
| | 5836. | | | | SEC. 5950.000 | | |
| 59 | 5900. | 633.93 | 635.90 | -1.97 | -1.63 | 015 | 76. |
| 60 | 6000. | 634.00 | 635.94 | -1.94 | -1.64 | 015 | 75. |
| 61 | 6100. | 634.07 | 635.99 | -1.92 | -1.64 | 015 | 75. |
| 62 | 6200. | 634.14 | 636.03 | -1.89 | -1.65 | 015 | 77. |
| 63 | 6300. | 634.21 | 636.07 | -1.86 | -1.65 | 015 | 78. |
| 64 | 6400. | 634.29 | 636.12 | -1.83 | -1.65 | 015 | 78. |
| | 6480. | | | | SEC. 6600.000 | | |
| 65 | 6500. | 634.38 | 636.17 | -1.79 | -1.65 | 015 | 78. |
| 66 | 6600. | 634.55 | 636.28 | -1.73 | -1.66 | 015 | 80. |
| 67 | 6700. | 634.80 | 636.42 | -1.62 | -1.65 | 015 | 79. |
| 68 | 6800. | 635.05 | 636.57 | -1.52 | -1.65 | 015 | 79. |
| 69 | 6900. | 635.30 | 636.72 | -1.42 | -1.65 | 015 | 80. |
| 70 | 7000. | 635.55 | 636.86 | -1.31 | -1.64 | 015 | 79. |
| 71 | 7100. | 635.79 | 637.01 | -1.22 | -1.64 | 015 | 79. |
| 72 | 7200. | 636.04 | 637.16 | -1.12 | -1.63 | 015 | 79. |
| | 7220. | | | | SEC. 7340.000 | | |
| 73 | 7300. | 636.30 | 637.35 | -1.05 | -1.62 | 015 | 79. |
| 74 | 7400. | 636.58 | 637.61 | -1.03 | -1.62 | 015 | 78. |
| 75 | 7500. | 636.86 | 637.88 | -1.02 | -1.61 | 015 | 76. |
| 76 | 7600. | 637.15 | 638.14 | -0.99 | -1.60 | 015 | 74. |
| 77 | 7700. | 637.43 | 638.41 | -0.98 | -1.59 | 015 | 73. |
| 78 | 7800. | 637.71 | 638.68 | -0.97 | -1.58 | 015 | 73. |
| 79 | 7900. | 637.99 | 638.95 | -0.96 | -1.58 | 015 | 72. |
| | 7958. | | | | SEC. 8078.000 | | |
| 80 | 8000. | 638.26 | 639.21 | -0.95 | -1.57 | 015 | 70. |
| 81 | 8100. | 638.51 | 639.46 | -0.95 | -1.56 | 015 | 69. |
| 82 | 8200. | 638.75 | 639.70 | -0.95 | -1.55 | 015 | 70. |
| 83 | 8300. | 638.99 | 639.94 | -0.95 | -1.55 | 015 | 69. |
| 84 | 8400. | 639.23 | 640.19 | -0.96 | -1.56 | 015 | 67. |
| 85 | 8500. | 639.46 | 640.43 | -0.97 | -1.53 | 015 | 68. |
| 86 | 8400. | 63 .76 | 6 .7 | -0.97 | -1. 3 | 015 | 67. |

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| | [illegible] | | | | SEC. 8 15.0 0 | | |
| 87 | 8700. | 639.94 | 640.91 | -0.97 | -1.52 | 015 | 67. |
| 88 | 8800. | 640.16 | 641.14 | -0.98 | -1.51 | 015 | 66. |
| 89 | 8900. | 640.36 | 641.34 | -0.98 | -1.51 | 015 | 64. |
| 90 | 9000. | 640.56 | 641.55 | -0.99 | -1.50 | 015 | 63. |
| 91 | 9100. | 640.77 | 641.76 | -0.99 | -1.50 | 015 | 63. |
| | 9156. | | | | SEC. 9276.000 | | |
| 92 | 9200. | 640.98 | 641.99 | -1.01 | -1.49 | 015 | 67. |
| 93 | 9300. | 641.20 | 642.25 | -1.05 | -1.49 | 015 | 68. |
| 94 | 9400. | 641.43 | 642.54 | -1.11 | -1.48 | 015 | 70. |
| 95 | 9500. | 641.66 | 642.82 | -1.16 | -1.48 | 015 | 71. |
| 96 | 9600. | 641.90 | 643.10 | -1.20 | -1.48 | 015 | 71. |
| | 9617. | | | | SEC. 9737.000 | | |
| 97 | 9700. | 642.12 | 643.36 | -1.24 | -1.47 | 015 | 75. |
| 98 | 9800. | 642.34 | 643.59 | -1.25 | -1.47 | 015 | 76. |
| 99 | 9900. | 642.56 | 643.82 | -1.26 | -1.47 | 015 | 76. |
| 100 | 10000. | 642.78 | 644.04 | -1.26 | -1.47 | 015 | 76. |
| | 10078. | | | | SEC. 10198.000 | | |
| 101 | 10100. | 643.01 | 644.27 | -1.26 | -1.46 | 015 | 77. |
| 102 | 10200. | 643.25 | 644.51 | -1.26 | -1.46 | 015 | 77. |
| 103 | 10300. | 643.50 | 644.77 | -1.27 | -1.46 | 015 | 78. |
| 104 | 10400. | 643.76 | 645.03 | -1.27 | -1.46 | 015 | 78. |
| 105 | 10500. | 644.01 | 645.28 | -1.27 | -1.46 | 015 | 78. |
| | 10538. | | | | SEC. 10658.000 | | |
| | 10588. | | | | SEC. 10708.000 | | |
| 106 | 10600. | 644.42 | 645.76 | -1.34 | -1.46 | 015 | 78. |
| | 10662. | | | | SEC. 10782.000 | | |
| 107 | 10700. | 644.78 | 646.27 | -1.49 | -1.46 | 015 | 79. |
| | 10712. | | | | SEC. 10832.000 | | |
| 108 | 10800. | 644.98 | 646.56 | -1.56 | -1.46 | 015 | 79. |
| 109 | 10900. | 645.18 | 646.73 | -1.55 | -1.46 | 015 | 79. |
| 110 | 11000. | 645.37 | 646.89 | -1.52 | -1.46 | 015 | 79. |
| 111 | 11100. | 645.55 | 647.05 | -1.50 | -1.46 | 015 | 79. |
| 112 | 11200. | 645.74 | 647.21 | -1.47 | -1.46 | 015 | 79. |
| 113 | 11300. | 645.92 | 647.37 | -1.45 | -1.46 | 015 | 80. |
| 114 | 11400. | 646.11 | 647.53 | -1.42 | -1.46 | 015 | 80. |
| 115 | 11500. | 646.29 | 647.69 | -1.40 | -1.46 | 015 | 80. |
| | 11[illegible]00. | | | | SEC. 11720.000 | | |
| 116 | 11600. | 646.48 | 647.84 | -1.36 | -1.46 | 015 | 80. |
| 117 | 11700. | 646.87 | 648.14 | -1.27 | -1.46 | 015 | 80. |
| 118 | 11800. | 647.46 | 648.57 | -1.11 | -1.45 | 015 | 84. |
| 119 | 11900. | 646.05 | 649.00 | -0.95 | -1.45 | 015 | 86. |
| 120 | 12000. | 648.64 | 649.43 | -0.79 | -1.44 | 015 | 83. |
| | 12025. | | | | SEC. 12105.000 | | |
| 121 | 12100. | 649.09 | 649.80 | -0.71 | -1.44 | 015 | 83. |
| 122 | 12200. | 649.36 | 650.09 | -0.73 | -1.43 | 015 | 81. |
| 123 | 12300. | 649.58 | 650.36 | -0.78 | -1.43 | 015 | 80. |
| 124 | 12400. | 649.80 | 650.63 | -0.83 | -1.42 | 015 | 79. |
| | 12450. | | | | SEC. 12570.000 | | |
| 125 | 12500. | 650.05 | 650.92 | -0.87 | -1.42 | 015 | 78. |
| 126 | 12600. | 650.39 | 651.27 | -0.88 | -1.41 | 015 | 76. |
| 127 | 12700. | 650.76 | 651.64 | -0.88 | -1.41 | 015 | 76. |
| 128 | 12800. | 651.13 | 652.01 | -0.88 | -1.40 | 015 | 75. |
| | 12845. | | | | SEC. 12965.000 | | |
| 129 | 12900. | 651.51 | 652.39 | -0.88 | -1.40 | 015 | 74. |
| 130 | 13000. | 651.91 | 652.80 | -0.89 | -1.40 | 015 | 74. |
| 131 | 13100. | 652.32 | 653.23 | -0.91 | -1.39 | 015 | 75. |
| 132 | 13200. | 652.73 | 653.66 | -0.93 | -1.39 | 015 | 75. |
| | 13240. | | | | SEC. 13360.000 | | |
| 133 | 13300. | 653.15 | 654.10 | -0.95 | -1.39 | 015 | 75. |
| 134 | 13400. | 653.59 | 654.59 | -1.00 | -1.38 | 015 | 77. |
| 135 | 13500. | 654.05 | 655.08 | -1.03 | -1.38 | 015 | 77. |
| | 13584. | | | | SEC. 13704.000 | | |
| 136 | 13600. | 654.51 | 655.58 | -1.07 | -1.38 | 015 | 77. |
| 137 | 13700. | 655.00 | 656.09 | -1.09 | -1.37 | 015 | 77. |
| 13[illegible] | 13[illegible]00. | [illegible] | [illegible] | -1.09 | [illegible] | 01[illegible] | 7[illegible] |

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| 139 | 13900. | 656.05 | 657.14 | -1.0 | -1.37 | 015 | 78. |
| | 13927. | | | | SEC. | 14047.000 | |
| 140 | 14000. | 656.56 | 657.66 | -1.10 | -1.37 | 015 | 79. |
| | 14099. | | | | SEC. | 14219.000 | |
| 141 | 14100. | 657.06 | 658.17 | -1.11 | -1.37 | 015 | 79. |
| 142 | 14200. | 657.47 | 658.57 | -1.10 | -1.37 | 015 | 79. |
| | 14270. | | | | SEC. | 14390.000 | |
| 143 | 14300. | 657.93 | 659.03 | -1.10 | -1.36 | 015 | 76. |
| | 14320. | | | | SEC. | 14440.000 | |
| | 14381. | | | | SEC. | 14501.000 | |
| 144 | 14400. | 659.64 | 661.16 | -1.52 | -1.36 | 015 | 78. |
| | 14450. | | | | SEC. | 14570.000 | |
| 145 | 14500. | 661.71 | 663.74 | -2.03 | -1.37 | 015 | 79. |
| 146 | 14600. | 662.37 | 664.54 | -2.17 | -1.37 | 015 | 78. |
| 147 | 14700. | 662.43 | 664.59 | -2.16 | -1.38 | 015 | 77. |
| 148 | 14800. | 662.48 | 664.65 | -2.17 | -1.39 | 015 | 75. |
| 149 | 14900. | 662.54 | 664.70 | -2.16 | -1.39 | 015 | 74. |
| 150 | 15000. | 662.59 | 664.76 | -2.17 | -1.40 | 015 | 73. |
| 151 | 15100. | 662.65 | 664.81 | -2.16 | -1.40 | 015 | 73. |
| 152 | 15200. | 662.70 | 664.86 | -2.16 | -1.41 | 015 | 72. |
| | 15240. | | | | SEC. | 15360.000 | |
| 153 | 15300. | 662.78 | 664.93 | -2.15 | -1.41 | 015 | 72. |
| 154 | 15400. | 662.90 | 665.03 | -2.13 | -1.42 | 015 | 72. |
| 155 | 15500. | 663.04 | 665.13 | -2.09 | -1.42 | 015 | 72. |
| 156 | 15600. | 663.17 | 665.24 | -2.07 | -1.42 | 015 | 71. |
| 157 | 15700. | 663.31 | 665.34 | -2.03 | -1.43 | 015 | 71. |
| 158 | 15800. | 663.44 | 665.45 | -2.01 | -1.43 | 015 | 71. |
| 159 | 15900. | 663.58 | 665.55 | -1.97 | -1.44 | 015 | 70. |
| | 15980. | | | | SEC. | 16100.000 | |
| 160 | 16000. | 663.74 | 665.67 | -1.93 | -1.44 | 015 | 71. |
| 161 | 16100. | 664.05 | 665.86 | -1.81 | -1.44 | 015 | 71. |
| 162 | 16200. | 664.46 | 666.10 | -1.64 | -1.44 | 015 | 71. |
| 163 | 16300. | 664.88 | 666.36 | -1.48 | -1.44 | 015 | 71. |
| | 16380. | | | | SEC. | 16500.000 | |
| 164 | 16400. | 665.27 | 666.58 | -1.31 | -1.44 | 015 | 71. |
| 165 | 16500. | 665.56 | 666.79 | -1.23 | -1.44 | 015 | 72. |
| 166 | 16600. | 665.77 | 666.99 | -1.22 | -1.44 | 015 | 72. |
| 167 | 16700. | 665.97 | 667.16 | -1.21 | -1.44 | 015 | 72. |
| | 16780. | | | | SEC. | 16900.000 | |
| 168 | 16800. | 666.19 | 667.38 | -1.19 | -1.44 | 015 | 72. |
| 169 | 16900. | 666.47 | 667.63 | -1.16 | -1.43 | 015 | 72. |
| 170 | 17000. | 666.80 | 667.92 | -1.12 | -1.43 | 015 | 72. |
| 171 | 17100. | 667.12 | 668.20 | -1.08 | -1.43 | 015 | 73. |
| | 17175. | | | | SEC. | 17295.000 | |
| 172 | 17200. | 667.47 | 668.51 | -1.04 | -1.43 | 015 | 73. |
| 173 | 17300. | 667.89 | 668.89 | -1.00 | -1.43 | 015 | 73. |
| 174 | 17400. | 668.35 | 669.32 | -0.97 | -1.42 | 015 | 72. |
| 175 | 17500. | 668.82 | 669.75 | -0.93 | -1.42 | 015 | 72. |
| | 17570. | | | | SEC. | 17690.000 | |
| 176 | 17600. | 669.28 | 670.19 | -0.91 | -1.42 | 015 | 72. |
| 177 | 17700. | 669.73 | 670.63 | -0.90 | -1.41 | 015 | 71. |
| 178 | 17800. | 670.17 | 671.09 | -0.92 | -1.41 | 015 | 71. |
| 179 | 17900. | 670.60 | 671.54 | -0.94 | -1.41 | 015 | 72. |
| 180 | 18000. | 671.03 | 672.00 | -0.97 | -1.41 | 015 | 72. |
| | 18095. | | | | SEC. | 18215.000 | |
| 181 | 18100. | 671.47 | 672.45 | -0.98 | -1.40 | 015 | 72. |
| 182 | 18200. | 671.89 | 672.89 | -1.00 | -1.40 | 015 | 73. |
| 183 | 18300. | 672.30 | 673.30 | -1.00 | -1.40 | 015 | 73. |
| 184 | 18400. | 672.70 | 673.72 | -1.02 | -1.40 | 015 | 73. |
| 185 | 18500. | 673.11 | 674.14 | -1.03 | -1.40 | 015 | 73. |
| 186 | 18600. | 673.52 | 674.56 | -1.04 | -1.39 | 015 | 74. |
| | 18619. | | | | SEC. | 18739.000 | |
| 187 | 18700. | 673.95 | 675.03 | -1.08 | -1.39 | 015 | 74. |
| 188 | 18800. | 674.41 | 675.56 | -1.15 | -1.39 | 015 | 74. |
| | 18881. | | | | SEC. | 19001.000 | |
| 189 | 18900. | 674.87 | 676.07 | -1.20 | -1.39 | 015 | 7 |

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|---|---|---|---|---|---|---|---|
| 190 | 19000. | 675.26 | 676.54 | -1.28 | -1.3 | 015 | 74. |
| 191 | 19100. | 675.62 | 676.91 | -1.29 | -1.39 | 015 | 74. |
| | 19143. | | | | SEC. | 19263.000 | |
| | 19193. | | | | SEC. | 19313.000 | |
| 192 | 19200. | 675.99 | 677.33 | -1.34 | -1.39 | 015 | 74. |
| | 19267. | | | | SEC. | 19387.000 | |
| 193 | 19300. | 676.50 | 678.16 | -1.66 | -1.39 | 015 | 75. |
| | 19317. | | | | SEC. | 19437.000 | |
| | 19397. | | | | SEC. | 19517.000 | |
| 194 | 19400. | 676.95 | 679.00 | -2.05 | -1.39 | 015 | 74. |
| 195 | 19500. | 677.28 | 679.33 | -2.05 | -1.40 | 015 | 73. |
| 196 | 19600. | 677.67 | 679.50 | -1.83 | -1.40 | 015 | 73. |
| 197 | 19700. | 678.06 | 679.68 | -1.62 | -1.40 | 015 | 74. |
| 198 | 19800. | 678.45 | 679.86 | -1.41 | -1.40 | 015 | 74. |
| 199 | 19900. | 678.84 | 680.04 | -1.20 | -1.40 | 015 | 74. |
| | 19997. | | | | SEC. | 20117.000 | |
| 200 | 20000. | 679.22 | 680.22 | -1.00 | -1.40 | 015 | 74. |
| 201 | 20100. | 679.58 | 680.48 | -0.90 | -1.39 | 015 | 75. |
| 202 | 20200. | 679.89 | 680.83 | -0.94 | -1.39 | 015 | 75. |
| 203 | 20300. | 680.21 | 681.17 | -0.96 | -1.39 | 015 | 75. |
| 204 | 20400. | 680.53 | 681.51 | -0.98 | -1.39 | 015 | 75. |
| | 20497. | | | | SEC. | 20617.000 | |
| 205 | 20500. | 680.84 | 681.86 | -1.02 | -1.39 | 015 | 75. |
| 206 | 20600. | 681.15 | 682.18 | -1.03 | -1.38 | 015 | 76. |
| 207 | 20700. | 681.45 | 682.47 | -1.02 | -1.38 | 015 | 76. |
| 208 | 20800. | 681.75 | 682.77 | -1.02 | -1.38 | 015 | 76. |
| 209 | 20900. | 682.05 | 683.06 | -1.01 | -1.38 | 015 | 77. |
| | 20997. | | | | SEC. | 21117.000 | |
| 210 | 21000. | 682.35 | 683.36 | -1.01 | -1.38 | 015 | 77. |
| 211 | 21100. | 682.69 | 683.68 | -0.99 | -1.38 | 015 | 77. |
| 212 | 21200. | 683.07 | 684.01 | -0.94 | -1.37 | 015 | 77. |
| | 21272. | | | | SEC. | 21392.000 | |
| 213 | 21300. | 683.47 | 684.38 | -0.91 | -1.37 | 015 | 77. |
| 214 | 21400. | 683.96 | 684.87 | -0.91 | -1.37 | 015 | 78. |
| 215 | 21500. | 684.50 | 685.45 | -0.95 | -1.37 | 015 | 78. |
| | 21547. | | | | SEC. | 21667.000 | |
| 216 | 21600. | 685.04 | 686.01 | -0.97 | -1.37 | 015 | 78. |
| 217 | 21700. | 685.57 | 686.56 | -0.99 | -1.36 | 015 | 77. |
| 218 | 21800. | 686.09 | 687.10 | -1.01 | -1.36 | 015 | 78. |
| 219 | 21900. | 686.61 | 687.64 | -1.03 | -1.36 | 015 | 78. |
| 220 | 22000. | 687.12 | 688.18 | -1.06 | -1.36 | 015 | 78. |
| | 22002. | | | | SEC. | 22122.000 | |
| 221 | 22100. | 687.62 | 688.69 | -1.07 | -1.36 | 015 | 78. |
| 222 | 22200. | 688.09 | 689.16 | -1.07 | -1.36 | 015 | 78. |
| 223 | 22300. | 688.57 | 689.63 | -1.06 | -1.36 | 015 | 78. |
| 224 | 22400. | 689.04 | 690.10 | -1.06 | -1.35 | 015 | 78. |
| | 22469. | | | | SEC. | 22589.000 | |
| 225 | 22500. | 689.51 | 690.56 | -1.05 | -1.35 | 015 | 78. |
| 226 | 22600. | 689.98 | 690.98 | -1.00 | -1.35 | 015 | 78. |
| 227 | 22700. | 690.45 | 691.37 | -0.92 | -1.35 | 015 | 78. |
| 228 | 22800. | 690.92 | 691.77 | -0.85 | -1.35 | 015 | 79. |
| 229 | 22900. | 691.39 | 692.16 | -0.77 | -1.34 | 015 | 78. |
| | 22930. | | | | SEC. | 23050.000 | |
| 230 | 23000. | 691.79 | 692.52 | -0.73 | -1.34 | 015 | 78. |
| 231 | 23100. | 692.09 | 692.84 | -0.75 | -1.34 | 015 | 77. |
| 232 | 23200. | 692.36 | 693.14 | -0.78 | -1.34 | 015 | 77. |
| 233 | 23300. | 692.64 | 693.45 | -0.81 | -1.33 | 015 | 77. |
| 234 | 23400. | 692.91 | 693.75 | -0.84 | -1.33 | 015 | 77. |
| | 23430. | | | | SEC. | 23550.000 | |
| 235 | 23500. | 693.13 | 694.00 | -0.87 | -1.33 | 015 | 77. |
| 236 | 23600. | 693.28 | 694.17 | -0.89 | -1.33 | 015 | 77. |
| 237 | 23700. | 693.41 | 694.32 | -0.91 | -1.33 | 015 | 77. |
| 238 | 23800. | 693.53 | 694.48 | -0.95 | -1.33 | 015 | 77. |
| 239 | 23900. | 693.66 | 694.63 | -0.97 | -1.32 | 015 | 76. |
| 240 | 24000. | 693.79 | 694.78 | -0.99 | -1.32 | 015 | 76. |
| 241 | 24100. | 693.93 | 694.93 | -1.01 | -1.32 | 015 | 77. |

24106.  SEC.  24 _6.000
24130.  SEC.  24250.000

THIS REACH CAN BE SUBDIVIDED BY INC NO. TO MEET FIA REQUIREMENTS
INPUT 20N WHERE N IS THE NUMBER OF REACHES AND THEN INPUT THE END
OF EACH REACH BY INC NO. FOR EXAMPLE 202 123 241
A NEGATIVE INC NO. WILL SUPPRESS INTERMEDIATE INC OUTPUT.

```
C*****************************************************************
C  HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
C  ERROR CORR -  01,02
C  MODIFICATION -  50,51,52,53
C*****************************************************************
```




1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Tributary 1

4) DOCUMENT TYPE: 100 Year



```
REC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
C
T1 TRIBUTARY  1 FIS HUD 2014 07 LIVONIA CITY FROM BELL BRANCH TO SHEFFIELD SUBD.
T2 100 YR FLOW
T3      TRIBUTARY  1 LIVONIA C.
```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | KVINS | 0 | MSFI | FU |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 4. | 0. | 0. | 0.0 | 0.0 | 0.0 | 0. | 642.500 | 0.0 |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLOC | IBT | CHNIM | ITRACE |
| | 1.000 | 1.000 | -1.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| J3 | VARIABLE CODES FOR SUMMARY PRINTOUT | | | | | | | | | |
| | 110.000 | 150.000 | 200.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| QT | 5.000 | 310.000 | 520.000 | 600.000 | 640.000 | 930.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| RC | 0.100 | 0.100 | 0.035 | 0.100 | 0.300 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECND 60, 60' U/S OF CONFLUENCE W/BELL BRANCH FROM FIELDBOOK AND TOPOMAP | | | | | | | | | |
| X1 | 60.000 | 9.000 | 356.000 | 374.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 177.000 | 0.0 | 437.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 660.000 | 0.0 | 650.000 | 170.000 | 642.700 | 350.000 | 639.200 | 360.000 | 638.300 | 365.000 |
| GR | 639.000 | 370.000 | 642.700 | 374.000 | 650.000 | 700.000 | 658.000 | 1040.000 | 0.0 | 0.0 |
| QT | 5.000 | 210.000 | 370.000 | 460.000 | 460.000 | 660.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.410 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.120 | 0.100 | 0.035 | 0.100 | 0.300 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | VALLEY SECTION X | | | | | | | | | |
| X1 | 360.000 | 7.000 | 350.000 | 365.000 | 300.000 | 300.000 | 300.000 | 0.0 | 0.0 | 0.0 |
| GR | 660.000 | 0.0 | 650.000 | 175.000 | 642.800 | 350.000 | 639.600 | 358.000 | 642.200 | 360.000 |
| GR | 650.000 | 400.000 | 660.000 | 800.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | SECND 660 X | | | | | | | | | |
| X1 | 660.000 | 7.000 | 343.000 | 350.000 | 300.000 | 300.000 | 300.000 | 0.0 | 0.0 | 0.0 |
| GR | 661.000 | 25.000 | 649.000 | 120.000 | 643.600 | 343.000 | 641.200 | 350.000 | 643.600 | 350.000 |
| GR | 649.500 | 362.000 | 662.500 | 720.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | VALLEY SECTION X | | | | | | | | | |
| X1 | 960.000 | 7.000 | 314.000 | 325.000 | 300.000 | 300.000 | 300.000 | 0.0 | 0.0 | 0.0 |
| GR | 660.000 | 0.0 | 648.000 | 160.000 | 643.800 | 314.000 | 642.600 | 320.000 | 643.800 | 325.000 |
| GR | 655.000 | 445.000 | 660.000 | 580.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.0 | 0. | 0.040 | 0. | 0.0 | 0.0 | 0.0 | 0. | 0. | 0. |

SECNO 1250 150' U/S OF CONFLUENCE WITH WESTERLY TRIB. FROM FIELD BOOK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1250.000 | 11.000 | 285.500 | 294.500 | 290.000 | 290.000 | 290.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 170.000 | 0.0 | 343.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 662.500 | 0.0 | 648.800 | 30.000 | 647.500 | 140.000 | 648.500 | 278.500 | 644.500 | 285.500 |
| GR | 644.000 | 290.000 | 644.400 | 294.500 | 648.300 | 302.500 | 648.900 | 345.500 | 668.000 | 378.500 |
| GR | 667.000 | 413.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.0 | 0.0 | 0.035 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.400 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 2360 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2360.000 | 11.000 | 270.000 | 282.000 | 1110.000 | 1110.000 | 1110.000 | 0.0 | 0.0 | 0.0 |
| GR | 665.000 | 0.0 | 658.000 | 120.000 | 653.000 | 130.000 | 651.000 | 260.000 | 648.000 | 270.000 |
| GR | 647.500 | 276.000 | 648.000 | 282.000 | 651.000 | 297.000 | 653.000 | 300.000 | 650.000 | 315.000 |
| GR | 665.000 | 400.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.080 | 0.100 | 0.035 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 2915 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2915.000 | 8.000 | 223.000 | 264.000 | 559.000 | 555.000 | 555.000 | 0.0 | 0.0 | 0.0 |
| GR | 667.500 | 0.0 | 656.300 | 113.000 | 654.300 | 223.000 | 649.300 | 246.000 | 654.300 | 264.000 |
| GR | 657.900 | 290.000 | 661.300 | 325.000 | 666.200 | 406.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 3470 STA 56+05 FROM FIELD BOOK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3470.000 | 11.000 | 191.000 | 230.000 | 555.000 | 555.000 | 555.000 | 0.0 | 0.0 | 0.0 |
| GR | 668.000 | 0.0 | 661.800 | 54.000 | 659.600 | 100.000 | 657.700 | 191.000 | 651.400 | 213.000 |
| GR | 651.100 | 216.000 | 651.700 | 219.000 | 657.600 | 230.000 | 657.600 | 268.000 | 664.800 | 322.000 |
| GR | 667.400 | 416.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 3853 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3853.000 | 6.000 | 153.000 | 195.000 | 383.000 | 383.000 | 383.000 | 0.0 | 0.0 | 0.0 |
| GR | 669.000 | 0.0 | 665.100 | 93.000 | 659.700 | 153.000 | 653.400 | 176.000 | 659.300 | 195.000 |
| GR | 658.900 | 223.000 | 664.800 | 276.000 | 667.700 | 340.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.060 | 0.060 | 0.030 | 0.100 | 0.300 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 4235 STA 40+40 FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4235.000 | 9.000 | 115.000 | 165.000 | 267.000 | 517.000 | 352.000 | 0.0 | 0.0 | 0.0 |
| GR | 670.600 | 86.000 | 661.600 | 115.000 | 655.800 | 131.000 | 655.600 | 136.000 | 655.800 | 141.000 |
| GR | 660.000 | 165.000 | 659.900 | 185.000 | 664.700 | 234.000 | 668.000 | 286.000 | 0.0 | 0.0 |

SECNO 4588 50' D/S 6 MILE BRIDGE BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4588.000 | 9.000 | 1222.000 | 1234.000 | 353.000 | 353.000 | 353.000 | 0.0 | 0.0 | 0.0 |
| GR | 680.000 | 0.0 | 670.000 | 930.000 | 671.600 | 1192.000 | 656.700 | 1222.000 | 656.600 | 1230.000 |
| GR | 656.700 | 1238.000 | 669.600 | 1264.000 | 670.000 | 1350.000 | 680.000 | 1630.000 | 0.0 | 0.0 |
| NC | 0.0 | 0.0 | 0.0 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 9.100 | 0.0 | 0.0 | 0.0 | 1.000 | 1629.000 |

SECNO 4635 D/S FACE 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4635.000 | 0.0 | 0.0 | 0.0 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 666.400 | 666.400 | 0.0 |
| SB | 0.0 | 2.[illegible] | [illegible].000 | 0.0 | 16.000 | 0.0 | [illegible].040 | 0.0 | [illegible]57.600 | 656.600 |

SECNO 4754 U/S FROM 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4754.000 | 11.000 | 1222.000 | 1238.000 | 116.000 | 116.000 | 116.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 1.000 | 663.200 | 669.700 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 669.700 | 669.700 | 0.0 |
| BT | 10.000 | 0.0 | 680.000 | 0.0 | 930.000 | 670.000 | 0.0 | 1202.000 | 670.000 | 0.0 |
| BT | 1222.000 | 669.700 | 657.900 | 1222.100 | 669.700 | 663.200 | 1237.900 | 669.700 | 663.200 | 1236.000 |
| BT | 669.700 | 657.900 | 1265.000 | 671.300 | 0.0 | 1350.000 | 670.000 | 0.0 | 1630.000 | 600.000 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 680.000 | 0.0 | 670.000 | 930.000 | 667.000 | 1202.000 | 657.900 | 1222.000 | 657.900 | 1222.100 |
| GR | 657.800 | 1230.000 | 657.900 | 1237.900 | 657.900 | 1238.000 | 671.300 | 1265.000 | 670.000 | 1350.000 |
| GR | 680.000 | 1630.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.080 | 0.080 | 0.030 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 4804 50' U/S 6 MILE BRIDGE BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4804.000 | 8.000 | 1217.000 | 1243.000 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 1196.000 | 0.0 | 1259.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 675.000 | 930.000 | 666.000 | 1145.000 | 661.000 | 1217.000 | 658.000 | 1225.000 | 657.900 | 1230.000 |
| GR | 658.000 | 1235.000 | 661.000 | 1243.000 | 670.000 | 1350.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 7.100 | 9.100 | 0.0 | 226.000 | 265.000 | 1.000 | 669.000 |
| NC | 0.100 | 0.100 | 0.035 | 0.100 | 0.300 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 5363 STA 37+12 FROM FIELD BOOK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5363.000 | 22.000 | 246.000 | 254.000 | 559.000 | 559.000 | 559.000 | 0.0 | 0.0 | 0.0 |
| GR | 667.600 | 0.0 | 665.500 | 100.000 | 667.100 | 179.000 | 667.000 | 194.000 | 662.600 | 235.000 |
| GR | 661.300 | 240.000 | 659.500 | 246.000 | 650.900 | 250.000 | 659.000 | 254.000 | 661.400 | 257.000 |
| GR | 662.900 | 259.000 | 664.500 | 272.000 | 665.000 | 290.000 | 665.500 | 310.000 | 665.600 | 320.000 |
| GR | 667.100 | 370.000 | 667.900 | 400.000 | 668.500 | 450.000 | 669.000 | 500.000 | 669.500 | 550.000 |
| GR | 670.000 | 600.000 | 670.400 | 650.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 7.100 | 7.100 | 0.0 | 507.000 | 544.000 | 0.0 | 0.0 |

SECNO 5735. X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5735.000 | 13.000 | 520.000 | 531.000 | 372.000 | 75.000 | 372.000 | 0.0 | 0.0 | 0.0 |
| GR | 675.000 | 0.0 | 671.000 | 100.000 | 668.600 | 260.000 | 666.900 | 370.000 | 667.000 | 440.000 |
| GR | 663.500 | 513.000 | 661.000 | 520.000 | 660.400 | 525.000 | 660.800 | 531.000 | 664.700 | 534.000 |
| GR | 667.900 | 598.000 | 669.300 | 680.000 | 675.000 | 975.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 6107 BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6107.000 | 23.000 | 793.000 | 807.000 | 372.000 | 75.000 | 372.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 775.000 | 0.0 | 810.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 660.000 | 0.0 | 676.500 | 80.000 | 677.100 | 160.000 | 675.600 | 240.000 | 674.100 | 320.000 |
| GR | 672.600 | 400.000 | 671.100 | 480.000 | 669.700 | 660.000 | 668.200 | 640.000 | 667.000 | 700.000 |
| GR | 667.000 | 770.000 | 665.800 | 785.000 | 662.500 | 793.000 | 661.900 | 800.000 | 662.500 | 807.000 |
| GR | 660.000 | 811.000 | 670.000 | 875.000 | 670.800 | 900.000 | 671.400 | 920.000 | 672.600 | 950.000 |
| GR | 675.100 | 1040.000 | 677.500 | 1120.000 | 680.000 | 1200.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 6355 STA 27+20 FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6355.000 | 24.000 | 1131.000 | 1169.000 | 248.000 | 248.000 | 244.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 1113.000 | 0.0 | 1354.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 660.000 | 0.0 | 676.800 | 75.000 | 677.700 | 150.000 | 676.600 | 226.000 | 675.500 | 300.000 |
| GR | 674.400 | 375.000 | 673.400 | 450.000 | 672.300 | 525.000 | 671.200 | 600.000 | 670.100 | 675.000 |
| GR | 669.000 | 750.000 | 668.200 | 800.000 | 667.900 | 826.000 | 667.500 | 850.000 | 667.600 | 1000.000 |
| GR | 667.500 | 1131.000 | 663.200 | 1147.000 | 662.900 | 1150.000 | 662.900 | 1151.000 | 670.500 | 1169.000 |
| GR | 671.000 | 1200.000 | 672.000 | 1250.000 | 673.100 | 1300.000 | 674.500 | 1400.000 | 0.0 | 0.0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 1.400 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 7080 X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XI | 7080.000 | 5.000 | 26.000 | 70.000 | 725.000 | 725.000 | 725.000 | 0.0 | 0.0 | 0.0 |
| GR | 670.000 | 0.0 | 669.300 | 26.000 | 667.900 | 48.000 | 669.300 | 70.000 | 670.000 | 96.000 |
| NC | 0.0 | 0.0 | 0.025 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 7975 WEIR BASED ON SUBD. MAP

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XI | 7975.000 | 4.000 | 18.000 | 72.000 | 895.000 | 895.000 | 895.000 | 0.0 | 0.0 | 0.0 |
| AS | 5.000 | 676.150 | 676.700 | 677.000 | 677.100 | 677.650 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 679.600 | 0.0 | 675.000 | 18.000 | 675.000 | 72.000 | 679.600 | 90.000 | 0.0 | 0.0 |
| QT | 5.000 | 210.000 | 370.000 | 460.000 | 400.000 | 680.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.0 | 0.0 | 0.035 | 0.100 | 0.300 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EN | 0.0 | 0.0 | 0.0 | 0.0 | 1.400 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 0352 STA 7+23 FROM FIELD BOOK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XI | 6352.000 | 8.000 | 280.000 | 320.000 | 377.000 | 377.000 | 377.000 | 0.0 | 0.0 | 0.0 |
| GR | 683.500 | 0.0 | 682.600 | 150.000 | 682.100 | 253.000 | 675.200 | 200.000 | 673.700 | 300.000 |
| GR | 675.200 | 320.000 | 681.000 | 341.000 | 682.200 | 401.000 | 0.0 | 0.0 | 0.0 | 0.0 |

SECNO 9075 BASED ON FIELD BOOK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| XI | 9075.000 | 0.0 | 0.0 | 0.0 | 723.000 | 723.000 | 723.000 | 0.0 | 4.600 | 0.0 |
| EJ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

*PROF 1

CCHV= 0.100 CEHV= 0.300
*SECNO 60.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ERDST |

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 171.0 437.0 TYPE= 1 TARGET= 280.000

SECNO 60, 60' U/S OF CONFLUENCE W/BELL BRANCH FROM FIELDBOOK AND TOPOMAP

646.39 Yr on Bell Br.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 60.00 | 5.07 | 643.37 | 643.37 | 642.50 | 644.73 | 1.36 | 0.0 | 0.0 | 642.70 |
| 640. | 4. | 628. | 7. | 5. | 66. | 10. | 0. | 0. | 642.70 |
| 0.0 | 0.76 | 9.46 | 0.74 | 0.100 | 0.035 | 0.100 | 0.0 | 633.30 | 338.96 |
| 0.010615 | 0. | 0. | 0. | 0 | 10 | 0 | 0.0 | 64.90 | 403.06 |

CCHV= 0.100 CEHV= 0.300
*SECNO 360.000

3301 HV CHANGED MORE THAN HVINS

VALLEY SECTION X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 360.00 | 6.10 | 645.90 | 0.0 | 0.0 | 645.21 | 0.71 | 1.37 | 0.11 | 642.90 |
| 460. | 88. | 351. | 21. | 116. | 69. | 23. | 1. | 1. | 642.80 |
| 0.02 | 0.76 | 5.09 | 0.69 | 0.120 | 0.035 | 0.100 | 0.035 | 639.80 | 274.76 |
| 0.002081 | 300. | 300. | 300. | 3 | 0 | 0 | 0.0 | 105.28 | 360.05 |

*SECNO 660.000

SECND 660 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 660.00 | 5.40 | 646.60 | 0.0 | 0.0 | 647.01 | 0.42 | 0.78 | 0.03 | 643.60 |
| 460. | 125. | 331. | 4. | 135. | 54. | 5. | 2. | 1. | 643.60 |
| 0.04 | 0.93 | 6.07 | 0.99 | 0.120 | 0.035 | 0.100 | 0.035 | 641.20 | 252.80 |
| 0.003302 | 300. | 300. | 300. | 2 | 0 | 0 | 0.0 | 106.24 | 351.04 |

*SECNO 960.000

VALLEY SECTION X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 960.00 | 4.95 | 647.55 | 0.0 | 0.0 | 647.68 | 0.13 | 0.64 | 0.03 | 643.80 |
| 460. | 188. | 206. | 66. | 258. | 48. | 75. | 4. | 2. | 643.80 |
| 0.07 | 0.73 | 4.32 | 0.87 | 0.120 | 0.035 | 0.100 | 0.035 | 642.60 | 176.56 |
| 0.001502 | 300. | 300. | 300. | 2 | 0 | 0 | 0.0 | 108.61 | 365.16 |

*SECNO 1250.000

3301 HV CHANGED MORE THAN HVINS

| SECNO | DEPTH | C'SEL | CRI'S | 'ELK | EG | HV | H. | QLO'S | B'NK ELEV |
|---|---|---|---|---|---|---|---|---|---|

```
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      170.0      343.0  TYPE=      1  TARGET=      173.000

        SECNO 1250 150' U/S OF CONFLUENCE WITH WESTERLY TRIB. FROM FIELD BOOK

  1250.00     4.87   648.87   648.87     0.0   649.56     0.67     0.76     0.16   644.50
     460.      89.     326.      45.      99.      42.      32.       6.       4.   644.40
     0.09     0.90     7.79     1.41    0.120    0.040    0.100    0.036   644.00   170.00
 0.005706     290.     290.     290.       20        8        0      0.0   173.00   343.00

*SECNO 2360.000

        SECNO 2360 X

  2360.00     5.16   652.66     0.0      0.0   652.97     0.31     3.39     0.04   648.00
     460.      79.     315.      66.     122.      59.      50.      11.       8.   648.00
     0.17     0.65     5.34     1.34    0.120    0.035    0.100    0.036   647.50   151.80
 0.001900    1110.    1110.    1110.        3        0        0      0.0   147.70   299.50

CCHV=   0.300 CEHV=   0.500
*SECNO 2915.000

        SECNO 2915 X

  2915.00     4.83   654.13     0.0      0.0   654.49     0.36     1.49     0.03   654.30
     460.       0.     460.       0.       0.      96.       0.      13.       9.   654.30
     0.20      0.0     4.60     0.0    0.080    0.035    0.100    0.035   649.30   223.77
 0.004105     555.     555.     555.        3        0        0      0.0    35.63   263.40

*SECNO 3470.000

        SECNO 3470 STA 56+05 FROM FIELD BOOK

  3470.00     5.19   656.29     0.0      0.0   656.68     0.40     2.17     0.02   657.70
     460.       0.     460.       0.       0.      91.       0.      15.       9.   657.60
     0.23      0.0     5.05     0.0    0.080    0.035    0.100    0.035   651.10   195.94
 0.003737     555.     555.     555.        2        0        0      0.0    31.61   227.55

*SECNO 3853.000

        SECNO 3853 X

  3853.00     4.70   658.10     0.0      0.0   658.67     0.57     1.90     0.09   659.70
     460.       0.     460.       0.       0.      76.       0.      15.      10.   659.30
     0.25      0.0     6.07     0.0    0.080    0.035    0.100    0.035   653.40   158.85
 0.006900     383.     383.     383.        2        0        0      0.0    32.28   191.13

CCHV=   0.100 CEHV=   0.300
*SECNO 4235.000
 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST
```

SECNO 4235 STA 46+40 FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4235.00 | 4.21 | 659.81 | 0.0 | 0.0 | 660.08 | 0.28 | 1.38 | 0.03 | 661.60 |
| 460. | 0. | 460. | 0. | 0. | 109. | 0. | 16. | 10. | 660.00 |
| 0.27 | 0.0 | 4.22 | 0.0 | 0.060 | 0.030 | 0.060 | 0.035 | 655.60 | 119.95 |
| 0.002227 | 267. | 382. | 517. | 2 | 0 | 0 | 0.0 | 43.95 | 163.89 |

°SECNO 4588.000

SECNO 4588 50' D/S 6 MILE BRIDGE BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4588.00 | 3.88 | 660.48 | 0.0 | 0.0 | 661.08 | 0.60 | 0.90 | 0.10 | 656.70 |
| 460. | 28. | 405. | 28. | 14. | 61. | 14. | 17. | 10. | 656.70 |
| 0.29 | 1.92 | 6.61 | 1.92 | 0.060 | 0.030 | 0.060 | 0.034 | 656.60 | 1214.39 |
| 0.002968 | 353. | 353. | 353. | 2 | 6 | 0 | 0.0 | 31.23 | 1245.62 |

CCHV= 0.300 CEHV= 0.500
°SECNO 4638.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 666.40 ELREA= 666.40

SECNO 4638 D/S FACE 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4638.00 | 3.93 | 660.53 | 0.0 | 0.0 | 661.38 | 0.85 | 0.17 | 0.13 | 656.70 |
| 460. | 0. | 460. | 0. | 0. | 62. | 0. | 17. | 10. | 656.70 |
| 0.29 | 0.0 | 7.42 | 0.0 | 0.060 | 0.030 | 0.060 | 0.034 | 656.60 | 1222.00 |
| 0.003956 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 16.00 | 1238.00 |

SPECIAL BRIDGE

| SB | AK | AKOR | COFQ | RDLEN | BWC | BWP | DAREA | SS | ELCHD | ELCAD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 2.03 | 3.00 | 0.0 | 16.00 | 0.0 | 86.40 | 0.0 | 657.00 | 656.80 |

°SECNO 4754.000

6070.LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.0 EGLWC= 662.500 ELLC= 663.200 ENUSE= 660.326 ELTRD= 669.70

Channel is trapezoidal ✓

3370 NO NORMAL BRIDGE.NRD= 10 MIN ELTRD= 669.70 MAX ELLC= 663.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 669.70 ELREA= 669.70

SECNO 4754 U/S FACE 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4754.00 | 3.17 | 660.97 | 0.0 | 0.0 | 662.30 | 1.32 | 0.68 | 0.23 | 657.90 |
| 460. | 0. | 460. | 0. | 0. | 90. | 0. | 17. | 10. | 657.90 |
| 0.29 | 0.0 | 9.23 | 0.0 | 0.060 | 0.030 | 0.060 | 0.034 | 657.80 | 1222.00 |
| 0.009596 | 116. | 116. | 116. | 3 | 0 | 0 | -9.67 | 1[illegible].00 | 1236.00 |

CCHV= 0.300 CEHV= 0.500
°SECNO 4804.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1196.0 1259.0 TYPE= 1 TARGET= 63.000

SECNO 4804 50' U/S 6 MILE BRIDGE BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4804.00 | 4.52 | 662.42 | 0.0 | 0.0 | 662.77 | 0.35 | 0.18 | 0.29 | 661.00 |
| 460. | 9. | 443. | 8. | 14. | 91. | 12. | 17. | 10. | 661.00 |
| 0.30 | 0.64 | 4.85 | 0.66 | 0.000 | 0.030 | 0.080 | 0.034 | 657.90 | 1196.59 |
| 0.001894 | 50. | 50. | 50. | 4 | 0 | 0 | 0.0 | 62.41 | 1259.00 |

CCHV= 0.100 CEHV= 0.300

*SECNO 5363.000

3301 HV CHANGED MORE THAN HVINS

| SECNO | DEPTH | CHSEL | CRIWS | WSELR | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 226.0 265.0 TYPE= 1 TARGET= 39.000

SECNO 5363 STA 37+12 FROM FIELD BOOK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5363.00 | 4.77 | 663.67 | 663.33 | 0.0 | 664.85 | 1.18 | 1.83 | 0.25 | 659.50 |
| 460. | 69. | 360. | 31. | 32. | 37. | 10. | 19. | 11. | 659.00 |
| 0.31 | 2.18 | 9.79 | 1.96 | 0.100 | 0.035 | 0.100 | 0.034 | 656.90 | 226.45 |
| 0.006994 | 559. | 559. | 559. | 6 | 6 | 0 | 0.0 | 30.55 | 265.00 |

*SECNO 5735.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 507.0 544.0 TYPE= 1 TARGET= 37.000

SECNO 5735. A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5735.00 | 5.42 | 665.82 | 0.0 | 0.0 | 666.42 | 0.60 | 1.51 | 0.06 | 661.00 |
| 460. | 59. | 384. | 17. | 32. | 57. | 18. | 19. | 11. | 660.80 |
| 0.33 | 1.54 | 6.76 | 0.56 | 0.100 | 0.035 | 0.100 | 0.034 | 660.40 | 507.00 |
| 0.002847 | 372. | 372. | 75. | 2 | 0 | 0 | 0.0 | 37.00 | 544.00 |

*SECNO 6107.000

3470 ENCROACHMENT STATIONS= 775.0 810.0 TYPE= 1 TARGET= 35.000

SECNO 6107 BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6107.00 | 4.99 | 666.89 | 0.0 | 0.0 | 667.46 | 0.57 | 1.04 | 0.00 | 662.50 |
| 460. | 37. | 417. | 7. | 29. | 66. | 7. | 20. | 11. | 662.50 |
| 0.39 | 1.27 | 6.34 | 0.95 | 0.100 | 0.035 | 0.100 | 0.034 | 661.90 | 775.00 |
| 0.002850 | 372. | 372. | 75. | 2 | 0 | 0 | 0.0 | 35.00 | 810.00 |

*SECNO 6355.000

3470 ENCROACHMENT STATIONS= 1113.0 1354.0 TYPE= 1 TARGET= 241.000

SECNO 6355 STA 27+20 FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9353.00 | 4.70 | 66..88 | 0.0 | 0.0 | 668.29 | 0.35 | 0.75 | 0.02 | 667.50 |
| 4611. | 3. | 457. | 3. | 6. | 46. | 1. | 21. | 12. | 670.50 |
| 0.36 | 0.42 | 4.76 | 0.0 | 0.100 | 0.035 | 0.100 | 0.035 | 662.90 | 1113.00 |
| 0.003175 | 248. | 248. | 243. | 2 | 0 | 0 | 0.0 | 50.49 | 1163.48 |

*SECNO 7080.000

SECNO 7080 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7080.00 | 2.72 | 670.62 | 0.0 | 0.0 | 670.94 | 0.32 | 2.71 | 0.00 | 669.30 |
| 410. | 2. | 606. | 2. | 3. | 69. | 3. | 22. | 13. | 669.30 |
| 0.41 | 0.73 | 4.58 | 0.73 | 0.100 | 0.035 | 0.100 | 0.035 | 667.90 | 22.07 |
| 0.004575 | 725. | 725. | 725. | 3 | 0 | 0 | 0.0 | 51.07 | 73.93 |

410 cfs from hand comps

flow diverted through 53"x34" conc pipe

≈ 53 cfs, remainder over weir

CCHV= 0.300 CEHV= 0.500

*SECNO 7975.000

WATER EL=X CARD= 677.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| 0 | GLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TW | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WIN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

no XSEC D/S of weir

SECNO 7975 WEIR BASED ON SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7975.00 | 2.00 | 677.00 | 0.0 | 0.0 | 677.21 | 0.21 | 2.22 | 0.03 | 675.00 |
| 410. | 4. | 401. | 4. | 5. | 100. | 0. | 25. | 14. | 675.00 |
| 0.40 | 0.57 | 3.71 | 0.57 | 0.100 | 0.025 | 0.100 | 0.033 | 675.00 | 10.17 |
| 0.001519 | 695. | 695. | 695. | 0 | 0 | 0 | 0.0 | 69.05 | 79.83 |

CCHV= 0.100 CEHV= 0.300

*SECNO 8352.000

SECNO 8352 STA 7+23 FROM FIELD BOOK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8352.00 | 3.20 | 677.60 | 0.0 | 0.0 | 677.79 | 0.19 | 0.58 | 0.00 | 673.20 |
| 460. | 7. | 446. | 7. | 11. | 126. | 17. | 26. | 14. | 675.20 |
| 0.51 | 0.64 | 3.55 | 0.64 | 0.100 | 0.045 | 0.103 | 0.044 | 673.20 | 10.19 |
| 0.001521 | 377. | 377. | 377. | 2 | 0 | 5 | 0.0 | 50.04 | 326.67 |

*SECNO 9075.000

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| 0 | GLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TW | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WIN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

3685 20 TRIALS ATTEMPTED WSEL,CHSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3726 CRITICAL DEPTH ASSUMED

SECNO 9175 BASED ON FIELD BOOK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9175.00 | 2.39 | 680.04 | 680.49 | 0.0 | 681.04 | 1.79 | 2.54 | 0.19 | 677.50 |
| 450. | 1. | 457. | 1. | 3. | 64. | 1. | 25. | 15. | 680.00 |
| 0.43 | 1.01 | 7.17 | 1.01 | 0.100 | 0.035 | 0.100 | 0.030 | 671.50 | 210.49 |
| 0.015330 | 723. | 723. | 723. | 20 | 14 | 6 | 0.0 | 40.37 | 323.05 |

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Tributary 1

4) DOCUMENT TYPE: Encroachment

00BREAK00

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oooooooooooooooooooooooooooooooooooooooooooooooooooooooo
  REC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
oooooooooooooooooooooooooooooooooooooooooooooooooooooooo

T1 TRIBUTARY  1 FIS HUD 2014 07 LIVONIA CITY FROM BELL BRANCH TO SHEFFIELD SUBD.
T2 ENCROACHMENT RUN
T3       TRIBUTARY  1 LIVONIA C.

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.       5.        0.        0.   0.0            0.0       0.0        0.   643.470     0.0
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    15.000     0.0      -1.000     0.0       0.0       0.0       0.0       0.0       0.0       15.000
```

*PROF 2

CCHV= 0.100 CEHV= 0.300

*SECNO 660.000

| SECNO | DEPTH | CWSEL | CRITS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | LTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 177.0 437.0 TYPE= 1 TARGET= 260.000

SECNO 60, 60, U/S OF CONFLUENCE W/BELL BRANCH FROM FIELDBOOK AND TOPOMAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 60.00 | 5.17 | 643.47 | 643.38 | 643.47 | 646.74 | 1.27 | 0.0 | 0.0 | 642.70 |
| 640. | 6. | 624. | 10. | 8. | 68. | 13. | 0. | 0. | 642.70 |
| 0.0 | 0.77 | 9.14 | 0.77 | 0.100 | 0.035 | 0.100 | 0.0 | 638.30 | 336.38 |
| 0.009563 | 0. | 0. | 0. | 0 | 0 | 0 | 0.0 | 72.01 | 408.39 |

FLOW DISTRIBUTION FOR SECNO= 60.00 CWSEL= 643.47

| STA= | 336. | 356. | 374. | 408. |
|---|---|---|---|---|
| PER Q= | 0.9 | 97.5 | 1.6 | |
| AREA= | 7.6 | 68.3 | 13.2 | |
| VEL= | 0.8 | 9.1 | 0.8 | |

CCHV= 0.100 CEHV= 0.300

*SECNO 360.000

2800 NAT Q1= 100.03 WSEL= 665.90 ENC Q1= 100.83 WSEL= 646.00 RATIO= 0.0

NAT Q1= 105. RATIOS LOB,CH,ROB= 0.1985 0.7545 0.0470 WSEL= 646.00

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 316.3 368.7 TYPE= 4 TARGET= 0.006

VALLEY SECTION X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 360.00 | 6.07 | 645.87 | 0.0 | 645.90 | 646.23 | 0.36 | 1.41 | 0.09 | 642.00 |
| 460. | 82. | 368. | 10. | 80. | 68. | 10. | 1. | 0. | 642.60 |
| 0.02 | 1.03 | 5.34 | 1.00 | 0.120 | 0.035 | 0.100 | 0.035 | 639.80 | 316.28 |
| 0.002339 | 300. | 300. | 300. | 2 | 0 | 0 | 0.0 | 52.42 | 368.70 |

FLOW DISTRIBUTION FOR SECNO= 360.00 CWSEL= 665.87

| STA= | 316. | 350. | 365. | 369. |
|---|---|---|---|---|
| PER Q= | 17.9 | 80.0 | 2.1 | |
| AREA= | 79.9 | 68.6 | 9.9 | |
| VEL= | 1.0 | 5.4 | 1.0 | |

*SECNO 660.000

2800 NAT Q1= 80.06 WSEL= 646.60 ENC Q1= 80.06 WSEL= 646.70 RATIO= 0.0

NAT Q1= 85. RATIOS LOB,CH,ROB= 0.2828 0.7081 0.0091 WSEL= 646.70

3470 ENCROACHMENT STATIONS= 306.3 356.0 TYPE= 4 TARGET= 0.050

SECNO 660 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 660.00 | 5.54 | 646.74 | 0.0 | 646.60 | 647.13 | 0.39 | 0.89 | 0.01 | 643.60 |
| 460. | 129. | 331. | 0. | 93. | 56. | 0. | 2. | 1. | 643.60 |
| 0.04 | 1.39 | 5.87 | 0.0 | 0.120 | 0.035 | 0.100 | 0.035 | 641.20 | 306.28 |
| 0.003889 | 300. | 300. | 300. | 2 | 0 | 0 | 0.0 | 49.73 | 356.00 |

FLOW DISTRIBUTION FOR SECNO= 660.00 CWSEL= 646.74

| STA= | 306. | 343. | 356. |
|---|---|---|---|
| PER Q= | 28.0 | 72.0 | |
| AREA= | 93.0 | 56.4 | |
| VEL= | 1.4 | 5.9 | |

*SECNO 960.000
2800 NAT Q1= 118.70 WSEL= 647.55 ENC Q1= 118.70 WSEL= 647.65 RATIO= 0.0
NAT Q1= 126. RATIOS LOB,CH,ROB= 0.4143 0.4408 0.1449 WSEL= 647.65

3470 ENCROACHMENT STATIONS= 247.6 341.6 TYPE= 4 TARGET= 0.054

VALLEY SECTION X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 960.00 | 5.09 | 647.69 | 0.0 | 647.55 | 647.63 | 0.14 | 0.67 | 0.02 | 643.80 |
| 460. | 189. | 214. | 57. | 198. | 69. | 52. | 3. | 1. | 643.80 |
| 0.07 | 0.96 | 4.33 | 1.10 | 0.120 | 0.035 | 0.100 | 0.035 | 642.60 | 247.56 |
| 0.001452 | 300. | 300. | 300. | 2 | 0 | 0 | 0.0 | 94.04 | 341.60 |

FLOW DISTRIBUTION FOR SECNO= 960.00 CWSEL= 647.69

| STA= | 246. | 314. | 325. | 342. |
|---|---|---|---|---|
| PER Q= | 41.2 | 46.5 | 12.4 | |
| AREA= | 197.9 | 49.3 | 51.6 | |
| VEL= | 1.0 | 4.3 | 1.1 | |

*SECNO 1250.000

3301 EV CHANGED MORE THAN EVTOL

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TW# | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 170.0 343.0 TYPE= 1 TARGET= 173.000

SECNO 1250 150' U/S OF CONFLUENCE WITH WESTERLY TRIB. FROM FIELD BOOK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1250.00 | 4.86 | 648.86 | 648.86 | 648.87 | 649.54 | 0.69 | 0.75 | 0.16 | 644.50 |
| 460. | 88. | 327. | 44. | 98. | 42. | 31. | 5. | 2. | 644.40 |
| 0.08 | 0.90 | 7.85 | 1.43 | 0.120 | 0.040 | 0.100 | 0.036 | 644.00 | 170.00 |
| 0.005826 | 290. | 290. | 290. | 20 | 11 | 0 | 0.0 | 172.46 | 342.46 |

FLOW DISTRIBUTION FOR SECNO= 1250.00 CWSEL= 648.86

| STA= | 170. | 279. | 286. | 295. | 303. | 342. |
|---|---|---|---|---|---|---|
| PER Q= | 13.7 | 5.5 | 71.2 | 8.5 | 1.2 | |
| AREA= | 81.3 | 16.5 | 41.7 | 20.1 | 11.1 | |
| VEL= | 0.0 | 1.5 | 7.9 | 1.9 | 0.5 | |

*SECNO 2360.000
2800 NAT Q1= 105.5 WSEL= 652.6 ENC Q1= 105.5 WSEL= 652.76 RATIO= 0.0

```
     ...  RATIOS L B,CH,ROB=  0.1 18  ..732  0.1 50  WSEL=    652.76

3470 ENCROACHMENT STATIONS=      220.9      295.0  TYPE=      4  TARGET=        0.048

        SECNO 2360 X

  2360.00      5.22    652.72      0.0     652.66    653.06      0.33      3.48      0.04    648.00
     460.       75.      325.       59.       88.       60.       44.       10.        5.    648.00
     0.16      0.86      5.45      1.33     0.120     0.035     0.100     0.036    647.50    220.86
 0.001951     1110.     1110.     1110.         3         0         0       0.0     74.13    294.99

FLOW DISTRIBUTION FOR SECNO=   2360.00          CWSEL=    652.72

STA=      221.      260.      270.      282.      295.
  PER Q=       8.2       8.1      70.8      12.9
   AREA=      55.7      32.2      59.7      44.5
    VEL=       0.7       1.2       5.5       1.3

CCHV=   0.300 CEHV=   0.500
*SECNO 2915.000
 2800 NAT Q1=      71.79  WSEL=    654.13  ENC Q1=      75.82  WSEL=    654.23  RATIO= -0.0561
 NAT Q1=      76.  RATIOS LOB,CH,ROB=  0.0      1.0000  0.0      WSEL=    654.23

3470 ENCROACHMENT STATIONS=      223.0      264.0  TYPE=      4  TARGET=        0.0

        SECNO 2915 X

  2915.00      4.90    654.20      0.0     654.13    654.54      0.34      1.48      0.00    654.30
     460.        0.      460.        0.        0.       98.        0.       11.        6.    654.30
     0.19      0.0      4.69      0.0     0.080     0.035     0.100     0.035    649.30    223.50
 0.003851      555.      555.      555.         2         0         0       0.0     40.10    263.61

FLOW DISTRIBUTION FOR SECNO=   2915.00          CWSEL=    654.20

STA=      224.      264.
  PER Q=     100.0
   AREA=      98.1
    VEL=       4.7

*SECNO 3470.000
 2800 NAT Q1=      75.25  WSEL=    656.29  ENC Q1=      78.81  WSEL=    656.39  RATIO= -0.0474
 NAT Q1=      79.  RATIOS LOB,CH,ROB=  0.0      1.0000  0.0      WSEL=    656.39

3470 ENCROACHMENT STATIONS=      191.0      230.0  TYPE=      4  TARGET=        0.0

        SECNO 3470 STA 56+05 FROM FIELD BOOK

  3470.00      5.18    656.28      0.0     656.29    656.63      0.40      2.12      0.03    657.70
     460.        0.      460.        0.        0.       91.        0.       13.        6.    657.60
     0.22      0.0      5.07      0.0     0.030     0.035     0.100     0.035    651.10    195.98
 0.003774      555.      555.      555.         1         0         0       0.0     31.55    227.53

FLOW DISTRIBUTION FOR SECNO=   3470.00          CWSEL=    656.28

STA=      196.      230.
  PER Q=     100.0
   AREA=      90.7
    VEL=       5.1

*SECNO 3093.000
 2800 NAT Q1=      55.38  WSEL=    658.10  ENC Q1=      58.58  WSEL=    658.20  RATIO= -0.0578
 NAT Q1=      59.  RATIOS LOB,CH,ROB=  0.0      1.0000  0.0      WSEL=    658.20
```

3470 ENCROACHMENT STATIONS= 153.0 195.0 TYPE= 4 TARGET= 0.0

SECNO 3853 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3853.00 | 4.70 | 658.10 | 0.0 | 658.10 | 658.67 | 0.57 | 1.90 | 0.08 | 659.70 |
| 460. | 0. | 460. | 0. | 0. | 76. | 0. | 13. | 7. | 659.30 |
| 0.24 | 0.0 | 6.05 | 0.0 | 0.080 | 0.035 | 0.100 | 0.035 | 653.40 | 158.82 |
| 0.006852 | 383. | 383. | 383. | 2 | 0 | 0 | 0.0 | 32.33 | 191.15 |

FLOW DISTRIBUTION FOR SECNO= 3853.00 CWSEL= 658.10

STA= 159. 195.
PER Q= 100.0
AREA= 76.0
VEL= 6.0

CCHV= 0.100 CEHV= 0.300
*SECNO 4235.000
2800 NAT Q1= 97.67 WSEL= 659.81 ENC Q1= 102.86 WSEL= 659.91 RATIO= -0.0553
NAT Q1= 103. RATIOS LOB,CH,ROB= 0.0 1.0000 0.0000 WSEL= 659.91

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | MTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 115.0 165.0 TYPE= 4 TARGET= 0.000

SECNO 4235 STA 48+40 FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4235.00 | 4.20 | 659.80 | 0.0 | 659.81 | 660.08 | 0.25 | 1.38 | 0.03 | 661.60 |
| 460. | 0. | 460. | 0. | 0. | 109. | 0. | 15. | 7. | 660.00 |
| 0.26 | 0.0 | 4.21 | 0.0 | 0.060 | 0.030 | 0.060 | 0.035 | 655.60 | 119.94 |
| 0.002222 | 267. | 382. | 517. | 1 | 0 | 0 | 0.0 | 43.97 | 163.91 |

FLOW DISTRIBUTION FOR SECNO= 4235.00 CWSEL= 659.80

STA= 120. 165.
PER Q= 100.0
AREA= 109.2
VEL= 4.2

*SECNO 4563.000
2600 NAT Q1= 86.44 WSEL= 660.48 ENC Q1= 86.46 WSEL= 660.58 RATIO= 0.0000
NAT Q1= 88. RATIOS LOB,CH,ROB= 0.0616 0.8772 0.0616 WSEL= 660.58

3470 ENCROACHMENT STATIONS= 1219.0 1241.0 TYPE= 4 TARGET= 0.045

SECNO 4588 50' D/S 6 MILE BRIDGE BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4588.00 | 3.86 | 660.46 | 0.0 | 660.48 | 661.16 | 0.70 | 0.95 | 0.13 | 656.70 |
| 460. | 17. | 425. | 18. | 9. | 61. | 9. | 15. | 7. | 656.70 |
| 0.26 | 1.96 | 6.98 | 1.96 | 0.060 | 0.030 | 0.060 | 0.034 | 656.60 | 1219.04 |
| 0.003339 | 353. | 353. | 353. | 2 | 0 | 0 | 0.0 | 21.92 | 1240.96 |

FLOW DISTRIBUTION FOR SECNO= 4588.00 CWSEL= 660.46

STA= 1219. 1222. 1238. 1241.
PER Q= 3.8 92.4 3.8
AREA= 8.9 60.9 8.9
VEL= 2.0 7.0 2.0

CCHV= 0.300 CEHV= 0.500
*SECNO 4638.000

3470 ENCROACHMENT STATIONS= 1.0 1629.0 TYPE= 1 TARGET= 1628.000

3695 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 666.40 ELREA= 666.40

SECNO 4638 D/S FACE 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4638.00 | 3.97 | 660.57 | 0.0 | 660.53 | 661.40 | 0.84 | 0.18 | 0.07 | 656.70 |
| 460. | 0. | 460. | 0. | 0. | 63. | 0. | 15. | 7. | 656.70 |
| 0.28 | 0.0 | 7.34 | 0.0 | 0.060 | 0.030 | 0.060 | 0.034 | 656.60 | 1222.00 |
| 0.003830 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 16.00 | 1238.00 |

FLOW DISTRIBUTION FOR SECNO= 4638.00 CHSEL= 660.57

STA= 1222. 1238.
PER Q= 100.0
AREA= 62.7
VEL= 7.3

SPECIAL BRIDGE

| SM | XK | XKOR | COFQ | ROLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 2.03 | 3.00 | 0.0 | 16.00 | 0.0 | 86.40 | 0.0 | 657.80 | 656.60 |

*SECNO 4754.000

6070.LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.0 EGLWC= 662.604 ELLC= 663.200 PCMSE= 660.508 ELTRD= 669.700

3370 NORMAL BRIDGE.NRD= 10 MIN ELTRD= 669.70 MAX ELLC= 663.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 669.70 ELREA= 669.70

SECNO 4754 U/S FACE 6 MILE BRIDGE FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4754.00 | 3.20 | 661.00 | 0.0 | 660.97 | 662.30 | 1.30 | 0.66 | 0.23 | 657.90 |
| 460. | 0. | 460. | 0. | 0. | 50. | 0. | 15. | 7. | 657.90 |
| 0.28 | 0.0 | 9.17 | 0.0 | 0.060 | 0.030 | 0.060 | 0.034 | 657.80 | 1222.00 |
| 0.009381 | 116. | 116. | 116. | 3 | 0 | 0 | -9.82 | 16.00 | 1238.00 |

FLOW DISTRIBUTION FOR SECNO= 4754.00 CHSEL= 661.00

STA= 1222. 1238.
PER Q= 100.0
AREA= 50.2
VEL= 9.2

CCHV= 0.300 CEHV= 0.500
*SECNO 4804.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1198.0 1259.0 TYPE= 1 TARGET= 63.000

SECNO 4804 50' U/S 5 MILE BRIDGE BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 0.35 | 0.18 | 0.29 | 661.00 |
| 460. | 9. | 443. | 8. | 14. | 91. | 12. | 15. | 7. | 661.00 |
| 0.29 | 0.64 | 4.85 | 0.69 | 0.080 | 0.030 | 0.080 | 0.034 | 657.90 | 1196.64 |
| 0.001902 | 50. | 50. | 50. | 4 | 0 | 0 | 0.0 | 62.35 | 1250.00 |

FORM 2913

FLOW DISTRIBUTION FOR SECNO= 4804.00 CWSEL= 662.41

| STA= | 1197. | 1217. | 1243. | 1259. |
|---|---|---|---|---|
| PER Q= | 2.0 | 96.3 | 1.7 | |
| AREA= | 14.4 | 91.3 | 11.9 | |
| VEL= | 0.6 | 4.9 | 0.7 | |

CCHV= 0.100 CEHV= 0.300
*SECNO 5363.000

3301 HV CHANGED MORE THAN HVINS

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | ULOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | CTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 1.0 649.0 TYPE= 1 TARGET= 648.000

SECNO 5363 STA 37+12 FROM FIELD BOOK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5363.00 | 4.77 | 663.67 | 663.32 | 663.67 | 664.85 | 1.18 | 1.84 | 0.25 | 659.50 |
| 460. | 69. | 360. | 31. | 32. | 37. | 16. | 17. | 8. | 659.00 |
| 0.31 | 2.17 | 9.78 | 1.96 | 0.100 | 0.035 | 0.100 | 0.034 | 658.90 | 226.43 |
| 0.006904 | 559. | 559. | 559. | 6 | 8 | 0 | 0.0 | 38.89 | 265.32 |

FLOW DISTRIBUTION FOR SECNO= 5363.00 CWSEL= 663.67

| STA= | 226. | 235. | 240. | 246. | 254. | 257. | 259. | 263. |
|---|---|---|---|---|---|---|---|---|
| PER Q= | 0.6 | 3.0 | 11.4 | 78.3 | 5.5 | 0.9 | 0.4 | |
| AREA= | 3.8 | 8.1 | 19.7 | 36.0 | 10.4 | 3.1 | 2.5 | |
| VEL= | 0.7 | 1.7 | 2.7 | 9.8 | 2.4 | 1.4 | 0.7 | |

*SECNO 5735.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 507.0 544.0 TYPE= 1 TARGET= 37.000

SECNO 5735. X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5735.00 | 5.42 | 665.82 | 0.0 | 665.82 | 666.42 | 0.60 | 1.51 | 0.06 | 661.00 |
| 460. | 59. | 384. | 17. | 38. | 57. | 18. | 17. | 8. | 660.80 |
| 0.32 | 1.54 | 6.76 | 0.96 | 0.100 | 0.035 | 0.100 | 0.034 | 660.40 | 507.00 |
| 0.002848 | 372. | 372. | 75. | 2 | 8 | 0 | 0.0 | 37.00 | 544.00 |

FLOW DISTRIBUTION FOR SECNO= 5735.00 CWSEL= 665.82

| STA= | 507. | 513. | 520. | 531. | 534. | 544. |
|---|---|---|---|---|---|---|
| PER Q= | 3.1 | 9.7 | 83.5 | 2.4 | 1.3 | |
| AREA= | 13.0 | 25.0 | 56.9 | 9.2 | 8.7 | |
| VEL= | 1.1 | 1.3 | 6.8 | 1.2 | 0.7 | |

*SECNO 6107.000

3470 ENCROACHMENT STATION= 775.0 81 .0 TYPE= 1 TARGET= 35.00

SECNO 6107 BASED ON FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6107.00 | 4.99 | 666.89 | 0.0 | 666.89 | 667.46 | 0.57 | 1.04 | 0.00 | 662.50 |
| 460. | 37. | 417. | 7. | 29. | 66. | 7. | 18. | 9. | 662.50 |
| 0.34 | 1.27 | 6.34 | 0.95 | 0.100 | 0.035 | 0.100 | 0.034 | 661.90 | 775.00 |
| 0.002851 | 372. | 372. | 75. | 2 | 0 | 0 | 0.0 | 35.00 | 810.00 |

FLOW DISTRIBUTION FOR SECNO= 6107.00 CWSEL= 666.89

| STA= | 775. | 785. | 793. | 807. | 810. |
|---|---|---|---|---|---|
| PER Q= | 0.9 | 7.0 | 90.6 | 1.4 | |
| AREA= | 6.9 | 22.0 | 65.7 | 7.0 | |
| VEL= | 0.6 | 1.5 | 6.3 | 0.9 | |

*SECNO 6355.000

3470 ENCROACHMENT STATIONS= 1113.0 1354.0 TYPE= 1 TARGET= 241.000

SECNO 6355 STA 27+20 FROM FIELD BOOK AND QUAD MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6355.00 | 4.98 | 667.88 | 0.0 | 667.08 | 668.23 | 0.35 | 0.75 | 0.02 | 667.50 |
| 460. | 3. | 457. | 0. | 6. | 96. | 0. | 19. | 9. | 670.50 |
| 0.35 | 0.42 | 4.76 | 0.0 | 0.100 | 0.035 | 0.100 | 0.035 | 662.90 | 1113.00 |
| 0.003175 | 248. | 248. | 248. | 2 | 0 | 0 | 0.0 | 50.48 | 1163.48 |

FLOW DISTRIBUTION FOR SECNO= 6355.00 CWSEL= 667.88

| STA= | 1113. | 1131. | 1169. |
|---|---|---|---|
| PER Q= | 0.6 | 99.4 | |
| AREA= | 6.5 | 96.0 | |
| VEL= | 0.4 | 4.8 | |

*SECNO 7080.000

2800 NAT Q1= 60.62 WSEL= 670.62 ENC Q1= 65.30 WSEL= 670.72 RATIO= -0.0772

NAT Q1= 66. RATIOS LOB,CH,ROB= 0.0052 0.9896 0.0052 WSEL= 670.72

3470 ENCROACHMENT STATIONS= 26.0 70.0 TYPE= 6 TARGET= 0.010

SECNO 7080 X

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7080.00 | 2.76 | 670.66 | 0.0 | 670.62 | 670.96 | 0.32 | 2.75 | 0.00 | 660.30 |
| 410. | 0. | 410. | 0. | 0. | 91. | 0. | 20. | 10. | 660.30 |
| 0.40 | 0.0 | 4.52 | 0.0 | 0.100 | 0.035 | 0.100 | 0.035 | 667.90 | 26.00 |
| 0.004716 | 725. | 725. | 725. | 3 | 0 | 0 | 0.0 | 44.00 | 70.00 |

FLOW DISTRIBUTION FOR SECNO= 7080.00 CWSEL= 670.66

| STA= | 26. | 70. |
|---|---|---|
| PER Q= | 100.0 | |
| AREA= | 90.7 | |
| VEL= | 4.5 | |

CCHV= 0.300 CEHV= 0.500

*SECNO 7975.000

WATER EL=XS CARD= 677.100

2800 NAT Q1= 104.18 WSEL= 677.00 ENC Q1= 110.53 WSEL= 677.10 RATIO= -0.0609

NAT Q1= 113. RATIOS LOB,CH,ROB= 0.0115 0.9771 0.0115 WSEL= 677.10

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | GANA ELEV |
| 0 | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | HTM | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 18.0 72.0 TYPE= 4 TARGET= 0.023

SECNO 7975 WEIR BASED ON SUBD. MAP

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7975.00 | 2.10 | 677.10 | 0.0 | 677.00 | 677.30 | 0.20 | 2.22 | 0.03 | 675.00 |
| 410. | 0. | 410. | 0. | 0. | 113. | 0. | 22. | 11. | 675.00 |
| 0.47 | 0.0 | 3.62 | 0.0 | 0.100 | 0.025 | 0.100 | 0.033 | 675.00 | 18.00 |
| 0.001527 | 895. | 895. | 895. | 0 | 0 | 0 | 0.0 | 54.00 | 72.00 |

FLOW DISTRIBUTION FOR SECNO= 7975.00 CWSEL= 677.10

STA= 18. 72.
PER Q= 100.0
AREA= 113.4
VEL= 3.6

CCHV= 0.100 CEHV= 0.300
*SECNO 8352.000
2800 NAT Q1= 117.95 WSEL= 677.60 ENC Q1= 120.85 WSEL= 677.70 RATIO= -0.0246
NAT Q1= 125. RATIOS LOB,CH,ROB= 0.0165 0.9682 0.0152 WSEL= 677.70

3470 ENCROACHMENT STATIONS= 280.0 320.0 TYPE= 4 TARGET= 0.032

SECNO 8352 STA 7+23 FROM FIELD BOOK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8352.00 | 4.02 | 677.72 | 0.0 | 677.60 | 677.91 | 0.19 | 0.60 | 0.00 | 675.20 |
| 460. | 0. | 460. | 0. | 0. | 131. | 0. | 26. | 11. | 675.20 |
| 0.50 | 0.0 | 3.52 | 0.0 | 0.100 | 0.035 | 0.100 | 0.034 | 673.70 | 280.00 |
| 0.001670 | 377. | 377. | 377. | 2 | 0 | 0 | 0.0 | 60.00 | 320.00 |

FLOW DISTRIBUTION FOR SECNO= 8352.00 CWSEL= 677.72

STA= 280. 320.
PER Q= 100.0
AREA= 130.6
VEL= 3.5

*SECNO 9075.000
2800 NAT Q1= 37.13 WSEL= 680.84 ENC Q1= 40.84 WSEL= 680.94 RATIO= -0.1000
NAT Q1= 41. RATIOS LOB,CH,ROB= 0.0037 0.9928 0.0035 WSEL= 680.94

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | HTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 280.0 320.0 TYPE= 4 TARGET= 0.007

SECNO 9075 BASED ON FIELD BOOK

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9075.00 | 2.34 | 680.04 | 680.84 | 680.84 | 601.65 | 0.01 | 2.80 | 0.19 | 680.00 |
| 460. | 0. | 460. | 0. | 0. | 64. | 0. | 25. | 12. | 680.00 |
| 0.52 | 0.0 | 7.24 | 0.0 | 0.100 | 0.035 | 0.100 | 0.034 | 674.50 | 280.00 |
| 0.016730 | 725. | 723. | 723. | 20 | 14 | 0 | 0.0 | 40.00 | 320.00 |

FLOW DISTRIBUTION FOR SECNO= 9075.00 CNSEL= 680.84

| STA= | 280. | 320. |
|---|---|---|
| PER Q= | 100.0 | |
| AREA= | 63.5 | |
| VEL= | 7.2 | |

HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01.02
MODIFICATION - 50,51,52,53

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

TRIBUTARY 1 LIVONIA C.

SUMMARY PRINTOUT TABLE 110

| | SECNO | CHSEL | DIFKOS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 60.000 | 643.37 | 0.87 | 644.73 | 64.90 | 4.20 | 628.44 | 7.36 | 260.00 | 177.00 | 356.00 | 374.00 | 437.00 |
| | 60.000 | 643.47 | 0.0 | 644.74 | 72.01 | 5.81 | 624.01 | 10.18 | 260.00 | 177.00 | 356.00 | 374.00 | 437.00 |
| | 360.000 | 645.90 | 0.0 | 646.21 | 105.28 | 87.97 | 351.19 | 20.84 | 0.0 | 0.0 | 350.00 | 365.00 | 0.0 |
| | 360.000 | 645.87 | -0.02 | 646.23 | 52.42 | 82.27 | 367.85 | 9.88 | 0.05 | 316.28 | 350.00 | 365.00 | 368.70 |
| | 660.000 | 646.60 | 0.0 | 647.01 | 106.24 | 125.28 | 330.68 | 4.04 | 0.0 | 0.0 | 343.00 | 356.00 | 0.0 |
| | 660.000 | 646.74 | 0.14 | 647.13 | 49.73 | 128.88 | 331.12 | 0.0 | 0.06 | 306.28 | 343.00 | 356.00 | 356.00 |
| | 960.000 | 647.55 | 0.0 | 647.68 | 108.61 | 187.87 | 206.42 | 65.71 | 0.0 | 0.0 | 314.00 | 325.00 | 0.0 |
| | 960.000 | 647.69 | 0.14 | 647.83 | 94.04 | 189.39 | 213.69 | 56.92 | 0.05 | 267.56 | 314.00 | 325.00 | 341.60 |
| * | 1250.000 | 646.87 | 0.0 | 649.54 | 173.00 | 89.42 | 325.74 | 44.03 | 173.00 | 170.00 | 285.50 | 294.50 | 343.00 |
| * | 1250.000 | 646.86 | -0.01 | 649.54 | 172.46 | 88.07 | 327.43 | 44.50 | 173.00 | 170.00 | 285.50 | 294.50 | 343.00 |
| | 2360.000 | 652.66 | 0.0 | 652.97 | 147.70 | 78.78 | 314.76 | 66.47 | 0.0 | 0.0 | 270.00 | 282.00 | 0.0 |
| | 2360.000 | 652.72 | 0.06 | 653.06 | 74.13 | 75.23 | 325.47 | 59.30 | 0.05 | 220.86 | 270.00 | 282.00 | 294.99 |
| | 2915.000 | 654.13 | 0.0 | 654.49 | 39.63 | 0.0 | 460.00 | 0.0 | 0.0 | 0.0 | 223.00 | 264.00 | 0.0 |
| | 2915.000 | 654.20 | 0.06 | 654.54 | 40.10 | 0.0 | 460.00 | 0.0 | 0.0 | 223.00 | 223.00 | 264.00 | 264.00 |
| | 3470.000 | 656.24 | 0.0 | 656.60 | 31.61 | 0.0 | 460.00 | 0.0 | 0.0 | 0.0 | 191.00 | 230.00 | 0.0 |
| | 3470.000 | 656.28 | -0.00 | 656.68 | 31.55 | 0.0 | 460.00 | 0.0 | 0.0 | 191.00 | 191.08 | 230.00 | 230.00 |
| | 3853.000 | 658.10 | 0.0 | 658.67 | 32.20 | 0.0 | 460.00 | 0.0 | 0.0 | 0.0 | 153.00 | 195.00 | 0.0 |
| | 3853.000 | 658.10 | 0.01 | 658.67 | 32.33 | 0.0 | 460.00 | 0.0 | 0.0 | 153.00 | 153.00 | 195.00 | 195.00 |
| | 4235.000 | 659.81 | 0.0 | 660.08 | 43.95 | 0.0 | 460.00 | 0.0 | 0.0 | 0.0 | 115.00 | 165.00 | 0.0 |
| | 4235.000 | 659.80 | -0.00 | 660.08 | 43.97 | 0.0 | 460.00 | 0.0 | 0.00 | 115.00 | 115.00 | 165.00 | 165.00 |
| | 4588.000 | 660.48 | 0.0 | 661.08 | 31.23 | 27.57 | 404.82 | 27.60 | 0.0 | 0.0 | 1222.00 | 1238.00 | 0.0 |
| | 4588.000 | 660.46 | -0.02 | 661.16 | 21.92 | 17.40 | 425.01 | 17.51 | 0.05 | 1219.04 | 1222.00 | 1238.00 | 1240.96 |
| | 4638.000 | 660.53 | 0.0 | 661.38 | 16.00 | 0.0 | 460.00 | 0.0 | 0.0 | 0.0 | 1222.00 | 1238.00 | 0.0 |
| | 4638.000 | 660.57 | 0.04 | 661.40 | 16.00 | 0.0 | 460.00 | 0.0 | 1624.00 | 1.00 | 1222.00 | 1238.00 | 1629.00 |
| | 4754.000 | 660.97 | 0.0 | 662.30 | 16.00 | 0.0 | 460.00 | 0.0 | 0.0 | 0.0 | 1222.00 | 1238.00 | 0.0 |
| | 4754.000 | 661.00 | 0.02 | 662.30 | 16.00 | 0.0 | 460.00 | 0.0 | 0.0 | 0.0 | 1222.00 | 1238.00 | 0.0 |

| | SECNO | CHSEL | DIFKMS | EG | TOPWID | ALOB | QCH | QROH | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4804.000 | 662.42 | 0.0 | 662.77 | 62.41 | 9.28 | 442.85 | 7.87 | 63.00 | 1196.00 | 1217.00 | 1243.00 | 1259.00 |
| | 4804.000 | 662.41 | -0.00 | 662.77 | 62.35 | 9.23 | 442.95 | 7.82 | 63.00 | 1196.00 | 1217.00 | 1243.00 | 1259.00 |
| | 5363.000 | 663.67 | 0.0 | 664.85 | 38.55 | 68.61 | 360.19 | 31.20 | 39.00 | 226.00 | 246.00 | 254.00 | 265.00 |
| | 5363.000 | 663.67 | 0.00 | 664.85 | 38.89 | 68.65 | 360.17 | 31.18 | 668.00 | 1.00 | 246.00 | 254.00 | 649.00 |
| | 5735.000 | 665.82 | 0.0 | 666.42 | 37.00 | 58.68 | 384.25 | 17.07 | 37.00 | 507.00 | 520.00 | 531.00 | 544.00 |
| | 5735.000 | 665.82 | -0.00 | 666.42 | 37.00 | 56.67 | 384.26 | 17.07 | 37.00 | 507.00 | 520.00 | 531.00 | 544.00 |
| | 6107.000 | 666.89 | 0.0 | 667.46 | 35.00 | 36.65 | 416.73 | 6.62 | 35.00 | 775.00 | 793.00 | 807.00 | 810.00 |
| | 6107.000 | 666.89 | -0.00 | 667.46 | 35.00 | 36.64 | 416.75 | 6.62 | 35.00 | 775.00 | 793.00 | 807.00 | 810.00 |
| | 6355.000 | 667.88 | 0.0 | 668.23 | 50.49 | 2.71 | 457.29 | 0.0 | 241.00 | 1113.00 | 1131.00 | 1169.00 | 1354.00 |
| | 6355.000 | 667.88 | -0.00 | 668.23 | 50.48 | 2.71 | 457.29 | 0.0 | 241.00 | 1113.00 | 1131.00 | 1169.00 | 1354.00 |
| | 7080.000 | 670.62 | 0.0 | 670.94 | 51.87 | 1.90 | 406.20 | 1.90 | 0.0 | 0.0 | 26.00 | 70.00 | 0.0 |
| | 7080.000 | 670.66 | 0.04 | 670.98 | 44.00 | 0.0 | 410.00 | 0.0 | 0.01 | 26.00 | 26.00 | 70.00 | 70.00 |
| D | 7975.000 | 677.00 | 0.0 | 677.21 | 69.65 | 6.68 | 401.04 | 6.48 | 0.0 | 0.0 | 18.00 | 72.00 | 0.0 |
| D | 7975.000 | 677.10 | 0.10 | 677.30 | 54.00 | 0.0 | 410.00 | 0.0 | 0.02 | 18.00 | 18.00 | 72.00 | 72.00 |
| | 8352.000 | 677.60 | 0.0 | 677.79 | 58.04 | 7.18 | 446.20 | 6.62 | 0.0 | 0.0 | 280.00 | 320.00 | 0.0 |
| | 8352.000 | 677.72 | 0.12 | 677.91 | 40.00 | 0.0 | 460.00 | 0.0 | 0.03 | 280.00 | 280.00 | 320.00 | 320.00 |
| D | 9075.000 | 680.84 | 0.0 | 681.04 | 46.37 | 1.42 | 457.27 | 1.31 | 0.0 | 0.0 | 280.00 | 320.00 | 0.0 |
| D | 9075.000 | 680.84 | -0.01 | 681.05 | 40.00 | 0.0 | 460.00 | 0.0 | 0.01 | 280.00 | 280.00 | 320.00 | 320.00 |

TRIBUTARY 1 LIVONIA C.

SUMMARY PRINTOUT TABLE 150

| | SECNO | ALCH | ELTRD | ELLC | ELMIN | D | CLSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 60.000 | 0.0 | 0.0 | 0.0 | 638.30 | 640.00 | 643.37 | 643.37 | 644.73 | 106.15 | 9.46 | 82.12 | 62.12 |
| | 60.000 | 0.0 | 0.0 | 0.0 | 638.30 | 640.00 | 643.47 | 643.38 | 644.74 | 95.63 | 9.14 | 89.05 | 65.45 |
| | 360.000 | 300.00 | 0.0 | 0.0 | 639.80 | 460.00 | 645.90 | 0.0 | 646.21 | 20.81 | 5.09 | 208.66 | 100.83 |
| | 360.000 | 300.00 | 0.0 | 0.0 | 639.80 | 460.00 | 645.87 | 0.0 | 646.23 | 23.39 | 5.38 | 158.24 | 95.11 |
| | 660.000 | 300.00 | 0.0 | 0.0 | 641.20 | 460.00 | 646.60 | 0.0 | 647.01 | 33.02 | 6.07 | 193.75 | 80.06 |
| | 660.000 | 300.00 | 0.0 | 0.0 | 641.20 | 460.00 | 646.74 | 0.0 | 647.13 | 38.89 | 5.87 | 149.40 | 73.76 |
| | 960.000 | 300.00 | 0.0 | 0.0 | 642.60 | 460.00 | 647.55 | 0.0 | 647.88 | 15.02 | 4.32 | 380.71 | 118.70 |
| | 960.000 | 300.00 | 0.0 | 0.0 | 642.60 | 460.00 | 647.69 | 0.0 | 647.83 | 14.52 | 4.33 | 298.90 | 120.73 |
| * | 1250.000 | 290.00 | 0.0 | 0.0 | 644.00 | 460.00 | 648.07 | 648.07 | 649.54 | 57.06 | 7.79 | 173.16 | 60.89 |
| * | 1250.000 | 290.00 | 0.0 | 0.0 | 644.00 | 460.00 | 648.06 | 648.06 | 649.54 | 58.26 | 7.85 | 170.67 | 60.27 |
| | 2360.000 | 1110.00 | 0.0 | 0.0 | 647.50 | 460.00 | 652.66 | 0.0 | 652.97 | 19.00 | 5.34 | 230.22 | 105.54 |
| | 2360.000 | 1110.00 | 0.0 | 0.0 | 647.50 | 460.00 | 652.72 | 0.0 | 653.06 | 19.51 | 5.45 | 192.11 | 104.13 |
| | 2915.000 | 555.00 | 0.0 | 0.0 | 649.30 | 460.00 | 654.13 | 0.0 | 654.49 | 41.06 | 4.80 | 95.75 | 71.79 |
| | 2915.000 | 555.00 | 0.0 | 0.0 | 649.30 | 460.00 | 654.20 | 0.0 | 654.54 | 38.51 | 4.69 | 98.07 | 74.12 |
| | 3470.000 | 555.00 | 0.0 | 0.0 | 651.10 | 460.00 | 656.24 | 0.0 | 656.68 | 37.37 | 5.05 | 91.04 | 75.25 |
| | 3470.000 | 555.00 | 0.0 | 0.0 | 651.10 | 460.00 | 656.26 | 0.0 | 656.68 | 37.74 | 5.07 | 90.71 | 74.86 |
| | 3853.000 | 383.00 | 0.0 | 0.0 | 653.40 | 460.00 | 658.10 | 0.0 | 658.67 | 69.00 | 6.07 | 75.84 | 55.38 |
| | 3853.000 | 383.00 | 0.0 | 0.0 | 653.40 | 460.00 | 658.10 | 0.0 | 658.67 | 68.52 | 6.05 | 76.00 | 55.57 |
| | 4235.000 | 382.00 | 0.0 | 0.0 | 655.60 | 460.00 | 659.81 | 0.0 | 660.08 | 22.27 | 4.22 | 109.07 | 97.47 |
| | 4235.000 | 382.00 | 0.0 | 0.0 | 655.60 | 460.00 | 659.80 | 0.0 | 660.07 | 22.22 | 4.21 | 109.17 | 97.60 |
| | 4588.000 | 353.00 | 0.0 | 0.0 | 656.60 | 460.00 | 660.48 | 0.0 | 661.06 | 29.68 | 6.61 | 90.07 | 84.44 |
| | 4588.000 | 353.00 | 0.0 | 0.0 | 656.60 | 460.00 | 660.46 | 0.0 | 661.16 | 33.35 | 6.90 | 70.78 | 79.60 |
| | 4638.000 | 50.00 | 0.0 | 0.0 | 656.60 | 460.00 | 660.53 | 0.0 | 661.38 | 39.65 | 7.42 | 62.01 | 73.04 |
| | 4638.000 | 50.00 | 0.0 | 0.0 | 656.60 | 460.00 | 660.57 | 0.0 | 661.40 | 38.30 | 7.34 | 62.69 | 74.33 |
| | 4754.000 | 116.00 | 669.70 | 663.20 | 657.80 | 460.00 | 660.97 | 0.0 | 662.30 | 95.96 | 9.23 | 49.82 | 46.96 |
| | 4754.000 | 116.00 | 669.70 | 663.20 | 657.80 | 460.00 | 661.00 | 0.0 | 662.30 | 93.81 | 9.17 | 50.18 | 47.49 |
| | 4804.000 | 50.00 | 0.0 | 0.0 | 657.90 | 460.00 | 662.42 | 0.0 | 662.77 | 18.94 | 4.85 | 117.73 | 105.70 |
| | 4804.000 | 50.00 | 0.0 | 0.0 | 657.90 | 460.00 | 662.41 | 0.0 | 662.77 | 19.02 | 4.85 | 117.49 | 105.48 |
| | 5363.000 | 559.00 | 0.0 | 0.0 | 658.90 | 460.00 | 663.67 | 663.33 | 664.85 | 69.94 | 9.79 | 34.26 | 55.00 |
| | 5363.000 | 559.00 | 0.0 | 0.0 | 658.90 | 460.00 | 663.67 | 663.32 | 664.85 | 69.44 | 9.76 | 34.30 | 55.04 |
| | 5735.000 | 372.00 | 0.0 | 0.0 | 660.40 | 460.00 | 665.62 | 0.0 | 666.42 | 28.47 | 6.76 | 112.76 | 86.21 |
| | 5735.000 | 372.00 | 0.0 | 0.0 | 660.40 | 460.00 | 665.62 | 0.0 | 666.42 | 28.48 | 6.76 | 112.75 | 86.20 |
| | 6107.000 | 372.00 | 0.0 | 0.0 | 661.90 | 460.00 | 666.09 | 0.0 | 667.46 | 28.50 | 6.34 | 101.64 | 86.17 |
| | 6107.000 | 372.00 | 0.0 | 0.0 | 661.90 | 460.00 | 666.89 | 0.0 | 667.46 | 28.51 | 6.34 | 101.61 | 86.16 |
| | 6355.000 | 248.00 | 0.0 | 0.0 | 662.90 | 460.00 | 667.88 | 0.0 | 668.23 | 31.75 | 4.76 | 102.50 | 81.66 |
| | 6355.000 | 248.00 | 0.0 | 0.0 | 662.90 | 460.00 | 667.88 | 0.0 | 668.23 | 31.75 | 4.76 | 102.49 | 81.66 |

| | SECNO | XLCH | ELTRO | ELLC | ELMIN | Q | CWSEL | CRITS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7080.000 | 725.00 | 0.0 | 0.0 | 667.90 | 410.00 | 670.62 | 0.0 | 670.94 | 45.75 | 4.58 | 93.91 | 60.62 |
| | 7080.000 | 725.00 | 0.0 | 0.0 | 667.90 | 410.00 | 670.66 | 0.0 | 670.98 | 47.16 | 4.52 | 90.72 | 59.70 |
| * | 7975.000 | 895.00 | 0.0 | 0.0 | 675.00 | 410.00 | 677.00 | 0.0 | 677.21 | 15.49 | 3.71 | 123.65 | 104.18 |
| * | 7975.000 | 895.00 | 0.0 | 0.0 | 675.00 | 410.00 | 677.10 | 0.0 | 677.30 | 15.27 | 3.62 | 113.41 | 104.93 |
| | 8352.000 | 377.00 | 0.0 | 0.0 | 673.70 | 460.00 | 677.60 | 0.0 | 677.79 | 15.21 | 3.55 | 167.38 | 117.95 |
| | 8352.000 | 377.00 | 0.0 | 0.0 | 673.70 | 460.00 | 677.72 | 0.0 | 677.91 | 16.78 | 3.52 | 130.63 | 112.30 |
| * | 9075.000 | 723.00 | 0.0 | 0.0 | 678.50 | 460.00 | 680.84 | 680.84 | 681.64 | 153.50 | 7.17 | 66.49 | 37.13 |
| * | 9075.000 | 723.00 | 0.0 | 0.0 | 678.50 | 460.00 | 680.84 | 680.84 | 681.65 | 167.30 | 7.24 | 63.55 | 35.56 |

TRIBUTARY J LIVONIA C.

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| * | 60.000 | 640.00 | 643.37 | 0.0 | 0.0 | 0.87 | 64.90 | 0.0 |
| | 60.000 | 640.00 | 643.47 | 0.10 | 0.0 | 0.0 | 72.01 | 0.0 |
| | 360.000 | 460.00 | 645.90 | 0.0 | 2.53 | 0.0 | 105.28 | 300.00 |
| | 360.000 | 460.00 | 645.87 | -0.02 | 2.40 | -0.02 | 52.42 | 300.00 |
| | 660.000 | 460.00 | 646.60 | 0.0 | 0.70 | 0.0 | 106.24 | 300.00 |
| | 660.000 | 460.00 | 646.74 | 0.14 | 0.87 | 0.14 | 49.73 | 300.00 |
| | 960.000 | 460.00 | 647.55 | 0.0 | 0.95 | 0.0 | 188.61 | 300.00 |
| | 960.000 | 460.00 | 647.69 | 0.14 | 0.95 | 0.14 | 94.04 | 300.00 |
| * | 1250.000 | 460.00 | 648.87 | 0.0 | 1.32 | 0.0 | 173.00 | 290.00 |
| * | 1250.000 | 460.00 | 648.86 | -0.01 | 1.17 | -0.01 | 172.46 | 290.00 |
| | 2360.000 | 460.00 | 652.66 | 0.0 | 3.79 | 0.0 | 147.70 | 1110.00 |
| | 2360.000 | 460.00 | 652.72 | 0.06 | 3.87 | 0.06 | 74.13 | 1110.00 |
| | 2915.000 | 460.00 | 654.13 | 0.0 | 1.47 | 0.0 | 39.63 | 555.00 |
| | 2915.000 | 460.00 | 654.20 | 0.06 | 1.47 | 0.06 | 40.10 | 555.00 |
| | 3470.000 | 460.00 | 656.29 | 0.0 | 2.15 | 0.0 | 31.41 | 555.00 |
| | 3470.000 | 460.00 | 656.28 | -0.00 | 2.09 | -0.00 | 31.55 | 555.00 |
| | 3853.000 | 460.00 | 658.10 | 0.0 | 1.81 | 0.0 | 32.28 | 383.00 |
| | 3853.000 | 460.00 | 658.10 | 0.01 | 1.82 | 0.01 | 32.33 | 383.00 |
| | 4235.000 | 460.00 | 659.81 | 0.0 | 1.71 | 0.0 | 43.95 | 382.00 |
| | 4235.000 | 460.00 | 659.80 | -0.00 | 1.70 | -0.00 | 43.97 | 382.00 |
| | 4588.000 | 460.00 | 660.48 | 0.0 | 0.67 | 0.0 | 31.23 | 353.00 |
| | 4588.000 | 460.00 | 660.46 | -0.02 | 0.65 | -0.02 | 21.52 | 353.00 |
| | 4638.000 | 460.00 | 660.53 | 0.0 | 0.04 | 0.0 | 16.00 | 50.00 |
| | 4638.000 | 460.00 | 660.57 | 0.04 | 0.11 | 0.04 | 16.00 | 50.00 |
| | 4754.000 | 460.00 | 660.97 | 0.0 | 0.45 | 0.0 | 16.00 | 116.00 |
| | 4754.000 | 460.00 | 661.00 | 0.02 | 0.43 | 0.02 | 16.00 | 116.00 |
| | 4804.000 | 460.00 | 662.42 | 0.0 | 1.45 | 0.0 | 62.41 | 50.00 |
| | 4804.000 | 460.00 | 662.41 | -0.00 | 1.42 | -0.00 | 62.35 | 50.00 |
| | 5363.000 | 460.00 | 663.67 | 0.0 | 1.25 | 0.0 | 30.55 | 559.00 |
| | 5363.000 | 460.00 | 663.67 | 0.00 | 1.26 | 0.00 | 38.09 | 559.00 |
| | 5735.000 | 460.00 | 665.82 | 0.0 | 2.15 | 0.0 | 37.00 | 372.00 |
| | 5735.000 | 460.00 | 665.82 | -0.00 | 2.15 | -0.00 | 37.00 | 372.00 |
| | 6107.000 | 460.00 | 666.89 | 0.0 | 1.07 | 0.0 | 35.00 | 372.00 |
| | 6107.000 | 460.00 | 666.89 | -0.00 | 1.07 | -0.00 | 35.00 | 372.00 |
| | 6355.000 | 460.00 | 667.88 | 0.0 | 0.98 | 0.0 | 50.42 | 248.00 |
| | 6355.000 | 460.00 | 667.88 | -0.00 | 0.98 | -0.00 | 50.45 | 248.00 |

| | SECNO | Q | CHSEL | DIFWSP | DIFWSX | DIFWIS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 7080.000 | 410.00 | 670.62 | 0.0 | 2.74 | 0.0 | 51.87 | 725.00 |
| | 7030.000 | 410.00 | 670.66 | 0.04 | 2.78 | 0.04 | 44.00 | 725.00 |
| * | 7975.000 | 410.00 | 677.00 | 0.0 | 6.38 | 0.0 | 69.65 | 895.00 |
| * | 7975.000 | 410.00 | 677.10 | 0.10 | 6.44 | 0.10 | 54.00 | 895.00 |
| | 8352.000 | 460.00 | 677.60 | 0.0 | 0.60 | 0.0 | 50.64 | 377.00 |
| | 8352.000 | 460.00 | 677.72 | 0.12 | 0.62 | 0.12 | 40.00 | 377.00 |
| * | 9075.000 | 460.00 | 680.84 | 0.0 | 3.25 | 0.0 | 46.37 | 723.00 |
| * | 9075.000 | 460.00 | 680.84 | -0.01 | 3.12 | -0.01 | 40.00 | 723.00 |

SUMMARY OF ERRORS

CAUTION SECNO= 60.000 PROFILE= 1 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 1250.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1250.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1250.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 1250.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1250.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1250.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

NOTE SECNO= 7975.000 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 7975.000 PROFILE= 2 WSEL BASED ON X5 CARD

CAUTION SECNO= 9075.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9075.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9075.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 9075.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9075.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9075.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOODWAY DATA. TRIBUTARY 1 LIVONIA C.
PROFILE NO. 2

| STATION | FLOODWAY WIDTH (FT) | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 60.000 | 72. | 89. | 7.2 | 663.5 | 663.4 | 0.1 |
| 360.000 | 52. | 150. | 2.9 | 665.9 | 665.9 | 0.0 |
| 660.000 | 50. | 149. | 3.1 | 666.7 | 666.6 | 0.1 |
| 960.000 | 94. | 299. | 1.5 | 667.6 | 667.5 | 0.1 |
| 1250.000 | 172. | 171. | 2.7 | 668.9 | 668.9 | 0.0 |
| 2360.000 | 74. | 192. | 2.4 | 652.8 | 652.7 | 0.1 |
| 2915.000 | 40. | 98. | 4.7 | 654.2 | 654.1 | 0.1 |
| 3470.000 | 32. | 91. | 5.1 | 656.3 | 656.3 | 0.0 |
| 3853.000 | 32. | 76. | 6.0 | 658.1 | 658.1 | 0.0 |
| 4235.000 | 44. | 109. | 4.2 | 659.8 | 659.8 | 0.0 |
| 4588.000 | 22. | 79. | 5.8 | 660.5 | 660.5 | 0.0 |
| 4638.000 | 16. | 63. | 7.3 | 660.5 | 660.5 | 0.0 |
| 4754.000 | 16. | 50. | 9.2 | 661.0 | 661.0 | 0.0 |
| 4804.000 | 62. | 117. | 3.9 | 662.4 | 662.4 | 0.0 |
| 5363.000 | 39. | 84. | 5.5 | 663.7 | 663.7 | 0.0 |
| 5735.000 | 37. | 113. | 4.1 | 665.8 | 665.8 | 0.0 |
| 6107.000 | 35. | 102. | 4.5 | 666.9 | 666.9 | 0.0 |
| 6355.000 | 50. | 102. | 4.5 | 667.9 | 667.9 | 0.0 |
| 7080.000 | 44. | 91. | 4.5 | 670.6 | 670.6 | 0.0 |
| 7975.000 | 54. | 113. | 3.6 | 677.1 | 677.0 | 0.1 |
| 8352.000 | 40. | 131. | 3.5 | 677.7 | 677.6 | 0.1 |
| 9075.000 | 60. | 64. | 7.2 | 680.8 | 680.8 | 0.0 |

```
**********************************************************
  MEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************************
```

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Tributary 1

4) DOCUMENT TYPE: Summary

00BREAK00

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

TRIBUTARY ) LIVONIA C.

SUMMARY PRINTOUT TABLE 150

| | SECNO | ALCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | FQ | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 60.000 | 0.0 | 0.0 | 0.0 | 638.30 | 310.00 | 642.50 | 0.0 | 643.08 | 60.60 | 6.10 | 50.86 | 39.82 |
| * | 60.000 | 0.0 | 0.0 | 0.0 | 638.30 | 520.00 | 642.57 | 642.57 | 644.12 | 159.03 | 9.97 | 52.15 | 41.24 |
| * | 60.000 | 0.0 | 0.0 | 0.0 | 638.30 | 640.00 | 643.37 | 643.37 | 644.73 | 106.15 | 9.46 | 62.12 | 62.12 |
| * | 60.000 | 0.0 | 0.0 | 0.0 | 638.30 | 930.00 | 644.50 | 644.50 | 645.61 | 69.06 | 9.12 | 197.29 | 111.91 |
| | 360.000 | 300.00 | 0.0 | 0.0 | 639.80 | 210.00 | 644.16 | 0.0 | 644.40 | 31.29 | 4.55 | 69.85 | 37.57 |
| | 360.000 | 300.00 | 0.0 | 0.0 | 639.80 | 370.00 | 645.51 | 0.0 | 645.78 | 19.81 | 4.69 | 169.97 | 83.12 |
| | 360.000 | 300.00 | 0.0 | 0.0 | 639.80 | 460.00 | 645.90 | 0.0 | 646.21 | 20.81 | 5.09 | 200.66 | 100.83 |
| | 360.000 | 300.00 | 0.0 | 0.0 | 639.80 | 680.00 | 646.53 | 0.0 | 646.95 | 25.44 | 6.14 | 281.55 | 134.81 |
| | 660.000 | 300.00 | 0.0 | 0.0 | 641.20 | 210.00 | 645.13 | 0.0 | 645.65 | 40.10 | 5.09 | 75.04 | 33.16 |
| | 660.000 | 300.00 | 0.0 | 0.0 | 641.20 | 370.00 | 646.19 | 0.0 | 646.57 | 33.46 | 5.72 | 153.56 | 63.95 |
| | 660.000 | 300.00 | 0.0 | 0.0 | 641.20 | 460.00 | 646.60 | 0.0 | 647.01 | 33.02 | 6.07 | 193.75 | 80.06 |
| | 660.000 | 300.00 | 0.0 | 0.0 | 641.20 | 660.00 | 647.36 | 0.0 | 647.84 | 33.24 | 6.82 | 285.33 | 117.94 |
| | 960.000 | 300.00 | 0.0 | 0.0 | 642.60 | 210.00 | 646.21 | 0.0 | 646.34 | 18.38 | 3.74 | 170.64 | 48.90 |
| | 960.000 | 300.00 | 0.0 | 0.0 | 642.60 | 370.00 | 647.13 | 0.0 | 647.27 | 15.35 | 4.15 | 306.55 | 92.93 |
| | 960.000 | 300.00 | 0.0 | 0.0 | 642.60 | 460.00 | 647.55 | 0.0 | 647.64 | 15.02 | 4.32 | 360.71 | 118.70 |
| | 960.000 | 300.00 | 0.0 | 0.0 | 642.60 | 680.00 | 648.35 | 0.0 | 648.43 | 13.72 | 4.61 | 544.67 | 183.61 |
| | 1250.000 | 290.00 | 0.0 | 0.0 | 644.00 | 210.00 | 646.76 | 646.69 | 647.78 | 150.38 | 8.44 | 32.98 | 17.12 |
| * | 1250.000 | 290.00 | 0.0 | 0.0 | 644.00 | 370.00 | 648.51 | 648.51 | 649.29 | 61.75 | 7.67 | 114.69 | 47.00 |
| * | 1250.000 | 290.00 | 0.0 | 0.0 | 644.00 | 460.00 | 648.87 | 648.87 | 649.54 | 57.06 | 7.79 | 173.16 | 60.09 |
| * | 1250.000 | 290.00 | 0.0 | 0.0 | 644.00 | 680.00 | 649.39 | 649.39 | 650.06 | 60.51 | 8.61 | 242.83 | 87.42 |
| | 2360.000 | 1110.00 | 0.0 | 0.0 | 647.50 | 210.00 | 651.43 | 0.0 | 651.62 | 14.58 | 3.85 | 98.46 | 55.00 |
| | 2360.000 | 1110.00 | 0.0 | 0.0 | 647.50 | 370.00 | 652.32 | 0.0 | 652.59 | 17.44 | 4.87 | 163.35 | 88.61 |
| | 2360.000 | 1110.00 | 0.0 | 0.0 | 647.50 | 460.00 | 652.66 | 0.0 | 652.97 | 19.00 | 5.34 | 230.22 | 105.54 |
| | 2360.000 | 1110.00 | 0.0 | 0.0 | 647.50 | 680.00 | 653.37 | 0.0 | 653.72 | 20.24 | 6.03 | 347.84 | 151.13 |
| | 2915.000 | 555.00 | 0.0 | 0.0 | 649.30 | 210.00 | 652.76 | 0.0 | 653.04 | 50.86 | 4.28 | 49.08 | 29.45 |
| | 2915.000 | 555.00 | 0.0 | 0.0 | 649.30 | 370.00 | 653.73 | 0.0 | 654.05 | 42.36 | 4.60 | 80.38 | 56.85 |
| | 2915.000 | 555.00 | 0.0 | 0.0 | 649.30 | 460.00 | 654.13 | 0.0 | 654.49 | 41.05 | 4.80 | 95.75 | 71.79 |
| | 2915.000 | 555.00 | 0.0 | 0.0 | 649.30 | 680.00 | 654.83 | 0.0 | 655.29 | 38.78 | 5.43 | 133.24 | 109.20 |
| | 3470.000 | 555.00 | 0.0 | 0.0 | 651.10 | 210.00 | 654.49 | 0.0 | 655.22 | 30.71 | 3.85 | 54.55 | 37.90 |
| | 3470.000 | 555.00 | 0.0 | 0.0 | 651.10 | 370.00 | 655.88 | 0.0 | 656.22 | 35.78 | 4.71 | 78.64 | 61.86 |
| | 3470.000 | 555.00 | 0.0 | 0.0 | 651.10 | 460.00 | 656.29 | 0.0 | 656.60 | 37.37 | 5.09 | 91.04 | 75.25 |
| | 3470.000 | 555.00 | 0.0 | 0.0 | 651.10 | 680.00 | 657.04 | 0.0 | 657.37 | 42.31 | 5.64 | 116.43 | 104.54 |

| SECNO | XLCH | ELTRO | ELLC | ELMIN | Q | CWSEL | CRIWS | FB | 10R*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3353.000 | 383.00 | 0.0 | 0.0 | 653.40 | 210.00 | 656.74 | 0.0 | 657.21 | 89.09 | 5.49 | 38.27 | 22.25 |
| 3353.000 | 383.00 | 0.0 | 0.0 | 653.40 | 370.00 | 657.68 | 0.0 | 658.22 | 73.36 | 5.88 | 62.95 | 43.20 |
| 3353.000 | 383.00 | 0.0 | 0.0 | 653.40 | 460.00 | 658.10 | 0.0 | 658.67 | 69.00 | 6.07 | 75.84 | 55.38 |
| 3353.000 | 383.00 | 0.0 | 0.0 | 653.40 | 680.00 | 658.94 | 0.0 | 659.59 | 62.72 | 6.45 | 105.44 | 85.86 |
| 4235.000 | 382.00 | 0.0 | 0.0 | 655.60 | 210.00 | 658.56 | 0.0 | 658.75 | 22.33 | 3.45 | 60.95 | 44.44 |
| 4235.000 | 382.00 | 0.0 | 0.0 | 655.60 | 370.00 | 659.42 | 0.0 | 659.67 | 22.47 | 4.00 | 92.48 | 78.05 |
| 4235.000 | 382.00 | 0.0 | 0.0 | 655.60 | 460.00 | 659.81 | 0.0 | 660.08 | 22.27 | 4.22 | 109.07 | 97.47 |
| 4235.000 | 382.00 | 0.0 | 0.0 | 655.60 | 680.00 | 660.57 | 0.0 | 660.90 | 20.72 | 4.66 | 157.94 | 149.39 |
| 4588.000 | 353.00 | 0.0 | 0.0 | 656.60 | 210.00 | 659.29 | 0.0 | 659.58 | 23.14 | 4.59 | 55.75 | 43.66 |
| 4588.000 | 353.00 | 0.0 | 0.0 | 656.60 | 370.00 | 660.12 | 0.0 | 660.62 | 27.47 | 5.94 | 70.92 | 70.59 |
| 4588.000 | 353.00 | 0.0 | 0.0 | 656.60 | 460.00 | 660.40 | 0.0 | 661.00 | 29.68 | 6.61 | 90.07 | 84.44 |
| 4588.000 | 353.00 | 0.0 | 0.0 | 656.60 | 680.00 | 661.12 | 0.0 | 662.03 | 37.23 | 8.20 | 110.84 | 111.46 |
| 4638.000 | 50.00 | 0.0 | 0.0 | 656.60 | 210.00 | 659.38 | 0.0 | 659.74 | 25.70 | 4.81 | 43.66 | 41.42 |
| 4638.000 | 50.00 | 0.0 | 0.0 | 656.60 | 370.00 | 660.19 | 0.0 | 660.05 | 34.27 | 6.53 | 56.67 | 63.21 |
| 4638.000 | 50.00 | 0.0 | 0.0 | 656.60 | 460.00 | 660.53 | 0.0 | 661.38 | 39.66 | 7.42 | 62.01 | 73.04 |
| 4638.000 | 50.00 | 0.0 | 0.0 | 656.60 | 680.00 | 661.09 | 0.0 | 662.51 | 56.17 | 8.97 | 71.06 | 90.73 |
| 4754.000 | 116.00 | 669.70 | 663.20 | 657.80 | 210.00 | 659.70 | 0.0 | 660.43 | 104.61 | 7.12 | 29.49 | 20.53 |
| 4754.000 | 116.00 | 669.70 | 663.20 | 657.80 | 370.00 | 660.58 | 0.0 | 661.70 | 94.23 | 8.49 | 43.59 | 38.12 |
| 4754.000 | 116.00 | 669.70 | 663.20 | 657.80 | 460.00 | 660.97 | 0.0 | 662.30 | 95.96 | 9.23 | 49.82 | 46.96 |
| 4754.000 | 116.00 | 669.70 | 663.20 | 657.80 | 680.00 | 661.74 | 661.87 | 660.61 | 106.10 | 10.95 | 62.09 | 66.02 |
| 4804.000 | 50.00 | 0.0 | 0.0 | 657.90 | 210.00 | 660.58 | 0.0 | 660.93 | 42.88 | 4.77 | 44.03 | 32.07 |
| 4804.000 | 50.00 | 0.0 | 0.0 | 657.90 | 370.00 | 661.78 | 0.0 | 662.15 | 25.38 | 4.90 | 82.53 | 73.45 |
| 4804.000 | 50.00 | 0.0 | 0.0 | 657.90 | 460.00 | 662.42 | 0.0 | 662.77 | 18.94 | 4.85 | 117.73 | 105.70 |
| 4804.000 | 50.00 | 0.0 | 0.0 | 657.90 | 680.00 | 663.98 | 0.0 | 664.20 | 10.76 | 4.62 | 211.26 | 207.11 |
| 5363.000 | 559.00 | 0.0 | 0.0 | 658.90 | 210.00 | 662.70 | 0.0 | 663.10 | 30.44 | 6.03 | 54.89 | 34.79 |
| 5363.000 | 559.00 | 0.0 | 0.0 | 658.90 | 370.00 | 663.44 | 0.0 | 664.33 | 56.08 | 8.45 | 75.43 | 49.41 |
| 5363.000 | 559.00 | 0.0 | 0.0 | 658.90 | 460.00 | 663.67 | 663.33 | 664.85 | 69.84 | 9.79 | 84.26 | 55.00 |
| 5363.000 | 559.00 | 0.0 | 0.0 | 658.90 | 680.00 | 664.46 | 664.46 | 666.01 | 79.33 | 11.58 | 120.26 | 76.35 |
| 5735.000 | 372.00 | 0.0 | 0.0 | 660.40 | 210.00 | 664.00 | 0.0 | 664.34 | 30.24 | 5.21 | 55.57 | 38.19 |
| 5735.000 | 372.00 | 0.0 | 0.0 | 660.40 | 370.00 | 665.24 | 0.0 | 665.72 | 26.87 | 6.07 | 113.68 | 71.37 |
| 5735.000 | 372.00 | 0.0 | 0.0 | 660.40 | 460.00 | 665.82 | 0.0 | 666.42 | 28.47 | 6.76 | 112.76 | 66.21 |
| 5735.000 | 372.00 | 0.0 | 0.0 | 660.40 | 680.00 | 666.91 | 0.0 | 667.37 | 20.50 | 8.53 | 287.00 | 150.19 |
| 6107.000 | 372.00 | 0.0 | 0.0 | 661.90 | 210.00 | 665.16 | 0.0 | 665.51 | 30.66 | 4.03 | 92.54 | 37.93 |
| 6107.000 | 372.00 | 0.0 | 0.0 | 661.90 | 370.00 | 666.27 | 0.0 | 666.79 | 31.08 | 6.02 | 60.48 | 66.36 |
| 6107.000 | 372.00 | 0.0 | 0.0 | 661.90 | 460.00 | 666.89 | 0.0 | 667.46 | 28.50 | 6.34 | 101.64 | 66.17 |
| 6107.000 | 372.00 | 0.0 | 0.0 | 661.90 | 680.00 | 667.60 | 0.0 | 668.47 | 36.91 | 7.93 | 126.55 | 111.93 |
| 6355.000 | 248.00 | 0.0 | 0.0 | 662.90 | 210.00 | 666.15 | 0.0 | 666.47 | 50.42 | 4.55 | 46.16 | 29.57 |
| 6355.000 | 248.00 | 0.0 | 0.0 | 662.90 | 370.00 | 667.31 | 0.0 | 667.66 | 38.09 | 4.73 | 78.14 | 59.95 |
| 6355.000 | 248.00 | 0.0 | 0.0 | 662.90 | 460.00 | 667.80 | 0.0 | 668.23 | 31.75 | 4.76 | 102.50 | 61.64 |
| 6355.000 | 248.00 | 0.0 | 0.0 | 662.90 | 680.00 | 668.89 | 0.0 | 669.28 | 26.02 | 5.05 | 155.05 | 133.30 |
| 7080.000 | 725.00 | 0.0 | 0.0 | 667.90 | 175.00 | 669.62 | 0.0 | 669.99 | 45.90 | 3.27 | 54.22 | 25.83 |
| 7080.000 | 725.00 | 0.0 | 0.0 | 667.90 | 315.00 | 670.35 | 0.0 | 670.60 | 43.54 | 4.06 | 80.31 | 47.74 |
| 7080.000 | 725.00 | 0.0 | 0.0 | 667.90 | 410.00 | 670.62 | 0.0 | 670.94 | 46.76 | 4.58 | 93.91 | 60.62 |
| 7080.000 | 725.00 | 0.0 | 0.0 | 667.90 | 610.00 | 671.21 | 0.0 | 671.63 | 42.32 | 5.23 | 125.69 | 93.77 |

| | SECNO | XLCH | ELTRO | ELLC | ELMIN | Q | CNSEL | CRIWS | FG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| o | 7975.000 | 895.00 | 0.0 | 0.0 | 675.00 | 175.00 | 676.15 | 0.0 | 676.27 | 18.19 | 2.78 | 67.27 | 41.03 |
| o | 7975.000 | 895.00 | 0.0 | 0.0 | 675.00 | 315.00 | 676.70 | 0.0 | 676.87 | 15.82 | 3.37 | 103.11 | 79.20 |
| o | 7975.000 | 895.00 | 0.0 | 0.0 | 675.00 | 410.00 | 677.00 | 0.0 | 677.21 | 15.49 | 3.71 | 123.65 | 104.18 |
| o | 7975.000 | 895.00 | 0.0 | 0.0 | 675.00 | 610.00 | 677.65 | 0.0 | 677.91 | 13.23 | 4.14 | 170.57 | 167.70 |
| | 8352.000 | 377.00 | 0.0 | 0.0 | 673.70 | 210.00 | 676.68 | 0.0 | 676.76 | 10.24 | 2.32 | 97.56 | 65.61 |
| | 8352.000 | 377.00 | 0.0 | 0.0 | 673.70 | 370.00 | 677.28 | 0.0 | 677.44 | 14.23 | 3.19 | 129.19 | 98.09 |
| | 8352.000 | 377.00 | 0.0 | 0.0 | 673.70 | 460.00 | 677.60 | 0.0 | 677.79 | 15.21 | 3.55 | 147.38 | 117.95 |
| | 8352.000 | 377.00 | 0.0 | 0.0 | 673.70 | 680.00 | 678.22 | 0.0 | 678.50 | 17.96 | 4.34 | 184.40 | 160.48 |
| o | 9075.000 | 723.00 | 0.0 | 0.0 | 678.50 | 210.00 | 680.20 | 680.20 | 680.67 | 181.34 | 5.52 | 38.20 | 15.59 |
| o | 9075.000 | 723.00 | 0.0 | 0.0 | 678.50 | 370.00 | 680.63 | 680.63 | 681.32 | 162.33 | 6.69 | 56.62 | 29.04 |
| o | 9075.000 | 723.00 | 0.0 | 0.0 | 678.50 | 460.00 | 680.84 | 680.84 | 681.64 | 153.50 | 7.17 | 66.49 | 37.13 |
| o | 9075.000 | 723.00 | 0.0 | 0.0 | 678.50 | 680.00 | 681.32 | 681.32 | 682.33 | 130.52 | 8.10 | 89.43 | 57.70 |

TRIBUTARY 1 LIVONIA C.

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLOM |
|---|---|---|---|---|---|---|---|---|
| | 60.000 | 310.00 | 642.50 | 0.0 | 0.0 | 0.0 | 17.56 | 0.0 |
| o | 60.000 | 520.00 | 642.57 | 0.07 | 0.0 | 0.07 | 17.72 | 0.0 |
| o | 60.000 | 640.00 | 643.37 | 0.79 | 0.0 | 0.87 | 64.90 | 0.0 |
| o | 60.000 | 930.00 | 644.50 | 1.13 | 0.0 | 2.00 | 126.91 | 0.0 |
| | 360.000 | 210.00 | 644.16 | 0.0 | 1.66 | 0.0 | 54.66 | 300.00 |
| | 360.000 | 370.00 | 645.51 | 1.35 | 2.93 | 0.0 | 93.95 | 300.00 |
| | 360.000 | 460.00 | 645.90 | 0.39 | 2.53 | 0.0 | 105.26 | 300.00 |
| | 360.000 | 680.00 | 646.53 | 0.64 | 2.03 | 0.0 | 123.64 | 300.00 |
| | 660.000 | 210.00 | 645.18 | 0.0 | 1.02 | 0.0 | 62.28 | 300.00 |
| | 660.000 | 370.00 | 646.19 | 1.01 | 0.68 | 0.0 | 93.69 | 300.00 |
| | 660.000 | 460.00 | 646.60 | 0.41 | 0.70 | 0.0 | 106.24 | 300.00 |
| | 660.000 | 680.00 | 647.36 | 0.76 | 0.83 | 0.0 | 130.39 | 300.00 |
| | 960.000 | 210.00 | 646.21 | 0.0 | 1.03 | 0.0 | 125.16 | 300.00 |
| | 960.000 | 370.00 | 647.13 | 0.92 | 0.95 | 0.0 | 168.95 | 300.00 |
| | 960.000 | 460.00 | 647.55 | 0.41 | 0.95 | 0.0 | 180.61 | 300.00 |
| | 960.000 | 680.00 | 648.35 | 0.80 | 0.98 | 0.0 | 216.33 | 300.00 |
| | 1250.000 | 210.00 | 648.76 | 0.0 | 0.65 | 0.0 | 17.79 | 290.00 |
| o | 1250.000 | 370.00 | 648.51 | 1.75 | 1.37 | 0.0 | 147.36 | 290.00 |
| o | 1250.000 | 460.00 | 648.87 | 0.36 | 1.32 | 0.0 | 173.00 | 290.00 |
| o | 1250.000 | 680.00 | 649.39 | 0.52 | 1.04 | 0.0 | 173.00 | 290.00 |
| | 2360.000 | 210.00 | 651.43 | 0.0 | 4.68 | 0.0 | 65.49 | 1110.00 |
| | 2360.000 | 370.00 | 652.32 | 0.89 | 3.81 | 0.0 | 124.82 | 1110.00 |
| | 2360.000 | 460.00 | 652.66 | 0.34 | 3.79 | 0.0 | 147.70 | 1110.00 |
| | 2360.000 | 680.00 | 653.37 | 0.71 | 3.98 | 0.0 | 171.88 | 1110.00 |
| | 2915.000 | 210.00 | 652.76 | 0.0 | 1.32 | 0.0 | 28.37 | 555.00 |
| | 2915.000 | 370.00 | 653.73 | 0.97 | 1.41 | 0.0 | 36.31 | 555.00 |
| | 2915.000 | 460.00 | 654.13 | 0.41 | 1.47 | 0.0 | 39.63 | 555.00 |
| | 2915.000 | 680.00 | 654.83 | 0.70 | 1.46 | 0.0 | 74.21 | 555.00 |
| | 3470.000 | 210.00 | 654.99 | 0.0 | 2.23 | 0.0 | 24.66 | 555.00 |
| | 3470.000 | 370.00 | 655.88 | 0.89 | 2.15 | 0.0 | 29.43 | 555.00 |
| | 3470.000 | 460.00 | 656.29 | 0.41 | 2.15 | 0.0 | 31.61 | 555.00 |
| | 3470.000 | 680.00 | 657.04 | 0.76 | 2.21 | 0.0 | 35.69 | 555.00 |
| | 3853.000 | 210.00 | 656.74 | 0.0 | 1.75 | 0.0 | 22.93 | 383.00 |
| | 3853.000 | 370.00 | 657.68 | 0.94 | 1.60 | 0.0 | 29.41 | 383.00 |
| | 3853.000 | 460.00 | 658.10 | 0.42 | 1.81 | 0.0 | 32.28 | 383.00 |
| | 3853.000 | 680.00 | 658.94 | 0.84 | 1.90 | 0.0 | 41.04 | 383.00 |
| | 4235.000 | 210.00 | 658.56 | 0.0 | 1.63 | 0.0 | 33.41 | 382.00 |
| | 4235.000 | 370.00 | 659.42 | 0.86 | 1.74 | 0.0 | 40.62 | 382.00 |
| | 4235.000 | 460.00 | 659.81 | 0.39 | 1.71 | 0.0 | 43.85 | 382.00 |
| | 4235.000 | 680.00 | 660.57 | 0.76 | 1.63 | 0.0 | 73.84 | 382.00 |
| | 4588.000 | 210.00 | 659.29 | 0.0 | 0.72 | 0.0 | 26.43 | 353.00 |
| | 4588.000 | 370.00 | 660.12 | 0.83 | 0.70 | 0.0 | 29.76 | 353.00 |
| | 4588.000 | 460.00 | 660.48 | 0.36 | 0.67 | 0.0 | 31.23 | 353.00 |
| | 4588.000 | 680.00 | 661.12 | 0.64 | 0.64 | 0.0 | 33.80 | 353.00 |

| | SECNO | θ | CWSEL | DIFWSP | DIFWSX | DIFWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 4630.000 | 210.00 | 659.33 | 0.0 | 0.09 | 0.0 | 16.00 | 50.00 |
| | 4630.000 | 370.00 | 660.19 | 0.81 | 0.07 | 0.0 | 16.00 | 50.00 |
| | 4638.000 | 460.00 | 660.53 | 0.33 | 0.04 | 0.0 | 16.00 | 50.00 |
| | 4638.000 | 680.00 | 661.09 | 0.56 | -0.03 | 0.0 | 16.00 | 50.00 |
| | 4754.000 | 210.00 | 659.70 | 0.0 | 0.32 | 0.0 | 16.00 | 116.00 |
| | 4754.000 | 370.00 | 660.58 | 0.88 | 0.39 | 0.0 | 16.00 | 116.00 |
| | 4754.000 | 460.00 | 660.97 | 0.39 | 0.45 | 0.0 | 16.00 | 116.00 |
| | 4754.000 | 680.00 | 661.74 | 0.77 | 0.65 | 0.0 | 16.00 | 116.00 |
| | 4804.000 | 210.00 | 660.58 | 0.0 | 0.88 | 0.0 | 23.75 | 50.00 |
| | 4804.000 | 370.00 | 661.78 | 1.20 | 1.19 | 0.0 | 46.37 | 50.00 |
| | 4804.000 | 460.00 | 662.42 | 0.64 | 1.45 | 0.0 | 62.41 | 50.00 |
| | 4804.000 | 680.00 | 663.90 | 1.49 | 2.16 | 0.0 | 63.00 | 50.00 |
| | 5363.000 | 210.00 | 662.70 | 0.0 | 2.12 | 0.0 | 23.44 | 559.00 |
| | 5363.000 | 370.00 | 663.44 | 0.74 | 1.66 | 0.0 | 34.55 | 559.00 |
| | 5363.000 | 460.00 | 663.67 | 0.24 | 1.25 | 0.97 | 38.55 | 559.00 |
| o | 5363.000 | 680.00 | 664.46 | 0.79 | 0.66 | 0.0 | 52.89 | 559.00 |
| | 5735.000 | 210.00 | 664.00 | 0.0 | 1.30 | 0.0 | 30.80 | 372.00 |
| | 5735.000 | 370.00 | 665.24 | 1.25 | 1.81 | 0.0 | 68.24 | 372.00 |
| | 5735.000 | 460.00 | 665.82 | 0.58 | 2.15 | 1.83 | 37.00 | 372.00 |
| | 5735.000 | 680.00 | 666.93 | 1.11 | 2.47 | 0.0 | 159.12 | 372.00 |
| | 6107.000 | 210.00 | 665.16 | 0.0 | 1.17 | 0.0 | 22.38 | 372.00 |
| | 6107.000 | 370.00 | 666.27 | 1.11 | 1.03 | 0.0 | 30.61 | 372.00 |
| | 6107.000 | 460.00 | 666.89 | 0.62 | 1.07 | 1.73 | 35.00 | 372.00 |
| | 6107.000 | 680.00 | 667.60 | 0.70 | 0.67 | 0.0 | 35.00 | 372.00 |
| | 6355.000 | 210.00 | 666.15 | 0.0 | 0.99 | 0.0 | 23.77 | 248.00 |
| | 6355.000 | 370.00 | 667.31 | 1.16 | 1.04 | 0.0 | 30.62 | 248.00 |
| | 6355.000 | 460.00 | 667.88 | 0.57 | 0.96 | 1.73 | 50.49 | 248.00 |
| | 6355.000 | 680.00 | 668.89 | 1.01 | 1.29 | 0.0 | 52.63 | 248.00 |
| | 7080.000 | 175.00 | 669.82 | 0.0 | 3.67 | 0.0 | 47.07 | 725.00 |
| | 7080.000 | 315.00 | 670.35 | 0.53 | 3.04 | 0.0 | 50.20 | 725.00 |
| | 7080.000 | 410.00 | 670.62 | 0.27 | 2.74 | 0.80 | 51.87 | 725.00 |
| | 7080.000 | 610.00 | 671.21 | 0.59 | 2.32 | 0.0 | 55.41 | 725.00 |
| * | 7975.000 | 175.00 | 676.15 | 0.0 | 6.33 | 0.0 | 63.00 | 895.00 |
| * | 7975.000 | 315.00 | 676.70 | 0.55 | 6.35 | 0.0 | 67.30 | 895.00 |
| * | 7975.000 | 410.00 | 677.00 | 0.30 | 6.38 | 0.85 | 69.65 | 895.00 |
| * | 7975.000 | 610.00 | 677.65 | 0.65 | 6.44 | 0.0 | 74.74 | 895.00 |
| | 8352.000 | 210.00 | 676.68 | 0.0 | 0.53 | 0.0 | 51.17 | 377.00 |
| | 8352.000 | 370.00 | 677.28 | 0.60 | 0.58 | 0.0 | 55.63 | 377.00 |
| | 8352.000 | 460.00 | 677.60 | 0.32 | 0.60 | 0.92 | 58.04 | 377.00 |
| | 8352.000 | 680.00 | 678.22 | 0.62 | 0.57 | 0.0 | 62.66 | 377.00 |
| * | 9075.000 | 210.00 | 680.20 | 0.0 | 3.52 | 0.0 | 41.52 | 723.00 |
| * | 9075.000 | 370.00 | 680.63 | 0.43 | 3.35 | 0.0 | 44.73 | 723.00 |
| * | 9075.000 | 460.00 | 680.84 | 0.22 | 3.25 | 0.64 | 46.37 | 723.00 |
| * | 9075.000 | 680.00 | 681.32 | 0.48 | 3.10 | 0.0 | 49.95 | 723.00 |

SUMMARY OF ERRORS

```
CAUTION   SECNO=    60.000   PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=    60.000   PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=    60.000   PROFILE= 4  CRITICAL DEPTH ASSUMED

CAUTION   SECNO=  1250.000   PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=  1250.000   PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=  1250.000   PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=  1250.000   PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=  1250.000   PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=  1250.000   PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=  1250.000   PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=  1250.000   PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=  1250.000   PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION   SECNO=  5363.000   PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=  5363.000   PROFILE= 4  MINIMUM SPECIFIC ENERGY

NOTE      SECNO=  7975.000   PROFILE= 1  WSEL BASED ON XS CARD
NOTE      SECNO=  7975.000   PROFILE= 2  WSEL BASED ON XS CARD
NOTE      SECNO=  7975.000   PROFILE= 3  WSEL BASED ON XS CARD
NOTE      SECNO=  7975.000   PROFILE= 4  WSEL BASED ON XP CARD

CAUTION   SECNO=  9075.000   PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=  9075.000   PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=  9075.000   PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=  9075.000   PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=  9075.000   PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=  9075.000   PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=  9075.000   PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=  9075.000   PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=  9075.000   PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=  9075.000   PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=  9075.000   PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=  9075.000   PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

FLOOD INSURANCE ZONE DATA FOR TRIBUTARY 1 LIVONIA C.

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

| SECTION NUMBER | CUMULATIVE DISTANCE | ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10 | 2 | 0.2 |
|---|---|---|---|---|
| 60.000 | 0. | -0.87 | -0.79 | 1.13 |
| 360.000 | 300. | -1.74 | -0.39 | 0.64 |
| 660.000 | 600. | -1.42 | -0.41 | 0.76 |
| 960.000 | 900. | -1.34 | -0.41 | 0.80 |
| 1250.000 | 1190. | -2.11 | -0.36 | 0.52 |
| 2360.000 | 2300. | -1.23 | -0.34 | 0.71 |
| 2915.000 | 2855. | -1.37 | -0.41 | 0.70 |
| 3470.000 | 3410. | -1.30 | -0.41 | 0.76 |
| 3853.000 | 3793. | -1.36 | -0.42 | 0.85 |
| 4235.000 | 4175. | -1.24 | -0.39 | 0.76 |
| 4588.000 | 4528. | -1.19 | -0.36 | 0.64 |
| 4638.000 | 4578. | -1.15 | -0.33 | 0.56 |
| 4754.000 | 4694. | -1.28 | -0.39 | 0.77 |
| 4804.000 | 4744. | -1.84 | -0.64 | 1.49 |
| 5363.000 | 5303. | -0.97 | -0.24 | 0.79 |
| 5735.000 | 5675. | -1.83 | -0.58 | 1.11 |
| 6107.000 | 6047. | -1.73 | -0.62 | 0.70 |
| 6355.000 | 6295. | -1.73 | -0.57 | 1.01 |
| 7080.000 | 7020. | -0.80 | -0.27 | 0.59 |
| 7975.000 | 7915. | -0.85 | -0.30 | 0.65 |
| 8352.000 | 8292. | -0.92 | -0.32 | 0.62 |
| 9075.000 | 9015. | -0.64 | -0.22 | 0.40 |
| WEIGHTED AVG FOR REACH | | -1.30 | -0.39 | 0.74 |

FHF FOR THE REACH = 015 WITH 92.0 OF THE REACH WITHIN 0.5 FEET
ZONE FOR THE REACH = A 3

```
**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************************
```

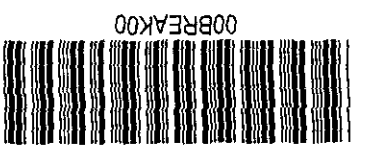



1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Upper Rouge

4) DOCUMENT TYPE: 100 Year



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*****************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
*****************************************************

C
T1 CITY OF LIVONIA FIS HUD 2014-07 UPPER ROUGE RIVER
T2 100 YR FLOW
T3       UPPER ROUGE LIVONIA CITY

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        4.        0.        0.  0.0         0.0       0.0       0.   628.690    0.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBD       CHNIM     ITRACE

     1.000     1.000    -1.000     0.0       0.0       0.0       0.0       0.0       0.0       0.0

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    110.000   150.000   200.000     0.0       0.0       0.0       0.0       0.0       0.0       0.0

ET      0.0       0.0       0.0       0.0       9.100     0.0       0.0       0.0     229.000   315.000
OT      6.000  1160.000  2160.000  2690.000  2690.000  4200.000  1730.000     0.0       0.0       0.0
NC      0.100     0.100     0.040     0.300     0.500     0.0       0.0       0.0       0.0       0.0

        300 D/S INKSTER ROAD.

X1  22863.000    11.000   259.100   284.500     0.0       0.0       0.0       0.0       0.0       0.0
GR    650.000   228.000   631.300   229.000   631.200   235.000   621.900   259.100   621.900   259.200
GR    620.200   272.000   622.100   284.400   622.100   284.500   631.200   305.000   631.400   315.000
GR    650.000   316.000     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
NC      0.120     0.120     0.035     0.0       0.0       0.0       0.0       0.0       0.0       0.0
ET      0.0       9.100     9.100     0.0       0.0       0.0       0.0       0.0     259.100   284.500

        D/S FACE INKSTER RD. SKEW

X1  22896.000     0.0       0.0       0.0      30.000    30.000    30.000     0.0       0.0       0.0
SS      0.0       1.720     3.000     0.0      25.400     0.0     177.600     0.0     620.200   620.200

        D/S FACE INKSTER RD. SKEW

X1  22935.000     0.0       0.0       0.0      40.000    40.000    40.000     0.0       0.0       0.0
X2      0.0       0.0       1.000   627.200   631.200     0.0       0.0       0.0       0.0       0.0
BT     10.000   226.000   650.000     0.0     225.000   635.000     0.0     235.000   631.200     0.0
BT    259.100   631.200   621.900   259.200   631.200   627.200   284.400   631.200   627.200   284.500
BT    631.200   622.100   308.000   631.200     0.0     315.000   635.000     0.0     316.000   650.000
BT      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
NC      0.120     0.120     0.040     0.300     0.500     0.0       0.0       0.0       0.0       0.0
ET      0.0       0.0       0.0       0.0       1.410     0.0       0.0       0.0       0.0       0.0

        50 FT D/S INKSTER RD.

X1  22925.000    11.000   297.000   322.000    50.000    50.000    50.000     0.0       0.0       0.0
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 636.000 | 0.0 | 634.000 | 95.000 | 632.000 | 146.000 | 630.000 | 267.000 | 622.000 | 297.000 |
| GR | 620.300 | 310.000 | 622.000 | [illegible] | [illegible] | 370.000 | 632.000 | 421.000 | 634.000 | 430.000 |
| GR | 636.000 | 533.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.150 | 0.150 | 0.050 | 0.400 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 23779.000 | 18.000 | 272.000 | 292.000 | 200.000 | 1100.000 | 700.000 | 0.0 | 0.0 | 0.0 |
| GR | 636.000 | 0.0 | 636.000 | 190.000 | 634.000 | 210.000 | 632.000 | 230.000 | 630.000 | 240.000 |
| GR | 629.800 | 250.000 | 621.900 | 272.000 | 620.400 | 282.000 | 622.200 | 292.000 | 625.700 | 314.000 |
| GR | 626.000 | 400.000 | 620.000 | 415.000 | 630.000 | 425.000 | 634.000 | 445.000 | 634.000 | 515.000 |
| GR | 636.000 | 545.000 | 638.000 | 655.000 | 640.000 | 710.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.120 | 0.120 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

200 FT D/S 7 MILE RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 24852.000 | 9.000 | 80.000 | 100.000 | 1100.000 | 900.000 | 1077.000 | 0.0 | 0.0 | 0.0 |
| GR | 650.000 | 0.0 | 634.000 | 1.000 | 632.000 | 35.000 | 626.900 | 80.000 | 625.600 | 94.000 |
| GR | 626.700 | 108.000 | 630.000 | 150.000 | 636.000 | 175.000 | 636.000 | 290.000 | 0.0 | 0.0 |
| NC | 0.080 | 0.080 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

D/S FACE 7 MILE RD. SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 25052.000 | 11.000 | 314.000 | 340.000 | 20.000 | 400.000 | 200.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 631.600 | 631.400 | 0.0 |
| X4 | 1.000 | 632.000 | 303.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 650.000 | 225.000 | 634.000 | 227.000 | 632.500 | 228.000 | 626.900 | 314.000 | 626.900 | 314.100 |
| GR | 625.600 | 327.000 | 626.700 | 340.000 | 626.700 | 340.100 | 632.500 | 426.000 | 634.000 | 427.000 |
| GR | 650.000 | 428.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SB | 0.0 | 1.880 | 2.650 | 0.0 | 25.800 | 0.0 | 95.500 | 0.0 | 625.600 | 626.600 |

D/S FACE 7 MILE RD. SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 25108.000 | 0.0 | 0.0 | 0.0 | 56.000 | 56.000 | 56.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 1.000 | 629.300 | 633.700 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 533.700 | 633.700 | 0.0 |
| BT | 10.000 | 226.000 | 650.000 | 0.0 | 227.000 | 634.000 | 0.0 | 226.000 | 634.000 | 0.0 |
| BT | 314.000 | 633.700 | 626.900 | 314.100 | 633.700 | 629.300 | 340.000 | 533.700 | 629.300 | 340.100 |
| BT | 633.700 | 626.700 | 426.000 | 634.000 | 0.0 | 427.000 | 634.000 | 0.0 | 426.000 | 650.000 |
| BT | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.120 | 0.120 | 0.050 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

75 FT D/S 7 MILE RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 25163.000 | 16.000 | 383.000 | 413.000 | 75.000 | 75.000 | 75.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 262.000 | 0.0 | 642.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 640.000 | 0.0 | 640.000 | 232.000 | 632.000 | 275.000 | 636.000 | 292.000 | 634.000 | 316.000 |
| GR | 632.000 | 374.000 | 630.000 | 383.000 | 626.000 | 391.000 | 625.700 | 400.000 | 626.000 | 413.000 |
| GR | 630.000 | 426.000 | 634.000 | 434.000 | 636.000 | 563.000 | 636.000 | 662.000 | 636.000 | 740.000 |
| GR | 640.000 | 912.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.100 | 0.100 | 0.040 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 25620.000 | 13.000 | 379.000 | 400.000 | 600.000 | 50.300 | 145.600 | 0.0 | 0.0 | 0.0 |
| GR | 640.000 | 0.0 | 640.000 | 360.000 | 630.000 | 375.300 | 627.600 | 379.000 | 625.600 | 383.000 |
| GR | 625.700 | 394.000 | 625.400 | 405.000 | 629.400 | 409.000 | 630.000 | 420.000 | 634.000 | 450.000 |
| GR | 636.000 | 725.000 | 638.000 | 740.000 | 640.000 | 1100.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.100 | 0.0 | 0.0 | 73.000 | 296.000 |

50 FT D/S DEERING RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 25038.000 | 13.000 | 171.000 | 200.000 | 700.000 | 100.000 | 410.000 | 0.0 | 0.0 | 0.0 |
| GR | 640.000 | 0.0 | 638.000 | 45.000 | 636.000 | 75.000 | 634.000 | 130.000 | 630.000 | 145.000 |
| GR | 630.000 | 165.000 | 626.000 | 171.000 | 624.900 | 185.000 | 625.600 | 200.000 | 629.100 | 207.000 |
| GR | 630.000 | 235.000 | 638.000 | 260.000 | 639.700 | 375.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.080 | 0.080 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

D/S FACE DEERING RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 26088.000 | 17.000 | 225.000 | 246.000 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 633.400 | 633.400 | 0.0 |
| GR | 650.000 | 134.000 | 635.000 | 135.000 | 633.500 | 136.000 | 633.000 | 209.000 | 625.000 | 225.000 |
| GR | 625.000 | 226.500 | 625.000 | 225.500 | 625.000 | 231.500 | 625.000 | 235.500 | 625.000 | 239.500 |
| GR | 625.000 | 242.500 | 625.000 | 244.500 | 625.000 | 246.000 | 633.000 | 257.000 | 633.600 | 334.000 |
| GR | 635.000 | 335.000 | 650.000 | 336.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SE | 0.0 | 2.500 | 2.650 | 0.0 | 15.600 | 0.0 | 131.000 | 0.0 | 625.000 | 625.000 |

U/S FACE DEERING RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 26184.000 | 0.0 | 0.0 | 0.0 | 96.000 | 96.000 | 96.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 1.000 | 633.400 | 634.900 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 634.900 | 634.900 | 0.0 |
| BT | 16.000 | 134.000 | 650.000 | 0.0 | 135.000 | 635.000 | 0.0 | 136.000 | 635.000 | 0.0 |
| BT | 200.000 | 634.900 | 0.0 | 225.000 | 634.900 | 625.000 | 226.500 | 634.900 | 628.500 | 228.500 |
| BT | 634.900 | 631.000 | 231.500 | 634.900 | 632.600 | 235.500 | 634.900 | 633.400 | 239.500 | 634.900 |
| BT | 632.500 | 242.500 | 634.900 | 631.000 | 244.500 | 634.900 | 628.500 | 246.000 | 634.900 | 625.000 |
| BT | 334.000 | 635.000 | 0.0 | 335.000 | 635.000 | 0.0 | 336.000 | 650.000 | 0.0 | 0.0 |
| NC | 0.120 | 0.120 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

50 FT U/S DEERING RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 26234.000 | 14.000 | 160.000 | 205.000 | 50.000 | 50.000 | 50.000 | 0.0 | 0.0 | 0.0 |
| X3 | 0.0 | 0.0 | 0.0 | 60.000 | 0.0 | 345.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| GR | 640.000 | 0.0 | 638.000 | 80.000 | 636.000 | 100.000 | 634.000 | 110.000 | 632.000 | 120.000 |
| GR | 630.000 | 140.000 | 626.000 | 160.000 | 625.100 | 165.000 | 626.000 | 205.000 | 628.000 | 220.000 |
| GR | 630.000 | 300.000 | 636.000 | 370.000 | 638.000 | 375.000 | 640.000 | 670.000 | 0.0 | 0.0 |
| NC | 0.100 | 0.100 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 26860.000 | 13.000 | 550.000 | 576.000 | 200.000 | 900.000 | 626.000 | 0.0 | 0.0 | 0.0 |
| GR | 642.000 | 0.0 | 640.000 | 275.000 | 630.000 | 345.000 | 626.000 | 480.000 | 629.500 | 550.000 |
| GR | 624.500 | 555.000 | 624.800 | 563.000 | 625.200 | 571.000 | 628.500 | 576.000 | 630.000 | 600.000 |
| GR | 640.000 | 620.000 | 642.000 | 640.000 | 644.000 | 800.000 | 0.0 | 0.0 | 0.0 | 0.0 |

D/S FOOTBRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 26232.000 | 10.000 | 70.000 | 110.000 | 1000.000 | 1400.000 | 1372.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 631.900 | 631.900 | 0.0 |
| GR | 642.000 | 0.0 | 640.000 | 10.000 | 635.000 | 70.000 | 628.000 | 77.500 | 628.000 | 90.000 |
| GR | 629.000 | 102.500 | 635.000 | 110.000 | 635.000 | 265.000 | 640.000 | 400.000 | 644.000 | 650.000 |

FOOTBRIDGE TO SCHOOL D/S FACE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 23233.000 | 0.0 | 0.0 | 0.0 | 1.000 | 1.000 | 1.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 0.0 | 633.500 | 635.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 631.900 | 631.900 | 0.0 |

FOOTBRIDGE TO SCHOOL U/S FACE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2824.000 | 0.0 | 0.0 | 0.0 | 7.000 | 7.000 | 7.000 | 0.0 | 0.0 | 0.0 |
| X2 | 0.0 | 0.0 | 0.0 | 633.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 635.000 | 635.000 | 0.0 |

U/S FOOTBRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2824.000 | 0.0 | 0.0 | 0.0 | 1.000 | 1.000 | 1.000 | 0.0 | 0.0 | 0.0 |
| X2 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 635.000 | 635.000 | 0.0 |
| NC | 0.150 | 0.150 | 0.050 | 0.100 | 0.200 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2556.000 | 20.000 | 57.000 | 86.000 | 350.000 | 500.000 | 319.000 | 0.0 | 0.0 | 0.0 |
| GR | 640.000 | 0.0 | 635.600 | 24.000 | 633.200 | 44.000 | 633.600 | 57.000 | 626.200 | 67.000 |
| GR | 626.200 | 70.000 | 628.600 | 71.000 | 632.700 | 84.000 | 632.700 | 104.000 | 632.500 | 124.000 |
| GR | 632.500 | 164.000 | 633.000 | 184.000 | 632.600 | 204.000 | 632.500 | 224.000 | 632.800 | 244.000 |
| GR | 633.200 | 264.000 | 634.200 | 284.000 | 635.600 | 304.000 | 633.500 | 324.000 | 636.000 | 344.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 29040.000 | 14.000 | 305.000 | 339.000 | 300.000 | 250.000 | 400.000 | 0.0 | 0.0 | 0.0 |
| GR | 640.000 | 0.0 | 640.000 | 200.000 | 640.000 | 215.000 | 634.000 | 255.000 | 637.000 | 295.000 |
| GR | 630.200 | 305.000 | 628.700 | 312.000 | 627.600 | 322.000 | 626.400 | 332.000 | 631.500 | 339.000 |
| GR | 632.000 | 330.000 | 640.000 | 340.000 | 645.000 | 345.000 | 645.000 | 1020.000 | 0.0 | 0.0 |
| NC | 0.120 | 0.120 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SCENO 3159O X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3154.000 | 11.000 | 320.000 | 340.000 | 450.000 | 400.000 | 400.000 | 0.0 | 635.100 | 324.000 |
| GR | 655.000 | 0.0 | 643.000 | 50.000 | 630.000 | 150.000 | 637.500 | 320.000 | 0.0 | 0.0 |
| GR | 639.000 | 335.000 | 635.100 | 346.000 | 637.500 | 349.000 | 638.000 | 400.000 | 643.000 | 479.000 |
| GR | 655.000 | 550.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 9.100 | 9.100 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 296.000 | 555.000 |
| ET | 0.0 | 0.0 | 0.0 | 4.100 | 9.100 | 0.0 | 0.0 | 0.0 | 170.000 | 500.000 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.100 | 0.0 | 0.0 | 150.000 | 419.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3799.000 | 16.000 | 395.000 | 419.000 | 450.000 | 400.000 | 406.000 | 0.0 | 0.0 | 0.0 |
| GR | 650.000 | 0.0 | 645.000 | 637.000 | 120.000 | 632.200 | 1025.000 | 0.0 | 629.300 | 200.000 |
| GR | 629.370 | 210.000 | 632.000 | 220.000 | 635.000 | 640.000 | 900.000 | 650.000 | 650.000 | 801.000 |
| NC | 0.100 | 0.100 | 0.040 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3037.000 | 10.000 | 145.000 | 220.000 | 1400.000 | 1206.000 | 1335.000 | 0.0 | 0.0 | 0.0 |
| GR | 650.000 | 0.0 | 645.000 | 80.000 | 637.000 | 120.000 | 632.200 | 105.000 | 629.300 | 200.000 |
| GR | 629.370 | 210.000 | 632.000 | 220.000 | 635.000 | 640.000 | 900.000 | 650.000 | 650.000 | 801.000 |
| NC | 0.100 | 0.100 | 0.040 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3117.000 | 15.000 | 250.000 | 284.000 | 272.000 | 250.000 | 272.000 | 0.0 | 0.0 | 0.0 |
| GR | 656.000 | 0.0 | 650.000 | 40.000 | 640.000 | 170.000 | 640.000 | 180.000 | 636.000 | 200.000 |
| GR | 638.000 | 250.000 | 635.100 | 254.000 | 635.100 | 267.000 | 634.000 | 280.000 | 636.600 | 284.000 |
| GR | 638.000 | 470.000 | 640.000 | 475.000 | 646.000 | 510.000 | 642.000 | 515.000 | 650.000 | 725.000 |
| TT | 0.000 | 1150.000 | 2050.000 | 2550.000 | 2550.000 | 3900.000 | 1650.000 | 0.0 | 0.0 | 0.0 |
| NC | 0.100 | 0.100 | 0.030 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

SCENO 3159O X

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3154.000 | 11.000 | 320.000 | 340.000 | 450.000 | 400.000 | 400.000 | 0.0 | 635.100 | 324.000 |
| GR | 655.000 | 0.0 | 643.000 | 50.000 | 630.000 | 150.000 | 637.500 | 320.000 | 0.0 | 0.0 |
| GR | 639.000 | 335.000 | 635.100 | 346.000 | 637.500 | 349.000 | 638.000 | 400.000 | 643.000 | 479.000 |
| GR | 655.000 | 550.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 9.100 | 9.100 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 296.000 | 555.000 |
| ET | 0.0 | 0.0 | 0.0 | 4.100 | 9.100 | 0.0 | 0.0 | 0.0 | 170.000 | 500.000 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.100 | 0.0 | 0.0 | 150.000 | 419.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3199.000 | 16.000 | 395.000 | 419.000 | 450.000 | 400.000 | 406.000 | 0.0 | 0.0 | 0.0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 650.000 | 0.0 | 640.000 | 100.000 | 638.000 | 195.000 | 637.200 | 395.000 | 635.600 | 398.000 |
| GR | 635.100 | 407.000 | 635.500 | 416.000 | 637.600 | 419.000 | 640.000 | 425.000 | 650.000 | 445.000 |
| GR | 652.000 | 460.000 | 652.000 | 625.000 | 664.000 | 650.000 | 656.000 | 740.000 | 658.000 | 955.000 |
| GR | 660.000 | 1020.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.080 | 0.080 | 0.030 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ET | 0.0 | 0.0 | 9.100 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 66.000 | 127.000 |
| ET | 0.0 | 0.0 | 0.0 | 0.0 | 9.100 | 0.0 | 0.0 | 0.0 | 1.000 | 359.000 |

70 FT D/S 8 MILE RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 32470.000 | 18.000 | 85.000 | 105.000 | 400.000 | 550.000 | 640.000 | 0.0 | 0.0 | 0.0 |
| GR | 651.700 | 0.0 | 651.000 | 5.000 | 650.000 | 12.000 | 642.500 | 32.000 | 642.500 | 40.000 |
| GR | 638.700 | 62.000 | 638.100 | 70.000 | 637.900 | 76.000 | 633.400 | 85.000 | 632.200 | 92.000 |
| GR | 632.300 | 96.000 | 635.000 | 105.000 | 638.000 | 110.000 | 638.500 | 110.000 | 638.900 | 120.000 |
| GR | 642.700 | 130.000 | 642.900 | 150.000 | 650.000 | 360.000 | 0.0 | 0.0 | 0.0 | 0.0 |
| NC | 0.080 | 0.080 | 0.030 | 0.300 | 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

D/S FACE 8 MILE RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 32540.000 | 21.000 | 600.000 | 627.000 | 70.000 | 70.000 | 70.000 | 0.0 | 0.0 | 0.0 |
| X3 | 10.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 642.200 | 642.200 | 0.0 |
| GR | 650.000 | 0.0 | 648.900 | 100.000 | 648.200 | 200.000 | 646.900 | 300.000 | 646.900 | 400.000 |
| GR | 646.300 | 500.000 | 641.200 | 575.000 | 634.000 | 599.000 | 633.500 | 600.000 | 633.000 | 610.000 |
| GR | 633.500 | 620.000 | 633.800 | 627.000 | 634.200 | 630.000 | 637.400 | 646.000 | 642.700 | 660.000 |
| GR | 645.400 | 700.000 | 646.900 | 800.000 | 650.000 | 900.000 | 653.900 | 1000.000 | 653.100 | 1100.000 |
| GR | 651.100 | 1278.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EJ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

*PROF 1

CCHV= 0.300 CEHV= 0.500
*SECNO 22865.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | UTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

30' D/S INKSTER ROAD.

not the same XSEC as in COE FGS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22865.00 | 8.49 | 628.69 | 0.0 | 628.69 | 630.78 | 2.09 | 0.0 | 0.0 | 621.90 |
| 2690. | 166. | 2372. | 152. | 60. | 193. | 56. | 0. | 0. | 622.10 |
| 0.0 | 2.77 | 12.32 | 2.72 | 0.100 | 0.040 | 0.100 | 0.0 | 620.20 | 241.50 |
| 0.007474 | 0. | 0. | 0. | 0 | 0 | 0 | 0.0 | 60.01 | 301.52 |

*SECNO 22895.000

D/S FACE INKSTER RD. SKEW

628.71

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22895.00 | 8.63 | 628.83 | 0.0 | 0.0 | 631.03 | 2.20 | 0.20 | 0.05 | 621.90 |
| 2690. | 127. | 2445. | 117. | 62. | 196. | 59. | 0. | 0. | 622.10 |
| 0.00 | 2.05 | 12.46 | 2.01 | 0.120 | 0.035 | 0.120 | 0.034 | 620.20 | 241.14 |
| 0.005716 | 30. | 30. | 30. | 2 | 0 | 0 | 0.0 | 60.75 | 301.88 |

628.71

SPECIAL BRIDGE

| SB XR | XROR | COFQ | RDLEN | BWC | BUP | BAREA | SS | ELCHD | ELCHD |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 1.72 | 3.00 | 0.0 | 25.40 | 0.0 | 177.60 | 0.0 | 620.20 | 620.20 |

*SECNO 22935.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

1715 @ 631.2

2227 @ 632.91

| EGPRS | EGLWC | HW | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 634.96 | 631.03 | 0.0 | 505. | 2195. | 178. | 178. | 627.20 | 631.20 |

D/S FACE INKSTER RD. SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22935.00 | 11.77 | 631.97 | 0.0 | 0.0 | 632.91 | 0.94 | 1.38 | 0.0 | 621.90 |
| 2690. | 195. | 2311. | 184. | 135. | 276. | 130. | 1. | 0. | 622.10 |
| 0.00 | 1.44 | 8.37 | 1.42 | 0.120 | 0.035 | 0.120 | 0.034 | 620.20 | 224.96 |
| 0.001637 | 40. | 40. | 40. | 3 | 1 | 2 | 0.0 | 56.07 | 315.03 |

CCHV= 0.300 CEHV= 0.500
*SECNO 22985.000

3301 HV CHANGED MORE THAN HVINS

50 FT U/S INKSTER RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22985.00 | 12.41 | 632.71 | 0.0 | 0.0 | 633.13 | 0.42 | 0.07 | 0.15 | 622.00 |
| 2690. | 357. | 1819. | 514. | 297. | 289. | 391. | 1. | 0. | 622.00 |
| 0.01 | 1.20 | 6.29 | 1.31 | 0.120 | 0.040 | 0.120 | 0.036 | 620.30 | 227.00 |
| 0.001109 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 176.00 | 403.00 |

CCHV= 0.400 CEHV= 0.600
*SECNO 23775.000

| SECNO | DEPTH | CHSEL | CRIWS | HSELK | EG | FV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TOA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | ANL | ARCF | ANR | CTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 23775.00 | 13.46 | 633.86 | 0.0 | 0.0 | 634.01 | 0.14 | 0.76 | 0.11 | 621.90 |
| 2690. | 354. | 1134. | 1202. | 326. | 253. | 1096. | 27. | 4. | 622.20 |
| 0.10 | 1.09 | 4.69 | 1.10 | 0.150 | 0.050 | 0.150 | 0.047 | 620.40 | 211.37 |
| 0.000788 | 200. | 790. | 1100. | 2 | 0 | 0 | 0.0 | 232.95 | 444.32 |

*SECNO 24852.000

200 FT D/S 7 MILE RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 24852.00 | 9.59 | 635.05 | 0.0 | 0.0 | 635.40 | 0.34 | 1.27 | 0.12 | 626.90 |
| 2690. | 533. | 1511. | 646. | 322. | 269. | 335. | 56. | 4. | 626.70 |
| 0.16 | 1.66 | 6.06 | 1.93 | 0.120 | 0.050 | 0.120 | 0.030 | 625.50 | 0.93 |
| 0.002284 | 1100. | 1077. | 900. | 2 | 0 | 0 | 0.0 | 170.13 | 171.06 |

*SECNO 25052.000

D/S FACE 7 MILE RD. SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25052.00 | 10.07 | 635.67 | 0.0 | 0.0 | 635.83 | 0.16 | 0.36 | 0.07 | 626.90 |
| 2690. | 502. | 1100. | 1088. | 327. | 246. | 525. | 51. | 7. | 626.70 |
| 0.18 | 1.53 | 4.47 | 2.07 | 0.080 | 0.050 | 0.080 | 0.049 | 625.80 | 226.70 |
| 0.001136 | 20. | 200. | 400. | 2 | 0 | 0 | 0.0 | 200.21 | 427.10 |

SPECIAL BRIDGE

| SW | XR | XKOR | CDFQ | RDLEN | BWC | BWP | BAREA | SS | ELCPU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 1.00 | 2.65 | 0.0 | 25.00 | 0.0 | 95.50 | 0.0 | 625.60 | 625.60 |

*SECNO 25100.000
PRESSURE AR. WEIR FLOW

| EGPRS | EGLWC | WT | QWEIR | CPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 638.83 | 635.83 | 0.0 | 2172. | 515. | 96. | 95. | 629.30 | 633.70 |

U/S FACE 7 MILE RD. SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25108.00 | 10.60 | 636.40 | 0.0 | 0.0 | 636.52 | 0.12 | 0.49 | 0.0 | 626.90 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.19 | 1.43 | 3.91 | 1.86 | 0.080 | 0.050 | 0.080 | 0.049 | 625.60 | 226.85 |
| 0.000789 | 56. | 56. | 56. | 2 | 0 | 5 | 0.0 | 200.30 | 427.15 |

u/s EG = 636.52

H Water M show .5 ft loss

CCRV= 0.300 CERV= 0.500
*SECNO 25183.000

3470 ENCROACHMENT STATIONS= 252.0 542.0 TYPE= 1 TARGET= 290.000

75 FT U/S 7 MILE RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25183.00 | 10.62 | 636.32 | 0.0 | 0.0 | 636.78 | 0.46 | 0.09 | 0.17 | 636.00 |
| 2590. | 355. | 1907. | 429. | 268. | 297. | 333. | 65. | 10. | 626.00 |
| 0.19 | 1.32 | 6.42 | 1.42 | 0.120 | 0.050 | 0.120 | 0.049 | 625.70 | 289.29 |
| 0.002291 | 75. | 75. | 75. | 2 | 0 | 0 | 0.0 | 252.71 | 542.00 |

*SECNO 25620.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRITS | HSELK | EG | MV | KL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TEA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | QTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25620.00 | 13.30 | 637.00 | 0.0 | 0.0 | 637.32 | 0.32 | 0.50 | 0.06 | 627.60 |
| 2590. | 86. | 1807. | 707. | 70. | 353. | 784. | 71. | 11. | 629.40 |
| 0.22 | 1.23 | 5.38 | 0.90 | 0.100 | 0.040 | 0.100 | 0.049 | 623.70 | 364.50 |
| 0.000469 | 600. | 445. | 50. | 2 | 0 | 0 | 0.0 | 368.01 | 732.51 |

*SECNO 26035.000

50 FT D/S DEERING RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25935.00 | 12.47 | 637.37 | 0.0 | 0.0 | 637.62 | 0.25 | 0.27 | 0.02 | 626.00 |
| 2590. | 475. | 1708. | 509. | 429. | 349. | 374. | 80. | 13. | 625.60 |
| 0.25 | 1.10 | 4.90 | 1.36 | 0.100 | 0.040 | 0.100 | 0.048 | 624.90 | 54.42 |
| 0.000633 | 700. | 410. | 100. | 2 | 0 | 0 | 0.0 | 203.02 | 256.04 |

*SECNO 26058.000

D/S FACE DEERING RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26088.00 | 12.40 | 637.40 | 0.0 | 0.0 | 637.66 | 0.26 | 0.03 | 0.01 | 625.00 |
| 2590. | 667. | 1428. | 595. | 441. | 260. | 416. | 71. | 13. | 625.00 |
| 0.25 | 1.51 | 5.46 | 1.43 | 0.090 | 0.040 | 0.080 | 0.046 | 625.00 | 134.84 |
| 0.000759 | 50. | 50. | 50. | 1 | 0 | 0 | 0.0 | 200.32 | 335.16 |

ELTRD = 634.9

Probably better modeled as Normal Bridge

SPECIAL BRIDGE

| SS | XK | XKOR | COFQ | ROLEN | BWC | SKP | BAREA | SS | ELCHO | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 2.50 | 2.65 | 0.0 | 15.60 | 0.0 | 131.00 | 0.0 | 625.00 | 625.00 |

*SECNO 26184.000
PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | WSEL | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 653.77 | 637.66 | 0.0 | 2197. | 490. | 131. | 131. | 633.40 | 634.90 |

U/S FACE DEERING RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26184.00 | 12.71 | 637.71 | 0.0 | 0.0 | 637.94 | 0.23 | 0.28 | 0.0 | 625.00 |
| 2690. | 686. | 1369. | 615. | 478. | 267. | 443. | 83. | 14. | 625.00 |
| 0.26 | 1.46 | 5.21 | 1.39 | 0.080 | 0.040 | 0.080 | 0.048 | 625.00 | 134.82 |
| 0.000662 | 96. | 96. | 96. | 2 | 0 | 5 | 0.0 | 200.36 | 335.16 |

Loss may be a little high

*SECNO 26234.000

3470 ENCROACHMENT STATIONS= 60.0 345.0 TYPE= 1 TARGET= 285.000

50 FT U/S DEERING RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26234.00 | 12.83 | 637.93 | 0.0 | 0.0 | 638.00 | 0.08 | 0.02 | 0.05 | 626.00 |
| 2690. | 286. | 1574. | 830. | 434. | 557. | 1148. | 85. | 14. | 625.00 |
| 0.27 | 0.66 | 2.83 | 0.72 | 0.120 | 0.040 | 0.120 | 0.048 | 625.10 | 80.73 |
| 0.000282 | 50. | 50. | 50. | 2 | 0 | 0 | 0.0 | 264.27 | 345.00 |

*SECNO 26860.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CNSEL | CRIWS | WSELR | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNH | HTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28060.00 | 13.58 | 638.08 | 0.0 | 0.0 | 638.11 | 0.03 | 0.10 | 0.01 | 629.50 |
| 2690. | 1704. | 781. | 205. | 2107. | 324. | 277. | 112. | 17. | 625.50 |
| 0.38 | 0.81 | 2.41 | 0.74 | 0.100 | 0.040 | 0.100 | 0.045 | 624.50 | 201.45 |
| 0.000170 | 200. | 626. | 900. | 2 | 0 | 0 | 0.0 | 327.71 | 616.16 |

*SECNO 28232.000

D/S FOOTBRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28232.00 | 10.39 | 638.39 | 0.0 | 0.0 | 638.74 | 0.35 | 0.47 | 0.16 | 628.00 |
| 2691. | 94. | 1943. | 692. | 69. | 353. | 566. | 161. | 25. | 635.00 |
| 0.46 | 0.79 | 6.50 | 1.22 | 0.100 | 0.040 | 0.100 | 0.047 | 628.00 | 28.30 |
| 0.001403 | 1000. | 1372. | 1400. | 2 | 0 | 0 | 0.0 | 259.44 | 285.74 |

*SECNO 28233.000

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 635.00 MAX ELLC= 633.50

Footbridge has eliminated
x 49ft² of channel area

28232, 28233, 28240, 28291 all repeats, except for bridge data

FOOTBRIDGE TO SCHOOL D/S FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28233.00 | 10.66 | 638.60 | 0.0 | 0.0 | 638.79 | 0.19 | 0.00 | 0.05 | 625.00 |
| 2690. | 100. | 1385. | 1204. | 76. | 313. | 604. | 161. | 25. | 635.00 |
| 0.46 | 1.29 | 4.43 | 1.99 | 0.100 | 0.040 | 0.100 | 0.047 | 628.00 | 28.70 |
| 0.003451 | 1. | 1. | 1. | 2 | 0 | 0 | -48.75 | 203.47 | 200.22 |

*SECNO 28240.000

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 635.00 MAX ELLC= 633.50

FOOTBRIDGE TO SCHOOL U/S FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28240.00 | 10.63 | 638.63 | 0.0 | 0.0 | 638.81 | 0.10 | 0.02 | 0.00 | 635.00 |
| 2690. | 101. | 1382. | 1207. | 79. | 314. | 607. | 162. | 25. | 635.00 |
| 0.46 | 1.29 | 4.41 | 1.99 | 0.100 | 0.040 | 0.100 | 0.047 | 628.00 | 26.57 |
| 0.003414 | 7. | 7. | 7. | 0 | 0 | 0 | -48.75 | 263.76 | 290.33 |

*SECNO 28241.000

U/S FOOTBRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28241.00 | 10.56 | 638.56 | 0.0 | 0.0 | 638.88 | 0.32 | 0.00 | 0.07 | 635.00 |
| 2690. | 59. | 1913. | 718. | 76. | 360. | 597. | 162. | 25. | 635.00 |
| 0.46 | 0.78 | 5.31 | 1.20 | 0.100 | 0.040 | 0.100 | 0.047 | 628.00 | 27.25 |
| 0.001275 | 1. | 1. | 1. | 2 | 0 | 0 | 0.0 | 262.69 | 209.94 |

CCHV= 0.100 CEHV= 0.300

*SECNO 28560.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | WARN ELEV |
|---|---|---|---|---|---|---|---|---|---|
| 0 | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | MTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28560.00 | 12.92 | 639.12 | 0.0 | 0.0 | 639.22 | 0.10 | 0.32 | 0.02 | 633.60 |
| 2690. | 180. | 991. | 1519. | 203. | 253. | 1398. | 170. | 27. | 632.70 |
| 0.50 | 0.69 | 3.92 | 1.09 | 0.150 | 0.050 | 0.150 | 0.047 | 626.20 | 4.79 |
| 0.001039 | 350. | 319. | 200. | 2 | 0 | 0 | 0.0 | 327.50 | 332.29 |

*SECNO 29040.000

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 29040.00 | 11.79 | 639.39 | 0.0 | 0.0 | 639.46 | 0.06 | 0.23 | 0.00 | 630.20 |
| 2690. | 321. | 1389. | 1280. | 455. | 362. | 1636. | 184. | 29. | 631.50 |
| 0.56 | 0.71 | 3.01 | 0.76 | 0.150 | 0.050 | 0.150 | 0.049 | 627.60 | 21.05 |
| 0.000453 | 300. | 480. | 250. | 2 | 0 | 0 | 0.0 | 357.15 | 576.20 |

*SECNO 30374.000

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30376.00 | 10.76 | 640.06 | 0.0 | 0.0 | 640.14 | 0.08 | 0.00 | 0.01 | 632.20 |
| 2690. | 349. | 1141. | 1200. | 376. | 341. | 1275. | 248. | 40. | 632.00 |
| 0.74 | 0.92 | 3.35 | 0.94 | 0.120 | 0.050 | 0.120 | 0.049 | 629.30 | 104.73 |
| 0.000623 | 1400. | 1335. | 1200. | 2 | 0 | 0 | 0.0 | 395.28 | 500.01 |

*SECNO 31190.000

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31190.00 | 5.42 | 640.22 | 0.0 | 0.0 | 640.56 | 0.34 | 0.34 | 0.08 | 638.00 |
| 2690. | 483. | 1138. | 1068. | 237. | 167. | 547. | 257. | 42. | 636.60 |
| 0.76 | 2.04 | 6.80 | 1.95 | 0.100 | 0.040 | 0.100 | 0.049 | 634.80 | 165.35 |
| 0.004213 | 272. | 272. | 250. | 1 | 0 | 0 | 0.0 | 307.86 | 476.20 |

```
*SECN  31590.0  0

        SECNO 31590 X

 31590.00     6.34   641.34     0.0      0.0   641.69     0.35     1.13     0.00   637.50
    2550.     1017.    1183.     350.     721.     174.     266.     267.      45.   637.50
     0.79      1.41     6.82     1.31    0.100    0.030    0.100    0.048   635.00    83.30
 0.001866     450.     400.     400.        2        0        0      0.0   366.73   450.03

*SECNO 31990.000
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      UTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST

3470 ENCROACHMENT STATIONS=     170.0     500.0  TYPE=     1  TARGET=     330.000

        VALLEY SECTION

 31990.00     7.02   642.12     0.0      0.0   642.39     0.26     0.69     0.01   637.20
    2550.     1533.     990.      26.    1009.     156.      24.     279.      49.   637.60
     0.82      1.52     6.34     1.07    0.100    0.030    0.100    0.047   [illegible]   170.00
 0.001429     450.     400.     400.        2        0        0      0.0   [illegible]   427.24

*SECNO 32470.000

3301 HV CHANGED MORE THAN HVINS

        70 FT D/S 8 MILE RD.

 32470.00     9.90   642.10     0.0      0.0   643.66     1.56     0.88     0.39   633.40
    2550.     362.    2021.     167.     146.     160.      75.     287.      50.   635.00
     0.83      2.42    11.20     2.22    0.080    0.030    0.080    0.046   632.20    42.34
 0.002813     400.     480.     550.        3        0        0      0.0    86.07   128.41

CCHV=   0.300 CEHV=   0.500
*SECNO 32540.000

3301 HV CHANGED MORE THAN HVINS

        D/S FACE 8 MILE RD.
```

XSEC 0+00 for Farmington Hills

```
 32540.00    10.52   643.52     0.0      0.0   644.06     0.54     0.10     0.31   633.50
    2550.     293.    1869.     386.     192.     275.     206.     288.      50.   633.60
     0.64      1.53     6.81     1.69    0.080    0.030    0.080    0.046   633.00   540.84
 0.000859      70.      70.      70.        3        0        0      0.0   131.35   672.19
```

have "n" values been lowered to match PIS starting WSEZ?

1968 run shows different "n" values

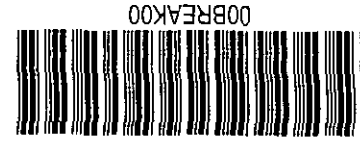



1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Upper Rouge, Bell Branch, and tributaries

4) DOCUMENT TYPE: Report



FROM:

Wade, Trim & Associates, Inc.
25185 Goddard Road P.O. Box 10
Taylor, Michigan 48180

TO:

# HYDRAULIC REPORT
# CITY OF LIVONIA, MICHIGAN

HYDRAULIC REPORT
LIVONIA CITY

## I. INTRODUCTION

The City of Livonia is located in the northwestern portion of Wayne County and is entirely within the Rouge River Basin. The City consists of approximately 36 square miles.

This report summarizes the hydraulic studies undertaken to support the detailed study of nearly 1.5 miles of the Upper Rouge River, over 5 miles of the Bell Branch, over 4 miles of the Tarabusi Creek, 1.5 miles of Tributary #1 and about 1 mile of the Beitz Drain. Tarabusi Creek, Tributary #1 and Beitz Drain are tributaries of the Bell Branch. In addition, 3.5 miles of the Middle Rouge River were studied by approximate methods.

This study was conducted by Wade, Trim & Associates, Inc., Consulting Engineers and Glen Roberts served as Project Manager.

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WATER MANAGEMENT

## II. UPPER ROUGE RIVER (DETAILED)

Detailed studies were performed on the entire Upper Rouge River within the City of Livonia. This study incorporated data and information developed for Flood Insurance Studies being conducted for the Redford Township (Reference 1) and City of Farmington Hills (Reference 2). A total of eleven (11) cross sections, five (5) bridge and seven (7) valley sections were field surveyed by Wade, Trim & Associates, Inc. and were supplemented by U.S.G.S. Quad Maps of the study area which consist of five foot contour intervals (Reference 4) and topographic maps of the study area which consist of two foot contour intervals (References 6 and 7).

Table 1 cross references section designations by showing the computer section number which corresponds to the cross section letter shown in Exhibit 1. Table 2 lists discharges that have been approved by the Michigan Department of Natural Resources (M.D.N.R.). Exhibit 2 contains bridge sketches as well as bridge loss coefficients.

### A. Method of Analysis

The HEC-2 backwater program was used in developing water surface profiles (Reference 13). Table 2 contains selected flood elevations from the HEC-2 printout. HEC-2 printouts including computer cross section plots are presented as Exhibit 3. (Exhibit 3 is contained in the 11" x 15" folder enclosed with this report). Water surface profiles resulting from the backwater analyses are presented as Exhibit 4.

B. Variables and Coefficients

Roughness coefficients (Mannings "n") were estimated by field inspection at each cross section. Typical roughness values for the main channel of the Upper Rouge River range from .03 to 0.05; roughness values for the overbank areas varied between 0.08 to 0.15 for all floods. These values are indicative of summer month conditions and are consistent with values recommended and used in engineering practice. Contraction and expansion coefficients ranged from 0.3 and 0.5 to 0.4 and 0.6 at bridge sections and 0.1 and 0.3 to 0.4 and 0.6 for channel transitions.

C. High Water Marks

Table 3 lists 8 documented high water marks for the June, 1968 storm from the Corps of Engineers Post Flood Report (Reference 12). A 1968 flood profile was developed (Exhibit 3) and the documented high water marks were matched at all locations except 8 Mile Road in order to calibrate the HEC-2 computer model. The high water mark at 8 Mile Road is listed in unknown condition. All possible adjustments, within good engineering practice, were made on the HEC-2 computer model in order to match this high water mark; however, the profile developed in this analysis could not be calibrated with the high water mark and consequently the high water mark is considered invalid.

D. Starting Conditions

The starting water surface elevations for the 10 year and 100 year backwater computations were taken from the FIS Report in Redford Township. The Redford Township FIS does not analyze the 50 year flow condition. Additionally, the 500 year flow from this study does not match the 500 year flow in the Redford Township FIS. Consequently, a rating curve (Exhibit 19) was made at the most upstream cross section of the Redford Township FIS, and the 50 and 500 year elevations were obtained from it.

E. Special Problems

The upstream limit of the Livonia study was matched with the Farmington Hills FIS at the downstream face of 8 Mile Road. Although the flows for each storm in this study were higher than the respective storm flows in the Farmington Hills FIS, the elevations in the Livonia study matched the elevations in the Farmington Hills FIS for the 50, 100, and 500 year storms. The 10 year elevation was not matched due to the large difference in flow.

F. General

Computed water surface elevations were developed to an accuracy of 0.5 feet for floods of the selected recurrence intervals.

All elevations are referenced to the U.S. Geological and Coastal Survey (U.S.G.C.S.) Datum. This datum is equivalent to the National Vertical Datum of 1929 (N.G.V.D.).

The hydraulic analyses for this study were based only on the effects of flow unobstructed by ice or debris. The flood elevations are considered valid only if hydraulic structures, in general, remain unobstructed and do not fail.

TABLE 1

CITY OF LIVONIA, MICHIGAN

UPPER ROUGE RIVER

CROSS REFERENCE INDEX

| COMPUTER SECTION NUMBER | STATION | FW & FB LETTER | DESCRIPTION |
|---|---|---|---|
| 22865. | 0 | A | 30' D/S Inkster Rd. (Redford FIS) |
| 22895. | 30 | B | D/S Face Inkster Rd. |
| 22935. | 70 | C | U/S Face Inkster Rd. |
| 23775. | 910 | D | Valley Section |
| 25052. | 2187 | E | D/S Face 7 Mile |
| 25108. | 2243 | F | U/S Face 7 Mile |
| 25628. | 2763 | G | Valley Section |
| 26088. | 3223 | H | D/S Face Deering |
| 26184. | 3319 | I | U/S Face Deering |
| 26860. | 3995 | J | Valley Section |
| 28241. | 5376 | K | Footbridge to School |
| 28560. | 5695 | L | Valley Section |
| 29040. | 6175 | M | Valley Section |
| 30375. | 7510 | N | Valley Section |
| 31190. | 8325 | O | Valley Section |
| 31990. | 9125 | P | Valley Section |
| 32540. | 9675 | Q | D/S Face 8 Mile (Farmington Hills FIS) |

TABLE 2

CITY OF LIVONIA

UPPER ROUGE RIVER FLOOD FLOW DATA

| LOCATION | | DISCHARGE - CFS 10 YEAR | 50 YEAR | 100 YEAR | 500 YEAR |
|---|---|---|---|---|---|
| Inkster Road | | 1160 | 2160 | 2690 | 4200 |
| (X-Section A) | ELEV. | 625.78 | 627.80 | 628.69 | 630.80 |
| u/s Clarenceville Drain | | 1150 | 2050 | 2550 | 3900 |
| (X-Section P) | ELEV. | 640.51 | 641.59 | 642.12 | 643.59 |

TABLE 3

CITY OF LIVONIA, MICHIGAN

UPPER ROUGE RIVER

HIGH WATER MARK VERIFICATION

| BRIDGE LOCATION | HIGH WATER MARK ELEVATION | HIGH WATER MARK CONDITION | COMPUTER SECTION NUMBER | WTA MODEL OF 1968 FLOOD 1) FLOW (CFS) | WTA MODEL OF 1968 FLOOD ELEVATION |
|---|---|---|---|---|---|
| INKSTER RD. | | | | | |
| d/s | 629.88 | Fair | 22865 | 1730 | 629.88 |
| | | | 22935 | | 631.55 |
| u/s | 631.63 | Fair | | | |
| | | | 22985 | | 631.84 |
| 7 MILE RD. | | | | | |
| d/s | 634.00 | Fair | | | |
| | | | 25052 | | 633.99 |
| d/s | 634.80 | Fair | | | |
| DEERING RD. | | | | | |
| u/s | 636.99 | Unknown | | | |
| | | | 26234 | | 636.69 |
| u/s | 635.45 | Unknown | | | |
| FOOTBRIDGE | 637.22 | Excellent | 28241 | | 637.22 |
| | | | | 1630 | |
| 8 MILE RD. | | | | | |
| d/s face | 2) 644.53 | Unknown | 32540 | | 2) 643.46 |

1) Discharges are from the Corps of Engineers Flood Information Report (Reference 3).

2) Not considered valid.

## III. BELL BRANCH (DETAILED)

Detailed studies were performed on Bell Branch from the eastern City of Livonia Corporate Boundary at Inkster Road to the Ellen Road bridge. This study incorporated data and information developed for the Redford Township Flood Insurance Study (Reference 1). A total of fourteen (14) valley and six (6) bridge cross sections were field surveyed and completed in March, 1979. Additionally, eight (8) valley sections were provided by the Corps of Engineers (Reference 3). Cross section locations are shown in Exhibit 1 and were supplemented by U.S.G.S. Quad Maps of the study area which consist of five and ten foot contour intervals and Topographic Maps of the study area which consist of two foot contour intervals (References 4, 5, 8, 9, 10 and 11).

Table 4 cross references section designations by showing the computer section number which corresponds to the cross section letter shown in Exhibit 1. Table 5 lists discharges that have been approved by the Michigan Department of Natural Resources (M.D.N.R.). Exhibit 5 contains bridge notes and sketches as well as bridge loss coefficients.

### A. Method of Analysis

The HEC-2 backwater program was used in developing water surface profiles (Reference 13). Table 5 contains selected flood elevations from the HEC-2 printout. HEC-2 printouts including computer cross section plots are presented as Exhibit 6. (Exhibit 6 is contained in the 11" x 15" folder enclosed with this report). Water surface profiles resulting from the backwater analyses are presented as Exhibit 7.

B. Variables and Coefficients

Roughness coefficients (Mannings "n") were estimated by field inspection to range from .03 to .04; roughness values for the overbank areas varied between .07 to .12 for all floods. These values are indicative of summer month conditions and are consistent with values recommended and used in engineering practice. Contraction and expansion coefficients were selected as 0.3 and 0.5 at bridge sections and 0.1 and 0.3 for gradual channel transitions.

C. High Water Marks

Table 6 lists 12 documented high water marks for the June, 1968 storm from the Corps of Engineers Post Flood Report (Reference 12).

The HEC-2 computer model for this study was calibrated with the documented high water marks. Since the 1968 flood is considered to be slightly less than a 50 year storm, the WTA 50 year flood profile and the documented high water marks for the 1968 flood were compared. Results of this analysis (Table 6) indicate that the WTA 50 year flood profile is slightly higher than the documented high water marks.

Higher priority was placed on high water marks which are listed in excellent condition since some of the high water marks contradict each other or do not appear to fit in the profile.

D. Starting Conditions

The starting water surface elevations for the 10 year and 100 year frequency floods used in the backwater computations are taken from the most upstream section of the FIS report on Bell Branch in Redford Township. The Redford Township FIS does not list a 50 year flow and elevation. Therefore, a rating curve (Exhibit 20) was made at the same upstream section and the 50 year starting elevation for this study was obtained from it. The 500 year flow of this study does not match the 500 year flow of the Redford Township FIS. The starting elevation was obtained from the same rating curve using the 500 year flow of this study.

E. Special Problems

No special problems were encountered in the hydraulic analysis of the Bell Branch.

F. General

Computed water surface elevations were developed to an accuracy of 0.5 feet for floods of the selected recurrence intervals.

All elevations are referenced to the U.S. Geological and Coastal Survey (U.S.G.C.S.) Datum. This datum is equivalent to the National Geodetic Vertical Datum of 1929 (N.G.V.D.).

The hydraulic analyses for this study were based only on the effects of flow unobstructed by ice or debris. The flood elevations are considered valid only if hydraulic structures, in general, remain unobstructed and do not fail.

TABLE 4
CITY OF LIVONIA, MICHIGAN
BELL BRANCH
CROSS REFERENCE INDEX

| CORPS STATION | COMPUTER SECTION NUMBER | FW & FB LETTER | DESCRIPTION |
|---|---|---|---|
| | 0 | A | 50' D/S Inkster Road Last C.S. in Redford Township FIS |
| | 50 | B | D/S Face Inkster Road Bridge |
| | 120 | C | U/S Face Inkster Road Bridge |
| 153+70 | 640 | D | Valley Section |
| 166+20 | 1950 | E | Valley Section |
| 172+10 | 2750 | F | Valley Section |
| 183+10 | 3950 | G | 200' D/S of Confluence with Tarabusi Creek |
| 190+70 | 4520 | H | Valley Section |
| 196+00 | 5050 | I | Valley Section |
| 201+40 | 5520 | J | Valley Section |
| 207+00 | 6100 | K | Valley Section |
| | 6370 | L | D/S Face Middlebelt Road Bridge |
| | 6446 | M | U/S Face Middlebelt Road Bridge |
| | 7796 | N | Valley Section |
| | 8896 | O | Valley Section |
| | 12076 | P | Valley Section |
| | 12826 | Q | Valley Section |
| | 14026 | R | D/S Face Merriman Road Bridge |
| | 14100 | S | U/S Face Merriman Road Bridge |
| | 14660 | T | Valley Section |
| | 16305 | U | Valley Section |

TABLE 4
CITY OF LIVONIA, MICHIGAN
BELL BRANCH
CROSS REFERENCE INDEX
(Continued)

| CORPS STATION | COMPUTER SECTION NUMBER | FW & FB LETTER | DESCRIPTION |
|---|---|---|---|
| | 17780 | V | D/S Face Hubbard Road Bridge |
| | 17826 | W | U/S Face Hubbard Road Bridge |
| | 18500 | X | Valley Section |
| | 20180 | Y | Valley Section |
| | 22060 | Z | D/S Face Farmington Road Bridge |
| | 22146 | AA | U/S Face Farmington Road Bridge |
| | 23296 | AB | Valley Section |
| | 24096 | AC | Confluence with Beitz Drain |
| | 25668 | AD | Valley Section |
| | 26728 | AE | Valley Section |
| | 28628 | AF | Confluence with Tributary #1 |
| | 29488 | AG | Valley Section |
| | 30868 | AH | D/S Face Ellen Road Bridge |
| | 30921 | AI | U/S Face Ellen Road Bridge |

TABLE 5
CITY OF LIVONIA
BELL BRANCH FLOOD FLOW DATA

| LOCATION | | DISCHARGE - CFS 10 YEAR | 50 YEAR | 100 YEAR | 500 YEAR |
|---|---|---|---|---|---|
| Inkster Road | | 1,650 | 2,900 | 3,600 | 5,500 |
| (X-Section A) | Elev. | 616.70 | 619.20 | 620.50 | 624.00 |
| U/S Tarabusi Creek | | 1,110 | 1,720 | 2,120 | 3,120 |
| (X-Section H) | Elev. | 621.58 | 622.79 | 623.61 | 626.08 |
| U/S Beitz Drain | | 800 | 1,410 | 1,740 | 2,610 |
| (X-Section AD) | Elev. | 642.24 | 643.71 | 644.36 | 645.74 |
| U/S Tributary #1 | | 500 | 890 | 1,100 | 1,550 |
| (X-Section AG) | Elev. | 647.70 | 648.31 | 648.63 | 649.55 |
| U/S Patter Drain | | 400 | 710 | 880 | 1,230 |
| (X-Section AH) | Elev. | 648.88 | 650.07 | 650.58 | 651.63 |

TABLE 6

CITY OF LIVONIA, MICHIGAN

BELL BRANCH

HIGH WATER MARK VERIFICATION

| BRIDGE LOCATION | HIGH WATER MARK ELEVATION | HIGH WATER MARK CONDITION | COMPUTER SECTION NUMBER | WTA MODEL OF 50 Yr. FLOOD PROFILE FLOW (CFS) | WTA MODEL OF 50 Yr. FLOOD PROFILE ELEVATION |
|---|---|---|---|---|---|
| INKSTER RD. | | | | 2900 | |
| d/s | 618.91 | Excellent | 0 | | [1] 619.20 |
| d/s face | 619.3 | Excellent | 50 | | 619.69 |
| u/s face | 618.85 | Good | 120 | | 619.94 |
| u/s | 619.56 | Excellent | 170 | | 619.89 |
| | | | | 1720 | |
| MIDDLEBELT RD. | | | | | |
| d/s face | 624.61 | Excellent | 6370 | | 624.91 |
| u/s face | 623.86 | Unknown | 6446 | | 624.91 |
| HENRY RUFF RD. | | | | | |
| dead end | 628.73 | Excellent | | | |
| MERRIMAN RD. | | | | | |
| d/s face | 631.77 | Excellent | 14026 | | 631.81 |
| u/s face | 631.92 | Excellent | 14100 | | 632.17 |
| FARMINGTON RD. | | | | | |
| d/s | 640.94 | Unknown | 22010 | | 639.73 |
| d/s | 639.73 | Good | 22010 | | 639.73 |
| | | | | 710 | |
| ELLEN RD. | | | | | |
| d/s face | 649.43 | Fair | 30868 | | 650.07 |

[1] The 50 yr. flood elevation of 619.2 was obtained from a rating curve at X-section 16 of the Redford Township F.I.S. (Reference 1).

## IV. TARABUSI CREEK (DETAILED)

Detailed studies were performed on Tarabusi Creek from Bell Branch to the northern City of Livonia Corporate Boundary at 8 Mile Road. A total of twenty-six (26) cross sections were provided by the Corps of Engineers (Reference 3). The cross sections included five (5) bridges and twenty-one (21) valley cross sections. Additionally, one bridge cross section was field surveyed by Wade, Trim & Associates, Inc. Cross section locations are shown in Exhibit 1 and were supplemented by U.S.G.S. Quad Maps of the study area which consist of five and ten foot contour intervals (References 4 and 5).

Table 7 cross references section designations by showing the computer section number which corresponds to the cross section letter shown in Exhibit 1. Table 8 lists discharges that have been approved by the Michigan Department of Natural Resources (M.D.N.R.). Exhibit 8 contains bridge notes and sketches as well as bridge loss coefficients.

### A. Method of Analysis

The HEC-2 backwater program was used in developing water surface profiles (Reference 13). Table 8 contains selected flood elevations from the HEC-2 printout. HEC-2 printouts including computer cross section plots are presented as Exhibit 9. (Exhibit 9 is contained in the 11" x 15" folder enclosed with this report). Water surface profiles resulting from the backwater analyses are presented as Exhibit 10.

B. Variables and Coefficients

Roughness coefficients (Mannings "n") were estimated by field inspection to range from .03 to .05 for the channel and to range from .05 to .15 for the overbank areas for all floods. These values are indicative of summer month conditions and are consistent with values recommended and used in engineering practice. Contraction and expansion coefficients ranged from 0.3 and 0.5 to 0.4 and 0.6 at bridge sections and channel transitions.

C. High Water Marks

Table 9 lists 9 documented high water marks for the June, 1968 storm from the Corps of Engineers Post Flood Report (Reference 12).

The HEC-2 computer model for Tarabusi Creek was calibrated with the documented high water marks for the 1968 flood. The 1968 flow rate presented by the Corps of Engineers was used to develop a 1968 flood profile (Reference 3). This flow rate was input to the HEC-2 model at 6 Mile Road. Comparison of the resulting elevations, at the upstream and downstream faces of 6 Mile Road bridge, with the documented high water marks indicates that the flow rate is correct. Since the 6 Mile Road bridge has been replaced since 1968, the old structure was input into the HEC-2 model for this analysis.

Most of the documented high water marks for Tarabusi Creek are listed in poor and unknown condition; therefore, some of these marks were not matched exactly. However, these marks were used as a guide to insure that the model was working in the proper range.

D. Starting Conditions

The starting water surface elevation used in all backwater computations is the mean annual elevation for the Bell Branch at the confluence of the Tarabusi Creek (Exhibit 18).

E. Special Problems

No special problems were encountered in the hydraulic analysis of the Tarabusi Creek.

F. General

Computed water surface elevations were developed to an accuracy of 0.5 feet for floods of the selected reoccurrence intervals.

All elevations are referenced to the U.S. Geological and Coastal Survey (U.S.G.C.S.) Datum. This datum is equivalent to the National Geodetic Vertical Datum of 1929 (N.G.V.D.).

The hydraulic analyses for this study were based only on the effects of flow unobstructed by ice or debris. The flood elevations are considered valid only if hydraulic structures, in general, remain unobstructed and do not fail.

TABLE 7

CITY OF LIVONIA, MICHIGAN

TARABUSI CREEK

CROSS REFERENCE INDEX

| CORPS STATION | COMPUTER SECTION NUMBER | FW & FB LETTER | DESCRIPTION |
|---|---|---|---|
| 0+50 | 120 | A | 50' U/S of Confluence with Bell Branch |
| | 1340 | B | Valley Section |
| | 2466 | C | D/S Face 6 Mile Road Bridge |
| | 2554 | D | U/S Face 6 Mile Road Bridge |
| 26+00 | 4316 | E | D/S Face Middlebelt Road Bridge |
| | 4403 | F | U/S Face Middlebelt Road Bridge |
| 59+50 | 5950 | G | Valley Section |
| 66+00 | 6600 | H | Valley Section |
| 73+40 | 7340 | I | Valley Section |
| 88+15 | 8815 | J | Valley Section |
| 107+40 | 10708 | K | D/S Face Merriman Road Bridge |
| | 10782 | L | U/S Face Merriman Road Bridge |
| 119+60 | 11720 | M | Valley Section |
| 126+20 | 12570 | N | Valley Section |
| 159+20 | 13360 | O | Valley Section |
| 174+50 | 14440 | P | D/S Face 7 Mile Road Bridge |
| | 14501 | Q | U/S Face 7 Mile Road Bridge |
| 184+40 | 15360 | R | Valley Section |
| 192+60 | 16100 | S | Valley Section |
| 201+70 | 16900 | T | Valley Section |
| 210+80 | 17690 | U | Valley Section |
| 230+00 | 19313 | V | D/S Face Farmington Road Bridge |
| | 19387 | W | U/S Face Farmington Road Bridge |
| | 19517 | X | Valley Section |
| | 20117 | Y | Valley Section |
| | 21117 | Z | Valley Section |
| | 21667 | AA | Valley Section |
| | 23050 | AB | Valley Section |
| | 23550 | AC | Valley Section |
| | 24250 | AD | D/S Face 8 Mile Road Bridge |

TABLE 8
CITY OF LIVONIA
TARABUSI CREEK FLOOD FLOW DATA

| LOCATION | | DISCHARGE - CFS 10 YEAR | 50 YEAR | 100 YEAR | 500 YEAR |
|---|---|---|---|---|---|
| Confluence with Bell Branch | | 1,070 | 1,560 | 1,770 | 2,060 |
| (X-Section A) | Elev. | 620.00 | 620.00 | 620.00 | 620.00 |
| U/S Merriman Road | | 960 | 1,410 | 1,590 | 1,860 |
| (X-Section M) | Elev. | 646.57 | 647.57 | 647.92 | 648.42 |
| U/S Farmington Road | | 820 | 1,200 | 1,350 | 1,580 |
| (X-Section X) | Elev. | 677.07 | 678.53 | 679.23 | 680.28 |
| 8 Mile Road | | 730 | 1,070 | 1,210 | 1,410 |
| (X-Section AD) | Elev. | 694.33 | 694.83 | 695.09 | 695.45 |

TABLE 9

CITY OF LIVONIA, MICHIGAN

TARABUSI CREEK

HIGH WATER MARK VERIFICATION

| BRIDGE LOCATION | 1968 HIGH WATER MARK ELEVATION | CONDITION | COMPUTER SECTION NUMBER | WTA MODEL OF 1968 FLOOD PROFILE [1] FLOW (CFS) | ELEVATION |
|---|---|---|---|---|---|
| 6 MILE ROAD | | | | 950 | |
| d/s face | 626.12 | Good | 2498 | | 626.12 |
| u/s face | 627.19 | Good | 2554 | | 627.18 |
| u/s | 626.30 | Unknown | 2604 | | 627.84 |
| MIDDLEBELT ROAD | | | | | |
| d/s face | 629.84 | Unknown | 4316 | | 629.22 |
| u/s face | 632.00 | Unknown | 4453 | | 632.10 |
| u/s | 631.89 | Unknown | | | |
| 7 MILE ROAD | | | | | |
| d/s face | 658.65 | Poor | 14440 | | 658.36 |
| FARMINGTON ROAD | | | | | |
| d/s face | 677.98 | Poor | 19313 | | 677.52 |
| u/s | 678.04 | Poor | 19387 | | 677.92 |

[1] The 1968 flood flow of 950 cfs is from the Corps of Engineers Post Flood Report (Reference 12) and was verified by matching the two good condition high water marks at 6 Mile Road.

## V. TRIBUTARY #1 (DETAILED)

Detailed studies were performed on Tributary #1 from the confluence with Bell Branch to the north property line of Sheffield Subdivision. A total of one bridge and seven valley cross sections were field surveyed and completed in February, 1978 by Wade, Trim & Associates, Inc. Cross section locations are shown in Exhibit 1 and were supplemented by U.S.G.S. Quad Maps consisting of 10 foot contour intervals and Subdivision Maps consisting of given elevations (References 5, and 16).

Table 10 cross references section designations by showing the computer section number which corresponds to the cross section letter shown in Exhibit 1. Table 11 lists discharges that have been approved by the Michigan Department of Natural Resources (M.D.N.R.). Exhibit 11 contains bridge notes and sketches as well as bridge loss coefficients.

### A. Method of Analysis

The HEC-2 backwater program was used in developing water surface profiles (Reference 13). Table 11 contains selected flood elevations from the HEC-2 printout. HEC-2 printouts including computer cross section plots are presented as Exhibit 12. (Exhibit 12 is contained in the 11" x 15" folder enclosed with this report). Water surface profiles resulting from the backwater analysis are presented as Exhibit 13.

B. Variables and Coefficients

Roughness coefficients (Mannings "n") were estimated by field inspection to range from .025 to .04; roughness values for the overbank areas varied between .06 and .12 for all floods. These values are indicative of summer month conditions and are consistent with values recommended and used in engineering practice. Contraction and expansion coefficients selected were 0.3 and 0.5 at bridge sections and 0.1 and 0.3 for gradual transitions.

C. High Water Marks

No documented high water data exists for flood elevations on the Tributary #1.

D. Starting Conditions

The mean annual water surface elevation of the Bell Branch at the confluence with the Tributary #1 was used as the starting water surface elevation (Exhibit 18).

E. Special Problems

Tributary #1 was relocated from approximately cross section H to the upstream limit of this study. However, the old natural channel was maintained to handle low flows and local runoff. A weir and low flow structure are located at cross section I and the following flow distribution results:

1. Low flows are diverted to the old channel through a 53" x 34" elliptical concrete pipe.

2. Flood flows are discharged to the relocated channel with a small amount of flow being diverted to the old channel in the low flow pipe.

The upstream limit of the old channel terminates at the low flow pipe. The channel upstream of the weir and low flow structure is all relocated and the old channel has been filled in.

The weir and low flow structure could not be handled adequately by the HEC-2 computer program; therefore, hand calculations were performed (Exhibit 17) and the resulting elevations and flow distribution were input to the HEC-2 model. These calculations indicate that the low flow handles only minor amounts of flow for all the floods analyzed. Therefore, a floodway is maintained at the banks of the old channel to insure the safe passage of low flows and the floodway for the relocated channel which handles the majority of flow was established by equal conveyance reduction in the HEC-2 model.

F. General

Computed water surface elevations were developed to an accuracy of 0.5 feet for floods of the selected recurrence intervals.

All elevations are referenced to the U.S. Geological and Coastal Survey (U.S.G.C.S.) Datum. This datum is equivalent to the National Geodetic Vertical Datum of 1929 (N.G.V.D.).

The hydraulic analyses for this study were based only on the effects of flow unobstructed by ice or debris. The flood elevations are considered valid only if hydraulic structures, in general, remain unobstructed and do not fail.

TABLE 10
CITY OF LIVONIA, MICHIGAN
TRIBUTARY #1
CROSS REFERENCE INDEX

| WTA FIELD BOOK NO. | COMPUTER SECTION NUMBER | FW & FB LETTER | DESCRIPTION |
|---|---|---|---|
| | 60 | A | 60' U/S of Confluence with Bell Branch |
| | 1250 | B | 150' U/S of Confluence with Westerly Tributary |
| 56+05 | 3470 | C | Valley Section |
| 48+40 | 4235 | D | Valley Section |
| 44+37 | 4938 | E | D/S Face Six Mile Road Bridge |
| 43+21 | 4754 | F | U/S Face Six Mile Road Bridge |
| 37+12 | 5363 | G | Valley Section |
| 27+20 | 6355 | H | Valley Section |
| | 7975 | I | Weir |
| 7+23 | 8352 | J | Valley Section |
| | 9075 | K | Valley Section |

TABLE 11
CITY OF LIVONIA
TRIBUTARY #1 FLOOD FLOW DATA

| LOCATION | | DISCHARGE - CFS 10 YEAR | 50 YEAR | 100 YEAR | 500 YEAR |
|---|---|---|---|---|---|
| U/S Bell Branch | | 310 | 520 | 640 | 930 |
| (X-Section A) | Elev. | 642.50 | 642.57 | 643.37 | 644.50 |
| U/S Westerly Tributary | | 210 | 370 | 460 | 680 |
| (X-Section B) | Elev. | 646.76 | 648.51 | 648.87 | 649.39 |
| *Weir | | 175 | 315 | 410 | 610 |
| (X-Section I) | Elev. | 676.15 | 676.70 | 677.00 | 677.65 |

*From hand calculations

## VI. BEITZ DRAIN (DETAILED)

Detailed studies were performed on Beitz Drain from the confluence with Bell Branch to the Curtis Road bridge. A total of one bridge, one culvert, and three valley cross sections were field surveyed and completed in February, 1978. Cross section locations are shown in Exhibit 1 and were supplemented by U.S.G.S. Quad Maps consisting of 10 foot contour intervals and Subdivision Maps (References 5, 14 and 15).

Table 12 cross references section designations by showing the computer section number which corresponds to the cross section letter shown in Exhibit 1. Table 13 lists discharges that have been approved by the Michigan Department of Natural Resources (M.D.N.R.). Exhibit 14 contains bridge notes and sketches as well as bridge loss coefficients.

### A. Method of Analysis

The HEC-2 backwater program was used in developing water surface profiles (Reference 13). Table 13 contains selected flood elevations from the HEC-2 printout. HEC-2 printouts including computer cross section plots are presented as Exhibit 15. (Exhibit 15 is contained in the 11" x 15" folder enclosed with this report). Water surface profiles resulting from the backwater analysis are presented as Exhibit 16.

B. Variables and Coefficients

Roughness coefficients (Mannings "n") were estimated by field inspection to range from .02 to .035; roughness values for the overbank areas varied between .06 and .12 for all floods. These values are indicative of summer month conditions and are consistent with values recommended and used in engineering practice. Contraction and expansion coefficients selected were 0.3 and 0.5 at bridge sections and 0.1 and 0.3 for gradual transitions.

C. High Water Marks

No documented high water data exists for flood elevations on the Beitz Drain.

D. Starting Conditions

The mean annual elevation of the Bell Branch at the confluence with the Beitz Drain was used as the starting water surface elevation for all floods (Exhibit 18).

E. Special Problems

No special problems were encountered in the hydraulic analysis of the Beitz Drain.

F. General

Computed water surface elevations were developed to an accuracy of 0.5 feet for floods of the selected recurrence intervals.

All elevations are referenced to the U.S. Geological and Coastal Survey (U.S.G.C.S.) Datum. This datum is equivalent to the National Geodetic Vertical Datum of 1929 (N.G.V.D.).

The hydraulic analyses for this study were based only on the effects of flow unobstructed by ice or debris. The flood elevations are considered valid only if hydraulic structures, in general, remain unobstructed and do not fail.

TABLE 12
CITY OF LIVONIA, MICHIGAN
BEITZ DRAIN
CROSS REFERENCE INDEX

| WTA FIELD BOOK NO. | COMPUTER SECTION NUMBER | FW & FB LETTER | DESCRIPTION |
|---|---|---|---|
| | 70 | A | 70' U/S of Confluence with Bell Branch |
| 24+50 | 2115 | B | Valley Section |
| 21+56 | 2409 | C | D/S Face Six Mile Road Bridge |
| 20+39 | 2526 | D | U/S Face Six Mile Road Bridge |
| 5+00 | 4065 | E | Valley Section |
| 0+00 | 4565 | F | D/S Face Francavilla Culvert |
| | 5640 | G | U/S Face Francavilla Culvert |

TABLE 13
CITY OF LIVONIA
BEITZ DRAIN FLOOD FLOW DATA

| LOCATION | | DISCHARGE - CFS 10 YEAR | 50 YEAR | 100 YEAR | 500 YEAR |
|---|---|---|---|---|---|
| U/S Bell Branch | | 180 | 310 | 380 | 560 |
| (X-Section A) | Elev. | 639.80 | 639.80 | 639.80 | 639.80 |

## VII. MIDDLE ROUGE RIVER (APPROXIMATE)

Approximate studies were performed on Middle Rouge River through its entire length in the City of Livonia. There are two control structures which affect the elevations on Middle Rouge River through Livonia:

1. The Nankin Lake dam and

2. The Newburgh Lake dam.

The 100 year flood elevations on Nankin Lake and Newburgh Lake were calculated using the weir flow equation (Reference 17). The approximate boundary on the reach of river between the two lakes was taken from the Federal Insurance Administration's Flood Hazard Boundary Map (Reference 20). Table 13 lists estimated 100 year flood elevations on Nankin Lake and Newburgh Lake.

TABLE 13

| | LOCATION | APPROXIMATE 100 YEAR FLOOD ELEVATION |
|---|---|---|
| 1. | Nankin Lake | 642.1 |
| 2. | Newburgh Lake | 667.3 |

REFERENCES


1. Redford Township, Michigan, Flood Insurance Study, Flood Insurance Administration - Draft, 1973.

2. City of Farmington Hills, Michigan, Flood Insurance Study - Draft, 1979.

3. Corps of Engineers, U.S. Army, Flood Plain Information Upper River Rouge, Minnow Pond Drain, Bell Branch and Tarabusi Creek, Wayne and Oakland Counties, Michigan, January, 1972.

4. U.S. Geological Survey Topographical Maps - Redford Quadrangle, Wayne-Oakland County, 7.5 Minute Series - Photo Revised 1973.

5. U.S. Geological Survey Topographical Maps - Northville Quadrangle, Wayne-Oakland County, 7.5 Minute Series - Photo Revised 1973.

6. Topographic Map - City of Livonia, Section 1, R. 9 E., T. 1 S., Wayne County, Michigan, 1964.

7. Topographic Map - City of Livonia, Section 12, R. 9 E., T. 1 S., Wayne County, Michigan 1964.

8. Topographic Map - City of Livonia, Section 13, R. 9 E., T. 1 S., Wayne County, Michigan, 1964.

9. Topographic Map - City of Livonia, Section 14, R. 9 E., T. 1 S., Wayne County, Michigan, 1964.

10. Topographic Map - City of Livonia, Section 15, R. 9 E., T. 1 S., Wayne County, Michigan, 1964.

11. Topographic Map - City of Livonia, Section 16, R. 9 E., T. 1 S., Wayne County, Michigan, 1964.

12. U.S. Army Corps of Engineers, Post Flood Report of Southeast Michigan Flood 25-27, June, 1968, 1969.

13. HEC-2 Water Surface Profile - Users Manual - U.S. Army Corps of Engineers - 1976.

14. Development Plan for Drain Enclosure Francavilla Subdivision, Orchard, Papke, Hiltz, & McCliment, Inc., Sheet 22 of 33, May, 1977.

15. Grading Limits at Inlet Structure, Beitz Drain, Francavilla Subdivision No. 2, Orchard, Papke, Hiltz, & McCliment, Inc., Sheet 33 of 33, March, 1977.

16. Sheffield Subdivision, McNeely, Lincoln, & Schrader, Inc., Sheets 1A & 1B of 21, September, 1976.

17. Handbook of Hydraulics, H.W. King and E.F. Brater, McGraw-Hill, Inc., 1963.

18. Open Channel Hydraulics, V.T. Chow, McGraw-Hill, Inc., 1959.

19. Bureau of Public Roads, Circular #5, Chart #3, January, 1963.

20. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, City of Livonia, Michigan, June 11, 1976.

CITY OF LIVONIA, MICHIGAN

UPPER ROUGE RIVER, BELL BRANCH,

TARABUSI CREEK, TRIBUTARY #1, and

BEITZ DRAIN

EXHIBIT 1

Field Cross-Section Location

and 100 Year Flood Plain

Floodway Map

CITY OF LIVONIA, MICHIGAN

UPPER ROUGE RIVER

EXHIBIT 2

Bridge Notes and Sketches

Bridge Location : INKSTER ROAD STA 229+35

REFERENCE

Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 0.0 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge :

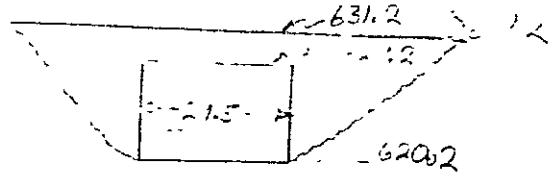
$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 24.5 x 7 = 206.5 WP = 73.0

$R = A/WP$ 206.5/73.0 $R^{4/3}$ = 4.0 $L$ = 40.

n (composite) = .04(.42) + .017(.58) = 0.027

$K_f = 29.1 \times \frac{(0.027)^2}{(.05)^2} \times 40.0 / 40 = 0.22$




Hydraulic Charts for Selection of Highway Culverts Circular No. 5 Dec. 1965 pg #3

$K_c$ = 0.5

$K_p$ = 0 if bridge has no intermediate piers

$K_p$ = 0.05 if bridge has intermediate piers — HEC-2 manual

Skew Angle = 31°
Correction factor = .22

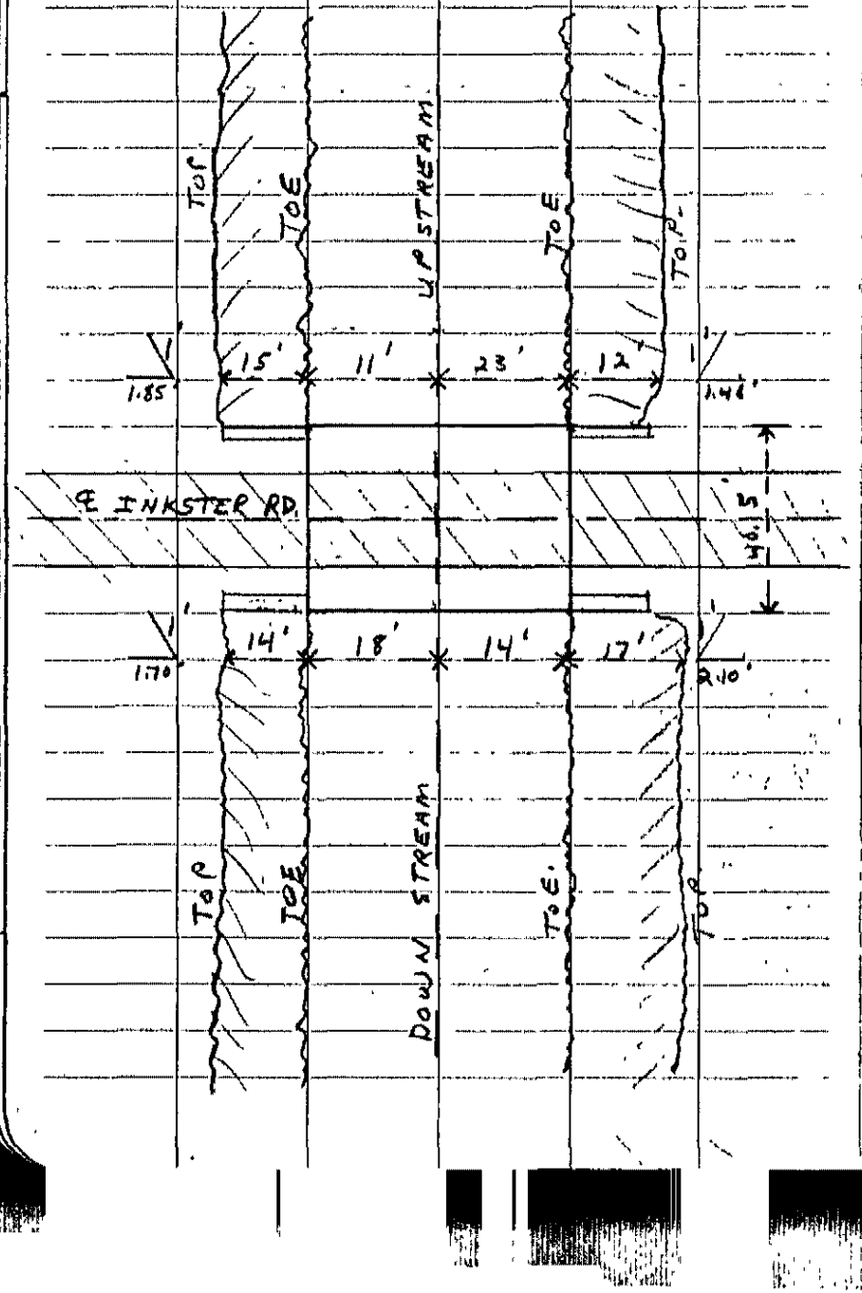
2. XKOR = 1 + 0.22 + 0.5 + 0.0 = 1.72
3. COFQ - Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 25.4
6. BWP = total width of obstruction = 0.0 — field data
7. BAREA = bridge opening inc. piers = 172.6
8. SS = side slope = 0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 620.2 (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 620.2 (0 if equal to minimum elevation in previous x-sect.)

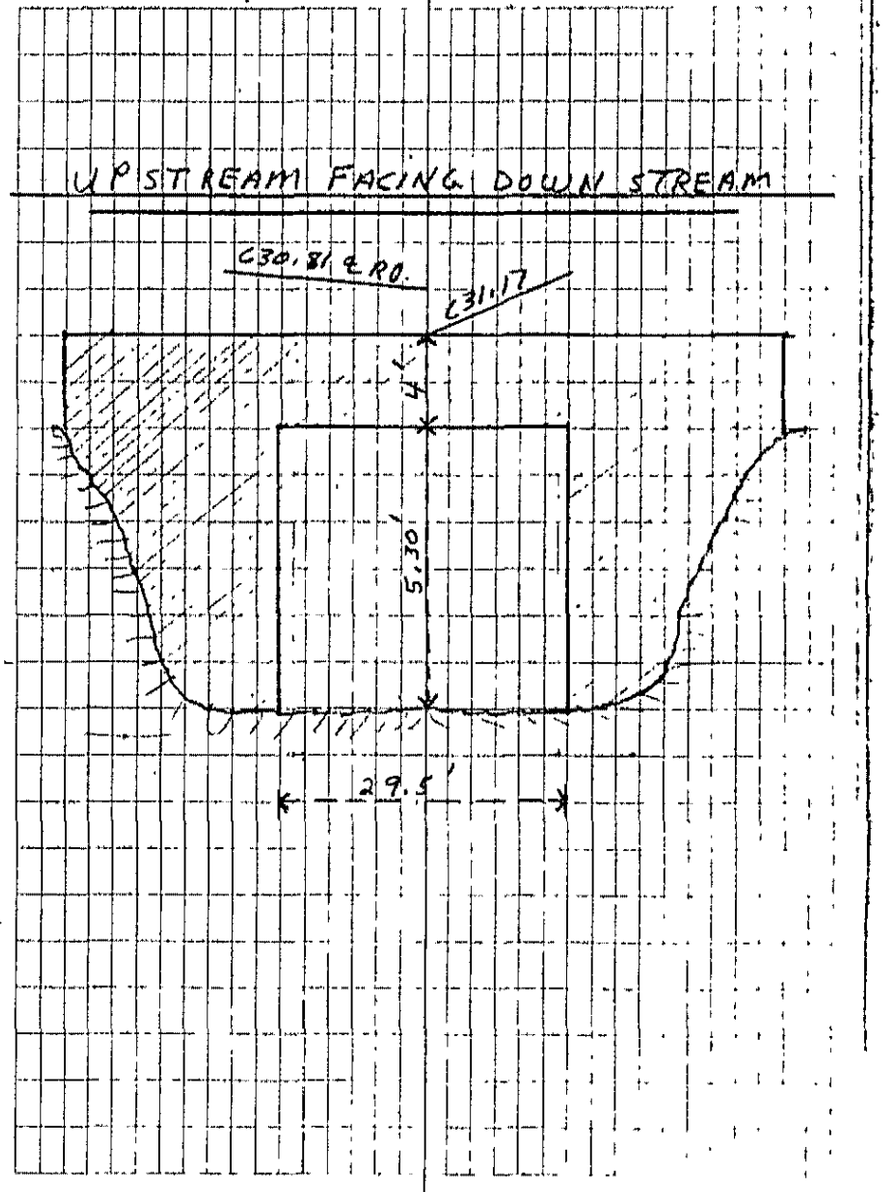
| SUBJECT | BY | CHK. | SHEET NO | File Code No (Job No) Owner | Project | Suffix |
|---|---|---|---|---|---|---|
| U.R.R. CITY OF LIVONIA | DRB | | | HUD | 2014 | 07 |
| | DATE 4/79 | DATE | OF | | | |

HUD 2014-07

# BRIDGE DETAIL
## UPPER ROUGE RIVER
## INKSTER RD.

FIR #947 A.P. M.S MAR. 19-1979 27.



FORM 25 0 | Wade Trim & Associates, Inc. Civil Engineers • Land Surveyors | 25105 GODDARD ROAD
(313) 291 5400 | WORK SHEET | TAYLOR, MICHIGAN 48180

Bridge Location : 7 MILE RD. STA. 251+09

Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 0.0 — HEC-2 Manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$ , $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient

$k_e$ = entrance loss coefficient

$k_p$ = loss from intermediate piers

Description of Bridge :

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

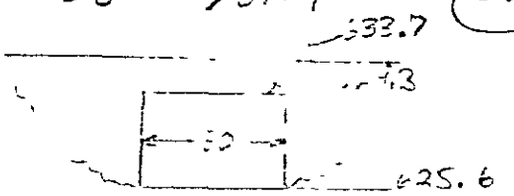
Area = = 147 $w_p$ = 63

$R = A/w_p$ 2.33 $R^{4/3} = 3.09$ $L = 56.$

n (composite) = .027

$K_f = 29.1 \times (0.027)^2 \times 56 / 3.09 = 0.65$ .38

$K_e = 0.5$




Hydraulic Class [illegible] Circular No. 5 Dec. 1965 pg 43

$K_p$ = 0 if bridge has no intermediate piers

$K_p$ = 0.05 if bridge has intermediate piers — HEC-2 manual

Skew angle = 31°

factor = .86

2. XKOR = 1 + .38 + 0.5 + 0.0 = 1.88
3. COFQ - Coefficient of discharge = 2.65 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 25.8
6. BWP = total width of obstruction = 0.0 — field data
7. BAREA = bridge opening inc. piers = 95.5
8. SS = side slope = 0.
   (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 625.6
   (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 625.6
   (0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| U.R.R. CITY OF LIVONIA | DRB DATE 4/79 | DATE | ___ OF ___ | HUD • 2014 • 07 |

HUD 2014-07

# BRIDGE DETAIL

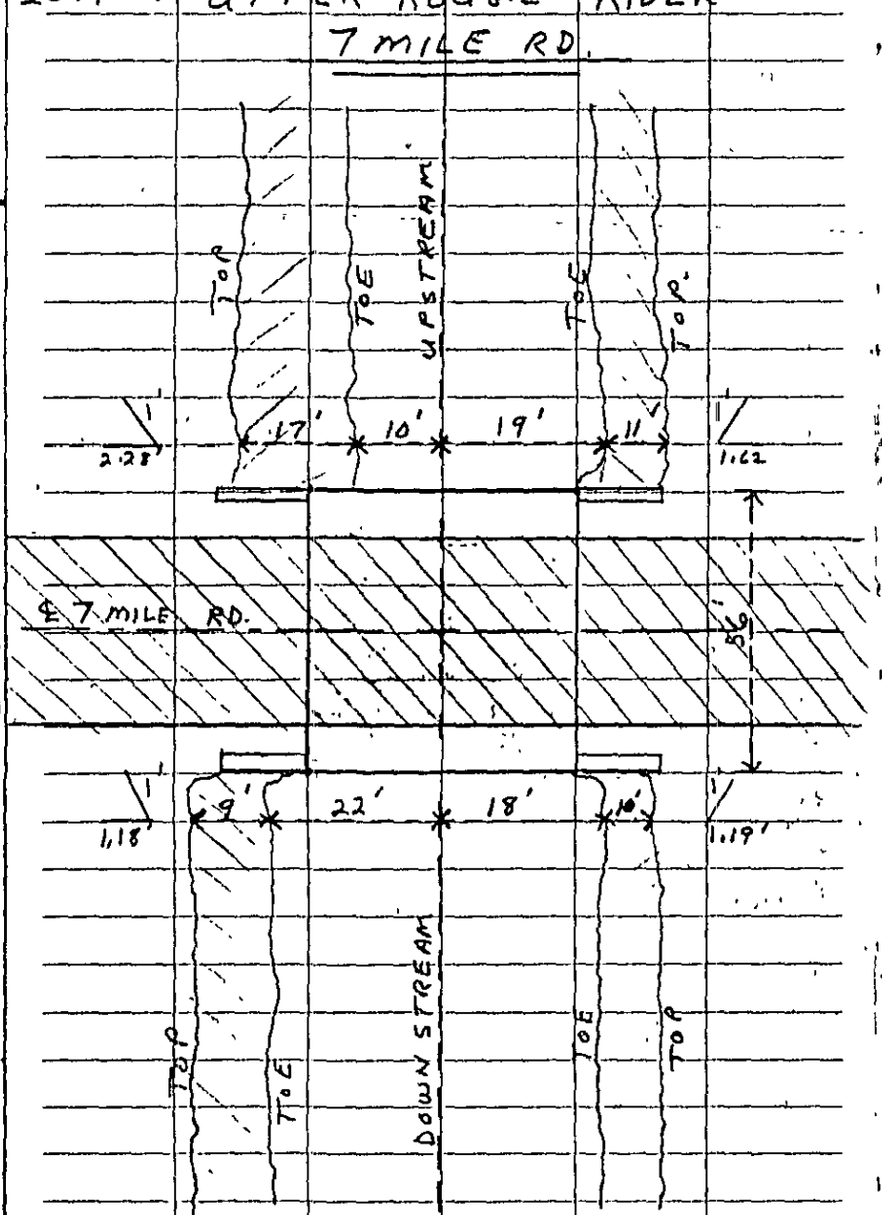
## UPPER ROUGE RIVER

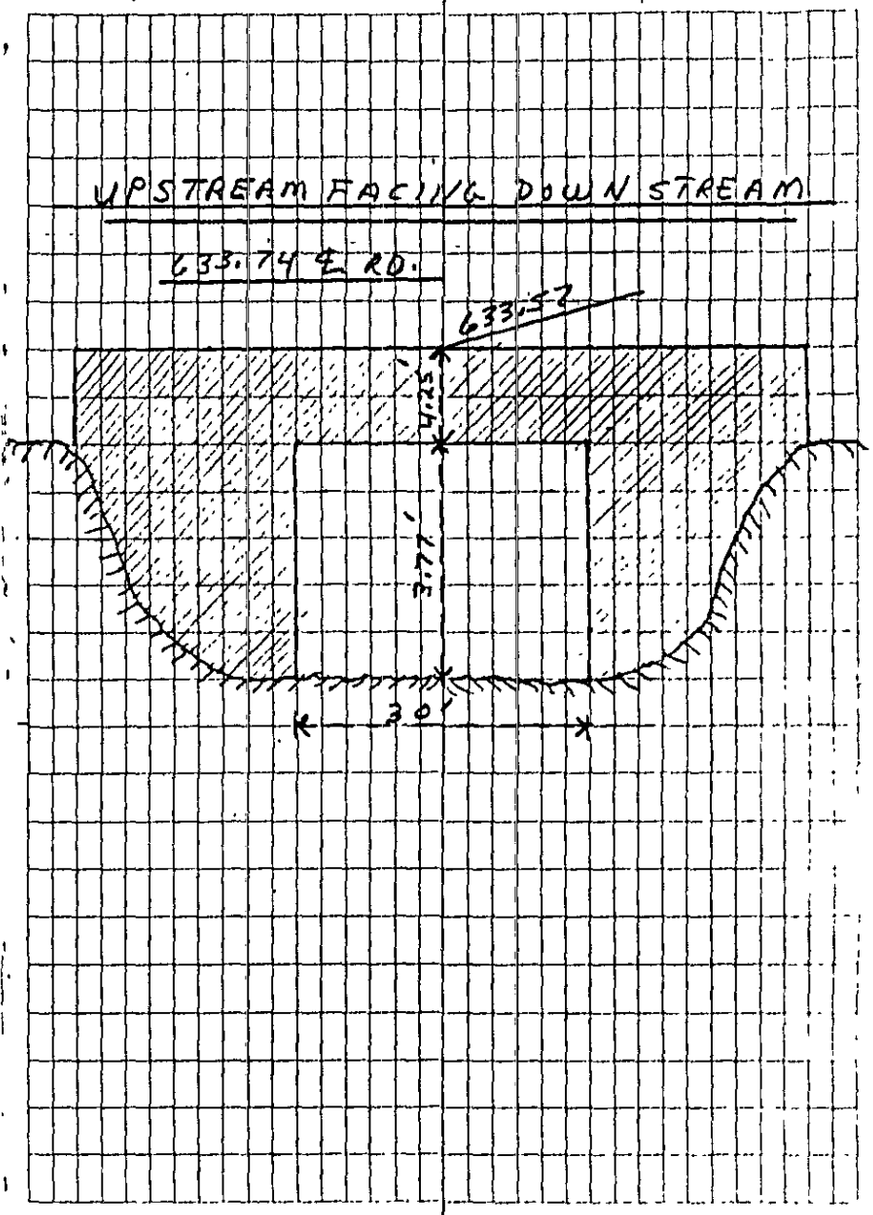
## 7 MILE RD.

F.B. # 947

A.P. M.S.

MAR. 19-1979 28



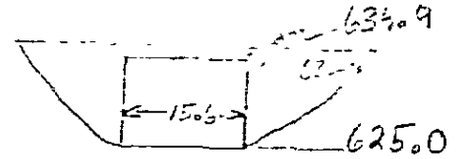
FORM 25 0 | Civil Engineers • Land Surveyors | 25 35 GODDARD ROAD
(313) 291 5400 | WORK SHEET | TAYLOR, MICHIGAN 48180

Bridge Location: DEERING RD (CMP) STA 261+84
Bridge Losses - SB Cars (MODLED AS BOX CULVERT)

1. XK (Pier Shape Coefficient) 0.0 — HEC-2 manual
XKOR (Loss Coefficient) = 1.0 + ΣK , ΣK = $k_f + k_e + k_p$
where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:
$K_f = 29.1\, n^2 L / R^{4/3}$ for English units
Area = 8.4 (15.6) = 131. Wp = 48.
$R = A/wp$ 131/48 $R^{4/3}$ = 3.81 L = 96
n (composite) = 0.033
$K_f = 29.1 \times (0.033)^2 \times 96 / 3.81 = 0.80$

$K_e$ = 0.7




Hydraulic Chart for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p$ = 0 if bridge has no intermediate piers

$K_p$ = 0.05 if bridge has intermediate piers — HEC-2 manual

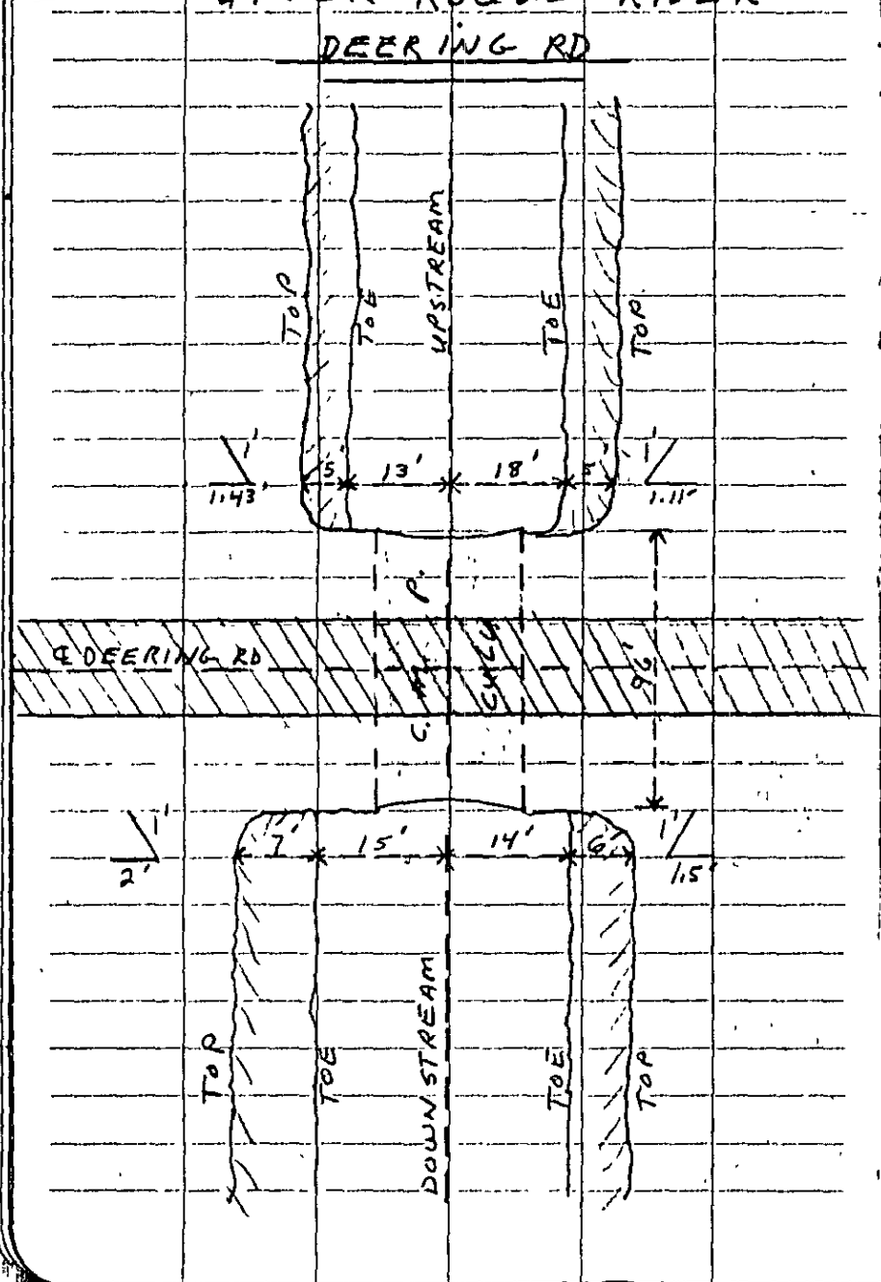
2. XKOR = 1 + 0.80 + 0.7 + 0.0 = 2.50
3. COFQ = Coefficient of discharge = 2.65 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 15.6
6. BWP = total width of obstruction = 0.0 — field data
7. BAREA = bridge opening inc. piers = 131.0
8. SS = side slope = 0.0
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 625.
(0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 625.
(0 if equal to minimum elevation in previous x-sect.)

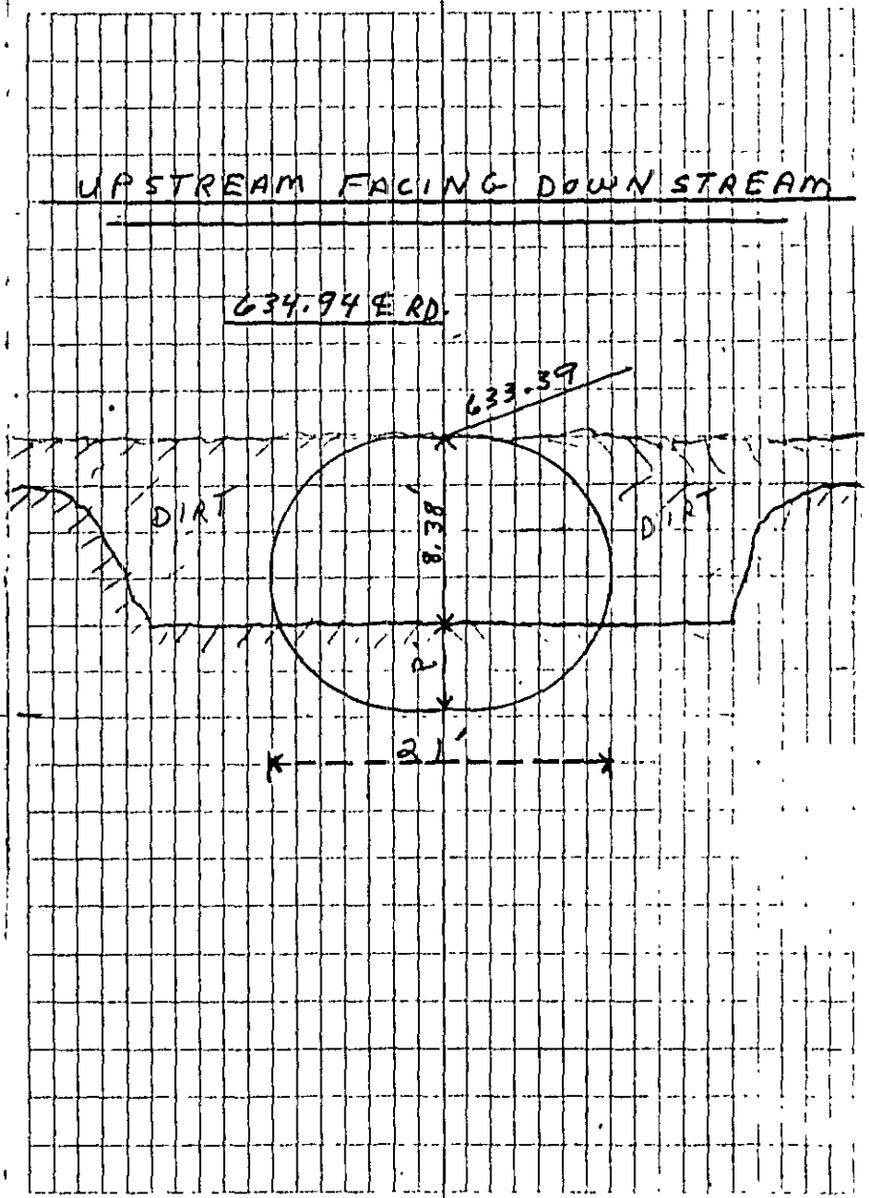
| SUBJECT | BY | CHK | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| U.R.R CITY OF LIVONIA | DRB | | | HUD • 2014 • 07 |
| | DATE 4/79 | DATE | ___ OF ___ | |

HUD 2014-07

# BRIDGE DETAIL
## UPPER ROUGE RIVER

F.B. # 947 A.P. M.S. MAR. 19-1979 29.

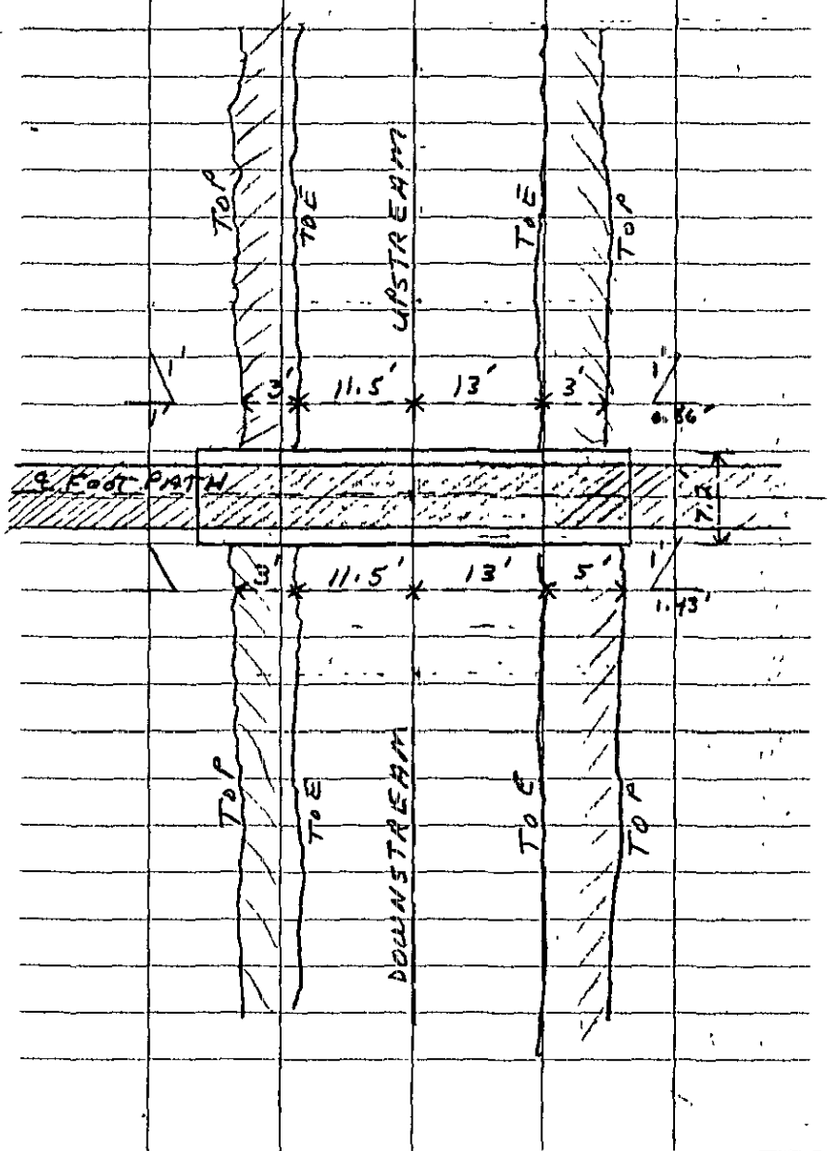


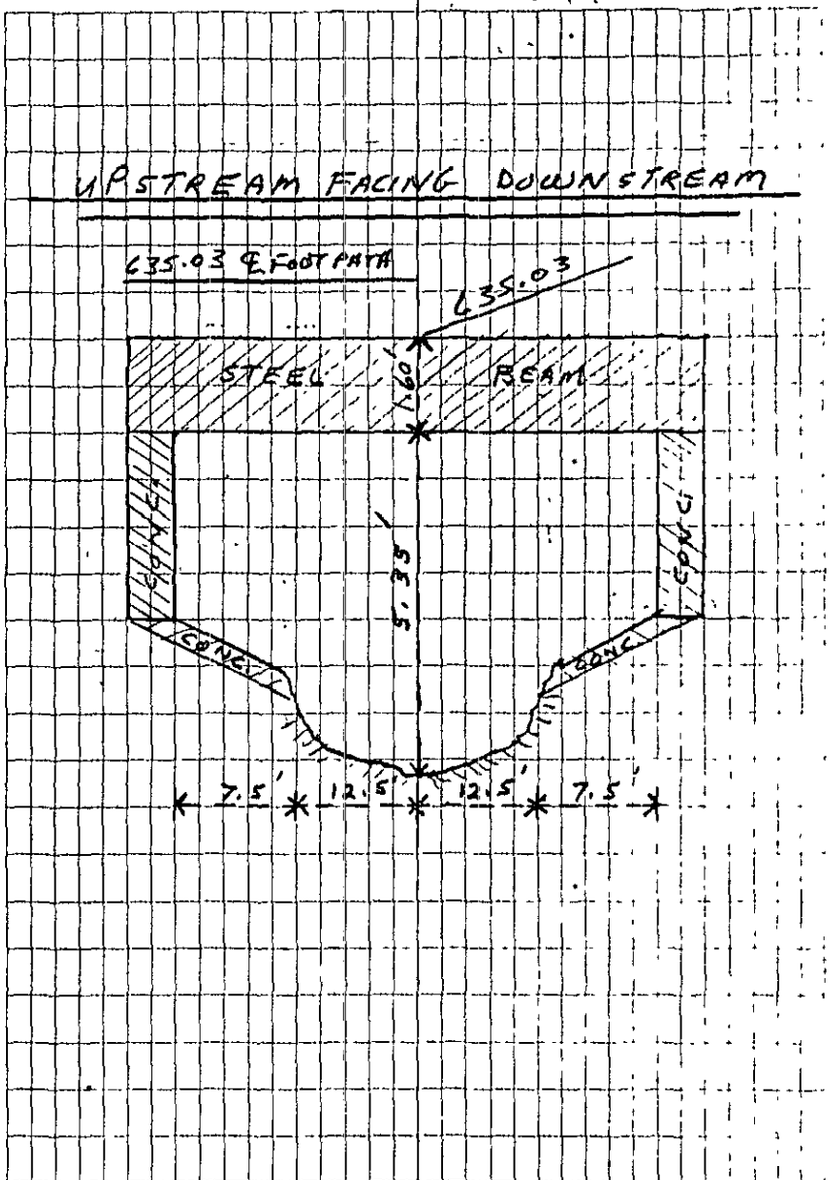
HUD 2014-07

# BRIDGE DETAIL
## UPPER ROUGE RIVER.
## FOOT BRIDGE FOR SCHOOL

F.B. #947 A.P. M.S. MAR. 19-1979 30.




UPSTREAM FACING DOWNSTREAM



CITY OF LIVONIA, MICHIGAN

UPPER ROUGE RIVER

EXHIBIT 3

Computer Printouts

HEC-2 Backwater Analysis

with

Cross Section Plots

(See Separate Folder)

CITY OF LIVONIA, MICHIGAN

UPPER ROUGE RIVER

EXHIBIT 4

Stream Profile

CITY OF LIVONIA, MICHIGAN

BELL BRANCH

EXHIBIT 5

Bridge Notes and Sketches

FORM 25 0
(313) 291-5400
Wade Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: Inster Rd.
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 1.25 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1 n^2 L / R^{4/3}$ for English units

Area = 749.5 ✓ = ____ Wp = 223.6 ✓

$R = A/wp$ = ____ $R^{4/3} = 5.61$ $L = 70$

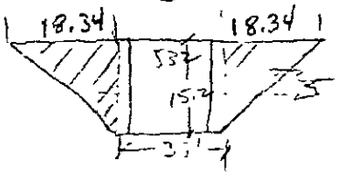
n (composite) = .02

$K_f = 29.1 \times (.02)^2 \times 70/5.61 = .16$

$K_e = .5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual




750. - 471.2 = 278.8

2. XKOR = 1 + .16 + .5 + .05 = 1.71 ✓
3. COFQ = Coefficient of discharge = 3. — HEC-2 manual
4. RDLEN = Length of weir = 0. (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 35.
6. BWP = total width of obstruction = 4. — field data
7. BAREA = bridge opening (inc.) piers = 750. ✓
8. SS = side slope = 1:1.8 (does not include piers)
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 604.
(0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 604.
(0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| Bell Branch, Livonia Hydraulics | T C | | ____ OF ____ | HUD • 2014 • 07 |
| | DATE 4/6/79 | DATE | | |

HUD 2014-07

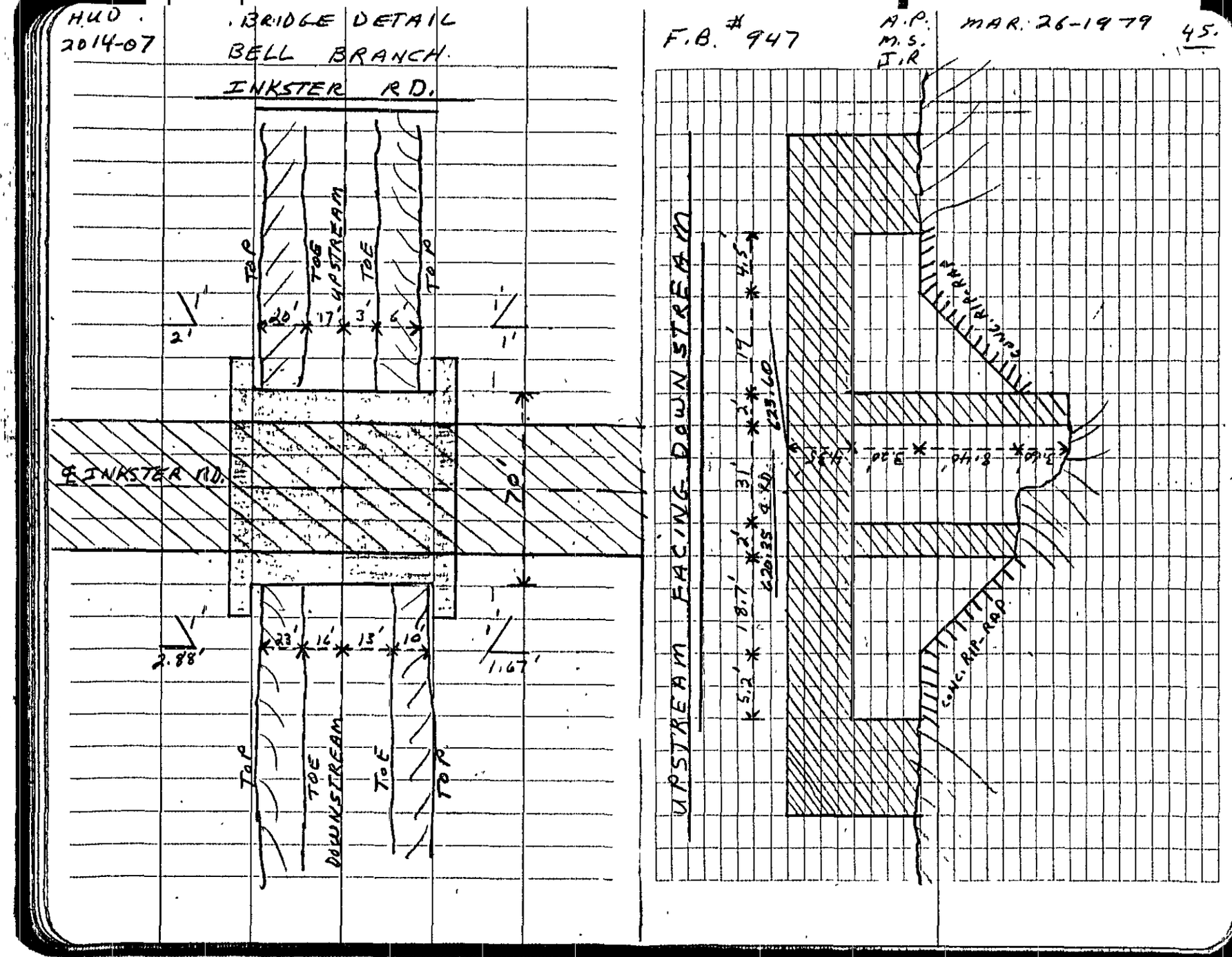
BRIDGE DETAIL
BELL BRANCH
INKSTER RD.

