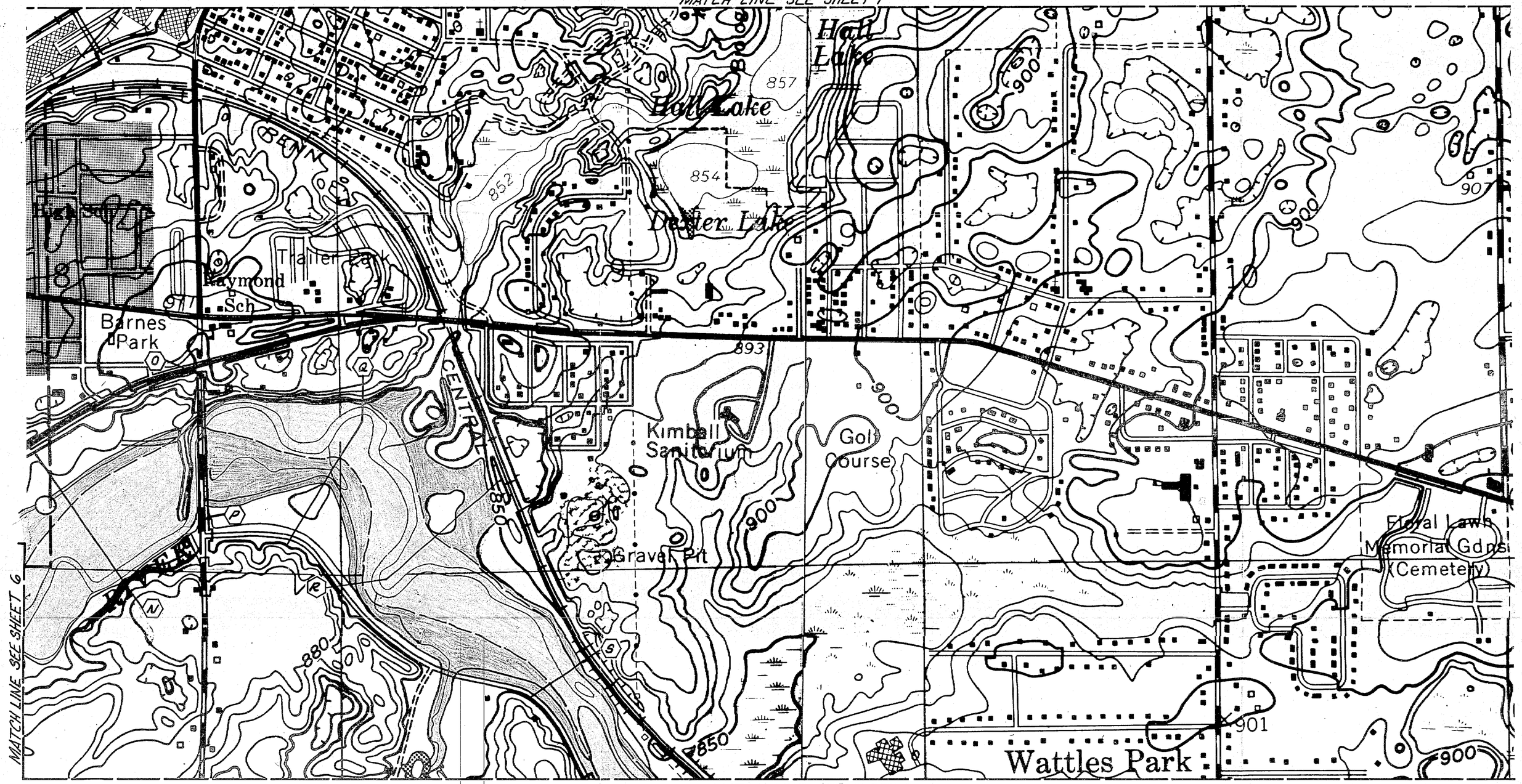
MATCH LINE SEE SHEET 1



MATCH LINE SEE SHEET 6

MATCH LINE SEE SHEET 2

FLOOD MAP

LEGEND

FLOODWAY — 100 YR. BOUNDARY — 500 YR. BOUNDARY

CROSS SECTION
CORPORATE BOUNDARY

EMMETT TOWNSHIP
CALHOUN COUNTY, MICHIGAN

SCALE: 1"=400'

KALAMAZOO RIVER
11/80
SHEET 2 OF 6
HUD 2025-10

MATCH LINE SEE SHEET 2

MATCH LINE SEE SHEET 6

MATCH LINE SEE SHEET 5

MATCH LINE SEE SHEET 4

FLOOD MAP

LEGEND

FLOODWAY — 100 YR. BOUNDARY — 500 YR. BOUNDARY

A — A CROSS SECTION

CORPORATE BOUNDARY

EMMETT TOWNSHIP

CALHOUN COUNTY, MICHIGAN

SCALE: 1"=400'

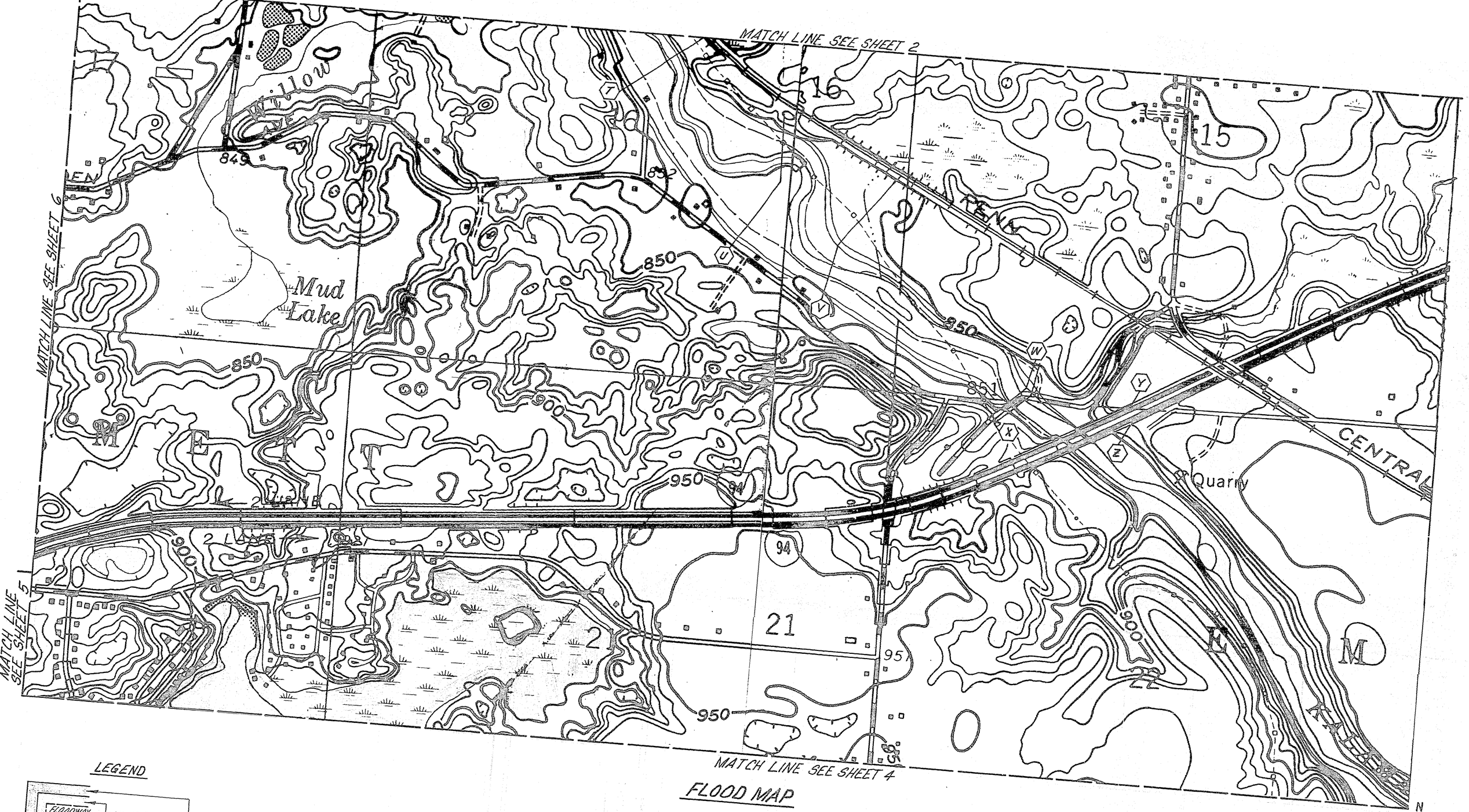
KALAMAZOO RIVER

11/80

SHEET 3 of 6

HUD 2025-10

N



LEGEND

FLOODWAY — 100 YR. BOUNDARY — 500 YR. BOUNDARY

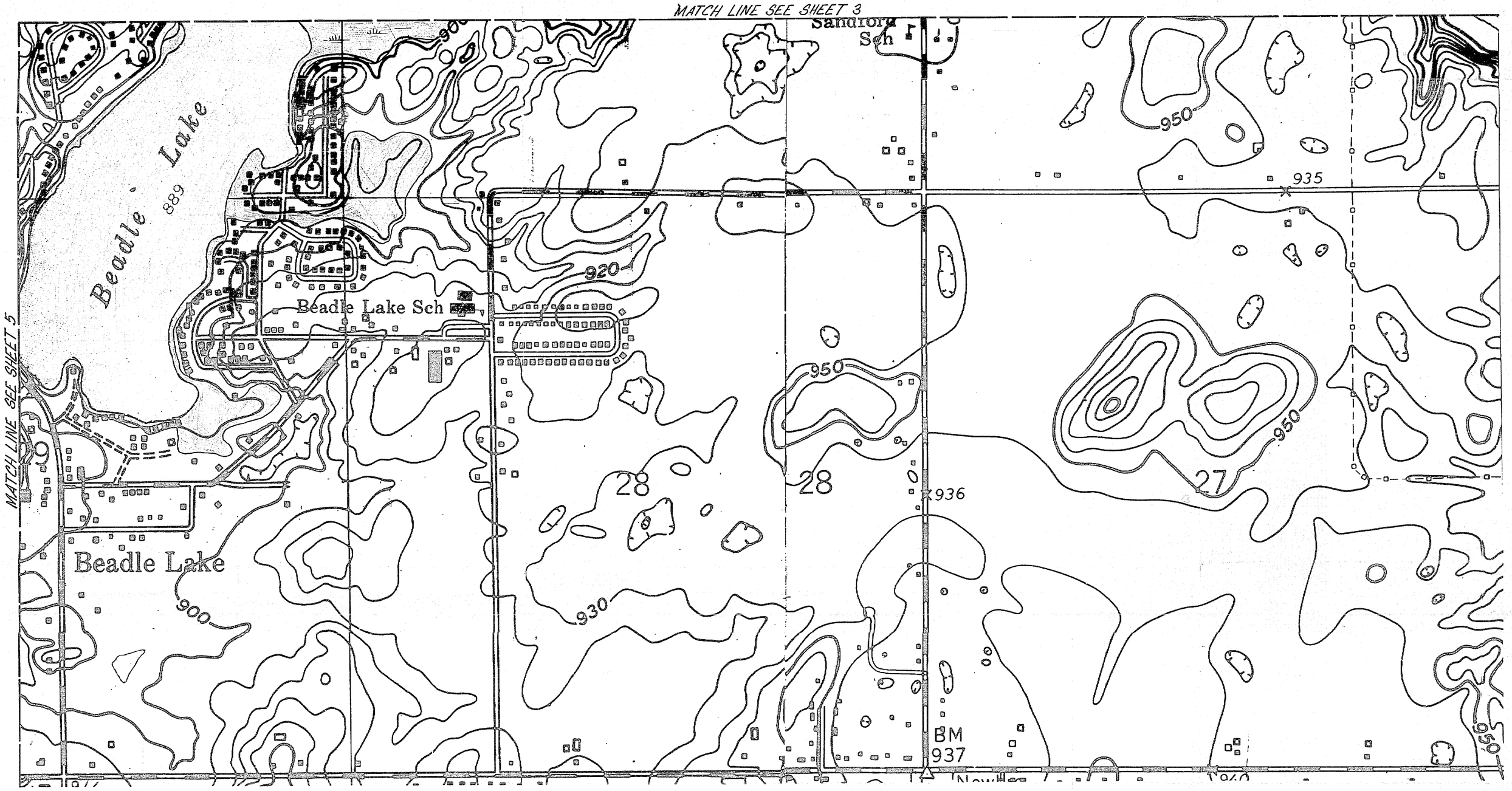
CROSS SECTION
CORPORATE BOUNDARY

FLOOD MAP

EMMETT TOWNSHIP
CALHOUN COUNTY, MICHIGAN

SCALE: 1"=400'

KALAMAZOO RIVER
11/80



FLOOD MAP

LEGEND

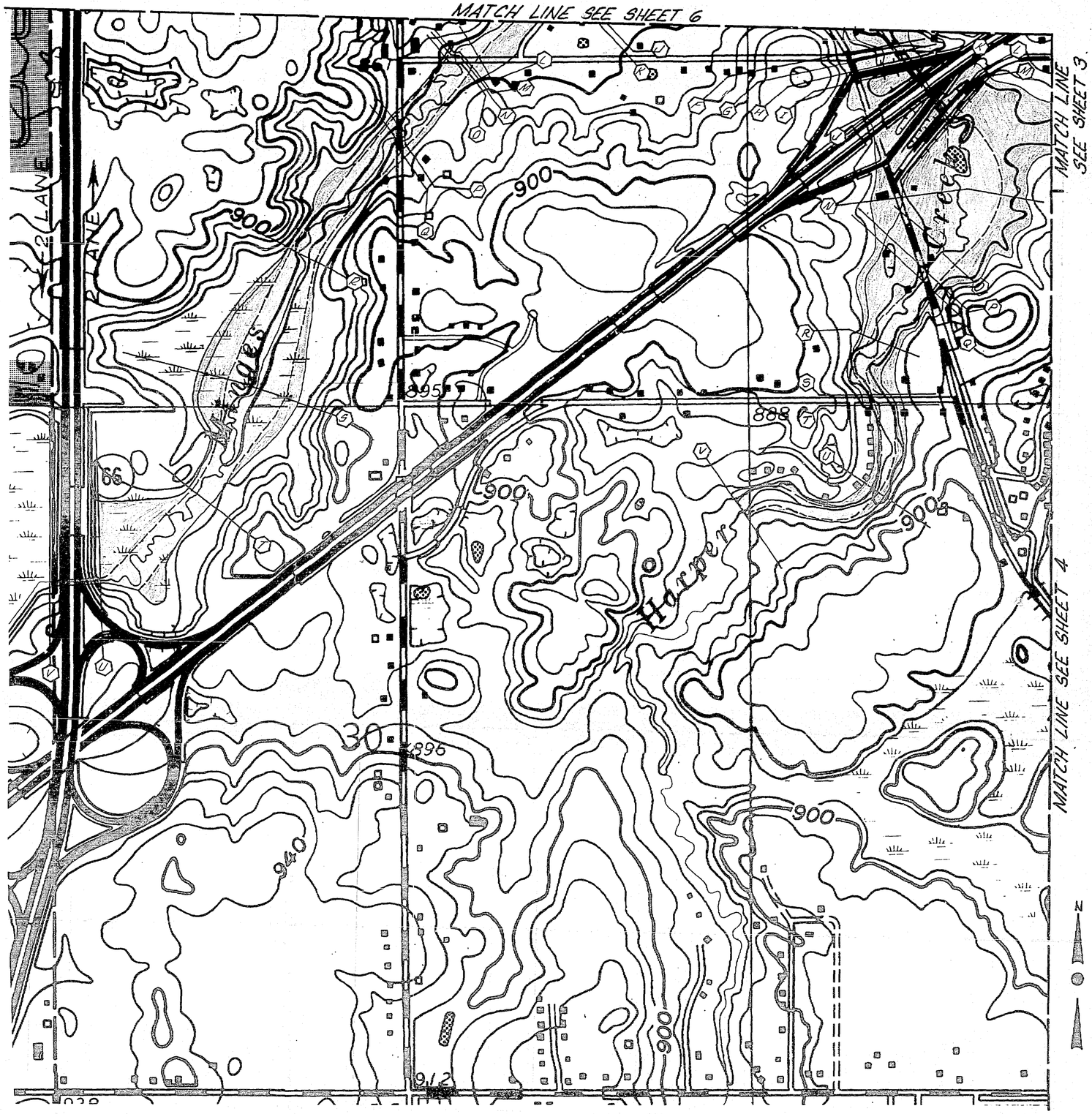
FLOODWAY — 100 YR. BOUNDARY — 500 YR. BOUNDARY

(A)——(A) CROSS SECTION
CORPORATE BOUNDARY

EMMETT TOWNSHIP
CALHOUN COUNTY, MICHIGAN

SCALE: 1" = 400'

SHEET 4 of 6
HUD 2025-10



LEGEND

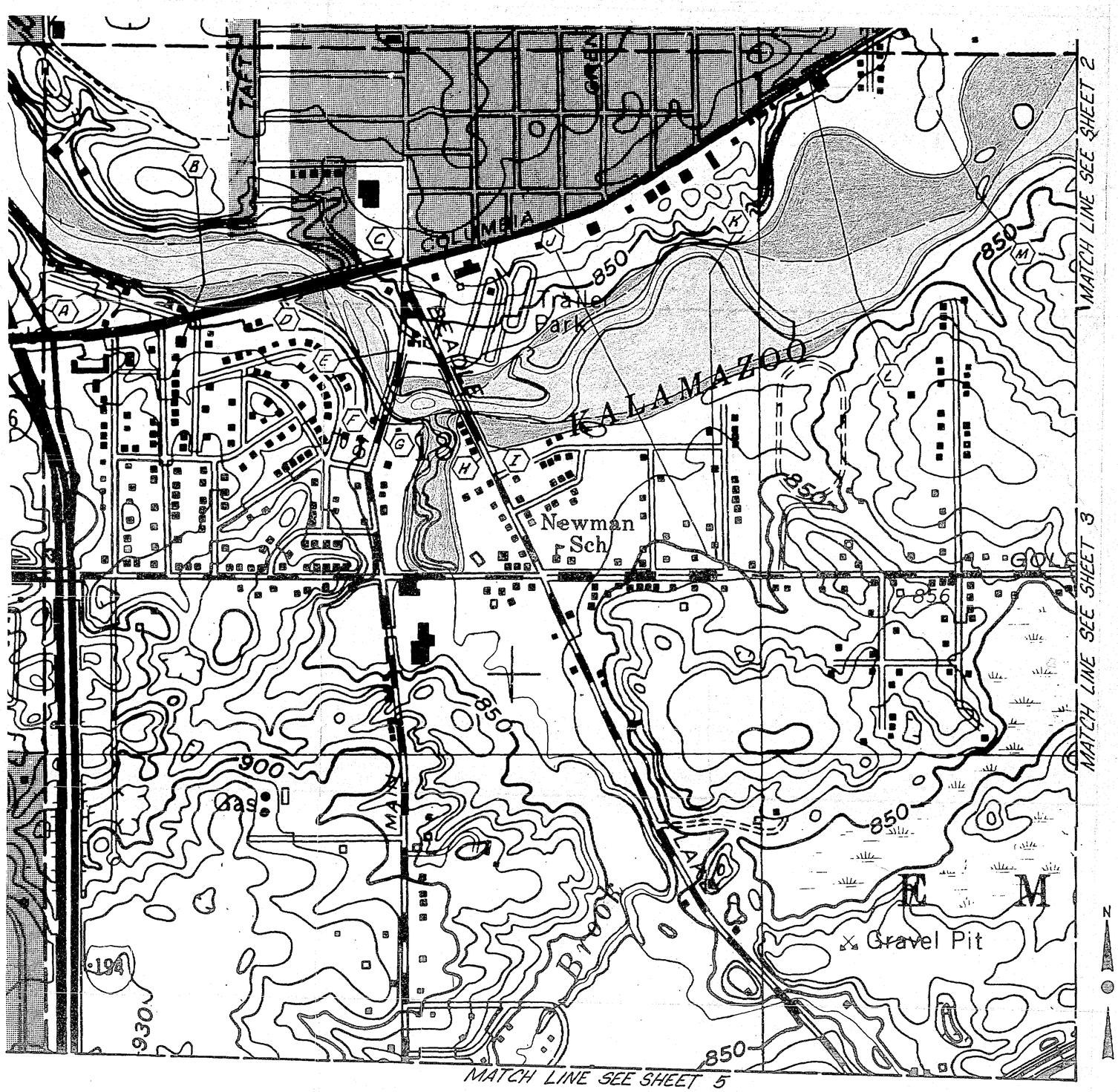
FLOODWAY — 100 YR. BOUNDARY — 500 YR. BOUNDARY

CROSS SECTION
CORPORATE BOUNDARY

EMMETT TOWNSHIP
CALHOUN COUNTY, MICHIGAN
SCALE: 1" = 400'

FLOOD MAP

RECEIVED
AUG 11 1981
WATER MANAGEMENT



LEGEND

FLOODWAY — 100 YR. BOUNDARY — 500 YR. BOUNDARY

A — A CROSS SECTION

CORPORATE BOUNDARY

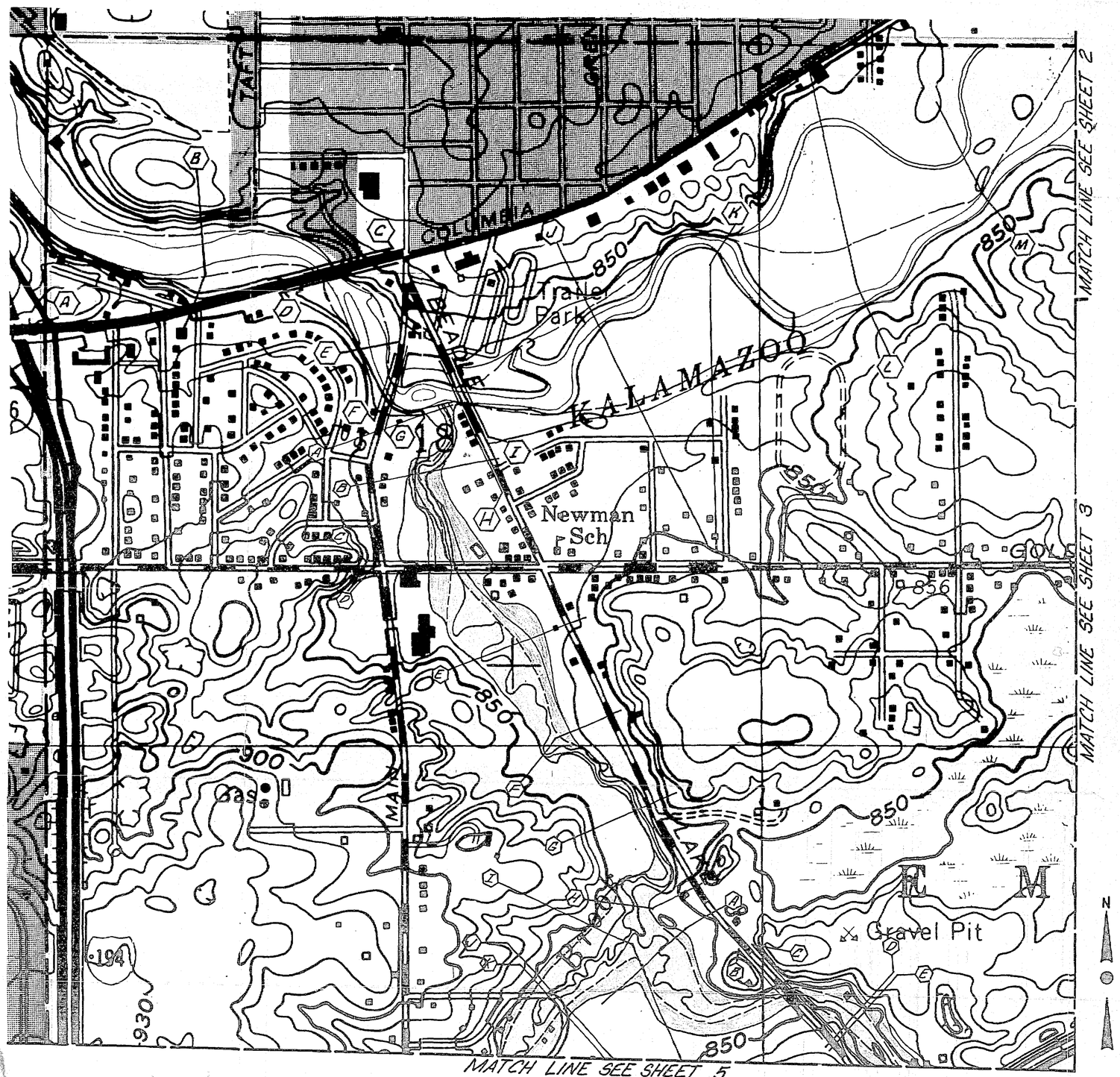
FLOOD MAP

EMMETT TOWNSHIP

CALHOUN COUNTY, MICHIGAN

SCALE: 1" = 400'

KALAMAZOO RIVER
11/80
SHEET 6 of 6
HUD 2025-10



LEGEND

FLOODWAY — 100 YR. BOUNDARY — 500 YR. BOUNDARY

A — A CROSS SECTION

CORPORATE BOUNDARY

FLOOD MAP

EMMETT TOWNSHIP

CALHOUN COUNTY, MICHIGAN

SCALE: 1" = 400'

KALAMAZOO RIVER

11/80

SHEET 6 of 6

HUD 2025-10

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Emmett Twp & Battle Twp.

3) WATERCOURSE: Minges Brook & Harper Creek

4) DOCUMENT TYPE: report

00BREAK00

RECEIVED
MAY 12 1981
WATER MANAGEMENT

MINGES BROOK AND HARPER CREEK
HYDRAULIC ANALYSIS
FOR
EMMETT TOWNSHIP AND BATTLE CREEK TOWNSHIP
FLOOD INSURANCE STUDIES

April, 1981
HUD 2022-07
HUD 2025-07

Prepared By:

Wade, Trim & Associates, Inc.
25185 Goddard Road
Taylor, Michigan 48180

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I INTRODUCTION

This Hydraulic Study investigates the existence and severity of flood hazards along the Minges Brook and its major tributary, Harper Creek, in Emmett Township and Battle Creek Township, Calhoun County, Michigan. Furthermore, detailed hydraulic studies were performed on two lakes: Beadle Lake in the Harper Creek Basin and Goguac Lake in the Minges Brook Basin.

Emmett Township and Battle Creek Township cover an area of approximately 32.0 and 29.0 square miles, respectively. Flood plain areas of Minges Brook and Harper Creek, located within Emmett and Battle Creek Townships are basically undeveloped at present with the exception of some residential development. William Weaver served as Project Manager for this study.

II MINGES BROOK (Detailed)

Detailed hydraulic studies were performed for approximately 4.5 miles of the Minges Brook, beginning at its confluence with the Kalamazoo River in Emmett Township and ending near Goguac Lake in Battle Creek Township.

A total of 10 bridge, 11 small dams, 1 foot bridge and 25 valley cross sections were field surveyed by Wade, Trim & Associates, Inc. in February, 1980. These cross sections were supplemented by 2-foot contour maps, aerial topography and U.S.G.S. Quad Maps which consist of 10-foot contour intervals (References 1, 2 and 3, respectively).

Cross section locations are shown on Exhibit 1. Table 1 cross references section designations by showing the computer section number and survey section number which correspond to each cross section letter shown in Exhibit 1. Table 2 lists discharges which have been approved by the Michigan Department of Natural Resources (M.D.N.R.) for this stream.

A. METHOD OF ANALYSIS

The HEC-2 backwater computer program was used in the development of water surface profiles (Reference 4). Table 2 presents water surface elevations at selected locations for the four storms (10, 50, 100 and 500-year) analyzed in this report. HEC-2 printouts including computer cross section plots are presented as Exhibit 2. (Exhibit 2 is contained in the 11" x 15" folder enclosed with this report.) Water surface profiles resulting from the backwater analyses are presented as Exhibit 3.

TABLE 1

EMMETT TOWNSHIP

AND

BATTLE CREEK TOWNSHIP

MINGES BROOK

CROSS REFERENCE INDEX

X-SECTION	COMPUTER NO.	ABRAMS AERIAL/ WTA SURVEY SECTION	DESCRIPTION
A	1.0	26	Confluence to Kalamazoo River
B	1.5	27	Valley Section
C	1.9	27	D/S Face Golden Ave. Bridge
D	2.0	27 & 28	U/S Face Golden Ave. Bridge
E	2.2	29	Valley Section
F	2.3	30	Valley Section
G	2.4	31	Valley Section
H	2.5	32	Valley Section
I	2.6	51	Valley Section
J	2.9	52	D/S Face Juanita Dr. Bridge
K	3.0	52 & 53	U/S Face Juanita Dr. Bridge
L	3.4	54	Dam
M	3.7	54	Dam
N	3.9	54	D/S Face E. Drive Bridge
O	4.0	54 & 55	U/S Face E. Drive Bridge
P	4.9	56	D/S Face Main St. Bridge
Q	5.0	56	U/S Face Main St. Bridge
R	5.2	57	Valley Section
S	5.3	58	Valley Section
T	5.4	59	Valley Section
U	5.9	18 & 20	D/S Face I-94 Bridge
V	6.0	18 & 20	U/S Face I-94 Bridge
W	6.3	17	Valley Section
X	6.4	16	Valley Section
Y	6.5	15	Valley Section
Z	6.8	13	D/S Face Riverside Dr. Bridge
AA	7.0	13 & 14	U/S Face Riverside Dr. Bridge
AB	8.0	12A	Dam
AC	8.3	12	Valley Section
AD	8.4	11	Valley Section

TABLE 1

EMMETT TOWNSHIP

AND

BATTLE CREEK TOWNSHIP

MINGES BROOK

CROSS REFERENCE INDEX

(Continued)

X-SECTION	COMPUTER NO.	ABRAMS AERIAL/ WTA SURVEY SECTION	DESCRIPTION
AE	9.0	10B	Dam
AF	10.0	10A	Dam
AG	10.9	9	D/S Face Capital Ave. Bridge
AH	11.0	9 & 10	U/S Face Capital Ave. Bridge
AI	11.3	8	Valley Section
AJ	12.0	7D	Dam
AK	13.0	7C	Dam
AL	14.0	7B	Dam
AM	15.0	7A	Footbridge
AN	15.2	7	Valley Section
AO	16.0	6C & 7	Dam
AP	16.9	6	D/S Face Minges St. Bridge
AQ	17.0	5 & 6	U/S Face Minges St. Bridge
AR	18.0	4A	Dam
AS	18.2	4	Valley Section
AT	18.9	3C	D/S Face Estate Dr. Bridge
AU	19.0	3C	U/S Face Estate Dr. Bridge
AV	19.3	3C	Dam
AW	19.9	3	D/S Face Lynwood Dr. Bridge
AX	20.0	3	U/S Face Lynwood Dr. Bridge

TABLE 2

EMMETT TOWNSHIP

AND

BATTLE CREEK TOWNSHIP

MINGES BROOK FLOOD ELEVATIONS*

LOCATION	FLOOD FREQUENCY 10-YEAR	50-YEAR	100-YEAR	500-YEAR
Confluence to Kalamazoo River (D/S Limit of Study)	Q=600cfs 831.6	Q=980cfs 832.5	Q=1,150cfs 832.9	Q=1,620cfs 833.7
U/S Confluence to Harper Creek	Q=310cfs 842.5	Q=525cfs 843.7	Q=630cfs 844.1	Q=900cfs 844.8
U/S I-94 (Emmett/ Battle Creek Townships Corporate Boundaries)	861.4	863.1	863.9	866.9
U/S Capital Avenue Bridge	885.3	886.0	887.0	890.8
U/S Lynwood Drive Bridge	912.7	912.9	913.2	913.8

*All elevations are based upon National Geodetic Vertical Datum.

B. VARIABLES AND COEFFICIENTS

Roughness coefficients (Mannings "n") were estimated from field inspections, quad maps, and photographs. Typical roughness values for the main channel and overbank areas of Minges Brook range from .02 to .04 and .08 to .10, respectively, for all floods. These values are indicative of summer month conditions and are consistent with values recommended and used in engineering practice (Reference 5). Contraction and expansion coefficients were selected as 0.3 and 0.5, respectively, at bridge sections and 0.1 and 0.3, respectively, for gradual channel transitions. Bridge loss coefficient computations are included in Exhibit 4.

C. HIGH WATER MARKS

There are no documented high water marks for this reach of Minges Brook.

D. STARTING CONDITIONS

The starting water surface elevation used in all backwater computations for the Minges Brook was the mean annual Kalamazoo River level. A storm frequency/discharge rating curve was developed for the Kalamazoo River (Reference 6) to determine the mean annual flow (2.33 year recurrence interval) of 1,450 cfs. This flow was then applied to the stage/discharge rating curve to obtain the mean annual elevation of 830.6 (Exhibit 5).

E. GENERAL

All elevations are referenced to the U.S. Geological Survey (U.S.G.S.) Datum. This datum is equivalent to the National Geodetic Vertical Datum (N.G.V.D.).

The hydraulic analyses for this study were based only upon 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.

III HARPER CREEK (Detailed)

Detailed Hydraulic Studies were performed for approximately 1.8 miles of Harper Creek beginning at its confluence with Minges Brook and ending approximately 0.6 miles upstream of Hoover Road (D Drive) in Emmett Township.

A total of 8 bridge and 10 valley cross sections were field surveyed by Wade, Trim & Associates, Inc., in February, 1980. These cross sections were supplemented by an aerial cross section survey and U.S.G.S. Quad Maps which consist of 10-foot contour intervals (References 2 and 3).

Cross section locations are shown on Exhibit 1. Table 3 cross references section designations by showing the computer section number and survey section number which corresponds to each cross section letter shown in Exhibit 1. Table 4 lists discharges which have been approved by the Michigan Department of Natural Resources (M.D.N.R.) for this stream.

A. METHOD OF ANALYSIS

The HEC-2 backwater computer program was used in the development of water surface profiles (Reference 4). Table 4 presents water surface elevations at selected locations for the four storms (10, 50, 100 and 500-year) analyzed in this report. HEC-2 printouts including computer cross section plots are presented as Exhibit 2. (Exhibit 2 is contained in the 11" x 15" folder enclosed with this report.) Water surface profiles resulting from the backwater analyses are presented as Exhibit 6.

TABLE 3

EMMETT TOWNSHIP

HARPER CREEK

CROSS REFERENCE INDEX

X-SECTION	COMPUTER NO.	ABRAMS AERIAL/ WTA SURVEY SECTION	DESCRIPTION
A	2.6	33	Valley Section
B	2.9	34	D/S Face Beadle Lake Road
C	3.0	34	U/S Face Beadle Lake Road
D	3.9	36	D/S Face Private Drive
E	4.0	36	U/S Face Private Drive
F	4.9	37	D/S Face E. Drive North
G	5.0	37	U/S Face E. Drive North
H	5.9	39	D/S Face I-94 Ramp
I	6.0	39	U/S Face I-94 Ramp
J	6.9	41	D/S Face I-94
K	7.0	41	U/S Face I-94
L	7.9	42	D/S Face E. Drive South
M	8.0	42	U/S Face E. Drive South
N	8.3	43	Valley Section
O	8.4	44	Valley Section
P	8.9	44	D/S Face Beadle Lake Road
Q	9.0	44 & 45	U/S Face Beadle Lake Road
R	9.3	46	Valley Section
S	9.9	48	D/S Face D. Drive
T	10.0	47 & 48	U/S Face D. Drive
U	10.3	49	Valley Section
V	10.4	50	Valley Section

TABLE 4

EMMETT TOWNSHIP

HARPER CREEK FLOOD ELEVATIONS*

LOCATION	FLOOD FREQUENCY 10-YEAR	50-YEAR	100-YEAR	500-YEAR
Confluence with Minges Brook	Q=325cfs 842.0	Q=530cfs 843.5	Q=630cfs * 844.0	Q=895cfs 844.7
U/S Beadle Lake Road	850.2	851.6	852.8	855.7
U/S E. Drive South	853.8	857.7	859.7	864.9
U/S D. Drive	863.2	867.1	867.6	868.8

* why not change the Q at [illegible]

*All elevations are based upon National Geodetic Vertical Datum.

B. VARIABLES AND COEFFICIENTS

Roughness coefficients (Mannings "n") were estimated from field inspections, quad maps, and photographs. Typical roughness values for the main channel and overbank areas of the Harper Creek range from .035 to .040 and .10 to .08, respectively for all floods. These values are indicative of summer month conditions and are consistent with values recommended and used in engineering practice (Reference 5). Contraction and expansion coefficients were selected as 0.3 and 0.5, respectively, at bridge sections and 0.1 and 0.3, respectively, for gradual channel transitions. Bridge loss coefficient computations are included in Exhibit 7.

C. HIGH WATER MARKS

There are no documented high water marks for this reach of the Kalamazoo River.

D. STARTING CONDITIONS

Flood peaks for both Harper Creek and Minges Brook would occur simultaneously at their confluence as illustrated in the Hydrologic Analysis which was performed as part of the Emmett Township Flood Insurance Study (Reference 6). Therefore, all floods for both streams were assumed to occur at the same time and starting water surface elevations for the 10, 50, 100 and 500-year backwater computations were taken from the HEC-2 Multiple Profile Printout (Exhibit 2) of the Minges Brook, located at its confluence with Harper Creek.

E. GENERAL

All elevations are referenced to the U.S. Geological Survey (U.S.G.S.) Datum. This datum is equivalent to the National Geodetic Vertical Datum (N.G.V.D.).

The hydraulic analyses for this study were based only upon 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.

IV GOGUAC LAKE (Detailed)

Goguac Lake, located within the Minges Brook Basin, has a drainage area of 3.1 square miles at its outlet into Minges Brook. The outlet structure, which discharges into Minges Brook at the southern end of the lake, consists of a channel which is restricted by a series of culverts: 1) a 132-foot long, 30-inch diameter concrete culvert, and 2) a twin 12-inch diameter CMP culvert which is 9 feet long.

A reservoir routing was performed for Goguac Lake in the Hydrologic Analysis (Reference 6). Results of this anlaysis indicated that outflow from the lake during the 10, 50, 100 and 500-year floods would be minimal as listed in Table 5. Stage/Discharge curve, which was developed for this analysis, is presented in Figure 1.

TABLE 5

BATTLE CREEK TOWNSHIP, MICHIGAN

STAGE/DISCHARGE/STORAGE DATA*

GOGUAC LAKE

	FREQUENCY			
	10 YR.	50 YR.	100 YR.	500 YR.
Inflow (cfs)	890.0	1,265.0	1,420.0	1,790.0
Outflow (cfs)	3.0 3.69	4.0 4.33	5.0 4.93	6.0 5.70
Elevation (ft)	911.8	912.0	912.4	912.8
Storage (acre-ft)	273.0	383.0	427.0	539.0

Drainage Area = 3.1 mi^2

Normal Surface Area = 350 acres

*(Reference 6)

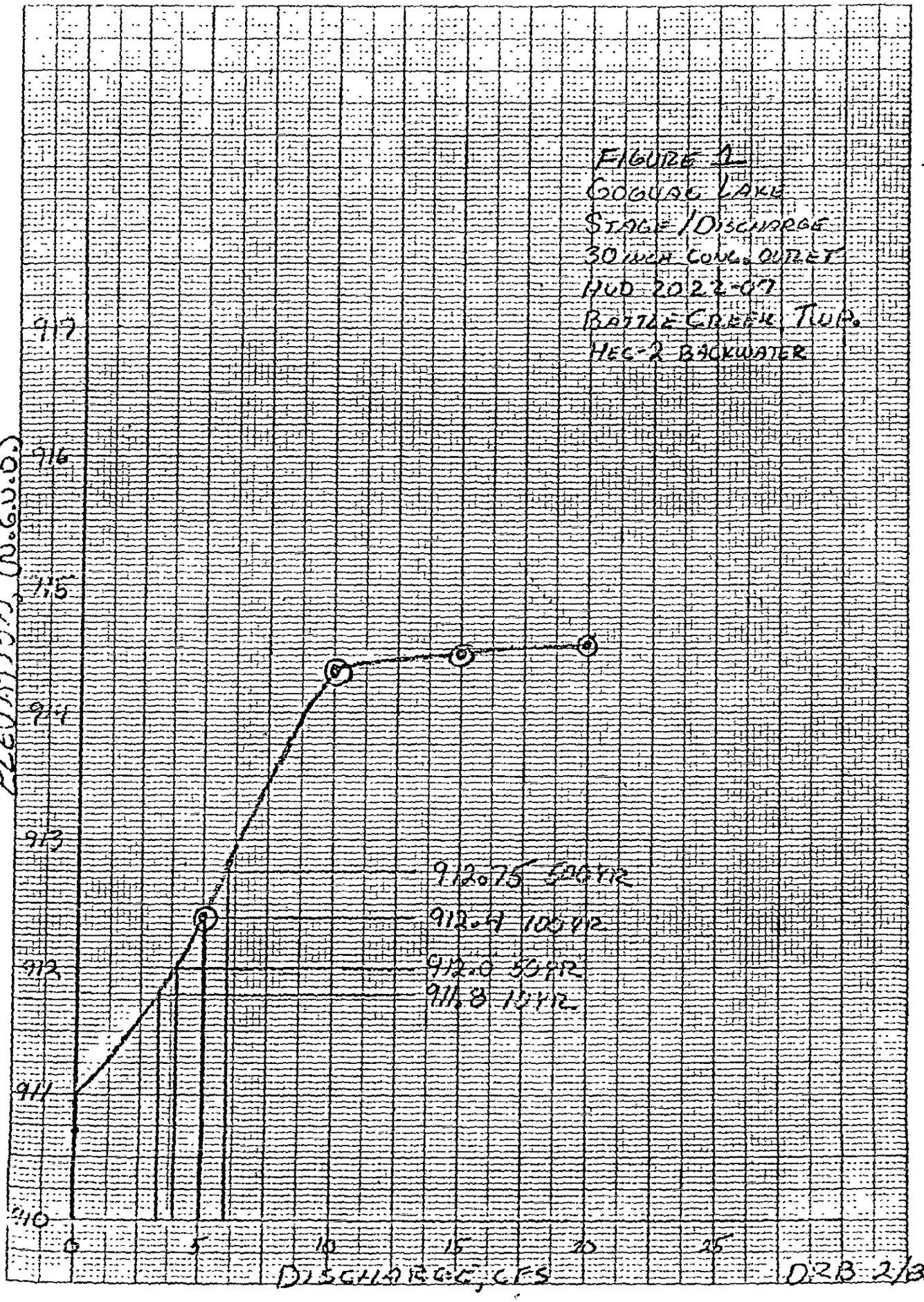


FIGURE 1
COGUAC LAKE
STAGE / DISCHARGE
30 INCH CONC. OUTLET
HUD 2022-07
BATTLE CREEK TWP.
HEC-2 BACKWATER
ELEVATION, (N.G.V.D.)
917
916
915
914
913
912
911
910
912.75 50 YR
912.4 100 YR
912.0 50 YR
911.8 10 YR
0
5
10
15
20
25
DISCHARGE, CFS
DRB 2/80

V BEADLE LAKE (Detailed)

Beadle Lake is located within the Harper Creek drainage basin; however, the lake has no outlet (Reference 7). Therefore, the entire quantity of runoff for the 2.9 square mile area which drains to the lake, as developed in the hydrologic analysis (Reference 6), was considered to be stored within the lake. Stage/storage data, which was developed for this analysis, is presented in Table 6. Calculations associated with this analysis are presented within Exhibit 8.

TABLE 6

EMMETT TOWNSHIP, MICHIGAN

STAGE/STORAGE DATA

BEADLE LAKE

	FREQUENCY			
	10 YR.	50 YR.	100 YR.	500 YR.
Inflow (cfs)	110	200	240	345
Storage (acre-ft)	~~115~~ 130	~~185~~ 210	~~220~~ 245	~~300~~ 335
Elevation (ft)	~~890.1~~ 890.4	~~890.5~~ 890.9	~~890.7~~ 891.2	~~891.1~~ 891.8

Drainage Area = 2.9 mi^2

Normal Surface Area of Lake = 185 acres

Pencil – Values submitted for hydrology review

REFERENCES

1. Abrams Aerial Survey Corporation, 2-Foot Contour Topographic Map, Sections 14, 15, 16, 22, 23, 24 and 25, Battle Creek Township, Calhoun County, Michigan, 1963.

2. Abrams Aerial Survey Corporation, Aerial Cross Section Survey For Minges Brook and Harper Creek in Emmett and Battle Creek Townships, 1979.

3. U.S. Geological Survey, Topographic Maps - Battle Creek Quadrangle, Calhoun County, 7.5 Minute Series - Photo Revised, 1972.

4. U.S. Department of the Army, Corps of Engineers, HEC-2 Water Surface Profiles, Users Manual, Davis, California, August, 1979.

5. Chow, Ven Te, Open Channel Hydraulics, McGraw Hill, Inc., 1959.

6. Wade, Trim & Associates, Inc., Hydrologic Analysis for Minges Brook and Harper Creek, Emmett and Battle Creek Townships, Michigan, April, 1980.

7. United States Department of the Interior, Geological Survey, Compilation of Data For Michigan Lakes, June, 1970.

MINGES BROOK

AND

HARPER CREEK

INDEX OF EXHIBITS

EXHIBIT 1	Field Cross Section Location and 100-Year Flood Plain - Floodway Map, Emmett and Battle Creek Townships, 8 Sheets.
EXHIBIT 2	Computer Printouts, HEC-2 Backwater Analysis with Cross Section Plots (in Separate Folder) Emmett and Battle Creek Townships.
EXHIBIT 3	Stream Profile, Minges Brook, Emmett and Battle Creek Townships, 5 Sheets.
EXHIBIT 4	Bridge Notes and Sketches, Minges Brook, Emmett and Battle Creek Townships, 49 Sheets.
EXHIBIT 5	Kalamazoo River Mean Flood Elevation, Minges Brook, Emmett and Battle Creek Townships, 2 Sheets.
EXHIBIT 6	Stream Profile, Harper Creek, Emmett Township, 2 Sheets.
EXHIBIT 7	Bridge Notes and Sketches, Harper Creek, Emmett Township, 30 Sheets.
EXHIBIT 8	Beadle Lake, Stage/Storage Calculations, Emmett Township, 2 Sheets.

MINGES BROOK AND HARPER CREEK
EMMETT TOWNSHIP, MICHIGAN
AND
BATTLE CREEK TOWNSHIP, MICHIGAN

EXHIBIT 1
FIELD CROSS SECTION LOCATION AND
100-YEAR FLOOD PLAIN - FLOODWAY MAP

HARPER CREEK

AND

MINGES BROOK

EMMETT TOWNSHIP, MICHIGAN

AND

BATTLE CREEK TOWNSHIP, MICHIGAN

EXHIBIT 2

COMPUTER PRINTOUTS

HEC-2 BACKWATER ANALYSIS WITH

CROSS SECTION PLOTS (SEE SEPARATE FOLDER)

MINGES BROOK

EMMETT TOWNSHIP, MICHIGAN

AND

BATTLE CREEK TOWNSHIP, MICHIGAN

EXHIBIT 3

STREAM PROFILES

MINGES BROOK

GOLDEN AVE.

KALAMAZOO RIVER BACKWATER ZONE A2

ELEVATION IN FEET (N.G.V.D.)

855
850
845
840
835
830
825
820

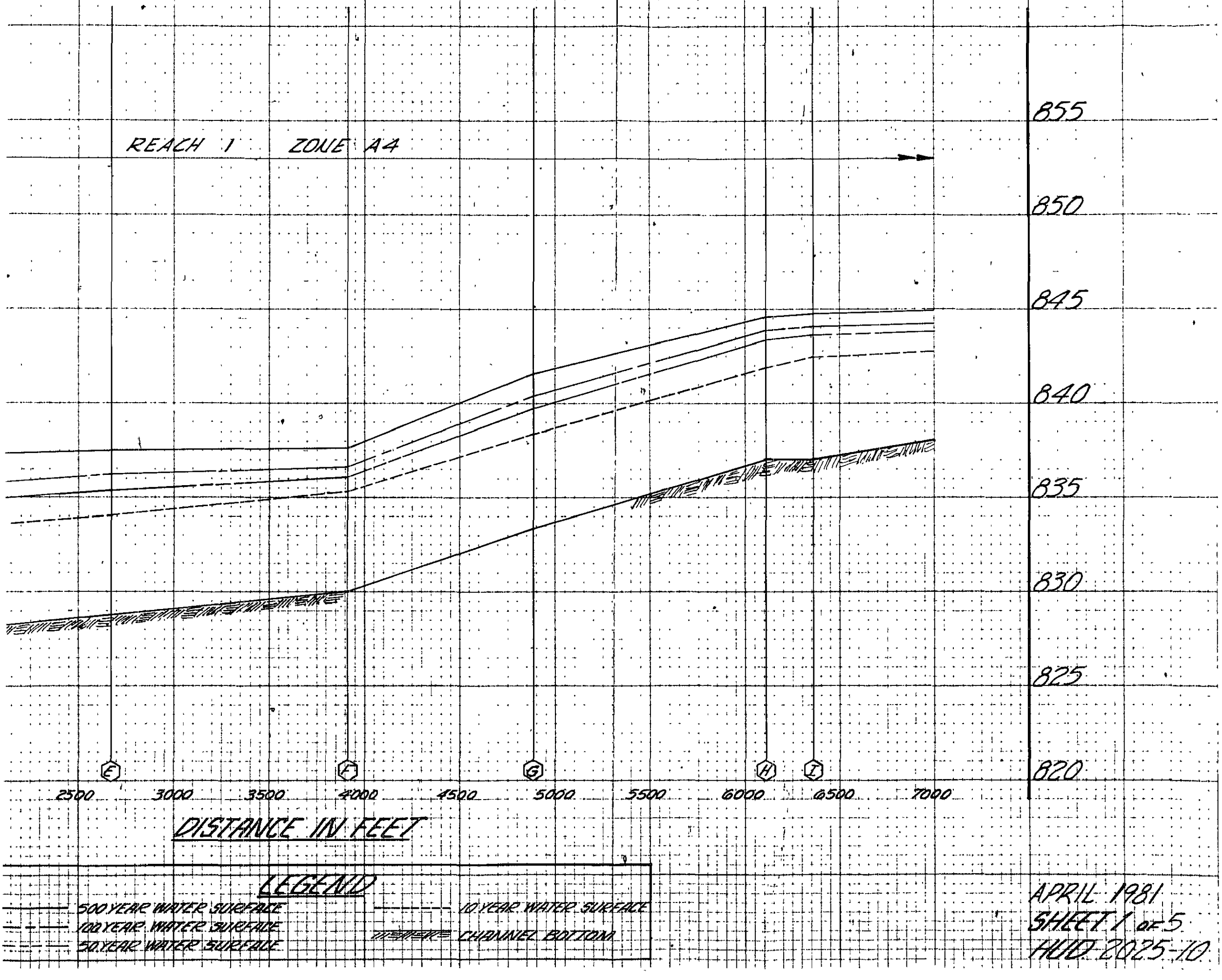
A B C D

0 500 1000 1500 2000

SCALE
HORIZ. 1" = 500'
VERT. 1" = 5'

EMMETT TOWNSHIP

REACH 1 ZONE A4

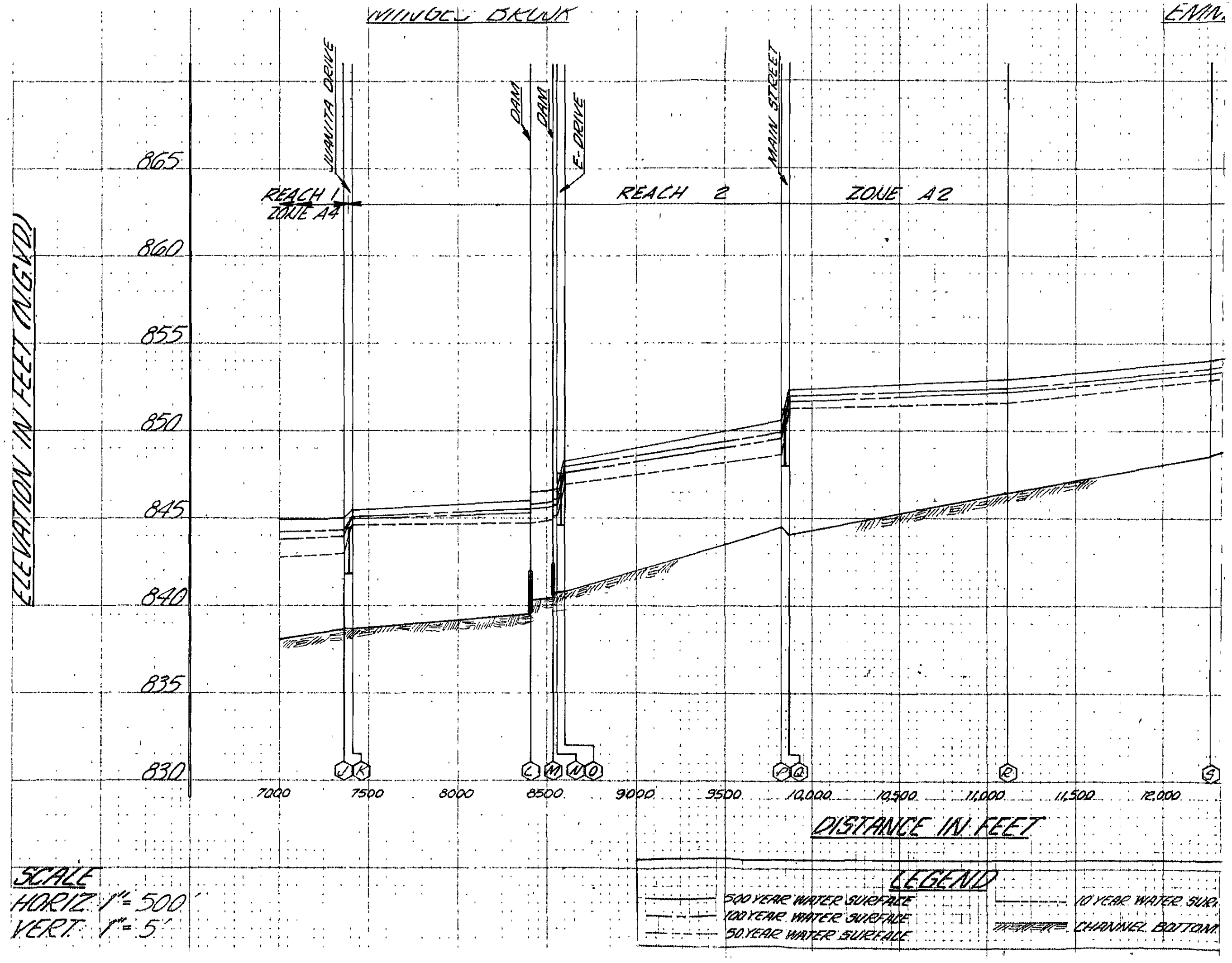


DISTANCE IN FEET

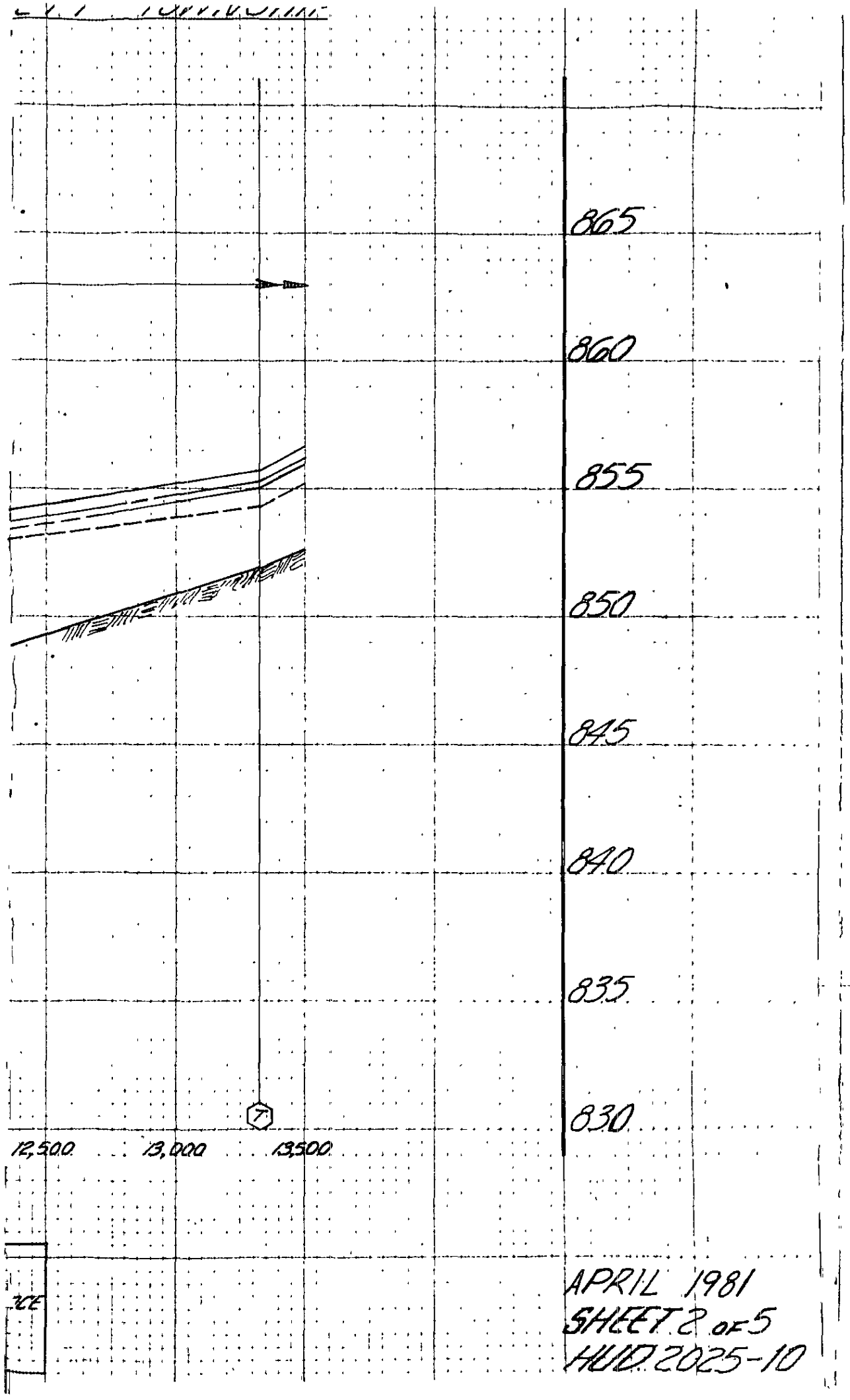
LEGEND

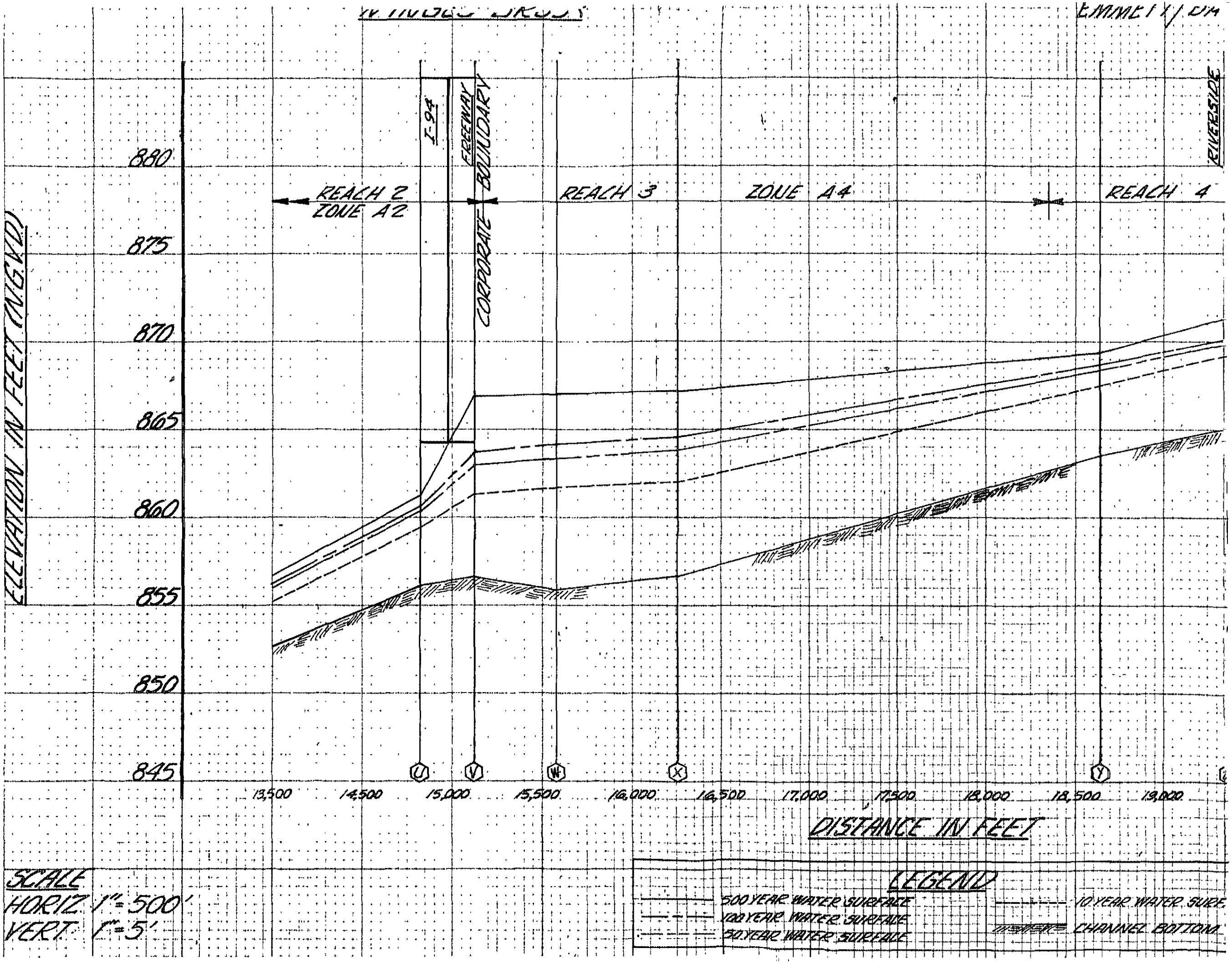
- 500 YEAR WATER SURFACE
- 100 YEAR WATER SURFACE
- 50 YEAR WATER SURFACE
- 10 YEAR WATER SURFACE
- CHANNEL BOTTOM

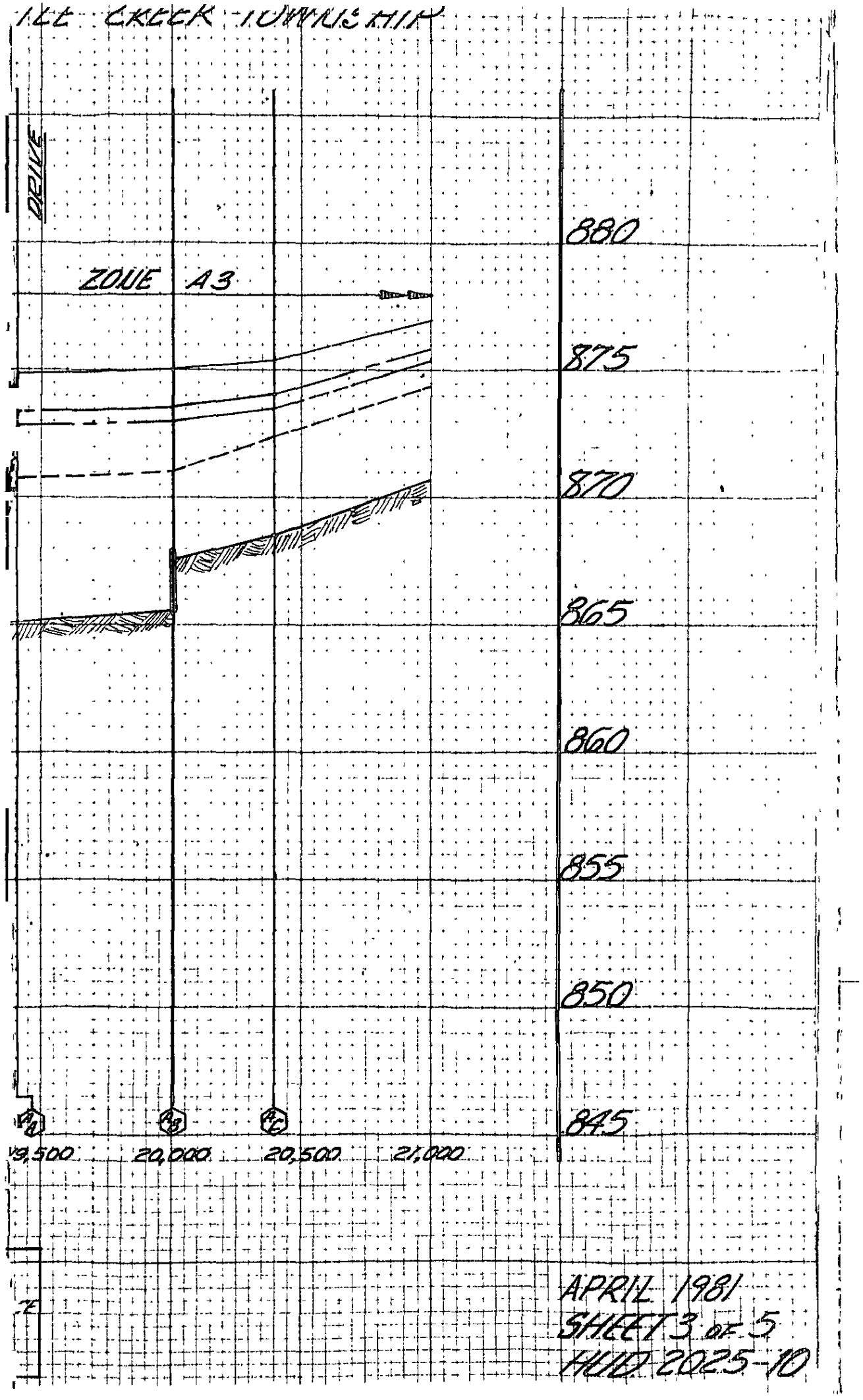
APRIL 1981
SHEET 1 OF 5
HUD 2025-10



MINGES BROOK
EMN.
JUANITA DRIVE
DAM
DAM
E-DRIVE
MAIN STREET
REACH 1
ZONE A4
REACH 2
ZONE A2
ELEVATION IN FEET (N.G.V.D.)
865
860
855
850
845
840
835
830
J
K
L
M
N
O
P
Q
R
S
7000
7500
8000
8500
9000
9500
10,000
10,500
11,000
11,500
12,000
DISTANCE IN FEET
SCALE
HORIZ. 1" = 500'
VERT. 1" = 5'
LEGEND
500 YEAR WATER SURFACE
100 YEAR WATER SURFACE
50 YEAR WATER SURFACE
10 YEAR WATER SUR
CHANNEL BOTTOM


865
860
855
850
845
840
835
830
12,500
13,000
13500
APRIL 1981
SHEET 2 OF 5
HUD 2025-10


I-94
FREEWAY BOUNDARY
CORPORATE BOUNDARY
REACH 2
ZONE A2
REACH 3
ZONE A4
REACH 4
RIVERSIDE
ELEVATION IN FEET (MSL)
880
875
870
865
860
855
850
845
U
V
W
X
Y
13,500
14,500
15,000
15,500
16,000
16,500
17,000
17,500
18,000
18,500
19,000
DISTANCE IN FEET
LEGEND
500 YEAR WATER SURFACE
100 YEAR WATER SURFACE
50 YEAR WATER SURFACE
10 YEAR WATER SURF
CHANNEL BOTTOM
SCALE
HORIZ 1"=500'
VERT 1"=5'



APRIL 1981
SHEET 3 OF 5
HUD 2025-10

MINGES BROOK

BATTLE

REACH 4

ZONE A3

DAM

DAM

CAPITAL BASE

DAM

DAM

DAM

ELEVATION IN FEET (NGVD)

900

895

890

885

880

875

870

865

A-D

A-E

A-F

A-G

A-H

A-I

A-J

A-K

A-L

21,000

21,500

22,000

22,500

23,000

23,500

24,000

24,500

25,000

25,500

DISTANCE IN FEET

LEGEND

500 YEAR WATER SURFACE

100 YEAR WATER SURFACE

50 YEAR WATER SURFACE

10 YEAR WATER SURFACE

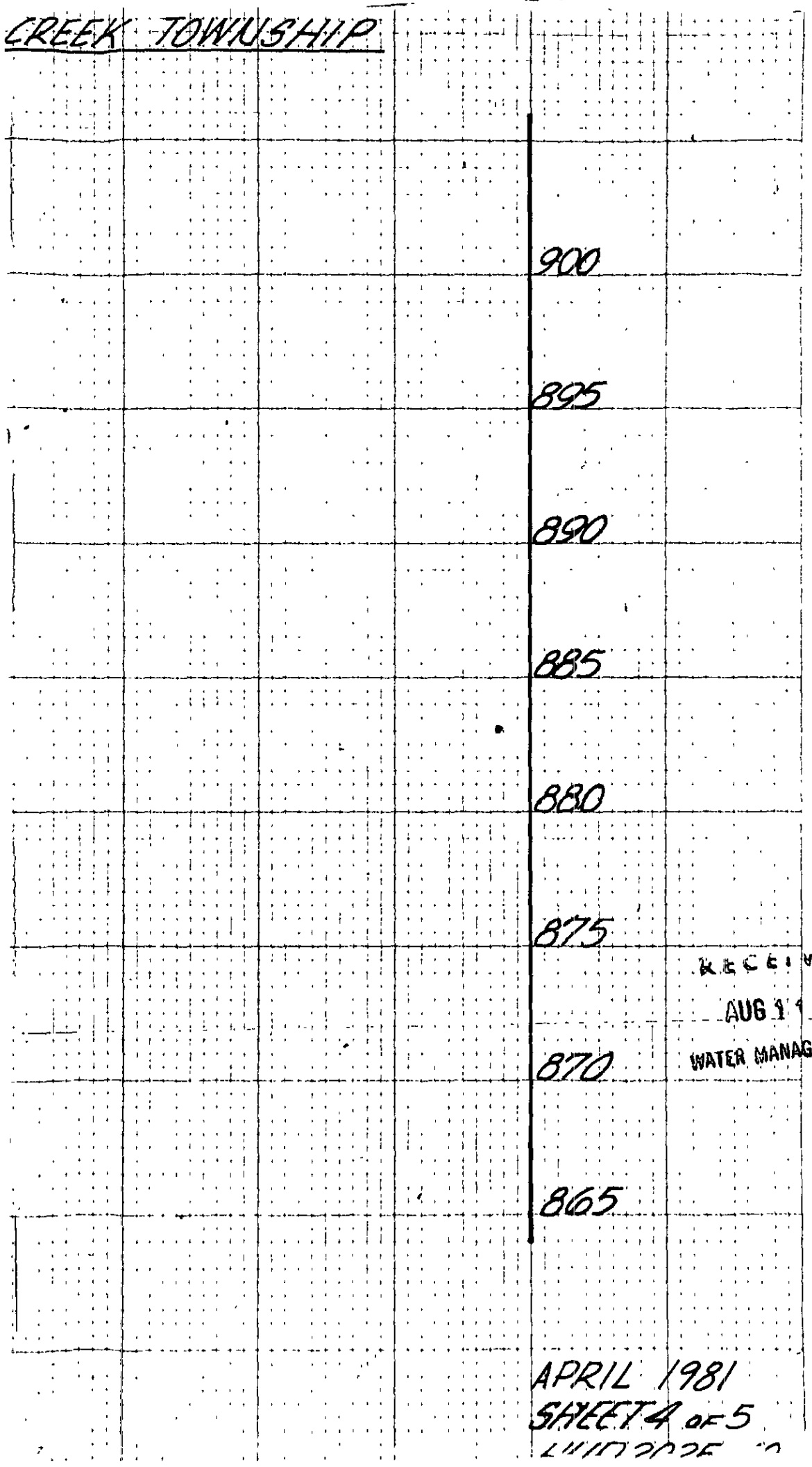
CHANNEL BOTTOM

SCALE

HORIZ. 1" = 500'

VERT. 1" = 5'

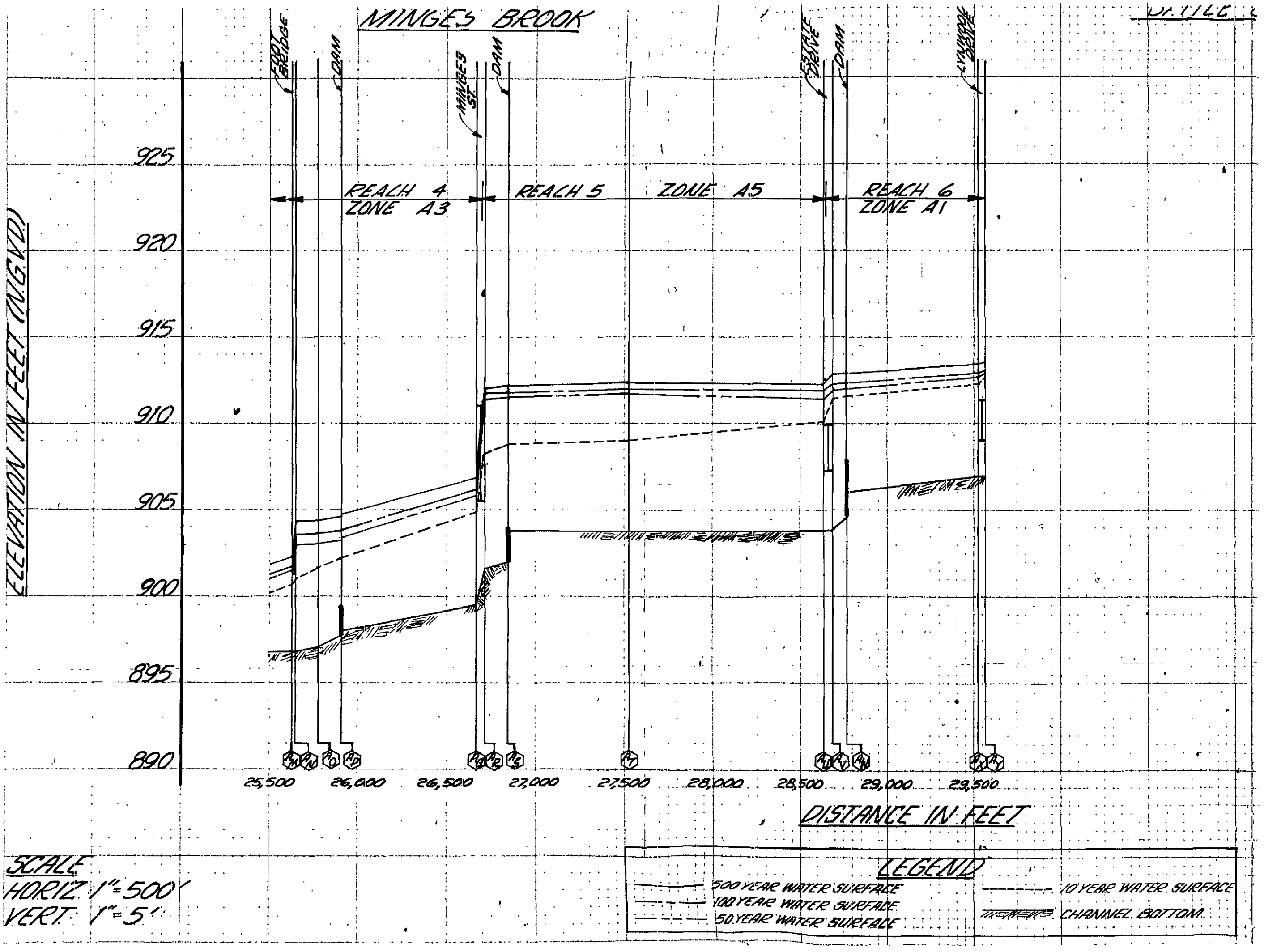
CREEK TOWNSHIP



RECEIVED
AUG 11 1981
WATER MANAGEMENT

APRIL 1981
SHEET 4 OF 5

MINGES BROOK



925

920

915

910

905

900

895

890

RECEIVED
AUG 11 1981
WATER MANAGEMENT

APRIL 1981
SHEET 5 OF 5
HUD 2025-10

MINGES BROOK

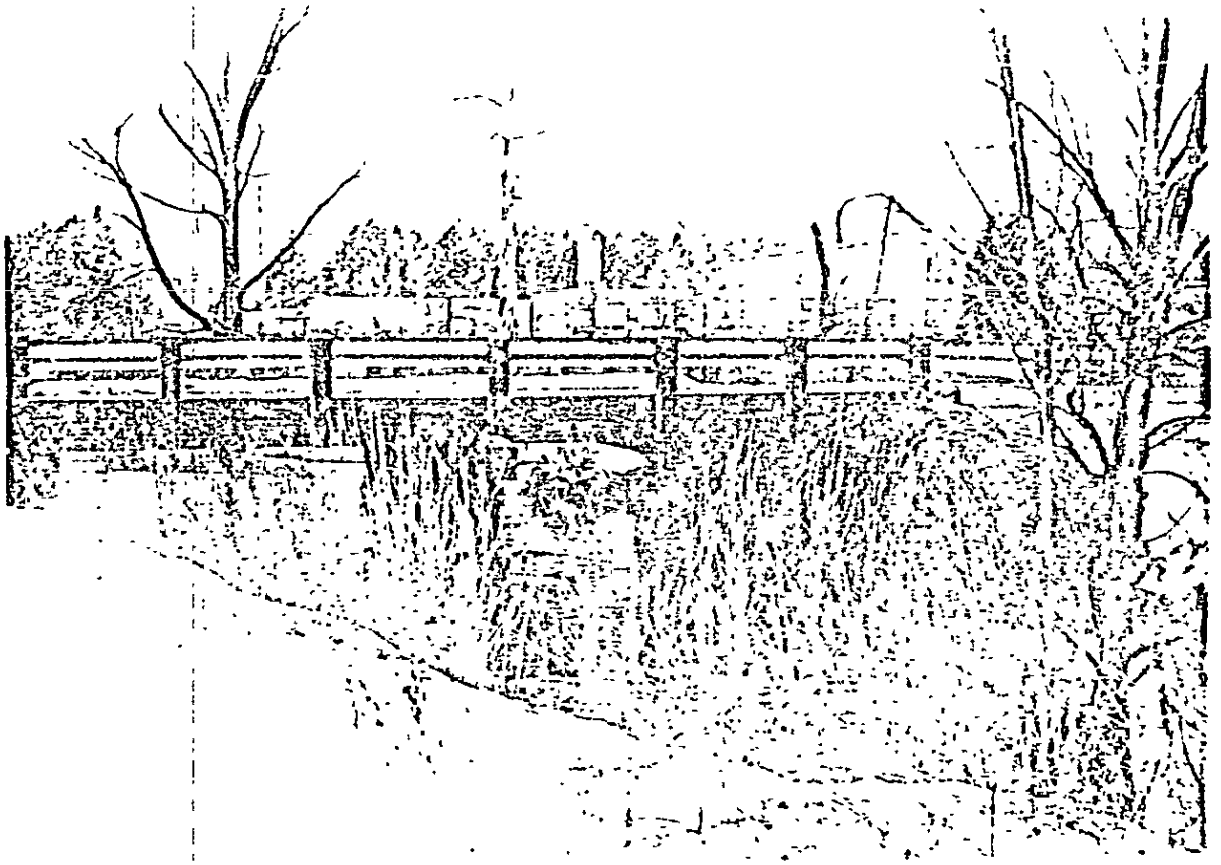
EMMETT TOWNSHIP, MICHIGAN

AND

BATTLE CREEK TOWNSHIP, MICHIGAN

EXHIBIT 4

BRIDGE NOTES AND SKETCHES



CROSS SECTION #2.9 HALPER CREEK AT GOLDEN AVE.

EMMETT TOWNSHIP

HUD 2025-07
3/81 DRB
SHEET 1 OF 21

FORM 25 0
(313) 291 5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location : GOLDEN AVE (20° SKEW) STA 2.0
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 1.05 — 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 = = 205. $W_p = 90$

$R = A/W_p$ 205/90 = 2.28 $R^{4/3} = 3.0$ $L = 31$

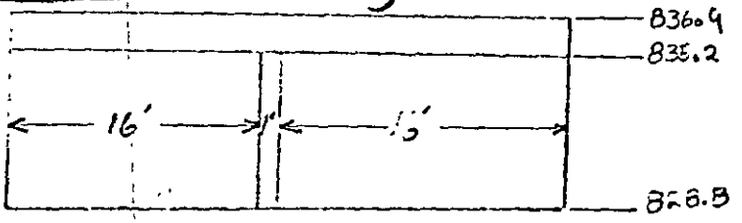
n (composite) =

$K_f = 29.1 \times (0.02)^2 \times 31 / 3.0 = 0.12$

$K_e = 0.4$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

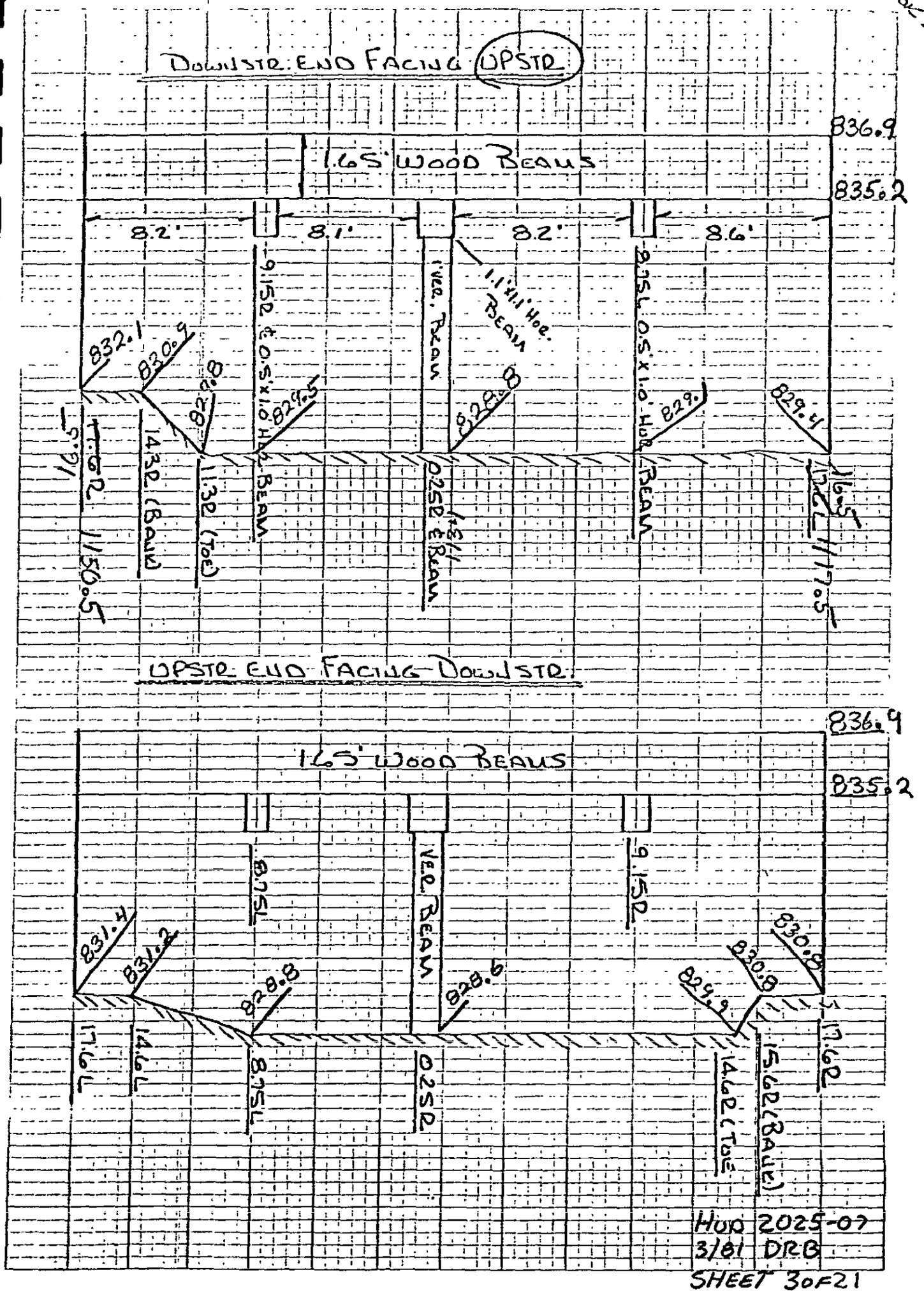
k_p = 0 if bridge has no intermediate piers

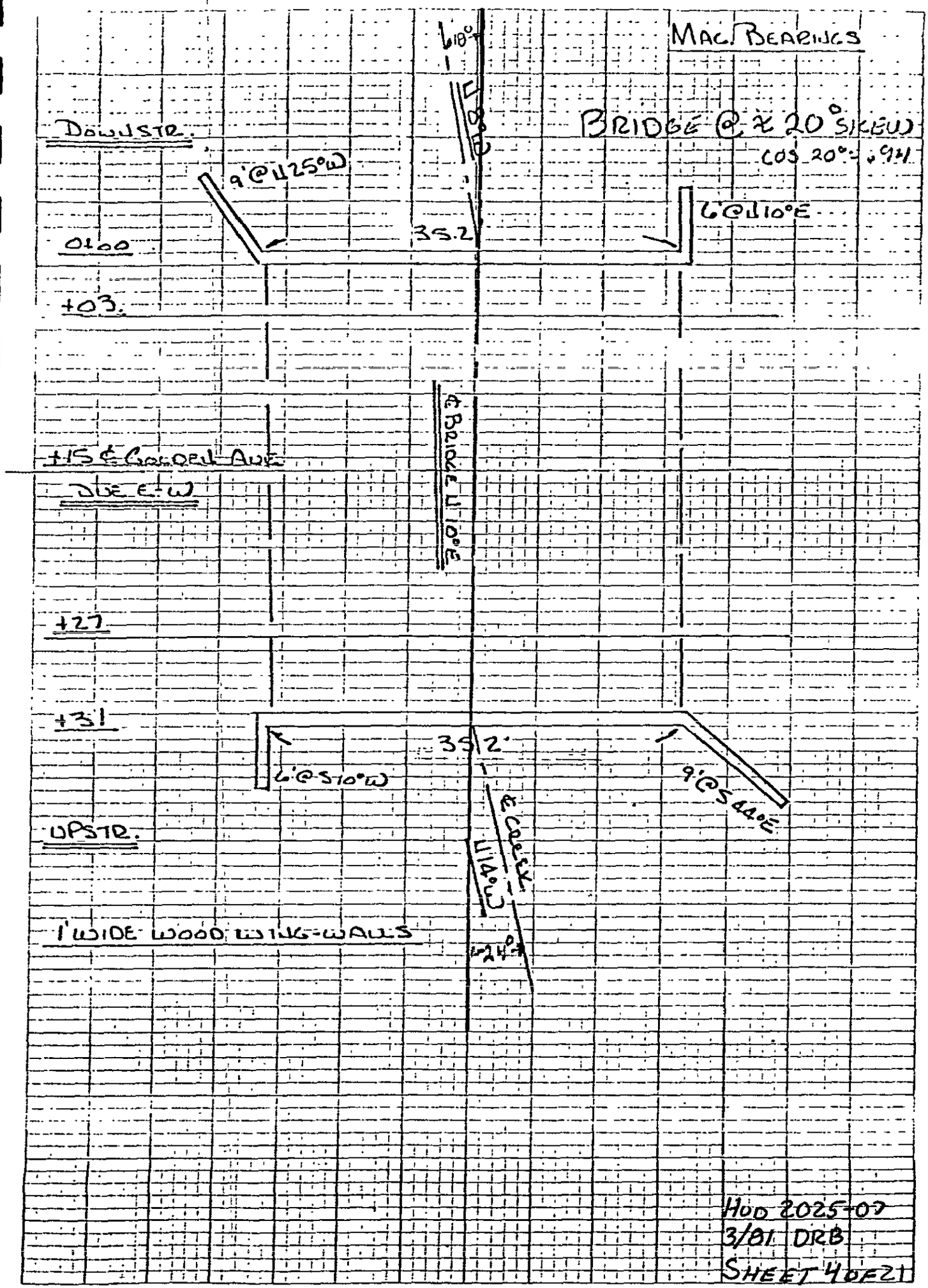
$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

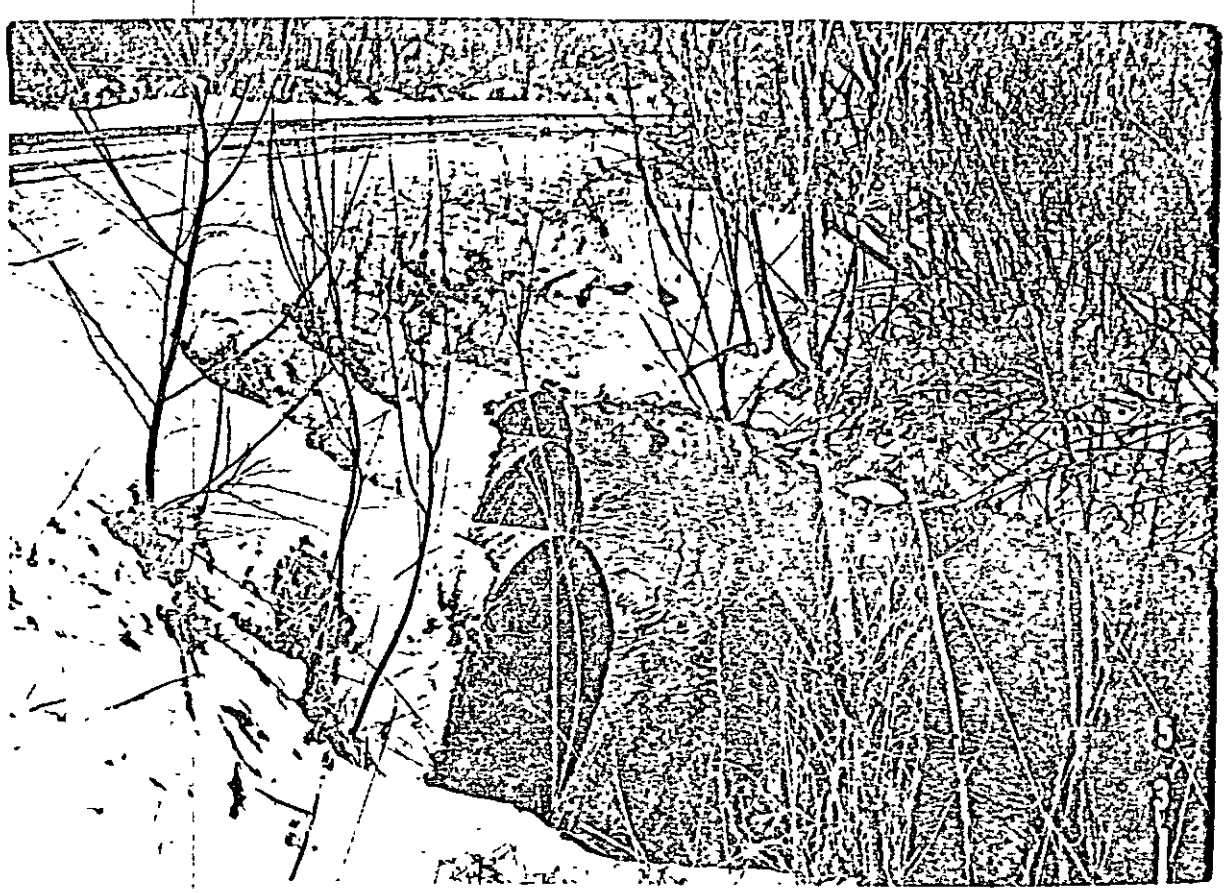


2. XKOR = 1 + .12 + .4 + .05 = 1.57
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 33.
6. BWP = total width of obstruction = 1. — field data
7. BAREA = bridge opening inc. piers = 205
8. SS = side slope = 0
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 828.8
(0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 828.8
(0 if equal to minimum elevation in previous X-sect.)

SUBJECT	BY	CHK.	SHEET NO.	File Code No. (Job No.) Owner Project Suffix
HARPER CR. - EMMETT TWP	DRB		2 OF 21	HUD • 2025 • 07
	DATE 2/80	DATE		


DOWNSTR. END FACING UPSTR.
165' WOOD BEAMS
836.9
835.2
8.2'
8.1'
8.2'
8.6'
9.15Sq. @ 0.5' x 1.0' HOR. BEAM
1 VER. BEAM
1.1' x 1.1' HOR. BEAM
8.75Sq. @ 0.5' x 1.0' HOR. BEAM
832.1
830.9
829.5
829.4
14.32 (BAW)
11.32 (TOE)
0.25Sq. @ BEAM
11.62
11.62
11.62


MAG. BEARINGS
BRIDGE @ ≈ 20° SKEW
COS 20° = .94
DOWNSTR.
9' @ ↓25° W
6' @ ↓10° E
35.2
0+00
+03
℄ BRIDGE ↓10° E
+15 ℄ GOLDEN AVE
DUE E-W
+27
+31
35.2
6' @ S10° W
9' @ S44° E
℄ CREEK
↓14° W
UPSTR.
1' WIDE WOOD WING-WALLS
24°
HUD 2025-07
3/81 DRB
SHEET 4 OF 21



CROSS SECTION #53 - MINGES BROOK @ JOANNA (UPSTREAM)

HUD 2025-07
3/81 DRB
SHEET 5 OF 21

FORM 25 0
(313) 291 5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location : JUANITA RD.
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 0.0 — 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 = 38.5 W_p = 34.4

$R = A/w_p$ 38.5/34.4 = $R^{4/3}$ = 1.16 L = 55

n (composite) =

$k_f = 29.1 \times (0.024)^2 \times 55 / 1.16 = 0.79$

k_e = 0.9 — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 45

k_p = 0 if bridge has no intermediate piers

k_p = 0.05 if bridge has intermediate piers — HEC-2 manual

3-CMP'S (44" × 72") 43° SKEW

AREA = 17.6 FT² EACH × 3 × .73 = 38.5 FT²

P = 15.7 FT × 3 × .73 = 34.4 FT

2. XKOR = 1 + 0.79 + 0.9 + 0.05 = 2.74

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) : 12.6

[illegible] width of obstruction = 0. — field data

[illegible] = bridge opening inc. piers = 39.

8. SS = side slope = 0.0
(horizontal per 1 vertical unit)

9. ELCHU = Elevation of channel invert U/S side = 838.7
(0 if equal to minimum elevation in previous X-sect.)

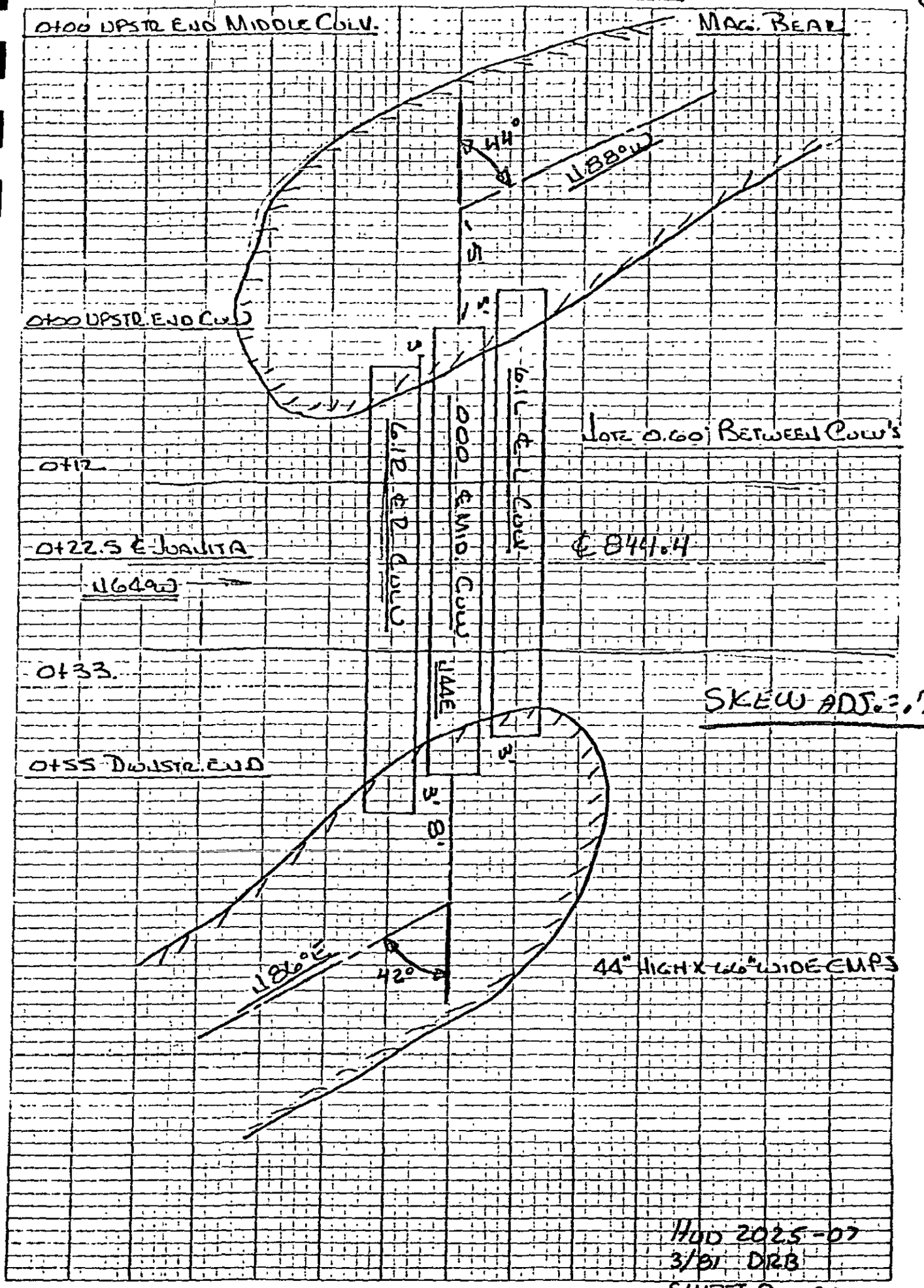
10. ELCHD = Elevation of channel invert D/S side = 838.7
(0 if equal to minimum elevation in previous X-sect.)

SUBJECT	BY	CHK.	SHEET NO.	File Code No. (Job No.) Owner Project Suffix
HARPER CREEK	DRB DATE 12/80	DATE	6 OF 21	HUD • 2025 • 07

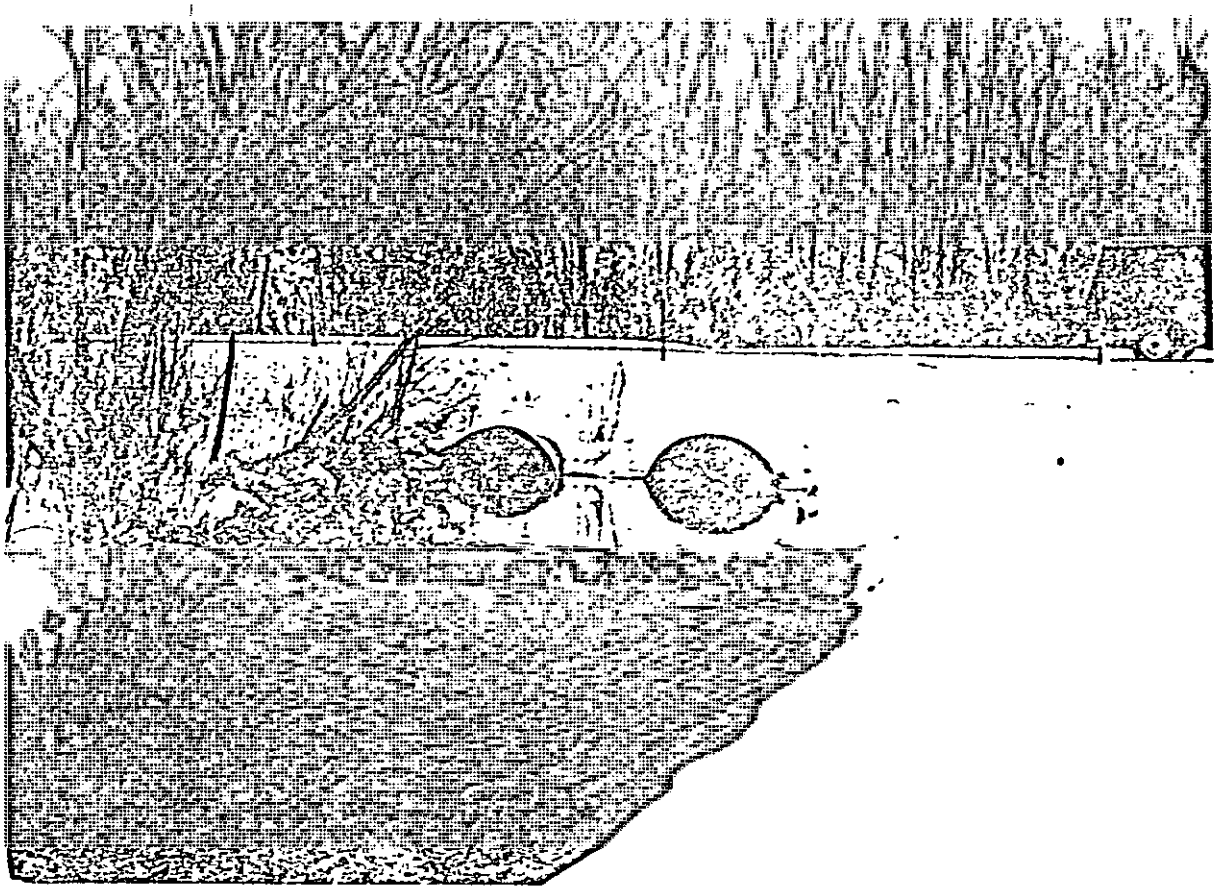
HUD 2025-02
3/01 DRB
SHEET 7 OF 21

CROSS-SECTION # 33 [illegible]

L&R. OFFSETS FROM ℄ MIDDLE CULV FACING DWNSTR.



HUD 2025-07
3/81 DRB
SHEET 8 OF 21



CROSS SECTION #25 - MINGLES BROOK @ "E" DRIVE (DOWNSTREAM)

HOD 2025-07
3/81 DRB
SHEET 9 OF 21

Bridge Location : "E" DRIVE (50° SKEW) STA 5.0

REFERENCE

Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 0.0 — 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 = 12.4(2) = = 24.8 Wp = 26.4

R = A/wp .94 $R^{4/3}$ = .92 L =

n (composite) = .024(9.2/13.2) + .035(4/13.2) = 0.027

$K_f = 29.1 \times (0.027)^2 \times 48 \;/\; .92 = 1.11$

K_e = 0.9 (PROJECTING FROM FILL) — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 43

K_p = 0 if bridge has no intermediate piers

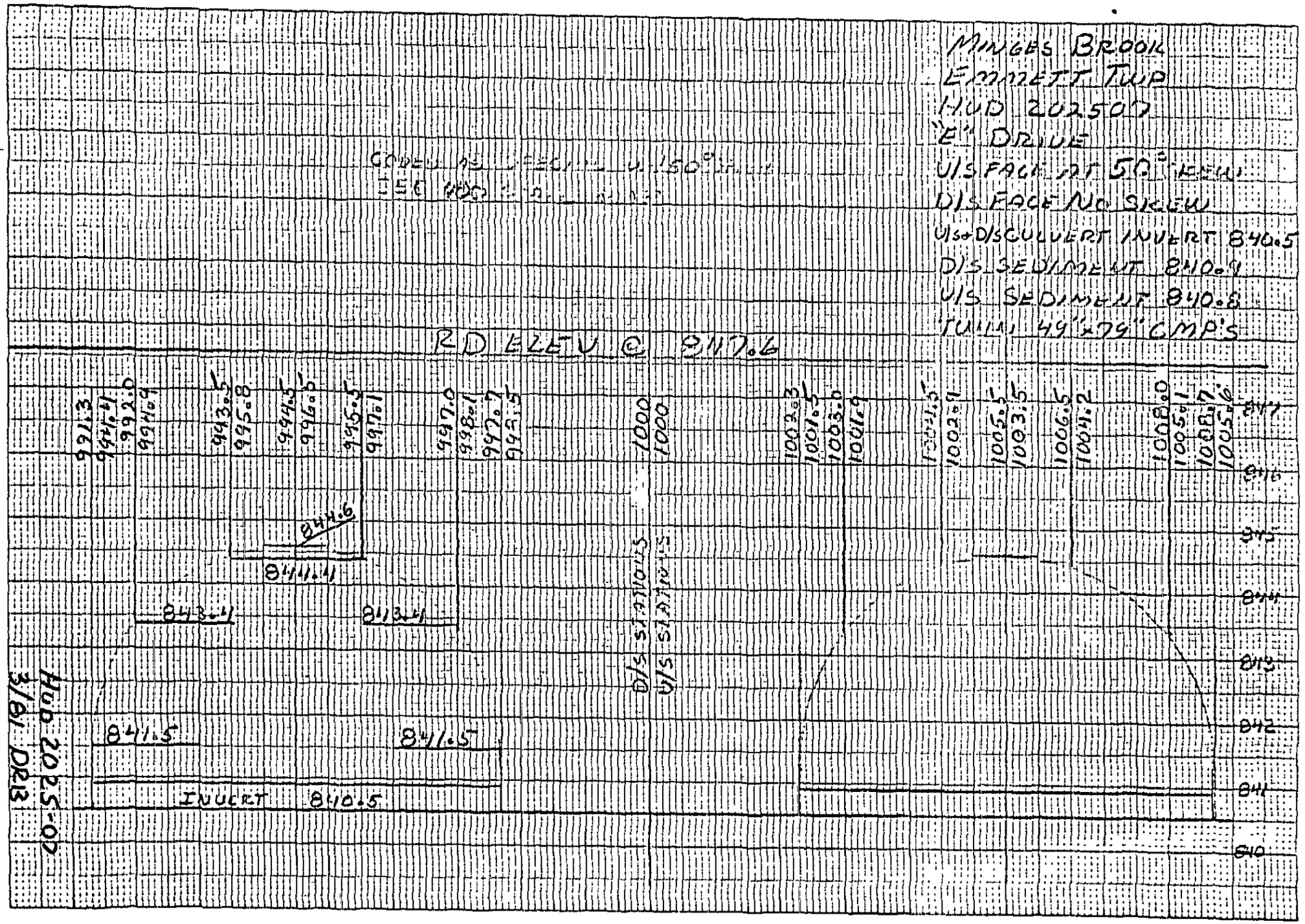
K_p = 0.05 if bridge has intermediate piers — HEC-2 manual

AREA 49"x79" ARCH CMP

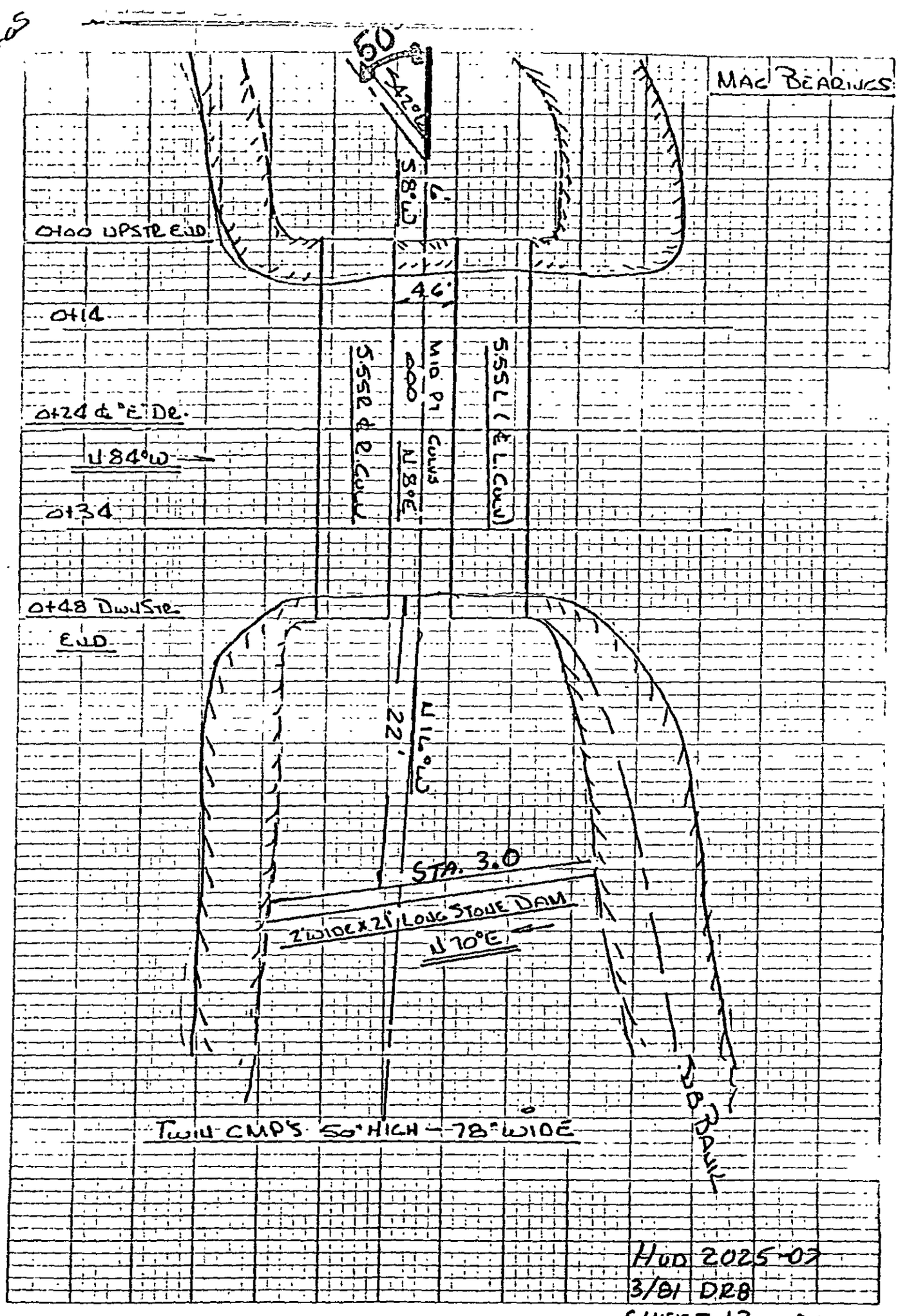
21.3 − (0.95) = 19.35 (.64) = 12.4 FT²
SEDIMENT SKEW

2. XKOE = 1 + 1.11 + 0.90 + 0.0 = 3.01
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) = 7.0
6. [illegible] width of obstruction = 0.0 — field data
7. [illegible] bridge opening inc. piers = 27.0
8. SS = side slope = 0.0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 840.8 (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 840.9 (0 if equal to minimum elevation in previous X-sect.)

SUBJECT	BY	CHK.	SHEET NO.	File Code No (Job No.) Owner Project Suffix
MINGES BR. EMMETT	DRP DATE 2/80	DATE	10 OF 21	HUD • 2025 • 07

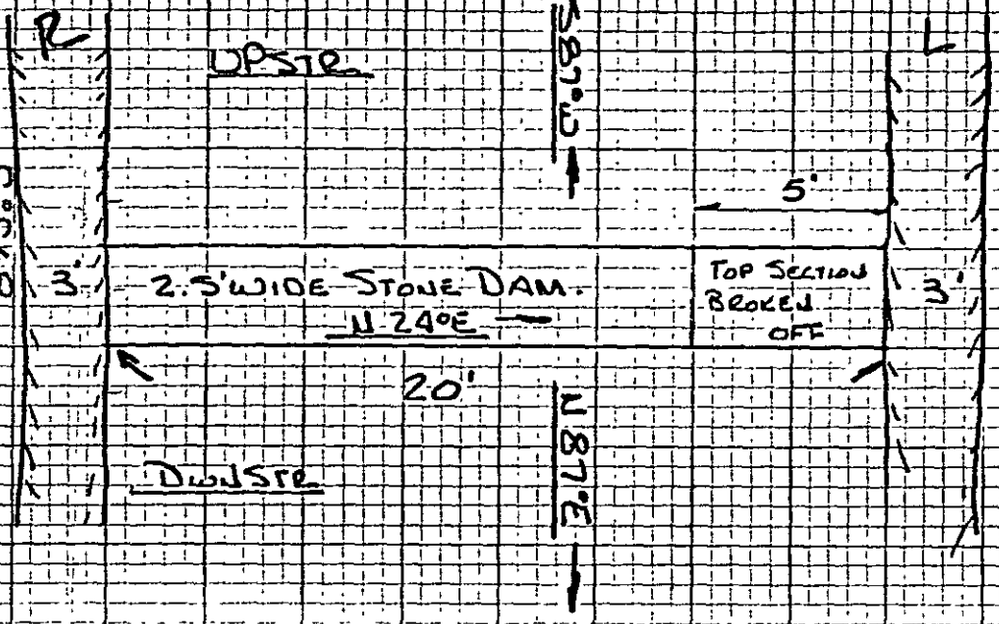


HUD 2025-07
3/81 DRB
SHEET 11 OF 21


MAG BEARINGS
50
42°
S 8°W
6'
0+00 UPSTR END
46'
0+14
5.55R & R. CULV
MID PT CULVS
N 8°E
5.55L (& L. CULV)
0+24 ℄ "E" DR.
N 84°W
0+34
0+48 DWNSTR END
22'
N 16°W
STA. 3.0
2' WIDE x 21' LONG STONE DAM
N 70°E
TWIN CMP'S 50" HIGH - 78" WIDE
HUD 2025-07
3/81 DRB
SHEET 12 OF 21

Cross-Section #54 Minges Brook

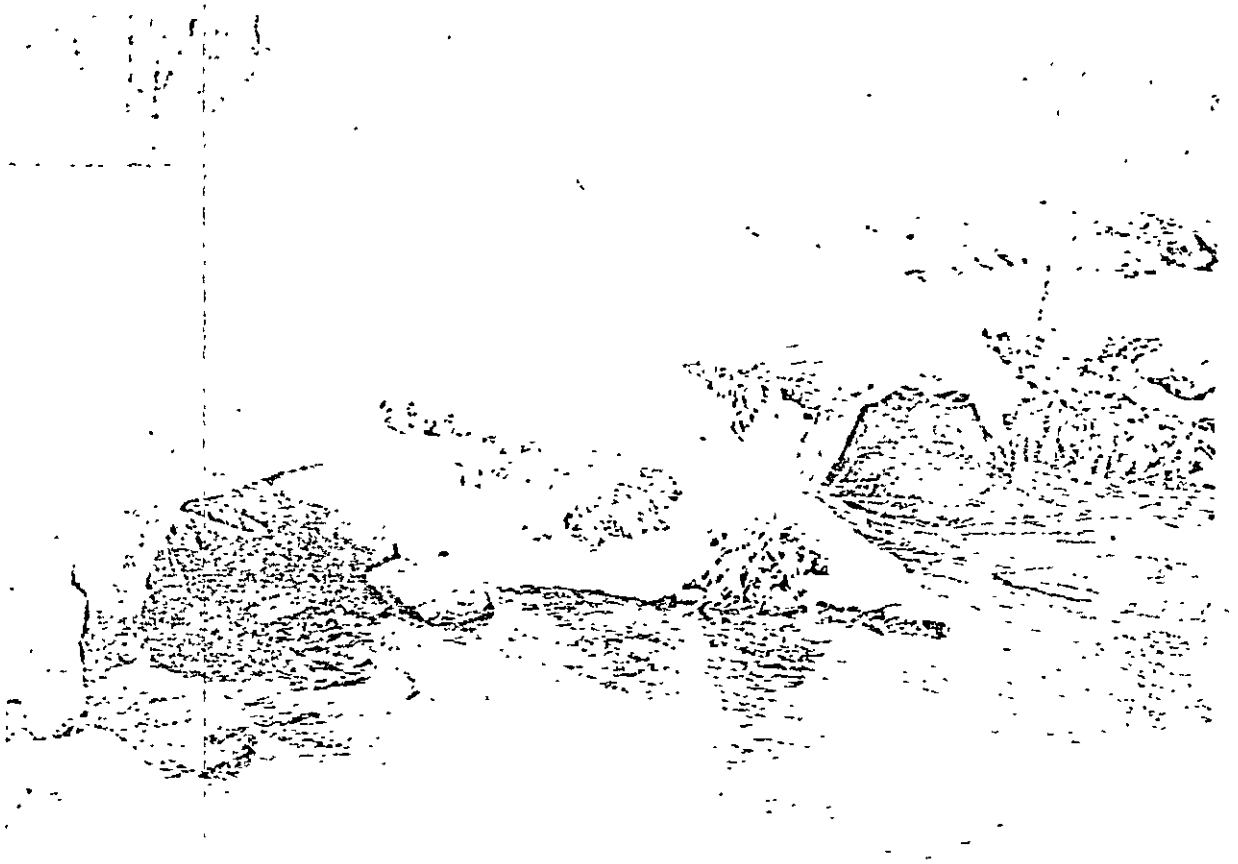
MAG Bearings



DAM D/S OF "E" DRIVE ≈ 140 FT

STATION 2.3

HUD 2025-02
3/81 DRB
SHEET 13 OF 2



CROSS SECTION "S6 - MINGLES BROOK @ MAIN (6½ MILE RD.)

HUD 2025-07
3/81 DRB
SHEET 14 OF 21

FORM 25 0
(313) 291-5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location : 6½ MILE RD (MAIN ST.)
Bridge Losses - SB Card

REFERENCE

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 = 16.2 + 10.1 + 10.4 = 36.7 Wp = 38.1

R = A/wp 0.96 $R^{4/3}$ = .95 L = 42

n (composite) = 0.024(25.1/38.1) + .035(13/38.1)

$k_f = 29.1 \times (0.028)^2 \times 42 / .95 = 1.01$

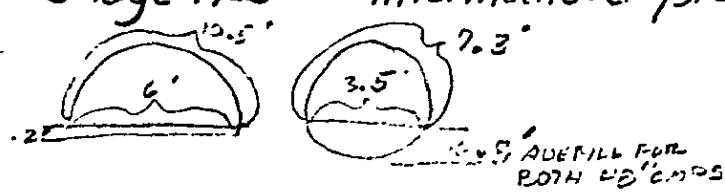
k_e = 0.7 (MITERED TO CONFORM TO FILL SLOPE) — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 45

k_p = 0 if bridge has no intermediate piers

k_p = 0.05 if bridge has intermediate piers — HEC-2 manual

WETTED PERIMETER

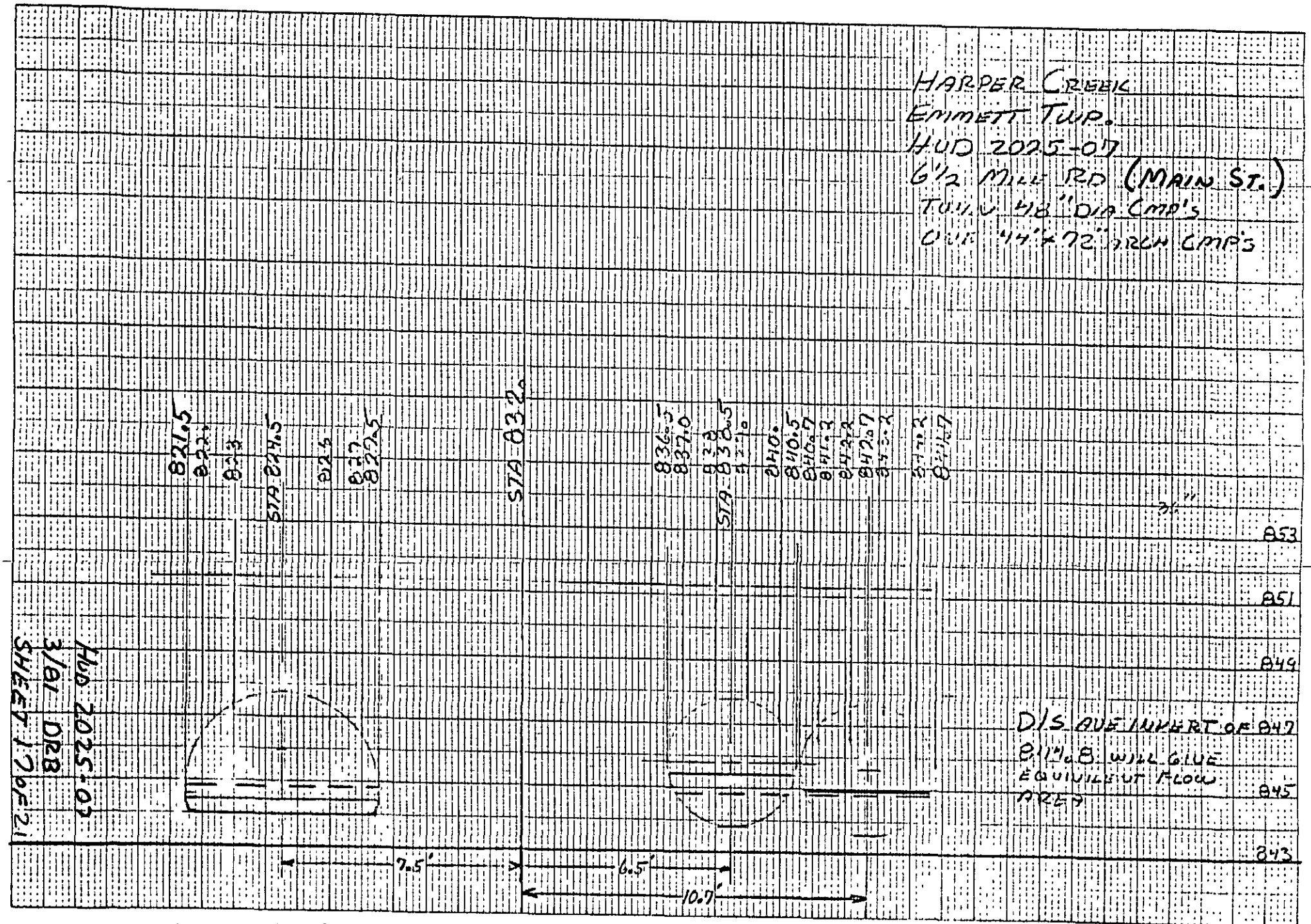
ARCH, 16.5 FT
48" 6.5' TO R ℄ ≈ 10.8
48" 11.7' TO R ℄ ≈ 10.8



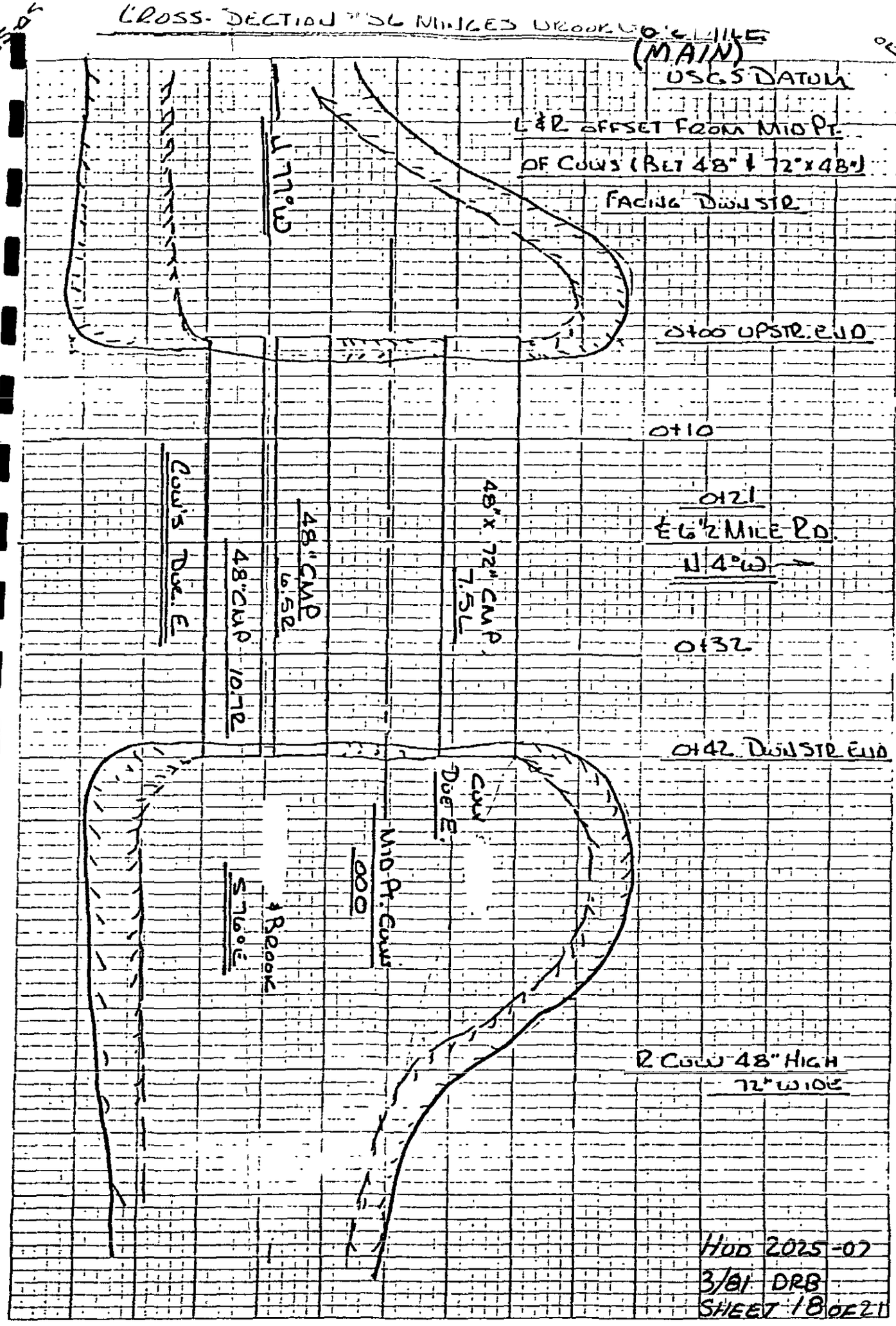
2. XKOR = 1 + 1.01 + 0.7 + 0 = 2.71
3. COFQ Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN : Length of weir = 0.0 (0 if read off BT cards)
5. BWC - bottom width of bridge opening (inc. piers) : 9.5
[illegible] of obstruction = 6.6 — field data
[illegible] bridge opening inc. piers = 37.
8. SS = side slope = 0.0
(horizontal per 1 vertical unit)
ELCHU = Elevation of channel invert U/S side = 844.1
(0 if equal to minimum elevation in previous x-sect.)
ELCHD = Elevation of channel invert D/S side = 844.5
(0 if equal to minimum elevation in previous x-sect.)

SUBJECT	BY	CHK.	SHEET NO.	File Code No. (Job No.) Owner	Project	Suffix
MINGES BR - EMMETT TWP	DRB		15 OF 21	HUD	2025	07
	DATE 3/80	DATE				

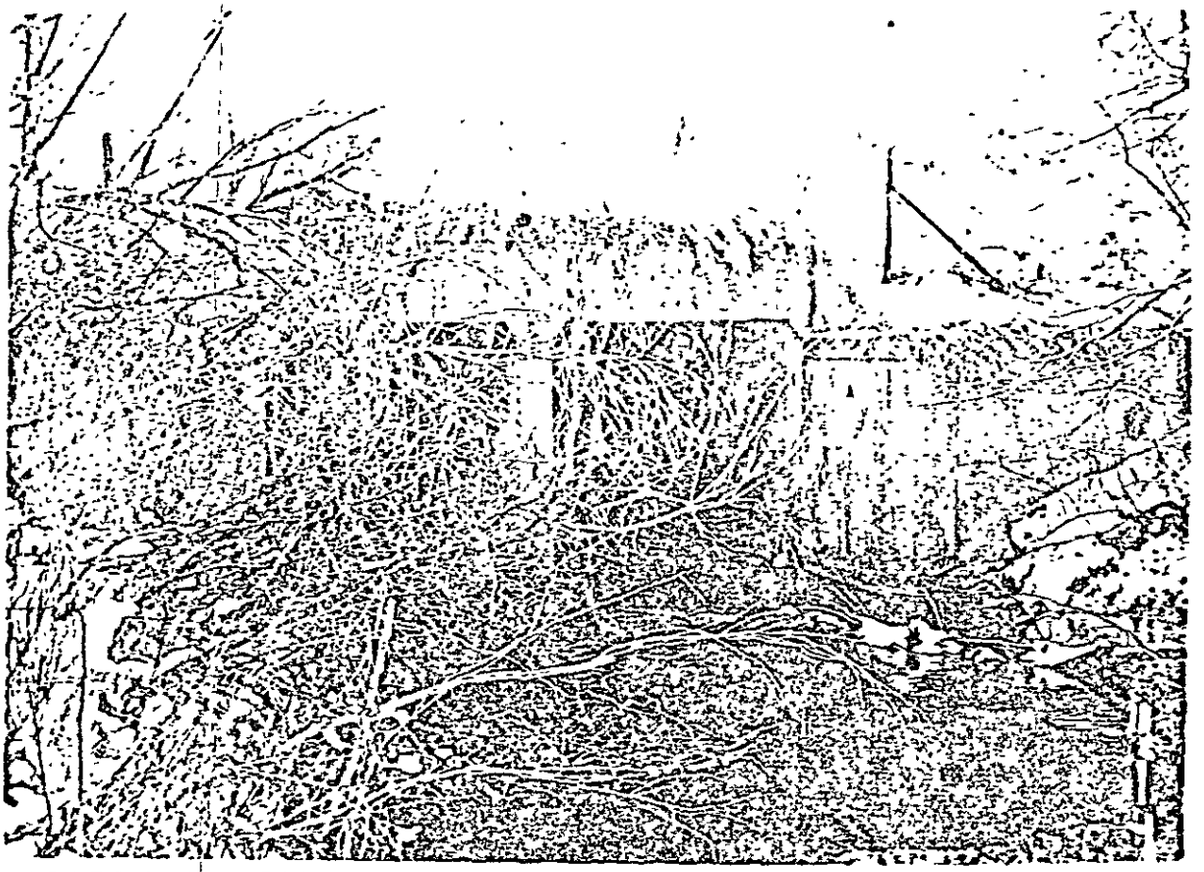
EFFECTIVE FLOW AREA
48" x 72" CMP (65° SKEW)
D/S 12.6 FT² = 2.7 FT² = 10.4 FT²
U/S 12.6 FT² = 0 FT² = SAME
48" CMP (65° SKEW)
D/S 12.6 - 4.3 = 8.3 FT² (SAME = 10.4 FT²)
U/S 12.6 - 0.2 = 12.4 FT²
48" CMP (10° SKEW)
D/S 12.6 - 3.6 = 9.0 FT² (SAME = 10.4 FT²)
U/S 12.6 - 0.9 = 11.7 FT²
MANGES BROOK
EMBANKMENT TYP.
HW=22.3'=4.2D
6 1/2 MILE DRAINAGE AREA
TWIN 48" DIA CMP
SINGLE 48"x72" CMP ARCH
NO SCALE
(MAIN ST.)
8216
8225
8233
8243
8253
8263
8273
8283
8293
8303
8313
8323
8333
8343
8353
8363
8373
8383
8393
8403
8413
8423
8433
8443
8453
8463
8473
8483
8493
8503
8513
8523
8533
8543
8553
8563
8573
8583
8593
8603
8613
8623


HARPER CREEK
EMMETT TWP.
HUD 2025-07
6½ MILE RD (MAIN ST.)
TWIN 48" DIA CMP'S
ONE 44"×72" ARCH CMP'S
821.5
822.
823
STA 824.5
825
827
827.5
STA 832.
836.5
837.0
838
STA 838.5
840.
840.5
840.7
841.2
842.2
842.7
843.2
844.2
844.7
853
851
849
847
845
843
D/S AVE INVERT OF 844.8 WILL GIVE EQUIVILENT FLOW AREA
7.5'
6.5'
10.7'
HUD 2025-07
3/81 DRB
SHEET 17 OF 21

CROSS-SECTION #56 MINGES BROOK @ 6½ MILE (MAIN)



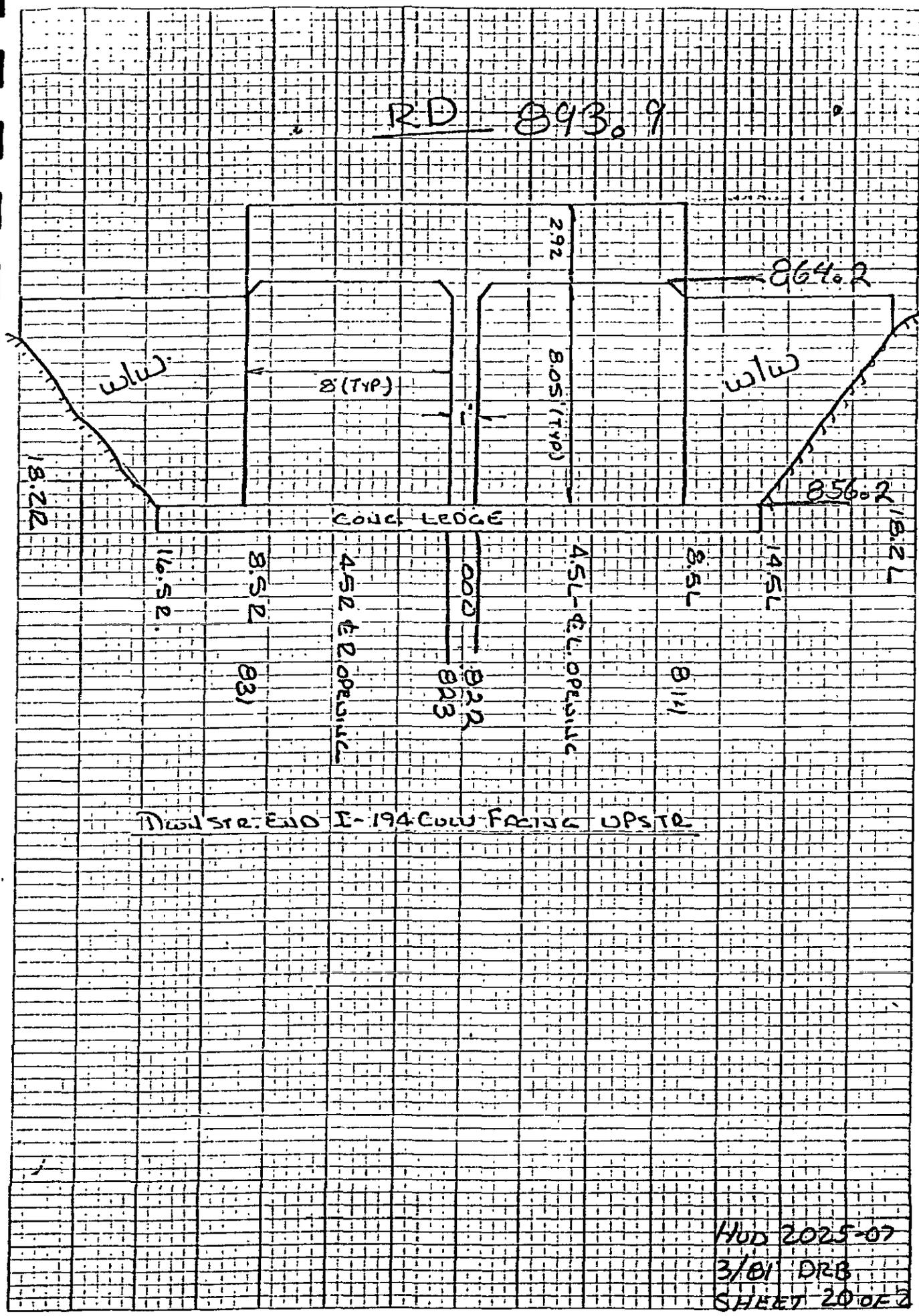
HUD 2025-07
3/81 DRB
SHEET 18 OF 21



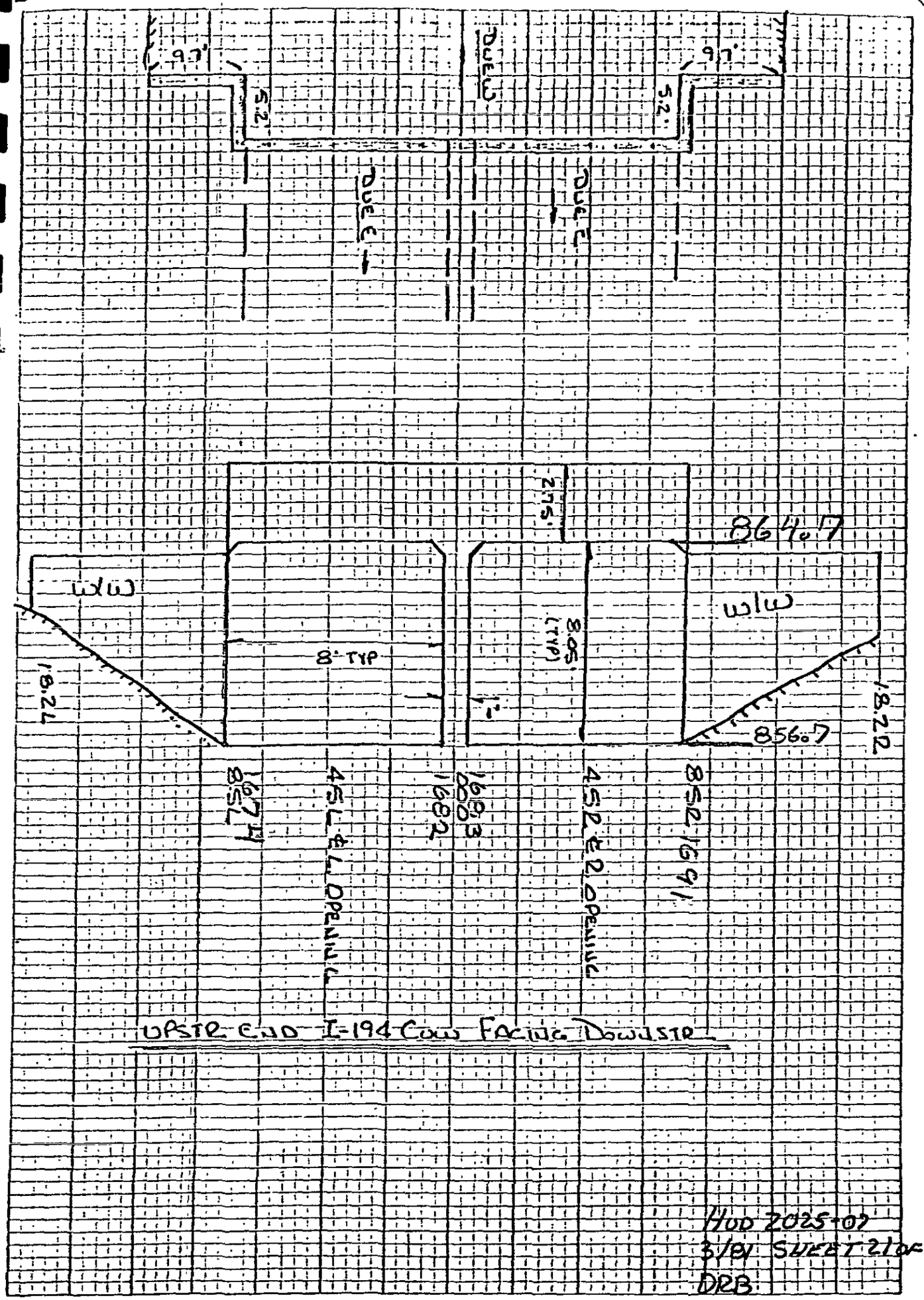
UPSTREAM END SECTION 18 (I-94) @ MINGES BROOK

HUD 2025-07.
3/01 DRB
SHEET 19 OF 21

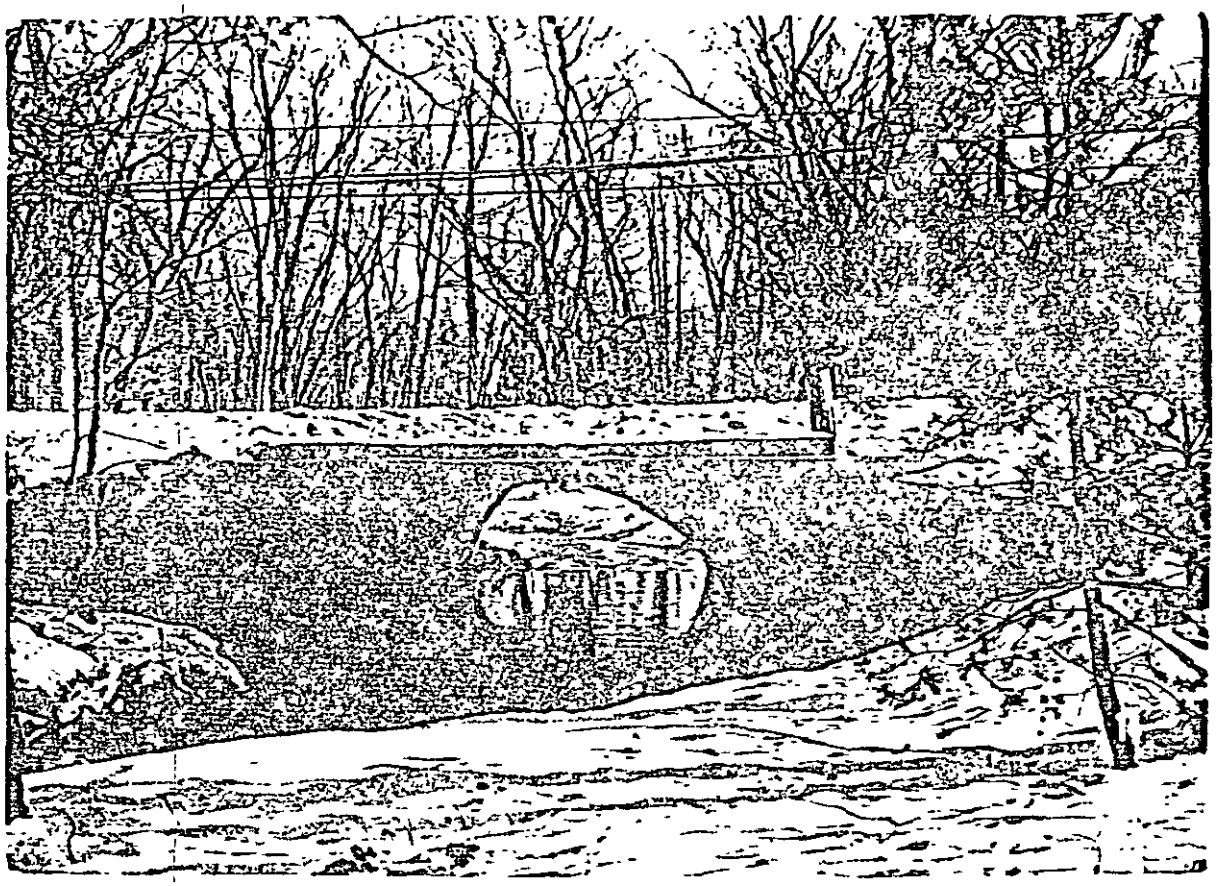
CROSS-SECTION #20 MINGES BROOK E/S I-194


RD 893.9
2.92
8.05' (TYP)
8' (TYP)
3:1
3:1
864.2
856.2
18.2
18.2
COUNTERWEIGHT
14.5
8.5
4.5
4.5
8.5
16.5
8.5
8
8
8

Cross-Section #18 Minors Brook w/Side I-194



HUD 2025-07
3/21 SHEET 21 of 21
DRB



UPSTREAM END SECTION 14 (RIVERSIDE DR.) @ MINCES BROOK
(HEC-2 STA. 7.0)

BATTLE CREEK TOWNSHIP

HUD 2022-07
3/81 DRB
SHEET 1 OF 28

Bridge Location : RIVERSIDE DR SIA 7.0

REFERENCE

Bridge Losses - SB Card

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 = = 63 FT² Wp = 30.5'

R = A/wp 2.07 $R^{4/3}$ = 2.63 L = 39.0'

n (composite) = .024(19/30.5) + .035(11.5/30.5) = .028

$K_f = 29.1 \times (.028)^2 \times 39 / 2.63 = 0.34$

.019
.013
.281

$K_e = 0.5$

Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 Pg. 45

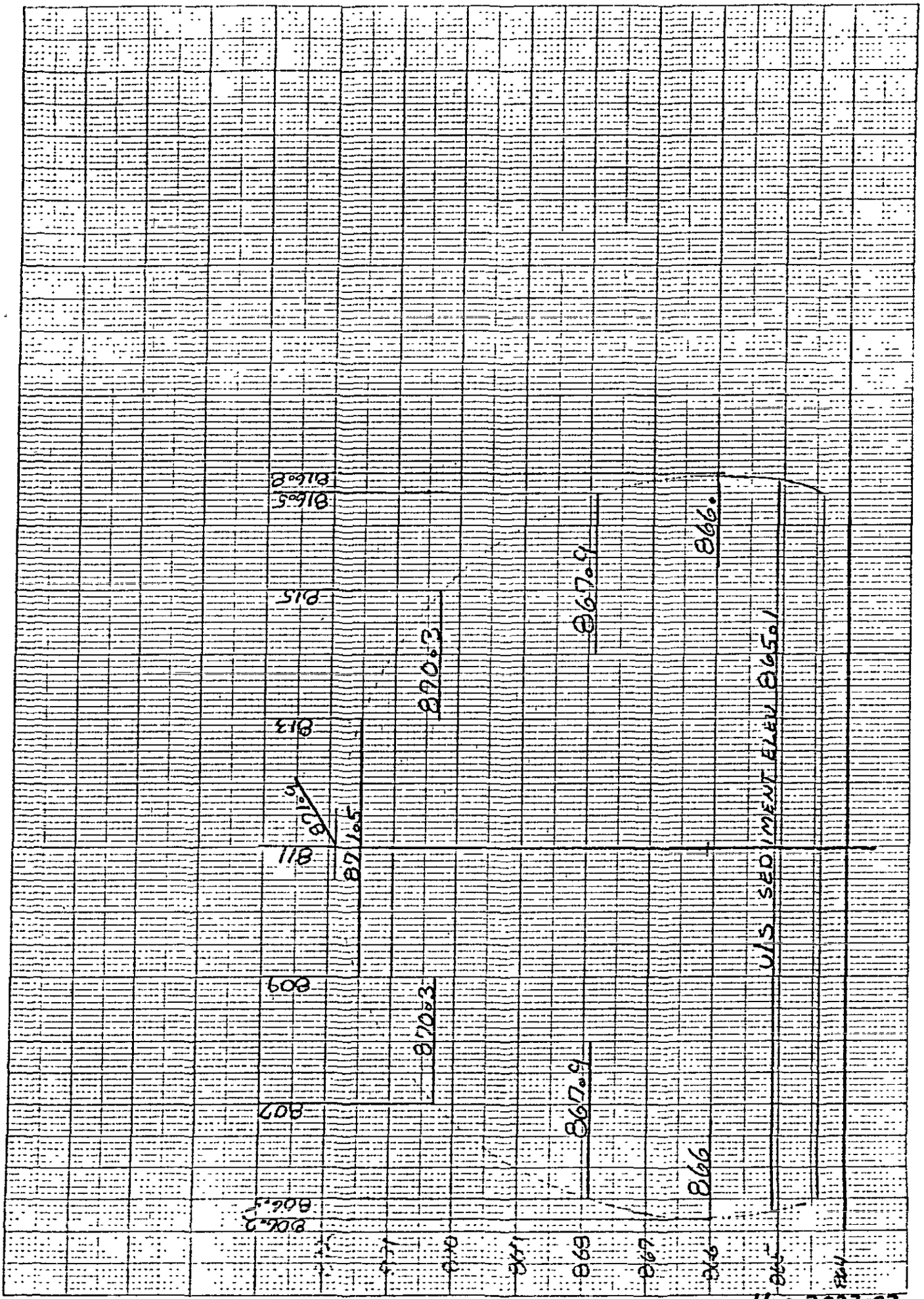
$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

CONC. ARCH PIPE
9'1" x 11'2"
AREA = 71 FT² − 8 FT² (SEGMENT) = 63 FT²

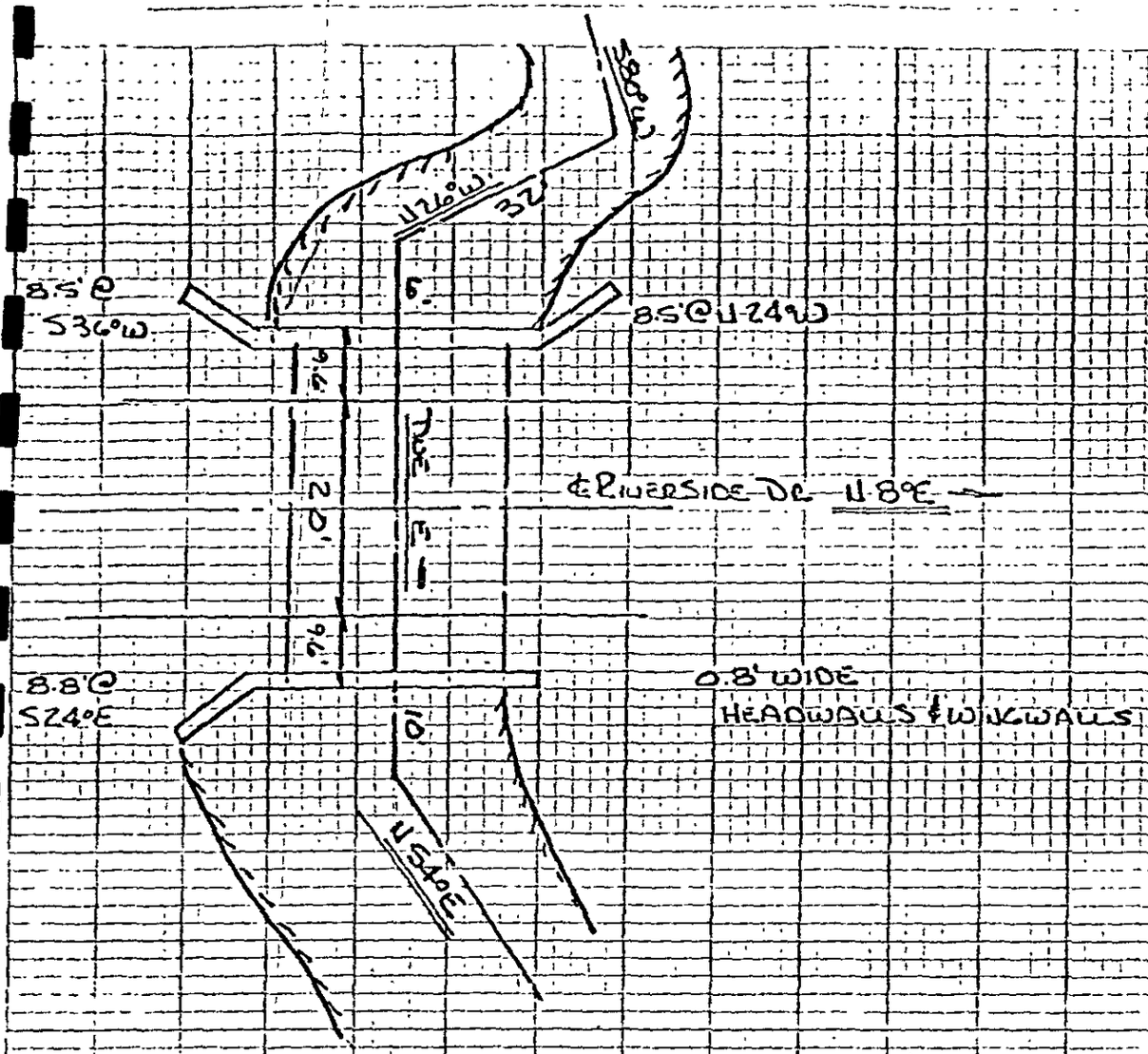
2. XKOE = 1 + 0.34 + 0.5 + 0.0 = 1.84
3. COFQ Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0.0 (0 if read off BT cards)
5. BWC = Bottom width of bridge opening (inc. piers) = 9.3
6. [illegible] width of obstruction = 0.
7. [illegible] bridge opening inc. piers = 63. — field data
8. SS = side slope = 0.
(horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 865.1
(0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 865.1
(0 if equal to minimum elevation in previous X-sect.)