F.B. # 947

A.P.
M.S.
J.R

MAR. 26-1979





FORM 25 0
(313) 291-5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location : MIDDLEBELT RD.
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) .9 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$ , $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

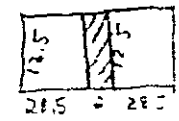
Description of Bridge :

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 712.5 = ____ Wp = 140.78

$R = A/wp = 5.06$ $R^{4/3} = 8.69$ $L = 76$

n (composite) = .02



$K_f = 29.1 \times (.02)^2 \times 76/8.69 = .10$

$K_e$ = .9 Obstructions in front of bridge opening — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p$ = 0 if bridge has no intermediate piers

$K_p$ = 0.05 if bridge has intermediate piers — HEC-2 manual

Skew Bridge at 70°, factor = .94

2. XKOR = 1 + .10 + .9 + .05 = 2.05
3. COFQ = Coefficient of discharge = 3. — HEC-2 manual
4. RDLEN = Length of weir = 0. (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 55.46
6. BWP = total width of obstruction = 1.88 — field data
7. BAREA = bridge opening inc. piers = 669.75
8. SS = side slope = 0
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 615.1
(0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 615.1
(0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| Bell Branch Livonia - Hydraulics | 7.6. | | ____ OF ____ | AUO • 2014 • 07 |
| | DATE 4/6/79 | DATE | | |

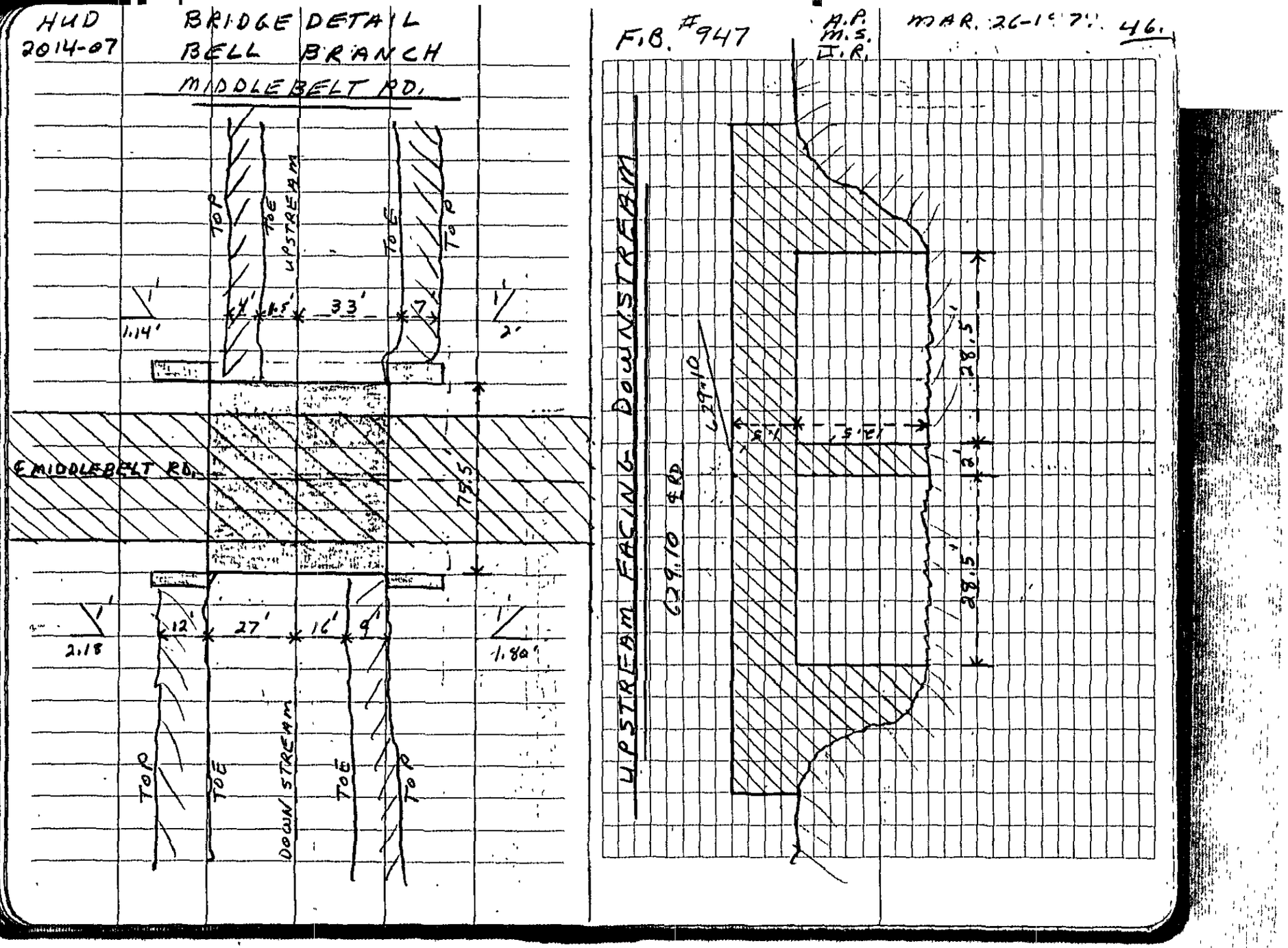
HUD
2014-07

# BRIDGE DETAIL
# BELL BRANCH
## MIDDLEBELT RD.

F.B. #947

A.P.
M.S.
I.R.

MAR. 26-19 71. 46.



Bridge Location : MERRIMAN RD.
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) .9 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge :

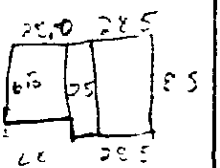
$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 432.65 = ____ WP = 143

$R = A/wp = 3.03$ $R^{4/3} = 4.38$ $L = 74$

n (composite) = .02

$K_f = 29.1 \times (.02)^2 \times 74/4.38 = .20$




$K_e$ = .9 Obstructions in front of bridge opening — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p$ = 0 if bridge has no intermediate piers

$K_p$ = 0.05 if bridge has intermediate piers — HEC-2 manual

Skew Bridge at 64°, factor = .9

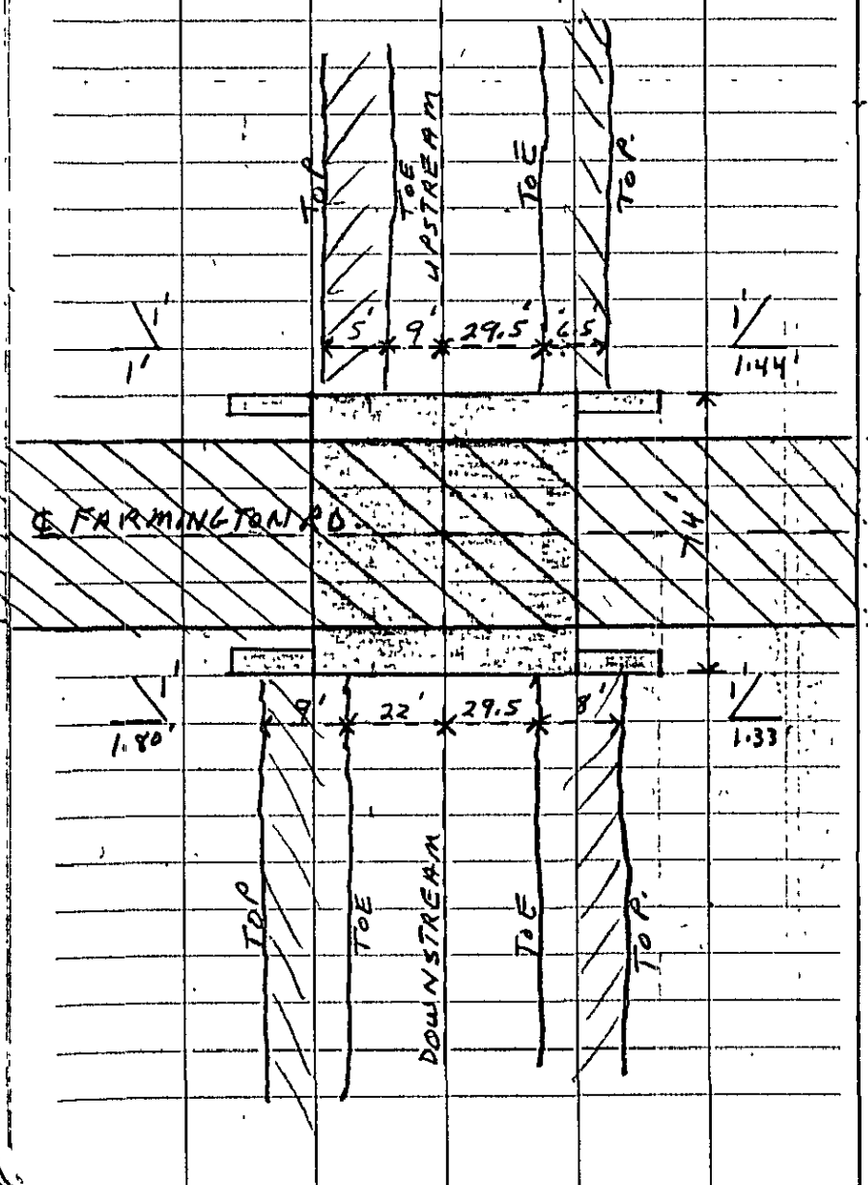
2. XKOR = 1 + .20 + .9 + .05 = 2.15
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 53.68
6. BWP = total width of obstruction = 2.27 — field data
7. BAREA = bridge opening inc. piers = 393.6
8. SS = side slope = 0. (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 624.4 (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 624.4 (0 if equal to minimum elevation in previous x-sect.)

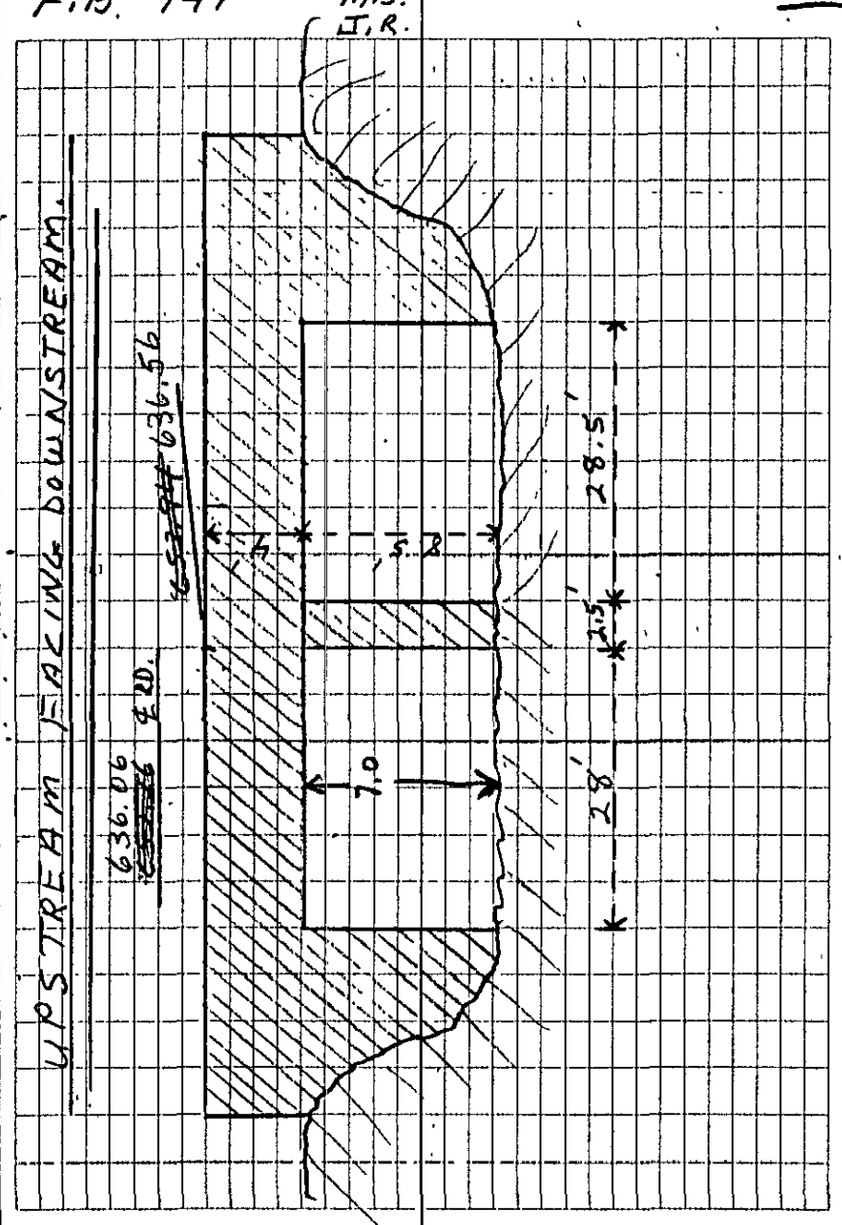
| SUBJECT | BY | CHK. | SHEET NO. | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| LIVONIA-HYDRAULICS, BELL BRANCH | T.G. | | ____ OF ____ | H40 • 2014 • 07 |
| | DATE 4/5/79 | DATE | | |

1440
2014-07

# BRIDGE DETAIL
## BELL BRANCH
## MERRIMAN RD.
~~FARMINGTON RD.~~

F.B. #947 A.P. M.S. I.R. MAR. 26-1979 49.



Wade Trim & Associates Inc.
Civil Engineers • Land Surveyors
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180
(313) 291-5400

FORM 25 0

WORK SHEET

Bridge Location: Hubbard Rd.
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 1.25 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + Σk, Σk = $k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

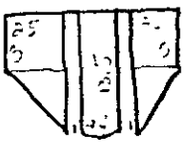
$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 867. = ____ Wp = 229.8

$R = A/wp = 3.77$ $R^{4/3} = 5.87$ $L = 46$

n (composite) = .02

$K_f = 29.1 \times (.02)^2 \times 46/5.87 = .09$

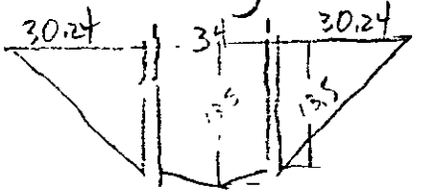


$K_e$ = .1

Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 43

$K_p$ = 0 if bridge has no intermediate piers

$K_p$ = 0.05 if bridge has intermediate piers — HEC-2 manual




408

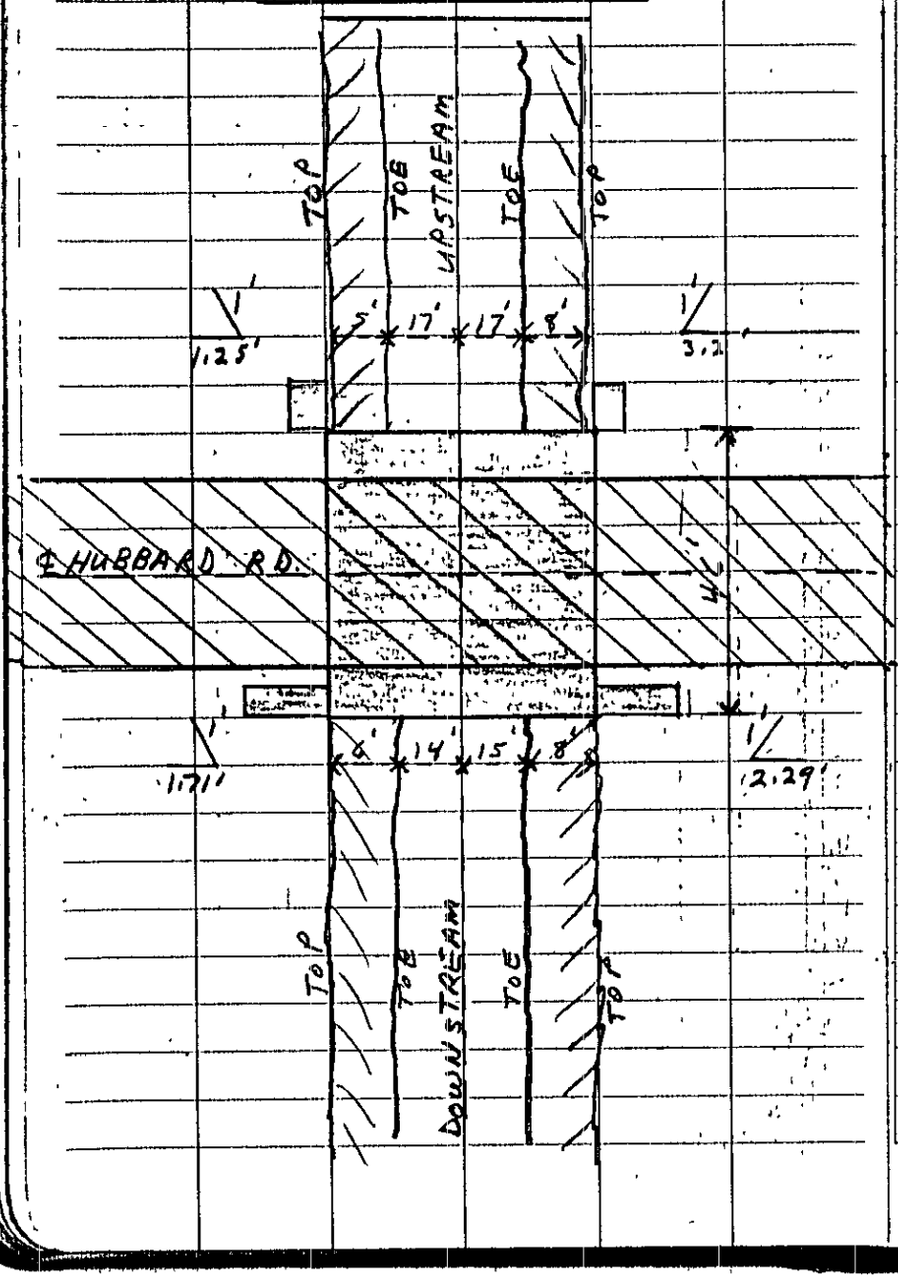
2. XKOR = 1 + .09 + .1 + .05 = 1.24
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 36
6. BWP = total width of obstruction = 2 — field data
7. BAREA = bridge opening inc. piers = 867
8. SS = side slope = 2.24 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 626.5 (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 626.5 (0 if equal to minimum elevation in previous x-sect.)

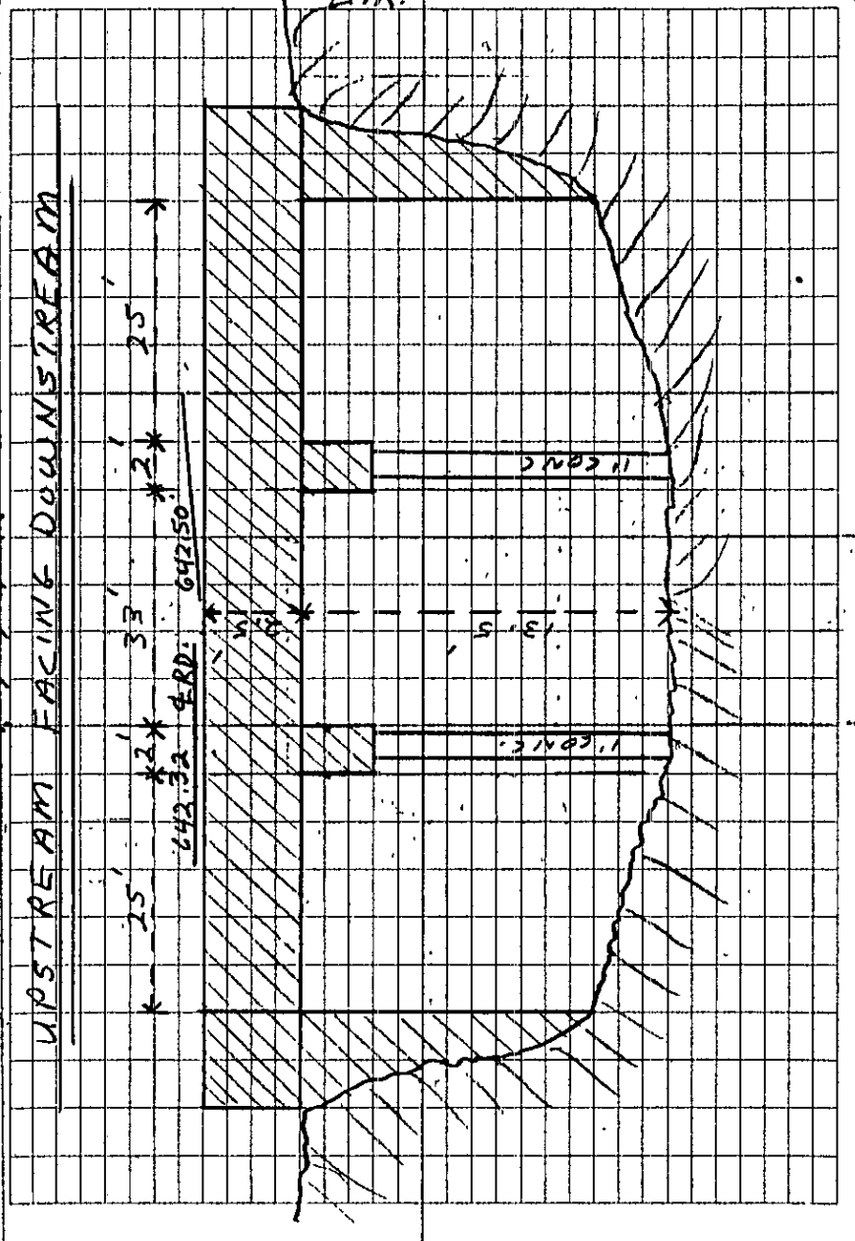
| SUBJECT | BY | CHK | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| Bell Overch, Livonia - Hydraulics | T G. | | ____ OF ____ | Hud • 2014 • 07 |
| | DATE 4/10/79 | DATE | | |

HUD
2014-07

# BRIDGE DETAIL
# BELL BRANCH

HUBBARD RD.




FIB. #947

A.P.
m.s.
J.R.

MAR. 26-1979 48.

FORM 25-0

(313) 291-5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: Farmington Rd.
Bridge Losses - SB Card

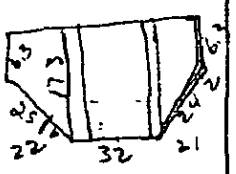
REFERENCE

1. XK (Pier Shape Coefficient) 1.05 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:




$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 1044. = _____ Wp = 169.

$R = A/wp = 6.18$ $R^{4/3} = 11.33$ $L = 86$

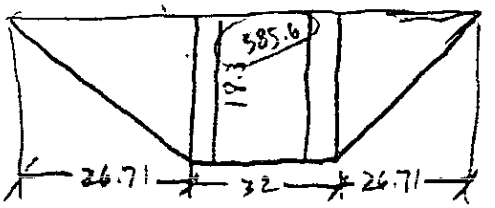
n (composite) = .02

$K_f = 29.1 \times (.02)^2 \times 86/1133 = .09$

$K_e = .2$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p$ = 0 if bridge has no intermediate piers

$K_p$ = 0.05 if bridge has intermediate piers — HEC-2 manual




2. XKOR = 1 + .09 + .2 + .05 = 1.34
3. COFQ = Coefficient of discharge = 3. — HEC-2 manual
4. RDLEN = Length of weir = _____ (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 32
6. BWP = total width of obstruction = 1.74 — field data
7. BAREA = bridge opening inc. piers = 1.044
8. SS = side slope = 1.46
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 632.6
(0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 632.6
(0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK | SHEET NO | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| Livonia - Hydraulics Bell Branch | T.G. | | ___ OF ___ | 1490 20 14 07 |
| | DATE 4/19/79 | DATE | | |

HUD 2014-07

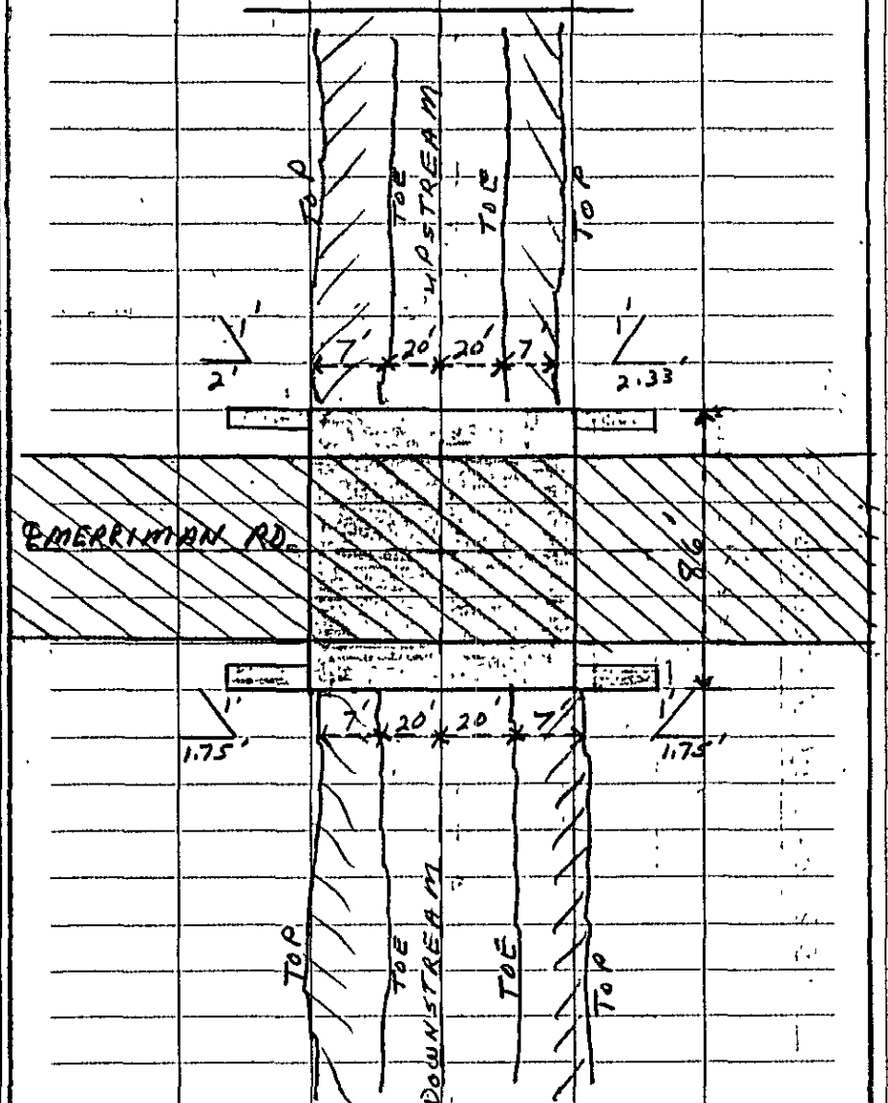
BRIDGE DETAIL
BELL BRANCH
FARMINGTON RD.
~~MERRIMAN RD.~~

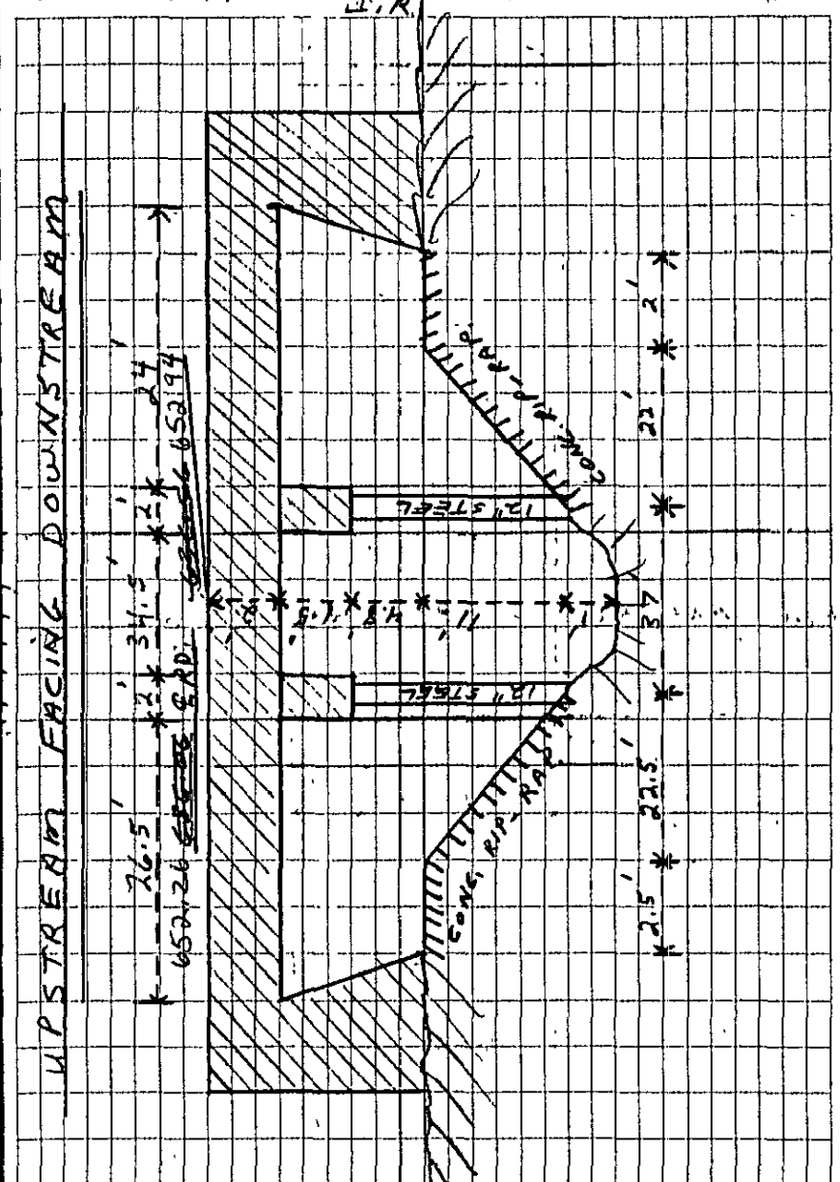
F.B. # 947

A.P.
M.S.
I.R.

MAR. 26-197

47.



FORM 25-0

(313) 291-5400

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Civil Engineers • Land Surveyors

WORK SHEET

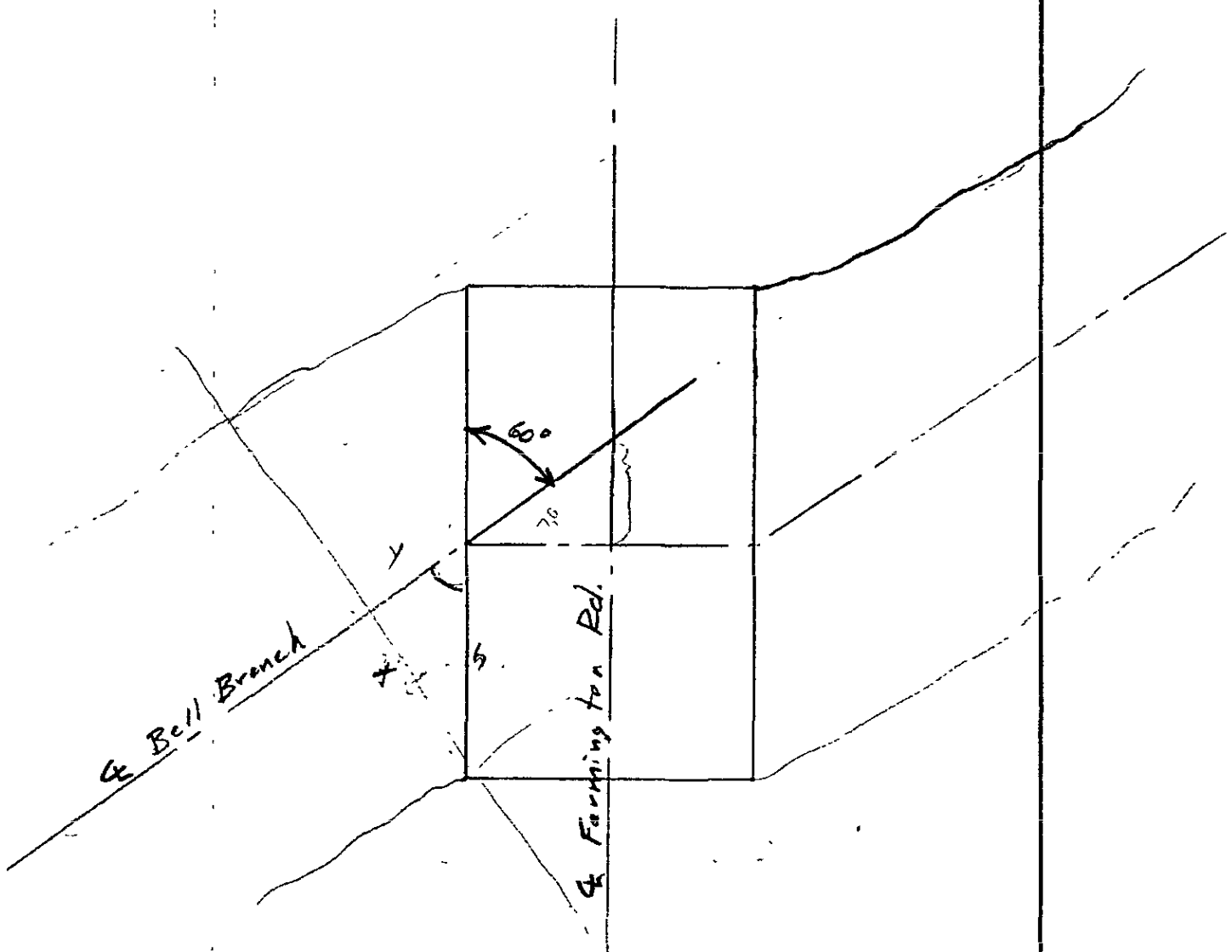
25185 GODDARD ROAD

TAYLOR, MICHIGAN 48180

REFERENCE

FARMINGTON RD.

SKEW BRIDGE CALCULATIONS




Factor to multiply BT cords by = cos 30° = .87

" " " GR " " " "

| SUBJECT | BY | CHK. | SHEET NO. | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| Livonia - Hydraulics Bell Br. | T.G | | ____ OF ____ | HUD • 2014 • 07 |
| | DATE 3/19/79 | DATE | | |

FORM 25 0

(313) 291 5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: ELLEN[illegible]

Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 0. — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient

$k_e$ = entrance loss coefficient

$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = _____ = _____ Wp =

$R = A/wp = 2.93$ $R^{4/3} = 4.19$ $L = 53$

n (composite) = .073

$K_f = 29.1 \times (.073)^2 \times 53/4.19 = .4$

$K_e = .7$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 4

$K_p$ = 0 if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + .4 + .7 + 0 = 2.1

3. COFQ = Coefficient of discharge = 3. — HEC-2 manual

4. RDLEN = Length of weir = 0. (0 if read off BT cards)

5. BWC = bottom width of bridge opening (inc. piers) = 15.8

6. BWP = total width of obstruction = 0. — field data

7. BAREA = bridge opening = [illegible]

8. SS = side slope = 0 (horizontal per 1 vertical unit)

9. ELCHU = Elevation of channel invert U/S side = 644.9 (0 if equal to minimum elevation in previous x-sect.)

10. ELCHD = Elevation of channel invert D/S side = 644.9 (0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK. | SHEET NO. | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| [illegible] | DATE 5/6/79 | DATE | ___ OF ___ | [illegible] |

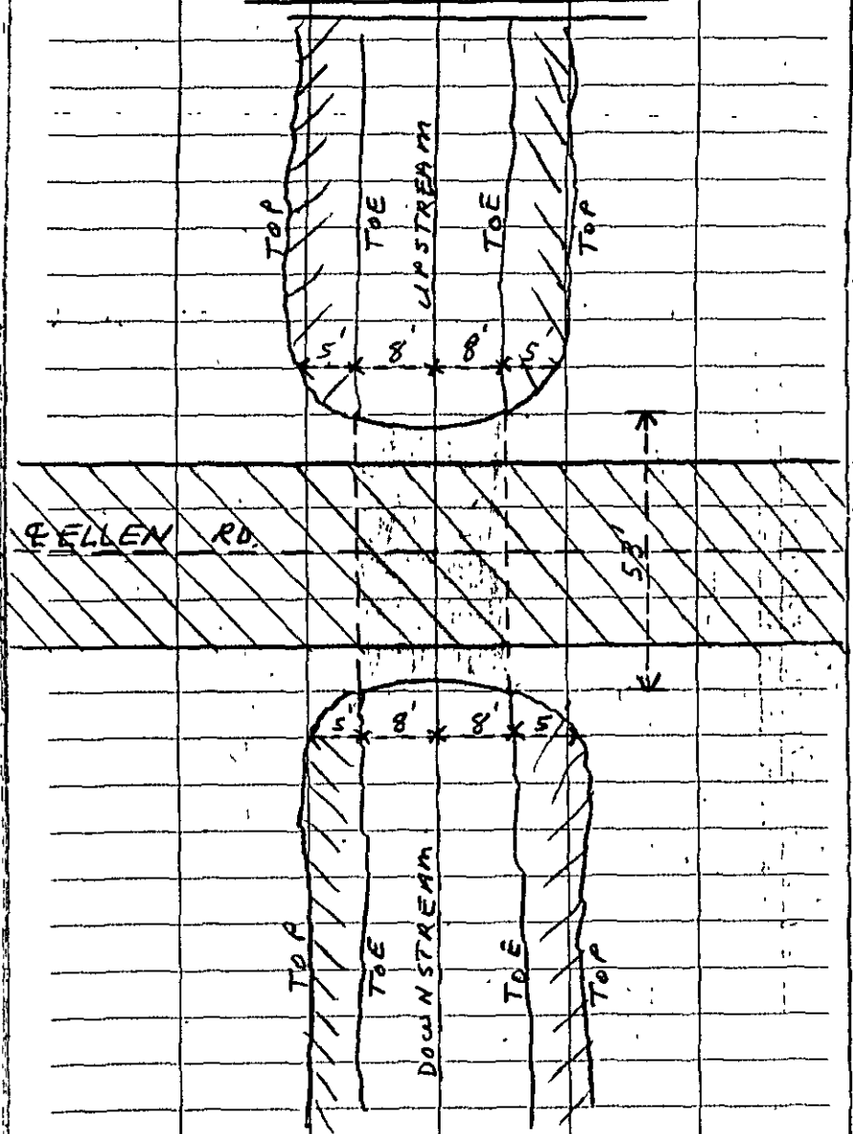
HUD
2014-07

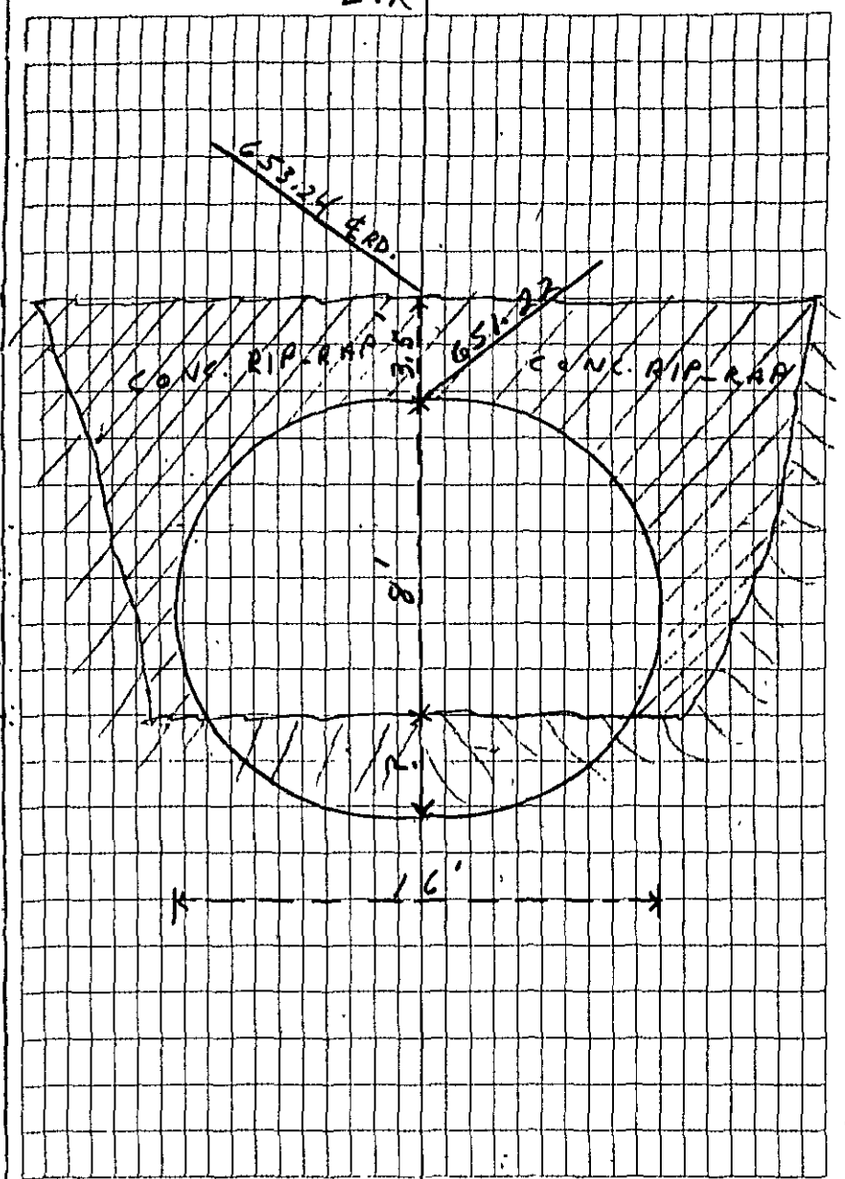
BRIDGE DETAIL
BELL BRANCH.
ELLEN RD.

F.R. II 947

A:P
M.E.
J.R

MAR: 26-1979 50.



CITY OF LIVONIA, MICHIGAN

BELL BRANCH

EXHIBIT 6

Computer Printouts

HEC-2 Backwater Analysis

with

Cross Section Plots

(See Separate Folder)

CITY OF LIVONIA, MICHIGAN

BELL BRANCH

EXHIBIT 7

Stream Profile

CITY OF LIVONIA, MICHIGAN

TARABUSI CREEK

EXHIBIT 8

Bridge Notes and Sketches

FORM 25 0

(313) 291 5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location : 6 Mile Bridge (old) '68 Profile Verification
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 0 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$ , $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge :

$k_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 183 = _____ Wp = 72.2

$R = A/wp = 2.53$ $R^{4/3} = 3.46$ $L = 56$

n (composite) $= \frac{30}{72}(.04) + \frac{42}{72}(.015) = .025$

$k_f = 29.1 \times (.025)^2 \times 56 / 3.46 = .29$

6.1

30

$k_e = .5$

Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

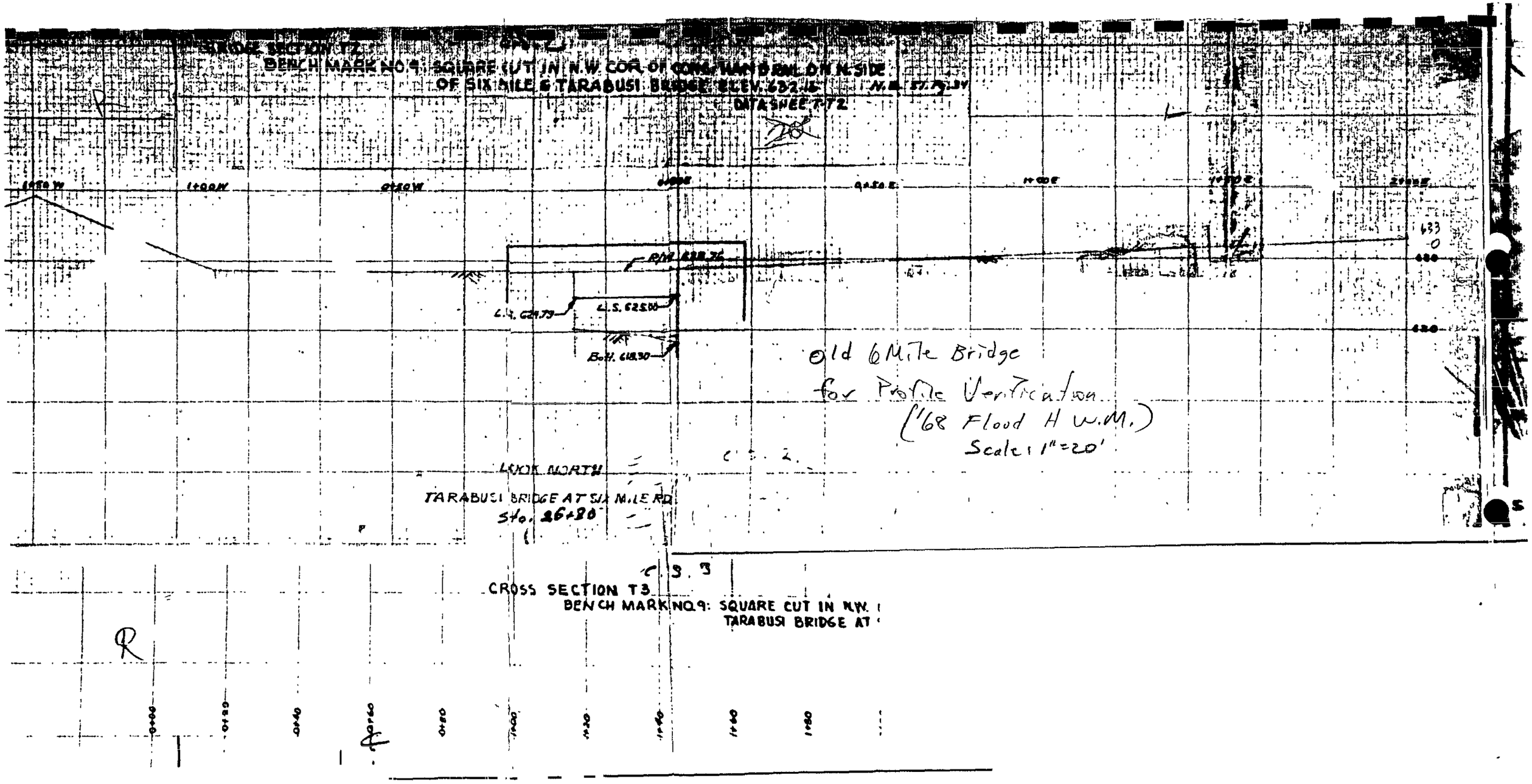
$k_p$ = 0 if bridge has no intermediate piers

$k_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

SKEW BRIDGE ∡ = 44°
factor = .69

2. XKOR = 1 + .5 + .29 + 0 = 1.79
3. COFQ = Coefficient of discharge = 3. — HEC-2 manual
4. RDLEN = Length of weir = 200 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 20.7
6. BWP = total width of obstruction = _____ — field data
7. BAREA = bridge opening = 127
8. SS = side slope = _____
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 619.3
(0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 619.3
(0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK. | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| Tarabusi Cr. Profile Verification at 6 Mi Br. | T. G. | | ___ OF ___ | AUD • 2014 • 17 |
| | DATE 8-3-77 | DATE | | |


BRIDGE SECTION T2
BENCH MARK NO.9: SQUARE CUT IN N.W. COR. OF CONC. HAND RAIL ON N. SIDE
OF SIX MILE & TARABUSI BRIDGE ELEV. 632.16
DATA SHEET T-T2
1+50 W
1+00 W
0+50 W
0+00 E
0+50 E
1+00 E
1+50 E
2+00 E
R/W 638.76
L.S. 629.79
L.S. 625.00
Bott. 618.30
Old 6 Mile Bridge
for Profile Verification
('68 Flood H W.M.)
Scale: 1"=20'
LOOK NORTH
TARABUSI BRIDGE AT SIX MILE RD
Sta. 26+80
CROSS SECTION T3
BENCH MARK NO.9: SQUARE CUT IN N.W.
TARABUSI BRIDGE AT
0+00
0+20
0+40
0+60
0+80
1+00
1+20
1+40
1+60
1+80

Wade Trim & Associates, Inc.
Civil Engineers • Land Surveyors
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

WORK SHEET

Bridge Location: 6 Mile

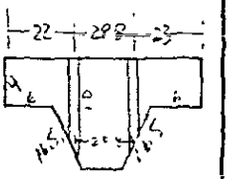
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) = 1.05 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers




Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 581.6 = ____ Wp = 195.5

$R = A/wp = 2.97$ $R^{4/3} = 4.27$ $L = 88$

$n$ (composite) $= \frac{.11}{147}(.013) + \left(\frac{30}{147}\right)(.035)$ $= .02$

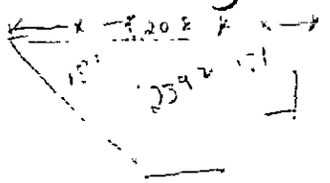
$K_f = 29.1 \times (.02)^2 \times 88 / 4.27 = .24$

$K_e = .5$

Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual




$\frac{115 \cdot x}{2} = 131$

$x = 29.74$

2. XKOR = 1 + .24 + .5 + .05 = 1.79
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 32.8
6. BWP = total width of obstruction = 2 — field data
7. BAREA = bridge opening ~~inc. piers~~ = 582.
8. SS = side slope = 2.59 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 617.9 (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 617.9 (0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| Livonia Hydr. for Levan Cr. | T.G. | | ___ OF ___ | Hyd 2014 07 |
| | DATE 3/15/06 | DATE | | |

HUD 2014-07

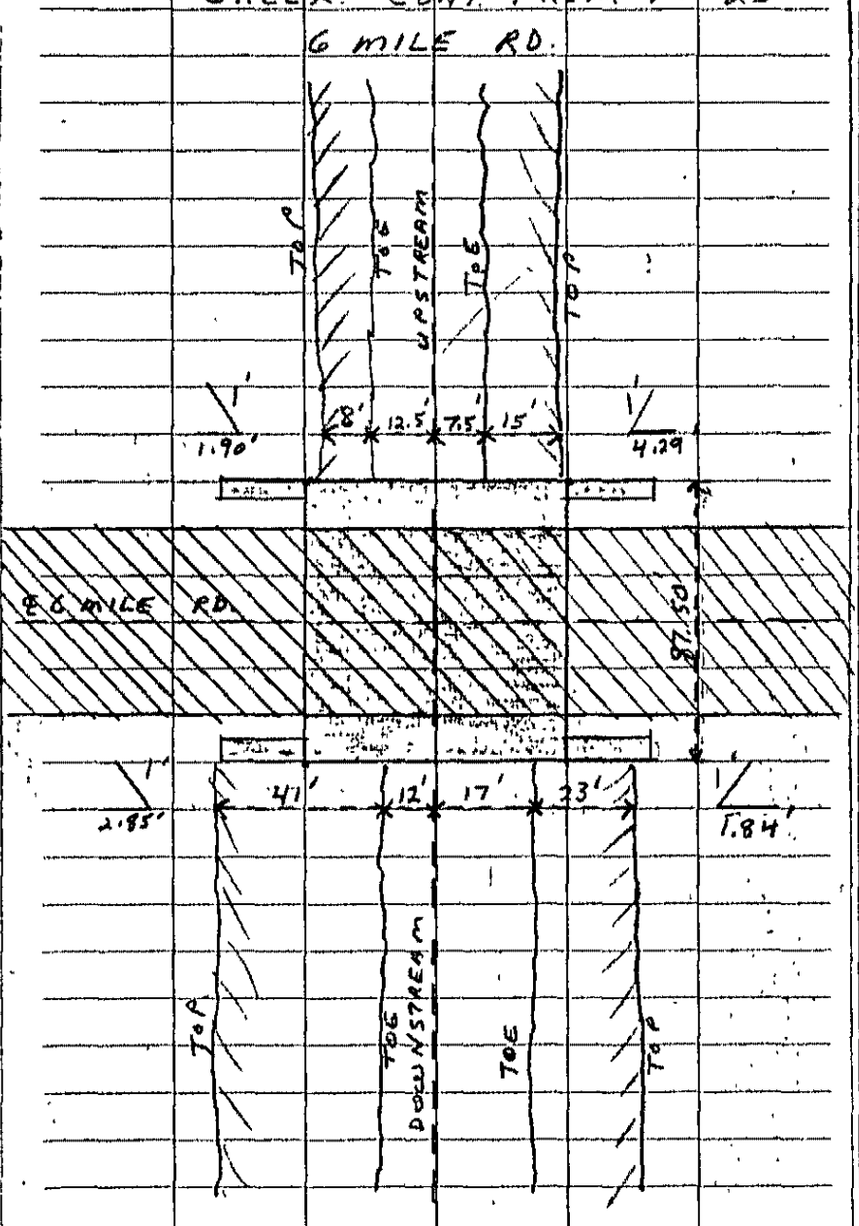
BRIDGE DETAIL TARABUSI CREEK. CONT FROM PG #25

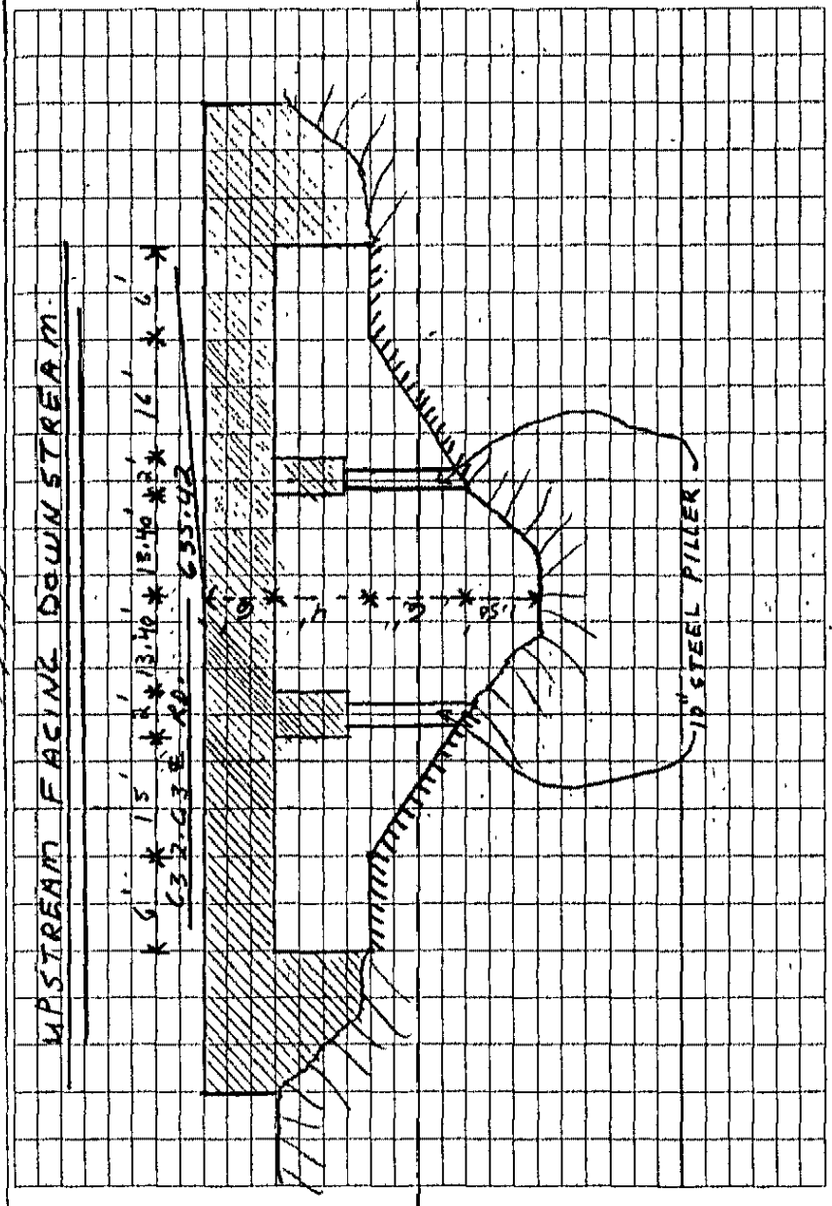
F.B. #947

A.P. M.S

MAR. 20-14





FORM 25-0
(313) 291 5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: Middlebelt
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 0 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$k_f = 29.1 n^2 L / R^{4/3}$ for English units

Area = 97.24 = _____ Wp = 43.5

$R = A/wp = 2.24$ $R^{4/3} = 2.93$ $L = 88$

n (composite) $= \frac{34}{55}(.013) + \frac{21}{55}(.035) = .02$

$k_f = 29.1 \times (.02)^2 \times 88/2.93 = .35$

15.44
6.3 1.3
15.44

$k_e = .5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$k_p$ = 0 if bridge has no intermediate piers

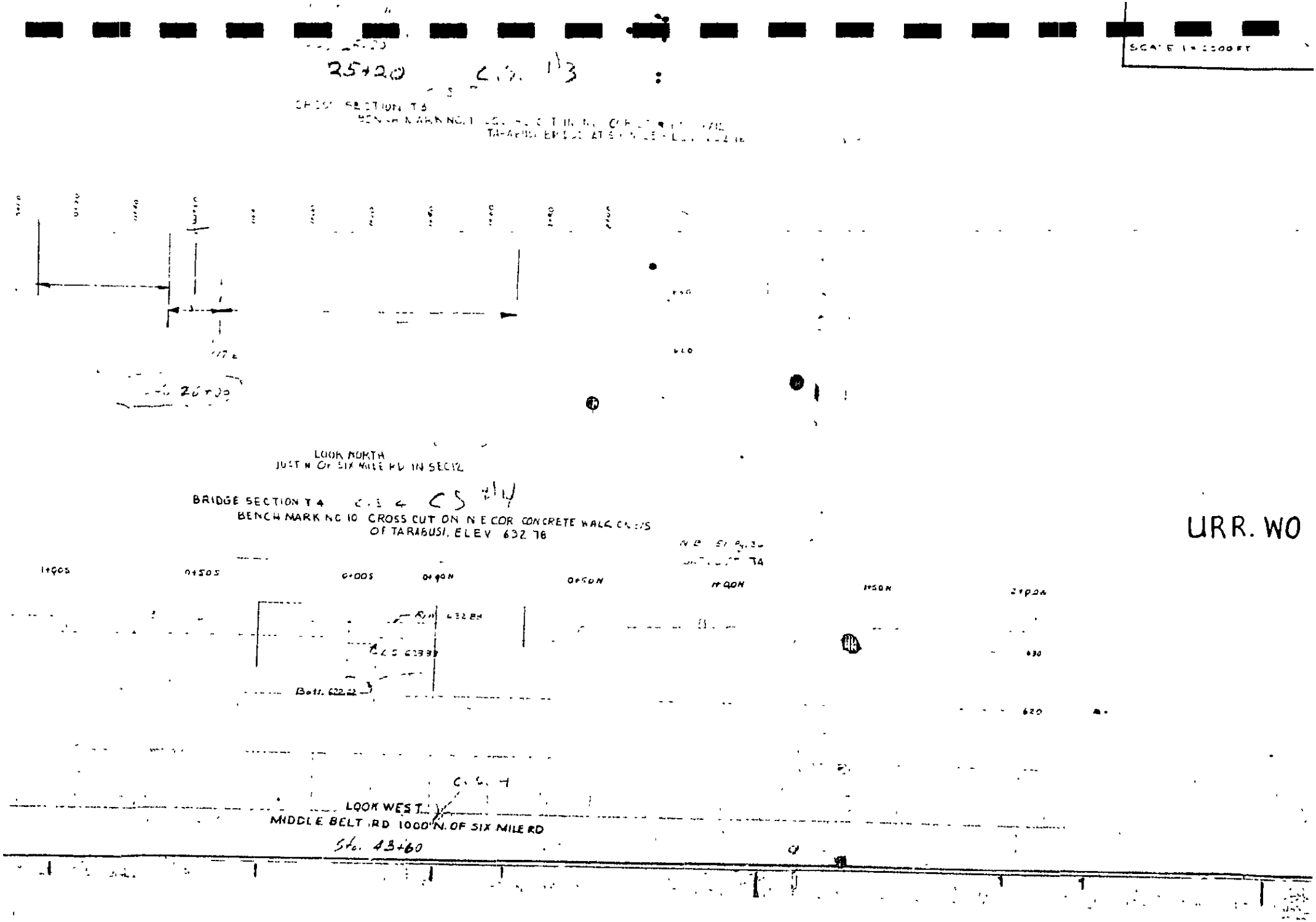
$k_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

Skew Bridge ∡ = 50°

factor = .63

2. XKOR = 1 + .35 + .5 + 0 = 1.95
3. COFQ = Coefficient of discharge = 3. — HEC-2 manual
4. RDLEN = Length of weir = _____ (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers): 15.44
6. BWP = total width of obstruction = 0. — field data
7. BAREA = bridge opening inc. piers = 97.24 (has this been skewed?)
8. SS = side slope = 0.
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 622.6
(0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 622.6
(0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| Livonia - Hydraulics Tarabusi Creek | T.C | | ___ OF ___ | HUD • 2014 • 07 |
| | DATE 4/10/90 | DATE | | |


25+20
CROSS SECTION T3
LOOK NORTH
JUST N OF SIX MILE RD IN SEC 12
BRIDGE SECTION T4
BENCH MARK NO 10 CROSS CUT ON N E COR CONCRETE WALK CROSS
OF TARABUSI, ELEV 632 78
1+00S
0+50S
0+00S
0+00N
0+50N
1+00N
1+50N
2+00N
Batt. 622.22
LOOK WEST
MIDDLE BELT RD 1000' N. OF SIX MILE RD
Sta. 43+60
URR. WO

Bridge Location: MERRIMAN

Bridge Losses - SB Card

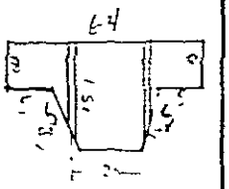
REFERENCE

1. XK (Pier Shape Coefficient) 1.25 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma K$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:




$k_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 763.5 = _____ WP = 150

$R = A/wp$ 5.09 $R^{4/3} = 8.76$ $L = 74$

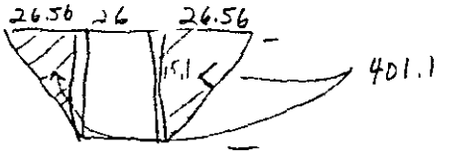
$n$ (composite) $= \frac{17}{140}(.013) + \frac{23}{140}(.015) = .02$

$k_f = 29.1 \times (.02)^2 \times 74 / 8.76 = .10$

$k_e = .2$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

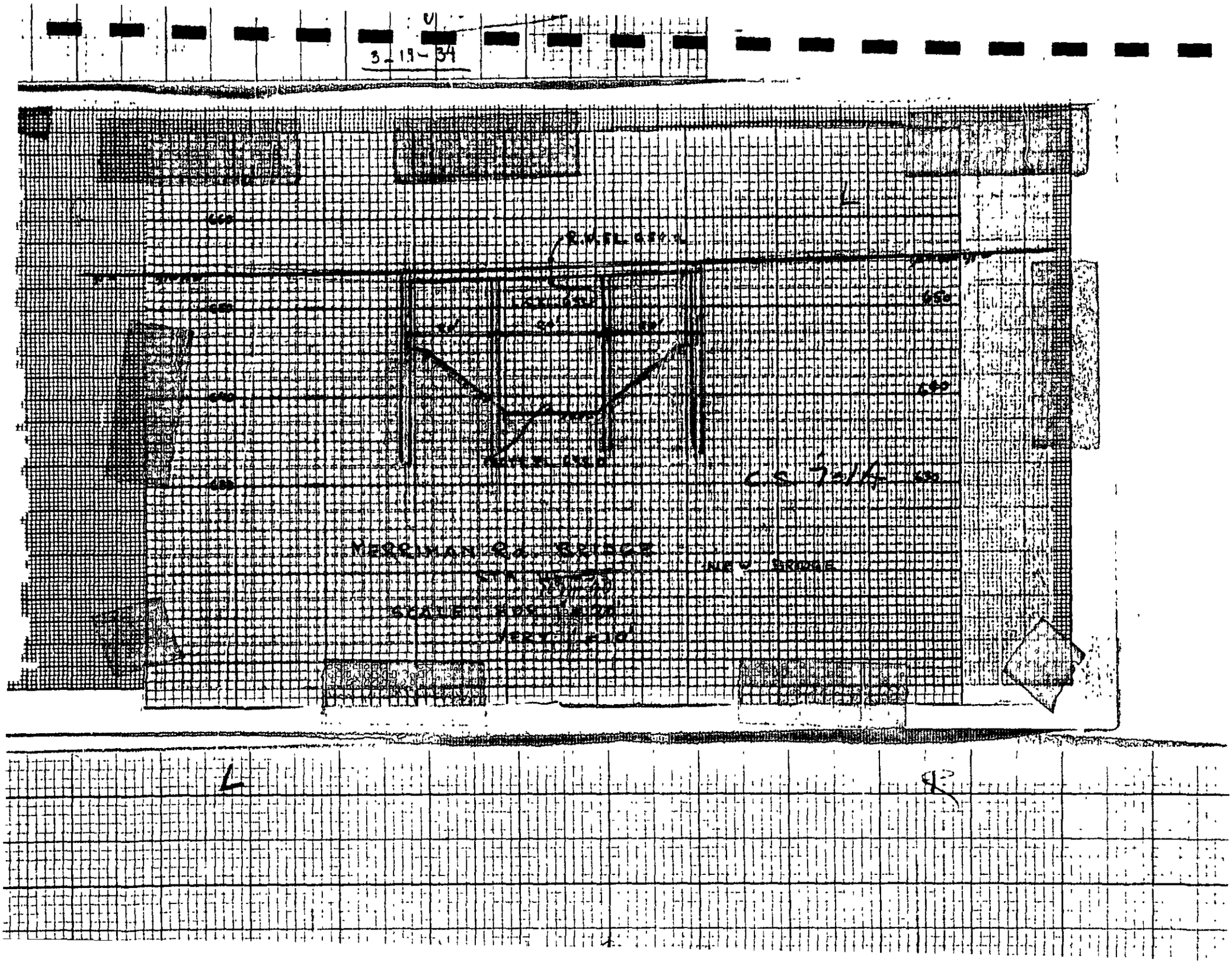
$k_p = 0$ if bridge has no intermediate piers

$k_p = 0.05$ if bridge has intermediate piers — HEC-2 manual




2. XKOR = 1 + .10 + .2 + 0 = 1.3
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0. (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 26.
6. BWP = total width of obstruction = 2. — field data
7. BAREA = bridge opening inc. piers = 793.7
8. SS = side slope = 2:28 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 638. (0. if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 638. (0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK | SHEET NO. | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| LIVONIA - HYD Ten. Lwic Co. | T G | | ___ OF ___ | HWD 2014 • 07 |
| | DATE 3/19/79 | DATE | | |


3-19-34
MERRIMAN RD. BRIDGE
NEW BRIDGE

FORM 25-0
(313) 291-5400
Wade Trim & Associates Inc.
Civil Engineers • Land Surveyors
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

WORK SHEET

Bridge Location: 7 MILE

Bridge Losses - SB Card

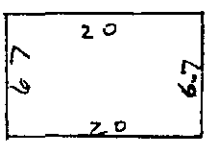
REFERENCE

1. XK (Pier Shape Coefficient) = 0 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:




$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 134 = ____ Wp = 53.4

$R = A/wp = 2.51$ $R^{4/3} = 3.41$ $L = 61$

n (composite) = .02

$K_f = 29.1 \times (.02)^2 \times 61/3.41 = .21$

$K_e = .5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

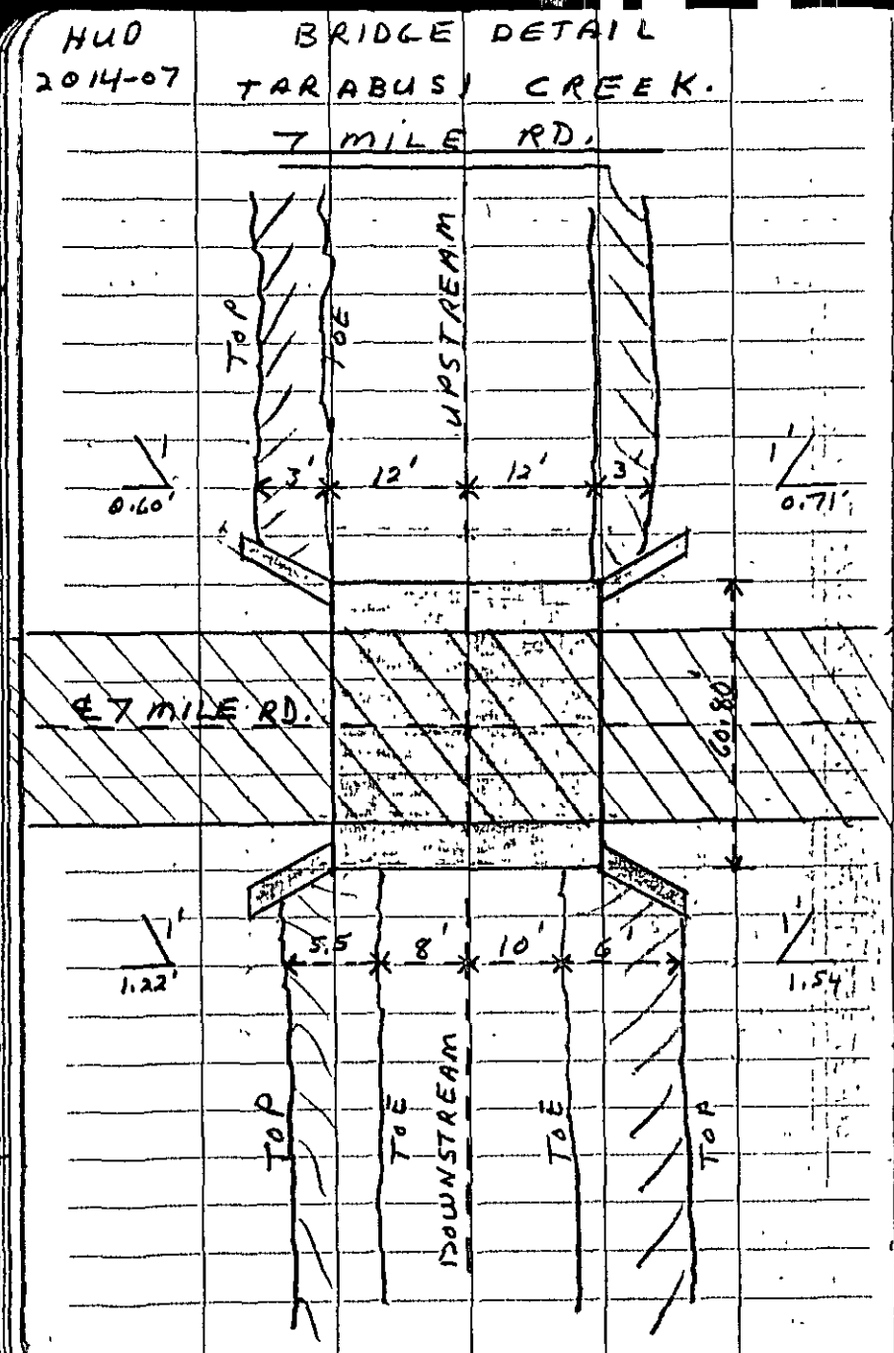
2. XKOR = 1 + .21 + .5 + 0 = 1.71
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 20
6. BWP = total width of obstruction = 0 — field data
7. BAREA = bridge opening inc. piers = 134.
8. SS = side slope = 0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 652.8 (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 652.8 (0 if equal to minimum elevation in previous x-sect.)

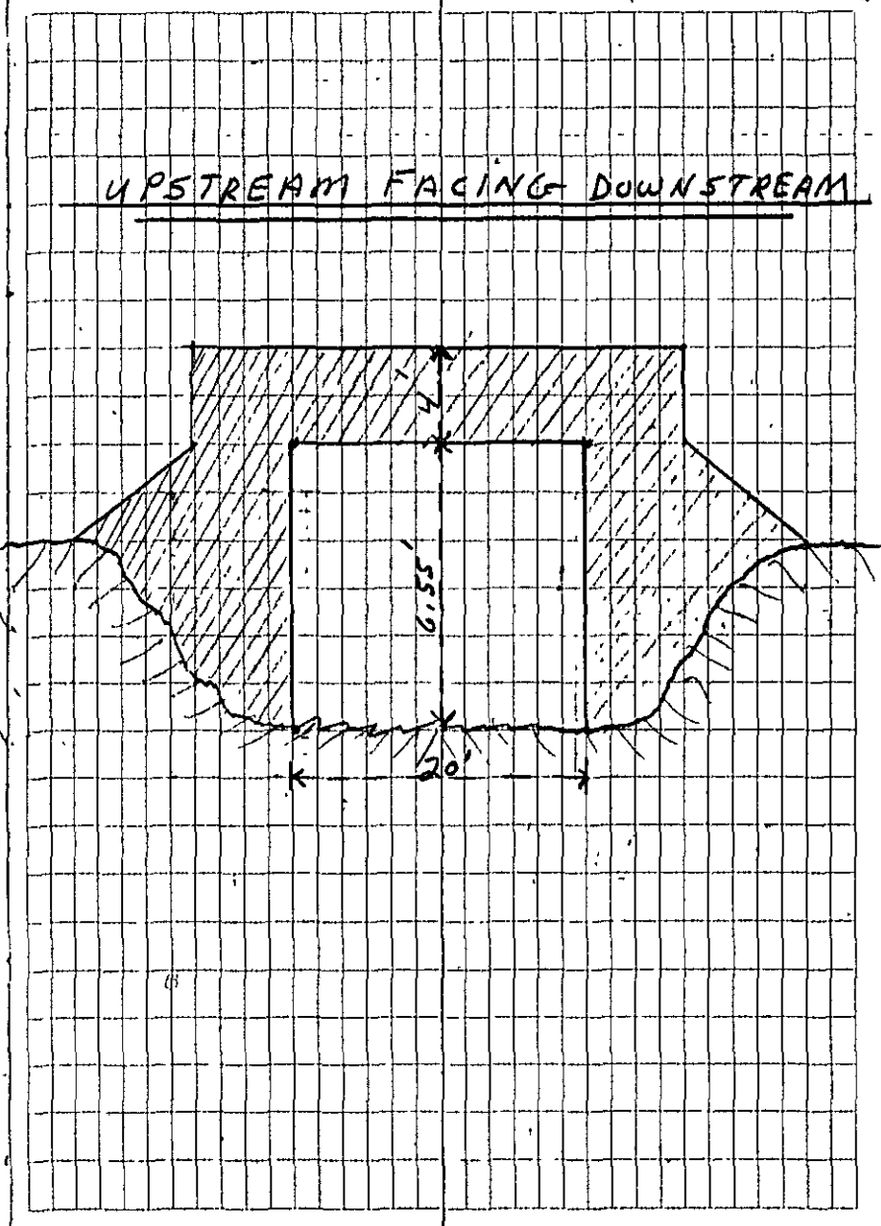
| SUBJECT | BY | CHK. | SHEET NO. | File Code No (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| Tarabus. Creek Livonia-MI | T.G. | | ____ OF ____ | HUD •2014 •07 |
| | DATE 3/19/79 | DATE | | |

HUD 2014-07

# BRIDGE DETAIL TARABUSI CREEK.

FIB. # 974 A.P. M.S MAR 20-1979 35.



FORM 25-0
(313) 291-5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

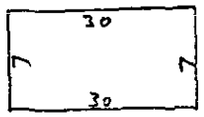
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: FARMINGTON
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 0 — HEC-2 manual
XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$
where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:




$K_f = 29.1 n^2 L / R^{4/3}$ for English units
Area = 210 = ____ $W_p = 74$
$R = A/W_p = 2.84$ $R^{4/3} = 4.02$ $L = 74$
n (composite) = .02
$K_f = 29.1 \times (.02)^2 \times 74/4.02 = .21$

$K_e = .5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

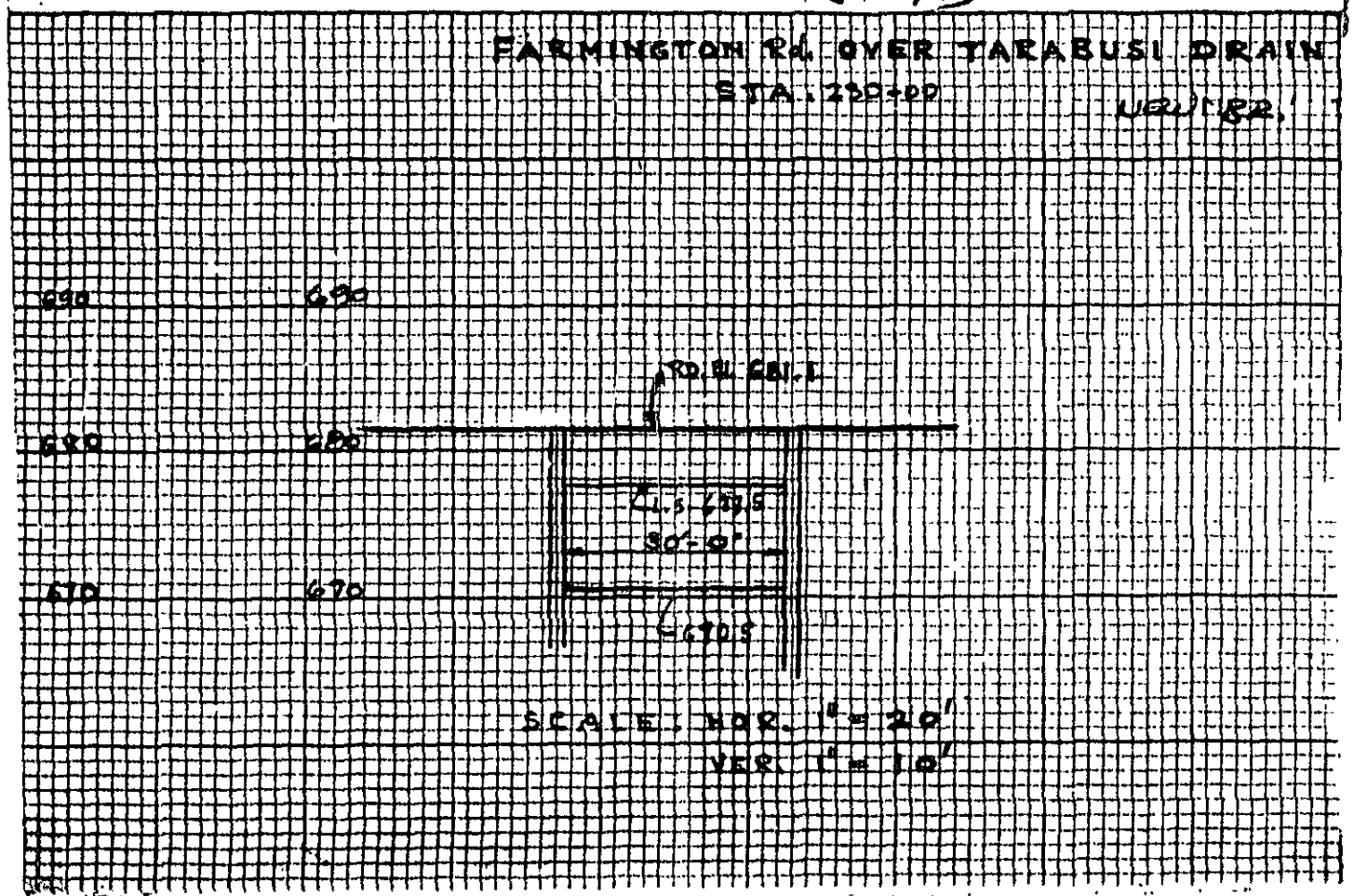
$K_p$ = 0 if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + .21 + .5 + 0 = 1.71
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 30
6. BWP = total width of obstruction = 0 — field data
7. BAREA = bridge opening inc. piers = 210
8. SS = side slope = 0
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 670.5
(0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 670.5
(0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK. | SHEET NO. | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| Jorabusi Cr. Livonia - Hyd. | T.b. | | 5 OF ___ | Hud • 2014 • 07 |
| | DATE 3/19/79 | DATE | | |

C.S. 9B




URR.WO 5-26

CITY OF LIVONIA, MICHIGAN

TARABUSI CREEK

EXHIBIT 9

Computer Printouts

HEC-2 Backwater Analysis

with

Cross Section Plots

(See Separate Folder)

CITY OF LIVONIA, MICHIGAN

TARABUSI CREEK

EXHIBIT 10

Stream Profile

CITY OF LIVONIA, MICHIGAN

TRIBUTARY #1

EXHIBIT 11

Bridge Notes and Sketches

Wade Trim & Associates, Inc.
Civil Engineers • Land Surveyors
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

WORK SHEET

Bridge Location: 6 Mile Rd. + Tributary #1
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 0 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + ΣK, $\Sigma k = k_f + k_e + k_p$

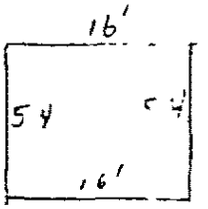
where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1 n^2 L / R^{4/3}$ for English units

Area = 86.4 = 86.4 Wp = 42.8
R = A/wp = 2.02 $R^{4/3}$ = 2.55 L = 116
n (composite) = .02

$K_f = 29.1 \times (.02)^2 \times 116/2.55 = .53$




$K_e = .5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 4

$K_p = 0$ if bridge has no intermediate piers

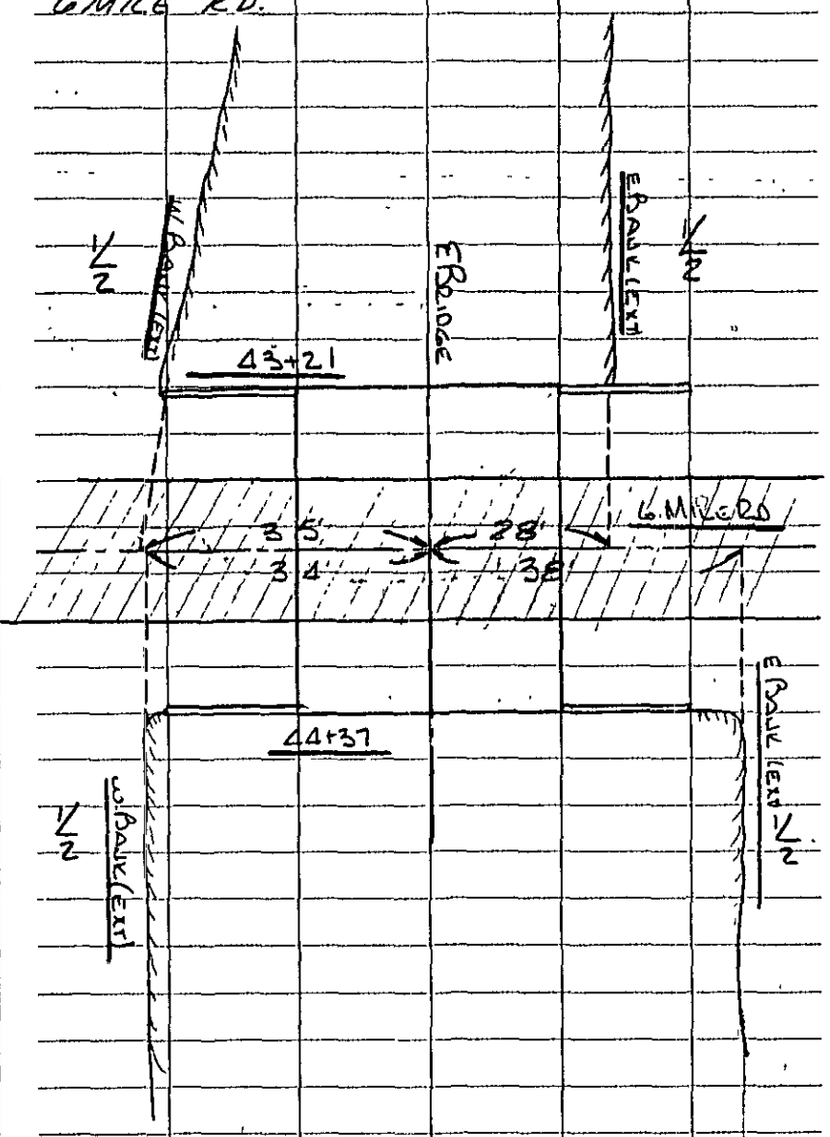
$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + .53 + .5 + 0 = 2.03
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers): 16
6. BWP = total width of obstruction = 0 — field data
7. BAREA = bridge opening = 86.4
8. SS = side slope = 0
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 657.5
(0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 656.6
(0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK | SHEET NO | File Code No (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| Trib. #1, 6 Mile Bridge, Hydraulics | T.G. | | | HUD •2014 •07 |
| | DATE 8-15 | DATE | ___ OF ___ | |

HUD 2014-05

BRIDGE DETAIL W'ly Drain & 6 MILE RD.

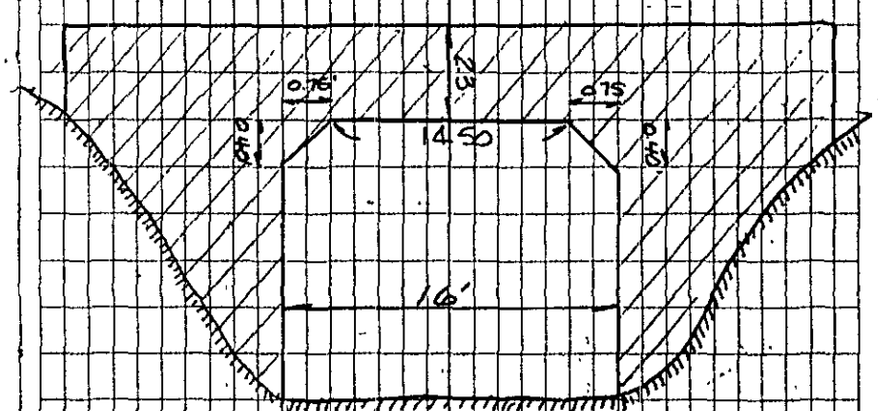


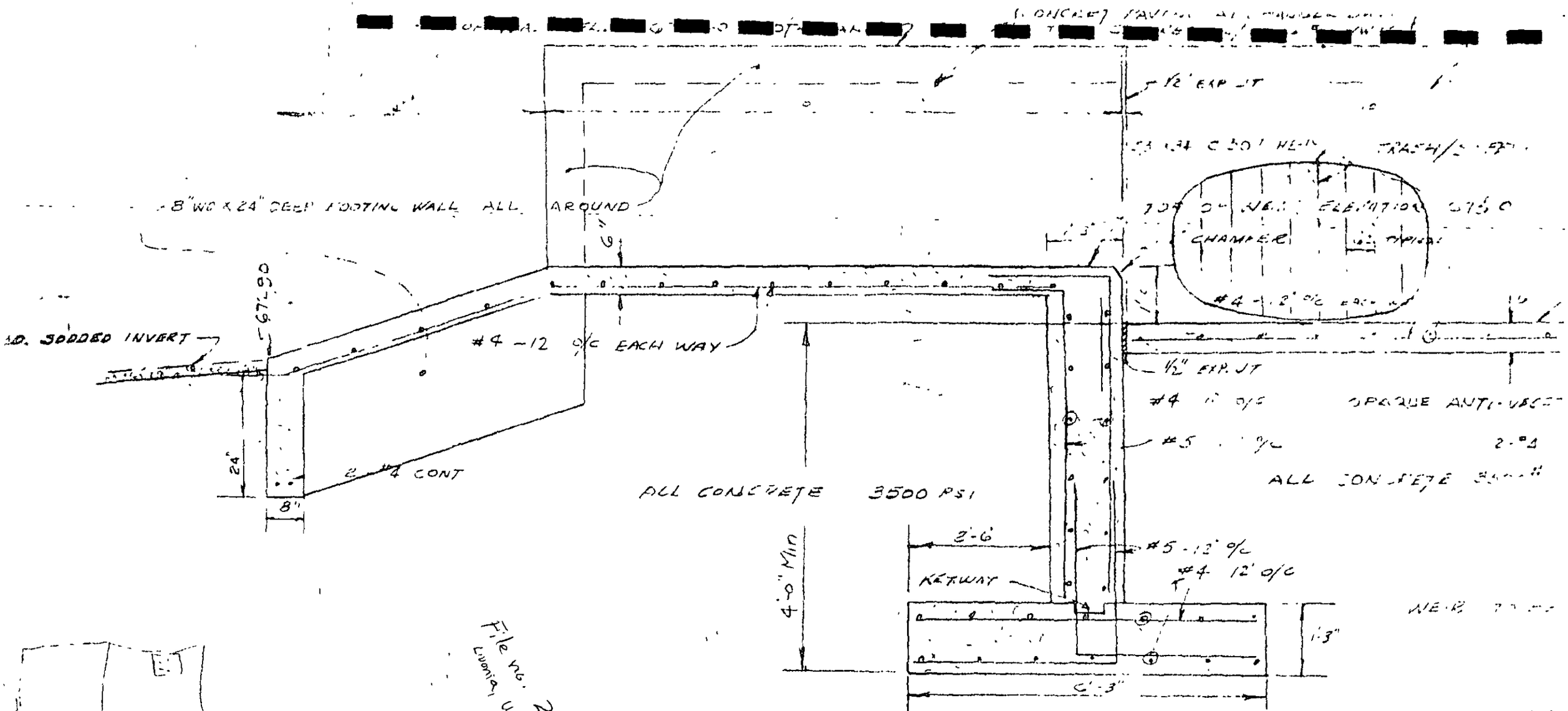

FB 947

2-6-78 EZDW MN

10

UPSTREAM END FACING DOWNSTREAM (TYP)






CONCRETE WEIR
1" = 2'
SECTION A-A
SEC NO 7975

File no. 2269-31
Livonia, Wayne Co.

From Sheffield Subd.
McNeely, Lincoln, &
Schroder Inc.
4-14-75 sheet 1-B
As Built 9/10/76



CITY OF LIVONIA, MICHIGAN

TRIBUTARY #1

EXHIBIT 12

Computer Printouts

HEC-2 Backwater Analysis

with

Cross Section Plots

(See Separate Folder)

CITY OF LIVONIA, MICHIGAN

TRIBUTARY #1

EXHIBIT 13

Stream Profile

CITY OF LIVONIA, MICHIGAN

BEITZ DRAIN

EXHIBIT 14

Bridge Notes and Sketches

FORM 25-0

(313) 291-5400

**Wade, Trim & Associates, Inc.**
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: 6 Mile Rd.
Bridge Losses - SB Card

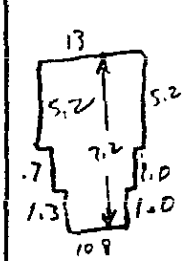
REFERENCE

1. XK (Pier Shape Coefficient) 0 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

L looking D/S R




Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 89.3 = ____ $W_p$ = 38.2

$R = A/W_p = 2.34$ $R^{4/3} = 3.10$ $L = 117$

n (composite) = .022

$K_f = 29.1 \times (.022)^2 \times 117 \;/\; 3.1 = .53$

$K_e = .5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p$ = 0 if bridge has no intermediate piers

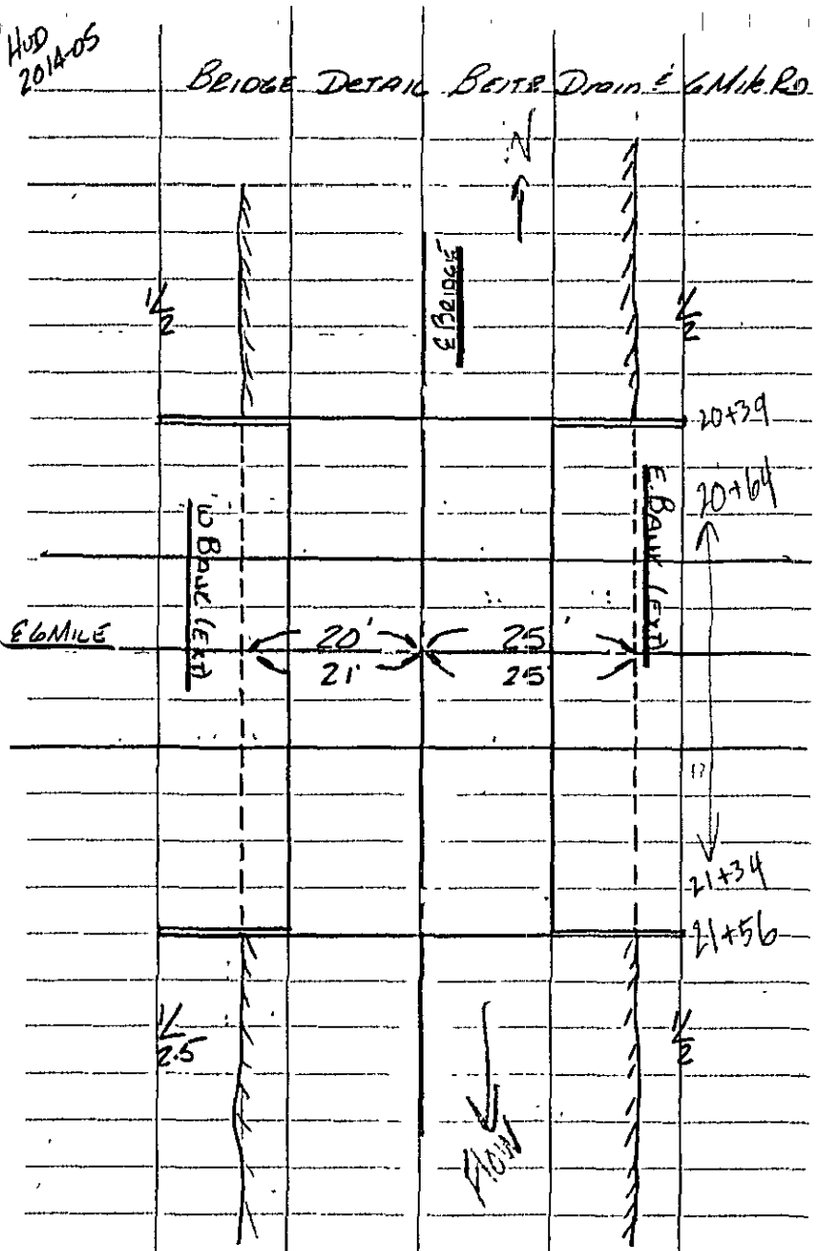
$K_p$ = 0.05 if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + .53 + .5 + 0 = 2.03
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 12.75
6. BWP = total width of obstruction = 0 — field data
7. BAREA = bridge opening inc. piers = 89.3
8. SS = side slope = 0.0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 643.8 (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 644.3 (0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK. | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| Livonia Delta Drain 6 Mile Bridge | T.G. | | ____ OF ____ | Hud • 2004 • 07 |
| | DATE 2-18-79 | DATE | | |

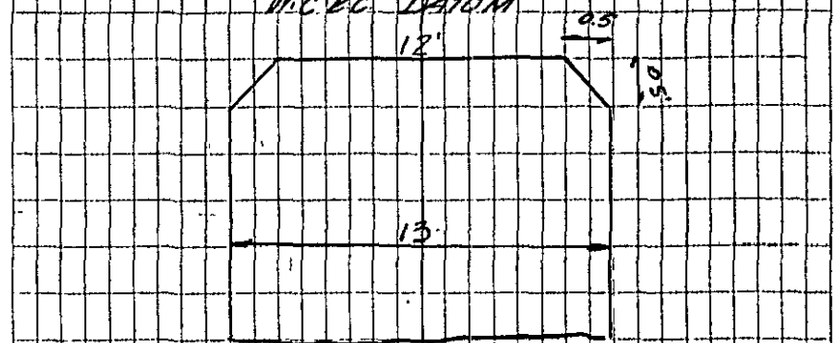
HUD 2014-05

BRIDGE DETAIL BEITER DRAIN & 6 MILE RD.




2-8-78 REVISED MN

M.C.R.C. DATUM



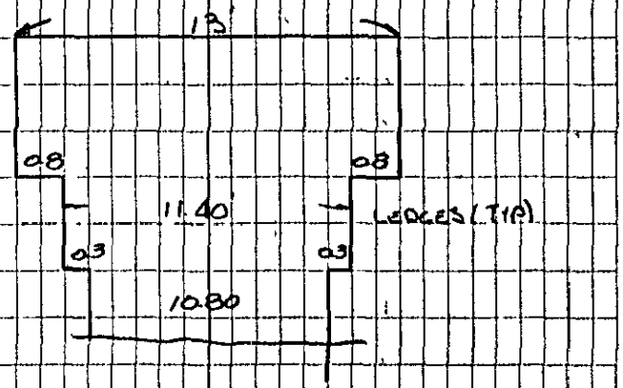

UPSTREAM (20+39) 20+64 & 21+34 & 21+56

DOWNSTREAM VIEW (TYP) FACING DOWNSTREAM

(VIEWS OF BRIDGE EXTENSION)

ORIGINAL BRIDGE @ STA'S 20+64 & 21+34

FACING DOWNSTREAM



HW 2014-05

BRIDGE & VALLEY SECTIONS BEITZ Drain

| STA | + | HI | − | ELEV | |
|---|---|---|---|---|---|
| BM | | | | 681.67 | |
| | 0.25 | 681.92 | | | |
| Ex Drain Bottom | | | 23.47 | 658.45 | |
| Outside Top Culv | | | 17.63 | 664.29 | |
| | 14.19 | 678.48 | | | |
| T.P | | | 5.72 | 672.76 | |
| | 1.15 | 673.91 | | | |
| Ex Drain Bottom | | | 22.66 | 651.25 | |
| 44R | | | 13.70 | 660.21 | |
| 36L | | | 13.90 | 660.01 | |
| Top HW @ S End 96" | | | 12.92 | 660.99 | − 9.76 = |
| | 12.35 | 673.34 | | | |

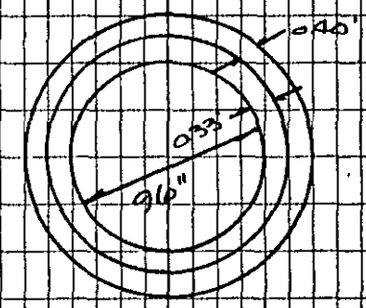
CON'T ON PG 19

FB

2-8-78 RZDW MN

WCRC Datum

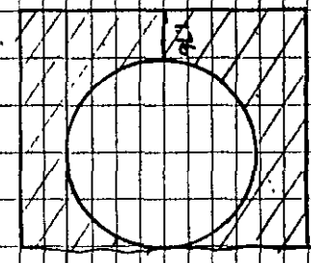
UPSTREAM END 96" CULV.




ARROW ON F.Hyd @ N.W. Cor. MYRON DR & CURTIS
(Francoville Subd'n - Orchard - PARKE - HILTS - McCLIMENT INC.

664.29
− 8.73
655.56 INV. 96"

DOWNSTREAM END 96" CULV (0+00)



651.23 INV 96"

D.W.

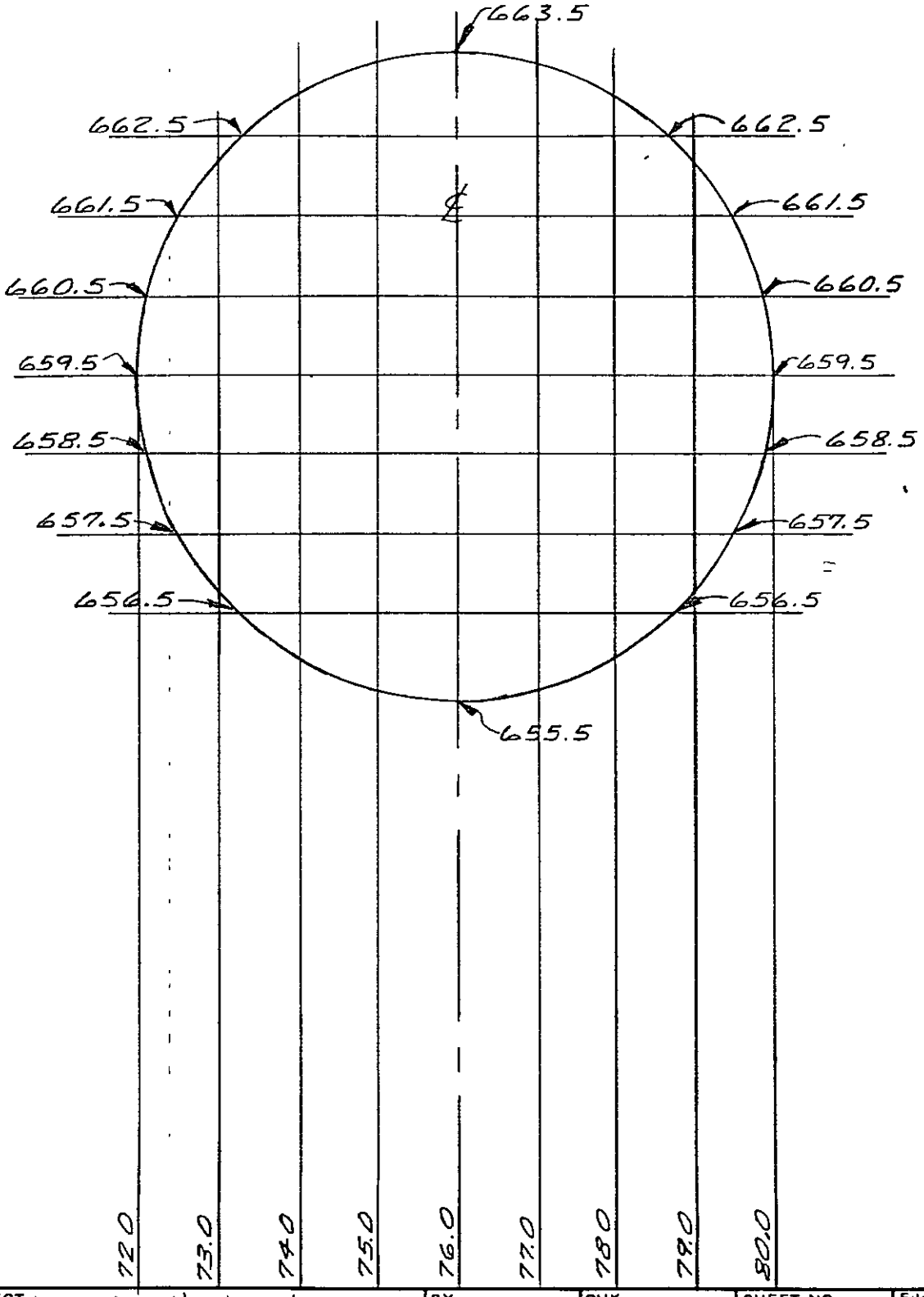
VBJ

Wade Trim & Associates, Inc.
Civil Engineers • Land Surveyors
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

WORK SHEET

REFERENCE

u/s End Francaville Culvert




| SUBJECT Livonia-Hydraulics | BY | CHK. | SHEET NO. | File Code No (Job No) Owner • Project • Suffix |
|---|---|---|---|---|
| | DATE | DATE | ____OF____ | HUD • 2014 • 07 |

REFERENCE

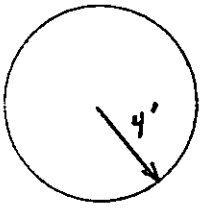
lost Ref.

King & Brater's Handbook of Hydraulics

4th Ed. by Curtis

# Beitz Drain, Francaville
# Culvert Bend Loss Calculations

$$\text{Head loss at bend} = .25\sqrt{\frac{\alpha}{90^\circ}} \cdot \frac{V^2}{2g}$$




$$V = \frac{1.49}{n} S^{1/2} R^{2/3}$$

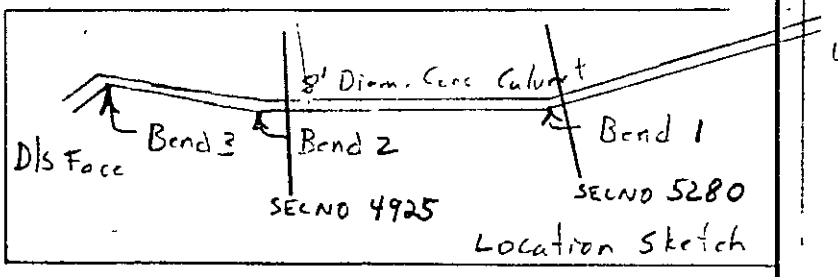
$$R = \frac{A}{P} = \frac{16\pi}{8\pi} = 2$$

$$S = .0039$$

$$V = \frac{1.49}{.013} (.0039)^{1/2} \cdot 2^{2/3}$$

$$n = .013$$

$$V = 114 \text{ ft/sec}$$



Location Sketch

## Bend 1

$\alpha = 18^\circ$

$$H_L = .25\sqrt{\frac{18}{90}} \cdot \frac{11.4^2}{32.2} = .23'$$ 3

## Bend 2

$\alpha = 12^\circ$ $\quad H_L = .25\sqrt{\frac{12}{90}} \cdot \frac{11.4^2}{32.2} = .18'$

.53

## Bend 3

$\alpha = 43^\circ$ $\quad H_L = .25\sqrt{\frac{43}{90}} \cdot \frac{11.4^2}{32.2} = .35'$

| SUBJECT | BY | CHK. | SHEET NO. | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| Livonia - Hydraulics | T. G. | | ____ OF ____ | Hud • 2014 • 07 |
| | DATE 8-27 | DATE | | |

CITY OF LIVONIA, MICHIGAN

BEITZ DRAIN

EXHIBIT 15

Computer Printouts

HEC-2 Backwater Analysis

with

Cross Section Plots

(See Separate Folder)

CITY OF LIVONIA, MICHIGAN

BEITZ DRAIN

EXHIBIT 16

Stream Profile

CITY OF LIVONIA, MICHIGAN

TRIBUTARY #1

EXHIBIT 17

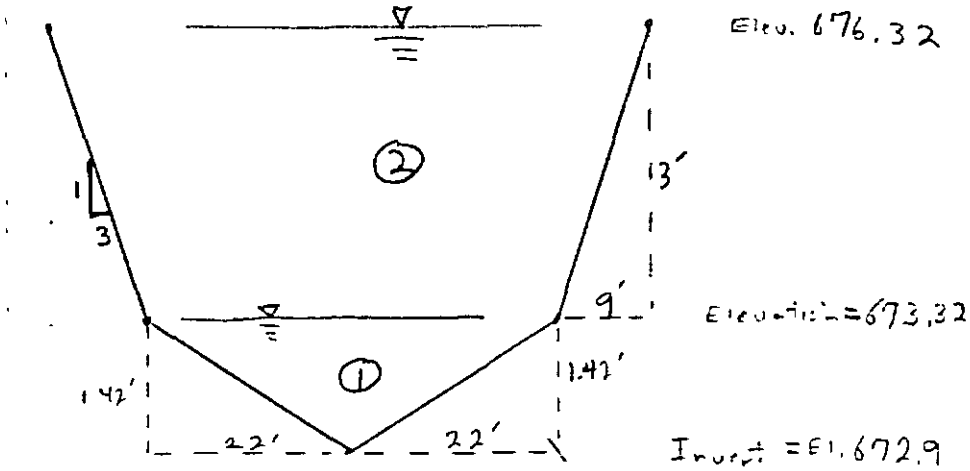
Weir Calculations

REFERENCE

# Channel D/S of Weir (Rating Curve)

$$Q = \frac{1.486}{n} A R^{2/3} S^{1/2}$$

$S = .0076$ ?
Invert = El 672.9
$n = .03$




Scale: 1" = 2' Vertical
1" = 20' Horiz.

Section ① – Area = 31.24 ft²
W.P. = 44.09 ft

Section ② – Area = 159 ft²
WP = 18.97

## Q @ Elev 673.32

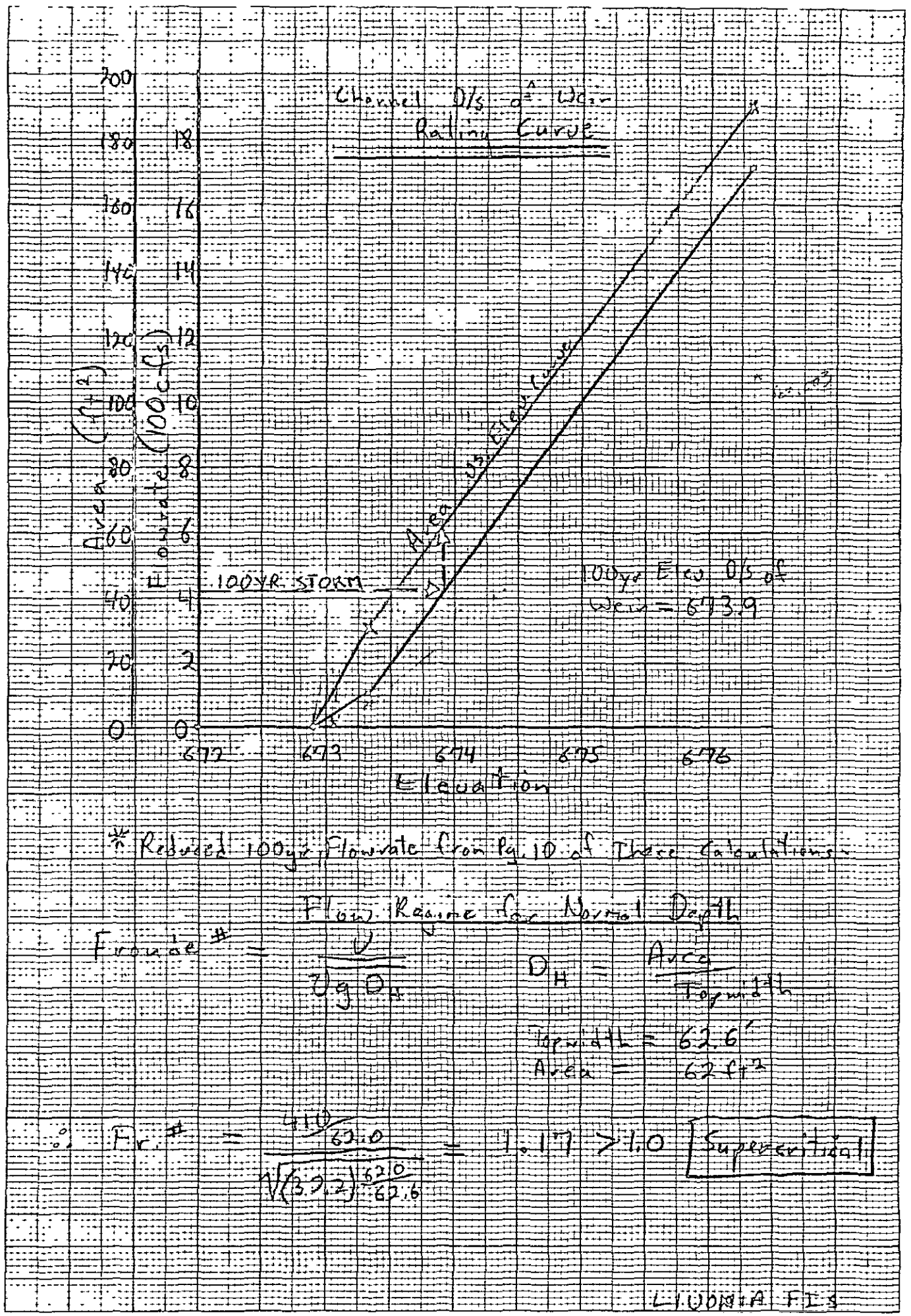
$$Q = \frac{1.486}{.03}(31.24)\left(\frac{31.24}{44.09}\right)^{2/3}(.0076)^{1/2} = 107 \text{ cfs}$$

## Q @ Elev. 676.32

$$Q = \frac{1.486}{.03}(31.24 + 159)\left[\frac{(31.24+159)}{(44.09+18.97)}\right]^{2/3}(.0076)^{1/2} = 1078$$

★ Q = 1715 cfs

| SUBJECT | BY | CHK. | SHEET NO. | File Code No (Job No) Owner • Project • Suffix |
|---|---|---|---|---|
| Sheridan's Subdivision Livonia FIS - Trib #1 | WJ Weaver | | 1 OF | |
| | DATE 7/21/99 | DATE | | |




* Reduced 100yr Flowrate from Pg. 10 of These Calculations

Froude # = $\frac{V}{\sqrt{g D_H}}$

Flow Regime for Normal Depth

$D_H = \frac{\text{Area}}{\text{Top width}}$

Top width = 62.6'

Area = 62 ft²

$\therefore$ Fr. # = $\frac{4.10}{\sqrt{(32.2)\frac{62.0}{62.6}}} = 1.17 > 1.0$ [Supercritical]

LIVONIA FIS

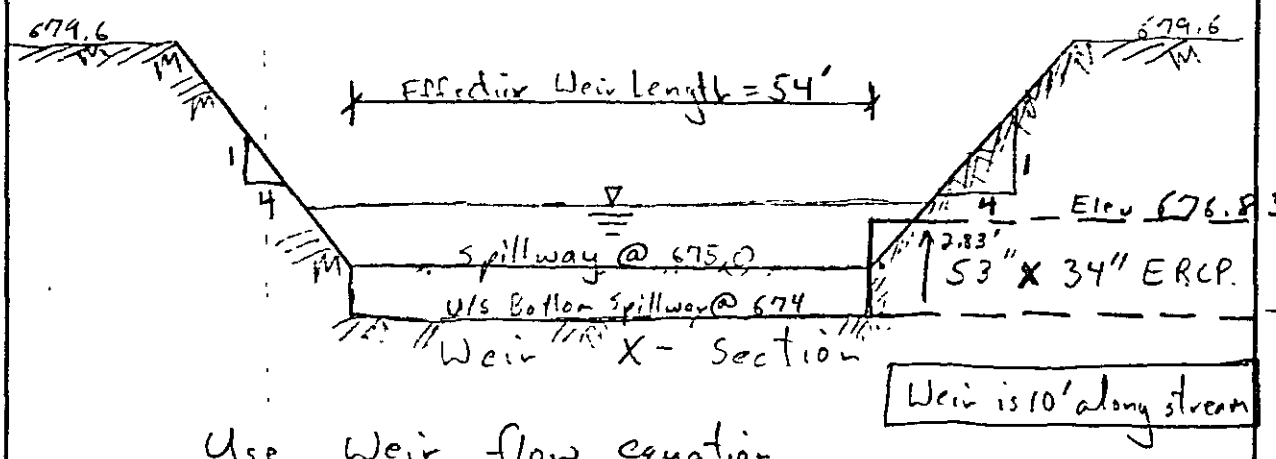
TRIB #1

WJ Woos 7/3/79

46 1320
KEUFFEL & ESSER CO MADE IN U.S.A.

REFERENCE

# Rating Curve for Weir




Use Weir flow equation

$Q = C L H^{3/2}$

"C" Values from King + Brater, Handbook of Hydraulics, McGraw-Hill, N.Y., 5th Edit., 1963, Pg. 5-46

① $Q = 0$ @ Elev. 675.0

② Try Elevation 675.5 :

$Q = C L H^{3/2} = 2.63(54).5^{3/2} = 47.3$ cfs

③ Try Elevation 676.0 :

$Q = (2.68)54(1)^{3/2} = 144.7$ cfs

④ Try Elevation 676.5 :

$Q = (2.65)\,54\,(1.5)^{1.5} = 262.9$ cfs

⑤ Try Elevation 676.83:

$Q = (2.64)\,54\,(1.83)^{1.5} = 353$ cfs

⑥ Try Elevation 677.0:

$Q = (2.64)\,54\,(2.0)^{1.5} = 403$ cfs

| SUBJECT | BY | CHK. | SHEET NO. | File Code No (Job No.) Owner • Project • Suffix |
|---|---|---|---|---|
| Livonia FIS - Trib #1 | W.J. Weaver | | 3 OF | |
| | DATE 7/3/79 | DATE | | |

REFERENCE

## Rating Curve for Weir (continued)

⑦ Try Elevation 677.5 :

$$Q = (2.64)\,54\,(2.5)^{1.5} = \underline{564 \text{ cfs}}$$

⑧ Try Elevation 678.0 :

$$Q = (2.64)\,(54)\,(3.0)^{1.5} = \underline{741 \text{ cfs}}$$

Comment:

① Normal Depth Analysis D/S of the weir indicates that weir submergence will not occur until a flowrate of 1430 cfs.

② The above weir flow rating curve will be combined with the rating curve for the low flow pipe (calculations to follow) to obtain a rating curve for the control section. Also, distribution of flow between the two channels will be determined.

REFERENCE

# Low Flow Pipe – Rating Curve

The low flow pipe ( 53" x 34" E.C.P.) has a slope of 0; thus, the following analysis will be used to develop a rating curve:

① Inlet Control Eleu./Flows shall be computed based on Bureau of Public Roads #5, chart #3, Pg. 5-23.

② Pressure Flow Eleu./Flows shall be computed based on the pressure flow equation as presented in the HEC 2, Users Manual by the U.S. Army, Corps of Engineers.

③ The highest/lowest Eleu/Flow resulting from ① + ② above will be used for the rating curve.

The pressure flow equation is as follows:

$$Q = A\sqrt{\frac{2gH}{K}}, \text{ where } K_{friction} = \frac{29.1\,n^2 L}{R^{4/3}}$$

$A = 10.2\ ft^2$, $R_H = .875$, $n = .015$ (Trash Rack) } Concrete Pipe Design Manual

Thus $K_{friction} = \dfrac{29.1(.015)^2\ 350'(long)}{(.875)^{4/3}}$

$\therefore K_f = 2.74$

Total $K = K_{entrance} + K_{friction} + K_{exit} = .2 + 2.74 + 1.0 = 3.94$

$Q = 10.2\sqrt{\frac{64.4(H)}{3.94}} = 10.2\sqrt{16.35\,H}$, where H is variable.

| SUBJECT | BY | CHK. | SHEET NO | File Code No (Job No) Owner • Project • Suffix |
|---|---|---|---|---|
| Livonia-FIS, Trib #1 | WJ Weaver | | 5 OF | |
| | DATE 7/3/80 | DATE | | |

REFERENCE

# Low Flow Pipe - Rating Curve

$D = 34" = 2.83'$

(1) Elevation 674.0 :

$Q = 0$

(2) Elevation 675.0 :

Inlet Control -

$\frac{H_w}{d} = \frac{1.0}{2.83} = .35 \quad \therefore Q = 9 cfs$

Pressure Flow -

$H_w = 1.0 \qquad Q = 10.2\sqrt{16.35(.5)} = 29 cfs$

Assume TW = .5

Use $Q = 9 cfs$

(3) Elevation 675.5 :

Inlet Control -

$\frac{H_w}{d} = \frac{1.5}{2.83} = .53 \quad \therefore Q = 19 cfs$

Pressure Flow -

$H_w = 1.5 \qquad Q = 10.2\sqrt{(16.35).7} = 35 cfs$

Assume TW = .8

Use $Q = 19 cfs$

(4) Elevation 676.0 :

Inlet Control -

$\frac{H_w}{d} = \frac{2.0}{2.83} = .71 \quad \therefore Q = 31 cfs$

Pressure Flow -

$H_w = 2.0 \qquad Q = 10.2\sqrt{16.35(2.0)} = 41 cfs$

Assume Tailwater = 1.0'

Use $Q = 31 cfs$

| SUBJECT | BY | CHK. | SHEET NO | File Code No (Job No.) Owner • Project • Suffix |
|---|---|---|---|---|
| Livonia FIS - Trib #1 | DATE 9/12/2000 | DATE | 6 OF | |

REFERENCE

# Low Flow Pipe - Rating Curve

(5.) Elevation 676.5 :

Inlet Control -

$\frac{H_w}{d} = \frac{2.5}{2.83} = .88 \quad \therefore Q = 45 cfs$

Pressure Flow -

$H_w = 2.5 \quad Q = 10.2\sqrt{15.35(1.3)} = 47 cfs$

Assume $T_w = 1.2$

Use $Q = 45 cfs$.

(6) Elevation 676.83 :

Inlet Control -

$\frac{H_w}{d} = \frac{2.83}{2.83} = 1.0 \quad \therefore Q = 52 cfs$

Pressure Flow -

$H_w = 2.83 \quad Q = 10.2\sqrt{16.35(1.50)} = 52 cfs$

Assume $T_w = 1.3$

Use $Q = 52 cfs$.

(7) Elevation 677.0 :

Inlet Control -

$\frac{H_w}{d} = \frac{3}{2.83} = 1.06 \quad \therefore Q = 58 cfs$

Pressure Flow -

$H_w = 3.0$

Assume $T_w = 1.5$

$Q = 10.2\sqrt{16.35(1.5)} = 52 cfs.$

Use $Q = 52 cfs$

(8.) Elevation 677.5 :

Inlet Control -

$H_w/d = \frac{3.5}{2.83} = 1.24 \quad \therefore Q = 72 cfs$

Pressure Flow -

$H_w = 3.5 \quad Q = 10.2\sqrt{16.35(2.0)} = 58 cfs$

Assume $T_w = 1.5$

Use $Q = 58 cfs$

| SUBJECT | BY | CHK. | SHEET NO | File Code No. (Job No.) Owner • Project • Suffix |
|---|---|---|---|---|
| Livonia TIS - Trib #2 | DATE 7/9/14 | DATE | 7 OF | |

Granger Engineering, Inc.
Cadillac • Kalkaska • Gaylord
Sault Ste Marie
Civil Engineers • Land Surveyors

FORM 25-0

WORK SHEET

REFERENCE

Low Flow Pipe - Rating Curve

(9) Elevation 678.0 :

Inlet Control -

$$H_w/d = 4.0/2.83 = 1.41 \therefore Q = 85 \text{ cfs}$$

Pressure Flow -

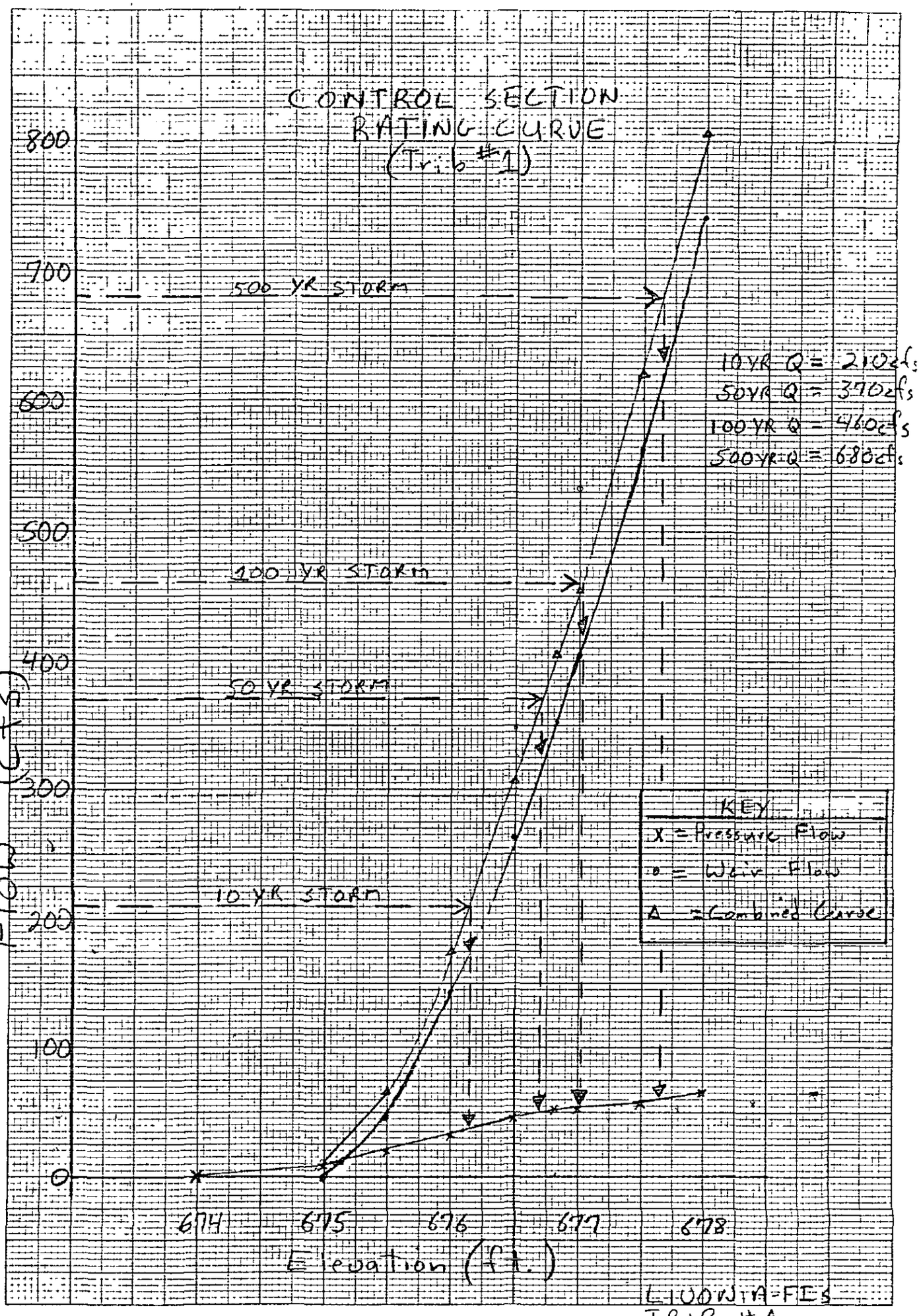
$$H_w = 4.0$$

Assume $T_w = 1.5$

$$Q = 10.2\sqrt{16.35(2.5)} = 65 \text{ cfs}$$

Use Q = 65 cfs

| SUBJECT | BY | CHK | SHEET NO. | File Code No (Job No) Owner • Project • Suffix |
|---|---|---|---|---|
| Livor: FIS - Trib #1 | W Weaver | | 8 OF | |
| | DATE 7/3/72 | DATE | | |




46 1320
KE 10 X 10 TO ½ INCH 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.

## Conclusion

REFERENCE

① During 10, 50, 100 + 500 yr. storms, the following division of flow will occur:

| Storm (Yr) | Qi (cfs) | Weir (Main Channel) (cfs) | Lo. Flow Pipe (Old channel) (cfs) | Flood Elev. |
|---|---|---|---|---|
| 10 | 210 | 175 | 37 | 676.15 |
| 50 | 370 | 315 | 50 | 676.70 |
| 100 | 460 | 410 | 53 | 677.00 |
| 500 | 680 | 610 | 60 | 677.65 |

② The old channel which the low flow pipe discharges into will only handle a minor amount of flow (60 cfs during 500 yr storm); therefore, a floodway will be established at the banks of the old channel in addition to the floodway shown for the new channel.

③ Flow D/S of the Weir is super critical and well within the banks @ Elev. 673.9. (See Pg 2 for this calculation).

| SUBJECT | BY | CHK. | SHEET NO. | File Code No. (Job No.) Owner • Project • Suffix |
|---|---|---|---|---|
| Livonia FIS - Trib #1 | DATE 7/3/79 | DATE | 10 OF | |

CITY OF LIVONIA, MICHIGAN

TARABUSI CREEK, TRIBUTARY #1,

and BEITZ DRAIN

EXHIBIT 18

Mean Annual Elevation Calculations

FORM 25-0
(313) 291-5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

REFERENCE

Exhibit 18

Mean Annual Elevation Determination on Bell Branch at Tarabusi Creek

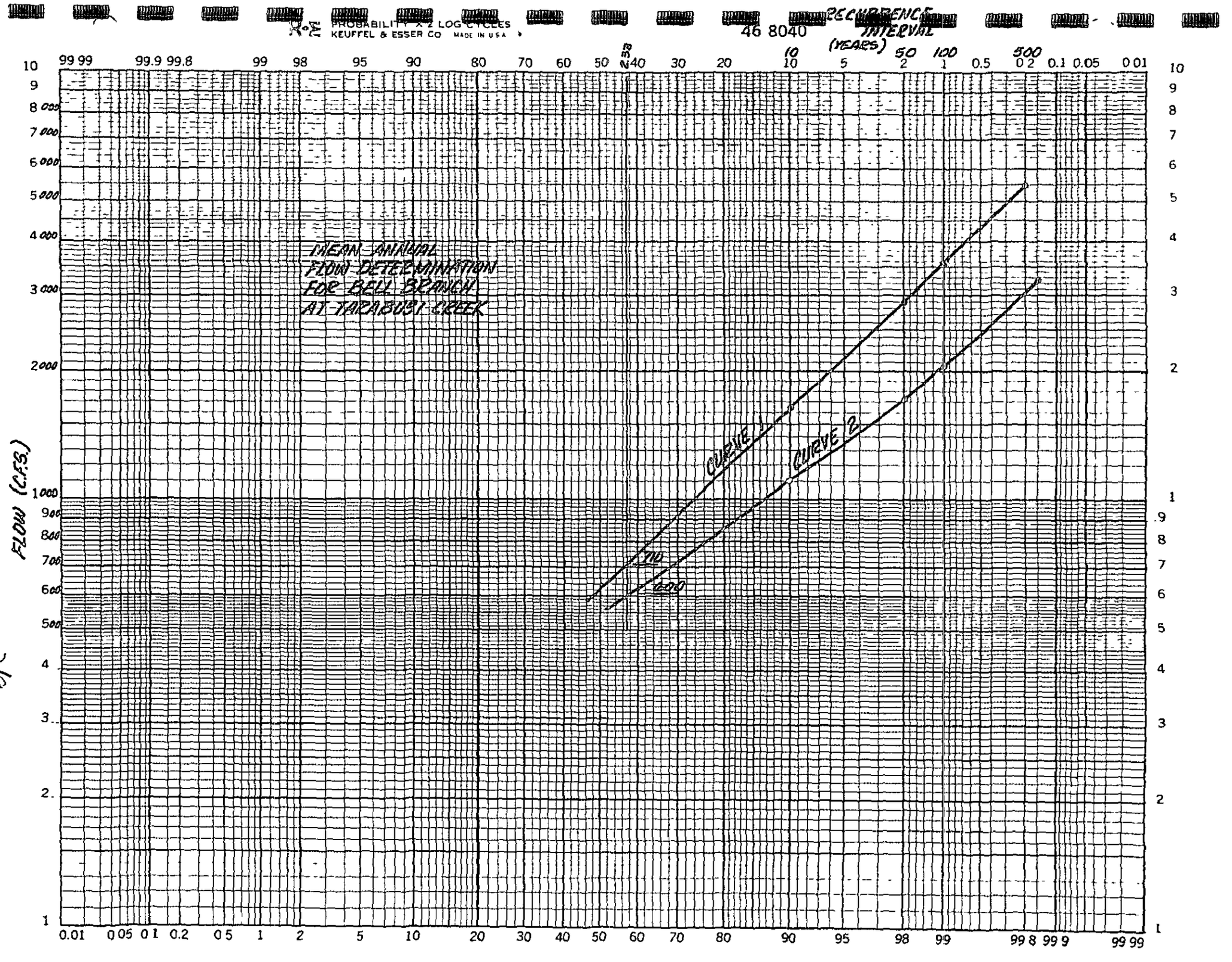
SECNO 3950 200' D/S Confluence
4150 Confluence of Bell Branch + Tarabusi Creek
SECNO 4520 Valley Section U/S Confluence

| | 10YR | Q | 50 YR | Q | 100 YR | Q | 500 YR | Q |
|---|---|---|---|---|---|---|---|---|
| 3950 Curve 1 | 620.76 | 1650 | 622.35 | 2900 | 623.29 | 3600 | 625.91 | 5500 |
| 4120 Curve 2 | 621.58 | 1100 | 622.79 | 1720 | 623.61 | 2120 | 626.08 | 3120 |

1. Plot Frequency vs Flow for the 4 storms at SECNO 3950 and SECNO 4520 on Bell Branch.
2. Calculate Mean Annual Flow at each SECNO.
3. Plot Stage Discharge Curves for SECNO 3950 and SECNO 4920.
5. Calculate Mean Annual Elevation at the Confluence of Tarabusi Creek and Bell Branch by straight line interpolation.

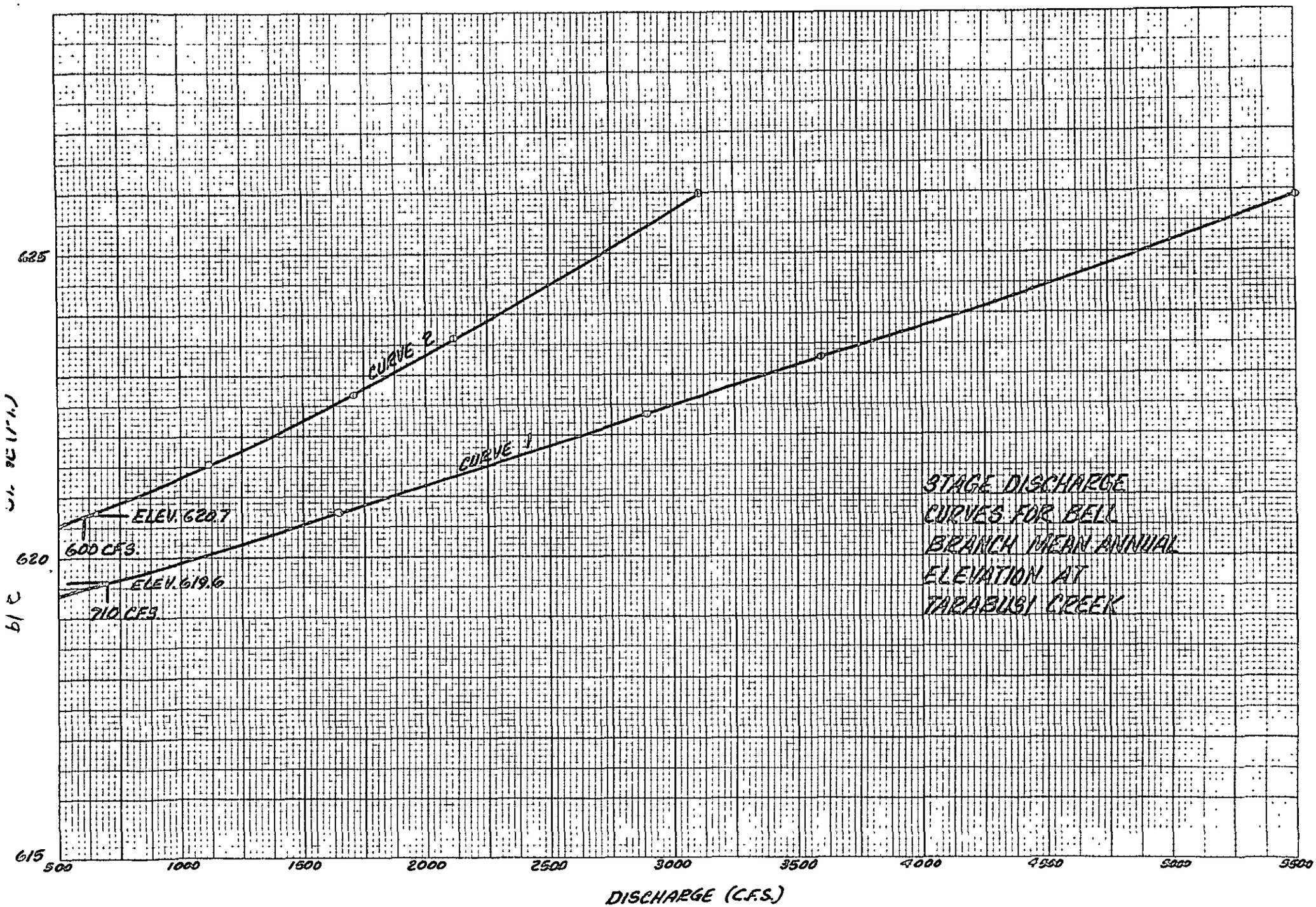
$$M.A.E. = 619.6 + \left[\left(\frac{4150-3950}{4520-4150}\right) \times 1.1\right] = 620.0$$

| SUBJECT | BY | CHK. | SHEET NO | File Code No (Job No) Owner Project Suffi |
|---|---|---|---|---|
| M.A.E. determination Tarabusi Cr. Livonia - Hyd | T.E. | | 1 OF 9 | HUD • 2014 • 57 |
| | DATE 7/26/79 | DATE | | |


PROBABILITY X 2 LOG CYCLES
KEUFFEL & ESSER CO MADE IN U.S.A.
46 8040
RECURRENCE INTERVAL (YEARS)
10 50 100 500
99 99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
FLOW (C.F.S.)
10 9 8 000 7 000 6 000 5 000 4 000 3 000 2000 1000 900 800 700 600 500 4 3 2 1
MEAN ANNUAL
FLOW DETERMINATION
FOR BELL BRANCH
AT TARABUSI CREEK
CURVE 1
CURVE 2
700
600

K&E 10 X 10 TO ½ INCH 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.





Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

WORK SHEET

REFERENCE

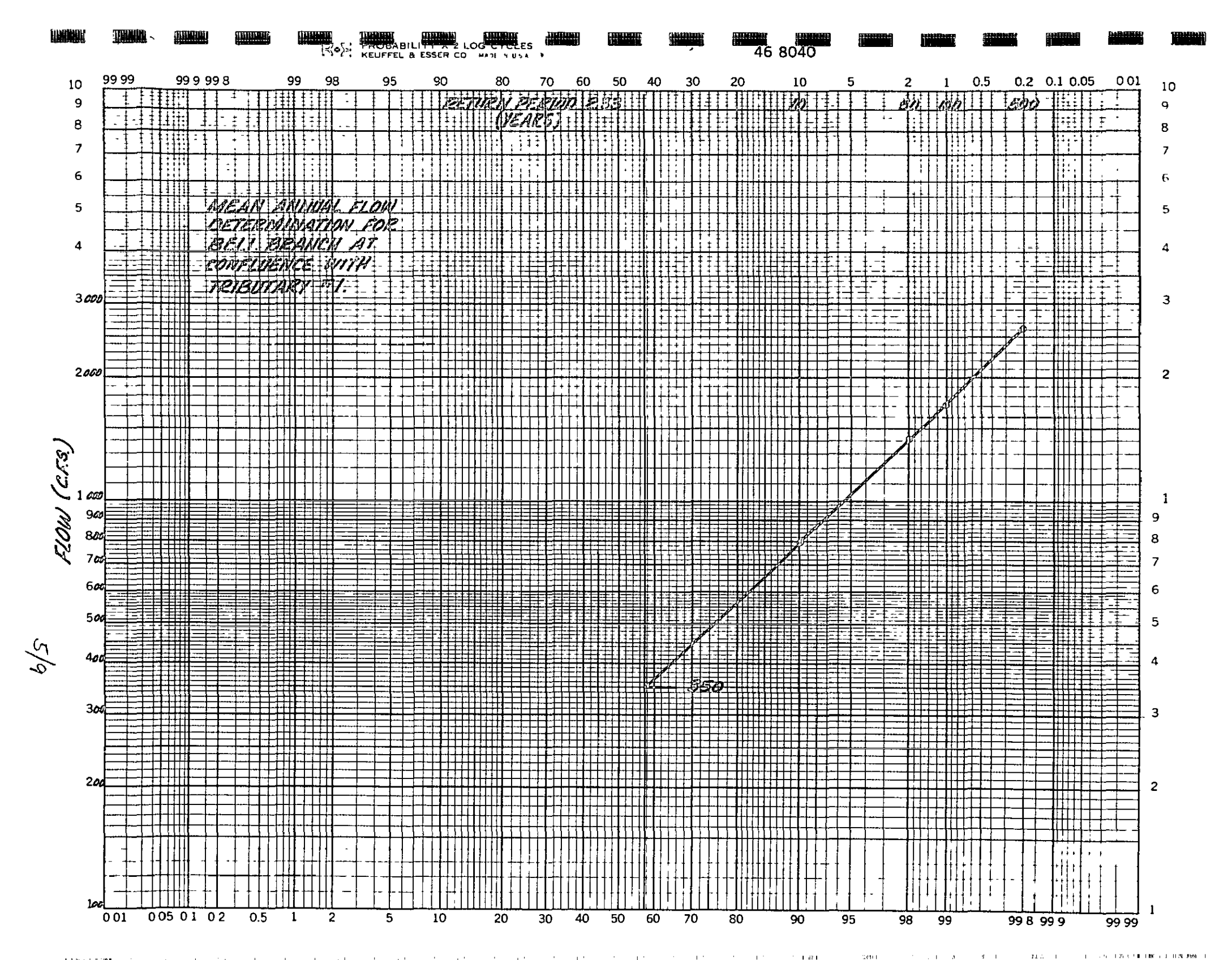
Mean Annual Flow & Elev. determination for Bell Branch at Tributary #1

| | FLOW | ELEV. & SECNO 28628 Bell Branch |
|---|---|---|
| 10 YR | 800 | 644.1 |
| 50 | 1410 | 645.73 |
| 100 | 1740 | 646.39 |
| 500 | 2610 | 647.84 |

Mean Annual Flow = 350 cfs

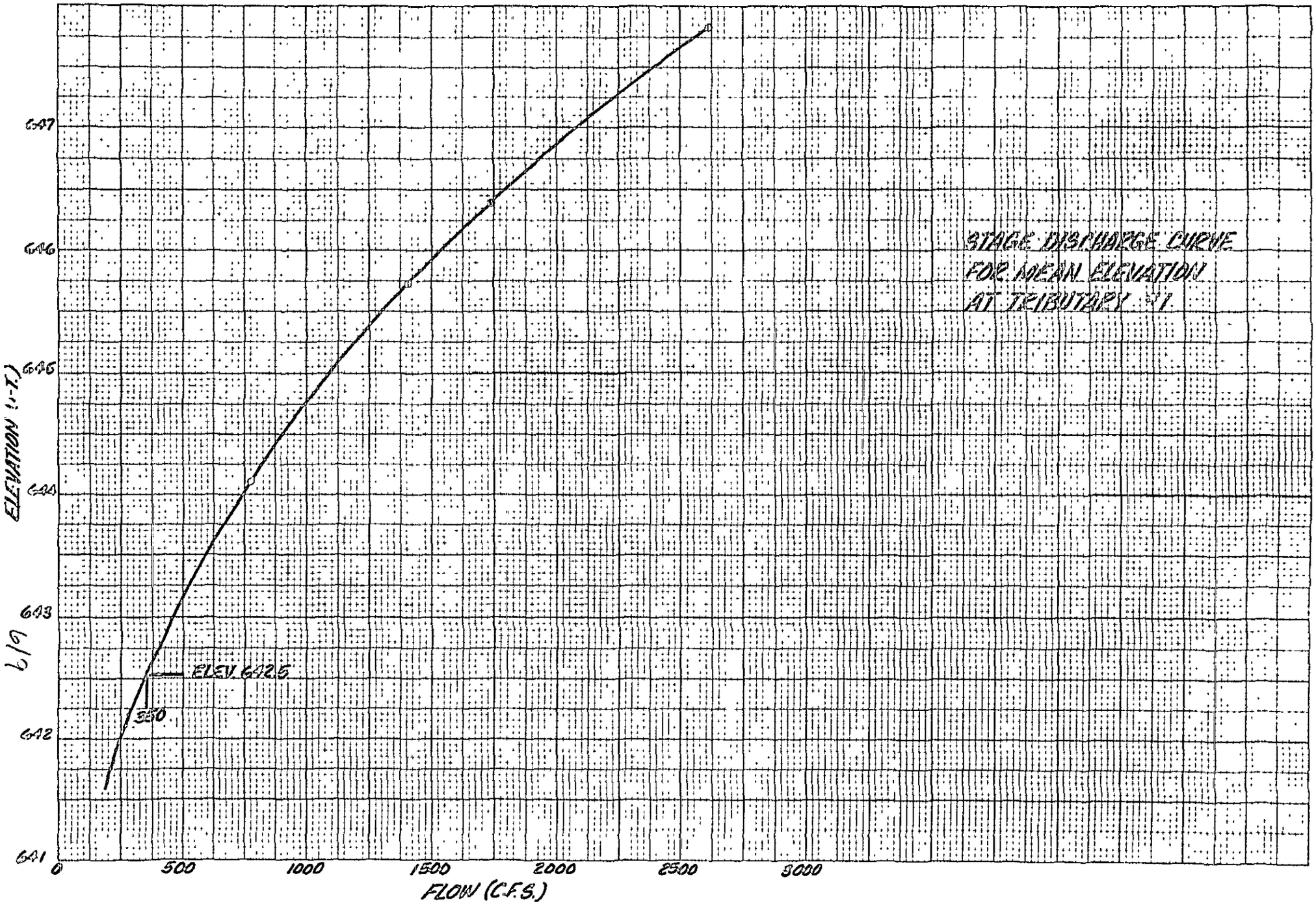
Mean Annual Elev. = 642.5

| SUBJECT | BY | CHK. | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| Livonia - Hydraulics | T. G. | | 4 OF 9 | MUD • 2014 • 07 |
| | DATE 8/27/79 | DATE | | |


PROBABILITY X 2 LOG CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 8040
RETURN PERIOD 2.33
(YEARS)
10
50
100
500
MEAN ANNUAL FLOW
DETERMINATION FOR
BELL BRANCH AT
CONFLUENCE WITH
TRIBUTARY #1.
FLOW (C.F.S.)
350
5/9

10 X 10 TO ½ INCH 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.





Wade Trim & Associates, Inc.
Civil Engineers • Land Surveyors
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

WORK SHEET

REFERENCE

Mean Annual Flow and Elevation Determination for Bell Branch of Berlz Drain

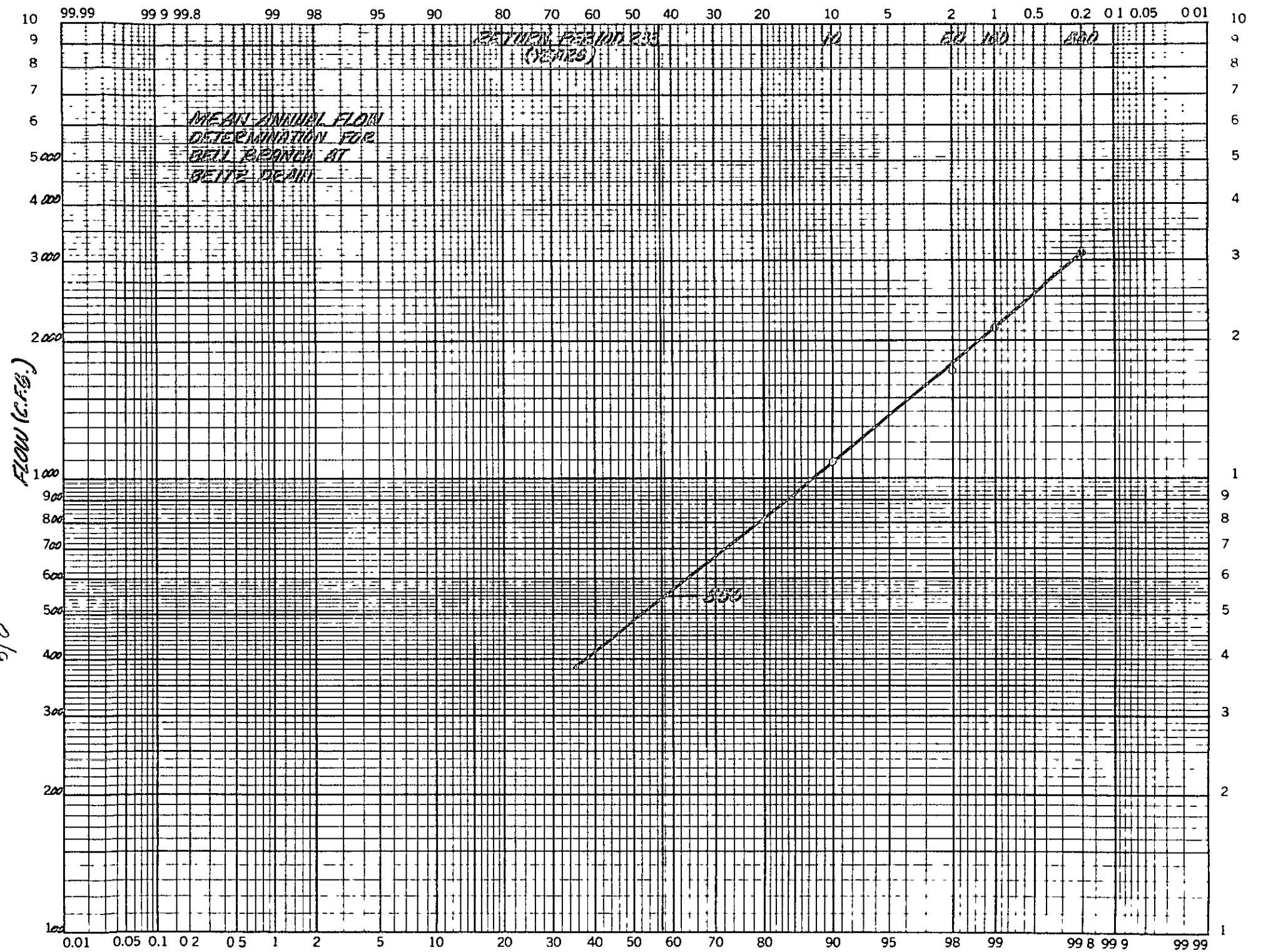
| | Flow (cfs) | Elev. |
|---|---|---|
| 10 YR | 1110 | 640.61 |
| 50 | 1720 | 641.81 |
| 100 | 2120 | 642.33 |
| 500 | 3120 | 644.19 |

& SCCNO 24096 Bell Branch

Mean Annual Flow = 550 cfs

Mean Annual Elev. = 639.8

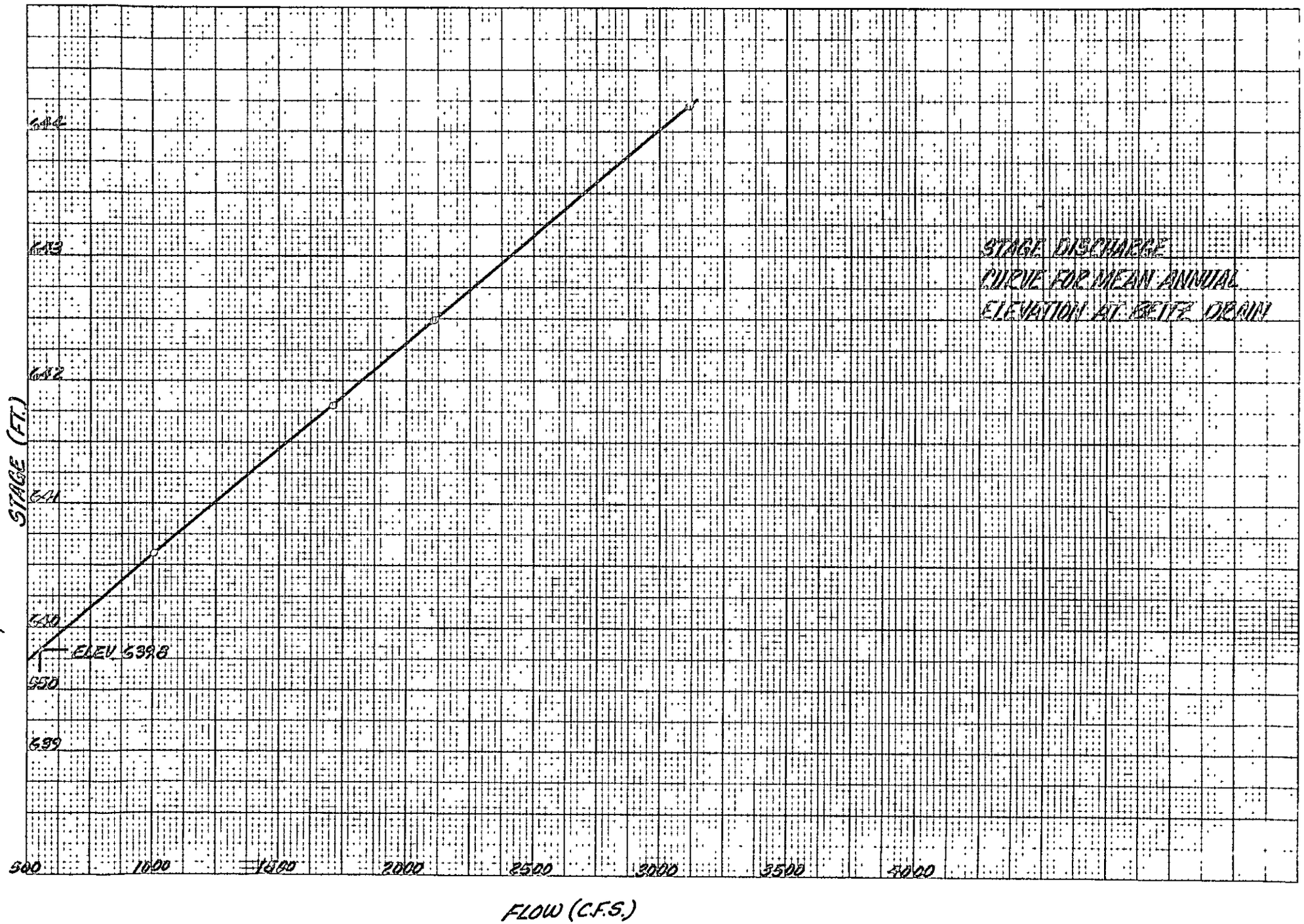
SUBJECT Livonia - Hydraulics | BY T.G. | DATE 8/27/79 | CHK. | DATE | SHEET NO. 2 OF 9 | File Code No. (Job No.) Owner Project Suffix 7405-2014-07



KEUFFEL & ESSER CO MADE IN U.S.A.
RETURN PERIOD 233
(YEARS)
MEAN ANNUAL FLOW
DETERMINATION FOR
BELL BRANCH AT
BEITZ DRAIN
FLOW (C.F.S.)


6/8

10 X 10 TO 1 INCH 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.
46 1320




9/9

CITY OF LIVONIA, MICHIGAN

UPPER ROUGE RIVER

EXHIBIT 19

Rating Curve

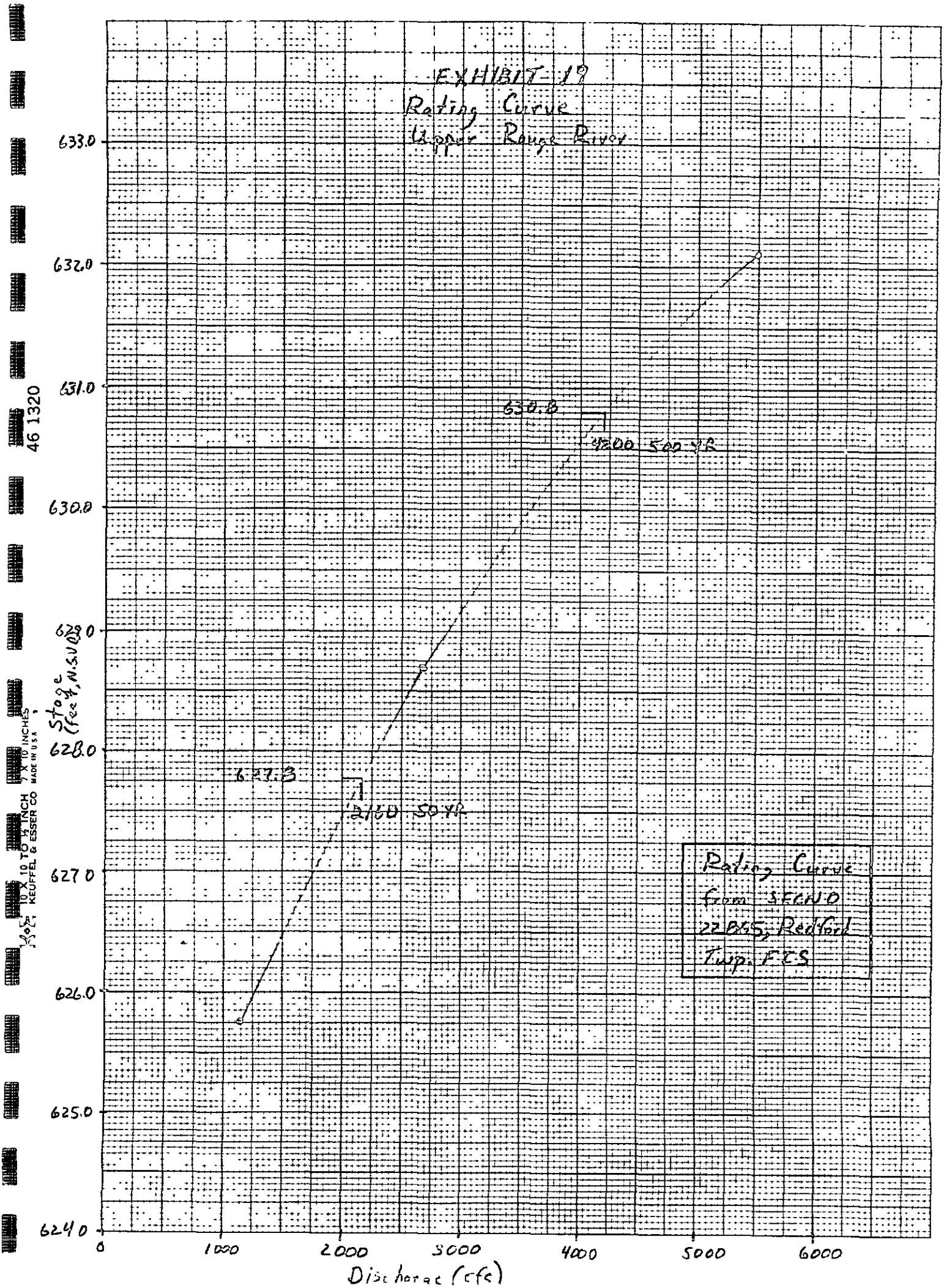


EXHIBIT 19
Rating Curve
Upper Rouge River
633.0
632.0
631.0
630.0
629.0
628.0
627.0
626.0
625.0
624.0
Stage (feet, N.S.V.D.)
630.8
4200 500 YR
627.3
2160 50 YR
Rating Curve
from SFCNO
22B65, Redford
Twp. FCS
0
1000
2000
3000
4000
5000
6000
Discharge (cfs)
46 1320
10 X 10 TO ½ INCH 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

CITY OF LIVONIA, MICHIGAN

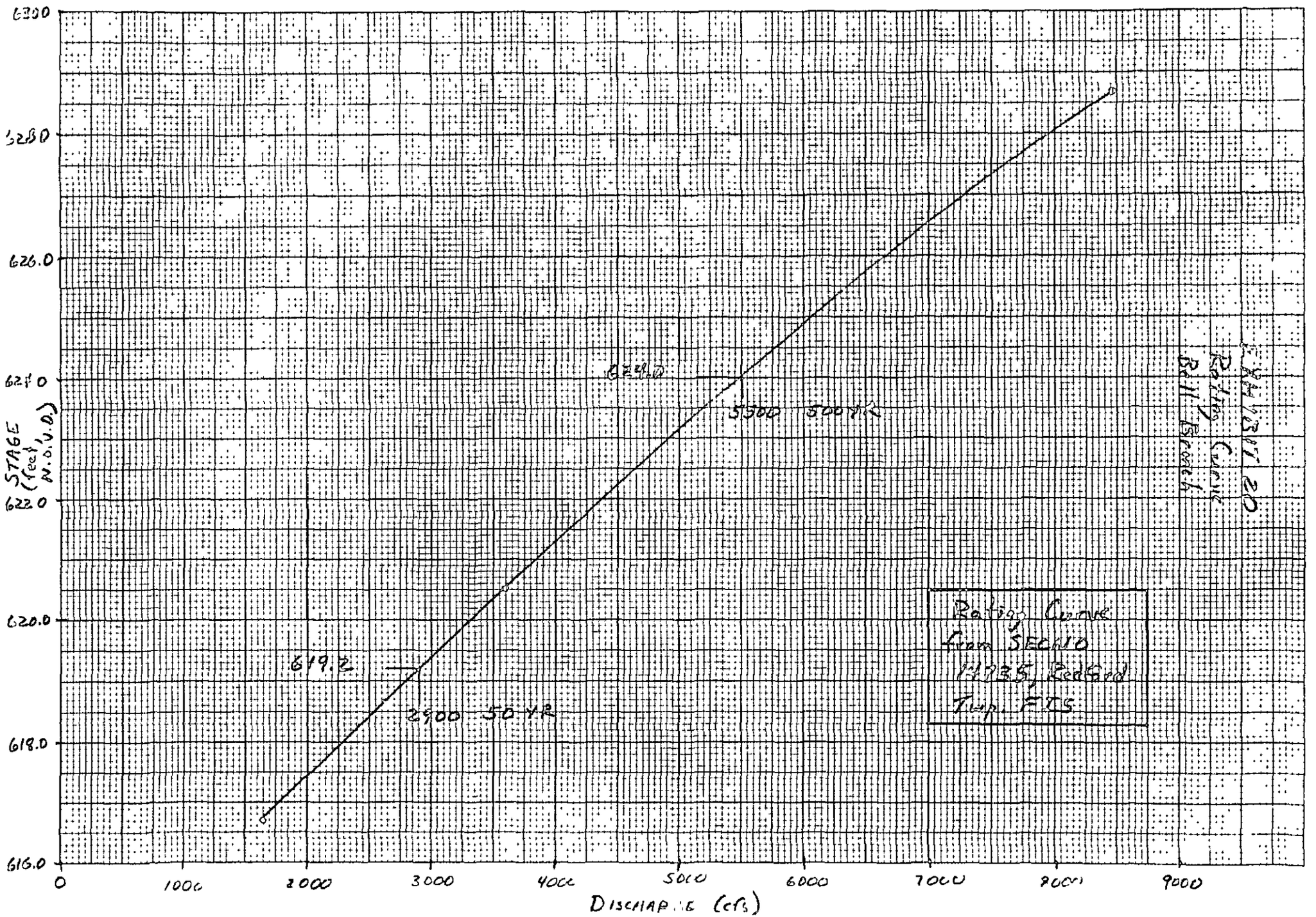
BELL BRANCH

EXHIBIT 20

Rating Curve

10 X 10 TO ½ INCH 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.





1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Upper Rouge

4) DOCUMENT TYPE: Summary

FORM 6413

HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

UPPER ROUGE LIVONIA CITY

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CHSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22865.000 | 0.0 | 0.0 | 0.0 | 620.20 | 1160.00 | 625.78 | 0.0 | 627.01 | 79.02 | 9.17 | 155.71 | 130.49 |
| 22865.000 | 0.0 | 0.0 | 0.0 | 620.20 | 2160.00 | 627.80 | 0.0 | 629.63 | 75.87 | 11.42 | 257.08 | 247.98 |
| 22865.000 | 0.0 | 0.0 | 0.0 | 620.20 | 2690.00 | 628.69 | 0.0 | 630.78 | 74.74 | 12.32 | 308.43 | 311.15 |
| 22865.000 | 0.0 | 0.0 | 0.0 | 620.20 | 4200.00 | 630.80 | 0.0 | 633.56 | 73.64 | 14.40 | 446.59 | 489.44 |
| 22895.000 | 30.00 | 0.0 | 0.0 | 620.20 | 1160.00 | 625.95 | 0.0 | 627.33 | 87.36 | 9.42 | 123.13 | 124.11 |
| 22895.000 | 30.00 | 0.0 | 0.0 | 620.20 | 2160.00 | 627.72 | 0.0 | 630.28 | 122.79 | 12.66 | 168.02 | 194.93 |
| 22895.000 | 30.00 | 0.0 | 0.0 | 620.20 | 2690.00 | 628.83 | 0.0 | 631.03 | 57.16 | 12.46 | 316.99 | 355.81 |
| 22895.000 | 30.00 | 0.0 | 0.0 | 620.20 | 4200.00 | 630.03 | 630.09 | 633.91 | 60.70 | 14.97 | 440.96 | 539.09 |
| 22935.000 | 40.00 | 631.20 | 627.20 | 620.20 | 1160.00 | 626.55 | 0.0 | 627.65 | 41.99 | 8.43 | 137.60 | 179.00 |
| 22935.000 | 40.00 | 631.20 | 627.20 | 620.20 | 2160.00 | 630.66 | 0.0 | 631.51 | 17.13 | 7.86 | 436.76 | 521.83 |
| 22935.000 | 40.00 | 631.20 | 627.20 | 620.20 | 2690.00 | 631.97 | 0.0 | 632.91 | 16.37 | 8.37 | 540.67 | 664.78 |
| 22935.000 | 40.00 | 631.20 | 627.20 | 620.20 | 4200.00 | 633.77 | 0.0 | 635.26 | 22.05 | 10.76 | 695.60 | 894.34 |
| 22985.000 | 50.00 | 0.0 | 0.0 | 620.30 | 1160.00 | 627.46 | 0.0 | 627.96 | 24.69 | 6.26 | 302.94 | 233.43 |
| 22985.000 | 50.00 | 0.0 | 0.0 | 620.30 | 2160.00 | 631.24 | 0.0 | 631.70 | 13.33 | 6.30 | 717.26 | 491.64 |
| 22985.000 | 50.00 | 0.0 | 0.0 | 620.30 | 2690.00 | 632.71 | 0.0 | 633.13 | 11.09 | 6.29 | 977.12 | 807.03 |
| 22985.000 | 50.00 | 0.0 | 0.0 | 620.30 | 4200.00 | 635.12 | 0.0 | 635.63 | 11.57 | 7.20 | 1398.85 | 1234.99 |
| 23775.000 | 790.00 | 0.0 | 0.0 | 620.40 | 1160.00 | 629.31 | 0.0 | 629.46 | 11.71 | 4.06 | 749.94 | 339.05 |
| 23775.000 | 790.00 | 0.0 | 0.0 | 620.40 | 2160.00 | 632.54 | 0.0 | 632.66 | 8.39 | 4.30 | 1380.50 | 745.72 |
| 23775.000 | 790.00 | 0.0 | 0.0 | 620.40 | 2690.00 | 633.66 | 0.0 | 634.01 | 7.08 | 4.49 | 1674.79 | 956.21 |
| 23775.000 | 790.00 | 0.0 | 0.0 | 620.40 | 4200.00 | 636.39 | 0.0 | 636.55 | 6.01 | 5.11 | 2515.26 | 1483.84 |
| 24852.000 | 1077.00 | 0.0 | 0.0 | 625.50 | 1160.00 | 631.30 | 0.0 | 631.69 | 42.77 | 5.78 | 357.52 | 177.36 |
| 24852.000 | 1077.00 | 0.0 | 0.0 | 625.50 | 2160.00 | 633.87 | 0.0 | 634.23 | 27.05 | 6.02 | 708.04 | 415.34 |
| 24852.000 | 1077.00 | 0.0 | 0.0 | 625.50 | 2690.00 | 635.05 | 0.0 | 635.40 | 22.64 | 6.06 | 906.32 | 565.35 |
| 24852.000 | 1077.00 | 0.0 | 0.0 | 625.50 | 4200.00 | 637.51 | 0.0 | 637.87 | 19.15 | 6.55 | 1396.76 | 969.70 |
| 25052.000 | 200.00 | 0.0 | 0.0 | 625.60 | 1160.00 | 632.24 | 0.0 | 632.46 | 21.74 | 4.58 | 420.28 | 248.78 |
| 25052.000 | 200.00 | 0.0 | 0.0 | 625.60 | 2160.00 | 634.57 | 0.0 | 634.74 | 13.73 | 4.53 | 878.08 | 502.95 |
| 25052.000 | 200.00 | 0.0 | 0.0 | 625.60 | 2690.00 | 635.67 | 0.0 | 635.83 | 11.36 | 4.47 | 1097.86 | 797.99 |
| 25052.000 | 200.00 | 0.0 | 0.0 | 625.60 | 4200.00 | 638.07 | 0.0 | 638.24 | 9.37 | 4.72 | 1578.54 | 1371.59 |
| 25108.000 | 56.00 | 633.70 | 629.30 | 625.60 | 1160.00 | 634.48 | 0.0 | 634.54 | 4.18 | 2.48 | 860.96 | 567.55 |
| 25108.000 | 56.00 | 633.70 | 629.30 | 625.60 | 2160.00 | 635.77 | 0.0 | 635.87 | 6.93 | 3.52 | 1119.32 | 820.66 |
| 25108.000 | 56.00 | 633.70 | 629.30 | 625.60 | 2690.00 | 636.40 | 0.0 | 536.62 | 7.09 | 3.91 | 1243.79 | 967.79 |
| 25108.000 | 56.00 | 633.70 | 629.30 | 625.60 | 4200.00 | 638.50 | 0.0 | 638.65 | 7.95 | 4.45 | 1665.34 | 1429.54 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CHSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25183.000 | 75.00 | 0.0 | 0.0 | 625.70 | 1160.00 | 634.46 | 0.0 | 634.66 | 11.47 | 3.95 | 465.51 | 342.58 |
| 25183.000 | 75.00 | 0.0 | 0.0 | 625.70 | 2160.00 | 635.71 | 0.0 | 636.11 | 20.52 | 5.02 | 714.97 | 476.78 |
| 25183.000 | 75.00 | 0.0 | 0.0 | 625.70 | 2690.00 | 636.32 | 0.0 | 636.78 | 22.91 | 6.42 | 868.14 | 561.98 |
| 25183.000 | 75.00 | 0.0 | 0.0 | 625.70 | 4200.00 | 638.44 | 0.0 | 638.89 | 20.07 | 6.84 | 1424.94 | 937.54 |
| 25628.000 | 445.00 | 0.0 | 0.0 | 623.70 | 1160.00 | 634.79 | 0.0 | 634.96 | 4.92 | 3.53 | 511.25 | 522.75 |
| 25628.000 | 445.00 | 0.0 | 0.0 | 623.70 | 2160.00 | 636.32 | 0.0 | 636.61 | 8.08 | 4.98 | 956.72 | 759.74 |
| 25628.000 | 445.00 | 0.0 | 0.0 | 623.70 | 2690.00 | 637.00 | 0.0 | 637.32 | 8.69 | 5.38 | 1206.04 | 912.70 |
| 25628.000 | 445.00 | 0.0 | 0.0 | 623.70 | 4200.00 | 639.04 | 0.0 | 639.33 | 7.76 | 5.66 | 2071.94 | 1507.65 |
| 26038.000 | 410.00 | 0.0 | 0.0 | 624.90 | 1160.00 | 635.04 | 0.0 | 635.19 | 3.05 | 2.95 | 731.18 | 663.82 |
| 26038.000 | 410.00 | 0.0 | 0.0 | 624.90 | 2160.00 | 636.69 | 0.0 | 636.89 | 5.31 | 4.32 | 1017.37 | 937.22 |
| 26038.000 | 410.00 | 0.0 | 0.0 | 624.90 | 2690.00 | 637.37 | 0.0 | 637.62 | 6.33 | 4.90 | 1151.63 | 1069.33 |
| 26038.000 | 410.00 | 0.0 | 0.0 | 624.90 | 4200.00 | 639.29 | 0.0 | 639.63 | 7.86 | 6.03 | 1536.50 | 1497.72 |
| 26088.000 | 50.00 | 0.0 | 0.0 | 625.00 | 1160.00 | 635.02 | 0.0 | 635.18 | 4.85 | 3.00 | 640.88 | 526.65 |
| 26088.000 | 50.00 | 0.0 | 0.0 | 625.00 | 2160.00 | 636.70 | 0.0 | 636.94 | 6.31 | 5.00 | 977.04 | 820.02 |
| 26088.000 | 50.00 | 0.0 | 0.0 | 625.00 | 2690.00 | 637.40 | 0.0 | 637.66 | 7.59 | 5.48 | 1116.95 | 976.60 |
| 26088.000 | 50.00 | 0.0 | 0.0 | 625.00 | 4200.00 | 639.37 | 0.0 | 639.60 | 8.26 | 6.31 | 1511.54 | 1461.01 |
| 26184.000 | 96.00 | 634.90 | 633.40 | 625.00 | 1160.00 | 635.83 | 0.0 | 635.96 | 3.06 | 3.19 | 802.60 | 661.31 |
| 26184.000 | 96.00 | 634.90 | 633.40 | 625.00 | 2160.00 | 637.04 | 0.0 | 637.24 | 5.78 | 4.69 | 1045.05 | 890.65 |
| 26184.000 | 96.00 | 634.90 | 633.40 | 625.00 | 2690.00 | 637.71 | 0.0 | 637.94 | 6.62 | 5.21 | 1177.95 | 1045.31 |
| 26184.000 | 96.00 | 634.90 | 633.40 | 625.00 | 4200.00 | 639.59 | 0.0 | 639.80 | 7.62 | 6.12 | 1556.30 | 1521.70 |
| 26234.000 | 50.00 | 0.0 | 0.0 | 625.10 | 1160.00 | 635.94 | 0.0 | 635.97 | 0.77 | 1.55 | 1634.06 | 1323.95 |
| 26234.000 | 50.00 | 0.0 | 0.0 | 625.10 | 2160.00 | 637.24 | 0.0 | 637.30 | 1.66 | 2.65 | 1959.90 | 1684.52 |
| 26234.000 | 50.00 | 0.0 | 0.0 | 625.10 | 2690.00 | 637.93 | 0.0 | 638.00 | 2.02 | 2.03 | 2139.16 | 1891.68 |
| 26234.000 | 50.00 | 0.0 | 0.0 | 625.10 | 4200.00 | 639.84 | 0.0 | 639.96 | 2.75 | 3.63 | 2576.96 | 2531.50 |
| 26860.000 | 626.00 | 0.0 | 0.0 | 624.50 | 1160.00 | 636.00 | 0.0 | 636.01 | 0.72 | 1.39 | 2044.69 | 1371.03 |
| 26860.000 | 626.00 | 0.0 | 0.0 | 624.50 | 2160.00 | 637.36 | 0.0 | 637.39 | 1.42 | 2.12 | 2474.80 | 1811.06 |
| 26860.000 | 626.00 | 0.0 | 0.0 | 624.50 | 2690.00 | 638.08 | 0.0 | 638.11 | 1.70 | 2.41 | 2707.70 | 2064.52 |
| 26860.000 | 626.00 | 0.0 | 0.0 | 624.50 | 4200.00 | 640.05 | 0.0 | 640.10 | 2.19 | 3.02 | 3372.53 | 2841.15 |
| 28232.000 | 1372.00 | 0.0 | 0.0 | 628.00 | 1160.00 | 636.11 | 0.0 | 636.35 | 11.35 | 4.06 | 446.58 | 344.38 |
| 28232.000 | 1372.00 | 0.0 | 0.0 | 628.00 | 2160.00 | 637.62 | 0.0 | 637.95 | 14.27 | 5.22 | 793.59 | 571.79 |
| 28232.000 | 1372.00 | 0.0 | 0.0 | 628.00 | 2690.00 | 638.39 | 0.0 | 638.74 | 14.03 | 5.50 | 988.08 | 716.22 |
| 28232.000 | 1372.00 | 0.0 | 0.0 | 628.00 | 4200.00 | 640.45 | 0.0 | 640.78 | 12.05 | 5.87 | 1573.61 | 1209.60 |
| 28233.000 | 1.00 | 635.00 | 633.50 | 628.00 | 1160.00 | 636.11 | 0.0 | 636.36 | 57.20 | 4.42 | 398.04 | 153.38 |
| 28233.000 | 1.00 | 635.00 | 633.50 | 628.00 | 2160.00 | 637.79 | 0.0 | 638.00 | 40.83 | 4.48 | 787.89 | 338.02 |
| 28233.000 | 1.00 | 635.00 | 633.50 | 628.00 | 2690.00 | 638.60 | 0.0 | 638.79 | 34.51 | 4.43 | 994.79 | 457.93 |
| 28233.000 | 1.00 | 635.00 | 633.50 | 628.00 | 4200.00 | 640.69 | 0.0 | 640.84 | 23.51 | 4.28 | 1613.76 | 886.16 |
| 28240.000 | 7.00 | 635.00 | 633.50 | 628.00 | 1160.00 | 636.16 | 0.0 | 636.40 | 54.24 | 4.33 | 408.68 | 157.50 |
| 28240.000 | 7.00 | 635.00 | 633.50 | 628.00 | 2160.00 | 637.83 | 0.0 | 638.02 | 40.07 | 4.45 | 793.70 | 341.21 |
| 28240.000 | 7.00 | 635.00 | 633.50 | 628.00 | 2690.00 | 638.63 | 0.0 | 638.81 | 34.14 | 4.41 | 998.85 | 460.41 |
| 28240.000 | 7.00 | 635.00 | 633.50 | 628.00 | 4200.00 | 640.70 | 0.0 | 640.86 | 23.36 | 4.27 | 1618.19 | 868.93 |
| 28241.000 | 1.00 | 0.0 | 0.0 | 628.00 | 1160.00 | 636.18 | 0.0 | 636.41 | 10.86 | 3.59 | 459.67 | 351.96 |
| 28241.000 | 1.00 | 0.0 | 0.0 | 628.00 | 2160.00 | 637.77 | 0.0 | 638.06 | 12.99 | 5.05 | 831.29 | 599.26 |
| 28241.000 | 1.00 | 0.0 | 0.0 | 628.00 | 2690.00 | 638.56 | 0.0 | 638.86 | 12.75 | 5.31 | 1032.78 | 753.41 |
| 28241.000 | 1.00 | 0.0 | 0.0 | 628.00 | 4200.00 | 640.62 | 0.0 | 640.94 | 11.09 | 5.69 | 1638.96 | 1261.26 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 28560.000 | 319.00 | 0.0 | 0.0 | 626.20 | 1160.00 | 636.64 | 0.0 | 636.70 | 8.81 | 2.87 | 1086.53 | 390.85 |
| | 28560.000 | 319.00 | 0.0 | 0.0 | 626.20 | 2160.00 | 638.33 | 0.0 | 638.42 | 10.57 | 3.64 | 1600.06 | 664.31 |
| | 28560.000 | 319.00 | 0.0 | 0.0 | 626.20 | 2690.00 | 639.12 | 0.0 | 639.22 | 10.89 | 3.92 | 1853.33 | 815.10 |
| | 28560.000 | 319.00 | 0.0 | 0.0 | 626.20 | 4200.00 | 641.13 | 0.0 | 641.25 | 11.00 | 4.48 | 2534.56 | 1266.34 |
| | 29040.000 | 480.00 | 0.0 | 0.0 | 627.60 | 1160.00 | 636.84 | 0.0 | 636.87 | 2.83 | 1.98 | 1577.56 | 689.75 |
| | 29040.000 | 480.00 | 0.0 | 0.0 | 627.60 | 2160.00 | 638.59 | 0.0 | 638.64 | 4.11 | 2.72 | 2164.84 | 1066.10 |
| | 29040.000 | 480.00 | 0.0 | 0.0 | 627.60 | 2690.00 | 639.39 | 0.0 | 639.46 | 4.53 | 3.01 | 2467.07 | 1263.92 |
| | 29040.000 | 480.00 | 0.0 | 0.0 | 627.60 | 4200.00 | 641.41 | 0.0 | 641.50 | 5.20 | 3.62 | 3188.72 | 1842.44 |
| | 30375.000 | 1335.00 | 0.0 | 0.0 | 629.30 | 1160.00 | 637.33 | 0.0 | 637.39 | 5.85 | 2.60 | 1034.29 | 479.71 |
| | 30375.000 | 1335.00 | 0.0 | 0.0 | 629.30 | 2160.00 | 639.22 | 0.0 | 639.29 | 6.23 | 3.15 | 1672.88 | 865.14 |
| | 30375.000 | 1335.00 | 0.0 | 0.0 | 629.30 | 2690.00 | 640.06 | 0.0 | 640.14 | 6.23 | 3.35 | 1994.40 | 1077.51 |
| | 30375.000 | 1335.00 | 0.0 | 0.0 | 629.30 | 4200.00 | 642.12 | 0.0 | 642.21 | 5.92 | 3.71 | 2819.97 | 1725.61 |
| * | 31190.000 | 272.00 | 0.0 | 0.0 | 634.80 | 1160.00 | 638.21 | 638.21 | 638.83 | 109.00 | 7.73 | 352.24 | 111.11 |
| | 31190.000 | 272.00 | 0.0 | 0.0 | 634.80 | 2160.00 | 639.32 | 0.0 | 639.80 | 69.73 | 7.67 | 682.87 | 258.67 |
| | 31190.000 | 272.00 | 0.0 | 0.0 | 634.80 | 2690.00 | 640.22 | 0.0 | 640.56 | 42.13 | 6.00 | 950.03 | 414.42 |
| | 31190.000 | 272.00 | 0.0 | 0.0 | 634.80 | 4200.00 | 642.20 | 0.0 | 642.52 | 21.69 | 6.16 | 1615.70 | 901.73 |
| | 31590.000 | 400.00 | 0.0 | 0.0 | 635.00 | 1150.00 | 639.92 | 0.0 | 640.15 | 14.33 | 4.99 | 677.24 | 303.80 |
| | 31590.000 | 400.00 | 0.0 | 0.0 | 635.00 | 2050.00 | 640.84 | 0.0 | 641.16 | 18.34 | 6.38 | 982.88 | 470.72 |
| | 31590.000 | 400.00 | 0.0 | 0.0 | 635.00 | 2550.00 | 641.34 | 0.0 | 641.69 | 16.66 | 6.82 | 1160.51 | 590.32 |
| | 31590.000 | 400.00 | 0.0 | 0.0 | 635.00 | 3900.00 | 642.95 | 0.0 | 643.27 | 14.13 | 6.96 | 1799.20 | 1037.54 |
| | 31990.000 | 400.00 | 0.0 | 0.0 | 635.10 | 1150.00 | 640.51 | 0.0 | 640.77 | 14.87 | 5.35 | 555.51 | 298.17 |
| | 31990.000 | 400.00 | 0.0 | 0.0 | 635.10 | 2050.00 | 641.59 | 0.0 | 642.02 | 20.76 | 7.21 | 739.36 | 449.97 |
| | 31990.000 | 400.00 | 0.0 | 0.0 | 635.10 | 2550.00 | 642.12 | 0.0 | 642.39 | 14.29 | 6.36 | 1109.49 | 674.45 |
| | 31990.000 | 400.00 | 0.0 | 0.0 | 635.10 | 3900.00 | 643.59 | 0.0 | 643.81 | 11.14 | 6.41 | 1930.79 | 1168.29 |
| | 32470.000 | 480.00 | 0.0 | 0.0 | 632.20 | 1150.00 | 640.90 | 0.0 | 641.40 | 10.25 | 6.15 | 306.80 | 359.12 |
| | 32470.000 | 480.00 | 0.0 | 0.0 | 632.20 | 2050.00 | 642.03 | 0.0 | 643.16 | 19.80 | 9.36 | 356.76 | 460.29 |
| | 32470.000 | 480.00 | 0.0 | 0.0 | 632.20 | 2550.00 | 642.10 | 0.0 | 643.66 | 20.13 | 11.20 | 401.35 | 600.83 |
| * | 32470.000 | 480.00 | 0.0 | 0.0 | 632.20 | 3900.00 | 642.83 | 642.83 | 645.66 | 47.25 | 15.30 | 468.77 | 967.37 |
| | 32540.000 | 70.00 | 0.0 | 0.0 | 633.00 | 1150.00 | 640.99 | 0.0 | 641.47 | 9.62 | 5.58 | 206.23 | 370.82 |
| | 32540.000 | 70.00 | 0.0 | 0.0 | 633.00 | 2050.00 | 642.16 | 0.0 | 643.31 | 19.64 | 8.62 | 237.88 | 462.61 |
| | 32540.000 | 70.00 | 0.0 | 0.0 | 633.00 | 2550.00 | 643.52 | 0.0 | 644.06 | 8.59 | 6.81 | 671.64 | 870.30 |
| | 32540.000 | 70.00 | 0.0 | 0.0 | 633.00 | 3900.00 | 645.78 | 0.0 | 646.43 | 8.62 | 7.79 | 1046.67 | 1328.60 |

UPPER ROUGE LIVONIA CITY

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CHSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLOM |
|---|---|---|---|---|---|---|---|
| 22865.000 | 1160.00 | 625.78 | 0.0 | 0.0 | 0.0 | 64.96 | 0.0 |
| 22865.000 | 2160.00 | 627.80 | 2.02 | 0.0 | 0.0 | 55.41 | 0.0 |
| 22865.000 | 2690.00 | 628.69 | 0.89 | 0.0 | 0.0 | 60.01 | 0.0 |
| 22865.000 | 4200.00 | 630.80 | 2.11 | 0.0 | 0.0 | 70.93 | 0.0 |
| 22895.000 | 1160.00 | 625.95 | 0.0 | 0.17 | 0.0 | 25.40 | 30.00 |
| 22895.000 | 2160.00 | 627.72 | 1.76 | -0.08 | 1.76 | 25.40 | 30.00 |
| 22895.000 | 2690.00 | 628.83 | 1.11 | 0.14 | 0.0 | 60.75 | 30.00 |
| 22895.000 | 4200.00 | 630.83 | 2.00 | 0.03 | 0.0 | 71.10 | 30.00 |
| 22935.000 | 1160.00 | 626.55 | 0.0 | 0.59 | 0.0 | 48.90 | 40.00 |
| 22935.000 | 2160.00 | 630.66 | 4.11 | 2.94 | 4.11 | 70.21 | 40.00 |
| 22935.000 | 2690.00 | 631.97 | 1.32 | 3.14 | 0.0 | 86.07 | 40.00 |
| 22935.000 | 4200.00 | 633.77 | 1.79 | 2.93 | 0.0 | 86.26 | 40.00 |
| 22985.000 | 1160.00 | 627.46 | 0.0 | 0.91 | 0.0 | 78.22 | 50.00 |
| 22985.000 | 2160.00 | 631.24 | 3.78 | 0.58 | 3.70 | 174.67 | 50.00 |
| 22985.000 | 2690.00 | 632.71 | 1.47 | 0.74 | 0.0 | 176.00 | 50.00 |
| 22985.000 | 4200.00 | 635.12 | 2.41 | 1.35 | 0.0 | 176.00 | 50.00 |
| 23775.000 | 1160.00 | 629.31 | 0.0 | 1.05 | 0.0 | 179.67 | 790.00 |
| 23775.000 | 2160.00 | 632.54 | 3.23 | 1.30 | 3.23 | 213.16 | 790.00 |
| 23775.000 | 2690.00 | 633.86 | 1.32 | 1.15 | 0.0 | 232.95 | 790.00 |
| 23775.000 | 4200.00 | 636.39 | 2.52 | 1.27 | 0.0 | 412.99 | 790.00 |
| 24852.000 | 1160.00 | 631.30 | 0.0 | 2.00 | 0.0 | 114.30 | 1077.00 |
| 24852.000 | 2160.00 | 633.87 | 2.57 | 1.33 | 2.57 | 162.94 | 1077.00 |
| 24852.000 | 2690.00 | 635.05 | 1.18 | 1.19 | 0.0 | 170.13 | 1077.00 |
| 24852.000 | 4200.00 | 637.51 | 2.45 | 1.12 | 0.0 | 260.87 | 1077.00 |
| 25052.000 | 1160.00 | 632.24 | 0.0 | 0.94 | 0.0 | 155.64 | 200.00 |
| 25052.000 | 2160.00 | 634.57 | 2.33 | 0.70 | 2.33 | 200.07 | 200.00 |
| 25052.000 | 2690.00 | 635.67 | 1.10 | 0.61 | 0.0 | 200.21 | 200.00 |
| 25052.000 | 4200.00 | 638.07 | 2.40 | 0.56 | 0.0 | 200.51 | 200.00 |
| 25108.000 | 1160.00 | 634.48 | 0.0 | 2.24 | 0.0 | 200.06 | 56.00 |
| 25108.000 | 2160.00 | 635.77 | 1.29 | 1.21 | 1.29 | 200.22 | 56.00 |
| 25108.000 | 2690.00 | 636.40 | 0.62 | 0.73 | 0.0 | 200.30 | 56.00 |
| 25108.000 | 4200.00 | 638.50 | 2.10 | 0.43 | 0.0 | 200.56 | 56.00 |
| 25183.000 | 1160.00 | 634.46 | 0.0 | -0.03 | 0.0 | 151.47 | 75.00 |
| 25183.000 | 2160.00 | 635.71 | 1.25 | -0.07 | 1.25 | 246.18 | 75.00 |
| 25183.000 | 2690.00 | 636.32 | 0.61 | -0.08 | 0.0 | 252.71 | 75.00 |
| 25183.000 | 4200.00 | 638.44 | 2.12 | -0.06 | 0.0 | 276.50 | 75.00 |
| 25623.000 | 1160.00 | 634.79 | 0.0 | 0.34 | 0.0 | 191.53 | 445.00 |
| 25623.000 | 2160.00 | 636.32 | 1.52 | 0.61 | 1.52 | 361.64 | 445.00 |
| 25623.000 | 2690.00 | 637.00 | 0.69 | 0.68 | 0.0 | 368.01 | 445.00 |
| 25623.000 | 4200.00 | 639.04 | 2.04 | 0.60 | 0.0 | 566.65 | 445.00 |
| 26038.000 | 1160.00 | 635.04 | 0.0 | 0.24 | 0.0 | 149.21 | 410.00 |
| 26038.000 | 2160.00 | 636.69 | 1.65 | 0.36 | 1.66 | 191.29 | 410.00 |
| 26038.000 | 2690.00 | 637.37 | 0.68 | 0.37 | 0.0 | 203.62 | 410.00 |
| 26038.000 | 4200.00 | 639.29 | 1.92 | 0.24 | 4.25 | 225.00 | 410.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 26088.000 | 1160.00 | 635.02 | 0.0 | -0.01 | 0.0 | 200.00 | 50.00 |
| 26088.000 | 2160.00 | 636.70 | 1.68 | 0.01 | 1.68 | 200.23 | 50.00 |
| 26088.000 | 2690.00 | 637.40 | 0.69 | 0.03 | 0.0 | 200.32 | 50.00 |
| 26088.000 | 4200.00 | 639.37 | 1.97 | 0.08 | 4.35 | 200.58 | 50.00 |
| 26184.000 | 1160.00 | 635.83 | 0.0 | 0.81 | 0.0 | 200.11 | 96.00 |
| 26184.000 | 2160.00 | 637.04 | 1.21 | 0.34 | 1.21 | 200.27 | 96.00 |
| 26184.000 | 2690.00 | 637.71 | 0.66 | 0.31 | 0.0 | 200.36 | 96.00 |
| 26184.000 | 4200.00 | 639.59 | 1.89 | 0.22 | 3.76 | 200.61 | 96.00 |
| 26234.000 | 1160.00 | 635.94 | 0.0 | 0.11 | 0.0 | 244.70 | 50.00 |
| 26234.000 | 2160.00 | 637.24 | 1.30 | 0.20 | 1.30 | 257.40 | 50.00 |
| 26234.000 | 2690.00 | 637.93 | 0.69 | 0.22 | 0.0 | 264.27 | 50.00 |
| 26234.000 | 4200.00 | 639.84 | 1.91 | 0.24 | 3.90 | 285.00 | 50.00 |
| 26660.000 | 1160.00 | 636.00 | 0.0 | 0.05 | 0.0 | 306.96 | 626.00 |
| 26660.000 | 2160.00 | 637.36 | 1.36 | 0.12 | 1.36 | 321.25 | 626.00 |
| 26660.000 | 2690.00 | 638.08 | 0.72 | 0.15 | 0.0 | 327.71 | 626.00 |
| 26660.000 | 4200.00 | 640.05 | 1.97 | 0.22 | 4.06 | 352.81 | 626.00 |
| 28232.000 | 1160.00 | 636.11 | 0.0 | 0.12 | 0.0 | 216.17 | 1372.00 |
| 28232.000 | 2160.00 | 637.62 | 1.51 | 0.26 | 1.51 | 244.78 | 1372.00 |
| 28232.000 | 2690.00 | 638.39 | 0.77 | 0.31 | 0.0 | 259.44 | 1372.00 |
| 28232.000 | 4200.00 | 640.45 | 2.05 | 0.39 | 4.33 | 353.60 | 1372.00 |
| 28233.000 | 1160.00 | 636.11 | 0.0 | -0.01 | 0.0 | 216.19 | 1.00 |
| 28233.000 | 2160.00 | 637.79 | 1.68 | 0.17 | 1.68 | 248.10 | 1.00 |
| 28233.000 | 2690.00 | 638.60 | 0.81 | 0.21 | 0.0 | 263.47 | 1.00 |
| 28233.000 | 4200.00 | 640.69 | 2.08 | 0.24 | 4.58 | 387.77 | 1.00 |
| 28240.000 | 1160.00 | 636.16 | 0.0 | 0.05 | 0.0 | 217.12 | 7.00 |
| 28240.000 | 2160.00 | 637.83 | 1.66 | 0.03 | 1.66 | 248.54 | 7.00 |
| 28240.000 | 2690.00 | 638.63 | 0.80 | 0.03 | 0.0 | 263.76 | 7.00 |
| 28240.000 | 4200.00 | 640.70 | 2.07 | 0.02 | 4.54 | 389.40 | 7.00 |
| 28241.000 | 1160.00 | 636.18 | 0.0 | 0.02 | 0.0 | 217.32 | 1.00 |
| 28241.000 | 2160.00 | 637.77 | 1.59 | -0.05 | 1.59 | 247.89 | 1.00 |
| 28241.000 | 2690.00 | 638.56 | 0.79 | -0.07 | 0.0 | 262.69 | 1.00 |
| 28241.000 | 4200.00 | 640.62 | 2.06 | -0.06 | 4.44 | 379.01 | 1.00 |
| 28560.000 | 1160.00 | 636.64 | 0.0 | 0.46 | 0.0 | 292.81 | 319.00 |
| 28560.000 | 2160.00 | 638.33 | 1.70 | 0.56 | 1.70 | 313.76 | 319.00 |
| 28560.000 | 2690.00 | 639.12 | 0.79 | 0.56 | 0.0 | 327.50 | 319.00 |
| 28560.000 | 4200.00 | 641.13 | 2.01 | 0.51 | 4.49 | 344.00 | 319.00 |
| 29040.000 | 1160.00 | 636.84 | 0.0 | 0.20 | 0.0 | 324.18 | 480.00 |
| 29040.000 | 2160.00 | 638.59 | 1.75 | 0.26 | 1.75 | 346.79 | 480.00 |
| 29040.000 | 2690.00 | 639.39 | 0.80 | 0.27 | 0.0 | 357.15 | 480.00 |
| 29040.000 | 4200.00 | 641.41 | 2.02 | 0.28 | 4.57 | 373.84 | 480.00 |
| 30375.000 | 1160.00 | 637.33 | 0.0 | 0.49 | 0.0 | 306.73 | 1335.00 |
| 30375.000 | 2160.00 | 639.22 | 1.89 | 0.62 | 1.89 | 369.10 | 1335.00 |
| 30375.000 | 2690.00 | 640.06 | 0.84 | 0.66 | 0.0 | 395.28 | 1335.00 |
| 30375.000 | 4200.00 | 642.12 | 2.06 | 0.70 | 4.79 | 405.79 | 1335.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| * | 31190.000 | 1160.00 | 638.21 | 0.0 | 0.88 | 0.0 | 291.54 | 272.00 |
| | 31190.000 | 2160.00 | 639.32 | 1.12 | 0.11 | 1.12 | 299.92 | 272.00 |
| | 31190.000 | 2690.00 | 640.22 | 0.89 | 0.16 | 0.0 | 307.86 | 272.00 |
| | 31190.000 | 4200.00 | 642.28 | 2.06 | 0.16 | 4.07 | 336.41 | 272.00 |
| | 31590.000 | 1150.00 | 639.92 | 0.0 | 1.71 | 0.0 | 317.27 | 400.00 |
| | 31590.000 | 2050.00 | 640.84 | 0.92 | 1.52 | 0.92 | 349.37 | 400.00 |
| | 31590.000 | 2550.00 | 641.34 | 0.50 | 1.12 | 0.0 | 366.73 | 400.00 |
| | 31590.000 | 3900.00 | 642.95 | 1.62 | 0.68 | 3.03 | 423.32 | 400.00 |
| | 31990.000 | 1150.00 | 640.51 | 0.0 | 0.59 | 0.0 | 170.03 | 400.00 |
| | 31990.000 | 2050.00 | 641.59 | 1.08 | 0.75 | 1.08 | 172.17 | 400.00 |
| | 31990.000 | 2550.00 | 642.12 | 0.53 | 0.79 | 1.61 | 259.24 | 400.00 |
| | 31990.000 | 3900.00 | 643.59 | 1.47 | 0.64 | 3.08 | 368.05 | 400.00 |
| | 32470.000 | 1150.00 | 640.90 | 0.0 | 0.39 | 0.0 | 76.04 | 480.00 |
| | 32470.000 | 2050.00 | 642.03 | 1.13 | 0.44 | 1.13 | 83.00 | 480.00 |
| | 32470.000 | 2550.00 | 642.10 | 0.06 | -0.03 | 1.19 | 86.07 | 480.00 |
| * | 32470.000 | 3900.00 | 642.83 | 0.74 | -0.75 | 1.93 | 109.97 | 480.00 |
| | 32540.000 | 1150.00 | 640.99 | 0.0 | 0.09 | 0.0 | 27.00 | 70.00 |
| | 32540.000 | 2050.00 | 642.16 | 1.16 | 0.13 | 1.16 | 27.00 | 70.00 |
| | 32540.000 | 2550.00 | 643.52 | 1.37 | 1.43 | 2.53 | 131.35 | 70.00 |
| | 32540.000 | 3900.00 | 645.78 | 2.25 | 2.94 | 4.79 | 217.43 | 70.00 |

SUMMARY OF ERRORS

CAUTION SECNO=31190.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO=31190.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=31190.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=32470.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO=32470.000 PROFILE= 4 MINIMUM SPECIFIC ENERGY

FLOOD INSURANCE ZONE DATA FOR UPPER ROUGE LIVONIA CITY

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

| SECTION NUMBER | CUMULATIVE DISTANCE | ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10 | 2 | 0.2 |
|---|---|---|---|---|
| 22865.000 | 0. | -2.91 | -0.89 | 2.11 |
| 22895.000 | 30. | -2.88 | -1.11 | 2.00 |
| 22935.000 | 70. | -5.43 | -1.32 | 1.79 |
| 22985.000 | 120. | -5.25 | -1.47 | 2.41 |
| 23775.000 | 910. | -4.55 | -1.32 | 2.52 |
| 24852.000 | 1987. | -3.75 | -1.18 | 2.45 |
| 25052.000 | 2187. | -3.42 | -1.10 | 2.40 |
| 25108.000 | 2243. | -1.91 | -0.62 | 2.10 |
| 25183.000 | 2318. | -1.86 | -0.61 | 2.12 |
| 25628.000 | 2763. | -2.21 | -0.69 | 2.04 |
| 26038.000 | 3173. | -2.34 | -0.68 | 1.92 |
| 26088.000 | 3223. | -2.37 | -0.69 | 1.97 |
| 26184.000 | 3319. | -1.87 | -0.66 | 1.89 |
| 26234.000 | 3369. | -1.99 | -0.69 | 1.91 |
| 26860.000 | 3995. | -2.08 | -0.72 | 1.97 |
| 28232.000 | 5367. | -2.28 | -0.77 | 2.05 |
| 28233.000 | 5368. | -2.49 | -0.81 | 2.08 |
| 28240.000 | 5375. | -2.46 | -0.80 | 2.07 |
| 28241.000 | 5376. | -2.38 | -0.79 | 2.06 |
| 28560.000 | 5695. | -2.48 | -0.79 | 2.01 |
| 29040.000 | 6175. | -2.55 | -0.80 | 2.02 |
| 30375.000 | 7510. | -2.73 | -0.84 | 2.06 |
| 31190.000 | 7782. | -2.01 | -0.89 | 2.06 |
| 31590.000 | 8182. | -1.42 | -0.50 | 1.62 |
| 31990.000 | 8582. | -1.61 | -0.53 | 1.47 |
| 32470.000 | 9062. | -1.19 | -0.06 | 0.74 |
| 32540.000 | 9132. | -2.53 | -1.37 | 2.25 |
| WEIGHTED AVG FOR REACH | | -2.70 | -0.85 | 2.04 |

FHF FOR THE REACH = 025 WITH 68.9 OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 5

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

| INC NO. | TOTAL LENGTH | AVG ELEVATION DATA 10 | 1 | DIFF. | WTD. AVG. | FHF | PERCENT WITHIN |
|---|---|---|---|---|---|---|---|
| | 0. | | | | SEC. | 22865.000 | |
| | 30. | | | | SEC. | 22895.000 | |
| | 70. | | | | SEC. | 22935.000 | |
| 1 | 100. | 627.08 | 631.07 | -3.99 | -3.99 | 040 | 100. |
| | 120. | | | | SEC. | 22985.000 | |
| 2 | 200. | 626.09 | 633.19 | -5.10 | -4.55 | 045 | 100. |
| 3 | 300. | 627.93 | 633.00 | -5.07 | -4.72 | 048 | 100. |
| 4 | 400. | 628.16 | 633.15 | -4.99 | -4.79 | 050 | 100. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | 100. |
| 6 | 600. | 628.63 | 633.44 | -4.81 | -4.81 | 050 | 100. |
| 7 | 700. | 628.86 | 633.59 | -4.73 | -4.80 | 050 | 100. |
| 8 | 800. | 629.10 | 633.73 | -4.63 | -4.78 | 050 | 100. |
| 9 | 900. | 629.33 | 633.88 | -4.55 | -4.75 | 050 | 100. |
| | 910. | | | | SEC. 23775.000 | | |
| 10 | 1000. | 629.53 | 634.00 | -4.47 | -4.72 | 045 | 100. |
| 11 | 1100. | 629.70 | 634.10 | -4.40 | -4.69 | 045 | 100. |
| 12 | 1200. | 629.88 | 634.21 | -4.33 | -4.66 | 045 | 100. |
| 13 | 1300. | 630.07 | 634.32 | -4.25 | -4.63 | 045 | 100. |
| 14 | 1400. | 630.25 | 634.43 | -4.18 | -4.60 | 045 | 100. |
| 15 | 1500. | 630.44 | 634.54 | -4.10 | -4.57 | 045 | 100. |
| 16 | 1600. | 630.62 | 634.65 | -4.03 | -4.53 | 045 | 100. |
| 17 | 1700. | 630.81 | 634.76 | -3.95 | -4.50 | 045 | 100. |
| 18 | 1800. | 630.99 | 634.87 | -3.88 | -4.46 | 045 | 100. |
| 19 | 1900. | 631.18 | 634.98 | -3.80 | -4.43 | 045 | 100. |
| | 1987. | | | | SEC. 24852.000 | | |
| 20 | 2000. | 631.48 | 635.17 | -3.69 | -4.39 | 045 | 100. |
| 21 | 2100. | 631.93 | 635.46 | -3.53 | -4.35 | 045 | 100. |
| | 2187. | | | | SEC. 25052.000 | | |
| 22 | 2200. | 633.86 | 636.18 | -2.32 | -4.26 | 045 | 95. |
| | 2243. | | | | SEC. 25108.000 | | |
| 23 | 2300. | 635.00 | 636.51 | -1.51 | -4.14 | 040 | 91. |
| | 2318. | | | | SEC. 25183.000 | | |
| 24 | 2400. | 634.51 | 636.41 | -1.90 | -4.05 | 040 | 79. |
| 25 | 2500. | 634.61 | 636.63 | -2.02 | -3.96 | 040 | 72. |
| 26 | 2600. | 634.69 | 636.78 | -2.09 | -3.89 | 040 | 69. |
| 27 | 2700. | 634.76 | 636.93 | -2.17 | -3.83 | 040 | 63. |
| | 2763. | | | | SEC. 25620.000 | | |
| 28 | 2800. | 634.83 | 637.05 | -2.22 | -3.77 | 040 | 57. |
| 29 | 2900. | 634.89 | 637.14 | -2.25 | -3.72 | 035 | 52. |
| 30 | 3000. | 634.95 | 637.23 | -2.28 | -3.67 | 035 | 50. |
| 31 | 3100. | 635.00 | 637.32 | -2.32 | -3.63 | 035 | 40. |
| | 3173. | | | | SEC. 26038.000 | | |
| 32 | 3200. | 635.02 | 637.39 | -2.37 | -3.59 | 035 | 44. |
| | 3223. | | | | SEC. 26088.000 | | |
| 33 | 3300. | 635.64 | 637.65 | -2.01 | -3.54 | 035 | 39. |
| | 3319. | | | | SEC. 26184.000 | | |
| | 3369. | | | | SEC. 26234.000 | | |
| 34 | 3400. | 636.11 | 637.91 | -1.80 | -3.49 | 035 | 36. |
| 35 | 3500. | 635.95 | 637.96 | -2.01 | -3.45 | 035 | 34. |
| 36 | 3600. | 635.96 | 637.99 | -2.03 | -3.41 | 035 | 33. |
| 37 | 3700. | 635.97 | 638.01 | -2.04 | -3.37 | 035 | 32. |
| 38 | 3800. | 635.98 | 638.04 | -2.06 | -3.34 | 035 | 32. |
| 39 | 3900. | 635.99 | 638.06 | -2.07 | -3.30 | 035 | 33. |
| | 3995. | | | | SEC. 26860.000 | | |
| 40 | 4000. | 636.00 | 638.08 | -2.08 | -3.27 | 035 | 35. |
| 41 | 4100. | 636.01 | 638.11 | -2.10 | -3.24 | 030 | 34. |
| 42 | 4200. | 636.02 | 638.13 | -2.11 | -3.22 | 030 | 36. |
| 43 | 4300. | 636.02 | 638.15 | -2.13 | -3.19 | 030 | 35. |
| 44 | 4400. | 636.03 | 638.18 | -2.15 | -3.17 | 030 | 34. |
| 45 | 4500. | 636.04 | 638.20 | -2.16 | -3.15 | 030 | 38. |
| 46 | 4600. | 636.05 | 638.22 | -2.17 | -3.12 | 030 | 41. |
| 47 | 4700. | 636.06 | 638.24 | -2.18 | -3.10 | 030 | 47. |
| 48 | 4800. | 636.07 | 638.27 | -2.20 | -3.09 | 030 | 48. |
| 49 | 4900. | 636.08 | 638.29 | -2.21 | -3.07 | 030 | 53. |
| 50 | 5000. | 636.08 | 638.31 | -2.23 | -3.05 | 030 | 56. |
| 51 | 5100. | 636.09 | 638.33 | -2.24 | -3.04 | 030 | 59. |
| 52 | 5200. | 636.10 | 638.36 | -2.26 | -3.02 | 030 | 62. |
| 53 | 5300. | 636.11 | 638.38 | -2.27 | -3.01 | 030 | 66. |
| | 5367. | | | | SEC. 28232.000 | | |
| | 5368. | | | | SEC. 28233.000 | | |
| | 5375. | | | | SEC. 28241.000 | | |
| | 5376. | | | | SEC. 28241.000 | | |
| 54 | 5400. | 636.22 | 638.56 | -2.34 | -2.99 | 030 | 67. |
| 55 | 5500. | 636.39 | 638.82 | -2.43 | -2.98 | 030 | 65. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5695. | | | | SEC. 28560.000 | | |
| 57 | 5700. | 636.64 | 639.12 | -2.48 | -2.97 | 030 | 67. |
| 58 | 5800. | 636.69 | 639.19 | -2.50 | -2.96 | 030 | 67. |
| 59 | 5900. | 636.73 | 639.25 | -2.52 | -2.95 | 030 | 68. |
| 60 | 6000. | 636.77 | 639.31 | -2.54 | -2.94 | 030 | 67. |
| 61 | 6100. | 636.82 | 639.36 | -2.54 | -2.94 | 030 | 67. |
| | 6175. | | | | SEC. 29040.000 | | |
| 62 | 6200. | 636.86 | 639.41 | -2.55 | -2.93 | 030 | 68. |
| 63 | 6300. | 636.89 | 639.46 | -2.57 | -2.92 | 030 | 68. |
| 64 | 6400. | 636.93 | 639.51 | -2.58 | -2.92 | 030 | 69. |
| 65 | 6500. | 636.97 | 639.56 | -2.59 | -2.91 | 030 | 69. |
| 66 | 6600. | 637.00 | 639.61 | -2.61 | -2.91 | 030 | 70. |
| 67 | 6700. | 637.04 | 639.66 | -2.62 | -2.91 | 030 | 70. |
| 68 | 6800. | 637.07 | 639.71 | -2.64 | -2.90 | 030 | 72. |
| 69 | 6900. | 637.11 | 639.76 | -2.65 | -2.90 | 030 | 72. |
| 70 | 7000. | 637.15 | 639.81 | -2.66 | -2.89 | 030 | 73. |
| 71 | 7100. | 637.18 | 639.86 | -2.68 | -2.89 | 030 | 73. |
| 72 | 7200. | 637.22 | 639.91 | -2.69 | -2.89 | 030 | 74. |
| 73 | 7300. | 637.26 | 639.96 | -2.70 | -2.89 | 030 | 74. |
| 74 | 7400. | 637.29 | 640.01 | -2.72 | -2.88 | 030 | 74. |
| 75 | 7500. | 637.33 | 640.06 | -2.73 | -2.88 | 030 | 75. |
| | 7510. | | | | SEC. 30375.000 | | |
| 76 | 7600. | 637.59 | 640.12 | -2.53 | -2.80 | 030 | 75. |
| 77 | 7700. | 638.00 | 640.18 | -2.18 | -2.87 | 030 | 74. |
| | 7762. | | | | SEC. 31190.000 | | |
| 78 | 7800. | 638.37 | 640.34 | -1.97 | -2.80 | 030 | 74. |
| 79 | 7900. | 638.80 | 640.60 | -1.80 | -2.84 | 030 | 73. |
| 80 | 8000. | 639.22 | 640.88 | -1.66 | -2.83 | 030 | 73. |
| 81 | 8100. | 639.65 | 641.16 | -1.51 | -2.81 | 030 | 72. |
| | 8182. | | | | SEC. 31590.000 | | |
| 82 | 8200. | 639.96 | 641.40 | -1.44 | -2.80 | 030 | 73. |
| 83 | 8300. | 640.12 | 641.61 | -1.49 | -2.78 | 030 | 71. |
| 84 | 8400. | 640.27 | 641.80 | -1.53 | -2.76 | 030 | 70. |
| 85 | 8500. | 640.42 | 642.00 | -1.58 | -2.75 | 030 | 69. |
| | 8582. | | | | SEC. 31990.000 | | |
| 86 | 8600. | 640.54 | 642.11 | -1.57 | -2.74 | 025 | 69. |
| 87 | 8700. | 640.62 | 642.11 | -1.49 | -2.72 | 025 | 68. |
| 88 | 8800. | 640.71 | 642.11 | -1.40 | -2.71 | 025 | 67. |
| 89 | 8900. | 640.79 | 642.10 | -1.31 | -2.69 | 025 | 66. |
| 90 | 9000. | 640.87 | 642.10 | -1.23 | -2.68 | 025 | 64. |
| | 9062. | | | | SEC. 32470.000 | | |
| 91 | 9100. | 640.97 | 643.20 | -2.23 | -2.67 | 025 | 65. |
| | 9132. | | | | SEC. 32540.000 | | |

THIS REACH CAN BE SUBDIVIDED BY INC NO. TO MEET FIA REQUIREMENTS
INPUT 20N WHERE N IS THE NUMBER OF REACHES AND THEN INPUT THE END
OF EACH REACH BY INC NO. FOR EXAMPLE 202 23 91
A NEGATIVE INC NO. WILL SUPPRESS INTERMEDIATE INC OUTPUT.

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Livonia

3) WATERCOURSE: Upper Rouge

4) DOCUMENT TYPE: Summary

00BREAK00

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************
```

RECEIVED
OCT 08 1979
WATER MANAGEMENT

```
C
T1      CITY OF LIVONIA FIS HUD 2014-07 UPPER ROUGE RIVER
T2      Q10YR=1150 Q50YR=2050 Q100YR=2550 Q500YR=3900 AT INKSTER RD.
T3      UPPER ROUGE LIVONIA CITY

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       7.        0.        0.  0.000000      0.00      0.0       0.    629.880     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    -1.000     0.000     -1.000    0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    150.000    0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

QT      6.000  1160.000  2160.000  2690.000  2690.000  4200.000  1730.000     0.000     0.000     0.000
NC      0.100     0.100     0.040     0.300     0.500     0.000     0.000     0.000     0.000     0.000

          30' D/S INKSTER ROAD.

X1  22865.000    11.000   259.100   284.500     0.000     0.000     0.000     0.000     0.000     0.000
GR    650.000   228.000   631.300   229.000   631.200   235.000   621.900   259.100   621.900   259.200
GR    620.200   272.000   622.100   284.400   622.100   284.500   631.200   308.000   631.400   315.000
GR    650.000   316.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.120     0.120     0.035     0.000     0.000     0.000     0.000     0.000     0.000     0.000

          D/S FACE INKSTER RD. SKEW

X1  22895.000     0.000     0.000     0.000    30.000    30.000    30.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   627.200   627.200     0.000
SB      0.000     1.720     3.000     0.000    25.400     0.000   177.600     0.000   620.200   620.200

          U/S FACE INKSTER RD. SKEW

X1  22935.000     0.000     0.000     0.000    40.000    40.000    40.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   627.200   631.200     0.000     0.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   631.200   631.200     0.000
BT     10.000   228.000   650.000     0.000   229.000   635.000     0.000   235.000   631.200     0.000
BT    259.100   631.200   621.900   259.200   631.200   627.200   284.400   631.200   627.200   284.500
BT    631.200   622.100   308.000   631.200     0.000   315.000   635.000     0.000   316.000   650.000
BT      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.120     0.120     0.040     0.300     0.500     0.000     0.000     0.000     0.000     0.000
ET      0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000     0.000

          50 FT U/S INKSTER RD. SKEW

X1  22985.000    11.000   297.000   322.000    50.000    50.000    50.000     0.000     0.000     0.000
GR    636.000     0.000   634.000    95.000   632.000   146.000   630.000   207.000   622.000   297.000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 620.300 | 310.000 | 622.000 | 322.000 | 630.000 | 370.000 | 632.000 | 421.000 | 634.000 | 430.000 |
| GR | 636.000 | 533.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.150 | 0.150 | 0.050 | 0.400 | 0.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 23775.000 | 18.000 | 272.000 | 292.000 | 260.000 | 1100.000 | 790.000 | 0.000 | 0.000 | 0.000 |
| GR | 638.000 | 0.000 | 636.000 | 190.000 | 634.000 | 210.000 | 632.000 | 230.000 | 630.000 | 240.000 |
| GR | 625.800 | 250.000 | 621.900 | 272.000 | 620.400 | 282.000 | 622.200 | 292.000 | 625.700 | 314.000 |
| GR | 626.000 | 400.000 | 628.000 | 415.000 | 630.000 | 425.000 | 634.000 | 445.000 | 634.000 | 515.000 |
| GR | 636.000 | 545.000 | 638.000 | 655.000 | 640.000 | 710.000 | 0.000 | 0.000 | 0.000 | 0.000 |

200 FT D/S 7 MILE RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 24852.000 | 9.000 | 80.000 | 108.000 | 1100.000 | 900.000 | 1077.000 | 0.000 | 0.000 | 0.000 |
| GR | 650.000 | 0.000 | 634.000 | 1.000 | 632.000 | 35.000 | 626.900 | 80.000 | 625.500 | 94.000 |
| GR | 626.700 | 108.000 | 630.000 | 150.000 | 636.000 | 175.000 | 638.000 | 290.000 | 0.000 | 0.000 |

D/S FACE 7 MILE RD. SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 25052.000 | 11.000 | 314.000 | 340.000 | 20.000 | 400.000 | 200.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 631.400 | 631.400 | 0.000 |
| GR | 650.000 | 251.000 | 634.000 | 252.000 | 633.700 | 280.000 | 626.900 | 314.000 | 626.900 | 314.100 |
| GR | 625.600 | 327.000 | 626.700 | 340.000 | 626.700 | 340.100 | 633.700 | 374.000 | 634.000 | 402.000 |
| GR | 650.000 | 403.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.880 | 3.000 | 0.000 | 25.800 | 0.000 | 95.500 | 0.000 | 625.600 | 625.600 |

U/S FACE 7 MILE RD. SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 25108.000 | 0.000 | 0.000 | 0.000 | 56.000 | 56.000 | 56.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 629.300 | 633.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 633.700 | 633.700 | 0.000 |
| BT | 10.000 | 251.000 | 650.000 | 0.000 | 252.000 | 634.000 | 0.000 | 265.000 | 633.700 | 0.000 |
| BT | 314.000 | 633.700 | 626.900 | 314.100 | 633.700 | 629.300 | 340.000 | 633.700 | 629.300 | 340.100 |
| BT | 633.700 | 626.700 | 390.000 | 633.700 | 0.000 | 402.000 | 634.000 | 0.000 | 403.000 | 650.000 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.130 | 0.130 | 0.050 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

75 FT U/S 7 MILE RD. SKEW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 25183.000 | 16.000 | 383.000 | 413.000 | 75.000 | 75.000 | 75.000 | 0.000 | 0.000 | 0.000 |
| GR | 640.000 | 0.000 | 640.000 | 232.000 | 638.000 | 275.000 | 636.000 | 292.000 | 634.000 | 318.000 |
| GR | 632.000 | 374.000 | 630.000 | 383.000 | 626.000 | 391.000 | 625.700 | 400.000 | 626.000 | 413.000 |
| GR | 630.000 | 426.000 | 634.000 | 434.000 | 636.000 | 563.000 | 636.000 | 662.000 | 638.000 | 740.000 |
| GR | 640.000 | 912.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 25628.000 | 13.000 | 379.000 | 409.000 | 600.000 | 50.000 | 445.000 | 0.000 | 0.000 | 0.000 |
| GR | 640.000 | 0.000 | 640.000 | 360.000 | 630.000 | 375.000 | 627.600 | 379.000 | 625.600 | 383.000 |
| GR | 623.700 | 394.000 | 625.400 | 405.000 | 629.400 | 409.000 | 630.000 | 420.000 | 634.000 | 450.000 |
| GR | 636.000 | 725.000 | 636.000 | 740.000 | 640.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |

50 FT D/S DEERING RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 26038.000 | 13.000 | 171.000 | 200.000 | 700.000 | 100.000 | 410.000 | 0.000 | 0.000 | 0.000 |
| G | 640.000 | 0.000 | 38.000 | 45.000 | 636.000 | 75.000 | 634.000 | 130.000 | 630.000 | 145.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 630.000 | 165.000 | 626.000 | 171.000 | 624.900 | 185.000 | 625.600 | 200.000 | 629.100 | 207.000 |
| GR | 630.000 | 235.000 | 638.000 | 260.000 | 639.700 | 375.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE DEERING RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 26088.000 | 16.000 | 225.000 | 246.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 633.400 | 633.400 | 0.000 |
| GR | 650.000 | 64.000 | 637.800 | 65.000 | 635.000 | 150.000 | 634.900 | 200.000 | 625.000 | 225.000 |
| GR | 625.000 | 226.500 | 625.000 | 228.500 | 625.000 | 231.500 | 625.000 | 235.500 | 625.000 | 239.500 |
| GR | 625.000 | 242.500 | 625.000 | 244.500 | 625.000 | 246.000 | 634.900 | 270.000 | 635.000 | 356.000 |
| GR | 650.000 | 357.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.500 | 3.000 | 0.000 | 15.600 | 0.000 | 131.000 | 0.000 | 625.000 | 625.000 |

U/S FACE DEERING RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 26184.000 | 0.000 | 0.000 | 0.000 | 96.000 | 96.000 | 96.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 633.400 | 636.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 634.900 | 634.900 | 0.000 |
| BT | 16.000 | 64.000 | 650.000 | 0.000 | 65.000 | 637.800 | 0.000 | 150.000 | 635.000 | 0.000 |
| BT | 200.000 | 634.900 | 0.000 | 225.000 | 634.900 | 625.000 | 226.500 | 634.900 | 628.500 | 228.500 |
| BT | 634.900 | 631.000 | 231.500 | 634.900 | 632.500 | 235.500 | 634.900 | 633.400 | 239.500 | 634.900 |
| BT | 632.500 | 242.500 | 634.900 | 631.000 | 244.500 | 634.900 | 628.500 | 246.000 | 634.900 | 625.000 |
| BT | 270.000 | 634.900 | 0.000 | 389.000 | 635.000 | 0.000 | 390.000 | 650.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

50 FT U/S DEERING RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 26234.000 | 14.000 | 160.000 | 205.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| GR | 640.000 | 0.000 | 638.000 | 80.000 | 636.000 | 100.000 | 634.000 | 110.000 | 632.000 | 120.000 |
| GR | 630.000 | 140.000 | 628.000 | 160.000 | 625.100 | 185.000 | 626.000 | 205.000 | 628.000 | 220.000 |
| GR | 630.000 | 300.000 | 636.000 | 370.000 | 638.000 | 375.000 | 640.000 | 670.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 26860.000 | 13.000 | 550.000 | 576.000 | 200.000 | 900.000 | 626.000 | 0.000 | 0.000 | 0.000 |
| GR | 642.000 | 0.000 | 640.000 | 275.000 | 630.000 | 345.000 | 628.000 | 480.000 | 629.500 | 550.000 |
| GR | 624.500 | 555.000 | 624.800 | 563.000 | 625.200 | 571.000 | 628.500 | 576.000 | 630.000 | 600.000 |
| GR | 640.000 | 620.000 | 642.000 | 640.000 | 644.000 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FOOTBRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 28232.000 | 10.000 | 70.000 | 110.000 | 1000.000 | 1400.000 | 1372.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 631.900 | 631.900 | 0.000 |
| GR | 642.000 | 0.000 | 640.000 | 10.000 | 635.000 | 70.000 | 628.000 | 77.500 | 628.000 | 90.000 |
| GR | 629.000 | 102.500 | 635.000 | 110.000 | 635.000 | 265.000 | 640.000 | 300.000 | 644.000 | 850.000 |

FOOTBRIDGE TO SCHOOL D/S FACE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 28233.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 631.900 | 635.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 631.900 | 631.900 | 0.000 |

FOOTBRIDGE TO SCHOOL U/S FACE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 28240.000 | 0.000 | 0.000 | 0.000 | 7.000 | 7.000 | 7.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 631.900 | 635.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 635.000 | 635.000 | 0.000 |

U/S FOOTBRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 28241.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 635.000 | 635.000 | 0.000 |
| NC | 0.150 | 0.150 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 28560.000 | 20.000 | 57.000 | 84.000 | 350.000 | 200.000 | 319.000 | 0.000 | 0.000 | 0.000 |
| GR | 640.000 | 0.000 | 635.600 | 24.000 | 633.200 | 44.000 | 633.600 | 57.000 | 626.200 | 67.000 |
| GR | 626.200 | 70.000 | 628.600 | 71.000 | 632.700 | 84.000 | 632.700 | 104.000 | 632.500 | 124.000 |
| GR | 632.500 | 164.000 | 633.000 | 184.000 | 632.600 | 204.000 | 632.500 | 224.000 | 632.800 | 244.000 |
| GR | 633.200 | 264.000 | 634.200 | 284.000 | 635.600 | 304.000 | 638.500 | 324.000 | 640.000 | 344.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 29040.000 | 14.000 | 305.000 | 339.000 | 300.000 | 250.000 | 480.000 | 0.000 | 0.000 | 0.000 |
| GR | 646.000 | 0.000 | 644.000 | 200.000 | 640.000 | 215.000 | 634.000 | 255.000 | 632.000 | 285.000 |
| GR | 630.200 | 305.000 | 628.700 | 312.000 | 627.600 | 322.000 | 628.400 | 332.000 | 631.500 | 339.000 |
| GR | 632.000 | 530.000 | 640.000 | 580.000 | 642.000 | 585.000 | 644.000 | 1020.000 | 0.000 | 0.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 30375.000 | 9.000 | 185.000 | 220.000 | 635.000 | 565.000 | 605.000 | 0.000 | 0.000 | 0.000 |
| GR | 650.000 | 0.000 | 645.000 | 80.000 | 637.000 | 120.000 | 632.200 | 185.000 | 629.300 | 200.000 |
| GR | 629.300 | 210.000 | 632.000 | 220.000 | 635.000 | 360.000 | 640.000 | 500.000 | 0.000 | 0.000 |
| NC | 0.120 | 0.120 | 0.060 | 0.400 | 0.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 31190.000 | 15.000 | 250.000 | 284.000 | 815.000 | 750.000 | 815.000 | 0.000 | 0.000 | 0.000 |
| GR | 656.000 | 0.000 | 650.000 | 90.000 | 640.000 | 170.000 | 638.000 | 180.000 | 636.000 | 200.000 |
| GR | 638.000 | 250.000 | 635.100 | 254.000 | 635.100 | 267.000 | 634.800 | 280.000 | 636.600 | 284.000 |
| GR | 638.000 | 470.000 | 640.000 | 475.000 | 646.000 | 510.000 | 648.000 | 515.000 | 650.000 | 725.000 |
| QT | 6.000 | 1150.000 | 2050.000 | 2550.000 | 2550.000 | 3900.000 | 1630.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.500 | 0.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | 0.200 | 300.000 | 0.150 | 395.000 | 0.050 | 419.000 | 0.150 | 1020.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 150.000 | 419.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 31990.000 | 16.000 | 395.000 | 419.000 | 900.000 | 800.000 | 800.000 | 0.000 | 0.000 | 0.000 |
| X4 | 1.000 | 637.500 | 300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 650.000 | 0.000 | 640.000 | 100.000 | 638.000 | 195.000 | 637.200 | 395.000 | 635.600 | 398.000 |
| GR | 635.100 | 407.000 | 635.500 | 416.000 | 637.600 | 419.000 | 640.000 | 425.000 | 650.000 | 445.000 |
| GR | 652.000 | 460.000 | 652.000 | 625.000 | 654.000 | 650.000 | 656.000 | 740.000 | 658.000 | 955.000 |
| GR | 660.000 | 1020.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.060 | 0.600 | 0.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 9.000 | 180.000 |

70 FT D/S 8 MILE RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 32470.000 | 18.000 | 85.000 | 105.000 | 400.000 | 550.000 | 460.000 | 0.000 | 0.000 | 0.000 |
| GR | 651.700 | 0.000 | 651.000 | 8.000 | 650.000 | 12.000 | 642.900 | 32.000 | 642.500 | 40.000 |
| GR | 638.700 | 62.000 | 638.100 | 70.000 | 637.900 | 76.000 | 633.400 | 85.000 | 632.200 | 92.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 632.300 | 96.000 | 635.000 | 105.000 | 638.000 | 110.000 | 638.500 | 110.000 | 638.900 | 120.000 |
| GR | 642.700 | 130.000 | 642.900 | 150.000 | 650.000 | 360.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE 8 MILE RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 32540.000 | 21.000 | 600.000 | 627.000 | 70.000 | 70.000 | 70.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 643.000 | 643.000 | 0.000 |
| GR | 650.000 | 0.000 | 648.900 | 100.000 | 648.200 | 200.000 | 646.900 | 300.000 | 646.900 | 400.000 |
| GR | 646.300 | 500.000 | 641.200 | 575.000 | 634.000 | 599.000 | 633.500 | 600.000 | 633.000 | 610.000 |
| GR | 633.500 | 620.000 | 633.800 | 627.000 | 634.200 | 630.000 | 637.400 | 646.000 | 642.700 | 660.000 |
| GR | 645.400 | 700.000 | 646.900 | 800.000 | 650.000 | 900.000 | 653.900 | 1000.000 | 658.100 | 1100.000 |
| GR | 661.100 | 1278.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*PROF 1

CCHV= 0.300 CEHV= 0.500

*SECNO 22865.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |
| | | | | | | | | | |
| | | | | | | | | | |
| 22865.00 | 9.68 | 629.88 | 0.00 | 629.88 | 630.48 | 0.60 | 0.00 | 0.00 | 621.90 |
| 1730. | 125. | 1488. | 117. | 83. | 223. | 78. | 0. | 0. | 622.10 |
| 0.00 | 1.52 | 6.68 | 1.49 | 0.100 | 0.040 | 0.100 | 0.000 | 620.20 | 238.42 |
| 0.001809 | 0. | 0. | 0. | 0 | 0 | 0 | 0.00 | 66.17 | 304.59 |

30' D/S INKSTER ROAD.

*SECNO 22895.000

D/S FACE INKSTER RD. SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22895.00 | 9.70 | 629.90 | 0.00 | 0.00 | 630.56 | 0.67 | 0.05 | 0.03 | 621.90 |
| 1730. | 95. | 1546. | 89. | 83. | 223. | 78. | 0. | 0. | 622.10 |
| 0.00 | 1.15 | 6.93 | 1.13 | 0.120 | 0.035 | 0.120 | 0.034 | 620.20 | 238.38 |
| 0.001487 | 30. | 30. | 30. | 2 | 0 | 0 | 0.00 | 66.25 | 304.63 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.72 | 3.00 | 0.00 | 25.40 | 0.00 | 177.60 | 0.00 | 620.20 | 620.20 |

*SECNO 22935.000

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 632.43 | 630.83 | 0.00 | 153. | 1570. | 178. | 178. | 627.20 | 631.20 |

U/S FACE INKSTER RD. SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22935.00 | 11.35 | 631.55 | 0.00 | 0.00 | 631.98 | 0.43 | 1.42 | 0.00 | 621.90 |
| 1730. | 117. | 1502. | 111. | 122. | 265. | 117. | 1. | 0. | 622.10 |
| 0.00 | 0.96 | 5.66 | 0.95 | 0.120 | 0.035 | 0.120 | 0.034 | 620.20 | 228.99 |
| 0.000790 | 40. | 40. | 40. | 2 | 0 | 2 | 0.00 | 86.02 | 315.01 |

CCHV= 0.300 CEHV= 0.500

*SECNO 22985.000

50 FT U/S INKSTER RD. SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22985.00 | 11.54 | 631.84 | 0.00 | 0.00 | 632.08 | 0.23 | 0.04 | 0.06 | 622.00 |
| 1730. | 207. | 1225. | 298. | 278. | 267. | 324. | 1. | 0. | 622.00 |
| 0.01 | 0.74 | 4.58 | 0.92 | 0.120 | 0.040 | 0.120 | 0.036 | 620.30 | 155.42 |
| 0.000653 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 261.60 | 417.03 |

CCHV= 0.400 CEHV= 0.600
*SECNO 23775.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |
| | | | | | | | | | |
| VALLEY SECTION | | | | | | | | | |
| 23775.00 | 12.13 | 632.53 | 0.00 | 0.00 | 632.62 | 0.09 | 0.48 | 0.06 | 621.90 |
| 1730. | 217. | 780. | 733. | 254. | 226. | 898. | 23. | 4. | 622.20 |
| 0.12 | 0.85 | 3.45 | 0.82 | 0.150 | 0.050 | 0.150 | 0.047 | 620.40 | 224.69 |
| 0.000541 | 260. | 790. | 1100. | 2 | 0 | 0 | 0.00 | 212.97 | 437.66 |
| *SECNO 24852.000 | | | | | | | | | |
| 200 FT D/S 7 MILE RD. | | | | | | | | | |
| 24852.00 | 7.97 | 633.47 | 0.00 | 0.00 | 633.81 | 0.34 | 1.04 | 0.15 | 626.90 |
| 1730. | 236. | 1157. | 337. | 199. | 205. | 240. | 46. | 8. | 626.70 |
| 0.19 | 1.18 | 5.65 | 1.40 | 0.150 | 0.050 | 0.150 | 0.050 | 625.50 | 9.99 |
| 0.002553 | 1100. | 1077. | 900. | 2 | 0 | 0 | 0.00 | 154.47 | 164.46 |
| *SECNO 25052.000 | | | | | | | | | |
| D/S FACE 7 MILE RD. SKEW 63.40 ~ 63.48 | | | | | | | | | |
| 25052.00 | 8.39 | 633.99 | 0.00 | 0.00 | 634.57 | 0.58 | 0.61 | 0.14 | 626.90 |
| 1730. | 172. | 1378. | 180. | 129. | 202. | 133. | 48. | 9. | 626.70 |
| 0.20 | 1.33 | 6.81 | 1.36 | 0.150 | 0.050 | 0.150 | 0.050 | 625.60 | 253.05 |
| 0.003417 | 20. | 200. | 400. | 2 | 0 | 0 | 0.00 | 147.90 | 400.95 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.88 | 3.00 | 0.00 | 25.80 | 0.00 | 95.50 | 0.00 | 625.60 | 625.60 |

*SECNO 25108.000
PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | M3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 643.57 | 634.57 | 0.00 | 1052. | 684. | 96. | 95. | 629.30 | 633.70 |
| U/S FACE 7 MILE RD. SKEW | | | | | | | | |
| 25108.00 | 9.53 | 635.13 | 0.00 | 0.00 | 635.49 | 0.36 | 0.92 | 0.00 | 626.90 |
| 1730. | 218. | 1287. | 225. | 200. | 232. | 204. | 49. | 9. | 626.70 |
| 0.20 | 1.09 | 5.55 | 1.11 | 0.150 | 0.050 | 0.150 | 0.049 | 625.60 | 251.93 |
| 0.001891 | 56. | 56. | 56. | 2 | 0 | 4 | 0.00 | 150.14 | 402.07 |

CCHV= 0.300 CEHV= 0.500
*SECNO 25183.000

75 FT U/S 7 MILE RD. SKEW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25183.00 | 9.61 | 635.31 | 0.00 | 0.00 | 635.63 | 0.32 | 0.13 | 0.01 | 630.00 |
| 1730. | 158. | 1364. | 208. | 180. | 267. | 178. | 50. | 10. | 626.00 |
| 0.21 | 0.88 | 5.11 | 1.17 | 0.130 | 0.050 | 0.130 | 0.049 | 625.70 | 300.88 |
| 0.001674 | 75. | 75. | 75. | 1 | 0 | 0 | 0.00 | 218.08 | 518.96 |

*SECNO 25628.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25628.00 | 12.23 | 635.93 | 0.00 | 0.00 | 636.17 | 0.24 | 0.51 | 0.03 | 627.60 |
| 1730. | 52. | 1397. | 281. | 55. | 321. | 442. | 55. | 11. | 629.40 |
| 0.24 | 0.95 | 4.36 | 0.64 | 0.130 | 0.050 | 0.130 | 0.050 | 623.70 | 366.11 |
| 0.001012 | 600. | 445. | 50. | 2 | 0 | 0 | 0.00 | 348.96 | 715.06 |

*SECNO 26038.000

50 FT D/S DEERING RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26038.00 | 11.45 | 636.35 | 0.00 | 0.00 | 636.50 | 0.15 | 0.30 | 0.03 | 626.00 |
| 1730. | 251. | 1173. | 306. | 317. | 319. | 316. | 62. | 12. | 625.60 |
| 0.28 | 0.79 | 3.68 | 0.97 | 0.130 | 0.050 | 0.130 | 0.051 | 624.90 | 69.76 |
| 0.000627 | 700. | 410. | 100. | 2 | 0 | 0 | 0.00 | 185.09 | 254.84 |

*SECNO 26088.000

D/S FACE DEERING RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26088.00 | 11.31 | 636.31 | 0.00 | 0.00 | 636.61 | 0.30 | 0.04 | 0.08 | 625.00 |
| 1730. | 247. | 1230. | 254. | 254. | 238. | 270. | 63. | 13. | 625.00 |
| 0.28 | 0.97 | 5.18 | 0.94 | 0.130 | 0.050 | 0.130 | 0.051 | 625.00 | 110.08 |
| 0.001193 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 246.01 | 356.09 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.50 | 3.00 | 0.00 | 15.60 | 0.00 | 131.00 | 0.00 | 625.00 | 625.00 |

*SECNO 26184.000

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 643.09 | 636.61 | 0.00 | 1360. | 369. | 131. | 131. | 633.40 | 634.90 |

U/S FACE DEERING RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26184.00 | 11.32 | 636.32 | 0.00 | 0.00 | 636.62 | 0.30 | 0.01 | 0.00 | 625.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1730. | 247. | 1229. | 254. | 255. | 238. | 271. | 65. | 13. | 625.00 |
| 0.29 | 0.97 | 5.17 | 0.94 | 0.130 | 0.050 | 0.130 | 0.051 | 625.00 | 109.76 |
| 0.001187 | 96. | 96. | 96. | 2 | 0 | 5 | 0.00 | 246.33 | 356.09 |

*SECNO 26234.000

50 FT U/S DEERING RD.

635.45

636.99

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26234.00 | 11.59 | 636.69 | 0.00 | 0.00 | 636.72 | 0.03 | 0.02 | 0.08 | 626.00 |
| 1730. | 191. | 955. | 584. | 344. | 501. | 1019. | 66. | 14. | 626.00 |
| 0.30 | 0.56 | 1.91 | 0.57 | 0.120 | 0.050 | 0.120 | 0.051 | 625.10 | 93.14 |
| 0.000166 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 278.58 | 371.72 |

*SECNO 26860.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | THA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26860.00 | 12.29 | 636.79 | 0.00 | 0.00 | 636.80 | 0.01 | 0.08 | 0.01 | 629.50 |
| 1730. | 1142. | 455. | 134. | 1775. | 290. | 227. | 90. | 17. | 628.50 |
| 0.46 | 0.64 | 1.57 | 0.59 | 0.100 | 0.050 | 0.100 | 0.052 | 624.50 | 297.50 |
| 0.000130 | 200. | 626. | 900. | 2 | 0 | 0 | 0.00 | 316.07 | 613.57 |

*SECNO 28232.000

D/S FOOTBRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28232.00 | 9.07 | 637.07 | 0.00 | 0.00 | 637.33 | 0.26 | 0.41 | 0.12 | 635.00 |
| 1730. | 17. | 1369. | 344. | 26. | 300. | 336. | 129. | 24. | 635.00 |
| 0.55 | 0.66 | 4.36 | 1.03 | 0.100 | 0.050 | 0.100 | 0.053 | 628.00 | 45.15 |
| 0.001866 | 1000. | 1372. | 1400. | 2 | 0 | 0 | 0.00 | 234.34 | 279.49 |

*SECNO 28233.000

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 635.00 MAX ELLC= 631.90

FOOTBRIDGE TO SCHOOL D/S FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28233.00 | 9.17 | 637.17 | 0.00 | 0.00 | 637.35 | 0.19 | 0.00 | 0.02 | 635.00 |
| 1730. | 42. | 876. | 812. | 28. | 204. | 353. | 129. | 24. | 635.00 |
| 0.55 | 1.47 | 4.30 | 2.30 | 0.100 | 0.050 | 0.100 | 0.053 | 628.00 | 43.96 |
| 0.008652 | 1. | 1. | 1. | 2 | 0 | 0 | -100.75 | 236.23 | 280.19 |

*SECNO 28240.000

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 635.00 MAX ELLC= 631.90

FOOTBRIDGE TO SCHOOL U/S FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28240.00 | 9.24 | 637.24 | 0.00 | 0.00 | 637.42 | 0.17 | 0.06 | 0.00 | 635.00 |
| 1730. | 44. | 861. | 825. | 30. | 207. | 365. | 129. | 25. | 635.00 |
| 0.55 | 1.45 | 4.17 | 2.26 | 0.100 | 0.050 | 0.100 | 0.053 | 628.00 | 43.07 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.008149 | 7. | 7. | 7. | 2 | 0 | 0 | -100.75 | 237.64 | 280.71 |

*SECNO 28241.000

U/S FOOTBRIDGE 637.22

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28241.00 | 9.22 | 637.22 | 0.00 | 0.00 | 637.45 | 0.24 | 0.00 | 0.03 | 635.00 |
| 1730. | 19. | 1343. | 367. | 29. | 306. | 361. | 129. | 25. | 635.00 |
| 0.55 | 0.65 | 4.39 | 1.02 | 0.100 | 0.050 | 0.100 | 0.053 | 628.00 | 43.41 |
| 0.001686 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 237.11 | 280.51 |

*SECNO 28560.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28560.00 | 11.56 | 637.76 | 0.00 | 0.00 | 637.84 | 0.07 | 0.34 | 0.05 | 633.60 |
| 1730. | 96. | 708. | 926. | 137. | 216. | 1071. | 135. | 26. | 632.70 |
| 0.59 | 0.70 | 3.28 | 0.87 | 0.150 | 0.050 | 0.150 | 0.053 | 626.20 | 12.21 |
| 0.000939 | 350. | 319. | 200. | 2 | 0 | 0 | 0.00 | 306.70 | 318.91 |

*SECNO 29040.000

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 29040.00 | 10.40 | 638.00 | 0.00 | 0.00 | 638.04 | 0.04 | 0.19 | 0.01 | 630.20 |
| 1730. | 188. | 753. | 789. | 341. | 315. | 1305. | 146. | 28. | 631.50 |
| 0.66 | 0.55 | 2.40 | 0.60 | 0.150 | 0.050 | 0.150 | 0.054 | 627.60 | 228.36 |
| 0.000346 | 300. | 480. | 250. | 2 | 0 | 0 | 0.00 | 339.11 | 567.47 |

*SECNO 30375.000

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30375.00 | 8.97 | 638.27 | 0.00 | 0.00 | 638.38 | 0.10 | 0.31 | 0.03 | 632.20 |
| 1730. | 165. | 956. | 609. | 243. | 279. | 818. | 168. | 33. | 632.00 |
| 0.74 | 0.68 | 3.43 | 0.74 | 0.150 | 0.050 | 0.150 | 0.054 | 629.30 | 113.65 |
| 0.000857 | 635. | 605. | 565. | 2 | 0 | 0 | 0.00 | 337.93 | 451.58 |

CCHV= 0.400 CEHV= 0.600

*SECNO 31190.000

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31190.00 | 4.83 | 639.64 | 0.00 | 0.00 | 639.80 | 0.17 | 1.39 | 0.04 | 638.00 |
| 1730. | 326. | 702. | 701. | 191. | 148. | 438. | 187. | 38. | 636.60 |
| 0.81 | 1.71 | 4.75 | 1.60 | 0.120 | 0.060 | 0.120 | 0.054 | 634.80 | 171.83 |
| 0.005446 | 815. | 815. | 750. | 3 | 0 | 0 | 0.00 | 302.26 | 474.09 |

CCHV= 0.500 CEHV= 0.800

1490 NH CARD USED

*SECNO 31990.000

3470 ENCROACHMENT STATIONS= 150.0 419.0 TYPE= 1 TARGET= 269.000

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31990.00 | 7.07 | 642.17 | 0.00 | 0.00 | 642.26 | 0.09 | 2.42 | 0.04 | 637.20 |
| 1630. | 1039. | 591. | 0. | 1088. | 157. | 0. | 207. | 44. | 100000.00 |
| 0.93 | 0.96 | 3.75 | 0.00 | 0.174 | 0.050 | 0.120 | 0.055 | 635.10 | 150.00 |
| 0.001724 | 900. | 800. | 800. | 2 | 0 | 0 | 0.00 | 269.00 | 419.00 |

CCHV= 0.600 CEHV= 0.800

*SECNO 32470.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 9.0 180.0 TYPE= 1 TARGET= 171.000

70 FT D/S 8 MILE RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 32470.00 | 10.83 | 643.03 | 0.00 | 0.00 | 643.40 | 0.37 | 0.92 | 0.23 | 633.40 |
| 1630. | 329. | 1143. | 158. | 190. | 199. | 103. | 216. | 46. | 635.00 |
| 0.96 | 1.73 | 5.74 | 1.53 | 0.120 | 0.060 | 0.120 | 0.055 | 632.20 | 31.64 |
| 0.002592 | 400. | 460. | 550. | 2 | 0 | 0 | 0.00 | 122.17 | 153.80 |

*SECNO 32540.000

D/S FACE 8 MILE RD. 642.55

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 32540.00 | 10.46 | 643.46 | 0.00 | 0.00 | 643.64 | 0.18 | 0.12 | 0.12 | 633.50 |
| 1630. | 227. | 1100. | 303. | 188. | 273. | 203. | 216. | 46. | 633.80 |
| 0.97 | 1.21 | 4.03 | 1.49 | 0.120 | 0.060 | 0.120 | 0.055 | 633.00 | 541.80 |
| 0.001216 | 70. | 70. | 70. | 2 | 0 | 0 | 0.00 | 129.43 | 671.23 |

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

UPPER ROUGE LIVONIA CITY

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22865.000 | 0.00 | 0.00 | 0.00 | 620.20 | 1730.00 | 629.88 | 0.00 | 630.48 | 18.09 | 6.68 | 383.51 | 406.71 |
| 22895.000 | 30.00 | 0.00 | 0.00 | 620.20 | 1730.00 | 629.90 | 0.00 | 630.56 | 14.87 | 6.93 | 384.53 | 448.62 |
| 22935.000 | 40.00 | 631.20 | 627.20 | 620.20 | 1730.00 | 631.55 | 0.00 | 631.98 | 7.90 | 5.66 | 504.42 | 615.59 |
| 22985.000 | 50.00 | 0.00 | 0.00 | 620.30 | 1730.00 | 631.84 | 0.00 | 632.08 | 6.53 | 4.58 | 869.46 | 676.91 |
| 23775.000 | 790.00 | 0.00 | 0.00 | 620.40 | 1730.00 | 632.53 | 0.00 | 632.62 | 5.41 | 3.45 | 1377.78 | 743.80 |
| 24852.000 | 1077.00 | 0.00 | 0.00 | 625.50 | 1730.00 | 633.47 | 0.00 | 633.81 | 25.53 | 5.65 | 644.54 | 362.40 |
| 25052.000 | 200.00 | 0.00 | 0.00 | 625.60 | 1730.00 | 633.99 | 0.00 | 634.57 | 34.17 | 6.81 | 464.82 | 295.96 |
| 25108.000 | 56.00 | 633.70 | 629.30 | 625.60 | 1730.00 | 635.13 | 0.00 | 635.49 | 18.91 | 5.55 | 635.94 | 397.87 |
| 25183.000 | 75.00 | 0.00 | 0.00 | 625.70 | 1730.00 | 635.31 | 0.00 | 635.63 | 16.74 | 5.11 | 624.31 | 422.79 |
| 25628.000 | 445.00 | 0.00 | 0.00 | 623.70 | 1730.00 | 635.93 | 0.00 | 636.17 | 10.12 | 4.36 | 817.32 | 543.77 |
| 26038.000 | 410.00 | 0.00 | 0.00 | 624.90 | 1730.00 | 636.35 | 0.00 | 636.50 | 6.27 | 3.68 | 952.95 | 691.05 |
| 26088.000 | 50.00 | 0.00 | 0.00 | 625.00 | 1730.00 | 636.31 | 0.00 | 636.61 | 11.93 | 5.18 | 761.50 | 500.79 |
| 26184.000 | 96.00 | 634.90 | 633.40 | 625.00 | 1730.00 | 636.32 | 0.00 | 636.62 | 11.87 | 5.17 | 764.08 | 502.04 |
| 26234.000 | 50.00 | 0.00 | 0.00 | 625.10 | 1730.00 | 636.69 | 0.00 | 636.72 | 1.66 | 1.91 | 1863.49 | 1344.56 |
| 26860.000 | 626.00 | 0.00 | 0.00 | 624.50 | 1730.00 | 636.79 | 0.00 | 636.80 | 1.30 | 1.57 | 2291.52 | 1519.32 |
| 28232.000 | 1372.00 | 0.00 | 0.00 | 628.00 | 1730.00 | 637.07 | 0.00 | 637.33 | 18.66 | 4.56 | 661.99 | 400.51 |
| 28233.000 | 1.00 | 635.00 | 631.90 | 628.00 | 1730.00 | 637.17 | 0.00 | 637.35 | 88.52 | 4.30 | 584.61 | 183.88 |
| 28240.000 | 7.00 | 635.00 | 631.90 | 628.00 | 1730.00 | 637.24 | 0.00 | 637.42 | 81.49 | 4.17 | 602.20 | 191.64 |
| 28241.000 | 1.00 | 0.00 | 0.00 | 628.00 | 1730.00 | 637.22 | 0.00 | 637.45 | 16.86 | 4.39 | 696.29 | 421.32 |
| 28560.000 | 319.00 | 0.00 | 0.00 | 626.20 | 1730.00 | 637.76 | 0.00 | 637.84 | 9.39 | 3.28 | 1423.56 | 564.52 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29040.000 | 480.00 | 0.00 | 0.00 | 627.60 | 1730.00 | 638.00 | 0.00 | 638.04 | 3.46 | 2.40 | 1960.88 | 929.66 |
| 30375.000 | 605.00 | 0.00 | 0.00 | 629.30 | 1730.00 | 638.27 | 0.00 | 638.38 | 8.57 | 3.43 | 1339.04 | 590.95 |
| 31190.000 | 815.00 | 0.00 | 0.00 | 634.80 | 1730.00 | 639.64 | 0.00 | 639.80 | 54.46 | 4.75 | 776.72 | 236.42 |
| 31990.000 | 800.00 | 0.00 | 0.00 | 635.10 | 1630.00 | 642.17 | 0.00 | 642.26 | 17.24 | 3.75 | 1245.23 | 392.62 |
| 32470.000 | 460.00 | 0.00 | 0.00 | 632.20 | 1630.00 | 643.03 | 0.00 | 643.40 | 25.92 | 5.74 | 491.84 | 320.14 |
| 32540.000 | 70.00 | 0.00 | 0.00 | 633.00 | 1630.00 | 643.46 | 0.00 | 643.64 | 12.16 | 6.03 | 663.45 | 467.52 |

UPPER ROUGE LIVONIA CITY

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 22865.000 | 1730.00 | 629.88 | 0.00 | 0.00 | 0.00 | 66.17 | 0.00 |
| 22895.000 | 1730.00 | 629.90 | 0.00 | 0.02 | 0.00 | 66.25 | 30.00 |
| 22935.000 | 1730.00 | 631.55 | 0.00 | 1.65 | 0.00 | 86.02 | 40.00 |
| 22985.000 | 1730.00 | 631.84 | 0.00 | 0.30 | 0.00 | 261.60 | 50.00 |
| 23775.000 | 1730.00 | 632.53 | 0.00 | 0.69 | 0.00 | 212.97 | 790.00 |
| 24852.000 | 1730.00 | 633.47 | 0.00 | 0.94 | 0.00 | 154.47 | 1077.00 |
| 25052.000 | 1730.00 | 633.99 | 0.00 | 0.52 | 0.00 | 147.90 | 200.00 |
| 25108.000 | 1730.00 | 635.13 | 0.00 | 1.14 | 0.00 | 150.14 | 56.00 |
| 25183.000 | 1730.00 | 635.31 | 0.00 | 0.18 | 0.00 | 218.08 | 75.00 |
| 25628.000 | 1730.00 | 635.93 | 0.00 | 0.62 | 0.00 | 348.96 | 445.00 |
| 26038.000 | 1730.00 | 636.35 | 0.00 | 0.42 | 0.00 | 185.09 | 410.00 |
| 26088.000 | 1730.00 | 636.31 | 0.00 | -0.03 | 0.00 | 246.01 | 50.00 |
| 26184.000 | 1730.00 | 636.32 | 0.00 | 0.01 | 0.00 | 246.33 | 96.00 |
| 26234.000 | 1730.00 | 636.69 | 0.00 | 0.36 | 0.00 | 278.58 | 50.00 |
| 26860.000 | 1730.00 | 636.79 | 0.00 | 0.10 | 0.00 | 316.07 | 626.00 |
| 28232.000 | 1730.00 | 637.07 | 0.00 | 0.28 | 0.00 | 234.34 | 1372.00 |
| 28233.000 | 1730.00 | 637.17 | 0.00 | 0.10 | 0.00 | 236.23 | 1.00 |
| 28240.000 | 1730.00 | 637.24 | 0.00 | 0.07 | 0.00 | 237.64 | 7.00 |
| 28241.000 | 1730.00 | 637.22 | 0.00 | -0.03 | 0.00 | 237.11 | 1.00 |
| 28560.000 | 1730.00 | 637.76 | 0.00 | 0.55 | 0.00 | 306.70 | 319.00 |
| 29040.000 | 1730.00 | 638.00 | 0.00 | 0.23 | 0.00 | 339.11 | 480.00 |
| 30375.000 | 1730.00 | 638.27 | 0.00 | 0.28 | 0.00 | 337.93 | 605.00 |
| 31190.000 | 1730.00 | 639.64 | 0.00 | 1.36 | 0.00 | 302.26 | 815.00 |
| 31990.000 | 1630.00 | 642.17 | 0.00 | 2.53 | 0.00 | 269.00 | 800.00 |
| 32470.000 | 1630.00 | 643.03 | 0.00 | 0.86 | 0.00 | 122.17 | 460.00 |
| 32540.000 | 1630.00 | 643.46 | 0.00 | 0.43 | 0.00 | 129.43 | 70.00 |

SUMMARY OF ERRORS

```
**********************************************************
     HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
     ERROR CORR -  01
     MODIFICATION -  50,51,52
**********************************************************
```

```
**************************************************************
*                                                            *
*                    E R R O R   S U M M A R Y               *
*                                                            *
*                                                            *
*       0  ERROR(S) DETECTED BY THE USER PROGRAM             *
*       0  ERROR(S) DETECTED BY THE MATHEMATICAL PACKAGE     *
*       0  ERROR(S) DETECTED FOR INPUT/OUPUT STATEMENTS      *
*                                                            *
**************************************************************
```

MATCH LINE SEE SHEET 2

MATCH LINE SEE SHEET 3

Bryant Jr High Sch

St Mathews Ch

Sunset Park

Meadows Park

Mt Hope Memorial Garden (Cemetery)

Northwest Hebrew Cem

Bethel Memorial Park (Cemetery)

Tarabusi

Wolfrom Dr

Terrace Ct

Bell

Riley Jr High Sch

Madison Sch

Bell Creek

LIVONIA

5 MILE RD.

6 MILE RD.

GMILE RD.

MERRIMAN RD.

MIDDLEBELT RD.

INKSTER RD.

OAK GRV AVE

DEERING AVE

FOCH AVE

GREEN

BM 643

BM 629

635

637

639

640

625

T1

T2

T3

T4

LEGEND

FLOODWAY — 100 YEAR BOUNDARY — 500 YEAR BOUNDARY

CROSS SECTION

CORPORATE LIMIT

COUNTY BOUNDARY

FLOOD MAP

OAKLAND COUNTY

PLYMOUTH TWP

NORTHVILLE TWP

LIVONIA

REDFORD TWP

WESTLAND

DEARBORN HEIGHTS

GARDEN CITY

INKSTER

DEARBORN

WAYNE

VICINITY MAP
NO SCALE

8 MI. RD.

7 MI. RD.

6 MI. RD.

SHT. 4

SHT. 2

SHT. 3

SHT. 1

HAGGERTY RD.

FARMINGTON RD.

MERRIMAN RD.

MIDDLEBELT RD.

WESTERN RD.

JOY RD.

SHEET INDEX MAP

CITY OF LIVONIA

WAYNE COUNTY, MICHIGAN

SCALE: 1"=400'

SHEET 1 of 4

HUD 2014-10

MATCH LINE SEE SHEET 4

MATCH LINE SEE SHEET 1

# CITY OF LIVONIA

WAYNE COUNTY, MICHIGAN

SCALE: 1"=400'

## FLOOD MAP

### LEGEND

FLOODWAY — 100 YEAR BOUNDARY — 500 YEAR BOUNDARY

CROSS SECTION

CORPORATE LIMIT

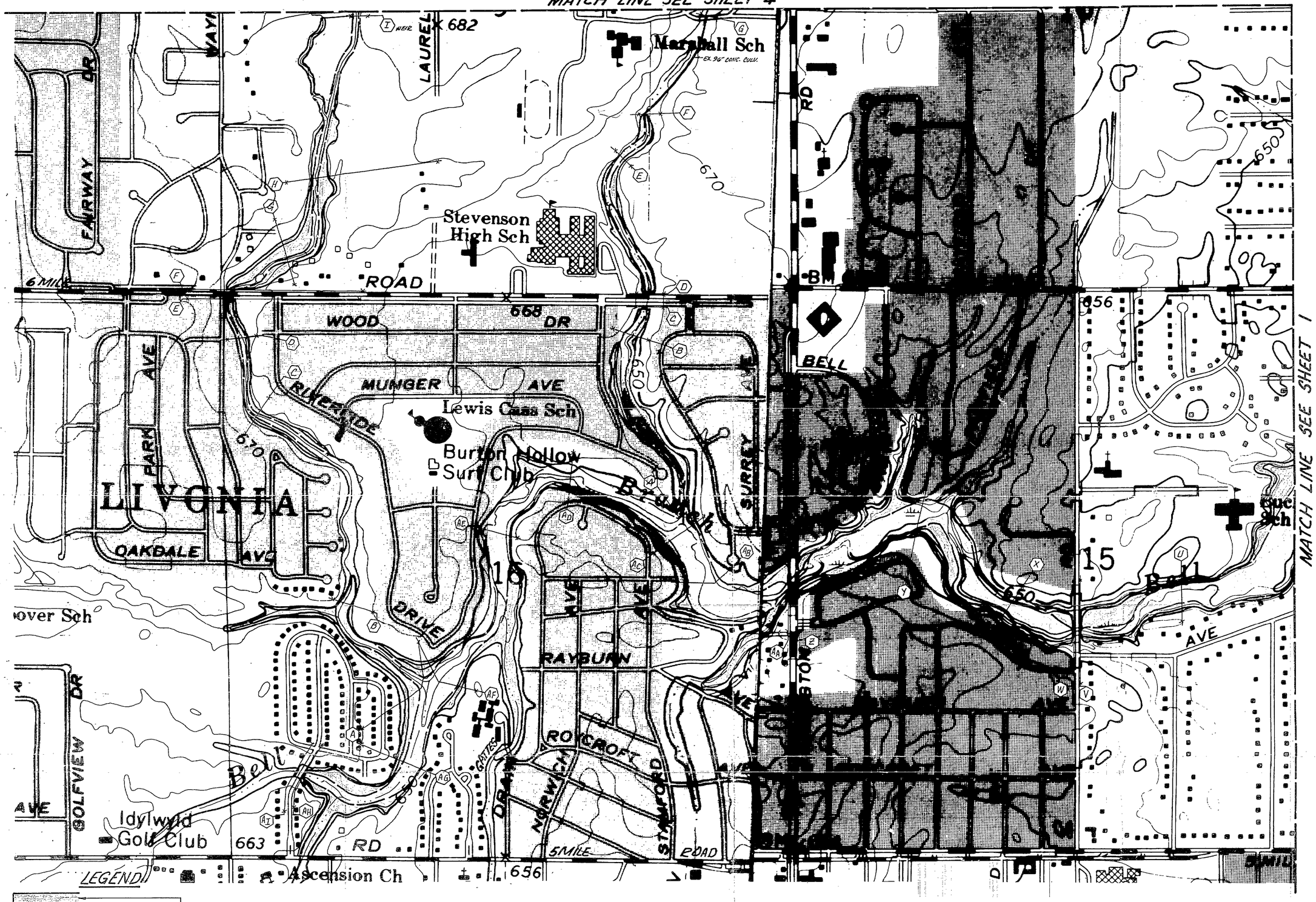
COUNTY BOUNDARY

SHEET 2 of 4

HUD 2014-10

MATCH LINE SEE SHEET 4

MATCH LINE SEE SHEET 1




N

LEGEND

FLOODWAY — 100 YEAR BOUNDARY — 500 YEAR BOUNDARY

A — A CROSS SECTION

CORPORATE LIMIT

COUNTY BOUNDARY

FLOOD MAP

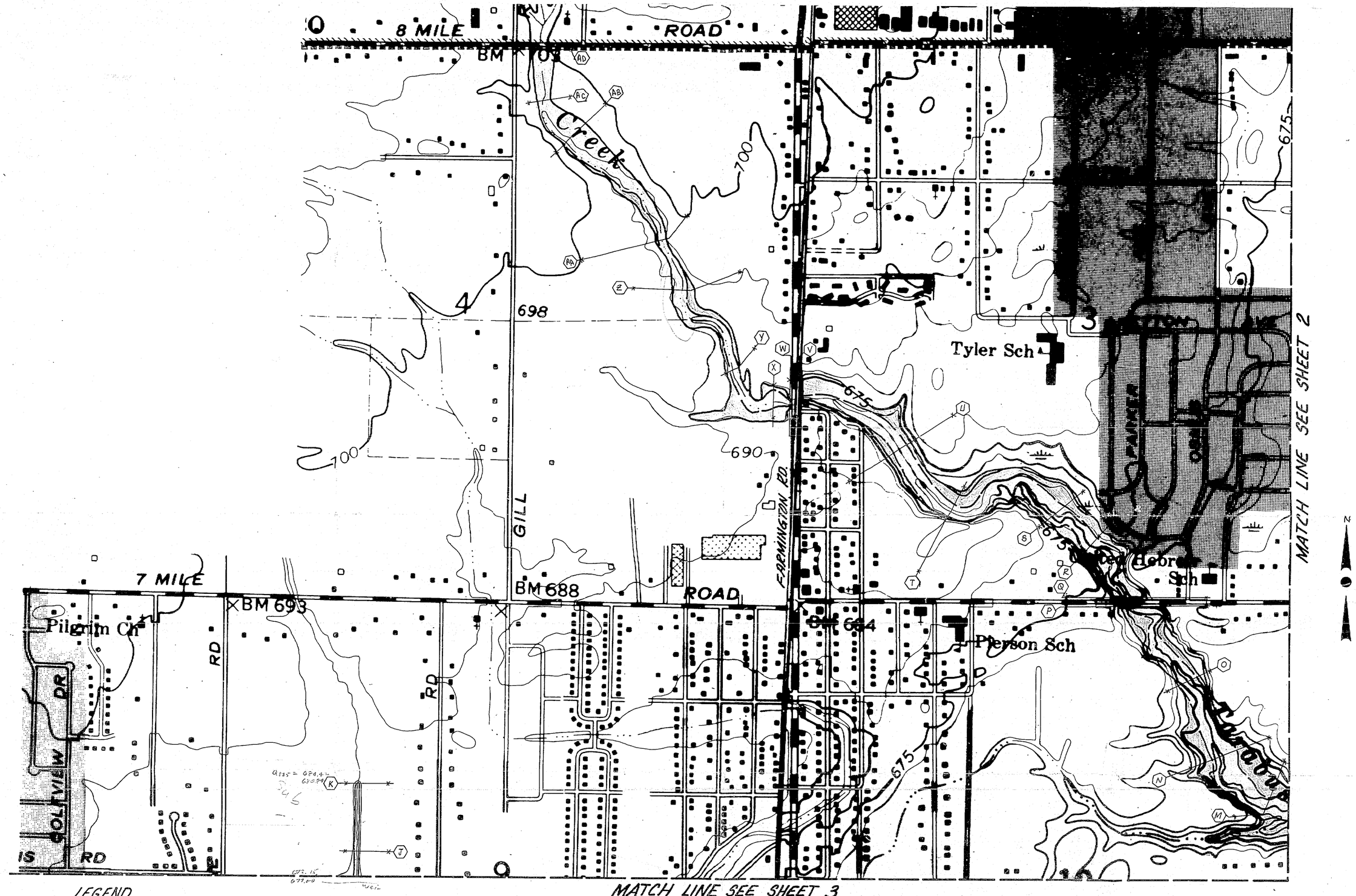
CITY OF LIVONIA

WAYNE COUNTY, MICHIGAN

SCALE: 1" = 400'

SHEET 3 of 4

HUD 2014-10




LEGEND

FLOODWAY — 100 YEAR BOUNDARY — 500 YEAR BOUNDARY

CROSS SECTION
CORPORATE LIMIT
COUNTY BOUNDARY

FLOOD MAP

CITY OF LIVONIA
WAYNE COUNTY, MICHIGAN
SCALE: 1" = 400'

SHEET 4 of 4
HUD 2014-10

1) COUNTY: Wayne

2) STUDY NAME: City of Northville

3) WATERCOURSE: Middle Branch Rouge River and Johnson Drain

4) DOCUMENT TYPE: Floodway

Received 9/79

```
C
T1      CITY OF ROSEVILLE, MN SUB 7906-07
T2      MISC. ROAD STUDY SECTIONS FROM COSER START  S. CROSS ST. TO T.H. 51
T5      MID.ROUGE R. W.VILLE C.

J1  ICHECK   IPO      NINP     IOUT     STPR     METRIC   DUMPS    I        IOPT     EU
          0.       0.       0.       0.  3.000000     0.30      0.5       0.   744.075     3.000

J2  NPROF    IPLOT    PROWS    XSLOW    XSCOH    FN       ALPHA    TMP      CHAIN    ITRACE
        1.000    0.000   -1.000    0.300    0.000    0.000    0.000    5.000    0.000    0.000

J3  JA TABLE CODE FOR SUMMARY PRINTOUT
      130.000  150.000  200.000    0.300    0.000    0.000    0.000    0.000    0.000    0.000

      5.001    0.300    5.000    0.000    1.410    5.000    5.000    5.000    0.000    0.000
      5.100    0.000    0.010    0.100    0.300    1.000    1.000    5.000    0.000    0.000
      0.000 2270.000 3170.000 4640.000 5600.000 6092.000 7610.000    0.000    0.000    0.130

S/S PARK ENTOSE FROM NOVILLE TWP F/S

      5.000    3.300  365.000  465.000    0.300    5.020    5.000    3.000    6.000    3.000
      5.000    0.300    5.000  165.000    0.500  705.000    1.000    3.000    5.000    0.000
      0.000    0.300  275.000  110.000  751.000  162.000   26.000  113.000  762.000    2.000
      1.000  410.300  759.500  425.000  750.000  630.000  757.100  440.000  759.000  465.000
      1.500  480.300  762.000  590.000  765.000  685.000  777.500 1255.000  779.000 1250.000

      300.000    0.300    5.000    0.000  300.000  300.000  300.000    0.000    0.000    0.000
        0.000    0.000    0.000  230.000    0.000  600.000    0.000    0.000    0.000    0.000

      900.000    0.300    0.000    0.000  300.000  300.000  300.000    0.000    0.000    0.000
        0.000    0.300    0.000  505.000    0.000  545.000    0.000    0.000    0.000    0.000
        0.100    0.100    0.025    0.300    0.500    0.300    0.000    0.000    0.000    0.000

      975.000    0.300  575.000  600.000  300.000  375.000  375.000    0.000    0.300    0.000
        0.000    0.300    0.000  545.000    0.000  600.000    0.300    0.300    0.000    0.000
      500.000    0.300  250.000    0.000  300.000  300.000  225.000  350.000  700.000  500.000
      750.000  525.300  750.000  575.000  700.000  705.000  775.000  750.000  750.000  500.000
      750.000  750.300  750.000  600.000  765.000  770.000  775.000  750.000  750.000 1250.000
        0.100    0.100    0.025    0.300    0.500    0.300    0.000    0.000    0.000    0.000
```

FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

D/S FACE 7 MILE RD. BRIDGE CORPS C.S.#31

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1023.000 | 16.000 | 975.000 | 1035.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X2 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 775.000 | 775.000 | 0.000 |
| X3 | 990.000 | 0.000 | 771.000 | 20.000 | 771.000 | 770.500 | 770.500 | 940.000 | 765.000 | 940.000 |
| X4 | 775.000 | 975.000 | 754.000 | 950.000 | 760.000 | 930.000 | 957.400 | 1055.000 | 760.000 | 1024.000 |
| X5 | 995.000 | 1025.000 | 775.000 | 1035.000 | 767.500 | 1140.000 | 765.000 | 1247.000 | 765.000 | 1247.000 |
| X6 | 775.000 | 1690.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X7 | 1.050 | 1.500 | 3.000 | 0.000 | 25.000 | 2.000 | 691.570 | 1.170 | 757.400 | 757.400 |

D/S FACE 7 MILE RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1078.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 775.000 | 775.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 775.000 | 775.000 | 0.000 |
| X4 | 5.000 | 1240.000 | 1615.000 | 1650.000 | 1650.000 | 2490.000 | 1005.000 | 0.000 | 0.000 | 0.000 |

D/S NORTHVILLE DOUNS BOX CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1113.000 | 12.000 | 959.000 | 1011.000 | 35.000 | 45.000 | 75.000 | 0.000 | 0.000 | 0.000 |
| X2 | 10.000 | 1.000 | 0.000 | 965.000 | 0.000 | 1045.000 | 0.000 | 769.000 | 769.000 | 0.000 |
| X3 | 980.000 | 0.000 | 771.000 | 20.000 | 771.000 | 770.000 | 770.000 | 940.000 | 765.000 | 940.000 |
| X4 | 767.000 | 989.000 | 767.000 | 1013.000 | 766.500 | 1.45.000 | 767.000 | 1140.000 | 765.000 | 1247.000 |
| X5 | 766.000 | 1660.000 | 775.000 | 1690.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X6 | 0.100 | 0.170 | 0.340 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE TIMES ST. BRIDGE CORPS C.S.#35

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2163.000 | 16.000 | 316.000 | 342.000 | 1050.000 | 1050.000 | 1050.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 777.200 | 778.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 205.000 | 0.000 | 365.000 | 0.000 | 775.000 | 775.000 | 0.000 |
| X4 | 0.000 | 0.000 | 779.250 | 775.000 | 779.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X5 | 0.000 | 0.000 | 0.000 | 0.000 | 318.000 | 370.000 | 0.000 | 315.000 | 775.000 | 775.000 |
| X6 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X7 | 770.500 | 777.000 | 342.000 | 778.800 | 777.200 | 242.000 | 774.000 | 0.000 | 695.000 | 761.500 |
| X8 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X9 | 770.250 | 0.000 | 753.000 | 0.000 | 779.000 | 120.000 | 778.500 | 295.000 | 773.500 | 307.300 |
| X10 | 770.000 | 777.000 | 770.000 | 777.000 | 770.000 | 774.000 | 777.000 | 0.000 | 765.000 | 842.000 |
| X11 | 770.000 | 0.000 | 775.000 | 0.000 | 772.000 | 0.000 | 0.000 | 550.000 | 775.000 | 0.000 |
| X12 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S ST U/S RIVER ST. BRIDGE CORPS C.S.#36

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3.000 | 17.000 | 60.000 | 775.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 770.000 | 0.000 | 771.000 | 0.000 | 771.000 | 50.000 | 775.000 | 50.000 | 775.000 | 50.000 |
| X4 | 770.000 | 53.000 | 770.000 | 125.000 | 775.000 | 125.000 | 775.000 | 0.000 | 775.000 | 335.000 |
| X5 | 775.000 | 343.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

PRINTED IN U.S.A.
FORM 1411-00 PRINTED BY ROTARY MANIFOLD FORMS.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2863.000 | 10.000 | 108.000 | 140.000 | 305.000 | 350.000 | 350.300 | 0.000 | 0.000 | 0.000 |
| GR | 790.500 | 0.000 | 790.000 | 95.000 | 785.000 | 105.000 | 776.300 | 100.000 | 775.800 | 120.000 |
| G | 777.500 | 140.000 | 737.500 | 170.000 | 789.000 | 130.000 | 789.300 | 460.000 | 791.000 | 570.000 |

[illegible] FACE MAIN ST. BRIDGE [illegible] CORPS C.S.456

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2963.000 | 10.000 | 210.000 | 240.000 | 105.000 | 100.000 | 100.000 | 0.707 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 788.000 | 788.000 | 0.000 |
| GR | 907.000 | 0.000 | 794.000 | 20.000 | 790.000 | 208.000 | 776.500 | 410.000 | 775.900 | 224.000 |
| GR | 775.900 | 130.000 | 775.500 | 240.000 | 790.000 | 241.000 | 762.000 | 370.000 | 787.000 | 390.000 |
| GR | 1.250 | 1.000 | 3.000 | 0.000 | 22.400 | 1.500 | 200.000 | 0.000 | 77.900 | 77.900 |

J/S FACE MAIN ST. BRIDG

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3063.000 | 10.000 | 210.000 | 240.000 | 130.000 | 100.000 | 100.000 | 0.707 | 0.000 | 0.000 |
| GR | 0.000 | 0.000 | 1.000 | 785.400 | 794.300 | 0.000 | 0.000 | 0.000 | 0.707 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 791.000 | 791.000 | 0.000 |
| BT | 11.000 | 0.000 | 807.000 | 0.000 | 20.000 | 794.000 | 0.000 | 210.000 | 791.300 | 0.000 |
| BT | 210.000 | 791.300 | 785.400 | 224.000 | 791.300 | 785.400 | 224.000 | 791.300 | 0.000 | 226.000 |
| BT | 791.300 | 0.000 | 226.000 | 791.300 | 785.400 | 242.000 | 791.300 | 785.400 | 242.000 | 791.300 |
| BT | 0.000 | 791.300 | 787.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 807.000 | 0.000 | 794.500 | 20.000 | 790.000 | 208.000 | 776.500 | 210.000 | 775.900 | 224.000 |
| GR | 775.900 | 226.000 | 776.500 | 240.000 | 790.000 | 241.000 | 762.000 | 370.000 | 787.000 | 390.000 |
| NC | 0.150 | 0.100 | 0.040 | 0.300 | 0.500 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 |

[illegible] FT U/S MAIN ST. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3113.000 | 7.000 | 75.000 | 110.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| GR | 806.000 | 0.000 | 790.000 | 30.000 | 787.500 | 58.000 | 776.000 | 75.000 | 776.000 | 110.000 |
| GR | 787.000 | 127.000 | 800.000 | 150.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

[illegible] U/S [illegible] MOTOR CO. BR [illegible] CORPS C.S.433

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3276.000 | 13.000 | 75.000 | 139.000 | 165.000 | 165.000 | 165.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 66.000 | 0.000 | 165.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

U/S FORD MOTOR CO. BR

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3327.000 | 10.000 | 90.000 | 146.000 | 49.000 | 49.000 | 10.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 806.000 | 0.000 | 799.500 | 30.000 | 789.000 | 65.000 | 783.000 | 80.000 | 776.500 | [illegible] |
| GR | 775.500 | 130.000 | 791.000 | 140.000 | 788.000 | 142.000 | 787.500 | 300.000 | 800.000 | 800.000 |
| BC | 0.000 | 1.500 | 3.000 | 0.000 | 0.100 | 0.300 | 0.100 | 0.000 | 776.500 | 776.500 |

[illegible] STR. CO. 3 [illegible] CORPS C.S.440

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3426.000 | 0.700 | 5.000 | 0.300 | 1.500 | 1.650 | 0.062 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 5.000 | 0.100 | 0.200 | 0.500 | 0.000 | 795.000 | 795.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

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D/S FACE TRUCK BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3672.000 | 9.000 | 475.000 | 525.000 | 344.000 | 344.000 | 344.000 | 0.000 | 0.000 | 0.000 |
| X2 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 790.500 | 790.500 | 0.000 |
| X3 | [illegible] | 0.000 | 790.500 | 475.000 | 787.700 | [illegible] | [illegible] | 495.000 | [illegible] | 516.000 |
| GR | 787.700 | 527.000 | 790.500 | 525.000 | 791.000 | 700.000 | 810.000 | 700.000 | 0.000 | 0.000 |
| SI | 0.000 | 1.560 | 3.000 | 0.000 | 20.000 | 0.000 | 195.000 | 1.500 | 781.100 | 781.100 |

U/S FACE TRUCK BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3684.000 | 0.000 | 0.000 | 0.000 | 12.000 | 12.000 | 12.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 787.700 | 790.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 791.000 | 791.000 | 0.000 |
| GR | 9.000 | 0.000 | [illegible] | 0.000 | 475.000 | 790.500 | 0.000 | 482.000 | 790.500 | 0.000 |
| BI | 482.000 | 790.500 | 787.700 | 527.000 | 790.500 | 787.500 | 522.000 | 790.500 | 0.000 | 525.000 |
| GR | 790.500 | 0.000 | [illegible] | 791.000 | 0.000 | [illegible] | [illegible] | 0.000 | 0.000 | 0.000 |

VALLEY SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3885.000 | 7.000 | 493.000 | 516.600 | 141.000 | [illegible] | [illegible] | 0.000 | -1.800 | 0.000 |
| X2 | 817.500 | 0.000 | 795.000 | 470.000 | 784.600 | 495.000 | 784.600 | 505.000 | 784.600 | 506.600 |
| GR | 785.100 | 516.600 | 794.000 | 530.000 | 793.000 | 680.000 | 796.000 | 830.000 | 801.500 | 920.000 |

U/S FACE CRISWALD ST. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | [illegible] | 10.000 | 493.000 | 516.600 | 140.000 | 140.000 | 140.000 | 0.891 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 791.100 | 791.100 | 0.000 |
| GR | 817.500 | 0.000 | 795.000 | 470.000 | 784.600 | 495.000 | 784.600 | 505.000 | 784.600 | 506.600 |
| GR | 785.100 | 516.600 | 794.000 | 530.000 | 793.000 | 680.000 | 796.000 | 830.000 | 801.500 | 920.000 |
| SO | 1.200 | [illegible] | [illegible] | 0.000 | [illegible] | 1.400 | 116.000 | 0.000 | 784.600 | 784.600 |

U/S FACE CRISWALD ST. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4028.000 | 10.000 | 495.000 | 516.600 | 63.000 | 63.000 | 63.000 | 0.891 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 791.100 | 794.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 430.000 | 0.000 | [illegible] | 0.000 | 794.500 | 794.500 | 0.000 |
| GR | [illegible] | 0.000 | [illegible] | 0.000 | 470.000 | [illegible] | 0.000 | 495.000 | [illegible] | 0.000 |
| BI | 493.000 | 794.500 | 791.100 | 505.000 | 794.500 | 791.100 | 505.000 | 794.500 | 0.000 | 506.600 |
| BI | 794.500 | 0.000 | 506.600 | 794.500 | 791.100 | 516.600 | 794.500 | 791.100 | 516.600 | 794.500 |
| BI | 0.000 | 530.000 | 794.500 | 0.000 | 680.000 | 794.500 | 0.000 | 830.000 | 796.000 | 0.000 |
| BI | 920.000 | [illegible] | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 17.300 | 0.000 | 794.000 | 470.000 | 784.600 | 495.000 | 784.600 | 505.000 | 784.600 | 506.600 |
| GR | 785.100 | 516.600 | 792.500 | 530.000 | 793.000 | 680.000 | 796.000 | 830.000 | 801.500 | 920.000 |
| SO | 0.100 | 0.100 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

[illegible] CORES C.S.942

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | [illegible] | [illegible] | [illegible] | [illegible] | 50.000 | [illegible] | 10.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 300.000 | 0.000 | [illegible] | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 817.500 | 0.000 | 803.000 | 200.000 | 796.000 | [illegible] | 794.000 | 410.000 | 765.000 | 430.000 |
| GR | 784.500 | 440.000 | 796.000 | 430.000 | 792.500 | [illegible] | 794.000 | 775.000 | 802.000 | 10.000 |

[illegible]

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4475.000 | 10.000 | 430.000 | 430.000 | [illegible] | [illegible] | 400.000 | 0.000 | 0.000 | 0.000 |
| GR | [illegible] | 0.000 | [illegible] | [illegible] | [illegible] | [illegible] | 795.000 | [illegible] | [illegible] | [illegible] |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 788.100 | 440.000 | 789.800 | 650.000 | 794.000 | 400.000 | 800.000 | 615.000 | 810.000 | 655.000 |
| QT | 5.000 | 1040.000 | 1590.000 | 1820.000 | 1820.000 | 2460.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 9.100 | 0.000 | 0.000 | 0.000 | 417.440 | 480.960 |

50 FT D/S MILL POND DAM — CORPS C.S.#43

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4858.000 | 11.000 | 425.000 | 480.000 | 300.000 | 500.000 | 380.000 | 0.000 | 0.000 | 0.000 |
| GR | 870.000 | 0.000 | 800.000 | 100.000 | 802.000 | 410.000 | 794.000 | 425.000 | 794.000 | 440.000 |
| GR | 792.000 | 450.000 | 796.000 | 460.000 | 794.000 | 400.000 | 803.000 | 500.000 | 805.000 | 550.000 |
| GR | 807.000 | 375.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 9.100 | 9.100 | 9.100 | 9.100 | 9.100 | 0.000 | 0.000 | 334.000 | 396.000 |

D/S MILL POND DAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4907.000 | 11.000 | 334.000 | 396.000 | 49.000 | 45.000 | 45.000 | 0.000 | 0.000 | 0.000 |
| GR | 810.000 | 0.000 | 803.000 | 100.000 | 804.000 | 200.000 | 804.000 | 334.000 | 795.000 | 335.000 |
| GR | 794.000 | 340.000 | 794.000 | 330.000 | 799.000 | 355.000 | 804.000 | 396.000 | 805.000 | 450.000 |
| GR | 807.000 | 480.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SD | 0.000 | 1.500 | 2.800 | 0.000 | 0.100 | 0.000 | 0.100 | 0.000 | 794.000 | 794.000 |

MILL POND [illegible] — CORPS C.S.#44

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4908.000 | 1.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 0.000 | 801.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 12.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 810.000 | 810.000 | 0.000 |
| BT | 6.000 | 1.000 | 815.000 | 0.000 | 334.000 | 810.000 | 1.000 | 335.000 | 801.000 | 0.000 |
| S1 | 395.000 | 801.000 | 0.000 | 396.000 | 810.000 | 0.000 | 400.000 | 810.000 | 0.000 | 0.000 |
| NC | 0.100 | 0.100 | 0.025 | 0.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

MILL POND — CORPS C.S.#45

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | [illegible] | [illegible] | [illegible] | 320.000 | 400.000 | 400.000 | [illegible] | 0.000 | 0.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 0.000 | [illegible] | [illegible] |
| GR | 502.000 | 300.000 | [illegible] | 320.000 | 815.000 | 360.000 | 316.500 | 460.000 | 819.000 | 510.000 |
| NC | 0.000 | 0.080 | 0.040 | 0.600 | 0.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

[illegible]

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5923.000 | 6.000 | 90.000 | 250.000 | 620.000 | 620.000 | 620.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 810.000 | 810.000 | 0.000 |
| GR | 830.000 | 0.000 | 810.000 | 50.000 | 800.000 | 90.000 | 800.000 | 250.000 | 805.000 | 280.000 |
| GR | 815.000 | 390.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 1.000 |

50 FT D/S C.O. R.R. BRIDGE #1

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5078.000 | 12.000 | 270.000 | 290.000 | 150.000 | 150.000 | 150.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | 257.500 | 0.000 | [illegible] | [illegible] | 0.000 | 0.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 809.000 | 590.000 | [illegible] | 300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

[illegible] — CORPS C.S.#46

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | 250.000 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 815.000 | 815.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | 50.000 | [illegible] | [illegible] | 306.000 | 200.000 | 799.000 | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SR | 798.400 | 240.000 | 798.500 | 242.000 | 798.600 | 244.000 | 798.700 | 246.000 | 798.800 | 248.000 |
| SF | 796.900 | 250.000 | 802.500 | 251.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.630 | 3.300 | 0.000 | 15.300 | 0.000 | 150.300 | 0.000 | 796.400 | 798.400 |

U/S EAST SIDE, S.W. QUEUE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5176.000 | 0.300 | 0.300 | 0.300 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.300 | 1.300 | 800.200 | 813.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.300 | 0.300 | 0.300 | 1.000 | 0.000 | 0.000 | 815.000 | 815.000 | 0.000 |
| [illegible] | 11.000 | 0.200 | 813.700 | 0.300 | 50.000 | 313.700 | 0.000 | 50.000 | 813.700 | 0.000 |
| [illegible] | 360.000 | 255.700 | 0.300 | 255.300 | 813.700 | 50.000 | 298.000 | 813.700 | 0.000 | 258.000 |
| [illegible] | 813.700 | 813.300 | 332.300 | 555.700 | 000.000 | 258.000 | 813.700 | 806.200 | 256.000 | 311.300 |
| [illegible] | 807.000 | 758.300 | 813.700 | 808.300 | 240.000 | 813.700 | 308.200 | 242.000 | 813.700 | 308.000 |
| [illegible] | 244.000 | 805.700 | 807.000 | 246.000 | 813.700 | 306.200 | 246.000 | 813.700 | 805.000 | 257.000 |
| [illegible] | 813.700 | 802.700 | 250.000 | 813.700 | 0.000 | 251.000 | 812.700 | 0.000 | 0.000 | 0.000 |

[illegible] S.W. [illegible] SOUTH S.W. EAST

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5224.000 | 12.300 | 270.000 | 220.300 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.300 | 0.000 | 215.300 | 0.000 | 335.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | 68.[illegible] | [illegible].10 | [illegible] | 50.300 | 813.500 | 101.000 | 312.000 | [illegible].000 | 805.000 | 250.000 |
| [illegible] | [illegible] | [illegible].30 | [illegible].70 | 220.300 | 0.000 | [illegible] | [illegible].000 | 300.000 | 301.500 | 301.000 |
| [illegible] | [illegible] | [illegible].30 | [illegible] | 70.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| [illegible] | 0.120 | 0.170 | 0.[illegible] | 0.300 | 0.540 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | 0.000 | 0.[illegible] | 0.[illegible] | 7.100 | 7.100 | 7.100 | 215.000 | 450.000 | 299.300 | 597.1 |

[illegible] STEEL

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | 15.300 | 335.000 | 359.000 | [illegible].000 | 700.000 | 922.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | 0.000 | 0.300 | 320.000 | 50.300 | 813.000 | 120.000 | 306.900 | 150.000 | 806.000 | 247.000 |
| [illegible] | 805.000 | 733.700 | 302.300 | 338.300 | 801.700 | 342.000 | 801.300 | 356.000 | 803.300 | 359.000 |
| [illegible] | [illegible] | [illegible] | [illegible].[illegible] | 526.300 | [illegible].[illegible] | [illegible].000 | [illegible].000 | 556.000 | 812.[illegible] | [illegible] |

[illegible] [illegible] [illegible] FIELD [illegible] STA. 25+18

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 340.[illegible] | 12.000 | 224.650 | 261.[illegible] | 500.000 | 120.300 | 150.[illegible] | 0.200 | 0.000 | 0.000 |
| [illegible] | [illegible].[illegible] | [illegible].000 | [illegible] | [illegible].000 | 0.000 | [illegible].[illegible] | [illegible].[illegible] | 824.900 | [illegible].[illegible] | 0.000 |
| [illegible] | 120.[illegible] | [illegible].000 | 805.[illegible] | 15.000 | 300.000 | 54.[illegible] | [illegible].[illegible] | 15.[illegible] | [illegible].[illegible] | 5.000 |
| [illegible] | [illegible].[illegible] | [illegible].[illegible] | 605.[illegible] | 325.[illegible] | 502.700 | [illegible].[illegible] | [illegible].[illegible] | [illegible].[illegible] | [illegible].[illegible] | [illegible].[illegible] |
| [illegible] | 502.[illegible] | 160.000 | [illegible].000 | 361.000 | 0.300 | [illegible].000 | [illegible].[illegible] | [illegible].[illegible] | [illegible].000 | 0.000 |
| [illegible] | 0.[illegible] | [illegible].[illegible] | [illegible].000 | [illegible].000 | 23.700 | [illegible].[illegible] | 114.000 | [illegible].[illegible] | [illegible].[illegible] | 852.[illegible] |

[illegible] [illegible] [illegible] [illegible] FIELD BOX [illegible], 2+30

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | 0.300 | 0.300 | 0.300 | [illegible].[illegible] | [illegible].000 | [illegible].000 | [illegible].000 | 0.000 | 0.000 |
| [illegible] | [illegible] | 0.[illegible] | .300 | [illegible].[illegible] | [illegible].[illegible] | [illegible].000 | 0.000 | [illegible].000 | [illegible].000 | 0.000 |
| [illegible] | [illegible] | [illegible] | 0.300 | [illegible].[illegible] | [illegible] | 3.[illegible].000 | 0.000 | [illegible].[illegible] | [illegible].[illegible] | [illegible].000 |
| [illegible] | [illegible] | [illegible] | [illegible].300 | [illegible].[illegible] | [illegible] | [illegible] | 0.300 | [illegible].000 | 83.[illegible] | 0.000 |
| [illegible] | [illegible].[illegible] | 0.[illegible] | [illegible].[illegible] | 361.[illegible] | [illegible].[illegible] | [illegible].[illegible] | [illegible].[illegible] | [illegible].[illegible] | [illegible].[illegible] | 554.[illegible] |
| [illegible] | [illegible] | [illegible] | [illegible].[illegible] | [illegible].[illegible] | [illegible].[illegible] | [illegible].[illegible] | [illegible].[illegible] | [illegible].300 | [illegible] | 0.000 |

[illegible] [illegible] [illegible] FIELD INLET ST. 25+00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

53 FT D/S C.O. R.R. BRIDGE #2 FIELD BOOK STA. 22+50

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7868.000 | 13.000 | 551.200 | 569.000 | 350.000 | 350.200 | 350.200 | 0.000 | 0.200 | 0.200 |
| X3 | 0.200 | 0.000 | 0.200 | 553.000 | 0.000 | 551.000 | 0.200 | 0.200 | 0.200 | 0.200 |
| GR | 830.000 | 0.000 | 822.200 | 20.000 | 814.700 | 260.000 | 813.100 | 360.000 | 812.700 | 400.000 |
| GT | 807.700 | 423.000 | 806.800 | 548.000 | 806.000 | 551.000 | 805.700 | 560.000 | 806.000 | 569.000 |
| GT | 811.700 | 573.000 | 813.400 | 602.000 | 840.000 | 603.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE C.O. R.R. BRIDGE #2 FIELD BOOK STA. 21+97

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7921.000 | 13.000 | 546.500 | 573.500 | 53.000 | 53.200 | 53.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 816.300 | 816.300 | 0.000 |
| GR | 830.000 | 0.000 | 822.000 | 20.000 | 814.700 | 260.000 | 813.100 | 360.000 | 812.700 | 400.000 |
| GT | 807.700 | 423.000 | 806.000 | 546.500 | 806.000 | 552.300 | 806.000 | 561.500 | 807.300 | 573.500 |
| GT | 811.700 | 574.000 | 813.000 | 603.000 | 840.000 | 595.300 | 0.000 | 0.000 | 0.200 | 0.000 |
| GT | 1.284 | 1.840 | 30.000 | 0.200 | 27.000 | 3.000 | 145.000 | 0.000 | 806.300 | 876.000 |

U/S FACE C.O. R.R. BRIDGE #2 FIELD BOOK STA. 21+55

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7865.000 | 13.000 | 0.000 | 0.000 | 44.000 | 44.000 | 44.000 | 0.000 | 0.200 | 0.000 |
| X3 | 0.000 | 0.200 | 1.000 | 811.700 | 819.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X5 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 820.000 | 820.000 | 0.000 |
| GT | 14.000 | 0.200 | 840.000 | 0.000 | 20.000 | 822.000 | 0.000 | 260.000 | 820.000 | 0.000 |
| GT | 360.000 | 812.700 | 0.000 | 546.500 | 819.200 | 0.000 | 546.500 | 819.200 | 811.700 | 558.500 |
| GT | 819.200 | 811.700 | 558.500 | 819.200 | 0.000 | 561.500 | 819.200 | 0.000 | 561.500 | 819.200 |
| GT | 811.700 | 573.500 | 819.200 | 811.700 | 573.500 | 819.200 | 0.000 | 573.000 | 819.200 | 0.000 |
| GT | 575.000 | 847.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.200 | 0.000 |
| GC | 0.100 | 3.100 | 0.035 | 0.300 | 8.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

153 FT U/S C.O. R.R. BRIDGE #2 FIELD BOOK STA. 20+00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7813.200 | 13.000 | 557.000 | 573.000 | 60.200 | 57.000 | 141.200 | 0.200 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 275.000 | 0.000 | 325.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 830.000 | 0.000 | 814.700 | 3.000 | 813.900 | 102.000 | 309.100 | 200.000 | 809.400 | 287.000 |
| GT | 807.000 | 293.000 | 806.600 | 330.000 | 806.700 | 307.000 | 808.600 | 313.000 | 810.200 | 326.000 |
| GT | 329.000 | 347.000 | 330.300 | 425.000 | 821.000 | 340.000 | 0.000 | 0.000 | 0.200 | 0.000 |
| GC | 0.100 | 3.100 | 0.035 | 0.300 | 8.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

33 FT D/S 8 FILE 10. CULVERT FIELD BOOK STA. 16+00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8316.000 | 14.200 | 307.000 | 333.000 | 125.000 | 250.000 | 400.000 | 0.000 | 0.200 | 0.000 |
| X3 | 0.000 | 0.100 | 0.000 | 297.000 | 1.000 | 301.000 | 0.000 | 0.000 | 0.200 | 0.000 |
| GR | 828.000 | 41.900 | 816.000 | 20.200 | 814.500 | 90.000 | 812.400 | 120.000 | 811.400 | 240.000 |
| GT | 811.700 | 307.200 | 807.700 | 312.000 | 807.800 | 320.000 | 305.100 | 326.000 | 810.000 | 331.000 |
| GT | 811.900 | 338.200 | 321.000 | 456.000 | 822.200 | 491.000 | 850.000 | 1041.000 | 0.000 | 0.000 |

U/S FACE 10. CULVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8565.000 | 13.200 | 0.200 | 44.000 | 37.000 | 37.000 | 37.000 | 0.000 | 0.000 | 0.200 |
| GT | 140.000 | 2.100 | 811.700 | 0.000 | 307.100 | 2.200 | 115.700 | 4.000 | 827.100 | 10.200 |
| GT | 670.700 | 19.000 | 806.700 | 29.000 | 809.200 | 37.200 | 809.500 | 40.200 | 840.000 | 41.000 |
| GC | 0.200 | 5.137 | 0.230 | 2.850 | 0.500 | 0.200 | 0.200 | 0.200 | 0.000 | 1.700 |

U/S FACE 8' FILE RD. CULVERT FIELD BOOK STA. 15+82

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8569.000 | 13.200 | 0.200 | 44.000 | 44.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

PRINTED IN U.S.A.
FORM 141-GB-PRINTED BY ROTARY MANIFOLD FORMS.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 67.000 | 0.000 | 840.000 | 0.000 | 0.000 | 840.000 | 811.700 | 0.500 | 840.000 | 814.200 |
| BT | 1.000 | 840.000 | 815.000 | 2.000 | 340.000 | 816.100 | 3.000 | 840.000 | 816.800 | 4.000 |
| BT | 840.000 | 817.400 | 5.300 | 840.000 | 817.600 | 6.600 | 840.000 | 817.700 | 7.000 | 840.000 |
| BT | 817.600 | 8.000 | 840.000 | 817.400 | 9.000 | 840.000 | 816.800 | 10.000 | 840.000 | 816.100 |
| BT | 11.000 | 840.000 | 815.000 | 11.500 | 340.000 | 814.200 | 12.000 | 840.100 | 811.700 | 10.000 |
| BT | 840.000 | 811.700 | 16.500 | 840.000 | 814.200 | 17.000 | 840.000 | 815.000 | 20.000 | 840.000 |
| BT | 816.100 | 21.000 | 840.000 | 815.800 | 22.000 | 840.000 | 817.400 | 23.000 | 840.000 | 817.600 |
| BT | 24.000 | 840.000 | 817.700 | 25.000 | 840.000 | 817.500 | 26.000 | 840.000 | 817.400 | 27.000 |
| BT | 840.000 | 816.800 | 28.000 | 840.000 | 816.100 | 29.000 | 840.000 | 815.000 | 29.500 | 840.000 |
| BT | 814.200 | 30.000 | 840.000 | 811.700 | 36.000 | 840.000 | 811.700 | 36.500 | 840.000 | 816.200 |
| BT | 37.000 | 840.000 | 815.000 | 38.000 | 840.000 | 816.100 | 39.000 | 840.000 | 816.800 | 40.000 |
| BT | 840.000 | 817.400 | 41.000 | 840.000 | 817.600 | 42.000 | 841.000 | 817.700 | 43.000 | 840.000 |
| BT | 817.600 | 44.000 | 840.000 | 817.400 | 45.000 | 840.000 | 816.800 | 46.000 | 840.000 | 816.100 |
| BT | 47.000 | 840.000 | 815.000 | 47.500 | 840.000 | 814.200 | 48.000 | 840.000 | 811.700 | 48.000 |
| BT | 840.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 840.000 | 0.000 | 811.700 | 0.000 | 809.100 | 0.500 | 808.300 | 1.000 | 807.100 | 2.000 |
| GR | 807.100 | 3.000 | 806.000 | 4.000 | 805.800 | 5.000 | 806.700 | 6.000 | 805.800 | 7.000 |
| GR | 806.000 | 9.000 | 806.500 | 9.000 | 807.100 | 10.000 | 808.300 | 11.000 | 809.100 | 11.500 |
| GR | 811.700 | 13.000 | 807.700 | 13.000 | 809.100 | 14.500 | 808.700 | 19.000 | 809.100 | 20.000 |
| GR | 808.700 | 21.000 | 808.700 | 22.000 | 808.700 | 23.500 | 808.700 | 24.000 | 808.700 | 25.000 |
| GR | 808.700 | 26.000 | 808.700 | 27.000 | 808.700 | 28.000 | 808.700 | 29.000 | 809.100 | 29.500 |
| GR | 811.700 | 30.000 | 811.700 | 35.000 | 809.500 | 36.500 | 809.500 | 37.500 | 809.500 | 38.500 |
| GR | 809.500 | 39.000 | 809.500 | 40.000 | 809.300 | 41.500 | 810.500 | 42.500 | 809.500 | 43.000 |
| GR | 810.500 | 44.000 | 809.500 | 45.000 | 809.100 | 46.500 | 809.500 | 47.000 | 809.500 | 47.500 |
| GR | 811.700 | 48.000 | 810.100 | 48.000 | 0.000 | 0.500 | 0.000 | 0.000 | 0.000 | 1.000 |

U/S FACE N MILE RD. CULVERT FIELD BOOK STA. 1+00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 3671.300 | 67.000 | 0.000 | 45.000 | 255.000 | 253.300 | 255.000 | 0.500 | 0.000 | 0.000 |
| BT | 67.000 | 0.000 | 840.000 | 0.000 | 0.000 | 842.300 | 0.000 | 0.500 | 840.000 | 815.000 |
| BT | 1.000 | 840.000 | 816.000 | 2.000 | 340.000 | 807.100 | 3.000 | 840.000 | 817.600 | 4.000 |
| BT | 840.000 | 818.300 | 5.000 | 840.000 | 816.500 | 6.500 | 840.000 | 818.600 | 7.000 | 840.000 |
| BT | 818.500 | 8.000 | 840.000 | 818.300 | 9.000 | 840.000 | 817.600 | 10.000 | 840.000 | 817.100 |
| BT | 11.000 | 840.000 | 816.000 | 11.500 | 340.000 | 814.200 | 12.000 | 840.100 | 812.600 | 10.000 |
| BT | 840.000 | 812.600 | 20.000 | 840.000 | 815.300 | 19.500 | 840.000 | 815.000 | 20.000 | 840.000 |
| BT | 817.100 | 21.000 | 840.000 | 817.800 | 22.000 | 840.000 | 817.400 | 23.000 | 840.000 | 815.000 |
| BT | 24.000 | 840.000 | 813.600 | 25.000 | 840.000 | 818.500 | 26.000 | 840.000 | 818.300 | 27.000 |
| BT | 840.000 | 817.000 | 29.000 | 840.000 | 817.100 | 29.000 | 840.000 | 816.000 | 29.500 | 840.000 |
| BT | 815.000 | 30.000 | 840.000 | 812.600 | 36.000 | 840.000 | 812.600 | 36.500 | 840.000 | 815.000 |
| BT | 37.000 | 840.000 | 815.000 | 38.000 | 840.000 | 817.100 | 39.000 | 840.000 | 817.000 | 40.000 |
| BT | 840.000 | 816.800 | 41.000 | 840.000 | 816.100 | 42.000 | 840.000 | 815.000 | 42.000 | 840.000 |
| BT | 814.200 | 44.000 | 840.000 | 812.600 | 45.000 | 840.000 | 812.600 | 46.000 | 840.000 | 812.100 |
| BT | 47.000 | 840.000 | 815.000 | 47.500 | 840.000 | 815.000 | 48.000 | 840.000 | 812.600 | 48.000 |
| BT | 840.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 840.000 | 0.000 | 812.600 | 0.000 | 810.200 | 0.500 | 809.200 | 1.000 | 808.400 | 2.000 |
| GR | 807.100 | 3.000 | 807.500 | 4.000 | 807.500 | 5.000 | 807.200 | 6.000 | 807.500 | 7.000 |
| GR | 807.500 | 9.000 | 807.500 | 9.000 | 808.100 | 10.000 | 809.200 | 11.000 | 810.200 | 11.500 |
| GR | 812.600 | 13.000 | 809.500 | 13.000 | 810.000 | 16.500 | 810.300 | 19.000 | 810.700 | 20.000 |
| GR | 810.000 | 21.000 | 810.000 | 22.000 | 810.000 | 23.000 | 810.200 | 24.000 | 810.000 | 25.000 |
| GR | 810.000 | 26.000 | 810.000 | 27.000 | 810.000 | 28.000 | 810.000 | 29.000 | 810.000 | 29.500 |
| GR | 812.600 | 30.000 | 812.600 | 36.000 | 810.200 | 36.500 | 809.600 | 37.500 | 809.000 | 38.500 |
| GR | 809.000 | 39.000 | 809.000 | 40.000 | 809.000 | 41.500 | 809.000 | 42.500 | 809.000 | 43.000 |
| GR | 809.000 | 44.000 | 809.000 | 45.000 | 809.000 | 46.500 | 809.000 | 47.000 | 810.200 | 47.500 |
| GR | 812.600 | 48.000 | 812.600 | 48.000 | 0.000 | 0.500 | 0.000 | 0.000 | 0.000 | 1.000 |
| GR | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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FORM 1411 GB PRINTED BY ROTARY MANIFOLD FORMS.

107 FT D/S 8 MILE RD. CULVERT FIELD BOOK STA. 12+00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8918.000 | 14.000 | 441.000 | 431.300 | 104.000 | 104.000 | 104.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 367.000 | 0.000 | 585.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SF | 825.500 | 0.000 | 819.400 | 800.000 | 819.800 | 846.000 | 812.700 | 846.000 | 817.500 | 424.000 |
| SP | 804.600 | 846.000 | 805.400 | 446.700 | 828.600 | 691.000 | 810.100 | 851.600 | 813.400 | 817.000 |
| GP | 813.400 | 546.000 | 813.900 | 646.000 | 821.200 | 691.000 | 630.000 | 953.000 | 0.000 | 0.000 |
| VC | 0.080 | 0.080 | 0.040 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SCOTIA FIELD BOOK STA. 0+58

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9453.000 | 13.000 | 401.000 | 419.000 | 800.600 | 400.000 | 535.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 255.000 | 0.000 | 565.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SF | 823.500 | 0.000 | 818.200 | 200.000 | 810.000 | 290.000 | 814.300 | 316.000 | 812.900 | 397.000 |
| SP | 810.100 | 401.000 | 810.000 | 410.000 | 810.700 | 419.000 | 813.100 | 423.000 | 815.000 | 557.000 |
| GP | 123.400 | 813.000 | 424.500 | 654.000 | 830.200 | 760.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| VC | 0.100 | 0.000 | 0.040 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

36.5 FT D/S NEW HOVE RD. BRIDGE FIELD BOOK STA. 2+00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9914.000 | 13.000 | 952.100 | 931.300 | 125.000 | 60.000 | 463.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 902.300 | 0.000 | 960.500 | 0.000 | 0.000 | 0.000 | 0.000 |
| GP | 350.000 | 0.000 | 819.700 | 740.300 | 818.000 | 792.000 | 819.900 | 812.000 | 817.200 | 875.000 |
| GP | 816.300 | 903.000 | 812.200 | 912.300 | 810.500 | 922.000 | 812.700 | 951.000 | 818.000 | 945.000 |
| GP | 817.300 | 984.000 | 819.300 | 1040.000 | 830.000 | 2240.000 | 0.000 | 0.000 | 0.000 | 0.000 |

D/S FACE OF NEW HOVE RD. BRIDGE FIELD BOOK STA. 1+44.5

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9973.500 | 10.000 | 1524.500 | 1575.500 | 55.500 | 55.500 | 55.500 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 823.500 | 823.500 | 0.000 |
| SF | 823.500 | 0.000 | 823.000 | 1560.000 | 820.700 | 1584.900 | 815.900 | 1540.000 | 812.500 | 1541.000 |
| SP | 812.700 | 1530.000 | 813.500 | 1555.000 | 813.500 | 1546.000 | 820.700 | 1525.500 | 830.000 | 2400.000 |
| GP | 1.000 | 0.000 | 1.000 | 0.000 | 21.000 | 2.300 | 235.300 | 1.250 | 870.000 | 870.700 |

U/S FACE NEW HOVE RD. BRIDGE FIELD BOOK STA. 1+07

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10311.000 | 0.200 | 0.000 | 0.000 | 37.300 | 37.300 | 37.300 | 0.300 | 0.300 | 0.300 |
| X2 | 0.000 | 0.000 | 1.000 | 491.200 | 533.500 | 0.000 | 0.300 | 0.300 | 0.300 | 0.100 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.300 | 0.300 | 0.300 | 823.500 | 823.500 | 0.000 |
| SF | 14.000 | 0.000 | 830.000 | 0.000 | 1524.500 | 823.500 | 0.300 | 1524.500 | 823.500 | 821.100 |
| LT | 1540.000 | 823.500 | 821.100 | 1540.000 | 823.500 | 0.000 | 1541.000 | 823.500 | 0.000 | 1541.000 |
| RT | 823.000 | 821.100 | 1559.000 | 823.500 | 821.100 | 1559.300 | 823.500 | 0.000 | 1563.000 | 823.500 |
| GP | 0.400 | 1561.000 | 823.300 | 121.200 | 1575.500 | 823.500 | 821.200 | 1575.500 | 823.500 | 821.200 |
| VC | 3620.200 | 823.000 | 0.000 | 0.300 | 0.300 | 0.300 | 0.300 | 0.000 | 0.000 | 0.000 |

D/S FACE C.O. R.R. BRIDGE #3 FIELD BOOK STA. 0+24

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 11084.000 | 0.300 | 1553.000 | 1567.000 | 77.000 | 75.000 | 53.000 | 0.000 | 0.300 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 823.500 | 823.500 | 0.000 |
| SF | 850.000 | 0.000 | 823.000 | 1533.000 | 812.900 | 1533.000 | 812.900 | 1567.000 | 820.500 | 1567.000 |
| SP | 850.000 | 2420.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GP | 0.000 | 0.000 | 3.000 | 0.000 | 54.000 | 0.000 | 245.000 | 0.300 | 812.900 | 812.900 |

U/S FACE C.O. R.R. BRIDGE #3 FIELD BOOK STA. 0+24

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 13094.000 | 0.000 | 0.300 | 0.300 | 10.000 | 10.000 | 10.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 820.300 | 824.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X3 | 10.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 826.100 | 826.100 | 0.000 |
| BT | 6.000 | 0.000 | 830.300 | 0.000 | 1533.000 | 826.100 | 0.000 | 1533.000 | 829.150 | 821.100 |
| ST | 1567.000 | 826.100 | 820.200 | 1567.000 | 826.100 | 0.000 | 2400.000 | 830.000 | 0.000 | 0.000 |

D/S E . Sock[illegible]

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10103.000 | 0.000 | 1539.300 | 1561.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 0.300 |
| X3 | 10.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.300 | 0.000 | 826.300 | 826.100 | 0.300 |
| BT | 330.000 | 0.000 | 823.700 | 1533.000 | 813.300 | 1539.300 | 812.600 | 1550.300 | 613.100 | 1561.300 |
| ST | 823.100 | 0.000 | 830.300 | 2403.000 | 0.000 | 0.300 | 0.300 | 0.300 | 0.300 | 0.300 |

D/S FACE OLD LOVI RD. BRIDGE FIELD BOOK STA. C+14

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10104.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.300 | 1.000 | 0.000 | 0.300 | 0.300 |
| X3 | 10.000 | 0.300 | 0.000 | 0.300 | 0.000 | 0.000 | 0.000 | 826.100 | 826.100 | 0.000 |
| BT | 6.000 | 0.000 | 830.300 | 0.000 | 1559.000 | 826.100 | 0.300 | 1539.300 | 826.100 | 829.100 |
| ST | 1561.000 | 826.100 | 823.100 | 1561.000 | 826.100 | 0.300 | 2401.000 | 830.100 | 0.000 | 0.300 |

D/S FACE OLD LOVI RD. BRIDGE FIELD BOOK STA. C-14

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10102.300 | 0.000 | 0.300 | 0.000 | 28.000 | 28.300 | 28.000 | 0.300 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.300 | 1.300 | 0.300 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.300 | 0.000 | 0.000 | 0.300 | 0.000 | 826.300 | 826.100 | 0.300 |

D/S OLD LOVI RD.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 10103.000 | 0.000 | 0.300 | 0.000 | 1.000 | 1.01 | 1.300 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.300 | 0.000 | 826.100 | 826.100 | 0.000 |

C.L.E DOOR ST. . U-00 FOR D/S C.L OLD LOVI RD. BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 10102.300 | 0.000 | 831.300 | 402.013 | 26.000 | 28.300 | 27.300 | 0.300 | 0.300 | 0.000 |
| X3 | 0.300 | 0.000 | 0.000 | 389.000 | 0.000 | 415.000 | 0.000 | 0.300 | 0.000 | 0.000 |
| ST | 830.000 | 0.000 | 827.500 | 367.000 | 818.700 | 371.000 | 815.400 | 385.000 | 812.600 | 352.000 |
| BT | 812.700 | 402.000 | 812.000 | 402.000 | 815.300 | 415.000 | 823.900 | 715.000 | 830.000 | 1765.000 |
| X1 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.300 | 0.000 | 0.000 |

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FORM T611 GB PRINTED BY ROTARY MANIFOLD FORMS.

*PROF 1

CCHV= 0.100 CEHV= 0.300

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *SECNO *** | | | | | | | | | |
| SECNO | DEPTH | CWSEL | CRITWS | WSELK | EG | FV | SA | PLOSS | MIN EL BR |
| 1 | 7.61 | FCH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.5 | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | CTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IN2 | ICONT | CORAR | TOPWID | ERDST |
| | | | | | | | | | |
| 3420 ENCROACHMENT STATION= | | 705.0 | 725.0 | TYPE= | 1 | TARGET= | 362.500 | | |

D/S PARK BRIDGE FROM NEVILLE TWP P/S

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.07 | 10.97 | 768.07 | 0.00 | 769.07 | 768.14 | 0.07 | 0.10 | 0.50 | 759.50 |
| 3080. | 1191. | 1277. | 1111. | 1171. | 402. | 1459. | 1. | 0. | 759.00 |
| 0.20 | 5.81 | 3.29 | 0.29 | 0.100 | 0.035 | 0.300 | 0.250 | 758.50 | 187.50 |
| 0.000303 | 0. | 0. | 0. | 0 | 0 | 0 | 0.00 | 560.00 | 7.5.00 |

*SECNO 100.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATION= | | 210.0 | 440.0 | TYPE= | 1 | TARGET= | 430.000 | | |

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 470.30 | 11.13 | 768.17 | 0.00 | 0.20 | 768.30 | 0.17 | 0.13 | 0.03 | 760.40 |
| 3337. | 1308. | 1775. | 1527. | 954. | 369. | 925. | 29. | 3. | 759.90 |
| 0.95 | 1.06 | 4.69 | 1.04 | 0.100 | 0.035 | 0.105 | 0.255 | 758.00 | 230.00 |
| 0.000627 | 300. | 300. | 300. | 2 | 1 | 0 | 0.00 | 430.00 | 660.00 |

*SECNO 400.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3520 ENCROACHMENT STATION= | | 305.0 | 365.0 | TYPE= | 1 | TARGET= | 430.000 | | |

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10.03 | 9.29 | 770.29 | 3.00 | 5.07 | 769.06 | 0.17 | 0.11 | 0.12 | 761.20 |
| 3230. | 844. | 2523. | 365. | 473. | 323. | 467. | 31. | 6. | 760.60 |
| 1.05 | 1.58 | 5.39 | 1.43 | 0.100 | 0.035 | 0.100 | 0.235 | 758.50 | 205.00 |
| 0.001901 | 300. | 300. | 300. | 2 | 0 | 0 | 0.00 | 280.00 | 585.00 |

CCHV= 0.300 CEHV= 0.500

*SECNO 700.000

3800 HW CHANGED MORE THAN HWTOL

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3870 ENCROACHMENT STATION= | | 545.0 | 630.0 | TYPE= | 1 | TARGET= | 90.000 | | |
| 90 FT T/S | | | | | CRIS 3.2.93 | | | | |
| 998.00 | 6.20 | 760.56 | 0.00 | 0.00 | 771.46 | 0.36 | 0.00 | 0.70 | 761.30 |
| 3030. | 761. | 3502. | 417. | 192. | 191. | 137. | 39. | 7. | 764.00 |
| 1.02 | 1.98 | 5.11 | 0.00 | 0.100 | 0.035 | 0.100 | 0.335 | 760.10 | 548.10 |
| 0.000 | 0. | 0. | 0. | 0 | 0 | 0 | 0.00 | 0.00 | 0.00 |

CCHV= 0.300 CEHV= 0.500

*SECNO 1025.000

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3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9301 HY CHANGED MORE THAN HYDIN | | | | | | | | | |
| SECNO | QLOB | VOL | CONV | DSTK | SB | HV | FL | WSEL | ELBW |
| 0 | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XSL | XNCH | XNR | STN | FLPIN | SSTA |
| SLOPE | XLOB | XLCH | XROB | ITRIAL | IEP | ICONT | CROWR | TOPWID | SBOST |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,FLEV= 775.00 ELMEA= 775.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9/5 FACE 7 MILE RD. BRIDGE | | | | | COMP# 2.5.13 | | | | |
| 1078.00 | 12.43 | 769.63 | 0.00 | 0.00 | 770.94 | 1.12 | 0.16 | 0.00 | 773.09 |
| 3680. | 0. | 3680. | 0. | 0. | 434. | 0. | 40. | 0. | 773.03 |
| 0.36 | 0.00 | 8.48 | 0.00 | 0.100 | 0.025 | 0.100 | 0.034 | 737.40 | 941.91 |
| 0.001618 | 50. | 50. | 50. | 0 | 1 | 0 | 0.00 | 49.43 | 1035.00 |

SPECIAL BRIDGE

| BR | KS | XKOR | COEC | BOLEN | BHC | BUP | AREA | SS | ELCHK | ELCRD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.05 | 5.53 | 3.00 | 0.00 | 23.04 | 2.00 | 691.20 | 1.37 | 757.46 | 757.47 |

*SEC.0 TOPR DCJ

3265 DIVIDED FLOW

CLASS A LOW FLOW

| EGPRS | EGLOC | LJ | GLOIR | QPR | SAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 1.00 | 777.94 | 7.17 | 0. | 3680. | 39.. | 392. | 771.80 | 775.00 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELEV= 775.00 ELMEA= 775.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9/5 FACE 7 MILE RD. BRIDGE | | | | | | | | | |
| 1078.00 | 12.43 | 769.63 | 0.00 | 0.00 | 770.94 | 1.12 | 0.16 | 0.00 | 773.09 |
| 3680. | 0. | 3680. | 0. | 0. | 434. | 0. | 40. | 0. | 773.03 |
| 0.36 | 0.00 | 8.48 | 0.00 | 0.100 | 0.025 | 0.100 | 0.034 | 737.40 | 941.91 |
| 0.001618 | 50. | 50. | 50. | 0 | 1 | 0 | 0.00 | 49.43 | 1035.00 |

*RECNO 1113.000

9301 HY CHANGED MORE THAN HYDIN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9/5 FACE 7 MILE RD. BRIDGE | | | | | | | | | |

9/5 NORTHVILLE DOWN BOX CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1113.00 | 12.99 | 770.39 | 0.00 | 0.00 | 771.21 | 0.31 | 0.22 | 0.24 | 757.90 |
| 1850. | 227. | 1449. | 175. | 253. | 286. | 209. | 40. | 8. | 757.90 |
| 0.06 | 3.90 | 5.06 | 0.84 | 0.100 | 0.025 | 0.100 | 0.034 | 757.90 | 965.80 |
| 0.000237 | 35. | 35. | 35. | 2 | 0 | 0 | 0.00 | 70.00 | 1035.30 |

[illegible]

*SECNO 2163.000

WATER EL=XS CARD= 779.600

[illegible] ENCROACHMENT STATIONS= 295.0 365.0 TYPE= 1 TARGET= 70.700

[illegible] CONAS C.S.335

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2963.00 | 9.70 | 779.60 | 0.00 | 0.00 | 780.11 | 0.51 | 0.50 | 0.10 | 770.00 |
| 1850. | 290. | 1474. | 86. | 143. | 231. | 71. | 55. | 9. | 769.90 |
| 0.12 | 3.96 | 5.38 | 1.22 | 0.120 | 0.042 | 0.300 | 0.237 | 769.90 | 295.60 |
| 0.001344 | 1350. | 1350. | 1350. | 0 | 0 | 0 | 0.30 | 70.00 | 565.00 |

*SECNO 2213.000

[illegible] ENCROACHMENT STATIONS= 35.0 205.0 TYPE= 1 TARGET= 170.000

[illegible] CONAS C.S.336

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2213.00 | 9.96 | 779.96 | 0.00 | 0.00 | 780.24 | 0.28 | 0.26 | 0.07 | 773.00 |
| 1850. | 120. | 1512. | 217. | 118. | 324. | 232. | 56. | 9. | 775.10 |
| 0.12 | 1.06 | 4.66 | 0.24 | 0.150 | 0.040 | 0.100 | 0.037 | 770.00 | 48.28 |
| 0.002342 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 154.72 | 205.00 |

*SECNO 2513.000

| SPC ID | DEPTH | CHSEL | ELEVS | SELK | CO | WV | HL | CLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | WC= | ORCO | WLOL | XCH | XPCO | VOL | TAX | LE-T/RIGHT |
| TYPE | 0.00 | LC= | VMOH | WTL | XREC | 416 | STR | E.61. | 5670 |
| COUPS | X.OEL | CLEL | XE.IRO | XTLOSL | 192 | JCCIE | [illegible] | [illegible] | [illegible] |

[illegible] SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2513.00 | 9.63 | 781.[illegible] | 1.[illegible] | 0.00 | 781.63 | 2.63 | 0.55 | 0.42 | 771.[illegible] |
| 1850. | 160. | 1526. | 164. | 112. | 254. | 121. | 0. | 11. | 771.75 |
| 0.14 | 1.43 | 6.30 | 1.35 | 0.100 | 0.040 | 0.100 | 0.032 | 771.75 | 365.49 |
| 0.001509 | 250. | 300. | 400. | 2 | 0 | 2 | 0.00 | 132.96 | 459.95 |

[illegible] [illegible] 0.500

*SECNO 2803.000

[illegible] CHANGED MORE THAN 1 FOOT

[illegible] CONAS C.S.337

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2803.00 | 9.83 | 790.04 | 0.30[illegible] | 1.00 | 788.45 | 1.79 | 1.07 | 0.62 | 770.00 |
| 1850. | 6. | 1523. | 23. | 6. | 163. | 19. | 62. | 11. | 777.53 |
| 0.15 | 0.69 | 5.62 | 1.37 | 0.120 | 0.060 | 0.120 | 0.037 | 770.00 | 304.46 |
| 0.001[illegible] | 100. | 250. | 350. | 2 | 0 | 0 | 0.00 | 142.05 | 1349.[illegible] |

*SECNO 2[illegible]3.000

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3301 HV CHANGED MORE THAN HVINS

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | DLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | NTN | ELMIN | SSTA |
| SLOPE | SLOHL | SLCH | SLOHL | ITRIAL | IF2 | ICONT | CORAR | TOPWID | CLOST |

3625 20 TRIALS ATTEMPTED WSEL,CWSEL
3695 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 788.00 ELREA= 788.00

D/S FACE MAIN ST. BRIDGE CORPS C.S.#36

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2863.30 | 6.[illegible] | 782.34 | 782.34 | 0.00 | 785.45 | 5.1[illegible] | [illegible] | [illegible] | 776.[illegible] |
| 850. | [illegible] | 1850. | 0. | 0. | [illegible] | [illegible] | [illegible] | [illegible] | 776.50 |
| 0.15 | 0.00 | 14.14 | 0.00 | 0.120 | 0.060 | 0.120 | 0.038 | 775.90 | 178.47 |
| 0.014438 | 100. | 100. | 100. | 20 | 11 | 0 | 0.00 | 21.21 | 169.68 |

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 780.90 ,001 782.34 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SL | [illegible] | [illegible] | [illegible] | ROLEN | HWC | HHP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | [illegible] | 3.00 | 3.00 | 22.40 | 1.40 | 220.00 | 0.30 | 77[illegible].90 | 775.90 |

*SECNO 3303.000

3301 HV CHANGED MORE THAN HVINS

CLASS [illegible]

3420 BRIDGE H.S.= 782.12 BRIDGE VELOCITY= 14.15 CALCULATED CHANNEL AREA= 13[illegible].

| EGPRS | EGLWC | [illegible] | CWSIR | OPP | BAREA | TRAPEZOID | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | 0.00 | 0. | 1350. | 200. | AREA 19[illegible] | [illegible] | 791.20 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 791.20 ELREA= 791.00

[illegible] FACE MAIN ST. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3063.00 | 7.93 | 783.33 | 0.00 | 0.00 | 785.85 | 2.02 | 0.39 | 0.00 | 776.50 |
| 1850. | 0. | 1850. | 2. | 0. | 152. | 0. | 63. | 11. | 776.50 |
| [illegible] | [illegible] | [illegible] | 0.00 | 0.120 | 0.060 | 0.120 | [illegible] | 775.[illegible] | [illegible] |
| 0.002305 | 100. | [illegible] | 100. | [illegible] | [illegible] | 0 | [illegible] | 21.21 | 169.6[illegible] |

CONV= 0.300 CONV= 0.500
*SECNO 3113.000

[illegible]

[illegible] ST. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3113.00 | 90.04 | 736.04 | 2.00 | 0.00 | 736.49 | 0.43 | 0.11 | 0.49 | 778.00 |
| 1850. | 66. | 1685. | 100. | 53. | 316. | 78. | 63. | 19. | 776.00 |
| 0.15 | 1.13 | 5.32 | 1.28 | 0.100 | 0.040 | 0.100 | 0.038 | 776.00 | 60.61 |
| 0.001092 | 52. | 52. | 50. | 3 | 0 | 0 | 0.00 | 66.91 | 125.52 |

*SECNO 3321.000

| SECNO | DEPTH | QSEL | ORIFWS | WSELK | EG | HV | HL | CLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | ALTA | CLMTC | SST |
| ELOPE | XLOBL | XLCH | XLOBR | ITRIAL | I42 | ICONT | CORIOL | TOPWID | BADST |

3470 ENCROACHMENT STATIONS= 66.0 149.0 TYPE= 1 TARGET= 83.000

50 FT 375 FWD HOPSR CO. DAM CORPS C.S.USV

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3335.00 | 10.00 | 736.50 | 0.00 | 0.00 | 736.62 | 0.13 | 0.09 | 0.00 | 776.00 |
| 1850. | 37. | 1803. | 10. | 54. | 613. | 23. | 66. | 12. | 766.00 |
| 0.17 | 0.69 | 2.92 | 0.42 | 0.100 | 0.040 | 0.100 | 0.038 | 776.40 | 66.00 |
| 0.000352 | 165. | 165. | 165. | 2 | 0 | 0 | 0.01 | 83.00 | 149.00 |

*ENNO 3327.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 790.00 E.HEA= 790.00

375 FORD HOPR, CO. DAM

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3327.00 | 10.00 | 736.50 | 0.00 | 0.00 | 786.66 | 0.16 | 0.02 | 0.02 | 788.00 |
| 1850. | 0. | 1850. | 0. | 0. | 560. | 0. | 65. | 12. | 791.00 |
| 0.17 | 0.00 | 3.26 | 0.00 | 0.100 | 0.040 | 0.100 | 0.038 | 776.53 | 80.13 |
| 0.000527 | 79. | 69. | 65. | 2 | 0 | 0 | 0.00 | 57.03 | 958.75 |

SPECIAL BRIDGE

| CD | SP | KRFT | CPRA | SKCW | DXC | EXP | BXPA | SS | B Wid | PLOWE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.70 | 1.50 | 2.10 | 0.00 | 0.10 | 0.00 | 0.10 | 0.00 | 776.53 | 776.50 |

*SECNO 3326.000

3265 DIVERSION FLOW

PRESSURE AND WEIR FLOW

| PERKS | EGLIC | WS | OBJFN | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| WEIR,SID | PASSED | 5.00 | 1850. | 1. | 0. | -79. | 0.00 | 78.53 | |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 790.00 ELREA= 790.00

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FORD MOTOR CO. DAM CORPS C.S.#40

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5328.30 | 12.09 | 788.59 | 0.00 | 0.00 | 788.73 | 0.14 | 2.04 | 6.00 | 796.05 |
| 4050. | 6. | 7950. | 0. | 0. | 691. | 5. | 66. | 12. | 79.50 |
| 0.17 | 0.30 | 8.63 | 0.00 | 0.000 | 0.040 | 0.150 | 0.013 | 776.55 | 45.00 |
| 0.000484 | 3 | 12. | 1. | 2 | 0 | 2 | 0.00 | 48.98 | 524.69 |

CCHV= 0.900 CSHV= 0.800

*SECTION 5672.000

BRIDGE

5495 OVERBANK AREA ASSUMED NON-EFFECTIVE-ELLEA= 790.50 ELREA= 790.50

U/S FACE TRUCK BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5672.00 | 7.50 | 798.70 | 0.00 | 0.00 | 799.65 | 0.95 | 0.28 | 0.47 | 790.50 |
| 1850. | 3. | 7950. | 0. | 0. | 236. | 0. | 70. | 12. | 790.50 |
| 0.19 | 0.30 | 7.97 | 1.01 | 0.100 | 0.250 | 0.100 | 0.059 | 761.10 | 479.69 |
| 0.000484 | 544. | 564. | 444. | 8 | 0 | 0 | 0.00 | 48.98 | 524.69 |

SPECIAL BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | COEF | ADD'L | BWS | BWP | BAREA | SS | ELCHD | CLCHE |
| | | 0.90 | 0.00 | 20.00 | 0.00 | 195.05 | 2.15 | 793.10 | 791.10 |

*SECTION 5384.000

PRESSURE AND WTR FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| | | | | | | AREA | | | |
| 790.89 | 789.55 | 0.00 | 37. | 1803. | 195. | 197. | 787.70 | 790.50 | |

SOME OVERBANK AREA ASSUMED NON-EFFECTIVE-ELLEA= 791.00 ELREA= 791.0

U/S FACE TRUCK BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5384.00 | 7.50 | 798.91 | 0.00 | 1.00 | 799.77 | 0.86 | 1.12 | 1.00 | 790.89 |
| 1850. | 3. | 7950. | 0. | 0. | 336. | 0. | 70. | 12. | 790.50 |
| 0.19 | 0.00 | 6.94 | 0.00 | 0.100 | 0.250 | 0.100 | 0.039 | 761.10 | 479.72 |
| 0.000484 | 58 | 12. | 13. | 12. | 2 | 0 | 3 | 0.00 | 48.98 | 524.69 |

*SECTION 5095.000

BRIDGE

BSLO IN CHANNEL MORE THAN OVERB

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHESL | CELLS | WSELK | SS | V | [illegible] | [illegible] | DLOSS | D/S ELEV |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

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VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3025.00 | 8.00 | 790.80 | 0.00 | 0.00 | 791.87 | 1.07 | 0.69 | 0.40 | 782.80 |
| 1850. | 209. | 1537. | 103. | 77. | 170. | 42. | 71. | 12. | 783.30 |
| 0.19 | 2.72 | 9.03 | 2.44 | 0.100 | 0.050 | 0.100 | 0.039 | 782.80 | 475.70 |
| 0.005697 | 161. | 211. | 151. | 2 | 0 | 0 | 0.01 | 82.19 | 527.39 |

#SECNO 3965.000

5301 HW CHANGED MORE THAN 4VELS

D/S FACE CRISWALD ST. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3765.00 | 7.16 | 791.76 | 3.00 | 0.00 | 793.33 | 1.79 | 1.19 | 0.58 | 784.60 |
| 1850. | 150. | 3177. | 90. | 55. | 136. | 33. | 78. | 12. | 785.70 |
| 0.19 | 3.45 | 11.11 | 9.09 | 0.100 | 0.050 | 0.100 | 0.045 | 784.60 | 425.70 |
| 0.111256 | 140. | 16. | 140. | 2 | 0 | 0 | 0.00 | 4.58 | 269.25 |

SPECIAL CASES

SECT XK=1.25 BOX STRUCTURE HW=793.25 ZUC= 791.76 HYDRAULIC JUMP OCCURS DOWNSTREAM AT 42. FT. 5.00 (WATER ES)

| SE | XK | XKOR | COSQ | RDLEN | BUC | BWP | UAREA | SS | ELCHC | ELCHO |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.69 | 1.00 | 0.00 | 10.25 | 1.43 | 116.00 | 0.00 | 784.60 | 784.60 |

#LEGNT 4020.000

5301 HW CHANGED MORE THAN 4VELS

PRESSURE AND WEIR FLOW

| ESPEA | ZOL= | | ALE | ZUC | | H.ES | TAILWATER AREA | ALE | ALTI |
|---|---|---|---|---|---|---|---|---|---|
| 799.23 | 795.49 | 3.00 | 556. | 1296. | 118. | 116. | 791.13 | 792.50 | |

[illegible] TYPE 1 STATION= 401.0 402.0 TYPE= 1 TAILWA= 110.00

U/S FACE CRISWALD ST. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4270.00 | 0.20 | 795.70 | 3.00 | 0.00 | 795.42 | 0.51 | 1.17 | 0.00 | 794.60 |
| 1850. | 275. | 1941. | 255. | 13. | 195. | 133. | 72. | 13. | 785.10 |
| 0.20 | 2.38 | 6.85 | 2.75 | 0.100 | 0.050 | 0.113 | 0.00 | 784.60 | 403.95 |
| 0.302516 | 55. | 63. | 63. | 2 | 0 | 5 | 0.00 | 95.96 | 498.96 |

[illegible] 0.300 CFS= 3.550

[illegible] 4020.200

BACK BACKWATER STATION= 340.0 940.2 TYPE= TARGET= 220.100

5' FT U/S CRISWALD ST. BRIDGE [illegible] 0.442

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.30 | 0.16 | 794.12 | 3.00 | 0.00 | 795.81 | 1.69 | 0.06 | 0.15 | 792.00 |
| 1850. | 1255. | 4[illegible] | 1[illegible] | 1[illegible] | 1[illegible] | 1[illegible] | 1[illegible] | 1[illegible] | 1[illegible] |
| 0.80 | 1.46 | 3.04 | 1.32 | 0.100 | 0.040 | 0.10[illegible] | 0.[illegible] | 784.60 | 552.50 |
| 0.011[illegible] | 91. | 50. | 50. | 2 | 0 | 5 | 0.00 | 177.47 | 240.00 |

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*SECNO 4478.050

*SOIL PV CHANGES MORE THAN PVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4478.00 | 7.58 | 795.68 | 0.00 | 0.00 | 796.75 | 1.06 | 0.85 | 0.34 | 789.80 |
| 1650 | 191. | 1340. | 518. | 62. | 140. | 143. | 77. | 14. | 239.00 |
| 0.22 | 2.32 | 5.60 | 2.20 | 5.100 | 0.040 | 0.100 | 0.040 | 786.10 | 389.72 |
| 0.305270 | 300. | 630. | 750. | 2 | 1 | 0 | 0.00 | 127.99 | 547.21 |

*SECNO 4856.000

| SEC O | DEPTH | INSEL | CRINS | HSELV | SG | HV | L | DLOSS | DAR ELEV |
|---|---|---|---|---|---|---|---|---|---|
| B | 0L.00 | 10F | 3700 | FLOB | ACI | 4903 | VOL | T.. | LEFT/RIGHT |
| TYPE | 0L.00 | 10F | V900 | SOL | RNF4 | RNF | USN | ELM | 0FTA |
| S.OF= | 0L.00 | RATE | 3.000 | ATTAN | INF | F.O.I | I.C.A.R | TEMP | 3UNST |

SO FT LT'S SIL. POND ATT CORPS C.S.743

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4850.20 | .00 | 798.03 | 0.00 | 2.00 | 798.34 | 0.30 | 3.11 | 2.00 | 794.00 |
| 72. | 24. | 1765. | 30. | 15. | 242. | 15. | 80. | 15. | 794.30 |
| 1.23 | 1.91 | 7.10 | 1.64 | 0.100 | 0.240 | 0.100 | 0.040 | 792.00 | 417.44 |
| 0.004619 | 300. | 300. | 500. | 3 | 0 | 3 | 2.00 | 71.52 | 408.94 |

*SECNO 4910.000

3470 ENCROACHMENT STATIONS= 334.0 396.0 TYPE= 1 TARGET= 62.000

873 TILL POND 390

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4907.00 | 7.37 | 799.37 | 0.00 | 0.10 | 799.22 | 1.93 | 0.31 | 5.00 | 794.05 |
| 1820. | 0. | 1820. | 0. | 0. | 232. | 0. | 81. | 15. | 102300.00 |
| 0.25 | 0.00 | 7.63 | 0.00 | 0.100 | 0.040 | 0.100 | 0.040 | 794.00 | 385.72 |
| 0.307556 | 49. | 49. | 49. | 1 | 1 | 1 | 0.00 | 56.56 | 392.26 |

SPECIAL BRIDGE

| B | YR | HKOR | COFQ | ROLEN | BHC | BWP | SOFFA | SS | FLCHO | FLCRO |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.33 | .50 | 3.00 | 3.00 | 0.10 | 0.00 | 0.10 | 0.00 | 794.05 | 794.50 |

*SECNO 4911.000

3321 HV CHANGES MORE THAN HVINS

PREPARE FOR TEST FLOW

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SOURCE | ECLHC | HS | JUNCT | QF | BOREA | TRAPEZOID | F.L.S | W.TRD |
| | | | | | | BASIN | | |

716.13.00 798.23 .40 1825 8. 794. 5.00 831.20

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELEV= 810.00 ELAREA= 810.00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| 4908.00 | 11.78 | 805.78 | 0.00 | 0.00 | 805.80 | 0.11 | 0.06 | 0.00 | 804.00 |
| 1820. | 0. | 1820. | 0. | 0. | 690. | 0. | 31. | 15. | 304.00 |
| 3.23 | 3.00 | 2.64 | 0.07 | 0.100 | 0.260 | 0.100 | 0.047 | 794.00 | 334.00 |
| 0.002265 | 1. | 1. | 1. | 2 | 0 | 1 | 2.00 | 00.00 | 394.05 |

CCHV= 0.100 CEHV= 0.300

*SECNO 5306.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 5304.00 | 5.94 | 305.94 | 0.00 | 0.00 | 305.97 | 0.03 | 0.02 | 0.01 | 804.50 |
| 1420. | 1. | 1418. | 1. | 4. | 1181. | 7. | 69. | 16. | 804.00 |
| 0.37 | 0.15 | 1.54 | 0.38 | 0.100 | 0.035 | 0.100 | 0.039 | 800.00 | 64.73 |
| 0.050167 | 400. | 400. | 400. | 2 | 1 | 0 | 0.30 | 282.23 | 327.65 |

CCHV= 0.600 CEHV= 0.800

*SECNO 5928.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELEV= 810.00 ELAREA= 650.00

7001 D/S C.O. R.R.BRIDGE #1

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 5920.00 | 6.05 | 806.05 | 0.00 | 0.20 | 806.11 | 0.05 | 0.12 | 0.01 | 650.00 |
| 3823. | 0. | 1420. | 0. | 5. | 975. | 0. | 14. | 15. | 302.00 |
| 0.41 | 0.01 | 1.14 | 0.30 | 0.050 | 0.042 | 0.300 | 0.040 | 790.20 | 40.20 |
| 0.002122 | 400. | 400. | 400. | 2 | 1 | 0 | 0.30 | 282.23 | 327.65 |

*SECNO 6078.000

SOIL AT C.O. IS IN THIS REACH

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CNSEL | CHNS | USELK | EG | FV | FL | OLOSS | BANK ELEV |
| FLOW | FLOW | FLOW | VIOS | XNL | XNCL | XNR | WTP | CL/EM | LEFT/RIGHT |
| SLOPE | SLOPE | SLOPE | X.OBS | ITRIAL | CHS | SCONT | CCHAN | TOPWID | ENDST |
| | | | | | | | | | |

8472 ENCROACHMENT STATION= 257.5 302.9 TYPE= 1 TARGET= 45.200

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 6020.00 | 7.02 | 121.52 | 0.00 | 0.20 | 667.13 | 0.11 | 0.00 | 0.01 | 525.25 |
| 1420. | 230. | 1391. | 191. | 67. | 141. | 57. | 137. | 80. | 794.00 |
| 0.41 | 3.45 | 8.23 | 3.33 | 0.080 | 0.040 | 0.080 | 0.240 | 790.20 | 257.50 |
| 0.002121 | 150. | 150. | 150. | 2 | 1 | 0 | 0.00 | 35.10 | 322.20 |

8504 CONFINED TIDE TRAN 4/185

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 815.00 ELREA= 815.00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| 1820. | 0. | 1820. | 0. | 0. | 148. | 0. | 107. | 20. | 798.90 | |
| 0.40 | 0.00 | 12.29 | 0.00 | 0.080 | 0.045 | 0.080 | 0.040 | 798.40 | 230.00 | |
| 0.012524 | 50. | 30. | 50. | 0 | | 0 | 0.30 | 20.00 | 250.00 | |

SPECIAL BRIDGE

| SKI XR | XKOR | CORA | ROLEX | BWC | SWP | DAREA | SS | ELCHO | ELCHP |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 1.87 | 5.00 | 1.00 | 19.30 | 0.00 | 150.00 | 0.30 | 798.70 | 798.41 |

SHAPE 6726.INC

SHUT HV CHANGED MORE THAN 1VIUS

PRESSURE FLOW

| CDCAS | ESLVE | AD | SAREA | OPR | DPREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 802.77 | 806.40 | 0.00 | 0. | 1820. | 150. | 150. | 802.30 | 813.75 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 815.00 ELREA= 815.00

Sect. S 0/S FACE C.O. R.R. BRIDGE #1

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1821. | 0. | 1820. | 0. | 0. | 195. | 0. | 107. | 20. | 798.90 | |
| 0.43 | 0.00 | 9.31 | 0.00 | 0.080 | 0.040 | 0.010 | 0.040 | 799.40 | 230.00 | |
| 0.004673 | 50. | 30. | 50. | 3 | | 0 | 0.30 | 20.00 | 250.00 | |

U/S FACE C.O. R.R. BRIDGE #1

SHUT HV CHANGED MORE THAN TWICE

3495 CROSS INFLT STATIONS= 213.3 335.0 TYPE= TABLE= 120.500

50 FT U/S C.C. R.R. BRIDGE #1 CORPS C.S.447

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 532.00 | 12.53 | 570.43 | 3.00 | 5.00 | 810.35 | 0.13 | 0.05 | 0.70 | 797.91 | |
| 1320. | 320. | 997. | 530. | 230. | 240. | 391. | 130. | 20. | 796.62 | |
| 0.40 | 0.21 | 3.50 | 1.90 | 0.080 | 0.130 | 0.080 | 0.10 | 797.90 | 230.00 | |
| 0.005513 | 50. | 50. | 50. | 3 | 0 | 0 | 0.30 | 20.00 | 250.00 | |

CCHV= 0.300 CEHV= 0.500

SHUTLEY BRIDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 7450.00 | 9.25 | 810.35 | 0.00 | 0.00 | 611.06 | 0.39 | 0.47 | 0.01 | 802.00 |
| 1820. | 850. | 702. | 268. | 1021. | 189. | 359. | 140. | 26. | 603.30 |
| 0.56 | 0.65 | 3.72 | 0.76 | 0.120 | 0.040 | 0.120 | 0.039 | 601.70 | 115.50 |
| 0.700555 | 1400. | 952. | 700. | 2 | 0 | 0 | 0.00 | 335.00 | 450.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRITS | WSELK | EC | IW | IL | QLOPS | OALK ELEV |
| | QLOD | QCH | QTOT | ALOB | ACH | AROB | VOL | TAZ | LEFT/RIGHT |
| TIME | VLOD | JCH | VTOT | XLO | XLCH | XMP | XTH | ELMIN | SST |
| SLOPE | XLOBL | ALCH | XLOBJ | ITRIAL | IP2 | ICONT | CORAT | TOPWID | E.G. |

347 ENCROACHMENT STATIONS= 100.0 760.0 TYPE= 1 TARGET= 260.700

SECT 7 D/S FACE OLD NCHL TO, BRIDGE FIELD UCOK STA. 28+10

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7300.00 | 9.25 | 811.18 | 0.00 | 0.00 | 611.35 | 0.13 | 0.20 | 0.01 | 802.10 |
| 1820. | 591. | 308. | 421. | 665. | 261. | 479. | 133. | 29. | 602.70 |
| 0.60 | 0.89 | 4.22 | 0.9 | 0.120 | 0.040 | 0.120 | 0.038 | 802.10 | 100.60 |
| 0.700678 | 600. | 15 | 100. | 2 | 0 | 0 | 0.00 | 262.00 | 365.00 |

SPECIAL BRIDGE

| BL | AS | XCOD | COEF | ROLEX | IWC | EMP | BACKA | SS | FLOW | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 7.03 | 7.01 | 8.73 | 0.55 | 25.70 | 0.00 | 111.00 | 0.00 | 302.10 | 812.10 |

*SECNO 7283.000

PRESSUR AND WEIR FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DS | XD | HP | DARSA | TRAPEZOID | SLLP | SLTOL | | |
| | | | | | AREA | | | | |
| | | | | | | | | | |

SECN 7283.000 BRIDGE SECTION 1.0 360.0 TYPE 1 TARGET 260.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7328.00 | 9.00 | 811.70 | 0.00 | 0.00 | 611.02 | 0.39 | 0.47 | 0.00 | 802.10 |
| 1820 | 697. | 769. | 637. | 753. | 256. | 533. | 356. | 25. | 602.20 |
| 1.00 | 0.60 | 4.05 | 0.75 | 0.120 | 0.040 | 0.120 | 0.03 | 802.10 | 101.00 |
| 0.700383 | 600. | 2 | 100. | 2 | 0 | 0 | 0.00 | 262.00 | 360.00 |

*SECNO 7518.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7778.00 | 9.19 | 811.86 | 0.00 | 0.00 | 611.35 | 0.86 | 0.15 | 0.15 | 805.50 |
| 1820. | 472. | 1266. | 92. | 365. | 215. | 98. | 59. | 56. | 807.30 |
| 1.00 | 0.57 | 5.35 | 0.44 | 0.120 | 0.040 | 0.120 | 0.034 | 802.10 | 200.00 |
| 0.700 | 900. | 900. | 100. | 2 | 0 | 0 | 0.00 | 262.00 | 360.00 |

*SECNO 7566.000

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5301 HV CHANGED MORE THAN HVINS

| SECNO | DEPTH | CHSEL | CRIWS | HSELK | EG | HV | LL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| 3 | GLOB | GCH | GROB | ALOB | ACE | AROE | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNE | CTN | PENIK | SSTA |
| GLOBAL | GLOBL | GLCH | GLOBAL | INITIAL | INE | ICONV | CONVG | TOTMIN | ENDST |

7185 MINIMUM SPECIFIC ENERGY
5725 CRITICAL DEPTH ASSUMED

14 ENCROACHMENT STATIONS= 533.0 SEC.D TYPE= 1 THALT= 45.00

55 FT D/S C.G. R.R. BRIDGE #2 FIELD BOOK STA. 22+50

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7868.00 | 6.64 | 312.34 | 812.34 | 0.00 | 315.02 | 2.67 | 1.27 | 1.14 | 305.00 |
| 1320. | 195. | 1621. | 7. | 65. | 117. | 4. | 162. | 31. | 317.30 |
| 1.63 | 2.79 | 14.17 | 0.82 | 4.153 | 0.040 | 0.120 | 0.038 | 525.73 | 5[illegible].20 |
| 0.711506 | 191. | 351. | 393. | 3 | 18 | 0 | 0.10 | 42.0 | 34.52 |

+ FCHG 7921.000

5305 BY-PASS FLOW NOT, THRU HVINS

5495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 818.30 ELTEA= 818.30

75 FT D/S C.G. R.R. BRIDGE #2 FIELD BOOK STA. 21+97

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7921.00 | 6.16 | 314.84 | 0.00 | 0.00 | 315.80 | 0.97 | 0.20 | 0.51 | 305.00 |
| 1320. | 0. | 1320. | 0. | 0. | 251. | 0. | 162. | 31. | 317.30 |
| 0.62 | 0.00 | 7.88 | 0.00 | 0.120 | 0.040 | 0.120 | 0.038 | 806.00 | 543.57 |
| 0.302962 | 0. | 56. | 53. | 4 | 0 | 0 | 0.10 | 12.02 | 274.52 |

SPECIAL BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3. | [illegible] | CDTA | HOLE | 0.0 | SWP | [illegible] | 55 | BLIND | [illegible] |
| [illegible] | 2.04 | 12.03 | 1.00 | 17.00 | 3.93 | 1[illegible].0 | 0.10 | 130.00 | 7[illegible].00 |

FCHG 7921.000

| SEC | DEPTH | CHSEL | CRIWS | HSELK | EG | HV | LL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| | GLOB | GCH | GROB | ALOB | ACE | AROE | VOL | TWA | LEFT/RIGHT |
| [illegible] | VLOB | VCH | VROB | XNL | XNCH | XNE | CTN | PENIK | SSTA |
| [illegible] | GLOBAL | GLCH | GLOBAL | INITIAL | CHE | ICONV | CONVG | TOTMIN | ENDST |

PRESSURE FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 146.45 | 316.16 | 0.68 | 0. | 120. | 145. | 132. | 811.70 | 819.20 | |

[illegible] 0/S FACE C.G. R.R. BRIDGE #2 FIELD BOOK STA. 21+59

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```
  7965.00    12.37   818.37     0.00     0.00   818.83     0.48     3.05     0.00   806.00
    1820.       0.    1820.       0.       0.     326.       0.     163.      31.   807.30
     0.62     0.00     5.58     0.00    0.120    0.040    0.120    0.038   806.00   546.50
 0.001036      44.      44.      44.        2        0        0     0.00    27.00   373.50

CCHV=   0.300 CEHV=   0.500
*SECNO 8118.000

3470 ENCROACHMENT STATIONS=      275.0      325.0  TYPE=      1  TARGET=      50.000

        153 FT U/S D.S. R.R. BRIDGE #2          FIELD BOOK STA. 20+00

  8118.00    12.02   818.62     0.00     0.00   819.30     0.38     0.12     0.03   809.40
    1820.     125.    1556.     129.     111.     295.     111.     164.      31.   838.60
     0.63     1.13     5.31     1.26    0.100    0.035    0.120    0.038   806.60   275.00
 0.000039      60.     153.      60.        2        0        0     0.00    50.00   325.00

CCHV=   0.300 CEHV=   0.500
*SECNO 8518.000

3470 ENCROACHMENT STATIONS=      257.0      381.0  TYPE=      1  TARGET=     124.000

        33 FT U/S 3 MILE RD. CULVERT            FIELD BOOK STA. 16+00

  8518.00    11.38   819.08     0.00     0.00   819.25     0.17     0.06     0.06   811.70
    1820.     343.    1071.     406.     373.     257.     412.     169.      31.   810.00
     0.67     0.92     4.17     0.95    0.120    0.035    0.120    0.038   807.70   257.00
 0.000455     125.     400.     250.        2        0        0     0.00   124.00   381.00

*SECNO 8555.000

        U/S 3 MILE RD. CULVERT

  8555.00    13.00   819.10     0.00     0.00   819.23     0.20     0.00     0.08   840.00
    1820.       0.    1820.       0.       0.     511.       0.     169.      31.   840.00
     0.67     0.00     5.56     0.00    0.120    0.035    0.120    0.038   805.70     0.00
 0.000484      37.      37.      37.        2        0        0     0.00    48.00    48.00

CCHV=   0.300 CEHV=   0.500
*SECNO 8556.000

3570 NORMAL BRIDGE,NOD= 47 MIN ELTRO=  840.00 MAX ELLC=  817.70

        U/S FACE 3 MILE RD. CULVERT             FIELD BOOK STA. 15+00

  8556.00    13.16   818.86     0.00     0.00   819.50     0.64     0.00     0.22   840.00
    1820.       0.    1820.       0.       0.     283.       0.     169.      31.   840.00
     0.67     0.00     4.49     0.00    0.100    0.025    0.100    0.038   805.70     0.00
 0.000192       1.       1.       1.        2        0        0   4376.70    48.00    48.00

*SECNO 8601.000
  SECNO     DEPTH     CLSEL     CHAUS     WSELK     EG        HV        HL        BLOSS    BANK ELEV
  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
```

3370 NORMAL BRIDGE,ADD= 47 MIN ELTRO= 312.60 MAX ELLC= 318.60

U/S FACE N MILE RD. CULVERT FIELD BOOK STA. 13+07

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | 579.44 | 1.05 | 0.00 | 320.04 | 0.62 | 5.51 | 0.11 | 830.00 |
| 1820. | 1. | 1482. | 0. | 1. | 395. | 0. | 121. | 23. | 425.00 |
| 0.68 | 0.00 | 4.23 | 0.00 | 0.100 | 0.020 | 0.103 | 0.038 | 807.50 | 0.00 |
| 0.001964 | 255. | 255. | 255. | 2 | 0 | 3 | -158.30 | 48.00 | 48.00 |

[illegible] 0.301 CHAN= 0.87

[illegible] 8432.000

U/S 4 MILE RD. CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 15.47 | 819.97 | 0.50 | 1.01 | 320.17 | 0.19 | 0.50 | 0.12 | 830.00 |
| 1425. | 0. | 1821. | 0. | 0. | 399. | 0. | 121. | 23. | 440.00 |
| 0.58 | 1.00 | 5.51 | 0.80 | 0.052 | 0.40 | 3.100 | 0.038 | 807.50 | 0.00 |
| 0.000604 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 48.00 | 48.00 |

[illegible] 9913.000

[illegible] ENCROACH EXT STATIONS= 362.0 555.0 TYPE= 1 TARGET= 155.000

10/ FT U/S N MILE Rd. CULVERT FIELD BOOK STA. 12+00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6978.2 | 11.63 | 820.13 | 0.00 | 0.00 | 320.29 | 0.11 | 0.06 | 0.02 | 830.00 |
| 1082. | 325. | 546. | 1164. | 225. | 116. | 277. | 173. | 13. | 90.00 |
| 0.59 | 1.00 | 6.21 | 1.22 | 0.090 | 0.040 | 0.056 | 0.138 | 806.50 | 157.00 |
| 0.000536 | 106. | 106. | 106. | 2 | 0 | 1 | 0.00 | 156.00 | 525.00 |

SCS= 0.100 CHAN= 0.503

ASELD 9655.700

3470 ENCROACHMENT STATIONS= 255.0 555.0 TYPE= 1 TARGET= 310.000

VALLEY SECTION FIELD BOOK ST. 6-00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9657.00 | 10.37 | 820.17 | 0.00 | 0.00 | 320.40 | 0.13 | 0.19 | 0.01 | 830.00 |
| 1420. | 0. | 1821. | 792. | 774. | 0. | 35. | 121. | 31. | 440.00 |
| 0.87 | 0.00 | 2.45 | 0.84 | 0.000 | 0.040 | 0.000 | 0.038 | 810.00 | 255.00 |
| 0.003195 | 600. | 600. | 600. | 2 | 0 | 0 | 0.00 | 310.00 | 560.00 |

SCS= 0.500 CHAN= 0.500

ASELD 9218.000

3500 HV CHANGE MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 402.0 560.0 TYPE= 1 TARGET= 77.500

96.5 FT D/S NEW HWY RD. BRIDGE FIELD BOOK STA. 2-00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9954.0 | 9.65 | 820.25 | 0.00 | 0.00 | 820.60 | 0.67 | 0.20 | 0.32 | 830.20 |
| 1[illegible] | 2[illegible] | [illegible] | 30. | 120. | 14. | 0. | 120. | 23. | 314.00 |
| [illegible] | 1.00 | [illegible] | [illegible] | 0.000 | 0.140 | 0.000 | 0.038 | 810.00 | 255.00 |
| [illegible] | 12. | [illegible] | 60. | 2 | [illegible] | [illegible] | [illegible] | 76.00 | 550.00 |

9973.50

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | UTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IHZ | ICONT | CORAR | TOPWID | ENDST |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 823.50 ELREA= 823.50

D/S FACE NEW NOVI RD. BRIDGE FIELD BOOK STA. 1+44.3

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | 820.42 | 0.00 | 0.00 | 821.58 | 0.68 | 0.16 | [illegible] | 820.70 |
| 1820. | 0. | 1820. | 0. | 0. | 278. | 0. | 199. | 36. | 820.20 |
| 0.82 | 0.00 | 6.54 | 0.00 | 0.100 | 0.040 | 0.060 | 0.033 | 810.70 | 1525.07 |
| 0.003511 | 56. | 56. | 56. | 2 | 0 | 0 | 0.30 | 50.43 | 1575.50 |

SPECIAL BRIDGE

| SR | XK | XKOB | COEQ | ROLEN | BWC | BWP | BAREA | SS | ELCHD | ELCRD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.55 | 1.69 | 0.00 | 1.00 | 21.00 | 2.00 | 355.70 | 1.23 | 811.70 | 820.70 |

*SECNO 10001.002

CLASS A LOW FLOW

3420 BRIDGE U.S.= 820.34 BRIDGE VELOCITY= 6.12 CALCULATED CHANNEL AREA= 297.

| EGPRS | EGLWC | HO | FWCIR | QPR | BAREA | TRAPEZOID AREA | ELLC | LITRD |
|---|---|---|---|---|---|---|---|---|
| 0.00 | 821.16 | 0.10 | 0. | 1820. | 335. | 335. | 821.20 | 823.50 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 823.50 ELREA= 823.50

U/S FACE NEW NOVI RD. BRIDGE FIELD BOOK STA. 1+47

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 0.81 | 820.51 | 0.00 | 0.00 | 821.16 | 0.64 | 0.07 | 0.30 | 820.70 |
| [illegible] | 0. | 1820. | 0. | 0. | 243. | 0. | 199. | 36. | 820.20 |
| 0.82 | 0.00 | 6.54 | 0.00 | 0.100 | 0.040 | 0.060 | 0.033 | 810.70 | 1525.07 |
| 0.003526 | 38. | 38. | 38. | 0 | 0 | 0 | 0.30 | 50.63 | 1575.50 |

*SECNO 10004.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 826.10 ELREA= 826.10

D/S FACE C.C. R.R. BRIDGE #3 FIELD BOOK STA. 1+34

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | 0.00 | 0.00 | 821.43 | 0.73 | [illegible] | [illegible] | [illegible] |
| 1820. | 0. | 1820. | 0. | 0. | 266. | 0. | [illegible] | [illegible] | [illegible] |
| 0.83 | 0.00 | 6.84 | 0.00 | 0.100 | 0.040 | 0.060 | 0.038 | 812.90 | 1535.00 |
| 0.003549 | 73. | 73. | 73. | 2 | 0 | 0 | 0.00 | 34.00 | 1567.00 |

SPECIAL BRIDGE

| SR | XK | XKOB | COEQ | ROLEN | BWC | BWP | BAREA | SS | ELCHD | ELCRD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2.00 | 1.73 | 2.00 | 2.00 | 34.00 | 2.00 | 245.00 | 0.00 | 812.91 | 1[illegible].90 |

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*SECNO 10094.000
PRESSURE FLOW

| TOPWS | SAL.S | FR | HO | NUMER | CRO | CAREA | TRAP.ECLD | ELLC | ALTHO |
|---|---|---|---|---|---|---|---|---|---|
| 822.20 | 821.45 | 0.00 | 0. | 1820. | 243. | 245. | 820.10 | 826.10 | |

*SAVE OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 826.10 ELRE.= 820.10

U/S FACE C.O. R.R. BRIDGE #3 FIELD BOOK STA. 0+24

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10094.00 | 0.72 | 821.62 | 0.00 | 0.00 | 822.20 | 0.58 | 0.76 | 0.00 | 820.00 |
| 1820. | 0. | 1180. | 0. | 0. | 297. | 0. | 199. | 36. | 821.00 |
| 0.35 | 0.00 | 0.00 | 0.00 | 0.100 | 0.040 | 0.000 | 0.000 | 0.00 | 1539.00 |
| 0.002528 | 0. | 10. | 10. | 2 | 2 | 0 | 0.00 | 34.00 | 1567.00 |

*SECNO 10103.000

SAVE BY EMBANKMENT SIDE SLOPE WEIR

5495 CHILDBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 826.10 ELRE.= 826.10

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10103.00 | 0.57 | 821.17 | 0.00 | 0.00 | 822.72 | 1.55 | 0.00 | 0.48 | 813.30 |
| 1820. | 0. | 1820. | 0. | 0. | 182. | 0. | 199. | 36. | 815.10 |
| 0.35 | 0.00 | 10.00 | 0.00 | 0.100 | 0.040 | 0.000 | 0.000 | 812.60 | 1539.00 |
| 0.005736 | 0. | 0. | 0. | 2 | 2 | 0 | 0.00 | 22.00 | 1551.00 |

*SECNO 10104.000

| SECNO | CRPTN | CASEL | CRINS | USFLR | EG | IV | FL | OLOSS | LANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.0 | 0.00 | 0.0 | TW | 0.00 |
| 7100 | VLOW | SC | UNCO | ANL | SUCP | PSR | LTS | 0.0 | SOTH |
| 0.0 | VLOW | LOW | BLOCK | STATAL | ZNE | ICONT | CRITAL | TOPWID | CONT |

*SAVE NORMAL DEPTH,VEC= 0.0 WSEL ELTRD= 826.10 ELLC= 823.10

SAVE OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 826.10 ELTRD= 826.10

*SAVE CROSS SECTION WITH CRITICAL DEPTH FIELD BOOK STA. 0+24

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10104.00 | 0.57 | 821.17 | 0.00 | 0.00 | 822.72 | 1.55 | 0.00 | 0.48 | 813.30 |
| 1820. | 0. | 1820. | 0. | 0. | 182. | 0. | 199. | 36. | 815.10 |
| 0.35 | 0.00 | 10.00 | 0.00 | 0.100 | 1.040 | 0.000 | 0.000 | 812.60 | 1539.00 |
| 1.005736 | 1. | 1. | 1. | 0 | 0 | 0 | 0.00 | 22.00 | 1551.00 |

*SAVE NORMAL DEPTH,VEC= 0.0 WSEL ELTRD= 826.10 VALCI.= 823.10

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5495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 826.10 ELREA= 826.10

U/S FACE OLD NOVI RD. BRIDGE FIELD BOOK STA. 0-14

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10132.00 | 8.84 | 821.44 | 0.00 | 0.00 | 822.89 | 1.46 | 0.14 | 0.33 | 813.30 |
| 1820. | 0. | 1820. | 0. | 0. | 188. | 0. | 199. | 37. | 813.10 |
| 0.83 | 0.00 | 9.70 | 0.00 | 0.100 | 0.040 | 0.060 | 0.038 | 812.60 | 1539.00 |
| 0.004664 | 28. | 28. | 24. | 2 | 0 | 0 | 0.00 | 22.00 | 1561.00 |

*SECNO 10133.000

5495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 826.10 ELREA= 826.10

U/S OLD NOVI RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10133.00 | 8.84 | 821.44 | 0.00 | 0.00 | 822.90 | 1.46 | 0.00 | 0.00 | 813.30 |
| 1820. | 0. | 1820. | 0. | 0. | 188. | 0. | 199. | 37. | 813.10 |
| 0.83 | 0.00 | 9.69 | 0.00 | 0.100 | 0.040 | 0.060 | 0.038 | 812.60 | 1539.00 |
| 0.004657 | 1. | 1. | 1. | 0 | 0 | 0 | 0.00 | 22.00 | 1561.00 |

*SECNO 10157.000

5301 HV CHANGED MORE THAN NVIUS

5470 ENCROACHMENT STATIONS= 384.0 416.0 TYPE= 1 TARGET= 32.000

FIELD BOOK STA. 0-39 25' U/S OLD NOVI RD. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10157.00 | 8.47 | 823.17 | 0.00 | 0.00 | 823.12 | 0.96 | 0.19 | 0.13 | 812.80 |
| 1820. | 177. | 1821. | 512. | 63. | 137. | 63. | 403. | 32. | 812.80 |
| 0.83 | 2.81 | 0.85 | 4.79 | 0.100 | 0.060 | 0.060 | 0.038 | 812.70 | 1561.00 |
| 0.002635 | 24. | 24. | 24. | 3 | 0 | 0 | 0.00 | 32.00 | 416.00 |

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```
**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR - 37
  MODIFICATION - [illegible]
**********************************************************

[illegible]  CITY OF NORTHVILLE FIS HUD 2006-07
[illegible] [illegible] ROUGE RIVER XSECTIONS FROM CORPS START [illegible] FROM [illegible]
[illegible]
```

| J1 | ICHECK | INQ | NINV | IDIR | STPT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 5. | 0. | 1. | 0.000000 | 0.00 | 0.0 | 0. | 768.170 | 0.000 |

| J2 | MPSOC | IPLOT | PRTVS | XSECV | XSECR | FN | ALLDC | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|---|---|---|---|---|
| | 15.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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*PROF 2

CCHV= 0.100 CEHV= 0.300

*SECNO ***1*

| SECNO | DEPTH | CHECK | CRI.S | HSCLE | DG | AV | AL | LOSS | BASE ELEV |
|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| TIME | VLOM | VCH | VROU | XYL | XACH | XNR | WTM | ELMIN | SSTA |
| SLOPE | XLOAL | XLCH | XLOOR | XTRIAL | IBZ | ICONT | CORAR | TOPWID | ENDST |

[illegible] [illegible] [illegible] [

2800 NAT Q1= 914.96 WSEL= 769.65 CNC Q1= 929.82 WSEL= 769.75 RATIO= -0.0162
NAT Q1= 930. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 769.75

3301 UV CHANGED MODE THAN MAINS

| SECNO | DEPTH | CWSEL | CTIME | WSELK | EG | KV | HL | OLLSC | EGNS ELEV |
|---|---|---|---|---|---|---|---|---|---|
| 0 | ORIFH | KOUT | FROUD | ALOW | ACH | AROB | WCI | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | MIN | EL MIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | LTRIAL | I42 | ICONT | COPAR | TOPWID | ENDST |

5470 ENCROACHMENT STATIONS= 975.0 1035.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 775.00 ELREA= 775.00

| PATH | MIN EL | INVERT | CORPS C.S.NO |
|---|---|---|---|
| 1028.00 | 12.27 | 769.67 | 0.00 | 769.65 | 770.83 | 1.16 | 0.14 | 0.21 | 773.30 |
| 3680. | 1. | 3680. | 0. | 0. | 428. | 0. | 40. | 8. | 773.60 |
| 0.06 | 0.30 | 8.64 | 0.00 | 0.100 | 0.025 | 0.100 | 0.034 | 757.40 | 981.67 |
| 0.001510 | 80. | 50. | 50. | 3 | 2 | 6 | 0.00 | 19.91 | 1031.97 |

SPECIAL BRIDGE

| SK | CD | KRGT | SOFD | SOLSP | OPC | OPR | BAREA | SK | ELCHD | ELCRD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.05 | 1.50 | 5.70 | 0.00 | 25.00 | 2.30 | 441.50 | 1.17 | 757.40 | 757.40 |

*SECNO 1073.000

3265 DIVIDED FLOW

CROSS SECTION 2647

5420 BRIDGE U.S.= 769.54 BRIDGE VELOCITY= 8.15 CALCULATED CHANNEL AREA= 452.

| EGPRS | EGLSC | HT | ANCH | APP | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 0.00 | 771.06 | 0.17 | 0. | 3461. | 692. | 692. | 775.30 | 775.30 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 775.30 ELREA= 775.30

| PATH | MIN EL | INVERT | CORPS C.S.NO |
|---|---|---|---|
| 1073.00 | 12.53 | 769.73 | 0.00 | 769.03 | 771.02 | 1.29 | 0.19 | 3.00 | 773.60 |
| 3520. | 0. | 3682. | 0. | 0. | 639. | 0. | 41. | 8. | 773.90 |
| 0.06 | 41.00 | 8.17 | 1.07 | 0.100 | 0.025 | 0.102 | 0.044 | 757.40 | 981.65 |
| 0.001552 | 80. | 50. | 50. | 0 | 2 | 6 | 0.00 | 34.37 | 1031.30 |

*SECNO 1115.000

3001 UV CHANGED MODE THAN MAINS

5470 ENCROACHMENT STATIONS= 965.0 1035.0 TYPE= 1 TARGET= 70.000

3/8 WOOTHEAD CORPS CSA CULVERT

```
 1113.00    13.07   770.97     0.00   770.89   771.28     0.31     0.02     0.23   757.90
   1850.     227.    1448.     175.     254.     283.     219.      41.       0.   757.90
    0.05     0.89     5.04     0.83    0.100    0.025    0.100    0.034   757.90   965.00
0.000233      35.      35.      35.        2        0        0     0.00    70.00  1035.00

CCHV=   0.300 CEHV=   0.500
*SECNO 2163.000
WATER EL=X5 CORD=   779.730

3470 ENCROACHMENT STATIONS=     295.0     365.0  TYPE=     1  TARGET=     70.000

        D/S FACE RIVER ST. BRIDGE                CORPS C.S.#35

 2163.00     9.80   779.70     0.00   779.60   780.20     0.52     0.49     0.00   770.00
   1850.     271.    1472.      87.     151.     233.      73.      46.       9.   769.50
    0.12     1.93     6.31     0.15    0.100    0.040    0.100    0.037   769.70   295.00
0.003369     1030.    1050.    1000.        0        0        0     0.00    70.00   365.00

*SECNO 2213.000

3470 ENCROACHMENT STATIONS=      35.0     205.0  TYPE=     1  TARGET=    170.000

        50 FT D/S RIVER ST. BRIDGE               CORPS C.S.#36

 2213.00    10.06   780.06     0.00   779.96   780.33     0.27     0.06     0.07   773.00
   1850.     123.    1303.     224.     122.     327.     239.      56.       9.   775.00
    0.12     1.31     4.59     0.94    0.100    0.040    0.100    0.037   773.00    47.52
0.000702      50.      50.      50.        2        0        0     0.00   157.48   205.00

*SECNO 2513.000
 [illegible]  476.21  [illegible]  [illegible]  476.21  [illegible]  [illegible]  [illegible]  0.000
 [illegible]  [illegible]  [illegible]  0.0002  0.321  0.0907  [illegible]  [illegible]
 [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
 C         CLOB      QCH       QROB      ALOB      ACH       AROB      VCL       TWA   LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
 SLOPE     XLOBL     XLCH      XLOBR     TTDIA.    THE       ECONT     CCHAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=     392.8     453.6  TYPE=     4  TARGET=      0.024

        VALLEY SECTION

 2513.00     6.35   780.10     0.00   780.25   780.78     0.48     0.35     0.11   771.75
   1850.     143.    1551.     155.      93.     256.      76.      [illegible]      41.   771.75
    0.14     1.58     6.35     1.57    0.100    0.040    0.100    0.037   771.75   392.85
0.001515     230.     303.     400.        2        0        0     0.00    65.79   453.62

CCHV=   [illegible]  CEHV=   [illegible]
*SECNO [illegible]

3501 HV CHANGED MORE THAN [illegible]

3470 ENCROACHMENT STATIONS=     106.3     149.4  TYPE=     1  TARGET=     [illegible]

        100 FT D/S [illegible] ST. BRIDGE        CORPS C.S.#37

 2563.00     6.94   780.[illegible]     0.00   780.[illegible]   782.[illegible]     1.72     [illegible]     [illegible]   [illegible]
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1650. | 4. | 1822. | 25. | 4. | 172. | 10. | 63. | 11. | 777.50 |
| 0.15 | 0.96 | 10.61 | 1.57 | 0.120 | 0.040 | 0.120 | 0.037 | 773.00 | 106.46 |
| 0.008864 | 300. | 350. | 350. | 2 | 0 | 0 | 0.00 | 42.94 | 149.43 |

*SECND 2935.000

3301 HV CHANGED MORE THAN HVINS

| SECNO | DEPTH | CHSEL | CRIWS | WSSLK | FB | EV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| T | C_OD | CH | QROD | ALOB | ACI | AROB | VOL | TWP | LEFT/RIGHT |
| WSEL HP | V_HL | VCH | VSTO | XNL | XNCH | XLP | WTF | CL IN | SSTA |
| QPR | K_OL | ACSA | NLOBE | FTRIAL | IHP | ICOLT | CCR_P | TOPWID | ENDST |

3645 20 TRIALS ATTEMPTED LOPL,CHSEL
5091 PRODABLE HYDRAULIC SPECIFIC ENERGY
5720 CRITICAL DEPTH ASSUMED

5495 OVERBANK AREA ASSUMED NON-EFFECTIVE,E.LEA= 780.00 ELREA= 780.00

D/S FACE MAIN ST. BRIDGE CORPS C.S.433

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2963.00 | 4.44 | 782.36 | 782.36 | 782.36 | 785.63 | 3.12 | 1.00 | 0.00 | 776.50 |
| 1850. | 0. | 1850. | 0. | 0. | 131. | 0. | 63. | 11. | 776.50 |
| 0.15 | 0.00 | 14.17 | 0.00 | 0.120 | 0.040 | 0.120 | 0.035 | 775.90 | 148.47 |
| 0.014472 | 100. | 100. | 100. | 20 | 11 | 0 | 0.00 | 21.21 | 169.68 |

SPECIAL BRIDGE

5287 DOWNSTREAM ELEV = 780.00 ENCR 782.36 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| ALT | WSEL | QBR | TOPWID | AREA | QWR | WTOPW | SF | ELOSS | FLOSS |
|---|---|---|---|---|---|---|---|---|---|
| 1.25 | [illegible] | 3.00 | 0.20 | 32.40 | 1.00 | [illegible] | 0.00 | [illegible] | [illegible] |

*SECND 3053.300

5571 ENCROACHMENT NOT ALLOWED

CLASS 2 FLOW FIELD

3420 BRIDGE W.S.= 782.42 BRIDGE VELOCITY= 14.19 CALCULATED CHANNEL AREA= 131.

| C_OD | OGL_D | IB | QLEIB | QBR | AREA | TEMPEROIL | C_LC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| | | | | | | NCLS | | |
| 0.00 | 782.42 | 3.00 | 0. | 1850. | 200. | 99. | 785.00 | 791.63 |

5495 OVERBANK AREA ASSUMED NON-EFFECTIVE,E.LEA= 791.00 EL.EA= 791.00

U/S FACE MAIN ST. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3063.00 | 7.97 | 783.37 | 0.00 | 785.63 | 785.65 | 2.02 | 0.39 | 0.00 | 776.50 |
| 1850. | 0. | 1850. | 0. | 0. | 132. | 0. | 64. | 11. | 776.50 |
| 0.15 | 0.00 | 14.01 | 0.00 | 0.120 | 0.041 | 0.120 | 0.038 | 775.90 | 148.47 |
| 0.007405 | 100. | 100. | 100. | 20 | 11 | 0 | 0.00 | 21.21 | 169.68 |

COMMENT: D/S FACE MAIN ST. BRIDGE

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*SECNO 3113.000

3503 KV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3113.00 | 10.04 | 786.04 | 0.00 | 786.04 | 786.45 | 0.40 | 0.11 | 0.49 | 776.30 |
| 1850. | 66. | 1685. | 100. | 56. | 316. | 78. | 64. | 11. | 776.00 |
| 0.15 | 1.13 | 5.32 | 1.28 | 0.100 | 0.040 | 0.300 | 0.093 | 776.20 | 60.61 |
| 0.0070092 | 50% | 50. | 50. | 3 | 3 | 0 | 0.30 | 64.65 | 135.52 |

*SECNO 3278.000

| SECNO | DEPTH | QUSEL | CHNS | USELK | ES | KV | HL | QLOSS | RANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | TRCS | ALOB | ACH | ARCH | VOL | TIC | LEFT/RIGHT |
| TYPE | QROB | VCL | VTOT | KCL | XSCH | XBR | QTH | ELOSS | SSTA |
| ERONE | LOBL | ALCH | ALOB | CTRIAL | I42 | ICONT | CORAR | TOP.TP | E 183 |

3470 ENCROACHMENT STATIONS= 56.0 149.0 TYPE= 1 TARGET= 33.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3278.00 | 10.09 | 786.49 | 0.00 | 786.49 | 786.62 | 0.13 | 0.09 | 0.08 | 776.00 |
| 1850. | 37. | 1805. | 10. | 54. | 615. | 23. | 66. | 11. | 786.00 |
| 0.17 | 0.69 | 2.92 | 0.62 | 0.100 | 0.040 | 0.100 | 0.038 | 776.40 | 66.00 |
| 0.0070352 | 66% | 165. | 165. | 2 | 0 | 1 | 0.00 | 33.00 | 135.00 |

*SECNO 3327.000

3695 OF CHANK AREA ASSUMED NON-EFFECTIVE.EL.EQ= 790.00 EL.REA= 790.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3327.00 | 10.02 | 786.50 | 0.00 | 786.50 | 786.65 | 0.16 | 0.02 | 0.02 | 786.00 |
| 1850. | 0. | 1850. | 0. | 0. | 506. | 0. | 67. | 11. | 791.00 |
| 0.18 | 0.00 | 1.20 | 0.00 | 0.100 | 0.040 | 0.100 | 0.038 | 776.80 | 10.15 |
| 0.0070329 | 49% | 99. | 49. | 2 | 1 | 0 | 0.00 | 50.50 | 135.75 |

SPECIAL BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 90 | WIDE | CWSEL | RWLEN | INC | SHP | SAREA | QE | ELMIN | ELCHD |
| .05 | 2.97 | 0.00 | 0.00 | 0.70 | 0.50 | 0.00 | 0.00 | 776.17 | 776.17 |

*SECNO 3328.000

3695 OF CHANK AREA ASSUMED NON-EFFECTIVE.EL.EQ= 790.00 EL.REA= 790.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ESTRS | FOLIC | P3 | QWEIR | QBR | SAREA | TRAPEZOID | F.LC | ELTRD | |
| | | | | | APEA | | | | |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 972445.00 | 766.66 | 0.03 | 1859. | 1. | 0. | -76. | 0.00 | 784.50 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3445 OVERBANK AREA ASSIGNED NON-EFFECTIVE,ELLEA= | | | | | | 790.00 ELREA= | | 790.00 | |

FORD MOTOR CO. DA[illegible] CORPS C.S.#40

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3320.00 | 42.05 | 780.59 | 0.30 | 788.19 | 786.70 | 0.11 | 2.04 | 0.00 | 768.00 |
| 1950. | 2. | 1950. | 0. | 0. | 191. | 0. | 65. | 41. | 791.00 |
| 0.16 | 0.00 | 7.34 | 0.30 | 0.100 | 0.960 | 0.150 | 0.034 | 77[illegible].[illegible] | 67.00 |
| 0.000291 | 1. | 1. | 1. | 2 | 0 | 9 | 0.00 | 59.33 | 140.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3445 | 0.000 | CEHV= | 0.930 | | | | | | |
| SECND | 3672.000 | | | | | | | | |

J501 HV CHANGED MORE THAN HVIIG

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3445 OVERBANK AREA ASSIGNED NON-EFFECTIVE,ELLEA= | | | | | | 790.50 ELREA= | | 790.50 | |

D/S FACE TRUCK BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3672.00 | 7.50 | 788.70 | 0.00 | 788.70 | 789.65 | 0.25 | 0.24 | 0.67 | 790.50 |
| 1950. | 2. | 1850. | 0. | 0. | 236. | 0. | 71. | 2. | 790.50 |
| 0.19 | 0.00 | 7.82 | 0.00 | 0.100 | 0.950 | 0.160 | 0.039 | 781.10 | 479.49 |
| 0.000358 | 344. | 344. | 344. | 2 | 0 | 1 | 0.00 | 61.51 | 526.07 |

[illegible] BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 0.00 | 1.96 | 3.30 | 0.00 | 20.00 | 7.00 | 395.00 | 1.52 | 781.10 | 781.10 |

[illegible] 3684.000
[illegible] ABUTMENT

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LOBRS | EGLWC | WS | WETP | QPR | BAREA | TRAPEZOID AREA | LLLC | E_TRD |
| 793.88 | 789.55 | 0.00 | 37. | 1888. | 193. | 197. | 787.70 | 790.50 |

3445 OVERBANK AREA ASSU ED NON-EFFECTIVE,ELLEA= 791.00 E_REA= 791.00

[illegible] BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 0.00 | 0.00 | 1850. | 0. | 0. | 305. | 0. | 71. | 12. | 790.50 |
| 0.29 | 0.00 | 6.04 | 0.00 | 0.100 | 0.950 | 0.160 | 0.055 | 781.10 | 475.76 |
| 0.006138 | 12. | 12. | 12. | 2 | 0 | 3 | 0.00 | 48.96 | 524.69 |

[illegible] 3645.000

3501 HV CHANGED MORE THAN [illegible]

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| SECNO | DEPTH | CHSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| C | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | UTH | ELMIN | SSTA |
| SLOPE | KLOB | XLCS | XLOBS | ITRIAL | IH2 | XCONT | CONAR | TCRWID | ENDST |

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3925.00 | 8.00 | 790.80 | 0.00 | 790.80 | 791.07 | 1.07 | 0.69 | 7.46 | 792.67 |
| 1850. | 209. | 537. | 103. | 77. | 170. | 42. | 94. | 12. | 793.30 |
| 4.37 | 2.22 | 9.05 | 2.44 | 0.100 | 0.050 | 0.100 | 0.040 | 781.80 | 475.78 |
| 0.005329 | 143. | 141. | 141. | 2 | 0 | 0 | 0.00 | 82.11 | 547.05 |

*SECNO 3965.000

* CS. IS CHANGED FROM HYDRAULIC JUMP

D/S FACE CRISWALD ST. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3965.00 | 7.70 | 791.71 | 0.00 | 791.76 | 793.35 | 1.99 | 0.71 | 7.56 | 794.60 |
| 1850. | 196. | 537. | 90. | 55. | 136. | 33. | 72. | 12. | 785.10 |
| 2.28 | 1.45 | 9.98 | 3.01 | 0.100 | 0.050 | 0.100 | 0.040 | 784.60 | 423.73 |
| 0.011236 | 143. | 143. | 140. | 2 | 0 | 0 | 0.00 | 63.53 | 469.23 |

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 789.93 FLOW 791.76 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SC | XK | XKOB | COPO | ADLEN | BLC | BWP | DWIDA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.27 | 0.70 | 0.00 | 19.25 | 1.63 | 31.00 | 1.00 | 789.60 | 792.60 |

FLOW 402.00I

3301 HW CHANGED MORE THAN HWINS

PRESSURE AND MIXED FLOW

| ESPPS | SHLW2 | H3 | QLEIP | QWR | SAREA | TRAPEZOID AREA | FLLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 794.23 | 795.41 | 0.00 | 938. | 1298. | 916. | 116. | 791.10 | 796.00 |

3640 ENCROACHMENT STATIONS= 401.0 499.0 TYPE= 1 TARGET= 140.000

U/S FACE CRISWALD ST. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4000.00 | 11.40 | 794.10 | 0.00 | 794.80 | 795.48 | 2.56 | 11.37 | 8.72 | 795.50 |
| 1851. | 276. | 1291. | 284. | 181. | 736. | 113. | 73. | 12. | 785.10 |
| 0.20 | 2.09 | 5.35 | 1.72 | 0.100 | 0.050 | 0.100 | 0.040 | 784.60 | 402.99 |
| 0.002416 | 63. | 63. | 63. | 2 | 2 | 5 | 0.00 | 95.96 | 496.96 |

3640 ENCROACHMENT STATIONS= 310.0 340.0 TYPE= 1 TARGET= 250.000

50 FT U/S CRISWALD ST. BRIDGE CORPS C.S.942

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4878.00 | 10.36 | 795.17 | 0.00 | 795.17 | 795.55 | 0.39 | 0.08 | 0.05 | 785.00 |
| 1850. | 178. | 1230. | 433. | 123. | 205. | 326. | 74. | 32. | 786.30 |
| 0.20 | 1.40 | 4.34 | 1.32 | 0.100 | 0.140 | 0.190 | 0.040 | 764.30 | 397.29 |
| 0.001197 | 50. | 80. | 55. | 2 | 0 | 0 | 2.00 | 147.47 | 543.01 |

*SECNO 4478.000

3501 HW CHANGED FROM TRAP AVE'S

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4478.00 | 7.58 | 795.48 | 0.00 | 795.68 | 796.75 | 1.06 | 0.85 | 0.34 | 788.60 |
| 1150. | 191. | 1340. | 318. | 92. | 140. | 145. | 78. | 13. | 789.80 |
| 0.37 | 2.32 | 9.00 | 2.20 | 0.100 | 0.340 | 0.170 | 1.050 | 769.13 | 387.72 |
| 0.005200 | 200. | 360. | 450. | 2 | 0 | 0 | 0.50 | 182.98 | 517.31 |

*SECNO 4858.000

| SECNO | DEPTH | CHSEL | CHNS | LSEL | LP | RV | TL | CORR | B/R ELEV |
|---|---|---|---|---|---|---|---|---|---|
| E | SLOP | DCH | SPCS | XLOT | ACT | LROD | POL | PMA | LSTR/PSH |
| FOR | MANN | SWR | PSHS | XNL | XWID | XWR | WT | ELMD | CBTA |
| SLOPE | XLOSL | XLCH | XLCBR | ITRIAL | IHP | ICONT | CORAD | TOPWID | E.OST |

SECT ENCROACHMENT ST. ING= 417.4 469.0 TYPE= 1 TARGET= 71.320

51 FT D/S MILL POND DAM CORPS C.S.943

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4858.00 | 6.03 | 798.03 | 0.00 | 798.03 | 798.84 | 0.80 | 2.03 | 0.08 | 795.00 |
| 11. | 34. | 17. | 30. | 15. | 242. | 1. | 64. | 14. | 792.10 |
| 0.20 | 1.60 | 7.90 | 1.82 | 0.100 | 0.340 | 0.190 | 1.040 | 993.00 | 617.44 |
| 0.015 | 220. | 340. | 500. | 3 | 1 | 0 | 0. | 2.52 | 203.94 |

*SECNO 4907.000

SECT ENCROACHMENT STATION = 334.0 396.0 TYPE= 1 TARGET= 23.150

D/S MILL POND DAM

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4907.00 | 6.27 | 798.27 | 1.00 | 798.37 | 799.22 | 0.95 | 3.51 | 5.07 | 804.00 |
| 1230. | 1. | 902. | 0. | 0. | 232. | 0. | 11. | 24. | 10.3000.10 |
| 0.23 | 0.10 | 7.56 | 0.00 | 0.100 | 0.340 | 2.150 | 0.940 | 794.00 | 395.72 |
| 0.007358 | 90. | 90. | 90. | 1 | 0 | 0 | 2.00 | 85.58 | 324.25 |

SHEET LAYOUT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 1.50 | 2.90 | 0.50 | 0.10 | 0.30 | 0.90 | 0.00 | 794.00 | 795.10 |

*SECNO 4908.000

PRESSURE AND NEED FLOW

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| ESPRS | ESLSC | AB | QWEIR | QPR | DAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 716512.00 | 799.23 | 0.00 | 1825. | 2. | 0. | -79. | 0.00 | 801.00 |

BANK SUBCHANNEL AREA ASSUMED NON-EFFECTIVE,ELLEA= 810.00 ELREA= 810.00

MILL POND DAM CORPS C.S.644

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4903.00 | 11.76 | 805.76 | 0.00 | 805.76 | 805.93 | 0.13 | 0.66 | 0.00 | 806.00 |
| 1481. | 0. | 1820. | 0. | 0. | 693. | 0. | 1. | 0. | 806.00 |
| 0.73 | 0.00 | 2.64 | 0.00 | 0.100 | 0.040 | 0.100 | 0.010 | 794.00 | 354.00 |
| 0.000266 | 1. | 1. | 1. | 2 | 0 | 10 | 0.00 | 62.00 | 396.00 |

QCAP= 3,170 CFS= 0.710
ASECID 3,806,000

MILL POND CORPS C.S.#45

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5704.00 | 3.94 | 805.94 | 0.00 | 805.94 | 805.97 | 0.34 | 3.01 | 7.01 | 806.50 |
| 1440. | 1. | 1811. | 1. | 4. | 1187. | 1. | 90. | 6. | 806.00 |
| 0.31 | 0.15 | 1.82 | 0.11 | 0.100 | 0.035 | 2.100 | 0.038 | 400.00 | 64.71 |
| 0.000187 | 400. | 407. | 400. | 2 | 0 | 0 | 0.06 | 262.25 | 327.05 |

QCAP= 0.90 CFS= 1.000
ASLOPE 3W= 1.500

34YS OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 810.00 ELREA= 810.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3926.00 | 9.33 | 805.93 | 0.00 | 836.73 | 836.11 | 0.05 | 0.11 | 0.00 | 836.50 |
| 1023. | 0. | 1820. | 0. | 0. | 970. | 0. | 105. | 14. | 830.00 |
| 0.40 | 1.00 | 1.06 | 0.00 | 0.060 | 0.040 | 0.080 | 2.040 | 800.00 | 93.00 |
| 0.000231 | 520. | 520. | 520. | 1 | 0 | 0 | 0.00 | 162.00 | 250.00 |

SECND DYS.DIS

3531 HY CHANGED 40.1E THAT LOINS

| SUBID | DEPTH | ENLEN | COINS | MSELL | AS | IN | DE | ELEBS | PAVE ELEV |
|---|---|---|---|---|---|---|---|---|---|
| ST | ELEV | ISH | DROP | ELSD | SID | ABOD | VC | TOP | SSTA |
| SLOPE | KLOBL | XLCF | XLOBD | ETRIAL | IHS | ICONT | CORAP | TOPWID | EASET |

SWIH ENCROACHMENT STATION= 3291.5 ELEV= 1 [illegible] 45.00

50 FT WIDE R.O. REGRADED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6578.00 | 2.62 | 805.93 | 0.00 | 836.58 | 807.11 | 0.19 | 0.51 | 0.00 | 808.00 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1820. | 239. | 1399. | 191. | 69. | 141. | 57. | 107. | 19. | 799.40 |
| | 0.40 | 5.45 | 9.83 | 3.53 | 0.000 | 0.340 | 0.080 | 3.040 | 798.30 | 257.50 |
| | 0.005171 | 150. | 150. | 950. | 2 | 0 | 0 | 0.00 | 45.00 | 302.50 |

#SECNO 6128.000

3301 HV CHANGED MORE THAN HVINS

SAVS OVERBANK AREA ASSIGNED NON-EFFECTIVE,ELLEA= 813.00 ELBEA= 815.00

D/S FACE C.O. R.R. BRIDGE #1 CORPS C.S.466

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 6129.00 | 7.65 | 806.05 | 0.00 | 806.05 | 808.39 | 2.35 | 0.36 | 0.93 | 799.00 | |
| 1320. | 0. | 1327. | 0. | 0. | 148. | 3. | 107. | 19. | 796.90 | |
| 0.40 | 0.20 | 12.23 | 0.00 | 0.030 | 0.040 | 0.020 | 0.040 | 798.60 | 256.60 | |
| 0.011324 | 50. | 50. | 50. | 0 | 0 | 0 | 0.00 | 30.00 | 351.00 | |

SPECIAL BRIDGE

| SO | X | MODE | OPT2 | OPT3 | WSEL | UNC | UNC2 | BOPX | SS | FLEN | LENL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.65 | 3.00 | 0.00 | 15.50 | 0.00 | 150.00 | 0.00 | 798.40 | 798.40 |

#SECNO 6170.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW

| EGPTS | ERLSS | PI | WPRIM | GTR | SAFES | TRAPEZOID AREA | ILLS | ELTRT |
|---|---|---|---|---|---|---|---|---|
| 429.77 | 100.00 | 0.00 | 0. | 1320. | 125. | 125. | 803.17 | 813.20 |

3495 SVS,OVBNK AREA ASSIGNED NON-EFFECTIVE,ELLEA= 815.00 ELBEA= 815.00

U/S FACE C.O. R.R. BRIDGE #

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6170.00 | 10.75 | 803.43 | 0.00 | 803.43 | 805.77 | 1.35 | 1.35 | 0.00 | 799.00 |
| 3128. | 3. | 1325. | 0. | 0. | 175. | 0. | 133. | 44. | 796.82 |
| 0.40 | 0.20 | 2.22 | 3.00 | 0.080 | 0.040 | 0.230 | 0.240 | 798.60 | 230.30 |
| 0.005373 | 50. | 50. | 50. | 1 | 0 | 0 | 0.00 | 30.00 | 450.30 |

#SECNO 6226.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 815.0 859.0 TYPE= 1 TARGET= 120.000

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 6226.00 | 11.50 | 813.43 | 2.00 | 813.43 | 816.45 | 0.35 | 0.35 | 0.00 | 799.00 | |
| 1320. | 378. | 510. | 532. | 30. | 240. | 321. | 133. | 15. | 796.82 | |
| 0.41 | 1.23 | 3.06 | 1.96 | 0.030 | 0.040 | 0.230 | 0.240 | 797.50 | 295.30 | |
| 0.001367 | 50. | 50. | 50. | 3 | 0 | 0 | 0.00 | 120.20 | 330.30 | |

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CCHV= 0.300 CZHV= 0.500

*SECNO 7150.000

340? ENCROACHMENT STATIONS= 115.0 450.0 TYPE= 1 TARGET= 335.000

VALLEY SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7150.00 | 9.25 | 810.95 | 0.00 | 811.95 | 811.04 | 0.09 | 0.42 | 0.01 | 802.02 |
| 1320. | 950. | 922. | 269. | 1121. | 139. | 350. | 146. | 95. | 803.40 |
| 0.45 | 0.63 | 3.78 | 0.70 | 2.120 | 0.040 | 0.120 | 3.039 | 801.2? | 810.00 |
| 0.000355 | 4400. | 535. | 100. | 2 | 0 | 0 | 0.00 | 355.00 | 55.00 |

*SECNO 7300.000

| SECNO | DEPTH | DWSEL | CRITS | WSEL | EL | HV | TW | BLOSS | ANK BLEV |
|---|---|---|---|---|---|---|---|---|---|
| XR | QL30 | ACH | PROT | ALOB | ACH | .ECB | VOL | TRK | LEFT/RIGHT |
| TYPE | QL20 | SICE | DPCH | K0 | SLOP | SHR | TM | CODE | DEPT |
| SLOPE | XLCOL | XLCH | XLOB | ITRIAL | IP2 | ICONT | CORAR | ICPLOT | END;T |

540? ENCROACHMENT STATIONS= 170.0 360.0 TYPE= 1 TARGET= 265.000

D/S FACE OLD MOVIE RD. BRIDGE FIELD BOOK STA. 28+10

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7300.27 | 9.03 | 811.13 | 0.00 | 811.13 | 811.25 | 0.12 | 0.20 | 0.21 | 802.10 |
| 1480. | 991. | 906. | 421. | 803. | 201. | 470. | 134. | 29. | 902.24 |
| 0.65 | 0.89 | 4.02 | 0.95 | 0.120 | 0.040 | 0.120 | 0.036 | 802.30 | 130.20 |
| 0.000678 | 900. | 750. | 100. | 2 | 1 | 0 | 0.00 | 250.20 | 50.20 |

SPECIAL BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| BR XR | BRLEN | TYPE | BRSKEW | WIDE | WINP | LSLOPE | RSLOPE | LSEL | RSEL |
| 0.00 | 4.03 | 3.00 | 0.00 | 25.70 | 0.00 | 114.00 | 0.00 | 802.10 | 802.10 |

*SECNO 7325.000

PRESSURE FLOW FROM FLOW

| CDPRS | EGLSC | HS | JUNIT | DPR | BARCA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 817.58 | 811.25 | 0.00 | 1211. | 518. | 114. | 114. | 802.90 | 810.10 |

540? ENCROACHMENT STATIONS= 100.0 360.0 TYPE= 1 TARGET= 260.000

D/S FACE OLD MOVIE RD. BRIDGE FIELD BOOK STA. 27+90

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7325.00 | 9.00 | 810.78 | 0.00 | 811.78 | 811.87 | 0.09 | 0.43 | 0.00 | 802.10 |
| 1351. | 914. | 726. | 347. | 734. | 219. | 321. | 115. | 21. | 902.24 |
| 0.60 | 0.82 | 3.55 | 0.83 | 0.120 | 0.040 | 0.120 | 0.036 | 802.10 | 100.00 |
| 0.000480 | 24. | 29. | 25. | 2 | 0 | 4 | 0.00 | 260.00 | 550.00 |

*SECNO 7349.000

540? ENCROACHMENT STATIONS= 200.0 372.0 TYPE= 1 TARGET= 172.000

D/S FACE D/S OLD MOVIE RD. FIELD BOOK STA. 26+00

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 7518.00 | 9.09 | 811.79 | 0.00 | 811.79 | 812.18 | 0.30 | 0.16 | 0.15 | 806.50 | |
| 1820. | 472. | 1266. | 32. | 360. | 215. | 98. | 159. | 25. | 807.30 | |
| 0.61 | 1.31 | 5.09 | 0.84 | 0.120 | 0.040 | 0.120 | 0.033 | 802.70 | 200.00 | |
| 0.001757 | 190. | 190. | 190. | 2 | 0 | 0 | 0.20 | 172.10 | 372.00 | |

*SECNO 7656.000

3301 HV CHANGED MORE THAN HVIVS

| SECNO | DEPTH | SHEEL | SPANS | JSELK | EG | IV | "I" | FLOWS | DRAW ELEV |
|---|---|---|---|---|---|---|---|---|---|
| | FLOW | ASI | ONES | BLOC | ASH | 4303 | 1.01 | 2.5" LEFT/2356.1T | |
| TIME | VLOJ | VCH | VROJ | ANL | XNCH | XVR | ATN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TCPWSO | ENDST |

3473 ENCROACHMENT STATIONS= 533.0 581.0 TYPE= 1 TARGET= 46.000

SS CT 675 C.O. P.T. BRIDGE #2 FIELD BOOK STA. 22+50

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7656.00 | 6.84 | 843.34 | 852.34 | 813.94 | 815.02 | 2.67 | 1.22 | 0.14 | 806.80 |
| 1820. | 193. | 1621. | 7. | 69. | 117. | 6. | 163. | 30. | 806.80 |
| 0.32 | 2.79 | 13.87 | 0.82 | 0.120 | 0.040 | 0.120 | 0.038 | 805.70 | 533.00 |
| 0.011504 | 353. | 350. | 350. | 3 | 15 | 2 | 0.00 | 46.00 | 501.00 |

*SECNO 7921.000

5301 HV CHANGED MORE THAN HVIVS

3475 OVERBANK AREA ENCROACHMENT ON LOB= 600.30 ELEV.= 816.30

D/S FACE C.O. R.R. BRIDGE #2 FIELD BOOK STA. 21+97

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7921.00 | 8.84 | 1.6.18 | 0.00 | 827.34 | 835.80 | 0.37 | 0.93 | 0.81 | 806.50 |
| 1820. | 0. | 1820. | 0. | 0. | 221. | | 1599. | 21. | 807.30 |
| 0.66 | 0.00 | 0.00 | 0.00 | 0.120 | 0.040 | 0.120 | 0.040 | 802.70 | 200.00 |
| 0.002962 | 55. | 55. | 55. | 4 | 0 | 0 | 0.00 | 27.00 | 575.50 |

SPECIAL BRIDGE

| SW | XP | YPCR | COPD | ROUGH | JUC | BWP | LAMPA | SS | ELCHO | FLCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.56 | 30.00 | 0.00 | 27.00 | 3.30 | 145.00 | 2.00 | 830.30 | 806.00 |

| SECNO | DEPTH | SHEEL | SPANS | ASELK | EG | IV | "I" | FLOWS | DRAW ELEV |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| TIME | VLOJ | VCH | VROJ | XNL | XNCH | XVR | ATN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IH2 | ICONT | CORAR | TCPWSO | ENDST |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| EGPRS | FLOW | HV | QUOT | SPE | DEPTH | VELOCITY | FLOW | ERROR | | |

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818.85 816.18 0.48 0. 1820. 145. 157. 811.70 819.20

3495 OVERFLOW AREA ASSUMED NOT-EFFECTIVE-ELLEV= 820.00 ELDEA= 820.00

U/S FACE C.O. R.R. BRIDGE #2 FIELD BOOK STA. 21+55

7965.00 12.32 818.47 0.00 818.37 816.85 0.48 5.65 0.00 804.00
1820. 0. 1820. 0. 0. 526. 0. 165. 0. 807.50
0.67 0.00 5.30 0.00 0.120 0.034 0.120 2.034 564.00 546.50
0.000736 34. 61. 46. 2 0 0 2.00 32.00 325.50

CONV= 0.300 CENV= 0.500
ELEVO 811.00

3495 ENCROACHMENT STATIONS= 273.0 325.0 TYPE= 1 TARGET= 50.000

153 FT U/S C.O. R.R. BRIDGE #2 FIELD BOOK STA. 20+01

7998.00 14.32 808.82 0.00 814.82 815.00 0.36 0.18 0.00 806.82
1820. 0. 1820. 0. 0. 295. 111. 65. 0. 838.50
0.67 1.00 5.31 0.00 0.105 0.033 0.120 2.033 564.63 325.00
0.000639 60. 153. 60. 2 0 0 0.00 52.00 325.00

CONV= 0.300 CENV= 0.500
ELEVO 811.00

3470 ENCROACHMENT STATIONS= 257.0 381.0 TYPE= 1 TARGET= 124.000

33 FT D/S 8 TILE RD. CULVERT FIELD BOOK STA. 16+00

8018.00 11.98 809.20 0.00 809.53 810.25 0.47 0.20 0.00 801.20
1820. 0. 1820. 0. 0. 295. 111. 65. 0. 1820.00
0.67 0.00 5.47 0.00 0.120 0.035 0.120 2.035 564.70 257.00
0.000655 125. 600. 250. 2 2 0 0.20 124.00 300.00

ELEVO 811.00

D/S 8 TILE RD. CULVERT

8555.00 13.38 809.18 0.00 809.00 810.20 0.20 0.00 0.00 800.00
1820. 0. 1820. 0. 0. 511. 0. 172. 0. 840.00
0.67 0.00 5.30 0.00 0.120 0.035 0.120 2.035 563.75 0.00
0.000684 35. 57. 37. 1 0 0 0.20 69.00 0.00

CONV= 0.300 CENV= 0.500
ELEVO 8050.00

3470 ENCROACHMENT STATIONS= 257.0 381.0 TYPE= 1 TARGET= 124.000

D/S FACE 8 TILE RD. CULVERT FIELD BOOK STA. 22+62

8500.00 13.18 809.20 0.00 808.53 810.20 0.40 0.20 0.00 800.20
1820. 0. 1820. 0. 0. 295. 111. 65. 0. 1820.00
0.67 0.00 5.43 0.00 0.120 0.035 0.120 2.035 564.70 257.00
0.000672 1. 11. 2 2 0 -175.53 41.00 25.00

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*SECNO 8811.000

| SECNO | DEPTH | CHSEL | CHINS | MSCLK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| 0 | ALOB | OCF | 3808 | ALOB | ACI | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VOF | V80B | XNL | XNCH | KNB | ETA | ELMIN | SSTA |
| SLOPE | XSDIF | KLB1 | KLB2B | ITRIAL | IP? | ICONT | CORAB | TCPHIS | ZRDST |

3470 NORMAL PROF.280= 47 MIN ELTOP= 812.60 MAX ELLC= 818.60

W/S FACE 3 MILE RD. CROSSING — FIELD BOOK STA. 1220

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8811.00 | 11.94 | 819.44 | 0.00 | 819.44 | 820.04 | 0.60 | 0.53 | 0.01 | 830.00 |
| 1820. | 0. | 1820. | 0. | 0. | 292. | 0. | 172. | 31. | 430.00 |
| 0.68 | 0.00 | 5.23 | 0.00 | 0.110 | 0.020 | 0.100 | 0.336 | 807.30 | 0.00 |
| 0.001964 | 25. | 255. | 255. | 2 | 0 | 0 | 50.30 | 48.00 | 48.00 |

CCHV= 0.300 CEHV= 0.500

*SECNO 8812.000

W/S FACE 3 MILE RD. CROSSING

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8812.00 | 12.47 | 819.97 | 0.00 | 819.97 | 820.17 | 0.19 | 0.00 | 0.12 | 840.90 |
| 1820. | 0. | 1820. | 0. | 0. | >19. | 0. | 172. | 31. | 846.02 |
| 0.68 | 0.30 | 3.51 | 0.00 | 0.080 | 0.040 | 0.055 | 0.296 | 807.30 | 0.00 |
| 0.020634 | 6. | 6. | 6. | 2 | 0 | 0 | 5.00 | 48.00 | 48.00 |

*SECNO 8818.000

3470 ENCROACHMENT STATIONS= 367.0 525.0 TYPE= 1 TARGET= 158.000

137 FT W/S 3 MILE RD. CROSSING — FIELD BOOK STA. 1240

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8818.00 | 11.73 | 820.13 | 0.00 | 820.13 | 820.23 | 0.11 | 0.06 | 0.02 | 830.60 |
| 1820. | 269. | 514. | 1361. | 725. | 115. | 517. | 173. | 31. | 908.80 |
| 0.69 | 1.03 | 4.41 | 1.72 | 0.080 | 0.040 | 0.083 | 0.136 | 808.40 | 367.00 |
| 0.006856 | 104. | 81. | 105. | 2 | 4 | 4 | 0.00 | 48.00 | 52.00 |

CCHV= 0.700 CEHV= 0.300

*SECNO 9458.000

3470 ENCROACHMENT STATIONS= 255.0 568.3 TYPE= 1 TARGET= 313.000

WALL= 0.0 FT — FIELD BOOK STA. 1268

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9458.00 | 10.67 | 820.37 | 0.00 | 820.37 | 820.40 | 0.03 | 0.10 | 0.01 | 830.10 |
| 1820. | 635. | 645. | 722. | 776. | 135. | 658. | 165. | 34. | 840.70 |
| 0.82 | 5.04 | 2.45 | 0.94 | 0.065 | 0.040 | 0.240 | 0.015 | 810.30 | 258.60 |
| 0.003165 | 500. | 533. | 533. | 2 | 0 | 0 | 0.10 | 48.00 | 565.50 |

CCHV= 0.300 CEHV= 0.500

*SECNO 9478.000

3470 ENCROACHMENT STATIONS= 255.0 568.3 TYPE= 1 TARGET= 281.000

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36.5 FT D/S NEW NOVI RD. BRIDGE FIELD BOOK STA. 2+00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 9918.00 | 9.75 | 820.25 | 0.00 | 820.25 | 820.92 | 0.67 | 0.20 | 0.32 | 812.20 |
| 1820. | 238. | 1279. | 303. | 128. | 167. | 104. | 199. | 36. | 812.70 |
| 0.82 | 1.06 | 7.56 | 2.87 | 0.100 | 0.240 | 0.060 | 0.033 | 810.50 | 832.51 |
| 0.003611 | 135. | 463. | 500. | 2 | 0 | 0 | 3.07 | 78.00 | 960.53 |

*SECNO 9973.500

| SECNO | DEPTH | ZWSEL | CAINS | WSELK | EG | HV | L | DLOSS | HALF ELEV |
|---|---|---|---|---|---|---|---|---|---|
| 9 | 9LOB | 0C. | CHOB | ALOB | ACL | 4ROW | VOL | TRA | LEFT/RIGHT |
| TOWC | VLOB | 0C. | V10C | | /INCH | KMR | %TM | EL PR | SST |
| FLOP: | XLOB | ALOB | RLOCR | 17318. | TOP | LOCST | CLOB | CLCHN | CLROB |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 823.50 CLREA= 823.50

D/S FACE NEW NOVI RD. BRIDGE FIELD BOOK STA. 1+44.5

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9973.50 | 9.72 | 820.42 | 0.00 | 820.42 | 821.08 | 0.66 | 0.16 | 0.00 | 820.76 |
| 1820. | 0. | 1820. | 0. | 0. | 278. | 0. | 199. | 36. | 820.29 |
| 2.03 | 0.00 | 6.54 | 3.00 | 0.100 | 0.240 | 0.060 | 0.032 | 810.70 | 1925.07 |
| 1.003611 | 58. | 52. | 37. | 2 | 0 | 0 | 2.01 | 96.43 | 1975.50 |

SPECIAL BRIDGE

| BR NO | FLOW | DATA | BLOCK | T-S | WSP | FAREA | SS | LWRU | LCHR |
|---|---|---|---|---|---|---|---|---|---|
| 1.05 | 1.69 | 3.00 | 3.00 | 21.00 | 2.00 | 335.00 | 1.23 | 810.70 | 810.70 |

*SECNO 10011.000

CLASS A CHN FLO.

3493 [illegible] VELOCITY= 6.12 CR SECTION AREAS 197.

| EGPRS | ESLOB | HB | SWDIR | QPR | LAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 0.10 | 821.4 | 0.0 | 1. | 702. | 325. | 325. | 821.23 | 823.20 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 823.50 CLREA= 823.50

U/S FACE NEW NOVI RD. BRIDGE FIELD BOOK STA. 1+97

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10011.00 | 9.81 | 820.51 | 0.00 | 820.51 | 821.16 | 0.65 | 0.07 | 0.00 | 820.71 |
| 1820. | 0. | 1820. | 0. | 0. | 283. | 0. | 199. | 36. | 820.29 |
| 0.63 | 0.00 | 6.43 | 3.00 | 0.100 | 0.240 | 0.060 | 0.036 | 810.70 | 1924.87 |
| 0.003520 | 30. | 31. | 38. | 0. | 0 | 3 | 2.09 | 80.43 | 1976.50 |

*SECNO 10084.000

3493 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 826.10 CLREA= 826.10

[illegible] FIELD BOOK STA. 0+32

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10146.00 | 9.82 | 820.32 | 0.00 | 820.32 | 821.45 | 0.73 | 0.29 | 0.34 | 820.90 |
| 1820. | 0. | 1820. | 0. | 0. | 265. | 0. | 220. | 36. | 820.47 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.83 | 0.00 | 6.14 | 0.00 | 0.100 | 0.040 | 0.060 | 0.038 | 812.90 | 1533.00 |
| | 0.303969 | 73. | 73. | 73. | 2 | 0 | 0 | 0.00 | 34.00 | 1567.00 |

SPECIAL BRIDGE

| SA | MK | KJOB | CCFQ | RDLLR | B.C | B.P | BAREA | SS | ELCHD | ELCHC |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.73 | 3.00 | 0.00 | 34.00 | 0.00 | 245.00 | 0.00 | 812.90 | 812.90 |

ASECTO 10094.000
PASSAGE FROM

| EGPRS | CGLNC | MR | JHEIR | QPR | BAREA | YR/PARCID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 827.20 | 821.49 | 0.00 | 0. | 1120. | 245. | 245. | 820.10 | 826.10 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 826.10 ELREA= 826.10

U/S FACE G.T. I.E. BRIDGE NO FIELD LOOK STA. CREW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10094.00 | 8.72 | 821.62 | 0.00 | 821.62 | 822.20 | 0.58 | 0.76 | 0.00 | 820.60 |
| 1120. | 0. | 1820. | 0. | 0. | 297. | 0. | 200. | 36. | 820.00 |
| 0.83 | 0.00 | 6.14 | 0.00 | 0.100 | 0.040 | 0.060 | 0.038 | 812.90 | 1533.00 |
| 0.000520 | 10. | 10. | 10. | 2 | 0 | 0 | 0.00 | 34.00 | 1567.00 |

*SECTO 10103.000

3501 SW (U/S)GD POOR THAN PARTS.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10103.00 | 6.37 | 821.77 | 0.00 | 821.77 | 822.78 | 1.53 | 0.00 | 0.00 | 812.90 |
| 1120. | 1. | 1821. | 0. | 0. | 172. | 0. | 0. | 0. | 812.90 |
| 0.83 | 0.00 | 30.30 | 0.00 | 0.100 | 0.040 | 0.060 | 0.038 | 812.80 | 1539.00 |
| 0.003328 | 1. | 9. | 9. | 2 | 0 | 0 | 0.00 | 22.00 | 1561.00 |

SECTO 10110.700

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ARCID | DATA | STSEL | SECNO | SEE.K | SQ | HV | STL | LCRS | ROOF ELEV | |
| 0 | QLOW | QC | QQCQ | QLQT | ACH | ZRCQ | VOL | TW2 | LEFT/RIGHT | |
| TYPE | VLOW | VC2 | VQC2 | XNL | XTCH | XNA | XTA | ICRSW | SSTA | |
| SLOPL | SLOUL | SLC1 | SLQC2 | ZTOTAL | I+2 | ICORT | CORAR | YCPNTO | E.JCT | |

3502 LOWING RIDGE,MED= 5 WTH ELTR.= 826.10 MAX ELLC= 826.10

3503 (U/S)NO ARCH ASSUMED NON-EFFECTIVE,ELLEA= 826.10 ELREA= 826.10

U/S FACE OLD MCVICS. BRIDGE FIELD LOOK STA. CREW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0110.00 | 4.52 | 821.17 | 0.00 | 821.17 | 822.73 | 1.56 | 0.01 | 0.10 | 813.30 |

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   1820.      0.    1820.      0.      0.     182.      0.     205.     36.    813.10
    0.83    0.00    10.00    0.00    0.100   0.040   0.060   0.038   812.60  1539.00
0.005126      1.      1.      1.       0       0       0    0.00    22.00  1561.00

*RECHO 10132.000

5370 NORMAL BRIDGE,NRD=  6 MIN ELTRD=  826.10 MAX ELLC=  823.10

5490 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      826.10 ELREA=      826.10

        U/S FACE OLD NOVI RD. BRIDGE              FIELD BOOK STA. 0-14

10132.00    8.83   821.43    0.00   821.43   822.89    1.46    0.14    0.03   813.30
   1820.      0.    1820.      0.      0.     183.      0.     200.     36.    813.10
    0.83    0.00    10.73    0.00    0.100   0.040   0.060   0.038   812.60  1539.00
0.004966      20.     24.     24.       2       0       0    0.00    22.00  1561.00

*RECHO 10133.000

5490 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      826.10 ELREA=      826.10

        U/S OLD NOVI RD.

10133.00    8.84   821.44    0.00   821.44   822.93    1.46    0.00    0.00   813.30
   1820.      0.    1820.      0.      0.     188.      0.     200.     36.    813.10
    0.83    0.00    10.79    0.00    0.100   0.040   0.060   0.038   812.60  1539.00
0.004657      1.      1.      1.       0       0       0    0.00    22.00  1561.00

*RECHO 10157.000

5301 [illegible]

5470 ENCROACHMENT STATIONS=      364.0      416.0  TYPE=      1  TARGET=      32.000

        FIELD [illegible]  25' U/S  OLD NOVI RD. BRIDGE

10157.00    9.47   822.17    0.00   822.17   823.13    0.96    0.09    0.15   812.80
   1820.    177.    1331.    312.     63.     151.     65.     200.     36.    812.50
    0.83    2.81     8.33    4.79    0.100   0.040   0.060   0.038   812.70   364.00
0.007438      24.     24.     24.       3       0       0    0.00    32.00   416.00
```

FORM 1411-GB-PRINTED BY ROTARY MANIFOLD FORMS, PRINTED IN U.S.A.

PRINTED IN U.S.A.

FORM 1411-08 PRINTED BY ROTARY MANIFOLD FORMS,

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**********************************************************
   HEC2 RELEASE DATED NOW TO UPDATED FEB 1977
   ERROR CORR =  01
   MODIFICATIO = 30.54.45
**********************************************************

 NOTE= ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

 MID.ROUGE R. N.VILLE C.

 SUMMARY PRINTOUT TABLE  150
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| SECNO | CLSSN | FRICTS | PS | TOPWID | ELCHL | XCH | ELOB | PCHNL | STRCHL | STRNL | STRCHR | STRNR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 769.07 | 0.00 | 768.15 | 560.00 | 1191.43 | 1377.90 | 1171.47 | 560.00 | 165.00 | 425.00 | 465.00 | 725.00 |
| 0.000 | 769.17 | 0.12 | 768.24 | 560.00 | 1196.61 | 1365.83 | 1197.56 | 561.02 | 165.00 | 425.00 | 465.00 | 725.00 |
| 300.000 | 769.18 | 1.00 | 768.25 | 430.00 | 1008.15 | 1764.72 | 938.12 | 431.02 | 230.00 | 425.00 | 465.00 | 660.00 |
| 300.000 | 769.21 | 0.12 | 768.39 | 430.00 | 1016.97 | 1730.69 | 942.45 | 581.00 | 230.00 | 425.00 | 465.00 | 660.00 |
| 600.000 | 769.19 | 0.00 | 768.58 | 280.00 | 692.34 | 2322.96 | 664.70 | 280.00 | 305.00 | 425.00 | 465.00 | 585.00 |
| 600.000 | 769.29 | 0.09 | 768.73 | 280.00 | 720.66 | 2305.79 | 673.55 | 280.00 | 305.00 | 425.00 | 465.00 | 585.00 |
| 975.000 | 769.39 | 0.00 | 770.46 | 85.00 | 760.97 | 2502.07 | 416.99 | 85.00 | 545.00 | 575.00 | 600.00 | 635.00 |
| 975.000 | 769.53 | 0.13 | 770.60 | 85.00 | 761.47 | 2499.27 | 419.27 | 85.00 | 545.00 | 575.00 | 600.00 | 635.00 |
| 1025.000 | 769.65 | 0.00 | 770.82 | 49.47 | 0.00 | 3650.00 | 0.00 | 0.00 | 0.00 | 975.00 | 1035.00 | 0.00 |
| 1025.000 | 769.67 | 0.02 | 770.83 | 49.51 | 0.00 | 3680.00 | 0.00 | 0.00 | 975.00 | 975.00 | 1035.00 | 1035.00 |
| 1075.000 | 769.83 | 0.00 | 771.96 | 49.91 | 0.00 | 3680.00 | 0.00 | 0.00 | 0.00 | 975.00 | 1035.00 | 0.00 |
| 1075.000 | 769.99 | 0.00 | 771.98 | 49.97 | 0.00 | 3680.00 | 0.00 | 0.00 | 0.00 | 975.00 | 1035.00 | 0.00 |
| 1113.000 | 770.89 | 0.00 | 771.21 | 70.00 | 226.77 | 1468.52 | 174.71 | 70.00 | 965.00 | 989.00 | 1011.00 | 1035.00 |
| 1113.000 | 770.97 | 0.07 | 771.26 | 70.00 | 226.04 | 1468.00 | 175.18 | 70.00 | 965.00 | 989.00 | 1011.00 | 1035.00 |
| 2105.000 | 777.05 | 0.00 | 780.11 | 70.00 | 897.13 | 1473.66 | 77.21 | 70.00 | 295.00 | 318.00 | 342.00 | 365.00 |
| 2105.000 | 777.11 | 0.10 | 780.20 | 70.00 | 899.04 | 1471.52 | 77.33 | 70.00 | 295.00 | 318.00 | 342.00 | 365.00 |
| 2213.000 | 779.94 | 0.00 | 780.24 | 156.72 | 125.23 | 1512.32 | 217.42 | 170.00 | 35.00 | 90.00 | 123.00 | 205.00 |
| 2213.000 | 780.06 | 0.09 | 780.33 | 157.48 | 122.60 | 1503.41 | 223.99 | 170.00 | 35.00 | 90.00 | 123.00 | 205.00 |
| 2513.000 | 780.21 | 0.00 | 780.69 | 134.34 | 140.26 | 1525.16 | 208.18 | 0.00 | 0.00 | 411.00 | 440.00 | 0.00 |
| 2513.000 | 780.30 | 0.07 | 780.76 | 65.79 | 247.90 | 1561.01 | 191.01 | 0.00 | 295.38 | 415.00 | 440.00 | 465.62 |
| 2853.000 | 780.61 | 0.00 | 782.45 | 42.95 | 3.51 | 1823.31 | 23.13 | 0.00 | 0.00 | 108.00 | 144.00 | 0.00 |
| 2853.000 | 780.74 | 0.10 | 782.46 | 42.94 | 3.60 | 1821.70 | 24.72 | 42.44 | 108.46 | 108.00 | 144.00 | 144.40 |
| 2953.000 | 782.34 | 0.00 | 783.05 | 21.21 | 0.00 | 1850.00 | 0.00 | 0.00 | 0.00 | 148.47 | 169.68 | 0.00 |
| 2953.000 | 782.84 | 0.00 | 783.08 | 21.21 | 0.00 | 1850.00 | 0.00 | 0.00 | 0.00 | 148.47 | 169.68 | 0.00 |
| 3053.000 | 783.63 | 0.00 | 784.05 | 21.21 | 0.00 | 1850.00 | 0.00 | 0.00 | 0.00 | 148.47 | 169.68 | 0.00 |
| 3053.000 | 783.83 | 0.00 | 784.08 | 21.21 | 0.00 | 1850.00 | 0.00 | 0.00 | 0.00 | 148.47 | 169.68 | 0.00 |

| | SECND | CWSEL | DIFKNS | EG | TOPSID | GLOD | SCH | CNDT | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3133.000 | 786.04 | 0.00 | 786.45 | 64.91 | 65.64 | 1684.52 | 99.86 | 0.00 | 0.30 | 75.00 | 110.00 | 0.00 |
| | 3133.000 | 786.04 | 0.00 | 786.45 | 64.91 | 65.64 | 1684.52 | 99.86 | 0.00 | 0.30 | 75.00 | 110.00 | 0.00 |
| | 3278.000 | 786.69 | 0.00 | 786.62 | 83.00 | 57.22 | 1803.17 | 9.61 | 83.00 | 66.00 | 75.00 | 140.00 | 149.50 |
| | 3278.000 | 786.69 | 0.00 | 786.62 | 83.00 | 57.22 | 1803.17 | 9.61 | 83.00 | 66.00 | 75.00 | 140.00 | 149.50 |
| | 3327.000 | 786.50 | 0.00 | 786.66 | 58.63 | 0.00 | 1850.00 | 0.00 | 0.00 | 0.00 | 0.00 | 140.00 | 0.00 |
| | 3327.000 | 786.50 | 0.00 | 786.66 | 58.63 | 0.00 | 1850.00 | 0.00 | 0.00 | 0.00 | 0.00 | 140.00 | 0.00 |
| | 3384.000 | 786.49 | 0.00 | 786.70 | 59.33 | 0.00 | 1905.00 | 0.00 | 0.00 | 0.00 | 0.00 | 140.00 | 0.00 |
| | 3384.000 | 786.49 | 0.00 | 786.70 | 59.33 | 0.00 | 1905.00 | 0.00 | 0.00 | 0.00 | 0.00 | 140.00 | 0.00 |
| | 3672.000 | 788.70 | 0.00 | 789.65 | 63.58 | 0.00 | 1850.00 | 0.00 | 0.00 | 0.00 | 475.00 | 525.00 | 0.00 |
| | 3672.000 | 788.70 | 0.00 | 789.65 | 63.58 | 0.00 | 1850.00 | 0.00 | 0.00 | 0.00 | 475.00 | 525.00 | 0.00 |
| | 3686.000 | 788.87 | 0.00 | 789.77 | 63.93 | 0.00 | 1850.00 | 0.00 | 0.00 | 0.00 | 475.00 | 525.00 | 0.00 |
| | 3686.000 | 788.87 | 0.00 | 789.77 | 63.93 | 0.00 | 1850.00 | 0.00 | 0.00 | 0.00 | 475.00 | 525.00 | 0.00 |
| | 3825.000 | 790.80 | 0.00 | 791.87 | 52.11 | 209.46 | 1557.43 | 103.11 | 0.00 | 0.00 | 435.00 | 516.60 | 0.00 |
| | 3825.000 | 790.80 | 0.00 | 791.87 | 52.11 | 209.46 | 1557.43 | 103.11 | 0.00 | 0.00 | 435.00 | 516.60 | 0.00 |
| | 3965.000 | 791.76 | 0.00 | 793.55 | 63.53 | 109.73 | 1569.96 | 91.31 | 0.00 | 0.00 | 441.04 | 465.29 | 0.00 |
| | 3965.000 | 791.76 | 0.00 | 793.55 | 43.53 | 109.73 | 1569.96 | 91.31 | 0.00 | 0.00 | 441.04 | 465.29 | 0.00 |
| * | 4020.000 | 794.88 | 0.00 | 795.42 | 95.96 | 273.82 | 1341.46 | 234.70 | 140.00 | 400.95 | 441.05 | 460.29 | 498.96 |
| * | 4020.000 | 794.87 | 0.00 | 795.42 | 95.96 | 273.82 | 1341.46 | 234.70 | 140.00 | 400.95 | 441.05 | 460.29 | 498.96 |
| | 4070.000 | 795.17 | 0.00 | 795.55 | 147.47 | 177.69 | 1237.20 | 433.12 | 200.00 | 340.00 | 430.00 | 450.00 | 540.00 |
| | 4070.000 | 795.17 | 0.00 | 795.55 | 147.47 | 177.69 | 1237.20 | 433.12 | 200.00 | 340.00 | 430.00 | 450.00 | 540.00 |
| | 4078.000 | 795.68 | 0.00 | 796.73 | 127.99 | 191.46 | 1340.04 | 318.50 | 0.00 | 0.00 | 430.00 | 450.00 | 0.00 |
| | 4078.000 | 795.68 | 0.00 | 796.73 | 127.99 | 191.46 | 1340.04 | 318.50 | 0.00 | 0.00 | 430.00 | 450.00 | 0.00 |
| | 4138.000 | 795.80 | 0.00 | 796.84 | 71.53 | 24.46 | 1705.86 | 23.66 | 0.00 | 0.00 | 429.00 | 447.00 | 0.00 |
| | 4858.000 | 795.03 | 0.00 | 796.04 | 71.52 | 24.46 | 1705.86 | 23.66 | 71.52 | 417.44 | 425.00 | 450.00 | 465.96 |
| | 4507.000 | 798.27 | 0.00 | 799.22 | 58.56 | 0.00 | 1426.00 | 0.00 | 62.50 | 334.00 | 334.00 | 396.00 | 396.00 |
| | 4507.000 | 798.27 | 0.00 | 799.22 | 58.56 | 0.00 | 1426.00 | 0.00 | 62.50 | 334.00 | 334.00 | 396.00 | 396.00 |
| | 4908.000 | 805.78 | 0.00 | 806.88 | 62.00 | 0.00 | 1820.00 | 0.00 | 0.00 | 0.00 | 334.00 | 396.00 | 0.00 |
| | 4908.000 | 805.78 | 0.00 | 806.88 | 62.00 | 0.00 | 1820.00 | 0.00 | 0.00 | 0.00 | 334.00 | 396.00 | 0.00 |
| | 5300.000 | 805.94 | 0.00 | 805.97 | 262.25 | 0.56 | 1818.19 | 1.25 | 0.00 | 0.00 | 71.00 | 320.00 | 0.00 |
| | 5300.000 | 805.94 | 0.00 | 805.97 | 262.25 | 0.56 | 1818.19 | 1.25 | 0.00 | 0.00 | 71.00 | 320.00 | 0.00 |
| | 5929.000 | 806.83 | 0.00 | 806.11 | 150.00 | 0.00 | 1820.00 | 0.00 | 0.00 | 0.00 | 90.00 | 240.00 | 0.00 |
| | 5929.000 | 806.83 | 0.00 | 806.11 | 150.00 | 0.00 | 1820.00 | 0.00 | 0.00 | 0.00 | 90.00 | 240.00 | 0.00 |
| | 6078.000 | 805.93 | 0.00 | 807.11 | 45.00 | 238.64 | 1390.77 | 140.34 | 45.00 | 257.50 | 270.00 | 290.00 | 302.50 |
| | 6078.000 | 805.93 | 0.00 | 807.11 | 45.00 | 238.64 | 1390.77 | 140.34 | 45.00 | 257.50 | 270.00 | 290.00 | 302.50 |
| | 6128.000 | 806.53 | 0.00 | 808.39 | 20.00 | 0.00 | 1820.00 | 0.00 | 0.00 | 0.00 | 230.00 | 250.00 | 0.00 |
| | 6128.000 | 806.53 | 0.00 | 808.39 | 20.00 | 0.00 | 1820.00 | 0.00 | 0.00 | 0.00 | 230.00 | 250.00 | 0.00 |
| | 6178.000 | 806.43 | 0.00 | 809.77 | 20.00 | 0.00 | 1820.00 | 0.00 | 0.00 | 0.00 | 230.00 | 250.00 | 0.00 |
| | 6178.000 | 806.43 | 0.00 | 809.77 | 20.00 | 0.00 | 1820.00 | 0.00 | 0.00 | 0.00 | 230.00 | 250.00 | 0.00 |

PRINTED IN U.S.A.
FORM 1411-9B PRINTED BY ROTARY MANIFOLD FORMS.

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6228.000 | 810.43 | 0.00 | 810.55 | 120.00 | 377.89 | 910.00 | 532.16 | 120.00 | 215.00 | 270.00 | 290.00 | 335.00 |
| 6228.000 | 810.43 | 0.00 | 810.55 | 120.00 | 377.89 | 910.00 | 532.16 | 120.00 | 215.00 | 270.00 | 290.00 | 335.00 |
| 7153.000 | 811.59 | 0.00 | 811.04 | 335.00 | 850.39 | 732.00 | 267.91 | 335.00 | 115.00 | 338.00 | 359.00 | 450.00 |
| 7150.000 | 810.95 | 0.00 | 811.04 | 335.00 | 850.39 | 732.00 | 267.91 | 335.00 | 115.00 | 338.00 | 359.00 | 450.00 |
| 7320.000 | 811.13 | 0.00 | 811.25 | 260.00 | 591.11 | 807.61 | 421.26 | 260.00 | 100.00 | 237.65 | 261.35 | 360.00 |
| 7330.000 | 811.19 | 0.00 | 811.25 | 260.00 | 591.11 | 807.61 | 421.26 | 260.00 | 100.00 | 237.65 | 261.35 | 360.00 |
| 7328.000 | 811.78 | 0.00 | 811.87 | 260.00 | 513.85 | 769.45 | 430.71 | 260.00 | 100.00 | 237.65 | 261.35 | 360.00 |
| 7518.000 | 811.79 | 0.00 | 812.13 | 172.00 | 471.80 | 1265.46 | 82.33 | 172.00 | 200.00 | 287.00 | 313.00 | 372.00 |
| 7518.000 | 811.79 | 0.00 | 812.18 | 172.00 | 471.80 | 1265.46 | 82.33 | 172.00 | 200.00 | 287.00 | 313.00 | 372.00 |
| 7808.000 | 812.34 | 0.00 | 813.02 | 48.00 | 192.66 | 1620.84 | 6.53 | 48.00 | 553.00 | 551.00 | 569.00 | 581.00 |
| 7921.000 | 814.04 | 0.00 | 815.80 | 27.00 | 0.00 | 1020.00 | 0.00 | 0.00 | 0.00 | 546.53 | 573.50 | 0.00 |
| 7921.000 | 814.04 | 0.00 | 815.80 | 27.00 | 0.00 | 1020.00 | 0.00 | 0.00 | 0.00 | 546.53 | 573.50 | 0.00 |
| 7965.000 | 818.37 | 0.00 | 818.85 | 27.00 | 0.00 | 1020.00 | 0.00 | 0.00 | 0.00 | 546.53 | 573.50 | 0.00 |
| 8118.000 | 818.63 | 0.00 | 819.00 | 53.00 | 125.22 | 1566.12 | 128.67 | 50.00 | 275.00 | 287.00 | 313.00 | 325.00 |
| 8118.000 | 818.63 | 0.00 | 819.00 | 53.00 | 125.22 | 1566.12 | 128.67 | 50.00 | 275.00 | 287.00 | 313.00 | 325.00 |
| 8518.000 | 819.03 | 0.00 | 819.25 | 124.00 | 343.16 | 1071.33 | 405.51 | 124.00 | 257.00 | 307.00 | 331.00 | 381.00 |
| 8555.000 | 819.08 | 0.00 | 819.26 | 48.00 | 0.00 | 1020.00 | 0.00 | 0.00 | 0.00 | 0.00 | 48.00 | 0.00 |
| 8555.000 | 819.08 | 0.00 | 819.26 | 48.00 | 0.00 | 1020.00 | 0.00 | 0.00 | 0.00 | 0.00 | 48.00 | 0.00 |
| 8556.000 | 819.08 | 0.00 | 819.59 | 48.00 | 0.00 | 1020.00 | 0.00 | 0.00 | 0.00 | 0.00 | 48.00 | 0.00 |
| 8811.000 | 819.44 | 0.00 | 820.04 | 48.00 | 0.00 | 1020.00 | 0.00 | 0.00 | 0.00 | 0.00 | 48.00 | 0.00 |
| 8811.000 | 819.44 | 0.00 | 820.04 | 48.00 | 0.00 | 1020.00 | 0.00 | 0.00 | 0.00 | 0.00 | 48.00 | 0.00 |
| 8812.000 | 819.97 | 0.00 | 820.17 | 48.00 | 0.00 | 1020.00 | 0.00 | 0.00 | 0.00 | 0.00 | 48.00 | 0.00 |
| 8978.000 | 820.19 | 0.00 | 820.29 | 158.00 | 242.63 | 513.66 | 1063.71 | 158.00 | 367.00 | 441.00 | 451.00 | 525.00 |
| 8978.000 | 820.19 | 0.00 | 820.29 | 158.00 | 242.63 | 513.66 | 1063.71 | 158.00 | 367.00 | 441.00 | 451.00 | 525.00 |
| 9453.000 | 820.37 | 0.00 | 820.40 | 340.00 | 653.06 | 445.19 | 731.77 | 340.00 | 255.00 | 411.00 | 419.00 | 565.00 |
| 9978.000 | 820.25 | 0.00 | 820.92 | 78.00 | 238.14 | 1278.56 | 303.44 | 0.00 | 362.50 | 912.00 | 931.00 | 960.50 |
| 9978.000 | 820.25 | 0.00 | 820.97 | 78.00 | 238.14 | 1278.56 | 303.44 | 78.00 | 362.50 | 912.00 | 931.00 | 960.50 |
| 9978.000 | 820.42 | 0.00 | 821.07 | 53.00 | 0.00 | 1020.00 | 0.00 | 0.00 | 0.00 | 1524.50 | 1575.50 | 0.00 |
| 9978.000 | 820.59 | 0.00 | 821.16 | 53.00 | 0.00 | 1020.00 | 0.00 | 0.00 | 0.00 | 1524.50 | 1575.50 | 0.00 |

| SECNO | CABEL | DIPKUS | SG | TOPWID | BLOD | BCH | GROB | PERENC | STENCL | STCHL | STCHR | STENCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10094.000 | 820.72 | 0.00 | 821.45 | 34.00 | 0.00 | 1320.00 | 0.00 | 0.00 | 0.00 | 1533.00 | 1567.00 | 0.00 |
| 10094.000 | 820.72 | 0.00 | 821.45 | 34.00 | 0.00 | 1320.00 | 0.00 | 0.00 | 0.00 | 1533.00 | 1567.00 | 0.00 |
| 10394.000 | 821.37 | 0.00 | 822.20 | 34.00 | 0.00 | 1627.00 | 0.00 | 0.00 | 0.00 | 1533.00 | 1567.00 | 0.00 |
| 10394.000 | 821.62 | 0.00 | 822.30 | 34.00 | 0.00 | 1625.00 | 0.00 | 0.00 | 0.00 | 1533.00 | 1567.00 | 0.00 |
| 10703.000 | 821.37 | 0.00 | 822.72 | 22.00 | 0.00 | 1625.00 | 0.00 | 0.00 | 0.00 | 1539.00 | 1561.00 | 0.00 |
| 10703.100 | 821.37 | 0.00 | 822.72 | 22.00 | 0.00 | 1625.00 | 0.00 | 0.00 | 0.00 | 1539.00 | 1561.00 | 0.00 |
| 10704.000 | 821.37 | 0.00 | 822.73 | 22.00 | 0.00 | 1625.00 | 0.00 | 0.00 | 0.00 | 1539.00 | 1561.00 | 0.00 |
| 10704.000 | 821.17 | 0.00 | 822.73 | 22.00 | 0.00 | 1620.00 | 0.00 | 0.00 | 0.00 | 1539.00 | 1561.00 | 0.00 |
| 10132.000 | 821.43 | 0.00 | 822.89 | 22.00 | 0.00 | 1623.00 | 0.00 | 0.00 | 0.00 | 1539.00 | 1561.00 | 0.00 |
| 10132.100 | 821.43 | 0.00 | 822.89 | 22.00 | 0.00 | 1620.00 | 0.00 | 0.00 | 0.00 | 1539.00 | 1561.00 | 0.00 |
| 10133.000 | 821.44 | 0.00 | 822.92 | 22.00 | 0.00 | 1620.00 | 0.00 | 0.00 | 0.00 | 1539.00 | 1561.00 | 0.00 |
| 10135.000 | 821.44 | 0.00 | 822.92 | 22.00 | 0.00 | 1620.00 | 0.00 | 0.00 | 0.00 | 1539.00 | 1561.00 | 0.00 |
| 10157.000 | 822.17 | 0.00 | 823.13 | 32.00 | 177.25 | 1331.20 | 211.56 | 32.00 | 364.00 | 542.00 | 408.00 | 416.00 |
| 10157.000 | 822.17 | 0.00 | 823.13 | 32.00 | 177.25 | 1331.20 | 211.56 | 32.00 | 364.00 | 542.00 | 408.00 | 416.00 |

R

PRINTED IN U.S.A.

FORM 1411-GG-PRINTED BY ROTARY MANIFOLD FORMS,

MID.ROUGE R. N.VILLE C.

SUMMARY PRINTOUT TABLE 150

| | FROND | STAGE | FLOW | ELEV | ELEV | S | CSEL | COND | HO | VOL+S | VOL | AREA | DIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.000 | 0.00 | 0.00 | 0.00 | 757.10 | 3680.00 | 768.07 | 0.00 | 768.14 | 3.03 | 3.42 | 3282.36 | 2115.19 |
| | 0.000 | 0.00 | 0.00 | 0.00 | 757.10 | 3680.00 | 768.17 | 0.00 | 768.24 | 2.68 | 3.36 | 3338.42 | 2168.13 |
| | 300.000 | 300.00 | 0.00 | 0.00 | 758.00 | 3680.00 | 768.13 | 0.00 | 768.80 | 6.27 | 4.65 | 2267.04 | 1469.66 |
| | 300.000 | 300.00 | 0.00 | 0.00 | 758.00 | 3680.00 | 768.23 | 0.00 | 768.89 | 5.96 | 4.56 | 2269.22 | 1517.77 |
| | 900.000 | 300.00 | 0.00 | 0.00 | 758.90 | 3680.00 | 768.19 | 0.00 | 768.66 | 15.81 | 6.93 | 1274.60 | 925.56 |
| | 900.000 | 300.00 | 0.00 | 0.00 | 758.90 | 3680.00 | 768.29 | 0.00 | 768.75 | 15.02 | 6.80 | 1300.51 | 949.49 |
| | 978.000 | 978.00 | 0.00 | 0.00 | 760.10 | 3680.00 | 769.58 | 0.00 | 770.46 | 66.48 | 11.11 | 519.97 | 451.34 |
| | 978.000 | 978.00 | 0.00 | 0.00 | 760.10 | 3680.00 | 769.67 | 0.00 | 770.55 | 66.05 | 13.02 | 534.55 | 456.99 |
| | 1028.000 | 50.00 | 0.00 | 0.00 | 757.40 | 3680.00 | 769.65 | 0.00 | 770.82 | 14.18 | 8.65 | 425.19 | 914.96 |
| | 1028.000 | 50.00 | 0.00 | 0.00 | 757.40 | 3680.00 | 769.67 | 0.00 | 770.83 | 14.16 | 8.64 | 425.98 | 917.27 |
| | 1078.030 | 50.00 | 775.30 | 775.30 | 757.40 | 3680.00 | 769.52 | 0.00 | 770.91 | 15.30 | 8.48 | 431.13 | 940.69 |
| | 1078.030 | 50.00 | 775.30 | 775.30 | 757.40 | 3680.00 | 769.62 | 0.00 | 771.00 | 14.95 | 8.36 | 432.94 | 955.33 |
| | 1113.000 | 35.00 | 0.00 | 0.00 | 757.90 | 1850.00 | 770.89 | 0.00 | 771.21 | 2.37 | 5.06 | 747.41 | 1200.45 |
| | 1113.000 | 35.00 | 0.00 | 0.00 | 757.90 | 1850.00 | 770.97 | 0.00 | 771.28 | 2.33 | 5.04 | 752.42 | 1211.22 |
| * | 2163.030 | 1050.30 | 100300.00 | 100300.00 | 769.90 | 1850.00 | 775.66 | 0.00 | 780.10 | 14.41 | 6.36 | 453.22 | 487.37 |
| * | 2163.030 | 1050.30 | 100300.00 | 100300.00 | 769.90 | 1850.00 | 775.70 | 0.00 | 781.20 | 13.38 | 6.31 | 457.21 | 496.56 |
| | 2213.000 | 50.00 | 0.00 | 0.00 | 770.00 | 1850.00 | 779.96 | 0.00 | 780.24 | 4.42 | 4.66 | 673.60 | 602.64 |
| | 2213.000 | 50.00 | 0.00 | 0.00 | 770.00 | 1850.00 | 780.06 | 0.00 | 780.33 | 4.02 | 4.59 | 688.36 | 615.92 |
| | 2313.000 | 100.00 | 0.00 | 0.00 | 771.70 | 1850.00 | 780.29 | 0.00 | 781.62 | 13.39 | 6.00 | 467.72 | 423.61 |
| | 2313.100 | 100.01 | 0.00 | 0.00 | 771.70 | 1850.00 | 780.36 | 0.00 | 781.71 | 13.13 | 5.96 | 468.70 | 425.33 |
| | 2863.300 | 550.00 | 0.00 | 0.00 | 773.80 | 1850.00 | 780.64 | 0.00 | 782.63 | 94.70 | 10.32 | 186.01 | 190.10 |
| | 2863.300 | 550.00 | 0.00 | 0.00 | 773.80 | 1850.00 | 780.74 | 0.00 | 782.46 | 88.04 | 10.61 | 191.21 | 196.49 |
| | 2963.200 | 100.00 | 0.00 | 0.00 | 774.00 | 1850.00 | 780.75 | 0.00 | 782.85 | 148.32 | 14.19 | 150.00 | 153.96 |
| | 2963.300 | 100.00 | 0.00 | 0.00 | 774.00 | 1850.00 | 780.85 | 0.00 | 782.95 | 148.72 | 14.47 | 150.00 | 153.96 |
| | 3063.100 | 100.00 | 791.20 | 785.60 | 775.90 | 1850.00 | 785.85 | 0.00 | 785.85 | 73.85 | 11.42 | 162.17 | 215.24 |
| | 3063.000 | 100.00 | 791.20 | 785.60 | 775.90 | 1850.00 | 785.93 | 0.00 | 785.95 | 73.85 | 11.41 | 162.17 | 215.24 |
| | 3113.000 | 50.00 | 0.00 | 0.00 | 776.00 | 1850.00 | 786.04 | 0.00 | 786.65 | 10.96 | 8.32 | 459.27 | 559.55 |
| | 3113.000 | 50.00 | 0.00 | 0.00 | 776.00 | 1850.00 | 786.04 | 0.00 | 786.65 | 10.96 | 8.32 | 459.27 | 559.79 |
| | 3278.000 | 165.00 | 0.00 | 0.00 | 776.40 | 1850.00 | 786.19 | 0.00 | 786.62 | 3.52 | 2.92 | 894.95 | 986.54 |
| | 3278.000 | 165.00 | 0.00 | 0.00 | 776.40 | 1850.00 | 786.29 | 0.00 | 786.62 | 3.52 | 2.92 | 894.95 | 986.54 |
| | 3328.000 | 50.00 | 0.00 | 0.00 | 776.50 | 1850.00 | 786.40 | 0.00 | 786.66 | 5.81 | 3.26 | 587.91 | 713.70 |
| | 3328.200 | 50.00 | 0.00 | 0.00 | 776.50 | 1850.00 | 786.50 | 0.00 | 786.69 | 5.81 | 3.26 | 587.91 | 713.70 |
| | 3528.000 | 1.00 | 784.50 | 0.00 | 776.50 | 1850.00 | 790.99 | 0.00 | 788.70 | 2.61 | 2.63 | 691.22 | 1564.37 |
| | 3528.000 | 1.00 | 784.50 | 0.00 | 776.50 | 1850.00 | 790.99 | 0.00 | 788.70 | 2.91 | 2.66 | 691.22 | 1564.37 |
| | 3728.000 | 200.00 | 0.00 | 0.00 | 781.10 | 1850.00 | 791.74 | 0.00 | 789.45 | 83.34 | 7.52 | 246.45 | 804.38 |
| | 3728.000 | 200.00 | 0.00 | 0.00 | 781.10 | 1850.00 | 791.84 | 0.00 | 789.58 | 83.34 | 7.52 | 246.45 | 804.38 |

FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS, U.S.A.

| SECND | XLCH | ELTRO | ELLC | ELMIN | Q | CHSEL | CPINS | EO | TORQS | VCH | AREA | .DTK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3684.000 | 12.00 | 790.50 | 787.70 | 781.10 | 1850.00 | 790.21 | 3.00 | 790.77 | 61.38 | 6.04 | 306.39 | 287.56 |
| 3684.000 | 12.00 | 790.50 | 787.70 | 781.10 | 1850.00 | 790.21 | 3.00 | 790.77 | 61.38 | 6.04 | 306.39 | 287.56 |
| 3825.000 | 141.00 | 0.00 | 0.00 | 782.00 | 1850.00 | 791.00 | 0.00 | 791.87 | 55.91 | 9.03 | 269.43 | 241.04 |
| 3825.000 | 141.00 | 0.00 | 0.00 | 782.00 | 1850.00 | 791.00 | 0.00 | 791.87 | 55.91 | 9.03 | 269.43 | 241.04 |
| 3965.000 | 140.00 | 0.00 | 0.00 | 784.60 | 1850.00 | 791.76 | 0.00 | 793.55 | 112.36 | 11.53 | 220.36 | 174.52 |
| 3965.000 | 140.00 | 0.00 | 0.00 | 784.60 | 1850.00 | 791.76 | 0.00 | 793.55 | 112.36 | 11.53 | 220.36 | 174.52 |
| 4028.000 | 63.00 | 794.50 | 791.10 | 794.60 | 1650.00 | 794.83 | 0.00 | 795.42 | 24.16 | 6.85 | 462.18 | 376.37 |
| 4028.000 | 63.00 | 794.50 | 791.10 | 794.60 | 1650.00 | 794.83 | 0.00 | 795.42 | 24.16 | 6.85 | 462.18 | 376.37 |
| 4078.000 | 50.00 | 0.00 | 0.00 | 736.30 | 1850.00 | 795.17 | 0.00 | 795.55 | 11.97 | 6.04 | 656.79 | 534.63 |
| 4078.000 | 50.00 | 0.00 | 0.00 | 736.30 | 1850.00 | 795.17 | 0.00 | 795.55 | 11.97 | 6.04 | 656.79 | 534.63 |
| 4478.000 | 400.00 | 0.00 | 0.00 | 783.10 | 1850.00 | 795.63 | 0.00 | 796.73 | 50.70 | 9.60 | 366.75 | 259.61 |
| 4478.000 | 400.00 | 0.00 | 0.00 | 780.10 | 1850.00 | 795.63 | 0.00 | 796.73 | 50.70 | 9.60 | 366.75 | 259.61 |
| 4858.000 | 380.00 | 0.00 | 0.00 | 792.00 | 1320.00 | 796.04 | 0.00 | 798.54 | 54.99 | 7.30 | 275.78 | 247.24 |
| 4858.000 | 380.00 | 0.00 | 0.00 | 792.00 | 1320.00 | 796.01 | 0.00 | 798.32 | 54.99 | 7.30 | 275.03 | 247.24 |
| 4937.000 | 79.00 | 0.00 | 0.00 | 794.00 | 1320.00 | 796.27 | 0.00 | 799.22 | 76.56 | 7.83 | 232.33 | 203.01 |
| 4937.000 | 79.00 | 0.00 | 0.00 | 794.00 | 1320.00 | 796.27 | 0.00 | 799.22 | 76.56 | 7.83 | 232.33 | 203.01 |
| 4938.000 | 1.00 | 801.00 | 0.00 | 794.00 | 1820.00 | 805.76 | 0.00 | 805.83 | 2.66 | 2.64 | 690.07 | 1114.98 |
| 4938.000 | 1.00 | 801.00 | 0.00 | 794.00 | 1820.00 | 805.76 | 0.00 | 805.83 | 2.66 | 2.64 | 690.07 | 1114.98 |
| 5338.000 | 400.00 | 0.00 | 0.00 | 800.00 | 1820.00 | 805.94 | 0.00 | 805.97 | 1.67 | 1.54 | 1191.63 | 1609.32 |
| 5338.000 | 400.00 | 0.00 | 0.00 | 800.00 | 1820.00 | 805.94 | 0.00 | 805.97 | 1.67 | 1.54 | 1191.63 | 1609.32 |
| 5928.000 | 620.00 | 0.00 | 0.00 | 800.00 | 1820.00 | 806.05 | 0.00 | 806.11 | 2.31 | 1.88 | 970.00 | 1197.61 |
| 5928.000 | 620.00 | 0.00 | 0.00 | 800.00 | 1820.00 | 806.05 | 0.00 | 806.11 | 2.31 | 1.88 | 970.00 | 1197.61 |
| 6073.000 | 145.00 | 0.00 | 0.00 | 799.30 | 1320.00 | 805.92 | 0.00 | 807.31 | 31.71 | 5.64 | 267.92 | 255.10 |
| 6073.000 | 150.00 | 0.00 | 0.00 | 799.30 | 1020.00 | 805.92 | 0.00 | 807.31 | 31.71 | 9.03 | 267.92 | 255.10 |
| 6128.000 | 50.00 | 0.00 | 0.00 | 798.40 | 1320.00 | 806.05 | 0.00 | 808.39 | 105.24 | 12.29 | 148.63 | 177.42 |
| 6128.000 | 50.00 | 0.00 | 0.00 | 798.40 | 1320.00 | 806.05 | 0.00 | 808.39 | 105.24 | 12.29 | 148.63 | 177.42 |
| 6178.000 | 50.00 | 813.70 | 800.20 | 798.40 | 1320.00 | 806.45 | 0.00 | 809.77 | 46.75 | 9.51 | 195.46 | 266.19 |
| 6178.000 | 50.00 | 813.70 | 800.20 | 798.40 | 1320.00 | 806.45 | 0.00 | 809.77 | 46.75 | 9.51 | 195.46 | 266.19 |
| 6224.000 | 50.00 | 0.00 | 0.00 | 797.90 | 1320.00 | 810.45 | 0.00 | 810.55 | 3.92 | 3.80 | 938.77 | 522.60 |
| 6224.000 | 50.00 | 0.00 | 0.00 | 797.90 | 1320.00 | 810.45 | 0.00 | 810.55 | 3.42 | 3.80 | 938.77 | 930.90 |
| 7150.000 | 926.00 | 0.00 | 0.00 | 801.70 | 1320.00 | 810.95 | 0.00 | 811.84 | 8.25 | 3.72 | 1560.25 | 772.42 |
| 7150.000 | 926.00 | 0.00 | 0.00 | 801.70 | 1820.00 | 810.95 | 0.00 | 811.84 | 8.25 | 3.72 | 1560.25 | 772.42 |
| 7300.000 | 150.00 | 0.00 | 0.00 | 802.10 | 1820.00 | 811.12 | 0.00 | 811.45 | 6.78 | 4.02 | 1334.13 | 698.73 |
| 7300.000 | 150.00 | 0.00 | 0.00 | 802.10 | 1820.00 | 811.12 | 0.00 | 811.45 | 6.78 | 4.02 | 1334.13 | 698.73 |
| 7328.000 | 28.00 | 813.10 | 804.90 | 802.10 | 1820.00 | 811.26 | 0.00 | 811.87 | 4.80 | 3.55 | 1504.63 | 830.35 |
| 7328.000 | 28.00 | 813.10 | 804.90 | 802.10 | 1820.00 | 811.26 | 0.00 | 811.87 | 4.80 | 3.55 | 1504.63 | 830.35 |
| 7518.000 | 190.00 | 0.00 | 0.00 | 802.70 | 1820.00 | 811.79 | 0.00 | 812.38 | 17.57 | 5.69 | 672.95 | 434.15 |
| 7518.000 | 190.00 | 0.00 | 0.00 | 802.70 | 1820.00 | 811.79 | 0.00 | 812.38 | 17.57 | 5.69 | 672.95 | 434.15 |

PRINTED IN U.S.A.
FORM 1411-08 PRINTED BY ROTARY MANIFOLD FORMS.

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | B | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 7968.000 | 350.00 | 0.00 | 0.00 | 805.70 | 1820.00 | 812.34 | 812.34 | 815.02 | 115.04 | 13.87 | 193.82 | 169.69 |
| | 7968.000 | 350.00 | 0.00 | 0.00 | 805.70 | 1820.00 | 812.34 | 812.34 | 815.02 | 115.04 | 13.87 | 193.82 | 169.69 |
| | 7925.000 | 83.00 | 0.00 | 0.00 | 806.50 | 1820.00 | 814.84 | 0.00 | 815.80 | 29.62 | 7.88 | 230.13 | 334.44 |
| | 7921.000 | 53.00 | 0.00 | 0.00 | 806.50 | 1820.00 | 814.84 | 0.00 | 815.80 | 29.62 | 7.88 | 230.13 | 334.44 |
| | 7965.000 | 44.00 | 819.20 | 811.70 | 806.50 | 1820.00 | 818.37 | 0.00 | 818.85 | 10.34 | 5.58 | 326.13 | 565.99 |
| | 7965.000 | 44.00 | 819.20 | 811.70 | 806.50 | 1820.00 | 818.37 | 0.00 | 818.85 | 10.34 | 5.58 | 326.13 | 565.99 |
| | 8178.000 | 153.00 | 0.00 | 0.00 | 806.60 | 1820.00 | 819.62 | 0.00 | 819.90 | 6.39 | 3.31 | 517.07 | 720.23 |
| | 8178.000 | 153.00 | 0.00 | 0.00 | 806.60 | 1820.00 | 819.62 | 0.00 | 819.90 | 6.39 | 3.31 | 517.07 | 720.23 |
| | 8556.000 | 407.00 | 0.00 | 0.00 | 807.70 | 1820.00 | 819.05 | 0.00 | 819.25 | 4.55 | 4.17 | 1042.50 | 853.08 |
| | 8556.000 | 407.00 | 0.00 | 0.00 | 807.70 | 1820.00 | 819.05 | 0.00 | 819.25 | 4.55 | 4.17 | 1042.50 | 853.08 |
| | 8555.000 | 37.00 | 0.00 | 0.00 | 805.70 | 1820.00 | 819.03 | 0.00 | 819.28 | 4.84 | 3.36 | 511.04 | 827.21 |
| | 8555.000 | 37.00 | 0.00 | 0.00 | 805.70 | 1820.00 | 819.03 | 0.00 | 819.26 | 4.84 | 3.36 | 511.04 | 827.21 |
| | 8556.000 | 1.00 | 840.00 | 817.70 | 805.70 | 1820.00 | 818.86 | 0.00 | 819.50 | 24.72 | 6.45 | 283.05 | 390.53 |
| | 8556.000 | 1.00 | 840.00 | 817.70 | 805.70 | 1820.00 | 818.86 | 0.00 | 819.50 | 24.72 | 6.45 | 283.05 | 390.53 |
| | 8811.000 | 255.00 | 812.60 | 813.60 | 807.50 | 1820.00 | 819.44 | 0.00 | 820.04 | 19.64 | 6.23 | 292.31 | 410.63 |
| | 8812.000 | 1.00 | 0.00 | 0.00 | 807.50 | 1820.00 | 819.97 | 0.00 | 820.17 | 6.04 | 3.51 | 518.50 | 740.52 |
| | 8812.000 | 1.00 | 0.00 | 0.00 | 807.50 | 1820.00 | 819.97 | 0.00 | 820.17 | 6.04 | 3.51 | 518.50 | 740.52 |
| | 8916.000 | 106.00 | 0.00 | 0.00 | 808.40 | 1820.00 | 820.13 | 0.00 | 820.25 | 5.56 | 4.41 | 957.98 | 785.97 |
| | 8916.000 | 106.00 | 0.00 | 0.00 | 808.40 | 1820.00 | 820.13 | 0.00 | 820.25 | 5.56 | 4.41 | 957.98 | 785.97 |
| | 9443.000 | 535.00 | 0.00 | 0.00 | 810.00 | 1820.00 | 820.37 | 0.00 | 820.40 | 1.95 | 2.43 | 1817.16 | 1304.69 |
| | 9443.000 | 535.00 | 0.00 | 0.00 | 810.00 | 1820.00 | 820.37 | 0.00 | 820.40 | 1.95 | 2.43 | 1817.16 | 1304.69 |
| | 9918.000 | 485.00 | 0.00 | 0.00 | 810.90 | 1820.00 | 820.25 | 0.00 | 820.92 | 24.11 | 7.66 | 401.04 | 370.06 |
| | 9918.000 | 485.00 | 0.00 | 0.00 | 810.90 | 1820.00 | 820.25 | 0.00 | 820.92 | 24.11 | 7.66 | 401.04 | 370.06 |
| | 9973.500 | 55.50 | 0.00 | 0.00 | 810.70 | 1820.00 | 820.42 | 0.00 | 821.05 | 35.11 | 6.54 | 278.19 | 307.16 |
| | 9973.500 | 55.50 | 0.00 | 0.00 | 810.70 | 1820.00 | 820.42 | 0.00 | 821.01 | 35.11 | 6.54 | 278.19 | 307.16 |
| | 10011.000 | 37.50 | 823.50 | 811.20 | 810.70 | 1820.00 | 820.51 | 0.00 | 821.16 | 32.29 | 6.43 | 283.20 | 315.39 |
| | 10011.000 | 37.50 | 823.50 | 811.20 | 810.70 | 1820.00 | 820.51 | 0.00 | 821.16 | 32.29 | 6.43 | 283.20 | 315.39 |
| | 10084.000 | 73.00 | 0.00 | 0.00 | 812.90 | 1820.00 | 820.72 | 0.00 | 821.45 | 55.49 | 6.84 | 205.96 | 305.49 |
| | 10084.000 | 73.00 | 0.00 | 0.00 | 812.90 | 1820.00 | 820.72 | 0.00 | 821.45 | 55.49 | 6.84 | 205.96 | 305.49 |
| | 10084.000 | 13.00 | 826.10 | 820.10 | 812.90 | 1820.00 | 821.09 | 0.00 | 822.26 | 25.28 | 6.14 | 206.28 | 564.99 |
| | 10084.000 | 13.00 | 826.10 | 820.10 | 812.90 | 1820.00 | 821.09 | 0.00 | 822.26 | 25.28 | 6.14 | 206.28 | 564.99 |
| | 10105.000 | 9.00 | 0.00 | 0.00 | 812.40 | 1820.00 | 820.17 | 0.00 | 822.72 | 51.26 | 10.00 | 101.96 | 254.20 |
| | 10105.000 | 9.00 | 0.00 | 0.00 | 812.40 | 1820.00 | 820.17 | 0.00 | 822.72 | 51.26 | 10.00 | 101.96 | 254.20 |
| | 10106.000 | 1.00 | 826.10 | 820.10 | 812.40 | 1820.00 | 821.17 | 0.00 | 822.73 | 51.26 | 10.00 | 101.96 | 254.20 |
| | 10106.000 | 1.00 | 826.10 | 820.10 | 812.40 | 1820.00 | 821.17 | 0.00 | 822.73 | 51.26 | 10.00 | 101.96 | 254.20 |
| | 10132.000 | 26.00 | 826.10 | 820.10 | 812.60 | 1820.00 | 821.43 | 0.00 | 822.06 | 46.64 | 9.70 | 107.85 | 266.52 |
| | 10132.000 | 26.00 | 826.10 | 820.10 | 812.60 | 1820.00 | 821.43 | 0.00 | 822.06 | 46.64 | 9.70 | 107.85 | 266.52 |

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FORM 1411 SB PRINTED BY ROTARY MANIFOLD FORMS.

| SECNO | XLOC | ELTID | ELLC | ELMIN | Q | CNSEL | CRIBS | EG | 13K*S | VOM | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10133.000 | 1.00 | 0.00 | 0.00 | 812.60 | 1820.00 | 821.44 | 0.00 | 822.90 | 46.57 | 9.69 | 187.77 | 266.71 |
| 10133.100 | 1.00 | 0.00 | 0.00 | 812.60 | 1820.00 | 821.44 | 0.00 | 822.90 | 46.57 | 9.69 | 187.77 | 266.71 |
| 10157.000 | 24.00 | 0.00 | 0.00 | 812.70 | 1820.00 | 822.17 | 0.00 | 823.13 | 27.38 | 8.83 | 278.92 | 347.64 |
| 10157.000 | 24.00 | 0.00 | 0.00 | 812.70 | 1820.00 | 822.17 | 0.00 | 823.13 | 27.38 | 8.83 | 278.92 | 347.64 |

PRINTED IN U.S.A.
FORM 1411-GB-PRINTED BY ROTARY MANIFOLD FORMS,

RIO.ROUGE R. \.VILLE C.

SUMMARY PRINTOUT TABLE 150

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | 0.000 | 3680.00 | 758.07 | 0.00 | 0.00 | 0.00 | 560.00 | 0.00 |
| | 0.000 | 3680.00 | 758.17 | 0.30 | 0.00 | 0.10 | 560.00 | 0.00 |
| | | | | | | | | |
| | [illegible] | [illegible] | [illegible] | 0.30 | 0.36 | 0.00 | 550.00 | 300.00 |
| | [illegible] | [illegible] | [illegible] | 0.00 | 0.06 | 0.10 | [illegible] | [illegible] |
| | | | | | | | | |
| | 600.000 | 3680.00 | 768.19 | 0.00 | 0.06 | 0.00 | 260.00 | 300.00 |
| | 600.000 | 3680.00 | 768.29 | 0.00 | 0.06 | 0.09 | 260.00 | 300.00 |
| | | | | | | | | |
| | [illegible] | [illegible] | [illegible] | 0.00 | 0.36 | 0.00 | 85.00 | [illegible] |
| | [illegible] | [illegible] | [illegible] | 0.00 | 0.36 | 0.05 | 89.00 | [illegible] |
| | | | | | | | | |
| | 1028.000 | 3680.00 | 759.65 | 0.00 | 1.00 | 0.00 | 49.47 | 50.00 |
| | 1028.000 | 3680.00 | 759.57 | 0.00 | 1.00 | 0.02 | 49.51 | 50.00 |
| | | | | | | | | |
| | [illegible] | [illegible] | [illegible] | 0.00 | 0.17 | 0.00 | 49.91 | [illegible] |
| | [illegible] | [illegible] | [illegible] | 0.30 | 0.35 | 0.10 | [illegible] | [illegible] |
| | | | | | | | | |
| | 1113.000 | 1850.00 | 770.89 | 0.00 | 1.07 | 0.00 | 70.00 | 35.00 |
| | 1113.000 | 1850.00 | 770.97 | 0.00 | 1.04 | 0.07 | 70.00 | 35.00 |
| | | | | | | | | |
| | [illegible] | 1850.00 | [illegible] | 0.00 | 0.71 | 0.00 | [illegible] | [illegible] |
| | [illegible] | 1850.00 | [illegible] | 0.00 | 0.75 | 0.10 | [illegible] | [illegible] |
| | | | | | | | | |
| | 2213.000 | 1850.00 | 770.96 | 0.00 | 0.36 | 0.00 | 156.72 | 50.00 |
| | 2213.000 | 1850.00 | 730.36 | 0.30 | 0.36 | 0.09 | 157.46 | 50.00 |
| | | | | | | | | |
| | [illegible] | [illegible] | [illegible] | 0.30 | 0.30 | 0.00 | [illegible] | 300.00 |
| | [illegible] | [illegible] | [illegible] | 0.30 | 0.26 | 0.07 | [illegible] | [illegible] |
| | | | | | | | | |
| | 2863.300 | 1850.00 | 770.67 | 0.00 | 0.41 | 0.00 | 42.95 | 350.00 |
| | 2863.000 | 1850.00 | 770.74 | 0.00 | 0.56 | 0.00 | 42.92 | 530.00 |
| | | | | | | | | |
| | [illegible] | [illegible] | [illegible] | 1.00 | 1.71 | 0.00 | 21.31 | [illegible] |
| | [illegible] | [illegible] | [illegible] | 0.10 | 1.50 | 0.00 | 21.31 | [illegible] |
| | | | | | | | | |
| | 3663.000 | 1850.00 | 767.87 | 0.00 | 1.46 | 0.00 | 21.31 | 100.00 |
| | 3663.000 | 1850.00 | 755.85 | 0.00 | 1.49 | 0.00 | 21.31 | 100.00 |
| | | | | | | | | |
| | [illegible] | [illegible] | [illegible] | 2.00 | 2.22 | 0.00 | 56.85 | [illegible] |
| | [illegible] | [illegible] | [illegible] | 1.00 | 2.28 | 0.00 | 57.35 | [illegible] |
| | | | | | | | | |
| | 3278.000 | 1850.00 | 766.69 | 2.00 | 2.46 | 0.00 | 83.30 | 165.00 |
| | 3278.000 | 1850.00 | 786.69 | 2.00 | 2.25 | 0.00 | 83.30 | 165.00 |
| | | | | | | | | |
| | [illegible] | [illegible] | [illegible] | 1.00 | 1.00 | 0.00 | [illegible] | [illegible] |
| | [illegible] | [illegible] | [illegible] | 1.00 | 1.00 | 0.00 | [illegible] | [illegible] |
| | | | | | | | | |
| | 3328.000 | 1850.00 | 780.79 | 0.00 | 2.06 | 0.00 | 59.58 | 1.00 |
| | 3326.000 | 1850.00 | 738.39 | 0.00 | 2.09 | 0.00 | 59.54 | 1.00 |
| | | | | | | | | |
| | [illegible] | [illegible] | [illegible] | 0.30 | 0.18 | 0.00 | [illegible] | [illegible] |
| | [illegible] | [illegible] | [illegible] | 0.30 | 0.21 | 0.00 | [illegible] | [illegible] |

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| SECND | Q | CHSEL | DIFWSP | DIFWSX | DIFXWS | TOPWID | XLCP |
|---|---|---|---|---|---|---|---|
| 3684.000 | 1850.00 | 790.21 | 0.00 | 1.51 | 0.00 | 48.98 | 12.00 |
| 3684.000 | 1850.00 | 790.21 | 0.00 | 1.51 | 0.00 | 48.98 | 12.00 |
| 3825.000 | 1850.00 | 790.80 | 0.00 | 0.59 | 0.00 | 52.11 | 171.00 |
| 3825.000 | 1850.00 | 790.80 | 0.00 | 0.59 | 0.00 | 52.11 | 171.00 |
| 3965.000 | 1850.00 | 791.76 | 0.00 | 0.97 | 0.00 | 43.53 | 140.00 |
| 3965.000 | 1850.00 | 791.76 | 0.00 | 0.97 | 0.00 | 43.53 | 140.00 |
| 4028.000 | 1850.00 | 794.89 | 0.00 | 3.12 | 0.00 | 95.96 | 63.00 |
| 4028.000 | 1850.00 | 794.89 | 0.00 | 3.12 | 0.00 | 95.96 | 63.00 |
| 4078.000 | 1850.00 | 795.17 | 0.00 | 0.29 | 0.00 | 147.47 | 50.00 |
| 4078.000 | 1850.00 | 795.17 | 0.00 | 0.29 | 0.00 | 147.47 | 50.00 |
| 4478.000 | 1850.00 | 795.68 | 0.00 | 0.51 | 0.00 | 127.99 | 400.00 |
| 4478.000 | 1850.00 | 795.68 | 0.00 | 0.51 | 0.00 | 127.99 | 400.00 |
| 4858.000 | 1820.00 | 798.03 | 0.00 | 2.36 | 0.00 | 71.52 | 380.00 |
| 4858.000 | 1820.00 | 798.03 | 0.00 | 2.36 | 0.00 | 71.52 | 380.00 |
| 4907.000 | 1820.00 | 798.27 | 0.00 | 0.24 | 0.00 | 58.56 | 49.00 |
| 4907.000 | 1820.00 | 798.27 | 0.00 | 0.24 | 0.00 | 58.56 | 49.00 |
| 4908.000 | 1820.00 | 805.78 | 0.00 | 7.50 | 0.00 | 62.00 | 1.00 |
| 4908.000 | 1820.00 | 805.78 | 0.00 | 7.50 | 0.00 | 62.00 | 1.00 |
| 5300.000 | 1820.00 | 805.94 | 0.00 | 0.16 | 0.00 | 262.25 | 400.00 |
| 5300.000 | 1820.00 | 805.94 | 0.00 | 0.16 | 0.00 | 262.25 | 400.00 |
| 5928.000 | 1820.00 | 806.05 | 0.00 | 0.12 | 0.00 | 140.00 | 620.00 |
| 5928.000 | 1820.00 | 806.05 | 0.00 | 0.12 | 0.00 | 140.00 | 620.00 |
| 6078.000 | 1820.00 | 805.92 | 0.00 | -0.13 | 0.00 | 45.00 | 150.00 |
| 6078.000 | 1820.00 | 805.92 | 0.00 | -0.13 | 0.00 | 45.00 | 150.00 |
| 6128.000 | 1820.00 | 806.05 | 0.00 | 0.13 | 0.00 | 20.00 | 50.00 |
| 6128.000 | 1820.00 | 806.05 | 0.00 | 0.13 | 0.00 | 20.00 | 50.00 |
| 6178.000 | 1820.00 | 806.43 | 0.00 | 2.38 | 0.00 | 20.00 | 50.00 |
| 6178.000 | 1820.00 | 806.43 | 0.00 | 2.38 | 0.00 | 20.00 | 50.00 |
| 6228.000 | 1820.00 | 810.43 | 0.00 | 2.00 | 0.00 | 120.00 | 50.00 |
| 6228.000 | 1820.00 | 810.43 | 0.00 | 2.00 | 0.00 | 120.00 | 50.00 |
| 7150.000 | 1820.00 | 810.95 | 0.00 | 0.52 | 0.00 | 335.00 | 922.00 |
| 7150.000 | 1820.00 | 810.95 | 0.00 | 0.52 | 0.00 | 335.00 | 922.00 |
| 7300.000 | 1820.00 | 811.13 | 0.00 | 0.18 | 0.00 | 260.00 | 150.00 |
| 7300.000 | 1820.00 | 811.13 | 0.00 | 0.18 | 0.00 | 260.00 | 150.00 |
| 7326.000 | 1820.00 | 811.78 | 0.00 | 0.66 | 0.00 | 260.00 | 28.00 |
| 7326.000 | 1820.00 | 811.78 | 0.00 | 0.66 | 0.00 | 260.00 | 28.00 |
| 7516.000 | 1820.00 | 811.79 | 0.00 | 0.01 | 0.00 | 172.00 | 190.00 |
| 7516.000 | 1820.00 | 811.79 | 0.00 | 0.01 | 0.00 | 172.00 | 190.00 |

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| SECNO | G | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 7868.000 | 1820.00 | 812.34 | 0.00 | 0.55 | 0.00 | 48.00 | 350.00 |
| 7868.000 | 1820.00 | 812.34 | 0.00 | 0.55 | 0.00 | 48.00 | 350.00 |
| 7921.000 | 1820.00 | 814.84 | 0.00 | 2.49 | 0.00 | 27.00 | 53.00 |
| 7921.000 | 1820.00 | 814.84 | 0.00 | 2.49 | 0.00 | 27.00 | 53.00 |
| 7965.000 | 1820.00 | 818.37 | 0.00 | 3.53 | 0.00 | 27.00 | 44.00 |
| 7965.000 | 1820.00 | 818.37 | 0.00 | 3.53 | 0.00 | 27.00 | 44.00 |
| 8118.000 | 1820.00 | 818.62 | 0.00 | 0.25 | 0.00 | 50.00 | 153.00 |
| 8118.000 | 1820.00 | 818.62 | 0.00 | 0.25 | 0.00 | 50.00 | 153.00 |
| 8518.000 | 1820.00 | 819.08 | 0.00 | 0.46 | 0.00 | 124.00 | 400.00 |
| 8518.000 | 1820.00 | 819.08 | 0.00 | 0.46 | 0.00 | 124.00 | 400.00 |
| 8535.000 | 1820.00 | 819.08 | 0.00 | 0.00 | 0.00 | 48.00 | 37.00 |
| 8535.000 | 1820.00 | 819.08 | 0.00 | 0.00 | 0.00 | 48.00 | 37.00 |
| 8556.000 | 1820.00 | 818.86 | 0.00 | -0.22 | 0.00 | 48.00 | 1.00 |
| 8556.000 | 1820.00 | 818.86 | 0.00 | -0.22 | 0.00 | 48.00 | 1.00 |
| 8811.000 | 1820.00 | 819.44 | 0.00 | 0.58 | 0.00 | 48.00 | 255.00 |
| 8811.000 | 1820.00 | 819.44 | 0.00 | 0.58 | 0.00 | 48.00 | 255.00 |
| 8812.000 | 1820.00 | 819.97 | 0.00 | 0.53 | 0.00 | 48.00 | 1.00 |
| 8812.000 | 1820.00 | 819.97 | 0.00 | 0.53 | 0.00 | 48.00 | 1.00 |
| 8918.000 | 1820.00 | 820.13 | 0.00 | 0.16 | 0.00 | 158.00 | 106.00 |
| 8918.000 | 1820.00 | 820.13 | 0.00 | 0.16 | 0.00 | 158.00 | 106.00 |
| 9453.000 | 1820.00 | 820.37 | 0.00 | 0.24 | 0.00 | 310.00 | 535.00 |
| 9453.000 | 1820.00 | 820.37 | 0.00 | 0.24 | 0.00 | 310.00 | 535.00 |
| 9910.000 | 1820.00 | 820.25 | 0.00 | -0.12 | 0.00 | 73.00 | 465.00 |
| 9910.000 | 1820.00 | 820.25 | 0.00 | -0.12 | 0.00 | 73.00 | 465.00 |
| 9973.500 | 1820.00 | 820.42 | 0.00 | 0.16 | 0.00 | 50.60 | 55.50 |
| 9973.500 | 1820.00 | 820.42 | 0.00 | 0.16 | 0.00 | 50.60 | 55.50 |
| 10071.000 | 1820.00 | 820.51 | 0.00 | 0.12 | 0.00 | 50.60 | 37.50 |
| 10071.000 | 1820.00 | 820.51 | 0.00 | 0.12 | 0.00 | 50.60 | 37.50 |
| 10084.000 | 1820.00 | 820.72 | 0.00 | 0.21 | 0.00 | 34.00 | 73.00 |
| 10084.000 | 1820.00 | 820.72 | 0.00 | 0.21 | 0.00 | 34.00 | 73.00 |
| 10094.000 | 1820.00 | 821.62 | 0.00 | 0.90 | 0.00 | 34.00 | 13.00 |
| 10094.000 | 1820.00 | 821.62 | 0.00 | 0.90 | 0.00 | 34.00 | 13.00 |
| 10133.000 | 1820.00 | 821.17 | 0.00 | -0.45 | 0.00 | 22.00 | 5.00 |
| 10133.000 | 1820.00 | 821.17 | 0.00 | -0.45 | 0.00 | 22.00 | 5.00 |
| 10134.000 | 1820.00 | 821.17 | 0.00 | 0.01 | 0.00 | 22.00 | 1.00 |
| 10134.000 | 1820.00 | 821.17 | 0.00 | 0.01 | 0.00 | 22.00 | 1.00 |
| 10132.000 | 1820.00 | 821.43 | 0.00 | 0.26 | 0.00 | 22.00 | 28.00 |
| 10132.000 | 1820.00 | 821.43 | 0.00 | 0.26 | 0.00 | 22.00 | 28.00 |

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| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | ALOB |
|---|---|---|---|---|---|---|---|
| 10133.000 | 1620.30 | 822.44 | 0.00 | 0.00 | 0.00 | 22.00 | 1.00 |
| 10133.000 | 1620.30 | 822.44 | 0.00 | 0.00 | 0.00 | 22.00 | 1.00 |
| 10197.000 | 1620.30 | 822.17 | 0.00 | 0.74 | 0.00 | 32.00 | 24.00 |
| 10197.000 | 1620.30 | 822.17 | 0.00 | 0.74 | 0.00 | 32.00 | 24.00 |

SUMMARY OF ERRORS

NOTE SECNO= 2163.000 PROFILE= 1 WSEL BASED ON XS CARD
NOTE SECNO= 2163.000 PROFILE= 2 WSEL BASED ON XS CARD

CAUTION SECNO= 2963.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2963.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2963.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2963.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2963.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2963.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 3063.000 PROFILE= 1 HYDRAULIC JUMP D.S.
CAUTION SECNO= 3063.000 PROFILE= 2 HYDRAULIC JUMP D.S.

CAUTION SECNO= 4023.000 PROFILE= 1 HYDRAULIC JUMP D.S.
CAUTION SECNO= 4023.000 PROFILE= 2 HYDRAULIC JUMP D.S.

CAUTION SECNO= 7658.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7658.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7868.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7868.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

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FORM 1411-68-PRINTED BY ROTARY MANIFOLD FORMS.

FLOODWAY DATA, MID.ROUGE R. N.VILLE C.
PROFILE NO. 2

| STATION | FLOODWAY WIDTH (FT) | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 0.000 | 561. | 3534. | 1.1 | 768.2 | 768.1 | 0.1 |
| 700.000 | 437. | 2249. | 1.5 | 769.7 | 769.1 | 0.6 |
| 800.000 | 251. | 1301. | 2.9 | 768.7 | 768.2 | 0.5 |
| 978.000 | 85. | 524. | 7.0 | 768.7 | 768.6 | 0.1 |
| 1028.000 | 51. | 426. | 8.6 | 769.7 | 769.7 | 0.0 |
| 1078.000 | 50. | 459. | 8.4 | 769.9 | 769.8 | 0.1 |
| 1315.000 | 70. | 752. | 2.1 | 771.0 | 770.9 | 0.1 |
| 1765.000 | 71. | 727. | 6.0 | 771.7 | 771.6 | 0.1 |
| 2213.000 | 133. | 1[illegible]. | 2.7 | 786.1 | 786.0 | 0.1 |
| 2513.000 | 60. | 446. | 4.3 | 780.3 | 780.2 | 0.1 |
| 2863.000 | 41. | 191. | 9.7 | 780.7 | 780.6 | 0.1 |
| 2963.000 | 21. | 131. | 14.2 | 782.3 | 782.3 | 0.0 |
| 3063.000 | 29. | 182. | 11.4 | 783.0 | 783.0 | 0.0 |
| 3213.000 | 65. | 402. | 4.1 | 784.8 | 784.8 | 0.0 |
| 3378.000 | 96. | 495. | 2.7 | 786.5 | 786.5 | 0.0 |
| 3527.000 | 59. | 566. | 3.3 | 785.5 | 786.5 | 0.0 |
| 3528.000 | 59. | 571. | 2.7 | 788.6 | 788.6 | 0.0 |
| 3672.000 | 46. | 236. | 7.8 | 788.7 | 788.7 | 0.0 |
| 3814.000 | 49. | 408. | 6.0 | 793.2 | 793.2 | 0.0 |
| 3925.000 | 32. | 208. | 6.4 | 790.6 | 790.6 | 0.0 |
| 3961.000 | 46. | 355. | 8.4 | 793.8 | 793.8 | 0.0 |
| 4023.000 | 96. | 462. | 4.0 | 794.9 | 794.9 | 0.0 |
| 4034.000 | 147. | 657. | 2.8 | 795.2 | 795.2 | 0.0 |
| 4473.000 | 128. | 767. | 5.0 | 795.7 | 795.7 | 0.0 |
| 4814.000 | 77. | 399. | 6.3 | 798.0 | 798.0 | 0.0 |
| 4907.000 | 34. | 252. | 7.9 | 798.8 | 798.8 | 0.0 |
| 4918.000 | 9. | 41. | 2.6 | 803.8 | 803.8 | 0.0 |
| 5508.000 | 242. | 1192. | 1.5 | 805.9 | 805.9 | 0.0 |
| 5984.000 | 150. | 970. | 1.9 | 806.1 | 806.1 | 0.0 |
| 6078.000 | 15. | 265. | 6.6 | 805.9 | 805.9 | 0.0 |
| 6128.000 | 20. | 176. | 12.5 | 806.0 | 806.0 | 0.0 |
| 6174.000 | 30. | 99. | 5.5 | 806.4 | 806.4 | 0.0 |
| 6224.000 | 141. | 459. | 1.5 | 811.6 | 811.6 | 0.0 |
| 7150.000 | 355. | 1660. | 1.2 | 812.9 | 812.9 | 0.0 |
| 7300.000 | 250. | 1334. | 1.6 | 811.1 | 811.1 | 0.0 |
| 7528.000 | 250. | 1505. | 1.2 | 811.0 | 811.0 | 0.0 |
| 7719.000 | 172. | 972. | 2.7 | 811.8 | 811.8 | 0.0 |
| 7867.000 | 93. | 494. | 5.3 | 812.5 | 812.5 | 0.0 |
| 8021.000 | 37. | 251. | 7.9 | 814.8 | 814.8 | 0.0 |
| 7965.000 | 27. | 126. | 5.3 | 818.4 | 818.4 | 0.0 |
| 8218.000 | 50. | 317. | 3.3 | 818.6 | 818.6 | 0.0 |
| 8511.000 | 124. | 1051. | 1.7 | 819.1 | 819.1 | 0.0 |
| 8555.000 | 48. | 511. | 3.3 | 816.2 | 816.1 | 0.0 |
| 8756.000 | 19. | 254. | 6.4 | 817.9 | 817.9 | 0.0 |
| 8871.000 | 19. | 178. | 8.4 | 819.6 | 819.6 | 0.0 |
| 8912.000 | 48. | 510. | 3.5 | 820.0 | 820.0 | 0.0 |
| 8970.000 | 153. | 950. | 1.9 | 820.3 | 820. | 0.0 |
| 9455.000 | 519. | 1877. | 1.0 | 820.3 | 820.4 | 0.2 |
| 9516.000 | 99. | 994. | 2.3 | 820.3 | 820.0 | 0.3 |
| 9573.500 | 72. | 737. | 4.6 | 820.4 | 820.0 | 0.4 |

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FLOODWAY DATA, MID.ROUGE R. N.VILLE C.
PROFILE NO. 2

| STATION | FLOODWAY WIDTH (FT) | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WATER SURFACE ELEVATION WITHOUT FLOODWAY | WATER SURFACE ELEVATION VERTICAL INCREASE |
|---|---|---|---|---|---|---|
| 10071.000 | 51. | 204. | 6.4 | 320.5 | 320.5 | 0.0 |
| 10084.000 | 34. | 260. | 6.8 | 320.7 | 320.7 | 0.0 |
| 10094.000 | 34. | 297. | 6.[illegible] | 321.6 | 321.6 | 0.0 |
| 10103.000 | 22. | 182. | 10.0 | 321.2 | 321.2 | 0.0 |
| 10104.000 | 22. | 182. | 10.0 | 321.2 | 321.2 | 0.0 |
| 10132.000 | 22. | 136. | 9.7 | 321.4 | 321.4 | 0.0 |
| 10133.000 | 22. | 165. | 9.7 | 321.4 | 321.4 | 0.0 |
| 10157.000 | 57. | 279. | 6.5 | 822.2 | 822.2 | 0.0 |

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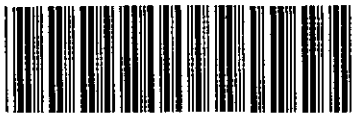
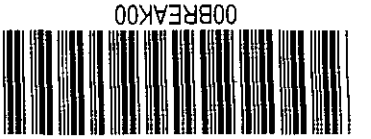



1) COUNTY: Wayne

2) STUDY NAME: City of Northville

3) WATERCOURSE: Middle Branch Rouge River and Johnson Drain

4) DOCUMENT TYPE: Report



# AMENDED HYDRAULICS REPORT
# CITY OF NORTHVILLE, MICHIGAN

## I. INTRODUCTION

The City of Northville is located in the northwest portion of Wayne County, as well as, entirely within the Rouge River Basin. The City contains slightly more than one square mile and has maintained its suburban nature over the years.

This report summarizes the amended hydraulic studies undertaken to support detailed studies of approximately 2 miles of the Middle Branch of the Rouge River and an approximate study of 1/2 mile of the Johnson Drain. Detailed studies on approximately 1.5 miles of the Randolph Drain was approved by the Michigan Department of Natural Resources on July 9, 1979.

This study was conducted by Wade, Trim & Associates, Inc., Consulting Engineers, and Glen Roberts served as Project Manager.

## II. MIDDLE BRANCH OF ROUGE RIVER (DETAILED)

Detailed studies were performed of the entire Middle Branch of the Rouge River within the City of Northville. This study incorporated data and information developed for Flood Insurance Studies conducted for the City of Novi (Reference 1) and Northville Township (Reference 2). A total of fifteen (15) cross sections were provided by the Corps of Engineers (Reference 3). The cross sections included 5 road bridges, 1 railroad bridge, 2 dams, 2 ponds and 1 culvert. Sixteen (16) additional cross sections were field surveyed by Wade, Trim & Associates including 5 road crossings. Cross-section locations are shown in Exhibit 1 and were supplemented by U.S.G.S. Quad maps of the study area which consists of 10 foot contour intervals. (Reference 4 & 5.) Table 1 cross references section designations by showing the computer section number which corresponds to the cross section letter shown in Exhibit 1. Table 2 lists discharges that have been approved by the Michigan Department of Natural Resources (M.D.N.R.).

### A. Method of Analysis

The HEC-2 backwater program was used in developing water surface profiles (Reference 6). Table 2 contains selected flood elevations from the HEC-2 printout. HEC-2 printouts including computer cross sections plots are presented as Exhibit 3. (Exhibit 3 is contained in the 11"x15" folder enclosed with this report.) Water surface profiles resulting from the backwater analyses are presented as Exhibit 4.

B. Variables and Coefficients

Roughness coefficients (Mannings "n") were estimated by field inspection at each cross section. Typical roughness values for the main channel for the Rouge River ranged from 0.020 to 0.040; roughness values for the overbank area varied between 0.08 to 0.12 for the several floods investigated. Contraction and expansion coefficients for abrupt transitions and bridges vary from 0.3 to 0.4 and 0.5 to 0.6, respectively, and normal channel transition coefficients are 0.1 and 0.3, respectively. Bridge loss calculations are presented in Exhibit 2. Variables and coefficients selected are indicative of summer month conditions and are consistent with values recommended and used in engineering practice.

C. High Water Marks

The 17 documented high water marks (Reference 8) for the June, 1968 flood in the City of Northville are presented in Table 3. The Corps of Engineers determined that the flow rate for the 1968 storm was 1,005 cfs (Reference 1) which is slightly lower than the 10 year flow rate of 1,040 cfs used in this study. Therefore, the 10 year storm was calibrated with the 1968 storm to insure the accuracy of the HEC-2 model. Most of the high water marks were matched with the following exceptions:

1. The Northville Downs culvert (Beal St./River St.) has been lengthened by approximately 150 feet since 1968; therefore, resulting flood elevations are higher than the high water marks.

why not clearify try to the data.

2. Some of the high water marks contradict themselves and are in poor or unknown condition.

D. Starting Conditions

The starting water surface elevations in all backwater computations were taken from the FIS report on the Middle Branch of the Rouge River in Northville Township. (Reference 2.)

E. Special Problems

The Northville Downs culvert which is 1,050 feet long was handled as a divided flow situation. Rating curves (Exhibit 5) were developed for low flow and pressure flow in the culvert and overland flow. Low flow and pressure flow curves were compared to determine the rating curve for the culvert. This rating curve was combined with the overland flow rating curve to determine flood elevations for the various flow rates. Elevations determined in this analysis were then input into the HEC-2 computer model.

F. General

Computed water surface elevations were developed to an accuracy of 0.5 feet for floods of the selected reoccurrence intervals.

All elevations are referenced to the U.S. Geological and Coastal Survey (USGCS) Datum. This datum is equivalent to the National Geodetic Vertical Datum of 1929 (NGVD).

The hydraulic analyses for this study were based only on the effects of flow unobstructed by ice or debris. The flood elevations are considered valid only if hydraulic structures, in general, remain unobstructed and do not fail.

TABLE 1
CITY OF NORTHVILLE, MICHIGAN
MIDDLE BRANCH OF THE ROUGE RIVER
CROSS REFERENCE INDEX

| FLOODWAY MAP IDENTIFICATION | SECTION NUMBER HEC-2 | CORPS C.S.# | DESCRIPTION |
|---|---|---|---|
| A | 0+00 | 28 | u/s Park Street Last C.S. in Northville Township FIS |
| B | 10+28 | 31 | d/s Face 7 Mile Road Bridge |
| C | 10+78 | | u/s Face 7 Mile Road Bridge |
| D | 11+13 | | d/s Face Northville Downs Culvert |
| E | 21+63 | 35 | u/s Face River St. Bridge |
| F | 29+63 | 38 | d/s Face Main St. Bridge |
| G | 30+63 | | u/s Face Main St. Bridge |
| H | 32+78 | 39 | d/s Ford Dam |
| I | 33+28 | 40 | Ford Dam |
| J | 36+72 | 41 | d/s Face Truck Bridge |
| K | 36+84 | | u/s Face Truck Bridge |
| L | 39+65 | | d/s Face Griswald St. Bridge |
| M | 40+28 | | u/s Face Griswald St. Bridge |
| N | 48+58 | 43 | d/s Mill Pond Dam |
| O | 49+08 | 44 | Mill Pond Dam |
| P | 53+08 | 45 | Mill Pond |
| Q | 59+28 | | Mill Pond |
| R | 61+28 | 46 | d/s Face C.O. R.R. Bridge |
| S | 61+78 | | u/s Face C.O. R.R. Bridge |
| | | WTA FIELD BOOK STA. | |
| T | 73+00 | 28+18 | d/s Face Old Novi Rd. Bridge |
| U | 73+28 | 27+90 | u/s Face Old Novi Rd. Bridge |

TABLE 1
CITY OF NORTHVILLE, MICHIGAN
MIDDLE BRANCH OF THE ROUGE RIVER
CROSS REFERENCE INDEX
(CONTINUED)

| FLOODWAY MAP IDENTIFICATION | SECTION NUMBER HEC-2 | CORPS C.S.# | DESCRIPTION |
|---|---|---|---|
| V | 79+21 | 21+97 | d/s Face C.O. R.R. Bridge #2 |
| W | 79+65 | 21+53 | u/s Face C.O. R.R. Bridge #2 |
| X | 85+56 | 15+62 | d/s Face 8 Mile Rd. Culvert |
| Y | 88+11 220.17 EG | 13+07 | u/s Face 8 Mile Rd. Culvert |
| Z | 94+53 220.40 EG | 6+65 | Valley Section |
| AA | 99+73.5 | 1+44.5 | d/s Face New Novi Rd. Bridge |
| AB | 100+11 | 1+07 | u/s Face New Novi Rd. Bridge |
| AC | 100+84 | 0+34 | d/s Face C.O. R.R. Bridge #3 |
| AD | 100+94 | 0+24 | u/s Face C.O. R.R. Bridge #3 |
| AE | 101+04 | 0+14 | d/s Face Old Novi Rd. Bridge |
| AF | 101+32 | 0-14 | u/s Face Old Novi Rd. Bridge |

TABLE 2

CITY OF NORTHVILLE

MIDDLE BRANCH ROUGE RIVER FLOOD FLOW DATA

| LOCATION | | 10 Yr. | 50 Yr. | 100 Yr. | 500 Yr. |
|---|---|---|---|---|---|
| u/s Randolph Dr. | | 1040 | 1590 | 1820 | 2460 |
| | Elev. | 796.9 | 797.6 | 798.0 | 798.9 |
| u/s Johnson Dr. | | 1040 | 1610 | 1850 | 2490 |
| | Elev. | 768.5 | 770.1 | 770.9 | 773.0 |
| d/s Johnson Dr. | | 2270 | 3170 | 3680 | 5090 |
| | Elev. | 768.0 | 769.2 | 769.8 | 771.6 |

TABLE 3

CITY OF NORTHVILLE, MICHIGAN

MIDDLE BRANCH OF THE ROUGE RIVER

DOCUMENTED HIGH WATER MARKS - JUNE, 1968

| LOCATION | DESCRIPTION | | COMPUTER SEC. NO. | H.W.M. ELEV. | W.T.A. ELEV. | CONDITION OF H.W.M. |
|---|---|---|---|---|---|---|
| 7 Mile Road Bridge | u/s, left bank | | 1078 | 768.64 | 768.02 | Poor |
| 7 Mile Road Area | u/s, left bank | | | 767.15 | | Unknown |
| Beal St. Bridge | u/s, right bank | | | 776.23 | | Good |
| (River St. Bridge) | | | 2163 | | 777.30 | |
| Beal St. Bridge (River St. Bridge) | u/s, left bank | | | 775.79 | | Unknown |
| Main St. Bridge | u/s, left bank | H | 3063 | 782.09 | 781.30 | Fair |
| Main St. Bridge | u/s, left bank | | 3113 | | 782.87 | |
| Griswald St. Bridge Area | u/s of Dam, right bank | I | 3328 | 787.83 | 787.78 | Excellent |
| Griswald St. Bridge Area | u/s of Dam, right bank | | | 787.54 | | Unknown |
| Griswald St. Bridge Area | d/s side truck road bridge | J | 3672 | 787.73 | 787.82 | Fair |
| Griswald St. Bridge Area | u/s side truck road bridge | K | 3684 | 788.11 | 788.14 | Fair |
| Griswald St. Bridge Area | d/s of bridge right bank | | 3825 | 788.70 | 788.70 | Unknown |
| Griswald St. Bridge Area | d/s, right bank | L | 3965 | 791.32 | 789.76 | Good |
| Griswald St. Bridge Area | u/s, right bank | | 4028 | 791.59 | 790.95 | Good |
| Griswald St. Bridge Area | u/s, right bank | | 4078 | | 792.05 | |
| Northville Pond Area (Mill Pond) | u/s, of Dam | O | 4908 | 804.50 | 804.31 | Poor |
| Novi Road & Old 8 Mile Bridge | u/s, right bank | | 7328 | 809.37 | 809.40 | Fair |
| Novi Road Bridge (E-W) | u/s, right bank | | 8812 | 814.43 | 814.95 | Unknown |
| Novi Road Bridge Area | u/s, left bank | | 9453 | 816.67 | 816.18 | Unknown |
| Novi Road Bridge (N-S) | d/s side, left bank | | 9973 | 817.79 | 817.74 | Good |

# REFERENCES


1. Flood Insurance Study, City of Novi, Michigan, Flood Insurance Administration - March, 1977.

2. Flood Insurance Study, Northville Township, Michigan, Flood Insurance Administration - Currently Underway.

3. Corps of Engineers, U.S. Army, Flood Plain Information Middle Rouge River, Northville, Michigan, 1971.

4. U.S. Geological Survey Topographical Maps - Northville Quadrangle, Wayne - Oakland County, 7.5 Minute Series - Photo Revised 1973.

5. U.S. Geological Survey Topographical Maps - Salem Quadrangle, Wayne - Oakland County, 7.5 Minute Series - Photo Revised 1973.

6. HEC-2 - Water Surface Profile - Users Manual - U.S. Army Corps of Engineers - 1976.

7. Improvements to Randolph Street Drain, Johnson and Anderson, Inc., Pontiac, Michigan, 1975.

8. Post Flood Report of Southeast Michigan Flood 25-27, June, 1968, U.S. Army Engineer District, Detroit, Michigan, 1969.

CITY OF NORTHVILLE, MICHIGAN
Middle Branch Rouge River and
Randolph Drain

EXHIBIT 1

Field Cross-Section Location
and 100 Year Flood Plain -
Floodway Map

CITY OF NORTHVILLE, MICHIGAN

MIDDLE BRANCH ROUGE RIVER

EXHIBIT 2

Bridge Notes and Sketches

Wade Trim & Associates Inc.
Civil Engineers • Land Surveyors
FORM 25 0
(313) 291 5400
WORK SHEET
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: 7 MILE RD.
Bridge Losses - SB Crt

REFERENCE

1. XK (Pier Shape Coefficient) 1.025 — HEC-2 Manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = ____ $R^{4/3}$ = ____ Wp = ____ L = ____

$R = A/wp$

n (composite) =

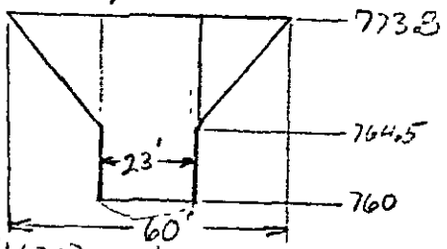
$K_f = 29.1 \times (\quad)^2 \times \quad / \quad =$

$K_c$ =

Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual




$A_1$ 13.8(23) = 317.4

$9_{1/2}$(32) = 304.0

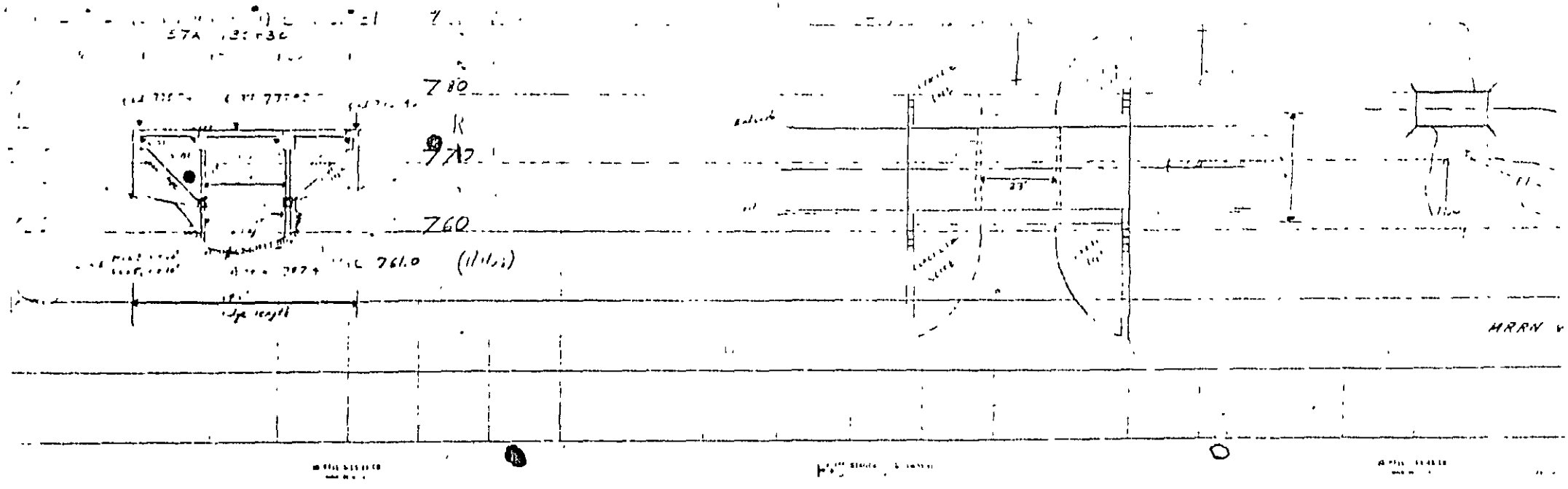
$1/2$ 2.6 (23) 30

691.5

2. XKOR = 1 + + + = 1.05
3. COFQ - Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 25.0
6. BWP = total width of obstruction = 2.0 — field data
7. BAREA = bridge opening inc. piers = 691.5
8. SS = side slope = 1.17 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/s side = 757.4 (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/s side = 757.4 (0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK | SHEET NO. | File Code No (Job No) Owner | Project | Suffix |
|---|---|---|---|---|---|---|
| NORTHVILLE CITY | DRB | | ___ OF ___ | HUD | 2006 | 07 |
| | DATE 7/29 | DATE | | | | |

# 7 MILE ROAD STA. 10+78



Bridge Location: RIVER ST.

Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 1.25 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 154 = _____ WP = _____

$R = A/wp$ $R^{4/3}$ = _____ $L = 42' + 1008'$

n (composite) =

$K_f$ = 29.1 x ( )$^2$ x _____ / _____ =

$K_e$ = .5 (Upstream Portion) (D/S Portion)

$K_f = \frac{29.1(.02)^2 42}{(154/42)^{4/3}} + \frac{29.1(.02)^2 1008}{(154/58)^{4/3}} = 3.37$

Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

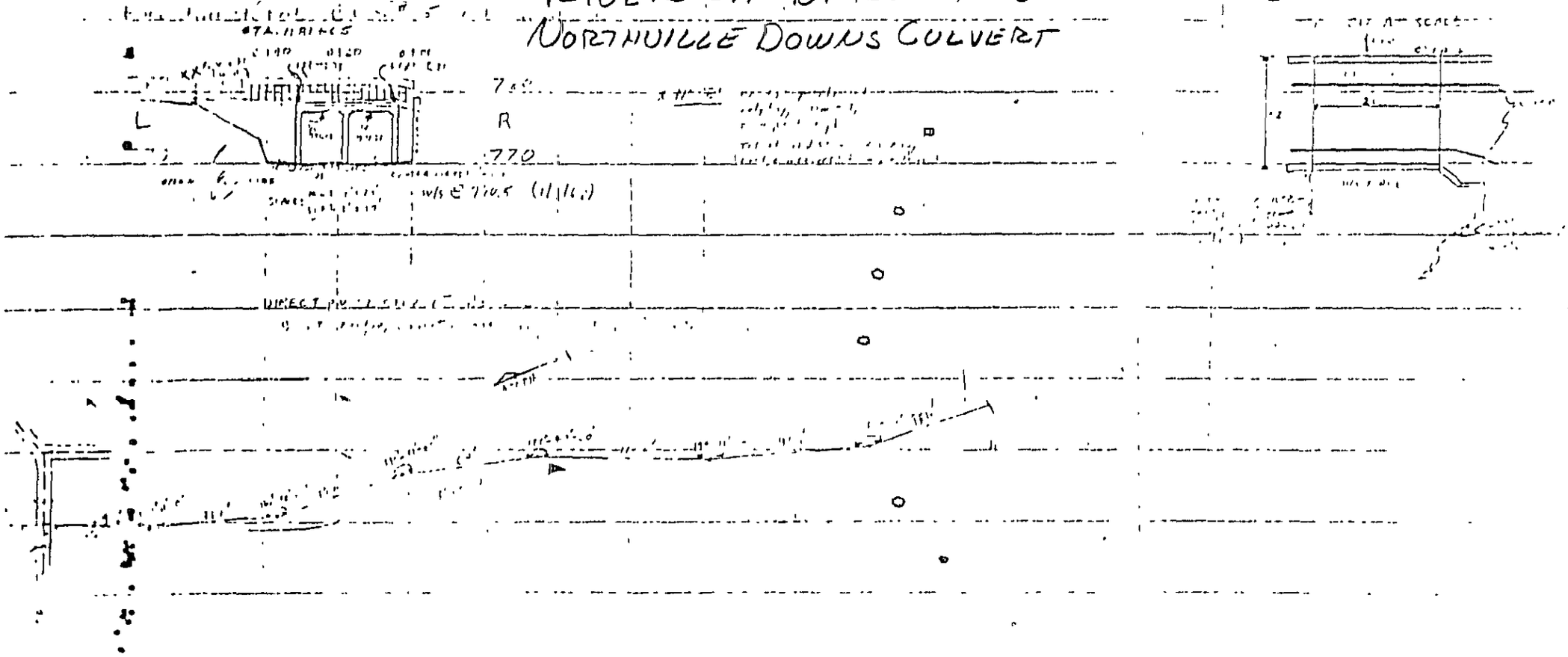
$K_p$ = 0 if bridge has no intermediate piers

$K_p$ = 0.05 if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + 3.37 + .05 + .5 = 4.92
3. COFQ - Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 24
6. BWP = total width of obstruction = 2.0 — field data
7. BAREA = bridge opening ~~inc.~~ piers = 154
8. SS = side slope = 0
   (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 770.0
   (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 757.9
    (0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK | SHEET NO | File Code No (Job No) Owner | Project | Suffix |
|---|---|---|---|---|---|---|
| River Street Rating Curve | W.J.W | | ___ OF ___ | HUD | 2006 | 07 |
| | DATE 8/9/79 | DATE | | | | |

# RIVER ST. BRIDGE AND STA 21+63
## NORTHVILLE DOWNS CULVERT



Bridge Location : MAIN ST. BRIDGE STA. 31+63
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 1.025 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

BRIDGE @ 45° SKEW

Description of Bridge :

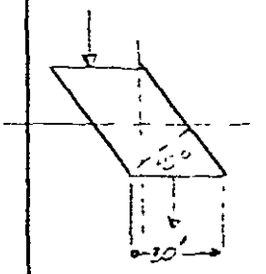
$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 30 x 9.5 (cos 45°) = 200.0 Wp = 80.4

$R = A/wp$ 200/80.4 $R^{4/3} = 3.37$ $L = 100$

n (composite) =

$K_f = 29.1 \times (0.02)^2 \times 100 / 3.37 = 0.35$




$K_e = 0.5$

Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 4

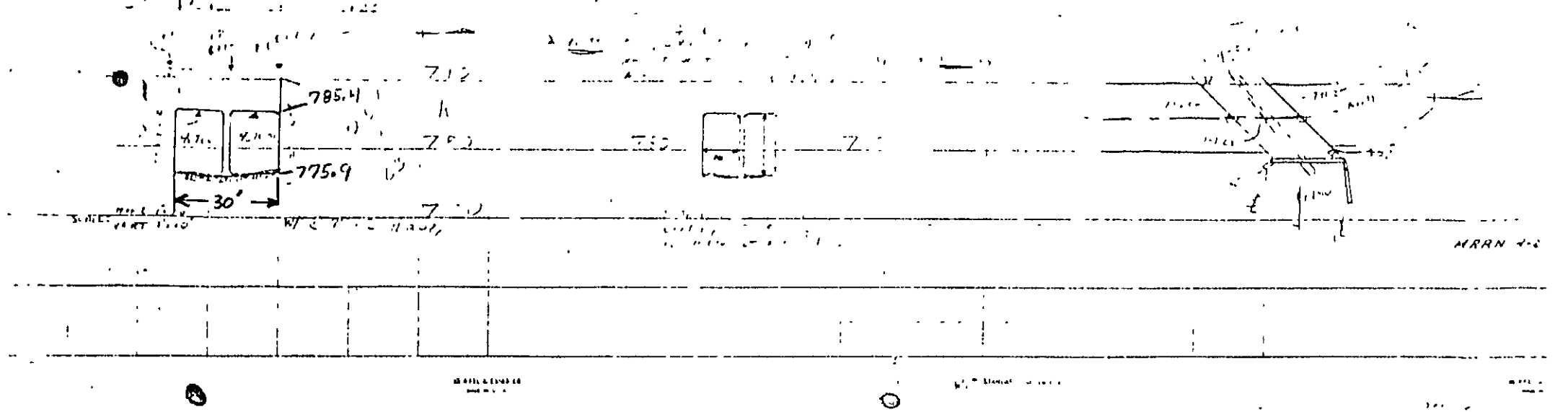
$K_p = 0$ if bridge has no intermediate piers

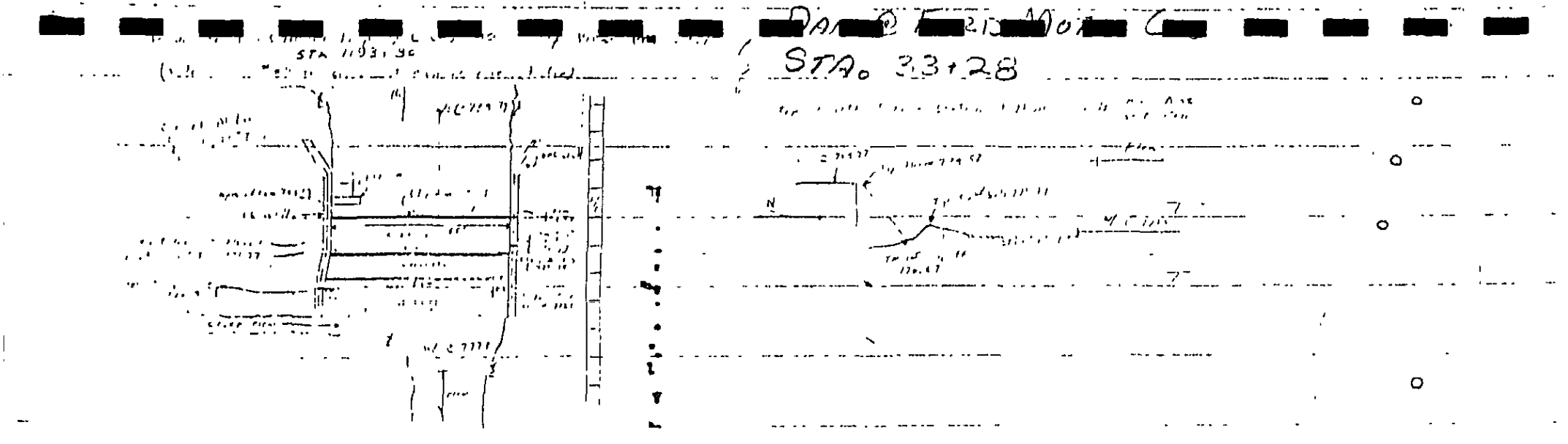
$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + 0.35 + 0.5 + .05 = 1.90
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0. (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 22.4
6. BWP = total width of obstruction = 1.4 — field data
7. BAREA = bridge opening inc. piers = 200.
8. SS = side slope = 0.0
   (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 775.9
   (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 775.9
    (0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK. | SHEET NO. | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| NORTHVILLE CITY | DRB | | ___ OF ___ | HOD • 2006 • 02 |
| | DATE 2/79 | DATE | | |

MAIN ST. BRIDGE STA 3+62




STA 33+28
N

FORM 25 0
(313) 291 5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location : TRUCK BRIDGE
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 0.0 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$ , $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ loss from intermediate piers

Description of Bridge :

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = = 195 $W_p = 100$

$R = A/w_p$ 195/100 $R^{4/3} = 2.43$ $L = 12'$

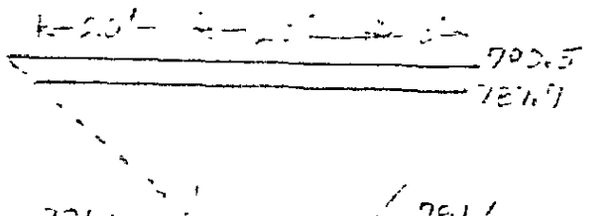
n (composite) =

$K_f = 29.1 \times (0.02)^2 \times 12 / 2.43 = 0.06$

$K_e$ = — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p$ = 0 if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual




2. XKOR = 1 + 0.06 + 0.5 + 0.0 = 1.56
3. COFQ - Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 20.
6. BWP = total width of obstruction = 0.0 — field data
7. BAREA = bridge opening inc. piers = 195
8. SS = side slope = 1.5
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 781.1
(0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 781.1
(0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK | SHEET NO. | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| TRUCK BRIDGE | DRB | | ___ OF ___ | 4UD • 2006 • 07 |
| | DATE 8/79 | DATE | | |

FORM 25 0

(313) 291-5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: GRIDWOOD ST. BRIDGE 30° SKEW

Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 1.25 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1 n^2 L / R^{4/3}$ for English units

Area = = 116 Wp = 66

$R = A/wp$ $R^{4/3} = 2.12$ $L$ =

n (composite) =

$K_f = 29.1 \times (0.02)^2 \times 63 / 2.12 = 0.34$

$K_e = 0.5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

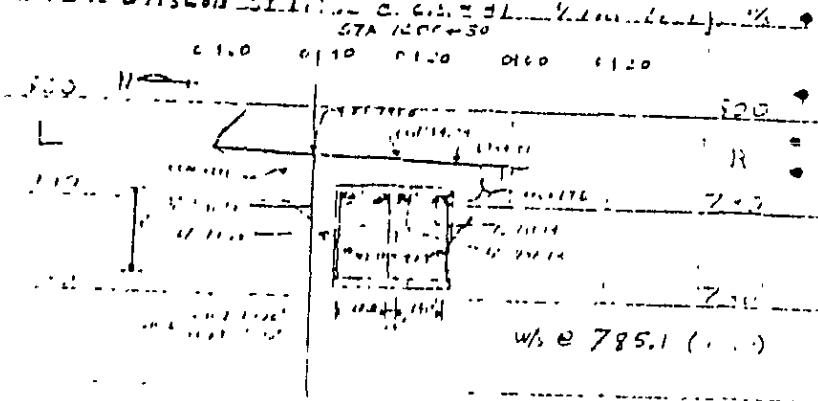
$K_p$ = 0 if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

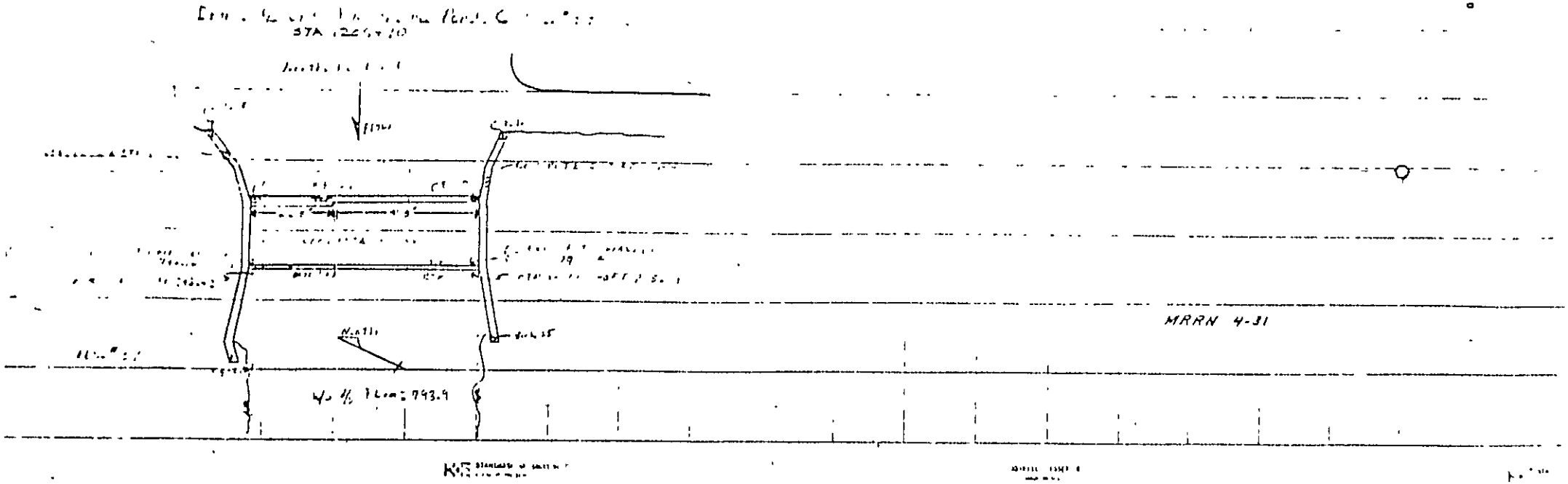
2. XKOR = 1 + 0.34 + 0.5 + 0.05 = 1.89
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 19.3
6. BWP = total width of obstruction = 1.42 — field data
7. BAREA = bridge opening inc. piers = 116.
8. SS = side slope = 0.
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 784.6
(0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 784.6
(0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK | SHEET NO. | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| NORTHVILLE CITY | DRB | | ___ OF ___ | HUD • 2006 • 07 |
| | DATE 8-79 | DATE | | |

# GRISWOLD ST. BRIDGE
## STA. 40+28



# NORTHVILLE DAM STA. 49+08



Bridge Location : C.O. 2.82 B.R. #1
Bridge Losses - SB Conf

REFERENCE

1. XK (Pier Shape Coefficient) 0.0 — HEC-2 Manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$k_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = 150 Wp = 43

$R = A/wp$ $R^{4/3} = 4.57$ $L = 50$

n (composite) =

$k_f = 29.1 \times (0.02)^2 \times 50 \;/\; 4.57 = 0.13$

$k_e = 0.5$ — Hydraulic Charts for the Selection of Highway Culverts, Circular No. 5, Dec. 1965 pg. 43

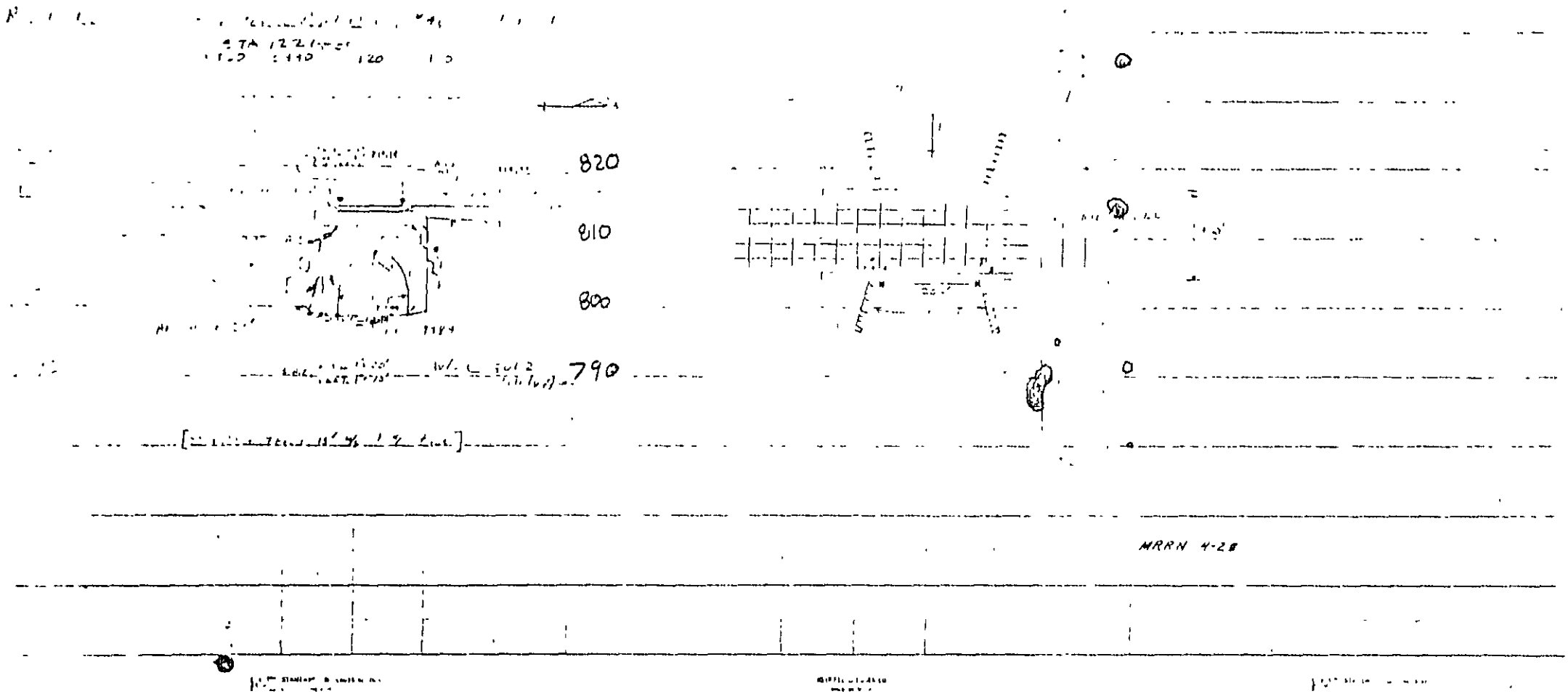
$k_p = 0$ if bridge has no intermediate piers

$k_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + 0.13 + 0.5 + 0.0 = 1.63
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 150.3
6. BWP = total width of obstruction = 0.0 — field data
7. BAREA = bridge opening inc. piers = 1500
8. SS = side slope = 0.0
   (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 798.41
   (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 798.41
    (0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK. | SHEET NO | File Code No (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| NORTHVILLE CITY | DRB | | ___ OF ___ | HUD • 2003 • 07 |
| | DATE 8-29 | DATE | | |

# Co + O. RAILROAD BRIDGE STA. 61+78



FORM 25 0

(313) 291 5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location : [illegible]
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) [illegible] — HEC-2 manual
XKOR (Loss Coefficient) = 1.0 + $\Sigma k$ , $\Sigma k = k_f + k_e + k_p$
where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge :
$K_f = 29.1\, n^2 L / R^{4/3}$ for English units
Area = = [illegible] Wp = 56
$R = A/wp$ $R^{4/3}$ = [illegible] L = 2.8
n (composite) =
$K_f = 29.1 \times ([illegible])^2 \times 2.8 / [illegible] = [illegible]$

$K_e$ = 0.5 — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

~~$K_p$~~ = 0 if bridge has no intermediate piers

$K_p$ = 0.05 if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + 0.13 + 0.5 + 0.0 = 1.63
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 23.7
6. BWP = total width of obstruction = 0.0 — field data
7. BAREA = bridge opening inc. piers = [illegible]
8. SS = side slope = 0.0
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 802.1
(0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 802.1
(0 if equal to minimum elevation in previous x-sect.)

| SUBJECT | BY | CHK | SHEET NO | File Code No (Job No) Owner Project Suffix |
|---|---|---|---|---|
| NoUn City | DRB | | ___ OF ___ | HUD • 2006 • 07 |
| | DATE 8/79 | DATE | | |

HOD
[illegible]

NOB VILLE (COLF, I.S. [illegible] DRAIN)

| STA | + | HI | - | ELEV |
|---|---|---|---|---|
| | | 814.73 | | |
| A | | | 4.6 | 810.11 |
| B | | | 4.[illegible] | 810.08 |
| [illegible] | | | 4.[illegible] | 810.05 |
| D | | | 7.[illegible] | 807.37 |
| E | | | 7.[illegible] | 807.39 |
| [illegible] | | | 12.[illegible] | 802.73 |
| G | | | 11.9 | 802.93 |
| [illegible] | | | 12.[illegible] | 802.13 |
| [illegible] | | | 9.[illegible] | [illegible] |
| [illegible] | | | 12.[illegible] | 802.[illegible] |
| K | | | 1.[illegible] | 80[illegible] |
| L | | | 5.[illegible] | [illegible] |

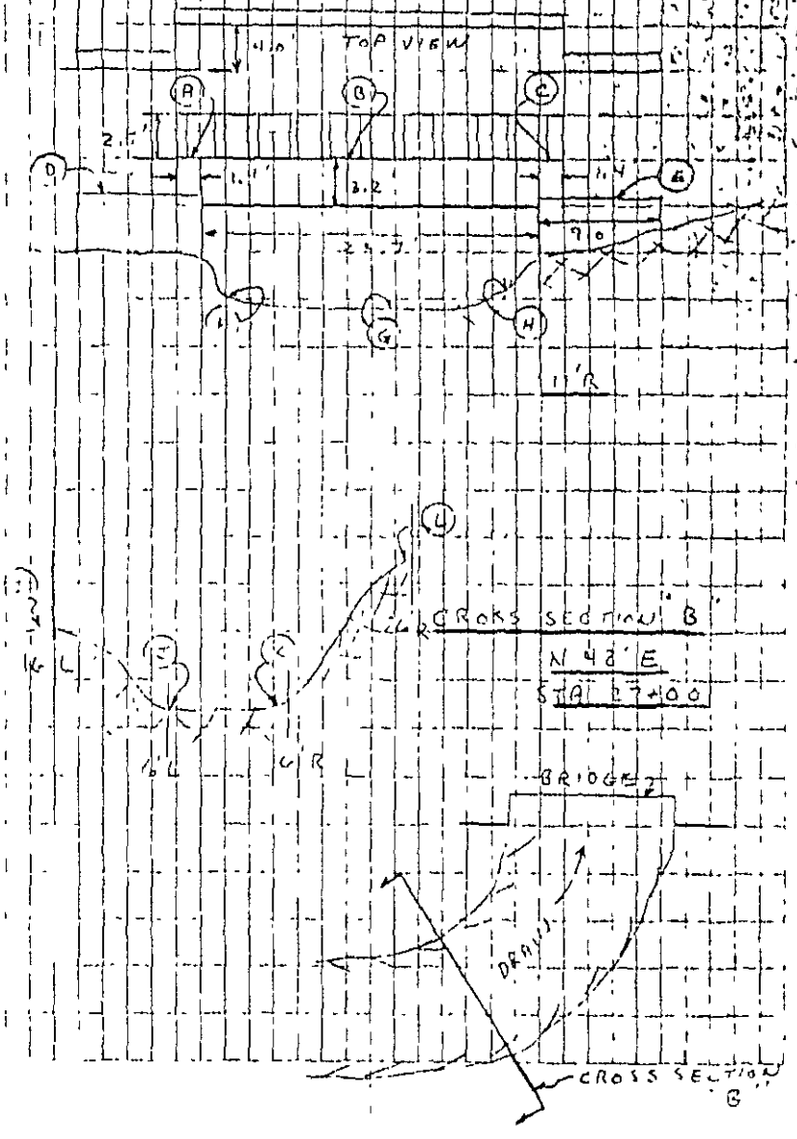
FB 949

J[illegible]
MU
DS

FEB. 20 [illegible]

BRIDGE LENGTH F 28

[illegible] OLD WAVE RD 27+90 N/S



Bridge Location : C.O.G. RR BRIDGE STA. 79+65

Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 1.25 — HEC-2 Manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge :

$K_f = 29.1 n^2 L / R^{4/3}$ for English units

Area = 145 Wp = 70

$R = A/wp$ 145/70 $R^{4/3} = 2.64$ $L = 44$

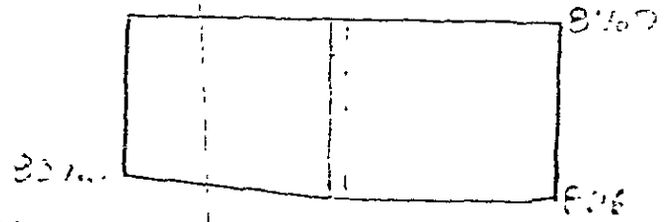
n (composite) =

$K_f = 29.1 \times (0.02)^2 \times 44 / 2.64 = 0.19$

$K_e$ = WINGWALLS 30° TO 75° TO BARREL 0.4 — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 4

$K_p$ = 0 if bridge has no intermediate piers

~~$K_p$~~ = 0.05 if bridge has intermediate piers — HEC-2 manual




2. XKOR = 1 + 0.19 + 0.4 + 0.005 = 1.64
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0. (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 27.0
6. BWP = total width of obstruction = 3.0 — field data
7. BAREA = bridge opening inc. piers = 145.
8. SS = side slope = 0.
   (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 806.
   (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 806.
    (0 if equal to minimum elevation in previous X-sect.)

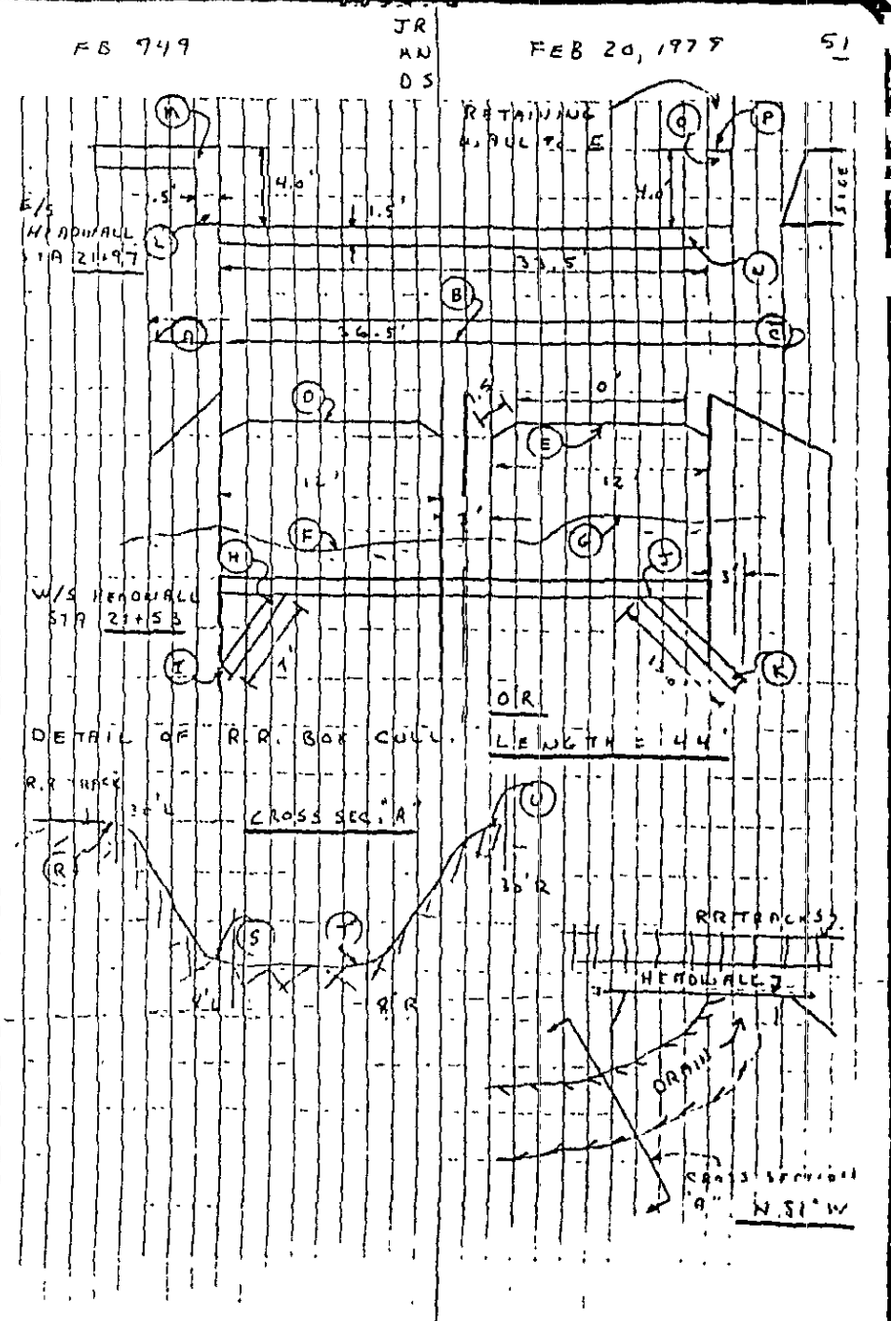
| SUBJECT | BY | CHK | SHEET NO. | File Code No (Job No.) Owner • Project • Suffix |
|---|---|---|---|---|
| | DATE | DATE | ___ OF ___ | |

HUD 2006-07

NORTHVILLE CITY E.I.S. (PATNALES DRAIN)

| STA | + | = | ELEV. |
|---|---|---|---|
| | 823.97 | | |
| A | | 5.57 | 818.30 |
| B | | 5.56 | 818.31 |
| C | | 5.52 | 818.35 |
| D | | 12.12 | 811.75 |
| E | | 12.10 | 811.77 |
| F | | 16.6 | 807.27 |
| G | | 17.9 | 805.97 |
| H | | 10.38 | 813.49 |
| I | | 13.23 | 810.64 |
| J | | 10.43 | 813.44 |
| K | | 13.93 | 809.94 |
| L | | 10.53 | 813.54 |
| M | | 11.45 | 812.42 |
| N | | 10.46 | 813.41 |
| O | | 11.34 | 812.53 |
| P | | 12.06 | 811.81 |
| R | | 4.6 | 819.27 |
| S | | 18.2 | 805.67 |
| T | | 18.1 | 805.77 |
| U | | 5.5 | 818.37 |

FEB 7 '77 JR ANDS FEB 20, 1978 51



HUD 2006-07

NORTHVILLE CITY F. S. (PATHALLS DRAIN)

FB 949 JR MN DS FEB 20, 1979 48

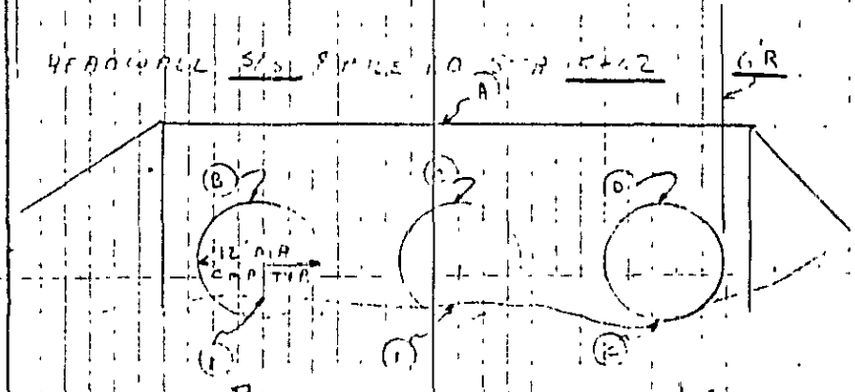
| STA | + | $H_1$ | − | ELEV | |
|---|---|---|---|---|---|
| BM | | | | 828.16 | |
| | 16.64 | 844.80 | | | |
| 400'R | | | 12.69 | 832.11 | |
| 200'R | | | 9.96 | 834.84 | |
| 100 R | | | 7.02 | 837.78 | |
| 0 | | | 2.95 | 840.85 | (DUE E) |
| 100'L | | | 0.95 | 843.85 | |
| 200'L | | | (+1.25) | 846.05 | |
| 300'L | | | (+1.60) | 846.40 | |
| BM CH [illegible] | | | 24.49 | 820.21 | [illegible] |
| | 1.72 | 820.05 | | | |
| A | | | 9.76 | 820.29 | |
| B | | | 12.24 | 817.81 | |
| C | | | 12.31 | 817.68 | |
| D | | | 12.30 | 817.75 | |
| E | | | [illegible] | 809.45 | |
| F | | | 21.2 | 808.85 | |
| G | | | 22.5 | 807.55 | |

RE-RIO N/S OF PILE G SE COR 8 MI & NOVI RD TURNPIKE

L 8 MILE RD BRIDGE (STA 15+76)

[illegible] EXTREME [illegible] COR CONC HEADWALL FOR CULV. UNDER 8 MILE RD. (S/S)

HEADWALL S/S 8 MILE RD STA 15+42




NOTE: HEADWALL IS OF SAME TYP AS THAT ON N/S OF 8 MILE RD WITH THE EXCEPTION OF THE PEDESTRIAN ICE BREAKERS.

HOD
2 [illegible] 07

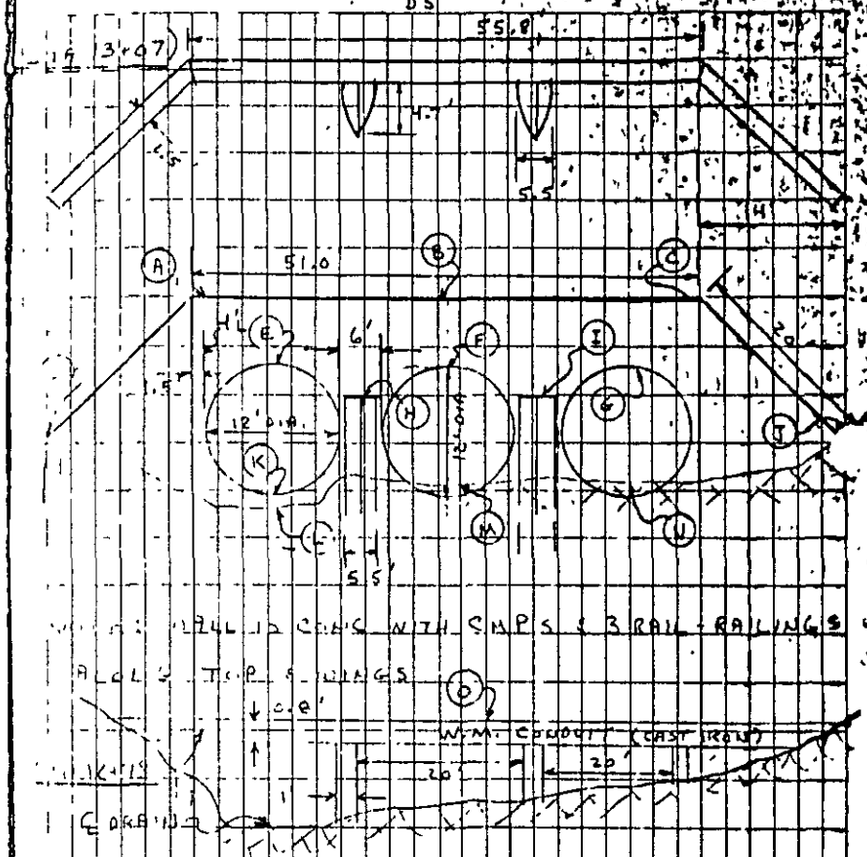
N[illegible]HVILLE [illegible] F[illegible]S (P[illegible] DRAIN)

| [illegible] | [illegible] | H[illegible] | [illegible] | E[illegible] | (INS RT |
|---|---|---|---|---|---|
| | | [illegible] | | | |
| A | | | 5.44 | 821.36 | |
| B | | | [illegible] | 821.34 | |
| C | | | 5.47 | 821.33 | |
| D | | | 13.47 | 813.33 | |
| E | | | 2.[illegible] | 81[illegible].48 | |
| F | | | 2.11 | 818.69 | |
| G | | | 2.19 | 818.61 | |
| H | | | 10.46 | 816.34 | |
| I | | | 15.[illegible] | 816.34 | |
| J | | | 1[illegible] | 81[illegible].70 | |
| K | | | [illegible] | [illegible] | |
| L | | | 1[illegible] | 807.70 | |
| M | | | 1[illegible] | 810.[illegible] | |
| N | | | 1[illegible] | 80[illegible] | |
| O | | | 12.[illegible] | 814.[illegible] | |
| | | | | | |
| [illegible] | | | 5.44 | 821.[illegible] | 821.[illegible] |

FB 949

MN
DS

FEB 19 [illegible]




[illegible] WALL IS CONC WITH CMPS & 3 RAIL RAILINGS ALONG TOP & WINGS

DETAIL OF CONC. HEADWALL N/S 8 MI RD & NOV

[illegible] CONC. TO EXTREME NE COR HEADWALL FOR CULVERTS UNDER 8 MI RD BRIDGE @ NOV. RD.

FORM 25 0
(313) 291 5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: Novi RD 57A99492
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 1.05 — HEC-2 manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units

Area = = 335 $W_p$ = 145

$R = A/W_p$ 335/145 $R^{4/3}$ = 3.1 L = 37.5

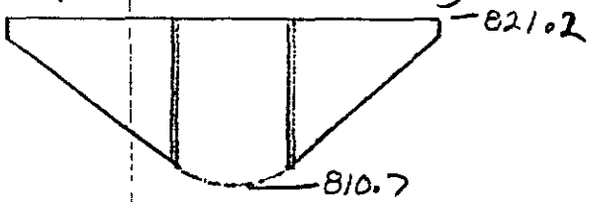
n (composite) =

$K_f = 29.1 \times (0.02)^2 \times 37.5 / 3.1 = .14$

$K_e = 0.5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p$ = 0 if bridge has no intermediate piers

$K_p$ = 0.05 if bridge has intermediate piers — HEC-2 manual



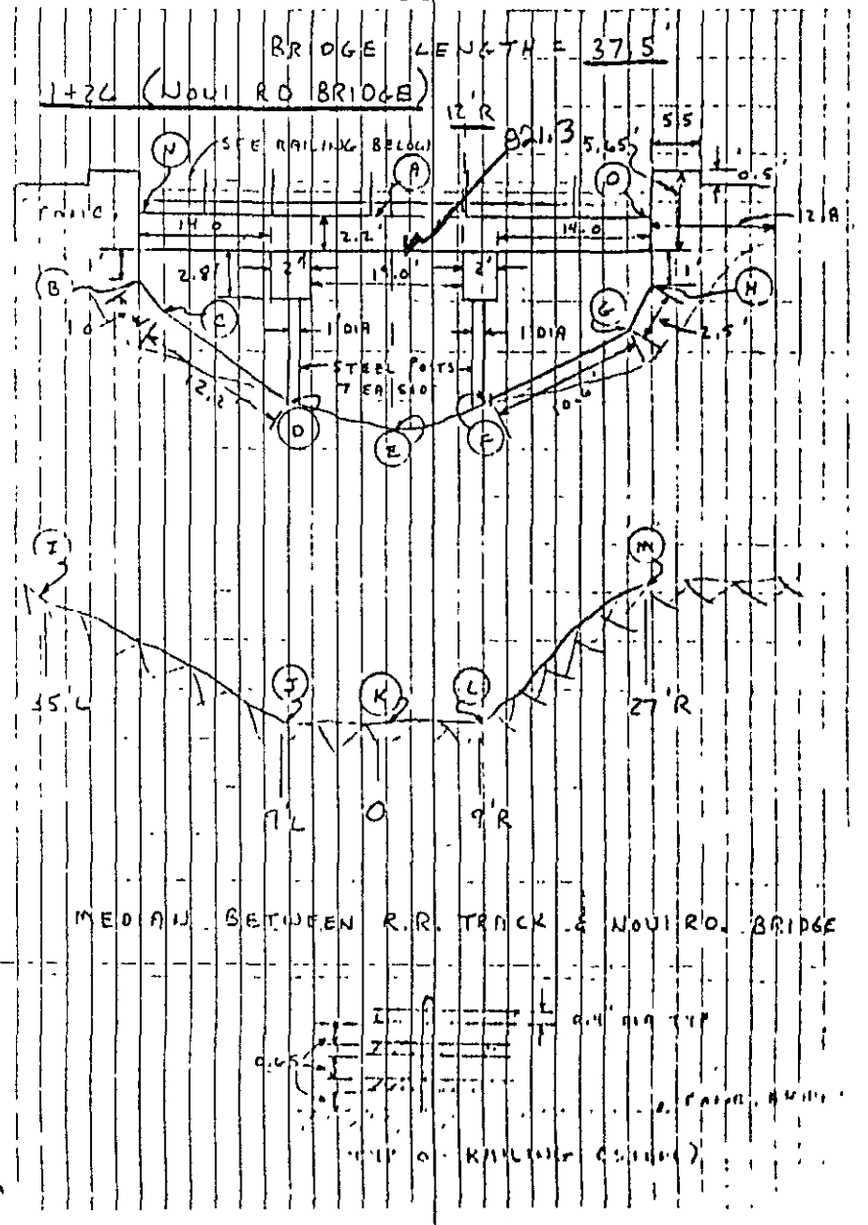

2. XKOR = 1 + 0.14 + 0.5 + 0.05 = 1.69
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 21.
6. BWP = total width of obstruction = 2.0 — field data
7. BAREA = bridge opening inc. piers = 335.
8. SS = side slope = 1.23 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 810.7 (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 810.7 (0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK | SHEET NO. | File Code No. (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| Northville City | 8-79 DATE DRR | DATE | ___ OF ___ | HUD 2006 07 |

1100
2006-07

NORTHVILLE CITY F.I.S. (PATHALES DRAIN)

| STA | + | HI. | − | ELEV. | |
|---|---|---|---|---|---|
| | | 830.81 | | | |
| 300' L | | | 9.37 | 821.44 | |
| 200' L | | | 8.95 | 821.86 | |
| 100' L | | | 8.55 | 822.26 | |
| 0 | | | 7.97 | 822.84 | N 30° E |
| 100' R | | | 7.77 | 823.04 | |
| 200' R | | | 7.18 | 823.63 | |
| 300' R | | | 6.77 | 824.04 | |
| A | | | 7.33 | 823.48 | |
| B | | | 10.74 | 820.07 | |
| C | | | 11.66 | 819.15 | |
| D | | | 17.9 | 812.91 | |
| E | | | 20.1 | 810.71 | |
| F | | | 17.3 | 813.51 | |
| G | | | 12.81 | 818.00 | |
| H | | | 10.64 | 820.17 | |
| I | | | 11.9 | 818.91 | |
| J | | | 18.5 | 812.31 | |
| K | | | 19.0 | 811.81 | |
| L | | | 18.9 | 811.91 | |
| M | | | 14.5 | 816.31 | |
| N | | | 1.56 | 823.25 | |
| O | | | 7.26 | 823.55 | |



Bridge Location: C.O. RR STA 100+77

Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 0.0 — HEC-2 Manual

XKOR (Loss Coefficient) = 1.0 + $\Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$k_f = 29.1 n^2 L / R^{4/3}$ for English units

Area = 34 x 7.2 = 245 WP = 82.4

$R = A/wp$ 245/82.4 $R^{4/3} = 4.27$ $L = 10$

n (composite) =

$k_f = 29.1 \times (0.02)^2 \times 10. / 4.27 = 0.03$

$k_e = 0.7$ WINGWALLS PARALLEL — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 43

~~$k_p = 0$~~ if bridge has no intermediate piers

$k_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + 0.03 + 0.7 + 0.0 = 1.73
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0. (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers): 34.0
6. BWP = total width of obstruction = 0. — field data
7. BAREA = bridge opening inc. piers = 245.
8. SS = side slope = 0.
   (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 812.90
   (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 812.90
    (0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK. | SHEET NO. | File Code No (Job No.) Owner Project Suffix |
|---|---|---|---|---|
| NORTHVILLE CITY | DRB | | ___ OF ___ | HUD • 2006 • 07 |
| | DATE 2/24 | DATE | | |

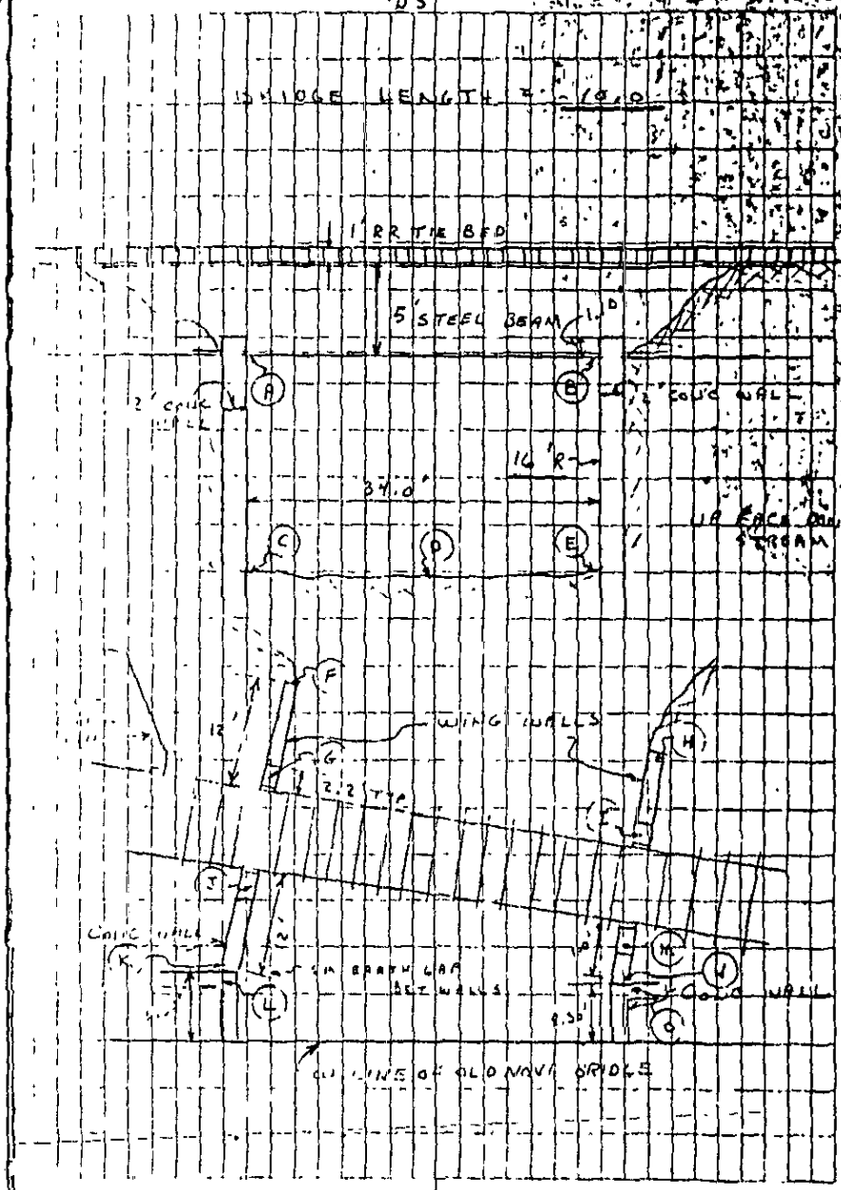
[illegible] NEWTHVILLE CITY [illegible] I.S. ([illegible] CRAIN)

| STA | HI | | EL V | |
|---|---|---|---|---|
| | 8 [illegible] | | | |
| [illegible] (R.R. [illegible] BRIDGE) | | | | |
| [illegible] L | | 5.42 | 825.39 | |
| [illegible] L | | 5.0[illegible] | 825.79 | |
| [illegible] | | 4.28 | 825.93 | |
| [illegible] | | 4.10 | 826.11 | N 35 E |
| [illegible] | | 4.19 | 826.[illegible] | |
| [illegible] | | 3.73 | 827.[illegible] | |
| [illegible] | | 2.94 | 827.[illegible] | |
| A | | 10.7[illegible] | 820.66 | |
| [illegible] | | 10.64 | 820.17 | |
| [illegible] | | 17.9 | 812.91 | |
| [illegible] | | 17.9 | 812.[illegible] | |
| E | | 17.7 | 812.91 | |
| [illegible] | | 12.[illegible] | 818.61 | |
| [illegible] | | 4.65 | 826.16 | |
| [illegible] | | 11.[illegible] | 819.21 | |
| [illegible] | | 4.5[illegible] | 826.27 | |
| [illegible] | | 5.97 | 824.84 | |
| K | | 11.[illegible] | 819.15 | |
| L | | [illegible] | 823.18 | |
| [illegible] | | [illegible] | 825.52 | |
| [illegible] | | [illegible].44 | 823.37 | |
| O | | 7.71 | 823.10 | |

FB 749

JN
MN
DS

FEB [illegible] 1979



HUD
2006-07

NORTHVILLE CITY F.L.S. (PATHAL DRIVE)

| STA | + | HI | - | ELEV |
|---|---|---|---|---|
| BM | | | | 226.45 |
| | 4.[illegible] | 2[illegible] | | |
| 0+00 | (OLD [illegible] RD BRIDGE [illegible]) | | | |
| [illegible] L | | | 6.90 | 823.91 |
| [illegible] L | | | 7.00 | 823.81 |
| [illegible] | | | 6.[illegible] | 824.51 |
| [illegible] | | | 4.10 | 826.11 |
| [illegible] R | | | [illegible] | 826.55 |
| A | | | 4.4[illegible] | 826.33 |
| B | | | 7.[illegible] | 823.15 |
| C | | | 7.71 | 823.10 |
| D | | | 17.5 | 813.31 |
| E | | | 1[illegible] | 812.61 |
| F | | | [illegible] | 813.11 |
| G | | | 10.[illegible] | 820.51 |
| H | | | [illegible] | 818.[illegible] |
| I | | | 15.4 | 815.41 |
| J | | | 1[illegible].1 | 812.71 |
| K | | | 15.8 | 815.01 |
| L | | | 1.[illegible] | 826.21 |
| M | | | [illegible] | 826.20 |

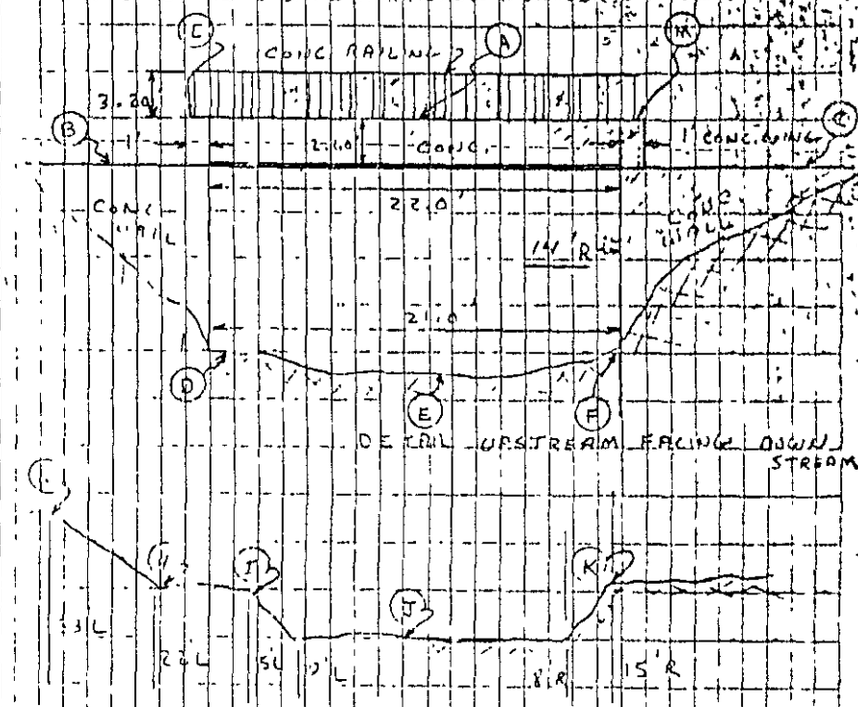
N 8° E
[illegible] TRACK

FB 947 [redacted] J [redacted]
MN
DS

① OFNOSES ELEV REFERENCE

BRIDGE LENGTH = 28.0'

INSERTED SQUARE @ BASE OF RAILING @ SW COR BRIDGE (SEE PG 87)




[illegible] GRID ON UPSTREAM SIDE OF BRIDGE

(10-25)

CITY OF NORTHVILLE, MICHIGAN

MIDDLE BRANCH ROUGE RIVER

EXHIBIT 3

Computer Printouts

HEC-2 Backwater Analysis

with

Cross Section Plots

(See Separate Folder)

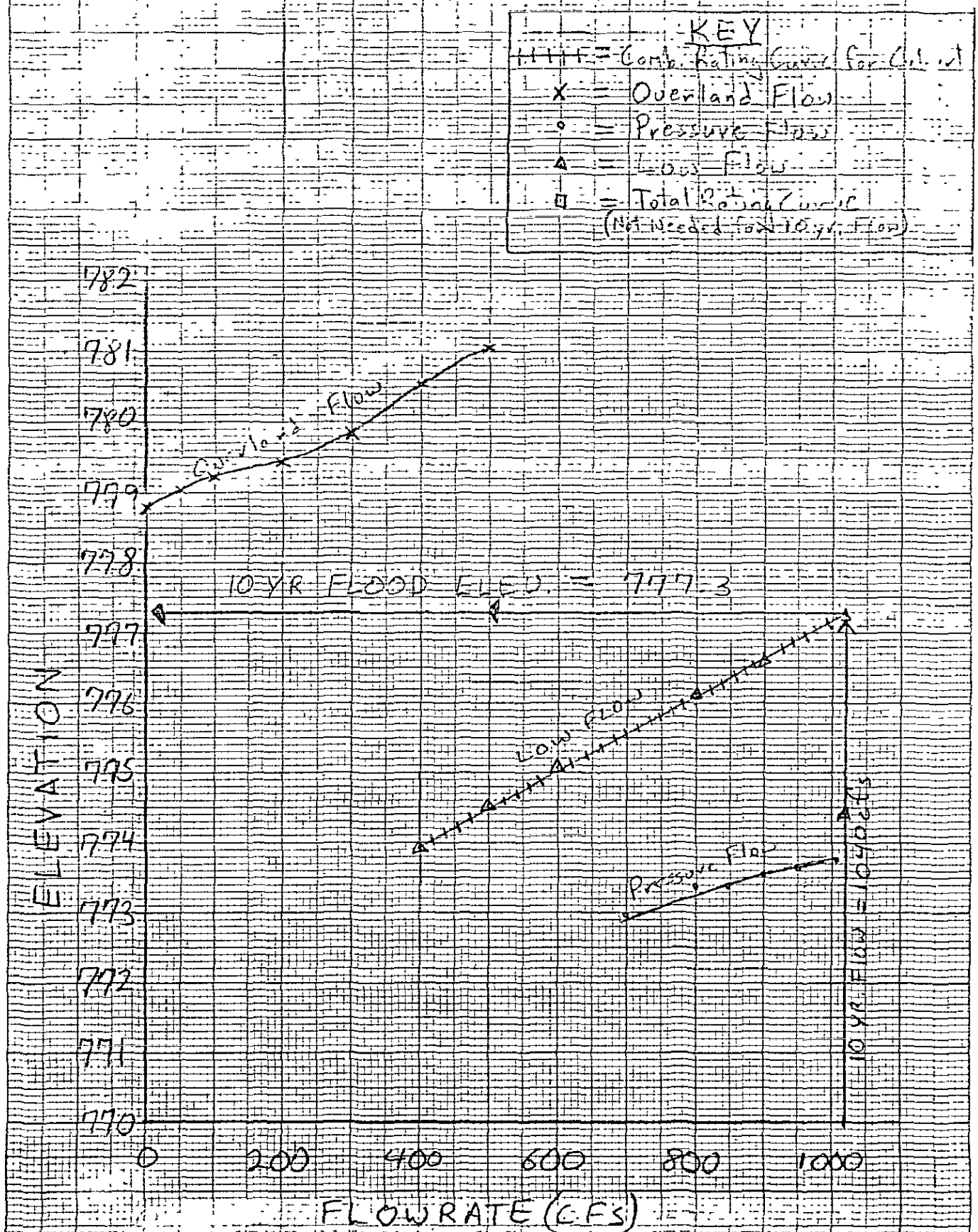
CITY OF NORTHVILLE, MICHIGAN

MIDDLE BRANCH ROUGE RIVER

EXHIBIT 5

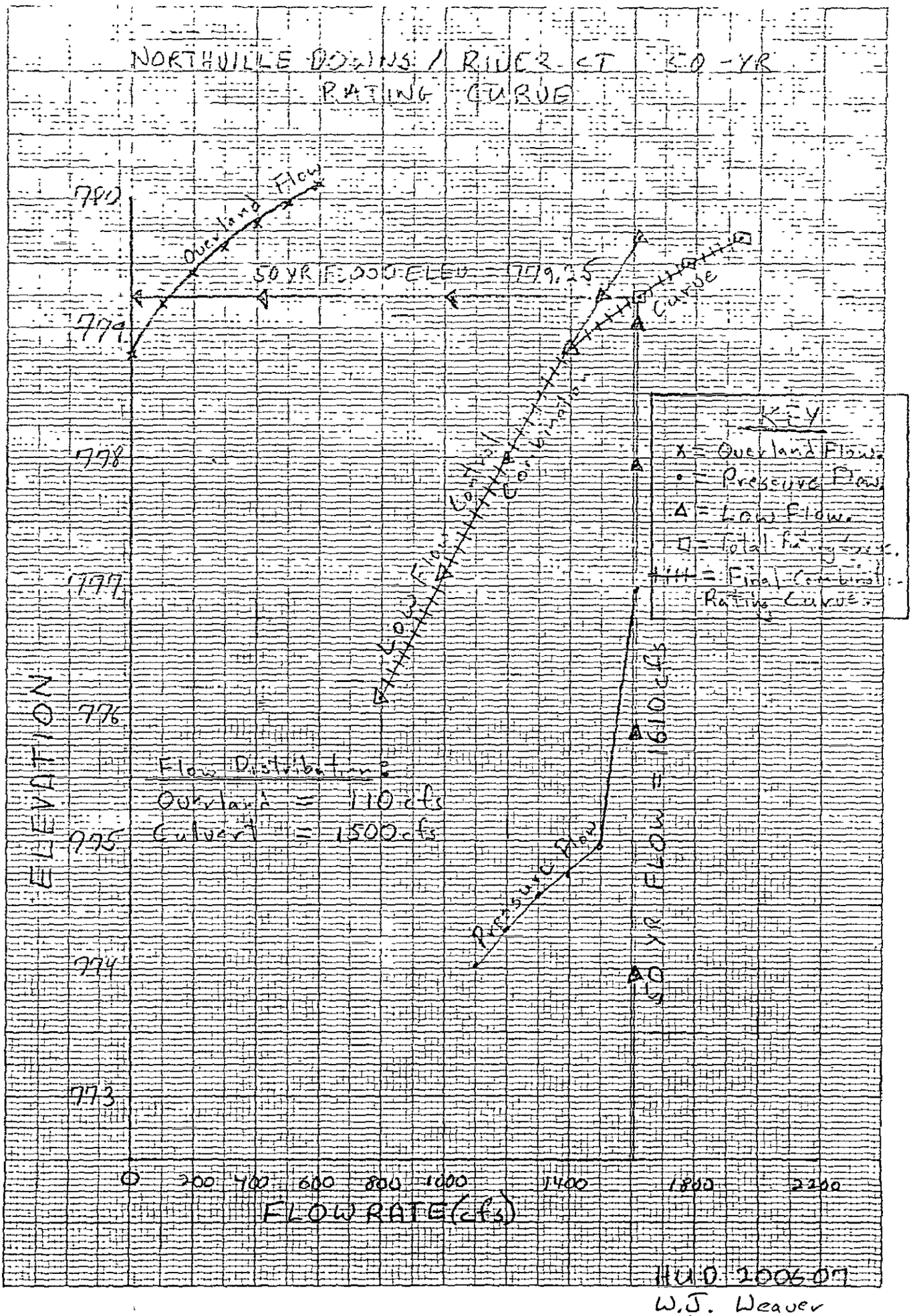
Northville Downs Rating Curves

# NORTHVILLE DOWNS / RIVER STREET CULVERT 10-YEAR RATING CURVE



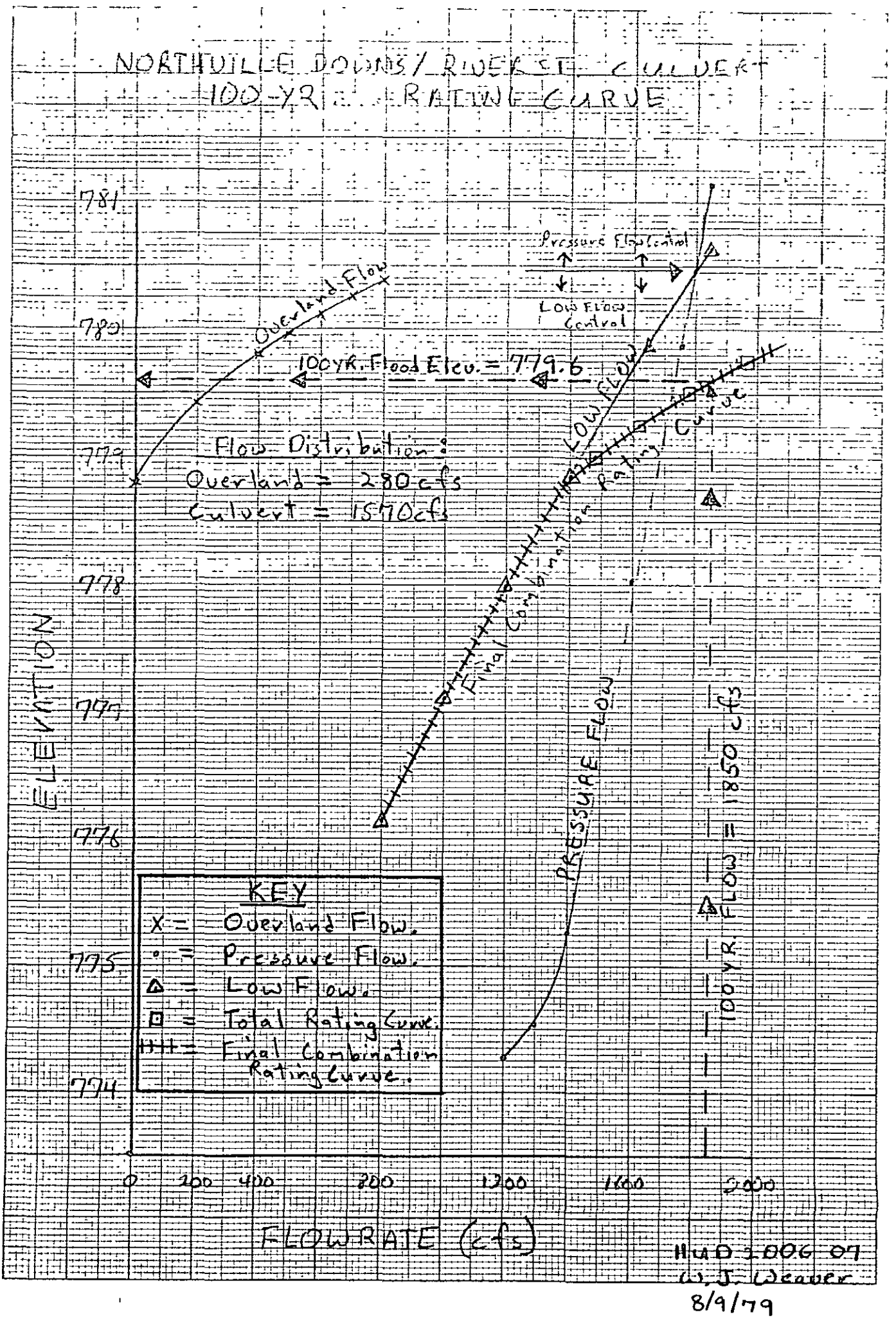

HUD 2006-07
W.J. Weaver
8/9/79

46 1320
K+E 10 X 10 TO ½ INCH 7 X 10 INCHES KEUFFEL & ESSER CO. MADE IN U.S.A.

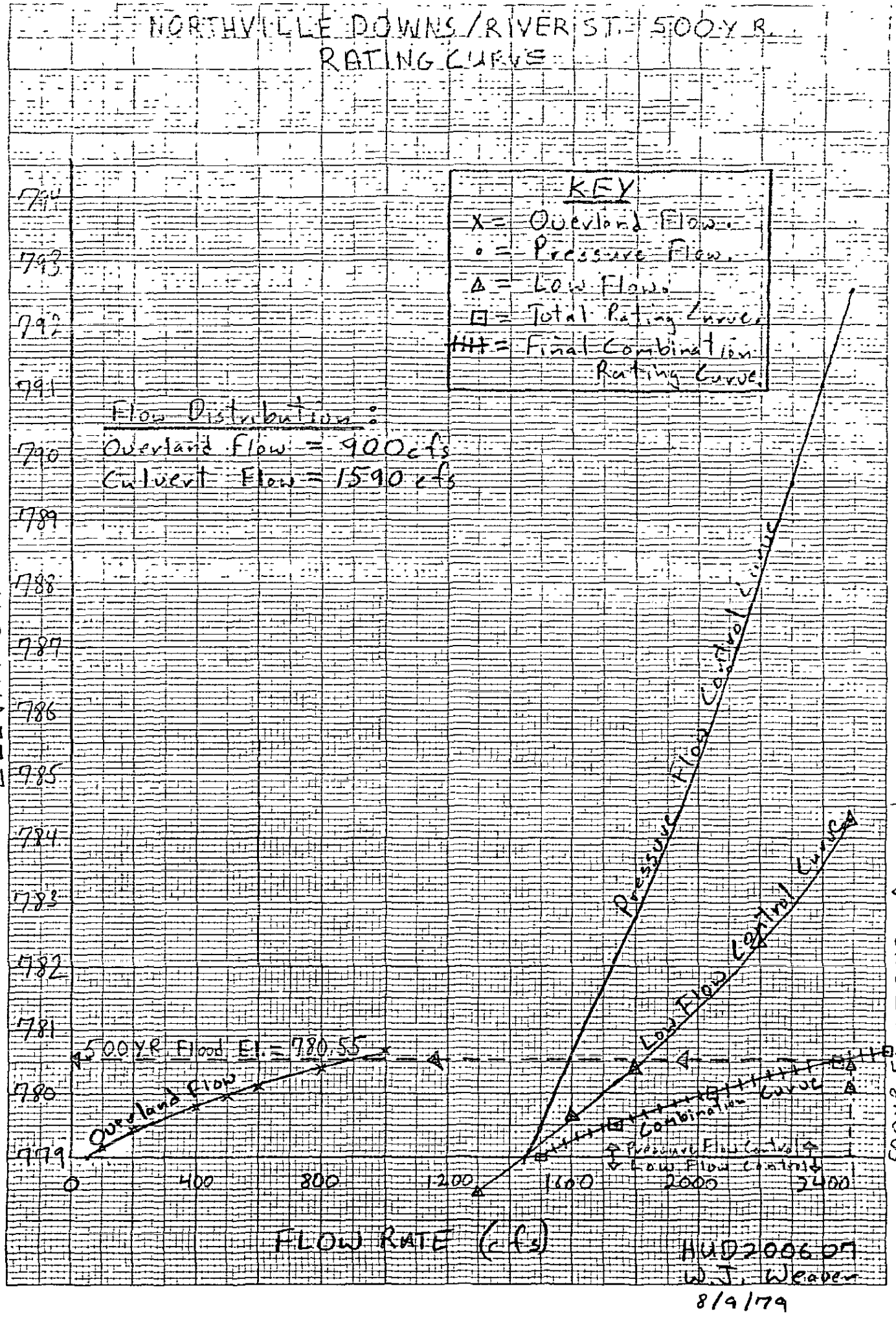



W.J. Weaver
8/9/79

K&E 10 X 10 TO 5 X 10 INCH 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.
46 1320




46 1320
K+E 10 X 10 TO ½ INCH 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN USA


NORTHVILLE DOWNS / RIVER ST. - 500 YR.
RATING CURVE
KEY
X = Overland Flow.
° = Pressure Flow.
Δ = Low Flow.
□ = Total Rating Curve.
HH = Final Combination Rating Curve.
Flow Distribution:
Overland Flow = 900 cfs
Culvert Flow = 1590 cfs
ELEVATION
794
793
792
791
790
789
788
787
786
785
784
783
782
781
780
779
500 YR Flood El. = 780.55
Overland Flow
Pressure Flow Control
Low Flow Control
Combination
Curve A
0
400
800
1200
1600
2000
2400
FLOW RATE (cfs)
500 YR. Flow = 2490 cfs
HUD2006.07
W.J. Weaver
8/9/79
46 1320
K&E 10 X 10 TO ½ INCH 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.

Wade Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: NORTHVILLE DOWNS CULVERT & RIVER ST. B.R.

REFERENCE

## Bridge Losses - SB Card STA. 21+63

1. XK (Pier Shape Coefficient): 0.0 — HEC-2 manual

XKOR (Loss Coefficient) = $1.0 + \Sigma k$, $\Sigma k = k_f + k_e + k_p$

where $k_f$ = friction loss coefficient
$k_e$ = entrance loss coefficient
$k_p$ = loss from intermediate piers

Description of Bridge:

$K_f = 29.1\, n^2 L / R^{4/3}$ for English units — NORTHVILLE DOWNS CULVERT / RIVER ST BRIDGE

Area = 22×7 = 154 Wp = 58

$R = A/wp$ 154/58 $R^{4/3} = 3.68$ $L = 1008 + 50 = 1058$

n (composite) = .013 (SIDES + TOP) 0.004 (BOTTOM) ⇒ 0.017

$K_f = 29.1 \times (0.017)^2 \times 1058 / 3.68 = 2.41$

$K_e = 0.5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has ~~no~~ intermediate piers — HEC-2 manual

NOTE: NORTHVILLE DOWNS CULVERT HAS NO INTERMEDIATE PIERS, THE 0.05 IN XKOR IS FOR THE PEIR AT THE RIVER ST. BRIDGE.

2. XKOR = 1 + 2.41 + 0.5 + 0.05 = 3.97
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0. (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 22.
6. BWP = total width of obstruction = 0. — field data
7. BAREA = bridge opening inc. piers = 154.
8. SS = side slope = 0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 770.0 (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 757.9 (0 if equal to minimum elevation in previous X-sect.)

| SUBJECT | BY | CHK | SHEET NO. | File Code No (Job No.) Owner | Project | Suffix |
|---|---|---|---|---|---|---|
| NORTHVILLE CITY | DATE 1/13/89 | DATE | ___ OF ___ | HUD | 2006 | 07 |

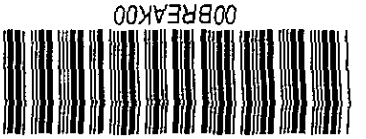



1) COUNTY: Wayne

2) STUDY NAME: City of Northville

3) WATERCOURSE: Middle Rouge River and Johnson Drain

4) DOCUMENT TYPE: Summary



PRINTED IN U.S.A.

FORM 1411.6B PRINTED BY ROTARY MANIFOLD FORMS

```
**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
 ERROR CORR -  01
 MODIFICATION -  50,51,52
**************************************************

 NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

 OLD.ROUGE R. N.VILLE C.

 SUMMARY PRINTOUT TABLE  150
```

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CLSEL | CRIWS | EG | 1.KAS | VCH | AREA | .LIK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.000 | 0.00 | 0.00 | 0.00 | 757.10 | 2270.00 | 765.88 | 0.00 | 765.97 | 4.24 | 3.44 | 2055.86 | 1102.03 |
| | 0.000 | 0.00 | 0.00 | 0.00 | 757.10 | 3170.00 | 767.25 | 0.00 | 767.33 | 3.47 | 3.46 | 2823.12 | 1702.60 |
| | 0.000 | 0.00 | 0.00 | 0.00 | 757.10 | 3680.00 | 768.17 | 0.00 | 768.14 | 3.05 | 3.42 | 3282.36 | 2115.19 |
| | 0.000 | 0.00 | 0.00 | 0.00 | 757.10 | 5090.00 | 770.20 | 0.00 | 770.44 | 2.15 | 3.31 | 4375.86 | 3471.47 |
| | 500.000 | 300.00 | 0.00 | 0.00 | 758.00 | 2270.00 | 765.97 | 0.00 | 766.19 | 9.56 | 4.80 | 1319.20 | 734.29 |
| | 300.000 | 300.00 | 0.00 | 0.00 | 758.00 | 3170.00 | 767.32 | 0.00 | 767.51 | 7.37 | 4.74 | 1900.16 | 1167.86 |
| | 300.000 | 300.00 | 0.00 | 0.00 | 758.00 | 3680.00 | 768.13 | 0.00 | 768.30 | 6.27 | 4.65 | 2247.64 | 1469.66 |
| | 300.000 | 300.00 | 0.00 | 0.00 | 758.00 | 5090.00 | 770.42 | 0.00 | 770.55 | 4.22 | 4.48 | 3230.67 | 2477.15 |
| | 600.000 | 300.00 | 0.00 | 0.00 | 758.90 | 2270.00 | 766.13 | 0.00 | 766.74 | 23.68 | 7.02 | 697.85 | 486.52 |
| | 600.000 | 300.00 | 0.00 | 0.00 | 758.90 | 3170.00 | 767.41 | 0.00 | 767.95 | 18.67 | 7.05 | 1056.26 | 753.64 |
| | 600.000 | 300.00 | 0.00 | 0.00 | 758.90 | 3680.00 | 768.19 | 0.00 | 768.68 | 15.81 | 6.93 | 1276.60 | 925.36 |
| | 600.000 | 300.00 | 0.00 | 0.00 | 758.90 | 5090.00 | 770.43 | 0.00 | 770.61 | 10.34 | 6.56 | 1901.25 | 1563.29 |
| | 978.000 | 378.00 | 0.00 | 0.00 | 760.10 | 2270.00 | 767.13 | 0.00 | 768.35 | 54.65 | 10.36 | 397.33 | 306.42 |
| | 978.000 | 378.00 | 0.00 | 0.00 | 760.10 | 3170.00 | 768.05 | 0.00 | 769.71 | 64.54 | 12.30 | 474.17 | 394.60 |
| | 978.000 | 378.00 | 0.00 | 0.00 | 760.10 | 3680.00 | 768.52 | 0.00 | 770.46 | 66.48 | 13.11 | 519.91 | 451.32 |
| | 978.000 | 378.00 | 0.00 | 0.00 | 760.10 | 5090.00 | 770.31 | 0.00 | 772.30 | 60.60 | 14.35 | 667.45 | 653.05 |
| | 1028.000 | 50.00 | 0.00 | 0.00 | 757.40 | 2270.00 | 765.74 | 0.00 | 768.51 | 10.93 | 5.59 | 343.66 | 866.57 |
| | 1028.000 | 50.00 | 0.00 | 0.00 | 757.40 | 3170.00 | 766.05 | 0.00 | 770.05 | 14.36 | 8.01 | 395.57 | 830. 9 |
| | 1028.000 | 50.00 | 0.00 | 0.00 | 757.40 | 3680.00 | 765.85 | 0.00 | 770.32 | 15.12 | 9.15 | 435.15 | 914.94 |
| | 1028.000 | 50.00 | 0.00 | 0.00 | 757.40 | 5090.00 | 771.31 | 0.00 | 772.80 | 18.77 | 9.96 | 510.87 | 1174.70 |
| | 1028.000 | 50.00 | 775.30 | 775.80 | 757.40 | 2270.00 | 768.02 | 0.00 | 768.48 | 10.65 | 6.53 | 347.96 | 695.64 |
| | 1028.000 | 50.00 | 775.30 | 775.80 | 757.40 | 3170.00 | 769.19 | 0.00 | 770.76 | 13.91 | 7.87 | 402.83 | 849.91 |
| | 1028.000 | 50.00 | 775.30 | 775.80 | 757.40 | 3680.00 | 769.69 | 0.00 | 770.94 | 15.30 | 8.49 | 433.93 | 940.06 |
| | 1028.000 | 50.00 | 775.30 | 775.80 | 757.40 | 5090.00 | 771.36 | 0.00 | 773.02 | 17.31 | 9.7 | 504.20 | 1216.93 |
| | 1113.000 | 35.00 | 0.00 | 0.00 | 757.90 | 1340.00 | 766.50 | 0.00 | 768.81 | 2.78 | 4.46 | 233.28 | 624.28 |
| | 1113.000 | 35.00 | 0.00 | 0.00 | 757.90 | 1610.00 | 770.11 | 0.00 | 770.33 | 2.25 | 4.71 | 692.50 | 1677.35 |
| | 1113.000 | 35.00 | 0.00 | 0.00 | 757.90 | 1850.00 | 770.49 | 0.00 | 771.45 | 2.57 | 5.06 | 747.71 | 1810.15 |
| | 1113.000 | 35.00 | 0.00 | 0.00 | 757.90 | 2490.00 | 772.59 | 0.00 | 773.30 | 2.60 | 5.04 | 893.06 | 1544.01 |
| * | 2163.000 | 1050.00 | 1000.00 | 1000.00 | 759.90 | 1040.00 | 777.30 | 0.00 | 777.84 | 23.05 | 5.92 | 175.79 | 252.23 |
| * | 2163.000 | 1050.00 | 1000.00 | 1000.00 | 759.90 | 1610.00 | 779.25 | 0.00 | 779.60 | 12.46 | 5.79 | 425.71 | 456.06 |
| * | 2163.000 | 1050.00 | 1000.00 | 1000.00 | 759.90 | 1850.00 | 779.85 | 0.00 | 780.11 | 14.41 | 6.38 | 450.22 | 487.37 |
| * | 2163.000 | 1050.00 | 1000.00 | 1000.00 | 759.90 | 2490.00 | 780.55 | 0.00 | 781.20 | 13.58 | 7.71 | 516.71 | 577.67 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CASEL | CRIDS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2213.000 | 50.00 | 0.00 | 0.00 | 770.00 | 1040.00 | 777.79 | 0.00 | 778.01 | 8.89 | 3.84 | 359.88 | 348.79 |
| 1 | 2213.000 | 50.00 | 0.00 | 0.00 | 770.00 | 1610.00 | 779.55 | 0.00 | 779.78 | 8.78 | 4.37 | 606.02 | 543.35 |
| 2 | 2213.000 | 50.00 | 0.00 | 0.00 | 770.00 | 1850.00 | 779.96 | 0.00 | 780.24 | 9.42 | 4.66 | 673.60 | 602.64 |
| 3 | 2213.000 | 50.00 | 0.00 | 0.00 | 770.00 | 2490.00 | 781.16 | 0.00 | 781.48 | 10.04 | 5.20 | 860.22 | 765.79 |
| 4 | | | | | | | | | | | | | |
| 5 | 2513.000 | 300.00 | 0.00 | 0.00 | 771.75 | 1040.00 | 778.08 | 0.00 | 778.39 | 14.30 | 4.80 | 300.12 | 275.03 |
| 6 | 2513.000 | 300.00 | 0.00 | 0.00 | 771.75 | 1610.00 | 779.78 | 0.00 | 780.19 | 14.16 | 5.61 | 432.97 | 427.59 |
| 7 | 2513.000 | 300.00 | 0.00 | 0.00 | 771.75 | 1850.00 | 780.23 | 0.00 | 780.69 | 15.09 | 6.00 | 487.72 | 476.21 |
| 8 | 2513.000 | 300.00 | 0.00 | 0.00 | 771.75 | 2490.00 | 781.43 | 0.00 | 781.96 | 15.46 | 6.62 | 689.06 | 633.36 |
| 9 | | | | | | | | | | | | | |
| 10 | 2863.000 | 350.00 | 0.00 | 0.00 | 773.80 | 1040.00 | 778.64 | 778.55 | 780.16 | 150.17 | 9.92 | 107.69 | 64.87 |
| 11 | 2863.000 | 350.00 | 0.00 | 0.00 | 773.80 | 1610.00 | 780.20 | 0.00 | 781.83 | 95.95 | 10.29 | 168.59 | 164.37 |
| 12 | 2863.000 | 350.00 | 0.00 | 0.00 | 773.80 | 1850.00 | 780.64 | 0.00 | 782.43 | 94.70 | 10.82 | 186.81 | 190.10 |
| 13 | 2863.000 | 350.00 | 0.00 | 0.00 | 773.80 | 2490.00 | 781.67 | 0.00 | 783.89 | 92.65 | 12.07 | 235.26 | 258.71 |
| 14 | | | | | | | | | | | | | |
| 15 | 2963.000 | 100.00 | 0.00 | 0.00 | 775.90 | 1040.00 | 780.38 | 780.38 | 782.50 | 155.35 | 11.69 | 88.99 | 83.44 |
| 16 | * 2963.000 | 100.00 | 0.00 | 0.00 | 775.90 | 1610.00 | 781.79 | 781.79 | 784.65 | 146.87 | 13.53 | 119.01 | 132.85 |
| 17 | * 2963.000 | 100.00 | 0.00 | 0.00 | 775.90 | 1850.00 | 782.34 | 782.34 | 785.45 | 144.38 | 14.16 | 130.68 | 153.96 |
| 18 | * 2963.000 | 100.00 | 0.00 | 0.00 | 775.90 | 2490.00 | 783.67 | 783.67 | 787.48 | 142.38 | 15.67 | 156.91 | 208.68 |
| 19 | | | | | | | | | | | | | |
| 20 | * 3063.000 | 100.00 | 791.20 | 785.40 | 775.90 | 1040.00 | 781.30 | 0.00 | 782.72 | 82.06 | 9.58 | 108.56 | 114.61 |
| 21 | * 3063.000 | 100.00 | 791.20 | 785.40 | 775.90 | 1610.00 | 782.13 | 0.00 | 784.98 | 75.24 | 10.93 | 147.30 | 185.61 |
| 22 | * 3063.000 | 100.00 | 791.20 | 785.40 | 775.90 | 1850.00 | 783.83 | 0.00 | 785.95 | 73.65 | 11.41 | 162.17 | 215.28 |
| 23 | * 3063.000 | 100.00 | 791.20 | 785.40 | 775.90 | 2490.00 | 786.05 | 0.00 | 788.25 | 81.95 | 11.90 | 209.30 | 316.35 |
| 24 | | | | | | | | | | | | | |
| 25 | 3113.000 | 50.00 | 0.00 | 0.00 | 776.00 | 1040.00 | 782.07 | 0.00 | 783.20 | 15.47 | 4.73 | 263.24 | 264.15 |
| 26 | 3113.000 | 50.00 | 0.00 | 0.00 | 776.00 | 1610.00 | 783.16 | 0.00 | 785.54 | 11.86 | 5.13 | 396.16 | 467.59 |
| 27 | 3113.000 | 50.00 | 0.00 | 0.00 | 776.00 | 1850.00 | 783.64 | 0.00 | 786.45 | 10.92 | 5.32 | 452.27 | 559.96 |
| 28 | 3113.000 | 50.00 | 0.00 | 0.00 | 776.00 | 2490.00 | 784.45 | 0.00 | 788.07 | 8.47 | 5.49 | 622.97 | 855.52 |
| 29 | | | | | | | | | | | | | |
| 30 | 3213.000 | 150.00 | 0.00 | 0.00 | 776.40 | 1040.00 | 783.30 | 0.00 | 783.39 | 4.13 | 2.48 | 438.87 | 511.94 |
| 31 | 3213.000 | 150.00 | 0.00 | 0.00 | 776.40 | 1610.00 | 785.01 | 0.00 | 785.72 | 3.03 | 2.81 | 621.02 | 859.19 |
| 32 | 3213.000 | 150.00 | 0.00 | 0.00 | 776.40 | 1850.00 | 785.49 | 0.00 | 786.62 | 3.52 | 2.92 | 694.05 | 986.54 |
| 33 | 3213.000 | 150.00 | 0.00 | 0.00 | 776.40 | 2490.00 | 786.61 | 0.00 | 788.03 | 3.01 | 3.13 | 891.13 | 1434.76 |
| 34 | | | | | | | | | | | | | |
| 35 | 3327.000 | 49.00 | 0.00 | 0.00 | 776.50 | 1040.00 | 783.31 | 0.00 | 783.42 | 5.43 | 2.72 | 392.96 | 446.40 |
| 36 | 3327.000 | 49.00 | 0.00 | 0.00 | 776.50 | 1610.00 | 785.61 | 0.00 | 785.76 | 5.26 | 3.12 | 515.96 | 702.26 |
| 37 | 3327.000 | 49.00 | 0.00 | 0.00 | 776.50 | 1850.00 | 786.20 | 0.00 | 786.36 | 5.21 | 3.23 | 562.91 | 811.70 |
| 38 | 3327.000 | 49.00 | 0.00 | 0.00 | 776.50 | 2490.00 | 787.36 | 0.00 | 789.17 | 4.96 | 3.39 | 704.59 | 1124.46 |
| 39 | | | | | | | | | | | | | |
| 40 | 3527.000 | 1.00 | 796.30 | 0.00 | 776.50 | 1040.00 | 787.78 | 0.00 | 787.92 | 1.13 | 1.62 | 643.70 | 976.37 |
| 41 | 3527.000 | 1.00 | 796.30 | 0.00 | 776.50 | 1610.00 | 788.39 | 0.00 | 788.48 | 2.32 | 2.37 | 879.58 | 1057.64 |
| 42 | 3527.000 | 1.00 | 796.30 | 0.00 | 776.50 | 1850.00 | 788.59 | 0.00 | 788.70 | 2.91 | 2.68 | 991.22 | 1084.37 |
| 43 | 3527.000 | 1.00 | 796.30 | 0.00 | 776.50 | 2490.00 | 789.37 | 0.00 | 789.54 | 4.36 | 3.38 | 737.65 | 1192.65 |
| 44 | | | | | | | | | | | | | |
| 45 | 3672.000 | 345.00 | 0.00 | 0.00 | 781.90 | 1040.00 | 787.85 | 0.00 | 788.24 | 41.85 | 5.21 | 199.46 | 160.79 |
| 46 | 3672.000 | 344.00 | 0.00 | 0.00 | 781.90 | 1610.00 | 788.48 | 0.00 | 789.26 | 70.70 | 7.10 | 226.81 | 191.67 |
| 47 | 3672.000 | 344.00 | 0.00 | 0.00 | 781.90 | 1850.00 | 788.70 | 0.00 | 789.65 | 83.39 | 7.82 | 236.45 | 202.58 |
| 48 | 3672.000 | 344.00 | 0.00 | 0.00 | 781.90 | 2490.00 | 789.56 | 0.00 | 790.83 | 100.31 | 9.05 | 275.07 | 248.62 |
| 49 | | | | | | | | | | | | | |
| 50 | 3864.000 | 12.00 | 790.50 | 787.70 | 781.90 | 1040.00 | 788.11 | 0.00 | 788.51 | 35.19 | 4.64 | 217.50 | 175.38 |
| 51 | 3864.000 | 12.00 | 790.50 | 787.70 | 781.90 | 1610.00 | 789.11 | 0.00 | 790.12 | 40.71 | 5.98 | 277.62 | 251.78 |
| 52 | 3864.000 | 12.00 | 790.50 | 787.70 | 781.90 | 1850.00 | 790.27 | 0.00 | 790.77 | 41.30 | 6.04 | 308.39 | 287.38 |
| 53 | 3864.000 | 12.00 | 790.50 | 787.70 | 781.90 | 2490.00 | 790.82 | 0.00 | 791.67 | 56.72 | 7.50 | 336.31 | 330.62 |
| 54 | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | |
| 56 | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | |

PRINTED IN U.S.A.
FORM 1411-GS-PRINTED BY ROTARY MANIFOLD FORMS.

| | | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3825.000 | 141.00 | 0.00 | 0.00 | 782.80 | 1040.00 | 788.70 | 0.00 | 789.42 | 57.73 | 7.26 | 188.26 | 136.88 |
| 1 | | 3825.000 | 141.00 | 0.00 | 0.00 | 782.80 | 1690.00 | 790.20 | 0.00 | 791.19 | 59.41 | 8.81 | 259.25 | 208.66 |
| 2 | | 3825.000 | 141.00 | 0.00 | 0.00 | 782.80 | 1850.00 | 790.80 | 0.00 | 791.67 | 58.91 | 9.09 | 289.43 | 241.04 |
| 3 | | 3825.000 | 141.00 | 0.00 | 0.00 | 782.80 | 2490.00 | 791.60 | 0.00 | 793.12 | 74.60 | 10.65 | 382.37 | 288.14 |
| 5 | | 3965.000 | 140.00 | 0.00 | 0.00 | 784.60 | 1040.00 | 789.76 | 0.00 | 791.54 | 164.90 | 10.71 | 97.08 | 80.99 |
| 6 | | 3965.000 | 140.00 | 0.00 | 0.00 | 784.60 | 1610.00 | 791.20 | 0.00 | 792.86 | 115.15 | 11.08 | 196.41 | 150.04 |
| 7 | | 3965.000 | 140.00 | 0.00 | 0.00 | 784.60 | 1850.00 | 791.70 | 0.00 | 793.35 | 112.36 | 11.53 | 220.36 | 174.52 |
| 8 | | 3965.000 | 140.00 | 0.00 | 0.00 | 784.60 | 2490.00 | 792.77 | 0.00 | 795.10 | 125.12 | 13.35 | 265.73 | 222.91 |
| 10 | * | 4028.000 | 63.00 | 794.50 | 791.10 | 784.60 | 1040.00 | 790.95 | 0.00 | 792.12 | 84.46 | 8.66 | 120.14 | 113.17 |
| 11 | * | 4028.000 | 63.00 | 794.50 | 791.10 | 784.60 | 1610.00 | 794.66 | 0.00 | 795.11 | 20.16 | 5.17 | 441.59 | 358.59 |
| 12 | * | 4028.000 | 63.00 | 794.50 | 791.10 | 784.60 | 1850.00 | 794.88 | 0.00 | 795.42 | 24.16 | 6.65 | 462.18 | 376.37 |
| 13 | * | 4028.000 | 63.00 | 794.50 | 791.10 | 784.60 | 2490.00 | 795.09 | 0.00 | 796.01 | 39.98 | 9.94 | 482.38 | 393.78 |
| | | 4078.000 | 50.00 | 0.00 | 0.00 | 784.30 | 1040.00 | 792.05 | 0.00 | 792.50 | 18.72 | 3.94 | 203.24 | 240.36 |
| 16 | | 4078.000 | 50.00 | 0.00 | 0.00 | 784.30 | 1610.00 | 794.68 | 0.00 | 795.21 | 10.35 | 5.51 | 616.08 | 500.36 |
| 17 | | 4078.000 | 50.00 | 0.00 | 0.00 | 784.30 | 1850.00 | 795.17 | 0.00 | 795.55 | 11.97 | 6.04 | 656.79 | 534.83 |
| 18 | | 4078.000 | 50.00 | 0.00 | 0.00 | 784.30 | 2490.00 | 795.66 | 0.00 | 796.24 | 17.28 | 7.48 | 731.30 | 598.98 |
| 20 | | 4478.000 | 400.00 | 0.00 | 0.00 | 788.10 | 1040.00 | 793.14 | 792.82 | 794.44 | 108.87 | 10.25 | 153.09 | 99.71 |
| 21 | | 4478.000 | 400.00 | 0.00 | 0.00 | 788.10 | 1610.00 | 795.32 | 0.00 | 796.29 | 48.30 | 9.05 | 324.78 | 231.67 |
| 22 | | 4478.000 | 400.00 | 0.00 | 0.00 | 788.10 | 1850.00 | 795.68 | 0.00 | 796.73 | 50.70 | 9.60 | 366.78 | 259.81 |
| 23 | | 4478.000 | 400.00 | 0.00 | 0.00 | 788.10 | 2490.00 | 796.42 | 0.00 | 797.71 | 57.40 | 10.94 | 476.78 | 328.67 |
| 25 | | 4858.000 | 380.00 | 0.00 | 0.00 | 792.00 | 1040.00 | 796.90 | 0.00 | 797.39 | 44.76 | 5.68 | 196.61 | 146.94 |
| 26 | | 4858.000 | 380.00 | 0.00 | 0.00 | 792.00 | 1590.00 | 797.63 | 0.00 | 798.38 | 57.42 | 7.05 | 246.52 | 209.82 |
| 27 | | 4858.000 | 380.00 | 0.00 | 0.00 | 792.00 | 1820.00 | 798.03 | 0.00 | 798.84 | 58.19 | 7.30 | 275.00 | 247.24 |
| 28 | | 4858.000 | 380.00 | 0.00 | 0.00 | 792.00 | 2460.00 | 798.94 | 0.00 | 799.93 | 82.21 | 8.12 | 341.56 | 340.48 |
| 30 | | 4907.000 | 49.00 | 0.00 | 0.00 | 794.00 | 1040.00 | 797.13 | 0.00 | 797.73 | 71.24 | 6.26 | 166.07 | 123.22 |
| 31 | | 4907.000 | 49.00 | 0.00 | 0.00 | 794.00 | 1590.00 | 797.85 | 0.00 | 798.75 | 80.56 | 7.59 | 229.66 | 177.12 |
| 32 | | 4907.000 | 49.00 | 0.00 | 0.00 | 794.00 | 1820.00 | 798.24 | 0.00 | 799.22 | 76.30 | 7.83 | 258.33 | 206.01 |
| 33 | | 4907.000 | 49.00 | 0.00 | 0.00 | 794.00 | 2460.00 | 799.15 | 0.00 | 800.32 | 75.04 | 8.63 | 336.25 | 283.99 |
| 35 | | 4908.000 | 1.00 | 801.00 | 0.00 | 794.00 | 1040.00 | 804.31 | 0.00 | 804.36 | 1.36 | 1.74 | 599.31 | 892.78 |
| 36 | | 4908.000 | 1.00 | 801.00 | 0.00 | 794.00 | 1590.00 | 805.38 | 0.00 | 805.47 | 2.20 | 2.39 | 665.49 | 1053.19 |
| 37 | | 4908.000 | 1.00 | 801.00 | 0.00 | 794.00 | 1820.00 | 805.79 | 0.00 | 805.90 | 2.63 | 2.63 | 699.07 | 1114.26 |
| 38 | | 4908.000 | 1.00 | 801.00 | 0.00 | 794.00 | 2460.00 | 806.79 | 0.00 | 806.96 | 3.70 | 3.57 | 759.12 | 1278.61 |
| 40 | | 5308.000 | 400.00 | 0.00 | 0.00 | 800.00 | 1040.00 | 804.60 | 0.00 | 804.45 | 2.02 | 1.33 | 797.29 | 737.40 |
| 41 | | 5308.000 | 400.00 | 0.00 | 0.00 | 800.00 | 1590.00 | 805.52 | 0.00 | 805.55 | 1.74 | 1.48 | 1032.52 | 1206.93 |
| 42 | | 5308.000 | 400.00 | 0.00 | 0.00 | 800.00 | 1820.00 | 805.94 | 0.00 | 805.97 | 1.67 | 1.54 | 1191.63 | 1409.30 |
| 43 | | 5308.000 | 400.00 | 0.00 | 0.00 | 800.00 | 2460.00 | 807.02 | 0.00 | 807.03 | 1.95 | 1.89 | 1479.05 | 1939.24 |
| 45 | | 5928.000 | 620.00 | 0.00 | 0.00 | 800.00 | 1040.00 | 804.52 | 0.00 | 804.36 | 2.01 | 1.44 | 722.30 | 732.10 |
| 46 | | 5928.000 | 620.00 | 0.00 | 0.00 | 800.00 | 1590.00 | 805.64 | 0.00 | 805.69 | 2.24 | 1.72 | 902.85 | 1062.72 |
| 47 | | 5928.000 | 620.00 | 0.00 | 0.00 | 800.00 | 1820.00 | 806.05 | 0.00 | 806.11 | 2.31 | 1.88 | 970.00 | 1197.61 |
| 48 | | 5928.000 | 620.00 | 0.00 | 0.00 | 800.00 | 2460.00 | 807.13 | 0.00 | 807.20 | 2.46 | 2.16 | 1140.63 | 1568.65 |
| 50 | | 6078.000 | 150.00 | 0.00 | 0.00 | 798.20 | 1040.00 | 804.10 | 0.00 | 803.84 | 30.84 | 7.27 | 202.01 | 167.96 |
| 51 | | 6078.000 | 150.00 | 0.00 | 0.00 | 798.20 | 1590.00 | 805.15 | 0.00 | 805.57 | 43.01 | 9.15 | 250.24 | 236.76 |
| 52 | | 6078.000 | 150.00 | 0.00 | 0.00 | 798.20 | 1820.00 | 805.62 | 0.00 | 807.19 | 51.71 | 9.93 | 267.32 | 253.10 |
| 53 | | 6078.000 | 150.00 | 0.00 | 0.00 | 798.20 | 2460.00 | 806.92 | 0.00 | 808.53 | 59.27 | 11.45 | 312.93 | 319.68 |

PRINTED IN U.S.A.
FORM 1411-GD-PRINTED BY ROTARY MANIFOLD FORMS.

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CUBEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6128.000 | 50.00 | 0.00 | 0.00 | 798.40 | 1040.00 | 806.62 | 0.00 | 805.80 | 65.54 | 8.72 | 119.30 | 128.46 |
| 6128.000 | 50.00 | 0.00 | 0.00 | 798.40 | 1590.00 | 805.57 | 0.00 | 807.67 | 94.70 | 11.55 | 140.04 | 165.39 |
| 6128.000 | 50.00 | 0.00 | 0.00 | 798.40 | 1820.00 | 806.05 | 0.00 | 808.39 | 105.24 | 12.29 | 148.03 | 177.42 |
| 6128.000 | 50.00 | 0.00 | 0.00 | 798.40 | 2460.00 | 807.00 | 0.00 | 810.37 | 135.13 | 14.74 | 166.88 | 211.62 |
| 6178.000 | 50.00 | 813.70 | 808.20 | 798.40 | 1040.00 | 805.20 | 0.00 | 806.23 | 72.09 | 8.15 | 127.61 | 122.49 |
| 6178.000 | 50.00 | 813.70 | 808.20 | 798.40 | 1590.00 | 806.46 | 0.00 | 808.31 | 134.26 | 10.93 | 145.44 | 137.22 |
| 6178.000 | 50.00 | 813.70 | 808.20 | 798.40 | 1820.00 | 806.43 | 0.00 | 809.77 | 46.75 | 9.31 | 195.43 | 266.19 |
| 6178.000 | 50.00 | 813.70 | 808.20 | 798.40 | 2460.00 | 812.53 | 0.00 | 813.75 | 31.79 | 8.86 | 277.38 | 436.29 |
| 6228.000 | 50.00 | 0.00 | 0.00 | 797.90 | 1040.00 | 806.70 | 0.00 | 806.82 | 6.09 | 3.74 | 508.05 | 421.45 |
| 6228.000 | 50.00 | 0.00 | 0.00 | 797.90 | 1590.00 | 809.28 | 0.00 | 809.41 | 4.47 | 3.84 | 801.13 | 751.65 |
| 6228.000 | 50.00 | 0.00 | 0.00 | 797.90 | 1820.00 | 810.43 | 0.00 | 810.55 | 3.82 | 3.80 | 938.77 | 930.60 |
| 6228.000 | 50.00 | 0.00 | 0.00 | 797.90 | 2460.00 | 814.28 | 0.00 | 814.45 | 2.25 | 3.48 | 1410.76 | 1658.56 |
| 7150.000 | 922.00 | 0.00 | 0.00 | 801.70 | 1040.00 | 807.03 | 0.00 | 808.21 | 34.57 | 6.84 | 292.69 | 176.59 |
| 7150.000 | 922.00 | 0.00 | 0.00 | 801.70 | 1590.00 | 809.90 | 0.00 | 810.02 | 8.20 | 6.16 | 1212.64 | 555.26 |
| 7150.000 | 922.00 | 0.00 | 0.00 | 801.70 | 1820.00 | 810.95 | 0.00 | 811.04 | 5.55 | 3.72 | 1560.25 | 772.48 |
| 7150.000 | 922.00 | 0.00 | 0.00 | 801.70 | 2460.00 | 814.65 | 0.00 | 814.69 | 1.87 | 2.72 | 2801.28 | 1797.09 |
| 7300.000 | 150.00 | 0.00 | 0.00 | 802.10 | 1040.00 | 808.17 | 0.00 | 809.15 | 49.94 | 7.95 | 130.80 | 147.14 |
| 7300.000 | 150.00 | 0.00 | 0.00 | 802.10 | 1590.00 | 810.15 | 0.00 | 810.30 | 9.31 | 4.34 | 1030.92 | 521.05 |
| 7300.000 | 150.00 | 0.00 | 0.00 | 802.10 | 1820.00 | 811.13 | 0.00 | 811.25 | 6.73 | 4.02 | 1334.15 | 698.73 |
| 7300.000 | 150.00 | 0.00 | 0.00 | 802.10 | 2460.00 | 814.71 | 0.00 | 814.77 | 2.61 | 3.15 | 2264.31 | 1522.59 |
| 7520.000 | 29.00 | 810.10 | 806.90 | 802.10 | 1040.00 | 809.40 | 0.00 | 810.05 | 26.17 | 6.29 | 160.19 | 203.30 |
| 7520.000 | 29.00 | 810.10 | 806.90 | 802.10 | 1590.00 | 811.28 | 0.00 | 811.37 | 4.75 | 3.41 | 1374.94 | 729.39 |
| 7520.000 | 29.00 | 810.10 | 806.90 | 802.10 | 1820.00 | 811.78 | 0.00 | 811.87 | 4.80 | 3.55 | 1504.63 | 830.30 |
| 7520.000 | 29.00 | 810.10 | 806.90 | 802.10 | 2460.00 | 814.35 | 0.00 | 814.41 | 2.49 | 3.16 | 2300.94 | 1560.01 |
| 7570.000 | 193.00 | 0.00 | 0.00 | 802.70 | 1040.00 | 810.26 | 0.00 | 810.53 | 14.65 | 4.69 | 429.97 | 271.75 |
| 7570.000 | 193.00 | 0.00 | 0.00 | 802.70 | 1590.00 | 811.50 | 0.00 | 811.67 | 17.87 | 5.70 | 507.62 | 378.14 |
| 7570.000 | 193.00 | 0.00 | 0.00 | 802.70 | 1820.00 | 811.99 | 0.00 | 812.18 | 7.57 | 5.09 | 672.75 | 434.13 |
| 7570.000 | 193.00 | 0.00 | 0.00 | 802.70 | 2460.00 | 814.87 | 0.00 | 815.00 | 7.76 | 4.02 | 1197.46 | 885.04 |
| 7860.000 | 350.00 | 0.00 | 0.00 | 803.70 | 1040.00 | 810.59 | 810.48 | 812.43 | 115.98 | 11.29 | 124.73 | 96.57 |
| 7860.000 | 350.00 | 0.00 | 0.00 | 803.70 | 1590.00 | 811.78 | 811.78 | 814.31 | 121.67 | 13.42 | 168.59 | 144.15 |
| 7860.000 | 350.00 | 0.00 | 0.00 | 803.70 | 1820.00 | 812.27 | 812.37 | 815.02 | 120.36 | 13.87 | 193.52 | 169.09 |
| 7860.000 | 350.00 | 0.00 | 0.00 | 803.70 | 2460.00 | 812.81 | 0.00 | 816.64 | 50.46 | 13.03 | 288.21 | 274.24 |
| 7921.000 | 53.00 | 0.00 | 0.00 | 804.00 | 1040.00 | 812.46 | 0.00 | 813.07 | 27.21 | 6.25 | 166.52 | 199.38 |
| 7921.000 | 53.00 | 0.00 | 0.00 | 804.00 | 1590.00 | 814.24 | 0.00 | 815.09 | 28.39 | 7.41 | 234.52 | 298.42 |
| 7921.000 | 53.00 | 0.00 | 0.00 | 804.00 | 1820.00 | 814.84 | 0.00 | 815.80 | 29.62 | 7.86 | 230.83 | 334.44 |
| 7921.000 | 53.00 | 0.00 | 0.00 | 804.00 | 2460.00 | 816.19 | 0.00 | 817.50 | 34.44 | 9.20 | 307.25 | 619.16 |
| 7965.000 | 44.00 | 819.20 | 811.70 | 805.00 | 1040.00 | 813.39 | 0.00 | 813.77 | 18.00 | 5.49 | 139.36 | 265.15 |
| 7965.000 | 44.00 | 819.20 | 811.70 | 805.00 | 1590.00 | 816.89 | 0.00 | 817.30 | 17.94 | 5.60 | 284.15 | 460.77 |
| 7965.000 | 44.00 | 819.20 | 811.70 | 805.00 | 1820.00 | 818.37 | 0.00 | 818.35 | 10.34 | 5.58 | 326.13 | 563.99 |
| 7965.000 | 44.00 | 819.20 | 811.70 | 805.00 | 2460.00 | 815.78 | 0.00 | 819.61 | 17.07 | 7.29 | 337.43 | 595.36 |
| 8119.000 | 153.00 | 0.00 | 0.00 | 805.60 | 1040.00 | 813.61 | 0.00 | 814.03 | 15.17 | 5.55 | 261.30 | 267.05 |
| 8119.000 | 153.00 | 0.00 | 0.00 | 805.60 | 1590.00 | 817.08 | 0.00 | 817.47 | 7.95 | 5.83 | 442.05 | 363.95 |
| 8119.000 | 153.00 | 0.00 | 0.00 | 805.60 | 1820.00 | 818.72 | 0.00 | 819.00 | 8.59 | 5.31 | 517.07 | 726.23 |
| 8119.000 | 153.00 | 0.00 | 0.00 | 805.60 | 2460.00 | 819.23 | 0.00 | 819.29 | 5.06 | 6.81 | 570.50 | 785.79 |

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FORM 1411-GB-PRINTED BY ROTARY MANIFOLD FORMS

| | SECNO | XLOW | ELTRD | ELLC | ELMIN | Q | CWSEL | CRWS | EG | TOK*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8518.000 | 400.00 | 0.00 | 0.00 | 807.70 | 1040.00 | 814.31 | 0.00 | 814.61 | 15.18 | 5.14 | 451.36 | 266.90 |
| | 8518.000 | 400.00 | 0.00 | 0.00 | 807.70 | 1590.00 | 817.58 | 0.00 | 817.77 | 6.14 | 4.38 | 856.53 | 641.50 |
| | 8518.000 | 400.00 | 0.00 | 0.00 | 807.70 | 1820.00 | 819.05 | 0.00 | 819.25 | 4.58 | 4.17 | 1042.50 | 853.56 |
| | 8518.000 | 400.00 | 0.00 | 0.00 | 807.70 | 2460.00 | 819.98 | 0.00 | 820.23 | 6.17 | 5.13 | 1154.18 | 990.63 |
| | 8555.000 | 37.00 | 0.00 | 0.00 | 805.70 | 1040.00 | 814.43 | 0.00 | 814.68 | 8.68 | 3.59 | 289.39 | 353.04 |
| | 8555.000 | 37.00 | 0.00 | 0.00 | 805.70 | 1590.00 | 817.60 | 0.00 | 817.80 | 5.76 | 3.62 | 439.48 | 662.62 |
| | 8555.000 | 37.00 | 0.00 | 0.00 | 805.70 | 1820.00 | 819.09 | 0.00 | 819.28 | 4.84 | 3.56 | 511.04 | 827.21 |
| | 8555.000 | 37.00 | 0.00 | 0.00 | 805.70 | 2460.00 | 819.98 | 0.00 | 820.28 | 7.01 | 4.45 | 553.43 | 928.93 |
| | 8556.000 | 1.00 | 840.00 | 817.70 | 805.70 | 1040.00 | 814.38 | 0.00 | 814.77 | 10.87 | 5.00 | 208.10 | 315.43 |
| | 8556.000 | 1.00 | 840.00 | 817.70 | 805.70 | 1590.00 | 817.45 | 0.00 | 817.95 | 14.56 | 5.65 | 281.40 | 416.65 |
| | 8556.000 | 1.00 | 840.00 | 817.70 | 805.70 | 1820.00 | 818.86 | 0.00 | 819.50 | 21.72 | 6.43 | 283.05 | 390.53 |
| | 8556.000 | 1.00 | 840.00 | 817.70 | 805.70 | 2460.00 | 820.54 | 0.00 | 820.72 | 40.33 | 8.69 | 283.05 | 387.39 |
| | 8811.000 | 255.00 | 812.60 | 818.60 | 807.50 | 1040.00 | 814.56 | 0.00 | 815.10 | 13.02 | 5.37 | 193.72 | 288.26 |
| | 8811.000 | 255.00 | 812.60 | 818.60 | 807.50 | 1590.00 | 817.79 | 0.00 | 818.29 | 12.20 | 5.66 | 282.10 | 455.28 |
| | 8811.000 | 255.00 | 812.60 | 818.60 | 807.50 | 1820.00 | 819.44 | 0.00 | 820.04 | 19.64 | 6.23 | 292.31 | 410.68 |
| | 8811.000 | 255.00 | 812.60 | 818.60 | 807.50 | 2460.00 | 820.62 | 0.00 | 821.72 | 36.77 | 8.41 | 292.61 | 405.70 |
| | 8812.000 | 1.00 | 0.00 | 0.00 | 807.50 | 1040.00 | 814.95 | 0.00 | 815.17 | 12.83 | 3.75 | 277.60 | 290.39 |
| | 8812.000 | 1.00 | 0.00 | 0.00 | 807.50 | 1590.00 | 818.14 | 0.00 | 818.37 | 7.92 | 3.69 | 451.39 | 565.05 |
| | 8812.000 | 1.00 | 0.00 | 0.00 | 807.50 | 1820.00 | 819.97 | 0.00 | 820.17 | 6.04 | 3.51 | 518.50 | 740.52 |
| | 8812.000 | 1.00 | 0.00 | 0.00 | 807.50 | 2460.00 | 821.71 | 0.00 | 821.97 | 7.16 | 4.08 | 602.21 | 919.50 |
| | 8918.000 | 106.00 | 0.00 | 0.00 | 808.40 | 1040.00 | 815.09 | 0.00 | 815.42 | 26.16 | 6.68 | 349.86 | 203.35 |
| | 8918.000 | 106.00 | 0.00 | 0.00 | 808.40 | 1590.00 | 818.30 | 0.00 | 818.47 | 9.32 | 5.19 | 660.01 | 520.85 |
| | 8918.000 | 106.00 | 0.00 | 0.00 | 808.40 | 1820.00 | 820.13 | 0.00 | 820.25 | 5.36 | 4.41 | 957.92 | 765.97 |
| | 8918.000 | 106.00 | 0.00 | 0.00 | 808.40 | 2460.00 | 821.96 | 0.00 | 822.08 | 4.86 | 4.63 | 1245.28 | 1116.12 |
| | 9418.000 | 465.00 | 0.00 | 0.00 | 810.50 | 1040.00 | 816.77 | 0.00 | 817.93 | 67.35 | 9.15 | 148.70 | 126.54 |
| | 9418.000 | 465.00 | 0.00 | 0.00 | 810.50 | 1590.00 | 818.60 | 0.00 | 819.67 | 46.38 | 9.24 | 272.20 | 233.40 |
| | 9418.000 | 465.00 | 0.00 | 0.00 | 810.50 | 1820.00 | 820.25 | 0.00 | 820.92 | 24.77 | 7.18 | 401.06 | 370.60 |
| | 9418.000 | 465.00 | 0.00 | 0.00 | 810.50 | 2460.00 | 822.02 | 0.00 | 822.39 | 20.07 | 7.02 | 539.12 | 549.09 |
| | 9473.000 | 55.50 | 0.00 | 0.00 | 810.70 | 1040.00 | 817.74 | 0.00 | 818.42 | 96.79 | 6.61 | 157.24 | 140.56 |
| | 9473.000 | 55.50 | 0.00 | 0.00 | 810.70 | 1590.00 | 819.20 | 0.00 | 820.01 | 91.73 | 7.25 | 219.26 | 221.07 |
| | 9473.000 | 55.50 | 0.00 | 0.00 | 810.70 | 1820.00 | 820.42 | 0.00 | 821.08 | 55.71 | 6.54 | 278.19 | 307.16 |
| | 9473.000 | 55.50 | 0.00 | 0.00 | 810.70 | 2460.00 | 822.15 | 0.00 | 822.84 | 24.50 | 6.73 | 365.74 | 476.93 |
| | 10311.000 | 37.50 | 823.50 | 821.20 | 810.70 | 1040.00 | 817.87 | 0.00 | 818.54 | 49.89 | 6.59 | 142.38 | 147.24 |
| | 10311.000 | 37.50 | 823.50 | 821.20 | 810.70 | 1590.00 | 819.35 | 0.00 | 820.12 | 47.41 | 7.02 | 226.43 | 230.03 |
| | 10311.000 | 37.50 | 823.50 | 821.20 | 810.70 | 1820.00 | 820.51 | 0.00 | 821.16 | 33.26 | 6.43 | 283.20 | 315.38 |
| | 10311.000 | 37.50 | 823.50 | 821.20 | 810.70 | 2460.00 | 822.94 | 0.00 | 823.52 | 18.69 | 6.03 | 407.80 | 569.04 |
| | 10384.000 | 73.00 | 0.00 | 0.00 | 812.90 | 1040.00 | 816.37 | 0.00 | 816.65 | 34.18 | 5.60 | 165.84 | 177.93 |
| | 10384.000 | 73.00 | 0.00 | 0.00 | 812.90 | 1590.00 | 819.72 | 0.00 | 820.45 | 41.44 | 6.37 | 235.41 | 247.06 |
| | 10384.000 | 73.00 | 0.00 | 0.00 | 812.90 | 1820.00 | 820.79 | 0.00 | 821.45 | 25.49 | 6.04 | 303.96 | 305.40 |
| | 10384.000 | 73.00 | 0.00 | 0.00 | 812.90 | 2460.00 | 823.09 | 0.00 | 823.81 | 29.28 | 7.15 | 345.65 | 454.84 |

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FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS.

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIVS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10094.000 | 10.00 | 826.10 | 820.10 | 812.90 | 1040.00 | 818.41 | 0.00 | 818.89 | 53.38 | 5.55 | 187.30 | 180.00 |
| 10094.000 | 10.00 | 826.10 | 820.10 | 812.90 | 1590.00 | 820.22 | 0.00 | 820.85 | 55.31 | 6.39 | 248.95 | 275.51 |
| 10094.000 | 10.00 | 826.10 | 820.10 | 812.90 | 1820.00 | 821.62 | 0.00 | 822.20 | 25.28 | 6.14 | 296.62 | 361.99 |
| 10094.000 | 10.00 | 826.10 | 820.10 | 812.90 | 2460.00 | 825.18 | 0.00 | 825.72 | 14.10 | 5.39 | 417.67 | 611.55 |
| 10103.000 | 9.00 | 0.00 | 0.00 | 812.60 | 1040.00 | 818.04 | 0.00 | 819.35 | 74.43 | 9.19 | 113.12 | 120.55 |
| 10103.000 | 9.00 | 0.00 | 0.00 | 812.60 | 1590.00 | 819.70 | 0.00 | 821.45 | 71.49 | 10.62 | 149.77 | 188.05 |
| 10103.000 | 9.00 | 0.00 | 0.00 | 812.60 | 1820.00 | 821.17 | 0.00 | 822.72 | 51.26 | 10.00 | 181.96 | 254.20 |
| 10103.000 | 9.00 | 0.00 | 0.00 | 812.60 | 2460.00 | 824.79 | 0.00 | 826.46 | 31.72 | 9.41 | 281.49 | 436.89 |
| 10104.000 | 1.00 | 826.10 | 823.10 | 812.60 | 1040.00 | 818.04 | 0.00 | 819.36 | 74.49 | 9.20 | 113.09 | 120.55 |
| 10104.000 | 1.00 | 826.10 | 823.10 | 812.60 | 1590.00 | 819.71 | 0.00 | 821.46 | 71.61 | 10.62 | 149.69 | 187.89 |
| 10104.000 | 1.00 | 826.10 | 823.10 | 812.60 | 1820.00 | 821.17 | 0.00 | 822.73 | 51.26 | 10.00 | 181.96 | 254.20 |
| 10104.000 | 1.00 | 826.10 | 823.10 | 812.60 | 2460.00 | 824.81 | 0.00 | 826.55 | 102.25 | 10.57 | 232.70 | 243.28 |
| 10132.000 | 28.00 | 826.10 | 823.10 | 812.60 | 1040.00 | 818.40 | 0.00 | 819.62 | 56.71 | 8.44 | 123.17 | 130.10 |
| 10132.000 | 28.00 | 826.10 | 823.10 | 812.60 | 1590.00 | 820.17 | 0.00 | 821.70 | 57.96 | 9.93 | 160.20 | 208.85 |
| 10132.000 | 28.00 | 826.10 | 823.10 | 812.60 | 1820.00 | 821.43 | 0.00 | 822.89 | 46.64 | 9.70 | 187.68 | 266.50 |
| 10132.000 | 28.00 | 826.10 | 823.10 | 812.60 | 2460.00 | 824.93 | 0.00 | 826.64 | 100.37 | 10.49 | 234.65 | 245.55 |
| 10133.000 | 1.00 | 0.00 | 0.00 | 812.60 | 1040.00 | 818.50 | 0.00 | 819.80 | 56.73 | 8.44 | 123.16 | 138.07 |
| 10133.000 | 1.00 | 0.00 | 0.00 | 812.60 | 1590.00 | 820.18 | 0.00 | 821.71 | 57.96 | 9.93 | 160.18 | 208.81 |
| 10133.000 | 1.00 | 0.00 | 0.00 | 812.60 | 1820.00 | 821.44 | 0.00 | 822.90 | 46.57 | 9.69 | 187.77 | 266.71 |
| 10133.000 | 1.00 | 0.00 | 0.00 | 812.60 | 2460.00 | 825.59 | 0.00 | 826.79 | 26.21 | 8.81 | 279.34 | 480.52 |
| 10157.000 | 24.00 | 0.00 | 0.00 | 812.75 | 1040.00 | 819.09 | 0.00 | 819.82 | 37.56 | 7.78 | 179.34 | 169.69 |
| 10157.000 | 24.00 | 0.00 | 0.00 | 812.75 | 1590.00 | 821.01 | 0.00 | 821.90 | 34.29 | 8.89 | 241.53 | 271.52 |
| 10157.000 | 24.00 | 0.00 | 0.00 | 812.75 | 1820.00 | 822.17 | 0.00 | 823.13 | 23.38 | 8.83 | 270.92 | 341.64 |
| 10157.000 | 24.00 | 0.00 | 0.00 | 812.75 | 2460.00 | 826.13 | 0.00 | 826.95 | 15.54 | 8.25 | 405.44 | 624.10 |

PRINTED IN U.S.A.
FORM 1411-09-PRINTED BY ROTARY MANIFOLD FORMS

MID.ROUGE R. N.VILLE C.

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CRSEL | DIFWSP | DIFUSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 0.000 | 2270.00 | 765.88 | 0.00 | 0.00 | 0.00 | 560.00 | 0.00 |
| 0.000 | 3170.00 | 767.25 | 0.00 | 0.00 | 0.00 | 560.00 | 0.00 |
| 0.000 | 3680.00 | 768.07 | 0.00 | 0.00 | 0.00 | 560.00 | 0.00 |
| 0.000 | 5090.00 | 770.38 | 0.00 | 0.00 | 0.00 | 560.00 | 0.00 |
| 300.000 | 2270.00 | 765.97 | 0.00 | 0.09 | 0.00 | 430.00 | 300.00 |
| 300.000 | 3170.00 | 767.32 | 0.00 | 0.07 | 0.00 | 430.00 | 300.00 |
| 300.000 | 3680.00 | 768.13 | 0.00 | 0.06 | 0.00 | 430.00 | 300.00 |
| 300.000 | 5090.00 | 770.42 | 0.00 | 0.04 | 0.00 | 430.00 | 300.00 |
| 600.000 | 2270.00 | 766.33 | 0.00 | 0.10 | 0.00 | 280.00 | 300.00 |
| 600.000 | 3170.00 | 767.41 | 0.00 | 0.09 | 0.00 | 280.00 | 300.00 |
| 600.000 | 3680.00 | 768.19 | 0.00 | 0.06 | 0.00 | 280.00 | 300.00 |
| 600.000 | 5090.00 | 770.45 | 0.00 | 0.01 | 0.00 | 280.00 | 300.00 |
| 978.000 | 2270.00 | 767.13 | 0.00 | 1.00 | 0.00 | 85.00 | 378.00 |
| 978.000 | 3170.00 | 768.04 | 0.00 | 0.62 | 0.00 | 85.00 | 378.00 |
| 978.000 | 3680.00 | 768.58 | 0.00 | 0.38 | 0.00 | 85.00 | 378.00 |
| 978.000 | 5090.00 | 770.31 | 0.00 | -0.12 | 0.00 | 85.00 | 378.00 |
| 1028.000 | 2270.00 | 767.94 | 0.00 | 0.81 | 0.00 | 45.15 | 50.00 |
| 1028.000 | 3170.00 | 769.05 | 0.00 | 1.02 | 0.00 | 47.94 | 50.00 |
| 1028.000 | 3680.00 | 769.65 | 0.00 | 1.30 | 0.00 | 49.47 | 50.00 |
| 1028.000 | 5090.00 | 771.31 | 0.00 | 1.01 | 0.00 | 53.69 | 50.00 |
| 1078.000 | 2270.00 | 768.92 | 0.00 | 0.08 | 0.00 | 45.33 | 50.00 |
| 1078.000 | 3170.00 | 769.19 | 0.00 | 0.14 | 0.00 | 47.91 | 50.00 |
| 1078.000 | 3680.00 | 769.43 | 0.00 | 0.17 | 0.00 | 48.91 | 50.00 |
| 1078.000 | 5090.00 | 771.36 | 0.00 | 0.27 | 0.00 | 54.31 | 50.00 |
| 1113.000 | 1040.00 | 768.90 | 0.00 | 0.48 | 0.00 | 22.00 | 35.00 |
| 1113.000 | 1610.00 | 770.11 | 0.00 | 0.92 | 0.00 | 70.00 | 35.00 |
| 1113.000 | 1850.00 | 770.09 | 0.00 | 1.07 | 0.00 | 75.00 | 35.00 |
| 1113.000 | 2490.00 | 772.25 | 0.00 | 1.39 | 0.00 | 90.00 | 35.00 |
| * 2163.000 | 1040.00 | 777.30 | 0.00 | 8.80 | 0.00 | 24.00 | 1055.00 |
| * 2163.000 | 1610.00 | 779.25 | 0.00 | 9.44 | 0.00 | 70.00 | 1050.00 |
| * 2163.000 | 1850.00 | 779.60 | 0.00 | 8.71 | 0.00 | 75.00 | 1050.00 |
| * 2163.000 | 2490.00 | 780.35 | 0.00 | 7.60 | 0.00 | 75.00 | 1050.00 |
| 2213.000 | 1040.00 | 777.79 | 0.00 | 0.48 | 0.00 | 101.16 | 50.00 |
| 2213.000 | 1610.00 | 779.53 | 0.00 | 0.28 | 0.00 | 153.24 | 50.00 |
| 2213.000 | 1850.00 | 779.96 | 0.00 | 0.36 | 0.00 | 156.78 | 50.00 |
| 2213.000 | 2490.00 | 781.16 | 0.00 | 0.61 | 0.00 | 170.00 | 50.00 |
| 2513.000 | 1040.00 | 778.08 | 0.00 | 0.20 | 0.00 | 64.00 | 300.00 |
| 2513.000 | 1610.00 | 779.70 | 0.00 | 0.29 | 0.00 | 110.00 | 300.00 |
| 2513.000 | 1850.00 | 780.23 | 0.00 | 0.26 | 0.00 | 134.34 | 300.00 |
| 2513.000 | 2490.00 | 781.43 | 0.00 | 0.27 | 0.00 | 204.32 | 300.00 |
| 2863.000 | 1040.00 | 778.66 | 0.00 | 0.56 | 0.00 | 36.29 | 350.00 |
| 2863.000 | 1610.00 | 780.20 | 0.00 | 0.43 | 0.00 | 61.31 | 350.00 |
| 2863.000 | 1850.00 | 780.96 | 0.00 | 0.41 | 0.00 | 62.75 | 350.00 |
| 2863.000 | 2490.00 | 781.97 | 0.00 | 0.26 | 0.00 | 46.44 | 350.00 |

PRINTED IN U.S.A.
FORM 1611-OD PRINTED BY ROTARY MANIFOLD FORMS.

| | SECNO | Q | CUSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| * | 2963.000 | 1040.00 | 780.38 | 0.00 | 1.74 | 0.00 | 21.21 | 100.00 |
| * | 2963.000 | 1610.00 | 781.79 | 0.00 | 1.59 | 0.00 | 21.21 | 100.00 |
| * | 2963.000 | 1850.00 | 782.34 | 0.00 | 1.71 | 0.00 | 21.21 | 100.00 |
| * | 2965.000 | 2490.00 | 783.67 | 0.00 | 2.09 | 0.00 | 21.21 | 100.00 |
| | | | | | | | | |
| * | 3063.000 | 1040.00 | 781.30 | 0.00 | 0.92 | 0.00 | 21.21 | 100.00 |
| * | 3063.000 | 1610.00 | 783.13 | 0.00 | 1.33 | 0.00 | 21.21 | 100.00 |
| * | 3063.000 | 1850.00 | 783.63 | 0.00 | 1.46 | 0.00 | 21.21 | 100.00 |
| * | 3063.000 | 2490.00 | 786.05 | 0.00 | 2.39 | 0.00 | 21.21 | 100.00 |
| | | | | | | | | |
| | 3113.000 | 1040.00 | 782.87 | 0.00 | 1.57 | 0.00 | 54.34 | 50.00 |
| | 3113.000 | 1610.00 | 785.16 | 0.00 | 2.03 | 0.00 | 61.96 | 50.00 |
| | 3113.000 | 1850.00 | 786.04 | 0.00 | 2.22 | 0.00 | 64.91 | 50.00 |
| | 3113.000 | 2490.00 | 788.45 | 0.00 | 2.41 | 0.00 | 32.35 | 50.00 |
| | | | | | | | | |
| | 3276.000 | 1040.00 | 783.30 | 0.00 | 0.62 | 0.00 | 72.70 | 165.00 |
| | 3278.000 | 1610.00 | 785.60 | 0.00 | 0.44 | 0.00 | 82.76 | 165.00 |
| | 3278.000 | 1850.00 | 786.49 | 0.00 | 0.45 | 0.00 | 83.00 | 165.00 |
| | 3278.000 | 2490.00 | 788.80 | 0.00 | 0.43 | 0.00 | 83.00 | 165.00 |
| | | | | | | | | |
| | 3327.000 | 1040.00 | 787.31 | 0.00 | 0.21 | 0.00 | 57.47 | 49.00 |
| | 3327.000 | 1610.00 | 793.61 | 0.00 | 0.31 | 0.00 | 58.50 | 49.00 |
| | 3327.000 | 1850.00 | 786.50 | 0.00 | 0.00 | 0.00 | 58.63 | 49.00 |
| | 3327.000 | 2490.00 | 788.88 | 0.00 | -0.00 | 0.00 | 59.41 | 49.00 |
| | | | | | | | | |
| | 3328.000 | 1040.00 | 787.78 | 0.00 | 4.67 | 0.00 | 56.05 | 1.00 |
| | 3328.000 | 1610.00 | 788.39 | 0.00 | 2.76 | 0.00 | 59.28 | 1.00 |
| | 3328.000 | 1850.00 | 788.59 | 0.00 | 2.09 | 0.00 | 59.33 | 1.00 |
| | 3329.000 | 2490.00 | 789.37 | 0.00 | 0.49 | 0.00 | 59.55 | 1.00 |
| | | | | | | | | |
| | 3672.000 | 1040.00 | 787.82 | 0.00 | 0.04 | 0.00 | 40.44 | 346.00 |
| | 3672.000 | 1610.00 | 788.48 | 0.00 | 0.09 | 0.00 | 42.72 | 346.00 |
| | 3672.000 | 1850.00 | 788.70 | 0.00 | 0.12 | 0.00 | 43.57 | 346.00 |
| | 3672.000 | 2490.00 | 789.36 | 0.00 | 0.15 | 0.00 | 45.84 | 346.00 |
| | | | | | | | | |
| | 3684.000 | 1040.00 | 788.14 | 0.00 | 0.35 | 0.00 | 61.58 | 12.00 |
| | 3684.000 | 1610.00 | 789.41 | 0.00 | 1.13 | 0.00 | 46.83 | 12.00 |
| | 3684.000 | 1850.00 | 790.21 | 0.00 | 1.51 | 0.00 | 45.64 | 12.00 |
| | 3684.000 | 2490.00 | 792.02 | 0.00 | 1.26 | 0.00 | 59.01 | 12.00 |
| | | | | | | | | |
| | 3825.000 | 1040.00 | 788.70 | 0.00 | 0.56 | 0.00 | 43.67 | 141.00 |
| | 3825.000 | 1610.00 | 790.20 | 0.00 | 0.60 | 0.00 | 49.50 | 141.00 |
| | 3825.000 | 1850.00 | 790.80 | 0.00 | 0.59 | 0.00 | 52.11 | 141.00 |
| | 3825.000 | 2490.00 | 791.60 | 0.00 | 0.78 | 0.00 | 55.74 | 141.00 |
| | | | | | | | | |
| | 3965.000 | 1040.00 | 789.76 | 0.00 | 1.06 | 0.00 | 16.25 | 140.00 |
| | 3965.000 | 1610.00 | 791.20 | 0.00 | 0.99 | 0.00 | 41.57 | 140.00 |
| | 3965.000 | 1850.00 | 791.76 | 0.00 | 0.97 | 0.00 | 43.53 | 140.00 |
| | 3965.000 | 2490.00 | 792.77 | 0.00 | 1.17 | 0.00 | 47.02 | 140.00 |
| | | | | | | | | |
| * | 4024.000 | 1040.00 | 790.95 | 0.00 | 1.20 | 0.00 | 93.20 | 63.00 |
| * | 4024.000 | 1610.00 | 794.68 | 0.00 | 1.47 | 0.00 | 98.64 | 63.00 |
| * | 4024.000 | 1850.00 | 794.08 | 0.00 | 2.12 | 0.00 | 93.06 | 63.00 |
| | 4028.000 | 2490.00 | 795.09 | 0.00 | 2.33 | 0.00 | 98.01 | 61.00 |

PRINTED IN U.S.A.
FORM 1411-62-PRINTED BY ROTARY MANIFOLD FORMS

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLOB |
|---|---|---|---|---|---|---|---|
| 4078.000 | 1040.00 | 792.05 | 0.00 | 1.10 | 0.00 | 63.65 | 50.00 |
| 4078.000 | 1610.00 | 794.88 | 0.00 | 0.22 | 0.30 | 163.87 | 50.00 |
| 4078.000 | 1850.00 | 795.17 | 0.00 | 0.29 | 0.00 | 147.47 | 50.00 |
| 4078.000 | 2490.00 | 795.66 | 0.00 | 0.57 | 0.30 | 154.36 | 50.00 |
| 4478.000 | 1040.00 | 793.04 | 0.00 | 0.98 | 0.00 | 56.79 | 400.00 |
| 4478.000 | 1610.00 | 795.32 | 0.00 | 0.44 | 0.00 | 109.62 | 400.00 |
| 4478.000 | 1850.00 | 795.60 | 0.00 | 0.31 | 0.00 | 127.99 | 400.00 |
| 4478.000 | 2490.00 | 796.42 | 0.00 | 0.77 | 0.00 | 163.43 | 400.00 |
| 4858.000 | 1040.00 | 796.90 | 0.00 | 3.86 | 0.00 | 66.67 | 380.00 |
| 4858.000 | 1590.00 | 797.63 | 0.00 | 2.31 | 0.00 | 69.87 | 380.00 |
| 4858.000 | 1820.00 | 798.05 | 0.00 | 2.36 | 0.00 | 71.52 | 380.00 |
| 4858.000 | 2460.00 | 798.96 | 0.00 | 2.52 | 0.00 | 75.23 | 380.00 |
| 4907.000 | 1040.00 | 797.12 | 0.00 | 0.22 | 0.00 | 56.25 | 49.00 |
| 4907.000 | 1590.00 | 797.89 | 0.00 | 0.26 | 0.76 | 57.77 | 49.00 |
| 4907.000 | 1820.00 | 798.27 | 0.00 | 0.24 | 1.15 | 58.56 | 49.30 |
| 4907.000 | 2460.00 | 799.15 | 0.00 | 0.22 | 2.03 | 60.66 | 49.30 |
| 4908.000 | 1040.00 | 804.31 | 0.00 | 7.19 | 0.00 | 62.50 | 1.00 |
| 4908.000 | 1590.00 | 805.38 | 0.00 | 7.48 | 2.07 | 62.50 | 1.00 |
| 4908.000 | 1820.00 | 805.78 | 0.00 | 7.53 | 1.46 | 62.00 | 1.00 |
| 4908.000 | 2460.00 | 806.79 | 0.00 | 7.64 | 2.48 | 62.00 | 1.00 |
| 5318.000 | 1040.00 | 804.40 | 0.00 | 0.09 | 0.30 | 231.32 | 400.00 |
| 5318.000 | 1590.00 | 805.52 | 0.00 | 0.14 | 1.12 | 239.21 | 400.00 |
| 5320.000 | 1820.00 | 805.94 | 0.00 | 0.16 | 1.54 | 242.25 | 400.00 |
| 5320.000 | 2460.00 | 807.02 | 0.00 | 0.22 | 2.52 | 270.10 | 400.00 |
| 5928.000 | 1040.00 | 804.82 | 0.00 | 0.12 | 0.30 | 160.00 | 620.00 |
| 5928.000 | 1590.00 | 805.84 | 0.00 | 0.12 | 1.11 | 160.30 | 620.30 |
| 5928.000 | 1820.00 | 806.05 | 0.00 | 0.12 | 1.54 | 160.30 | 620.30 |
| 5928.000 | 2460.00 | 807.12 | 0.00 | 0.12 | 2.52 | 160.30 | 620.30 |
| 6078.000 | 1040.00 | 804.68 | 0.00 | -0.05 | 0.00 | 45.00 | 150.00 |
| 6078.000 | 1590.00 | 805.53 | 0.00 | -0.11 | 1.35 | 45.00 | 150.00 |
| 6078.000 | 1820.00 | 805.92 | 0.00 | -0.13 | 1.45 | 45.00 | 150.00 |
| 6078.000 | 2460.00 | 806.92 | 0.00 | -0.21 | 2.43 | 45.00 | 150.00 |
| 6128.000 | 1040.00 | 806.62 | 0.00 | 0.14 | 0.00 | 20.00 | 50.00 |
| 6128.000 | 1590.00 | 805.67 | 0.00 | 0.16 | 1.35 | 20.00 | 50.00 |
| 6128.000 | 1820.00 | 806.05 | 0.00 | 0.13 | 1.43 | 20.00 | 50.00 |
| 6128.000 | 2460.00 | 807.00 | 0.00 | 0.00 | 2.38 | 20.00 | 50.00 |
| 6278.000 | 1040.00 | 806.20 | 0.00 | 0.30 | 0.00 | 20.00 | 50.00 |
| 6278.000 | 1590.00 | 806.46 | 0.00 | 0.79 | 1.26 | 20.00 | 50.00 |
| 6278.000 | 1820.00 | 808.43 | 0.00 | 2.30 | 3.25 | 20.00 | 50.00 |
| 6278.000 | 2460.00 | 810.53 | 0.00 | 5.34 | 7.33 | 20.00 | 50.00 |
| 6228.000 | 1040.00 | 806.70 | 0.00 | 1.30 | 0.00 | 102.03 | 50.00 |
| 6228.000 | 1590.00 | 809.23 | 0.00 | 2.32 | 2.58 | 120.00 | 50.00 |
| 6228.000 | 1820.00 | 810.43 | 0.00 | 2.00 | 3.72 | 120.00 | 50.00 |
| 6228.000 | 2460.00 | 814.36 | 0.00 | 1.22 | 7.58 | 120.00 | 50.00 |

PRINTED IN U.S.A.
FORM 1411.69-PRINTED BY ROTARY MANIFOLD FORMS

| SECNO | Q | CWSEL | DIFUSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 7150.000 | 1040.00 | 807.63 | 0.00 | 0.93 | 0.00 | 98.00 | 922.00 |
| 7150.000 | 1590.00 | 809.90 | 0.00 | 0.62 | 2.28 | 329.01 | 922.00 |
| 7150.000 | 1820.00 | 810.95 | 0.00 | 0.52 | 3.31 | 333.00 | 922.00 |
| 7150.000 | 2460.00 | 814.65 | 0.00 | 0.29 | 7.01 | 333.00 | 922.00 |
| 7300.000 | 1040.00 | 808.17 | 0.00 | 0.54 | 0.00 | 23.70 | 150.00 |
| 7300.000 | 1590.00 | 810.15 | 0.00 | 0.26 | 1.98 | 260.00 | 150.00 |
| 7300.000 | 1820.00 | 811.13 | 0.00 | 0.18 | 2.96 | 260.00 | 150.00 |
| 7300.000 | 2460.00 | 814.71 | 0.00 | 0.06 | 6.54 | 260.00 | 150.00 |
| 7328.000 | 1040.00 | 809.40 | 0.00 | 1.23 | 0.00 | 23.70 | 28.00 |
| 7328.000 | 1590.00 | 811.28 | 0.00 | 1.13 | 1.88 | 260.00 | 28.00 |
| 7328.000 | 1820.00 | 811.78 | 0.00 | 0.66 | 2.38 | 260.00 | 28.00 |
| 7328.000 | 2460.00 | 814.85 | 0.00 | 0.14 | 5.44 | 260.00 | 28.00 |
| 7518.000 | 1040.00 | 810.26 | 0.00 | 0.86 | 0.00 | 131.70 | 190.00 |
| 7518.000 | 1590.00 | 811.30 | 0.00 | 0.01 | 1.04 | 172.00 | 190.00 |
| 7518.000 | 1820.00 | 811.79 | 0.00 | 0.01 | 1.53 | 172.00 | 190.00 |
| 7518.000 | 2460.00 | 814.84 | 0.00 | -0.00 | 4.58 | 172.00 | 190.00 |
| 7868.000 | 1040.00 | 810.59 | 0.00 | 0.03 | 0.00 | 38.01 | 350.00 |
| 7868.000 | 1590.00 | 811.70 | 0.00 | 0.46 | 1.19 | 38.04 | 350.00 |
| * 7868.000 | 1820.00 | 812.34 | 0.00 | 0.55 | 1.75 | 48.00 | 350.00 |
| 7868.000 | 2460.00 | 814.31 | 0.00 | -0.54 | 3.71 | 48.00 | 350.00 |
| 7921.000 | 1040.00 | 812.46 | 0.00 | 1.06 | 0.00 | 27.00 | 53.00 |
| 7921.000 | 1590.00 | 814.24 | 0.00 | 2.46 | 1.78 | 27.00 | 53.00 |
| 7921.000 | 1820.00 | 814.84 | 0.00 | 2.49 | 2.38 | 27.00 | 53.00 |
| 7921.000 | 2460.00 | 816.19 | 0.00 | 1.83 | 3.73 | 27.00 | 53.00 |
| 7965.000 | 1040.00 | 813.30 | 0.00 | 0.04 | 0.00 | 27.00 | 44.00 |
| 7965.000 | 1590.00 | 816.31 | 0.00 | 2.53 | 3.51 | 27.00 | 44.00 |
| 7965.000 | 1820.00 | 818.37 | 0.00 | 3.57 | 3.07 | 27.00 | 44.00 |
| 7965.000 | 2460.00 | 810.72 | 0.00 | 2.57 | 5.48 | 27.00 | 44.00 |
| 8118.000 | 1040.00 | 813.40 | 0.00 | 0.30 | 0.00 | 50.00 | 153.00 |
| 8118.000 | 1590.00 | 817.08 | 0.00 | 3.27 | 3.47 | 50.00 | 153.00 |
| 8118.000 | 1820.00 | 818.62 | 0.00 | 0.25 | 5.02 | 50.00 | 153.00 |
| 8118.000 | 2460.00 | 819.23 | 0.00 | 0.45 | 5.62 | 50.00 | 153.00 |
| 8518.000 | 1040.00 | 814.31 | 0.00 | 0.71 | 0.00 | 124.00 | 400.00 |
| 8518.000 | 1590.00 | 817.58 | 0.00 | 0.50 | 3.27 | 124.00 | 400.00 |
| 8518.000 | 1820.00 | 819.08 | 0.00 | 0.46 | 4.77 | 124.00 | 400.00 |
| 8518.000 | 2460.00 | 819.98 | 0.00 | 0.73 | 5.67 | 124.00 | 400.00 |
| 8555.000 | 1040.00 | 814.60 | 0.00 | 3.13 | 0.00 | 48.00 | 37.00 |
| 8555.000 | 1590.00 | 817.60 | 0.00 | 0.01 | 3.12 | 48.00 | 37.00 |
| 8555.000 | 1820.00 | 819.08 | 0.00 | 0.00 | 4.61 | 48.00 | 37.00 |
| 8555.000 | 2460.00 | 819.98 | 0.00 | -0.01 | 5.50 | 48.00 | 37.00 |
| 8556.000 | 1040.00 | 814.33 | 0.00 | -0.09 | 0.00 | 48.00 | 1.00 |
| 8556.000 | 1590.00 | 817.45 | 0.00 | -0.13 | 3.07 | 48.00 | 1.00 |
| 8556.000 | 1820.00 | 818.86 | 0.00 | -0.22 | 4.48 | 48.00 | 1.00 |
| 8556.000 | 2460.00 | 819.54 | 0.00 | -0.43 | 5.16 | 48.00 | 1.00 |

PRINTED IN U.S.A.
FORM 1411-GB-PRINTED BY ROTARY MANIFOLD FORMS.

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 8811.000 | 1040.00 | 814.66 | 0.00 | 0.27 | 0.00 | 48.00 | 255.00 |
| 1 | 8811.000 | 1590.00 | 817.79 | 0.00 | 0.34 | 3.14 | 48.00 | 255.00 |
| 2 | 8811.000 | 1820.00 | 819.44 | 0.00 | 0.56 | 4.78 | 48.00 | 255.00 |
| 3 | 8811.000 | 2460.00 | 820.62 | 0.00 | 1.06 | 5.97 | 48.00 | 255.00 |
| 4 | | | | | | | | |
| 5 | 8812.000 | 1040.00 | 814.95 | 0.00 | 0.30 | 0.00 | 48.00 | 1.00 |
| 6 | 8812.000 | 1590.00 | 818.16 | 0.00 | 0.37 | 3.21 | 48.00 | 1.00 |
| 7 | 8812.000 | 1820.00 | 819.97 | 0.00 | 0.53 | 5.02 | 48.00 | 1.00 |
| 8 | 8812.000 | 2460.00 | 821.71 | 0.00 | 1.09 | 6.74 | 48.00 | 1.00 |
| 9 | | | | | | | | |
| 10 | 8918.000 | 1040.00 | 815.09 | 0.00 | 0.13 | 0.00 | 96.40 | 106.00 |
| 11 | 8918.000 | 1590.00 | 818.30 | 0.00 | 0.14 | 3.22 | 129.45 | 106.00 |
| 12 | 8918.000 | 1820.00 | 820.13 | 0.00 | 0.16 | 5.05 | 158.00 | 106.00 |
| 13 | 8918.000 | 2460.00 | 821.96 | 0.00 | 0.24 | 6.87 | 158.00 | 106.00 |
| 14 | | | | | | | | |
| 15 | 9453.000 | 1040.00 | 815.18 | 0.00 | 0.10 | 0.00 | 236.20 | 535.00 |
| 16 | 9453.000 | 1590.00 | 818.71 | 0.00 | 0.41 | 2.53 | 310.00 | 535.00 |
| 17 | 9453.000 | 1820.00 | 820.37 | 0.00 | 0.24 | 4.19 | 310.00 | 535.00 |
| 18 | 9453.000 | 2460.00 | 822.18 | 0.00 | 0.22 | 6.00 | 310.00 | 535.00 |
| 19 | | | | | | | | |
| 20 | 9918.000 | 1040.00 | 816.77 | 0.00 | 0.19 | 0.00 | 53.36 | 465.00 |
| 21 | 9918.000 | 1590.00 | 818.80 | 0.00 | -0.11 | 1.83 | 78.00 | 465.00 |
| 22 | 9918.000 | 1820.00 | 820.25 | 0.00 | -0.12 | 3.49 | 78.00 | 465.00 |
| 23 | 9918.000 | 2460.00 | 822.02 | 0.00 | -0.16 | 5.26 | 78.00 | 465.00 |
| 24 | | | | | | | | |
| 25 | 9973.500 | 1040.00 | 817.74 | 0.00 | 0.07 | 0.00 | 39.61 | 55.50 |
| 26 | 9973.500 | 1590.00 | 819.20 | 0.00 | 0.60 | 1.46 | 45.64 | 55.50 |
| 27 | 9973.500 | 1820.00 | 820.62 | 0.00 | 0.16 | 2.88 | 50.43 | 55.50 |
| 28 | 9973.500 | 2460.00 | 822.13 | 0.00 | 0.11 | 4.40 | 51.00 | 55.50 |
| 29 | | | | | | | | |
| 30 | 10011.000 | 1040.00 | 817.87 | 0.00 | 0.14 | 0.00 | 43.00 | 37.50 |
| 31 | 10011.000 | 1590.00 | 819.35 | 0.00 | 0.15 | 1.48 | 46.25 | 37.50 |
| 32 | 10011.000 | 1820.00 | 820.51 | 0.00 | 0.10 | 2.64 | 50.63 | 37.50 |
| 33 | 10011.000 | 2460.00 | 822.96 | 0.00 | 0.02 | 5.09 | 51.00 | 37.50 |
| 34 | | | | | | | | |
| 35 | 10084.000 | 1040.00 | 816.87 | 0.00 | 0.09 | 0.00 | 34.00 | 73.00 |
| 36 | 10084.000 | 1590.00 | 819.72 | 0.00 | 0.37 | 1.35 | 34.00 | 73.00 |
| 37 | 10084.000 | 1820.00 | 820.72 | 0.00 | 0.21 | 2.36 | 54.05 | 73.00 |
| 38 | 10084.000 | 2460.00 | 822.01 | 0.00 | 0.05 | 4.65 | 54.00 | 73.00 |
| 39 | | | | | | | | |
| 40 | 10094.000 | 1040.00 | 816.41 | 0.00 | 0.04 | 0.00 | 34.00 | 10.00 |
| 41 | 10094.000 | 1590.00 | 820.22 | 0.00 | 0.50 | 1.81 | 34.00 | 10.00 |
| 42 | 10094.000 | 1820.00 | 821.62 | 0.00 | 0.90 | 3.21 | 34.00 | 10.00 |
| 43 | 10094.000 | 2460.00 | 823.16 | 0.00 | 2.17 | 4.77 | 34.00 | 10.00 |
| 44 | | | | | | | | |
| 45 | 10103.000 | 1040.00 | 816.06 | 0.00 | -0.37 | 0.00 | 22.00 | 9.00 |
| 46 | 10103.000 | 1590.00 | 819.70 | 0.00 | -0.52 | 1.66 | 22.00 | 9.00 |
| 47 | 10103.000 | 1820.00 | 821.17 | 0.00 | -0.45 | 3.13 | 22.00 | 9.00 |
| 48 | 10103.000 | 2460.00 | 824.79 | 0.00 | -0.60 | 6.75 | 22.00 | 9.00 |
| 49 | | | | | | | | |
| 50 | 10104.000 | 1040.00 | 816.03 | 0.00 | 0.01 | 0.00 | 22.00 | 1.00 |
| 51 | 10104.000 | 1590.00 | 819.71 | 0.00 | 0.01 | 1.66 | 22.00 | 1.00 |
| 52 | 10104.000 | 1820.00 | 821.17 | 0.00 | 0.01 | 3.13 | 22.00 | 1.00 |
| 53 | 10104.000 | 2460.00 | 824.61 | 0.00 | -0.18 | 6.57 | 22.00 | 1.00 |
| 54 | | | | | | | | |
| 55 | | | | | | | | |
| 56 | | | | | | | | |
| 57 | | | | | | | | |

PRINTED IN U.S.A.
FORM 1411.08-PRINTED BY ROTARY MANIFOLD FORMS.

| SECNO | Q | CHSEL | DIFXSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 10132.000 | 1040.00 | 818.49 | 0.00 | 0.45 | 0.00 | 22.00 | 28.00 |
| 10132.000 | 1590.00 | 820.17 | 0.00 | 0.47 | 1.68 | 22.00 | 26.00 |
| 10132.000 | 1820.00 | 821.43 | 0.00 | 0.26 | 2.94 | 22.00 | 26.00 |
| 10132.000 | 2460.00 | 824.93 | 0.00 | 0.32 | 6.44 | 22.00 | 28.00 |
| 10133.000 | 1040.00 | 818.50 | 0.00 | 0.01 | 0.00 | 22.00 | 1.00 |
| 10133.000 | 1590.00 | 820.19 | 0.00 | 0.01 | 1.69 | 22.00 | 1.00 |
| 10133.000 | 1820.00 | 821.44 | 0.00 | 0.01 | 2.94 | 22.00 | 1.00 |
| 10133.000 | 2460.00 | 825.59 | 0.00 | 0.66 | 7.09 | 22.00 | 1.00 |
| 10157.000 | 1040.00 | 819.06 | 0.00 | 0.56 | 0.30 | 32.00 | 24.00 |
| 10157.000 | 1590.00 | 821.01 | 0.00 | 0.83 | 1.94 | 32.00 | 24.00 |
| 10157.000 | 1820.00 | 822.17 | 0.00 | 0.76 | 3.11 | 32.00 | 24.00 |
| 10157.000 | 2460.00 | 826.13 | 0.00 | 0.34 | 7.06 | 32.00 | 24.00 |

SUMMARY OF ERRORS

NOTE SECNO= 2163.000 PROFILE= 1 USEL BASED ON X5 CARD
NOTE SECNO= 2163.000 PROFILE= 2 USEL BASED ON X5 CARD
NOTE SECNO= 2163.000 PROFILE= 3 USEL BASED ON X5 CARD
NOTE SECNO= 2163.000 PROFILE= 4 USEL BASED ON X5 CARD

CAUTION SECNO= 2963.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2963.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2963.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2963.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2963.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2963.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2963.000 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2963.000 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2963.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2963.000 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2963.000 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 3063.000 PROFILE= 1 HYDRAULIC JUMP D.S.
CAUTION SECNO= 3063.000 PROFILE= 2 HYDRAULIC JUMP D.S.
CAUTION SECNO= 3063.000 PROFILE= 3 HYDRAULIC JUMP D.S.
CAUTION SECNO= 3063.000 PROFILE= 4 HYDRAULIC JUMP D.S.

CAUTION SECNO= 4028.000 PROFILE= 1 HYDRAULIC JUMP D.S.
CAUTION SECNO= 4028.000 PROFILE= 2 HYDRAULIC JUMP D.S.
CAUTION SECNO= 4028.000 PROFILE= 3 HYDRAULIC JUMP D.S.
CAUTION SECNO= 4028.000 PROFILE= 4 HYDRAULIC JUMP D.S.

CAUTION SECNO= 7868.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7868.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7868.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7868.000 PROFILE= 3 MINIMUM SPECIFIC ENERGY

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FLOOD INSURANCE ZONE DATA FOR MID.ROUGE R. N.VILLE C.

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

| SECTION NUMBER | CUMULATIVE DISTANCE | ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND@ 10@ | 2@ | 0.2% |
|---|---|---|---|---|
| 0.000 | 0. | -2.2 | -0.5 | 2.3 |
| 300.000 | 300. | -2.2 | -0.8 | 2.3 |
| 600.000 | 600. | -2.1 | -0.8 | 2.2 |
| 978.000 | 978. | -1.4 | -0.5 | 1.7 |
| 1028.000 | 1028. | -1.7 | -0.6 | 1.7 |
| 1078.000 | 1078. | -1.8 | -0.6 | 1.7 |
| 1113.000 | 1113. | -2.6 | -0.9 | 2.1 |
| 2163.000 | 2163. | -0.3 | -0.4 | 0.9 |
| 2213.000 | 2213. | -2.2 | -0.4 | 1.2 |
| 2513.000 | 2513. | -2.2 | -0.4 | 1.2 |
| 2863.000 | 2863. | -2.0 | -0.4 | 1.0 |
| 2963.000 | 2963. | -2.0 | -0.6 | 1.3 |
| 3063.000 | 3063. | -3.5 | -1.2 | 2.8 |
| 3113.000 | 3113. | -3.2 | -0.9 | 2.4 |
| 3278.000 | 3278. | -3.2 | -0.9 | 2.4 |
| 3327.000 | 3327. | -3.2 | -0.9 | 2.4 |
| 3328.000 | 3328. | -0.8 | -0.2 | 0.9 |
| 3672.000 | 3672. | -0.9 | -0.2 | 0.9 |
| 3684.000 | 3684. | -2.1 | -0.6 | 0.6 |
| 3825.000 | 3825. | -2.1 | -0.6 | 0.3 |
| 3965.000 | 3955. | -2.0 | -0.6 | 1.0 |
| 4028.000 | 4028. | -3.9 | -0.2 | 0.2 |
| 4078.000 | 4078. | -3.1 | -0.3 | 0.5 |
| 4471.000 | 4478. | -2.8 | -0.5 | 0.7 |
| 4551.000 | 4738. | -1.3 | -0.4 | 0.9 |
| 4907.000 | 4907. | -1.4 | -0.5 | 0.9 |
| 4908.000 | 4908. | -1.5 | -0.4 | 1.0 |
| 5508.000 | 5508. | -1.5 | -0.6 | 1.1 |
| 5928.000 | 5928. | -1.5 | -0.4 | 1.1 |
| 6078.000 | 6078. | -1.4 | -0.5 | 1.0 |
| 6128.000 | 6128. | -1.4 | -0.5 | 1.0 |
| 6178.000 | 6178. | -3.2 | -1.0 | 2.1 |
| 6228.000 | 6228. | -3.7 | -1.1 | 2.9 |
| 7150.000 | 7150. | -3.5 | -1.0 | 3.7 |
| 7300.000 | 7300. | -3.0 | -1.0 | 3.6 |
| 7523.000 | 7521. | -2.6 | -0.5 | 3.1 |
| 7518.000 | 7518. | -1.3 | -0.4 | 3.1 |
| 7868.000 | 7868. | -1.0 | -0.6 | 2.0 |
| 7921.000 | 7921. | -2.4 | -0.6 | 1.3 |
| 7965.000 | 7965. | -5.1 | -1.6 | 0.4 |
| 8118.000 | 8118. | -5.0 | -1.5 | 0.5 |
| 8518.000 | 8518. | -4.8 | -1.5 | 0.7 |
| 8555.000 | 8555. | -4.6 | -1.3 | 0.9 |
| 8556.000 | 8556. | -4.3 | -1.4 | 0.7 |
| 8811.000 | 8811. | -4.8 | -1.5 | 1.2 |
| 8812.000 | 8812. | -5.0 | -1.3 | 1.7 |
| 8918.000 | 8918. | -5.0 | -1.8 | 1.8 |
| 9453.000 | 9433. | -4.2 | -1.2 | 1.8 |
| 9813.000 | 9813. | -3.3 | -1.2 | 1.8 |
| 9972.500 | 9972. | -3.7 | -1.2 | 1.7 |
| 10019.000 | 10019. | -2.5 | -1.2 | 2.5 |
| 10044.000 | 10044. | -2.6 | -1.2 | 2.3 |
| 10074.000 | 10074. | -3.1 | -1.1 | 3.1 |

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| | | | | |
|---|---|---|---|---|
| 10103.000 | 10103. | -3.1 | -1.5 | 3.6 |
| 10104.000 | 10104. | -3.1 | -1.5 | 3.4 |
| 10132.000 | 10132. | -2.9 | -1.3 | 3.5 |
| 10133.000 | 10133. | -2.9 | -1.3 | 4.2 |
| 10157.000 | 10157. | -3.1 | -1.2 | 4.0 |
| WEIGHTED AVG FOR REACH | | -2.7 | -0.8 | 1.7 |

FHF FOR THE REACH = 025 WITH 60.4% OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 5

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

| INC NO. | TOTAL LENGTH | AVG ELEVATION DATA 100 | 10 | DIFF. | WTD. AVG. | FHF | PERCENT WITHIN |
|---|---|---|---|---|---|---|---|
| | 0. | | | | SEC. | | 0.000 |
| 1 | 100. | 765.9 | 768.1 | -2.2 | -2.2 | 020 | 100. |
| 2 | 200. | 765.9 | 768.1 | -2.2 | -2.2 | 020 | 100. |
| | 300. | | | | SEC. | | 300.000 |
| 3 | 300. | 766.0 | 768.1 | -2.2 | -2.2 | 020 | 100. |
| 4 | 400. | 766.0 | 768.1 | -2.1 | -2.2 | 020 | 100. |
| 5 | 500. | 766.1 | 768.2 | -2.1 | -2.2 | 020 | 100. |
| | 600. | | | | SEC. | | 600.000 |
| 6 | 600. | 766.1 | 768.2 | -2.1 | -2.1 | 020 | 100. |
| 7 | 700. | 766.4 | 768.2 | -2.0 | -2.1 | 020 | 100. |
| 8 | 800. | 766.5 | 768.3 | -1.8 | -2.1 | 020 | 100. |
| 9 | 900. | 766.8 | 768.4 | -1.7 | -2.0 | 020 | 100. |
| | 978. | | | | SEC. | | 978.000 |
| 10 | 1000. | 767.2 | 768.8 | -1.6 | -1.8 | 020 | 100. |
| | 1028. | | | | SEC. | | 1028.000 |
| | 1078. | | | | SEC. | | 1078.000 |
| 11 | 1100. | 768.2 | 770.2 | -2.0 | -2.0 | 020 | 100. |
| | 1113. | | | | SEC. | | 1113.000 |
| 12 | 1200. | 769.8 | 771.1 | -1.3 | -2.3 | 020 | 100. |
| 13 | 1300. | 769.7 | 772.0 | -2.4 | -2.3 | 020 | 100. |
| 14 | 1400. | 770.3 | 772.9 | -2.6 | -2.4 | 020 | 100. |
| 15 | 1500. | 771.9 | 773.7 | -1.8 | -2.1 | 020 | 100. |
| 16 | 1600. | 772.2 | 774.5 | -2.4 | -2.1 | 020 | 100. |
| 17 | 1700. | 773.0 | 775.3 | -2.3 | -2.1 | 020 | 100. |
| 18 | 1800. | 773.8 | 775.2 | -1.4 | -2.1 | 020 | 100. |
| 19 | 1900. | 774.7 | 777.0 | -2.3 | -2.1 | 020 | 100. |
| 20 | 2000. | 775.5 | 777.8 | -2.3 | -2.1 | 020 | 100. |
| 21 | 2100. | 776.4 | 778.7 | -2.3 | -2.2 | 020 | 100. |
| | 2163. | | | | SEC. | | 2163.000 |
| 22 | 2200. | 777.2 | 779.5 | -2.3 | -2.2 | 020 | 100. |
| | 2213. | | | | SEC. | | 2213.000 |
| 23 | 2300. | 777.8 | 780.0 | -2.2 | -2.2 | 020 | 100. |
| 24 | 2400. | 777.9 | 780.1 | -2.2 | -2.2 | 020 | 100. |
| 25 | 2500. | 778.0 | 780.2 | -2.2 | -2.2 | 020 | 100. |
| | 2513. | | | | SEC. | | 2513.000 |
| 26 | 2600. | 778.1 | 780.3 | -2.2 | -2.2 | 020 | 100. |
| 27 | 2700. | 778.3 | 780.4 | -2.1 | -2.2 | 020 | 100. |
| 28 | 2800. | 778.5 | 780.5 | -2.0 | -2.2 | 020 | 100. |
| | 2863. | | | | SEC. | | 2863.000 |
| 29 | 2900. | 778.9 | 781.0 | -2.0 | -2.1 | 020 | 100. |
| | 2963. | | | | SEC. | | 2963.000 |
| 30 | 3000. | 780.0 | 782.1 | -2.1 | -2.1 | 020 | 100. |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 3063. | | | | | SEC. | 3063.000 | |
| 31 | 3100. | 781.6 | 784.2 | -2.6 | -2.2 | 020 | | 100. |
| | 3113. | | | | | SEC. | 3113.000 | |
| 32 | 3200. | 782.8 | 785.9 | -3.1 | -2.2 | 020 | | 100. |
| | 3278. | | | | | SEC. | 3278.000 | |
| 33 | 3300. | 783.2 | 786.4 | -3.2 | -2.2 | 020 | | 100. |
| | 3327. | | | | | SEC. | 3327.000 | |
| | 3328. | | | | | SEC. | 3328.000 | |
| 34 | 3400. | 787.8 | 788.6 | -0.8 | -2.2 | 020 | | 94. |
| 35 | 3500. | 787.8 | 788.6 | -0.8 | -2.1 | 020 | | 91. |
| 36 | 3600. | 787.9 | 788.7 | -0.9 | -2.1 | 020 | | 89. |
| | 3672. | | | | | SEC. | 3672.000 | |
| | 3684. | | | | | SEC. | 3684.000 | |
| 37 | 3700. | 786.3 | 790.2 | -2.1 | -2.1 | 020 | | 89. |
| 38 | 3800. | 790.4 | 790.5 | -2.1 | -2.1 | 020 | | 89. |
| | 3825. | | | | | SEC. | 3825.000 | |
| 39 | 3900. | 786.9 | 789.0 | -2.1 | -2.1 | 020 | | 90. |
| | 3965. | | | | | SEC. | 3965.000 | |
| 40 | 4000. | 789.8 | 792.4 | -2.6 | -2.1 | 020 | | 90. |
| | 4028. | | | | | SEC. | 4028.000 | |
| | 4078. | | | | | SEC. | 4078.000 | |
| 41 | 4100. | 792.1 | 795.2 | -3.1 | -2.1 | 020 | | 90. |
| 42 | 4200. | 792.2 | 795.3 | -3.0 | -2.2 | 020 | | 90. |
| 43 | 4300. | 792.5 | 795.4 | -2.9 | -2.2 | 020 | | 91. |
| 44 | 4400. | 792.7 | 795.5 | -2.8 | -2.2 | 020 | | 93. |
| | 4478. | | | | | SEC. | 4478.000 | |
| 45 | 4500. | 793.1 | 795.7 | -2.6 | -2.2 | 020 | | 93. |
| 46 | 4600. | 793.8 | 796.1 | -2.4 | -2.2 | 020 | | 93. |
| 47 | 4700. | 794.8 | 796.7 | -2.0 | -2.2 | 020 | | 94. |
| 48 | 4800. | 795.8 | 797.4 | -1.6 | -2.2 | 020 | | 92. |
| | 4858. | | | | | SEC. | 4858.000 | |
| 49 | 4900. | 796.7 | 798.0 | -1.3 | -2.2 | 020 | | 92. |
| | 4907. | | | | | SEC. | 4907.000 | |
| | 4908. | | | | | SEC. | 4908.000 | |
| 50 | 5000. | 804.3 | 805.8 | -1.5 | -2.2 | 020 | | 92. |
| 51 | 5100. | 804.2 | 805.8 | -1.5 | -2.1 | 020 | | 92. |
| 52 | 5200. | 804.4 | 805.9 | -1.5 | -2.1 | 020 | | 92. |
| 53 | 5300. | 804.4 | 805.9 | -1.5 | -2.1 | 020 | | 92. |
| | 5306. | | | | | SEC. | 5306.000 | |
| 54 | 5400. | 804.4 | 805.9 | -1.5 | -2.1 | 020 | | 93. |
| 55 | 5500. | 804.4 | 806.0 | -1.5 | -2.1 | 020 | | 93. |
| 56 | 5600. | 804.4 | 806.0 | -1.5 | -2.1 | 020 | | 93. |
| 57 | 5700. | 804.5 | 806.0 | -1.5 | -2.1 | 020 | | 93. |
| 58 | 5800. | 804.5 | 806.0 | -1.5 | -2.1 | 020 | | 90. |
| 59 | 5900. | 804.5 | 806.0 | -1.5 | -2.1 | 020 | | 90. |
| | 5928. | | | | | SEC. | 5928.000 | |
| 60 | 6000. | 804.5 | 805.8 | -1.3 | -2.0 | 020 | | 90. |
| | 6078. | | | | | SEC. | 6078.000 | |
| 61 | 6100. | 804.3 | 805.8 | -1.5 | -2.0 | 020 | | 90. |
| | 6128. | | | | | SEC. | 6128.000 | |
| | 6178. | | | | | SEC. | 6178.000 | |
| 62 | 6200. | 805.5 | 808.9 | -3.3 | -2.1 | 020 | | 39. |
| | 6234. | | | | | SEC. | 6234.000 | |
| 63 | 6300. | 806.3 | 809.9 | -3.6 | -2.2 | 020 | | 37. |
| 64 | 6400. | 806.8 | 810.5 | -3.7 | -2.2 | 020 | | 39. |
| 65 | 6500. | 806.9 | 810.6 | -3.6 | -2.2 | 020 | | 88. |
| 66 | 6600. | 807.0 | 810.6 | -3.6 | -2.2 | 020 | | 86. |
| 67 | 6700. | 807.1 | 810.7 | -3.5 | -2.2 | 020 | | 85. |
| 68 | 6800. | 807.2 | 810.7 | -3.5 | -2.2 | 020 | | 83. |
| 69 | 6900. | 807.5 | 810.9 | -3.4 | -2.2 | 020 | | 84. |
| 70 | 7000. | 807.4 | 810.8 | -3.4 | -2.2 | 020 | | 83. |
| 71 | 7100. | 807.5 | 810.9 | -3.4 | -2.2 | 020 | | 82. |
| | 7150. | | | | | SEC. | 7150.000 | |
| 72 | 7200. | 807.7 | 811.0 | -3.3 | -2.2 | 020 | | 79. |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 7300. | | | | SEC. | 7300.000 | |
| 73 | 7300. | 808.0 | 811.1 | -3.1 | -2.3 | 025 | 81. |
| | 7328. | | | | SEC. | 7328.000 | |
| 74 | 7400. | 808.9 | 811.5 | -2.5 | -2.3 | 025 | 81. |
| 75 | 7500. | 810.0 | 811.8 | -1.8 | -2.3 | 025 | 81. |
| | 7518. | | | | SEC. | 7518.000 | |
| 76 | 7600. | 810.3 | 811.9 | -1.6 | -2.3 | 025 | 80. |
| 77 | 7700. | 810.4 | 812.0 | -1.6 | -2.2 | 020 | 82. |
| 78 | 7800. | 810.5 | 812.2 | -1.7 | -2.2 | 020 | 82. |
| | 7868. | | | | SEC. | 7868.000 | |
| 79 | 7900. | 811.1 | 813.0 | -1.9 | -2.2 | 020 | 82. |
| | 7921. | | | | SEC. | 7921.000 | |
| | 7965. | | | | SEC. | 7965.000 | |
| 80 | 8000. | 813.3 | 818.4 | -5.1 | -2.3 | 025 | 81. |
| 81 | 8100. | 813.5 | 818.5 | -5.0 | -2.3 | 025 | 80. |
| | 8118. | | | | SEC. | 8118.000 | |
| 82 | 8200. | 813.7 | 818.7 | -5.0 | -2.3 | 025 | 80. |
| 83 | 8300. | 813.8 | 818.8 | -4.9 | -2.4 | 025 | 81. |
| 84 | 8400. | 814.0 | 818.9 | -4.9 | -2.4 | 025 | 80. |
| 85 | 8500. | 814.2 | 819.0 | -4.8 | -2.4 | 025 | 80. |
| | 8518. | | | | SEC. | 8518.000 | |
| | 8555. | | | | SEC. | 8555.000 | |
| | 8556. | | | | SEC. | 8556.000 | |
| 86 | 8600. | 814.4 | 818.9 | -4.5 | -2.5 | 025 | 80. |
| 87 | 8700. | 814.5 | 819.1 | -4.6 | -2.5 | 025 | 77. |
| 88 | 8800. | 814.6 | 819.3 | -4.7 | -2.5 | 025 | 76. |
| | 8811. | | | | SEC. | 8811.000 | |
| | 8812. | | | | SEC. | 8812.000 | |
| 89 | 8900. | 815.0 | 820.0 | -5.0 | -2.3 | 025 | 71. |
| | 8918. | | | | SEC. | 8918.000 | |
| 90 | 9000. | 815.2 | 820.1 | -5.0 | -2.6 | 025 | 66. |
| 91 | 9100. | 815.4 | 820.2 | -4.8 | -2.6 | 025 | 65. |
| 92 | 9200. | 815.6 | 820.2 | -4.7 | -2.6 | 025 | 63. |
| 93 | 9300. | 815.8 | 820.3 | -4.5 | -2.6 | 025 | 62. |
| 94 | 9400. | 816.0 | 820.3 | -4.4 | -2.6 | 025 | 62. |
| | 9453. | | | | SEC. | 9453.000 | |
| 95 | 9500. | 815.2 | 820.3 | -4.2 | -2.7 | 025 | 60. |
| 96 | 9600. | 815.3 | 820.3 | -4.0 | -2.7 | 025 | 60. |
| 97 | 9700. | 816.4 | 820.3 | -3.9 | -2.7 | 025 | 59. |
| 98 | 9800. | 816.6 | 820.3 | -3.7 | -2.7 | 025 | 58. |
| 99 | 9900. | 816.7 | 820.3 | -3.[illegible] | -2.7 | 025 | 59. |
| | 9916. | | | | SEC. | 9916.000 | |
| | 9974. | | | | SEC. | 9973.000 | |
| 100 | 10000. | 817.0 | 820.5 | -2.7 | -2.7 | 025 | 59. |
| | 10011. | | | | SEC. | 10011.000 | |
| | 10084. | | | | SEC. | 10084.000 | |
| | 10094. | | | | SEC. | 10094.000 | |
| 101 | 10100. | 818.3 | 821.5 | -3.2 | -2.7 | 025 | 59. |
| | 10103. | | | | SEC. | 10103.000 | |
| | 10104. | | | | SEC. | 10104.000 | |
| | 10132. | | | | SEC. | 10132.000 | |
| | 10133. | | | | SEC. | 10133.000 | |
| | 10157. | | | | SEC. | 10157.000 | |

THIS REACH CAN BE SUBDIVIDED BY INC NO. TO MEET FIA REQUIREMENTS
INPUT 20V WHERE N IS THE NUMBER OF REACHES AND THEN INPUT THE END
OF EACH REACH BY INC NO. FOR EXAMPLE: 202 86 101
A NEGATIVE INC NO. WILL SUPPRESS INTERMEDIATE INC OUTPUT.

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00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Northville

3) WATERCOURSE: Randolph Drain

4) DOCUMENT TYPE: Report

00BREAK00

RECEIVED

JAN 16 1992

NATURAL RESOURCES
LAND & WATER MGMT.

# CITY OF NORTHVILLE

## RANDOLPH STREET DRAIN

## FLOOD STUDY

## EXISTING CONDITION

## HYDROLOGIC & HYDRAULIC

## ANALYSIS

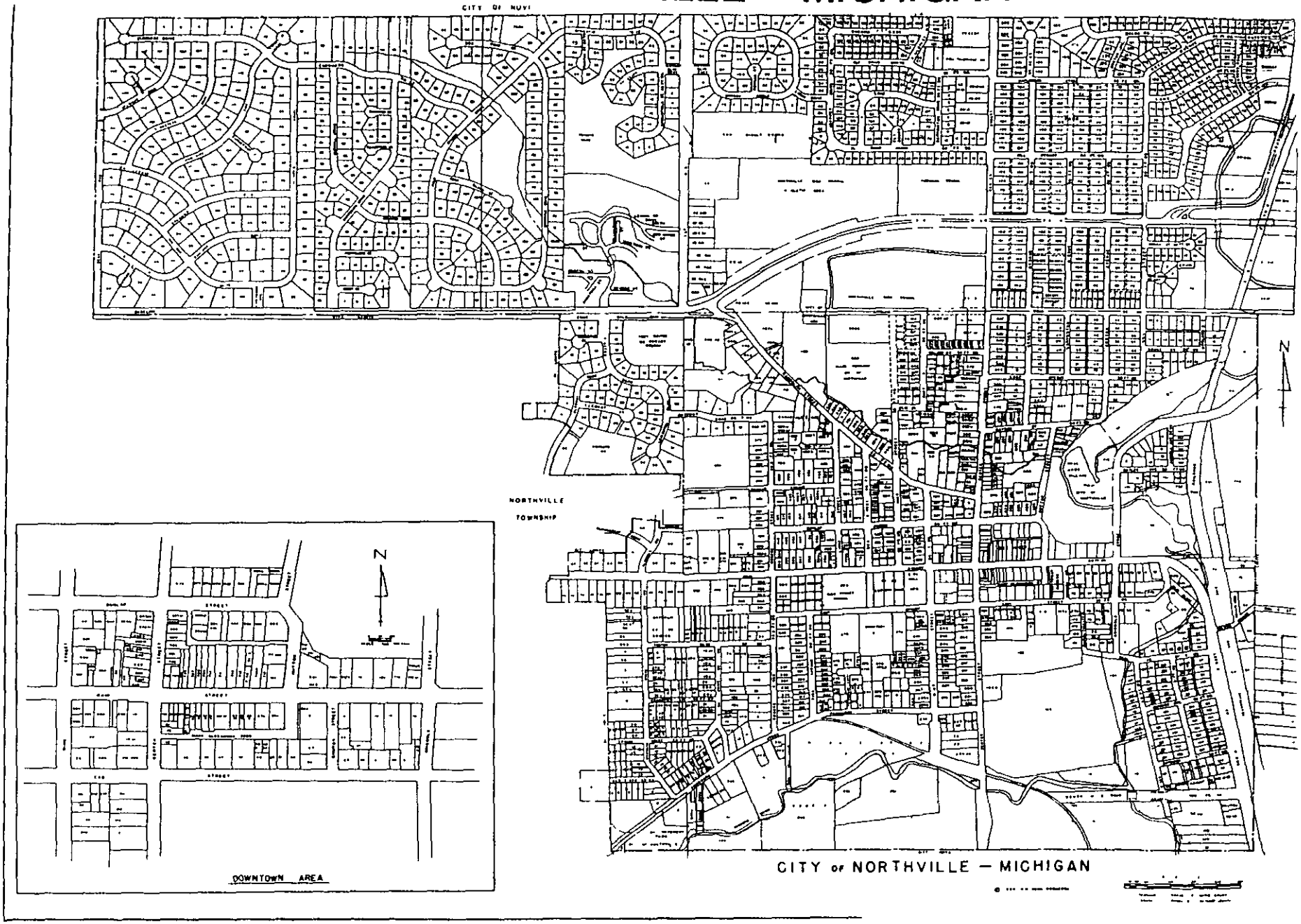
*BETWEEN LEXINGTON BLVD. AND BECK ROAD*

BY

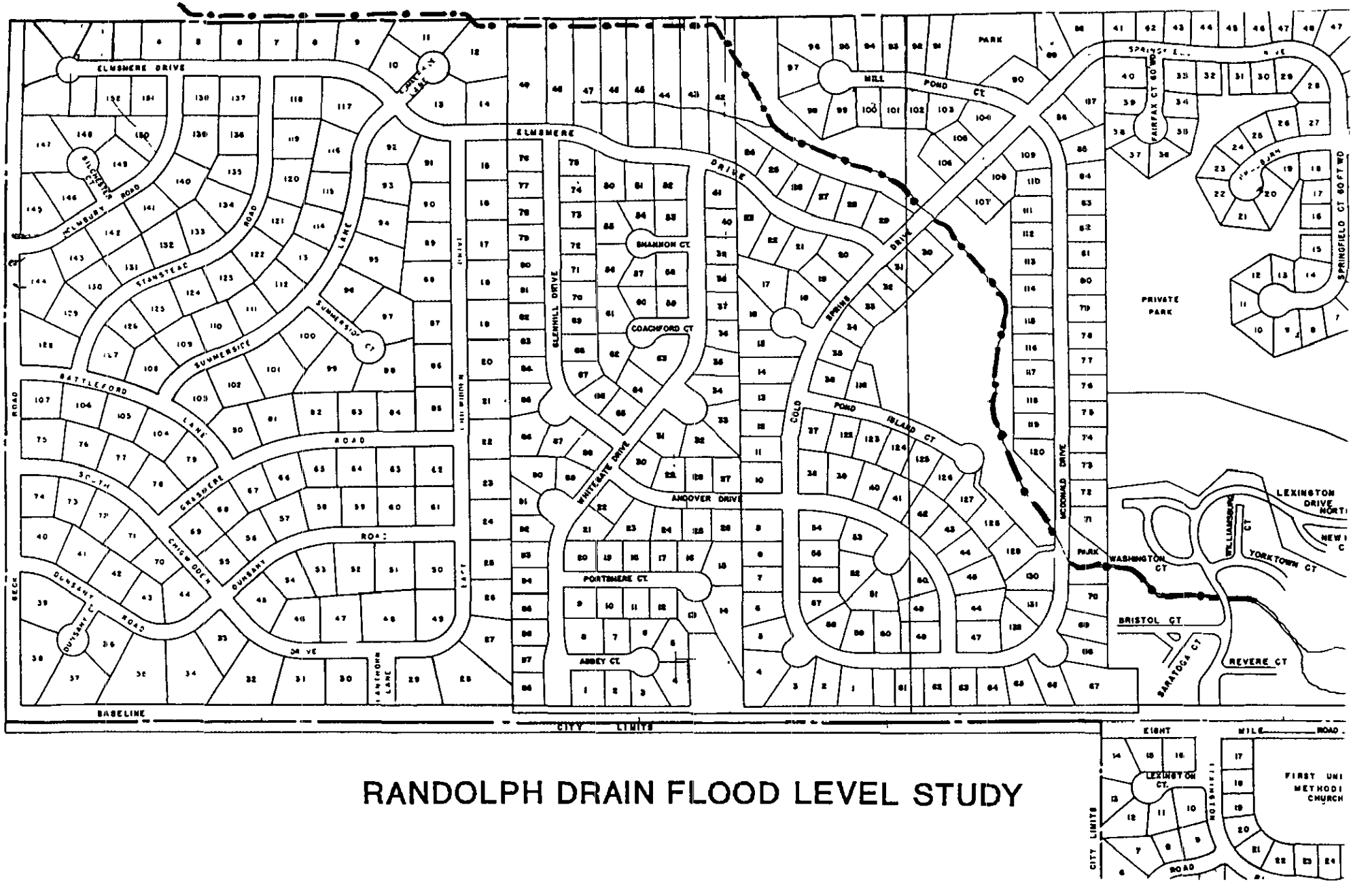
**McNEELY & LINCOLN ASSOCIATES, INC.**

459 EAST CADY, NORTHVILLE MI-48167

# CITY OF NORTHVILLE - MICHIGAN

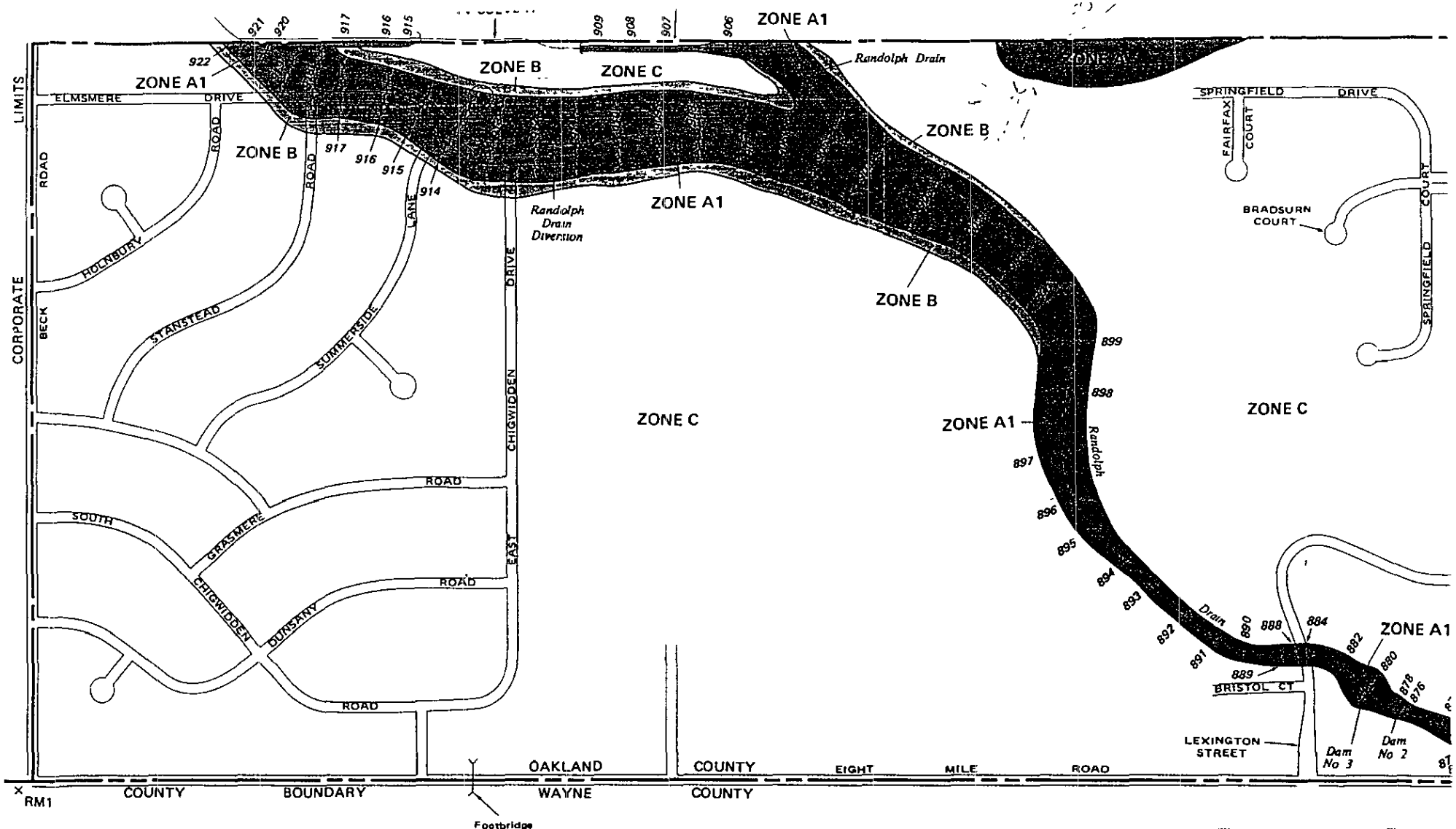


# CITY OF NORTHVILLE - MICHIGAN




# RANDOLPH DRAIN FLOOD LEVEL STUDY

# CITY OF NORTHVILLE - MICHIGAN



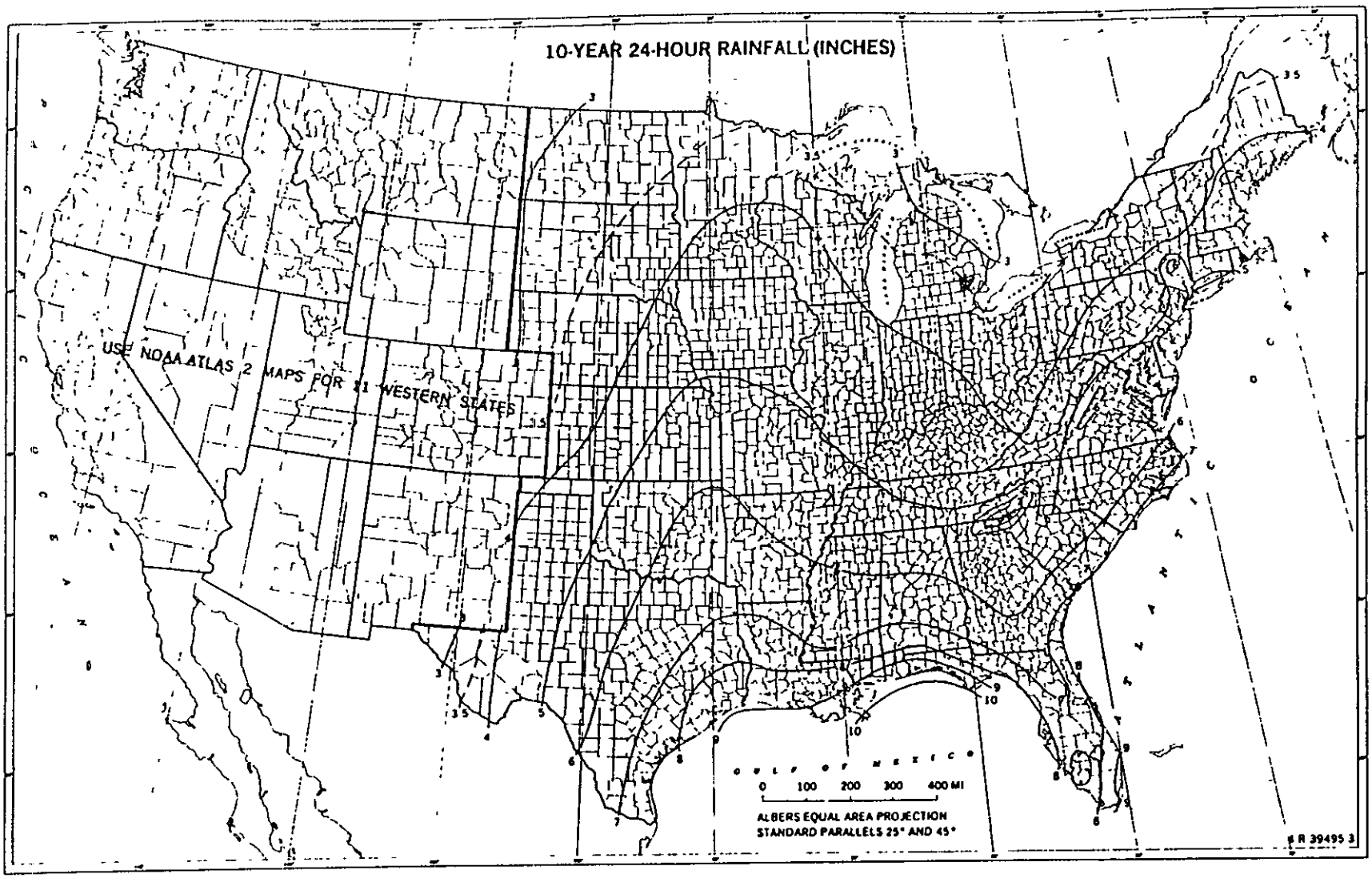

500-YEAR FLOO
CONTAINED IN CUL

LEXINGTON STR

# RANDOLPH DRAIN FLOOD LEVEL STUDY

# RANDOLPH STREET DRAIN

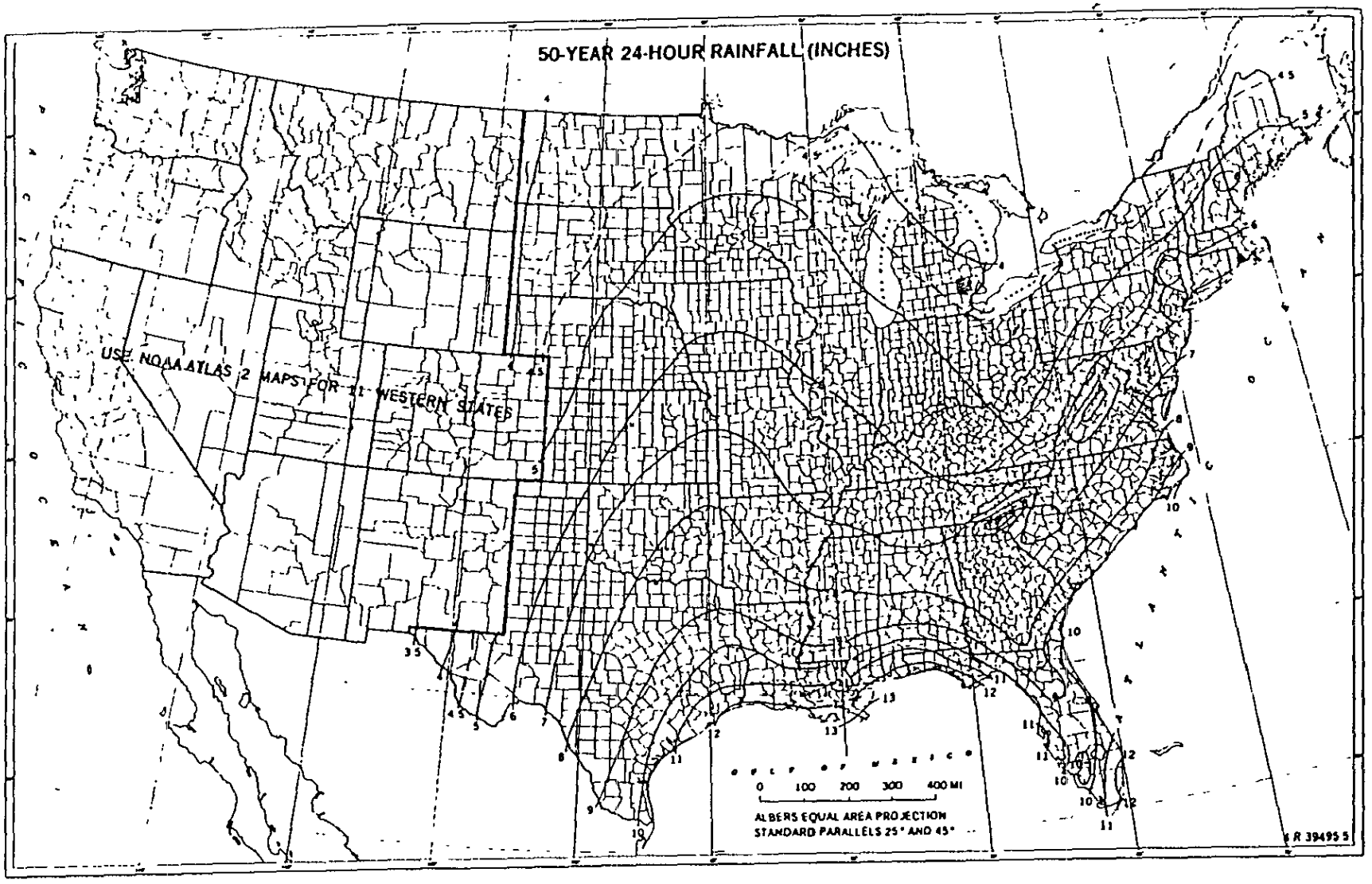
# PRECIPITATION DATA




SOURCE: 210-VI-TR-55, Second Ed., June 1986

SELECT - 3.5 Inches

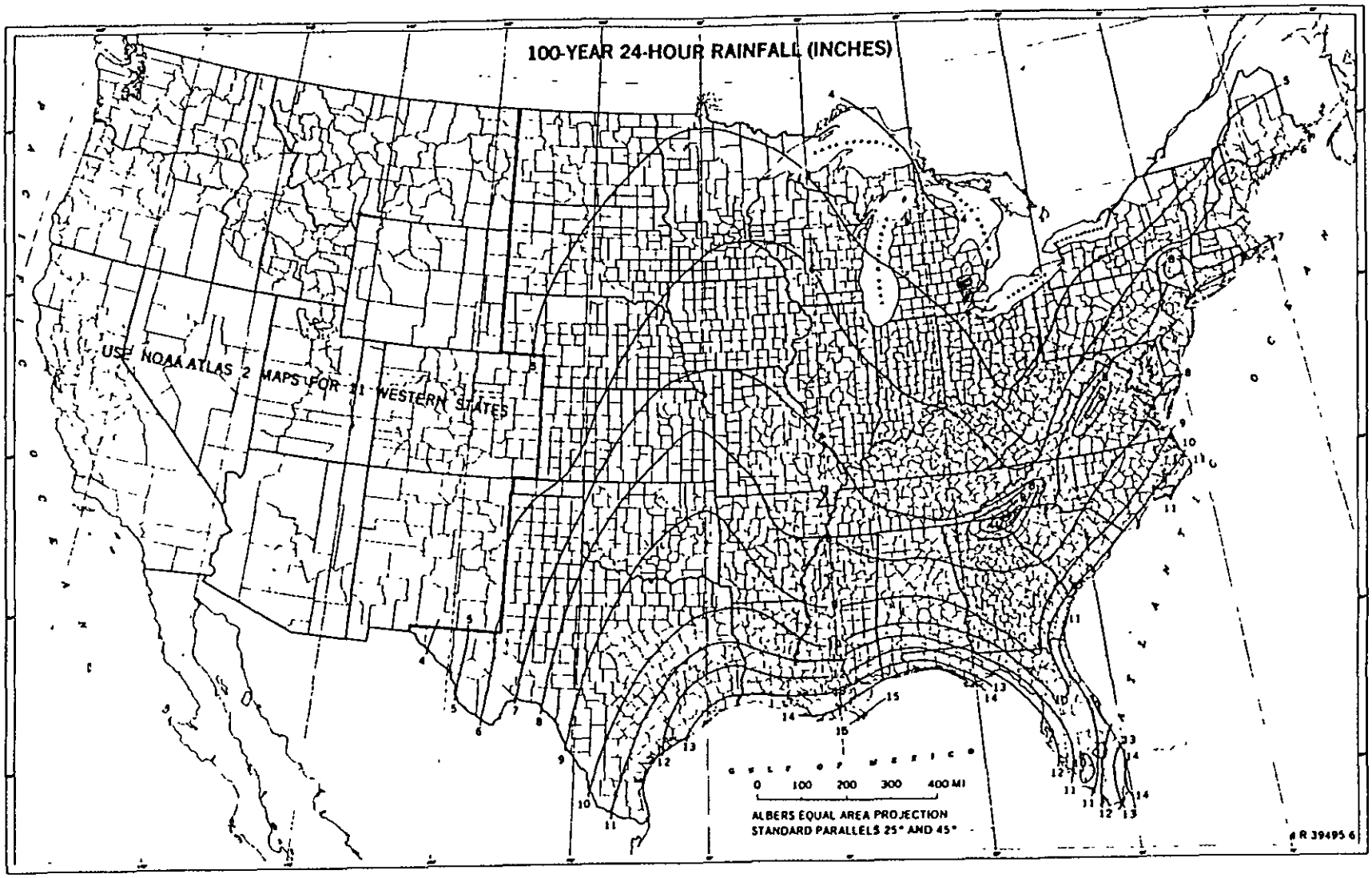
**Figure B-5.—Ten-year, 24-hour rainfall.**




SOURCE: 210-VI-TR-55, Second Ed., June 1986

SELECT - 4.45 Inches

Figure B-7.—Fifty-year, 24-hour rainfall.




SOURCE: 210-VI-TR-55, Second Ed., June 1986

SELECT - 4.85 Inches

Figure B-6.—One-hundred-year, 24-hour rainfall.

RANDOLPH STREET DRAIN

**EXISTING CONDITION**

# HYDROLOGIC ANALYSIS

****

FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) -FEB 1,1985

U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616

****

THIS HEC-1 VERSION CONTAINS ALL OPTIONS EXCEPT ECONOMICS, AND THE NUMBER OF PLANS ARE REDUCED TO 3

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  1       ID   RANDOLPH DRAIN FLOOD ANALYSIS    NOV 2, 1987    FILE: 100H1
  2       ID   100 YEAR EVENT
  3       ID   DEVELOPED CONDITIONS
          *DIAGRAM
  4       IT       5  1MAR86    0000     300
  5       IO       5       0       20
  6       IN      30  1MAR86    0000
  7       JR    PREC  1.0000  1.2714  1.3857  1.5286

  8       KK  RANDB2  RANDOLPH DISTRICT
  9       PB    3.50
 10       PC  0.0000  0.0053  0.0108  0.0164  0.0223  0.0284  0.0347  0.0414  0.0483  0.0555
 11       PC  0.0623  0.0712  0.0797  0.0887  0.0984  0.1089  0.1203  0.1328  0.1467  0.1625
 12       PC  0.1808  0.2042  0.2351  0.2833  0.6632  0.7351  0.7724  0.7989  0.8197  0.8380
 13       PC  0.8538  0.8676  0.8801  0.8914  0.9019  0.9115  0.9206  0.9291  0.9371  0.9446
 14       PC  0.9519  0.9588  0.9653  0.9717  0.9777  0.9836  0.9892  0.9947  1.0000
 15       KM          SCS RUNOFF FOR RANDOLPH DISTRICT B2
 16       BA   0.100
 17       LS       0      68
 18       UD    0.66

 19       KK  RANDB2
 20       KM        ROUTING FOR POND AT NW CORNER OF BECK AND 9 MILE
 21       RS       1    ELEV   947.6       0
 22       SA       0    1.62    1.82    2.03    2.22    2.43    2.56
 23       SQ       0    1.90    7.40   12.00   15.20   17.60   95.00
 24       SE   947.6     948   948.5   949.0   949.5   950.0   950.3

 25       KK  RANDB2
 26       KM        CHANNEL ROUTE TO CULVERT, W. SIDE OF BECK
 27       RK     755 0.0071    0.030       0

 28       KK  RANDB1
 29       KM        SCS RUNOFF FOR RANDOLPH DISTRICT B1
 30       BA   0.084
 31       LS       0      68
 32       UD    0.26

 33       KK   RANDB
 34       KM        COMBINE RANDOLPH B1 AND B2
 35       HC       2

 36       KK   RANDB
 37       KM        CHANNEL ROUTE TO RANDOLPH A POND (CULVERT)
 38       RK    1045  .0065    0.024            CIRC       2

 39       KK   RANDB
 40       KM        CHANNEL ROUTE TO RANDOLPH A POND (DITCH)
 41       RK     435    1.84     .03            TRAP       2       4
```

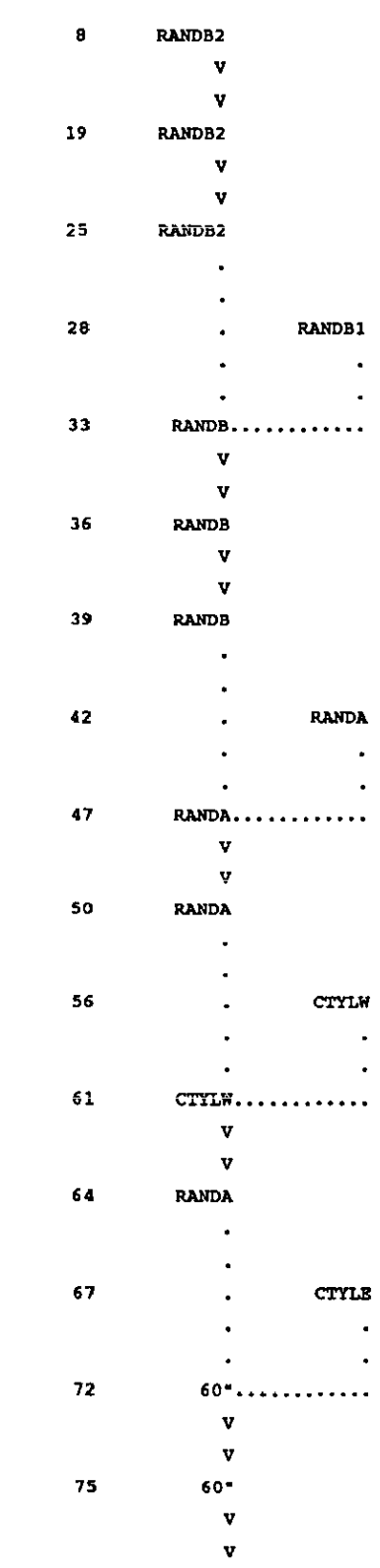
```
LINE  ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  42  KK  RANDA
  43  KM      SCS RUNOFF FOR RANDOLPH A DISTRICT
  44  BA  0.108
  45  LS     0      72
  46  UD   0.32

  47  KK  RANDA
  48  KM      COMBINE RANDOLPH A RUNOFF WITH RANDOLPH B OUTFLOW
  49  HC     2

  50  KK  RANDA
  51  KM      RANDOLPH A POND ROUTING
  52  RS     1    ELEV   926.2       0
  53  SA     0    0.01    0.72    2.07    2.17    2.22    2.35    2.80
  54  SQ     0     9.0     45.     97.    140.    180.    230.    650.
  55  SE 926.2     927     928   930.2   930.3   930.4   930.5   931.0

  56  KK  CTYLW
  57  KM      SCS RUNOFF FOR CITY LINE WEST DISTRICT
  58  BA  0.031
  59  LS     0      78
  60  UD   0.24

  61  KK  CTYLW
  62  KM      COMBINE CITY LINE WEST RUNOFF WITH RANDOLPH A FLOW
  63  HC     2

  64  KK  RANDA
  65  KM      CHANNEL ROUTE TO 60" CULVERT ENTRANCE BASIN
  66  RK   1450  0.0033    0.04                0       0       2

  67  KK  CTYLE
  68  KM      SCS RUNOFF FOR CITY LINE EAST DISTRICT
  69  BA  0.062
  70  LS     0      78
  71  UD   0.24

  72  KK    60"
  73  KM      COMBINE RANDOLPH A AND CITY LINE OUTFLOWS
  74  HC     2

  75  KK    60"
  76  KM      ROUTE COMBINED FLOWS AHEAD OF 60" CULVERT
  77  RS     1    ELEV   910.3       0
  78  SA 0.033   0.082   0.140   0.198   0.256     1.0
  79  SQ     0      55      84     160     212     278
  80  SE 909.3     911     913     915     917     919

  81  KK    60"
  82  KM      CHANNEL ROUTE THROUGH 60" CULVERT
  83  RK    580   0.006   0.013            CIRC       5
```

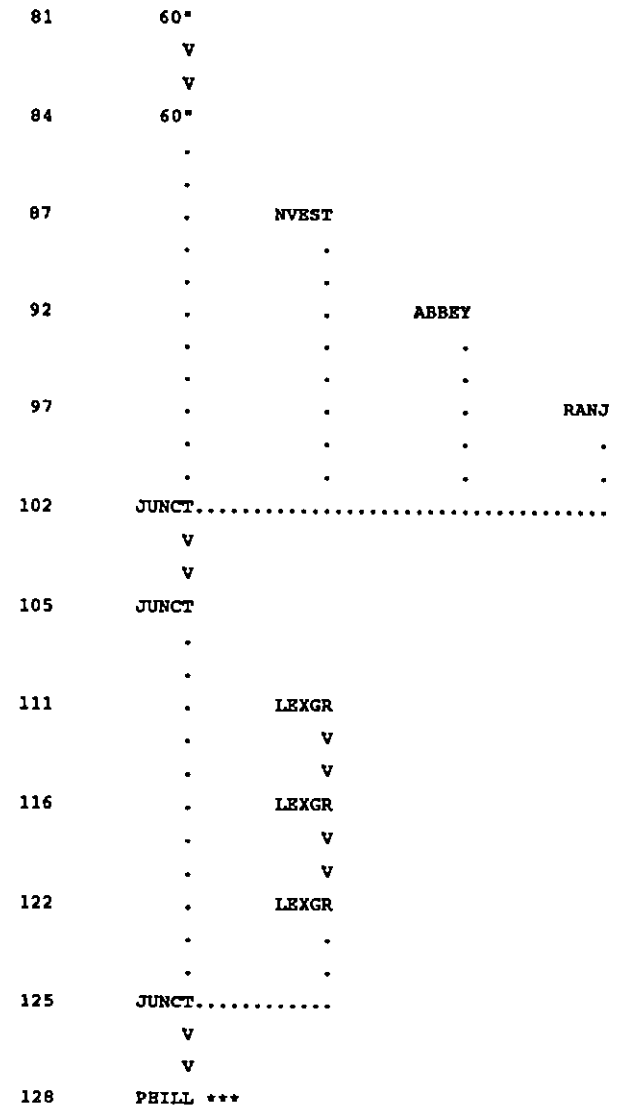
```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  84      KK    60"
  85      KM       CHANNEL ROUTE THROUGH CULVERT OUTLET DITCH
  86      RK    550  0.0056   0.030            TRAP       4       3

  87      KK   NVEST
  88      KM       SCS RUNOFF FOR NORTHVILLE ESTATES
  89      BA   0.100
  90      LS       0       70
  91      UD    0.37

  92      KK   ABBEY
  93      KM       SCS RUNOFF FOR DEVELOPED ABBEY KNOLL ESTATES SUBDIVISION
  94      BA   0.072
  95      LS       0       80
  96      UD    0.42

  97      KK    RANJ
  98      KM       SCS RUNOFF FOR RANDOLPH JUNCTION (NOVI - WEST OF LEXINGTON GREEN)
  99      BA   0.182
 100      LS       0       69
 101      UD    0.65

 102      KK   JUNCT
 103      KM       COMBINE RANDOLPH JUNCTION, 60" CULVERT & NORTHVILLE ESTATES/ABBEY KNOLL
 104      HC       4

 105      KK   JUNCT
 106      KM       ROUTE COMBINED FLOWS THROUGH ABBEY POND/WETLANDS
 107      RS       1    FLOW       2       0
 108      SA    1.24    4.30    5.90    8.30   10.28   11.20
 109      SQ       0      10      48     250     573     747
 110      SE   902.8   903.5     904     905     906   906.5

 111      KK   LEXGR
 112      KM       SCS RUNOFF FOR LEXINGTON GREEN SUBDIVISION
 113      BA   0.144
 114      LS       0       72
 115      UD    0.30

 116      KK   LEXGR
 117      KM       LEXINGTON GREEN DETENTION POND ROUTING
 118      RS       1    ELEV   904.6       0
 119      SA    1.55    1.65    1.84    1.88    1.94    2.00
 120      SQ       0     1.3     4.0      39     159     350
 121      SE   904.6     905   905.8     906   906.5     907

 122      KK   LEXGR
 123      KM       CHANNEL ROUTING OF LEXINGTON GREEN DISCHARGE
 124      RK     950   0.001   0.040            TRAP       0      50
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  125     KK  JUNCT
  126     KM       COMBINE LEXINGTON GREEN, RANDOLPH JUNCTION, N'VILLE ESTATES & 60" FLOWS
  127     HC       2

  128     KK  PHILLS
  129     KM       SCS RUNOFF AND KINEMATIC ROUTING ACROSS PHEASANT HILLS
  130     BA  0.159
  131     LS       0      77                      77
  132     UK    1000    0.05     .25      47
  133     UK     500    0.05     .25      53
  134     RK    2700  0.0056    .030           TRAP      10       1     YES
  135     ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO. — (V) ROUTING, (.) CONNECTOR, (---->) DIVERSION OR PUMP FLOW, (<----) RETURN OF DIVERTED OR PUMPED FLOW






(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1

****

FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) -FEB 1,1985

U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616

****

RANDOLPH DRAIN FLOOD ANALYSIS NOV 2, 1987 FILE: 100H1

100 YEAR EVENT

DEVELOPED CONDITIONS

5 IO OUTPUT CONTROL VARIABLES

| | | |
|---|---|---|
| IPRNT | 5 | PRINT CONTROL |
| IPLOT | 0 | PLOT CONTROL |
| QSCAL | 20. | HYDROGRAPH PLOT SCALE |

IT HYDROGRAPH TIME DATA

| | | |
|---|---|---|
| NMIN | 5 | MINUTES IN COMPUTATION INTERVAL |
| IDATE | 1MAR86 | STARTING DATE |
| ITIME | 0000 | STARTING TIME |
| NQ | 300 | NUMBER OF HYDROGRAPH ORDINATES |
| NDDATE | 2MAR86 | ENDING DATE |
| NDTIME | 0055 | ENDING TIME |

COMPUTATION INTERVAL .08 HOURS

TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS

JP MULTI-PLAN OPTION

NPLAN 1 NUMBER OF PLANS

JR MULTI-RATIO OPTION

RATIOS OF PRECIPITATION

1.00 1.27

1.39 1.53

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 650.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 55.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

| OPERATION | STATION | AREA | PLAN | | RATIOS APPLIED TO PRECIPITATION RATIO 1 | RATIO 2 | RATIO 3 | RATIO 4 |
|---|---|---|---|---|---|---|---|---|
| | | | | | 1.00 | 1.27 | 1.39 | 1.53 |
| HYDROGRAPH AT | | | | | | | | |
| + | RANDB2 | .10 | 1 | FLOW | 24. | 43. | 52. | 63. |
| | | | | TIME | 12.58 | 12.58 | 12.58 | 12.50 |
| ROUTED TO | | | | | | | | |
| + | RANDB2 | .10 | 1 | FLOW | 9. | 14. | 16. | 24. |
| | | | | TIME | 13.67 | 13.75 | 13.75 | 13.50 |
| | | | ** PEAK STAGES IN FEET ** | | | | | |
| | | | 1 | STAGE | 948.71 | 949.37 | 949.67 | 950.02 |
| | | | | TIME | 13.67 | 13.75 | 13.75 | 13.50 |
| ROUTED TO | | | | | | | | |
| + | RANDB2 | .10 | 1 | FLOW | 9. | 14. | 16. | 24. |
| | | | | TIME | 13.75 | 13.75 | 13.83 | 13.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | RANDB1 | .08 | 1 | FLOW | 34. | 59. | 71. | 86. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.08 |
| 2 COMBINED AT | | | | | | | | |
| + | RANDB | .18 | 1 | FLOW | 35. | 61. | 74. | 90. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.17 |
| ROUTED TO | | | | | | | | |
| + | RANDB | .18 | 1 | FLOW | 34. | 61. | 73. | 89. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.17 |
| ROUTED TO | | | | | | | | |
| + | RANDB | .18 | 1 | FLOW | 34. | 61. | 73. | 89. |
| | | | | TIME | 12.25 | 12.17 | 12.17 | 12.17 |
| HYDROGRAPH AT | | | | | | | | |
| + | RANDA | .11 | 1 | FLOW | 52. | 86. | 101. | 121. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.17 |
| 2 COMBINED AT | | | | | | | | |
| + | RANDA | .29 | 1 | FLOW | 85. | 147. | 174. | 210. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.17 |
| ROUTED TO | | | | | | | | |
| + | RANDA | .29 | 1 | FLOW | 59. | 89. | 127. | 179. |
| | | | | TIME | 12.42 | 12.50 | 12.42 | 12.33 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | ** PEAK STAGES IN FEET ** | | | | |
| | | | 1 | STAGE | 928.59 | 929.84 | 930.27 | 930.40 |
| | | | | TIME | 12.42 | 12.50 | 12.42 | 12.33 |
| HYDROGRAPH AT | | | | | | | | |
| + | CTYLW | .03 | 1 | FLOW | 23. | 36. | 41. | 48. |
| | | | | TIME | 12.08 | 12.08 | 12.08 | 12.08 |
| 2 COMBINED AT | | | | | | | | |
| + | CTYLW | .32 | 1 | FLOW | 73. | 106. | 146. | 207. |
| | | | | TIME | 12.25 | 12.25 | 12.42 | 12.33 |
| ROUTED TO | | | | | | | | |
| + | RANDA | .32 | 1 | FLOW | 73. | 106. | 139. | 207. |
| | | | | TIME | 12.25 | 12.33 | 12.50 | 12.42 |
| HYDROGRAPH AT | | | | | | | | |
| + | CTYLE | .06 | 1 | FLOW | 47. | 71. | 82. | 96. |
| | | | | TIME | 12.08 | 12.08 | 12.08 | 12.08 |
| 2 COMBINED AT | | | | | | | | |
| + | 60" | .38 | 1 | FLOW | 115. | 166. | 189. | 250. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.42 |
| ROUTED TO | | | | | | | | |
| + | 60" | .38 | 1 | FLOW | 112. | 162. | 182. | 233. |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.50 |
| | | | | ** PEAK STAGES IN FEET ** | | | | |
| | | | 1 | STAGE | 913.75 | 915.07 | 915.84 | 917.64 |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.50 |
| ROUTED TO | | | | | | | | |
| + | 60" | .38 | 1 | FLOW | 112. | 162. | 181. | 233. |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.50 |
| ROUTED TO | | | | | | | | |
| + | 60" | .38 | 1 | FLOW | 110. | 161. | 180. | 232. |
| | | | | TIME | 12.25 | 12.25 | 12.33 | 12.50 |
| HYDROGRAPH AT | | | | | | | | |
| + | NVEST | .10 | 1 | FLOW | 39. | 67. | 80. | 96. |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | ABBEY | .07 | 1 | FLOW | 47. | 70. | 81. | 94. |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | RANJ | .18 | 1 | FLOW | 47. | 83. | 100. | 122. |
| | | | | TIME | 12.58 | 12.50 | 12.50 | 12.50 |
| 4 COMBINED AT | | | | | | | | |
| + | JUNCT | .74 | 1 | FLOW | 231. | 362. | 421. | 508. |
| | | | | TIME | 12.33 | 12.33 | 12.33 | 12.33 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | |
| + | JUNCT | .74 | 1 | FLOW | 159. | 265. | 323. | 407. |
| | | | | TIME | 12.83 | 12.75 | 12.67 | 12.67 |
| | | | | ** PEAK STAGES IN FEET ** | | | | |
| | | | 1 | STAGE | 904.55 | 905.05 | 905.23 | 905.49 |
| | | | | TIME | 12.83 | 12.75 | 12.67 | 12.67 |
| HYDROGRAPH AT | | | | | | | | |
| + | LEXGR | .14 | 1 | FLOW | 71. | 118. | 139. | 166. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.17 |
| ROUTED TO | | | | | | | | |
| + | LEXGR | .14 | 1 | FLOW | 45. | 101. | 125. | 153. |
| | | | | TIME | 12.42 | 12.33 | 12.25 | 12.25 |
| | | | | ** PEAK STAGES IN FEET ** | | | | |
| | | | 1 | STAGE | 906.03 | 906.26 | 906.36 | 906.47 |
| | | | | TIME | 12.42 | 12.33 | 12.25 | 12.25 |
| ROUTED TO | | | | | | | | |
| + | LEXGR | .14 | 1 | FLOW | 44. | 102. | 121. | 148. |
| | | | | TIME | 12.67 | 12.42 | 12.50 | 12.42 |
| 2 COMBINED AT | | | | | | | | |
| + | JUNCT | .88 | 1 | FLOW | 198. | 352. | 428. | 531. |
| | | | | TIME | 12.75 | 12.58 | 12.58 | 12.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | PHILL | 1.04 | 1 | FLOW | 236. | 414. | 494. | 609. |
| | | | | TIME | 12.75 | 12.58 | 12.58 | 12.58 |

*** NORMAL END OF HEC-1 ***

RANDOLPH STREET DRAIN

**EXISTING CONDITION**

# HYDRAULIC ANALYSIS

```
1*****************************************************
*************************************
 *  WATER SURFACE PROFILES                          *                                  *  U.S. ARMY CORPS OF ENGI
 *  VERSION OF NOVEMBER 1976                        *                                  *  THE HYDROLOGIC ENGINEER
 *  UPDATED MAY 1984                                *                                  *  609 SECOND STREET, SUIT
 *  IBM-PC-XT VERSION AUGUST 1985                   *                                  *  DAVIS, CALIFORNIA 95616
 *  RUN DATE  01-13-92   TIME  09:32:21               *                                  *  (916) 440-2105 (FTS)
 ****************************************************                                  ***************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

```
1
  01-13-92     09:32:22                                                                                    PAGE
```

THIS RUN EXECUTED 01-13-92

```
 ************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
   ERROR CORR -  01,02,03,04,05,06
   MODIFICATION -  50,51,52,53,54,55,56
   IBM-PC-XT VERSION AUGUST 1985
 ************************************************
```

T1 RANDOLPH DRAIN FLOOD ANALYSIS - 10/87 APPEAL FILE:APPEAL

T2 CITY OF NORTHVILLE JOB NO. 6800-50 10-YEAR EVENT

T3 RANDOLPH DRAIN

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 2. | 0. | 0. | .000000 | .00 | .0 | 0. | 886.340 | .000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 150.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| QT | 4.000 | 236.000 | 414.000 | 494.000 | 609.000 | .000 | .000 | .000 | .000 | .000 |
| NC | .030 | .030 | .030 | .400 | .600 | .000 | .000 | .000 | .000 | .000 |
| X1 | 1.000 | 8.000 | 32.000 | 44.000 | .000 | .000 | .000 | .000 | -.600 | .000 |
| GR | 889.600 | .000 | 888.500 | 20.000 | 883.600 | 32.000 | 882.900 | 34.000 | 882.900 | 42.000 |
| GR | 883.800 | 44.000 | 889.800 | 57.000 | 890.600 | 79.000 | .000 | .000 | .000 | .000 |
| X1 | 2.000 | 8.000 | 32.000 | 44.000 | 55.000 | 45.000 | 52.000 | .000 | .000 | .000 |
| GR | 889.600 | .000 | 888.500 | 20.000 | 883.600 | 32.000 | 882.900 | 34.000 | 882.900 | 36.000 |
| GR | 883.800 | 44.000 | 889.800 | 57.000 | 890.600 | 79.000 | .000 | .000 | .000 | .000 |
| X1 | 2.250 | 10.000 | 32.000 | 42.000 | 154.000 | 157.000 | 159.000 | .000 | .000 | .000 |
| GR | 890.000 | .000 | 888.800 | 20.000 | 885.800 | 32.000 | 884.600 | 34.000 | 884.600 | 36.000 |
| GR | 884.900 | 40.000 | 885.100 | 42.000 | 888.500 | 52.000 | 889.800 | 57.000 | 891.200 | 72.000 |
| X1 | 2.500 | 11.000 | 127.000 | 139.000 | 154.000 | 156.000 | 159.000 | .000 | .000 | .000 |
| GR | 894.000 | .000 | 892.000 | 50.000 | 890.000 | 105.000 | 888.000 | 127.000 | 886.400 | 129.000 |
| GR | 886.300 | 132.000 | 886.700 | 136.000 | 888.000 | 139.000 | 892.000 | 166.000 | 894.000 | 206.000 |
| GR | 894.000 | 225.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 3.000 | 11.000 | 63.000 | 72.000 | 582.000 | 482.000 | 637.000 | .000 | .000 | .000 |
| GR | 898.700 | .000 | 896.400 | 25.000 | 894.900 | 50.000 | 894.600 | 63.000 | 893.300 | 64.000 |
| GR | 893.200 | 67.000 | 893.600 | 71.000 | 894.600 | 72.000 | 895.500 | 100.000 | 896.700 | 125.000 |
| GR | 898.200 | 143.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| NC | .060 | .060 | .035 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 3.500 | 14.000 | 135.000 | 146.000 | 710.000 | 615.000 | 750.000 | .000 | -1.300 | .000 |
| GR | 906.000 | .000 | 904.000 | 66.000 | 903.000 | 91.000 | 902.300 | 116.000 | 902.100 | 135.000 |
| GR | 901.300 | 136.000 | 900.500 | 140.000 | 901.400 | 143.000 | 901.800 | 146.000 | 902.400 | 166.000 |
| GR | 903.100 | 191.000 | 904.100 | 216.000 | 905.300 | 241.000 | 906.500 | 255.000 | .000 | .000 |
| X1 | 3.750 | 10.000 | 281.000 | 291.000 | 195.000 | 265.000 | 250.000 | .000 | .000 | .000 |
| GR | 904.400 | .000 | 904.000 | 255.000 | 902.000 | 280.000 | 901.200 | 281.000 | 899.900 | 285.000 |
| GR | 899.800 | 288.000 | 901.700 | 291.000 | 902.000 | 315.000 | 904.000 | 350.000 | 906.000 | 387.000 |
| X1 | 4.000 | 14.000 | 135.000 | 146.000 | 230.000 | 245.000 | 265.000 | .000 | .000 | .000 |
| GR | 906.000 | .000 | 904.000 | 66.000 | 903.000 | 91.000 | 902.300 | 116.000 | 902.100 | 135.000 |
| GR | 901.300 | 136.000 | 900.500 | 140.000 | 901.400 | 143.000 | 901.800 | 146.000 | 902.400 | 166.000 |
| GR | 903.100 | 191.000 | 904.100 | 216.000 | 905.300 | 241.000 | 906.500 | 255.000 | .000 | .000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| QT | 4.000 | 159.000 | 265.000 | 323.000 | 407.000 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | 7.100 | 7.100 | 7.100 | .000 | .000 | 125.000 | 332.000 | 157.000 | 267.000 |
| X1 | 5.000 | 15.000 | 214.000 | 232.000 | 905.000 | 920.000 | 915.000 | .000 | .000 | .000 |
| GR | 906.000 | .000 | 908.000 | 125.000 | 906.000 | 135.000 | 904.000 | 145.000 | 903.800 | 157.000 |
| GR | 903.500 | 182.000 | 903.600 | 207.000 | 903.100 | 214.000 | 902.600 | 225.000 | 903.100 | 229.000 |
| GR | 903.600 | 232.000 | 903.600 | 257.000 | 904.500 | 282.000 | 905.400 | 307.000 | 906.200 | 332.000 |
| | | | | | | | | | | |
| ET | .000 | 9.100 | 9.100 | 9.100 | 9.100 | .000 | .000 | .000 | 110.000 | 330.000 |
| X1 | 5.500 | 18.000 | 170.000 | 270.000 | 280.000 | 305.000 | 285.000 | .000 | .000 | .000 |
| GR | 906.000 | .000 | 908.000 | 110.000 | 906.000 | 118.000 | 904.000 | 126.000 | 902.800 | 145.000 |
| GR | 902.900 | 170.000 | 902.300 | 195.000 | 902.700 | 220.000 | 902.400 | 245.000 | 903.000 | 270.000 |
| GR | 903.100 | 295.000 | 903.000 | 320.000 | 903.700 | 345.000 | 904.000 | 370.000 | 904.000 | 395.000 |
| GR | 904.400 | 420.000 | 905.100 | 445.000 | 906.000 | 465.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| QT | 4.000 | 110.000 | 161.000 | 180.000 | 232.000 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | 9.100 | 9.100 | 9.100 | 9.100 | .000 | .000 | .000 | 113.000 | 175.000 |
| X1 | 6.000 | 15.000 | 160.000 | 170.000 | 160.000 | 170.000 | 160.000 | .000 | .000 | .000 |
| GR | 905.200 | .000 | 905.300 | 25.000 | 905.700 | 50.000 | 905.400 | 75.000 | 906.000 | 100.000 |
| GR | 905.700 | 125.000 | 905.100 | 160.000 | 905.300 | 170.000 | 905.900 | 172.000 | 906.100 | 175.000 |
| GR | 906.900 | 200.000 | 907.400 | 225.000 | 907.600 | 250.000 | 908.800 | 275.000 | 909.500 | 300.000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | .200 | 31.800 | .000 | .000 |
| X1 | 6.900 | 9.000 | 10.000 | 16.250 | 80.000 | 80.000 | 80.000 | .000 | .000 | .000 |
| GR | 909.000 | .000 | 906.700 | 8.000 | 905.500 | 10.000 | 905.300 | 11.000 | 905.300 | 16.000 |
| GR | 905.500 | 16.250 | 906.200 | 17.000 | 906.200 | 19.000 | 910.000 | 32.000 | .000 | .000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 75.000 | 208.000 | .000 | .000 |
| X1 | 6.940 | 13.000 | 95.000 | 105.000 | 20.000 | 20.000 | 20.000 | .000 | -1.020 | .000 |
| GR | 909.800 | .000 | 911.300 | 25.000 | 912.200 | 50.000 | 912.800 | 75.000 | 907.600 | 95.000 |
| GR | 906.700 | 97.000 | 906.400 | 100.000 | 906.600 | 102.000 | 907.500 | 105.000 | 916.200 | 134.000 |
| GR | 916.600 | 159.000 | 917.300 | 184.000 | 917.400 | 209.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 75.000 | 208.000 | .000 | .000 |
| X1 | 6.950 | 13.000 | 95.000 | 105.000 | 40.000 | 40.000 | 40.000 | .000 | -.870 | .000 |
| GR | 909.800 | .000 | 911.300 | 25.000 | 912.200 | 50.000 | 912.800 | 75.000 | 907.600 | 95.000 |
| GR | 906.700 | 97.000 | 906.400 | 100.000 | 906.600 | 102.000 | 907.500 | 105.000 | 916.200 | 134.000 |
| GR | 916.600 | 159.000 | 917.300 | 184.000 | 917.400 | 209.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 75.000 | 208.000 | .000 | .000 |
| X1 | 7.000 | .000 | .000 | .000 | 225.000 | 225.000 | 225.000 | .000 | .900 | .000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 1.000 | 79.000 | .000 | .000 |
| X1 | 8.000 | 10.000 | 5.000 | 55.000 | 578.000 | 578.000 | 578.000 | .000 | .000 | .000 |
| X5 | 4.000 | 913.480 | 914.410 | 915.110 | 917.430 | .000 | .000 | .000 | .000 | .000 |
| GR | 917.700 | .000 | 917.400 | 5.000 | 910.100 | 26.000 | 909.300 | 27.000 | 909.300 | 30.000 |
| GR | 909.100 | 33.500 | 909.600 | 34.300 | 916.700 | 55.000 | 917.300 | 60.000 | 918.100 | 80.000 |
| | | | | | | | | | | |
| QT | 4.000 | 73.000 | 106.000 | 139.000 | 207.000 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 1.000 | 161.000 | .000 | .000 |
| X1 | 9.000 | 10.000 | 70.500 | 95.500 | 185.000 | 185.000 | 185.000 | .000 | .000 | .000 |
| GR | 920.200 | .000 | 920.100 | 25.000 | 919.700 | 40.000 | 918.700 | 65.000 | 913.500 | 70.500 |
| GR | 910.200 | 80.500 | 910.200 | 85.500 | 913.500 | 95.500 | 920.000 | 116.000 | 921.000 | 161.000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 1.000 | 161.000 | .000 | .000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | .030 | .030 | .030 | .800 | .900 | .000 | .000 | .000 | .000 | .000 |
| X1 | 10.000 | 10.000 | 70.500 | 95.500 | 8.600 | 8.600 | 8.600 | .000 | .000 | .000 |
| GR | 920.200 | .000 | 920.100 | 25.000 | 919.700 | 40.000 | 918.700 | 65.000 | 915.500 | 70.500 |
| GR | 914.500 | 80.500 | 914.500 | 85.500 | 915.500 | 95.500 | 920.000 | 116.000 | 921.000 | 161.000 |
| | | | | | | | | | | |
| NC | .030 | .030 | .030 | .400 | .600 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 1.000 | 108.000 | .000 | .000 |
| X1 | 11.000 | 8.000 | 37.000 | 60.000 | 179.000 | 179.000 | 179.000 | .000 | .000 | .000 |
| GR | 920.900 | .000 | 918.800 | 37.000 | 915.100 | 50.000 | 915.100 | 53.000 | 918.000 | 60.000 |
| GR | 918.300 | 90.000 | 920.000 | 185.000 | 920.900 | 190.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| X1 | 11.900 | 7.000 | 15.000 | 43.000 | 300.000 | 300.000 | 300.000 | .000 | .000 | .000 |
| GR | 924.400 | .000 | 920.000 | 15.000 | 916.100 | 31.500 | 916.100 | 34.500 | 919.400 | 43.000 |
| GR | 920.000 | 68.000 | 922.000 | 88.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 1.000 | 309.000 | .000 | .000 |
| X1 | 12.000 | 8.000 | 70.000 | 110.000 | 100.000 | 100.000 | 95.000 | .000 | .000 | .000 |
| GR | 923.400 | .000 | 922.000 | 40.000 | 920.400 | 70.000 | 920.200 | 100.000 | 920.400 | 110.000 |
| GR | 920.900 | 135.000 | 922.000 | 195.000 | 924.000 | 310.000 | .000 | .000 | .000 | .000 |
| EJ | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

1

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 1

CCHV= .400 CEHV= .600

*SECNO 1.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.00 | 4.04 | 886.34 | .00 | 886.34 | 886.54 | .20 | .00 | .00 | 883.00 |
| 236. | 30. | 185. | 22. | 14. | 47. | 11. | 0. | 0. | 883.20 |
| .00 | 2.16 | 3.94 | 2.05 | .030 | .030 | .030 | .000 | 882.30 | 23.82 |
| .001063 | 0. | 0. | 0. | 0 | 0 | 0 | .00 | 26.98 | 50.80 |

0

*SECNO 2.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.00 | 3.46 | 886.36 | .00 | .00 | 886.71 | .35 | .08 | .09 | 883.60 |
| 236. | 27. | 190. | 19. | 9. | 37. | 7. | 0. | 0. | 883.80 |
| .00 | 2.86 | 5.11 | 2.68 | .030 | .030 | .030 | .000 | 882.90 | 25.24 |
| .002398 | 55. | 52. | 45. | 2 | 0 | 0 | .00 | 24.31 | 49.55 |

0

*SECNO 2.250

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.25 | 2.65 | 887.25 | 887.25 | .00 | 888.09 | .84 | .64 | .29 | 885.80 |
| 236. | 15. | 190. | 31. | 4. | 24. | 7. | 0. | 0. | 885.10 |
| .01 | 3.59 | 7.91 | 4.59 | .030 | .030 | .030 | .000 | 884.60 | 26.18 |
| .008346 | 154. | 159. | 157. | 0 | 15 | 0 | .00 | 22.16 | 48.34 |

0

*SECNO 2.500

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.50 | 2.86 | 889.16 | 889.16 | .00 | 889.85 | .69 | 1.22 | .06 | 888.00 |
| 236. | 21. | 202. | 13. | 7. | 28. | 5. | 0. | 0. | 888.00 |
| .02 | 2.90 | 7.10 | 2.89 | .030 | .030 | .030 | .000 | 886.30 | 114.26 |
| .007136 | 154. | 159. | 156. | 2 | 8 | 0 | .00 | 32.55 | 146.82 |

0

*SECNO 3.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.00 | 2.48 | 895.68 | 895.68 | .00 | 896.09 | .41 | 4.23 | .11 | 894.60 |
| 236. | 58. | 126. | 53. | 17. | 20. | 18. | 1. | 1. | 894.60 |
| .05 | 3.38 | 6.39 | 2.95 | .030 | .030 | .030 | .000 | 893.20 | 37.08 |
| .006824 | 582. | 637. | 482. | 20 | 9 | 0 | .00 | 66.57 | 103.65 |

0

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

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*SECNO 3.500
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.50      2.55    901.75    901.75       .00    902.12       .37      5.86       .02    900.80
     236.       50.      131.       55.       26.       21.       27.       2.        2.     900.50
      .10      1.91      6.32      2.07      .060      .035      .060      .000    899.20     89.66
   .010195      710.      750.      615.         9         8         0       .00     99.68    189.34
0
 *SECNO 3.750
     3.75      3.51    903.31       .00       .00    903.54       .23      1.35       .06    901.20
     236.       15.      140.       81.       12.       29.       50.       2.        3.     901.70
      .11      1.18      4.82      1.63      .060      .035      .060      .000    899.80     263.67
   .003421      195.      250.      265.         3         0         0       .00     74.20    337.87
0
 *SECNO 4.000
     4.00      3.49    903.99       .00       .00    904.03       .05       .42       .07    902.10
     236.       77.       80.       78.       80.       31.       79.       3.        3.     901.80
      .16       .97      2.60       .99      .060      .035      .060      .000    900.50     66.20
   .001003      230.      265.      245.         3         0         0       .00    147.09    213.30
0
 *SECNO 5.000

 3470 ENCROACHMENT STATIONS=      125.0      332.0  TYPE=      1  TARGET=      207.000
     5.00      2.22    904.82       .00       .00    904.84       .02       .80       .01    903.10
     159.       64.       60.       35.       85.       34.       52.       7.        6.     903.60
      .39       .76      1.75       .68      .060      .035      .060      .000    902.60     140.85
   .000732      905.      915.      920.         3         0         0       .00    150.31    291.16
0
 *SECNO 5.500

 3470 ENCROACHMENT STATIONS=      110.0      330.0  TYPE=      1  TARGET=      220.000
     5.50      2.58    904.88       .00       .00    904.88       .00       .03       .01    902.90
     159.       20.      113.       26.       80.      229.      109.       9.        8.     903.00
      .58       .24       .49       .24      .060      .035      .060      .000    902.30     122.47
   .000044      280.      285.      305.         2         0         0       .00    207.52    330.00
0
 *SECNO 6.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      113.0      175.0  TYPE=      1  TARGET=       62.000
     6.00       .91    906.01    906.01       .00    906.28       .27       .02       .16    905.10
     110.       62.       46.        2.       24.        8.        1.       10.        8.     905.30
      .59      2.58      5.66      1.84      .060      .035      .060      .000    905.10     113.00
   .023503      160.      160.      170.        20        22         0       .00     60.65    173.65
0
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*SECNO 6.900
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=        .2      31.8  TYPE=     1  TARGET=      31.600
     6.90      1.99    907.29    907.29      .00    907.98      .69      1.32      .26    905.50
     110.       7.       90.       13.       3.       12.       5.        10.       8.    905.50
      .59      2.45      7.31      2.45     .060      .035     .060      .000    905.30     5.96
   .012254      80.       80.       80.        3        17        0       .00     16.75    22.72
0
 *SECNO 6.940

 3470 ENCROACHMENT STATIONS=       75.0     208.0  TYPE=     1  TARGET=     133.000
      6.94      2.59    907.97       .00       .00    908.27      .31       .14       .16    906.58
      110.       5.       101.       5.        4.       22.       4.        10.       8.    906.48
       .59      1.26      4.63      1.31     .060      .035     .060      .000    905.38    89.68
   .004416       20.       20.       20.        4         0        0       .00     20.27   109.94
0
 *SECNO 6.950

 3470 ENCROACHMENT STATIONS=       75.0     208.0  TYPE=     1  TARGET=     133.000
      6.95      2.63    908.16       .00       .00    908.45      .29       .17       .01    906.73
      110.       5.       100.       5.        4.       22.       4.        10.       8.    906.63
       .60      1.24      4.50      1.28     .060      .035     .060      .000    905.53    89.48
   .004052       40.       40.       40.        2         0        0       .00     20.63   110.11
0
 *SECNO 7.000

 3470 ENCROACHMENT STATIONS=       75.0     208.0  TYPE=     1  TARGET=     133.000
      7.00      2.64    909.07       .00       .00    909.36      .29       .91       .00    907.63
      110.       5.       100.       5.        4.       22.       4.        10.       8.    907.53
       .61      1.23      4.48      1.28     .060      .035     .060      .000    906.43    89.46
   .004006      225.      225.      225.        2         0        0       .00     20.68   110.14
0
1
  01-13-92     09:32:22                                                                    PAGE


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *SECNO 8.000
  WATER EL=X5 CARD=   913.480

 3470 ENCROACHMENT STATIONS=        1.0      79.0  TYPE=     1  TARGET=      78.000
      8.00      4.38    913.48       .00       .00    913.52      .04       .54       .10    917.40
      110.       0.       110.       0.        0.       73.       0.        11.       9.    916.70
       .72       .00      1.51       .00     .060      .035     .060      .000    909.10    16.28
   .000402      578.      578.      578.        0         0        0       .00     29.34    45.61
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 *SECNO 9.000

 3470 ENCROACHMENT STATIONS=       1.0     161.0  TYPE=     1  TARGET=     160.000
      9.00      3.36   913.56      .00       .00   913.60      .03       .08       .00   913.50
       73.        0.      73.       0.        0.      51.       0.       11.        9.   913.50
       .75       .01     1.43      .01      .060     .035     .060      .000   910.20    70.43
    .000461     185.     185.     185.         2        0        0       .00    25.27    95.70
0
 CCHV=    .800 CEHV=    .900
 *SECNO 10.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=       1.0     161.0  TYPE=     1  TARGET=     160.000
     10.00      1.04   915.54   915.54       .00   915.86      .33       .01       .27   915.50
       73.        0.      73.       0.        0.      16.       0.       11.        9.   915.50
       .75       .06     4.60      .06      .030     .030     .030      .000   914.50    70.44
    .015861       9.       9.       9.        20       17        0       .00    25.22    95.66
0
 CCHV=    .400 CEHV=    .600
 *SECNO 11.000

 3470 ENCROACHMENT STATIONS=       1.0     108.0  TYPE=     1  TARGET=     107.000
     11.00      2.04   917.14      .00       .00   917.38      .24      1.48       .04   918.80
       73.        0.      73.       0.        0.      19.       0.       11.        9.   918.00
       .77       .00     3.93      .00      .030     .030     .030      .000   915.10    42.80
    .005072     179.     179.     179.         3        0        0       .00    15.15    57.95
0
1
  01-13-92     09:32:22                                                                  PAGE


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *SECNO 11.900
     11.90      2.26   918.36      .00       .00   918.50      .14      1.08       .04   920.00
       73.        0.      73.       0.        0.      24.       0.       11.        9.   919.40
       .80       .00     3.01      .00      .030     .030     .030      .000   916.10    21.93
    .002696     300.     300.     300.         4        0        0       .00    18.40    40.33
0
 *SECNO 12.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=       1.0     309.0  TYPE=     1  TARGET=     308.000
     12.00       .55   920.75   920.75       .00   920.94      .18       .50       .02   920.40
       73.        2.      65.       6.        1.      18.       3.       11.        9.   920.40
       .80      1.90     3.56     1.90      .030     .030     .030      .000   920.20    63.35
    .014821     100.      95.     100.        20       14        0       .00    64.37   127.72
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************


T1+     RANDOLPH DRAIN FLOOD ANALYSIS - 10/87 APPEAL  FILE:APPEAL
T2      CITY OF NORTHVILLE  JOB NO. 6800-50  50-YEAR EVENT
T3      RANDOLPH DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       3.        0.        0.   .000000       .00        .0        0.   888.050      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.000     .000    -1.000      .000      .000      .000      .000      .000      .000      .000

1
 01-13-92     09:32:22                                                                          PAGE


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 2

 CCHV=    .400 CEHV=    .600
 *SECNO 1.000
      1.00      5.75    888.05       .00    888.05    888.26       .21       .00       .00    883.00
      414.       75.      281.       58.       31.       67.       25.        0.        0.    883.20
       .00      2.40      4.17      2.27      .030      .030      .030      .000    882.30     17.27
    .000734       0.        0.        0.         0         0         0       .00     37.23     54.51
0
 *SECNO 2.000
      2.00      5.16    888.06       .00       .00    888.37       .31       .05       .06    883.60
      414.       70.      289.       54.       24.       58.       20.        0.        0.    883.80
       .00      2.89      5.02      2.77      .030      .030      .030      .000    882.90     21.08
    .001294       55.       52.       45.         2         0         0       .00     32.15     53.23
0
 *SECNO 2.250

 3301 HV CHANGED MORE THAN HVINS

      2.25      3.60    888.20       .00       .00    889.13       .92       .39       .37    885.80
      414.       51.      290.       73.       12.       34.       14.        0.        0.    885.10
       .01      4.39      8.66      5.12      .030      .030      .030      .000    884.60     22.36
    .006381       154.      159.      157.         1         0         0       .00     28.79     51.15
0
```

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*SECNO 2.500
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.50     3.58   889.88   889.88      .00   890.65      .77     1.00      .06   888.00
     414.      73.     296.      45.      19.      37.      12.       1.       0.    888.00
      .02     3.77     7.99     3.76     .030     .030     .030     .000   886.30   106.33
  .006335     154.     159.     156.        5        5        0      .00    45.36   151.69
0
*SECNO 3.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.00     2.90   896.10   896.10      .00   896.55      .45     3.80      .13   894.60
     414.     120.     165.     128.      30.      24.      33.       2.       1.    894.60
      .05     4.06     7.03     3.87     .030     .030     .030     .000   893.20    29.97
  .006515     582.     637.     482.       16       14        0      .00    82.56   112.53
0
1
 01-13-92     09:32:22                                                                    PAGE


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 3.500
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.50     2.91   902.11   902.11      .00   902.56      .44     5.88      .00   900.80
     414.     113.     184.     117.      44.      25.      44.       3.       3.    900.50
      .09     2.55     7.48     2.65     .060     .035     .060     .000   899.20    80.67
  .011295     710.     750.     615.        9        5        0      .00   118.17   198.83
0
*SECNO 3.750
     3.75     4.08   903.88      .00      .00   904.18      .31     1.57      .06   901.20
     414.      38.     206.     169.      24.      35.      79.       4.       3.    901.70
      .11     1.59     5.94     2.14     .060     .035     .060     .000   899.80   256.63
  .004113     195.     250.     265.        2        0        0      .00    91.09   347.72
0
*SECNO 4.000
     4.00     4.16   904.66      .00      .00   904.71      .05      .43      .10   902.10
     414.     152.     111.     151.     134.      38.     129.       5.       4.    901.80
      .15     1.14     2.89     1.17     .060     .035     .060     .000   900.50    44.04
  .000932     230.     265.     245.        3        0        0      .00   183.74   227.78
0
*SECNO 5.000

3470 ENCROACHMENT STATIONS=     125.0     332.0  TYPE=     1  TARGET=     207.000
     5.00     2.80   905.40      .00   904.82   905.42      .02      .70      .01   903.10
     265.     112.      84.      70.     128.      45.      91.      11.       8.    903.60
      .37      .87     1.88      .77     .060     .035     .060     .000   902.60   137.96
  .000591     905.     915.     920.        3        0        0      .00   169.31   307.26
```

*SECNO 5.500

3470 ENCROACHMENT STATIONS= 110.0 330.0 TYPE= 1 TARGET= 220.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.50 | 3.17 | 905.47 | .00 | 904.88 | 905.47 | .00 | .04 | .01 | 902.90 |
| 265. | 35. | 183. | 47. | 109. | 288. | 144. | 14. | 9. | 903.00 |
| .51 | .32 | .64 | .32 | .060 | .035 | .060 | .000 | 902.30 | 120.14 |
| .000055 | 280. | 285. | 305. | 2 | 0 | 0 | .00 | 209.86 | 330.00 |

0

*SECNO 6.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 113.0 175.0 TYPE= 1 TARGET= 62.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.00 | 1.07 | 906.17 | 906.17 | 906.01 | 906.50 | .33 | .02 | .20 | 905.10 |
| 161. | 96. | 62. | 3. | 32. | 10. | 2. | 15. | 9. | 905.30 |
| .52 | 3.03 | 6.42 | 2.12 | .060 | .035 | .060 | .000 | 905.10 | 113.00 |
| .023912 | 160. | 160. | 170. | 20 | 22 | 0 | .00 | 62.00 | 175.00 |

0

*SECNO 6.900

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= .2 31.8 TYPE= 1 TARGET= 31.600

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.90 | 2.43 | 907.73 | 907.73 | 907.29 | 908.55 | .82 | 1.29 | .29 | 905.50 |
| 161. | 14. | 123. | 24. | 5. | 15. | 8. | 15. | 10. | 905.50 |
| .53 | 2.73 | 8.15 | 2.86 | .060 | .035 | .060 | .000 | 905.30 | 4.41 |
| .011606 | 80. | 80. | 80. | 2 | 17 | 0 | .00 | 19.83 | 24.24 |

0

*SECNO 6.940

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.94 | 3.11 | 908.49 | .00 | 907.97 | 908.86 | .37 | .13 | .18 | 906.58 |
| 161. | 11. | 140. | 10. | 7. | 27. | 7. | 15. | 10. | 906.48 |
| .53 | 1.51 | 5.18 | 1.56 | .060 | .035 | .060 | .000 | 905.38 | 87.65 |
| .004149 | 20. | 20. | 20. | 5 | 0 | 0 | .00 | 24.04 | 111.70 |

0

*SECNO 6.950

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.95 | 3.14 | 908.67 | .00 | 908.16 | 909.02 | .36 | .16 | .00 | 906.73 |
| 161. | 11. | 140. | 11. | 7. | 27. | 7. | 15. | 10. | 906.63 |
| .53 | 1.50 | 5.11 | 1.54 | .060 | .035 | .060 | .000 | 905.53 | 87.54 |
| .003978 | 40. | 40. | 40. | 2 | 0 | 0 | .00 | 24.26 | 111.80 |

0

*SECNO 7.000

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7.00 | 3.13 | 909.56 | .00 | 909.07 | 909.92 | .36 | .89 | .00 | 907.63 |
| 161. | 11. | 139. | 11. | 7. | 27. | 7. | 15. | 10. | 907.53 |
| .54 | 1.50 | 5.11 | 1.54 | .060 | .035 | .060 | .000 | 906.43 | 87.54 |
| .003973 | 225. | 225. | 225. | 1 | 0 | 0 | .00 | 24.26 | 111.80 |

0

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 8.000

WATER EL=X5 CARD= 914.410

3470 ENCROACHMENT STATIONS= 1.0 79.0 TYPE= 1 TARGET= 78.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.00 | 5.31 | 914.41 | .00 | 913.48 | 914.45 | .04 | .48 | .13 | 917.40 |
| 161. | 0. | 161. | 0. | 0. | 103. | 0. | 16. | 10. | 916.70 |
| .65 | .00 | 1.57 | .00 | .060 | .035 | .060 | .000 | 909.10 | 13.60 |
| .000345 | 578. | 578. | 578. | 0 | 0 | 0 | .00 | 34.72 | 48.32 |

0

*SECNO 9.000

3470 ENCROACHMENT STATIONS= 1.0 161.0 TYPE= 1 TARGET= 160.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.00 | 4.28 | 914.48 | .00 | 913.56 | 914.51 | .03 | .06 | .00 | 913.50 |
| 106. | 0. | 106. | 0. | 1. | 74. | 2. | 16. | 10. | 913.50 |
| .68 | .21 | 1.43 | .25 | .060 | .035 | .060 | .000 | 910.20 | 69.47 |
| .000281 | 185. | 185. | 185. | 2 | 0 | 0 | .00 | 29.12 | 98.59 |

0

CCHV= .800 CEHV= .900

*SECNO 10.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 1.0 161.0 TYPE= 1 TARGET= 160.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10.00 | 1.21 | 915.71 | 915.71 | 915.54 | 916.13 | .42 | .01 | .35 | 915.50 |
| 106. | 0. | 106. | 0. | 0. | 20. | 0. | 17. | 10. | 915.50 |
| .68 | .06 | 5.21 | 1.32 | .030 | .030 | .030 | .000 | 914.50 | 70.14 |
| .014696 | 9. | 9. | 9. | 20 | 17 | 0 | .00 | 26.33 | 96.47 |

0

CCHV= .400 CEHV= .600

*SECNO 11.000

3470 ENCROACHMENT STATIONS= 1.0 108.0 TYPE= 1 TARGET= 107.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11.00 | 2.33 | 917.43 | .00 | 917.14 | 917.76 | .32 | 1.59 | .04 | 918.80 |
| 106. | 0. | 106. | 0. | 0. | 23. | 0. | 17. | 10. | 918.00 |
| .69 | .00 | 4.57 | .00 | .030 | .030 | .030 | .000 | 915.10 | 41.79 |
| .005927 | 179. | 179. | 179. | 3 | 0 | 0 | .00 | 16.84 | 58.64 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | KNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 11.900

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11.90 | 2.68 | 918.78 | .00 | 918.36 | 918.95 | .16 | 1.12 | .06 | 920.00 |
| 106. | 0. | 106. | 0. | 0. | 33. | 0. | 17. | 10. | 919.40 |
| .72 | .00 | 3.26 | .00 | .030 | .030 | .030 | .000 | 916.10 | 20.15 |
| .002577 | 300. | 300. | 300. | 4 | 0 | 0 | .00 | 21.26 | 41.41 |

0

*SECNO 12.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 1.0 309.0 TYPE= 1 TARGET= 308.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12.00 | .66 | 920.86 | 920.86 | 920.75 | 921.08 | .22 | .48 | .04 | 920.40 |
| 106. | 4. | 90. | 12. | 2. | 22. | 5. | 17. | 11. | 920.40 |
| .73 | 2.22 | 4.02 | 2.22 | .030 | .030 | .030 | .000 | 920.20 | 61.39 |
| .014286 | 100. | 95. | 100. | 20 | 11 | 0 | .00 | 71.58 | 132.96 |

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THIS RUN EXECUTED 01-13-92

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HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984

ERROR CORR - 01,02,03,04,05,06

MODIFICATION - 50,51,52,53,54,55,56

IBM-PC-XT VERSION AUGUST 1985

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T1      RANDOLPH DRAIN FLOOD ANALYSIS - 10/87 APPEAL  FILE:APPEAL
T2      CITY OF NORTHVILLE  JOB NO. 6800-50  100-YEAR EVENT
T3      RANDOLPH DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       4.        0.        0.   .000000       .00        .0        0.   888.800      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000

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 01-13-92     09:32:22                                                                          PAGE

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 3

 CCHV=    .400 CEHV=    .600
 *SECNO 1.000
      1.00      6.50    888.80       .00    888.80    888.99       .19       .00       .00    883.00
      494.       108.      310.       76.       48.       76.       34.        0.        0.    883.20
       .00      2.27      4.06      2.24      .030      .030      .030      .000    882.30      3.64
   .000589        0.        0.        0.         0         0         0       .00     52.50     56.13
0
 *SECNO 2.000
      2.00      5.90    888.80       .00       .00    889.08       .28       .04       .06    883.60
      494.       97.      324.       73.       34.       67.       27.        0.        0.    883.80
       .00      2.86      4.87      2.71      .030      .030      .030      .000    882.90     14.51
   .001002        55.       52.       45.         2         0         0       .00     40.33     54.84
0
 *SECNO 2.250
      2.25      4.32    888.92       .00       .00    889.60       .68       .28       .24    885.80
      494.       81.      309.      104.       20.       41.       22.        1.        0.    885.10
       .01      4.12      7.60      4.81      .030      .030      .030      .000    884.60     17.89
   .003803        154.      159.      157.         0         0         0       .00     35.75     53.64
0
 *SECNO 2.500
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      2.50      3.85    890.15    890.15       .00    890.91       .77       .74       .05    888.00
      494.       105.      328.       61.       26.       40.       16.        1.        0.    888.00
       .02      4.11      8.14      3.96      .030      .030      .030      .000    886.30    100.98
   .005890        154.      159.      156.         4        15         0       .00     52.51     153.49
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*SECNO 3.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.00     3.05   896.25   896.25      .00   896.73      .47     3.62      .12   894.60
     494.     149.     181.     164.      35.      25.      40.      2.       1.    894.60
      .05     4.27     7.27     4.14     .030     .030     .030     .000   893.20    27.42
   .006444     582.     637.     482.       16       14        0      .00    88.30   115.72
0
1
 01-13-92     09:32:22                                                                    PAGE

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 3.500
     3.50     3.03   902.23   902.22      .00   902.72      .49     5.98      .01   900.80
     494.     142.     207.     146.      51.      26.      50.      4.       3.    900.50
      .09     2.79     7.99     2.89     .060     .035     .060     .000   899.20    77.76
   .012028     710.     750.     615.       11        5        0      .00   123.98   201.74
0
*SECNO 3.750
     3.75     4.28   904.08      .00      .00   904.40      .32     1.62      .07   901.20
     494.      53.     230.     211.      32.      37.      92.      5.       4.    901.70
      .10     1.64     6.24     2.30     .060     .035     .060     .000   899.80   200.41
   .004189     195.     250.     265.        1        0        0      .00   151.17   351.58
0
*SECNO 4.000
     4.00     4.39   904.89      .00      .00   904.94      .05      .43      .11   902.10
     494.     187.     124.     183.     155.      41.     148.      6.       5.    901.80
      .14     1.20     3.03     1.24     .060     .035     .060     .000   900.50    36.55
   .000940     230.     265.     245.        3        0        0      .00   195.96   232.51
0
*SECNO 5.000

3470 ENCROACHMENT STATIONS=     125.0     332.0  TYPE=     1  TARGET=     207.000
     5.00     3.03   905.63      .00   904.82   905.66      .03      .70      .01   903.10
     323.     136.      97.      90.     145.      49.     109.      13.      8.    903.60
      .35      .94     1.99      .83     .060     .035     .060     .000   902.60   136.82
   .000589     905.     915.     920.        3        0        0      .00   177.54   314.36
0
*SECNO 5.500

3470 ENCROACHMENT STATIONS=     110.0     330.0  TYPE=     1  TARGET=     220.000
     5.50     3.40   905.70      .00   904.88   905.70      .01      .04      .01   902.90
     323.      44.     222.      58.     121.     311.     158.      16.      10.    903.00
      .48      .36      .71      .36     .060     .035     .060     .000   902.30   119.21
   .000062     280.     285.     305.        2        0        0      .00   210.79   330.00
```

*SECNO 6.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 113.0 175.0 TYPE= 1 TARGET= 62.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.00 | 1.12 | 906.22 | 906.22 | 906.01 | 906.57 | .35 | .02 | .21 | 905.10 |
| 180. | 108. | 68. | 4. | 34. | 10. | 2. | 17. | 10. | 905.30 |
| .49 | 3.17 | 6.64 | 2.23 | .060 | .035 | .060 | .000 | 905.10 | 113.00 |
| .023822 | 160. | 160. | 170. | 20 | 17 | 0 | .00 | 62.00 | 175.00 |

0

*SECNO 6.900

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= .2 31.8 TYPE= 1 TARGET= 31.600

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.90 | 2.58 | 907.88 | 907.88 | 907.29 | 908.73 | .85 | 1.27 | .30 | 905.50 |
| 180. | 17. | 134. | 29. | 6. | 16. | 10. | 17. | 10. | 905.50 |
| .50 | 2.81 | 8.39 | 2.97 | .060 | .035 | .060 | .000 | 905.30 | 3.89 |
| .011339 | 80. | 80. | 80. | 2 | 17 | 0 | .00 | 20.87 | 24.75 |

0

*SECNO 6.940

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.94 | 3.27 | 908.65 | .00 | 907.97 | 909.04 | .39 | .13 | .18 | 906.58 |
| 180. | 13. | 154. | 13. | 8. | 29. | 8. | 17. | 10. | 906.48 |
| .50 | 1.59 | 5.37 | 1.63 | .060 | .035 | .060 | .000 | 905.38 | 87.02 |
| .004121 | 20. | 20. | 20. | 5 | 0 | 0 | .00 | 25.23 | 112.25 |

0

*SECNO 6.950

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.95 | 3.30 | 908.83 | .00 | 908.16 | 909.21 | .38 | .16 | .00 | 906.73 |
| 180. | 13. | 154. | 13. | 8. | 29. | 8. | 17. | 10. | 906.63 |
| .50 | 1.58 | 5.31 | 1.62 | .060 | .035 | .060 | .000 | 905.53 | 86.92 |
| .003975 | 40. | 40. | 40. | 2 | 0 | 0 | .00 | 25.42 | 112.34 |

0

*SECNO 7.000

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7.00 | 3.29 | 909.72 | .00 | 909.07 | 910.10 | .38 | .89 | .00 | 907.63 |
| 180. | 13. | 154. | 13. | 8. | 29. | 8. | 17. | 10. | 907.53 |
| .51 | 1.58 | 5.31 | 1.62 | .060 | .035 | .060 | .000 | 906.43 | 86.92 |
| .003979 | 225. | 225. | 225. | 1 | 0 | 0 | .00 | 25.42 | 112.34 |

0

1

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 8.000
WATER EL=X5 CARD= 915.110

915.25

3470 ENCROACHMENT STATIONS= 1.0 79.0 TYPE= 1 TARGET= 78.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.00 | 6.01 | 915.11 | .00 | 913.48 | 915.14 | .03 | .35 | .14 | 917.40 |
| 180. | 0. | 180. | 0. | 0. | 128. | 0. | 18. | 11. | 916.70 |
| .63 | .00 | 1.40 | .00 | .060 | .035 | .060 | .000 | 909.10 | 11.59 |
| .000237 | 578. | 578. | 578. | 0 | 0 | 0 | .00 | 38.78 | 50.36 |

Ground ~ 919

0
*SECNO 9.000

3470 ENCROACHMENT STATIONS= 1.0 161.0 TYPE= 1 TARGET= 160.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.00 | 4.95 | 915.15 | .00 | 913.56 | 915.19 | .04 | .04 | .00 | 913.50 |
| 139. | 0. | 137. | 1. | 1. | 91. | 4. | 19. | 11. | 913.50 |
| .66 | .27 | 1.51 | .33 | .060 | .035 | .060 | .000 | 910.20 | 68.75 |
| .000240 | 185. | 185. | 185. | 2 | 0 | 0 | .00 | 31.95 | 100.71 |

0
CCHV= .800 CEHV= .900
*SECNO 10.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 1.0 161.0 TYPE= 1 TARGET= 160.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10.00 | 1.39 | 915.89 | 915.89 | 915.54 | 916.37 | .48 | .01 | .40 | 915.50 |
| 139. | 0. | 138. | 1. | 0. | 25. | 0. | 19. | 11. | 915.50 |
| .66 | 1.72 | 5.58 | 1.86 | .030 | .030 | .030 | .000 | 914.50 | 69.83 |
| .012958 | 9. | 9. | 9. | 20 | 14 | 0 | .00 | 27.44 | 97.27 |

0
CCHV= .400 CEHV= .600
*SECNO 11.000

3470 ENCROACHMENT STATIONS= 1.0 108.0 TYPE= 1 TARGET= 107.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11.00 | 2.54 | 917.64 | .00 | 917.14 | 918.06 | .42 | 1.67 | .02 | 918.80 |
| 139. | 0. | 139. | 0. | 0. | 27. | 0. | 19. | 11. | 918.00 |
| .67 | .00 | 5.22 | .00 | .030 | .030 | .030 | .000 | 915.10 | 41.10 |
| .007027 | 179. | 179. | 179. | 2 | 0 | 0 | .00 | 18.01 | 59.11 |