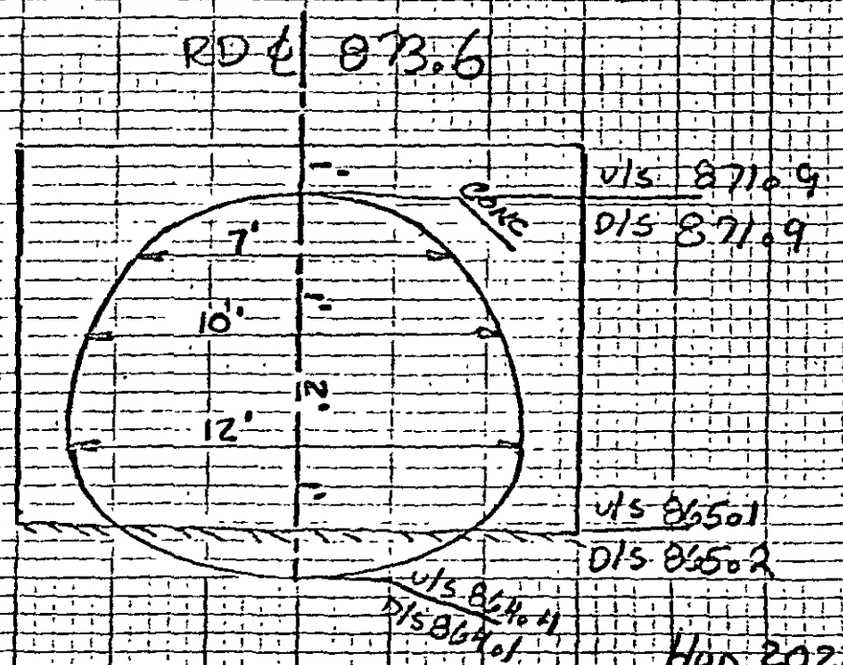
SUBJECT	BY	CHK.	SHEET NO.	File Code No (Job No.) Owner Project Suffix
MIDDLE BRC - B.C.TWP	DRB		2 OF 29	HUD • 2022 • 07
	DATE 3/80	DATE		



HUD 2023-07
3/81 DRB SHEET 3 of

Cross-Section "





HUD 2022-07
3/81 DRB
SHEET 4 OF 28

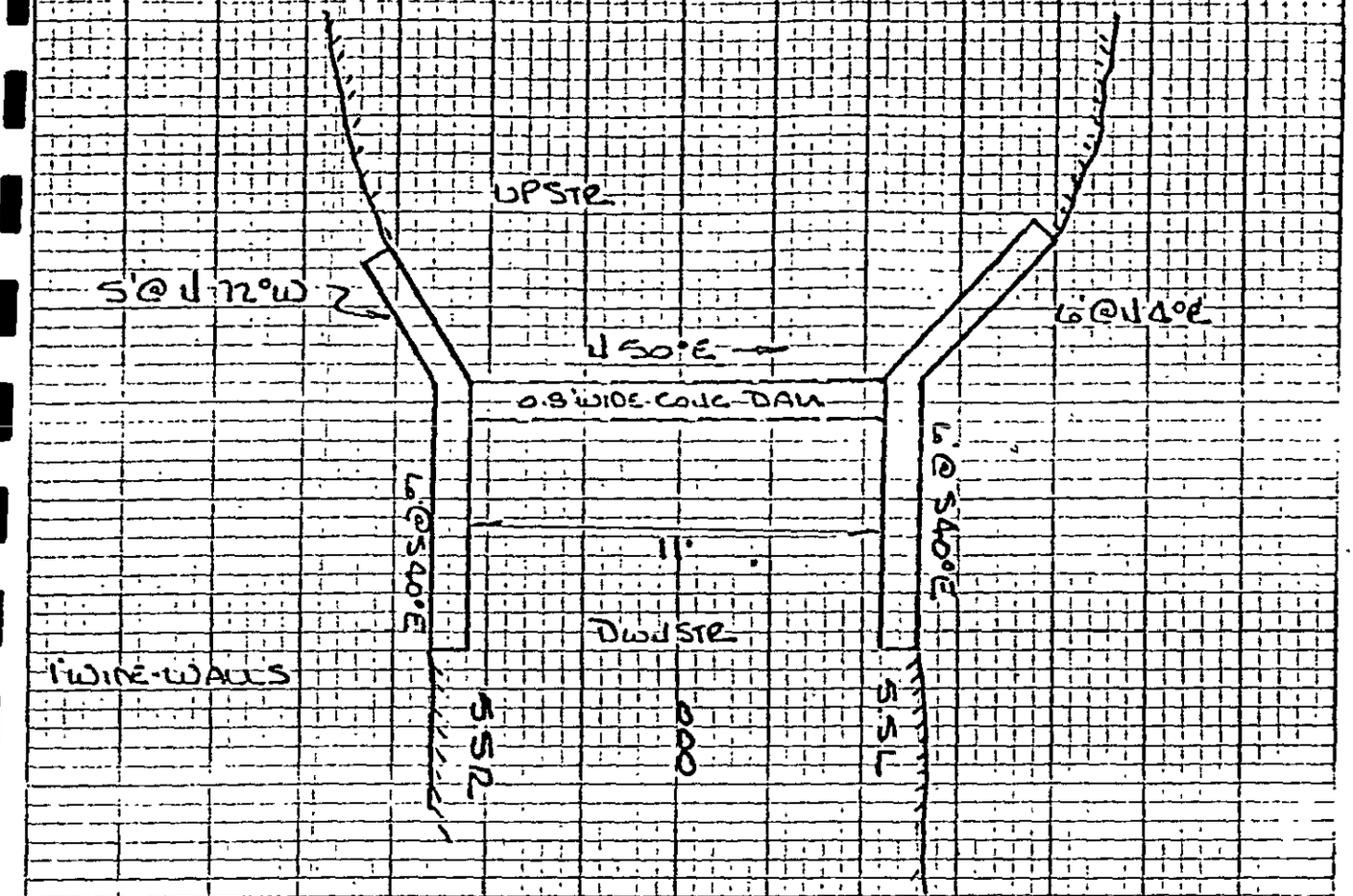
DAM SECTION 12A MINGES BROOK (HEC-2 STA. 8.0)



HUD 2022-07
3/81 DRB
SHEET 5 OF 28

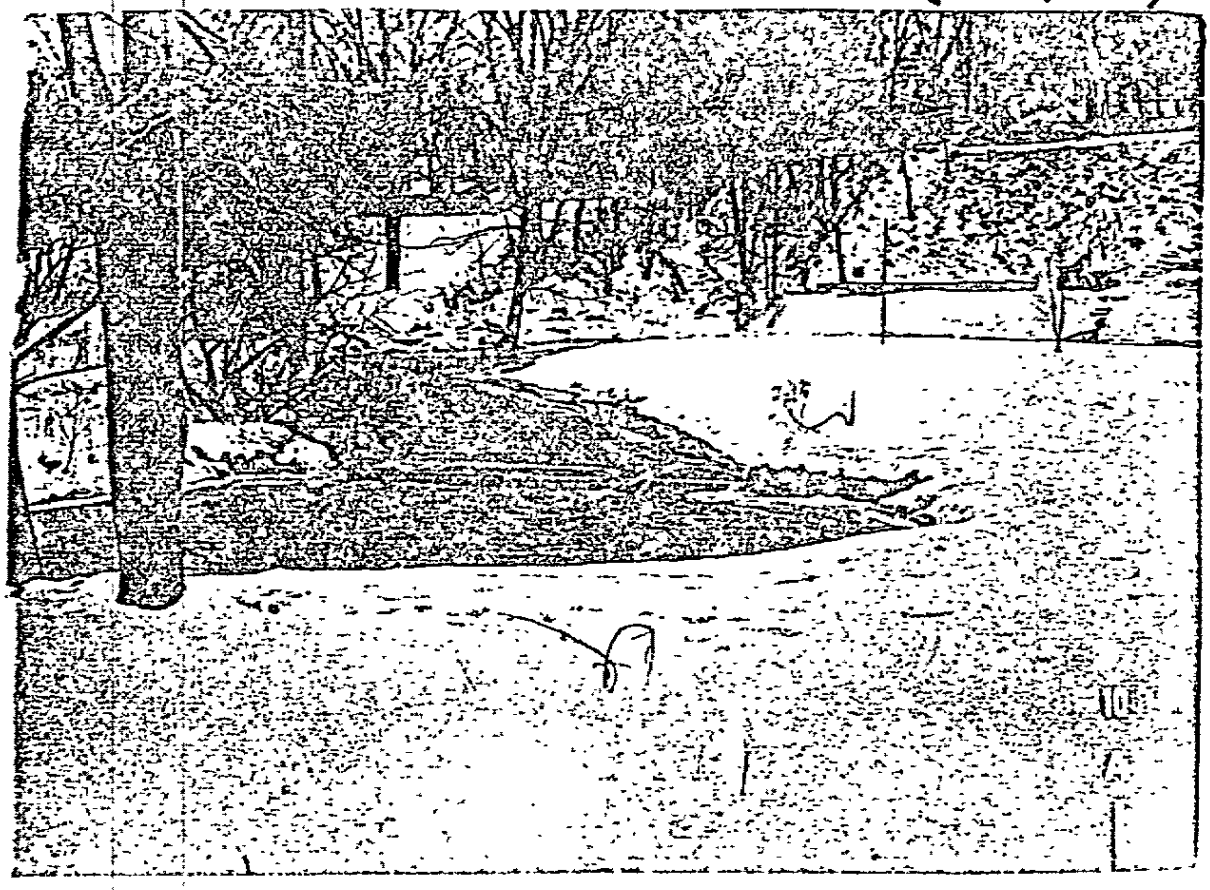
CROSS-SECTION #12A - MINGES BROOK

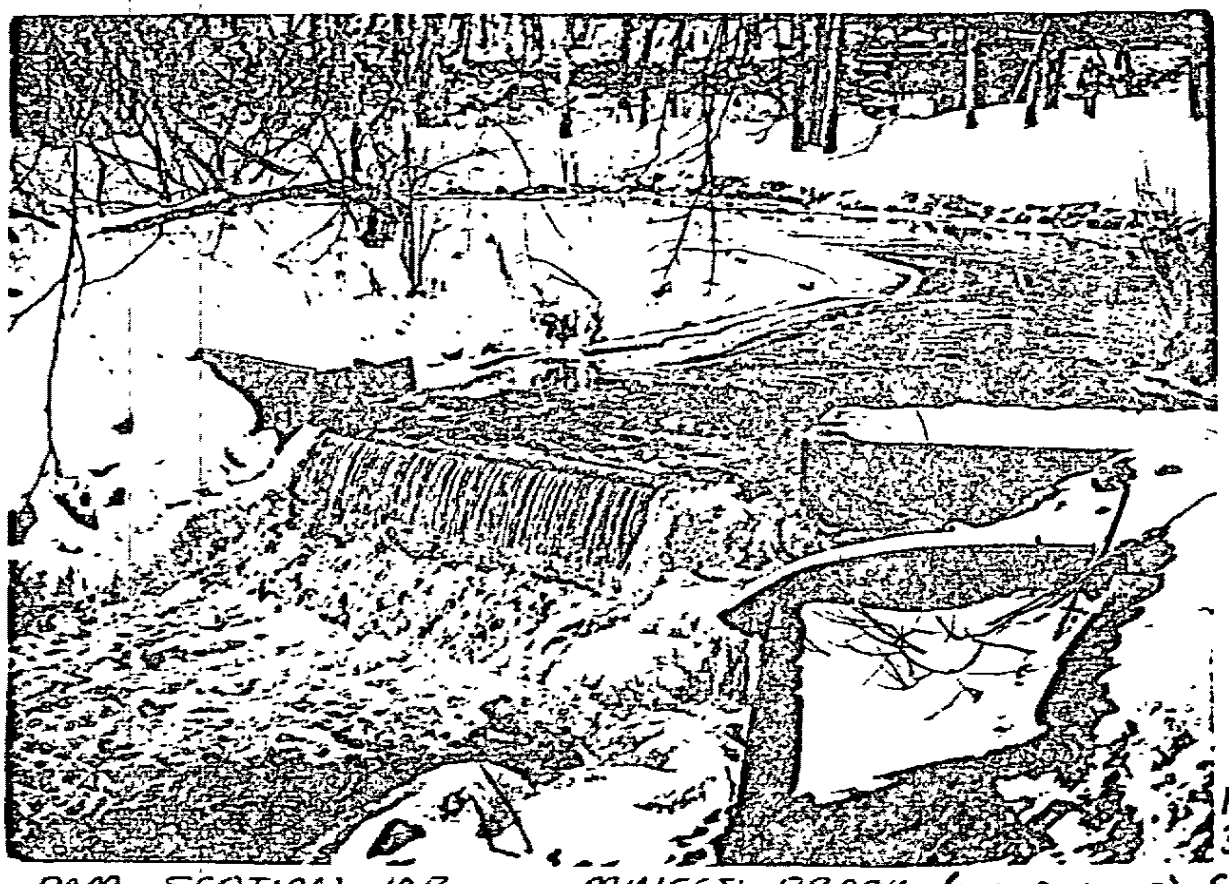
HEC-2 STA. 8.0



HOD 2022-07
3/81 DRB
SHEET 6 OF 28

DAM SECTION 10A MINGES BROOK (HEC-2, 10-A)



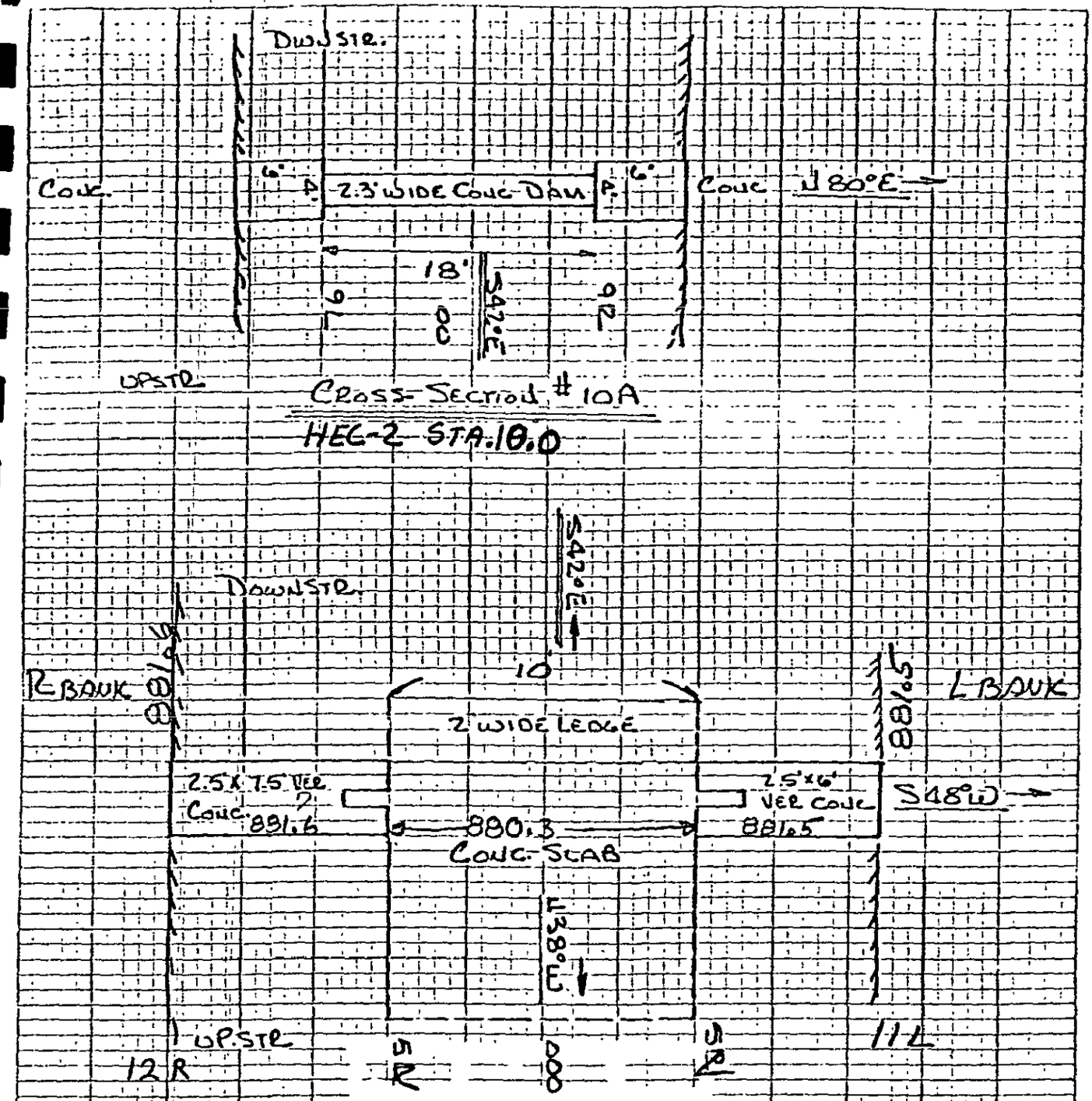


DAM SECTION 10B MINGES BROOK (HEC-2, 10-B)

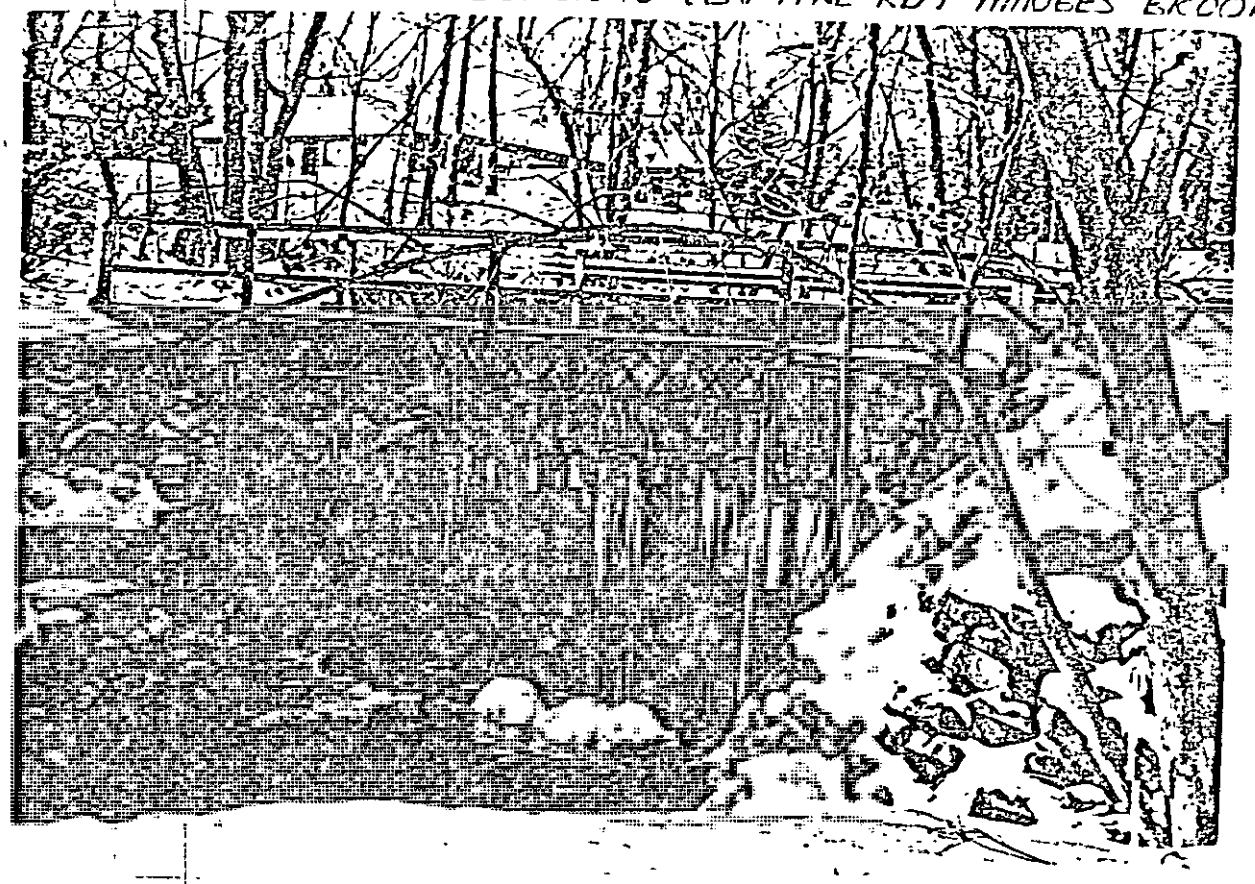
HUD 2022-07
3/81 DRB

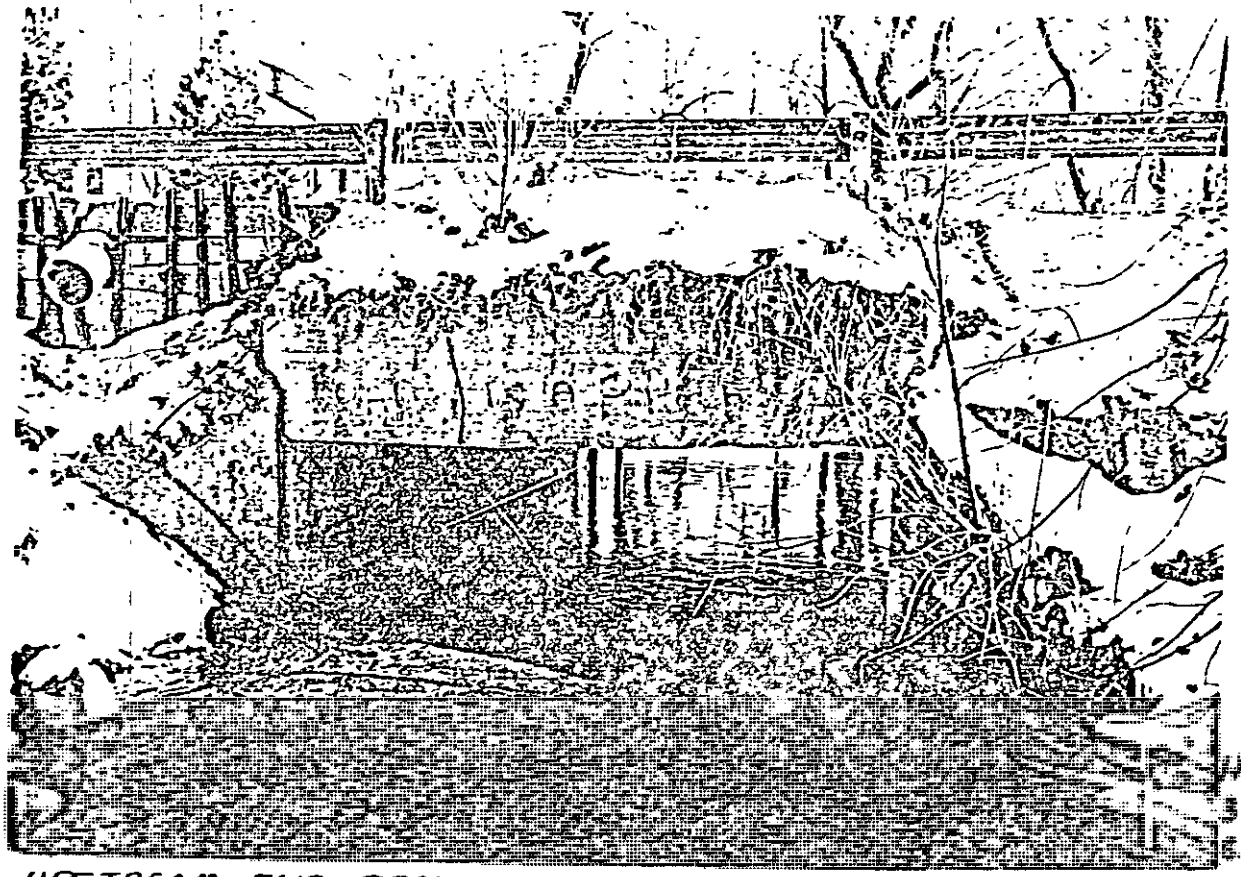
SHEET 7 OF 2

Cross-Sections #10A & #10B Minges Brook



DOWNSTREAM END SECTION 10 (CAPITAL RD.) MINGES BROOK





UPSTREAM END SECTION 10 (CAPITAL RD) @ MINGES BROOK
(HEC-2 STA. 11.0)

VDD 2022-07
3/81 DRB
SHEET 9 OF 2

Minges Brook

FORM 25 0
(313) 291-5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: CAPITAL AVE STA 11.0

REFERENCE

Bridge Losses - SB Card 30° SKEW

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 = 13×5 = 65 Wp = 36

$R = A/wp$ 65/36 $R^{4/3} = 2.2$ $L = 32$

n (composite).

$K_f = 29.1 \times (.025)^2 \times 32 / 2.2 = 0.26$

$K_c = 0.4$

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

RECEIVED
AUG 11 1981
WATER MANAGEMENT

2. XKOR = 1 + 0.26 + 0.4 + 0.0 = 1.66
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) = 13.0
6. [illegible] width of obstruction = 0. — field data
7. [illegible] Bridge opening inc. piers = 65
8. SS = side slope = 0.0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 881.4 (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 881.4 (0 if equal to minimum elevation in previous X-sect.)

SUBJECT	BY	CHK	SHEET NO	File Code No (Job No) Owner Project Suffix
MINGES BR.	DATE 3/80	DATE	OF	HUD • 2022 • 07

Bridge Location: CAPITAL AVE STA 11.0

REFERENCE

Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 0.0 — 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 = 9.8 x 5.2 = 51 Wp = 30

R = A/wp 51/30 = 1.7 $R^{4/3}$ = 2.03 L = 32

n (composite) = .017(20.3/30) + .035(9.8/30) = .023

$K_f = 29.1 \times (.023)^2 \times 32 / 2.03 = 0.24$

$K_e = 0.4$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 45

(Kp = 0) if bridge has no intermediate piers

Kp = 0.05 if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + 0.24 + 0.4 + 0.0 = 1.64

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): 9.8

6. [illegible] width of obstruction = 0.0

7. [illegible] bridge opening inc. piers = 51 — field data

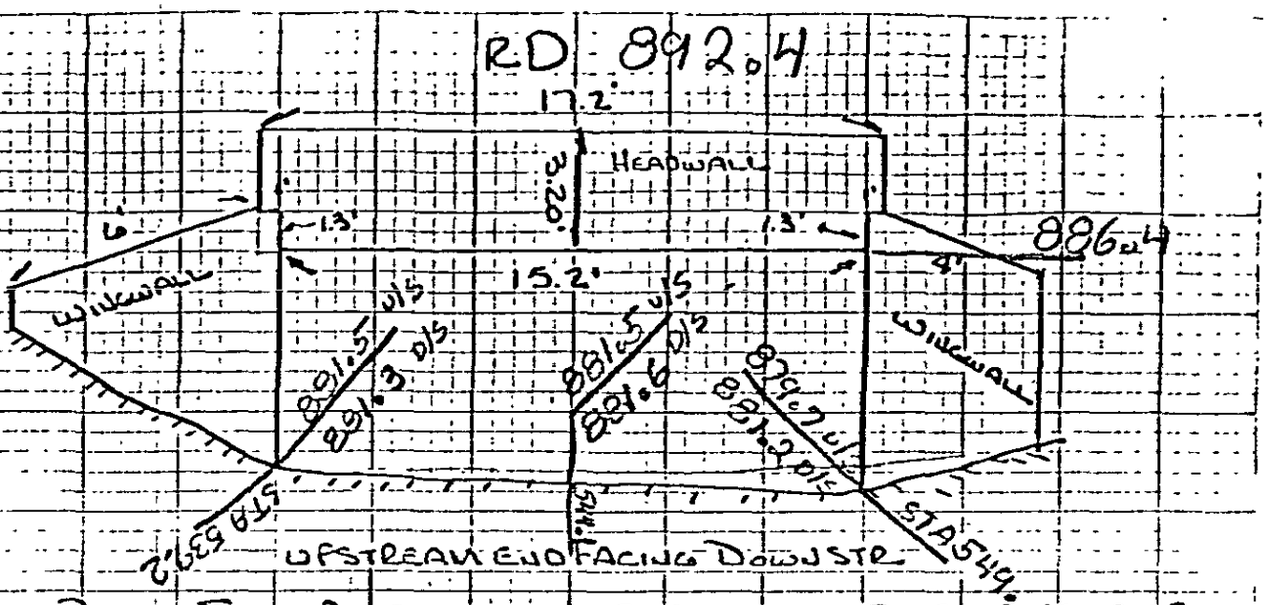
8. SS = side slope = 0.0 (horizontal per 1 vertical unit)

9. ELCHU = Elevation of channel invert U/S side = 881.2
(0 if equal to minimum elevation in previous X-sect.)

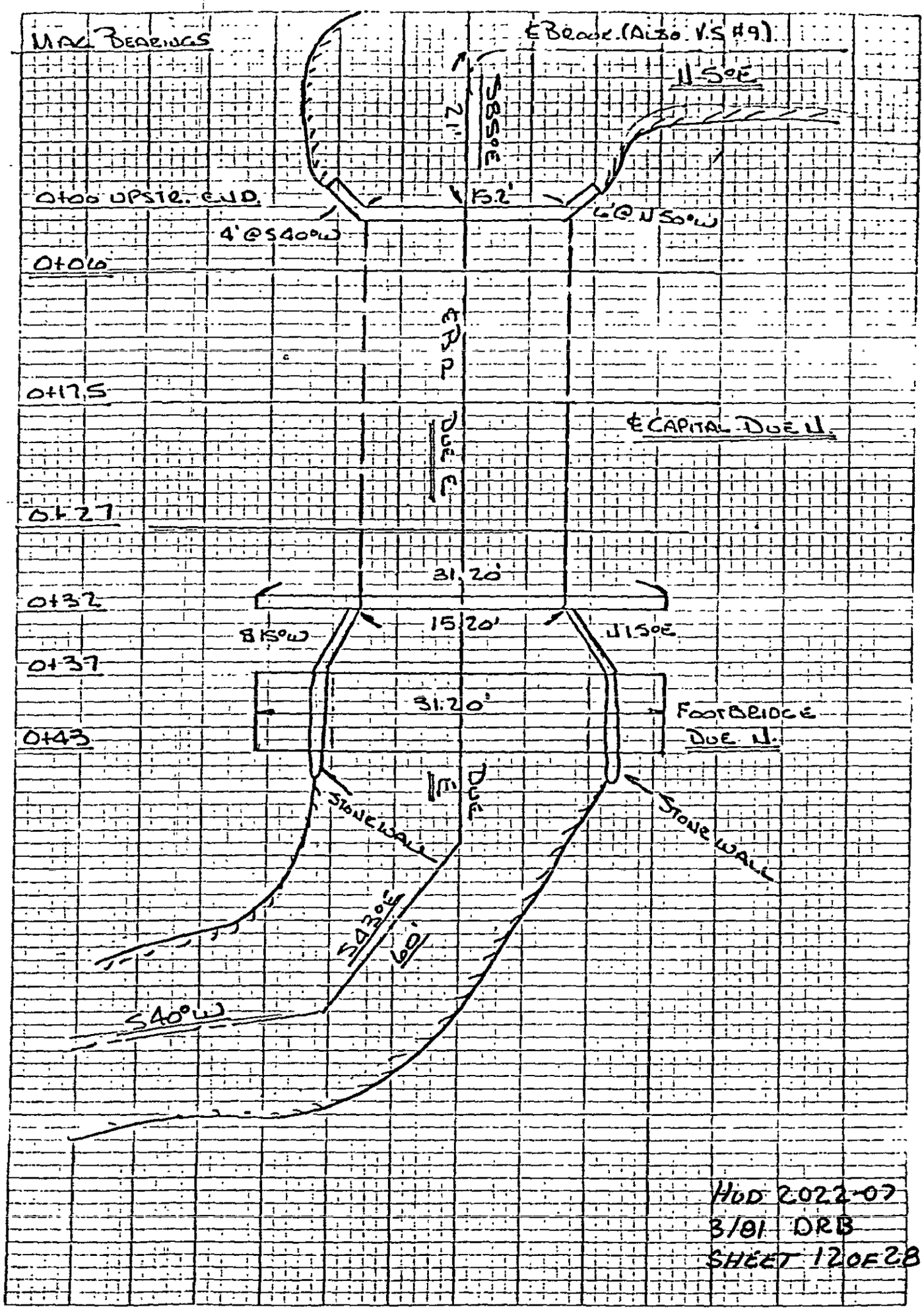
10. ELCHD = Elevation of channel invert D/S side = 881.2
(0 if equal to minimum elevation in previous X-sect.)

SUBJECT	BY	CHK.	SHEET NO.	File Code No (Job No.) Owner / Project	Suffix
MINGES BR.	DRB		10 of 28	HUD • 2022 •	07
	DATE 3/30	DATE			

CROSS SECTION #10 & FOOTBRIDGE AT DWNSTR END

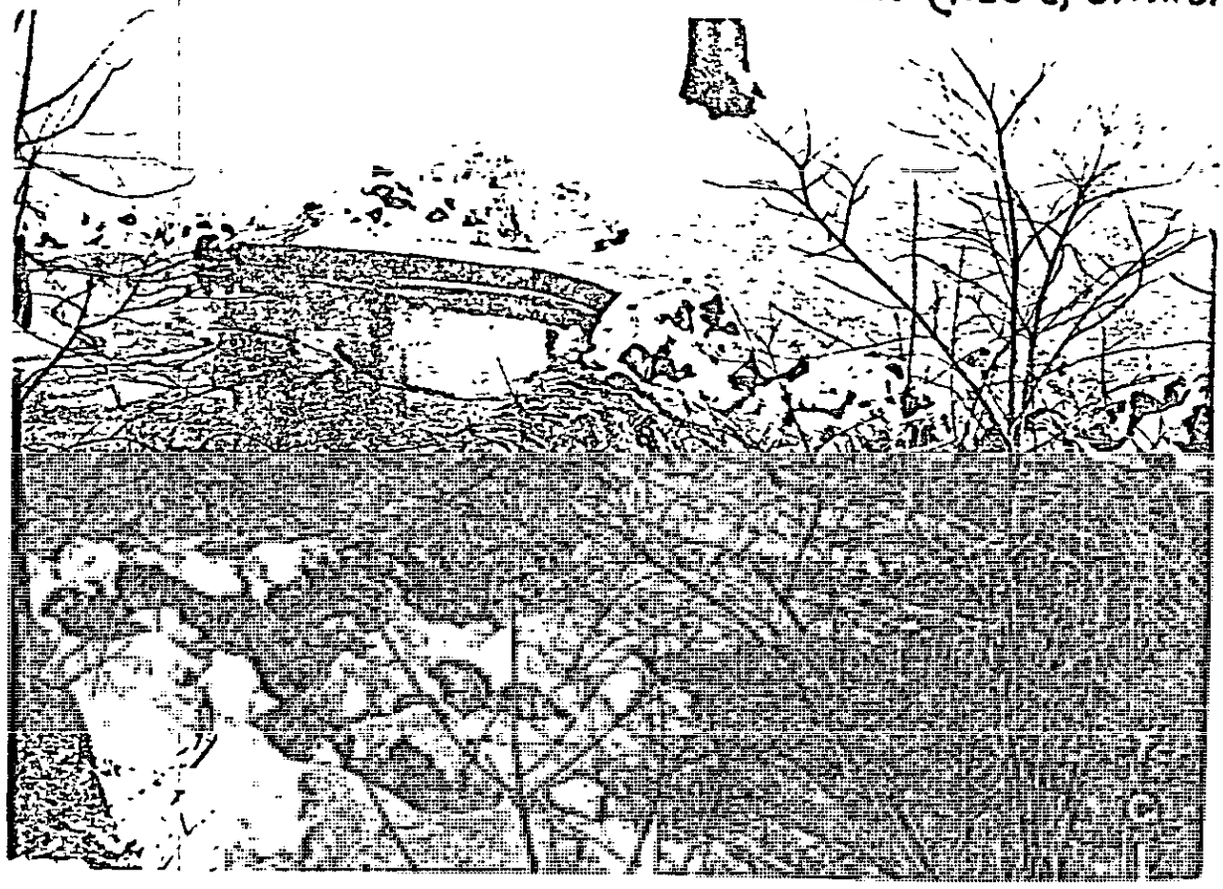

RD 89204
17.2'
HEADWALL
20.0'
1.3'
1.3'
6'
4'
88604
WINGWALL
15.2'
WINGWALL
0.5
0.5
0.5

CROSS-SECTION #10 MINGES BROOK AT CAPITAL AVE



HUD 2022-07
3/81 DRB
SHEET 12 OF 28

DAM SECTION 7C MINGES BROOK (HEC-2, STA.13.0)

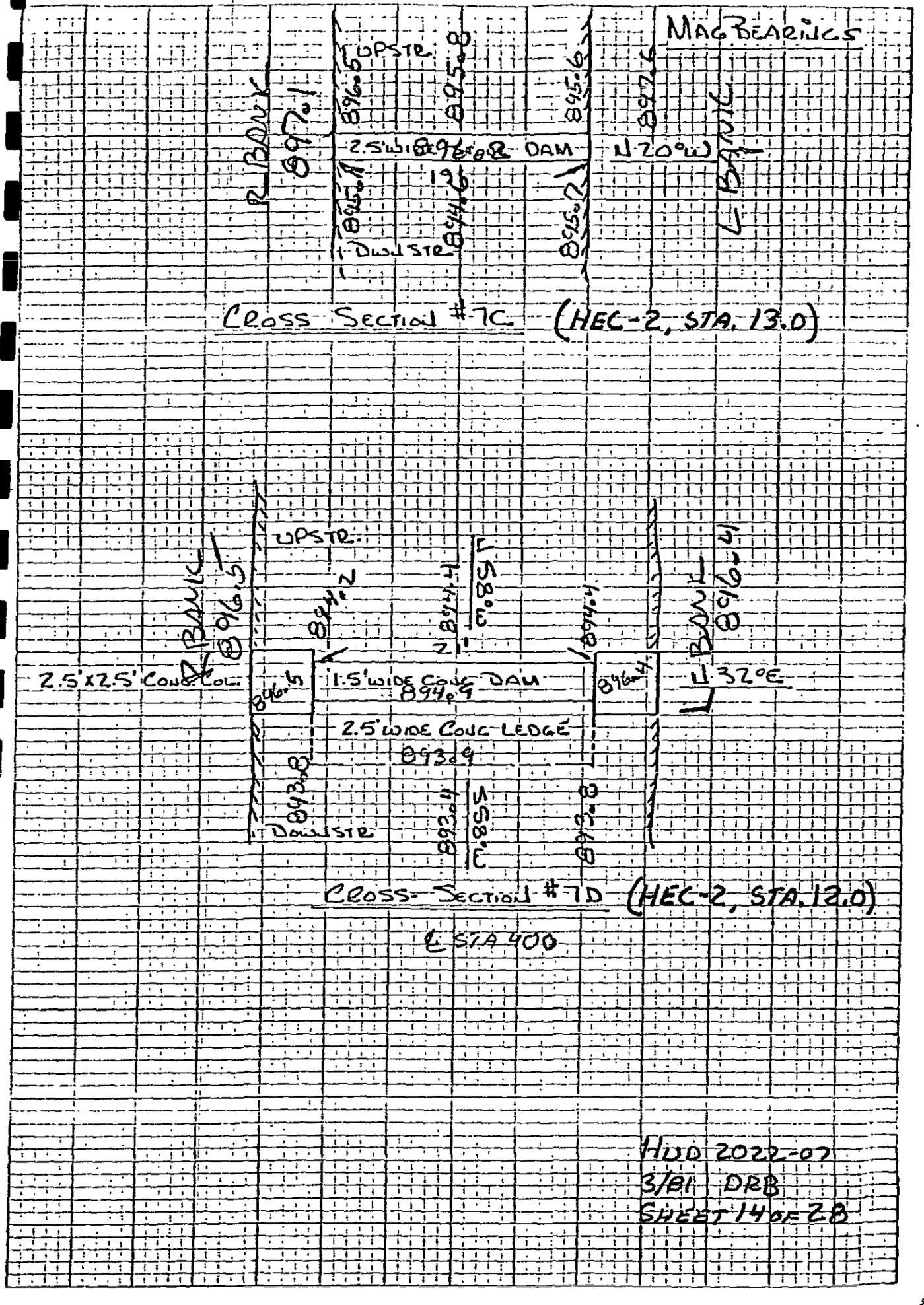




HDD 2022-07
3/01 DRB
SHEET 13 OF 2

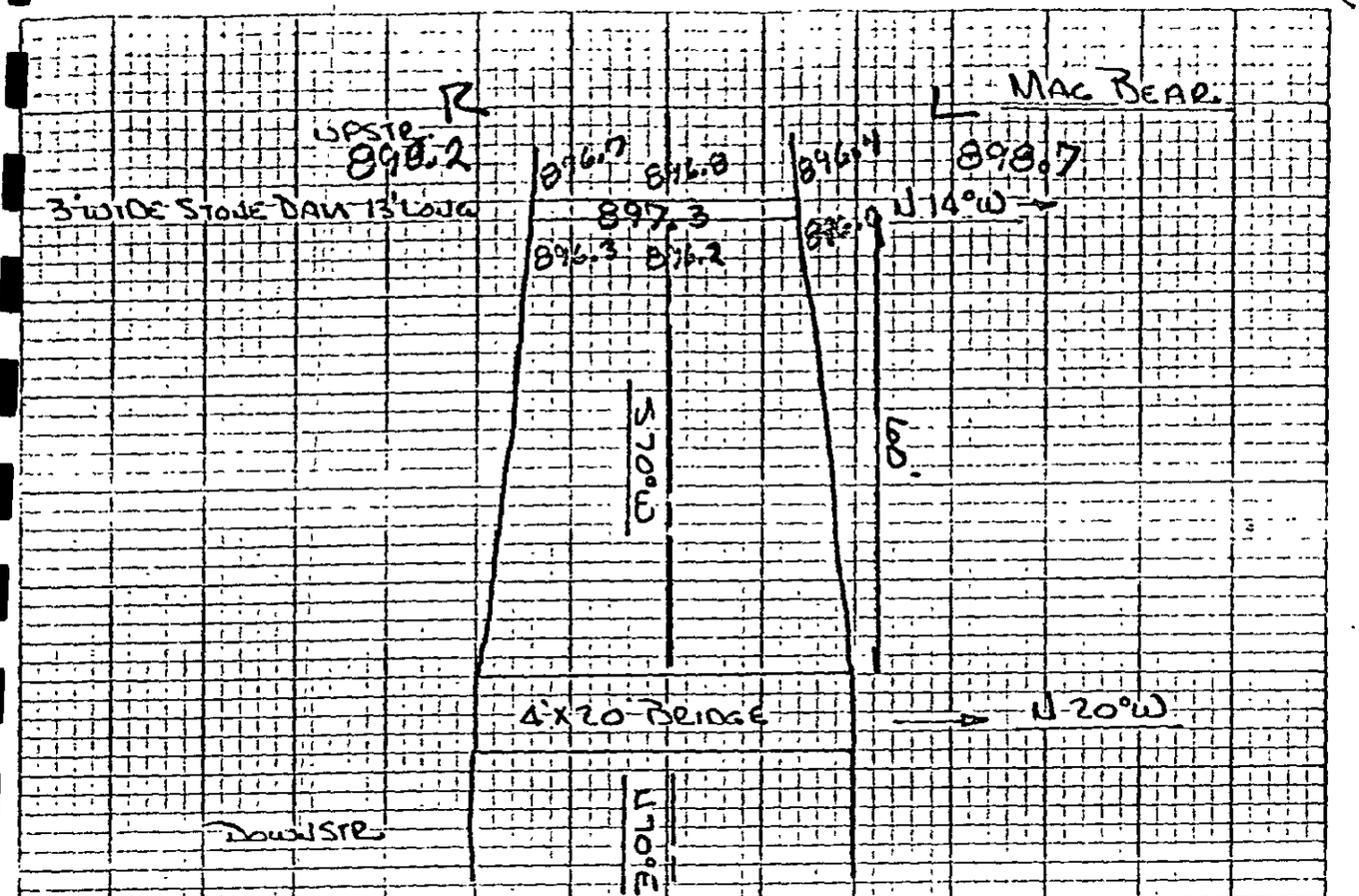
DAM SECTION 7D MINGES BROOK (HEC-2, STA. 12.0)

Cross-Sections #7C & #7D Minges Brook

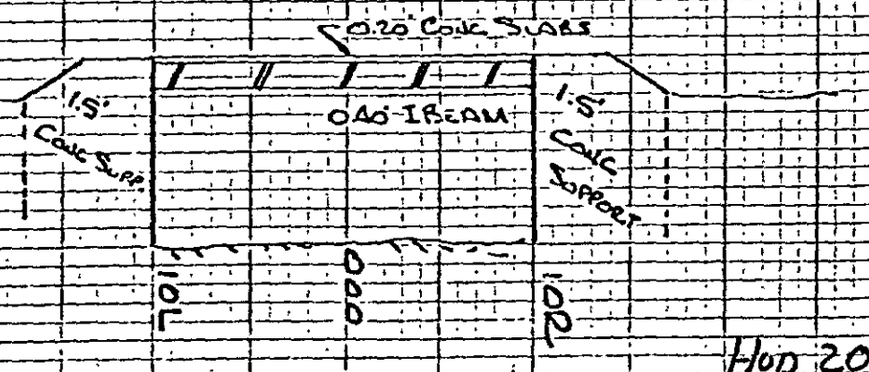


HDD 2022-07
3/81 DRB
SHEET 14 OF 28

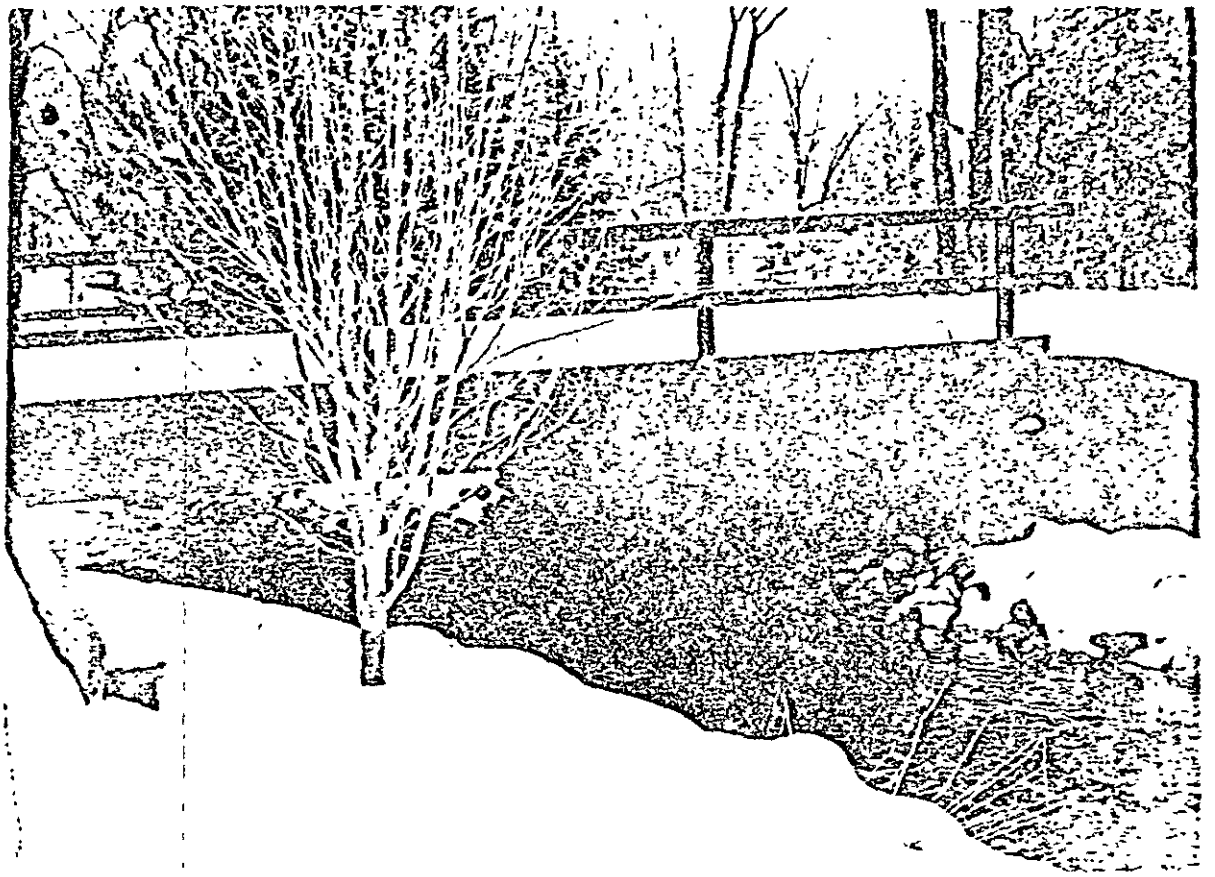
CROSS SEC. #7B & UPSTR. DAM MINGES BROOK



CROSS SECTION 7B, (HEC-2 14.0)
NO PICTURE AVAILABLE



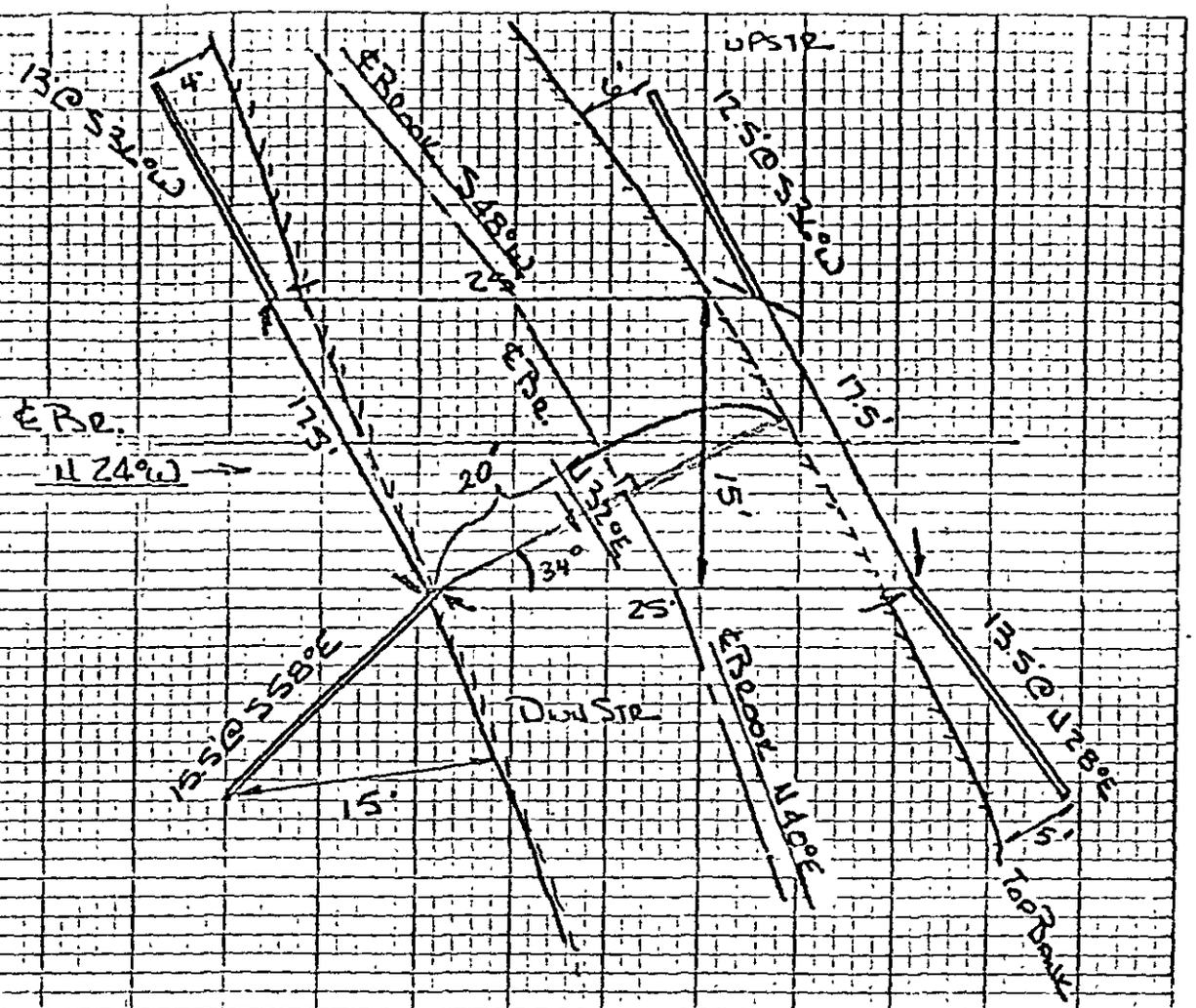
HOD 2022-07
3/81 DRB
SHEET 15 OF 28

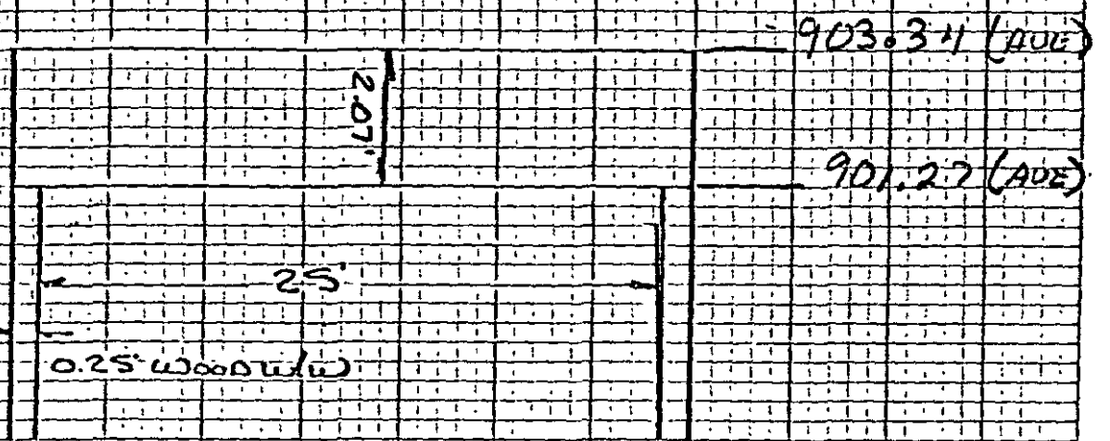


CROSS SECTION #7A - MINGLES BROOK
HEC-2, STA 15.0

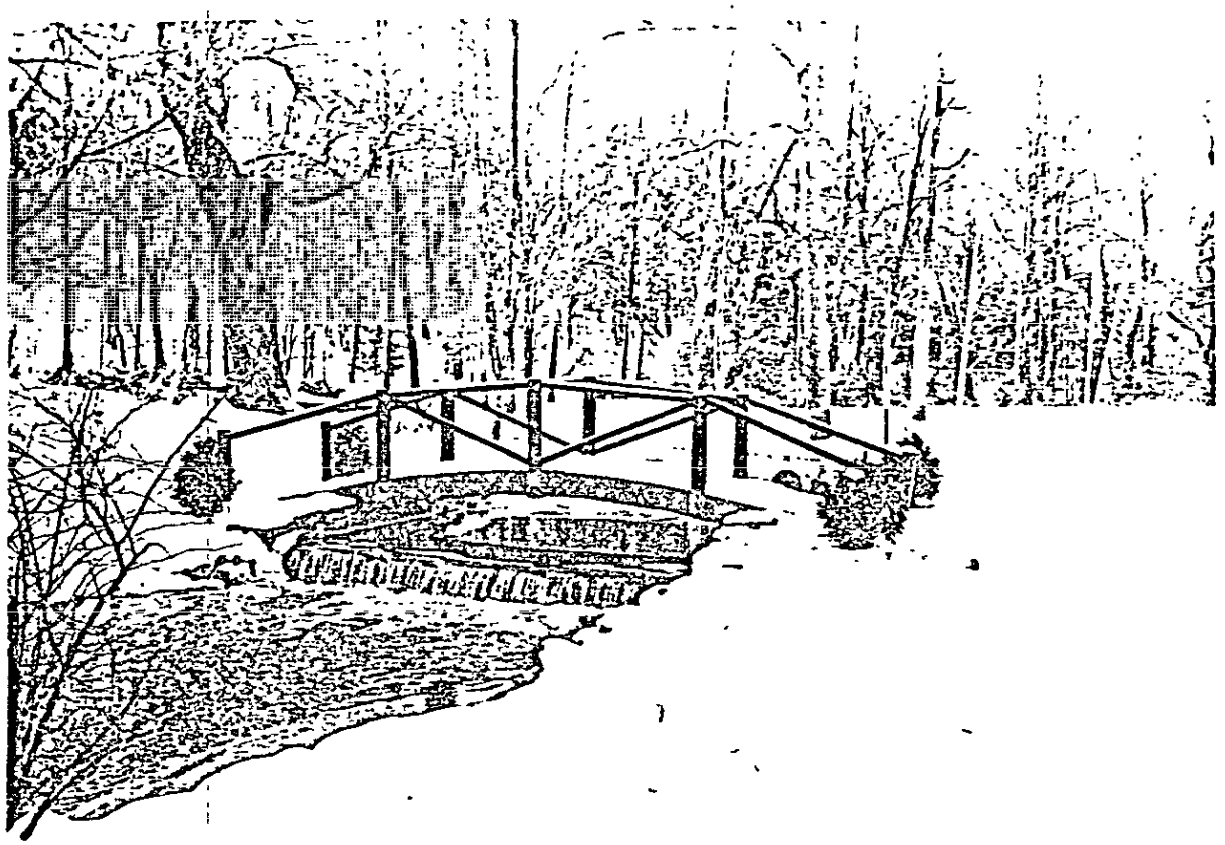
HUD 2022-07
3/81 DRB
SHEET 16 OF 28

CROSS-SECTION # 7A (WOOD BR) MINGES BROOK





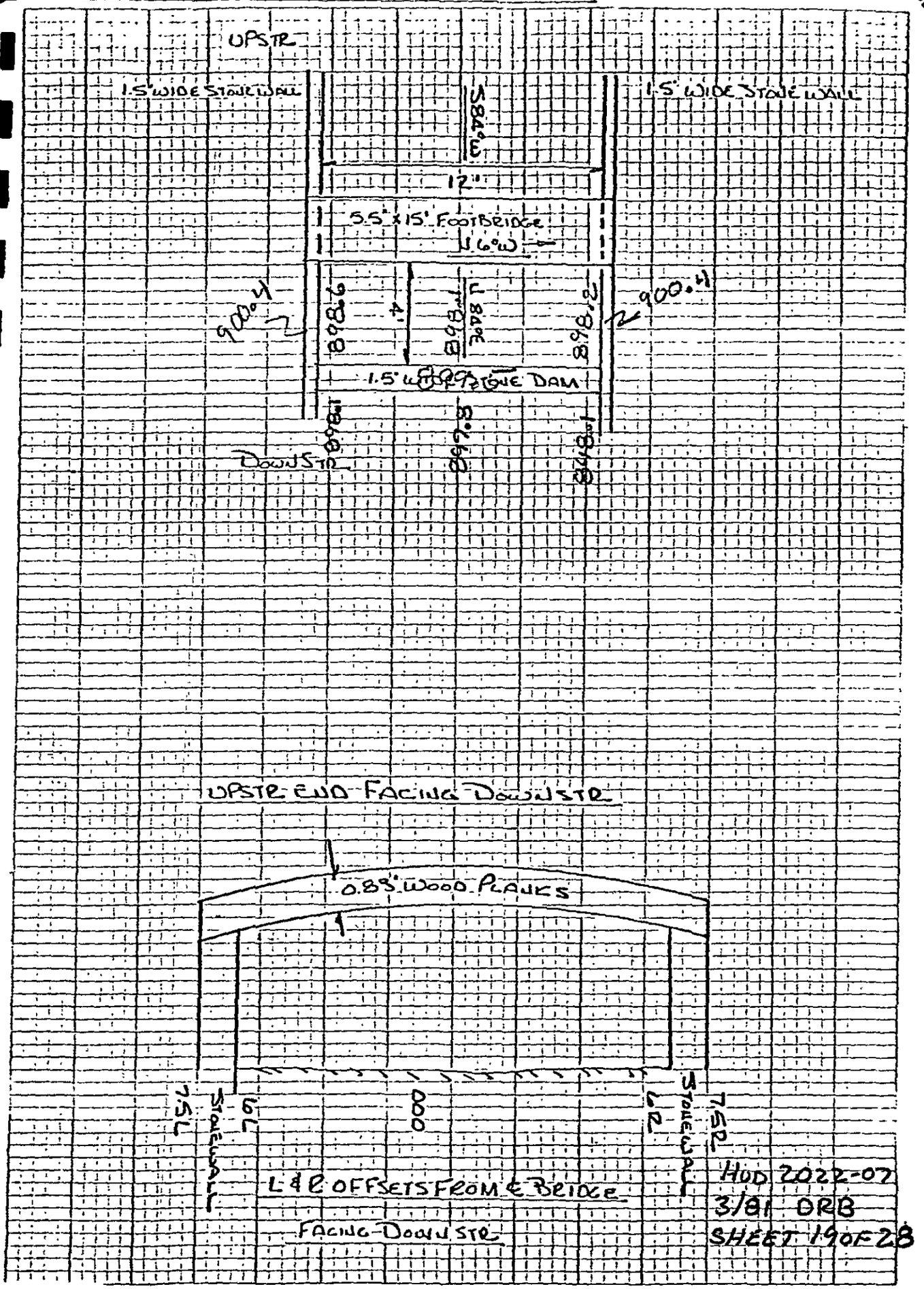
HUD 2022-07
3/81 DRB
SHEET 17 OF 28



DOWNSTREAM END SECTION 6C MINGES BROOK
HEC-2 STA. 16.0

HOD 2022-07
3/81 DRB
SHEET 18 OF 28

Cross-Section #6C Minges Brook



HUD 2022-07
3/81 ORB
SHEET 19 OF 28

DOWNSTREAM END SECTION 6 (MINGES RD) @ MINGES BROOK (HEC-2, 17.0)



HUD 2022-07
3/81 DRB
SHEET 20 OF 28

Bridge Location: MINGES RD. STA 17.0

REFERENCE

Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 0.0 — 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 = $2\left(\frac{\pi 4^2}{4}\right)$ = 25 FT^2 WP = 25 FT

$R = A/wp$ $R^{4/3} = 1.0$ $L = 46$

n (composite).

$K_f = 29.1 \times (0.017)^2 \times 46 / 1.0 = 0.39$

$K_e = 0.2$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 45

$K_p = 0$ if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

2. XKOR = 1 + 0.39 + 0.20 + 0.0 = 1.59

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): 6.25

[illegible] width of obstruction = 0.

[illegible] bridge opening inc. piers = 25. — field data

8. SS = side slope = 0.
(horizontal per 1 vertical unit)

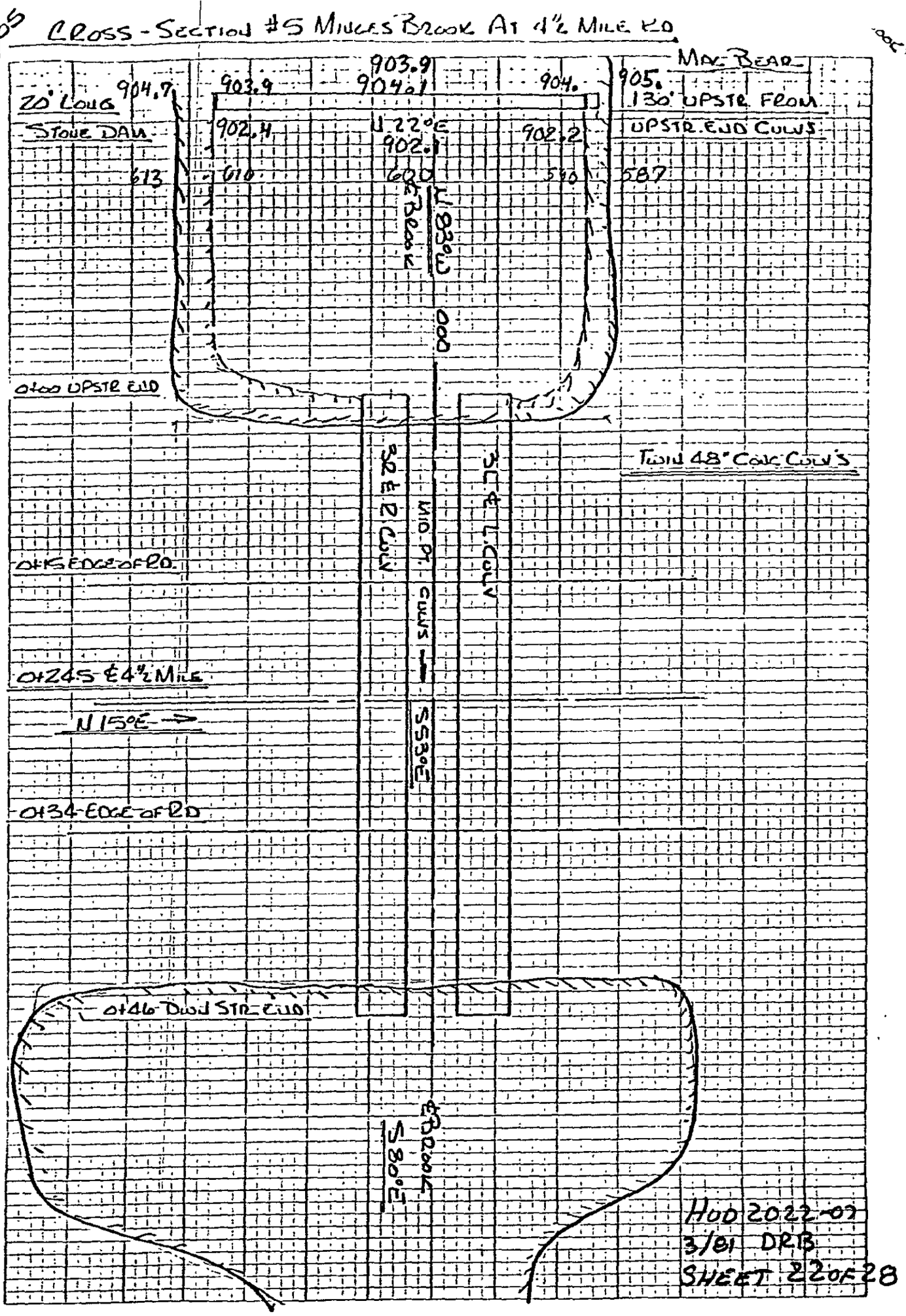
9. ELCHU = Elevation of channel invert U/S side = 901.5
(0 if equal to minimum elevation in previous x-sect.)

10. ELCHD = Elevation of channel invert D/S side = 901.4
(0 if equal to minimum elevation in previous x-sect.)

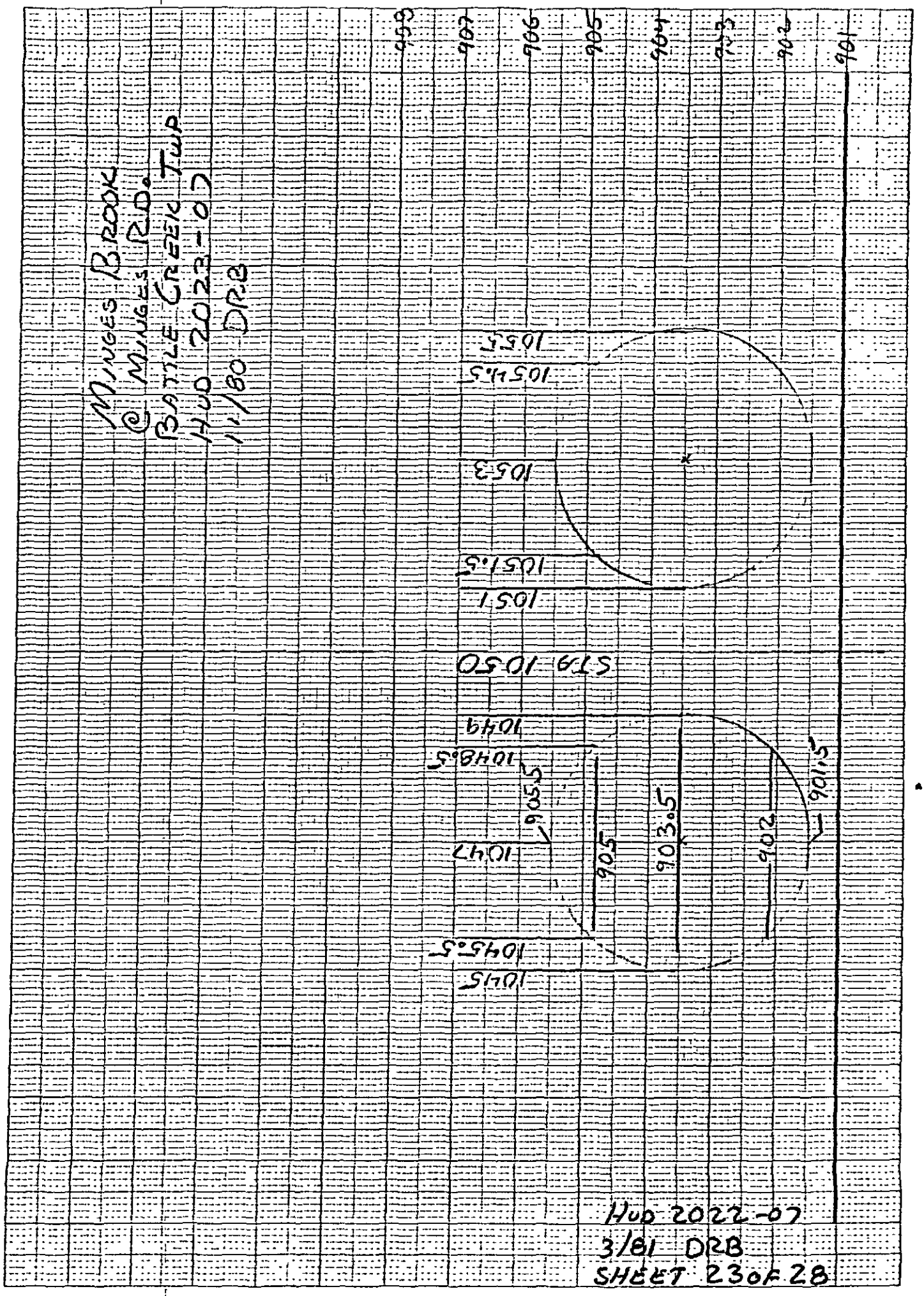
SUBJECT	BY	CHK.	SHEET NO.	File Code No. / Job No. / Project / Owner	Suffix
MINGES BR. B.C. TWP	DRB		21 OF 28	HUD • 202 2	07
	DATE 3/80	DATE			

22 05

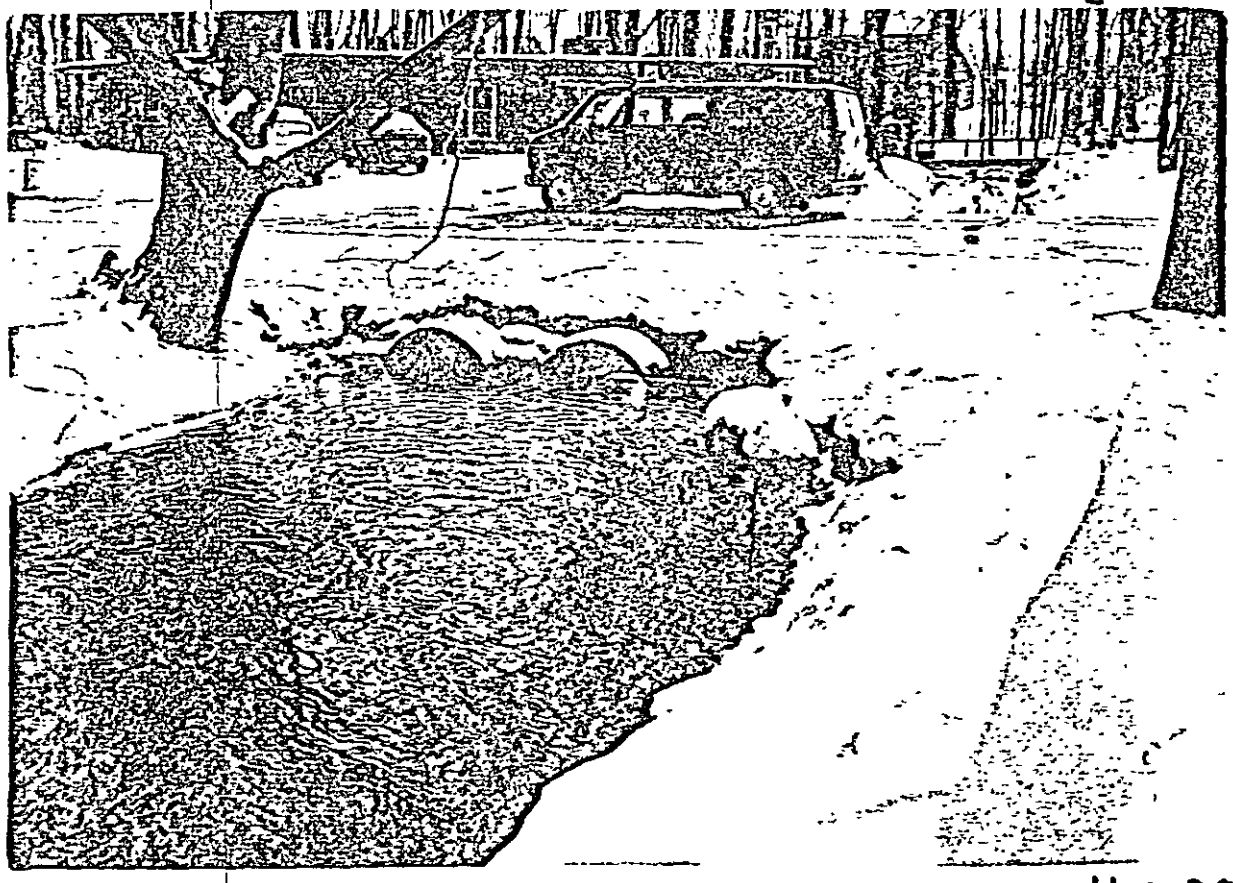
CROSS-SECTION #5 MINGES BROOK AT 4½ MILE RD



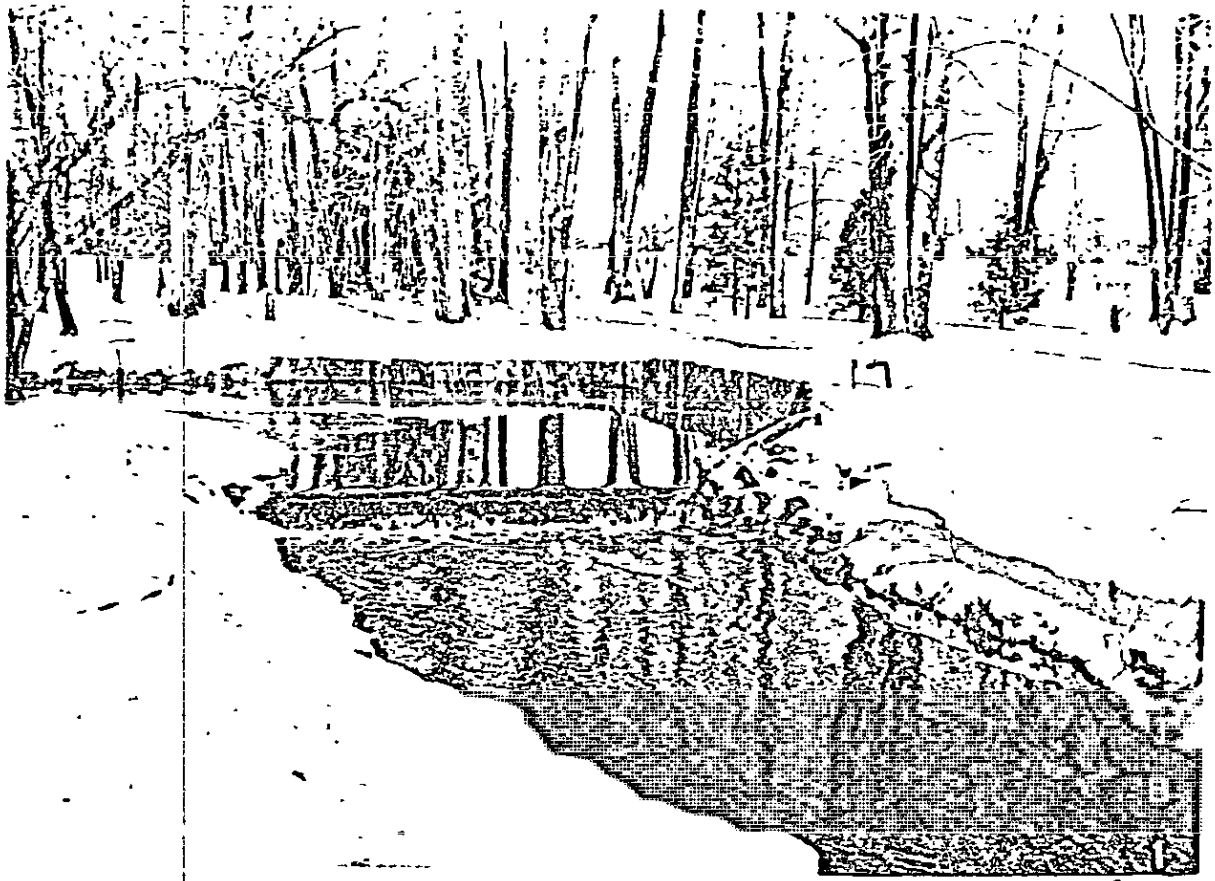
HUD 2022-07
3/81 DRB
SHEET 22 OF 28


MINGES BROOK
@ MINGES RD.
BATTLE CREEK TWP
HUD 2023-07
11/80 DRB
909
907
906
905
904
903
902
901
1055
1054.5
1053
1051.5
1051
STA 1050
1049
1048.5
1047
1045.5
1045
905.5
905
903.5
902
901.5
HUD 2022-07
3/81 DRB
SHEET 23 OF 28

UPSTREAM END SECTION 3C MINGES BROOK (HEC-2, STA 19.0)



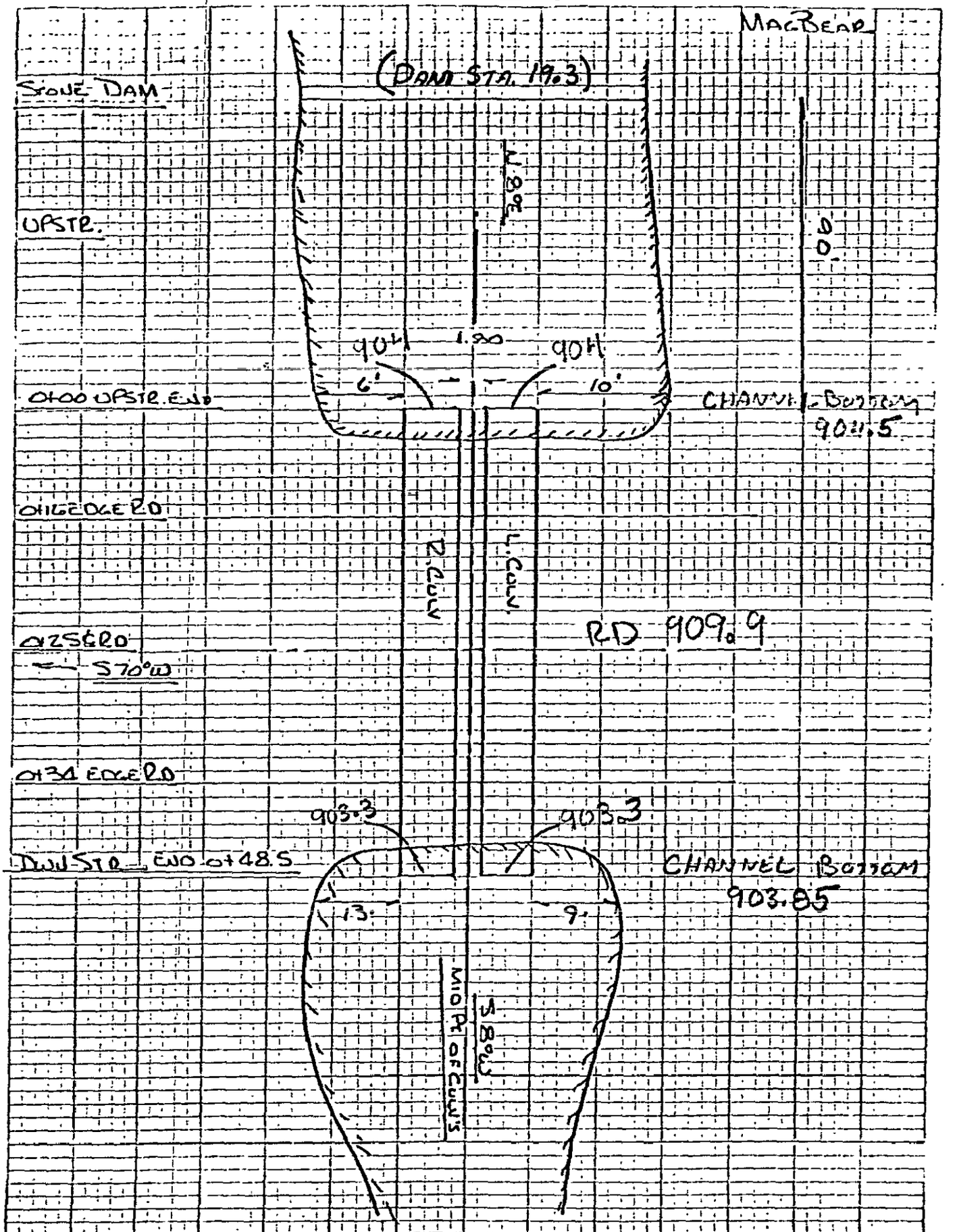
H00 2022-07
3/81 DRB
SHEET 24 OF 28



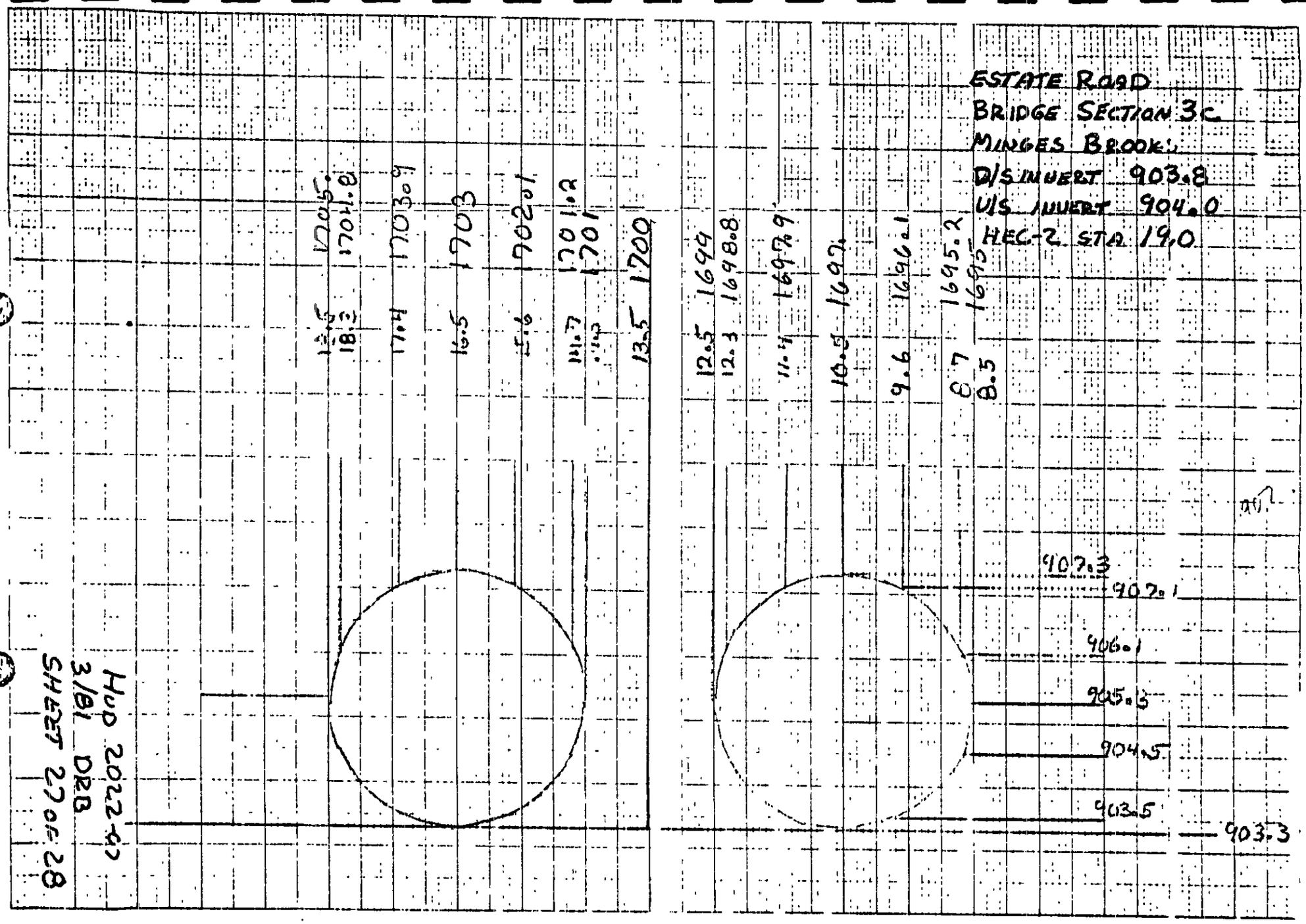
DAM BETWEEN SECTION 3B & 3C MINGES BROOK (HEC-2, STA. 19.3)

HUD 2022-07
3/81 DRB
SHEET 25 OF 28

CROSS-SECTION @ DC MINGES ISLAND
TWIN 48" CMP'S



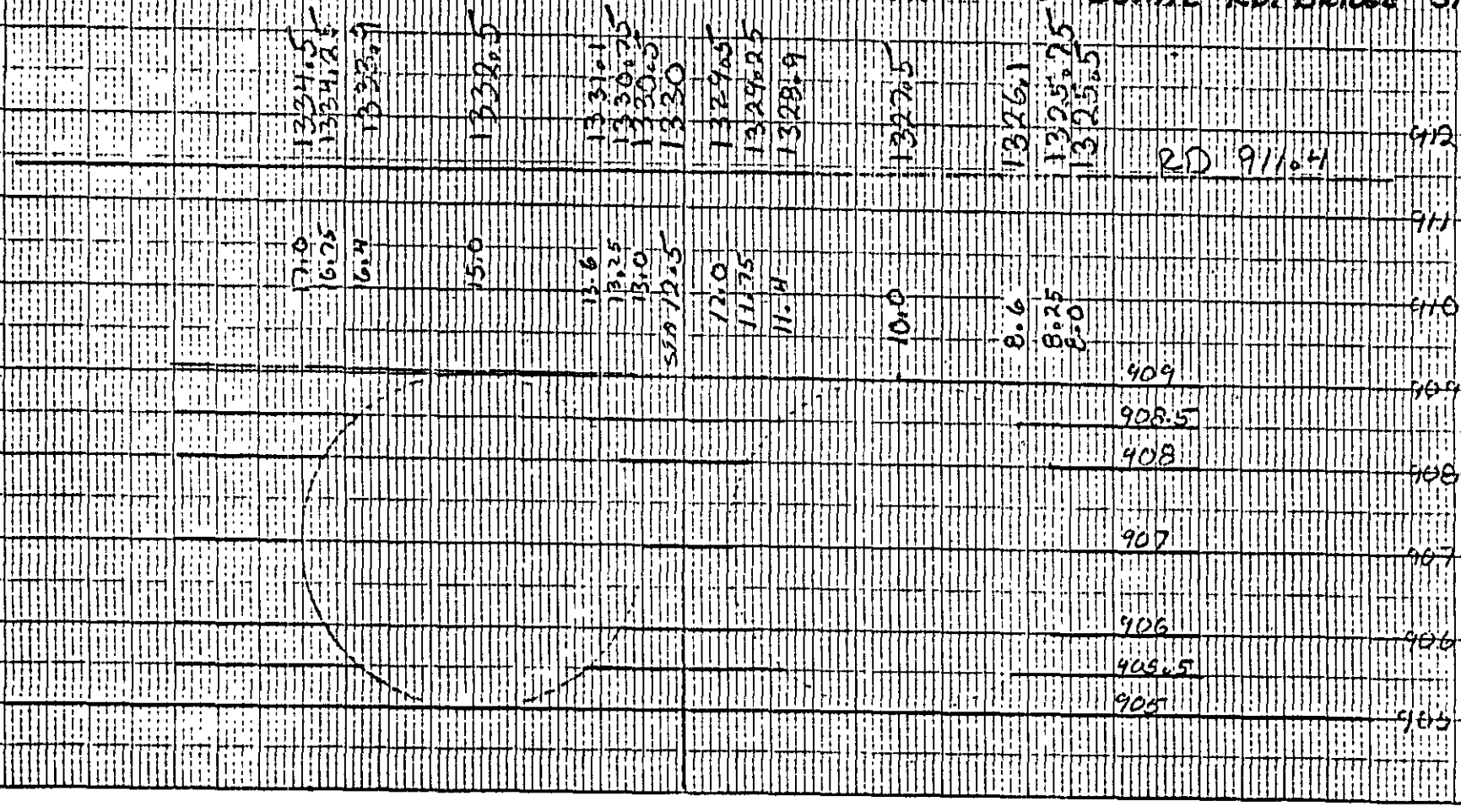
HUD 2022-02
3/01 DRB
SHEET 26 OF 28



46 1320
K+E 10 X 10 TO ½ INCH 7 X 10 INCHES KEUFFEL & ESSER CO.

STRUCTURE #3
LYNWOOD DRIVE
D/S + U/S IDENTICAL
HEC-2 STA. 20.0

NO PICTURE AVAILABLE
STRUCTURE IS IDENTICAL
TO ESTATE RD. BRIDGE STA. 19.0



HUD 2022-07
3/81 DRB
SHEET 28 OF 28

46 1320
K+E 10 X 10 TO ½ INCH 7 X 10 INCHES KEUFFEL & ESSER CO. MADE IN U.S.A.

MINGES BROOK

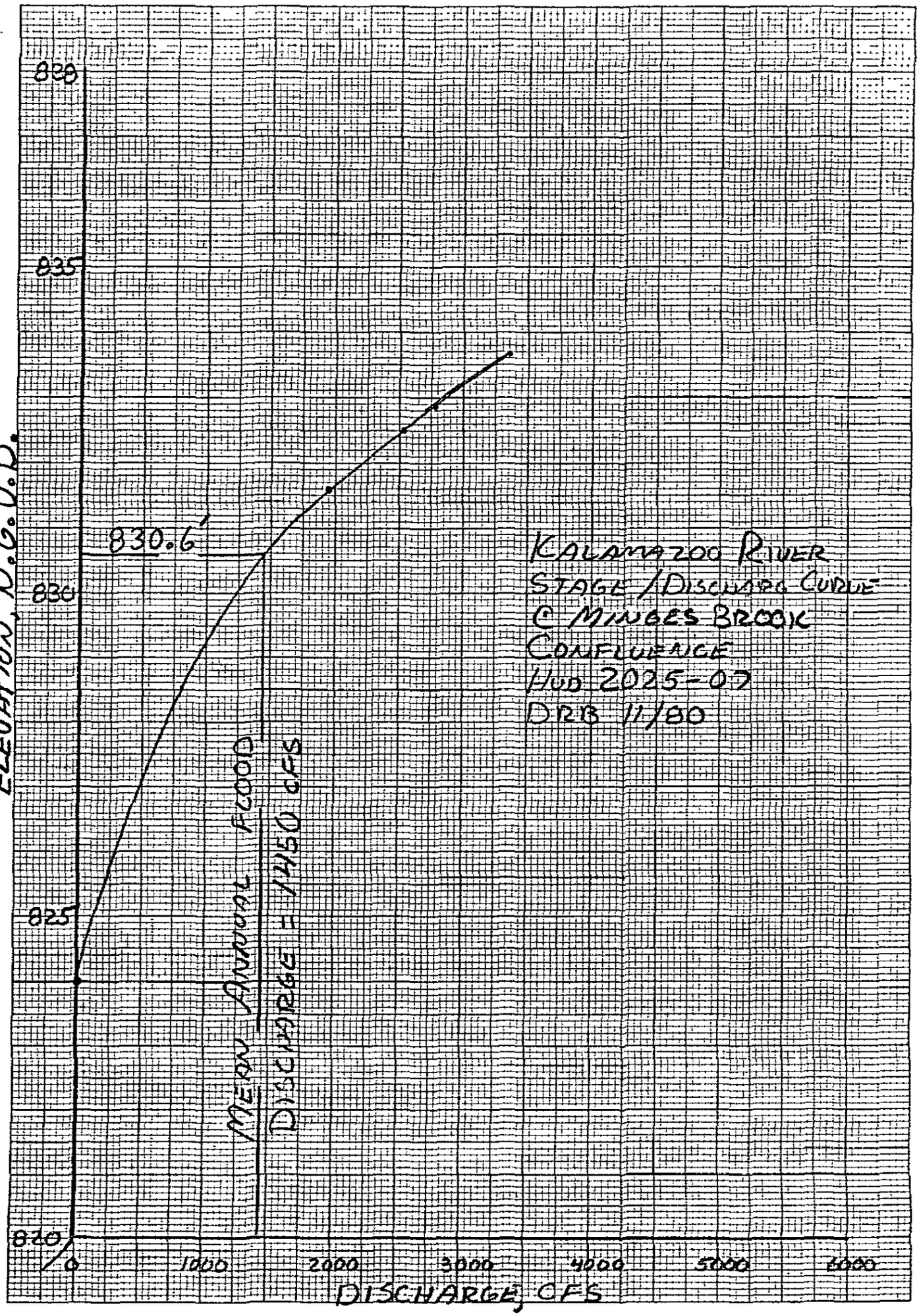
EMMETT TOWNSHIP, MICHIGAN

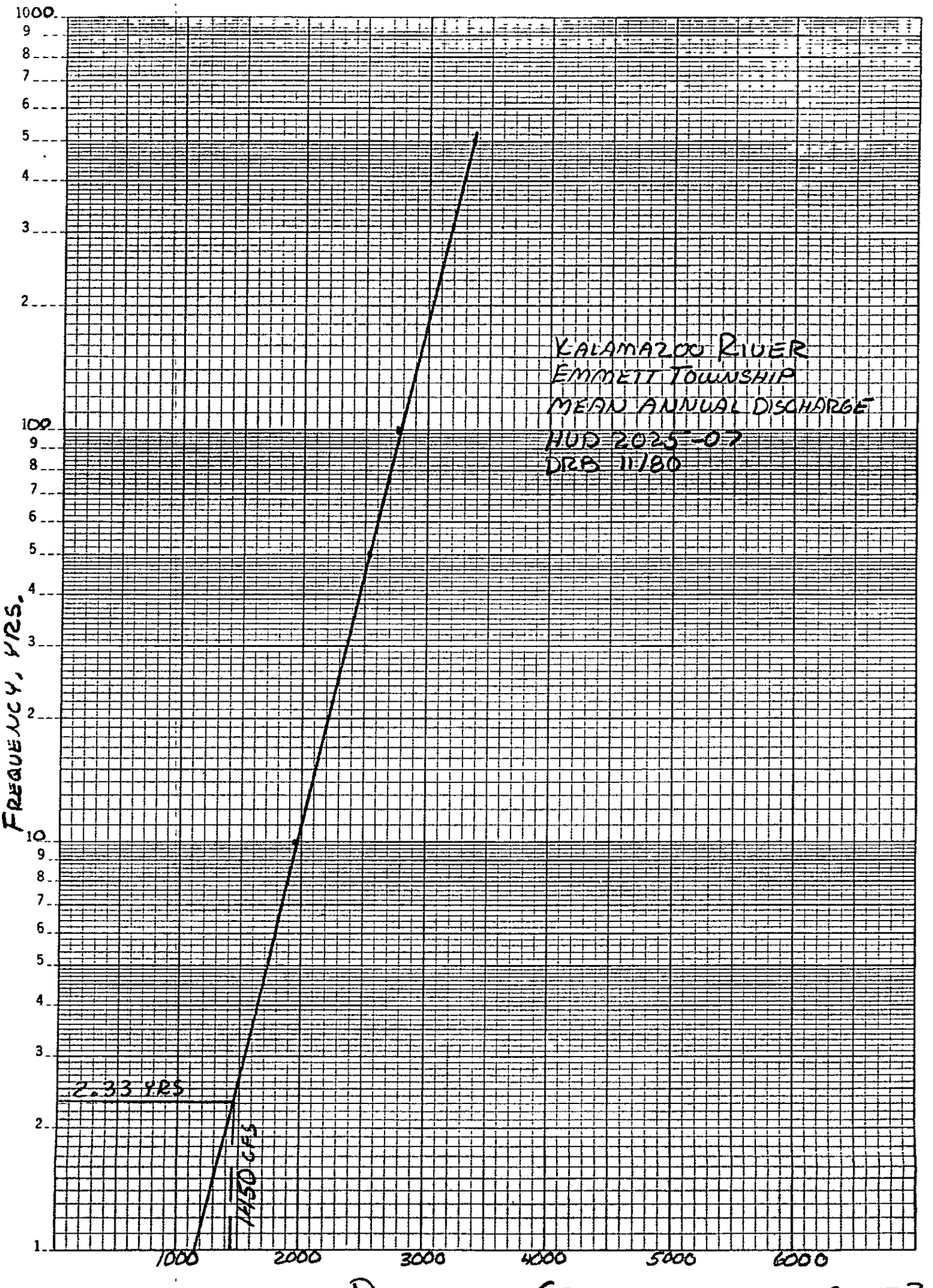
AND

BATTLE CREEK TOWNSHIP, MICHIGAN

EXHIBIT 5

KALAMAZOO RIVER MEAN FLOOD ELEVATION


840
835
830
825
820
ELEVATION, U.S.G.S.U.S.D.
830.6'
Mean Annual Flood
Discharge = 1450 cfs
0
1000
2000
3000
4000
5000
6000
DISCHARGE, CFS
KALAMAZOO RIVER
STAGE / DISCHARGE CURVE
@ MINGES BROOK
CONFLUENCE
HUD 2025-07
DRB 11/80



46 5506

K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

SHEET 2 OF

HARPER CREEK

EMMETT TOWNSHIP, MICHIGAN

EXHIBIT 6

STREAM PROFILES

HAKPAK CREEK

REACH 1 — ZONE A3 — REACH 2 ZONE A10 — REA ZON

BEADLE — LAKE RD — PRIVATE DRIVE — E. DRIVE N. — I-94 RAMP — I-94 — E. DRIVE S. — BEADLE

ELEVATION IN FEET (N.G.V.D.)

870
865
860
855
850
845
840
835

A B C D E F G H I J K L M N O P

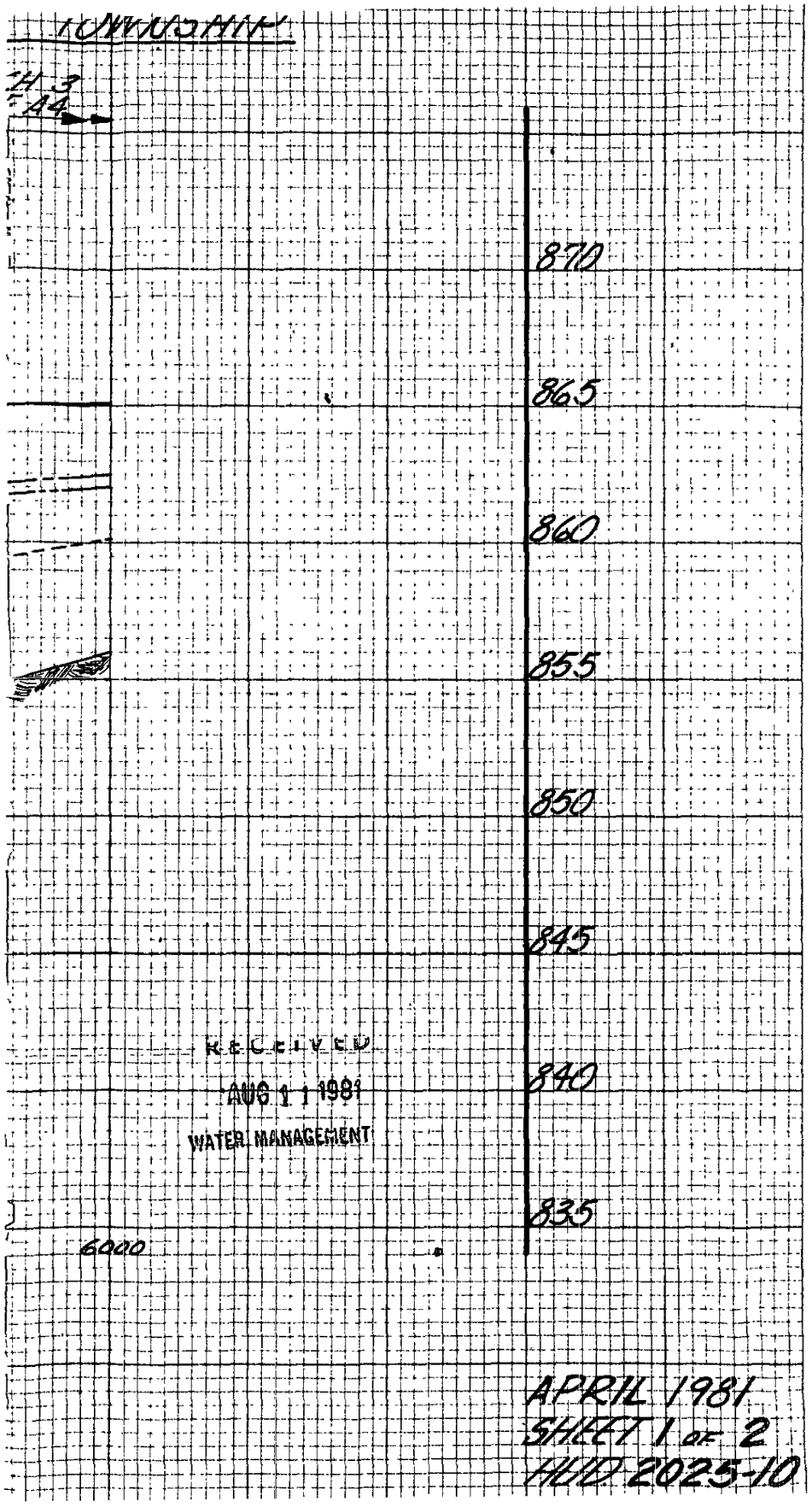
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500

DISTANCE IN FEET

SCALE
HORIZ. 1"=500'
VERT. 1"=5'

LEGEND

——— 500 YEAR WATER SURFACE
— — — 100 YEAR WATER SURFACE
— — — 50 YEAR WATER SURFACE
— — — — 10 YEAR WATER SURFACE
CHANNEL BOTTOM



RECEIVED
AUG 11 1981
WATER MANAGEMENT

APRIL 1981
SHEET 1 of 2
HUD 2025-10

HARPER CREEK

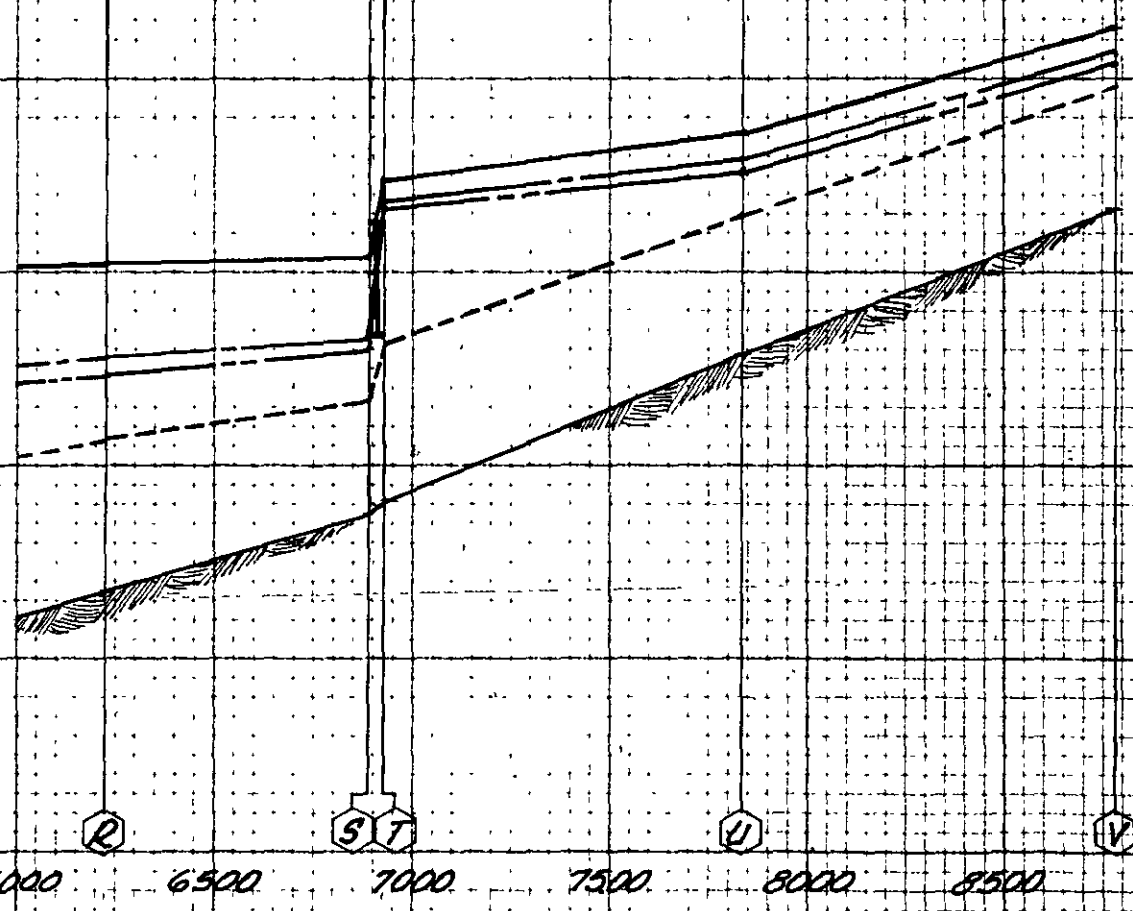
EMMET

REACH 3 ZONE A4

D DRIVE

ELEVATION IN FEET (NGVD)

885
880
875
870
865
860
855
850



Q S T U V

6000 6500 7000 7500 8000 8500 9000

DISTANCE IN FEET

SCALE
HORIZ 1"= 500'
VERT 1"= 5'

LEGEND

——— 500 YEAR WATER SURFACE
— — — 100 YEAR WATER SURFACE
— — — — 50 YEAR WATER SURFACE
- - - - - 10 YEAR WATER SURFACE
CHANNEL BOTTOM

TOWNSHIP

25

20

75

70

55

50

55

50

RECEIVED
AUG 11 1981
WATER MANAGEMENT

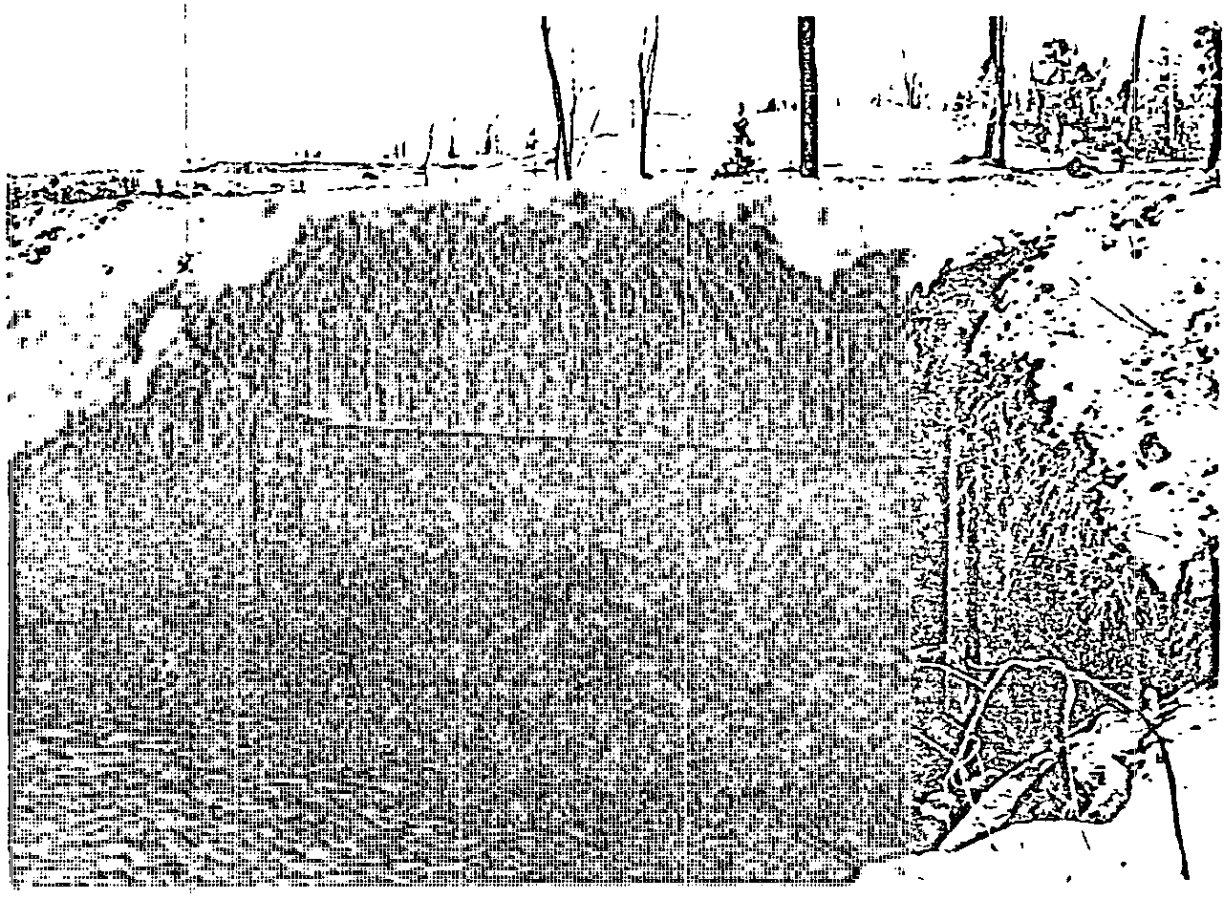
APRIL 1981
SHEET 2 OF 2
[illegible] 2025-10

HARPER CREEK

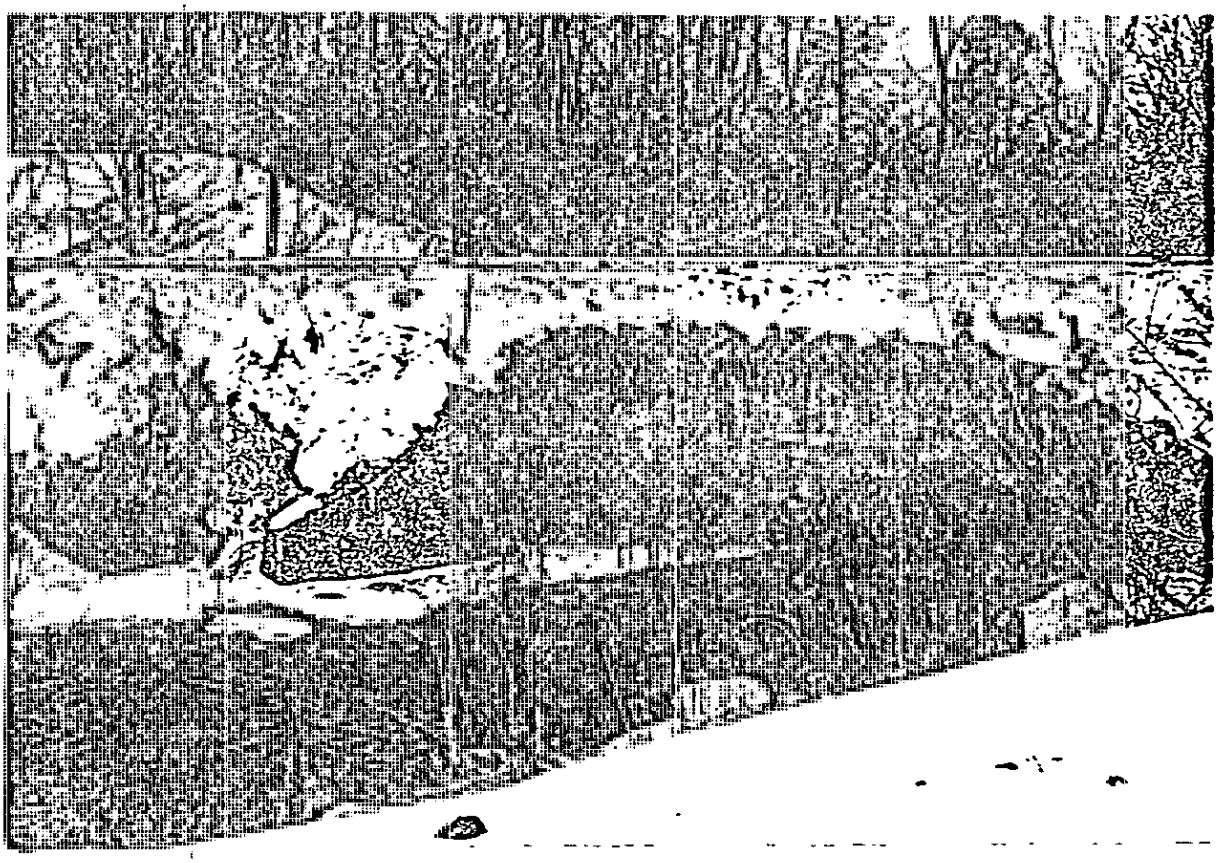
EMMETT TOWNSHIP, MICHIGAN

EXHIBIT 7

BRIDGE NOTES AND SKETCHES



CROSS SECTION #34 HALPER CREEK AT BEADLE LAKE RD. (DOWNSTREAM)



CROSS SECTION #34 HALPER CREEK @ BEADLE LAKE RD

HOD 2025-07
3/81 DRB
SHEET 1 OF 30

Wade Trim & Associates, Inc.
Civil Engineers • Land Surveyors
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

WORK SHEET

Bridge Location : BEADLE LAKE RD. STA 3.0

Bridge Losses - SB Card 36° SKEW

REFERENCE

1. XK (Pier Shape Coefficient) 0.0 — 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 = 60 = 60 / $R^{4/3}$ Wp = 34

$R = A/wp$ $^{42}/_{34}$ = 1. $R^{4/3}$ = 2.13 L = 42

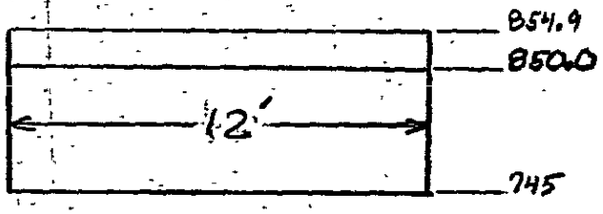
n (composite) =

$K_f = 29.1 \times (0.02)^2 \times 42 / 2.13 = 0.23$

$K_e = 0.5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 49

$K_p = 0$ if bridge has no intermediate piers

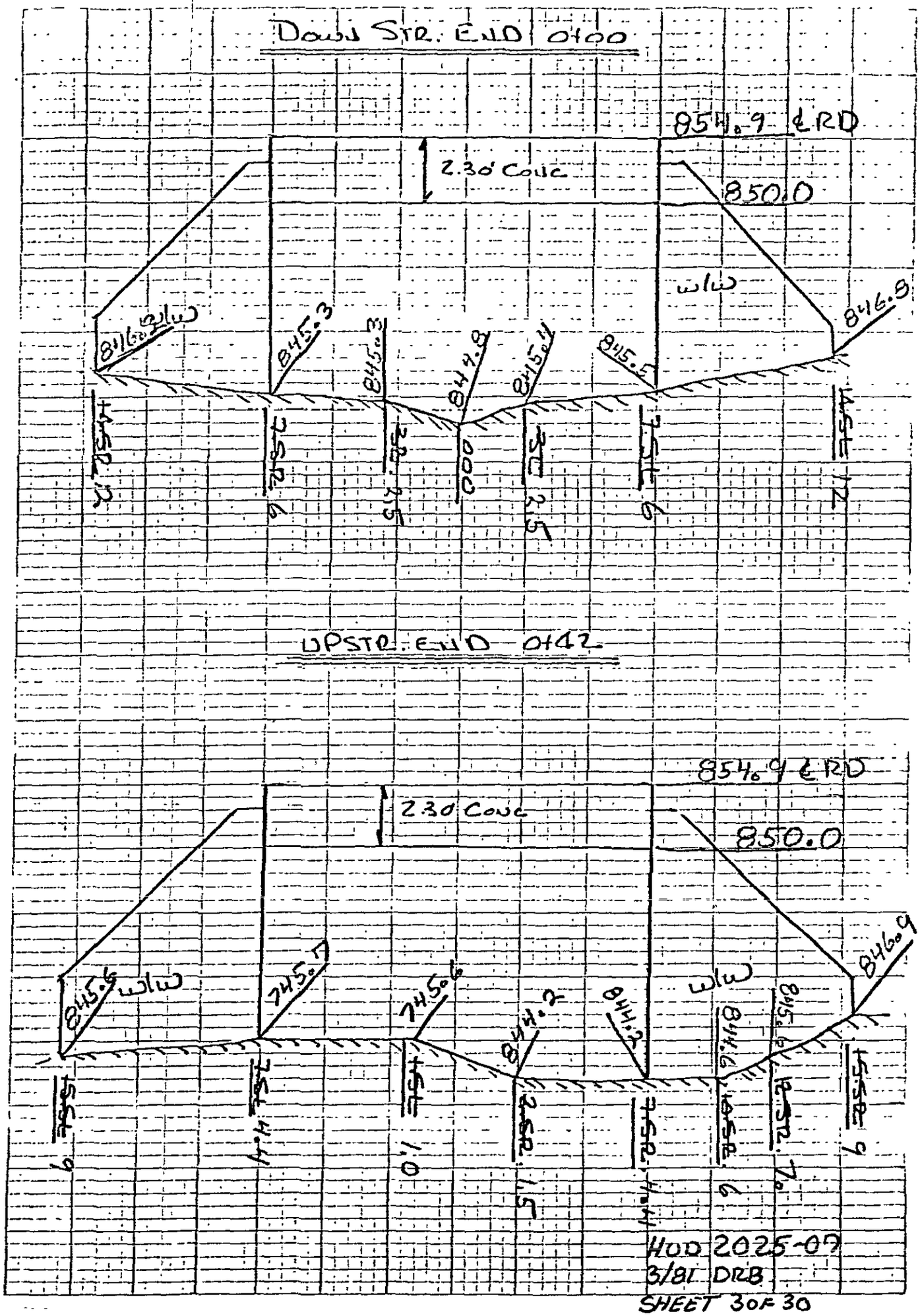
$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual



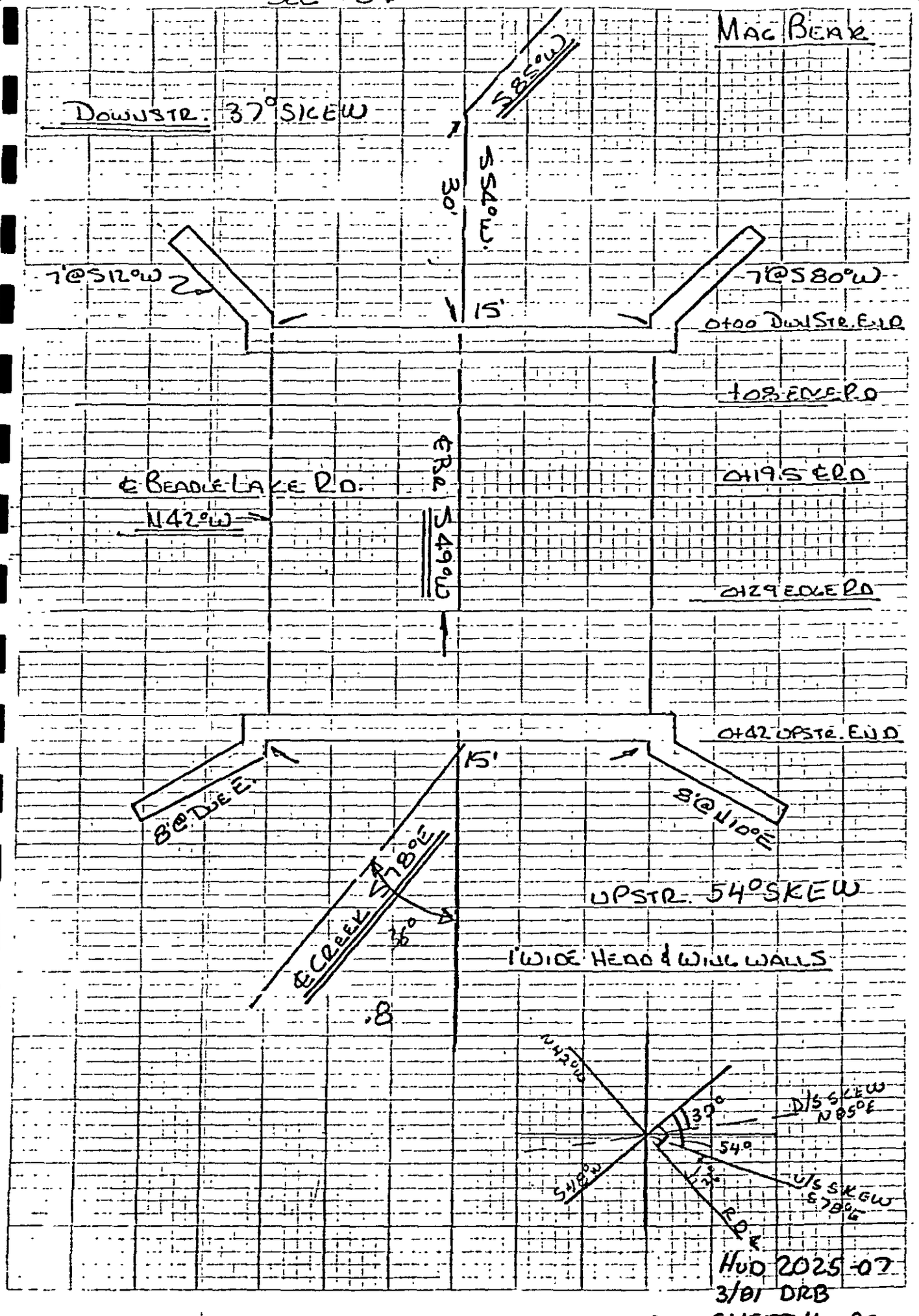
2. XKOR = 1 + 0.23 + 0.5 + 0.0 = 1.73
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0. (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 12.
6. BWP = total width of obstruction = 0. — field data
7. BAREA = bridge opening inc. piers = 60.
8. SS = side slope = 0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 845. (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 845. (0 if equal to minimum elevation in previous X-sect.)