0
1




| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

```
*SECNO 11.900
    11.90     3.04   919.14      .00   918.36   919.32      .18     1.16      .10   920.00
     139.       0.     139.       0.       0.      41.       0.      19.      11.    919.40
      .70      .00     3.41      .00     .030     .030     .030     .000   916.10    18.61
  .002435     300.     300.     300.        3        0        0      .00    23.73    42.35
0
*SECNO 12.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=       1.0     309.0  TYPE=     1  TARGET=     308.000
    12.00      .77   920.97   920.97   920.75   921.20      .23      .44      .03   920.40
     139.       7.     111.      20.       3.      27.       8.      19.      11.    920.40
      .70     2.35     4.16     2.51     .030     .030     .030     .000   920.20    59.32
  .012070     100.      95.     100.       20       11        0      .00    79.46   138.78
0
1
 01-13-92     09:32:22                                                                    PAGE


                                                                          THIS RUN EXECUTED 01-13-92
 ***************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
   ERROR CORR -  01,02,03,04,05,06
   MODIFICATION -  50,51,52,53,54,55,56
   IBM-PC-XT VERSION AUGUST 1985
 ***************************************************
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T1      RANDOLPH DRAIN FLOOD ANALYSIS - 10/87 APPEAL  FILE:APPEAL
T2      CITY OF NORTHVILLE  JOB NO. 6800-50  500-YEAR EVENT
T3      RANDOLPH DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       5.        0.        0.   .000000       .00        .0        0.   891.090      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000

1
 01-13-92     09:32:22                                                                          PAGE


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*PROF 4

CCHV=    .400 CEHV=    .600
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      2.09 FEET

     1.00      8.79   891.09      .00   891.09   891.16      .07      .00      .00   883.00
     609.       193.     278.      138.      120.      104.       96.       0.       0.    883.20
      .00      1.60     2.68      1.43      .030      .030      .030      .000   882.30      .00
   .000170       0.       0.       0.         0         0         0      .00    79.00    79.00
0
*SECNO 2.000
3280 CROSS SECTION      2.00 EXTENDED      1.50 FEET

     2.00      8.19   891.09      .00      .00   891.19      .10      .01      .02   883.60
     609.       187.     296.      126.      102.       94.       76.       0.       0.    883.80
      .01      1.84     3.15      1.67      .030      .030      .030      .000   882.90      .00
   .000264        55.       52.       45.         0         0         0      .00    79.00    79.00
0
*SECNO 2.250
3280 CROSS SECTION      2.25 EXTENDED      1.12 FEET

     2.25      6.52   891.12      .00      .00   891.29      .16      .06      .04   885.80
     609.       193.     254.      162.       80.       63.       62.       1.       0.    885.10
      .02      2.40     4.06      2.60      .030      .030      .030      .000   884.60      .00
   .000608       154.       159.       157.         0         0         0      .00    71.18    71.18
0
*SECNO 2.500
     2.50      4.92   891.22      .00      .00   891.53      .30      .16      .08   888.00
     609.       211.     295.      103.       69.       53.       35.       2.       1.    888.00
      .03      3.03     5.55      2.94      .030      .030      .030      .000   886.30    71.36
   .001890       154.       159.       156.         2         0         0      .00    89.39   160.76
0
```

```
*SECNO 3.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.00      3.24    896.44    896.44      .00    896.95      .51     1.84      .12   894.60
     609.       191.      202.      215.      42.      27.      48.       4.       2.   894.60
      .06      4.59      7.61      4.48     .030     .030     .030     .000   893.20    24.57
   .006492      582.      637.      482.       20       18        0      .00    94.99   119.57
0
1
 01-13-92     09:32:22                                                                    PAGE

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


*SECNO 3.500
     3.50      3.21    902.41    902.37      .00    902.92      .51     5.97      .00   900.80
     609.       186.      234.      189.      62.      28.      61.       6.       4.   900.50
      .10      3.02      8.38      3.11     .060     .035     .060     .000   899.20    73.20
   .011975      710.      750.      615.       11        5        0      .00   133.10   206.30
0
*SECNO 3.750
     3.75      4.51    904.31    903.76      .00    904.64      .34     1.65      .07   901.20
     609.       85.      259.      265.      65.      39.      105.       7.       5.   901.70
      .11      1.31      6.63      2.52     .060     .035     .060     .000   899.80    60.77
   .004375      195.      250.      265.        4       12        0      .00   294.86   355.64
0
*SECNO 4.000
     4.00      4.65    905.15      .00      .00    905.21      .06      .45      .11   902.10
     609.       236.      142.      230.      181.      44.      171.       8.       6.   901.80
      .15      1.30      3.26      1.35     .060     .035     .060     .000   900.50    28.09
   .000994      230.      265.      245.        3        0        0      .00   209.76   237.85
0
*SECNO 5.000
     5.00      3.31    905.91      .00      .00    905.94      .03      .73      .01   903.10
     407.       172.      115.      120.      167.      54.      133.       16.      10.   903.60
      .35      1.03      2.14      .90      .060     .035     .060     .000   902.60   135.40
   .000596      905.      915.      920.        3        0        0      .00   187.84   323.24
0
*SECNO 5.500

3470 ENCROACHMENT STATIONS=     110.0      330.0  TYPE=      1  TARGET=      220.000
     5.50      3.69    905.99      .00    904.88    906.00      .01      .05      .01   902.90
     407.       56.      277.       74.      136.      340.      176.       20.      12.   903.00
      .46       .42       .81       .42      .060      .035      .060      .000   902.30   118.04
   .000072      280.      285.      305.        2        0        0      .00   211.96   330.00
0
*SECNO 6.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
```

3470 ENCROACHMENT STATIONS= 113.0 175.0 TYPE= 1 TARGET= 62.000

1

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 6.00 | 1.25 | 906.35 | 906.35 | 906.01 | 906.77 | .42 | .03 | .25 | 905.10 |
| 232. | 142. | 84. | 7. | 40. | 11. | 3. | 21. | 12. | 905.30 |
| .47 | 3.54 | 7.28 | 2.57 | .060 | .035 | .060 | .000 | 905.10 | 113.00 |
| .024442 | 160. | 160. | 170. | 20 | 22 | 0 | .00 | 62.00 | 175.00 |

0

*SECNO 6.900

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= .2 31.8 TYPE= 1 TARGET= 31.600

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.90 | 2.94 | 908.24 | 908.24 | 907.29 | 909.18 | .94 | 1.26 | .31 | 905.50 |
| 232. | 25. | 165. | 42. | 8. | 18. | 13. | 21. | 12. | 905.50 |
| .47 | 3.03 | 9.02 | 3.24 | .060 | .035 | .060 | .000 | 905.30 | 2.65 |
| .011021 | 80. | 80. | 80. | 2 | 17 | 0 | .00 | 23.33 | 25.98 |

0

*SECNO 6.940

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.94 | 3.69 | 909.07 | .00 | 907.97 | 909.51 | .44 | .12 | .20 | 906.58 |
| 232. | 21. | 190. | 20. | 12. | 33. | 11. | 21. | 12. | 906.48 |
| .48 | 1.78 | 5.81 | 1.81 | .060 | .035 | .060 | .000 | 905.38 | 85.42 |
| .004014 | 20. | 20. | 20. | 5 | 0 | 0 | .00 | 28.22 | 113.64 |

0

*SECNO 6.950

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.95 | 3.70 | 909.23 | .00 | 908.16 | 909.67 | .43 | .16 | .00 | 906.73 |
| 232. | 21. | 190. | 20. | 12. | 33. | 11. | 21. | 12. | 906.63 |
| .48 | 1.77 | 5.77 | 1.80 | .060 | .035 | .060 | .000 | 905.53 | 85.36 |
| .003939 | 40. | 40. | 40. | 2 | 0 | 0 | .00 | 28.33 | 113.69 |

0

*SECNO 7.000

1

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7.00 | 3.69 | 910.12 | .00 | 909.07 | 910.56 | .44 | .89 | .00 | 907.63 |
| 232. | 21. | 190. | 20. | 12. | 33. | 11. | 21. | 12. | 907.53 |
| .49 | 1.77 | 5.79 | 1.81 | .060 | .035 | .060 | .000 | 906.43 | 85.39 |
| .003978 | 225. | 225. | 225. | 0 | 0 | 0 | .00 | 28.27 | 113.66 |

0

*SECNO 8.000

WATER EL=X5 CARD= 917.430

3470 ENCROACHMENT STATIONS= 1.0 79.0 TYPE= 1 TARGET= 78.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.00 | 8.33 | 917.43 | .00 | 913.48 | 917.45 | .02 | .14 | .17 | 917.40 |
| 232. | 0. | 232. | 0. | 0. | 233. | 2. | 23. | 13. | 916.70 |
| .65 | .00 | .99 | .11 | .060 | .035 | .060 | .000 | 909.10 | 4.50 |
| .000076 | 578. | 578. | 578. | 0 | 0 | 0 | .00 | 58.75 | 63.25 |

0

*SECNO 9.000

3470 ENCROACHMENT STATIONS= 1.0 161.0 TYPE= 1 TARGET= 160.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.00 | 7.24 | 917.44 | .00 | 913.56 | 917.47 | .03 | .02 | .01 | 913.50 |
| 207. | 3. | 195. | 9. | 8. | 148. | 24. | 24. | 13. | 913.50 |
| .69 | .31 | 1.32 | .37 | .060 | .035 | .060 | .000 | 910.20 | 66.33 |
| .000095 | 185. | 185. | 185. | 2 | 0 | 0 | .00 | 41.60 | 107.93 |

0

CCHV= .800 CEHV= .900

*SECNO 10.000

3470 ENCROACHMENT STATIONS= 1.0 161.0 TYPE= 1 TARGET= 160.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10.00 | 2.93 | 917.43 | .00 | 915.54 | 917.56 | .13 | .00 | .09 | 915.50 |
| 207. | 5. | 189. | 13. | 3. | 64. | 9. | 24. | 13. | 915.50 |
| .69 | 1.43 | 2.98 | 1.55 | .030 | .030 | .030 | .000 | 914.50 | 67.16 |
| .001045 | 9. | 9. | 9. | 0 | 0 | 0 | .00 | 37.19 | 104.35 |

0

CCHV= .400 CEHV= .600

*SECNO 11.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY

1




| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

```
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=       1.0     108.0  TYPE=     1  TARGET=     107.000
    11.00      2.66   917.76   917.76   917.14   918.55      .79      .45      .40   918.80
     207.        0.     207.       0.       0.      29.       0.      24.      13.   918.00
      .70       .00     7.13      .00     .030     .030     .030     .000   915.10    40.64
  .012350      179.     179.     179.        0       12        0      .00    18.79    59.43
0
*SECNO 11.900

3301 HV CHANGED MORE THAN HVINS

    11.90      3.71   919.81      .00   918.36   920.00      .19     1.21      .24   920.00
     207.        0.     204.       3.       0.      58.       3.      25.      13.   919.40
      .72       .00     3.54      .76     .030     .030     .030     .000   916.10    15.81
  .001970      300.     300.     300.        4        0        0      .00    44.21    60.02
0
*SECNO 12.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=       1.0     309.0  TYPE=     1  TARGET=     308.000
    12.00       .92   921.12   921.12   920.75   921.41      .29      .38      .06   920.40
     207.       13.     154.      40.       5.      33.      13.      25.      14.   920.40
      .73      2.70     4.68     3.03     .030     .030     .030     .000   920.20    56.45
  .011569      100.      95.     100.       20       11        0      .00    90.70   147.15
0
1
  01-13-92     09:32:22                                                                    PAGE


                                                                    THIS RUN EXECUTED 01-13-92
 ***************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
   ERROR CORR -  01,02,03,04,05,06
   MODIFICATION -  50,51,52,53,54,55,56
   IBM-PC-XT VERSION AUGUST 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RANDOLPH DRAIN

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | .00 | .00 | .00 | 882.30 | 236.00 | 886.34 | .00 | 886.54 | 10.63 | 3.94 | 71.22 | 72.37 |
| | 1.000 | .00 | .00 | .00 | 882.30 | 414.00 | 888.05 | .00 | 888.26 | 7.34 | 4.17 | 124.29 | 152.84 |
| | 1.000 | .00 | .00 | .00 | 882.30 | 494.00 | 888.80 | .00 | 888.99 | 5.89 | 4.06 | 157.94 | 203.63 |
| | 1.000 | .00 | .00 | .00 | 882.30 | 609.00 | 891.09 | .00 | 891.16 | 1.70 | 2.68 | 320.71 | 466.45 |
| | 2.000 | 52.00 | .00 | .00 | 882.90 | 236.00 | 886.36 | .00 | 886.71 | 23.98 | 5.11 | 53.66 | 48.19 |
| | 2.000 | 52.00 | .00 | .00 | 882.90 | 414.00 | 888.06 | .00 | 888.37 | 12.94 | 5.02 | 101.60 | 115.10 |
| | 2.000 | 52.00 | .00 | .00 | 882.90 | 494.00 | 888.80 | .00 | 889.08 | 10.02 | 4.87 | 127.48 | 156.08 |
| | 2.000 | 52.00 | .00 | .00 | 882.90 | 609.00 | 891.09 | .00 | 891.19 | 2.64 | 3.15 | 271.29 | 374.89 |
| * | 2.250 | 159.00 | .00 | .00 | 884.60 | 236.00 | 887.25 | 887.25 | 888.09 | 83.46 | 7.91 | 35.01 | 25.83 |
| | 2.250 | 159.00 | .00 | .00 | 884.60 | 414.00 | 888.20 | .00 | 889.13 | 63.81 | 8.66 | 59.36 | 51.83 |
| | 2.250 | 159.00 | .00 | .00 | 884.60 | 494.00 | 888.92 | .00 | 889.60 | 38.03 | 7.60 | 81.93 | 80.11 |
| | 2.250 | 159.00 | .00 | .00 | 884.60 | 609.00 | 891.12 | .00 | 891.29 | 6.08 | 4.06 | 205.45 | 246.93 |
| * | 2.500 | 159.00 | .00 | .00 | 886.30 | 236.00 | 889.16 | 889.16 | 889.85 | 71.36 | 7.10 | 40.30 | 27.94 |
| * | 2.500 | 159.00 | .00 | .00 | 886.30 | 414.00 | 889.88 | 889.88 | 890.65 | 63.35 | 7.99 | 68.41 | 52.01 |
| * | 2.500 | 159.00 | .00 | .00 | 886.30 | 494.00 | 890.15 | 890.15 | 890.91 | 58.90 | 8.14 | 81.31 | 64.37 |
| | 2.500 | 159.00 | .00 | .00 | 886.30 | 609.00 | 891.22 | .00 | 891.53 | 18.90 | 5.55 | 157.72 | 140.08 |
| * | 3.000 | 637.00 | .00 | .00 | 893.20 | 236.00 | 895.68 | 895.68 | 896.09 | 68.24 | 6.39 | 54.54 | 28.57 |
| * | 3.000 | 637.00 | .00 | .00 | 893.20 | 414.00 | 896.10 | 896.10 | 896.55 | 65.15 | 7.03 | 86.34 | 51.29 |
| * | 3.000 | 637.00 | .00 | .00 | 893.20 | 494.00 | 896.25 | 896.25 | 896.73 | 64.44 | 7.27 | 99.42 | 61.54 |
| * | 3.000 | 637.00 | .00 | .00 | 893.20 | 609.00 | 896.44 | 896.44 | 896.95 | 64.92 | 7.61 | 116.34 | 75.58 |
| * | 3.500 | 750.00 | .00 | .00 | 899.20 | 236.00 | 901.75 | 901.75 | 902.12 | 101.95 | 6.32 | 73.67 | 23.37 |
| * | 3.500 | 750.00 | .00 | .00 | 899.20 | 414.00 | 902.11 | 902.11 | 902.56 | 112.95 | 7.48 | 112.95 | 38.95 |
| | 3.500 | 750.00 | .00 | .00 | 899.20 | 494.00 | 902.23 | 902.22 | 902.72 | 120.28 | 7.99 | 127.02 | 45.04 |
| | 3.500 | 750.00 | .00 | .00 | 899.20 | 609.00 | 902.41 | 902.37 | 902.92 | 119.75 | 8.38 | 150.47 | 55.65 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.750 | 250.00 | .00 | .00 | 899.80 | 236.00 | 903.31 | .00 | 903.54 | 34.21 | 4.82 | 91.35 | 40.35 |
| | 3.750 | 250.00 | .00 | .00 | 899.80 | 414.00 | 903.88 | .00 | 904.18 | 41.13 | 5.94 | 137.86 | 64.55 |
| | 3.750 | 250.00 | .00 | .00 | 899.80 | 494.00 | 904.08 | .00 | 904.40 | 41.89 | 6.24 | 160.54 | 76.33 |
| | 3.750 | 250.00 | .00 | .00 | 899.80 | 609.00 | 904.31 | 903.76 | 904.64 | 43.75 | 6.63 | 209.39 | 92.07 |
| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
| | 4.000 | 265.00 | .00 | .00 | 900.50 | 236.00 | 903.99 | .00 | 904.03 | 10.03 | 2.60 | 189.68 | 74.51 |
| | 4.000 | 265.00 | .00 | .00 | 900.50 | 414.00 | 904.66 | .00 | 904.71 | 9.32 | 2.89 | 301.20 | 135.60 |
| | 4.000 | 265.00 | .00 | .00 | 900.50 | 494.00 | 904.89 | .00 | 904.94 | 9.40 | 3.03 | 344.29 | 161.13 |
| | 4.000 | 265.00 | .00 | .00 | 900.50 | 609.00 | 905.15 | .00 | 905.21 | 9.94 | 3.26 | 396.29 | 193.12 |
| | 5.000 | 915.00 | .00 | .00 | 902.60 | 159.00 | 904.82 | .00 | 904.84 | 7.32 | 1.75 | 170.62 | 58.77 |
| | 5.000 | 915.00 | .00 | .00 | 902.60 | 265.00 | 905.40 | .00 | 905.42 | 5.91 | 1.88 | 263.08 | 109.00 |
| | 5.000 | 915.00 | .00 | .00 | 902.60 | 323.00 | 905.63 | .00 | 905.66 | 5.89 | 1.99 | 302.49 | 133.14 |
| | 5.000 | 915.00 | .00 | .00 | 902.60 | 407.00 | 905.91 | .00 | 905.94 | 5.96 | 2.14 | 354.38 | 166.70 |
| | 5.500 | 285.00 | .00 | .00 | 902.30 | 159.00 | 904.88 | .00 | 904.88 | .44 | .49 | 418.86 | 238.42 |
| | 5.500 | 285.00 | .00 | .00 | 902.30 | 265.00 | 905.47 | .00 | 905.47 | .55 | .64 | 540.68 | 357.17 |
| | 5.500 | 285.00 | .00 | .00 | 902.30 | 323.00 | 905.70 | .00 | 905.70 | .62 | .71 | 589.81 | 410.06 |
| | 5.500 | 285.00 | .00 | .00 | 902.30 | 407.00 | 905.99 | .00 | 906.00 | .72 | .81 | 651.63 | 480.44 |
| * | 6.000 | 160.00 | .00 | .00 | 905.10 | 110.00 | 906.01 | 906.01 | 906.28 | 235.03 | 5.66 | 33.24 | 7.18 |
| * | 6.000 | 160.00 | .00 | .00 | 905.10 | 161.00 | 906.17 | 906.17 | 906.50 | 239.12 | 6.42 | 42.84 | 10.41 |
| * | 6.000 | 160.00 | .00 | .00 | 905.10 | 180.00 | 906.22 | 906.22 | 906.57 | 238.22 | 6.64 | 46.20 | 11.66 |
| * | 6.000 | 160.00 | .00 | .00 | 905.10 | 232.00 | 906.35 | 906.35 | 906.77 | 244.42 | 7.28 | 54.10 | 14.84 |
| * | 6.900 | 80.00 | .00 | .00 | 905.30 | 110.00 | 907.29 | 907.29 | 907.98 | 122.54 | 7.31 | 20.53 | 9.94 |
| * | 6.900 | 80.00 | .00 | .00 | 905.30 | 161.00 | 907.73 | 907.73 | 908.55 | 116.06 | 8.15 | 28.67 | 14.94 |
| * | 6.900 | 80.00 | .00 | .00 | 905.30 | 180.00 | 907.88 | 907.88 | 908.73 | 113.39 | 8.39 | 31.74 | 16.90 |
| * | 6.900 | 80.00 | .00 | .00 | 905.30 | 232.00 | 908.24 | 908.24 | 909.18 | 110.21 | 9.02 | 39.63 | 22.10 |
| | 6.940 | 20.00 | .00 | .00 | 905.38 | 110.00 | 907.97 | .00 | 908.27 | 44.16 | 4.63 | 29.08 | 16.55 |
| | 6.940 | 20.00 | .00 | .00 | 905.38 | 161.00 | 908.49 | .00 | 908.86 | 41.49 | 5.18 | 40.75 | 25.00 |
| | 6.940 | 20.00 | .00 | .00 | 905.38 | 180.00 | 908.65 | .00 | 909.04 | 41.21 | 5.37 | 44.81 | 28.04 |
| | 6.940 | 20.00 | .00 | .00 | 905.38 | 232.00 | 909.07 | .00 | 909.51 | 40.14 | 5.81 | 55.94 | 36.62 |
| | 6.950 | 40.00 | .00 | .00 | 905.53 | 110.00 | 908.16 | .00 | 908.45 | 40.52 | 4.50 | 30.12 | 17.28 |
| | 6.950 | 40.00 | .00 | .00 | 905.53 | 161.00 | 908.67 | .00 | 909.02 | 39.78 | 5.11 | 41.46 | 25.53 |
| | 6.950 | 40.00 | .00 | .00 | 905.53 | 180.00 | 908.83 | .00 | 909.21 | 39.75 | 5.31 | 45.49 | 28.55 |
| | 6.950 | 40.00 | .00 | .00 | 905.53 | 232.00 | 909.23 | .00 | 909.67 | 39.39 | 5.77 | 56.39 | 36.97 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7.000 | 225.00 | .00 | .00 | 906.43 | 110.00 | 909.07 | .00 | 909.36 | 40.06 | 4.48 | 30.25 | 17.38 |
| | 7.000 | 225.00 | .00 | .00 | 906.43 | 161.00 | 909.56 | .00 | 909.92 | 39.73 | 5.11 | 41.48 | 25.54 |
| | 7.000 | 225.00 | .00 | .00 | 906.43 | 180.00 | 909.72 | .00 | 910.10 | 39.79 | 5.31 | 45.46 | 28.54 |
| | 7.000 | 225.00 | .00 | .00 | 906.43 | 232.00 | 910.12 | .00 | 910.56 | 39.78 | 5.79 | 56.16 | 36.79 |
| * | 8.000 | 578.00 | .00 | .00 | 909.10 | 110.00 | 913.48 | .00 | 913.52 | 4.02 | 1.51 | 72.98 | 54.86 |
| * | 8.000 | 578.00 | .00 | .00 | 909.10 | 161.00 | 914.41 | .00 | 914.45 | 3.45 | 1.57 | 102.77 | 86.72 |
| * | 8.000 | 578.00 | .00 | .00 | 909.10 | 180.00 | 915.11 | .00 | 915.14 | 2.37 | 1.40 | 128.49 | 116.89 |
| * | 8.000 | 578.00 | .00 | .00 | 909.10 | 232.00 | 917.43 | .00 | 917.45 | .76 | .99 | 235.63 | 266.82 |
| | 9.000 | 185.00 | .00 | .00 | 910.20 | 73.00 | 913.56 | .00 | 913.60 | 4.61 | 1.43 | 51.11 | 33.99 |
| | 9.000 | 185.00 | .00 | .00 | 910.20 | 106.00 | 914.48 | .00 | 914.51 | 2.81 | 1.43 | 75.97 | 63.23 |
| | 9.000 | 185.00 | .00 | .00 | 910.20 | 139.00 | 915.15 | .00 | 915.19 | 2.40 | 1.51 | 96.50 | 89.70 |
| | 9.000 | 185.00 | .00 | .00 | 910.20 | 207.00 | 917.44 | .00 | 917.47 | .95 | 1.32 | 180.75 | 211.93 |
| | SECNO | XLCH | XLTRD | XLLC | ELMIN | Q | CWSEL | CRIWS | EG | 10X*S | VCH | AREA | .01K |
| * | 10.000 | 8.60 | .00 | .00 | 914.50 | 73.00 | 915.54 | 915.54 | 915.86 | 158.61 | 4.60 | 15.88 | 5.80 |
| * | 10.000 | 8.60 | .00 | .00 | 914.50 | 106.00 | 915.71 | 915.71 | 916.13 | 146.96 | 5.21 | 20.45 | 8.74 |
| * | 10.000 | 8.60 | .00 | .00 | 914.50 | 139.00 | 915.89 | 915.89 | 916.37 | 129.58 | 5.58 | 25.21 | 12.21 |
| | 10.000 | 8.60 | .00 | .00 | 914.50 | 207.00 | 917.43 | .00 | 917.56 | 10.45 | 2.98 | 75.39 | 64.02 |
| | 11.000 | 179.00 | .00 | .00 | 915.10 | 73.00 | 917.14 | .00 | 917.38 | 50.72 | 3.93 | 18.60 | 10.25 |
| | 11.000 | 179.00 | .00 | .00 | 915.10 | 106.00 | 917.43 | .00 | 917.76 | 59.27 | 4.57 | 23.17 | 13.77 |
| | 11.000 | 179.00 | .00 | .00 | 915.10 | 139.00 | 917.64 | .00 | 918.06 | 70.27 | 5.22 | 26.62 | 16.58 |
| * | 11.000 | 179.00 | .00 | .00 | 915.10 | 207.00 | 917.76 | 917.76 | 918.55 | 123.50 | 7.13 | 29.03 | 18.63 |
| | 11.900 | 300.00 | .00 | .00 | 916.10 | 73.00 | 918.36 | .00 | 918.50 | 26.96 | 3.01 | 24.22 | 14.06 |
| | 11.900 | 300.00 | .00 | .00 | 916.10 | 106.00 | 918.78 | .00 | 918.95 | 25.77 | 3.26 | 32.54 | 20.88 |
| | 11.900 | 300.00 | .00 | .00 | 916.10 | 139.00 | 919.14 | .00 | 919.32 | 24.35 | 3.41 | 40.71 | 28.17 |
| | 11.900 | 300.00 | .00 | .00 | 916.10 | 207.00 | 919.81 | .00 | 920.00 | 19.70 | 3.54 | 61.19 | 46.64 |
| * | 12.000 | 95.00 | .00 | .00 | 920.20 | 73.00 | 920.75 | 920.75 | 920.94 | 148.21 | 3.56 | 22.50 | 6.00 |
| * | 12.000 | 95.00 | .00 | .00 | 920.20 | 106.00 | 920.86 | 920.86 | 921.08 | 142.86 | 4.02 | 29.62 | 8.87 |
| * | 12.000 | 95.00 | .00 | .00 | 920.20 | 139.00 | 920.97 | 920.97 | 921.20 | 120.70 | 4.16 | 37.93 | 12.65 |
| * | 12.000 | 95.00 | .00 | .00 | 920.20 | 207.00 | 921.12 | 921.12 | 921.41 | 115.69 | 4.68 | 50.97 | 19.25 |

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 1.000 | 236.00 | 886.34 | .00 | .00 | .00 | 26.98 | .00 |
| | 1.000 | 414.00 | 888.05 | 1.71 | .00 | .00 | 37.23 | .00 |
| | 1.000 | 494.00 | 888.80 | .75 | .00 | .00 | 52.50 | .00 |
| | 1.000 | 609.00 | 891.09 | 2.29 | .00 | .00 | 79.00 | .00 |
| | 2.000 | 236.00 | 886.36 | .00 | .02 | .00 | 24.31 | 52.00 |
| | 2.000 | 414.00 | 888.06 | 1.70 | .01 | .00 | 32.15 | 52.00 |
| | 2.000 | 494.00 | 888.80 | .74 | .00 | .00 | 40.33 | 52.00 |
| | 2.000 | 609.00 | 891.09 | 2.29 | .00 | .00 | 79.00 | 52.00 |
| * | 2.250 | 236.00 | 887.25 | .00 | .89 | .00 | 22.16 | 159.00 |
| | 2.250 | 414.00 | 888.20 | .95 | .14 | .00 | 28.79 | 159.00 |
| | 2.250 | 494.00 | 888.92 | .72 | .12 | .00 | 35.75 | 159.00 |
| | 2.250 | 609.00 | 891.12 | 2.21 | .04 | .00 | 71.18 | 159.00 |
| * | 2.500 | 236.00 | 889.16 | .00 | 1.90 | .00 | 32.55 | 159.00 |
| * | 2.500 | 414.00 | 889.88 | .72 | 1.68 | .00 | 45.36 | 159.00 |
| * | 2.500 | 494.00 | 890.15 | .27 | 1.23 | .00 | 52.51 | 159.00 |
| | 2.500 | 609.00 | 891.22 | 1.08 | .10 | .00 | 89.39 | 159.00 |
| * | 3.000 | 236.00 | 895.68 | .00 | 6.52 | .00 | 66.57 | 637.00 |
| * | 3.000 | 414.00 | 896.10 | .43 | 6.22 | .00 | 82.56 | 637.00 |
| * | 3.000 | 494.00 | 896.25 | .15 | 6.11 | .00 | 88.30 | 637.00 |
| * | 3.000 | 609.00 | 896.44 | .18 | 5.22 | .00 | 94.99 | 637.00 |
| * | 3.500 | 236.00 | 901.75 | .00 | 6.08 | .00 | 99.68 | 750.00 |
| * | 3.500 | 414.00 | 902.11 | .36 | 6.01 | .00 | 118.17 | 750.00 |
| | 3.500 | 494.00 | 902.23 | .12 | 5.97 | .00 | 123.98 | 750.00 |
| | 3.500 | 609.00 | 902.41 | .18 | 5.97 | .00 | 133.10 | 750.00 |
| | 3.750 | 236.00 | 903.31 | .00 | 1.55 | .00 | 74.20 | 250.00 |
| | 3.750 | 414.00 | 903.88 | .57 | 1.76 | .00 | 91.09 | 250.00 |
| | 3.750 | 494.00 | 904.08 | .21 | 1.85 | .00 | 151.17 | 250.00 |
| | 3.750 | 609.00 | 904.31 | .22 | 1.89 | .00 | 294.86 | 250.00 |
| | 4.000 | 236.00 | 903.99 | .00 | .68 | .00 | 147.09 | 265.00 |
| | 4.000 | 414.00 | 904.66 | .67 | .79 | .00 | 183.74 | 265.00 |
| | 4.000 | 494.00 | 904.89 | .23 | .81 | .00 | 195.96 | 265.00 |
| | 4.000 | 609.00 | 905.15 | .26 | .84 | .00 | 209.76 | 265.00 |
| | 5.000 | 159.00 | 904.82 | .00 | .83 | .00 | 150.31 | 915.00 |
| | 5.000 | 265.00 | 905.40 | .58 | .74 | .58 | 169.31 | 915.00 |
| | 5.000 | 323.00 | 905.63 | .23 | .74 | .81 | 177.54 | 915.00 |
| | 5.000 | 407.00 | 905.91 | .29 | .77 | .00 | 187.84 | 915.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 5.500 | 159.00 | 904.88 | .00 | .06 | .00 | 207.52 | 285.00 |
| | 5.500 | 265.00 | 905.47 | .58 | .07 | .58 | 209.86 | 285.00 |
| | 5.500 | 323.00 | 905.70 | .23 | .07 | .82 | 210.79 | 285.00 |
| | 5.500 | 407.00 | 905.99 | .29 | .08 | 1.11 | 211.96 | 285.00 |
| * | 6.000 | 110.00 | 906.01 | .00 | 1.13 | .00 | 60.65 | 160.00 |
| * | 6.000 | 161.00 | 906.17 | .16 | .70 | .16 | 62.00 | 160.00 |
| * | 6.000 | 180.00 | 906.22 | .05 | .52 | .21 | 62.00 | 160.00 |
| * | 6.000 | 232.00 | 906.35 | .13 | .36 | .34 | 62.00 | 160.00 |
| * | 6.900 | 110.00 | 907.29 | .00 | 1.28 | .00 | 16.75 | 80.00 |
| * | 6.900 | 161.00 | 907.73 | .45 | 1.57 | .45 | 19.83 | 80.00 |
| * | 6.900 | 180.00 | 907.88 | .15 | 1.66 | .60 | 20.87 | 80.00 |
| * | 6.900 | 232.00 | 908.24 | .36 | 1.89 | .95 | 23.33 | 80.00 |
| | 6.940 | 110.00 | 907.97 | .00 | .68 | .00 | 20.27 | 20.00 |
| | 6.940 | 161.00 | 908.49 | .52 | .76 | .52 | 24.04 | 20.00 |
| | 6.940 | 180.00 | 908.65 | .16 | .77 | .69 | 25.23 | 20.00 |
| | 6.940 | 232.00 | 909.07 | .41 | .83 | 1.10 | 28.22 | 20.00 |
| | 6.950 | 110.00 | 908.16 | .00 | .19 | .00 | 20.63 | 40.00 |
| | 6.950 | 161.00 | 908.67 | .51 | .18 | .51 | 24.26 | 40.00 |
| | 6.950 | 180.00 | 908.83 | .16 | .18 | .67 | 25.42 | 40.00 |
| | 6.950 | 232.00 | 909.23 | .41 | .17 | 1.07 | 28.33 | 40.00 |
| | 7.000 | 110.00 | 909.07 | .00 | .91 | .00 | 20.68 | 225.00 |
| | 7.000 | 161.00 | 909.56 | .49 | .90 | .49 | 24.26 | 225.00 |
| | 7.000 | 180.00 | 909.72 | .16 | .89 | .65 | 25.42 | 225.00 |
| | 7.000 | 232.00 | 910.12 | .40 | .89 | 1.05 | 28.27 | 225.00 |
| * | 8.000 | 110.00 | 913.48 | .00 | 4.41 | .00 | 29.34 | 578.00 |
| * | 8.000 | 161.00 | 914.41 | .93 | 4.85 | .93 | 34.72 | 578.00 |
| * | 8.000 | 180.00 | 915.11 | .70 | 5.39 | 1.63 | 38.78 | 578.00 |
| * | 8.000 | 232.00 | 917.43 | 2.32 | 7.31 | 3.95 | 58.75 | 578.00 |
| | 9.000 | 73.00 | 913.56 | .00 | .08 | .00 | 25.27 | 185.00 |
| | 9.000 | 106.00 | 914.48 | .91 | .07 | .91 | 29.12 | 185.00 |
| | 9.000 | 139.00 | 915.15 | .67 | .04 | 1.59 | 31.95 | 185.00 |
| | 9.000 | 207.00 | 917.44 | 2.29 | .01 | 3.88 | 41.60 | 185.00 |
| * | 10.000 | 73.00 | 915.54 | .00 | 1.97 | .00 | 25.22 | 8.60 |
| * | 10.000 | 106.00 | 915.71 | .18 | 1.23 | .18 | 26.33 | 8.60 |
| * | 10.000 | 139.00 | 915.89 | .18 | .74 | .35 | 27.44 | 8.60 |
| | 10.000 | 207.00 | 917.43 | 1.54 | -.01 | 1.90 | 37.19 | 8.60 |
| | 11.000 | 73.00 | 917.14 | .00 | 1.61 | .00 | 15.15 | 179.00 |
| | 11.000 | 106.00 | 917.43 | .29 | 1.72 | .29 | 16.84 | 179.00 |
| | 11.000 | 139.00 | 917.64 | .20 | 1.75 | .50 | 18.01 | 179.00 |
| * | 11.000 | 207.00 | 917.76 | .12 | .33 | .62 | 18.79 | 179.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 11.900 | 73.00 | 918.36 | .00 | 1.22 | .00 | 18.40 | 300.00 |
| | 11.900 | 106.00 | 918.78 | .42 | 1.35 | .42 | 21.26 | 300.00 |
| | 11.900 | 139.00 | 919.14 | .35 | 1.50 | .78 | 23.73 | 300.00 |
| | 11.900 | 207.00 | 919.81 | .67 | 2.04 | 1.45 | 44.21 | 300.00 |
| * | 12.000 | 73.00 | 920.75 | .00 | 2.39 | .00 | 64.37 | 95.00 |
| * | 12.000 | 106.00 | 920.86 | .10 | 2.08 | .10 | 71.58 | 95.00 |
| * | 12.000 | 139.00 | 920.97 | .11 | 1.83 | .21 | 79.46 | 95.00 |
| * | 12.000 | 207.00 | 921.12 | .15 | 1.32 | .37 | 90.70 | 95.00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

| | | | | |
|---|---|---|---|---|
| CAUTION | SECNO= | 2.250 | PROFILE= 1 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 2.250 | PROFILE= 1 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 2.500 | PROFILE= 1 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 2.500 | PROFILE= 1 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 2.500 | PROFILE= 2 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 2.500 | PROFILE= 2 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 2.500 | PROFILE= 3 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 2.500 | PROFILE= 3 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 3.000 | PROFILE= 1 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 3.000 | PROFILE= 1 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 3.000 | PROFILE= 1 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 3.000 | PROFILE= 2 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 3.000 | PROFILE= 2 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 3.000 | PROFILE= 3 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 3.000 | PROFILE= 3 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 3.000 | PROFILE= 4 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 3.000 | PROFILE= 4 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 3.000 | PROFILE= 4 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 3.500 | PROFILE= 1 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 3.500 | PROFILE= 1 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 3.500 | PROFILE= 2 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 3.500 | PROFILE= 2 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 6.000 | PROFILE= 1 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 6.000 | PROFILE= 1 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 6.000 | PROFILE= 1 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 6.000 | PROFILE= 2 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 6.000 | PROFILE= 2 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 6.000 | PROFILE= 2 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 6.000 | PROFILE= 3 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 6.000 | PROFILE= 3 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 6.000 | PROFILE= 3 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 6.000 | PROFILE= 4 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 6.000 | PROFILE= 4 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 6.000 | PROFILE= 4 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 6.900 | PROFILE= 1 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 6.900 | PROFILE= 1 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 6.900 | PROFILE= 2 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 6.900 | PROFILE= 2 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 6.900 | PROFILE= 3 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 6.900 | PROFILE= 3 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 6.900 | PROFILE= 4 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 6.900 | PROFILE= 4 | MINIMUM SPECIFIC ENERGY |
| NOTE | SECNO= | 8.000 | PROFILE= 1 | WSEL BASED ON X5 CARD |
| NOTE | SECNO= | 8.000 | PROFILE= 2 | WSEL BASED ON X5 CARD |
| NOTE | SECNO= | 8.000 | PROFILE= 3 | WSEL BASED ON X5 CARD |

NOTE SECNO= 8.000 PROFILE= 4 WSEL BASED ON X5 CARD

CAUTION SECNO= 10.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 10.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 10.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 10.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 10.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.000 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 10.000 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 11.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 11.000 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 12.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 12.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 12.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 12.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 12.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 12.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 12.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 12.000 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 12.000 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 12.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 12.000 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 12.000 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL



THIS RUN EXECUTED 01-13-92

**********
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
**********

# 60 INCH RCP CULVERT

# X5 CARD "WSEL"

# CALCULATION

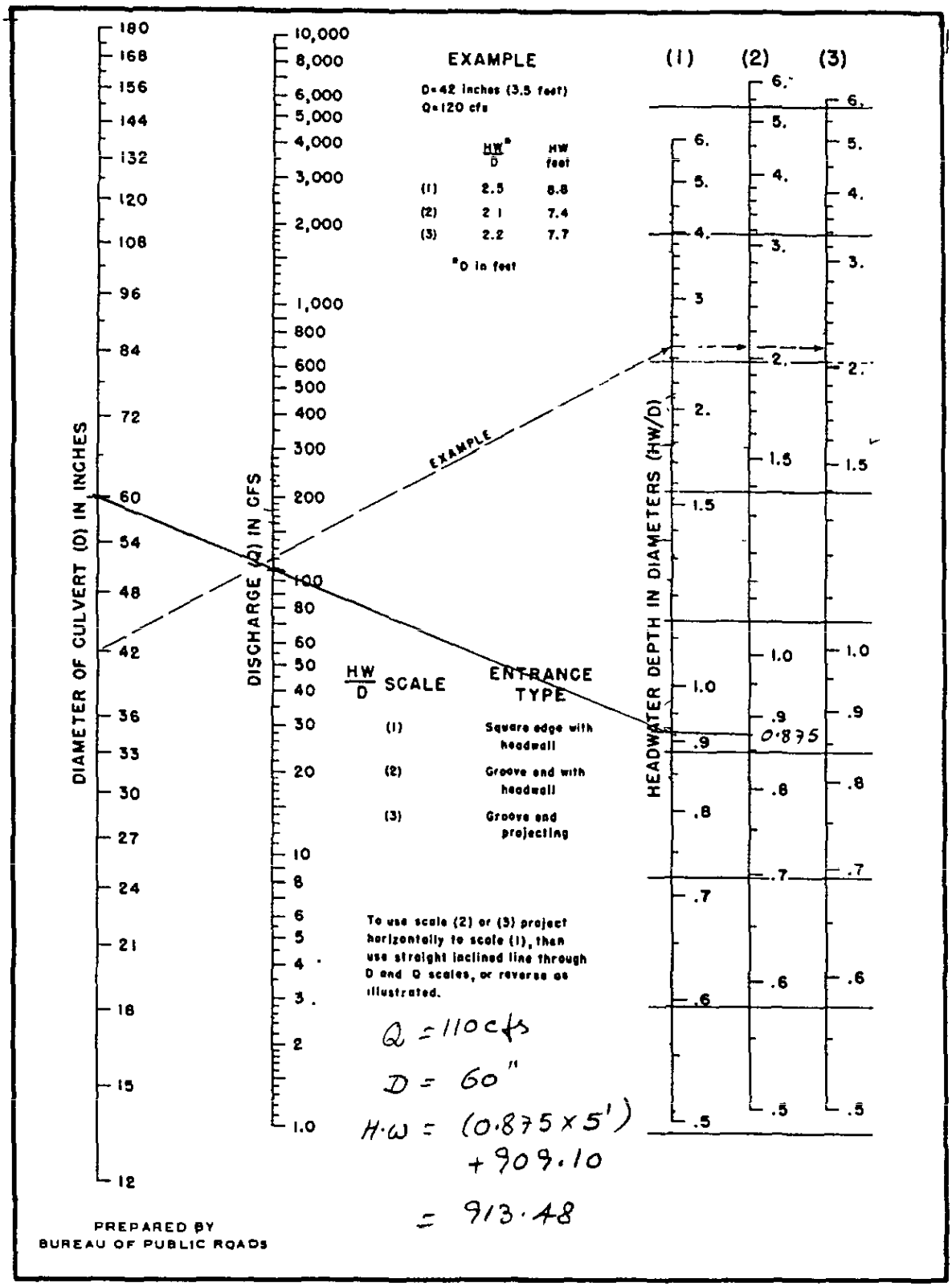


*Figure B–2. Headwater depth for concrete pipe culverts with inlet control.*

CULVERTS

50 yr

| | |
|---|---|
| DIAMETER (IN) | ? 60 |
| LENGTH (FT) | ? 578 |
| FRICTION COEFF (FT^1/6) | ? .013 |
| [redacted]+EXIT COEFF | ? .5 |
| INLET CONTROL COEFF | ? .61 |
| INV ELEV OUT (FT) | ? 906.4 |
| INV ELEV IN (FT) | ? 909.1 |
| TAILWATER ELEV (FT) | ? 909.57 |
| ELEV INCREMENT (FT) | ? .03 |

RESULTS

| HEADWATER (FT) | | FLOWRATE (CFS) |
|---|---|---|
| 914.10 | IC | 151.98 |
| 914.13 | IC | 152.88 |
| 914.16 | IC | 153.79 |
| 914.19 | IC | 154.69 |
| 914.22 | IC | 155.58 |
| 914.25 | IC | 156.47 |
| 914.28 | IC | 157.35 |
| 914.31 | IC | 158.23 |
| 914.34 | IC | 159.10 |
| 914.37 | IC | 159.97 |
| 914.40 | IC | 160.84 |
| 914.43 ← | IC | 161.69 |
| 914.46 | IC | 162.55 |
| 914.49 | IC | 163.40 |
| 914.52 | IC | 164.25 |

<Shift> <Prt Sc> print  <Return> repeat  <Space Bar> back to menu

---

$Q = 161$ cfs

H.w = 914.41

CULVERTS

100-Yr.

| | |
|---|---|
| DIAMETER (IN) | ? 60 |
| LENGTH (FT) | ? 578 |
| FRICTION COEFF (FT^1/6) | ? .013 |
| EXIT COEFF | ? .5 |
| INLET CONTROL COEFF | ? .61 |
| INV ELEV OUT (FT) | ? 906.4 |
| INV ELEV IN (FT) | ? 909.1 |
| TAILWATER ELEV (FT) | ? 909.73 |
| ELEV INCREMENT (FT) | ? .2 |

RESULTS

| HEADWATER (FT) | | FLOWRATE (CFS) |
|---|---|---|
| 914.10 | IC | 151.98 |
| 914.30 | IC | 157.94 |
| 914.50 | IC | 163.68 |
| 914.70 | IC | 169.23 |
| 914.90 | IC | 174.61 |
| 915.10 | IC | 179.82 |
| 915.30 | IC | 184.89 |
| 915.50 | IC | 189.82 |
| 915.70 | IC | 194.62 |
| 915.90 | IC | 199.31 |
| 916.10 | IC | 203.90 |
| 916.30 | IC | 208.38 |
| 916.50 | IC | 212.77 |
| 916.70 | IC | 217.06 |
| 916.90 | IC | 221.28 |

<Shift> <Prt Sc> print <Return> repeat <Space Bar> back to menu

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Q = 180 cfs

H.W = 915.11

915.30 Chart

915.25 Equation

CULVERTS

500 yr.

| | |
|---|---|
| DIAMETER (IN) | ? 60 |
| LENGTH (FT) | ? 578 |
| FRICTION COEFF (FT^1/6) | ? .013 |
| EXIT COEFF | ? .5 |
| INLET CONTROL COEFF | ? .61 |
| INV ELEV OUT (FT) | ? 906.4 |
| INV ELEV IN (FT) | ? 909.1 |
| TAILWATER ELEV (FT) | ? 910.13 |
| ELEV INCREMENT (FT) | ? .3 |

RESULTS

| HEADWATER (FT) | | FLOWRATE (CFS) |
|---|---|---|
| 914.10 | IC | 151.98 |
| 914.40 | IC | 160.84 |
| 914.70 | IC | 169.23 |
| 915.00 | IC | 177.23 |
| 915.30 | IC | 184.89 |
| 915.60 | IC | 192.24 |
| 915.90 | IC | 199.31 |
| 916.20 | IC | 206.15 |
| 916.50 | IC | 212.77 |
| 916.80 | IC | 219.18 |
| 917.10 | IC | 225.42 |
| 917.40 | IC | 231.48 ← |
| 917.70 | IC | 237.39 |
| 918.00 | IC | 243.16 |
| 918.30 | IC | 248.79 |
| 918.60 | IC | 254.30 |

<Shift> <Prt Sc> print  <Return> repeat  <Space Bar> back to menu

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Q = 232

H.W = 917.43

# RANDOLPH STREET DRAIN

# ENCROACHMENT

# AND

# FLOODWAY ANALYSIS

```
1*****************************************************
*************************************
 *  WATER SURFACE PROFILES                          *                                  *  U.S. ARMY CORPS OF ENGI
 *  VERSION OF NOVEMBER 1976                        *                                  *  THE HYDROLOGIC ENGINEER
 *  UPDATED MAY 1984                                *                                  *  609 SECOND STREET, SUIT
 *  IBM-PC-XT VERSION AUGUST 1985                   *                                  *  DAVIS, CALIFORNIA 95616
 *  RUN DATE  01-13-92   TIME  11:17:19                *                                  *  (916) 440-2105 (FTS)
 ****************************************************                                  ************************


                                        X     X  XXXXXXX   XXXXX             XXXXX
                                        X     X  X        X     X           X     X
                                        X     X  X        X                       X
                                        XXXXXXX  XXXX     X         XXXXX    XXXXX
                                        X     X  X        X                 X
                                        X     X  X        X     X           X
                                        X     X  XXXXXXX   XXXXX            XXXXXXX
1
  01-13-92     11:17:19                                                                                    PAGE


                                                                                  THIS RUN EXECUTED 01-13-92
 ************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
   ERROR CORR -  01,02,03,04,05,06
   MODIFICATION -  50,51,52,53,54,55,56
   IBM-PC-XT VERSION AUGUST 1985
 ************************************************
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T1      RANDOLPH DRAIN FLOOD ANALYSIS - 10/87 APPEAL  FILE:APPEAL
T2      CITY OF NORTHVILLE  JOB NO. 6800-50  10-YEAR EVENT
T3      RANDOLPH DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.   .000000       .00        .0        0.   888.800      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    110.000   200.000      .000      .000      .000      .000      .000      .000      .000      .000


QT      2.000   494.000   494.000      .000      .000      .000      .000      .000      .000      .000
NC       .030      .030      .030      .400      .600      .000      .000      .000      .000      .000
ET       .000      .000     1.400      .000      .000      .000      .000      .000      .000      .000
X1      1.000     8.000    32.000    44.000      .000      .000      .000      .000     -.600      .000
GR    889.600      .000   888.500    20.000   883.600    32.000   882.900    34.000   882.900    42.000
GR    883.800    44.000   889.800    57.000   890.600    79.000      .000      .000      .000      .000

X1      2.000     8.000    32.000    44.000    55.000    45.000    52.000      .000      .000      .000
GR    889.600      .000   888.500    20.000   883.600    32.000   882.900    34.000   882.900    36.000
GR    883.800    44.000   889.800    57.000   890.600    79.000      .000      .000      .000      .000

X1      2.250    10.000    32.000    42.000   154.000   157.000   159.000      .000      .000      .000
GR    890.000      .000   888.800    20.000   885.800    32.000   884.600    34.000   884.600    36.000
GR    884.900    40.000   885.100    42.000   888.500    52.000   889.800    57.000   891.200    72.000

X1      2.500    11.000   127.000   139.000   154.000   156.000   159.000      .000      .000      .000
GR    894.000      .000   892.000    50.000   890.000   105.000   888.000   127.000   886.400   129.000
GR    886.300   132.000   886.700   136.000   888.000   139.000   892.000   166.000   894.000   206.000
GR    894.000   225.000      .000      .000      .000      .000      .000      .000      .000      .000

ET       .000      .000      .400      .000      .000      .000      .000      .000      .000      .000
X1      3.000    11.000    63.000    72.000   582.000   482.000   637.000      .000      .000      .000
GR    898.700      .000   896.400    25.000   894.900    50.000   894.600    63.000   893.300    64.000
GR    893.200    67.000   893.600    71.000   894.600    72.000   895.500   100.000   896.700   125.000
GR    898.200   143.000      .000      .000      .000      .000      .000      .000      .000      .000

NC       .060      .060      .035      .000      .000      .000      .000      .000      .000      .000
X1      3.500    14.000   135.000   146.000   710.000   615.000   750.000      .000    -1.300      .000
GR    906.000      .000   904.000    66.000   903.000    91.000   902.300   116.000   902.100   135.000
GR    901.300   136.000   900.500   140.000   901.400   143.000   901.800   146.000   902.400   166.000
GR    903.100   191.000   904.100   216.000   905.300   241.000   906.500   255.000      .000      .000

ET       .000      .000      .400      .000      .000      .000      .000      .000      .000      .000
X1      3.750    10.000   281.000   291.000   195.000   265.000   250.000      .000      .000      .000
GR    904.400      .000   904.000   255.000   902.000   280.000   901.200   281.000   899.900   285.000
GR    899.800   288.000   901.700   291.000   902.000   315.000   904.000   350.000   906.000   387.000

ET       .000      .000     1.400      .000      .000      .000      .000      .000      .000      .000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4.000 | 14.000 | 135.000 | 146.000 | 230.000 | 245.000 | 265.000 | .000 | .000 | .000 |
| GR | 906.000 | .000 | 904.000 | 66.000 | 903.000 | 91.000 | 902.300 | 116.000 | 902.100 | 135.000 |
| GR | 901.300 | 136.000 | 900.500 | 140.000 | 901.400 | 143.000 | 901.800 | 146.000 | 902.400 | 166.000 |
| GR | 903.100 | 191.000 | 904.100 | 216.000 | 905.300 | 241.000 | 906.500 | 255.000 | .000 | .000 |
| | | | | | | | | | | |
| QT | 2.000 | 323.000 | 323.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | 7.100 | 7.100 | .000 | .000 | .000 | 125.000 | 332.000 | .000 | .000 |
| X1 | 5.000 | 15.000 | 214.000 | 232.000 | 905.000 | 920.000 | 915.000 | .000 | .000 | .000 |
| GR | 906.000 | .000 | 908.000 | 125.000 | 906.000 | 135.000 | 904.000 | 145.000 | 903.800 | 157.000 |
| GR | 903.500 | 182.000 | 903.600 | 207.000 | 903.100 | 214.000 | 902.600 | 225.000 | 903.100 | 229.000 |
| GR | 903.600 | 232.000 | 903.600 | 257.000 | 904.500 | 282.000 | 905.400 | 307.000 | 906.200 | 332.000 |
| | | | | | | | | | | |
| ET | .000 | 9.100 | 9.100 | .000 | .000 | .000 | .000 | .000 | 110.000 | 330.000 |
| X1 | 5.500 | 18.000 | 170.000 | 270.000 | 280.000 | 305.000 | 285.000 | .000 | .000 | .000 |
| GR | 906.000 | .000 | 908.000 | 110.000 | 906.000 | 118.000 | 904.000 | 126.000 | 902.800 | 145.000 |
| GR | 902.900 | 170.000 | 902.300 | 195.000 | 902.700 | 220.000 | 902.400 | 245.000 | 903.000 | 270.000 |
| GR | 903.100 | 295.000 | 903.000 | 320.000 | 903.700 | 345.000 | 904.000 | 370.000 | 904.000 | 395.000 |
| GR | 904.400 | 420.000 | 905.100 | 445.000 | 906.000 | 465.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| QT | 2.000 | 180.000 | 180.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | 9.100 | 9.100 | .000 | .000 | .000 | .000 | .000 | 113.000 | 175.000 |
| X1 | 6.000 | 15.000 | 160.000 | 170.000 | 160.000 | 170.000 | 160.000 | .000 | .000 | .000 |
| GR | 905.200 | .000 | 905.300 | 25.000 | 905.700 | 50.000 | 905.400 | 75.000 | 906.000 | 100.000 |
| GR | 905.700 | 125.000 | 905.100 | 160.000 | 905.300 | 170.000 | 905.900 | 172.000 | 906.100 | 175.000 |
| GR | 906.900 | 200.000 | 907.400 | 225.000 | 907.600 | 250.000 | 908.800 | 275.000 | 909.500 | 300.000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | .000 | .000 | .000 | .200 | 31.800 | .000 | .000 |
| X1 | 6.900 | 9.000 | 10.000 | 16.250 | 80.000 | 80.000 | 80.000 | .000 | .000 | .000 |
| GR | 909.000 | .000 | 906.700 | 8.000 | 905.500 | 10.000 | 905.300 | 11.000 | 905.300 | 16.000 |
| GR | 905.500 | 16.250 | 906.200 | 17.000 | 906.200 | 19.000 | 910.000 | 32.000 | .000 | .000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | .000 | .000 | .000 | 75.000 | 208.000 | .000 | .000 |
| X1 | 6.940 | 13.000 | 95.000 | 105.000 | 20.000 | 20.000 | 20.000 | .000 | -1.020 | .000 |
| GR | 909.800 | .000 | 911.300 | 25.000 | 912.200 | 50.000 | 912.800 | 75.000 | 907.600 | 95.000 |
| GR | 906.700 | 97.000 | 906.400 | 100.000 | 906.600 | 102.000 | 907.500 | 105.000 | 916.200 | 134.000 |
| GR | 916.600 | 159.000 | 917.300 | 184.000 | 917.400 | 209.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | .000 | .000 | .000 | 75.000 | 208.000 | .000 | .000 |
| X1 | 6.950 | 13.000 | 95.000 | 105.000 | 40.000 | 40.000 | 40.000 | .000 | -.870 | .000 |
| GR | 909.800 | .000 | 911.300 | 25.000 | 912.200 | 50.000 | 912.800 | 75.000 | 907.600 | 95.000 |
| GR | 906.700 | 97.000 | 906.400 | 100.000 | 906.600 | 102.000 | 907.500 | 105.000 | 916.200 | 134.000 |
| GR | 916.600 | 159.000 | 917.300 | 184.000 | 917.400 | 209.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | .000 | .000 | .000 | 75.000 | 208.000 | .000 | .000 |
| X1 | 7.000 | .000 | .000 | .000 | 225.000 | 225.000 | 225.000 | .000 | .900 | .000 |
| | | | | | | | | | | |
| ET | .000 | .000 | .400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 8.000 | 10.000 | 5.000 | 55.000 | 578.000 | 578.000 | 578.000 | .000 | .000 | .000 |
| X5 | 4.000 | 915.110 | 915.110 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| GR | 917.700 | .000 | 917.400 | 5.000 | 910.100 | 26.000 | 909.300 | 27.000 | 909.300 | 30.000 |
| GR | 909.100 | 33.500 | 909.600 | 34.300 | 916.700 | 55.000 | 917.300 | 60.000 | 918.100 | 80.000 |
| | | | | | | | | | | |
| QT | 2.000 | 139.000 | 139.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 9.000 | 10.000 | 70.500 | 95.500 | 185.000 | 185.000 | 185.000 | .000 | .000 | .000 |
| GR | 920.200 | .000 | 920.100 | 25.000 | 919.700 | 40.000 | 918.700 | 65.000 | 913.500 | 70.500 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 910.200 | 80.500 | 910.200 | 85.500 | 913.500 | 95.500 | 920.000 | 116.000 | 921.000 | 161.000 |
| NC | .030 | .030 | .030 | .800 | .900 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | .000 | 1.400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 10.000 | 10.000 | 70.500 | 95.500 | 8.600 | 8.600 | 8.600 | .000 | .000 | .000 |
| GR | 920.200 | .000 | 920.100 | 25.000 | 919.700 | 40.000 | 918.700 | 65.000 | 915.500 | 70.500 |
| GR | 914.500 | 80.500 | 914.500 | 85.500 | 915.500 | 95.500 | 920.000 | 116.000 | 921.000 | 161.000 |
| NC | .030 | .030 | .030 | .400 | .600 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 1.000 | 108.000 | .000 | .000 |
| X1 | 11.000 | 8.000 | 37.000 | 60.000 | 179.000 | 179.000 | 179.000 | .000 | .000 | .000 |
| GR | 920.900 | .000 | 918.800 | 37.000 | 915.100 | 50.000 | 915.100 | 53.000 | 918.000 | 60.000 |
| GR | 918.300 | 90.000 | 920.000 | 185.000 | 920.900 | 190.000 | .000 | .000 | .000 | .000 |
| X1 | 11.900 | 7.000 | 15.000 | 43.000 | 300.000 | 300.000 | 300.000 | .000 | .000 | .000 |
| GR | 924.400 | .000 | 920.000 | 15.000 | 916.100 | 31.500 | 916.100 | 34.500 | 919.400 | 43.000 |
| GR | 920.000 | 68.000 | 922.000 | 88.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | .000 | 1.400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 12.000 | 8.000 | 70.000 | 110.000 | 100.000 | 100.000 | 95.000 | .000 | .000 | .000 |
| GR | 923.400 | .000 | 922.000 | 40.000 | 920.400 | 70.000 | 920.200 | 100.000 | 920.400 | 110.000 |
| GR | 920.900 | 135.000 | 922.000 | 195.000 | 924.000 | 310.000 | .000 | .000 | .000 | .000 |
| EJ | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

1

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 1

CCHV= .400 CEHV= .600

*SECNO 1.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.00 | 6.50 | 888.80 | .00 | 888.80 | 888.99 | .19 | .00 | .00 | 883.00 |
| 494. | 108. | 310. | 76. | 48. | 76. | 34. | 0. | 0. | 883.20 |
| .00 | 2.27 | 4.06 | 2.24 | .030 | .030 | .030 | .000 | 882.30 | 3.64 |
| .000589 | 0. | 0. | 0. | 0 | 0 | 0 | .00 | 52.50 | 56.13 |

0

*SECNO 2.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.00 | 5.90 | 888.80 | .00 | .00 | 889.08 | .28 | .04 | .06 | 883.60 |
| 494. | 97. | 324. | 73. | 34. | 67. | 27. | 0. | 0. | 883.80 |
| .00 | 2.86 | 4.87 | 2.71 | .030 | .030 | .030 | .000 | 882.90 | 14.51 |
| .001002 | 55. | 52. | 45. | 2 | 0 | 0 | .00 | 40.33 | 54.84 |

0

*SECNO 2.250

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.25 | 4.32 | 888.92 | .00 | .00 | 889.60 | .68 | .28 | .24 | 885.80 |
| 494. | 81. | 309. | 104. | 20. | 41. | 22. | 1. | 0. | 885.10 |
| .01 | 4.12 | 7.60 | 4.81 | .030 | .030 | .030 | .000 | 884.60 | 17.89 |
| .003803 | 154. | 159. | 157. | 0 | 0 | 0 | .00 | 35.75 | 53.64 |

0

*SECNO 2.500

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.50 | 3.85 | 890.15 | 890.15 | .00 | 890.91 | .77 | .74 | .05 | 888.00 |
| 494. | 105. | 328. | 61. | 26. | 40. | 16. | 1. | 0. | 888.00 |
| .02 | 4.11 | 8.14 | 3.96 | .030 | .030 | .030 | .000 | 886.30 | 100.98 |
| .005890 | 154. | 159. | 156. | 4 | 15 | 0 | .00 | 52.51 | 153.49 |

0

*SECNO 3.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.00 | 3.05 | 896.25 | 896.25 | .00 | 896.73 | .47 | 3.62 | .12 | 894.60 |
| 494. | 149. | 181. | 164. | 35. | 25. | 40. | 2. | 1. | 894.60 |
| .05 | 4.27 | 7.27 | 4.14 | .030 | .030 | .030 | .000 | 893.20 | 27.42 |
| .006444 | 582. | 637. | 482. | 16 | 14 | 0 | .00 | 88.30 | 115.72 |

0


| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |


*SECNO 3.500

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.50 | 3.03 | 902.23 | 902.22 | .00 | 902.72 | .49 | 5.98 | .01 | 900.80 |
| 494. | 142. | 207. | 146. | 51. | 26. | 50. | 4. | 3. | 900.50 |
| .09 | 2.79 | 7.99 | 2.89 | .060 | .035 | .060 | .000 | 899.20 | 77.76 |
| .012028 | 710. | 750. | 615. | 11 | 5 | 0 | .00 | 123.98 | 201.74 |

```
0
 *SECNO 3.750
      3.75     4.28   904.08      .00      .00   904.40      .32     1.62      .07   901.20
      494.      53.      230.     211.      32.      37.      92.      5.       4.    901.70
       .10     1.64     6.24     2.30     .060     .035     .060     .000   899.80   200.41
   .004189     195.     250.     265.        1        0        0      .00   151.17   351.58
0
 *SECNO 4.000
      4.00     4.39   904.89      .00      .00   904.94      .05     .43      .11   902.10
      494.     187.     124.     183.     155.      41.     148.      6.       5.    901.80
       .14     1.20     3.03     1.24     .060     .035     .060     .000   900.50    36.55
   .000940     230.     265.     245.        3        0        0      .00   195.96   232.51
0
 *SECNO 5.000

 3470 ENCROACHMENT STATIONS=     125.0     332.0  TYPE=     1  TARGET=     207.000
      5.00     3.03   905.63      .00      .00   905.66      .03     .70      .01   903.10
      323.     136.      97.      90.     145.      49.     109.     13.       8.    903.60
       .35      .94     1.99      .83     .060     .035     .060     .000   902.60   136.82
   .000589     905.     915.     920.        3        0        0      .00   177.54   314.36
0
 *SECNO 5.500

 3470 ENCROACHMENT STATIONS=     110.0     330.0  TYPE=     1  TARGET=     220.000
      5.50     3.40   905.70      .00      .00   905.70      .01     .04      .01   902.90
      323.      44.      222.     58.      121.     311.     158.     16.      10.    903.00
       .48      .36      .71      .36     .060     .035     .060     .000   902.30   119.21
   .000062     280.     285.     305.        2        0        0      .00   210.79   330.00
0
 *SECNO 6.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
1
  01-13-92     11:17:19                                                              PAGE

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=     113.0     175.0  TYPE=     1  TARGET=      62.000
      6.00     1.12   906.22   906.22      .00   906.57      .35     .02      .21   905.10
      180.     108.      68.      4.       34.      10.      2.      17.      10.    905.30
       .49     3.17     6.64     2.23     .060     .035     .060     .000   905.10   113.00
   .023822     160.     160.     170.       20       17        0      .00    62.00   175.00
```

0

*SECNO 6.900

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | .2 | 31.8 | TYPE= | 1 | TARGET= | 31.600 | |
| 6.90 | 2.58 | 907.88 | 907.88 | .00 | 908.73 | .85 | 1.27 | .30 | 905.50 |
| 180. | 17. | 134. | 29. | 6. | 16. | 10. | 17. | 10. | 905.50 |
| .50 | 2.81 | 8.39 | 2.97 | .060 | .035 | .060 | .000 | 905.30 | 3.89 |
| .011339 | 80. | 80. | 80. | 2 | 17 | 0 | .00 | 20.87 | 24.75 |

0

*SECNO 6.940

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 75.0 | 208.0 | TYPE= | 1 | TARGET= | 133.000 | |
| 6.94 | 3.27 | 908.65 | .00 | .00 | 909.04 | .39 | .13 | .18 | 906.58 |
| 180. | 13. | 154. | 13. | 8. | 29. | 8. | 17. | 10. | 906.48 |
| .50 | 1.59 | 5.37 | 1.63 | .060 | .035 | .060 | .000 | 905.38 | 87.02 |
| .004121 | 20. | 20. | 20. | 5 | 0 | 0 | .00 | 25.23 | 112.25 |

0

*SECNO 6.950

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 75.0 | 208.0 | TYPE= | 1 | TARGET= | 133.000 | |
| 6.95 | 3.30 | 908.83 | .00 | .00 | 909.21 | .38 | .16 | .00 | 906.73 |
| 180. | 13. | 154. | 13. | 8. | 29. | 8. | 17. | 10. | 906.63 |
| .50 | 1.58 | 5.31 | 1.62 | .060 | .035 | .060 | .000 | 905.53 | 86.92 |
| .003975 | 40. | 40. | 40. | 2 | 0 | 0 | .00 | 25.42 | 112.34 |

0

*SECNO 7.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 75.0 | 208.0 | TYPE= | 1 | TARGET= | 133.000 | |
| 7.00 | 3.29 | 909.72 | .00 | .00 | 910.10 | .38 | .89 | .00 | 907.63 |
| 180. | 13. | 154. | 13. | 8. | 29. | 8. | 17. | 10. | 907.53 |
| .51 | 1.58 | 5.31 | 1.62 | .060 | .035 | .060 | .000 | 906.43 | 86.92 |
| .003979 | 225. | 225. | 225. | 1 | 0 | 0 | .00 | 25.42 | 112.34 |

0

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 8.000

WATER EL=X5 CARD= 915.110

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.00 | 6.01 | 915.11 | .00 | .00 | 915.14 | .03 | .35 | .14 | 917.40 |
| 180. | 0. | 180. | 0. | 0. | 128. | 0. | 18. | 11. | 916.70 |
| .63 | .00 | 1.40 | .00 | .060 | .035 | .060 | .000 | 909.10 | 11.59 |
| .000237 | 578. | 578. | 578. | 0 | 0 | 0 | .00 | 38.78 | 50.36 |

0

*SECNO 9.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.00 | 4.95 | 915.15 | .00 | .00 | 915.19 | .04 | .04 | .00 | 913.50 |
| 139. | 0. | 137. | 1. | 1. | 91. | 4. | 19. | 11. | 913.50 |
| .66 | .27 | 1.51 | .33 | .060 | .035 | .060 | .000 | 910.20 | 68.75 |
| .000240 | 185. | 185. | 185. | 2 | 0 | 0 | .00 | 31.95 | 100.71 |

0

```
CCHV=    .800 CEHV=    .900
*SECNO 10.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    10.00     1.39   915.89   915.89      .00   916.37      .48      .01      .40   915.50
     139.       0.     138.       1.       0.      25.       0.      19.      11.   915.50
      .66     1.72     5.58     1.86     .030     .030     .030     .000   914.50    69.83
   .012958       9.       9.       9.       20       14        0      .00    27.44    97.27
0
CCHV=    .400 CEHV=    .600
*SECNO 11.000

3470 ENCROACHMENT STATIONS=       1.0     108.0  TYPE=     1  TARGET=     107.000
    11.00     2.54   917.64      .00      .00   918.06      .42     1.67      .02   918.80
     139.       0.     139.       0.       0.      27.       0.      19.      11.   918.00
      .67      .00     5.22      .00     .030     .030     .030     .000   915.10    41.10
   .007027     179.     179.     179.        2        0        0      .00    18.01    59.11
0
 *SECNO 11.900
    11.90     3.04   919.14      .00      .00   919.32      .18     1.16      .10   920.00
     139.       0.     139.       0.       0.      41.       0.      19.      11.   919.40
      .70      .00     3.41      .00     .030     .030     .030     .000   916.10    18.61
   .002435     300.     300.     300.        3        0        0      .00    23.73    42.35
0
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *SECNO 12.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
    12.00      .77   920.97   920.97      .00   921.20      .23      .44      .03   920.40
     139.       7.     111.      20.       3.      27.       8.      19.      11.   920.40
      .70     2.35     4.16     2.51     .030     .030     .030     .000   920.20    59.32
   .012070     100.       95.     100.       20       11        0      .00    79.46   138.78
0
1
  01-13-92     11:17:19                                                                PAGE


 ***************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
   ERROR CORR -  01,02,03,04,05,06
   MODIFICATION -  50,51,52,53,54,55,56
   IBM-PC-XT VERSION AUGUST 1985
 ***************************************************
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T1       RANDOLPH DRAIN FLOOD ANALYSIS - 10/87 APPEAL  FILE:APPEAL
T2       CITY OF NORTHVILLE  JOB NO. 6800-50  100-YEAR EVENT ENCR
T3       RANDOLPH DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       3.        0.        0.   .000000       .00        .0        0.   888.800      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000

1
 01-13-92     11:17:19                                                                          PAGE


   SECNO     DEPTH     CWSEL     CRIWS     WSELR     EG        HV        EL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 2

 CCHV=    .400 CEHV=    .600
 *SECNO 1.000
  2800 NAT Q1=   203.63  WSEL=    888.80  ENC Q1=    203.63  WSEL=    888.90  RATIO=   .0000
  NAT Q1=    211.  RATIOS LOB,CH,ROB=   .2239   .6206   .1555  WSEL=    888.90

 3470 ENCROACHMENT STATIONS=      19.0      51.7  TYPE=     4  TARGET=       .036
      1.00      6.50   888.80      .00   888.80   889.01      .21      .00      .00   883.00
      494.      106.      317.      72.      41.      76.      29.       0.       0.   883.20
       .00      2.57      4.15     2.44     .030     .030     .030     .000   882.30    19.01
    .000615       0.        0.       0.        0        0        0      .00    32.66    51.67
0
 *SECNO 2.000
  2800 NAT Q1=    156.08  WSEL=    888.80  ENC Q1=    156.08  WSEL=    888.90  RATIO=   .0000
  NAT Q1=    162.  RATIOS LOB,CH,ROB=   .2009   .6486   .1505  WSEL=    888.90

 3470 ENCROACHMENT STATIONS=      22.8      50.7  TYPE=     4  TARGET=       .039
      2.00      5.90   888.80      .00   888.80   889.11      .31      .04      .06   883.60
      494.       95.      331.      68.      31.      67.      23.       0.       0.   883.80
       .00      3.10      4.98     2.95     .030     .030     .030     .000   882.90    22.80
    .001049      55.       52.      45.        2        0        0      .00    27.87    50.67
0
 *SECNO 2.250
  2800 NAT Q1=     80.11  WSEL=    888.92  ENC Q1=     80.11  WSEL=    889.02  RATIO=   .0000
  NAT Q1=     85.  RATIOS LOB,CH,ROB=   .1703   .6154   .2143  WSEL=    889.02

 3470 ENCROACHMENT STATIONS=      25.1      49.7  TYPE=     4  TARGET=       .053
      2.25      4.31   888.91      .00   888.92   889.68      .77      .29      .28   885.80
      494.       74.      321.      99.      16.      41.      19.       1.       0.   885.10
       .01      4.76      7.91     5.17     .030     .030     .030     .000   884.60    25.06
    .004136     154.      159.     157.        2        0        0      .00    24.59    49.65
```

0

*SECNO 2.500

2800 NAT Q1= 64.37 WSEL= 890.15 ENC Q1= 64.37 WSEL= 890.25 RATIO= .0000

NAT Q1= 70. RATIOS LOB,CH,ROB= .2266 .6435 .1299 WSEL= 890.25

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 115.5 144.3 TYPE= 4 TARGET= .076

1

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 2.50 | 3.70 | 890.00 | 890.00 | 890.15 | 891.09 | 1.09 | .89 | .19 | 888.00 |
| 494. | 93. | 357. | 45. | 17. | 38. | 8. | 1. | 0. | 888.00 |
| .02 | 5.47 | 9.27 | 5.30 | .030 | .030 | .030 | .000 | 886.30 | 115.53 |
| .008114 | 154. | 159. | 156. | 2 | 15 | 0 | .00 | 28.74 | 144.27 |

0

*SECNO 3.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.00 | 2.99 | 896.19 | 896.19 | 896.25 | 896.73 | .54 | 4.64 | .22 | 894.60 |
| 494. | 147. | 188. | 159. | 32. | 24. | 37. | 2. | 1. | 894.60 |
| .04 | 4.52 | 7.75 | 4.35 | .030 | .030 | .030 | .000 | 893.20 | 28.57 |
| .007574 | 582. | 637. | 482. | 5 | 15 | 0 | .00 | 85.71 | 114.28 |

0

*SECNO 3.500

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.50 | 3.12 | 902.32 | 902.25 | 902.23 | 902.72 | .40 | 5.94 | .06 | 900.80 |
| 494. | 147. | 198. | 150. | 56. | 27. | 56. | 4. | 3. | 900.50 |
| .09 | 2.61 | 7.35 | 2.69 | .060 | .035 | .060 | .000 | 899.20 | 75.47 |
| .009684 | 710. | 750. | 615. | 12 | 5 | 0 | .00 | 128.56 | 204.03 |

0

*SECNO 3.750

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.75 | 4.20 | 904.00 | .00 | 904.08 | 904.37 | .37 | 1.63 | .01 | 901.20 |
| 494. | 49. | 238. | 207. | 27. | 36. | 86. | 4. | 3. | 901.70 |
| .10 | 1.80 | 6.62 | 2.41 | .060 | .035 | .060 | .000 | 899.80 | 255.10 |
| .004868 | 195. | 250. | 265. | 5 | 0 | 0 | .00 | 94.76 | 349.86 |

0

*SECNO 4.000

2800 NAT Q1= 161.13 WSEL= 904.89 ENC Q1= 161.13 WSEL= 904.99 RATIO= .0000

NAT Q1= 173. RATIOS LOB,CH,ROB= .3821 .2438 .3740 WSEL= 904.99

3470 ENCROACHMENT STATIONS= 75.1 202.3 TYPE= 4 TARGET= .067

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.00 | 4.41 | 904.91 | .00 | 904.89 | 904.97 | .06 | .49 | .12 | 902.10 |
| 494. | 184. | 131. | 179. | 133. | 41. | 128. | 6. | 4. | 901.80 |
| .14 | 1.38 | 3.20 | 1.40 | .060 | .035 | .060 | .000 | 900.50 | 75.15 |
| .001043 | 230. | 265. | 245. | 2 | 0 | 0 | .00 | 127.17 | 202.32 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 5.000

3470 ENCROACHMENT STATIONS= 125.0 332.0 TYPE= 1 TARGET= 207.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.00 | 3.08 | 905.68 | .00 | 905.63 | 905.71 | .03 | .72 | .02 | 903.10 |
| 323. | 137. | 96. | 91. | 149. | 49. | 112. | 12. | 7. | 903.60 |
| .35 | .92 | 1.94 | .81 | .060 | .035 | .060 | .000 | 902.60 | 136.59 |
| .000546 | 905. | 915. | 920. | 4 | 0 | 0 | .00 | 179.20 | 315.79 |

0

*SECNO 5.500

3470 ENCROACHMENT STATIONS= 110.0 330.0 TYPE= 1 TARGET= 220.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.50 | 3.45 | 905.75 | .00 | 905.70 | 905.75 | .01 | .04 | .01 | 902.90 |
| 323. | 44. | 221. | 58. | 123. | 316. | 161. | 15. | 8. | 903.00 |
| .49 | .36 | .70 | .36 | .060 | .035 | .060 | .000 | 902.30 | 119.01 |
| .000059 | 280. | 285. | 305. | 2 | 0 | 0 | .00 | 210.99 | 330.00 |

0

*SECNO 6.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 113.0 175.0 TYPE= 1 TARGET= 62.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.00 | 1.12 | 906.22 | 906.22 | 906.22 | 906.57 | .35 | .02 | .21 | 905.10 |
| 180. | 108. | 68. | 4. | 34. | 10. | 2. | 16. | 9. | 905.30 |
| .50 | 3.17 | 6.65 | 2.24 | .060 | .035 | .060 | .000 | 905.10 | 113.00 |
| .023887 | 160. | 160. | 170. | 20 | 17 | 0 | .00 | 62.00 | 175.00 |

0

*SECNO 6.900

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= .2 31.8 TYPE= 1 TARGET= 31.600

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.90 | 2.58 | 907.88 | 907.88 | 907.88 | 908.73 | .85 | 1.27 | .30 | 905.50 |
| 180. | 17. | 134. | 29. | 6. | 16. | 10. | 16. | 9. | 905.50 |
| .50 | 2.81 | 8.38 | 2.97 | .060 | .035 | .060 | .000 | 905.30 | 3.89 |
| .011333 | 80. | 80. | 80. | 2 | 17 | 0 | .00 | 20.87 | 24.76 |

0

*SECNO 6.940

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

```
 3470 ENCROACHMENT STATIONS=      75.0     208.0  TYPE=     1  TARGET=     133.000
      6.94      3.27   908.65      .00   908.65   909.04      .39      .13      .18   906.58
      180.       13.      154.      13.       8.      29.       8.      16.       9.    906.48
       .50      1.59      5.37     1.63     .060     .035     .060     .000   905.38    87.02
   .004122       20.       20.       20.        5        0        0      .00    25.23   112.25
0
 *SECNO 6.950

 3470 ENCROACHMENT STATIONS=      75.0     208.0  TYPE=     1  TARGET=     133.000
      6.95      3.30   908.83      .00   908.83   909.21      .38      .16      .00   906.73
      180.       13.      154.      13.       8.      29.       8.      16.       9.    906.63
       .50      1.58      5.31     1.62     .060     .035     .060     .000   905.53    86.92
   .003975       40.       40.       40.        2        0        0      .00    25.42   112.34
0
 *SECNO 7.000

 3470 ENCROACHMENT STATIONS=      75.0     208.0  TYPE=     1  TARGET=     133.000
      7.00      3.29   909.72      .00   909.72   910.10      .38      .89      .00   907.63
      180.       13.      154.      13.       8.      29.       8.      17.       9.    907.53
       .52      1.58      5.31     1.62     .060     .035     .060     .000   906.43    86.92
   .003979      225.      225.      225.        1        0        0      .00    25.42   112.34
0
 *SECNO 8.000
  WATER EL=X5 CARD=   915.110
      8.00      6.01   915.11      .00   915.11   915.14      .03      .35      .14   917.40
      180.        0.      180.       0.        0.      128.       0.      18.      10.    916.70
       .63       .00      1.40      .00     .060     .035     .060     .000   909.10    11.59
   .000237      578.      578.      578.        0        0        0      .00    38.78    50.36
0
 *SECNO 9.000
  2800 NAT Q1=      89.70  WSEL=    915.15  ENC Q1=      89.70  WSEL=    915.15  RATIO=    .0000
  NAT Q1=      90.  RATIOS LOB,CH,ROB=    .0028    .9870    .0101  WSEL=    915.15

 3470 ENCROACHMENT STATIONS=      69.3      99.0  TYPE=     4  TARGET=        .001
      9.00      4.95   915.15      .00   915.15   915.19      .04      .04      .00   913.50
      139.        0.      137.       1.        1.      91.       4.      18.      10.    913.50
       .67       .27      1.51      .36     .060     .035     .060     .000   910.20    69.30
   .000240      185.      185.      185.        0        0        0      .00    29.71    99.01
0
1
  01-13-92     11:17:19                                                                  PAGE


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


  CCHV=    .800 CEHV=    .900
  *SECNO 10.000
   2800 NAT Q1=      12.21  WSEL=    915.89  ENC Q1=      14.25  WSEL=    915.99  RATIO=  -.1667
   NAT Q1=      14.  RATIOS LOB,CH,ROB=    .0025    .9902    .0072  WSEL=    915.99
```

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3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      70.5      95.5  TYPE=     4  TARGET=        .010
    10.00      1.38   915.88   915.88   915.89   916.38      .50      .01      .42   915.50
     139.        0.     139.       0.       0.      25.       0.      18.      10.   915.50
      .67       .00     5.65      .00     .030     .030     .030     .000   914.50    70.50
  .013943        9.       9.       9.       20       14        0      .00    25.00    95.50
0
CCHV=    .400 CEHV=    .600
*SECNO 11.000

3470 ENCROACHMENT STATIONS=       1.0     108.0  TYPE=     1  TARGET=     107.000
    11.00      2.57   917.67      .00   917.64   918.07      .40     1.66      .04   918.80
     139.        0.     139.       0.       0.      27.       0.      18.      10.   918.00
      .68       .00     5.10      .00     .030     .030     .030     .000   915.10    40.97
  .006581      179.     179.     179.        3        0        0      .00    18.23    59.20
0
*SECNO 11.900
    11.90      3.03   919.13      .00   919.14   919.31      .19     1.15      .09   920.00
     139.        0.     139.       0.       0.      40.       0.      19.      10.   919.40
      .70       .00     3.45      .00     .030     .030     .030     .000   916.10    18.70
  .002511      300.     300.     300.        4        0        0      .00    23.60    42.29
0
*SECNO 12.000
 2800 NAT Q1=     12.65  WSEL=    920.97  ENC Q1=     12.80  WSEL=    921.07  RATIO=  -.0115
 NAT Q1=     17.  RATIOS LOB,CH,ROB=   .0597   .7626   .1778  WSEL=    921.07
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      70.0     110.0  TYPE=     4  TARGET=        .237
    12.00       .82   921.02   921.02   920.97   921.38      .36      .48      .11   920.40
     139.        0.     139.       0.       0.      29.       0.      19.      10.   920.40
      .71       .00     4.84      .00     .030     .030     .030     .000   920.20    70.00
  .015470      100.      95.     100.       20       14        0      .00    40.00   110.00
0
1
 01-13-92     11:17:19                                                                    PAGE


                                                                  THIS RUN EXECUTED 01-13-92
 ***************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
   ERROR CORR -  01,02,03,04,05,06
   MODIFICATION -  50,51,52,53,54,55,56
   IBM-PC-XT VERSION AUGUST 1985
 ***************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RANDOLPH DRAIN

SUMMARY PRINTOUT TABLE 110

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 888.80 | .00 | 888.99 | 52.50 | 107.93 | 310.03 | 76.05 | .00 | .00 | 32.00 | 44.00 | .00 |
| | 1.000 | 888.80 | .00 | 889.01 | 32.66 | 105.63 | 316.81 | 71.57 | .04 | 19.01 | 32.00 | 44.00 | 51.67 |
| | 2.000 | 888.80 | .00 | 889.08 | 40.33 | 96.94 | 323.65 | 73.41 | .00 | .00 | 32.00 | 44.00 | .00 |
| | 2.000 | 888.80 | .00 | 889.11 | 27.87 | 94.77 | 331.13 | 68.10 | .04 | 22.80 | 32.00 | 44.00 | 50.68 |
| | 2.250 | 888.92 | .00 | 889.60 | 35.75 | 80.86 | 309.21 | 103.93 | .00 | .00 | 32.00 | 42.00 | .00 |
| | 2.250 | 888.91 | -.01 | 889.68 | 24.59 | 74.14 | 320.54 | 99.32 | .05 | 25.06 | 32.00 | 42.00 | 49.65 |
| * | 2.500 | 890.15 | .00 | 890.91 | 52.51 | 104.90 | 327.60 | 61.50 | .00 | .00 | 127.00 | 139.00 | .00 |
| * | 2.500 | 890.00 | -.15 | 891.09 | 28.74 | 92.64 | 356.51 | 44.85 | .08 | 115.53 | 127.00 | 139.00 | 144.27 |
| * | 3.000 | 896.25 | .00 | 896.73 | 88.30 | 148.97 | 180.89 | 164.13 | .00 | .00 | 63.00 | 72.00 | .00 |
| * | 3.000 | 896.19 | -.07 | 896.73 | 85.71 | 146.52 | 188.01 | 159.47 | .00 | .00 | 63.00 | 72.00 | .00 |
| | 3.500 | 902.23 | .00 | 902.72 | 123.98 | 141.72 | 206.67 | 145.61 | .00 | .00 | 135.00 | 146.00 | .00 |
| | 3.500 | 902.32 | .09 | 902.72 | 128.56 | 146.57 | 197.62 | 149.81 | .00 | .00 | 135.00 | 146.00 | .00 |
| | 3.750 | 904.08 | .00 | 904.40 | 151.17 | 52.52 | 230.17 | 211.32 | .00 | .00 | 281.00 | 291.00 | .00 |
| | 3.750 | 904.00 | -.09 | 904.37 | 94.76 | 48.92 | 237.70 | 207.38 | .00 | .00 | 281.00 | 291.00 | .00 |
| | 4.000 | 904.89 | .00 | 904.94 | 195.96 | 186.85 | 123.75 | 183.41 | .00 | .00 | 135.00 | 146.00 | .00 |
| | 4.000 | 904.91 | .02 | 904.97 | 127.17 | 183.56 | 131.18 | 179.26 | .07 | 75.15 | 135.00 | 146.00 | 202.32 |
| | 5.000 | 905.63 | .00 | 905.66 | 177.54 | 136.46 | 96.91 | 89.63 | 207.00 | 125.00 | 214.00 | 232.00 | 332.00 |
| | 5.000 | 905.68 | .05 | 905.71 | 179.20 | 136.51 | 95.95 | 90.53 | 207.00 | 125.00 | 214.00 | 232.00 | 332.00 |
| | 5.500 | 905.70 | .00 | 905.70 | 210.79 | 43.73 | 221.73 | 57.54 | 220.00 | 110.00 | 170.00 | 270.00 | 330.00 |
| | 5.500 | 905.75 | .05 | 905.75 | 210.99 | 43.91 | 221.39 | 57.70 | 220.00 | 110.00 | 170.00 | 270.00 | 330.00 |
| * | 6.000 | 906.22 | .00 | 906.57 | 62.00 | 107.98 | 67.77 | 4.25 | 62.00 | 113.00 | 160.00 | 170.00 | 175.00 |
| * | 6.000 | 906.22 | .00 | 906.57 | 62.00 | 107.97 | 67.78 | 4.24 | 62.00 | 113.00 | 160.00 | 170.00 | 175.00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 6.900 | 907.88 | .00 | 908.73 | 20.87 | 16.87 | 134.28 | 28.85 | 31.60 | .20 | 10.00 | 16.25 | 31.80 |
| * | 6.900 | 907.88 | .00 | 908.73 | 20.87 | 16.87 | 134.27 | 28.85 | 31.60 | .20 | 10.00 | 16.25 | 31.80 |
| | 6.940 | 908.65 | .00 | 909.04 | 25.23 | 13.20 | 153.92 | 12.88 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| | 6.940 | 908.65 | .00 | 909.04 | 25.23 | 13.20 | 153.93 | 12.88 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| | 6.950 | 908.83 | .00 | 909.21 | 25.42 | 13.41 | 153.52 | 13.06 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| | 6.950 | 908.83 | .00 | 909.21 | 25.42 | 13.41 | 153.52 | 13.06 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| | 7.000 | 909.72 | .00 | 910.10 | 25.42 | 13.40 | 153.54 | 13.06 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| | 7.000 | 909.72 | .00 | 910.10 | 25.42 | 13.40 | 153.54 | 13.06 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| * | 8.000 | 915.11 | .00 | 915.14 | 38.78 | .00 | 180.00 | .00 | .00 | .00 | 5.00 | 55.00 | .00 |
| * | 8.000 | 915.11 | .00 | 915.14 | 38.78 | .00 | 180.00 | .00 | .00 | .00 | 5.00 | 55.00 | .00 |
| | 9.000 | 915.15 | .00 | 915.19 | 31.95 | .39 | 137.20 | 1.40 | .00 | .00 | 70.50 | 95.50 | .00 |
| | 9.000 | 915.15 | .00 | 915.19 | 29.71 | .36 | 137.26 | 1.39 | .00 | 69.30 | 70.50 | 95.50 | 99.01 |
| * | 10.000 | 915.89 | .00 | 916.37 | 27.44 | .22 | 138.13 | .64 | .00 | .00 | 70.50 | 95.50 | .00 |
| * | 10.000 | 915.88 | -.01 | 916.38 | 25.00 | .00 | 139.00 | .00 | .01 | 70.50 | 70.50 | 95.50 | 95.50 |
| | 11.000 | 917.64 | .00 | 918.06 | 18.01 | .00 | 139.00 | .00 | 107.00 | 1.00 | 37.00 | 60.00 | 108.00 |
| | 11.000 | 917.67 | .03 | 918.07 | 18.23 | .00 | 139.00 | .00 | 107.00 | 1.00 | 37.00 | 60.00 | 108.00 |
| | 11.900 | 919.14 | .00 | 919.32 | 23.73 | .00 | 139.00 | .00 | .00 | .00 | 15.00 | 43.00 | .00 |
| | 11.900 | 919.13 | -.01 | 919.31 | 23.60 | .00 | 139.00 | .00 | .00 | .00 | 15.00 | 43.00 | .00 |
| * | 12.000 | 920.97 | .00 | 921.20 | 79.46 | 7.15 | 111.48 | 20.37 | .00 | .00 | 70.00 | 110.00 | .00 |
| * | 12.000 | 921.02 | .05 | 921.38 | 40.00 | .00 | 139.00 | .00 | .24 | 70.00 | 70.00 | 110.00 | 110.00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION  SECNO=     2.500  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     2.500  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     2.500  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     2.500  PROFILE= 2  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=     3.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     3.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=     6.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     6.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     6.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     6.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=     6.900  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.900  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     6.900  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.900  PROFILE= 2  MINIMUM SPECIFIC ENERGY

NOTE     SECNO=     8.000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=     8.000  PROFILE= 2  WSEL BASED ON X5 CARD

CAUTION  SECNO=    10.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    10.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    10.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    10.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    10.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    10.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=    12.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    12.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    12.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    12.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    12.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    12.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

FLOODWAY DATA, RANDOLPH DRAIN
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 1.000 | 33. | 147. | 3.4 | 888.8 | 888.8 | .0 |
| 2.000 | 28. | 120. | 4.1 | 888.8 | 888.8 | .0 |
| 2.250 | 25. | 75. | 6.6 | 888.9 | 888.9 | .0 |
| 2.500 | 29. | 64. | 7.7 | 890.1 | 890.1 | .0 |
| 3.000 | 86. | 93. | 5.3 | 896.3 | 896.3 | .0 |
| 3.500 | 129. | 139. | 3.6 | 902.3 | 902.2 | .1 |
| 3.750 | 95. | 149. | 3.3 | 904.1 | 904.1 | .0 |
| 4.000 | 127. | 302. | 1.6 | 904.9 | 904.9 | .0 |
| 5.000 | 179. | 311. | 1.0 | 905.7 | 905.6 | .1 |
| 5.500 | 211. | 600. | .5 | 905.7 | 905.7 | .0 |
| 6.000 | 62. | 46. | 3.9 | 906.2 | 906.2 | .0 |
| 6.900 | 21. | 32. | 5.7 | 907.9 | 907.9 | .0 |
| 6.940 | 25. | 45. | 4.0 | 908.7 | 908.7 | .0 |
| 6.950 | 25. | 45. | 4.0 | 908.8 | 908.8 | .0 |
| 7.000 | 25. | 45. | 4.0 | 909.7 | 909.7 | .0 |
| 8.000 | 39. | 128. | 1.4 | 915.1 | 915.1 | .0 |
| 9.000 | 30. | 96. | 1.4 | 915.2 | 915.2 | .0 |
| 10.000 | 25. | 25. | 5.7 | 915.9 | 915.9 | .0 |
| 11.000 | 18. | 27. | 5.1 | 917.6 | 917.6 | .0 |
| 11.900 | 24. | 40. | 3.5 | 919.1 | 919.1 | .0 |
| 12.000 | 40. | 29. | 4.8 | 921.0 | 921.0 | .0 |

1



THIS RUN EXECUTED 01-13-92

**********
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
**********

# RANDOLPH STREET DRAIN

## EXISTING & PROPOSED

## CONDITION

## COMPARISON TABLES

RANDOLPH STREET DRAIN - FLOOD STUDY: 100 YEAR FLOOD PROFILE COMPARISON TABLE.

| McNEELY & LINCOLN ASSOCIATES | | | | | | FEMA | | | |
|---|---|---|---|---|---|---|---|---|---|
| X-SEC # | EXIST FLOW | EXIST CWSEL | PROP FLOW | PROP CWSEL | GROUND ELEVATION | X-SEC # | FLOW | CWSEL | GROUND ELEVATION |
| 1.00 | | | 433.0 | 882.50 | 877.80 | | | | |
| 1.25 | | | 433.0 | 885.91 | 881.53 | M | 400 | 884.00 | 881.53 |
| 1.50 | | | 433.0 | 888.55 | 882.63 | N | 400 | 888.00 | 882.63 |
| 2.00 | 494.0 | 888.80 | 433.0 | 888.99 | 883.06 | | | | |
| 2.10 | | | 433.0 | 889.05 | 883.06 | | | | |
| 2.25 | 494.0 | 888.92 | 433.0 | 889.36 | 884.60 | | | | |
| 2.40 | | | 433.0 | 889.66 | 885.30 | | | | |
| 2.50 | 494.0 | 890.15 | 433.0 | 890.35 | 886.30 | | | | |
| 2.60 | | | 433.0 | 891.43 | 889.50 | | | | |
| 2.70 | | | 433.0 | 893.28 | 890.21 | | | | |
| 2.80 | | | 433.0 | 896.74 | 890.70 | | | | |
| 2.90 | | | 433.0 | 897.15 | 891.00 | | | | |
| 2.95 | | | 433.0 | 897.19 | 891.00 | | | | |
| | | | | | | O | 400 | 895.31 | 892.00 |
| 3.00 | 494.0 | 896.25 | 433.0 | 897.22 | 893.20 | | | | |
| 3.50 | 494.0 | 902.23 | 433.0 | 902.29 | 899.20 | | | | |
| 3.75 | 494.0 | 904.08 | 433.0 | 903.93 | 899.80 | | | | |
| 4.00 | 494.0 | 904.89 | 433.0 | 904.70 | 900.50 | | | | |
| 4.25 | | | 433.0 | 904.72 | 900.80 | | | | |
| 4.50 | | | 433.0 | 905.88 | 900.90 | | | | |
| 4.75 | | | 433.0 | 905.91 | 901.30 | | | | |
| | | | | | | P | 400 | 904.20 | 901.80 |
| 5.00 | 323.0 | 905.63 | 323.0 | 906.09 | 902.60 | | | | |
| | | | | | | Q | 400 | 905.81 | 902.5 |
| 5.50 | 323.0 | 905.70 | 323.0 | 906.14 | 902.60 | | | | |
| | | | | | | R | 400 | 906.50 | 904.00 |
| 6.00 | 180.0 | 906.22 | 180.0 | 906.19 | 905.10 | | | | |
| 6.90 | 180.0 | 907.88 | 180.0 | 907.84 | 905.30 | | | | |
| 6.94 | 180.0 | 908.65 | 180.0 | 908.78 | 905.38 | | | | |
| 6.95 | 180.0 | 908.83 | 180.0 | 908.97 | 905.53 | | | | |
| | | | | | | S | 400 | 910.60 | 905.60 |
| 7.00 | 180.0 | 909.72 | 180.0 | 909.89 | 906.43 | | | | |
| 8.00 | 180.0 | 915.11 | 180.0 | 915.11 | 909.10 | T | 400 | 914.75 | 909.10 |
| 9.00 | 139.0 | 915.15 | 139.0 | 915.17 | 910.20 | | | | |
| 10.00 | 139.0 | 915.89 | 139.0 | 915.89 | 914.50 | | | | |
| 11.00 | 139.0 | 917.64 | 139.0 | 918.10 | 915.10 | | | | |
| 11.90 | 139.0 | 919.14 | 139.0 | 919.43 | 916.10 | | | | |
| 12.00 | 139.0 | 920.97 | 139.0 | 920.98 | 920.20 | U | 400 | 922.20 | 920.20 |

RANDOLPH STREET DRAIN - FLOOD STUDY: FLOW IN cfs. COMPARISON TABLE.

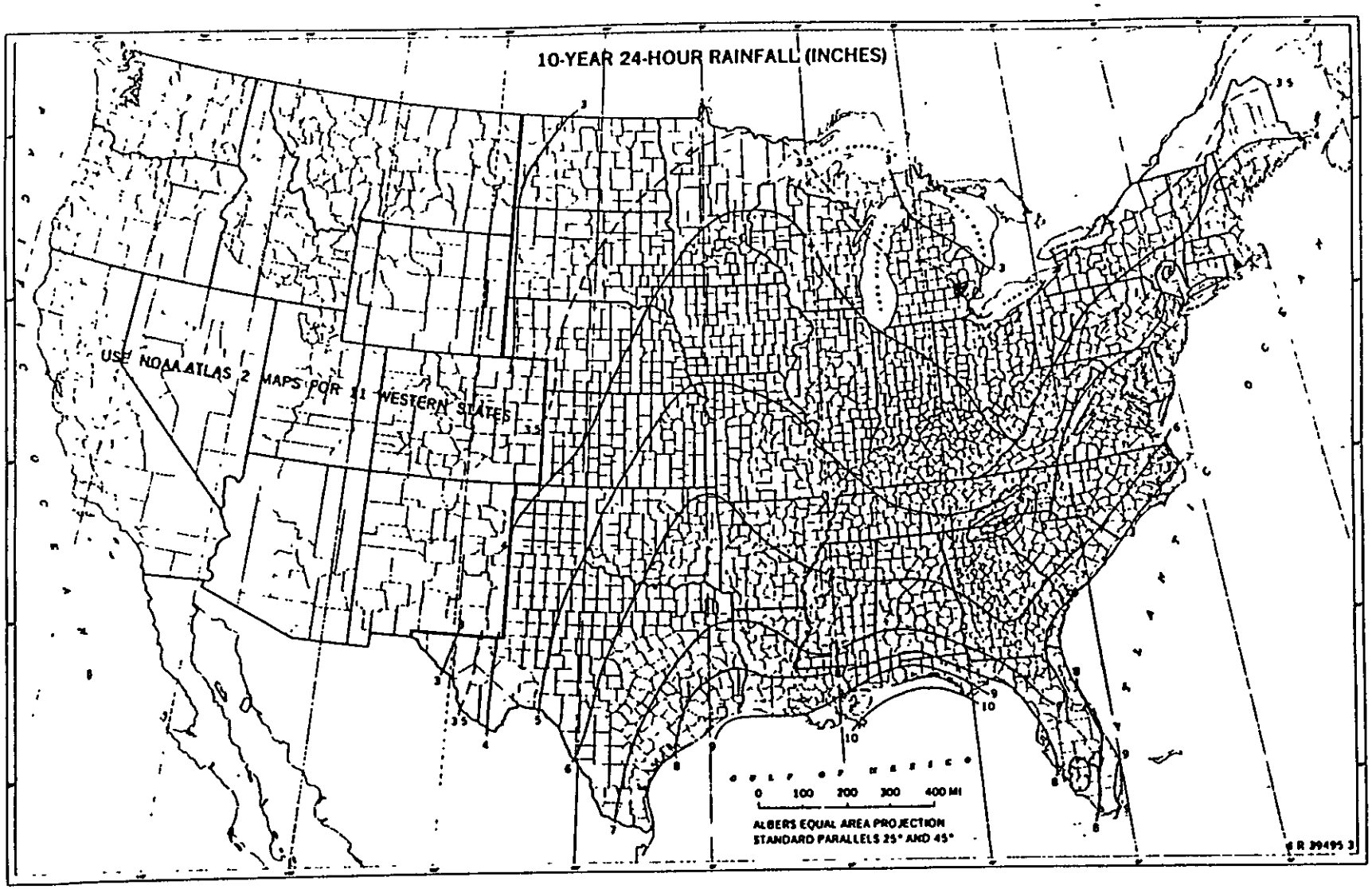
| EXIST. X-SEC. # | "EXISTING CONDITION" 1987 - STUDY FLOW 10-Yr | FLOW 50-Yr | FLOW 100-Yr | FLOW 500-Yr | PROPOSED X-SEC. # | "PROPOSED CONDITION" 1991 - STUDY FLOW 10-Yr | FLOW 50-Yr | FLOW 100-Yr | FLOW 500-Yr |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1.00 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 1.25 | 215.0 | 363.0 | 433.0 | 541.0 |
| 1.00 | 236.0 | 414.0 | 494.0 | 609.0 | 1.50 | 215.0 | 363.0 | 433.0 | 541.0 |
| 2.00 | 236.0 | 414.0 | 494.0 | 609.0 | 2.00 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.10 | 215.0 | 363.0 | 433.0 | 541.0 |
| 2.25 | 236.0 | 414.0 | 494.0 | 609.0 | 2.25 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.40 | 215.0 | 363.0 | 433.0 | 541.0 |
| 2.50 | 236.0 | 414.0 | 494.0 | 609.0 | 2.50 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.60 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.70 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.80 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.90 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.95 | 215.0 | 363.0 | 433.0 | 541.0 |
| 3.00 | 236.0 | 414.0 | 494.0 | 609.0 | 3.00 | 215.0 | 363.0 | 433.0 | 541.0 |
| 3.50 | 236.0 | 414.0 | 494.0 | 609.0 | 3.50 | 215.0 | 363.0 | 433.0 | 541.0 |
| 3.75 | 236.0 | 414.0 | 494.0 | 609.0 | 3.75 | 215.0 | 363.0 | 433.0 | 541.0 |
| 4.00 | 236.0 | 414.0 | 494.0 | 609.0 | 4.00 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 4.25 | 207.0 | 356.0 | 433.0 | 532.0 |
| | | | | | 4.50 | 207.0 | 356.0 | 433.0 | 532.0 |
| | | | | | 4.75 | 207.0 | 356.0 | 433.0 | 532.0 |
| 5.00 | 159.0 | 265.0 | 323.0 | 407.0 | 5.00 | 159.0 | 265.0 | 323.0 | 407.0 |
| 5.50 | 159.0 | 265.0 | 323.0 | 407.0 | 5.50 | 159.0 | 265.0 | 323.0 | 407.0 |
| 6.00 | 110.0 | 161.0 | 180.0 | 232.0 | 6.00 | 110.0 | 161.0 | 180.0 | 232.0 |
| 6.90 | 110.0 | 161.0 | 180.0 | 232.0 | 6.90 | 110.0 | 161.0 | 180.0 | 232.0 |
| 6.94 | 110.0 | 161.0 | 180.0 | 232.0 | 6.94 | 110.0 | 161.0 | 180.0 | 232.0 |
| 6.95 | 110.0 | 161.0 | 180.0 | 232.0 | 6.95 | 110.0 | 161.0 | 180.0 | 232.0 |
| 7.00 | 110.0 | 161.0 | 180.0 | 232.0 | 7.00 | 110.0 | 161.0 | 180.0 | 232.0 |
| 8.00 | 110.0 | 161.0 | 180.0 | 232.0 | 8.00 | 110.0 | 161.0 | 180.0 | 232.0 |
| 9.00 | 73.0 | 106.0 | 139.0 | 207.0 | 9.00 | 73.0 | 106.0 | 139.0 | 207.0 |
| 10.00 | 73.0 | 106.0 | 139.0 | 207.0 | 10.00 | 73.0 | 106.0 | 139.0 | 207.0 |
| 11.00 | 73.0 | 106.0 | 139.0 | 207.0 | 11.00 | 73.0 | 106.0 | 139.0 | 207.0 |
| 11.90 | 73.0 | 106.0 | 139.0 | 207.0 | 11.90 | 73.0 | 106.0 | 139.0 | 207.0 |
| 12.00 | 73.0 | 106.0 | 139.0 | 207.0 | 12.00 | 73.0 | 106.0 | 139.0 | 207.0 |

RANDOLPH STREET DRAIN - FLOOD STUDY: WATER SURFACE ELEVATION COMPARISON TABLE.

| EXIST. X-SEC. # | "EXISTING CONDITION" 1987 - STUDY CWSEL 10-Yr | CWSEL 50-Yr | CWSEL 100-Yr | CWSEL 500-Yr | PROPOSED X-SEC. # | GROUND ELEVATION | "PROPOSED CONDITION" 1991 - STUDY CWSEL 10-Yr | CWSEL 50-Yr | CWSEL 100-Yr | CWSEL 500-Yr |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1.00 | 877.80 | 881.60 | 882.00 | 882.50 | 883.0 |
| | | | | | 1.25 | 881.53 | 884.69 | 885.57 | 885.91 | 886.4 |
| 1.00 | 886.34 | 888.05 | 888.80 | 891.09 | 1.50 | 882.63 | 886.34 | 887.89 | 888.55 | 889.5 |
| 2.00 | 886.36 | 888.06 | 888.80 | 891.09 | 2.00 | 883.06 | 886.46 | 888.24 | 888.99 | 890.0 |
| | | | | | 2.10 | 883.06 | 886.66 | 888.33 | 889.05 | 890.1 |
| 2.25 | 887.25 | 888.20 | 888.92 | 891.12 | 2.25 | 884.60 | 887.48 | 888.74 | 889.36 | 890.3 |
| | | | | | 2.40 | 885.30 | 888.27 | 889.18 | 889.66 | 890.4 |
| 2.50 | 889.16 | 889.88 | 890.15 | 891.22 | 2.50 | 886.30 | 889.25 | 890.03 | 890.35 | 890.9 |
| | | | | | 2.60 | 889.50 | 890.90 | 891.27 | 891.43 | 891.6 |
| | | | | | 2.70 | 890.21 | 892.14 | 892.94 | 893.28 | 893.7 |
| | | | | | 2.80 | 890.70 | 894.49 | 896.07 | 896.74 | 898.3 |
| | | | | | 2.90 | 891.00 | 894.72 | 896.42 | 897.15 | 898.7 |
| | | | | | 2.95 | 891.00 | 894.76 | 896.46 | 897.19 | 898.7 |
| 3.00 | 895.68 | 896.10 | 896.25 | 896.44 | 3.00 | 893.20 | 895.81 | 896.49 | 897.22 | 898.7 |
| 3.50 | 901.75 | 902.11 | 902.23 | 902.41 | 3.50 | 899.20 | 901.96 | 902.17 | 902.29 | 902.4 |
| 3.75 | 903.31 | 903.88 | 904.08 | 904.31 | 3.75 | 899.80 | 903.13 | 903.74 | 903.93 | 904.2 |
| 4.00 | 903.99 | 904.66 | 904.89 | 905.15 | 4.00 | 900.50 | 903.87 | 904.48 | 904.70 | 904.9 |
| | | | | | 4.25 | 900.80 | 903.90 | 904.50 | 904.72 | 905.0 |
| | | | | | 4.50 | 900.90 | 904.75 | 905.70 | 905.88 | 906.0 |
| | | | | | 4.75 | 901.30 | 904.86 | 905.72 | 905.91 | 906.1 |
| 5.00 | 904.82 | 905.40 | 905.63 | 905.91 | 5.00 | 902.60 | 905.07 | 905.88 | 906.09 | 906.3 |
| 5.50 | 904.88 | 905.47 | 905.70 | 905.99 | 5.50 | 902.60 | 905.12 | 905.92 | 906.14 | 906.3 |
| 6.00 | 906.01 | 906.17 | 906.22 | 906.35 | 6.00 | 905.10 | 905.99 | 906.14 | 906.19 | 906.3 |
| 6.90 | 907.29 | 907.73 | 907.88 | 908.24 | 6.90 | 905.30 | 907.40 | 907.72 | 907.84 | 908.1 |
| 6.94 | 907.97 | 908.49 | 908.65 | 909.07 | 6.94 | 905.38 | 907.96 | 908.56 | 908.78 | 909.1 |
| 6.95 | 908.16 | 908.67 | 908.83 | 909.23 | 6.95 | 905.53 | 908.22 | 908.78 | 908.97 | 909.3 |
| 7.00 | 909.07 | 909.56 | 909.72 | 910.12 | 7.00 | 906.43 | 909.23 | 909.73 | 909.89 | 910.3 |
| 8.00 | 913.48 | 914.41 | 915.11 | 917.43 | 8.00 | 909.10 | 913.48 | 914.41 | 915.11 | 917.4 |
| 9.00 | 913.56 | 914.48 | 915.15 | 917.44 | 9.00 | 910.20 | 913.59 | 914.50 | 915.17 | 917.4 |
| 10.00 | 915.54 | 915.71 | 915.89 | 917.43 | 10.00 | 914.50 | 915.54 | 915.73 | 915.89 | 917.4 |
| 11.00 | 917.14 | 917.43 | 917.64 | 917.76 | 11.00 | 915.10 | 917.49 | 917.81 | 918.10 | 918.1 |
| 11.90 | 918.36 | 918.78 | 919.14 | 919.81 | 11.90 | 916.10 | 918.63 | 919.07 | 919.43 | 920.0 |
| 12.00 | 920.75 | 920.86 | 920.97 | 921.12 | 12.00 | 920.20 | 920.76 | 920.88 | 920.98 | 921.1 |

# RANDOLPH STREET DRAIN

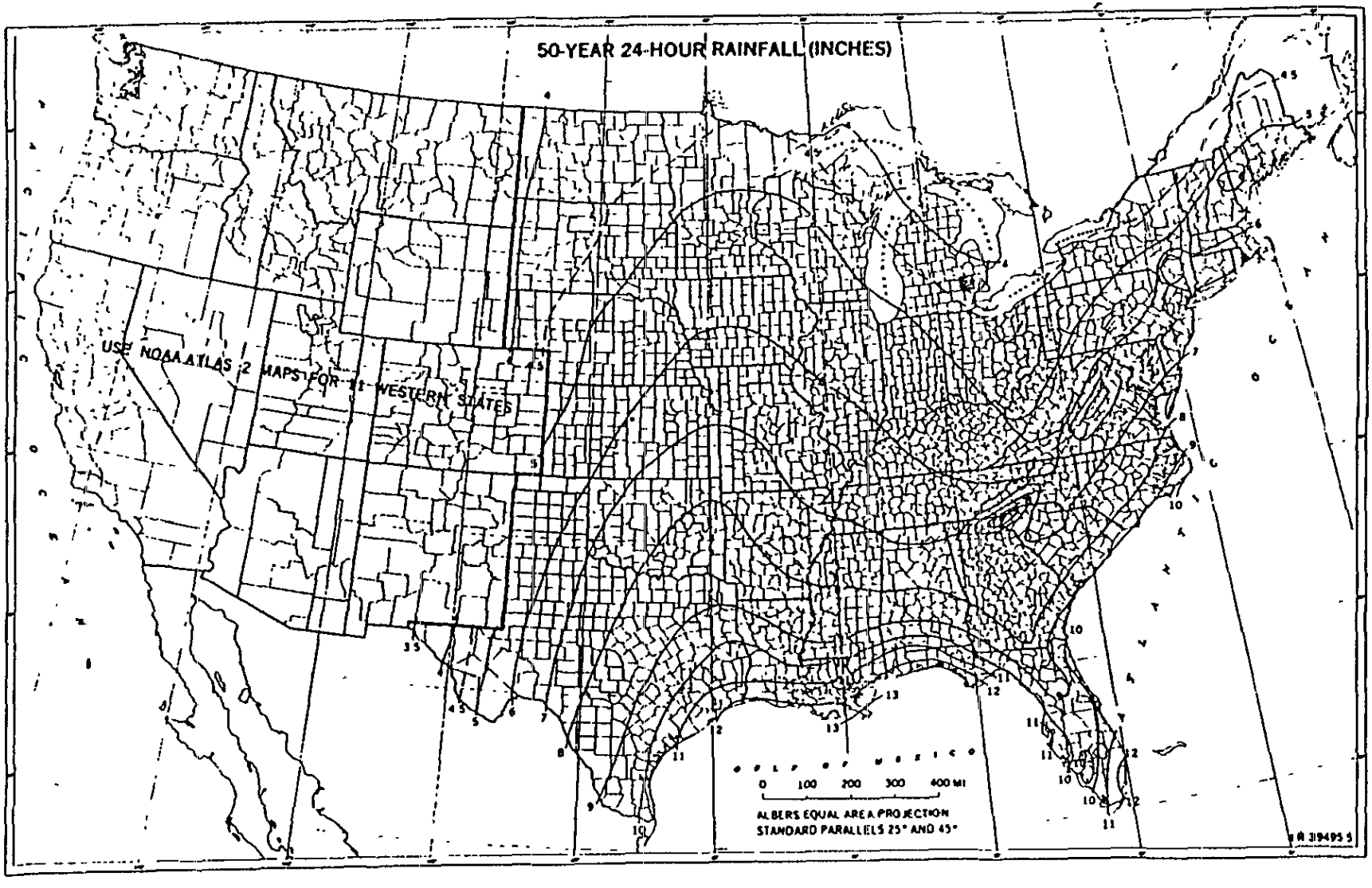
# PRECIPITATION DATA




SOURCE: 210-VI-TR-55, Second Ed., June 1986

SELECT - 3.5 Inches

**Figure B-5.—Ten-year, 24-hour rainfall.**




SOURCE: 210-VI-TR-55, Second Ed., June 1986

SELECT - 4.45 Inches

Figure B-7.—Fifty-year, 24-hour rainfall.

# CITY OF NORTHVILLE

## RANDOLPH STREET DRAIN

## FLOOD STUDY

## PROPOSED CONDITION

*REVISED PER DNR LT: DT:1-30-92*

## HYDROLOGIC & HYDRAULIC

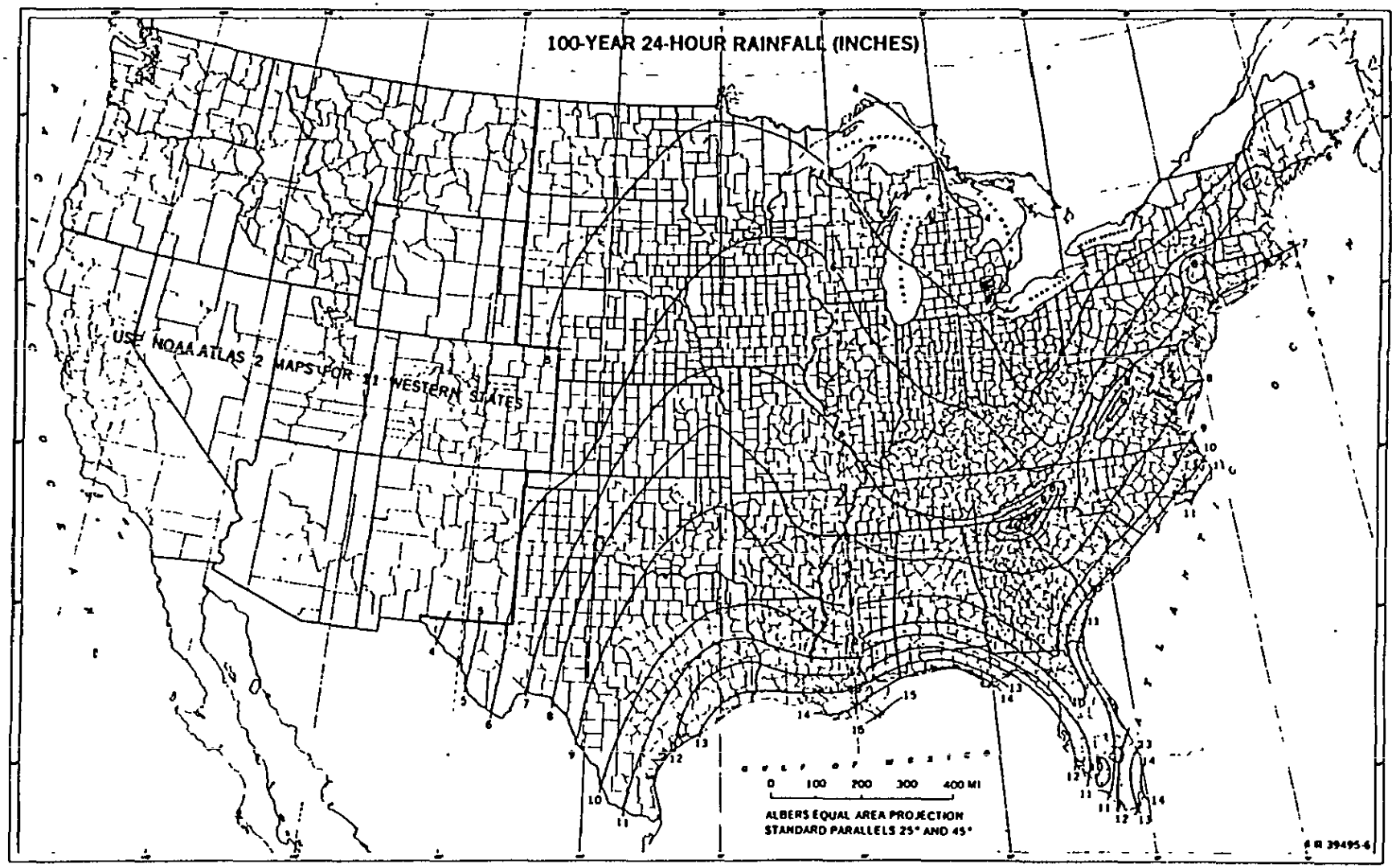
## ANALYSIS

*BETWEEN LEXINGTON BLVD. AND BECK ROAD*

BY

**McNEELY & LINCOLN ASSOCIATES, INC.**

459 EAST CADY, NORTHVILLE MI-48167




SOURCE: 210-VI-TR-55, Second Ed., June 1986

SELECT - 4.85 Inches

Figure 3-8.—One-hundred-year, 24-hour rainfall.

RANDOLPH STREET DRAIN

**PROPOSED CONDITION**

# HYDROLOGIC ANALYSIS

****

FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) -FEB 1,1985

U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616

****

THIS HEC-1 VERSION CONTAINS ALL OPTIONS EXCEPT ECONOMICS, AND THE NUMBER OF PLANS ARE REDUCED TO 3

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    1     ID   RANDOLPH DRAIN FLOOD ANALYSIS    DEC 6, 1991    FILE: 100RR1
    2     ID   MULTIFLOOD ANALYSIS (10YR, 50YR, 100YR, 500YR)
    3     ID   DEVELOPED CONDITIONS
          *DIAGRAM
    4     IT       5  1MAR86    0000     300
    5     IO       5       0      20
    6     IN      30  1MAR86    0000
    7     JR    PREC  1.0000  1.2714  1.3857  1.5286

    8     KK  RANDB2  RANDOLPH DISTRICT
    9     PB    3.50
   10     PC  0.0000  0.0053  0.0108  0.0164  0.0223  0.0284  0.0347  0.0414  0.0483  0.0555
   11     PC  0.0623  0.0712  0.0797  0.0887  0.0984  0.1089  0.1203  0.1328  0.1467  0.1625
   12     PC  0.1808  0.2042  0.2351  0.2833  0.6632  0.7351  0.7724  0.7989  0.8197  0.8380
   13     PC  0.8538  0.8676  0.8801  0.8914  0.9019  0.9115  0.9206  0.9291  0.9371  0.9446
   14     PC  0.9519  0.9588  0.9653  0.9717  0.9777  0.9836  0.9892  0.9947  1.0000
   15     KM          SCS RUNOFF FOR RANDOLPH DISTRICT B2
   16     BA   0.100
   17     LS       0      68
   18     UD    0.66

   19     KK  RANDB2
   20     KM        ROUTING FOR POND AT NW CORNER OF BECK AND 9 MILE
   21     RS       1    ELEV   947.6       0
   22     SA       0    1.62    1.82    2.03    2.22    2.43    2.56
   23     SQ       0    1.90    7.40   12.00   15.20   17.60   95.00
   24     SE   947.6     948   948.5   949.0   949.5   950.0   950.3

   25     KK  RANDB2
   26     KM        CHANNEL ROUTE TO CULVERT, W. SIDE OF BECK
   27     RK     755 0.0071    0.030       0

   28     KK  RANDB1
   29     KM        SCS RUNOFF FOR RANDOLPH DISTRICT B1
   30     BA   0.084
   31     LS       0      68
   32     UD    0.26

   33     KK   RANDB
   34     KM        COMBINE RANDOLPH B1 AND B2
   35     HC       2

   36     KK   RANDB
   37     KM        CHANNEL ROUTE TO RANDOLPH A POND (CULVERT)
   38     RK    1045  .0065    0.024            CIRC       2

   39     KK   RANDB
   40     KM        CHANNEL ROUTE TO RANDOLPH A POND (DITCH)
   41     RK     435    1.84     .03            TRAP       2       4
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```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   42     KK  RANDA
   43     KM       SCS RUNOFF FOR RANDOLPH A DISTRICT
   44     BA  0.108
   45     LS      0      72
   46     UD   0.32

   47     KK  RANDA
   48     KM       COMBINE RANDOLPH A RUNOFF WITH RANDOLPH B OUTFLOW
   49     HC      2

   50     KK  RANDA
   51     KM       RANDOLPH A POND ROUTING
   52     RS      1    ELEV   926.2       0
   53     SA      0    0.01    0.72    2.07    2.17    2.22    2.35    2.80
   54     SQ      0     9.0     45.     97.    140.    180.    230.    650.
   55     SE  926.2     927     928   930.2   930.3   930.4   930.5   931.0

   56     KK  CTYLW
   57     KM       SCS RUNOFF FOR CITY LINE WEST DISTRICT
   58     BA  0.031
   59     LS      0      78
   60     UD   0.24

   61     KK  CTYLW
   62     KM       COMBINE CITY LINE WEST RUNOFF WITH RANDOLPH A FLOW
   63     HC      2

   64     KK  RANDA
   65     KM       CHANNEL ROUTE TO 60" CULVERT ENTRANCE BASIN
   66     RK    1450  0.0033    0.04                0       0       2

   67     KK  CTYLE
   68     KM       SCS RUNOFF FOR CITY LINE EAST DISTRICT
   69     BA  0.062
   70     LS      0      78
   71     UD   0.24

   72     KK    60"
   73     KM       COMBINE RANDOLPH A AND CITY LINE OUTFLOWS
   74     HC      2

   75     KK    60"
   76     KM       ROUTE COMBINED FLOWS AHEAD OF 60" CULVERT
   77     RS      1    ELEV   910.3       0
   78     SA  0.033   0.082   0.140   0.198   0.256     1.0
   79     SQ      0      55      84     160     212     278
   80     SE  909.3     911     913     915     917     919

   81     KK    60"
   82     KM       CHANNEL ROUTE THROUGH 60" CULVERT
   83     RK     580   0.006   0.013            CIRC       5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  84      KK    60"
  85      KM        CHANNEL ROUTE THROUGH CULVERT OUTLET DITCH
  86      RK     550  0.0056   0.030            TRAP       4       3

  87      KK   NVEST
  88      KM        SCS RUNOFF FOR NORTHVILLE ESTATES
  89      BA   0.100
  90      LS       0      70
  91      UD    0.37

  92      KK   ABBEY
  93      KM        SCS RUNOFF FOR DEVELOPED ABBEY KNOLL ESTATES SUBDIVISION
  94      BA   0.072
  95      LS       0      80
  96      UD    0.42

  97      KK    RANJ
  98      KM        SCS RUNOFF FOR RANDOLPH JUNCTION (NOVI - WEST OF LEXINGTON GREEN)
  99      BA   0.182
 100      LS       0      69
 101      UD    0.65

 102      KK   JUNCT
 103      KM        COMBINE RANDOLPH JUNCTION, 60" CULVERT & NORTHVILLE ESTATES/ABBEY KNOLL
 104      HC       4

 105      KK   JUNCT
 106      KM        ROUTE COMBINED FLOWS THROUGH ABBEY POND/WETLANDS
 107      RS       1    FLOW       2       0
 108      SA    1.24    4.30    5.90    8.30   10.28   11.20
 109      SQ       0      10      48     250     573     747
 110      SE   902.8   903.5     904     905     906   906.5

 111      KK   LEXGR
 112      KM        SCS RUNOFF FOR LEXINGTON GREEN SUBDIVISION
 113      BA   0.144
 114      LS       0      72
 115      UD    0.30

 116      KK   LEXGR
 117      KM        LEXINGTON GREEN DETENTION POND ROUTING
 118      RS       1    ELEV   904.6       0
 119      SA    1.55    1.65    1.84    1.88    1.94    2.00
 120      SQ       0     1.3     4.0      39     159     350
 121      SE   904.6     905   905.8     906   906.5     907

 122      KK   LEXGR
 123      KM        CHANNEL ROUTING OF LEXINGTON GREEN DISCHARGE
 124      RK     950   0.001   0.040            TRAP       0       5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  125     KK  JUNCT
  126     KM       COMBINE LEXINGTON GREEN, RANDOLPH JUNCTION, N'VILLE ESTATES & 60" FLOWS
  127     HC       2

  128     KK  PHLEX
  129     KM       SCS RUNOFF UPSTREAM OF LEXINGTON GREEN #2 DETENTION POND
  130     BA  0.053
  131     LS       0       72
  132     UD   0.42

  133     KK  PHLEX
  134     KM       MODIFIED PULS ROUTING LEXINGTON GREEN DETENTION POND
  135     RS       1    STOR        0        0
  136     SV       0    0.82     2.19
  137     SQ       0    2.76    39.79

  138     KK  PHSL2
  139     BA  0.030
  140     LS       0       72
  141     UD   0.42

  142     KK  PHILLS
  143     KM       COMBINE PHLEX AND PHSL2
  144     HC       2

  145     KK  PHILLS
  146     KM       MODIFIED PULS ROUTING PHEASANT HILLS #2 WETLAND AREA
  147     RS       1    STOR        0        0
  148     SV       0     .12     1.01     2.52
  149     SQ       0     1.8     15.9     24.0

  150     KK  PHILLS
  151     KM       CHANNEL ROUTE THROUGH 21" X 15" C.S.P
  152     RK      60  0.0033   0.025            TRAP    1.75

  153     KK  PHILLS
  154     KM       CHANNEL ROUTE THROUGH CULVERT OUTLET DITCH
  155     RK     450   0.004   0.030            TRAP       4       3

  156     KK  PHILL1
  157     KM       COMBINE JUNCT & PHILLS
  158     HC       2

  159     KK  PHILL1
  160     KM       CHANNEL ROUTE UPSTREAM OF COLD SPRING DRIVE CULVERTS
  161     RS       1    STOR        0
  162     RC    0.03    0.04    0.03     125   .0036
  163     RX       0      35     116     123     131     134     218     252
  164     RY   904.9   904.0   903.4   901.4   901.4   903.4   904.0   905.0
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  165     KK  PHILL1
  166     KM       CHANNEL ROUTE THROUGH CULVERTS (5#) AT COLD SPRING DR.
  167     RK      60  0.0017   0.025            TRAP    17.5

  168     KK  PHILL1
  169     KM       CHANNEL ROUTE TO CULVERT AT MACDONALD DRIVE
  170     RK    1630   0.004   0.030            TRAP       4       3

  171     KK  PHILL2
  172     KM       SCS RUNOFF FOR PHEASANT HILLS
  173     BA  0.062
  174     LS       0      77
  175     UD   0.25

  176     KK  PHILL1
  177     KM       COMBINE PHILL1 & PHILL2
  178     HC       2

  179     KK  PHILL1
  180     KM       MODIFIED PULS ROUTING UPSTREAM OF MACDONALDS DRIVE
  181     RS       1    STOR       0       0
  182     SV       0    0.01    0.08    0.23   0.482   0.907   1.607   2.697   4.213   6.187
  183     SQ       0      50     100     150     195     270     340     420     498     858

  184     KK  PHILL1
  185     KM       CHANNEL ROUTE THROUGH 2# OF 66" X 51" C.S.P
  186     RK      68   0.007   0.025            TRAP      11

  187     KK  PHILL1
  188     KM       CHANNEL ROUTE TO LEXINGTON DRIVE
  189     RK     300   0.002   0.030            TRAP       4       3

  190     KK  PHILL1
  191     KM       CHANNEL ROUTE THROUGH 2 # OF 72" CIRC. CULVERTS
  192     RK      60   0.023   0.025            CIRC      12
  193     ZZ
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1 ****

FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) -FEB 1,1985

U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616

****

RANDOLPH DRAIN FLOOD ANALYSIS DEC 6, 1991 FILE: 100RR1

MULTIFLOOD ANALYSIS (10YR, 50YR, 100YR, 500YR)

DEVELOPED CONDITIONS

5 IO OUTPUT CONTROL VARIABLES

| | | |
|---|---|---|
| IPRNT | 5 | PRINT CONTROL |
| IPLOT | 0 | PLOT CONTROL |
| QSCAL | 20. | HYDROGRAPH PLOT SCALE |

IT HYDROGRAPH TIME DATA

| | | |
|---|---|---|
| NMIN | 5 | MINUTES IN COMPUTATION INTERVAL |
| IDATE | 1MAR86 | STARTING DATE |
| ITIME | 0000 | STARTING TIME |
| NQ | 300 | NUMBER OF HYDROGRAPH ORDINATES |
| NDDATE | 2MAR86 | ENDING DATE |
| NDTIME | 0055 | ENDING TIME |

COMPUTATION INTERVAL .08 HOURS

TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS

JP MULTI-PLAN OPTION

| | | |
|---|---|---|
| NPLAN | 1 | NUMBER OF PLANS |

JR MULTI-RATIO OPTION

RATIOS OF PRECIPITATION

1.00 1.27

1.39 1.53

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 650.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 55.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 1. TO 1031.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.

THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 150.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

| | | | | | RATIOS APPLIED TO PRECIPITATION | | | |
|---|---|---|---|---|---|---|---|---|
| OPERATION | STATION | AREA | PLAN | | RATIO 1 | RATIO 2 | RATIO 3 | RATIO 4 |
| | | | | | 1.00 | 1.27 | 1.39 | 1.53 |
| HYDROGRAPH AT | | | | | | | | |
| + | RANDB2 | .10 | 1 | FLOW | 24. | 43. | 52. | 63. |
| | | | | TIME | 12.58 | 12.58 | 12.58 | 12.50 |
| ROUTED TO | | | | | | | | |
| + | RANDB2 | .10 | 1 | FLOW | 9. | 14. | 16. | 24. |
| | | | | TIME | 13.67 | 13.75 | 13.75 | 13.50 |
| | | | ** PEAK STAGES IN FEET ** | | | | | |
| | | | 1 | STAGE | 948.71 | 949.37 | 949.67 | 950.02 |
| | | | | TIME | 13.67 | 13.75 | 13.75 | 13.50 |
| ROUTED TO | | | | | | | | |
| + | RANDB2 | .10 | 1 | FLOW | 9. | 14. | 16. | 24. |
| | | | | TIME | 13.75 | 13.75 | 13.83 | 13.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | RANDB1 | .08 | 1 | FLOW | 34. | 59. | 71. | 86. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.08 |
| 2 COMBINED AT | | | | | | | | |
| + | RANDB | .18 | 1 | FLOW | 35. | 61. | 74. | 90. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.17 |
| ROUTED TO | | | | | | | | |
| + | RANDB | .18 | 1 | FLOW | 34. | 61. | 73. | 89. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.17 |
| ROUTED TO | | | | | | | | |
| + | RANDB | .18 | 1 | FLOW | 34. | 61. | 73. | 89. |
| | | | | TIME | 12.25 | 12.17 | 12.17 | 12.17 |
| HYDROGRAPH AT | | | | | | | | |
| + | RANDA | .11 | 1 | FLOW | 52. | 86. | 101. | 121. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.17 |
| 2 COMBINED AT | | | | | | | | |
| + | RANDA | .29 | 1 | FLOW | 85. | 147. | 174. | 210. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.17 |
| ROUTED TO | | | | | | | | |
| + | RANDA | .29 | 1 | FLOW | 59. | 89. | 127. | 179. |
| | | | | TIME | 12.42 | 12.50 | 12.42 | 12.33 |

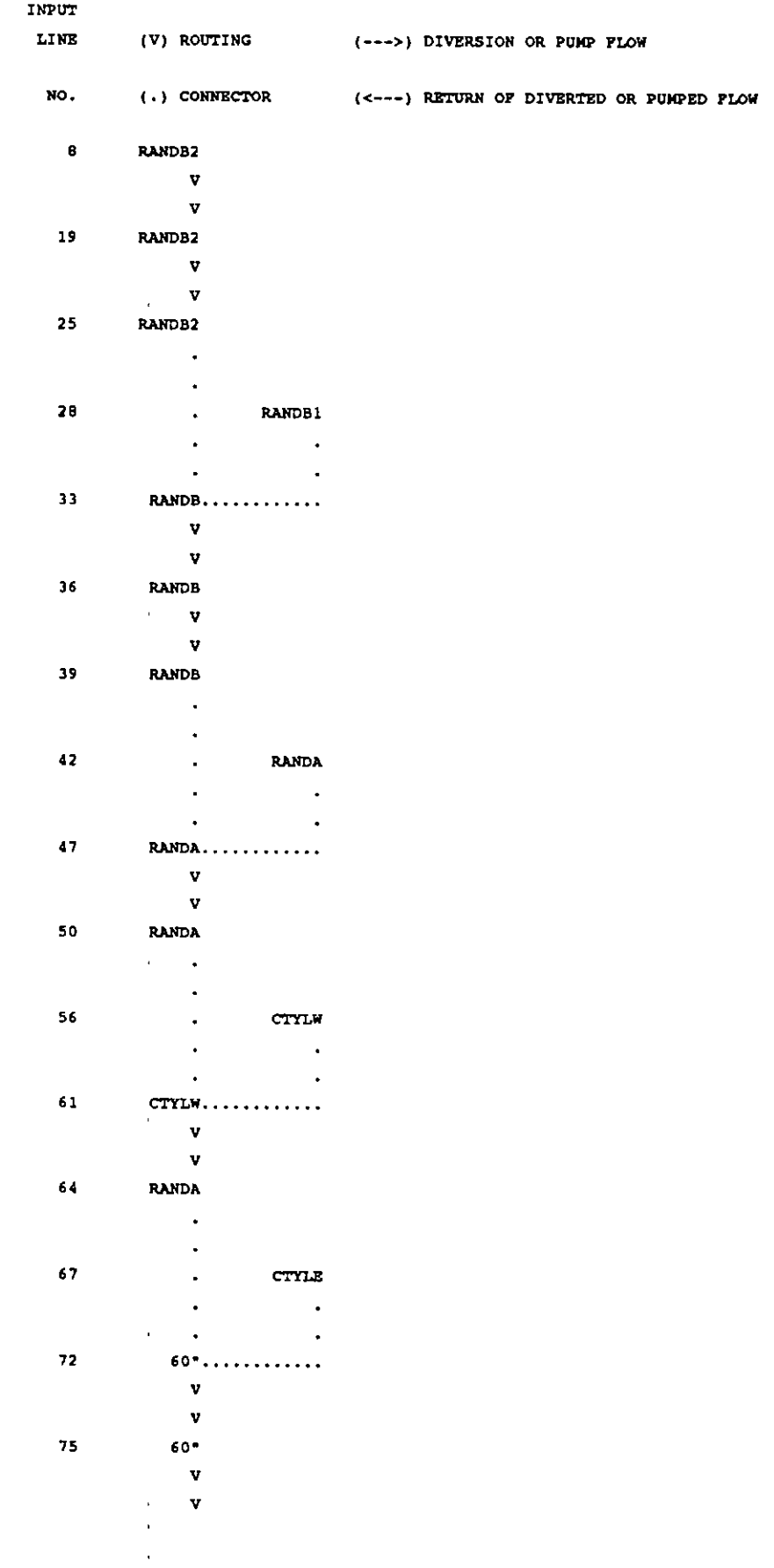
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | ** PEAK STAGES IN FEET ** | | | | |
| | | | 1 | STAGE | 928.59 | 929.84 | 930.27 | 930.40 |
| | | | | TIME | 12.42 | 12.50 | 12.42 | 12.33 |
| HYDROGRAPH AT | | | | | | | | |
| + | CTYLW | .03 | 1 | FLOW | 23. | 36. | 41. | 48. |
| | | | | TIME | 12.08 | 12.08 | 12.08 | 12.08 |
| 2 COMBINED AT | | | | | | | | |
| + | CTYLW | .32 | 1 | FLOW | 73. | 106. | 146. | 207. |
| | | | | TIME | 12.25 | 12.25 | 12.42 | 12.33 |
| ROUTED TO | | | | | | | | |
| + | RANDA | .32 | 1 | FLOW | 73. | 106. | 139. | 207. |
| | | | | TIME | 12.25 | 12.33 | 12.50 | 12.42 |
| HYDROGRAPH AT | | | | | | | | |
| + | CTYLE | .06 | 1 | FLOW | 47. | 71. | 82. | 96. |
| | | | | TIME | 12.08 | 12.08 | 12.08 | 12.08 |
| 2 COMBINED AT | | | | | | | | |
| + | 60" | .38 | 1 | FLOW | 115. | 166. | 189. | 250. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.42 |
| ROUTED TO | | | | | | | | |
| + | 60" | .38 | 1 | FLOW | 112. | 162. | 182. | 233. |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.50 |
| | | | | ** PEAK STAGES IN FEET ** | | | | |
| | | | 1 | STAGE | 913.75 | 915.07 | 915.84 | 917.64 |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.50 |
| ROUTED TO | | | | | | | | |
| + | 60" | .38 | 1 | FLOW | 112. | 162. | 181. | 233. |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.50 |
| ROUTED TO | | | | | | | | |
| + | 60" | .38 | 1 | FLOW | 110. | 161. | 180. | 232. |
| | | | | TIME | 12.25 | 12.25 | 12.33 | 12.50 |
| HYDROGRAPH AT | | | | | | | | |
| + | NVEST | .10 | 1 | FLOW | 39. | 67. | 80. | 96. |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | ABBEY | .07 | 1 | FLOW | 47. | 70. | 81. | 94. |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | RANJ | .18 | 1 | FLOW | 47. | 83. | 100. | 122. |
| | | | | TIME | 12.58 | 12.50 | 12.50 | 12.50 |
| 4 COMBINED AT | | | | | | | | |
| + | JUNCT | .74 | 1 | FLOW | 231. | 362. | 421. | 508. |
| | | | | TIME | 12.33 | 12.33 | 12.33 | 12.33 |

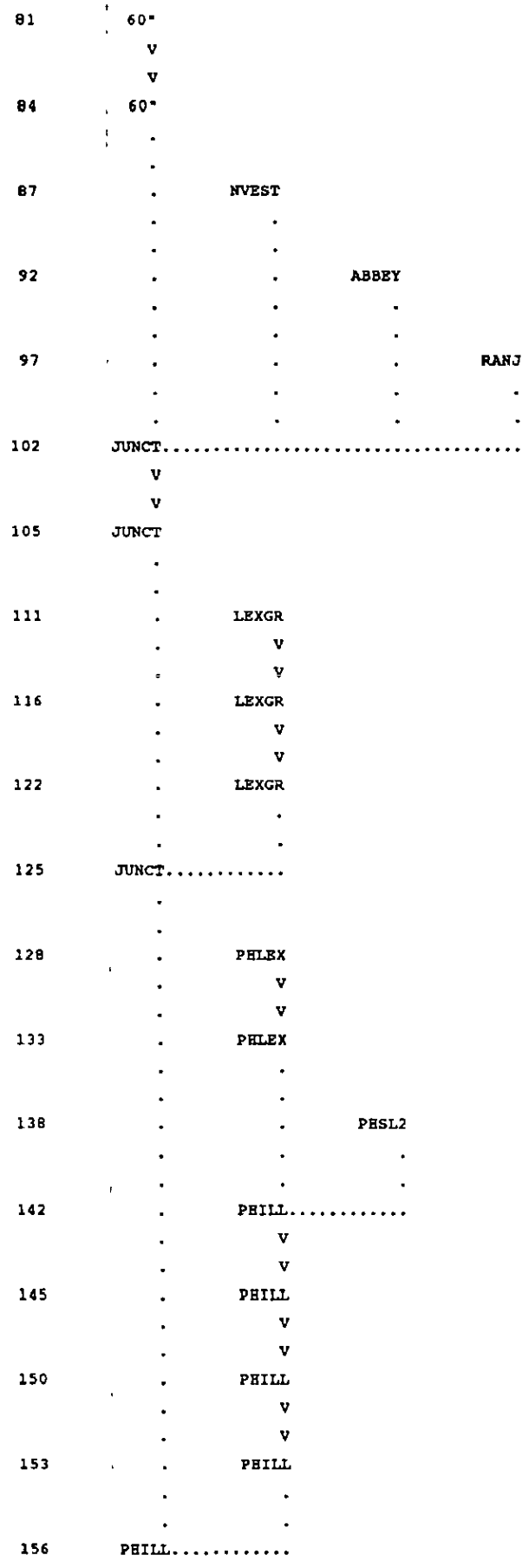
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | |
| + | JUNCT | .74 | 1 | FLOW | 159. | 265. | 323. | 407. |
| | | | | TIME | 12.83 | 12.75 | 12.67 | 12.67 |
| | | | ** PEAK STAGES IN FEET ** | | | | | |
| | | | 1 | STAGE | 904.55 | 905.05 | 905.23 | 905.49 |
| | | | | TIME | 12.83 | 12.75 | 12.67 | 12.67 |
| HYDROGRAPH AT | | | | | | | | |
| + | LEXGR | .14 | 1 | FLOW | 71. | 118. | 139. | 166. |
| | | | | TIME | 12.17 | 12.17 | 12.17 | 12.17 |
| ROUTED TO | | | | | | | | |
| + | LEXGR | .14 | 1 | FLOW | 45. | 101. | 125. | 153. |
| | | | | TIME | 12.42 | 12.33 | 12.25 | 12.25 |
| | | | ** PEAK STAGES IN FEET ** | | | | | |
| | | | 1 | STAGE | 906.03 | 906.26 | 906.36 | 906.47 |
| | | | | TIME | 12.42 | 12.33 | 12.25 | 12.25 |
| ROUTED TO | | | | | | | | |
| + | LEXGR | .14 | 1 | FLOW | 46. | 99. | 121. | 148. |
| | | | | TIME | 12.50 | 12.42 | 12.42 | 12.33 |
| 2 COMBINED AT | | | | | | | | |
| + | JUNCT | .88 | 1 | FLOW | 198. | 341. | 414. | 513. |
| | | | | TIME | 12.67 | 12.58 | 12.58 | 12.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | PHLEX | .05 | 1 | FLOW | 22. | 37. | 43. | 52. |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.25 |
| ROUTED TO | | | | | | | | |
| + | PHLEX | .05 | 1 | FLOW | 10. | 21. | 26. | 32. |
| | | | | TIME | 12.92 | 12.75 | 12.67 | 12.67 |
| HYDROGRAPH AT | | | | | | | | |
| + | PHSL2 | .03 | 1 | FLOW | 12. | 21. | 25. | 29. |
| | | | | TIME | 12.25 | 12.25 | 12.25 | 12.25 |
| 2 COMBINED AT | | | | | | | | |
| + | PHILL | .08 | 1 | FLOW | 16. | 35. | 43. | 54. |
| | | | | TIME | 12.67 | 12.50 | 12.50 | 12.42 |
| ROUTED TO | | | | | | | | |
| + | PHILL | .08 | 1 | FLOW | 12. | 19. | 22. | 25. |
| | | | | TIME | 13.33 | 13.33 | 13.33 | 13.42 |
| ROUTED TO | | | | | | | | |
| + | PHILL | .08 | 1 | FLOW | 12. | 19. | 22. | 25. |
| | | | | TIME | 13.33 | 13.33 | 13.33 | 13.42 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | |
| + | PHILL | .08 | 1 | FLOW | 12. | 19. | 22. | 25. |
| | | | | TIME | 13.33 | 13.33 | 13.42 | 13.42 |
| 2 COMBINED AT | | | | | | | | |
| + | PHILL | .97 | 1 | FLOW | 206. | 356. | 431. | 533. |
| | | | | TIME | 12.75 | 12.58 | 12.58 | 12.58 |
| ROUTED TO | | | | | | | | |
| + | PHILL | .97 | 1 | FLOW | 207. | 356. | 433. | 532. |
| | | | | TIME | 12.75 | 12.67 | 12.58 | 12.58 |
| | | | ** PEAK STAGES IN FEET ** | | | | | |
| | | | 1 | STAGE | 904.02 | 904.28 | 904.39 | 904.51 |
| | | | | TIME | 12.75 | 12.67 | 12.58 | 12.58 |
| ROUTED TO | | | | | | | | |
| + | PHILL | .97 | 1 | FLOW | 207. | 356. | 433. | 532. |
| | | | | TIME | 12.75 | 12.67 | 12.58 | 12.58 |
| ROUTED TO | | | | | | | | |
| + | PHILL | .97 | 1 | FLOW | 206. | 354. | 431. | 531. |
| | | | | TIME | 12.83 | 12.67 | 12.67 | 12.67 |
| HYDROGRAPH AT | | | | | | | | |
| + | PHILL | .06 | 1 | FLOW | 44. | 67. | 78. | 91. |
| | | | | TIME | 12.08 | 12.08 | 12.08 | 12.08 |
| 2 COMBINED AT | | | | | | | | |
| + | PHILL | 1.03 | 1 | FLOW | 217. | 377. | 454. | 560. |
| | | | | TIME | 12.75 | 12.58 | 12.67 | 12.58 |
| ROUTED TO | | | | | | | | |
| + | PHILL | 1.03 | 1 | FLOW | 215. | 363. | 432. | 542. |
| | | | | TIME | 12.83 | 12.83 | 12.83 | 12.75 |
| ROUTED TO | | | | | | | | |
| + | PHILL | 1.03 | 1 | FLOW | 215. | 363. | 432. | 541. |
| | | | | TIME | 12.83 | 12.83 | 12.83 | 12.75 |
| ROUTED TO | | | | | | | | |
| + | PHILL | 1.03 | 1 | FLOW | 215. | 363. | 431. | 538. |
| | | | | TIME | 12.92 | 12.83 | 12.83 | 12.83 |
| ROUTED TO | | | | | | | | |
| + | PHILL | 1.03 | 1 | FLOW | 215. | 363. | 431. | 538. |
| | | | | TIME | 12.92 | 12.83 | 12.83 | 12.83 |

*** NORMAL END OF HEC-1 ***

SCHEMATIC DIAGRAM OF STREAM NETWORK




81
60"
84
60"
87
NVEST
92
ABBEY
97
RANJ
102
JUNCT
105
JUNCT
111
LEXGR
116
LEXGR
122
LEXGR
125
JUNCT
128
PHLEX
133
PHLEX
138
PHSL2
142
PHILL
145
PHILL
150
PHILL
153
PHILL
156
PHILL

```
                V
                V
159         PHILL
                V
                V
165         PHILL
                V
                V
168         PHILL
                .
                .
171             .       PHILL
                .           .
                .           .
176         PHILL.............
                V
                V
179         PHILL
                V
                V
184         PHILL
                V
                V
187         PHILL
                V
                V
190         PHILL
```

RANDOLPH STREET DRAIN

**PROPOSED CONDITION**

# HYDRAULIC ANALYSIS

```
1*****************************************************
*************************************
 *  WATER SURFACE PROFILES                          *                                  *  U.S. ARMY CORPS OF ENG
 *  VERSION OF NOVEMBER 1976                        *                                  *  THE HYDROLOGIC ENGINEE
 *  UPDATED MAY 1984                                *                                  *  609 SECOND STREET, SUI
 *  IBM-PC-XT VERSION AUGUST 1985                   *                                  *  DAVIS, CALIFORNIA 9561
 *  RUN DATE  02-06-92   TIME  18:06:19               *                                  *  (916) 440-2105 (FTS)
 ****************************************************                                  ************************


                                        X     X  XXXXXXX   XXXXX             XXXXX
                                        X     X  X        X     X           X     X
                                        X     X  X        X                       X
                                        XXXXXXX  XXXX     X         XXXXX    XXXXX
                                        X     X  X        X                 X
                                        X     X  X        X     X           X
                                        X     X  XXXXXXX   XXXXX            XXXXXXX
1
 02-06-92     18:06:19                                                                                    PAGE


                                                                                THIS RUN EXECUTED 02-06-92
                                                                                HEC2.DOT
 ************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
 ************************************************
```

T1 RANDOLPH DRAIN FLOOD LEVEL STUDY DEVELOPED CONDITION

T2 STRETCH BETWEEN BECK ROAD AND 6 FT CULVERTS AT LEXINGTON DR

T3 McNEELY & LINCOLN ASSOCIATES, INC. DT: NOV. 19, 1991

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 2. | 0. | 0. | .000000 | .00 | .0 | 0. | 881.600 | .000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 150.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | .080 | .080 | .030 | .300 | .500 | .000 | .000 | .000 | .000 | .00 |
| QT | 4.000 | 215.000 | 363.000 | 433.000 | 541.000 | .000 | .000 | .000 | .000 | .00 |
| X1 | 1.000 | 9.000 | 22.000 | 60.000 | .000 | .000 | .000 | .000 | -1.500 | .00 |
| GR | 884.400 | .000 | 883.700 | 22.000 | 880.000 | 30.000 | 879.300 | 31.000 | 879.300 | 35.00 |
| GR | 880.000 | 36.000 | 880.200 | 46.000 | 887.100 | 60.000 | 891.900 | 126.000 | .000 | .00 |
| X1 | 1.250 | 8.000 | 20.000 | 57.000 | 60.000 | 60.000 | 60.000 | .000 | -1.100 | .00 |
| GR | 890.100 | .000 | 888.500 | 20.000 | 883.600 | 32.000 | 882.630 | 34.000 | 882.630 | 36.00 |
| GR | 883.800 | 44.000 | 889.800 | 57.000 | 890.600 | 79.000 | .000 | .000 | .000 | .00 |
| X1 | 1.500 | 8.000 | 20.000 | 57.000 | 60.000 | 60.000 | 60.000 | .000 | .000 | .00 |
| X5 | 4.000 | 886.830 | 888.330 | 889.290 | 891.330 | .000 | .000 | .000 | .000 | .00 |
| GR | 890.100 | .000 | 888.500 | 20.000 | 883.600 | 32.000 | 882.630 | 34.000 | 882.630 | 36.00 |
| GR | 883.800 | 44.000 | 889.800 | 57.000 | 890.600 | 79.000 | .000 | .000 | .000 | .00 |
| X1 | 2.000 | 8.000 | 20.000 | 57.000 | 15.000 | 15.000 | 15.000 | .000 | .160 | .00 |
| GR | 889.600 | .000 | 888.500 | 20.000 | 883.600 | 32.000 | 882.900 | 34.000 | 882.900 | 36.00 |
| GR | 883.800 | 44.000 | 889.800 | 57.000 | 890.600 | 79.000 | .000 | .000 | .000 | .00 |
| X1 | 2.100 | .000 | .000 | .000 | 40.000 | 30.000 | 37.000 | .000 | .000 | .00 |
| X1 | 2.250 | 10.000 | 10.000 | 57.000 | 154.000 | 157.000 | 159.000 | .000 | .000 | .00 |
| GR | 890.000 | .000 | 889.500 | 10.000 | 885.800 | 32.000 | 884.600 | 34.000 | 884.600 | 36.00 |
| GR | 884.900 | 40.000 | 885.100 | 42.000 | 888.500 | 52.000 | 889.800 | 57.000 | 891.200 | 72.00 |
| X1 | 2.400 | .000 | .000 | .000 | 35.000 | 36.000 | 36.000 | .000 | .700 | .00 |
| X1 | 2.450 | .000 | .000 | .000 | 35.000 | 35.000 | 37.000 | .000 | .300 | .00 |
| X1 | 2.500 | 11.000 | 40.000 | 166.000 | 84.000 | 85.000 | 86.000 | .000 | .000 | .00 |
| GR | 894.000 | .000 | 892.500 | 40.000 | 890.000 | 105.000 | 888.000 | 127.000 | 886.400 | 129.00 |
| GR | 886.300 | 132.000 | 886.700 | 136.000 | 888.000 | 139.000 | 892.000 | 166.000 | 894.000 | 206.00 |
| GR | 894.000 | 225.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .00 |
| X1 | 2.550 | .000 | .000 | .000 | 18.000 | 40.000 | 30.000 | .000 | .200 | .00 |
| X1 | 2.560 | .000 | .000 | .000 | 26.000 | 60.000 | 45.000 | .000 | .300 | .00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2.570 | .000 | .000 | .000 | 13.000 | 30.000 | 22.000 | .000 | .200 | .00 |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 68.500 | 120.500 | .000 | .00 |
| X1 | 2.600 | 10.000 | 55.000 | 192.000 | 13.000 | 30.000 | 23.000 | .000 | -.400 | .00 |
| GR | 898.000 | .000 | 896.000 | 17.000 | 894.000 | 31.000 | 892.000 | 55.000 | 890.000 | 74.00 |
| GR | 889.500 | 88.000 | 889.500 | 101.000 | 890.000 | 106.000 | 892.000 | 192.000 | 894.000 | 217.00 |
| NC | .000 | .000 | .025 | .300 | .500 | .000 | .000 | .000 | .000 | .00 |
| X1 | 2.700 | 19.000 | 164.900 | 179.020 | 130.000 | 60.000 | 75.000 | .000 | .000 | .00 |
| X3 | 10.000 | .000 | .000 | .000 | .000 | .000 | .000 | 895.000 | 895.000 | .00 |
| GR | 902.470 | .000 | 895.000 | 75.000 | 890.220 | 164.900 | 890.210 | 166.000 | 890.210 | 167.10 |
| GR | 890.210 | 168.200 | 890.210 | 169.300 | 890.210 | 170.400 | 890.210 | 170.500 | 890.210 | 173.50 |
| GR | 890.220 | 174.600 | 890.220 | 175.700 | 890.220 | 176.800 | 890.220 | 177.900 | 890.220 | 178.99 |
| GR | 892.000 | 179.020 | 892.000 | 214.000 | 895.000 | 279.000 | 900.450 | 365.000 | .000 | .00 |
| SB | 1.050 | 2.490 | 3.000 | .000 | 14.000 | 4.200 | 38.600 | .000 | 890.700 | 890.21 |
| X1 | 2.800 | .000 | .000 | .000 | 68.000 | 68.000 | 68.000 | .000 | .000 | .00 |
| X2 | .000 | .000 | 1.000 | 895.000 | 898.660 | .000 | .000 | .000 | .000 | .00 |
| X3 | 10.000 | .000 | .000 | .000 | .000 | .000 | .000 | 898.660 | 898.660 | .00 |
| BT | 19.000 | .000 | 902.470 | 902.470 | 75.000 | 900.150 | 895.000 | 164.900 | 898.900 | 890.22 |
| BT | 166.000 | 898.900 | 892.450 | 167.100 | 898.890 | 894.210 | 168.200 | 898.890 | 894.450 | 169.30 |
| BT | 898.870 | 894.200 | 170.400 | 898.870 | 892.450 | 170.500 | 898.860 | 890.210 | 173.500 | 898.86 |
| BT | 890.210 | 174.600 | 898.850 | 892.450 | 175.700 | 898.850 | 894.200 | 176.800 | 898.840 | 894.45 |
| BT | 177.900 | 898.840 | 894.200 | 178.990 | 898.830 | 892.460 | 179.020 | 898.830 | 890.220 | 214.00 |
| BT | 899.660 | 892.000 | 279.000 | 899.260 | 895.000 | 365.000 | 900.450 | 900.450 | .000 | .00 |
| NC | .000 | .000 | .040 | .800 | .900 | .000 | .000 | .000 | .000 | .00 |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 92.000 | 146.000 | .000 | .00 |
| X1 | 2.900 | 9.000 | 91.000 | 173.000 | 10.000 | 30.000 | 20.000 | .000 | -1.000 | .00 |
| GR | 900.000 | .000 | 898.000 | 28.000 | 896.000 | 54.000 | 894.000 | 91.000 | 892.000 | 119.00 |
| GR | 894.000 | 173.000 | 896.000 | 186.000 | 898.000 | 215.000 | 900.400 | 240.000 | .000 | .00 |
| X1 | 2.950 | .000 | .000 | .000 | 40.000 | 150.000 | 100.000 | .000 | .000 | .00 |
| X1 | 3.000 | 12.000 | 63.000 | 72.000 | 264.000 | 15.000 | 259.000 | .000 | .000 | .00 |
| GR | 898.700 | .000 | 896.400 | 25.000 | 894.900 | 50.000 | 894.600 | 63.000 | 893.300 | 64.00 |
| GR | 893.200 | 67.000 | 893.600 | 71.000 | 894.600 | 72.000 | 895.500 | 100.000 | 896.700 | 125.00 |
| GR | 898.200 | 143.000 | 899.800 | 164.000 | .000 | .000 | .000 | .000 | .000 | .00 |
| NC | .060 | .060 | .035 | .300 | .500 | .000 | .000 | .000 | .000 | .00 |
| X1 | 3.500 | 14.000 | 135.000 | 146.000 | 710.000 | 615.000 | 750.000 | .000 | -1.300 | .00 |
| GR | 906.000 | .000 | 904.000 | 66.000 | 903.000 | 91.000 | 902.800 | 116.000 | 902.100 | 135.00 |
| GR | 901.300 | 136.000 | 900.500 | 140.000 | 901.400 | 143.000 | 901.800 | 146.000 | 902.400 | 166.00 |
| GR | 903.100 | 191.000 | 904.100 | 216.000 | 905.300 | 241.000 | 906.500 | 255.000 | .000 | .00 |
| X1 | 3.750 | 10.000 | 281.000 | 291.000 | 195.000 | 265.000 | 250.000 | .000 | .000 | .00 |
| GR | 904.400 | .000 | 904.000 | 255.000 | 902.000 | 280.000 | 901.200 | 281.000 | 899.900 | 285.00 |
| GR | 899.800 | 288.000 | 901.700 | 291.000 | 902.000 | 315.000 | 904.000 | 350.000 | 906.000 | 387.00 |
| X1 | 4.000 | 14.000 | 135.000 | 146.000 | 230.000 | 245.000 | 265.000 | .000 | .000 | .00 |
| GR | 906.000 | .000 | 904.000 | 66.000 | 903.000 | 91.000 | 902.300 | 116.000 | 902.100 | 135.00 |
| GR | 901.300 | 136.000 | 900.500 | 140.000 | 901.400 | 143.000 | 901.800 | 146.000 | 902.400 | 166.00 |
| GR | 903.100 | 191.000 | 904.100 | 216.000 | 905.300 | 241.000 | 906.500 | 255.000 | .000 | .00 |
| QT | 4.000 | 207.000 | 356.000 | 433.000 | 532.000 | .000 | .000 | .000 | .000 | .00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | .000 | .000 | .025 | .600 | .800 | .000 | .000 | .000 | .000 | .00 |
| X1 | 4.250 | 43.000 | 144.250 | 167.750 | 50.000 | 50.000 | 50.000 | .000 | .000 | .00 |
| X3 | 10.000 | .000 | .000 | .000 | .000 | .000 | .000 | 903.300 | 903.300 | .00 |
| GR | 906.880 | .000 | 904.800 | 50.000 | 904.100 | 107.000 | 900.900 | 143.250 | 900.800 | 144.25 |
| GR | 900.800 | 144.350 | 900.800 | 144.750 | 900.800 | 146.000 | 900.800 | 147.250 | 900.800 | 147.65 |
| GR | 900.800 | 147.750 | 900.800 | 149.250 | 900.800 | 149.350 | 900.800 | 149.750 | 900.800 | 151.00 |
| GR | 900.800 | 152.250 | 900.800 | 152.650 | 900.800 | 152.750 | 900.800 | 154.250 | 900.800 | 154.35 |
| GR | 900.800 | 154.750 | 900.800 | 156.000 | 900.800 | 157.250 | 900.800 | 157.650 | 900.800 | 157.75 |
| GR | 900.800 | 159.250 | 900.800 | 159.350 | 900.800 | 159.750 | 900.800 | 161.000 | 900.800 | 162.25 |
| GR | 900.800 | 162.650 | 900.800 | 162.750 | 900.800 | 164.250 | 900.800 | 164.350 | 900.800 | 164.75 |
| GR | 900.800 | 166.000 | 900.800 | 167.250 | 900.810 | 167.650 | 900.810 | 167.750 | 900.900 | 168.75 |
| GR | 903.000 | 200.000 | 904.300 | 250.000 | 908.440 | 377.000 | .000 | .000 | .000 | .00 |
| | | | | | | | | | | |
| SB | 1.050 | 3.330 | 3.000 | .000 | 23.500 | 8.000 | 34.000 | .000 | 900.900 | 900.80 |
| X1 | 4.500 | .000 | .000 | .000 | 60.000 | 60.000 | 60.000 | .000 | .000 | .00 |
| X2 | .000 | .000 | 1.000 | 903.300 | 905.010 | .000 | .000 | .000 | .000 | .00 |
| X3 | 10.000 | .000 | .000 | .000 | .000 | .000 | .000 | 905.010 | 905.600 | .00 |
| BT | 43.000 | .000 | 906.880 | 906.880 | 50.000 | 905.540 | 904.800 | 107.000 | 905.010 | 904.10 |
| BT | 143.250 | 905.190 | 900.900 | 144.250 | 905.190 | 900.800 | 144.350 | 905.190 | 901.220 | 144.75 |
| BT | 905.200 | 903.000 | 146.000 | 905.220 | 903.220 | 147.250 | 905.230 | 903.000 | 147.650 | 905.24 |
| BT | 901.220 | 147.750 | 905.250 | 900.800 | 149.250 | 905.260 | 900.800 | 149.350 | 905.280 | 901.22 |
| BT | 149.750 | 905.290 | 903.000 | 151.000 | 905.300 | 903.220 | 152.250 | 905.310 | 903.000 | 152.65 |
| BT | 905.320 | 901.220 | 152.750 | 905.340 | 900.800 | 154.250 | 905.350 | 900.800 | 154.350 | 905.36 |
| BT | 901.220 | 154.750 | 905.370 | 903.000 | 156.000 | 905.380 | 903.220 | 157.250 | 905.400 | 903.00 |
| BT | 157.650 | 905.410 | 901.220 | 157.750 | 905.420 | 900.800 | 159.250 | 905.430 | 900.800 | 159.35 |
| BT | 905.440 | 901.220 | 159.750 | 905.460 | 903.000 | 161.000 | 905.470 | 903.220 | 162.250 | 905.48 |
| BT | 903.000 | 162.650 | 905.490 | 901.220 | 162.750 | 905.500 | 900.800 | 164.250 | 905.520 | 900.80 |
| BT | 164.350 | 905.530 | 901.220 | 164.750 | 905.540 | 903.000 | 166.000 | 905.550 | 903.220 | 167.25 |
| BT | 905.560 | 903.000 | 167.650 | 905.580 | 901.220 | 167.750 | 905.590 | 900.800 | 168.750 | 905.60 |
| BT | 900.900 | 200.000 | 906.060 | 903.000 | 250.000 | 906.600 | 904.300 | 377.000 | 908.440 | 908.44 |
| | | | | | | | | | | |
| NC | .000 | .000 | .040 | .400 | .600 | .000 | .000 | .000 | .000 | .00 |
| X1 | 4.750 | 8.000 | 163.000 | 176.000 | 110.000 | 20.000 | 60.000 | .000 | .000 | .00 |
| GR | 906.880 | .000 | 906.200 | 44.000 | 904.000 | 80.000 | 902.200 | 163.000 | 901.300 | 170.00 |
| GR | 902.300 | 176.000 | 904.000 | 262.000 | 908.500 | 290.000 | .000 | .000 | .000 | .00 |
| | | | | | | | | | | |
| QT | 4.000 | 159.000 | 265.000 | 323.000 | 407.000 | .000 | .000 | .000 | .000 | .00 |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 125.000 | 332.000 | .000 | .00 |
| X1 | 5.000 | 15.000 | 214.000 | 232.000 | 685.000 | 790.000 | 745.000 | .000 | .000 | .00 |
| GR | 906.000 | .000 | 908.000 | 125.000 | 906.000 | 135.000 | 904.000 | 145.000 | 903.800 | 157.00 |
| GR | 903.500 | 182.000 | 903.600 | 207.000 | 903.100 | 214.000 | 902.600 | 225.000 | 903.100 | 229.00 |
| GR | 903.600 | 232.000 | 903.600 | 257.000 | 904.500 | 282.000 | 905.400 | 307.000 | 906.200 | 332.00 |
| | | | | | | | | | | |
| ET | .000 | 9.100 | 9.100 | 9.100 | 9.100 | .000 | .000 | .000 | 110.000 | 330.00 |
| X1 | 5.500 | 19.000 | 170.000 | 270.000 | 280.000 | 305.000 | 285.000 | .000 | .000 | .00 |
| GR | 906.000 | .000 | 908.000 | 110.000 | 906.000 | 118.000 | 904.000 | 126.000 | 902.800 | 145.00 |
| GR | 902.900 | 170.000 | 902.600 | 195.000 | 902.700 | 220.000 | 902.600 | 245.000 | 903.000 | 270.00 |
| GR | 903.100 | 295.000 | 903.000 | 320.000 | 903.700 | 345.000 | 904.000 | 370.000 | 904.000 | 395.00 |
| GR | 904.400 | 420.000 | 905.100 | 445.000 | 906.000 | 465.000 | 906.400 | 473.000 | .000 | .00 |
| | | | | | | | | | | |
| NC | .000 | .000 | .040 | .600 | .950 | .000 | .000 | .000 | .000 | .00 |
| QT | 4.000 | 110.000 | 161.000 | 180.000 | 232.000 | .000 | .000 | .000 | .000 | .00 |
| ET | .000 | 9.100 | 9.100 | 9.100 | 9.100 | .000 | .000 | .000 | 113.000 | 175.00 |
| X1 | 6.000 | 15.000 | 160.000 | 170.000 | 160.000 | 170.000 | 160.000 | .000 | .000 | .00 |
| GR | 905.200 | .000 | 905.300 | 25.000 | 905.700 | 50.000 | 905.400 | 75.000 | 906.000 | 100.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 905.700 | 125.000 | 905.100 | 160.000 | 905.300 | 170.000 | 905.900 | 172.000 | 906.100 | 175.00 |
| GR | 906.900 | 200.000 | 907.400 | 225.000 | 907.600 | 250.000 | 908.800 | 275.000 | 909.500 | 300.00 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | .200 | 31.800 | .000 | .00 |
| X1 | 6.900 | 9.000 | 10.000 | 16.250 | 80.000 | 80.000 | 80.000 | .000 | .000 | .00 |
| GR | 909.000 | .000 | 906.700 | 8.000 | 905.500 | 10.000 | 905.300 | 11.000 | 905.300 | 16.00 |
| GR | 905.500 | 16.250 | 906.200 | 17.000 | 906.200 | 19.000 | 910.000 | 32.000 | .000 | .00 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 75.000 | 208.000 | .000 | .00 |
| X1 | 6.940 | 13.000 | 95.000 | 105.000 | 20.000 | 20.000 | 20.000 | .000 | -1.020 | .00 |
| GR | 909.800 | .000 | 911.300 | 25.000 | 912.200 | 50.000 | 912.800 | 75.000 | 907.600 | 95.00 |
| GR | 906.700 | 97.000 | 906.400 | 100.000 | 906.600 | 102.000 | 907.500 | 105.000 | 916.200 | 134.00 |
| GR | 916.600 | 159.000 | 917.300 | 184.000 | 917.400 | 209.000 | .000 | .000 | .000 | .00 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 75.000 | 208.000 | .000 | .00 |
| X1 | 6.950 | 13.000 | 95.000 | 105.000 | 40.000 | 40.000 | 40.000 | .000 | -.870 | .00 |
| GR | 909.800 | .000 | 911.300 | 25.000 | 912.200 | 50.000 | 912.800 | 75.000 | 907.600 | 95.00 |
| GR | 906.700 | 97.000 | 906.400 | 100.000 | 906.600 | 102.000 | 907.500 | 105.000 | 916.200 | 134.00 |
| GR | 916.600 | 159.000 | 917.300 | 184.000 | 917.400 | 209.000 | .000 | .000 | .000 | .00 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 75.000 | 208.000 | .000 | .00 |
| X1 | 7.000 | .000 | .000 | .000 | 225.000 | 225.000 | 225.000 | .000 | .900 | .00 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 1.000 | 79.000 | .000 | .00 |
| X1 | 8.000 | 10.000 | 5.000 | 55.000 | 578.000 | 578.000 | 578.000 | .000 | .000 | .00 |
| X5 | 4.000 | 913.480 | 914.410 | 915.110 | 917.430 | .000 | .000 | .000 | .000 | .00 |
| GR | 917.700 | .000 | 917.400 | 5.000 | 910.100 | 26.000 | 909.300 | 27.000 | 909.300 | 30.00 |
| GR | 909.100 | 33.500 | 909.600 | 34.300 | 916.700 | 55.000 | 917.300 | 60.000 | 918.100 | 80.00 |
| | | | | | | | | | | |
| QT | 4.000 | 73.000 | 106.000 | 139.000 | 207.000 | .000 | .000 | .000 | .000 | .00 |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 1.000 | 161.000 | .000 | .00 |
| X1 | 9.000 | 10.000 | 70.500 | 95.500 | 185.000 | 185.000 | 185.000 | .000 | .000 | .00 |
| GR | 920.200 | .000 | 920.100 | 25.000 | 919.700 | 40.000 | 918.700 | 65.000 | 913.500 | 70.50 |
| GR | 910.200 | 80.500 | 910.200 | 85.500 | 913.500 | 95.500 | 920.000 | 116.000 | 921.000 | 161.00 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 1.000 | 161.000 | .000 | .00 |
| NC | .000 | .000 | .000 | .600 | .950 | .000 | .000 | .000 | .000 | .00 |
| X1 | 10.000 | 10.000 | 70.500 | 95.500 | 8.600 | 8.600 | 8.600 | .000 | .000 | .00 |
| GR | 920.200 | .000 | 920.100 | 25.000 | 919.700 | 40.000 | 918.700 | 65.000 | 915.500 | 70.50 |
| GR | 914.500 | 80.500 | 914.500 | 85.500 | 915.500 | 95.500 | 920.000 | 116.000 | 921.000 | 161.00 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 1.000 | 108.000 | .000 | .00 |
| X1 | 11.000 | 8.000 | 37.000 | 60.000 | 179.000 | 179.000 | 179.000 | .000 | .000 | .00 |
| GR | 920.900 | .000 | 918.800 | 37.000 | 915.100 | 50.000 | 915.100 | 53.000 | 918.000 | 60.00 |
| GR | 918.300 | 90.000 | 920.000 | 185.000 | 920.900 | 190.000 | .000 | .000 | .000 | .00 |
| | | | | | | | | | | |
| X1 | 11.900 | 7.000 | 15.000 | 43.000 | 300.000 | 300.000 | 300.000 | .000 | .000 | .00 |
| GR | 924.400 | .000 | 920.000 | 15.000 | 916.100 | 31.500 | 916.100 | 34.500 | 919.400 | 43.00 |
| GR | 920.000 | 68.000 | 922.000 | 88.000 | .000 | .000 | .000 | .000 | .000 | .00 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 1.000 | 309.000 | .000 | .00 |
| X1 | 12.000 | 8.000 | 70.000 | 110.000 | 100.000 | 100.000 | 95.000 | .000 | .000 | .00 |
| GR | 923.400 | .000 | 922.000 | 40.000 | 920.400 | 70.000 | 920.200 | 100.000 | 920.400 | 110.00 |
| GR | 920.900 | 135.000 | 922.000 | 195.000 | 924.000 | 310.000 | .000 | .000 | .000 | .00 |
| EJ | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .00 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 1

CCEV= .300 CEEV= .500

*SECNO 1.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.00 | 3.80 | 881.60 | .00 | 881.60 | 881.74 | .14 | .00 | .00 | 882.20 |
| 215. | 0. | 215. | 0. | 0. | 71. | 0. | 0. | 0. | 885.60 |
| .00 | .00 | 3.03 | .00 | .080 | .030 | .080 | .000 | 877.80 | 23.30 |
| .001204 | 0. | 0. | 0. | 0 | 0 | 0 | .00 | 28.59 | 51.88 |

0

*SECNO 1.250

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.25 | 2.54 | 884.07 | 884.07 | .00 | 884.87 | .80 | .17 | .33 | 887.40 |
| 215. | 0. | 215. | 0. | 0. | 30. | 0. | 0. | 0. | 888.70 |
| .00 | .00 | 7.20 | .00 | .080 | .030 | .080 | .000 | 881.53 | 28.16 |
| .012139 | 60. | 60. | 60. | 20 | 14 | 0 | .00 | 18.81 | 46.97 |

0

*SECNO 1.500

WATER EL=X5 CARD= 886.830

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.50 | 4.20 | 886.83 | .00 | .00 | 886.99 | .16 | .18 | .19 | 888.50 |
| 215. | 0. | 215. | 0. | 0. | 67. | 0. | 0. | 0. | 889.80 |
| .01 | .00 | 3.19 | .00 | .080 | .030 | .080 | .000 | 882.63 | 24.09 |
| .001286 | 60. | 60. | 60. | 0 | 0 | 0 | .00 | 26.48 | 50.57 |

0

*SECNO 2.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.00 | 3.78 | 886.84 | .00 | .00 | 887.03 | .19 | .02 | .02 | 888.66 |
| 215. | 0. | 215. | 0. | 0. | 62. | 0. | 0. | 0. | 889.96 |
| .01 | .00 | 3.49 | .00 | .080 | .030 | .080 | .000 | 883.06 | 24.47 |
| .001670 | 15. | 15. | 15. | 2 | 0 | 0 | .00 | 25.77 | 50.23 |

0

*SECNO 2.100

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.10 | 3.85 | 886.91 | .00 | .00 | 887.09 | .18 | .06 | .00 | 888.66 |
| 215. | 0. | 215. | 0. | 0. | 63. | 0. | 0. | 0. | 889.96 |
| .01 | .00 | 3.39 | .00 | .080 | .030 | .080 | .000 | 883.06 | 24.29 |
| .001536 | 40. | 37. | 30. | 2 | 0 | 0 | .00 | 26.11 | 50.39 |

0

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | EV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 2.250

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.25 | 2.61 | 887.21 | .00 | .00 | 887.77 | .55 | .49 | .19 | 889.50 |
| 215. | 0. | 215. | 0. | 0. | 36. | 0. | 0. | 0. | 889.80 |
| .02 | .00 | 5.96 | .00 | .080 | .030 | .080 | .000 | 884.60 | 23.59 |
| .009099 | 154. | 159. | 157. | 2 | 0 | 0 | .00 | 24.63 | 48.22 |

0

*SECNO 2.400

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.40 | 2.44 | 887.74 | 887.74 | .00 | 888.45 | .71 | .38 | .08 | 890.20 |
| 215. | 0. | 215. | 0. | 0. | 32. | 0. | 0. | 0. | 890.50 |
| .02 | .00 | 6.74 | .00 | .080 | .030 | .080 | .000 | 885.30 | 24.63 |
| .012583 | 35. | 36. | 36. | 0 | 11 | 0 | .00 | 23.07 | 47.70 |

0

*SECNO 2.450

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.45 | 2.84 | 888.44 | .00 | .00 | 888.85 | .42 | .32 | .09 | 890.50 |
| 215. | 0. | 215. | 0. | 0. | 42. | 0. | 0. | 0. | 890.80 |
| .02 | .00 | 5.17 | .00 | .080 | .030 | .080 | .000 | 885.60 | 22.31 |
| .006251 | 35. | 37. | 35. | 3 | 0 | 0 | .00 | 26.55 | 48.85 |

0

*SECNO 2.500

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.50 | 2.78 | 889.08 | .00 | .00 | 889.58 | .50 | .69 | .04 | 892.50 |
| 215. | 0. | 215. | 0. | 0. | 38. | 0. | 1. | 0. | 892.00 |
| .03 | .00 | 5.68 | .00 | .080 | .030 | .080 | .000 | 886.30 | 115.12 |
| .010607 | 84. | 86. | 85. | 3 | 0 | 0 | .00 | 31.18 | 146.29 |

0

*SECNO 2.550

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.55 | 3.04 | 889.54 | .00 | .00 | 889.88 | .33 | .24 | .05 | 892.70 |
| 215. | 0. | 215. | 0. | 0. | 46. | 0. | 1. | 0. | 892.20 |
| .03 | .00 | 4.64 | .00 | .080 | .030 | .080 | .000 | 886.50 | 112.30 |
| .006415 | 18. | 30. | 40. | 3 | 0 | 0 | .00 | 35.72 | 148.02 |

0

*SECNO 2.560

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.56 | 3.03 | 889.83 | .00 | .00 | 890.17 | .34 | .29 | .00 | 893.00 |
| 215. | 0. | 215. | 0. | 0. | 46. | 0. | 1. | 0. | 892.50 |
| .03 | .00 | 4.65 | .00 | .080 | .030 | .080 | .000 | 886.80 | 112.35 |
| .006474 | 26. | 45. | 60. | 2 | 0 | 0 | .00 | 35.64 | 147.99 |

0

1




| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | EV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

```
*SECNO 2.570
     2.57     2.97   889.97      .00      .00   890.34      .37      .15      .02   893.20
     215.       0.     215.       0.       0.     44.       0.       1.       0.   892.70
      .03      .00     4.88      .00     .080     .030     .080     .000   887.00   113.02
   .007277      13.      22.      30.        0        0        0      .00    34.56   147.58
0
 *SECNO 2.600
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      68.5     120.5  TYPE=     1  TARGET=      52.000
     2.60     1.16   890.26   890.26      .00   890.68      .41      .23      .02 99999.60
     215.       0.     215.       0.       0.     42.       0.       1.       0.  99999.60
      .03      .00     5.15      .00     .080     .030     .080     .000   889.10    68.50
   .014651      13.      23.      30.        2       18        0      .00    52.00   120.50
0
 CCHV=     .300 CEHV=     .500
 *SECNO 2.700

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      895.00 ELREA=      895.00

     2.70     1.93   892.14   892.14      .00   893.11      .97      .83      .28   890.22
     215.       0.     215.       0.       0.     27.       0.       1.       0.   892.00
      .04      .00     7.92      .00     .080     .025     .080     .000   890.21   164.90
   .008664      130.     75.      60.       20       14        0      .00    14.12   179.02
0

 SPECIAL BRIDGE

 5227 DOWNSTREAM ELEV IS    891.47 ,NOT    892.14 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      1.05       2.49       3.00        .00      14.00       4.20       38.60       .00     890.70     890.21
```

*SECNO 2.800

3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.= 892.92 BRIDGE VELOCITY=, 8.91 CALCULATED CHANNEL AREA=, 22.

| EGPRS | EGLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| .00 | 894.68 | .00 | 0. | 215. | 39. | 42. | 895.00 | 898.66 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 898.66 ELREA= 898.66

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.80 | 4.28 | 894.49 | .00 | .00 | 894.68 | .20 | 1.57 | .00 | 890.22 |
| 215. | 0. | 215. | 0. | 0. | 60. | 0. | 1. | 0. | 892.00 |
| .04 | .00 | 3.57 | .00 | .000 | .025 | .000 | .000 | 890.21 | 164.90 |
| .000607 | 68. | 68. | 68. | 0 | 0 | 0 | .00 | 14.12 | 179.02 |

0

CCHV= .800 CEHV= .900

*SECNO 2.900

3470 ENCROACHMENT STATIONS= 92.0 146.0 TYPE= 1 TARGET= 54.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.90 | 3.80 | 894.80 | .00 | .00 | 894.83 | .03 | .01 | .14 | 99999.00 |
| 215. | 0. | 215. | 0. | 0. | 166. | 0. | 1. | 0. | 99999.00 |
| .05 | .00 | 1.30 | .00 | .080 | .040 | .080 | .000 | 891.00 | 92.00 |
| .000305 | 10. | 20. | 30. | 2 | 0 | 0 | .00 | 54.00 | 146.00 |

0

*SECNO 2.950

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.95 | 3.85 | 894.85 | .00 | .00 | 894.86 | .01 | .02 | .01 | 893.00 |
| 215. | 7. | 206. | 2. | 32. | 233. | 11. | 1. | 1. | 893.00 |
| .08 | .21 | .88 | .21 | .080 | .040 | .080 | .000 | 891.00 | 56.83 |
| .000140 | 40. | 100. | 150. | 0 | 0 | 0 | .00 | 128.18 | 185.01 |

0

*SECNO 3.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

1



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.00 | 2.63 | 895.83 | 895.83 | .00 | 896.28 | .45 | .11 | .40 | 894.60 |
| 215. | 38. | 139. | 38. | 21. | 21. | 23. | 2. | 1. | 894.60 |
| .09 | 1.81 | 6.60 | 1.65 | .080 | .040 | .080 | .000 | 893.20 | 34.54 |
| .011809 | 264. | 259. | 15. | 20 | 20 | 0 | .00 | 72.27 | 106.82 |

0

CCHV= .300 CEHV= .500

*SECNO 3.500

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.50 | 2.74 | 901.94 | .00 | .00 | 902.19 | .25 | 5.85 | .06 | 900.80 |
| 215. | 33. | 118. | 63. | 24. | 23. | 36. | 3. | 3. | 900.50 |
| .15 | 1.37 | 5.20 | 1.78 | .060 | .035 | .060 | .000 | 899.20 | 84.88 |
| .006054 | 710. | 750. | 615. | 6 | 0 | 0 | .00 | 109.74 | 194.62 |

0

*SECNO 3.750

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.75 | 3.33 | 903.13 | .00 | .00 | 903.38 | .25 | 1.19 | .00 | 901.20 |
| 215. | 11. | 135. | 69. | 10. | 27. | 42. | 4. | 3. | 901.70 |
| .17 | 1.17 | 4.93 | 1.62 | .060 | .035 | .060 | .000 | 899.80 | 265.73 |
| .003866 | 195. | 250. | 265. | 3 | 0 | 0 | .00 | 69.25 | 334.98 |

0

*SECNO 4.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.00 | 3.36 | 903.86 | .00 | .00 | 903.91 | .05 | .47 | .06 | 902.10 |
| 215. | 68. | 77. | 69. | 71. | 30. | 70. | 5. | 4. | 901.80 |
| .21 | .96 | 2.61 | .98 | .060 | .035 | .060 | .000 | 900.50 | 69.43 |
| .001080 | 230. | 265. | 245. | 3 | 0 | 0 | .00 | 140.64 | 210.07 |

0

CCHV= .600 CEHV= .800

*SECNO 4.250

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.25 | 3.10 | 903.90 | .00 | .00 | 903.94 | .04 | .02 | .01 | 900.80 |
| 207. | 27. | 139. | 41. | 54. | 73. | 79. | 5. | 4. | 900.81 |
| .22 | .50 | 1.90 | .52 | .060 | .025 | .060 | .000 | 900.80 | 109.29 |
| .000227 | 50. | 50. | 50. | 2 | 0 | 0 | .00 | 125.22 | 234.52 |

0

SPECIAL BRIDGE

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.05 | 3.33 | 3.00 | .00 | 23.50 | 8.00 | 34.00 | .00 | 900.90 | 900.80 |

*SECNO 4.500

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 905.81 | 904.05 | .03 | 26. | 182. | 34. | 37. | 903.30 | 905.01 |

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      905.01 ELREA=      905.60

     4.50     4.55   905.35      .00      .00   905.37      .02     1.43      .00   900.80
     207.      57.     150.       0.     163.     107.       0.       5.       4.    900.81
      .24      .35     1.40      .00     .060     .025     .000     .000   900.80    36.81
  .000074      60.      60.      60.        2        0        4      .00   130.94   167.75
0
 CCHV=    .400 CEHV=    .600
 *SECNO 4.750
     4.75     4.08   905.38      .00      .00   905.38      .00      .01      .01   902.20
     207.      84.      41.      82.     205.      47.     198.       6.       4.    902.30
      .27      .41      .87      .42     .060     .040     .060     .000   901.30    57.42
  .000100      110.      60.      20.        2        0        0      .00   213.17   270.59
0
 *SECNO 5.000

 3470 ENCROACHMENT STATIONS=     125.0     332.0  TYPE=     1  TARGET=     207.000
     5.00     2.88   905.48      .00      .00   905.48      .01      .10      .00   903.10
     159.      70.      45.      44.     133.      46.      96.      12.       8.    903.60
      .59      .52      .98      .46     .060     .040     .060     .000   902.60   137.62
  .000204     685.     745.     790.        2        0        0      .00   171.75   309.37
0
 *SECNO 5.500

 3470 ENCROACHMENT STATIONS=     110.0     330.0  TYPE=     1  TARGET=     220.000
     5.50     2.90   905.50      .00      .00   905.50      .00      .02      .00   902.90
     159.      24.     103.      32.     111.     279.     146.      15.       9.    903.00
      .85      .22      .37      .22     .060     .040     .060     .000   902.60   120.00
  .000025     280.     285.     305.        2        0        0      .00   210.00   330.00
0
1
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


 CCHV=    .600 CEHV=    .950
 *SECNO 6.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     113.0     175.0  TYPE=     1  TARGET=      62.000
     6.00      .89   905.99   905.99      .00   906.24      .26      .01      .24   905.10
     110.      65.      43.       2.      23.       8.       1.      16.       9.    905.30
      .86     2.83     5.45     2.05     .060     .040     .060     .000   905.10   113.00
  .029676     160.     160.     170.       20       17        0      .00    60.30   173.30
```

0
*SECNO 6.900

3470 ENCROACHMENT STATIONS= .2 31.8 TYPE= 1 TARGET= 31.600

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.90 | 2.10 | 907.40 | .00 | .00 | 907.95 | .54 | 1.43 | .27 | 905.50 |
| 110. | 9. | 86. | 16. | 3. | 13. | 6. | 16. | 9. | 905.50 |
| .86 | 2.52 | 6.57 | 2.56 | .060 | .040 | .060 | .000 | 905.30 | 5.54 |
| .011952 | 80. | 80. | 80. | 3 | 0 | 0 | .00 | 17.59 | 23.13 |

0
*SECNO 6.940

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.94 | 2.58 | 907.96 | .00 | .00 | 908.26 | .29 | .16 | .15 | 906.58 |
| 110. | 5. | 99. | 5. | 4. | 22. | 4. | 16. | 9. | 906.48 |
| .86 | 1.42 | 4.56 | 1.48 | .060 | .040 | .060 | .000 | 905.38 | 89.66 |
| .005581 | 20. | 20. | 20. | 2 | 0 | 0 | .00 | 20.30 | 109.96 |

0
*SECNO 6.950

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.95 | 2.69 | 908.22 | .00 | .00 | 908.48 | .26 | .20 | .02 | 906.73 |
| 110. | 6. | 98. | 6. | 4. | 23. | 4. | 16. | 9. | 906.63 |
| .87 | 1.36 | 4.30 | 1.41 | .060 | .040 | .060 | .000 | 905.53 | 89.26 |
| .004678 | 40. | 40. | 40. | 2 | 0 | 0 | .00 | 21.04 | 110.31 |

0
*SECNO 7.000

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 7.00 | 2.80 | 909.23 | .00 | .00 | 909.46 | .23 | .96 | .02 | 907.63 |
| 110. | 6. | 97. | 7. | 5. | 24. | 5. | 16. | 9. | 907.53 |
| .88 | 1.31 | 4.06 | 1.35 | .060 | .040 | .060 | .000 | 906.43 | 88.85 |
| .003914 | 225. | 225. | 225. | 2 | 0 | 0 | .00 | 21.82 | 110.67 |

0
*SECNO 8.000
WATER EL=X5 CARD= 913.480

3470 ENCROACHMENT STATIONS= 1.0 79.0 TYPE= 1 TARGET= 78.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.00 | 4.38 | 913.48 | .00 | .00 | 913.52 | .04 | .65 | .12 | 917.40 |
| 110. | 0. | 110. | 0. | 0. | 73. | 0. | 17. | 10. | 916.70 |
| .99 | .00 | 1.51 | .00 | .060 | .040 | .060 | .000 | 909.10 | 16.28 |
| .000525 | 578. | 578. | 578. | 0 | 0 | 0 | .00 | 29.34 | 45.61 |

0

*SECNO 9.000

3470 ENCROACHMENT STATIONS= 1.0 161.0 TYPE= 1 TARGET= 160.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.00 | 3.39 | 913.59 | .00 | .00 | 913.62 | .03 | .10 | .00 | 913.50 |
| 73. | 0. | 73. | 0. | 0. | 52. | 0. | 17. | 10. | 913.50 |
| 1.03 | .01 | 1.41 | .01 | .060 | .040 | .060 | .000 | 910.20 | 70.41 |
| .000579 | 185. | 185. | 185. | 2 | 0 | 0 | .00 | 25.37 | 95.78 |

0

CCHV= .600 CEHV= .950

*SECNO 10.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 1.0 161.0 TYPE= 1 TARGET= 160.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10.00 | 1.04 | 915.54 | 915.54 | .00 | 915.86 | .33 | .02 | .28 | 915.50 |
| 73. | 0. | 73. | 0. | 0. | 16. | 0. | 17. | 10. | 915.50 |
| 1.03 | .04 | 4.60 | .04 | .060 | .040 | .060 | .000 | 914.50 | 70.44 |
| .028197 | 9. | 9. | 9. | 20 | 17 | 0 | .00 | 25.22 | 95.66 |

0

*SECNO 11.000

3470 ENCROACHMENT STATIONS= 1.0 108.0 TYPE= 1 TARGET= 107.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11.00 | 2.39 | 917.49 | .00 | .00 | 917.63 | .14 | 1.65 | .11 | 918.80 |
| 73. | 0. | 73. | 0. | 0. | 24. | 0. | 17. | 10. | 918.00 |
| 1.04 | .00 | 3.04 | .00 | .060 | .040 | .060 | .000 | 915.10 | 41.62 |
| .004536 | 179. | 179. | 179. | 6 | 0 | 0 | .00 | 17.14 | 58.76 |

0

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 11.900

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11.90 | 2.53 | 918.63 | .00 | .00 | 918.73 | .10 | 1.07 | .03 | 920.00 |
| 73. | 0. | 73. | 0. | 0. | 29. | 0. | 17. | 10. | 919.40 |
| 1.08 | .00 | 2.49 | .00 | .060 | .040 | .060 | .000 | 916.10 | 20.81 |
| .002872 | 300. | 300. | 300. | 5 | 0 | 0 | .00 | 20.20 | 41.01 |

0

*SECNO 12.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 1.0 309.0 TYPE= 1 TARGET= 308.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12.00 | .56 | 920.76 | 920.76 | .00 | 920.95 | .19 | .62 | .09 | 920.40 |
| 73. | 2. | 67. | 4. | 1. | 18. | 3. | 17. | 10. | 920.40 |
| 1.08 | 1.31 | 3.67 | 1.31 | .060 | .040 | .060 | .000 | 920.20 | 63.28 |
| .027549 | 100. | 95. | 100. | 20 | 17 | 0 | .00 | 64.64 | 127.92 |

THIS RUN EXECUTED 02-06-92

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
```

T1 RANDOLPH DRAIN FLOOD LEVEL STUDY DEVELOPED CONDITION
T2 STRETCH BETWEEN BECK ROAD AND 6 FT CULVERTS AT LEXINGTON DR
T3 McNEELY & LINCOLN ASSOCIATES, INC. DT: DEC. 06, 1991

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -10. | 3. | 0. | 0. | .000000 | .00 | .0 | 0. | 882.000 | .000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

1
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| SECNO | DEPTH | CWSEL | CRIWS | WSELR | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 2

CCHV= .300 CEHV= .500
*SECNO 1.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.00 | 4.20 | 882.00 | .00 | 882.00 | 882.30 | .30 | .00 | .00 | 882.20 |
| 363. | 0. | 363. | 0. | 0. | 83. | 0. | 0. | 0. | 885.60 |
| .00 | .00 | 4.38 | .00 | .080 | .030 | .080 | .000 | 877.80 | 22.43 |
| .002228 | 0. | 0. | 0. | 0 | 0 | 0 | .00 | 30.26 | 52.70 |

0
*SECNO 1.250

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.25 | 3.26 | 884.79 | 884.79 | .00 | 885.82 | 1.03 | .26 | .36 | 887.40 |
| 363. | 0. | 363. | 0. | 0. | 45. | 0. | 0. | 0. | 888.70 |
| .00 | .00 | 8.14 | .00 | .080 | .030 | .080 | .000 | 881.53 | 26.39 |
| .011377 | 60. | 60. | 60. | 20 | 15 | 0 | .00 | 22.14 | 48.53 |

0
*SECNO 1.500
WATER EL=X5 CARD= 888.330

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.50 | 5.70 | 888.33 | .00 | .00 | 888.49 | .16 | .13 | .26 | 888.50 |
| 363. | 0. | 363. | 0. | 0. | 112. | 0. | 0. | 0. | 889.80 |
| .01 | .00 | 3.23 | .00 | .080 | .030 | .080 | .000 | 882.63 | 20.42 |
| .000919 | 60. | 60. | 60. | 0 | 0 | 0 | .00 | 33.40 | 53.82 |

0
*SECNO 2.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.00 | 5.27 | 888.33 | .00 | .00 | 888.52 | .18 | .02 | .01 | 888.66 |
| 363. | 0. | 363. | 0. | 0. | 105. | 0. | 0. | 0. | 889.96 |
| .01 | .00 | 3.45 | .00 | .080 | .030 | .080 | .000 | 883.06 | 20.80 |
| .001101 | 15. | 15. | 15. | 2 | 0 | 0 | .00 | 32.68 | 53.48 |

0

*SECNO 2.100

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.10 | 5.32 | 888.38 | .00 | .00 | 888.56 | .18 | .04 | .00 | 888.66 |
| 363. | 0. | 363. | 0. | 0. | 107. | 0. | 0. | 0. | 889.96 |
| .01 | .00 | 3.41 | .00 | .080 | .030 | .080 | .000 | 883.06 | 20.71 |
| .001069 | 40. | 37. | 30. | 0 | 0 | 0 | .00 | 32.84 | 53.55 |

0

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 2.250

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.25 | 3.98 | 888.58 | .00 | .00 | 888.92 | .34 | .28 | .08 | 889.50 |
| 363. | 0. | 363. | 0. | 0. | 78. | 0. | 1. | 0. | 889.80 |
| .02 | .00 | 4.65 | .00 | .080 | .030 | .080 | .000 | 884.60 | 15.47 |
| .003385 | 154. | 159. | 157. | 2 | 0 | 0 | .00 | 36.84 | 52.31 |

0

*SECNO 2.400

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.40 | 3.29 | 888.59 | .00 | .00 | 889.27 | .68 | .18 | .17 | 890.20 |
| 363. | 0. | 363. | 0. | 0. | 55. | 0. | 1. | 0. | 890.50 |
| .02 | .00 | 6.62 | .00 | .080 | .030 | .080 | .000 | 885.30 | 19.56 |
| .008597 | 35. | 36. | 36. | 2 | 0 | 0 | .00 | 30.65 | 50.21 |

0

*SECNO 2.450

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.45 | 3.34 | 888.94 | .00 | .00 | 889.59 | .65 | .31 | .01 | 890.50 |
| 363. | 0. | 363. | 0. | 0. | 56. | 0. | 1. | 0. | 890.80 |
| .02 | .00 | 6.48 | .00 | .080 | .030 | .080 | .000 | 885.60 | 19.32 |
| .008103 | 35. | 37. | 35. | 3 | 0 | 0 | .00 | 31.01 | 50.33 |

0

*SECNO 2.500

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.50 | 3.55 | 889.85 | .00 | .00 | 890.31 | .46 | .66 | .06 | 892.50 |
| 363. | 0. | 363. | 0. | 0. | 67. | 0. | 1. | 0. | 892.00 |
| .03 | .00 | 5.42 | .00 | .080 | .030 | .080 | .000 | 886.30 | 106.66 |
| .007212 | 84. | 86. | 85. | 3 | 0 | 0 | .00 | 44.82 | 151.48 |

0

*SECNO 2.550

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.55 | 3.58 | 890.08 | .00 | .00 | 890.52 | .44 | .21 | .00 | 892.70 |
| 363. | 0. | 363. | 0. | 0. | 68. | 0. | 1. | 0. | 892.20 |
| .03 | .00 | 5.32 | .00 | .080 | .030 | .080 | .000 | 886.50 | 106.37 |
| .006895 | 18. | 30. | 40. | 0 | 0 | 0 | .00 | 45.29 | 151.66 |

0

*SECNO 2.560

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.56 | 3.60 | 890.40 | .00 | .00 | 890.83 | .43 | .31 | .00 | 893.00 |
| 363. | 0. | 363. | 0. | 0. | 69. | 0. | 1. | 0. | 892.50 |
| .03 | .00 | 5.27 | .00 | .080 | .030 | .080 | .000 | 886.80 | 106.20 |
| .006718 | 26. | 45. | 60. | 0 | 0 | 0 | .00 | 45.56 | 151.76 |

0

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 2.570

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.57 | 3.54 | 890.54 | .00 | .00 | 891.00 | .46 | .15 | .01 | 893.20 |
| 363. | 0. | 363. | 0. | 0. | 67. | 0. | 1. | 0. | 892.70 |
| .03 | .00 | 5.42 | .00 | .080 | .030 | .080 | .000 | 887.00 | 106.67 |
| .007225 | 13. | 22. | 30. | 0 | 0 | 0 | .00 | 44.80 | 151.47 |

0

*SECNO 2.600

3470 ENCROACHMENT STATIONS= 68.5 120.5 TYPE= 1 TARGET= 52.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.60 | 1.62 | 890.72 | .00 | 890.26 | 891.20 | .48 | .19 | .01 | 99999.60 |
| 363. | 0. | 363. | 0. | 0. | 65. | 0. | 1. | 0. | 99999.60 |
| .03 | .00 | 5.54 | .00 | .080 | .030 | .080 | .000 | 889.10 | 68.50 |
| .009532 | 13. | 23. | 30. | 2 | 0 | 0 | .00 | 52.00 | 120.50 |

0

CCHV= .300 CEHV= .500

*SECNO 2.700

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 895.00 ELREA= 895.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.70 | 2.73 | 892.94 | 892.94 | 892.14 | 894.32 | 1.38 | .64 | .45 | 890.22 |
| 363. | 0. | 363. | 0. | 0. | 39. | 0. | 1. | 1. | 892.00 |
| .04 | .00 | 9.42 | .00 | .080 | .025 | .080 | .000 | 890.21 | 164.90 |
| .007708 | 130. | 75. | 60. | 20 | 14 | 0 | .00 | 14.12 | 179.02 |

0

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 892.00 ,NOT 892.94 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.05 | 2.49 | 3.00 | .00 | 14.00 | 4.20 | 38.60 | .00 | 890.70 | 890.21 |

*SECNO 2.800

3301 HV CHANGED MORE THAN HVINS

1

| SECNO | DEPTH | CWSEL | CRIWS | WSELR | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

CLASS B LOW FLOW

3420 BRIDGE W.S.= 893.95 BRIDGE VELOCITY=, 10.61 CALCULATED CHANNEL AREA=, 32.

| EGPRS | EGLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 896.36 | 896.37 | .00 | 0. | 363. | 39. | 42. | 895.00 | 898.66 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 898.66 ELREA= 898.66

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.80 | 5.86 | 896.07 | .00 | 894.49 | 896.37 | .30 | 2.05 | .00 | 890.22 |
| 363. | 0. | 363. | 0. | 0. | 83. | 0. | 1. | 1. | 892.00 |
| .04 | .00 | 4.39 | .00 | .000 | .025 | .000 | .000 | 890.21 | 164.90 |
| .000605 | 68. | 68. | 68. | 0 | 0 | 0 | .00 | 14.12 | 179.02 |

0
CCHV= .800 CEHV= .900
*SECNO 2.900

3470 ENCROACHMENT STATIONS= 92.0 146.0 TYPE= 1 TARGET= 54.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.90 | 5.56 | 896.56 | .00 | 894.80 | 896.59 | .03 | .01 | .22 | 99999.00 |
| 363. | 0. | 363. | 0. | 0. | 261. | 0. | 1. | 1. | 99999.00 |
| .05 | .00 | 1.39 | .00 | .080 | .040 | .080 | .000 | 891.00 | 92.00 |
| .000208 | 10. | 20. | 30. | 2 | 0 | 0 | .00 | 54.00 | 146.00 |

0
*SECNO 2.950

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.95 | 5.61 | 896.61 | .00 | 894.85 | 896.62 | .01 | .01 | .02 | 893.00 |
| 363. | 30. | 321. | 12. | 113. | 377. | 52. | 2. | 1. | 893.00 |
| .08 | .27 | .85 | .23 | .080 | .040 | .080 | .000 | 891.00 | 33.20 |
| .000069 | 40. | 100. | 150. | 0 | 0 | 0 | .00 | 175.99 | 209.20 |

0
*SECNO 3.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.00 | 3.43 | 896.63 | .00 | 895.83 | 896.91 | .28 | .05 | .24 | 894.60 |
| 363. | 92. | 168. | 103. | 49. | 28. | 58. | 4. | 1. | 894.60 |
| .10 | 1.86 | 5.93 | 1.79 | .080 | .040 | .080 | .000 | 893.20 | 22.48 |
| .006443 | 264. | 259. | 15. | 0 | 0 | 0 | .00 | 101.11 | 123.59 |

0
1



| SECNO | DEPTH | CWSEL | CRIWS | WSELR | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

CCHV= .300 CEHV= .500

```
*SECNO 3.500
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.50     2.95   902.15   902.15   901.94   902.57      .41     5.48      .07   900.80
     363.       72.      176.      116.       35.       25.       46.        6.        3.   900.50
      .14     2.02     7.01     2.51     .060     .035     .060     .000   899.20    79.67
   .009697      710.      750.      615.       11        9        0      .00   120.15   199.83
0
*SECNO 3.750
     3.75     3.96   903.76      .00   903.13   904.03      .28     1.43      .04   901.20
     363.       31.      187.      144.       21.       33.       72.        6.        4.   901.70
      .16     1.47     5.59     2.00     .060     .035     .060     .000   899.80   258.14
   .003820      195.      250.      265.        2        0        0      .00    87.46   345.60
0
*SECNO 4.000
     4.00     3.98   904.48      .00   903.86   904.53      .05      .43      .07   902.10
     363.      130.      103.      129.      118.       36.      115.        8.        4.   901.80
      .20     1.11     2.84     1.13     .060     .035     .060     .000   900.50    50.06
   .000964      230.      265.      245.        3        0        0      .00   173.92   223.98
0
CCHV=    .600 CEHV=    .800
*SECNO 4.250
     4.25     3.70   904.50      .00   903.90   904.56      .06      .03      .01   900.80
     356.       55.      217.       85.       83.       87.      127.        8.        5.   900.81
      .21      .66     2.49      .67     .060     .025     .060     .000   900.80    74.17
   .000306       50.       50.       50.        2        0        0      .00   182.06   256.23
0

SPECIAL BRIDGE

SB  XX        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      3.33      3.00       .00     23.50      8.00     34.00      .00     900.90    900.80

*SECNO 4.500
PRESSURE AND WEIR FLOW

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        EV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

  EGPRS       EGLWC       H3        QWEIR       QPR       BAREA     TRAPEZOID      ELLC      ELTRD
                                                                     AREA
    910.17    904.80        .04       182.       175.       34.       37.       903.30    905.01

     4.50      5.05   905.85      .00   905.35   905.87      .02     1.30      .00   900.80
     356.       80.      169.      108.      221.      119.      275.        9.        5.   900.81
      .23      .36     1.42      .39     .060     .025     .060     .000   900.80    24.54
   .000066       60.       60.       60.        1        0        6      .00   273.29   297.83
```

0

CCHV= .400 CEHV= .600

*SECNO 4.750

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.75 | 4.57 | 905.87 | .00 | 905.38 | 905.88 | .01 | .01 | .00 | 902.20 |
| 356. | 149. | 63. | 144. | 258. | 53. | 244. | 9. | 5. | 902.30 |
| .25 | .58 | 1.18 | .59 | .060 | .040 | .060 | .000 | 901.30 | 49.52 |
| .000158 | 110. | 60. | 20. | 0 | 0 | 0 | .00 | 224.07 | 273.59 |

0

*SECNO 5.000

3470 ENCROACHMENT STATIONS= 125.0 332.0 TYPE= 1 TARGET= 207.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.00 | 3.40 | 906.00 | .00 | 905.48 | 906.01 | .01 | .14 | .00 | 903.10 |
| 265. | 116. | 67. | 82. | 174. | 55. | 141. | 17. | 9. | 903.60 |
| .51 | .67 | 1.21 | .58 | .060 | .040 | .060 | .000 | 902.60 | 134.98 |
| .000239 | 685. | 745. | 790. | 2 | 0 | 0 | .00 | 190.90 | 325.88 |

0

*SECNO 5.500

3470 ENCROACHMENT STATIONS= 110.0 330.0 TYPE= 1 TARGET= 220.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.50 | 3.44 | 906.04 | .00 | 905.50 | 906.04 | .00 | .02 | .00 | 902.90 |
| 265. | 42. | 168. | 55. | 138. | 332. | 178. | 21. | 10. | 903.00 |
| .70 | .30 | .51 | .31 | .060 | .040 | .060 | .000 | 902.60 | 117.85 |
| .000038 | 280. | 285. | 305. | 2 | 0 | 0 | .00 | 212.15 | 330.00 |

0

CCHV= .600 CEHV= .950

*SECNO 6.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 113.0 175.0 TYPE= 1 TARGET= 62.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.00 | 1.04 | 906.14 | 906.14 | 905.99 | 906.46 | .32 | .01 | .30 | 905.10 |
| 161. | 100. | 58. | 3. | 30. | 9. | 1. | 22. | 11. | 905.30 |
| .71 | 3.32 | 6.18 | 2.31 | .060 | .040 | .060 | .000 | 905.10 | 113.00 |
| .030322 | 160. | 160. | 170. | 2 | 17 | 0 | .00 | 62.00 | 175.00 |

0

*SECNO 6.900

3470 ENCROACHMENT STATIONS= .2 31.8 TYPE= 1 TARGET= 31.600

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.90 | 2.43 | 907.73 | 907.70 | 907.40 | 908.49 | .76 | 1.62 | .42 | 905.50 |
| 161. | 15. | 119. | 27. | 5. | 15. | 8. | 22. | 11. | 905.50 |
| .71 | 3.04 | 7.92 | 3.17 | .060 | .040 | .060 | .000 | 905.30 | 4.45 |
| .014419 | 80. | 80. | 80. | 2 | 17 | 0 | .00 | 19.76 | 24.21 |

0

*SECNO 6.940

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.94 | 3.21 | 908.59 | .00 | 907.96 | 908.90 | .32 | .15 | .27 | 906.58 |
| 161. | 13. | 136. | 12. | 8. | 28. | 7. | 22. | 11. | 906.48 |
| .71 | 1.64 | 4.85 | 1.68 | .060 | .040 | .060 | .000 | 905.38 | 87.27 |
| .004533 | 20. | 20. | 20. | 4 | 0 | 0 | .00 | 24.75 | 112.03 |

0

*SECNO 6.950

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.95 | 3.26 | 908.79 | .00 | 908.22 | 909.09 | .30 | .17 | .01 | 906.73 |
| 161. | 13. | 135. | 13. | 8. | 29. | 8. | 22. | 11. | 906.63 |
| .72 | 1.60 | 4.73 | 1.64 | .060 | .040 | .060 | .000 | 905.53 | 87.05 |
| .004180 | 40. | 40. | 40. | 2 | 0 | 0 | .00 | 25.17 | 112.22 |

0

*SECNO 7.000

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7.00 | 3.30 | 909.73 | .00 | 909.23 | 910.02 | .29 | .92 | .01 | 907.63 |
| 161. | 13. | 135. | 13. | 8. | 29. | 8. | 22. | 11. | 907.53 |
| .73 | 1.58 | 4.66 | 1.62 | .060 | .040 | .060 | .000 | 906.43 | 86.93 |
| .004005 | 225. | 225. | 225. | 2 | 0 | 0 | .00 | 25.39 | 112.33 |

0

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 8.000

WATER EL=X5 CARD= 914.410

3470 ENCROACHMENT STATIONS= 1.0 79.0 TYPE= 1 TARGET= 78.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.00 | 5.31 | 914.41 | .00 | 913.48 | 914.45 | .04 | .58 | .15 | 917.40 |
| 161. | 0. | 161. | 0. | 0. | 103. | 0. | 23. | 11. | 916.70 |
| .83 | .00 | 1.57 | .00 | .060 | .040 | .060 | .000 | 909.10 | 13.60 |
| .000450 | 578. | 578. | 578. | 0 | 0 | 0 | .00 | 34.72 | 48.32 |

0

*SECNO 9.000

3470 ENCROACHMENT STATIONS= 1.0 161.0 TYPE= 1 TARGET= 160.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.00 | 4.30 | 914.50 | .00 | 913.59 | 914.53 | .03 | .08 | .00 | 913.50 |
| 106. | 0. | 105. | 0. | 1. | 74. | 2. | 24. | 11. | 913.50 |
| .87 | .24 | 1.42 | .29 | .060 | .040 | .060 | .000 | 910.20 | 69.44 |
| .000359 | 185. | 185. | 185. | 2 | 0 | 0 | .00 | 29.20 | 98.65 |

0
CCHV= .600 CEHV= .950
*SECNO 10.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 1.0 161.0 TYPE= 1 TARGET= 160.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10.00 | 1.23 | 915.73 | 915.73 | 915.54 | 916.13 | .40 | .01 | .35 | 915.50 |
| 106. | 0. | 106. | 0. | 0. | 21. | 0. | 24. | 11. | 915.50 |
| .87 | .04 | 5.10 | .90 | .060 | .040 | .060 | .000 | 914.50 | 70.10 |
| .024267 | 9. | 9. | 9. | 20 | 14 | 0 | .00 | 26.45 | 96.55 |

0
*SECNO 11.000

3470 ENCROACHMENT STATIONS= 1.0 108.0 TYPE= 1 TARGET= 107.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11.00 | 2.71 | 917.81 | .00 | 917.49 | 918.00 | .19 | 1.74 | .13 | 918.80 |
| 106. | 0. | 106. | 0. | 0. | 30. | 0. | 24. | 12. | 918.00 |
| .89 | .00 | 3.52 | .00 | .060 | .040 | .060 | .000 | 915.10 | 40.44 |
| .005217 | 179. | 179. | 179. | 4 | 0 | 0 | .00 | 19.13 | 59.57 |

0
*SECNO 11.900

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11.90 | 2.97 | 919.07 | .00 | 918.63 | 919.18 | .12 | 1.13 | .05 | 920.00 |
| 106. | 0. | 106. | 0. | 0. | 39. | 0. | 24. | 12. | 919.40 |
| .92 | .00 | 2.73 | .00 | .060 | .040 | .060 | .000 | 916.10 | 18.95 |
| .002854 | 300. | 300. | 300. | 5 | 0 | 0 | .00 | 23.19 | 42.14 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 12.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 1.0 309.0 TYPE= 1 TARGET= 308.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12.00 | .68 | 920.88 | 920.88 | 920.76 | 921.11 | .23 | .61 | .11 | 920.40 |
| 106. | 3. | 94. | 9. | 2. | 23. | 6. | 24. | 12. | 920.40 |
| .92 | 1.50 | 4.07 | 1.51 | .060 | .040 | .060 | .000 | 920.20 | 61.03 |
| .024866 | 100. | 95. | 100. | 20 | 17 | 0 | .00 | 72.91 | 133.93 |

**********
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
**********

```
T1      RANDOLPH DRAIN FLOOD LEVEL STUDY   DEVELOPED CONDITION
T2      STRETCH BETWEEN BECK ROAD AND 6 FT CULVERTS AT LEXINGTON DR
T3      McNEELY & LINCOLN ASSOCIATES, INC. DT: DEC. 06, 1991

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -10.       4.        0.        0.   .000000       .00        .0        0.   882.500      .000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       3.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000

1
  02-06-92     18:06:19                                                                          PAGE


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 3

 CCHV=    .300 CEHV=    .500
 *SECNO 1.000
      1.00      4.70    882.50       .00    882.50    882.80       .30       .00       .00    882.20
      433.       0.      433.        0.        1.       98.        0.        0.        0.    885.60
       .00       .23     4.40       .00      .080      .030      .080      .000    877.80     12.57
   .001903       0.       0.        0.         0         0         0       .00     41.14     53.71
0
 *SECNO 1.250

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      1.25      3.55    885.08    885.08       .00    886.19      1.11       .23       .40    887.40
      433.       0.      433.        0.        0.       51.        0.        0.        0.    888.70
       .00       .00     8.44       .00      .080      .030      .080      .000    881.53     25.68
   .011041       60.      60.       60.        20        15         0       .00     23.48     49.16
0
 *SECNO 1.500
  WATER EL=X5 CARD=    889.290
      1.50      6.66    889.29       .00       .00    889.43       .14       .10       .29    888.50
      433.       1.      432.        0.        4.       146.        0.        0.        0.    889.80
       .01       .25     2.96       .00      .080      .030      .080      .000    882.63     10.13
   .000604       60.      60.       60.         0         0         0       .00     45.77     55.89
```

0

*SECNO 2.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.00 | 6.23 | 889.29 | .00 | .00 | 889.44 | .15 | .01 | .01 | 888.66 |
| 433. | 1. | 432. | 0. | 4. | 138. | 0. | 0. | 0. | 889.96 |
| .01 | .23 | 3.13 | .00 | .080 | .030 | .080 | .000 | 883.06 | 8.51 |
| .000708 | 15. | 15. | 15. | 2 | 0 | 0 | .00 | 47.04 | 55.55 |

0

*SECNO 2.100

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.10 | 6.26 | 889.32 | .00 | .00 | 889.47 | .15 | .03 | .00 | 888.66 |
| 433. | 1. | 432. | 0. | 4. | 139. | 0. | 0. | 0. | 889.96 |
| .01 | .23 | 3.11 | .00 | .080 | .030 | .080 | .000 | 883.06 | 8.08 |
| .000695 | 40. | 37. | 30. | 0 | 0 | 0 | .00 | 47.52 | 55.60 |

0

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 2.250

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.25 | 4.85 | 889.45 | .00 | .00 | 889.68 | .22 | .17 | .04 | 889.50 |
| 433. | 0. | 433. | 0. | 0. | 114. | 0. | 1. | 0. | 889.80 |
| .02 | .00 | 3.81 | .00 | .080 | .030 | .080 | .000 | 884.60 | 10.29 |
| .001800 | 154. | 159. | 157. | 2 | 0 | 0 | .00 | 45.37 | 55.66 |

0

*SECNO 2.400

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.40 | 4.15 | 889.45 | .00 | .00 | 889.86 | .41 | .09 | .09 | 890.20 |
| 433. | 0. | 433. | 0. | 0. | 84. | 0. | 1. | 0. | 890.50 |
| .03 | .00 | 5.13 | .00 | .080 | .030 | .080 | .000 | 885.30 | 14.45 |
| .003918 | 35. | 36. | 36. | 2 | 0 | 0 | .00 | 38.52 | 52.97 |

0

*SECNO 2.450

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.45 | 3.98 | 889.58 | .00 | .00 | 890.06 | .48 | .16 | .04 | 890.50 |
| 433. | 0. | 433. | 0. | 0. | 78. | 0. | 1. | 0. | 890.80 |
| .03 | .00 | 5.56 | .00 | .080 | .030 | .080 | .000 | 885.60 | 15.49 |
| .004839 | 35. | 37. | 35. | 2 | 0 | 0 | .00 | 36.80 | 52.29 |

0

*SECNO 2.500

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.50 | 3.78 | 890.08 | .00 | .00 | 890.56 | .48 | .50 | .00 | 892.50 |
| 433. | 0. | 433. | 0. | 0. | 78. | 0. | 1. | 0. | 892.00 |
| .03 | .00 | 5.57 | .00 | .080 | .030 | .080 | .000 | 886.30 | 103.03 |
| .007237 | 84. | 86. | 85. | 2 | 0 | 0 | .00 | 49.98 | 153.01 |

0

*SECNO 2.550

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.55 | 3.83 | 890.33 | .00 | .00 | 890.78 | .45 | .21 | .01 | 892.70 |
| 433. | 0. | 433. | 0. | 0. | 81. | 0. | 1. | 1. | 892.20 |
| .03 | .00 | 5.38 | .00 | .080 | .030 | .080 | .000 | 886.50 | 101.59 |
| .006734 | 18. | 30. | 40. | 3 | 0 | 0 | .00 | 51.79 | 153.38 |

```
*SECNO 2.560
     2.56     3.84   890.64      .00      .00   891.08      .45      .30      .00   893.00
     433.       0.     433.       0.       0.      81.       0.       1.       1.    892.50
      .04      .00     5.36      .00     .080     .030     .080     .000   886.80   101.46
  .006689      26.      45.      60.        0        0        0      .00    51.96   153.42
0
1
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 2.570
     2.57     3.77   890.77      .00      .00   891.25      .48      .15      .02   893.20
     433.       0.     433.       0.       0.      78.       0.       1.       1.    892.70
      .04      .00     5.55      .00     .080     .030     .080     .000   887.00   102.86
  .007175      13.      22.      30.        0        0        0      .00    50.20   153.06
0
*SECNO 2.600

3470 ENCROACHMENT STATIONS=      68.5     120.5  TYPE=     1  TARGET=      52.000
     2.60     1.84   890.94      .00   890.26   891.44      .50      .18      .01 99999.60
     433.       0.     433.       0.       0.      76.       0.       1.       1.  99999.60
      .04      .00     5.66      .00     .080     .030     .080     .000   889.10    68.50
  .008170      13.      23.      30.        1        0        0      .00    52.00   120.50
0
CCHV=    .300 CEHV=    .500
*SECNO 2.700

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      895.00 ELREA=      895.00

     2.70     3.07   893.28   893.28   892.14   894.84     1.55      .58      .53   890.22
     433.       0.     433.       0.       0.      43.       0.       2.       1.    892.00
      .04      .00     9.99      .00     .080     .025     .080     .000   890.21   164.90
  .007410     130.      75.      60.       20       14        0      .00    14.12   179.02
0

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    892.22 ,NOT    893.28 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      2.49      3.00       .00     14.00      4.20     38.60       .00    890.70    890.21
```

*SECNO 2.800

3301 HV CHANGED MORE THAN HVINS

1

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 898.15 | 897.09 | .00 | 0. | 433. | 39. | 42. | 895.00 | 898.66 |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 898.66 ELREA= 898.66

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.80 | 7.69 | 897.90 | .00 | 894.49 | 898.15 | .25 | 3.31 | .00 | 890.22 |
| 433. | 0. | 433. | 0. | 0. | 109. | 0. | 2. | 1. | 892.00 |
| .04 | .00 | 3.99 | .00 | .000 | .025 | .000 | .000 | 890.21 | 164.90 |
| .000347 | 68. | 68. | 68. | 2 | 0 | 0 | .00 | 14.12 | 179.02 |

0

CCHV= .800 CEHV= .900

*SECNO 2.900

3470 ENCROACHMENT STATIONS= 92.0 146.0 TYPE= 1 TARGET= 54.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.90 | 7.31 | 898.31 | .00 | 894.80 | 898.33 | .02 | .00 | .18 | 99999.00 |
| 433. | 0. | 433. | 0. | 0. | 355. | 0. | 2. | 1. | 99999.00 |
| .05 | .00 | 1.22 | .00 | .080 | .040 | .080 | .000 | 891.00 | 92.00 |
| .000114 | 10. | 20. | 30. | 2 | 0 | 0 | .00 | 54.00 | 146.00 |

0

*SECNO 2.950

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.95 | 7.35 | 898.35 | .00 | 894.85 | 898.35 | .01 | .00 | .01 | 893.00 |
| 433. | 54. | 352. | 27. | 234. | 520. | 134. | 3. | 1. | 893.00 |
| .10 | .23 | .68 | .20 | .080 | .040 | .080 | .000 | 891.00 | 9.26 |
| .000028 | 40. | 100. | 150. | 1 | 0 | 0 | .00 | 219.68 | 228.94 |

0

*SECNO 3.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.00 | 5.16 | 898.36 | .00 | 895.83 | 898.40 | .05 | .02 | .04 | 894.60 |
| 433. | 140. | 124. | 169. | 135. | 44. | 166. | 6. | 2. | 894.60 |
| .13 | 1.03 | 2.84 | 1.02 | .080 | .040 | .080 | .000 | 893.20 | 3.72 |
| .000821 | 264. | 259. | 15. | 0 | 0 | 0 | .00 | 141.35 | 145.07 |

0

CCHV= .300 CEHV= .500

1

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 3.500

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.50 | 3.04 | 902.24 | 902.24 | 901.94 | 902.72 | .47 | 1.40 | .21 | 900.80 |
| 433. | 92. | 199. | 142. | 40. | 26. | 51. | 9. | 4. | 900.50 |
| .17 | 2.27 | 7.66 | 2.77 | .060 | .035 | .060 | .000 | 899.20 | 77.44 |
| .010971 | 710. | 750. | 615. | 20 | 14 | 0 | .00 | 124.61 | 202.06 |

0

*SECNO 3.750

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.75 | 4.18 | 903.98 | .00 | 903.13 | 904.27 | .29 | 1.50 | .06 | 901.20 |
| 433. | 42. | 209. | 181. | 27. | 36. | 85. | 10. | 4. | 901.70 |
| .19 | 1.59 | 5.86 | 2.13 | .060 | .035 | .060 | .000 | 899.80 | 255.33 |
| .003843 | 195. | 250. | 265. | 2 | 0 | 0 | .00 | 94.21 | 349.54 |

0

*SECNO 4.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.00 | 4.21 | 904.71 | .00 | 903.86 | 904.76 | .05 | .42 | .07 | 902.10 |
| 433. | 160. | 114. | 158. | 138. | 39. | 133. | 12. | 5. | 901.80 |
| .23 | 1.16 | 2.94 | 1.19 | .060 | .035 | .060 | .000 | 900.50 | 42.41 |
| .000944 | 230. | 265. | 245. | 3 | 0 | 0 | .00 | 186.41 | 228.81 |

0

CCHV= .600 CEHV= .800

*SECNO 4.250

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.25 | 3.93 | 904.73 | .00 | 903.90 | 904.81 | .07 | .03 | .02 | 900.80 |
| 433. | 71. | 253. | 110. | 101. | 92. | 148. | 12. | 5. | 900.81 |
| .24 | .70 | 2.73 | .74 | .060 | .025 | .060 | .000 | 900.80 | 55.33 |
| .000340 | 50. | 50. | 50. | 2 | 0 | 0 | .00 | 208.00 | 263.33 |

0

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 902.18 ,NOT 904.73 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB | KK | KKOR | COPQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.05 | 3.33 | 3.00 | .00 | 23.50 | 8.00 | 34.00 | .00 | 900.90 | 900.80 |

*SECNO 4.500

PRESSURE AND WEIR FLOW

1




| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| EGPRS | EGLWC | E3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 913.12 | 905.49 | .00 | 263. | 170. | 34. | 37. | 903.30 | 905.01 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.50 | 5.21 | 906.01 | .00 | 905.35 | 906.03 | .02 | 1.22 | .00 | 900.80 |
| 433. | 100. | 200. | 133. | 238. | 122. | 294. | 13. | 6. | 900.81 |
| .26 | .42 | 1.64 | .45 | .060 | .025 | .060 | .000 | 900.80 | 21.02 |
| .000084 | 60. | 60. | 60. | 2 | 0 | 7 | .00 | 281.30 | 302.32 |

0

CCHV= .400 CEHV= .600

*SECNO 4.750

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.75 | 4.73 | 906.03 | .00 | 905.38 | 906.04 | .01 | .01 | .00 | 902.20 |
| 433. | 182. | 74. | 176. | 276. | 55. | 259. | 13. | 6. | 902.30 |
| .28 | .66 | 1.35 | .68 | .060 | .040 | .060 | .000 | 901.30 | 46.96 |
| .000194 | 110. | 60. | 20. | 0 | 0 | 0 | .00 | 227.60 | 274.56 |

0

*SECNO 5.000

3470 ENCROACHMENT STATIONS= 125.0 332.0 TYPE= 1 TARGET= 207.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.00 | 3.59 | 906.19 | .00 | 905.48 | 906.20 | .01 | .16 | .00 | 903.10 |
| 323. | 141. | 79. | 103. | 189. | 59. | 159. | 22. | 10. | 903.60 |
| .51 | .75 | 1.34 | .65 | .060 | .040 | .060 | .000 | 902.60 | 134.05 |
| .000273 | 685. | 745. | 790. | 2 | 0 | 0 | .00 | 197.65 | 331.70 |

0

*SECNO 5.500

3470 ENCROACHMENT STATIONS= 110.0 330.0 TYPE= 1 TARGET= 220.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.50 | 3.63 | 906.23 | .00 | 905.50 | 906.23 | .00 | .03 | .00 | 902.90 |
| 323. | 52. | 204. | 67. | 148. | 352. | 190. | 26. | 11. | 903.00 |
| .68 | .35 | .58 | .35 | .060 | .040 | .060 | .000 | 902.60 | 117.08 |
| .000046 | 280. | 285. | 305. | 2 | 0 | 0 | .00 | 212.92 | 330.00 |

0

CCHV= .600 CEHV= .950

*SECNO 6.000

3470 ENCROACHMENT STATIONS= 113.0 175.0 TYPE= 1 TARGET= 62.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.00 | 1.13 | 906.23 | .00 | 905.99 | 906.53 | .30 | .02 | .28 | 905.10 |
| 180. | 114. | 62. | 5. | 35. | 10. | 2. | 27. | 12. | 905.30 |
| .69 | 3.28 | 6.00 | 2.32 | .060 | .040 | .060 | .000 | 905.10 | 113.00 |
| .025049 | 160. | 160. | 170. | 2 | 0 | 0 | .00 | 62.00 | 175.00 |

0

1



| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 6.900

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= .2 31.8 TYPE= 1 TARGET= 31.600

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.90 | 2.54 | 907.84 | 907.84 | 907.40 | 908.66 | .82 | 1.51 | .49 | 905.50 |
| 180. | 18. | 130. | 31. | 6. | 16. | 9. | 27. | 12. | 905.50 |
| .69 | 3.17 | 8.27 | 3.34 | .060 | .040 | .060 | .000 | 905.30 | 4.03 |
| .014728 | 80. | 80. | 80. | 3 | 17 | 0 | .00 | 20.59 | 24.62 |

0
*SECNO 6.940

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.94 | 3.39 | 908.77 | .00 | 907.96 | 909.10 | .33 | .15 | .29 | 906.58 |
| 180. | 16. | 149. | 15. | 9. | 30. | 9. | 27. | 12. | 906.48 |
| .69 | 1.71 | 4.99 | 1.75 | .060 | .040 | .060 | .000 | 905.38 | 86.57 |
| .004403 | 20. | 20. | 20. | 5 | 0 | 0 | .00 | 26.07 | 112.64 |

0
*SECNO 6.950

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.95 | 3.43 | 908.96 | .00 | 908.22 | 909.28 | .31 | .17 | .01 | 906.73 |
| 180. | 16. | 148. | 16. | 10. | 30. | 9. | 27. | 12. | 906.63 |
| .69 | 1.68 | 4.89 | 1.72 | .060 | .040 | .060 | .000 | 905.53 | 86.39 |
| .004138 | 40. | 40. | 40. | 2 | 0 | 0 | .00 | 26.41 | 112.80 |

0
*SECNO 7.000

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7.00 | 3.46 | 909.89 | .00 | 909.23 | 910.20 | .31 | .92 | .00 | 907.63 |
| 180. | 16. | 148. | 16. | 10. | 31. | 9. | 27. | 12. | 907.53 |
| .71 | 1.67 | 4.84 | 1.70 | .060 | .040 | .060 | .000 | 906.43 | 86.30 |
| .004014 | 225. | 225. | 225. | 2 | 0 | 0 | .00 | 26.58 | 112.87 |

0
*SECNO 8.000
1



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

WATER EL=X5 CARD= 915.110

3470 ENCROACHMENT STATIONS= 1.0 79.0 TYPE= 1 TARGET= 78.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.00 | 6.01 | 915.11 | .00 | 913.48 | 915.14 | .03 | .44 | .17 | 917.40 |
| 180. | 0. | 180. | 0. | 0. | 128. | 0. | 28. | 12. | 916.70 |
| .82 | .00 | 1.40 | .00 | .060 | .040 | .060 | .000 | 909.10 | 11.59 |
| .000310 | 578. | 578. | 578. | 0 | 0 | 0 | .00 | 38.78 | 50.36 |

0

```
 *SECNO 9.000

 3470 ENCROACHMENT STATIONS=       1.0     161.0  TYPE=     1  TARGET=     160.000
      9.00     4.97   915.17      .00   913.59   915.20      .03      .06      .00   913.50
      139.       0.     137.       2.       1.      91.       4.      29.      12.   913.50
       .86      .31     1.50      .37     .060     .040     .060     .000   910.20    68.74
   .000309      185.     185.     185.        2        0        0      .00    32.01   100.75
0
 CCHV=    .600 CEHV=    .950
 *SECNO 10.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=       1.0     161.0  TYPE=     1  TARGET=     160.000
     10.00     1.39   915.89   915.89   915.54   916.37      .49      .01      .43   915.50
      139.       0.     138.       0.       0.      25.       0.      29.      12.   915.50
       .86     1.15     5.61     1.25     .060     .040     .060     .000   914.50    69.83
   .023322       9.       9.       9.       20       14        0      .00    27.43    97.26
0
 *SECNO 11.000

 3470 ENCROACHMENT STATIONS=       1.0     108.0  TYPE=     1  TARGET=     107.000
     11.00     3.00   918.10      .00   917.49   918.33      .24     1.81      .15   918.80
      139.       0.     139.       0.       0.      36.       0.      29.      13.   918.00
       .87      .00     3.90      .25     .060     .040     .060     .000   915.10    39.46
   .005616      179.     179.     179.        4        0        0      .00    30.46    69.92
0
 *SECNO 11.900
     11.90     3.33   919.43      .00   918.63   919.56      .13     1.16      .06   920.00
      139.       0.     139.       0.       0.      48.       0.      29.      13.   919.40
       .90      .00     2.92      .01     .060     .040     .060     .000   916.10    17.42
   .002831      300.     300.     300.        4        0        0      .00    26.70    44.12
0
1
  02-06-92     18:06:19                                                                PAGE


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 12.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=       1.0     309.0  TYPE=     1  TARGET=     308.000
     12.00      .78   920.98   920.98   920.76   921.24      .26      .59      .12   920.40
      139.       5.     119.      15.       3.      27.       8.      29.      13.   920.40
       .91     1.64     4.35     1.77     .060     .040     .060     .000   920.20    59.08
   .022852      100.      95.     100.       20       17        0      .00    80.41   139.49
0
```

THIS RUN EXECUTED 02-06-92

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION - '50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
```

```
T1      RANDOLPH DRAIN FLOOD LEVEL STUDY   DEVELOPED CONDITION
T2      STRETCH BETWEEN BECK ROAD AND 6 FT CULVERTS AT LEXINGTON DR
T3      McNEELY & LINCOLN ASSOCIATES, INC. DT: DEC. 06, 1991

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -10.       5.        0.        0.   .000000       .00        .0        0.   883.000      .000

J2  NPROP     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000

1
  02-06-92     18:06:19                                                                          PAGE

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 4

 CCHV=    .300 CEHV=    .500
 *SECNO 1.000
 3280 CROSS SECTION      1.00 EXTENDED       .10 FEET

      1.00      5.20    883.00       .00    883.00    883.34       .34       .00       .00    882.20
      541.        5.      536.        0.       10.      114.        0.        0.        0.    885.60
       .00       .47      4.69       .00      .080      .030      .080      .000    877.80       .00
    .001843        0.        0.        0.         0         0         0       .00     54.72     54.72
0
 *SECNO 1.250

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      1.25      3.95    885.48    885.48       .00    886.70      1.22       .22       .44    887.40
      541.        0.      541.        0.        0.       61.        0.        0.        0.    888.70
       .00       .00      8.87       .00      .080      .030      .080      .000    881.53     24.71
    .010739       60.       60.       60.        20        15         0       .00     25.31     50.02
0
 *SECNO 1.500
  WATER EL=X5 CARD=   891.330
 3280 CROSS SECTION      1.50 EXTENDED       1.23 FEET

      1.50      8.70    891.33       .00       .00    891.41       .08       .04       .34    888.50
      541.        17.      516.        7.        41.      221.        25.        0.        0.    889.80
       .01       .43      2.34       .30      .080      .030      .080      .000    882.63       .00
    .000225       60.       60.       60.         0         0         0       .00     79.00     79.00
```

0

*SECNO 2.000

3280 CROSS SECTION 2.00 EXTENDED 1.57 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.00 | 8.27 | 891.33 | .00 | .00 | 891.42 | .09 | .00 | .00 | 888.66 |
| 541. | 20. | 515. | 6. | 42. | 213. | 21. | 0. | 0. | 889.96 |
| .01 | .46 | 2.42 | .28 | .080 | .030 | .080 | .000 | 883.06 | .00 |
| .000251 | 15. | 15. | 15. | 2 | 0 | 0 | .00 | 79.00 | 79.00 |

0

1

02-06-92 18:06:19 PAGE

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 2.100

3280 CROSS SECTION 2.10 EXTENDED 1.58 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.10 | 8.28 | 891.34 | .00 | .00 | 891.43 | .09 | .01 | .00 | 888.66 |
| 541. | 20. | 515. | 6. | 43. | 214. | 22. | 1. | 0. | 889.96 |
| .02 | .46 | 2.41 | .28 | .080 | .030 | .080 | .000 | 883.06 | .00 |
| .000250 | 40. | 37. | 30. | 0 | 0 | 0 | .00 | 79.00 | 79.00 |

0

*SECNO 2.250

3280 CROSS SECTION 2.25 EXTENDED 1.38 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.25 | 6.78 | 891.38 | .00 | .00 | 891.48 | .10 | .05 | .01 | 889.50 |
| 541. | 8. | 529. | 4. | 16. | 204. | 13. | 2. | 0. | 889.80 |
| .03 | .47 | 2.59 | .34 | .080 | .030 | .080 | .000 | 884.60 | .00 |
| .000401 | 154. | 159. | 157. | 0 | 0 | 0 | .00 | 72.00 | 72.00 |

0

*SECNO 2.400

3280 CROSS SECTION 2.40 EXTENDED .69 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.40 | 6.08 | 891.38 | .00 | .00 | 891.53 | .15 | .02 | .02 | 890.20 |
| 541. | 4. | 535. | 1. | 9. | 172. | 4. | 2. | 1. | 890.50 |
| .04 | .46 | 3.12 | .29 | .080 | .030 | .080 | .000 | 885.30 | .00 |
| .000734 | 35. | 36. | 36. | 1 | 0 | 0 | .00 | 66.49 | 66.49 |

0

*SECNO 2.450

3280 CROSS SECTION 2.45 EXTENDED .40 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.45 | 5.79 | 891.39 | .00 | .00 | 891.57 | .18 | .03 | .01 | 890.50 |
| 541. | 3. | 538. | 0. | 6. | 158. | 2. | 2. | 1. | 890.80 |
| .04 | .42 | 3.40 | .26 | .080 | .030 | .080 | .000 | 885.60 | .00 |
| .000974 | 35. | 37. | 35. | 0 | 0 | 0 | .00 | 63.40 | 63.40 |

0

*SECNO 2.500

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.50 | 5.26 | 891.56 | .00 | .00 | 891.69 | .13 | .10 | .02 | 892.50 |
| 541. | 0. | 541. | 0. | 0. | 188. | 0. | 2. | 1. | 892.00 |
| .05 | .00 | 2.88 | .00 | .080 | .030 | .080 | .000 | 886.30 | 64.41 |
| .001450 | 84. | 86. | 85. | 2 | 0 | 0 | .00 | 98.62 | 163.04 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 2.550

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.55 | 5.10 | 891.60 | .00 | .00 | 891.75 | .15 | .05 | .01 | 892.70 |
| 541. | 0. | 541. | 0. | 0. | 172. | 0. | 2. | 1. | 892.20 |
| .05 | .00 | 3.14 | .00 | .080 | .030 | .080 | .000 | 886.50 | 68.70 |
| .001805 | 18. | 30. | 40. | 0 | 0 | 0 | .00 | 93.22 | 161.92 |

0

*SECNO 2.560

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.56 | 4.87 | 891.67 | .00 | .00 | 891.87 | .20 | .09 | .02 | 893.00 |
| 541. | 0. | 541. | 0. | 0. | 152. | 0. | 3. | 1. | 892.50 |
| .05 | .00 | 3.56 | .00 | .080 | .030 | .080 | .000 | 886.80 | 74.64 |
| .002463 | 26. | 45. | 60. | 0 | 0 | 0 | .00 | 85.74 | 160.38 |

0

*SECNO 2.570

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.57 | 4.71 | 891.71 | .00 | .00 | 891.95 | .23 | .06 | .02 | 893.20 |
| 541. | 0. | 541. | 0. | 0. | 139. | 0. | 3. | 1. | 892.70 |
| .06 | .00 | 3.89 | .00 | .080 | .030 | .080 | .000 | 887.00 | 78.61 |
| .003045 | 13. | 22. | 30. | 0 | 0 | 0 | .00 | 80.74 | 159.35 |

0

*SECNO 2.600

3470 ENCROACHMENT STATIONS= 68.5 120.5 TYPE= 1 TARGET= 52.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.60 | 2.64 | 891.74 | .00 | 890.26 | 892.06 | .32 | .07 | .04 | 99999.60 |
| 541. | 0. | 541. | 0. | 0. | 118. | 0. | 3. | 1. | 99999.60 |
| .06 | .00 | 4.57 | .00 | .080 | .030 | .080 | .000 | 889.10 | 68.50 |
| .003103 | 13. | 23. | 30. | 2 | 0 | 0 | .00 | 52.00 | 120.50 |

0

CCHV= .300 CEHV= .500

*SECNO 2.700

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 895.00 ELREA= 895.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.70 | 3.57 | 893.78 | 893.78 | 892.14 | 895.57 | 1.80 | .34 | .74 | 890.22 |
| 541. | 0. | 541. | 0. | 0. | 50. | 0. | 3. | 1. | 892.00 |
| .06 | .00 | 10.76 | .00 | .080 | .025 | .080 | .000 | 890.21 | 164.90 |
| .007037 | 130. | 75. | 60. | 20 | 11 | 0 | .00 | 14.12 | 179.02 |

0

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 892.54 ,NOT 893.78 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB | XX | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.05 | 2.49 | 3.00 | .00 | 14.00 | 4.20 | 38.60 | .00 | 890.70 | 890.21 |

*SECNO 2.800

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 901.37 | 898.12 | .00 | 73. | 471. | 39. | 42. | 895.00 | 898.66 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2.80 | 9.31 | 899.52 | .00 | 894.49 | 899.53 | .01 | 3.95 | .00 | 890.22 |
| 541. | 195. | 138. | 208. | 724. | 131. | 816. | 4. | 1. | 892.00 |
| .10 | .27 | 1.05 | .25 | .080 | .025 | .080 | .000 | 890.21 | 29.57 |
| .000019 | 68. | 68. | 68. | 0 | 0 | 5 | .00 | 320.84 | 350.41 |

0
CCHV= .800 CEHV= .900
*SECNO 2.900

3470 ENCROACHMENT STATIONS= 92.0 146.0 TYPE= 1 TARGET= 54.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.90 | 8.52 | 899.52 | .00 | 894.80 | 899.54 | .03 | .00 | .02 | 99999.00 |
| 541. | 0. | 541. | 0. | 0. | 420. | 0. | 5. | 1. | 99999.00 |
| .10 | .00 | 1.29 | .00 | .080 | .040 | .080 | .000 | 891.00 | 92.00 |
| .000106 | 10. | 20. | 30. | 2 | 0 | 0 | .00 | 54.00 | 146.00 |

0
*SECNO 2.950
3280 CROSS SECTION 2.95 EXTENDED .56 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.95 | 8.56 | 899.56 | .00 | 894.85 | 899.56 | .01 | .00 | .02 | 893.00 |
| 541. | 80. | 417. | 44. | 342. | 620. | 209. | 6. | 2. | 893.00 |
| .15 | .23 | .67 | .21 | .080 | .040 | .080 | .000 | 891.00 | .00 |
| .000022 | 40. | 100. | 150. | 2 | 0 | 0 | .00 | 240.00 | 240.00 |

0
1

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 3.000
3280 CROSS SECTION 3.00 EXTENDED .87 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.00 | 6.37 | 899.57 | .00 | 895.83 | 899.60 | .03 | .01 | .02 | 894.60 |
| 541. | 186. | 126. | 229. | 211. | 55. | 264. | 10. | 2. | 894.60 |
| .20 | .88 | 2.30 | .87 | .080 | .040 | .080 | .000 | 893.20 | .00 |
| .000400 | 264. | 259. | 15. | 0 | 0 | 0 | .00 | 160.99 | 160.99 |

0
CCHV= .300 CEHV= .500
*SECNO 3.500
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.50 | 3.24 | 902.44 | 902.44 | 901.94 | 902.92 | .48 | .77 | .23 | 900.80 |
| 541. | 131. | 225. | 185. | 52. | 28. | 63. | 15. | 5. | 900.50 |
| .24 | 2.51 | 7.97 | 2.96 | .060 | .035 | .060 | .000 | 899.20 | 72.54 |
| .010696 | 710. | 750. | 615. | 20 | 8 | 0 | .00 | 134.42 | 206.96 |

0
*SECNO 3.750

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.75 | 4.40 | 904.20 | .00 | 903.13 | 904.52 | .32 | 1.56 | .05 | 901.20 |
| 541. | 65. | 241. | 235. | 45. | 38. | 99. | 16. | 6. | 901.70 |
| .25 | 1.44 | 6.36 | 2.38 | .060 | .035 | .060 | .000 | 899.80 | 129.52 |
| .004176 | 195. | 250. | 265. | 2 | 0 | 0 | .00 | 224.12 | 353.64 |

0
*SECNO 4.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.00 | 4.49 | 904.99 | .00 | 903.86 | 905.04 | .06 | .44 | .08 | 902.10 |
| 541. | 207. | 132. | 202. | 165. | 42. | 157. | 18. | 7. | 901.80 |
| .29 | 1.25 | 3.15 | 1.29 | .060 | .035 | .060 | .000 | 900.50 | 33.38 |
| .000981 | 230. | 265. | 245. | 3 | 0 | 0 | .00 | 201.13 | 234.51 |

0
CCHV= .600 CEHV= .800
*SECNO 4.250

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.25 | 4.21 | 905.01 | .00 | 903.90 | 905.09 | .08 | .03 | .02 | 900.80 |
| 532. | 95. | 294. | 142. | 128. | 99. | 176. | 18. | 7. | 900.81 |
| .30 | .75 | 2.98 | .81 | .060 | .025 | .060 | .000 | 900.80 | 44.95 |
| .000369 | 50. | 50. | 50. | 2 | 0 | 0 | .00 | 226.83 | 271.78 |

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 902.38 ,NOT 905.01 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.05 | 3.33 | 3.00 | .00 | 23.50 | 8.00 | 34.00 | .00 | 900.90 | 900.80 |

*SECNO 4.500
PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 917.67 | 906.17 | .00 | 370. | 163. | 34. | 37. | 903.30 | 905.01 |
| 4.50 | 5.37 | 906.17 | .00 | 905.35 | 906.20 | .03 | 1.11 | .00 | 900.80 |
| 532. | 126. | 239. | 166. | 259. | 126. | 317. | 19. | 7. | 900.81 |
| .31 | .49 | 1.90 | .52 | .060 | .025 | .060 | .000 | 900.80 | 17.02 |
| .000108 | 60. | 60. | 60. | 2 | 0 | 7 | .00 | 290.41 | 307.43 |

0
CCHV= .400 CEHV= .600
*SECNO 4.750

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.75 | 4.90 | 906.20 | .00 | 905.38 | 906.21 | .01 | .01 | .01 | 902.20 |
| 532. | 226. | 89. | 218. | 296. | 57. | 277. | 20. | 8. | 902.30 |
| .33 | .76 | 1.54 | .79 | .060 | .040 | .060 | .000 | 901.30 | 44.10 |
| .000241 | 110. | 60. | 20. | 1 | 0 | 0 | .00 | 231.55 | 275.65 |

0
*SECNO 5.000
3280 CROSS SECTION 5.00 EXTENDED .20 FEET

3470 ENCROACHMENT STATIONS= 125.0 332.0 TYPE= 1 TARGET= 207.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.00 | 3.80 | 906.40 | .00 | 905.48 | 906.42 | .02 | .20 | .00 | 903.10 |
| 407. | 177. | 96. | 134. | 206. | 62. | 180. | 29. | 11. | 903.60 |
| .54 | .86 | 1.53 | .75 | .060 | .040 | .060 | .000 | 902.60 | 133.00 |
| .000326 | 685. | 745. | 790. | 2 | 0 | 0 | .00 | 199.00 | 332.00 |

0
*SECNO 5.500
3280 CROSS SECTION 5.50 EXTENDED .05 FEET

1
02-06-92 18:06:19 PAGE

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

```
3470 ENCROACHMENT STATIONS=     110.0     330.0  TYPE=     1  TARGET=     220.000
     5.50     3.85   906.45      .00   905.50   906.45      .01      .03      .00   902.90
     407.       66.      256.      85.      160.      374.      203.      33.      13.    903.00
      .68       .41       .69      .42      .060      .040      .060      .000   902.60   116.20
   .000059      280.      285.      305.        2         0         0      .00   213.80   330.00
0
 CCHV=     .600 CEHV=     .950
 *SECNO 6.000

 3470 ENCROACHMENT STATIONS=     113.0     175.0  TYPE=     1  TARGET=      62.000
     6.00     1.36   906.46      .00   905.99   906.74      .29      .02      .27   905.10
     232.      150.       74.       8.       45.       13.       3.       34.      13.    905.30
      .69      3.32      5.89     2.47      .060      .040      .060      .000   905.10   113.00
   .018537      160.      160.      170.        2         0         0      .00    62.00   175.00
0
 *SECNO 6.900

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=         .2      31.8  TYPE=     1  TARGET=      31.600
     6.90     2.88   908.18   908.18   907.40   909.09      .91     1.30      .59   905.50
     232.       27.      159.      45.       8.       18.      12.       35.      13.    905.50
      .69      3.42      8.91     3.65      .060      .040      .060      .000   905.30     2.84
   .014420       80.       80.       80.        3        17         0      .00    22.94    25.78
0
 *SECNO 6.940

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=      75.0     208.0  TYPE=     1  TARGET=     133.000
     6.94     3.81   909.19      .00   907.96   909.56      .37      .14      .32   906.58
     232.       25.      183.      24.       13.       34.      12.       35.      13.    906.48
      .69      1.90      5.38     1.93      .060      .040      .060      .000   905.38    84.94
   .004289       20.       20.       20.        5         0         0      .00    29.11   114.05
0
1
  02-06-92     18:06:19                                                                    PAGE

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST
```

```
 *SECNO 6.950

 3470 ENCROACHMENT STATIONS=      75.0     208.0  TYPE=     1  TARGET=     133.000
      6.95      3.85    909.38      .00    908.22    909.73      .36       .17       .01    906.73
      232.       25.      183.      24.       14.       34.      13.       35.       13.     906.63
       .70      1.87      5.30     1.91      .060      .040     .060      .000    905.53     84.80
   .004103       40.       40.      40.         2         0        0       .00     29.38    114.18
0
 *SECNO 7.000

 3470 ENCROACHMENT STATIONS=      75.0     208.0  TYPE=     1  TARGET=     133.000
      7.00      3.87    910.30      .00    909.23    910.65      .35       .91       .00    907.63
      232.       26.      182.      24.       14.       35.      13.       35.       14.     907.53
       .71      1.86      5.27     1.90      .060      .040     .060      .000    906.43     84.73
   .004019      225.      225.     225.         2         0        0       .00     29.50    114.23
0
 *SECNO 8.000
  WATER EL=X5 CARD=   917.430

 3470 ENCROACHMENT STATIONS=       1.0      79.0  TYPE=     1  TARGET=      78.000
      8.00      8.33    917.43      .00    913.48    917.45      .02       .17       .20    917.40
      232.        0.      232.       0.        0.      233.       2.       37.       14.     916.70
       .87       .00       .99      .13      .060      .040     .060      .000    909.10      4.50
   .000099      578.      578.     578.         0         0        0       .00     58.75     63.25
0
 *SECNO 9.000

 3470 ENCROACHMENT STATIONS=       1.0     161.0  TYPE=     1  TARGET=     160.000
      9.00      7.25    917.45      .00    913.59    917.47      .03       .02       .01    913.50
      207.        3.      194.      10.        8.      148.      25.       38.       14.     913.50
       .91       .35      1.31      .42      .060      .040     .060      .000    910.20     66.32
   .000122      185.      185.     185.         2         0        0       .00     41.63    107.96
0
 CCHV=     .600' CEHV=     .950
 *SECNO 10.000

 3470 ENCROACHMENT STATIONS=       1.0     161.0  TYPE=     1  TARGET=     160.000
     10.00      2.95    917.45      .00    915.54    917.58      .14       .00       .11    915.50
      207.        3.      195.       9.        3.       64.       9.       38.       14.     915.50
       .91       .98      3.05     1.06      .060      .040     .060      .000    914.50     67.15
   .001947        9.        9.       9.         0         0        0       .00     37.24    104.39
0
1
  02-06-92     18:06:19                                                                    PAGE