SUBJECT	BY	CHK.	SHEET NO.	File Code No. (Job No.) Owner Project Suffix
EMMETT TWP - HARPER CR	DATE 2/80	DATE		

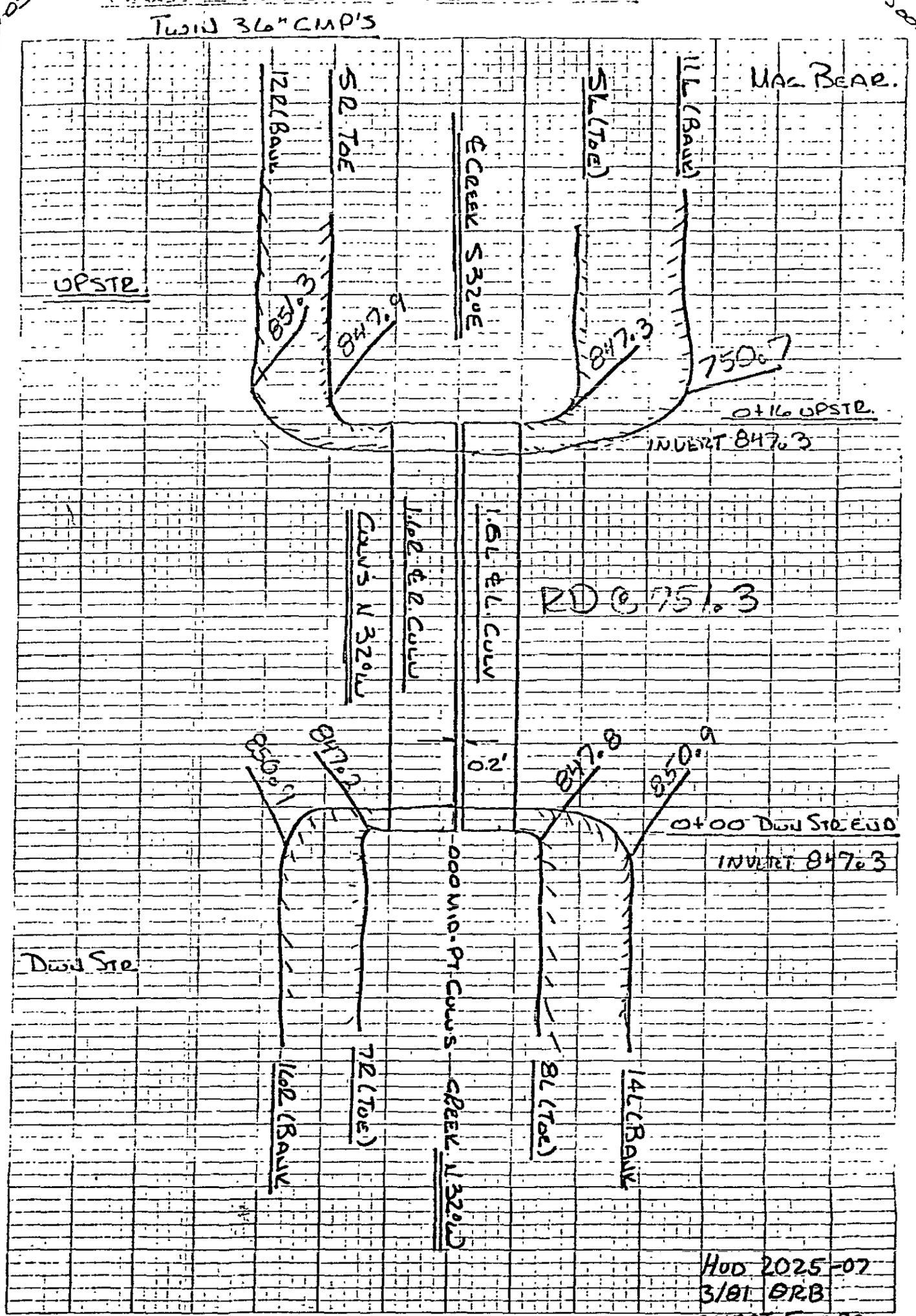
CROSS-SECTION #31 HARPER CR. @ BEAGLE LAKE RD



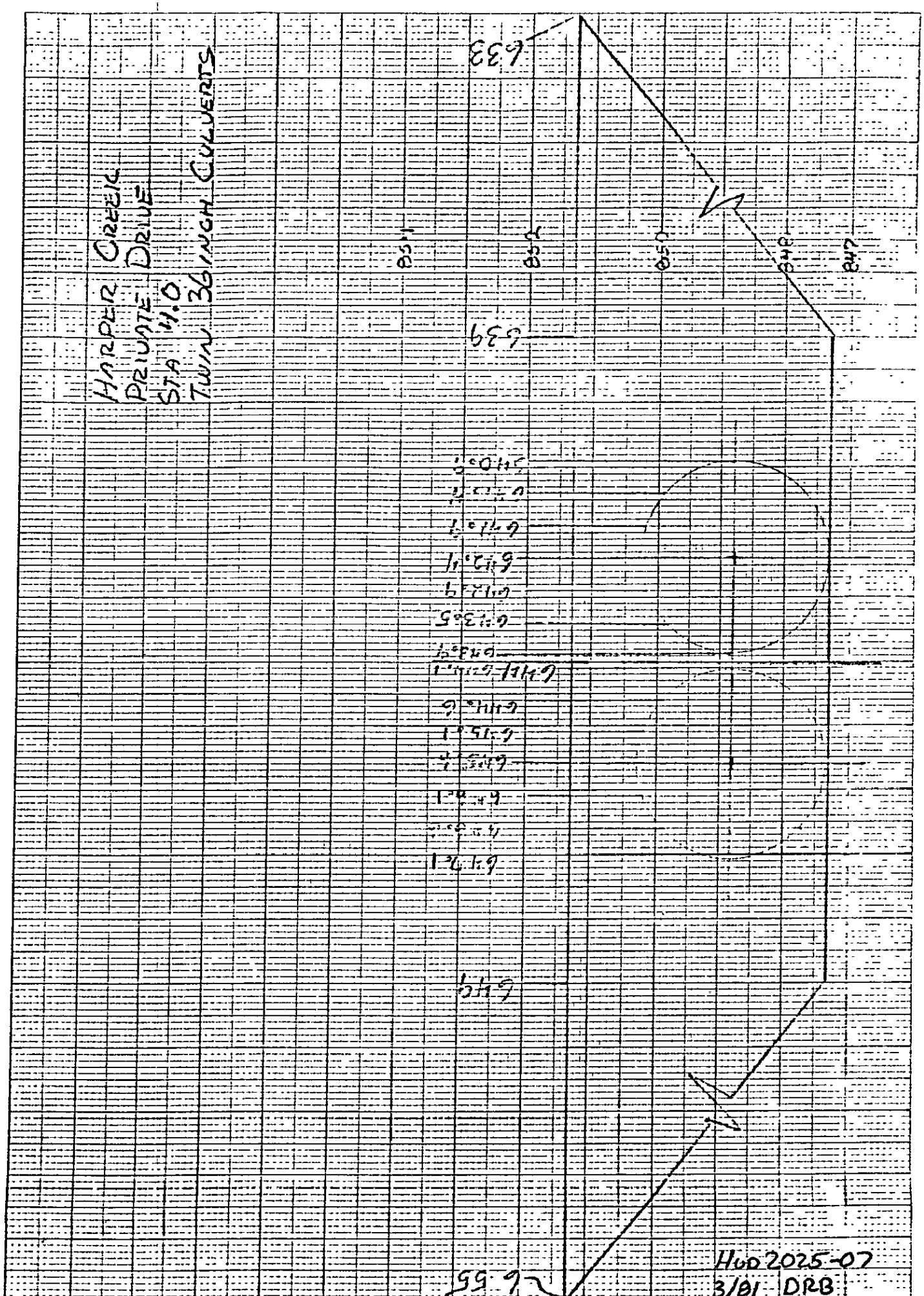
Sec #34



HUD 2025-07
3/81 DRB
SHEET 40 OF 30

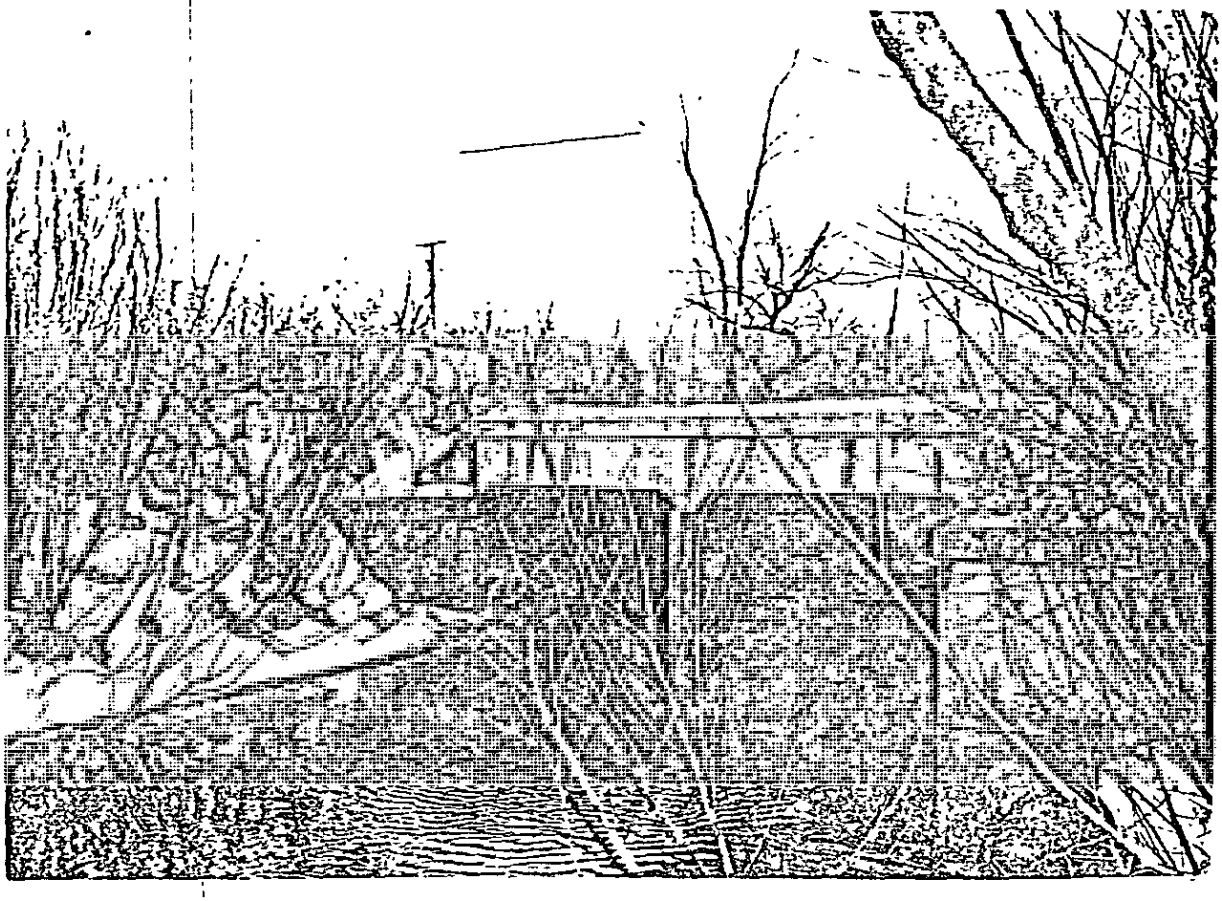


HOD 2025-07
3/01 ORB
SHEET 5 OF 30



HUD 2025-07
3/81 DRB
SHEET 6 OF 30

Cross Section #37 - Harper Creek @ "E" Dr North



HUD 2025-07
3/81 DRB
SHEET 7 OF 30

FORM 25 0
(313) 291 5400
Wade Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: "E" DRIVE NORTH STA 5.0

REFERENCE

Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 1.05 — 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 = 45.6 (2) = 91 Wp = 55

$R = A/wp = 1.65$ $R^{4/3} = 1.96$ $L = 47$

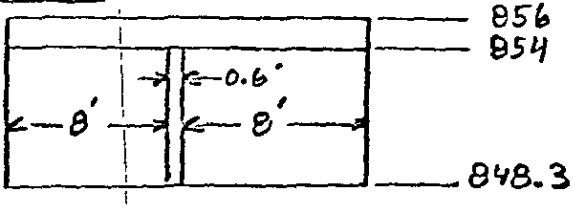
n (composite).

$k_f = 29.1 \times (0.02)^2 \times 47 / 1.96 = 0.27$

$k_c = 0.5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 45

k_p = 0 if bridge has no intermediate piers

($k_p = 0.05$) if bridge has intermediate piers — HEC-2 manual



2. XKOR = 1 + 0.27 + 0.5 + 0.05 = 1.82
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): 16.6
   = Total width of obstruction: 0.6 — field data
   = Bridge opening inc. piers = 91
6. SS = side slope = 0.0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 848.3 (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 848.3 (0 if equal to minimum elevation in previous x-sect.)

SUBJECT	BY	CHK.	SHEET NO.	File Code No. (Job No.) Project Owner	Suffix
HARPER CIR - EMMETT TWP	DRB		8 OF 30	HUD • 2025 • 07	
	DATE 3/80	DATE			

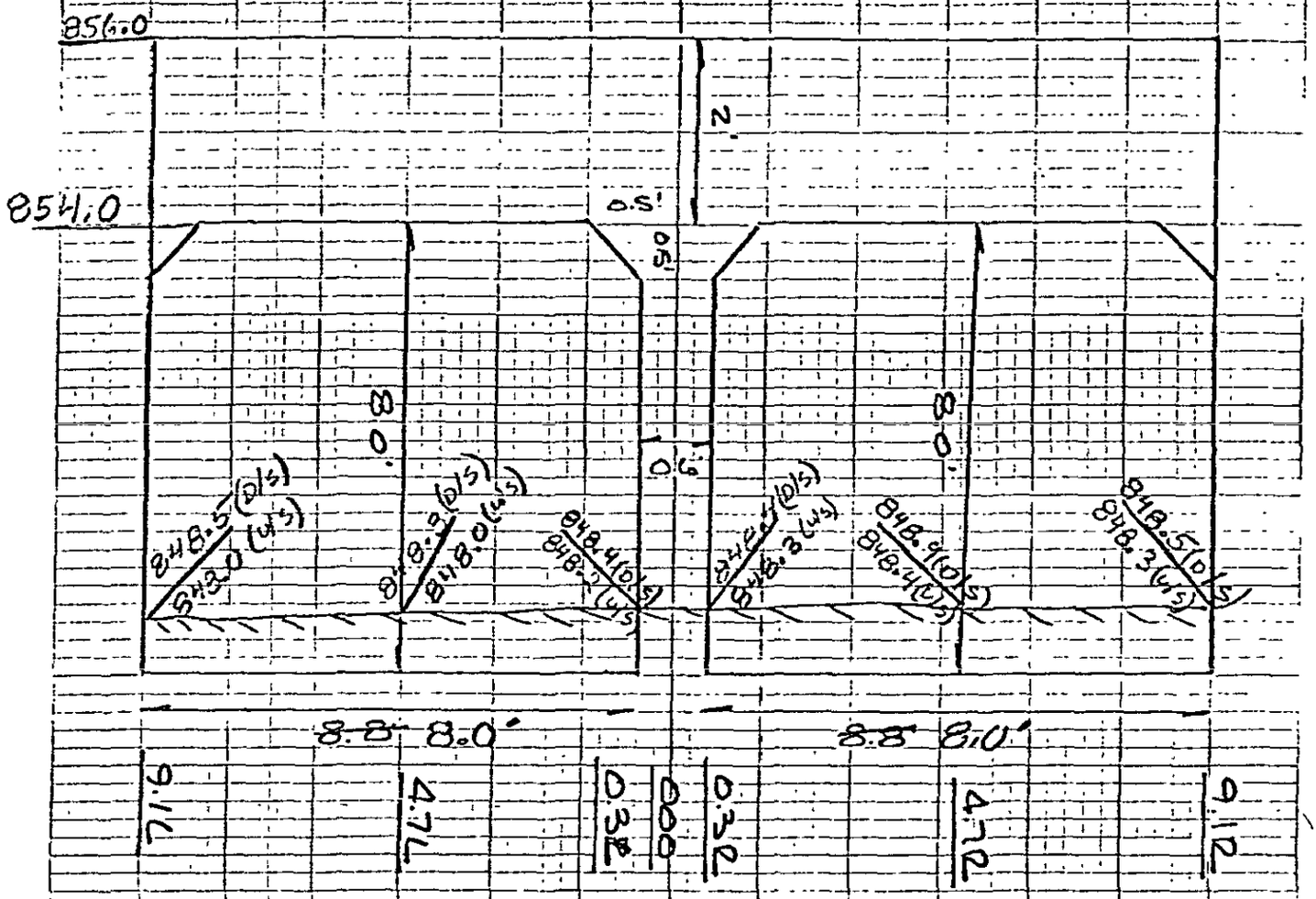
HUD 2025-05

BOOK 5

CROSS SECTION #37 HARPER CREEK.

L & R OFFSETS FROM MID PT. OF COLLS FACING DOWNSTREAM

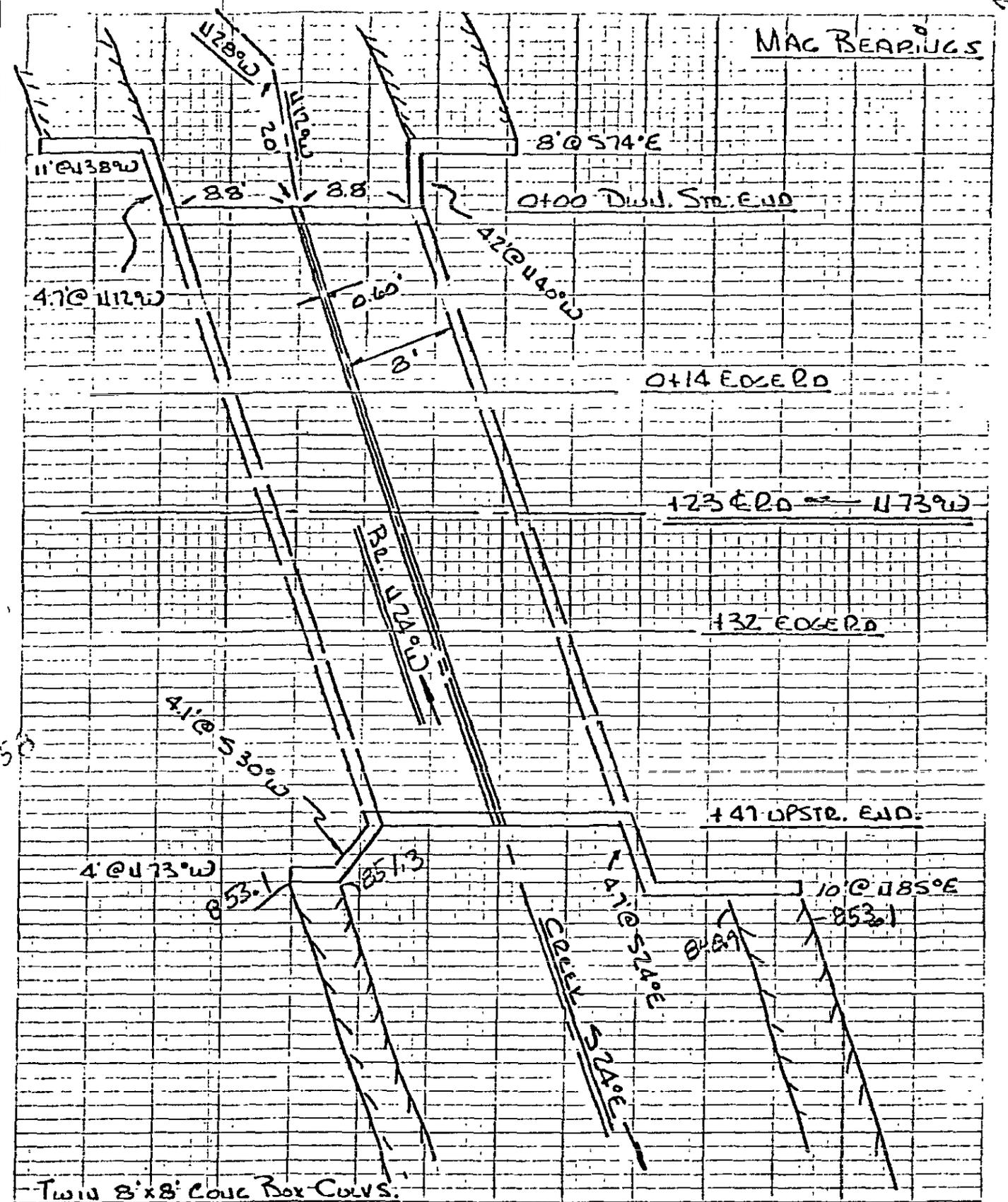
UPSTR. END FACING DOWNSTR. (TYP)



U/S AND D/S IDENTICAL SECTIONS INVERT @ 848.3

HUD 2025-07
3/81 DRB
SHEET 9 OF 30

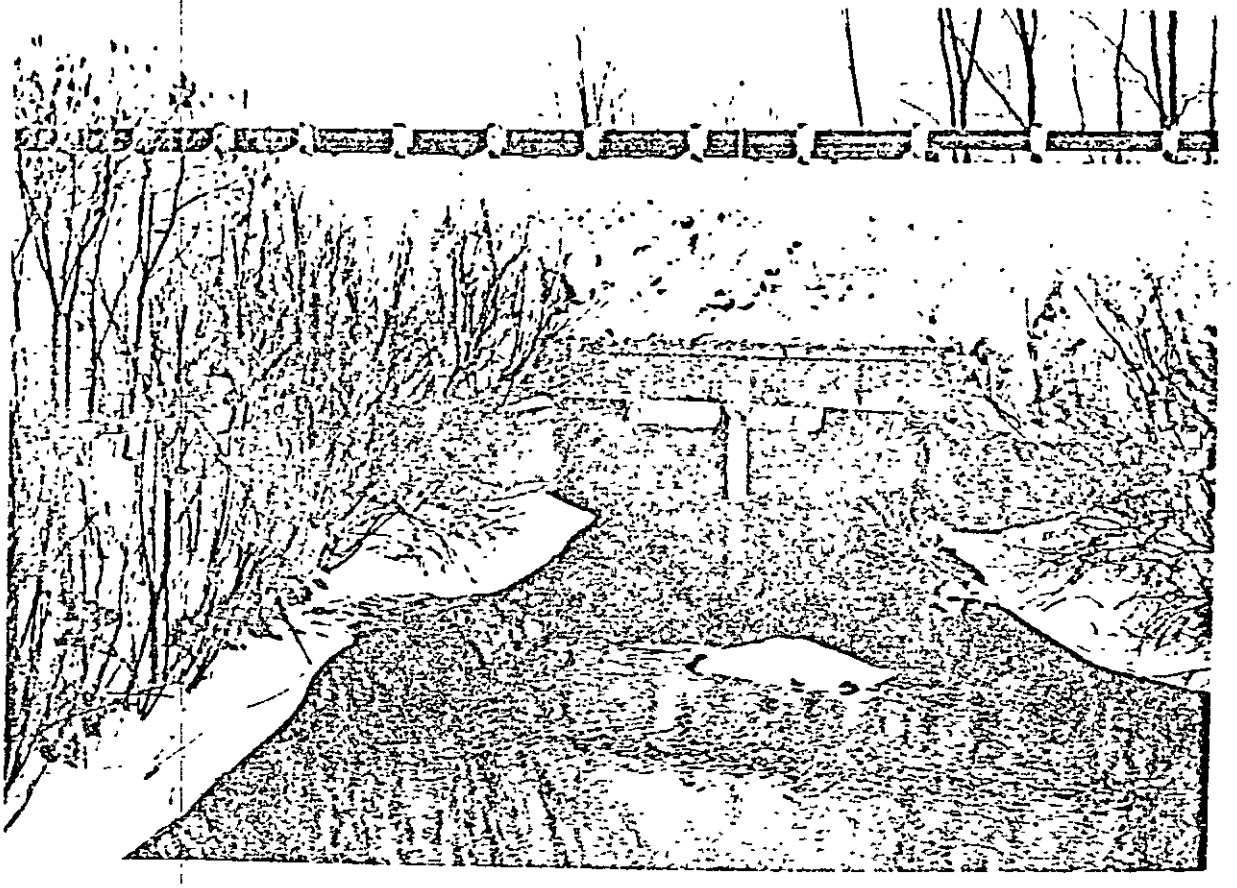
CROSS SECTION #51 HARPER CREEK



TWIN 8'x8' CONC BOX CULVS.

1' WIDE HEADWALL & WINGWALLS

HUD 2025-07
3/81 DRB
SHEET 10 OF 30



CROSS SECTION "B" HARPER CREEK @ EXPRESSWAY RAMP (DOWNSTREAM)

HUD 2025-07
3/81 DRB
SHEET 11 OF 30

Bridge Location: EXPRESSWAY RAMP

REFERENCE

Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 1.05 — 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 = 45.6(2) = = 91 Wp = 55

$R = A/wp$ 1.65 $R^{4/3}$ = 1.96 L =

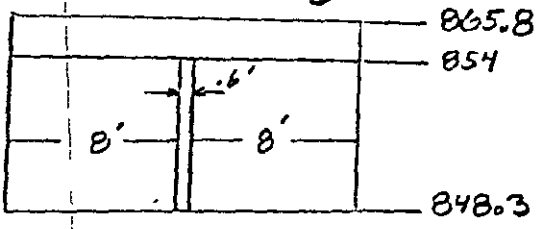
n (composite) =

$K_f = 29.1 \times (0.02)^2 \times 77 / 1.96 = 0.46$

$K_c = 0.5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 45

$k_p = 0$ if bridge has no intermediate piers

($K_p = 0.05$) if bridge has intermediate piers — HEC-2 manual



2. XKOE = 1 + 0.146 + 0.5 + 0.05 = 2.01

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): 16.6

6. [illegible] width of obstruction = .6 — field data

7. [illegible] = bridge opening inc. piers = 91.

8. SS = side slope = 0.0
(horizontal per 1 vertical unit)

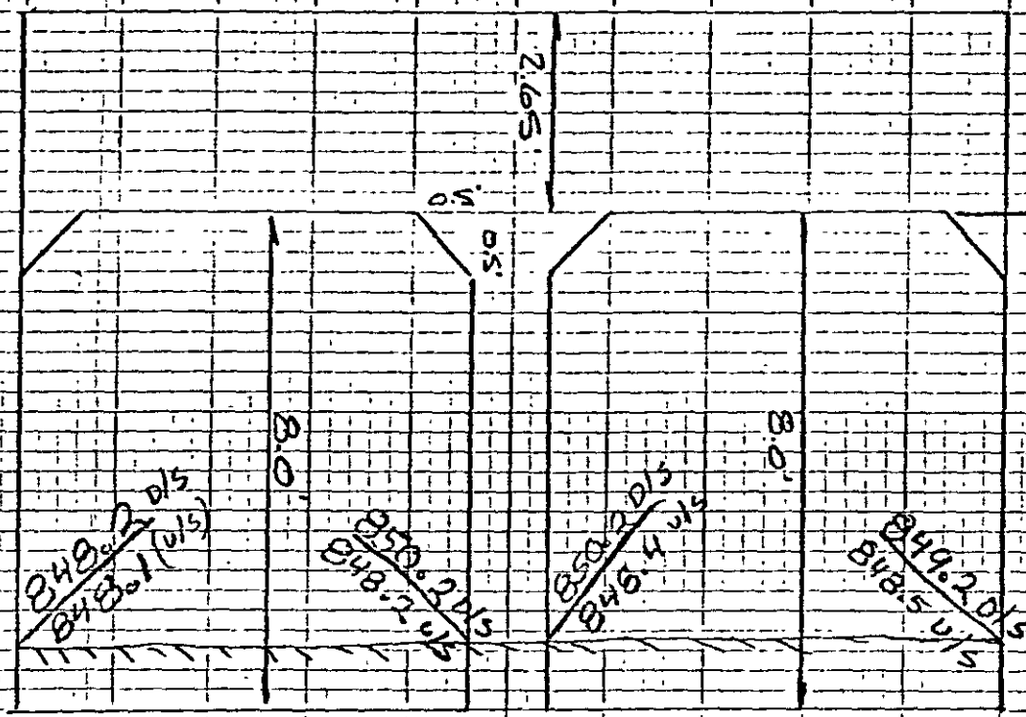
9. ELCHU = Elevation of channel invert U/S side = 848.3
(0 if equal to minimum elevation in previous x-sect.)

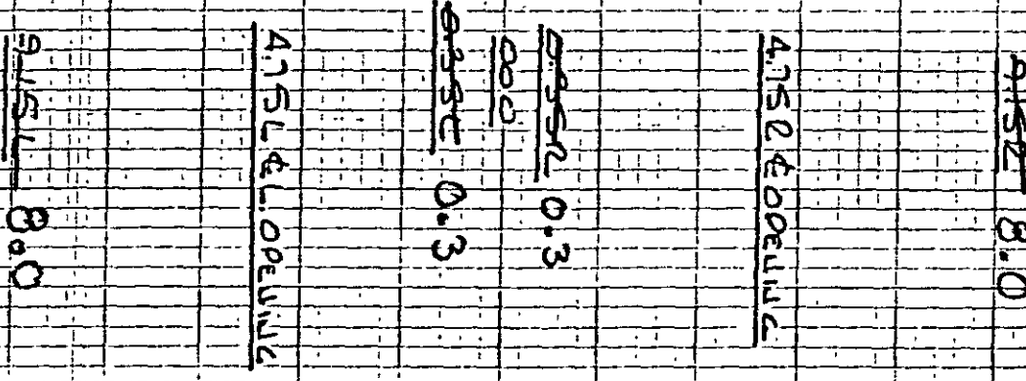
10. ELCHD = Elevation of channel invert D/S side = 848.3
(0 if equal to minimum elevation in previous x-sect.)

CROSS-SECTION #39 HARPER CREEK

L & R. OFFSETS FROM ℄ CREEK FACING DWNSTR.

865.8 RD

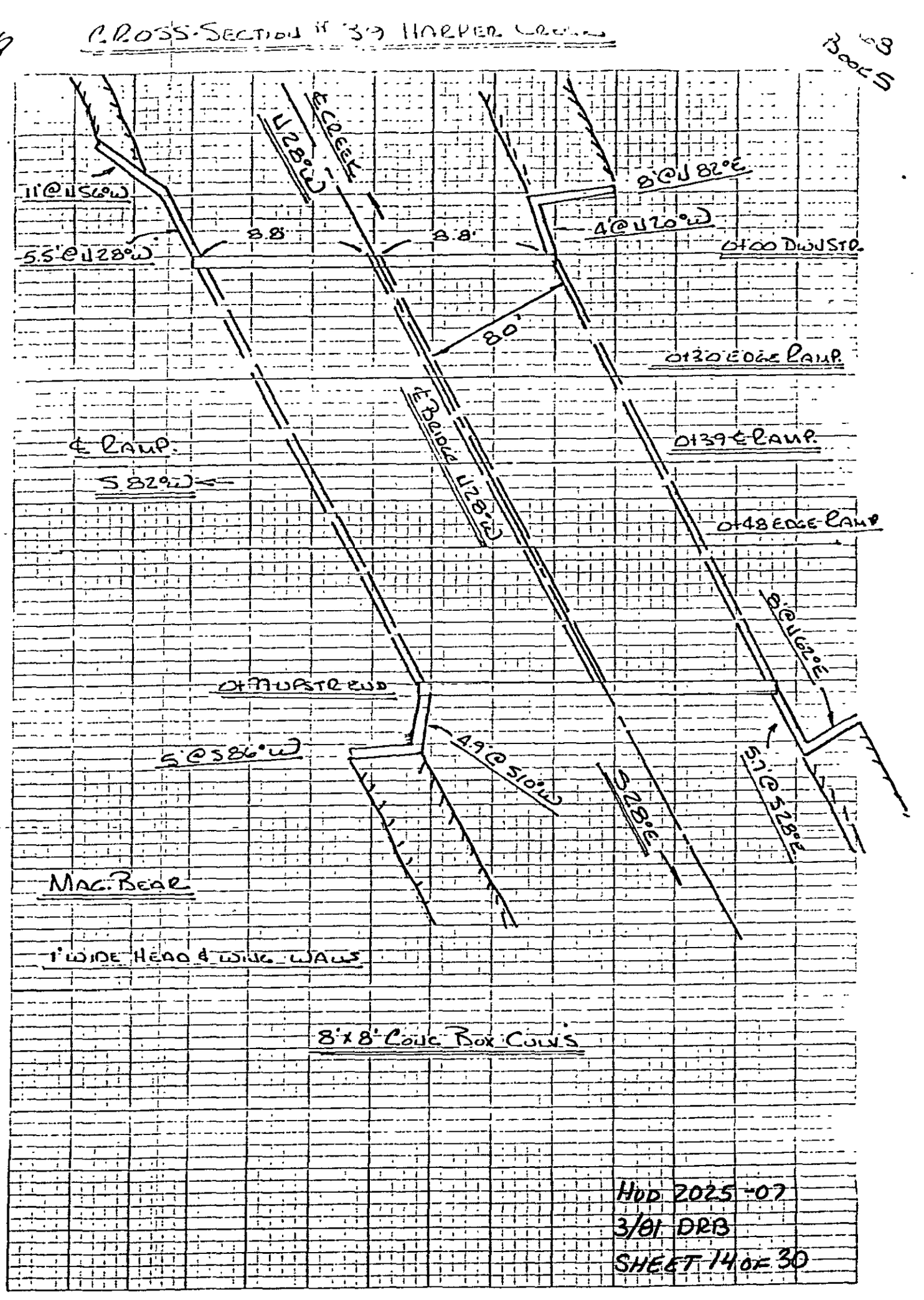


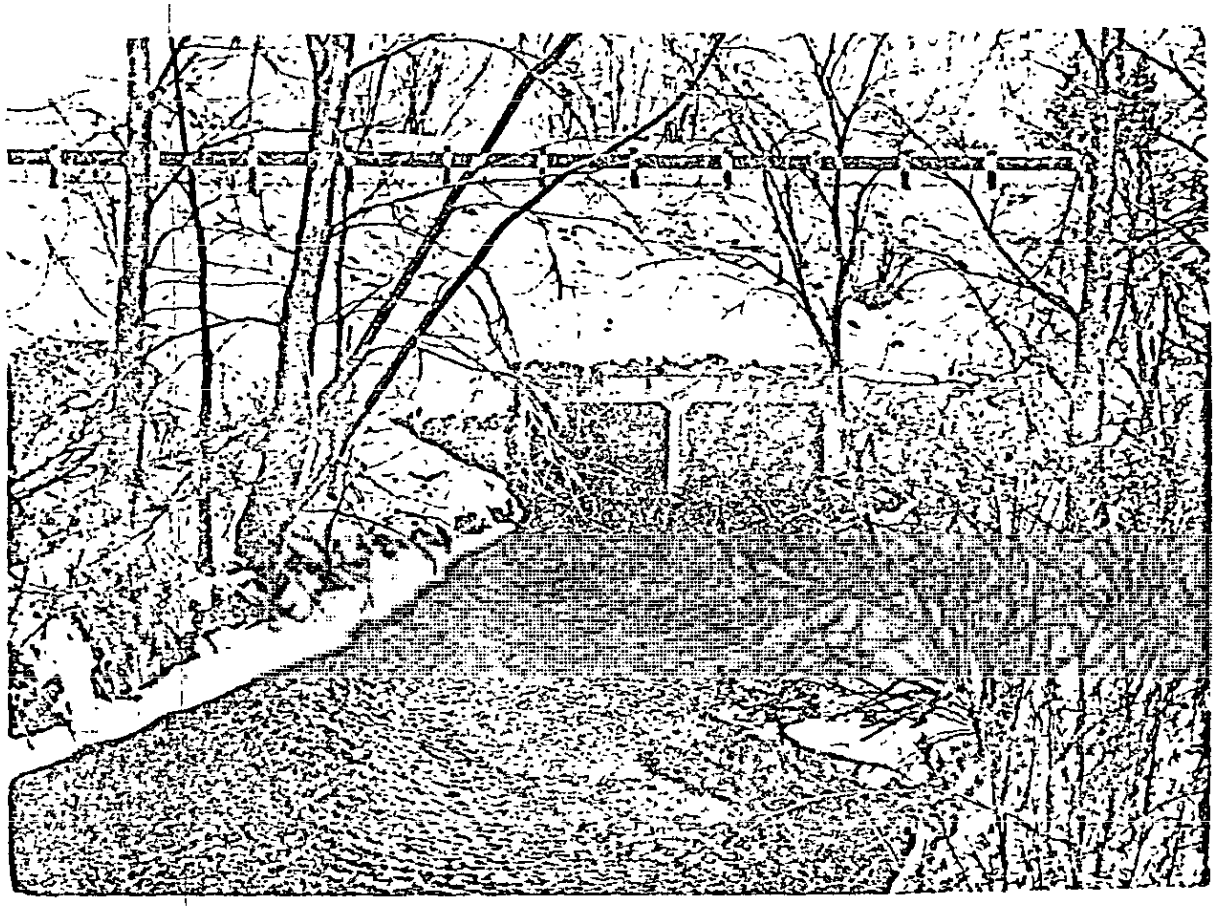


UPSTR. END. FACING DWNSTR (TYP)

L&R OFFSETS FROM MID PT FACING DWNSTR

HUD 2025-07
3/81 DRB
SHEET 13 OF 30


CROSS-SECTION # 39 HARPER CREEK
11'@N56°W
5.5'@N28°W
8.8'
8.8'
℄ CREEK N28°W
8'@N82°E
4'@N20°W
0+00 DWNSTR.
80'
0+20 EDGE RAMP
℄ BRIDGE N28°W
0+39 ℄ RAMP.
℄ RAMP.
S82°W
0+48 EDGE RAMP
8'@N62°E
0+71 UPSTREAM
5'@S86°W
4.9'@S10°W
S28°E
5.1'@S28°E
MAC. BEAR
1' WIDE HEAD & WING WALLS
8'x8' CONC. BOX CULVS.
HOD 2025-07
3/01 DRB
SHEET 14 OF 30



CROSS SECTION #1 HALPER CREEK @ I-94 (UPSTREAM)

HUD 2025-07
3/81 DRB
SHEET 15 OF 30

Bridge Location: I-94 STA 7.0

Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 1.05 — 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 = 46.4(2) = 93 Wp = 55

$R = A/wp = 1.69$ $R^{4/3} = 2.01$ $L = 280$

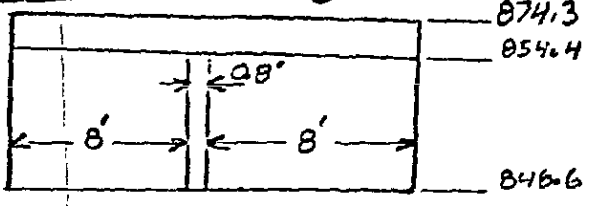
n (composite):

$K_f = 29.1 \times (0.02)^2 \times 280 / 2.01 = 1.62$

$K_c = 0.5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 Pg. 45

$k_p = 0$ if bridge has no intermediate piers

($K_p = 0.05$) if bridge has intermediate piers — HEC-2 manual



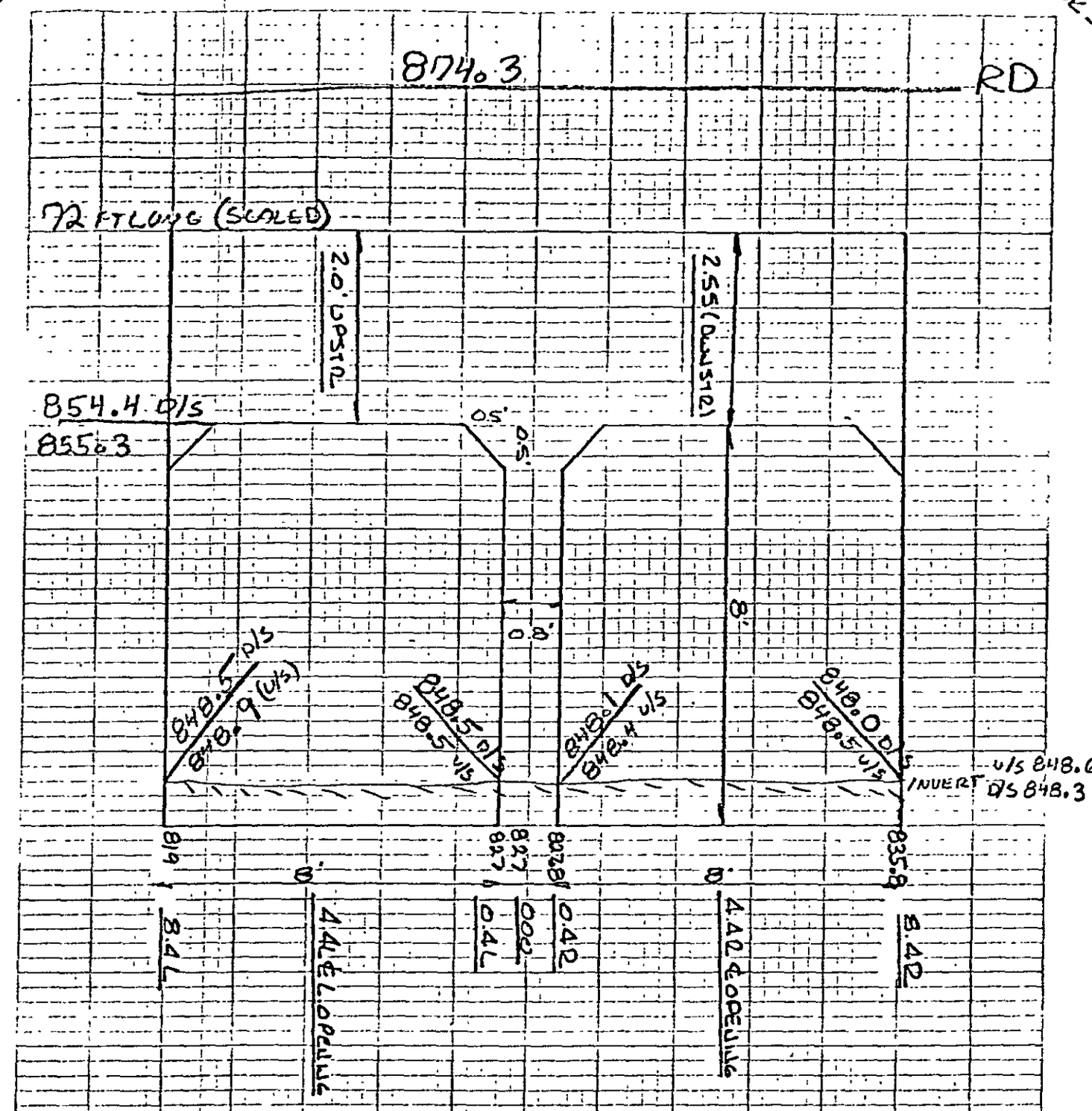
2. XKOE: 1 + 1.62 + 0.5 + 0.05 = 3.17
3. COFQ Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN: Length of weir = 0.0 (0 if read off BT cards)
5. BWC - bottom width of bridge opening (inc. piers): 16.8
6. [illegible] width of obstruction: .8 — field data
7. [illegible]: bridge opening inc. piers = 93
8. SS = side slope = 0.0 (horizontal per 1 vertical unit)

ELCHU: Elevation of channel invert U/S side = 848.6
(0 if equal to minimum elevation in previous x-sect.)

ELCHD: Elevation of channel invert D/S side = 848.3
(0 if equal to minimum elevation in previous x-sect.)

SUBJECT	BY	CHK.	SHEET NO.	File Code No. (Job No.) Owner Project Suffix
HARPER CR. - EMMETT TWP	DRB		16 OF 30	HCD • 2025 • 07
	DATE 3/80	DATE		

CROSS-SECTION #41 HARPER CREEK



UPSTR. END FACING DWN STR. (TYP. EXCEPT HEIGHT OF H.W)

L&R OFFSETS FROM MID PT. FACING DWN STR.

HUD 2025-07
3/81 DRB
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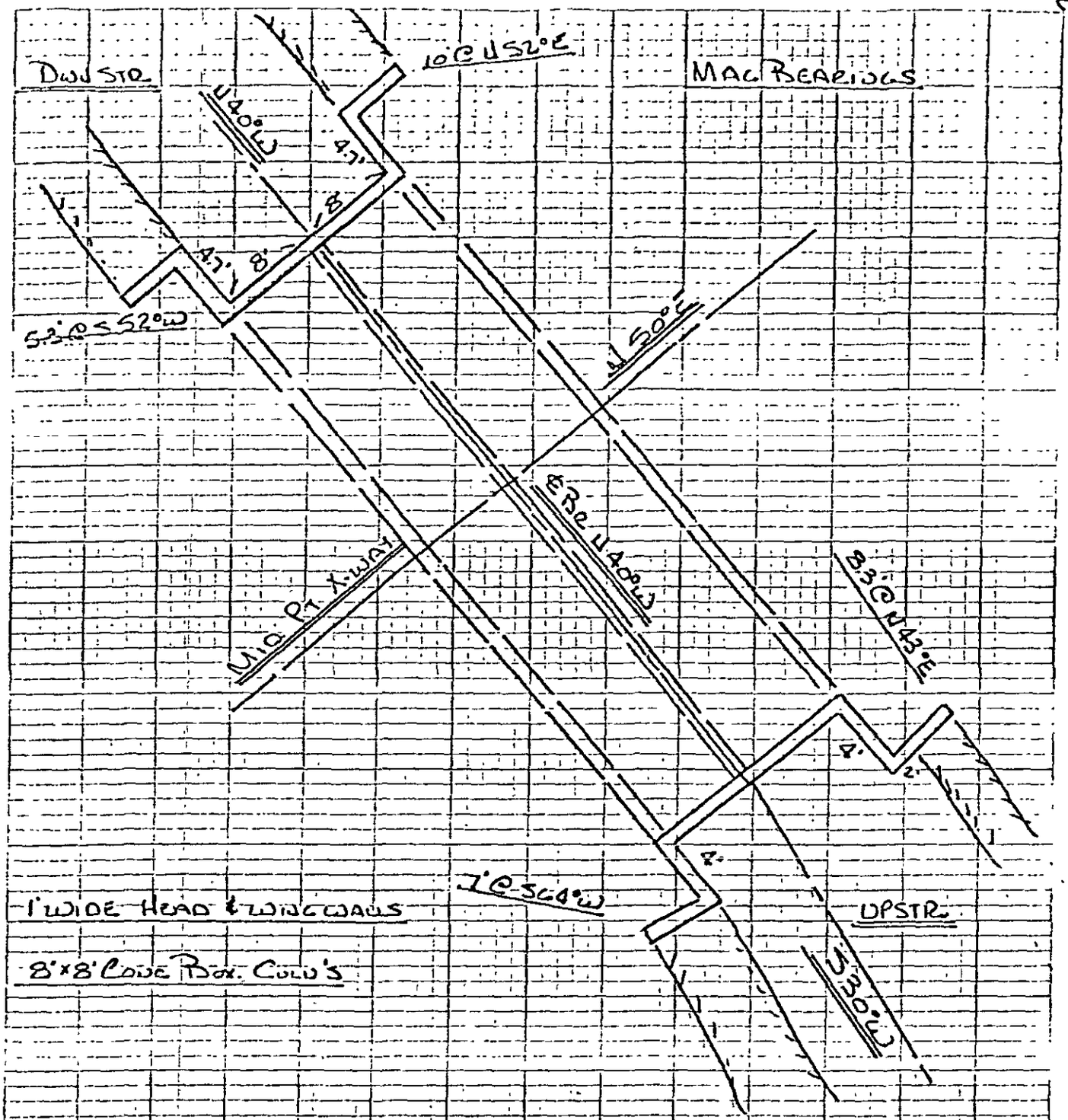
HUD 2025-07

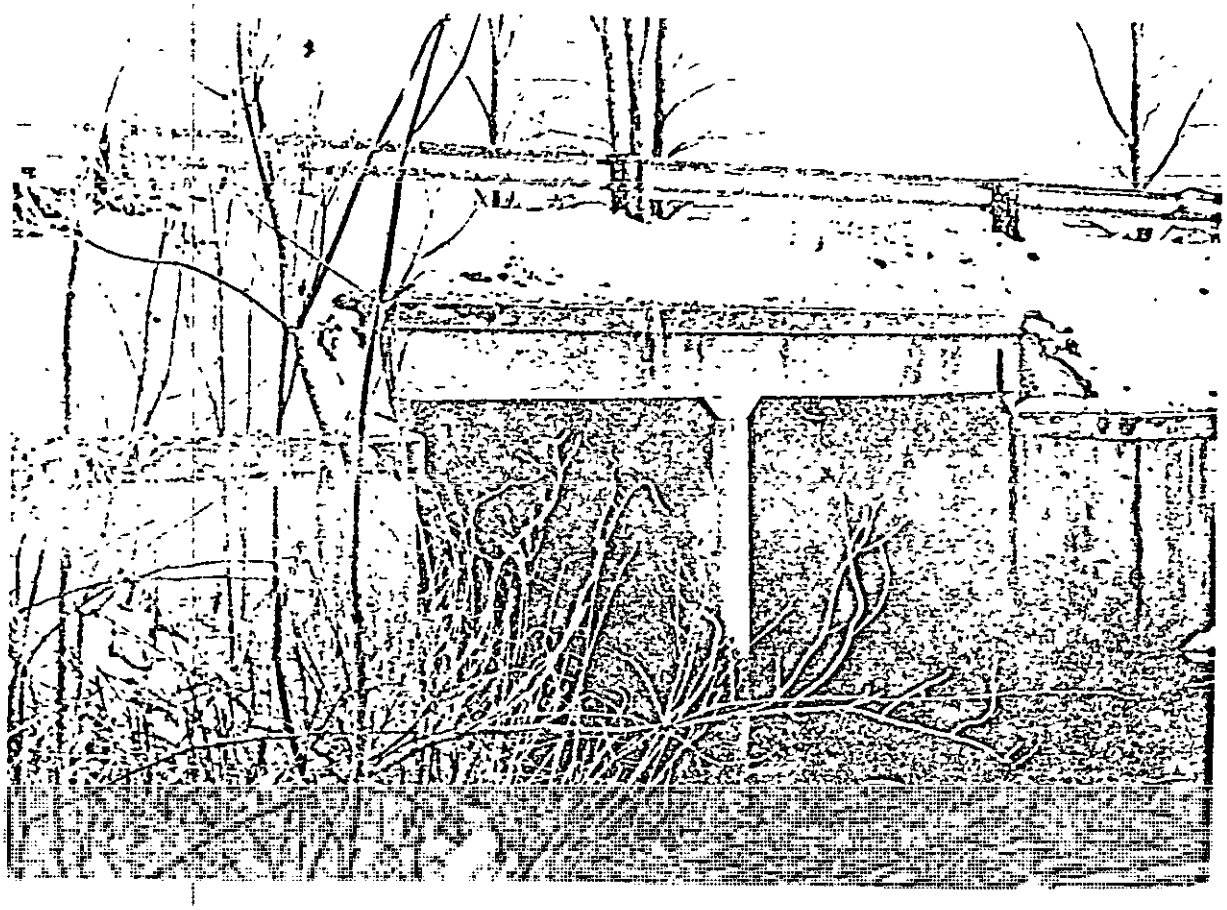
CROSS-SECTION [illegible]



1' WIDE HEAD & WINGWALLS

8'×8' CONC BOX. CULV'S

HUD 2025-07
3/81 DRB
SHEET 18 OF 30



CREEK STATION #42 HALPEE CREEK @ "E" DR SOUTH (UPSTREAM)

HUD 2025-07
3/01 DRB
SHEET 19 OF 30

Bridge Location: "E" Drive South STA 8.0

REFERENCE

Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 1.05 — 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 = 56.8(2) = 113.6 Wp = 60.4

R = A/wp 1.88 $R^{4/3}$ = 2.32 L = 42

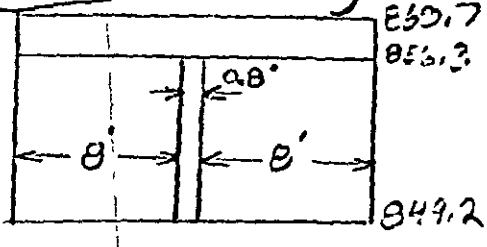
n (composite).

$K_f = 29.1 \times (0.02)^2 \times 42 / 2.32 = 0.21$

K_c = 0.5 — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 45

K_p = 0 if bridge has no intermediate piers

K_p = 0.05 if bridge has intermediate piers — HEC-2 manual



2. XKOE = 1 + 0.21 + 0.5 + 0.05 = 1.76

COFQ Coefficient of discharge = 3.0 — HEC-2 manual

4. RDLCN: Length of weir = 0.0 (0 if read off BT cards)

BRC: Bottom width of bridge opening (inc. piers): 160.8

[illegible] width of obstruction) = 0.8 — field data

[illegible]: bridge opening inc. piers = 114.

8. SS = side slope = 0.0 (horizontal per 1 vertical unit)

9. ELCHU: Elevation of channel invert U/S side = 849.2 (0 if equal to minimum elevation in previous X-sect.)

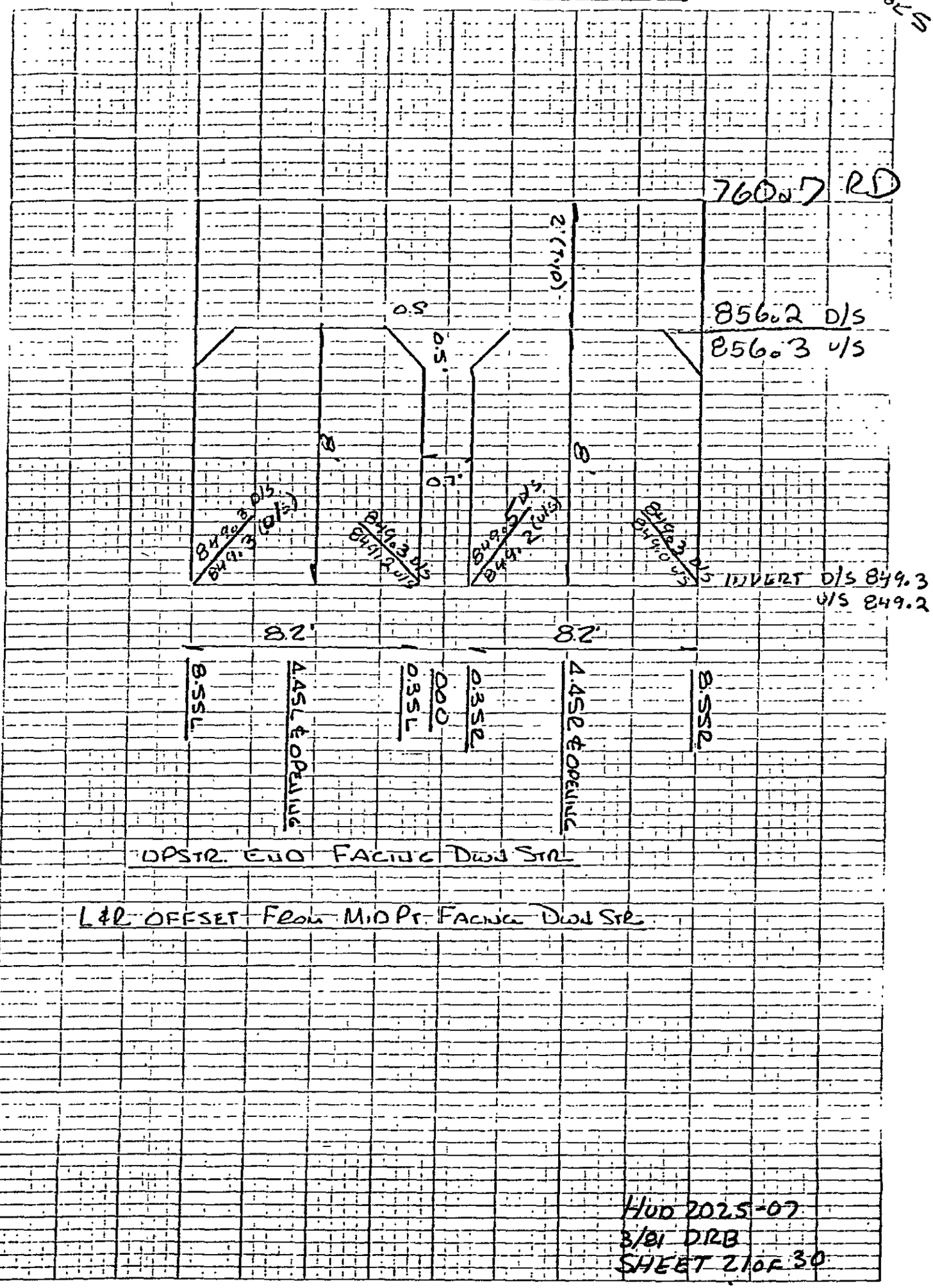
10. ELCHD: Elevation of channel invert D/S side = 849.2 (0 if equal to minimum elevation in previous X-sect.)

SUBJECT	BY	CHK.	SHEET NO.	File Code No. (Job No.) Owner / Project	Suffix
HARPER CR - EMMETT TWP	DRB		20 of 30	HUD • 2025	• 07
	DATE 3/80	DATE			

HUD 2025-07

Cross-Section #42 Harper Creek

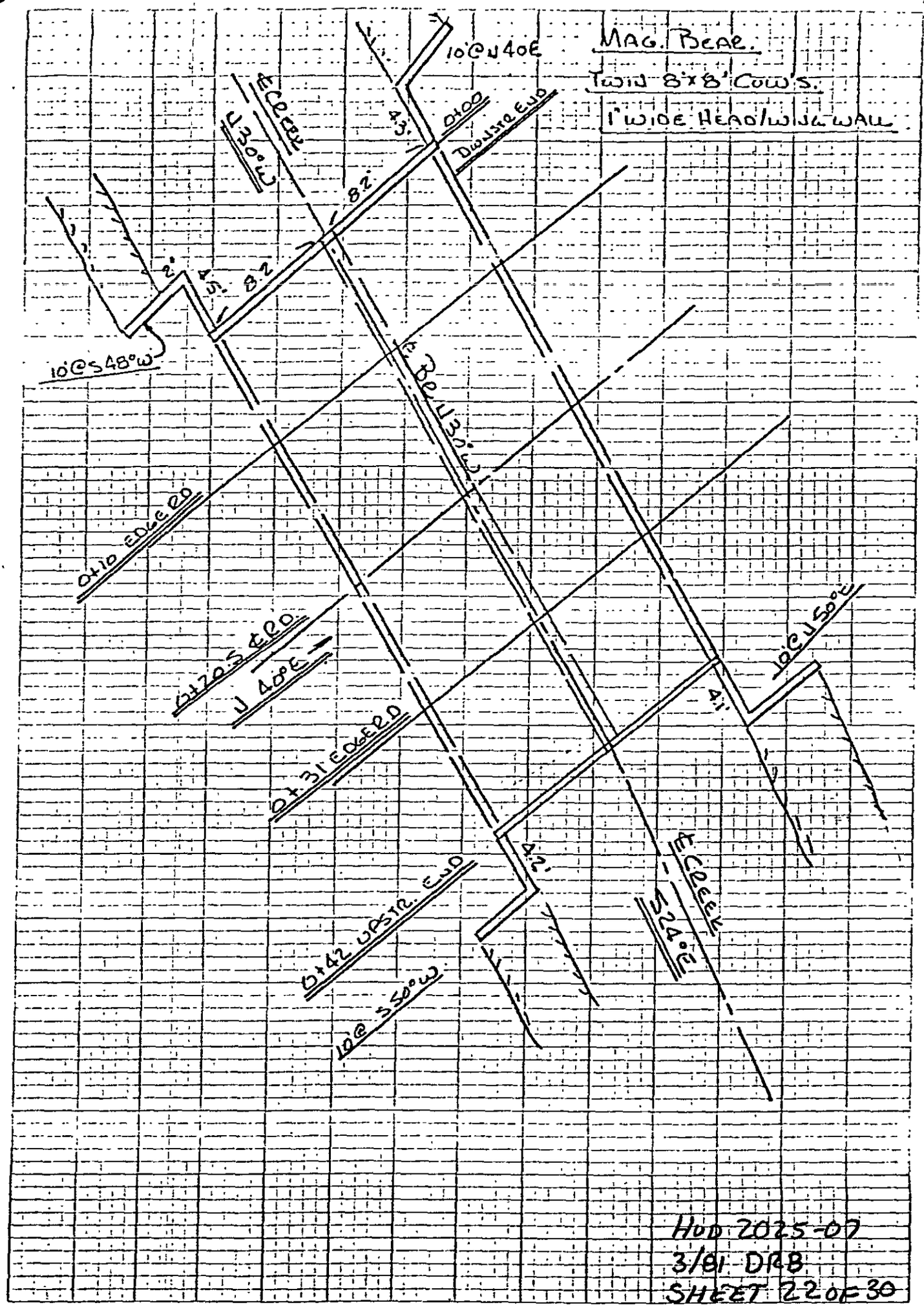
Book 13



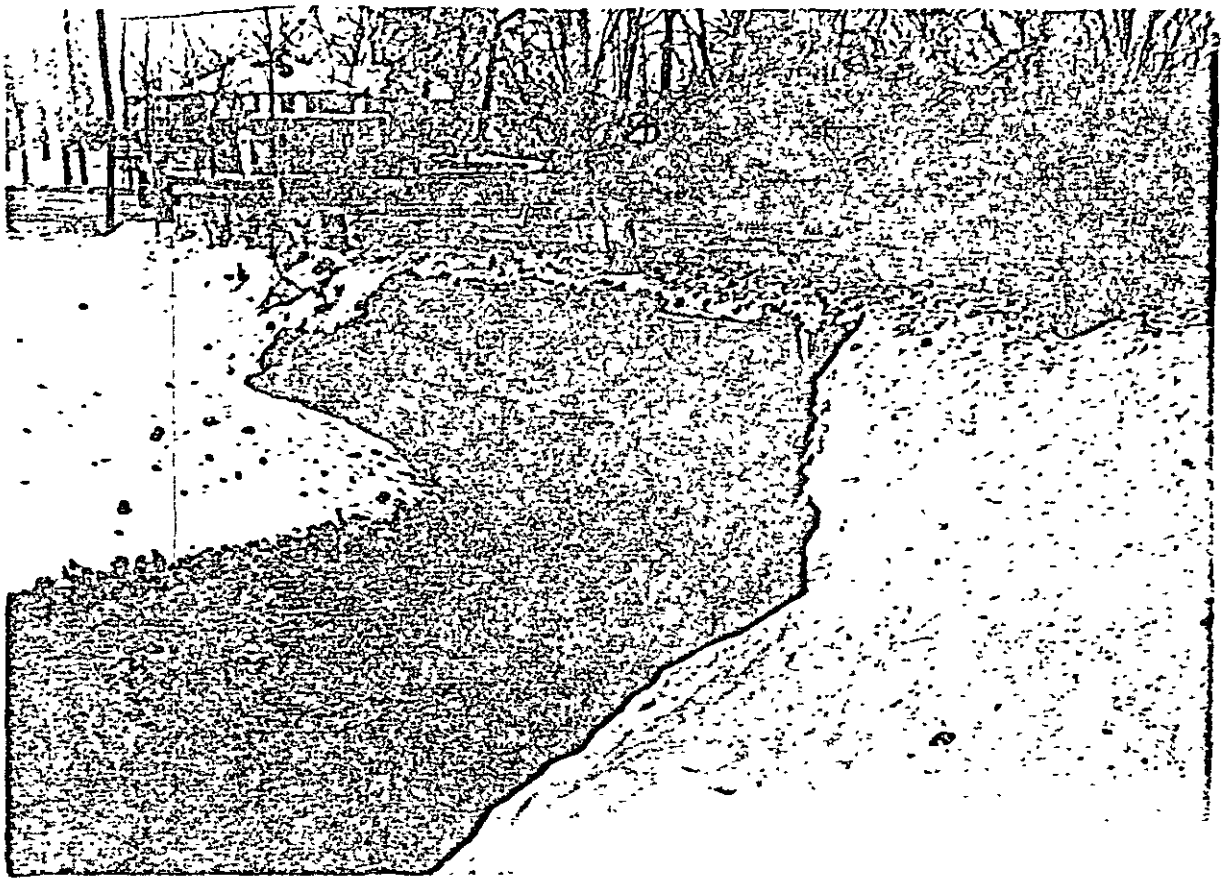
HUD 2025-07
3/21 DRB
SHEET 21 OF 30

HUD 2025-05

CROSS SECTION OF HALTER CREEK



HUD 2025-07
3/81 DRB
SHEET 22 OF 30



CROSS SECTION #15 HALFER CREEK @ BEADLE LAKE RD.

HUD 2025-07
3/81 DRB
SHEET 23 OF 30

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

WORK SHEET

Bridge Location: BEADLE LK. RD.

Bridge Losses - SB Card

REFERENCE

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 = 13 × 3.5 = 45 Wp = 33

$R = A/wp$ 45/33 $R^{4/3} = 1.051$ L = 37

n (composite) =

$K_f = 29.1 \times (.025)^2 \times 37 \;/\; 1.51 = .44$

K_c =

Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 45

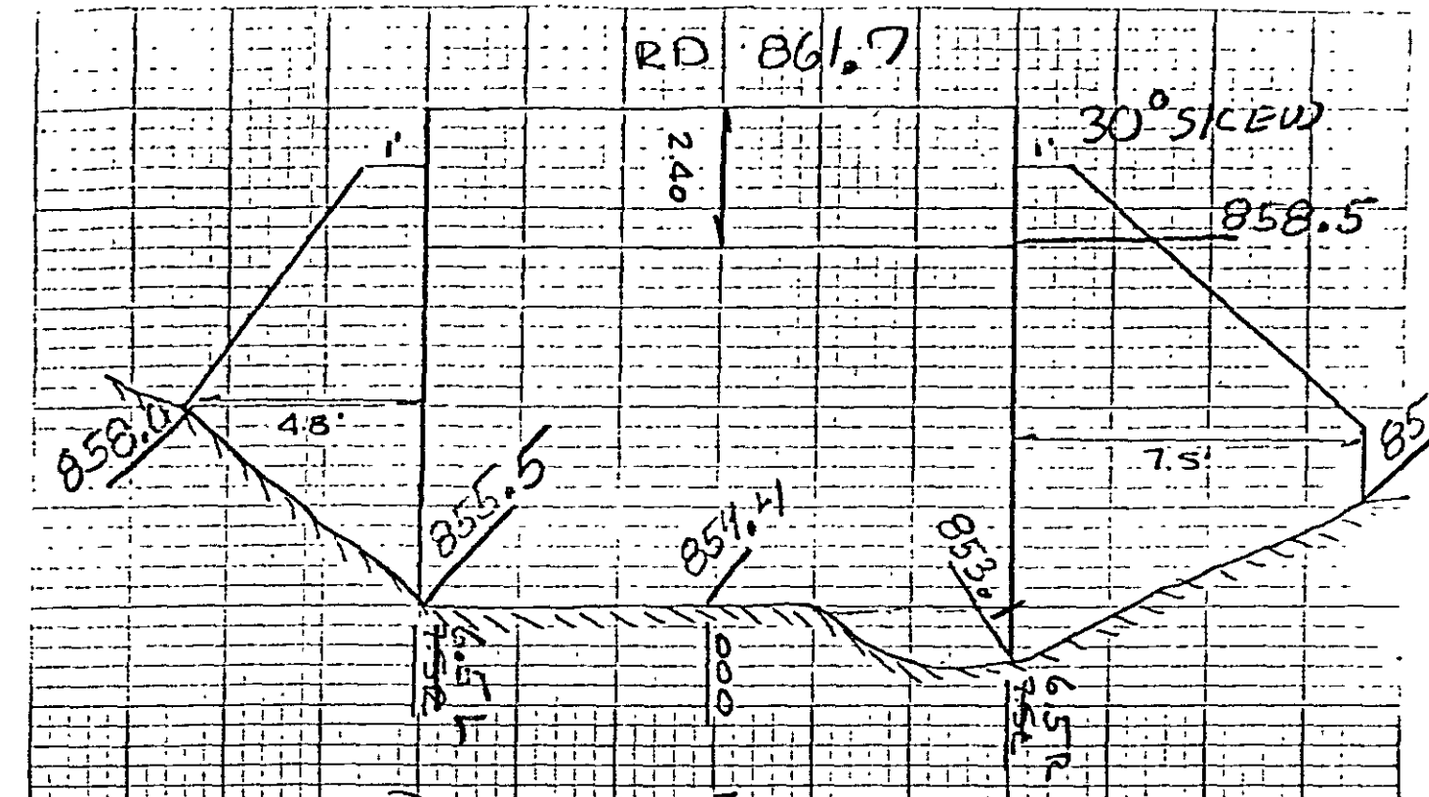
K_p: 0 if bridge has no intermediate piers

$K_p = 0.05$ if bridge has intermediate piers — HEC-2 manual

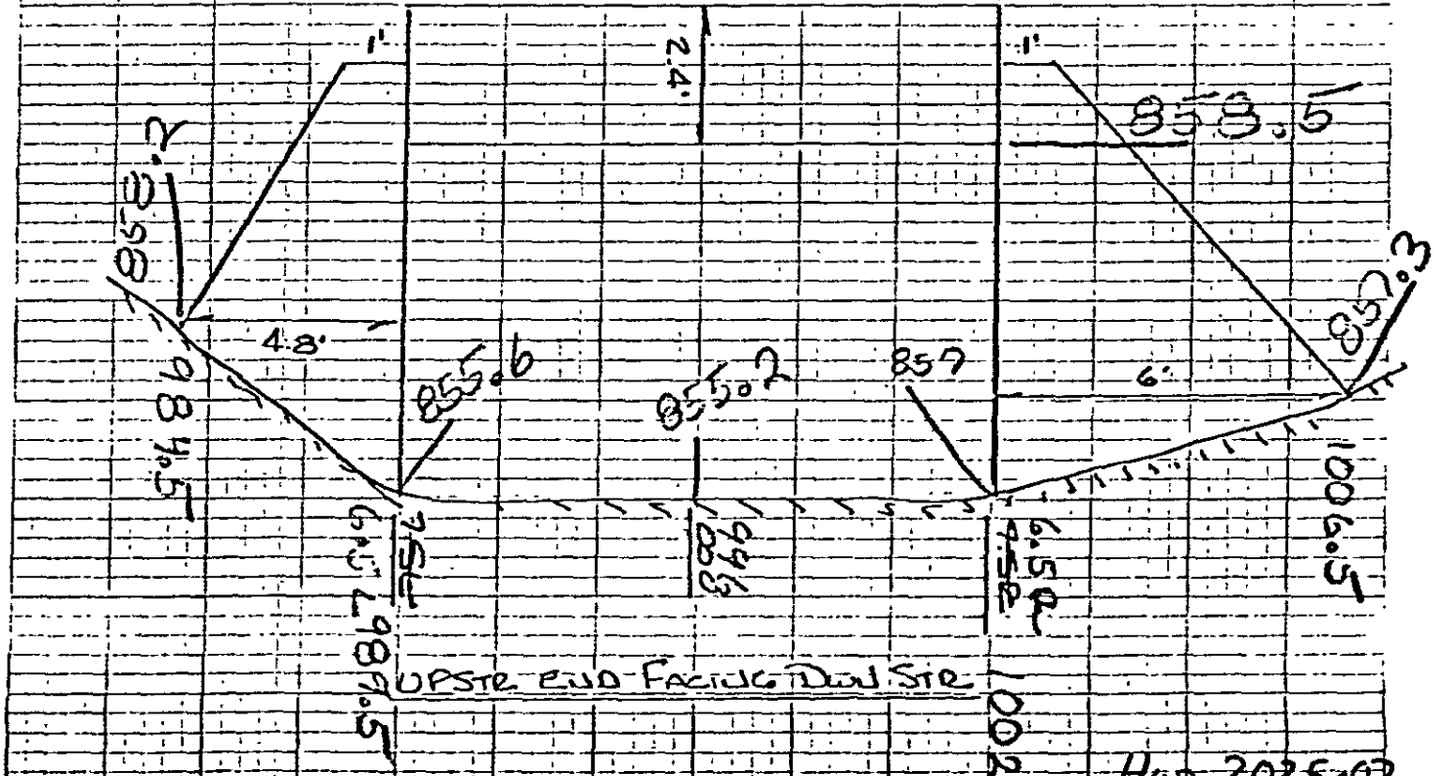
2. XKOR = 1 + .44 + .02 + = 1.641
3. COFQ Coefficient of discharge = 3.0 — HEC-2 manual
4. RDLEN = Length of weir = 0. (0 if read off BT cards)
5. BWC = bottom width of bridge opening (inc. piers) = 13.
   [illegible] width of obstruction = 0.
   [illegible] bridge opening inc. piers = 45 — field data
8. SS = side slope = 0
   (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 855
   (0 if equal to minimum elevation in previous x-sect.)
10. ELCHD = Elevation of channel invert D/S side = 855
    (0 if equal to minimum elevation in previous x-sect.)

SUBJECT	BY	CHK.	SHEET NO.	File Code No. (Job No.) Owner Project Suffix
BEADLE LK. RD., EMMETT TWP.	DRB		24 of 30	HUD • 2025 • 07
	DATE 3/81	DATE		

Cross Section #45 Harper Creek

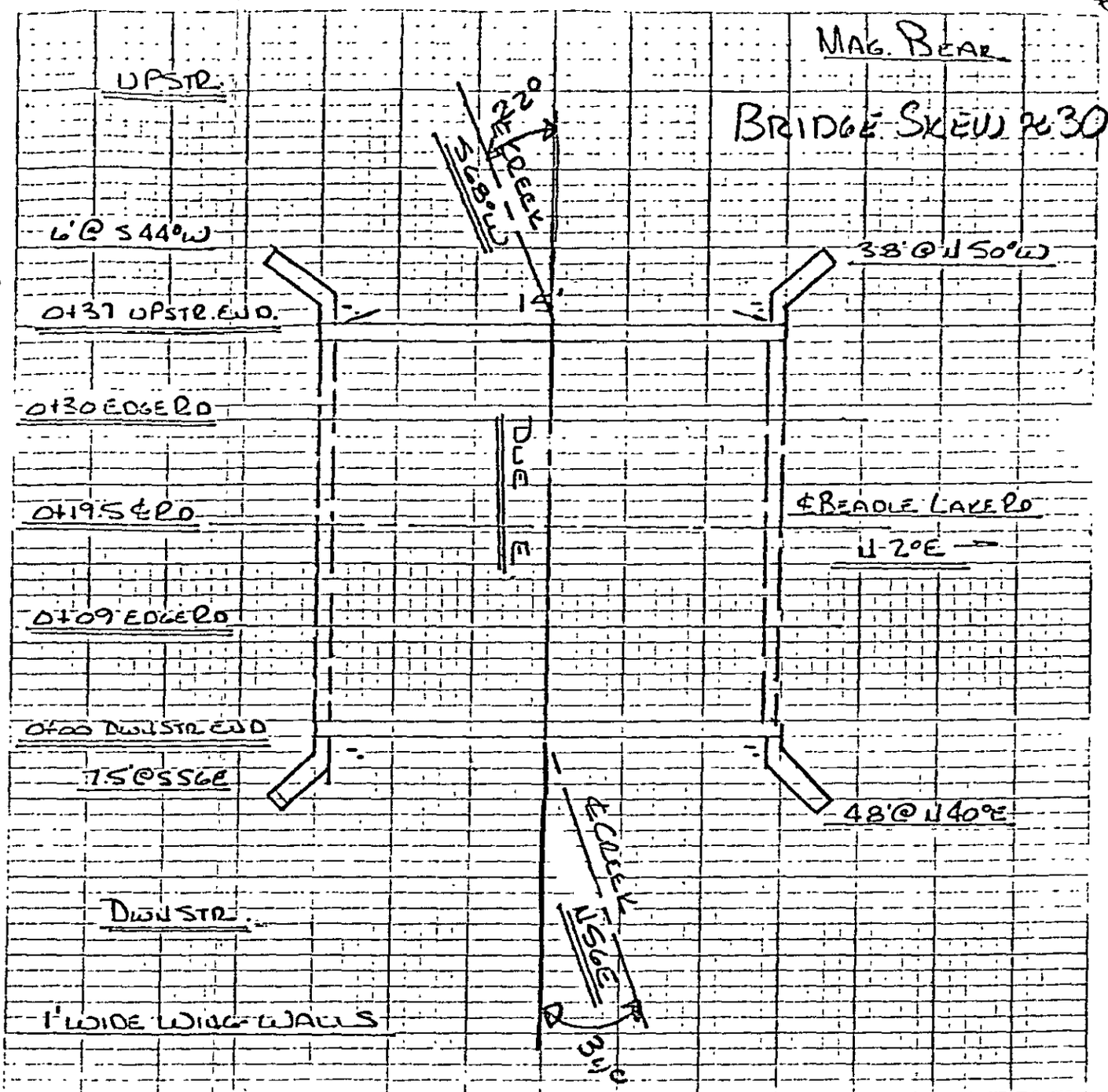


L&R Offsets From ℄ Bridge Facing Downstr: 30° Skew

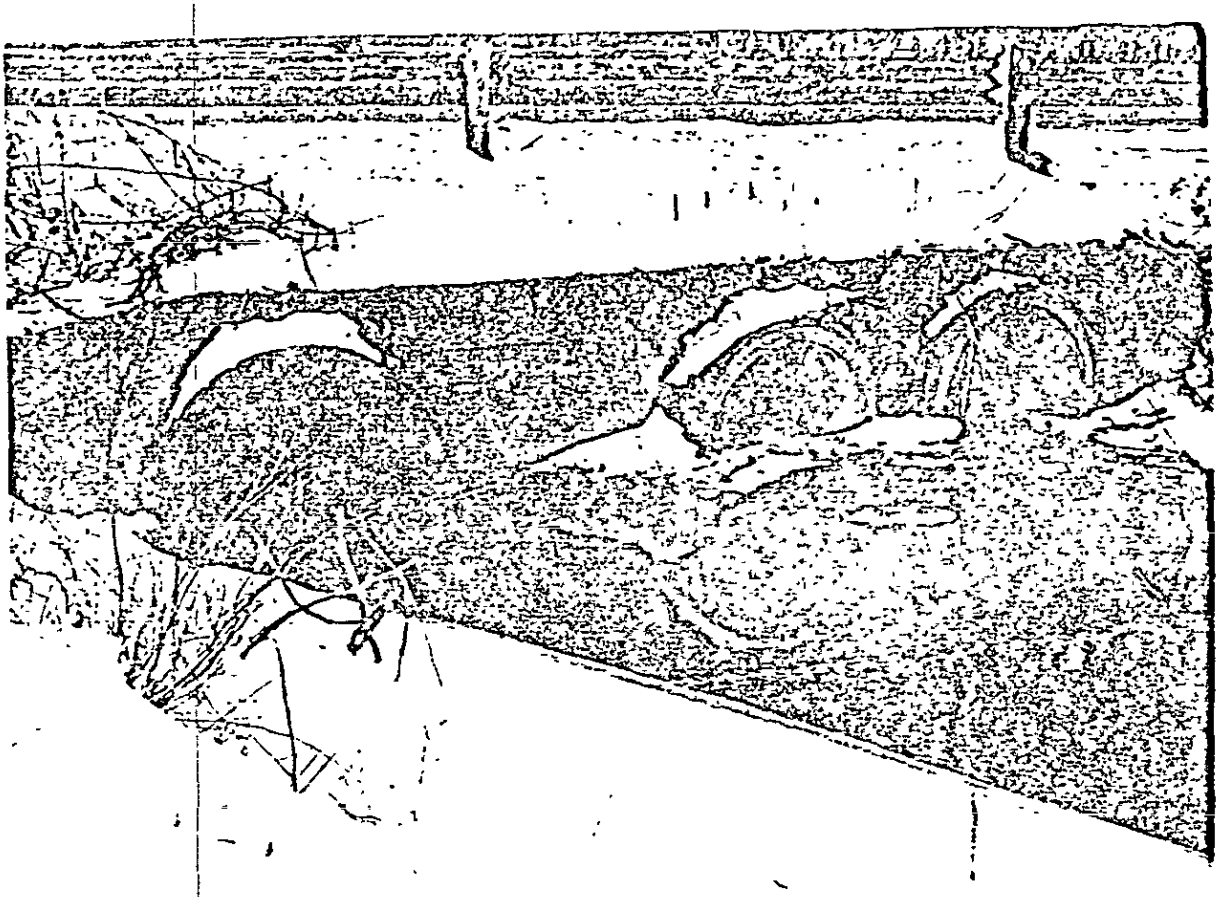


HOD 2025-07
3/81 DRB
SHEET 25 OF 30

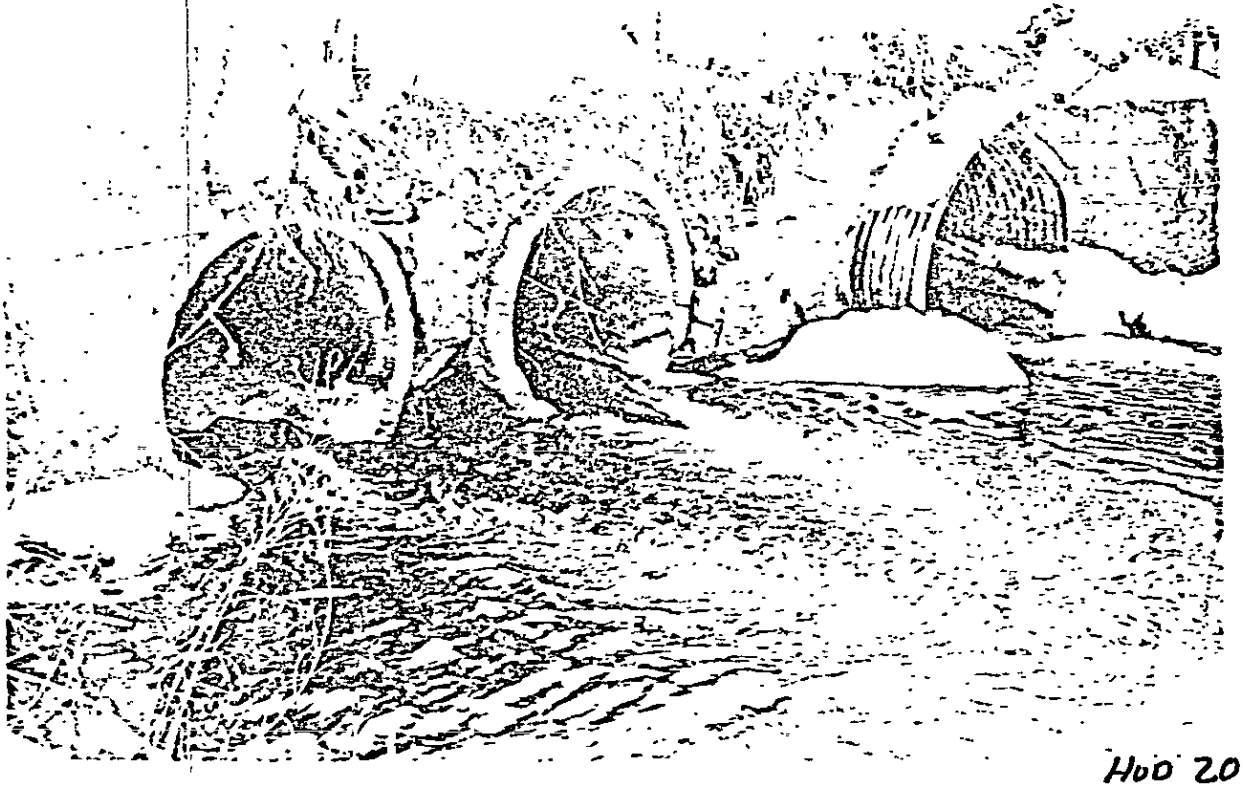
CROSS SECTION #45 HARPER CREEK AT BEADLE LK RD



HOD 2025-07
3/01 DRB
SHEET 26 OF 30



CROSS SECTION #97 HALPER CREEK @ "L" DRIVE (UPSTREAM)



CROSS SECTION #97 HALPER CREEK @ "D" DRIVE (DOWNSTREAM)

FORM 25 0
(313) 291 5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

Bridge Location: "D" DRIVE, HARPER CR.
Bridge Losses - SB Card

REFERENCE

1. XK (Pier Shape Coefficient) 0.0 — 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 = 42.6 = 42.6 Wp = 40.6

$R = A/wp$ 1.05 $R^{4/3}$ = 1.07 L = 40

n (composite) =

$k_f = 29.1 \times (.025)^2 \times 40 / 1.07 = 0.78$

$k_e = .5$ — Hydraulic Charts for the Selection of Highway Culverts Circular No. 5 Dec. 1965 pg. 45

k_p = 0 if bridge has no intermediate piers

k_p = 0.05 if bridge has intermediate piers — HEC-2 manual

CULVERTS	AREA	P
2 - 48" CULVERTS	25	25
1 - 44" x 72" ARCH CULVERT	17.6	15.6

2. XKOR = 1 + .78 + .5 + .05 = 2.33

COFQ Coefficient of discharge = 3.0 — HEC-2 manual

4. RDLEN = Length of weir = 0. (0 if read off BT cards)

BWC - bottom width of bridge opening (inc. piers): 10.

[illegible] of obstruction = 0. — field data

[illegible] bridge opening inc. piers = 43.

8. SS = side slope = 0.
(horizontal per 1 vertical unit)

9. ELCHU = Elevation of channel invert U/S side = 859.1
(0 if equal to minimum elevation in previous X-sect.)

10. ELCHD = Elevation of channel invert D/S side = 858.7
(0 if equal to minimum elevation in previous X-sect.)

$\frac{\pi D^2}{4}$

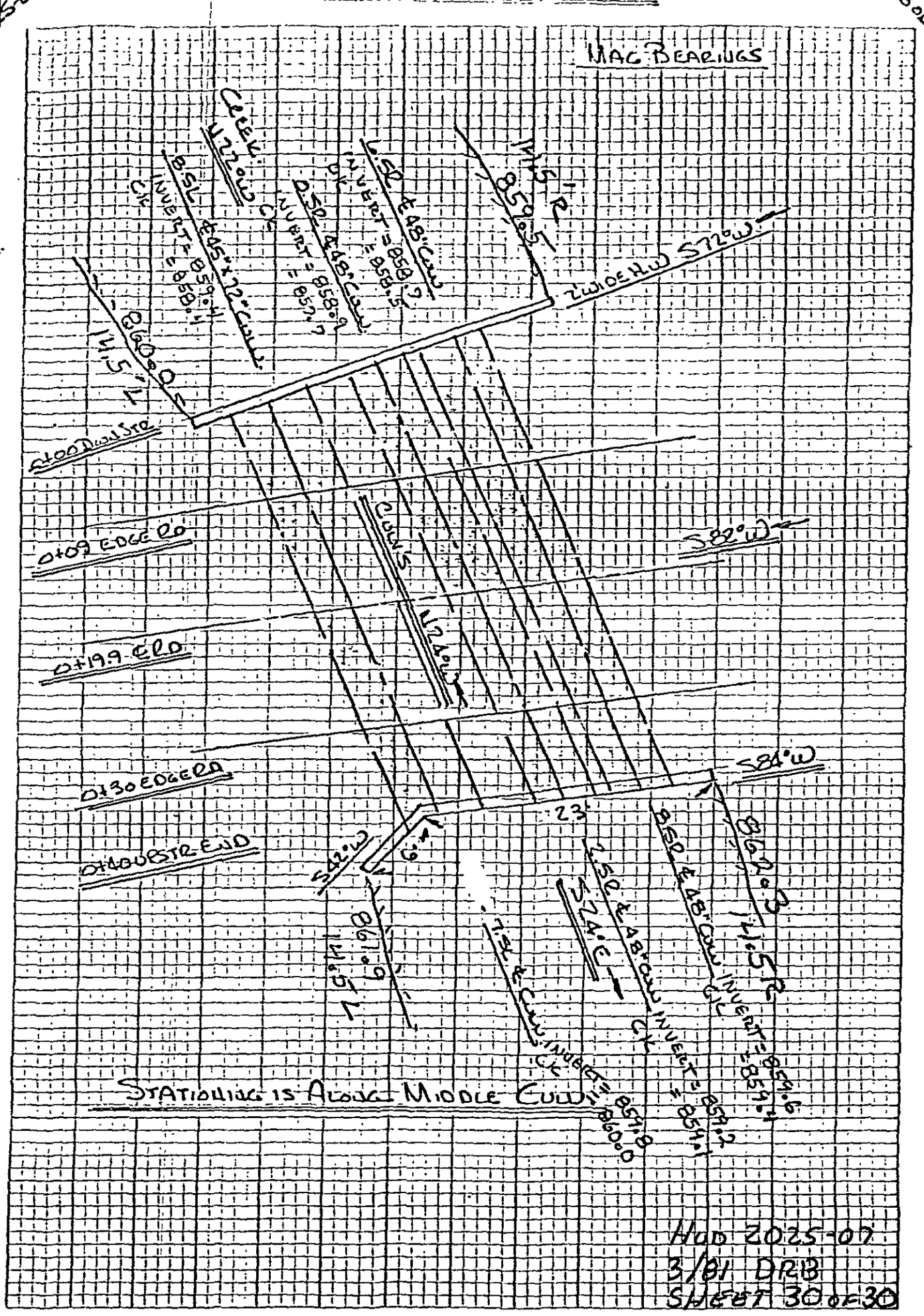
$2\pi R$

SUBJECT	BY	CHK.	SHEET NO.	File Code No. (Job No.) Owner	Project	Suffix
HARPER CR.	DRB		28 OF 30	HUD	2025	07
	DATE 11/80	DATE				

KE 10 X 10 TO ½ INCH 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.

46 1320

HD 2025-07
3/81 DRB
SHEET 29 OF 30


CROSS-SECTION #47 HARPER CREEK
MAG BEARINGS
CREEK
N22°W
6.5R & 48" CULV
INVERT = 858.7
= 858.5
0.5R & 48" CULV
INVERT = 858.9
= 857.7
8.5L & 45"x72" CULV
INVERT = 859.4
= 858.4
14.5' R
859.5
2' WIDE HW S72°W
860.0
14.5' L
0+00 DWN STR
0+09 EDGE RD
CULVS
N24°W
S82°W
0+19.9 ℄ RD
0+30 EDGE RD
S84°W
23'
0+40 UPSTR END
S42°W
6'
861.9
14.5' L
7.5L & CULV INVERT = 859.8
= 860.0
2.5R & 48" CULV INVERT = 859.2
= 859.1
S24°E
8.5R & 48" CULV INVERT = 859.6
= 859.4
862.3
14.5' R
STATIONING IS ALONG MIDDLE CULV
HUD 2025-07
3/81 DRB
SHEET 30 of 30

HARPER CREEK

EMMETT TOWNSHIP, MICHIGAN

EXHIBIT 8

BEADLE LAKE, STAGE/STORAGE CALCULATIONS

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET
25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

REFERENCE

BEADLE LAKE

STAGE / STORAGE ANALYSIS

EMMETT TOWNSHIP, MICHIGAN

NORMAL SURFACE AREA - 185 ACRES
BASE FLOW ELEVATION - 889.5 (ABRAMS AERIAL SURVEY, 1974)
FROM TR-20 :

STORM	RUNOFF VOLUME (ACRE-FT)
10 YR	115
50 YR	185
100 YR	220
500 YR	300

FLOOD ELEVATIONS :

10 YR

$$\frac{115 \text{ ACRE-F}}{185 \text{ ACRE}} + 889.5 \text{ FT} = 890.1 \text{ FT}$$

50 YR

$$\frac{185 \text{ ACRE-FT}}{185 \text{ ACRE}} + 889.5 \text{ FT} = 890.5 \text{ FT}$$

100 YR

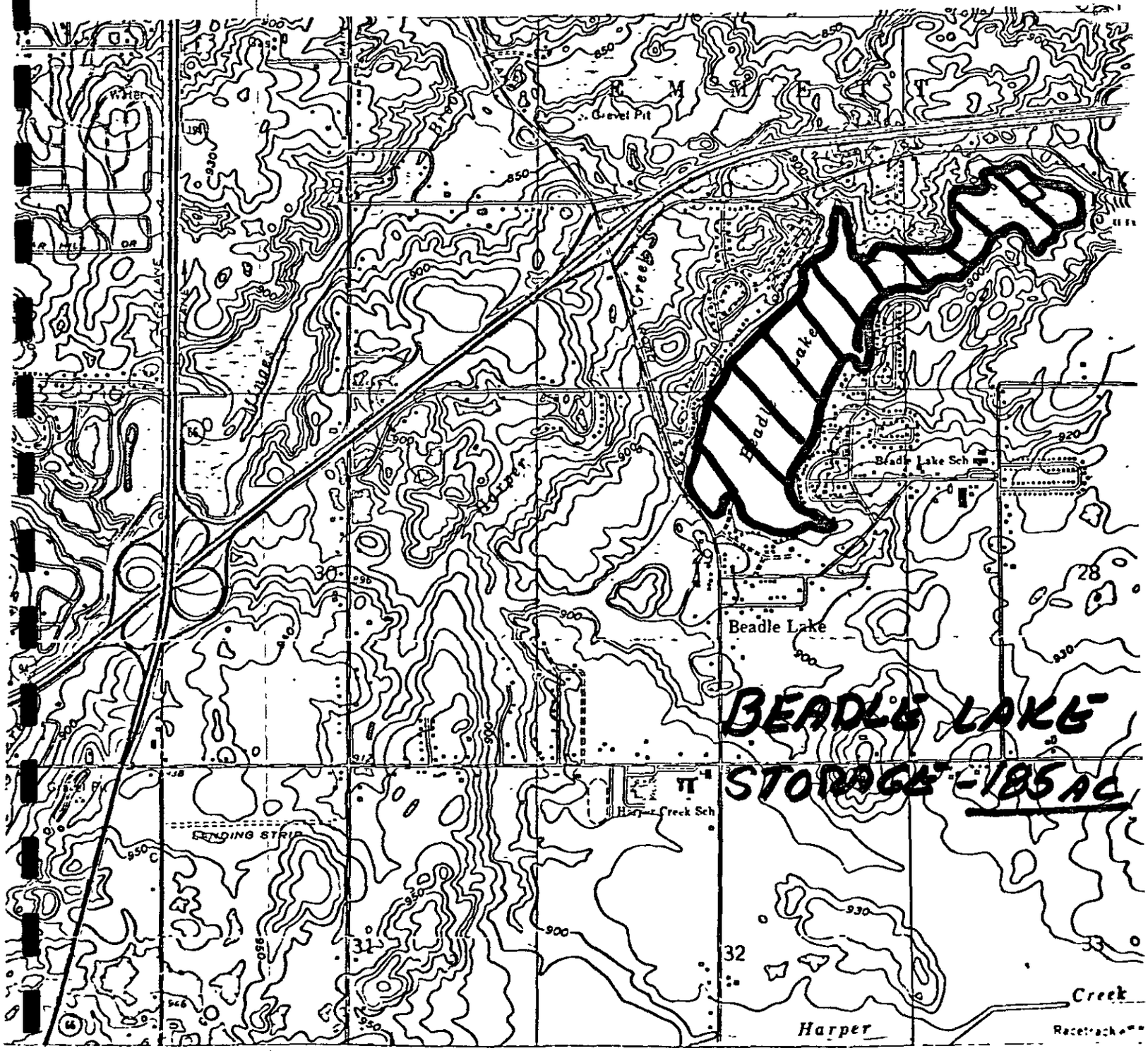
$$\frac{220 \text{ ACRE-FT}}{185 \text{ ACRE}} + 889.5 \text{ FT} = 890.7 \text{ FT}$$

500 YR

$$\frac{300 \text{ ACRE-FT}}{185 \text{ ACRE}} + 889.5 \text{ FT} = 891.1 \text{ FT}$$

SUBJECT	BY	CHK.	SHEET NO.	File Code No. (Job No.) Owner Project Suffix
BEADLE LAKE - EMMETT TWP	DRB		1 OF 2	HUD • 2025 • 07
	DATE 4/81	DATE		

BEADLE LAKE
STAGE / STORAGE
EXHIBIT 8



HUD 2025-
SHEET 2 OF

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Emmett Twp

3) WATERCOURSE: Harper Creek

4) DOCUMENT TYPE: 10, 50, 100, 500 yr. profiles

00BREAK00

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

C
T1EMMETT TOWNSHIP FLOOD INSURANCE STUDY
T2 10-YEAR
T3      HARPER CREEK EMMETT TWP.

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.  0.000000      3.00       0.0        0.   841.970     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
NC    0.100     0.100     0.040     0.100     0.300     0.500     0.000     0.000     0.000     0.000
QT    5.000   600.000   980.000  1150.000  1150.000  1620.000     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                                CROSS SECTION 32

X1    2.500    19.000   966.000   986.000   400.000   720.000   720.000     0.000     0.000     0.000
GR  870.700   432.000   863.100   536.000   852.600   622.000   844.000   702.000   842.700   806.000
GR  841.400   892.000   840.000   959.000   838.900   963.000   837.500   966.000   837.000   976.000
GR  837.900   986.000   839.500   991.000   843.300  1032.000   848.400  1066.000   851.200  1160.000
GR  845.200  1276.000   845.200  1368.000   852.500  1480.000   855.200  1506.000     0.000     0.000
QT    5.000   325.000   530.000   630.000   630.000   695.000     0.000     0.000     0.000     0.000
ET    0.000     7.100     9.100     9.100     9.100     9.100   950.000  1115.000   950.000  1200.000

        VALLEY SECTION                                CROSS SECTION 33

X1    2.600    18.000  1063.000  1092.000   900.000   400.000   735.000     0.000     0.000     0.000
GR  849.400   276.000   847.600   386.000   845.900   614.000   844.400   644.000   842.800   776.000
GR  842.300   860.000   842.300  1006.000   841.000  1063.000   838.300  1069.000   838.200  1077.000
GR  839.000  1085.000   841.700  1092.000   842.200  1094.000   843.400  1204.000   845.500  1290.000
GR  846.300  1412.000   855.200  1478.000   859.200  1568.000     0.000     0.000     0.000     0.000

X1    2.610     0.000     0.000     0.000   300.000   300.000   300.000     0.000     1.800     0.000
X3    0.000     0.000     0.000   982.000     0.000  1172.000     0.000     0.000     0.000     0.000

X1    2.650    10.000   436.000   465.000   300.000   300.000   300.000     0.000     0.000     0.000
X3    0.000     0.000     0.000   380.000     0.000   530.000     0.000     0.000     0.000     0.000
GR  860.000     0.000   850.000   200.000   844.600   220.000   844.600   436.000   842.000   442.000
GR  841.900   450.000   842.300   458.000   844.000   455.000   850.000   550.000   860.000   610.000
```

X1	2.660	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.200	0.000
X3	0.000	0.000	0.000	402.000	0.000	498.000	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

100 FT D/S BEADLE LAKE RD. CROSS SECTION 34

X1	2.700	11.000	488.000	512.000	200.000	200.000	200.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	470.000	0.000	530.000	0.000	0.000	0.000	0.000
GR	860.000	120.000	850.000	280.000	847.500	310.000	846.500	400.000	846.500	488.000
GR	844.500	492.000	844.300	500.000	845.200	508.000	846.500	512.000	850.000	550.000
GR	860.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	2.800	9.000	491.000	509.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	482.000	0.000	518.000	0.000	0.000	0.000	0.000
GR	860.400	120.000	848.000	400.000	846.500	491.000	845.300	493.000	844.600	500.000
GR	845.000	507.000	846.500	509.000	850.400	550.000	860.400	600.000	0.000	0.000

X1	2.850	0.000	0.000	0.000	25.000	25.000	25.000	0.000	0.100	0.000
X3	0.000	0.000	0.000	488.000	0.000	512.000	0.000	0.000	0.000	0.000

D/S FACE BEADLE LAKE RD. CROSS SECTION 34

X1	2.900	13.000	494.000	506.000	25.000	25.000	25.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	490.000	0.000	510.000	0.000	851.000	851.000	0.000
GR	860.000	120.000	850.000	280.000	847.500	310.000	847.400	400.000	846.500	486.000
GR	845.500	492.000	845.500	494.100	844.000	500.000	845.300	505.900	845.300	506.000
GR	846.000	515.000	850.000	550.000	860.000	600.000	0.000	0.000	0.000	0.000
SB	0.000	1.750	3.000	0.000	12.000	0.000	60.000	0.000	845.000	845.000

U/S FACE BEADLE LAKE RD. CROSS SECTION 34&35

X1	3.000	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	850.000	854.900	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	490.000	0.000	510.000	0.000	855.500	855.500	0.000
BT	13.000	120.000	860.000	0.000	280.000	856.200	0.000	310.000	856.000	0.000
BT	400.000	855.500	0.000	486.000	854.900	0.000	494.000	854.900	0.000	494.100
BT	854.900	850.000	500.000	854.900	850.000	505.900	854.900	850.000	506.000	854.900
BT	0.000	515.000	854.900	0.000	550.000	854.900	0.000	600.000	860.000	0.000

X1	3.100	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	445.000	0.000	555.000	0.000	0.000	0.000	0.000
NC	0.080	0.080	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	1.610	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION CROSS SECTION 35

X1	3.200	15.000	640.000	658.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	867.000	338.000	859.000	450.000	855.200	528.000	850.000	632.000	849.800	636.000
GR	846.700	640.000	846.000	649.000	846.600	658.000	849.800	669.000	851.300	704.000
GR	855.000	832.000	861.400	910.000	875.600	992.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	600.000	700.000

D/S PRIVATE DRIVE CROSS SECTION 36

X1	3.800	87.000	660.900	647.100	250.000	300.000	300.000	0.000	0.000	0.000

FORM 14116B PRINTED BY ROTARY MANIFOLD FORMS PRINTED IN U.S.A.

X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	851.300	851.500	0.000
GR	870.600	290.000	863.400	396.000	855.200	640.000	851.300	626.000	851.300	635.000
GR	851.300	639.000	848.800	640.900	847.700	641.400	847.600	641.900	847.300	642.400
GR	847.400	642.900	847.700	643.500	848.800	643.900	848.800	644.100	847.700	644.600
GR	847.400	645.100	847.300	645.600	847.400	646.100	847.700	646.600	848.800	647.100
GR	851.300	649.000	851.300	655.000	851.300	702.000	855.000	754.000	860.600	976.000
GR	867.200	1082.000	875.000	1174.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	600.000	700.000

D/S FACE PRIVATE DRIVE CROSS SECTION 36

X1	3.900	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	851.300	851.500	0.000
BT	27.000	290.000	870.600	0.000	396.000	863.400	0.000	440.000	855.200	0.000
BT	626.000	851.300	0.000	633.000	851.300	0.000	639.000	851.300	0.000	640.900
BT	851.300	0.000	841.400	851.300	849.900	641.400	851.300	850.200	642.400	851.300
BT	850.300	642.900	851.300	850.200	643.500	851.300	849.900	643.900	851.300	0.000
BT	644.100	851.300	0.000	644.600	851.300	849.900	645.100	851.300	850.200	645.600
BT	851.300	850.300	646.100	851.300	850.200	646.600	851.300	849.900	647.100	851.300
BT	0.000	649.000	851.300	0.000	655.000	851.300	0.000	702.000	851.300	0.000
BT	754.000	855.000	0.000	976.000	860.600	0.000	1082.000	867.200	0.000	1174.000
BT	875.000	0.000	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	0.000	0.000	0.000	0.000	600.000	700.000

U/S FACE PRIVATE DRIVE CROSS SECTION 36

X1	4.000	0.000	0.000	0.000	16.000	16.000	16.000	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	851.300	851.300	0.000
NC	0.000	0.000	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	600.000	700.000

U/S PRIVATE DRIVE CROSS SECTION 36

X1	4.100	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	851.300	851.300	0.000

50 FT U/S PRIVATE DRIVE CROSS SECTION 36

X1	4.200	13.000	639.000	649.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	870.600	290.000	863.400	396.000	855.200	440.000	851.300	626.000	851.300	633.000
GR	847.300	639.000	847.300	649.000	851.300	655.000	853.200	702.000	855.000	754.000
GR	860.600	976.000	867.200	1082.000	875.000	1174.000	0.000	0.000	0.000	0.000
NC	0.080	0.080	0.035	0.300	0.500	0.000	0.000	0.000	0.000	0.000

100 FT D/S E DRIVE NORTH CROSS SECTION 38

X1	4.800	14.000	1469.000	1485.800	510.000	510.000	510.000	0.000	0.000	0.000
GR	860.000	1437.000	850.300	1468.000	850.300	1469.000	848.300	1469.000	848.300	1469.100
GR	848.300	1477.000	848.300	1477.100	848.300	1477.700	848.300	1477.800	848.300	1485.700
GR	848.300	1485.800	851.000	1486.000	851.000	1487.000	860.000	1517.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	9.100	0.000	0.000	0.000	1438.000	1517.000

D/S FACE E DRIVE NORTH CROSS SECTION 38

X1	4.800	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	1468.000	0.000	1487.000	0.000	855.000	855.000	0.000

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SB	0.000	1.620	3.000	0.000	16.600	0.600	91.000	0.000	848.300	848.300

U/S FACE E DRIVE NORTH — CROSS SECTION 37038

X1	5.000	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	854.000	856.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1468.000	0.000	1487.000	0.000	856.000	856.000	0.000
BT	14.000	1437.000	870.000	0.000	1468.000	870.000	0.000	1469.000	856.000	0.000
BT	1469.000	856.000	0.000	1469.100	856.000	854.000	1477.000	856.000	854.000	1477.100
BT	856.000	0.000	1477.700	856.000	0.000	1477.800	856.000	854.000	1485.700	856.000
BT	854.000	1485.800	856.000	0.000	1486.000	856.000	0.000	1487.000	870.000	0.000
BT	1517.000	870.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

40 FT U/S E DRIVE NORTH & 40 D/S I-94 RAMP — CROSS SECTION 38

X1	5.500	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1466.000	0.000	1487.000	0.000	0.000	0.000	0.000

D/S FACE I-94 RAMP — CROSS SECTION 38

X1	5.900	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	865.800	865.800	0.000
SB	0.000	2.010	3.000	0.000	16.600	0.600	91.000	0.000	848.300	848.300

U/S FACE I-94 RAMP — CROSS SECTION 38839

X1	6.000	0.000	0.000	0.000	77.000	77.000	77.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	854.000	865.800	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	865.800	865.800	0.000
BT	18.000	1377.000	870.000	0.000	1378.000	865.800	0.000	1408.000	865.800	0.000
BT	1458.000	865.800	0.000	1466.000	865.800	0.000	1469.000	865.800	0.000	1469.100
BT	865.800	854.000	1477.000	865.800	854.000	1477.100	865.800	0.000	1477.700	865.800
BT	0.000	1477.800	865.800	854.000	1485.700	865.800	854.000	1485.800	865.800	0.000
BT	1491.000	865.800	0.000	1500.000	865.800	0.000	1524.000	865.800	0.000	1576.000
BT	865.800	0.000	1577.000	870.000	0.000	0.000	0.000	0.000	0.000	0.000

40 FT U/S I-94 RAMP & 40 FT D/S I-94 — CROSS SECTION 40

X1	6.500	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1459.000	0.000	1495.000	0.000	0.000	0.000	0.000

D/S FACE I-94 — CROSS SECTION 40

X1	6.900	0.000	1.000	17.800	40.000	40.000	40.000	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	874.300	1.000	848.300	1.100	848.300	9.000	848.300	9.100	848.300	9.700
GR	848.300	9.800	848.300	17.700	874.300	17.800	0.000	0.000	0.000	0.000
SB	0.000	3.170	3.000	0.000	16.600	0.600	93.000	0.000	848.300	848.300

U/S FACE I-94 — CROSS SECTION 40861

X1	7.000	0.000	0.000	0.000	280.000	280.000	280.000	0.000	0.300	0.000
X2	0.000	0.000	1.000	854.400	874.300	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	874.300	874.300	0.000
BT	8.000	1.000	874.300	2.000	1.100	874.300	854.400	9.000	874.300	854.410
BT	9.100	874.300	0.000	9.700	874.300	0.000	9.800	874.300	854.300	17.700
BT	874.300	854.300	17.800	874.300	0.000	0.000	0.000	0.000	0.000	0.000

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45 FT U/S I-94 & 45 FT D/S E DRIVE SOUTH CROSS SECTION 40

X1	7.500	16.000	1404.000	1420.700	45.000	45.000	45.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1392.000	0.000	1432.000	0.000	0.000	0.000	0.000
GR	870.000	1212.000	856.000	1213.000	855.800	1312.000	855.400	1394.000	849.200	1404.000
GR	849.200	1404.100	849.200	1412.000	849.200	1412.100	849.200	1412.600	849.200	1412.700
GR	849.200	1420.600	849.200	1420.700	855.000	1430.000	855.600	1520.000	856.000	1611.000
GR	870.000	1612.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE E DRIVE SOUTH CROSS SECTION 40

X1	7.900	0.000	0.000	0.000	45.000	45.000	45.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1392.000	0.000	1432.000	0.000	861.000	861.000	0.000
SB	0.000	1.760	3.000	0.000	16.700	0.700	114.000	0.000	849.200	849.200

U/S FACE E DRIVE SOUTH CROSS SECTION 40&42

X1	8.000	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	856.300	860.700	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1392.000	0.000	1432.000	0.000	861.000	861.000	0.000
BT	16.000	1212.000	870.000	0.000	1213.000	860.700	0.000	1312.000	860.700	0.000
BT	1394.000	860.700	0.000	1404.000	860.700	0.000	1404.100	860.700	856.300	1412.000
BT	860.700	856.300	1412.100	860.700	0.000	1412.600	860.700	0.000	1412.700	860.700
BT	856.300	1420.600	860.700	856.300	1420.700	860.700	0.000	1430.000	860.700	0.000
BT	1520.000	860.700	0.000	1611.000	860.700	0.000	1612.000	870.000	0.000	0.000

50 FT U/S E DRIVE SOUTH CROSS SECTION 43

X1	8.200	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	1354.000	0.000	1470.000	0.000	0.000	0.000	0.000
NC	0.100	0.100	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	1.410	7.100	1000.000	1600.000	0.000	0.000

VALLEY SECTION CROSS SECTION 43

X1	8.300	16.000	1166.000	1190.000	500.000	1000.000	910.000	0.000	0.000	0.000
X4	2.000	865.600	480.000	863.600	584.000	0.000	0.000	0.000	0.000	0.000
GR	871.200	428.000	861.000	858.000	861.000	1022.000	853.600	1084.000	854.000	1156.000
GR	854.700	1162.000	850.900	1166.000	850.700	1176.000	850.500	1190.000	853.400	1195.000
GR	853.600	1282.000	856.800	1412.000	859.000	1560.000	865.500	1602.000	869.600	1670.000
GR	875.200	1730.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION CROSS SECTION 44

X1	8.400	13.000	824.000	844.000	500.000	700.000	760.000	0.000	0.000	0.000
GR	868.200	300.000	864.000	380.000	864.000	550.000	862.400	620.000	859.800	802.000
GR	855.700	819.000	854.600	824.000	854.800	838.000	852.900	844.000	856.000	848.000
GR	860.000	1000.000	868.500	1026.000	869.400	1040.000	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
ET	0.000	7.100	7.100	0.000	9.100	0.000	819.000	857.000	301.000	1040.000

50 FT D/S BEADLE LAKE RD.

X1	8.800	15.000	827.000	840.000	215.000	215.000	215.000	0.000	0.000	0.000
GR	868.200	300.000	864.000	380.000	864.200	760.000	860.000	762.000	859.800	802.000
GR	854.500	819.000	853.210	827.000	855.200	827.100	854.800	844.000	855.500	839.000

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GR	855.500	840.000	837.000	848.000	865.000	1000.000	860.300	1026.000	869.400	1040.000

D/S FACE BEADLE LAKE RD. CROSS SECTION 45

X1	8.900	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	0.000	0.000	0.000	0.000	860.000	860.000	0.000
BB	0.000	1.640	3.000	0.000	13.000	0.000	65.000	0.000	855.000	855.000

U/S FACE BEADLE LAKE RD. CROSS SECTION 45

X1	9.000	15.000	827.000	840.000	37.000	37.000	37.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	858.500	861.700	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	861.700	861.700	0.000
BT	15.000	300.000	868.200	0.000	380.000	864.000	0.000	761.000	864.000	0.000
BT	761.000	861.700	0.000	802.000	861.700	0.000	819.000	861.700	0.000	827.000
BT	861.700	0.000	827.100	861.700	858.500	834.000	861.700	858.500	839.900	861.700
BT	858.500	840.000	861.700	0.000	848.000	861.700	0.000	905.000	861.700	0.000
BT	906.000	868.500	0.000	1000.000	869.400	0.000	0.000	0.000	0.000	0.000
GR	868.200	300.000	864.000	380.000	864.000	761.000	861.200	762.000	861.200	802.000
GR	856.500	819.000	855.200	827.000	855.200	827.100	854.800	834.000	855.500	839.900
GR	855.500	840.000	861.200	848.000	861.200	905.000	868.500	906.000	869.400	1000.000
ET	0.000	7.100	7.100	0.000	0.000	0.000	700.000	893.000	0.000	0.000

50 FT U/S BEADLE LAKE RD.

X1	9.100	0.000	0.000	0.000	50.000	50.000	50.000	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 CROSS SECTION 46

X1	9.300	10.000	656.000	676.000	750.000	350.000	600.000	0.000	0.000	0.000
GR	893.000	196.000	876.000	394.000	867.000	518.000	863.200	552.000	860.100	670.000
GR	859.900	644.000	858.700	652.000	857.200	656.000	856.700	666.000	857.300	674.000
GR	858.800	682.000	859.500	718.000	863.600	836.000	869.400	948.000	877.200	1078.000
GR	883.200	1188.000	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	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.200	9.100	0.000	0.000	610.000	700.000

100 FT D/S D DRIVE CROSS SECTION 48

X1	9.700	20.000	628.000	648.000	400.000	400.000	570.000	0.000	0.000	0.000
GR	886.800	118.000	877.000	140.000	870.700	178.000	873.600	226.000	871.200	402.000
GR	870.400	482.000	868.600	540.000	866.500	566.000	863.700	590.000	860.800	608.000
GR	859.700	624.000	858.200	638.000	857.600	638.000	858.300	648.000	859.800	654.000
GR	861.400	668.000	863.000	706.000	867.200	778.000	872.400	918.000	886.000	1172.000
ET	0.000	0.000	0.000	0.000	9.100	0.000	0.000	0.000	119.000	1172.000

D/S FACE D DRIVE CROSS SECTION 48

X1	9.900	38.000	626.500	646.500	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	863.000	863.000	0.000
GR	886.800	118.000	877.000	140.000	870.700	178.000	873.600	226.000	871.200	402.000
GR	870.400	482.000	868.600	540.000	866.500	566.000	863.700	590.000	860.800	608.000
GR	860.000	624.000	859.700	626.500	859.600	627.000	859.500	628.000	859.400	629.500
GR	859.500	631.000	859.600	632.000	859.700	632.500	860.900	636.500	859.500	637.000
GR	859.100	637.500	858.900	638.500	859.100	639.500	859.500	640.000	860.900	640.500
GR	860.700	642.500	859.400	643.000	859.000	643.500	858.700	644.500	859.000	645.500

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GR	859.500	646.000	860.700	646.500	859.500	652.000	862.500	666.000	863.000	706.000
GR	867.200	778.000	872.400	918.000	886.000	1172.000	0.000	0.000	0.000	0.000
SB	0.000	2.330	3.000	0.000	10.900	0.000	43.000	0.000	859.100	858.700

U/S FACE D DRIVE — CROSS SECTION 46

X1	10.000	38.000	626.500	646.500	40.000	40.000	40.000	0.000	0.400	0.000
X2	0.000	0.000	1.000	863.400	866.400	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	866.400	866.400	0.000
BT	38.000	116.000	887.200	0.000	140.000	877.400	0.000	178.000	871.100	0.000
BT	226.000	874.000	0.000	402.000	871.600	0.000	482.000	870.600	0.000	540.000
BT	369.000	0.000	566.000	866.900	0.000	590.000	866.400	0.000	608.000	866.400
BT	0.000	624.000	866.400	0.000	626.500	866.400	859.700	627.000	866.400	861.600
BT	628.000	866.400	862.800	629.500	866.400	863.000	631.000	866.400	862.600	632.000
BT	866.400	861.600	632.500	866.400	859.700	636.500	866.400	860.900	637.000	866.400
BT	862.300	637.500	866.400	862.700	638.500	866.400	862.900	639.500	866.400	862.700
BT	640.000	866.400	862.300	643.500	866.400	860.900	642.500	866.400	860.700	643.000
BT	866.400	862.000	643.500	866.400	862.400	644.500	866.400	862.700	645.500	866.400
BT	862.400	646.000	866.400	862.000	646.500	856.400	860.700	652.000	866.400	0.000
BT	666.000	866.400	0.000	706.000	866.400	0.000	778.000	867.600	0.000	918.000
BT	872.800	0.000	1172.000	886.400	0.000	0.000	0.000	0.000	0.000	0.000
GR	886.800	118.000	877.000	140.000	870.700	178.000	873.600	226.000	871.200	402.000
GR	870.400	482.000	868.600	540.000	866.500	566.000	869.700	590.000	863.400	608.000
GR	861.500	624.000	859.800	631.000	858.800	638.000	859.000	645.000	862.300	651.000
GR	862.500	666.000	863.000	706.000	867.200	778.000	872.400	918.000	886.000	1172.000
ET	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.200	0.000	0.000

50 FT U/S D DRIVE — CROSS SECTION 48

X1	10.200	20.000	624.000	645.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	566.000	0.000	706.000	0.000	0.000	0.000	0.000
GR	886.800	118.000	877.000	140.000	870.700	178.000	873.600	226.000	871.200	402.000
GR	870.400	482.000	868.600	540.000	866.500	566.000	869.700	590.000	863.400	608.000
GR	861.500	624.000	859.800	631.000	858.800	638.000	859.000	645.000	862.300	651.000
GR	862.500	666.000	863.000	706.000	867.200	778.000	872.400	918.000	886.000	1172.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000

X1	10.220	15.000	827.000	843.000	250.000	250.000	250.000	0.000	-2.900	0.000
GR	880.000	522.000	877.200	606.000	869.200	718.000	868.200	784.000	867.600	815.000
GR	863.500	827.000	862.900	835.000	863.400	843.000	865.700	848.000	868.000	868.000
GR	869.000	912.600	875.000	932.000	881.400	952.000	885.600	974.000	896.500	1040.000

X1	10.260	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.450	0.000

VALLEY SECTION — CROSS SECTION 49

X1	10.300	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.450	0.000

X1	10.320	20.000	470.000	494.000	300.000	300.000	300.000	0.000	-2.400	0.000
GR	886.000	168.000	882.800	196.000	877.800	275.000	869.700	360.000	870.000	438.000
GR	869.300	462.000	868.700	468.000	866.600	470.000	867.200	482.000	867.000	494.000
GR	868.700	498.000	868.700	504.000	869.700	513.000	872.800	530.000	875.000	616.000
GR	872.800	726.000	873.900	812.000	877.800	884.000	883.900	960.000	893.200	1052.000

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X1	10.340	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.100	0.000

VALLEY SECTION CROSS SECTION 50

X1	10.400	0.000	0.000	0.000	350.000	350.000	350.000	0.000	1.300	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 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

T1EMMETT TOWNSHIP FLOOD INSURANCE STUDY
T2 50-YEAR
T3       HARPER CREEK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       3.        0.        0.  0.000000      0.00      0.0       0.   843.340     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     I3U       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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PRINTED IN U.S.A.
FORM 141 (GD) PRINTED BY ROTARY MANIFOLD FORMS

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

T1EMMETT TOWNSHIP FLOOD INSURANCE STUDY
T2100-YEAR
T3       HARPER CREEK

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
      0.       4.       0.       0.  0.000000     0.00      0.0      0.   843.830   0.000

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH     FN      ALLOC    IBW      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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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
 ERROR CORR -  01
 MODIFICATION -  50,51,52
**************************************************

T1EMMETT TOWNSHIP FLOOD INSURANCE STUDY
T2500-YEAR
T3      HARPER CREEK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       6.        0.        0.  0.000000      0.00      0.0       0.    844.520     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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PRINTED IN U.S.A.
FORM [illegible] PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Emmett Twp

3) WATERCOURSE: Harper Creek

4) DOCUMENT TYPE: 10, 50, 100, 500 yr. profile Summary

00BREAK00

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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

HARPER CREEK EMMETT TWP.

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELTRN	Q	CWSEL	CRIWS	EG	TOPWS	VCH	AREA	.01K
2.500	720.00	0.00	0.00	837.00	600.00	841.97	0.00	842.24	22.01	4.83	258.89	127.89
2.500	720.00	0.00	0.00	837.00	980.00	843.34	0.00	843.54	14.54	4.66	557.77	257.02
2.500	720.00	0.00	0.00	837.00	1150.00	843.83	0.00	844.00	12.57	4.57	704.13	324.31
2.500	720.00	0.00	0.00	837.00	1620.00	844.52	0.00	844.71	13.51	5.07	935.94	440.78
2.600	735.00	0.00	0.00	838.20	325.00	843.15	0.00	843.21	6.12	2.26	268.62	131.37
2.600	735.00	0.00	0.00	838.20	530.00	844.17	0.00	844.22	4.64	2.29	546.47	246.06
2.600	735.00	0.00	0.00	838.20	630.00	844.57	0.00	844.62	4.38	2.34	645.71	300.28
2.600	735.00	0.00	0.00	838.20	895.00	845.30	0.00	845.36	4.62	2.62	829.73	416.34
2.610	300.00	0.00	0.00	840.00	325.00	843.37	0.00	843.69	68.05	4.57	77.53	46.50
2.610	300.00	0.00	0.00	840.00	530.00	844.26	0.00	844.63	39.97	5.09	150.51	83.85
2.610	300.00	0.00	0.00	840.00	630.00	844.65	0.00	845.00	34.31	5.08	210.03	107.55
2.610	300.00	0.00	0.00	840.00	895.00	845.41	0.00	845.72	27.59	5.16	352.42	170.38
2.650	300.00	0.00	0.00	841.90	325.00	844.80	0.00	845.21	53.34	4.67	88.39	44.50
2.650	300.00	0.00	0.00	841.90	530.00	845.57	0.00	845.94	48.00	5.28	159.11	76.50
2.650	300.00	0.00	0.00	841.90	630.00	845.82	0.00	846.23	48.48	5.59	186.10	90.48
2.650	300.00	0.00	0.00	841.90	895.00	846.37	0.00	846.86	50.15	6.31	249.80	126.39
2.660	200.00	0.00	0.00	843.10	325.00	846.00	0.00	846.37	62.00	4.92	76.19	41.27
2.660	200.00	0.00	0.00	843.10	530.00	846.59	0.00	847.10	66.25	5.95	122.98	65.11
2.660	200.00	0.00	0.00	843.10	630.00	846.84	0.00	847.40	66.05	6.33	144.15	77.05
2.660	200.00	0.00	0.00	843.10	895.00	847.40	0.00	848.09	68.89	7.18	194.98	107.85
2.700	200.00	0.00	0.00	844.30	325.00	847.30	0.00	847.73	71.50	5.45	74.22	38.43
2.700	200.00	0.00	0.00	844.30	530.00	847.96	0.00	848.57	75.41	6.60	109.95	61.03
2.700	200.00	0.00	0.00	844.30	630.00	848.22	0.00	848.91	77.63	7.08	125.49	71.51
2.700	200.00	0.00	0.00	844.30	895.00	848.81	0.00	849.70	82.85	8.17	161.14	98.34
2.800	50.00	0.00	0.00	844.60	325.00	847.61	0.00	848.23	93.43	6.54	62.15	33.62
2.800	50.00	0.00	0.00	844.60	530.00	848.23	0.00	849.20	112.18	8.27	84.66	50.04
2.800	50.00	0.00	0.00	844.60	630.00	848.47	0.00	849.62	122.23	9.06	93.22	56.98
2.800	50.00	0.00	0.00	844.60	895.00	848.97	848.97	850.64	151.60	11.03	111.23	72.74
2.850	25.00	0.00	0.00	844.70	325.00	847.83	0.00	848.47	87.05	6.49	55.68	34.03
2.850	25.00	0.00	0.00	844.70	530.00	848.46	0.00	849.56	111.99	8.49	70.98	50.08
2.850	25.00	0.00	0.00	844.70	630.00	848.69	0.00	850.02	126.67	9.43	76.62	55.98
2.850	25.00	0.00	0.00	844.70	895.00	849.22	849.22	851.24	160.35	11.63	89.11	70.68

FORM 1611-60 PRINTED BY ROTARY MANIFOLD FORMS, PRINTED IN U.S.A.

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CHSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
*	2.900	25.00	0.00	0.00	844.80	325.00	847.93	847.93	849.36	212.84	9.59	33.80	22.28
*	2.900	25.00	0.00	0.00	844.80	530.00	849.02	849.02	851.00	209.54	11.27	47.02	36.63
*	2.900	25.00	0.00	0.00	844.80	630.00	849.51	849.51	851.72	208.96	11.91	52.89	43.65
*	2.900	25.00	0.00	0.00	844.80	895.00	850.60	850.60	853.46	220.57	13.58	65.91	60.29
	3.000	42.00	854.90	850.00	844.80	325.00	849.41	0.00	850.03	60.23	6.32	51.46	41.88
	3.000	42.00	854.90	850.00	844.80	530.00	849.66	0.00	851.12	133.09	9.68	54.75	45.94
	3.000	42.00	854.90	850.00	844.80	630.00	851.39	0.00	852.47	73.87	8.55	75.48	73.30
	3.000	42.00	854.90	850.00	844.80	895.00	854.41	0.00	855.41	49.77	8.02	111.64	126.06
	3.100	50.00	0.00	0.00	844.80	325.00	850.22	0.00	850.26	3.93	2.18	358.10	163.80
	3.100	50.00	0.00	0.00	844.80	530.00	851.56	0.00	851.60	3.91	2.54	503.33	268.01
	3.100	50.00	0.00	0.00	844.80	630.00	852.79	0.00	852.83	2.71	2.37	639.00	382.72
	3.100	50.00	0.00	0.00	844.80	895.00	855.69	0.00	855.72	1.58	2.25	957.85	711.14
	3.200	200.00	0.00	0.00	846.00	325.00	850.22	0.00	850.45	14.79	4.07	106.58	84.67
	3.200	200.00	0.00	0.00	846.00	530.00	851.56	0.00	851.79	11.86	4.62	212.13	153.87
	3.200	200.00	0.00	0.00	846.00	630.00	852.80	0.00	852.93	5.79	3.56	395.42	261.87
	3.200	200.00	0.00	0.00	846.00	895.00	855.71	0.00	855.75	1.40	2.24	1145.87	755.24
*	3.800	300.00	0.00	0.00	847.30	325.00	852.23	852.23	852.76	69.52	7.27	112.05	30.98
*	3.800	300.00	0.00	0.00	847.30	530.00	852.71	852.71	853.19	72.83	7.96	195.89	62.11
	3.800	300.00	0.00	0.00	847.30	630.00	853.02	0.00	853.60	61.10	7.60	248.96	80.54
	3.800	300.00	0.00	0.00	847.30	895.00	855.79	0.00	855.82	4.20	2.64	991.43	436.86
	3.900	1.00	851.30	850.30	847.30	325.00	852.60	852.27	852.79	76.62	5.47	135.98	37.13
	3.900	.00	851.30	850.30	847.30	530.00	853.03	0.00	853.23	63.63	5.46	245.57	66.64
	3.900	.00	851.30	850.30	847.30	630.00	853.23	0.00	853.43	62.47	5.57	286.54	79.71
	3.900	1.00	851.30	850.30	847.30	895.00	855.80	0.00	855.82	4.78	2.12	977.67	409.19
	4.000	16.00	851.30	850.30	847.30	325.00	852.76	0.00	852.90	56.11	4.82	151.68	43.39
	4.000	16.00	851.30	850.30	847.30	530.00	853.20	0.00	853.33	51.13	4.97	267.75	74.12
	4.000	16.00	851.30	850.30	847.30	630.00	853.40	0.00	853.52	50.52	5.11	308.21	88.64
	4.000	16.00	851.30	850.30	847.30	895.00	855.81	0.00	855.82	4.71	2.11	985.03	412.45
	4.100	1.00	0.00	0.00	847.30	325.00	852.71	0.00	852.93	31.56	5.24	160.48	57.85
	4.100	1.00	0.00	0.00	847.30	530.00	853.14	0.00	853.36	35.97	5.91	270.65	88.36
	4.100	1.00	0.00	0.00	847.30	630.00	853.33	0.00	853.56	37.94	6.22	308.04	102.28
	4.100	1.00	0.00	0.00	847.30	895.00	855.80	0.00	855.83	4.13	2.62	997.14	440.37
	4.200	49.00	0.00	0.00	847.30	325.00	852.83	0.00	853.01	9.52	4.10	193.05	105.33
	4.200	49.00	0.00	0.00	847.30	530.00	853.17	0.00	853.51	17.57	5.79	245.78	126.46
	4.200	49.00	0.00	0.00	847.30	630.00	853.35	0.00	853.74	20.57	6.39	275.35	138.90
	4.200	49.00	0.00	0.00	847.30	895.00	855.80	0.00	855.86	3.61	3.36	936.19	471.22
	4.800	510.00	0.00	0.00	848.30	325.00	853.32	0.00	853.50	9.69	3.59	113.76	104.42
	4.800	510.00	0.00	0.00	848.30	530.00	854.02	0.00	854.37	15.78	5.00	140.06	133.44
	4.800	510.00	0.00	0.00	848.30	630.00	854.32	0.00	854.75	18.35	5.58	153.44	147.06
	4.800	510.00	0.00	0.00	848.30	895.00	855.93	0.00	856.38	14.72	5.86	231.14	233.31
	4.900	100.00	0.00	0.00	848.30	325.00	853.41	0.00	853.63	12.85	3.78	85.90	90.67
	4.900	100.00	0.00	0.00	848.30	530.00	854.15	0.00	854.61	22.74	5.39	98.56	111.14
	4.900	100.00	0.00	0.00	848.30	630.00	854.47	0.00	855.04	27.48	6.08	105.65	120.17
	4.900	100.00	0.00	0.00	848.30	895.00	855.96	0.00	856.69	20.25	6.89	140.61	199.00

PRINTED IN U.S.A.
FORM 1411-6D PRINTED BY ROTARY MANIFOLD FORMS.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5.000	47.00	856.00	854.00	848.30	325.00	853.61	0.00	853.63	12.87	3.79	85.85	90.60
5.000	47.00	856.00	854.00	848.30	530.00	854.74	0.00	855.11	17.10	4.90	108.24	128.16
5.000	47.00	856.00	854.00	848.30	630.00	855.39	0.00	855.82	18.20	5.29	119.15	147.66
5.000	47.00	856.00	854.00	848.30	895.00	857.42	0.00	857.93	11.32	5.79	168.52	266.01
5.500	40.00	0.00	0.00	848.30	325.00	853.47	0.00	853.68	9.97	3.71	93.10	102.94
5.500	40.00	0.00	0.00	848.30	530.00	854.82	0.00	855.18	12.15	4.79	118.92	152.05
5.500	40.00	0.00	0.00	848.30	630.00	855.48	0.00	855.89	12.44	5.17	131.46	178.59
5.500	40.00	0.00	0.00	848.30	895.00	857.47	0.00	857.98	11.07	5.75	169.47	268.94
5.900	40.00	0.00	0.00	848.30	325.00	853.51	0.00	853.73	12.11	3.71	87.60	93.39
5.900	40.00	0.00	0.00	848.30	530.00	854.88	0.00	855.23	16.06	4.79	110.57	132.27
5.900	40.00	0.00	0.00	848.30	630.00	855.53	0.00	855.95	17.13	5.18	121.63	152.21
5.900	40.00	0.00	0.00	848.30	895.00	857.52	0.00	858.06	17.18	5.78	154.84	215.99
6.000	77.00	865.00	854.00	848.30	325.00	853.51	0.00	853.73	12.13	3.71	87.55	93.52
6.000	77.00	865.00	854.00	848.30	530.00	855.65	0.00	855.96	11.60	4.29	123.49	155.62
6.000	77.00	865.80	854.00	848.30	630.00	856.72	0.00	857.03	11.03	4.45	141.50	189.70
6.000	77.00	865.80	854.00	848.30	895.00	860.23	0.00	860.56	8.30	4.47	200.44	310.76
6.500	40.00	0.00	0.00	848.30	325.00	853.62	0.00	853.70	7.76	3.34	124.59	116.82
6.500	40.00	0.00	0.00	848.30	530.00	853.82	0.00	856.00	5.70	3.61	204.02	221.91
6.500	40.00	0.00	0.00	848.30	630.00	856.92	0.00	857.10	4.95	3.68	243.52	283.12
6.500	40.00	0.00	0.00	848.30	895.00	860.43	0.00	860.60	3.03	3.62	369.85	513.87
6.900	40.00	0.00	0.00	848.30	325.00	853.64	0.00	853.85	15.44	3.66	88.72	82.70
6.900	40.00	0.00	0.00	848.30	530.00	855.81	0.00	856.05	13.02	4.25	124.65	132.43
6.900	40.00	0.00	0.00	848.30	630.00	856.89	0.00	857.19	15.78	4.41	142.85	158.62
6.900	40.00	0.00	0.00	848.30	895.00	860.38	0.00	860.69	13.07	4.45	201.16	247.54
7.000	280.00	874.30	854.40	848.60	325.00	853.64	0.00	853.87	18.19	3.88	83.73	76.21
7.000	280.00	874.30	854.40	848.60	530.00	857.19	0.00	857.41	11.15	3.71	142.93	158.74
7.000	280.00	874.30	854.40	848.60	630.00	858.94	0.00	859.15	9.68	3.66	172.04	202.42
7.000	280.00	874.30	854.40	848.60	895.00	864.77	0.00	864.94	6.50	3.32	269.45	356.72
7.500	45.00	0.00	0.00	849.20	325.00	853.73	0.00	853.94	11.21	3.89	108.37	97.08
7.500	45.00	0.00	0.00	849.20	530.00	857.32	0.00	857.46	3.50	3.21	242.88	283.18
7.500	45.00	0.00	0.00	849.20	630.00	859.00	0.00	859.19	2.41	3.03	315.12	405.83
7.500	45.00	0.00	0.00	849.20	895.00	864.90	0.00	864.98	0.93	2.56	546.01	930.32
7.900	45.00	0.00	0.00	849.20	325.00	853.76	0.00	854.04	18.36	4.27	76.10	75.84
7.900	45.00	0.00	0.00	849.20	530.00	857.29	0.00	857.53	8.84	3.92	135.17	178.24
7.900	45.00	0.00	0.00	849.20	630.00	859.04	0.00	859.27	7.14	3.83	164.31	235.83
7.900	45.00	0.00	0.00	849.20	895.00	864.90	0.00	864.98	0.92	2.56	546.43	931.42
8.000	42.00	860.70	856.30	849.20	325.00	853.76	0.00	854.04	18.36	4.27	76.10	75.86
8.000	42.00	860.70	856.30	849.20	530.00	857.67	0.00	857.88	7.76	3.75	141.39	190.22
8.000	42.00	860.70	856.30	849.20	630.00	859.67	0.00	859.87	5.98	3.60	174.89	257.57
8.000	42.00	860.70	856.30	849.20	895.00	864.90	0.00	864.98	0.92	2.56	546.18	930.76
8.200	50.00	0.00	0.00	849.20	325.00	853.96	0.00	854.15	9.47	3.69	115.36	105.59
8.200	50.00	0.00	0.00	849.20	530.00	857.88	0.00	857.95	1.87	2.46	460.09	587.23
8.200	50.00	0.00	0.00	849.20	630.00	859.89	0.00	859.93	0.97	2.03	693.25	839.31
8.200	50.00	0.00	0.00	849.20	895.00	864.98	0.00	865.00	0.56	1.60	1283.61	1494.08

FORM 141(GU)-PRINTED AT ROTARY MANIFOLD FORMS
PRINTED IN U.S.A.

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CNSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	8.300	910.00	0.00	0.00	850.50	325.00	854.76	0.00	854.82	6.26	2.37	335.18	129.06
	8.300	910.00	0.00	0.00	850.50	530.00	858.03	0.00	858.04	0.59	1.08	1648.44	689.51
	8.300	910.00	0.00	0.00	850.50	630.00	859.97	0.00	859.97	0.23	0.78	2430.78	1016.62
	8.300	910.00	0.00	0.00	850.50	895.00	865.01	0.00	865.01	0.05	0.69	5594.52	4033.50
*	8.400	760.00	0.00	0.00	852.90	325.00	856.09	856.09	856.97	189.36	7.84	49.94	23.62
	8.400	760.00	0.00	0.00	852.90	530.00	857.91	0.00	858.28	37.78	5.47	182.17	86.23
	8.400	760.00	0.00	0.00	852.90	630.00	859.95	0.00	860.04	7.21	3.20	495.87	234.61
	8.400	760.00	0.00	0.00	852.90	895.00	865.02	0.00	865.02	0.39	1.13	2563.15	1430.79
	8.800	215.00	0.00	0.00	854.80	325.00	858.69	0.00	858.87	45.02	5.62	94.54	48.44
	8.800	215.00	0.00	0.00	854.80	530.00	858.85	0.00	859.64	82.15	8.12	108.28	58.48
	8.800	215.00	0.00	0.00	854.80	630.00	860.12	0.00	860.41	26.68	5.61	266.84	121.96
	8.800	215.00	0.00	0.00	854.80	895.00	865.02	0.00	865.06	1.41	2.03	1607.67	753.88
	8.900	50.00	0.00	0.00	854.80	325.00	858.60	0.00	859.39	93.31	7.11	45.89	33.65
	8.900	50.00	0.00	0.00	854.80	530.00	858.98	0.00	860.69	182.44	10.48	50.56	39.24
	8.900	50.00	0.00	0.00	854.80	630.00	860.29	0.00	860.55	22.47	5.27	290.92	132.91
	8.900	50.00	0.00	0.00	854.80	895.00	865.03	0.00	865.05	1.40	2.03	1612.20	755.95
	9.000	37.00	861.70	858.50	854.80	325.00	859.42	0.00	859.93	48.65	5.74	56.83	46.00
	9.000	37.00	861.70	858.50	854.80	530.00	861.73	0.00	861.93	10.56	4.26	260.57	163.09
	9.000	37.00	861.70	858.50	854.80	630.00	862.14	0.00	862.35	10.87	4.50	319.82	191.10
	9.000	37.00	861.70	858.50	854.80	895.00	865.03	0.00	865.09	2.73	2.83	1139.27	541.40
	9.100	50.00	0.00	0.00	854.80	325.00	859.95	0.00	860.14	13.76	3.95	131.76	87.60
	9.100	50.00	0.00	0.00	854.80	530.00	861.78	0.00	861.98	10.34	4.24	251.16	164.64
	9.100	50.00	0.00	0.00	854.80	630.00	862.21	0.00	862.41	10.27	4.40	330.47	196.55
	9.100	50.00	0.00	0.00	854.80	895.00	865.04	0.00	865.10	2.71	2.82	1146.87	543.70
	9.300	600.00	0.00	0.00	856.70	325.00	860.78	0.00	860.88	11.11	3.02	229.21	97.50
	9.300	600.00	0.00	0.00	856.70	530.00	862.35	0.00	862.41	5.11	2.57	534.78	234.47
	9.300	600.00	0.00	0.00	856.70	630.00	862.77	0.00	862.82	4.92	2.65	635.15	283.99
	9.300	600.00	0.00	0.00	856.70	895.00	865.20	0.00	865.22	1.52	1.87	1357.14	774.89
	9.700	570.00	0.00	0.00	857.60	325.00	861.50	0.00	861.70	19.42	3.82	128.99	73.75
	9.700	570.00	0.00	0.00	857.60	530.00	862.70	0.00	862.90	15.65	4.16	229.42	133.97
	9.700	570.00	0.00	0.00	857.60	630.00	863.09	0.00	863.31	15.76	4.40	271.35	158.67
	9.700	570.00	0.00	0.00	857.60	895.00	865.27	0.00	865.43	7.89	3.94	444.96	310.63
*	9.900	100.00	0.00	0.00	858.70	325.00	861.72	861.72	862.75	273.10	8.12	40.02	19.67
*	9.900	100.00	0.00	0.00	858.70	530.00	863.01	863.01	863.34	57.68	5.43	166.23	69.79
	9.900	100.00	0.00	0.00	858.70	630.00	863.30	0.00	863.64	56.83	5.70	198.52	83.57
	9.900	100.00	0.00	0.00	858.70	895.00	865.42	0.00	865.54	13.50	3.79	506.43	243.63
	10.000	40.00	866.40	863.40	859.10	325.00	863.23	862.24	864.50	675.32	8.02	36.04	12.51
	10.000	40.00	866.40	863.40	859.10	530.00	866.71	0.00	866.76	5.41	2.64	382.71	227.89
	10.000	40.00	866.40	863.40	859.10	630.00	866.91	0.00	867.00	6.60	2.98	418.54	245.27
	10.000	40.00	866.40	863.40	859.10	895.00	867.40	0.00	867.53	9.33	3.71	514.47	292.94
	10.200	50.00	0.00	0.00	858.80	325.00	864.88	0.00	864.92	3.38	2.05	322.60	178.66
	10.200	50.00	0.00	0.00	858.80	530.00	866.77	0.00	866.81	2.21	2.03	575.25	356.52
	10.200	50.00	0.00	0.00	858.80	630.00	866.99	0.00	867.03	2.73	2.31	603.57	381.14
	10.200	50.00	0.00	0.00	858.80	895.00	867.50	0.00	867.58	4.08	2.95	675.77	443.31

PRINTED IN U.S.A.
FORM 141 (GOSPRINTED BY ROTARY MANIFOLD FORMS)

	SECTO	XLCH	ELTRO	ELLC	ELMIN	Q	CWSEL	CRITS	ES	10K*S	VCP	ARCA	.01K
	10.220	250.00	0.00	0.00	860.00	325.00	864.93	0.00	865.11	12.47	3.65	139.45	92.02
	10.220	250.00	0.00	0.00	860.00	530.00	866.81	0.00	866.91	6.17	3.22	416.15	213.36
	10.220	250.00	0.00	0.00	860.00	630.00	867.04	0.00	867.16	7.11	3.54	463.26	236.29
	10.220	250.00	0.00	0.00	860.00	895.00	867.59	0.00	867.75	8.99	4.19	581.06	298.49
	10.240	300.00	0.00	0.00	861.45	325.00	865.38	0.00	865.72	31.29	4.92	91.73	58.10
	10.240	300.00	0.00	0.00	861.45	530.00	866.97	0.00	867.20	19.92	5.00	190.87	118.76
	10.240	300.00	0.00	0.00	861.45	630.00	867.22	0.00	867.58	22.61	5.49	223.52	132.48
	10.240	300.00	0.00	0.00	861.45	895.00	867.82	0.00	868.26	26.55	6.36	328.96	174.36
	10.300	300.00	0.00	0.00	862.90	325.00	866.45	0.00	866.89	47.13	5.61	76.93	47.36
	10.300	300.00	0.00	0.00	862.90	530.00	867.64	0.00	868.16	39.29	6.30	128.22	86.56
	10.300	300.00	0.00	0.00	862.90	630.00	867.95	0.00	868.56	42.18	6.84	147.75	97.00
	10.300	300.00	0.00	0.00	862.90	895.00	868.64	867.55	869.39	46.68	7.87	219.68	131.00
	10.320	300.00	0.00	0.00	864.20	325.00	867.69	0.00	867.89	23.85	3.85	139.47	66.59
	10.320	300.00	0.00	0.00	864.20	530.00	868.74	0.00	868.89	14.87	3.69	314.81	137.46
	10.320	300.00	0.00	0.00	864.20	630.00	869.12	0.00	869.27	13.40	3.72	384.26	172.00
	10.320	300.00	0.00	0.00	864.20	895.00	869.94	0.00	870.08	11.96	3.92	538.52	258.75
	10.340	300.00	0.00	0.00	865.30	325.00	868.50	0.00	868.78	35.99	4.45	100.47	54.17
	10.340	300.00	0.00	0.00	865.30	530.00	869.26	0.00	869.55	31.34	4.96	217.92	94.59
	10.340	300.00	0.00	0.00	865.30	630.00	869.60	0.00	869.87	28.29	4.89	273.68	118.46
	10.340	300.00	0.00	0.00	865.30	895.00	870.35	0.00	870.60	23.46	5.01	408.52	184.77
	10.400	350.00	0.00	0.00	866.60	325.00	869.78	0.00	870.07	37.27	4.48	98.15	53.24
	10.400	350.00	0.00	0.00	866.60	530.00	870.73	0.00	870.77	37.95	5.21	195.34	86.03
	10.400	350.00	0.00	0.00	866.60	630.00	870.68	0.00	871.03	37.82	5.44	246.57	102.46
	10.400	350.00	0.00	0.00	866.60	895.00	871.27	0.00	871.64	35.74	5.85	340.74	149.71

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FORM 141 (SPRINTED BY ROTARY MANIFOLD FORMS

HARPER CREEK EMMETT TWP.

SUMMARY PRINTOUT TABLE 150

SECNO	D	CUSEL	DIFWSP	DIFWSX	DIFKUS	TOPWID	XLOH
2.500	600.00	841.97	0.00	0.00	0.00	163.36	720.00
2.500	980.00	843.36	0.00	0.00	0.00	277.48	720.00
2.500	1150.00	843.83	0.00	0.00	0.00	319.94	720.00
2.500	1420.00	844.52	0.00	0.00	0.00	342.97	720.00
2.600	325.00	863.15	0.00	1.13	0.00	165.00	735.00
2.600	530.00	864.17	0.00	0.83	1.02	250.00	735.00
2.600	630.00	864.57	0.00	0.74	1.42	250.00	735.00
2.600	895.00	865.30	0.00	0.78	2.16	250.00	735.00
2.610	325.00	843.37	0.00	0.22	0.00	53.66	300.00
2.610	530.00	844.26	0.00	0.09	0.09	135.84	300.00
2.610	630.00	844.65	0.00	0.08	1.28	171.67	300.00
2.610	895.00	845.41	0.00	0.10	2.04	190.00	300.00
2.650	325.00	844.80	0.00	1.51	0.00	67.46	300.00
2.650	530.00	845.57	0.00	1.31	0.69	107.25	300.00
2.650	630.00	845.82	0.00	1.17	0.94	110.76	300.00
2.650	895.00	846.37	0.00	0.97	1.49	118.83	300.00
2.660	325.00	846.00	0.00	1.12	0.00	74.32	200.00
2.660	530.00	846.54	0.00	1.03	0.59	82.76	200.00
2.660	630.00	846.84	0.00	1.03	0.84	86.50	200.00
2.660	895.00	847.40	0.00	1.05	1.41	94.28	200.00
2.700	325.00	847.30	0.00	1.30	0.00	50.63	200.00
2.700	530.00	847.96	0.00	1.36	0.66	57.79	200.00
2.700	630.00	848.22	0.00	1.37	0.92	60.00	200.00
2.700	895.00	848.81	0.00	1.41	1.52	60.00	200.00
2.800	325.00	847.61	0.00	0.31	0.00	36.00	50.00
2.800	530.00	848.23	0.00	0.28	0.62	36.00	50.00
2.800	630.00	848.47	0.00	0.25	0.86	36.00	50.00
2.800	895.00	848.97	0.00	0.16	1.36	36.00	50.00
2.850	325.00	847.83	0.00	0.22	0.00	24.00	25.00
2.850	530.00	848.46	0.00	0.22	0.63	24.00	25.00
2.850	630.00	848.69	0.00	0.22	0.86	24.00	25.00
2.850	895.00	849.22	0.00	0.25	1.39	24.00	25.00
2.900	325.00	847.93	0.00	0.10	0.00	12.00	25.00
2.900	530.00	849.02	0.00	0.57	1.09	12.00	25.00
2.900	630.00	849.51	0.00	0.82	1.58	12.00	25.00
2.900	895.00	850.60	0.00	1.38	2.67	12.00	25.00
3.000	325.00	849.41	0.00	1.48	0.00	12.00	42.00
3.000	530.00	849.65	0.00	0.64	0.25	12.00	42.00
3.000	630.00	851.39	0.00	1.80	1.98	12.00	42.00
3.000	895.00	854.41	0.00	3.81	5.00	12.00	42.00
3.100	325.00	850.22	0.00	0.81	0.00	106.11	50.00
3.100	530.00	851.56	1.00	1.89	1.34	110.00	50.00
3.100	630.00	852.79	0.00	1.40	2.57	110.00	50.00
3.100	895.00	855.69	0.00	1.28	5.47	110.00	50.00

FORM TA1500 PRINTED BY ROTARY MANIFOLD FORMS

	SECNO	Q	CHSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLOC
	3.200	325.00	850.22	0.00	-0.00	0.00	51.49	200.00
	3.200	530.00	851.54	0.00	-0.01	1.32	111.32	200.00
	3.200	630.00	852.80	0.00	0.01	2.58	190.01	200.00
	3.200	895.00	855.71	0.00	3.03	5.49	325.94	200.00
*	3.800	325.00	852.23	0.00	2.01	0.00	100.00	300.00
*	3.800	530.00	852.71	0.00	1.17	0.48	163.07	300.00
	3.800	630.00	853.02	0.00	0.22	0.78	182.23	300.00
	3.800	895.00	855.79	0.00	0.08	3.56	348.53	300.00
	3.900	325.00	852.60	0.00	0.36	0.00	100.00	1.00
	3.900	530.00	853.08	0.00	0.37	0.48	185.69	1.00
	3.900	630.00	853.28	0.00	0.26	0.68	197.91	1.00
	3.900	895.00	855.80	0.00	0.01	3.20	348.52	1.00
	4.000	325.00	852.76	0.00	0.16	0.00	130.00	16.00
	4.000	530.00	853.20	0.00	0.12	0.45	192.92	16.00
	4.000	630.00	853.40	0.00	0.12	0.64	205.47	16.00
	4.000	895.00	855.81	0.00	0.01	3.05	349.21	16.00
	4.100	325.00	852.71	0.00	-0.05	0.00	100.00	1.00
	4.100	530.00	853.14	0.00	-0.06	0.43	189.44	1.00
	4.100	630.00	853.33	0.00	-0.07	0.62	201.26	1.00
	4.100	895.00	855.80	0.00	-0.00	3.10	349.27	1.00
	4.200	325.00	852.83	0.00	0.12	0.00	139.77	49.00
	4.200	530.00	853.17	0.00	0.04	0.34	164.04	49.00
	4.200	630.00	853.35	0.00	0.02	0.52	177.96	49.00
	4.200	895.00	855.80	0.00	-0.01	2.97	348.74	49.00
	4.800	325.00	853.32	0.00	0.49	0.00	36.35	510.00
	4.800	530.00	854.02	0.00	0.84	0.70	40.93	510.00
	4.800	630.00	854.32	0.00	0.97	1.00	42.09	510.00
	4.800	895.00	855.93	0.00	0.13	2.61	53.42	510.00
	4.900	325.00	853.41	0.00	0.09	0.00	16.80	100.00
	4.900	530.00	854.15	0.00	0.14	0.74	16.80	100.00
	4.900	630.00	854.47	0.00	0.15	1.06	16.80	100.00
	4.900	895.00	855.96	0.00	0.03	2.55	19.00	100.00
	5.000	325.00	853.41	0.00	0.00	0.00	16.80	47.00
	5.000	530.00	854.74	0.00	0.59	1.33	16.80	47.00
	5.000	630.00	855.39	0.00	0.92	1.98	16.80	47.00
	5.000	895.00	857.42	0.00	1.46	4.01	19.00	47.00
	5.500	325.00	853.47	0.00	0.06	0.00	19.00	40.00
	5.500	530.00	854.82	0.00	0.08	1.35	19.00	40.00
	5.500	630.00	855.48	0.00	0.09	2.01	19.00	40.00
	5.500	895.00	857.47	0.00	0.05	4.00	19.00	40.00
	5.900	325.00	853.53	0.00	0.04	0.00	16.80	40.00
	5.900	530.00	854.88	0.00	0.05	1.37	16.80	40.00
	5.900	630.00	855.53	0.00	0.06	2.02	16.80	40.00
	5.900	895.00	857.52	0.00	0.05	4.01	16.80	40.00

FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWIC	XLCH
6.000	325.00	853.51	0.00	0.00	0.00	16.80	77.00
6.000	530.00	855.65	0.00	0.77	2.14	16.80	77.00
6.000	630.00	856.72	0.00	1.19	3.21	16.80	77.00
6.000	895.00	860.23	0.00	2.71	6.72	16.80	77.00
6.500	325.00	853.62	0.00	0.11	0.00	36.00	40.00
6.500	530.00	855.82	0.00	0.17	2.20	36.00	40.00
6.500	630.00	856.92	0.00	0.19	3.30	36.00	40.00
6.500	895.00	860.43	0.00	0.20	6.81	36.00	40.00
6.900	325.00	853.64	0.00	0.02	0.00	16.64	40.00
6.900	530.00	855.81	0.00	-0.02	2.17	16.66	40.00
6.900	630.00	856.89	0.00	-0.03	3.25	16.67	40.00
6.900	895.00	860.38	0.00	-0.05	6.75	16.69	40.00
7.000	325.00	853.64	0.00	0.00	0.00	16.64	280.00
7.000	530.00	857.19	0.00	1.39	3.55	16.67	280.00
7.000	630.00	858.94	0.00	2.05	5.30	16.68	280.00
7.000	895.00	864.77	0.00	4.39	11.13	16.72	280.00
7.500	325.00	853.73	0.00	0.09	0.00	31.24	45.00
7.500	530.00	857.32	0.00	0.13	3.59	40.00	45.00
7.500	630.00	859.08	0.00	0.14	5.35	40.00	45.00
7.500	895.00	864.90	0.00	0.13	11.17	40.00	45.00
7.900	325.00	853.76	0.00	0.03	0.00	16.70	45.00
7.900	530.00	857.29	0.00	-0.03	3.54	16.70	45.00
7.900	630.00	859.04	0.00	-0.04	5.28	16.70	45.00
7.900	895.00	864.90	0.00	0.00	11.15	40.00	45.00
8.000	325.00	853.76	0.00	0.00	0.00	16.70	42.00
8.000	530.00	857.67	0.00	0.37	3.91	16.70	42.00
8.000	630.00	859.67	0.00	0.63	5.92	16.70	42.00
8.000	895.00	864.90	0.00	-0.00	11.15	40.00	42.00
8.200	325.00	853.94	0.00	0.18	0.00	31.95	50.00
8.200	530.00	857.88	0.00	0.22	3.94	116.00	50.00
8.200	630.00	859.89	0.00	0.22	5.95	116.00	50.00
8.200	895.00	864.98	0.00	0.08	11.04	116.00	50.00
8.300	325.00	854.76	0.00	0.82	0.00	254.78	910.00
8.300	530.00	858.03	0.00	0.15	3.27	447.77	910.00
8.300	630.00	859.97	0.00	0.07	5.21	535.62	910.00
8.300	895.00	865.01	0.00	0.03	10.25	672.35	910.00
8.400	325.00	856.09	0.00	1.33	0.00	33.93	760.00
8.400	530.00	857.91	0.00	-0.12	1.82	110.89	760.00
8.400	630.00	859.95	0.00	-0.02	3.86	206.46	760.00
8.400	895.00	865.02	0.00	0.00	8.93	654.83	760.00
8.800	325.00	858.49	0.00	2.40	0.00	38.00	215.00
8.800	530.00	858.85	0.00	0.94	0.36	38.00	215.00
8.800	630.00	860.12	0.00	0.17	1.63	145.26	215.00
8.800	895.00	865.02	0.00	0.01	6.53	639.62	215.00

FORM 141100-PRINTED BY ROTARY MANIFOLD FORMS.

	SECNO	Q	CHSEL	DIFUSP	DIFUSX	DIFKHS	TOPWID	YLCH
	8.900	325.00	858.60	0.00	0.11	0.00	13.00	50.00
	8.900	530.00	858.98	0.00	0.13	0.38	13.00	50.00
	8.900	630.00	860.29	0.00	0.18	1.69	148.68	50.00
	8.900	895.00	865.03	0.00	0.07	6.43	639.60	50.00
	9.000	325.00	859.42	0.00	0.82	0.00	13.00	37.00
	9.000	530.00	861.73	0.00	2.74	2.31	143.26	37.00
	9.000	630.00	862.14	0.00	1.86	2.72	143.46	37.00
	9.000	895.00	865.03	0.00	-0.00	5.61	565.16	37.00
	9.100	325.00	859.95	0.00	0.53	0.00	39.76	50.00
	9.100	530.00	861.78	0.00	0.05	1.83	113.00	50.00
	9.100	630.00	862.21	0.00	0.07	2.25	163.50	50.00
	9.100	895.00	865.04	0.00	0.01	5.09	545.36	50.00
	9.300	325.00	860.78	0.00	0.83	0.00	157.70	600.00
	9.300	530.00	862.35	0.00	1.57	1.57	232.15	600.00
	9.300	630.00	862.77	0.00	0.56	1.98	251.85	600.00
	9.300	895.00	865.20	0.00	0.15	4.41	332.77	600.00
	9.700	325.00	861.50	0.00	0.72	0.00	64.92	570.00
	9.700	530.00	862.70	0.00	0.35	1.19	102.38	570.00
	9.700	630.00	863.09	0.00	0.32	1.59	113.75	570.00
	9.700	895.00	865.27	0.00	0.07	3.76	90.00	570.00
*	9.900	325.00	861.72	0.00	0.22	0.00	20.00	100.00
*	9.900	530.00	863.01	0.00	0.32	1.29	100.97	100.00
	9.900	630.00	863.30	0.00	0.21	1.58	116.90	100.00
	9.900	895.00	865.42	0.00	0.16	3.70	172.33	100.00
	10.000	325.00	863.23	0.00	1.51	0.00	20.00	40.00
	10.000	530.00	866.71	0.00	3.69	3.47	169.57	40.00
	10.000	630.00	866.91	0.00	3.61	3.53	182.88	40.00
	10.000	895.00	867.40	0.00	1.90	6.16	209.68	40.00
	10.200	325.00	864.88	0.00	1.64	0.00	124.06	50.00
	10.200	530.00	866.77	0.00	0.06	1.89	140.00	50.00
	10.200	630.00	866.99	0.00	0.08	2.11	140.00	50.00
	10.200	895.00	867.50	0.00	0.10	2.65	140.00	50.00
	10.220	325.00	864.93	0.00	0.06	0.00	63.51	250.00
	10.220	530.00	866.81	0.00	0.04	1.88	203.51	250.00
	10.220	630.00	867.04	0.00	0.05	2.11	207.48	250.00
	10.220	895.00	867.59	0.00	0.09	2.66	217.10	250.00
	10.240	325.00	865.38	0.00	0.45	0.00	40.59	300.00
	10.240	530.00	866.97	0.00	0.16	1.59	117.16	300.00
	10.240	630.00	867.22	0.00	0.18	1.84	144.44	300.00
	10.240	895.00	867.82	0.00	0.23	2.44	195.94	300.00
	10.300	325.00	866.45	0.00	1.06	0.00	36.11	300.00
	10.300	530.00	867.64	0.00	0.66	1.19	51.75	300.00
	10.300	630.00	867.95	0.00	0.73	1.50	70.97	300.00
	10.300	895.00	868.64	0.00	0.82	2.19	141.65	300.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	X_CH
10.320	325.00	867.69	0.00	1.24	0.00	159.21	300.00
10.320	530.00	868.74	0.00	1.10	1.05	175.93	300.00
10.320	630.00	869.12	0.00	1.17	1.44	182.13	300.00
10.320	895.00	869.94	0.00	1.30	2.25	195.17	300.00
10.340	325.00	868.50	0.00	0.81	0.00	97.05	300.00
10.340	530.00	869.26	0.00	0.53	0.76	166.84	300.00
10.340	630.00	869.60	0.00	0.47	1.09	172.15	300.00
10.340	895.00	870.35	0.00	0.71	1.85	184.23	300.00
10.400	325.00	869.78	0.00	1.25	0.00	89.33	350.00
10.400	530.00	870.43	0.00	1.17	0.65	164.72	350.00
10.400	630.00	870.68	0.00	1.08	0.90	168.67	350.00
10.400	895.00	871.27	0.00	0.92	1.49	178.21	350.00

SUMMARY OF ERRORS

CAUTION SECNO= 2.800 PROFILE= 6 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.800 PROFILE= 6 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 2.850 PROFILE= 6 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.850 PROFILE= 6 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 2.900 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.900 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.900 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.900 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.900 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.900 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.900 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.900 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.900 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.900 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.900 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 3.800 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3.800 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 3.800 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 3.800 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 3.800 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 3.800 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 8.400 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 8.400 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 8.400 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 9.900 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9.900 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9.900 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9.900 PROFILE= 2 MINIMUM SPECIFIC ENERGY

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FORM 741J-RD PRINTED BY ROTARY MANIFOLD FORMS

FLOOD INSURANCE ZONE DATA FOR HARPER CREEK EMMETT TWP.

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10Ø	2Ø	0.2Ø
2.500	0.	-1.9	-0.5	0.7
2.600	735.	-1.4	-0.4	0.7
2.610	1035.	-1.3	-0.4	0.8
2.650	1335.	-0.9	-0.3	0.6
2.660	1535.	-0.8	-0.2	0.6
2.700	1735.	-0.9	-0.3	0.6
2.800	1785.	-0.9	-0.2	0.5
2.850	1810.	-0.9	-0.2	0.5
2.900	1835.	-1.6	-0.5	1.1
3.000	1877.	-2.0	-1.7	3.0
3.100	1927.	-2.6	-1.2	2.9
3.200	2127.	-2.6	-1.3	2.9
3.800	2427.	-0.8	-0.3	2.8
3.900	2428.	-0.7	-0.2	2.5
4.000	2444.	-0.6	-0.2	2.4
4.100	2445.	-0.6	-0.2	2.5
4.200	2494.	-0.5	-0.2	2.5
4.800	3004.	-1.0	-0.3	1.6
4.900	3104.	-1.1	-0.3	1.5
5.000	3131.	-2.0	-0.6	2.0
5.500	3191.	-2.0	-0.7	2.0
5.900	3231.	-2.0	-0.7	2.0
6.000	3308.	-3.2	-1.1	3.5
6.500	3348.	-3.3	-1.1	3.5
6.900	3388.	-3.2	-1.1	3.5
7.000	3668.	-5.3	-1.7	5.8
7.500	3713.	-5.3	-1.8	5.8
7.900	3758.	-5.3	-1.7	5.9
8.000	3800.	-5.9	-2.0	5.2
8.200	3850.	-6.0	-2.0	5.1
8.300	4750.	-5.2	-1.9	5.0
8.400	5520.	-3.9	-2.0	5.1
8.800	5735.	-1.6	-1.3	4.9
8.900	5785.	-1.7	-1.3	4.7
9.000	5822.	-2.7	-0.4	2.9
9.100	5872.	-2.3	-0.4	2.8
9.300	6472.	-2.0	-0.4	2.4
9.700	7042.	-1.6	-0.4	2.2
9.900	7142.	-1.6	-0.3	2.1
10.000	7182.	-3.7	-0.2	0.5
10.200	7232.	-2.1	-0.2	0.5
10.220	7482.	-2.1	-0.2	0.6
10.240	7782.	-1.8	-0.2	0.6
10.300	8082.	-1.5	-0.3	0.7
10.320	8382.	-1.4	-0.4	0.8
10.340	8682.	-1.1	-0.3	0.8
10.400	9032.	-0.9	-0.2	0.6
WEIGHTED AVG FOR REACH		-2.4	-0.8	2.4

FHF FOR THE REACH = 025 WITH 49.5Ø OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A5

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CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

INC NO.	TOTAL LENGTH	AVG ELEVATION DATA 10Φ	1Φ	DIFF.	WTD. AVG.	FHF	PERCENT WITHIN
	0.				SEC.		2.500
1	100.	842.1	843.9	-1.8	-1.8	020	100.
2	200.	842.2	844.0	-1.8	-1.8	020	100.
3	300.	842.4	844.1	-1.7	-1.8	020	100.
4	400.	842.5	844.2	-1.7	-1.7	015	100.
5	500.	842.7	844.3	-1.6	-1.7	015	100.
6	600.	842.9	844.4	-1.5	-1.7	015	100.
7	700.	843.0	844.5	-1.5	-1.7	015	100.
	735.				SEC.		2.600
8	800.	843.1	844.6	-1.4	-1.6	015	100.
9	900.	843.2	844.6	-1.4	-1.6	015	100.
10	1000.	843.3	844.6	-1.3	-1.6	015	100.
	1035.				SEC.		2.610
11	1100.	843.5	844.8	-1.3	-1.5	015	100.
12	1200.	843.9	845.1	-1.1	-1.5	015	100.
13	1300.	844.5	845.5	-1.0	-1.5	015	100.
	1335.				SEC.		2.650
14	1400.	845.0	845.9	-0.9	-1.4	015	100.
15	1500.	845.5	846.4	-0.9	-1.4	015	93.
	1535.				SEC.		2.660
16	1600.	846.1	847.0	-0.9	-1.4	015	100.
17	1700.	846.7	847.6	-0.9	-1.3	015	100.
	1735.				SEC.		2.700
	1785.				SEC.		2.800
18	1800.	847.7	848.5	-0.9	-1.3	015	94.
	1810.				SEC.		2.850
	1835.				SEC.		2.900
	1877.				SEC.		3.000
19	1900.	849.6	851.7	-2.1	-1.3	015	95.
	1927.				SEC.		3.100
20	2000.	850.0	852.4	-2.4	-1.4	015	70.
21	2100.	850.2	852.8	-2.6	-1.5	015	62.
	2127.				SEC.		3.200
22	2200.	850.5	852.8	-2.4	-1.5	015	59.
23	2300.	851.0	852.9	-1.8	-1.5	015	61.
24	2400.	851.7	853.0	-1.2	-1.5	015	63.
	2427.				SEC.		3.800
	2428.				SEC.		3.900
	2444.				SEC.		4.000
	2445.				SEC.		4.100
	2494.				SEC.		4.200
25	2500.	852.8	853.4	-0.5	-1.5	015	60.
26	2600.	852.9	853.5	-0.6	-1.4	015	62.
27	2700.	853.0	853.6	-0.7	-1.4	015	59.
28	2800.	853.1	853.8	-0.8	-1.4	015	64.
29	2900.	853.2	854.0	-0.9	-1.4	015	69.
30	3000.	853.3	854.2	-0.9	-1.3	015	73.
	3004.				SEC.		4.800
31	3100.	853.4	854.4	-1.0	-1.3	015	71.
	3104.				SEC.		4.900
	3151.				SEC.		5.000
	3451.				SEC.		5.500
32	3200.	853.5	855.5	-2.0	-1.4	015	69.

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	3231.					SEC.	5.900	
33	3300.	853.5	856.0	-2.6	-1.4	015	55.	
	3308.					SEC.	6.000	
	3348.					SEC.	6.500	
	3388.					SEC.	6.900	
34	3400.	853.6	856.9	-3.3	-1.4	015	47.	
35	3500.	853.6	857.3	-3.7	-1.5	015	49.	
36	3600.	853.6	858.1	-4.4	-1.6	015	42.	
	3668.					SEC.	7.000	
37	3700.	853.7	858.7	-5.1	-1.7	015	41.	
	3713.					SEC.	7.500	
	3750.					SEC.	7.900	
38	3800.	853.8	859.4	-5.6	-1.8	020	36.	
	3800.					SEC.	8.000	
	3850.					SEC.	8.200	
39	3900.	854.0	859.9	-5.9	-1.9	020	31.	
40	4000.	854.0	859.9	-5.9	-2.0	020	20.	
41	4100.	854.1	859.9	-5.8	-2.1	020	69.	
42	4200.	854.2	859.9	-5.7	-2.2	020	65.	
43	4300.	854.3	859.9	-5.6	-2.3	025	60.	
44	4400.	854.4	859.9	-5.5	-2.3	025	39.	
45	4500.	854.5	859.9	-5.5	-2.4	025	36.	
46	4600.	854.6	860.0	-5.4	-2.5	025	33.	
47	4700.	854.7	860.0	-5.3	-2.5	025	30.	
	4760.					SEC.	8.300	
48	4800.	854.8	860.0	-5.2	-2.6	025	27.	
49	4900.	854.9	860.0	-5.0	-2.6	025	24.	
50	5000.	855.1	860.0	-4.9	-2.7	025	22.	
51	5100.	855.3	860.0	-4.7	-2.7	025	22.	
52	5200.	855.4	860.0	-4.5	-2.7	025	21.	
53	5300.	855.6	860.0	-4.3	-2.8	030	19.	
54	5400.	855.8	860.0	-4.2	-2.8	030	19.	
55	5500.	856.0	860.0	-4.0	-2.8	030	18.	
	5520.					SEC.	8.400	
56	5600.	856.5	860.0	-3.5	-2.8	030	16.	
57	5700.	857.5	860.1	-2.5	-2.8	030	19.	
	5739.					SEC.	8.800	
	5785.					SEC.	8.900	
58	5800.	858.8	860.7	-1.9	-2.8	030	22.	
	5822.					SEC.	9.000	
	5872.					SEC.	9.100	
59	5900.	860.0	862.2	-2.2	-2.8	030	24.	
60	6000.	860.1	862.3	-2.2	-2.8	030	25.	
61	6100.	860.2	862.4	-2.2	-2.8	030	26.	
62	6200.	860.3	862.5	-2.1	-2.8	030	27.	
63	6300.	860.5	862.6	-2.1	-2.8	030	30.	
64	6400.	860.6	862.7	-2.0	-2.8	030	31.	
	6472.					SEC.	9.300	
65	6500.	860.8	862.7	-2.0	-2.7	025	32.	
66	6600.	860.9	862.8	-1.9	-2.7	025	33.	
67	6700.	861.0	862.9	-1.9	-2.7	025	34.	
68	6800.	861.1	862.9	-1.8	-2.7	025	35.	
69	6900.	861.3	863.0	-1.7	-2.7	025	36.	
70	7000.	861.4	863.0	-1.7	-2.7	025	36.	
	7042.					SEC.	9.700	
71	7100.	861.5	863.1	-1.6	-2.7	025	35.	
	7142.					SEC.	9.900	
	7182.					SEC.	10.000	
72	7200.	863.5	866.9	-3.4	-2.7	025	36.	
	7232.					SEC.	10.200	
73	7300.	864.4	867.0	-2.6	-2.7	025	37.	
74	7400.	864.9	867.0	-2.1	-2.7	025	38.	
	7482.					SEC.	10.220	
75	7500.	864.9	867.0	-2.1	-2.7	025	39.	

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76	7600.	865.0	867.1	-2.0	-2.6	025	42.
77	7700.	865.2	867.1	-2.0	-2.6	025	43.
	7782.				SEC.		10.240
78	7800.	865.4	867.2	-1.9	-2.6	025	44.
79	7900.	865.6	867.4	-1.8	-2.6	025	44.
80	8000.	866.0	867.6	-1.7	-2.6	025	45.
	8082.				SEC.		10.300
81	8100.	866.3	867.9	-1.6	-2.6	025	47.
82	8200.	866.7	868.2	-1.5	-2.6	025	46.
83	8300.	867.1	868.6	-1.5	-2.6	025	46.
	8382.				SEC.		10.320
84	8400.	867.5	869.0	-1.4	-2.6	025	45.
85	8500.	867.9	869.2	-1.4	-2.5	025	46.
86	8600.	868.1	869.4	-1.2	-2.5	025	47.
	8682.				SEC.		10.340
87	8700.	868.4	869.6	-1.1	-2.5	025	46.
88	8800.	868.8	869.8	-1.1	-2.5	025	47.
89	8900.	869.1	870.1	-1.0	-2.5	025	46.
90	9000.	869.5	870.4	-0.9	-2.5	025	47.
	9032.				SEC.		10.400

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 19 90
A NEGATIVE INC NO. WILL SUPPRESS INTERMEDIATE INC OUTPUT.

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JOBID=HEC2                USER=DBHUD17W          PROJECT=HU202507          BILLING=HU202507          RON=XU11U

13:30:17                                    JOB INTRODUCED FROM                                    JUL 22, 1981
                                                  HEC2 ENG

13:30:23  START OF TRANSLATION

**        PARAMETER VALUES        **

&1        = DB-HARPER5
&PAPER    = 3PART

          $JOB HEC2,USER=DBHUD17W;
WARNING   36  THIS STATEMENT HAS BEEN GENERATED
          VALUE FILENAM,NHOLD,WK=WTAPAK,CPU=30,PAPER=1PART,SIZE=200,STEP=HEC2,
                SUB=SUBNAME,COPIES=1,WKDVC=400;
          JUMP &PAPER%%X;
          2PARTX:
          OUTVAL @2,MD=I12PRT,DVC=PR;
          JUMP CONTX;
          3PARTX:
          OUTVAL @2,MD=I13PRT,DVC=PR;
          JUMP CONTX;
          1PARTX:
          OUTVAL @2;
          CONTX:
          INVOKE HEC2,ENGJCLLIB,VALUES=(&1,@2,WK=&WK,CPU=&CPU,PAPER=&PAPER,SIZE=&SIZE,
                STEP=&STEP,SUB=&SUB,COPIES=&COPIES,WKDVC=&WKDVC);

          RECORD COUNT :    16

13:30:35  END OF TRANSLATION
```

13:30:37 JOB EXECUTION LISTING JUL 22, 1981

```
                JUMP DONE TO 3PARTX
                JUMP DONE TO CONTX
                JUMP DONE TO HEC2
                START OF HEC=2 EXECUTION
                STEP 6
                LOAD MODULE = HEC=2 (79/2 /22 23:58)
                LIBRARY = UTAENGLB
      13:31:01  STEP STARTED XPRTY=9
                FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: UTAPAK FOR EFN: #000110.FILE=7
                FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: UTAPAK FOR EFN: #000110.FILE=C
                FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: UTAPAK FOR EFN: #000110.FILE=D
                FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: UTAPAK FOR EFN: #000110.FILE=A
                FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: UTAPAK FOR EFN: #000110.FILE=E
      WARNING   EX02.      FLOATING POINT DIVIDE IN TASK MAIN.0 AT ADDRESS 1.2.00F306
      WARNING   EX02.      FLOATING POINT DATA OVERFLOW IN TASK MAIN.0 AT ADDRESS 1.2.00F30E
                FP04.    2 CYLINDER(S) ALLOCATED ON VOLUME: UTAPAK FOR EFN: #000110.FILE=F
                TASK MAIN J=09 P=00 COMPLETED
                DUF01.IFN=FILE=8       REMEMBER REUSE=        0
                DUF01.IFN=FILE=E       REMEMBER REUSE=        0
                DUF01.IFN=FILE=C       REMEMBER REUSE=        0
                DUF01.IFN=FILE=D       REMEMBER REUSE=        0
                DUF01.IFN=FILE=9       REMEMBER REUSE=        0
                DUF01.IFN=FILE=F       REMEMBER REUSE=        0    UNLOCK BUFFER=        0    CREATE BUFFER=       32
                TEMPORARY  FILES USED=    226 TRACKS
                FILE=B    ON  UTAPAK :  NB  OF  IO  CONNECTS=      133
                FILE=E    ON  UTAPAK :  NB  OF  IO  CONNECTS=      983
                FILE=C    ON  UTAPAK :  NB  OF  IO  CONNECTS=      154
                H=RD      ON  UTAPAK :  NB  OF  IO  CONNECTS=        9
                H=PR      ON  REQ200 :  NB  OF  IO  CONNECTS=       46
                FILE=D    ON  UTAPAK :  NB  OF  IO  CONNECTS=      133
                FILE=A    ON  UTAPAK :  NB  OF  IO  CONNECTS=      483
                FILE=F    ON  UTAPAK :  NB  OF  IO  CONNECTS=       30
                CPU          6.003                    PROG MISSING SEGTS      315   STACKOV      85
                ELAPSED     13.394                    SYS  MISSING SEGTS      547
                LINES         1629   LIMIT     NOLIM   SACKING STORE        507936
                CARDS            0   LIMIT     NOLIM   BUFFER SIZE           15920   CPSIZE     2272
      13:44:24  STEP COMPLETED

                JUMP DONE TO FINISH
                JUMP DONE TO 3PART
                ************************************
                *  READY 3PART  GREEN BAR PAPER    *
                ************************************

                START     13:30:37   LINES        1629
                STOP      13:44:26   CARDS           0
                CPU          6.003
                ELAPSE      13.808
      13:44:26  RESULT:  JOB COMPLETED
```

FORM 1611-U PRINTED BY ROTARY MANIFOLD FORMS

****
HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,55,52
****

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

HARPER CREEK EMMETT TWP.

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CHSEL	CRIWS	EG	TOKWS	VCH	AREA	.01K
2.500	720.00	0.00	0.00	837.00	1150.00	843.83	0.00	844.00	12.57	4.57	704.13	324.31
2.600	735.00	0.00	0.00	838.20	630.00	844.57	0.00	844.62	4.38	2.36	645.71	300.88
2.610	300.00	0.00	0.00	840.00	630.00	844.65	0.00	845.00	34.31	5.08	210.03	107.55
2.650	300.00	0.00	0.00	841.90	630.00	845.82	0.00	846.23	48.48	5.59	186.10	90.48
2.660	200.00	0.00	0.00	843.10	630.00	846.84	0.00	847.40	66.85	6.33	144.15	77.05
2.700	200.00	0.00	0.00	844.30	630.00	848.22	0.00	848.91	77.63	7.08	125.49	71.51
2.800	50.00	0.00	0.00	844.60	630.00	848.47	0.00	849.62	122.23	9.06	93.22	56.98
2.850	25.00	0.00	0.00	844.70	630.00	848.69	0.00	850.02	126.67	9.43	76.42	55.98
2.900	25.00	0.00	0.00	844.00	630.00	849.51	849.51	851.72	208.36	11.91	52.89	43.65
3.000	42.00	854.90	850.00	844.80	630.00	851.39	0.00	852.47	73.87	8.35	75.48	73.30
3.100	50.00	0.00	0.00	844.80	630.00	852.79	0.00	852.83	2.71	2.37	639.00	382.72
3.200	200.00	0.00	0.00	846.00	630.00	852.80	0.00	852.93	5.79	3.56	395.42	261.87
3.800	300.00	0.00	0.00	847.30	630.00	853.02	0.00	853.40	61.18	7.60	248.96	80.54
3.900	1.00	851.30	850.30	847.30	630.00	853.28	0.00	853.43	62.47	5.57	283.54	79.71
4.000	16.00	851.30	850.30	847.30	630.00	853.40	0.00	853.52	50.52	5.11	308.21	88.64
4.100	1.00	0.00	0.00	847.30	630.00	853.33	0.00	853.56	37.94	6.22	308.04	102.28
4.200	49.00	0.00	0.00	847.30	630.00	853.35	0.00	853.74	20.57	6.39	275.35	138.90
4.800	510.00	0.00	0.00	848.30	630.00	854.32	0.00	854.75	18.35	5.58	153.44	147.06
4.900	100.00	0.00	0.00	848.30	630.00	854.47	0.00	855.04	27.48	6.08	103.65	120.17
5.000	47.00	856.00	854.00	848.30	630.00	855.39	0.00	855.82	18.20	5.29	119.15	147.66

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5.500	40.00	0.00	0.00	848.30	630.00	855.42	0.00	855.89	12.44	5.17	131.46	178.59
5.900	40.00	0.00	0.00	848.30	630.00	855.59	0.00	855.95	17.13	5.18	121.63	152.27
6.000	77.00	865.80	854.00	848.30	630.00	856.72	0.00	857.03	11.03	4.45	141.50	189.70
6.500	40.00	0.00	0.00	848.30	630.00	856.92	0.00	857.10	4.95	3.68	243.32	283.12
6.900	40.00	0.00	0.00	848.30	630.00	856.80	0.00	857.19	15.78	4.41	142.85	156.62
7.000	280.00	874.30	854.40	848.60	630.00	858.94	0.00	859.15	9.68	3.66	172.04	202.48
7.500	45.00	0.00	0.00	849.20	630.00	859.08	0.00	859.19	2.41	3.03	313.12	405.83
7.900	43.00	0.00	0.00	849.20	630.00	859.04	0.00	859.27	7.14	3.03	164.91	235.83
8.000	42.00	860.70	856.30	849.20	630.00	859.67	0.00	859.87	5.98	3.60	174.89	257.57
8.200	50.00	0.00	0.00	849.20	630.00	859.89	0.00	859.93	0.97	2.03	693.25	639.31
8.300	910.00	0.00	0.00	850.50	630.00	859.97	0.00	859.97	0.23	0.78	2430.70	1316.62
8.400	760.00	0.00	0.00	852.90	630.00	859.89	0.00	860.03	11.59	4.02	295.43	185.06
8.800	215.00	0.00	0.00	854.80	630.00	860.19	0.00	860.50	26.88	5.69	251.68	121.50
8.900	50.00	0.00	0.00	854.90	630.00	860.37	0.00	860.64	22.76	5.35	275.40	132.07
9.000	37.00	861.70	858.50	854.80	630.00	862.15	0.00	862.36	10.76	4.48	321.78	192.09
9.100	50.00	0.00	0.00	854.80	630.00	862.22	0.00	862.42	10.16	4.39	332.50	197.60
9.300	600.00	0.00	0.00	856.70	630.00	862.77	0.00	862.83	4.89	2.65	637.18	285.01
9.700	570.00	0.00	0.00	857.60	630.00	863.09	0.00	863.40	19.95	4.95	206.03	141.05
9.900	100.00	0.00	0.00	858.70	630.00	863.33	0.00	863.85	73.56	6.53	138.11	73.46
10.000	40.00	866.40	863.40	859.10	630.00	867.65	0.00	867.77	6.47	3.16	294.74	247.71
10.200	50.00	0.00	0.00	858.80	630.00	867.78	0.00	867.81	1.74	1.97	714.46	478.25
10.220	250.00	0.00	0.00	860.00	630.00	867.82	0.00	867.88	3.73	2.76	630.10	326.20
10.240	300.00	0.00	0.00	861.45	630.00	867.91	0.00	868.11	12.15	4.35	344.08	180.77
10.300	300.00	0.00	0.00	862.90	630.00	868.26	0.00	868.76	32.31	6.24	173.81	110.84
10.320	300.00	0.00	0.00	864.20	630.00	869.22	0.00	869.35	12.06	3.58	402.08	181.45
10.340	300.00	0.00	0.00	865.30	630.00	869.65	0.00	869.91	26.53	4.78	282.27	322.32
10.400	350.00	0.00	0.00	866.60	630.00	870.68	0.00	871.03	37.68	5.44	237.02	102.63

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FORM 1411-SD PRINTED BY ROTARY MANIFOLD FORMS.

HARPER CREEK EMMETT TWP.

SUMMARY PRINTOUT TABLE 150

	SECNO	C	CWSEL	DIFWSP	DIFWSX	DIFKHS	TOPWID	XLCH
	2.500	1150.00	843.83	0.00	0.00	0.00	319.94	720.00
	2.600	630.00	844.57	0.00	0.74	0.00	250.30	735.00
	2.610	630.00	844.65	0.00	0.08	0.00	171.47	300.00
	2.650	630.00	845.82	0.00	1.17	0.00	110.76	300.00
	2.660	630.00	846.84	0.00	1.03	0.00	82.30	200.00
	2.700	630.00	847.22	0.00	1.37	0.00	60.00	200.00
	2.800	630.00	848.47	0.00	0.25	0.00	36.00	50.00
	2.850	630.00	848.69	0.00	0.22	0.00	24.00	25.00
*	2.900	630.00	849.51	0.00	0.82	0.00	12.00	25.00
	3.000	630.00	851.39	0.00	1.88	0.00	12.00	42.00
	3.100	630.00	852.79	0.00	1.40	0.00	112.00	50.00
	3.200	630.00	852.80	0.00	0.01	0.00	150.01	200.00
	3.800	630.00	853.02	0.00	0.22	0.00	182.23	300.00
	3.900	630.00	853.28	0.00	0.26	0.00	197.91	1.00
	4.000	630.00	853.40	0.00	0.12	0.00	205.47	10.00
	4.100	630.00	853.33	0.00	-0.07	0.00	201.26	1.00
	4.200	630.00	853.35	0.00	0.02	0.00	177.96	49.00
	4.800	630.00	854.32	0.00	0.97	0.00	42.69	510.00
	4.900	630.00	854.47	0.00	0.15	0.00	16.80	100.00
	5.000	630.00	855.39	0.00	0.92	0.00	16.80	47.00
	5.500	630.00	855.48	0.00	0.09	0.00	19.00	40.00
	5.900	630.00	855.53	0.00	0.06	0.00	16.80	40.00
	6.000	630.00	856.72	0.00	1.19	0.00	16.80	77.00
	6.900	630.00	856.92	0.00	0.19	0.00	38.00	40.00
	6.900	630.00	856.89	0.00	-0.03	0.00	16.67	40.00
	7.000	630.00	858.94	0.00	2.05	0.00	16.68	260.00
	7.500	630.00	859.08	0.00	0.14	0.00	40.00	45.00

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FORM 5411-00 PRINTED BY ROTARY MANIFOLD FORMS.

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7.900	630.00	859.04	0.00	-0.04	0.00	16.70	45.00
8.000	630.00	859.67	0.00	0.63	0.00	16.70	42.00
8.200	630.00	859.89	0.00	0.22	0.00	116.00	50.00
8.300	630.00	859.97	0.00	0.07	0.00	535.62	910.00
8.400	630.00	859.89	0.00	-0.08	0.00	173.16	760.00
8.800	630.00	860.19	0.00	0.30	0.00	131.79	215.00
8.900	630.00	860.37	0.00	0.18	0.00	136.39	50.00
9.000	630.00	862.11	0.00	1.74	0.00	143.47	97.00
9.100	630.00	862.22	0.00	0.37	0.00	143.51	50.00
9.300	630.00	862.77	0.00	0.55	0.00	252.23	600.00
9.700	630.00	863.09	0.00	0.32	0.00	96.29	570.00
9.900	630.00	863.33	0.00	0.24	0.00	40.00	100.00
10.000	630.00	867.65	0.00	4.32	0.00	40.00	40.00
10.200	630.00	867.70	0.00	0.05	0.00	160.00	50.00
10.220	630.00	867.82	0.00	0.04	0.00	220.98	250.00
10.240	630.00	867.91	0.00	0.09	0.00	197.27	300.00
10.300	630.00	868.26	0.00	0.36	0.00	99.86	300.00
10.320	630.00	869.22	0.00	0.96	0.00	183.60	300.00
10.340	630.00	869.65	0.00	0.43	0.00	172.95	300.00
10.400	630.00	870.68	0.00	1.03	0.00	168.72	350.00

SUMMARY OF ERRORS

CAUTION SECNO= 2.900 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.900 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.900 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

PUBLISHED PRINTED BY ROANY MANIFOLD FORMS.
PRINTED IN U.S.A.

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Emmett Twp

3) WATERCOURSE: Harper Creek

4) DOCUMENT TYPE: 100-yr Encroached

00BREAK00

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

TIENNETT TOWNSHIP FLOOD INSURANCE STUDY
T2100-YR ENCROACHMENT RUN
T3      HARPER CREEK

J1  ICHECK    INQ      NINV      IDIR      STAT      METRIC    HVINS     9         USEL      FQ
        0.      5.        0.        0.  0.000000      0.00      0.0       0.     843.830     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 1411-QB-PRINTED BY ROTARY MANIFOLD FORMS.

```
*PROF 2

CCHV=   0.100 CEHV=   0.300
*SECNO 2.500
 2800 NAT Q1=     324.31  USEL=     843.83  EMC Q1=     324.31  USEL=     843.93  RATIO=  0.0000
 NAT Q1=     339.  RATIOS LOB,CH,ROB=  0.3774  0.5369  0.1177  LSEL=     843.93
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG         HV         AL        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     IN2        ICONT      CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=     809.7    1009.6  TYPE=     4  TARGET=     0.045

        VALLEY SECTION                                CROSS SECTION 32

      2.50      8.83    843.83     0.00    843.83    844.03     0.20      0.00      0.00    837.50
    1150.       419.      617.      114.      393.      130.       93.       5.        0.    837.90
      0.00      1.07      4.76      1.27     0.100     0.040     0.100     0.000    837.00    809.71
 0.001363       400.      720.      720.         0         0         0      0.00    199.85   1009.55

*SECNO 2.600

3470 ENCROACHMENT STATIONS=     950.0    1200.0  TYPE=     1  TARGET=     250.000

        VALLEY SECTION                                CROSS SECTION 33

      2.50      9.41    844.61     0.00    844.37    844.66     0.05      0.62      0.01    841.00
     630.       173.      366.       91.      298.      159.      200.       11.       4.    841.70
      0.13      0.58      2.31      0.46     0.100     0.040     0.100     0.059    838.20    950.00
 0.000421       900.      735.      400.         2         0         0      0.00    250.00   1200.00

*SECNO 2.610

3470 ENCROACHMENT STATIONS=     982.0    1172.0  TYPE=     1  TARGET=     190.000
      2.61      4.69    844.69     0.00    844.65    845.02     0.33      0.27      0.09    842.80
     630.        77.      542.       11.       85.      109.       24.       14.       5.    843.50
      0.15      0.99      4.99      0.45     0.100     0.040     0.100     0.039    840.00    982.00
 0.003269       300.      300.      300.         2         0         0      0.00    175.00   1157.00

*SECNO 2.650

3470 ENCROACHMENT STATIONS=     380.0     530.0  TYPE=     1  TARGET=     150.000
      2.65      3.92    845.82     0.00    845.82    846.23     0.41      1.18      0.02    844.60
     630.        79.      528.       23.       68.       94.       23.       15.       6.    844.00
      0.17      1.16      5.59      0.97     0.100     0.040     0.100     0.040    841.90    380.00
 0.004859       300.      300.      300.         3         0         0      0.00    110.73    490.73

*SECNO 2.660
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG         HV         AL        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     IN2        ICONT      CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=     402.0     498.0  TYPE=     1  TARGET=      96.000
      2.66      3.74    846.64     0.00    846.86    847.40     0.58      1.03      0.05    845.60
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FORM 1411-08 PRINTED BY ROTARY MANIFOLD FORMS.

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     630.      44.     566.      20.      36.      89.      19.      16.       7.    845.20
     0.18     1.23     6.33     1.06    0.100    0.040    0.100    0.040   843.10   402.00
 0.006685     200.     200.     200.        2        0        0     0.00    86.30   488.30

CCHV=   0.300 CEHV=   0.500
*SECNO 2.700

3470 ENCROACHMENT STATIONS=      470.0      530.0  TYPE=      1  TARGET=      60.000

        100 FT D/S BEADLE LAKE RD.                          CROSS SECTION 34

     2.70     3.92   848.22     0.00   848.22   848.91     0.69     1.44     0.07   846.50
     630.      35.     556.      19.      31.      79.      16.      17.       7.    846.50
     0.19     1.77     7.08     1.20    0.100    0.040    0.100    0.040   844.30   470.00
 0.007763     200.     200.     200.        2        0        0     0.00    60.00   530.00

*SECNO 2.800

3470 ENCROACHMENT STATIONS=      482.0      518.0  TYPE=      1  TARGET=      36.000
     2.80     3.87   848.47     0.00   848.47   849.62     1.15     0.48     0.23   846.50
     630.      38.     564.      28.      17.      62.      14.      17.       7.    846.50
     0.19     2.22     9.06     2.02    0.100    0.040    0.100    0.040   844.60   482.00
 0.012223      50.      50.      50.        2        0        0     0.00    36.00   518.00

*SECNO 2.850

3470 ENCROACHMENT STATIONS=      488.0      512.0  TYPE=      1  TARGET=      24.000
     2.85     3.99   848.69     0.00   848.69   850.02     1.33     0.31     0.09   846.60
     630.      12.     607.      11.       6.      64.       6.      17.       7.    846.60
     0.19     1.92     9.43     1.90    0.100    0.040    0.100    0.040   844.70   488.00
 0.012667      25.      25.      25.        2        0        0     0.00    24.00   512.00

*SECNO 2.900

3301 HV CHANGED MORE THAN HVINS

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      ARDO     VOL      TWA      LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTX      ELMIN    SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IN2      ICONT    CORAR    TOPWID   ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3695 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      490.0      510.0  TYPE=      1  TARGET=      20.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      851.00 ELREA=      851.00

        D/S FACE BEADLE LAKE RD.                          CROSS SECTION 34

     2.90     4.71   849.51   849.51   849.51   851.72     2.20     0.40     0.44   845.50
     630.       0.     630.       0.       0.      53.       0.      17.       7.    845.30
     0.19     0.00    11.91     0.00    0.100    0.040    0.100    0.040   844.80   494.00
 0.020835      25.      25.      25.       20        8        0     0.00    12.00   506.00
```

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.73	3.00	0.00	12.00	0.00	60.00	0.00	845.00	845.00

*SECNO 3.000

3301 HV CHANGED MORE THAN FOURS

SECNO	DEPTH	CWSEL	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	OTN	EL IN	BSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IN2	ICONT	CODAR	TORHID	ENDST

PRESSURE FLOW

ESPRS	EGLHC	H3	QWEIR	QPR	FAREA	TRAPEZOID AREA	ELLC	ELTRD
652.47	851.73	0.00	0.	630.	60.	60.	850.00	854.90

3470 ENCROACHMENT STATIONS= 490.0 510.0 TYPE= 1 TARGET= 20.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 855.50 ELREA= 855.50

U/S FACE BEADLE LAKE RD. CROSS SECTION 36+35

3.00	6.59	851.39	0.00	851.39	852.47	1.08	0.76	0.00	845.50
630.	0.	630.	0.	0.	75.	0.	17.	7.	845.30
0.19	0.00	8.35	0.00	0.100	0.040	0.100	0.040	846.80	494.00
0.007387	42.	42.	42.	3	0	0	0.00	12.00	506.00

*SECNO 3.100

3301 HV CHANGED MORE THAN FOURS

3470 ENCROACHMENT STATIONS=		445.0	555.0	TYPE=	1	TARGET=	110.000		
3.10	7.99	852.79	0.00	852.79	852.83	0.04	0.04	0.31	845.50
630.	233.	219.	178.	303.	92.	243.	17.	7.	845.30
0.20	0.77	2.37	0.73	0.100	0.040	0.100	0.040	844.60	445.00
0.000271	50.	50.	50.	2	0	0	0.00	110.00	555.00

CONV= 0.100 CEHV= 0.300

*SECNO 3.200

2800 NAT Q1= 261.87 WSEL= 852.80 ENC Q1= 261.87 WSEL= 852.90 RATIO= 0.0000

NAT Q1= 272. RATIOS LOB,CH,ROB= 0.1205 0.6551 0.2244 WSEL= 852.90

3470 ENCROACHMENT STATIONS= 612.4 709.7 TYPE= 4 TARGET= 0.038

VALLEY SECTION CROSS SECTION 35

3.20	6.79	852.79	0.00	852.80	852.94	0.15	0.08	0.03	846.70
630.	65.	454.	151.	75.	117.	138.	20.	8.	846.40
0.22	0.87	3.70	0.95	0.080	0.035	0.080	0.059	846.00	412.37
0.000675	200.	200.	200.	2	0	0	0.00	97.31	709.68

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*SECNO 3.800
 2800 NAT Q1=      80.54  WSEL=     853.02  ENC Q1=      80.56  WSEL=     853.12  RATIO=  0.0000
 NAT Q1=      87.  RATIOS LOB,CH,ROB=  0.2515  0.3771  0.3714  WSEL=     853.12

3470 ENCROACHMENT STATIONS=      596.2      704.0  TYPE=      4  TARGET=        0.073

          D/S PRIVATE DRIVE                                CROSS SECTION 56

        3.80       5.68     852.98       0.00     855.02     853.48       0.50       0.44       0.10     848.60
         630.        141.        269.        220.         69.         33.         98.         21.          8.     848.80
         0.24       2.06       8.27       2.23      0.080      0.035      0.080      0.039     847.30     596.22
    0.007294        250.        300.        300.          3          0          0       0.00     107.61     704.04


*SECNO 3.900
 2800 NAT Q1=      79.71  WSEL=     853.28  ENC Q1=      79.71  WSEL=     853.38  RATIO=  0.0000
 NAT Q1=      87.  RATIOS LOB,CH,ROB=  0.3283  0.2139  0.4578  WSEL=     853.38

3370 NORMAL BRIDGE,NRO= 27 MIN ELTRD=  851.30 MAX ELLC=  850.30

3470 ENCROACHMENT STATIONS=      589.2      706.1  TYPE=      4  TARGET=        0.085

          D/S FACE PRIVATE DRIVE                           CROSS SECTION 56

        3.90       6.03     853.33       0.00     855.28     853.52       0.19       0.01       0.03     848.80
         630.        196.        150.        283.         90.         26.        119.         21.          8.     848.80
         0.24       2.17       5.85       2.39      0.080      0.025      0.080      0.039     847.30     589.19
    0.006786          1.          1.          1.          3          0          0     -13.68     116.93     706.12


*SECNO 4.000
 2800 NAT Q1=      88.64  WSEL=     853.40  ENC Q1=      88.64  WSEL=     853.50  RATIO=  0.0000
 NAT Q1=      96.  RATIOS LOB,CH,ROB=  0.3588  0.2027  0.4584  WSEL=     853.50
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
     0       QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       TH        ELMIN       ESTA
   SLOPE     XLOBL     XLCH      XLOBD     ITRIAL    IN2       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRO= 27 MIN ELTRD=  851.30 MAX ELLC=  850.30

3470 ENCROACHMENT STATIONS=      585.6      707.3  TYPE=      4  TARGET=        0.080

          U/S FACE PRIVATE DRIVE                           CROSS SECTION 56

        4.00       6.17     853.47       0.00     855.40     853.62       0.15       0.10       0.00     848.80
         630.        205.        140.        285.        103.         27.        129.         21.          8.     848.80
         0.24       2.00       5.29       2.20      0.080      0.025      0.080      0.039     847.30     585.62
    0.005292         16.         16.         16.          2          0          0     -13.68     121.69     707.31


*SECNO 4.100
 2800 NAT Q1=     102.28  WSEL=     853.53  ENC Q1=     102.28  WSEL=     853.43  RATIO=  0.0000
 NAT Q1=     110.  RATIOS LOB,CH,ROB=  0.2946  0.3271  0.3883  WSEL=     853.43

3470 ENCROACHMENT STATIONS=      588.1      706.4  TYPE=      4  TARGET=        0.071

          U/S PRIVATE DRIVE                                CROSS SECTION 56

        4.10       6.09     853.39       0.00     855.53     853.65       0.26       0.00       0.05     848.80
         630.        169.        224.        237.         92.         55.        126.         21.          8.     848.80
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0.24	1.72	6.41	1.88	0.080	0.035	0.000	0.039	847.30	588.05
0.003969	1.	1.	1.	2	0	0	0.00	118.32	706.37

*SECNO 4.200

2800 NAT Q1= 138.90 WSEL= 853.35 ENC Q1= 138.90 WSEL= 853.45 RATIO= 0.0000
NAT Q1= 146. RATIOS LOB,CH,ROB= 0.2496 0.5979 0.1525 WSEL= 853.45

3470 ENCROACHMENT STATIONS= 587.0 672.1 TYPE= 4 TARGET= 0.051

50 FT U/S PRIVATE DRIVE. CROSS SECTION 36

6.20	6.11	853.41	0.00	853.35	853.84	0.43	0.14	0.05	847.30
853.	148.	399.	84.	106.	61.	55.	22.	9.	847.30
0.24	1.39	6.52	1.52	0.080	0.035	0.080	0.038	847.30	586.97
0.002108	49.	49.	49.	2	0	0	0.00	85.14	672.12

CCHV= 0.300 CEHV= 0.530

*SECNO 5.600

2830 NAT Q1= 147.06 WSEL= 854.32 ENC Q1= 147.06 WSEL= 854.42 RATIO= 0.0000
NAT Q1= 132. RATIOS LOB,CH,ROB= 0.0849 0.8920 0.0431 WSEL= 854.42

3470 ENCROACHMENT STATIONS= 1662.0 1795.1 TYPE= 4 TARGET= 3.031

100 FT D/S E DRIVE NORTH CROSS SECTION 30

4.80	6.11	854.41	0.00	854.32	854.87	0.47	1.01	0.02	850.30
630.	31.	582.	16.	21.	102.	13.	24.	9.	848.30
0.27	1.48	5.60	1.23	0.080	0.035	0.080	0.038	848.30	1462.36
0.001868	510.	510.	510.	1	0	0	0.00	27.25	1490.09

*SECNO 6.900

3470 ENCROACHMENT STATIONS= 1468.0 1497.0 TYPE= 1 TARGET= 19.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLBA= 855.00 ELRBA= 855.00

D/S FACE E DRIVE NORTH CROSS SECTION 38

4.90	6.28	854.58	0.00	854.47	855.13	0.55	0.22	0.04	850.30
630.	0.	630.	0.	0.	106.	0.	24.	9.	848.30
0.27	0.00	5.97	0.00	0.080	0.035	0.080	0.038	848.30	1469.00
0.002606	100.	100.	100.	2	0	0	0.00	16.80	1485.80

SPECIAL BRIDGE

BB	XK	XKOR	COFQ	RDLES	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.82	3.00	0.00	16.60	0.60	91.00	0.00	848.30	848.30

*SECNO 5.000

SECNO	DSPTM	CWSEL	CRIWS	WSELK	EG	KV	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	EHZ	ICONT	CORAR	TOPWID	ENDST

PRESSURE FLOW

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EGPRS	EGLWC	H3	QWEIR	QPR	QAREA	TRAPEZOID AREA	ELLC	ELTRD
855.94	855.13	0.00	0.	630.	91.	91.	854.00	856.00

3470 ENCROACHMENT STATIONS= 1468.0 1487.0 TYPE= 1 TARGET= 19.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELREA= 856.00

U/S FACE E DRIVE NORTH CROSS SECTION 37&38

5.00	7.22	855.32	0.00	855.39	855.94	0.42	0.00	0.00	850.30
630.	0.	630.	0.	0.	121.	0.	24.	9.	848.30
0.28	0.00	5.19	0.00	0.080	0.035	0.080	0.058	848.30	1469.00
0.001728	47.	47.	47.	2	0	0	0.00	16.80	1485.80

*SECNO 5.500

3470 ENCROACHMENT STATIONS= 1468.0 1487.0 TYPE= 1 TARGET= 19.000

40 FT U/S E DRIVE NORTH & 40 U/S I-94 RAMP CROSS SECTION 35

5.50	7.30	855.60	0.00	855.48	856.00	0.40	0.06	0.01	850.30
630.	3.	624.	3.	5.	123.	6.	24.	9.	848.30
0.28	0.57	5.09	0.52	0.080	0.035	0.080	0.038	848.30	1468.00
0.001176	40.	40.	40.	0	0	0	0.00	19.00	1487.00

*SECNO 5.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 865.80 ELREA= 865.80

D/S FACE I-94 RAMP CROSS SECTION 33

5.90	7.35	855.65	0.00	855.53	856.06	0.40	0.06	0.00	850.30
630.	0.	630.	0.	0.	124.	0.	24.	9.	848.30
0.28	0.00	5.10	0.00	0.080	0.035	0.080	0.038	848.30	1469.00
0.001683	40.	40.	40.	0	0	0	0.00	16.80	1485.80

SPECIAL BRIDGE

SB	XK	XNOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.01	3.00	0.00	16.60	0.60	91.00	0.00	848.30	848.30

*SECNO 6.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	QAREA	TRAPEZOID AREA	ELLC	ELTRD
857.15	856.06	0.00	0.	630.	91.	91.	854.00	865.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 865.80 ELREA= 865.80

U/S FACE I-94 RAMP CROSS SECTION 36&37

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6.00	8.55	856.85	0.00	856.72	857.15	0.30	1.09	0.00	850.30
630.	0.	630.	0.	0.	144.	0.	25.	9.	848.30
0.29	0.00	4.39	0.00	0.080	0.035	0.080	0.038	848.30	1469.00
0.001056	77.	77.	77.	2	0	0	0.00	16.80	1485.80

*SECNO 6.500

3470 ENCROACHMENT STATIONS= 1459.0 1495.0 TYPE= 1 TARGET= 36.000

40 FT U/S I-94 RAMP & 60 FT D/S I-94 CROSS SECTION 40

6.50	8.76	857.26	0.00	856.92	857.21	0.17	0.03	0.04	850.30
630.	55.	532.	43.	55.	147.	46.	25.	9.	848.30
0.29	1.01	3.63	0.92	0.080	0.035	0.080	0.038	848.30	1459.00
0.000471	40.	40.	40.	2	0	0	0.00	36.00	1495.00

*SECNO 6.900

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	WV	WL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TEA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	KLOSL	KLCH	XLOBR	ITRIAL	IHS	ICONT	CSHAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 874.30 ELREA= 874.30

D/S FACE I-94 CROSS SECTION 40

6.90	8.71	857.01	0.00	856.89	857.30	0.29	0.03	0.06	874.30
630.	0.	630.	0.	0.	145.	0.	25.	9.	874.30
0.29	0.00	4.35	0.00	0.080	0.035	0.080	0.037	848.30	1.07
0.001519	40.	40.	40.	2	0	0	0.00	16.67	17.73

SPECIAL BRIDGE

SB XK	AXOR	COFS	ADLEN	BWC	BHP	BAREA	SS	ELCHO	ELCHD
0.00	3.17	3.00	0.00	16.80	0.80	93.00	0.00	848.30	848.60

*SECNO 7.000
PRESSURE FLOW

EGPRS	EGLWC	HB	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
859.27	857.33	0.00	0.	630.	93.	98.	853.40	874.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 874.30 ELREA= 874.30

U/S FACE I-94 CROSS SECTION 40841

7.00	10.47	859.07	0.00	858.94	859.27	0.20	1.97	0.00	874.60
630.	0.	630.	0.	0.	174.	0.	26.	9.	874.60
0.31	0.00	3.62	0.00	0.080	0.035	0.080	0.037	848.60	1.06
0.000958	280.	280.	280.	2	0	0	0.00	16.68	17.74

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*SECNO 7.500

3470 ENCROACHMENT STATIONS= 1392.0 1432.0 TYPE= 1 TARGET= 40.000

45 FT U/S I-94 & 45 FT D/S E DRIVE SOUTH CROSS SECTION 42

7.50	10.00	859.20	0.00	859.00	859.30	0.11	0.02	0.03	849.20
630.	66.	500.	65.	77.	167.	74.	26.	9.	849.20
0.32	0.86	2.99	0.87	0.080	0.035	0.080	0.037	849.20	1392.00
0.000230	45.	45.	45.	2	0	0	0.00	40.00	1432.00

*SECNO 7.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

D/S FACE E DRIVE SOUTH CROSS SECTION 42

7.90	9.96	859.16	0.00	859.04	859.39	0.22	0.02	0.06	849.20
630.	0.	630.	0.	0.	166.	0.	27.	10.	849.20
0.32	0.00	3.79	0.00	0.080	0.035	0.080	0.037	849.20	1404.00
0.000089	45.	45.	45.	2	0	0	0.00	16.70	1420.70

SPECIAL BRIDGE

SB	XX	XKOP	COFQ	HDLEN	DWC	CHP	BAREA	SE	ELCFQ	ELCHD
	0.00	1.76	3.00	0.00	16.70	0.70	114.00	0.00	849.20	849.20

*SECNO 8.000

PRESSURE FLOW

EGPRS	EGLLC	H3	QWEIR	QPR	BAREA	TRAPEZOIC AREA	ELLC	ELTRD
860.00	859.39	0.00	0.	630.	114.	114.	856.30	860.70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

U/S FACE E DRIVE SOUTH CROSS SECTION 40&42

8.00	10.60	859.80	0.00	859.67	860.00	0.20	0.61	0.00	849.20
630.	0.	630.	0.	0.	177.	0.	27.	10.	849.20
0.32	0.00	3.56	0.00	0.080	0.035	0.080	0.037	849.20	1404.00
0.000578	42.	42.	42.	2	0	0	0.00	16.70	1420.70

*SECNO 8.200

SECNO	DEPTH	QWSEL	QRIVS	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	VTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IN2	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1394.0 1470.0 TYPE= 1 TARGET= 116.000

50 FT U/S E DRIVE SOUTH CROSS SECTION 43

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     8.20    10.82   860.02     0.00   859.39   860.06     0.04     0.01     0.05   849.20
     630.     130.     360.     140.     258.     101.     269.      27.      10.   849.20
     0.34     0.51     1.99     0.52    0.080    0.035    0.080    0.037   849.20  1354.00
 0.000092      50.      50.      50.        2        0        0     0.00   116.00  1470.00

CCHV=   0.100 CERV=   0.300
*SECNO 8.300

        VALLEY SECTION                                  CROSS SECTION 43

     8.30     9.39   860.09     0.00   859.97   860.09     0.00     0.03     0.00   850.90
     630.     146.     172.     312.     693.     225.    1578.      58.      16.   850.50
     1.00     0.21     0.76     0.20    0.100    0.040    0.100    0.038   850.50  1029.63
 0.000021      500.     910.    1000.        2        0        0     0.00   537.42  1567.04

*SECNO 8.400

        VALLEY SECTION                                  CROSS SECTION 44

     8.40     7.17   860.07     0.00   859.95   860.16     0.09     0.04     0.03   854.60
     630.      52.     361.     216.      67.     118.     338.      31.      22.   852.90
     1.10     0.78     3.06     0.64    0.100    0.040    0.100    0.039   852.90   782.84
 0.000644      500.     760.     700.        2        0        0     0.00   217.38  1000.23

CCHV=   0.300 CERV=   0.500
*SECNO 8.800

3470 ENCROACHMENT STATIONS=     301.0    1040.0  TYPE=     1  TARGET=     739.000

        50 FT D/S BEADLE LAKE RD.

     8.80     5.42   860.22     0.00   860.12   860.49     0.27     0.26     0.09   855.20
     630.     113.     360.     156.      83.      67.     130.      83.      23.   855.50
     1.11     1.36     5.41     1.20    0.100    0.060    0.100    0.039   854.80   761.94
 0.002411      215.     215.     215.        2        0        0     0.00   147.27   909.22

*SECNO 8.900

        D/S FACE BEADLE LAKE RD.                        CROSS SECTION 45

     8.90     5.58   860.38     0.00   860.29   860.61     0.24     0.11     0.01   855.20
     630.     118.     351.     161.      93.      69.     141.      83.      23.   855.50
     1.12     1.26     5.12     1.14    0.100    0.040    0.100    0.039   854.80   761.91
 0.002075      50.      50.      50.        2        0        0     0.00   150.28   912.19

SPECIAL BRIDGE

SB  XK      XKCR      CORQ      RDLEN      BWC       BWP       BAREA      SS       ELCHU     ELCHD
    0.00      1.64      3.00      0.00     13.00      0.00     45.00      0.00    855.00    855.00

*SECNO 9.000
   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       PLMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IN2       ICONT     COBAR     TOPWID    ENDST
```

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PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
865.37	861.76	0.00	234.	397.	45.	46.	858.50	861.70

U/S FACE BEADLE LAKE RD. CROSS SECTION 45

9.00	7.35	862.15	0.00	862.14	862.36	0.21	1.75	0.00	855.20
630.	160.	412.	57.	145.	92.	85.	83.	23.	855.50
1.32	1.11	4.48	0.67	0.100	0.040	0.100	0.039	854.80	761.66
0.001074	37.	37.	37.	2	0	5	0.00	143.47	905.13

*SECNO 9.100

50 FT U/S BEADLE LAKE RD.

9.10	7.42	862.22	0.00	862.21	862.42	0.20	0.05	0.00	855.20
630.	162.	408.	60.	150.	93.	90.	84.	23.	855.50
1.12	1.08	4.39	0.67	0.100	0.040	0.100	0.039	854.80	767.69
0.001017	50.	50.	50.	1	0	0	0.00	143.51	905.14

CCHV= 0.100 CEHV= 0.300

*SECNO 9.300

2800 NAT Q1= 283.99 WSEL= 862.77 ENC Q1= 283.99 WSEL= 862.07 RATIO= 0.0000
NAT Q1= 297. RATIOS LOB,CH,ROB= 0.2031 0.4664 0.3304 WSEL= 862.07

3470 ENCROACHMENT STATIONS= 599.0 754.7 TYPE= 4 TARGET= 0.043

VALLEY SECTION CROSS SECTION 46

9.30	6.08	862.78	0.00	862.77	862.85	0.06	0.41	0.01	857.20
630.	118.	399.	193.	108.	116.	256.	69.	25.	857.30
1.22	0.70	2.75	0.75	0.100	0.040	0.100	0.039	856.70	599.01
0.000525	750.	600.	350.	2	0	0	0.00	155.68	754.70

CCHV= 0.300 CEHV= 0.500

*SECNO 9.700

2800 NAT Q1= 158.67 WSEL= 863.09 ENC Q1= 158.67 WSEL= 863.19 RATIO= 0.0000
NAT Q1= 166. RATIOS LOB,CH,ROB= 0.1424 0.7137 0.1439 WSEL= 863.19

3470 ENCROACHMENT STATIONS= 607.0 673.5 TYPE= 6 TARGET= 0.062

100 FT D/S D DRIVE CROSS SECTION 48

9.70	5.53	863.13	0.00	863.09	863.37	0.24	0.43	0.09	858.20
630.	82.	469.	79.	65.	104.	67.	93.	26.	858.30
1.25	1.26	4.51	1.19	0.100	0.040	0.100	0.043	857.60	607.09
0.001636	400.	570.	400.	2	0	0	0.00	66.90	673.55

*SECNO 9.900

3470 ENCROACHMENT STATIONS= 1119.0 1172.0 TYPE= 1 TARGET= 1053.000

D/S FACE D DRIVE CROSS SECTION 48

9.90	4.56	863.36	0.00	863.31	863.48	0.33	0.27	0.04	859.70

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	630.	102.	405.	123.	56.	73.	76.	94.	26.	860.70
	1.26	1.81	5.56	1.62	0.100	0.040	0.100	0.040	858.70	593.63
	0.005297	100.	100.	100.	2	0	0	0.00	118.50	712.13

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	SNC	SWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.33	3.00	0.00	10.00	0.00	43.00	0.00	859.10	858.70

*SECNO 10.000

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	HV	FL	QLOSS	BANK ELEV	
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TCA	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	UTN	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IH2	ICONT	CORAR	TOPWID	ENDST	

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
871.12	864.92	0.00	190.	432.	43.	25.	863.40	866.40

U/S FACE D DRIVE CROSS SECTION 43

	10.08	7.62	866.92	0.00	866.91	867.01	0.39	3.33	0.00	860.10
	630.	95.	404.	131.	110.	130.	167.	94.	26.	861.10
	1.27	6.62	2.97	0.78	0.100	0.040	0.100	0.040	859.10	565.30
	0.000657	40.	40.	40.	2	0	6	0.00	165.22	749.03

*SECNO 10.200

3470 ENCROACHMENT STATIONS= 564.0 704.0 TYPE= 1 TARGET= 140.000

50 FT U/S D DRIVE CROSS SECTION 48

	10.20	8.19	866.99	0.00	866.99	867.04	0.05	0.02	0.01	861.50
	630.	100.	357.	173.	181.	155.	269.	95.	27.	859.00
	1.28	0.55	2.30	0.64	0.100	0.040	0.100	0.040	858.80	564.00
	0.000272	50.	50.	50.	2	0	0	0.00	140.00	704.00

CCHV= 0.100 CEHV= 0.300

*SECNO 10.220

2800 NAT Q1= 236.29 WSEL= 867.04 ENC Q1= 236.29 WSEL= 867.14 RATIO= 0.0000

NAT Q1= 267. RATIOS LOB,CH,ROB= 0.2177 0.5962 0.1861 WSEL= 867.14

3470 ENCROACHMENT STATIONS= 747.6 890.3 TYPE= 4 TARGET= 0.043

	10.22	7.04	867.04	0.00	867.04	867.17	0.14	0.11	0.03	860.60
	630.	125.	398.	107.	169.	108.	126.	98.	27.	860.50
	1.30	0.74	3.68	0.85	0.100	0.040	0.100	0.060	860.00	747.63
	0.000769	250.	250.	250.	2	0	0	0.00	142.67	890.31

*SECNO 15.240

2800 NAT Q1= 132.48 WSEL= 867.22 ENC Q1= 132.48 WSEL= 867.32 RATIO= 0.0000

NAT Q1= 135. RATIOS LOB,CH,ROB= 0.1184 0.7554 0.1262 WSEL= 867.32

3470 ENCROACHMENT STATIONS= 807.0 859.8 TYPE= 4 TARGET= 0.047

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10.24	5.78	867.23	0.00	867.22	867.63	0.40	0.38	0.08	862.05
630.	62.	590.	68.	46.	88.	48.	100.	28.	861.95
1.32	1.36	5.68	1.42	0.100	0.040	0.100	0.040	861.45	806.96
0.002414	300.	300.	300.	2	0	0	0.00	52.88	859.84

*SECNO 10.300
2800 NAT Q1= 97.00 WSEL= 867.95 ENC Q1= 97.00 WSEL= 868.05 RATIO= 0.3000
NAT Q1= 101. RATIOS LOB,CH,ROB= 0.0013 0.8233 0.0955 WSEL= 868.05

3470 ENCROACHMENT STATIONS= 820.1 852.4 TYPE= 4 TARGET= 0.041

VALLEY SECTION CROSS SECTION 49

10.30	5.10	868.00	0.00	867.95	868.66	0.66	0.96	0.08	863.50
630.	41.	542.	48.	23.	77.	26.	101.	28.	863.40
1.33	1.78	7.02	1.82	0.100	0.040	0.100	0.040	862.90	820.12
0.006389	300.	300.	300.	2	0	0	0.00	32.27	852.39

*SECNO 10.320
2800 NAT Q1= 172.08 WSEL= 869.12 ENC Q1= 172.08 WSEL= 869.22 RATIO= 0.0000
NAT Q1= 182. RATIOS LOB,CH,ROB= 0.2792 0.6292 0.0916 WSEL= 869.22

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	TUA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITYPE	IP2	ICONT	CONAM	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 363.6 508.2 TYPE= 4 TARGET= 0.053

10.32	5.03	869.23	0.00	869.12	869.38	0.15	0.67	0.05	864.20
630.	168.	419.	43.	203.	111.	42.	102.	29.	864.60
1.36	0.83	3.77	1.82	0.100	0.040	0.100	0.040	864.20	363.58
0.001537	300.	300.	300.	2	0	0	0.00	144.64	908.22

*SECNO 10.340
2800 NAT Q1= 118.46 WSEL= 869.60 ENC Q1= 118.46 WSEL= 869.78 RATIO= 0.0000
NAT Q1= 126. RATIOS LOB,CH,ROB= 0.2055 0.7115 0.0830 WSEL= 869.70

3470 ENCROACHMENT STATIONS= 372.0 504.6 TYPE= 4 TARGET= 0.060

10.34	4.39	869.69	0.00	869.60	869.99	0.30	0.56	0.04	865.30
630.	118.	477.	35.	125.	96.	26.	104.	30.	865.70
1.38	0.94	4.98	1.34	0.100	0.040	0.100	0.040	865.80	372.00
0.002641	300.	300.	300.	2	0	0	0.00	132.64	504.64

*SECNO 10.400
2800 NAT Q1= 102.44 WSEL= 870.68 ENC Q1= 102.44 WSEL= 870.78 RATIO= 0.0000
NAT Q1= 109. RATIOS LOB,CH,ROB= 0.1741 0.7467 0.0792 WSEL= 870.78

3470 ENCROACHMENT STATIONS= 377.5 504.5 TYPE= 4 TARGET= 0.063

VALLEY SECTION CROSS SECTION 50

10.40	4.17	870.77	0.00	870.68	871.16	0.38	1.14	0.03	866.60
630.	95.	501.	34.	97.	91.	24.	104.	31.	867.00
1.40	0.97	5.53	1.46	0.100	0.040	0.100	0.040	866.60	377.48
0.003781	350.	350.	350.	0	0	0	0.00	127.06	504.54

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

HARPER CREEK EMMETT TWP.

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKHS	EG	TOPWID	ALOB	ACH	AROB	PERIMC	STENCL	STCHL	STCHR	STENCR
	2.500	843.83	0.00	844.00	319.94	423.83	592.42	133.75	0.00	0.00	966.00	986.00	0.00
	2.500	843.83	0.00	844.05	199.85	418.74	616.77	114.49	0.04	809.71	966.00	986.00	1009.55
	2.500	843.57	0.00	844.62	250.00	172.15	568.46	89.45	250.00	950.00	1063.00	1092.00	1200.00
	2.000	844.61	0.04	844.65	250.00	173.20	565.75	91.05	250.00	950.00	1063.00	1092.00	1200.00
	2.610	844.65	0.00	845.00	171.47	74.66	545.99	9.35	190.00	982.00	1063.00	1092.00	1172.00
	2.610	844.69	0.04	845.02	175.00	77.30	542.19	10.52	190.00	982.00	1063.00	1092.00	1172.00
	2.650	843.82	0.00	846.29	110.76	79.34	527.95	22.70	150.00	380.00	436.00	465.00	530.00
	2.650	845.82	-0.00	845.29	110.73	79.25	528.09	22.66	150.00	380.00	436.00	465.00	530.00
	2.660	846.84	0.00	847.40	86.30	43.56	566.03	20.41	96.00	402.00	436.00	465.00	498.00
	2.700	848.22	0.00	848.91	60.00	54.59	556.18	19.23	60.00	470.00	488.00	512.00	530.00
	2.700	848.22	0.00	848.91	60.00	54.59	556.18	19.23	60.00	470.00	488.00	512.00	530.00
	2.800	848.67	0.00	849.62	36.00	37.99	563.91	28.10	36.00	482.00	491.00	509.00	518.00
	2.800	848.67	0.00	849.62	36.00	37.99	563.91	28.10	36.00	482.00	491.00	509.00	518.00
	2.850	848.69	0.00	850.02	24.00	11.88	607.03	11.09	24.00	488.00	491.00	509.00	512.00
	2.850	848.69	0.00	850.02	24.00	11.88	607.03	11.09	24.00	488.00	491.00	509.00	512.00
*	2.900	849.51	0.00	851.72	12.00	0.00	630.00	0.00	20.00	490.00	494.00	506.00	510.00
*	2.900	849.51	0.00	851.72	12.00	0.00	630.00	0.00	20.00	490.00	494.00	506.00	510.00
	3.000	851.39	0.00	852.47	12.00	0.00	630.00	0.00	20.00	490.00	494.00	506.00	510.00
	3.000	851.39	0.00	852.47	12.00	0.00	630.00	0.00	20.00	490.00	494.00	506.00	510.00
	3.100	852.79	0.00	852.83	110.00	232.99	218.87	178.13	110.00	445.00	494.00	506.00	555.00
	3.100	852.79	0.00	852.83	110.00	232.99	218.87	178.13	110.00	445.00	494.00	506.00	555.00
	3.200	852.80	0.00	852.93	180.01	73.56	418.61	137.83	0.00	0.00	640.00	658.00	0.00
	3.200	852.79	-0.01	852.94	97.31	65.02	433.99	130.39	0.04	612.57	640.00	658.00	709.68
	3.800	853.02	0.00	853.40	182.23	151.55	248.64	229.64	0.00	0.00	640.90	647.10	0.00
	3.800	852.98	-0.03	853.48	107.81	141.24	269.12	219.64	0.07	596.22	640.90	647.10	704.04

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SECNO	CUSEL	DIFKHS	EG	TOPWID	QLOB	QCH	QRCB	PERENC	STENCL	STCHL	STCHR	STENCR
3.900	853.28	0.00	853.45	197.91	200.80	141.41	287.80	0.00	0.00	640.90	647.10	0.00
3.900	853.33	0.05	853.52	116.93	196.33	150.30	283.37	0.09	589.19	640.90	647.10	706.12
4.000	853.40	0.00	853.52	205.67	207.92	133.65	288.52	0.00	0.00	640.90	647.10	0.00
4.000	853.47	0.07	853.62	121.09	204.93	140.42	284.60	0.08	585.62	640.90	647.10	707.31
4.100	853.33	0.00	853.56	201.26	172.92	215.37	241.71	0.00	0.00	640.90	647.10	0.00
4.100	853.39	0.06	853.65	118.32	168.73	224.59	236.68	0.07	588.05	640.90	647.10	706.37
4.200	853.35	0.00	853.74	177.96	151.07	336.56	92.29	0.00	0.00	639.00	649.00	0.00
4.200	853.41	0.07	853.84	85.14	147.84	390.37	83.59	0.05	586.97	639.00	649.00	672.12
4.800	854.32	0.00	854.75	42.89	39.72	564.19	26.09	0.00	0.00	1469.00	1485.80	0.00
4.800	854.41	0.09	854.87	27.25	31.17	582.35	16.48	0.03	1462.84	1469.00	1485.80	1490.09
4.900	854.47	0.00	855.04	16.80	0.00	630.00	0.00	19.00	1468.00	1469.00	1485.80	1487.00
4.900	854.58	0.11	855.13	16.80	0.00	630.00	0.00	19.00	1468.00	1469.00	1485.80	1487.00
5.000	855.39	0.00	855.82	16.80	0.00	630.00	0.00	19.00	1468.00	1469.00	1485.80	1487.00
5.000	855.52	0.13	855.94	16.80	0.00	630.00	0.00	19.00	1468.00	1469.00	1485.80	1487.00
5.500	855.46	0.00	855.89	19.00	3.02	623.98	3.00	19.00	1468.00	1469.00	1485.80	1487.00
5.500	855.60	0.12	856.00	19.00	3.01	623.98	3.01	19.00	1468.00	1469.00	1485.80	1487.00
5.900	855.53	0.00	855.95	16.80	0.00	630.00	0.00	0.00	0.00	1469.00	1485.80	0.00
5.900	855.65	0.12	856.06	16.80	0.00	630.00	0.00	0.00	0.00	1469.00	1485.80	0.00
6.000	856.72	0.00	857.04	16.80	0.00	630.00	0.00	0.00	0.00	1469.00	1485.80	0.00
6.000	856.85	0.13	857.15	16.80	0.00	630.00	0.00	0.00	0.00	1469.00	1485.80	0.00
6.500	856.92	0.00	857.10	36.00	54.66	535.24	42.10	36.00	1459.00	1469.00	1485.80	1495.00
6.500	857.04	0.12	857.21	36.00	55.05	532.40	42.55	36.00	1459.00	1469.00	1485.80	1495.00
6.900	856.89	0.00	857.19	16.67	0.00	630.00	0.00	0.00	0.00	1.00	17.80	0.00
6.900	857.01	0.12	857.30	16.67	0.00	630.00	0.00	0.00	0.00	1.00	17.80	0.00
7.000	858.94	0.00	859.15	16.68	0.00	630.00	0.00	0.00	0.00	1.00	17.80	0.00
7.000	859.07	0.13	859.27	16.68	0.00	630.00	0.00	0.00	0.00	1.00	17.80	0.00
7.500	859.08	0.00	859.19	40.00	65.33	500.57	64.10	40.00	1392.00	1404.00	1420.70	1432.00
7.500	859.20	0.12	859.31	40.00	65.85	499.60	64.55	40.00	1392.00	1404.00	1420.70	1432.00
7.900	859.04	0.00	859.27	16.70	0.00	630.00	0.00	0.00	0.00	1404.00	1420.70	0.00
7.900	859.16	0.13	859.39	16.70	0.00	630.00	0.00	0.00	0.00	1404.00	1420.70	0.00
8.000	859.67	0.00	859.87	16.70	0.00	630.00	0.00	0.00	0.00	1404.00	1420.70	0.00
8.000	859.80	0.13	860.09	16.70	0.00	630.00	0.00	0.00	0.00	1404.00	1420.70	0.00
8.200	859.89	0.00	859.93	116.00	128.88	362.69	138.43	116.00	1354.00	1404.00	1420.70	1470.00
8.200	860.02	0.13	860.06	116.00	130.34	359.92	139.73	116.00	1354.00	1404.00	1420.70	1470.00
8.300	859.97	0.00	859.97	535.62	145.91	176.47	309.63	0.00	0.00	1166.00	1190.00	0.00
8.300	860.09	0.12	860.09	537.42	149.90	172.11	311.94	0.00	0.00	1166.00	1190.00	0.00
8.400	859.95	0.00	860.04	206.46	51.62	369.00	209.39	0.00	0.00	824.00	844.00	0.00
8.400	860.07	0.12	860.16	217.38	52.37	361.42	216.21	0.00	0.00	824.00	844.00	0.00

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SECNO	CUSEL	DIFKUS	EC	TOPWID	QLOB	QCR	QPOB	PERENC	STENCL	STCHL	STCHR	STENCR
8.800	860.12	0.00	860.41	145.26	110.59	366.38	153.04	0.00	0.00	827.00	840.00	0.00
8.800	860.22	0.10	860.49	147.27	113.32	360.41	156.28	739.00	301.00	827.00	840.00	1040.00
8.900	860.29	0.00	860.55	148.68	115.32	356.23	158.45	0.00	0.00	827.00	840.00	0.00
8.900	860.38	0.08	860.61	150.28	117.65	351.49	160.85	0.00	0.00	827.00	840.00	0.00
9.000	862.14	0.00	862.35	143.46	160.11	413.21	56.67	0.00	0.00	827.00	840.00	0.00
9.000	862.15	0.02	862.36	143.47	160.48	412.25	57.27	0.00	0.00	827.00	840.00	0.00
9.100	862.21	0.00	862.41	143.50	161.78	408.81	59.42	0.00	0.00	827.00	840.00	0.00
9.100	862.22	0.01	862.42	143.51	162.07	408.05	59.90	0.00	0.00	827.00	840.00	0.00
9.300	862.77	0.00	862.82	251.85	125.68	307.46	196.86	0.00	0.00	656.00	676.00	0.00
9.300	862.78	0.02	862.85	155.68	117.67	319.29	193.04	0.04	599.01	656.00	676.00	754.70
9.700	863.09	0.00	863.31	113.75	88.21	456.63	87.17	0.00	0.00	628.00	648.00	0.00
9.700	863.15	0.04	863.37	66.50	87.89	469.30	79.10	0.04	607.05	628.00	648.00	673.55
9.900	863.30	0.00	863.64	116.90	100.90	408.26	120.84	0.00	0.00	626.50	646.50	0.00
9.900	863.36	0.06	863.68	118.50	101.80	404.77	123.43	1053.00	119.00	626.50	646.50	1172.00
10.000	866.91	0.00	867.00	102.84	95.37	426.25	130.56	0.00	0.00	626.50	646.50	0.00
10.000	866.92	0.01	867.01	103.22	95.43	425.94	130.57	0.00	0.00	626.50	646.50	0.00
10.200	866.99	0.00	867.03	140.00	100.17	356.69	173.15	140.00	564.00	624.00	645.00	704.00
10.200	866.99	0.01	867.04	140.00	100.28	356.52	173.20	140.00	564.00	624.00	645.00	704.00
10.220	867.04	0.00	867.10	207.48	132.36	382.34	114.00	0.00	0.00	827.00	843.00	0.00
10.240	867.04	-0.00	867.17	142.67	125.44	397.37	106.69	0.04	767.63	827.00	843.00	890.31
10.240	867.22	0.00	867.58	144.44	70.54	482.86	76.60	0.00	0.00	827.00	843.00	0.00
10.240	867.23	0.01	867.65	52.88	61.93	500.08	67.98	0.04	806.96	827.00	843.00	859.84
10.300	867.95	0.00	868.50	70.97	49.20	522.69	57.91	0.00	0.00	827.00	843.00	0.00
10.300	868.00	0.05	868.66	32.27	40.06	541.65	47.69	0.04	820.12	827.00	843.00	852.39
10.320	869.12	0.00	869.27	182.13	169.42	403.62	56.96	0.00	0.00	470.00	494.00	0.00
10.320	869.23	0.11	869.38	146.64	168.28	418.62	43.10	0.05	363.58	470.00	494.00	508.22
10.340	869.60	0.00	869.87	172.15	120.96	457.78	51.23	0.00	0.00	470.00	494.00	0.00
10.340	869.69	0.10	869.99	132.64	117.66	477.46	34.98	0.06	372.00	470.00	494.00	504.64
10.400	870.68	0.00	871.03	168.67	100.32	480.95	48.73	0.00	0.00	470.00	494.00	0.00
10.400	870.77	0.10	871.16	127.06	95.03	500.70	34.27	0.06	377.48	470.00	494.00	504.54

HARPER CREEK EMMETT TWP.

SUMMARY PRINTOUT TABLE 150

	SECNO	WLCH	CLTRD	FLLC	ELMIN	Q	CUSEL	CRINS	EG	10K*S	VCH	AREA	.01K
	2.500	720.00	0.00	0.00	837.00	1150.00	843.83	0.00	844.00	12.57	4.57	704.13	524.31
	2.500	720.00	0.00	0.00	837.00	1150.00	843.83	0.00	844.03	15.65	4.76	612.57	511.51
	2.600	735.00	0.00	0.00	838.20	630.00	844.57	0.00	844.62	4.36	2.34	645.71	300.80
	2.600	735.00	0.00	0.00	838.20	630.00	844.61	0.00	844.66	4.21	2.31	656.27	307.03
	2.610	300.00	0.00	0.00	840.00	630.00	844.65	0.00	845.00	34.31	5.08	210.03	107.55
	2.610	300.00	0.00	0.00	840.00	630.00	844.69	0.00	845.02	32.69	4.99	216.71	110.19
	2.650	300.00	0.00	0.00	841.90	630.00	845.02	0.00	846.23	48.48	5.59	186.10	90.48
	2.650	300.00	0.00	0.00	841.90	630.00	845.02	0.00	846.23	48.59	5.59	185.91	90.38
	2.660	200.00	0.00	0.00	843.10	630.00	846.84	0.00	847.40	66.85	6.53	144.15	77.05
	2.660	200.00	0.00	0.00	843.10	630.00	845.84	0.00	847.40	66.85	6.53	144.15	77.05
	2.700	200.00	0.00	0.00	844.30	630.00	848.22	0.00	848.91	77.65	7.08	125.69	71.51
	2.700	200.00	0.00	0.00	844.30	630.00	848.22	0.00	848.91	77.65	7.08	125.69	71.51
	2.800	50.00	0.00	0.00	844.60	630.00	848.47	0.00	849.62	122.25	9.06	95.22	56.98
	2.800	50.00	0.00	0.00	844.60	630.00	848.47	0.00	849.62	122.25	9.06	95.22	56.98
	2.850	25.00	0.00	0.00	844.70	630.00	848.69	0.00	850.02	126.67	9.43	76.42	55.98
	2.850	25.00	0.00	0.00	844.70	630.00	848.69	0.00	850.02	126.67	9.43	76.42	55.98
*	2.900	25.00	0.00	0.00	844.80	630.00	849.51	849.51	851.72	208.36	11.91	52.89	43.65
	3.000	62.00	854.90	850.00	844.80	630.00	851.39	0.00	852.67	73.87	8.55	75.48	73.30
	3.000	42.00	854.90	850.00	844.80	630.00	851.39	0.00	852.67	73.87	8.55	75.48	73.30
	3.100	50.00	0.00	0.00	844.80	630.00	852.79	0.00	852.83	2.71	2.37	639.00	382.72
	3.100	50.00	0.00	0.00	844.80	630.00	852.79	0.00	852.83	2.71	2.37	639.00	382.72
	3.200	200.00	0.00	0.00	846.00	630.00	852.80	0.00	852.93	5.79	3.56	395.42	261.87
	3.200	200.00	0.00	0.00	846.00	630.00	852.79	0.00	852.94	6.25	3.70	329.99	251.96
	3.800	500.00	0.00	0.00	847.30	630.00	853.02	0.00	853.40	61.18	7.60	248.96	80.54
	3.800	500.00	0.00	0.00	847.30	630.00	852.98	0.00	853.48	72.94	8.27	199.65	73.77
	3.900	1.00	851.30	850.30	847.30	630.00	853.28	0.00	853.43	62.47	5.57	283.54	79.71
	3.900	1.00	851.30	850.30	847.30	630.00	853.33	0.00	853.52	67.86	5.85	254.87	76.48
	4.000	16.00	851.30	850.30	847.30	630.00	853.40	0.00	853.52	50.52	5.11	308.21	88.64
	4.000	16.00	851.30	850.30	847.30	630.00	853.47	0.00	853.62	52.92	5.29	258.55	86.60
	4.100	1.00	0.00	0.00	847.30	630.00	853.35	0.00	853.56	37.94	6.22	308.04	102.28
	4.100	1.00	0.00	0.00	847.30	630.00	853.39	0.00	853.65	39.69	6.41	258.77	100.00
	4.200	49.00	0.00	0.00	847.30	630.00	853.35	0.00	853.74	20.57	6.39	275.35	138.90
	4.200	49.00	0.00	0.00	847.30	630.00	853.41	0.00	853.84	21.08	6.52	222.11	137.20
	4.800	510.00	0.00	0.00	848.30	630.00	854.32	0.00	854.79	18.33	5.58	153.44	147.06
	4.800	510.00	0.00	0.00	848.30	630.00	854.41	0.00	854.87	18.68	5.68	136.97	145.76

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

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CUSEL	CRIUS	EG	TOK*S	VCH	AREA	.01K
4.900	100.00	0.00	0.00	848.30	630.00	854.47	0.00	855.04	27.48	6.08	105.65	120.17
4.900	100.00	0.00	0.00	848.30	630.00	854.58	0.00	855.13	26.06	5.97	105.53	123.42
5.000	47.00	856.00	854.00	848.30	630.00	855.39	0.00	855.82	18.20	5.29	119.15	147.66
5.000	47.00	856.00	854.00	848.30	630.00	855.52	0.00	855.94	17.28	5.19	121.28	151.55
5.500	40.00	0.00	0.00	848.30	630.00	855.46	0.00	855.89	12.44	5.17	131.46	178.59
5.500	40.00	0.00	0.00	848.30	630.00	855.60	0.00	856.00	11.76	5.09	133.79	183.70
5.900	40.00	0.00	0.00	848.30	630.00	855.53	0.00	855.95	17.13	5.18	121.65	152.21
5.900	40.00	0.00	0.00	848.30	630.00	855.65	0.00	856.06	16.35	5.10	123.65	155.89
6.000	77.00	865.80	854.00	848.30	630.00	856.72	0.00	857.03	11.03	4.45	141.50	189.70
6.000	77.00	865.80	854.00	848.30	630.00	856.85	0.00	857.15	10.56	4.39	143.66	193.88
6.530	40.00	0.00	0.00	848.30	630.00	856.92	0.00	857.10	4.95	3.68	243.52	283.12
6.530	40.00	0.00	0.00	848.30	630.00	857.04	0.00	857.21	4.71	3.63	247.74	290.39
6.900	40.00	0.00	0.00	848.30	630.00	856.89	0.00	857.19	15.78	4.41	142.85	158.62
6.900	40.00	0.00	0.00	848.30	630.00	857.01	0.00	857.30	15.19	4.35	146.89	161.65
7.000	200.00	874.30	854.40	848.60	630.00	856.94	0.00	859.15	9.68	3.66	172.04	202.68
7.000	200.00	874.30	854.40	848.60	630.00	859.07	0.00	859.27	9.38	3.62	174.15	205.71
7.500	45.00	0.00	0.00	849.20	630.00	859.08	0.00	859.19	2.41	3.03	315.12	405.85
7.500	45.00	0.00	0.00	849.20	630.00	859.20	0.00	859.31	2.30	2.99	318.09	415.18
7.900	45.00	0.00	0.00	849.20	630.00	859.04	0.00	859.27	7.14	3.23	164.51	235.85
7.900	45.00	0.00	0.00	849.20	630.00	859.16	0.00	859.39	6.89	3.19	166.39	240.07
8.000	42.00	860.70	856.30	849.20	630.00	859.67	0.00	859.87	5.98	3.60	174.89	257.57
8.000	42.00	860.70	856.30	849.20	630.00	859.80	0.00	860.00	5.78	3.56	177.05	262.07
8.200	50.00	0.00	0.00	849.20	630.00	859.89	0.00	859.93	0.97	2.03	695.25	839.31
8.200	50.00	0.00	0.00	849.20	630.00	860.02	0.00	860.06	0.92	1.99	707.74	856.81
8.300	910.00	0.00	0.00	850.50	630.00	859.97	0.00	859.97	0.23	0.78	2430.78	1316.62
8.300	910.00	0.00	0.00	850.50	630.00	860.09	0.00	860.09	0.21	0.76	2495.88	1363.98
8.400	760.00	0.00	0.00	852.90	630.00	859.95	0.00	860.04	7.21	3.20	495.87	234.61
8.400	760.00	0.00	0.00	852.90	630.00	860.07	0.00	860.16	6.44	3.06	522.43	248.23
8.800	215.00	0.00	0.00	854.80	630.00	860.12	0.00	860.41	26.68	5.61	264.84	121.96
8.800	215.00	0.00	0.00	854.80	630.00	860.22	0.00	860.49	24.11	5.43	280.72	128.31
8.900	50.00	0.00	0.00	854.80	630.00	860.29	0.00	860.55	22.47	5.27	290.92	132.91
8.900	50.00	0.00	0.00	854.80	630.00	860.38	0.00	860.61	20.75	5.12	303.57	138.31
9.000	37.00	861.70	858.50	854.80	630.00	862.14	0.00	862.35	10.87	4.50	319.82	191.10
9.000	37.00	861.70	858.50	854.80	630.00	862.15	0.00	862.36	10.74	4.48	322.14	192.27
9.100	50.00	0.00	0.00	854.80	630.00	862.21	0.00	862.61	10.27	4.40	330.47	196.55
9.100	50.00	0.00	0.00	854.80	630.00	862.22	0.00	862.62	10.17	4.39	332.36	197.55
9.300	600.00	0.00	0.00	856.70	630.00	862.77	0.00	862.82	4.92	2.65	635.16	283.99
9.300	600.00	0.00	0.00	856.70	630.00	862.78	0.00	862.85	5.25	2.75	540.64	274.93

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

SECNO	XLCH	ELTOD	ELLC	ELMIN	Q	CHSEL	CRIWS	EG	TOK*S	VCH	AREA	.01K
9.700	570.00	0.00	0.00	857.60	630.00	863.09	0.00	863.31	15.76	4.40	271.35	158.67
9.700	570.00	0.00	0.00	857.60	630.00	863.13	0.00	863.37	16.56	4.51	255.75	155.75
9.900	100.00	0.00	0.00	858.70	630.00	863.30	0.00	863.64	56.53	5.70	198.52	83.57
9.900	100.00	0.00	0.00	858.70	630.00	863.33	0.00	863.68	52.97	5.56	209.50	86.56
10.000	40.00	866.40	863.40	859.10	630.00	866.91	0.00	867.00	6.60	2.98	418.54	245.27
10.000	40.00	866.40	863.40	859.10	630.00	866.92	0.00	867.01	6.57	2.97	419.50	245.84
10.200	50.00	0.00	0.00	858.80	630.00	866.99	0.00	867.03	2.75	2.51	603.37	581.14
10.200	50.00	0.00	0.00	858.80	630.00	866.99	0.00	867.04	2.72	2.50	606.25	581.85
10.220	250.00	0.00	0.00	860.00	630.00	867.04	0.00	867.16	7.11	3.54	465.26	236.29
10.220	250.00	0.00	0.00	860.00	630.00	867.04	0.00	867.17	7.69	3.68	405.40	227.25
10.260	300.00	0.00	0.00	861.45	630.00	867.22	0.00	867.58	22.61	5.49	225.52	132.48
10.260	300.00	0.00	0.00	861.45	630.00	867.23	0.00	867.63	24.14	5.68	191.43	128.22
10.300	300.00	0.00	0.00	862.90	630.00	867.95	0.00	868.56	42.18	6.84	147.75	97.00
10.300	300.00	0.00	0.00	862.90	630.00	868.00	0.00	868.66	43.89	7.02	126.30	95.09
10.320	300.00	0.00	0.00	864.20	630.00	869.12	0.00	869.27	13.40	3.72	356.26	172.08
10.320	300.00	0.00	0.00	864.20	630.00	869.23	0.00	869.38	13.37	3.77	350.27	172.32
10.340	300.00	0.00	0.00	865.30	630.00	869.60	0.00	869.87	28.29	4.89	275.68	118.46
10.340	300.00	0.00	0.00	865.30	630.00	869.69	0.00	869.99	28.41	4.98	246.71	118.19
10.400	350.00	0.00	0.00	866.60	630.00	870.68	0.00	871.03	37.82	5.44	236.57	102.44
10.400	350.00	0.00	0.00	866.60	630.00	870.77	0.00	871.16	37.81	5.53	211.49	102.45

FORM 1411-GB-PRINTED BY ROTARY MANIFOLD FORMS.

HARPER CREEK EMMETT TWP.

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	2.500	1150.00	843.83	0.00	0.00	0.00	319.94	720.00
	2.500	1150.00	843.83	0.00	0.00	0.00	199.85	720.00
	2.600	630.00	844.57	0.00	0.74	0.00	250.00	735.00
	2.600	630.00	844.61	0.00	0.73	0.04	250.00	735.00
	2.610	630.00	844.65	0.00	0.08	0.00	171.47	300.00
	2.610	630.00	844.69	0.00	0.07	0.04	175.00	300.00
	2.650	630.00	845.82	0.00	1.17	0.00	110.76	300.00
	2.650	630.00	845.82	0.00	1.13	-0.00	110.73	300.00
	2.660	630.00	846.84	0.00	1.03	0.00	86.30	200.00
	2.660	630.00	846.84	0.00	1.03	0.00	86.30	200.00
	2.700	630.00	848.22	0.00	1.37	0.00	60.00	200.00
	2.700	630.00	848.22	0.00	1.37	0.00	60.00	200.00
	2.800	630.00	848.47	0.00	0.25	0.00	36.00	50.00
	2.800	630.00	848.47	0.00	0.25	0.00	36.00	50.00
	2.850	630.00	848.69	0.00	0.22	0.00	24.00	25.00
	2.850	630.00	848.69	0.00	0.22	0.00	24.00	25.00
*	2.900	630.00	849.51	0.00	0.82	0.00	12.00	25.00
*	2.900	630.00	849.51	0.00	0.82	0.00	12.00	25.00
	3.000	630.00	851.39	0.00	1.88	0.00	12.00	42.00
	3.000	630.00	851.39	0.00	1.88	0.00	12.00	42.00
	3.100	630.00	852.79	0.00	1.40	0.00	110.00	50.00
	3.100	630.00	852.79	0.00	1.40	0.00	110.00	50.00
	3.200	630.00	852.80	0.00	0.01	0.00	180.01	200.00
	3.200	630.00	852.79	0.00	-0.00	-0.01	97.31	200.00
	3.800	630.00	853.02	0.00	0.22	0.00	182.23	300.00
	3.800	630.00	852.98	0.00	0.20	-0.03	107.81	300.00
	3.900	630.00	853.28	0.00	0.26	0.00	197.91	1.00
	3.900	630.00	853.33	0.00	0.34	0.05	116.93	1.00
	4.000	630.00	853.40	0.00	0.12	0.00	205.47	16.00
	4.000	630.00	853.47	0.00	0.14	0.07	121.69	16.00
	4.100	630.00	853.33	0.00	-0.07	0.00	201.86	1.00
	4.100	630.00	853.39	0.00	-0.07	0.06	118.32	1.00
	4.200	630.00	853.35	0.00	0.02	0.00	177.96	49.00
	4.200	630.00	853.41	0.00	0.02	0.07	85.14	49.00
	4.800	630.00	854.32	0.00	0.97	0.00	42.89	510.00
	4.800	630.00	854.61	0.00	0.99	0.09	27.25	510.00

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

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4.900	630.00	854.47	0.00	0.15	0.00	16.80	100.00
4.900	630.00	854.56	0.00	0.18	0.11	16.80	100.00
5.000	630.00	855.39	0.00	0.92	0.00	16.80	47.00
5.000	630.00	855.52	0.00	0.94	0.13	16.80	47.00
5.500	630.00	855.48	0.00	0.09	0.00	19.00	40.00
5.500	630.00	855.60	0.00	0.08	0.12	19.00	40.00
5.900	630.00	855.53	0.00	0.05	0.00	16.30	40.00
5.900	630.00	855.65	0.00	0.05	0.12	16.30	40.00
6.000	630.00	856.72	0.00	1.19	0.00	16.80	77.00
6.000	630.00	856.85	0.00	1.20	0.13	16.80	77.00
6.900	630.00	856.52	0.00	0.19	0.00	36.00	40.00
6.900	630.00	856.64	0.00	0.19	0.12	36.00	40.00
6.900	630.00	856.89	0.00	-0.03	0.00	16.67	40.00
6.900	630.00	857.01	0.00	-0.03	0.12	16.67	40.00
7.000	630.00	858.94	0.00	2.05	0.00	16.68	280.00
7.000	630.00	859.07	0.00	2.06	0.13	16.68	280.00
7.500	630.00	859.00	0.00	0.14	0.00	40.00	45.00
7.500	630.00	859.20	0.00	0.14	0.12	40.00	45.00
7.900	630.00	859.04	0.00	-0.04	0.00	16.70	45.00
7.900	630.00	859.16	0.00	-0.04	0.13	16.70	45.00
8.000	630.00	859.67	0.00	0.63	0.00	16.70	42.00
8.000	630.00	859.80	0.00	0.64	0.13	16.70	42.00
8.200	630.00	859.89	0.00	0.22	0.00	116.05	80.00
8.200	630.00	860.02	0.00	0.22	0.13	116.09	80.00
8.300	630.00	859.97	0.00	0.07	0.00	535.62	910.00
8.300	630.00	860.09	0.00	0.07	0.12	537.42	910.00
8.400	630.00	859.95	0.00	-0.02	0.00	206.66	760.00
8.400	630.00	860.07	0.00	-0.02	0.12	217.38	760.00
8.800	630.00	860.12	0.00	0.17	0.00	145.26	215.00
8.800	630.00	860.22	0.00	0.15	0.10	147.27	215.00
8.900	630.00	860.29	0.00	0.18	0.00	146.68	50.00
8.900	630.00	860.38	0.00	0.16	0.08	150.28	50.00
9.000	630.00	862.14	0.00	1.84	0.00	143.46	37.00
9.000	630.00	862.15	0.00	1.78	0.02	143.47	37.00
9.100	630.00	862.21	0.00	0.07	0.00	143.50	50.00
9.100	630.00	862.22	0.00	0.07	0.01	143.51	50.00
9.300	630.00	862.77	0.00	0.56	0.00	251.85	600.00
9.300	630.00	862.78	0.00	0.56	0.02	155.68	600.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
9.700	630.00	863.09	0.00	0.32	0.00	113.75	570.00
9.700	630.00	863.13	0.00	0.34	0.04	66.50	570.00
9.900	630.00	863.30	0.00	0.21	0.00	116.90	100.00
9.900	630.00	863.36	0.00	0.23	0.06	119.50	100.00
10.000	630.00	866.91	0.00	3.61	0.00	182.88	40.00
10.000	630.00	866.92	0.00	3.56	0.01	183.22	40.00
10.200	630.00	866.99	0.00	0.08	0.00	140.00	50.00
10.200	630.00	866.99	0.00	0.06	0.01	140.00	50.00
10.220	630.00	867.04	0.00	0.05	0.00	207.40	250.00
10.220	630.00	867.04	0.00	0.05	-0.00	142.67	250.00
10.260	630.00	867.22	0.00	0.18	0.00	144.44	300.00
10.260	630.00	867.23	0.00	0.19	0.01	52.80	300.00
10.300	630.00	867.95	0.00	0.73	0.00	70.97	300.00
10.300	630.00	868.00	0.00	0.77	0.05	32.27	300.00
10.320	630.00	869.12	0.00	1.17	0.00	132.13	300.00
10.320	630.00	869.29	0.00	1.23	0.11	164.64	300.00
10.340	630.00	869.60	0.00	0.47	0.00	172.15	300.00
10.340	630.00	869.69	0.00	0.46	0.10	132.64	300.00
10.400	630.00	870.68	0.00	1.50	0.00	108.67	350.00
10.400	630.00	870.77	0.00	1.00	0.10	127.06	350.00

SUMMARY OF ERRORS

CAUTION SECNO= 2.900 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.900 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.900 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.900 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.900 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.900 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

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FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS.

FLOODWAY DATA, HARPER CREEK EMMETT TWP.
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
2.500	200.	613.	1.9	843.8	843.8	0.0
2.600	250.	656.	1.0	844.6	844.6	0.0
2.610	175.	217.	2.9	844.6	844.6	0.0
2.650	111.	156.	3.4	845.8	845.8	0.0
2.660	86.	144.	4.4	846.8	846.8	0.0
2.700	60.	125.	5.0	848.2	848.2	0.0
2.800	36.	93.	6.8	848.5	848.5	0.0
2.850	24.	76.	8.2	848.7	848.7	0.0
2.900	12.	53.	11.9	849.5	849.5	0.0
3.000	12.	75.	8.3	851.4	851.4	0.0
3.100	110.	639.	1.0	852.8	852.8	0.0
3.200	97.	330.	1.9	852.8	852.8	0.0
3.800	108.	208.	3.2	853.0	853.0	0.0
3.900	117.	235.	2.7	853.4	853.3	0.1
4.000	122.	259.	2.4	853.5	853.4	0.1
4.100	118.	259.	2.4	853.4	853.3	0.1
4.200	85.	222.	2.6	853.4	853.3	0.1
4.800	27.	137.	4.6	856.4	856.3	0.1
4.900	17.	106.	6.0	856.6	856.5	0.1
5.000	17.	121.	5.2	855.5	855.4	0.1
5.500	19.	134.	4.7	855.6	855.5	0.1
5.900	17.	124.	5.1	855.6	855.5	0.1
6.000	17.	144.	4.4	856.8	856.7	0.1
6.500	36.	248.	2.5	857.0	856.9	0.1
6.900	17.	145.	4.3	857.0	856.9	0.1
7.000	17.	174.	3.6	859.0	858.9	0.1
7.500	40.	318.	2.0	859.2	859.1	0.1
7.900	17.	966.	3.0	859.1	859.0	0.1
8.000	17.	177.	3.6	859.8	859.7	0.1
8.200	116.	708.	0.9	860.0	859.9	0.1
8.300	537.	2496.	0.3	860.1	860.0	0.1
8.400	217.	522.	1.2	860.0	859.9	0.1
8.800	147.	280.	2.2	860.2	860.1	0.1
8.900	150.	303.	2.1	860.4	860.3	0.1
9.000	143.	322.	2.0	862.1	862.1	0.0
9.100	144.	332.	1.9	862.2	862.2	0.0
9.300	156.	541.	1.2	862.8	862.8	0.0
9.700	66.	236.	2.7	863.1	863.1	0.0
9.900	119.	205.	3.1	863.4	863.3	0.1
10.000	183.	420.	1.5	866.9	866.8	0.1
10.200	140.	604.	1.0	867.0	867.0	0.0
10.220	143.	403.	1.6	867.0	867.0	0.0
10.240	53.	181.	3.5	867.2	867.2	0.0
10.300	32.	126.	5.0	868.0	868.0	0.0
10.320	145.	356.	1.8	869.2	869.1	0.1
10.340	135.	247.	2.6	869.7	869.6	0.1
10.400	127.	211.	3.0	870.8	870.7	0.1

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00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Emmett Twp

3) WATERCOURSE: Harper Creek

4) DOCUMENT TYPE: 100 yr – Natural

00BREAK00

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

C
T1EMMETT TOWNSHIP FLOOD INSURANCE STUDY
T2 100-YR NATURAL RUN
T3      HARPER CREEK EMMETT TWP.

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        4.        0.        0.  0.000000      0.00       0.0        0.   843.030     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   110.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      0.100     0.100     0.040     0.100     0.300     0.000     0.000     0.000     0.000     0.000
QT      5.000   600.000   980.000  1150.000  1150.000  1620.000     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                                CROSS SECTION 32

X1      2.500    19.000   966.000   986.000   400.000   720.000   720.000     0.000     0.000     0.000
GR    870.700   432.000   863.700   536.000   852.600   622.000   844.000   702.000   842.700   806.000
GR    841.400   892.000   840.000   959.000   838.900   963.300   837.500   966.000   837.000   976.000
GR    837.900   986.000   839.500   991.000   843.300  1032.000   848.400  1066.000   851.200  1160.000
GR    845.200  1276.000   845.200  1388.000   852.500  1480.000   855.200  1506.000     0.000     0.000
QT      5.000   325.000   530.000   630.000   630.000   895.000     0.000     0.000     0.000     0.000
ET      0.000     7.100     9.100     9.100     9.100     9.100   950.000  1115.000   950.000  1200.000

        VALLEY SECTION                                CROSS SECTION 33

X1      2.600    18.000  1063.000  1092.000   900.000   400.000   735.000     0.000     0.000     0.000
GR    849.400   276.000   847.600   386.000   845.900   614.000   844.400   644.000   842.800   776.000
GR    842.300   860.000   842.300  1006.000   841.000  1063.000   838.300  1069.000   838.200  1077.000
GR    839.000  1085.000   841.700  1092.000   842.200  1094.000   843.400  1204.000   845.500  1290.000
GR    846.300  1412.000   855.200  1478.000   859.200  1566.000     0.000     0.000     0.000     0.000

X1      2.610     0.000     0.000     0.000   300.000   300.000   300.000     0.000     1.800     0.000
X3      0.000     0.000     0.000   982.000     0.000  1172.000     0.000     0.000     0.000     0.000

X1      2.650    10.000   436.000   465.000   300.000   300.000   300.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   380.000     0.000   530.000     0.000     0.000     0.000     0.000
GR    860.000     0.000   850.000   200.000   844.600   220.000   844.600   436.000   842.000   442.000
GR    841.900   450.000   842.300   458.000   844.000   465.000   850.000   450.000   860.000   610.000

X1      2.660     0.000     0.000     0.000   200.000   200.000   200.000     0.000     1.200     0.000
X3      0.000     0.000     0.000   402.000     0.000   498.000     0.000     0.000     0.000     0.000
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NC	0.100	0.100	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000

100 FT D/S BEADLE LAKE RD. CROSS SECTION 34

X1	2.700	11.000	488.000	512.000	200.000	200.000	200.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	470.000	0.000	530.000	0.000	0.000	0.000	0.000
GR	860.000	120.000	853.000	240.000	847.500	310.000	866.500	400.000	846.500	488.000
GR	844.500	492.000	844.500	500.000	845.200	508.000	846.500	512.000	850.000	550.000
GR	860.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	2.800	4.000	491.000	508.000	50.000	50.500	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	482.000	0.000	518.000	0.000	0.000	0.000	0.000
GR	860.400	120.000	848.000	406.000	846.500	491.000	845.000	493.000	844.600	500.000
GR	845.000	507.000	846.500	509.000	850.400	590.000	860.400	600.000	0.000	0.000

X1	2.850	0.000	0.000	0.200	25.000	25.000	25.000	0.000	0.100	0.000
X3	0.000	0.000	0.000	488.300	0.000	512.000	0.000	0.000	0.000	0.000

D/S FACE BEADLE LAKE RD. CROSS SECTION 34

X1	2.900	11.000	494.200	506.000	25.000	25.000	25.000	0.000	0.000	0.000
X3	10.000	0.000	0.200	490.000	0.000	510.000	0.000	351.000	451.000	0.000
GR	860.000	120.000	850.000	280.000	847.500	340.000	847.400	400.000	846.500	486.000
GR	845.500	494.000	845.500	494.100	844.800	500.000	845.300	505.900	845.300	506.000
GR	846.000	515.000	850.000	550.000	860.000	600.000	0.000	0.000	0.000	0.000
ET	0.000	1.730	0.000	0.000	12.000	0.000	40.000	0.000	845.000	845.000

D/S FACE BEADLE LAKE RD. CROSS SECTION 34&35

X1	3.000	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	850.000	854.900	1.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	490.000	0.000	510.000	0.000	355.500	855.500	0.000
BT	13.000	120.000	860.000	0.000	290.000	856.200	0.000	310.000	856.000	0.000
BT	400.000	855.500	0.000	486.000	854.900	0.000	494.000	854.900	0.000	494.100
BT	854.900	850.000	500.000	854.900	850.000	505.900	854.900	850.000	506.000	854.900
BT	0.000	515.000	854.900	0.000	550.000	854.900	0.000	600.000	860.000	0.000

X1	3.100	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	445.000	0.000	555.000	0.000	0.000	0.000	0.000
NC	0.080	0.080	0.035	0.100	0.300	0.000	0.000	0.000	0.000	0.000
ET	0.060	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION CROSS SECTION 35

X1	3.200	13.000	640.000	658.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	867.000	338.000	859.000	430.000	855.200	528.000	850.000	632.000	849.800	636.000
GR	846.700	640.000	846.000	849.000	846.400	858.000	849.800	869.000	851.300	704.000
GR	855.000	832.000	861.400	970.000	875.600	992.000	0.000	0.000	0.000	0.000
ET	0.300	9.100	0.000	0.000	0.000	0.000	0.000	0.000	600.000	700.000

D/S PRIVATE DRIVE CROSS SECTION 36

X1	5.300	27.000	640.900	647.100	250.000	300.000	300.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	851.300	851.300	0.000
GR	870.600	290.000	865.400	396.000	855.200	540.000	851.300	626.000	851.300	653.000
GR	851.300	659.000	848.800	660.900	847.700	671.400	847.400	674.900	847.500	842.400

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GR	847.400	642.900	847.700	643.500	848.800	643.900	848.300	644.100	847.700	644.600
GR	847.600	645.100	847.300	645.600	847.600	646.100	847.700	646.600	848.800	647.100
GR	851.300	649.000	851.300	655.000	851.300	702.000	855.000	754.000	860.600	976.000
GR	867.200	1082.000	875.000	1174.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	600.000	700.000

D/S FACE PRIVATE DRIVE CROSS SECTION 36

X1	3.900	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	851.300	851.300	0.000
BT	27.000	290.900	870.600	0.000	396.000	863.400	0.000	440.000	855.200	0.000
BT	626.000	851.300	0.000	633.000	851.300	0.000	639.000	851.300	0.000	640.900
BT	851.300	0.000	641.400	851.300	849.900	641.900	851.300	850.200	642.400	851.300
BT	850.300	642.900	851.300	850.200	643.500	851.300	849.900	643.900	851.300	0.000
BT	644.100	851.300	0.000	644.600	851.330	849.900	645.100	851.300	850.200	645.600
BT	851.300	851.300	645.100	851.300	850.200	646.600	851.300	849.900	647.100	851.300
BT	0.000	649.000	851.300	0.000	655.700	851.300	0.000	702.000	851.300	0.000
BT	754.000	855.000	0.000	976.000	850.600	0.000	1082.000	867.200	0.000	1174.000
BT	875.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	0.000	0.000	0.000	0.000	0.000	0.000	600.000	700.000

U/E FACE PRIVATE DRIVE CROSS SECTION 36

X1	4.000	0.000	0.000	0.000	15.000	16.000	16.000	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	851.300	851.300	0.000
X8	0.000	0.000	0.035	0.300	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	600.000	700.000

U/S PRIVATE DRIVE CROSS SECTION 36

X1	4.100	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	851.300	851.300	0.000

50 FT U/S PRIVATE DRIVE CROSS SECTION 36

XT	4.200	13.000	639.000	849.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	870.600	290.000	863.400	396.000	855.200	440.000	851.300	626.000	851.300	633.000
GR	847.300	639.000	847.300	649.000	851.300	655.000	863.200	702.000	855.000	754.000
GR	860.600	976.000	867.200	1082.000	875.000	1174.000	0.000	0.000	0.000	0.000
NC	0.080	0.080	0.035	0.300	0.500	0.000	0.000	0.000	0.000	0.000

300 FT D/S E DRIVE NORTH CROSS SECTION 38

XT	4.800	14.000	1469.000	1485.800	510.000	510.000	510.000	0.000	0.000	0.000
GR	860.000	1437.000	850.300	1468.000	850.300	1469.000	848.300	1469.000	848.300	1469.100
GR	848.300	1477.000	848.300	1477.100	848.300	1477.700	848.300	1477.800	848.300	1485.700
GR	848.300	1485.800	851.000	1486.000	851.000	1487.000	860.000	1517.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	9.100	0.000	0.000	0.000	1838.000	1517.000

D/S FACE E DRIVE NORTH CROSS SECTION 38

X1	4.900	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	1468.000	0.000	1437.000	0.000	855.000	855.000	0.000
X8	0.000	1.000	3.000	0.000	16.000	0.000	91.000	0.000	848.300	848.300

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U/S FACE E DRIVE NORTH CROSS SECTION 57838

X1	5.000	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	854.000	856.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1468.000	0.000	1487.000	0.000	856.000	856.000	0.000
BT	18.000	1437.000	870.000	0.000	1468.000	870.000	0.000	1469.000	856.000	0.000
BT	1469.000	856.000	0.000	1469.100	856.000	854.000	1477.000	856.000	854.000	1477.100
BT	856.000	0.000	1477.700	856.000	0.000	1477.800	856.000	854.000	1485.700	856.000
BT	854.000	1485.800	856.000	0.000	1486.000	856.000	0.000	1487.000	870.000	0.000
BT	1517.000	870.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

40 FT U/S E DRIVE NORTH & 40 D/S I-94 RAMP CROSS SECTION 38

X1	5.500	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1468.000	0.000	1487.000	0.000	0.000	0.000	0.000

D/S FACE I-94 RAMP CROSS SECTION 38

X1	5.900	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	865.800	865.800	0.000
SB	0.000	2.010	3.000	0.000	16.600	0.600	91.000	0.000	848.300	848.300

U/S FACE I-94 RAMP CROSS SECTION 38439

X1	6.000	0.000	0.000	0.000	77.000	77.000	77.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	854.000	865.800	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	865.800	865.800	0.000
BT	18.000	1377.000	870.000	0.000	1378.000	865.800	0.000	1466.000	865.800	0.000
BT	1458.000	865.800	0.000	1466.000	865.800	0.000	1469.800	865.800	0.000	1469.900
BT	865.800	854.000	1477.000	865.800	854.000	1477.100	865.800	0.000	1477.700	865.800
BT	0.000	1477.800	865.800	854.000	1485.700	865.800	854.000	1485.800	865.800	0.000
BT	1491.000	865.800	0.000	1500.000	865.800	0.000	1524.000	865.800	0.000	1576.000
BT	865.800	0.000	1577.000	870.000	0.000	0.000	0.000	0.000	0.000	0.000

40 FT U/S I-94 RAMP & 40 FT D/S I-94 CROSS SECTION 43

X1	6.500	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1459.000	0.000	1475.000	0.000	0.000	0.000	0.000

D/S FACE I-94 CROSS SECTION 45

X1	6.900	8.000	1.000	17.800	40.000	40.000	40.000	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	874.300	1.000	848.300	1.100	848.300	9.000	848.300	9.100	848.300	9.700
GR	848.300	9.800	848.300	17.700	874.300	17.800	0.000	0.000	0.000	0.000
SB	0.000	3.170	3.000	0.000	16.800	0.800	93.000	0.000	848.300	848.600

U/S FACE I-94 CROSS SECTION 40041

X1	7.000	0.000	0.000	0.000	280.000	280.000	280.000	0.000	0.300	0.000
X2	0.000	0.000	1.000	854.400	874.300	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	874.300	874.300	0.000
BT	8.000	1.000	874.300	0.000	1.100	874.300	854.400	9.000	874.300	854.400
BT	9.100	874.300	0.000	9.700	874.300	0.000	0.000	874.300	854.300	17.700
BT	874.300	854.300	17.800	874.300	0.000	0.000	0.000	0.000	0.000	0.000

40 FT D/S I-94 & 45 FT D/S E DRIVE SOUTH CROSS SECTION 40

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X1	7.500	16.000	1404.000	1420.700	45.000	45.000	45.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1392.000	0.000	1432.000	0.000	0.000	0.000	0.000
GR	870.000	1212.000	856.000	1213.000	855.800	1312.000	855.400	1394.000	849.200	1404.000
GR	849.200	1404.100	849.200	1412.000	849.200	1412.100	849.200	1412.600	849.200	1412.700
GR	849.200	1425.600	849.200	1420.700	855.300	1439.000	855.600	1520.000	856.000	1611.000
GR	870.000	1612.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE E DRIVE SOUTH — CROSS SECTION 40

X1	7.900	0.000	0.000	0.000	45.000	45.000	45.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	861.000	861.000	0.000
BO	0.000	1.760	3.000	0.000	16.700	0.700	114.000	0.000	849.200	849.200

U/S FACE E DRIVE SOUTH — CROSS SECTION 40&42

X1	8.000	0.000	0.000	0.000	42.000	42.000	42.000	0.000	0.000	0.000
X2	0.000	0.000	1.050	836.300	860.700	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	861.000	861.000	0.000
BT	16.000	1212.000	870.000	0.000	1213.000	860.700	0.000	1312.000	860.700	0.000
BT	1394.000	860.700	0.000	1404.000	860.700	0.000	1404.100	860.700	856.300	1412.000
BT	856.700	856.300	1412.700	856.700	0.000	1412.000	860.700	0.000	1412.700	850.700
BT	856.300	1420.600	860.700	856.300	1420.700	860.700	0.000	1430.000	860.700	0.000
BT	1520.000	860.700	0.000	1611.000	860.700	0.000	1612.000	870.000	0.000	0.000

50 FT U/S E DRIVE SOUTH — CROSS SECTION 43

X1	8.200	0.000	0.000	0.000	50.000	50.300	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1356.300	0.000	1470.300	0.000	0.000	0.000	0.000
NC	0.100	0.100	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	0.000	7.100	1000.000	1600.000	0.000	0.000

VALLEY SECTION — CROSS SECTION 43

X3	8.300	16.000	1166.000	1190.000	500.000	1000.000	910.000	0.000	0.000	0.000
X4	2.000	865.600	480.000	863.600	584.000	0.000	0.000	0.000	0.000	0.000
GR	871.200	426.000	861.000	858.000	861.000	1022.000	853.600	1084.000	854.000	1156.000
GR	854.700	1162.000	850.900	1196.000	853.700	1176.000	850.500	1190.000	855.400	1195.000
GR	853.600	1282.000	856.800	1412.000	859.000	1500.000	865.500	1602.000	869.600	1670.000
GR	875.200	1750.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION — CROSS SECTION 44

X1	8.400	13.000	824.000	844.000	500.000	700.000	760.000	0.000	0.000	0.000
GR	868.200	300.000	864.000	380.000	864.000	550.000	868.400	820.000	859.800	802.000
GR	855.700	819.000	854.600	824.000	854.600	834.000	852.900	844.000	856.000	848.000
GR	860.000	1000.000	868.500	1026.000	869.400	1060.000	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
ET	0.000	7.100	7.100	0.000	9.100	0.000	849.000	857.000	501.000	1040.000

50 FT D/S BEAGLE LAKE RD.

X1	8.800	15.000	827.000	840.000	215.000	215.000	215.000	0.000	0.000	0.000
GR	868.200	300.000	864.000	380.000	864.000	761.000	860.000	762.000	859.800	802.000
GR	856.500	819.000	855.200	827.000	855.200	827.100	854.800	834.000	855.900	859.100
GR	855.500	840.000	857.000	868.000	868.000	1000.000	868.500	1026.000	869.400	1060.000

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	O/S FACE BEADLE LAKE RD.					CROSS SECTION 45					
X1	8.900	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	0.000	0.000	0.000	0.000	860.000	860.000	0.000	
SB	0.000	1.640	3.000	0.000	13.000	0.000	45.000	0.000	855.000	855.000	
	O/S FACE BEADLE LAKE RD.					CROSS SECTION 45					
X1	9.000	15.000	827.000	840.000	37.000	37.000	37.000	0.000	0.000	0.000	
X2	0.000	0.000	1.000	858.500	861.700	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	861.700	861.700	0.000	
BT	15.000	300.000	868.200	0.000	920.000	664.000	0.000	761.000	864.000	0.000	
BT	761.000	861.700	0.000	902.000	861.700	0.000	819.000	861.700	0.000	827.000	
BT	861.700	0.000	827.100	861.700	858.500	834.000	861.700	858.500	839.900	861.700	
BT	858.500	840.000	861.700	0.000	868.000	861.700	0.000	905.000	861.700	0.000	
BT	906.000	868.500	0.000	1000.000	869.400	0.000	0.000	0.000	0.000	0.000	
GT	868.200	300.000	864.000	390.000	864.000	701.300	851.200	762.300	861.200	802.000	
GT	850.500	819.000	855.200	827.300	855.200	827.100	854.800	834.000	855.500	859.900	
GT	855.500	840.000	861.200	868.300	861.220	905.000	850.500	906.000	869.400	1000.000	
ET	0.000	2.100	7.100	0.000	0.000	0.000	780.000	893.000	0.000	0.000	
	51 FT O/S BEADLE LAKE RD.										
X1	9.100	0.000	0.000	0.000	50.000	50.000	50.000	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	
CT	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000	0.000	
	VALLEY SECTION					CROSS SECTION 44					
X1	9.300	16.000	656.000	676.000	750.000	350.000	600.000	0.000	0.000	0.000	
GR	893.000	198.000	876.000	394.000	867.000	518.000	863.200	552.000	860.100	610.000	
GR	859.900	644.000	858.700	652.000	857.200	656.000	856.700	666.000	857.300	676.000	
GR	858.900	682.000	859.500	718.000	863.600	838.300	869.400	948.000	877.200	1078.000	
GR	883.200	1138.000	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	0.000	0.000	0.500	0.000	0.000	
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	610.000	700.000	
	100 FT D/S D DRIVE					CROSS SECTION 48					
X1	9.700	20.000	628.000	648.000	400.000	400.000	570.000	0.000	0.000	0.000	
GR	886.800	118.000	877.000	140.000	870.700	178.000	873.600	226.000	871.200	402.000	
GR	870.400	482.000	868.600	540.000	866.500	566.000	863.700	590.000	860.800	608.000	
GR	859.700	624.000	858.200	628.000	857.600	638.000	858.300	648.000	859.800	654.000	
GR	861.400	666.000	863.000	706.000	867.200	778.000	872.400	918.000	865.000	1172.000	
ET	0.000	0.000	0.000	0.000	9.100	0.300	0.000	0.300	119.000	1172.000	
	D/S FACE D DRIVE					CROSS SECTION 48					
X1	9.900	38.000	626.500	646.500	100.000	100.300	100.000	0.000	0.000	0.000	
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	863.200	863.000	0.000	
GR	886.800	118.000	877.000	140.000	870.700	178.000	873.600	226.000	871.200	402.000	
GR	870.400	482.000	868.600	540.000	866.500	566.000	863.700	590.000	862.000	608.000	
GR	860.000	624.000	859.700	626.500	859.600	627.000	859.500	628.000	859.400	629.500	
GR	859.500	631.000	859.600	632.000	859.700	632.300	860.900	636.500	859.500	637.000	
GR	859.300	637.500	858.900	638.500	859.100	639.500	859.500	640.000	860.900	640.500	
GR	860.700	642.500	859.400	643.000	859.000	643.500	858.700	644.500	859.000	645.500	
GR	859.500	646.000	860.700	646.500	859.500	658.000	862.500	660.000	863.000	706.000	
GR	867.200	778.000	872.400	918.000	865.000	1172.000	0.000	0.300	0.000	0.000	
SD	0.000	0.330	3.000	0.000	10.000	0.000	0.000	0.000	859.100	858.200	

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U/S FACE D DRIVE — CROSS SECTION 48

X1	10.000	30.000	626.500	646.500	40.000	40.000	40.000	0.000	0.430	0.000
X2	0.000	0.000	1.000	863.400	866.400	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	866.400	866.400	0.000
DT	38.000	110.000	867.200	0.000	140.000	877.600	0.000	178.000	871.100	0.000
BT	226.000	874.000	0.000	402.000	871.600	0.000	482.000	870.600	0.000	540.000
BT	869.000	0.000	566.000	866.900	0.000	590.000	866.400	0.000	608.000	866.400
DT	0.000	624.000	866.400	0.000	626.500	866.400	859.700	627.000	866.400	861.600
BT	428.000	866.400	862.800	629.500	866.400	863.000	631.000	866.400	862.600	632.000
ET	866.400	861.600	632.500	866.600	839.700	636.500	866.400	860.900	637.900	866.400
ST	862.300	637.500	866.400	862.700	638.500	866.400	862.900	639.500	866.400	862.700
BT	640.000	866.400	862.300	640.500	866.400	860.900	642.500	866.400	860.700	643.000
BT	866.400	862.000	643.500	866.400	862.400	644.500	866.400	862.700	645.500	866.400
BT	862.400	646.000	866.400	862.000	646.500	866.400	860.700	652.000	866.400	0.000
BT	666.000	866.400	0.000	706.000	866.400	0.000	778.000	867.600	0.000	918.000
BT	872.800	0.000	1172.000	866.400	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.600	198.000	877.000	140.000	870.700	178.000	873.600	226.000	871.200	402.000
GR	870.400	482.000	868.600	560.000	866.500	566.000	863.700	590.000	865.400	606.000
GR	860.000	624.000	859.700	626.500	859.600	627.000	859.500	628.000	859.400	629.500
GR	859.500	631.000	859.600	652.000	859.700	632.500	850.900	636.500	859.500	637.000
GR	859.700	637.500	858.900	650.500	859.700	659.500	859.500	630.000	860.900	640.500
GR	850.700	642.500	859.400	643.000	857.000	643.500	856.700	568.500	859.000	645.500
GR	859.500	646.000	860.700	866.500	859.500	652.000	865.000	660.000	865.500	706.000
GR	867.200	778.000	872.400	918.000	886.000	1172.000	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

50 FT U/S D DRIVE — CROSS SECTION 48

X1	10.200	20.000	624.000	645.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	564.000	0.000	704.000	0.000	0.000	0.000	0.000
GR	886.800	118.000	877.000	140.000	870.700	178.000	873.600	226.000	871.200	402.000
GR	870.400	462.000	868.600	560.000	866.500	566.000	863.700	590.000	865.400	606.000
GR	861.500	624.000	859.800	651.000	858.800	636.000	859.000	645.000	862.300	651.000
GR	862.500	666.000	865.000	706.000	867.200	778.000	872.400	918.000	886.000	1172.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000

X1	10.220	15.000	827.000	853.000	250.200	250.000	250.000	0.000	-2.900	0.000
GR	880.000	522.000	877.200	606.000	869.200	718.000	868.200	704.000	867.600	815.000
GR	863.500	827.000	862.900	855.000	863.400	843.000	865.700	848.000	866.000	868.000
GR	869.000	912.000	875.000	952.000	881.400	952.000	885.600	974.000	894.300	1040.000

X1	10.240	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.450	0.000

VALLEY SECTION — CROSS SECTION 49

X1	10.300	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.450	0.000

X1	10.320	20.000	470.000	494.000	300.000	300.000	300.000	0.000	-2.400	0.000
GR	886.000	168.000	882.800	196.000	877.800	275.000	869.700	360.000	870.000	438.000
GR	869.300	462.000	868.700	488.000	866.600	470.000	867.200	482.000	867.000	494.000
GR	868.700	496.000	868.700	504.000	869.700	513.000	872.800	530.000	873.000	614.000
GR	872.800	726.000	873.500	812.000	877.800	884.000	893.900	960.000	893.200	1052.000

X1	10.540	0.000	0.000	0.000	300.000	300.000	300.000	0.000	1.100	0.000

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VALLEY SECTION CROSS SECTION 50

X1	10.400	0.000	0.000	1.000	350.000	350.000	350.000	0.000	1.300	0.000
BJ	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 2.500
     SECNO     DEPTH     CWSEL     CRIWS     HSELK     EG        HV        HL        ULOSS     BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTI       EL IN        SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IN2       ICONT     CORAR     TOPWID       ENDST

          VALLEY SECTION                                CROSS SECTION 32

        2.50      6.83    843.83      0.00    843.83    844.00      0.17      0.00      0.00    837.50
      1150.       424.      592.       134.      448.      130.      126.        0.        0.    837.90
        0.00      0.95      4.57       1.06     0.100     0.040     0.100     0.000    837.00    715.59
   0.001257       402.      720.       720.         0                   0      0.00    319.94   1055.53

FLOW DISTRIBUTION FOR SECNO=       2.50          CWSEL=     843.83

STA=      716.      806.      892.      959.      963.      966.      986.      991.     1032.     1036.
PER Q=      1.6      10.3      20.6       2.1       2.3      51.5       5.4       0.2       0.1
AREA=      51.9     153.1     209.7      17.5      16.9     129.6      35.7      99.6       0.9
VEL=        0.4       0.8       1.1       1.4       1.6       4.6       1.5       0.9       0.2

*SECNO 2.600

3470 ENCROACHMENT STATIONS=      950.0     1200.0  TYPE=       1  TARGET=      250.000

          VALLEY SECTION                                CROSS SECTION 33

        2.60      6.37    844.57      0.00      0.00    844.62      0.05      0.60      0.01    841.00
      630.        172.      368.        89.      293.      157.      195.       12.        5.    841.70
        0.13      0.59      2.34       0.46     0.100     0.040     0.100     0.000    838.20    950.00
   0.000438       900.      735.       400.         2         0         0      0.00    250.00   1200.00

FLOW DISTRIBUTION FOR SECNO=       2.60          CWSEL=     844.57

STA=      950.     1006.     1063.     1092.     1094.     1200.
PER Q=     10.5      16.8      58.5       0.3      13.7
AREA=     127.0     166.3     167.3       5.2     189.8
VEL=        0.5       0.6       2.3       0.6       0.5

*SECNO 2.610

3470 ENCROACHMENT STATIONS=      982.0     1172.0  TYPE=       1  TARGET=      190.000
        2.61      4.65    844.65      0.00      0.00    845.00      0.35      0.29      0.09    842.80
      630.        75.       546.        9.       87.       107.       21.       15.        6.    843.50
        0.15      0.92      5.06       0.44     0.100     0.040     0.100     0.040    840.00    982.00
   0.003431       300.      300.       300.         2         0         0      0.00    171.47   1153.47

FLOW DISTRIBUTION FOR SECNO=       2.61          CWSEL=     844.65

STA=      982.     1006.     1063.     1092.     1094.     1153.
PER Q=      1.2      10.6      86.7       0.2       1.3
AREA=      13.2      68.3     107.5       1.8      19.3
VEL=        0.6       1.0       5.1       0.6       0.4

*SECNO 2.650
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3470 ENCROACHMENT STATIONS=      380.0      530.0  TYPE=      1  TARGET=      150.000
     2.65      3.92    845.82      0.00      0.00    846.23      0.41      1.21      0.02    844.60
     630.       79.      528.       23.       60.       94.       23.       16.        7.    844.00
     0.17      1.16      5.59      0.97     0.100     0.040     0.100     0.040    841.90    380.00
 0.004848      300.      300.      300.         3         0         0      0.00    110.76    490.76

FLOW DISTRIBUTION FOR SECNO=      2.65          CWSEL=     845.82

STA=      380.      436.      465.      491.
  PER Q=      12.6      83.8       3.6
   AREA=      68.2      94.5      23.4
    VEL=       1.2       5.6       1.0

*SECNO 2.660
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   XIME      VLOB      VCH       VROB      XXL       XNCH      XNR       XTN       XLMIN       SSTA
   SLOPE     XLOFL     XLCH      XLOSR     ITRIAL    IR2       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      402.0      498.0  TYPE=      1  TARGET=       96.000
     2.66      3.74    846.84      0.00      0.00    847.40      0.55      1.13      0.03    845.00
     630.       44.      566.       20.       36.       89.       19.       17.        8.    845.20
     0.17      1.23      6.33      1.06     0.100     0.040     0.100     0.040    843.10    402.00
 0.006685      200.      200.      200.         2         0         0      0.00     86.30    488.30

FLOW DISTRIBUTION FOR SECNO=      2.66          CWSEL=     846.84

STA=      402.      436.      465.      488.
  PER Q=       6.9      89.8       3.2
   AREA=      35.5      89.5      19.2
    VEL=       1.2       6.3       1.1

CCHV=   0.300 CEHV=   0.500
*SECNO 2.700

3470 ENCROACHMENT STATIONS=      470.0      530.0  TYPE=      1  TARGET=       60.000

        100 FT D/S BEADLE LAKE RD.                          CROSS SECTION 34

     2.70      3.92    848.22      0.00      0.00    848.91      0.69      1.44      0.07    846.50
     630.       55.      556.       19.       31.       79.       16.       17.        8.    846.50
     0.18      1.77      7.08      1.20     0.100     0.040     0.100     0.040    844.30    470.00
 0.007763      200.      200.      200.         2         0         0      0.00     60.00    530.00

FLOW DISTRIBUTION FOR SECNO=      2.70          CWSEL=     848.22

STA=      470.      488.      512.      530.
  PER Q=       8.7      88.3       3.1
   AREA=      30.9      78.6      16.0
    VEL=       1.8       7.1       1.2

*SECNO 2.800

3470 ENCROACHMENT STATIONS=      482.0      518.0  TYPE=      1  TARGET=       36.000
     2.80      3.87    848.47      0.00      0.00    849.62      1.15      0.48      0.23    846.50
     630.       38.      564.       28.       17.       62.       14.       17.        8.    846.50
     0.19      2.23      9.06      2.02     0.100     0.040     0.100     0.040    844.60    482.00
 0.012223       50.       50.       50.         2         0         0      0.00     36.00    518.00
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FLOW DISTRIBUTION FOR SECNO= 2.80 CWSEL= 848.47

STA=	482.	491.	509.	518.
PER Q=	6.0	89.5	4.5	
AREA=	17.1	62.3	15.9	
VEL=	2.2	9.1	2.0	

*SECNO 2.850

3470 ENCROACHMENT STATIONS= 488.0 512.0 TYPE= 1 TARGET= 24.000

2.85	3.99	846.69	0.00	0.00	850.02	1.33	0.31	0.09	846.60
630.	12.	607.	11.	6.	64.	6.	17.	8.	846.60
0.19	1.92	9.43	1.90	0.100	0.040	0.100	0.040	844.70	484.00
0.012667	25.	25.	25.	2	0	0	0.00	24.00	512.00

FLOW DISTRIBUTION FOR SECNO= 2.85 CWSEL= 848.69

STA=	488.	491.	509.	512.
PER Q=	1.9	96.6	1.8	
AREA=	6.2	64.4	5.8	
VEL=	1.9	9.4	1.9	

*SECNO 2.900

3501 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TIA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	LTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IN2	ICONT	CORAR	TOPWID	ENDST

3605 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 490.0 510.0 TYPE= 1 TARGET= 20.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 851.00 ELREA= 851.00

D/S FACE BEADLE LAKE RD. CROSS SECTION 34

2.90	4.71	849.51	849.51	0.00	851.72	2.20	0.40	0.44	845.50
630.	0.	630.	0.	0.	53.	0.	17.	8.	845.30
0.19	1.00	11.91	0.00	0.100	0.040	0.100	0.040	844.80	494.00
0.020836	25.	25.	25.	20	8	0	0.00	12.00	506.00

FLOW DISTRIBUTION FOR SECNO= 2.90 CWSEL= 849.51

STA=	494.	506.
PER Q=	100.0	
AREA=	52.9	
VEL=	11.9	

SPECIAL BRIDGE

SS	XK	XKOR	CDFO	RDLEN	BKC	BKP	BAREA	SS	ELCHU	ELCHD
0.00	1.75	3.00	0.00	12.00	0.00	60.00	0.00	845.00	845.00	

*SECNO 3.000

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	VSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	THA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	KNCH	XCR	WTN	ELMIN	SSTA
SLOPE	XLOEL	XLCH	XLOBR	ITRIAL	IM2	ICONT	CORAR	TOPWID	ENDST

PRESSURE FLOW

EGPRS	EGLSC	HB	QCRIT	CPR	BAREA	TRAPEZOID AREA	ELLC	ELTPD
852.47	851.73	0.00	0.	630.	60.	60.	850.00	854.90

3470 ENCROACHMENT STATIONS= 690.0 510.0 TYPE= 1 TARGET= 20.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 855.50 ELREA= 855.30

U/S FACE BRIDGE LAKE RD. CROSS SECTION 34335

3.00	6.59	851.39	0.00	0.00	852.47	1.08	0.76	0.00	845.50
630.	0.	630.	0.	0.	75.	0.	18.	8.	845.30
0.19	0.00	8.35	0.00	0.100	0.040	0.100	0.040	844.80	494.00
0.007387	42.	42.	42.	3	0	0	0.00	12.00	505.00

FLOW DISTRIBUTION FOR SECNO= 3.00 CWSEL= 851.39

STA= 494. 506.

PER Q= 100.0
AREA= 79.5
VEL= 0.3

*SECNO 3.100

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 445.0 555.0 TYPE= 1 TARGET= 110.000

3.10	7.99	852.79	0.00	0.00	852.83	0.04	0.04	0.31	845.50
630.	233.	219.	178.	503.	92.	243.	18.	8.	845.30
0.20	0.77	8.37	0.73	0.100	0.040	0.100	0.040	844.80	445.00
0.000271	50.	50.	50.	2	0	0	0.00	110.00	555.00

FLOW DISTRIBUTION FOR SECNO= 3.10 CWSEL= 852.79

STA=	443.	486.	494.	506.	515.	550.	555.
PER Q=	29.5	7.5	34.7	9.2	18.4	0.6	
AREA=	249.1	54.3	92.2	64.3	167.7	11.4	
VEL=	0.7	0.9	2.4	0.9	0.7	0.3	

CCHV= 0.100 CEHV= 0.300

*SECNO 3.200

VALLEY SECTION CROSS SECTION 35

3.20	6.61	852.80	0.00	0.00	852.93	0.13	0.03	0.03	850.70

	630.	74.	419.	138.	108.	117.	170.	20.	9.	846.60
	0.22	0.68	3.56	0.81	0.080	0.035	0.080	0.039	846.00	575.95
	0.000579	200.	200.	200.	2	0	0	0.00	180.01	755.97

FLOW DISTRIBUTION FOR SECNO= 3.20 CWSEL= 852.80

STA=	576.	632.	656.	640.	658.	669.	704.	756.
PER Q=	7.0	1.7	3.0	66.4	10.0	9.6	2.3	
AREA=	78.5	11.6	18.2	117.5	51.7	78.8	39.0	
VEL=	0.6	0.9	1.0	5.6	1.2	0.6	0.4	

*SECNO 3.800

D/S PRIVATE DRIVE CROSS SECTION 36

	3.80	5.72	853.02	0.00	0.00	853.40	0.38	0.39	0.08	848.80
	630.	152.	249.	230.	99.	33.	118.	22.	10.	848.80
	0.24	1.54	7.60	1.95	0.080	0.035	0.080	0.039	847.30	543.95
	0.006178	250.	300.	300.	2	0	0	0.00	182.23	725.18

FLOW DISTRIBUTION FOR SECNO= 3.30 CWSEL= 853.02

STA=	544.	626.	633.	639.	641.	647.	649.	655.	702.	725.
PER Q=	14.7	6.0	3.4	1.9	39.5	1.9	3.4	25.6	4.3	
AREA=	70.6	12.0	10.3	5.6	32.7	5.6	10.3	80.9	20.8	
VEL=	1.3	2.1	2.1	2.1	7.6	2.1	2.1	2.1	1.3	

*SECNO 3.900

3370 NORMAL BRIDGE,NRB= 27 MIN ELTRD= 851.30 MAX ELLC= 850.30

D/S FACE PRIVATE DRIVE CROSS SECTION 36

	3.90	5.98	853.28	0.00	0.00	853.43	0.15	0.01	0.02	848.80
	630.	201.	141.	208.	122.	25.	136.	22.	10.	848.80
	0.24	1.64	5.57	2.12	0.080	0.025	0.080	0.039	847.30	531.84
	0.006247	1.	1.	1.	3	0	0	-13.68	197.91	729.75

FLOW DISTRIBUTION FOR SECNO= 3.90 CWSEL= 853.28

STA=	532.	626.	633.	639.	641.	647.	649.	655.	702.	730.
PER Q=	21.5	5.1	4.3	1.0	22.4	1.0	4.3	34.0	6.3	
AREA=	93.0	13.8	11.8	3.8	25.4	3.8	11.8	92.8	27.4	
VEL=	1.5	2.3	2.3	1.7	5.6	1.7	2.3	2.3	1.5	

*SECNO 4.000

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	IN2	ICONT	CORAN	SOPWID	ERDST

3370 NORMAL BRIDGE,NRB= 27 MIN ELTRD= 851.30 MAX ELLC= 850.30

D/S FACE PRIVATE DRIVE CROSS SECTION 36

	4.00	6.10	853.40	0.00	0.00	853.52	0.13	0.09	0.00	848.80
	630.	209.	136.	269.	136.	24.	146.	25.	0.	848.80

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      0.24      1.53      5.11      1.98     0.080     0.025     0.080     0.039    847.30    526.00
  0.005052       16.       16.       16.         2         0         0    -13.68    205.47    731.47


 FLOW DISTRIBUTION FOR SECNO=      4.00          CWSEL=    853.40

 STA=    528.     626.     633.     639.     641.     647.     649.     655.     702.     731.
  PER Q=   22.7      5.0      4.3      1.0     21.2      1.0      4.3     33.8      6.7
  AREA=   104.8     14.7     12.6      4.0     26.1      4.0     12.6     95.5     30.9
   VEL=     1.4      2.2      2.2      1.5      5.1      1.5      2.2      2.2      1.4

 *SECNO 4.100

          U/S PRIVATE DRIVE                                CROSS SECTION 36

      4.10      6.03    853.33      0.00      0.00    853.56      0.23      0.00      0.03    848.80
       630.      173.      215.      242.      131.       35.      143.       23.       10.    848.80
      0.24      1.52      6.22      1.66     0.080     0.035     0.080     0.039    847.30    529.23
 0.033794        1.        1.        1.         2         0         0      3.03    201.26    730.51


 FLOW DISTRIBUTION FOR SECNO=      4.10          CWSEL=    853.33

 STA=    529.     626.     633.     639.     641.     647.     649.     655.     702.     731.
  PER Q=   15.0      4.7      3.5      1.0     36.2      1.9      3.5     27.7      5.3
  AREA=   98.1     16.2     12.2      3.2     34.6      6.2     12.2     95.3     20.9
   VEL=     1.2      1.8      1.8      1.6      6.2      1.8      1.8      1.9      1.2

 *SECNO 4.200

          50 FT U/S PRIVATE DRIVE                          CROSS SECTION 35

      4.20      6.04    853.35      0.00      0.00    853.74      0.40      0.13      0.05    847.30
       630.      151.      387.       92.      139.       60.       76.       23.       10.    847.30
      0.24      1.09      6.39      1.21     0.080     0.035     0.080     0.039    847.30    528.32
 0.002057       49.       49.       49.         2         0         0      0.00    177.96    706.23


 FLOW DISTRIBUTION FOR SECNO=      4.20          CWSEL=    853.35

 STA=    528.     626.     633.     639.     649.     655.     702.     706.
  PER Q=   13.6      3.1      7.3     61.4      7.3      7.3      0.0
  AREA=   100.0     14.3     24.3     60.5     24.3     51.6      0.3
   VEL=     0.9      1.4      1.9      6.6      1.9      0.9      0.1

 CCHV=   0.300 CEHV=   0.500
 *SECNO 4.800

          100 FT D/S E DRIVE NORTH                         CROSS SECTION 33

      4.60      6.02    854.32      0.00      0.00    854.75      0.44      0.99      0.02    850.30
       630.       40.      564.       26.       30.      101.       23.       25.       12.    848.30
      0.27      1.33      5.58      1.16     0.080     0.035     0.080     0.038    848.30   1455.17
 0.001835       510.      510.      510.         3         0         0      0.00     42.89   1498.05


 FLOW DISTRIBUTION FOR SECNO=      4.80          CWSEL=    854.32

 STA=   1455.    1468.    1469.    1486.    1486.    1487.    1498.
  PER Q=    5.0      1.3     89.6      0.1      1.9      3.2
  AREA=   25.8      4.0    101.1      0.9      3.3     18.3
   VEL=     1.2      2.0      6.6      0.4      1.8      1.1

 *SECNO 4.900
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3470 ENCROACHMENT STATIONS=     1468.0     1487.0  TYPE=      1  TARGET=       19.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       855.00 ELREA=       855.00

        D/S FACE E DRIVE NORTH                                CROSS SECTION 38

      4.90      6.17    854.47      0.00      0.00    855.34      0.57      0.22      0.07    850.30
      630.        0.      630.        0.        0.      104.        0.       26.       12.    848.30
      0.28      0.00      6.08      0.00     0.080     0.035     0.080     0.038    848.30   1469.00
  0.002748      100.      100.      100.         2         0         0      0.00     16.00   1485.82

FLOW DISTRIBUTION FOR SECNO=       4.90          CWSEL=     854.47

STA=     1469.     1486.
  PER Q=     100.0
   AREA=     103.6
    VEL=       6.1

SPECIAL BRIDGE

SB  KK        XROB       COFB       BDLEN      B.C        BWP        BAREA      SS         ELCHU      ELCRD
     0.00       1.82       3.00       0.00      16.60       0.60      91.00       0.00     848.30     848.30

*SECNO 5.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TEA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IM2       ICONT     CCRAR     TOPWID     ENDST

PRESSURE FLOW

  EGPRS      EGLNC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                  AREA
   855.82     855.04      0.00        0.      630.       91.       91.      854.00     856.00

3470 ENCROACHMENT STATIONS=     1468.0     1487.0  TYPE=      1  TARGET=       19.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       856.00 ELREA=       856.00

        U/S FACE E DRIVE NORTH                                CROSS SECTION 37838

      5.00      7.09    855.39      0.00      0.00    855.82      0.63      0.78      0.00    850.30
      630.        0.      630.        0.        0.      119.        0.       26.       12.    848.30
      0.28      0.00      5.29      0.00     0.080     0.035     0.080     0.038    848.30   1469.00
  0.001820       47.       47.       47.         2         0         0      0.90     16.80   1485.80

FLOW DISTRIBUTION FOR SECNO=       5.00          CWSEL=     855.39

STA=     1469.     1486.
  PER Q=     100.0
   AREA=     119.1
    VEL=       5.3

*SECNO 5.500
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3470 ENCROACHMENT STATIONS= 1468.0 1487.0 TYPE= 1 TARGET= 19.000

40 FT U/S E DRIVE NORTH & 40 D/S I-94 RAMP CROSS SECTION 30

	5.50	7.16	855.48	0.00	0.00	855.69	0.41	0.06	0.01	850.30
	630.	3.	624.	3.	5.	121.	6.	26.	12.	848.30
	0.28	0.56	5.17	0.53	0.080	0.035	0.080	0.036	848.30	1468.00
	0.001244	40.	40.	40.	0	6	0	0.00	19.00	1487.00

FLOW DISTRIBUTION FOR SECND= 5.50 CHSEL= 855.48

STA=	1468.	1469.	1486.	1480.	1437.
PER Q=	0.5	99.0	0.1	0.4	
AREA=	5.2	120.6	1.2	4.5	
VEL=	0.6	5.2	0.4	0.6	

*SECNO 5.930

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 865.80 ELREA= 865.80

D/S FACE I-94 RAMP CROSS SECTION 59

5.90	7.23	855.53	0.00	0.00	855.95	0.42	0.06	0.00	850.30
630.	0.	630.	0.	0.	122.	0.	26.	12.	848.30
0.28	0.00	5.18	0.00	0.080	0.035	0.080	0.038	843.30	1469.00
0.001713	40.	40.	40.	0	0	0	0.00	16.80	1485.80

FLOW DISTRIBUTION FOR SECND= 5.90 CHSEL= 855.53

STA=	1469.	1486.
PER Q=	100.0	
AREA=	121.6	
VEL=	5.2	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	FRC	SWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.01	3.00	0.00	16.60	0.60	91.00	0.00	848.30	848.30

*SECNO 6.000
PRESSURE FLOW

EGPRS	ESLUC	HS	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELRD
857.03	855.95	0.00	0.	630.	91.	91.	854.00	865.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 865.80 ELREA= 865.80

U/S FACE I-94 RAMP CROSS SECTION 38839

	6.00	8.42	856.72	0.00	0.00	857.03	0.31	1108	0.00	850.30
	630.	0.	630.	0.	0.	142.	0.	26.	12.	848.30
	0.29	0.00	4.45	0.00	0.080	0.035	0.080	0.058	848.30	1469.00
	0.001103	77.	77.	77.	2	0	0	0.00	16.80	1485.80

FLOW DISTRIBUTION FOR SECNO= 6.00 CWSEL= 856.72

STA= 1669. 1486.
PER Q= 100.0
AREA= 141.5
VEL= 4.5

*SECNO 6.500

3470 ENCROACHMENT STATIONS= 1459.0 1495.0 TYPE= 1 TARGET= 36.000

40 FT D/S I-94 RAMP & 40 FT D/S I-94 CROSS SECTION 40

6.50	8.62	856.92	0.00	0.00	857.10	0.18	0.03	0.04	850.30
630.	55.	533.	42.	53.	145.	45.	26.	12.	840.30
0.29	1.02	3.68	0.93	0.080	0.035	0.080	0.038	848.30	1459.00
0.000695	40.	40.	40.	2	0	0	0.03	36.00	1495.00

FLOW DISTRIBUTION FOR SECNO= 6.50 CWSEL= 856.92

STA= 1459. 1468. 1469. 1486. 1486. 1487. 1495.
PER Q= 7.1 1.5 86.6 0.7 1.3 5.4
AREA= 46.9 6.6 144.7 1.5 5.9 37.7
VEL= 1.0 1.5 3.7 0.3 1.4 0.9

*SECNO 6.900

SECNO	DEPTH	CWSEL	CRIWS	USELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	QCH	QROS	XLOB	XCH	AROB	VOL	TOA	LEFT/RIGHT
TIME	VLOB	VCH	VROS	XNL-	XNCH	XAR	RTR	EL IN	SSTA
SLOPE	XLOBL	XLCH	XLOBT	ITRIAL	IWR	ICONT	CODAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEFT= 874.30 ELRGA= 874.30

D/S FACE I-94 CROSS SECTION 40.

6.90	8.59	856.89	0.00	0.00	857.19	0.30	0.03	0.06	874.30
630.	0.	630.	0.	0.	143.	0.	27.	12.	874.30
0.29	0.00	4.41	0.00	0.080	0.035	0.080	0.038	848.30	1.07
0.001570	40.	40.	40.	2	0	0	0.00	10.67	17.73

FLOW DISTRIBUTION FOR SECNO= 6.90 CWSEL= 856.89

STA= 1. 18.
PER Q= 100.0
AREA= 142.8
VEL= 4.4

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	BDLEN	BWC	BWP	BAREA	SS	ELCHO	ELCHD
	0.00	3.17	3.00	0.00	16.80	0.80	93.00	0.00	848.30	848.60

*SECNO 7.000
PRESSURE FLOW

EGPRS	EGLWC	K3	QWEIR	CPR	HAREA	TRAPEZOID	CLLC	CLTRD

							AREA		
859.15	857.21	0.00	0.	630.	93.		98.	854.40	874.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 874.30 ELREA= 874.30

D/S FACE I-94 CROSS SECTION 40241

7.00	10.34	858.94	0.00	0.00	859.15	0.21	1.96	0.00	874.60
630.	0.	630.	0.	0.	172.	0.	20.	12.	874.60
0.32	0.00	3.66	0.00	0.080	0.033	0.080	0.037	848.60	1.06
0.000968	200.	200.	200.	2	0	0	0.00	16.66	17.74

FLOW DISTRIBUTION FOR SECNO= 7.00 CHSEL= 858.96

STA=	1.	18.
PER Q=	100.0	
AREA=	172.0	
VEL=	3.7	

*SECNO 7.500

3470 ENCROACHMENT STATIONS= 1392.0 1432.0 TYPE= 1 TARGET= 40.000

45 FT U/S I-94 & 45 FT D/S E DRIVE SOUTH CROSS SECTION 40

7.50	9.80	859.08	0.00	0.00	859.19	0.12	0.02	0.03	849.20
630.	65.	501.	64.	75.	165.	73.	28.	12.	849.20
0.32	0.87	3.03	0.88	0.080	0.035	0.080	0.037	849.20	1392.00
0.000241	45.	45.	45.	2	0	0	0.00	40.00	1432.00

FLOW DISTRIBUTION FOR SECNO= 7.50 CHSEL= 859.08

STA=	1392.	1394.	1404.	1421.	1430.	1432.
PER Q=	0.4	10.0	79.5	9.7	0.5	
AREA=	7.3	67.8	165.0	64.9	8.1	
VEL=	0.3	0.9	3.0	0.9	0.4	

*SECNO 7.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

D/S FACE E DRIVE SOUTH CROSS SECTION 40

7.90	9.84	859.04	0.00	0.00	859.27	0.23	0.02	0.06	849.20
630.	0.	630.	0.	0.	164.	0.	28.	12.	849.20
0.32	0.00	3.83	0.00	0.080	0.035	0.080	0.037	849.20	1404.00
0.000714	45.	45.	45.	2	0	0	0.00	16.70	1420.70

FLOW DISTRIBUTION FOR SECNO= 7.90 CHSEL= 859.04

STA=	1404.	1421.
PER Q=	100.0	
AREA=	164.3	
VEL=	3.8	

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SB	XK	XKOR	COFG	RDLFN	BNC	BHP	BAREA	SS	ELCHU	ELCHD
	0.00	1.76	3.00	0.00	16.70	0.70	114.00	0.00	849.20	849.20

*SECNO 8.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
859.87	859.27	0.00	0.	630.	114.	114.	856.30	860.70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.00 ELREA= 861.00

U/S FACE E DRIVE SOUTH CROSS SECTION 40842

8.00	10.47	859.67	0.00	0.00	859.67	0.20	0.91	0.00	849.20
630.	0.	630.	0.	0.	175.	0.	28.	12.	849.20
0.33	0.00	3.60	0.00	0.080	0.035	0.000	0.037	849.20	1404.00
0.000598	42.	42.	42.	2	3	0	0.00	16.70	1420.70

FLOW DISTRIBUTION FOR SECNO= 8.05 CWSEL= 859.67

STA=	1404.	1421.
PER Q=	- 100.0	
AREA=	175.9	
VEL=	3.6	

*SECNO 8.200

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	XXL	XNCH	XNR	STN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IN2	ICONT	CONAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1354.0 1470.0 TYPE= 1 TARGET= 116.000

50 FT U/S E DRIVE SOUTH CROSS SECTION 43

8.20	10.69	859.89	0.00	0.00	859.93	0.04	0.01	0.05	849.20
630.	129.	363.	138.	252.	179.	263.	29.	12.	849.20
0.34	0.51	2.03	0.53	0.060	0.035	0.080	0.037	849.20	1354.00
0.000897	50.	50.	50.	2	0	0	0.00	116.00	1470.00

FLOW DISTRIBUTION FOR SECNO= 8.20 CWSEL= 859.89

STA=	1354.	1394.	1404.	1421.	1430.	1470.
PER Q=	12.8	7.6	57.6	7.4	14.6	
AREA=	175.8	75.9	176.6	72.5	190.4	
VEL=	0.5	0.6	2.0	0.6	0.5	

CCHV= 0.100 CEHV= 0.300
*SECNO 8.300

VALLEY SECTION CROSS SECTION 43

8.30	9.47	859.97	0.00	0.00	859.97	0.00	0.04	0.00	850.90
630.	146.	174.	310.	576.	222.	552.	39.	19.	850.50

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      0.98      0.22      0.78      0.20     0.100     0.040     0.100     0.038    850.56   1030.64
  0.000023       500.      910.     1000.         2         0         0      0.00    535.62   1566.26

 FLOW DISTRIBUTION FOR SECNO=       8.30          CWSEL=     859.97

 STA=     1031.     1084.     1156.     1162.     1166.     1190.     1195.     1282.     1412.     1560.     1566.
  PER Q=      4.1      16.9       1.2       1.0      27.7       1.6      22.1      19.6       5.6       0.0
  AREA=    169.9     446.1      33.7      28.7     222.4      40.1     562.8     619.9     306.1       3.0
   VEL=      0.2       0.2       0.2       0.2       0.8       0.3       0.2       0.2       0.1       0.0

 *SECNO 8.400

        VALLEY SECTION                                  CROSS SECTION 44

      8.40      7.05    859.95      0.00      0.00    860.04      0.10      0.05      0.03    854.60
       630.       52.      369.      209.       62.      115.      318.       81.       24.    852.90
      1.07      0.85      3.20      0.56     0.100     0.040     0.100     0.039    852.90    791.59
  0.000721       500.      760.      700.         2         0         0      0.00    206.46    998.05

 FLOW DISTRIBUTION FOR SECNO=       8.40          CWSEL=     859.95

 STA=      792.      819.      827.      842.      843.      991.
  PER Q=      3.9       4.3      30.6       5.7      29.5
  AREA=      38.2      24.0     115.3      22.5     296.3
   VEL=       0.7       1.1       3.2       1.1       0.6

 CCHV=    0.300 CEHV=    0.500
 *SECNO 8.800

        50 FT D/S BEADLE LAKE RD.

      8.80      5.32    860.12      0.00      0.00    860.41      0.30      0.27      0.10    855.20
       630.       111.      366.      153.       76.       65.      123.       83.       25.    855.50
      1.09      1.45      5.61      1.24     0.100     0.040     0.100     0.039    854.80    761.97
  0.002668       215.      215.      215.         2         0         0      0.00    145.26    907.23

 FLOW DISTRIBUTION FOR SECNO=       8.80          CWSEL=     860.12

 STA=      762.      802.      819.      827.      840.      848.      907.
  PER Q=       0.4       0.3      10.8      58.2       9.2      15.1
  AREA=        8.7      33.4      34.1      65.3      30.9      92.8
   VEL=        0.3       1.2       2.0       5.6       1.9       1.0

 *SECNO 8.900

        D/S FACE BEADLE LAKE RD.                        CROSS SECTION 45

      8.90      5.49    860.29      0.00      0.00    860.55      0.25      0.12      0.01    855.20
       630.       115.      356.      158.       88.       68.      135.       83.       25.    855.50
      1.09      1.31      5.27      1.17     0.100     0.040     0.100     0.039    854.80    761.93
  0.002247        50.       50.       50.         2         0         0      0.00    148.68    910.60

 FLOW DISTRIBUTION FOR SECNO=       8.90          CWSEL=     860.29

 STA=      762.      802.      819.      827.      840.      848.      911.
  PER Q=       1.0       6.7      10.7      56.5       9.1      16.1
  AREA=       15.8      36.5      35.6      67.6      32.4     103.1
   VEL=        0.4       1.2       1.9       5.3       1.8       1.0
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SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BHC	BWP	BAREA	SS	ELCRU	ELCHD
	0.00	1.64	3.00	0.00	13.00	0.00	45.00	0.00	855.00	855.00

*SECNO 9.000

SECNO	DEPTH	CHSEL	CRIWS	PSELV	EG	HV	HL	CLOSS	BANK ELEV
0	QLOB	QCH	QROB	FLOB	ACH	AROB	WOL	TOA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	CTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IN2	ICONT	CORAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
863.29	861.74	0.00	227.	422.	45.	46.	858.50	861.70

U/S FACE BEADLE LAKE RD. CROSS SECTION 45

9.30	7.33	862.14	0.00	0.00	862.35	0.21	1.60	1.00	855.20
630.	102.	413.	57.	146.	93.	84.	83.	25.	855.50
1.50	1.11	4.50	0.68	0.100	0.040	0.100	0.039	854.80	761.66
0.001037	37.	37.	37.	2	0	5	0.00	143.46	905.13

FLOW DISTRIBUTION FOR SECNO= 9.00 CHSEL= 862.14

STA=	762.	802.	819.	827.	840.	860.	903.
PER Q=	2.8	9.4	15.2	65.6	5.0	4.0	
AREA=	37.8	55.9	50.3	91.9	30.3	53.6	
VEL=	0.5	1.1	1.7	4.5	1.0	0.5	

*SECNO 9.100

50 FT U/S BEADLE LAKE RD.

9.10	7.41	862.21	0.00	0.00	862.41	0.20	0.05	0.00	855.20
630.	162.	409.	59.	149.	93.	89.	86.	25.	855.50
1.50	1.09	4.40	0.67	0.100	0.040	0.100	0.039	854.80	761.64
0.001027	50.	50.	90.	1	0	0	0.00	143.50	905.14

FLOW DISTRIBUTION FOR SECNO= 9.10 CHSEL= 862.21

STA=	762.	802.	819.	827.	840.	843.	909.
PER Q=	3.1	9.5	13.1	64.9	5.0	4.4	
AREA=	40.8	57.2	50.9	92.8	30.9	57.8	
VEL=	0.5	1.0	1.6	4.4	1.0	0.5	

CCHV= 0.100 CEHV= 0.300

*SECNO 9.300

VALLEY SECTION CROSS SECTION 46

9.30	6.07	862.77	0.00	0.00	862.82	0.06	0.40	0.01	857.20
600.	126.	307.	197.	207.	116.	562.	90.	28.	857.50
1.20	0.61	2.65	0.63	0.100	0.040	0.100	0.039	856.70	560.13
0.000492	750.	600.	550.	2	0	0	0.00	251.85	611.98

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FLOW DISTRIBUTION FOR SECNO= 9.30 CWSEL= 862.77

STA=	560.	610.	644.	652.	656.	676.	682.	710.	812.
PER Q=	4.2	9.7	3.3	2.8	48.8	4.1	16.0	11.1	
AREA=	66.5	94.0	27.7	19.3	115.8	28.3	130.2	153.4	
VEL=	0.4	0.6	0.7	0.9	2.7	0.9	0.3	0.5	

CCHV= 0.300 CEHV= 0.500

*SECNO 9.700

100 FT D/S D DRIVE CROSS SECTION 48

9.70	5.69	363.09	0.00	0.00	863.31	0.22	0.41	0.08	856.20
630.	80.	455.	87.	78.	103.	90.	96.	30.	858.30
1.24	1.13	4.40	0.97	0.100	0.040	0.100	0.040	857.60	593.79
0.001576	400.	570.	400.	2	0	0	0.00	113.75	707.54

FLOW DISTRIBUTION FOR SECNO= 9.70 CWSEL= 863.09

STA=	594.	608.	624.	628.	646.	654.	666.	706.
PER Q=	1.7	8.5	3.8	72.2	5.6	5.1	3.1	
AREA=	16.3	45.4	16.6	105.3	24.2	29.9	35.6	
VEL=	0.6	1.2	1.5	4.6	1.5	1.1	0.5	

*SECNO 9.900

D/S FACE D DRIVE CROSS SECTION 48

9.90	4.60	863.30	0.00	0.00	863.64	0.34	0.27	0.03	859.70
630.	101.	408.	121.	56.	72.	73.	96.	30.	860.70
1.25	1.26	5.70	1.67	0.100	0.040	0.100	0.040	858.70	594.24
0.005683	100.	100.	100.	2	0	0	0.00	116.90	711.14

FLOW DISTRIBUTION FOR SECNO= 9.90 CWSEL= 863.30

STA=	594.	608.	624.	627.	647.	652.	666.	706.	711.
PER Q=	1.2	11.3	3.5	64.8	6.7	9.8	2.6	0.0	
AREA=	8.9	36.8	8.6	71.6	17.6	32.2	22.0	0.8	
VEL=	0.8	1.9	2.5	5.7	2.4	1.9	0.8	0.3	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.33	3.00	0.00	10.00	0.00	43.00	0.00	859.10	858.70

*SECNO 10.000

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	IN2	ICONT	CORAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELUC	ELTRD
871.37	864.90	0.00	195.	439.	43.	43.	863.40	866.40

U/S FACE D DRIVE CROSS SECTION 48

10.00	7.81	866.91	0.00	0.00	867.00	0.09	3.36	0.00	860.10	
630.	95.	404.	130.	116.	136.	167.	95.	30.	861.10	
1.25	0.82	2.98	0.78	0.100	0.040	0.100	0.040	859.10	565.88	
0.000660	40.	40.	40.	2	0	6	0.30	182.98	748.76	

FLOW DISTRIBUTION FOR SECNO= 10.00 CWSEL= 866.91

STA=	566.	590.	608.	624.	627.	667.	652.	666.	706.	749.
PER Q=	0.5	1.6	9.5	5.8	64.2	7.3	9.1	3.6	0.3	
AREA=	12.2	22.7	64.2	10.6	135.8	35.3	59.6	50.4	21.6	
VEL=	0.2	0.5	0.9	1.3	3.0	1.3	1.0	0.4	0.2	

*SECNO 10.200

3470 ENCROACHMENT STATIONS= 564.0 704.0 TYPE= 1 TARGET= 145.000

50 FT U/S D DRIVE CROSS SECTION 49

10.20	-8.19	866.99	0.00	0.00	867.03	0.05	0.02	0.01	861.50	
630.	100.	357.	173.	180.	155.	268.	96.	30.	859.00	
1.26	0.56	2.31	0.55	0.100	0.040	0.100	0.040	858.90	554.30	
0.000273	50.	50.	50.	2	0	0	0.00	140.20	704.30	

FLOW DISTRIBUTION FOR SECNO= 10.20 CWSEL= 866.99

STA=	564.	566.	590.	620.	624.	645.	651.	656.	704.	
PER Q=	0.0	2.7	5.5	7.7	59.6	4.6	7.4	15.4		
AREA=	0.8	45.2	61.8	72.6	154.7	38.0	68.9	161.4		
VEL=	0.1	0.6	0.5	0.7	2.3	0.8	0.7	0.6		

CCHV= 0.100 CEHV= 0.300

*SECNO 10.220

10.22	7.04	867.04	0.00	0.00	867.16	0.12	0.10	0.02	860.60	
630.	132.	383.	115.	202.	100.	154.	99.	31.	860.50	
1.29	0.66	3.54	0.75	0.100	0.040	0.100	0.040	860.00	707.65	
0.000711	250.	250.	250.	2	0	0	0.00	207.48	915.13	

FLOW DISTRIBUTION FOR SECNO= 10.22 CWSEL= 867.04

STA=	708.	718.	784.	815.	827.	843.	848.	868.	912.	915.
PER Q=	0.1	9.9	6.4	6.6	60.8	4.9	8.2	5.1	0.1	
AREA=	3.8	81.8	63.2	52.7	108.2	26.9	61.8	63.3	1.5	
VEL=	0.2	0.5	0.8	1.0	3.5	1.1	0.8	0.5	0.2	

*SECNO 10.240

10.24	5.77	867.22	0.00	0.00	867.58	0.36	0.35	0.07	862.05	
630.	71.	483.	77.	69.	86.	67.	101.	32.	861.95	
1.31	1.03	5.49	1.15	0.100	0.040	0.100	0.040	861.45	753.01	
0.002261	300.	300.	300.	2	2	0	0.00	144.44	897.46	

FLOW DISTRIBUTION FOR SECNO= 10.24 CWSEL= 867.22

STA=	753.	784.	815.	827.	843.	848.	868.	897.	
PER Q=	0.5	2.2	8.6	78.6	5.6	6.1	0.5		
AREA=	7.5	23.4	37.4	84.9	20.6	36.4	9.9		
VEL=	0.3	0.6	1.3	3.5	1.7	1.3	0.3		

*SECNO 10.300

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VALLEY SECTION CROSS SECTION 49

10.30	5.05	867.95	0.00	0.00	868.56	0.61	0.90	0.07	863.50
630.	49.	523.	58.	32.	76.	39.	103.	33.	863.40
1.32	1.53	6.36	1.48	0.100	0.040	0.100	0.040	862.90	796.64
0.004218	300.	300.	300.	2	0	0	0.00	72.97	367.61

FLOW DISTRIBUTION FOR SECNO= 10.30 CWSEL= 867.95

STA=	797.	815.	827.	843.	848.	860.
PER Q=	0.2	7.7	83.0	5.5	3.7	
AREA=	3.3	28.9	76.5	17.0	22.1	
VEL=	0.3	1.7	6.8	2.0	1.0	

*SECNO 10.320

SECNO	DEPTH	CWSEL	CONTR	WSELK	EG	HV	FL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	LOL	TCH	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XR2	XNCH	XMP	CTN	ELMIN	STA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IN2	ICONT	CORAR	TOPWID	ENDST
10.32	4.93	869.12	0.00	0.00	869.27	0.14	0.66	0.05	864.20
630.	569.	406.	57.	216.	109.	60.	104.	34.	864.60
1.35	0.79	3.72	0.95	0.100	0.040	0.100	0.040	864.20	340.17
0.001340	300.	300.	300.	2	0	0	0.00	132.13	523.00

FLOW DISTRIBUTION FOR SECNO= 10.32 CWSEL= 869.12

STA=	341.	360.	438.	462.	466.	470.	494.	496.	504.	513.	523.
PER Q=	1.4	15.9	5.9	2.4	1.3	64.1	1.5	3.9	3.2	0.7	
AREA=	17.4	130.5	45.0	15.1	7.7	108.6	7.3	22.6	20.9	9.1	
VEL=	0.5	0.8	0.8	1.0	1.0	3.7	1.1	1.1	1.0	0.5	

*SECNO 10.340

10.34	4.29	869.60	0.00	0.00	869.87	0.27	0.56	0.06	865.30
630.	121.	458.	51.	137.	94.	43.	107.	35.	865.70
1.37	0.88	4.09	1.19	0.100	0.040	0.100	0.040	865.30	347.42
0.002829	300.	300.	300.	2	0	0	0.00	172.15	519.57

FLOW DISTRIBUTION FOR SECNO= 10.34 CWSEL= 869.60

STA=	347.	360.	438.	462.	468.	470.	496.	496.	504.	513.	520.
PER Q=	0.7	10.6	4.4	2.2	1.6	72.7	1.3	3.7	2.7	0.3	
AREA=	7.5	81.8	30.3	11.4	6.5	93.6	6.3	17.6	15.3	3.9	
VEL=	0.6	0.8	0.9	1.2	1.6	6.9	1.1	1.5	0.1	0.6	

*SECNO 10.400

VALLEY SECTION CROSS SECTION 50

10.40	4.08	870.68	0.00	0.00	871.03	0.36	1.14	0.02	866.60
630.	100.	481.	89.	111.	88.	37.	109.	37.	867.00
1.40	0.91	5.44	1.30	0.100	0.040	0.100	0.040	866.60	349.71
0.003782	350.	350.	350.	2	0	0	0.00	168.67	518.38

FLOW DISTRIBUTION FOR SECNO= 10.40 CWSEL= 870.68

STA=	350.	360.	438.	462.	468.	470.	494.	496.	504.	513.	518.
PER Q=	0.5	8.3	3.7	2.1	1.4	76.3	1.4	3.6	2.5	0.2	

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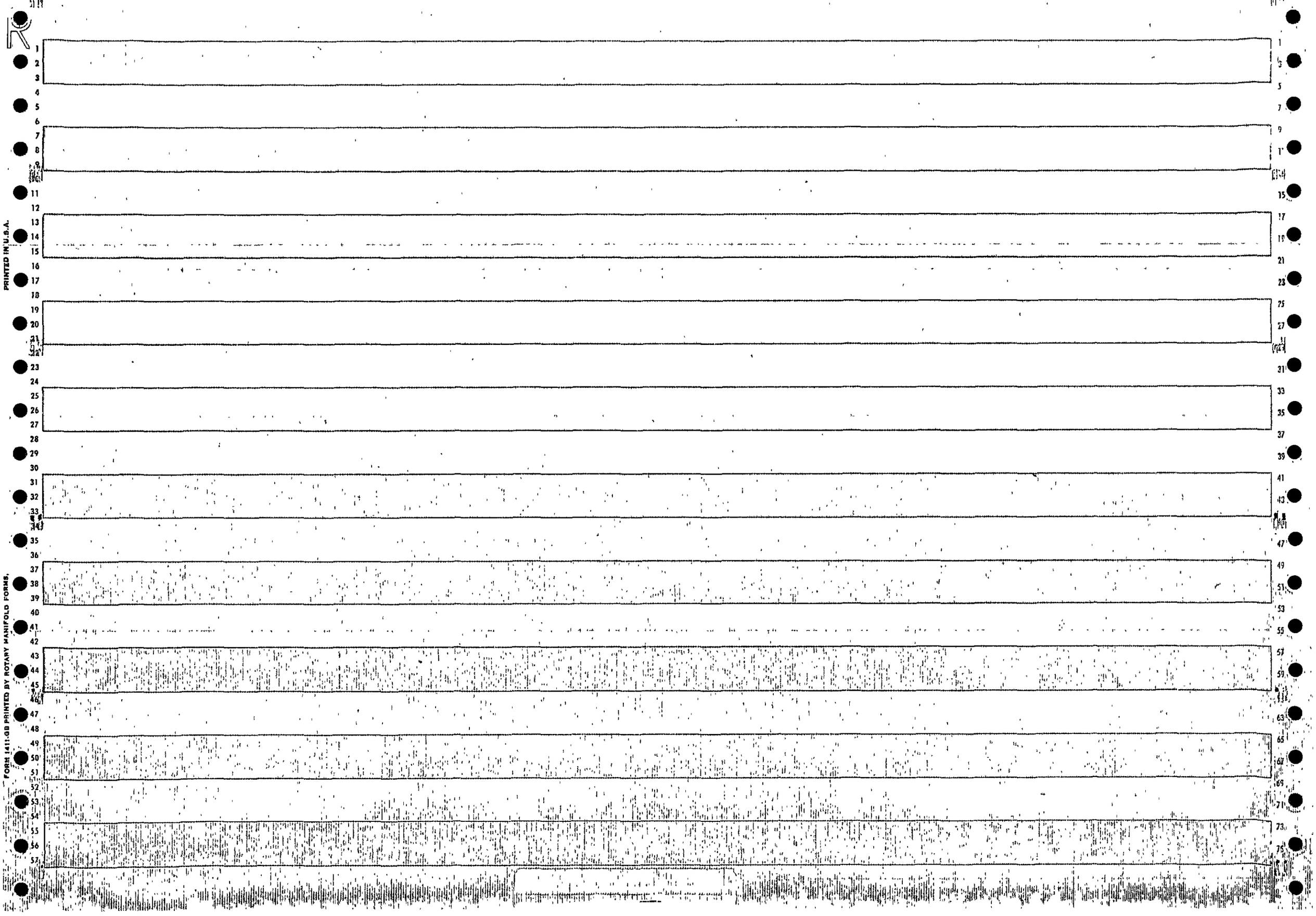
AREA=	5.0	64.8	24.7	10.1	6.1	88.3	5.7	15.8	13.3	2.6
VEL=	0.6	0.8	0.9	1.3	1.5	5.4	1.5	1.4	1.2	0.6



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FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS,



1) COUNTY: Calhoun

2) STUDY NAME: emmett twp

3) WATERCOURSE: Kalamazoo River

4) DOCUMENT TYPE: 100 yr encroachment



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**************************************************************
  HEC2 RELEASE DATED NOV 75 UPDATED FEB 1977
  ERROR CORR -  31
  MODIFICATION -  [illegible]
**************************************************************

T1EMMETT TOWNSHIP FLOOD INSURANCE STUDY
T2KALAMAZOO RIVER FROM BATTLE CREEK TOWNSHIP TO I-94
T3       KALAMAZOO RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        5.        0.        0.  0.000000      0.00       0.0        0.   031,610     0.000

J2  NPROF     IPLOT     PNEVS     XSECV     XSECH     FN        ALLC      XOM       CHLIM     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-GD-PRINTED BY ROTARY MANIFOLD FORMS.
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*PROF 2

CCHV=   0.100 CEHV=   0.300
*SECNO 1.000
 2800 NAT Q1=   1832.91  WSEL=    831.61  ENC Q1=   1832.71  WSEL=    831.71  RATIO=  0.0000
  NAT Q1=   1827.  RATIOS LOB,CH,ROB=  0.0003  0.9[illegible]  0.0254  WSEL=    831.71
   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     XLOBL     XLCH      XLOBT     ITRIAL    IF2       ICONT     CORAT     TOPLID      ENDST


3470 ENCROACHMENT STATIONS=       13.0      232.9  TYPE=      4  TARGET=        0.024

        SURVEY VALLEY SECTION 1

     1.00      8.51    831.61      0.00    831.61    831.65      0.07      0.00      0.00    826.90
    2780.        0.     2773.        7.        0.     1309.       20.        0.        0.    826.50
     0.00      0.00      2.12      0.33     0.120     0.040     0.120     0.000    823.10     13.00
 0.000252        0.        0.        0.         0         0         0      0.00    189.92    202.92


FLOW DISTRIBUTION FOR SECNO=       1.00          CWSEL=    831.61

STA=       13.      199.      203.
  PER Q=      99.8       0.2
   AREA=    1300.7      19.5
    VEL=       2.1       0.3

*SECNO 2.000
 2800 NAT Q1=   2035.49  WSEL=    831.88  ENC Q1=   2035.49  WSEL=    831.98  RATIO=  0.0000
 NAT Q1=   2081.  RATIOS LOB,CH,ROB=  0.0516  0.9172  0.0312  WSEL=    831.98

3470 ENCROACHMENT STATIONS=      323.4      644.6  TYPE=      4  TARGET=        0.022

        SURVEY VALLEY SECTION 2

     2.00      9.10    831.90      0.00    831.88    831.96      0.06      0.28      0.00    826.20
    2780.      113.     2611.       56.      302.     1299.      160.       45.        7.    826.40
     0.19      0.37      2.01      0.35     0.120     0.040     0.120     0.040    822.80    323.37
 0.000195     1275.     1275.     1275.         1         0         0      0.00    321.25    644.63


FLOW DISTRIBUTION FOR SECNO=       2.00          CWSEL=    831.90

STA=      323.      400.      417.      587.      594.      598.      645.
  PER Q=       2.9       1.2      93.9       0.6       0.2       1.2
   AREA=     228.6      73.0    1299.5      35.0      14.0     111.2
    VEL=       0.3       0.5       2.0       0.5       0.4       0.3

CCHV=   0.300 CEHV=   0.500
*SECNO 2.800
 2800 NAT Q1=   1419.61  WSEL=    832.12  ENC Q1=   1451.21  WSEL=    832.22  RATIO= -0.0223
 NAT Q1=   1451.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    832.22

        D/S COLUMBIA AVE. SURVEY SECTION 3

     2.80      9.34    832.15      0.00    832.12    832.25      0.10      0.26      0.02    845.00
    2780.        0.     2780.        0.        0.     1081.        0.       78.       13.    845.00
     0.29      0.00      2.57      0.00     0.120     0.040     0.120     0.040    822.80     16.78
 0.000379     1000.     1000.     1000.         2         0         0      0.00    159.05    175.83
```