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST
```

*SECNO 11.000

3470 ENCROACHMENT STATIONS= 1.0 108.0 TYPE= 1 TARGET= 107.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11.00 | 3.03 | 918.13 | .00 | 917.49 | 918.63 | .50 | .70 | .34 | 918.80 |
| 207. | 0. | 207. | 0. | 0. | 36. | 1. | 38. | 15. | 918.00 |
| .92 | .00 | 5.67 | .45 | .060 | .040 | .060 | .000 | 915.10 | 39.33 |
| .011656 | 179. | 179. | 179. | 2 | 0 | 0 | .00 | 34.41 | 73.73 |

0

*SECNO 11.900

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11.90 | 3.96 | 920.06 | .00 | 918.63 | 920.21 | .15 | 1.37 | .21 | 920.00 |
| 207. | 0. | 201. | 6. | 0. | 65. | 9. | 38. | 15. | 919.40 |
| .95 | .01 | 3.11 | .62 | .060 | .040 | .060 | .000 | 916.10 | 14.79 |
| .002411 | 300. | 300. | 300. | 2 | 0 | 0 | .00 | 53.83 | 68.62 |

0

*SECNO 12.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 1.0 309.0 TYPE= 1 TARGET= 308.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12.00 | .96 | 921.16 | 921.16 | 920.76 | 921.46 | .31 | .51 | .15 | 920.40 |
| 207. | 10. | 166. | 30. | 5. | 34. | 14. | 39. | 15. | 920.40 |
| .96 | 1.88 | 4.86 | 2.11 | .060 | .040 | .060 | .000 | 920.20 | 55.83 |
| .021103 | 100. | 95. | 100. | 0 | 14 | 0 | .00 | 93.11 | 148.94 |

0

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THIS RUN EXECUTED 02-06-92

**********

HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984

ERROR CORR - 01,02,03,04,05,06

MODIFICATION - 50,51,52,53,54,55,56

IBM-PC-XT VERSION AUGUST 1985

**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

McNEELY & LINCOLN ASSOCIATES

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | .00 | .00 | .00 | 877.80 | 215.00 | 881.60 | .00 | 881.74 | 12.04 | 3.03 | 71.02 | 61.96 |
| | 1.000 | .00 | .00 | .00 | 877.80 | 363.00 | 882.00 | .00 | 882.30 | 22.28 | 4.38 | 82.79 | 76.90 |
| | 1.000 | .00 | .00 | .00 | 877.80 | 433.00 | 882.50 | .00 | 882.80 | 19.03 | 4.40 | 99.76 | 99.26 |
| | 1.000 | .00 | .00 | .00 | 877.80 | 541.00 | 883.00 | .00 | 883.34 | 18.43 | 4.69 | 124.36 | 126.03 |
| * | 1.250 | 60.00 | .00 | .00 | 881.53 | 215.00 | 884.07 | 884.07 | 884.87 | 121.39 | 7.20 | 29.87 | 19.51 |
| * | 1.250 | 60.00 | .00 | .00 | 881.53 | 363.00 | 884.79 | 884.79 | 885.82 | 113.77 | 8.14 | 44.62 | 34.03 |
| * | 1.250 | 60.00 | .00 | .00 | 881.53 | 433.00 | 885.08 | 885.08 | 886.19 | 110.41 | 8.44 | 51.28 | 41.21 |
| * | 1.250 | 60.00 | .00 | .00 | 881.53 | 541.00 | 885.48 | 885.48 | 886.70 | 107.39 | 8.87 | 60.96 | 52.20 |
| * | 1.500 | 60.00 | .00 | .00 | 882.63 | 215.00 | 886.83 | .00 | 886.99 | 12.86 | 3.19 | 67.47 | 59.95 |
| * | 1.500 | 60.00 | .00 | .00 | 882.63 | 363.00 | 888.33 | .00 | 888.49 | 9.19 | 3.23 | 112.38 | 119.72 |
| * | 1.500 | 60.00 | .00 | .00 | 882.63 | 433.00 | 889.29 | .00 | 889.43 | 6.04 | 2.96 | 149.70 | 176.26 |
| * | 1.500 | 60.00 | .00 | .00 | 882.63 | 541.00 | 891.33 | .00 | 891.41 | 2.25 | 2.34 | 286.46 | 361.01 |
| | 2.000 | 15.00 | .00 | .00 | 883.06 | 215.00 | 886.84 | .00 | 887.03 | 16.70 | 3.49 | 61.56 | 52.61 |
| | 2.000 | 15.00 | .00 | .00 | 883.06 | 363.00 | 888.33 | .00 | 888.52 | 11.01 | 3.45 | 105.33 | 109.38 |
| | 2.000 | 15.00 | .00 | .00 | 883.06 | 433.00 | 889.29 | .00 | 889.44 | 7.08 | 3.13 | 141.90 | 162.76 |
| | 2.000 | 15.00 | .00 | .00 | 883.06 | 541.00 | 891.33 | .00 | 891.42 | 2.51 | 2.42 | 277.00 | 341.48 |
| | 2.100 | 37.00 | .00 | .00 | 883.06 | 215.00 | 886.91 | .00 | 887.09 | 15.36 | 3.39 | 63.48 | 54.87 |
| | 2.100 | 37.00 | .00 | .00 | 883.06 | 363.00 | 888.38 | .00 | 888.56 | 10.69 | 3.41 | 106.51 | 111.03 |
| | 2.100 | 37.00 | .00 | .00 | 883.06 | 433.00 | 889.32 | .00 | 889.47 | 6.95 | 3.11 | 143.01 | 164.26 |
| | 2.100 | 37.00 | .00 | .00 | 883.06 | 541.00 | 891.34 | .00 | 891.43 | 2.50 | 2.41 | 277.67 | 342.41 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.250 | 159.00 | .00 | .00 | 884.60 | 215.00 | 887.21 | .00 | 887.77 | 90.99 | 5.96 | 36.07 | 22.54 |
| 2.250 | 159.00 | .00 | .00 | 884.60 | 363.00 | 888.58 | .00 | 888.92 | 33.85 | 4.65 | 77.99 | 62.39 |
| 2.250 | 159.00 | .00 | .00 | 884.60 | 433.00 | 889.45 | .00 | 889.68 | 18.00 | 3.81 | 113.79 | 102.05 |
| 2.250 | 159.00 | .00 | .00 | 884.60 | 541.00 | 891.38 | .00 | 891.48 | 4.01 | 2.59 | 233.68 | 270.20 |
| 2.400 | 36.00 | .00 | .00 | 885.30 | 215.00 | 887.74 | 887.74 | 888.45 | 125.83 | 6.74 | 31.88 | 19.17 |
| 2.400 | 36.00 | .00 | .00 | 885.30 | 363.00 | 888.59 | .00 | 889.27 | 85.97 | 6.62 | 54.80 | 39.15 |
| 2.400 | 36.00 | .00 | .00 | 885.30 | 433.00 | 889.45 | .00 | 889.86 | 39.18 | 5.13 | 84.45 | 69.18 |
| 2.400 | 36.00 | .00 | .00 | 885.30 | 541.00 | 891.38 | .00 | 891.53 | 7.34 | 3.12 | 185.14 | 199.67 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.450 | 37.00 | .00 | .00 | 885.60 | 215.00 | 888.44 | .00 | 888.85 | 62.51 | 5.17 | 41.59 | 27.19 |
| 2.450 | 37.00 | .00 | .00 | 885.60 | 363.00 | 888.94 | .00 | 889.59 | 81.03 | 6.48 | 56.04 | 40.33 |
| 2.450 | 37.00 | .00 | .00 | 885.60 | 433.00 | 889.58 | .00 | 890.06 | 48.39 | 5.56 | 77.84 | 62.24 |
| 2.450 | 37.00 | .00 | .00 | 885.60 | 541.00 | 891.39 | .00 | 891.57 | 9.74 | 3.40 | 166.43 | 173.36 |
| 2.500 | 86.00 | .00 | .00 | 886.30 | 215.00 | 889.08 | .00 | 889.58 | 106.07 | 5.68 | 37.82 | 20.88 |
| 2.500 | 86.00 | .00 | .00 | 886.30 | 363.00 | 889.85 | .00 | 890.31 | 72.12 | 5.42 | 67.03 | 42.74 |
| 2.500 | 86.00 | .00 | .00 | 886.30 | 433.00 | 890.08 | .00 | 890.56 | 72.37 | 5.57 | 77.69 | 50.90 |
| 2.500 | 86.00 | .00 | .00 | 886.30 | 541.00 | 891.56 | .00 | 891.69 | 14.50 | 2.88 | 188.05 | 142.05 |
| 2.550 | 30.00 | .00 | .00 | 886.50 | 215.00 | 889.54 | .00 | 889.88 | 64.15 | 4.64 | 46.39 | 26.84 |
| 2.550 | 30.00 | .00 | .00 | 886.50 | 363.00 | 890.08 | .00 | 890.52 | 68.95 | 5.32 | 68.22 | 43.72 |
| 2.550 | 30.00 | .00 | .00 | 886.50 | 433.00 | 890.33 | .00 | 890.78 | 67.34 | 5.38 | 80.51 | 52.76 |
| 2.550 | 30.00 | .00 | .00 | 886.50 | 541.00 | 891.60 | .00 | 891.75 | 18.05 | 3.14 | 172.23 | 127.34 |
| 2.560 | 45.00 | .00 | .00 | 886.80 | 215.00 | 889.83 | .00 | 890.17 | 64.74 | 4.65 | 46.22 | 26.72 |
| 2.560 | 45.00 | .00 | .00 | 886.80 | 363.00 | 890.40 | .00 | 890.83 | 67.18 | 5.27 | 68.92 | 44.29 |
| 2.560 | 45.00 | .00 | .00 | 886.80 | 433.00 | 890.64 | .00 | 891.08 | 66.89 | 5.36 | 80.77 | 52.94 |
| 2.560 | 45.00 | .00 | .00 | 886.80 | 541.00 | 891.67 | .00 | 891.87 | 24.63 | 3.56 | 151.79 | 109.01 |
| 2.570 | 22.00 | .00 | .00 | 887.00 | 215.00 | 889.97 | .00 | 890.34 | 72.77 | 4.88 | 44.09 | 25.20 |
| 2.570 | 22.00 | .00 | .00 | 887.00 | 363.00 | 890.54 | .00 | 891.00 | 72.25 | 5.42 | 66.99 | 42.71 |
| 2.570 | 22.00 | .00 | .00 | 887.00 | 433.00 | 890.77 | .00 | 891.25 | 71.75 | 5.55 | 78.03 | 51.12 |
| 2.570 | 22.00 | .00 | .00 | 887.00 | 541.00 | 891.71 | .00 | 891.95 | 30.45 | 3.89 | 139.08 | 98.04 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 2.600 | 23.00 | .00 | .00 | 889.10 | 215.00 | 890.26 | 890.26 | 890.68 | 146.51 | 5.15 | 41.76 | 17.76 |
| | 2.600 | 23.00 | .00 | .00 | 889.10 | 363.00 | 890.72 | .00 | 891.20 | 95.32 | 5.54 | 65.50 | 37.18 |
| | 2.600 | 23.00 | .00 | .00 | 889.10 | 433.00 | 890.94 | .00 | 891.44 | 81.70 | 5.66 | 76.50 | 47.90 |
| | 2.600 | 23.00 | .00 | .00 | 889.10 | 541.00 | 891.74 | .00 | 892.06 | 31.03 | 4.57 | 118.28 | 97.12 |
| * | 2.700 | 75.00 | .00 | .00 | 890.21 | 215.00 | 892.14 | 892.14 | 893.11 | 86.64 | 7.92 | 27.16 | 23.10 |
| * | 2.700 | 75.00 | .00 | .00 | 890.21 | 363.00 | 892.94 | 892.94 | 894.32 | 77.08 | 9.42 | 38.52 | 41.35 |
| * | 2.700 | 75.00 | .00 | .00 | 890.21 | 433.00 | 893.28 | 893.28 | 894.84 | 74.10 | 9.99 | 43.32 | 50.30 |
| * | 2.700 | 75.00 | .00 | .00 | 890.21 | 541.00 | 893.78 | 893.78 | 895.57 | 70.37 | 10.76 | 50.29 | 64.49 |
| * | 2.800 | 68.00 | 898.66 | 895.00 | 890.21 | 215.00 | 894.49 | .00 | 894.68 | 6.07 | 3.57 | 60.30 | 87.28 |
| * | 2.800 | 68.00 | 898.66 | 895.00 | 890.21 | 363.00 | 896.07 | .00 | 896.37 | 6.05 | 4.39 | 82.64 | 147.59 |
| * | 2.800 | 68.00 | 898.66 | 895.00 | 890.21 | 433.00 | 897.90 | .00 | 898.15 | 3.47 | 3.99 | 108.54 | 232.46 |
| * | 2.800 | 68.00 | 898.66 | 895.00 | 890.21 | 541.00 | 899.52 | .00 | 899.53 | .19 | 1.05 | 1672.38 | 1251.63 |
| | 2.900 | 20.00 | .00 | .00 | 891.00 | 215.00 | 894.80 | .00 | 894.83 | 3.05 | 1.30 | 165.84 | 123.05 |
| | 2.900 | 20.00 | .00 | .00 | 891.00 | 363.00 | 896.56 | .00 | 896.59 | 2.08 | 1.39 | 260.76 | 251.66 |
| | 2.900 | 20.00 | .00 | .00 | 891.00 | 433.00 | 898.31 | .00 | 898.33 | 1.14 | 1.22 | 355.17 | 406.12 |
| | 2.900 | 20.00 | .00 | .00 | 891.00 | 541.00 | 899.52 | .00 | 899.54 | 1.06 | 1.29 | 420.47 | 525.26 |
| | 2.950 | 100.00 | .00 | .00 | 891.00 | 215.00 | 894.85 | .00 | 894.86 | 1.40 | .88 | 276.11 | 181.57 |
| | 2.950 | 100.00 | .00 | .00 | 891.00 | 363.00 | 896.61 | .00 | 896.62 | .69 | .85 | 542.35 | 438.38 |
| | 2.950 | 100.00 | .00 | .00 | 891.00 | 433.00 | 898.35 | .00 | 898.35 | .28 | .68 | 887.12 | 812.74 |
| | 2.950 | 100.00 | .00 | .00 | 891.00 | 541.00 | 899.56 | .00 | 899.56 | .22 | .67 | 1171.18 | 1150.84 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 3.000 | 259.00 | .00 | .00 | 893.20 | 215.00 | 895.83 | 895.83 | 896.28 | 118.09 | 6.60 | 65.10 | 19.78 |
| | 3.000 | 259.00 | .00 | .00 | 893.20 | 363.00 | 896.63 | .00 | 896.91 | 64.43 | 5.93 | 135.26 | 45.22 |
| | 3.000 | 259.00 | .00 | .00 | 893.20 | 433.00 | 898.36 | .00 | 898.40 | 8.21 | 2.84 | 344.82 | 151.13 |
| | 3.000 | 259.00 | .00 | .00 | 893.20 | 541.00 | 899.57 | .00 | 899.60 | 4.00 | 2.30 | 529.77 | 270.52 |
| | 3.500 | 750.00 | .00 | .00 | 899.20 | 215.00 | 901.94 | .00 | 902.19 | 60.54 | 5.20 | 82.74 | 27.63 |
| * | 3.500 | 750.00 | .00 | .00 | 899.20 | 363.00 | 902.15 | 902.15 | 902.57 | 96.97 | 7.01 | 106.68 | 36.86 |
| * | 3.500 | 750.00 | .00 | .00 | 899.20 | 433.00 | 902.24 | 902.24 | 902.72 | 109.71 | 7.66 | 117.59 | 41.34 |
| * | 3.500 | 750.00 | .00 | .00 | 899.20 | 541.00 | 902.44 | 902.44 | 902.92 | 106.96 | 7.97 | 143.00 | 52.31 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.750 | 250.00 | .00 | .00 | 899.80 | 215.00 | 903.13 | .00 | 903.38 | 38.66 | 4.93 | 79.50 | 34.58 |
| 3.750 | 250.00 | .00 | .00 | 899.80 | 363.00 | 903.76 | .00 | 904.03 | 38.20 | 5.59 | 127.07 | 58.74 |
| 3.750 | 250.00 | .00 | .00 | 899.80 | 433.00 | 903.98 | .00 | 904.27 | 38.43 | 5.86 | 147.51 | 69.84 |
| 3.750 | 250.00 | .00 | .00 | 899.80 | 541.00 | 904.20 | .00 | 904.52 | 41.76 | 6.36 | 181.41 | 83.72 |
| 4.000 | 265.00 | .00 | .00 | 900.50 | 215.00 | 903.86 | .00 | 903.91 | 10.80 | 2.61 | 171.10 | 65.41 |
| 4.000 | 265.00 | .00 | .00 | 900.50 | 363.00 | 904.48 | .00 | 904.53 | 9.64 | 2.84 | 268.58 | 116.92 |
| 4.000 | 265.00 | .00 | .00 | 900.50 | 433.00 | 904.71 | .00 | 904.76 | 9.44 | 2.94 | 310.37 | 140.95 |
| 4.000 | 265.00 | .00 | .00 | 900.50 | 541.00 | 904.99 | .00 | 905.04 | 9.81 | 3.15 | 363.37 | 172.72 |
| 4.250 | 50.00 | .00 | .00 | 900.80 | 207.00 | 903.90 | .00 | 903.94 | 2.27 | 1.90 | 206.11 | 137.27 |
| 4.250 | 50.00 | .00 | .00 | 900.80 | 356.00 | 904.50 | .00 | 904.56 | 3.06 | 2.49 | 296.62 | 203.54 |
| 4.250 | 50.00 | .00 | .00 | 900.80 | 433.00 | 904.73 | .00 | 904.81 | 3.40 | 2.73 | 341.76 | 234.83 |
| 4.250 | 50.00 | .00 | .00 | 900.80 | 532.00 | 905.01 | .00 | 905.09 | 3.69 | 2.98 | 402.03 | 277.01 |
| 4.500 | 60.00 | 905.01 | 903.30 | 900.80 | 207.00 | 905.35 | .00 | 905.37 | .74 | 1.40 | 269.48 | 240.90 |
| 4.500 | 60.00 | 905.01 | 903.30 | 900.80 | 356.00 | 905.85 | .00 | 905.87 | .66 | 1.42 | 614.36 | 439.33 |
| * 4.500 | 60.00 | 905.01 | 903.30 | 900.80 | 433.00 | 906.01 | .00 | 906.03 | .84 | 1.64 | 654.98 | 472.28 |
| * 4.500 | 60.00 | 905.01 | 903.30 | 900.80 | 532.00 | 906.17 | .00 | 906.20 | 1.08 | 1.90 | 702.56 | 511.54 |
| 4.750 | 60.00 | .00 | .00 | 901.30 | 207.00 | 905.38 | .00 | 905.38 | 1.00 | .87 | 449.39 | 207.05 |
| 4.750 | 60.00 | .00 | .00 | 901.30 | 356.00 | 905.87 | .00 | 905.88 | 1.58 | 1.18 | 554.96 | 283.57 |
| 4.750 | 60.00 | .00 | .00 | 901.30 | 433.00 | 906.03 | .00 | 906.04 | 1.94 | 1.35 | 590.24 | 310.73 |
| 4.750 | 60.00 | .00 | .00 | 901.30 | 532.00 | 906.20 | .00 | 906.21 | 2.41 | 1.54 | 630.35 | 342.52 |
| 5.000 | 745.00 | .00 | .00 | 902.60 | 159.00 | 905.48 | .00 | 905.48 | 2.04 | .98 | 274.60 | 111.42 |
| 5.000 | 745.00 | .00 | .00 | 902.60 | 265.00 | 906.00 | .00 | 906.01 | 2.39 | 1.21 | 370.37 | 171.24 |
| 5.000 | 745.00 | .00 | .00 | 902.60 | 323.00 | 906.19 | .00 | 906.20 | 2.73 | 1.34 | 406.57 | 195.62 |
| 5.000 | 745.00 | .00 | .00 | 902.60 | 407.00 | 906.40 | .00 | 906.42 | 3.26 | 1.53 | 448.28 | 225.30 |
| 5.500 | 285.00 | .00 | .00 | 902.60 | 159.00 | 905.50 | .00 | 905.50 | .25 | .37 | 535.38 | 317.71 |
| 5.500 | 285.00 | .00 | .00 | 902.60 | 265.00 | 906.04 | .00 | 906.04 | .38 | .51 | 648.75 | 432.58 |
| 5.500 | 285.00 | .00 | .00 | 902.60 | 323.00 | 906.23 | .00 | 906.23 | .46 | .58 | 689.73 | 477.41 |
| 5.500 | 285.00 | .00 | .00 | 902.60 | 407.00 | 906.45 | .00 | 906.45 | .59 | .69 | 736.65 | 530.72 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 6.000 | 160.00 | .00 | .00 | 905.10 | 110.00 | 905.99 | 905.99 | 906.24 | 296.76 | 5.45 | 31.83 | 6.39 |
| * | 6.000 | 160.00 | .00 | .00 | 905.10 | 161.00 | 906.14 | 906.14 | 906.46 | 303.22 | 6.18 | 40.91 | 9.25 |
| | 6.000 | 160.00 | .00 | .00 | 905.10 | 180.00 | 906.23 | .00 | 906.53 | 250.49 | 6.00 | 46.90 | 11.37 |
| | 6.000 | 160.00 | .00 | .00 | 905.10 | 232.00 | 906.46 | .00 | 906.74 | 185.37 | 5.89 | 60.88 | 17.04 |
| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
| | 6.900 | 80.00 | .00 | .00 | 905.30 | 110.00 | 907.40 | .00 | 907.95 | 119.52 | 6.57 | 22.60 | 10.06 |
| | 6.900 | 80.00 | .00 | .00 | 905.30 | 161.00 | 907.73 | 907.70 | 908.49 | 144.19 | 7.92 | 28.48 | 13.41 |
| * | 6.900 | 80.00 | .00 | .00 | 905.30 | 180.00 | 907.84 | 907.84 | 908.66 | 147.28 | 8.27 | 30.90 | 14.83 |
| * | 6.900 | 80.00 | .00 | .00 | 905.30 | 232.00 | 908.18 | 908.18 | 909.09 | 144.20 | 8.91 | 38.31 | 19.32 |
| | 6.940 | 20.00 | .00 | .00 | 905.38 | 110.00 | 907.96 | .00 | 908.26 | 55.81 | 4.56 | 29.18 | 14.72 |
| | 6.940 | 20.00 | .00 | .00 | 905.38 | 161.00 | 908.59 | .00 | 908.90 | 45.33 | 4.85 | 43.15 | 23.91 |
| | 6.940 | 20.00 | .00 | .00 | 905.38 | 180.00 | 908.77 | .00 | 909.10 | 44.03 | 4.99 | 47.83 | 27.13 |
| | 6.940 | 20.00 | .00 | .00 | 905.38 | 232.00 | 909.19 | .00 | 909.56 | 42.89 | 5.38 | 59.50 | 35.43 |
| | 6.950 | 40.00 | .00 | .00 | 905.53 | 110.00 | 908.22 | .00 | 908.48 | 46.78 | 4.30 | 31.32 | 16.08 |
| | 6.950 | 40.00 | .00 | .00 | 905.53 | 161.00 | 908.79 | .00 | 909.09 | 41.80 | 4.73 | 44.60 | 24.90 |
| | 6.950 | 40.00 | .00 | .00 | 905.53 | 180.00 | 908.96 | .00 | 909.28 | 41.38 | 4.89 | 49.05 | 27.98 |
| | 6.950 | 40.00 | .00 | .00 | 905.53 | 232.00 | 909.38 | .00 | 909.73 | 41.03 | 5.30 | 60.59 | 36.22 |
| | 7.000 | 225.00 | .00 | .00 | 906.43 | 110.00 | 909.23 | .00 | 909.46 | 39.14 | 4.06 | 33.64 | 17.58 |
| | 7.000 | 225.00 | .00 | .00 | 906.43 | 161.00 | 909.73 | .00 | 910.02 | 40.05 | 4.66 | 45.39 | 25.44 |
| | 7.000 | 225.00 | .00 | .00 | 906.43 | 180.00 | 909.89 | .00 | 910.20 | 40.14 | 4.84 | 49.67 | 28.41 |
| | 7.000 | 225.00 | .00 | .00 | 906.43 | 232.00 | 910.30 | .00 | 910.65 | 40.19 | 5.27 | 61.11 | 36.60 |
| * | 8.000 | 578.00 | .00 | .00 | 909.10 | 110.00 | 913.48 | .00 | 913.52 | 5.25 | 1.51 | 72.98 | 48.00 |
| * | 8.000 | 578.00 | .00 | .00 | 909.10 | 161.00 | 914.41 | .00 | 914.45 | 4.50 | 1.57 | 102.77 | 75.88 |
| * | 8.000 | 578.00 | .00 | .00 | 909.10 | 180.00 | 915.11 | .00 | 915.14 | 3.10 | 1.40 | 128.49 | 102.28 |
| * | 8.000 | 578.00 | .00 | .00 | 909.10 | 232.00 | 917.43 | .00 | 917.45 | .99 | .99 | 235.63 | 233.51 |
| | 9.000 | 185.00 | .00 | .00 | 910.20 | 73.00 | 913.59 | .00 | 913.62 | 5.79 | 1.41 | 51.72 | 30.33 |
| | 9.000 | 185.00 | .00 | .00 | 910.20 | 106.00 | 914.50 | .00 | 914.53 | 3.59 | 1.42 | 76.53 | 55.97 |
| | 9.000 | 185.00 | .00 | .00 | 910.20 | 139.00 | 915.17 | .00 | 915.20 | 3.09 | 1.50 | 96.91 | 79.12 |
| | 9.000 | 185.00 | .00 | .00 | 910.20 | 207.00 | 917.45 | .00 | 917.47 | 1.22 | 1.31 | 181.09 | 187.39 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 10.000 | 8.60 | .00 | .00 | 914.50 | 73.00 | 915.54 | 915.54 | 915.86 | 281.97 | 4.60 | 15.88 | 4.35 |
| * | 10.000 | 8.60 | .00 | .00 | 914.50 | 106.00 | 915.73 | 915.73 | 916.13 | 242.67 | 5.10 | 20.93 | 6.80 |
| * | 10.000 | 8.60 | .00 | .00 | 914.50 | 139.00 | 915.89 | 915.89 | 916.37 | 233.22 | 5.61 | 25.15 | 9.10 |
| | 10.000 | 8.60 | .00 | .00 | 914.50 | 207.00 | 917.45 | .00 | 917.58 | 19.47 | 3.05 | 75.70 | 46.91 |
| | 11.000 | 179.00 | .00 | .00 | 915.10 | 73.00 | 917.49 | .00 | 917.63 | 45.36 | 3.04 | 24.02 | 10.84 |
| | 11.000 | 179.00 | .00 | .00 | 915.10 | 106.00 | 917.81 | .00 | 918.00 | 52.17 | 3.52 | 30.12 | 14.68 |
| | 11.000 | 179.00 | .00 | .00 | 915.10 | 139.00 | 918.10 | .00 | 918.33 | 56.16 | 3.90 | 36.14 | 18.55 |
| | 11.000 | 179.00 | .00 | .00 | 915.10 | 207.00 | 918.13 | .00 | 918.63 | 116.56 | 5.67 | 37.37 | 19.17 |
| | 11.900 | 300.00 | .00 | .00 | 916.10 | 73.00 | 918.63 | .00 | 918.73 | 28.72 | 2.49 | 29.32 | 13.62 |
| | 11.900 | 300.00 | .00 | .00 | 916.10 | 106.00 | 919.07 | .00 | 919.18 | 28.54 | 2.73 | 38.84 | 19.84 |
| | 11.900 | 300.00 | .00 | .00 | 916.10 | 139.00 | 919.43 | .00 | 919.56 | 28.31 | 2.92 | 47.67 | 26.12 |
| | 11.900 | 300.00 | .00 | .00 | 916.10 | 207.00 | 920.06 | .00 | 920.21 | 24.11 | 3.11 | 73.82 | 42.16 |
| * | 12.000 | 95.00 | .00 | .00 | 920.20 | 73.00 | 920.76 | 920.76 | 920.95 | 275.49 | 3.67 | 22.76 | 4.40 |
| * | 12.000 | 95.00 | .00 | .00 | 920.20 | 106.00 | 920.88 | 920.88 | 921.11 | 248.66 | 4.07 | 31.02 | 6.72 |
| * | 12.000 | 95.00 | .00 | .00 | 920.20 | 139.00 | 920.98 | 920.98 | 921.24 | 228.52 | 4.35 | 38.96 | 9.19 |
| * | 12.000 | 95.00 | .00 | .00 | 920.20 | 207.00 | 921.16 | 921.16 | 921.46 | 211.03 | 4.86 | 54.00 | 14.25 |

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 1.000 | 215.00 | 881.60 | .00 | .00 | .00 | 28.59 | .00 |
| | 1.000 | 363.00 | 882.00 | .40 | .00 | .00 | 30.26 | .00 |
| | 1.000 | 433.00 | 882.50 | .50 | .00 | .00 | 41.14 | .00 |
| | 1.000 | 541.00 | 883.00 | .50 | .00 | .00 | 54.72 | .00 |
| * | 1.250 | 215.00 | 884.07 | .00 | 2.47 | .00 | 18.81 | 60.00 |
| * | 1.250 | 363.00 | 884.79 | .72 | 2.79 | .00 | 22.14 | 60.00 |
| * | 1.250 | 433.00 | 885.08 | .29 | 2.58 | .00 | 23.48 | 60.00 |
| * | 1.250 | 541.00 | 885.48 | .40 | 2.48 | .00 | 25.31 | 60.00 |
| * | 1.500 | 215.00 | 886.83 | .00 | 2.76 | .00 | 26.48 | 60.00 |
| * | 1.500 | 363.00 | 888.33 | 1.50 | 3.54 | .00 | 33.40 | 60.00 |
| * | 1.500 | 433.00 | 889.29 | .96 | 4.21 | .00 | 45.77 | 60.00 |
| * | 1.500 | 541.00 | 891.33 | 2.04 | 5.85 | .00 | 79.00 | 60.00 |
| | 2.000 | 215.00 | 886.84 | .00 | .01 | .00 | 25.77 | 15.00 |
| | 2.000 | 363.00 | 888.33 | 1.50 | .00 | .00 | 32.68 | 15.00 |
| | 2.000 | 433.00 | 889.29 | .96 | .00 | .00 | 47.04 | 15.00 |
| | 2.000 | 541.00 | 891.33 | 2.04 | .00 | .00 | 79.00 | 15.00 |
| | 2.100 | 215.00 | 886.91 | .00 | .07 | .00 | 26.11 | 37.00 |
| | 2.100 | 363.00 | 888.38 | 1.47 | .05 | .00 | 32.84 | 37.00 |
| | 2.100 | 433.00 | 889.32 | .94 | .03 | .00 | 47.52 | 37.00 |
| | 2.100 | 541.00 | 891.34 | 2.02 | .01 | .00 | 79.00 | 37.00 |
| | 2.250 | 215.00 | 887.21 | .00 | .30 | .00 | 24.63 | 159.00 |
| | 2.250 | 363.00 | 888.58 | 1.37 | .20 | .00 | 36.84 | 159.00 |
| | 2.250 | 433.00 | 889.45 | .87 | .13 | .00 | 45.37 | 159.00 |
| | 2.250 | 541.00 | 891.38 | 1.93 | .04 | .00 | 72.00 | 159.00 |
| * | 2.400 | 215.00 | 887.74 | .00 | .53 | .00 | 23.07 | 36.00 |
| | 2.400 | 363.00 | 888.59 | .85 | .01 | .00 | 30.65 | 36.00 |
| | 2.400 | 433.00 | 889.45 | .86 | .00 | .00 | 38.52 | 36.00 |
| | 2.400 | 541.00 | 891.38 | 1.93 | .00 | .00 | 66.49 | 36.00 |
| | 2.450 | 215.00 | 888.44 | .00 | .70 | .00 | 26.55 | 37.00 |
| | 2.450 | 363.00 | 888.94 | .50 | .35 | .00 | 31.01 | 37.00 |
| | 2.450 | 433.00 | 889.58 | .64 | .12 | .00 | 36.80 | 37.00 |
| | 2.450 | 541.00 | 891.39 | 1.82 | .02 | .00 | 63.40 | 37.00 |
| | 2.500 | 215.00 | 889.08 | .00 | .64 | .00 | 31.18 | 86.00 |
| | 2.500 | 363.00 | 889.85 | .77 | .91 | .00 | 44.82 | 86.00 |
| | 2.500 | 433.00 | 890.08 | .23 | .50 | .00 | 49.98 | 86.00 |
| | 2.500 | 541.00 | 891.56 | 1.48 | .17 | .00 | 98.62 | 86.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 2.550 | 215.00 | 889.54 | .00 | .46 | .00 | 35.72 | 30.00 |
| | 2.550 | 363.00 | 890.08 | .54 | .23 | .00 | 45.29 | 30.00 |
| | 2.550 | 433.00 | 890.33 | .25 | .25 | .00 | 51.79 | 30.00 |
| | 2.550 | 541.00 | 891.60 | 1.27 | .04 | .00 | 93.22 | 30.00 |
| | 2.560 | 215.00 | 889.83 | .00 | .29 | .00 | 35.64 | 45.00 |
| | 2.560 | 363.00 | 890.40 | .57 | .32 | .00 | 45.56 | 45.00 |
| | 2.560 | 433.00 | 890.64 | .24 | .31 | .00 | 51.96 | 45.00 |
| | 2.560 | 541.00 | 891.67 | 1.03 | .07 | .00 | 85.74 | 45.00 |
| | 2.570 | 215.00 | 889.97 | .00 | .13 | .00 | 34.56 | 22.00 |
| | 2.570 | 363.00 | 890.54 | .58 | .14 | .00 | 44.80 | 22.00 |
| | 2.570 | 433.00 | 890.77 | .23 | .14 | .00 | 50.20 | 22.00 |
| | 2.570 | 541.00 | 891.71 | .94 | .04 | .00 | 80.74 | 22.00 |
| * | 2.600 | 215.00 | 890.26 | .00 | .30 | .00 | 52.00 | 23.00 |
| | 2.600 | 363.00 | 890.72 | .46 | .18 | .46 | 52.00 | 23.00 |
| | 2.600 | 433.00 | 890.94 | .22 | .17 | .68 | 52.00 | 23.00 |
| | 2.600 | 541.00 | 891.74 | .80 | .03 | 1.47 | 52.00 | 23.00 |
| * | 2.700 | 215.00 | 892.14 | .00 | 1.87 | .00 | 14.12 | 75.00 |
| * | 2.700 | 363.00 | 892.94 | .80 | 2.22 | .80 | 14.12 | 75.00 |
| * | 2.700 | 433.00 | 893.28 | .34 | 2.34 | 1.14 | 14.12 | 75.00 |
| * | 2.700 | 541.00 | 893.78 | .49 | 2.04 | 1.64 | 14.12 | 75.00 |
| * | 2.800 | 215.00 | 894.49 | .00 | 2.35 | .00 | 14.12 | 68.00 |
| * | 2.800 | 363.00 | 896.07 | 1.58 | 3.13 | 1.58 | 14.12 | 68.00 |
| * | 2.800 | 433.00 | 897.90 | 1.83 | 4.62 | 3.42 | 14.12 | 68.00 |
| * | 2.800 | 541.00 | 899.52 | 1.62 | 5.74 | 5.03 | 320.84 | 68.00 |
| | 2.900 | 215.00 | 894.80 | .00 | .32 | .00 | 54.00 | 20.00 |
| | 2.900 | 363.00 | 896.56 | 1.76 | .49 | 1.76 | 54.00 | 20.00 |
| | 2.900 | 433.00 | 898.31 | 1.75 | .41 | 3.51 | 54.00 | 20.00 |
| | 2.900 | 541.00 | 899.52 | 1.21 | .00 | 4.72 | 54.00 | 20.00 |
| | 2.950 | 215.00 | 894.85 | .00 | .05 | .00 | 128.18 | 100.00 |
| | 2.950 | 363.00 | 896.61 | 1.76 | .05 | 1.76 | 175.99 | 100.00 |
| | 2.950 | 433.00 | 898.35 | 1.74 | .04 | 3.50 | 219.68 | 100.00 |
| | 2.950 | 541.00 | 899.56 | 1.21 | .04 | 4.71 | 240.00 | 100.00 |
| * | 3.000 | 215.00 | 895.83 | .00 | .98 | .00 | 72.27 | 259.00 |
| | 3.000 | 363.00 | 896.63 | .80 | .02 | .80 | 101.11 | 259.00 |
| | 3.000 | 433.00 | 898.36 | 1.73 | .01 | 2.53 | 141.35 | 259.00 |
| | 3.000 | 541.00 | 899.57 | 1.21 | .01 | 3.74 | 160.99 | 259.00 |
| | 3.500 | 215.00 | 901.94 | .00 | 6.12 | .00 | 109.74 | 750.00 |
| * | 3.500 | 363.00 | 902.15 | .21 | 5.52 | .21 | 120.15 | 750.00 |
| * | 3.500 | 433.00 | 902.24 | .09 | 3.88 | .30 | 124.61 | 750.00 |
| * | 3.500 | 541.00 | 902.44 | .20 | 2.87 | .50 | 134.42 | 750.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 3.750 | 215.00 | 903.13 | .00 | 1.19 | .00 | 69.25 | 250.00 |
| | 3.750 | 363.00 | 903.76 | .62 | 1.60 | .62 | 87.46 | 250.00 |
| | 3.750 | 433.00 | 903.98 | .22 | 1.74 | .85 | 94.21 | 250.00 |
| | 3.750 | 541.00 | 904.20 | .22 | 1.76 | 1.07 | 224.12 | 250.00 |
| | 4.000 | 215.00 | 903.86 | .00 | .73 | .00 | 140.64 | 265.00 |
| | 4.000 | 363.00 | 904.48 | .62 | .72 | .62 | 173.92 | 265.00 |
| | 4.000 | 433.00 | 904.71 | .23 | .73 | .85 | 186.41 | 265.00 |
| | 4.000 | 541.00 | 904.99 | .27 | .79 | 1.12 | 201.13 | 265.00 |
| | 4.250 | 207.00 | 903.90 | .00 | .04 | .00 | 125.22 | 50.00 |
| | 4.250 | 356.00 | 904.50 | .61 | .02 | .61 | 182.06 | 50.00 |
| | 4.250 | 433.00 | 904.73 | .23 | .02 | .84 | 208.00 | 50.00 |
| | 4.250 | 532.00 | 905.01 | .28 | .02 | 1.11 | 226.83 | 50.00 |
| | 4.500 | 207.00 | 905.35 | .00 | 1.45 | .00 | 130.94 | 60.00 |
| | 4.500 | 356.00 | 905.85 | .50 | 1.35 | .50 | 273.29 | 60.00 |
| * | 4.500 | 433.00 | 906.01 | .15 | 1.27 | .66 | 281.30 | 60.00 |
| * | 4.500 | 532.00 | 906.17 | .17 | 1.16 | .82 | 290.41 | 60.00 |
| | 4.750 | 207.00 | 905.38 | .00 | .03 | .00 | 213.17 | 60.00 |
| | 4.750 | 356.00 | 905.87 | .49 | .02 | .49 | 224.07 | 60.00 |
| | 4.750 | 433.00 | 906.03 | .16 | .02 | .65 | 227.60 | 60.00 |
| | 4.750 | 532.00 | 906.20 | .17 | .03 | .82 | 231.55 | 60.00 |
| | 5.000 | 159.00 | 905.48 | .00 | .10 | .00 | 171.75 | 745.00 |
| | 5.000 | 265.00 | 906.00 | .53 | .14 | .53 | 190.90 | 745.00 |
| | 5.000 | 323.00 | 906.19 | .19 | .16 | .71 | 197.65 | 745.00 |
| | 5.000 | 407.00 | 906.40 | .21 | .20 | .92 | 199.00 | 745.00 |
| | 5.500 | 159.00 | 905.50 | .00 | .02 | .00 | 210.00 | 285.00 |
| | 5.500 | 265.00 | 906.04 | .54 | .03 | .54 | 212.15 | 285.00 |
| | 5.500 | 323.00 | 906.23 | .19 | .04 | .73 | 212.92 | 285.00 |
| | 5.500 | 407.00 | 906.45 | .22 | .05 | .95 | 213.80 | 285.00 |
| * | 6.000 | 110.00 | 905.99 | .00 | .49 | .00 | 60.30 | 160.00 |
| * | 6.000 | 161.00 | 906.14 | .15 | .10 | .15 | 62.00 | 160.00 |
| | 6.000 | 180.00 | 906.23 | .10 | .00 | .24 | 62.00 | 160.00 |
| | 6.000 | 232.00 | 906.46 | .23 | .01 | .47 | 62.00 | 160.00 |
| | 6.900 | 110.00 | 907.40 | .00 | 1.42 | .00 | 17.59 | 80.00 |
| | 6.900 | 161.00 | 907.73 | .33 | 1.59 | .33 | 19.76 | 80.00 |
| * | 6.900 | 180.00 | 907.84 | .11 | 1.61 | .44 | 20.59 | 80.00 |
| * | 6.900 | 232.00 | 908.18 | .34 | 1.72 | .78 | 22.94 | 80.00 |
| | 6.940 | 110.00 | 907.96 | .00 | .56 | .00 | 20.30 | 20.00 |
| | 6.940 | 161.00 | 908.59 | .63 | .86 | .63 | 24.75 | 20.00 |
| | 6.940 | 180.00 | 908.77 | .18 | .93 | .81 | 26.07 | 20.00 |
| | 6.940 | 232.00 | 909.19 | .42 | 1.01 | 1.23 | 29.11 | 20.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 6.950 | 110.00 | 908.22 | .00 | .26 | .00 | 21.04 | 40.00 |
| | 6.950 | 161.00 | 908.79 | .57 | .20 | .57 | 25.17 | 40.00 |
| | 6.950 | 180.00 | 908.96 | .17 | .19 | .74 | 26.41 | 40.00 |
| | 6.950 | 232.00 | 909.38 | .41 | .19 | 1.16 | 29.38 | 40.00 |
| | 7.000 | 110.00 | 909.23 | .00 | 1.01 | .00 | 21.82 | 225.00 |
| | 7.000 | 161.00 | 909.73 | .50 | .94 | .50 | 25.39 | 225.00 |
| | 7.000 | 180.00 | 909.89 | .16 | .93 | .66 | 26.58 | 225.00 |
| | 7.000 | 232.00 | 910.30 | .41 | .92 | 1.07 | 29.50 | 225.00 |
| * | 8.000 | 110.00 | 913.48 | .00 | 4.25 | .00 | 29.34 | 578.00 |
| * | 8.000 | 161.00 | 914.41 | .93 | 4.68 | .93 | 34.72 | 578.00 |
| * | 8.000 | 180.00 | 915.11 | .70 | 5.22 | 1.63 | 38.78 | 578.00 |
| * | 8.000 | 232.00 | 917.43 | 2.32 | 7.13 | 3.95 | 58.75 | 578.00 |
| | 9.000 | 73.00 | 913.59 | .00 | .11 | .00 | 25.37 | 185.00 |
| | 9.000 | 106.00 | 914.50 | .91 | .09 | .91 | 29.20 | 185.00 |
| | 9.000 | 139.00 | 915.17 | .67 | .06 | 1.58 | 32.01 | 185.00 |
| | 9.000 | 207.00 | 917.45 | 2.28 | .02 | 3.86 | 41.63 | 185.00 |
| * | 10.000 | 73.00 | 915.54 | .00 | 1.95 | .00 | 25.22 | 8.60 |
| * | 10.000 | 106.00 | 915.73 | .20 | 1.23 | .20 | 26.45 | 8.60 |
| * | 10.000 | 139.00 | 915.89 | .16 | .72 | .35 | 27.43 | 8.60 |
| | 10.000 | 207.00 | 917.45 | 1.56 | .00 | 1.91 | 37.24 | 8.60 |
| | 11.000 | 73.00 | 917.49 | .00 | 1.95 | .00 | 17.14 | 179.00 |
| | 11.000 | 106.00 | 917.81 | .33 | 2.08 | .33 | 19.13 | 179.00 |
| | 11.000 | 139.00 | 918.10 | .29 | 2.21 | .61 | 30.46 | 179.00 |
| | 11.000 | 207.00 | 918.13 | .03 | .68 | .65 | 34.41 | 179.00 |
| | 11.900 | 73.00 | 918.63 | .00 | 1.14 | .00 | 20.20 | 300.00 |
| | 11.900 | 106.00 | 919.07 | .44 | 1.25 | .44 | 23.19 | 300.00 |
| | 11.900 | 139.00 | 919.43 | .36 | 1.33 | .80 | 26.70 | 300.00 |
| | 11.900 | 207.00 | 920.06 | .64 | 1.93 | 1.43 | 53.83 | 300.00 |
| * | 12.000 | 73.00 | 920.76 | .00 | 2.13 | .00 | 64.64 | 95.00 |
| * | 12.000 | 106.00 | 920.88 | .12 | 1.81 | .12 | 72.91 | 95.00 |
| * | 12.000 | 139.00 | 920.98 | .10 | 1.56 | .22 | 80.41 | 95.00 |
| * | 12.000 | 207.00 | 921.16 | .17 | 1.09 | .40 | 93.11 | 95.00 |

1

SUMMARY OF ERRORS AND SPECIAL NOTES

| | | | | |
|---|---|---|---|---|
| CAUTION | SECNO= | 1.250 | PROFILE= 1 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 1.250 | PROFILE= 1 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 1.250 | PROFILE= 1 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 1.250 | PROFILE= 2 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 1.250 | PROFILE= 2 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 1.250 | PROFILE= 2 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 1.250 | PROFILE= 3 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 1.250 | PROFILE= 3 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 1.250 | PROFILE= 3 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 1.250 | PROFILE= 4 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 1.250 | PROFILE= 4 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 1.250 | PROFILE= 4 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| NOTE | SECNO= | 1.500 | PROFILE= 1 | WSEL BASED ON X5 CARD |
| NOTE | SECNO= | 1.500 | PROFILE= 2 | WSEL BASED ON X5 CARD |
| NOTE | SECNO= | 1.500 | PROFILE= 3 | WSEL BASED ON X5 CARD |
| NOTE | SECNO= | 1.500 | PROFILE= 4 | WSEL BASED ON X5 CARD |
| CAUTION | SECNO= | 2.400 | PROFILE= 1 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 2.400 | PROFILE= 1 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 2.600 | PROFILE= 1 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 2.600 | PROFILE= 1 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 2.700 | PROFILE= 1 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 2.700 | PROFILE= 1 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 2.700 | PROFILE= 1 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 2.700 | PROFILE= 2 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 2.700 | PROFILE= 2 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 2.700 | PROFILE= 2 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 2.700 | PROFILE= 3 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 2.700 | PROFILE= 3 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 2.700 | PROFILE= 3 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 2.700 | PROFILE= 4 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 2.700 | PROFILE= 4 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 2.700 | PROFILE= 4 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 2.800 | PROFILE= 1 | HYDRAULIC JUMP D.S. |
| CAUTION | SECNO= | 2.800 | PROFILE= 2 | HYDRAULIC JUMP D.S. |
| CAUTION | SECNO= | 2.800 | PROFILE= 3 | HYDRAULIC JUMP D.S. |
| CAUTION | SECNO= | 2.800 | PROFILE= 4 | HYDRAULIC JUMP D.S. |
| CAUTION | SECNO= | 3.000 | PROFILE= 1 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 3.000 | PROFILE= 1 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 3.000 | PROFILE= 1 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |
| CAUTION | SECNO= | 3.500 | PROFILE= 2 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 3.500 | PROFILE= 2 | MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 3.500 | PROFILE= 3 | CRITICAL DEPTH ASSUMED |
| CAUTION | SECNO= | 3.500 | PROFILE= 3 | PROBABLE MINIMUM SPECIFIC ENERGY |
| CAUTION | SECNO= | 3.500 | PROFILE= 3 | 20 TRIALS ATTEMPTED TO BALANCE WSEL |

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CAUTION  SECNO=     3.500  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.500  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
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CAUTION  SECNO=     6.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     6.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     6.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=     6.900  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.900  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     6.900  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.900  PROFILE= 4  MINIMUM SPECIFIC ENERGY

NOTE     SECNO=     8.000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=     8.000  PROFILE= 2  WSEL BASED ON X5 CARD
NOTE     SECNO=     8.000  PROFILE= 3  WSEL BASED ON X5 CARD
NOTE     SECNO=     8.000  PROFILE= 4  WSEL BASED ON X5 CARD

CAUTION  SECNO=    10.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    10.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    10.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    10.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    10.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    10.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    10.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    10.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    10.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=    12.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    12.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    12.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    12.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    12.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    12.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    12.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    12.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    12.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    12.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    12.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY
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1



THIS RUN EXECUTED 02-06-92

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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```
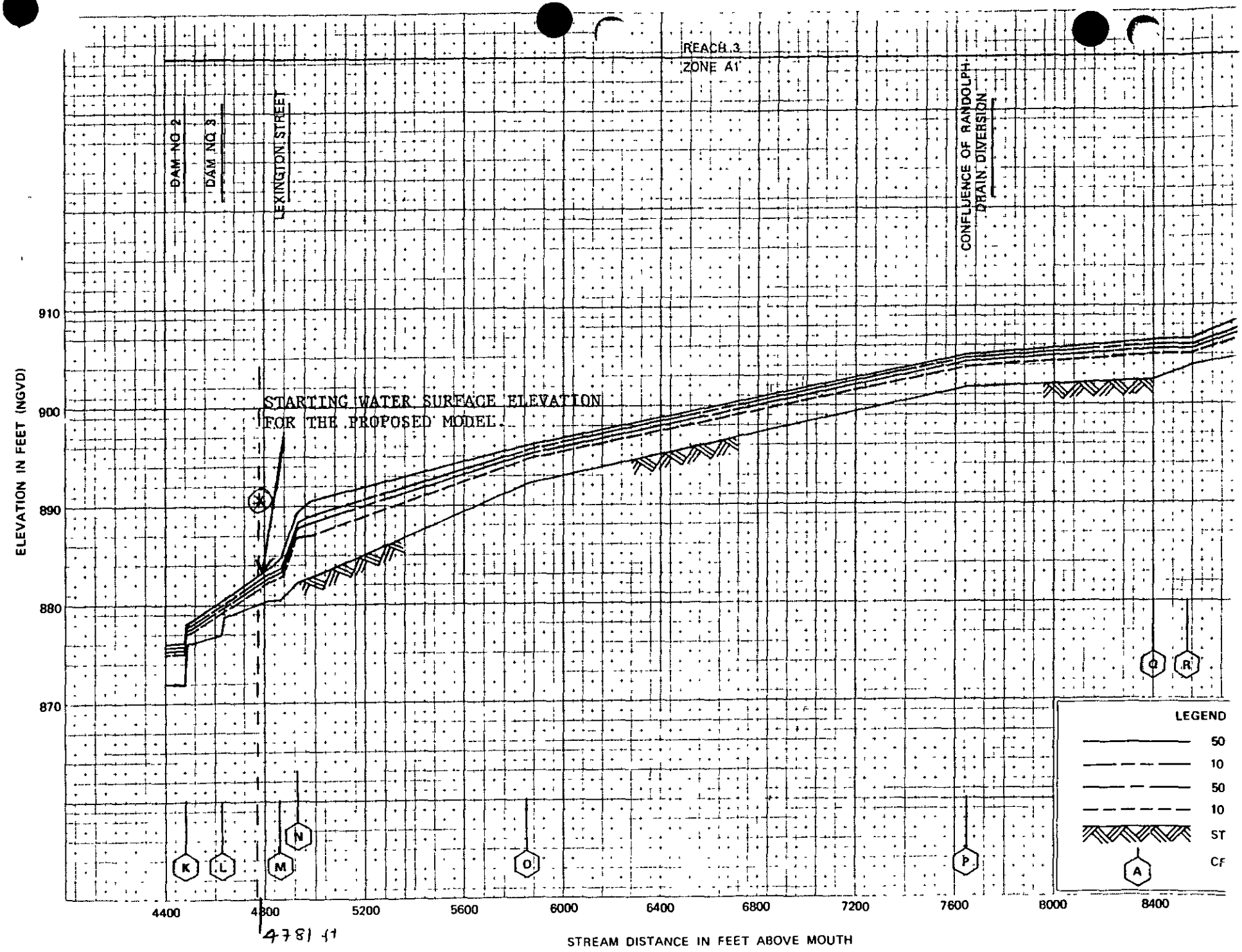

# RANDOLPH STREET DRAIN

## STARTING WATER SURFACE ELEVATION

SOURCE: FEMA - CITY OF NORTHVILLE
MICHIGAN


REACH 3
ZONE A1
DAM NO 2
DAM NO 3
LEXINGTON STREET
CONFLUENCE OF RANDOLPH DRAIN DIVERSION
STARTING WATER SURFACE ELEVATION FOR THE PROPOSED MODEL
ELEVATION IN FEET (NGVD)
910
900
890
880
870
4400
4800
5200
5600
6000
6400
6800
7200
7600
8000
8400
STREAM DISTANCE IN FEET ABOVE MOUTH
K
L
M
N
O
P
Q
R
LEGEND
50
10
50
10
ST
CF
A

4781 41

*

# XKOR VALUE

# FOR CULVERTS

## MODELLED USING SB CARD

# RANDOLPH STREET DRAIN - FLOOD STUDY
# PRESSURE FLOW LOSS COEFFICIENT FOR CULVERTS.

EQUATION:

$$XKOR = Ke + Kf + Kp + Ko \quad \text{-------- --------} \quad 1$$

Where

Ke = entrance loss coefficient

Kf = friction loss coefficient

Kp = pier loss coefficient

Ko = outlet loss coefficient

$$Kf = (29\, n^2 L)/(R^{4/3}) \quad \text{------ -------- --------} \quad 2$$

Where

n = manning's roughness coefficient (0.0025)

L = length of culvert

R = hydraulic radius

For Multiple Culvert Analysis, XKOR equivalent is computed as:

$$XKOR\ eq. = \frac{AT^2}{\left(\sum_{i=1}^{n} \sqrt{A_i^2/K_i}\right)^2} \quad \text{-------- --------} \quad 3$$

Where

AT = total area

Ai = area of individual culvert

Ki = coefficient for individual culvert

n = number of culverts

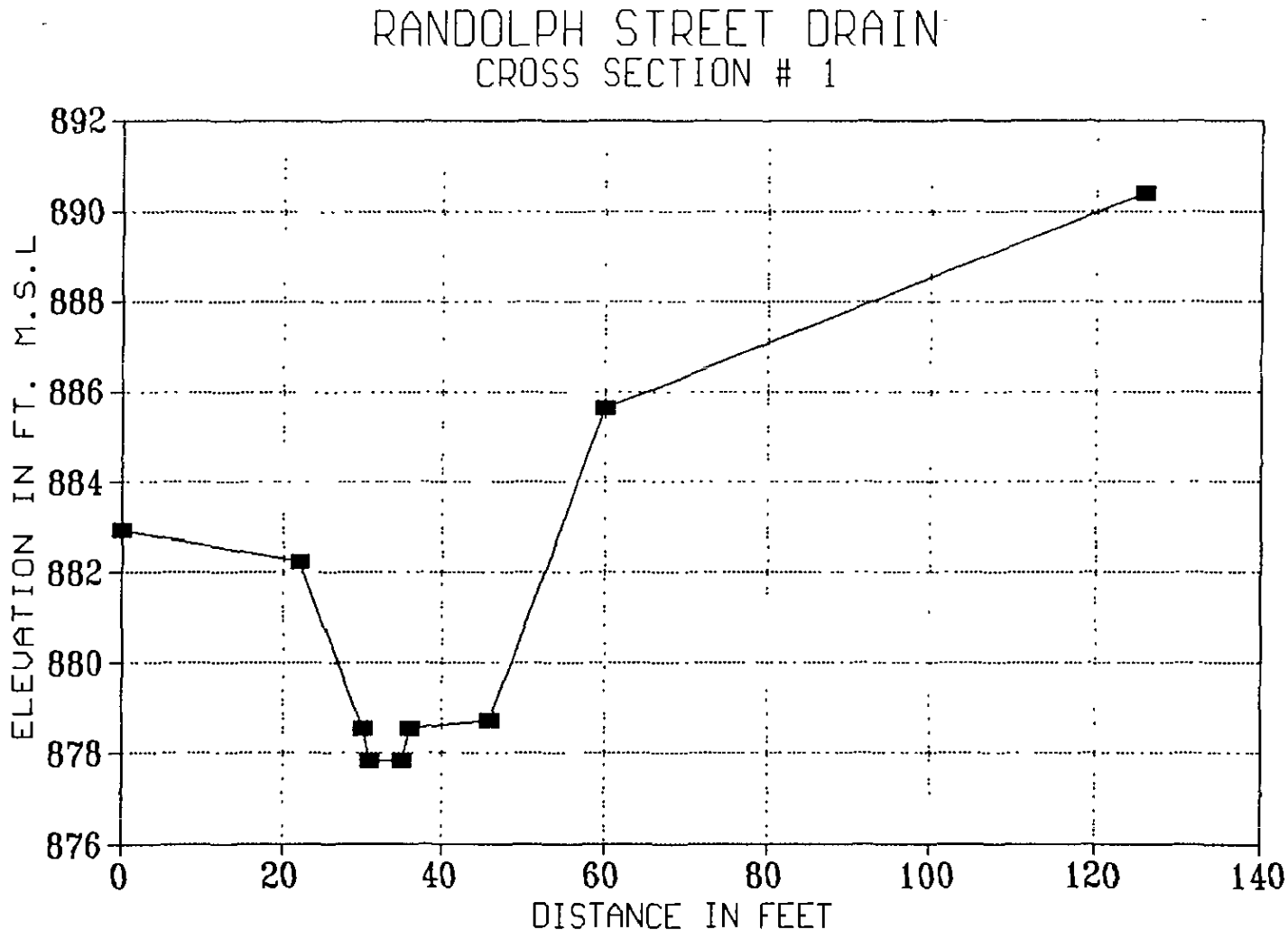
| CULVERT LOCATION | DESCRIPTION | HYD. Rad. ft | Ke | Kf | Kp | Ko | XKOR | XKOR eq. |
|---|---|---|---|---|---|---|---|---|
| ~~LEXINGTON BLVD.~~ | ~~2 # 72" C.M.P.~~ | ~~1.50~~ | ~~0.7~~ | ~~0.64~~ | ~~0.05~~ | ~~1.0~~ | ~~2.39~~ | ~~2.39~~ |
| McDONALD DR. | 2 # 66"X51" ARCH | 1.23 | 0.5 | 0.94 | 0.05 | 1.0 | 2.49 | 2.49 |
| COLDSPRING DR. | 5 # 42"X29" ARCH | 0.69 | 0.5 | 1.78 | 0.05 | 1.0 | 3.33 | 3.33 |

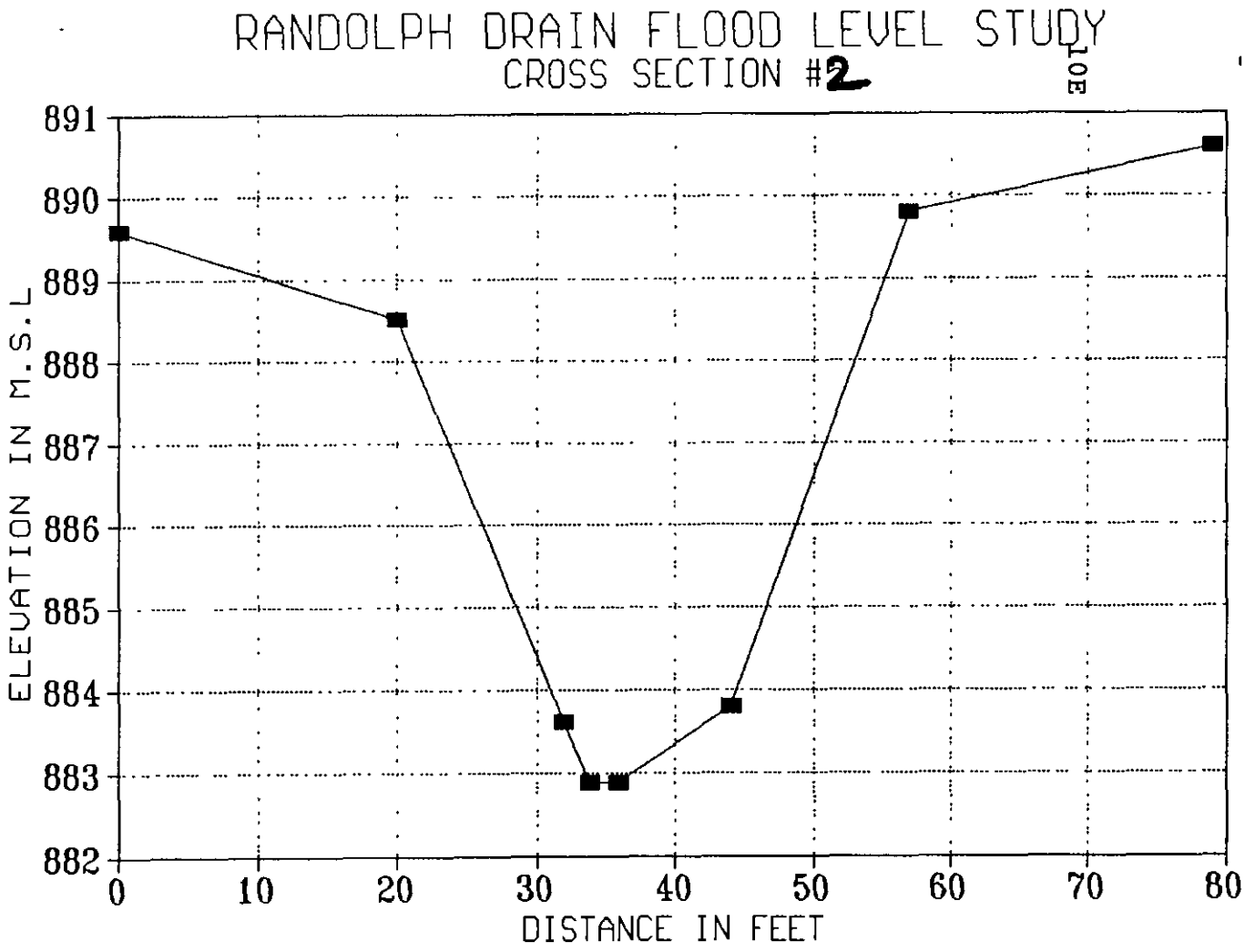
References:
1) AISI Handbook of Steel Drainage & Construction Products, page 198-199
2) Bureau of Public Roads, 1958; Table on Ent. Loss Coeff. for Culverts

# RANDOLPH STREET DRAIN

# CROSS SECTION

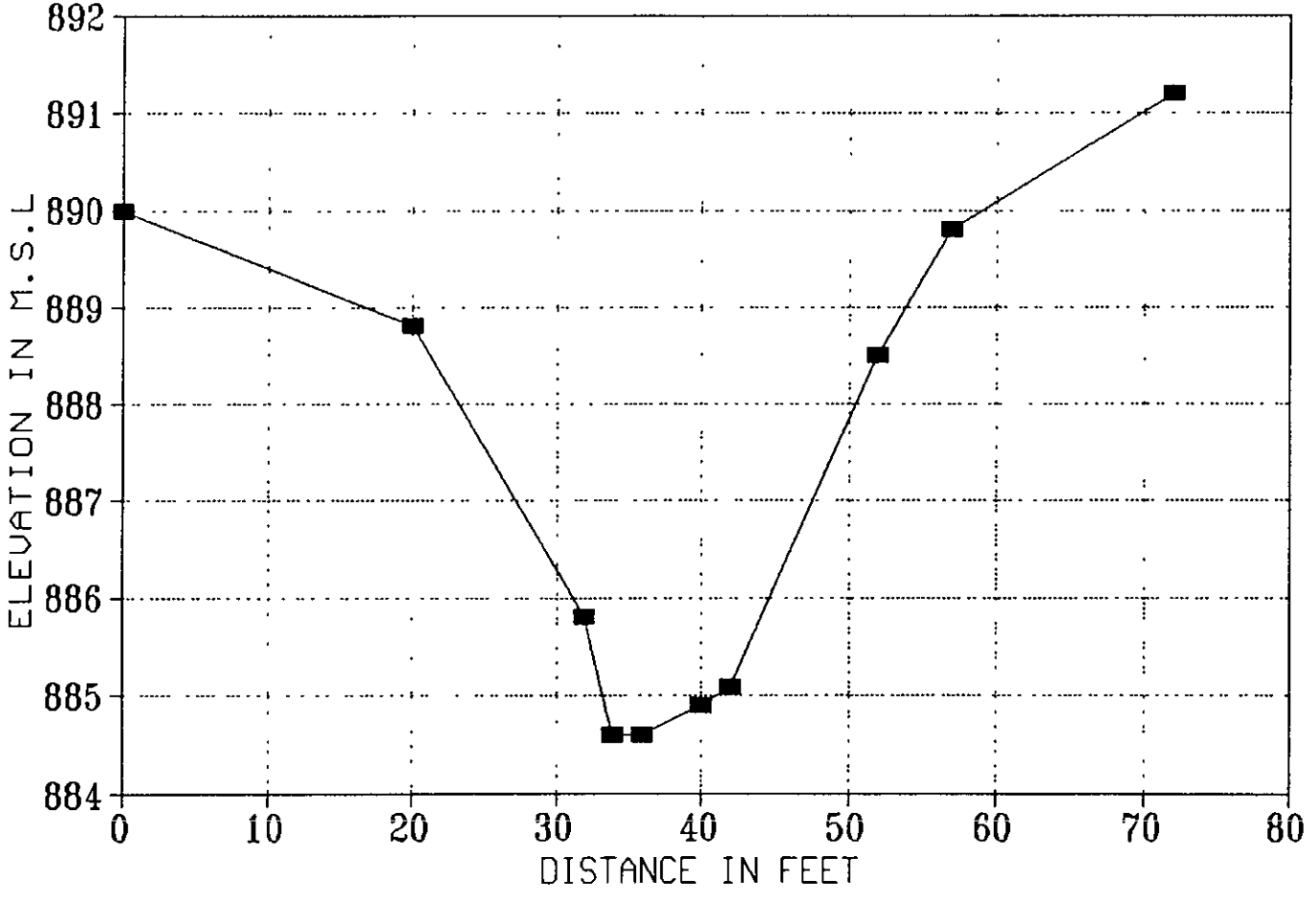
# DETAIL

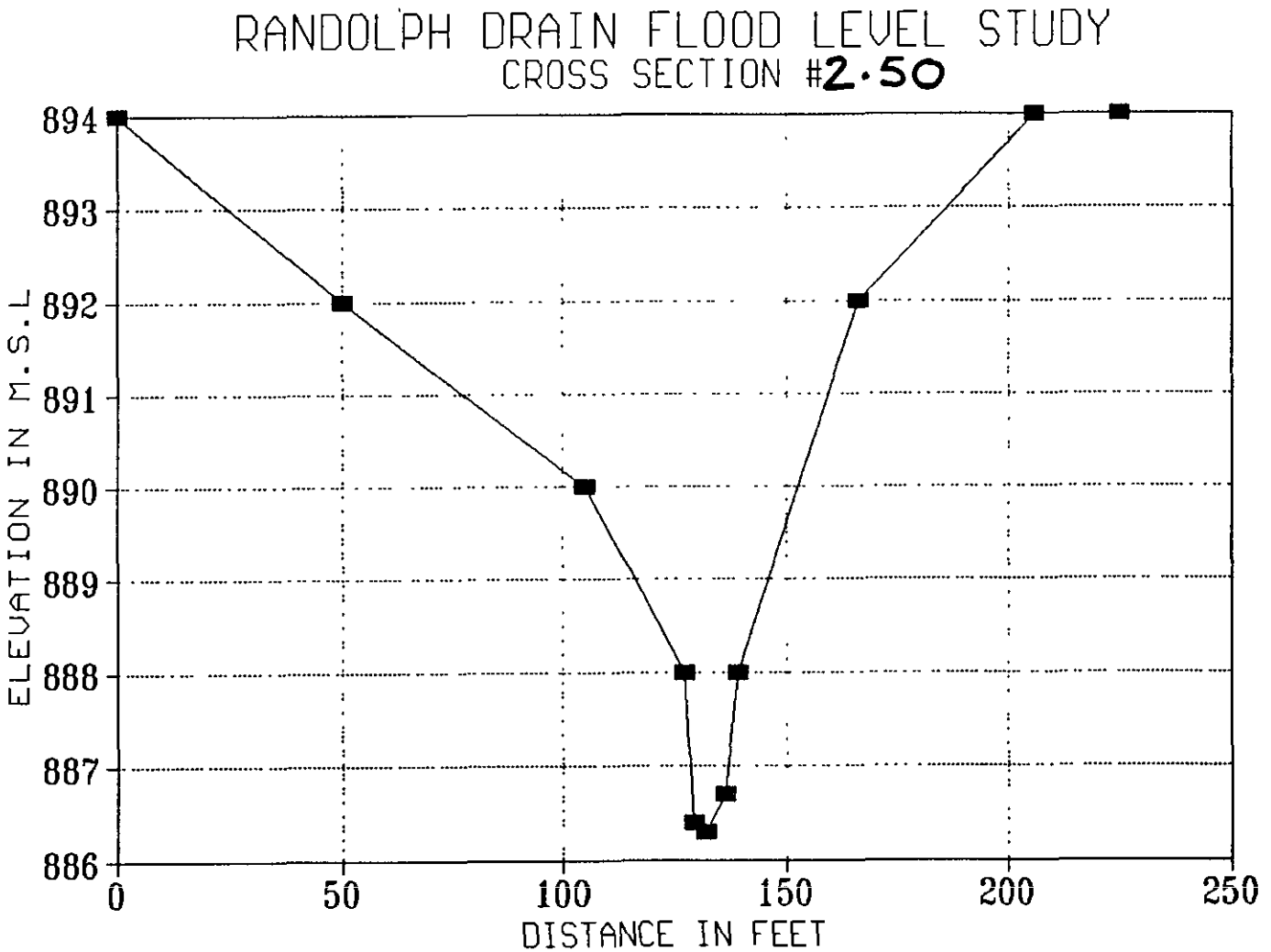

RANDOLPH STREET DRAIN
CROSS SECTION # 1
ELEVATION IN FT. M.S.L
892
890
888
886
884
882
880
878
876
0
20
40
60
80
100
120
140
DISTANCE IN FEET

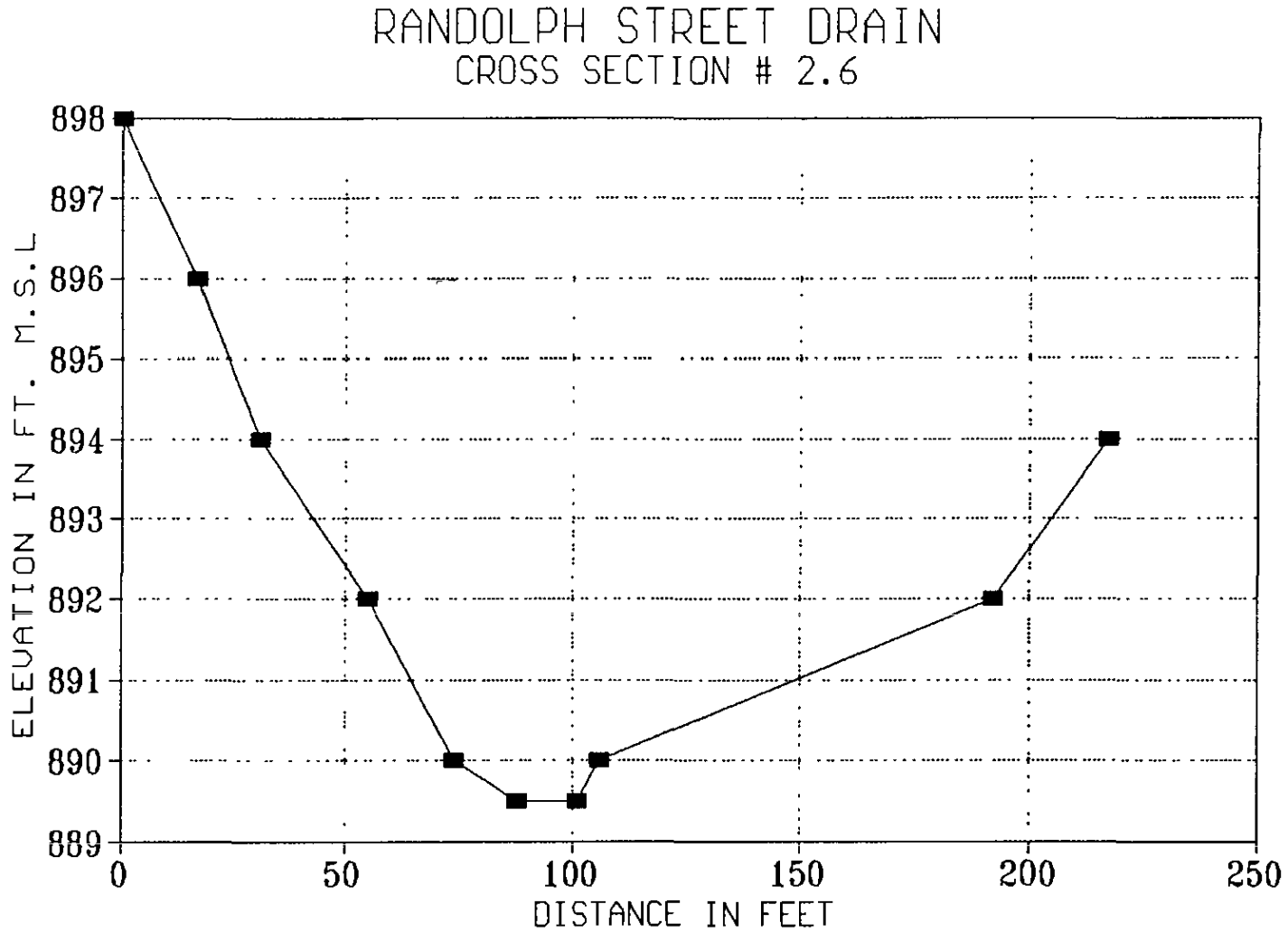

RANDOLPH DRAIN FLOOD LEVEL STUDY
CROSS SECTION #2
TOE
ELEVATION IN M.S.L
891
890
889
888
887
886
885
884
883
882
0
10
20
30
40
50
60
70
80
DISTANCE IN FEET

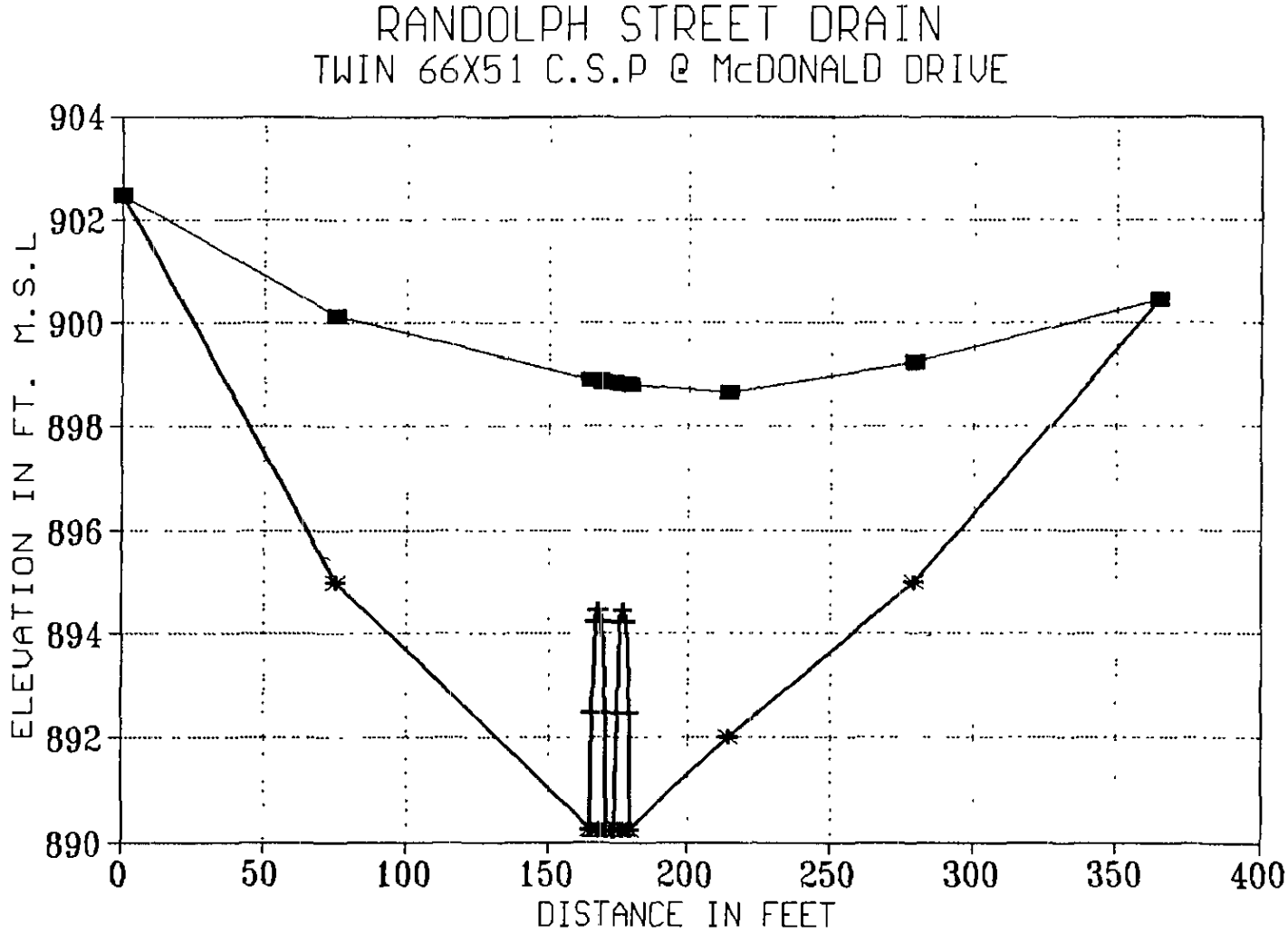
# RANDOLPH DRAIN FLOOD LEVEL STUDY

## CROSS SECTION #62·25

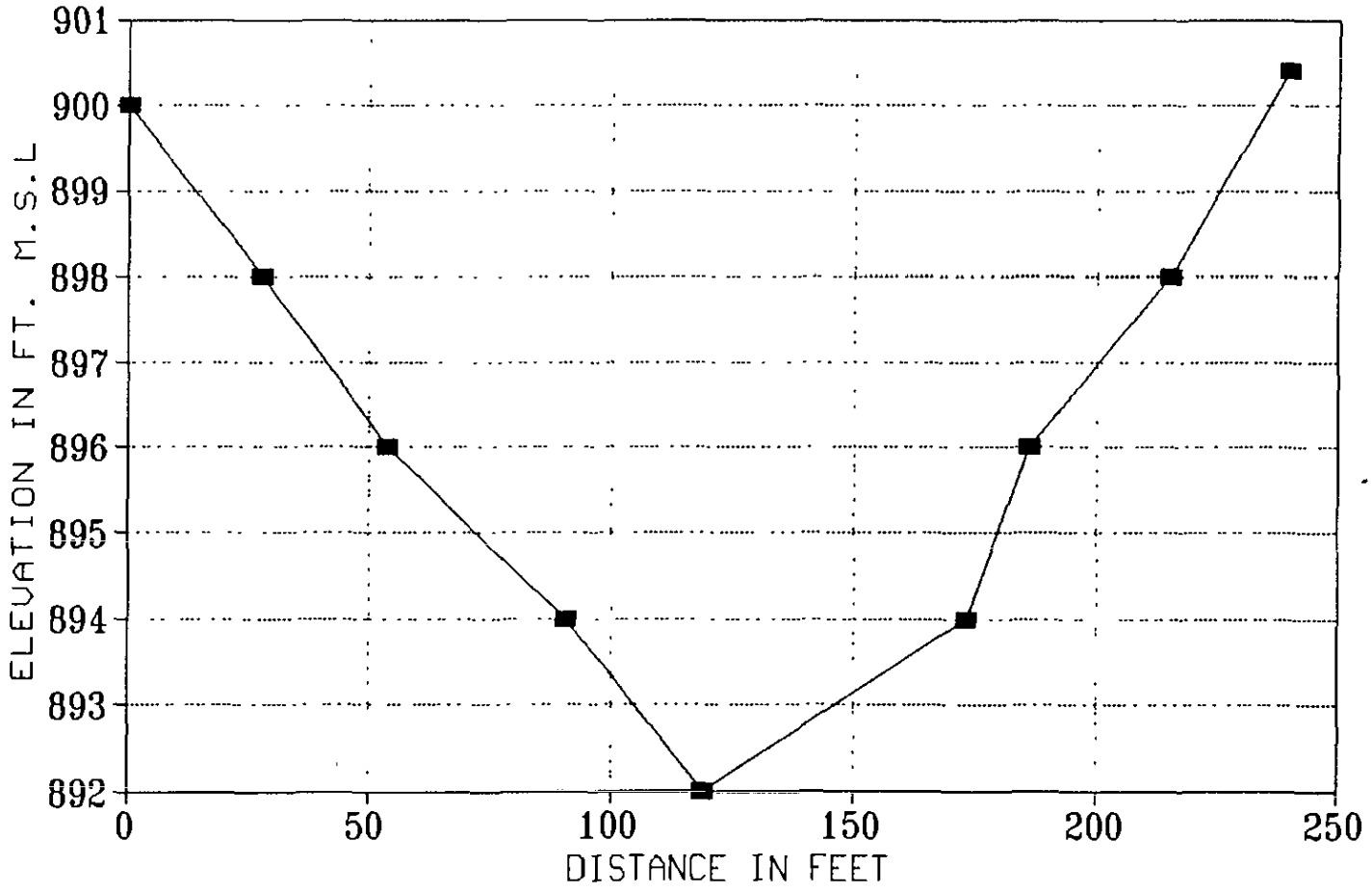



RANDOLPH DRAIN FLOOD LEVEL STUDY
CROSS SECTION #2·50
ELEVATION IN M.S.L
894
893
892
891
890
889
888
887
886
0
50
100
150
200
250
DISTANCE IN FEET


RANDOLPH STREET DRAIN
CROSS SECTION # 2.6
ELEVATION IN FT. M.S.L
898
897
896
895
894
893
892
891
890
889
0
50
100
150
200
250
DISTANCE IN FEET

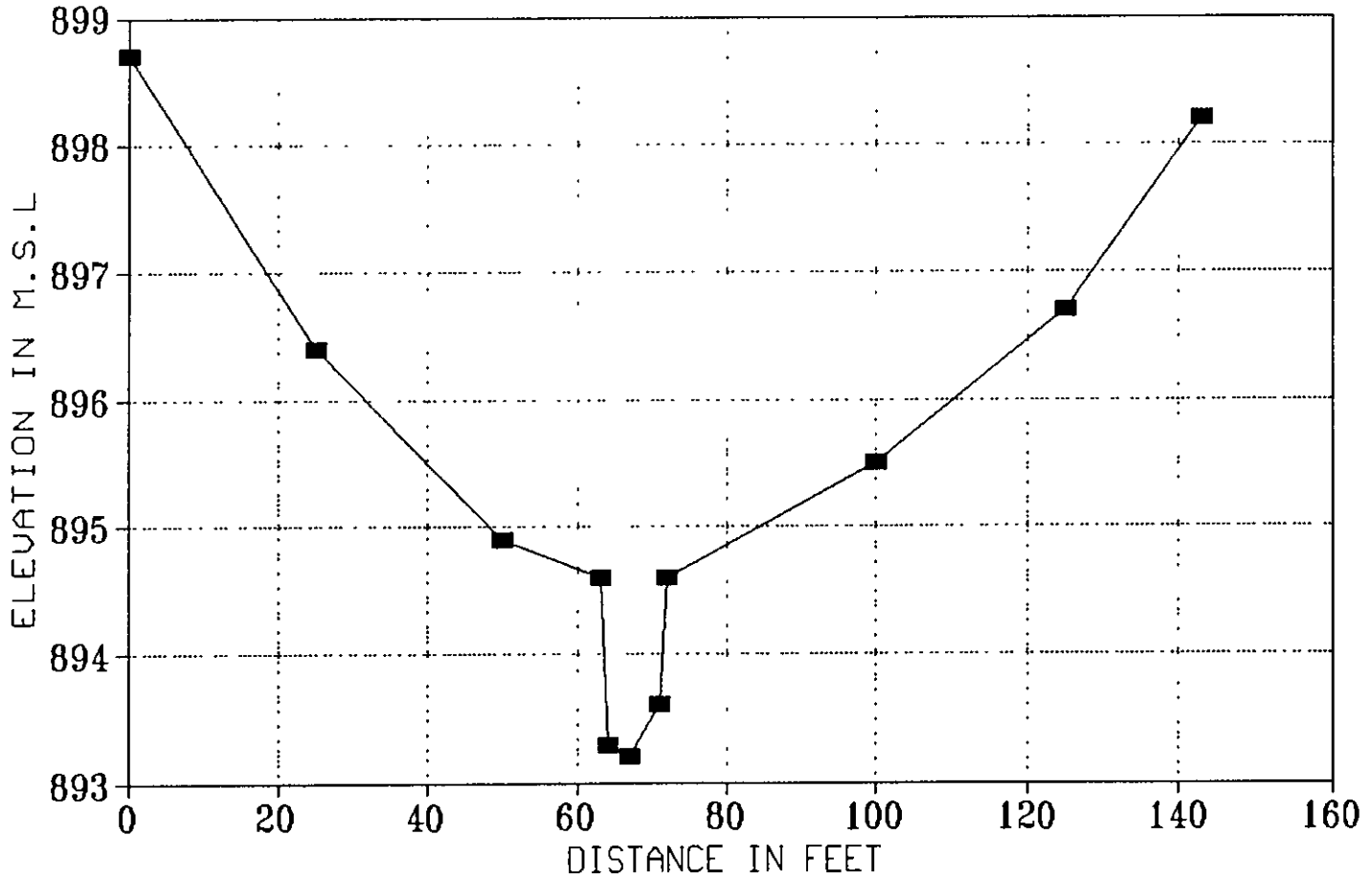

RANDOLPH STREET DRAIN
TWIN 66X51 C.S.P @ McDONALD DRIVE
ELEVATION IN FT. M.S.L
904
902
900
898
896
894
892
890
0
50
100
150
200
250
300
350
400
DISTANCE IN FEET

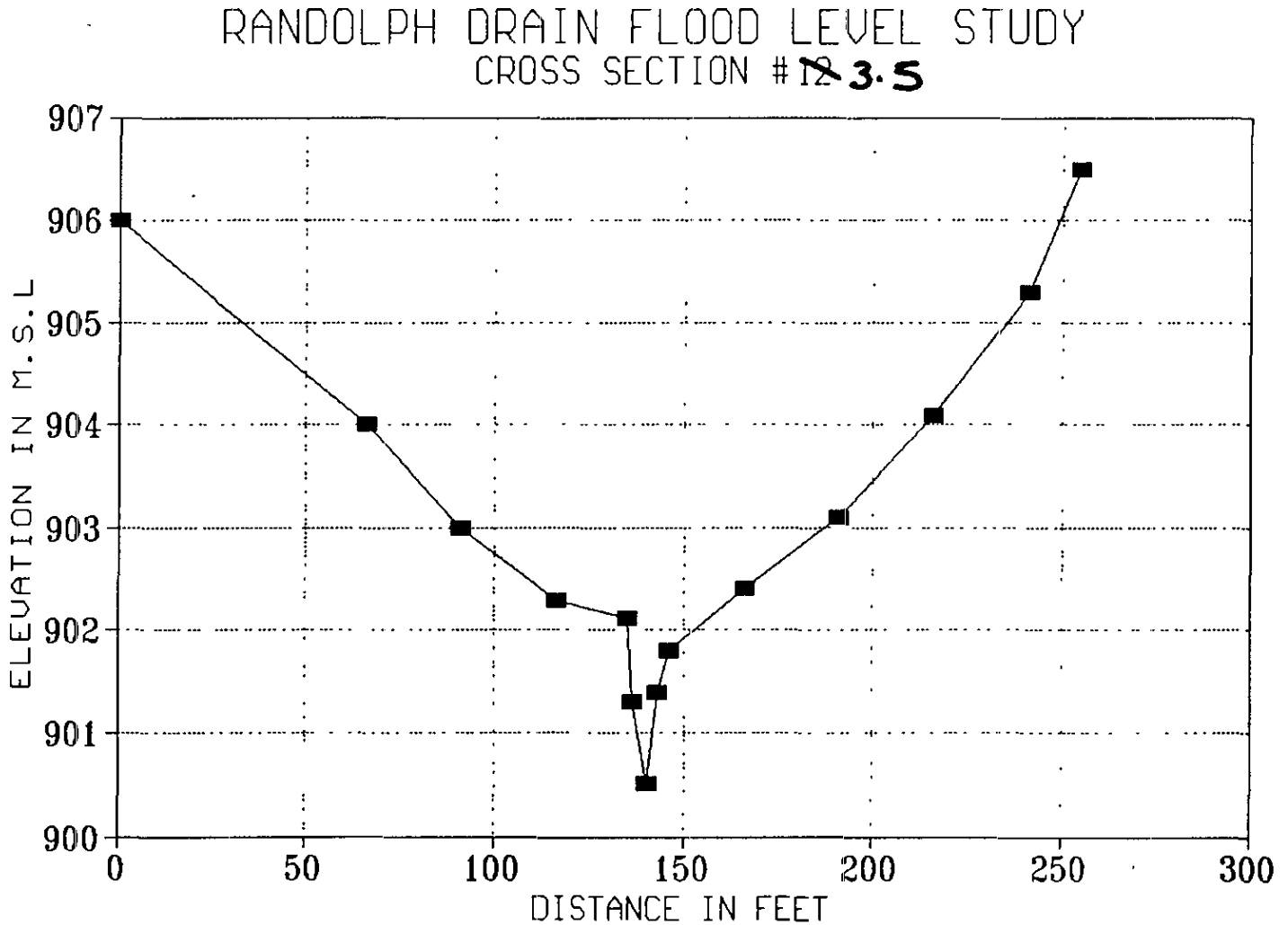
# RANDOLPH STREET DRAIN
## CROSS SECTION # 2.9



# RANDOLPH DRAIN FLOOD LEVEL STUDY

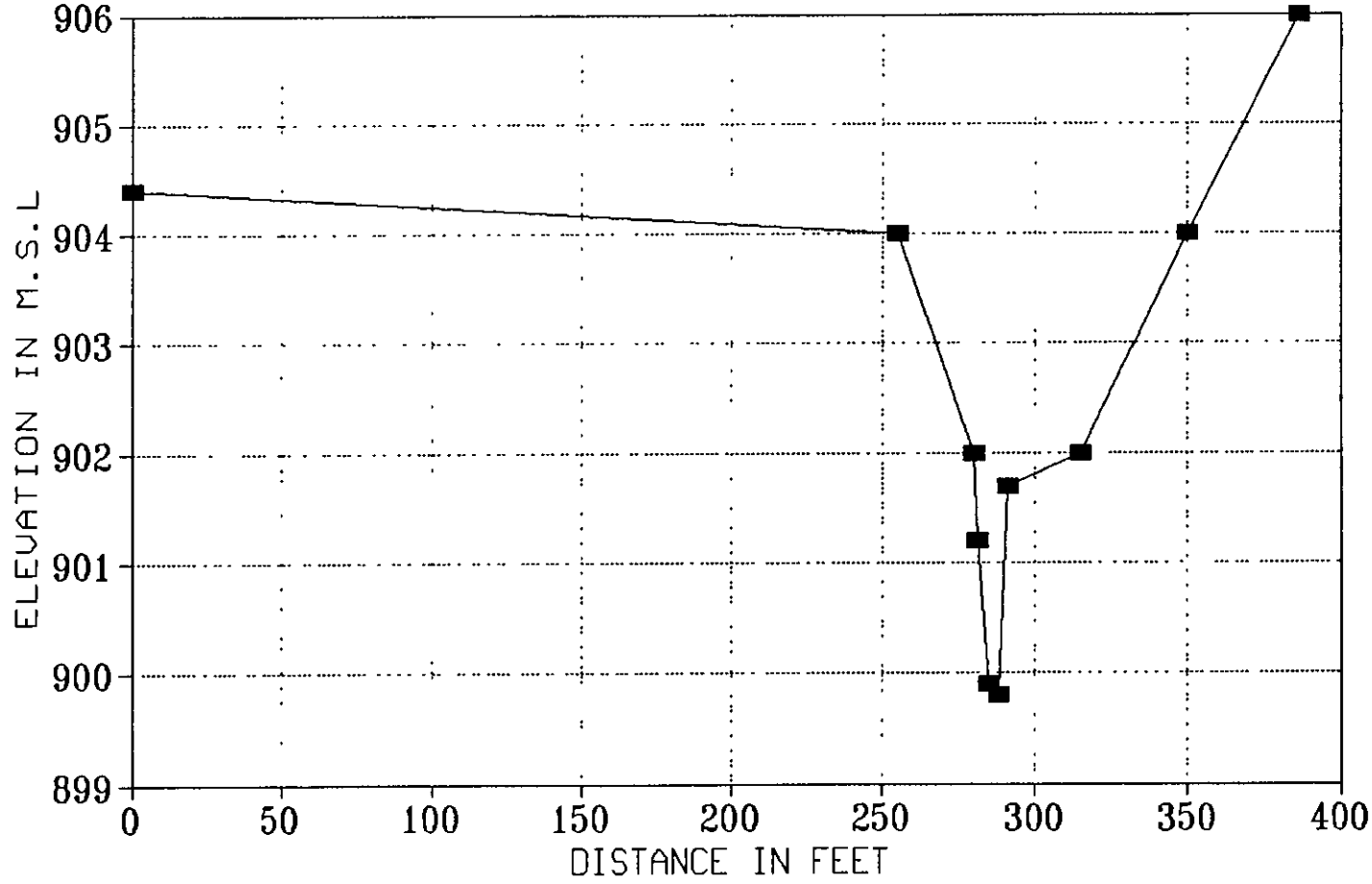
## CROSS SECTION #~~1~~ 3

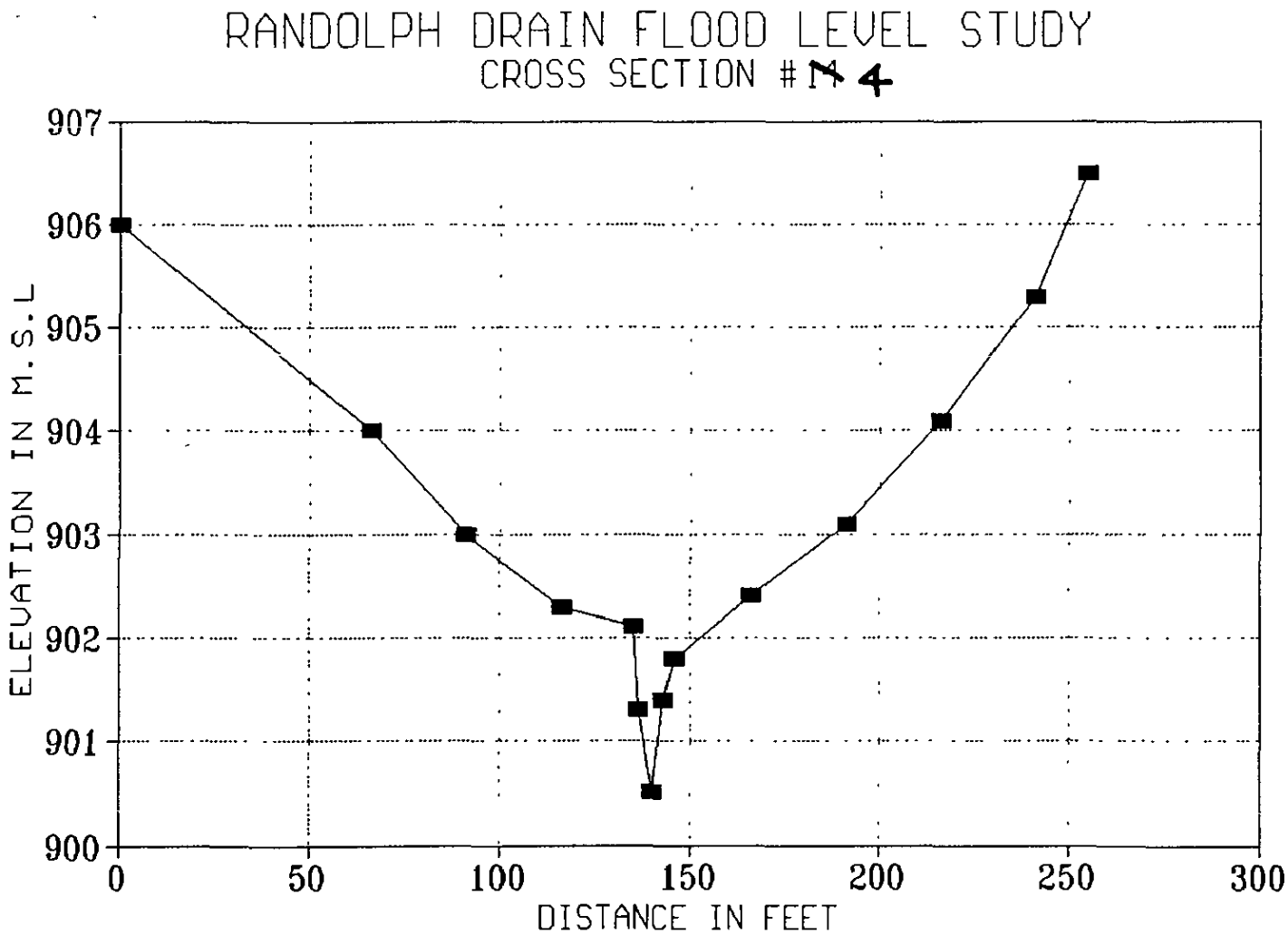


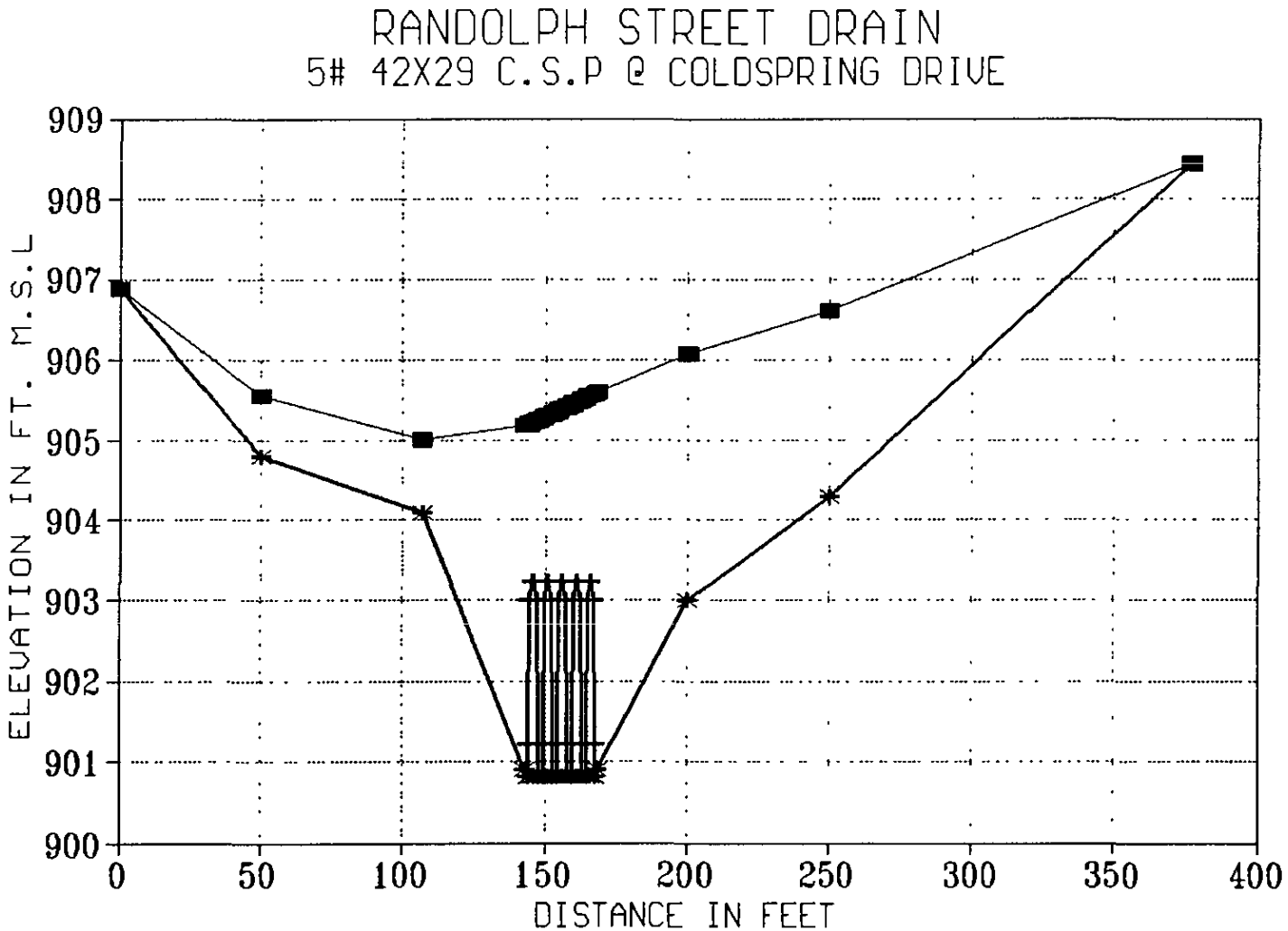

RANDOLPH DRAIN FLOOD LEVEL STUDY
CROSS SECTION # ~~12~~ 3.5
907
906
905
904
903
902
901
900
ELEVATION IN M.S.L
0
50
100
150
200
250
300
DISTANCE IN FEET

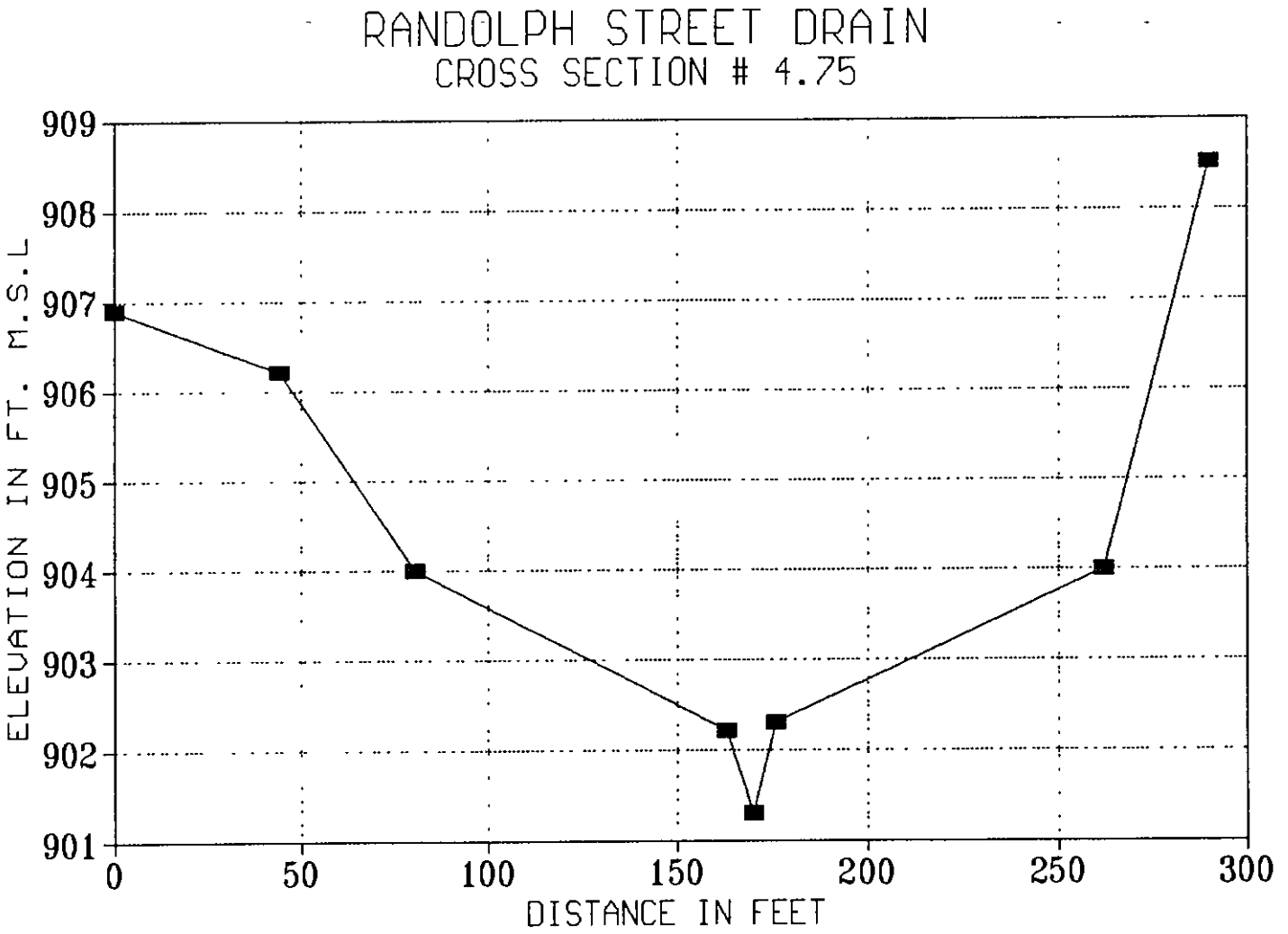
# RANDOLPH DRAIN FLOOD LEVEL STUDY

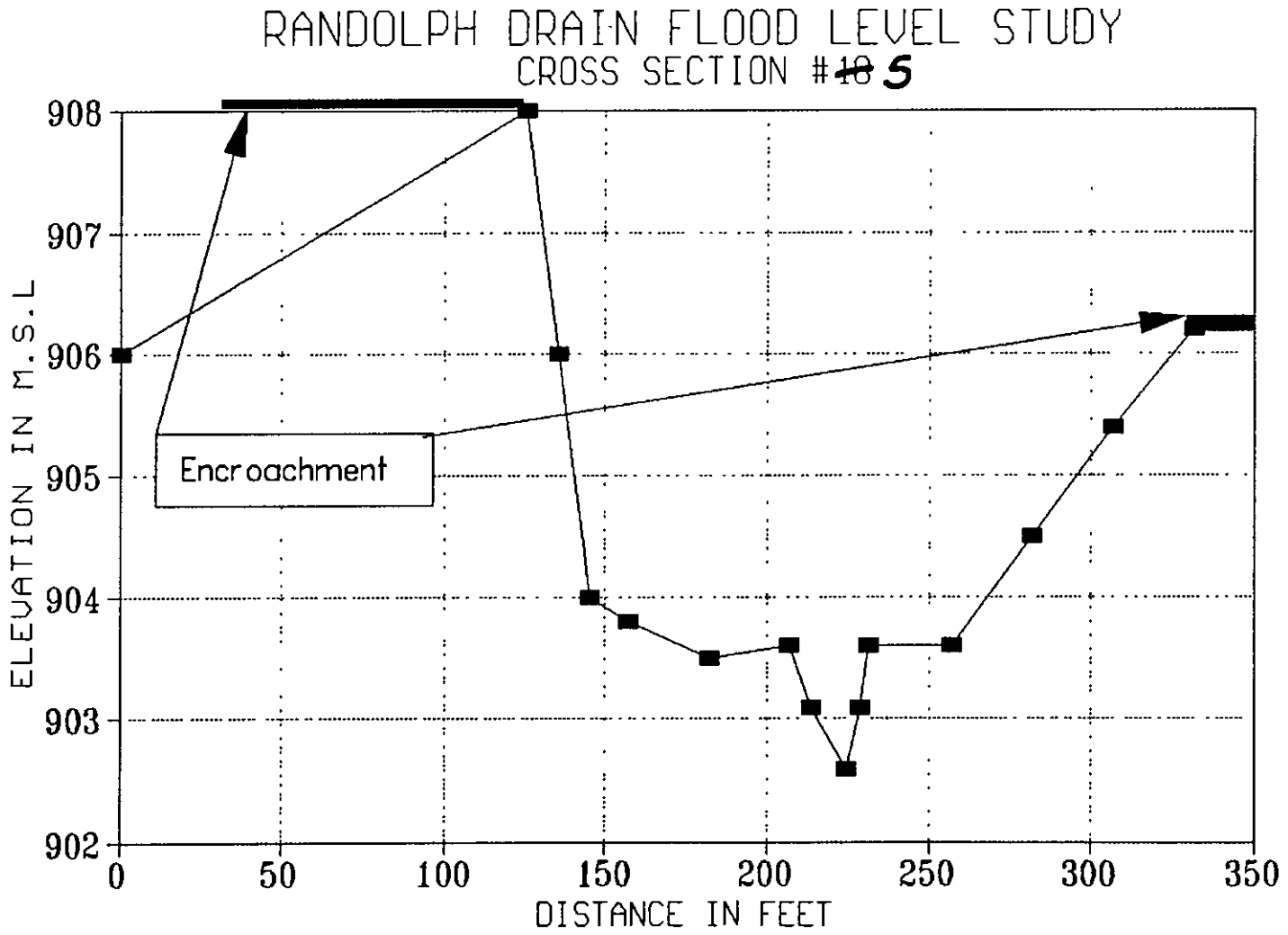
## CROSS SECTION #~~13~~ 375

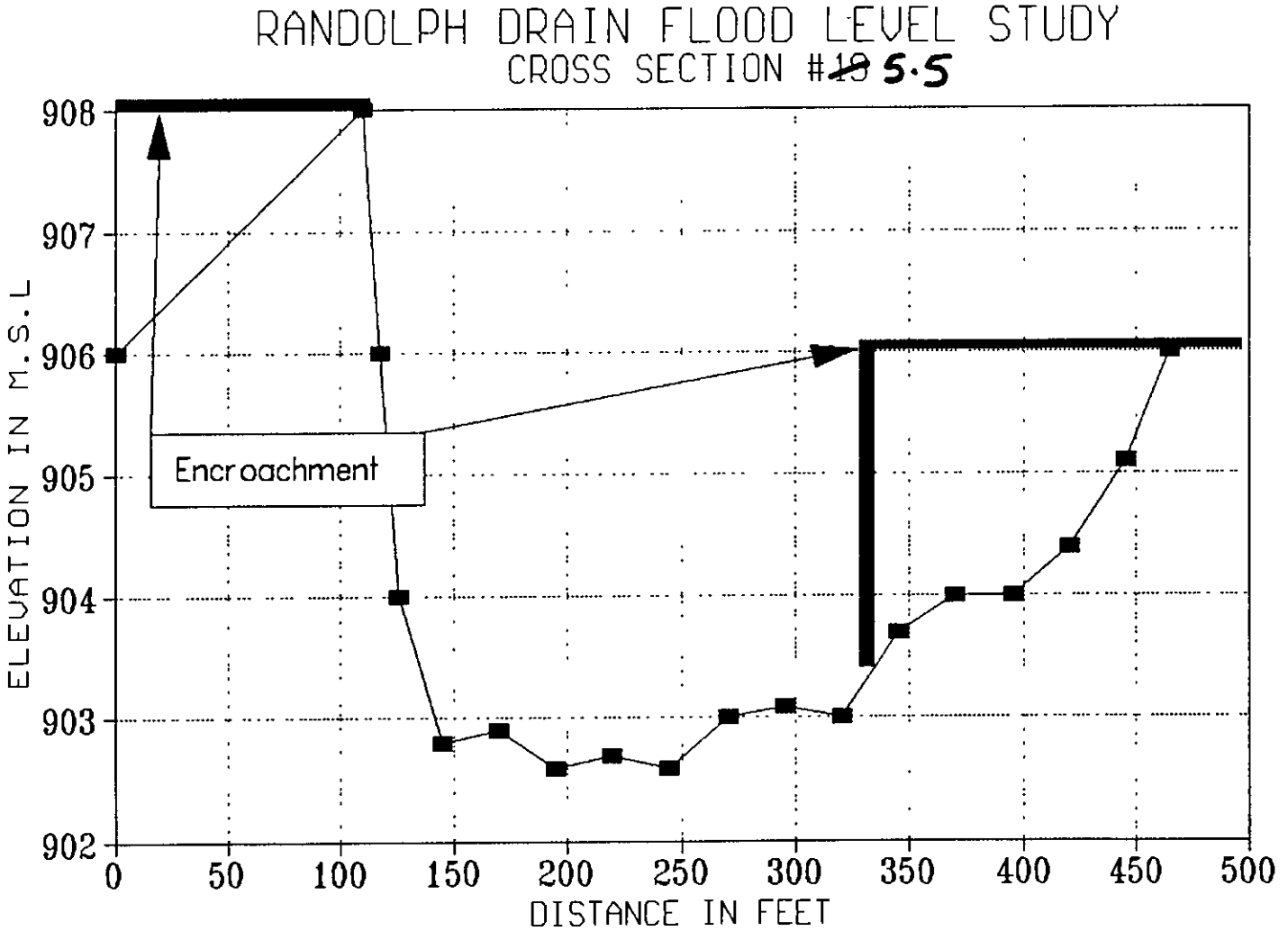


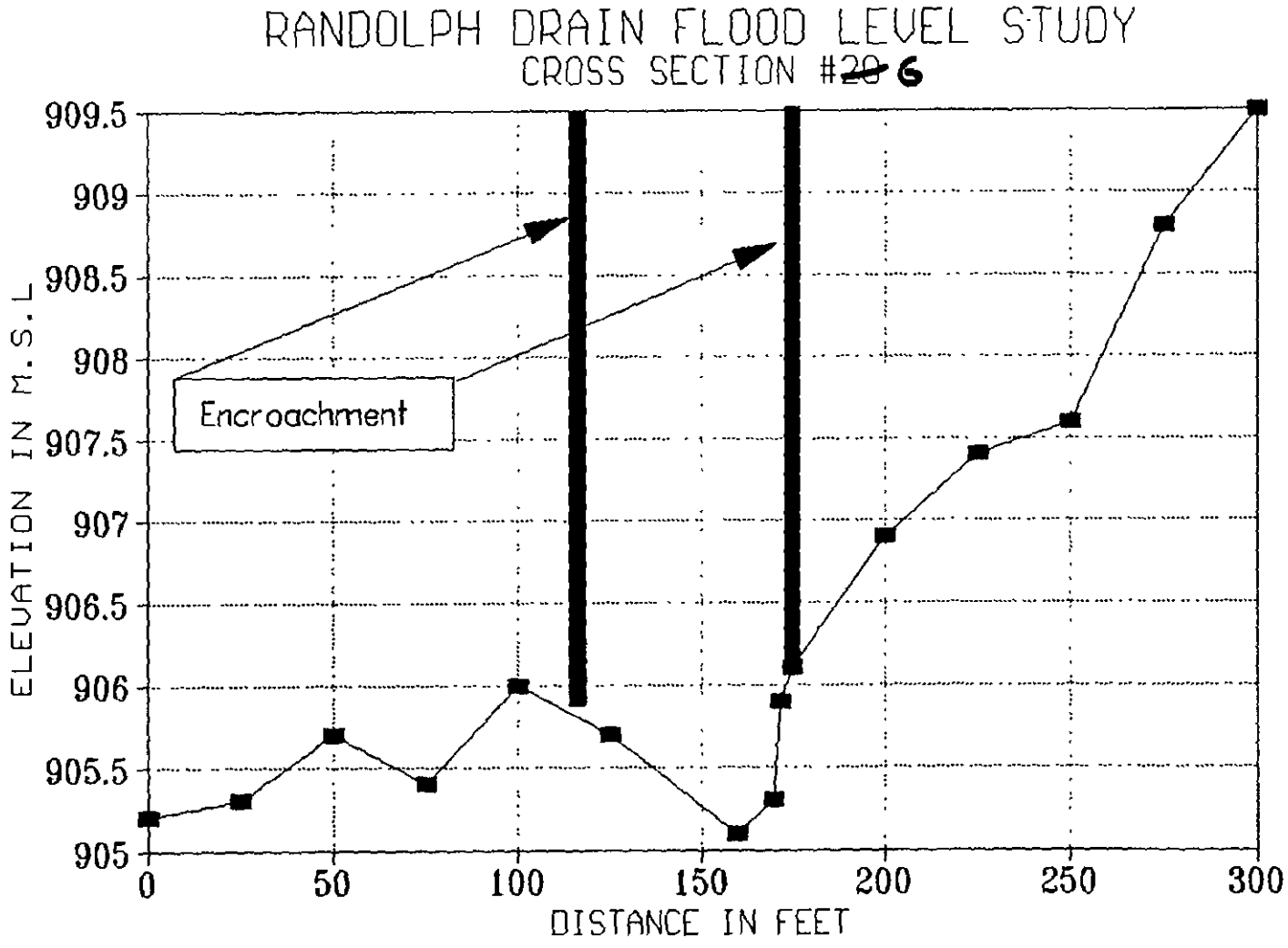

RANDOLPH DRAIN FLOOD LEVEL STUDY
CROSS SECTION # M 4
907
906
905
904
903
902
901
900
ELEVATION IN M.S.L
0
50
100
150
200
250
300
DISTANCE IN FEET


RANDOLPH STREET DRAIN
5# 42X29 C.S.P @ COLDSPRING DRIVE
ELEVATION IN FT. M.S.L
909
908
907
906
905
904
903
902
901
900
0
50
100
150
200
250
300
350
400
DISTANCE IN FEET


RANDOLPH STREET DRAIN
CROSS SECTION # 4.75
ELEVATION IN FT. M.S.L
909
908
907
906
905
904
903
902
901
0
50
100
150
200
250
300
DISTANCE IN FEET

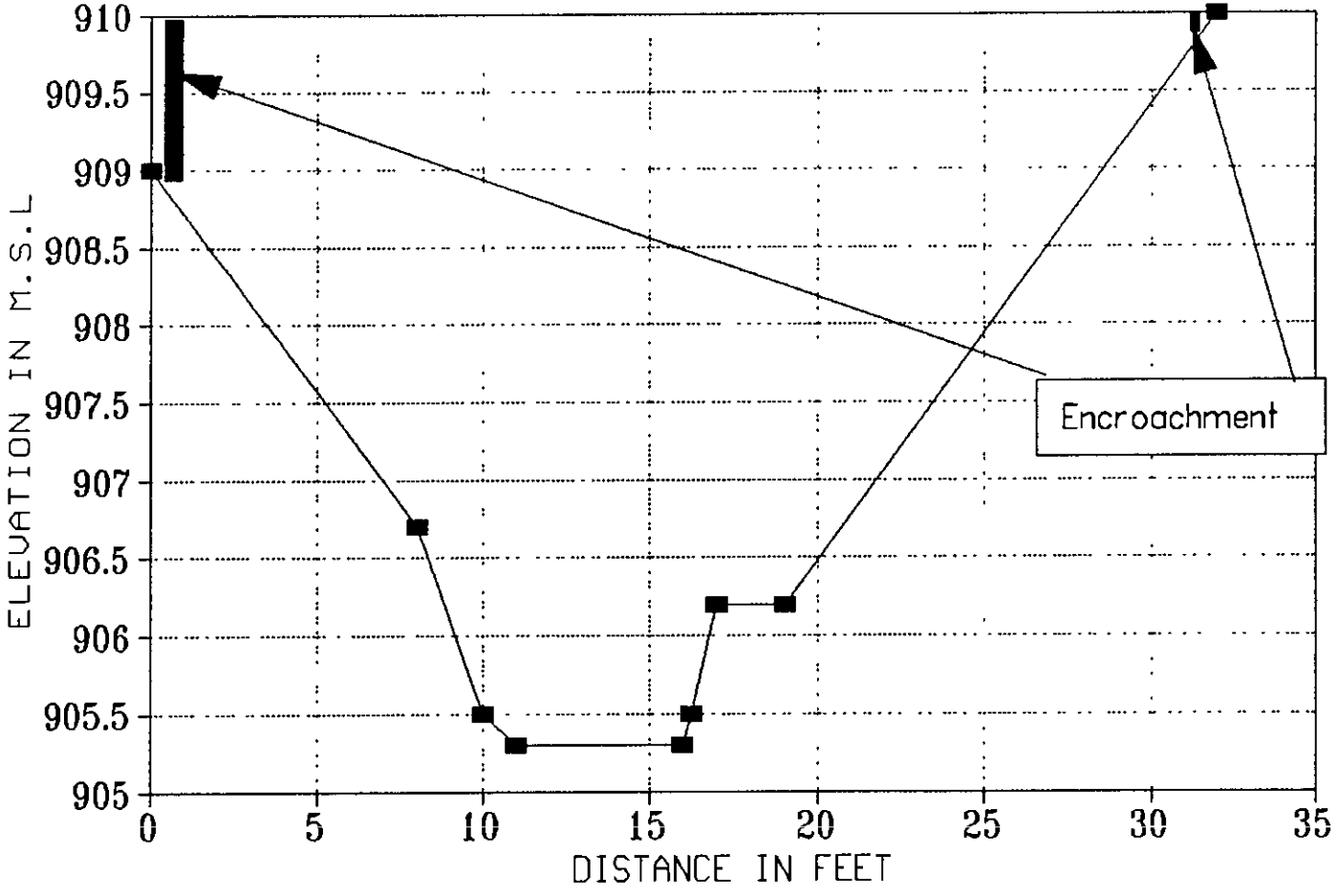

RANDOLPH DRAIN FLOOD LEVEL STUDY
CROSS SECTION #~~18~~ 5
908
907
906
905
904
903
902
ELEVATION IN M.S.L
Encroachment
0
50
100
150
200
250
300
350
DISTANCE IN FEET

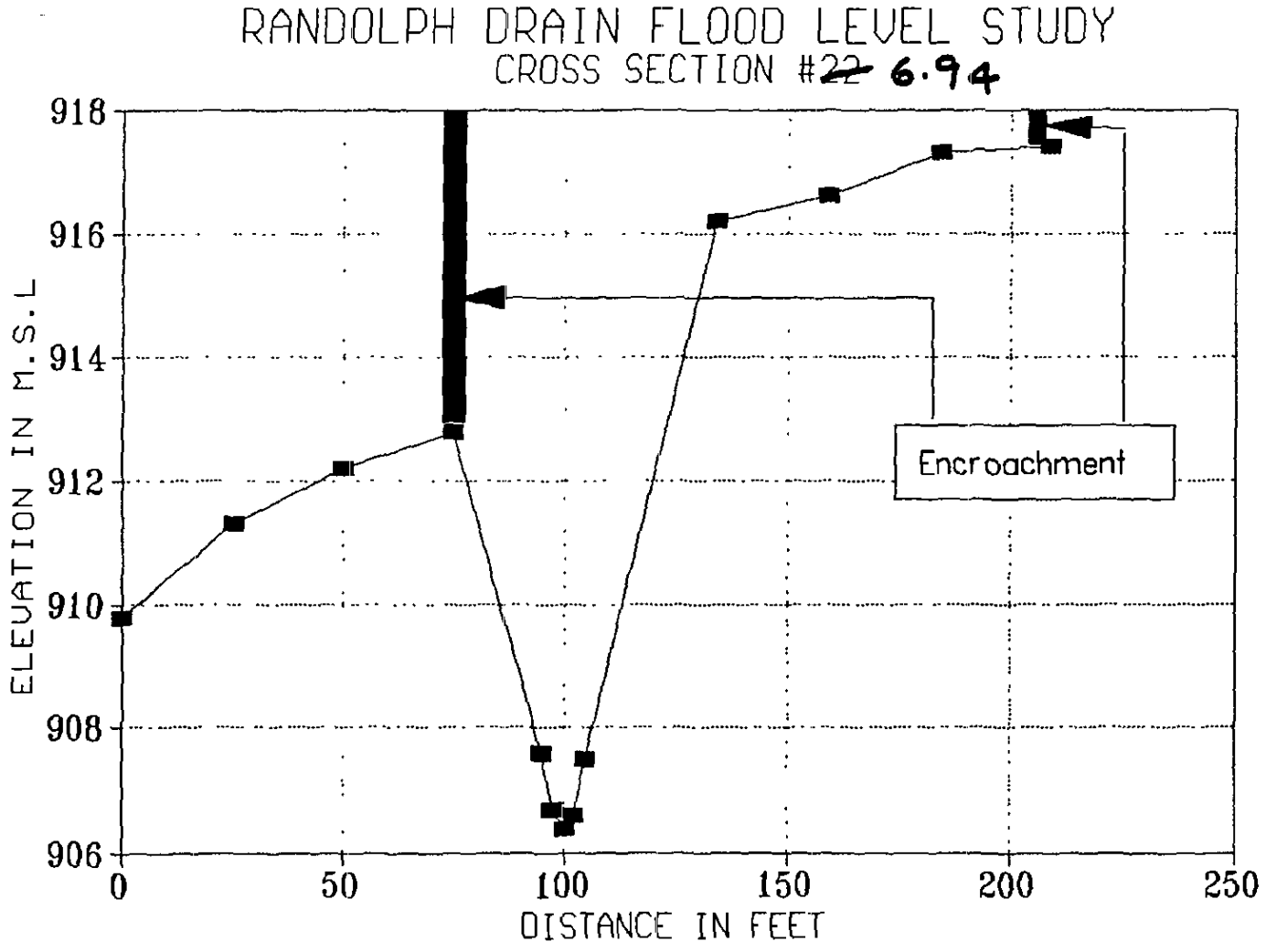

RANDOLPH DRAIN FLOOD LEVEL STUDY
CROSS SECTION #~~10~~ 5.5
908
907
906
905
904
903
902
ELEVATION IN M.S.L
Encroachment
0
50
100
150
200
250
300
350
400
450
500
DISTANCE IN FEET

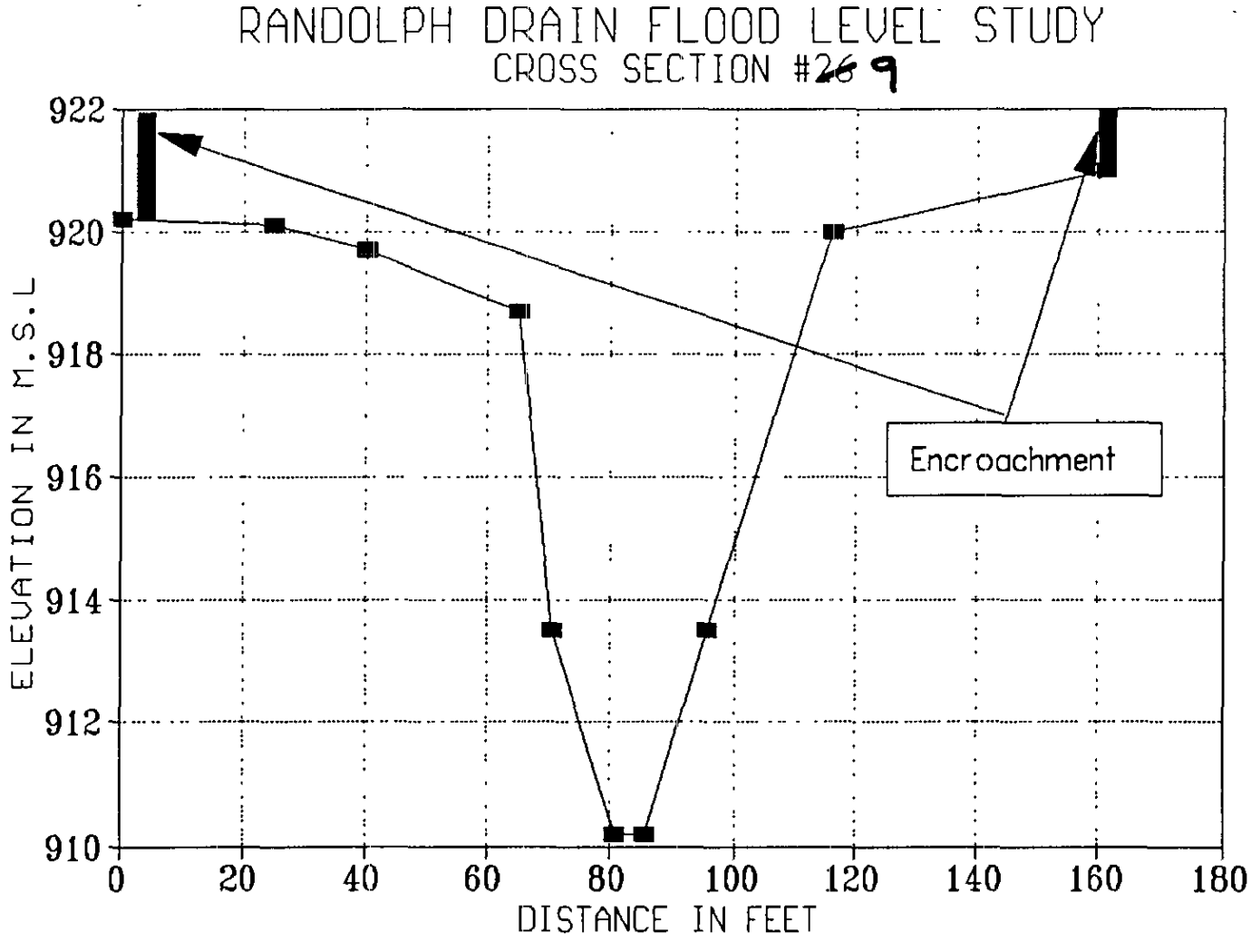

RANDOLPH DRAIN FLOOD LEVEL STUDY
CROSS SECTION #~~20~~ 6
909.5
909
908.5
908
907.5
907
906.5
906
905.5
905
ELEVATION IN M.S.L
Encroachment
0
50
100
150
200
250
300
DISTANCE IN FEET

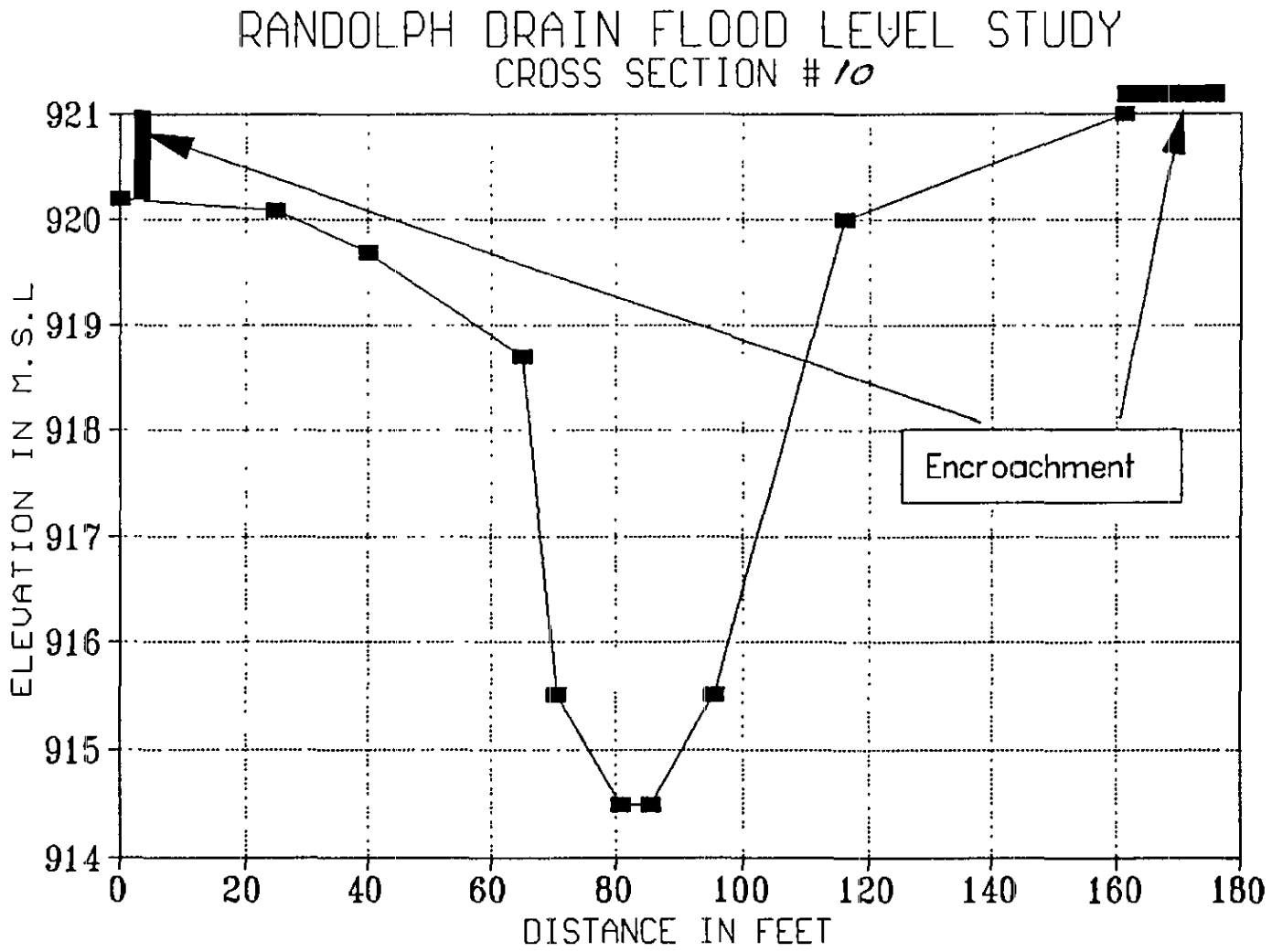
# RANDOLPH DRAIN FLOOD LEVEL STUDY

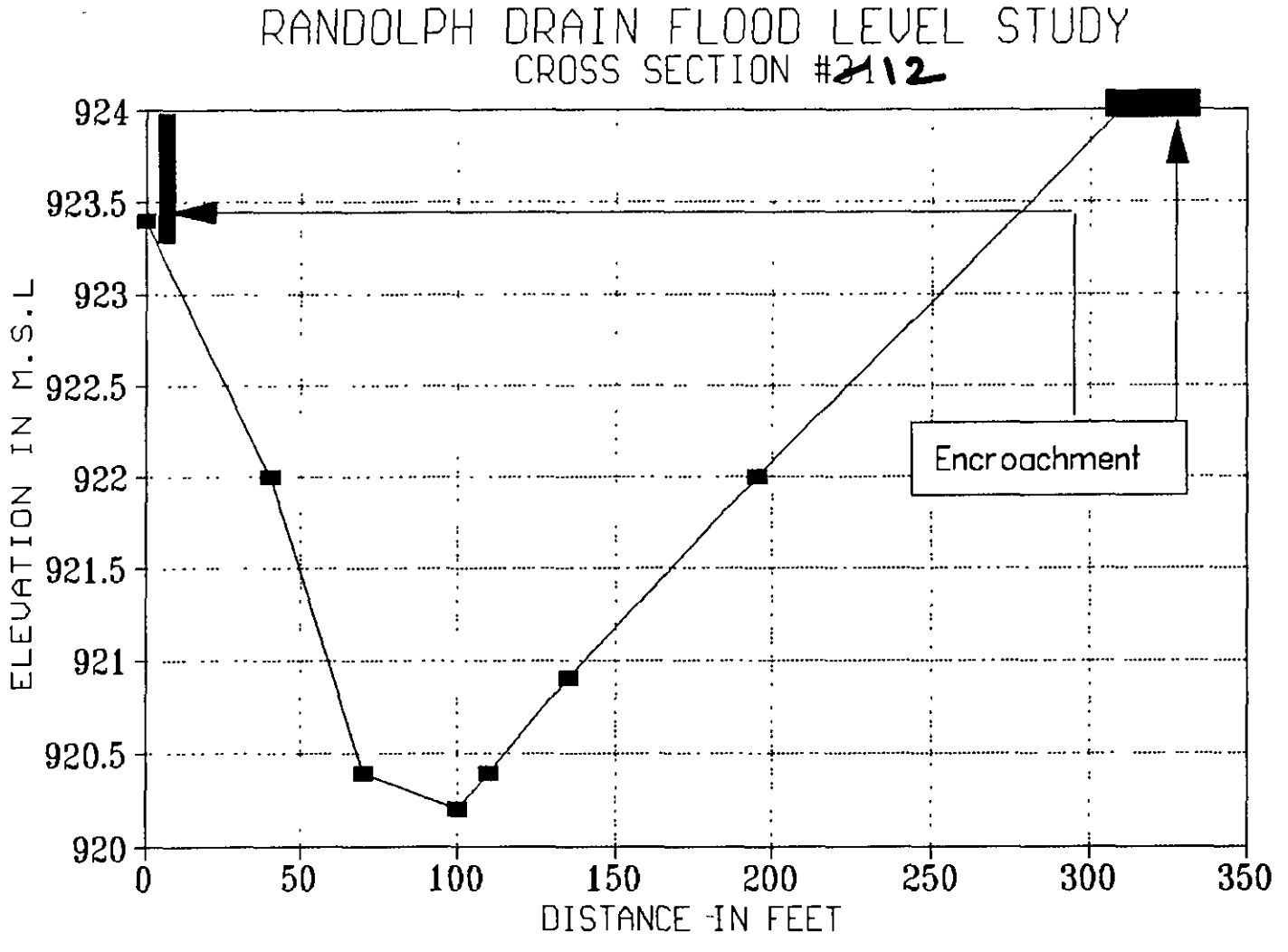
## CROSS SECTION #~~21~~ 6.9




RANDOLPH DRAIN FLOOD LEVEL STUDY
CROSS SECTION #22 6.94
ELEVATION IN M.S.L
DISTANCE IN FEET
Encroachment
918
916
914
912
910
908
906
0
50
100
150
200
250


RANDOLPH DRAIN FLOOD LEVEL STUDY
CROSS SECTION #26 9
922
920
918
916
914
912
910
ELEVATION IN M.S.L
0
20
40
60
80
100
120
140
160
180
DISTANCE IN FEET
Encroachment


RANDOLPH DRAIN FLOOD LEVEL STUDY
CROSS SECTION # 10
ELEVATION IN M.S.L
921
920
919
918
917
916
915
914
0
20
40
60
80
100
120
140
160
180
DISTANCE IN FEET
Encroachment


RANDOLPH DRAIN FLOOD LEVEL STUDY
CROSS SECTION #~~2~~12
924
923.5
923
922.5
922
921.5
921
920.5
920
ELEVATION IN M.S.L
0
50
100
150
200
250
300
350
DISTANCE IN FEET
Encroachment

# RANDOLPH STREET DRAIN

# ENCROACHMENT

# AND

# FLOODWAY ANALYSIS

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1*****************************************************
*************************************
 *  WATER SURFACE PROFILES                          *                                  *  U.S. ARMY CORPS OF ENGI
 *  VERSION OF NOVEMBER 1976                        *                                  *  THE HYDROLOGIC ENGINEER
 *  UPDATED MAY 1984                                *                                  *  609 SECOND STREET, SUIT
 *  IBM-PC-XT VERSION AUGUST 1985                   *                                  *  DAVIS, CALIFORNIA 95616
 *  RUN DATE  02-07-92   TIME  08:42:51               *                                  *  (916) 440-2105 (FTS)
 ****************************************************                                  ************************


                                        X     X  XXXXXXX   XXXXX             XXXXX
                                        X     X  X        X     X           X     X
                                        X     X  X        X                       X
                                        XXXXXXX  XXXX     X          XXXXX    XXXXX
                                        X     X  X        X                 X
                                        X     X  X        X     X           X
                                        X     X  XXXXXXX   XXXXX            XXXXXXX
1
  02-07-92     08:42:51                                                                                    PAGE


                                                                                  THIS RUN EXECUTED 02-07-92
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   HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
   ERROR CORR -  01,02,03,04,05,06
   MODIFICATION -  50,51,52,53,54,55,56
   IBM-PC-XT VERSION AUGUST 1985
 ************************************************
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T1 RANDOLPH DRAIN FLOOD LEVEL STUDY DEVELOPED CONDITION

T2 STRETCH BETWEEN BECK ROAD AND 6 FT CULVERTS AT LEXINGTON DR

T3 McNEELY & LINCOLN ASSOCIATES, INC. DT: NOV. 19, 1991

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 2. | 0. | 0. | .000000 | .00 | .0 | 0. | 882.500 | .000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 110.000 | 200.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | .080 | .080 | .030 | .300 | .500 | .000 | .000 | .000 | .000 | .000 |
| QT | 2.000 | 433.000 | 433.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | .000 | 1.400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 1.000 | 9.000 | 22.000 | 60.000 | .000 | .000 | .000 | .000 | -1.500 | .000 |
| GR | 884.400 | .000 | 883.700 | 22.000 | 880.000 | 30.000 | 879.300 | 31.000 | 879.300 | 35.000 |
| GR | 880.000 | 36.000 | 880.200 | 46.000 | 887.100 | 60.000 | 891.900 | 126.000 | .000 | .000 |
| X1 | 1.250 | 8.000 | 20.000 | 57.000 | 60.000 | 60.000 | 60.000 | .000 | -1.100 | .000 |
| GR | 890.100 | .000 | 888.500 | 20.000 | 883.600 | 32.000 | 882.630 | 34.000 | 882.630 | 36.000 |
| GR | 883.800 | 44.000 | 889.800 | 57.000 | 890.600 | 79.000 | .000 | .000 | .000 | .000 |
| X1 | 1.500 | 8.000 | 20.000 | 57.000 | 60.000 | 60.000 | 60.000 | .000 | .000 | .000 |
| X5 | 2.000 | 889.290 | 889.290 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| GR | 890.100 | .000 | 888.500 | 20.000 | 883.600 | 32.000 | 882.630 | 34.000 | 882.630 | 36.000 |
| GR | 883.800 | 44.000 | 889.800 | 57.000 | 890.600 | 79.000 | .000 | .000 | .000 | .000 |
| X1 | 2.000 | 8.000 | 20.000 | 57.000 | 15.000 | 15.000 | 15.000 | .000 | .160 | .000 |
| GR | 889.600 | .000 | 888.500 | 20.000 | 883.600 | 32.000 | 882.900 | 34.000 | 882.900 | 36.000 |
| GR | 883.800 | 44.000 | 889.800 | 57.000 | 890.600 | 79.000 | .000 | .000 | .000 | .000 |
| ET | .000 | .000 | 1.400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 2.100 | .000 | .000 | .000 | 40.000 | 30.000 | 37.000 | .000 | .000 | .000 |
| X1 | 2.250 | 10.000 | 10.000 | 57.000 | 154.000 | 157.000 | 159.000 | .000 | .000 | .000 |
| GR | 890.000 | .000 | 889.500 | 10.000 | 885.800 | 32.000 | 884.600 | 34.000 | 884.600 | 36.000 |
| GR | 884.900 | 40.000 | 885.100 | 42.000 | 888.500 | 52.000 | 889.800 | 57.000 | 891.200 | 72.000 |
| X1 | 2.400 | .000 | .000 | .000 | 35.000 | 36.000 | 36.000 | .000 | .700 | .000 |
| X1 | 2.450 | .000 | .000 | .000 | 35.000 | 35.000 | 37.000 | .000 | .300 | .000 |
| X1 | 2.500 | 11.000 | 40.000 | 166.000 | 84.000 | 85.000 | 86.000 | .000 | .000 | .000 |
| GR | 894.000 | .000 | 892.500 | 40.000 | 890.000 | 105.000 | 888.000 | 127.000 | 886.400 | 129.000 |
| GR | 886.300 | 132.000 | 886.700 | 136.000 | 888.000 | 139.000 | 892.000 | 166.000 | 894.000 | 206.000 |
| GR | 894.000 | 225.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 2.550 | .000 | .000 | .000 | 18.000 | 40.000 | 30.000 | .000 | .200 | .000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2.560 | .000 | .000 | .000 | 26.000 | 60.000 | 45.000 | .000 | .300 | .000 |
| X1 | 2.570 | .000 | .000 | .000 | 13.000 | 30.000 | 22.000 | .000 | .200 | .000 |
| ET | .000 | 7.100 | 7.100 | .000 | .000 | .000 | 68.500 | 120.500 | .000 | .000 |
| X1 | 2.600 | 10.000 | 55.000 | 192.000 | 13.000 | 30.000 | 23.000 | .000 | -.400 | .000 |
| GR | 898.000 | .000 | 896.000 | 17.000 | 894.000 | 31.000 | 892.000 | 55.000 | 890.000 | 74.000 |
| GR | 889.500 | 88.000 | 889.500 | 101.000 | 890.000 | 106.000 | 892.000 | 192.000 | 894.000 | 217.000 |
| NC | .000 | .000 | .025 | .300 | .500 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | .000 | 1.400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 2.700 | 19.000 | 164.900 | 179.020 | 130.000 | 60.000 | 75.000 | .000 | .000 | .000 |
| X3 | 10.000 | .000 | .000 | .000 | .000 | .000 | .000 | 895.000 | 895.000 | .000 |
| GR | 902.470 | .000 | 895.000 | 75.000 | 890.220 | 164.900 | 890.210 | 166.000 | 890.210 | 167.100 |
| GR | 890.210 | 168.200 | 890.210 | 169.300 | 890.210 | 170.400 | 890.210 | 170.500 | 890.210 | 173.500 |
| GR | 890.220 | 174.600 | 890.220 | 175.700 | 890.220 | 176.800 | 890.220 | 177.900 | 890.220 | 178.990 |
| GR | 892.000 | 179.020 | 892.000 | 214.000 | 895.000 | 279.000 | 900.450 | 365.000 | .000 | .000 |
| SB | 1.050 | 2.490 | 3.000 | .000 | 14.000 | 4.200 | 38.600 | .000 | 890.700 | 890.210 |
| X1 | 2.800 | .000 | .000 | .000 | 68.000 | 68.000 | 68.000 | .000 | .000 | .000 |
| X2 | .000 | .000 | 1.000 | 895.000 | 898.660 | .000 | .000 | .000 | .000 | .000 |
| X3 | 10.000 | .000 | .000 | .000 | .000 | .000 | .000 | 898.660 | 898.660 | .000 |
| BT | 19.000 | .000 | 902.470 | 902.470 | 75.000 | 900.150 | 895.000 | 164.900 | 898.900 | 890.220 |
| BT | 166.000 | 898.900 | 892.450 | 167.100 | 898.890 | 894.210 | 168.200 | 898.890 | 894.450 | 169.300 |
| BT | 898.870 | 894.200 | 170.400 | 898.870 | 892.450 | 170.500 | 898.860 | 890.210 | 173.500 | 898.860 |
| BT | 890.210 | 174.600 | 898.850 | 892.450 | 175.700 | 898.850 | 894.200 | 176.800 | 898.840 | 894.450 |
| BT | 177.900 | 898.840 | 894.200 | 178.990 | 898.830 | 892.460 | 179.020 | 898.830 | 890.220 | 214.000 |
| BT | 899.660 | 892.000 | 279.000 | 899.260 | 895.000 | 365.000 | 900.450 | 900.450 | .000 | .000 |
| NC | .000 | .000 | .040 | .800 | .900 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | 7.100 | 7.100 | .000 | .000 | .000 | 92.000 | 146.000 | .000 | .000 |
| X1 | 2.900 | 9.000 | 91.000 | 173.000 | 10.000 | 30.000 | 20.000 | .000 | -1.000 | .000 |
| GR | 900.000 | .000 | 898.000 | 28.000 | 896.000 | 54.000 | 894.000 | 91.000 | 892.000 | 119.000 |
| GR | 894.000 | 173.000 | 896.000 | 186.000 | 898.000 | 215.000 | 900.400 | 240.000 | .000 | .000 |
| ET | .000 | .000 | 1.400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 2.950 | .000 | .000 | .000 | 40.000 | 150.000 | 100.000 | .000 | .000 | .000 |
| X1 | 3.000 | 12.000 | 63.000 | 72.000 | 264.000 | 15.000 | 259.000 | .000 | .000 | .000 |
| GR | 898.700 | .000 | 896.400 | 25.000 | 894.900 | 50.000 | 894.600 | 63.000 | 893.300 | 64.000 |
| GR | 893.200 | 67.000 | 893.600 | 71.000 | 894.600 | 72.000 | 895.500 | 100.000 | 896.700 | 125.000 |
| GR | 898.200 | 143.000 | 899.800 | 164.000 | .000 | .000 | .000 | .000 | .000 | .000 |
| NC | .060 | .060 | .035 | .300 | .500 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | .000 | .400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 3.500 | 14.000 | 135.000 | 146.000 | 710.000 | 615.000 | 750.000 | .000 | -1.300 | .000 |
| GR | 906.000 | .000 | 904.000 | 66.000 | 903.000 | 91.000 | 902.800 | 116.000 | 902.100 | 135.000 |
| GR | 901.300 | 136.000 | 900.500 | 140.000 | 901.400 | 143.000 | 901.800 | 146.000 | 902.400 | 166.000 |
| GR | 903.100 | 191.000 | 904.100 | 216.000 | 905.300 | 241.000 | 906.500 | 255.000 | .000 | .000 |
| X1 | 3.750 | 10.000 | 281.000 | 291.000 | 195.000 | 265.000 | 250.000 | .000 | .000 | .000 |
| GR | 904.400 | .000 | 904.000 | 255.000 | 902.000 | 280.000 | 901.200 | 281.000 | 899.900 | 285.000 |
| GR | 899.800 | 288.000 | 901.700 | 291.000 | 902.000 | 315.000 | 904.000 | 350.000 | 906.000 | 387.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4.000 | 14.000 | 135.000 | 146.000 | 230.000 | 245.000 | 265.000 | .000 | .000 | .000 |
| GR | 906.000 | .000 | 904.000 | 66.000 | 903.000 | 91.000 | 902.300 | 116.000 | 902.100 | 135.000 |
| GR | 901.300 | 136.000 | 900.500 | 140.000 | 901.400 | 143.000 | 901.800 | 146.000 | 902.400 | 166.000 |
| GR | 903.100 | 191.000 | 904.100 | 216.000 | 905.300 | 241.000 | 906.500 | 255.000 | .000 | .000 |
| | | | | | | | | | | |
| QT | 2.000 | 433.000 | 433.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| NC | .000 | .000 | .025 | .600 | .800 | .000 | .000 | .000 | .000 | .000 |
| X1 | 4.250 | 43.000 | 144.250 | 167.750 | 50.000 | 50.000 | 50.000 | .000 | .000 | .000 |
| X3 | 10.000 | .000 | .000 | .000 | .000 | .000 | .000 | 903.300 | 903.300 | .000 |
| GR | 906.880 | .000 | 904.800 | 50.000 | 904.100 | 107.000 | 900.900 | 143.250 | 900.800 | 144.250 |
| GR | 900.800 | 144.350 | 900.800 | 144.750 | 900.800 | 146.000 | 900.800 | 147.250 | 900.800 | 147.650 |
| GR | 900.800 | 147.750 | 900.800 | 149.250 | 900.800 | 149.350 | 900.800 | 149.750 | 900.800 | 151.000 |
| GR | 900.800 | 152.250 | 900.800 | 152.650 | 900.800 | 152.750 | 900.800 | 154.250 | 900.800 | 154.350 |
| GR | 900.800 | 154.750 | 900.800 | 156.000 | 900.800 | 157.250 | 900.800 | 157.650 | 900.800 | 157.750 |
| GR | 900.800 | 159.250 | 900.800 | 159.350 | 900.800 | 159.750 | 900.800 | 161.000 | 900.800 | 162.250 |
| GR | 900.800 | 162.650 | 900.800 | 162.750 | 900.800 | 164.250 | 900.800 | 164.350 | 900.800 | 164.750 |
| GR | 900.800 | 166.000 | 900.800 | 167.250 | 900.810 | 167.650 | 900.810 | 167.750 | 900.900 | 168.750 |
| GR | 903.000 | 200.000 | 904.300 | 250.000 | 908.440 | 377.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| SB | 1.050 | 3.330 | 3.000 | .000 | 23.500 | 8.000 | 34.000 | .000 | 900.900 | 900.800 |
| X1 | 4.500 | .000 | .000 | .000 | 60.000 | 60.000 | 60.000 | .000 | .000 | .000 |
| X2 | .000 | .000 | 1.000 | 903.300 | 905.010 | .000 | .000 | .000 | .000 | .000 |
| X3 | 10.000 | .000 | .000 | .000 | .000 | .000 | .000 | 905.010 | 905.600 | .000 |
| BT | 43.000 | .000 | 906.880 | 906.880 | 50.000 | 905.540 | 904.800 | 107.000 | 905.010 | 904.100 |
| BT | 143.250 | 905.190 | 900.900 | 144.250 | 905.190 | 900.800 | 144.350 | 905.190 | 901.220 | 144.750 |
| BT | 905.200 | 903.000 | 146.000 | 905.220 | 903.220 | 147.250 | 905.230 | 903.000 | 147.650 | 905.240 |
| BT | 901.220 | 147.750 | 905.250 | 900.800 | 149.250 | 905.260 | 900.800 | 149.350 | 905.280 | 901.220 |
| BT | 149.750 | 905.290 | 903.000 | 151.000 | 905.300 | 903.220 | 152.250 | 905.310 | 903.000 | 152.650 |
| BT | 905.320 | 901.220 | 152.750 | 905.340 | 900.800 | 154.250 | 905.350 | 900.800 | 154.350 | 905.360 |
| BT | 901.220 | 154.750 | 905.370 | 903.000 | 156.000 | 905.380 | 903.220 | 157.250 | 905.400 | 903.000 |
| BT | 157.650 | 905.410 | 901.220 | 157.750 | 905.420 | 900.800 | 159.250 | 905.430 | 900.800 | 159.350 |
| BT | 905.440 | 901.220 | 159.750 | 905.460 | 903.000 | 161.000 | 905.470 | 903.220 | 162.250 | 905.480 |
| BT | 903.000 | 162.650 | 905.490 | 901.220 | 162.750 | 905.500 | 900.800 | 164.250 | 905.520 | 900.800 |
| BT | 164.350 | 905.530 | 901.220 | 164.750 | 905.540 | 903.000 | 166.000 | 905.550 | 903.220 | 167.250 |
| BT | 905.560 | 903.000 | 167.650 | 905.580 | 901.220 | 167.750 | 905.590 | 900.800 | 168.750 | 905.600 |
| BT | 900.900 | 200.000 | 906.060 | 903.000 | 250.000 | 906.600 | 904.300 | 377.000 | 908.440 | 908.440 |
| | | | | | | | | | | |
| NC | .000 | .000 | .040 | .400 | .600 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | .000 | 1.400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 4.750 | 8.000 | 163.000 | 176.000 | 110.000 | 20.000 | 60.000 | .000 | .000 | .000 |
| GR | 906.880 | .000 | 906.200 | 44.000 | 904.000 | 80.000 | 902.200 | 163.000 | 901.300 | 170.000 |
| GR | 902.300 | 176.000 | 904.000 | 262.000 | 908.500 | 290.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| QT | 2.000 | 323.000 | 323.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 125.000 | 332.000 | .000 | .000 |
| X1 | 5.000 | 15.000 | 214.000 | 232.000 | 685.000 | 790.000 | 745.000 | .000 | .000 | .000 |
| GR | 906.000 | .000 | 908.000 | 125.000 | 906.000 | 135.000 | 904.000 | 145.000 | 903.800 | 157.000 |
| GR | 903.500 | 182.000 | 903.600 | 207.000 | 903.100 | 214.000 | 902.600 | 225.000 | 903.100 | 229.000 |
| GR | 903.600 | 232.000 | 903.600 | 257.000 | 904.500 | 282.000 | 905.400 | 307.000 | 906.200 | 332.000 |
| | | | | | | | | | | |
| ET | .000 | 9.100 | 9.100 | 9.100 | 9.100 | .000 | .000 | .000 | 110.000 | 330.000 |
| X1 | 5.500 | 19.000 | 170.000 | 270.000 | 280.000 | 305.000 | 285.000 | .000 | .000 | .000 |
| GR | 906.000 | .000 | 908.000 | 110.000 | 906.000 | 118.000 | 904.000 | 126.000 | 902.800 | 145.000 |
| GR | 902.900 | 170.000 | 902.600 | 195.000 | 902.700 | 220.000 | 902.600 | 245.000 | 903.000 | 270.000 |
| GR | 903.100 | 295.000 | 903.000 | 320.000 | 903.700 | 345.000 | 904.000 | 370.000 | 904.000 | 395.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 904.400 | 420.000 | 905.100 | 445.000 | 906.000 | 465.000 | 906.400 | 473.000 | .000 | .000 |
| | | | | | | | | | | |
| NC | .000 | .000 | .040 | .600 | .950 | .000 | .000 | .000 | .000 | .000 |
| QT | 2.000 | 180.000 | 180.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | 7.100 | 7.100 | .000 | .000 | .000 | 113.000 | 175.000 | .000 | .000 |
| X1 | 6.000 | 15.000 | 160.000 | 170.000 | 160.000 | 170.000 | 160.000 | .000 | .000 | .000 |
| GR | 905.200 | .000 | 905.300 | 25.000 | 905.700 | 50.000 | 905.400 | 75.000 | 906.000 | 100.000 |
| GR | 905.700 | 125.000 | 905.100 | 160.000 | 905.300 | 170.000 | 905.900 | 172.000 | 906.100 | 175.000 |
| GR | 906.900 | 200.000 | 907.400 | 225.000 | 907.600 | 250.000 | 908.800 | 275.000 | 909.500 | 300.000 |
| | | | | | | | | | | |
| ET | .000 | .000 | .400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 6.900 | 9.000 | 10.000 | 16.250 | 80.000 | 80.000 | 80.000 | .000 | .000 | .000 |
| GR | 909.000 | .000 | 906.700 | 8.000 | 905.500 | 10.000 | 905.300 | 11.000 | 905.300 | 16.000 |
| GR | 905.500 | 16.250 | 906.200 | 17.000 | 906.200 | 19.000 | 910.000 | 32.000 | .000 | .000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 75.000 | 208.000 | .000 | .000 |
| X1 | 6.940 | 13.000 | 95.000 | 105.000 | 20.000 | 20.000 | 20.000 | .000 | -1.020 | .000 |
| GR | 909.800 | .000 | 911.300 | 25.000 | 912.200 | 50.000 | 912.800 | 75.000 | 907.600 | 95.000 |
| GR | 906.700 | 97.000 | 906.400 | 100.000 | 906.600 | 102.000 | 907.500 | 105.000 | 916.200 | 134.000 |
| GR | 916.600 | 159.000 | 917.300 | 184.000 | 917.400 | 209.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | 7.100 | 7.100 | .000 | 75.000 | 208.000 | .000 | .000 |
| X1 | 6.950 | 13.000 | 95.000 | 105.000 | 40.000 | 40.000 | 40.000 | .000 | -.870 | .000 |
| GR | 909.800 | .000 | 911.300 | 25.000 | 912.200 | 50.000 | 912.800 | 75.000 | 907.600 | 95.000 |
| GR | 906.700 | 97.000 | 906.400 | 100.000 | 906.600 | 102.000 | 907.500 | 105.000 | 916.200 | 134.000 |
| GR | 916.600 | 159.000 | 917.300 | 184.000 | 917.400 | 209.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | .000 | .000 | .000 | 75.000 | 208.000 | .000 | .000 |
| X1 | 7.000 | .000 | .000 | .000 | 225.000 | 225.000 | 225.000 | .000 | .900 | .000 |
| | | | | | | | | | | |
| ET | .000 | .000 | .400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 8.000 | 10.000 | 5.000 | 55.000 | 578.000 | 578.000 | 578.000 | .000 | .000 | .000 |
| X5 | 2.000 | 915.110 | 915.110 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| GR | 917.700 | .000 | 917.400 | 5.000 | 910.100 | 26.000 | 909.300 | 27.000 | 909.300 | 30.000 |
| GR | 909.100 | 33.500 | 909.600 | 34.300 | 916.700 | 55.000 | 917.300 | 60.000 | 918.100 | 80.000 |
| | | | | | | | | | | |
| QT | 2.000 | 139.000 | 139.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 9.000 | 10.000 | 70.500 | 95.500 | 185.000 | 185.000 | 185.000 | .000 | .000 | .000 |
| GR | 920.200 | .000 | 920.100 | 25.000 | 919.700 | 40.000 | 918.700 | 65.000 | 913.500 | 70.500 |
| GR | 910.200 | 80.500 | 910.200 | 85.500 | 913.500 | 95.500 | 920.000 | 116.000 | 921.000 | 161.000 |
| | | | | | | | | | | |
| NC | .000 | .000 | .000 | .600 | .950 | .000 | .000 | .000 | .000 | .000 |
| ET | .000 | .000 | 1.400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 10.000 | 10.000 | 70.500 | 95.500 | 8.600 | 8.600 | 8.600 | .000 | .000 | .000 |
| GR | 920.200 | .000 | 920.100 | 25.000 | 919.700 | 40.000 | 918.700 | 65.000 | 915.500 | 70.500 |
| GR | 914.500 | 80.500 | 914.500 | 85.500 | 915.500 | 95.500 | 920.000 | 116.000 | 921.000 | 161.000 |
| | | | | | | | | | | |
| ET | .000 | 7.100 | 7.100 | .000 | .000 | .000 | 1.000 | 108.000 | .000 | .000 |
| X1 | 11.000 | 8.000 | 37.000 | 60.000 | 179.000 | 179.000 | 179.000 | .000 | .000 | .000 |
| GR | 920.900 | .000 | 918.800 | 37.000 | 915.100 | 50.000 | 915.100 | 53.000 | 918.000 | 60.000 |
| GR | 918.300 | 90.000 | 920.000 | 185.000 | 920.900 | 190.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| X1 | 11.900 | 7.000 | 15.000 | 43.000 | 300.000 | 300.000 | 300.000 | .000 | .000 | .000 |
| GR | 924.400 | .000 | 920.000 | 15.000 | 916.100 | 31.500 | 916.100 | 34.500 | 919.400 | 43.000 |
| GR | 920.000 | 68.000 | 922.000 | 88.000 | .000 | .000 | .000 | .000 | .000 | .000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ET | .000 | .000 | 1.400 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 12.000 | 8.000 | 70.000 | 110.000 | 100.000 | 100.000 | 95.000 | .000 | .000 | .000 |
| GR | 923.400 | .000 | 922.000 | 40.000 | 920.400 | 70.000 | 920.200 | 100.000 | 920.400 | 110.000 |
| GR | 920.900 | 135.000 | 922.000 | 195.000 | 924.000 | 310.000 | .000 | .000 | .000 | .000 |
| EJ | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

1

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

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 *PROF 1

 CCHV=    .300 CEHV=    .500
 *SECNO 1.000
      1.00     4.70   882.50      .00   882.50   882.80      .30      .00      .00   882.20
      433.       0.     433.       0.       1.      98.       0.       0.       0.   885.60
       .00      .23     4.40      .00     .080     .030     .080     .000   877.80    12.57
    .001903       0.       0.       0.        0        0        0      .00    41.14    53.71
0
 *SECNO 1.250

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      1.25     3.55   885.08   885.08      .00   886.19     1.11      .23      .40   887.40
      433.       0.     433.       0.       0.      51.       0.       0.       0.   888.70
       .00      .00     8.44      .00     .080     .030     .080     .000   881.53    25.68
    .011041      60.      60.      60.       20       15        0      .00    23.48    49.16
0
 *SECNO 1.500
  WATER EL=X5 CARD=   889.290
      1.50     6.66   889.29      .00      .00   889.43      .14      .10      .29   888.50
      433.       1.     432.       0.       4.     146.       0.       0.       0.   889.80
       .01      .25     2.96      .00     .080     .030     .080     .000   882.63    10.13
    .000604      60.      60.      60.        0        0        0      .00    45.77    55.89
0
 *SECNO 2.000
      2.00     6.23   889.29      .00      .00   889.44      .15      .01      .01   888.66
      433.       1.     432.       0.       4.     138.       0.       0.       0.   889.96
       .01      .23     3.13      .00     .080     .030     .080     .000   883.06     8.51
    .000708      15.      15.      15.        2        0        0      .00    47.04    55.55
0
 *SECNO 2.100
      2.10     6.26   889.32      .00      .00   889.47      .15      .03      .00   888.66
      433.       1.     432.       0.       4.     139.       0.       0.       0.   889.96
       .01      .23     3.11      .00     .080     .030     .080     .000   883.06     8.08
    .000695      40.      37.      30.        0        0        0      .00    47.52    55.60
0
1
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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 2.250

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.25 | 4.85 | 889.45 | .00 | .00 | 889.68 | .22 | .17 | .04 | 889.50 |
| 433. | 0. | 433. | 0. | 0. | 114. | 0. | 1. | 0. | 889.80 |
| .02 | .00 | 3.81 | .00 | .080 | .030 | .080 | .000 | 884.60 | 10.29 |
| .001800 | 154. | 159. | 157. | 2 | 0 | 0 | .00 | 45.37 | 55.66 |

0

*SECNO 2.400

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.40 | 4.15 | 889.45 | .00 | .00 | 889.86 | .41 | .09 | .09 | 890.20 |
| 433. | 0. | 433. | 0. | 0. | 84. | 0. | 1. | 0. | 890.50 |
| .03 | .00 | 5.13 | .00 | .080 | .030 | .080 | .000 | 885.30 | 14.45 |
| .003918 | 35. | 36. | 36. | 2 | 0 | 0 | .00 | 38.52 | 52.97 |

0

*SECNO 2.450

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.45 | 3.98 | 889.58 | .00 | .00 | 890.06 | .48 | .16 | .04 | 890.50 |
| 433. | 0. | 433. | 0. | 0. | 78. | 0. | 1. | 0. | 890.80 |
| .03 | .00 | 5.56 | .00 | .080 | .030 | .080 | .000 | 885.60 | 15.49 |
| .004839 | 35. | 37. | 35. | 2 | 0 | 0 | .00 | 36.80 | 52.29 |

0

*SECNO 2.500

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.50 | 3.78 | 890.08 | .00 | .00 | 890.56 | .48 | .50 | .00 | 892.50 |
| 433. | 0. | 433. | 0. | 0. | 78. | 0. | 1. | 0. | 892.00 |
| .03 | .00 | 5.57 | .00 | .080 | .030 | .080 | .000 | 886.30 | 103.03 |
| .007237 | 84. | 86. | 85. | 2 | 0 | 0 | .00 | 49.98 | 153.01 |

0

*SECNO 2.550

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.55 | 3.83 | 890.33 | .00 | .00 | 890.78 | .45 | .21 | .01 | 892.70 |
| 433. | 0. | 433. | 0. | 0. | 81. | 0. | 1. | 1. | 892.20 |
| .03 | .00 | 5.38 | .00 | .080 | .030 | .080 | .000 | 886.50 | 101.59 |
| .006734 | 18. | 30. | 40. | 3 | 0 | 0 | .00 | 51.79 | 153.38 |

0

*SECNO 2.560

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.56 | 3.84 | 890.64 | .00 | .00 | 891.08 | .45 | .30 | .00 | 893.00 |
| 433. | 0. | 433. | 0. | 0. | 81. | 0. | 1. | 1. | 892.50 |
| .04 | .00 | 5.36 | .00 | .080 | .030 | .080 | .000 | 886.80 | 101.46 |
| .006689 | 26. | 45. | 60. | 0 | 0 | 0 | .00 | 51.96 | 153.42 |

0

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 2.570

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.57 | 3.77 | 890.77 | .00 | .00 | 891.25 | .48 | .15 | .02 | 893.20 |
| 433. | 0. | 433. | 0. | 0. | 78. | 0. | 1. | 1. | 892.70 |
| .04 | .00 | 5.55 | .00 | .080 | .030 | .080 | .000 | 887.00 | 102.86 |
| .007175 | 13. | 22. | 30. | 0 | 0 | 0 | .00 | 50.20 | 153.06 |

0

```
*SECNO 2.600

3470 ENCROACHMENT STATIONS=      68.5     120.5  TYPE=     1  TARGET=      52.000
     2.60     1.84   890.94      .00      .00   891.44      .50      .18      .01 99999.60
     433.       0.     433.       0.       0.      76.       0.       1.       1.  99999.60
      .04      .00     5.66      .00     .080     .030     .080     .000   889.10    68.50
  .008170      13.      23.      30.        1        0        0      .00    52.00   120.50
0
CCHV=    .300 CEHV=    .500
*SECNO 2.700

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      895.00 ELREA=      895.00

     2.70     3.07   893.28   893.28      .00   894.84     1.55      .58      .53   890.22
     433.       0.     433.       0.       0.      43.       0.       2.       1.    892.00
      .04      .00     9.99      .00     .080     .025     .080     .000   890.21   164.90
  .007410     130.      75.      60.       20       14        0      .00    14.12   179.02
0

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    892.22 ,NOT    893.28 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      2.49      3.00       .00     14.00      4.20     38.60      .00    890.70    890.21

*SECNO 2.800

3301 HV CHANGED MORE THAN HVINS

1
 02-07-92     08:42:51                                                                                PAGE


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


PRESSURE FLOW


 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC     ELTRD
                                                                AREA
    898.15    897.09       .00        0.      433.       39.       42.      895.00    898.66
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      898.66 ELREA=      898.66

     2.80      7.69   897.90      .00      .00   898.15      .25     3.31      .00   890.22
     433.        0.     433.       0.       0.     109.       0.       2.       1.   892.00
      .04       .00     3.99      .00     .000     .025     .000     .000   890.21   164.90
  .000347       68.     68.       68.        2        0        0      .00    14.12   179.02
0
 CCHV=     .800 CEHV=     .900
 *SECNO 2.900

 3470 ENCROACHMENT STATIONS=      92.0     146.0  TYPE=      1  TARGET=      54.000
     2.90      7.31   898.31      .00      .00   898.33      .02      .00      .18 99999.00
     433.        0.     433.       0.       0.     355.       0.       2.       1. 99999.00
      .05       .00     1.22      .00     .080     .040     .080     .000   891.00    92.00
  .000114       10.     20.       30.        2        0        0      .00    54.00   146.00
0
 *SECNO 2.950
     2.95      7.35   898.35      .00      .00   898.35      .01      .00      .01   893.00
     433.        54.     352.      27.      234.     520.     134.       3.       1.   893.00
      .10       .23      .68      .20      .080     .040     .080     .000   891.00     9.26
  .000028       40.     100.      150.       1        0        0      .00   219.68   228.94
0
 *SECNO 3.000
     3.00      5.16   898.36      .00      .00   898.40      .05      .02      .04   894.60
     433.        140.    124.      169.     135.      44.     166.       6.       2.   894.60
      .13      1.03     2.84      1.02     .080     .040     .080     .000   893.20     3.72
  .000821       264.    259.       15.        0        0        0      .00   141.35   145.07
0
 CCHV=     .300 CEHV=     .500
1
  02-07-92      08:42:51                                                              PAGE


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


 *SECNO 3.500
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
     3.50      3.04   902.24   902.24      .00   902.72      .47     1.40      .21   900.80
     433.        92.     199.      142.      40.      26.      51.       9.       4.   900.50
      .17      2.27     7.66      2.77     .060     .035     .060     .000   899.20    77.44
  .010971       710.    750.      615.       20       14        0      .00   124.61   202.06
0
 *SECNO 3.750
     3.75      4.18   903.98      .00      .00   904.27      .29     1.50      .06   901.20
     433.        42.     209.      181.      27.      36.      85.      10.       4.   901.70
      .19      1.59     5.86      2.13     .060     .035     .060     .000   899.80   255.33
  .003843       195.    250.      265.        2        0        0      .00    94.21   349.54

0
```

```
*SECNO 4.000
     4.00     4.21   904.71      .00      .00   904.76      .05      .42      .07   902.10
     433.     160.     114.     158.     138.      39.     133.      12.       5.   901.80
      .23     1.16     2.94     1.19     .060     .035     .060     .000   900.50    42.41
  .000944     230.     265.     245.        3        0        0      .00   186.41   228.81
0
CCHV=    .600 CEHV=    .800
*SECNO 4.250
     4.25     3.93   904.73      .00      .00   904.81      .07      .03      .02   900.80
     433.      71.     253.     110.     101.      92.     148.      12.       5.   900.81
      .24      .70     2.73      .74     .060     .025     .060     .000   900.80    55.33
  .000340      50.      50.      50.        2        0        0      .00   208.00   263.33
0

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    902.18 ,NOT    904.73 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      3.33      3.00       .00     23.50      8.00     34.00       .00    900.90    900.80

*SECNO 4.500
PRESSURE AND WEIR FLOW

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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC     ELTRD
                                                                  AREA
    913.12    905.49       .00      263.      170.       34.       37.      903.30    905.01


     4.50     5.21   906.01      .00      .00   906.03      .02     1.22      .00   900.80
     433.     100.     200.     133.     238.     122.     294.      13.       6.   900.81
      .26      .42     1.64      .45     .060     .025     .060     .000   900.80    21.02
  .000084      60.      60.      60.        2        0        7      .00   281.30   302.32
0
CCHV=    .400 CEHV=    .600
*SECNO 4.750
     4.75     4.73   906.03      .00      .00   906.04      .01      .01      .00   902.20
     433.     182.      74.     176.     276.      55.     259.      13.       6.   902.30
      .28      .66     1.35      .68     .060     .040     .060     .000   901.30    46.96
  .000194     110.      60.      20.        0        0        0      .00   227.60   274.56
```

0
*SECNO 5.000

3470 ENCROACHMENT STATIONS= 125.0 332.0 TYPE= 1 TARGET= 207.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.00 | 3.59 | 906.19 | .00 | .00 | 906.20 | .01 | .16 | .00 | 903.10 |
| 323. | 141. | 79. | 103. | 189. | 59. | 159. | 22. | 10. | 903.60 |
| .51 | .75 | 1.34 | .65 | .060 | .040 | .060 | .000 | 902.60 | 134.05 |
| .000273 | 685. | 745. | 790. | 2 | 0 | 0 | .00 | 197.65 | 331.70 |

0
*SECNO 5.500

3470 ENCROACHMENT STATIONS= 110.0 330.0 TYPE= 1 TARGET= 220.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5.50 | 3.63 | 906.23 | .00 | .00 | 906.23 | .00 | .03 | .00 | 902.90 |
| 323. | 52. | 204. | 67. | 148. | 352. | 190. | 26. | 11. | 903.00 |
| .68 | .35 | .58 | .35 | .060 | .040 | .060 | .000 | 902.60 | 117.08 |
| .000046 | 280. | 285. | 305. | 2 | 0 | 0 | .00 | 212.92 | 330.00 |

0
CCHV= .600 CEHV= .950
*SECNO 6.000

3470 ENCROACHMENT STATIONS= 113.0 175.0 TYPE= 1 TARGET= 62.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.00 | 1.13 | 906.23 | .00 | .00 | 906.53 | .30 | .02 | .28 | 905.10 |
| 180. | 114. | 62. | 5. | 35. | 10. | 2. | 27. | 12. | 905.30 |
| .69 | 3.28 | 6.00 | 2.32 | .060 | .040 | .060 | .000 | 905.10 | 113.00 |
| .025049 | 160. | 160. | 170. | 2 | 0 | 0 | .00 | 62.00 | 175.00 |

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1
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 6.900

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.90 | 2.54 | 907.84 | 907.84 | .00 | 908.66 | .82 | 1.51 | .49 | 905.50 |
| 180. | 18. | 130. | 31. | 6. | 16. | 9. | 27. | 12. | 905.50 |
| .69 | 3.17 | 8.27 | 3.34 | .060 | .040 | .060 | .000 | 905.30 | 4.03 |
| .014729 | 80. | 80. | 80. | 3 | 17 | 0 | .00 | 20.59 | 24.62 |

0
*SECNO 6.940

3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.94 | 3.39 | 908.77 | .00 | .00 | 909.10 | .33 | .15 | .29 | 906.58 |
| 180. | 16. | 149. | 15. | 9. | 30. | 9. | 27. | 12. | 906.48 |
| .69 | 1.71 | 4.99 | 1.75 | .060 | .040 | .060 | .000 | 905.38 | 86.57 |
| .004404 | 20. | 20. | 20. | 5 | 0 | 0 | .00 | 26.07 | 112.64 |

0

```
 *SECNO 6.950

 3470 ENCROACHMENT STATIONS=      75.0     208.0  TYPE=     1  TARGET=     133.000
      6.95      3.43    908.96      .00      .00    909.28      .31      .17      .01    906.73
      180.       16.      148.       16.      10.       30.       9.       27.      12.    906.63
       .69      1.68     4.89     1.72     .060      .040     .060     .000    905.53     86.39
    .004138       40.      40.      40.        2         0        0      .00     26.41    112.80
0
 *SECNO 7.000

 3470 ENCROACHMENT STATIONS=      75.0     208.0  TYPE=     1  TARGET=     133.000
      7.00      3.46    909.89      .00      .00    910.20      .31      .92      .00    907.63
      180.       16.      148.       16.      10.       31.       9.       27.      12.    907.53
       .71      1.67     4.84     1.70     .060      .040     .060     .000    906.43     86.30
    .004014      225.     225.     225.        2         0        0      .00     26.58    112.87
0
 *SECNO 8.000
  WATER EL=X5 CARD=   915.110
      8.00      6.01    915.11      .00      .00    915.14      .03      .44      .17    917.40
      180.        0.      180.        0.       0.     128.        0.       28.      12.    916.70
       .82       .00     1.40      .00     .060      .040     .060     .000    909.10     11.59
    .000310      578.     578.     578.        0         0        0      .00     38.78     50.36
0
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        EL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

 *SECNO 9.000
      9.00      4.97    915.17      .00      .00    915.20      .03      .06      .00    913.50
      139.       0.      137.       2.       1.       91.       4.       29.      12.    913.50
       .86       .31     1.50      .37     .060      .040     .060     .000    910.20     68.74
    .000309      185.     185.     185.        2         0        0      .00     32.01    100.75
0
 CCHV=    .600 CEHV=    .950
 *SECNO 10.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
     10.00      1.39    915.89    915.89      .00    916.37      .49      .01      .43    915.50
      139.       0.      138.       0.       0.       25.       0.       29.      12.    915.50
       .86      1.15     5.61     1.25     .060      .040     .060     .000    914.50     69.83
    .023322        9.       9.       9.       20        14        0      .00     27.43     97.26
0
 *SECNO 11.000

 3470 ENCROACHMENT STATIONS=       1.0     108.0  TYPE=     1  TARGET=     107.000
     11.00      3.00    918.10      .00      .00    918.33      .24     1.81      .15    918.80
      139.       0.      139.       0.       0.       36.       0.       29.      13.    918.00
       .87       .00     3.90      .25     .060      .040     .060     .000    915.10     39.46
    .005616      179.     179.     179.        4         0        0      .00     30.46     69.92
```

```
0
 *SECNO 11.900
     11.90      3.33   919.43      .00      .00   919.56      .13     1.16      .06   920.00
      139.        0.     139.       0.       0.      48.       0.      29.      13.    919.40
       .90       .00     2.92      .01     .060     .040     .060     .000   916.10    17.42
   .002831      300.     300.     300.        4        0        0      .00    26.70    44.12
0
 *SECNO 12.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
     12.00       .78   920.98   920.98      .00   921.24      .26      .59      .12   920.40
      139.        5.     119.      15.       3.      27.       8.      29.      13.    920.40
       .91      1.64     4.35     1.77     .060     .040     .060     .000   920.20    59.08
   .022852      100.      95.     100.       20       17        0      .00    80.41   139.49
0
1
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                                                                                  THIS RUN EXECUTED 02-07-92
 ************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
   ERROR CORR -  01,02,03,04,05,06
   MODIFICATION -  50,51,52,53,54,55,56
   IBM-PC-XT VERSION AUGUST 1985
 ************************************************
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```
T1      RANDOLPH DRAIN FLOOD LEVEL STUDY   DEVELOPED CONDITION
T2      STRETCH BETWEEN BECK ROAD AND 6 FT CULVERTS AT LEXINGTON DR
T3      McNEELY & LINCOLN ASSOCIATES, INC. DT: DEC. 06, 1991

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -10.        3.         0.         0.    .000000        .00         .0         0.    882.500       .000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     15.000       .000     -1.000       .000       .000       .000       .000       .000       .000       .000

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 2

 CCHV=    .300 CEHV=    .500
 *SECNO 1.000
  2800 NAT Q1=     99.26  WSEL=    882.50  ENC Q1=    104.13  WSEL=    882.60  RATIO=  -.0490
  NAT Q1=    104.  RATIOS LOB,CH,ROB=   .0015   .9985   .0000  WSEL=    882.60

 3470 ENCROACHMENT STATIONS=      22.0       60.0  TYPE=     4  TARGET=        .002
      1.00      4.70   882.50       .00   882.50   882.80       .30       .00       .00   882.20
      433.       0.     433.        0.       0.      98.        0.        0.        0.    885.60
       .00       .00     4.40       .00      .080     .030      .080      .000   877.80    22.00
    .001928       0.       0.        0.        0        0         0       .00    31.71    53.71
0
 *SECNO 1.250
  2800 NAT Q1=     41.21  WSEL=    885.08  ENC Q1=     43.84  WSEL=    885.18  RATIO=  -.0639
  NAT Q1=     44.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    885.18

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      20.0       57.0  TYPE=     4  TARGET=        .000
      1.25      3.55   885.08   885.08   885.08   886.19      1.11       .23       .40   887.40
      433.       0.     433.        0.       0.      51.        0.        0.        0.    888.70
       .00       .00     8.44       .00      .080     .030      .080      .000   881.53    25.68
    .011041      60.      60.       60.       20       15         0       .00    23.48    49.16
0
 *SECNO 1.500
  WATER EL=X5 CARD=   889.290
  2800 NAT Q1=    176.26  WSEL=    889.29  ENC Q1=    182.41  WSEL=    889.39  RATIO=  -.0349
  NAT Q1=    183.  RATIOS LOB,CH,ROB=   .0029   .9971   .0000  WSEL=    889.39
```

```
3470 ENCROACHMENT STATIONS=      20.0      57.0  TYPE=     4  TARGET=        .003
     1.50     6.66   889.29      .00   889.29   889.43      .14      .10      .29   888.50
     433.       0.     433.       0.       0.     146.       0.       0.       0.   889.80
      .01      .00     2.97      .00     .080     .030     .080     .000   882.63    20.00
   .000623      60.      60.      60.        0        0        0      .00    35.89    55.89
0
1
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 2.000
 2800 NAT Q1=    162.76  WSEL=    889.29  ENC Q1=    168.78  WSEL=    889.39  RATIO=  -.0370
 NAT Q1=    169.  RATIOS LOB,CH,ROB=   .0027   .9973   .0000  WSEL=    889.39

3470 ENCROACHMENT STATIONS=      20.0      57.0  TYPE=     4  TARGET=        .003
     2.00     6.23   889.29      .00   889.29   889.44      .15      .01      .01   888.66
     433.       0.     433.       0.       0.     139.       0.       0.       0.   889.96
      .01      .00     3.13      .00     .080     .030     .080     .000   883.06    20.00
   .000722      15.      15.      15.        0        0        0      .00    35.57    55.57
0
*SECNO 2.100
 2800 NAT Q1=    164.26  WSEL=    889.32  ENC Q1=    170.60  WSEL=    889.42  RATIO=  -.0386
 NAT Q1=    171.  RATIOS LOB,CH,ROB=   .0030   .9970   .0000  WSEL=    889.42

3470 ENCROACHMENT STATIONS=      20.0      57.0  TYPE=     4  TARGET=        .003
     2.10     6.26   889.32      .00   889.32   889.47      .15      .03      .00   888.66
     433.       0.     433.       0.       0.     139.       0.       0.       0.   889.96
      .01      .00     3.11      .00     .080     .030     .080     .000   883.06    20.00
   .000713      40.      37.      30.        0        0        0      .00    35.61    55.61
0
*SECNO 2.250
 2800 NAT Q1=    102.05  WSEL=    889.45  ENC Q1=    107.91  WSEL=    889.55  RATIO=  -.0575
 NAT Q1=    108.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    889.55

3470 ENCROACHMENT STATIONS=      10.0      57.0  TYPE=     4  TARGET=        .000
     2.25     4.85   889.45      .00   889.45   889.68      .22      .17      .04   889.50
     433.       0.     433.       0.       0.     114.       0.       1.       0.   889.80
      .02      .00     3.80      .00     .080     .030     .080     .000   884.60    10.27
   .001793     154.     159.     157.        2        0        0      .00    45.40    55.67
0
*SECNO 2.400
 2800 NAT Q1=     69.18  WSEL=    889.45  ENC Q1=     73.35  WSEL=    889.55  RATIO=  -.0603
 NAT Q1=     73.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    889.55

3470 ENCROACHMENT STATIONS=      10.0      57.0  TYPE=     4  TARGET=        .000
     2.40     4.16   889.46      .00   889.45   889.86      .41      .09      .09   890.20
     433.       0.     433.       0.       0.      85.       0.       1.       0.   890.50
      .03      .00     5.12      .00     .080     .030     .080     .000   885.30    14.43
   .003899      35.      36.      36.        2        0        0      .00    38.56    52.98
```

| SECNO | DEPTH | CWSEL | CRIWS | WSELR | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 2.450
2800 NAT Q1= 62.24 WSEL= 889.58 ENC Q1= 66.13 WSEL= 889.68 RATIO= -.0624
NAT Q1= 66. RATIOS LOB,CH,ROB= .0000 1.0000 .0000 WSEL= 889.68

3470 ENCROACHMENT STATIONS= 10.0 57.0 TYPE= 4 TARGET= .000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.45 | 3.98 | 889.58 | .00 | 889.58 | 890.06 | .48 | .16 | .04 | 890.50 |
| 433. | 0. | 433. | 0. | 0. | 78. | 0. | 1. | 0. | 890.80 |
| .03 | .00 | 5.55 | .00 | .080 | .030 | .080 | .000 | 885.60 | 15.48 |
| .004822 | 35. | 37. | 35. | 2 | 0 | 0 | .00 | 36.83 | 52.30 |

0
*SECNO 2.500
2800 NAT Q1= 50.90 WSEL= 890.08 ENC Q1= 54.46 WSEL= 890.18 RATIO= -.0700
NAT Q1= 54. RATIOS LOB,CH,ROB= .0000 1.0000 .0000 WSEL= 890.18

3470 ENCROACHMENT STATIONS= 40.0 166.0 TYPE= 4 TARGET= .000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.50 | 3.78 | 890.08 | .00 | 890.08 | 890.56 | .48 | .50 | .00 | 892.50 |
| 433. | 0. | 433. | 0. | 0. | 78. | 0. | 1. | 0. | 892.00 |
| .03 | .00 | 5.56 | .00 | .080 | .030 | .080 | .000 | 886.30 | 102.91 |
| .007195 | 84. | 86. | 85. | 2 | 0 | 0 | .00 | 50.13 | 153.04 |

0
*SECNO 2.550
2800 NAT Q1= 52.76 WSEL= 890.33 ENC Q1= 56.42 WSEL= 890.43 RATIO= -.0693
NAT Q1= 56. RATIOS LOB,CH,ROB= .0000 1.0000 .0000 WSEL= 890.43

3470 ENCROACHMENT STATIONS= 40.0 166.0 TYPE= 4 TARGET= .000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.55 | 3.81 | 890.31 | .00 | 890.33 | 890.78 | .46 | .21 | .00 | 892.70 |
| 433. | 0. | 433. | 0. | 0. | 79. | 0. | 1. | 0. | 892.20 |
| .03 | .00 | 5.47 | .00 | .080 | .030 | .080 | .000 | 886.50 | 102.28 |
| .006973 | 18. | 30. | 40. | 2 | 0 | 0 | .00 | 50.92 | 153.20 |

0
*SECNO 2.560
2800 NAT Q1= 52.94 WSEL= 890.64 ENC Q1= 56.65 WSEL= 890.74 RATIO= -.0700
NAT Q1= 57. RATIOS LOB,CH,ROB= .0000 1.0000 .0000 WSEL= 890.74

3470 ENCROACHMENT STATIONS= 40.0 166.0 TYPE= 4 TARGET= .000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.56 | 3.84 | 890.64 | .00 | 890.64 | 891.09 | .45 | .31 | .00 | 893.00 |
| 433. | 0. | 433. | 0. | 0. | 81. | 0. | 1. | 1. | 892.50 |
| .04 | .00 | 5.37 | .00 | .080 | .030 | .080 | .000 | 886.80 | 101.56 |
| .006722 | 26. | 45. | 60. | 2 | 0 | 0 | .00 | 51.84 | 153.39 |

0
1

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 2.570
 2800 NAT Q1=      51.12  WSEL=     890.77  ENC Q1=      54.27  WSEL=     890.87  RATIO=  -.0616
 NAT Q1=      54.  RATIOS LOB,CH,ROB=    .0000  1.0000    .0000  WSEL=     890.87

3470 ENCROACHMENT STATIONS=       40.0      166.0  TYPE=      4  TARGET=         .000
     2.57      3.78    890.78       .00    890.77    891.26       .48       .15       .01    893.20
     433.       0.      433.        0.        0.       78.        0.        1.        1.     892.70
      .04       .00      5.55       .00      .080      .030      .080      .000    887.00    102.84
   .007170      13.       22.       30.         0         0         0       .00     50.22    153.06
0
 *SECNO 2.600

 3470 ENCROACHMENT STATIONS=       68.5      120.5  TYPE=      1  TARGET=        52.000
     2.60      1.85    890.95       .00    890.94    891.44       .49       .17       .01 99999.60
     433.       0.      433.        0.        0.       77.        0.        1.        1.  99999.60
      .04       .00      5.64       .00      .080      .030      .080      .000    889.10     68.50
   .008059      13.       23.       30.         1         0         0       .00     52.00    120.50
0
 CCHV=     .300 CEHV=     .500
 *SECNO 2.700
  2800 NAT Q1=      50.30  WSEL=     893.28  ENC Q1=      53.06  WSEL=     893.38  RATIO=  -.0549
  NAT Q1=      53.  RATIOS LOB,CH,ROB=    .0000  1.0000    .0000  WSEL=     893.38

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      164.9      179.0  TYPE=      4  TARGET=         .000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       895.00 ELREA=       895.00

     2.70      3.07    893.28    893.28    893.28    894.84      1.55       .61       .53    890.22
     433.       0.      433.        0.        0.       43.        0.        1.        1.     892.00
      .04       .00     10.00       .00      .080      .025      .080      .000    890.21    164.90
   .008222     130.       75.       60.        20        14         0       .00     14.12    179.02
0
1
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST
```

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 892.22 ,NOT 893.28 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.05 | 2.49 | 3.00 | .00 | 14.00 | 4.20 | 38.60 | .00 | 890.70 | 890.21 |

*SECNO 2.800
PRESS FLOW BECAUSE EGLWC OF 898.24 EXCEEDS 1.5 DEPTH
2800 NAT Q1= 232.46 WSEL= 897.90 ENC Q1= 237.51 WSEL= 898.00 RATIO= -.0217
NAT Q1= 238. RATIOS LOB,CH,ROB= .0000 1.0000 .0000 WSEL= 898.00
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 164.9 179.0 TYPE= 4 TARGET= .000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 898.66 ELREA= 898.66

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.80 | 7.69 | 897.90 | .00 | 897.90 | 898.15 | .25 | .09 | .39 | 890.22 |
| 433. | 0. | 433. | 0. | 0. | 109. | 0. | 2. | 1. | 892.00 |
| .04 | .00 | 3.99 | .00 | .080 | .025 | .080 | .000 | 890.21 | 164.90 |
| .000529 | 68. | 68. | 68. | 0 | 0 | 0 | .00 | 14.12 | 179.02 |

0
CCHV= .800 CEHV= .900
*SECNO 2.900

3470 ENCROACHMENT STATIONS= 92.0 146.0 TYPE= 1 TARGET= 54.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.90 | 7.31 | 898.31 | .00 | 898.31 | 898.33 | .02 | .00 | .18 | 99999.00 |
| 433. | 0. | 433. | 0. | 0. | 355. | 0. | 2. | 1. | 99999.00 |
| .05 | .00 | 1.22 | .00 | .080 | .040 | .080 | .000 | 891.00 | 92.00 |
| .000114 | 10. | 20. | 30. | 2 | 0 | 0 | .00 | 54.00 | 146.00 |

0
*SECNO 2.950
2800 NAT Q1= 812.74 WSEL= 898.35 ENC Q1= 812.74 WSEL= 898.45 RATIO= .0000
NAT Q1= 840. RATIOS LOB,CH,ROB= .1263 .8090 .0646 WSEL= 898.45

3470 ENCROACHMENT STATIONS= 44.5 197.3 TYPE= 4 TARGET= .032

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.95 | 7.34 | 898.34 | .00 | 898.35 | 898.35 | .01 | .01 | .01 | 893.00 |
| 433. | 49. | 363. | 21. | 189. | 520. | 90. | 3. | 1. | 893.00 |
| .09 | .26 | .70 | .24 | .080 | .040 | .080 | .000 | 891.00 | 44.47 |
| .000030 | 40. | 100. | 150. | 2 | 0 | 0 | .00 | 152.83 | 197.30 |

0
1



| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 3.000
2800 NAT Q1= 151.13 WSEL= 898.36 ENC Q1= 151.13 WSEL= 898.46 RATIO= .0000
NAT Q1= 159. RATIOS LOB,CH,ROB= .3242 .2814 .3944 WSEL= 898.46

```
3470 ENCROACHMENT STATIONS=      24.7      125.2  TYPE=     4  TARGET=        .052
     3.00      5.16   898.36      .00   898.36   898.41      .06       .02       .04   894.60
     433.      135.      130.      168.      115.       44.      149.        6.        1.   894.60
      .13      1.17      2.97      1.13      .080      .040      .080      .000   893.20    24.66
   .000898      264.      259.       15.         2         0         0       .00   100.52   125.17
0
 CCHV=    .300 CEHV=    .500
 *SECNO 3.500
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
     3.50      3.04   902.24   902.24   902.24   902.72      .47      1.50       .21   900.80
     433.       92.      199.      142.       40.       26.       51.        9.        3.   900.50
      .17      2.27      7.66      2.77      .060      .035      .060      .000   899.20    77.44
   .010971      710.      750.      615.       19        14         0       .00   124.61   202.06
0
 *SECNO 3.750
  2800 NAT Q1=      69.84  WSEL=    903.98  ENC Q1=      69.84  WSEL=    903.98  RATIO=    .0000
  NAT Q1=      70.  RATIOS LOB,CH,ROB=    .0984    .4828    .4188  WSEL=    903.98

 3470 ENCROACHMENT STATIONS=     266.5      333.6  TYPE=     4  TARGET=        .004
     3.75      4.17   903.97      .00   903.98   904.27      .30      1.51       .05   901.20
     433.       42.      210.      181.       22.       36.       78.       10.        4.   901.70
      .18      1.92      5.88      2.32      .060      .035      .060      .000   899.80   266.54
   .003869      195.      250.      265.         1         0         0       .00    67.06   333.60
0
 *SECNO 4.000
     4.00      4.22   904.72      .00   904.71   904.77      .05       .42       .08   902.10
     433.      160.      114.      158.      138.       39.      133.       11.        4.   901.80
      .23      1.16      2.94      1.19      .060      .035      .060      .000   900.50    42.51
   .000948      230.      265.      245.         0         0         0       .00   186.24   228.75
0
 CCHV=    .600 CEHV=    .800
 *SECNO 4.250
     4.25      3.94   904.74      .00   904.73   904.81      .07       .03       .02   900.80
     433.       71.      253.      110.      101.       92.      148.       11.        5.   900.81
      .23       .70      2.73       .74      .060      .025      .060      .000   900.80    55.33
   .000340       50.       50.       50.         0         0         0       .00   208.00   263.33
0
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 SPECIAL BRIDGE

 5227 DOWNSTREAM ELEV IS    902.18 ,NOT    904.74 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      1.05      3.33      3.00       .00     23.50      8.00     34.00       .00   900.90    900.80
```

```
*SECNO 4.500
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
    913.13    906.08      .00       264.      169.       34.       37.      903.30    905.01


     4.50      5.21   906.01       .00   906.01   906.03       .02      1.21       .00   900.80
     433.      100.      200.      133.      238.      122.      294.      12.        5.    900.81
      .25       .42      1.64       .45       .060      .025      .060      .000   900.80    21.02
   .000084      60.       60.       60.         0         0         7       .00   281.30   302.32
0
 CCHV=    .400 CEHV=    .600
 *SECNO 4.750
  2800 NAT Q1=    310.73  WSEL=    906.03  ENC Q1=    310.73  WSEL=    906.13  RATIO=    .0000
  NAT Q1=    330.  RATIOS LOB,CH,ROB=    .4232    .1686    .4083  WSEL=    906.13

 3470 ENCROACHMENT STATIONS=      77.7      257.5  TYPE=     4  TARGET=        .059
     4.75      4.73   906.03       .00   906.03   906.04       .01       .01       .00   902.20
     433.      182.       78.      173.      247.       55.      237.      13.        5.    902.30
      .27       .74      1.42       .73       .060      .040      .060      .000   901.30    77.67
   .000215     110.       60.       20.         1         0         0       .00   179.80   257.46
0
 *SECNO 5.000

 3470 ENCROACHMENT STATIONS=     125.0      332.0  TYPE=     1  TARGET=     207.000
     5.00      3.60   906.20       .00   906.19   906.21       .01       .17       .00   903.10
     323.      141.       79.      103.      190.       59.      160.      21.        8.    903.60
      .51       .74      1.34       .65       .060      .040      .060      .000   902.60   134.00
   .000269     685.      745.      790.         2         0         0       .00   197.98   331.99
0
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        EV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *SECNO 5.500

 3470 ENCROACHMENT STATIONS=     110.0      330.0  TYPE=     1  TARGET=     220.000
     5.50      3.64   906.24       .00   906.23   906.24       .00       .03       .00   902.90
     323.       52.      204.       67.      149.      353.      190.      24.       10.    903.00
      .67       .35       .58       .35       .060      .040      .060      .000   902.60   117.05
   .000045     280.      285.      305.         2         0         0       .00   212.95   330.00
```

0
 CCHV= .600 CEHV= .950
 *SECNO 6.000

 3470 ENCROACHMENT STATIONS= 113.0 175.0 TYPE= 1 TARGET= 62.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.00 | 1.14 | 906.24 | .00 | 906.23 | 906.53 | .29 | .02 | .27 | 905.10 |
| 180. | 114. | 62. | 5. | 35. | 10. | 2. | 26. | 10. | 905.30 |
| .68 | 3.24 | 5.93 | 2.30 | .060 | .040 | .060 | .000 | 905.10 | 113.00 |
| .024174 | 160. | 160. | 170. | 2 | 0 | 0 | .00 | 62.00 | 175.00 |

0
 *SECNO 6.900

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.90 | 2.54 | 907.84 | 907.84 | 907.84 | 908.66 | .82 | 1.49 | .50 | 905.50 |
| 180. | 18. | 130. | 31. | 6. | 16. | 9. | 26. | 10. | 905.50 |
| .68 | 3.17 | 8.28 | 3.34 | .060 | .040 | .060 | .000 | 905.30 | 4.03 |
| .014735 | 80. | 80. | 80. | 5 | 17 | 0 | .00 | 20.59 | 24.62 |

0
 *SECNO 6.940

 3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6.94 | 3.39 | 908.77 | .00 | 908.77 | 909.10 | .33 | .15 | .29 | 906.58 |
| 180. | 16. | 149. | 15. | 9. | 30. | 9. | 26. | 10. | 906.48 |
| .68 | 1.71 | 4.99 | 1.75 | .060 | .040 | .060 | .000 | 905.38 | 86.57 |
| .004401 | 20. | 20. | 20. | 5 | 0 | 0 | .00 | 26.08 | 112.64 |

0
 *SECNO 6.950

 3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000
1
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | KLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 6.95 | 3.43 | 908.96 | .00 | 908.96 | 909.28 | .31 | .17 | .01 | 906.73 |
| 180. | 16. | 148. | 16. | 10. | 30. | 9. | 26. | 10. | 906.63 |
| .69 | 1.68 | 4.89 | 1.72 | .060 | .040 | .060 | .000 | 905.53 | 86.39 |
| .004138 | 40. | 40. | 40. | 2 | 0 | 0 | .00 | 26.41 | 112.80 |

0
 *SECNO 7.000

 3470 ENCROACHMENT STATIONS= 75.0 208.0 TYPE= 1 TARGET= 133.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7.00 | 3.46 | 909.89 | .00 | 909.89 | 910.20 | .31 | .92 | .00 | 907.63 |
| 180. | 16. | 148. | 16. | 10. | 31. | 9. | 26. | 11. | 907.53 |
| .70 | 1.67 | 4.84 | 1.70 | .060 | .040 | .060 | .000 | 906.43 | 86.30 |
| .004013 | 225. | 225. | 225. | 2 | 0 | 0 | .00 | 26.58 | 112.88 |

0

```
*SECNO 8.000
 WATER EL=X5 CARD=   915.110
     8.00     6.01   915.11      .00   915.11   915.14      .03      .44      .17   917.40
      180.       0.     180.       0.       0.     128.       0.      27.      11.   916.70
       .82      .00     1.40      .00     .060     .040     .060     .000   909.10    11.59
   .000310     578.     578.     578.        0        0        0      .00    38.78    50.36
0
 *SECNO 9.000
 2800 NAT Q1=    79.12  WSEL=    915.17  ENC Q1=     79.12  WSEL=    915.17  RATIO=   .0000
 NAT Q1=     79.  RATIOS LOB,CH,ROB=   .0033   .9850   .0117  WSEL=    915.17

 3470 ENCROACHMENT STATIONS=      69.5      98.8  TYPE=     4  TARGET=        .002
     9.00     4.97   915.17      .00   915.17   915.20      .03      .06      .00   913.50
      139.       0.     137.       2.       1.      91.       4.      28.      11.   913.50
       .85      .30     1.50      .41     .060     .040     .060     .000   910.20    69.52
   .000308     185.     185.     185.        0        0        0      .00    29.28    98.79
0
 CCHV=    .600 CEHV=    .950
 *SECNO 10.000
 2800 NAT Q1=      9.10  WSEL=    915.89  ENC Q1=     10.65  WSEL=    915.99  RATIO=  -.1696
 NAT Q1=     11.  RATIOS LOB,CH,ROB=   .0017   .9935   .0048  WSEL=    915.99
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      70.5      95.5  TYPE=     4  TARGET=        .006
1
  02-07-92     08:42:51                                                          PAGE


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


     10.00     1.38   915.88   915.88   915.89   916.38      .50      .01      .44   915.50
      139.       0.     139.       0.       0.      25.       0.      28.      11.   915.50
       .85      .00     5.66      .00     .060     .040     .060     .000   914.50    70.50
   .024807       9.       9.       9.       20       14        0      .00    25.00    95.50
0
 *SECNO 11.000

 3470 ENCROACHMENT STATIONS=       1.0     108.0  TYPE=     1  TARGET=     107.000
     11.00     3.02   918.11      .00   918.10   918.35      .23     1.81      .16   918.80
      139.       0.     139.       0.       0.      36.       1.      28.      11.   918.00
       .86      .00     3.85      .28     .060     .040     .060     .000   915.10    39.40
   .005434     179.     179.     179.        4        0        0      .00    32.43    71.82
0
 *SECNO 11.900
     11.90     3.32   919.42      .00   919.43   919.55      .13     1.15      .06   920.00
      139.       0.     139.       0.       0.      48.       0.      28.      12.   919.40
       .89      .00     2.92      .01     .060     .040     .060     .000   916.10    17.44
   .002850     300.     300.     300.        4        0        0      .00    26.50    43.95
0
```

```
*SECNO 12.000
 2800 NAT Q1=      9.19  WSEL=    920.98  ENC Q1=      9.87  WSEL=    921.08  RATIO=  -.0732
 NAT Q1=     12.  RATIOS LOB,CH,ROB=   .0440   .8244   .1316  WSEL=    921.08
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      70.0     110.0  TYPE=     4  TARGET=        .176
    12.00      .82   921.02   921.02   920.98   921.38      .37      .62      .22   920.40
     139.       0.     139.       0.       0.      29.       0.      28.      12.    920.40
      .90      .00     4.86      .00     .060     .040     .060     .000   920.20    70.00
  .027812     100.      95.     100.       20       11        0      .00    40.00   110.00
0
1
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                                                                                THIS RUN EXECUTED 02-07-92
 ************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
   ERROR CORR -  01,02,03,04,05,06
   MODIFICATION -  50,51,52,53,54,55,56
   IBM-PC-XT VERSION AUGUST 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

McNEELY & LINCOLN ASSOCIATES

SUMMARY PRINTOUT TABLE 110

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 882.50 | .00 | 882.80 | 41.14 | .32 | 432.68 | .00 | .00 | .00 | 22.00 | 60.00 | .00 |
| | 1.000 | 882.50 | .00 | 882.80 | 31.71 | .00 | 433.00 | .00 | .00 | 22.00 | 22.00 | 60.00 | 60.00 |
| * | 1.250 | 885.08 | .00 | 886.19 | 23.48 | .00 | 433.00 | .00 | .00 | .00 | 20.00 | 57.00 | .00 |
| * | 1.250 | 885.08 | .00 | 886.19 | 23.48 | .00 | 433.00 | .00 | .00 | 20.00 | 20.00 | 57.00 | 57.00 |
| * | 1.500 | 889.29 | .00 | 889.43 | 45.77 | .96 | 432.04 | .00 | .00 | .00 | 20.00 | 57.00 | .00 |
| * | 1.500 | 889.29 | .00 | 889.43 | 35.89 | .00 | 433.00 | .00 | .00 | 20.00 | 20.00 | 57.00 | 57.00 |
| | 2.000 | 889.29 | .00 | 889.44 | 47.04 | .83 | 432.17 | .00 | .00 | .00 | 20.00 | 57.00 | .00 |
| | 2.000 | 889.29 | .00 | 889.44 | 35.57 | .00 | 433.00 | .00 | .00 | 20.00 | 20.00 | 57.00 | 57.00 |
| | 2.100 | 889.32 | .00 | 889.47 | 47.52 | .91 | 432.09 | .00 | .00 | .00 | 20.00 | 57.00 | .00 |
| | 2.100 | 889.32 | .00 | 889.47 | 35.61 | .00 | 433.00 | .00 | .00 | 20.00 | 20.00 | 57.00 | 57.00 |
| | 2.250 | 889.45 | .00 | 889.68 | 45.37 | .00 | 433.00 | .00 | .00 | .00 | 10.00 | 57.00 | .00 |
| | 2.250 | 889.45 | .00 | 889.68 | 45.40 | .00 | 433.00 | .00 | .00 | 10.00 | 10.00 | 57.00 | 57.00 |
| | 2.400 | 889.45 | .00 | 889.86 | 38.52 | .00 | 433.00 | .00 | .00 | .00 | 10.00 | 57.00 | .00 |
| | 2.400 | 889.46 | .00 | 889.86 | 38.56 | .00 | 433.00 | .00 | .00 | 10.00 | 10.00 | 57.00 | 57.00 |
| | 2.450 | 889.58 | .00 | 890.06 | 36.80 | .00 | 433.00 | .00 | .00 | .00 | 10.00 | 57.00 | .00 |
| | 2.450 | 889.58 | .00 | 890.06 | 36.83 | .00 | 433.00 | .00 | .00 | 10.00 | 10.00 | 57.00 | 57.00 |
| | 2.500 | 890.08 | .00 | 890.56 | 49.98 | .00 | 433.00 | .00 | .00 | .00 | 40.00 | 166.00 | .00 |
| | 2.500 | 890.08 | .00 | 890.56 | 50.13 | .00 | 433.00 | .00 | .00 | 40.00 | 40.00 | 166.00 | 166.00 |
| | 2.550 | 890.33 | .00 | 890.78 | 51.79 | .00 | 433.00 | .00 | .00 | .00 | 40.00 | 166.00 | .00 |
| | 2.550 | 890.31 | -.02 | 890.78 | 50.92 | .00 | 433.00 | .00 | .00 | 40.00 | 40.00 | 166.00 | 166.00 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2.560 | 890.64 | .00 | 891.08 | 51.96 | .00 | 433.00 | .00 | .00 | .00 | 40.00 | 166.00 | .00 |
| | 2.560 | 890.64 | .00 | 891.09 | 51.84 | .00 | 433.00 | .00 | .00 | 40.00 | 40.00 | 166.00 | 166.00 |
| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
| | 2.570 | 890.77 | .00 | 891.25 | 50.20 | .00 | 433.00 | .00 | .00 | .00 | 40.00 | 166.00 | .00 |
| | 2.570 | 890.78 | .01 | 891.26 | 50.22 | .00 | 433.00 | .00 | .00 | 40.00 | 40.00 | 166.00 | 166.00 |
| | 2.600 | 890.94 | .00 | 891.44 | 52.00 | .00 | 433.00 | .00 | 52.00 | 68.50 | 55.00 | 192.00 | 120.50 |
| | 2.600 | 890.95 | .01 | 891.44 | 52.00 | .00 | 433.00 | .00 | 52.00 | 68.50 | 55.00 | 192.00 | 120.50 |
| * | 2.700 | 893.28 | .00 | 894.84 | 14.12 | .00 | 433.00 | .00 | .00 | .00 | 164.90 | 179.02 | .00 |
| * | 2.700 | 893.28 | .00 | 894.84 | 14.12 | .00 | 433.00 | .00 | .00 | 164.90 | 164.90 | 179.02 | 179.02 |
| * | 2.800 | 897.90 | .00 | 898.15 | 14.12 | .00 | 433.00 | .00 | .00 | .00 | 164.90 | 179.02 | .00 |
| * | 2.800 | 897.90 | .00 | 898.15 | 14.12 | .00 | 433.00 | .00 | .00 | 164.90 | 164.90 | 179.02 | 179.02 |
| | 2.900 | 898.31 | .00 | 898.33 | 54.00 | .00 | 433.00 | .00 | 54.00 | 92.00 | 91.00 | 173.00 | 146.00 |
| | 2.900 | 898.31 | .00 | 898.33 | 54.00 | .00 | 433.00 | .00 | 54.00 | 92.00 | 91.00 | 173.00 | 146.00 |
| | 2.950 | 898.35 | .00 | 898.35 | 219.68 | 53.74 | 352.02 | 27.24 | .00 | .00 | 91.00 | 173.00 | .00 |
| | 2.950 | 898.34 | .00 | 898.35 | 152.83 | 48.65 | 363.04 | 21.31 | .03 | 44.47 | 91.00 | 173.00 | 197.30 |
| | 3.000 | 898.36 | .00 | 898.40 | 141.35 | 139.52 | 124.28 | 169.21 | .00 | .00 | 63.00 | 72.00 | .00 |
| | 3.000 | 898.36 | .00 | 898.41 | 100.52 | 134.63 | 129.94 | 168.43 | .05 | 24.66 | 63.00 | 72.00 | 125.17 |
| * | 3.500 | 902.24 | .00 | 902.72 | 124.61 | 92.07 | 199.15 | 141.78 | .00 | .00 | 135.00 | 146.00 | .00 |
| * | 3.500 | 902.24 | .00 | 902.72 | 124.61 | 92.07 | 199.15 | 141.78 | .00 | .00 | 135.00 | 146.00 | .00 |
| | 3.750 | 903.98 | .00 | 904.27 | 94.21 | 42.47 | 209.42 | 181.11 | .00 | .00 | 281.00 | 291.00 | .00 |
| | 3.750 | 903.97 | -.01 | 904.27 | 67.06 | 41.78 | 210.24 | 180.98 | .00 | 266.54 | 281.00 | 291.00 | 333.61 |
| | 4.000 | 904.71 | .00 | 904.76 | 186.41 | 160.44 | 114.28 | 158.28 | .00 | .00 | 135.00 | 146.00 | .00 |
| | 4.000 | 904.72 | .01 | 904.77 | 186.24 | 160.38 | 114.39 | 158.23 | .00 | .00 | 135.00 | 146.00 | .00 |
| | 4.250 | 904.73 | .00 | 904.81 | 208.00 | 70.92 | 252.57 | 109.51 | .00 | .00 | 144.25 | 167.75 | .00 |
| | 4.250 | 904.74 | .01 | 904.81 | 208.00 | 70.92 | 252.57 | 109.51 | .00 | .00 | 144.25 | 167.75 | .00 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 4.500 | 906.01 | .00 | 906.03 | 281.30 | 99.76 | 200.24 | 133.00 | .00 | .00 | 144.25 | 167.75 | .00 |
| * | 4.500 | 906.01 | .00 | 906.03 | 281.30 | 99.76 | 200.24 | 133.00 | .00 | .00 | 144.25 | 167.75 | .00 |
| | 4.750 | 906.03 | .00 | 906.04 | 227.60 | 182.33 | 74.39 | 176.28 | .00 | .00 | 163.00 | 176.00 | .00 |
| | 4.750 | 906.03 | .00 | 906.04 | 179.80 | 181.61 | 78.34 | 173.05 | .06 | 77.67 | 163.00 | 176.00 | 257.47 |
| | 5.000 | 906.19 | .00 | 906.20 | 197.65 | 141.14 | 78.78 | 103.07 | 207.00 | 125.00 | 214.00 | 232.00 | 332.00 |
| | 5.000 | 906.20 | .01 | 906.21 | 197.98 | 141.12 | 78.66 | 103.22 | 207.00 | 125.00 | 214.00 | 232.00 | 332.00 |
| | 5.500 | 906.23 | .00 | 906.23 | 212.92 | 51.74 | 204.43 | 66.84 | 220.00 | 110.00 | 170.00 | 270.00 | 330.00 |
| | 5.500 | 906.24 | .01 | 906.24 | 212.95 | 51.76 | 204.39 | 66.85 | 220.00 | 110.00 | 170.00 | 270.00 | 330.00 |
| | 6.000 | 906.23 | .00 | 906.53 | 62.00 | 113.52 | 61.93 | 4.54 | 62.00 | 113.00 | 160.00 | 170.00 | 175.00 |
| | 6.000 | 906.24 | .01 | 906.53 | 62.00 | 113.68 | 61.72 | 4.60 | 62.00 | 113.00 | 160.00 | 170.00 | 175.00 |
| * | 6.900 | 907.84 | .00 | 908.66 | 20.59 | 18.25 | 130.42 | 31.33 | .00 | .00 | 10.00 | 16.25 | .00 |
| * | 6.900 | 907.84 | .00 | 908.66 | 20.59 | 18.25 | 130.42 | 31.33 | .00 | .00 | 10.00 | 16.25 | .00 |

| | SECNO | CWSEL | DIPKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6.940 | 908.77 | .00 | 909.10 | 26.07 | 15.80 | 148.88 | 15.32 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| | 6.940 | 908.77 | .00 | 909.10 | 26.08 | 15.81 | 148.87 | 15.32 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| | 6.950 | 908.96 | .00 | 909.28 | 26.41 | 16.21 | 148.12 | 15.67 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| | 6.950 | 908.96 | .00 | 909.28 | 26.41 | 16.21 | 148.12 | 15.67 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| | 7.000 | 909.89 | .00 | 910.20 | 26.58 | 16.41 | 147.75 | 15.85 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| | 7.000 | 909.89 | .00 | 910.20 | 26.58 | 16.41 | 147.74 | 15.85 | 133.00 | 75.00 | 95.00 | 105.00 | 208.00 |
| * | 8.000 | 915.11 | .00 | 915.14 | 38.78 | .00 | 180.00 | .00 | .00 | .00 | 5.00 | 55.00 | .00 |
| * | 8.000 | 915.11 | .00 | 915.14 | 38.78 | .00 | 180.00 | .00 | .00 | .00 | 5.00 | 55.00 | .00 |
| | 9.000 | 915.17 | .00 | 915.20 | 32.01 | .46 | 136.92 | 1.63 | .00 | .00 | 70.50 | 95.50 | .00 |
| | 9.000 | 915.17 | .00 | 915.20 | 29.28 | .35 | 137.09 | 1.56 | .00 | 69.52 | 70.50 | 95.50 | 98.79 |
| * | 10.000 | 915.89 | .00 | 916.37 | 27.43 | .15 | 138.43 | .43 | .00 | .00 | 70.50 | 95.50 | .00 |
| * | 10.000 | 915.88 | .00 | 916.38 | 25.00 | .00 | 139.00 | .00 | .01 | 70.50 | 70.50 | 95.50 | 95.50 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 11.000 | 918.10 | .00 | 918.33 | 30.46 | .00 | 138.88 | .12 | 107.00 | 1.00 | 37.00 | 60.00 | 108.00 |
| | 11.000 | 918.11 | .02 | 918.35 | 32.43 | .00 | 138.81 | .19 | 107.00 | 1.00 | 37.00 | 60.00 | 108.00 |
| | 11.900 | 919.43 | .00 | 919.56 | 26.70 | .00 | 139.00 | .00 | .00 | .00 | 15.00 | 43.00 | .00 |
| | 11.900 | 919.42 | .00 | 919.55 | 26.50 | .00 | 139.00 | .00 | .00 | .00 | 15.00 | 43.00 | .00 |
| * | 12.000 | 920.98 | .00 | 921.24 | 80.41 | 5.22 | 118.78 | 15.00 | .00 | .00 | 70.00 | 110.00 | .00 |
| * | 12.000 | 921.02 | .03 | 921.38 | 40.00 | .00 | 139.00 | .00 | .18 | 70.00 | 70.00 | 110.00 | 110.00 |

1

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION  SECNO=     1.250  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     1.250  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     1.250  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     1.250  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     1.250  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     1.250  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

NOTE     SECNO=     1.500  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=     1.500  PROFILE= 2  WSEL BASED ON X5 CARD

CAUTION  SECNO=     2.700  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     2.700  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     2.700  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     2.700  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     2.700  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     2.700  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=     2.800  PROFILE= 1  HYDRAULIC JUMP D.S.
CAUTION  SECNO=     2.800  PROFILE= 2  HYDRAULIC JUMP D.S.

CAUTION  SECNO=     3.500  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.500  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     3.500  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     3.500  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.500  PROFILE= 2  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=     4.500  PROFILE= 1  HYDRAULIC JUMP D.S.
CAUTION  SECNO=     4.500  PROFILE= 2  HYDRAULIC JUMP D.S.

CAUTION  SECNO=     6.900  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.900  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     6.900  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.900  PROFILE= 2  MINIMUM SPECIFIC ENERGY

NOTE     SECNO=     8.000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=     8.000  PROFILE= 2  WSEL BASED ON X5 CARD

CAUTION  SECNO=    10.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    10.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    10.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    10.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    10.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    10.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=    12.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    12.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    12.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    12.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    12.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    12.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
1
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FLOODWAY DATA, cNEELY & LINCOLN ASSOCIA
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 1.000 | 32. | 98. | 4.4 | 882.5 | 882.5 | .0 |
| 1.250 | 23. | 51. | 8.4 | 885.1 | 885.1 | .0 |
| 1.500 | 36. | 146. | 3.0 | 889.3 | 889.3 | .0 |
| 2.000 | 36. | 139. | 3.1 | 889.3 | 889.3 | .0 |
| 2.100 | 36. | 139. | 3.1 | 889.3 | 889.3 | .0 |
| 2.250 | 45. | 114. | 3.8 | 889.5 | 889.5 | .0 |
| 2.400 | 39. | 85. | 5.1 | 889.5 | 889.5 | .0 |
| 2.450 | 37. | 78. | 5.6 | 889.6 | 889.6 | .0 |
| 2.500 | 50. | 78. | 5.6 | 890.1 | 890.1 | .0 |
| 2.550 | 51. | 79. | 5.5 | 890.3 | 890.3 | .0 |
| 2.560 | 52. | 81. | 5.4 | 890.6 | 890.6 | .0 |
| 2.570 | 50. | 78. | 5.5 | 890.8 | 890.8 | .0 |
| 2.600 | 52. | 77. | 5.6 | 890.9 | 890.9 | .0 |
| 2.700 | 14. | 43. | 10.0 | 893.3 | 893.3 | .0 |
| 2.800 | 14. | 109. | 4.0 | 897.9 | 897.9 | .0 |
| 2.900 | 54. | 355. | 1.2 | 898.3 | 898.3 | .0 |
| 2.950 | 153. | 799. | .5 | 898.3 | 898.3 | .0 |
| 3.000 | 101. | 308. | 1.4 | 898.4 | 898.4 | .0 |
| 3.500 | 125. | 118. | 3.7 | 902.2 | 902.2 | .0 |
| 3.750 | 67. | 135. | 3.2 | 904.0 | 904.0 | .0 |
| 4.000 | 186. | 310. | 1.4 | 904.7 | 904.7 | .0 |
| 4.250 | 208. | 342. | 1.3 | 904.7 | 904.7 | .0 |
| 4.500 | 281. | 655. | .7 | 906.0 | 906.0 | .0 |
| 4.750 | 180. | 540. | .8 | 906.0 | 906.0 | .0 |
| 5.000 | 198. | 408. | .8 | 906.2 | 906.2 | .0 |
| 5.500 | 213. | 692. | .5 | 906.2 | 906.2 | .0 |
| 6.000 | 62. | 47. | 3.8 | 906.2 | 906.2 | .0 |
| 6.900 | 21. | 31. | 5.8 | 907.8 | 907.8 | .0 |
| 6.940 | 26. | 48. | 3.8 | 908.8 | 908.8 | .0 |
| 6.950 | 26. | 49. | 3.7 | 909.0 | 909.0 | .0 |
| 7.000 | 27. | 50. | 3.6 | 909.9 | 909.9 | .0 |
| 8.000 | 39. | 128. | 1.4 | 915.1 | 915.1 | .0 |
| 9.000 | 29. | 96. | 1.4 | 915.2 | 915.2 | .0 |
| 10.000 | 25. | 25. | 5.7 | 915.9 | 915.9 | .0 |
| 11.000 | 32. | 37. | 3.8 | 918.1 | 918.1 | .0 |
| 11.900 | 27. | 48. | 2.9 | 919.4 | 919.4 | .0 |
| 12.000 | 40. | 29. | 4.9 | 921.0 | 921.0 | .0 |

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
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# 72 INCH C.M.P @ LEXINGTON BLVD.

## INLET CONTROL NOMOGRAPH

X-5 CARD WSEL

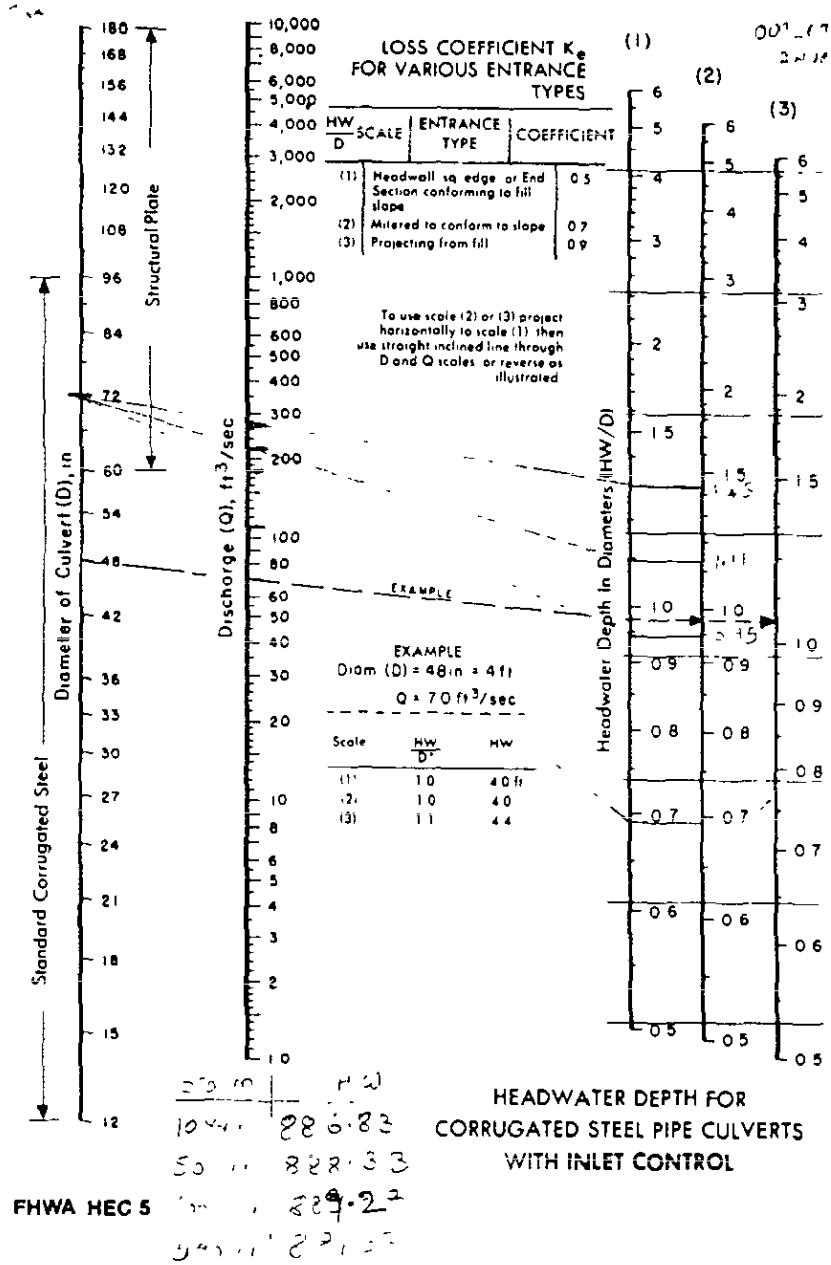



**Figure 4-28** *Inlet control* nomograph for corrugated steel *pipe* culverts The manufacturers recommended keeping *HW/D* to a maximum of 1 5 and preferably to no more than 1 0

# 60 INCH RCP CULVERT

# X5 CARD "WSEL"

# CALCULATION

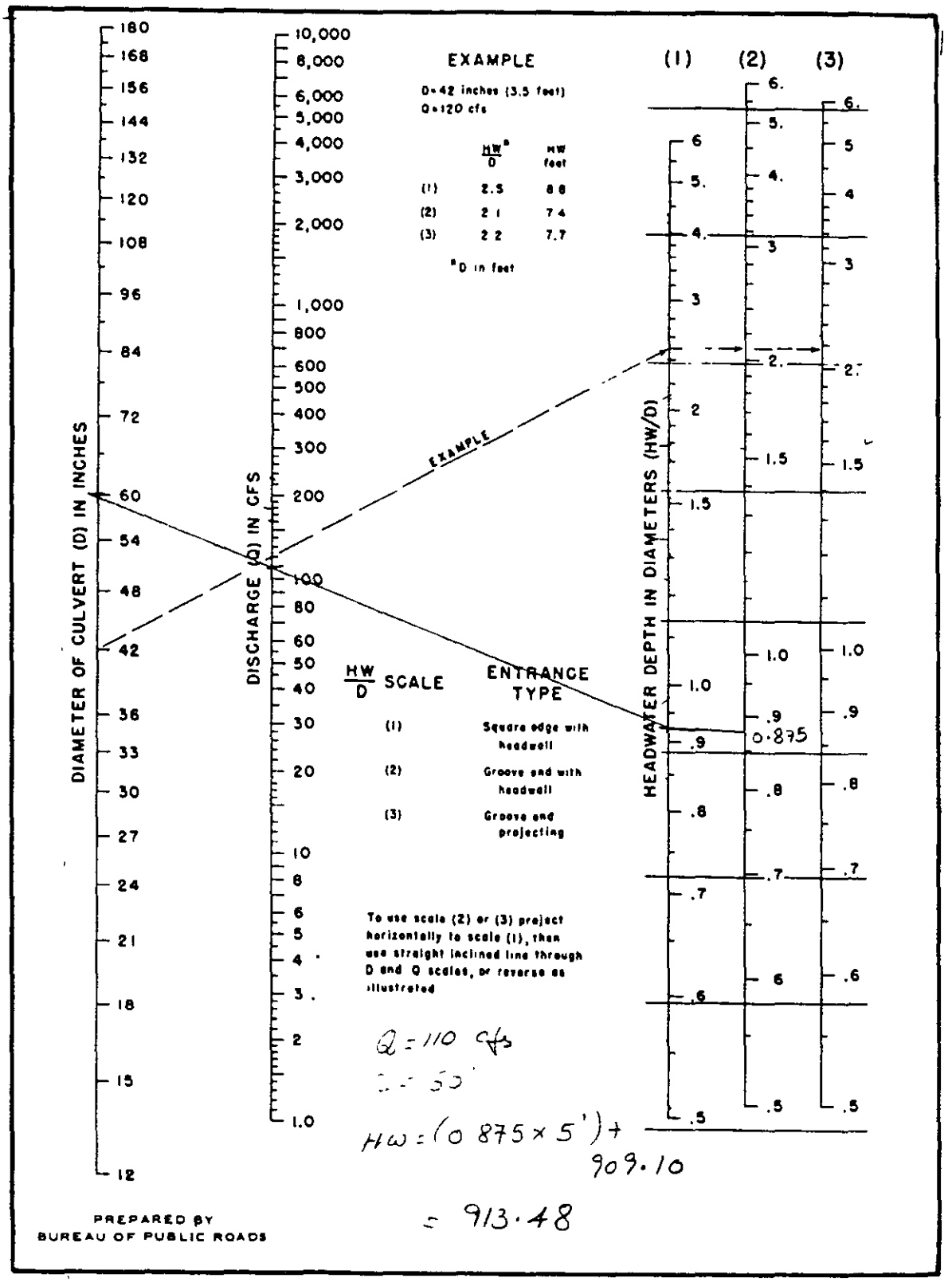



*Figure B–2. Headwater depth for concrete pipe culverts with inlet control.*

CULVERTS

50-YEAR

| | |
|---|---|
| DIAMETER (IN) | ? 60 |
| L[illegible]TH (FT) | ? 578 |
| F[illegible]TION COEFF (FT^1/6) | ? .013 |
| E[illegible]EXIT COEFF | ? .5 |
| INLET CONTROL COEFF | ? .61 |
| INV ELEV OUT (FT) | ? 906.4 |
| INV ELEV IN (FT) | ? 909.1 |
| TAILWATER ELEV (FT) | ? 909.73 |
| ELEV INCREMENT (FT) | ? .03 |

RESULTS

| HEADWATER (FT) | | FLOWRATE (CFS) |
|---|---|---|
| 914.10 | IC | 151.98 |
| 914.13 | IC | 152.88 |
| 914.16 | IC | 153.79 |
| 914.19 | IC | 154.69 |
| 914.22 | IC | 155.58 |
| 914.25 | IC | 156.47 |
| 914.28 | IC | 157.35 |
| 914.31 | IC | 158.23 |
| 914.34 | IC | 159.10 |
| 914.37 | IC | 159.97 |
| 914.40 | IC | 160.84 ← |
| 914.43 | IC | 161.69 |
| 914.46 | IC | 162.55 |
| 914.49 | IC | 163.40 |
| 914.52 | IC | 164.25 |

<Shift> <Prt Sc> print  <Return> repeat  <Space Bar> back to menu

---

Q = 161 cfs

HW = 914.41

CULVERTS

100 YEAR

| | |
|---|---|
| DIAMETER (IN) | ? 60 |
| LENGTH (FT) | ? 578 |
| FRICTION COEFF (FT^1/6) | ? .013 |
| EXIT COEFF | ? .5 |
| INLET CONTROL COEFF | ? .61 |
| INV ELEV OUT (FT) | ? 906.4 |
| INV ELEV IN (FT) | ? 909.1 |
| TAILWATER ELEV (FT) | ? 909.9 |
| ELEV INCREMENT (FT) | ? .2 |

RESULTS

| HEADWATER (FT) | | FLOWRATE (CFS) |
|---|---|---|
| 914.10 | IC | 151.98 |
| 914.30 | IC | 157.94 |
| 914.50 | IC | 163.68 |
| 914.70 | IC | 169.23 |
| 914.90 | IC | 174.61 |
| 915.10 | IC | 179.82 |
| 915.30 | IC | 184.89 |
| 915.50 | IC | 189.82 |
| 915.70 | IC | 194.62 |
| 915.90 | IC | 199.31 |
| 916.10 | IC | 203.90 |
| 916.30 | IC | 208.38 |
| 916.50 | IC | 212.77 |
| 916.70 | IC | 217.06 |
| 916.90 | IC | 221.28 |

<Shift> <Prt Sc> print  <Return> repeat  <Space Bar> back to menu

---

$Q = 180$ cfs

$HW = 915.11$

CULVERTS

50 yr

| | |
|---|---|
| DIAMETER (IN) | ? 60 |
| LENGTH (FT) | ? 578 |
| FRICTION COEFF (FT^1/6) | ? .013 |
| BORDA EXIT COEFF | ? .5 |
| INLET CONTROL COEFF | ? .61 |
| INV ELEV OUT (FT) | ? 906.4 |
| INV ELEV IN (FT) | ? 909.1 |
| TAILWATER ELEV (FT) | ? 910.3 |
| ELEV INCREMENT (FT) | ? .3 |

RESULTS

| HEADWATER (FT) | | FLOWRATE (CFS) |
|---|---|---|
| 914.10 | IC | 151.98 |
| 914.40 | IC | 160.84 |
| 914.70 | IC | 169.23 |
| 915.00 | IC | 177.23 |
| 915.30 | IC | 184.89 |
| 915.60 | IC | 192.24 |
| 915.90 | IC | 199.31 |
| 916.20 | IC | 206.15 |
| 916.50 | IC | 212.77 |
| 916.80 | IC | 219.18 |
| 917.10 | IC | 225.42 |
| 917.40 | IC | 231.48 |
| 917.70 | IC | 237.39 |
| 918.00 | IC | 243.16 |
| 918.30 | IC | 248.79 |
| 918.60 | IC | 254.30 |

<Shift> <Prt Sc> print  <Return> repeat  <Space Bar> back to menu

---

Q = 232 cfs

HW = 917.43

# RANDOLPH STREET DRAIN

## EXISTING & PROPOSED

## CONDITION

## COMPARISON TABLES

# RANDOLPH STREET DRAIN - FLOOD STUDY: WATER SURFACE ELEVATION COMPARISON TABLE.

| EXIST. X-SEC. # | "EXISTING CONDITION" 1987 - STUDY CWSEL 10-Yr | CWSEL 50-Yr | CWSEL 100-Yr | CWSEL 500-Yr | PROPOSED X-SEC. # | GROUND ELEVATION | "PROPOSED CONDITION" 1991 - STUDY CWSEL 10-Yr | CWSEL 50-Yr | CWSEL 100-Yr | CWSEL 500-Yr |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 00 | 877.80 | 881.60 | 882.00 | 882.50 | 883.00 |
| | | | | | 1.25 | 881.53 | 884.07 | 884.79 | 885.08 | 885.48 |
| 1.00 | 886.34 | 888.05 | 888 80 | 891 09 | 1.50 | 882.63 | 886.83 | 888.33 | 889.29 | 891.33 |
| 2.00 | 886.36 | 888.06 | 888 80 | 891.09 | 2.00 | 883.06 | 886.84 | 888.33 | 889.29 | 891.33 |
| | | | | | 2.10 | 883.06 | 886.91 | 888.38 | 889.32 | 891.34 |
| 2.25 | 887.25 | 888.20 | 888.92 | 891.12 | 2.25 | 884 60 | 887.21 | 888.58 | 889.45 | 891.38 |
| | | | | | 2.45 | 885.60 | 888.44 | 888.94 | 889.58 | 891.39 |
| 2.50 | 889.16 | 889.88 | 890.15 | 891.22 | 2.50 | 886.30 | 889.08 | 889.85 | 890 08 | 891.56 |
| | | | | | 2.60 | 889.10 | 890.26 | 890.72 | 890.94 | 891.74 |
| | | | | | 2.70 | 890.21 | 892.14 | 892.94 | 893.28 | 893.77 |
| | | | | | 2.80 | 890.70 | 894.49 | 896.07 | 897.90 | 899.52 |
| | | | | | 2.90 | 891.00 | 894.80 | 896.56 | 898.31 | 899.52 |
| | | | | | 2.95 | 891.00 | 894.85 | 896.61 | 898.35 | 899.56 |
| 3.00 | 895.68 | 896.10 | 896.25 | 896.44 | 3.00 | 893.20 | 895.83 | 896.63 | 898.36 | 899.57 |
| 3 50 | 901.75 | 902.11 | 902.23 | 902.41 | 3.50 | 899.20 | 901.94 | 902.15 | 902.24 | 902.44 |
| 3.75 | 903.31 | 903.88 | 904.08 | 904 31 | 3.75 | 899.80 | 903.13 | 903.76 | 903.98 | 904.20 |
| 4.00 | 903.99 | 904.66 | 904.89 | 905.15 | 4.00 | 900.50 | 903.86 | 904.48 | 904.71 | 904.99 |
| | | | | | 4.25 | 900.80 | 903.90 | 904.50 | 904.73 | 905.01 |
| | | | | | 4.50 | 900.90 | 905.35 | 905.85 | 906.01 | 906 17 |
| | | | | | 4.75 | 901.30 | 905.38 | 905.87 | 906 03 | 906 20 |
| 5 00 | 904.82 | 905.40 | 905.63 | 905.91 | 5.00 | 902.60 | 905.48 | 906.00 | 906.19 | 906.40 |
| 5 50 | 904.88 | 905.47 | 905.70 | 905.99 | 5.50 | 902.60 | 905.50 | 906.04 | 906.23 | 906 45 |
| 6.00 | 906.01 | 906.17 | 906.22 | 906.35 | 6.00 | 905.10 | 905.99 | 906.14 | 906.23 | 906 46 |
| 6 90 | 907.29 | 907.73 | 907.88 | 908.24 | 6.90 | 905.30 | 907.40 | 907.73 | 907.84 | 908.18 |
| 6.94 | 907.97 | 908.49 | 908.65 | 909.07 | 6.94 | 905.38 | 907.96 | 908.59 | 908.77 | 909.19 |
| 6.95 | 908.16 | 908.67 | 908 83 | 909.23 | 6.95 | 905.53 | 908.22 | 908.79 | 908.96 | 909.38 |
| 7.00 | 909.07 | 909.56 | 909.72 | 910.12 | 7.00 | 906.43 | 909.23 | 909.73 | 909.89 | 910.30 |
| 8.00 | 913.48 | 914.41 | 915.11 | 917.43 | 8.00 | 909.10 | 913.48 | 914.41 | 915.11 | 917.43 |
| 9.00 | 913 56 | 914.48 | 915.15 | 917.44 | 9.00 | 910.20 | 913.59 | 914.50 | 915.17 | 917.45 |
| 10.00 | 915.54 | 915.71 | 915 89 | 917.43 | 10.00 | 914.50 | 915.54 | 915.73 | 915.89 | 917.45 |
| 11.00 | 917.14 | 917.43 | 917.64 | 917.76 | 11.00 | 915.10 | 917.49 | 917.81 | 918.10 | 918.13 |
| 11.90 | 918.36 | 918.78 | 919.14 | 919.81 | 11.90 | 916.10 | 918.63 | 919.07 | 919.43 | 920.06 |
| 12.00 | 920.75 | 920.86 | 920.97 | 921.12 | 12.00 | 920.20 | 920.76 | 920.88 | 920.98 | 921.16 |

RANDOLPH STREET DRAIN - FLOOD STUDY· 100 YEAR FLOOD PROFILE COMPARISON TABLE.

| | McNEELY & LINCOLN ASSOCIATES | | | | | FEMA | | | |
|---|---|---|---|---|---|---|---|---|---|
| X-SEC # | EXIST FLOW | EXIST CWSEL | PROP FLOW | PROP CWSEL | GROUND ELEVATION | X-SEC # | FLOW | CWSEL | GROUND ELEVATIO |
| 1.00 | | | 433.0 | 882.50 | 877.80 | | | | |
| 1.25 | | | 433.0 | 885.08 | 881.53 | M | 400 | 884.00 | 881.53 |
| 1 50 | | | 433 0 | 889.29 | 882.63 | N | 400 | 888.00 | 882.63 |
| 2.00 | 494.0 | 888.80 | 433 0 | 889.29 | 883.06 | | | | |
| 2.10 | | | 433.0 | 889.32 | 883.06 | | | | |
| 2.25 | 494.0 | 888.92 | 433.0 | 889.45 | 884.60 | | | | |
| 2.45 | | | 433.0 | 889.58 | 885.50 | | | | |
| 2.50 | 494.0 | 890.15 | 433.0 | 890.08 | 886.30 | | | | |
| 2.60 | | | 433.0 | 890.94 | 889.50 | | | | |
| 2.70 | | | 433 0 | 893.28 | 890.21 | | | | |
| 2.80 | | | 433 0 | 897.90 | 890.70 | | | | |
| 2.90 | | | 433.0 | 898.31 | 891.00 | | | | |
| 2.95 | | | 433 0 | 898.35 | 891.00 | | | | |
| | | | | | | O | 400 | 895.31 | 892.00 |
| 3.00 | 494.0 | 896.25 | 433 0 | 898.36 | 893.20 | | | | |
| 3.50 | 494.0 | 902.23 | 433 0 | 902.24 | 899.20 | | | | |
| 3.75 | 494.0 | 904.08 | 433.0 | 903.98 | 899.80 | | | | |
| 4.00 | 494.0 | 904.89 | 433.0 | 904.71 | 900 50 | | | | |
| 4.25 | | | 433.0 | 904.73 | 900 80 | | | | |
| 4.50 | | | 433.0 | 906.01 | 900.90 | | | | |
| 4.75 | | | 433.0 | 906 03 | 901.30 | | | | |
| | | | | | | P | 400 | 904.20 | 901.80 |
| 5 00 | 323.0 | 905.63 | 323.0 | 906 19 | 902.60 | | | | |
| | | | | | | Q | 400 | 905 81 | 902.5 |
| 5.50 | 323.0 | 905.70 | 323.0 | 906.23 | 902.60 | | | | |
| | | | | | | R | 400 | 906 50 | 904.00 |
| 6.00 | 180.0 | 906.22 | 180 0 | 906 23 | 905.10 | | | | |
| 6.90 | 180.0 | 907.88 | 180 0 | 907.84 | 905.30 | | | | |
| 6.94 | 180.0 | 908 65 | 180.0 | 908.77 | 905 38 | | | | |
| 6.95 | 180.0 | 908.83 | 180.0 | 908.96 | 905 53 | | | | |
| | | | | | | S | 400 | 910.60 | 905.60 |
| 7.00 | 180.0 | 909.72 | 180.0 | 909.89 | 906.43 | | | | |
| 8.00 | 180.0 | 915.11 | 180 0 | 915.11 | 909.10 | T | 400 | 914.75 | 909.10 |
| 9.00 | 139.0 | 915.15 | 139 0 | 915.17 | 910.20 | | | | |
| 10.00 | 139.0 | 915.89 | 139.0 | 915.89 | 914.50 | | | | |
| 11.00 | 139.0 | 917.64 | 139.0 | 918.10 | 915.10 | | | | |
| 11.90 | 139.0 | 919.14 | 139.0 | 919.43 | 916.10 | | | | |
| 12.00 | 139.0 | 920.97 | 139.0 | 920.98 | 920.20 | U | 400 | 922.20 | 920.20 |

RANDOLPH STREET DRAIN - FLOOD STUDY: FLOW IN cfs. COMPARISON TABLE.

| EXIST. X-SEC. # | "EXISTING CONDITION" 1987 - STUDY FLOW 10-Yr | FLOW 50-Yr | FLOW 100-Yr | FLOW 500-Yr | PROPOSED X-SEC. # | "PROPOSED CONDITION" 1991 - STUDY FLOW 10-Yr | FLOW 50-Yr | FLOW 100-Yr | FLOW 500-Yr |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1.00 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 1.25 | 215.0 | 363.0 | 433.0 | 541.0 |
| 1.00 | 236.0 | 414.0 | 494.0 | 609.0 | 1.50 | 215.0 | 363.0 | 433.0 | 541.0 |
| 2.00 | 236.0 | 414.0 | 494.0 | 609.0 | 2.00 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.10 | 215.0 | 363.0 | 433.0 | 541.0 |
| 2.25 | 236.0 | 414.0 | 494.0 | 609.0 | 2.25 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.40 | 215.0 | 363.0 | 433.0 | 541.0 |
| 2.50 | 236.0 | 414.0 | 494.0 | 609.0 | 2.50 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.60 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.70 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.80 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.90 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 2.95 | 215.0 | 363.0 | 433.0 | 541.0 |
| 3.00 | 236.0 | 414.0 | 494.0 | 609.0 | 3.00 | 215.0 | 363.0 | 433.0 | 541.0 |
| 3.50 | 236.0 | 414.0 | 494.0 | 609.0 | 3.50 | 215.0 | 363.0 | 433.0 | 541.0 |
| 3.75 | 236.0 | 414.0 | 494.0 | 609.0 | 3.75 | 215.0 | 363.0 | 433.0 | 541.0 |
| 4.00 | 236.0 | 414.0 | 494.0 | 609.0 | 4.00 | 215.0 | 363.0 | 433.0 | 541.0 |
| | | | | | 4.25 | 207.0 | 356.0 | 433.0 | 532.0 |
| | | | | | 4.50 | 207.0 | 356.0 | 433.0 | 532.0 |
| | | | | | 4.75 | 207.0 | 356.0 | 433.0 | 532.0 |
| 5.00 | 159.0 | 265.0 | 323.0 | 407.0 | 5.00 | 159.0 | 265.0 | 323.0 | 407.0 |
| 5.50 | 159.0 | 265.0 | 323.0 | 407.0 | 5.50 | 159.0 | 265.0 | 323.0 | 407.0 |
| 6.00 | 110.0 | 161.0 | 180.0 | 232.0 | 6.00 | 110.0 | 161.0 | 180.0 | 232.0 |
| 6.90 | 110.0 | 161.0 | 180.0 | 232.0 | 6.90 | 110.0 | 161.0 | 180.0 | 232.0 |
| 6.94 | 110.0 | 161.0 | 180.0 | 232.0 | 6.94 | 110.0 | 161.0 | 180.0 | 232.0 |
| 6.95 | 110.0 | 161.0 | 180.0 | 232.0 | 6.95 | 110.0 | 161.0 | 180.0 | 232.0 |
| 7.00 | 110.0 | 161.0 | 180.0 | 232.0 | 7.00 | 110.0 | 161.0 | 180.0 | 232.0 |
| 8.00 | 110.0 | 161.0 | 180.0 | 232.0 | 8.00 | 110.0 | 161.0 | 180.0 | 232.0 |
| 9.00 | 73.0 | 106.0 | 139.0 | 207.0 | 9.00 | 73.0 | 106.0 | 139.0 | 207.0 |
| 10.00 | 73.0 | 106.0 | 139.0 | 207.0 | 10.00 | 73.0 | 106.0 | 139.0 | 207.0 |
| 11.00 | 73.0 | 106.0 | 139.0 | 207.0 | 11.00 | 73.0 | 106.0 | 139.0 | 207.0 |
| 11.90 | 73.0 | 106.0 | 139.0 | 207.0 | 11.90 | 73.0 | 106.0 | 139.0 | 207.0 |
| 12.00 | 73.0 | 106.0 | 139.0 | 207.0 | 12.00 | 73.0 | 106.0 | 139.0 | 207.0 |

**McNeely & Lincoln Associates, Inc.**
Civil Engineering • Land Surveying • Municipal Consulting
459 East Cady • Northville, Michigan 48167
Phone (313) 349-4920 • Fax 349-5786

RECEIVED
JAN 16 1992
NATURAL RESOURCES
LAND & WATER MGMT.

January 14, 1992

Michigan Department of Natural Resources
Land and Water Management Division
Stevens T. Mason Building
530 West Alligan
Lansing, Michigan 48933

ATTN: Bruce E. Menerey, P.E.
Technical Programs

RE: Randolph Street Drain
City of Northville; Order No. 6800-50

Dear Bruce:

Attached please find technical documentation package to amend a Letter of Map Revision request submitted on behalf of the City of Northville. As you will recall, the original request which originated in 1987 was directed at the elimination of the Randolph Drain Diversion. Following approval by your office, that request was forwarded to Greenhorne & O'Mara (G&O), FEMA's review consultant. After during the first few review cycles, G&O required certification of conditions which no longer existed, due to development along the Randolph Street Drain. It became apparent that the conditions modeled in the Letter of Map Revision request obsolete. Hence, work in support of the original request was terminated, and "as-built" data was subsequently collected and incorporated into the hydraulic and hydrologic computer models. The attached materials include these revisions.

The Existing Conditions packet contains essentially the same input and output files used for the original Letter of Map Revision request, with two exceptions. First, the cross sections in the vicinity of the original Randolph Drain Diversion have been modified to reflect recent construction in the north end of the Northville Estates subdivision. This development was permitted in advance of the anticipated Letter of Map Revision by the Northville Board of Zoning Appeals, who were notified of MDNR's approval of the Letter of Map Revision request. The second change is the use of 24 hour precipitation values of 3.5 inches, 4.45 inches, and 4.85 inches for the 10-year, 50-year, and 100-year rainfall events, based on isohyetal maps provided in the TR-55.

RE: Randolph Street Drain
City of Northville; Order No. 6800-50

The Proposed Conditions packet reflects "as-built" conditions of the two newer subdivisions, Abbey Knoll Estates and Pheasant Hills. Both of these developments were required to provide stormwater detention to reduce flood risk to downstream areas. Both utilized "in-line" detention, as encouraged by the Michigan Department of Natural Resources, largely to utilize the wetland areas along this section of the Randolph Street Drain for water quality enhancement, while minimizing their disruption. The hydrologic model for the Proposed Conditions packet also includes a revision to the hydrologic model, which now includes a detention pond and a wetland area along a tributary extending through the northeast corner of the Pheasant Hills subdivision. This tributary is shown on an enclosed drawing. You should note that revision does not have a significant effect on the projected peak flows in the Randolph Street Drain.

In the case of the Pheasant Hills development, the stream crossing at McDonald Drive was designed to provide stormwater detention for storm events of a magnitude exceeding the 10-year frequency. The Coldspring Drive crossing was intended to minimize the change in upstream flood elevations. Analysis of the regulated floodway indicated that the backwater effect of the Coldspring Drive crossing would dissipate before reaching properties beyond the limits of the new subdivisions. Easements and house grades were set based on the flood elevations anticipated to result from these two crossings of the regulated floodway.

It was subsequently learned that, in addition to flood plain easements, a Letter of Map Revision was also required for any change to a regulated floodway which would result in an increase in base flood elevation. While we understand that MDNR does not assume jurisdiction for water courses with drainage areas less than 2 square miles in area, we request that you review the hydraulics and hydrology in this packet, as a part of the Letter of Map Revision procedure.

Bruce E. Menerey, P.E.
Michigan Department of Natural Resources
January 14, 1992 Page 3

RE: Randolph Street Drain
City of Northville; Order No. 6800-50

To review the hydrology for this submittal, we request that you review our original submittal. In the event that those materials are no longer available, or your require additional materials to complete your review, please contact me.

Thank you for your assistance in this matter.

Very truly yours,

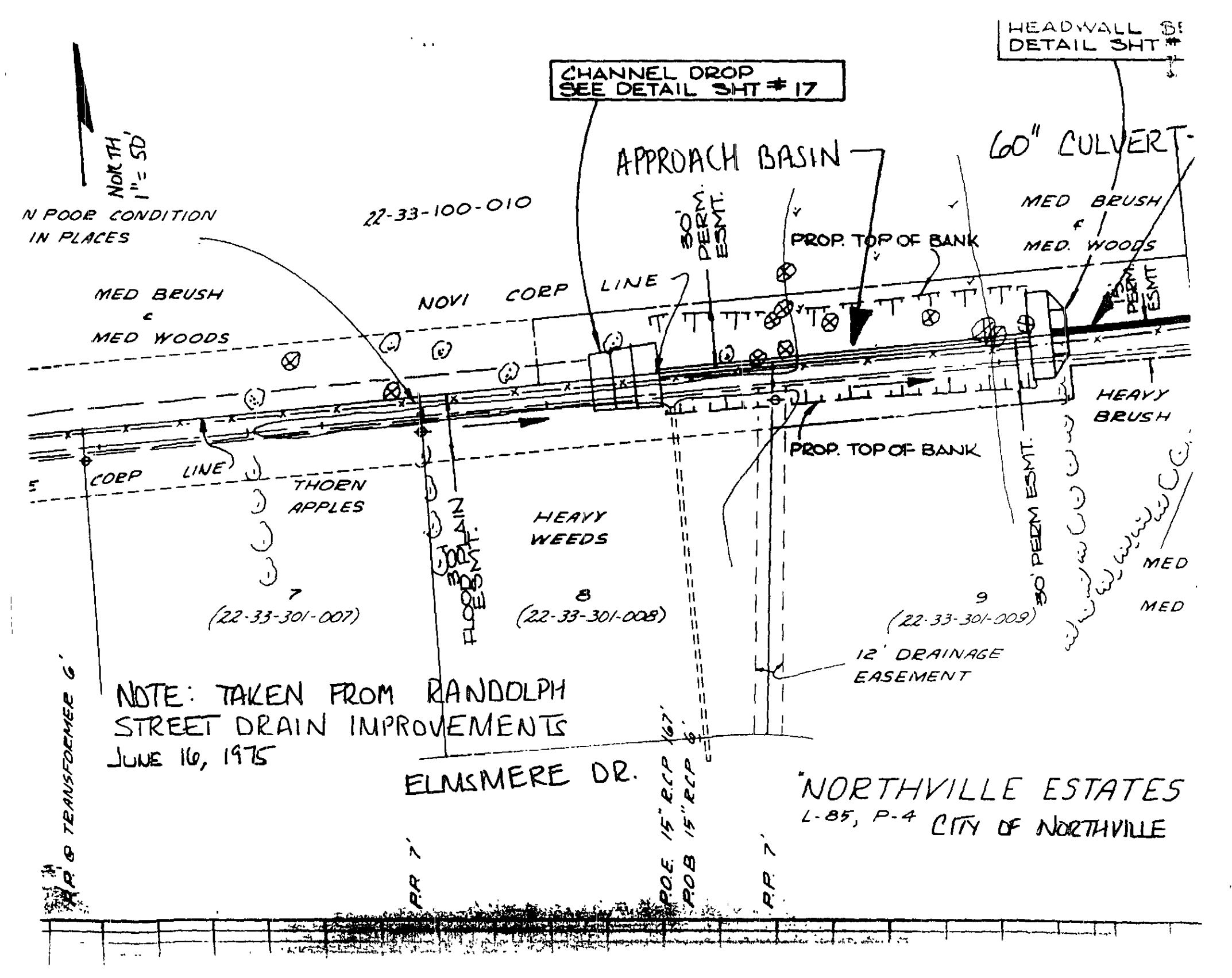
McNEELY & LINCOLN ASSOCIATES, INC.
Consulting Engineers to the City of Northville

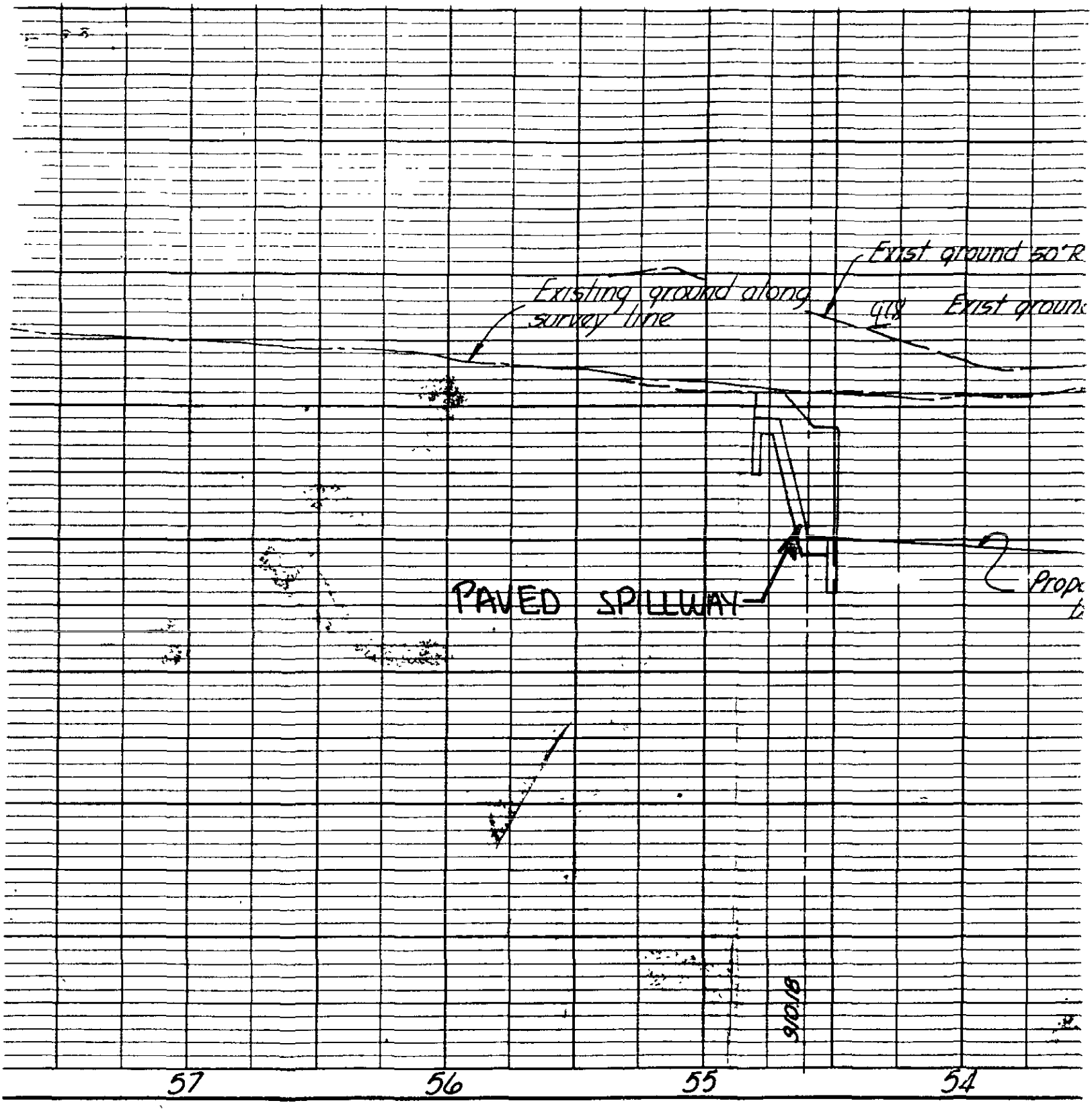
Robert M. Warner

Robert M. Warner, P.E.

encls.

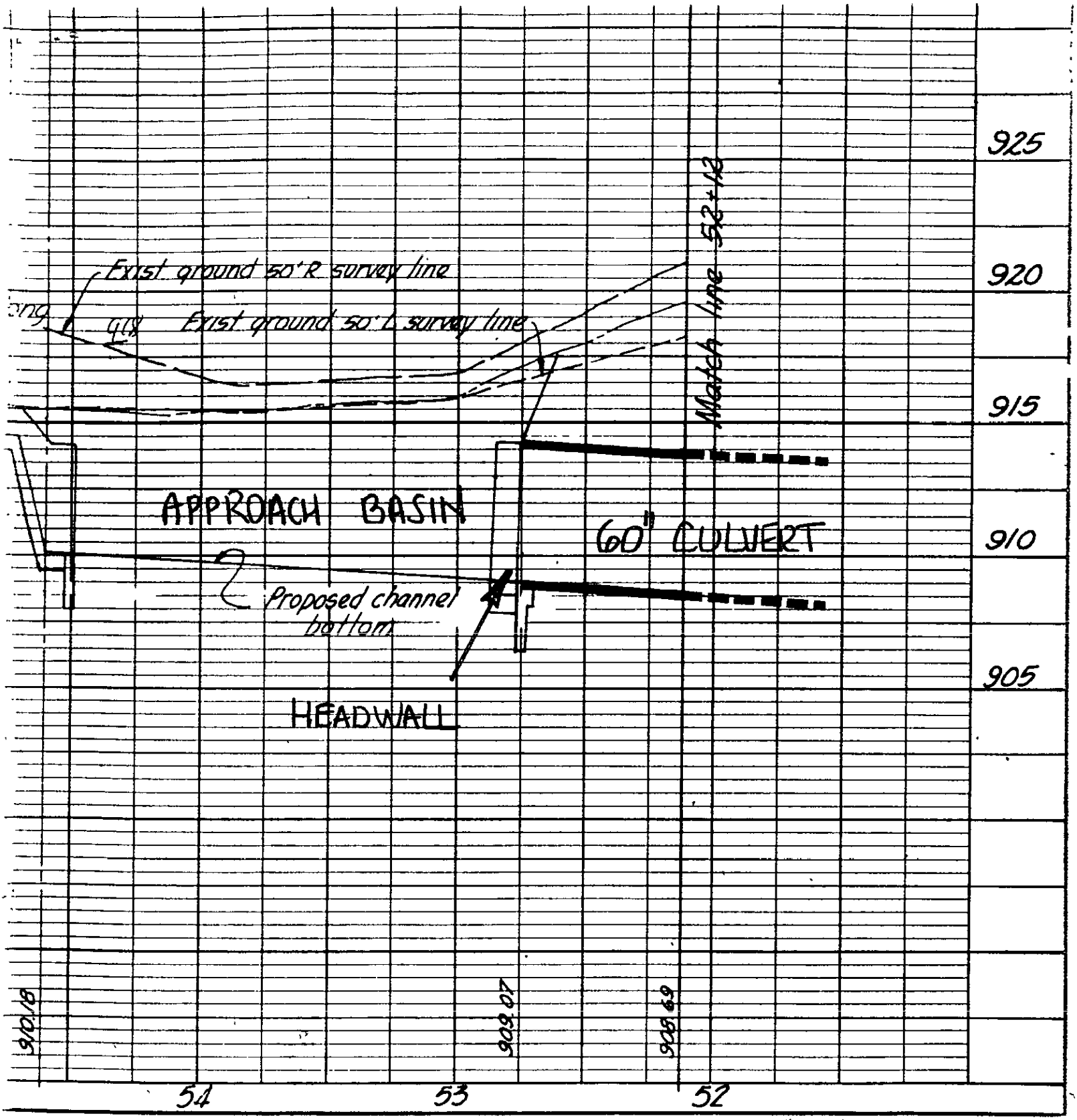
cc: City of Northville
Gary L. Word, City Manager
Ted Mapes, Superintendent, D.P.W., w/o encls.
Federal Emergency Management Agency
Norbert Schwartz, w/o encls.
file


HEADWALL SEE DETAIL SHT #
CHANNEL DROP SEE DETAIL SHT # 17
APPROACH BASIN
60" CULVERT
NORTH 1" = 50'
N POOR CONDITION IN PLACES
22-33-100-010
30' PERM ESMT.
PROP. TOP OF BANK
MED BRUSH & MED. WOODS
NOVI CORP LINE
MED BRUSH & MED WOODS
HEAVY BRUSH
PROP. TOP OF BANK
CORP LINE
THORN APPLES
HEAVY WEEDS
7
(22-33-301-007)
8
(22-33-301-008)
9
(22-33-301-009)
30' PERM ESMT.
12' DRAINAGE EASEMENT
MED
MED
NOTE: TAKEN FROM RANDOLPH STREET DRAIN IMPROVEMENTS JUNE 16, 1975
ELMSMERE DR.
"NORTHVILLE ESTATES
L-85, P-4 CITY OF NORTHVILLE
P.R. 7'
P.O.E. 15" RCP 167'
P.O.B. 15" RCP
P.R. 7'
P.P. & TRANSFORMER 6'




OLPH STREET DRAIN
MPROVEMENTS

INTER - COUNTY DR
RANDOLPH STREET DF




SCALE VERT. 1" = 5'
HORIZ. 1" = 50'

# ? - COUNTY DRAINAGE BOARD
# PH STREET DRAINAGE DISTRICT

JOB NO. 4429
DATE ISSUED
SHEET NO. 13 OF 21

CONSTRUCTION PLANS

INTER-COUNTY DRAINAGE BOARD, RANDOLPH STREET DRAINAGE DIST.

SHT. 4 OF 21

22-33-100-010

BECK ROAD

BRUSHING LIMITS

50' (TYP.)

BRUSHING LIMITS

CONSTRUCTION LIMITS

APPROACH BASIN

60" CULVERT

33'

WEST 1/4 CORNER, SEC. 33

NOVI

NORTHVILLE

30'

30'

60'

1 (22-33-301-001)

2 (22-33-301-002)

3 (22-33-301-003)

4 (22-33-301-004)

5 (22-33-301-005)

6 (22-33-301-006)

7 (22-33-301-007)

8 (22-33-301-008)

9 (22-33-301-009)

10 (22-33-301-010)

(22-3...

ELMERE DRIVE 60'

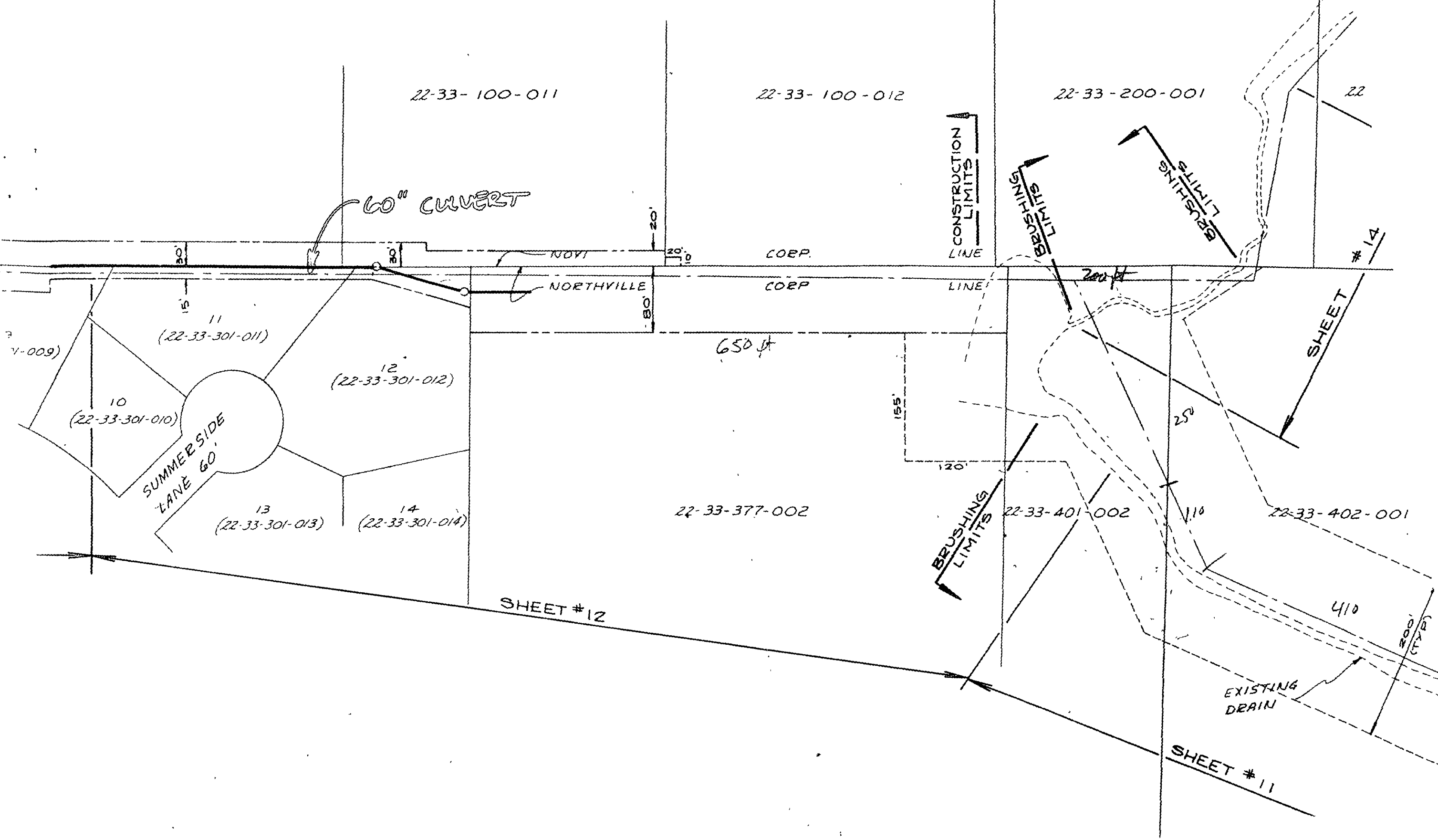
NORTHVILLE ESTATES SUBDIVISION

1" = 100'

SUMMERS... LANE

SHEET #14

SHEET #13



22-33-100-011
22-33-100-012
22-33-200-001
22
60" CULVERT
CONSTRUCTION LIMITS
BRUSHING LIMITS
BRUSHING LIMITS
NOVI
CORP.
LINE
NORTHVILLE
CORP
LINE
200 ft
SHEET #14
11
(22-33-301-011)
12
(22-33-301-012)
10
(22-33-301-010)
SUMMERSIDE LANE 60'
13
(22-33-301-013)
14
(22-33-301-014)
650 ft
155'
120'
250
110
410
22-33-377-002
22-33-401-002
22-33-402-001
BRUSHING LIMITS
SHEET #12
EXISTING DRAIN
200' (TYP)
SHEET #11

EET

| AS BUILT |
|---|
| |
| |
| |
| |
| |
| |

RMED.
JTILITY

k, the
owners
e shall
noted in
es that
on.

22-33-100-010

MED WOODS

MATCH LINE SHT #13

30' PERM ESMT

50+00

12' PRIVATE EASEMENT FOR PUBLIC UTILITIES

15' PERM. ESMT.

6' PRIVATE EASEMENT FOR PUBLIC UTILITIES

179°-35'-14"

FNC. IN POOR CONDITION DOWN IN PLACES

20' PERM ESMT

PERM ESMT

20'

10'

45+00

PROP.

30'

NORTHVILLE CORP. LINE

PROP TOP OF B.

HEADWALL SEE DETAIL SHT #20

4' bottom

NOTE: PLACE TOPSOIL, FERTILIZER, SEED, & MULCH ON CHANNEL SIDES & BOTTOM

MED BRUS

MED WOOD

4'

1 / 3

1 / 3

TYPICAL CHANNEL SECTION

(22-33-301-011)
11

12
(22-33-301-012)

"NORTHVILLE ESTATES SUBDIVISION"
L-85, P-4

1"=50'

SAVE

PP & TRANSFORMER 7'
18" DEAD TREE 48'
24" BEECH 43'
PP 7'
8" THORN APPLE 54'
10" BEECH 67'
14" BEECH 51'
9' DEAD TREE 25'
8" BEECH 41'
PP 5'
14" BEECH 18'
GUY WIRE 6'
GUY WIRE 6'
14" BEECH 14'
8" DEAD TREE 36'
10" DEAD TREE 63'
10" DEAD TREE 30'
28" HICKORY 19'
PP 65'
GUY WIRE 46'
GUY WIRE 41'
PP 4'
GUY WIRE 4'
10" BEECH 16'
8" DEAD TREE 25'
10" DEAD TREE 8'
10" DEAD TREE 23'
28" BEECH 9'
12" BEECH 3'
14" HICKORY 52'
16" HICKORY 49'
18" HICKORY 25'
8" BEECH 7'
8" BEECH 50'
8" BEECH 27'
8" BEECH 47'
10" BEECH 3'
14" DEAD TREE 62'
18" HICKORY 28'
8" HICKORY 16'
8" BEECH 29'
10" BEECH 21'
8" BEECH 25'
16" HICKORY 60'
FND 1" PIPE & FNC COR 8.00'
10" BEECH 26'
9" DEAD TREE 9'
FNC 8'
8" BEECH 25'
10" BEECH 3'
16" DEAD TREE 44'
16" HICKORY 12'

325'-60"@0.60%
C76 CL III

110'-60"@0.60%
C76 CL III

80'-60"@0.60%
C76 CL III

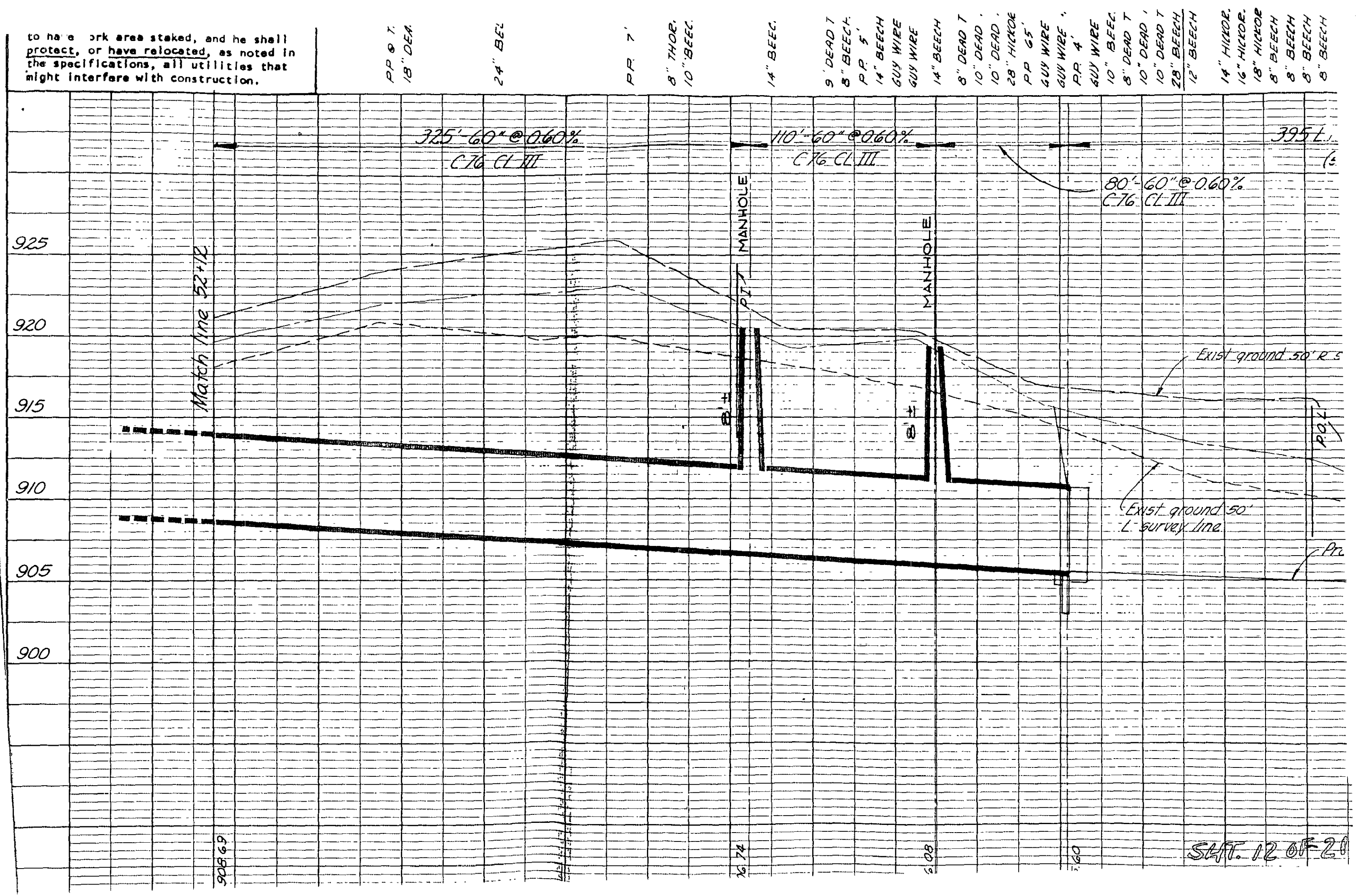
395 L.F. 4' BOTTOM CHANNEL @ 0.40%
(see typical section this sht)

MANHOLE

MANHOLE

SHT. 12 OF 21

to ha e ork area staked, and he shall protect, or have relocated, as noted in the specifications, all utilities that might interfere with construction.



"8" BEEC
12" DE
3-10" E
TREE
8" DEAL
10" DEA
1-12" E
TREE
10" BEE
8" BEE
8" STUI
10" STUI
FNC. 8'
14" STUI
TWIN 8
10" DEA
8" BEE
10" OAI
FNC. CO
FNC 7
3-10" TA
FNC. 6
16" DEA.
8" DEAL
10" APPL
18" BEE
TWIN 10
TWIN 8
8" BEE
FNC. 6
8" DEA.
8" DEA
10" DEA
8" DEAL
24" DE
10" DEA
15" DEA
FNC. 5
14" DEA
8" DEAL
16" DEA
FNC. 7'

67+79 94
E-ROD
VEY LINE)

HEADWALL SEE DETAIL SHT # 20

CHANNEL DROP SEE DETAIL SHT # 17

30' FLOOD PLAIN ESMT.

FNC. IN POOR CONDITION DOWN IN PLACES

22-33-100-010

30' PERM ESMT.

PROP. TOP OF BANK

MED BRUSH & MED. WOODS

MATCH LINE SHT # 12

HEAVY WEEDS

MED. BRUSH & MED WOODS

NOVI CORP. LINE

SWAMP

HEAVY BRUSH

PROP. TOP OF BANK

NORTHVILLE CORP. LINE

THORN APPLES

HEAVY WEEDS

HEAVY WEEDS

MED BRUSH & MED WOODS

230°-18'-19"

5
(22-33-301-005)
PRIVATE EASEMENT
PUBLIC UTILITIES

6
(22-33-301-006)

7
(22-33-301-007)

8
(22-33-301-008)

9
(22-33-301-009)

12' DRAINAGE EASEMENT

PP @ B M 6'

B.M. ELEV 919.71
RR SPIKE SW SIDE
P POLE.

P.P @ TRANSFORMER 6'

PP 7'

POE 15" RCP (62')
POB 15" RCP 6'

PP 7'

1" = 50'

"NORTHVILLE ESTATES SUBDIVISI
L-85, P-4

SHT. 13 OF 21

185 L.F 4' BOTTOM CHAI
(See typical section sh.

"NORTHVILLE ESTATES SUBDIVISION"
L-85, P-4

PP 7'

POE 15" RCP
POB 15" RCP

PP 7'

NOTE
TOPO IS REFERENCED OFF SURVEY LINE

185 L.F. 4' BOTTOM CHANNEL @ 0.60%
(see typical section sht

63'-60" @ 0.40%
C76 CI III

Match line 52+12

Exist. ground 50' R survey line

Existing ground along survey line

Exist. ground 50' L survey line

Proposed channel bottom

925
920
915
910
905

SHT. 13 OF 21

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Plymouth and Plymouth Twp

3) WATERCOURSE: Middle River Rouge

4) DOCUMENT TYPE: 100 year

00BREAK00