FLOW DISTRIBUTION FOR SECNO= 2.80 CWSEL= 832.15

STA= 17. 193.
PER Q= 100.0
AREA= 1080.5
VEL= 2.5

*SECNO 2.900
2800 NAT Q1= 1278.22 WSEL= 832.11 ENC Q1= 1305.16 WSEL= 832.21 RATIO= -0.0211
NAT Q1= 1305. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 832.21

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 845.00 MAX ELLC= 849.63

D/S FACE COLUMBIA AVE. SURVEY SECTION 3

2.90	9.32	832.16	0.00	832.11	832.26	0.12	0.03	0.01	845.00
2780.	0.	2765.	0.	0.	1015.	0.	71.	15.	845.00
0.29	0.00	2.74	0.00	0.120	0.040	0.120	0.040	822.80	16.78
0.000467	1.	1.	1.	0	0	0	-65.68	159.06	175.03

FLOW DISTRIBUTION FOR SECNO= 2.90 CWSEL= 832.16

STA= 17. 193.
PER Q= 100.0
AREA= 1014.7
VEL= 2.7

*SECNO 3.000
2000 NAT Q1= 1049.97 WSEL= 832.13 ENC Q1= 1074.97 WSEL= 832.23 RATIO= -0.0238
NAT Q1= 1075. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 832.23

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	XMCH	XNR	WTN	LMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IM2	ICONT	CORAR	TOP ID	ESSTA

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 845.00 MAX ELLC= 849.63

U/S FACE COLUMBIA AVE. SURVEY SECTION 3

3.00	9.16	832.16	0.00	832.13	832.30	0.15	0.03	0.01	845.00
2780.	0.	2700.	0.	0.	905.	0.	79.	13.	845.00
0.30	0.00	3.07	0.00	0.120	0.040	0.120	0.040	825.00	14.95
0.000691	60.	60.	60.	1	2	0	-61.74	160.21	175.16

FLOW DISTRIBUTION FOR SECNO= 3.00 CWSEL= 832.16

STA= 15. 193.
PER Q= 100.0
AREA= 905.1
VEL= 3.1

*SECNO 3.100
2800 NAT Q1= 1177.54 WSEL= 832.16 ENC Q1= 1207.18 WSEL= 832.26 RATIO= -0.0252
NAT Q1= 1207. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 832.26

U/S COLUMBIA AVE. SURVEY SECTION 3

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     3.10      9.18    832.18      0.00    832.16    832.31      0.15      0.00      0.01    845.00
    2780.        0.     2780.        0.        0.      970.        0.       79.       13.    845.00
     0.30      0.00      2.87      0.00     0.120     0.040     0.120     0.040    823.00     14.88
 0.000550        1.        1.        1.         2         0         0      0.00    160.32    175.20

FLOW DISTRIBUTION FOR SECNO=      3.10          CWSEL=    832.31

STA=       15.      193.
  PER Q=     100.0
   AREA=    969.6
    VEL=      2.9

CCHV=   0.100 CEHV=   0.300
*SECNO 4.000
 2800 NAT Q1=   1761.96  WSEL=    832.28  ENC Q1=   1761.96  WSEL=    832.38  RATIO=  0.0000
 NAT Q1=   1804.  RATIOS LOB,CH,ROB=  0.0451  0.9480  0.0061  WSEL=    832.38

3470 ENCROACHMENT STATIONS=     611.4     804.0  TYPE=     4  TARGET=       0.023

        SURVEY VALLEY SECTION 4

     4.00      9.01    832.[illegible]      0.00    832.28    832.39      0.0      0.05      0.00    826.10
    2730.        [illegible]     2694.        0.      176.     1147.        0.       84.       [illegible]    824.50
     0.32      0.66      2.35      0.00     0.120     0.040     0.120     0.040    823.30    401.50
 0.000275      200.      200.      200.         2         0         0      0.00    202.42    804.00

FLOW DISTRIBUTION FOR SECNO=      4.00          CWSEL=    832.31

STA=      602.      636.      646.      654.      658.      804.
  PER Q=       1.1       0.3       0.6       0.9      97.1
   AREA=      85.4      20.1      31.5      38.5    1147.3
    VEL=       0.3       0.4       0.6       0.6       2.4

CCHV=   0.300 CEHV=   0.300
*SECNO 5.000
 2800 NAT Q1=   1779.20  WSEL=    832.41  ENC Q1=   1779.20  WSEL=    832.51  RATIO=  0.0000
 NAT Q1=   1830.  RATIOS LOB,CH,ROB=  0.0239  0.9718  0.0043  WSEL=    832.51

3470 ENCROACHMENT STATIONS=     310.4     551.0  TYPE=     4  TARGET=       0.020

        SURVEY VALLEY SECTION 5

     5.00      8.45    832.45      0.00    832.41    832.51      0.06      0.11      0.01    826.90
    2700.        0.     2780.        0.        3.     1431.        0.       97.       16.    825.70
     0.30      0.14      1.94      0.00     0.120     0.040     0.120     0.040    824.00    310.37
 0.000263      400.      400.      400.         2         0         0      0.00    240.63    551.00

FLOW DISTRIBUTION FOR SECNO=      5.00          CWSEL=    832.45

STA=      310.      311.      551.
  PER Q=       0.0     100.0
   AREA=       3.5    1431.1
    VEL=       0.1       1.9

*SECNO 5.800
 2800 NAT Q1=    792.29  WSEL=    832.42  ENC Q1=    808.26  WSEL=    832.52  RATIO= -0.0202
 NAT Q1=    808.  RATIOS LOB,CH,ROB=  0.0003  1.0000  0.0000  WSEL=    832.52

        D/S MAIN ST. SURVEY SECTION 6

     5.80      8.47    832.47      0.00    832.42    832.78      0.32      0.15      0.13    342.53
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    2780.       0.     2780.       0.       0.     617.       0.     104.      17.    842.50
     0.40     0.00      4.51     0.00    0.120    0.040    0.120    0.040   824.00     0.57
 0.001210     300.      300.     300.        2        0        0     0.00    78.86    79.43

FLOW DISTRIBUTION FOR SECNO=       5.00          CWSEL=     832.47

STA=        1.       80.
  PER Q=     100.0
   AREA=     616.7
    VEL=       4.5

*SECNO 5.900
 2800 NAT Q1=     596.00  WSEL=     832.36  ENC Q1=     608.11  WSEL=     832.46  RATIO= -0.0203
 NAT Q1=     606.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     832.46
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
     1         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       XTN       ELMIN       SST
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IL2       IOUT      COBAR     TOPWID      ELDST

3370 NORMAL BRIDGE,NRD=  8 MIN ELTRD=  842.50  MAX ELLC=  837.70

        D/S FACE MAIN ST. SURVEY SECTION 6

     5.90      8.40    832.40      0.00    832.36    832.85      0.44      0.00      0.06    842.50
    2780.       0.     2780.       0.       0.     520.       0.     104.      17.    842.50
     0.40     0.00      5.35     0.00    0.120    0.040    0.120    0.040   824.00     0.57
 0.002137       1.        1.       1.        2        0        0    -92.10    78.86    79.43

FLOW DISTRIBUTION FOR SECNO=       5.90          CWSEL=     832.40

STA=        1.       80.
  PER Q=     100.0
   AREA=     519.6
    VEL=       5.3

*SECNO 6.000
 2800 NAT Q1=     657.61  WSEL=     832.51  ENC Q1=     670.25  WSEL=     832.61  RATIO= -0.0192
 NAT Q1=     670.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     832.61

3370 NORMAL BRIDGE,NRD=  8 MIN ELTRD=  842.50 MAX ELLC=  837.70

        U/S FACE MAIN ST. SURVEY SECTION 6

     6.00      8.65    832.55      0.00    832.51    832.95      0.40      0.09      0.01    842.50
    2780.       0.     2780.       0.       0.     551.       0.     105.      17.    842.50
     0.40     0.00      5.04     0.00    0.120    0.040    0.120    0.040   823.90     0.53
 0.001759      45.       45.      45.        2        0        0    -98.69    78.91    79.44

FLOW DISTRIBUTION FOR SECNO=       6.00          CWSEL=     832.55

STA=        1.       80.
  PER Q=     100.0
   AREA=     551.1
    VEL=       5.0

*SECNO 6.100
 2800 NAT Q1=     692.20  WSEL=     832.67  ENC Q1=     903.69  WSEL=     832.77  RATIO= -0.018
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NAT Q1=     909.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     832.77

        U/S MAIN ST. SURVEY SECTION 6

      6.10      8.81    832.71      0.00    832.67    832.99      0.27      0.00      0.04    842.50
     2780.        0.     2780.        0.        0.      662.        0.      105.       17.    842.50
      0.41      0.00      4.20      0.00     0.120     0.040     0.120     0.040    823.92      0.56
  0.000957        1.        1.        1.         2         0         0      0.00     78.92     79.45

FLOW DISTRIBUTION FOR SECNO=       6.10          CWSEL=     832.71

STA=        1.       80.
  PER Q=     100.0
   AREA=     662.4
    VEL=       4.2

*SECNO 7.000
 2800 NAT Q1=    1100.47  WSEL=     832.86  ENC Q1=    1100.47  WSEL=     832.96  RATIO=  0.0000
 NAT Q1=    1128.  RATIOS LOB,CH,ROB=  0.0401  0.9091  0.0508  WSEL=     832.96

3470 ENCROACHMENT STATIONS=     1149.3     1327.7  TYPE=      4  TARGET=        0.024

        SURVEY VALLEY SECTION 7

      7.00      8.89    832.89      0.00    832.86    833.09      0.20      0.00      0.02    827.90
     2780.       78.     2594.       108.      121.      696.      161.      107.       18.    826.40
      0.41      0.66      3.73      0.67     0.120     0.040     0.120     0.040    824.00   1149.31
  0.000861      100.      400.      100.         2         0         0      0.00    178.36   1327.67

FLOW DISTRIBUTION FOR SECNO=       7.00          CWSEL=     832.89

STA=     1149.     1184.     1189.     1279.     1284.     1308.     1328.
  PER Q=       2.3       0.6      93.3       0.7       1.0       1.4
   AREA=     101.3      20.2     696.2      24.2      74.0      62.4
    VEL=       0.6       0.0       3.7       0.8       0.7       0.6

*SECNO 7.800
 2800 NAT Q1=     891.98  WSEL=     833.14  ENC Q1=     912.67  WSEL=     833.24  RATIO= -0.0232
 NAT Q1=     913.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     833.24

        D/S HEADLE LAKE SURVEY SECTION 8

      7.80      7.98    833.18      0.00    833.14    833.38      0.20      0.29      0.00    842.00
     2545.        0.     2545.        0.        0.      715.        0.      114.       19.    842.00
      0.44      0.00      3.56      0.00     0.120     0.040     0.120     0.040    825.20      0.60
  0.000003      400.      400.      400.         0         0         0      0.00    103.80    104.40

FLOW DISTRIBUTION FOR SECNO=       7.80          CWSEL=     833.18

STA=        1.       105.
  PER Q=     100.0
   AREA=     714.9
    VEL=       3.6

*SECNO 7.900
 2800 NAT Q1=     848.93  WSEL=     833.16  ENC Q1=     867.69  WSEL=     833.24  RATIO= -0.0219
 NAT Q1=     867.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     833.24
   SECNO     DEPTH     CWSEL     CRIMS     WSELK     EG        HV        HL        GLOSS     BANK ELEV
   Q         QLOB      RCH       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    BXDST
```

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 842.00 MAX ELLC= 837.70

U/S FACE BEADLE LAKE SURVEY SECTION 7

7.90	7.98	833.18	0.00	833.14	833.38	0.21	0.00	0.01	842.00	
2545.	0.	2545.	0.	0.	695.	0.	114.	19.	842.00	
0.44	0.00	3.66	0.00	0.120	0.040	0.120	0.040	825.30	0.60	
0.000886	1.	1.	1.	0	0	0	-20.97	103.80	104.40	

FLOW DISTRIBUTION FOR SECNO= 7.90 CUSEL= 833.18

STA= 1. 105.
PER Q= 100.0
AREA= 694.4
VEL= 3.7

*SECNO 8.000
2800 NAT Q1= 969.71 WSEL= 833.21 ENC Q1= 989.45 WSEL= 833.31 RATIO= -0.0214
NAT Q1= 989. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 833.31

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 842.00 MAX ELLC= 837.70

U/S FACE BEADLE LAKE SURVEY SECTION 8

8.00	8.44	833.24	0.00	833.21	833.42	0.18	0.03	0.01	842.00	
2545.	0.	2545.	0.	0.	754.	0.	115.	19.	842.00	
0.44	0.00	3.37	0.00	0.120	0.040	0.120	0.040	824.80	0.59	
0.000680	35.	35.	35.	2	0	0	-24.05	103.85	104.44	

FLOW DISTRIBUTION FOR SECNO= 8.00 CUSEL= 833.24

STA= 1. 105.
PER Q= 100.0
AREA= 754.3
VEL= 3.4

*SECNO 8.100
2800 NAT Q1= 1022.51 WSEL= 833.22 ENC Q1= 1045.86 WSEL= 833.32 RATIO= -0.0228
NAT Q1= 1046. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 833.32

U/S BEADLE LAKE SURVEY SECTION 8

8.10	8.46	833.26	0.00	833.22	833.42	0.17	0.00	0.00	842.00	
2545.	0.	2545.	0.	0.	779.	0.	115.	19.	842.00	
0.44	0.00	3.27	0.00	0.120	0.040	0.120	0.060	824.80	0.59	
0.000610	1.	1.	1.	1	0	0	2.00	103.85	104.44	

FLOW DISTRIBUTION FOR SECNO= 8.10 CUSEL= 833.26

STA= 1. 105.
PER Q= 100.0
AREA= 779.1
VEL= 3.3

*SECNO 8.200
2800 NAT Q1= 1217.32 WSEL= 833.33 ENC Q1= 1217.32 SEL= 833.43 RATIO= 0.0000

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NAT Q1= 1249. RATIOS LOB,CH,ROB= 0.0820 0.8354 0.0826 USEL= 833.43

3470 ENCROACHMENT STATIONS= 16.1 293.9 TYPE= 4 TARGET= 0.025

8.20	0.56	833.36	0.00	833.33	833.49	0.13	0.05	0.01	827.20
2545.	179.	2107.	130.	365.	703.	307.	117.	19.	826.40
0.65	0.38	3.11	0.50	0.120	0.040	0.120	0.040	826.80	16.10
0.000634	150.	100.	100.	2	0	0	0.00	267.29	283.05

FLOW DISTRIBUTION FOR SECNO= 8.20 CHSEL= 833.36

STA=	16.	100.	105.	195.	200.	296.
PER Q=	6.6	0.6	85.9	0.7	0.6	
AREA=	261.7	23.8	702.7	25.8	281.7	
VEL=	0.6	0.7	3.1	0.7	0.6	

CCHV= 0.100 CHNV= 0.300

*SECNO 9.000

2800 NAT Q1= 1919.23 USEL= 833.23 ENC Q1= 1919.23 USEL= 833.65 RATIO= 0.0200

NAT Q1= 1976. RATIOS LOB,CH,ROB= 0.3295 0.6140 0.0565 USEL= 833.85

3470 ENCROACHMENT STATIONS= 1224.8 2065.2 TYPE= 4 TARGET= 0.033

SURVEY VALLEY SECTION 9

9.00	7.80	833.80	0.00	833.75	833.83	0.03	0.33	0.01	827.90
2545.	816.	1624.	105.	2166.	892.	260.	179.	36.	827.30
0.71	0.38	1.32	0.40	0.120	0.040	0.120	0.040	826.00	1224.81
0.000164	1100.	1250.	1100.	2	0	0	0.00	640.36	2065.17

FLOW DISTRIBUTION FOR SECNO= 9.00 CHSEL= 833.80

STA=	1225.	1418.	1628.	1822.	1859.	1868.	1998.	2005.	2065.
PER Q=	9.7	9.9	9.8	1.9	0.8	63.3	0.7	3.4	
AREA=	658.2	601.5	659.0	125.7	41.0	892.9	35.7	223.7	
VEL=	0.6	0.6	0.4	0.6	0.5	1.9	0.5	0.6	

*SECNO 10.000

2800 NAT Q1= 1534.84 USEL= 833.98 ENC Q1= 1534.84 USEL= 834.08 RATIO= 0.0000

NAT Q1= 1596. RATIOS LOB,CH,ROB= 0.4790 0.5131 0.0079 USEL= 834.38

SECNO	DEPTH	CWSEL	CRIWS	WSELK	ES	HV	HL	CLOSS	BANK ELEV
Q	SLOB	SCH	SROB	ALOB	ACH	AROB	WOL	TOA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	UTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IH2	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1260.3 2242.0 TYPE= 4 TARGET= 0.030

SURVEY VALLEY SECTION 10

10.00	0.16	834.04	0.00	833.98	834.09	0.05	0.25	0.00	827.70
2545.	1207.	1335.	0.	2710.	576.	0.	248.	52.	826.60
0.92	0.45	2.32	0.00	0.120	0.040	0.120	0.040	825.90	1260.30
0.000298	800.	1250.	1200.	0	0	0	0.00	981.70	2242.00

FLOW DISTRIBUTION FOR SECNO= 10.00 CHSEL= 834.04

STA=	1260.	1364.	1554.	1754.	1926.	2272.	2155.	2159.	2164.	2262.
PER Q=	5.7	9.6	10.7	9.7	7.4	31.4	0.3	0.7	52.6	
AREA=	344.8	332.0	606.9	539.1	428.6	214.5	15.3	28.2	576.3	
VEL=	0.4	0.5	0.4	0.5	0.4	0.4	0.5	0.7	2.3	

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*SECNO 11.000

3470 ENCROACHMENT STATIONS= 610.0 1050.0 TYPE= 1 TARGET= 440.000

SURVEY VALLEY SECTION 11

11.00	6.89	834.59	0.00	834.51	834.74	0.15	0.63	0.03	829.70
2565.	21.	1801.	723.	30.	497.	982.	319.	72.	829.10
1.05	0.70	3.62	0.74	0.120	0.040	0.120	0.041	827.70	617.06
0.000354	400.	1400.	1100.	2	0	0	0.00	492.94	1150.00

FLOW DISTRIBUTION FOR SECNO= 11.00 CWSEL= 834.59

STA=	617.	620.	629.	711.	720.	858.	1050.
PER Q=	0.2	0.5	70.8	1.4	12.2	14.9	
AREA=	1.9	27.5	497.5	38.2	413.3	330.7	
VEL=	0.3	0.2	2.0	0.2	0.6	0.2	

CCHV= 0.500 CEHV= 0.800

*SECNO 12.000

3470 ENCROACHMENT STATIONS= 337.0 750.0 TYPE= 1 TARGET= 135.100

SURVEY VALLEY SECTION 12

12.00	8.10	835.60	0.00	835.36	835.86	0.27	1.02	0.09	831.00
2565.	25.	2478.	92.	30.	574.	134.	342.	79.	833.30
1.12	0.35	4.23	0.69	0.120	0.045	0.120	0.042	827.50	571.46
0.001630	650.	955.	450.	2	0	0	0.00	278.54	750.00

FLOW DISTRIBUTION FOR SECNO= 12.00 CWSEL= 835.60

STA=	371.	584.	676.	682.	750.
PER Q=	1.2	53.6	7.5	37.5	
AREA=	30.0	574.3	11.4	122.8	
VEL=	0.8	4.2	0.7	0.7	

*SECNO 12.500

2800 NAT Q1= 746.97 WSEL= 836.11 ENC Q1= 793.05 WSEL= 836.21 RATIO= -0.0061

NAT Q1= 766. RATIOS LOB,CH,ROB= 0.3125 0.4831 0.0045 WSEL= 836.21

3470 ENCROACHMENT STATIONS= 584.0 676.0 TYPE= 4 TARGET= 0.017

INTERPOLATED CROSS SECTION 12

12.10	8.66	836.16	0.00	836.11	836.62	0.25	0.55	0.01	831.00
2565.	0.	2565.	0.	0.	628.	0.	368.	80.	833.30
1.15	0.00	4.05	0.00	0.120	0.045	0.120	0.042	827.50	584.00
0.001313	400.	400.	400.	2	0	0	0.00	92.00	676.00

FLOW DISTRIBUTION FOR SECNO= 12.10 CWSEL= 836.16

STA=	584.	676.
PER Q=	100.0	
AREA=	528.1	
VEL=	4.1	

*SECNO 13.000

2800 NAT Q1= 1745.40 WSEL= 837.30 ENC Q1= 1745.40 WSEL= 837.40 RATIO= 0.0000

NAT Q1= 1805. RATIOS LOB,CH,ROB= 0.0073 0.5742 0.4100 WSEL= 837.40

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3470 ENCROACHMENT STATIONS=      716.0     1570.6  TYPE=      4  TARGET=        0.033

        SURVEY VALLEY SECTION 13

    13.00      8.22    837.42      0.00    837.30    837.45      0.03      0.92      0.17    831.10
    2545.        0.     1400.     1060.        0.     [illegible]     2543.     436.     102.    831.10
     1.61      0.00      1.82      0.42     0.120     0.045     0.120     0.043    829.20    716.00
 0.000220     1800.     2150.     1000.         2         0         0      0.00    854.62   1570.62

FLOW DISTRIBUTION FOR SECNO=      13.00          CWSEL=     837.42

STA=      716.      824.      838.      966.     1280.     1412.     1571.
  PER Q=      58.4       1.0       4.9      17.6       8.5       9.7
   AREA=     817.7      54.8     347.7    1072.8     490.6     577.1
    VEL=       1.0       0.4       0.4       0.4       0.4       0.4

CCHV=   0.300 CEHV=   0.300
*SECNO 13.300
 2800 NAT Q1=     867.53  USEL=     837.86  ENC Q1=     391.57  USEL=     837.96  RATIO= -0.0277
 NAT Q1=     892.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  USEL=     837.96
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    HAWK ELEV
   Q         [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     LEFT/RIGHT
   TIME      [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IM2       ICONT     CORAR     TOPWID    ENDST

        D/S RAYMOND ST. SURVEY SECTION 14

    13.80      6.78    837.98      0.00    837.86    838.14      0.16      0.63      0.07    856.00
    2545.        0.     2545.        0.        0.      781.        0.      515.     119.     856.00
     1.75      0.00      3.26      0.00     0.120     0.040     0.120     0.043    831.20     27.06
 0.000806     1650.     1650.     1650.         2         0         0      0.00    140.96    168.02

FLOW DISTRIBUTION FOR SECNO=      13.80          CWSEL=     837.98

STA=       27.       202.
  PER Q=     100.0
   AREA=     781.2
    VEL=       3.3

*SECNO 13.900
 2800 NAT Q1=     792.49  USEL=     837.85  ENC Q1=     812.30  USEL=     837.95  RATIO= -0.0250
 NAT Q1=     812.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  USEL=     837.95

3370 NORMAL BRIDGE,NBD= 16 MIN ELTRD=  856.00 MAX ELLC=  852.80

        D/S FACE RAYMOND ST. SURVEY SECTION 14

    13.90      6.77    837.97      0.00    837.05    830.15      0.18      0.00      0.01    856.00
    2545.        0.     2545.        0.        0.      740.        0.      515.     119.     856.00
     1.75      0.00      3.44      0.00     0.120     0.040     0.120     0.042    831.20     27.06
 0.000966        1.        1.        1.         0         0         0    -41.37    140.96    168.02

FLOW DISTRIBUTION FOR SECNO=      13.90          CWSEL=     837.97

STA=       27.       202.
  PER Q=     100.0
   AREA=     740.0
```

VEL= 3.4

*SECNO 14.000

2800 NAT Q1= 1002.63 USEL= 837.95 ENC Q1= 1026.74 USEL= 838.05 RATIO= -0.0240

NAT Q1= 1027. RATIOS LOB,CH,ROB= 0.0200 1.0000 0.0000 WSEL= 838.05

3470 NORMAL DISCHARGE= 1[illegible] 0.100 0.300= 1[illegible] Hor Flo= 554.30

U/S FACE RAYMOND ST. SURVEY SECTION 14

14.00	9.66	838.16	0.00	837.95	838.20	0.14	0.05	0.21	856.00
2565.	0.	2565.	0.	0.	556.	0.	61.	118.	136.00
1.76	0.00	2.97	0.00	0.120	0.060	0.120	0.042	829.60	26.08
0.000610	40.	40.	40.	2	0	0	-46.75	145.80	169.89

FLOW DISTRIBUTION FOR SECNO= 14.00 CWSEL= 838.06

STA= 26. 202.
PER Q= 100.0
AREA= 855.6
VEL= 3.0

*SECNO 14.100

2800 NAT Q1= 1098.18 USEL= 837.97 ENC Q1= 1127.16 USEL= 838.07 RATIO= -0.0264

NAT Q1= 1127. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 838.07

U/S RAYMOND ST. SURVEY SECTION 14

14.10	9.42	838.0	0.10	837.97	838.20	0.12	0.20	0.00	856.00
2545.	0.	2545.	0.	0.	904.	0.	516.	119.	856.00
1.76	0.00	2.82	0.00	0.120	0.040	0.120	0.042	829.60	26.06
0.000509	1.	1.	1.	1	0	0	0.00	143.87	169.92

FLOW DISTRIBUTION FOR SECNO= 14.10 CWSEL= 838.07

STA= 26. 202.
PER Q= 100.0
AREA= 904.3
VEL= 2.8

CCHV= 0.100 CEHV= 0.300

*SECNO 15.000

3470 ENCROACHMENT STATIONS= 1027.0 2144.0 TYPE= 1 TARGET= 1123.000

400 FT U/S RAYMOND SURVEY SECTION 15

15.00	7.80	838.30	0.00	838.20	838.39	0.09	0.19	0.00	832.70
2565.	534.	2009.	2.	1080.	743.	7.	528.	122.	833.10
1.81	0.49	2.70	0.29	0.120	0.040	0.120	0.042	830.50	1600.00
0.000626	400.	400.	400.	0	0	0	0.00	518.77	2118.79

FLOW DISTRIBUTION FOR SECNO= 15.00 CWSEL= 838.30

STA=	1600.	1802.	1962.	1989.	2006.	2116.	2119.
PER Q=	9.6	8.2	1.5	1.7	70.9	0.1	
AREA=	515.7	424.5	75.7	86.5	742.9	7.2	
VEL=	0.5	0.5	0.5	0.7	2.7	0.3	

*SECNO 16.000

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2800 NAT Q1=     721.40  USEL=     839.03  ENC Q1=     721.40  WSEL=     839.13  RATIO=  0.0000
NAT Q1=     753.  RATIOS LOB,CH,ROB=  0.2146  0.7781  0.0074  USEL=     839.13
  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       XTN       ELWIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBT     ITRIAL    IT2       ICONT     COFAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=     1446.3     1998.0  TYPE=      4  TARGET=        0.041

        SURVEY VALLEY SECTION 16

    16.00      7.52    839.12      0.00    839.03    839.39      0.27      0.95      0.05    834.40
    2545.      505.     2040.        0.      780.      443.        0.      567.      134.    832.20
     1.90      0.65      4.60      0.00     0.120     0.040     0.120     0.042    831.60   1446.31
 0.301391      900.     1450.     1100.         2         0         0      0.00    801.69   1998.00

FLOW DISTRIBUTION FOR SECNO=      16.00          CWSEL=     839.12

STA=     1446.     1684.     1876.     1917.     1926.     1932.     1998.
  PER Q=      9.4       6.1       2.1       3.9       1.1      10.2
  AREA=    375.4     273.4      74.8      25.9      24.7     442.0
  VEL=       0.6       0.5       0.7       3.9       1.2       4.6

*SECNO 17.000

3470 ENCROACHMENT STATIONS=      272.0     1175.0  TYPE=      1  TARGET=      905.000

        SURVEY VALLEY SECTION 17

    17.00      6.97    841.17      0.00    841.06    841.27      0.10      1.86      0.02    836.00
    2545.      289.     1153.     1103.      463.      312.     1589.      630.      158.    834.70
     2.16      0.63      3.69      0.69     0.120     0.040     0.120     0.043    834.20    302.58
 0.000859     1200.     1900.     1600.         2         0         0      0.00    872.32   1175.30

FLOW DISTRIBUTION FOR SECNO=      17.00          CWSEL=     841.17

STA=      303.      324.      444.      502.      518.      568.      573.      587.      658.      794.      964.     1175.
  PER Q=      0.3       6.0       3.1       2.0      45.3       1.2       1.7       6.4      13.6      11.4      12.1
  AREA=     21.0     254.2     120.7      58.7     312.4      27.3      51.4     214.3     376.5     450.0     669.2
  VEL=       0.4       0.6       0.6       0.9       3.7       1.1       0.9       0.8       0.7      -0.6       0.7

*SECNO 18.000
 2800 NAT Q1=    1348.44  USEL=     842.27  ENC Q1=    1348.44  USEL=     842.37  RATIO=  0.0000
 NAT Q1=    1387.  RATIOS LOB,CH,ROB=  0.0539  0.9248  0.0213  USEL=     842.37

3470 ENCROACHMENT STATIONS=      358.2      678.7  TYPE=      4  TARGET=        0.028

        SURVEY VALLEY SECTION 18

    18.00      7.93    842.33      0.00    842.27    842.43      0.10      1.16      0.00    836.80
    2545.      102.     2425.       18.      299.      919.       40.      715.      135.    836.50
     2.38      0.34      2.64      0.45     0.120     0.040     0.120     0.043    834.40    358.17
 0.000364     2100.     2300.     1800.         2         0         0      0.00    820.56    678.73

FLOW DISTRIBUTION FOR SECNO=      18.00          CWSEL=     842.33

STA=      358.      414.      530.      539.      667.      670.      679.
  PER Q=      0.9       2.4       0.7      95.3       0.3       0.4
  AREA=     76.4     188.6      33.5     919.1      13.6      26.8
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                    0.3       0.5       2.6       0.5       0.4

*[illegible]
 2800 [illegible] 1112.42  WSEL=    842.91  ENC Q1=   1112.42  WSEL=    843.01  RATIO=  0.0000
 NAT Q1=  [illegible] RATIOS LOB,CH,ROB=  0.1561  0.0354  0.0065  WSEL=    843.01

3470 ENCROACH[illegible]  [illegible]=    496.0    [illegible]  TYPE=    4  TARGET=    0.036

        SURVEY VALL.  SECTION 19

    19.00     6.99   842.99     0.00   842.91   843.10     0.11     0.67     0.00   837.00
    2545.     346.   2199.       0.     693.     706.       0.      762.     198.    837.10
     2.53     0.57     2.80     0.00    0.120    0.040    0.120    0.042   836.00   496.00
 0.000557    1525.    1500.    1525.        2        0        0     0.00   440.00   936.00

FLOW DISTRIBUTION FOR SECNO=     19.00          CWSEL=    842.99

STA=     496.     612.     792.     800.     [illegible]     936.
  PER Q=      5.2      7.6      0.4      0.4     86.4
   AREA=    263.1    394.8     19.1     16.0    786.5
    VEL=      0.5      0.5      0.5      0.7      2.8

*SECNO 20.000
 2800 NAT Q1=   1456.19  WSEL=    843.72  ENC Q1=   1456.19  WSEL=    843.82  RATIO=  0.0000
 NAT Q1=   1521.  RATIOS LOB,CH,ROB=  0.3298  0.6104  0.0598  WSEL=    843.82

3470 ENCROACHMENT STATIONS=    1089.1    2059.7  TYPE=    4  TARGET=    0.042

        SURVEY CROSS SECTION 20

    20.00     7.23   843.83     0.00   843.72   843.87     0.05     0.77     0.01   839.70
    2545.     822.    1621.     102.    1986.     750.     251.     857.     228.    838.30
     2.39     0.41     2.16     0.41    0.120    0.040    0.120    0.042   836.60  1089.05
 0.000304    1350.    1950.    1250.        2        0        0     0.00   970.60  2059.65

FLOW DISTRIBUTION FOR SECNO=     20.00          CWSEL=    843.83

STA=    1089.    1272.    1484.    1650.    1726.    1839.    1961.    1975.    2054.    2060.
  PER Q=      6.6      9.3      7.3      2.7      5.2     63.7      1.1      2.7      0.2
   AREA=    446.9    567.2    444.1    180.5    347.5    750.4     54.3    183.7     13.5
    VEL=      0.4      0.4      0.4      0.4      0.5      2.2      0.5      0.4      0.3

CCHV=   0.100 CEHV=   0.300
*SECNO 21.000
 2800 NAT Q1=    626.03  WSEL=    844.33  ENC Q1=    626.03  WSEL=    844.43  RATIO=  0.0000
 NAT Q1=    650.  RATIOS LOB,CH,ROB=  0.0132  0.9395  0.0423  WSEL=    844.43
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    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