```
EEEEEE   EEEEEE          K   K     OOOO    BBBBB    Y    Y   L        IIIII    N    N    SSSS    K   K
E        E               K  K     O    O   B    B    Y  Y    L          I      NN   N   S        K  K
E        E       ------  K K      O    O   BBBBB      YY     L          I      N N  N    SSSS    K K
EEEE     EEEE            KKK      O    O   B    B     Y      L          I      N  N N        S   KKK
E        E               K  K     O    O   B    B    Y       L          I      N   NN   S    S   K  K
EEEEEE   EEEEEE          K   K     OOOO    BBBBB    Y        LLLLLL   IIIII    N    N    SSSS    K   K
```

USACOE DETROIT H800 VOS 7.1.0  PRINTER: 6

EE-KOBYLINSK  19 OCT 92 13:05:40

TERMINAL: 106

City of Plymouth and Plymouth Twp.
Middle River Rouge

Revised HEC-2

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**********************************************************
*  WATER SURFACE PROFILES                                *
*  VERSION OF SEPTEMBER 1988                             *
*  ERROR: 01, 02, 03, 04                                 *
*  UPDATED:   JUNE 1990                                  *
*  RUN DATE     19OCT92     TIME    13:00:29             *
**********************************************************
```

```
**********************************
*  U S. ARMY CORPS OF ENGINEERS  *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D    *
*  DAVIS, CALIFORNIA 95616-4687  *
*        (916) 756-1104          *
**********************************
```

```
X      X  XXXXXXX   XXXXX              XXXXX
X      X  X         X     X            X     X
X      X  X         X                        X
XXXXXXX   XXXX      X          XXXXX    XXXXX
X      X  X         X                   X
X      X  X         X     X             X
X      X  XXXXXXX   XXXXX               XXXXXXX
```

END OF BANNER

THIS RUN EXECUTED 19OCT92 13:00:29

```
**************************************************
  HEC2 RELEASE DATED SEP 88 UPDATED JUN  1990

  ERROR CORR -  01,02,03,04
  MODIFICATION -
**************************************************

T1      CITY OF PLYMOUTH AND PLYMOUTH TWP.  LMMP
T2      MIDDLE RIVER ROUGE
T3      100-YEAR FLOOD

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      G          WSEL       FQ
       0         2          0          0          0          0          0          0        667.5        0
J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
      -1         0         -1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150

NC      .035       .035       .035         .3          .5
NC      .035       .035       .035         .3          .5
QT         1       4100
X1      1000         13         25        155           0          0          0
GR     684.0          0      682.0          2      680.0         15      670.0         25      660.0         47
GR     658.0         97      656.5        102      655.0        110      656.0        118      658.0        126
GR     660.0        130      665.0        155      662.0        360

X1      1700         13         25        155         700        700        700
GR     684.0          0      682.0          2      680 0         15      670.0         25      660.0         47
GR     658.0         97      656.5        102      655.6        110      656.0        118      658.0        126
GR     660.0        130      665.0        155      662.0        360

NC                                          .5         1.0
X1      2100         22        250        420        400        400        400
GR     682.7          0      682.8         50      682.9        150      682.8        250      679.1        252
GR     676.4        252      658.9        299      656.7        302      656.1        309      656.9        316
GR     658.0        324      659.0        329      660.6        331      660.4        338      660.8        342
GR     661.9        381      675.7        418      679.2        418      683.1        420      683.3        500
GR     683.3        600      683.4        670

NC      .035       .035       .035
            D/S FACE OF N.B.  I-275 BRIDGE
X1      2101         22        250        420          1          1          1
BT        10        250      682.8          0        252      682.8      676.4        252      682.8      679.1
BT       338      682.9      679.2        338      682.9      660.4        342      682.9      660.8        342
BT     682.9      679.2        418      683.1      679.2        418      683.1      675.7        420      683.1
BT         0
GR     682.7          0      682.8         50      682.9        150      682.8        250      679.1        252
GR     676.4        252      658.9        299      656.7        302      656.1        309      656.9        316
GR     658.0        324      659.0        329      660.6        331      660.4        338      660.8        342
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GR    661.9      381     675.7      418     679.2      418     683.1      420     683.3      500
GR    683.3      600     683.4      670

NC                                   .3        .5
          U/S FACE OF N.B. I-275 BRIDGE
X1   2157          0          0          0         56         56         56
X2      0          0          0          0          0          0          1          0          0          0

NC    .035       .035       .035
X1   2158         22        250        420          1          1          1
GR    682.7          0      682.8         50      682.9        150      682.8        250      679.1        252
GR    676.4        252      658.9        299      656.7        302      656.1        309      656.9        316
GR    658.0        324      659.0        329      660.6        331      660.4        338      660.8        342
GR    661.9        381      675.7        418      679.2        418      683.1        420      683.3        500
GR    683.3        600      683.4        670

X1   2188         22        250        420         30         30         30
GR    682.7          0      682.8         50      682.9        150      682.8        250      679.1        252
GR    676.4        252      658.9        299      656.7        302      656.1        309      656.9        316
GR    658.0        324      659.0        329      660.6        331      660.4        338      660.8        342
GR    661.9        381      675.7        418      679.2        418      683.1        420      683.3        500
GR    683.3        600      683.4        670

NC    .035       .035       .035
          D/S FACE OF S.B. I-275 BRIDGE
X1   2189         22        250        420          1          1          1
BT     10        250      682.8          0        252      682.8      676.4        252      682.8      679.1
BT    338      682.9      679.2        338      682.9      660.4        342      682.9      660.8        342
BT  682.9      679.2        418      683.1      679.2        418      683.1      675.7        420      683.1
BT      0
GR    682.7          0      682.8         50      682.9        150      682.8        250      679.1        252
GR    676.4        252      658.9        299      656.7        302      656.1        309      656.9        316
GR    658.0        324      659.0        329      660.6        331      660.4        338      660.8        342
GR    661.9        381      675.7        418      679.2        418      683.1        420      683.3        500
GR    683.3        600      683.4        670

          U/S FACE OF S.B. I-275 BRIDGE
X1   2245          0          0          0         56         56         56
X2      0          0          0          0          0          0          1          0          0          0

NC                              .035
X1   2246         22        250        420          1          1          1
GR    682.7          0      682.8         50      682.9        150      682.8        250      679.1        252
GR    676.4        252      658.9        299      656.7        302      656.1        309      656.9        316
GR    658.0        324      659.0        329      660.6        331      660.4        338      660.8        342
GR    661.9        381      675.7        418      679.2        418      683.1        420      683.3        500
GR    683.3        600      683.4        670

NC                              .035       .5        1.0
X1   3000         20        415        485        754        754        754
GR    690.0          0      688.0         20      686.0         40      684.0         50      682.0         60
GR    680.0         80      670.0        150      664.0        180      662.0        195      661.0        415
GR    657.0        435      657.0        465      661.0        485      662.0        530      664.0        600
GR    666.0        630      668.0        700      670.0        720      680.0        755      670.0        775
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | | | | .3 | .5 | | | | | |
| X1 | 4000 | 16 | 340 | 410 | 1000 | 1000 | 1000 | | | |
| GR | 690.0 | 0 | 680.0 | 30 | 670.0 | 70 | 668.0 | 100 | 666.0 | 120 |
| GR | 664.0 | 160 | 662.0 | 340 | 658.0 | 360 | 658.0 | 390 | 662.0 | 410 |
| GR | 664.0 | 430 | 664.0 | 650 | 666.0 | 670 | 670.0 | 680 | 680.0 | 695 |
| GR | 690.0 | 800 | | | | | | | | |
| NC | | | .035 | .5 | 1.0 | | | | | |
| X1 | 4800 | 0 | 0 | 0 | 800 | 800 | 800 | | | |
| X3 | | | | 340 | | 596 | | | | |
| X1 | 5075 | 0 | 0 | 0 | 275 | 275 | 275 | | | |
| X3 | | | | 340 | | 458 | | | | |
| NC | | | | .5 | 1.0 | | | | | |
| X1 | 5146 | 31 | 250 | 338.8 | 71 | 71 | 71 | | | |
| GR | 704.0 | 0 | 701.8 | 25 | 699.7 | 50 | 697.2 | 75 | 694.8 | 100 |
| GR | 692.1 | 125 | 689.3 | 150 | 686.1 | 175 | 683.4 | 200 | 681.1 | 225 |
| GR | 679.3 | 250 | 673.0 | 250 | 663.9 | 268 | 663.0 | 269.8 | 660.6 | 275 |
| GR | 660.2 | 285 | 660.2 | 294 | 659.4 | 301 | 659.6 | 309 | 662.2 | 310 |
| GR | 663.1 | 314.7 | 663.5 | 316 | 664.0 | 317.4 | 666.2 | 325 | 667.0 | 338.8 |
| GR | 674.5 | 338.8 | 673.0 | 400 | 672.2 | 450 | 671.4 | 500 | 670.8 | 550 |
| GR | 670.3 | 600 | | | | | | | | |
| NC | .042 | .042 | .035 | .3 | .5 | | | | | |
| | D/S FACE OF HAGGERTY RD. BRIDGE | | | | | | | | | |
| X1 | 5147 | 31 | 250 | 338.8 | 1 | 1 | 1 | | | |
| X3 | | | | 258 | | 338 | | | | |
| BT | 12 | 250 | 679.9 | 673.0 | 250 | 679.9 | 677.8 | 268 | 678.9 | 676.8 |
| BT | 268 | 678.9 | 663.9 | 269.8 | 678.8 | 663.0 | 269.8 | 678.8 | 675.3 | 316 |
| BT | 676.5 | 672.9 | 316 | 676.5 | 663.5 | 317.4 | 676.4 | 664.0 | 317.4 | 676.4 |
| BT | 674.2 | 338.8 | 675.3 | 673.3 | 338.8 | 675.3 | 667.0 | | | |
| GR | 704.0 | 0 | 701.8 | 25 | 699.7 | 50 | 697.2 | 75 | 694.8 | 100 |
| GR | 692.1 | 125 | 689.3 | 150 | 686.1 | 175 | 683.4 | 200 | 681.1 | 225 |
| GR | 679.9 | 250 | 673.0 | 250 | 663.9 | 268 | 663.0 | 269.8 | 660.6 | 275 |
| GR | 660.2 | 285 | 660.2 | 294 | 659.4 | 301 | 659.6 | 309 | 662.2 | 310 |
| GR | 663.1 | 314.7 | 663.5 | 316 | 664.0 | 317.4 | 666.2 | 325 | 667.0 | 338.8 |
| GR | 675.3 | 388.8 | 673.0 | 400 | 672.2 | 450 | 671.4 | 500 | 670.8 | 550 |
| GR | 670.3 | 600 | | | | | | | | |
| | U/S FACE OG HAGGERTY RD. BRIDGE | | | | | | | | | |
| X1 | 5181 | 0 | 0 | 0 | 34 | 34 | 34 | | | |
| X2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| X3 | | | | 258 | | 338 | | | | |
| NC | .035 | .035 | .035 | .5 | 1.0 | | | | | |
| X1 | 5182 | 31 | 250 | 338.8 | 1 | 1 | 1 | | | |
| GR | 704.0 | 0 | 701.8 | 25 | 699.7 | 50 | 697.2 | 75 | 694.8 | 100 |
| GR | 692.1 | 125 | 689.3 | 150 | 686.1 | 175 | 683.4 | 200 | 681.1 | 225 |
| GR | 679.3 | 250 | 673.0 | 250 | 663.9 | 268 | 663.0 | 269.8 | 660.6 | 275 |
| GR | 660.2 | 285 | 660.2 | 294 | 659.4 | 301 | 659.6 | 309 | 662.2 | 310 |
| GR | 663.1 | 314.7 | 663.5 | 316 | 664.0 | 317.4 | 666.2 | 325 | 667.0 | 338.8 |
| GR | 674.5 | 338.8 | 673.0 | 400 | 672.2 | 450 | 671.4 | 500 | 670.8 | 550 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 670.3 | 600 | | | | | | | | |
| X1 | 5232 | 16 | 290 | 380 | 50 | 50 | 50 | | | |
| X3 | | | | 245 | | 428 | | | | |
| GR | 690.0 | 0 | 680.0 | 20 | 670.0 | 50 | 668.0 | 55 | 664.0 | 85 |
| GR | 666.0 | 95 | 666.0 | 290 | 663.6 | 310 | 660.0 | 330 | 658.2 | 350 |
| GR | 664.0 | 370 | 666.0 | 380 | 668.0 | 620 | 670.0 | 650 | 672.0 | 770 |
| GR | 680.0 | 850 | | | | | | | | |
| X1 | 5382 | 16 | 290 | 380 | 150 | 150 | 150 | | | |
| X3 | | | | 95 | | 578 | | | | |
| GR | 690.0 | 0 | 680.0 | 20 | 670.0 | 50 | 668.0 | 55 | 664.0 | 85 |
| GR | 666.0 | 95 | 666.0 | 290 | 663.6 | 310 | 660.0 | 330 | 658.2 | 350 |
| GR | 664.0 | 370 | 666.0 | 380 | 668.0 | 620 | 670.0 | 650 | 672.0 | 770 |
| GR | 680.0 | 850 | | | | | | | | |
| NC | | | | .3 | .5 | | | | | |
| X1 | 6000 | 16 | 290 | 380 | 618 | 618 | 618 | | | |
| GR | 690.0 | 0 | 680.0 | 20 | 670.0 | 50 | 668.0 | 55 | 664.0 | 85 |
| GR | 666.0 | 95 | 666.0 | 290 | 663.6 | 310 | 660.0 | 330 | 658.2 | 350 |
| GR | 664.0 | 370 | 666.0 | 380 | 668.0 | 620 | 670.0 | 650 | 672.0 | 770 |
| GR | 680.0 | 850 | | | | | | | | |
| X1 | 6183 | 34 | 680 | 776 | 183 | 183 | 183 | | | |
| X3 | | | | 383 | | 1028 | | | | |
| GR | 700.0 | 0 | 698.0 | 40 | 696.0 | 55 | 690.0 | 75 | 680.0 | 100 |
| GR | 670.0 | 120 | 668.0 | 135 | 666.0 | 140 | 666.0 | 190 | 664.0 | 270 |
| GR | 667.6 | 520 | 670.8 | 680 | 669.8 | 685 | 663.6 | 703 | 663.6 | 704 |
| GR | 663.5 | 705 | 663.3 | 708 | 663.2 | 710 | 663.1 | 715 | 663.0 | 720 |
| GR | 662.7 | 728 | 662.6 | 731 | 660.6 | 734 | 659.7 | 739 | 659.2 | 742 |
| GR | 659.0 | 745 | 658.2 | 749 | 659.6 | 753 | 662.2 | 760 | 665.8 | 767 |
| GR | 670.4 | 776 | 668.0 | 926 | 674.0 | 1126 | 680.0 | 1186 | | |
| X1 | 6196 | 27 | 680 | 776 | 13 | 13 | 13 | | | |
| GR | 700.0 | 0 | 698.0 | 40 | 696.0 | 55 | 690.0 | 75 | 680.0 | 100 |
| GR | 670.0 | 120 | 668.0 | 135 | 666.0 | 140 | 666.0 | 190 | 664.0 | 270 |
| GR | 667.6 | 520 | 672.0 | 533 | 672.0 | 680 | 672.1 | 716 | 672.2 | 717 |
| GR | 672.3 | 721 | 672.4 | 728 | 672.5 | 733 | 672.6 | 741 | 672.5 | 747 |
| GR | 672.2 | 750 | 672.0 | 752 | 672.0 | 776 | 669.6 | 1040 | 672.0 | 1150 |
| GR | 678.0 | 1220 | 680.0 | 1240 | | | | | | |
| NC | | | | .3 | .5 | | | | | |
| X1 | 6409 | 33 | 680 | 776 | 213 | 213 | 213 | | | |
| GR | 700.0 | 0 | 698.0 | 40 | 696.0 | 55 | 690.0 | 75 | 680.0 | 100 |
| GR | 670.0 | 120 | 668.0 | 135 | 666.0 | 140 | 666.0 | 190 | 664.0 | 270 |
| GR | 667.6 | 520 | 670.8 | 680 | 669.8 | 685 | 663.6 | 703 | 663.6 | 704 |
| GR | 663.5 | 705 | 663.3 | 708 | 663.2 | 710 | 663.1 | 715 | 663.0 | 720 |
| GR | 662.7 | 728 | 662.6 | 731 | 660.6 | 734 | 659.7 | 739 | 659.2 | 742 |
| GR | 659.0 | 745 | 658.2 | 749 | 659.6 | 753 | 662.2 | 760 | 665.8 | 767 |
| GR | 670.4 | 776 | 680.0 | 800 | 690.0 | 850 | | | | |

```
X1     7900        13       350       430      1491      1491      1491
GR     672.0        0     670.0        30     670.0       320     668.0       340     666.0       350
GR     665.0       350    662.0       355     662.0       405     666.0       430     670.0       450
GR     680.0       470    690.0       500     700.0       540

NC                                      .5       1.0
          D/S FACE OF E. HINES DRIVE BRIDGE
X1     8201        28       453       505      301       301       301
X4        1     670.0       310
GR     680.0        0     678.0        20     676.0        40     674.0       170     672.0       190
GR     670.0       210    670.0       430     669.6       435     664.9       453     664.0       464
GR     663.0       457    663.0       460     663.2       465     663.4       468     664.0       473
GR     664.9       478    664.9       485     665.0       490     665.0       495     665.1       500
GR     665.2       504    665.2       505     665.8       517     670.0       526     670.0       526
GR     680.0       586    690.0       610     700.0       630

SB        0      1.75      2.5         0       52         0       340
NC     .035      .035      .025
          U/S FACE OF E. HINES DRIVE BRIDGE
X1     8227         0         0         0       26        26        26
X2        0         0         1     671.8      673.0
BT       28         0     680.0         0       20     678.0         0        40     676.0         0
BT      170     674.0         0       190     672.0         0       210     670.0         0       310
BT     670.0         0       430     674.1     670.0       435     674.1     669.6       453     674.3
BT     664.9       454     674.3     666.4       457     674.4     669.7       460     674.5     670.6
BT      465     674.5     671.2       468     674.6     671.6       473     674.7     671.9       478
BT     674.7     672.0       485     674.6     671.9       490     674.4     671.7       495     674.2
BT     671.4       500     674.2     670.0       504     674.1     666.4       505     674.1     665.2
BT      517     674.1     665.8       526     674.1     670.0       586     680.0         0       610
BT     690.0         0       630     700.0         0

NC      .05       .05      .040        .3        .5
X1     8257         0         0         0       30        30        30

NC                                    .04
X1     9600        16       470       530     1343      1343      1343
X4        1     671.5       540
GR     720.0         0     710.0        50     700.0        70     690.0       110     680.0       170
GR     676.0       220     674.0       440     672.0       470     670.0       480     666.0       490
GR     666.0       520     670.0       530     672.0       640     674.0       680     676.0       910
GR     680.0       940
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NC                                      .5       1.0
X1    10200        17       400       445      600       600       600
X3                                    100       555
X4        2     674.0       110     674.0       135
GR     720.0         0     710.0        10     700.0        25     690.0        40     680.0        75
GR     676.0        90     676.0       380     672.0       400     670.0       403     669.0       406
GR     669.0       439     670.0       442     672.0       445     674.0       450     676.0       460
GR     676.0       510     680.0       530
```

```
X1    10500                                  300       300       300                1.2
X3                                 175                 555

X1    10600                                  100       100       100                 .4
X3                                 200                 555

X1    10700        15       740       780       100       100       100
X3                                 600                 880
X4        2     676.0       600     677.0       650
GR    720.0         0     710.0       180     700.0       200     690.0       240     680.0       280
GR    676.0       290     676.0       690     675.0       740     671.0       745     671.0       775
GR    676.0       780     678.0       870     680.0       880     690.0       890     700.0       920

NC                                  .5        1.0
X1    10800                                  100       100       100                 .25
X3                                 625                 855

          D/S FACE OF MIDDLE WOODS DRIVE BRIDGE
X1    10901        17       250     292.5       101       101       101
X3                                 155                 388
GR    679.5         0     679.9       100     679.5       200     680.0       250     672.1       250
GR    672.1       260     671.5       271     671.7       281     673.0       291     674.1     292.5
GR    680.0     292.5     678.2       322     678.2       339     677.4       356     678.6       366
GR    677.1       450     677.9       550

SB        0      1.73       2.5         0        41         0       232
NC     .042      .042       .03
          U/S FACE OF MIDDLE WOODS DRIVE BRIDGE
X1    10930         0         0         0        29        29        29
X2        0         0         1     677.4     680.0
X3                                 161                 381
BT        5       250     680.0     672.1       250     680.0     677.4       271     680.0     677.4
BT    292.5     680.0     677.4     292.5     680.0     674.1

X1    10980        17       250     292.5        50        50        50
X3                                 166                 377
GR    679.5         0     679.9       100     679.5       200     680.0       250     672.1       250
GR    672.1       260     671.5       271     671.7       281     673.0       291     674.1     292.5
GR    680.0     292.5     678.2       322     678.2       339     677.4       356     678.6       366
GR    677.1       450     677.9       550

X1    11200        25       218       345       220       220       220
GR    702.8         0     700.7        50     698.5       100     696.8       150     695.3       200
GR    694.5       218     692.5       218     677.7       250     676.6       253     674.9       258
GR    674.0       260     673.8       265     673.2       271     672.9       281     673.0       290
GR    673.5       295     674.5       306     675.3       311     676.4       313     692.2       345
GR    692.9       345     693.0       400     692.9       450     693.1       500     693.1       570
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NC      .035      .035      .025
          D/S FACE OF PLYMOUTH ROAD BRIDGE
X1    11201        25       218       345         1         1         1
BT       14       218      694.5     692.5       250     694.2     677.7       253     694.2     676.6
BT      258     694.1      683.5       260     694.0     685.2       265     694.0     688.2       271
BT    693.9     690.0       281     693.7     691.2       290     693.5     690.8       295     693.4
BT    690.0       306     693.3     684.0       311     693.3     675.3       313     693.3     676.1
BT      345     692.9      692.2
GR    702.8         0     700.7        50     698.5       100     696.8       150     695.3       200
GR    694.5       218     692.5       218     677.7       250     676.6       253     674.9       258
GR    674.0       260     673.8       265     673.2       271     672.9       281     673.0       290
GR    673.5       295     674.5       306     675.3       311     676.1       313     692.2       345
GR    692.9       345     693.0       400     692.9       450     693.1       500     693.1       570

          U/S FACE OF PLYMOUTH ROAD BRIDGE
X1    11255         0         0         0        54        54        54
X2        0         0         0         0         0         0         1         0         0         0

NC                            .035
X1    11256        25       218       345         1         1         1
GR    702.8         0     700.7        50     698.5       100     696.8       150     695.3       200
GR    694.5       218     692.5       218     677.7       250     676.6       253     674.9       258
GR    674.0       260     673.8       265     673.2       271     672.9       281     673.0       290
GR    673.5       295     674.5       306     675.3       311     676.1       313     692.2       345
GR    692.9       345     693.0       400     692.9       450     693.1       500     693.1       570

NC                                      .3        .5
X1    11356         0         0         0       100       100       100                   .2

X1    12150        17       200       300       794       794       794
X3                                    200                 300
GR    712.0         0     710.0        15     710.0        35     700.0        55     690.0        70
GR    684.0       100     682.0       200     677.0       220     675.0       230     675.0       270
GR    677.0       280     682.0       300     681.5       350     680.0       450     684.0       590
GR    690.0       670     700.0       710

NC                                      .5       1.0
X1    12850        30       250       306       700       700       700                  -.7
GR    731.2         0     731.6       100     732.1       200     732.3       250     679.2       250
GR    672.2       251     679.2       253     679.2       256     679.2       259     679.2     262.5
GR    679.2       265     679.2       268     679.2       272     679.2       274     679.2       275
GR    678.8       281     678.8       282     678.8       285     678.8       288     678.7       291
GR    678.7     293.5     678.7       297     678.7       300     678.8       303     678.8       305
GR    678.8       306     732.5       306     732.7       350     733.2       450     733.7       550

X1    13000        30       250       306       150       150       150
GR    731.2         0     731.6       100     732.1       200     732.3       250     679.2       250
GR    679.2       251     679.2       253     679.2       256     679.2       259     679.2     262.5
GR    679.2       265     679.2       268     679.2       272     679.2       274     679.2       275
GR    678.8       281     678.8       282     678.8       285     678.8       288     678.7       291
GR    678.7     293.5     678.7       297     678.7       300     678.8       303     678.8       305
GR    678.8       306     732.5       306     732.7       350     733.2       450     733.7       550
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NC      .038      .038      .025
          D/S FACE OF C&O R.R. BRIDGE
X1    13001        30       250       306         1         1         1
BT       26       250     732.3     679.2       250     732.3     687.0       251     732.3     691.0
BT      253     732.3     695.0       256     732.3     697.3       259     732.4     699.0     262.5
BT    732.4     699.1       265     732.4     699.0       268     732.4     697.6       272     732.5
BT    695.0       274     732.5     691.0       275     732.5     687.0       275     732.5     679.2
BT      281     732.5     678.8       281     732.5     687.0       282     732.5     690.0       285
BT    732.5     695.7       288     732.5     697.6       291     732.5     698.7     293.5     732.5
BT    699.0       297     732.5     698.7       300     732.5     697.2       303     732.5     694.8
BT      305     732.5     691.0       306     732.5     687.0       306     732.5     678.8
GR    731.2         0     731.6       100     732.1       200     732.3       250     679.2       250
GR    679.2       251     679.2       253     679.2       256     679.2       259     679.2     262.5
GR    679.2       265     679.2       268     679.2       272     679.2       274     679.2       275
GR    678.8       281     678.8       282     678.8       285     678.8       288     678.7       291
GR    678.7     293.5     678.7       297     678.7       300     678.8       303     678.8       305
GR    678.8       306     732.5       306     732.7       350     733.2       450     733.7       550

          U/S FACE OF C&O R.R. BRIDGE
X1    13135         0         0         0       134       134       134
X2        0         0         0         0         0         0         1         0         0

NC      .038      .038      .035
X1    13136        30       250       306         1         1         1
GR    731.2         0     731.6       100     732.1       200     732.3       250     679.2       250
GR    679.2       251     679.2       253     679.2       256     679.2       259     679.2     262.5
GR    679.2       265     679.2       268     679.2       272     679.2       274     679.2       275
GR    678.8       281     678.8       282     678.8       285     678.8       288     678.7       291
GR    678.7     293.5     678.7       297     678.7       300     678.8       303     678.8       305
GR    678.8       306     732.5       306     732.7       350     733.2       450     733.7       550

X1    13236         0         0         0       100       100       100                 .7

NC                                      .3        .5
X1    13800        10       245       290       564       564       564
X3                                      90       346
GR    690.0         0     688.0       110     686.0       230     685.0       245     683.5       250
GR    683.5       285     685.0       290     686.0       410     690.0       430     692.0       450

NC                                      .5       1.0
X1    14400        12       175       220       600       600       600
X3                                     125       273
GR    704.0         0     702.0        40     700.0        50     696.0        65     694.0       175
GR    688.3       180     688.3       215     694.0       220     694.0       480     700.0       520
GR    710.0       535     720.0       560

NC                                      .5       1.0
X1    14600        18       250       298       200       200       200
GR    706.7         0     707.0        50     707.3       100     707.5       150     707.7       200
GR    707.7       250     689.9       250     690.0       265     690.0     266.5     687.9     281.5
GR    689.9       283     690.0       298     707.5       298     704.4       350     704.2       400
GR    704.6       450     705.5       500     707.1       550
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          D/S FACE OF E. HINES DRIVE & WILCOX RD.
X1     14601        18       250       298         1         1         1
BT        12       250     707.7     689.9       250     707.7     703.6       265     707.7     703.6
BT       265     707.7     690.0     266.5     703.6     690.0     266.5     707.7     703.6     281.5
BT     707.6     703.6     281.5     707.6     689.9       283     707.6     689.9       283     707.6
BT     703.6       298     707.5     703.6       298     707.5     690.0
GR     706.7         0     707.0        50     707.3       100     707.5       150     707.7       200
GR     707.7       250     689.9       250     690.0       265     690.0     266.5     689.9     281.5
GR     689.9       283     690.0       298     707.5       298     704.4       350     704.2       400
GR     704.6       450     705.5       500     707.1       550

          U/S FACE OF E. HINES DRIVE & WILCOX RD.
X1     14776         0         0         0       175       175       175
X2         0         0         0         0         0         0         1         0         0

X1     14777        18       250       298         1         1         1
GR     706.7         0     707.0        50     707.3       100     707.5       150     707.7       200
GR     707.7       250     689.9       250     690.0       265     690.0     266.5     689.9     281.5
GR     689.9       283     690.0       298     707.5       298     704.4       350     704.2       400
GR     704.6       450     705.5       500     707.1       550

          SPILLWAY #1 AT FACE OF BRIDGE
X1     14778        19       250       298         1         1         1
GR     706.7         0     707.0        50     707.3       100     707.5       150     707.7       200
GR     707.7       250     693.8       250     693.6       265     693.5       283     693.5       298
GR     707.5       298     704.4       350     704.0       500     706.0       550     708.0       600
GR     710.0       625     712.0       665     714.0       695     716.0       725

          SPILLWAY #2
X1     14798        17       244       304        20        20        20
GR     706.7         0     707.0        50     707.3       100     707.5       150     707.7       200
GR     706.6       244     696.1       244     696.0       304     706.5       304     704.4       350
GR     704.0       500     706.0       550     708.0       600     710.0       625     712.0       665
GR     714.0       695     716.0       725

          SPILLWAY #3
X1     14828        19       864       949        30        30        30
GR     705.8         0     705.5       460     706.7       630     707.0       680     707.3       730
GR     707.5       780     707.7       830     706.6       864     701.5       864     701.5       949
GR     706.6       949     704.4       980     704.0      1130     706.0      1180     708.0      1230
GR     710.0      1255     712.0      1300     714.0      1330     716.0      1360

          MANUFACTURED SECTION, BOTTOM BASED ON INVERTS OF THE BRIDGE SECTIONS
X1     14980        11       100       500       152       152       152
X3                              100                 500
GR     720.0         0     710.0        20     700.0        40     700.0        70     702.0        90
GR     704.0       100     692.0       110     692.0       490     704.0       500     710.0       530
GR     720.0       560
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NC                                          .3          .5
        MANUFACTURED SECTION, BOTTOM BASED ON INVERTS OF THE BRIDGE SECTIONS
X1    15400          8        200         620         420         420         420
X3                                        200                     620
GR    706.0          0      704.0         180       702.0         200       695.0       210       695.0       610
GR    702.0        620      710.0         650       720.0         670

        MANUFACTURED SECTION, BOTTOM BASED ON INVERTS OF THE BRIDGE SECTIONS
X1    15800          8        200         520         400         400         400
X3                                        200                     520
GR    706.0          0      706.0         180       704.0         200       696.0       210       696.0       510
GR    704.0        520      710.0         550       720.0         580

NC                                          .5          1.0
        D/S FACE OF NORTHVILLE RD. BRIDGE
X1    16001         25        250         318         201         201         201
X3                                        250                     318
GR    714.9          0      714.5          30       713.5         100       712.9       150       712.5       200
GR    713.0        227      713.5         250       704.8         250       702.0       253       699.3       263
GR    698.2        273      698.4         282       698.8         286       697.9       296       699.4       306
GR    702.0        313      702.9         315       704.5         318       714.1       318       714.2       342
GR    714.9        350      718.0         418       719.2         450       720.7       475       722.1       500

SB      .90       1.77        2.5           0          68           4         682
NC     .045       .045        .03
        U/S FACE OF NORTHVILLE RD. BRIDGE
X1    16063          0          0           0          62          62          62
X2        0          0          1       710.1      714.2
X3                                        203                     318
BT        8        250      713.5       704.8         250       713.5       710.1       282       713.8       710.4
BT      282      713.8      698.4         286       713.8       698.8         286       713.8       710.4       318
BT    714.1      710.7        318       714.1       704.5

NC     .035       .040       .035          .3          .5
X1    16113         25        250         318          50          50          50
GR    714.9          0      714.5          30       713.5         100      7712.9       150       712.5       200
GR    713.0        227      713.5         250       704.8         250       702.0       253       699.3       263
GR    698.2        273      698.4         282       698.8         286       697.9       296       699.4       306
GR    702.0        313      702.9         315       704.5         318       714.1       318       714.2       342
GR    714.9        350      718.0         418       719.2         450       720.7       475       722.1       500

X1    16764         27        249         300         651         651         651
GR    709.3          0      709.2          25       709.2          50       709.2        75       709.3       100
GR    709.5        125      709.9         150       710.3         175       710.7       200       712.0       225
GR    711.4        249      701.9         249       700.2         260       699.2       270       698.8       275
GR    698.5        280      699.8         290       701.5         300       712.2       300       712.7       323
GR    712.7        325      713.3         350       713.9         375       714.7       400       715.5       425
GR    716.5        450      717.6         475
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NC      .040      .040      .035       .5       1.0
          D/S FACE OF E. HINES DRIVE BRIDGE (MIDDLE ROUGE PARKWAY)
X1    16864        27       249       300       100       100       100
GR    709.3         0     709.2        25     709.2        50     709.2        75     709.3       100
GR    709.5       125     709.9       150     710.3       175     710.7       200     712.0       225
GR    711.4       249     701.9       249     700.2       260     699.2       270     698.8       275
GR    698.7       280     699.8       290     701.5       300     712.2       300     712.7       323
GR    712.7       325     713.3       350     713.9       375     714.7       400     715.5       425
GR    716.5       450     717.6       475

SB        0      1.65       2.5         0        51         0       325
NC     .045      .045      .025
          U/S FACE OF E. HINES DRIVE BRIDGE (MIDDLE ROUGE PARKWAY)
X1    16900         0         0         0        36        36        36
X2        0         0         1     708.1     712.7
BT       25         0     709.3         0        25     709.2         0        50     709.2         0
BT       75     709.2         0       100     709.3         0       125     709.5         0       150
BT    709.9         0       175     710.3         0       200     710.7         0       225     712.0
BT        0       249     711.4     701.9       260     711.5     706.2       270     711.7     707.8
BT      275     711.8     708.1       280     711.9     707.8       290     712.0     706.2       300
BT    712.2     701.5       323     712.7         0       325     712.7         0       350     713.3
BT        0       375     713.9         0       400     714.7         0       425     715.5         0
BT      450     716.5         0       475     717.6         0

NC      .035      .040      .035        .3        .5
X1    16950        27       249       300        50        50        50
GR    709.3         0     709.2        25     709.2        50     709.2        75     709.3       100
GR    709.5       125     709.9       150     710.3       175     710.7       200     712.0       225
GR    711.4       249     701.9       249     700.2       260     699.2       270     698.8       275
GR    698.8       280     699.8       290     701.5       300     712.2       300     712.7       323
GR    712.7       325     713.3       350     713.9       375     714.7       400     715.5       425
GR    716.5       450     717.6       475

X1    18100        15       430       520      1150      1150      1150
GR    740.0         0     738.0       100     736.0       150     734.0       200     732.0       250
GR    730.0       310     728.0       360     720.0       420     715.0       430     710.0       450
GR    700.0       500     704.0       520     706.0       650     708.0       820     710.0       830

X1    19850        22       250     367.5      1750      1750      1750
GR    723.9         0     724.1        50     724.8       150     726.4       250     714.9       250
GR    711.4       260     710.3       270     704.5       276     702.6       281     703.2       291
GR    704.4       301     704.9       307     705.3     313.5     705.9       323     710.1       332
GR    710.9       352     716.3       366     721.8       366     728.0     367.5     729.3       450
GR    730.8       550     731.6       600

NC                          .035
          D/S FACE OF M-14 HWY. BRIDGE
X1    19851        22       250     367.5         1         1         1
BT        5       250     726.4     714.9       250     726.4     720.2       366     728.0     721.8
BT      366     728.0     716.3     367.5     728.0         0
GR    723.9         0     724.1        50     724.8       150     726.4       250     714.9       250
GR    711.4       260     710.3       270     704.5       276     702.6       281     703.2       291
GR    704.4       301     704.9       307     705.3     313.5     705.9       323     710.1       332
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GR    710.9      352     716.3      366     721.8      366     728.0     367.5     729.3      450
GR    730.8      550     731.6      600

          U/S FACE OF M-14 HWY. BRIDGE
X1    19932        0         0        0        81       81       81
X2        0        0         0        0         0        0        1         0         0

NC     .030     .030      .035
X1    19933        0         0        0         1        1        1

NC                                   .5       1.0
X1    20033        0         0        0       100      100      100

NC                                   .3        .5
X1    20300       12       100      140       267      267      267
GR    713.0        0     712.0       60     710.0       80    708.0        90    706.0      100
GR    702.7      110     702.7      130     706.0      140    708.0       200    710.0      210
GR    712.0      220     714.0      230

NC     .040     .040      .035       .5       1.0
          D/S FACE OF BRIDGE AT ENTRANCE TO D.P.W.
X1    20470       30       249      280       170      170      170
X3                                  125                400
GR    711.4        0     711.4       30     712.3       55    713.3        80    713.8      105
GR    714.2      130     714.5      155     714.0      180    713.7       205    713.5      230
GR    712.9      249     707.8      249     707.0    250.3    703.5     256.2    702.5    257.5
GR    702.1      260     701.1      265     703.2      270    704.2     272.7    705.0      274
GR    707.2    278.7     707.9      280     712.8      280    713.2       305    713.8      330
GR    714.6      355     716.0      380     716.4      394    716.7       413    716.8      425

SB    1.05     1.76       2.5        0        28      2.6      218
NC     .045     .045      .030
          U/S FACE OF BRIDGE AT ENTRANCE TO D.P.W.
X1    20492        0         0        0        22       22       22
X2        0        0         1    710.9     712.9
X3                                   31                295
BT       33        0     711.4        0        30    711.4        0        55    712.3        0
BT       80    713.3         0      105     713.8        0      130     714.2        0      155
BT    714.5        0       180    714.0        0      205    713.7         0      230    713.5
BT        0      249     712.9    707.8      249    712.9    709.2     250.3    712.9    709.2
BT    250.3    712.9     710.9    256.2    712.9    710.9    256.2     712.9    703.5    257.5
BT    712.9    702.5     257.5    712.9    710.9    272.7    712.8     710.9    272.7    712.8
BT    704.2      274     712.8    705.0      274    712.8    710.9       278.7    712.8    710.9
BT    278.7    712.8     709.1      280     712.8    709.1      280     712.8    707.9      305
BT    713.2        0       330    713.8        0      355    714.6         0      380    716.0
BT        0      394     716.4        0      413    716.7        0       425    716.8        0

NC     .040     .040      .035       .3       .5
X1    20542       30       249      280       50       50       50
X3                                  143               382
GR    711.4        0     711.4       30     712.3       55    713.3        80    713.8      105
GR    714.2      130     714.5      155     714.0      180    713.7       205    713.5      230
GR    712.9      249     707.8      249     707.0    250.3    703.5     256.2    702.5    257.5
GR    702.1      260     701.1      265     703.2      270    704.2     272.7    705.0      274
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GR    707.2     278.7     707.9     280     712.8     280     713.2     305     713.8     330
GR    714.6       355     716.0     380     716.4     394     716.7     413     716.8     425

X1    20750        13       280     320       258     258       258
X3                                 245               355
GR    714.0         0     714.0     230     712.0     260     710.0     270     708.0     280
GR    702.8       290     702.8     310     710.0     320     712.0     330     714.0     345
GR    716.0       360     720.0     385     722.0     400

NC                                   .5       1.0
X1    20850        36     255.7   316.1       100     100       100
GR    733.6         0     732.7      25       731 8    50     731.0      75     730.2     100
GR    729.6       125     729.0     150     728.4     175     727.9     200     727.4     225
GR    727.3       250     727.3   255.7     705.2   255.7     705.0     257     704.6     260
GR    703.7       267     703.2     275     703.0     282     702.9     286     703.9     292
GR    705.1       300     706.0     305     706.6   307.5     707.7     313     708.4   316.1
GR    727.6     316.1     727.6     350     728.0     375     728.4     400     729.0     425
GR    729.7       450     730.4     475     731.4     500     731.8     525     732.7     550
GR    733.4       575

NC     .030      .030      .025
          D/S FACE OF NORTHVILLE RD.  BRIDGE
X1    20851        36     255.7   316.1         1       1         1
BT       13     255.7     727.3   705.2       257   727.3     710.0     260     727.3   713.5
BT      267     727.3     719.2     275     727.3   723.0       282   727.4     724.3     286
BT    727.4     724.7       292   727.5     724.0     300     727 5   721.4       305   725.5
BT    718.7     307.5     727.6   716.6       313   727.6     711.5   316.1     727.6   708.4
GR    733.6         0     732.7      25       731.8    50     731.0      75     730.2     100
GR    729.6       125     729.0     150     728.4     175     727.9     200     727.4     225
GR    727.3       250     727.3   255.7     705.2   255.7     705.0     257     704.6     260
GR    703.7       267     703.2     275     703.0     282     702.9     286     703.9     292
GR    705.1       300     706.0     305     706.6   307.5     707.7     313     708.4   316.1
GR    727.6     316.1     727.6     350     728.0     375     728.4     400     729.0     425
GR    729.7       450     730.4     475     731.4     500     731.8     525     732.7     550
GR    733.4       575

          U/S FACE OF NORTHVILLE RD.  BRIDGE
X1    20885         0         0       0        34      34        34
X2        0         0         0       0         0       0         1         0       0       0

NC                                  .035
X1    20886         0         0       0         1       1         1
```

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | GLOB | GCH | GROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 1

CCHV= 0.300 CEHV= 0.500
*SECNO 1000.000
3280 CROSS SECTION 1000.00 EXTENDED 5.50 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1000.000 | 12.50 | 667.50 | 0.00 | 667.50 | 667.59 | 0.09 | 0.00 | 0.00 | 670.00 |
| 4100.0 | 0.0 | 2660.9 | 1439.1 | 0.0 | 971.1 | 820.0 | 0.0 | 0.0 | 665.00 |
| 0.00 | 0.00 | 2.74 | 1.75 | 0.000 | 0.035 | 0.035 | 0.000 | 655.00 | 30.50 |
| 0.000279 | 0. | 0. | 0. | 0 | 0 | 0 | 0.00 | 329.50 | 360.00 |

*SECNO 1700.000
3280 CROSS SECTION 1700.00 EXTENDED 5.70 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1700.000 | 12.09 | 667.69 | 0.00 | 0.00 | 667.78 | 0.09 | 0.19 | 0.00 | 670.00 |
| 4100.0 | 0.0 | 2616.5 | 1483.5 | 0.0 | 990.7 | 860.0 | 29.3 | 5.3 | 665.00 |
| 0.08 | 0.00 | 2.64 | 1.73 | 0.000 | 0.035 | 0.035 | 0.000 | 655.60 | 30.07 |
| 0.000253 | 700. | 700. | 700. | 0 | 0 | 0 | 0.00 | 329.93 | 360.00 |

CCHV= 0.500 CEHV= 1.000
*SECNO 2100.000

3302 WARNING- CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.48

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2100.000 | 11.78 | 667.88 | 0.00 | 0.00 | 668.26 | 0.38 | 0.19 | 0.29 | 682.80 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 828.4 | 0.0 | 41.6 | 7.4 | 683.10 |
| 0.11 | 0.00 | 4.95 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 656.10 | 274.88 |
| 0.001108 | 400. | 400. | 400. | 2 | 0 | 0 | 0.00 | 122.15 | 397.03 |

*SECNO 2101.000

3370- NORMAL BRIDGE, NRD= 10- MIN ELTRD= 682.80 MAX ELLC= 679.20

D/S FACE OF N.B. I-275 BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2101.000 | 11.78 | 667.88 | 0.00 | 0.00 | 668.29 | 0.41 | 0.00 | 0.03 | 682.80 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 799.4 | 0.0 | 41.6 | 7.4 | 683.10 |
| 0.11 | 0.00 | 5.13 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 656.10 | 274.88 |
| 0.001389 | 1. | 1. | 1. | 0 | 0 | 0 | -29.12 | 122.15 | 397.03 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

CCHV= 0.300 CEHV= 0.500
*SECNO 2157.000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD= 682.80 MAX ELLC= 679.20

U/S FACE OF N.B. I-275 BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2157.000 | 11.87 | 667.97 | 0.00 | 0.00 | 668.37 | 0.40 | 0.08 | 0.00 | 682.80 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 810.1 | 0.0 | 42.6 | 7.5 | 683.10 |
| 0.11 | 0.00 | 5.06 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 656.10 | 274.64 |
| 0.001337 | 56. | 56. | 56. | 2 | 0 | 0 | -29.49 | 122.64 | 397.28 |

*SECNO 2158.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2158.000 | 11.91 | 668.01 | 0.00 | 0.00 | 668.38 | 0.37 | 0.00 | 0.01 | 682.80 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 844.9 | 0.0 | 42.6 | 7.5 | 683.10 |
| 0.11 | 0.00 | 4.85 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 656.10 | 274.52 |
| 0.001046 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 122.87 | 397.39 |

*SECNO 2188.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2188.000 | 11.95 | 668.05 | 0.00 | 0.00 | 668.41 | 0.36 | 0.03 | 0.00 | 682.80 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 849.3 | 0.0 | 43.2 | 7.6 | 683.10 |
| 0.11 | 0.00 | 4.83 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 656.10 | 274.43 |
| 0.001030 | 30. | 30. | 30. | 0 | 0 | 0 | 0.00 | 123.06 | 397.49 |

*SECNO 2189.000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD= 682.80 MAX ELLC= 679.20

D/S FACE OF S.B. I-275 BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2189.000 | 11.94 | 668.04 | 0.00 | 0.00 | 668.43 | 0.39 | 0.00 | 0.01 | 682.80 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 818.8 | 0.0 | 43.2 | 7.6 | 683.10 |
| 0.11 | 0.00 | 5.01 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 656.10 | 274.44 |
| 0.001297 | 1. | 1. | 1. | 1 | 0 | 0 | -29.78 | 123.03 | 397.47 |

*SECNO 2245.000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD= 682.80 MAX ELLC= 679.20

U/S FACE OF S.B. I-275 BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2245.000 | 12.02 | 668.12 | 0.00 | 0.00 | 668.50 | 0.38 | 0.07 | 0.00 | 682.80 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 826.7 | 0.0 | 44.3 | 7.8 | 683.10 |
| 0.11 | 0.00 | 4.96 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 656.10 | 274.26 |
| 0.001263 | 56. | 56. | 56. | 1 | 0 | 0 | -30.04 | 123.39 | 397.65 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | EI.MIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 2246.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2246.000 | 12.06 | 668.16 | 0.00 | 0.00 | 663.51 | 0.35 | 0.00 | 0.01 | 682.80 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 863.0 | 0.0 | 44.3 | 7.8 | 683.10 |
| 0.11 | 0.00 | 4.75 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 656.10 | 274.13 |
| 0.000983 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 123.66 | 397.79 |

CCHV= 0.500 CEHV= 1.000
*SECNO 3000.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.19

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3000.000 | 11.76 | 668.76 | 0.00 | 0.00 | 668.78 | 0.02 | 0.11 | 0.16 | 661.00 |
| 4100.0 | 2022.6 | 1132.4 | 945.0 | 1740.5 | 743.3 | 969.0 | 81.7 | 13.6 | 661.00 |
| 0.29 | 1.16 | 1.52 | 0.98 | 0.035 | 0.035 | 0.035 | 0.000 | 657.00 | 156.20 |
| 0.000056 | 754. | 754. | 754. | 2 | 0 | 0 | 0.00 | 551.41 | 707.61 |

CCHV= 0.300 CEHV= 0.500
*SECNO 4000.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4000.000 | 10.83 | 668.83 | 0.00 | 0.00 | 668.86 | 0.03 | 0.07 | 0.00 | 662.00 |
| 4100.0 | 1495.7 | 1194.6 | 1409.8 | 1243.5 | 677.9 | 1264.9 | 157.9 | 26.7 | 662.00 |
| 0.49 | 1.20 | 1.76 | 1.11 | 0.035 | 0.035 | 0.035 | 0.000 | 658.00 | 87.60 |
| 0.000085 | 1000. | 1000. | 1000. | 2 | 0 | 0 | 0.00 | 589.47 | 677.07 |

CCHV= 0.500 CEHV= 1.000
*SECNO 4800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.54

3470 ENCROACHMENT STATIONS= 340.0 596.0 TYPE= 1 TARGET= 256.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4800.000 | 10.94 | 668.94 | 0.00 | 0.00 | 669.05 | 0.11 | 0.11 | 0.08 | 662.00 |
| 4100.0 | 0.0 | 2125.0 | 1975.0 | 0.0 | 685.9 | 939.1 | 202.1 | 34.5 | 662.00 |
| 0.58 | 0.00 | 3.10 | 2.10 | 0.000 | 0.035 | 0.035 | 0.000 | 658.00 | 340.00 |
| 0.000292 | 800. | 800. | 800. | 2 | 0 | 0 | 0.00 | 256.00 | 596.00 |

*SECNO 5075.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.67

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | GLOB | GCH | GROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 340.0 458.0 TYPE= 1 TARGET= 118.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5075.000 | 11.06 | 669.06 | 0.00 | 0.00 | 669.36 | 0.30 | 0.12 | 0.19 | 662.00 |
| 4100.0 | 0.0 | 3254.9 | 845.1 | 0.0 | 694.0 | 262.7 | 210.2 | 35.7 | 662.00 |
| 0.60 | 0.00 | 4.69 | 3.22 | 0.000 | 0.035 | 0.035 | 0.000 | 658.00 | 340.00 |
| 0.000660 | 275. | 275. | 275. | 2 | 0 | 0 | 0.00 | 118.00 | 458.00 |

CCHV= 0.500 CEHV= 1.000
*SECNO 5146.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.43

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5146.000 | 9.75 | 669.15 | 0.00 | 0.00 | 670.17 | 1.02 | 0.09 | 0.71 | 679.30 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 506.2 | 0.0 | 211.4 | 35.8 | 674.50 |
| 0.60 | 0.00 | 8.10 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 659.40 | 257.62 |
| 0.003515 | 71. | 71. | 71. | 2 | 0 | 0 | 0.00 | 81.18 | 338.80 |

CCHV= 0.300 CEHV= 0.500
*SECNO 5147.000

3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD= 675.30 MAX ELLC= 677.80

3470 ENCROACHMENT STATIONS= 258.0 338.0 TYPE= 1 TARGET= 80.000
D/S FACE OF HAGGERTY RD. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5147.000 | 9.70 | 669.10 | 0.00 | 0.00 | 670.22 | 1.12 | 0.00 | 0.05 | 100000.00 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 483.2 | 0.0 | 211.4 | 35.8 | 100000.00 |
| 0.60 | 0.00 | 8.49 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 659.40 | 258.00 |
| 0.005230 | 1. | 1. | 1. | 2 | 0 | 0 | -17.67 | 80.00 | 338.00 |

*SECNO 5181.000

3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD= 675.30 MAX ELLC= 677.80

3470 ENCROACHMENT STATIONS= 258.0 338.0 TYPE= 1 TARGET= 80.000
U/S FACE OG HAGGERTY RD. BRIDGE

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 5181.000 | 10.00 | 669.40 | 0.00 | 0.00 | 670.42 | 1.02 | 0.17 | 0.03 | 100000.00 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 505.8 | 0.0 | 211.8 | 35.9 | 100000.00 |
| 0.60 | 0.00 | 8.11 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 659.40 | 258.00 |
| 0.004590 | 34. | 34. | 34. | 2 | 0 | 0 | -18.61 | 80.00 | 338.00 |

CCHV= 0.500 CEHV= 1.000
*SECNO 5182.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5182.000 | 10.21 | 669.61 | 0.00 | 0.00 | 670.49 | 0.88 | 0.00 | 0.07 | 679.30 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 543.9 | 0.0 | 211.8 | 35.9 | 674.50 |
| 0.60 | 0.00 | 7.54 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 659.40 | 256.71 |
| 0.002830 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 82.09 | 338.80 |

*SECNO 5232.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.38

3470 ENCROACHMENT STATIONS= 245.0 428.0 TYPE= 1 TARGET= 183.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5232.000 | 12.47 | 670.67 | 0.00 | 0.00 | 670.88 | 0.20 | 0.05 | 0.34 | 666.00 |
| 4100.0 | 522.7 | 3054.2 | 523.1 | 210.3 | 774.7 | 214.8 | 212.8 | 36.0 | 666.00 |
| 0.60 | 2.49 | 3.94 | 2.44 | 0.035 | 0.035 | 0.035 | 0.000 | 658.20 | 245.00 |
| 0.000500 | 50. | 50. | 50. | 3 | 0 | 0 | 0.00 | 183.00 | 428.00 |

*SECNO 5382.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.90

3470 ENCROACHMENT STATIONS= 95.0 578.0 TYPE= 1 TARGET= 483.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5382.000 | 12.75 | 670.95 | 0.00 | 0.00 | 670.99 | 0.05 | 0.04 | 0.08 | 666.00 |
| 4100.0 | 1374.2 | 1690.4 | 1035.4 | 964.7 | 799.3 | 816.2 | 219.3 | 37.2 | 666.00 |
| 0.63 | 1.42 | 2.11 | 1.27 | 0.035 | 0.035 | 0.035 | 0.000 | 658.20 | 95.00 |
| 0.000138 | 150. | 150. | 150. | 2 | 0 | 0 | 0.00 | 483.00 | 578.00 |

CCHV= 0.300 CEHV= 0.500

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| *SECNO 6000.000 | | | | | | | | | |
| 6000.000 | 12.84 | 671.04 | 0.00 | 0.00 | 671.07 | 0.03 | 0.07 | 0.00 | 666.00 |
| 4100.0 | 1518.5 | 1477.3 | 1104.2 | 1205.6 | 807.4 | 1062.3 | 259.4 | 45.3 | 666.00 |
| 0.75 | 1.26 | 1.83 | 1.04 | 0.035 | 0.035 | 0.035 | 0.000 | 658.20 | 46.89 |
| 0.000102 | 618. | 618. | 618. | 2 | 0 | 0 | 0.00 | 665.35 | 712.24 |
| *SECNO 6183.000 | | | | | | | | | |
| 3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.55 | | | | | | | | | |
| 3470 ENCROACHMENT STATIONS= | | 383.0 | 1028.0 | TYPE= | 1 | TARGET= | 645.000 | | |
| 6183.000 | 12.84 | 671.04 | 0.00 | 0.00 | 671.13 | 0.08 | 0.03 | 0.03 | 670.80 |
| 4100.0 | 1597.9 | 2014.7 | 487.4 | 904.1 | 704.8 | 432.8 | 270.2 | 48.1 | 670.40 |
| 0.77 | 1.77 | 2.86 | 1.13 | 0.035 | 0.035 | 0.035 | 0.000 | 658.20 | 383.00 |
| 0.000338 | 183. | 183. | 183. | 1 | 0 | 0 | 0.00 | 644.70 | 1027.70 |
| *SECNO 6196.000 | | | | | | | | | |
| 3265 DIVIDED FLOW | | | | | | | | | |
| 6196.000 | 7.08 | 671.08 | 0.00 | 0.00 | 671.14 | 0.05 | 0.00 | 0.01 | 672.00 |
| 4100.0 | 4013.2 | 0.0 | 86.8 | 2133.0 | 0.0 | 171.8 | 270.8 | 48.3 | 672.00 |
| 0.78 | 1.88 | 0.00 | 0.51 | 0.035 | 0.000 | 0.035 | 0.000 | 664.00 | 117.83 |
| 0.000211 | 13. | 13. | 13. | 2 | 0 | 0 | 0.00 | 643.85 | 1108.05 |
| CCHV= 0.300 CEHV= 0.500 | | | | | | | | | |
| *SECNO 6409.000 | | | | | | | | | |
| 3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.46 | | | | | | | | | |
| 6409.000 | 12.95 | 671.15 | 0.00 | 0.00 | 671.18 | 0.03 | 0.03 | 0.01 | 670.80 |
| 4100.0 | 2988.9 | 1111.0 | 0.1 | 2449.6 | 713.7 | 0.7 | 284.2 | 51.5 | 670.40 |
| 0.82 | 1.22 | 1.56 | 0.21 | 0.035 | 0.035 | 0.035 | 0.000 | 658.20 | 117.71 |
| 0.000099 | 213. | 213. | 213. | 0 | 0 | 0 | 0.00 | 660.14 | 777.86 |
| *SECNO 7900.000 | | | | | | | | | |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | GLOB | GCH | GROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.38

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7900.000 | 9.34 | 671.34 | 0.00 | 0.00 | 671.61 | 0.27 | 0.31 | 0.12 | 666.00 |
| 4100.0 | 756.9 | 3177.4 | 165.7 | 492.2 | 689.7 | 68.6 | 359.7 | 70.3 | 666.00 |
| 0.93 | 1.54 | 4.61 | 2.42 | 0.035 | 0.035 | 0.035 | 0.000 | 662.00 | 9.90 |
| 0.000690 | 1491. | 1491. | 1491. | 2 | 0 | 0 | 0.00 | 442.78 | 452.68 |

CCHV= 0.500 CEHV= 1.000
*SECNO 8201.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.67

D/S FACE OF E. HINES DRIVE BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8201.000 | 8.64 | 671.64 | 0.00 | 0.00 | 672.05 | 0.42 | 0.30 | 0.15 | 664.90 |
| 4100.0 | 1210.2 | 2345.3 | 544.5 | 461.4 | 379.9 | 115.3 | 367.4 | 73.1 | 665.20 |
| 0.94 | 2.62 | 6.17 | 4.72 | 0.035 | 0.035 | 0.035 | 0.000 | 663.00 | 193.64 |
| 0.001516 | 301. | 301. | 301. | 2 | 0 | 0 | 0.00 | 342.17 | 535.82 |

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON SB CARD NOT SPECIFIED

| SB | XK | XKOR | CDFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.75 | 2.50 | 0.00 | 52.00 | 0.00 | 340.00 | 0.00 | 663.00 | 663.00 |

*SECNO 8227.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.77

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 675.59 | 672.18 | 0.00 | 1764. | 2336. | 340. | 458. | 671.80 | 673.00 | 215. |

U/S FACE OF E. HINES DRIVE BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8227.000 | 9.64 | 672.64 | 0.00 | 0.00 | 672.92 | 0.28 | 0.37 | 0.00 | 664.70 |
| 4100.0 | 1379.3 | 2296.0 | 424.7 | 728.2 | 432.3 | 149.4 | 368.0 | 73.3 | 665.20 |
| 0.95 | 1.89 | 5.31 | 2.84 | 0.035 | 0.025 | 0.035 | 0.000 | 663.00 | 183.55 |
| 0.000482 | 26. | 26. | 26. | 2 | 0 | 4 | 0.00 | 358.32 | 541.87 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | GLOB | GCH | GROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

CCHV= 0.300 CEHV= 0.500
*SECNO 8257.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.67

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8257.000 | 9.71 | 672.71 | 0.00 | 0.00 | 672.95 | 0.24 | 0.02 | 0.01 | 664.90 |
| 4100.0 | 1490.5 | 2159.0 | 450.5 | 746.7 | 435.9 | 152.0 | 369.0 | 73.5 | 665.20 |
| 0.95 | 2.00 | 4.95 | 2.96 | 0.050 | 0.040 | 0.050 | 0.000 | 663.00 | 182.86 |
| 0.001061 | 30. | 30. | 30. | 2 | 0 | 0 | 0.00 | 359.42 | 542.28 |

*SECNO 9600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.66

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9600.000 | 8.64 | 674.64 | 0.00 | 0.00 | 675.15 | 0.51 | 2.06 | 0.13 | 672.00 |
| 4100.0 | 114.8 | 2842.2 | 1143.0 | 71.6 | 428.3 | 416.7 | 403.7 | 85.0 | 670.00 |
| 1.02 | 1.60 | 6.64 | 2.74 | 0.050 | 0.040 | 0.050 | 0.000 | 666.00 | 369.77 |
| 0.002411 | 1343. | 1343. | 1343. | 3 | 0 | 0 | 0.00 | 383.65 | 753.42 |

CCHV= 0.500 CEHV= 1.000
*SECNO 10200.000

3470 ENCROACHMENT STATIONS= 100.0 555.0 TYPE= 1 TARGET= 455.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10200.000 | 7.46 | 676.46 | 0.00 | 0.00 | 677.21 | 0.76 | 1.82 | 0.25 | 672.00 |
| 4100.0 | 1274.0 | 2696.5 | 129.5 | 486.3 | 320.4 | 55.1 | 415.9 | 90.5 | 672.00 |
| 1.04 | 2.62 | 8.41 | 2.35 | 0.050 | 0.040 | 0.050 | 0.000 | 669.00 | 100.00 |
| 0.003916 | 600. | 600. | 600. | 2 | 0 | 0 | 0.00 | 412.27 | 512.27 |

*SECNO 10500.000

3470 ENCROACHMENT STATIONS= 175.0 555.0 TYPE= 1 TARGET= 380.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10500.000 | 7.55 | 677.75 | 677.67 | 0.00 | 678.78 | 1.03 | 1.29 | 0.27 | 673.20 |
| 4100.0 | 907.0 | 3033.0 | 160.1 | 334.3 | 324.6 | 61.2 | 421.4 | 93.0 | 673.20 |
| 1.05 | 2.71 | 9.34 | 2.61 | 0.050 | 0.040 | 0.050 | 0.000 | 670.20 | 175.00 |
| 0.004748 | 300. | 300. | 300. | 4 | 5 | 0 | 0.00 | 337.73 | 512.73 |

*SECNO 10600.000

3470 ENCROACHMENT STATIONS= 200.0 555.0 TYPE= 1 TARGET= 355.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | GLOB | GCH | GROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 10600.000 | 7.62 | 678.22 | 678.12 | 0.00 | 679.31 | 1.08 | 0.48 | 0.05 | 673.60 |
| 4100.0 | 816.0 | 3106.7 | 177.2 | 296.9 | 328.1 | 66.5 | 423.0 | 73.8 | 673.60 |
| 1.06 | 2.75 | 9.47 | 2.66 | 0.050 | 0.040 | 0.050 | 0.000 | 670.60 | 200.00 |
| 0.004807 | 100. | 100. | 100. | 4 | 5 | 0 | 0.00 | 313.12 | 513.12 |

*SECNO 10700.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.53

3470 ENCROACHMENT STATIONS= 600.0 880.0 TYPE= 1 TARGET= 200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10700.000 | 8.58 | 679.58 | 0.00 | 0.00 | 679.96 | 0.38 | 0.30 | 0.35 | 675.00 |
| 4100.0 | 1467.0 | 2039.7 | 593.2 | 481.1 | 320.7 | 238.4 | 425.0 | 94.5 | 676.00 |
| 1.06 | 3.05 | 6.36 | 2.49 | 0.050 | 0.040 | 0.050 | 0.000 | 671.00 | 600.00 |
| 0.002042 | 100. | 100. | 100. | 4 | 0 | 0 | 0.00 | 277.90 | 877.90 |

CCHV= 0.500 CEHV= 1.000
*SECNO 10800.000

3470 ENCROACHMENT STATIONS= 625.0 855.0 TYPE= 1 TARGET= 230.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10800.000 | 8.55 | 679.80 | 0.00 | 0.00 | 680.28 | 0.47 | 0.22 | 0.09 | 675.25 |
| 4100.0 | 1318.1 | 2210.2 | 571.7 | 394.8 | 319.6 | 203.9 | 427.2 | 95.0 | 676.25 |
| 1.07 | 3.34 | 6.92 | 2.80 | 0.050 | 0.040 | 0.050 | 0.000 | 671.25 | 625.00 |
| 0.002424 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 230.00 | 855.00 |

*SECNO 10901.000
3280 CROSS SECTION 10901.00 EXTENDED 2.28 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.62

3470 ENCROACHMENT STATIONS= 155.0 388.0 TYPE= 1 TARGET= 233.000
D/S FACE OF MIDDLE WOODS DRIVE BRIDGE

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 10901.000 | 8.68 | 680.18 | 679.95 | 0.00 | 681.48 | 1.31 | 0.37 | 0.83 | 680.00 |
| 4100.0 | 72.4 | 3438.0 | 589.7 | 47.8 | 346.9 | 166.6 | 428.9 | 95.6 | 680.00 |
| 1.07 | 1.51 | 9.91 | 3.54 | 0.050 | 0.040 | 0.050 | 0.000 | 671.50 | 155.00 |
| 0.006368 | 101. | 101. | 101. | 4 | 5 | 0 | 0.00 | 233.00 | 388.00 |

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON SB CARD NOT SPECIFIED

| SB | XK | XKOR | CDFG | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.73 | 2.50 | 0.00 | 41.00 | 0.00 | 232.00 | 0.00 | 671.50 | 671.50 |

*SECNO 10930.000
3280 CROSS SECTION 10930.00 EXTENDED 6.64 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.31

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 688.57 | 681.48 | 0.00 | 1086. | 3014. | 232. | 242. | 677.40 | 680.00 | 43. |

3470 ENCROACHMENT STATIONS= 161.0 381.0 TYPE= 1 TARGET= 220.000
U/S FACE OF MIDDLE WOODS DRIVE BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10930.000 | 13.04 | 684.54 | 0.00 | 0.00 | 684.71 | 0.17 | 3.23 | 0.00 | 680.00 |
| 4100.0 | 787.4 | 2170.9 | 1141.7 | 433.4 | 532.5 | 539.8 | 429.6 | 95.7 | 680.00 |
| 1.07 | 1.82 | 4.08 | 2.12 | 0.042 | 0.030 | 0.042 | 0.000 | 671.50 | 161.00 |
| 0.000342 | 29. | 29. | 29. | 2 | 0 | 2 | 0.00 | 220.00 | 381.00 |

*SECNO 10980.000
3280 CROSS SECTION 10980.00 EXTENDED 6.66 FEET

3470 ENCROACHMENT STATIONS= 166.0 377.0 TYPE= 1 TARGET= 211.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10980.000 | 13.06 | 684.56 | 0.00 | 0.00 | 684.74 | 0.18 | 0.02 | 0.01 | 680.00 |
| 4100.0 | 760.9 | 2220.4 | 1118.8 | 410.4 | 533.3 | 516.5 | 431.3 | 96.0 | 680.00 |
| 1.08 | 1.85 | 4.16 | 2.17 | 0.042 | 0.030 | 0.042 | 0.000 | 671.50 | 166.00 |
| 0.000356 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 211.00 | 377.00 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| *SECNO 11200.000 | | | | | | | | | |
| 11200.000 | 11.77 | 684.67 | 0.00 | 0.00 | 685.08 | 0.42 | 0.11 | 0.24 | 694.50 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 792.7 | 0.0 | 437.0 | 96.8 | 692.90 |
| 1.09 | 0.00 | 5.17 | 0.00 | 0.000 | 0.030 | 0.000 | 0.000 | 672.90 | 234.93 |
| 0.000684 | 220. | 220. | 220. | 2 | 0 | 0 | 0.00 | 94.81 | 329.74 |
| *SECNO 11201.000 | | | | | | | | | |
| 3370 NORMAL BRIDGE, NRD= 14 MIN ELTRD= 692.90 MAX ELLC= 692.50 | | | | | | | | | |
| D/S FACE OF PLYMOUTH ROAD BRIDGE | | | | | | | | | |
| 11201.000 | 11.77 | 684.67 | 0.00 | 0.00 | 685.44 | 0.77 | 0.00 | 0.36 | 694.50 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 581.4 | 0.0 | 437.0 | 96.8 | 692.90 |
| 1.09 | 0.00 | 7.05 | 0.00 | 0.000 | 0.025 | 0.000 | 0.000 | 672.90 | 234.93 |
| 0.001006 | 1. | 1. | 1. | 0 | 0 | 0 | -211.31 | 94.81 | 329.75 |
| *SECNO 11255.000 | | | | | | | | | |
| 3370 NORMAL BRIDGE, NRD= 14 MIN ELTRD= 692.90 MAX ELLC= 692.50 | | | | | | | | | |
| U/S FACE OF PLYMOUTH ROAD BRIDGE | | | | | | | | | |
| 11255.000 | 11.83 | 684.73 | 0.00 | 0.00 | 685.50 | 0.77 | 0.05 | 0.00 | 694.50 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 583.9 | 0.0 | 437.7 | 96.9 | 692.90 |
| 1.09 | 0.00 | 7.02 | 0.00 | 0.000 | 0.025 | 0.000 | 0.000 | 672.90 | 234.82 |
| 0.000996 | 54. | 54. | 54. | 1 | 0 | 0 | -214.00 | 95.04 | 329.86 |
| *SECNO 11256.000 | | | | | | | | | |
| 11256.000 | 12.45 | 685.35 | 0.00 | 0.00 | 685.70 | 0.35 | 0.00 | 0.21 | 694.50 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 858.9 | 0.0 | 437.8 | 96.9 | 692.90 |
| 1.09 | 0.00 | 4.77 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 672.90 | 233.45 |
| 0.000744 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 97.69 | 331.14 |
| CCHV= 0.300 CEHV= 0.500 | | | | | | | | | |
| *SECNO 11356.000 | | | | | | | | | |
| 11356.000 | 12.32 | 685.42 | 0.00 | 0.00 | 685.79 | 0.36 | 0.08 | 0.01 | 694.70 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 846.6 | 0.0 | 439.7 | 97.1 | 693.10 |
| 1.10 | 0.00 | 4.84 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 673.10 | 233.72 |
| 0.000774 | 100. | 100. | 100. | 1 | 0 | 0 | 0.00 | 97.16 | 330.88 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | ISTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 12150.000

3470 ENCROACHMENT STATIONS= 200.0 300.0 TYPE= 1 TARGET= 100.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12150.000 | 11.06 | 686.06 | 0.00 | 0.00 | 686.38 | 0.32 | 0.58 | 0.01 | 682.00 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 905.7 | 0.0 | 455.7 | 98.9 | 100000.00 |
| 1.15 | 0.00 | 4.53 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 675.00 | 200.00 |
| 0.000681 | 794. | 794. | 794. | 2 | 0 | 0 | 0.00 | 100.00 | 300.00 |

CCHV= 0.500 CEHV= 1.000
*SECNO 12850.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.44

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12850.000 | 15.48 | 686.98 | 0.00 | 0.00 | 688.03 | 1.05 | 0.92 | 0.74 | 731.60 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 497.8 | 0.0 | 467.0 | 100.1 | 731.80 |
| 1.17 | 0.00 | 8.24 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 671.50 | 250.00 |
| 0.003550 | 700. | 700. | 700. | 2 | 0 | 0 | 0.00 | 56.00 | 306.00 |

*SECNO 13000.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13000.000 | 8.80 | 687.50 | 0.00 | 0.00 | 688.64 | 1.15 | 0.52 | 0.09 | 732.30 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 477.1 | 0.0 | 468.6 | 100.3 | 732.50 |
| 1.18 | 0.00 | 8.59 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 678.70 | 250.00 |
| 0.003354 | 150. | 150. | 150. | 2 | 0 | 0 | 0.00 | 56.00 | 306.00 |

*SECNO 13001.000

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 732.30 MAX ELLC= 679.10

D/S FACE OF C&O R.R. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13001.000 | 8.80 | 687.50 | 0.00 | 0.00 | 688.94 | 1.44 | 0.00 | 0.29 | 732.30 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 426.1 | 0.0 | 468.7 | 100.3 | 732.50 |
| 1.18 | 0.00 | 9.62 | 0.00 | 0.000 | 0.025 | 0.000 | 0.000 | 678.70 | 250.00 |
| 0.003797 | 1. | 1. | 1. | 0 | 0 | 0 | -51.14 | 56.00 | 306.00 |

*SECNO 13135.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 732.30 MAX ELLC= 699.10

U/S FACE OF C&O R.R. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13135.000 | 9.60 | 688.30 | 0.00 | 0.00 | 689.50 | 1.21 | 0.45 | 0.12 | 732.30 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 465.3 | 0.0 | 470.0 | 100.5 | 732.50 |
| 1.18 | 0.00 | 8.81 | 0.00 | 0.000 | 0.025 | 0.000 | 0.000 | 678.70 | 250.00 |
| 0.002957 | 134. | 134. | 134. | 2 | 0 | 0 | -56.72 | 56.00 | 306.00 |

*SECNO 13136.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13136.000 | 10.12 | 688.82 | 0.00 | 0.00 | 689.68 | 0.86 | 0.00 | 0.17 | 732.30 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 551.6 | 0.0 | 470.0 | 100.5 | 732.50 |
| 1.18 | 0.00 | 7.43 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 678.70 | 250.00 |
| 0.002168 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 56.00 | 306.00 |

*SECNO 13236.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13236.000 | 9.65 | 689.05 | 0.00 | 0.00 | 690.00 | 0.95 | 0.23 | 0.09 | 733.00 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 525.0 | 0.0 | 471.3 | 100.6 | 733.20 |
| 1.18 | 0.00 | 7.81 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 679.40 | 250.00 |
| 0.002514 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 56.00 | 306.00 |

CCHV= 0.300 CEHV= 0.500
*SECNO 13800.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.73

3470 ENCROACHMENT STATIONS= 90.0 346.0 TYPE= 1 TARGET= 256.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13800.000 | 7.28 | 690.78 | 0.00 | 0.00 | 690.98 | 0.20 | 0.76 | 0.22 | 685.00 |
| 4100.0 | 1618.9 | 1444.7 | 1036.4 | 584.6 | 320.1 | 310.6 | 482.5 | 102.7 | 685.00 |
| 1.23 | 2.77 | 4.51 | 3.34 | 0.038 | 0.035 | 0.038 | 0.000 | 683.50 | 90.00 |
| 0.000837 | 564. | 564. | 564. | 2 | 0 | 0 | 0.00 | 256.00 | 346.00 |

CCHV= 0.500 CEHV= 1.000
*SECNO 14400.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 125.0 273.0 TYPE= 1 TARGET= 148.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14400.000 | 7.51 | 695.81 | 695.81 | 0.00 | 697.45 | 1.63 | 1.07 | 1.43 | 694.00 |
| 4100.0 | 249.6 | 3427.0 | 423.5 | 67.9 | 309.6 | 96.1 | 494.2 | 105.4 | 694.00 |
| 1.24 | 3.67 | 11.07 | 4.41 | 0.038 | 0.035 | 0.038 | 0.000 | 688.30 | 125.00 |
| 0.006003 | 600. | 600. | 600. | 2 | 8 | 0 | 0.00 | 148.00 | 273.00 |

CCHV= 0.500 CEHV= 1.000
*SECNO 14600.000

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14600.000 | 7.28 | 697.18 | 0.00 | 0.00 | 699.35 | 2.17 | 1.37 | 0.53 | 707.70 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 347.1 | 0.0 | 496.1 | 105.9 | 707.50 |
| 1.25 | 0.00 | 11.81 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 689.90 | 250.00 |
| 0.007864 | 200. | 200. | 200. | 2 | 0 | 0 | 0.00 | 48.00 | 298.00 |

*SECNO 14601.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.64

3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD= 703.60 MAX ELLC= 703.60

D/S FACE OF E. HINES DRIVE & WILCOX RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14601.000 | 7.29 | 697.19 | 0.00 | 0.00 | 699.65 | 2.46 | 0.01 | 0.29 | 707.70 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 325.7 | 0.0 | 496.1 | 105.9 | 707.50 |
| 1.25 | 0.00 | 12.59 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 689.90 | 250.00 |
| 0.018911 | 1. | 1. | 1. | 0 | 0 | 0 | -21.72 | 48.00 | 298.00 |

*SECNO 14776.000

3301 HV CHANGED MORE THAN HVINS

stages not likely high

4100 cfs will not all be through culvert d/s of dam. Flow over embankment

~~4100~~ 3000 through culvert

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.72

3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD= 703.60 MAX ELLC= 703.60

U/S FACE OF E. HINES DRIVE & WILCOX RD.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14776.000 | 11.22 | 701.12 | 0.00 | 0.00 | 702.15 | 1.03 | 1.78 | 0.71 | 707.70 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 502.5 | 0.0 | 497.7 | 106.1 | 707.50 |
| 1.25 | 0.00 | 3.16 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 689.90 | 250.00 |
| 0.006361 | 175. | 175. | 175 | 3 | 0 | 0 | -33.50 | 48.00 | 298.00 |

4100 cfs not going through culvert?

*SECNO 14777.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.77

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14777.000 | 11.47 | 701.37 | 0.00 | 0.00 | 702.24 | 0.87 | 0.00 | 0.08 | 707.70 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 548.1 | 0.0 | 497.7 | 106.1 | 707.50 |
| 1.25 | 0.00 | 7.48 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 689.90 | 250.00 |
| 0.002029 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 48.00 | 298.00 |

*SECNO 14778.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.57

SPILLWAY #1 AT FACE OF BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14778.000 | 7.87 | 701.87 | 0.00 | 0.00 | 703.24 | 1.87 | 0.00 | 1.00 | 707.70 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 373.9 | 0.0 | 497.8 | 106.1 | 707.50 |
| 1.25 | 0.00 | 10.97 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 693.50 | 250.00 |
| 0.006265 | 1. | 1. | 1. | 0 | 0 | 0 | 0.00 | 48.00 | 298.00 |

$Q = (44)(3)(1')^{1.5}$

200 - 699.3
300 - 701.1
3500 701.9
4100 - 702.8

*SECNO 14798.000

3301 HV CHANGED MORE THAN HVINS

SPILLWAY #2

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14798.000 | 5.53 | 701.53 | 0.00 | 0.00 | 703.94 | 2.41 | 0.16 | 0.54 | 706.60 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 329.0 | 0.0 | 497.9 | 106.1 | 706.50 |
| 1.26 | 0.00 | 12.46 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 696.00 | 244.00 |
| 0.011141 | 20. | 20. | 20. | 2 | 0 | 0 | 0.00 | 60.00 | 304.00 |

$Q = (60)(3)(H)^{1.5}$

w/ SUB
2000 - 703.8
3000 703.9
3500 704.7
4100 706

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L -BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R -BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 14828.000

3265 DIVIDED FLOW

3280 CROSS SECTION 14828.00 EXTENDED 0.12 FEET

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
SPILLWAY #3

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14828.000 | 4.42 | 705.92 | 705.92 | 0.00 | 706.56 | 0.64 | 0.21 | 0.89 | 706.60 |
| 4100.0 | 152.0 | 2786.8 | 1161.2 | 136.4 | 375.7 | 320.2 | 498.3 | 106.4 | 706.60 |
| 1.26 | 1.11 | 7.42 | 3.63 | 0.038 | 0.035 | 0.038 | 0.000 | 701.50 | 0.00 |
| 0.004803 | 30. | 30. | 30. | 4 | 15 | 0 | 0.00 | 823.81 | 1177.99 |

*SECNO 14980.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 24.27

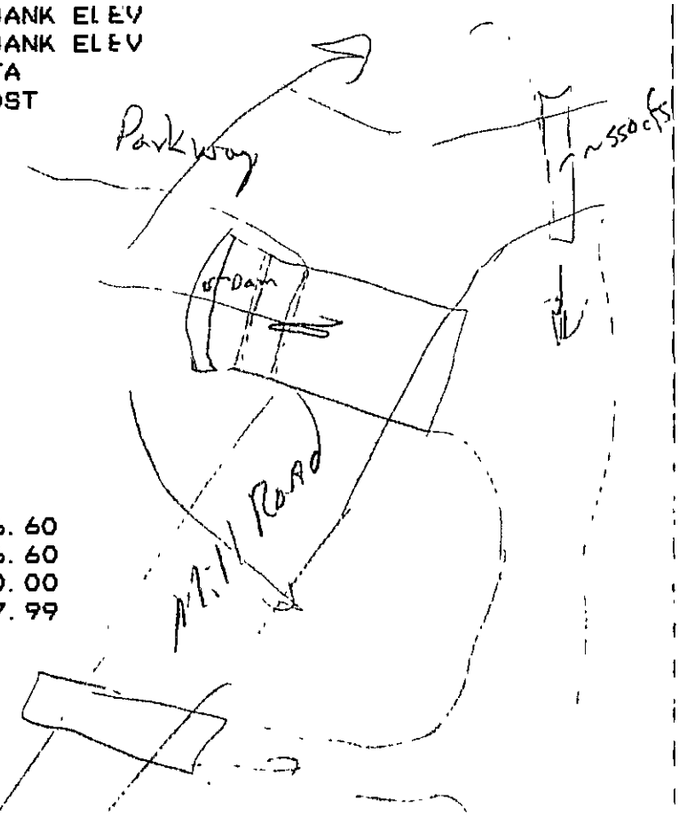
3470 ENCROACHMENT STATIONS= 100.0 500.0 TYPE= 1 TARGET= 400.000
MANUFACTURED SECTION, BOTTOM BASED ON INVERTS OF THE BRIDGE SECTIONS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14980.000 | 14.87 | 706.87 | 0.00 | 0.00 | 706.88 | 0.01 | 0.00 | 0.32 | 704.00 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 5828.6 | 0.0 | 509.9 | 108.6 | 100000.00 |
| 1.32 | 0.00 | 0.70 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 692.00 | 100.00 |
| 0.000008 | 152. | 152. | 152. | 2 | 0 | 0 | 0.00 | 400.00 | 500.00 |

CCHV= 0.300 CEHV= 0.500
*SECNO 15400.000

3470 ENCROACHMENT STATIONS= 200.0 620.0 TYPE= 1 TARGET= 420.000
MANUFACTURED SECTION, BOTTOM BASED ON INVERTS OF THE BRIDGE SECTIONS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15400.000 | 11.87 | 706.87 | 0.00 | 0.00 | 706.89 | 0.01 | 0.00 | 0.00 | 702.00 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 4917.3 | 0.0 | 561.7 | 112.5 | 100000.00 |
| 1.46 | 0.00 | 0.83 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 695.00 | 200.00 |
| 0.000015 | 420. | 420. | 420. | 2 | 0 | 0 | 0.00 | 420.00 | 620.00 |




may be slightly high

$(89)(3)(H)^{1.5}$ 2000 705.3
3000 707

~706.5

w/sub

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 15800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.65

3470 ENCROACHMENT STATIONS= 200.0 520.0 TYPE= 1 TARGET= 320.000
MANUFACTURED SECTION, BOTTOM BASED ON INVERTS OF THE BRIDGE SECTIONS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 15800.000 | 10.88 | 706.88 | 0.00 | 0.00 | 706.90 | 0.02 | 0.01 | 0.01 | 704.00 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 3401.4 | 0.0 | 599.9 | 115.9 | 100000.00 |
| 1.55 | 0.00 | 1.21 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 696.00 | 200.00 |
| 0.000036 | 400. | 400. | 400. | 0 | 0 | 0 | 0.00 | 320.00 | 520.00 |

CCHV= 0.500 CEHV= 1.000
*SECNO 16001.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.11

3470 ENCROACHMENT STATIONS= 250.0 318.0 TYPE= 1 TARGET= 68.000
D/S FACE OF NORTHVILLE RD. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16001.000 | 9.00 | 706.90 | 0.00 | 0.00 | 707.97 | 1.07 | 0.02 | 1.05 | 713.50 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 494.5 | 0.0 | 608.9 | 116.8 | 100000.00 |
| 1.56 | 0.00 | 8.29 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 697.90 | 250.00 |
| 0.003098 | 201. | 201. | 201. | 1 | 0 | 0 | 0.00 | 68.00 | 318.00 |

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON SB CARD NOT SPECIFIED

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.90 | 1.77 | 2.50 | 0.00 | 68.00 | 4.00 | 682.00 | 0.00 | 697.90 | 697.90 |

*SECNO 16063.000
CLASS A LOW FLOW

3420 BRIDGE W.S.= 706.79 BRIDGE VELOCITY= 7.21 CALCULATED CHANNEL AREA= 569.

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| EGPRS | EGLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 708.09 | 0.17 | 0. | 4100. | 682. | 781. | 710.10 | 714.20 | 0. |

3470 ENCROACHMENT STATIONS= 203.0 318.0 TYPE= 1 TARGET= 115.000

U/S FACE OF NORTHVILLE RD. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16063.000 | 9.17 | 707.07 | 0.00 | 0.00 | 708.09 | 1.02 | 0.12 | 0.00 | 713.50 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 506.5 | 0.0 | 609.6 | 116.9 | 100000.00 |
| 1.56 | 0.00 | 8.09 | 0.00 | 0.000 | 0.030 | 0.000 | 0.000 | 697.90 | 250.00 |
| 0.002113 | 62. | 62. | 62. | 0 | 0 | 0 | 0.00 | 68.00 | 318.00 |

CCHV= 0.300 CEHV= 0.500

*SECNO 16113.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16113.000 | 9.35 | 707.25 | 0.00 | 0.00 | 708.22 | 0.97 | 0.12 | 0.01 | 713.50 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 518.8 | 0.0 | 610.2 | 117.0 | 714.10 |
| 1.56 | 0.00 | 7.90 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 697.90 | 250.00 |
| 0.002673 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 68.00 | 318.00 |

*SECNO 16764.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16764.000 | 10.53 | 709.03 | 0.00 | 0.00 | 710.23 | 1.20 | 1.70 | 0.12 | 711.40 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 465.6 | 0.0 | 617.6 | 117.9 | 712.20 |
| 1.58 | 0.00 | 8.80 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 698.50 | 249.00 |
| 0.003184 | 651. | 651. | 651. | 2 | 0 | 0 | 0.00 | 51.00 | 300.00 |

CCHV= 0.500 CEHV= 1.000

*SECNO 16864.000

3265 DIVIDED FLOW

3280 CROSS SECTION 16864.00 EXTENDED 0.22 FEET

D/S FACE OF E. HINES DRIVE BRIDGE (MIDDLE ROUGE PARKWAY)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16864.000 | 10.82 | 709.52 | 0.00 | 0.00 | 710.59 | 1.07 | 0.29 | 0.07 | 711.40 |
| 4100.0 | 26.6 | 4073.4 | 0.0 | 32.3 | 489.1 | 0.0 | 618.7 | 118.1 | 712.20 |
| 1.58 | 0.82 | 8.33 | 0.00 | 0.040 | 0.035 | 0.000 | 0.000 | 698.70 | 0.00 |
| 0.002718 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 177.16 | 300.00 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON SB CARD NOT SPECIFIED

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.65 | 2.50 | 0.00 | 51.00 | 0.00 | 325.00 | 0.00 | 698.70 | 698.70 |

*SECNO 16900.000

3265 DIVIDED FLOW

3280 CROSS SECTION 16900.00 EXTENDED 1.43 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.77

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 713.60 | 710.60 | 0.00 | 1302. | 2804. | 325. | 479. | 708.10 | 712.70 | 219. |

U/S FACE OF E. HINES DRIVE BRIDGE (MIDDLE ROUGE PARKWAY)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16900.000 | 12.03 | 710.73 | 0.00 | 0.00 | 711.43 | 0.70 | 0.84 | 0.00 | 711.40 |
| 4100.0 | 267.2 | 3832.8 | 0.0 | 230.3 | 550.7 | 0.0 | 619.3 | 118.3 | 712.20 |
| 1.58 | 1.16 | 6.96 | 0.00 | 0.045 | 0.025 | 0.000 | 0.000 | 698.70 | 0.00 |
| 0.000867 | 36. | 36. | 36. | 3 | 0 | 4 | 0.00 | 251.50 | 300.00 |

CCHV= 0.300 CEHV= 0.500
*SECNO 16950.000

3265 DIVIDED FLOW

3280 CROSS SECTION 16950.00 EXTENDED 1.72 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16950.000 | 12.22 | 711.02 | 0.00 | 0.00 | 711.54 | 0.52 | 0.05 | 0.06 | 711.40 |
| 4100.0 | 600.4 | 3499.6 | 0.0 | 290.9 | 565.2 | 0.0 | 620.2 | 118.6 | 712.20 |
| 1.59 | 2.06 | 6.19 | 0.00 | 0.035 | 0.035 | 0.000 | 0.000 | 698.80 | 0.00 |
| 0.001314 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 257.24 | 300.00 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 18100.000
3280 CROSS SECTION 18100.00 EXTENDED 2.06 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.74

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18100.000 | 12.06 | 712.06 | 0.00 | 0.00 | 712.11 | 0.05 | 0.43 | 0.14 | 715.00 |
| 4100.0 | 0.0 | 1162.6 | 2937.4 | 0.0 | 563.0 | 1809.7 | 662.8 | 127.1 | 704.00 |
| 1.77 | 0.00 | 2.07 | 1.62 | 0.000 | 0.035 | 0.040 | 0.000 | 700.00 | 441.75 |
| 0.000175 | 1150. | 1150. | 1150. | 2 | 0 | 0 | 0.00 | 388.25 | 830.00 |

*SECNO 19850.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.21

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19850.000 | 9.84 | 712.44 | 0.00 | 0.00 | 713.42 | 0.98 | 0.84 | 0.47 | 726.40 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 515.1 | 0.0 | 720.8 | 136.9 | 728.00 |
| 1.83 | 0.00 | 7.96 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 702.60 | 257.03 |
| 0.004122 | 1750. | 1750. | 1750. | 3 | 0 | 0 | 0.00 | 98.96 | 355.99 |

*SECNO 19851.000

3370 NORMAL BRIDGE, NRD= 5 MIN ELTRD= 726.40 MAX ELLC= 721.80

D/S FACE OF M-14 HWY. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19851.000 | 9.84 | 712.44 | 0.00 | 0.00 | 713.43 | 0.98 | 0.00 | 0.00 | 726.40 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 515.3 | 0.0 | 720.8 | 136.9 | 728.00 |
| 1.83 | 0.00 | 7.96 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 702.60 | 257.03 |
| 0.004118 | 1. | 1. | 1. | 0 | 0 | 0 | 0.00 | 98.97 | 356.00 |

*SECNO 19932.000

3370 NORMAL BRIDGE, NRD= 5 MIN ELTRD= 726.40 MAX ELLC= 721.80

U/S FACE OF M-14 HWY. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19932.000 | 10.36 | 712.96 | 0.00 | 0.00 | 713.77 | 0.81 | 0.29 | 0.05 | 726.40 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 567.1 | 0.0 | 721.8 | 137.1 | 728.00 |
| 1.83 | 0.00 | 7.23 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 702.60 | 255.55 |
| 0.003109 | 81. | 81. | 81. | 2 | 0 | 0 | 0.00 | 101.78 | 357.33 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| *SECNO 19933.000 | | | | | | | | | |
| 19933.000 | 10.36 | 712.96 | 0.00 | 0.00 | 713.77 | 0.81 | 0.00 | 0.00 | 726.40 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 567.3 | 0.0 | 721.7 | 137.1 | 728.00 |
| 1.83 | 0.00 | 7.23 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 702.60 | 255.55 |
| 0.003106 | 1. | 1. | 1. | 0 | 0 | 0 | 0.00 | 101.79 | 357.34 |
| CCHV= 0.500 CEHV= 1.000 | | | | | | | | | |
| *SECNO 20033.000 | | | | | | | | | |
| 20033.000 | 10.81 | 713.41 | 0.00 | 0.00 | 714.11 | 0.69 | 0.28 | 0.06 | 726.40 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 614.2 | 0.0 | 723.2 | 137.3 | 728.00 |
| 1.84 | 0.00 | 6.68 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 702.60 | 254.24 |
| 0.002462 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 104.27 | 358.52 |
| CCHV= 0.300 CEHV= 0.500 | | | | | | | | | |
| *SECNO 20300.000 | | | | | | | | | |
| 3280 CROSS SECTION 20300.00 EXTENDED 1.28 FEET | | | | | | | | | |
| 3301 HV CHANGED MORE THAN HVINS | | | | | | | | | |
| 3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.62 | | | | | | | | | |
| 20300.000 | 11.58 | 714.28 | 0.00 | 0.00 | 714.46 | 0.18 | 0.20 | 0.15 | 706.00 |
| 4100.0 | 681.1 | 1653.8 | 1765.1 | 298.1 | 430.2 | 535.3 | 729.0 | 138.4 | 706.00 |
| 1.86 | 2.28 | 3.84 | 3.30 | 0.030 | 0.035 | 0.030 | 0.000 | 702.70 | 0.00 |
| 0.000357 | 267. | 267. | 267. | 2 | 0 | 0 | 0.00 | 230.00 | 230.00 |
| CCHV= 0.500 CEHV= 1.000 | | | | | | | | | |
| *SECNO 20470.000 | | | | | | | | | |
| 3265 DIVIDED FLOW | | | | | | | | | |
| 3301 HV CHANGED MORE THAN HVINS | | | | | | | | | |
| 3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.26 | | | | | | | | | |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 125.0 400.0 TYPE= 1 TARGET= 275.000
D/S FACE OF BRIDGE AT ENTRANCE TO D.P.W.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20470.000 | 13.33 | 714.43 | 711.92 | 0.00 | 716.35 | 1.92 | 0.15 | 1.74 | 712.90 |
| 4100.0 | 156.7 | 3753.4 | 189.9 | 67.2 | 324.0 | 65.4 | 732.3 | 139.2 | 712.80 |
| 1.87 | 2.33 | 11.58 | 2.90 | 0.040 | 0.035 | 0.040 | 0.000 | 701.10 | 125.00 |
| 0.005221 | 170. | 170. | 170. | 4 | 10 | 0 | 0.00 | 215.93 | 349.80 |

SPECIAL BRIDGE

5070: VARIABLE ELCHU OR ELCHD ON SB CARD NOT SPECIFIED

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.05 | 1.76 | 2.50 | 0.00 | 28 00 | 2.60 | 218.00 | 0.00 | 701.10 | 701.10 |

*SECNO 20492.000
6870 D.S. ENERGY OF 716.35 IS HIGHER THAN COMPUTED ENERGY OF 715.37

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.74

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 724.10 | 717.06 | 0.71 | 2849. | 1274. | 218. | 249. | 710.90 | 712.90 | 369. |

3470 ENCROACHMENT STATIONS= 31.0 295.0 TYPE= 1 TARGET= 264.000
U/S FACE OF BRIDGE AT ENTRANCE TO D.P.W.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20492.000 | 14.44 | 715.54 | 0.00 | 0.00 | 716.35 | 0.81 | 0.00 | 0.00 | 712.90 |
| 4100.0 | 1021.4 | 2985.5 | 93.1 | 444.2 | 358.6 | 39.4 | 732.6 | 139.3 | 712.80 |
| 1.87 | 2.30 | 8.33 | 2.36 | 0.045 | 0.030 | 0.045 | 0.000 | 701.10 | 31.00 |
| 0.001730 | 22. | 22. | 22. | 2 | 0 | 4 | 0.00 | 264.00 | 295.00 |

CCHV= 0.300 CEHV= 0.500
*SECNO 20542.000

3470 ENCROACHMENT STATIONS= 143.0 382.0 TYPE= 1 TARGET= 239.000

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 20542.000 | 14.50 | 715.60 | 0.00 | 0.00 | 716.50 | 0.90 | 0.10 | 0.05 | 712.90 |
| 4100.0 | 521.6 | 3097.9 | 480.5 | 187.4 | 360.2 | 161.6 | 733.5 | 139.6 | 712.80 |
| 1.87 | 2.78 | 8.60 | 2.97 | 0.040 | 0.035 | 0.040 | 0.000 | 701.10 | 143.00 |
| 0.002498 | 50. | 50. | 50. | 2 | 0 | 0 | 0.00 | 229.89 | 372.89 |

*SECNO 20750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.65

3470 ENCROACHMENT STATIONS= 245.0 355.0 TYPE= 1 TARGET= 110.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20750.000 | 13.66 | 716.46 | 0.00 | 0.00 | 716.98 | 0.52 | 0.37 | 0.11 | 708.00 |
| 4100.0 | 649.9 | 3101.6 | 348.5 | 188.6 | 484.4 | 124.5 | 738.0 | 140.6 | 710.00 |
| 1.88 | 3.45 | 6.40 | 2.80 | 0.040 | 0.035 | 0.040 | 0.000 | 702.80 | 245.00 |
| 0.000917 | 258. | 258. | 258. | 2 | 0 | 0 | 0.00 | 110.00 | 355.00 |

CCHV= 0.500 CEHV= 1.000

*SECNO 20850.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20850.000 | 13.69 | 716.59 | 0.00 | 0.00 | 717.09 | 0.49 | 0.09 | 0.01 | 727.30 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 726.8 | 0.0 | 739.7 | 140.8 | 727.60 |
| 1.89 | 0.00 | 5.64 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 702.90 | 255.70 |
| 0.000940 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 60.40 | 316.10 |

*SECNO 20851.000

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 725.50 MAX ELLC= 724.70

D/S FACE OF NORTHVILLE RD. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20851.000 | 13.69 | 716.59 | 0.00 | 0.00 | 717.19 | 0.60 | 0.00 | 0.10 | 727.30 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 660.2 | 0.0 | 739.8 | 140.8 | 727.60 |
| 1.89 | 0.00 | 6.21 | 0.00 | 0.000 | 0.025 | 0.000 | 0.000 | 702.90 | 255.70 |
| 0.000736 | 1. | 1. | 1. | 0 | 0 | 0 | -66.69 | 60.40 | 316.10 |

*SECNO 20885.000

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 725.50 MAX ELLC= 724.70

U/S FACE OF NORTHVILLE RD. BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20885.000 | 13.72 | 716.62 | 0.00 | 0.00 | 717.22 | 0.60 | 0.02 | 0.00 | 727.30 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 661.5 | 0.0 | 740.3 | 140.9 | 727.60 |
| 1.89 | 0.00 | 6.20 | 0.00 | 0.000 | 0.025 | 0.000 | 0.000 | 702.90 | 255.70 |
| 0.000733 | 34. | 34. | 34. | 0 | 0 | 0 | -67.16 | 60.40 | 316.10 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| *SECNO 20886.000 | | | | | | | | | |
| 20886.000 | 13.90 | 716.80 | 0.00 | 0.00 | 717.28 | 0.48 | 0.00 | 0.06 | 727.30 |
| 4100.0 | 0.0 | 4100.0 | 0.0 | 0.0 | 739.5 | 0.0 | 740.3 | 140.9 | 727.60 |
| 1.89 | 0.00 | 5.54 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 702.90 | 255.70 |
| 0.000894 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 60.40 | 316.10 |

THIS RUN EXECUTED 19OCT92 13:00:48

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**************************************************
  HEC2 RELEASE DATED SEP 88 UPDATED JUN  1990

  ERROR CORR -  01,02,03,04
  MODIFICATION -
**************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100-YEAR FLOOD

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1000.000 | 0.00 | 0.00 | 0.00 | 655.00 | 4100.00 | 667.50 | 0.00 | 667.59 | 2.79 | 2.74 | 1791.13 | 2455.65 |
| | 1700.000 | 700.00 | 0.00 | 0.00 | 655.60 | 4100.00 | 667.69 | 0.00 | 667.78 | 2.53 | 2.64 | 1850.66 | 2577.24 |
| * | 2100.000 | 400.00 | 0.00 | 0.00 | 656.10 | 4100.00 | 667.88 | 0.00 | 668.26 | 11.08 | 4.95 | 828.41 | 1231.77 |
| | 2101.000 | 1.00 | 682.80 | 679.20 | 656.10 | 4100.00 | 667.98 | 0.00 | 668.29 | 13.89 | 5.13 | 799.37 | 1100.28 |
| | 2157.000 | 56.00 | 682.80 | 679.20 | 656.10 | 4100.00 | 667.97 | 0.00 | 668.37 | 13.37 | 5.06 | 810.13 | 1121.25 |
| | 2158.000 | 1.00 | 0.00 | 0.00 | 656.10 | 4100.00 | 668.01 | 0.00 | 668.38 | 10.46 | 4.85 | 844.88 | 1267.71 |
| | 2188.000 | 30.00 | 0.00 | 0.00 | 656.10 | 4100.00 | 668.05 | 0.00 | 668.41 | 10.30 | 4.83 | 849.27 | 1277.64 |
| | 2189.000 | 1.00 | 682.80 | 679.20 | 656.10 | 4100.00 | 668.04 | 0.00 | 668.43 | 12.97 | 5.01 | 818.84 | 1138.99 |
| | 2245.000 | 56.00 | 682.80 | 679.20 | 656.10 | 4100.00 | 668.12 | 0.00 | 668.50 | 12.63 | 4.96 | 826.68 | 1153.68 |
| | 2246.000 | 1.00 | 0.00 | 0.00 | 656.10 | 4100.00 | 668.16 | 0.00 | 668.51 | 9.83 | 4.75 | 862.96 | 1307.50 |
| * | 3000.000 | 754.00 | 0.00 | 0.00 | 657.00 | 4100.00 | 668.76 | 0.00 | 668.78 | 0.56 | 1.52 | 3452.77 | 5478.93 |
| | 4000.000 | 1000.00 | 0.00 | 0.00 | 658.00 | 4100.00 | 668.83 | 0.00 | 668.86 | 0.85 | 1.76 | 3186.31 | 4454.62 |
| * | 4800.000 | 800.00 | 0.00 | 0.00 | 658.00 | 4100.00 | 668.94 | 0.00 | 669.05 | 2.92 | 3.10 | 1624.95 | 2399.29 |
| * | 5075.000 | 275.00 | 0.00 | 0.00 | 658.00 | 4100.00 | 669.06 | 0.00 | 669.36 | 6.60 | 4.69 | 956.73 | 1595.81 |
| * | 5146.000 | 71.00 | 0.00 | 0.00 | 659.40 | 4100.00 | 669.15 | 0.00 | 670.17 | 35.15 | 8.10 | 506.24 | 691.92 |
| | 5147.000 | 1.00 | 675.30 | 677.80 | 659.40 | 4100.00 | 669.10 | 0.00 | 670.22 | 52.30 | 8.49 | 483.15 | 566.95 |
| | 5181.000 | 34.00 | 675.30 | 677.80 | 659.40 | 4100.00 | 669.40 | 0.00 | 670.42 | 45.90 | 8.11 | 505.81 | 605.18 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | FG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5182.000 | 1.00 | 0.00 | 0.00 | 659.40 | 4100.00 | 669.61 | 0.00 | 670.49 | 28.30 | 7.54 | 543.91 | 770.72 |
| * | 5232.000 | 50.00 | 0.00 | 0.00 | 658.20 | 4100.00 | 670.67 | 0.00 | 670.88 | 5.00 | 3.94 | 1199.77 | 1833.33 |
| * | 5382.000 | 150.00 | 0.00 | 0.00 | 658.20 | 4100.00 | 670.95 | 0.00 | 670.99 | 1.38 | 2.11 | 2580.20 | 3489.49 |
| | 6000.000 | 618.00 | 0.00 | 0.00 | 658.20 | 4100.00 | 671.04 | 0.00 | 671.07 | 1.02 | 1.83 | 3075.27 | 4060.59 |
| * | 6183.000 | 183.00 | 0.00 | 0.00 | 658.20 | 4100.00 | 671.04 | 0.00 | 671.13 | 3.38 | 2.86 | 2041.73 | 2229.01 |
| | 6196.000 | 13.00 | 0.00 | 0.00 | 664.00 | 4100.00 | 671.08 | 0.00 | 671.14 | 2.11 | 0.00 | 2304.83 | 2823.73 |
| * | 6409.000 | 213.00 | 0.00 | 0.00 | 658.20 | 4100.00 | 671.15 | 0.00 | 671.18 | 0.99 | 1.56 | 3163.91 | 4127.10 |
| * | 7900.000 | 1491.00 | 0.00 | 0.00 | 662.00 | 4100.00 | 671.34 | 0.00 | 671.61 | 6.90 | 4.61 | 1250.50 | 1560.93 |
| * | 8201.000 | 301.00 | 0.00 | 0.00 | 663.00 | 4100.00 | 671.64 | 0.00 | 672.05 | 15.16 | 6.17 | 956.55 | 1052.96 |
| * | 8227.000 | 26.00 | 673.00 | 671.80 | 663.00 | 4100.00 | 672.64 | 0.00 | 672.92 | 4.82 | 5.31 | 1309.93 | 1868.16 |
| * | 8257.000 | 30.00 | 0.00 | 0.00 | 663.00 | 4100.00 | 672.71 | 0.00 | 672.95 | 10.61 | 4.95 | 1334.61 | 1258.86 |
| * | 9600.000 | 1343.00 | 0.00 | 0.00 | 666.00 | 4100.00 | 674.64 | 0.00 | 675.15 | 24.11 | 6.64 | 916.58 | 834.98 |
| | 10200.000 | 600.00 | 0.00 | 0.00 | 669.00 | 4100.00 | 676.46 | 0.00 | 677.21 | 39.16 | 8.41 | 861.83 | 650.21 |
| | 10500.000 | 300.00 | 0.00 | 0.00 | 670.20 | 4100.00 | 677.75 | 677.67 | 678.78 | 47.48 | 9.34 | 720.09 | 595.02 |
| | 10600.000 | 100.00 | 0.00 | 0.00 | 670.60 | 4100.00 | 678.22 | 678.12 | 679.31 | 48.07 | 9.47 | 691.50 | 591.37 |
| * | 10700.000 | 100.00 | 0.00 | 0.00 | 671.00 | 4100.00 | 679.58 | 0.00 | 679.96 | 20.42 | 6.36 | 1040.12 | 907.41 |
| | 10800.000 | 100.00 | 0.00 | 0.00 | 671.25 | 4100.00 | 679.80 | 0.00 | 680.28 | 24.24 | 6.92 | 918.34 | 832.81 |
| * | 10901.000 | 101.00 | 0.00 | 0.00 | 671.50 | 4100.00 | 680.18 | 679.95 | 681.48 | 63.68 | 9.91 | 561.28 | 513.78 |
| * | 10930.000 | 29.00 | 680.00 | 677.40 | 671.50 | 4100.00 | 684.54 | 0.00 | 684.71 | 3.42 | 4.08 | 1505.71 | 2216.09 |
| | 10980.000 | 50.00 | 0.00 | 0.00 | 671.50 | 4100.00 | 684.56 | 0.00 | 684.74 | 3.56 | 4.16 | 1460.15 | 2171.72 |
| | 11200.000 | 220.00 | 0.00 | 0.00 | 672.90 | 4100.00 | 684.67 | 0.00 | 685.08 | 6.84 | 5.17 | 792.67 | 1567.35 |
| | 11201.000 | 1.00 | 692.90 | 692.50 | 672.90 | 4100.00 | 684.67 | 0.00 | 685.44 | 10.06 | 7.05 | 581.41 | 1292.42 |
| | 11255.000 | 54.00 | 692.90 | 692.50 | 672.90 | 4100.00 | 684.73 | 0.00 | 685.50 | 9.96 | 7.02 | 583.87 | 1299.43 |
| | 11256.000 | 1.00 | 0.00 | 0.00 | 672.90 | 4100.00 | 685.35 | 0.00 | 685.70 | 7.44 | 4.77 | 858.86 | 1503.55 |
| | 11356.000 | 100.00 | 0.00 | 0.00 | 673.10 | 4100.00 | 685.42 | 0.00 | 685.79 | 7.74 | 4.84 | 846.63 | 1473.62 |
| | 12150.000 | 794.00 | 0.00 | 0.00 | 675.00 | 4100.00 | 686.06 | 0.00 | 686.38 | 6.81 | 4.53 | 905.74 | 1570.64 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 12850.000 | 700.00 | 0.00 | 0.00 | 671.50 | 4100.00 | 686.98 | 0.00 | 688.03 | 35.50 | 8.24 | 497.76 | 608.11 |
| | 13000.000 | 150.00 | 0.00 | 0.00 | 678.70 | 4100.00 | 687.50 | 0.00 | 688.64 | 33.54 | 8.59 | 477.05 | 707.93 |
| | 13001.000 | 1.00 | 732.30 | 699.10 | 678.70 | 4100.00 | 687.50 | 0.00 | 688.94 | 37.97 | 9.62 | 426.11 | 665.39 |
| | 13135.000 | 134.00 | 732.30 | 699.10 | 678.70 | 4100.00 | 688.30 | 0.00 | 689.50 | 29.57 | 8.81 | 465.31 | 753.94 |
| | 13136.000 | 1.00 | 0.00 | 0.00 | 678.70 | 4100.00 | 688.82 | 0.00 | 689.68 | 21.68 | 7.43 | 551.60 | 880.49 |
| | 13236.000 | 100.00 | 0.00 | 0.00 | 679.40 | 4100.00 | 689.05 | 0.00 | 690.00 | 25.14 | 7.81 | 525.00 | 817.72 |
| * | 13800.000 | 564.00 | 0.00 | 0.00 | 683.50 | 4100.00 | 690.78 | 0.00 | 690.98 | 8.37 | 4.51 | 1215.21 | 1417.65 |
| * | 14400.000 | 600.00 | 0.00 | 0.00 | 688.30 | 4100.00 | 695.81 | 695.81 | 697.45 | 60.03 | 11.07 | 473.68 | 529.19 |
| | 14600.000 | 200.00 | 0.00 | 0.00 | 689.90 | 4100.00 | 697.19 | 0.00 | 699.35 | 78.64 | 11.81 | 347.09 | 462.35 |
| * | 14601.000 | 1.00 | 703.60 | 703.60 | 689.90 | 4100.00 | 697.19 | 0.00 | 699.65 | 189.11 | 12.59 | 325.73 | 298.14 |
| * | 14776.000 | 175.00 | 703.60 | 703.60 | 689.90 | 4100.00 | 701.12 | 0.00 | 702.15 | 63.61 | 8.16 | 502.46 | 514.08 |
| * | 14777.000 | 1.00 | 0.00 | 0.00 | 689.90 | 4100.00 | 701.37 | 0.00 | 702.24 | 20.29 | 7.48 | 548.06 | 910.39 |
| * | 14778.000 | 1.00 | 0.00 | 0.00 | 693.50 | 4100.00 | 701.37 | 0.00 | 703.24 | 62.65 | 10.97 | 373.71 | 518.00 |
| | 14798.000 | 20.00 | 0.00 | 0.00 | 696.00 | 4100.00 | 701.53 | 0.00 | 703.94 | 111.41 | 12.46 | 329.03 | 388.44 |
| * | 14828.000 | 30.00 | 0.00 | 0.00 | 701.50 | 4100.00 | 705.92 | 705.92 | 706.56 | 48.03 | 7.42 | 832.27 | 591.61 |
| * | 14980.000 | 152.00 | 0.00 | 0.00 | 692.00 | 4100.00 | 706.87 | 0.00 | 706.88 | 0.08 | 0.70 | 5828.63 | 14361.07 |
| | 15400.000 | 420.00 | 0.00 | 0.00 | 695.00 | 4100.00 | 706.87 | 0.00 | 706.89 | 0.15 | 0.83 | 4917.33 | 10530.15 |
| * | 15800.000 | 400.00 | 0.00 | 0.00 | 696.00 | 4100.00 | 706.88 | 0.00 | 706.90 | 0.36 | 1.21 | 3401.35 | 6821.22 |
| * | 16001.000 | 201.00 | 0.00 | 0.00 | 697.90 | 4100.00 | 706.70 | 0.00 | 707.97 | 30.98 | 8.29 | 494.46 | 736.59 |
| | 16063.000 | 62.00 | 714.20 | 710.10 | 697.90 | 4100.00 | 707.07 | 0.00 | 708.09 | 21.13 | 8.09 | 506.54 | 891.84 |
| | 16113.000 | 50.00 | 0.00 | 0.00 | 697.90 | 4100.00 | 707.25 | 0.00 | 708.22 | 26.73 | 7.90 | 518.81 | 793.01 |
| | 16764.000 | 651.00 | 0.00 | 0.00 | 698.50 | 4100.00 | 709.03 | 0.00 | 710.23 | 31.84 | 8.80 | 465.65 | 726.64 |
| | 16864.000 | 100.00 | 0.00 | 0.00 | 698.70 | 4100.00 | 709.52 | 0.00 | 710.59 | 27.18 | 8.33 | 521.47 | 786.41 |
| * | 16900.000 | 36.00 | 712.70 | 708.10 | 698.70 | 4100.00 | 710.73 | 0.00 | 711.43 | 8.67 | 6.96 | 781.00 | 1392.58 |
| | 16950.000 | 50.00 | 0.00 | 0.00 | 698.80 | 4100.00 | 711.02 | 0.00 | 711.54 | 13.14 | 6.19 | 856.04 | 1131.12 |
| * | 18100.000 | 1150.00 | 0.00 | 0.00 | 700.00 | 4100.00 | 712.06 | 0.00 | 712.11 | 1.75 | 2.07 | 2372.70 | 3098.41 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | FG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 19850.000 | 1750.00 | 0.00 | 0.00 | 702.60 | 4100.00 | 712.44 | 0.00 | 713.42 | 41.22 | 7.96 | 515.14 | 638.57 |
| | 19851.000 | 1.00 | 726.40 | 721.80 | 702.60 | 4100.00 | 712.44 | 0.00 | 713.43 | 41.18 | 7.96 | 515.37 | 638.89 |
| | 19932.000 | 81.00 | 726.40 | 721.80 | 702.60 | 4100.00 | 712.96 | 0.00 | 713.77 | 31.09 | 7.23 | 567.09 | 795.26 |
| | 19933.000 | 1.00 | 0.00 | 0.00 | 702.60 | 4100.00 | 712.96 | 0.00 | 713.77 | 31.06 | 7.23 | 567.27 | 795.51 |
| | 20033.000 | 100.00 | 0.00 | 0.00 | 702.60 | 4100.00 | 713.41 | 0.00 | 714.11 | 24.62 | 6.68 | 614.23 | 826.22 |
| * | 20300.000 | 267.00 | 0.00 | 0.00 | 702.70 | 4100.00 | 714.28 | 0.00 | 714.46 | 3.57 | 3.84 | 1263.59 | 2168.54 |
| * | 20470.000 | 170.00 | 0.00 | 0.00 | 701.10 | 4100.00 | 714.43 | 711.92 | 716.35 | 52.21 | 11.58 | 456.63 | 567.45 |
| * | 20492.000 | 22.00 | 712.90 | 710.90 | 701.10 | 4100.00 | 715.54 | 0.00 | 716.35 | 17.30 | 8.33 | 842.21 | 985.65 |
| | 20542.000 | 50.00 | 0.00 | 0.00 | 701.10 | 4100.00 | 715.60 | 0.00 | 716.50 | 24.98 | 8.60 | 709.16 | 820.32 |
| * | 20750.000 | 258.00 | 0.00 | 0.00 | 702.80 | 4100.00 | 716.46 | 0.00 | 716.98 | 9.17 | 6.40 | 797.56 | 1354.07 |
| | 20850.000 | 100.00 | 0.00 | 0.00 | 702.90 | 4100.00 | 716.59 | 0.00 | 717.09 | 9.40 | 5.64 | 726.85 | 1336.93 |
| | 20851.000 | 1.00 | 725.50 | 724.70 | 702.90 | 4100.00 | 716.59 | 0.00 | 717.19 | 7.36 | 6.21 | 660.22 | 1511.07 |
| | 20885.000 | 34.00 | 725.50 | 724.70 | 702.90 | 4100.00 | 716.62 | 0.00 | 717.22 | 7.33 | 6.20 | 661.46 | 1514.78 |
| | 20886.000 | 1.00 | 0.00 | 0.00 | 702.90 | 4100.00 | 716.80 | 0.00 | 717.28 | 8.94 | 5.54 | 739.48 | 1371.13 |

100-YEAR FLOOD

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 1000.000 | 4100.00 | 667.50 | 0.00 | 0.00 | 0.00 | 329.50 | 0.00 |
| | 1700.000 | 4100.00 | 667.69 | 0.00 | 0.19 | 0.00 | 329.93 | 700.00 |
| * | 2100.000 | 4100.00 | 667.88 | 0.00 | 0.19 | 0.00 | 122.15 | 400.00 |
| | 2101.000 | 4100.00 | 667.88 | 0.00 | 0.00 | 0.00 | 122.15 | 1.00 |
| | 2157.000 | 4100.00 | 667.97 | 0.00 | 0.09 | 0.00 | 122.64 | 56.00 |
| | 2158.000 | 4100.00 | 668.01 | 0.00 | 0.04 | 0.00 | 122.87 | 1.00 |
| | 2188.000 | 4100.00 | 668.05 | 0.00 | 0.04 | 0.00 | 123.06 | 30.00 |
| | 2189.000 | 4100.00 | 668.04 | 0.00 | -0.01 | 0.00 | 123.03 | 1.00 |
| | 2245.000 | 4100.00 | 668.12 | 0.00 | 0.08 | 0.00 | 123.39 | 56.00 |
| | 2246.000 | 4100.00 | 668.16 | 0.00 | 0.04 | 0.00 | 123.66 | 1.00 |
| * | 3000.000 | 4100.00 | 668.76 | 0.00 | 0.60 | 0.00 | 551.41 | 754.00 |
| | 4000.000 | 4100.00 | 668.83 | 0.00 | 0.07 | 0.00 | 589.47 | 1000.00 |
| * | 4800.000 | 4100.00 | 668.94 | 0.00 | 0.11 | 0.00 | 256.00 | 800.00 |
| * | 5075.000 | 4100.00 | 669.06 | 0.00 | 0.12 | 0.00 | 118.00 | 275.00 |
| * | 5146.000 | 4100.00 | 669.15 | 0.00 | 0.09 | 0.00 | 81.18 | 71.00 |
| | 5147.000 | 4100.00 | 669.10 | 0.00 | -0.05 | 0.00 | 80.00 | 1.00 |
| | 5181.000 | 4100.00 | 669.40 | 0.00 | 0.29 | 0.00 | 80.00 | 34.00 |
| | 5182.000 | 4100.00 | 669.61 | 0.00 | 0.21 | 0.00 | 82.07 | 1.00 |
| * | 5232.000 | 4100.00 | 670.67 | 0.00 | 1.07 | 0.00 | 183.00 | 50.00 |
| * | 5382.000 | 4100.00 | 670.95 | 0.00 | 0.27 | 0.00 | 483.00 | 150.00 |
| | 6000.000 | 4100.00 | 671.04 | 0.00 | 0.09 | 0.00 | 665.35 | 618.00 |
| * | 6183.000 | 4100.00 | 671.04 | 0.00 | 0.01 | 0.00 | 644.70 | 183.00 |
| | 6196.000 | 4100.00 | 671.08 | 0.00 | 0.04 | 0.00 | 643.85 | 13.00 |
| * | 6409.000 | 4100.00 | 671.15 | 0.00 | 0.06 | 0.00 | 660.14 | 213.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| * | 7900.000 | 4100.00 | 671.34 | 0.00 | 0.19 | 0.00 | 442.78 | 1491.00 |
| * | 8201.000 | 4100.00 | 671.64 | 0.00 | 0.30 | 0.00 | 342.17 | 301.00 |
| * | 8227.000 | 4100.00 | 672.64 | 0.00 | 1.01 | 0.00 | 358.32 | 26.00 |
| * | 8257.000 | 4100.00 | 672.71 | 0.00 | 0.07 | 0.00 | 359.42 | 30.00 |
| * | 9600.000 | 4100.00 | 674.64 | 0.00 | 1.92 | 0.00 | 383.65 | 1343.00 |
| | 10200.000 | 4100.00 | 676.46 | 0.00 | 1.82 | 0.00 | 412.27 | 600.00 |
| | 10500.000 | 4100.00 | 677.75 | 0.00 | 1.29 | 0.00 | 337.73 | 300.00 |
| | 10600.000 | 4100.00 | 678.22 | 0.00 | 0.48 | 0.00 | 313.12 | 100.00 |
| * | 10700.000 | 4100.00 | 679.58 | 0.00 | 1.36 | 0.00 | 277.70 | 100.00 |
| | 10800.000 | 4100.00 | 679.80 | 0.00 | 0.22 | 0.00 | 230.00 | 100.00 |
| * | 10901.000 | 4100.00 | 680.18 | 0.00 | 0.37 | 0.00 | 233.00 | 101.00 |
| * | 10930.000 | 4100.00 | 684.54 | 0.00 | 4.37 | 0.00 | 220.00 | 29.00 |
| | 10980.000 | 4100.00 | 684.56 | 0.00 | 0.02 | 0.00 | 211.00 | 50.00 |
| | 11200.000 | 4100.00 | 684.67 | 0.00 | 0.11 | 0.00 | 94.81 | 220.00 |
| | 11201.000 | 4100.00 | 684.67 | 0.00 | 0.00 | 0.00 | 94.81 | 1.00 |
| | 11255.000 | 4100.00 | 684.73 | 0.00 | 0.06 | 0.00 | 95.04 | 54.00 |
| | 11256.000 | 4100.00 | 685.35 | 0.00 | 0.62 | 0.00 | 97.69 | 1.00 |
| | 11356.000 | 4100.00 | 685.42 | 0.00 | 0.07 | 0.00 | 97.16 | 100.00 |
| | 12150.000 | 4100.00 | 686.06 | 0.00 | 0.64 | 0.00 | 100.00 | 794.00 |
| * | 12850.000 | 4100.00 | 686.98 | 0.00 | 0.92 | 0.00 | 56.00 | 700.00 |
| | 13000.000 | 4100.00 | 687.50 | 0.00 | 0.52 | 0.00 | 56.00 | 150.00 |
| | 13001.000 | 4100.00 | 687.50 | 0.00 | 0.00 | 0.00 | 56.00 | 1.00 |
| | 13135.000 | 4100.00 | 688.30 | 0.00 | 0.80 | 0.00 | 56.00 | 134.00 |
| | 13136.000 | 4100.00 | 688.82 | 0.00 | 0.52 | 0.00 | 56.00 | 1.00 |
| | 13236.000 | 4100.00 | 689.05 | 0.00 | 0.23 | 0.00 | 56.00 | 100.00 |
| * | 13800.000 | 4100.00 | 690.78 | 0.00 | 1.73 | 0.00 | 256.00 | 564.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| * | 14400.000 | 4100.00 | 695.81 | 0.00 | 5.03 | 0.00 | 148.00 | 600.00 |
| | 14600.000 | 4100.00 | 697.18 | 0.00 | 1.37 | 0.00 | 48.00 | 200.00 |
| * | 14601.000 | 4100.00 | 697.19 | 0.00 | 0.01 | 0.00 | 48.00 | 1.00 |
| * | 14776.000 | 4100.00 | 701.12 | 0.00 | 3.92 | 0.00 | 48.00 | 175.00 |
| * | 14777.000 | 4100.00 | 701.37 | 0.00 | 0.25 | 0.00 | 48.00 | 1.00 |
| * | 14778.000 | 4100.00 | 701.37 | 0.00 | 0.00 | 0.00 | 48.00 | 1.00 |
| | 14798.000 | 4100.00 | 701.53 | 0.00 | 0.16 | 0.00 | 60.00 | 20.00 |
| * | 14828.000 | 4100.00 | 705.92 | 0.00 | 4.39 | 0.00 | 323.81 | 30.00 |
| * | 14980.000 | 4100.00 | 706.87 | 0.00 | 0.95 | 0.00 | 400.00 | 152.00 |
| | 15400.000 | 4100.00 | 706.87 | 0.00 | 0.00 | 0.00 | 420.00 | 420.00 |
| * | 15800.000 | 4100.00 | 706.88 | 0.00 | 0.00 | 0.00 | 320.00 | 400.00 |
| * | 16001.000 | 4100.00 | 706.90 | 0.00 | 0.02 | 0.00 | 68.00 | 201.00 |
| | 16063.000 | 4100.00 | 707.07 | 0.00 | 0.17 | 0.00 | 68.00 | 62.00 |
| | 16113.000 | 4100.00 | 707.25 | 0.00 | 0.18 | 0.00 | 68.00 | 50.00 |
| | 16764.000 | 4100.00 | 709.03 | 0.00 | 1.78 | 0.00 | 51.00 | 651.00 |
| | 16864.000 | 4100.00 | 709.52 | 0.00 | 0.49 | 0.00 | 177.16 | 100.00 |
| * | 16900.000 | 4100.00 | 710.73 | 0.00 | 1.20 | 0.00 | 251.50 | 36.00 |
| | 16950.000 | 4100.00 | 711.02 | 0.00 | 0.30 | 0.00 | 257.24 | 50.00 |
| * | 18100.000 | 4100.00 | 712.06 | 0.00 | 1.04 | 0.00 | 388.25 | 1150.00 |
| * | 19850.000 | 4100.00 | 712.44 | 0.00 | 0.37 | 0.00 | 98.96 | 1750.00 |
| | 19851.000 | 4100.00 | 712.44 | 0.00 | 0.00 | 0.00 | 98.97 | 1.00 |
| | 19932.000 | 4100.00 | 712.96 | 0.00 | 0.51 | 0.00 | 101.78 | 81.00 |
| | 19933.000 | 4100.00 | 712.96 | 0.00 | 0.00 | 0.00 | 101.79 | 1.00 |
| | 20033.000 | 4100.00 | 713.41 | 0.00 | 0.45 | 0.00 | 104.27 | 100.00 |
| * | 20300.000 | 4100.00 | 714.28 | 0.00 | 0.87 | 0.00 | 230.00 | 267.00 |
| * | 20470.000 | 4100.00 | 714.43 | 0.00 | 0.15 | 0.00 | 215.93 | 170.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| * | 20492.000 | 4100.00 | 715.54 | 0.00 | 1.11 | 0.00 | 264.00 | 22.00 |
| | 20542.000 | 4100.00 | 715.60 | 0.00 | 0.06 | 0.00 | 229.89 | 50.00 |
| * | 20750.000 | 4100.00 | 716.46 | 0.00 | 0.86 | 0.00 | 110.00 | 258.00 |
| | 20850.000 | 4100.00 | 716.59 | 0.00 | 0.13 | 0.00 | 60.40 | 100.00 |
| | 20851.000 | 4100.00 | 716.59 | 0.00 | 0.00 | 0.00 | 60.40 | 1.00 |
| | 20885.000 | 4100.00 | 716.62 | 0.00 | 0.03 | 0.00 | 60.40 | 34.00 |
| | 20886.000 | 4100.00 | 716.80 | 0.00 | 0.18 | 0.00 | 60.40 | 1.00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 2100.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 3000.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 4800.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 5075.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 5146.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 5232.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 5382.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 6183.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 6409.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 7900.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 8201.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 8227.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 8257.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 9600.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 10700.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 10901.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 10930.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 12850.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 13800.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO= 14400.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 14400.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
WARNING SECNO= 14601.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14776.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14777.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 14778.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO= 14828.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 14828.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

WARNING SECNO= 14980.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15800.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 16001.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 16900.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 18100.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 19850.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 20300.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 20470.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 20492.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 20750.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

00BREAK00

1) COUNTY: Wayne

2) STUDY NAME: City of Plymouth and Plymouth Twp.

3) WATERCOURSE: Middle River Rouge

4) DOCUMENT TYPE: Report

00BREAK00

City of Plymouth and Plymouth Township, Michigan, FIS
Limited Map Maintenance Program
Hydraulic and Hydrologic Background Information

The Limited Map Maintenance Program (LMMP) for the City of Plymouth and Plymouth Township, Michigan covers the Middle River Rouge from the downstream corporate limit to the upstream corporate limit. The study was performed to verify the validity of the discharges used in the existing FIS, due to additional years of gage data and so to redefine the flood profile for the indicated reach of the river. This study was limited to only the 100-year flood. At the time of the original study, the Middle River Rouge was studied by approximate methods.

A discharge-frequency analysis of the Middle River Rouge was based on peak annual flows obtained from a U.S. Geological Survey gage located on the Middle River Rouge at Inkster Road near Garden City, Michigan (USGS gage #167000). The Inkster Road gage is about 7.5 miles downstream of the study limit.

Flows on the Middle River Rouge have been published from 1931 through 1933 and then for the period of 1948-1990. The period of record from 1934 through 1947 for the Inkster Road gage was then extended by correlation with the systematic records for the Rouge River at the Plymouth Road gage at Detroit. A discharge relationship was developed for these two gages using coincidental flows and the computer program #704-G1-L2020, which is based on the criteria described in the Hydrologic Engineering Center, Multiple Linear Regression. Then a gage analysis was performed on the data for the Inkster Road gage on the Middle River Rouge, using the period of record, 1931-1990. The HECWRC computer program, which is based on the criteria described in the U.S. Water Resources Council Bulletin #17B, Guidelines for Determining Flood Flow Frequency, was used to determine the existing relationship. A generalized skew of -0.05, taken from the Detroit District's generalized skew was determined to be 0.32. A 100-year discharge of 3,320 cfs was computed for this gage.

A second discharge-frequency analysis was performed using the Michigan Department of Natural Resources' (MDNR's) generalized skew of 0.55 and the mean square error of the generalized skew of 0.32. The 100-year discharge for this trial was computed to be 3,530 cfs. The 90% confidence interval for this run ranges from 2,960 cfs to 4,440 cfs.

The MDNR had expressed concern that the flow should remain unchanged from the value of 4,100 cfs used in the existing FIS. Flood discharges for the Middle River Rouge within the City of Plymouth were obtained from data contained in the Flood Insurance Studies for the City of Novi, the City of Northville, and the Township of Northville. The flow of 4,100 cfs developed upstream of Phoenix Lake at Northville Township, about 3,000 feet upstream

from the City of Plymouth, would be carried through the City of Plymouth as recommended by MDNR. This flood discharge is consistent with urbanization of this watershed. Further record was obtained from the MDNR concerning the flood of the 1940's, which was estimated in 1970's to be 4,100 cfs. Since this value is within the 90% confidence interval of this flow, the 100-year discharge of 4,100 cfs will be used in the study area.

As part of this study a field survey was made in March 1992. The survey only collected data at bridge sections and the Wilcox Dam. All bridges were field measured to obtain elevation data and structural geometry. Valley sections were estimated using a new two-foot topographic map developed for the U.S. Army Corps of Engineers, Detroit District from aerial photography flown in March 1992.

Channel and overbank roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and were based on field observations.

The starting water surface elevation was determined based on information included in the National Dam Safety Program Inspection Report for Middle River Rouge Basin, Newburgh Dam.

Water surface elevations were computed using the Corps' HEC-2 step-backwater computer program. The HEC-2 model for this study began at the upstream side of Newburgh Lake and was continued to the upstream side of Northville Road, near the downstream side of Phoenix Lake. The E. Hines Drive bridge located upstream of Haggerty Road was modeled as a regular cross section. Since the bridge is oriented parallel to general direction of flow in the floodplain, there is minimal head loss in the general vicinity of the bridge. The floodway run is not included as part of this study.

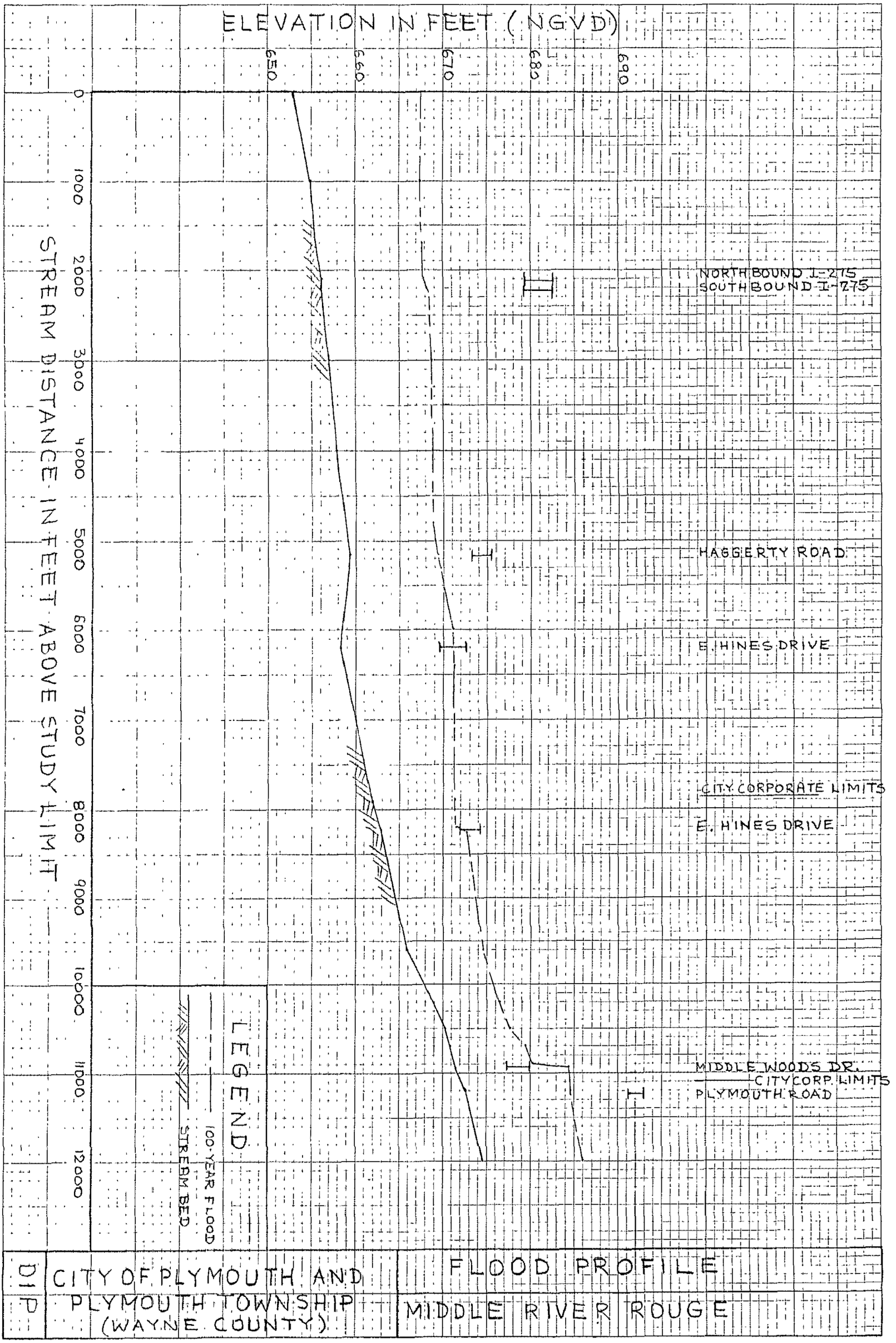
The City of Livonia borders the Plymouth Township at the downstream corporate limit. Within the City of Livonia, the Middle River Rouge has unnumbered A zones. Northville Township borders Plymouth Township at the upstream Plymouth Township corporate limit. Detailed studies were performed on the Middle River Rouge in Northville Township. In both cases, this study is compatible with the adjoining studies.

The work map used for this study is a new two-foot topographic map developed from aerial photography flown in March 1992. The flood plain delineation for the Middle River Rouge was supplemented over the entire study area by use of the two-foot contour map and then it was electronically transferred to the MDNR base maps in GIS design files. In addition, the existing flood plain and applicable floodway delineations, as shown on the existing FIS panels, for 1.5 miles of the Tonquish Creek and 1.0 mile of the South Branch Tonquish Creek were electronically transferred to the MDNR base map.

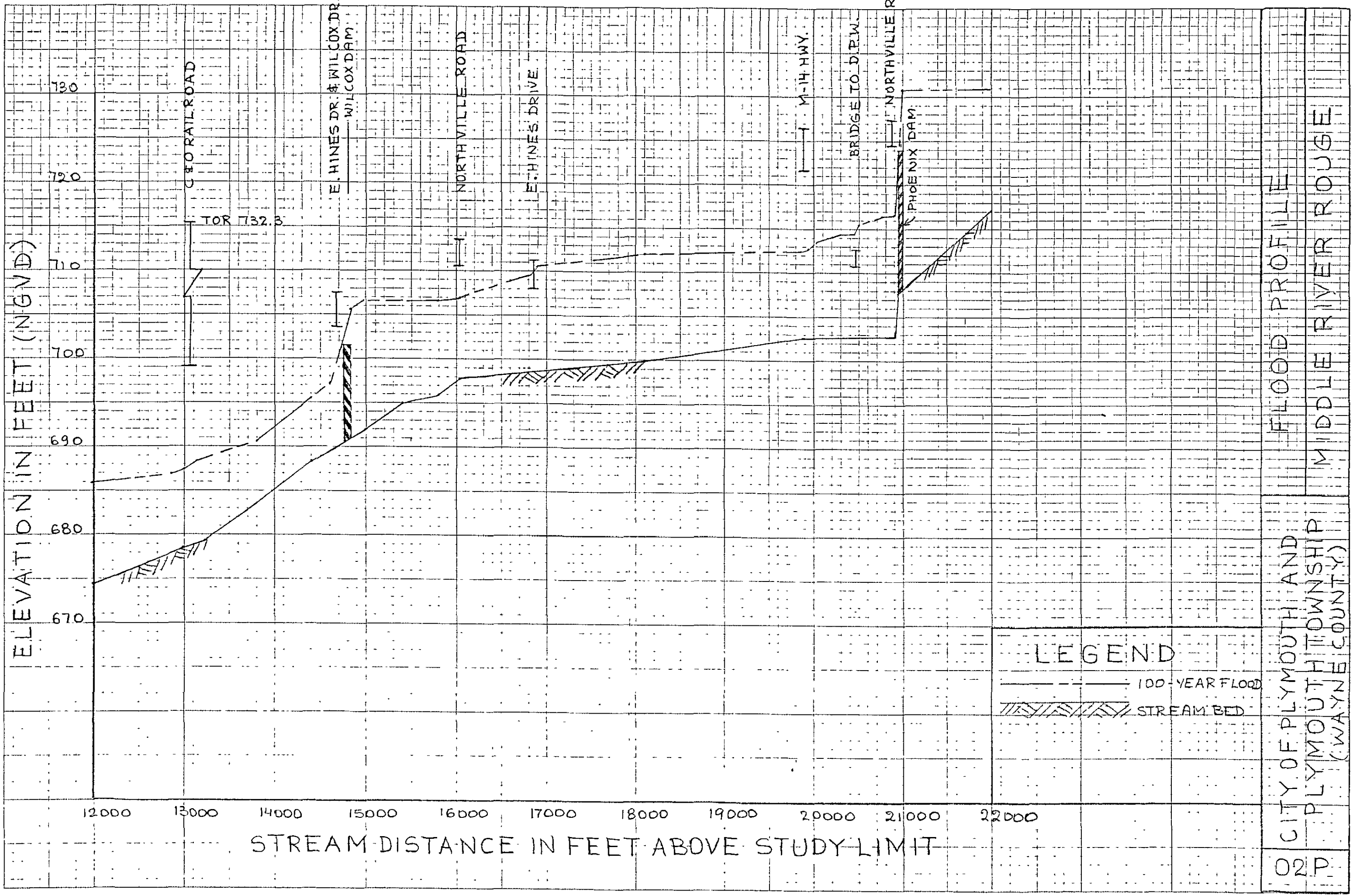
The final work map is being submitted in two forms. One paper reference map is being provided, covering both communities, for a general overview of the study area. The actual work map is being supplied in digital format as specified by the contract for this work. Again, only one map is being submitted. For elevation reference marks, the original numbers were maintained for the existing reference marks and new numbers were assigned for the new elevation reference marks. However, to distinguish between elevavation reference marks in the City of Plymouth, Plymouth Township or new reference marks, the letter C for the city; letter T for township and letter N for new were placed by the numbers.

A new flood profile is also being provided. Only one profile is being submitted covering both communities, the City of Plymouth and Plymouth Township. A new Floodway Data Table is not being provided. Also being provided is the HEC-2 output for the 100-year profile. The HEC-2 run has been approved by the MDNR.

DIETZGEN CORPORATION
MADE IN U.S.A.



DIETZGEN CORPORATION
MADE IN U.S.A.
10 X 10 PER INCH



**DEPARTMENT OF THE ARMY**
DETROIT DISTRICT, CORPS OF ENGINEERS
BOX 1027
DETROIT, MICHIGAN 48231-1027

IN REPLY REFER TO

Great Lakes Hydraulics and Hydrology Branch

RECEIVED
OCT 20 1992
NATURAL RESOURCES
LAND & WATER MGMT.

Mr. Bruce Menerey, P.E.
Technical Programs
Land and Water Management Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

Dear Mr. Menerey:

In response to your review comments dated October 12, 1992, on the Limited Map Maintenance Program for the Middle Rouge River within the City of Plymouth and Plymouth Township, we have revised the hydraulics accordingly. The enclosed HEC-2 computer run incorporates your comments as follows:

1. For XSEC 2100 - 2245, I-275 bridges, the model has been corrected by recoding the BT cards.

2. For XSEC 13136 - 14600, the reach length was corrected at XSEC 14600 and the invert elevations were interpolated for XSEC 13800 and 14400.

3. For XSEC 14601 - 14980, Wilcox Lake Dam was remodeled based on the plan drawing of the E. Hines Drive and Wilcox Road bridge, and dam, provided by the Wayne County Road Commission, and the two-foot topographic map.

4. For XSEC 16113 - 19850, the new survey was made for two missing bridges - the Middle Rouge Parkway bridge and the unnamed bridge. These two bridges were included in the analysis.

If you have any further comments or questions regarding the enclosed data, please contact Ms. Hanna Kobylinski as soon as possible at (313) 226-4761.

Sincerely,

Ronald E. Wilshaw, P.E.
Chief, G.L. Hydraulics and
Hydrology Branch

Enclosure

Great Lakes Hydraulics and Hydrology Branch

Mr. Bruce Menerey, P.E.
Technical Programs
Land and Water Management Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

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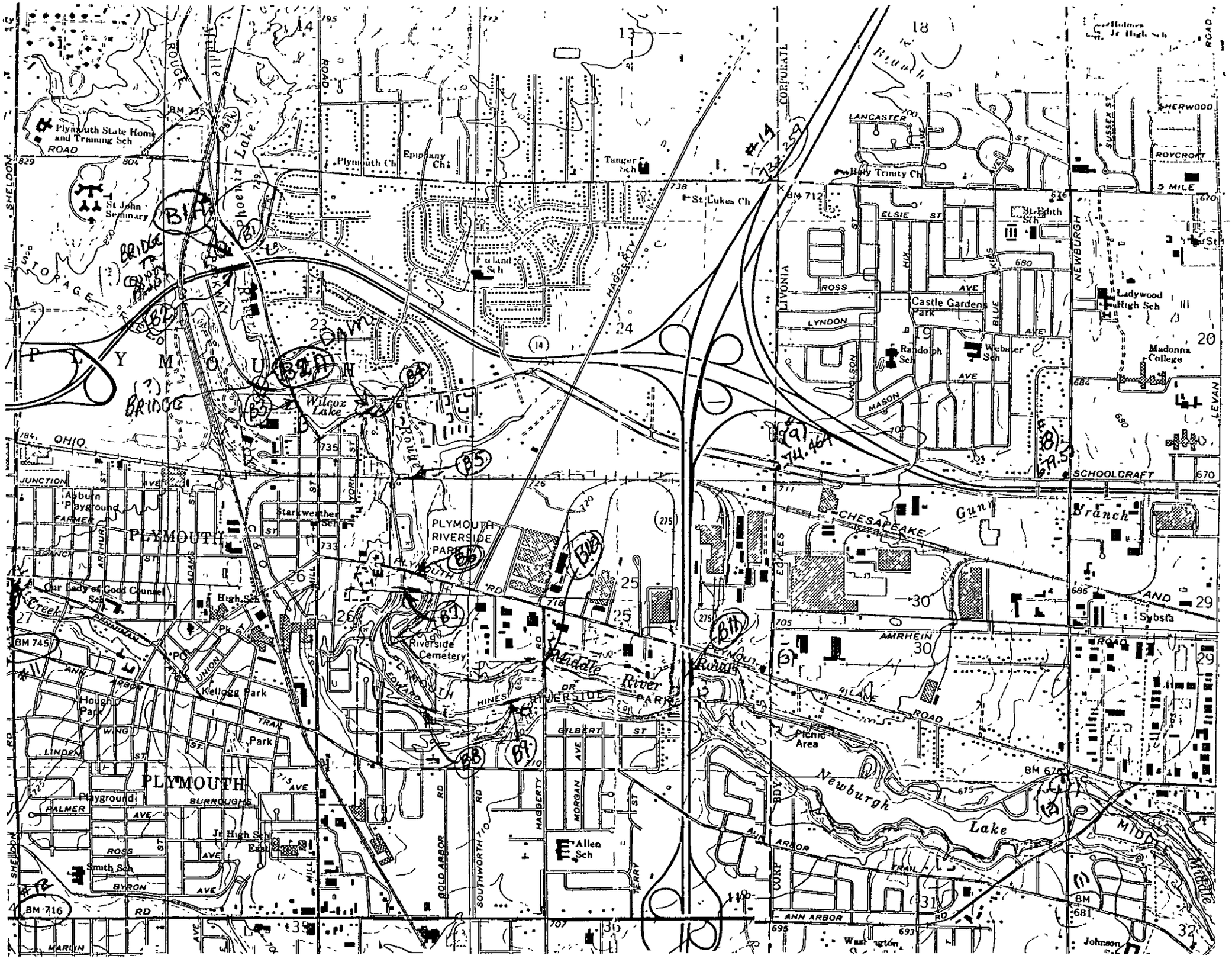
Sincerely,

Ronald E. Wilshaw, P.E.
Chief, G.L. Hydraulics and
Hydrology Branch

Enclosure


PLYMOUTH
Plymouth State Home and Training Sch
St John Seminary
Plymouth Ch
Epiphany Ch
Tanger Sch
St Lukes Ch
Holy Trinity Ch
Fuland Sch
Wilcox Lake
Phoenix Lake
Newburgh Lake
Ann Arbor Trail
Plymouth-Riverside Park
Riverside Cemetery
Kellogg Park
Hough Park
Starkweather Sch
High Sch
Our Lady of Good Counsel Sch
Ashburn Playground
Smith Sch
Allen Sch
Jr High Sch
Playground
Park
Picnic Area
Castle Gardens Park
Randolph Sch
Webster Sch
Ladywood High Sch
Madonna College
St Edith Sch
Holmes Jr High Sch
Sybsta
Gun Branch
Rouge River
Middle Rouge
Lower Rouge
Tonquish Creek
Pere Marquette Rwy
Conrail
Penn Central
Ann Arbor RR
Detroit Edison
Corp
Storage Tks
Bridge
Ann Arbor
Plymouth
Ann Arbor Trail
Ann Arbor Rd
Schoolcraft
Newburgh
Lake
Middle
Rouge
Johnson
Washington
Sheldon
Rouge
Hilltop
Road
Corporate
Lancaster
Sussex St
Sherwood
Roycroft
5 Mile
Elsie
Ross
Lyndon
Mason
Livonia
Knolson
Hix
Skiles
Blue
Newburgh
Levan
Eckles
Chesapeake
Amrhein
Wilcox
Gilbert
Morgan
Hagberty
Terry
Bird
Corp
Ann Arbor
Junction
Farmer
Arthur
Adams
York
Union
Penniman
Pk St
Wing
Linden
Palmer
Burroughs
Ross
Byron
Marion
Hill
Old Arbor
Southworth
Hines Dr
Riverside Park
Elmwood
Edward
Gilbert
Morgan
Hagberty
Terry
Bird
Corp
Ann Arbor
Schoolcraft
Chesapeake
Amrhein
Wilcox
Newburgh
Lake
Middle
Rouge
Johnson
Washington
BM 745
BM 716
BM 712
BM 675
BM 681
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
#14
#19
(3)
(9)
(14)
(31)
(32)
?
BRIDGE
BRIDGE TO CONRAIL
B1 B2
B2 B3
B3 B4
B4 B5
B5 B6
B6 B7
B7 B8
B8 B9
B9 B10
B10 B11
B11 B12
B12 B1

PLYMOUTH MICH.

MIDDLE ROUGE RIV.

OCT. 15, 1992

T. ROZNOWSKI

K DRAKE

AUTO LEVEL ZIESS Ni. 2

DESCRIPTIONS

BM 82A

A BRASS DISC STAMPED W.C.R.C. BM LOCATED ON THE N.E. CORNER OF BRIDGE ON E. END OF SIDE-WALK ON U/S SIDE OF BRIDGE OVER MIDDLE ROUGE RIVER ON EDWARD HINES DR.

ELEV. 710.67

TBM "FL 2-3"

CHISELED □ ON TOP OF N. END OF CONC. WALL ON E. SIDE OF BRIDGE, BRIDGE IS LOCATED ON NORTHVILLE Rd. OVER MIDDLE ROUGE RIV. S. OF THE INTER. OF NORTHVILLE Rd & HINES DR. N. of W.C.R.C. PHOENIX YARD. ELEV. 730.22

TBM D.P.W. (Pg-8)

A CHISELED □ ON N.W. CORNER of BRIDGE ON N.W. CORNER of CONC. RAILING U/S SIDE, AT ENTRANCE TO W.C.R.C. D.P.W. HINES DR. (SET BY OTHERS)

ELEV. 715.34

EDWARD HINES DR

BRIDGE & RD SECTION

# 82A

| | | | | | | |
|---|---|---|---|---|---|---|
| BM B2A | | | | 710.67 | | BRASS DISK ON N.E. US SIDE OF BRIDGE ON BINES DR OVER MIDDLE Rouge RIVER. |
| | 6.93 | 717.60 | | | | ROAD SECTION |
| | DIST | Rod | ELEV. | | | DESCRIPTION |
| | 0' | 5.41 | 712.19 | | | TOP & Rd AT BTM ABUT & ARCH |
| | 25' RT | 4.90 | 712.70 | | | & R |
| | 50' RT | 4.27 | 713.33 | | | |
| | 75' RT | 3.67 | 713.93 | | | |
| | 100' RT | 2.88 | 714.72 | | | |
| | 125' RT | 2.08 | 715.52 | | | |
| | 150' RT | 1.06 | 716.54 | | | |
| | 175' RT | 0.02 | 717.58 | | | |
| | | | | | | Rd CONT. TO RISE 4'± NEXT 200' |
| | 51' LT | 6.20 | 711.40 | | | TOP & Rd @ BTM ABUT & ARCH. |
| | 75' LT | 5.56 | 712.04 | | | & R⊥ BINES DR. |
| | 100' LT | 6.87 | 710.73 | | | |
| | 125' LT | 7.30 | 710.30 | | | |
| | 150' LT | 7.70 | 709.90 | | | |
| | 175 LT | 8.09 | 709.51 | | | |
| | 200' LT | 8.31 | 709.29 | | | |
| ✓ KD | | | | | | |

| | + | HI | - | ELEV. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 717.60 | | | | | | | | |
| | DIST | Rod | ELEV | | | DESCRIPTION | | | | |
| | 225' LT | 8.42 | 709.18 | | | ℄ Rd | | HINES DR. | | |
| | 250' LT | 8.42 | 709.18 | | | " | | | | |
| | 275' LT | 8.39 | 709.21 | | | " | | | | |
| | 300' LT | 8.26 | 709.34 | | | " | | | | |
| | | | | | | Rd. CONT. TO RISE NEXT 100' | | | | |

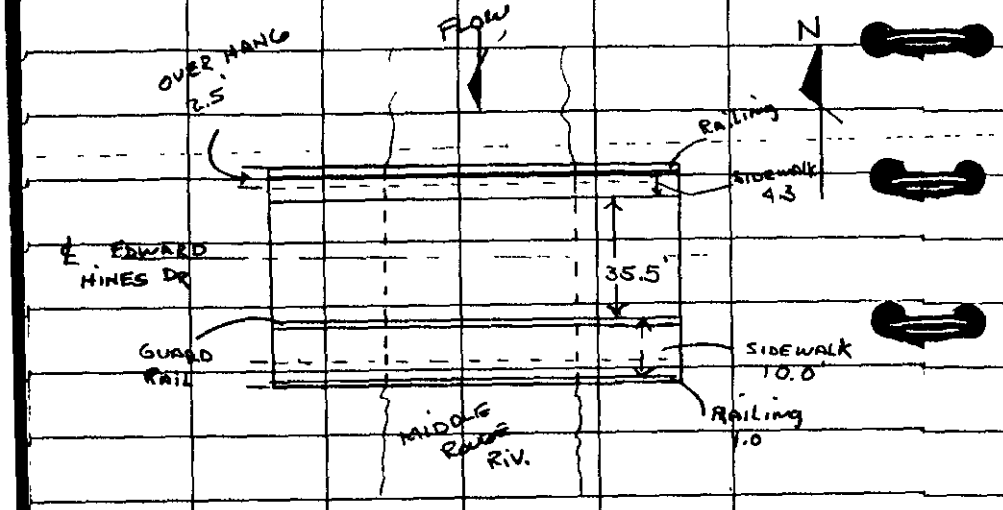
V
K D

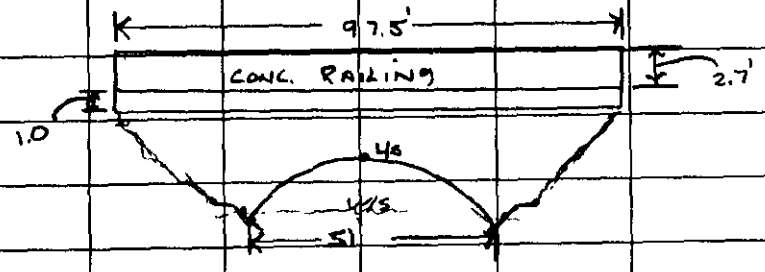
| | + | HI | − | ELEV | | DESCRIPTION |
|---|---|---|---|---|---|---|
| | | 717.60 | | | | |
| | DIST | Rod | ELEV | | | |
| | 0' | 16.1 | 701.5 | ON CONC. | | BTM ARCH & BTM ABUT. (IN WATER) & BTM CONC. BNK |
| | 6.5' RT | 14.0 | 703.6 | | | TOP CONC. BNK |
| | 3.0' RT | 15.1 | 702.5 | | | S/L W/S |
| | 10' LT | 2.7 | 699.8 | SND6 | | SND6 |
| | 20' LT | 3.8 | 698.7 | " | | " |
| | 30' LT | 3.3 | 699.2 | " | | " |
| | 40' LT | 2.3 | 700.2 | SND6 | | SND6 |
| | 53' LT | 15.1 | 702.5 | | | S/L W/S |
| | 51' LT | 15.7 | 701.9 | | | BTM ARCH & BTM ABUT & BTM BNK |
| | 61' LT | 12.35 | ~~701.25~~ 705.25 | | | TOP CONC. BANK |
| | 25' LT | 9.5 | 708.1 | | | L/S & TOP ARCH |
| | | | | | | |
| SM B2A | CK | 6.93 | 710.67 | | | |
| | | | | | | |
| | | | | | | |
| K.V | | | | | | |

BRIDGE DRAWING

⊗ B 2A

BRIDGE ON EDWARD HINES DRIVE




U/S LOOKING D/S

RAILING WIDTH = 1.0'

" HEIGHT = 2.7'

SIDE WALK U/S = 4.3'

" D/S = 10.0'

Rd. WAY WIDTH = 35.5'

OVER HANG = 2.5'

WIDTH of opening = 51'

TOTAL Length BRIDGE = 97.5'

BRIDGE SECTION

# B 1A

AT ENTRANCE TO D.P.W.

W.C.P.C

| | + | HI | - | ELEV. | |
|---|---|---|---|---|---|
| TBM D.P.W. | | | | 715.34 | Pg-14 CHISELED □ ON N.W. CORNER OF BRIDGE ON N.W. CORNER OF CONC. RAILING U/S SIDE AT ENTRANCE TO D.P.W./W.C.R.C. Edward HINES DR. (SET BY OTHERS) (Refer Pg 14) |
| | 3.77 | 719.11 | | | |
| | DIST | Rod | ELEV | | DESCRIPTIONS |
| | 0' | 6.36 | 712.75 | | TOP ℄ Rd AT FACE of HEADWALL |
| | 25' RT | 5.86 | 713.25 | | ℄ Rd. ENT. DR TO D.P.W. |
| | 50' RT | 5.32 | 713.79 | | " |
| | 75' RT | 4.55 | 714.56 | | " |
| | 100' RT | 3.09 | 716.02 | | " |
| | 114' RT | 2.68 | 716.43 | | LT. Edge HINES DR |
| | 133' RT | 2.45 | 716.66 | | ℄ " " |
| | 145' RT | 2.32 | 716.79 | | RT " " " |
| | | | | | |
| | 30' LT | 6.21 | 712.90 | | TOP ℄ Rd ENTRANCE TO D.P.W. @ FACE of HEADWALL. |
| | 50' LT | 5.62 | 713.49 | | D.P.W YARD |
| | 75' LT | 5.41 | 713.70 | | |
| | 100' LT | 5.08 | 714.03 | | |
| | 125' LT | 4.59 | 714.52 | | |
| | 150' LT | 4.93 | 714.18 | | |
| | 175' LT | 5.32 | 713.79 | | |

K.D

| + | HI | - | ELEV. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 719.11 | | | | | | | | |
| Dist | Rod | ELEV | | | Desc | | | | |
| 200' LT | 5.83 | 713.28 | | | D.P.W YARD | | | | |
| 225' LT | 6.81 | 712.30 | | | | | | | |
| 250' LT | 7.69 | 711.42 | | | | | | | |
| 280' LT | 7.76 | 711.35 | | | LAND declines to embankment | | | | |
| | | | ✓ K.V | | I-96 Freeway | | | | |

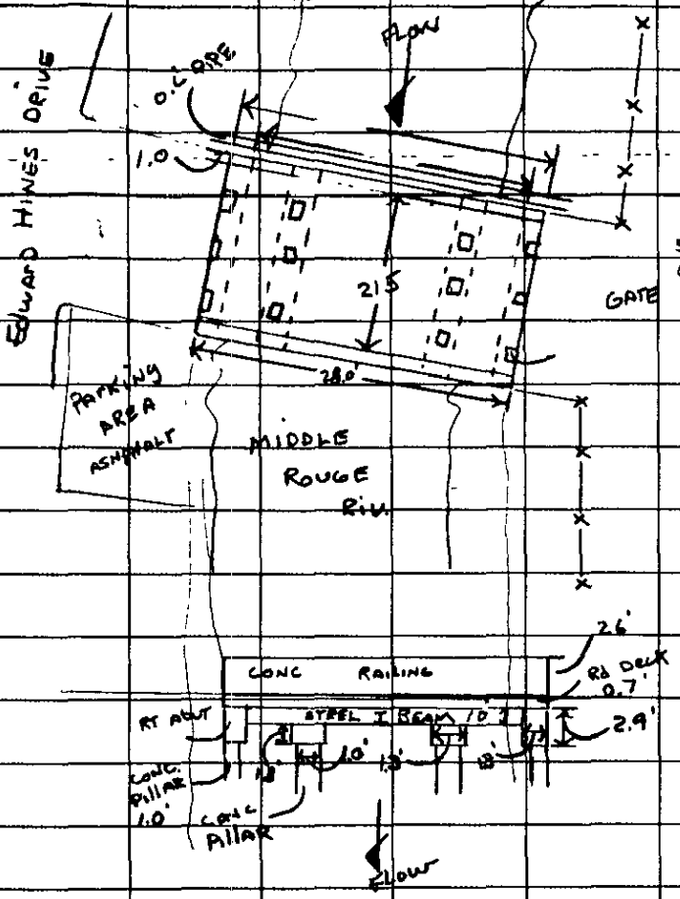
HI
719.11

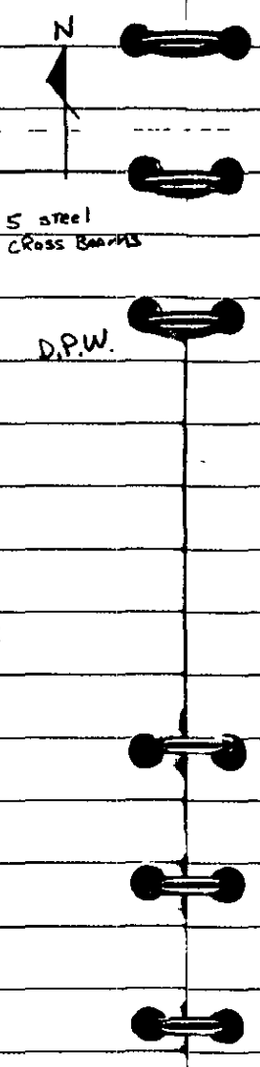
| | Dist | Rod | ELEV. | | | Desc | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.3' LT | 7.1 | 712.0 | | RT | Top of Retaining wall @ Face | | | | |
| | 1.3' LT | 10.0 | 709.1 | 2 | | BTM | " | | " | " |
| | 0' | 11.2 | 707.9 | | | W/S | S/L | | | |
| | 0' | 9.33 | 709.78 | | | Top of Pipe | | | | |
| | 6.0' LT | 14.1 | 705.0 | | | RT | Side | Pier 1 | BTM | CR |
| | 7.3' LT | 14.9 | 704.2 | | | LT | " | " | " | |
| | 10' LT | 15.9 | 703.2 | | | BTM | CR | | | |
| | 15' LT | 18.0 | 701.1 | | | " | " | | | |
| | 20' LT | 17.0 | 702.1 | | | " | " | | | |
| | 22.5 LT | 16.6 | 702.5 | | | BTM | CR | RT | Side | Pier 2 |
| | 23.8 LT | 15.6 | 703.5 | | | " | | LT | " | " |
| | 29.7 LT | 7.2 | 711.9 | | LT | Top | Retaining | Wall | @ | Face |
| | 29.7 LT | 9.9 | 709.2 ~~699.8~~ | | | BTM | | | | |
| | 30 LT | 11.3 | 707.8 | | | W/S | S/L | | | |
| | 29.7' LT | 8.2 | 710.9 | | | L/S | @ | LT | | |
| | 1.3' LT | 8.2 | 710.9 | | | L/S | @ | RT | | |
| TBM D.P.W. | CK | 3.77 | 715.34 | V.V. | | | | | | |

BRIDGE DRAWING

# BRIDGES AT D.P.W.

## @ SECTION B1A




6' PIPE with 4 brackets

2.3' below BTM BRIDGE Deck

Level Loop

| | + | HI | - | ELEV. | | |
|---|---|---|---|---|---|---|
| TBM "FL 2-3" | | | | 730.22 | | Gosling Czubak Assoc. |
| | 1.18 | 731.40 | | | | |
| TP 1 | | | 12.85 | 718.55 | - 11.67 | DOT E EDGE HINES DR |
| | 2.08 | 720.63 | | | | |
| TBM D.P.W. | | | 5.29 | 715.34 | - 3.21 | Refer TO Pg - 8 |
| | | RETURN | | | | |
| TBM D.P.W | | | | 715.34 | | Pg - 8 |
| | 5.19 | 720.53 | | | | |
| TP- 1 | | | 1.98 | 718.55 | 3.21 | above |
| | 12.71 | 731.26 | | | | |
| TBM "FL 2-3" | | | 1.03 | 730.23 | 11.68 | above |

V.L.D

October 12. 1992

Ms. Hannah Kobylinski
Engineering Division
Great Lakes Hydraulics & Hydrology Branch
Detroit District Corps of Engineers
P.O. Box 1027
Detroit, Michigan 48231-1027

Re: LMMP
City & Township of Plymouth
Middle Rouge River
Wayne County

Dear Ms. Kobylinski:

We have completed our review of the Limited Map Maintenance Program for the Middle Rouge River within the City and Township of Plymouth. Based on our review, there are several comments and concerns that should be addressed.

1. **XSEC 2100 - 2245 I-275 Bridges**
   It is suggested that the BT cards be reviewed. It appears that a significant amount of bridge area is being eliminated because of how the low cord has been input on the BT cards. In particular, it appears that an additional BT station will be needed between station 252 and 338. Upstream stages may be lower up to a foot by such a correction.

2. **XSEC 13136 - 14600**
   The reach lengths and invert elevations should be reviewed in this reach. At XSEC 14600, the reach length is shown to be 1464 feet between XSEC 14400 and 14600. If the invert elevations are a result of interpolation between XSEC 13135 and XSEC 14601, the invert elevations at 13800 and 14400 should be reviewed.

3. **XSEC 14601 - 14980 Wilcox Lake Dam**
   The analysis has assumed that all of the flow will be through the principal spillway. However, the computed stage of 712.19 is about 6 feet over the dam embankment. It is suggested that the analysis at the Dam consider the over-topping of the dam embankment. The National Dam Safety Program Inspection Report shows that at a stage of 706.0, the dam will pass about 5000 cfs. It appears that the computed stages may be about 6 feet high.

I have included a copy of the rating curve and a plan view of the dam, taken from the Dam Safety Report.

4. **XSEC 16113 - 19850**
The U.S. Geological Survey Maps and aerial photographs indicate that the Middle Rouge Parkway crosses the River in this reach. The bridge has not been included in the analysis. What type of loss may be expected at this crossing?

We request that you consider these comments, and adjust the hydraulic model as necessary. If you have any questions, please feel free to contact me.

Sincerely,

Bruce E. Menerey, P.E.
Floodplain Mapping/Delineation
Land & Water Management Division
517-335-3181

Enclosures

**DEPARTMENT OF THE ARMY**
DETROIT DISTRICT, CORPS OF ENGINEERS
BOX 1027
DETROIT, MICHIGAN 48231-1027

OCT 0 7 1992
NATURAL RESOURCES
LAND & WATER MGMT.

IN REPLY REFER TO

SEP 30 1992

Great Lakes Hydraulics and Hydrology Branch

Mr. Bruce Menerey, P.E.
Technical Programs
Land and Water Management Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

Dear Mr. Menerey:

Submitted for your review and approval is a copy of the hydraulic calculations for the City of Plymouth and Plymouth Township, Michigan Limited Map Maintenance Program. Enclosed are the HEC-2 100-year run, field notes from all new survey work, and a brief write-up dealing with items that will assist the review process.

If you have any questions regarding the enclosed data, please contact Ms. Hanna Kobylinski at (313) 226-4761 or Mr. David Schweiger at (313) 226-4886.

Sincerely,

David L. Schweiger

for Ronald E. Wilshaw, P.E.
Chief, G.L. Hydraulics and
Hydrology Branch

Enclosure

Great Lakes Hydraulics and Hydrology Branch

Mr. Bruce Menerey, P.E.
Technical Programs
Land and Water Management Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

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Sincerely,

Ronald E. Wilshaw, P.E.
Chief, G.L. Hydraulics and
Hydrology Branch

Enclosure

City of Plymouth and Plymouth Township, Michigan, FIS
Limited Map Maintenance Program
Hydraulic Computation Background Information

This study covers the Middle River Rouge from the downstream corporate limit of Plymouth Township to the upstream township corporate limit, including the City of Plymouth. Since this is a limited study, only the 100-year flood is being modeled with discharge as previously approved by the Michigan Department of Natural Resources. In the existing study, the Middle River Rouge was studied by approximate methods.

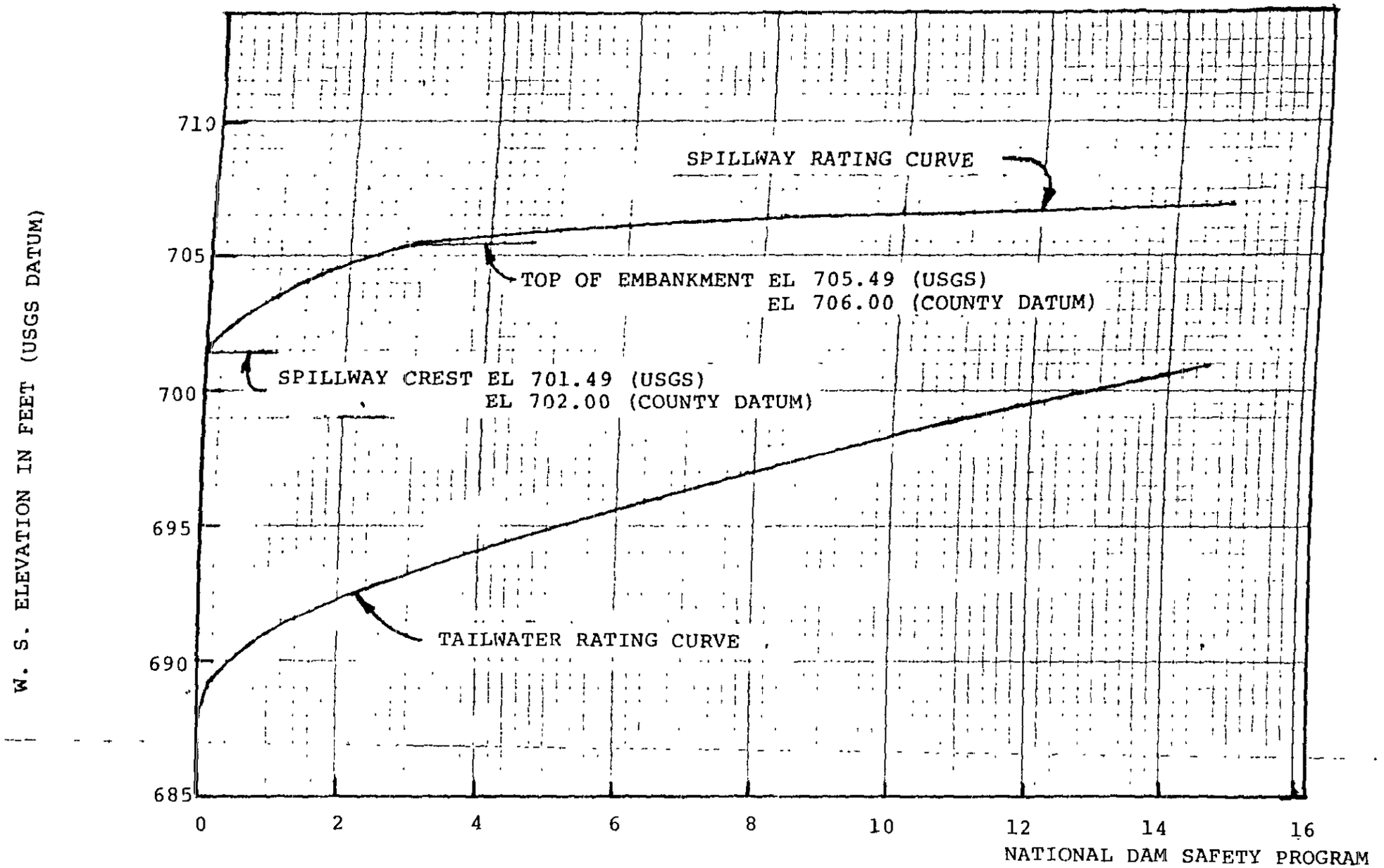
As part of this study a field survey was made in March 1992. The survey only collected data at bridge sections. All bridges were field measured to obtain elevation data and structural geometry. Valley sections were estimated using a new two-foot topographic map developed for the U.S. Army Corps of Engineers, Detroit District from aerial photography flown in March 1992.

Channel and overbank roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and were based on field observations.

The starting water surface elevation was determined based on information included in the National Dam Safety Program Inspection Report for Middle River Rouge Basin, Newburgh Dam.

Water surface elevations were computed using the COE HEC-2 step-backwater computer program. The HEC-2 model for this study began at the upstream side of Newburgh Lake and was continued to the upstream side of Northville Road, near the downstream side of Phoenix Lake. The E. Hines Drive bridge located upstream of Haggerty Road (station 6183 in the HEC-2 model) was modeled as a regular cross section. Since the bridge is oriented parallel to general direction of flow in the floodplain, there is minimal head loss in the general vicinity of the bridge.

The floodway run is not included as part of this study. The copy of the HEC-2 output for the 100-year profile which covers both communities has been included for your information.




NOTE: WAYNE COUNTY DATUM IS 0.512 FEET HIGHER THAN USGS DATUM.

NATIONAL DAM SAFETY PROGRAM

WILCOX DAM

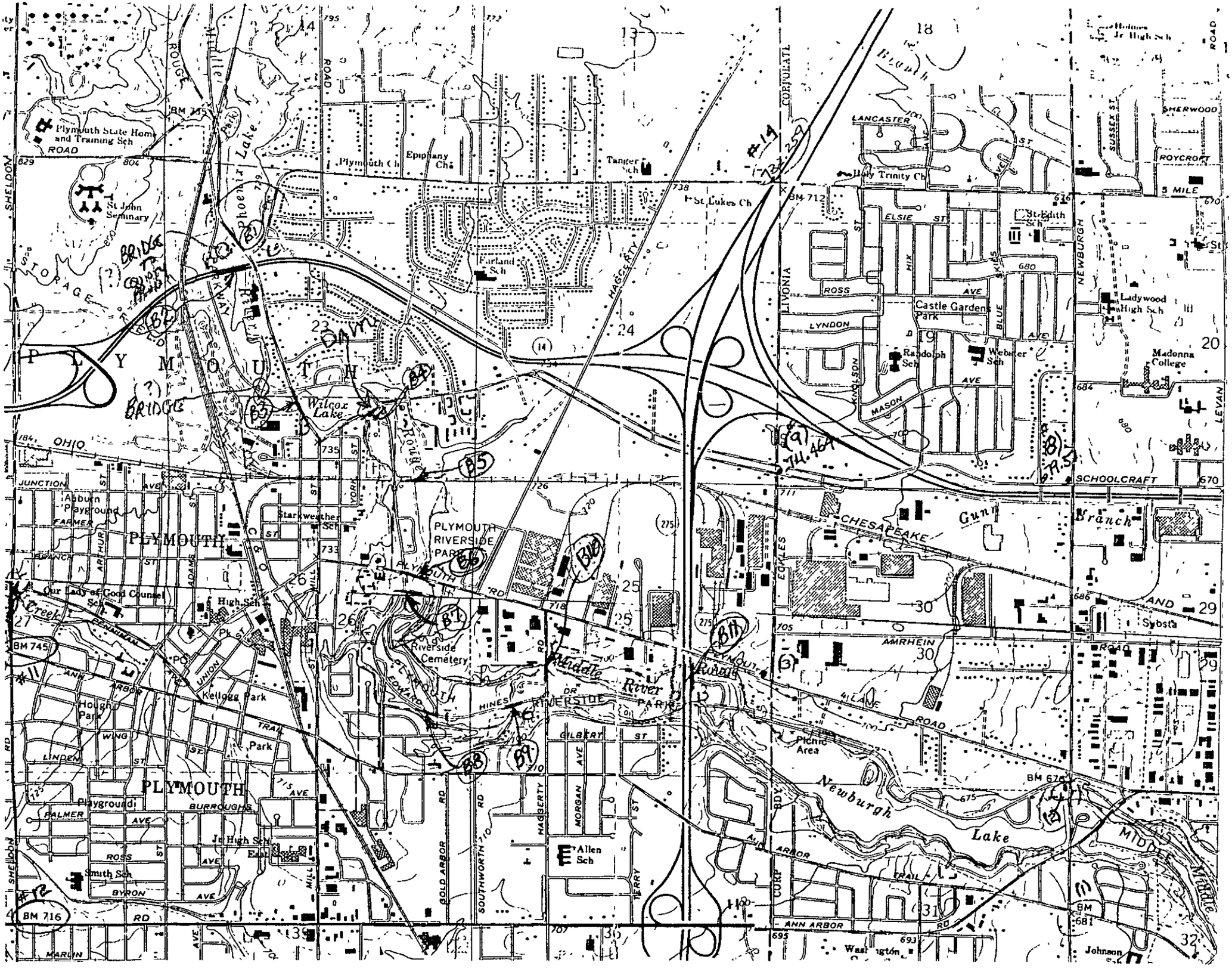
SPILLWAY AND TAILWATER RATING CURVES

FIGURE 10

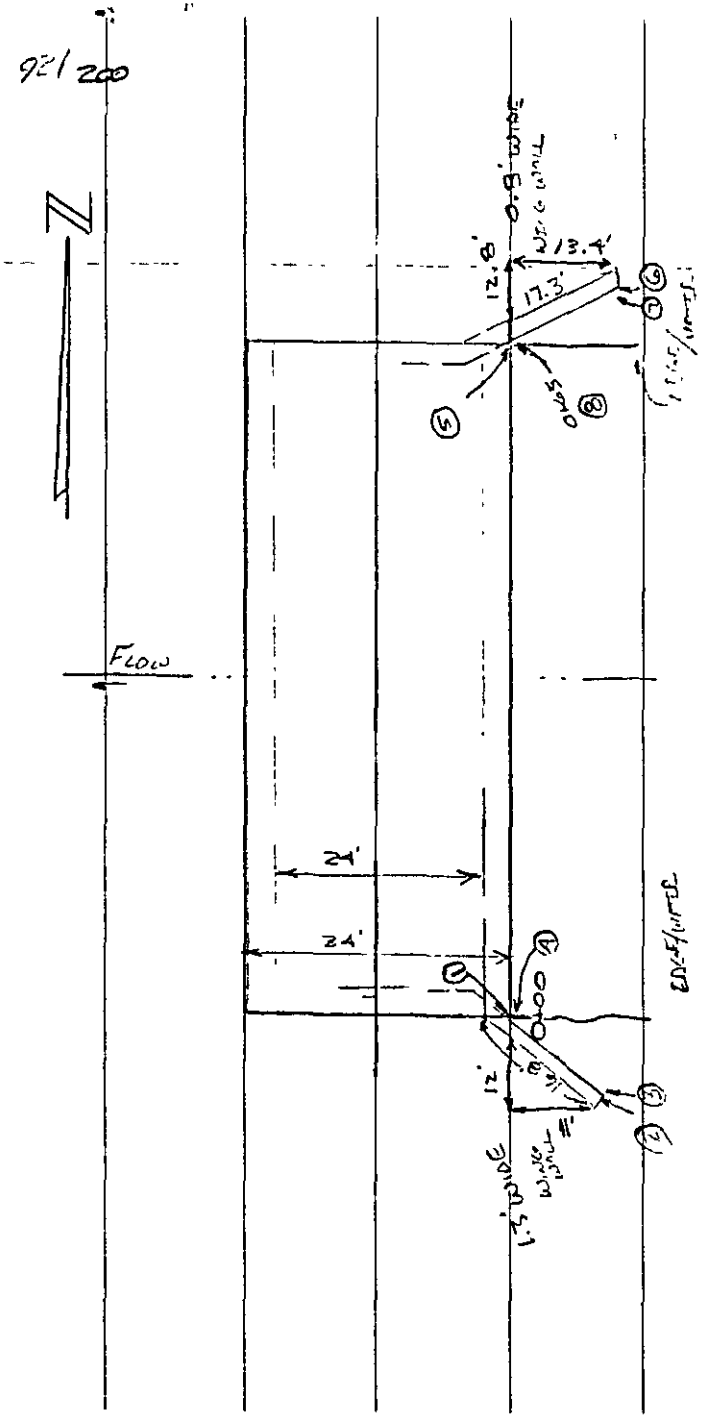
This is to certify that all work accomplished in the conduct of this study was done in accordance with the Statement of Work and General Provisions of Interagency Agreement No. EMW-91-E-3529, Project Order No. 4A and Project Order 4B, together with all such modifications, either written or oral, as the Project Officer and/or the Contracting Officer or their representatives have directed, as such modifications affect this contract, and that all such work has been accomplished in accordance with sound and accepted engineering practice within the contract provisions for respective phases of the work.

David L. Schweiger

DAVID L. SCHWEIGER, P.E.
Chief, Riverine and Coastal Section,
Great Lakes Hydraulics and Hydrology
Branch



Plymouth State Home and Training Sch
St John Seminary
Phoenix Lake
Plymouth Ch
Epiphany Ch
Tanger Sch
St Lukes Ch
Farland Sch
Holy Trinity Ch
St Edith Sch
Castle Gardens Park
Randolph Sch
Webster Sch
Ladywood High Sch
Madonna College
Wilcox Lake
PLYMOUTH
Auburn Playground
Starkweather Sch
PLYMOUTH RIVERSIDE PARK
Our Lady of Good Counsel Sch
High Sch
Riverside Cemetery
Middle River
Kellogg Park
Hough Park
Park
Playground
Jr High Sch
Smith Sch
Allen Sch
Picnic Area
Newburgh Lake
Gunn Branch
Sybsta
Washington
Johnson
CHESAPEAKE AND
SCHOOLCRAFT
AMRHEIN ROAD
ANN ARBOR TRAIL
OHIO
JUNCTION
LIVONIA
NEWBURGH
LANCASTER
ELSIE
ROSS
LYNDON
MASON
SHERWOOD
ROYCROFT
5 MILE
LEVAN
SHELDON
ROUGE
HAGGERTY
CORPORATE
GOLD ARBOR RD
SOUTHWORTH RD
HINES DR
GILBERT
MORGAN
TERRY
CURP BDY
EDWARD
PENNIMAN
UNION
ANN ARBOR
PALMER
BURROUGHS
ROSS
BYRON
MARLIN
BM 745
BM 716
BM 712
BM 676
BM 681
BRIDGE TO COUNTY PARK
DAM
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
#11
#12
#14
(9) 711.464
(8) 79.5




GOSLING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

89/200

BRIDGE B-1
NORTHVILLE RD OVER
MID ROUGE RIVER
[illegible]
THE [illegible]
PHOENIX [illegible]
REFER W.C.R.C. JOB # 340 - #2

DO:0011

3-26-92
J. CROSS [illegible]
J. LITA [illegible]

BRIDGE TI-1



| STA | BS | HI | FS | ELEV |
|---|---|---|---|---|
| FL2-3 | | | | 730.22 |
| | 0.30 | 730.52 | | |
| 1 | | | 3.25 | 727.27 |
| 2 | | | 5.80 | 724.72 |
| 3 | | | 12.5 | 718.0 |
| 4 | | | 21.9 | 708.6 |
| 5 | | | 2.94 | 727.58 |
| 6 | | | 8.97 | 721.55 |
| 7 | | | 13.2 | 717.3 |
| 8 | | | 21.9 | 708.6 |
| FL2-3 | | | 0.30 | 730.22 ✓ |

REMARKS

TM FL2-3 SEE FG. 94/200

1. 0+00 TOP / LT. ABUT.
2. TOP / CONC. WING WALL
3. GR. @ BOTTOM CONC WING WALL
4. WATERS EDGE 0+00 (TOP/WATER) @ GROUND
5. 0+66 RT TOP / RT. ABUT.
6. TOP / CONC WING WALL
7. GR @ BOTTOM / CONC. WING WALL
8. 0+65 RT WATERS EDGE @ GROUND (TOP/WATE

RDG 11 5-12-92

94/200

| STA | BS | HI | FS | ELEV. |
|---|---|---|---|---|
| FLZ-3 | | | | 730.22 |
| | 5.08 | 735.30 | | |
| 0+00 ℄ RD | | | 8.05 | 727.25 |
| 0+30 RT ℄ RD & BRIDGE | | | 7.80 | 727.50 |
| 0+72 RT ℄ RD & END BRIDGE | | | 7.68 | 727.62 |
| 1+00 RT ℄ RD | | | 7.65 | 727.65 |
| 1+25 RT ℄ RD | | | 7.34 | 727.96 |
| 1+50 LT ℄ RD | | | 6.85 | 728.45 |
| 1+75 RT ℄ RD | | | 6.33 | 728.97 |
| 2+00 RT ℄ RD | | | 5.62 | 729.68 |
| 2+25 LT ℄ RD | | | 4.85 | 730.45 |
| 2+50 RT ℄ RD | | | 3.90 | 731.40 |
| 2+75 RT ℄ RD. | | | 3.52 | 731.78 |
| 2+00 RT ℄ RD. | | | 2.58 | 732.72 |
| 2+25 RT ℄ RD | | | 1.90 | 732.40 |
| 0+25 LT ℄ RD. | | | 7.65 | 727.45 |
| 0+50 LT ℄ RD | | | 7.38 | 727.92 |
| 0+75 LT ℄ RD. | | | 6.84 | 728.44 |
| 1+00 LT ℄ RD | | | 6.34 | 728.96 |
| 1+25 LT ℄ RD | | | 5.73 | 729.57 |
| 1+50 LT ℄ RD | | | 5.10 | 730.20 |
| 1+75 LT ℄ RD. | | | 4.33 | 730.97 |
| 2+00 LT ℄ RD. | | | 3.54 | 731.76 |
| 2+25 LT. ℄ RD | | | 2.63 | 732.67 |
| | | (CONT.) | | |

95/200

BM FLZ-3: CHISELED SQUARE ON TOP OF N. END CONC. WALL ON E. SIDE OF BRIDGE OVER M.D. TRIBE RIVER ON JOHNSVILLE RD. S/ INT. JOHNSVILLE RD & HINES DR., N. OF W.C.C. PHOENIX YARD.

NOTE RD SLOPES UP 2% AFTER 3+25 RT

4064 5-12-92

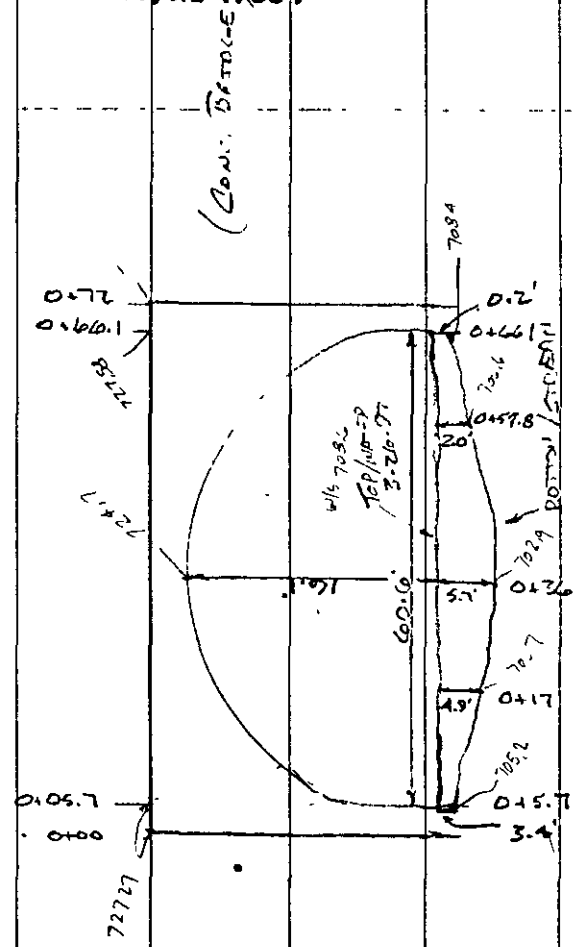
96/200

| STA | BS | HI | FS | ELEV | |
|---|---|---|---|---|---|
| | (Out) | 735.30 | | | |
| 2+50 LT ℄ RD | | | 1.69 | 733.61 | |
| FL2-3 | | | 5.08 | 730.22 | ✓ |

KDGH 5-12-92

GOSLING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

93/200



100/200

GO LING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

97/200

NOTE RD SLOPE UP 4% AFTER 2+50 LT.
BM FL2-3 SEE PG. 94/200

102/200 BRIDGE B-3 103/200

| STA | BS | HI | FS | ELEV | REMARKS |
|---|---|---|---|---|---|
| FL3-1 | | | | 708.05 | BM FL3-1 - P.K. NAIL ON TOP OF 1ST GUARD RAIL POST ON E. SIDE OF E ENTRANCE TO PARKING AREA ON N SIDE EL. HINES DR E/NORTHVILLE R (WILCOX LAKE AREA) |
| | 10.27 | 718.30 | | | |
| TBM "WIL" | | | 1.91 | 716.39 | TBM "WIL" CHISSELED SQUARE ON S. END/CONC. WALL E. SIDE OF NORTHVILLE RD @ STATE REWARD BRIDGE OVER MID. ROUGE RIVER, S./INT. NORTHVILLE RD. & EL. HINES DR. (WILCOX LAKE AREA) |
| | 1.74 | 718.13 | | | |
| FL3-1 | | | 10.10 | 708.05 ✓ | SEE ABOVE |
| TBM "WIL" | ~~8.43~~ | | | 716.39 | TBM "WIL" SEE ABOVE |
| | 8.43 | 724.82 | | | |
| 0+00 ℄ RD. | | | 11.98 | 712.84 | |
| 0+[illegible] RT ℄-℄ RD BRIDGE | | | 11.62 | 713.20 | |
| 0+68 RT ℄ RD | | | 11.11 | 713.71 | |
| 1+00 RT ℄ RD. | | | 9.90 | 714.92 | |
| 1+68 RT ℄-℄ MILL ST & STARKWEATHER | | | 6.87 ~~6.75~~ | 717.95 | |
| 2+00 RT ℄ STARKWEATHER | | | 5.57 ~~6.87~~ | 719.25 | |
| 2+25 RT ℄ RD | | | 4.13 | 720.69 | |
| 2+50 RT ℄ RD | | | 2.72 | 722.10 | NOTE RD SLOPES UP 4% AFTER 2+50 RT |
| 0+50 LT ℄ RD. | | | 12.30 | 712.52 | |
| 1+00 LT ℄ RD | | | 11.94 | 712.88 | |
| 1+50 LT ℄ RD | | | 11.32 | 713.50 | |
| 2+20 LT. ℄-℄ NORTHVILLE RD & E. HINES DR | | | 10.35 | 714.47 | |

(CONT)

CZUBAK ASSOCIATES, P. C.
520 WEST 14th STREET
TRAVERSE CITY, MI 49684

104/200

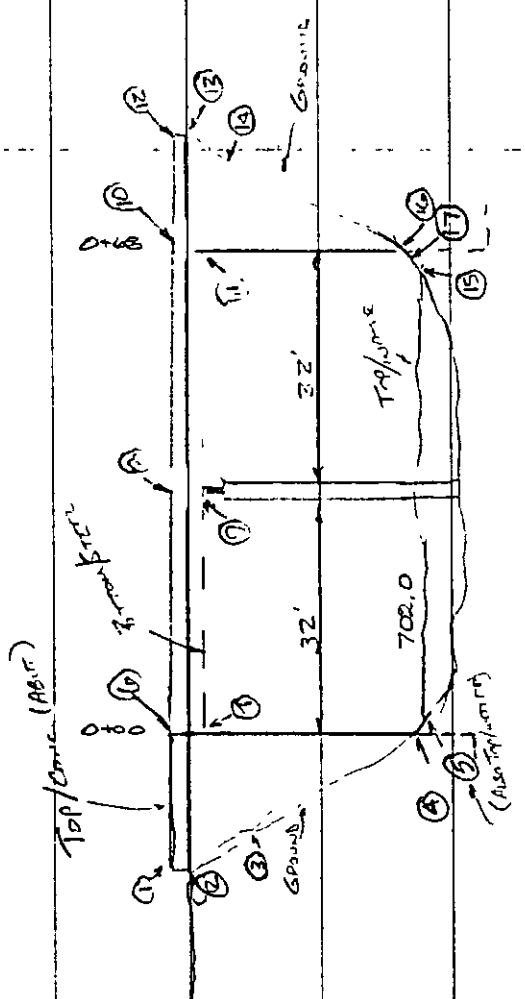
| STA | BS | HI | FS | ELEV | |
|---|---|---|---|---|---|
| | CONT | 724.82 | | | |
| 2.50 LT @ RD. | | | 9.95 | 714.87 | |
| TBM "WIL" | | | 8.43 | 716.39 | ✓ |

K DGH 5-12-92

101/200

BRIDGE B-3
NORTHVILLE RD
220' S. OF E. HINES DR.
STATE REWIRE BRIDGE
REFER WAYNE CO. RD. CO. JOB #339

3-26-92
J. CROSS T
J. LIRA L





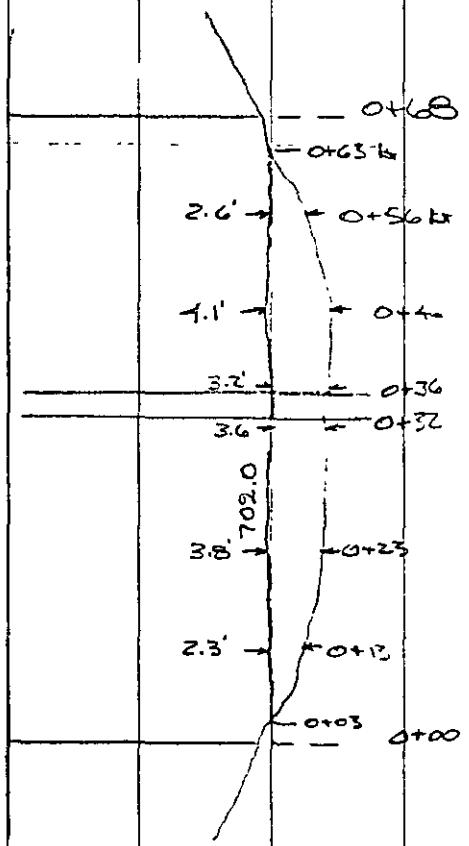

| STA | BS | HI | FS | ELEV. | |
|---|---|---|---|---|---|
| TBM" WDL | | | | 716.39 ✓ | SEE PG 102/200 |
| | 2.03 | 718.42 | | | |
| 1 | | | 5.43 | 712.99 | 0+23' LT TOP/CONC |
| 2 | | | 6.1 | 712.3 | 0+23 LT GR. 0+14.5 |
| 3 | | | 7.5 | 710.9 | GR. |
| 4 | | | 13.6 | 704.8 | 0+00 GR. |
| 5 | | | 16.38 | 702.04 | 0+03 GR @ EDG WA |
| 6 | | | 4.93 | 713.49 | 0+00 LT. ABUT |
| 7 | | | 8.33 | 710.09 | 0+00 LOW STEEL |
| 8 | | | 4.58 | 713.84 | 0+34 R TOP/CONC. |
| 9 | | | 8.05 | 710.37 | 0+34 RT LOW STEEL |
| 10 | | | 4.29 | 714.14 | 0+68 RT RT ABUT |
| 11 | | | 7.68 | 710.74 | 0+69 RT LOW STEEL |
| 12 | | | 4.21 | 714.21 | 0+92 RT TOP/CONC |
| 13 | | | 4.3 | 714.1 | 0+92 RT GROUND |
| 14 | | | 4.5 | 713.9 | 0+83 RT GR |
| 15 | | | 16.38 | 702.04 | 0+63 RT GR @ EDG WA |
| 16 | | | 13.9 | 704.5 | 0+65 RT GROUND |
| 17 | | | 15.5 | 702.9 | 0+65 RT GROUND |
| TBM" WDL | | | 2.03 | 716.39 ✓ | SEE PG. 102/200 |

KDGH 5-12-92

103/200

C[illegible]LING CZUBAK ASSOCIATES, [illegible]
52[illegible] WEST 14th STREET
TRAVERSE CITY, MI 49684

105/200




NOTE RD SLOPES UP 4% AFTER 2-50L
TBM "WILL" SEE PG 102/200

110/200

# B-A & DAM

| STA | B.S | HI. | F.S | ELEV | REMARKS |
|---|---|---|---|---|---|
| FL3-1 | | | | 708.03 ✓ | FL3-1 SEE PAGE 102/200 |
| | 3.65 | 711.68 | | | |
| TBM "DAM" | | | 5.28 | 706.40 | TBM "DAM" CHISELED SQUARE ON N.W. END OF WINGWALL AT WILCOX DAM; N.W. OF INT. OF E. HOWES DR. & WILCOX TL. |
| | 5.38 | 711.78 | | | |
| FL3-1 | | | 3.75 | 708.03 ✓ | BM FL3-1 SEE PG. 102/200 |
| TBM "DAM" | ~~5.38~~ | | | 706.40 | TBM "DAM" SEE ABOVE |
| | 5.38 | 711.78 | | | |
| 0+00 ℄ Rd | | | 4.09 | 707.69 | |
| 0+50 LT ℄ Rd | | | 4.10 | 707.68 | |
| 1+00 LT ℄ Rd | | | 4.25 | 707.53 | |
| 1+50 LT ℄ Rd | | | 4.48 | 707.30 | |
| 2+00 LT ℄ Rd | | | 4.76 | 707.02 | |
| 2+50 LT ℄ Rd | | | 5.07 | 706.71 | NOTE RD. RUNS LEVEL AFTER 2+50 |
| ℄ Rd | | | | | |
| ℄ Rd | | | 4.23 | 707.45 | |
| 0+98 RT ℄ Rd | | | 5.50 | 706.28 | |
| 1+00 RT ℄ Rd. | | | 7.33 | 704.45 | |
| 1+50 RT ℄ Rd | | | 7.60 | 704.18 | |
| 2+00 ℄ Rd | | | 7.20 | 704.58 | |
| 2+50 ℄ Rd | | | 6.27 | 705.51 | |
| 3+00 ℄ Rd | | | 4.71 | 707.07 | NOTE RD. RUNS UP 10% AFTER 2+50 |
| TBM "DAM" | | | 5.38 | 706.40 ✓ | |

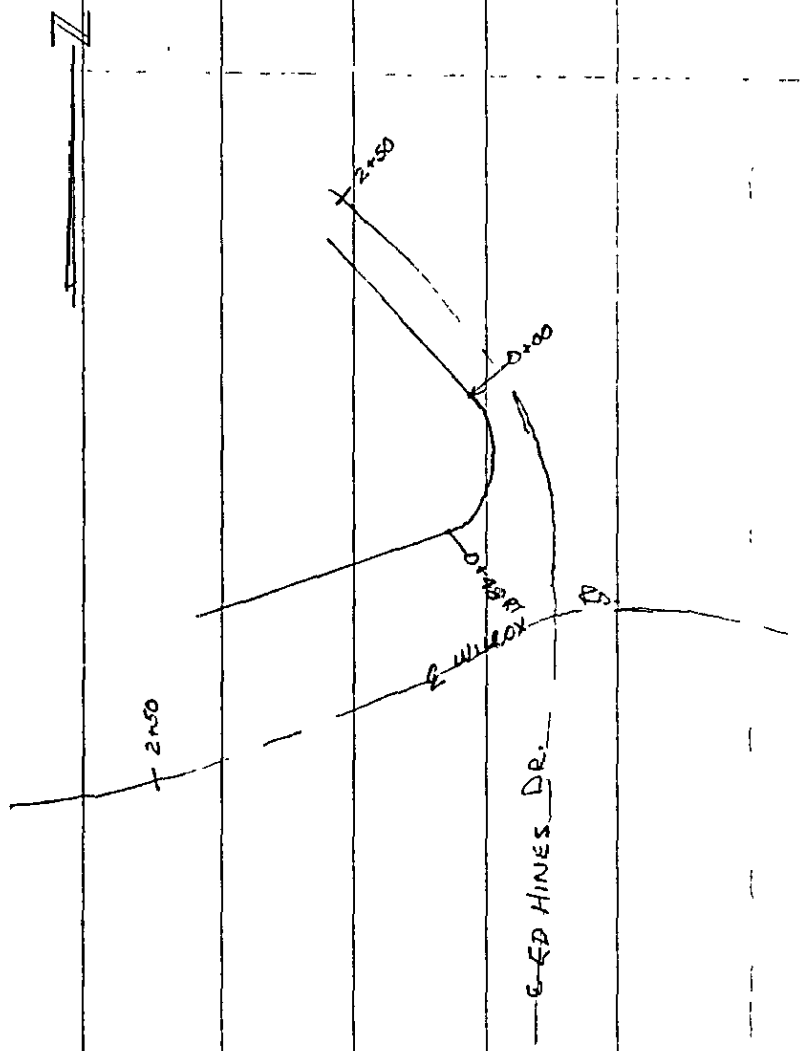
KDGH 5-12-92

111/200

117/200

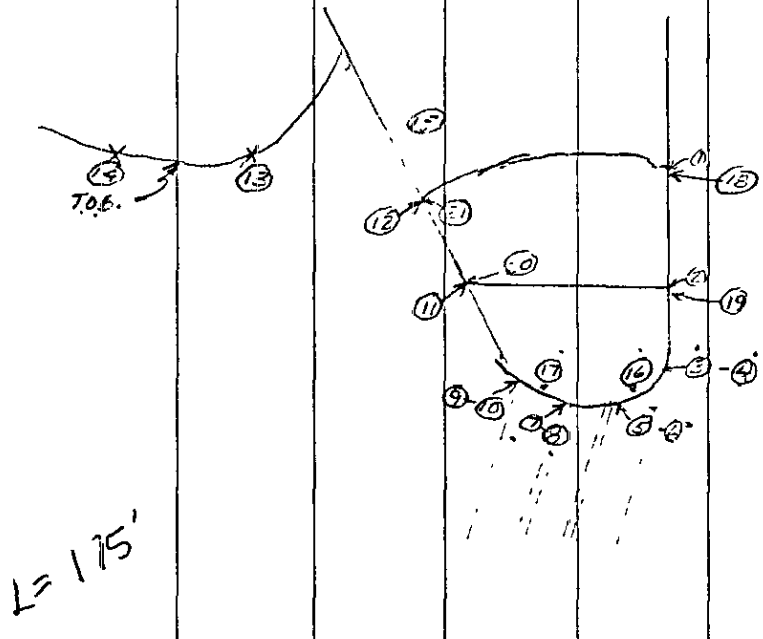
GOSLING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

109/200




DAM &
BRIDGE B-4
E. HINES DR &
WILCOX RD.
REFER WAYNE CO. RD. CO. JOB #417 #1 & #4

3-26-92
J. Gross
J. Lira



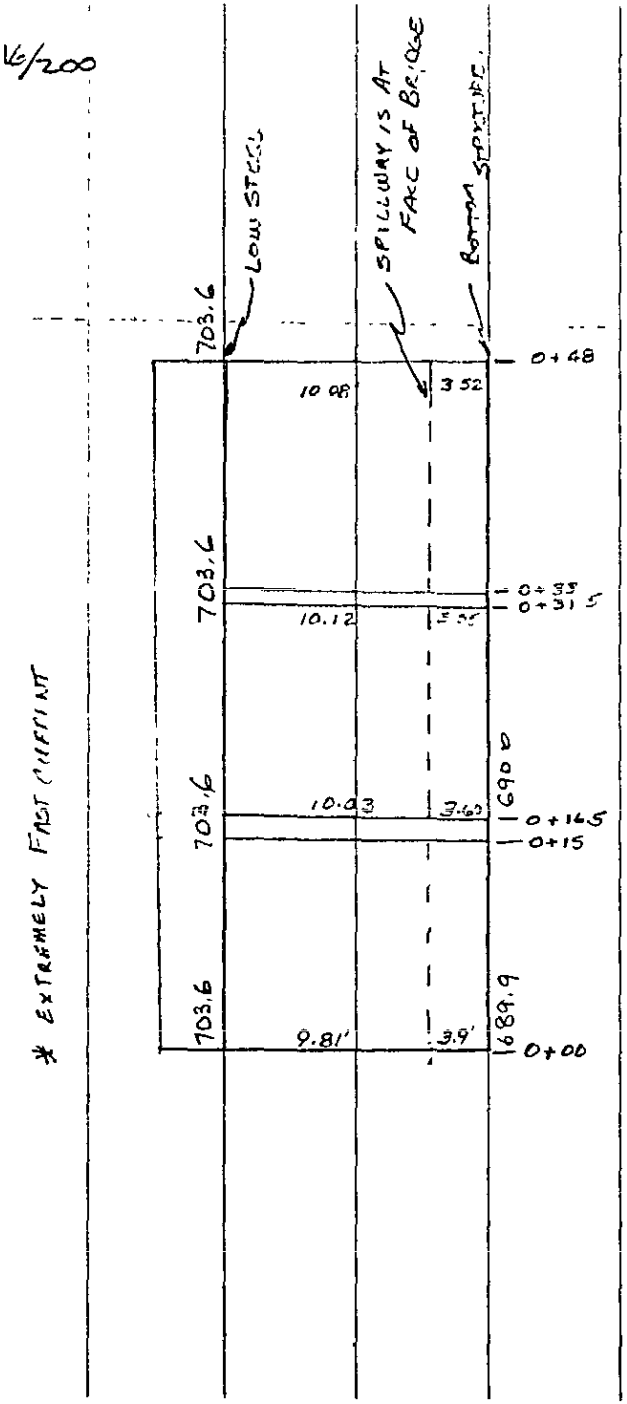



| STA | B.S | H.I. | F.S | ELEV. | |
|---|---|---|---|---|---|
| TEP. "DAM" | | | | 706.40 | SEE Pg. 110/EE |
| | 4.00 | 710.40 | | | |
| ① | | | 8.91 | 701.49 | TOP SPILLWAY |
| ② | | | 14.36 | 696.04 | TOP SPILLWA |
| ③ | | | 3.85 | 706.55 | 0+00 TOP AEJT |
| ④ | | | 6.78 | 703.62 | 0+00 EOT "A" STLL |
| ⑤ | | | 3.77 | 706.63 | 0+15.7 TO AEJT |
| ⑥ | | | 6.77 | 703.63 | 0+15.7 EOT "A" STLL |
| ⑦ | | | 3.77 | 706.63 | 0+32.2 T AEJT. |
| ⑧ | | | 6.77 | 703.63 | 0+32.2 EOT "A" STLL |
| ⑨ | | | 3.79 | 706.61 | 0+48 TO ABUT |
| ⑩ | | | 6.76 | 703.64 | 0+48 BOTTOM STLL |
| ⑪ | | | 14.32 | 696.08 | TOP SPILLWAY |
| ⑫ | | | 8.89 | 701.51 | TOP SPILLWA |
| ⑬ | | | 4.2 | 706.2 | TOP BANK |
| ⑭ | | | 4.5 | 705.9 | TOP BANK |
| ⑮ | | | 8.35 | 702.05 | TOP WATER |
| ⑯ | | | 16.07 | 694.33 | TOP WATER |
| ⑰ | | | 16.04 | 694.36 | TOP WATER |
| ⑱ | | | 3.95 | 706.45 | TOP CONC. WA |
| ⑲ | | | 3.90 | 706.59 | " |
| ⑳ | | | 3.81 | 706.59 | " |
| ㉑ | | | 3.82 | 706.58 | " |
| TEM "DAM" | | | 4.00 | 706.40 | SEE Pg. 119/EE |

KDGH 5-12-92

GOSLING CZUBAK ASSOCIATES, P.C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

11/200




* EXTREMELY FAST CURRENT

119/200

| STA | BS | HI | FS | ELEV | |
|---|---|---|---|---|---|
| FL3-160 | | | | 709.84 ✓ | BM FL3-160 GOOD NAIL IN W FACE OF TELEPHONE POLE ON THE E. SIDE/E. HINES DR 83' S. R.R. VIADUCT, N./PLYMOUTH RD. |
| | 1.92 | 711.76 | | | |
| T.P. | | | 7.43 | 704.28 | |
| | 4 22 | 708.50 | | | |
| SET TBM "R.R." | | | 5.45 | 703.05 | TBM "R.R" CHISELED SQUARE ON W. END OF N.R.R. BRIDGE ABUT. OVER THE HEAD. ROUGE RIVER. E./E HINES DR. & S./WILCOX RD. |
| | 5.48 | 708.53 | | | |
| T.P. | | | 4.20 | 704.33 | |
| | 7.86 | 712.19 | | | |
| FL3-160 | | | 2.34 | 709.85 | SEE ABOVE |
| | | | S.B | 709.84 | |
| | | | ERROR | +0.01 | |

KDGH 5-12-92

119/200

GOSLING CZUBAK ASSOCIATES, P.C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

120/200

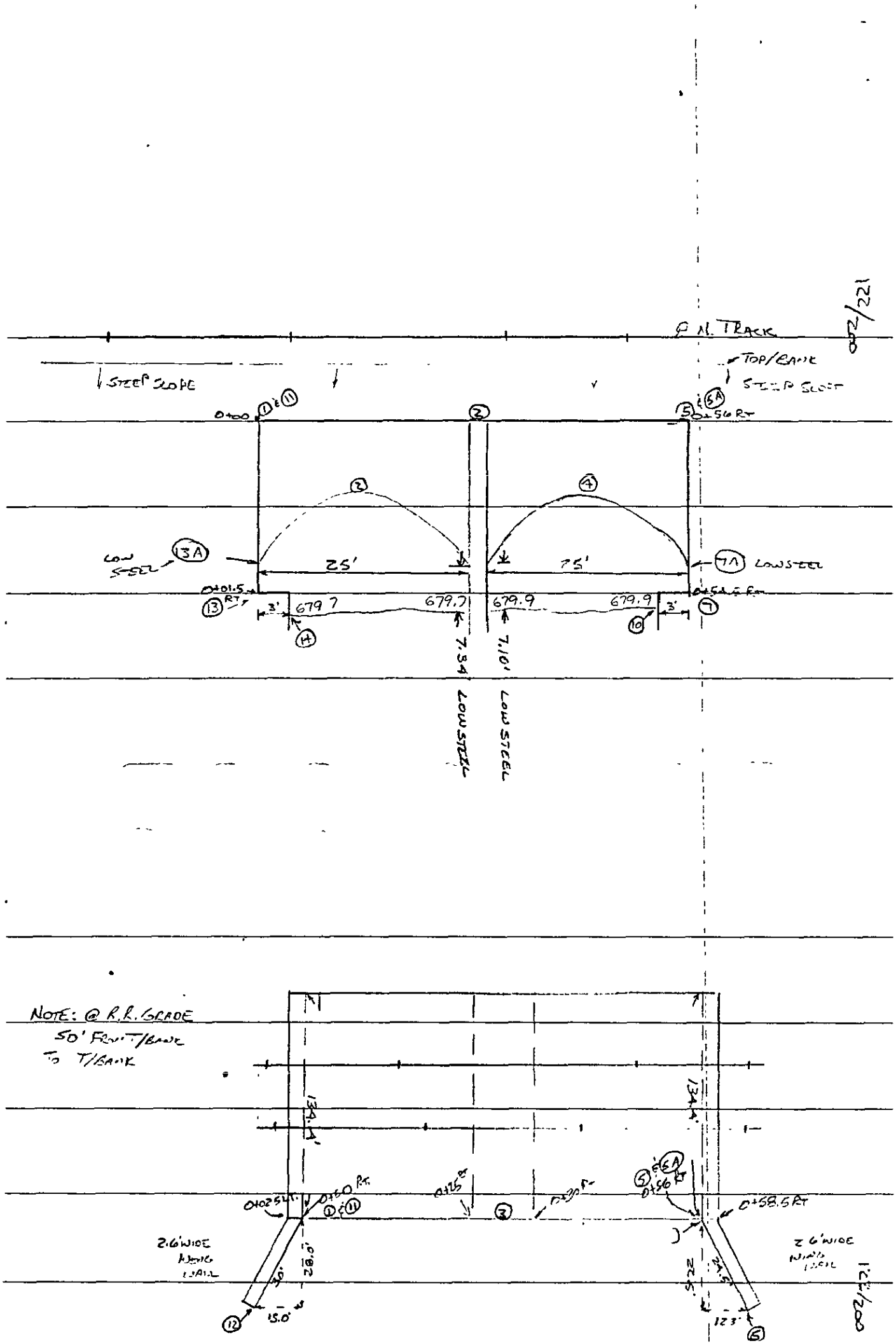
| STA | BS | HI | FS | ELEV | |
|---|---|---|---|---|---|
| TBM "R.R." | | | | 703.05 | |
| | 24.12 | 727.17 | | | |
| T.P. | | | 1.47 | 725.70 | |
| | 9.86 | 735.56 | | | |
| 0+00 ℄ R.R | | | 3.27 | 732.29 ~~735.56~~ | |
| 0+00 0+28 Rt | | | 6.2 | 729.4 | |
| ℄ RR | | | 3.09 | 732.47 | |
| 0+28 Rt T/Bank | | | 5.8 | 729.8 | |
| 0+50 Lt ℄ RR | | | 3.06 | 732.50 | |
| 0+50 Lt T/Bank | | | 5.7 | 729.9 | |
| 1+00 Rt ℄ R.R. | | | 2.84 | 732.72 | |
| 1+00 Rt T/Bank | | | 5.8 | 729.8 | |
| 2+00 Rt ℄ R.R | | | 2.37 | 733.19 | |
| 2+00 Rt T/Bank | | | 5.1 | 730.5 | |
| 3+00 Rt ℄ R.R. | | | 1.82 | 733.74 | LEVEL TO THE WEST |
| 3+00 Rt T/Bank | | | 3.6 | 732.0 | |
| 0+50 Lt ℄ RR. | | | 3.48 | 732.08 | |
| 0+50 Lt T/Bank | | | 5.7 | 729.9 | |
| 1+50 Lt ℄ R.R. | | | 4.01 | 731.55 | |
| 1+50 Lt T/Bank | | | 7.0 | 728.6 | |
| 2+50 Lt ℄ R.R. | | | 4.34 | 731.22 | LEVEL TO THE EAST |
| 2+50 Lt T/Bank | | | 6.8 | 728.76 | |

(CONT) ON PG 121/200)

117/200

BRIDGE B-5
C&O. R.R. BRIDGE OVER
MED. ROUGE RIVER
E./ED HINEL DR. & S./
WILCOX RD.
NO I.D. PLAQUE IN BRIDGE

3-30-92
J. CROSS
J. LIRA

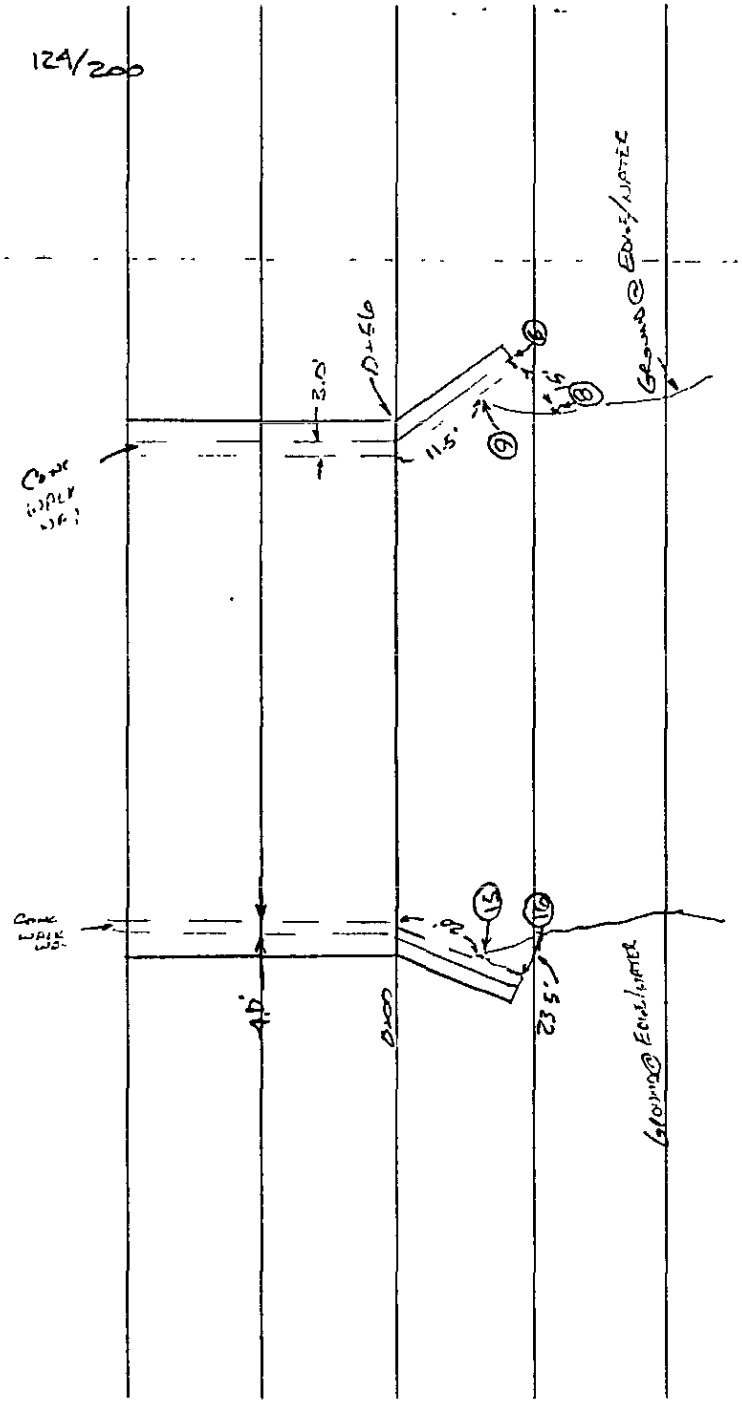


℄ N. TRACK
STEEP SLOPE
TOP/BANK
STEEP SLOPE
0+00
0+56 RT
LOW STEEL
LOW STEEL
25'
25'
0+01.5 RT
3'
679.7
679.7
679.9
679.9
3'
7.34' LOW STEEL
7.10' LOW STEEL
NOTE: @ R.R. GRADE
50' FROM T/BANK
TO T/BANK
134.4'
134.4'
0+02.5 LT
0+50 RT
0+25 RT
0+30 RT
0+56 RT
0+58.5 RT
2.6' WIDE WING WALL
2.6' WIDE WING WALL
28.0'
30'
15.0'
12.3'

OSLING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684



REMARKS:
TBM R.R. SEE PG. 118/200




NOTE USED ℄ R.R. TIE FOR SHOTS
T/CANAL IS 18'± N. ℄ TRACK (N TRACK)

| STA | BS | HI | FS | ELEV. | |
|---|---|---|---|---|---|
| | (CONT) | 735.56 | | | |
| T.P. | | | 9.16 ~~10.4~~ | 726.40 | |
| | 0.72 | 727.12 | | | |
| TBM "C.R." | | | 24.06 | 703.06 | SEE PG 118/2 |
| | | | SB | 703.05 | |
| CKDGH 5-12-92 | | | ERROR | +0.01 | |

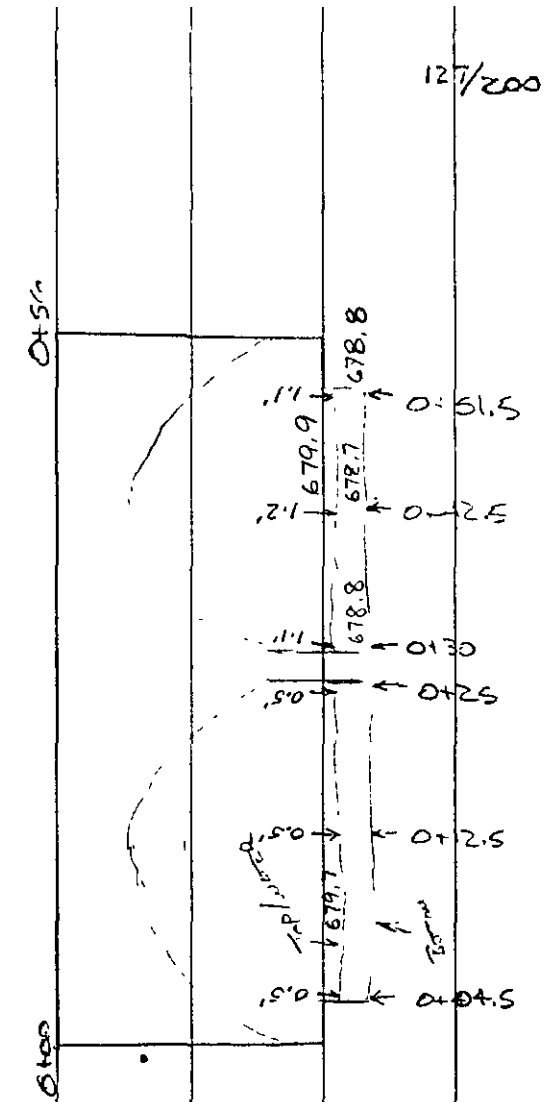
126/200

| STA | B.S. | H.I. | F.S. | Elev. |
|---|---|---|---|---|
| | | 690.70 | | |
| T.P. | | | 4.57 | 686.13 |
| | 20.57 | 706.70 | | |
| TBM NA | | | 3.63 | 703.07 |
| | | | S.B. | 703.05 |
| | | | Error | +0.02 |

See Pg. 118/Rem

& DGH 5/12/92

127/200



128/200

GOSLING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

125/200

| STA | BS | HI | FS | ELEV | |
|---|---|---|---|---|---|
| TBM R L | | | | 703.05 | SEE P 118/20 |
| | 2.92 | 705.97 | | | |
| 1 | | | 2.88 | 703.09 | 0+00 T/AGST |
| 2 | | | 6.83 | 699.14 | LOW STEEL |
| 3 | | | 2.94 | 703.03 | 0+28R T/COL |
| 4 | | | 6.95 | 699.02 | LOW STEEL |
| 5 | | | 2.94 | 703.05 | 0+56R T/AGST |
| 5A | | | 4.91 | 701.06 | 0+56R T/WINGWT |
| 11 | | | 4.99 | 700.98 | [illegible] T/WINGW |
| T.A. | | | 15.43 | 690.54 | |
| | 0.16 | 690.70 | | | |
| 6 | | | 3.02 | 687.68 | TOP W/ AT GR. |
| 7 | | | 8.65 | 682.05 | 0+54 E TOP/C. |
| 8 | | | 9.53 | 681.17 | GR @ W. |
| 9 | | | 10.67 | 680.03 | GR @ W |
| 10 | | | 10.78 | 679.92 | 0+51.5 T/WATC |
| 7A | | | 3.67 | 687.03 | LOW STE |
| 12 | | | 6.43 | 684.27 | TOP W/W AT GR |
| 13 | | | 7.52 | 683.18 | 0+01.5 T/COR |
| 13A | | | 3.67 | 687.03 | LOW STE |
| 14 | | | 10.99 | 679.71 | [illegible] |
| 15 | | | 10.57 | 680.13 | GR @ W |
| 16 | | | 10.61 | 680.09 | GR @ W |

| STA | B.S. | HI | F.S. | ELEV | | REMARKS |
|---|---|---|---|---|---|---|
| BMFL3-2 | | | | 693.70 | ✓ | BM FL3-2 CHISSELED X IN S.ly S. WALK PLYMOUTH RD BRIDGE OVER E. HINES DR. "X" LOCATED [illegible] W/S.ly GUARD WALL & [illegible] W END OF BRIDGE |
| | 4.89 | 698.59 | | | | |
| SET TBM "PLY" | | | 2.12 | 696.47 | | TBM "PLY" CHISSELED SQUARE ON TOP/CONC WALL @ [illegible] END / PLYMOUTH RD BRIDGE OVER ROUGE R. [illegible] N. [illegible] |
| | 1.02 | 697.49 | | | | |
| T.P. | | | 14.08 | 683.41 | | |
| | 4.85 | 688.26 | | | | |
| SET TBM "WAY" | | | 8.17 | 680.09 | | TBM "WAY" CHISSELED IN the N.E. BOLT FOR GUARD RAIL @ N.E. END OF BRIDGE OVER MID. ROUGE RIVER, 300'± S./PLYMOUTH RD. & 100'± EAST / E. HINES DR. |
| | 8.13 | 688.22 | | | | |
| T.P. | | | 3.08 | 685.14 | | |
| | 12.65 | 697.79 | | | | |
| FL3-2 | | | 4.09 | 693.70 | ✓ | BM FL3-2 SEE ABOVE |

KOGH 5-12-92

GOSLING CZUBAK ASSOCIATES, P.C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684



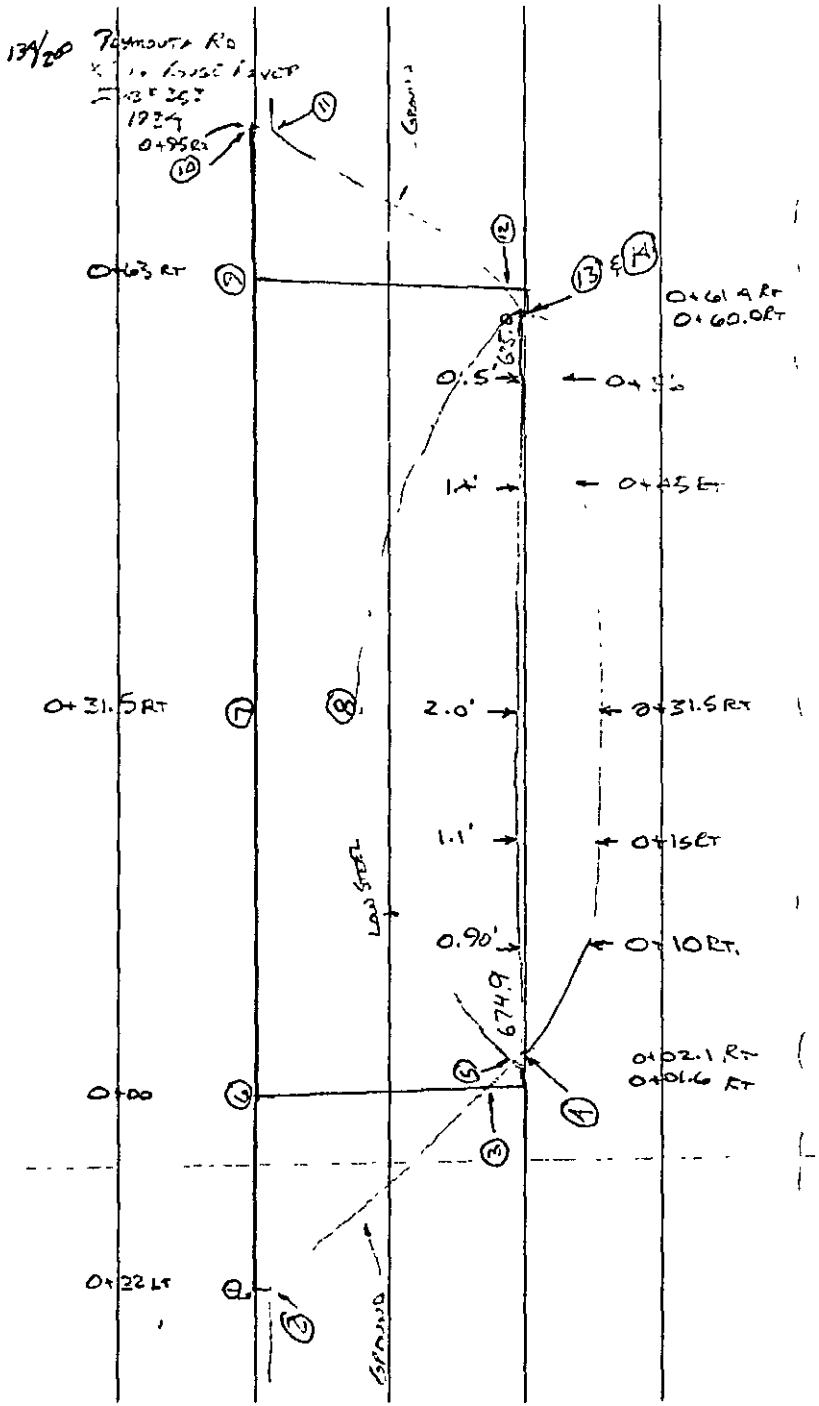


| STA | BS | H.I. | FS | ELEV |
|---|---|---|---|---|
| TEM "PLY" | | | | 696.47 |
| | 11.21 | 707.68 | | |
| 0+00 ℄ RD | | | 13.42 | 694.26 |
| 0+11.5 RT | | | 13.88 | 693.80 |
| 0+63 RT | | | 14.40 | 693.28 |
| 1+50 RT | | | 14.69 | 692.99 |
| 2+00 RT | | | 14.75 | 692.93 |
| 2+50 RT | | | 14.58 | 693.10 |
| 3+20 RT | | | 14.55 | 693.13 |
| 0+50 LT | | | 2.41 | 695.27 |
| 1+00 LT | | | 10.91 | 696.77 |
| 1+50 LT | | | 9.15 | 698.53 |
| 2+00 LT | | | 7.02 | 700.66 |
| 2+50 LT | | | 4.84 | 702.84 |
| TEM "PLY" | | | 11.21 | 696.47 ✓ |

KOGH 5-12-92

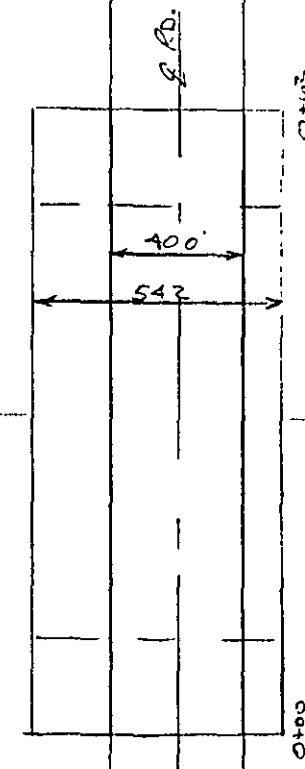
BRIDGE B3-6
PLYMOUTH TRL &
MED. RIDGE RIVER
BRIDGE # 353

3-27-92
J. CROSS
J. LIRA




| STA | BS | HI | FS | ELEV | |
|---|---|---|---|---|---|
| TBM "PLY" | | | | 696.47 | SEE PG 130/200 |
| | 0.19 | 696.66 | | | |
| 1 | | | 2.16 | 694.50 | 0+32 LT TOP/CON |
| 2 | | | 4.2 | 692.5 | 0+32 LT GR |
| 3 | | | 19.0 | 677.7 | 0+01.6 RT EF |
| 4 | | | 21.72 | 674.94 | 0+08 RT GR @ W |
| 5 | | | 20.03 | 676.63 | 0+02.3 RT LOW STEEL |
| 6 | | | 2.51 | 694.15 | 0+[illegible] RT TOP/RT |
| 7 | | | 2.92 | 693.74 | 0+31.5 RT TOP/CONC |
| 8 | | | 5.45 | 691.21 | 0+31.5 RT LOW STEEL |
| 9 | | | 3.34 | 693.32 | 0+63 RT TOP/RT |
| 10 | | | 3.73 | 692.93 | 0+95 RT TOP/CON |
| 11 | | | 4.5 | 692.2 | 0+95 RT GR |
| 12 | | | 20.5 | 676.2 | 0+61.4 RT GR |
| 13 | | | 21.6[illegible] | 675.02 | 0+60.9 RT EF @ WATT |
| 14 | | | 21.35 | 675.31 | 0+60.9 RT LOW STEEL |
| TBM "PLY" | | | 0.19 | 696.~~66~~ 47 | SEE PG. 130/2 |

K. OGH 5-12-92




GOSLING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684



TRH "FLY" SEE PG. 130/200

℄ Rd 0+00
℄ Rd @ ℄ Bridge 0+33 Rt
℄ Rd @ Rt. Abut 0+65 Rt
℄ Rd 1+50 Rt
℄ Rd 2+00 Rt
℄ Rd 2+50 Rt
℄ Rd 2+60 Rt Road continues up 2%
℄ Rd 0+50 Lt
℄ Rd 1+00 Lt
℄ Rd 1+50 Lt
℄ Rd 2+00 Lt
℄ Rd 2+50 Lt Road continues up 10%
TRH "FLY" SEE PG. 130/200

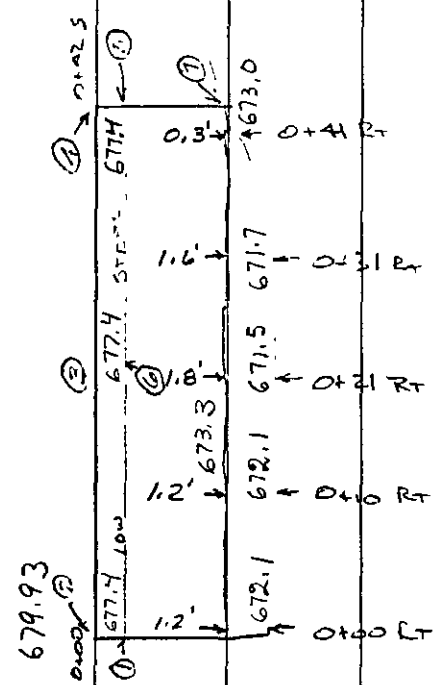
| STA | BS | HI | FS | ELEV. |
|---|---|---|---|---|
| TBM "WAY" | | | | |
| | 4.37 | 684.46 | | 680.09 |
| 0+00 ℄ Rd. | | | 4.36 | 680.10 |
| 0+21.25 RT ℄ Rd | | | 4.39 | 680.07 |
| 0+41.5 RT ℄ Rd | | | 4.38 | 680.08 |
| 0+72 RT ℄ @ E. BIT | | | 6.21 | 678.25 |
| 0+89. RT ℄ - ℄ | | | 6.23 | 678.[illegible] |
| 1+06 RT ℄ @ E. BIT | | | 7.02 | 677.[illegible] |
| 1+16 RT T/BANK | | | 5.9 | 678.[illegible] |
| 1+33 FT B/BANK | | | 8.9 | 67[illegible] |
| 2+00 RT GR. | | | 7.4 | 677.1 |
| 3+00 RT GR. | | | 6.6 | 677.9 |
| 0+50 LT ℄ Rd | | | 5.0 | 679.5 |
| 1+50 LT ℄ Rd | | | 4.6 | 679.9 |
| 2+50 LT ℄ Rd | | | 5.0 | 679.5 |

CONT. PG. 142/200

TBM WAY SEE PG. 130/200

&DGH 5-12-92

140/200





C[illegible]LING CZUBAK ASSOCIATES, P. C.
525 W. ST 14th STREET
TRAVERSE CITY, MI 49684


137/200

BRIDGE B-7
BRIDGE LOCATED [illegible]
PLYMOUTH RD. & 100'± E/
E HINES DR., OVER THE
MID. ROUGE RIVER
NOTE. DID NOT FIND BRIDGE PLAQUE
NO I.D.

3-30-92
J. CROSS
J. LIRA

142/200

| STA | BS | HI | F.S. | ELEV | |
|---|---|---|---|---|---|
| TBM "WAY" | | | | | |
| | 4.37 | 684.46 | | | |
| ① | | | 7.06 | 677.40 | 0+00 LOW STEEL |
| ② | | | 4.53 | 679.93 | 0+00 T/ABUT |
| ③ | | | 4.53 | 679.93 | 0+42.5 T/CONC |
| ④ | | | 4.49 ~~7.08~~ | 679.97 | 0+42.5 RT T/FEUT |
| ⑤ | | | 7.06 | 677.40 | 0+42.5 LOW STEEL |
| ⑥ | | | 7.08 | 677.38 | 0+51.25 [illegible] |
| ⑦ | | | 10.4 | 674.1 | 0+42.5 GR. |
| ⑧ | | | 11.21 | 673.25 | 0+41 GR. @ WATER |
| ⑨ | | | 4.77 | 679.69 | 0+42.5 T/W-WALL |
| ⑩ | | | 9.2 | 675.3 | 0+42.5 GR. |
| ⑪ | | | 6.08 | 678.38 | T/W-WALL END |
| ⑫ | | | 6.5 | 678.0 | GR |
| ⑬ | | | 11.16 | 673.30 | 0+33RT GR@ WATER |
| ⑭ | | | 4.82 | 679.64 | 0+00 T/W-WALL |
| ⑮ | | | 11.17 | 673.29 | T/WATER |
| ⑯ | | | 6.17 | 678.29 | T/END W/WALL |
| ⑰ | | | 8.3 | 676.2 | GR. |
| ⑱ | | | 11.18 | 672.28 | 0+02LT GR. @ EDGE WATER |
| TBM "WAY" | | | 4.36 | 680.10 | END |
| | | | | 680.09 | BEG. |
| | | | | 0.01' HIGH | |

KCCK 5-12-92

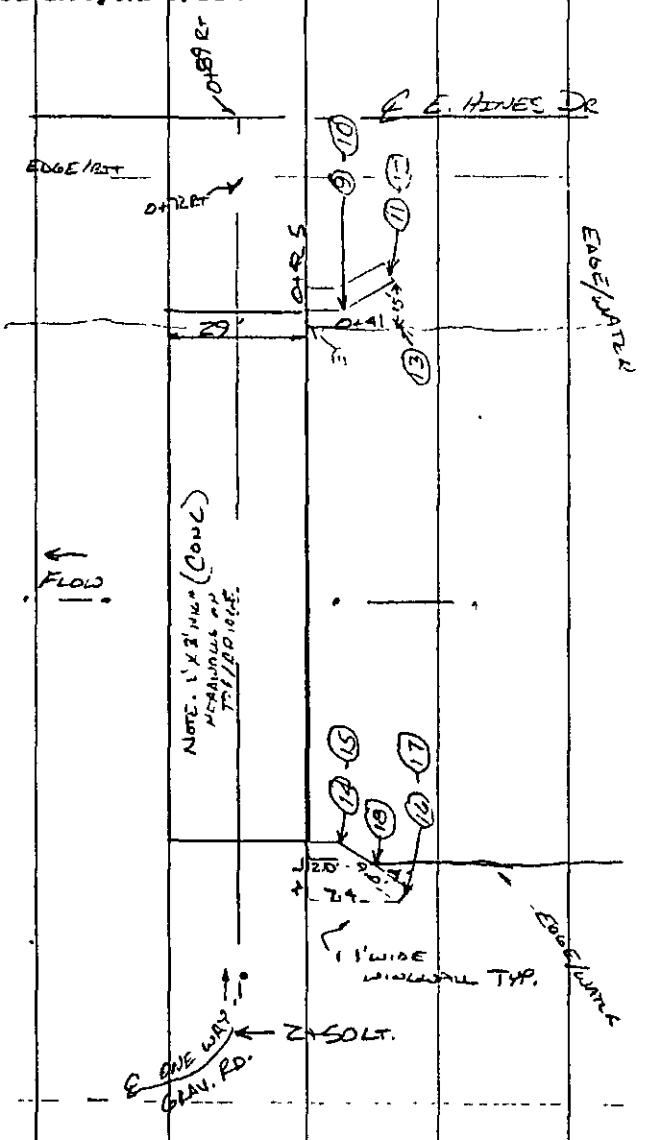
143/200

TBM "WAY" SEE PAGE 130/200

SEE PG 130/200

GOSLING CZUBAK ASSOCIATES, P.C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

141/200



| STA. | BS | H.I | F.L. | ELEV. | |
|---|---|---|---|---|---|
| 53-42 | | | | 718 75 ✓ | |
| | 2.08 | 720.83 | | | |
| T.P. | | | 14.60 | 706.23 | |
| | 0.75 | 706.98 | | | |
| T.P. | | | 14.33 | 692.65 | |
| | 0.65 | 693.30 ~~692.70~~ | | | |
| T.P. | | | 14.56 | 678.74 ~~678.14~~ | |
| | 9.67 | 688.41 ~~687.81~~ | | | |
| TBM "HAG" | | | 10.57 | 677.84 ~~677.24~~ | |
| | 14.84 | 692.68 ~~692.08~~ | | | |
| T.P. | | | 0.27 | 692.41 ~~691.81~~ | |
| | 14.32 | 706 73 ~~706 13~~ | | | |
| T.P. | | | 0.19 | 706.54 ~~705.94~~ | |
| | 14.44 | 720.98 ~~720.38~~ | | | |
| 53-42 | | | 2.24 | 718.74 | END |
| | | | | 718.75 | CLS |

ERROR = 0.01

KOCH 5-12-52

BM 53-42 SEE PG. 76/200

TBM "HAG" CHISELED SQUARE ON TOP / S.W. CONC. WALL @ THE S. END / BRIDGE OVER THE MID. ROUGE RIVER, W. SIDE / S. HAGGERTY RD.



BM 53-42 SEE PG. 76/200

| STA | BS | HI | F.S. | ELEV. | |
|---|---|---|---|---|---|
| TBM HAG | | | | 677.84 ✓ | |
| | 8.36 | 686.20 | | | |
| 0+00 ℄ RD | | | 6.90 | 679.30 | |
| 0+44 AB RT ℄ RD & ℄ BRIDGE | | | 9.21 | 676.99 | |
| 0+88.8 RT ℄ RD | | | 11.68 | 674.52 | |
| 1+50 RT ℄ RD | | | 13.25 | 672.95 | |
| 2+00 RT ℄ RD | | | 14.05 | 672.15 | |
| 2+50 RT ℄ RD | | | 14.80 | 671.40 | |
| 3+00 RT ℄ RD | | | 15.45 | 670.75 | |
| 3+50 RT ℄ RD | | | 15.92 | 670.28 | |
| 0+25 LT ℄ RD | | | 5.10 | 681.10 | |
| 0+50 LT ℄ RD | | | 2.84 | 683.36 | |
| 0+75 LT ℄ Rd | | | 0.06 | 686.14 | |
| T.P. | | | 0.26 | 685.94 | |
| | 22.27 | 708.21 | | | |
| 1+00 LT ℄ Rd | | | 18.94 | 689.27 | |
| 1+25 LT ℄ Rd | | | 16.14 | 692.07 | |
| 1+50 LT ℄ Rd | | | 13.41 | 694.80 | |
| 1+75 LT ℄ Rd | | | 11.01 | 697.20 | |
| 2+00 LT ℄ Rd | | | 8.54 | 699.67 | |
| 2+25 LT ℄ Rd | | | 6.36 | 701.85 | |
| 2+50 LT ℄ Rd | | | 4.22 | 703.99 | |
| TP | | | 21.51 | 686.70 | |
| | 0.96 | 687.66 | | | |
| TBM "HAG" | | | 9.81 | 677.85 ✓ | ERROR +0.01 |

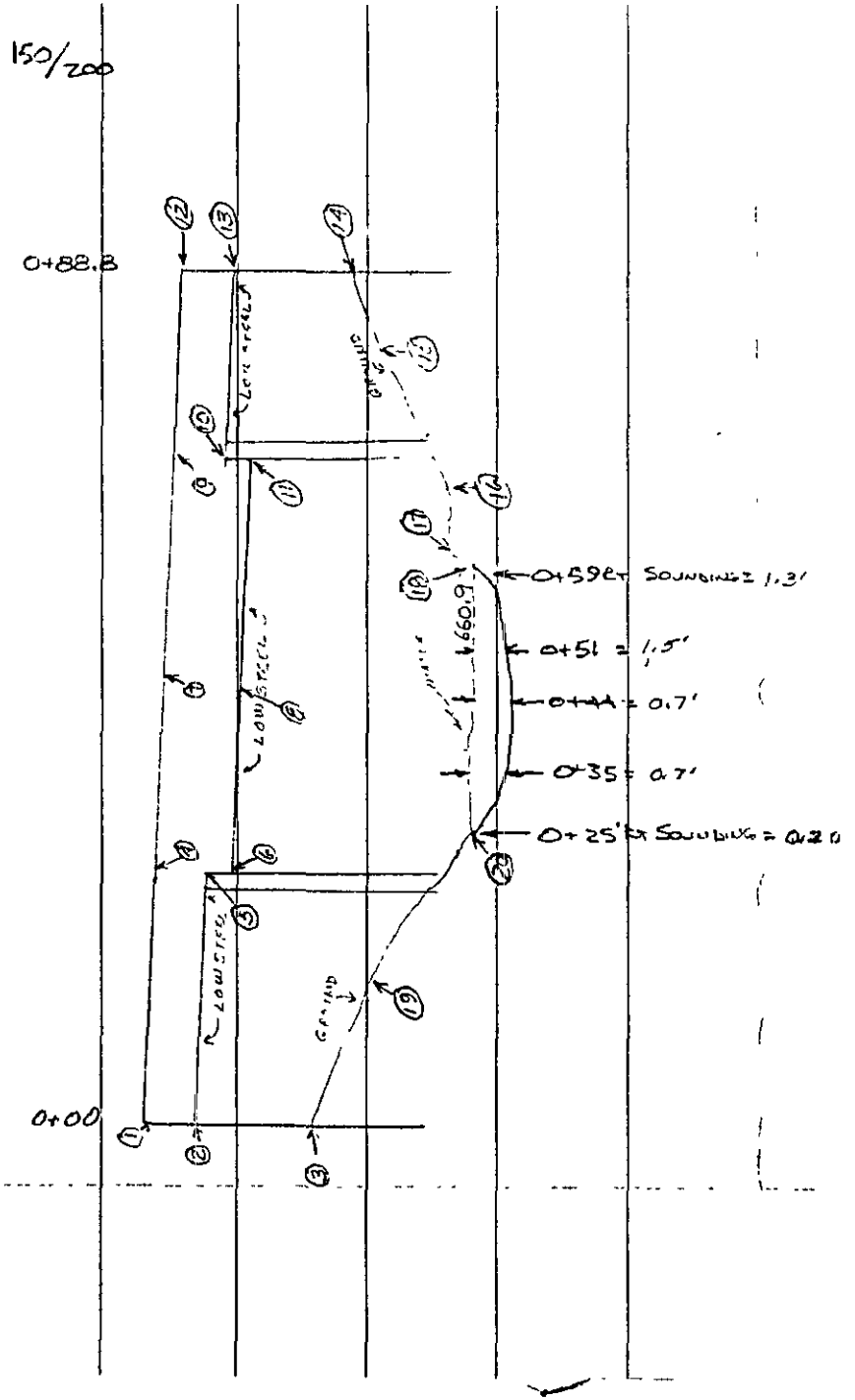
ST 14th STREET
TRAVERSE CITY, MI 49684



BRIDGE B-10
HALLGERTY RD
OVER MID ROUGE RIVER
REPER WAYNE CO. RD. CO. JOB # 392-2

3-30-92
J. CROSS
J. LORA

150/200




151/200

| STA | BS | HI. | F.S. | ELEV. | |
|---|---|---|---|---|---|
| TBM "HAG" | | | | 677.84 | SEE PG. 146/200 |
| | 4.90 | 682.74 | | | |
| ① | | | 2.86 | 679.33 | 0+00 T/ABUT |
| ② | | | 4.93 | 677.61 | 0+00 LOW STEEL 0+00 |
| ③ | | | 9.7 | 673.0 | GR 0+18 RT |
| ④ | | | 3.83 | 678.91 | T/CONC 0+18 RT |
| ⑤ | | | 5.93 | 676.81 | LOW STEEL 0+19.8 RT |
| ⑥ | | | 7.47 | 675.27 | LOW STEEL 0+44.4 RT |
| ⑦ | | | 5.15 | 677.59 | T/CONC 0+44 RT |
| ⑧ | | | 8.56 | 674.18 | LOW STEEL 0+67.4 RT |
| ⑨ | | | 6.37 | 676.37 | T/CONC 0+67.4 RT |
| ⑩ | | | 8.56 | 674.18 | LOW STEEL 0+66 RT |
| ⑪ | | | 9.82 | 672.92 | LOW STEEL 0+88.8 RT |
| ⑫ | | | 7.42 | 675.32 | T/CONC 0+88.8 RT |
| ⑬ | | | 9.42 | 673.32 | LOW STEEL 0+82.6 RT |
| ⑫ | | | 15.7 | 667.0 | GR 0+75 RT |
| ⑮ | | | 16.5 | 666.2 | GR. 0+64.7 RT |
| ⑯ | | | 19.6 | 663.1 | GR 0+60 RT |
| ⑰ | | | 20.5 | 662.2 | GR 0+59 RT |
| ⑱ | | | 21.84 | ~~660~~ 660.90 | GR @ WATER |
| ⑲ | | | ~~20.8~~ 18.8 | 663.9 | 0+18 RT GR. |
| ⑳ | | | 21.84 | 660.90 | 0+25 RT GR @ WATER |
| TBM "HAG" | | | 4.90 | 677.84 | ✓ |

KDGH 5-12-~~93~~ 92

GOSLING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684



TEN HAG" SEE PG. 146/200

LEVEL FOR 200' THEN UP 15%

ROAD CONTINUES UP 8%

SEE PG 147/200

ADGH 5-12-82

| STA | BS | HI | FS | ELEV | REMARKS |
|---|---|---|---|---|---|
| TBM "HAG" | | | | 677.84 ✓ | TBM "HAG." SEE PG. 156/200 |
| | 0.22 | 678.06 | | ~~677.84~~ | |
| T.P. | | | 6.25 | 671.81 | |
| | 5.84 | 677.65 | | | |
| SET TBM "JON" | | | 2.90 | 674.75 +0.01 | TBM "JON" - CHISSELED SQUARE ON THE TOP OF THE N.E. COR. OF THE S. CONC. WALL (R-9) OF BRIDGE. BRIDGE LOCATED 400'W/HAGGERTY LE ON E. HINES DR. |
| | 1.92 | 676.67 | | ADJ'D 674.76 | |
| T.P. | | | 7.63 | ~~669.04~~ 669.04 +0.01 | |
| | 5.45 | 674.49 | | ADJ'D 669.05 | |
| SET TBM "JER" | | | 0.28 | 674.21 +0.01 | TBM "JER" CHISSELED SQUARE (R-8) IN CONC. S. WALK @ N.E. END. ON BRIDGE OVER MID. ROUGE RIVER, S. SIDE OF E. HINES DR. & 500' EAST OF RIVERSIDE DR. |
| | 2.15 | 676.36 | | ADJ'D 674.22 | |
| T.P. | | | 1.24 | 675.12 | |
| | 14.26 | 689.38 | | | |
| T.P. | | | 0.34 | 689.04 | |
| | 13.22 | 702.26 | | | |
| T.P. | | | 1.70 | 700.56 | |
| | 7.98 | 708.54 (CONT.) | | | |



ROCH 5-12-92

| STA | B.S. | HI | FS | ELEV |
|---|---|---|---|---|
| | CONT | 708.54 | | |
| FL3-9 | | | 8.09 | 700.45 |
| | | | S.B. | 700.18 |
| | | | ERROR - 0.02 | |

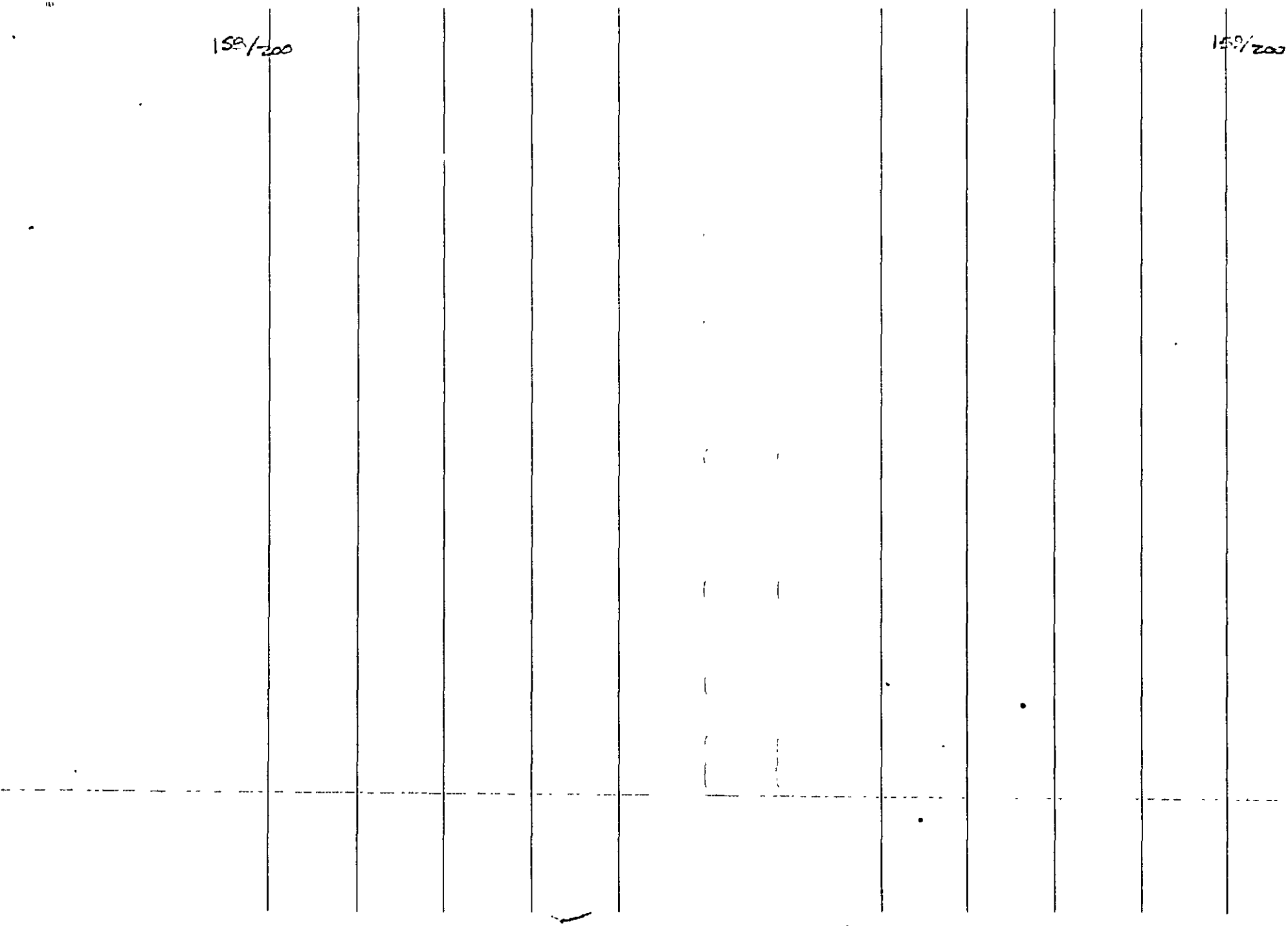
#OGH 5-12-92

GOSLING CZUBAK ASSOCIATES, P.C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684



BM LOOP
TBM "HAG" TO BM FL3-9

3-30-92
J. Cross
J. Lira


159/200
159/200

LOBBIG CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

BM FL3-9 N.W COR. OF C.B. GRATE
LOCATED ON THE EAST SIDE ASPECK DR.
± 35' S/E' LINDSAY DR.

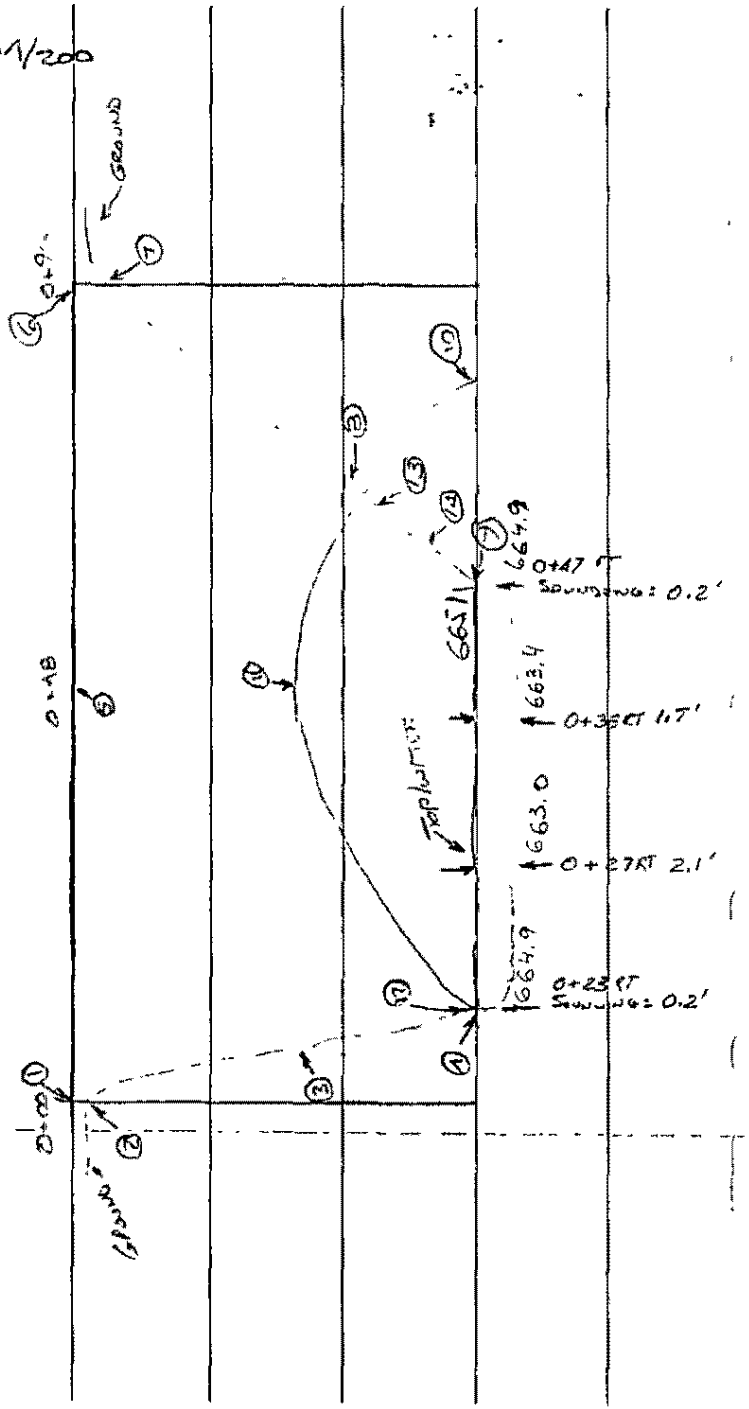
| STA | RS | H.I. | F.S. | ELEV. | REMARKS |
|---|---|---|---|---|---|
| TBM "JER" | | 680.00 | | 674.21 ✓ | TBM "JER" SEE PG. 164/200 |
| | 5.78 | 679.99 | | | |
| 0+00 | | | 6.19 | 673.80 01 | ℄ RD |
| 0+48 RT | | | 5.37 | 674.62 03 | ℄ RD & BRIDGE |
| 0+96 RT | | | 6.21 | 673.78 19 | ℄ RD |
| 1+50 RT | | | 6.97 | 673.02 03 | ℄ RD |
| 2+00 RT | | | 7.61 | 672.38 39 | ℄ RD |
| 2+50 RT | | | 8.47 | 671.52 63 | ℄ RD |
| 3+00 RT | | | 9.02 | 670.97 AE | ℄ RD |
| 3+50 RT | | | 9.51 | 670.48 AA | RD. CONTINUES DOWN 2% ℄ RD |
| 0+50 LT | | | 7.20 | 672.79 80 | ℄ RD |
| 1+00 LT | | | 7.96 | 672.03 04 | ℄ RD |
| 1+50 LT | | | 8.79 | 671.30 21 | ℄ RD |
| 2+00 LT | | | 9.51 | 670.48 A9 | ℄ RD |
| 2+50 LT | | | 10.18 | 669.81 B2 | RD. CONT. DOWN ℄ RD. |
| ① | | | 5.90 | 674.09 10 | 0+00 TOP LT ABUT. |
| ② | | | 6.6 | 673.4 A | 0+00 GR. |
| ③ | | | 10.4 | 669.66 6 | 0+11 RT GR. |
| ④ | | | 14.82 | 665.27 18 | 0+23 RT EDGE/WATER @ GROUND (TOP OF WATER) |
| ⑤ | | | 5.28 | 674.71 12 | 0+48 RT TOP/CONC. |
| ⑥ | | | 5.89 | 674.10 11 | 0+96 RT TOP RT. ABUT. |
| ⑦ | | | 6.4 | 673.6 | 0+96 RT GROUND |
| ⑧ | | | 10.5 | 669.5 | 0+86 RT GR. |

(CONT)

AKDG A 5-12-92

B-8

GOSLING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684




BRIDGE B-8
E. HINES DR. 600± E/
RIVERSIDE DR.
REFER WAYNE CO. RD CO. JOB # 395
MIDDLE ROUGE PARKWAY CROSSING
ROUGE RIVER

3-31-92
J-CROSS-T
J. LIRA

166/200

167/200

168/200

CZUBAK ASSOCIATES, P.C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

165/200

| STA | BS | HI | FS | ELEV. | |
|---|---|---|---|---|---|
| | | 680.00 | | | |
| | (BMS) | 679.99 | | | |
| 9 | | | 14.86 | 665.13 14 | 0+51 R GR @ H2O |
| T.P. | | | 11.51 | 668.48 49 | |
| | 2.71 | 671.19 20 | | | |
| 10 | | | 4.82 | 666.37 35 | 0+74 RT LOW STEE |
| 11 | | | +0.75 | 671.94 95 | 0+48 R LOW STEE |
| 12 | | | 4.81 | 666.38 39 | 0+24 R LOW STEE |
| 13 | | | 4.8 | 666.4 | 0+75 R GR |
| 14 | | | 5.4 | 665.8 | 0+32 GR |
| T.P. | | | 2.86 | 668.33 34 | |
| | 11.62 | 679.95 96 | | | |
| TBM "JER" | | | 5.73 | 674.22 23 | SEE PG 154/2 |
| | | | S.B. | 674.21 22 | |
| | | | ERROR | +0.00 | |

KDGH 5-12-92

B-8

170/200

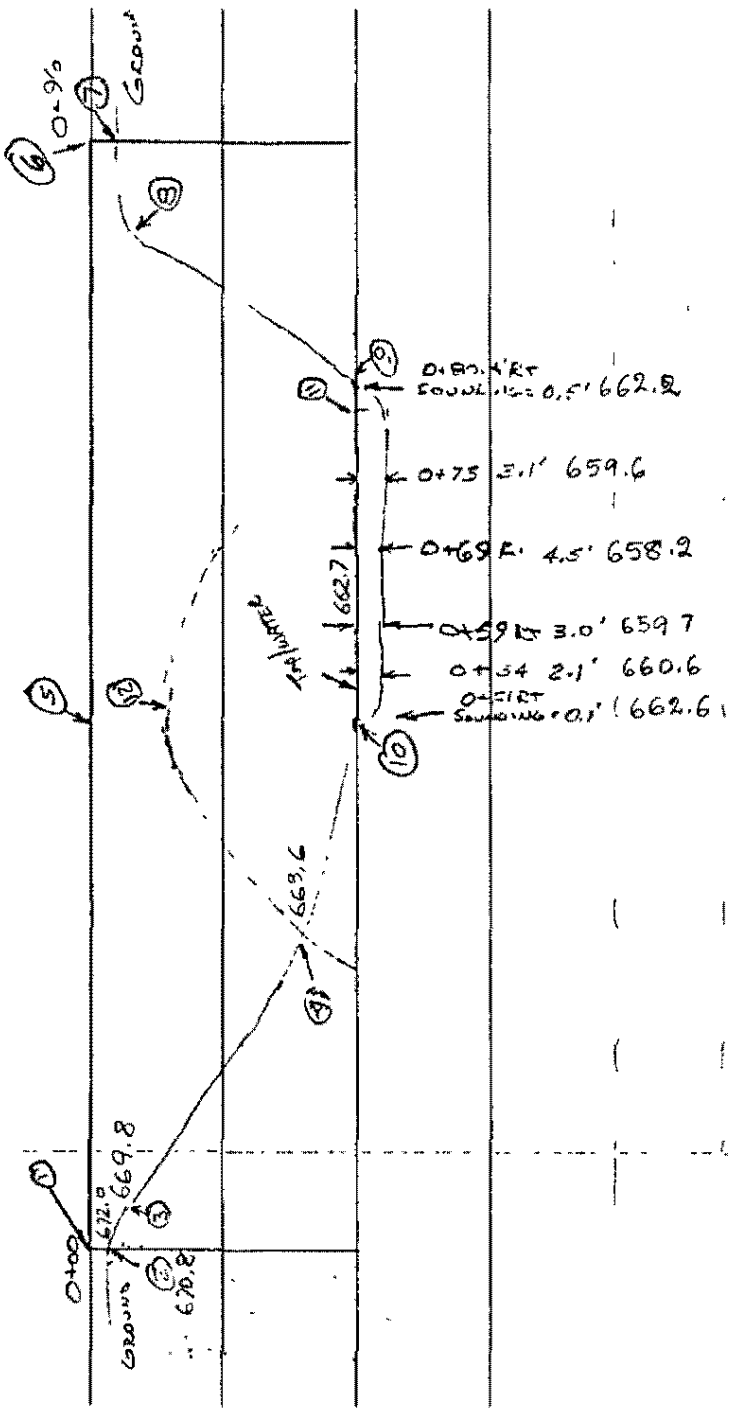
171/200

| STA | BS | HI | FS | ELEV | REMARKS |
|---|---|---|---|---|---|
| TBM "JON" | | | | 674.75 76 ✓ | TBM JON" SEE PG. 154/200 |
| | 2.03 | 676.78 79 | | | |
| 0+00 | | | 5.18 | 671.60 61 | ℄ RD |
| 0+48 RT | | | 4.34 | 672.44 45 | ℄ RD - ℄ BRIDGE |
| 0-96 RT | | | 5.24 | 671.54 55 | ℄ RD |
| 1+50 RT | | | 6.10 | 670.68 69 | ℄ RD |
| 2+00 RT | | | 6.75 | 670.03 04 | ℄ RD |
| 2+50 RT | | | 7.09 | 669.69 70 | ℄ RD |
| 3+00 RT | | | 7.11 | 669.67 68 | ℄ RD |
| 3+50 RT | | | 6.68 | 670.10 11 Rd. [illegible] | ℄ RD |
| 0+50 LT | | | 6.21 | 670.57 58 | ℄ RD |
| 1+00 LT | | | 6.94 | 669.84 85 | ℄ RD |
| 1+50 LT | | | 7.59 | 669.19 20 | ℄ RD |
| 2+00 LT | | | 7.79 | 668.99 669.00 | ℄ RD |
| 2+50 LT | | | 8.12 | 668.66 67 Rd [illegible] | ℄ RD |
| ① | | | 4.79 | 671.99 672.00 | 0+00 TOP LT. ABUT |
| ② | | | 6.0 | 670.8 | 0+00 GR. |
| ③ | | | 7.0 | 669.8 | 0+05 GR |
| ④ | | | 13.2 | 663.6 | 0+23 GR. |
| ⑤ | | | 4.15 | 672.63 64 | 0+48 TOP/CONC |
| ⑥ | | | 4.79 | 671.99 672.00 | 0+96 TOP RT ABUT |
| ⑦ | | | 6.4 | 670.40 670.4 | 0+96 GR. |
| ⑧ | | | 110 | 665.8 | 0+87 GR |

B-9

KAGH - 5-12-92

172/200





GOSLING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684


169/200

BRIDGE B-9
E. HINE DR. 600' W. /
HAGGERTY RD. OVER
MID. ROUGE RIVER
REFER WAYNE CO. RD. CO. JOB # 394

176/200

173/200

| STA | BS | HI | FS | ELEV | |
|---|---|---|---|---|---|
| | CONT. | 676.78[19] | | | |
| (9) | | | 14.12 | 662.66[67] | 0+80.4R GR@ H2O |
| (10) | | | 14.11 | 662.67[68] | 0+51 RT GR@ H2O |
| T.P. | | | 10.55 | 666.23[29] | |
| | 3.50 | 669.78[4] | | | |
| (11) | | | 7.04 | 662.69[70] | 0+73 LOW STEEL |
| (12) | | | +0.09 | 669.82[83] | 0+48 LOW STEEL |
| (13) | | | 6.56 | 663.16 | 0+23 LOW STEEL |
| T.P. | | | 1.61 | 668.32[13] | |
| | 8.92 | 677.94[05] | | | |
| TBM "JON" | | | 2.28 | 674.76[77] | SEE PG. 154/200 |
| | | | S.B. | 674.75[76] | |
| | | | ERROR | +0.01 | |

KDGH - 5-12-92

B-9

[illegible] LEDEAK ASSOCIATES, P.C.
[illegible] WEST 14th STREET
TRAVERSE CITY, MI 49684

178/200

| STA | BS | HI | FS | ELEV. | |
|---|---|---|---|---|---|
| 60-45 | | | | 704.02 (704.016) | BM 60-45 BRONZE DISC IN TOP/CONC. POST @ N.W. COR ECKLES RD. & PLYMOUTH RD. 56' W/@ ECKLES & 50' N/@ PLYMOUTH (W.C.R.C.) |
| | 3.35 | 707.37 | | | |
| T.P. | | | 6.97 | 700.40 | |
| | 6.27 | 706.67 | | | |
| T.P. | | | 13.32 | 693.35 | |
| | 0.91 | 694.26 | | | |
| W.C.R.C. B.M. | | | 8.76 | 685.50 | W.C.R.C. B.M. - FOUND BRASS DISC IN TOP OF CONC. WALL DISC. LOCATED 4.5' S./N. END OF S.B. I-275 BRIDGE OVER THE MIDDLE ROUGE RIVER. (WEST SIDE S.B. I-275) NO STAMPINGS EXCEPT W.C.R.C. B.M. |
| | 10.56 | 696.06 | | | |
| T.P. | | | 0.48 | 695.58 | |
| | 12.16 | 707.74 | | | |
| T.P. | | | 7.45 | 700.29 | |
| | 7.27 | 707.56 | | | |
| 60-45 | | | 3.53 | 704.03 | BM 60-45 SEE ABOVE |
| | | | S.B. | 704.02 | |
| | | | ERROR | +0.01 | |

K DGH 5-12-92

179/200

180/200

COLLING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

177/200

BRIDGE B-11
S.B. I-275 OVER
THE M.C.O. ROUGE RIVER
REFER MDSH. JOB # 04744A

3-31-92
J. Cross
J. Lira

182/

| STA | B.S. | H.I. | F.S. | ELEV. |
|---|---|---|---|---|
| I-275 BM-UCRC | | | | 685.50 ✓ |
| | 1.23 | 686.73 | | |
| 0+00 | | | 3.71 | 683.02 |
| 0+85 RT | | | 3.61 | 683.12 |
| 1+70 RT | | | 3.49 | 683.24 |
| 2+50 RT | | | 3.45 | 683.28 |
| 3+50 RT | | | 3.47 | 683.26 |
| 4+20 RT | | | 3.31 | 683.42 |
| 1+30 LT | | | 3.80 | 682.93 |
| 2+00 LT | | | 3.94 | 682.79 |
| 2+50 LT | | | 4.03 | 682.70 |
| ① | | | 3.90 | 682.83 |
| ② | | | 7.63 | 679.10 |
| ③ | | | 10.3 | 676.4 |
| ④ | | | 3.80 | 682.93 |
| ⑤ | | | 7.53 | 679.20 |
| ⑥ | | | 3.64 | 683.09 |
| ⑦ | | | 7.54 | 679.19 |
| ⑧ | | | 11.0 | 675.7 |
| T. P. | | | 17.54 | 669.19 |
| | 7.89 | 677.08 (CONT) | | |

KOGH. 5-12-92

I-275 BM UCRC SEE PG. 181/200

SHOTS TAKEN ON WEST SIDE OF TO HEAVY TRAFFIC

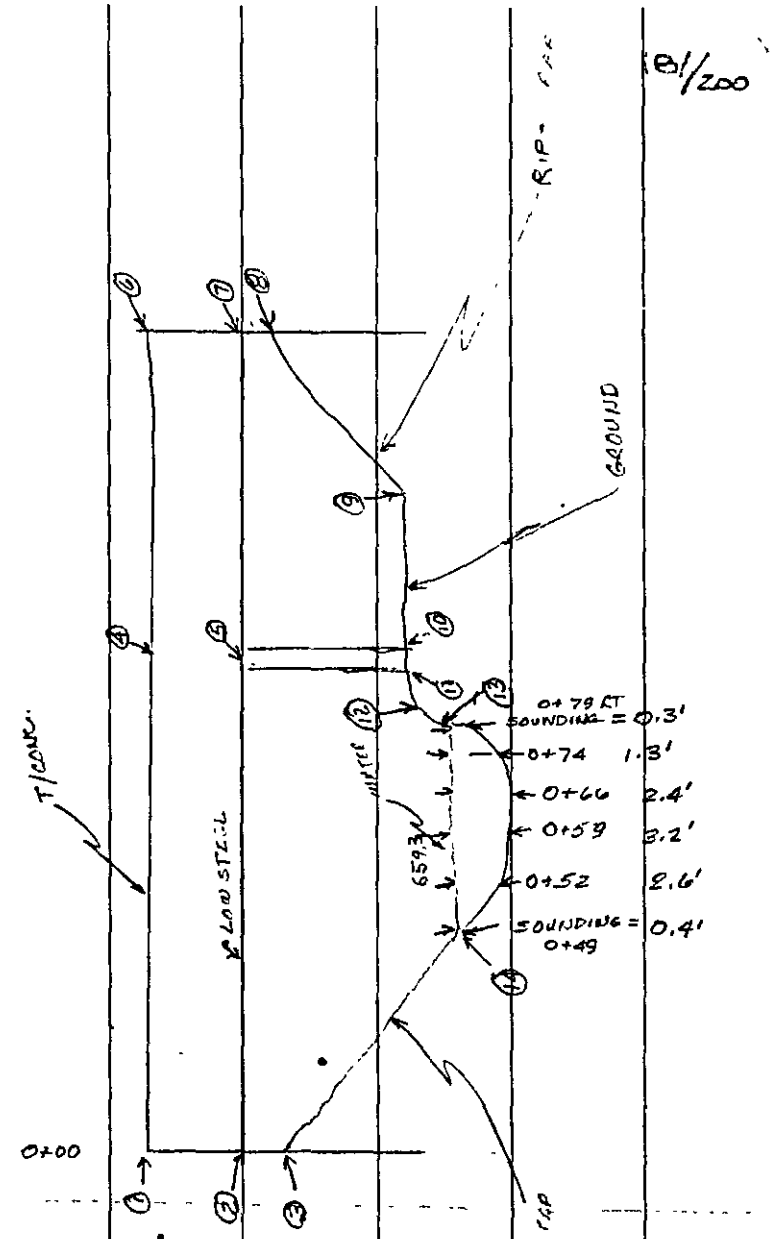
| | |
|---|---|
| ℄ Rd 1. | |
| ℄ Rd | |
| ℄ Rd | |
| ℄ Rd | |
| ℄ Rd | |
| ℄ Rd | |
| ℄ Rd | |
| ℄ Rd | |
| ℄ Rd | |
| 0+00 | T/CONC |
| 0+02 RT | LOW STEEL |
| 0+02 RT | RIP. RAP |
| 0+89.6 RT | T/CONC |
| 0+89.6 RT | LOW STEEL |
| 1+70 RT | T/RT. ABUT |
| 1+68 RT | LOW STEEL |
| 1+68 RT | RIP- RAP |

181/200

184/200

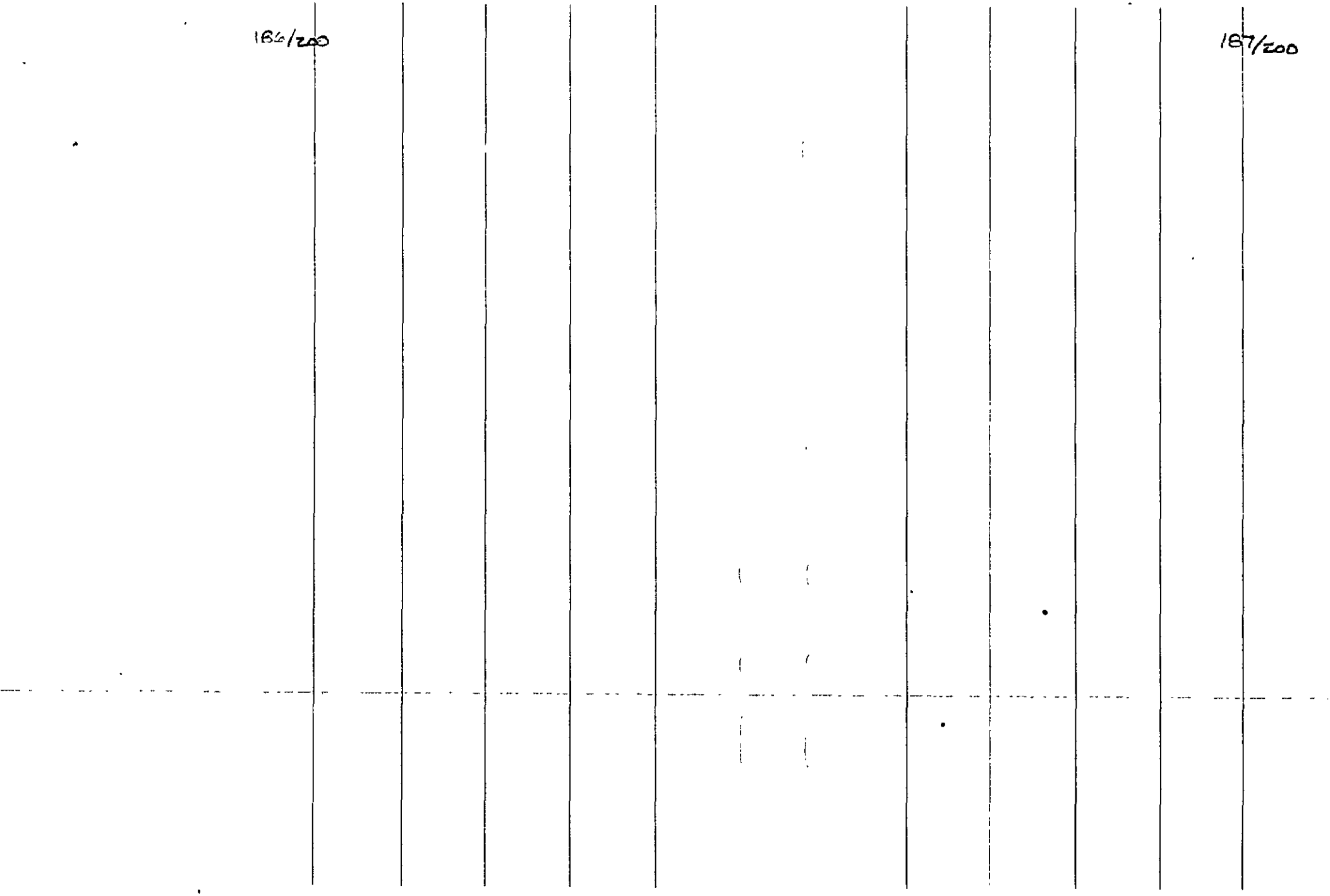
| STA | B.S. | HI (CONT) | F.S. | ELEV |
|---|---|---|---|---|
| | | 677.08 | | |
| 9 | | | 15.2 | 661.88 |
| 10 | | | 16.3 | 660.78 |
| 11 | | | 16.7 | 660.38 |
| 12 | | | 16.5 | 660.58 |
| 13 | | | 17.80 | 659.28 |
| 14 | | | 17.78 | 659.30 |
| T.P. | | | 1.14 | 675.94 |
| | 11.29 | 687.23 | | |
| I-275 BM. WCRC | | | 1.75 | 685.48 |
| | | | S.E. | 685.50 |
| | | | ERROR | -0.02 |

℄ DGH 5-12-92





GO[illegible] CZUSAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684


186/200
187/200

[illegible] CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684



| | |
|---|---|
| 1+31.1 | GR |
| 0+90.9 | GR |
| 0+88.3 | GR |
| 0+81.3 | GR |
| 0+79 RT | GR @ WATERS EDGE |
| 0+49 RT | GR @ WATERS EDGE |

I-275 INCREASE SEC Pg. 178/200

190/200

| STA | BS | HI | FS | ELEV. |
|---|---|---|---|---|
| FL ~~3-2~~ 2-3 | | | | 730.22 |
| | 7.91 | 738.13 | | |
| WCRC. BM M-14 | | | 8.71 | 729.42 |
| | 8.79 | 738.21 | | |
| FL ~~3-2~~ 2-3 | | | 8.00 | 730.21 |
| | | | S.B. | 730.22 |
| | | | | ERROR=0.01 |

KDGH- 5-12-92

191/200

REMARKS

SEE PG. 94/200

M-14 WCRC BM

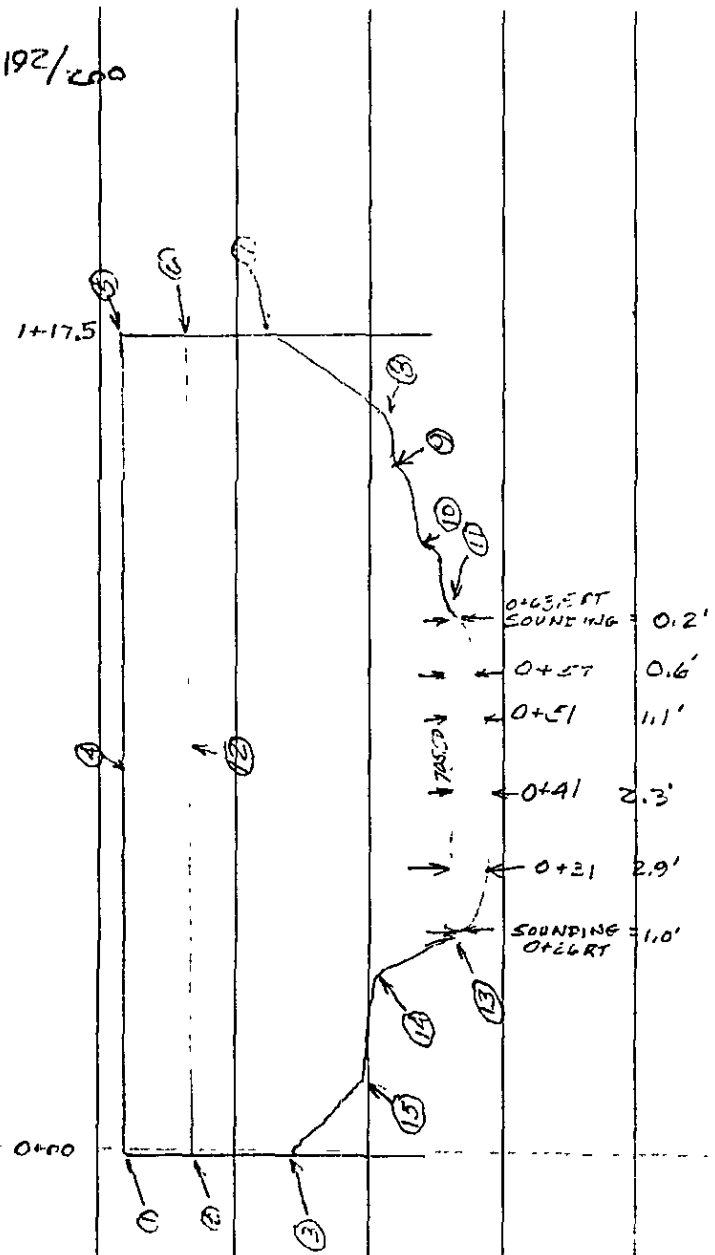
FD BRONZE DISC ON TOP/CONC. WALL 4' WEST OF THE EAST END OF M-14 BRIDGE OVER. MER. DOUBE RIVER ON N. SIDE OF M-14.

BM FL ~~3-2~~ 2-3 SEE PG. 94/200

GOSLING CZUBAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

192/200

189/200




BRIDGE B-2
M-14 OVER MID.
ROUGE RIVER
REFER MSDH JOB # 82102

3-31-92
M. Cross
J. Lira

194/200

195/200

| STA | B.S. | H.I. | F.S. | ELEV | | |
|---|---|---|---|---|---|---|
| M-14 WCRC BM | | | | 729.42 ✓ | | M-14 WCRC BM - SEE PG. 190/200 |
| | 4.36 ~~4.63~~ | 733.78 | | | | |
| 0+00 | | | 7.42 | 726.36 | | N. EDGE/Rd. |
| 0+58.7 RT | | | 6.65 | 727.13 | | " |
| 1+17.5 RT | | | 5.75 | 728.03 | | " |
| 2+00 RT | | | 4.46 | 729.32 | | " |
| 3+00 RT | | | 2.94 | 730.84 | | " |
| 3+50 RT | | | 2.17 | 731.61 | Rd. CONTINUES UP 4% | " |
| 1+00 LT | | | 9.00 | 724.78 | | " |
| 2+00 LT | | | 9.72 | 724.06 | | " |
| 2+50 LT | | | 9.89 | 723.89 | Rd. CONTINUES UP 2% | " |
| 1 | | | 7.60 | 726.18 | | 0+00 T/LT ABUT |
| 2 | | | 13.60 | 720.18 | | 0+00 LOW STEEL |
| 3 | | | 18.9 | 714.9 | | 0+00 RIP-RAP |
| 4 | | | 6.95 | 726.83 | | 0+58.7 RT T/CONC. |
| 5 | | | 5.95 | 727.80 | | 1+17.5 RT T/RT ABUT |
| 6 | | | 11.97 | 721.81 | | 1+16.1 RT LOW STEEL |
| 7 | | | 17.5 | 716.3 | | 1+16.1 RT RIP-RAP |
| T.P. | | | 20.96 | 712.82 | | |
| | 2.98 | 715.80 | | | | |
| 8 | | | 4.9 | 710.9 | | 1+02 RT GR |
| 9 | | | 5.7 | 710.1 | | 0+82 RT GR |
| | | (CONT) | 4 DGH | | | |

[illegible] AK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

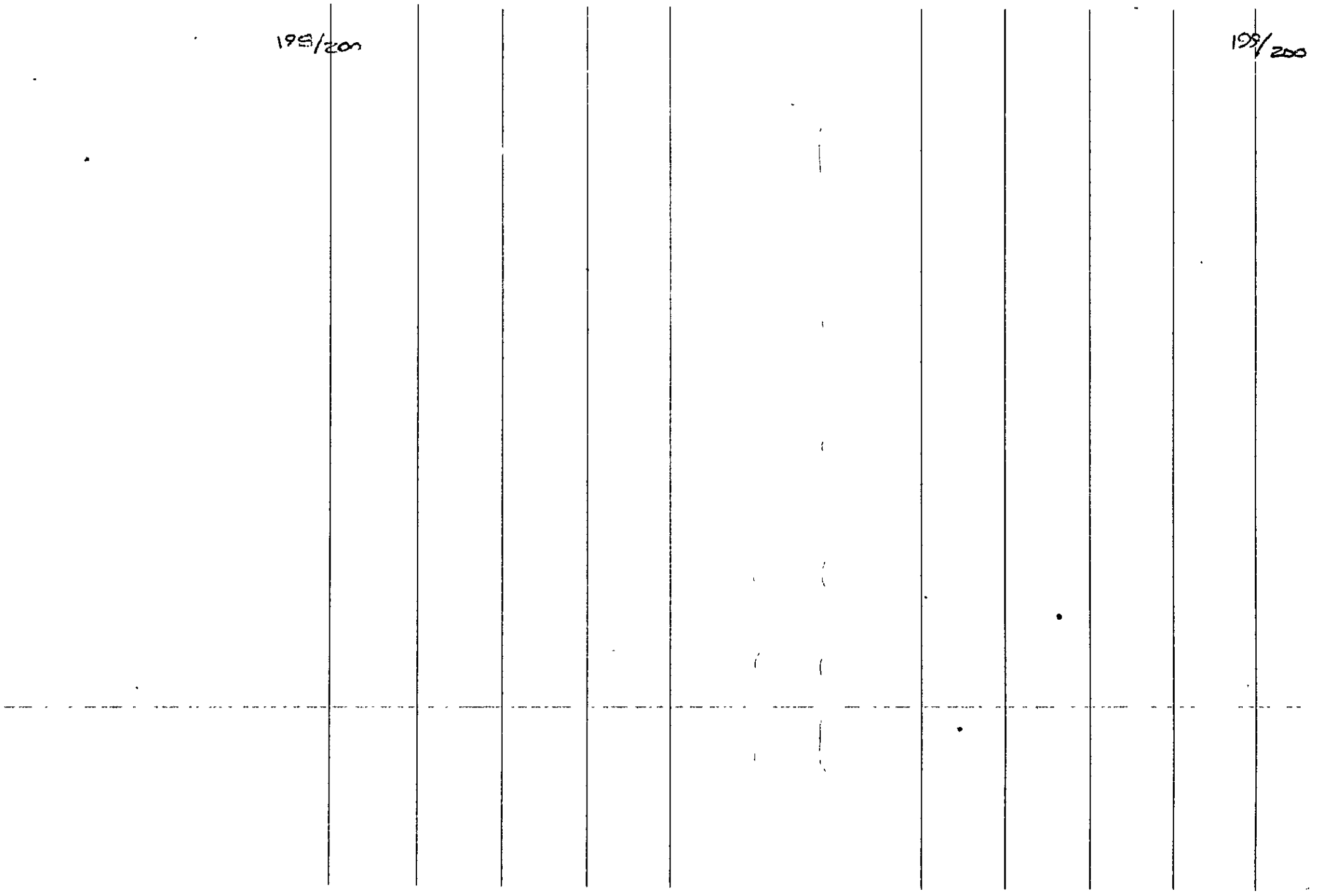


196/200

| STA | B.S. | HI. (CONT) | F.S. | ELEV. | |
|---|---|---|---|---|---|
| | | 715.80 | | | |
| 10 | | | 9.9 | 705.9 | |
| 11 | | | 10.30 | 705.50 | |
| 12 | | | +5.57 | 721.37 | |
| 13 | | | 10.29 | 705.51 | |
| 14 | | | 5.5 | 710.3 | |
| 15 | | | 4.4 | 711.4 | |
| T.F. | | | 0.65 | 715.15 | |
| | 18.64 | 733.79 | | | |
| | | | | 729.42 | BEG. |
| EM. M-14 WCRC BM | | | 4.34 | 729.45 | END |
| | | | ERROR = | 0.03 | |

4 OGH 5-12-92

199/200



200/200

| BM INDEX | ELEV. | PG. |
|---|---|---|
| FL2-3 | 730.22 | 94/200 |
| FL3-1 | 708.03 | 102 |
| WIL | 716.39 | 102 |
| DAM | 706.40 | 110 |
| FL3-160 | 709.84 | 118 |
| R-R- | 703.05 | 118 |
| FL3-2 | 693.70 | 130 |
| PLY | 696.47 | 130 |
| WAY | 680.09 | 130 |
| 53-42 | 718.75 | 76 |
| HAG | 677.84 | 146 |
| JON | 674.76 | 154 |
| JER | 674.22 | 154 |
| FL3-9 | 700.48 | 156 |
| 60-45 | 704.02 | 178 |
| I-275 (WCRC) | 685.50 | 178 |
| M-14 (WCRC) | 729.12 | 150 |

J. J. CLUNAK ASSOCIATES, P. C.
525 WEST 14th STREET
TRAVERSE CITY, MI 49684

197/200

| | | |
|---|---|---|
| 0+72 RT | GR | |
| 0+43.5 RT | GR @ WATER EDGE | |
| 0+58.7 RT | LOW STEEL | |
| 0+26 RT | GR @ WATER'S EDGE | |
| 0+18 RT | GR | |
| 0+10 RT | RIP-RAP | |

SEE PG. 199/200




1) COUNTY: Wayne

2) STUDY NAME: City of Wyandotte

3) WATERCOURSE: Sexton - Kilfoil Drain

4) DOCUMENT TYPE: Summary



100-year

WATERCOURSE: Sexton-Kilfoil Drain (Ecorse Creek)

CITY/[illegible]: City of Wyandotte

COUNTY: Wayne

| STATION | LOCATION | CWSEL | EG | Q |
|---|---|---|---|---|
| 1 | Confluence of Ecorse & Detroit Rivers | 574.90 | 575.51 | 4410 |
| 30 | 29' u/s of confluence | 574.95 | 575.55 | 4410 |
| 60 | 1' d/s of Jefferson Street Br. | 574.99 | 575.60 | 4410 |
| 61 | d/s face of Jefferson Street Br. | 574.93 | 575.66 | 4410 |
| 136 | u/s face of Jefferson Street Br. | 575.16 | 575.84 | 4410 |
| 137 | 1' u/s of Jefferson Street Br. | 575.34 | 575.88 | 4410 |
| 187 | 51' u/s of Jefferson Street Br. | 575.36 | 575.98 | 4410 |
| 362 | 226' u/s of Jefferson Street Br. | 575.94 | 576.25 | 4410 |
| 737 | 51' d/s of d/s face of R.R. Br. #1 | 576.24 | 576.50 | 4410 |
| 787 | 1' d/s of d/s face of R.R. Br. #1 | 576.20 | 576.62 | 4410 |
| 788 | d/s face of (T & I) R.R. Br. #1 | 576.15 | 576.67 | 4410 |
| 797 | u/s face of (T & I) R.R. Br. #1 | 576.19 | 576.70 | 4410 |
| 798 | 1' u/s of (T & I) R.R. Br. #1 | 576.32 | 576.73 | 4410 |
| 844 | 47' u/s of (T & I) R.R. Br. #1 | 576.37 | 576.77 | 4410 |
| 845 | d/s face of (T & I) R.R. Br. #2 | 576.33 | 576.81 | 4410 |
| 859 | u/s face of (T & I) R.R. Br. #2 | 576.38 | 576.85 | 4410 |
| 860 | 1' u/s of (T & I) R.R. Br, #2 | 576.48 | 576.88 | 4410 |
| 910 | 50' u/s of (T & I) R.R. Br. #2 | 576.56 | 576.92 | 4410 |
| 911 | d/s face of (T & I) R.R. Br. #3 | 576.52 | 576.96 | 4410 |
| 921 | u/s face of (T & I) R.R. Br. #3 | 576.55 | 576.99 | 4410 |
| 922 | 1' u/s of (T & I) R.R. Br. #3 | 576.66 | 577.02 | 4410 |
| 953 | 1' d/s of (T & I) R.R. Br. #4 | 576.5[illegible] | 577.14 | 4410 |
| 954 | d/s face of (T & I) R.R. Br. #4 | 576.44 | 577.29 | 4410 |
| 985 | u/s face of (T & I) R.R. Br. #4 | 576.66 | 577.47 | 4410 |
| 986 | 1' u/s of (T & I) R.R. Br. #4 | 576.07 | 577.57 | 4410 |
| 1036 | 51' u/s of (T & I) R.R. Br. #4 | 577.24 | 577.64 | 4410 |
| 1736 | 700' d/s of confluence of N. Ecorse Ri. | 577.86 | 578.18 | 4410 |
| 2436 | Confluence of N. Ecorse Ri. & Sexton-Kilfoil | 578.27 | 578.57 | 4410 |
| 3186 | 750' u/s of confluence | 578.83 | 578.92 | 1760 |
| 3686 | 1100' u/s of confluence | 578.93 | 579.04 | 1760 |
| 4186 | 50' d/s of Emmons Street Br. | 579.06 | 579.19 | 1760 |
| 4236 | d/s face of Emmons Street Br. | 579.05 | 579.24 | 1760 |
| 4281 | u/s face of Emmons Street Br. | 579.28 | 579.46 | 1760 |
| 4931 | 6[illegible]0' u/s of Emmons Street Br. | 579.55 | 579.68 | 1760 |
| 5956 | 1725' u/s of Emmons Street Br. | 579.86 | 580.00 | 1760 |
| 6981 | 2900' u/s of Emmons Street Br. | 580.19 | 580.32 | 1760 |
| 8031 | 51' d/s of Harrison Street Br. | 580.52 | 580.63 | 1760 |
| 8082 | d/s face of Harrison Street Br. | 580.55 | 580.65 | 1760 |
| 8147 | u/s face of Harrison Street Br. | 580.73 | 580.83 | 1760 |
| 9397 | 1250' u/s of Harrison Street Br. | 581.07 | 581.20 | 1760 |
| 10297 | 2000' u/s of Harrison Street Br. | 581.34 | 581.48 | 1760 |
| 10897 | 76' d/s of Harrison Street Br. #2 | 581.53 | 581.68 | 1760 |
| 10973 | d/s face of Harrison Street Br. #2 | 581.53 | 581.76 | 1760 |
| 11017 | u/s face of Harrison Street Br. #2 | 581.98 | 582.19 | 1760 |
| 11477 | 51' d/s of N. Bound Fort Street Br. | 582.27 | 582.40 | 1760 |
| 11528 | d/s face of N. Bound Fort Street Br. | 582.26 | 582.46 | 1760 |
| 11599 | u/s face of N. Bound Fort Street Br. | 582.55 | 582.74 | 1760 |
| 11650 | d/s face of S. Bound Fort Street Br. | 582.60 | 582.77 | 1760 |
| 11721 | u/s face of S. Bound Fort Street Br. | 582.92 | 583.08 | 1760 |

```
C
C      21
C      61          D/S FACE JEFFERSON STREET BRIDGE
C     136          U/S FACE JEFFERSON STREET BRIDGE
C     788          D/S FACE RR BRIDGE #1
C     797          U/S FACE RR BRIDGE #1
C     845          D/S FACE RR BRIDGE #2
C     859          U/S FACE RR BRIDGE #2
C     911          D/S FACE RR BRIDGE #3
C     921          U/S FACE RR BRIDGE #3
C     954          D/S FACE RR BRIDGE #4
C     985          U/S FACE RR BRIDGE #4
C    2436   CONFLUENCE OF THE NORTH ECORSE RIVER @ SEXTON-KILFOIL DRAIN
C    4236          D/S FACE OF EMMONS STREET BRIDGE
C    4281          U/S FACE OF EMMONS STREET BRIDGE
C    8082          D/S FACE OF HARRISON STREET BRIDGE
C    8147          U/S FACE OF HARRISON STREET BRIDGE
C   10973          D/S FACE OF HARRISON STREET BRIDGE #2
C   11017          U/S FACE OF HARRISON STREET BRIDGE #2
C   11528          D/S FACE OF NORTH BOUND FORT STREET
C   11599          U/S FACE OF NORTH BOUND FORT STREET
C   11650          D/S FACE OF SOUTH BOUND FORT STREET
C   11721          U/S FACE OF SOUTH BOUND FORT STREET
T1        CITY OF WYANDOTTE FIS 5555-73
T2        SEXTON-KILFOIL DRAIN
T3        10 YEAR FLOOD  3165 CFS
J1              2                                                  574.90
J2    -10              -1
NC 0.035   0.035   0.032     0.3     0.5
QT      4    3165    4100    4410    5160
X1      1      41     500     619
GR 576.2       0   575.9     100   576.6     200   578.5     300   581.1     400
GR 584.6     500   582.8     500   582.6     505   581.9     510   581.1     515
GR 579.2     520   575.4     525   574.8     530   572.8     535   569.2     540
GR 569.2     540   565.5   543.5   565.5   543.5   565.5     545   563.9     555
GR 566.1     560   565.3     565   565.4     570   564.1     575   566.2     580
GR 566.2     580   565.3   583.5   565.3   583.5   565.3     585   563.4     590
GR 564.4     595   565.4     600   567.7     605   571.1     610   573.5     615
GR 574.0     619   584.6     619   582.3     700   579.6     800   579.0     890
GR 578.7    1000
X1     30                              29      29      29
X1     60      41     500     619      30      30      30
GR 576.2       0   575.9     100   576.6     200   578.5     300   581.1     400
GR 584.6     500   582.8     500   582.6     505   581.9     510   581.1     515
GR 579.2     520   575.4     525   574.8     530   572.8     535   569.2     540
GR 569.2     540   565.5   543.5   565.5   543.5   565.5     545   563.9     555
GR 566.1     560   565.3     565   565.4     570   564.1     575   566.2     580
GR 566.2     580   565.3   583.5   565.3   583.5   565.3     585   563.4     590
GR 564.4     595   565.4     600   567.7     605   571.1     610   573.5     615
GR 574.0     619   584.6     619   582.3     700   579.6     800   579.0     890
GR 578.7    1000
X1     61      41     500     619       1       1       1
BT      9   500.0   584.3   579.8   500.0   587.7   579.8   540.0   588.1   580.3
BT 543.5   588.1   580.3   560.0   588.3   580.3   580.0   588.1   580.3   583.5
BT 588.1   580.3   619.0   587.7   579.7   619.0   584.4   579.7
GR 576.2       0   575.9     100   576.6     200   578.5     300   581.1     400
GR 584.6     500   582.8     500   582.6     505   581.9     510   581.1     515
GR 579.2     520   575.4     525   574.8     530   572.8     535   569.2     540
GR 580.3     540   580.3   543.5   565.5   543.5   565.5     545   563.9     555
GR 566.1     560   565.3     565   565.4     570   564.1     575   566.2     580
GR 580.3     580   580.3   583.5   565.3   583.5   565.3     585   563.4     590
GR 564.4     595   565.4     600   567.7     605   571.1     610   573.5     615
GR 574.0     619   584.6     619   582.3     700   579.6     800   579.0     890
GR 578.7    1000
```

```
X2                                                  1
X1   137      41     500     619       1       1       1
GR 576.2       0   575.9     100   576.6     200   578.5     300   581.1     400
GR 584.6     500   582.8     500   582.6     505   581.9     510   581.1     515
GR 579.2     520   575.4     525   574.8     530   572.8     535   569.2     540
GR 569.2     540   565.5   543.5   565.5   543.5   565.5     545   563.9     555
GR 566.1     560   565.3     565   565.4     570   564.1     575   566.2     580
GR 566.2     580   565.3   583.5   565.3   583.5   565.3     585   563.4     590
GR 564.4     595   565.4     600   567.7     605   571.1     610   573.5     615
GR 574.0     619   584.6     619   582.3     700   579.6     800   579.0     890
GR 578.7    1000
NC 0.035   0.042   0.032
X1   187      27     331     441      50      50      50
GR 575.8       0   576.6      41   578.5     141   580.6     241   583.1     331
GR 575.4     341   574.8     346   571.3     351   568.1     356   567.2     361
GR 565.7     366   565.1     371   565.5     376   565.1     381   564.7     391
GR 564.1     401   564.4     406   565.7     411   568.2     416   570.5     421
GR 572.8     426   574.8     432   580.2     441   583.6     454   581.0     541
GR 579.3     641   578.3     698
X1   362      35     244     400     175     175     175              .27
GR 580.2       0   579.5     100   578.3     200   578.3     244   574.6     254
GR 573.6     255   571.5     260   569.8     265   568.5     270   567.6     275
GR 566.9     280   565.9     285   565.6     290   563.7     300   563.7     310
GR 564.3     320   565.8     330   568.2     340   569.8     345   571.1     350
GR 571.6     355   572.4     360   572.1     365   572.6     370   572.6     375
GR 572.8     380   572.8     385   572.9     390   574.6     395   576.9     400
GR 577.6     500   577.7     545   577.5     600   577.7     700   577.5     800
X1   737      35     244     400     375     375     375
GR 580.2       0   579.5     100   578.3     200   578.3     244   574.6     254
GR 573.6     255   571.5     260   569.8     265   568.5     270   567.6     275
GR 566.9     280   565.9     285   565.6     290   563.7     300   563.7     310
GR 564.3     320   565.8     330   568.2     340   569.8     345   571.1     350
GR 571.6     355   572.4     360   572.1     365   572.6     370   572.6     375
GR 572.8     380   572.8     385   572.9     390   574.6     395   576.9     400
GR 577.6     500   577.7     545   577.5     600   577.7     700   577.5     800
X1   787      67     795   901.6      50      50      50
GR 581.5       0   581.4      95   581.3     195   581.2     295   581.1     395
GR 581.1     495   581.1     595   581.0     695   581.0     795   575.2     795
GR 574.5     800   574.5     800   574.5     801   574.5     801   574.0     805
GR 573.2     810   573.2     810   573.2     811   573.2     811   570.8     815
GR 569.3     820   570.1     825   570.1     825   570.1     826   570.1     826
GR 566.6   829.9   566.6   829.9   566.6   831.2   566.6   831.2   565.5     835
GR 565.5     835   565.5     836   565.5     836   563.9     840   564.5     845
GR 564.5     845   564.5     846   564.5     846   564.9     850   564.9     855
GR 564.9     855   564.9     856   564.9     856   565.5     860   565.2     865
GR 565.2     865   565.2   866.3   565.3   866.3   566.0     870   566.0     875
GR 566.0     875   566.0     876   566.0     876   566.7     880   568.7     885
GR 568.3     890   569.7     895   571.7     900   571.7   901.6   581.0   901.6
GR 580.8     995   580.8    1095   580.6    1195   580.4    1295   580.1    1395
GR 579.9    1495   580.0    1540
X1   788      67     795   901.6       1       1       1
BT     4   795.0   581.0   577.2   830.0   581.0   577.2   860.0   581.0   577.2
BT 901.6   581.0   577.2
GR 581.5       0   581.4      95   581.3     195   581.2     295   581.1     395
GR 581.1     495   581.1     595   581.0     695   581.0     795   575.2     795
GR 574.5     800   575.5     800   575.5     801   574.5     801   574.0     805
GR 573.2     810   575.5     810   575.5     811   573.2     811   570.8     815
GR 569.3     820   570.1     825   575.5     825   575.5     826   570.1     826
GR 566.6     830   577.2     830   577.2   831.3   566.6   831.3   565.5     835
GR 575.5     835   575.5     836   565.5     836   563.9     840   564.5     845
GR 575.5     845   575.5     846   564.5     846   564.9     850   564.9     855
GR 575.5     855   575.5     856   564.9     856   565.5     860   565.2     865
GR 577.2     865   577.2   866.3   565.2   866.3   566.0     870   566       875
GR 575.5     875   575.5     876   566.0     876   566.7     880              85
GR 568.3     890   569.7     895   571.7     900   571.7   901.6              .6
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GR | 579.9 | 1495 | 580.0 | 1540 | | | | | |
| X1 | 797 | 0 | 795 | 901.6 | 9 | 9 | 9 | | |
| X2 | | | | | | | 1 | | |
| X1 | 798 | 67 | 795 | 901.6 | 1 | 1 | 1 | | |
| GR | 581.5 | 0 | 581.4 | 95 | 581.3 | 195 | 581.2 | 295 | 581.1 | 395 |
| GR | 581.1 | 495 | 581.1 | 595 | 581.0 | 695 | 581.0 | 795 | 575.2 | 795 |
| GR | 574.5 | 800 | 574.5 | 800 | 574.5 | 801 | 574.5 | 801 | 574.0 | 805 |
| GR | 573.2 | 810 | 573.2 | 810 | 573.2 | 811 | 573.2 | 811 | 570.8 | 815 |
| GR | 569.3 | 820 | 570.1 | 825 | 570.1 | 825 | 570.1 | 826 | 570.1 | 826 |
| GR | 566.6 | 829.9 | 566.6 | 829.9 | 566.6 | 831.2 | 566.6 | 831.2 | 565.5 | 835 |
| GR | 565.5 | 835 | 565.5 | 836 | 565.5 | 836 | 563.9 | 840 | 564.5 | 845 |
| GR | 564.5 | 845 | 564.5 | 846 | 564.5 | 846 | 564.9 | 850 | 564.9 | 855 |
| GR | 564.9 | 855 | 564.9 | 856 | 564.9 | 856 | 565.5 | 860 | 565.2 | 865 |
| GR | 565.2 | 865 | 565.2 | 866.3 | 565.3 | 866.3 | 566.0 | 870 | 566.0 | 875 |
| GR | 566.0 | 875 | 566.0 | 876 | 566.0 | 876 | 566.7 | 880 | 568.7 | 885 |
| GR | 568.3 | 890 | 569.7 | 895 | 571.7 | 900 | 571.7 | 901.6 | 581.0 | 901.6 |
| GR | 580.8 | 995 | 580.8 | 1095 | 580.6 | 1195 | 580.4 | 1295 | 580.1 | 1395 |
| GR | 579.9 | 1495 | 580.0 | 1540 | | | | | | |
| X1 | 844 | 58 | 815 | 924 | 46 | 46 | 46 | | | |
| GR | 583.4 | 0 | 583.4 | 15 | 583.1 | 115 | 582.9 | 215 | 582.8 | 315 |
| GR | 582.6 | 415 | 582.3 | 515 | 582.1 | 615 | 581.8 | 715 | 581.5 | 815 |
| GR | 576.1 | 815 | 574.2 | 820 | 572.7 | 825 | 570.0 | 829 | 570.0 | 829 |
| GR | 570.0 | 830 | 570.0 | 830 | 568.0 | 835 | 565.9 | 840 | 565.0 | 844 |
| GR | 565.0 | 844 | 565.0 | 845 | 565.0 | 845 | 565.0 | 855 | 566.0 | 864 |
| GR | 566.0 | 864 | 566.0 | 865 | 566.0 | 865 | 566.1 | 874 | 566.1 | 874 |
| GR | 566.1 | 875 | 566.1 | 875 | 565.8 | 884 | 565.8 | 884 | 565.8 | 885 |
| GR | 565.8 | 885 | 565.6 | 890 | 565.2 | 894 | 565.2 | 894 | 565.2 | 895 |
| GR | 565.2 | 895 | 567.6 | 900 | 570.3 | 905 | 572.0 | 909 | 572.0 | 909 |
| GR | 572.0 | 910 | 572.0 | 910 | 574.0 | 915 | 575.1 | 920 | 576.2 | 924 |
| GR | 581.4 | 924 | 581.3 | 1015 | 581.3 | 1115 | 581.1 | 1215 | 581.1 | 1315 |
| GR | 581.1 | 1415 | 581.2 | 1515 | 581.2 | 1565 | | | | |
| X1 | 845 | 58 | 815 | 924 | 1 | 1 | 1 | | | |
| BT | 16 | 815.0 | 581.5 | 578.4 | 829.0 | 581.5 | 578.1 | 830.0 | 581.5 | 578.1 |
| BT | 844.0 | 581.5 | 577.9 | 845.0 | 581.5 | 577.9 | 864.0 | 581.5 | 577.5 | 865.0 |
| BT | 581.5 | 577.5 | 874.0 | 581.4 | 577.4 | 875.0 | 581.4 | 577.4 | 884.0 | 581.4 |
| BT | 577.2 | 885.0 | 581.4 | 577.2 | 894.0 | 581.4 | 577.0 | 895.0 | 581.4 | 577.0 |
| BT | 909.0 | 581.4 | 576.8 | 910.0 | 581.4 | 576.8 | 924.0 | 581.4 | 576.5 | |
| GR | 583.4 | 0 | 583.4 | 15 | 583.1 | 115 | 582.9 | 215 | 582.8 | 315 |
| GR | 582.6 | 415 | 582.3 | 515 | 582.1 | 615 | 581.8 | 715 | 581.5 | 815 |
| GR | 576.1 | 815 | 574.2 | 820 | 572.7 | 825 | 570.0 | 829 | 578.1 | 829 |
| GR | 578.1 | 830 | 570.0 | 830 | 568.0 | 835 | 565.9 | 840 | 565.0 | 844 |
| GR | 577.9 | 844 | 577.9 | 845 | 565.0 | 845 | 565.0 | 855 | 566.0 | 864 |
| GR | 577.5 | 864 | 577.5 | 865 | 566.0 | 865 | 566.1 | 874 | 577.4 | 874 |
| GR | 577.4 | 875 | 566.1 | 875 | 565.8 | 884 | 577.2 | 884 | 577.2 | 885 |
| GR | 565.8 | 885 | 565.6 | 890 | 565.2 | 894 | 577.0 | 894 | 577.0 | 895 |
| GR | 565.2 | 895 | 567.6 | 900 | 570.3 | 905 | 572.0 | 909 | 576.8 | 909 |
| GR | 576.8 | 910 | 572.0 | 910 | 574.0 | 915 | 575.1 | 920 | 576.2 | 924 |
| GR | 581.4 | 924 | 581.3 | 1015 | 581.3 | 1115 | 581.1 | 1215 | 581.1 | 1315 |
| GR | 581.1 | 1415 | 581.2 | 1515 | 581.2 | 1565 | | | | |
| X1 | 859 | | 815 | 924 | 14.5 | 14.5 | 14.5 | | | |
| X2 | | | | | | | 1 | | | |
| X1 | 860 | 58 | 815 | 924 | 1 | 1 | 1 | | | |
| GR | 583.4 | 0 | 583.4 | 15 | 583.1 | 115 | 582.9 | 215 | 582.8 | 315 |
| GR | 582.6 | 415 | 582.3 | 515 | 582.1 | 615 | 581.8 | 715 | 581.5 | 815 |
| GR | 576.1 | 815 | 574.2 | 820 | 572.7 | 825 | 570.0 | 829 | 570.0 | 829 |
| GR | 570.0 | 830 | 570.0 | 830 | 568.0 | 835 | 565.9 | 840 | 565.0 | 844 |
| GR | 565.0 | 844 | 565.0 | 845 | 565.0 | 845 | 565.0 | 855 | 566.0 | 864 |
| GR | 566.0 | 864 | 566.0 | 865 | 566.0 | 865 | 566.1 | 874 | 566.1 | 874 |
| GR | 566.1 | 875 | 566.1 | 875 | 565.8 | 884 | 565.8 | 884 | 565.8 | 885 |
| GR | 565.8 | 885 | 565.6 | 890 | 565.2 | 894 | 565.2 | 894 | 565.2 | 895 |
| GR | 565.2 | 895 | 567.6 | 900 | 570.3 | 905 | 572.0 | 909 | 572.0 | 909 |
| GR | 572.0 | 910 | 572.0 | 910 | 574.0 | 915 | 575.1 | 920 | 576.2 | 924 |
| GR | 581.4 | 924 | 581.3 | 1015 | 581.3 | 1115 | 581.1 | 1215 | 581.1 | 1315 |
| GR | 581.1 | 1415 | 581.2 | 1515 | 581.2 | 1565 | | | | |
| X1 | 910 | 64 | 835 | 942 | 50 | 50 | 50 | | | |

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GR 583.3     435   583.3     535   583.2     635   583.1     735   583.1     835
GR 574.8     835   572.6     840   571.6     844   571.6     844   571.6     845
GR 571.6     845   570.7     854   570.7     854   570.7     855   570.7     855
GR 565.6     864   565.6     864   565.6     865   565.6     865   564.3     874
GR 564.3     874   564.3     875   564.3     875   564.8     884   564.8     884
GR 564.8     885   564.8     885   564.9     894   564.9     894   564.9     895
GR 564.9     895   564.0     904   564.0     904   564.0     905   564.0     905
GR 566.1     914   566.1     914   566.1     915   566.1     915   567.0     920
GR 571.0     924   571.0     924   571.0     925   571.0     925   572.4     930
GR 573.9     934   573.9     934   573.9     935   573.9     935   575.0     940
GR 574.9     942   583.0     942   582.7    1035   582.6    1135   582.3    1235
GR 582.1    1335   581.9    1435   581.8    1535   581.8    1585
X1   911      64     835     942       1       1       1
BT     6  835.0   583.1   578.6   874.0   583.1   578.6   875.0   583.1   578.6
BT 904.0   583.0   578.6   905.0   583.0   578.6   942.0   583.0   578.6
GR 583.7       0   583.6      35   583.4     135   583.3     235   583.3     335
GR 583.3     435   583.3     535   583.2     635   583.1     735   583.1     835
GR 574.8     835   572.6     840   571.6     844   575.5     844   575.5     845
GR 571.6     845   570.7     854   575.5     854   575.5     855   570.7     855
GR 565.6     864   575.5     864   575.5     865   565.6     865   564.3     874
GR 578.6     874   578.6     875   564.3     875   564.8     884   575.5     884
GR 575.5     885   564.8     885   564.9     894   575.5     894   575.5     895
GR 564.9     895   564.0     904   578.6     904   578.6     905   564.0     905
GR 566.1     914   575.5     914   575.5     915   566.1     915   567.0     920
GR 571.0     924   575.5     924   575.5     925   571.0     925   572.4     930
GR 573.9     934   575.5     934   575.5     935   573.9     935   575.0     940
GR 574.9     942   583.0     942   582.7    1035   582.6    1135   582.3    1235
GR 582.1    1335   581.9    1435   581.8    1535   581.8    1585
X1   921             835     942      10      10      10
X2                                                    1
X1   922      64     835     942       1       1       1
GR 583.7       0   583.6      35   583.4     135   583.3     235   583.3     335
GR 583.3     435   583.3     535   583.2     635   583.1     735   583.1     835
GR 574.8     835   572.6     840   571.6     844   571.6     844   571.6     845
GR 571.6     845   570.7     854   570.7     854   570.7     855   570.7     855
GR 565.6     864   565.6     864   565.6     865   565.6     865   564.3     874
GR 564.3     874   564.3     875   564.3     875   564.8     884   564.8     884
GR 564.8     885   564.8     885   564.9     894   564.9     894   564.9     895
GR 564.9     895   564.0     904   564.0     904   564.0     905   564.0     905
GR 566.1     914   566.1     914   566.1     915   566.1     915   567.0     920
GR 571.0     924   571.0     924   571.0     925   571.0     925   572.4     930
GR 573.9     934   573.9     934   573.9     935   573.9     935   575.0     940
GR 574.9     942   583.0     942   582.7    1035   582.6    1135   582.3    1235
GR 582.1    1335   581.9    1435   581.8    1535   581.8    1585
X1   953      48     600     681      31      31      31
GR 582.0       0   581.8     100   581.6     200   581.5     300   581.4     400
GR 581.2     500   581.0     600   571.0     600   568.1     605   566.9     610
GR 566.9     610   566.9   612.3   566.9   612.3   565.9     615   565.1     620
GR 565.1     620   565.1   622.3   565.1   622.3   566.3     625   566.2     630
GR 566.2     630   566.2   632.3   566.2   632.3   566.7     635   566.4     640
GR 566.1     645   566.4     650   566.4     650   566.4   652.3   566.4   652.3
GR 566.6     655   567.5     660   567.5     660   567.5   662.3   567.5   662.3
GR 567.5     665   569.9     670   569.9     670   569.9   672.3   569.9   672.3
GR 573.4     680   573.4     681   580.8     681   580.8     700   580.7     800
GR 580.6     900   580.6    1000   580.5    1100
X1   954      48     600     681       1       1       1
BT    14  600.0   581.0   577.7   610.0   581.0   577.7   612.3   581.0   577.7
BT 620.0   581.0   577.7   622.3   581.0   577.7   630.0   580.9   577.7   632.3
BT 580.9   577.7   650.0   580.9   577.6   652.3   580.9   577.6   660.0   580.9
BT 577.6   662.3   580.8   577.6   670.0   580.8   577.6   672.3   580.8   577.6
BT 681.0   580.8   577.6
GR 582.0       0   581.8     100   581.6     200   581.5     300   581.4     400
GR 581.2     500   581.0     600   571.0     600   568.1     605   566.9     610
GR 577.7     610   577.7   612.3   566.9   612.3   565.9     615   565.1     620
GR 577.7     620   577.7   622.3   565.1   622.3   566.3     625   566.2     630
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GR 566.1     645   566.4     650   577.6     650   577.6   652.3   566.4   652.3
GR 566.6     655   567.5     660   577.6     660   577.6   662.3   567.5   662.3
GR 567.5     665   569.9     670   577.6     670   577.6   672.3   569.9   672.3
GR 573.4     680   573.4     681   580.8     681   580.8     700   580.7     800
GR 580.6     900   580.6    1000   580.5    1100
X1   985             600     681    30.5    30.5    30.5
X2                                                   1
X1   986      48     600     681       1       1       1
GR 582.0       0   581.8     100   581.6     200   581.5     300   581.4     400
GR 581.2     500   581.0     600   571.0     600   568.1     605   566.9     610
GR 566.9     610   566.9   612.3   566.9   612.3   565.9     615   565.1     620
GR 565.1     620   565.1   622.3   565.1   622.3   566.3     625   566.2     630
GR 566.2     630   566.2   632.3   566.2   632.3   566.7     635   566.4     640
GR 566.1     645   566.4     650   566.4     650   566.4   652.3   566.4   652.3
GR 566.6     655   567.5     660   567.5     660   567.5   662.3   567.5   662.3
GR 567.5     665   569.9     670   569.9     670   569.9   672.3   569.9   672.3
GR 573.4     680   573.4     681   580.8     681   580.8     700   580.7     800
GR 580.6     900   580.6    1000   580.5    1100
NC 0.040   0.035   0.032
X1  1036      37     565     700      50      50      50
X3    10                                     700
GR 581.9       0   581.2     100   581.2     200   580.8     300   581.0     400
GR 579.9     500   581.1     565   575.4     587   574.9     590   573.9     595
GR 572.5     600   571.0     605   569.8     610   568.8     615   568.0     620
GR 567.4     625   566.6     630   566.3     635   566.2     640   566.3     650
GR 566.8     660   568.3     670   570.2     675   570.4     680   571.7     685
GR 573.1     690   574.8     695   574.9     696   577.7     700   577.5     800
GR 576.6     900   576.6    1000   577.0    1030   576.8    1100   577.5    1200
GR 578.3    1300   579.2    1345
NC 0.060   0.035   0.032
X1  1736      40     374   492.5     700     700     700
X3    10
GR 580.4       0   580.4     167   579.5   283.7   578.8   335.3   579.1     374
GR 577.2   377.9   576.1   381.9   575.1   385.8   574.1   389.8   573.2   393.7
GR 572.4   397.7   571.5   401.6   570.3   405.6   569.4   409.5   568.4   413.5
GR 567.6   417.4   566.9   421.4   566.5   425.3   566.0   429.2   565.7   433.2
GR 565.5   437.2   565.4   441.1   565.5   445.0   565.6   449.0   565.9   453.0
GR 566.5   456.9   567.2   460.8   568.0   464.8   569.0   468.7   569.8   472.7
GR 570.6   476.6   571.7   480.6   573.4   484.5   575.1   488.5   577.5   492.5
GR 577.4     550   577.3     650   577.4     750   577.7     890   579.5     975
X1  2436      31     183     285     700     700     700
X3                                           485.0
GR 579.0       0   579.9      85   578.5     135   577.1     183   575.1     185
GR 573.5     190   572.2     195   571.1     200   570.2     205   568.5     210
GR 567.7     215   566.4     220   565.6     225   565.3     230   565.0     235
GR 564.6     240   564.8     245   565.2     250   566.4     255   567.8     260
GR 568.8     265   569.9     270   571.5     275   574.7     280   575.1     281
GR 577.4     285   577.3     385   578.2     485   577.7     557   578.6     585
GR 579.8     605
QT      4   1120    1620    1760    2055
X1  3186      25     200     300     750     750     750
X3    10                                     500
GR 580.6       0   583.1     100   581.3     200   579.6     208   575.2     216
GR 573.9     220   571.6     225   569.9     230   569.9     235   569.3     240
GR 569.1     245   568.8     250   569.2     260   570.8     270   571.1     280
GR 571.7     285   573.0     290   574.1     295   576.4     300   577.9     400
GR 579.0     500   579.1     600   578.7     625   578.7     700   578.9     800
X1  3686                             500     500     500                 .6
X3    10                                     500
NC 0.040   0.037   0.032
X1  4186      27     417     500     500     500     500
X3    10                     350             550
GR 581.8       0   580.9     100   580.6     200   580.0     300   578.9     400
GR 578.2     417   575.0     419   574.7     420   573.0     425   571.2     430
GR 570.5     435   570.4     440   570.4     445   570.3     450   570.0     455
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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 572.5 | 485 | 573.2 | 490 | 575.0 | 494 | 578.7 | 500 | 579.5 | 600 |
| GR | 581.0 | 700 | 583.0 | 770 | | | | | | |
| NC | 0.030 | 0.030 | 0.030 | | | | | | | |
| X1 | 4236 | 32 | 592 | 644 | 50 | 50 | 50 | | | |
| X3 | 10 | | | 592 | | 644 | | | | |
| GR | 582.0 | 0 | 581.6 | 92 | 581.2 | 192 | 580.8 | 292 | 580.7 | 392 |
| GR | 580.0 | 492 | 580.1 | 592 | 570.2 | 592 | 569.2 | 597 | 570.0 | 602 |
| GR | 569.7 | 607 | 569.0 | 612 | 568.1 | 617 | 568.1 | 617 | 568.1 | 618.5 |
| GR | 568.1 | 618.5 | 568.9 | 622 | 568.8 | 627 | 569.2 | 632 | 570.0 | 637 |
| GR | 570.6 | 642 | 570.6 | 644 | 580.0 | 644 | 579.3 | 692 | 579.6 | 792 |
| GR | 580.4 | 892 | 580.7 | 992 | 580.5 | 1092 | 580.3 | 1192 | 580.0 | 1292 |
| GR | 579.6 | 1392 | 579.3 | 1492 | | | | | | |
| SB | 1.25 | 1.37 | 2.5 | | 50.5 | 1.5 | 400 | 0 | 568.1 | 568.1 |
| X1 | 4281 | 32 | 592 | 644 | 45 | 45 | 45 | | | |
| X2 | | | 1 | 577.4 | 580.0 | | | | | |
| X3 | 10 | | | 592 | | 644 | | | | |
| BT | 6 | 592.0 | 580.1 | 577.4 | 617 | 580.0 | 577.3 | 617 | 580.0 | 568.1 |
| BT | 618.5 | 580.0 | 568.1 | 618.5 | 580.0 | 577.3 | 644.0 | 580.0 | 577.3 | |
| GR | 582.0 | 0 | 581.6 | 92 | 581.2 | 192 | 580.8 | 292 | 580.7 | 392 |
| GR | 580.0 | 492 | 580.1 | 592 | 570.2 | 592 | 569.2 | 597 | 570.0 | 602 |
| GR | 569.7 | 607 | 569.0 | 612 | 568.1 | 617 | 568.1 | 617 | 568.1 | 618.5 |
| GR | 568.1 | 618.5 | 568.9 | 622 | 568.8 | 627 | 569.2 | 632 | 570.0 | 637 |
| GR | 570.6 | 642 | 570.6 | 644 | 580.0 | 644 | 579.3 | 692 | 579.6 | 792 |
| GR | 580.4 | 892 | 580.7 | 992 | 580.5 | 1092 | 580.3 | 1192 | 580.0 | 1292 |
| GR | 579.6 | 1392 | 579.3 | 1492 | | | | | | |
| NC | 0.040 | 0.037 | 0.032 | | | | | | | |
| X1 | 4931 | 23 | 115 | 200 | 650 | 650 | 650 | | | |
| X3 | 10 | | | 115 | | 200 | | | | |
| GR | 582.2 | 0 | 581.6 | 37 | 580.8 | 100 | 580.9 | 115 | 575.3 | 124 |
| GR | 574.6 | 125 | 571.5 | 130 | 570.8 | 135 | 570.5 | 140 | 570.3 | 145 |
| GR | 570.3 | 150 | 570.3 | 155 | 570.4 | 160 | 570.6 | 165 | 570.8 | 170 |
| GR | 571.1 | 175 | 571.3 | 180 | 573.1 | 185 | 573.6 | 190 | 575.3 | 195 |
| GR | 579.8 | 200 | 579.1 | 300 | 580.1 | 400 | | | | |
| X1 | 5956 | | | | 1025 | 1025 | 1025 | | .35 | |
| X3 | 10 | | | 115 | | 200 | | | | |
| X1 | 6981 | 29 | 505 | 600 | 1025 | 1025 | 1025 | | | |
| X3 | 10 | | | | | | | 582.6 | 582.0 | |
| GR | 582.8 | 0 | 581.3 | 100 | 581.3 | 200 | 580.9 | 300 | 579.7 | 400 |
| GR | 579.4 | 425 | 582.7 | 500 | 582.6 | 505 | 576.0 | 517 | 575.2 | 520 |
| GR | 572.0 | 525 | 571.8 | 530 | 572.2 | 535 | 572.3 | 540 | 571.1 | 545 |
| GR | 571.1 | 550 | 571.0 | 560 | 571.2 | 570 | 572.4 | 575 | 572.5 | 580 |
| GR | 574.2 | 584 | 575.2 | 588 | 582.0 | 600 | 579.1 | 700 | 581.5 | 800 |
| GR | 580.8 | 900 | 581.0 | 920 | 581.3 | 1000 | 581.2 | 1100 | | |
| X1 | 8031 | 27 | 150 | 246 | 1050 | 1050 | 1050 | | | |
| X3 | | | | 150 | | 246 | | | | |
| GR | 580.3 | 0 | 580.4 | 50 | 580.7 | 78 | 578.9 | 114 | 580.7 | 150 |
| GR | 579.0 | 155 | 575.2 | 162 | 573.8 | 166 | 572.8 | 170 | 572.3 | 175 |
| GR | 572.0 | 180 | 571.7 | 190 | 571.5 | 200 | 571.5 | 210 | 571.7 | 215 |
| GR | 571.8 | 220 | 572.5 | 225 | 573.6 | 230 | 575.2 | 235 | 577.8 | 238 |
| GR | 579.4 | 246 | 579.4 | 250 | 578.6 | 336 | 578.5 | 350 | 579.2 | 450 |
| GR | 578.9 | 492 | 580.5 | 550 | | | | | | |
| NC | 0.030 | 0.030 | 0.030 | | | | | | | |
| X1 | 8082 | 39 | 580 | 655 | 51 | 51 | 51 | | | |
| X3 | 10 | | | 580 | | 655 | | | | |
| GR | 578.6 | 0 | 578.1 | 80 | 578.0 | 180 | 577.7 | 280 | 577.6 | 380 |
| GR | 577.9 | 480 | 580.9 | 580 | 571.8 | 580 | 572.2 | 585 | 571.7 | 590 |
| GR | 571.5 | 595 | 571.2 | 600 | 570.4 | 605 | 578.3 | 605 | 578.3 | 606.5 |
| GR | 570.4 | 606.5 | 571.4 | 610 | 571.0 | 615 | 570.9 | 620 | 571.0 | 625 |
| GR | 571.0 | 630 | 578.3 | 630 | 578.3 | 631.5 | 571.0 | 631.5 | 571.1 | 635 |
| GR | 570.9 | 640 | 570.8 | 645 | 570.3 | 650 | 569.9 | 655 | 581.1 | 655 |
| GR | 580.3 | 680 | 578.9 | 780 | 578.5 | 830 | 578.3 | 880 | 577.9 | 980 |
| GR | 577.5 | 1080 | 577.3 | 1180 | 577.7 | 1280 | 577.6 | 1380 | | |
| SB | 1.25 | 1.56 | 2.6 | | 75 | 3 | 519 | | 569.9 | 569.9 |
| X1 | 8147 | | 580 | 655 | 65 | 65 | 65 | | | |
| X2 | | | 1 | 578.4 | 580.9 | | | | .631 | |

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BT      6   580.0   580.9   578.2   605.0   581.0   578.3   606.5   581.0   578.3
BT  630.0   581.0   578.3   631.5   581.0   578.3   655.0   581.1   578.4
NC  0.035   0.040   0.032
X1   9397      28     550     635    1250    1250    1250
X3                         550             635
GR  580.8       0   581.5     150   580.7     250   579.8     355   580.8     450
GR  579.3     550   578.8     555   574.7     564   573.7     570   573.2     575
GR  572.2     580   572.0     585   572.1     590   571.8     595   571.8     600
GR  571.9     605   572.2     610   572.5     615   572.8     620   573.2     625
GR  574.7     626   581.7     635   582.0     650   582.1     750   583.1     850
GR  582.6     950   582.2    1050   581.9    1150
X1  10297      29     400     480     900     900     900
X3     10                         480
GR  583.1       0   582.7     100   582.2     200   582.1     220   582.9     300
GR  583.4     400   573.8     416   572.9     420   572.0     425   572.0     430
GR  572.0     435   571.8     440   572.0     445   572.2     450   572.2     455
GR  572.5     460   572.8     465   573.4     470   574.5     475   581.9     480
GR  581.4     500   580.9     600   581.0     700   581.6     800   581.9     900
GR  582.8    1000   582.6    1100   582.9    1200   583.4    1300
NC  0.035   0.035   0.032
X1  10897      23     112     185     600     600     600
X3                     112.00             185.00
GR  580.7       0   581.2      85   580.4     112   574.8     122   574.5     123
GR  573.5     125   572.9     130   572.4     135   572.2     140   572.3     150
GR  572.7     155   572.8     160   573.2     165   573.0     170   573.0     176
GR  574.5     178   579.4     185   581.8     231   583.7     243   583.1     285
GR  584.4     355   582.6     385   583.5     477
X1  10973      30     500     552      76      76      76
X3     10                         500             552
GR  582.2       0   581.9     100   581.4     200   580.9     300   580.8     400
GR  581.2     448   581.7     500   571.7     500   571.9     505   571.8     510
GR  571.8     515   571.8     520   572.1     525   579.0     525   579.0     527
GR  572.1     527   572.6     530   573.0     535   573.7     540   573.7     545
GR  573.6     550   573.4     552   581.6     552   580.4     600   581.1     700
GR  581.4     800   581.6     900   581.8    1000   582.0    1100   582.1    1122
SB     .9    1.47     2.5              52     2.0     315            571.7   571.7
X1  11017              500     552      44      44      44
X2                       1   579.0    581.7
X3     10                         500   590.0     552   590.0
BT      4   500.0   581.7   578.9   525.0   581.7   579.0   527.0   581.7   579.0
BT  552.0   581.6   578.9
NC  0.060   0.060   0.032
X1  11477      22     155     236     460     460     460
X3                         155             255
GR  583.1       0   583.4      50   583.4     110   582.9     155   574.9     170
GR  573.9     175   573.7     180   572.8     185   572.9     190   572.9     195
GR  572.9     200   572.7     205   572.4     210   571.8     215   573.1     220
GR  574.4     225   575.5     227   581.4     236   582.6     255   582.2     265
GR  582.1     310   582.2     343
X1  11528      35     530   582.5      51      51      51
X3     10                         530             582.5
GR  584.4       0   584.8      30   584.4     130   583.9     230   583.5     330
GR  582.9     370   582.9     430   583.0     530   573.0     530   573.4     535
GR  573.0     540   572.7     545   572.5     550   572.1   555.2   580.6   555.2
GR  580.6   557.2   572.8   557.2   572.8     560   572.7     565   572.5     570
GR  572.4     575   572.6     580   572.5   582.5   582.8   582.5   582.2     630
GR  582.2     730   583.3     830   582.9     880   583.1     930   583.9    1030
GR  584.1    1130   584.4    1230   584.1    1330   583.7    1430   583.9    1439
SB   1.25    1.61     2.5              52.5     2.0     400            572.1   572.1
X1  11599              530   582.5      71      71      71
X2                       1   580.7    582.8
X3     10                         530             582.5
BT      4   530.0   583.0   580.7   555.2   582.9   580.6   557.2   582.9   580.6
BT  582.5   582.8   580.5
X1  11650      36     548     604      51      51      51
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GR 584.8       0   584.5      48   584.3     148   584.1     248   583.6     348
GR 583.0     448   583.4     548   573.4     548   573.7     553   573.3     558
GR 573.0     563   572.6     568   572.6     573   572.6   573.5   580.7   573.5
GR 580.7   575.5   572.5   575.5   572.4     578   572.1     583   572.6     588
GR 572.1     593   572.6     598   572.4     601   580.5     604   583.2     604
GR 582.4     648   581.9     748   582.4     823   582.9     848   583.3     948
GR 583.8    1048   584.1    1148   584.5    1248   584.3    1348   583.9    1448
GR 584.3    1558
SB  1.25    1.61     2.5              56     2.0     400           572.1  572.1
X1 11721             548     604      71      71      71
X2                     1   580.7   583.2
X3    10                     548             604
BT     4   548.0   583.4   580.7   573.5   583.3   580.7   575.5   583.3   580.7
BT 604.0   583.2   580.5
EJ
T1       CITY OF WYANDOTTE FIS 5555-73
T2       SEXTON-KILFOIL DRAIN
T3       50 YEAR FLOOD  4100 CFS
J1   -10       3                                                  574.90
J2     2              -1
T1       CITY OF WYANDOTTE FIS 5555-73
T2       SEXTON-KILFOIL DRAIN
T3       100 YEAR FLOOD 4410 CFS
J1   -10       4                                                  574.90
J2     3              -1
T1       CITY OF WYANDOTTE 5555-73
T2       SEXTON-KILFOIL DRAIN
T3       500 YEAR FLOOD 5160 CFS
J1   -10       5                                                  574.90
J2    15              -1


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SUMMARY PRINTOUT FOR MULTIPLE PROFILES

500 YEAR FLOOD 5160 CFS

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | CRIWS | EG | TOPWID | 10K*S | TIME | VOL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.90 | 0.00 | 575.22 | 89.83 | 6.84 | 0.00 | 0.00 |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.90 | 0.00 | 575.43 | 89.83 | 11.48 | 0.00 | 0.00 |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.90 | 0.00 | 575.51 | 89.83 | 13.28 | 0.00 | 0.00 |
| 1.00 | 0.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 574.90 | 0.00 | 575.74 | 89.83 | 18.18 | 0.00 | 0.00 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.92 | 0.00 | 575.24 | 90.00 | 6.80 | .00 | .47 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.94 | 0.00 | 575.47 | 90.11 | 11.36 | .00 | .47 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.95 | 0.00 | 575.55 | 90.15 | 13.12 | .00 | .47 |
| 30.00 | 29.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 574.97 | 0.00 | 575.80 | 90.33 | 17.85 | .00 | .47 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 574.94 | 0.00 | 575.26 | 90.17 | 6.76 | .00 | .95 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 574.98 | 0.00 | 575.50 | 90.44 | 11.23 | .00 | .95 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 574.99 | 0.00 | 575.60 | 90.55 | 12.94 | .00 | .95 |
| 60.00 | 30.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 575.04 | 0.00 | 575.85 | 91.04 | 17.41 | .00 | .96 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 3165.00 | 574.91 | 0.00 | 575.29 | 82.95 | 12.29 | .00 | .97 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 4100.00 | 574.93 | 0.00 | 575.56 | 83.07 | 20.54 | .00 | .97 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 4410.00 | 574.93 | 0.00 | 575.66 | 83.12 | 23.72 | .00 | .97 |
| 61.00 | 1.00 | 584.30 | 580.30 | 563.40 | 5160.00 | 574.96 | 0.00 | 575.94 | 83.33 | 32.24 | .00 | .97 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 3165.00 | 575.02 | 0.00 | 575.38 | 83.82 | 11.93 | .01 | 2.08 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 4100.00 | 575.12 | 0.00 | 575.71 | 84.64 | 19.46 | .01 | 2.09 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 4410.00 | 575.16 | 0.00 | 575.84 | 85.00 | 22.24 | .01 | 2.10 |
| 136.00 | 75.00 | 584.30 | 580.30 | 563.40 | 5160.00 | 575.30 | 0.00 | 576.20 | 86.14 | 29.29 | .01 | 2.11 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 3165.00 | 575.10 | 0.00 | 575.40 | 91.53 | 6.44 | .01 | 2.10 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 4100.00 | 575.27 | 0.00 | 575.75 | 92.89 | 10.29 | .01 | 2.11 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 4410.00 | 575.34 | 0.00 | 575.88 | 93.47 | 11.66 | .01 | 2.11 |
| 137.00 | 1.00 | 0.00 | 0.00 | 563.40 | 5160.00 | 575.54 | 0.00 | 576.26 | 94.19 | 14.81 | .01 | 2.13 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 3165.00 | 575.12 | 0.00 | 575.46 | 89.16 | 7.37 | .01 | 2.90 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 4100.00 | 575.29 | 0.00 | 575.84 | 90.88 | 11.75 | .01 | 2.93 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 4410.00 | 575.36 | 0.00 | 575.98 | 91.61 | 13.31 | .01 | 2.94 |
| 187.00 | 50.00 | 0.00 | 0.00 | 564.10 | 5160.00 | 575.58 | 0.00 | 576.38 | 92.53 | 16.82 | .01 | 2.98 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 3165.00 | 575.42 | 0.00 | 575.61 | 143.71 | 4.75 | .03 | 6.10 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 4100.00 | 575.80 | 0.00 | 576.07 | 145.52 | 6.71 | .02 | 6.27 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 4410.00 | 575.94 | 0.00 | 576.25 | 146.24 | 7.28 | .02 | 6.34 |
| 362.00 | 175.00 | 0.00 | 0.00 | 563.97 | 5160.00 | 576.34 | 0.00 | 576.71 | 148.20 | 8.37 | .02 | 6.53 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 3165.00 | 575.62 | 0.00 | 575.78 | 145.95 | 3.85 | .06 | 14.31 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 4100.00 | 576.07 | 0.00 | 576.31 | 148.18 | 5.30 | .05 | 15.00 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 4410.00 | 576.24 | 0.00 | 576.50 | 149.01 | 5.70 | .04 | 15.27 |
| 737.00 | 375.00 | 0.00 | 0.00 | 563.70 | 5160.00 | 576.69 | 0.00 | 577.01 | 151.21 | 6.51 | .04 | 16.01 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 3165.00 | 575.59 | 0.00 | 575.85 | 106.60 | 5.92 | .06 | 15.32 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 4100.00 | 576.03 | 0.00 | 576.41 | 106.60 | 8.26 | .05 | 16.08 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 4410.00 | 576.20 | 0.00 | 576.62 | 106.60 | 8.95 | .05 | 16.37 |
| 787.00 | 50.00 | 0.00 | 0.00 | 563.90 | 5160.00 | 576.63 | 0.00 | 577.15 | 106.60 | 10.35 | .04 | 17.18 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | CRIWS | EG | TOPWID | 10K*S | TIME | VOL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 3165.00 | 575.56 | 0.00 | 575.88 | 104.00 | 23.72 | .06 | 15.34 |
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 4100.00 | 575.99 | 0.00 | 576.46 | 104.00 | 32.91 | .05 | 16.10 |
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 4410.00 | 576.15 | 0.00 | 576.67 | 104.00 | 35.54 | .05 | 16.39 |
| 788.00 | 1.00 | 581.00 | 577.20 | 563.90 | 5160.00 | 576.58 | 0.00 | 577.21 | 104.00 | 40.86 | .04 | 17.20 |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 3165.00 | 575.59 | 0.00 | 575.90 | 104.00 | 23.58 | .06 | 15.49 |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 4100.00 | 576.02 | 0.00 | 576.49 | 104.00 | 32.55 | .05 | 16.25 |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 4410.00 | 576.19 | 0.00 | 576.70 | 104.00 | 35.13 | .05 | 16.55 |
| 797.00 | 9.00 | 581.00 | 577.20 | 563.90 | 5160.00 | 576.62 | 0.00 | 577.25 | 104.00 | 40.12 | .04 | 17.37 |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 3165.00 | 575.67 | 0.00 | 575.92 | 106.60 | 5.72 | .06 | 15.50 |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 4100.00 | 576.15 | 0.00 | 576.52 | 106.60 | 7.89 | .05 | 16.27 |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 4410.00 | 576.32 | 0.00 | 576.73 | 106.60 | 8.51 | .05 | 16.57 |
| 798.00 | 1.00 | 0.00 | 0.00 | 563.90 | 5160.00 | 576.79 | 0.00 | 577.29 | 106.60 | 9.78 | .04 | 17.39 |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 3165.00 | 575.70 | 0.00 | 575.95 | 106.11 | 5.36 | .06 | 16.34 |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 4100.00 | 576.19 | 0.00 | 576.55 | 108.96 | 7.52 | .05 | 17.16 |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 4410.00 | 576.37 | 0.00 | 576.77 | 109.00 | 8.09 | .05 | 17.48 |
| 844.00 | 46.00 | 0.00 | 0.00 | 565.00 | 5160.00 | 576.84 | 0.00 | 577.33 | 109.00 | 9.24 | .05 | 18.35 |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 3165.00 | 575.68 | 0.00 | 575.97 | 98.98 | 17.86 | .07 | 16.36 |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 4100.00 | 576.16 | 0.00 | 576.59 | 101.84 | 25.65 | .05 | 17.18 |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 4410.00 | 576.33 | 0.00 | 576.81 | 102.00 | 27.95 | .05 | 17.50 |
| 845.00 | 1.00 | 581.40 | 578.40 | 565.00 | 5160.00 | 576.80 | 0.00 | 577.38 | 102.00 | 35.77 | .05 | 18.37 |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 3165.00 | 575.70 | 0.00 | 575.99 | 99.12 | 17.73 | .07 | 16.60 |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 4100.00 | 576.20 | 0.00 | 576.63 | 101.96 | 25.38 | .05 | 17.44 |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 4410.00 | 576.38 | 0.00 | 576.85 | 102.00 | 27.51 | .05 | 17.76 |
| 859.00 | 14.50 | 581.40 | 578.40 | 565.00 | 5160.00 | 576.86 | 0.00 | 577.43 | 103.00 | 37.02 | .05 | 18.65 |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 3165.00 | 575.77 | 0.00 | 576.01 | 106.54 | 5.22 | .07 | 16.62 |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 4100.00 | 576.29 | 0.00 | 576.65 | 109.00 | 7.21 | .05 | 17.46 |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 4410.00 | 576.48 | 0.00 | 576.88 | 109.00 | 7.73 | .05 | 17.78 |
| 860.00 | 1.00 | 0.00 | 0.00 | 565.00 | 5160.00 | 576.99 | 0.00 | 577.47 | 109.00 | 8.74 | .05 | 18.67 |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 3165.00 | 575.81 | 0.00 | 576.04 | 107.00 | 4.79 | .07 | 17.55 |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 4100.00 | 576.36 | 0.00 | 576.69 | 107.00 | 6.48 | .06 | 18.46 |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 4410.00 | 576.56 | 0.00 | 576.92 | 107.00 | 6.96 | .05 | 18.81 |
| 910.00 | 50.00 | 0.00 | 0.00 | 564.00 | 5160.00 | 577.07 | 0.00 | 577.52 | 107.00 | 7.95 | .05 | 19.76 |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 3165.00 | 575.79 | 0.00 | 576.07 | 105.00 | 21.37 | .07 | 17.57 |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 4100.00 | 576.32 | 0.00 | 576.73 | 105.00 | 28.62 | .06 | 18.48 |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 4410.00 | 576.52 | 0.00 | 576.96 | 105.00 | 30.62 | .05 | 18.83 |
| 911.00 | 1.00 | 583.00 | 578.60 | 564.00 | 5160.00 | 577.03 | 0.00 | 577.56 | 105.00 | 34.49 | .05 | 19.78 |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 3165.00 | 575.81 | 0.00 | 576.09 | 105.00 | 21.25 | .07 | 17.74 |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 4100.00 | 576.35 | 0.00 | 576.76 | 105.00 | 28.34 | .06 | 18.66 |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 4410.00 | 576.55 | 0.00 | 576.99 | 105.00 | 30.30 | .05 | 19.02 |
| 921.00 | 10.00 | 583.00 | 578.60 | 564.00 | 5160.00 | 577.07 | 0.00 | 577.60 | 105.00 | 34.11 | .05 | 19.98 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | CRIWS | EG | TOPWID | 10K*S | TIME | VOL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 3165.00 | 575.88 | 0.00 | 576.11 | 107.00 | 4.66 | .07 | 17.76 |
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 4100.00 | 576.46 | 0.00 | 576.78 | 107.00 | 6.26 | .06 | 18.68 |
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 4410.00 | 576.66 | 0.00 | 577.02 | 107.00 | 6.71 | .05 | 19.04 |
| 922.00 | 1.00 | 0.00 | 0.00 | 564.00 | 5160.00 | 577.20 | 0.00 | 577.63 | 107.00 | 7.61 | .05 | 20.00 |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 3165.00 | 575.84 | 0.00 | 576.18 | 81.00 | 6.97 | .07 | 18.30 |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 4100.00 | 576.39 | 0.00 | 576.89 | 81.00 | 9.62 | .06 | 19.26 |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 4410.00 | 576.59 | 0.00 | 577.14 | 81.00 | 10.40 | .06 | 19.63 |
| 953.00 | 31.00 | 0.00 | 0.00 | 565.10 | 5160.00 | 577.10 | 0.00 | 577.78 | 81.00 | 12.04 | .05 | 20.63 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 3165.00 | 575.76 | 0.00 | 576.27 | 67.20 | 35.26 | .07 | 18.31 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 4100.00 | 576.26 | 0.00 | 577.03 | 67.20 | 50.97 | .06 | 19.27 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 4410.00 | 576.44 | 0.00 | 577.29 | 67.20 | 56.00 | .06 | 19.64 |
| 954.00 | 1.00 | 580.80 | 577.70 | 565.10 | 5160.00 | 576.92 | 0.00 | 577.97 | 67.20 | 67.38 | .05 | 20.65 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 3165.00 | 575.88 | 0.00 | 576.38 | 67.20 | 33.95 | .07 | 18.70 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 4100.00 | 576.46 | 0.00 | 577.19 | 67.20 | 48.26 | .06 | 19.68 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 4410.00 | 576.66 | 0.00 | 577.47 | 67.20 | 52.74 | .06 | 20.06 |
| 985.00 | 30.50 | 580.80 | 577.70 | 565.10 | 5160.00 | 577.20 | 0.00 | 578.19 | 67.20 | 62.75 | .05 | 21.09 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 3165.00 | 576.12 | 0.00 | 576.44 | 81.00 | 6.31 | .07 | 18.71 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 4100.00 | 576.82 | 0.00 | 577.27 | 81.00 | 8.33 | .06 | 19.70 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 4410.00 | 577.07 | 0.00 | 577.57 | 81.00 | 8.89 | .06 | 20.08 |
| 986.00 | 1.00 | 0.00 | 0.00 | 565.10 | 5160.00 | 577.70 | 0.00 | 578.30 | 81.00 | 10.00 | .05 | 21.11 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 3165.00 | 576.20 | 0.00 | 576.48 | 114.00 | 7.01 | .08 | 19.55 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 4100.00 | 576.96 | 0.00 | 577.34 | 117.96 | 8.55 | .06 | 20.61 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 4410.00 | 577.24 | 0.00 | 577.64 | 119.39 | 8.87 | .06 | 21.02 |
| 1036.00 | 50.00 | 0.00 | 0.00 | 566.20 | 5160.00 | 577.94 | 0.00 | 578.40 | 122.80 | 9.24 | .05 | 22.13 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 3165.00 | 576.68 | 0.00 | 576.92 | 111.33 | 5.29 | .13 | 32.02 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 4100.00 | 577.55 | 0.00 | 577.87 | 443.28 | 6.28 | .11 | 35.00 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 4410.00 | 577.86 | 0.00 | 578.18 | 520.85 | 6.20 | .10 | 36.89 |
| 1736.00 | 700.00 | 0.00 | 0.00 | 565.40 | 5160.00 | 578.65 | 0.00 | 578.93 | 560.01 | 5.29 | .10 | 42.14 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 3165.00 | 577.03 | 0.00 | 577.26 | 101.28 | 4.35 | .18 | 45.15 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 4100.00 | 577.97 | 0.00 | 578.26 | 306.47 | 4.98 | .15 | 50.91 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 4410.00 | 578.27 | 0.00 | 578.57 | 342.12 | 5.02 | .15 | 54.81 |
| 2436.00 | 700.00 | 0.00 | 0.00 | 564.60 | 5160.00 | 578.99 | 0.00 | 579.30 | 367.49 | 4.87 | .15 | 65.56 |
| 3186.00 | 750.00 | 0.00 | 0.00 | 568.80 | 1120.00 | 577.49 | 0.00 | 577.55 | 160.65 | 1.72 | .28 | 57.33 |
| 3186.00 | 750.00 | 0.00 | 0.00 | 568.80 | 1620.00 | 578.52 | 0.00 | 578.60 | 246.47 | 1.98 | .24 | 66.56 |
| 3186.00 | 750.00 | 0.00 | 0.00 | 568.80 | 1760.00 | 578.83 | 0.00 | 578.92 | 275.40 | 1.95 | .24 | 72.01 |
| 3186.00 | 750.00 | 0.00 | 0.00 | 568.80 | 2055.00 | 579.55 | 0.00 | 579.63 | 291.91 | 1.73 | .24 | 86.75 |
| 3686.00 | 500.00 | 0.00 | 0.00 | 569.40 | 1120.00 | 577.58 | 0.00 | 577.66 | 125.85 | 2.30 | .34 | 63.65 |
| 3686.00 | 500.00 | 0.00 | 0.00 | 569.40 | 1620.00 | 578.62 | 0.00 | 578.73 | 200.38 | 2.66 | .30 | 75.04 |
| 3686.00 | 500.00 | 0.00 | 0.00 | 569.40 | 1760.00 | 578.93 | 0.00 | 579.04 | 229.09 | 2.61 | .29 | 81.33 |
| 3686.00 | 500.00 | 0.00 | 0.00 | 569.40 | 2055.00 | 579.64 | 0.00 | 579.74 | 290.98 | 2.35 | .30 | 98.33 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | CRIWS | EG | TOPWID | 10K*S | TIME | VOL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4186.00 | 500.00 | 0.00 | 0.00 | 570.00 | 1120.00 | 577.69 | 0.00 | 577.78 | 81.04 | 2.40 | .40 | 69.39 |
| 4186.00 | 500.00 | 0.00 | 0.00 | 570.00 | 1620.00 | 578.75 | 0.00 | 578.88 | 102.22 | 3.01 | .35 | 82.27 |
| 4186.00 | 500.00 | 0.00 | 0.00 | 570.00 | 1760.00 | 579.06 | 0.00 | 579.19 | 158.27 | 3.06 | .34 | 89.17 |
| 4186.00 | 500.00 | 0.00 | 0.00 | 570.00 | 2055.00 | 579.75 | 0.00 | 579.89 | 200.00 | 2.94 | .34 | 107.98 |
| 4236.00 | 50.00 | 0.00 | 0.00 | 568.10 | 1120.00 | 577.69 | 0.00 | 577.80 | 52.00 | 2.27 | .41 | 69.91 |
| 4236.00 | 50.00 | 0.00 | 0.00 | 568.10 | 1620.00 | 578.75 | 0.00 | 578.92 | 52.00 | 3.32 | .35 | 82.88 |
| 4236.00 | 50.00 | 0.00 | 0.00 | 568.10 | 1760.00 | 579.05 | 0.00 | 579.24 | 52.00 | 3.56 | .35 | 89.81 |
| 4236.00 | 50.00 | 0.00 | 0.00 | 568.10 | 2055.00 | 579.73 | 0.00 | 579.95 | 52.00 | 3.99 | .35 | 108.71 |
| 4281.00 | 45.00 | 580.00 | 577.40 | 568.10 | 1120.00 | 577.76 | 0.00 | 577.86 | 52.00 | 2.22 | .42 | 70.36 |
| 4281.00 | 45.00 | 580.00 | 577.40 | 568.10 | 1620.00 | 578.93 | 0.00 | 579.10 | 52.00 | 3.14 | .36 | 83.39 |
| 4281.00 | 45.00 | 580.00 | 577.40 | 568.10 | 1760.00 | 579.28 | 0.00 | 579.46 | 52.00 | 3.33 | .35 | 90.34 |
| 4281.00 | 45.00 | 580.00 | 577.40 | 568.10 | 2055.00 | 580.06 | 0.00 | 580.27 | 52.00 | 3.64 | .35 | 109.28 |
| 4931.00 | 650.00 | 0.00 | 0.00 | 570.30 | 1120.00 | 577.93 | 0.00 | 578.02 | 78.15 | 2.56 | .49 | 77.12 |
| 4931.00 | 650.00 | 0.00 | 0.00 | 570.30 | 1620.00 | 579.18 | 0.00 | 579.31 | 81.55 | 3.01 | .42 | 91.35 |
| 4931.00 | 650.00 | 0.00 | 0.00 | 570.30 | 1760.00 | 579.55 | 0.00 | 579.68 | 82.55 | 3.05 | .41 | 98.66 |
| 4931.00 | 650.00 | 0.00 | 0.00 | 570.30 | 2055.00 | 580.36 | 0.00 | 580.50 | 84.13 | 3.03 | .41 | 118.41 |
| 5956.00 | 1025.00 | 0.00 | 0.00 | 570.65 | 1120.00 | 578.20 | 0.00 | 578.29 | 77.93 | 2.67 | .61 | 88.10 |
| 5956.00 | 1025.00 | 0.00 | 0.00 | 570.65 | 1620.00 | 579.49 | 0.00 | 579.62 | 81.46 | 3.06 | .52 | 104.73 |
| 5956.00 | 1025.00 | 0.00 | 0.00 | 570.65 | 1760.00 | 579.86 | 0.00 | 580.00 | 82.47 | 3.09 | .51 | 112.74 |
| 5956.00 | 1025.00 | 0.00 | 0.00 | 570.65 | 2055.00 | 580.67 | 0.00 | 580.82 | 84.07 | 3.07 | .50 | 134.07 |
| 6981.00 | 1025.00 | 0.00 | 0.00 | 571.00 | 1120.00 | 578.48 | 0.00 | 578.57 | 81.27 | 2.83 | .73 | 98.99 |
| 6981.00 | 1025.00 | 0.00 | 0.00 | 571.00 | 1620.00 | 579.81 | 0.00 | 579.94 | 86.06 | 3.13 | .62 | 118.15 |
| 6981.00 | 1025.00 | 0.00 | 0.00 | 571.00 | 1760.00 | 580.19 | 0.00 | 580.32 | 87.40 | 3.14 | .61 | 126.91 |
| 6981.00 | 1025.00 | 0.00 | 0.00 | 571.00 | 2055.00 | 580.99 | 0.00 | 581.14 | 90.28 | 3.10 | .60 | 149.86 |
| 8031.00 | 1050.00 | 0.00 | 0.00 | 571.50 | 1120.00 | 578.77 | 0.00 | 578.85 | 87.41 | 2.50 | .85 | 110.49 |
| 8031.00 | 1050.00 | 0.00 | 0.00 | 571.50 | 1620.00 | 580.14 | 0.00 | 580.25 | 94.35 | 2.75 | .73 | 132.50 |
| 8031.00 | 1050.00 | 0.00 | 0.00 | 571.50 | 1760.00 | 580.52 | 0.00 | 580.63 | 95.44 | 2.75 | .71 | 142.08 |
| 8031.00 | 1050.00 | 0.00 | 0.00 | 571.50 | 2055.00 | 581.32 | 0.00 | 581.44 | 96.00 | 2.66 | .70 | 166.82 |
| 8082.00 | 51.00 | 0.00 | 0.00 | 569.90 | 1120.00 | 578.81 | 0.00 | 578.87 | 75.00 | 2.16 | .86 | 111.10 |
| 8082.00 | 51.00 | 0.00 | 0.00 | 569.90 | 1620.00 | 580.17 | 0.00 | 580.27 | 75.00 | 2.65 | .74 | 133.25 |
| 8082.00 | 51.00 | 0.00 | 0.00 | 569.90 | 1760.00 | 580.55 | 0.00 | 580.65 | 75.00 | 2.75 | .72 | 142.87 |
| 8082.00 | 51.00 | 0.00 | 0.00 | 569.90 | 2055.00 | 581.34 | 0.00 | 581.46 | 75.00 | 2.90 | .70 | 167.68 |
| 8147.00 | 65.00 | 580.90 | 578.40 | 569.90 | 1120.00 | 578.86 | 0.00 | 578.92 | 75.00 | 2.12 | .87 | 111.94 |
| 8147.00 | 65.00 | 580.90 | 578.40 | 569.90 | 1620.00 | 580.32 | 0.00 | 580.41 | 75.00 | 2.52 | .74 | 134.25 |
| 8147.00 | 65.00 | 580.90 | 578.40 | 569.90 | 1760.00 | 580.73 | 0.00 | 580.83 | 75.00 | 2.59 | .73 | 143.91 |
| 8147.00 | 65.00 | 580.90 | 578.40 | 569.90 | 2055.00 | 581.58 | 0.00 | 581.70 | 75.00 | 2.68 | .71 | 168.81 |
| 9397.00 | 1250.00 | 0.00 | 0.00 | 571.80 | 1120.00 | 579.16 | 0.00 | 579.26 | 80.35 | 3.19 | 1.01 | 126.37 |
| 9397.00 | 1250.00 | 0.00 | 0.00 | 571.80 | 1620.00 | 580.66 | 0.00 | 580.78 | 83.65 | 3.20 | .87 | 152.01 |
| 9397.00 | 1250.00 | 0.00 | 0.00 | 571.80 | 1760.00 | 581.07 | 0.00 | 581.20 | 84.18 | 3.15 | .84 | 162.60 |
| 9397.00 | 1250.00 | 0.00 | 0.00 | 571.80 | 2055.00 | 581.92 | 0.00 | 582.07 | 85.00 | 3.02 | .83 | 189.49 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | CRIWS | EG | TOPWID | 10K*S | TIME | VOL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10297.00 | 900.00 | 0.00 | 0.00 | 571.80 | 1120.00 | 579.43 | 0.00 | 579.53 | 71.72 | 2.80 | 1.11 | 135.55 |
| 10297.00 | 900.00 | 0.00 | 0.00 | 571.80 | 1620.00 | 580.93 | 0.00 | 581.07 | 75.23 | 3.03 | .95 | 163.60 |
| 10297.00 | 900.00 | 0.00 | 0.00 | 571.80 | 1760.00 | 581.34 | 0.00 | 581.48 | 76.19 | 3.05 | .93 | 174.88 |
| 10297.00 | 900.00 | 0.00 | 0.00 | 571.80 | 2055.00 | 582.19 | 0.00 | 582.35 | 77.98 | 3.05 | .90 | 203.20 |
| 10897.00 | 600.00 | 0.00 | 0.00 | 572.20 | 1120.00 | 579.61 | 0.00 | 579.72 | 71.59 | 3.36 | 1.17 | 141.50 |
| 10897.00 | 600.00 | 0.00 | 0.00 | 572.20 | 1620.00 | 581.12 | 0.00 | 581.27 | 73.00 | 3.47 | 1.01 | 171.07 |
| 10897.00 | 600.00 | 0.00 | 0.00 | 572.20 | 1760.00 | 581.53 | 0.00 | 581.68 | 73.00 | 3.45 | .98 | 182.76 |
| 10897.00 | 600.00 | 0.00 | 0.00 | 572.20 | 2055.00 | 582.38 | 0.00 | 582.55 | 73.00 | 3.42 | .96 | 211.96 |
| 10973.00 | 76.00 | 0.00 | 0.00 | 571.70 | 1120.00 | 579.62 | 0.00 | 579.78 | 52.00 | 6.33 | 1.18 | 142.18 |
| 10973.00 | 76.00 | 0.00 | 0.00 | 571.70 | 1620.00 | 581.12 | 0.00 | 581.34 | 52.00 | 7.20 | 1.01 | 171.90 |
| 10973.00 | 76.00 | 0.00 | 0.00 | 571.70 | 1760.00 | 581.53 | 0.00 | 581.76 | 52.00 | 7.34 | .99 | 183.64 |
| 10973.00 | 76.00 | 0.00 | 0.00 | 571.70 | 2055.00 | 582.37 | 0.00 | 582.63 | 52.00 | 7.57 | .96 | 212.93 |
| 11017.00 | 44.00 | 581.70 | 579.00 | 571.70 | 1120.00 | 579.76 | 0.00 | 579.91 | 52.00 | 5.96 | 1.18 | 142.54 |
| 11017.00 | 44.00 | 581.70 | 579.00 | 571.70 | 1620.00 | 581.51 | 0.00 | 581.71 | 52.00 | 6.25 | 1.01 | 172.35 |
| 11017.00 | 44.00 | 581.70 | 579.00 | 571.70 | 1760.00 | 581.98 | 0.00 | 582.19 | 52.00 | 6.29 | .99 | 184.11 |
| 11017.00 | 44.00 | 581.70 | 579.00 | 571.70 | 2055.00 | 582.89 | 0.00 | 583.13 | 52.00 | 6.43 | .96 | 213.45 |
| 11477.00 | 460.00 | 0.00 | 0.00 | 571.80 | 1120.00 | 580.01 | 0.00 | 580.12 | 73.47 | 3.12 | 1.23 | 146.73 |
| 11477.00 | 460.00 | 0.00 | 0.00 | 571.80 | 1620.00 | 581.80 | 0.00 | 581.92 | 85.22 | 2.91 | 1.06 | 177.75 |
| 11477.00 | 460.00 | 0.00 | 0.00 | 571.80 | 1760.00 | 582.27 | 0.00 | 582.40 | 93.65 | 2.81 | 1.03 | 189.87 |
| 11477.00 | 460.00 | 0.00 | 0.00 | 571.80 | 2055.00 | 583.20 | 0.00 | 583.34 | 100.00 | 2.63 | 1.01 | 219.94 |
| 11528.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1120.00 | 580.01 | 0.00 | 580.16 | 50.50 | 5.60 | 1.23 | 147.20 |
| 11528.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1620.00 | 581.79 | 0.00 | 581.98 | 52.50 | 6.21 | 1.06 | 178.36 |
| 11528.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1760.00 | 582.26 | 0.00 | 582.46 | 52.50 | 6.25 | 1.04 | 190.51 |
| 11528.00 | 51.00 | 0.00 | 0.00 | 572.10 | 2055.00 | 583.18 | 0.00 | 583.41 | 52.50 | 6.38 | 1.01 | 220.67 |
| 11599.00 | 71.00 | 582.80 | 580.70 | 572.10 | 1120.00 | 580.02 | 0.00 | 580.17 | 50.50 | 5.57 | 1.24 | 147.80 |
| 11599.00 | 71.00 | 582.80 | 580.70 | 572.10 | 1620.00 | 582.01 | 0.00 | 582.20 | 52.50 | 5.74 | 1.07 | 179.12 |
| 11599.00 | 71.00 | 582.80 | 580.70 | 572.10 | 1760.00 | 582.55 | 0.00 | 582.74 | 52.50 | 5.68 | 1.04 | 191.32 |
| 11599.00 | 71.00 | 582.80 | 580.70 | 572.10 | 2055.00 | 583.55 | 0.00 | 583.76 | 52.50 | 5.73 | 1.02 | 221.56 |
| 11650.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1120.00 | 580.07 | 0.00 | 580.20 | 53.84 | 4.93 | 1.25 | 148.24 |
| 11650.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1620.00 | 582.06 | 0.00 | 582.23 | 56.00 | 5.00 | 1.07 | 179.68 |
| 11650.00 | 51.00 | 0.00 | 0.00 | 572.10 | 1760.00 | 582.60 | 0.00 | 582.77 | 56.00 | 4.92 | 1.05 | 191.92 |
| 11650.00 | 51.00 | 0.00 | 0.00 | 572.10 | 2055.00 | 583.60 | 0.00 | 583.79 | 56.00 | 4.91 | 1.02 | 222.22 |
| 11721.00 | 71.00 | 583.20 | 580.70 | 572.10 | 1120.00 | 580.08 | 0.00 | 580.21 | 53.84 | 4.90 | 1.25 | 148.87 |
| 11721.00 | 71.00 | 583.20 | 580.70 | 572.10 | 1620.00 | 582.31 | 0.00 | 582.47 | 56.00 | 4.57 | 1.08 | 180.50 |
| 11721.00 | 71.00 | 583.20 | 580.70 | 572.10 | 1760.00 | 582.92 | 0.00 | 583.08 | 56.00 | 4.43 | 1.05 | 192.79 |
| 11721.00 | 71.00 | 583.20 | 580.70 | 572.10 | 2055.00 | 584.00 | 0.00 | 584.18 | 56.00 | 4.39 | 1.03 | 223.19 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 1.000 | 3165.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 4100.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 4410.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 1.000 | 5160.000 | 574.900 | 0.000 | 0.000 | 0.000 | 89.833 | 0.000 | -0.000 |
| 30.000 | 3165.000 | 574.922 | 0.000 | .022 | 0.000 | 89.999 | 0.000 | 29.000 |
| 30.000 | 4100.000 | 574.939 | .017 | .039 | 0.000 | 90.111 | -.112 | 29.000 |
| 30.000 | 4410.000 | 574.946 | .007 | .046 | 0.000 | 90.154 | -.156 | 29.000 |
| 30.000 | 5160.000 | 574.969 | .023 | .069 | 0.000 | 90.332 | -.333 | 29.000 |
| 60.000 | 3165.000 | 574.944 | 0.000 | .022 | 0.000 | 90.169 | 0.000 | 30.000 |
| 60.000 | 4100.000 | 574.980 | .035 | .041 | 0.000 | 90.443 | -.274 | 30.000 |
| 60.000 | 4410.000 | 574.995 | .015 | .049 | 0.000 | 90.547 | -.378 | 30.000 |
| 60.000 | 5160.000 | 575.045 | .050 | .076 | 0.000 | 91.040 | -.871 | 30.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 61.000 | 3165.000 | 574.914 | 0.000 | -.030 | 0.000 | 82.952 | 0.000 | 1.000 |
| 61.000 | 4100.000 | 574.928 | .014 | -.052 | 0.000 | 83.068 | -.117 | 1.000 |
| 61.000 | 4410.000 | 574.935 | .006 | -.060 | 0.000 | 83.122 | -.170 | 1.000 |
| 61.000 | 5160.000 | 574.960 | .025 | -.085 | 0.000 | 83.331 | -.379 | 1.000 |
| 136.000 | 3165.000 | 575.018 | 0.000 | .104 | 0.000 | 83.815 | 0.000 | 75.000 |
| 136.000 | 4100.000 | 575.117 | .099 | .188 | 0.000 | 84.639 | -.824 | 75.000 |
| 136.000 | 4410.000 | 575.160 | .043 | .225 | 0.000 | 84.999 | -1.183 | 75.000 |
| 136.000 | 5160.000 | 575.296 | .136 | .336 | 0.000 | 86.136 | -2.320 | 75.000 |
| 137.000 | 3165.000 | 575.103 | 0.000 | .085 | 0.000 | 91.525 | 0.000 | 1.000 |
| 137.000 | 4100.000 | 575.266 | .163 | .149 | 0.000 | 92.887 | -1.361 | 1.000 |
| 137.000 | 4410.000 | 575.335 | .069 | .176 | 0.000 | 93.466 | -1.940 | 1.000 |
| 137.000 | 5160.000 | 575.545 | .209 | .249 | 0.000 | 94.192 | -2.667 | 1.000 |
| 187.000 | 3165.000 | 575.116 | 0.000 | .013 | 0.000 | 89.164 | 0.000 | 50.000 |
| 187.000 | 4100.000 | 575.288 | .172 | .022 | 0.000 | 90.884 | -1.720 | 50.000 |
| 187.000 | 4410.000 | 575.361 | .073 | .026 | 0.000 | 91.611 | -2.446 | 50.000 |
| 187.000 | 5160.000 | 575.577 | .216 | .033 | 0.000 | 92.526 | -3.362 | 50.000 |
| 362.000 | 3165.000 | 575.425 | 0.000 | .308 | 0.000 | 143.706 | 0.000 | 175.000 |
| 362.000 | 4100.000 | 575.796 | .372 | .508 | 0.000 | 145.523 | -1.816 | 175.000 |
| 362.000 | 4410.000 | 575.943 | .146 | .582 | 0.000 | 146.238 | -2.532 | 175.000 |
| 362.000 | 5160.000 | 576.343 | .400 | .766 | 0.000 | 148.198 | -4.492 | 175.000 |
| 737.000 | 3165.000 | 575.616 | 0.000 | .191 | 0.000 | 145.954 | 0.000 | 375.000 |
| 737.000 | 4100.000 | 576.071 | .456 | .275 | 0.000 | 148.176 | -2.222 | 375.000 |
| 737.000 | 4410.000 | 576.243 | .171 | .300 | 0.000 | 149.010 | -3.057 | 375.000 |
| 737.000 | 5160.000 | 576.694 | .451 | .351 | 0.000 | 151.210 | -5.257 | 375.000 |
| 787.000 | 3165.000 | 575.592 | 0.000 | -.024 | 0.000 | 106.600 | 0.000 | 50.000 |
| 787.000 | 4100.000 | 576.031 | .440 | -.040 | 0.000 | 106.600 | 0.000 | 50.000 |
| 787.000 | 4410.000 | 576.196 | .165 | -.046 | 0.000 | 106.600 | 0.000 | 50.000 |
| 787.000 | 5160.000 | 576.632 | .435 | -.062 | 0.000 | 106.600 | 0.000 | 50.000 |
| 788.000 | 3165.000 | 575.563 | 0.000 | -.029 | 0.000 | 104.000 | 0.000 | 1.000 |
| 788.000 | 4100.000 | 575.990 | .427 | -.042 | 0.000 | 104.000 | 0.000 | 1.000 |
| 788.000 | 4410.000 | 576.151 | .161 | -.046 | 0.000 | 104.000 | 0.000 | 1.000 |
| 788.000 | 5160.000 | 576.577 | .426 | -.055 | 0.000 | 104.000 | 0.000 | 1.000 |
| 797.000 | 3165.000 | 575.586 | 0.000 | .023 | 0.000 | 104.000 | 0.000 | 9.000 |
| 797.000 | 4100.000 | 576.023 | .437 | .034 | 0.000 | 104.000 | 0.000 | 9.000 |
| 797.000 | 4410.000 | 576.188 | .164 | .037 | 0.000 | 104.000 | 0.000 | 9.000 |
| 797.000 | 5160.000 | 576.623 | .436 | .046 | 0.000 | 104.000 | 0.000 | 9.000 |
| 798.000 | 3165.000 | 575.670 | 0.000 | .084 | 0.000 | 106.600 | 0.000 | 1.000 |
| 798.000 | 4100.000 | 576.147 | .477 | .124 | 0.000 | 106.600 | 0.000 | 1.000 |
| 798.000 | 4410.000 | 576.324 | .177 | .137 | 0.000 | 106.600 | 0.000 | 1.000 |
| 798.000 | 5160.000 | 576.786 | .462 | .163 | 0.000 | 106.600 | 0.000 | 1.000 |
| 844.000 | 3165.000 | 575.698 | 0.000 | .028 | 0.000 | 106.114 | 0.000 | 46.000 |
| 844.000 | 4100.000 | 576.188 | .490 | .041 | 0.000 | 108.956 | -2.842 | 46.000 |
| 844.000 | 4410.000 | 576.369 | .181 | .045 | 0.000 | 109.000 | -2.886 | 46.000 |
| 844.000 | 5160.000 | 576.840 | .471 | .054 | 0.000 | 109.000 | -2.886 | 46.000 |
| 845.000 | 3165.000 | 575.677 | 0.000 | -.021 | 0.000 | 98.982 | 0.000 | 1.000 |
| 845.000 | 4100.000 | 576.157 | .480 | -.031 | 0.000 | 101.842 | -2.860 | 1.000 |
| 845.000 | 4410.000 | 576.335 | .178 | -.035 | 0.000 | 102.000 | -3.018 | 1.000 |
| 845.000 | 5160.000 | 576.797 | .462 | -.044 | 0.000 | 102.000 | -3.018 | 1.000 |
| 859.000 | 3165.000 | 575.705 | 0.000 | .028 | 0.000 | 99.122 | 0.000 | 14.500 |
| 859.000 | 4100.000 | 576.198 | .494 | .042 | 0.000 | 101.960 | -2.838 | 14.500 |
| 859.000 | 4410.000 | 576.382 | .184 | .048 | 0.000 | 102.000 | -2.878 | 14.500 |
| 859.000 | 5160.000 | 576.859 | .477 | .062 | 0.000 | 103.000 | -3.878 | 14.500 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 860.000 | 4100.000 | 576.292 | .526 | .094 | 0.000 | 109.000 | -2.457 | 1.000 |
| 860.000 | 4410.000 | 576.485 | .193 | .102 | 0.000 | 109.000 | -2.457 | 1.000 |
| 860.000 | 5160.000 | 576.991 | .507 | .133 | 0.000 | 109.000 | -2.457 | 1.000 |
| 910.000 | 3165.000 | 575.813 | 0.000 | .047 | 0.000 | 107.000 | 0.000 | 50.000 |
| 910.000 | 4100.000 | 576.357 | .545 | .065 | 0.000 | 107.000 | 0.000 | 50.000 |
| 910.000 | 4410.000 | 576.555 | .198 | .071 | 0.000 | 107.000 | 0.000 | 50.000 |
| 910.000 | 5160.000 | 577.071 | .515 | .079 | 0.000 | 107.000 | 0.000 | 50.000 |
| 911.000 | 3165.000 | 575.787 | 0.000 | -.025 | 0.000 | 105.000 | 0.000 | 1.000 |
| 911.000 | 4100.000 | 576.322 | .535 | -.036 | 0.000 | 105.000 | 0.000 | 1.000 |
| 911.000 | 4410.000 | 576.517 | .195 | -.039 | 0.000 | 105.000 | 0.000 | 1.000 |
| 911.000 | 5160.000 | 577.026 | .510 | -.044 | 0.000 | 105.000 | 0.000 | 1.000 |
| 921.000 | 3165.000 | 575.810 | 0.000 | .023 | 0.000 | 105.000 | 0.000 | 10.000 |
| 921.000 | 4100.000 | 576.354 | .544 | .032 | 0.000 | 105.000 | 0.000 | 10.000 |
| 921.000 | 4410.000 | 576.551 | .197 | .034 | 0.000 | 105.000 | 0.000 | 10.000 |
| 921.000 | 5160.000 | 577.065 | .515 | .039 | 0.000 | 105.000 | 0.000 | 10.000 |
| 922.000 | 3165.000 | 575.882 | 0.000 | .073 | 0.000 | 107.000 | 0.000 | 1.000 |
| 922.000 | 4100.000 | 576.456 | .574 | .103 | 0.000 | 107.000 | 0.000 | 1.000 |
| 922.000 | 4410.000 | 576.663 | .207 | .112 | 0.000 | 107.000 | 0.000 | 1.000 |
| 922.000 | 5160.000 | 577.197 | .534 | .132 | 0.000 | 107.000 | 0.000 | 1.000 |
| 953.000 | 3165.000 | 575.842 | 0.000 | -.040 | 0.000 | 81.000 | 0.000 | 31.000 |
| 953.000 | 4100.000 | 576.392 | .550 | -.064 | 0.000 | 81.000 | 0.000 | 31.000 |
| 953.000 | 4410.000 | 576.590 | .198 | -.073 | 0.000 | 81.000 | 0.000 | 31.000 |
| 953.000 | 5160.000 | 577.104 | .513 | -.094 | 0.000 | 81.000 | 0.000 | 31.000 |
| 954.000 | 3165.000 | 575.755 | 0.000 | -.087 | 0.000 | 67.200 | 0.000 | 1.000 |
| 954.000 | 4100.000 | 576.261 | .506 | -.131 | 0.000 | 67.200 | 0.000 | 1.000 |
| 954.000 | 4410.000 | 576.444 | .183 | -.146 | 0.000 | 67.200 | 0.000 | 1.000 |
| 954.000 | 5160.000 | 576.922 | .478 | -.182 | 0.000 | 67.200 | 0.000 | 1.000 |
| 985.000 | 3165.000 | 575.881 | 0.000 | .126 | 0.000 | 67.200 | 0.000 | 30.500 |
| 985.000 | 4100.000 | 576.456 | .575 | .194 | 0.000 | 67.200 | 0.000 | 30.500 |
| 985.000 | 4410.000 | 576.663 | .207 | .218 | 0.000 | 67.200 | 0.000 | 30.500 |
| 985.000 | 5160.000 | 577.197 | .535 | .275 | 0.000 | 67.200 | 0.000 | 30.500 |
| 986.000 | 3165.000 | 576.119 | 0.000 | .238 | 0.000 | 81.000 | 0.000 | 1.000 |
| 986.000 | 4100.000 | 576.817 | .699 | .362 | 0.000 | 81.000 | 0.000 | 1.000 |
| 986.000 | 4410.000 | 577.066 | .249 | .404 | 0.000 | 81.000 | 0.000 | 1.000 |
| 986.000 | 5160.000 | 577.701 | .635 | .504 | 0.000 | 81.000 | 0.000 | 1.000 |
| 1036.000 | 3165.000 | 576.202 | 0.000 | .083 | 0.000 | 114.004 | 0.000 | 50.000 |
| 1036.000 | 4100.000 | 576.964 | .762 | .146 | 0.000 | 117.965 | -3.961 | 50.000 |
| 1036.000 | 4410.000 | 577.237 | .273 | .171 | 0.000 | 119.388 | -5.384 | 50.000 |
| 1036.000 | 5160.000 | 577.939 | .702 | .237 | 0.000 | 122.798 | -8.794 | 50.000 |
| 1736.000 | 3165.000 | 576.677 | 0.000 | .475 | 0.000 | 111.327 | 0.000 | 700.000 |
| 1736.000 | 4100.000 | 577.553 | .876 | .589 | 0.000 | 443.285 | -331.958 | 700.000 |
| 1736.000 | 4410.000 | 577.863 | .310 | .626 | 0.000 | 520.849 | -409.522 | 700.000 |
| 1736.000 | 5160.000 | 578.652 | .789 | .713 | 0.000 | 560.015 | -448.688 | 700.000 |
| 2436.000 | 3165.000 | 577.029 | 0.000 | .351 | 0.000 | 101.283 | 0.000 | 700.000 |
| 2436.000 | 4100.000 | 577.971 | .943 | .418 | 0.000 | 306.469 | -205.186 | 700.000 |
| 2436.000 | 4410.000 | 578.270 | .299 | .407 | 0.000 | 342.121 | -240.838 | 700.000 |
| 2436.000 | 5160.000 | 578.990 | .720 | .338 | 0.000 | 367.491 | -266.208 | 700.000 |
| 3186.000 | 1120.000 | 577.487 | 0.000 | .459 | 0.000 | 160.647 | 0.000 | 750.000 |
| 3186.000 | 1620.000 | 578.521 | 1.033 | .549 | 0.000 | 246.467 | -85.820 | 750.000 |
| 3186.000 | 1760.000 | 578.833 | .312 | .563 | 0.000 | 275.404 | -114.756 | 750.000 |
| 3186.000 | 2055.000 | 579.552 | .719 | .562 | 0.000 | 291.912 | -131.264 | 750.000 |
| 3686.000 | 1120.000 | 577.579 | 0.000 | .092 | 0.000 | 125.851 | 0.000 | 500.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3686.000 | 1760.000 | 578.933 | .310 | .101 | 0.000 | 229.086 | -103.235 | 500.000 |
| 3686.000 | 2055.000 | 579.640 | .707 | .088 | 0.000 | 290.981 | -165.129 | 500.000 |
| 4186.000 | 1120.000 | 577.694 | 0.000 | .114 | 0.000 | 81.036 | 0.000 | 500.000 |
| 4186.000 | 1620.000 | 578.755 | 1.061 | .131 | 0.000 | 102.218 | -21.182 | 500.000 |
| 4186.000 | 1760.000 | 579.061 | .306 | .128 | 0.000 | 158.272 | -77.236 | 500.000 |
| 4186.000 | 2055.000 | 579.751 | .690 | .111 | 0.000 | 199.999 | -118.963 | 500.000 |
| 4236.000 | 1120.000 | 577.695 | 0.000 | .001 | 0.000 | 51.999 | 0.000 | 50.000 |
| 4236.000 | 1620.000 | 578.747 | 1.053 | -.008 | 0.000 | 51.999 | -.000 | 50.000 |
| 4236.000 | 1760.000 | 579.049 | .302 | -.012 | 0.000 | 51.999 | -.000 | 50.000 |
| 4236.000 | 2055.000 | 579.725 | .676 | -.025 | 0.000 | 51.999 | -.000 | 50.000 |
| 4281.000 | 1120.000 | 577.759 | 0.000 | .064 | 0.000 | 51.999 | 0.000 | 45.000 |
| 4281.000 | 1620.000 | 578.931 | 1.172 | .184 | 0.000 | 51.999 | -.000 | 45.000 |
| 4281.000 | 1760.000 | 579.280 | .349 | .231 | 0.000 | 51.999 | -.000 | 45.000 |
| 4281.000 | 2055.000 | 580.058 | .778 | .332 | 0.000 | 51.999 | -.000 | 45.000 |
| 4931.000 | 1120.000 | 577.932 | 0.000 | .173 | 0.000 | 78.154 | 0.000 | 650.000 |
| 4931.000 | 1620.000 | 579.182 | 1.250 | .251 | 0.000 | 81.552 | -3.398 | 650.000 |
| 4931.000 | 1760.000 | 579.549 | .367 | .269 | 0.000 | 82.548 | -4.395 | 650.000 |
| 4931.000 | 2055.000 | 580.358 | .809 | .300 | 0.000 | 84.127 | -5.973 | 650.000 |
| 5956.000 | 1120.000 | 578.198 | 0.000 | .266 | 0.000 | 77.927 | 0.000 | 1025.000 |
| 5956.000 | 1620.000 | 579.493 | 1.294 | .310 | 0.000 | 81.457 | -3.531 | 1025.000 |
| 5956.000 | 1760.000 | 579.863 | .370 | .314 | 0.000 | 82.468 | -4.542 | 1025.000 |
| 5956.000 | 2055.000 | 580.669 | .806 | .312 | 0.000 | 84.066 | -6.139 | 1025.000 |
| 6981.000 | 1120.000 | 578.480 | 0.000 | .281 | 0.000 | 81.273 | 0.000 | 1025.000 |
| 6981.000 | 1620.000 | 579.813 | 1.334 | .321 | 0.000 | 86.057 | -4.784 | 1025.000 |
| 6981.000 | 1760.000 | 580.187 | .374 | .325 | 0.000 | 87.402 | -6.130 | 1025.000 |
| 6981.000 | 2055.000 | 580.993 | .806 | .324 | 0.000 | 90.282 | -9.009 | 1025.000 |
| 8031.000 | 1120.000 | 578.773 | 0.000 | .293 | 0.000 | 87.408 | 0.000 | 1050.000 |
| 8031.000 | 1620.000 | 580.143 | 1.370 | .330 | 0.000 | 94.346 | -6.938 | 1050.000 |
| 8031.000 | 1760.000 | 580.519 | .376 | .332 | 0.000 | 95.443 | -8.035 | 1050.000 |
| 8031.000 | 2055.000 | 581.320 | .800 | .326 | 0.000 | 95.999 | -8.591 | 1050.000 |
| 8082.000 | 1120.000 | 578.808 | 0.000 | .035 | 0.000 | 74.999 | 0.000 | 51.000 |
| 8082.000 | 1620.000 | 580.174 | 1.366 | .031 | 0.000 | 74.999 | -.000 | 51.000 |
| 8082.000 | 1760.000 | 580.548 | .374 | .029 | 0.000 | 74.999 | -.000 | 51.000 |
| 8082.000 | 2055.000 | 581.341 | .793 | .021 | 0.000 | 74.999 | -.000 | 51.000 |
| 8147.000 | 1120.000 | 578.859 | 0.000 | .051 | 0.000 | 74.999 | 0.000 | 65.000 |
| 8147.000 | 1620.000 | 580.320 | 1.461 | .145 | 0.000 | 74.999 | -.000 | 65.000 |
| 8147.000 | 1760.000 | 580.729 | .409 | .181 | 0.000 | 74.999 | -.000 | 65.000 |
| 8147.000 | 2055.000 | 581.585 | .856 | .244 | 0.000 | 74.999 | -.000 | 65.000 |
| 9397.000 | 1120.000 | 579.162 | 0.000 | .303 | 0.000 | 80.354 | 0.000 | 1250.000 |
| 9397.000 | 1620.000 | 580.655 | 1.494 | .336 | 0.000 | 83.648 | -3.294 | 1250.000 |
| 9397.000 | 1760.000 | 581.067 | .412 | .339 | 0.000 | 84.179 | -3.825 | 1250.000 |
| 9397.000 | 2055.000 | 581.924 | .857 | .339 | 0.000 | 84.999 | -4.645 | 1250.000 |
| 10297.000 | 1120.000 | 579.431 | 0.000 | .269 | 0.000 | 71.716 | 0.000 | 900.000 |
| 10297.000 | 1620.000 | 580.933 | 1.502 | .278 | 0.000 | 75.234 | -3.519 | 900.000 |
| 10297.000 | 1760.000 | 581.343 | .410 | .276 | 0.000 | 76.193 | -4.478 | 900.000 |
| 10297.000 | 2055.000 | 582.191 | .849 | .267 | 0.000 | 77.982 | -6.266 | 900.000 |
| 10897.000 | 1120.000 | 579.609 | 0.000 | .178 | 0.000 | 71.589 | 0.000 | 600.000 |
| 10897.000 | 1620.000 | 581.121 | 1.512 | .188 | 0.000 | 72.999 | -1.410 | 600.000 |
| 10897.000 | 1760.000 | 581.530 | .409 | .188 | 0.000 | 72.999 | -1.410 | 600.000 |
| 10897.000 | 2055.000 | 582.377 | .847 | .186 | 0.000 | 72.999 | -1.410 | 600.000 |
| 10973.000 | 1120.000 | 579.621 | 0.000 | .012 | 0.000 | 51.999 | 0.000 | 76.000 |
| 10973.000 | 1620.000 | 581.121 | 1.501 | .001 | 0.000 | 51.999 | -.000 | 76.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10973.000 | 2055.000 | 582.367 | .840 | -.010 | 0.000 | 51.999 | -.000 | 76.000 |
| 11017.000 | 1120.000 | 579.761 | 0.000 | .140 | 0.000 | 51.999 | 0.000 | 44.000 |
| 11017.000 | 1620.000 | 581.514 | 1.753 | .393 | 0.000 | 51.999 | -.000 | 44.000 |
| 11017.000 | 1760.000 | 581.983 | .469 | .455 | 0.000 | 52.000 | -.000 | 44.000 |
| 11017.000 | 2055.000 | 582.895 | .912 | .528 | 0.000 | 52.000 | -.000 | 44.000 |
| 11477.000 | 1120.000 | 580.012 | 0.000 | .251 | 0.000 | 73.467 | 0.000 | 460.000 |
| 11477.000 | 1620.000 | 581.797 | 1.785 | .283 | 0.000 | 85.222 | -11.755 | 460.000 |
| 11477.000 | 1760.000 | 582.273 | .476 | .290 | 0.000 | 93.646 | -20.179 | 460.000 |
| 11477.000 | 2055.000 | 583.204 | .931 | .309 | 0.000 | 99.999 | -26.532 | 460.000 |
| 11528.000 | 1120.000 | 580.013 | 0.000 | .001 | 0.000 | 50.499 | 0.000 | 51.000 |
| 11528.000 | 1620.000 | 581.785 | 1.772 | -.012 | 0.000 | 52.499 | -2.000 | 51.000 |
| 11528.000 | 1760.000 | 582.257 | .472 | -.016 | 0.000 | 52.499 | -2.000 | 51.000 |
| 11528.000 | 2055.000 | 583.178 | .921 | -.026 | 0.000 | 52.499 | -2.000 | 51.000 |
| 11599.000 | 1120.000 | 580.025 | 0.000 | .011 | 0.000 | 50.499 | 0.000 | 71.000 |
| 11599.000 | 1620.000 | 582.013 | 1.988 | .228 | 0.000 | 52.499 | -2.000 | 71.000 |
| 11599.000 | 1760.000 | 582.549 | .536 | .292 | 0.000 | 52.499 | -2.000 | 71.000 |
| 11599.000 | 2055.000 | 583.546 | .997 | .368 | 0.000 | 52.499 | -2.000 | 71.000 |
| 11650.000 | 1120.000 | 580.066 | 0.000 | .041 | 0.000 | 53.836 | 0.000 | 51.000 |
| 11650.000 | 1620.000 | 582.061 | 1.995 | .048 | 0.000 | 55.999 | -2.163 | 51.000 |
| 11650.000 | 1760.000 | 582.598 | .537 | .049 | 0.000 | 55.999 | -2.163 | 51.000 |
| 11650.000 | 2055.000 | 583.600 | 1.002 | .054 | 0.000 | 55.999 | -2.163 | 51.000 |
| 11721.000 | 1120.000 | 580.075 | 0.000 | .010 | 0.000 | 53.842 | 0.000 | 71.000 |
| 11721.000 | 1620.000 | 582.314 | 2.239 | .253 | 0.000 | 55.999 | -2.157 | 71.000 |
| 11721.000 | 1760.000 | 582.919 | .605 | .321 | 0.000 | 55.999 | -2.157 | 71.000 |
| 11721.000 | 2055.000 | 583.996 | 1.077 | .397 | 0.000 | 55.999 | -2.157 | 71.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 0.000 | 56.000 | 24.359 | 0.000 |
| 2 | 0.000 | 56.000 | 35.978 | 11.619 |
| 3 | 0.000 | 56.000 | 39.108 | 14.749 |
| 4 | 0.000 | 56.000 | 41.659 | 17.300 |

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**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
**********************************************
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C
1       CITY OF WYANDOTTE FIS 5555-73
T2       SEXTON-KILFOIL DRAIN
T3      10 YEAR FLOOD 3165 CFS
```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -0. | 2. | -0. | -0. | -0.000000 | -0.00 | -0.0 | -0. | 574.900 | -0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | -10.000 | -0.000 | -1.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | .035 | .035 | .032 | .300 | .500 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| QT | 4.000 | 3165.000 | 4100.000 | 4410.000 | 5160.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 1.000 | 41.000 | 500.000 | 619.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 576.200 | 0.000 | 575.900 | 100.000 | 576.600 | 200.000 | 578.500 | 300.000 | 581.100 | 400.000 |
| GR | 584.600 | 500.000 | 582.800 | 500.000 | 582.600 | 505.000 | 581.900 | 510.000 | 581.100 | 515.000 |
| GR | 579.200 | 520.000 | 575.400 | 525.000 | 574.800 | 530.000 | 572.800 | 535.000 | 569.200 | 540.000 |
| GR | 569.200 | 540.000 | 565.500 | 543.500 | 565.500 | 543.500 | 565.500 | 545.000 | 563.900 | 555.000 |
| GR | 566.100 | 560.000 | 565.300 | 565.000 | 565.400 | 570.000 | 564.100 | 575.000 | 566.200 | 580.000 |
| GR | 566.200 | 580.000 | 565.300 | 583.500 | 565.300 | 583.500 | 565.300 | 585.000 | 563.400 | 590.000 |
| GR | 564.400 | 595.000 | 565.400 | 600.000 | 567.700 | 605.000 | 571.100 | 610.000 | 573.500 | 615.000 |
| GR | 574.000 | 619.000 | 584.600 | 619.000 | 582.300 | 700.000 | 579.600 | 800.000 | 579.000 | 890.000 |
| GR | 578.700 | 1000.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 30.000 | -0.000 | -0.000 | -0.000 | 29.000 | 29.000 | 29.000 | -0.000 | -0.000 | -0.000 |
| X1 | 60.000 | 41.000 | 500.000 | 619.000 | 30.000 | 30.000 | 30.000 | -0.000 | -0.000 | -0.000 |
| GR | 576.200 | 0.000 | 575.900 | 100.000 | 576.600 | 200.000 | 578.500 | 300.000 | 581.100 | 400.000 |
| GR | 584.600 | 500.000 | 582.800 | 500.000 | 582.600 | 505.000 | 581.900 | 510.000 | 581.100 | 515.000 |
| GR | 579.200 | 520.000 | 575.400 | 525.000 | 574.800 | 530.000 | 572.800 | 535.000 | 569.200 | 540.000 |
| GR | 569.200 | 540.000 | 565.500 | 543.500 | 565.500 | 543.500 | 565.500 | 545.000 | 563.900 | 555.000 |
| GR | 566.100 | 560.000 | 565.300 | 565.000 | 565.400 | 570.000 | 564.100 | 575.000 | 566.200 | 580.000 |
| GR | 566.200 | 580.000 | 565.300 | 583.500 | 565.300 | 583.500 | 565.300 | 585.000 | 563.400 | 590.000 |
| GR | 564.400 | 595.000 | 565.400 | 600.000 | 567.700 | 605.000 | 571.100 | 610.000 | 573.500 | 615.000 |
| GR | 574.000 | 619.000 | 584.600 | 619.000 | 582.300 | 700.000 | 579.600 | 800.000 | 579.000 | 890.000 |
| GR | 578.700 | 1000.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 61.000 | 41.000 | 500.000 | 619.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| BT | 9.000 | 500.000 | 584.300 | 579.800 | 500.000 | 587.700 | 579.800 | 540.000 | 588.100 | 580.300 |
| BT | 543.500 | 588.100 | 580.300 | 560.000 | 588.300 | 580.300 | 580.000 | 588.100 | 580.300 | 583.500 |
| BT | 588.100 | 580.300 | 619.000 | 587.700 | 579.700 | 619.000 | 584.400 | 579.700 | -0.000 | -0.000 |
| GR | 576.200 | 0.000 | 575.900 | 100.000 | 576.600 | 200.000 | 578.500 | 300.000 | 581.100 | 400.000 |
| GR | 584.600 | 500.000 | 582.800 | 500.000 | 582.600 | 505.000 | 581.900 | 510.000 | 581.100 | 515.000 |
| GR | 579.200 | 520.000 | 575.400 | 525.000 | 574.800 | 530.000 | 572.800 | 535.000 | 569.200 | 540.000 |
| GR | 580.300 | 540.000 | 580.300 | 543.500 | 565.500 | 543.500 | 565.500 | 545.000 | 563.900 | 555.000 |
| GR | 566.100 | 560.000 | 565.300 | 565.000 | 565.400 | 570.000 | 564.100 | 575.000 | 566.200 | 580.000 |
| GR | 580.300 | 580.000 | 580.300 | 583.500 | 565.300 | 583.500 | 565.300 | 585.000 | 563.400 | 590.000 |
| GR | 564.400 | 595.000 | 565.400 | 600.000 | 567.700 | 605.000 | 571.100 | 610.000 | 573.500 | 615.000 |
| GR | 574.000 | 619.000 | 584.600 | 619.000 | 582.300 | 700.000 | 579.600 | 800.000 | 579.000 | 890.000 |
| GR | 578.700 | 1000.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| X1 | 137.000 | 41.000 | 500.000 | 619.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| GR | 576.200 | 0.000 | 575.900 | 100.000 | 576.600 | 200.000 | 578.500 | 300.000 | 581.100 | 400.000 |
| GR | 584.600 | 500.000 | 582.800 | 500.000 | 582.600 | 505.000 | 581.900 | 510.000 | 581.100 | 515.000 |
| GR | 579.200 | 520.000 | 575.400 | 525.000 | 574.800 | 530.000 | 572.800 | 535.000 | 569.200 | 540.000 |
| GR | 569.200 | 540.000 | 565.500 | 543.500 | 565.500 | 543.500 | 565.500 | 545.000 | 563.900 | 555.000 |
| GR | 566.100 | 560.000 | 565.300 | 565.000 | 565.400 | 570.000 | 564.100 | 575.000 | 566.200 | 580.000 |
| GR | 566.200 | 580.000 | 565.300 | 583.500 | 565.300 | 583.500 | 565.300 | 585.000 | 563.400 | 590.000 |
| GR | 564.400 | 595.000 | 565.400 | 600.000 | 567.700 | 605.000 | 571.100 | 610.000 | 573.500 | 615.000 |
| GR | 574.000 | 619.000 | 584.600 | 619.000 | 582.300 | 700.000 | 579.600 | 800.000 | 579.000 | 890.000 |
| GR | 578.700 | 1000.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .035 | .042 | .032 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 187.000 | 27.000 | 331.000 | 441.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 |
| GR | 575.800 | 0.000 | 576.600 | 41.000 | 578.500 | 141.000 | 580.600 | 241.000 | 583.100 | 331.000 |
| GR | 575.400 | 341.000 | 574.800 | 346.000 | 571.300 | 351.000 | 568.100 | 356.000 | 567.200 | 361.000 |
| GR | 565.700 | 366.000 | 565.100 | 371.000 | 565.500 | 376.000 | 565.100 | 381.000 | 564.700 | 391.000 |
| GR | 564.100 | 401.000 | 564.400 | 406.000 | 565.700 | 411.000 | 568.200 | 416.000 | 570.500 | 421.000 |
| GR | 572.800 | 426.000 | 574.800 | 432.000 | 580.200 | 441.000 | 583.600 | 454.000 | 581.000 | 541.000 |
| GR | 579.300 | 641.000 | 578.300 | 698.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 362.000 | 35.000 | 244.000 | 400.000 | 175.000 | 175.000 | 175.000 | -0.000 | .270 | -0.000 |
| GR | 580.200 | 0.000 | 579.500 | 100.000 | 578.300 | 200.000 | 578.300 | 244.000 | 574.600 | 254.000 |
| GR | 573.600 | 255.000 | 571.500 | 260.000 | 569.800 | 265.000 | 568.500 | 270.000 | 567.600 | 275.000 |
| GR | 566.900 | 280.000 | 565.900 | 285.000 | 565.600 | 290.000 | 563.700 | 300.000 | 563.700 | 310.000 |
| GR | 564.300 | 320.000 | 565.800 | 330.000 | 568.200 | 340.000 | 569.800 | 345.000 | 571.100 | 350.000 |
| GR | 571.600 | 355.000 | 572.400 | 360.000 | 572.100 | 365.000 | 572.600 | 370.000 | 572.600 | 375.000 |
| GR | 572.800 | 380.000 | 572.800 | 385.000 | 572.900 | 390.000 | 574.600 | 395.000 | 576.900 | 400.000 |
| GR | 577.600 | 500.000 | 577.700 | 545.000 | 577.500 | 600.000 | 577.700 | 700.000 | 577.500 | 800.000 |
| X1 | 737.000 | 35.000 | 244.000 | 400.000 | 375.000 | 375.000 | 375.000 | -0.000 | -0.000 | -0.000 |
| GR | 580.200 | 0.000 | 579.500 | 100.000 | 578.300 | 200.000 | 578.300 | 244.000 | 574.600 | 254.000 |
| GR | 573.600 | 255.000 | 571.500 | 260.000 | 569.800 | 265.000 | 568.500 | 270.000 | 567.600 | 275.000 |
| GR | 566.900 | 280.000 | 565.900 | 285.000 | 565.600 | 290.000 | 563.700 | 300.000 | 563.700 | 310.000 |
| GR | 564.300 | 320.000 | 565.800 | 330.000 | 568.200 | 340.000 | 569.800 | 345.000 | 571.100 | 350.000 |
| GR | 571.600 | 355.000 | 572.400 | 360.000 | 572.100 | 365.000 | 572.600 | 370.000 | 572.600 | 375.000 |
| GR | 572.800 | 380.000 | 572.800 | 385.000 | 572.900 | 390.000 | 574.600 | 395.000 | 576.900 | 400.000 |
| GR | 577.600 | 500.000 | 577.700 | 545.000 | 577.500 | 600.000 | 577.700 | 700.000 | 577.500 | 800.000 |
| X1 | 787.000 | 67.000 | 795.000 | 901.600 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 |
| GR | 581.500 | 0.000 | 581.400 | 95.000 | 581.300 | 195.000 | 581.200 | 295.000 | 581.100 | 395.000 |
| GR | 581.100 | 495.000 | 581.100 | 595.000 | 581.000 | 695.000 | 581.000 | 795.000 | 575.200 | 795.000 |
| GR | 574.500 | 800.000 | 574.500 | 800.000 | 574.500 | 801.000 | 574.500 | 801.000 | 574.000 | 805.000 |
| GR | 573.200 | 810.000 | 573.200 | 810.000 | 573.200 | 811.000 | 573.200 | 811.000 | 570.800 | 815.000 |
| GR | 569.300 | 820.000 | 570.100 | 825.000 | 570.100 | 825.000 | 570.100 | 826.000 | 570.100 | 826.000 |
| GR | 566.600 | 829.900 | 566.600 | 829.900 | 566.600 | 831.200 | 566.600 | 831.200 | 565.500 | 835.000 |
| GR | 565.500 | 835.000 | 565.500 | 836.000 | 565.500 | 836.000 | 563.900 | 840.000 | 564.500 | 845.000 |
| GR | 564.500 | 845.000 | 564.500 | 846.000 | 564.500 | 846.000 | 564.900 | 850.000 | 564.900 | 855.000 |
| GR | 564.900 | 855.000 | 564.900 | 856.000 | 564.900 | 856.000 | 565.500 | 860.000 | 565.200 | 865.000 |
| GR | 565.200 | 865.000 | 565.200 | 866.300 | 565.300 | 866.300 | 566.000 | 870.000 | 566.000 | 875.000 |
| GR | 566.000 | 875.000 | 566.000 | 876.000 | 566.000 | 876.000 | 566.700 | 880.000 | 568.700 | 885.000 |
| GR | 568.300 | 890.000 | 569.700 | 895.000 | 571.700 | 900.000 | 571.700 | 901.600 | 581.000 | 901.600 |
| GR | 580.800 | 995.000 | 580.800 | 1095.000 | 580.600 | 1195.000 | 580.400 | 1295.000 | 580.100 | 1395.000 |
| GR | 579.900 | 1495.000 | 580.000 | 1540.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 788.000 | 67.000 | 795.000 | 901.600 | -1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| BT | 4.000 | 795.000 | 581.000 | 577.200 | 830.000 | 581.000 | 577.200 | 860.000 | 581.000 | 577.200 |
| BT | 901.600 | 581.000 | 577.200 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 581.500 | 0.000 | 581.400 | 95.000 | 581.300 | 195.000 | 581.200 | 295.000 | 581.100 | 395.000 |
| GR | 581.100 | 495.000 | 581.100 | 595.000 | 581.000 | 695.000 | 581.000 | 795.000 | 575.200 | 795.000 |
| GR | 574.500 | 800.000 | 575.500 | 800.000 | 575.500 | 801.000 | 574.500 | 801.000 | 574.000 | 805.000 |
| GR | 573.200 | 810.000 | 575.500 | 810.000 | 575.500 | 811.000 | 573.200 | 811.000 | 570.800 | 815.000 |
| GR | 569.300 | 820.000 | 570.100 | 825.000 | 575.500 | 825.000 | 575.500 | 826.000 | 570.100 | 826.000 |
| GR | 566.600 | 830.000 | 577.200 | 830.000 | 577.200 | 831.300 | 566.600 | 831.300 | 565.500 | 835.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 575.500 | 845.000 | 575.500 | 846.000 | 564.500 | 846.000 | 564.900 | 850.000 | 564.900 | 855.000 |
| GR | 575.500 | 855.000 | 575.500 | 856.000 | 564.900 | 856.000 | 565.500 | 860.000 | 565.200 | 865.000 |
| GR | 577.200 | 865.000 | 577.200 | 866.300 | 565.200 | 866.300 | 566.000 | 870.000 | 566.000 | 875.000 |
| GR | 575.500 | 875.000 | 575.500 | 876.000 | 566.000 | 876.000 | 566.700 | 880.000 | 568.700 | 885.000 |
| GR | 568.300 | 890.000 | 569.700 | 895.000 | 571.700 | 900.000 | 571.700 | 901.600 | 581.000 | 901.600 |
| GR | 580.800 | 995.000 | 580.800 | 1095.000 | 580.600 | 1195.000 | 580.400 | 1295.000 | 580.100 | 1395.000 |
| GR | 579.900 | 1495.000 | 580.000 | 1540.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 797.000 | 0.000 | 795.000 | 901.600 | 9.000 | 9.000 | 9.000 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| X1 | 798.000 | 67.000 | 795.000 | 901.600 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| GR | 581.500 | 0.000 | 581.400 | 95.000 | 581.300 | 195.000 | 581.200 | 295.000 | 581.100 | 395.000 |
| GR | 581.100 | 495.000 | 581.100 | 595.000 | 581.000 | 695.000 | 581.000 | 795.000 | 575.200 | 795.000 |
| GR | 574.500 | 800.000 | 574.500 | 800.000 | 574.500 | 801.000 | 574.500 | 801.000 | 574.000 | 805.000 |
| GR | 573.200 | 810.000 | 573.200 | 810.000 | 573.200 | 811.000 | 573.200 | 811.000 | 570.800 | 815.000 |
| GR | 569.300 | 820.000 | 570.100 | 825.000 | 570.100 | 825.000 | 570.100 | 826.000 | 570.100 | 826.000 |
| GR | 566.600 | 829.900 | 566.600 | 829.900 | 566.600 | 831.200 | 566.600 | 831.200 | 565.500 | 835.000 |
| GR | 565.500 | 835.000 | 565.500 | 836.000 | 565.500 | 836.000 | 563.900 | 840.000 | 564.500 | 845.000 |
| GR | 564.500 | 845.000 | 564.500 | 846.000 | 564.500 | 846.000 | 564.900 | 850.000 | 564.900 | 855.000 |
| GR | 564.900 | 855.000 | 564.900 | 856.000 | 564.900 | 856.000 | 565.500 | 860.000 | 565.200 | 865.000 |
| GR | 565.200 | 865.000 | 565.200 | 866.300 | 565.300 | 866.300 | 566.000 | 870.000 | 566.000 | 875.000 |
| GR | 566.000 | 875.000 | 566.000 | 876.000 | 566.000 | 876.000 | 566.700 | 880.000 | 568.700 | 885.000 |
| GR | 568.300 | 890.000 | 569.700 | 895.000 | 571.700 | 900.000 | 571.700 | 901.600 | 581.000 | 901.600 |
| GR | 580.800 | 995.000 | 580.800 | 1095.000 | 580.600 | 1195.000 | 580.400 | 1295.000 | 580.100 | 1395.000 |
| GR | 579.900 | 1495.000 | 580.000 | 1540.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 844.000 | 58.000 | 815.000 | 924.000 | 46.000 | 46.000 | 46.000 | -0.000 | -0.000 | -0.000 |
| GR | 583.400 | 0.000 | 583.400 | 15.000 | 583.100 | 115.000 | 582.900 | 215.000 | 582.800 | 315.000 |
| GR | 582.600 | 415.000 | 582.300 | 515.000 | 582.100 | 615.000 | 581.800 | 715.000 | 581.500 | 815.000 |
| GR | 576.100 | 815.000 | 574.200 | 820.000 | 572.700 | 825.000 | 570.000 | 829.000 | 570.000 | 829.000 |
| GR | 570.000 | 830.000 | 570.000 | 830.000 | 568.000 | 835.000 | 565.900 | 840.000 | 565.000 | 844.000 |
| GR | 565.000 | 844.000 | 565.000 | 845.000 | 565.000 | 845.000 | 565.000 | 855.000 | 566.000 | 864.000 |
| GR | 566.000 | 864.000 | 566.000 | 865.000 | 566.000 | 865.000 | 566.100 | 874.000 | 566.100 | 874.000 |
| GR | 566.100 | 875.000 | 566.100 | 875.000 | 565.800 | 884.000 | 565.800 | 884.000 | 565.800 | 885.000 |
| GR | 565.800 | 885.000 | 565.600 | 890.000 | 565.200 | 894.000 | 565.200 | 894.000 | 565.200 | 895.000 |
| GR | 565.200 | 895.000 | 567.600 | 900.000 | 570.300 | 905.000 | 572.000 | 909.000 | 572.000 | 909.000 |
| GR | 572.000 | 910.000 | 572.000 | 910.000 | 574.000 | 915.000 | 575.100 | 920.000 | 576.200 | 924.000 |
| GR | 581.400 | 924.000 | 581.300 | 1015.000 | 581.300 | 1115.000 | 581.100 | 1215.000 | 581.100 | 1315.000 |
| GR | 581.100 | 1415.000 | 581.200 | 1515.000 | 581.200 | 1565.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 845.000 | 58.000 | 815.000 | 924.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| BT | 16.000 | 815.000 | 581.500 | 578.400 | 829.000 | 581.500 | 578.100 | 830.000 | 581.500 | 578.100 |
| BT | 844.000 | 581.500 | 577.900 | 845.000 | 581.500 | 577.900 | 864.000 | 581.500 | 577.500 | 865.000 |
| BT | 581.500 | 577.500 | 874.000 | 581.400 | 577.400 | 875.000 | 581.400 | 577.400 | 884.000 | 581.400 |
| BT | 577.200 | 885.000 | 581.400 | 577.200 | 894.000 | 581.400 | 577.000 | 895.000 | 581.400 | 577.000 |
| BT | 909.000 | 581.400 | 576.800 | 910.000 | 581.400 | 576.800 | 924.000 | 581.400 | 576.500 | -0.000 |
| GR | 583.400 | 0.000 | 583.400 | 15.000 | 583.100 | 115.000 | 582.900 | 215.000 | 582.800 | 315.000 |
| GR | 582.600 | 415.000 | 582.300 | 515.000 | 582.100 | 615.000 | 581.800 | 715.000 | 581.500 | 815.000 |
| GR | 576.100 | 815.000 | 574.200 | 820.000 | 572.700 | 825.000 | 570.000 | 829.000 | 578.100 | 829.000 |
| GR | 578.100 | 830.000 | 570.000 | 830.000 | 568.000 | 835.000 | 565.900 | 840.000 | 565.000 | 844.000 |
| GR | 577.900 | 844.000 | 577.900 | 845.000 | 565.000 | 845.000 | 565.000 | 855.000 | 566.000 | 864.000 |
| GR | 577.500 | 864.000 | 577.500 | 865.000 | 566.000 | 865.000 | 566.100 | 874.000 | 577.400 | 874.000 |
| GR | 577.400 | 875.000 | 566.100 | 875.000 | 565.800 | 884.000 | 577.200 | 884.000 | 577.200 | 885.000 |
| GR | 565.800 | 885.000 | 565.600 | 890.000 | 565.200 | 894.000 | 577.000 | 894.000 | 577.000 | 895.000 |
| GR | 565.200 | 895.000 | 567.600 | 900.000 | 570.300 | 905.000 | 572.000 | 909.000 | 576.800 | 909.000 |
| GR | 576.800 | 910.000 | 572.000 | 910.000 | 574.000 | 915.000 | 575.100 | 920.000 | 576.200 | 924.000 |
| GR | 581.400 | 924.000 | 581.300 | 1015.000 | 581.300 | 1115.000 | 581.100 | 1215.000 | 581.100 | 1315.000 |
| GR | 581.100 | 1415.000 | 581.200 | 1515.000 | 581.200 | 1565.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 859.000 | -0.000 | 815.000 | 924.000 | 14.500 | 14.500 | 14.500 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| X1 | 860.000 | 58.000 | 815.000 | 924.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| GR | 583.400 | 0.000 | 583.400 | 15.000 | 583.100 | 115.000 | 582.900 | 215.000 | 582.800 | 315.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 576.100 | 815.000 | 574.200 | 820.000 | 572.700 | 825.000 | 570.000 | 829.000 | 570.000 | 829.000 |
| GR | 570.000 | 830.000 | 570.000 | 830.000 | 568.000 | 835.000 | 565.900 | 840.000 | 565.000 | 844.000 |
| GR | 565.000 | 844.000 | 565.000 | 845.000 | 565.000 | 845.000 | 565.000 | 855.000 | 566.000 | 864.000 |
| GR | 566.000 | 864.000 | 566.000 | 865.000 | 566.000 | 865.000 | 566.100 | 874.000 | 566.100 | 874.000 |
| GR | 566.100 | 875.000 | 566.100 | 875.000 | 565.800 | 884.000 | 565.800 | 884.000 | 565.800 | 885.000 |
| GR | 565.800 | 885.000 | 565.600 | 890.000 | 565.200 | 894.000 | 565.200 | 894.000 | 565.200 | 895.000 |
| GR | 565.200 | 895.000 | 567.600 | 900.000 | 570.300 | 905.000 | 572.000 | 909.000 | 572.000 | 909.000 |
| GR | 572.000 | 910.000 | 572.000 | 910.000 | 574.000 | 915.000 | 575.100 | 920.000 | 576.200 | 924.000 |
| GR | 581.400 | 924.000 | 581.300 | 1015.000 | 581.300 | 1115.000 | 581.100 | 1215.000 | 581.100 | 1315.000 |
| GR | 581.100 | 1415.000 | 581.200 | 1515.000 | 581.200 | 1565.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 910.000 | 64.000 | 835.000 | 942.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 |
| GR | 583.700 | 0.000 | 583.600 | 35.000 | 583.400 | 135.000 | 583.300 | 235.000 | 583.300 | 335.000 |
| GR | 583.300 | 435.000 | 583.300 | 535.000 | 583.200 | 635.000 | 583.100 | 735.000 | 583.100 | 835.000 |
| GR | 574.800 | 835.000 | 572.600 | 840.000 | 571.600 | 844.000 | 571.600 | 844.000 | 571.600 | 845.000 |
| GR | 571.600 | 845.000 | 570.700 | 854.000 | 570.700 | 854.000 | 570.700 | 855.000 | 570.700 | 855.000 |
| GR | 565.600 | 864.000 | 565.600 | 864.000 | 565.600 | 865.000 | 565.600 | 865.000 | 564.300 | 874.000 |
| GR | 564.300 | 874.000 | 564.300 | 875.000 | 564.300 | 875.000 | 564.800 | 884.000 | 564.800 | 884.000 |
| GR | 564.800 | 885.000 | 564.800 | 885.000 | 564.900 | 894.000 | 564.900 | 894.000 | 564.900 | 895.000 |
| GR | 564.900 | 895.000 | 564.000 | 904.000 | 564.000 | 904.000 | 564.000 | 905.000 | 564.000 | 905.000 |
| GR | 566.100 | 914.000 | 566.100 | 914.000 | 566.100 | 915.000 | 566.100 | 915.000 | 567.000 | 920.000 |
| GR | 571.000 | 924.000 | 571.000 | 924.000 | 571.000 | 925.000 | 571.000 | 925.000 | 572.400 | 930.000 |
| GR | 573.900 | 934.000 | 573.900 | 934.000 | 573.900 | 935.000 | 573.900 | 935.000 | 575.000 | 940.000 |
| GR | 574.900 | 942.000 | 583.000 | 942.000 | 582.700 | 1035.000 | 582.600 | 1135.000 | 582.300 | 1235.000 |
| GR | 582.100 | 1335.000 | 581.900 | 1435.000 | 581.800 | 1535.000 | 581.800 | 1585.000 | -0.000 | -0.000 |
| X1 | 911.000 | 64.000 | 835.000 | 942.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| BT | 6.000 | 835.000 | 583.100 | 578.600 | 874.000 | 583.100 | 578.600 | 875.000 | 583.100 | 578.600 |
| BT | 904.000 | 583.000 | 578.600 | 905.000 | 583.000 | 578.600 | 942.000 | 583.000 | 578.600 | -0.000 |
| GR | 583.700 | 0.000 | 583.600 | 35.000 | 583.400 | 135.000 | 583.300 | 235.000 | 583.300 | 335.000 |
| GR | 583.300 | 435.000 | 583.300 | 535.000 | 583.200 | 635.000 | 583.100 | 735.000 | 583.100 | 835.000 |
| GR | 574.800 | 835.000 | 572.600 | 840.000 | 571.600 | 844.000 | 575.500 | 844.000 | 575.500 | 845.000 |
| GR | 571.600 | 845.000 | 570.700 | 854.000 | 575.500 | 854.000 | 575.500 | 855.000 | 570.700 | 855.000 |
| GR | 565.600 | 864.000 | 575.500 | 864.000 | 575.500 | 865.000 | 565.600 | 865.000 | 564.300 | 874.000 |
| GR | 578.600 | 874.000 | 578.600 | 875.000 | 564.300 | 875.000 | 564.800 | 884.000 | 575.500 | 884.000 |
| GR | 575.500 | 885.000 | 564.800 | 885.000 | 564.900 | 894.000 | 575.500 | 894.000 | 575.500 | 895.000 |
| GR | 564.900 | 895.000 | 564.000 | 904.000 | 578.600 | 904.000 | 578.600 | 905.000 | 564.000 | 905.000 |
| GR | 566.100 | 914.000 | 575.500 | 914.000 | 575.500 | 915.000 | 566.100 | 915.000 | 567.000 | 920.000 |
| GR | 571.000 | 924.000 | 575.500 | 924.000 | 575.500 | 925.000 | 571.000 | 925.000 | 572.400 | 930.000 |
| GR | 573.900 | 934.000 | 575.500 | 934.000 | 575.500 | 935.000 | 573.900 | 935.000 | 575.000 | 940.000 |
| GR | 574.900 | 942.000 | 583.000 | 942.000 | 582.700 | 1035.000 | 582.600 | 1135.000 | 582.300 | 1235.000 |
| GR | 582.100 | 1335.000 | 581.900 | 1435.000 | 581.800 | 1535.000 | 581.800 | 1585.000 | -0.000 | -0.000 |
| X1 | 921.000 | -0.000 | 835.000 | 942.000 | 10.000 | 10.000 | 10.000 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| X1 | 922.000 | 64.000 | 835.000 | 942.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| GR | 583.700 | 0.000 | 583.600 | 35.000 | 583.400 | 135.000 | 583.300 | 235.000 | 583.300 | 335.000 |
| GR | 583.300 | 435.000 | 583.300 | 535.000 | 583.200 | 635.000 | 583.100 | 735.000 | 583.100 | 835.000 |
| GR | 574.800 | 835.000 | 572.600 | 840.000 | 571.600 | 844.000 | 571.600 | 844.000 | 571.600 | 845.000 |
| GR | 571.600 | 845.000 | 570.700 | 854.000 | 570.700 | 854.000 | 570.700 | 855.000 | 570.700 | 855.000 |
| GR | 565.600 | 864.000 | 565.600 | 864.000 | 565.600 | 865.000 | 565.600 | 865.000 | 564.300 | 874.000 |
| GR | 564.300 | 874.000 | 564.300 | 875.000 | 564.300 | 875.000 | 564.800 | 884.000 | 564.800 | 884.000 |
| GR | 564.800 | 885.000 | 564.800 | 885.000 | 564.900 | 894.000 | 564.900 | 894.000 | 564.900 | 895.000 |
| GR | 564.900 | 895.000 | 564.000 | 904.000 | 564.000 | 904.000 | 564.000 | 905.000 | 564.000 | 905.000 |
| GR | 566.100 | 914.000 | 566.100 | 914.000 | 566.100 | 915.000 | 566.100 | 915.000 | 567.000 | 920.000 |
| GR | 571.000 | 924.000 | 571.000 | 924.000 | 571.000 | 925.000 | 571.000 | 925.000 | 572.400 | 930.000 |
| GR | 573.900 | 934.000 | 573.900 | 934.000 | 573.900 | 935.000 | 573.900 | 935.000 | 575.000 | 940.000 |
| GR | 574.900 | 942.000 | 583.000 | 942.000 | 582.700 | 1035.000 | 582.600 | 1135.000 | 582.300 | 1235.000 |
| GR | 582.100 | 1335.000 | 581.900 | 1435.000 | 581.800 | 1535.000 | 581.800 | 1585.000 | -0.000 | -0.000 |
| X1 | 953.000 | 48.000 | 600.000 | 681.000 | 31.000 | 31.000 | 31.000 | -0.000 | -0.000 | -0.000 |
| GR | 582.000 | 0.000 | 581.800 | 100.000 | 581.600 | 200.000 | 581.500 | 300.000 | 581.400 | 400.000 |
| GR | 581.200 | 500.000 | 581.000 | 600.000 | 571.000 | 600.000 | 568.100 | 605.000 | 566.900 | 610.000 |
| GR | 566.900 | 610.000 | 566.900 | 612.300 | 566.900 | 612.300 | 565.900 | 615.000 | 565.100 | 620.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 566.200 | 630.000 | 566.200 | 632.300 | 566.200 | 632.300 | 566.700 | 635.000 | 566.400 | 640.000 |
| GR | 566.100 | 645.000 | 566.400 | 650.000 | 566.400 | 650.000 | 566.400 | 652.300 | 566.400 | 652.300 |
| GR | 566.600 | 655.000 | 567.500 | 660.000 | 567.500 | 660.000 | 567.500 | 662.300 | 567.500 | 662.300 |
| GR | 567.500 | 665.000 | 569.900 | 670.000 | 569.900 | 670.000 | 569.900 | 672.300 | 569.900 | 672.300 |
| GR | 573.400 | 680.000 | 573.400 | 681.000 | 580.800 | 681.000 | 580.800 | 700.000 | 580.700 | 800.000 |
| GR | 580.600 | 900.000 | 580.600 | 1000.000 | 580.500 | 1100.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 954.000 | 48.000 | 600.000 | 681.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| BT | 14.000 | 600.000 | 581.000 | 577.700 | 610.000 | 581.000 | 577.700 | 612.300 | 581.000 | 577.700 |
| BT | 620.000 | 581.000 | 577.700 | 622.300 | 581.000 | 577.700 | 630.000 | 580.900 | 577.700 | 632.300 |
| BT | 580.900 | 577.700 | 650.000 | 580.900 | 577.600 | 652.300 | 580.900 | 577.600 | 660.000 | 580.900 |
| BT | 577.600 | 662.300 | 580.800 | 577.600 | 670.000 | 580.800 | 577.600 | 672.300 | 580.800 | 577.600 |
| BT | 681.000 | 580.800 | 577.600 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 582.000 | 0.000 | 581.800 | 100.000 | 581.600 | 200.000 | 581.500 | 300.000 | 581.400 | 400.000 |
| GR | 581.200 | 500.000 | 581.000 | 600.000 | 571.000 | 600.000 | 568.100 | 605.000 | 566.900 | 610.000 |
| GR | 577.700 | 610.000 | 577.700 | 612.300 | 566.900 | 612.300 | 565.900 | 615.000 | 565.100 | 620.000 |
| GR | 577.700 | 620.000 | 577.700 | 622.300 | 565.100 | 622.300 | 566.300 | 625.000 | 566.200 | 630.000 |
| GR | 577.700 | 630.000 | 577.700 | 632.300 | 566.200 | 632.300 | 566.700 | 635.000 | 566.400 | 640.000 |
| GR | 566.100 | 645.000 | 566.400 | 650.000 | 577.600 | 650.000 | 577.600 | 652.300 | 566.400 | 652.300 |
| GR | 566.600 | 655.000 | 567.500 | 660.000 | 577.600 | 660.000 | 577.600 | 662.300 | 567.500 | 662.300 |
| GR | 567.500 | 665.000 | 569.900 | 670.000 | 577.600 | 670.000 | 577.600 | 672.300 | 569.900 | 672.300 |
| GR | 573.400 | 680.000 | 573.400 | 681.000 | 580.800 | 681.000 | 580.800 | 700.000 | 580.700 | 800.000 |
| GR | 580.600 | 900.000 | 580.600 | 1000.000 | 580.500 | 1100.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 985.000 | -0.000 | 600.000 | 681.000 | 30.500 | 30.500 | 30.500 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| X1 | 986.000 | 48.000 | 600.000 | 681.000 | 1.000 | 1.000 | 1.000 | -0.000 | -0.000 | -0.000 |
| GR | 582.000 | 0.000 | 581.800 | 100.000 | 581.600 | 200.000 | 581.500 | 300.000 | 581.400 | 400.000 |
| GR | 581.200 | 500.000 | 581.000 | 600.000 | 571.000 | 600.000 | 568.100 | 605.000 | 566.900 | 610.000 |
| GR | 566.900 | 610.000 | 566.900 | 612.300 | 566.900 | 612.300 | 565.900 | 615.000 | 565.100 | 620.000 |
| GR | 565.100 | 620.000 | 565.100 | 622.300 | 565.100 | 622.300 | 566.300 | 625.000 | 566.200 | 630.000 |
| GR | 566.200 | 630.000 | 566.200 | 632.300 | 566.200 | 632.300 | 566.700 | 635.000 | 566.400 | 640.000 |
| GR | 566.100 | 645.000 | 566.400 | 650.000 | 566.400 | 650.000 | 566.400 | 652.300 | 566.400 | 652.300 |
| GR | 566.600 | 655.000 | 567.500 | 660.000 | 567.500 | 660.000 | 567.500 | 662.300 | 567.500 | 662.300 |
| GR | 567.500 | 665.000 | 569.900 | 670.000 | 569.900 | 670.000 | 569.900 | 672.300 | 569.900 | 672.300 |
| GR | 573.400 | 680.000 | 573.400 | 681.000 | 580.800 | 681.000 | 580.800 | 700.000 | 580.700 | 800.000 |
| GR | 580.600 | 900.000 | 580.600 | 1000.000 | 580.500 | 1100.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .040 | .035 | .032 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 1036.000 | 37.000 | 565.000 | 700.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | 700.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 581.900 | 0.000 | 581.200 | 100.000 | 581.200 | 200.000 | 580.800 | 300.000 | 581.000 | 400.000 |
| GR | 579.900 | 500.000 | 581.100 | 565.000 | 575.400 | 587.000 | 574.900 | 590.000 | 573.900 | 595.000 |
| GR | 572.500 | 600.000 | 571.000 | 605.000 | 569.800 | 610.000 | 568.800 | 615.000 | 568.000 | 620.000 |
| GR | 567.400 | 625.000 | 566.600 | 630.000 | 566.300 | 635.000 | 566.200 | 640.000 | 566.300 | 650.000 |
| GR | 566.800 | 660.000 | 568.300 | 670.000 | 570.200 | 675.000 | 570.400 | 680.000 | 571.700 | 685.000 |
| GR | 573.100 | 690.000 | 574.800 | 695.000 | 574.900 | 696.000 | 577.700 | 700.000 | 577.500 | 800.000 |
| GR | 576.600 | 900.000 | 576.600 | 1000.000 | 577.000 | 1030.000 | 576.800 | 1100.000 | 577.500 | 1200.000 |
| GR | 578.300 | 1300.000 | 579.200 | 1345.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .060 | .035 | .032 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 1736.000 | 40.000 | 374.000 | 492.500 | 700.000 | 700.000 | 700.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 580.400 | 0.000 | 580.400 | 167.000 | 579.500 | 283.700 | 578.800 | 335.300 | 579.100 | 374.000 |
| GR | 577.200 | 377.900 | 576.100 | 381.900 | 575.100 | 385.800 | 574.100 | 389.800 | 573.200 | 393.700 |
| GR | 572.400 | 397.700 | 571.500 | 401.600 | 570.300 | 405.600 | 569.400 | 409.500 | 568.400 | 413.500 |
| GR | 567.600 | 417.400 | 566.900 | 421.400 | 566.500 | 425.300 | 566.000 | 429.200 | 565.700 | 433.200 |
| GR | 565.500 | 437.200 | 565.400 | 441.100 | 565.500 | 445.000 | 565.600 | 449.000 | 565.900 | 453.000 |
| GR | 566.500 | 456.900 | 567.200 | 460.800 | 568.000 | 464.800 | 569.000 | 468.700 | 569.800 | 472.700 |
| GR | 570.600 | 476.600 | 571.700 | 480.600 | 573.400 | 484.500 | 575.100 | 488.500 | 577.500 | 492.500 |
| GR | 577.400 | 550.000 | 577.300 | 650.000 | 577.400 | 750.000 | 577.700 | 890.000 | 579.500 | 975.000 |
| X1 | 2436.000 | 31.000 | 183.000 | 285.000 | 700.000 | 700.000 | 700.000 | -0.000 | -0.000 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 485.000 | -0.000 | -0.000 | -0.000 | -0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 573.500 | 190.000 | 572.200 | 195.000 | 571.100 | 200.000 | 570.200 | 205.000 | 568.500 | 210.000 |
| GR | 567.700 | 215.000 | 566.400 | 220.000 | 565.600 | 225.000 | 565.300 | 230.000 | 565.000 | 235.000 |
| GR | 564.600 | 240.000 | 564.800 | 245.000 | 565.200 | 250.000 | 566.400 | 255.000 | 567.800 | 260.000 |
| GR | 568.800 | 265.000 | 569.900 | 270.000 | 571.500 | 275.000 | 574.700 | 280.000 | 575.100 | 281.000 |
| GR | 577.400 | 285.000 | 577.300 | 385.000 | 578.200 | 485.000 | 577.700 | 557.000 | 578.600 | 585.000 |
| GR | 579.800 | 605.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| QT | 4.000 | 1120.000 | 1620.000 | 1760.000 | 2055.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 3186.000 | 25.000 | 200.000 | 300.000 | 750.000 | 750.000 | 750.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | 500.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 580.600 | 0.000 | 583.100 | 100.000 | 581.300 | 200.000 | 579.600 | 208.000 | 575.200 | 216.000 |
| GR | 573.900 | 220.000 | 571.600 | 225.000 | 569.900 | 230.000 | 569.900 | 235.000 | 569.300 | 240.000 |
| GR | 569.100 | 245.000 | 568.800 | 250.000 | 569.200 | 260.000 | 570.800 | 270.000 | 571.100 | 280.000 |
| GR | 571.700 | 285.000 | 573.000 | 290.000 | 574.100 | 295.000 | 576.400 | 300.000 | 577.900 | 400.000 |
| GR | 579.000 | 500.000 | 579.100 | 600.000 | 578.700 | 625.000 | 578.700 | 700.000 | 578.900 | 800.000 |
| X1 | 3686.000 | -0.000 | -0.000 | -0.000 | 500.000 | 500.000 | 500.000 | -0.000 | .600 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | 500.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .040 | .037 | .032 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 4186.000 | 27.000 | 417.000 | 500.000 | 500.000 | 500.000 | 500.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 350.000 | -0.000 | 550.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 581.800 | 0.000 | 580.900 | 100.000 | 580.600 | 200.000 | 580.000 | 300.000 | 578.900 | 400.000 |
| GR | 578.200 | 417.000 | 575.000 | 419.000 | 574.700 | 420.000 | 573.000 | 425.000 | 571.200 | 430.000 |
| GR | 570.500 | 435.000 | 570.400 | 440.000 | 570.400 | 445.000 | 570.300 | 450.000 | 570.000 | 455.000 |
| GR | 570.300 | 460.000 | 570.300 | 465.000 | 570.400 | 470.000 | 570.500 | 475.000 | 571.800 | 480.000 |
| GR | 572.500 | 485.000 | 573.200 | 490.000 | 575.000 | 494.000 | 578.700 | 500.000 | 579.500 | 600.000 |
| GR | 581.000 | 700.000 | 583.000 | 770.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .030 | .030 | .030 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 4236.000 | 32.000 | 592.000 | 644.000 | 50.000 | 50.000 | 50.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 592.000 | -0.000 | 644.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 582.000 | 0.000 | 581.600 | 92.000 | 581.200 | 192.000 | 580.800 | 292.000 | 580.700 | 392.000 |
| GR | 580.000 | 492.000 | 580.100 | 592.000 | 570.200 | 592.000 | 569.200 | 597.000 | 570.000 | 602.000 |
| GR | 569.700 | 607.000 | 569.000 | 612.000 | 568.100 | 617.000 | 568.100 | 617.000 | 568.100 | 618.500 |
| GR | 568.100 | 618.500 | 568.900 | 622.000 | 568.800 | 627.000 | 569.200 | 632.000 | 570.000 | 637.000 |
| GR | 570.600 | 642.000 | 570.600 | 644.000 | 580.000 | 644.000 | 579.300 | 692.000 | 579.600 | 792.000 |
| GR | 580.400 | 892.000 | 580.700 | 992.000 | 580.500 | 1092.000 | 580.300 | 1192.000 | 580.000 | 1292.000 |
| GR | 579.600 | 1392.000 | 579.300 | 1492.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| SB | 1.250 | 1.370 | 2.500 | -0.000 | 50.500 | 1.500 | 400.000 | 0.000 | 568.100 | 568.100 |
| X1 | 4281.000 | 32.000 | 592.000 | 644.000 | 45.000 | 45.000 | 45.000 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | 1.000 | 577.400 | 580.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 592.000 | -0.000 | 644.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| BT | 6.000 | 592.000 | 580.100 | 577.400 | 617.000 | 580.000 | 577.300 | 617.000 | 580.000 | 568.100 |
| BT | 618.500 | 580.000 | 568.100 | 618.500 | 580.000 | 577.300 | 644.000 | 580.000 | 577.300 | -0.000 |
| GR | 582.000 | 0.000 | 581.600 | 92.000 | 581.200 | 192.000 | 580.800 | 292.000 | 580.700 | 392.000 |
| GR | 580.000 | 492.000 | 580.100 | 592.000 | 570.200 | 592.000 | 569.200 | 597.000 | 570.000 | 602.000 |
| GR | 569.700 | 607.000 | 569.000 | 612.000 | 568.100 | 617.000 | 568.100 | 617.000 | 568.100 | 618.500 |
| GR | 568.100 | 618.500 | 568.900 | 622.000 | 568.800 | 627.000 | 569.200 | 632.000 | 570.000 | 637.000 |
| GR | 570.600 | 642.000 | 570.600 | 644.000 | 580.000 | 644.000 | 579.300 | 692.000 | 579.600 | 792.000 |
| GR | 580.400 | 892.000 | 580.700 | 992.000 | 580.500 | 1092.000 | 580.300 | 1192.000 | 580.000 | 1292.000 |
| GR | 579.600 | 1392.000 | 579.300 | 1492.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .040 | .037 | .032 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 4931.000 | 23.000 | 115.000 | 200.000 | 650.000 | 650.000 | 650.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 115.000 | -0.000 | 200.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 582.200 | 0.000 | 581.600 | 37.000 | 580.800 | 100.000 | 580.900 | 115.000 | 575.300 | 124.000 |
| GR | 574.600 | 125.000 | 571.500 | 130.000 | 570.800 | 135.000 | 570.500 | 140.000 | 570.300 | 145.000 |
| GR | 570.300 | 150.000 | 570.300 | 155.000 | 570.400 | 160.000 | 570.600 | 165.000 | 570.800 | 170.000 |
| GR | 571.100 | 175.000 | 571.300 | 180.000 | 573.100 | 185.000 | 573.600 | 190.000 | 575.300 | 195.000 |
| GR | 579.800 | 200.000 | 579.100 | 300.000 | 580.100 | 400.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 5956.000 | -0.000 | -0.000 | -0.000 | 1025.000 | 1025.000 | 1025.000 | -0.000 | .350 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 115.000 | -0.000 | 200.000 | -0.000 | -0.000 | -0.000 | -0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6981.000 | 29.000 | 505.000 | 600.000 | 1025.000 | 1025.000 | 1025.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 582.600 | 582.000 | -0.000 |
| GR | 582.800 | 0.000 | 581.300 | 100.000 | 581.300 | 200.000 | 580.900 | 300.000 | 579.700 | 400.000 |
| GR | 579.400 | 425.000 | 582.700 | 500.000 | 582.600 | 505.000 | 576.000 | 517.000 | 575.200 | 520.000 |
| GR | 572.000 | 525.000 | 571.800 | 530.000 | 572.200 | 535.000 | 572.300 | 540.000 | 571.100 | 545.000 |
| GR | 571.100 | 550.000 | 571.000 | 560.000 | 571.200 | 570.000 | 572.400 | 575.000 | 572.500 | 580.000 |
| GR | 574.200 | 584.000 | 575.200 | 588.000 | 582.000 | 600.000 | 579.100 | 700.000 | 581.500 | 800.000 |
| GR | 580.800 | 900.000 | 581.000 | 920.000 | 581.300 | 1000.000 | 581.200 | 1100.000 | -0.000 | -0.000 |
| X1 | 8031.000 | 27.000 | 150.000 | 246.000 | 1050.000 | 1050.000 | 1050.000 | -0.000 | -0.000 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | 150.000 | -0.000 | 246.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 580.300 | 0.000 | 580.400 | 50.000 | 580.700 | 78.000 | 578.900 | 114.000 | 580.700 | 150.000 |
| GR | 579.000 | 155.000 | 575.200 | 162.000 | 573.800 | 166.000 | 572.800 | 170.000 | 572.300 | 175.000 |
| GR | 572.000 | 180.000 | 571.700 | 190.000 | 571.500 | 200.000 | 571.500 | 210.000 | 571.700 | 215.000 |
| GR | 571.800 | 220.000 | 572.500 | 225.000 | 573.600 | 230.000 | 575.200 | 235.000 | 577.800 | 238.000 |
| GR | 579.400 | 246.000 | 579.400 | 250.000 | 578.600 | 336.000 | 578.500 | 350.000 | 579.200 | 450.000 |
| GR | 578.900 | 492.000 | 580.500 | 550.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .030 | .030 | .030 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 8082.000 | 39.000 | 580.000 | 655.000 | 51.000 | 51.000 | 51.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 580.000 | -0.000 | 655.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 578.600 | 0.000 | 578.100 | 80.000 | 578.000 | 180.000 | 577.700 | 280.000 | 577.600 | 380.000 |
| GR | 577.900 | 480.000 | 580.900 | 580.000 | 571.800 | 580.000 | 572.200 | 585.000 | 571.700 | 590.000 |
| GR | 571.500 | 595.000 | 571.200 | 600.000 | 570.400 | 605.000 | 578.300 | 605.000 | 578.300 | 606.500 |
| GR | 570.400 | 606.500 | 571.400 | 610.000 | 571.000 | 615.000 | 570.900 | 620.000 | 571.000 | 625.000 |
| GR | 571.000 | 630.000 | 578.300 | 630.000 | 578.300 | 631.500 | 571.000 | 631.500 | 571.100 | 635.000 |
| GR | 570.900 | 640.000 | 570.800 | 645.000 | 570.300 | 650.000 | 569.900 | 655.000 | 581.100 | 655.000 |
| GR | 580.300 | 680.000 | 578.900 | 780.000 | 578.500 | 830.000 | 578.300 | 880.000 | 577.900 | 980.000 |
| GR | 577.500 | 1080.000 | 577.300 | 1180.000 | 577.700 | 1280.000 | 577.600 | 1380.000 | -0.000 | -0.000 |
| SB | 1.250 | 1.560 | 2.600 | -0.000 | 75.000 | 3.000 | 519.000 | -0.000 | 569.900 | 569.900 |
| X1 | 8147.000 | -0.000 | 580.000 | 655.000 | 65.000 | 65.000 | 65.000 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | 1.000 | 578.400 | 580.900 | -0.000 | -0.000 | -0.000 | .631 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 580.000 | -0.000 | 655.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| BT | 6.000 | 580.000 | 580.900 | 578.200 | 605.000 | 581.000 | 578.300 | 606.500 | 581.000 | 578.300 |
| BT | 630.000 | 581.000 | 578.300 | 631.500 | 581.000 | 578.300 | 655.000 | 581.100 | 578.400 | -0.000 |
| NC | .035 | .040 | .032 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 9397.000 | 28.000 | 550.000 | 635.000 | 1250.000 | 1250.000 | 1250.000 | -0.000 | -0.000 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | 550.000 | -0.000 | 635.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 580.800 | 0.000 | 581.500 | 150.000 | 580.700 | 250.000 | 579.800 | 355.000 | 580.800 | 450.000 |
| GR | 579.300 | 550.000 | 578.800 | 555.000 | 574.700 | 564.000 | 573.700 | 570.000 | 573.200 | 575.000 |
| GR | 572.200 | 580.000 | 572.000 | 585.000 | 572.100 | 590.000 | 571.800 | 595.000 | 571.800 | 600.000 |
| GR | 571.900 | 605.000 | 572.200 | 610.000 | 572.500 | 615.000 | 572.800 | 620.000 | 573.200 | 625.000 |
| GR | 574.700 | 626.000 | 581.700 | 635.000 | 582.000 | 650.000 | 582.100 | 750.000 | 583.100 | 850.000 |
| GR | 582.600 | 950.000 | 582.200 | 1050.000 | 581.900 | 1150.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 10297.000 | 29.000 | 400.000 | 480.000 | 900.000 | 900.000 | 900.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | -0.000 | -0.000 | 480.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 583.100 | 0.000 | 582.700 | 100.000 | 582.200 | 200.000 | 582.100 | 220.000 | 582.900 | 300.000 |
| GR | 583.400 | 400.000 | 573.800 | 416.000 | 572.900 | 420.000 | 572.000 | 425.000 | 572.000 | 430.000 |
| GR | 572.000 | 435.000 | 571.800 | 440.000 | 572.000 | 445.000 | 572.200 | 450.000 | 572.200 | 455.000 |
| GR | 572.500 | 460.000 | 572.800 | 465.000 | 573.400 | 470.000 | 574.500 | 475.000 | 581.900 | 480.000 |
| GR | 581.400 | 500.000 | 580.900 | 600.000 | 581.000 | 700.000 | 581.600 | 800.000 | 581.900 | 900.000 |
| GR | 582.800 | 1000.000 | 582.600 | 1100.000 | 582.900 | 1200.000 | 583.400 | 1300.000 | -0.000 | -0.000 |
| NC | .035 | .035 | .032 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X1 | 10897.000 | 23.000 | 112.000 | 185.000 | 600.000 | 600.000 | 600.000 | -0.000 | -0.000 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | 112.000 | -0.000 | 185.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 580.700 | 0.000 | 581.200 | 85.000 | 580.400 | 112.000 | 574.800 | 122.000 | 574.500 | 123.000 |
| GR | 573.500 | 125.000 | 572.900 | 130.000 | 572.400 | 135.000 | 572.200 | 140.000 | 572.300 | 150.000 |
| GR | 572.700 | 155.000 | 572.800 | 160.000 | 573.200 | 165.000 | 573.000 | 170.000 | 573.000 | 176.000 |
| GR | 574.500 | 178.000 | 579.400 | 185.000 | 581.800 | 231.000 | 583.700 | 243.000 | 583.100 | 285.000 |
| GR | 584.400 | 355.000 | 582.600 | 385.000 | 583.500 | 477.000 | -0.000 | -0.000 | -0.000 | -0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X3 | 10.000 | -0.000 | -0.000 | 552.000 | -0.000 | 500.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 582.200 | 0.000 | 581.900 | 100.000 | 581.400 | 200.000 | 580.900 | 300.000 | 580.800 | 400.000 |
| GR | 581.200 | 448.000 | 581.700 | 500.000 | 571.700 | 500.000 | 571.900 | 505.000 | 571.800 | 510.000 |
| GR | 571.800 | 515.000 | 571.800 | 520.000 | 572.100 | 525.000 | 579.000 | 525.000 | 579.000 | 527.000 |
| GR | 572.100 | 527.000 | 572.600 | 530.000 | 573.000 | 535.000 | 573.700 | 540.000 | 573.700 | 545.000 |
| GR | 573.600 | 550.000 | 573.400 | 552.000 | 581.600 | 552.000 | 580.400 | 600.000 | 581.100 | 700.000 |
| GR | 581.400 | 800.000 | 581.600 | 900.000 | 581.800 | 1000.000 | 582.000 | 1100.000 | 582.100 | 1122.000 |
| SB | .900 | 1.470 | 2.500 | -0.000 | 52.000 | 2.000 | 315.000 | -0.000 | 571.700 | 571.700 |
| | | | | | | | | | | |
| X1 | 11017.000 | -0.000 | 500.000 | 552.000 | 44.000 | 44.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | 1.000 | 579.000 | 581.700 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 500.000 | 590.000 | 552.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| BT | 4.000 | 500.000 | 581.700 | 578.900 | 525.000 | 581.700 | 579.000 | 527.000 | 581.700 | 579.000 |
| BT | 552.000 | 581.600 | 578.900 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| NC | .060 | .060 | .032 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | | | | | | | | | | |
| X1 | 11477.000 | 22.000 | 155.000 | 236.000 | 460.000 | 460.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X3 | -0.000 | -0.000 | -0.000 | 155.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 583.100 | 0.000 | 583.400 | 50.000 | 110.000 | 582.900 | 155.000 | 574.900 | 170.000 | |
| GR | 573.900 | 175.000 | 573.700 | 180.000 | 185.000 | 572.800 | 190.000 | 572.900 | 195.000 | |
| GR | 572.900 | 200.000 | 572.700 | 205.000 | 210.000 | 572.400 | 215.000 | 571.800 | 573.100 | 220.000 |
| GR | 574.400 | 225.000 | 575.500 | 227.000 | 581.400 | 236.000 | 255.000 | 582.600 | 582.200 | 265.000 |
| GR | 582.100 | 310.000 | 582.200 | 343.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | | | | | | | | | | |
| X1 | 11528.000 | 35.000 | 530.000 | 582.500 | 51.000 | 51.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 530.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 584.400 | 0.000 | 584.800 | 30.000 | 130.000 | 584.400 | 230.000 | 583.500 | 330.000 | |
| GR | 582.900 | 370.000 | 582.900 | 430.000 | 583.000 | 530.000 | 573.000 | 573.400 | 535.000 | |
| GR | 573.000 | 540.000 | 572.700 | 545.000 | 572.500 | 550.000 | 572.100 | 555.200 | 580.600 | 555.200 |
| GR | 580.600 | 557.200 | 572.800 | 572.200 | 560.000 | 572.700 | 565.000 | 572.500 | 572.500 | 570.000 |
| GR | 572.400 | 575.000 | 572.600 | 580.000 | 572.500 | 582.500 | 582.500 | 582.800 | 582.500 | 630.000 |
| GR | 582.200 | 730.000 | 583.300 | 830.000 | 582.900 | 880.000 | 583.100 | 930.000 | 583.900 | 1030.000 |
| GR | 584.100 | 1130.000 | 584.400 | 1230.000 | 584.100 | 1330.000 | 583.700 | 1430.000 | 583.900 | 1439.000 |
| SB | 1.250 | 1.610 | 2.500 | 2.000 | 52.500 | -0.000 | 400.000 | -0.000 | 572.100 | 572.100 |
| | | | | | | | | | | |
| X1 | 11599.000 | -0.000 | 530.000 | 582.500 | 71.000 | 71.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | 1.000 | 580.700 | 582.800 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 530.000 | 582.500 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| BT | 4.000 | 530.000 | 583.000 | 580.700 | 582.900 | 555.200 | 557.200 | 582.900 | 580.600 | |
| BT | 582.500 | 582.800 | 580.500 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | | | | | | | | | | |
| X1 | 11650.000 | 36.000 | 548.000 | 604.000 | 51.000 | 51.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 548.000 | -0.000 | 604.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| GR | 584.800 | 0.000 | 584.500 | 48.000 | 584.300 | 148.000 | 584.100 | 248.000 | 583.600 | 348.000 |
| GR | 583.000 | 448.000 | 583.400 | 548.000 | 573.400 | 548.000 | 573.700 | 553.000 | 573.300 | 558.000 |
| GR | 573.000 | 563.000 | 572.600 | 568.000 | 572.600 | 573.000 | 572.600 | 573.500 | 580.700 | 573.500 |
| GR | 580.700 | 575.500 | 572.500 | 575.500 | 572.400 | 578.000 | 572.100 | 583.000 | 572.600 | 588.000 |
| GR | 572.100 | 593.000 | 572.600 | 598.000 | 572.400 | 601.000 | 580.500 | 604.000 | 583.200 | 604.000 |
| GR | 582.400 | 648.000 | 581.900 | 748.000 | 582.400 | 823.000 | 582.900 | 848.000 | 583.300 | 948.000 |
| GR | 583.800 | 1048.000 | 584.100 | 1148.000 | 584.500 | 1248.000 | 584.300 | 1348.000 | 583.900 | 1448.000 |
| GR | 584.300 | 1558.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| SB | 1.250 | 1.610 | 2.500 | 2.000 | 56.000 | -0.000 | 400.000 | -0.000 | 572.100 | 572.100 |
| | | | | | | | | | | |
| X1 | 11721.000 | -0.000 | 548.000 | 604.000 | 71.000 | 71.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X2 | -0.000 | -0.000 | 1.000 | 580.700 | 583.200 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| X3 | 10.000 | -0.000 | -0.000 | 548.000 | -0.000 | 604.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| BT | 4.000 | 548.000 | 583.400 | 580.700 | 583.300 | 573.500 | 575.500 | 583.300 | 580.700 | |
| BT | 604.000 | 583.200 | 580.500 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| EJ | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      CITY OF WYANDOTTE FIS 5555-73
T2      SEXTON-KILFOIL DRAIN
T3      100 YEAR FLOOD 4410 CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.       4.        -0.       -0.  -0.000000    -0.00     -0.0      -0.   574.900   -0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      3.000    -0.000    -1.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

CCHV=    .300 CEHV=    .500
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

     1.00     11.50    574.90      0.00    574.90    575.51       .61      0.00      0.00    584.60
    4410.        0.     4410.        0.        0.       701.        0.        0.        0.    584.60
     0.00      0.00      6.29      0.00      .035      .032      .035     0.000    563.40    529.17
  .001328        -0.       -0.       -0.         0         0         1      0.00     89.83    619.00

    30.00     11.55    574.95      0.00      0.00    575.55       .61       .04       .00    584.60
    4410.        0.     4410.        0.        0.       705.        0.        0.        0.    584.60
      .00      0.00      6.26      0.00      .035      .032      .035      .031    563.40    528.85
  .001312       29.       29.       29.         0         0         1      0.00     90.15    619.00

    60.00     11.59    574.99      0.00      0.00    575.60       .60       .04       .00    584.60
    4410.        0.     4410.        0.        0.       709.        0.        1.        0.    584.60
      .00      0.00      6.22      0.00      .035      .032      .035      .031    563.40    528.45
  .001294       30.       30.       30.         1         0         1      0.00     90.55    619.00

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=  9 MIN ELTRD=  584.30 MAX ELLC=  580.30

    61.00     11.53    574.93      0.00      0.00    575.66       .72       .00       .06    584.60
    4410.        0.     4410.        0.        0.       646.        0.        1.        0.    584.60
      .00      0.00      6.83      0.00      .035      .032      .035      .030    563.40    528.88
  .002372        1.        1.        1.         2         0         1      0.00     83.12    619.00

3265 DIVIDED FLOW
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 136.00 | 11.76 | 575.16 | 0.00 | 0.00 | 575.84 | .68 | .17 | .01 | 584.60 |
| 4410. | 0. | 4410. | 0. | 0. | 665. | 0. | 2. | 0. | 584.60 |
| .01 | 0.00 | 6.63 | 0.00 | .035 | .032 | .035 | .031 | 563.40 | 527.00 |
| .002224 | 75. | 75. | 75. | 2 | 0 | 1 | 0.00 | 85.00 | 619.00 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 137.00 | 11.94 | 575.34 | 0.00 | 0.00 | 575.88 | .55 | .00 | .04 | 584.60 |
| 4410. | 0. | 4410. | 0. | 0. | 741. | 0. | 2. | 0. | 584.60 |
| .01 | 0.00 | 5.95 | 0.00 | .035 | .032 | .035 | .031 | 563.40 | 525.53 |
| .001166 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 93.47 | 619.00 |
| 187.00 | 11.26 | 575.36 | 0.00 | 0.00 | 575.98 | .62 | .06 | .04 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 696. | 0. | 3. | 0. | 580.20 |
| .01 | 0.00 | 6.33 | 0.00 | .035 | .032 | .042 | .031 | 564.10 | 341.32 |
| .001331 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 91.61 | 432.94 |
| 362.00 | 11.97 | 575.94 | 0.00 | 0.00 | 576.25 | .30 | .17 | .10 | 578.57 |
| 4410. | 0. | 4410. | 0. | 0. | 995. | 0. | 6. | 1. | 577.17 |
| .02 | 0.00 | 4.43 | 0.00 | .035 | .032 | .042 | .031 | 563.97 | 251.10 |
| .000728 | 175. | 175. | 175. | 2 | 0 | 1 | 0.00 | 146.24 | 397.33 |
| 737.00 | 12.54 | 576.24 | 0.00 | 0.00 | 576.50 | .26 | .24 | .01 | 578.30 |
| 4410. | 0. | 4410. | 0. | 0. | 1079. | 0. | 15. | 2. | 576.90 |
| .04 | 0.00 | 4.09 | 0.00 | .035 | .032 | .042 | .032 | 563.70 | 249.56 |
| .000570 | 375. | 375. | 375. | 2 | 0 | 1 | 0.00 | 149.01 | 398.57 |
| 787.00 | 12.30 | 576.20 | 0.00 | 0.00 | 576.62 | .42 | .04 | .08 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 846. | 0. | 16. | 2. | 581.00 |
| .05 | 0.00 | 5.21 | 0.00 | .035 | .032 | .042 | .032 | 563.90 | 795.00 |
| .000895 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 106.60 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 788.00 | 12.25 | 576.15 | 0.00 | 0.00 | 576.67 | .52 | .00 | .05 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 764. | 0. | 16. | 2. | 581.00 |
| .05 | 0.00 | 5.77 | 0.00 | .035 | .032 | .042 | .032 | 563.90 | 795.00 |
| .003554 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 104.00 | 901.60 |

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD= 4 MIN ELTRD= 581.00 MAX ELLC= 577.20

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 797.00 | 12.29 | 576.19 | 0.00 | 0.00 | 576.70 | .51 | .03 | .00 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 767. | 0. | 17. | 2. | 581.00 |
| .05 | 0.00 | 5.75 | 0.00 | .035 | .032 | .042 | .032 | 563.90 | 795.00 |
| .003513 | 9. | 9. | 9. | 1 | 0 | 1 | 0.00 | 104.00 | 901.60 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 798.00 | 12.42 | 576.32 | 0.00 | 0.00 | 576.73 | .41 | .00 | .03 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 859. | 0. | 17. | 2. | 581.00 |
| .05 | 0.00 | 5.13 | 0.00 | .035 | .032 | .042 | .032 | 563.90 | 795.00 |
| .000851 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 106.60 | 901.60 |
| 844.00 | 11.37 | 576.37 | 0.00 | 0.00 | 576.77 | .40 | .04 | .00 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 865. | 0. | 17. | 2. | 581.40 |
| .05 | 0.00 | 5.10 | 0.00 | .035 | .032 | .042 | .032 | 565.00 | 815.00 |
| .000809 | 46. | 46. | 46. | 2 | 0 | 1 | 0.00 | 109.00 | 924.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=16 MIN ELTRD= 581.40 MAX ELLC= 578.40

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 845.00 | 11.33 | 576.33 | 0.00 | 0.00 | 576.81 | .48 | .00 | .04 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 797. | 0. | 17. | 2. | 581.40 |
| .05 | 0.00 | 5.53 | 0.00 | .035 | .032 | .042 | .031 | 565.00 | 815.00 |
| .002795 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 102.00 | 924.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=16 MIN ELTRD= 581.40 MAX ELLC= 578.40

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 859.00 | 11.38 | 576.38 | 0.00 | 0.00 | 576.85 | .47 | .04 | .00 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 802. | 0. | 18. | 2. | 581.40 |
| .05 | 0.00 | 5.50 | 0.00 | .035 | .032 | .042 | .031 | 565.00 | 815.00 |
| .002751 | 15. | 15. | 15. | 2 | 0 | 1 | 0.00 | 102.00 | 924.00 |
| 860.00 | 11.48 | 576.48 | 0.00 | 0.00 | 576.88 | .39 | .00 | .02 | 581.50 |
| 4410. | 0. | 4410. | 0. | 0. | 877. | 0. | 18. | 2. | 581.40 |
| .05 | 0.00 | 5.03 | 0.00 | .035 | .032 | .042 | .031 | 565.00 | 815.00 |
| .000773 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 109.00 | 924.00 |
| 910.00 | 12.56 | 576.56 | 0.00 | 0.00 | 576.92 | .37 | .04 | .01 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 908. | 0. | 19. | 3. | 583.00 |
| .05 | 0.00 | 4.86 | 0.00 | .035 | .032 | .042 | .031 | 564.00 | 835.00 |
| .000696 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 107.00 | 942.00 |

3265 DIVIDED FLOW

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 911.00 | 12.52 | 576.52 | 0.00 | 0.00 | 576.96 | .45 | .00 | .04 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 823. | 0. | 19. | 3. | 583.00 |
| .05 | 0.00 | 5.36 | 0.00 | .035 | .032 | .042 | .031 | 564.00 | 835.00 |
| .003062 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 105.00 | 942.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 583.00 MAX ELLC= 578.60

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 921.00 | 12.55 | 576.55 | 0.00 | 0.00 | 576.99 | .44 | .03 | .00 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 826. | 0. | 19. | 3. | 583.00 |
| .05 | 0.00 | 5.34 | 0.00 | .035 | .032 | .042 | .031 | 564.00 | 835.00 |
| .003030 | 10. | 10. | 10. | 1 | 0 | 1 | 0.00 | 105.00 | 942.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 922.00 | 12.66 | 576.66 | 0.00 | 0.00 | 577.02 | .36 | .00 | .03 | 583.10 |
| 4410. | 0. | 4410. | 0. | 0. | 919. | 0. | 19. | 3. | 583.00 |
| .05 | 0.00 | 4.80 | 0.00 | .035 | .032 | .042 | .031 | 564.00 | 835.00 |
| .000671 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 107.00 | 942.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 953.00 | 11.49 | 576.59 | 0.00 | 0.00 | 577.14 | .55 | .03 | .10 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 738. | 0. | 20. | 3. | 580.80 |
| .06 | 0.00 | 5.97 | 0.00 | .035 | .032 | .042 | .031 | 565.10 | 600.00 |
| .001040 | 31. | 31. | 31. | 2 | 0 | 1 | 0.00 | 81.00 | 681.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=14 MIN ELTRD= 580.80 MAX ELLC= 577.70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 954.00 | 11.34 | 576.44 | 0.00 | 0.00 | 577.29 | .85 | .00 | .15 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 596. | 0. | 20. | 3. | 580.80 |
| .06 | 0.00 | 7.40 | 0.00 | .035 | .032 | .042 | .031 | 565.10 | 600.00 |
| .005600 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 67.20 | 681.00 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=14 MIN ELTRD= 580.80 MAX ELLC= 577.70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 985.00 | 11.56 | 576.66 | 0.00 | 0.00 | 577.47 | .81 | .17 | .01 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 611. | 0. | 20. | 3. | 580.80 |
| .06 | 0.00 | 7.22 | 0.00 | .035 | .032 | .042 | .031 | 565.10 | 600.00 |
| .005274 | 31. | 31. | 31. | 2 | 0 | 1 | 0.00 | 67.20 | 681.00 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 986.00 | 11.97 | 577.07 | 0.00 | 0.00 | 577.57 | .50 | .00 | .09 | 581.00 |
| 4410. | 0. | 4410. | 0. | 0. | 777. | 0. | 20. | 3. | 580.80 |
| .06 | 0.00 | 5.68 | 0.00 | .035 | .032 | .042 | .031 | 565.10 | 600.00 |
| .000889 | 1. | 1. | 1. | 2 | 0 | 1 | 0.00 | 81.00 | 681.00 |

3470 ENCROACHMENT STATIONS= .0 700.0 TYPE= 1 TARGET= 699.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.10 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1036.00 | 11.04 | 577.24 | 0.00 | 0.00 | 577.64 | .40 | .04 | .03 | 581.10 |
| 4410. | 0. | 4410. | 0. | 0. | 866. | 0. | 21. | 3. | 100000.00 |
| .06 | 0.00 | 5.10 | 0.00 | .040 | .032 | .035 | .031 | 566.20 | 579.94 |
| .000887 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 119.39 | 699.33 |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 579.10 ELREA= 577.50

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1736.00 | 12.46 | 577.86 | 0.00 | 0.00 | 578.18 | .32 | .52 | .03 | 579.10 |
| 4410. | 0. | 4308. | 102. | 0. | 941. | 168. | 37. | 8. | 577.50 |
| .10 | 0.00 | 4.58 | .61 | .060 | .032 | .035 | .032 | 565.40 | 376.55 |
| .000620 | 700. | 700. | 700. | 1 | 0 | 1 | 0.00 | 520.85 | 897.40 |

3470 ENCROACHMENT STATIONS= .0 485.0 TYPE= 1 TARGET= 484.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2436.00 | 13.67 | 578.27 | 0.00 | 0.00 | 578.57 | .30 | .39 | .00 | 577.10 |
| 4410. | 9. | 4286. | 115. | 23. | 954. | 144. | 55. | 15. | 577.40 |
| .15 | .39 | 4.49 | .80 | .060 | .032 | .035 | .032 | 564.60 | 142.88 |
| .000502 | 700. | 700. | 700. | 2 | 0 | 1 | 0.00 | 342.12 | 485.00 |

3470 ENCROACHMENT STATIONS= .0 500.0 TYPE= 1 TARGET= 499.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.30 ELREA= 576.40

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3186.00 | 10.03 | 578.83 | 0.00 | 0.00 | 578.92 | .08 | .27 | .07 | 581.30 |
| 1760. | 0. | 1605. | 155. | 0. | 668. | 208. | 72. | 20. | 576.40 |
| .24 | 0.00 | 2.40 | .75 | .060 | .032 | .035 | .032 | 568.80 | 209.39 |
| .000195 | 750. | 750. | 750. | 2 | 0 | 1 | 0.00 | 275.40 | 484.80 |

3470 ENCROACHMENT STATIONS= .0 500.0 TYPE= 1 TARGET= 499.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.90 ELREA= 577.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3686.00 | 9.53 | 578.93 | 0.00 | 0.00 | 579.04 | .11 | .11 | .01 | 581.90 |
| 1760. | 0. | 1667. | 93. | 0. | 623. | 127. | 81. | 23. | 577.00 |
| .29 | 0.00 | 2.68 | .73 | .060 | .032 | .035 | .032 | 569.40 | 210.30 |
| .000261 | 500. | 500. | 500. | 2 | 0 | 1 | 0.00 | 229.09 | 439.39 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 350.0 550.0 TYPE= 1 TARGET= 200.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4186.00 | 9.06 | 579.06 | 0.00 | 0.00 | 579.19 | .13 | .14 | .01 | 578.20 |
| 1760. | 4. | 1755. | 2. | 10. | 598. | 8. | 89. | 25. | 578.70 |
| .34 | .38 | 2.93 | .22 | .040 | .032 | .037 | .032 | 570.00 | 385.99 |
| .000306 | 500. | 500. | 500. | 1 | 0 | 1 | 0.00 | 158.27 | 544.26 |

3470 ENCROACHMENT STATIONS= 592.0 644.0 TYPE= 1 TARGET= 52.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.10 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4236.00 | 10.95 | 579.05 | 0.00 | 0.00 | 579.24 | .19 | .02 | .03 | 580.10 |
| 1760. | 0. | 1760. | 0. | 0. | 504. | 0. | 90. | 25. | 100000.00 |
| .35 | 0.00 | 3.49 | 0.00 | .030 | .030 | .030 | .032 | 568.10 | 592.00 |
| .000356 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 52.00 | 644.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.37 | 2.50 | -0.00 | 50.50 | 1.50 | 400.00 | 0.00 | 568.10 | 568.10 |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 579.46 | 579.25 | .01 | 0. | 1760. | 400. | 577.40 | 580.00 | 10.00 |

Ernons St

3470 ENCROACHMENT STATIONS= 592.0 644.0 TYPE= 1 TARGET= 52.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.10 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4281.00 | 11.18 | 579.28 | 0.00 | 0.00 | 579.46 | .18 | .22 | 0.00 | 580.10 |
| 1760. | 0. | 1760. | 0. | 0. | 515. | 0. | 90. | 26. | 100000.00 |
| .35 | 0.00 | 3.41 | 0.00 | .030 | .030 | .030 | .032 | 568.10 | 592.00 |
| .000333 | 45. | 45. | 45. | 2 | 0 | 1 | 0.00 | 52.00 | 644.00 |

3470 ENCROACHMENT STATIONS= 115.0 200.0 TYPE= 1 TARGET= 85.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.90 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4931.00 | 9.25 | 579.55 | 0.00 | 0.00 | 579.68 | .13 | .21 | .01 | 580.90 |
| 1760. | 0. | 1760. | 0. | 0. | 600. | 0. | 99. | 27. | 100000.00 |
| .41 | 0.00 | 2.93 | 0.00 | .040 | .032 | .037 | .032 | 570.30 | 117.17 |
| .000305 | 650. | 650. | 650. | 2 | 0 | 1 | 0.00 | 82.55 | 199.72 |

3470 ENCROACHMENT STATIONS= 115.0 200.0 TYPE= 1 TARGET= 85.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.25 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5956.00 | 9.21 | 579.86 | 0.00 | 0.00 | 580.00 | .13 | .31 | .00 | 581.25 |
| 1760. | 0. | 1760. | 0. | 0. | 597. | 0. | 113. | 28. | 100000.00 |
| .51 | 0.00 | 2.95 | 0.00 | .040 | .032 | .037 | .032 | 570.65 | 117.22 |
| .000309 | 1025. | 1025. | 1025. | 1 | 0 | 1 | 0.00 | 82.47 | 199.69 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.60 ELREA= 582.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6981.00 | 9.19 | 580.19 | 0.00 | 0.00 | 580.32 | .13 | .32 | .00 | 582.60 |
| 1760. | 0. | 1760. | 0. | 0. | 606. | 0. | 127. | 30. | 582.00 |
| .61 | 0.00 | 2.90 | 0.00 | .040 | .032 | .037 | .032 | 571.00 | 509.39 |
| .000314 | 1025. | 1025. | 1025. | 0 | 0 | 1 | 0.00 | 87.40 | 596.80 |

3280 CROSS SECTION 8031.00 EXTENDED .01 FEET

3470 ENCROACHMENT STATIONS= 150.0 246.0 TYPE= 1 TARGET= 96.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8031.00 | 9.02 | 580.52 | 0.00 | 0.00 | 580.63 | .11 | .31 | .01 | 580.70 |
| 1760. | 0. | 1760. | 0. | 0. | 653. | 0. | 142. | 33. | 100000.00 |
| .71 | 0.00 | 2.70 | 0.00 | .040 | .032 | .037 | .032 | 571.50 | 150.56 |
| .000275 | 1050. | 1050. | 1050. | 0 | 0 | 1 | 0.00 | 95.44 | 246.00 |

3280 CROSS SECTION 8082.00 EXTENDED 2.95 FEET

3470 ENCROACHMENT STATIONS= 580.0 655.0 TYPE= 1 TARGET= 75.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.90 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8082.00 | 10.65 | 580.55 | 0.00 | 0.00 | 580.65 | .10 | .01 | .00 | 580.90 |
| 1760. | 0. | 1760. | 0. | 0. | 688. | 0. | 143. | 33. | 100000.00 |
| .72 | 0.00 | 2.56 | 0.00 | .030 | .030 | .030 | .032 | 569.90 | 580.00 |
| .000275 | 51. | 51. | 51. | 2 | 0 | 1 | 0.00 | 75.00 | 655.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.56 | 2.60 | 0.00 | 75.00 | 3.00 | 519.00 | -0.00 | 569.90 | 569.90 |

3280 CROSS SECTION 8147.00 EXTENDED 3.13 FEET

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 580.83 | 580.66 | .01 | 0. | 1760. | 519. | 578.40 | 580.90 | 10.00 |

Harrison St.

3470 ENCROACHMENT STATIONS= 580.0 655.0 TYPE= 1 TARGET= 75.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.90 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8147.00 | 10.83 | 580.73 | 0.00 | 0.00 | 580.83 | .10 | .18 | 0.00 | 580.90 |
| 1760. | 0. | 1760. | 0. | 0. | 701. | 0. | 144. | 33. | 100000.00 |
| .73 | 0.00 | 2.51 | 0.00 | .030 | .030 | .030 | .032 | 569.90 | 580.00 |
| .000259 | 65. | 65. | 65. | 2 | 0 | 1 | 0.00 | 75.00 | 655.00 |

3470 ENCROACHMENT STATIONS= 550.0 635.0 TYPE= 1 TARGET= 85.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9397.00 | 9.27 | 581.07 | 0.00 | 0.00 | 581.20 | .13 | .36 | .02 | 579.30 |
| 1760. | 0. | 1760. | 0. | 0. | 602. | 0. | 163. | 35. | 100000.00 |
| .84 | 0.00 | 2.92 | 0.00 | .035 | .032 | .040 | .032 | 571.80 | 550.00 |
| .000315 | 1250. | 1250. | 1250. | 0 | 0 | 1 | 0.00 | 84.18 | 634.18 |

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= .0 480.0 TYPE= 1 TARGET= 479.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.40 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10297.00 | 9.54 | 581.34 | 0.00 | 0.00 | 581.48 | .14 | .28 | .00 | 583.40 |
| 1760. | 0. | 1760. | 0. | 0. | 586. | 0. | 175. | 37. | 100000.00 |
| .93 | 0.00 | 3.00 | 0.00 | .035 | .032 | .040 | .032 | 571.80 | 403.43 |
| .000305 | 900. | 900. | 900. | 2 | 0 | 1 | 0.00 | 76.19 | 479.62 |

3470 ENCROACHMENT STATIONS= 112.0 185.0 TYPE= 1 TARGET= 73.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10897.00 | 9.33 | 581.53 | 0.00 | 0.00 | 581.68 | .15 | .19 | .01 | 580.40 |
| 1760. | 0. | 1760. | 0. | 0. | 559. | 0. | 183. | 38. | 100000.00 |
| .98 | 0.00 | 3.15 | 0.00 | .035 | .032 | .035 | .032 | 572.20 | 112.00 |
| .000345 | 600. | 600. | 600. | 0 | 0 | 1 | 0.00 | 73.00 | 185.00 |

3470 ENCROACHMENT STATIONS= 500.0 552.0 TYPE= 1 TARGET= 52.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.70 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10973.00 | 9.83 | 581.53 | 0.00 | 0.00 | 581.76 | .23 | .04 | .04 | 581.70 |
| 1760. | 0. | 1760. | 0. | 0. | 454. | 0. | 184. | 38. | 100000.00 |
| .99 | 0.00 | 3.88 | 0.00 | .035 | .032 | .035 | .032 | 571.70 | 500.00 |
| .000734 | 76. | 76. | 76. | 2 | 0 | 1 | 0.00 | 52.00 | 552.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | .90 | 1.47 | 2.50 | -0.00 | 52.00 | 2.00 | 315.00 | -0.00 | 571.70 | 571.70 |

Harrison St. #2

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 582.24 | 581.77 | .01 | 48. | 1702. | 315. | 579.00 | 581.70 | 30.00 |

3470 ENCROACHMENT STATIONS= 500.0 552.0 TYPE= 1 TARGET= 52.000
ELENCL= 590.00 ELENCR= 590.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.70 ELREA= 590.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11017.00 | 10.28 | 581.98 | 0.00 | 0.00 | 582.19 | .21 | .43 | 0.00 | 581.70 |
| 1760. | 0. | 1760. | 0. | 0. | 478. | 0. | 184. | 38. | 590.00 |
| .99 | 0.00 | 3.69 | 0.00 | .035 | .032 | .035 | .032 | 571.70 | 500.00 |
| .000629 | 44. | 44. | 44. | 2 | 0 | 3 | 0.00 | 52.00 | 552.00 |

3280 CROSS SECTION 11477.00 EXTENDED .07 FEET

3470 ENCROACHMENT STATIONS= 155.0 255.0 TYPE= 1 TARGET= 100.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11477.00 | 10.47 | 582.27 | 0.00 | 0.00 | 582.40 | .13 | .19 | .02 | 582.90 |
| 1760. | 0. | 1759. | 1. | 0. | 606. | 6. | 190. | 39. | 581.40 |
| 1.03 | 0.00 | 2.90 | .24 | .060 | .032 | .060 | .032 | 571.80 | 156.18 |
| .000281 | 460. | 460. | 460. | 2 | 0 | 1 | 0.00 | 93.65 | 249.82 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 530.0 582.5 TYPE= 1 TARGET= 52.500

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.00 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11528.00 | 10.16 | 582.26 | 0.00 | 0.00 | 582.46 | .20 | .02 | .04 | 583.00 |
| 1760. | 0. | 1760. | 0. | 0. | 485. | 0. | 191. | 39. | 100000.00 |
| 1.04 | 0.00 | 3.63 | 0.00 | .060 | .032 | .060 | .032 | 572.10 | 530.00 |
| .000625 | 51. | 51. | 51. | 2 | 0 | 1 | 0.00 | 52.50 | 582.50 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.61 | 2.50 | -0.00 | 52.50 | 2.00 | 400.00 | -0.00 | 572.10 | 572.10 |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 582.74 | 582.48 | .02 | 0. | 1760. | 400. | 580.70 | 582.80 | 10.00 |

North Bound
Fort St.

3470 ENCROACHMENT STATIONS= 530.0 582.5 TYPE= 1 TARGET= 52.500

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.00 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11599.00 | 10.45 | 582.55 | 0.00 | 0.00 | 582.74 | .19 | .28 | 0.00 | 583.00 |
| 1760. | 0. | 1760. | 0. | 0. | 501. | 0. | 191. | 39. | 100000.00 |
| 1.04 | 0.00 | 3.52 | 0.00 | .060 | .032 | .060 | .032 | 572.10 | 530.00 |
| .000568 | 71. | 71. | 71. | 2 | 0 | 1 | 0.00 | 52.50 | 582.50 |

3470 ENCROACHMENT STATIONS= 548.0 604.0 TYPE= 1 TARGET= 56.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.40 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11650.00 | 10.50 | 582.60 | 0.00 | 0.00 | 582.77 | .17 | .03 | .01 | 583.40 |
| 1760. | 0. | 1760. | 0. | 0. | 525. | 0. | 192. | 39. | 100000.00 |
| 1.05 | 0.00 | 3.35 | 0.00 | .060 | .032 | .060 | .032 | 572.10 | 548.00 |
| .000492 | 51. | 51. | 51. | 1 | 0 | 1 | 0.00 | 56.00 | 604.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|

PRESSURE FLOW

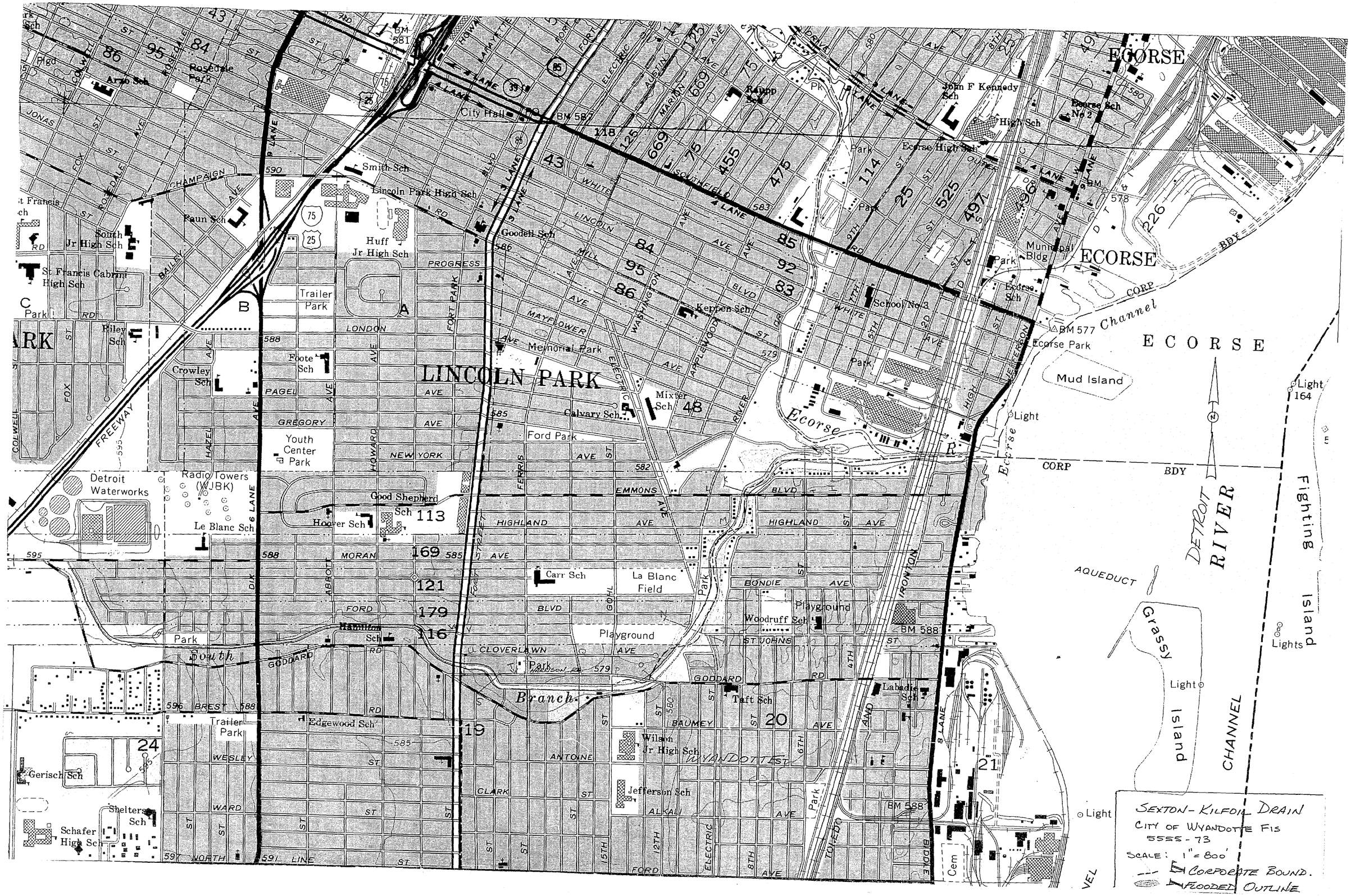
| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 583.08 | 582.78 | .01 | 0. | 1760. | 400. | 580.70 | 583.20 | 10.00 |

South Bound
Fort St.

3470 ENCROACHMENT STATIONS= 548.0 604.0 TYPE= 1 TARGET= 56.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.40 ELREA= 100000.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11721.00 | 10.82 | 582.92 | 0.00 | 0.00 | 583.08 | .16 | .31 | 0.00 | 583.40 |
| 1760. | 0. | 1760. | 0. | 0. | 543. | 0. | 193. | 39. | 100000.00 |
| 1.05 | 0.00 | 3.24 | 0.00 | .060 | .032 | .060 | .032 | 572.10 | 548.00 |
| .000443 | 71. | 71. | 71. | 2 | 0 | 1 | 0.00 | 56.00 | 604.00 |



LINCOLN PARK
ECORSE
ECORSE
ECORSE
Mud Island
Ecorse Park
Ecorse Channel
DETROIT RIVER
Fighting Island
Grassy Island
CHANNEL
AQUEDUCT
Light
Lights
Light 164
Light
Light
Cem
Detroit Waterworks
Radio Towers (WJBK)
Le Blanc Sch
Youth Center Park
Trailer Park
Huff Jr High Sch
Smith Sch
Lincoln Park High Sch
Goodell Sch
Memorial Park
Calvary Sch
Ford Park
Mixter Sch
Keppen Sch
Good Shepherd Sch
Hoover Sch
Carr Sch
La Blanc Field
Playground
Woodruff Sch
Taft Sch
Labadie Sch
Wilson Jr High Sch
Jefferson Sch
Edgewood Sch
Gerisch Sch
Shelters Sch
Schafer High Sch
Crowley Sch
Foote Sch
Riley Sch
St Francis Cabrini High Sch
South Jr High Sch
Faun Sch
Arno Sch
Rosedale Park
City Hall
Raupp Sch
John F Kennedy Sch
High Sch
Ecorse Sch No 2
Ecorse High Sch
Municipal Bldg
Ecorse Sch
School No 3
Park
Hamilton Sch
South Branch
WYANDOTTE
CORP BDY
SEXTON-KILFOIL DRAIN
CITY OF WYANDOTTE FIS
5555-73
SCALE: 1" = 800'
CORPORATE BOUND.
FLOODED OUTLINE