3470 ENCROACHMENT STATIONS=    1040.0    1152.4  TYPE=    4  TARGET=    0.036

        SURVEY VALLEY SECTION 21

    21.00     6.33   844.43     0.00   844.33   844.79     0.36     0.82     0.09   839.80
    2545.       0.    2401.      54.       0.     510.      57.      987.     242.    839.00
     2.97     0.01     4.87     1.11    0.120    0.040    0.100    0.042   838.10  1039.98
 0.001554    1100.    1450.    1200.        2        0        0     0.00   112.42  1152.40
```

FLOW DISTRIBUTION FOR SECNO= 21.00 CWSEL= 864.63

STA= 1040. 1128. 1138. 1152.
PER Q= 97.5 1.3 0.7
AREA= 519.6 33.6 25.3
VEL= 4.9 2.5 0.3

CCHV= 0.300 CEHV= 0.500
*SECNO 22.000
2800 NAT Q1= 841.05 WSEL= 847.03 ENC Q1= 841.1 WSEL= 847.13 RATIO= 0.0000
NAT Q1= 870. RATIOS LOB,CH,ROB= 0.0274 0.7832 0.1894 WSEL= 847.13

3470 ENCROACHMENT STATIONS= 527.8 776.7 TYPE= 4 TARGET= 0.036

SURVEY VALLEY SECTION 22

*	22.00	7.53	847.13	0.00	847.03	847.33	0.20	2.69	0.05	840.20
	1545.	20.	2075.	349.	121.	527.	304.	945.	251.	842.20
	3.15	0.65	3.94	0.99	0.120	0.040	0.100	0.042	839.60	527.76
	0.000913	2075.	2075.	2075.	2	0	0	0.00	248.92	776.68

FLOW DISTRIBUTION FOR SECNO= 22.30 CWSEL= 847.15

STA= 520. 536. 575. 577. 657. 660. 723. 777.
PER Q= 0.4 2.5 0.2 81.6 2.1 0.3 5.0
AREA= 16.5 94.9 9.5 326.7 65.5 206.0 142.4
VEL= 0.5 0.7 0.3 3.9 1.1 1.3 0.4

*SECNO 22.600
2800 NAT Q1= 803.54 WSEL= 847.26 ENC Q1= 803.54 WSEL= 847.36 RATIO= 0.0000
NAT Q1= 829. RATIOS LOB,CH,ROB= 0.0000 0.9000 0.1000 WSEL= 847.36

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 322.0 561.8 TYPE= 4 TARGET= 0.031

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELEA= 852.40 ELEV= 844.80

D/S RAIL BRIDGE SURVEY SECTION 24

	22.80	6.47	847.37	0.00	847.20	847.59	0.22	0.25	0.01	841.70
	2545.	0.	2359.	186.	0.	608.	218.	951.	252.	842.20
	3.16	0.00	3.80	3.85	0.120	1.040	0.100	0.042	840.90	322.00
	0.001059	250.	250.	250.		0	3	0.00	209.35	551.76

FLOW DISTRIBUTION FOR SECNO= 22.30 CWSEL= 847.37

STA= 322. 422. 429. 490. 544. 562.
PER Q= 92.7 0.9 0.5 4.9 1.5
AREA= 607.8 10.4 16.1 [illegible] 3.
VEL= 3.9 0.8 0.5 0.9 3.

*SECNO 22.900
2800 NAT Q1= 803.79 WSEL= 847.26 ENC Q1= 803.79 WSEL= 847.36 RATIO= 0.0000
NAT Q1= 830. RATIOS LOB,CH,ROB= 0.0000 0.8999 0.1001 WSEL= 847.36

3265 DIVIDED FLOW

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3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 644.60 MAX ELLC= 651.60

3470 ENCROACHMENT STATIONS= 322.0 561.7 TYPE= 4 TARGET= 0.031

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 652.40 ELREA= 644.80

D/S FACE PARK BRIDGE SURVEY SECTION 24

22.90	6.47	647.37	0.21	647.24	647.59	0.22	0.20	3.10	641.70
2545.	0.	2536.	187.	0.	208.	217.	951.	252.	642.20
3.18	0.01	3.06	0.15	0.120	0.060	0.100	1.042	640.50	322.70
0.001056	1.	1.	1.	0	0	0	0.00	203.90	561.71

FLOW DISTRIBUTION FOR SECNO= 22.90 CHSEL= 647.37

STA=	322.	422.	429.	440.	453.	547.	561.
PER Q=	92.7	0.6	0.0	0.3	4.9	1.5	
AREA=	608.4	18.4	2.0	14.2	133.6	45.2	
VEL=	3.9	0.6	0.1	0.6	0.9	0.8	

*SECNO 23.000
2ND NAT Q1= 802.02 WSEL= 647.24 EG = 808.07 USEL= 647.38 RATIO= 1.000
NAT Q1= 834. RATIOS LOB,CH,ROB= 0.0000 0.8993 0.1007 USEL= 847.38

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 644.30 MAX ELLC= 651.60

3470 ENCROACHMENT STATIONS= 322.0 561.5 TYPE= 4 TARGET= 0.031

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 652.50 ELREA= 644.30

U/S FACE PARK BRIDGE SURVEY SECTION 26

23.00	5.49	647.39	0.30	647.28	647.61	0.22	0.22	3.03	641.90
2545.	0.	2536.	187.	0.	208.	217.	951.	252.	642.20
3.17	0.03	3.06	0.15	0.120	0.060	0.100	1.042	640.63	322.00
0.001046	16.	16.	16.	0	0	0	0.00	204.63	561.50

FLOW DISTRIBUTION FOR SECNO= 23.00 CHSEL= 647.39

STA=	322.	422.	429.	440.	453.	547.	561.
PER Q=	92.6	0.6	0.0	0.3	5.0	1.5	
AREA=	610.0	18.5	2.3	14.6	139.7	45.0	
VEL=	3.9	0.8	0.1	0.6	0.9	0.8	

*SECNO 23.100
2ND NAT Q1= 801.65 WSEL= 647.28 EG Q1= 808.66 WSEL= 647.38 RATIO= 0.0000
NAT Q1= 835. RATIOS LOB,CH,ROB= 0.0000 0.8993 0.1007 USEL= 847.38

3265 DIVIDED FLOW

SECNO	DEPTH	CHSEL	CHNS	WSEL	EG	HV	EL	CLOSS	BANK ELEV
Q	CLOB	QCH	QROB	AREA	ACH	AROB	VOL	TSK	LEFTLIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IT2	ICONT	CONAR	TOPWID	ENDST

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3470 ENCROACHMENT STATIONS=      322.0      562.1  TYPE=      4  TARGET=        0.031

3493 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       852.40 ELREA=       844.8[illegible]

        U/S PARK BRIDGE SURVEY SECTION 24

     23.10      6.49    847.39      0.00    847.28    847.61      0.22      0.00      0.00    841.70
     2545.        0.     2356.       189.        0.      610.      222.      951.      232.    842.20
      3.17      0.00      3.86      0.33     0.120     0.040     0.100     0.042    842.90    322.00
  0.001043        1.        1.        1.         0         0         0      0.00    205.42    562.03

FLOW DISTRIBUTION FOR SECNO=      23.10          CWSEL=     847.39

STA=      322.      322.      429.      480.      490.      544.      562.
  PER Q=     92.6       0.6       0.0       0.3       5.0       1.5
   AREA=    610.4      18.6       2.4      14.4     139.9      46.6
    VEL=      3.9       0.8       0.1       0.6       0.9       0.8

*SECNO 23.500
 2800 NAT Q1=    1[illegible].20  WSEL=     847.79  ENC Q1=    1159.43  WSEL=     847.90  RATIO= -0.0292
 NAT Q1=    [illegible]  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     847.89

        D/S WESTBOUND I-94 SURVEY SECTION 24

     23.80      6.82    847.92      0.00    847.79    848.01      0.10      0.37      0.14    870.00
     2545.        0.     2545.        0.        0.     1026.        0.      963.      255.    870.00
      3.23      0.00      2.41      0.00     0.120     0.040     0.100     0.042    841.10     43.82
  0.000468      550.      550.      550.         2         0         0      0.00    187.28    231.10

FLOW DISTRIBUTION FOR SECNO=      23.80          CWSEL=     847.92

STA=      44.      272.
  PER Q=     100.0
   AREA=    1025.9
    VEL=      2.5

*SECNO 23.900
 2800 NAT Q1=    1032.28  WSEL=     847.79  ENC Q1=    1063.45  WSEL=     847.89  RATIO= -0.0272
 NAT Q1=    1060.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     847.89

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  870.00 MAX ELLC=  863.70

        D/S FACE WEST BOUND I-94 SURVEY SECTION 24

     23.90      6.81    847.91      0.00    847.79    848.02      0.11      0.00      0.01    870.00
     2545.        0.     2545.        0.        0.      968.        0.      963.      255.    870.00
      3.23      0.00      2.63      0.00     0.120     0.040     0.100     0.042    841.10     43.82
  0.000567        1.        1.        1.         0         0         0    -57.58    187.23    231.10

FLOW DISTRIBUTION FOR SECNO=      23.90          CWSEL=     847.91

STA=      44.      272.
  PER Q=     100.0
   AREA=     968.5
    VEL=      2.6

*SECNO 24.000
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2800 NAT Q1= 1037.67 USEL= 847.82 ENC Q1= 1060.74 USEL= 847.92 RATIO= -0.0299
NAT Q1= 1069. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 347.92

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 870.00 MAX ELLC= 863.70

U/S EAST-BOUND I-94 SURVEY SECTION 24

24.00	6.84	847.94	0.00	847.62	848.04	0.11	0.02	0.00	870.00
2545.	0.	2545.	0.	0.	972.	0.	964.	255.	870.00
3.23	2.00	2.62	0.00	0.120	0.040	0.100	0.042	841.10	43.77
0.000581	44.	44.	44.	0	0	0	-57.78	187.39	231.16

FLOW DISTRIBUTION FOR SECNO= 24.00 CWSEL= 847.94

STA= 44. 272.
PER Q= 100.0
AREA= 972.1
VEL= 2.6

*SECNO 24.100
2800 NAT Q1= 1060.59 WSEL= 847.93 ENC Q1= 1082.36 USEL= 847.93 RATIO= -0.0319
NAT Q1= 1069. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 847.93

U/S WEST-BOUND I-94 SURVEY SECTION 24

24.10	6.85	847.95	0.00	847.83	848.05	0.09	0.00	0.00	870.00
2545.	0.	2545.	0.	0.	1031.	0.	964.	255.	870.00
3.23	0.20	2.47	0.00	0.120	0.040	0.100	0.042	841.10	43.75
0.000460	1.	1.	1.	1	0	0	0.00	187.43	231.19

FLOW DISTRIBUTION FOR SECNO= 24.10 CWSEL= 847.95

STA= 44. 272.
PER Q= 100.0
AREA= 1031.3
VEL= 2.5

*SECNO 24.800
2800 NAT Q1= 1282.16 WSEL= 847.87 ENC Q1= 1278.25 USEL= 847.97 RATIO= -0.0291
NAT Q1= 1278. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 347.97

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	ELCIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IN2	ICONT	CONAR	TOPWID	ENDST

D/S EASTBOUND I-94 SURVEY SECTION 24

24.80	6.89	847.99	0.00	847.67	848.08	0.09	0.03	0.00	870.00
2545.	0.	2545.	0.	0.	1080.	0.	966.	255.	870.00
3.24	0.00	2.36	0.00	0.120	0.040	0.100	0.042	841.10	44.25
0.000394	65.	65.	65.	1	0	0	0.00	187.18	231.43

FLOW DISTRIBUTION FOR SECNO= 24.80 CWSEL= 847.99

STA= 44. 272.
PER Q= 100.0
AREA= 1080.2
VEL= 2.4

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*SECNO 24.900
 2800 NAT Q1=   1129.77  WSEL=    847.87  ENC Q1=   1159.15  WSEL=    847.97  RATIO= -0.0260
 NAT Q1=   1159.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    847.97

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  870.00 MAX ELLC=  863.70

        D/S FACE EAST BOUND I-94 SURVEY SECTION 24

    24.90      6.89    847.97      0.00    847.87    848.00      0.10      0.00      0.01    870.00
    2545.        0.     2545.        0.        0.     1020.        0.      966.      255.    870.00
     3.24      0.00      2.49      0.00     0.120     0.040     0.100     0.042    841.10     44.23
 0.000476        1.        1.        1.         0         0         0    -60.82    187.21    231.45

FLOW DISTRIBUTION FOR SECNO=      24.90          CWSEL=     847.99

STA=       44.      272.
  PER Q=     100.0
   AREA=    1020.5
    VEL=       2.5

*SECNO 25.000
 2800 NAT Q1=   1166.47  WSEL=    847.89  ENC Q1=   1166.32  WSEL=    847.99  RATIO= -0.0281
 NAT Q1=   1166.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    847.99

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  870.00 MAX ELLC=  863.70

        U/S FACE EAST BOUND I-94 SURVEY SECTION 24

    25.00      6.91    848.01      0.00    847.89    848.10      0.10      0.02      0.00    870.00
    2545.        0.     2545.        0.        0.     1023.        0.      967.      255.    870.00
     3.24      0.00      2.49      0.00     0.120     0.040     0.100     0.042    841.10     44.19
 0.000476       44.       44.       44.         0         0         0    -60.98    187.30    231.49

FLOW DISTRIBUTION FOR SECNO=      25.00          CWSEL=     848.01

STA=       44.      272.
  PER Q=     100.0
   AREA=    1023.2
    VEL=       2.5

*SECNO 25.100
 2800 NAT Q1=   1252.77  WSEL=    847.91  ENC Q1=   1259.60  WSEL=    848.01  RATIO= -0.0295
 NAT Q1=   1293.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    848.01

        U/S EASTBOUND I-94 SURVEY SECTION 24

    25.10      6.92    848.02      0.00    847.91    848.11      0.09      0.00      0.00    870.00
    2545.        0.     2545.        0.        0.     1086.        0.      967.      255.    870.00
     3.24      0.00      2.34      0.00     0.120     0.040     0.100     0.042    841.10     44.17
 0.000388        1.        1.        1.         1         0         0      0.00    187.34    231.52

FLOW DISTRIBUTION FOR SECNO=      25.10          CWSEL=     848.02

STA=       44.      272.
  PER Q=     100.0
   AREA=    1085.7
    VEL=       2.3
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SECNO	CUSEL	DIFRES	EG	TOPHID	GLOB	GCH	GROB	PERENC	STENCL	STCHL	STCHR	STENCR
7.800	833.16	0.00	833.36	103.80	0.00	2565.00	0.00	0.00	0.00	0.00	105.00	0.00
7.900	833.16	0.04	833.36	103.80	0.00	2565.00	0.00	0.00	0.00	0.00	105.00	105.00
8.000	833.21	0.00	833.39	103.86	0.00	2565.00	0.00	0.00	0.00	0.00	105.00	0.00
8.100	833.26	0.04	833.42	103.85	0.00	2565.00	0.00	0.00	0.00	0.00	105.00	105.00
8.200	833.33	0.00	833.46	300.00	204.23	2135.12	205.66	0.00	0.00	105.00	195.00	0.00
9.000	833.30	0.04	833.83	840.36	815.97	1624.30	104.73	0.03	1224.81	1868.00	1998.00	2065.17
10.000	833.90	0.00	834.02	1809.67	1197.76	1327.52	12.67	0.00	0.00	2166.00	2262.00	0.00
11.000	834.59	0.08	834.74	632.94	20.92	1800.86	723.22	460.00	610.00	629.00	711.00	1050.00
12.000	835.56	0.00	835.83	178.49	24.52	2430.59	89.88	193.00	557.00	586.00	676.00	750.00
12.100	836.11	0.05	836.34	119.62	50.77	2553.63	10.50	0.00	0.00	534.00	576.00	0.00
12.100	836.16	0.05	836.42	92.00	0.00	2545.00	0.00	0.02	584.00	584.00	676.00	676.00
13.000	837.30	0.00	837.33	976.12	19.62	1678.84	1046.54	0.00	0.00	716.00	824.00	0.00
13.800	837.96	0.12	838.14	140.96	0.00	2545.00	0.00	0.00	0.00	0.00	202.00	202.00
13.900	837.85	0.00	838.04	140.17	0.00	2545.00	0.00	0.00	0.00	0.00	202.00	0.00
14.000	838.06	0.11	838.20	143.80	0.00	2545.00	0.00	0.00	0.00	0.00	202.00	202.00
14.100	837.97	0.00	838.09	143.15	0.00	2545.00	0.00	0.00	0.00	0.00	202.00	0.00
15.000	838.30	0.10	838.39	518.77	534.12	2008.77	2.11	1123.00	1021.00	2004.00	2116.00	2144.00
16.000	839.03	0.00	839.29	712.57	511.07	2015.10	18.83	0.00	0.00	1932.00	1998.00	0.00
17.000	841.17	0.10	841.27	872.32	289.22	1152.94	1102.84	903.00	272.00	518.00	568.00	1175.00
18.000	842.27	0.00	842.37	650.99	127.36	2365.45	52.19	0.00	0.00	539.00	667.00	0.00
18.100	842.33	0.05	842.43	320.56	101.68	2424.99	98.33	0.03	358.17	539.00	667.00	678.73

SECNO	CHSEL	DIFAUS	EG	TOPJID	QLOB	QCH	QTOP	PERENC	STENCL	STCHL	STCHR	STENCR
19.000	842.91	0.00	843.01	354.97	385.70	2143.17	16.13	0.00	0.00	804.00	936.00	0.00
19.000	842.95	0.08	843.10	447.00	344.37	2168.53	0.00	0.04	496.30	304.00	936.00	936.00
20.000	843.31	0.00	843.74	1337.14	821.13	2176.51	165.39	0.00	0.30	1435.00	1961.00	0.00
20.000	843.83	0.11	843.87	970.60	821.94	1620.98	102.06	0.04	1089.05	1839.00	1961.00	2059.66
21.000	844.37	0.00	844.68	493.48	37.09	2410.21	97.70	0.00	0.00	1040.00	1128.00	0.00
21.000	844.43	0.13	844.79	112.42	0.00	2481.35	65.95	0.04	1039.90	1040.00	1128.00	1152.60
22.000	847.06	0.00	847.22	362.53	113.97	2122.52	400.91	0.00	0.00	577.00	657.00	0.00
22.000	847.13	0.11	847.33	248.92	79.99	2075.53	389.60	0.03	527.76	577.00	657.00	776.68
22.800	847.26	0.00	847.47	235.74	0.00	2299.66	245.57	0.00	0.00	322.00	422.00	0.00
22.800	847.37	0.11	847.59	203.65	0.00	2350.72	186.20	0.03	322.00	322.00	422.00	561.70
22.900	847.26	0.00	847.47	233.33	0.00	2279.55	265.45	0.01	0.00	322.00	422.00	0.00
22.900	847.37	0.11	847.59	203.90	0.00	2350.47	186.53	0.03	322.00	322.00	422.00	561.71
23.000	847.28	0.00	847.48	236.73	0.00	2298.04	246.96	0.00	0.00	322.00	422.00	0.00
23.000	847.39	0.11	847.61	204.63	0.00	2357.77	187.23	0.03	322.00	322.00	422.00	561.50
23.100	847.28	0.00	847.42	235.00	0.00	2297.30	247.81	0.01	0.00	322.00	422.00	0.00
23.100	847.39	0.11	847.61	205.42	0.00	2356.28	186.72	0.03	322.00	322.00	422.00	562.08
23.800	847.79	0.00	847.89	186.59	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	0.00
23.800	847.92	0.12	848.01	187.28	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	272.00
23.900	847.79	0.00	847.90	186.60	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	0.00
23.900	847.91	0.12	848.02	187.28	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	272.00
24.000	847.82	0.00	847.93	186.70	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	0.00
24.000	847.94	0.12	848.04	187.39	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	272.00
24.100	847.83	0.00	847.93	186.76	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	0.00
24.100	847.95	0.12	848.05	187.44	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	272.00
24.800	847.87	0.00	847.96	186.54	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	0.00
24.800	847.99	0.12	848.08	187.18	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	272.00
24.900	847.87	0.00	847.97	186.56	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	0.00
24.900	847.99	0.12	848.08	187.21	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	272.00
25.000	847.89	0.00	847.99	186.66	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	0.00
25.000	848.01	0.12	848.10	187.30	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	272.00
25.100	847.91	0.00	848.00	186.71	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	0.00
25.100	848.02	0.12	848.11	187.34	0.00	2545.00	0.00	0.00	0.00	0.00	272.00	272.00

FORM 1411-B2 PRINTED BY ROTARY MANIFOLD FORMS

KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

SECO	M	C.F.S.	FL	ELEV	P	ELEV	C.F.S.	FS	TOKES	VCC	AREA	.01R
1.000	0.00	0.00	0.00	825.10	2780.00	831.61	0.00	831.67	2.30	2.07	1480.36	1832.21
1.000	0.00	0.00	0.00	823.10	2780.00	831.61	0.00	831.68	2.52	2.12	1328.21	1752.36
2.000	1275.00	0.00	0.00	822.80	2780.00	831.93	0.00	831.94	1.37	1.97	1950.56	2035.49
2.000	1275.00	0.00	0.00	822.80	2780.00	831.59	0.00	831.84	1.95	2.01	1741.10	1993.00
2.800	1000.00	0.00	0.00	822.80	2780.00	832.12	0.00	832.22	3.83	2.58	1076.39	1419.61
2.800	1000.00	0.00	0.00	822.80	2780.00	832.15	0.00	832.25	3.79	2.57	1080.50	1427.77
2.900	1.00	865.00	841.60	822.80	2780.00	832.11	0.00	832.23	6.73	2.75	1010.72	1278.22
2.900	1.00	865.00	841.60	822.80	2780.00	832.14	0.00	832.24	6.57	2.76	1015.76	1285.00
3.000	60.00	865.00	841.60	823.00	2780.00	832.13	0.00	832.28	7.01	3.09	900.09	1049.97
3.000	60.00	865.00	841.60	823.00	2780.00	832.16	0.00	832.30	6.91	3.07	905.09	1057.36
3.100	1.00	0.00	0.00	823.00	2780.00	832.16	0.00	832.29	5.57	2.81	969.55	1177.56
3.100	1.00	0.00	0.00	823.00	2780.00	832.19	0.00	832.32	5.50	2.83	969.61	1185.55
4.000	200.00	0.00	0.00	823.30	2780.00	832.28	0.00	832.36	2.49	2.31	1512.52	1761.96
4.000	200.00	0.00	0.00	823.30	2780.00	832.31	0.00	832.39	2.75	2.35	1322.92	1677.53
4.100	400.00	0.00	0.00	824.00	2780.00	832.41	0.00	832.47	2.64	1.90	1505.56	1779.20
4.100	400.00	0.00	0.00	824.00	2780.00	832.43	0.00	832.55	2.63	1.96	1436.06	1715.71
5.800	300.00	0.00	0.00	824.00	2780.00	832.42	0.00	832.74	12.31	4.53	613.21	792.29
5.800	300.00	0.00	0.00	824.00	2780.00	832.47	0.00	832.78	12.10	4.51	616.71	799.35
5.900	1.00	842.50	837.70	824.00	2780.00	832.36	0.00	832.81	21.76	5.36	516.65	596.00
5.900	1.00	842.50	837.70	824.00	2780.00	832.40	0.00	832.85	21.37	5.35	519.64	601.39
6.000	45.00	842.50	837.70	823.90	2780.00	832.51	0.00	832.91	17.87	5.07	548.25	657.61
6.000	45.00	842.50	837.70	823.90	2780.00	832.55	0.00	832.95	17.59	5.04	551.06	662.86
6.100	1.00	0.00	0.00	823.90	2780.00	832.67	0.00	832.95	9.71	4.22	659.22	892.08
6.100	1.00	0.00	0.00	823.90	2780.00	832.71	0.00	832.99	9.57	4.20	662.36	898.71
7.000	100.00	0.00	0.00	824.00	2780.00	832.86	0.00	833.05	6.56	3.65	1084.01	1100.47
7.000	100.00	0.00	0.00	824.00	2780.00	832.89	0.00	833.09	6.61	3.73	978.31	1080.91
7.300	400.00	3.00	0.00	825.20	2565.00	833.14	0.00	833.34	8.14	3.57	711.09	891.98
7.300	400.00	3.00	0.00	825.20	2565.00	833.10	0.00	833.38	8.03	3.56	716.86	897.88
7.900	1.00	842.00	837.70	825.20	2565.00	833.16	0.00	833.35	8.99	3.68	691.08	848.93
7.900	1.00	842.00	837.70	825.20	2565.00	833.18	0.00	833.38	8.84	3.66	694.77	856.15
8.000	35.00	842.00	837.70	824.80	2565.00	833.21	0.00	833.39	6.90	3.39	750.58	968.71
8.000	35.00	842.00	837.70	824.80	2565.00	833.26	0.00	833.42	6.80	3.37	754.29	976.21
8.100	1.00	0.00	0.00	824.80	2565.00	833.22	0.00	833.39	6.19	3.28	775.37	1022.51
8.100	1.00	0.00	0.00	824.80	2565.00	833.26	0.00	833.42	6.10	3.27	779.07	1030.24
8.200	100.00	0.00	0.00	824.80	2565.00	833.33	0.00	833.46	4.37	3.05	1416.62	1217.52
8.200	100.00	0.00	0.00	824.80	2565.00	833.36	0.00	833.49	4.54	3.11	1315.60	1196.74

PRINTED IN U.S.A.

FORM 1011-GD-PRINTED BY ROTARY MANIFOLD FORMS.

SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CHSEL	CRINS	EG	10K*S	.VCH	AREA	.01K
9.000	1250.00	0.00	0.00	826.00	2545.00	833.75	0.00	833.79	1.70	1.78	3503.01	1909.83
9.030	1250.00	0.00	0.00	826.20	2545.00	833.90	0.00	833.85	1.84	1.82	3310.60	1874.45
10.000	1250.00	0.00	0.00	825.90	2545.00	836.04	0.00	836.08	2.98	2.32	3286.58	1473.84
11.000	1400.00	0.00	0.00	827.70	2545.00	836.51	0.00	836.67	9.12	3.70	1476.06	842.81
11.030	1400.00	0.00	0.00	827.80	2545.00	836.59	0.00	836.74	9.59	3.62	1509.36	868.22
12.000	955.00	0.00	0.00	827.50	2545.00	835.60	0.00	835.86	14.38	4.23	738.59	671.08
12.100	400.00	0.00	0.00	827.50	2545.00	836.11	0.00	836.36	11.61	4.01	680.80	766.97
12.130	400.00	0.00	0.00	827.50	2545.00	836.16	0.00	836.42	10.13	4.05	620.80	702.22
13.000	2150.00	0.00	0.00	829.20	2545.00	837.42	0.00	837.45	2.20	1.82	3360.71	1714.86
13.030	1650.00	0.00	0.00	831.20	2545.00	837.86	0.00	838.03	8.61	3.33	764.26	867.53
13.070	1650.00	0.00	0.00	831.20	2545.00	837.90	0.00	838.14	8.26	3.28	791.35	896.45
13.900	1.00	856.00	852.80	831.20	2545.00	837.97	0.00	838.15	9.66	3.44	740.02	818.97
14.030	40.00	856.00	852.80	829.60	2545.00	837.95	0.00	838.09	6.44	3.03	840.28	1002.63
14.070	40.00	856.00	852.80	829.60	2545.00	838.04	0.00	838.20	6.10	2.97	855.82	1030.10
14.100	1.00	0.00	0.00	829.60	2545.00	838.07	0.00	838.20	5.09	2.82	904.00	1128.32
15.000	400.00	0.00	0.00	830.50	2545.00	838.20	0.00	838.29	4.56	2.77	1777.82	1191.76
15.030	400.00	0.00	0.00	830.50	2545.00	838.30	0.00	838.39	4.26	2.70	1830.50	1232.49
16.000	1450.00	0.00	0.00	831.60	2545.00	839.12	0.00	839.29	12.64	4.61	1357.41	721.46
16.000	1450.00	0.00	0.00	831.60	2545.00	839.12	0.00	839.39	13.91	4.60	1223.29	682.50
17.000	1900.00	0.00	0.00	834.20	2545.00	841.06	0.00	841.17	9.49	3.84	2273.26	825.96
17.000	1900.00	0.00	0.00	834.20	2545.00	841.17	0.00	841.27	8.59	3.69	2365.50	868.27
18.000	2300.00	0.00	0.00	834.40	2545.00	842.27	0.00	842.37	3.36	2.58	1437.05	1348.66
18.000	2300.00	0.00	0.00	834.40	2545.00	842.33	0.00	842.43	3.64	2.64	1258.04	1333.04
19.000	1500.00	0.00	0.00	836.00	2545.00	842.91	0.00	843.01	5.23	2.77	1640.86	1112.42
19.030	1500.00	0.00	0.00	836.00	2545.00	842.99	0.00	843.10	5.57	2.80	1479.46	1078.72
20.000	1950.00	0.00	0.00	836.60	2545.00	843.72	0.00	843.76	3.05	2.24	3242.97	1456.19
20.000	1950.00	0.00	0.00	836.60	2545.00	843.83	0.00	843.87	3.04	2.16	2988.09	1460.66
21.000	1450.00	0.00	0.00	838.10	2545.00	844.33	0.00	844.68	16.53	4.81	731.66	626.03
21.000	1450.00	0.00	0.00	838.10	2545.00	844.43	0.00	844.79	16.54	4.87	567.11	625.82
22.000	2075.00	0.00	0.00	839.60	2545.00	847.03	0.00	847.32	9.16	3.50	1181.89	841.05
22.000	2075.00	0.00	0.00	839.60	2545.00	847.13	0.00	847.33	9.13	3.94	1043.52	842.40
22.800	250.00	0.00	0.00	840.90	2545.00	847.26	0.00	847.47	10.03	3.85	896.00	803.54
22.900	250.00	0.00	0.00	840.90	2545.00	847.37	0.00	847.59	10.59	3.88	826.17	781.94

FORM 1411-GD-PRINTED BY ROTARY MANIFOLD FORMS.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CUSEL	CRIES	EG	10K*S	VCH	AREA	.01K
22.900	1.00	846.80	851.60	840.90	2545.00	847.26	0.00	847.47	10.03	3.85	896.23	803.79
22.900	1.00	844.80	851.60	840.90	2545.00	847.37	0.00	847.59	10.56	3.96	927.14	783.29
23.000	16.00	844.80	851.60	840.90	2545.00	847.39	0.00	847.61	10.46	3.87	829.99	786.92
23.100	1.00	0.00	0.00	840.90	2545.00	847.20	0.00	847.49	9.90	3.84	900.73	808.66
23.100	1.00	0.00	0.00	840.90	2545.00	847.39	0.00	847.61	10.45	3.86	832.23	788.19
23.800	550.00	0.00	0.00	841.10	2545.00	847.92	0.00	848.01	4.68	2.48	1025.88	1176.74
23.900	1.00	870.00	863.70	841.10	2545.00	847.79	0.00	847.90	6.08	2.69	946.90	1032.28
23.900	1.00	870.00	863.70	841.10	2545.00	847.91	0.00	848.02	5.57	2.63	986.45	1069.04
24.000	44.00	870.00	863.70	841.10	2545.00	847.94	0.00	848.04	5.61	2.62	971.84	1074.81
24.100	1.00	0.00	0.00	841.10	2545.00	847.83	0.00	847.93	4.93	2.52	1008.76	1146.39
24.100	1.00	0.00	0.00	841.10	2545.00	847.95	0.00	848.05	4.60	2.47	1027.22	1106.44
24.800	65.00	0.00	0.00	841.10	2545.00	847.99	0.00	848.03	3.94	2.36	1080.18	1282.36
24.900	1.00	870.00	863.70	841.10	2545.00	847.87	0.00	847.97	5.07	2.55	999.75	1129.77
24.900	1.00	870.00	863.70	841.10	2545.00	847.99	0.00	848.10	4.76	2.49	1020.46	1106.24
25.000	44.00	870.00	863.70	841.10	2545.00	847.89	0.00	847.99	5.03	2.54	1002.61	1136.44
25.000	44.00	870.00	863.70	841.10	2545.00	848.01	0.00	848.10	4.72	2.49	1023.22	1171.13
25.100	1.00	0.00	0.00	841.10	2545.00	847.91	0.00	848.00	4.13	2.39	1064.03	1252.77
25.100	1.00	0.00	0.00	841.10	2545.00	848.02	0.00	848.11	3.80	2.34	1085.72	1292.55

PRINTED IN U.S.A.
FORM 1411.00-PRINTED BY BOTANY MANIFOLD FORMS.

SUMMARY [illegible] TABLE 150

SECTION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000		831.61	0.00	0.00	0.30	241.94	0.00
1.000		831.61	0.00	0.00	0.00	189.92	0.00
2.000	2780.00	831.98	0.30	0.27	0.30	421.39	1275.00
2.000	2780.00	831.80	0.30	0.23	0.33	321.26	1275.00
2.800	2780.00	832.12	0.00	0.23	0.30	156.91	1000.00
2.800	2780.00	832.15	0.00	0.24	0.03	159.05	1000.00
2.900	2780.00	832.11	0.30	-0.03	0.30	156.91	1.00
2.900	2780.00	832.14	0.30	-0.00	0.33	159.26	1.00
3.000	2780.00	832.13	0.00	0.02	0.30	160.03	60.00
3.000	2780.00	832.16	0.00	0.02	0.33	160.21	60.00
3.100	2780.00	832.16	0.00	0.03	0.30	160.15	1.00
3.100	2780.00	832.19	0.00	0.03	0.33	160.32	1.00
4.000	2780.00	832.23	0.00	0.13	0.00	315.97	200.00
4.000	2780.00	832.31	0.00	0.12	0.02	202.42	200.00
5.000	2780.00	832.41	0.00	0.13	0.00	269.69	300.00
5.000	2780.00	832.45	0.00	0.14	0.03	260.65	300.00
5.800	2780.00	832.42	0.00	0.01	0.00	78.86	300.00
5.800	2780.00	832.47	0.00	0.02	0.06	75.36	300.00
5.900	2780.00	832.36	0.00	-0.06	0.00	78.35	1.00
5.900	2780.00	832.40	0.00	-0.06	0.06	75.45	1.00
6.000	2780.00	832.51	0.00	0.15	0.00	79.90	45.00
6.000	2780.00	832.55	0.00	0.15	0.04	73.91	45.00
6.100	2780.00	832.67	0.00	0.16	0.06	78.92	1.00
6.100	2780.00	832.71	0.00	0.16	0.06	78.92	1.00
7.000	2780.00	832.86	0.00	0.19	0.00	247.27	100.00
7.000	2780.00	832.89	0.00	0.17	0.02	178.36	100.00
7.800	2545.00	833.14	0.00	0.20	0.00	103.80	400.00
7.800	2545.00	833.18	0.00	0.20	0.04	103.80	400.00
7.900	2545.00	833.14	0.00	-0.01	0.00	103.80	1.00
7.900	2545.00	833.18	0.00	-0.00	0.04	103.80	1.00
8.000	2545.00	833.21	0.00	0.07	0.00	103.84	35.00
8.000	2545.00	833.24	0.00	0.07	0.04	103.85	35.00
8.100	2545.00	833.22	0.00	0.02	0.00	103.84	1.00
8.100	2545.00	833.26	0.00	0.01	0.04	103.85	1.00
8.200	2545.00	833.33	0.00	0.11	0.00	500.00	100.00
8.200	2545.00	833.36	0.00	0.10	0.02	267.28	100.00

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

		CHSEL	DIFUSP	DIFUSX	DIFKUS	TOPWID	XLCH
	[illegible]	833.75	0.00	0.42	0.00	918.66	1250.00
	2545.00	833.40	0.00	0.44	0.04	940.36	1250.00
	2545.00	[illegible]	0.00	0.22	0.00	1105.07	1250.00
	2545.00	834.04	0.00	0.24	0.06	981.70	1250.00
	2545.00	834.51	0.00	0.53	0.00	632.76	1400.00
	2545.00	834.69	0.00	0.56	0.03	432.96	1400.00
	[illegible]	835.56	0.00	1.05	0.00	176.69	955.00
	[illegible]	835.60	0.00	1.00	0.04	178.54	955.00
	[illegible]	836.11	0.00	0.55	0.00	119.62	400.00
	[illegible]	836.76	0.00	0.55	0.05	92.00	400.00
	2545.00	837.30	0.00	1.09	0.00	976.12	2150.00
	2545.00	837.42	0.00	1.26	0.12	854.62	2150.00
	2545.00	837.86	0.00	0.56	0.00	140.17	1650.00
	2545.00	837.93	0.00	0.56	0.12	140.36	1650.00
	2545.00	837.33	0.00	-0.34	0.00	140.17	1.00
	2545.00	837.97	0.00	-0.01	0.12	140.96	1.00
	2545.00	837.95	0.00	0.10	0.00	143.09	40.00
	2545.00	838.06	0.00	0.09	0.11	143.30	40.00
	2545.00	837.97	0.00	0.02	0.00	143.13	1.00
	2545.00	838.03	0.00	0.02	0.11	143.87	1.00
	2545.00	838.20	0.00	0.23	0.00	518.72	400.00
	2545.00	838.30	0.00	0.22	0.10	519.77	400.00
	2545.00	839.03	0.00	0.82	0.00	712.57	1450.00
	2545.00	839.12	0.00	0.82	0.10	551.69	1450.00
	2545.00	841.06	0.00	2.04	0.00	871.20	1900.00
	2545.00	841.17	0.00	2.04	0.10	672.32	1900.00
	2545.00	842.27	0.00	1.20	0.00	456.99	2300.00
	2545.00	842.33	0.00	1.16	0.06	320.56	2300.00
	2545.00	842.91	0.00	0.66	0.00	554.97	1500.00
	2545.00	842.99	0.00	0.67	0.08	440.30	1530.00
	2545.00	843.72	0.00	0.84	0.00	1230.16	1950.00
	2545.00	843.83	0.00	0.83	0.11	970.60	1950.00
	2545.00	844.33	0.00	0.62	0.00	493.48	1450.00
	2545.00	844.43	0.00	0.61	0.10	112.42	1450.00
	2545.00	847.03	0.00	2.69	0.00	387.53	2075.00
	2545.00	847.13	0.00	2.70	0.11	248.92	2075.00
	2545.00	847.24	0.00	0.23	0.00	235.74	250.00
	2545.00	847.37	0.00	0.24	0.11	203.65	250.00

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SECNO	D	CUSEL	DIFUSP	DIFUSX	DIFXUS	TOPWID	XLCH
22.900	2545.00	847.26	0.00	0.00	0.00	235.79	1.00
22.900	2545.00	847.37	0.00	0.00	0.11	203.93	1.00
23.000	2545.00	847.27	0.00	0.02	0.11	204.63	16.00
23.100	2545.00	847.28	0.00	0.00	0.00	236.68	1.00
23.100	2545.00	847.39	0.00	0.02	0.11	203.42	1.00
23.800	2545.00	847.75	0.00	1.42	0.00	136.59	550.00
23.800	2545.00	847.92	0.00	0.52	0.12	187.28	550.00
23.900	2545.00	847.79	0.00	-0.01	0.00	186.60	1.00
23.900	2545.00	847.91	0.00	-0.01	0.11	187.23	1.00
24.000	2545.00	847.82	0.00	0.03	0.00	136.20	44.00
24.000	2545.00	847.94	0.00	0.03	0.12	187.39	44.00
24.100	2545.00	847.83	0.00	0.02	0.00	136.26	1.00
24.100	2545.00	847.95	0.00	0.02	0.12	187.44	1.00
24.800	2545.00	847.87	0.00	0.04	0.00	136.54	65.00
24.800	2545.00	847.99	0.00	0.04	0.12	187.18	65.00
24.900	2545.00	847.87	0.00	-0.00	0.00	186.58	1.00
24.900	2545.00	847.99	0.00	-0.00	0.12	187.21	1.00
25.000	2545.00	847.89	0.00	0.02	0.00	136.66	44.00
25.000	2545.00	848.01	0.00	0.02	0.12	187.30	44.00
25.100	2545.00	847.91	0.00	0.02	0.00	136.71	1.00
25.100	2545.00	848.02	0.00	0.01	0.12	187.34	1.00

SUMMARY OF ERRORS

FORM 1411.00 PRINTED BY ROTARY MANIFOLD FORMS.

FLOODWAY DATA, KALAMAZOO RIVER
PROFILE NO. 2

STATION	WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	INCREASE
1.000	190.	1320.	2.9	831.6	831.6	0.0
2.000	324.	1761.	1.6	831.9	831.9	0.0
2.900	159.	1051.	2.4	832.1	832.1	0.0
2.900	159.	1015.	2.7	832.1	832.1	0.0
3.000	160.	905.	3.1	832.1	832.1	0.0
3.100	160.	970.	2.9	832.2	832.2	0.0
4.000	212.	1323.	2.1	832.3	832.3	0.0
5.000	241.	1415.	1.9	832.4	832.4	0.0
5.800	93.	612.	4.5	832.5	832.5	0.0
5.900	79.	520.	5.3	832.4	832.4	0.0
6.000	79.	551.	5.0	832.5	832.5	0.0
6.100	79.	662.	4.2	832.7	832.7	0.0
7.000	178.	977.	2.8	832.9	832.9	0.0
7.800	104.	719.	3.8	833.1	833.1	0.0
7.900	104.	653.	4.2	833.1	833.1	0.0
8.000	104.	754.	3.4	833.2	833.2	0.0
8.100	104.	779.	3.3	833.2	833.2	0.0
8.200	268.	1316.	1.9	833.3	833.3	0.0
9.000	340.	3319.	0.8	833.8	833.8	0.0
10.000	962.	5206	0.5	834.1	834.0	0.1
11.000	653.	1508.	1.7	836.6	836.5	0.1
12.000	179.	739.	3.4	835.6	835.6	0.0
12.100	92.	628.	4.1	836.1	836.1	0.0
13.000	855.	3361.	0.8	837.4	837.3	0.1
13.000	141.	781.	3.3	838.0	837.9	0.1
13.900	141.	740.	3.4	837.9	837.8	0.1
14.000	144.	756.	3.0	838.0	837.9	0.1
14.100	144.	904.	2.8	838.1	838.0	0.1
15.000	519.	1831.	1.6	838.3	838.2	0.1
16.000	552.	1223.	2.1	839.1	839.0	0.1
17.000	872.	2366.	1.1	841.2	841.1	0.1
18.000	321.	1230.	2.0	842.4	842.3	0.1
19.300	240.	1479.	1.7	843.0	842.9	0.1
20.000	971.	2988.	0.9	843.8	843.7	0.1
21.000	112.	567.	4.5	844.4	844.3	0.1
22.000	249.	1046.	2.4	847.1	847.0	0.1
22.830	204.	826.	3.1	847.4	847.3	0.1
22.900	204.	827.	3.1	847.4	847.3	0.1
23.000	205.	830.	3.1	847.4	847.3	0.1
23.100	205.	832.	3.1	847.4	847.3	0.1
23.800	187.	1026.	2.5	847.9	847.8	0.1
23.900	187.	968.	2.6	847.9	847.8	0.1
24.000	187.	972.	2.6	847.9	847.8	0.1
24.100	187.	1031.	2.5	847.9	847.8	0.1
24.300	187.	1080.	2.4	848.1	847.9	0.1
24.900	187.	1020.	2.5	848.0	847.9	0.1
25.000	187.	1023.	2.5	848.0	847.9	0.1
25.100	187.	1086.	2.3	848.0	847.9	0.1

FORM 1411-OD-PRINTED BY ROTARY MANIFOLD FORMS.

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**********************************************************
HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CONR - 01
MODIFICATION - 50,5[illegible]
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*****************************************************************
*                                                               *
*                  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 1411-00 PRINTED BY ROTARY MANIFOLD FORMS.

09:01:14 X12 DAN 8U232507 ENGE107 OCT 07, 1980

R400 11*C SM:11ZC LM:11*C FW:E5-006 22A00561 PR01 PR/H112/FI/SI/A/H132

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10:23:08                    X25        DAN        HU2C2107  DATTLE07                OCT 07, 1980
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Q400 11*C SM:11ZC LM:11*C F:E5-D16 22AD3561 PR01 PD/1112/FIVGI/A/1112
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  PROB CORP -  2"
  MODIFICATION -  2.1.52
**************************************************

C
T1 PINCKETT TOWNSHIP FLOOD INSURANCE STUDY
T2 1210 YEAR FLOOD FOR REACH FROM MOUTH TO 1.5 MI TO 1.5
T3      KALAMAZOO RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
          0.        1.        0.        0.    .01000      0.00      1.0       0.    730.500     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  LRECL     NUMSEC                    ***** NUMBER OF SECTIONS NUMBERS *****
     -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT

        150.000   201.101     0.000     0.000     0.000     1.000     0.000     0.000     0.000     0.000

ET      0.000     0.00      0.000     0.000     1.500     0.000     1.000     3.000     3.100     0.000
QT      5.000  1945.000  2535.000  2780.000  2780.000  3345.000     0.000     0.000     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

        SURVEY VALLEY SECTION 1

X1      1.000    13.000    13.000   199.000     0.300     0.000     0.000     0.000     0.000     0.000
GR    872.500     0.000   825.900    13.000   823.100    76.000   824.300   111.000   824.700   161.000
GR    826.500   199.000   827.000   219.000   830.400   249.000   834.300   263.000   836.700   285.000
GR    852.000   343.000   852.300   471.000   847.000   461.000     0.000     0.000     0.000     0.000

        SURVEY VALLEY SECTION 2

X1      2.000    17.000   417.000   587.300  1275.000  1275.000  1275.000     0.000     0.000     0.000
GR    847.800   266.000   841.000   284.200   833.900   804.000   820.800   814.000   829.000   400.000
GR    826.200   417.020   822.400   427.200   823.000   427.000   823.900   547.000   826.400   587.000
GR    827.400   594.000   829.400   630.300   829.830   634.000   832.400   700.000   836.400   756.000
GR    837.200   770.000   850.000   790.200     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

        D/S COLUMBIA AVE. SURVEY SECTION 3

X1      2.800    17.000     0.000   192.500  1000.000  1000.000  1000.000     0.000     0.000     0.000
GR    845.000     0.000   837.000     1.000   829.000    27.000   827.400    32.000   824.200    62.000
GR    824.200    62.100   824.200    65.900   824.200    66.000   822.800    96.000   823.200   127.000
GR    823.200   127.100   823.200   130.900   823.200   131.200   828.300   165.000   830.000   171.000
GR    859.100   994.500   845.000   192.500     0.000     0.000     2.000     0.000     3.000     0.000

        D/S FACE COLUMBIA AVE. SURVEY SECTION 3
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X1	2.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	12.000	0.000	845.000	0.000	1.000	845.000	341.600	62.000	845.000	841.600
BT	62.100	845.000	0.000	65.900	845.000	0.200	66.000	845.000	841.600	127.000
BT	845.000	841.600	127.100	845.000	0.000	130.900	845.000	0.000	131.000	845.000
BT	841.600	191.500	845.000	841.600	192.500	845.200	0.000	0.000	0.000	0.000

U/S FACE COLUMBIA AVE. SURVEY SECTION 3

X1	3.000	17.000	0.000	192.500	60.000	60.000	60.000	0.000	0.000	0.000
BT	12.000	0.000	845.000	0.000	1.000	845.000	841.600	62.000	845.000	841.600
BT	62.100	845.000	0.100	65.900	845.000	0.200	66.000	845.000	841.600	127.000
BT	845.000	841.600	127.100	845.000	0.000	130.900	845.000	0.000	131.000	845.000
BT	841.600	191.500	845.000	841.600	192.500	845.000	0.000	0.000	0.000	0.000
GF	845.000	0.000	835.600	1.000	829.200	27.000	829.100	32.000	825.500	62.000
GR	825.500	62.100	825.300	65.900	825.500	66.000	829.500	96.000	825.000	127.000
GR	823.000	127.100	823.100	133.900	793.000	131.100	827.200	156.300	830.400	171.000
GR	839.100	191.100	65.300	192.500	0.00	0.200	0.000	0.200	0.100	0.000

U/S COLUMBIA AVE. SURVEY SECTION 3

X1	3.100	0.000	0.100	0.000	1.000	1.000	1.000	0.300	0.000	0.000
NC	0.120	0.120	0.300	0.100	0.500	0.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 4

X1	5.000	16.000	311.000	551.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	847.400	410.000	839.200	450.000	837.400	414.000	835.300	450.000	830.400	526.300
GR	829.000	831.200	826.100	666.400	827.400	511.000	835.200	626.300	824.900	691.200
GR	824.200	736.000	823.900	746.000	823.300	776.000	826.900	804.000	827.700	808.000

GR	847.200	830.000	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

SURVEY VALLEY SECTION 5

X1	5.000	17.000	311.000	551.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	854.300	232.000	843.000	240.000	841.400	270.000	852.600	276.000	828.000	291.000
GR	826.900	311.000	826.600	323.000	835.400	353.000	827.200	357.000	823.200	419.000
GR	826.900	435.000	826.700	448.000	826.800	466.000	824.600	468.000	824.000	529.000
GR	823.700	551.000	640.500	303.000	0.200	0.000	0.000	0.000	0.000	0.000

D/S MAIN ST. SURVEY SECTION 6

X1	5.000	10.000	0.000	30.300	300.000	500.000	300.000	0.000	0.000	0.000
GR	842.500	0.000	844.500	1.300	824.000	20.000	824.300	39.000	824.000	39.100
GR	825.300	60.900	824.300	41.000	825.400	60.000	824.800	79.000	842.500	80.000

D/S FACE MAIN ST. SURVEY SECTION 6

X1	5.900	0.300	0.000	0.000	1.000	1.000	1.000	0.300	0.000	0.000
BT	0.000	0.200	842.500	0.000	1.000	842.500	837.700	39.000	842.500	837.700
BT	39.100	842.500	0.000	41.900	842.500	0.000	42.000	842.500	837.700	79.000
BT	842.500	837.700	80.000	842.500	0.000	0.200	0.000	0.000	0.000	0.000

U/S FACE MAIN ST. SURVEY SECTION 6

X1	5.000	10.000	0.000	60.000	45.000	45.000	45.000	0.000	0.000	0.000
BT	3.000	0.000	842.500	0.000	1.000	842.500	837.700	39.000	842.500	837.700

CT	39.100	842.500	0.000	41.900	842.500	0.000	42.300	842.500	837.700	79.000
BT	842.500	837.700	80.000	842.500	0.000	0.000	0.300	0.000	0.000	0.000
GR	842.500	0.000	823.900	1.000	824.100	20.000	824.300	39.000	824.300	39.100
GR	823.900	42.900	823.900	41.000	824.600	60.000	824.700	79.000	842.500	80.000

U/S TAIL ST. LEVEL - SECTION 6

X1	6.400	0.000	0.000	0.300	1.000	1.000	1.300	0.000	0.000	0.000

SURVEY VALLEY SECTION 7

X1	7.000	17.000	1189.000	1279.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	850.000	1094.000	833.400	1096.000	831.500	1130.000	830.200	1142.000	829.800	1134.000
GR	827.900	1169.000	824.000	1209.000	824.300	1224.000	825.200	1259.000	826.600	1279.000
GR	829.700	1284.000	827.900	1338.100	829.400	1356.000	831.300	1364.000	353.300	1358.000
GT	836.300	1374.000	827.000	1376.700	0.000	0.000	0.000	0.000	0.000	0.000
DT	0.000	1250.000	2521.000	2553.000	2.450.000	2002.000	0.300	0.000	0.000	0.000

U/S EAGLE LAKE SURVEY SECTION 8

X1	7.300	12.000	1.000	105.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	842.700	0.000	842.200	1.000	843.100	20.000	826.100	41.000	826.10	51.100
GR	825.000	53.900	825.600	54.000	825.200	59.000	827.200	104.000	842.000	105.000

U/S PACE MIDDLE LAKE SURVEY SECTION

X1	7.900	0.000	0.000	0.000	1.000	0.000	1.000	0.000	0.000	0.000
BT	0.000	0.000	842.000	0.000	1.000	842.000	837.700	51.000	842.000	837.700
BT	51.100	842.000	0.000	53.900	842.000	0.000	54.000	842.000	837.700	104.000
BT	842.000	837.700	105.000	842.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S PACE EAGLE LAKE SURVEY SECTION 8

X1	6.000	10.000	0.000	105.000	35.000	35.000	35.000	0.000	0.000	0.000
BT	0.000	0.000	842.000	0.000	1.000	842.000	837.700	51.000	842.000	837.700
BT	51.100	842.000	0.000	53.900	842.000	0.000	54.000	842.000	837.700	104.000
BT	842.000	837.700	105.000	842.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	842.000	0.000	827.200	1.000	825.000	20.000	825.000	51.000	825.000	51.100
GR	824.900	53.900	824.900	54.000	824.800	59.000	826.400	104.000	842.000	105.000

U/S EAGLE LAKE SURVEY SECTION 9

X1	8.100	5.000	0.000	0.000	1.300	1.000	1.000	0.000	0.000	0.000

X1	8.200	11.000	105.000	195.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	840.000	0.000	830.000	0.000	830.000	100.000	827.200	105.000	325.000	125.000
GR	825.000	250.000	824.000	175.000	826.400	195.000	830.000	200.000	830.000	300.000
GR	840.000	300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.120	0.120	0.040	0.100	0.300	0.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 9

X1	9.000	24.000	1366.000	1960.000	1400.000	1100.300	1250.000	0.000	0.000	0.000
GR	840.000	570.000	840.000	640.000	836.400	708.300	837.000	698.000	837.200	950.000
GR	835.500	958.000	835.300	1136.000	836.600	1190.300	830.000	1200.000	830.700	1418.000
GR	830.400	1628.000	830.400	1822.000	830.400	1859.300	827.900	1868.000	825.000	1898.000

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GR	826.800	1933.000	827.400	1968.000	827.300	1998.000	829.800	2005.000	830.600	2090.000
GR	833.600	2112.000	839.000	2140.000	842.000	2168.000	846.000	2210.000	0.000	0.000

SUNVEY VALLEY SECTION 10

X1	10.300	[illegible]	[illegible]	2262.000	[illegible]	1402.000	1200.000	[illegible]	[illegible]	[illegible]
GR	840.400	739.000	838.400	386.000	838.000	1012.000	836.600	1122.000	831.300	1160.000
GR	831.800	1184.000	831.000	1384.000	830.800	1554.000	831.200	1754.000	830.600	1926.000
GR	831.600	2072.000	831.300	2155.000	829.100	2159.000	827.700	2164.000	825.900	2183.000
GR	825.300	2191.000	826.400	2223.000	[illegible]	2273.000	835.200	2257.000	836.000	2262.000
GR	842.000	2214.000	846.800	2300.000	0.000	[illegible]	0.000	0.000	0.000	0.000

SUNVEY VALLEY SECTION 11

X1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
GR	0.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
GR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
GR	826.200	870.000	827.700	592.000	829.100	711.000	831.600	720.000	831.600	638.000
GR	832.100	1066.000	831.000	1266.000	831.400	1300.000	850.000	1300.000	0.000	0.000
NC	0.120	0.120	0.045	0.300	0.000	0.000	0.000	0.000	0.000	0.000

SURVEY [illegible]

X1	12.000	15.000	584.000	676.000	850.000	850.000	955.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	557.000	0.000	750.000	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]

INTERPOLATED CROSS SECTION 12

X1	12.100	10.000	584.000	676.000	850.000	400.000	400.000	0.000	0.000	0.000
GR	846.200	852.000	833.200	572.000	831.000	506.000	850.000	505.000	827.900	815.000
GR	827.500	630.000	828.100	645.000	833.300	676.000	850.000	700.000	840.000	750.000

SURVEY VALLEY SECTION 13

X1	13.000	29.000	716.000	824.000	1300.000	1000.300	2150.000	0.000	0.000	0.000
GR	857.000	656.000	845.200	676.000	837.300	700.000	833.600	710.000	831.100	716.000
GR	829.200	745.000	829.600	770.000	829.400	805.000	831.800	824.000	835.200	838.000
GR	834.200	966.000	833.800	1280.000	833.600	1412.000	834.000	1590.000	837.200	1664.000
GR	838.400	1884.000	839.500	1984.000	844.000	2174.000	850.000	2132.000	0.000	0.000
NC	0.120	0.120	0.140	0.300	0.500	0.000	0.000	0.000	0.000	0.000

D/S RAYCOND ST. SURVEY SECTION 14

X1	13.000	19.000	0.000	202.000	1650.200	1650.000	1550.000	0.000	0.000	0.000
GR	836.000	0.000	847.000	1.000	850.800	40.000	831.700	45.000	831.700	45.100
GR	831.700	47.400	831.700	47.500	831.300	75.000	831.400	100.000	831.400	100.100
GR	831.400	102.400	831.400	102.500	831.200	130.000	833.600	155.000	833.600	155.100
GR	833.600	157.400	835.100	157.500	847.000	201.000	856.000	202.000	0.000	0.000

D/S PAGE RAYMOND ST. SURVEY SECTION 15

X1	13.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	14.000	0.000	856.000	0.000	0.000	856.000	852.800	45.000	856.000	852.800
GR	45.100	856.000	0.000	47.400	856.000	0.000	47.500	855.000	852.800	107.000

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BT	856.000	852.000	130.100	856.000	0.000	102.400	856.000	0.000	102.500	856.000
BT	852.900	155.000	856.000	852.300	155.100	856.000	0.000	157.400	856.000	0.000
BT	157.500	836.000	852.800	201.000	856.000	852.000	202.300	856.000	0.000	0.000

U/S RAYMOND ST. SURVEY SECTION 14

X1	14.000	19.000	0.000	202.300	40.000	40.300	40.000	0.300	0.000	0.000
BT	16.000	0.000	856.000	0.000	0.000	856.000	852.800	45.300	856.300	852.800
BT	45.100	856.300	0.000	47.400	356.000	0.000	47.500	856.000	852.800	100.000
BT	856.000	852.300	100.100	856.300	0.000	102.400	856.000	0.000	102.500	856.000
BT	852.800	155.300	856.000	852.800	155.100	856.300	0.000	157.400	856.300	0.300
BT	157.500	836.300	852.800	201.300	856.000	852.300	202.000	856.000	0.000	0.000
GR	856.000	0.000	367.000	1.000	833.100	40.000	837.800	45.000	831.800	45.100
GR	831.600	47.400	831.800	47.500	831.200	75.000	829.600	100.000	829.600	100.100
GR	829.600	102.400	829.600	102.500	829.700	130.300	833.300	155.000	833.300	155.100
GR	833.300	157.400	834.300	157.500	837.000	201.300	855.000	202.300	0.000	0.300

U/S RAYMOND ST. SURVEY SECTION 14

X1	14.100	0.000	0.000	0.000	1.000	1.100	1.000	0.000	0.000	0.000
SC	0.100	0.100	0.100	1.100	0.300	0.300	2.000	2.000	2.000	3.670
ET	0.000	0.000	0.300	0.000	0.300	0.300	2.000	2.000	[illegible]	2744.000

400 FT U/S RAYMOND SURVEY SECTION 15

X1	12.100	17.000	1054.200	2116.000	400.200	[illegible]	400.000	0.000	0.000	0.000
SC	441.300	1022.000	640.800	1082.000	640.800	1102.600	641.000	1332.000	641.000	1302.000
GR	833.900	1400.000	835.600	1302.000	835.700	1962.000	835.300	1969.000	832.700	2004.000
GR	832.900	2035.000	831.100	2052.000	830.600	2068.000	830.300	2095.000	833.100	2116.000
GR	840.600	2120.000	848.000	2144.000	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

SURVEY VALLEY SECTION 19

X1	16.000	20.000	1932.000	1998.000	900.000	1130.000	1450.000	0.000	0.000	0.000
GR	851.000	586.000	846.400	593.000	842.400	634.000	842.000	774.000	842.600	924.000
GR	841.500	1158.000	839.300	1294.000	837.200	1422.000	837.000	1604.000	837.000	1372.000
GR	836.900	1917.000	835.600	1926.000	836.400	1932.000	832.900	1965.000	832.100	1965.000
GR	831.500	1965.000	832.200	1998.000	842.200	2003.000	843.200	2056.000	836.200	2114.000

SURVEY VALLEY SECTION 17

X1	17.000	23.300	318.000	550.000	1200.000	1600.000	1900.000	0.000	0.000	0.300
X2	0.000	11.200	0.000	272.000	0.000	1175.000	0.000	0.000	0.000	0.300
GR	857.200	200.000	851.000	222.000	845.600	236.000	844.000	272.000	839.200	324.000
GR	838.900	446.000	839.000	502.000	836.000	510.000	835.200	535.000	834.200	551.000
GR	836.700	568.000	836.700	573.000	838.300	587.000	838.000	658.000	838.800	794.000
GR	836.800	984.000	836.500	1200.000	839.300	1665.000	839.600	1664.000	838.200	1818.000
GR	840.200	1902.000	840.200	1916.000	838.800	1937.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 18

X1	18.000	17.300	339.000	667.300	2100.000	1800.000	2320.000	0.000	0.000	0.300
GR	851.000	200.300	845.000	220.000	845.000	230.300	840.600	284.000	841.000	814.000
GR	840.600	530.000	838.000	539.000	834.000	543.300	834.400	603.000	834.800	828.000
GR	836.500	667.000	839.100	670.000	840.600	712.000	843.000	732.000	845.800	792.000
GR	847.300	818.000	851.600	834.000	0.000	0.000	0.000	0.000	0.000	0.000

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SURVEY VALLEY SECTION 19

X1	19.000	19.000	804.000	936.000	1525.000	1525.000	1530.000	0.000	0.000	0.000
GR	839.000	936.000	804.000	960.300	840.300	822.000	845.400	350.000	841.000	726.000
GR	840.600	912.000	840.000	726.300	840.200	805.000	837.200	804.000	857.400	695.000
GR	854.200	879.000	871.600	681.300	837.100	0.000	840.200	960.000	844.200	597.000
GR	845.200	996.000	847.000	1066.000	840.200	1265.000	857.500	1350.000	0.000	0.000

SURVEY CROSS SECTION 20

X1	20.000	20.000	1122.000	1201.000	1530.200	1317.000	1525.000	0.000	0.000	0.000
GR	832.500	558.000	850.600	616.000	849.700	720.000	846.300	396.000	847.900	900.000
GR	845.200	900.000	842.200	1004.000	841.700	1078.000	841.100	1272.000	841.200	1404.000
GR	841.100	1652.000	841.300	1726.000	839.700	1039.000	840.700	1848.000	838.500	1850.000
GR	837.300	1972.000	836.500	1981.000	837.300	1920.000	837.300	1901.000	841.000	1975.000
GR	841.400	2054.000	839.300	2088.000	839.900	2026.000	840.000	2062.000	852.800	2080.000
XS	0.125	2.000	0.100	2.000	0.300	0.000	0.050	2.000	0.000	0.000

SURVEY VALLEY SECTION 21

X1	21.000	21.000	1122.000	1158.000	1502.000	1301.000	1520.000	0.000	0.000	0.000
GR	852.000	640.000	852.400	936.200	852.400	837.000	847.600	582.200	846.100	715.000
GR	843.800	640.000	844.200	972.000	844.000	1030.000	839.800	1040.000	838.400	1059.000
GR	838.100	1036.000	838.500	1109.000	839.800	1126.000	842.300	1138.000	843.400	1154.000
GR	843.800	1264.000	844.600	1324.000	845.100	1332.000	845.500	1670.000	847.300	1758.000
GR	843.400	1814.000	847.600	2166.000	849.800	2166.000	852.400	2262.000	0.000	0.000
MC	0.120	0.100	2.000	0.500	0.530	1.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 22

X1	22.000	21.000	877.000	937.000	2075.000	2175.000	2075.000	0.000	0.000	0.000
GR	860.000	210.000	857.600	230.300	855.500	264.000	851.600	220.200	841.200	515.000
GR	847.200	410.200	844.800	530.300	843.600	575.000	840.200	577.300	839.500	597.000
GR	840.200	617.000	841.200	637.000	842.200	657.000	843.500	668.000	843.600	728.000
GR	845.600	800.000	846.400	820.000	848.300	866.000	850.000	912.000	853.700	932.000
GR	862.400	962.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S PARK BRIDGE SURVEY SECTION 24

X1	22.000	15.000	322.000	422.000	250.000	250.000	250.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	852.400	844.800	0.000
BR	850.000	170.000	346.000	170.000	345.000	282.000	848.000	315.000	847.750	322.000
BR	841.300	347.000	841.500	372.000	840.900	397.000	842.200	422.000	843.000	430.000
BT	847.100	482.000	844.300	490.000	844.800	514.300	844.900	603.000	863.000	602.000

D/S FACE PARK BRIDGE SURVEY SECTION 24

X1	22.900	1.000	0.300	1.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.300	0.000	0.300	0.000	0.000	0.000	0.000	852.400	844.800	0.000
BT	16.000	170.000	850.000	0.000	282.000	654.500	0.000	315.000	852.400	0.000
BT	322.000	852.400	0.000	322.000	852.400	851.600	347.000	852.000	851.200	372.000
BT	851.900	851.100	397.300	851.800	851.000	422.000	851.400	850.600	430.000	851.000
BT	0.500	465.000	847.100	0.000	490.000	844.800	0.000	844.000	844.600	0.000
BT	600.500	864.900	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE PARK BRIDGE SURVEY SECTION 24

X1	23.000	0.000	0.000	0.000	16.000	16.000	16.000	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	852.400	864.600	0.000

U/S EAST BRIDGE SURVEY SECTION 24

X1	23.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	1.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	852.400	344.600	0.000

D/S [illegible] I-94 SURVEY SECTION 24

X1	23.300	18.000	0.000	272.000	550.000	550.000	550.000	0.000	0.000	0.000
GR	870.000	0.000	863.900	1.000	843.000	57.000	843.000	57.100	843.000	60.500
GR	843.000	60.600	841.900	97.000	841.700	135.000	841.700	135.100	841.700	138.500
GR	841.700	138.600	841.100	175.000	842.500	212.000	842.600	212.100	842.600	215.500
GR	842.500	215.600	841.700	271.000	870.000	272.000	0.000	0.000	0.000	0.000

D/S FACE WEST BOUND I-94 SURVEY SECTION 24

X1	23.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	16.000	0.000	870.000	0.000	1.000	870.000	863.700	57.000	870.000	863.700
BT	57.100	870.000	0.000	60.500	870.000	0.000	60.600	870.000	863.700	135.000
BT	870.000	863.700	135.100	870.000	0.000	138.500	870.000	0.000	138.600	870.000
BT	863.700	212.000	870.000	863.700	212.100	870.000	0.000	215.500	870.000	0.000
BT	215.600	870.000	863.700	271.000	870.000	863.700	272.000	870.000	0.000	0.000

U/S [illegible] BOUND I-94 [illegible] SECTION 24

X1	24.000	0.000	0.000	0.000	44.000	44.000	44.000	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

D/S [illegible] BOUND I-94 SURVEY SECTION 24

X1	24.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

D/S EASTBOUND I-94 SURVEY SECTION 24

X1	24.800	18.000	0.000	272.000	65.000	65.000	65.000	0.000	0.000	0.000
GR	870.000	0.000	864.900	1.000	843.000	57.000	843.000	57.100	843.000	60.500
GR	843.000	60.600	841.500	97.000	841.100	135.000	841.100	135.100	841.100	138.500
GR	841.100	138.600	841.100	175.000	842.500	212.000	842.500	212.100	842.300	215.500
GR	842.500	215.600	841.700	271.000	870.000	272.000	0.000	0.000	0.000	0.000

D/S FACE EAST BOUND I-94 SURVEY SECTION 24

X1	24.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	16.000	0.000	870.000	0.000	1.000	870.000	863.700	57.000	870.000	863.700
BT	57.100	870.000	0.000	60.500	870.000	0.000	60.600	870.000	863.700	135.000
BT	870.000	863.700	135.100	870.000	0.000	138.500	870.000	0.000	138.600	870.000
BT	863.700	212.000	870.000	863.700	212.100	870.000	0.000	215.500	870.000	0.000
BT	215.600	870.000	863.700	271.000	870.000	863.700	272.000	870.000	0.000	0.000

U/S FACE EAST BOUND I-94 SURVEY SECTION 24

X1	25.000	0.000	0.000	0.000	44.000	44.000	44.000	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

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U/S EASTBOUND I-94 SURVEY SECTION 24

X:	25.100	0.200	0.002	0.300	1.050	1.000	1.000	0.050	0.050	0.000
Y:	0.000	0.200	0.000	0.000	0.050	0.050	0.000	0.050	0.000	0.050

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  NEC2 RELEASE DATED NOV 75 UPDATED FEB 1977
  ERROR CORR -  [illegible]
  ODIFICATION -  [illegible]
**************************************************************

TIMMETT TECHNICIAN "LOOP INSURANCE STUDY"
TEXALAMAZOC [illegible]
[illegible]
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	HSEL	FQ
	3.	3.	0.	0.	0.000000	0.00	0.0	0.	331.320	0.000

J2	XPROB	XPOD	[illegible]	XSECV	XSECH	PH	[illegible]	IU.	[illegible]	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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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  JUSTIFICATION -  [illegible]
*****************************************************

T1ERRETT TOWNSHIP FLOOD [illegible] STUDY
T2KALAMAZOO RIVER [illegible] TOWNSHIP TO [illegible]
T3      KALAMAZOO [illegible]

J1  ICHECK    INQ      INV      IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
       0.       4.       1.       0.  0.[illegible]0  [illegible]  [illegible]  0.  [illegible]  0.000

J2  NPROF    [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
     3.000    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 76 UPDATED FEB 1977
  ERROR CORR -  [illegible]
  MODIFICATION -  [illegible]
*****************************************************************

T1 [illegible] TOWNSHIP FLOOD [illegible] STUDY
T2 KALAMAZOO RIVER FOR [illegible] TOWNSHIP TO [illegible]
T3      KALAMAZOO [illegible]

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
       0.       6.       0.       0.  0.[illegible]  0.00     0.0      0.  [illegible]  0.000

J2  SPROF    IPLOT    PRFVS    XSECV    XSEC1    FN       ALLDC    COD      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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PRINTED IN U.S.A.

FORM 1011 GD PRINTED BY ROTARY MANIFOLD FORMS

4 PROFILE

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FSC2 RELEASE DATED NOV 76 UPDATED FEB 1977

EPDS CODE = 01

LOGIC/CATEGORY = 30.0 .53

****

NOTE** ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES ASSIGNMENT TO SUB-REACH OF ERRORS LIST

KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

SECTION	FLOW	LATER	EL.	EL. HI	L	WSEL	CRWSE	SO	TOPWD	VCH	RCH	STA
1.000	0.00	0.00	0.00	823.10	1965.00	830.50	0.00	830.50	1.96	1.71	1226.65	1589.59
1.000	0.00	0.00	0.00	823.10	2535.00	831.32	0.00	831.38	2.21	1.97	1410.35	1704.76
1.000	0.00	0.00	0.00	823.10	2780.00	831.61	0.00	831.67	2.32	2.07	1485.70	1832.21
1.000	0.00	0.00	0.00	823.10	3345.00	832.28	0.00	832.36	2.64	2.26	1693.31	2141.11
2.000	1275.00	0.00	0.00	822.80	1965.00	830.79	0.00	830.85	1.83	1.66	1504.91	1521.77
2.000	1275.00	0.00	0.00	822.80	2535.00	831.58	0.00	831.63	1.81	1.86	1832.02	1806.18
2.000	1275.00	0.00	0.00	822.80	2780.00	831.88	0.00	831.94	1.87	1.97	1938.54	2035.49
2.000	1275.00	0.00	0.00	822.80	3345.00	832.57	0.00	832.64	2.11	2.11	2210.97	2507.00
2.000	1030.00	0.00	0.00	822.80	1965.00	831.00	0.00	831.07	3.20	2.16	901.91	1086.79
2.000	1030.00	0.00	0.00	822.80	2535.00	831.81	0.00	831.90	3.67	2.47	1027.54	1323.82
2.000	1030.00	0.00	0.00	822.80	2780.00	832.12	0.00	832.22	3.83	2.58	1076.39	1419.61
2.000	1030.00	0.00	0.00	822.80	3345.00	832.82	0.00	832.94	4.13	2.81	1186.53	1646.80
2.900	1.00	845.00	841.60	822.80	1965.00	830.99	0.00	831.00	3.93	2.30	864.91	974.93
2.900	1.00	845.00	841.60	822.80	2535.00	831.85	0.00	831.91	4.53	2.63	984.59	1191.50
2.900	1.00	845.00	841.60	822.80	2780.00	832.11	0.00	832.23	4.73	2.75	1010.72	1278.22
2.900	1.00	845.00	841.60	822.80	3345.00	832.81	0.00	832.95	5.07	2.99	1117.38	1485.81
3.000	60.00	845.00	841.60	823.00	1965.00	831.01	0.00	831.12	5.37	2.65	734.08	770.56
3.000	60.00	845.00	841.60	823.00	2535.00	831.82	0.00	831.96	6.06	2.97	856.22	969.20
3.000	60.00	845.00	841.60	823.00	2780.00	832.13	0.00	832.28	7.01	3.07	900.69	1049.97
3.000	60.00	845.00	841.60	823.00	3345.00	832.83	0.00	833.00	7.23	3.32	1008.77	1243.71
3.100	1.00	0.00	0.00	823.00	1965.00	831.03	0.00	831.12	5.04	2.47	787.56	866.26
3.100	1.00	0.00	0.00	823.00	2535.00	831.86	0.00	831.97	5.62	2.77	916.12	1068.51
3.100	1.00	0.00	0.00	823.00	2780.00	832.16	0.00	832.29	5.87	2.88	965.33	1177.54
3.100	1.00	0.00	0.00	823.00	3345.00	832.86	0.00	833.01	5.70	3.10	1079.09	1390.90
4.000	200.00	0.00	0.00	823.30	1965.00	831.13	0.00	831.19	2.15	1.94	1166.07	1325.91
4.000	200.00	0.00	0.00	823.30	2535.00	831.97	0.00	832.04	2.40	2.21	1414.56	1635.51
4.000	200.00	0.00	0.00	823.30	2780.00	832.28	0.00	832.35	2.49	2.31	1512.52	1761.96
4.000	200.00	0.00	0.00	823.30	3345.00	832.99	0.00	833.09	2.63	2.51	1740.53	2064.16
5.000	400.00	0.00	0.00	824.00	1965.00	831.25	0.00	831.29	2.50	1.68	1257.51	1250.60
5.000	400.00	0.00	0.00	824.00	2535.00	832.09	0.00	832.14	2.45	1.83	1494.50	1620.09
5.000	400.00	0.00	0.00	824.00	2780.00	832.41	0.00	832.47	2.44	1.90	1585.34	1779.20
5.100	400.00	0.00	0.00	824.30	3345.00	833.13	0.00	833.20	2.41	2.03	1790.71	2159.37

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FORM 1411 GUARANTEED BY ROTARY MANIFOLD FORMS

SECNO	XLCh	ELTRD	ELLC	ELMIN	C	CUSEL	CRIMS	EG	10K*S	VCH	AREA	.01K
5.800	300.00	0.30	0.00	826.00	1945.00	831.29	0.00	831.51	9.83	3.71	524.36	620.26
5.900	300.00	0.30	0.00	826.30	2535.00	832.01	0.00	832.40	11.62	4.31	603.34	743.75
5.900	300.00	0.30	0.00	826.30	2730.00	832.42	0.00	832.74	12.31	4.65	636.21	792.25
5.900	300.00	0.30	0.00	826.30	3345.00	833.31	0.00	833.50	14.67	5.41	767.47	904.59
5.900	1.00	842.50	837.70	826.00	1945.00	831.25	0.00	831.55	17.36	6.40	642.13	467.04
5.900	1.00	842.50	837.70	826.00	2535.00	832.05	0.00	832.46	20.52	5.11	696.22	559.64
5.900	1.00	842.50	837.70	826.00	2730.00	832.36	0.00	832.61	21.76	5.36	718.53	596.00
5.900	1.00	842.50	837.70	826.00	3345.00	833.04	0.00	833.59	24.21	5.95	782.30	679.85
6.000	45.00	842.50	837.70	823.90	1945.00	831.37	0.00	831.65	14.02	4.13	471.22	519.37
6.000	45.00	842.50	837.70	823.90	2535.00	832.20	0.00	832.56	16.79	4.61	527.11	618.64
6.000	45.00	842.50	837.70	823.90	2730.00	832.51	0.00	832.91	17.87	5.07	548.25	657.01
6.000	45.00	842.50	837.70	823.90	3345.00	833.21	0.00	833.73	20.02	5.62	595.57	767.53
6.100	1.00	0.00	0.00	823.90	1945.00	831.47	0.00	831.56	9.75	3.44	584.61	700.98
6.100	1.00	0.00	0.00	823.90	2535.00	832.34	0.00	832.59	9.15	4.00	633.23	830.14
6.100	1.00	0.00	0.00	823.90	2730.00	832.67	0.00	832.95	9.71	4.22	659.22	892.00
6.100	1.00	0.00	0.00	823.90	3345.00	833.41	0.00	833.75	10.62	4.66	717.53	1016.90
7.100	100.00	0.00	0.00	824.00	1945.00	831.57	0.00	831.74	6.78	3.49	721.32	772.16
7.100	100.00	0.00	0.00	824.00	2535.00	832.34	0.00	832.59	7.85	3.95	807.67	935.71
7.000	100.00	0.00	0.00	824.00	2730.00	832.66	0.00	833.05	8.38	3.65	1084.01	1100.47
7.000	100.00	0.00	0.00	824.00	3345.00	833.46	0.00	833.87	8.33	3.88	1208.40	1329.60
7.300	400.00	0.00	0.00	824.20	1730.00	831.37	0.00	831.69	7.59	3.27	579.13	671.75
7.300	400.00	0.00	0.00	824.20	2320.00	832.19	0.00	832.97	8.61	3.66	675.35	819.77
7.300	400.00	0.00	0.00	824.20	2545.00	832.54	0.00	832.84	8.11	3.57	711.05	891.63
7.300	400.00	0.00	0.00	824.20	3060.00	833.34	0.00	833.61	9.29	3.97	771.02	1009.34
7.800	400.00	0.00	0.00	825.20	3060.00	833.94	0.00	834.17	8.33	3.85	794.12	1060.49
7.900	1.00	842.00	837.70	825.20	1780.00	831.86	0.00	832.02	8.49	3.17	562.18	610.92
7.900	1.00	842.00	837.70	825.20	2330.00	832.70	0.00	832.98	8.96	3.54	655.27	780.12
7.900	1.00	842.00	837.70	825.20	2545.00	833.16	0.00	833.35	8.99	3.68	691.05	840.94
7.900	1.00	842.00	837.70	825.20	3060.00	833.93	0.00	834.17	9.79	3.97	771.02	1009.34
8.000	35.00	842.00	837.70	824.80	1730.00	831.92	0.00	832.05	6.16	2.87	621.06	717.11
8.000	35.00	842.00	837.70	824.80	2320.00	832.05	0.00	833.02	6.70	3.25	714.59	896.21
8.000	35.00	842.00	837.70	824.80	2545.00	833.21	0.00	833.36	6.90	3.39	750.51	968.71
8.000	35.00	842.00	837.70	824.80	3060.00	834.30	0.00	834.21	7.24	3.60	830.42	1136.99
8.100	1.00	0.00	0.00	824.80	1780.00	831.94	0.00	832.05	5.52	2.77	641.92	757.64
8.100	1.00	0.00	0.00	824.80	2320.00	832.87	0.00	833.02	6.01	3.14	738.29	946.21
8.100	1.00	0.00	0.00	824.80	2545.00	833.22	0.00	833.39	6.19	3.20	775.37	1022.51
8.100	1.00	0.00	0.00	824.80	3060.00	834.02	0.00	834.22	6.57	3.57	857.98	1199.30
8.200	100.00	0.00	0.00	824.80	1780.00	832.00	0.00	832.11	4.56	2.75	1010.06	835.15
8.200	100.00	0.00	0.00	824.80	2320.00	832.96	0.00	833.08	4.42	2.97	1305.66	1104.07
8.200	100.00	0.00	0.00	824.80	2545.00	833.33	0.00	833.46	4.37	3.05	1416.62	1217.32
8.200	100.00	0.00	0.00	824.80	3060.00	834.16	0.00	834.29	4.23	3.21	1664.03	1487.52
9.000	1250.00	0.00	0.00	826.00	1780.00	832.47	0.00	832.30	2.34	1.70	2329.00	1162.54
9.000	1250.00	0.00	0.00	826.00	2320.00	833.39	0.00	833.43	1.93	1.78	3172.07	1582.25
9.000	1250.00	0.00	0.00	826.00	2545.00	833.75	0.00	833.79	1.78	1.78	3503.01	1909.83
9.000	1250.00	0.00	0.00	826.00	3060.00	834.56	0.00	834.59	1.54	1.79	4244.05	2464.76

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SECND	XLCH	FLTID	ELLC	ELMIN	Q	CUSEL	CRIMS	EG	10K*S	VCH	AREA	.01K
10.000	1250.00	0.00	0.00	825.90	1780.00	832.76	0.00	832.85	3.92	2.66	2100.96	899.48
10.000	1250.00	0.00	0.00	825.90	2320.00	833.64	0.00	833.69	5.02	2.58	3116.90	1335.42
10.000	1250.00	0.00	0.00	825.90	2565.00	833.91	0.00	834.02	5.55	2.52	3496.00	1536.86
10.000	1250.00	0.00	0.00	825.90	3060.00	834.75	0.00	834.90	6.59	2.46	4251.12	1934.82
11.000	1400.00	0.00	0.00	827.70	1780.00	833.53	0.00	833.67	9.97	3.43	1045.01	563.60
11.000	1400.00	0.00	0.00	827.70	2320.00	834.22	0.00	834.30	9.43	3.66	1349.06	755.55
11.000	1400.00	0.00	0.00	827.70	2565.00	834.51	0.00	834.67	9.12	3.70	1494.06	842.71
11.000	1400.00	0.00	0.00	827.70	3060.00	834.19	0.00	835.36	8.51	3.79	1794.49	1041.64
12.000	955.30	0.00	0.00	827.50	1780.00	834.60	0.00	834.79	13.30	3.52	560.79	483.11
12.000	955.30	0.00	0.00	827.50	2320.00	835.29	0.00	835.54	14.41	4.29	683.30	611.20
12.000	955.30	0.00	0.00	827.50	2565.00	835.56	0.00	835.83	14.70	4.26	732.05	663.86
12.000	955.30	0.00	0.00	827.50	3060.00	836.17	0.00	836.41	15.21	4.30	829.55	769.72
12.100	400.00	0.00	0.00	827.30	1780.00	836.90	0.00	835.27	9.50	3.35	362.25	503.06
12.100	400.00	0.00	0.00	827.30	2320.00	835.83	0.00	836.05	11.17	3.83	647.07	694.20
12.100	400.00	0.00	0.00	827.30	2565.00	836.11	0.00	836.36	11.91	4.01	680.80	766.97
12.100	400.00	0.00	0.00	827.30	3060.00	836.72	0.00	837.03	12.42	4.20	756.53	860.42
13.000	2150.00	0.00	0.00	829.20	1780.00	836.20	0.00	836.84	3.90	1.75	2056.66	1149.03
13.000	2150.00	0.00	0.00	829.20	2320.00	836.81	0.00	837.33	5.19	1.84	3201.11	1525.93
13.000	2150.00	0.00	0.00	829.20	2565.00	837.30	0.00	837.33	2.13	1.64	3503.76	1745.40
13.000	2150.00	0.00	0.00	829.20	3060.00	837.97	0.00	838.00	1.98	1.69	4131.95	2173.16
13.000	1650.00	0.00	0.00	831.20	1780.00	838.49	0.00	836.69	8.93	3.58	854.27	1023.85
13.900	1.30	836.00	852.80	831.20	1780.00	836.81	0.00	836.95	9.43	3.62	588.47	580.66
13.900	1.30	836.00	852.80	831.20	2320.00	837.56	0.00	837.74	10.09	3.38	835.30	730.20
13.900	1.30	836.00	852.80	831.20	2565.00	837.85	0.00	838.06	10.51	3.42	726.90	792.49
13.900	1.30	836.00	852.80	831.20	3060.00	838.48	0.00	838.70	10.7-	3.70	859.55	934.31
14.000	40.30	836.00	852.80	829.60	1780.00	836.89	0.00	836.99	5.43	2.54	700.08	764.10
14.000	40.30	836.00	852.80	829.60	2320.00	837.65	0.00	837.78	6.18	2.90	800.38	932.88
14.000	40.30	836.00	852.80	829.60	2565.00	837.95	0.00	838.09	6.54	3.05	840.20	1002.65
14.000	40.30	836.00	852.80	829.60	3060.00	838.58	0.00	838.75	6.94	3.30	920.25	1161.39
14.100	1.00	0.00	0.00	829.60	1780.00	836.90	0.00	836.99	4.52	2.41	739.40	836.84
14.100	1.00	0.00	0.00	829.60	2320.00	837.67	0.00	837.79	5.15	2.74	845.60	1022.04
14.100	1.00	0.00	0.00	829.60	2565.00	837.97	0.00	838.09	5.37	2.87	887.61	1098.18
14.100	1.00	0.00	0.00	829.60	3060.00	838.61	0.00	838.76	5.76	3.12	962.25	1275.29
15.000	400.00	0.00	0.00	830.50	1780.00	837.09	0.00	837.18	5.01	2.57	1207.24	795.01
15.000	400.00	0.00	0.00	830.50	2320.00	837.89	0.00	837.98	4.67	2.71	1619.16	1073.15
15.000	400.00	0.00	0.00	830.50	2565.00	838.20	0.00	838.29	4.56	2.77	1777.82	1191.76
15.000	400.00	0.00	0.00	830.50	3060.00	838.86	0.00	838.96	4.34	2.88	2120.24	1468.08
16.000	1450.00	0.00	0.00	831.60	1780.00	838.06	0.00	838.34	14.17	4.43	702.71	472.89
16.000	1450.00	0.00	0.00	831.60	2320.00	838.76	0.00	839.03	13.06	4.60	1166.16	661.92
16.000	1450.00	0.00	0.00	831.60	2565.00	839.03	0.00	839.29	12.44	4.61	1357.41	721.48
16.000	1450.00	0.00	0.00	831.60	3060.00	839.62	0.00	839.86	11.01	4.60	1790.95	922.40

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FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS

SECKD	XLCH	ELTRD	ELLC	ELMIN	C	CESEL	CRIDS	EG	TORQS	VCH	AREA	.01K
17.000	1900.00	0.00	0.00	834.20	1780.00	840.36	0.00	840.47	9.95	3.62	1657.47	564.16
17.000	1900.00	0.00	0.00	834.20	2320.00	840.97	0.00	840.98	9.53	3.76	2109.47	757.85
17.000	1900.00	0.00	0.00	834.20	2545.00	841.26	0.00	841.17	9.69	3.84	2273.48	825.91
17.000	1900.00	0.00	0.00	834.20	3060.00	841.89	0.00	841.99	9.89	3.96	2529.01	998.53
18.000	2300.00	0.00	0.00	836.40	1780.00	841.46	0.00	841.53	2.01	2.13	1070.90	1061.79
18.000	2300.00	0.00	0.00	836.40	2320.00	842.06	0.00	842.13	3.37	2.67	1537.36	1264.44
18.000	2300.00	0.00	0.00	836.40	2545.00	842.37	0.00	842.37	3.96	2.96	1737.85	1340.66
18.000	2300.00	0.00	0.00	836.40	3060.00	843.06	0.00	843.15	3.97	2.96	1850.74	1555.04
19.000	1500.00	0.00	0.00	836.00	1780.00	842.01	0.00	842.09	5.20	2.67	1149.16	720.09
19.000	1500.00	0.00	0.00	836.00	2320.00	842.66	0.00	842.76	5.23	2.69	1503.60	1016.39
19.000	1500.00	0.00	0.00	836.00	2545.00	842.91	0.00	843.01	5.23	2.77	1640.86	1112.62
19.000	1500.00	0.00	0.00	836.00	3060.00	843.45	0.00	843.54	5.27	2.94	1952.53	1332.05
20.000	1950.00	0.00	0.00	836.60	1780.00	843.02	0.00	843.10	3.12	2.04	2175.13	922.70
20.000	1950.00	0.00	0.00	836.60	2320.00	843.68	0.00	843.53	3.15	2.12	2950.54	1308.14
20.000	1950.00	0.00	0.00	836.60	2545.00	843.72	0.00	843.76	3.05	2.14	3242.97	1436.19
20.000	1950.00	0.00	0.00	836.60	3060.00	844.25	0.00	844.27	2.91	2.20	3861.36	1794.08
21.000	1450.00	0.00	0.00	838.10	1780.00	843.27	0.00	843.31	13.98	4.01	496.65	477.30
21.000	1450.00	0.00	0.00	838.10	2320.00	844.13	0.00	844.21	15.99	4.62	633.76	580.15
21.000	1450.00	0.00	0.00	838.10	2545.00	844.52	0.00	844.68	16.53	4.81	731.66	626.53
21.000	1450.00	0.00	0.00	838.10	3060.00	845.41	0.00	845.16	16.98	5.16	976.61	742.51
22.000	2075.00	0.00	0.00	839.60	1780.00	845.21	0.00	845.18	9.55	3.52	578.04	582.15
22.000	2075.00	0.00	0.00	839.60	2320.00	846.06	0.00	846.04	9.96	3.79	1040.56	767.34
22.000	2075.00	0.00	0.00	839.60	2545.00	846.39	0.00	846.22	9.96	3.90	1231.09	841.05
22.000	2075.00	0.00	0.00	839.60	3060.00	847.56	0.00	847.77	9.34	4.15	1396.30	1001.46
23.000	250.00	0.00	0.00	840.90	1780.00	846.25	0.00	846.42	9.87	3.36	669.05	566.66
23.000	250.00	0.00	0.00	840.90	2320.00	846.99	0.00	847.19	9.91	3.72	837.37	736.96
23.000	250.00	0.00	0.00	840.90	2545.00	847.26	0.00	847.47	10.03	3.85	896.00	803.54
23.000	250.00	0.00	0.00	840.90	3060.00	847.79	0.00	848.03	10.46	4.16	1030.18	965.94
22.900	1.00	846.80	851.60	840.90	1780.00	846.25	0.00	846.42	9.86	3.30	669.32	566.92
22.900	1.00	846.80	851.60	840.90	2320.00	846.99	0.00	847.19	9.90	3.71	835.15	737.25
22.900	1.00	846.80	851.60	840.90	2545.00	847.26	0.00	847.47	10.03	3.85	896.23	803.79
22.900	1.00	846.80	851.60	840.90	3060.00	847.79	0.00	848.02	10.46	4.16	1030.36	966.14
23.000	16.00	846.80	851.60	840.90	1780.00	846.27	0.00	846.44	9.74	3.37	672.90	570.40
23.000	16.00	846.80	851.60	840.90	2320.00	847.01	0.00	847.21	9.80	3.70	838.74	741.14
23.000	16.00	846.80	851.60	840.90	2545.00	847.28	0.00	847.48	9.92	3.84	900.10	807.97
23.000	16.00	846.80	851.60	840.90	3060.00	847.81	0.00	848.05	10.36	4.15	1034.37	950.43
23.100	1.00	0.00	0.00	840.90	1780.00	846.27	0.00	846.44	9.72	3.37	673.49	570.91
23.100	1.00	0.00	0.00	840.90	2320.00	847.01	0.00	847.21	9.78	3.70	839.35	741.80
23.100	1.00	0.00	0.00	840.90	2545.00	847.28	0.00	847.49	9.90	3.84	900.73	808.66
23.100	1.00	0.00	0.00	840.90	3060.00	847.81	0.00	848.05	10.34	4.15	1035.66	951.64
23.800	550.00	0.00	0.00	841.10	1780.00	846.75	0.00	846.93	4.75	2.19	810.63	896.40
23.800	550.00	0.00	0.00	841.10	2320.00	847.51	0.00	847.71	4.92	2.44	951.37	1046.06
23.800	550.00	0.00	0.00	841.10	2545.00	847.79	0.00	847.99	5.02	2.54	1003.01	1136.26
23.800	550.00	0.00	0.00	841.10	3060.00	848.36	0.00	848.48	5.27	2.75	1111.96	1333.15

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SECNO	[illegible]	[illegible]	ELLC	ELMIN	C	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
23.900	1.00	870.00	863.70	841.10	1780.00	846.75	0.00	846.83	5.73	2.32	766.40	741.99
23.900	1.00	870.00	863.70	841.10	2320.00	847.51	0.00	847.61	5.96	2.50	897.89	953.37
23.900	1.00	870.00	863.70	841.10	2545.00	847.79	0.00	847.90	6.03	2.59	946.90	1032.26
23.900	1.00	870.00	863.70	841.10	3060.00	848.36	0.00	848.49	6.41	2.92	1045.10	1208.22
24.000	44.00	870.00	863.70	841.10	1780.00	846.77	0.00	846.86	5.68	2.31	769.56	746.79
24.000	44.00	870.00	863.70	841.10	2320.00	847.56	0.00	847.64	5.90	2.57	901.00	955.50
24.000	44.00	870.00	863.70	841.10	2545.00	847.82	0.00	847.93	6.02	2.66	950.38	1037.37
24.000	44.00	870.00	863.70	841.10	3060.00	848.39	0.00	848.52	6.35	2.91	1051.39	1214.07
24.100	1.00	0.00	0.00	841.10	1780.00	846.79	0.00	846.86	4.66	2.18	816.79	824.56
24.100	1.00	0.00	0.00	841.10	2320.00	847.55	0.00	847.64	4.83	2.43	956.63	1055.39
24.100	1.00	0.00	0.00	841.10	2545.00	847.83	0.00	847.93	4.93	2.52	1008.75	1146.39
24.100	1.00	0.00	0.00	841.10	3060.00	848.41	0.00	848.32	5.20	2.74	1116.46	1341.49
24.800	65.00	0.00	0.00	841.10	1780.00	846.83	0.00	846.89	3.84	2.00	865.67	908.46
24.800	65.00	0.00	0.00	841.10	2320.00	847.59	0.00	847.68	4.08	2.31	1005.86	1148.09
24.800	65.00	0.00	0.00	841.10	2545.00	847.87	0.00	847.96	4.20	2.41	1058.20	1242.14
24.800	65.00	0.00	0.00	841.10	3060.00	848.45	0.00	848.56	4.49	2.62	1166.39	1443.96
24.900	1.00	870.00	863.70	841.10	1780.00	846.82	0.00	846.90	4.64	2.18	817.96	826.44
24.900	1.00	870.00	863.70	841.10	2320.00	847.39	0.00	847.68	4.94	2.44	950.31	1044.25
24.900	1.00	870.00	863.70	841.10	2545.00	847.87	0.00	847.97	5.07	2.55	999.75	1129.77
24.900	1.00	870.00	863.70	841.10	3060.00	848.44	0.00	848.56	5.43	2.78	1102.10	1313.57
25.000	44.00	870.00	863.70	841.10	1780.00	846.85	0.00	846.92	4.59	2.17	820.44	1030.39
25.000	44.00	870.00	863.70	841.10	2320.00	847.61	0.00	847.70	4.89	2.43	952.87	1048.62
25.000	44.00	870.00	863.70	841.10	2545.00	847.89	0.00	847.99	5.03	2.54	1002.41	1134.44
25.000	44.00	870.00	863.70	841.10	3060.00	848.47	0.00	848.59	5.39	2.77	1104.86	1318.64
25.100	1.00	0.00	0.00	841.10	1780.00	846.85	0.00	846.92	3.77	2.04	870.66	916.67
25.100	1.00	0.00	0.00	841.10	2320.00	847.62	0.00	847.71	4.01	2.29	1011.41	1157.96
25.100	1.00	0.00	0.00	841.10	2545.00	847.91	0.00	848.00	4.13	2.39	1064.05	1252.77
25.100	1.00	0.00	0.00	841.10	3060.00	848.49	0.00	848.59	4.41	2.61	1172.88	1456.37

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KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

SEC.O	Q	[illegible]	[illegible]	[illegible]	[illegible]	TC-MID	[illegible]
1.000	1945.00	830.36	0.00	0.00	0.00	237.87	0.00
1.000	2535.00	831.32	0.00	0.00	0.00	240.82	0.00
1.000	2780.00	831.61	0.00	0.00	0.00	241.96	0.00
1.000	3345.00	832.[illegible]	0.00	0.00	0.00	244.5[illegible]	0.00
2.000	1945.00	830.79	0.00	0.23	0.00	407.82	1275.00
2.000	2535.00	831.58	0.00	0.26	0.00	417.91	1275.00
2.000	2780.00	831.80	0.00	0.27	0.00	421.29	1275.00
2.000	3345.00	832.57	0.00	0.25	0.00	429.60	1275.00
2.800	1945.00	831.[illegible]	0.00	0.23	0.00	152.76	1000.00
2.800	2535.00	831.81	0.00	0.23	0.00	157.21	1000.00
2.800	2780.00	832.12	0.00	0.23	0.00	158.91	1000.00
2.800	3345.00	832.82	0.00	0.24	0.00	162.75	1000.00
2.900	1945.00	830.[illegible]	0.00	-0.00	0.00	152.71	1.00
2.900	2535.00	831.[illegible]	0.00	-0.01	0.00	157.21	1.00
2.900	2780.00	832.11	0.00	-0.01	0.00	158.91	1.00
2.900	3345.00	832.81	0.00	-0.01	0.00	162.75	1.00
3.000	1945.00	831.01	0.00	0.02	0.00	1[illegible].33	60.00
3.000	2535.00	831.[illegible]	0.00	0.02	0.00	156.05	60.00
3.000	2780.00	832.13	0.00	0.02	0.00	160.02	60.00
3.000	3345.00	832.83	0.00	0.02	0.00	164.51	60.00
3.100	1945.00	831.03	0.00	0.02	0.00	152.86	1.00
3.100	2535.00	831.[illegible]	0.00	0.02	0.00	158.16	1.00
3.100	2780.00	832.1[illegible]	0.00	0.03	0.00	160.[illegible]	1.00
3.100	3345.00	832.[illegible]	0.00	0.03	0.00	164.66	1.00
4.000	1945.00	831.13	0.00	0.10	0.00	292.56	200.00
4.000	2535.00	831.97	0.00	0.12	0.00	309.53	200.00
4.000	2780.00	832.2[illegible]	0.00	0.13	0.00	315.97	200.00
4.000	3345.00	832.95	0.00	0.14	0.00	330.46	200.00
5.000	1945.00	831.25	0.00	0.11	0.00	278.27	400.00
5.000	2535.00	832.09	0.00	0.13	0.00	282.20	400.00
5.000	2780.00	832.41	0.00	0.13	0.00	283.69	400.00
5.000	3345.00	833.13	0.00	0.14	0.00	285.66	400.00
5.800	1945.00	831.29	0.00	0.05	0.00	78.73	300.00
5.800	2535.00	832.11	0.00	0.02	0.00	78.82	300.00
5.800	2780.00	832.42	0.00	0.01	0.00	78.86	300.00
5.800	3345.00	833.11	0.00	-0.02	0.00	78.96	300.00
5.900	1945.00	831.29	0.00	-0.04	0.00	78.73	1.00
5.900	2535.00	832.09	0.00	-0.06	0.00	78.82	1.00
5.900	2780.00	832.36	0.00	-0.06	0.00	78.85	1.00
5.900	3345.00	833.04	0.00	-0.08	0.00	78.93	1.00
6.000	1945.00	831.37	0.00	0.12	0.00	78.73	45.00
6.000	2535.00	832.20	0.00	0.14	0.00	78.87	45.00
6.000	2780.00	832.51	0.00	0.15	0.00	78.90	45.00
6.000	3345.00	833.21	0.00	0.18	0.00	78.93	45.00

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SECNO	Q	CHSEL	DIFNSP	DIFUSX	DIFKWS	TOPWID	XLCH
6.100	1945.00	831.67	0.00	0.11	0.00	75.79	1.00
6.100	2320.00	832.34	0.00	0.14	0.00	78.01	1.00
6.100	2545.00	833.07	0.00	0.12	0.00	79.98	1.00
6.100	3060.00	834.77	0.00	0.11	0.00	83.01	1.00
7.000	1945.00	831.59	0.00	0.11	0.00	214.64	100.00
7.000	2320.00	832.59	0.00	0.17	0.00	238.06	100.00
7.000	2545.00	833.21	0.00	0.19	0.00	247.27	100.00
7.000	3060.00	834.81	0.00	0.20	0.00	270.01	100.00
7.800	1780.00	831.87	0.00	0.28	0.00	103.63	400.00
7.800	2320.00	832.79	0.00	0.20	0.00	103.75	400.00
7.800	2545.00	833.14	0.00	0.20	0.00	103.80	400.00
7.800	3060.00	834.42	0.00	0.16	0.00	103.91	400.00
7.900	1780.00	831.90	0.00	-0.00	0.00	103.63	1.00
7.900	2320.00	832.78	0.00	-0.00	0.00	103.75	1.00
7.900	2545.00	833.14	0.00	-0.01	0.00	103.80	1.00
7.900	3060.00	834.42	0.00	-0.01	0.00	103.91	1.00
8.000	1780.00	831.91	0.00	0.00	0.00	103.63	35.00
8.000	2320.00	832.83	0.00	0.07	0.00	103.75	35.00
8.000	2545.00	833.21	0.00	0.07	0.00	103.84	35.00
8.000	3060.00	834.00	0.00	0.07	0.00	101.95	35.00
8.100	1780.00	831.94	0.00	0.05	0.00	103.67	1.00
8.100	2320.00	832.87	0.00	0.01	0.00	103.83	1.00
8.100	2545.00	833.23	0.00	0.01	0.00	103.84	1.00
8.100	3060.00	834.02	0.00	0.02	0.00	103.95	1.00
8.200	1780.00	832.00	0.00	0.07	0.00	300.00	100.00
8.200	2320.00	832.96	0.00	0.10	0.00	300.00	100.00
8.200	2545.00	833.33	0.00	0.11	0.00	300.00	100.00
8.200	3060.00	834.14	0.00	0.10	0.00	300.00	100.00
9.000	1780.00	832.47	0.00	0.47	0.00	907.64	1250.00
9.000	2320.00	833.39	0.00	0.43	0.00	915.62	1250.00
9.000	2545.00	833.75	0.00	0.42	0.00	918.69	1250.00
9.000	3060.00	834.59	0.00	0.40	0.00	925.67	1250.00
10.000	1780.00	832.78	0.00	0.31	0.00	1087.37	1250.00
10.000	2320.00	833.64	0.00	0.24	0.00	1103.62	1250.00
10.000	2545.00	833.98	0.00	0.22	0.00	1109.67	1250.00
10.000	3060.00	834.75	0.00	0.18	0.00	1120.53	1250.00
11.000	1780.00	833.51	0.00	0.74	0.00	430.51	1400.00
11.000	2320.00	834.22	0.00	0.59	0.00	432.10	1400.00
11.000	2545.00	834.51	0.00	0.53	0.00	432.76	1400.00
11.000	3060.00	835.18	0.00	0.44	0.00	434.28	1400.00
12.000	1780.00	833.61	0.00	1.07	0.00	176.20	955.00
12.000	2320.00	834.29	0.00	1.06	0.00	175.11	955.00
12.000	2545.00	833.56	0.00	1.05	0.00	178.49	955.00
12.000	3060.00	836.17	0.00	2.99	0.00	179.32	955.00

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SECNO	Q	CHSEL	DIFUSP	DIFUSX	DIFKJS	TOPLID	XLCH
12.100	1780.00	835.10	0.00	0.50	0.00	112.67	400.00
12.100	2320.00	[illegible]	0.00	0.54	0.00	117.78	400.00
12.100	2545.00	836.11	0.00	0.55	0.00	119.62	400.00
12.100	3060.00	[illegible]	0.00	[illegible]	0.00	121.65	400.00
13.000	1780.00	836.20	0.00	1.11	0.00	958.02	2150.00
13.000	2320.00	837.00	0.00	1.16	0.00	958.49	2150.00
13.000	2545.00	837.00	0.00	1.19	0.00	974.12	2150.00
13.000	3060.00	837.57	0.00	1.23	0.00	1036.02	2150.00
13.800	1780.00	836.61	0.00	0.61	0.00	133.32	1650.00
13.800	2320.00	837.57	0.00	0.57	0.00	138.26	1650.00
13.800	2545.00	837.86	0.00	0.56	0.00	140.17	1650.00
13.800	3060.00	[illegible]	0.00	0.52	0.00	[illegible]	1650.00
13.900	1780.00	[illegible]	0.00	-0.01	0.00	[illegible]	1.00
13.900	2320.00	837.56	0.00	-0.01	0.00	138.26	1.00
13.900	2545.00	837.85	0.00	-0.01	0.00	140.17	1.00
13.900	3060.00	838.40	0.00	-0.01	0.00	144.25	1.00
14.000	1780.00	[illegible]	0.00	0.00	0.00	[illegible]	40.00
14.000	2320.00	[illegible]	0.00	0.09	0.00	[illegible]	40.00
14.000	2545.00	837.95	0.00	0.10	0.00	143.09	40.00
14.000	3060.00	838.50	0.00	0.10	0.00	147.10	40.00
14.100	1780.00	[illegible]	0.00	0.01	0.00	[illegible]	1.00
14.100	2320.00	837.67	0.00	0.02	0.00	141.29	1.00
14.100	2545.00	837.97	0.00	0.02	0.00	[illegible]	1.00
14.100	3060.00	838.61	0.00	0.02	0.00	147.24	1.00
15.000	1780.00	837.09	0.00	0.19	0.00	518.13	400.00
15.000	2320.00	837.89	0.00	0.22	0.00	518.56	400.00
15.000	2545.00	838.20	0.00	0.23	0.00	518.72	400.00
15.000	3060.00	838.86	0.00	0.26	0.00	519.27	400.00
16.000	1780.00	838.06	0.00	0.97	0.00	643.41	1450.00
16.000	2320.00	838.76	0.00	0.87	0.00	693.42	1450.00
16.000	2545.00	839.03	0.00	0.83	0.00	712.37	1450.00
16.000	3060.00	839.62	0.00	0.76	0.00	745.99	1450.00
17.000	1780.00	840.36	0.00	2.30	0.00	863.51	1900.00
17.000	2320.00	840.07	0.00	2.11	0.00	869.16	1900.00
17.000	2545.00	841.06	0.00	2.04	0.00	871.20	1900.00
17.000	3060.00	841.46	0.00	1.86	0.00	873.62	1900.00
18.000	1780.00	841.46	0.00	1.18	0.00	439.28	2300.00
18.000	2320.00	842.04	0.00	1.18	0.00	447.74	2300.00
18.000	2545.00	842.27	0.00	1.20	0.00	450.99	2300.00
18.000	3060.00	842.74	0.00	1.26	0.00	457.80	2300.00
19.000	1780.00	842.01	0.00	0.55	0.00	537.23	1500.00
19.000	2320.00	842.66	0.00	0.62	0.00	550.07	1500.00
19.000	2545.00	842.91	0.00	0.64	0.00	554.97	1500.00
19.000	3060.00	843.43	0.00	0.69	0.00	565.23	1500.00

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SECNO	Q	CHSEL	DIFUSP	DIFUSX	DIFXUS	TOPJID	XLCH
20.000	1780.00	842.05	0.00	0.84	0.00	1169.48	1930.00
20.000	2320.00	[illegible]	0.00	0.02	0.00	1223.14	1930.00
20.000	2545.00	[illegible]	0.00	[illegible]	0.00	1230.[illegible]	1930.00
20.000	[illegible]	[illegible]	0.00	[illegible]	0.00	1242.[illegible]	1930.00
21.000	1780.00	843.57	0.00	0.72	0.00	161.[illegible]	1450.00
21.000	2320.00	844.13	0.00	0.65	0.00	410.26	1450.00
21.000	2545.00	[illegible]	0.00	[illegible]	0.00	493.[illegible]	1450.00
21.000	3060.00	[illegible]	0.00	0.57	0.00	504.[illegible]	1450.00
22.000	1780.00	846.01	0.00	2.44	0.00	333.26	2075.00
22.000	2320.00	846.76	0.00	2.64	0.00	373.26	2075.00
22.000	2545.00	847.03	0.00	2.69	0.00	387.53	2075.00
22.000	3060.00	[illegible]	0.00	[illegible]	0.00	407.[illegible]	2075.00
22.000	[illegible]	[illegible]	0.00	[illegible]	0.00	[illegible]	250.00
22.000	2320.00	846.99	0.00	0.23	0.00	226.14	250.00
22.000	2545.00	847.26	0.00	0.23	0.00	235.74	250.00
22.000	3060.00	847.79	0.00	0.23	0.00	263.18	250.00
22.900	[illegible]	[illegible]	0.00	[illegible]	0.00	[illegible]	1.00
22.900	[illegible]	[illegible]	0.00	[illegible]	0.00	[illegible]	1.00
22.900	2545.00	847.26	0.00	0.00	0.00	235.79	1.00
22.900	3060.00	847.79	0.00	0.00	0.00	266.23	1.00
23.000	[illegible]	[illegible]	0.00	[illegible]	0.00	[illegible]	16.00
23.000	2320.00	847.01	0.00	0.02	0.00	226.25	16.00
23.000	[illegible]	[illegible]	0.00	[illegible]	0.00	[illegible]	16.00
23.000	3060.00	847.81	0.00	0.02	0.00	267.18	16.00
23.100	1780.00	846.27	0.00	0.00	0.00	222.01	1.00
23.100	2320.00	847.01	0.00	0.00	0.00	226.25	1.00
23.100	2545.00	847.26	0.00	0.00	0.00	236.30	1.00
23.100	3060.00	847.81	0.00	0.00	0.00	267.35	1.00
23.800	1780.00	846.75	0.00	0.48	0.00	180.76	550.00
23.800	2320.00	847.51	0.00	0.50	0.00	185.03	550.00
23.800	2545.00	847.79	0.00	0.52	0.00	186.59	550.00
23.800	3060.00	848.36	0.00	0.53	0.00	189.88	550.00
23.900	1780.00	846.75	0.00	-0.00	0.00	180.76	1.00
23.900	2320.00	847.51	0.00	-0.01	0.00	185.03	1.00
23.900	2545.00	847.79	0.00	-0.01	0.00	186.60	1.00
23.900	3060.00	848.36	0.00	-0.01	0.00	189.78	1.00
24.000	1780.00	846.77	0.00	0.03	0.00	180.87	44.00
24.000	2320.00	847.54	0.00	0.03	0.00	185.13	44.00
24.000	2545.00	847.82	0.00	0.03	0.00	186.70	44.00
24.000	3060.00	848.39	0.00	0.03	0.00	189.89	44.00
24.100	1780.00	846.79	0.00	[illegible]	0.00	180.92	1.00
24.100	2320.00	847.55	0.00	0.02	0.00	185.19	1.00
24.100	2545.00	847.83	0.00	0.02	0.00	186.76	1.00
24.100	3060.00	848.41	0.00	0.02	0.00	189.96	1.00

SECNO	C	CLSEL	DIFMSP	DIFMSX	DIFMUS	TOPMID	XLOW
24.800	1700.00	846.83	0.00	0.04	0.00	180.84	65.00
24.800	2320.00	847.59	0.00	0.04	0.00	185.21	65.00
24.800	2565.00	847.37	0.00	0.04	0.00	186.55	65.00
24.800	3060.00	846.45	0.00	0.04	0.00	189.27	65.00
24.900	1730.00	846.82	0.00	-0.00	0.00	180.86	1.00
24.900	2320.00	847.59	0.00	-0.00	0.00	185.04	1.00
24.900	2565.00	847.37	0.00	-0.00	0.00	186.32	1.00
24.900	3060.00	846.44	0.00	-0.01	0.00	189.71	1.00
25.000	1700.00	846.84	0.00	0.02	0.00	180.94	64.00
25.000	2320.00	847.61	0.00	0.02	0.00	185.12	64.00
25.000	2565.00	847.39	0.00	0.02	0.00	186.46	64.00
25.000	3060.00	846.47	0.00	0.02	0.00	189.75	64.00
25.100	1700.00	846.83	0.00	0.01	0.00	180.87	1.00
25.100	2320.00	847.62	0.00	0.01	0.00	185.17	1.00
25.100	2565.00	847.40	0.00	0.02	0.00	186.71	1.00
25.100	3060.00	846.49	0.00	0.02	0.00	189.86	1.00

SUMMARY OF ERRORS

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FORM 1411-GD-PRINTED BY ROTARY MANIFOLD FORMS

FLOOD INSURANCE ZONE DATA FOR KALAMAZOO RIVER

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 100	2%	0.2%
1.000	0.	-1.1	-0.3	0.7
1.000	1275.	-1.1	[illegible]	0.7
2.800	2275.	-1.1	-0.3	0.7
2.900	2276.	-1.1	-0.3	0.7
3.000	2336.	-1.1	-0.3	0.7
3.100	2337.	-1.1	-0.3	0.7
4.300	2337.	-1.1	-0.3	0.7
5.000	2337.	-1.2	-0.3	0.7
5.300	3237.	-1.1	-0.3	0.7
5.900	3238.	-1.1	-0.3	0.7
6.000	3263.	-1.1	-0.3	0.7
6.100	[illegible]	-1.2	-0.3	0.7
7.000	[illegible]	-1.2	-0.4	0.8
7.100	[illegible]	[illegible]	-0.4	0.8
7.900	3783.	-1.3	-0.4	0.8
8.000	3820.	-1.3	-0.4	0.8
8.100	3821.	-1.3	-0.4	0.8
8.200	[illegible]	-1.3	-0.4	0.8
9.000	[illegible]	-1.3	-0.4	0.8
10.000	6421.	-1.2	-0.3	0.8
11.000	7821.	-1.0	-0.3	0.7
12.000	8776.	-1.0	-0.3	0.6
12.100	9176.	-1.0	-0.3	0.6
13.000	11326.	-1.1	-0.3	0.7
13.800	12976.	-1.1	-0.3	0.6
13.900	12977.	-1.1	-0.3	0.6
14.000	13017.	-1.1	-0.3	0.6
14.100	13018.	-1.1	-0.3	0.6
15.000	13418.	-1.1	-0.3	0.7
16.000	14068.	-1.0	-0.3	0.6
17.000	16768.	-0.7	-0.2	0.5
18.000	19068.	-0.8	-0.2	0.5
19.000	20568.	-0.9	-0.2	0.5
20.000	22518.	-0.9	-0.2	0.5
21.000	23968.	-0.8	-0.2	0.5
22.000	26743.	-1.0	-0.3	0.5
22.800	26293.	-1.0	-0.3	0.5
22.900	26294.	-1.0	-0.3	0.5
23.000	26310.	-1.0	-0.3	0.5
23.100	26311.	-1.0	-0.3	0.5
23.800	26861.	-1.0	-0.3	0.6
23.900	26862.	-1.0	-0.3	0.6
24.000	26926.	-1.0	-0.3	0.6
24.100	26927.	-1.0	-0.3	0.6
24.800	26972.	-1.0	-0.3	0.6
24.900	26973.	-1.0	-0.3	0.6
25.000	27017.	-1.1	-0.3	0.6
25.100	27018.	-1.1	-0.3	0.6
WEIGHTED AVG FOR REACH		-1.0	-0.3	0.6

RMF FOR THE REACH # 010 WITH 100.00 OF THE REACH WITHIN 0.5 FEET

ZONE FOR THE REACH = A 2

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FORM 1411 GD PRINTED BY ROTARY MANIFOLD FORMS

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**************************************************************
  HEL2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR - 01
  MODIFICATION - 30.31.02
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FORM 1411 GB-PRINTED BY ROTARY MANIFOLD FORMS

FORM 1411 GD-PRINTED BY ROTARY MANIFOLD FORMS

PRINTED IN U.S.A.

ERROR SUMMARY

1 ERROR(S) DETECTED BY THE USER PROGRAM

0 ERROR(S) DETECTED BY THE MATHEMATICAL PACKAGE

0 ERROR(S) DETECTED ON INPUT/OUPUT STATEMENTS

10:25:09 K25 DAN HU2J2137 BATTLE37 OCT 07, 1980

R400 11*C SW:112C LM:11*C FW:E5-006 22A00561 PR01 PR/H112/FI/SI/A/H132

FORM 1411 GB-PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: emmett Twp

3) WATERCOURSE: Kalamazoo River

4) DOCUMENT TYPE: Convergence

00BREAK00

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**********************************************************
  HEC2 RELEASE DATED JUN 76 UPDATED FEB 1977
  ERROR CORR -  01
  APPLICATION - 30.31.32
**********************************************************

C
TOWNSHIP FLOOD INSURANCE STUDY
T2KA KALAMAZOO RIVER CONVEYANCE JOB
T3      KALAMAZOO RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
          0.          2.          0.          0.    .000001      1.00        0.0         2.    623.920     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

J4  IPRNT     NUMSEC                          *********REQUESTED SECTION NUMBERS*********
       -1.000   -10.000     0.000     0.000     0.200     0.200     0.000     0.300     0.000     0.000
NC      0.200     0.150     0.035     0.100     0.300     0.200     0.040     0.300     0.300     0.000
QT      5.000  1945.000  2535.000  2780.000  2780.000  3345.000     0.000     0.000     0.000     0.000

                DAM D/S GOGUAC ST.

X1      1.000     4.000     0.000   135.000     3.000     0.000     0.000     0.000     0.000     0.000
X2      0.000     0.000     0.000   826.000   826.900     0.000     0.000     0.000     0.000     0.000
GR    840.000     0.000   826.000     0.000   826.000   195.000   840.000   195.000     0.000     0.000

                D/S GOGUAC ST.

X1      1.800     4.000     0.800   141.200   300.000   300.000   300.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   834.000   834.000     0.000
GR    834.000     0.000   823.000     0.800   823.000   141.200   834.000   142.000     0.000     0.000

                D/S FACE GOGUAC ST.

X1      1.900    58.000     0.800   141.200     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   834.000   834.000     0.000
BT     42.000     0.000   834.000     0.000     0.000   834.000   825.000     3.000   834.000   830.500
BT      3.300   834.000   832.000    13.000   834.000   830.500    15.200   834.000   825.000    18.800
BT    834.000   825.000    21.000   834.000   830.500    26.000   834.000   832.000    31.000   834.000
BT    830.500    33.200   834.000   825.000    36.800   834.000   825.000    39.000   834.000   830.500
BT     44.000   834.000   832.000    49.000   834.000   830.500    51.200   834.000   825.000    54.800
BT    834.000   825.000    57.000   834.000   830.500    62.000   834.000   832.000    67.000   834.000
BT    830.500    69.200   834.000   825.000    72.800   834.000   825.000    75.000   834.000   830.500
BT     80.300   834.000   832.000    85.000   834.000   830.500    87.200   834.000   825.000    90.800
BT    834.000   825.000    93.000   834.000   830.500    96.000   834.000   832.000   103.000   834.000
BT    830.500   105.200   834.000   825.000   108.800   834.000   825.000   111.000   834.000   830.500
BT    116.000   834.000   832.000   121.000   834.000   830.500   123.200   834.000   825.000   126.800
BT    834.000   825.000   129.000   834.000   830.500   134.000   834.000   832.000   139.000   834.000
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FORM 1411-GO-PRINTED BY ROTARY MANIFOLD FORMS.
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BT	830.500	141.200	834.000	825.000	142.000	836.000	0.000	0.000	0.000	0.000
GR	834.000	0.000	825.000	0.800	823.000	0.800	823.000	3.000	823.000	0.000
GR	823.000	13.000	823.000	15.200	825.000	15.200	825.000	18.800	823.000	18.800
GR	823.000	21.000	823.000	26.000	823.000	31.000	823.000	33.200	825.000	33.200
GR	825.000	36.000	823.000	36.000	823.000	39.000	823.000	46.000	823.000	49.000
GR	823.000	51.200	825.000	51.200	823.000	54.400	823.000	56.800	825.000	57.000
GR	823.200	62.000	824.000	67.000	823.000	69.200	825.000	69.200	825.000	72.000
GR	823.000	72.000	823.000	75.000	823.000	80.000	823.000	85.000	823.000	87.200
GR	825.000	87.200	825.000	90.800	823.000	90.800	823.000	93.000	823.000	98.000
GR	823.000	103.000	823.000	105.200	825.000	105.200	825.000	108.800	823.000	108.800
GR	823.000	111.000	823.000	116.000	823.000	121.000	823.000	123.200	825.000	123.200
GR	825.000	126.800	825.000	126.800	823.000	126.800	825.000	154.000	825.000	154.000
GR	823.000	141.200	825.000	141.200	834.000	142.000	0.000	0.000	0.000	0.000

U/S FACE GOGUAC ST.

X1	2.000	0.000	0.000	0.000	160.000	160.000	161.000	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	10.000	0.000	0.000	0.000	0.000	0.000	0.000	834.000	834.000	0.000

U/S GOGUAC CT.

X1	2.100	0.000	0.000	161.200	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	834.000	834.000	0.000
GR	834.000	0.000	823.000	0.800	823.000	141.200	834.000	142.000	0.000	0.000

VALLEY SECTION

X1	2.500	7.000	50.000	200.000	800.000	800.000	800.000	0.000	0.000	0.000
GR	837.000	0.000	830.000	50.000	822.000	70.000	821.000	125.000	822.000	180.000
GR	830.000	200.000	837.000	250.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S BURNHAM ST.

X1	2.800	23.000	0.000	132.000	800.000	800.000	800.000	0.000	0.000	0.000
GR	837.200	0.000	826.900	1.000	826.200	17.000	826.200	17.100	826.200	17.900
GR	826.200	18.000	826.100	51.000	824.800	50.000	824.800	50.100	824.800	51.900
GR	824.800	52.000	820.100	66.000	820.100	82.000	820.100	82.100	820.100	83.900
GR	820.100	84.000	823.300	114.000	823.300	114.100	823.300	114.900	823.300	115.000
GR	826.400	121.000	827.600	131.000	837.200	132.000	0.000	0.000	0.000	0.000

D/S FACE BURNHAM ST.

X1	2.900	0.000	0.000	0.000	0.000	1.000	1.000	0.000	0.000	0.000
BT	20.000	0.000	837.200	0.000	1.000	837.200	835.000	17.000	837.200	835.000
BT	17.100	837.200	0.000	17.900	837.200	0.000	18.000	837.200	835.000	50.000
BT	837.200	835.000	50.100	837.200	0.000	51.900	837.200	0.000	52.000	837.200
BT	835.000	82.000	837.200	835.000	82.100	837.200	0.000	83.900	837.200	0.000
BT	84.000	837.200	835.000	114.000	837.200	835.000	114.100	837.200	0.000	114.900
BT	837.200	0.000	115.000	337.200	835.000	131.000	837.200	835.000	132.000	837.200
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE BURNHAM ST.

X1	3.000	24.000	0.000	132.000	46.000	46.000	46.000	0.000	0.000	0.000
BT	20.000	0.000	837.200	0.000	1.000	837.200	835.000	17.000	837.200	835.000
BT	17.100	837.200	0.000	17.900	837.200	0.000	18.000	837.200	835.000	50.000
BT	837.200	835.000	50.100	837.200	0.000	51.900	837.200	0.000	52.000	837.200

FORM 1011-02-PRINTED BY ROTARY MANIFOLD FORDO.

BT	835.000	82.000	837.200	835.000	82.100	837.200	0.000	83.900	837.200	0.000
BT	84.000	837.200	835.000	114.000	837.200	835.000	114.100	837.200	0.000	114.900
BT	837.200	0.000	115.000	837.200	835.000	131.000	837.200	835.000	132.000	837.200
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	837.200	0.000	826.900	1.000	824.800	9.000	824.200	17.000	824.200	17.100
GR	824.200	17.500	824.200	18.000	825.600	50.000	820.600	50.100	820.600	51.900
GR	825.600	52.500	821.500	58.000	824.200	82.500	821.200	82.900	821.200	83.900
GR	821.200	84.000	823.200	114.000	823.200	114.100	823.200	114.900	823.200	115.000
GR	825.600	117.000	827.600	129.000	828.600	131.000	837.200	132.000	0.000	0.000

D/S BURUHA ST.

X1	3.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION

X1	3.500	7.000	13.000	250.000	1140.000	1140.000	1150.000	0.000	1.000	0.000
GR	837.000	0.000	830.000	50.000	822.000	70.000	821.000	150.000	822.000	230.000
GR	830.000	250.000	837.000	300.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S I-194

X1	3.800	21.000	0.000	204.000	1150.000	1150.000	1150.000	0.000	0.000	0.000
GR	840.000	0.000	837.000	1.000	825.000	40.000	825.000	55.000	825.000	55.100
GR	825.000	58.400	825.000	58.500	825.000	113.000	825.000	113.100	825.000	116.400
GR	825.000	116.500	825.000	171.000	825.000	171.100	825.000	174.400	825.000	174.500
GR	825.000	229.000	825.000	229.100	825.000	232.500	825.000	232.500	837.000	253.000
GR	850.000	284.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000

D/S FACE I-194

X1	3.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	21.000	0.000	840.000	0.000	1.000	840.000	837.000	40.000	840.000	837.000
BT	55.000	840.000	837.000	55.100	840.000	0.000	58.400	840.000	0.000	58.500
BT	840.000	837.000	113.000	840.000	837.000	113.100	840.000	0.000	116.400	840.000
BT	0.000	116.500	840.000	837.000	171.000	840.000	837.000	171.100	840.000	0.000
BT	174.400	840.000	0.000	174.500	840.000	837.000	229.000	840.000	837.000	229.100
BT	840.000	0.000	232.400	840.000	0.000	232.500	840.000	837.000	283.000	840.000
BT	852.000	284.000	840.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000

U/S FACE I-194

X1	4.300	0.000	0.000	0.000	67.300	67.000	67.000	0.000	0.000	4.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000

U/S I-194

X1	4.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION 1 EMMETT TOWNSHIP CORPERATE BOUNDARY

X1	5.000	13.000	13.000	199.000	1850.000	1850.000	1850.000	0.000	0.000	0.000
GR	872.500	0.000	825.900	13.000	823.100	76.000	824.300	111.000	824.700	161.000
GR	826.500	199.000	827.800	219.000	830.400	244.000	834.300	263.000	836.700	285.000
GR	833.400	345.000	832.600	441.000	847.800	483.000	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-GS-PRINTED BY ROTARY MANIFOLD FORMS

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*****************************************************
  NEC2 RELEASE DATED NOV 78 UPDATED FEB 1977
  ERROR CCHR -  [illegible]
  MODIFICATION -  [illegible]
*****************************************************

T1[illegible]ETT TOWNSHIP FLOOD INSURANCE STUDY
T2[illegible]LAMAZOO RIVER CONVERGENCE RUN
T3      KALAMAZOO RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         USEL      FQ

      0.        5.        0.        0.  0.000000      0.00       0.0        0.   829.300     0.000

J2  NPRO.     ISLOT     PREVS     XSECN     XSECN     FN        [illegible]     [illegible]     [illegible]     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.
PRINTED IN U.S.A.

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**********************************************************
  HEC2 RELEASE DATED NOV 75 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  [illegible]
**********************************************************

T1 [illegible] TOWNSHIP FLOOD INSURANCE STUDY
T2 KALAMAZOO RIVER CONVERGENCE RUN
T3      KALAMAZOO RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         USEL      FQ

       0.        4.        0.        0.  0.000000      [illegible]       0.0        0.   329.430     0.000

J2  NPROF     IPLOT     PRFVS     XSECH     XSECH     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]

      3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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FORM 1411-OD-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 -  [illegible]
*****************************************************

T1EMMETT TOWNSHIP FLOOD INSURANCE STUDY
T2KALAMAZOO RIVER CONVERGENCE RUN
T3       KALAMAZOO RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        6.        5.        0.  0.000000      0.00       0.0        0.   529.790     0.000

J2  NPROF     NPLOT     PRFNS     NSECV     NSECH     EN        ALDC      IPH       CURVN     ITRACE

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

****
HEC2 RELEASE DATED NOV 75 UPDATED FEB 1977
ERROR CODE = 21
MODIFICATION = 5.1/1/80
****

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

KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLOB	ELTRD	ELLOB	Q	CWSEL	CRIWS	EG	IFRS	VCH	AREA	QTOT
1.000	0.00	826.90	826.00	826.00	1965.00	828.92	0.00	829.30	55.09	4.94	393.90	262.05
1.000	0.00	826.90	826.00	826.00	2535.00	829.30	0.00	829.76	52.94	5.42	468.03	368.41
1.000	0.00	826.90	826.00	826.00	2780.00	829.45	0.00	829.94	52.13	5.59	497.26	365.03
1.000	0.00	826.90	826.00	826.00	3345.00	829.79	0.00	830.32	49.94	5.98	565.58	673.32
1.800	300.00	0.00	0.00	823.00	1965.00	829.44	0.00	829.51	2.16	2.15	902.90	1324.84
1.800	300.00	0.00	0.00	823.00	2535.00	829.91	0.00	830.02	2.89	2.61	969.71	1492.05
1.800	300.00	0.00	0.00	823.00	2780.00	830.10	0.00	830.22	3.18	2.79	995.62	1559.03
1.800	300.00	0.00	0.00	823.00	3345.00	830.53	0.00	830.66	3.82	3.18	1052.69	1710.64
1.900	1.00	834.00	832.00	823.00	1965.00	829.39	0.00	829.55	9.61	2.32	659.22	631.76
1.900	1.00	834.00	832.00	823.00	2535.00	829.65	0.00	830.05	13.01	3.60	703.56	702.76
1.900	1.00	834.00	832.00	823.00	2780.00	830.02	0.00	830.25	14.47	3.86	720.28	730.73
1.900	1.00	834.00	832.00	823.00	3345.00	830.40	0.00	830.70	17.77	4.42	757.41	793.54
2.000	160.00	834.00	832.00	823.00	1965.00	829.59	0.00	829.68	3.81	2.89	674.13	655.43
2.000	160.00	834.00	832.00	823.00	2535.00	830.06	0.00	830.35	11.84	3.50	725.92	736.31
2.000	160.00	834.00	832.00	823.00	2780.00	830.25	0.00	830.47	13.06	3.74	745.23	769.32
2.000	160.00	834.00	832.00	823.00	3345.00	830.74	0.00	831.03	23.10	4.31	776.74	696.02
2.100	1.00	0.00	0.00	823.00	1965.00	829.61	0.00	829.68	1.96	2.08	928.57	1389.16
2.100	1.00	0.00	0.00	823.00	2535.00	830.16	0.00	830.26	2.56	2.52	1004.96	1583.30
2.100	1.00	0.00	0.00	823.00	2780.00	830.37	0.00	830.47	2.79	2.69	1034.97	1662.96
2.100	1.00	0.00	0.00	823.00	3345.00	830.90	0.00	831.04	3.21	3.02	1109.25	1866.35
2.500	800.00	0.00	0.00	821.00	1965.00	829.76	0.00	829.82	1.40	1.84	1059.62	1643.11
2.500	800.00	0.00	0.00	821.00	2535.00	830.36	0.00	830.43	1.84	2.21	1149.54	1868.59
2.500	800.00	0.00	0.00	821.00	2780.00	830.59	0.00	830.67	2.00	2.35	1185.61	1963.80
2.500	800.00	0.00	0.00	821.00	3345.00	831.15	0.00	831.26	2.30	2.64	1277.62	2204.68
2.800	800.00	0.00	0.00	820.10	1965.00	829.90	0.00	829.99	3.30	2.47	786.81	1070.37
2.800	800.00	0.00	0.00	820.10	2535.00	830.53	0.00	830.66	4.07	2.91	869.64	1256.92
2.800	800.00	0.00	0.00	820.10	2780.00	830.77	0.00	830.92	4.35	3.08	902.02	1332.70
2.800	800.00	0.00	0.00	820.10	3345.00	831.36	0.00	831.54	4.85	3.42	978.84	1518.58
2.900	1.00	837.20	835.00	820.10	1965.00	829.89	0.00	830.00	3.89	2.60	749.27	986.62
2.900	1.00	837.20	835.00	820.10	2535.00	830.52	0.00	830.66	4.79	3.06	827.94	1158.14
2.900	1.00	837.20	835.00	820.10	2780.00	830.76	0.00	830.92	5.14	3.24	857.96	1226.12
2.900	1.00	837.20	835.00	820.10	3345.00	831.35	0.00	831.55	5.72	3.59	931.39	1398.07

FORM 1411-GO-PRINTED BY ROTARY MANIFOLD FORMS.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CUSEL	CRIBS	EG	10K*S	VCH	AREA	.01K
3.000	46.00	837.20	835.00	820.60	1945.00	829.93	0.00	830.01	2.37	2.25	863.86	1262.93
3.000	46.00	837.20	835.00	820.60	2535.00	830.57	0.00	830.68	3.04	2.89	943.56	1455.86
3.000	46.00	837.20	835.00	820.60	2760.00	830.82	0.00	830.95	3.30	2.85	974.60	1530.60
3.000	46.00	837.20	835.00	820.60	3345.00	831.49	0.00	831.57	3.73	3.19	1048.24	1727.03
3.100	1.00	0.00	0.00	820.60	1945.00	829.94	0.00	830.01	2.00	2.14	909.47	1376.01
3.100	1.00	0.00	0.00	820.60	2535.00	830.58	0.00	830.69	2.56	2.55	993.52	1584.29
3.100	1.00	0.00	0.00	820.60	2760.00	830.83	0.00	830.95	2.73	2.71	1026.04	1667.58
3.100	1.00	0.00	0.00	820.60	3345.00	831.49	0.00	831.56	3.19	3.03	1103.04	1872.71
3.500	1150.00	0.00	0.00	821.00	1945.00	830.19	0.00	830.13	0.59	1.26	1541.52	2527.70
3.500	1150.00	0.00	0.00	821.00	2535.00	830.80	0.00	830.84	0.75	1.51	1685.15	2919.60
3.500	1150.00	0.00	0.00	821.00	2760.00	831.07	0.00	831.11	0.82	1.60	1743.03	3078.77
3.500	1150.00	0.00	0.00	821.00	3345.00	831.71	0.00	831.76	0.97	1.79	1883.92	3468.91
3.800	1150.00	0.00	0.00	825.00	1945.00	830.21	0.00	830.25	2.15	1.76	1103.39	1322.74
3.800	1150.00	0.00	0.00	825.00	2535.00	830.93	0.00	830.99	2.36	1.99	1271.72	1649.04
3.800	1150.00	0.00	0.00	825.00	2760.00	831.21	0.00	831.27	2.43	2.08	1338.06	1784.15
3.800	1150.00	0.00	0.00	825.00	3345.00	831.86	0.00	831.94	2.69	2.24	1496.13	2119.64
3.900	1.00	840.00	837.00	825.00	1945.00	830.20	0.00	830.26	2.70	1.86	1052.97	1114.50
3.900	1.00	840.00	837.00	825.00	2535.00	830.92	0.00	830.99	2.96	2.12	1191.66	1478.07
3.900	1.00	840.00	837.00	825.00	2730.30	831.20	0.00	831.28	3.02	2.22	1255.70	1600.60
3.900	1.00	840.00	837.00	825.00	3345.00	831.85	0.00	831.94	3.09	2.38	1402.83	1903.76
4.000	67.00	840.00	837.00	825.00	1945.00	830.22	0.00	830.27	2.58	1.81	1035.52	1189.07
4.000	67.00	840.00	837.00	825.00	2535.00	830.94	0.00	831.01	2.92	2.12	1193.85	1483.81
4.000	67.00	840.00	837.00	825.00	2730.00	831.22	0.00	831.30	3.00	2.21	1256.66	1606.12
4.000	67.00	840.00	837.00	825.00	3345.00	831.87	0.00	831.96	3.07	2.38	1405.41	1909.16
4.100	1.00	0.00	0.00	825.00	1945.00	830.23	0.00	830.28	2.14	1.76	1107.02	1328.98
4.100	1.00	0.00	0.00	825.00	2535.00	830.95	0.00	831.01	2.34	1.99	1275.19	1656.02
4.100	1.00	0.00	0.00	825.00	2780.00	831.23	0.00	831.30	2.40	2.07	1342.90	1794.14
4.100	1.00	0.00	0.00	825.00	3345.00	831.89	0.00	831.96	2.67	2.25	1501.01	2130.08
5.000	1850.00	0.00	0.00	823.10	1945.00	830.56	0.00	830.61	1.50	1.71	1228.97	1590.38
5.000	1850.00	0.00	0.00	823.10	2535.00	831.32	0.00	831.38	1.69	1.97	1410.00	1949.95
5.000	1850.00	0.00	0.00	823.10	2780.00	831.61	0.00	831.68	1.76	2.07	1480.42	2096.01
5.000	1850.00	0.00	0.00	823.10	3345.00	832.28	0.00	832.36	1.86	2.26	1643.61	2451.35

FORM 1411-00-PRINTED BY ROTARY MANIFOLD FORMS.

[illegible] TABLE 150

SECSO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOPMID	[illegible]
1.000	1945.00	828.92	0.00	0.00	0.00	195.00	0.00
1.000	2535.00	829.30	0.00	0.00	0.00	195.00	0.00
1.000	2780.00	829.45	0.00	0.00	0.00	195.00	0.00
1.000	3345.00	829.79	0.00	0.00	0.00	195.00	0.00
1.800	1945.00	829.44	0.00	0.52	0.00	140.40	300.00
1.800	2535.00	829.91	0.00	0.61	0.00	140.40	300.00
1.800	2780.00	830.10	0.00	0.65	0.00	140.40	300.00
1.800	3345.00	830.50	0.00	0.71	0.00	140.40	300.00
1.900	1945.00	829.39	0.00	-0.04	0.00	140.40	1.00
1.900	2535.00	829.85	0.00	-0.07	0.00	140.40	1.00
1.900	2780.00	830.02	0.00	-0.08	0.00	140.40	1.00
1.900	3345.00	830.40	0.00	-0.10	0.00	140.40	1.00
2.000	1945.00	829.55	0.00	0.15	0.00	140.40	160.00
2.000	2535.00	[illegible]	0.00	0.2[illegible]	0.00	140.40	160.00
2.000	2780.00	830.25	0.00	0.24	0.00	140.40	160.00
2.000	3345.00	830.74	0.00	0.34	0.00	140.40	160.00
2.100	1945.00	829.61	0.00	0.07	0.00	140.40	1.00
2.100	2535.00	830.15	0.00	0.10	0.00	140.40	1.00
2.100	2780.00	830.37	0.00	0.12	0.00	140.40	1.00
2.100	3345.00	830.90	0.00	0.16	0.00	140.40	1.00
2.500	1945.00	829.76	0.00	0.15	0.00	148.82	800.00
2.500	2535.00	830.36	0.00	0.20	0.00	155.09	800.00
2.500	2780.00	830.59	0.00	0.22	0.00	158.40	800.00
2.500	3345.00	831.15	0.00	0.2[illegible]	0.00	16[illegible].47	800.00
2.800	1945.00	829.90	0.00	0.13	0.00	130.53	800.00
2.800	2535.00	830.53	0.00	0.17	0.00	130.66	800.00
2.800	2780.00	830.77	0.00	0.18	0.00	130.71	800.00
2.800	3345.00	831.36	0.00	0.21	0.00	130.83	800.00
2.900	1945.00	829.89	0.00	-0.01	0.00	130.53	1.00
2.900	2535.00	830.52	0.00	-0.01	0.00	130.66	1.00
2.900	2780.00	830.76	0.00	-0.01	0.00	130.71	1.00
2.900	3345.00	831.35	0.00	-0.01	0.00	130.82	1.00
3.000	1945.00	829.93	0.00	0.04	0.00	130.28	46.00
3.000	2535.00	830.57	0.00	0.05	0.00	130.43	46.00
3.000	2780.00	830.82	0.00	0.06	0.00	130.49	46.00
3.000	3345.00	831.42	0.00	0.07	0.00	130.63	46.00
3.100	1945.00	829.94	0.00	0.01	0.00	130.28	1.00
3.100	2535.00	830.58	0.00	0.01	0.00	130.43	1.00
3.100	2780.00	830.83	0.00	0.01	0.00	130.49	1.00
3.100	3345.00	831.43	0.00	0.02	0.00	130.63	1.00
3.500	1945.00	830.11	0.00	0.17	0.00	201.53	1150.00
3.500	2535.00	830.80	0.00	0.22	0.00	211.47	1150.00
3.500	2780.00	831.07	0.00	0.24	0.00	215.34	1150.00
3.500	3345.00	831.71	0.00	0.28	0.00	224.49	1150.00

FORM 1411-02 PRINTED BY ROTARY MANIFOLD FORMS. PRINTED IN U.S.A.

SECNO	Q	CWSEL	DIFUSP	DIFUSX	DIFKWS	TOPWID	XLCH
3.800	1965.00	830.21	0.00	0.10	0.00	231.34	1150.00
3.800	2535.00	830.93	0.00	0.12	0.00	236.70	1150.00
3.800	2780.00	831.21	0.00	0.13	0.00	238.73	1150.00
3.800	3345.00	831.87	0.00	0.15	0.00	243.67	1150.00
3.900	1965.00	830.20	0.00	-0.00	0.00	231.35	1.00
3.900	2535.00	830.92	0.00	-0.01	0.00	236.70	1.00
3.900	2780.00	831.20	0.00	-0.01	0.00	238.74	1.00
3.900	3345.00	831.87	0.00	-0.01	0.00	243.67	1.00
4.000	1965.00	830.22	0.00	0.02	0.00	231.43	67.00
4.000	2535.00	830.94	0.00	0.02	0.00	236.79	67.00
4.000	2780.00	831.22	0.00	0.02	0.00	238.87	67.00
4.000	3345.00	831.87	0.00	0.02	0.00	243.75	67.00
4.100	1965.00	830.23	0.00	0.01	0.00	231.45	1.00
4.100	2535.00	830.95	0.00	0.01	0.00	236.81	1.00
4.100	2780.00	831.23	0.00	0.01	0.00	238.93	1.00
4.100	3345.00	831.89	0.00	0.01	0.00	243.82	1.00
5.000	1965.00	830.36	0.00	0.33	0.00	237.03	1850.00
5.000	2535.00	831.02	0.00	0.37	0.00	241.62	1850.00
5.000	2780.00	831.61	0.00	0.38	0.00	241.94	1850.00
5.000	3345.00	832.28	0.00	0.39	0.00	244.53	1850.00

SUMMARY OF ERRORS

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

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**************************************************************
HEC2 RELEASE DATED NOV 74 UPDATED FEB 1977
ERROR CORR -  01
MODIFICATION -  [illegible]
**************************************************************
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PRINTED IN U.S.A.
FORM 1411-GD-PRINTED BY ROTARY MANIFOLD FORMS.

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*****************************************************************
*                                                               *
*                    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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==========================================================================================
13:07:16                    X52        CAN        HU202307  EMMET07                OCT 07, 1980
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==========================================================================================
R400 11*C SM:11ZC LM:11*C FW:E5-006 22A00561 PR01 PR/H112/FI/SI/A/H132
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FORM 1411-GD-PRINTED BY ROTARY MANIFOLD FORMS.

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: emmett twp

3) WATERCOURSE: Kalamazoo River

4) DOCUMENT TYPE: input + 100 yr. natural

00BREAK00

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**********************************************************
*  1.02 RELEASE DATED JUN 76 UPDATED FEB 1977
*  RUN ID = 1
*  APPLICATION = ...
**********************************************************

C
CITY OF ... TOWNSHIP FLOOD INSURANCE STUDY
KALAMAZOO RIVER FROM BATTLE CREEK TOWNSHIP TO I-94
T3       KALAMAZOO RIVER

J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
          0.        0.        0.        0.  0.002000      0.00       0.1       0.   839.610     0.000

J2   IPRNT     IPLOT     PTOPS     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   METRIC CODES OF INPUT DATA

     0.000    50.000   200.000     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
S         0.120     0.120     0.040     0.100     0.300     0.030     0.050     0.030     0.030     0.000
SV        0.000  1945.000  2535.000  2760.000  2730.000  3345.000     0.000     0.000     0.000     0.000

SURVEY VALLEY SECTION 1

X1        1.000    13.000    13.000   199.000     0.000     0.000     0.000     0.300     0.000     0.000
GR      372.500     0.000   325.900    13.000   325.100    76.000   824.300   111.000   824.700   141.000
GR      826.200   159.200   837.000   213.500   832.600   249.100   834.200   253.300   836.700   255.000
GR      833.000   345.700   832.600   441.000   847.000   483.000     0.000     0.000     0.000     0.000

SURVEY VALLEY SECTION 2

X1        2.000     7.200   417.000   537.000  1225.000  1225.000  1275.000     0.300     0.700     0.000
GR      327.000   246.700   841.000   264.000   830.900   244.000   828.800   314.000   829.000   430.000
GR      826.200   417.000   822.800   487.000   823.000   497.000   825.900   547.000   826.400   587.000
GR      827.400   596.000   829.400   598.000   829.800   684.000   832.400   708.000   836.400   758.000
SR      837.200   770.000   850.000   790.000     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     0.300     0.000     0.000     0.000

D/S COLUMBIA AVE. SURVEY SECTION 3

X1        2.805    17.000     0.000   192.500  1000.000  1000.000  1000.300     0.000     0.000     0.000
GR      845.000     0.000   837.000     1.000   829.900    27.000   827.400    32.000   824.200    62.000
GR      824.200    62.100   826.200    65.900   826.200    91.000   822.900    96.000   823.200   127.000
GR      823.200   127.100   823.200   130.900   823.200   191.000   826.300   166.000   830.000   171.000
GR      839.100   191.500   845.000   192.500     0.000     0.000     0.300     0.000     0.000     0.000

D/S FACE COLUMBIA AVE. SURVEY SECTION 3

X1        2.930     0.000     0.000     0.000    13.300     1.000     1.000     0.000     0.000     0.000
GR       12.000     0.000   845.000     0.000     1.300   845.000   841.600    62.000   845.000   841.600
GR       62.100   845.000     0.000    65.900   845.000     0.000    96.000   845.000   841.600   127.000
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FORM 1411-80 PRINTED BY ROTARY MANIFOLD FORM

BT	845.000	841.600	127.100	845.000	0.000	130.900	845.000	0.000	131.000	845.000
BT	841.600	191.500	845.000	841.600	192.500	845.000	0.000	0.000	0.000	0.000

U/S FACE COLUMBIA AVE. SURVEY SECTION 5

X1	3.000	12.000	0.000	192.500	60.000	61.000	66.000	62.000	0.000	0.000
BT	12.000	0.000	845.000	0.000	1.000	845.000	841.600	62.000	845.000	841.600
BT	62.100	865.000	0.000	65.900	845.000	0.000	66.000	845.000	841.600	127.000
BT	845.000	841.600	127.100	845.000	0.000	130.900	845.000	0.000	131.000	845.000
GR	841.600	191.500	845.000	841.600	192.500	845.000	0.000	0.000	0.000	0.000
GR	845.000	0.000	845.000	1.000	825.200	27.000	831.100	32.000	825.500	32.100
GR	825.500	62.100	825.500	65.900	825.500	66.000	825.500	65.900	845.000	127.100
GR	823.000	127.100	823.000	130.900	823.000	131.000	827.500	166.000	830.400	171.000
GR	839.100	191.500	845.000	192.500	0.000	0.000	0.000	0.000	0.000	0.000

U/S COLUMBIA AVE. SURVEY SECTION 5

X1	3.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
VC	0.120	0.120	0.040	0.100	0.300	0.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 4

X1	4.000	16.000	658.000	804.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	843.400	418.000	839.200	430.000	838.400	444.000	836.300	458.000	830.800	526.000
GR	829.300	638.000	828.100	664.000	827.500	651.000	826.100	658.000	824.900	691.000
GR	824.900	736.000	823.900	746.000	823.300	776.000	824.900	806.000	827.700	836.000
GR	167.100	832.000	0.000	0.000	0.000	0.000	0.300	0.000	0.000	0.000
VC	0.120	0.120	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 5

X1	5.000	17.000	311.000	551.000	450.000	400.000	400.000	0.000	0.000	0.000
GR	836.300	250.000	843.000	250.000	841.400	270.000	832.600	276.000	826.000	291.000
GR	826.900	311.000	826.600	323.000	826.600	353.000	828.200	357.000	828.200	419.000
GR	826.900	435.000	826.700	448.000	826.800	466.000	824.600	488.000	824.000	529.000
GR	825.700	551.000	848.800	583.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S MAIN ST. SURVEY SECTION 6

X1	5.800	10.000	0.000	80.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	842.500	0.000	824.900	1.000	824.000	20.000	824.000	39.000	824.000	39.100
GR	825.300	40.900	824.300	41.000	825.600	60.300	824.800	79.000	842.500	80.000

D/S FACE MAIN ST. SURVEY SECTION 6

X1	5.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	8.000	0.000	842.500	0.000	1.000	842.500	837.700	39.000	842.500	837.700
BT	39.100	842.500	0.000	41.900	842.500	0.000	42.000	842.500	837.700	79.200
BT	842.500	837.700	80.000	842.500	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE MAIN ST. SURVEY SECTION 6

X1	6.000	10.000	0.000	80.000	45.000	45.000	45.000	0.000	0.000	0.000
BT	8.000	0.000	842.500	0.000	1.000	842.500	837.700	39.000	842.500	837.700
BT	39.100	842.500	0.000	41.900	842.500	0.000	42.000	842.500	837.700	79.000
BT	842.500	837.700	80.000	842.500	0.000	0.000	0.000	0.000	0.000	0.000
GR	842.900	0.000	823.900	1.000	824.100	20.000	824.300	39.000	824.500	39.100

GR	823.900	43.900	823.900	41.000	824.600	60.000	824.700	79.000	842.500	80.000

U/S MAIN ST. SURVEY SECTION 6

X1	6.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 7

X1	7.000	17.000	1189.000	1279.000	100.000	130.000	907.000	0.000	0.000	0.000
GR	850.000	1094.000	833.400	1094.000	831.300	1130.000	836.200	1142.000	829.800	1184.000
GR	827.200	1139.000	824.000	1213.000	124.300	1224.000	125.200	1259.300	826.400	1272.000
GR	829.700	1284.000	829.900	1308.000	829.400	1334.000	831.800	1344.000	833.800	1358.000
GR	836.800	1374.000	850.000	1374.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	5.000	1780.000	2320.000	2545.000	2545.000	3060.000	0.000	0.000	0.000	0.000

D/S BEADLE LAKE SURVEY SECTION 8

X1	7.800	10.000	0.000	105.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	842.000	0.000	827.300	1.000	824.100	26.000	826.100	51.000	826.100	51.100
GR	825.400	53.900	825.800	54.000	825.200	59.000	827.200	104.000	842.000	105.000

D/S FACE BEADLE LAKE SURVEY SECTION 8

X1	7.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	1.000	1.000	842.000	0.000	1.000	842.000	837.700	51.000	842.000	837.700
BT	51.100	842.000	0.000	53.900	842.000	0.000	54.000	842.000	837.700	104.000
BT	842.000	837.700	105.000	842.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	842.000	0.000	827.200	1.000	825.800	26.000	825.000	51.000	825.000	51.100
GR	824.900	53.900	824.900	54.000	824.900	59.000	826.400	104.000	842.000	105.000

U/S BEADLE LAKE SURVEY SECTION 8

X1	8.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

X1	8.200	11.000	135.000	195.000	100.000	100.000	130.300	0.000	0.000	0.000
GR	840.000	0.000	830.000	0.000	830.000	100.000	827.200	105.000	825.800	125.000
GR	825.000	150.000	824.800	175.000	826.400	195.000	830.000	200.000	830.000	300.000
GR	840.000	300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.920	0.120	0.040	0.100	0.300	0.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 9

X1	9.000	24.000	1868.000	1998.000	1100.000	1100.000	1250.000	0.000	0.000	0.000
GR	846.300	571.000	840.000	640.300	835.400	708.000	837.000	898.000	837.200	950.000
GR	833.500	956.000	835.300	1134.000	834.600	1140.000	830.000	1200.000	850.700	1410.000
GR	830.400	1628.000	830.400	1822.300	832.400	1639.000	827.500	1838.000	826.000	1858.000
GR	826.800	1933.000	827.400	1968.000	827.300	1998.000	829.800	2005.000	830.600	2090.000
GR	833.600	2112.000	839.000	2140.000	842.000	2166.000	846.000	2210.000	0.000	0.000

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SURVEY VALLEY SECTION 10

X1	10.000	22.000	2164.000	2242.000	000.000	1200.000	1250.000	0.000	0.000	0.000
GR	340.400	2148.000	855.400	880.200	878.000	1312.000	870.600	1122.000	854.300	1160.000
GR	121.300	184.000	847.000	1304.200	822.800	1544.000	831.200	1754.000	870.600	1826.000
GR	121.400	2072.000	821.300	2156.200	829.100	2446.000	137.700	2156.000	825.200	2446.000
GR	825.900	2198.000	826.600	2223.000	823.600	2242.000	835.200	2257.000	834.000	2262.000
GR	842.000	2282.000	846.400	2300.000	0.000	0.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 11

X1	11.000	14.000	629.000	711.000	1300.000	1100.000	1400.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	610.000	0.000	1050.000	0.000	0.000	0.000	0.000
GR	462.400	598.000	837.700	610.000	833.300	620.000	829.700	629.000	828.900	648.000
GR	828.200	670.000	827.700	642.300	829.100	711.000	831.600	720.000	831.600	856.000
GR	352.100	1066.000	831.000	1256.000	832.400	1301.000	850.300	1300.000	0.000	0.000
NC	0.120	0.120	0.040	0.500	0.000	0.000	0.200	0.000	0.000	0.000

SURVEY VALLEY SECTION 12

X1	12.000	10.000	584.000	676.000	750.000	750.000	955.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	537.000	0.000	750.000	0.000	0.000	0.000	0.000
GR	366.200	557.000	835.200	572.000	831.000	584.000	830.100	595.000	827.900	615.000
GR	827.500	630.000	828.100	645.000	833.300	676.000	834.100	682.000	833.400	758.000
GR	833.100	940.000	833.700	1018.000	834.600	1032.000	858.800	1052.000	843.000	1098.000

INTERPOLATED CROSS SECTION 12

X1	12.100	10.000	584.000	676.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	366.200	557.000	835.200	572.000	831.000	584.000	830.000	595.000	827.900	615.000
GR	827.500	630.000	828.100	645.000	833.300	676.000	836.000	700.000	860.000	750.000

SURVEY VALLEY SECTION 13

X1	13.000	19.000	716.000	824.000	1800.000	1400.000	2150.000	0.000	0.000	0.000
GR	657.000	656.000	845.200	676.000	837.300	700.000	833.600	710.000	831.900	716.000
GR	829.200	745.000	829.600	770.000	829.400	805.000	831.300	824.000	835.200	830.000
GR	834.200	966.000	833.000	1280.000	833.600	1412.000	834.600	1590.000	837.200	1866.000
GR	838.400	1804.000	839.500	1984.000	844.800	2114.000	858.000	2132.000	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

D/S RAYMOND ST. SURVEY SECTION 14

X1	13.800	19.000	0.000	202.000	1650.000	1650.000	1650.000	0.000	0.000	0.000
GR	856.000	0.000	847.000	1.000	833.500	40.000	831.700	45.000	831.700	45.100
GR	831.700	47.400	831.700	47.500	831.300	73.000	831.400	100.000	831.400	100.100
GR	831.400	102.400	831.400	102.500	831.200	130.000	833.600	155.000	833.600	155.100
GR	833.600	157.400	835.100	157.500	847.000	201.000	856.000	202.000	0.000	0.000

D/S FACE RAYMOND ST. SURVEY SECTION 14

RI	13.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	13.000	0.000	856.000	0.000	0.000	856.000	852.800	45.000	856.000	852.800
BS	45.100	856.100	1.000	47.400	856.000	0.000	47.500	856.000	852.800	100.000
BT	856.000	852.800	100.100	856.000	0.000	102.400	856.000	0.000	102.500	856.000
BT	852.800	155.000	856.000	852.800	155.100	856.000	0.000	157.400	856.000	0.000
BT	157.500	856.000	852.800	201.000	856.000	52.800	202.000	856.000	0.000	0.000

FORM 1411-00 PRINTED BY ROTARY HAEIFOLD FORMS.

U/S FACE RAYMOND ST. SURVEY SECTION 14

X1	14.000	19.000	0.000	202.000	40.300	42.000	47.000	3.000	0.000	0.000
GT	16.700	[illegible]	856.000	0.001	0.200	856.000	352.800	43.000	856.000	852.800
GT	43.300	856.100	0.000	47.400	836.000	0.000	47.500	856.000	852.100	1 0.100
GT	856.000	852.000	100.100	856.000	0.000	102.400	856.000	0.000	102.500	856.000
GT	852.800	155.000	856.000	852.800	155.100	856.000	0.000	157.400	856.000	0.000
BT	157.500	856.000	852.800	201.000	856.000	852.800	202.000	856.000	0.000	0.000
GR	856.000	0.000	847.000	1.000	831.100	40.000	831.800	45.000	831.800	55.100
GR	831.800	47.400	831.800	47.500	831.200	73.000	829.600	100.000	829.600	100.100
GR	829.600	102.400	829.800	102.500	829.700	130.000	835.800	155.000	834.500	155.100
GR	833.300	157.400	834.500	157.500	847.000	201.000	856.000	202.000	0.000	0.000

U/S RAYMOND ST. SURVEY SECTION 14

HI	26.100	0.000	0.000	0.000	1.300	2.000	1.000	0.000	0.000	0.000
NC	0.120	0.120	0.040	0.100	0.300	0.000	0.000	0.000	0.500	0.000
ET	0.000	0.000	0.000	0.000	9.100	0.000	0.000	0.000	1021.000	2144.000

400 FT U/S RAYMOND SURVEY SECTION 15

X1	15.000	17.000	2004.000	2116.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	846.300	1022.000	840.800	1062.000	840.800	1102.000	840.000	1232.000	840.000	1600.000
GR	835.900	1600.000	835.600	1802.000	835.700	1962.000	835.300	1969.000	832.700	2004.000
GR	832.900	2004.000	851.100	2032.000	850.600	2044.000	850.500	2095.000	853.100	2116.000
GT	840.600	2120.000	848.000	2164.000	0.000	0.000	0.000	0.000	0.000	0.100
ET	0.000	0.100	0.000	0.000	1.410	0.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 16

X1	16.000	25.000	1932.000	1998.000	900.000	1130.000	1650.000	0.000	0.000	0.000
GT	831.800	956.000	846.400	998.000	842.400	836.300	842.000	776.300	842.800	926.300
GR	841.500	1156.000	839.000	1294.000	837.200	1422.000	837.800	1684.000	837.600	1876.000
GR	836.900	1917.000	835.600	1926.000	834.400	1932.000	832.900	1945.000	832.100	1965.000
GR	831.600	1985.000	832.200	1998.000	842.000	2008.000	843.200	2058.000	850.200	2114.000

SURVEY VALLEY SECTION 17

X1	17.000	23.000	518.000	568.000	1200.000	1600.000	1900.000	0.000	0.000	0.000
X5	0.000	0.000	0.000	272.000	0.000	1175.000	0.000	0.000	0.000	0.000
GR	857.200	200.000	851.800	222.000	845.400	236.000	846.000	272.000	839.200	324.000
GR	838.900	484.000	839.000	502.000	836.000	516.000	835.200	535.000	834.200	551.000
GR	834.700	560.000	836.700	573.000	838.300	587.000	838.000	636.000	830.800	794.000
GR	838.800	984.000	838.600	1200.000	839.000	1466.000	839.600	1664.000	838.200	1818.000
GR	840.200	1902.000	846.200	1918.000	853.800	1930.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 18

X1	18.000	17.000	539.000	667.000	2100.000	1800.000	2300.000	0.000	0.000	0.000
GR	851.000	208.000	845.800	226.000	845.000	258.000	840.800	284.000	841.000	414.000
GR	840.400	530.000	836.800	539.000	836.800	563.000	834.600	603.000	834.800	628.000
GR	836.500	667.000	839.100	670.000	840.600	712.000	843.000	732.000	843.600	792.000
GT	847.500	818.000	851.600	834.000	0.000	0.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 19

X1	19.000	19.200	804.000	936.000	1525.000	1525.000	1500.000	0.000	0.000	0.000
GR	865.000	230.000	856.900	268.000	840.600	322.000	845.600	358.000	841.000	426.000
GR	860.600	612.000	841.000	792.000	840.200	800.000	837.000	804.000	837.400	855.000
GR	836.000	870.000	836.500	885.000	837.100	936.000	840.200	940.300	846.200	957.000
GR	845.200	996.000	847.000	1046.000	846.200	1246.000	887.600	1350.000	0.000	0.000

SURVEY CROSS SECTION 20

X1	20.000	25.000	1839.000	1961.000	1850.000	1250.000	1950.000	0.000	0.000	0.000
GR	852.500	555.000	850.600	696.000	849.700	726.300	847.600	896.300	847.900	930.300
GR	845.200	953.300	842.200	1024.000	841.700	1076.000	847.100	1272.000	841.200	1434.100
GR	841.100	1650.200	941.100	1726.000	839.700	1819.300	840.700	1848.300	838.300	1950.300
GR	837.300	1870.000	836.600	1890.000	837.300	1920.300	838.300	1961.000	841.600	1975.000
GR	841.400	2054.000	843.500	2222.000	847.900	2304.000	848.000	2360.000	852.600	2430.000
NC	0.120	0.100	0.040	0.100	0.300	0.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 21

X1	21.000	24.000	1040.000	1128.000	1100.000	1200.000	1450.000	0.000	0.000	0.000
GR	757.800	410.000	853.200	488.000	850.600	536.000	847.400	582.000	846.100	786.000
GR	843.800	810.200	844.200	972.000	844.000	1090.000	839.800	1040.000	836.600	1059.000
GR	838.100	1014.200	838.500	1119.000	838.800	1128.300	842.300	1180.000	845.300	1196.100
GR	841.400	1241.200	844.600	1324.000	845.100	1332.000	845.500	1370.000	847.000	1458.000
GR	848.600	1916.000	848.600	2136.000	849.600	2236.000	862.400	2262.000	0.000	0.000
NC	0.120	0.100	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000

SURVEY VALLEY SECTION 22

X1	22.000	21.000	577.000	657.000	2075.000	2075.000	2075.000	0.000	0.000	0.000
GR	866.000	218.000	857.600	228.000	855.500	264.000	851.600	280.000	851.200	316.000
GR	847.200	418.000	844.800	536.000	844.650	575.000	840.200	577.000	839.600	597.000
GR	840.200	617.000	841.200	637.000	842.200	657.000	845.100	658.000	843.600	728.000
GR	845.600	803.000	846.400	820.000	848.300	866.000	850.700	912.000	853.700	932.300
GR	862.400	962.000	0.100	0.000	0.000	0.300	0.000	0.000	0.000	0.000

D/S PARK BRIDGE SURVEY SECTION 24

X1	22.800	15.000	322.000	422.000	250.000	250.300	250.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	852.400	844.800	0.000
GR	358.000	170.000	846.000	170.000	848.800	282.000	848.000	315.000	841.700	322.000
GR	841.000	347.000	841.300	372.000	840.900	397.000	842.200	422.000	848.000	430.000
GR	847.100	480.000	846.800	490.000	844.800	544.000	844.900	600.000	860.000	600.000

D/S FACE PARK BRIDGE SURVEY SECTION 24

X1	22.900	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	852.400	844.800	0.000
GT	16.000	170.000	858.000	0.000	282.000	854.500	0.000	315.000	852.400	0.000
GT	322.000	852.400	0.000	322.000	852.400	859.600	347.000	852.000	851.200	372.000
GT	51.900	851.100	857.000	851.000	851.000	422.000	851.400	450.600	430.000	851.000
BT	0.000	480.000	847.100	0.000	490.000	844.800	0.000	544.000	844.800	0.000
BT	600.000	844.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE PARK BRIDGE SURVEY SECTION 24

X1	23.000	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	10.000	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	0.300	852.400	844.800	0.000

FORM 141-GD-PRINTED BY ROTARY MANIFOLD FORMS.

U/S PARK BRIDGE SURVEY SECTION 24

X1	23.100	0.300	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	16.000	0.300	0.000	0.000	0.000	0.000	0.000	852.400	844.700	0.000

D/S WESTBOUND I-94 SURVEY SECTION 24

X1	23.800	14.000	0.000	272.000	570.000	560.000	950.000	0.300	0.000	0.000
GR	870.000	0.000	863.900	1.000	863.000	57.000	843.000	57.100	843.700	60.500
GR	863.000	60.600	841.500	97.000	841.100	135.000	841.100	135.100	841.100	138.500
GR	841.700	138.600	841.100	175.000	842.600	212.000	842.600	212.100	842.600	215.500
GR	842.600	215.600	861.600	271.000	870.000	272.000	0.000	0.000	0.000	0.000

D/S FACE WEST BOUND I-94 SURVEY SECTION 24

X1	23.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	16.000	0.000	870.000	0.000	1.000	870.000	863.700	57.000	870.000	863.700
BT	57.100	870.000	0.000	60.500	870.000	0.000	60.600	870.000	863.700	135.000
BT	870.000	863.700	135.100	870.000	0.000	138.500	870.000	0.000	138.600	870.000
BT	863.700	212.000	870.000	863.700	212.100	870.000	0.000	215.500	870.000	0.000
BT	215.600	870.000	863.700	271.000	870.000	863.700	272.000	870.000	0.000	0.000

U/S FACE WEST BOUND I-94 SURVEY SECTION 24

X1	24.000	0.000	0.000	0.000	44.000	44.000	44.000	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

U/S WESTBOUND I-94 SURVEY SECTION 24

X1	24.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

D/S EASTBOUND I-94 SURVEY SECTION 24

X1	24.300	13.900	0.300	272.000	65.000	65.000	65.000	0.000	0.000	0.000
GR	870.000	0.000	864.900	1.000	843.000	57.000	843.000	57.100	843.000	60.500
GR	863.000	60.600	841.500	97.000	841.100	135.000	841.100	135.100	841.100	138.500
GR	841.100	138.600	841.100	175.000	842.500	212.000	842.500	212.100	842.500	215.500
GR	842.500	215.600	861.700	271.000	870.000	272.000	0.000	0.000	0.000	0.000

D/S FACE EAST BOUND I-94 SURVEY SECTION 24

X1	24.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	16.000	0.000	870.000	0.000	1.000	870.000	863.700	57.000	870.000	863.700
BT	57.100	870.000	0.000	60.500	870.000	0.000	60.600	870.000	863.700	135.000
BT	870.000	863.700	135.100	870.000	0.000	138.500	870.000	0.000	138.600	870.000
BT	863.700	212.000	870.000	863.700	212.100	870.000	0.000	215.500	870.000	0.000
BT	215.600	870.000	863.700	271.000	870.000	863.700	272.000	870.000	0.000	0.000

U/S FACE EAST BOUND I-94 SURVEY SECTION 24

X1	25.000	0.000	0.000	0.000	44.000	44.000	44.000	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

U/S EASTBOUND I-94 SURVEY SECTION 24

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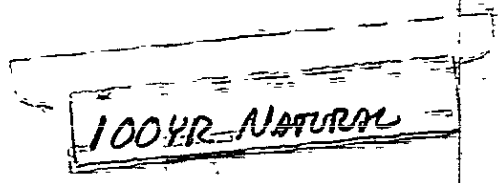
100YR NATURAL

X1	25.100	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

FORM 1411-GD-PRINTED BY ROTARY MANIFOLD FORMS.

*PROF 1

CCHV= 0.100 CEHV= 0.300
*SECNO 1.000

SECNO	DEPTH	FLOEL	CHSEL	BELR	ES	HV	HL	ULOSS	BANK ELEV
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TYP	LEFT/RIGHT
TIME	VLOE	VCH	VROB	XNL	XNCH	XNR	UTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IN2	ICONT	CORAR	TOPWID	ENDST

SURVEY VALLEY SECTION 1

1.00	8.51	831.61	0.00	831.61	831.67	0.06	0.00	0.00	825.90
2780.	1.	2768.	72.	5.	1309.	167.	0.	0.	826.50
0.00	0.16	2.37	0.43	0.120	0.040	0.120	0.000	625.10	11.4?
0.000290	0.	0.	0.	0	0	0	0.00	241.94	255.34

FLOW DISTRIBUTION FOR SECNO= 1.00 CHSEL= 831.61

STA=	41.	45.	199.	219.	269.	293.
PER Q=	0.1	97.4	1.8	0.9	0.0	
AREA=	2.5	130.2	20.2	25.5	2.6	
VEL=	0.2	2.1	0.5	0.3	0.1	

*SECNO 2.000

SURVEY VALLEY SECTION 2

2.00	9.08	831.88	0.00	0.00	831.94	0.06	0.26	0.00	826.20
2780.	140.	2557.	84.	393.	1299.	266.	50.	10.	826.40
4.19	0.56	1.97	0.31	0.120	0.040	0.120	0.040	622.80	282.03
0.000187	1275.	1275.	1275.	1	0	0	0.00	421.29	703.35

FLOW DISTRIBUTION FOR SECNO= 2.00 CHSEL= 831.88

STA=	282.	316.	600.	417.	587.	594.	598.	684.	703.
PER Q=	0.6	3.3	1.2	92.0	0.6	0.2	2.1	3.1	
AREA=	62.3	257.4	73.0	1299.4	35.0	16.0	197.2	29.2	
VEL=	0.3	0.6	0.4	2.0	0.3	0.4	0.3	0.2	

CCHV= 0.300 CEHV= 0.500
*SECNO 2.800

D/S COLUMBIA AVE. SURVEY SECTION 3

2.80	9.32	832.12	0.00	0.00	832.22	0.10	0.26	0.02	845.00
2780.	0.	2780.	0.	0.	1076.	0.	85.	16.	845.00
0.30	0.00	2.58	0.00	0.120	0.040	0.120	0.040	822.80	16.86
0.000383	1000.	1000.	1000.	2	0	0	0.00	158.91	175.77

FLOW DISTRIBUTION FOR SECNO= 2.80 CHSEL= 832.12

STA=	17.	193.
PER Q=	100.0	
AREA=	1076.4	
VEL=	2.6	

*SECNO 2.900

FORM 1411-GS PRINTED BY NOTARY MANIFOLD FORMS, PRINTED IN U.S.A.

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3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  845.00 MAX ELLC=  841.60

        D/S FACE COLUMBIA AVE. SURVEY SECTION 3

     2.90      9.31    832.11      0.00      0.00    832.23      0.12      0.00      0.01    845.00
    2780.        0.     2780.        0.        0.     1010.        0.       85.       16.    845.00
     0.30      0.00      2.75      0.00     0.120     0.040     0.120     0.040    822.80     16.86
 0.000473        1.        1.        1.         0         0         0    -65.67    158.97    175.77

FLOW DISTRIBUTION FOR SECNO=       2.90          CHSEL=     832.11

STA=       17.      193.
  PER Q=     100.0
   AREA=    1010.7
    VEL=       2.8

*SECNO 3.100
   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    IN2       ICONT     CONAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  845.00 MAX ELLC=  841.60

        U/S FACE COLUMBIA AVE. SURVEY SECTION 3

     3.00      9.13    832.13      0.00      0.00    832.28      0.15      0.03      0.02    845.00
    2780.        0.     2780.        0.        0.      901.        0.       87.       17.    845.00
     0.31      0.00      3.09      0.00     0.120     0.040     0.120     0.040    823.00     15.07
 0.000701       60.       60.       60.         0         0         0    -61.52    160.03    175.09

FLOW DISTRIBUTION FOR SECNO=       3.00          CHSEL=     832.13

STA=       15.      193.
  PER Q=     100.0
   AREA=     900.9
    VEL=       3.1

*SECNO 3.100

        U/S COLUMBIA AVE. SURVEY SECTION 3

     3.10      9.16    832.16      0.00      0.00    832.29      0.13      0.03      0.01    845.00
    2780.        0.     2780.        0.        0.      965.        0.       87.       17.    845.00
     0.31      0.00      2.88      0.00     0.120     0.040     0.120     0.040    823.00     14.99
 0.000557        1.        1.        1.         2         0         0      0.00    160.15    175.14

FLOW DISTRIBUTION FOR SECNO=       3.10          CHSEL=     832.16

STA=       15.      193.
  PER Q=     100.0
   AREA=     965.3
    VEL=       2.9

CCHV=   0.100 CEHV=   0.300
*SECNO 4.000
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SURVEY VALLEY SECTION 4

4.00	8.98	832.28	0.00	0.00	832.36	0.08	0.07	0.00	826.10
2780.	120.	2643.	17.	333.	1144.	36.	92.	18.	824.90
0.33	0.34	2.61	0.67	0.120	0.040	0.120	0.040	823.30	497.20
0.000249	200.	200.	200.	0	0	0	0.00	315.97	813.17

FLOW DISTRIBUTION FOR SECNO= 4.00 CWSEL= 832.28

STA=	497.	526.	638.	646.	651.	658.	804.	808.	813.
PER Q=	0.1	2.5	0.3	0.6	0.8	95.1	0.5	0.1	
AREA=	21.7	222.0	20.0	31.6	38.4	1143.7	23.9	11.6	
VEL=	0.2	0.3	0.4	0.5	0.6	2.3	0.6	0.3	

CCHV= 0.300 CEHV= 0.500

*SECNO 5.000

SURVEY VALLEY SECTION 5

5.00	8.41	832.41	0.00	0.00	832.47	0.05	0.10	0.01	826.90
2780.	66.	2702.	12.	131.	1423.	31.	104.	20.	825.70
0.39	0.50	1.10	0.33	0.120	0.040	0.120	0.040	824.00	276.51
0.000264	400.	400.	400.	2	0	0	0.00	203.59	560.30

FLOW DISTRIBUTION FOR SECNO= 5.00 CWSEL= 832.41

STA=	277.	401.	311.	531.	560.
PER Q=	0.6	2.0	97.2	0.4	
AREA=	31.3	99.3	1423.1	31.2	
VEL=	0.3	0.6	1.9	0.4	

*SECNO 5.800

D/S MAIN ST. SURVEY SECTION 6

5.80	8.42	832.42	0.00	0.00	832.74	0.32	0.14	0.13	842.50
2780.	0.	2780.	0.	0.	613.	0.	114.	22.	842.50
0.41	0.00	4.53	0.00	0.120	0.040	0.120	0.040	824.00	0.57
0.001231	300.	300.	300.	2	0	0	0.00	78.06	79.43

FLOW DISTRIBUTION FOR SECNO= 5.80 CWSEL= 832.42

STA=	1.	80.
PER Q=	100.0	
AREA=	613.2	
VEL=	4.5	

*SECNO 5.900

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	LTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	XTRIAL	IN2	ICONT	CORAR	TOPWID	[illegible]

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 842.50 MAX ELLC= 837.70

D/S FACE MAIN ST. SURVEY SECTION 6

5.90	8.35	832.36	0.00	0.00	832.81	0.45	0.00	0.07	842.30

2780.	0.	2780.	0.	0.	517.	0.	114.	22.	842.50	
0.41	0.00	5.36	0.00	0.120	0.040	0.120	0.040	624.00	0.58	
0.002176	1.	1.	1.	2	0	0	-91.59	78.85	79.43	

FLO. DISTRIBUTION FOR SECNO= 5.92 CHSEL= 832.36

STA= 1. 80.
PER C= 100.0
AREA= 516.6
VEL= 5.4

*SECNO 6.000

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 842.50 MAX ELLC= 837.70

D/S FACE MAIN ST. SURVEY SECTION 6

6.00	8.61	832.51	0.00	0.00	832.91	0.40	0.09	0.02	842.50
2780.	0.	2780.	0.	0.	548.	0.	115.	22.	842.50
0.41	0.00	5.07	0.00	0.120	0.040	0.120	0.040	823.90	0.54
0.001737	45.	45.	45.	2	0	0	-91.22	78.90	79.44

FLOW DISTRIBUTION FOR SECNO= 6.00 CHSEL= 832.51

STA= 1. 80.
PER Q= 100.0
AREA= 548.2
VEL= 5.1

*SECNO 6.100

U/S MAIN ST. SURVEY SECTION 6

6.10	5.77	832.67	0.00	0.00	832.93	0.23	0.00	0.06	842.50
2780.	0.	2780.	0.	0.	659.	0.	115.	22.	842.50
0.41	0.00	4.22	0.00	0.120	0.040	0.120	0.040	823.90	0.53
0.000971	1.	1.	1.	2	0	0	0.00	78.92	79.45

FLOW DISTRIBUTION FOR SECNO= 6.10 CHSEL= 832.67

STA= 1. 80.
PER Q= 100.0
AREA= 659.2
VEL= 4.2

*SECNO 7.000

SURVEY VALLEY SECTION 7

7.00	6.96	832.86	0.00	0.00	833.05	0.19	0.08	0.03	827.90	
2780.	107.	2555.	137.	132.	696.	203.	112.	22.	826.40	
0.42	0.59	3.65	0.66	0.120	0.040	0.120	0.040	824.00	1104.17	
0.000638	100.	100.	100.	2	0	0	0.00	247.27	1351.44	

FLOW DISTRIBUTION FOR SECNO= 7.00 CHSEL= 832.86

STA=	1104.	1130.	1142.	1184.	1189.	1279.	1284.	1308.	1334.	1344.	1351.
PER Q=	0.2	0.4	2.7	0.5	91.2	0.7	1.7	2.0	0.6	0.0	
AREA=	17.8	24.2	120.3	20.1	94.2	24.1	73.5	83.5	22.6	4.0	

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VEL= 0.2 0.5 0.6 0.3 3.7 0.8 0.7 0.7 0.5 0.2

*SECNO 7.800

D/S BEADLE LAKE SURVEY SECTION 7

7.80	7.94	833.14	0.00	0.00	833.34	0.21	0.00	0.01	842.00
2545.	0.	2545.	0.	0.	712.	0.	125.	24.	842.00
0.45	0.00	3.57	0.00	0.120	0.040	0.120	0.040	825.20	0.60
0.000614	400.	400.	400.	2	0	0	0.00	103.10	104.40

FLOW DISTRIBUTION FOR SECNO= 7.80 CWSEL= 833.14

STA= 1. 105.
PER Q= 100.0
AREA= 711.9
VEL= 3.6

*SECNO 7.900

SECNO	DEPTH	CWSEL	CRWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	SLOP	ACH	AROB	ALOB	ACH	AROB	VOL	INA	LEFT/RIGHT
TIME	WLPT	WSEL	VTOT	KWL	XICH	XMR	STIP	ELMI	DSTA
SLOPE	KLCH	KLOB	KLOB	INITIAL	IPR	ICONT	CDEAD	TOPWID	EXJET

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 842.00 MAX ELLC= 837.70

D/S FACE BEADLE LAKE SURVEY SECTION 8

7.90	7.94	833.14	0.00	0.00	833.35	0.21	0.00	0.01	842.00
2545.	0.	2545.	0.	0.	691.	0.	125.	24.	842.00
0.45	0.00	3.68	0.00	0.120	0.040	0.120	0.040	825.20	0.60
0.000699	1.	1.	1.	0	0	3	-20.07	102.80	104.40

FLOW DISTRIBUTION FOR SECNO= 7.90 CWSEL= 833.14

STA= 1. 105.
PER Q= 100.0
AREA= 691.1
VEL= 3.7

*SECNO 8.000

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 842.00 MAX ELLC= 837.70

U/S FACE BEADLE LAKE SURVEY SECTION 8

0.00	8.41	833.21	0.00	0.00	833.39	0.18	0.03	0.01	842.00
2545.	0.	2545.	0.	0.	751.	0.	125.	24.	842.00
0.45	0.00	3.39	0.00	0.120	0.040	0.120	0.040	824.90	0.59
0.000690	35.	35.	35.	2	0	0	-23.95	103.84	104.44

FLOW DISTRIBUTION FOR SECNO= 8.00 CWSEL= 833.21

STA= 1. 105.
PER Q= 100.0
AREA= 750.8
VEL= 3.4

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*SECNO 8.100

U/S BEADLE LAKE SURVEY SECTION 8

3.10	5.42	453.22	0.00	0.00	332.39	0.17	0.30	0.20	842.30
2545.	0.	2545.	1.	0.	375.	0.	123.	24.	542.00
0.45	0.00	3.28	0.00	0.120	0.040	0.120	0.040	824.80	0.59
0.000619	1.	1.	1.	1	0	0	0.00	103.84	104.46

FLOW DISTRIBUTION FOR SECNO= 8.10 CHSEL= 833.22

STA= 1. 105.
PER Q= 100.0
AREA= 775.4
VEL= 3.3

*SECNO 8.200

8.20	8.53	833.33	0.00	0.00	833.46	0.12	0.05	0.01	827.20
2545.	204.	2135.	206.	357.	701.	359.	128.	24.	826.40
0.46	0.57	3.05	0.57	0.120	0.060	0.120	0.040	824.80	0.00
0.000437	100.	100.	100.	2	1	0	0.00	300.00	300.00

FLOW DISTRIBUTION FOR SECNO= 8.20 CHSEL= 833.33

STA= 0. 100. 105. 195. 200. 300.
PER Q= 7.4 0.6 33.9 0.7 7.4
AREA= 333.4 23.7 700.3 25.7 333.4
VEL= 0.6 0.7 3.0 0.7 0.6

CCHV= 0.100 CEHV= 0.300

*SECNO 9.000

SURVEY VALLEY SECTION 9

9.00	7.75	833.75	0.00	0.00	833.79	0.03	0.32	0.01	827.90
2545.	826.	1578.	142.	2242.	886.	375.	193.	40.	827.30
0.73	0.37	1.78	0.38	0.120	0.040	0.120	0.040	826.00	1194.31
0.000270	1100.	1250.	1100.	2	0	0	0.00	918.66	2112.00

FLOW DISTRIBUTION FOR SECNO= 9.00 CHSEL= 833.75

STA=	1194.	1200.	1418.	1628.	1822.	1859.	1868.	1998.	2005.	2090.	2112.
PER Q=	0.1	10.9	9.5	9.5	1.8	0.7	62.0	0.7	4.6	0.3	
AREA=	10.7	762.0	672.8	650.6	124.1	41.4	806.5	36.4	302.1	36.4	
VEL=	0.2	0.6	0.4	0.4	0.6	0.6	1.8	0.5	0.4	0.2	

*SECNO 10.000

SECNO	DEPTH	CHSEL	CRIWS	HSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	ALOB	ACH	AROB	ALOB	ACH	AROB	VOL	TSA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	ETIM	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IHP	ICONT	CODAR	TOPWID	ENDST

SURVEY VALLEY SECTION 10

10.00	6.33	833.58	0.00	0.00	834.33	0.74	3.25	1.00	827.70
2545.	1198.	1328.	20.	2874.	572.	68.	267.	60.	828.60
0.95	0.42	2.32	0.41	0.120	0.040	0.120	0.041	825.90	1152.19
0.000275	800.	1250.	1200.	2	0	0	0.00	1109.7	2261.86

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FLOW DISTRIBUTION FOR SECNO= 10.00 CUSEL= 833.96

STA=	1132.	1384.	1554.	1754.	1926.	2072.	2151.	2164.	2242.	2262.
PER Q=	6.2	3.7	7.9	9.0	6.9	3.1	1.3	52.2	1.4	
AREA=	500.5	27.1	59.6	72.4	320.3	205.3	45.1	571.8	6.1	
VEL=	0.6	0.6	0.4	0.6	0.6	0.4	0.6	2.3	0.4	

*SECNO 11.000

3470 ENCROACHMENT STATIONS= 610.0 1050.0 TYPE= 1 TARGET= 440.000

SURVEY VALLEY SECTION 11

11.00	6.81	834.51	0.00	0.00	834.67	0.15	0.61	0.03	829.70
2565.	21.	9814.	711.	29.	491.	454.	340.	85.	829.10
1.78	0.79	3.71	0.74	0.120	0.040	0.120	0.041	827.70	817.24
1.000912	1500.	1400.	1100.	2	1	3	0.00	632.76	9350.0

FLOW DISTRIBUTION FOR SECNO= 11.00 CUSEL= 834.51

STA=	617.	620.	629.	711.	720.	858.	1050.
PER Q=	0.1	0.1	71.3	1.4	12.0	14.5	
AREA=	1.7	27.1	490.8	37.5	402.0	573.0	
VEL=	0.3	0.7	3.7	0.9	0.8	0.7	

CONV= 0.500 CENV= 0.500
*SECNO 12.000

3470 ENCROACHMENT STATIONS= 557.0 750.0 TYPE= 1 TARGET= 193.000

SURVEY VALLEY SECTION 12

12.00	8.06	835.56	0.00	0.00	835.83	0.27	1.07	0.59	831.00
2565.	25.	2631.	93.	30.	571.	132.	362.	89.	833.30
1.14	0.83	4.26	0.68	0.120	0.065	0.120	0.042	827.50	571.51
0.001470	850.	955.	850.	2	0	0	0.00	178.49	750.00

FLOW DISTRIBUTION FOR SECNO= 12.00 CHSEL= 835.56

STA=	572.	584.	676.	682.	750.
PER Q=	1.0	95.5	0.3	3.2	
AREA=	29.5	571.0	11.1	120.4	
VEL=	0.8	4.3	0.7	0.7	

*SECNO 12.100

INTERPOLATED CROSS SECTION 12

12.10	8.61	836.11	0.00	0.00	836.36	0.25	0.52	0.01	831.80
2565.	31.	2534.	11.	37.	624.	20.	369.	90.	833.30
1.17	0.84	4.01	0.52	0.120	0.065	0.120	1.042	827.50	570.75
0.001161	400.	400.	400.	2	0	0	0.00	119.62	690.37

FLOW DISTRIBUTION FOR SECNO= 12.10 CHSEL= 836.11

STA=	571.	584.	676.	690.
PER Q=	1.2	98.4	0.4	
AREA=	36.7	523.8	20.2	
VEL=	0.8	4.0	0.3	

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*SECNO 13.000

SURVEY VALLEY SECTION 13

13.00	6.10	837.30	0.00	0.00	837.33	0.03	0.06	0.21	851.10
2545.	0.	1179.	1367.	69.	305.	2450.	431.	114.	856.00
1.63	0.41	4.04	0.39	0.120	0.045	0.120	0.043	829.20	699.99
0.000213	1800.	2950.	1800.	3	0	0	0.00	976.12	1676.11

FLOW DISTRIBUTION FOR SECNO= 13.30 CWSEL= 837.30

STA=	700.	710.	716.	824.	838.	966.	1280.	1412.	1590.	1664.	1676.
PER Q=	0.2	0.6	58.1	0.9	4.5	16.3	7.9	10.2	1.3	0.0	
AREA=	18.5	29.7	805.6	53.3	333.3	1037.6	475.7	623.7	124.1	0.6	
VEL=	0.3	0.5	1.8	0.4	0.3	0.6	0.4	0.4	0.3	0.0	

SCENE= 0.300 CE2W= 0.307

*SECNO 13.300

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	ALOB	ACH	AROB	ALOB	ACH	AROB	VOL	INA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XTCH	XTR	WTT	ELMCH	OSTP
SLOPE	FLOBL	ELCH	ELOBR	STWIAL	IPS	IPSRT	CURVL	TOPWID	EIDST

D/S RAYMOND ST. SURVEY SECTION 14

13.00	6.66	837.85	0.00	0.00	838.03	0.17	0.00	0.01	856.00
2545.	0.	2565.	0.	0.	764.	0.	542.	135.	856.00
1.77	0.00	3.35	0.00	0.120	0.040	0.120	0.043	831.20	27.41
0.000361	1650.	1650.	1650.	2	0	0	0.00	140.17	167.58

FLOW DISTRIBUTION FOR SECNO= 13.80 CWSEL= 837.86

STA=	27.	202.
PER Q=	100.0	
AREA=	764.3	
VEL=	3.3	

*SECNO 13.900

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 856.00 MAX ELLC= 852.00

D/S FACE RAYMOND ST. SURVEY SECTION 14

13.90	6.65	837.85	0.00	0.00	838.04	0.19	0.00	0.01	856.00
2545.	0.	2545.	0.	0.	724.	0.	542.	135.	856.00
1.77	0.00	3.52	0.00	0.120	0.040	0.120	0.043	831.20	27.41
0.001031	1.	1.	1.	0	0	0	-40.50	140.17	167.58

FLOW DISTRIBUTION FOR SECNO= 13.90 CWSEL= 837.85

STA=	27.	202.
PER Q=	100.0	
AREA=	723.9	
VEL=	3.5	

*SECNO 14.000

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[illegible] RD= 16 MIN ELTRD= 856.00 MAX ELLC= 852.80

[illegible] RAYMOND ST. SURVEY SECTION 14

[illegible]	[illegible]	837.95	0.00	0.00	[illegible]	0.14	0.03	0.01	856.00
2545.	[illegible]	2545.	0.	0.	[illegible]	0.	545.	135.	[illegible]
1.73	0.00	3.03	0.00	0.120	0.040	0.120	0.043	829.60	26.40
0.000644	40.	40.	40.	2	0	0	-45.93	143.09	169.49

FLOW DISTRIBUTION FOR SECNO= 14.00 CUSEL= 837.9[illegible]

STA= 26. 202.
PER Q= 100.0
AREA= 840.3
VEL= 3.3

*SECNO 14.100

U/S RAYMOND ST. SURVEY SECTION 14

14.10	0.36	837.97	0.00	0.00	836.09	0.13	0.00	0.00	856.00
2545.	0.	2545.	0.	0.	[illegible]	0.	545.	135.	856.00
1.76	0.30	2.87	0.00	0.120	0.040	0.120	0.043	829.60	26.34
0.000537	1.	1.	1.	1	0	0	0.00	143.15	169.52

FLOW DISTRIBUTION FOR SECNO= 14.10 CUSEL= 837.97

STA= 26. 202.
PER Q= 100.0
AREA= 887.6
VEL= 2.9

CCHV= 0.100 CEHV= 0.300
*SECNO 15.000

400 FT U/S RAYMOND SURVEY SECTION 15

15.00	7.70	833.20	0.00	0.00	838.29	0.10	0.20	0.00	832.70
2545.	518.	2025.	2.	1039.	732.	7.	555.	138.	833.10
1.82	0.50	2.77	0.30	0.120	0.040	0.120	0.042	830.50	1600.00
0.000456	400.	400.	400.	0	0	0	0.00	518.72	2118.72

FLOW DISTRIBUTION FOR SECNO= 15.00 CUSEL= 838.20

STA= 1600. 1802. 1968. 1989. 2004. 2116. 2519.

PER Q=	9.3	7.9	1.5	1.7	79.6	0.1
AREA=	495.2	408.2	72.9	63.0	731.5	6.9
VEL=	0.5	0.5	0.5	0.7	2.8	0.3

*SECNO 16.000

SECNO	DEPTH	CWSEL	CRIMS	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	IHZ	ICONT	CORAR	TOPWID	ENDST

SURVEY VALLEY SECTION 16

16.00	7.43	839.13	0.00	0.00	839.29	0.2[illegible]	0.95	0.05	834.43

2545.	511.	2015.	19.	897.	437.	24.	595.	152.	832.20
1.92	0.57	4.61	0.79	0.120	0.040	0.120	0.043	831.50	1292.40
0.001244	900.	1450.	1100.	2	0	6	0.00	712.57	2004.97

FLOW DISTRIBUTION FOR SECNO= 16.00 CWSEL= 839.3

STA=	1292.	1422.	1684.	1876.	1917.	1926.	1932.	1998.	2005.
PER Q=	1.9	9.1	5.3	1.8	0.9	1.0	79.2	0.7	
AREA=	118.9	600.6	255.2	72.9	25.0	24.2	436.8	23.8	
VEL=	0.4	0.6	0.5	0.6	0.9	1.1	4.6	0.3	

*SECNO 17.000

3470 ENCROACHMENT STATIONS= 272.0 1175.0 TYPE= 1 TARGET= 903.000

SURVEY VALLEY SECTION 17

17.00	5.86	841.03	0.00	0.00	841.47	1.11	1.17	0.02	836.01
2545.	281.	1179.	1085.	440.	307.	1526.	658.	178.	834.70
2.15	0.64	3.84	0.71	0.120	0.040	0.120	0.043	834.20	303.00
0.000949	1200.	1900.	1600.	2	0	0	0.00	671.20	1175.00

FLOW DISTRIBUTION FOR SECNO= 17.30 CWSEL= 841.36

STA=	304.	324.	444.	502.	510.	568.	573.	587.	658.	794.	984.	1175.
PER Q=	0.3	5.8	3.0	2.0	46.3	1.2	1.7	6.3	10.4	11.1	11.8	
AREA=	18.5	241.5	122.7	57.0	307.2	26.0	49.9	206.9	382.4	453.5	469.4	
VEL=	0.4	0.6	0.6	0.9	3.3	1.1	1.9	0.8	0.7	3.7	3.7	

*SECNO 18.000

SURVEY VALLEY SECTION 18

18.00	7.87	842.27	0.00	0.00	842.37	0.10	1.19	0.00	856.00
2545.	127.	2365.	52.	399.	912.	127.	746.	207.	836.50
2.39	0.32	2.59	0.41	0.120	0.040	0.120	0.043	834.40	274.91
0.000356	2100.	2300.	1800.	3	0	0	0.00	450.99	725.90

FLOW DISTRIBUTION FOR SECNO= 18.00 CWSEL= 842.27

STA=	275.	284.	414.	530.	539.	667.	670.	712.	726.
PER Q=	0.0	2.0	2.3	0.7	92.9	0.3	1.7	0.1	
AREA=	6.7	177.9	181.9	33.0	911.8	13.4	101.6	11.6	
VEL=	0.2	0.3	0.3	0.5	2.6	0.5	0.4	0.2	

*SECNO 19.000

SURVEY VALLEY SECTION 19

19.00	6.91	842.91	0.00	0.00	843.01	0.10	0.64	0.00	837.85
2545.	386.	2143.	16.	833.	775.	33.	796.	225.	837.10
2.57	0.46	2.77	0.49	0.120	0.040	0.120	0.042	836.00	396.53
0.000523	1525.	1500.	1525.	2	0	0	0.00	554.97	951.50

FLOW DISTRIBUTION FOR SECNO= 19.00 CWSEL= 842.91

STA=	397.	426.	612.	792.	800.	804.	936.	960.	992.
PER Q=	0.3	7.2	6.9	0.4	0.4	84.2	0.4	0.2	
AREA=	28.1	391.8	379.2	181.3	131.6	775.0	17.0	15.6	
VEL=	0.3	0.5	0.5	0.5	0.6	2.8	0.	0.3	

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*SECNO 20.000

        SURVEY CROSS SECTION 20

     20.00      7.12    143.72      0.00      0.00    843.72      0.05      0.75      0.01    839.70
     2545.      821.     1579.      146.     2065.      737.      461.      900.      201.    838.30
      2.93      0.40      2.14      0.33     0.120     0.040     0.120     0.042    836.60    995.91
  0.000305     1850.     1930.     1250.         2         0         0      0.00   1230.14   2226.05

FLOW DISTRIBUTION FOR SECNO=      20.00          CHSEL=     843.72

STA=      996.     1004.     1076.     1272.     1484.     1650.     1726.     1839.     1961.     1975.     2054.     2222.     2226.
  PER Q=      0.0       1.6       6.7       8.7       6.8       2.5       5.9      62.0       1.1       2.5       2.1       0.0
   AREA=      6.1     130.8     449.5     544.3     426.2     172.3     335.3     737.2      52.7     175.2     212.9       0.4
    VEL=      0.2       0.3       0.4       0.4       0.4       0.4       0.4       2.1       0.5       0.4       0.3       0.0

CCHV=   0.100 CEHV=   0.300
*SECNO 21.000
   SECNO     DEPTH     CHSEL     CRIUS     USELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XAL       XACH      X 1       NTS       SLOPE      SST4
   SLOPE     XLOBL     XLCH      XLOBR     XTRIAL    TR2       TCONT     CORAN     TOP.ID     ENDST


        SURVEY VALLEY SECTION 21

     21.00      6.23    844.33      0.00      0.00    846.66      0.34      0.82      0.09    839.60
     2565.       37.     2611.       96.       94.      501.      137.      958.      204.    839.30
      3.01      0.40      4.81      0.71     0.120     0.040     0.100     0.042    838.10    803.96
  0.001653     1100.     1450.     1200.         2         0         0      0.00    493.48   1297.44

FLOW DISTRIBUTION FOR SECNO=      21.00          CHSEL=     846.33

STA=      804.      810.      972.     1030.     1040.     1128.     1138.     1154.     1244.     1297.
  PER Q=      0.0       0.5       0.1       0.8      94.7       1.7       0.7       1.3       0.1
   AREA=      1.6      54.2      13.6      24.3     500.9      32.8      23.0      66.1      14.3
    VEL=      0.2       0.2       0.2       0.9       4.8       1.3       0.8       0.5       0.3

CCHV=   0.300 CEHV=   0.500
*SECNO 22.000

        SURVEY VALLEY SECTION 22

     22.00      7.43    847.03      0.00      0.00    847.22      0.19      2.50      0.05    840.20
     2545.      114.     2022.      409.      222.      518.      442.     1001.      305.    842.20
      3.19      0.51      3.90      0.92     0.120     0.040     0.100     0.042    839.60    426.58
  0.000916     2075.     2075.     2075.         2         0         0      0.00    387.53    814.11

FLOW DISTRIBUTION FOR SECNO=      22.00          CHSEL=     847.03

STA=      427.      536.      575.      577.      657.      668.      728.      808.      814.
  PER Q=      1.9       2.3       0.2      79.5       2.0       7.9       6.2       0.1
   AREA=    121.7      90.7       9.3     518.0      44.3     199.5     194.0       4.4
    VEL=      0.4       0.7       0.6       3.9       1.1       1.0       0.8       0.4

*SECNO 22.800

3265 DIVIDED FLOW
```

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 852.40 ELREA= 844.80

D/S PARK BRIDGE SURVEY SECTION 24

22.90	6.36	847.26	0.00	0.00	847.47	0.21	0.26	0.00	841.70	
2565.	0.	2300.	245.	0.	597.	299.	1007.	307.	842.20	
3.20	0.00	3.85	0.82	0.120	0.040	0.100	0.042	840.90	322.00	
0.001003	250.	250.	250.	2	0	0	0.00	235.74	600.00	

FLOW DISTRIBUTION FOR SECNO= 22.90 CUSEL= 847.26

STA=	322.	422.	429.	490.	544.	600.
PER Q=	90.4	0.5	0.3	4.5	4.4	
AREA=	597.0	17.5	13.8	132.7	134.0	
VEL=	3.9	0.8	0.5	0.9	0.8	

*SECNO 22.900

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 844.80 MAX ELLC= 851.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 852.40 ELREA= 844.80

D/S FACE PARK BRIDGE SURVEY SECTION 24

22.90	6.36	847.26	0.00	0.00	847.47	0.21	0.00	0.00	841.70	
2545.	0.	2300.	245.	0.	597.	299.	1007.	307.	842.20	
3.20	0.00	3.85	0.82	0.120	0.040	0.100	0.042	840.90	322.00	
0.001003	1.	1.	1.	0	0	1	0.00	235.79	600.00	

FLOW DISTRIBUTION FOR SECNO= 22.90 CUSEL= 847.26

STA=	322.	422.	429.	490.	544.	600.
PER Q=	90.4	0.5	0.3	4.5	4.4	
AREA=	597.1	17.5	13.8	132.6	134.9	
VEL=	3.9	0.8	0.5	0.9	0.8	

*SECNO 23.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 844.80 MAX ELLC= 851.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 852.40 ELREA= 844.80

U/S FACE PARK BRIDGE SURVEY SECTION 24

23.00	6.38	847.28	0.00	0.00	847.48	0.21	0.02	0.30	841.70	
2545.	0.	2298.	247.	0.	599.	301.	1008.	307.	842.20	
3.21	0.00	3.86	0.82	0.120	0.040	0.100	0.042	840.90	322.00	
0.000992	16.	16.	16.	0	0	0	0.00	238.73	600.00	

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```
FLOW DISTRIBUTION FOR SECNO=      23.00          CWSEL=     847.28

STA=      322.      422.      429.      490.      544.      600.
  PER Q=      90.3       0.5       0.3       4.5       4.4
   AREA=     598.0      17.8      14.2     133.7     135.8
    VEL=       3.8       0.8       0.5       0.9       0.8

*SECNO 23.100

3265 DIVIDED FLOW

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        CLOSE   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      WOL       XMA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XVL       XNCH      XNR       XTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPWID    ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      832.60 ELRIB=      844.30

        U/S PARK BRIDGE SURVEY SECTION 24

     23.10      6.69    847.28      0.00      0.00    847.49      0.21      0.00      0.00    841.70
     2545.        0.     2290.      247.        0.      399.      302.     1020.      307.    842.20
      3.21      0.00      3.84      0.82     0.120     0.040     0.100     0.042    840.90    322.00
  0.000990        1.        1.        1.         0         0         0      0.00    236.88    600.00

FLOW DISTRIBUTION FOR SECNO=      23.10          CWSEL=     847.28

STA=      322.      422.      429.      490.      544.      600.
  PER Q=      90.3       0.5       0.3       4.5       4.4
   AREA=     599.0      17.8      14.2     133.8     136.0
    VEL=       3.8       0.8       0.5       0.9       0.8

*SECNO 23.800

        D/S WESTBOUND I-94 SURVEY SECTION 24

     23.00      6.69    847.79      0.00      0.00    847.09      0.10      0.30      0.03    870.00
     2545.        0.     2545.        0.        0.     1003.        0.     1020.      310.    870.00
      3.27      0.00      2.36      0.00     0.120     0.040     0.100     0.042    841.10     44.15
  0.000502      550.      550.      550.         2         0         0      0.00    186.59    230.74

FLOW DISTRIBUTION FOR SECNO=      23.80          CWSEL=     847.79

STA=       44.      272.
  PER Q=     100.0
   AREA=    1003.0
    VEL=       2.5

*SECNO 23.900

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  870.00 MAX ELLC=  863.70

        D/S FACE WEST BOUND I-94 SURVEY SECTION 24

     23.90      6.69    847.79      0.00      0.00    847.90      0.11      0.00      0.01    870.00
     2545.        0.     2545.        0.        0.      947.        0.     1020.      310.    870.00
      3.27      0.00      2.69      0.00     0.120     0.040     0.100     0.042    841.10     44.15
  0.000608        1.        1.        1.         0         0         0     -36.30    186.40    230.75
```

FLOW DISTRIBUTION FOR SECNO= 23.90 CHSEL= 847.79

STA= 44. 272.
PER C= 100.0
AREA= 946.9
VEL= 2.7

*SECNO 24.000

3370 NORMAL BRIDGE,NRD= 16 ,MIN ELTRD= 870.00 MAX ELLO= 883.71

U/S FACE WEST BOUND I-94 SURVEY SECTION 24

23.00	6.72	847.02	0.00	0.00	847.93	0.11	0.03	0.00	870.00
2545.	0.	2545.	0.	0.	950.	0.	1021.	310.	870.00
3.27	0.00	2.68	0.00	0.120	0.040	0.102	0.062	841.10	44.10
0.000602	44.	44.	44.	0	0	0	-56.49	186.70	230.80

FLOW DISTRIBUTION FOR SECNO= 24.00 CHSEL= 847.82

STA= 44. 272.
PER C= 100.0
AREA= 950.1
VEL= 2.7

*SECNO 24.100

U/S WESTBOUND I-94 SURVEY SECTION 24

24.10	6.73	847.83	0.00	0.00	847.93	0.10	0.00	0.00	870.00
2545.	0.	2545.	0.	0.	1009.	0.	1021.	310.	870.00
3.27	0.00	2.52	0.00	0.120	0.040	0.100	0.062	841.10	44.07
0.000493	1.	1.	1.	1	0	0	0.00	186.76	230.83

FLOW DISTRIBUTION FOR SECNO= 24.10 CHSEL= 847.83

STA= 44. 272.
PER C= 100.0
AREA= 1008.8
VEL= 2.5

*SECNO 24.600

SECNO	DEPTH	CHSEL	CRIMS	HSELK	EG	HV	HL	ULOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VCL	TIM	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IH2	ICONT	CORAR	TOPWID	ENDST

U/S EASTBOUND I-94 SURVEY SECTION 24

24.80	6.77	847.87	0.00	0.00	847.96	0.09	0.03	0.00	870.00
2545.	0.	2545.	0.	0.	1058.	0.	1022.	310.	870.00
3.28	0.00	2.41	0.00	0.120	0.040	0.102	0.062	841.10	44.55
0.000420	65.	65.	65.	0	0	0	0.00	186.54	231.09

FLOW DISTRIBUTION FOR SECNO= 24.80 CHSEL= 847.87

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STA= 45. 272.
PER Q= 100.0
AREA= 1058.2
VEL= 2.4

*SECNO 24.900

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 870.00 MAX ELLC= 863.70

D/S FACE EAST BOUND I-94 SURVEY SECTION 24

26.90	6.72	847.17	0.00	0.00	847.97	0.1	0.00	0.01	870.00
2545.	0.	2545.	0.	0.	1000.	0.	1022.	310.	870.00
3.28	0.00	2.55	0.00	0.120	0.040	0.100	0.042	841.10	44.53
0.000507	1.	1.	1.	0	0	0	-59.59	186.58	231.11

FLOW DISTRIBUTION FOR SECNO= 24.90 CUSEL= 847.47

STA= 45. 272.
PER Q= 100.0
AREA= 999.7
VEL= 2.5

*SECNO 25.000

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 870.00 MAX ELLC= 863.70

D/S FACE EAST BOUND I-94 SURVEY SECTION 24

25.00	6.79	847.89	0.00	0.00	847.99	0.10	0.02	0.00	870.00
2545.	0.	2545.	0.	0.	1002.	0.	1023.	311.	870.00
3.20	0.00	2.54	0.00	0.120	0.040	0.100	0.042	841.10	44.50
0.000503	44.	44.	44.	0	0	0	-59.75	186.66	231.15

FLOW DISTRIBUTION FOR SECNO= 25.00 CUSEL= 847.89

STA= 44. 272.
PER Q= 100.0
AREA= 1002.6
VEL= 2.5

*SECNO 25.100

D/S EASTBOUND I-94 SURVEY SECTION 24

25.10	6.81	847.91	0.00	0.00	848.00	0.09	0.00	0.00	870.00
2545.	0.	2545.	0.	0.	1064.	0.	1023.	311.	870.00
3.28	0.00	2.39	0.00	0.120	0.040	0.100	0.042	841.10	44.47
0.000413	1.	1.	1.	1	0	0	0.00	186.71	231.18

FLOW DISTRIBUTION FOR SECNO= 25.10 CUSEL= 847.91

STA= 44. 272.
PER Q= 100.0
AREA= 1064.0
VEL= 2.4

FORM 1411-00 PRINTED BY ROTARY MANIFOLD FORMS.



1) COUNTY: Calhoun

2) STUDY NAME: emmett Twp

3) WATERCOURSE: Kalamazoo River

4) DOCUMENT TYPE: report



KALAMAZOO RIVER BASIN
HYDRAULIC ANALYSIS
FOR
EMMETT TOWNSHIP
FLOOD INSURANCE STUDY

Prepared By:

Wade, Trim & Associates, Inc.
25185 Goddard Road
Taylor, Michigan 48180

HUD 2025-07

November, 1980

I INTRODUCTION

This hydraulic study investigates the existence and severity of flood hazards along the Kalamazoo River in Emmett Township, Calhoun County, Michigan.

Emmett Township covers an area of about 33.5 square miles. The flood plain of the Kalamazoo River within the study reach is basically undeveloped at present with the exception of a few residential structures.

II DETAILED STUDY OF THE KALAMAZOO RIVER

Detailed hydraulic studies were performed on approximately 5 miles of the Kalamazoo River beginning at the Battle Creek/Emmett Township corporate boundary (located between route I-194 and Columbia Avenue) and ending upstream of route I-94 within Emmett Township.

A total of 6 bridge and 17 valley cross sections were field surveyed by Wade, Trim & Associates, Inc. in March, 1980. These cross sections were supplemented by aerial topography and U.S.G.S. Quad Maps which consist of 10 foot contour intervals (Reference 1, 2 and 3).

Cross section locations are shown on Exhibit 1. Table 1 cross references section designations by showing the computer section number which corresponds to each cross section letter shown in Exhibit 1. Table 2 lists discharges which have been approved by the Michigan Department of Natural Resources (M.D.N.R.) for this stream.

A. METHOD OF ANALYSIS

The HEC-2 backwater computer program was used in developing water surface profiles (Reference 4). Table 2 presents water surface elevations at selected locations for the four storms (10, 50, 100 and 500 year) analyzed in this report. HEC-2 printouts including computer cross section plots are presented as Exhibit 2. (Exhibit 2 is contained in the 11" x 15" folder enclosed with this report.) Water surface profiles resulting from the backwater analyses are presented as Exhibit 3.

TABLE 1

EMMETT TOWNSHIP

KALAMAZOO RIVER

CROSS REFERENCE INDEX

X-SECT.	COMPUTER NO.	DESCRIPTION
A	1.0	Valley Section - Battle Creek/ Emmett Township Corporate Boundary
B	2.0	Valley Section
C	2.9	D/S Face Columbia Ave. Bridge
D	3.0	U/S Face Columbia Ave. Bridge
E	5.0	Valley Section
F	5.9	D/S Face Main St. Bridge
G	6.0	U/S Face Main St. Bridge
H	7.9	D/S Face Beadle Lake Rd. Bridge
I	8.0	U/S Face Beadle Lake Rd. Bridge
J	9.0	Valley Section
K	10.0	Valley Section
L	11.0	Valley Section
M	12.1	Valley Section
N	13.0	Valley Section
O	13.9	D/S Face Raymond St. Bridge
P	14.0	U/S Face Raymond St. Bridge
Q	16.0	Valley Section
R	17.0	Valley Section
S	18.0	Valley Section
T	19.0	Valley Section
U	20.0	Valley Section
V	21.0	Valley Section
W	22.9	D/S Face Park Bridge
X	23.0	U/S Face Park Bridge
Y	23.9	D/S Face Westbound I-94 Bridge
Z	25.0	U/S Face Eastbound I-94 Bridge

TABLE 2

EMMETT TOWNSHIP

KALAMAZOO RIVER FLOOD ELEVATIONS*

LOCATION	SELECTED FREQUENCIES 10 YEAR	50 YEAR	100 YEAR	500 YEAR
	Q= 1,945 cfs	Q= 2,535 cfs	Q= 2,780 cfs	Q= 3,345 cfs
Emmett Township Corporate Boundary	830.56	831.32	831.61	832.28
	Q= 1,780 cfs	Q= 2,320 cfs	Q= 2,545 cfs	Q= 3,060 cfs
Beadle Lake Road	831.94	832.87	833.22	834.02
Raymond Street	836.90	837.67	837.97	838.61
I-94 (U/S Limit of Detailed Study)	846.85	847.62	847.91	848.49

*All elevations based upon N.G.V.D. datum.

B. VARIABLES AND COEFFICIENTS

Roughness coefficients (Mannings "n") were estimated from field inspection, quad maps and photographs. Typical roughness values for the main channel and overbank areas of the Kalamazoo River range from .040 to .045 and .10 to .12, respectively, for all floods. These values are indicative of summer month conditions and are consistent with values recommended and used in engineering practice (Reference 5). Contraction and expansion coefficients were selected as 0.3 and 0.5, respectively, at bridge sections and 0.1 and 0.3, respectively, for gradual channel transitions. Bridge loss coefficient computations are included in Exhibit 4.

C. HIGH WATER MARKS

There are no documented high water marks for this reach of the Kalamazoo River.

D. STARTING CONDITIONS

A convergence analysis was performed to determine starting water surface elevations for the study reach. The HEC-2 computer program was utilized for the convergence analysis which started at the Goguac Street Dam located approximately 6,300 feet downstream from the Emmett Township corporate boundary. The Goguac Street Dam and Burnham Road Bridge were field surveyed by Wade, Trim & Associates, Inc. in March, 1980. The Michigan Department of State Highways and Transportation provided plans for the Goguac Street and route I-194 bridge crossings of the Kalamazoo River (Reference 6). Cross section locations and bridge sketches corresponding to this HEC-2 backwater analysis are presented in Exhibit 5.

The HEC-2 convergence analysis was started at the Goguac Street Dam because it is the nearest control structure downstream of the corporate boundary of Emmett Township. Weir coefficients ranging from 3.25 to 3.75 (Reference 7, Pages 5 through 46) were applied to the start of the HEC-2 convergence model and a sensitivity backwater analysis was performed. Hand computations and other data relevent to the convergence analysis are presented in Exhibit 5. Results of this analysis indicate that convergence is achieved regardless of the weir coefficient utilized within the given range of values.

A weir coefficient of 3.5 was then chosen and a backwater analysis was performed for the 10, 50, 100 and 500 year storms to determine starting elevations for all the storms analyzed for this Flood Insurance Study. HEC-2 computer printouts for the convergence analysis are presented in Exhibit 6.

E. SPECIAL PROBLEMS

No special problems were encountered in the analysis of the Kalamazoo River.

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 Survey (U.S.G.S.) Datum. This datum is equivalent to the National Geodetic Vertical Datum (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.

REFERENCES

1. Abrams Aerial Survey, Kalamazoo River in Emmett Township, 1979.

2. U.S. Geological Survey Topographical Maps - Battle Creek Quadrangle, Calhoun County, 7.5 Minute Series - Photo Revised, 1972.

3. U.S. Geological Survey Topographical Maps - Ceresco Quadrangle, Calhoun County, 7.5 Minute Series - Photo Revised, 1972.

4. HEC-2 Water Surface Profiles - Users Manual - U.S. Army Corps of Engineers - 1979.

5. Open Channel Hydraulics, Chow, Ven Te, McGraw Hill, Inc., 1959.

6. Michigan Department of State Highways and Transportation, General Plan of Structure, Route I-194 and Goguac Street Crossings of the Kalamazoo River, 1964.

7. King, Horace Williams and Brater, Ernest F., Handbook of Hydraulics, McGraw Hill, Inc., Fifth Edition.

KALAMAZOO RIVER

INDEX OF EXHIBITS

EXHIBIT 1	Field Cross Section Location and 100 Year Flood Plain - Floodway Map, 3 Sheets.
EXHIBIT 2	Computer Printouts, HEC-2 Backwater Analysis with Cross Section Plots (in separate folder).
EXHIBIT 3	Stream Profile, 4 Sheets.
EXHIBIT 4	Bridge Notes and Sketches, 18 Sheets.
EXHIBIT 5	Starting Water Surface Elevation Development, 13 Sheets.
EXHIBIT 6	Computer Printouts, HEC-2 Backwater Analysis, (in separate folder) Goguac Street Dam to Battle Creek/Emmett Township Corporate Boundary.

KALAMAZOO RIVER

EMMETT TOWNSHIP

EXHIBIT 1

Field Cross Section Location and

100 Year Flood Plain - Floodway Map

KALAMAZOO RIVER

EMMETT TOWNSHIP

EXHIBIT 2

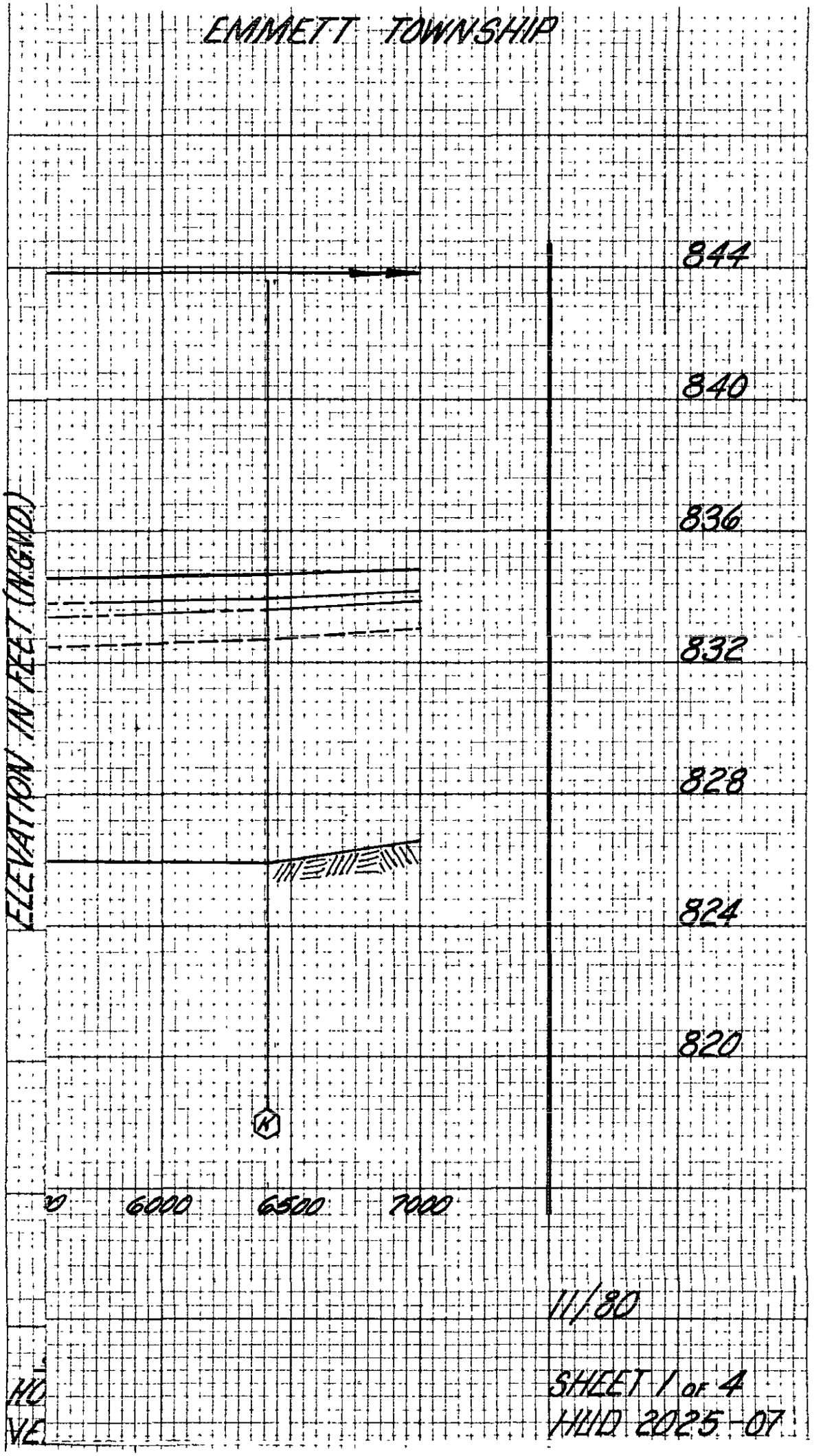
Computer Printouts
HEC-2 Backwater Analysis with
Cross Section Plots (See Separate Folder)

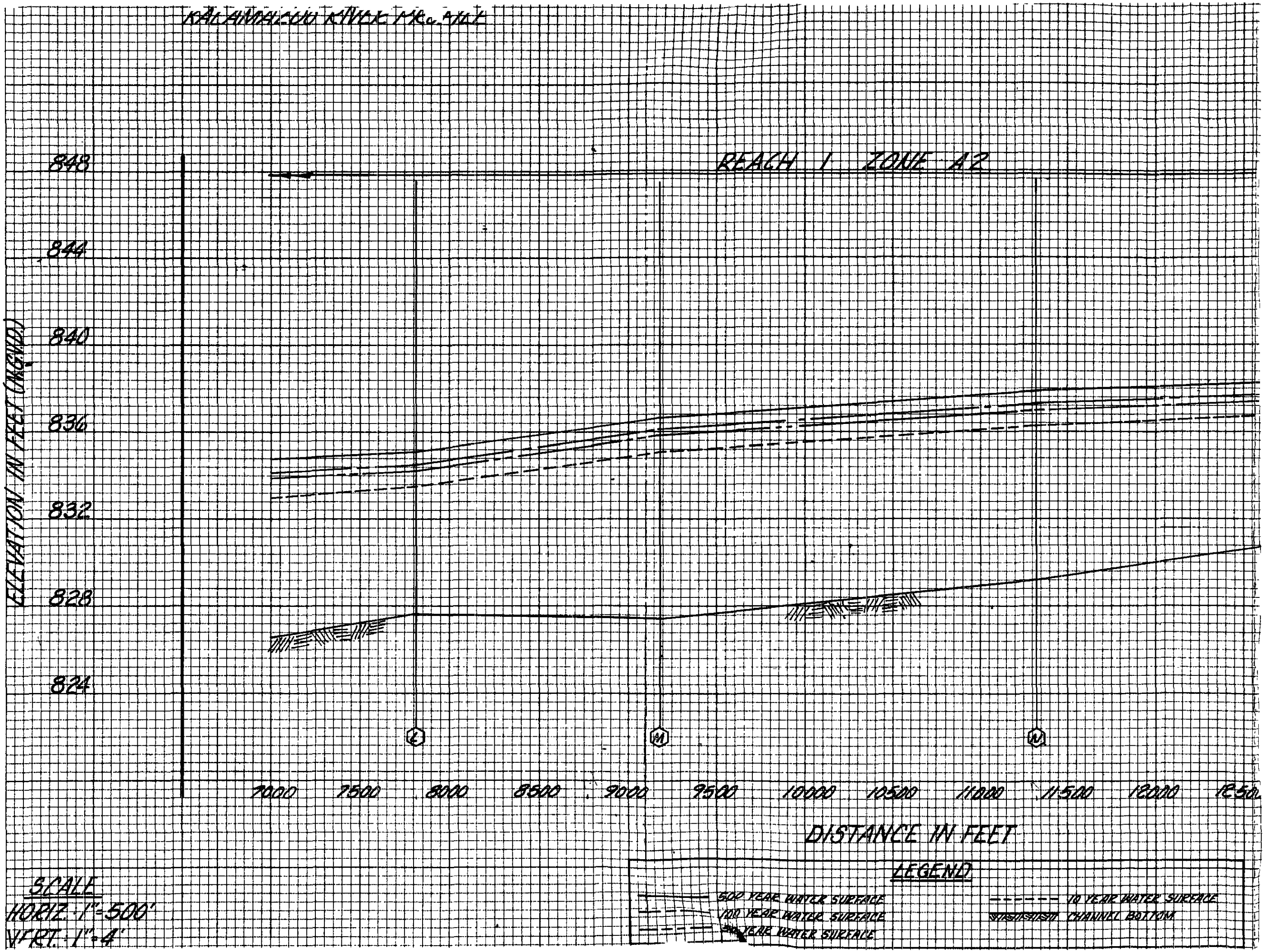
KALAMAZOO RIVER

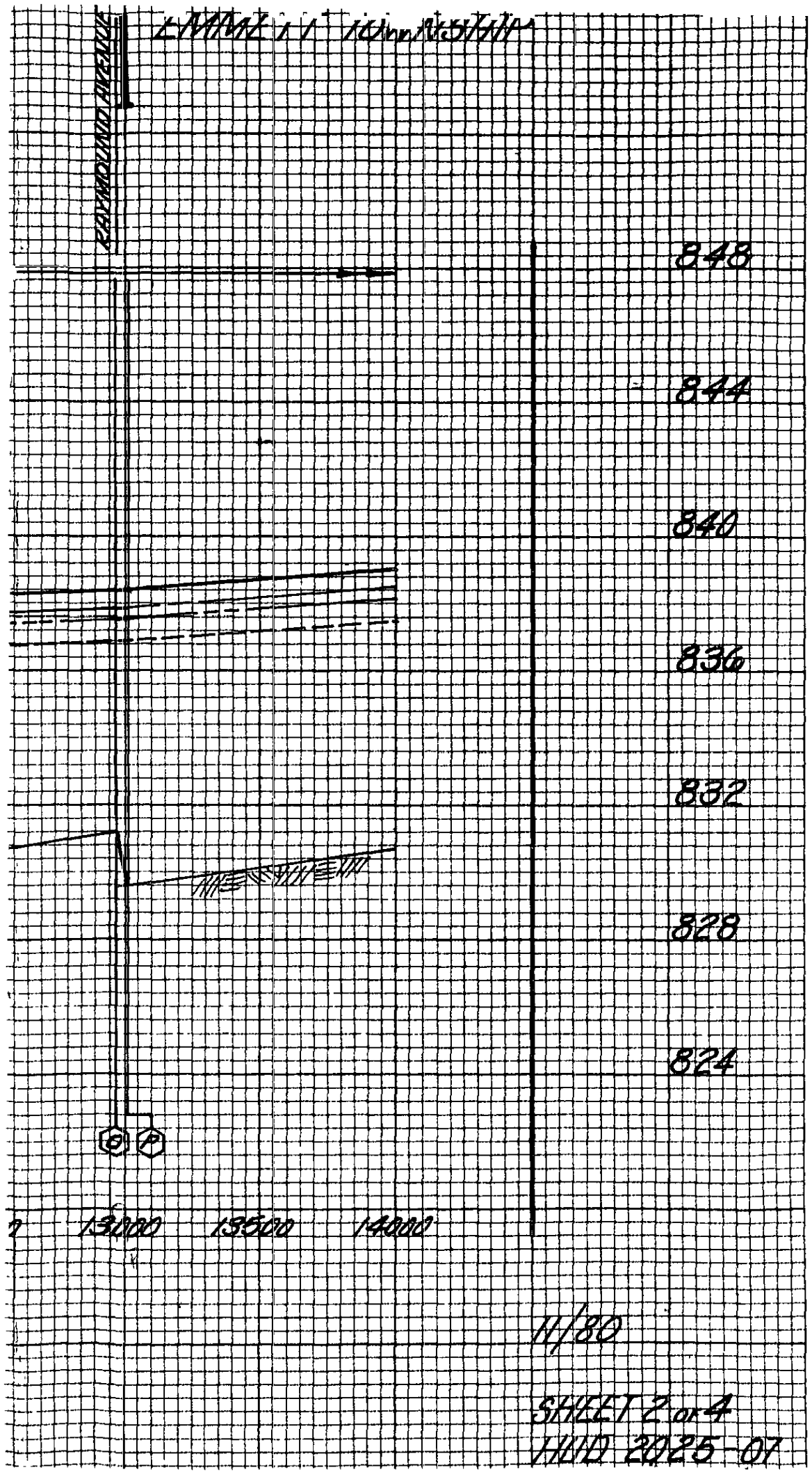
EMMETT TOWNSHIP

EXHIBIT 3

Stream Profile

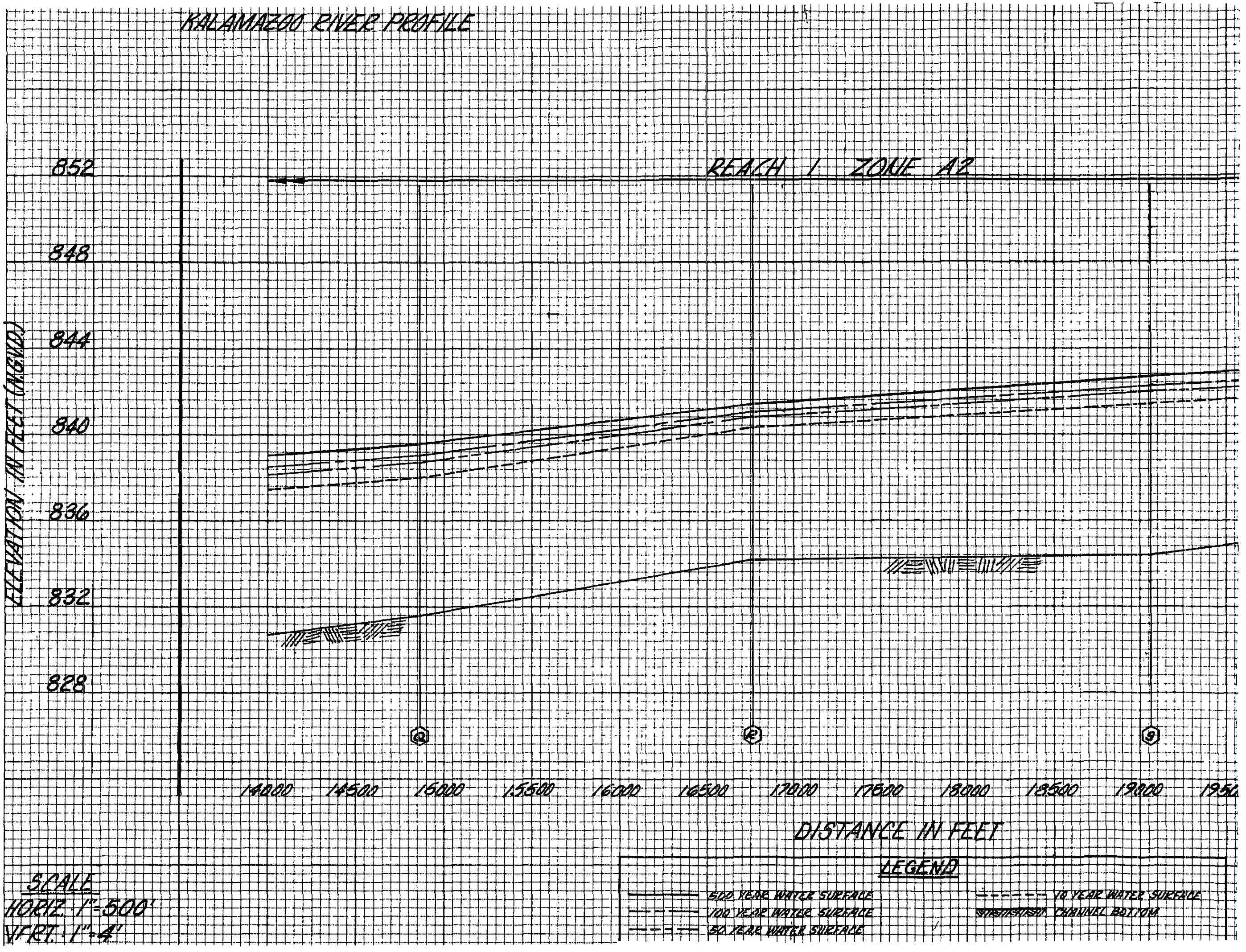

EMMETT TOWNSHIP
844
840
836
832
828
824
820
ELEVATION IN FEET (NGVD)
K
0
6000
6500
7000
11/80
SHEET 1 OF 4
HUD 2025-07

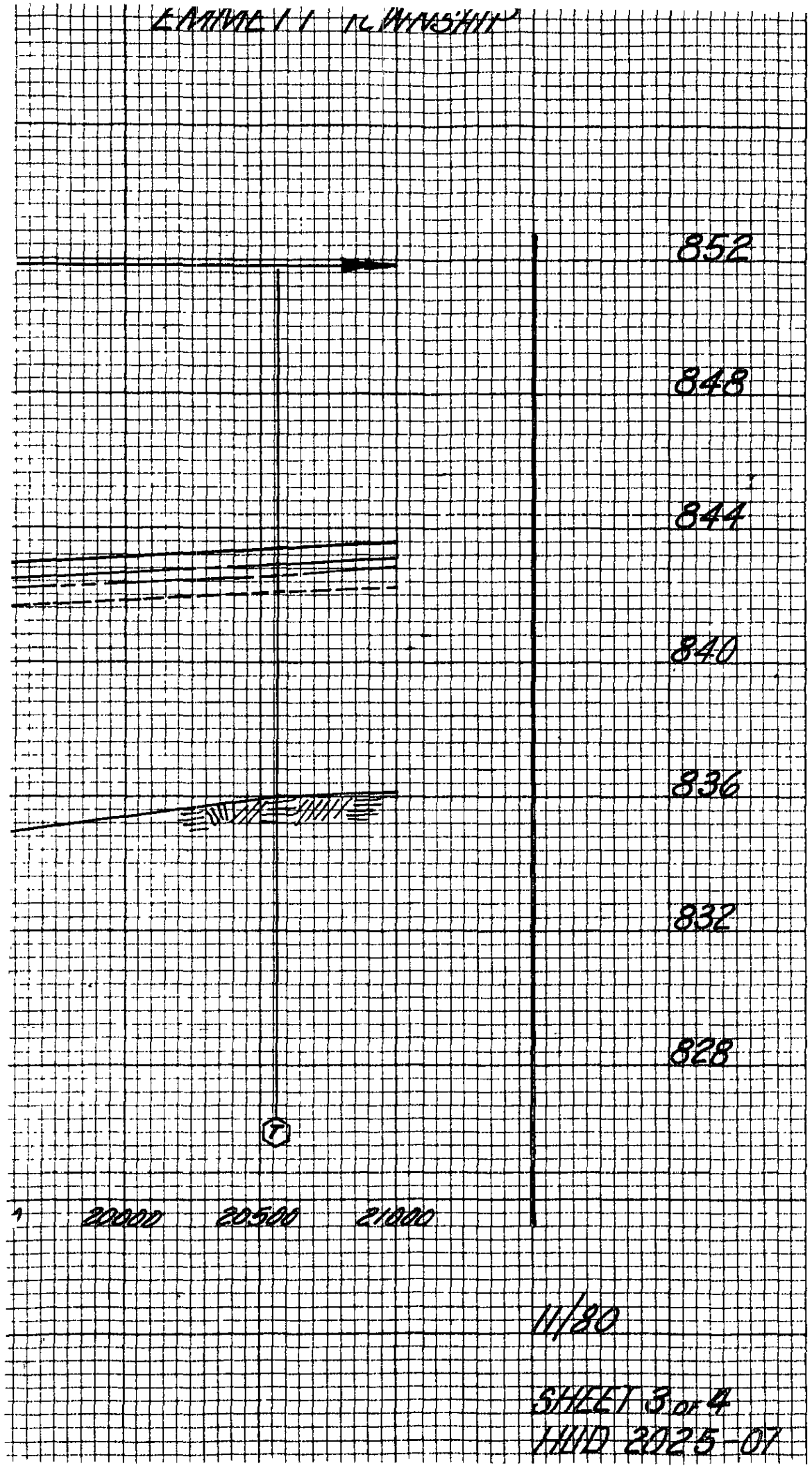

KALAMAZOO RIVER PROFILE
REACH 1 ZONE A2
ELEVATION IN FEET (N.G.V.D.)
848
844
840
836
832
828
824
L
M
N
7000
7500
8000
8500
9000
9500
10000
10500
11000
11500
12000
12500
DISTANCE IN FEET
SCALE
HORIZ. 1"=500'
VERT. 1"=4'
LEGEND
500 YEAR WATER SURFACE
100 YEAR WATER SURFACE
50 YEAR WATER SURFACE
10 YEAR WATER SURFACE
CHANNEL BOTTOM



SHEET 2 OF 4
HUD 2025-01

KALAMAZOO RIVER PROFILE





11/80

SHEET 3 OF 4
HUD 2025-01

KALAMAZOO RIVER PROFILE

REACH 1 ZONE A2

PARK BRIDGE

856
852
848
844
840
836
832

ELEVATION IN FEET (NGVD)

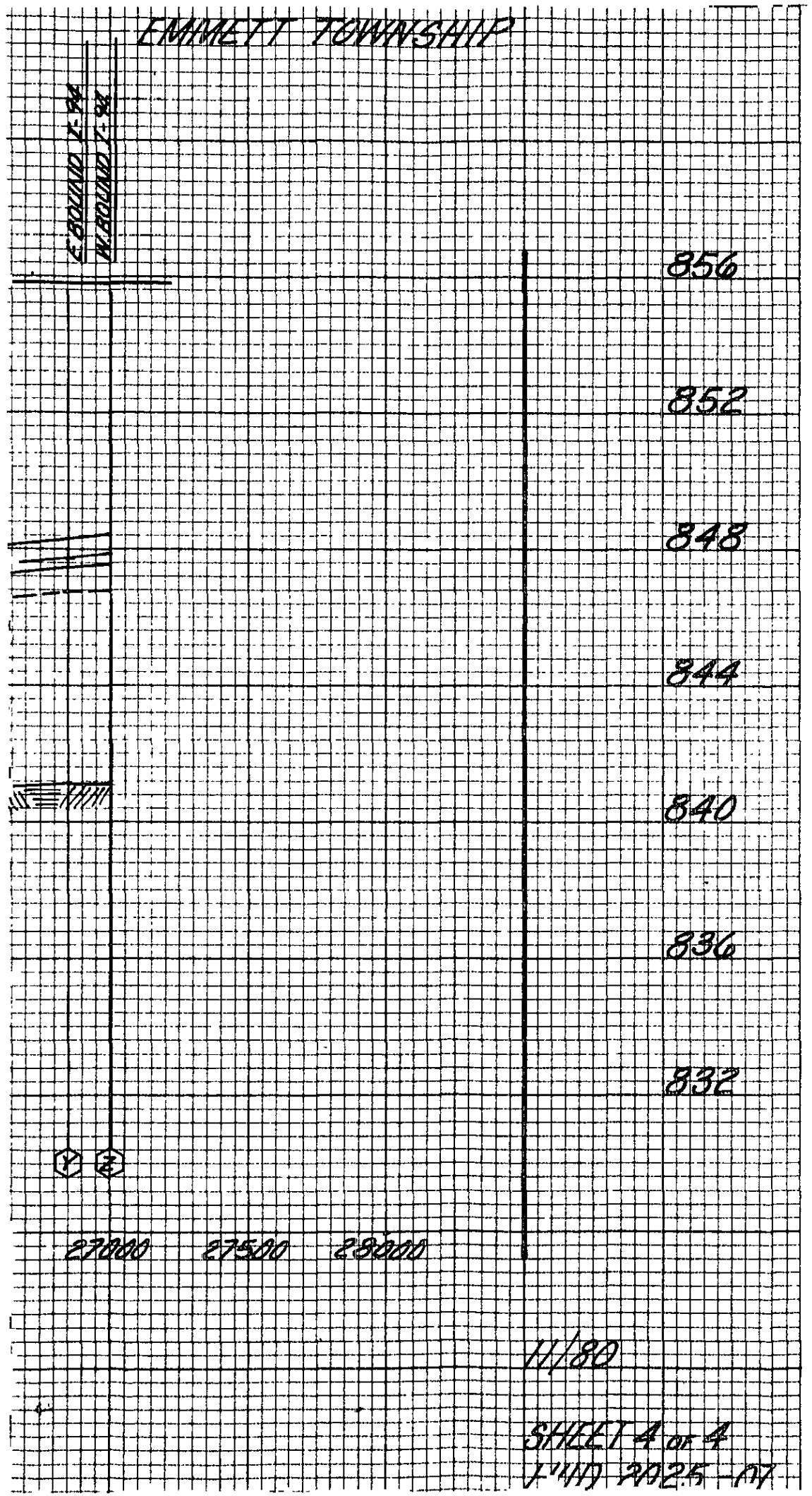
21000 21500 22000 22500 23000 23500 24000 24500 25000 25500 26000 26500

DISTANCE IN FEET

LEGEND

500 YEAR WATER SURFACE
100 YEAR WATER SURFACE
50 YEAR WATER SURFACE
10 YEAR WATER SURFACE
ASSUMED CHANNEL BOTTOM

SCALE
HORIZ. 1"=500'
VERT. 1"=4'


EMMETT TOWNSHIP
E. BOUND I-94
W. BOUND I-94
856
852
848
844
840
836
832
Y
Z
27000
27500
28000
11/80
SHEET 4 OF 4
HWD 2025-07

KALAMAZOO RIVER

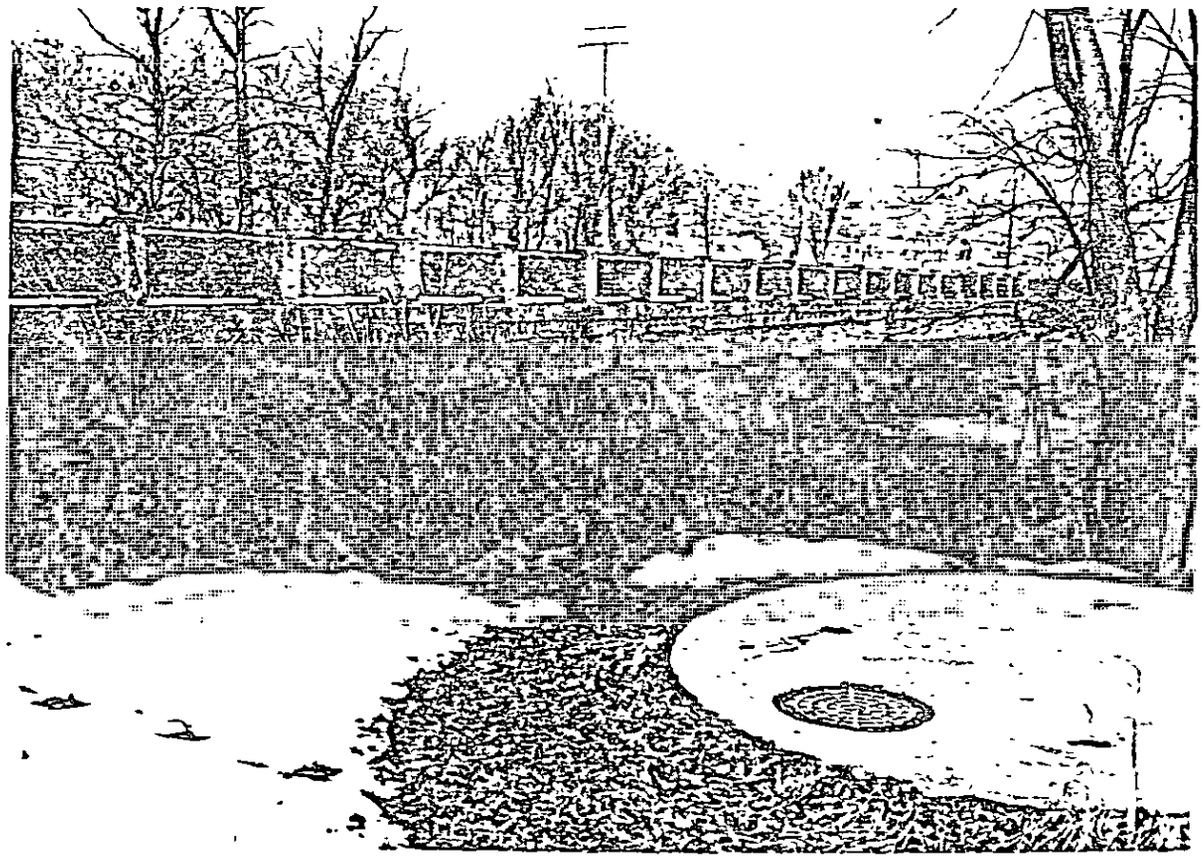
EMMETT TOWNSHIP

EXHIBIT 4

Bridge Notes and Sketches

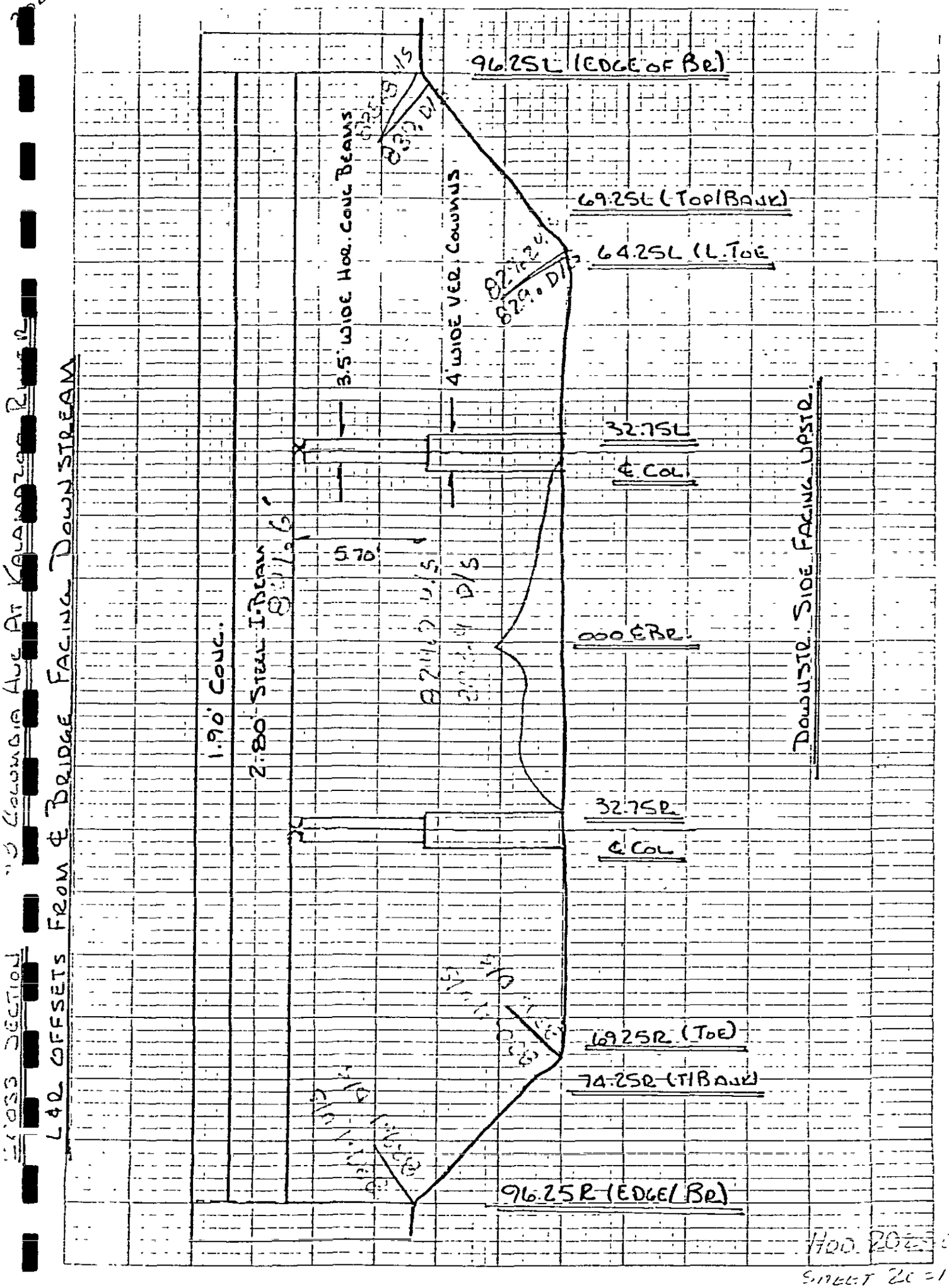


SEC. #2 - TOP VIEW COLUMBIA AVE AND KALAMAZOO RIVER BRIDGE CURSTREAM



CROSS SECTION #2 KALAMAZOO RIVER AT COLUMBIA

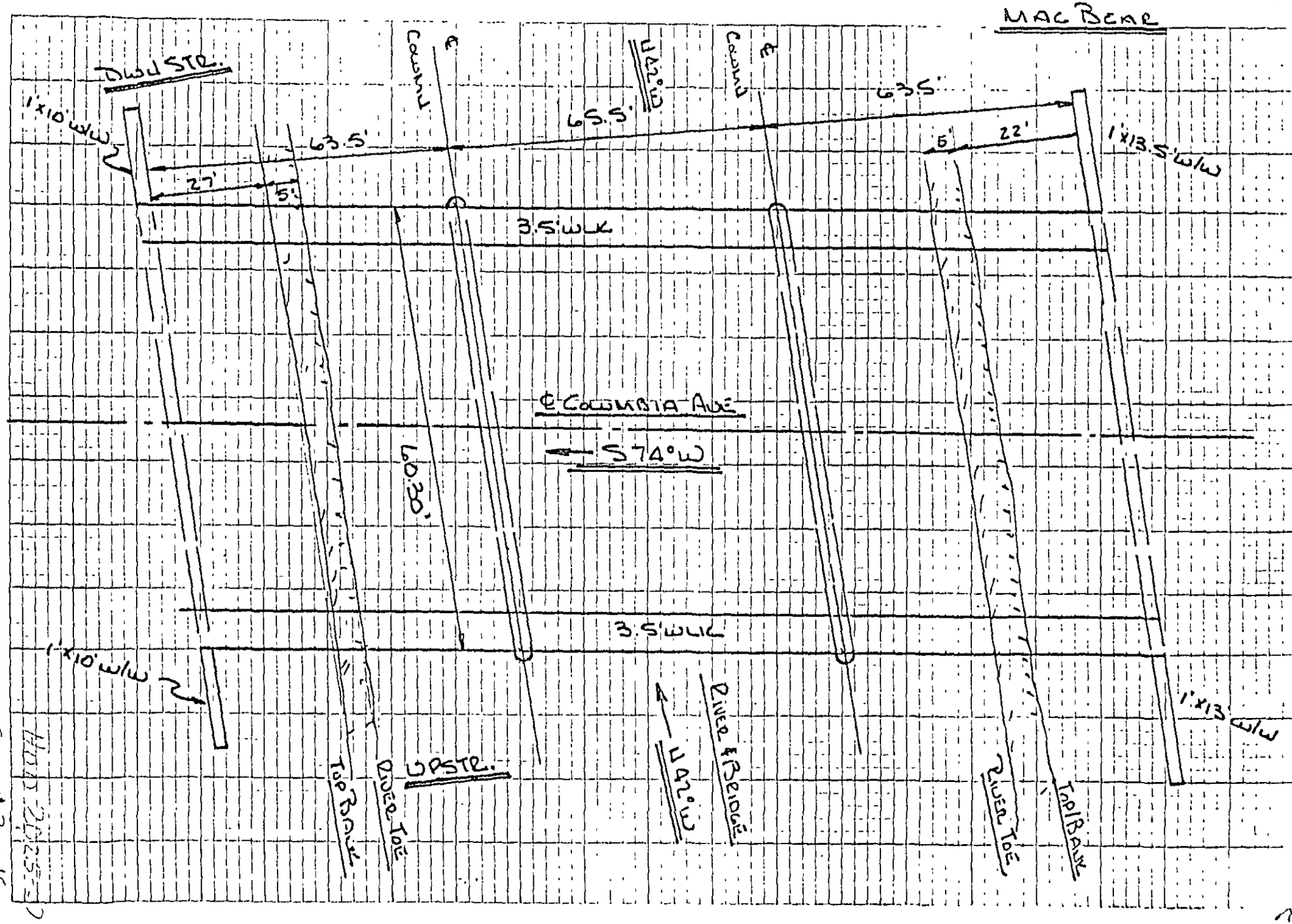
Hist 2025-07



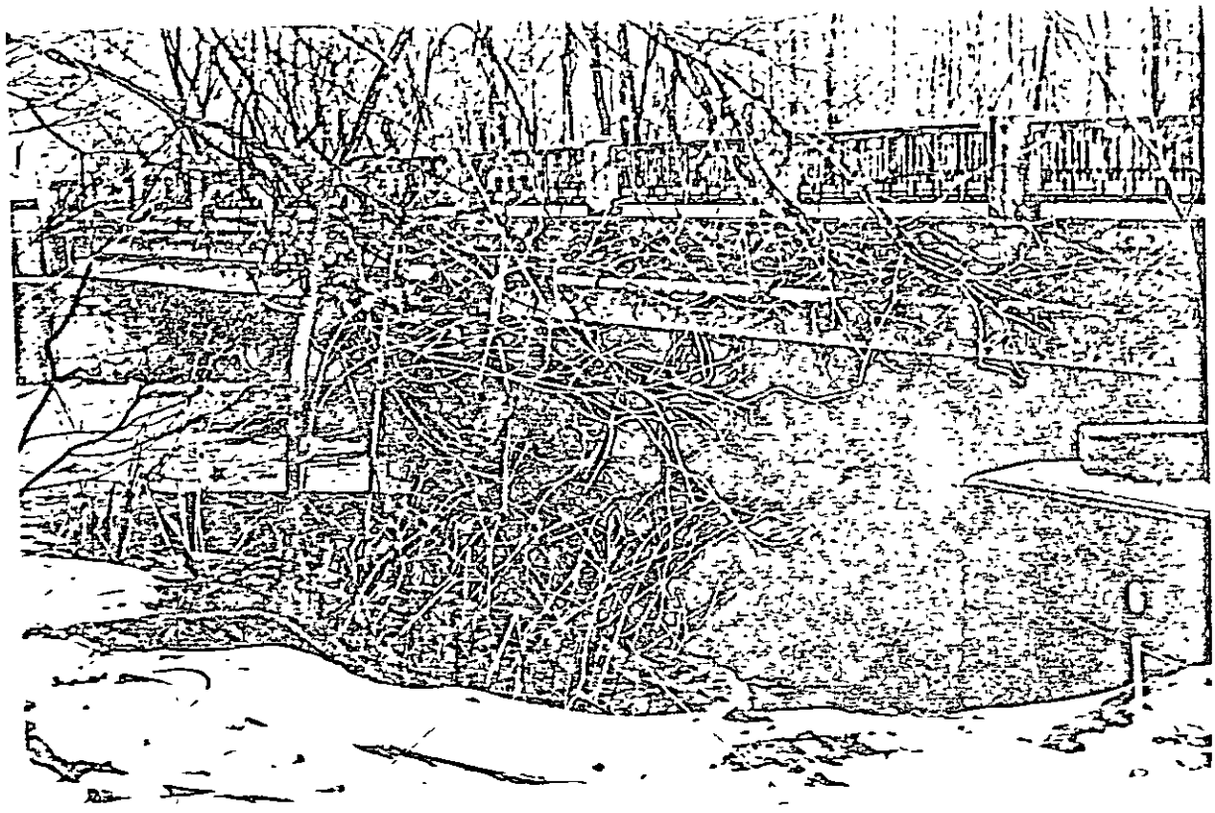
CROSS SECTION
L&R OFFSETS FROM ℄ BRIDGE FACING DOWNSTREAM

HDD 2025-07
SHEET 20 = 18

CROSS SECTION "B" COLUMBIA AVE & KALAMAZOO RIVER BRIDGE



SHEET 3 OF 12



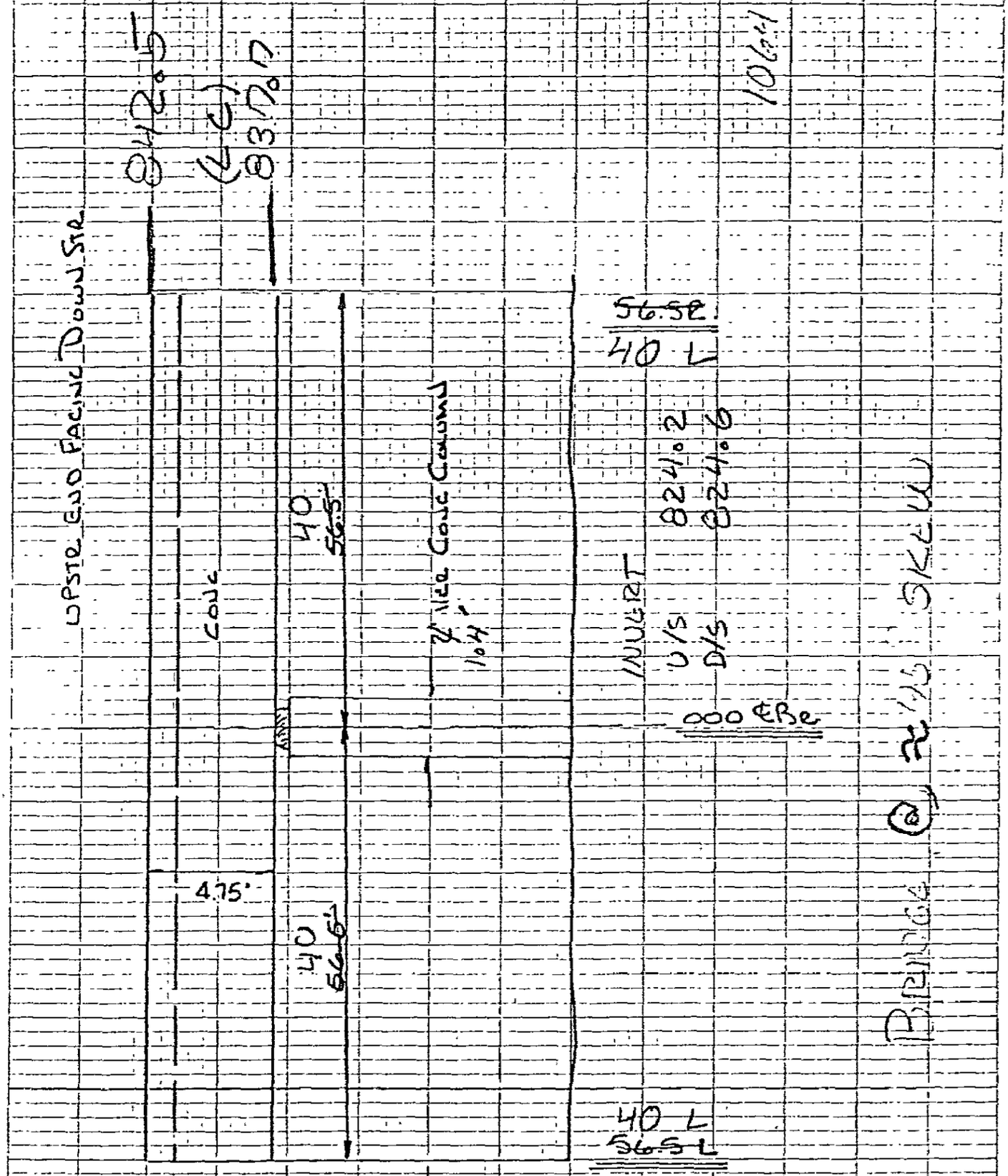
CROSS SECTION #6 KALAMAZOO RIVER AT MAIN (DOWNSTREAM)



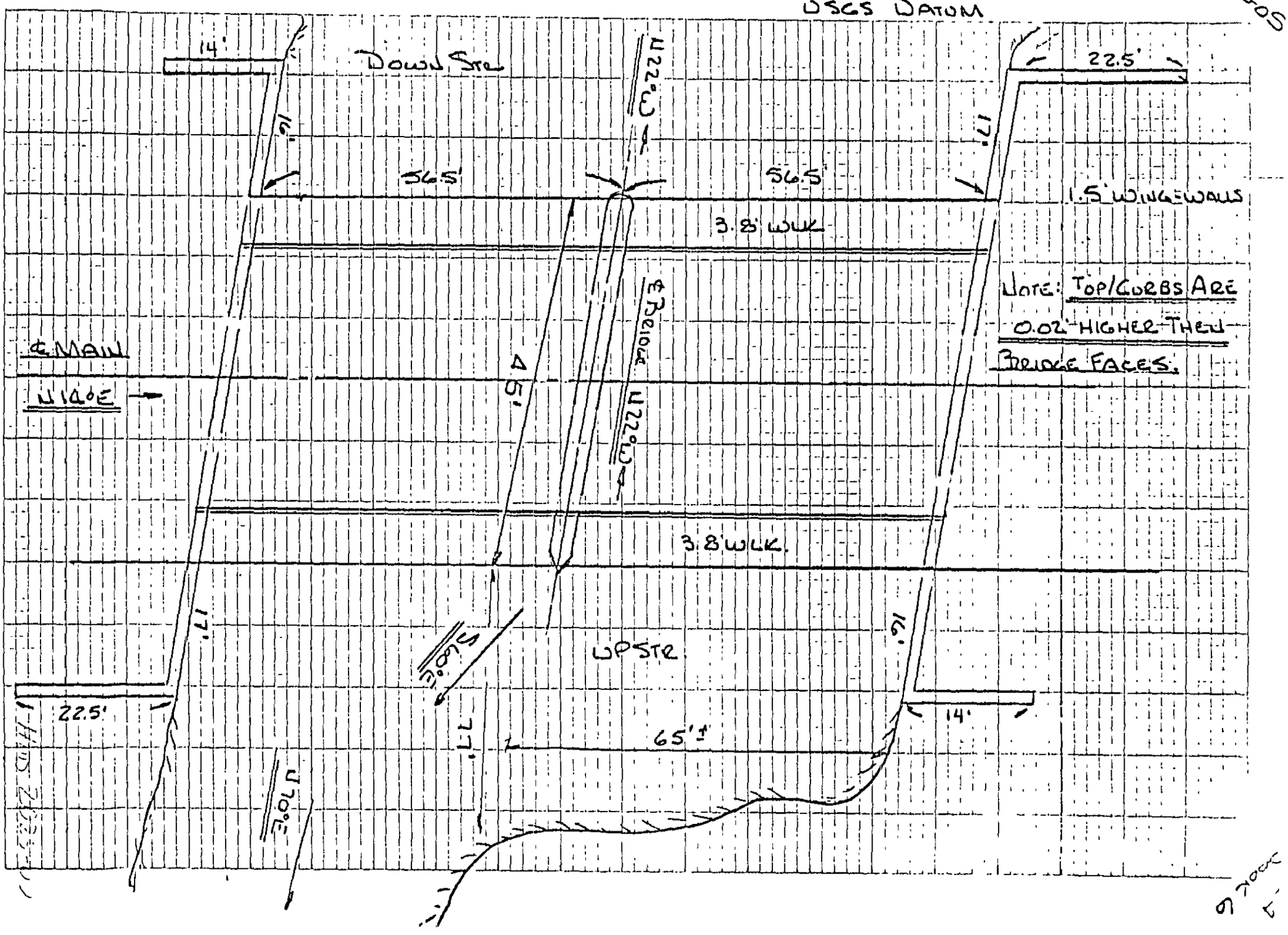
CROSS SECTION #6 KALAMAZOO RIVER AT MAIN (DOWNSTREAM)

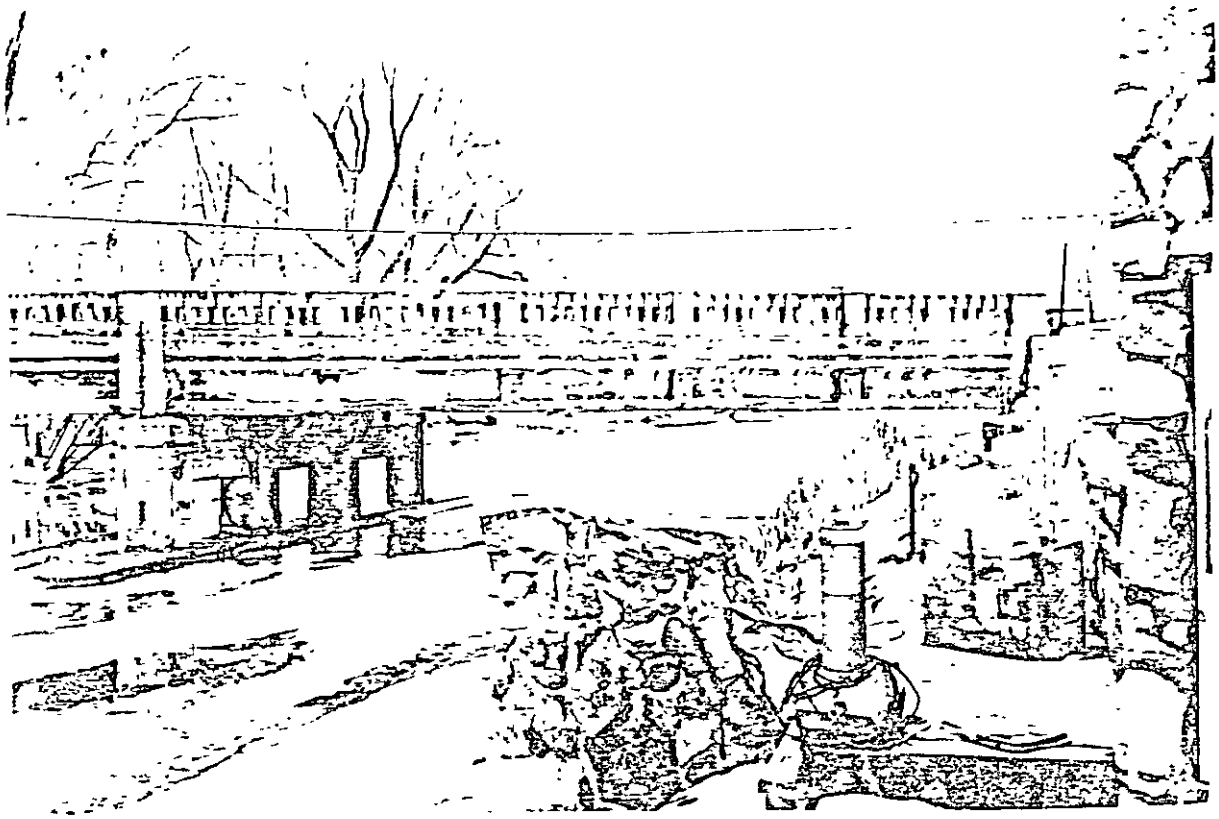
HUD 2025-07
SHEET 4 OF 18

L&R OFFSET FROM ℄ BRIDGE FACING DOWNSTR

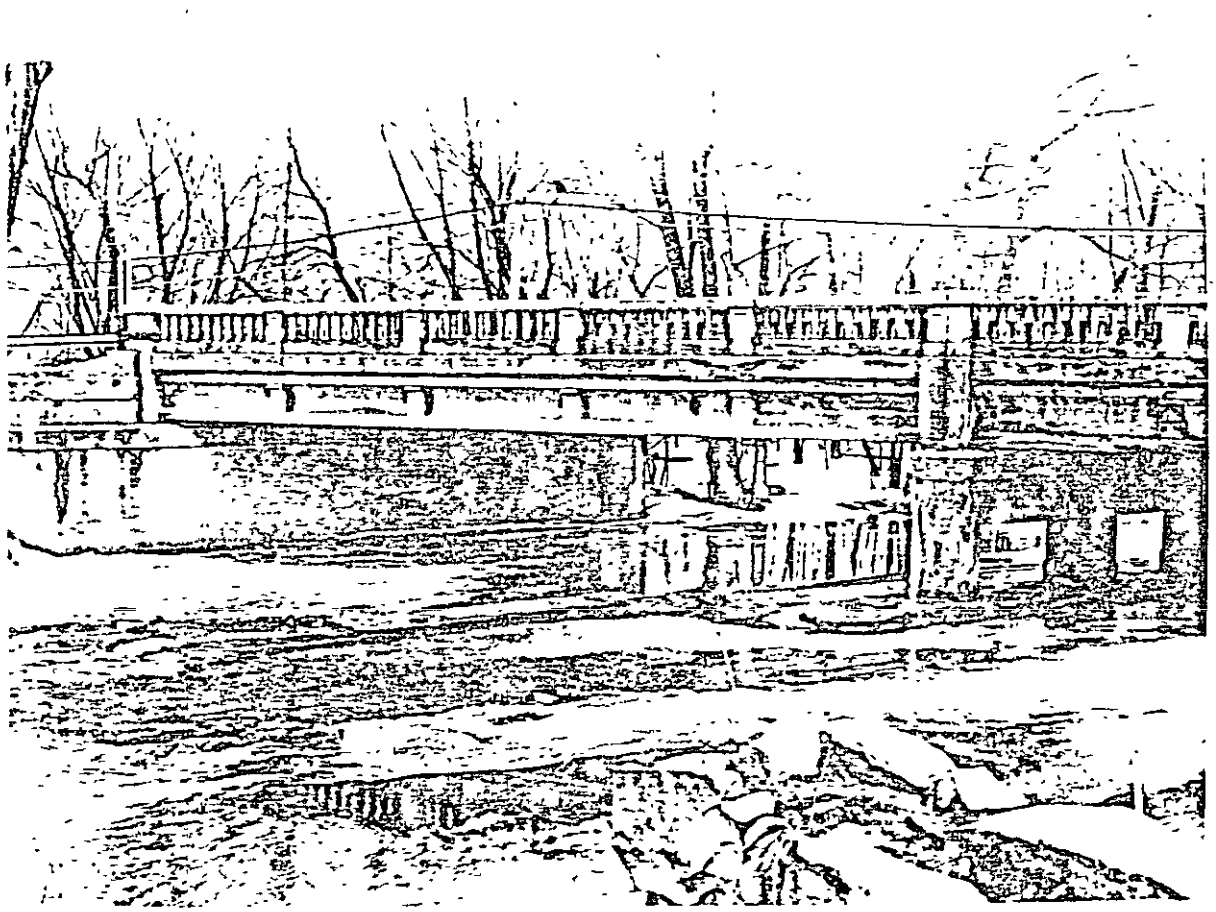


[redacted] CROSS SECTION @ MAIN ST. [redacted] KALAMAZOO RIVER [redacted] 202505





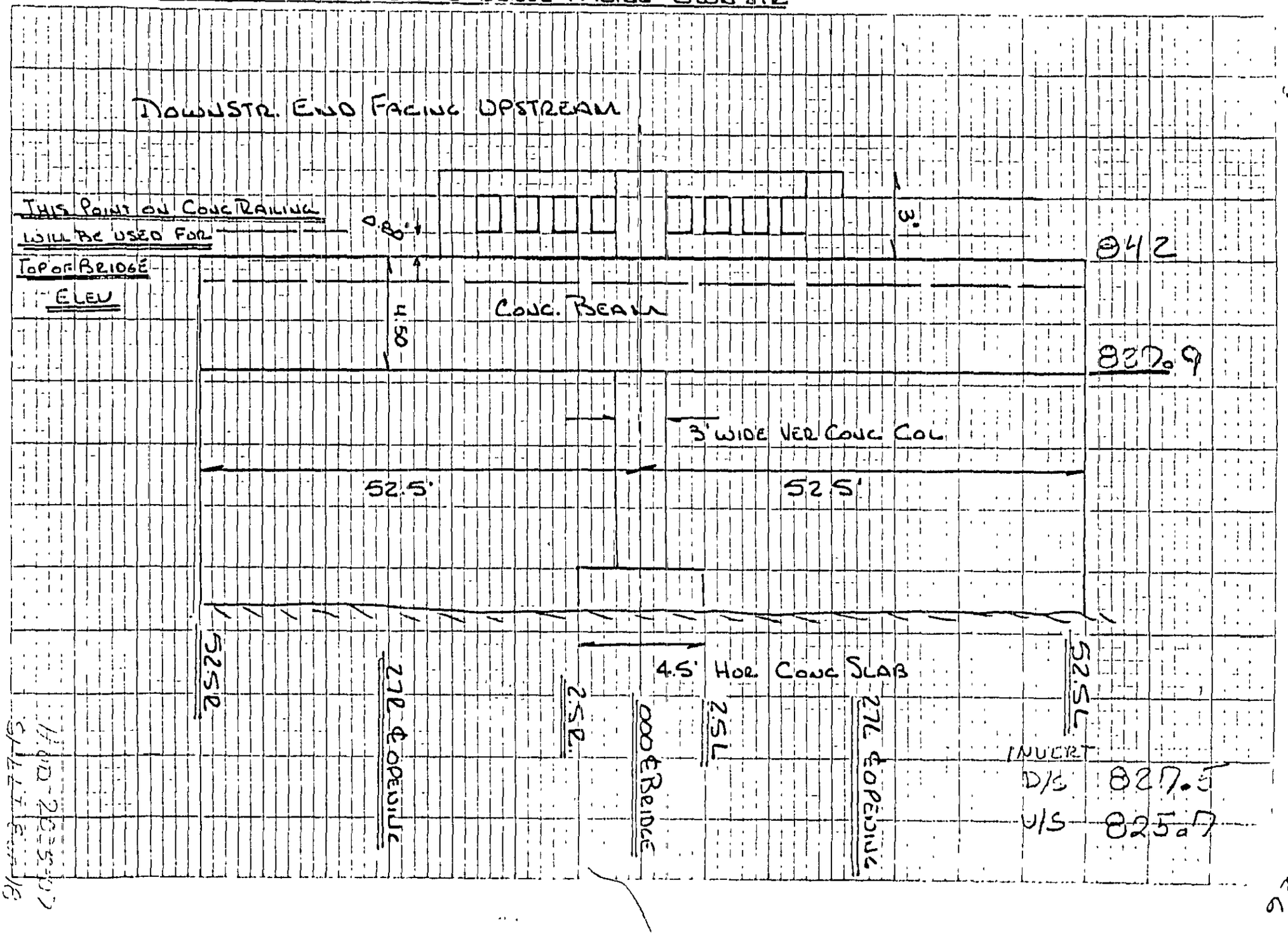
CROSS SECTION #8 KALAMAZOO RIVER AT BEADLE LAKE RD (DOWNSTREAM)



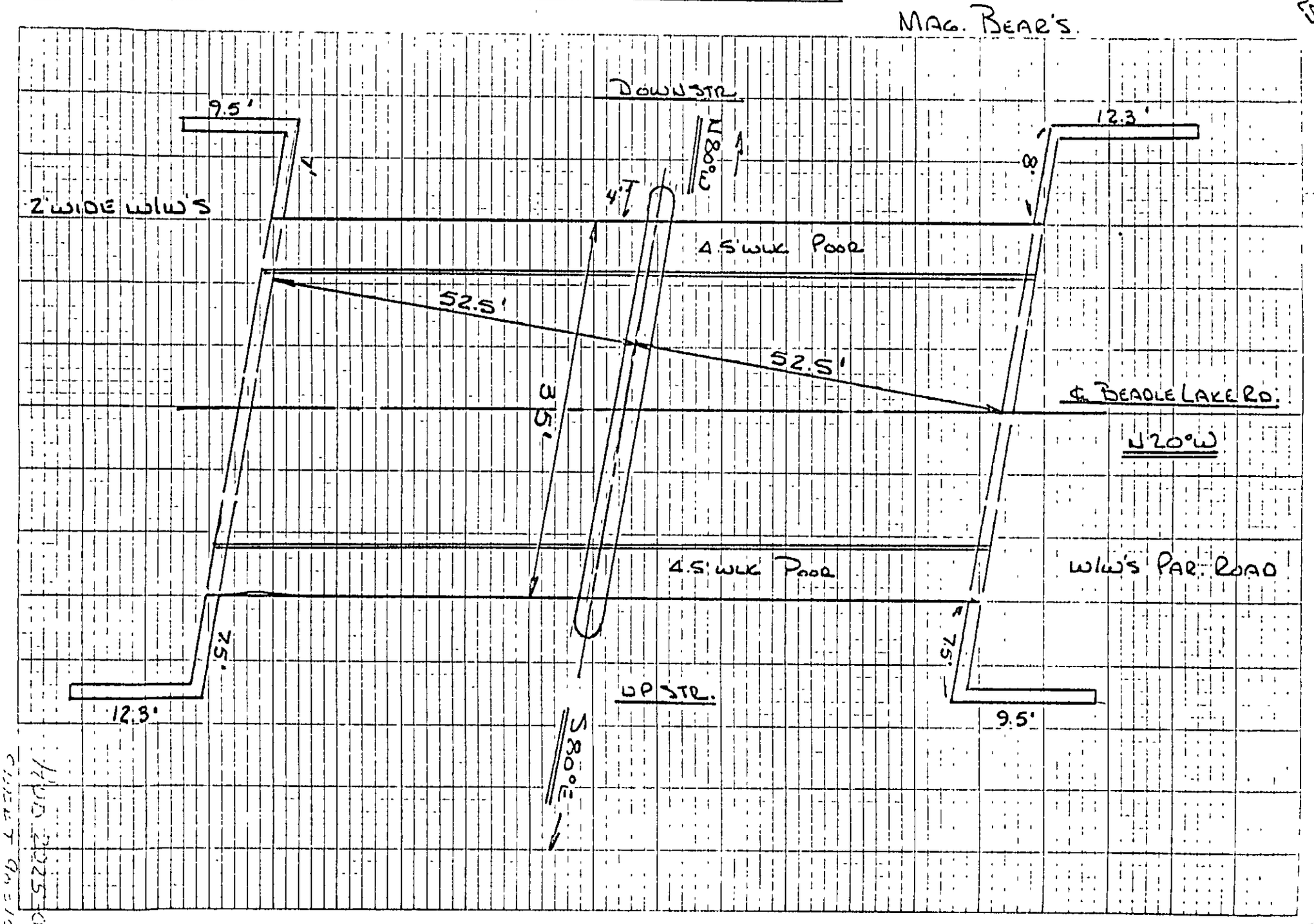
CROSS SECTION #8 KALAMAZOO RIVER AT BEADLE LAKE RD (DOWNSTREAM)

Cross-Sec #8 Beadle Lake Rd & Kalamazoo River Bridge

L&R Offsets From ℄ Bridge Facing Downstr



CROSS-SECTION #8 "BEADLE LAKE RD & KA[illegible] RI[illegible]"

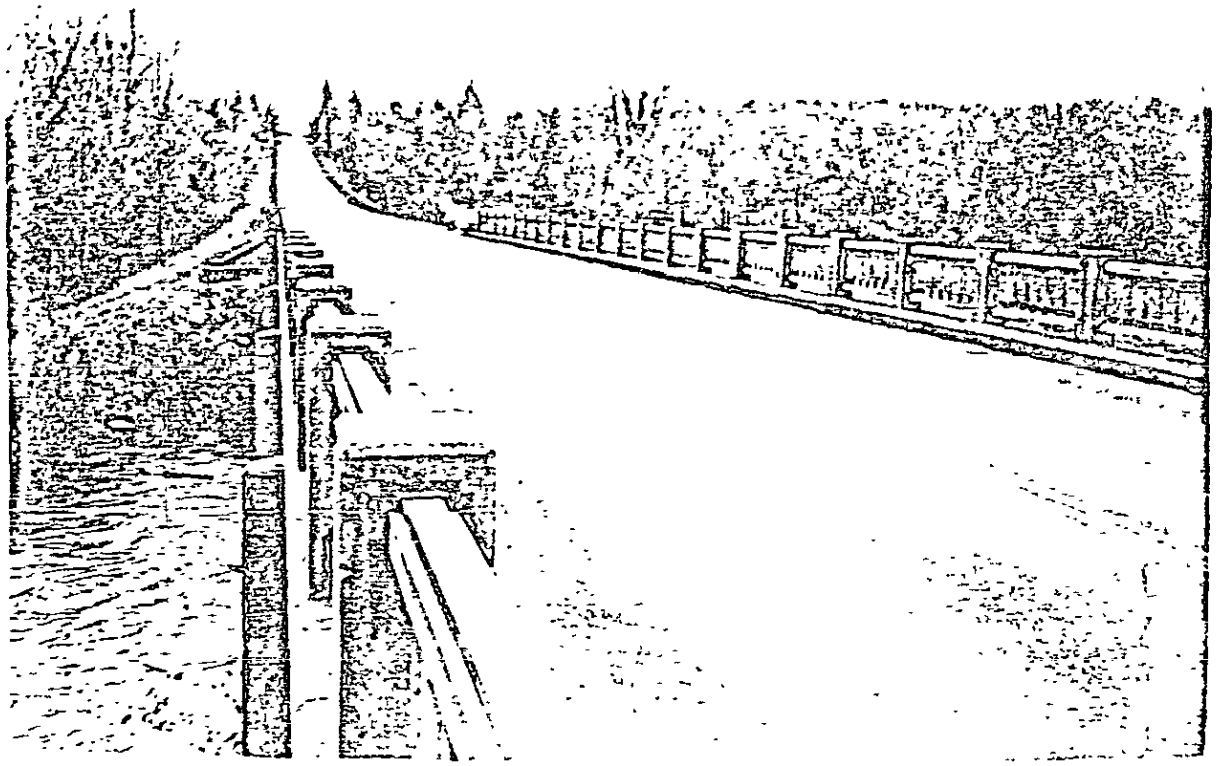


HUD 2025-05

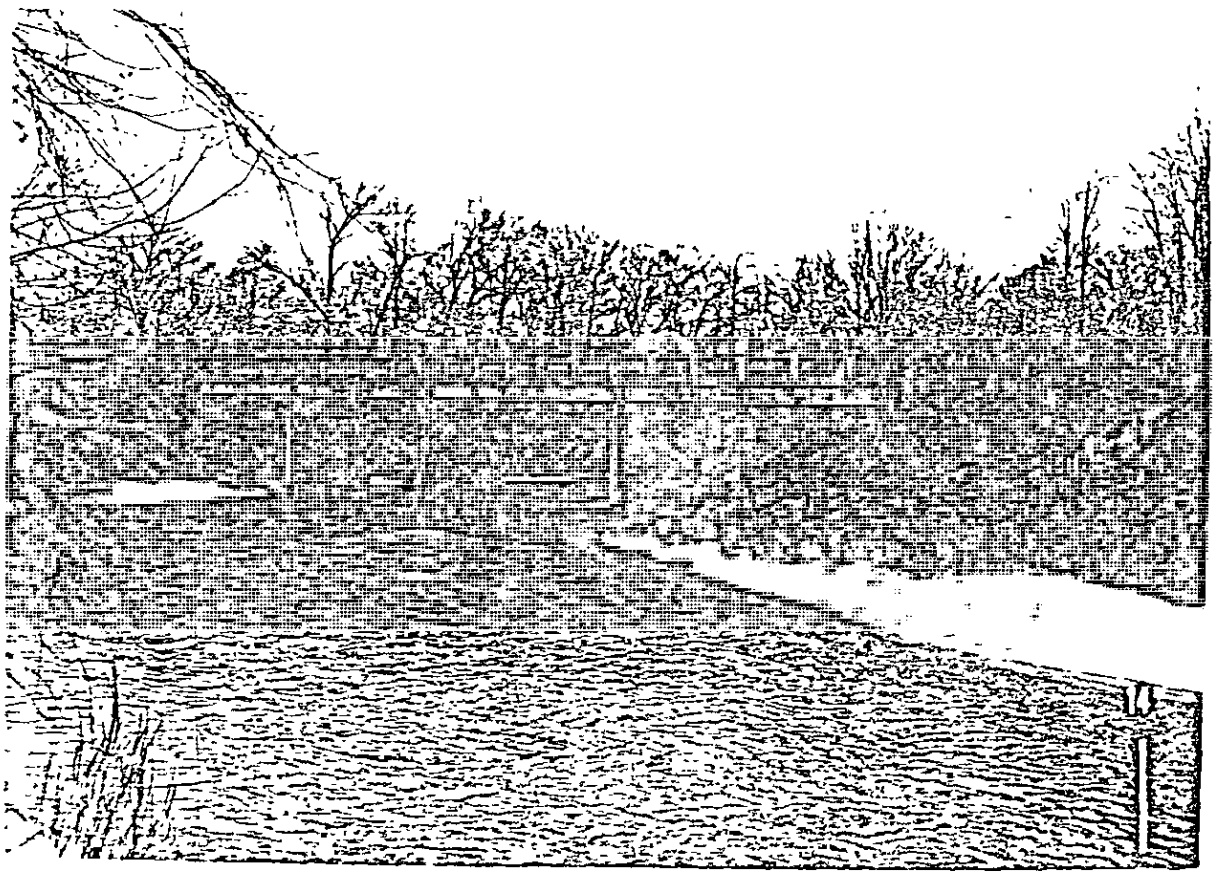
SHEET 9 of 10

33

Book #6

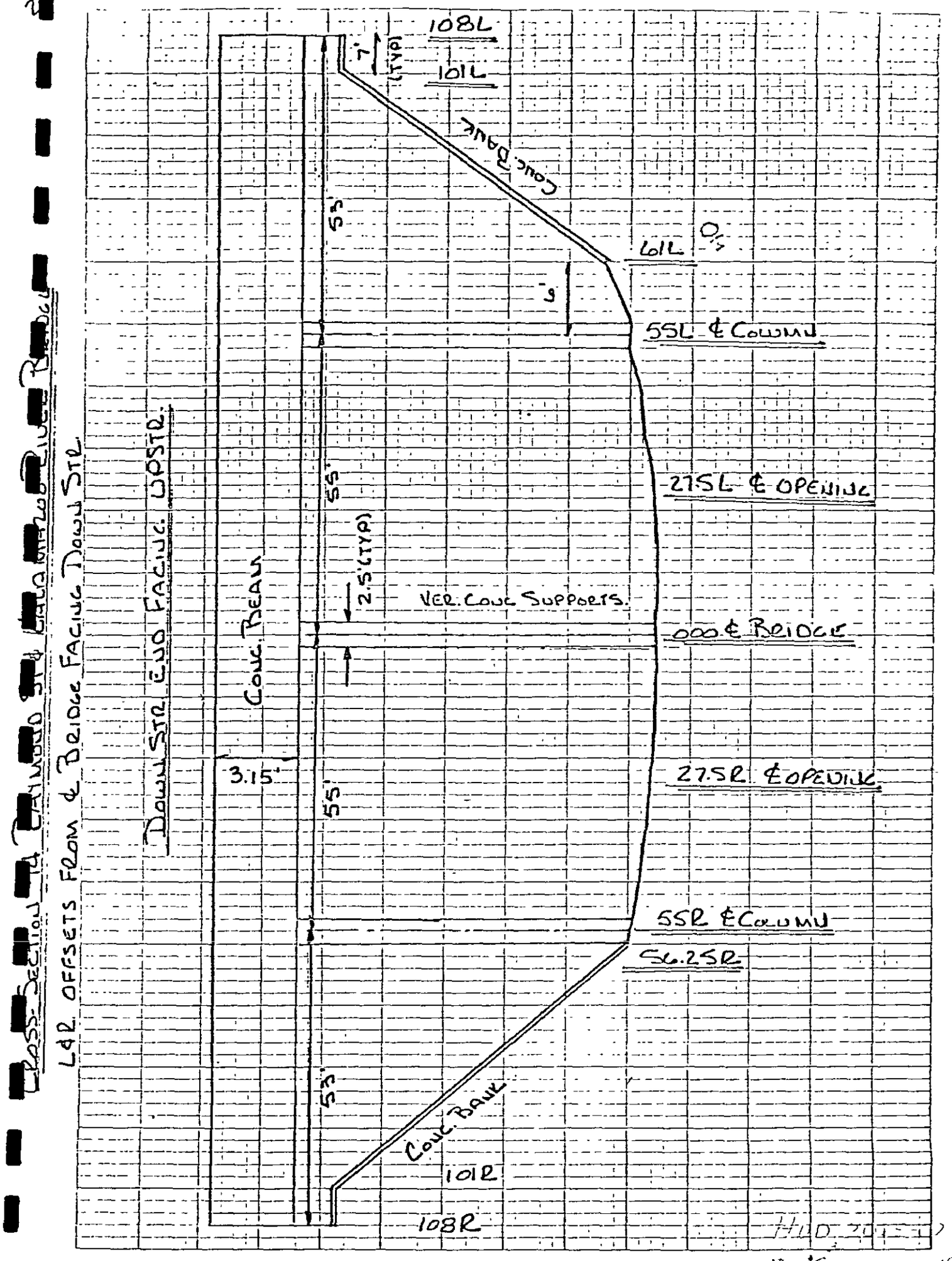


SEC #19 - TOP VIEW RAYMOND ISLAND KALAMAZOO RIVER BRIDGE (UPSTREAM)



CROSS SECTION #19 - KALAMAZOO RIVER @ RAYMOND

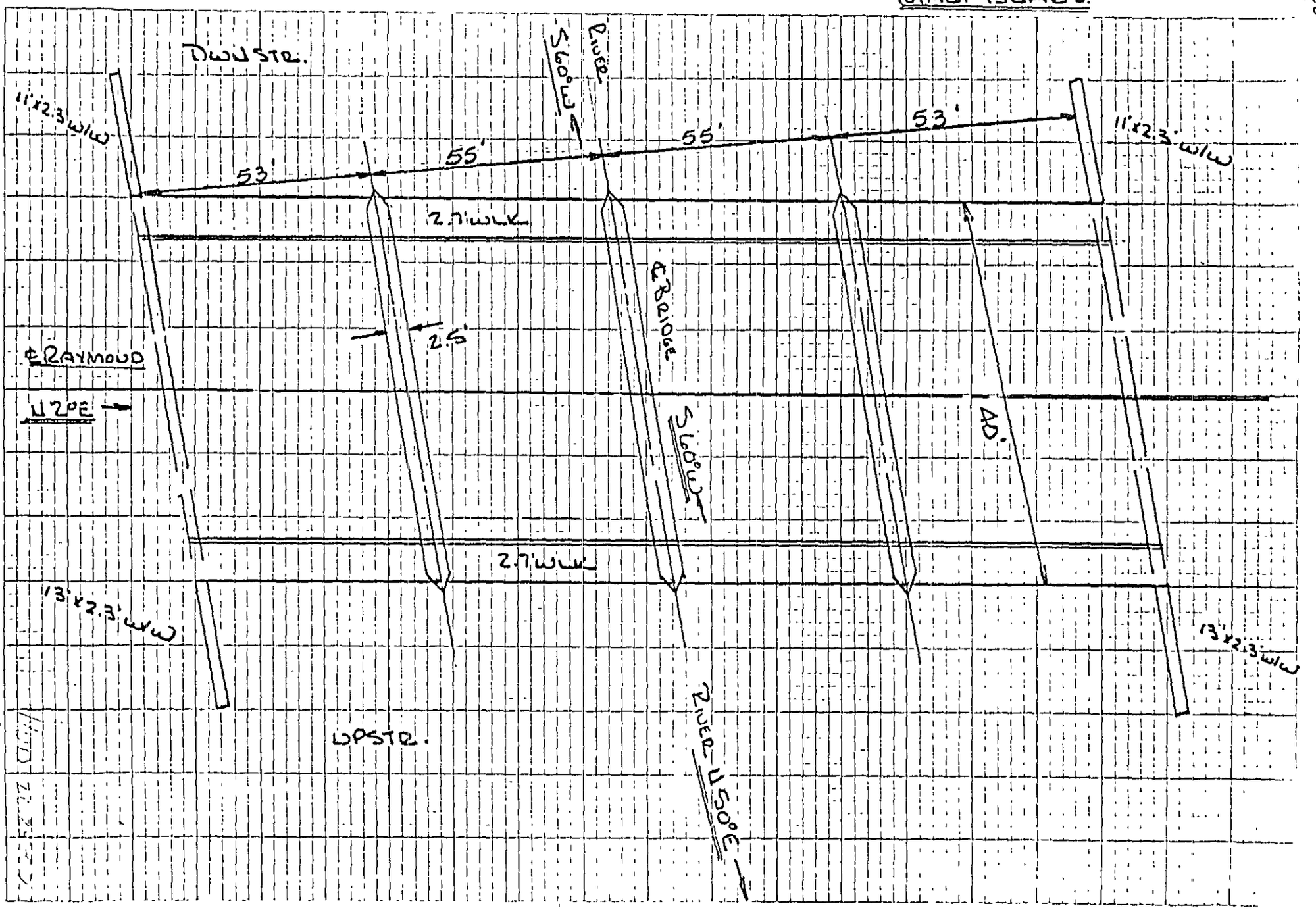
HUD 2025-7
SHEET 10 OF 8



Cross-Section 14 Raymond St & Calamaroo River Bridge
L&R Offsets From ℄ Bridge Facing Down Str.
Down Str. End Facing Upstr.
108L
101L
7' (TYP)
Conc. Bank
53'
61L
6'
55L ℄ Column
27.5L ℄ Opening
55'
2.5' (TYP)
Ver. Conc. Supports.
000 ℄ Bridge
Conc. Beam
3.15'
27.5R ℄ Opening
55'
55R ℄ Column
56.25R
53'
Conc. Bank
101R
108R

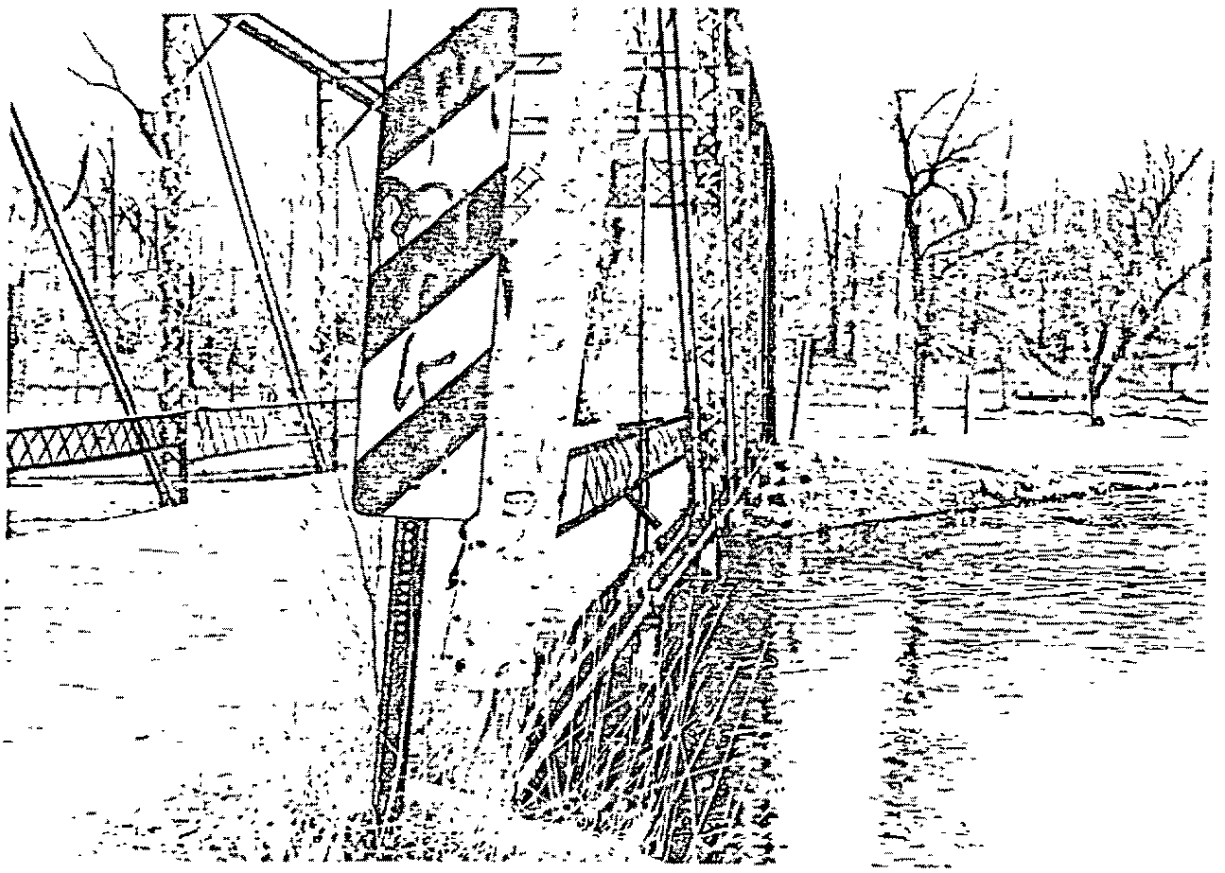
CROSS SEC.# 14 RAYMOND ST. AT KALAMAZOO RIVER

MAG. BEAR'S.





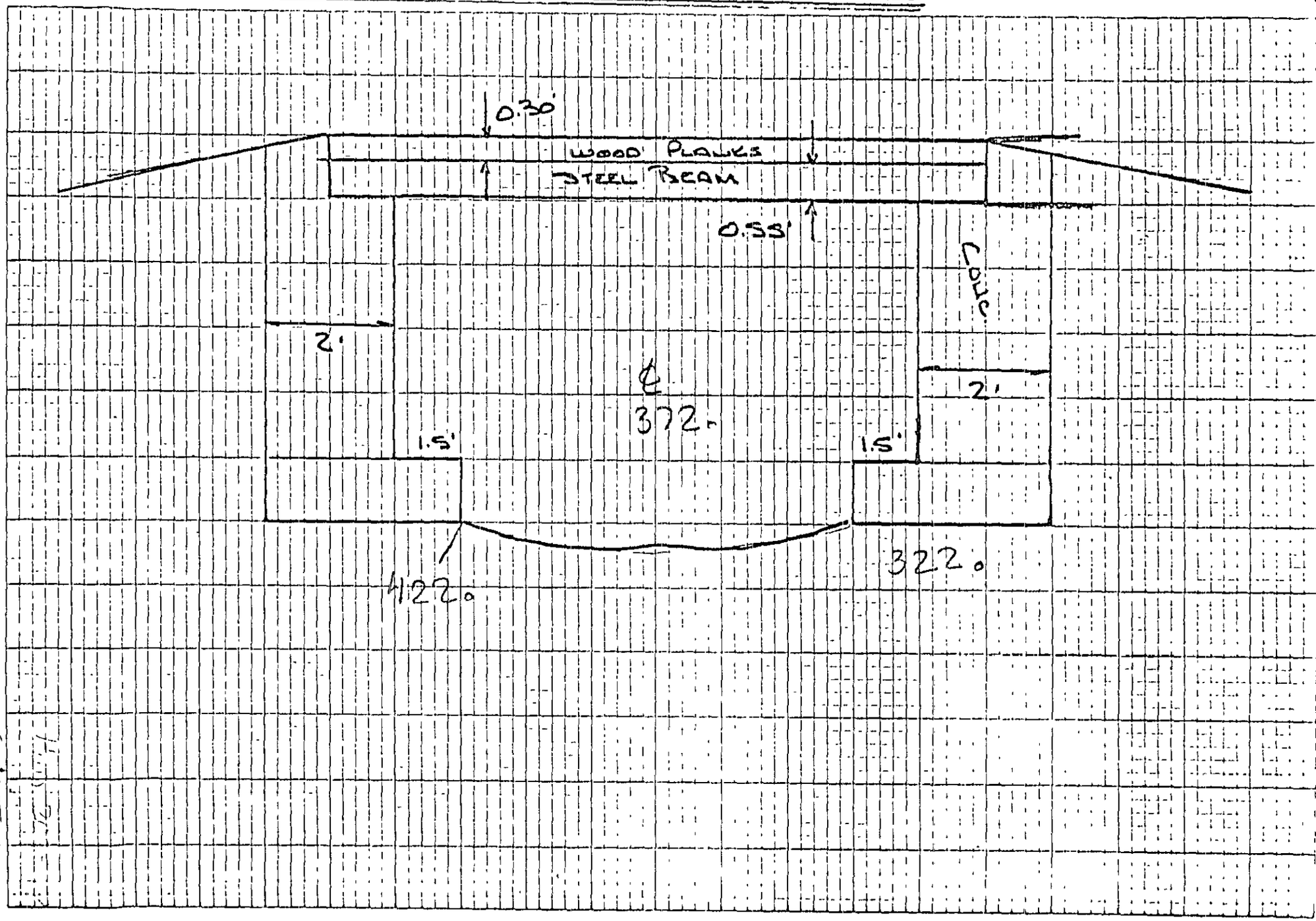
CROSS SECTION #23 KALAMAZOO RIVER DOWNSTREAM OF I-94



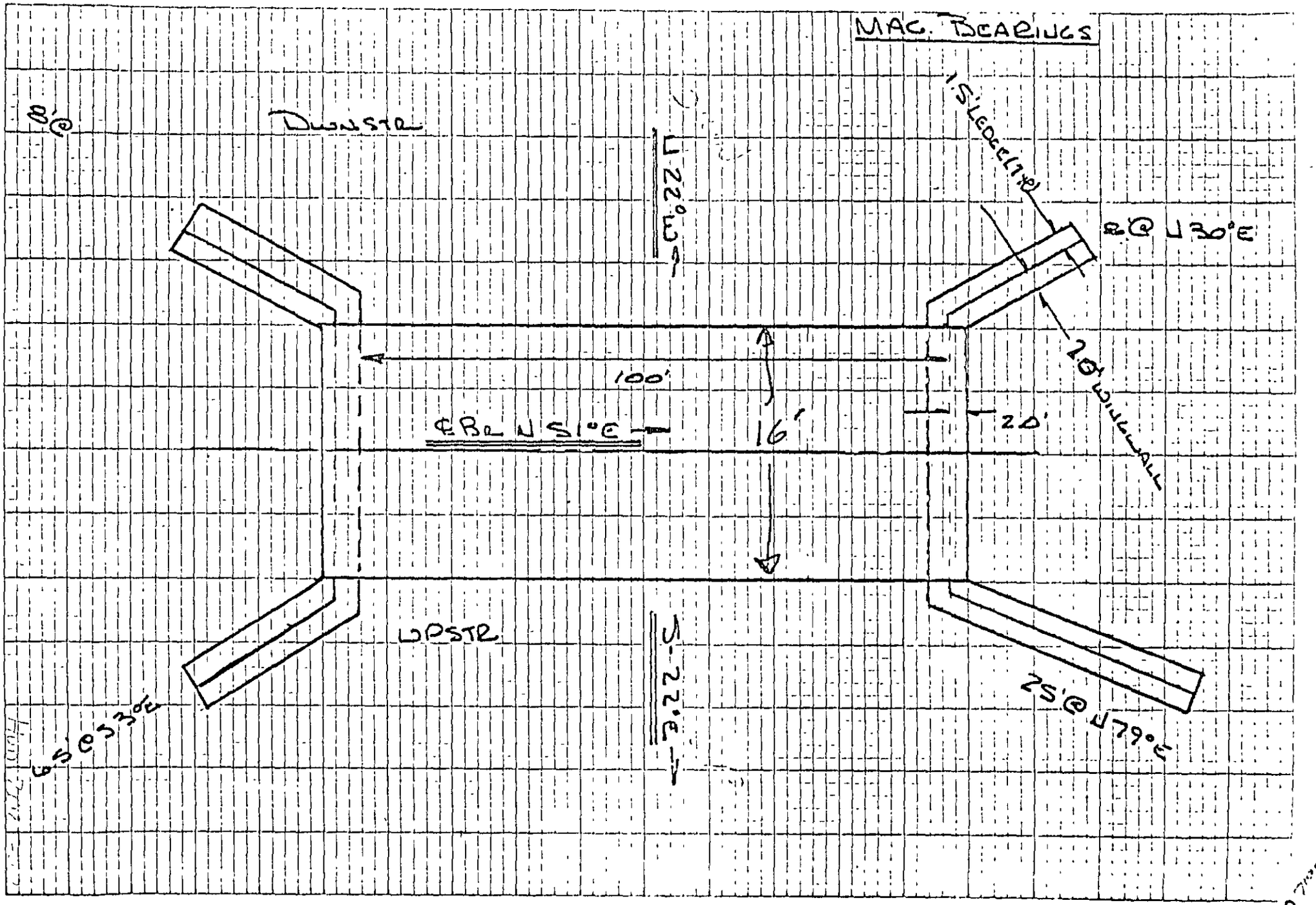
SEC #23 - TOPWELL COUNTY PARK BRIDGE AT KALAMAZOO RIVER

HUD 2023-07
SHEET 30 OF 49

CROSS-SECTION #23 KALAMAZOO RIVER



CROSS SECTION #23 - KALAMAZOO RIVER





CROSS SECTION #25 KALAMAZOO RIVER AT I-94

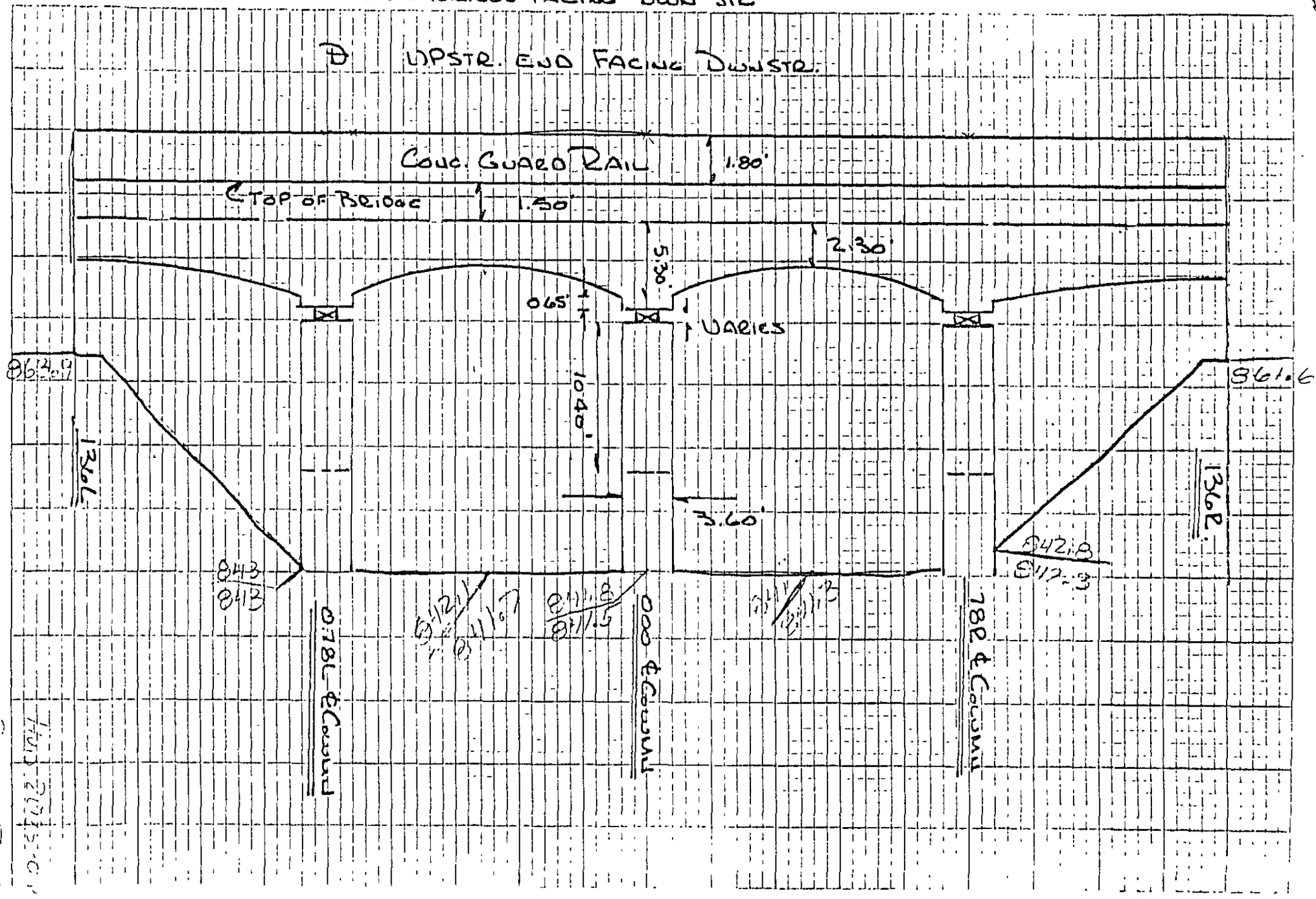


CROSS SECTION #24 KALAMAZOO RIVER @ I-94

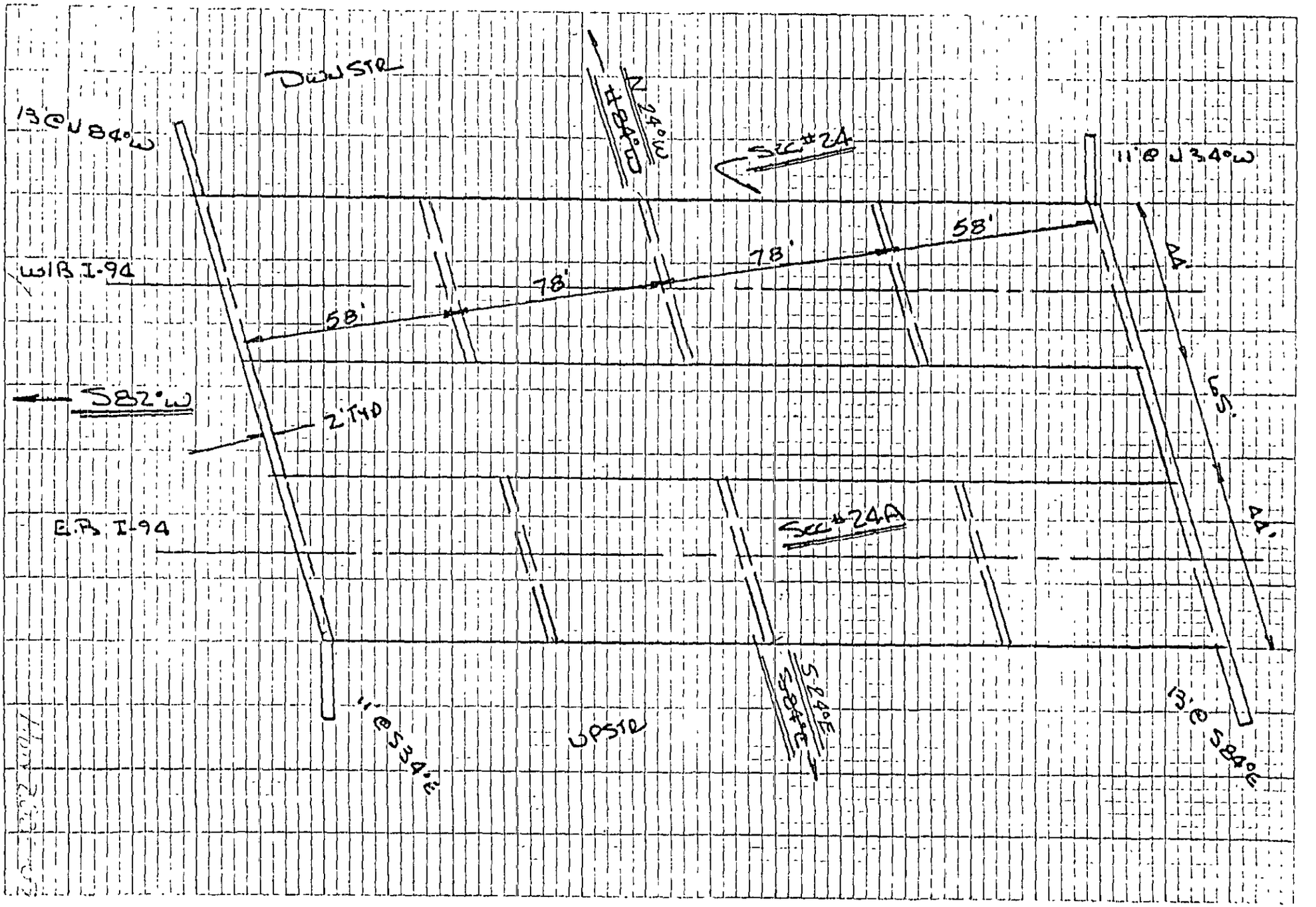
HUD 20[illegible]
SHEET [illegible]

CROSS-SECTION #24-24A I-94 @ KALAMAZOO RIVER

L & R OFFSETS FROM ℄ BRIDGE FACING DWN STR



CROSS-SECTIONS # 24 & 24A I-[redacted] [redacted] [redacted]



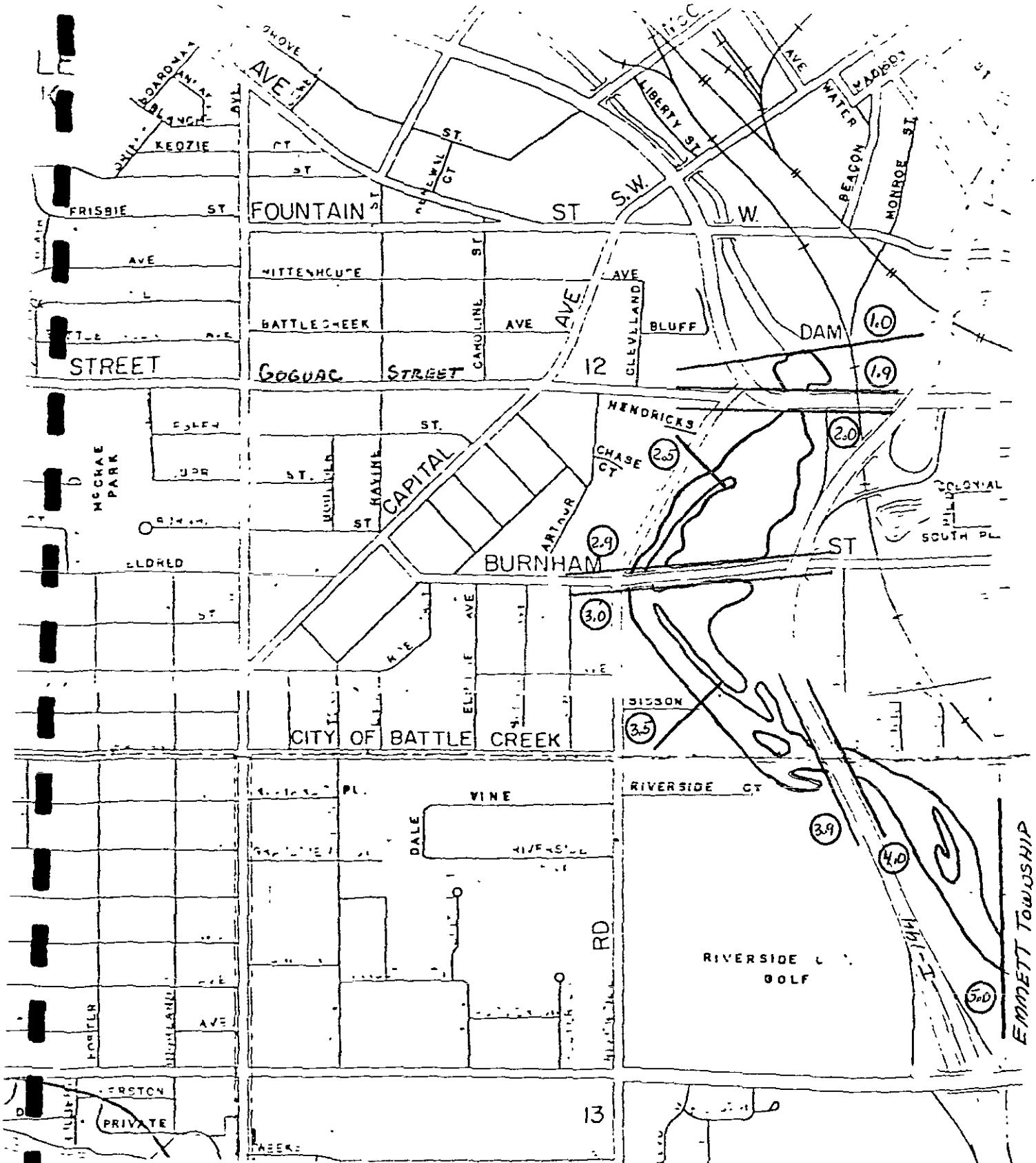
KALAMAZOO RIVER

EMMETT TOWNSHIP

EXHIBIT 5

Starting Water Surface Elevation Development

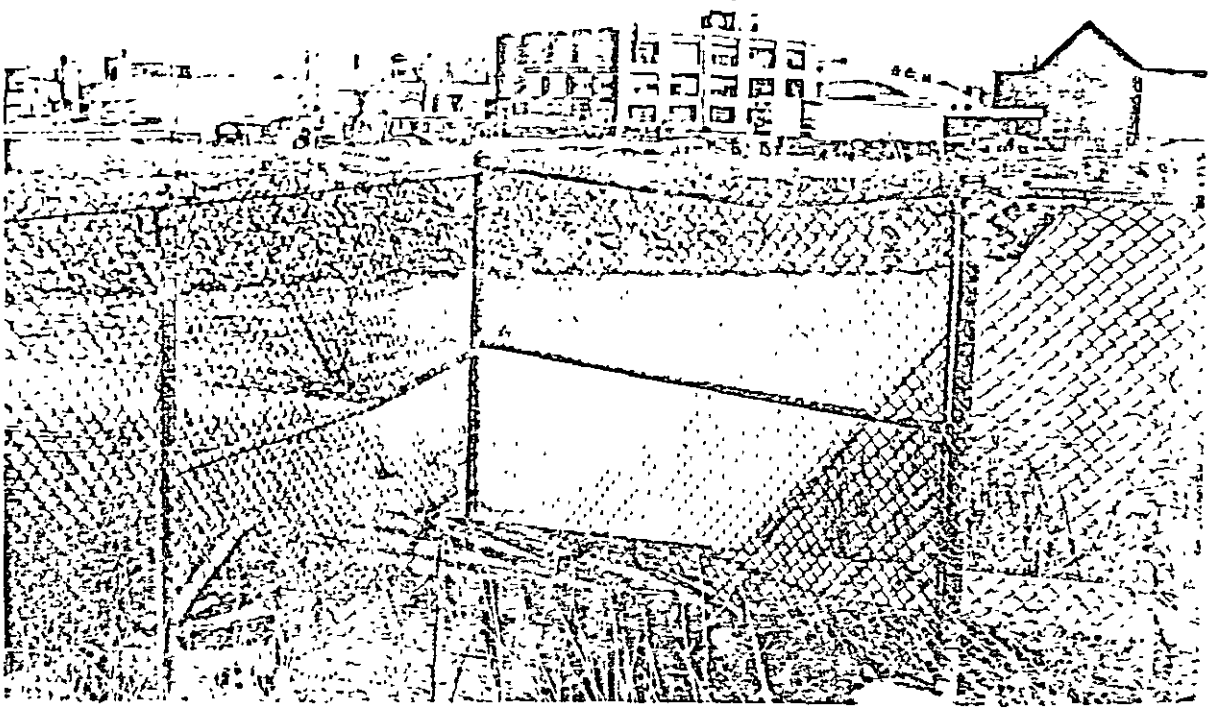
Exhibit 5 contains a map showing cross section locations along with bridge sketches used in the various HEC-2 backwater analyses. Hand computations at Goguac Street Dam for various weir coefficients are presented on Pages 4 and 5 of this Exhibit.



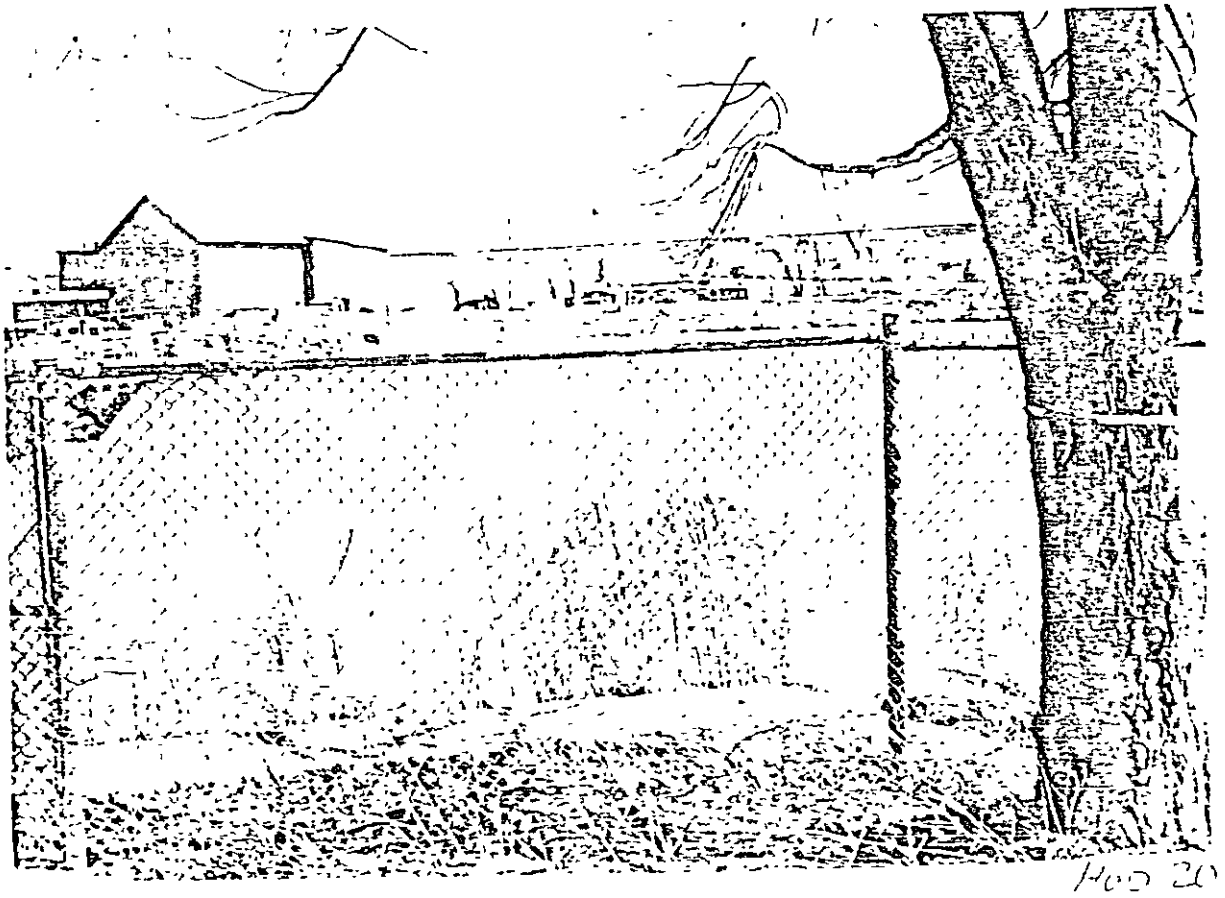
KALAMAZOO RIVER - EMMETT TOWNSHIP
CONVERGENCE / WIER COEFFICIENT
SENSITIVITY ANALYSIS

(1.0) ——— CROSS SECTION LOCATION

HUD 2025-07
DRB 10/80
SHEET 1 OF 13



SEC #13 - SIDEVIEW PALAMAZOO RIVER DAM



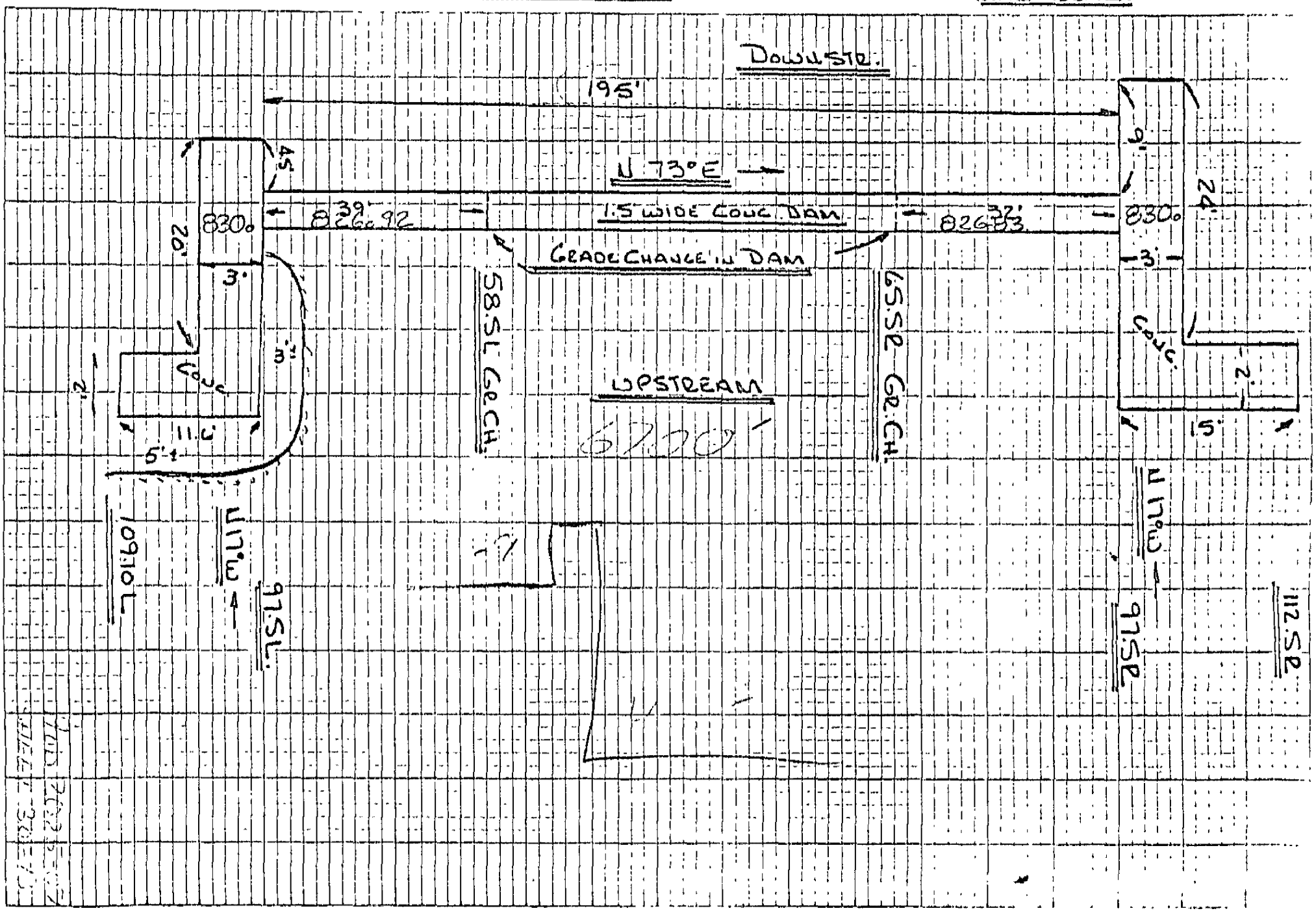
SEC #22 - SIDEVIEW PALAMAZOO RIVER DAM

HOD 2025-01
SHEET 2 OF 13

ADDED SECTION #23 (DAM) KALAMAZOO RIVER DWN STR. FROM GOGOAC.

L&R OFFSETS FROM ℄ DAM FACING DOWN STR.

MAC BEAR.



FORM 25-0
(313) 291-5400

Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

REFERENCE

EMMETT TOWNSHIP I.I.S.
KALAMAZOO RIVER
100-YR CONVERGENCE RUN
FOR VARIOUS WILK COEFF.

C = 3.25

$H = (2780/3.25(195))^{.67} = 2.68$

826.90 + 2.68 = 829.58

C = 3.5

$H = (2780/3.5(195))^{.67} = 2.55$

826.9 + 2.55 = 829.45

C = 3.75

$H = (2780/3.75(195))^{.67} = 2.44$

826.9 + 2.44 = 829.34

SUBJECT	BY	CHK	SHEET NO.	File Code No. (Job No.) Owner	Project	Suffix
KAZOO RIVER	DATE	DATE	4 OF 13	4UD	2025	07

FORM 25-0
(313) 291-5400

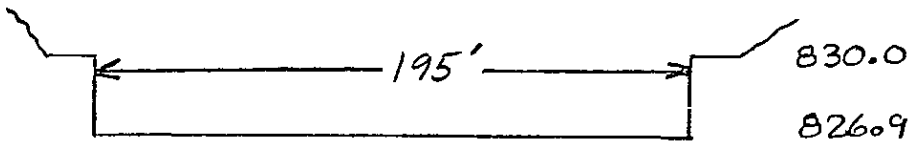
Wade, Trim & Associates, Inc.
Civil Engineers • Land Surveyors
WORK SHEET

25185 GODDARD ROAD
TAYLOR, MICHIGAN 48180

REFERENCE

EMMETT TOWNSHIP - F.I.S.
KALAMAZOO RIVER

STARTING WATER SURFACE
ELEVATIONS @ LAM D/S
GOGUAC ST. IN THE CITY OF
BATTLE CREEK



$Q = CLH^{3/2}$ $C = 3.5$

ELEVATIONS

10 YR $Q = 1780$

$H = (1945/3.5(195)^{.67} = 2.02$ FT — 828.92

50 YR $Q = 2320$

$H = (2535/3.5(195)^{.67} = 2.40$ — 829.30

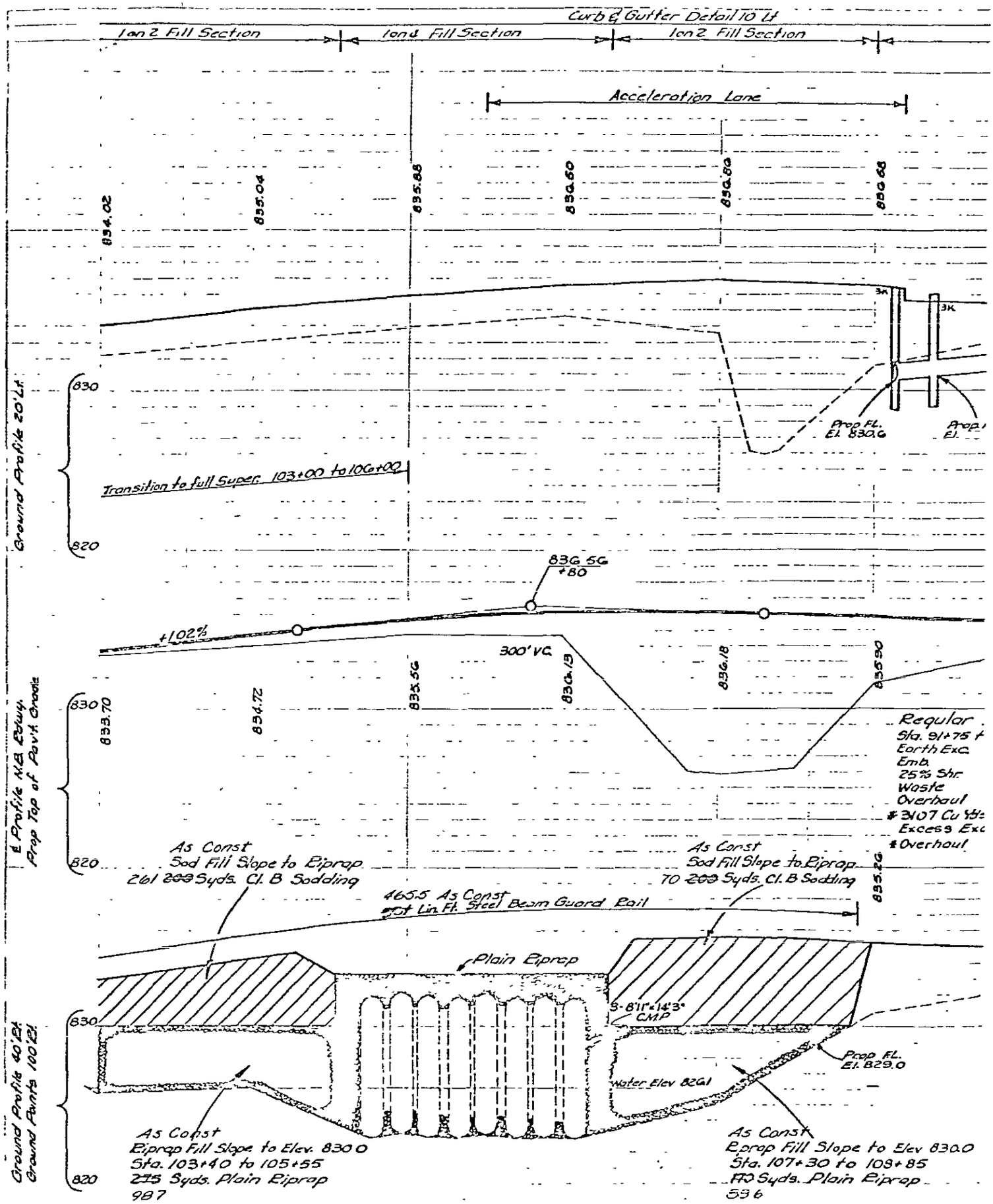
100 YR $Q = 2545$

$H = (2780/3.5(195)^{.67} = 2.55$ — 829.45

500 YR $Q = 3060$

$H = (3345/3.5(195))^{.67} = 2.89$ — 829.79

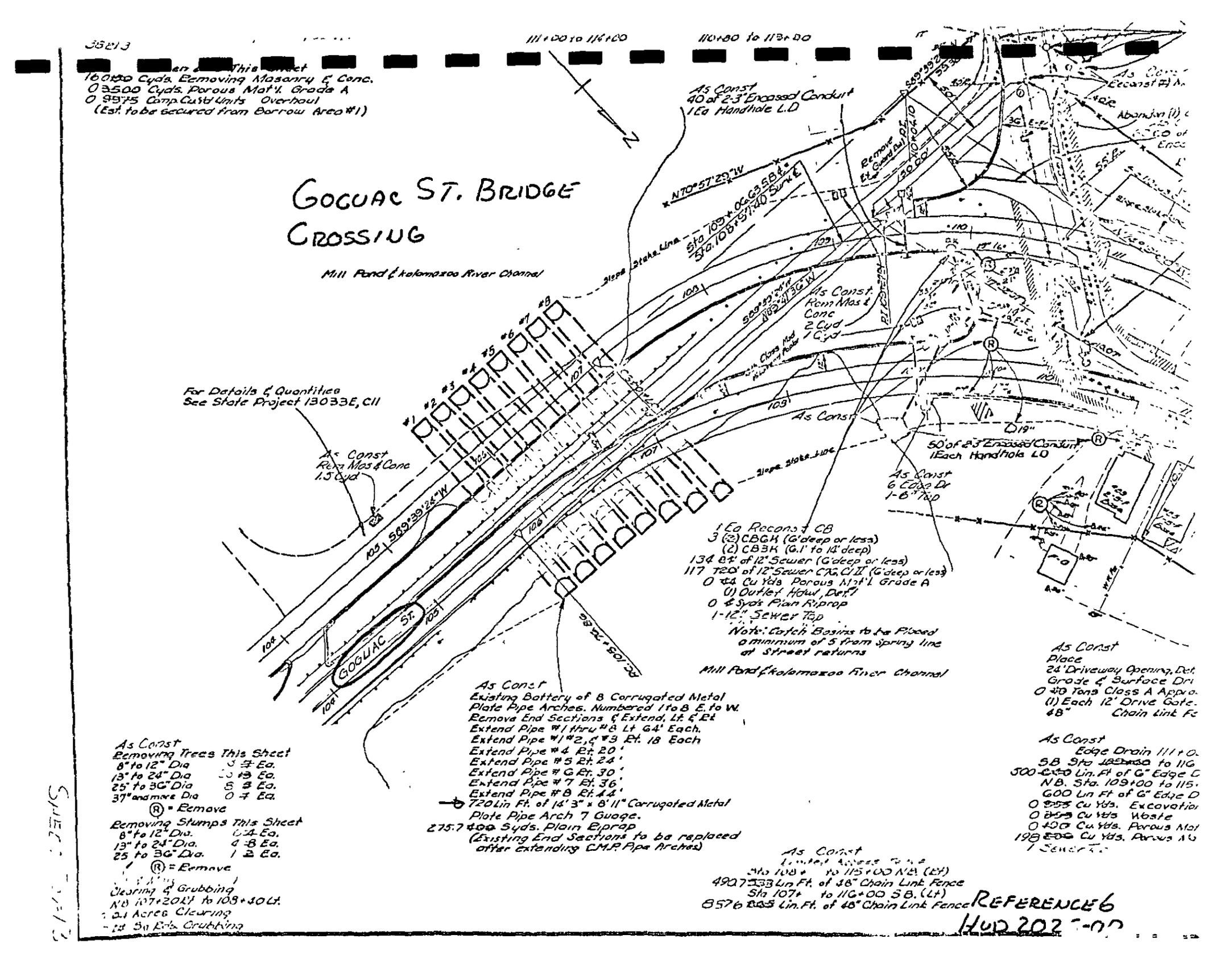
SUBJECT	BY	CHK.	SHEET NO	File Code No (Job No) Owner Project Suffix
KAZOO RIVER	DRB		5 OF 13	HUD •2025• 07
	DATE 5/80	DATE		



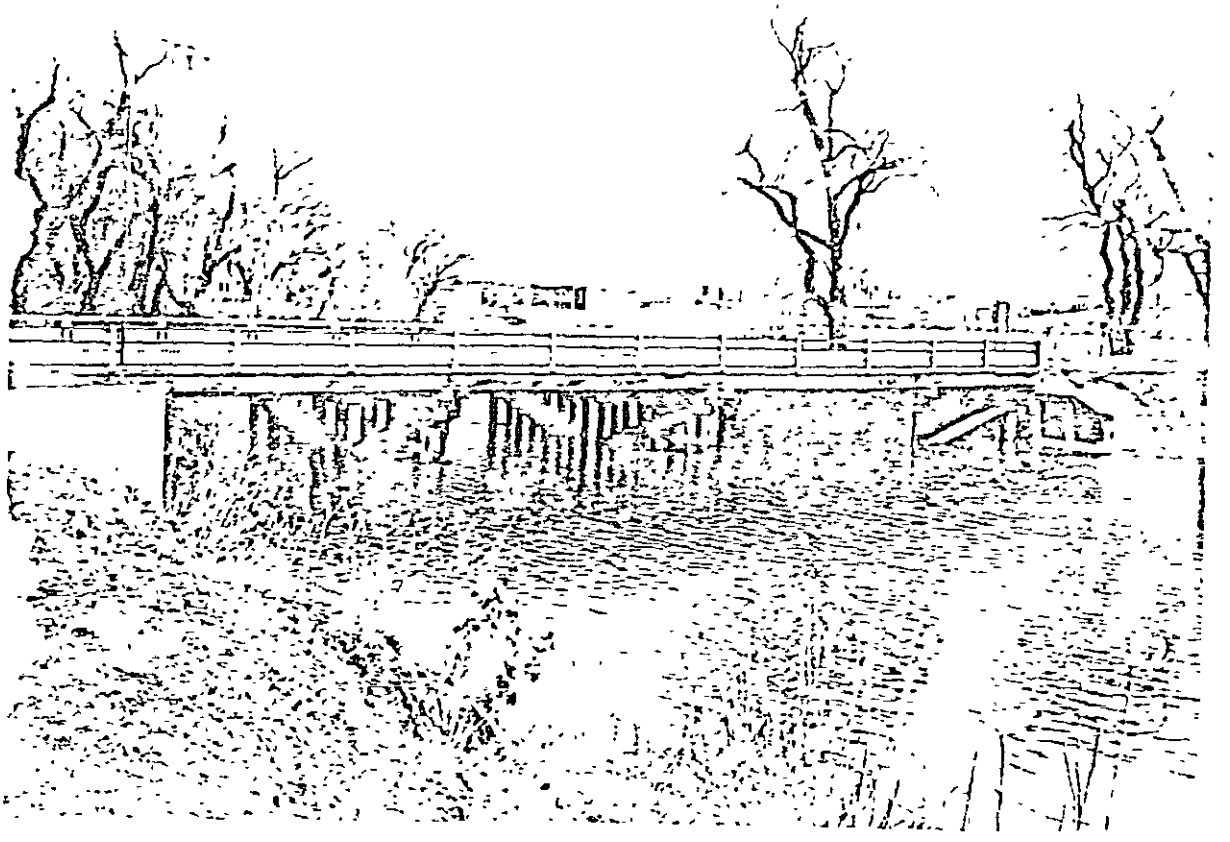
GOGUAC ST. BRIDGE CROSSING

SHEET 6.1-13

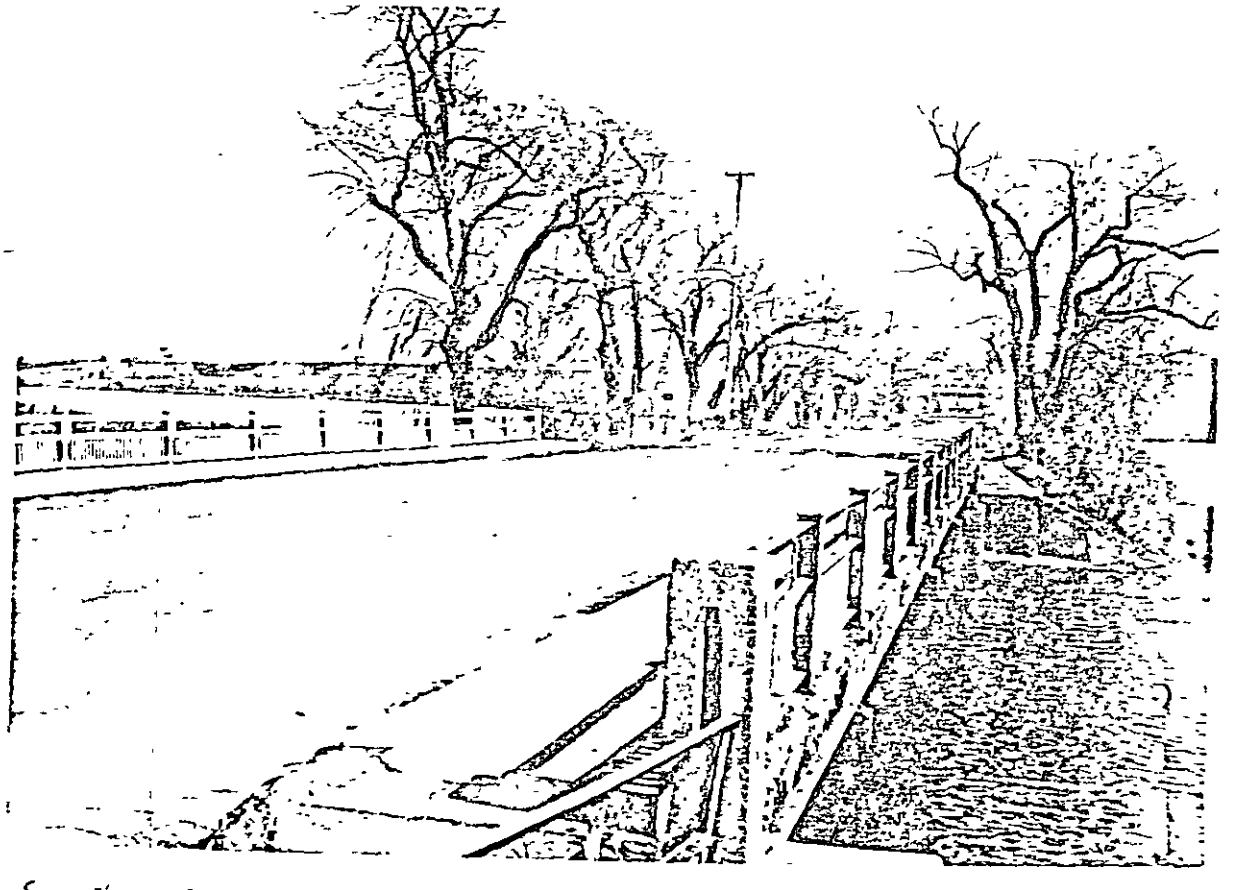
REFERENCE 6



GOGUAC ST. BRIDGE CROSSING
Mill Pond & Kalamazoo River Channel
111+00 to 114+00
110+80 to 113+80
As Const
40 of 2-3" Encased Conduit
1 Ea Handhole L.D
N70°57'29"W
Sta 109+06.63 SB ℄
Sta 108+91.40 Surv ℄
Slope Stake Line
As Const.
Rem Mas & Conc
2 Cyd
1 Cyd
For Details & Quantities
See State Project 13033E, C11
As Const
Rem Mas & Conc
1.5 Cyd
S89°39'24"W
GOGUAC ST.
As Const
50' of 2-3" Encased Conduit
1 Each Handhole LD
As Const
6 Edge Dr
1-6" Tap
1 Ea Reconst CB
3 (2) CB6K (6' deep or less)
(2) CB3K (6.1' to 14' deep)
134 84' of 12" Sewer (6' deep or less)
117 720' of 12" Sewer C76, C1 II (6' deep or less)
0 44 Cu Yds Porous Mat'l Grade A
(1) Outlet Hdwl, Det 1
0 4 Syds Plain Riprap
1-12" Sewer Tap
Note: Catch Basins to be Placed a minimum of 5 from Spring line at Street returns
Mill Pond & Kalamazoo River Channel
As Const
Existing Battery of 8 Corrugated Metal Plate Pipe Arches. Numbered 1 to 8 E. to W.
Remove End Sections & Extend, Lt. & Rt
Extend Pipe #1 thru #8 Lt 64' Each.
Extend Pipe #1 #2, & #3 Rt. 18 Each
Extend Pipe #4 Rt. 20'
Extend Pipe #5 Rt. 24'
Extend Pipe #6 Rt. 30'
Extend Pipe #7 Rt. 36'
Extend Pipe #8 Rt. 44'
720 Lin Ft. of 14' 3" x 8' 11" Corrugated Metal Plate Pipe Arch 7 Guage.
275.7 400 Syds. Plain Riprap
(Existing End Sections to be replaced after extending C.M.P. Pipe Arches)
As Const
Place
24' Driveway Opening, Det.
Grade & Surface Dri
0 40 Tons Class A Appro.
(1) Each 12' Drive Gate.
48" Chain Link Fe
As Const
Edge Drain 111+0
SB Sta 109+00 to 116
500 Lin. Ft of 6" Edge D
N.B. Sta. 109+00 to 115.
600 Lin Ft of 6" Edge D
0 Cu Yds. Excavation
0 Cu Yds Waste
0 Cu Yds. Porous Mat
198 Cu Yds. Porous M
1 Sewer T
As Const
Removing Trees This Sheet
8" to 12" Dia 3 Ea.
13" to 24" Dia 3 Ea.
25" to 36" Dia 8 Ea.
37" and more Dia 0 Ea.
(R) = Remove
Removing Stumps This Sheet
8" to 12" Dia. 0 Ea.
13" to 24" Dia. 4 Ea.
25 to 36" Dia. 1 Ea.
(R) = Remove
Clearing & Grubbing
NB 107+20 Rt to 108+40 Lt.
Acres Clearing
Sq Rds Grubbing
As Const
Sta 108+ to 115+00 NB (Rt)
490.7 Lin Ft. of 48" Chain Link Fence
Sta 107+ to 116+00 SB. (Lt)
857.6 Lin. Ft. of 48" Chain Link Fence
REFERENCE 6
HUD 202



SEC #24 - UPSTREAM EAST ELEVATION HAM. KALAMAZOO RIVER BRIDGE



SEC #24 - TOP VIEW ELEVATION HAM. KALAMAZOO RIVER BRIDGE

HUD 202-01
SHEET 8 of 13

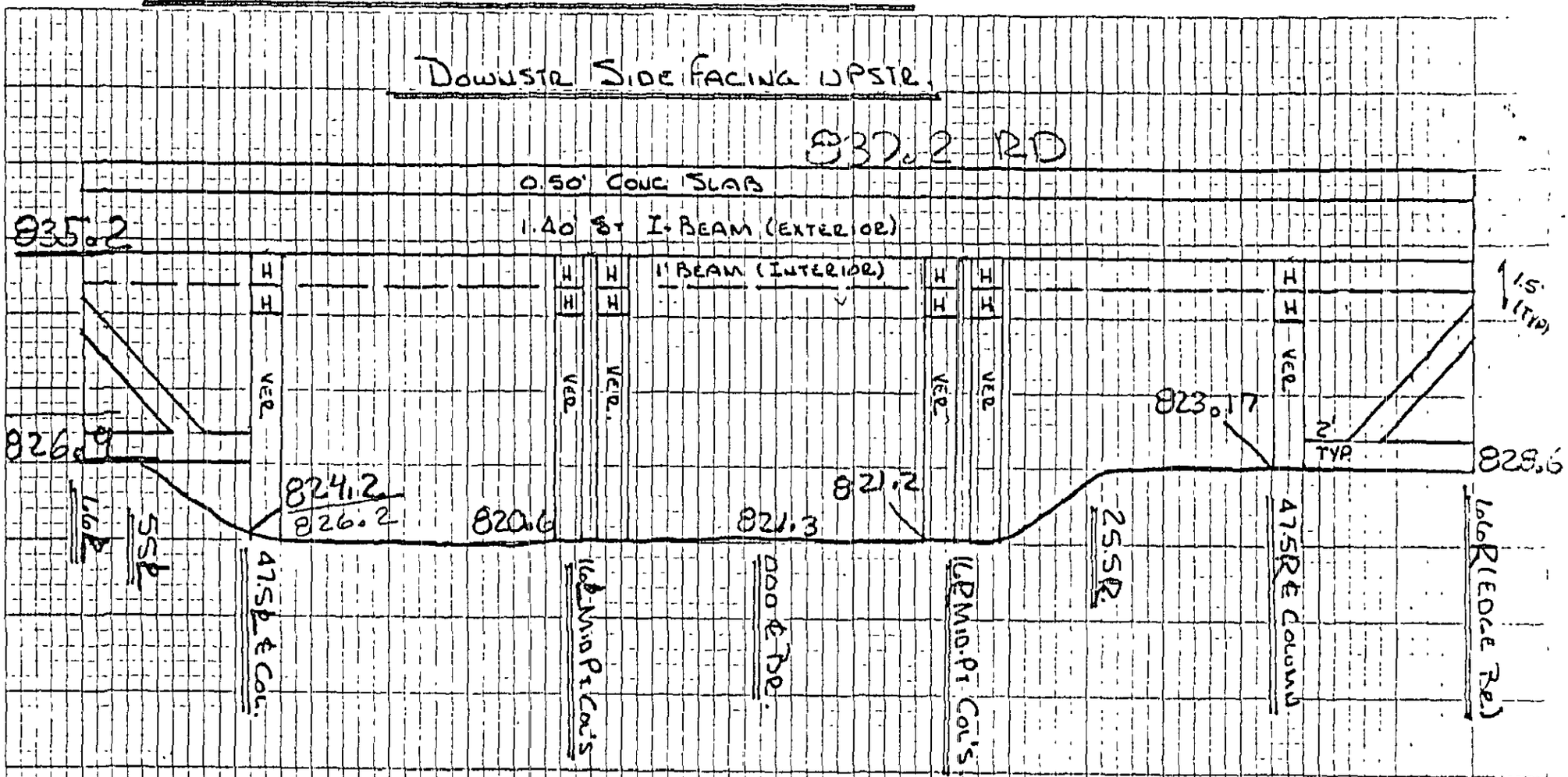


SEC #24 - DOWNSTREAM VIEW FROM BURNHAM - KALAMAZOO RIVER BRIDGE

HUD 2023-07
SHEET 90-13

[redacted]

L & R OFFSETS FROM ℄ BRIDGE FACING DOWN. STR.



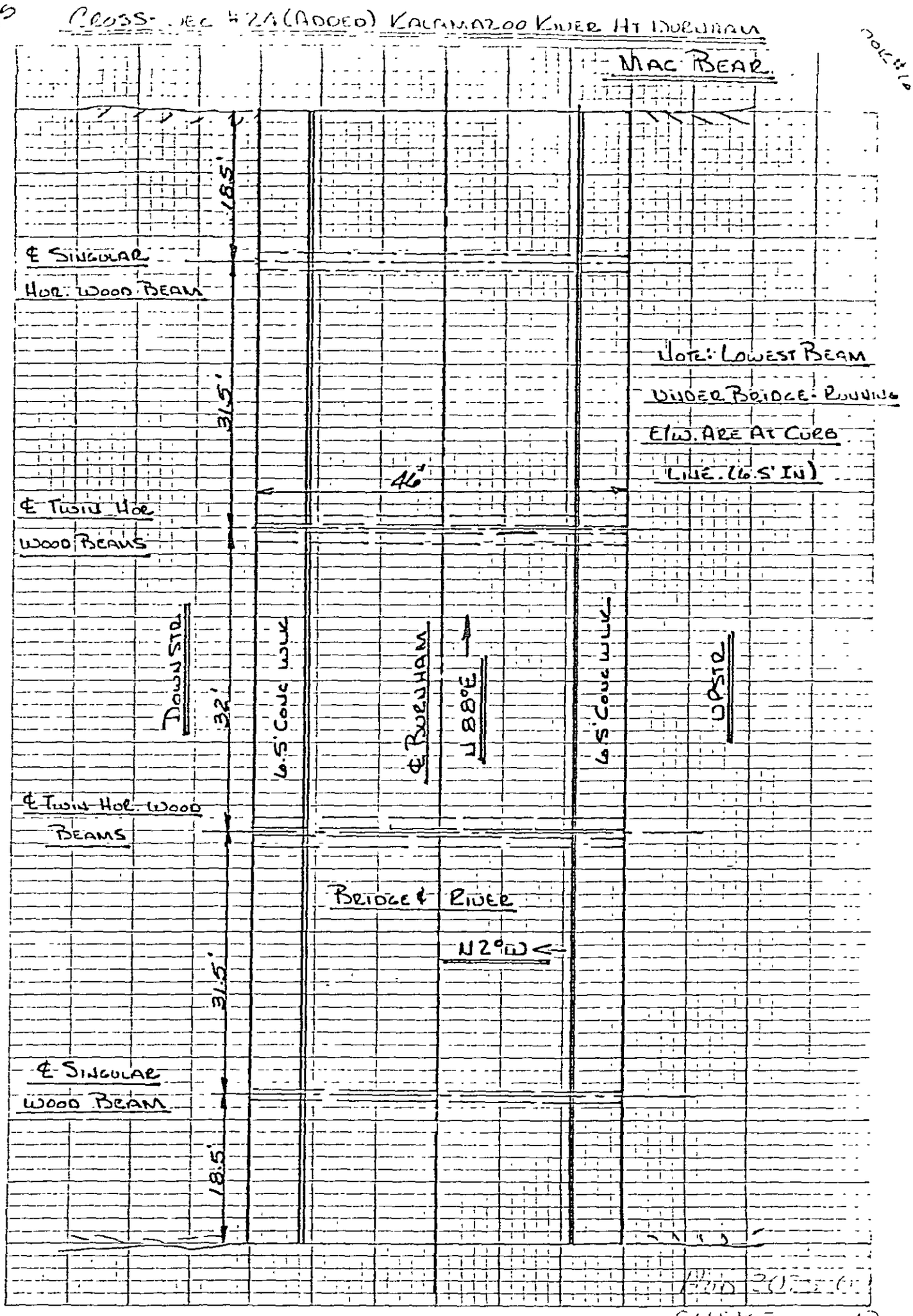
TOE MEAS DIFFER. UPSTR & DWN STR

NOTE: ALL BEAMS (HOR-VER-DIAG) ARE 1' WIDE. TOP HOR BEAMS ARE ONLY 5' LONG.

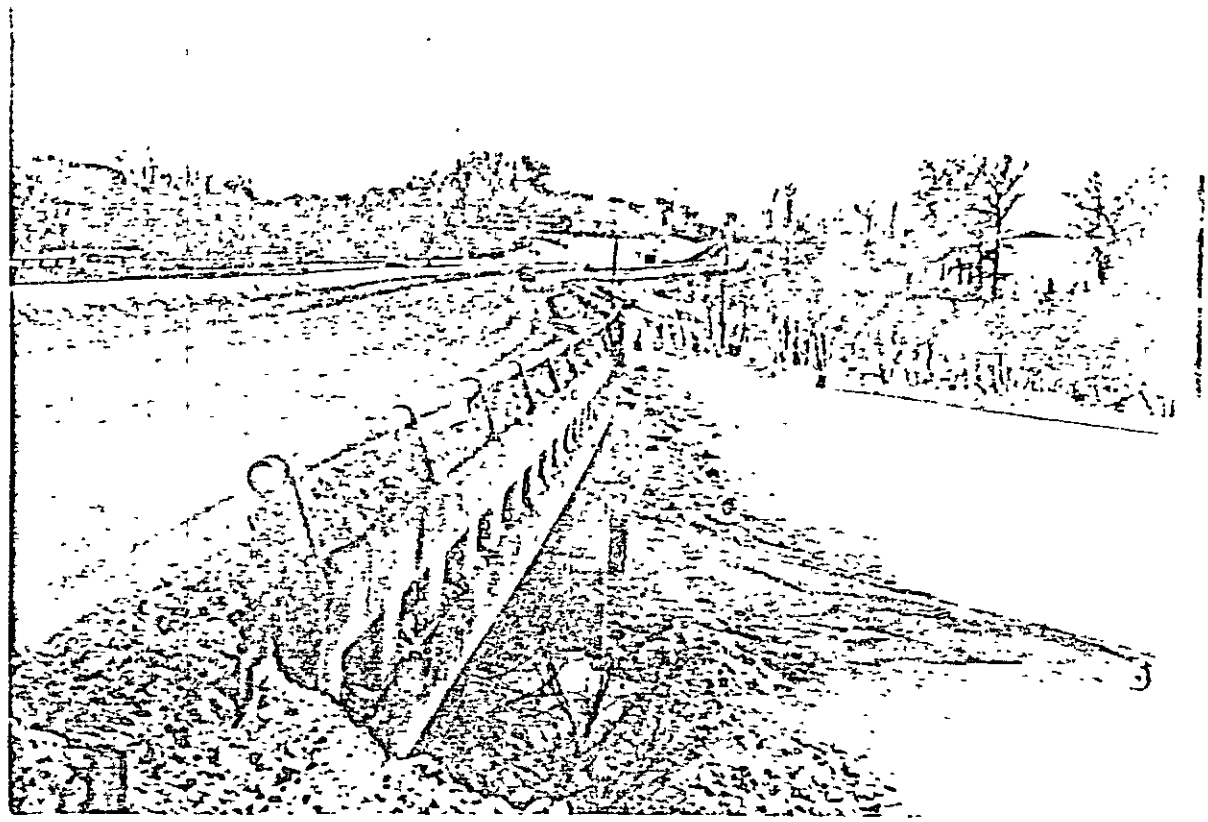
BOTT. BEAM RUNS ENTIRE LENGTH.

SHEET 10 OF 12

CROSS-SEC #24 (ADDED) KALAMAZOO RIVER AT BURNHAM

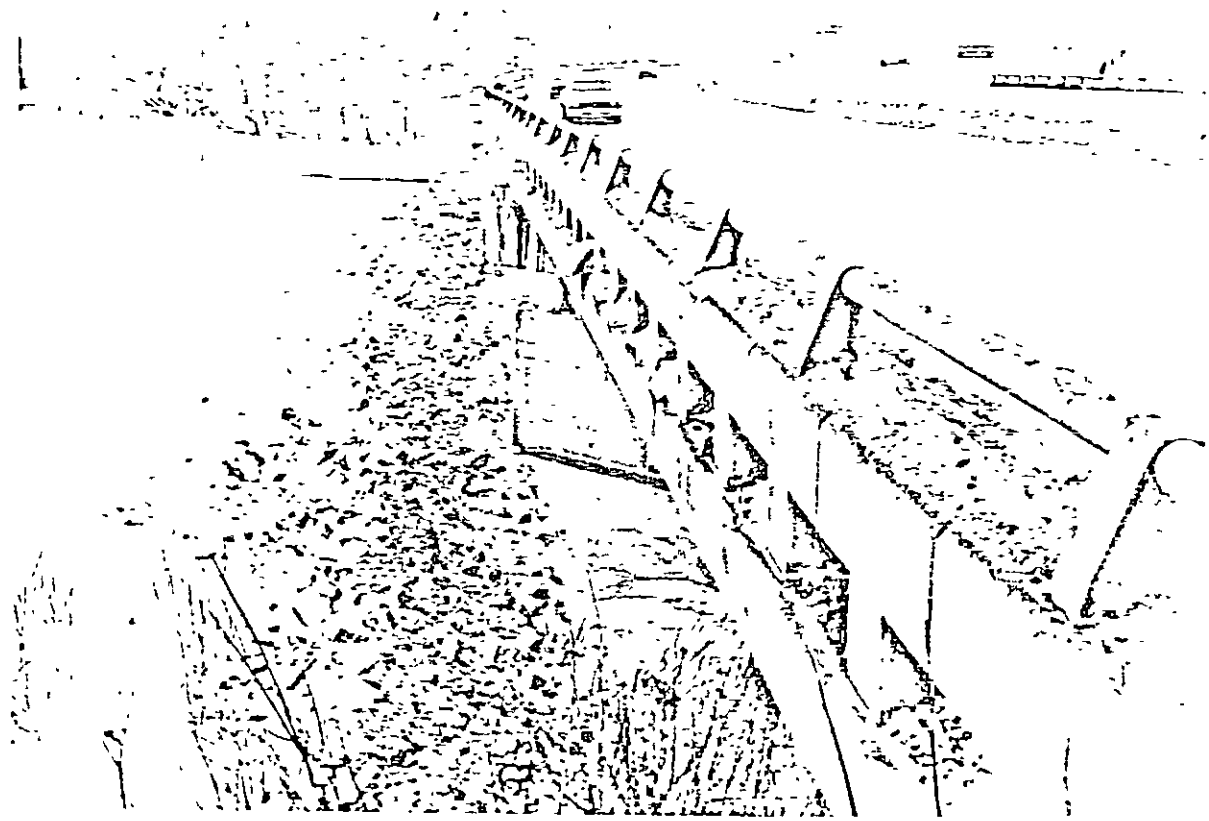


SHEET 7 OF 13



35

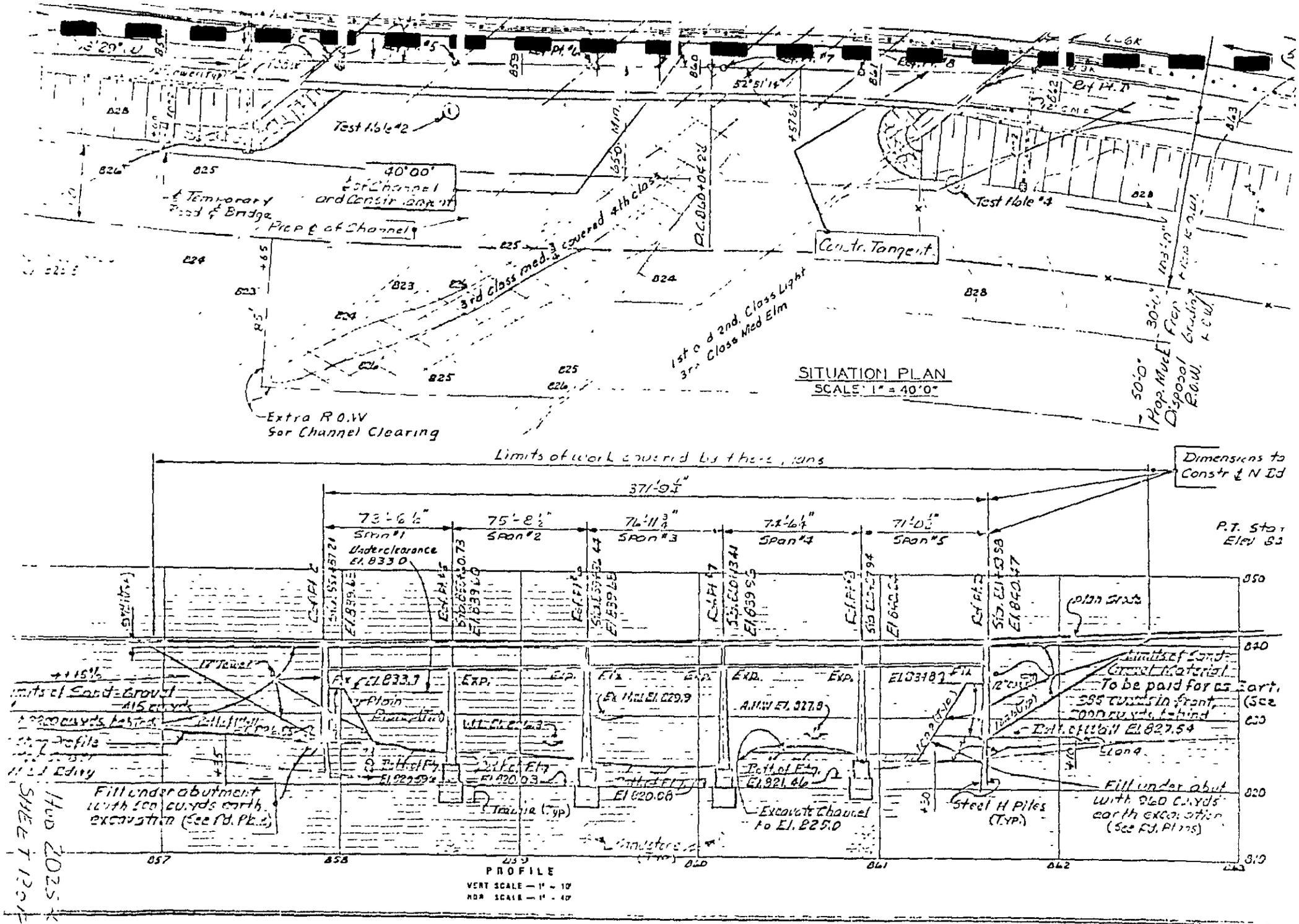
UPSTREAM VIEW OF I-194 BRIDGE CROSSING KALAMAZOO RIVER



36

UPSTREAM VIEW OF I-194 BRIDGE CROSSING KALAMAZOO RIVER

HUD 202-47
SHEET 12 of 13



I-194 BRIDGE CROSSING

REFERENCE 6
HUD 2025-07

HUD 2025-07
SHEET 1 OF 13

KALAMAZOO RIVER

EMMETT TOWNSHIP

EXHIBIT 6

Computer Printouts
HEC-2 Backwater Analysis
Goguac Street Dam to Battle Creek/
Emmett Township Corporate Boundary
(See Separate Folder)

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: emmet Twp

3) WATERCOURSE: Kalamazoo Twp

4) DOCUMENT TYPE: Wier coefficient
Sensitivity analysis

00BREAK00

12:25:33 X92 DAN HU202507 CMMET07 OCT 08, 1980

R400 11*C SM:112C LM:11*C FM:E5-C06 22A00561 PR01 RR/H112/FI/GI/A/H152

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

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR - 03
  CONV. RATIO. = 30.51.12
**************************************************

C
TOWNSETT TOWNSHIP FLOOD INSURANCE STUDY
TKALAMAZOO RIVER CONVERGENCE 306
TB       KALAMAZOO RIVER

J1  ICHECK    INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
          0.         4.         2.         0.  0.200000       0.00       2.0         0.    829.340      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  MAXIMUM  CODES FOR SUMMARY PRINTOUT
    150.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

NC      0.100      0.100      0.035      0.100      0.300      0.000      0.000      0.000      0.000      0.000
OT      5.700   1945.000   2535.000   2780.000   2780.300   3045.210      7.020      3.500      0.000      0.000

        DAM D/S GOGUA ST.

X1      1.000      4.300      0.000    195.000      0.000      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    826.000    826.900      0.200      0.020      0.000      0.000      0.000
GR    840.300      0.000    826.000      0.000    826.300    195.300    840.000    195.000      0.000      0.000

        D/S GOGUAC ST.

X1      1.500      4.000      3.000    141.200    830.000    826.000    800.000      0.000      0.000      5.000
X3     10.000      0.000      0.000      0.000      0.000      0.020      0.000    834.000    834.000      0.000
GR    834.000      0.000    823.000      0.800    825.000    142.200    836.000    142.000      0.000      0.000

        D/S FACE GOGUAC ST.

X1      1.900     58.000      0.800    141.200      1.000      1.000      1.300      0.000      0.000      0.000
X3     10.000      0.000      0.000      0.000      0.000      0.000      0.300    834.000    834.300      0.000
BT     42.000      0.000    834.000      0.000      0.800    834.000    825.000      3.000    834.000    830.500
BT      8.000    834.000    832.000     13.000    834.000    830.500     15.200    834.000    825.000     18.800
BT    834.000    825.000     21.000    834.000    830.500     26.000    834.000    832.000     31.000    834.000
BT    830.300     33.200    834.000    825.000     36.300    834.000    825.000     39.000    834.000    830.500
BT     44.000    834.000    832.000     49.000    834.000    830.500     51.200    834.000    825.000     54.800
BT    834.000    825.000     57.000    834.000    830.300     62.000    834.000    832.000     67.000    834.000
BT    830.500     69.200    834.000    825.000     72.800    834.000    825.000     75.000    834.000    830.500
BT     80.000    834.000    832.000     85.000    834.000    830.500     87.200    834.000    825.000     90.800
BT    834.000    825.000     93.000    834.000    830.500     90.000    834.000    832.000    103.000    834.000
BT    830.500    105.200    834.000    825.000    106.300    834.000    825.000    111.000    834.000    830.500
BT    114.000    834.000    832.000    121.000    834.000    830.500    123.200    834.000    825.000    126.800
BT    834.000    825.000    129.000    834.000    830.500    186.000    834.000    832.000    139.000    834.100
BT    830.500    141.200    834.000    825.000    142.000    834.000      0.000      0.000      0.000      0.000
GR    834.000      0.000    825.000      0.800    823.000      0.800    823.000      3.000    823.000      8.000
GR    823.000     13.000    823.000     15.200    825.000     15.200    825.000     18.800    823.000     18.800
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GR	823.000	21.000	823.000	26.000	823.000	31.000	823.000	33.200	825.000	33.200
GR	825.000	36.800	823.000	36.800	823.[illegible]	[illegible].000	823.000	44.000	823.000	49.000
GR	[illegible].000	51.200	825.000	51.200	[illegible].6	[illegible].800	823.000	54.800	823.000	57.000
GR	823.000	62.200	823.000	67.300	[illegible].000	[illegible].200	825.000	69.200	825.000	72.800
GR	823.000	72.900	823.000	7[illegible].700	[illegible]	[illegible].000	825.000	85.000	823.000	87.200
GR	825.000	87.200	825.000	90.800	[illegible]	[illegible].300	825.200	93.000	823.000	91.000
GR	823.000	102.[illegible]00	823.000	105.200	[illegible]	105.200	[illegible].00	[illegible].000	823.000	101.600
GR	823.000	111.000	823.000	116.000	823.000	121.000	823.000	123.200	825.000	123.200
GR	825.000	126.300	823.000	126.900	823.000	129.000	823.000	134.000	823.000	139.000
GR	823.000	141.200	825.000	141.200	834.000	142.000	0.000	0.000	0.000	0.000

U/S [illegible] GOGUAC ST.

X1	2.000	0.000	0.000	0.000	160.000	160.000	160.000	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	[illegible].000	0.000	0.000	0.000	0.000	0.000	[illegible].000	834.000	834.000	0.000
[illegible]	[illegible].000	4.000	0.000	141.200	1.000	1.000	1.000	0.000	0.000	0.000
[illegible]	[illegible].000	0.000	0.000	0.000	0.000	0.000	2.000	834.000	834.000	0.000
[illegible]	834.000	0.000	123.300	2.000	825.000	141.200	834.000	142.000	0.000	0.000

VALLEY SECTION

X1	2.500	[illegible].000	50.000	200.000	300.000	500.000	[illegible].000	0.000	0.000	0.000
[illegible]	[illegible].000	0.000	830.000	50.000	822.000	70.000	82[illegible].000	125.000	822.000	130.000
[illegible]	[illegible].000	[illegible].00	837.000	250.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S BURNHAM ST.

X1	2.900	23.000	0.000	132.000	800.100	800.500	800.000	0.000	0.000	0.000
BT	837.200	0.000	826.900	1.000	826.200	17.200	826.200	17.100	826.200	17.900
GR	826.200	18.000	826.100	41.000	824.800	50.000	824.800	50.100	824.800	51.900
GR	824.800	52.000	820.100	66.000	820.100	82.000	820.100	82.100	820.100	83.900
GR	820.100	84.000	823.300	114.000	823.300	114.100	823.300	114.900	823.300	115.000
[illegible]	826.400	[illegible].000	827.400	131.000	837.200	132.000	0.000	0.000	0.000	0.000

D/S FACE BURNHAM ST.

X1	2.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	20.000	0.000	837.200	0.000	1.000	837.200	835.000	17.000	837.200	835.000
BT	17.100	837.200	0.000	17.900	837.200	0.000	18.000	837.200	835.000	50.000
BT	837.200	835.000	50.100	837.200	0.000	51.900	837.200	0.000	52.000	837.200
BT	835.000	82.000	837.200	835.000	82.100	837.200	0.000	83.900	837.200	0.000
BT	84.000	837.200	835.000	114.000	837.200	835.000	114.100	837.200	0.000	114.900
BT	837.200	0.000	115.000	837.200	835.000	131.000	837.200	835.000	132.000	837.200
[illegible]	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE BURNHAM ST.

X1	3.000	24.000	0.000	132.000	46.000	46.000	46.000	0.000	0.000	0.000
BT	20.000	0.000	837.200	0.000	1.000	837.200	835.000	17.000	837.200	835.000
BT	17.100	837.200	0.000	17.900	837.200	0.000	18.000	837.200	835.000	50.000
BT	837.200	835.000	50.100	837.200	0.000	51.900	837.200	0.000	52.000	837.200
BT	835.000	82.000	837.200	835.000	82.100	837.200	0.000	83.900	837.200	0.000
BT	84.000	837.200	835.000	114.000	837.200	835.000	114.100	837.200	0.000	114.900
BT	837.200	0.000	115.000	837.200	835.000	131.000	837.200	835.000	132.000	837.200

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NT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	837.200	0.000	828.900	1.000	824.800	9.000	824.200	17.000	824.200	17.100
GR	824.200	17.900	824.200	18.000	820.600	50.000	820.600	50.100	820.600	51.900
GR	820.600	52.000	821.300	66.000	821.200	82.000	821.200	82.100	821.200	83.900
GR	821.200	84.000	823.200	114.000	823.200	114.100	823.200	114.900	823.200	115.000
GR	825.500	117.000	827.500	129.000	820.500	130.000	837.200	152.000	0.000	0.000

U/S BURNHAM ST.

X1	3.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION

X1	3.500	7.000	50.000	250.000	1150.000	1150.000	1150.000	0.000	0.000	0.000
GR	337.000	0.000	330.000	50.000	322.000	70.000	821.300	150.000	324.000	230.000
GT	330.000	250.000	837.000	300.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S I-194

X1	3.000	21.000	0.000	264.000	1150.000	1150.000	1150.000	0.000	0.000	0.000
GT	840.000	0.000	837.000	1.000	825.000	40.000	825.000	55.000	825.000	55.100
GT	825.000	56.000	825.000	69.000	825.000	116.000	825.000	116.100	825.000	116.400
GT	825.000	116.500	825.000	171.000	825.000	171.100	825.000	174.400	825.000	174.500
GT	825.000	229.000	825.000	229.100	825.000	232.400	825.000	232.500	837.000	283.000
GT	840.000	284.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S EAST I-194

X1	3.900	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
GT	21.000	0.000	840.000	0.000	1.000	840.000	837.000	40.000	840.000	837.000
GT	55.000	840.000	837.000	55.100	840.000	0.000	56.400	840.000	0.000	56.500
GT	840.000	837.000	113.000	840.000	837.000	113.100	840.000	0.000	116.400	840.000
GT	0.000	116.500	840.000	837.000	171.000	840.000	837.000	171.100	840.000	0.000
GT	174.400	840.000	0.000	174.500	840.000	837.000	229.000	840.000	837.000	229.100
GT	840.000	0.000	232.400	840.000	0.000	232.500	840.000	837.000	283.000	840.000
GT	837.000	284.000	840.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S EAST I-194

X1	4.000	0.000	0.000	0.000	67.000	67.000	67.000	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

U/S I-194

X1	4.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

VALLEY SECTION : EMMETT TOWNSHIP CORPORATE BOUNDARY

X1	5.000	13.000	13.000	199.000	1850.000	1850.000	1850.000	0.000	0.000	0.000
GR	872.500	0.000	825.900	13.000	823.100	76.000	824.300	111.000	824.700	161.000
GR	826.500	199.000	827.800	219.000	830.400	249.000	834.300	263.000	836.700	285.000
GR	833.400	345.000	832.600	441.000	847.800	463.000	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=   0.100 CEHV=   0.300
*SECNO 1.000
   SECNO     DEPTH     CMSEL     CRIOS     MSELR     EG        HV        HL        ULOSS     BANK ELEV
   Q         QLOB      QCH       QROS      ALOB      ACH       AROS      ALL       TLA       LEFT/RIGHT
   TIME      VLOB      VCH       VROS      XAL       XMCH      XMR       XTM       LLMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    INF       ICONT     CORAR     TOPWID    ENDST

3370 NORMAL BRIDGE,NRD=  [illegible] MIN ELTRD=  [illegible] MAX ELLC=  [illegible]

        DAM D/S GOGUA ST.

     1.00      3.34    829.34      0.00    829.34    829.87      0.53      0.00      0.00    840.00
    2780.        0.     2780.        0.        0.      476.        0.        0.        0.    840.00
     0.00      0.00      5.84      0.00     0.100     0.035     0.100     0.000    826.00      0.00
 0.006020        0.        0.        0.         0         0         0   -175.46    195.00    195.00

*SECNO 1.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       834.00 ELREA=       834.00

        D/S GOGUAC ST.

     1.00      7.05    830.15      0.00      0.00    830.17      0.12      0.26      0.04    823.00
    2780.        0.     2780.        0.        0.      988.        0.        5.        1.    823.00
     0.03      0.00      2.81      0.00     0.100     0.035     0.100     0.035    823.00      0.80
 0.000326       300.      300.      300.         2         0         0      0.00    140.40    141.20

*SECNO 1.900

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD=  834.00 MAX ELLC=  832.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       834.00 ELREA=       834.00

        D/S FACE GOGUAC ST.

     1.90      6.97    829.97      0.00      0.00    830.20      0.23      0.00      0.03    825.00
    2780.        0.     2780.        0.        0.      715.        0.        5.        1.    825.00
     0.03      0.00      3.09      0.00     0.100     0.035     0.100     0.035    823.00      0.80
 0.001481        1.        1.        1.         2         0         0   -213.71    140.40    141.20

*SECNO 2.000

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD=  834.00 MAX ELLC=  832.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       834.00 ELREA=       834.00

        U/S FACE GOGUAC ST.

     2.00      7.21    830.21      0.00      0.00    830.43      0.22      0.22      0.00    825.00
    2780.        0.     2780.        0.        0.      739.        0.        8.        2.    825.00
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0.04	0.00	3.76	0.00	0.100	0.035	0.100	0.035	823.00	0.90
0.001332	160.	160.	160.	2	0	0	-224.15	140.40	141.20

*SECNO 2.100

SECNO	DEPTH	CHSEL	SPLSS	.SELF	CC	HV	HL	DLOSS	BANK ELEV
Q	C.OL	CCH	QVOO	ALOC	ACH	APCH	WOL	T.C	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XML	XRCH	XMR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	XTRIAL	IH2	ICONT	CORAR	TOPWID	ENDST

3623 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELEV= 834.00 ELMAX= 836.00

U/S GOGUAC ST.

2.10	7.33	830.55	0.00	0.00	830.64	0.11	0.00	0.01	823.00
2780.	0.	2780.	0.	0.	1029.	0.	8.	2.	823.00
0.04	0.00	2.70	0.00	0.100	0.035	0.100	0.035	823.00	0.60
0.000285	1.	1.	1.	2	0	0	0.00	140.40	141.20

*SECNO 2.500

VALLEY SECTION

2.50	9.55	830.55	0.00	0.00	830.63	0.09	0.19	0.00	830.00
2780.	0.	2780.	0.	0.	1177.	0.	26.	4.	830.00
0.15	0.00	2.36	0.00	0.100	0.035	0.100	0.035	821.20	46.09
0.000234	300.	300.	850.	2	0	0	0.30	157.82	215.91

*SECNO 2.800

D/S BURNHAM ST.

2.80	10.64	830.74	0.00	0.00	830.88	0.15	0.25	0.02	837.20
2780.	0.	2780.	0.	0.	897.	0.	47.	7.	837.20
0.21	0.00	3.10	0.00	0.100	0.035	0.100	0.035	820.10	0.63
0.000443	800.	800.	850.	0	0	0	0.30	130.70	131.33

*SECNO 2.900

3370 NORMAL BRIDGE.NRD= 20 MIN ELTRD= 837.20 MAX ELLC= 835.00

D/S FACE BURNHAM ST.

2.90	10.62	830.72	0.00	0.00	830.89	0.16	0.00	0.00	837.20
2780.	0.	2780.	0.	0.	853.	0.	47.	7.	837.20
0.21	0.00	3.26	0.00	0.100	0.035	0.100	0.035	820.10	0.63
0.000523	1.	1.	1.	1	0	0	-42.23	130.70	131.33

*SECNO 3.000

3370 NORMAL BRIDGE.NRD= 20 MIN ELTRD= 837.20 MAX ELLC= 835.00

U/S FACE BURNHAM ST.

3.00	10.18	830.79	0.00	0.00	830.91	0.13	0.02	0.00	837.20

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2760.	0.	2730.	3.	0.	970.	0.	46.	7.	837.20
0.21	0.00	2.87	0.00	0.100	0.035	0.100	0.035	820.60	0.77
0.000335	46.	46.	46.	2	0	0	-50.31	130.48	131.25

*SECNO 3.100

SECNO	DEPTH	CHSEL	CII.S	SELS	TQ	XV	HL	OLDSF	BANK ELEV
Q	GLOB	OCH	ONOB	ALOB	ACH	ANOB	VOL	TLA	LEFT/RIGHT
TIME	VLOB	VCH	VNOB	XRL	XNCH	XNR	DYN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IH2	ICONT	CONAR	TOPWID	ENDST

U/S BURNHAM ST.

3.10	10.20	830.80	0.00	0.00	830.91	0.12	0.00	0.00	837.20
2780.	0.	2730.	0.	3.	1221.	0.	48.	7.	837.20
0.21	0.00	2.72	0.00	0.100	0.035	0.100	0.035	820.60	0.77
0.000252	1.	1.	1.	1	0	0	0.00	130.48	131.25

*SECNO 3.500

VALLEY SECTION

3.50	10.04	831.04	0.00	0.00	831.08	0.04	0.16	0.01	830.00
2780.	0.	2779.	0.	4.	1728.	4.	34.	12.	850.00
0.41	0.09	1.61	0.09	0.100	0.035	0.100	0.035	821.00	42.56
0.210083	1150.	1150.	1150.	2	0	2	0.00	214.37	257.44

*SECNO 3.800

U/S I-194

3.80	5.17	831.17	0.00	0.00	831.24	0.07	0.15	0.01	840.00
2780.	0.	2740.	0.	0.	1231.	0.	123.	18.	860.00
0.56	0.00	2.09	0.00	0.100	0.035	0.100	0.035	825.00	19.93
0.000247	1150.	1150.	1150.	2	0	0	0.00	230.55	258.48

*SECNO 3.900

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD= 840.00 MAX ELLC= 837.00

D/S FACE I-194

3.90	6.17	831.17	0.00	0.00	831.25	0.08	0.00	0.00	860.00
2780.	0.	2780.	0.	0.	1247.	0.	125.	16.	840.00
0.56	0.00	2.23	0.00	0.100	0.035	0.100	0.035	825.00	19.93
0.000307	1.	1.	1.	0	0	0	-83.97	238.55	258.48

*SECNO 4.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD= 840.00 MAX ELLC= 837.00

U/S FACE I-196

4.00	6.19	831.19	0.00	0.00	831.27	0.08	0.02	0.00	840.00
2780.	0.	2780.	0.	0.	1249.	0.	127.	18.	840.00
0.57	0.00	2.22	0.00	0.100	0.035	0.100	0.035	825.00	19.89

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0.000305	67.	67.	67.	0	0	0	-84.14	238.64	258.53

*SECNO 4.100

SECNO	DEPTH	CHSEL	CHIBS	HSELK	EQ	HV	FL	PLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IH2	ICONT	CORAR	TOPWID	ENDST

U/S 1-194

14.10	6.20	831.20	0.00	0.00	831.27	0.07	0.00	0.00	840.00
2780.	0.	2780.	0.	0.	1335.	0.	127.	18.	840.00
0.57	0.00	2.08	0.00	0.100	0.035	0.100	0.035	825.00	19.87
0.000246	1.	1.	1.	1	0	0	0.00	238.70	258.57

*SECNO 5.000

VALLEY SECTION 1 EMMETT TOWNSHIP CORPERATE BOUNDARY

5.00	[illegible]	[illegible]	0.00	0.00	[illegible]	0.07	[illegible]	[illegible]	825.93
2780.	[illegible]	2784.	75.	5.	[illegible]	[illegible]	[illegible]	21.	826.50
0.83	0.17	2.07	0.45	0.100	0.035	0.100	0.035	823.10	11.41
0.000178	1850.	1050.	1850.	2	0	0	0.00	241.84	253.25

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED SEP 1977
  ERROR CORR -  01
  MODIFICATION -  [illegible]
*****************************************************

T1E NEXT TOWNSHIP FLOOD INSURANCE STUDY
T2KALAMAZOO RIVER CONVERGENCE RUN
T3      KALAMAZOO RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        4.        0.        0.  3.000000      0.00       0.0        0.   629.450     0.000

J2  NPROF     IPLOT     PRINT     XSECV     XSECH     FN        ALLDC     IBD       CHIM      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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*PROF 2

CCHV=   0.100 CEHV=   0.300
*SECNO 1.000
   SECNO     DEPTH     CUSE.     CHIMS     WSELK     EG        FV        [illegible]       BLOSS     BANK ELEV
   [illegible]      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]      LEFT/RIGHT
   TIME      VLOB      VCH       VROD      XN[illegible]      XNCH      XNR       [illegible]       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IN2       ICONT     CORAR     TCPWID    ENDST

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD=  826.90 MAX ELLC=  826.00

        DAM D/S GOGUA ST.

     1.00      3.45    829.45      0.00    829.45    829.94      0.49      0.00      0.00    840.00
    2780.        0.     2780.        0.        0.      497.        0.        0.        0.    840.00
     0.00      0.00      5.59      0.00     0.100     0.035     0.100     0.000    826.00      0.00
 0.005213        0.        0.        0.         0         0         0   -175.48    195.00    195.00

*SECNO [illegible]

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       834.00 ELREA=       834.00

        D/S GOGUAC ST.

     1.00      7.10    830.10      0.00      0.00    830.22      0.12      0.25      0.04    823.00
    2780.        0.     2780.        0.        0.      996.        0.        5.        1.    823.00
     0.03      0.00      2.79      0.00     0.100     0.035     0.100     0.035    823.00      0.80
 0.000318      300.      300.      300.         2         0         0      0.00    140.40    141.20

*SECNO 1.900

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD=  834.00 MAX ELLC=  832.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       834.00 ELREA=       834.00

        D/S FACE GOGUAC ST.

     1.90      7.02    830.02      0.00      0.00    830.25      0.23      0.00      0.03    825.00
    2780.        0.     2780.        0.        0.      720.        0.        5.        1.    825.00
     0.03      0.00      3.06      0.00     0.100     0.035     0.100     0.035    823.00      0.80
 0.001447        1.        1.        1.         2         0         0   -215.95    140.40    141.20

*SECNO 2.000

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD=  834.00 MAX ELLC=  832.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       834.00 ELREA=       834.00

        U/S FACE GOGUAC ST.

     2.00      7.25    830.25      0.00      0.00    830.47      0.22      0.22      0.00    825.00
    2780.        0.     2780.        0.        0.      743.        0.        8.        2.    825.00
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     0.04      0.00      3.74      0.00     0.100     0.035     0.100     0.035    823.00      0.80
 0.001306     160.      160.      160.         2         0         0   -226.12    140.40    141.20

*SECNO 2.100
   SECNO     DEPTH     CHSLL     CRIMS     *SELK     EG        FV        HL        BLOSS    BANK ELEV
   [illegible]     QLOB      QCH       QROB      XLCH      XCH       XNOB      XNL       [illegible]    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       UTN       ELKIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONY     COHAR     TOPWID    ENDST

[illegible] OVERBANK AREA ACRUMLY NON-EFFECTIVE,ELLEN=      [illegible] E.HLN=      [illegible]

        U/S GOGUAC ST.

     2.10      7.37    830.37      0.00      0.00    830.48      0.11      0.10      0.01    823.00
    2780.        0.     2780.        0.        0.     1035.        0.        1.        2.    823.00
     0.04      0.00      2.69      0.00     0.100     0.035     0.100     0.035    823.00      0.80
 0.000279        1.        1.        1.         2         0         0      0.00    140.40    141.20

*SECNO 2.500

        VALLEY SECTION

     2.50      9.59    830.59      0.00      0.00    830.67      0.09      0.19      0.00    830.00
    2780.        0.     2780.        0.        1.     1103.        1.       20.        4.    830.00
     0.15      0.00      2.35      0.09     0.100     0.035     0.100     0.035    821.00     65.00
 0.000[illegible]     800.      800.      800.         2         0         0      0.00    131.40    204.20

*SECNO 2.800

        D/S BURNHAM ST.

     2.80     10.67    830.77      0.00      0.00    830.92      0.15      0.23      0.02    837.20
    2780.        0.     2780.        0.        0.      902.        0.       47.        7.    837.20
     0.21      0.00      3.08      0.00     0.100     0.035     0.100     0.035    820.10      0.62
 0.000435      800.      800.      800.         0         0         0      0.00    130.71    131.33

*SECNO 2.900

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  837.20 MAX ELLC=  835.00

        D/S FACE BURNHAM ST.

     2.90     10.66    830.76      0.00      0.00    830.92      0.16      0.00      0.00    837.20
    2780.        0.     2780.        0.        0.      858.        0.       47.        7.    837.20
     0.21      0.00      3.24      0.00     0.100     0.035     0.100     0.035    820.10      0.62
 0.000514        1.        1.        1.         1         0         0    -42.44    130.71    131.33

*SECNO 3.000

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  837.20 MAX ELLC=  835.00

        U/S FACE BURNHAM ST.

     3.00     10.22    830.82      0.00      0.00    830.95      0.13      0.02      0.00    837.20
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   2780.       0.    2780.       0.       0.     975.       0.      48.       7.    837.20
    0.21     0.00     2.85     0.00    0.100    0.035    0.100    0.035   820.60      0.77
0.000330      46.      46.      46.        2        0        0   -50.52   130.49    131.26

*SECNO 3.100
   SECNO    DEPTH    C SEL    CROUS    USELK    B.       HV       HL       BLOSS    [illegible]
   0        CLOB     GCH      OROB     ALOB     ACH      AROB     VOL      TWA      LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      UTN      EL IN    SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IH2      ICONT    CORAR    TOPHID   ENDST

        U/S BURNHAM ST.

    3.10    10.23   830.83     0.00     0.00   830.95     0.11     0.00     0.00   837.20
   2780.       0.    2780.       0.       0.     1020.       0.      48.       7.    837.20
    0.21     0.00     2.71     0.00    0.100    0.035    0.100    0.035   820.60      0.77
0.000273       1.       1.       1.        0        0        0     0.00   130.49    131.26

*SECNO 3.500

        VALLEY SECTION

    3.50    10.07   831.07     0.00     0.00   831.11     0.04     0.16     0.01   830.00
   2780.       0.    2779.       0.       4.     1735.       4.      85.      12.    830.00
    0.41     0.09     1.60     0.09    0.100    0.035    0.100    0.035   821.00     42.33
0.000302    1150.    1150.    1150.        2        0        0     0.00   215.34    257.67

*SECNO 3.800

        D/S I-194

    3.80     6.21   831.21     0.00     0.00   831.27     0.07     0.15     0.01   840.00
   2780.       0.    2780.       0.       0.     1338.       0.     126.      18.    840.00
    0.57     0.00     2.08     0.00    0.100    0.035    0.100    0.035   825.00     19.83
0.000243    1150.    1150.    1150.        2        0        0     0.00   238.78    258.61

*SECNO 3.900

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  840.00 MAX ELLC=  837.00

        D/S FACE I-194

    3.90     6.20   831.20     0.00     0.00   831.28     0.08     0.00     0.00   840.00
   2780.       0.    2780.       0.       0.     1254.       0.     126.      18.    840.00
    0.57     0.00     2.22     0.00    0.100    0.035    0.100    0.035   825.00     19.83
0.000302       1.       1.       1.        0        0        0   -84.40   238.78    258.62

*SECNO 4.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  840.00 MAX ELLC=  837.00

        U/S FACE I-194

    4.00     6.22   831.22     0.00     0.00   831.30     0.08     0.02     0.00   840.00
   2780.       0.    2780.       0.       0.     1256.       0.     128.      18.    840.00
    0.58     0.00     2.21     0.00    0.100    0.035    0.100    0.035   825.00     19.79
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0.000300	67.	67.	[illegible]	[illegible]	0	0	-34.56	238.87	258.67

*SECNO 4.100

SECNO	DEPTH	CWSEL	CRIT	[illegible]	0	HV	FL	CLOSS	BANK ELEV
[illegible]	CLOB	QCH	QROB	[illegible]	[illegible]	QROB	VOL	T.A	LEFT/RIGHT
TIME	VLOB	VCH	VROB	[illegible]	XRCH	[illegible]	[illegible]	[illegible]	[illegible]
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IH2	ICONT	CORAR	TOPWID	ENDST

U/S I-194

4.10	6.23	831.23	0.00	0.00	831.30	0.07	0.00	0.00	840.00
2780.	0.	2780.	0.	0.	1343.	0.	128.	18.	840.00
0.58	0.00	2.07	0.00	0.100	0.035	0.100	0.035	825.00	19.77
0.000240	[illegible]	1.	1.	1	0	0	0.00	236.93	258.70

*SECNO 5.000

VALLEY SECTION 1 EMMETT TOWNSHIP CORPORATE BOUNDARY

5.00	6.51	[illegible]	0.00	0.00	[illegible]	[illegible]	[illegible]	0.00	825.9[illegible]
2780.	[illegible]	2780.	75.	5.	[illegible]	167.	[illegible]	2[illegible].	[illegible]
0.83	0.17	2.07	0.45	0.100	0.035	0.100	0.035	823.10	11.41
0.000176	1850.	1850.	1850.	2	0	0	0.00	241.94	253.35

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  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  30.01.52
**************************************************************

T1 [illegible] TOWNSHIP FLOOD INSURANCE STUDY
T2 KALAMAZOO RIVER CONVERGENCE RUN
T3       KALAMAZOO RIVER

J1  ICHECK    ING       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        4.        0.        0.  0.000000      0.00       0.0        0.   829.580     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IB        CHNL      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 3

CCRV=   0.100 CEHV=   0.300
*SECNO 1.000
   SECNO     DEPTH     CHSEL     CRIPS     HSELK     EG        HV        FL        BLOSS     BANK ELEV
   0.        QLOB      QCH       QROB      ALOB      ACH       ARO       VOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       XTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IH2       ICONT     CORAR     TOPBID    ENDST

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  826.90 MAX ELLC=  826.00

        DAM D/S GOGUA ST.

     1.00      3.58    829.58      0.00    829.58    830.02      0.44      0.00      0.00    840.00
    2780.        0.     2780.        0.        0.      529.        0.        0.        0.    840.00
     0.00      0.00      5.32      0.00     0.100     0.035     0.100     0.000    826.00      0.00
 0.004423        0.        0.        0.         0         0         0   -175.48    195.00    195.00

*SECNO 1.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       834.00 ELREA=       834.00

        D/S GOGUAC ST.

     1.00      7.16    830.16      0.00      0.00    830.28      0.12      0.23      0.03    823.00
    2780.        0.     2780.        0.        0.     1006.        0.        5.        1.    823.00
     0.03      0.00      2.76      0.00     0.100     0.035     0.100     0.035    823.00      0.80
 0.000308      300.      300.      300.         2         0         0      0.00    140.40    141.20

*SECNO 1.900

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD=  834.00 MAX ELLC=  832.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       834.00 ELREA=       834.00

        D/S FACE GOGUAC ST.

     1.90      7.09    830.09      0.00      0.00    830.32      0.23      0.00      0.03    825.00
    2780.        0.     2780.        0.        0.      727.        0.        5.        1.    825.00
     0.03      0.00      3.02      0.00     0.100     0.035     0.100     0.035    823.00      0.80
 0.001404        1.        1.        1.         2         0         0   -218.93    140.40    141.20

*SECNO 2.000

3370 NORMAL BRIDGE,NRD= 42 MIN ELTRD=  834.00 MAX ELLC=  832.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       834.00 ELREA=       834.00

        D/S FACE GOGUAC ST.

     2.00      7.32    830.32      0.00      0.00    830.53      0.21      0.29      0.00    825.00
    2780.        0.     2780.        0.        0.      749.        0.        8.        2.    825.00
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    0.04      0.00      3.71      0.00     0.100     0.035     0.100     0.035    823.00      0.30
0.001271     160.      160.      160.         2         0         0   -223.82    140.40    141.20

*SECNO 2.100
   SECNO     DEPTH     CUSEL     CRIMS     USELK     EL        HV        FL        LLOSS    BANK ELEV
   [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     [illegible]     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       LTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IR2       ICONT     CORAR     TOPWID    ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,GLLEA=      834.00 ELRCA=      834.00

        U/S GOGUAC ST.

    2.10      7.43    830.43      0.00      0.00    830.54      0.11      0.00      0.01    823.00
   2780.        0.     2780.        0.        0.      1043.        0.        6.        2.    823.00
    0.04      0.00      2.66      0.00     0.100     0.035     0.100     0.035    823.00      0.80
0.000272        1.        1.        1.         2         0         0      0.00    140.40    141.20

*SECNO 2.500

        VALLEY SECTION

    2.50      9.64    830.64      0.00      0.00    830.73      0.08      0.18      0.00    830.00
   2780.        0.     2780.        0.        1.      1191.        1.       29.        4.    830.00
    0.14      0.00      2.33      0.10     0.100     0.035     0.100     0.035    821.00     45.41
0.000196     800.      800.      800.         2         0         0      0.00    159.18    204.59

*SECNO 2.800

        D/S BURNHAM ST.

    2.80     10.72    830.82      0.00      0.00    830.97      0.15      0.22      0.02    837.20
   2780.        0.     2780.        0.        0.       909.        0.       48.        7.    837.20
    0.21      0.00      3.06      0.00     0.100     0.035     0.100     0.035    820.10      0.62
0.000425     800.      800.      800.         0         0         0      0.00    130.72    131.34

*SECNO 2.900

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  837.20 MAX ELLC=  835.00

        D/S FACE BURNHAM ST.

    2.90     10.71    830.81      0.00      0.00    830.97      0.16      0.00      0.00    837.20
   2780.        0.     2780.        0.        0.       864.        0.       48.        7.    837.20
    0.21      0.00      3.22      0.00     0.100     0.035     0.100     0.035    820.10      0.62
0.000502        1.        1.        1.         1         0         0    -42.72    130.72    131.34

*SECNO 3.000

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  837.20 MAX ELLC=  835.00

        U/S FACE BURNHAM ST.

    3.00     10.27    830.07      0.00      0.00    831.00      0.12      0.02      0.00    837.20
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2780.	0.	2780.	0.	0.	981.	0.	49.	7.	837.20
0.21	0.00	2.83	0.00	0.100	0.035	0.100	0.035	820.60	0.76
0.000323	46.	46.	46.	2	0	0	-50.30	130.59	131.26

*SECNO 3.100

SECNO	DEPTH	CHCTL	CTIMS	SMCL	SC	AV	FL	LOSS	PEAK ELEV
Q	QLOD	QCH	QROD	ALOB	ACH	AROB	VOL	TOA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	CTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IH2	ICONT	CORAR	TOPWID	ENDST

U/S BURNHAM ST.

3.10	10.28	830.88	0.00	0.00	831.00	0.11	0.00	0.00	837.20
2780.	0.	2780.	0.	0.	1353.	0.	49.	7.	837.20
0.21	0.00	2.69	0.00	0.100	0.035	0.100	0.035	820.60	0.76
0.000322	1.	1.	1.	1	0	0	0.00	130.59	131.26

*SECNO 3.500

VALLEY SECTION

3.50	10.12	831.12	0.00	0.00	831.16	0.04	0.15	0.01	830.00
2780.	0.	2779.	0.	4.	1744.	4.	36.	12.	830.00
0.42	0.09	1.59	0.09	0.100	0.035	0.100	0.035	821.00	42.00
0.002065	1150.	1150.	1150.	2	0	1	0.00	215.99	258.00

*SECNO 3.800

D/S I-194

3.80	6.25	831.25	0.00	0.00	831.31	0.07	0.15	0.01	840.00
2780.	0.	2780.	0.	0.	1346.	0.	127.	18.	840.00
0.57	0.00	2.06	0.00	0.100	0.035	0.100	0.035	825.00	19.69
0.000237	1150.	1150.	1150.	2	0	0	0.00	239.10	258.79

*SECNO 3.900

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD= 840.00 MAX ELLC= 837.00

D/S FACE I-194

3.90	6.24	831.24	0.00	0.00	831.32	0.08	0.00	0.00	840.00
2780.	0.	2780.	0.	0.	1263.	0.	127.	18.	840.00
0.57	0.00	2.20	0.00	0.100	0.035	0.100	0.035	825.00	19.69
0.000294	1.	1.	1.	0	0	0	-84.98	239.10	258.80

*SECNO 4.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD= 840.00 MAX ELLC= 837.00

U/S FACE I-194

4.00	6.26	831.26	0.00	0.00	831.34	0.07	0.02	0.00	840.00
2780.	0.	2780.	0.	0.	1266.	0.	129.	18.	840.00
0.58	0.00	2.20	0.00	0.100	0.035	0.100	0.035	825.00	19.66

FORM 1411.00 PRINTED BY ROYARY MANIFOLD FORMS.

[illegible]	[illegible]	67.	67.	0	0	0	-85.13	239.19	258.04

*SECNO [illegible]

SECNO	[illegible]	CNSEL	CRIMS	CSELK	EG	HV	HL	CLOSS	BANK ELEV
[illegible]		RCH	AROB	ALOF	ACH	AROB	VOL	THA	LEFT/RIGHT
TIME		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SLOPE	XL	[illegible]	XLOBR	ITRIAL	IN2	ICONT	CORAG	TOPWID	ENDST

U/S I-194

4.10	6.27	831.27	0.00	0.00	831.34	0.07	0.00	0.00	840.00
2780.	0.	2780.	0.	0.	1353.	0.	129.	18.	840.00
0.58	0.00	2.05	0.00	0.100	0.035	0.100	0.035	825.00	19.63
0.000235	1.	1.	1.	1	0	0	0.00	239.24	258.53

*SECNO 5.000

VALLEY SECTION 1 EMMETT TOWNSHIP CORPORATE BOUNDARY

5.00	5.54	831.66	0.00	0.00	831.71	0.06	0.37	0.00	825.90
2780.	1.	2780.	78.	5.	1355.	169.	169.	28.	826.30
0.83	0.16	2.06	0.45	0.100	0.035	0.100	0.035	823.10	11.40
0.000173	1850.	1850.	1850.	2	0	0	0.00	242.07	253.47

FORM 1411-80-PRINTED BY ROTARY MANIFOLD FORMS

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HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977

ERROR CODE - 01

MODIFICATION - 50.50.52

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

KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLOB	CHLCH	ELTRD	ELLC	ELMIN	Q	WSEL	CRIWS	EG	VCH	AREA	.01K
1.000	0.00	826.90	826.00	826.00	2780.00	829.34	0.00	829.87	60.28	5.84	475.84	358.06
1.000	0.00	826.90	826.00	826.00	2730.00	829.45	0.00	829.96	52.13	5.59	497.26	385.05
1.000	0.00	826.90	826.00	826.00	2780.00	829.56	0.00	830.02	44.23	5.32	522.63	417.99
1.800	300.00	0.00	0.00	823.00	2780.00	830.05	0.00	830.17	3.26	2.61	958.43	1559.46
1.800	300.00	0.00	0.00	823.00	2780.00	830.10	0.00	830.22	3.18	2.79	995.62	1559.03
1.800	300.00	0.00	0.00	823.00	2780.00	830.16	0.00	830.28	3.08	2.76	1005.53	1584.94
1.900	1.00	834.00	832.00	823.00	2780.00	829.97	0.00	830.20	14.61	3.09	715.23	722.33
1.900	1.00	834.00	832.00	823.00	2780.00	830.02	0.00	830.25	14.47	3.06	720.28	730.73
1.900	1.00	834.00	832.00	823.00	2780.00	830.09	0.00	830.32	14.04	3.02	727.03	741.99
2.000	160.00	834.00	832.00	823.00	2780.00	830.21	0.00	830.43	13.32	3.76	738.80	761.81
2.000	160.00	834.00	832.00	823.00	2780.00	830.25	0.00	830.47	13.06	3.74	743.23	769.32
2.000	160.00	834.00	832.00	823.00	2780.00	830.32	0.00	830.53	12.71	3.71	749.53	779.71
2.100	1.00	0.00	0.00	823.00	2780.00	830.33	0.00	830.44	2.85	2.70	1026.66	1646.13
2.100	1.00	0.00	0.00	823.00	2780.00	830.37	0.00	830.48	2.79	2.69	1034.97	1662.96
2.100	1.00	0.00	0.00	823.00	2780.00	830.43	0.00	830.54	2.72	2.66	1043.57	1685.49
2.300	600.00	0.00	0.00	821.00	2780.00	830.55	0.00	830.63	2.06	2.36	1179.28	1947.19
2.300	600.00	0.00	0.00	821.00	2780.00	830.59	0.00	830.67	2.00	2.35	1185.61	1963.80
2.300	600.00	0.00	0.00	821.00	2780.00	830.64	0.00	830.73	1.96	2.33	1194.56	1986.69
2.800	800.00	0.00	0.00	820.10	2780.00	830.74	0.00	830.88	4.43	3.10	897.21	1521.33
2.800	800.00	0.00	0.00	820.10	2780.00	830.77	0.00	830.92	4.35	3.08	902.02	1532.70
2.800	800.00	0.00	0.00	820.10	2780.00	830.82	0.00	830.97	4.25	3.06	908.57	1548.20
2.900	1.00	837.20	835.00	820.10	2780.00	830.72	0.00	830.89	5.23	3.26	853.52	1215.52
2.900	1.00	837.20	835.00	820.10	2780.00	830.76	0.00	830.92	5.14	3.24	857.96	1226.12
2.900	1.00	837.20	835.00	820.10	2780.00	830.81	0.00	830.97	5.02	3.22	864.28	1240.61
3.000	46.00	837.20	835.00	820.60	2780.00	830.78	0.00	830.91	3.35	2.87	970.05	1519.35
3.000	46.00	837.20	835.00	820.60	2780.00	830.82	0.00	830.95	3.30	2.85	974.60	1530.68
3.000	46.00	837.20	835.00	820.60	2780.00	830.87	0.00	831.01	3.23	2.83	980.82	1546.25
3.100	1.00	0.00	0.00	820.60	2780.00	830.80	0.00	830.91	2.82	2.72	1021.32	1655.41
3.100	1.00	0.00	0.00	820.60	2780.00	830.83	0.00	830.95	2.78	2.71	1026.04	1667.58
3.100	1.00	0.00	0.00	820.60	2780.00	830.88	0.00	831.00	2.72	2.69	1032.50	1684.31

FORM 1411.80-PRINTED BY ROTARY MANIFOLD FORMS.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CLSEL	CRIWS	ES	10K*S	VCH	AREA	.01K
3.500	1150.00	0.00	0.00	821.00	2780.00	831.04	0.00	831.08	0.83	1.61	1735.94	3059.24
3.500	1150.00	0.00	0.00	821.00	2780.00	831.07	0.00	831.11	0.82	1.60	1745.03	3078.77
3.500	1150.00	0.00	0.00	821.00	2780.00	831.12	0.00	831.15	0.80	1.59	1752.08	3105.57
3.800	1150.00	0.00	0.00	825.00	2780.00	831.17	0.00	831.24	2.47	2.09	1330.66	1768.91
3.800	1150.00	0.00	0.00	825.00	2780.00	831.21	0.00	831.27	2.43	2.08	1338.06	1784.15
3.800	1150.00	0.00	0.00	825.00	2780.00	831.25	0.00	831.31	2.37	2.06	1348.59	1805.49
3.900	1.00	840.00	837.00	825.00	2780.00	831.17	0.00	831.25	3.07	2.23	1246.75	1586.92
3.900	1.00	840.00	837.00	825.00	2780.00	831.20	0.00	831.28	3.02	2.22	1253.70	1600.69
3.900	1.00	840.00	837.00	825.00	2780.00	831.24	0.00	831.32	2.94	2.20	1263.47	1619.97
4.000	67.00	840.00	837.00	825.00	2780.00	831.19	0.00	831.27	3.05	2.22	1249.50	1592.34
4.000	67.00	840.00	837.00	825.00	2780.00	831.22	0.00	831.30	3.00	2.21	1256.46	1606.12
4.000	67.00	840.00	837.00	825.00	2780.00	831.26	0.00	831.34	2.93	2.20	1266.00	1624.99
4.100	1.00	0.00	0.00	825.00	2780.00	831.20	0.00	831.27	2.44	2.08	1335.50	1778.66
4.100	1.00	0.00	0.00	825.00	2780.00	831.23	0.00	831.30	2.40	2.07	1342.90	1794.14
4.100	1.00	0.00	0.00	825.00	2780.00	831.27	0.00	831.36	2.35	2.05	1352.94	1814.92
5.000	1850.00	0.00	0.00	823.10	2780.00	831.59	0.00	831.68	1.78	2.07	1474.34	2083.98
5.000	1850.00	0.00	0.00	823.10	2780.00	831.61	0.00	831.68	1.76	2.07	1480.42	2096.41
5.000	1850.00	0.00	0.00	823.10	2780.00	831.64	0.00	831.71	1.73	2.06	1488.69	2114.31

FORM 1411 GO PRINTED BY ROTARY MANIFOLD FORMS.

KALAMAZOO RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000	2780.00	829.34	0.00	0.00	0.00	195.00	0.00
1.000	2780.00	829.45	0.00	0.00	0.00	195.00	0.00
1.000	2780.00	829.58	0.00	0.00	0.00	195.00	0.00
1.800	2780.00	830.05	0.00	0.71	0.00	140.40	300.00
1.800	2780.00	830.10	0.00	0.65	0.00	140.40	300.00
1.800	2780.00	830.16	0.00	0.58	0.00	140.40	300.00
1.900	2780.00	829.97	0.00	-0.08	0.00	140.40	1.00
1.900	2780.00	830.02	0.00	-0.06	0.00	140.40	1.00
1.900	2780.00	830.09	0.00	-0.06	0.00	140.40	1.00
2.000	2780.00	830.21	0.00	0.24	0.00	140.40	160.00
2.000	2780.00	830.25	0.00	0.24	0.00	140.40	160.00
2.000	2780.00	830.32	0.00	0.23	0.00	140.40	160.00
2.100	2780.00	830.35	0.00	0.12	0.00	140.40	1.00
2.100	2780.00	830.37	0.00	0.12	0.00	140.40	1.00
2.100	2780.00	830.43	0.00	0.11	0.00	140.40	1.00
2.500	2780.00	830.55	0.00	0.22	0.00	157.62	800.00
2.500	2780.00	830.59	0.00	0.22	0.00	156.41	800.00
2.500	2780.00	830.64	0.00	0.21	0.00	159.18	800.00
2.800	2780.00	830.74	0.00	0.19	0.00	130.70	800.00
2.800	2780.00	830.77	0.00	0.18	0.00	130.71	800.00
2.800	2780.00	830.82	0.00	0.16	0.00	130.72	800.00
2.900	2780.00	830.72	0.00	-0.01	0.00	130.70	1.00
2.900	2780.00	830.76	0.00	-0.01	0.00	130.71	1.00
2.900	2780.00	830.81	0.00	-0.01	0.00	130.72	1.00
3.000	2780.00	830.78	0.00	0.06	0.00	130.48	46.00
3.000	2780.00	830.82	0.00	0.06	0.00	130.49	46.00
3.000	2780.00	830.87	0.00	0.06	0.00	130.50	46.00
3.100	2780.00	830.80	0.00	0.01	0.00	130.48	1.00
3.100	2780.00	830.83	0.00	0.01	0.00	130.49	1.00
3.100	2780.00	830.88	0.00	0.01	0.00	130.50	1.00
3.500	2780.00	831.04	0.00	0.24	0.00	214.87	1150.00
3.500	2780.00	831.07	0.00	0.24	0.00	215.34	1150.00
3.500	2780.00	831.12	0.00	0.24	0.00	215.99	1150.00
3.800	2780.00	831.17	0.00	0.13	0.00	238.55	1150.00
3.800	2780.00	831.21	0.00	0.13	0.00	238.78	1150.00
3.800	2780.00	831.25	0.00	0.13	0.00	239.10	1150.00
3.900	2780.00	831.17	0.00	-0.01	0.00	238.55	1.00
3.900	2780.00	831.20	0.00	-0.01	0.00	238.78	1.00
3.900	2780.00	831.24	0.00	-0.01	0.00	239.10	1.00

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

SECNO	Q	CHSEL	DIFUSP	DIFUSX	DIFXHS	TOPWID	XLCH
4.000	2780.00	831.19	0.00	0.02	0.00	238.64	67.00
4.000	2780.00	831.22	0.00	0.02	0.00	238.67	67.00
4.000	2780.00	831.26	0.00	0.02	0.00	238.71	67.00
4.100	2780.00	831.20	0.00	0.01	0.00	238.70	1.00
4.100	2780.00	831.23	0.00	0.01	0.00	238.93	1.00
4.100	2780.00	831.27	0.00	0.01	0.00	239.24	1.00
5.000	2780.00	831.59	0.00	0.39	0.00	241.64	1850.00
5.000	2780.00	831.61	0.00	0.39	0.00	241.94	1850.00
5.000	2780.00	831.64	0.00	0.37	0.00	242.07	1850.00

SUMMARY OF ERRORS

FORM (411) 80-PRINTED BY ROTARY MANIFOLD FORMS.
PRINTED IN U.S.A.

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR COPY - 01
  MODIFICATION - 30,51,52
*****************************************************
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FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.
PRINTED IN U.S.A.

ERROR SUMMARY

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.
PRINTED BY ROTARY BASIFOLD FORMS.

12:27:06 X92 DAN HU2025C7 CNMET07 OCT 08, 1980

R400 11*C SM:11ZC LM:11*C FG:E5-006 22A00561 PR01 PR/H112/FI/SI/A/H132

00BREAK00

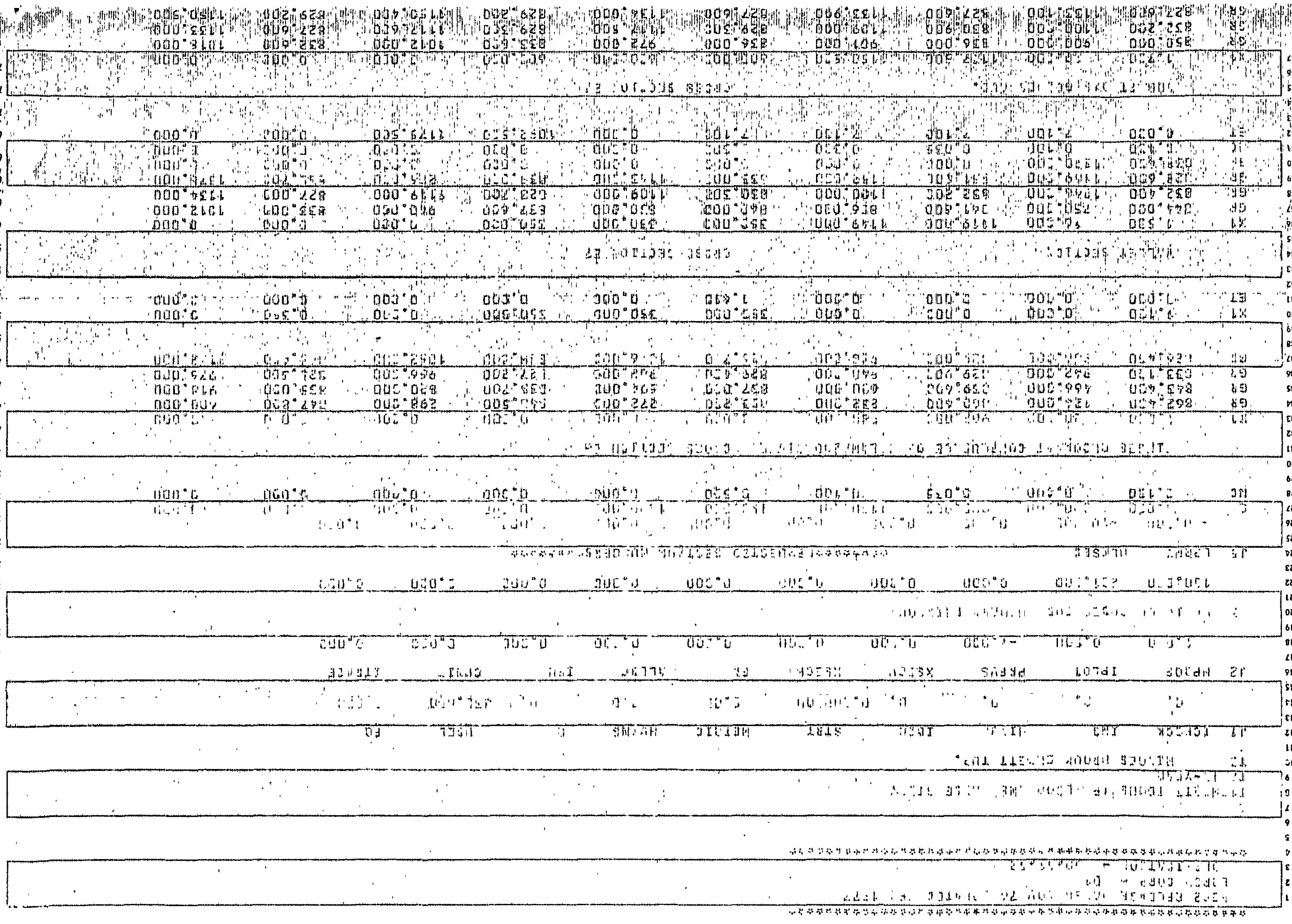
1) COUNTY: Calhoun

2) STUDY NAME: Emmett

3) WATERCOURSE: Minges Brook

4) DOCUMENT TYPE: 10, 50, 100, 500 profiles

00BREAK00



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*****************************************************************
  [illegible] RELEASE [illegible] NOV 76 [illegible] 1977
  [illegible] CORP - [illegible]
  [illegible] - [illegible]
*****************************************************************

[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible]
T2      [illegible] BROOK [illegible] TUB.

J1  [illegible]   [illegible]   [illegible]   [illegible]   STRT   METRIC   [illegible]   [illegible]   USEL   FQ
     0.      0.      0.      0.  [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]

J2  NPROP   IPLOT   PRFVS   XSECV   XSECH   FX   ALLSP   [illegible]   [illegible]   ITRACE
     [illegible]   0.000   [illegible]   0.000   0.000   0.000   0.000   0.000   0.000   0.000

[illegible]
    [illegible]   [illegible]   0.000   0.000   0.000   0.000   0.000   0.000   0.000   0.000

J5  [illegible]   [illegible]   ********REQUESTED SECTION NUMBERS********
     [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
C    [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
NC   0.100   0.400   0.035   0.400   0.500   0.000   0.000   0.000   0.000   0.000

      [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
X1   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   0.000   0.000   [illegible]   0.000
GR   862.400   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   298.000   [illegible]   [illegible]
GR   843.400   466.000   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
GR   833.100   942.000   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   966.000   [illegible]   [illegible]
GR   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]

X1   0.100   0.000   0.000   0.000   350.000   350.000   350.000   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

      [illegible] SECTION                    CROSS SECTION 27

X1   1.500   [illegible]   1119.000   1149.000   350.000   350.000   350.000   0.000   0.000   0.000
GR   844.000   750.000   841.600   856.000   860.000   830.000   837.600   960.000   833.000   1012.000
GR   832.400   1046.000   832.200   1100.000   830.300   1109.000   823.700   1119.000   827.000   1134.000
GR   828.600   1169.000   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
GR   [illegible]   [illegible]   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   [illegible]   0.000   0.000   0.000   0.000   0.000
ET   0.000   7.100   7.100   7.100   7.100   0.000   1092.500   1179.500   0.000   0.000

      [illegible] [illegible]                    CROSS SECTION 27

X1   1.700   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   [illegible]   0.000   0.000   0.000
GR   850.000   900.000   836.000   901.000   836.000   972.000   833.600   1012.000   832.600   1018.000
GR   832.200   1100.000   830.900   1109.000   829.300   1117.500   829.300   1117.600   827.600   1133.000
GR   827.600   1133.100   827.600   1133.900   827.600   1134.000   829.200   1150.400   829.200   1150.500
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GR	831.700	1152.000	833.600	1161.000	835.600	1299.050	850.000	1300.000	0.000	0.000

RT 25 FACE GOLDEN AVE. CROSS SECTION 27

X1	1.900	3.670	0.120	3.670	100.300	1 [illegible]	150.000	[illegible]	[illegible]	[illegible]
X3	0.300	[illegible]	0.300	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
X4	0.000	1.670	3.700	3.670	37.000	1.500	209.670	0.200	828.[illegible]	129.000

LT6 FACE GOLDEN AVE. CROSS SECTION 28.73

X1	[illegible]	0.300	[illegible]	0.000	[illegible]	21.000	21.200	0.000	0.200	0.000
X2	3.020	0.300	3.020	835.200	836.920	0.000	0.300	0.000	0.200	0.000
X3	13.000	0.200	[illegible]	0.000	[illegible]	[illegible]	0.000	336.900	336.900	0.000
RT	17.020	300.000	352.020	0.000	971.520	827.620	0.000	1316.000	936.900	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]
ET	1152.300	156.900	0.520	1161.020	836.900	[illegible]	1299.020	835.900	0.000	1300.000
XT	850.000	3.020	0.520	3.020	0.300	0.200	[illegible]	3.020	0.000	0.000
RT	0.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1067.520	925[illegible].500	[illegible]	[illegible]

[illegible] CROSS SECTION [illegible]

X1	[illegible]	0.200	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.300	[illegible]
X2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

VALLEY SECTION CROSS SECTION 29

X1	2.200	73.000	533.000	549.000	850.300	306.000	1145.000	0.000	0.000	0.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GR	842.200	755.000	942.800	810.000	845.100	852.000	851.800	912.000	860.600	988.000
GR	874.200	1070.000	0.000	0.000	0.000	0.300	0.000	0.000	0.000	0.000
ET	0.050	0.900	0.000	0.000	1.610	0.000	0.000	0.000	0.000	0.000

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
GR	836.600	710.000	824.200	775.100	845.900	719.000	834.700	726.000	835.100	737.600
GR	838.900	758.000	842.200	755.000	842.000	812.000	843.100	862.000	851.800	942.000
QR	840.400	925.000	0.000	0.000	0.270	0.000	0.000	0.000	0.000	0.000

[illegible] [illegible]

XT	2.300	10.000	956.000	908.000	900.300	730.000	727.000	0.000	0.000	0.000
XT	870.700	832.000	863.700	838.000	852.600	822.000	846.000	702.000	842.700	806.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
XT	5.000	340.300	425.000	670.000	652.000	900.300	0.530	0.300	0.000	0.000

[illegible] [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
GR	871.300	654.000	862.000	940.300	850.800	828.000	815.300	868.000	846.700	716.000
GR	841.300	910.000	840.300	1300.000	831.100	1019.000	797.000	1219.000	837.900	1027.000
GR	840.300	1152.000	860.300	1240.000	862.400	1282.000	846.300	1406.000	845.400	1441.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	0.000	[illegible]	[illegible]	[illegible]	0.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	0.000	[illegible]	[illegible]	[illegible]	0.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

100 FT U/S JUANITA DR. CROSS SECTION 52

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
GR	854.000	745.000	849.400	765.000	846.600	830.000	842.000	878.000	871.000	970.000
GR	842.500	980.000	830.400	986.000	839.700	992.000	835.000	1000.000	841.600	1203.000
GR	862.200	1050.000	862.900	1110.000	847.900	1106.000	847.700	1124.000	848.800	1476.000
QT	346.000	1535.000	875.400	1340.000	0.300	0.000	0.000	0.000	0.000	0.000

U/S FACE JUANITA DR. CROSS SECTION 53

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
XT	2.900	30.000	836.300	996.000	900.000	130.000	101.000	0.000	0.000	0.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

BT	745.000	854.000	0.000	765.000	949.000	0.000	839.000	846.600	0.000	878.000
ET	844.400	0.000	970.300	844.400	0.000	960.000	844.400	0.000	985.000	864.400
CT	839.000	985.400	864.400	840.400	986.100	844.400	841.400	987.200	844.600	841.800
CT	388.300	844.400	841.300	960.000	844.400	840.400	959.400	844.400	839.000	989.800
BT	744.400	854.000	765.000	849.000	0.000	839.000	846.600	0.000	878.000	0.000
ET	844.400	0.000	970.300	844.400	0.000	960.000	844.400	0.000	985.000	864.400
CT	839.000	985.400	864.400	840.400	986.100	844.400	841.400	987.200	844.600	841.800
CT	388.300	844.400	841.300	960.000	844.400	840.400	959.400	844.400	839.000	989.800
BT	744.400	854.000	765.000	849.000	0.000	839.000	846.600	0.000	878.000	0.000
ET	844.400	0.000	970.300	844.400	0.000	960.000	844.400	0.000	985.000	864.400
CT	839.000	985.400	864.400	840.400	986.100	844.400	841.400	987.200	844.600	841.800
CT	388.300	844.400	841.300	960.000	844.400	840.400	959.400	844.400	839.000	989.800
BT	744.400	854.000	765.000	849.000	0.000	839.000	846.600	0.000	878.000	0.000
ET	844.400	0.000	970.300	844.400	0.000	960.000	844.400	0.000	985.000	864.400
CT	839.000	985.400	864.400	840.400	986.100	844.400	841.400	987.200	844.600	841.800
CT	388.300	844.400	841.300	960.000	844.400	840.400	959.400	844.400	839.000	989.800
BT	744.400	854.000	765.000	849.000	0.000	839.000	846.600	0.000	878.000	0.000
ET	844.400	0.000	970.300	844.400	0.000	960.000	844.400	0.000	985.000	864.400
CT	839.000	985.400	864.400	840.400	986.100	844.400	841.400	987.200	844.600	841.800
CT	388.300	844.400	841.300	960.000	844.400	840.400	959.400	844.400	839.000	989.800

50 FT O/S QUANTICO DRIVE — CROSS SECTION 53

X1	3.100	22.000	944.000	1000.000	30.000	31.000	30.000	0.000	0.000	0.000
[illegible]	170.300	845.000	922.000	940.000	944.000	941.000	940.000	941.000	938.000	923.300
[illegible]	58.300	916.000	920.000	705.000	936.000	920.000	938.000	940.000	1.000	940.000
[illegible]	1.300	0.000	0.000	0.000	30.000	0.000	0.000	1301.000	0.000	1000.000
GT	842.200	1000.000	942.200	1116.000	952.400	1195.000	343.700	1174.000	846.200	1476.000
ET	849.500	1896.000	875.000	1196.000	0.300	0.000	0.000	0.000	0.000	0.000
XS	0.100	0.100	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
[illegible]	3.100	0.100	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000

900 FT O/S D[illegible] [illegible] FT O/S [illegible] CROSS SECTION 53

X1	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
[illegible]	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	844.600	989.000	840.700	990.300	843.000	1190.000	839.400	1010.000	843.000	1013.000
GR	844.400	1090.000	850.000	1290.000	860.000	1200.000	0.100	0.300	0.000	0.000
ET	0.000	0.100	0.000	0.000	0.000	0.300	997.000	1007.000	0.000	0.000

O/S OF DA[illegible] — CROSS SECTION 54

X1	3.000	0.000	0.000	0.000	99.000	99.000	99.000	0.000	0.000	0.000
[illegible]	0.000	0.000	0.000	0.000	0.000	0.000	997.000	1007.000	0.000	0.000
MC	0.100	0.300	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.000

TOP OF DA[illegible] — CROSS SECTION 54

X1	3.000	0.000	0.000	0.000	2.000	2.000	2.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	684.000	842.000	0.000	0.000	0.000	0.000	0.000
[illegible]	0.000	0.000	0.000	0.000	0.000	0.000	997.000	1007.000	0.000	0.000
MC	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

O/S OF DA[illegible] — CROSS SECTION 54

XS	3.000	0.000	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
GR	843.000	750.000	851.000	845.000	849.400	930.000	848.400	945.000	845.002	976.000
GR	844.600	937.000	840.700	990.000	843.000	1090.000	839.600	1010.000	843.003	1013.000
GR	844.400	1090.000	850.000	1290.000	860.000	1290.000	0.000	0.000	0.000	0.000
ET	0.000	0.100	0.000	0.000	0.000	0.000	997.000	1007.000	0.000	0.000

O/S DA[illegible] LOCATED 22 FT O/S B DRIVE — CROSS SECTION 54

X1	3.000	43.000	990.000	1011.000	160.000	75.000	114.000	0.000	0.000	0.000

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GR	860.000	750.000	851.000	845.000	849.400	900.000	848.400	976.000	845.000	976.000
GR	843.700	985.000	841.000	990.000	841.000	1000.000	840.500	1011.000	843.000	1014.000
SH	844.400	1090.000	850.000	1200.000	850.000	1290.000	0.000	0.000	0.000	0.000
ET	0.000	0.100	0.000	0.000	0.000	0.000	999.000	1012.000	0.000	0.000
XC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

TOP OF DAM CROSS SECTION 54

X1	0.000	0.000	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	0.000	0.000	0.000	0.000
XC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S OF DA CROSS SECTION 54

X1	0.000	0.000	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	0.000	0.000	0.000	0.000
XC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	860.000	750.000	851.000	845.000	849.400	900.000	848.400	976.000	845.000	976.000
GR	843.700	985.000	841.000	990.000	841.000	1000.000	840.500	1011.000	843.000	1014.000
SH	844.400	1090.000	850.000	1200.000	850.000	1290.000	0.000	0.000	0.000	0.000
ET	0.000	0.100	0.000	0.000	0.000	0.000	999.000	1012.000	0.000	0.000
XC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE E DRIVE CROSS SECTION 55

X1	0.000	13.000	957.000	1104.000	94.000	41.000	31.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
XC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	844.400	1090.000	850.000	1200.000	850.000	1290.000	0.000	0.000	0.000	0.000
SH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	840.000	840.000

U/S FACE E DRIVE CROSS SECTION 55

X1	4.000	25.000	994.000	1105.000	49.000	40.000	44.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	844.000	847.000	0.000	0.000	0.000	0.000	0.000
XC	10.000	240.000	0.000	0.000	0.000	0.000	0.000	847.000	847.000	0.000
BT	21.000	750.000	851.000	0.000	905.000	950.100	0.000	0.000	0.000	0.000
BT	843.000	985.000	0.000	845.000	0.000	0.000	848.000	847.000	0.000	994.000
BT	847.000	841.000	905.000	847.000	845.000	905.100	847.000	0.000	994.000	847.000
BT	844.000	997.000	847.000	844.000	995.100	847.000	847.000	995.000	847.000	841.000
BT	1001.000	847.000	841.000	1001.000	847.000	849.000	1002.000	847.000	844.000	1003.000
BT	847.000	844.000	1004.000	847.000	844.000	1005.100	847.000	843.000	1005.000	847.000
BT	841.000	1007.000	847.000	0.000	1001.000	0.000	0.000	1004.000	846.000	0.000
BT	1122.000	847.000	0.000	1122.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	1102.000	750.000	860.000	845.000	849.000	900.000	848.000	976.000	845.000	976.000
GR	861.400	993.100	841.500	994.400	840.500	994.000	840.500	995.400	840.900	996.500
SH	840.500	997.100	840.500	993.100	841.500	993.500	841.500	1001.500	840.500	1001.000
SH	840.500	1002.900	840.500	1003.500	840.500	1004.200	841.500	1005.100	841.500	1005.400
ET	997.000	0.000	0.000	997.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SC PT U/S E DRIVE

X1	4.000	0.000	0.000	0.000	51.000	51.000	30.000	0.000	0.000	0.000
XC	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	0.000	0.000	0.000	0.000	0.000	0.000

XC	0.000	0.000	0.000	0.000	0.000	250.000	450.000	500.000	0.000	0.000

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CROSS SECTION 57

FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS

PRINTED IN U.S.A.

X1	5.250	20.000	1408.000	1418.300	600.000	525.000	575.000	0.000	-1.050	0.000
GR	870.000	1140.000	852.400	1141.300	852.400	1362.000	757.000	1378.000	853.000	1397.000
GR	851.000	1435.000	841.400	1441.300	841.400	1442.000	742.000	1441.000	842.000	1426.000
X	856.000	1450.000	829.400	1436.300	852.400	1436.000	742.000	1441.000	842.000	1426.000
GR	856.100	1436.000	826.400	1436.300	826.400	1436.000	1436.000	1442.000	826.400	1436.000

VALLEY SECTION CROSS SECTION 22

X1	5.350	24.000	959.000	1436.300	600.000	425.000	525.000	0.000	-1.650	0.000
GR	880.000	0.000	867.200	800.000	866.100	816.000	743.600	436.000	869.000	469.000
GR	867.200	870.000	864.100	861.000	865.400	777.000	543.200	787.000	867.000	867.000
GR	89.000	91.000	84.000	861.000	865.400	777.000	543.200	787.000	867.000	867.000
GR	834.200	91.000	84.000	861.000	865.400	777.000	543.200	787.000	867.000	867.000
GR	861.200	1276.000	875.600	1436.000	829.200	1436.000	239.200	1482.000	0.000	0.000

VALLEY SECTION CROSS SECTION 23

X	3.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X	3.300	0.000	0.000	0.000	0.000	565.000	405.000	0.000	0.000	0.000
GR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
X2	0.000	0.000	0.000	962.000	0.000	3797.000	0.000	0.000	0.000	0.000
X2	0.100	0.400	0.040	0.300	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE I-195 CROSS SECTION 11

X1	5.250	13.000	1814.000	1891.300	335.000	335.000	643.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	1749.300	0.000	1636.000	0.000	0.000	0.000	0.000
GR	890.000	1764.000	862.000	1745.100	861.000	1792.000	853.200	1805.000	855.900	1814.000
GR	855.920	1814.100	835.000	1792.000	850.000	1792.000	853.000	1805.000	855.900	1814.000
GR	845.920	1830.500	835.000	1831.100	855.000	1836.300	842.000	1805.000	845.000	1851.000
GR	0.00	0.00	0.000	0.000	0.000	0.000	0.000	1805.000	0.000	0.000

X1	5.300	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	10.000	0.000	0.000	0.000	0.000	0.000	0.000	100.000	100.000	0.000

D/S FACE I-196 CROSS SECTION 20

X	5.900	0.000	0.000	0.000	0.000	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	1830.300	0.000	0.000
GR	885.000	1764.000	861.000	1.000	1744.000	861.000	0.000	1742.300	860.000	0.000
GR	1000.000	390.000	0.000	1814.000	100.000	0.00	1814.000	830.000	0.000	1825.000
GR	890.000	864.200	1822.100	390.000	0.000	1822.900	890.000	0.000	825.000	890.000
GR	864.200	1850.900	822.000	864.200	1821.000	861.000	0.000	1836.000	860.000	0.000
GR	1880.000	190.000	0.000	1891.000	862.000	0.000	0.000	0.000	0.000	0.000

D/S FACE I-196 CROSS SECTION 13

X	6.000	0.000	0.000	0.000	300.000	300.000	300.000	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

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X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	890.000	890.000	0.000
X1	4.150	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	15.000	0.000	0.000	0.000	0.000	0.000	0.000	195.000	195.000	0.000

SU FT U/S 1-194 CROSS SECTION 1

X1	6.200	0.000	0.000	0.000	30.000	30.000	50.000	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

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[illegible]

[illegible]

[illegible]

JS	PCHECK	INC	WIND	IFER	SPOT	METRIC	[illegible]	[illegible]	USEL	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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00BREAK00

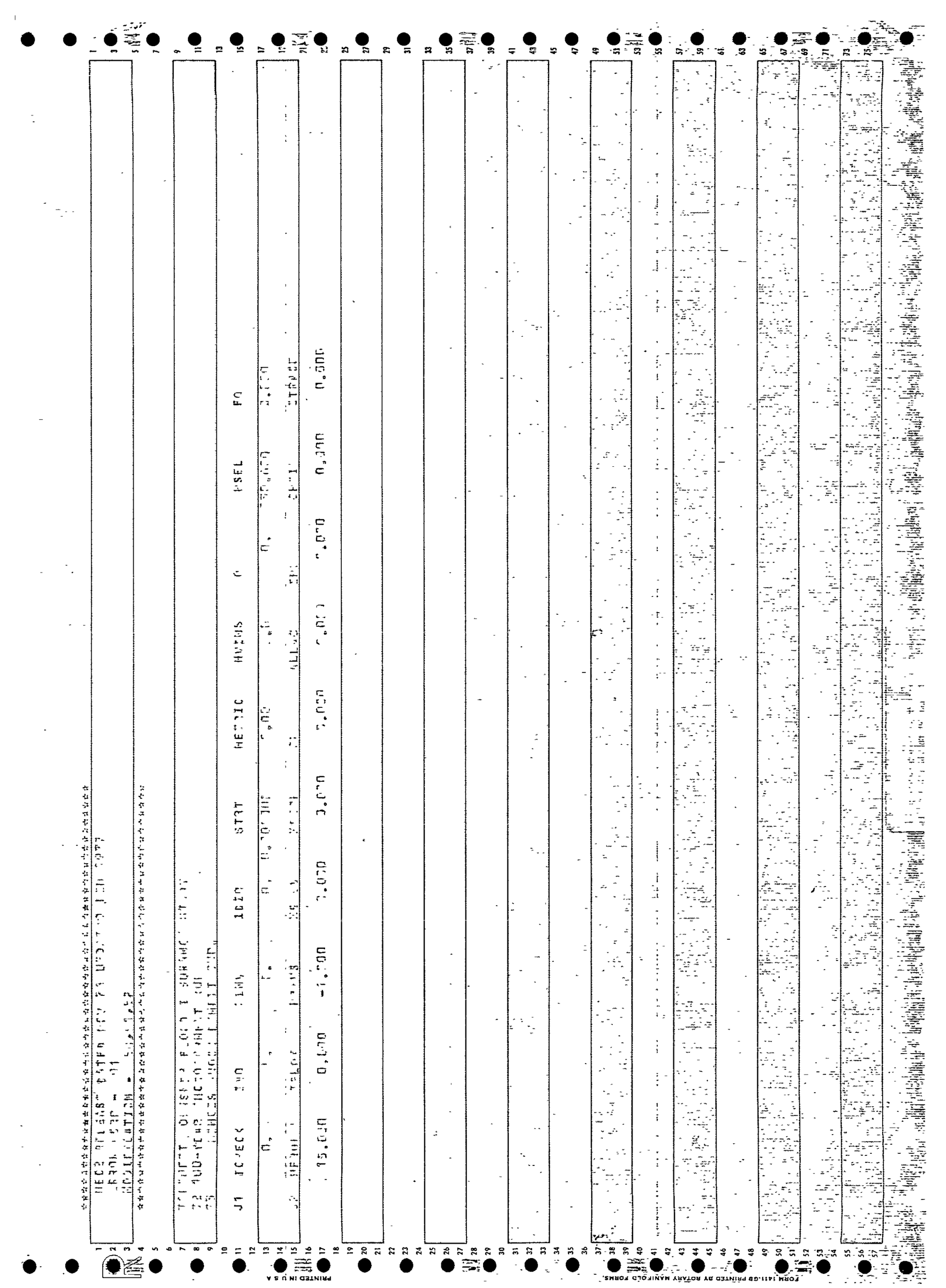
1) COUNTY: Calhoun

2) STUDY NAME: Emmett Twp

3) WATERCOURSE: Minges Brook

4) DOCUMENT TYPE: 100 yr · Encroached

00BREAK00



*PROF 2

CCHV= 0.100 CEV= 0.300

*SECNO 4.000

SECNO	DELTX	FRICSL	ZR	STCL	XL	XM	XR		PLOSS	XTRLEW
ELMIN	ELDIF	ELCH	ELOB	XMIL	XNCH	XMR	XTP		ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IP2	ICONT	CORAR		TOPWID	ENDST

STRT WATERSHED BOUNDARY

FINCH BROOK AT CONFLUENCE OF KALAMAZOO RIVER CROSS SECTION 26 A

4.00	4.62	830.92	830.92	830.60	832.61	1.99	0.01	0.00	829.60
1200.	35.	1127.	12.	10.	17.	7.	6.	0.	830.70
0.13	.25	10.41	1.34	.105	.035	0.030	.060	826.30	965.01
0.000	0.	0.	0.	2	2	0	0.30	67.00	965.91

*SECNO 3.170

3567 BANKFULL STATION= 1190. ELS

3.10	6.91	830.56	3.00	0.00	833.11	2.55	1.35	0.11	829.75
1150.	67.	1025.	35.	50.	164.	32.	7.	0.	829.35
0.00	1.45	6.27	2.08	0.100	0.035	0.100	0.035	326.55	940.36
0.000000	0.	35.	35.	3	0	1	1.00	42.70	1171.26

*SECNO 1.000

2300 NAT Q1= 366.70 USEL= 834.35 ENC Q1= 366.70 USEL= 834.45 RATIO= 0.0000
NAT Q1= 379. RATIOS LOS,CH,ROS= 0.1791 0.7027 0.0332 USEL= 834.45

3670 ENCROACHMENT STATIO S= 0.0 1157.1 TYPE= 6 TABSLT= 0.332

VALLEY SECTION CROSS SECTION 27 B

1.50	7.34	834.34	0.30	834.35	834.64	0.29	3.53	0.03	828.70
1200.	95.	1175.	30.	100.	175.	75.	1.	0.	829.41
0.001085	1.50	4.76	0.32	0.100	0.035	.110	.025	327.00	1171.11
0.000000	350.	350.	350.	2	0	0	1.0	42.00	1172.02

CCHV= 0.300 CEV= 0.500

*SECNO 1.750

3670 ENCROACHMENT STATIO S= 1092.5 1175.0 TYPE= 6 TABSLT= 15.300

100 FT D/S GOLDEN AVE. CROSS SECTION 27

3.70	7.34	834.96	0.30	834.97	835.30	0.33	1.13	0.01	828.70
1200.	105.	1175.	30.	100.	175.	75.	1.	0.	829.41
0.001	1.31	4.92	0.30	0.100	0.035	0.100	0.035	327.60	1172.02
0.001000	600.	600.	600.	2	0	0	67.00	1175.50	

*SECNO 1.000

SECNO	DELTX	FRICSL	ZR	STCL	XL	XM	XR		PLOSS	XTRLEW
ELMIN	ELDIF	ELCH	ELOB	XMIL	XNCH	XMR	XTP		ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IP2	ICONT	CORAR		TOPWID	ENDST

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 835.50 ELPEA= 835.50

L/1 FACE GOLDEN AVE. CROSS SECTION C

1.90	7.42	835.52	0.00	834.59	835.45	0.45	0.42	0.06	829.30
1950.	3.	1950.	0.	3.	287.	1.	12.	3.	829.20
0.05	0.30	0.87	0.00	0.100	0.035	0.100	0.035	827.60	1117.50
0.001500	112.	0.	150.	2	1	0	0.00	33.00	1150.53

SPECIAL NOTES:

.05	1.50	0.0	0.00	834.59	1.50	25.50	0.00	25.00	829.40

RETURN 2.700
DISCHARGE FLOW

835.71	835.49	0.00	0.	1150.	285.	285.	835.20	836.90	

U/S OF L/1 ASSUMED NON-EFFECTIVE,ELLEA= 836.90 ELPEA= 836.90

U/S FACE GOLDEN AVE. CROSS SECTION 27820 D

2.20	7.20	836.24	0.00	836.27	836.29	0.59	0.51	0.06	829.30
1150.	3.	1150.	0.	3.	291.	0.	12.	3.	829.20
0.05	0.30	0.87	0.00	0.100	0.035	0.100	0.035	827.60	1117.50
0.001292	51.	51.	51.	2	0	0	0.00	33.00	1150.53

3470 ENCROACHMENT STATIONS= 997.1 1205.5 TYPE= 1 TARGET= 133.700

50.FT.U/S GOLDEN AVE. CROSS SECTION 27

2.10	1.14	836.71	0.00	834.60	835.29	2.19	1.04	0.06	829.30
1150.	171.	915.	65.	3.	291.	287.	1.	3.	829.20
0.05	0.30	0.90	0.55	0.100	0.035	0.100	0.035	827.60	1117.50
0.000570	50.	50.	50.	2	0	0	0.00	133.00	9200.50

CODE= 0.10 CODE= 3.50
SECNO 3.700
ZUSO AT 51= 836.71 SEQ= 836.27 ES AT= 836.24 LOC= 836.53 ITER= 3.100

WAY 01= 655. RATIOS LOB/CH/ROB= 0.7466 0.2452 0.7061 HBEL= 836.33

3470 ENCROACHMENT STATIONS= 524.1 874.6 TYPE= 1 TARGET= 0.040

VALLEY SECTION CROSS SECTION 2 E

2.20	7.46	836.26	0.00	836.23	836.29	0.23	0.59	0.01	829.40
1150.	43.	285.	813.	51.	115.	1216.	30.	3.	829.40
0.050	0.03	2.55	0.57	0.100	0.040	0.100	0.00	827.60	524.00

0.000350 600. 1185. 500. 2 0 0 0.00 350.71 874.83

*SECNO 2.300

350' UP CLASSIC POLE TOP DATA

3470 ENCROACHMENT STATIONS= 253.0 1416.5 TYPE= 1 TARGET= 1163.000

VALLEY SECTION CROSS SECTION 30

2.35	2.06	436.59	1.05	438.63	537.27	2.67	0.41	0.15	870.30
1150.	96.	998.	140.	12.	152.	319.	43.	11.	830.67
0.35	1.15	6.95	1.19	0.100	0.040	0.100	0.043	830.00	706.20
0.002634	1275.	1250.	350.	2	0	0	0.00	105.94	810.15

*SECNO 2.350

SECNO	DEPTH	CNSEL	CRIMS	MSELR	BS	FV	HL	CLOSS	BANK ELEV
E	OLSD	PCT	CROB	ALSD	ASH	PROP	VOL	TOP	LEFT/RIGHT
TEST	VLCT	----	WIDT	AL	HIGH	XSI	FT.	EL EV	SST
2.01	1.01	VLCT	2.074	11111.	242	1504.	0.011	701.30	1111

2.35 3.43 833.13 0.00 833.12 439.09 0.90 1.71 2.12 833.57
1193. 6. 1070. 69. 5. 133. 40. 41. 12. 833.50
0.37 1.41 .11 1.69 0.150 0.040 0.100 0.043 833.70 706.52
0.002 622 715. 4.6. 693. 3 0 0.50 47.83 729.15

*SECNO 2.400

VALLEY SECTION CROSS SECTION 31

2.40	4.34	840.14	0.00	840.14	241.1*	0.44	2.69	1.01	834.4
1190.	113.	332.	75.	61.	110.	40.	28.	12.	833.60
0.39	2.43	5.02	1.92	0.150	0.040	0.100	0.042	839.40	707.17
0.003731	405.	435.	495.	2	0	0	0.00	43.43	750.61

*SECNO 2.430

3470 AT 11= 212.29 WSEL= 702.1 16C 01= 297.69 SE= 1422.F WTSD= 0.0030

WAT 01= 226. RATIOS LOB,CH,ROB= 0.1504 0.7722 0.0774 USEL= 842.23

3470 ENCROACHMENT STATIONS= 645.1 745.1 TYPE= 2 TARGET= 0.756

2.45	2.67	842.1*	0.00	842.91	854.56	0.70	.67	1.01	834.91
1534	113.	430.	75.	61.	113.	21.	31.	12.	833.91
0.41	.83	5.02	1.95	0.150	0.040	0.100	0.042	845.30	707.17
0.002997	500.	530.	505.	2	0	0	2.05	95.20	745.07

*SECNO 2.450

2800 AT 01= 224.16 WSEL= 845.13 16C 01= 294.91 SE= 1.93 WTSD= 0.3010

T 01= 54. TOP WIDTH= 277. 0.50E 0.111 EL= 843.43

8301 HV CHANGED MORE THAN HVINC

3470 ENCROACHMENT STATIONS= 645.1 745.1 TYPE= 2 TARGETS= 66.344

VALLEY SECTION CROSS SECTION 32

2.50	6.92	845.42	0.00	843.88	844.41	2.19	1.90	0.55	837.50

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2150.	424.	610.	114.	406.	131.	92.	56.	45.	837.90	
0.47	1.03	4.64	1.25	0.100	0.040	0.130	0.043	632.00	810.32	
0.001273	406.	720.	111.	2	0	0	0.00	159.05	1009.37	843.92

*SECOND 3. 10

SECOND INLET= [illegible] PRESS= 177.12 SIC GR [illegible] DE= [illegible] ZZ= 3.1PT

NAT CI= 555, RATIOS LCB,C,DCB= 0.2211 0.2170 0.5136 MBBL= 44.28

3423 E.SPROACHES STATIONS= 875.5 5284.2 TYPE= 4 TARGET= 0.048

S T U/S OF LOWER TAPER SHEET CROSS SECTION I

8.60	7.55	641.23	0.00	642.92	641.24	0.01	0.11	1.02	833.00
630.	153.	270.	324.	359.	208.	822.	42.	11.	837.90
0.57	0.88	4.69	0.39	3.170	0.045	0.130	1.042	837.23	895.46
0.002140	150.	291.	250.	2	0	0	0.00	299.72	1254.13

CCIN= 0.300 TRAN= 0.503

*SECOND 2.900

LC D	DEPTH	F.SEL	GRID	VELC	C	CV	L	BLOCK	GATE ELEV

3420 E.UPSTREAM STATIONS= 555.3 1530.2 TYPE= 1 TARGET= 954.000

TOP OF WIER BLOCK CROSS SECTION J

2.80	5.99	646.39	0.00	644.29	644.45	0.06	0.19	0.92	838.40
630.	162.	257.	181.	291.	89.	299.	74.	21.	839.00
0.77	1.06	2.67	0.61	3.170	0.047	0.100	0.043	633.43	867.75
0.002560	650.	901.	670.	2	0	0	0.00	292.59	1150.35

*SECOND 2.900

E/S PIER INLETS BY CROSS SECTION 95 J

2.10	5.79	644.46	0.30	644.57	644.91	0.13	0.03	2.01	838.00
630.	211.	227.	192.	310.	80.	314.	78.	22.	839.00
0.72	0.63	2.34	0.61	0.100	0.240	3.120	0.043	838.70	867.15
0.000604	100.	130.	100.	2	0	0	0.00	294.29	1131.44

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BNC	BNP	UPREA	SS	ELCHD	ELCHD
	0.00	3.75	1.00	1.00	12.60	0.00	50.00	1.00	838.70	858.70

*SET D 3.000

PRESSURE AND WEIR FLOW

ESPRS	EGL	WT	VELCH	QPR	TARGA	TARGET	LLC	ELTW
0.0556	844.91	0.00	8.75	184.	38.	184.	0.00	840.

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U/S FACE JUANITA DR. CROSS SECTION 53

3.00	6.41	845.11	0.00	845.10	845.14	-0.03	0.67	0.00	839.00
850.	221.	196.	213.	395.	89.	416.	79.	22.	839.60
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	50.	52.	55.	2	0	7	[illegible]	[illegible]	[illegible]

*SECNO 3.100

50 FT U/S JUANITA DRIVE CROSS SECTION 53

3.10	6.73	845.15	0.00	845.12	845.19	0.03	[illegible]	[illegible]	838.40
820.	212.	215.	203.	395.	101.	415.	80.	23.	839.20
0.75	0.54	2.14	0.49	0.100	0.040	0.100	0.043	838.40	951.42
0.000287	52.	50.	50.	0	0	0	0.00	810.62	1162.04

[illegible]

*SECNO 3.150

3.15	6.37	845.23	0.00	845.22	845.28	0.05	0.67	0.01	839.00
830.	193.	259.	171.	329.	93.	336.	84.	25.	839.60
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0.000321	50.	55.	350.	0	0	0	0.00	217.45	[illegible]

*SECNO 3.200

SECNO	DEPTH	CHSL=	CRIMS	.STLK	FS	SW	PC	LOSS	BANK ELEV
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	LEFT/RIGHT
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

50 FT U/S OF DAM LOCATED APPROX. 150 FT D/S E DRIVE CROSS SECTION 54

3.50	5.99	845.37	0.00	845.36	845.41	0.05	0.67	0.02	840.70
550.	9.	503.	118.	16.	107.	153.	92.	28.	839.60
0.65	0.58	4.73	0.77	0.100	0.035	0.100	0.042	839.60	972.46
0.001335	550.	550.	550.	1	0	0	0.00	187.20	1109.66

*SECNO 3.300

D/S OF DAM CROSS SECTION 54

3.50	5.99	845.37	0.00	845.36	845.41	0.05	0.67	0.02	840.70
550.	10.	503.	118.	16.	107.	153.	92.	28.	839.60
0.65	0.58	4.73	0.77	0.100	0.035	0.100	0.042	839.60	972.46
0.001151	99.	99.	99.	2	0	0	0.00	144.95	1112.94

*SECNO 3.400

STRUCTURAL DATA SLOPE BELOW SILL OF 839.30 BASE= 840.30 SQR= 165.99 QSCL= 843.20

3301 HV CHANGED MORE THAN .01FT

3370 ON HL CHANGE,IND= 0 QTW BOTTOM= 842.02 NUM BLC= 839.60

TOP OF DAM CROSS SECTION 54

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3.40	5.61	845.21	839.60	845.20	845.97	0.76	0.00	0.15	840.70
633.	6.	502.	122.	11.	64.	131.	93.	28.	839.60
0.85	0.61	7.81	0.93	0.100	0.020	0.100	0.042	839.60	974.10
0.302330	2.	2.	2.	6	46	3	-46.05	131.92	1106.02

*SECNO 5.51

3301 HW CHANGED CODE THAN DWINS

U/S OF DAM — CROSS SEC 10. 54

3.50	5.47	845.81	0.00	845.81	846.03	0.22	0.00	0.05	840.70
630.	14.	455.	153.	23.	137.	194.	93.	28.	840.40
0.35	0.53	4.34	0.75	0.100	0.355	0.100	0.042	840.40	968.07
0.001129	2.	2.	2.	1	10	0	0.01	168.77	1117.05

*SECNO 5.600

D/S BAR LOCATED 22 FT D/S E DRIVE — CROSS SECTION 54

3.60	5.53	845.93	0.00	845.93	846.19	0.26	0.00	0.05	840.70
630.	8.	466.	164.	23.	137.	194.	93.	28.	840.50
0.36	0.50	4.06	0.79	0.100	0.035	0.100	0.042	840.50	967.49
0.001045	169.	114.	75.	2	6	0	0.03	153.25	1120.74

*SECNO 5.700

Q	QLOI	QCH	QROS	ALOD	ACH	AROS	VOL	TWA	LEFT/RIGHT
TIME	VLOS	VCH	VROS	XNL	XMCH	XNR	MTN	ELMIN	SSTA
SLOPE	XLOFL	XLCH	XLOER	IFRIAL	IH2	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE ARO= 0 MIN ELTRO= 842.40 MAX ELLC= 840.50

TOP OF DAM — CROSS SECTION 55

3.70	5.28	845.39	0.00	845.79	846.23	0.43	0.00	0.00	841.00
630.	24.	445.	161.	30.	71.	180.	93.	28.	840.50
0.86	0.82	6.24	0.86	0.100	0.020	0.102	0.042	840.50	966.99
0.001384	2.	2.	2.	2	0	2	-36.50	148.40	1117.39

*SECNO 5.800

U/S OF DAM — CROSS SECTION 56

3.80	5.03	846.03	0.00	846.03	846.29	0.27	0.00	0.13	841.20
630.	32.	416.	174.	35.	109.	231.	94.	28.	841.30
0.91	1.00	6.66	0.88	0.100	0.045	0.100	0.042	841.30	966.43
0.001068	2.	2.	2.	2	0	0	0.00	156.69	1123.11

CC U= 0.30 CC U= 0.50

*SECNO 5.900

D/S FACE E DRIVE — CROSS SECTION 55

3.90	5.20	846.10	0.00	846.10	846.26	0.16	0.03	0.01	841.50

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     630.      02.      329.      219.       74.       79.      233.       96.       28.     841.50
     0.06     1.11      4.63      0.94     0.100     0.035     0.100     0.042    840.90    961.63
 0.001369      21.       21.       21.         0         0         0      0.00    161.90   1123.54

 [illegible]

 53  XK        XNOR      CORD      RDLEN     BUC       DUP       BAREA     SS        ELCHU     ELCHD
     0.00      3.31      3.30      0.00      7.30      0.00      27.00     0.00      840.80    840.90

 *SECNO 4.000
 PRESSURE [illegible] FIR [illegible]

 EGPRS     ESLMC     H3        QUEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD
   871.55    [illegible].00     0.00      45.       172.       27.       [illegible]      [illegible]      [illegible]

        U/S FACE E DRIVE                                  CROSS SECTION 55

     4.10      [illegible]      [illegible]      0.00     847.92    [illegible]      0.08      1.72      0.00     841.50
     [illegible]      [illegible]      [illegible]      [illegible]      110.       77.      [illegible]      [illegible]      [illegible]      [illegible]
     0.87      0.94      3.45      0.76     0.100     0.035     0.100     0.042    840.80    964.97
 0.000599      [illegible]      48.       46.         2         0         7      0.00    155.23   1120.20

 *SECNO 4.200

        50 FT U/S E DRIVE

     4.20      7.15     847.95      0.00     847.95    840.03      0.08      0.03      0.00     841.50
     630.      103.      266.      253.       111.       77.      350.       [illegible]      29.     841.50
     0.08      0.93      3.41      0.75     0.100     0.035     0.100     0.042    840.80    964.96
 0.000[illegible]      [illegible]      [illegible]      50.         1         0         0      0.00    155.23   1120.20

 CCHV=   0.100 CEHV=   0.300
 *SECNO 4.300
  2300 NAT 01=    112.20  SEL=    849.[illegible]  ENC 01=    112.20  WSEL=    [illegible].40  RATIO=  0.[illegible]
  NAT 01=    [illegible]  RATIOS LOB,CH,ROB=  0.[illegible]  0.5232  0.2304  WSEL=    848.40
     SECNO     DEPTH     CLSEL     CRIWS     LSELK     EG        HV        HL        DLOSS    BANK ELEV
     0         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTW       FLEIN      SSTA
     SLOPE     XLOB      XLCH      XLOB      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]

 3470 ENCROACHMENT STATIONS=      982.0     1108.6  TYPE=      4  TARGET=      0.054
     4.30      5.48     848.28      0.00     848.30    848.64      0.36      0.52      0.08     843.50
     630.      104.      362.      164.       [illegible]      50.      144.       [illegible]      30.     [illegible]
     0.91      [illegible]      [illegible]      1.[illegible]     0.100     0.040     0.100     0.042    [illegible]      [illegible]
 0.003[illegible]      [illegible]      [illegible]      450.         2         0         0      [illegible]      [illegible]      1108.58

 CCHV=   0.300 CEHV=   0.500
 *SECNO 4.700

 3470 ENCROACHMENT STATIONS=      565.0     1500.0  TYPE=      1  TARGET=      715.000

        100 FT D/S 6.5 MILE ROAD
```

4.70	5.24	849.74	0.00	849.66	350.05	0.31	1.40	0.01	844.53
630.	66.	534.	29.	108.	110.	27.	101.	31.	845.50
0.94	0.69	4.86	1.10	0.100	0.060	0.100	0.042	844.50	665.24
0.002183	250.	575.	450.	3	5	0	0.20	193.61	863.84

*SECNO 6.027

O/S FACE 51/2 MILE RD. CROSS SECTION 56 P

4.70	5.55	852.02	0.00	851.99	852.02	0.03	0.01	0.00	844.50
630.	95.	504.	33.	183.	117.	39.	103.	32.	845.50
0.94	0.63	4.73	0.96	2.100	2.042	0.100	0.042	844.50	665.24
0.001591	100.	300.	150.	0	3	0	0.00	203.49	867.67

SPECIAL ENTRIES

SD	XI	XSQR	COFQ	RDLEN	DUC	DUP	DAREA	SS	ELCID	ELCID
	0.00	-2.71	3.00	0.00	9.50	0.00	52.00	0.00	844.10	844.50

*SECNO 3.100
PASSAGE THROUGH BRIDGE

EGPRS	EGLSC	FB	OWEIR	CPW	EAREA	TRAPEZOID AREA	FLLC	ELTRD
852.02	850.13	1.00	120.	252.	57.	17.	851.00	851.20

U/S FACE 51/2 MILE RD. CROSS SECTION 56 Q

5.00	5.00	851.88	0.00	851.86	852.21	0.13	1.79	0.00	845.00
630.	272.	387.	87.	540.	165.	105.	102.	32.	845.50
0.98	0.51	1.35	0.48	0.100	0.060	0.100	0.042	844.50	666.02
0.000232	42.	42.	42.	2	0	5	0.00	236.67	893.59

*SELO 8.001 0

SELECT LAS ETA ATYP PO

5.10	6.09	851.89	0.00	851.99	852.02	0.03	0.01	0.00	844.60
630.	215.	382.	33.	523.	211.	97.	103.	32.	845.50
0.97	0.59	4.63	0.94	3.100	2.042	0.100	0.042	844.50	666.02
0.000232	59.	50.	63.	3	5	0	0.00	236.67	893.59

CCHV= 0.100 CEHV= 0.300
*SECNO 3.130

2500 SAT DIA = 936.26 HLSL= 852.12 ENG EL= 850.24 SEL= 852.02 WCOR 0.0000
MAT SIN 150 PIERS LOA/CLAPPM 0.2707 0.2400 2.4205 HSEL= 852.25

STC	DEPTH	HSEL	CTRUS	HSELH	36"	14	16	DLOSS	DHSEL
0	GLOC	QCI	CHOE	ALOB	ACH	AIOS	VCL	TAA	LEFT/RIGHT
TIME	VLOB	VCH	VROP	XNL	XNCH	XCH	WTN	CLOIN	SSTA
SLOPE	DISCL	XLOB	WCORR	ITRIAL	IHZ	ICONT	CCHAR	TOPWID	ENDST

3 ENCROACHMENT STATIONS= 455.3 643.3 TYPE= 4 TARGET= 0.246

1.00	5.00	851.88	0.00	852.12	852.06	0.24	0.18	0.00	845.00
630.	272.	387.	87.	540.	165.	105.	102.	32.	845.50

1.10	0.67	2.54	0.64	0.100	0.040	0.100	0.042	845.20	835.25
0.000360	575.	600.	575.	0	2	0	0.00	238.09	843.34

*SECNO 5.370
2800 NAT 01= 221.52 XSCL= 852.94 ENC 01= 221.52 WSEL= 853.04 RATIO= 0.0000
NAT 01= 242. RATIOS LOB,CH,ROB= 0.3649 0.2425 0.3875 USEL= 853.74

3470 ENCROACHMENT STATIONS= 436.5 676.5 TYPE= 4 TARGET= 0.253

VALLEY SECTION CROSS SECTION 53 R

5.37	5.03	852.03	0.00	852.45	852.52	0.09	5.74	5.02	847.50
650.	446.	249.	235.	407.	57.	282.	122.	30.	847.50
1.18	0.67	3.72	0.84	0.100	0.040	0.100	0.042	844.58	838.53
0.001019	575.	600.	575.	2	0	0	0.00	199.97	834.50

*SECNO 5.250
2800 NAT 01= 221.52 XSCL= 852.94 ENC 01= 221.52 WSEL= 853.04 RATIO= 0.0000
NAT 01= 242. RATIOS LOB,CH,ROB= 0.3649 0.2425 0.3875 USEL= 853.74

3470 ENCROACHMENT STATIONS= 1177.7 1649.1 TYPE= 4 TARGET= 0.103

VALLEY SECTION CROSS SECTION 53 S

5.30	5.05	853.65	0.00	853.56	853.78	0.13	0.70	0.02	848.60
630.	221.	225.	185.	283.	46.	252.	143.	68.	849.50
1.36	0.71	4.66	0.73	3.100	0.040	0.100	0.042	848.63	1177.74
0.000150	600.	575.	525.	2	1	0	00.00	4.37	1649.11

*SECNO 5.250
2800 NAT 01= 171.86 XSCL= 854.33 ENC 01= 171.86 WSEL= 854.43 RATIO= 0.0000
NAT 01= 183. RATIOS LOB,CH,ROB= 0.1490 0.3543 0.4965 WSEL= 854.43

3470 ENCROACHMENT STATIONS= 962.1 1110.6 TYPE= 4 TARGET= 0.002

5.38	5.30	194.43	0.00	197.73	854.51	0.08	0.77	0.23	853.1
650.	79.	358.	393.	87.	69.	332.	145.	52.	850.65
1.64	0.92	3.45	0.94	0.100	0.040	0.100	0.042	850.25	962.14
0.001337	600.	525.	425.	2	0	0	0.00	199.45	1160.59

*SECNO 5.200
2800 NAT 01= 99.19 WSEL= 855.24 ENC 01= 99.19 WSEL= 855.34 RATIO= 0.0100
NAT 01= 108. RATIOS LOB,CH,ROB= 0.1269 0.4308 0.4423 WSEL= 855.34

SECNO	DEPTH	CWSEL	CIWS	USEL	EG	WV	EL	MLOSS	CHAN ELEV
5	VLOB	ACH	QCO	FLOL	QT	ACO	VSL	TW	LEFT/RIGHT
TENG	VLOB	QCH	VRCH	KOL	XRCT	QWR	HSL	ELEV	SETS
SLOPE	XLOBL	AROB	XLCH	XTWSL	EL2	FOO T	CORAR	WETPRO	BETST

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3470 ENCROACHMENT STATIONS= 970.9 1154.2 TYPE= 4 TARGET= 0.091

VALLEY SECTION CROSS SECTION 50

	5.47	3.50	156.74	0.00	956.84	955.04	0.21	1.50	0.71	956.21
	630.	64.	305.	273.	67.	60.	349.	153.	54.	1098.30
	1.41	1.37	5.35	1.37	3.130	3.043	0.103	0.742	851.60	971.70
0.004044	420.	525.	435.	2	2	0	0.00	113.22	2154.16	

*SECNO 5.300

	5.50	3.50	156.84	0.00	956.79	887.00	0.17	1.45	0.70	955.35
	630.	64.	311.	273.	67.	60.	349.	153.	54.	1098.30
	1.52	1.48	5.37	1.50	3.130	3.004	0.101	0.753	853.25	963.50
0.004041	435.	565.	465.	2	2	0	0.00	116.89	2155.24	

*SECNO 5.500

	5.00	3.31	156.16	0.00	956.84	861.65	0.14	1.46	0.73	955.20
	630.	64.	327.	273.	67.	60.	349.	153.	57.	1098.30
	1.56	1.36	5.47	1.63	3.130	3.043	0.102	0.742	854.60	962.30
0.004171	335.	465.	365.	0	2	0	0.00	135.20	2097.20	

*SECNO 5.700

3301 HV CHANGED FOR TRAN HVICS

3470 ENCROACHMENT STATIONS= 1769.6 1855.0 TYPE= 1 TARGET= 67.000

100 FT D/S 1-194 CROSS SECTION 20

	5.72	4.84	167.11	0.00	967.14	960.30	0.77	52.15	1.20	955.97
	621.	66.	5429	281.	92.	77.	1h.	156.	56.	883.00
	2.57	2.15	7.65	1.66	0.00	0.360	3.170	5.043	845.00	1798.50
0.006119	335.	465.	365.	2	0	0	0.00	46.72	1845.30	

*SECNO 5.301

3470 ENCROACHMENT STATIONS= 1769.6 1831.3 TYPE= 1 TARGET= 116.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 990.00 ELREA= 990.00

	5.00	2.91	150.7	0.00	950.72	864.76	1.05	0.74	0.19	956.21
	621.	64.	93.	0.	0.	77.	0.	157.	53.	890.30
	2.11	0.50	3.23	0.30	3.130	0.000	0.00	0.542	851.20	1861.00
0.008959	100.	100.	100.	2	0	0	0.30	17.00	1831.00	

*SECTS.CCC

CCGNS	DPTH	WSEL	CRITW	WSELR	SF	FR	EL	QLOSS	ENRG ELEV	
	0.30	3CI	3.000	WLSB	4CI	0301	VCL	TRD	WETTED PERIMT	
TIME	WLCB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	ASTAT	
SLOPE	XLCBL	XLCH	XLOBR	ETRIAL	XHP	ICONT	COPAR	TOPWID	ENDST	

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3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 890.00 MAX ELLC= 864.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLGA= 890.00 ELRGA= 890.00

D/S FACE I-194 CROSS SECTION 20 U

5.90	4.55	[illegible]	0.00	860.55	[illegible]	1.22	0.01	0.08	856.70
630.	[illegible]	432.	0.	0.	71.	0.	157.	90.	[illegible]
1.57	0.00	[illegible]	0.00	0.100	0.040	0.100	0.042	856.70	1814.00
0.011403	[illegible]	1.	1.	2	0	0	-17.12	17.00	1831.00

*SECNO 0.000

3301 [illegible]

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 890.00 MAX ELLC= 864.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLGA= 890.00 ELRGA= 890.00

U/S FACE I-194 CROSS SECTION 20 V

6.00	6.54	863.24	0.00	863.24	863.83	1.56	1.75	0.20	856.70
630.	[illegible]	432.	0.	[illegible]	105.	0.	157.	[illegible]	[illegible]
1.59	0.00	6.03	0.00	0.100	0.040	0.100	0.042	856.70	1814.00
0.003342	300.	300.	300.	2	0	0	-29.64	17.00	1831.00

*SECNO 0.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLGA= 890.00 ELRGA= 890.00

6.10	6.64	863.34	0.00	863.34	863.83	0.50	0.00	0.02	856.70
630.	[illegible]	430.	0.	[illegible]	13.	[illegible]	157.	[illegible]	[illegible]
1.55	0.00	5.58	0.00	0.100	0.040	0.100	0.042	856.70	1814.00
0.001700	1.	1.	1.	2	[illegible]	0	0.00	17.00	[illegible]

*SECNO 0.200

[illegible] U/S I-194 CROSS SECTION [illegible]

6.20	7.15	863.05	0.00	863.85	863.99	0.14	0.06	0.10	856.70
630.	106.	432.	92.	122.	122.	126.	158.	88.	856.70
1.60	0.87	3.55	0.73	0.100	0.040	0.100	0.042	856.70	1764.95
0.000[illegible]	[illegible]	[illegible]	[illegible]	2	0	0	[illegible]	115.00	[illegible]

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****

HECO RELEASE RATIO PROGRAM UPDATED MAY 1977

SPECIAL CASE = 2

HECO12.SECTION = RELEASE

****

NOTE= RELEASES ARE AT END OF CALCULATION TIME IF TIMESTEPS GREATER THAN ONE HOUR

PINGES BROOK ELEVATION,

SUMMARY PRINTOUT TABLE 100

	SPECIFIED	CALCULATED	DIFFERENCE	INFLOW	STORAGE	OUTFLOW	LOSS	PEAK	STAGE	PEAK	STAGE	STEPAQ
*	1.000	830.90	0.32	852.61	48.90	33.03	1117.14	9.32	0.00	0.00	912.70	980.00	0.00
*	1.000	830.90	0.32	852.61	48.91	33.03	1117.59	9.62	0.00	0.00	912.50	980.00	0.00
	1.100	830.90	0.10	854.19	52.76	33.43	1127.5	10.05	0.00	0.00	912.50	986.00	0.00
	1.100	833.00	0.30	854.11	52.76	33.43	1127.5	10.05	0.00	0.00	912.50	986.00	0.00
	1.500	834.35	0.00	874.62	150.79	119.45	505.51	42.04	0.00	0.00	1115.00	1149.00	0.00
	1.500	834.54	-0.01	874.64	116.96	196.55	537.67	25.35	0.03	1040.19	1115.00	1149.00	1357.07
	1.700	834.91	0.00	877.24	89.13	132.66	1115.55	17.45	43.71	1042.50	1117.50	1150.50	1175.50
	1.700	834.94	.00	877.23	75.71	132.30	1115.75	21.09	43.53	1042.50	1117.50	1150.50	1175.50
	1.900	834.99	0.00	835.43	33.00	0.00	1150.00	0.00	0.00	0.00	1117.50	1150.50	0.00
	1.900	835.02	0.02	833.45	33.00	0.00	1150.00	0.00	0.00	0.00	1117.50	1150.50	0.00
	2.100	835.49	0.00	835.71	33.00	0.00	1150.00	0.00	0.00	0.00	1117.50	1150.50	0.00
	2.100	835.49	0.00	835.73	33.00	0.00	1150.00	0.00	0.00	0.00	1117.50	1150.50	0.00
	2.100	835.68	0.00	835.97	133.00	170.50	917.39	62.11	133.00	1067.50	1117.50	1150.50	1200.50
	2.100	835.71	0.02	835.80	133.00	170.99	916.25	62.77	133.00	1067.50	1117.50	1150.50	1200.50
	2.200	835.72	.00	836.26	442.57	55.71	290.02	007.51	0.00	0.00	557.01	569.00	0.00
	2.200	834.25	.03	835.23	350.72	11.91	295.12	813.07	0.00	526.29	533.00	569.00	874.01
	2.300	836.63	0.00	837.23	104.32	16.18	997.22	136.59	0.00	0.00	709.00	733.00	0.00
	2.300	836.69	0.06	837.27	125.94	16.30	993.36	140.34	1163.00	283.10	709.00	738.00	1416.70
	2.350	837.12	.01	838.53	47.59	6.31	1076.31	147.57	0.00	0.00	715.00	733.00	0.00
	2.350	837.13	.01	838.07	47.63	6.32	1076.16	147.53	0.00	0.00	715.00	733.00	0.00
	2.400	840.34	0.00	841.18	43.44	119.71	957.03	73.27	0.00	0.00	719.00	737.00	0.00
	2.400	840.34	0.00	841.18	43.43	119.69	957.06	73.25	0.00	0.00	719.00	737.00	0.00
	2.450	842.15	.00	842.89	320.41	151.35	1000.77	66.00	0.00	0.00	719.00	737.00	0.00
	2.450	842.11	.00	842.85	99.25	155.09	820.55	69.35	0.00	665.81	719.00	737.00	745.07
	2.500	843.83	0.00	844.01	319.98	423.80	592.36	133.76	0.00	0.00	966.00	986.00	0.00
	2.500	843.92	0.09	844.11	199.55	426.83	609.61	114.05	0.00	610.32	966.00	986.00	1009.37

SECNO	CUSEL	DIFKHS	EG	TOPWID	OLOP	UCH	GROS	PCRENC	STENCL	STCHL	STCHR	STENCR
2.900	844.12	0.00	844.13	309.17	142.34	436.32	321.26	0.00	0.00	1031.70	1727.00	0.00
2.900	844.27	0.10	844.25	310.72	137.21	440.38	324.76	0.00	555.40	1031.70	1727.00	1284.32
2.900	844.27	0.10	844.35	290.70	130.01	420.70	321.71	0.00	0.00	592.30	1000.00	0.00
2.900	844.37	0.10	844.45	292.50	131.07	423.57	180.87	999.00	555.00	592.30	1000.00	1536.25
2.900	844.37	0.10	844.42	292.72	205.31	232.65	108.54	0.00	0.00	535.00	999.00	0.00
2.900	844.43	0.10	844.51	294.79	210.70	227.26	102.08	0.00	0.00	537.00	999.00	0.00
3.000	844.41	0.00	844.44	309.33	221.20	198.11	212.01	0.00	0.00	537.00	999.00	0.00
3.000	845.41	0.01	845.44	310.06	221.32	195.75	212.93	0.00	0.00	537.00	999.00	0.00
3.100	845.12	0.00	845.14	310.44	211.63	215.69	202.67	0.00	0.00	534.00	1000.00	0.00
3.100	845.23	0.01	845.25	310.07	211.34	215.39	202.38	0.00	0.00	534.00	1000.00	0.00
3.150	845.23	0.00	845.27	291.75	192.71	259.67	177.43	0.00	0.00	534.00	1000.00	0.00
3.150	845.23	0.01	845.25	290.75	192.92	259.47	177.72	0.00	0.00	534.00	1000.00	0.00
3.200	845.40	0.00	845.40	137.00	5.96	503.00	117.24	0.00	0.00	990.00	1010.00	0.00
3.200	845.51	0.01	845.50	135.20	5.01	503.35	117.64	0.00	0.00	990.00	1010.00	0.00
3.250	845.40	0.00	845.41	141.75	12.51	495.67	127.31	0.00	0.00	990.00	1010.00	0.00
3.250	845.51	0.01	845.51	141.95	10.35	498.05	127.55	0.00	0.00	990.00	1010.00	0.00
3.300	845.40	0.00	845.42	139.62	6.35	503.62	121.23	0.00	0.00	990.00	1010.00	0.00
3.300	845.51	0.01	845.52	139.82	5.51	503.94	121.59	0.00	0.00	990.00	1010.00	0.00
3.350	845.40	0.00	845.42	141.31	23.51	485.04	141.33	0.00	0.00	990.00	1011.00	0.00
3.500	845.61	0.00	846.03	148.77	13.62	482.92	153.47	0.00	0.00	990.00	1010.00	0.00
3.400	845.96	0.00	846.14	153.22	29.52	434.55	165.63	0.00	0.00	990.00	1011.00	0.00
3.400	845.91	0.00	846.14	153.25	27.51	436.61	165.67	0.00	0.00	990.00	1011.00	0.00
3.450	845.79	0.00	846.22	141.31	23.51	445.04	161.33	0.00	0.00	990.00	1011.00	0.00
3.700	845.79	0.00	846.22	148.40	23.60	444.91	161.48	0.00	0.00	990.00	1011.00	0.00
3.500	846.08	0.00	846.25	156.68	32.22	434.68	184.12	0.00	0.00	990.00	1011.00	0.00
3.500	846.08	0.00	846.25	156.68	32.22	434.68	184.11	0.00	0.00	990.00	1011.00	0.00
3.900	846.10	0.00	846.20	161.60	81.03	329.91	215.08	0.00	0.00	993.00	1007.00	0.00
3.900	846.10	0.00	846.20	161.90	81.44	329.29	215.87	0.00	0.00	993.00	1007.00	0.00
4.000	847.92	0.00	848.00	155.23	102.76	265.80	261.44	0.00	0.00	994.40	1005.60	0.00
4.000	847.92	0.00	848.00	155.23	102.76	265.80	261.44	0.00	0.00	994.40	1005.60	0.00
4.200	847.98	0.00	848.03	155.23	102.80	264.15	263.05	0.00	0.00	994.40	1005.60	0.00
4.200	847.98	0.00	848.03	155.23	102.80	264.15	263.05	0.00	0.00	994.40	1005.60	0.00
4.300	843.30	0.00	848.50	149.83	116.46	341.14	172.40	0.00	0.00	994.40	1005.60	0.00
4.300	843.30	0.00	848.54	126.92	113.50	352.32	170.36	0.00	0.00	994.40	1005.60	1105.38
4.700	848.65	0.00	850.10	189.30	58.40	533.12	96.31	0.00	0.00	827.50	844.70	0.00
4.700	849.74	0.08	850.05	198.69	56.40	534.12	29.40	715.00	965.00	829.50	844.70	1305.00
4.900	849.99	0.00	850.22	210.63	189.75	509.67	31.20	0.00	0.00	827.50	844.70	0.00
4.900	850.05	0.05	850.21	209.08	56.46	509.72	31.57	0.00	0.00	829.50	844.70	0.00

SECNO	CUSEL	DIFCUS	EC	TOPWID	ALOD	QCH	QFCB	PERENC	STENCL	STCHL	STCHR	STENCR
5.300	851.07	0.03	852.01	236.69	274.42	357.03	46.55	0.00	0.00	821.50	846.70	0.00
5.400	851.08	0.01	852.03	236.77	274.91	357.17	46.57	0.00	0.00	821.50	846.70	0.00
5.500	851.09	0.01	852.05	236.77	274.87	357.14	46.57	0.00	0.00	819.00	846.00	0.00
5.600	851.09	0.00	852.07	236.83	274.83	357.13	46.57	0.00	0.00	819.00	846.00	0.00
5.650	852.12	0.04	852.15	246.29	159.25	131.96	217.33	0.00	0.00	504.00	516.00	0.00
5.700	852.12	0.00	852.19	247.03	159.21	131.92	217.34	0.00	0.00	504.00	516.00	647.34
5.750	852.47	0.71	853.44	248.42	159.19	131.90	217.36	0.00	0.00	504.00	516.00	0.00
5.800	852.43	0.33	852.52	190.97	165.76	246.31	237.47	0.05	454.53	504.00	516.00	638.50
5.850	852.96	0.30	852.98	618.32	242.77	161.72	235.11	0.00	0.00	1473.00	1416.00	0.00
5.900	853.51	0.34	853.57	597.25	237.34	220.51	231.72	0.00	0.00	1473.00	1416.00	1651.59
5.950	853.51	0.00	853.61	614.58	235.42	216.39	13.10	0.00	0.00	1473.00	1416.00	0.00
5.997	853.85	0.09	853.78	471.37	230.59	234.89	136.52	0.10	1177.74	1473.00	1416.00	1646.12
6.050	854.33	0.10	854.43	235.70	72.21	228.33	319.42	0.00	0.00	988.00	1016.00	0.00
6.100	854.81	0.10	854.91	198.54	79.84	227.07	322.70	0.05	542.17	990.00	1016.00	1647.58
6.150	855.28	0.00	855.41	675.48	77.46	201.61	321.10	0.00	0.00	999.00	1016.00	0.00
6.600	859.34	0.10	859.45	113.22	59.50	205.24	275.24	0.03	970.94	999.00	1016.00	1154.16
6.650	836.74	0.00	856.89	227.62	60.84	267.97	251.19	0.00	0.00	999.00	1016.00	0.00
6.700	856.77	0.14	856.91	230.72	66.01	264.75	255.19	0.00	0.00	999.00	1016.00	1153.57
6.750	856.79	0.01	856.93	35.00	59.12	535.01	215.01	135.00	962.00	999.00	1016.00	1097.00
6.800	856.24	0.06	856.50	135.00	90.55	326.56	212.09	135.00	962.00	999.00	1016.00	1097.00
6.850	860.44	0.00	860.90	47.49	66.60	540.93	22.46	67.00	1789.00	1814.00	1831.00	1056.00
6.900	860.91	-0.03	860.86	50.72	66.11	541.7	22.01	67.00	1789.00	1814.00	1831.00	1056.00
6.950	860.92	0.00	861.70	17.00	0.00	550.00	0.00	0.00	1763.00	1814.00	1831.00	0.00
7.000	860.71	-0.01	861.76	17.00	0.00	550.00	0.00	116.00	1763.00	1814.00	1831.00	1081.00
7.050	860.65	0.00	861.85	17.00	0.00	550.00	0.00	0.00	0.00	1814.00	1831.00	0.00
7.100	860.63	-0.01	861.75	17.00	0.00	550.00	0.00	0.00	0.00	1814.00	1831.00	0.00
7.150	863.24	0.00	863.80	17.00	0.00	550.00	0.00	0.00	0.00	1814.00	1831.00	0.00
7.200	863.24	0.00	863.80	17.00	0.00	550.00	0.00	0.00	0.00	1814.00	1831.00	0.00
7.250	863.34	0.00	863.82	17.00	0.00	550.00	0.00	0.00	0.00	1814.00	1831.00	0.00
7.300	863.34	0.00	863.82	17.00	0.00	550.00	0.00	0.00	0.00	1814.00	1831.00	0.00
7.350	863.89	0.00	863.99	115.03	105.99	432.12	91.88	0.00	0.00	1814.00	1831.00	0.00

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LAY RULE , MA. OLD FORMS
1411-NM

MINGES BROOK EMMETT TWP.

SUMMARY PRINTOUT TABLE 15

*	1.000	0.70	0.00	0.00	826.30	1150.00	830.92	890.92	832.41	107.55	11.69	129.87	110.49
*	1.000	0.70	0.00	0.00	826.30	1150.00	830.92	890.92	832.41	107.55	11.61	129.38	110.09
	1.100	250.00	0.00	0.00	826.60	1150.00	835.56	0.30	834.11	21.53	5.27	256.91	253.79
	1.100	250.00	0.00	0.00	826.60	1150.00	835.56	0.30	834.11	21.53	5.27	256.61	253.79
	1.500	360.00	0.00	0.00	827.00	1150.00	834.35	0.30	834.62	9.83	4.86	480.26	366.70
	1.500	360.00	0.00	0.00	827.00	1150.00	834.34	0.30	834.64	10.55	4.70	420.00	354.00
	1.500	360.00	0.00	0.00	827.00	1150.00	834.34	0.00	834.29	10.17	4.71	352.50	350.58
	1.500	360.00	0.00	0.00	827.00	1150.00	834.34	0.00	834.29	10.10	4.70	355.42	352.00
	1.600	100.00	0.30	0.30	827.00	1150.00	834.99	0.00	835.43	15.56	5.29	217.50	291.58
	1.600	100.00	0.30	0.30	827.60	1150.00	835.02	0.00	835.45	15.30	5.27	215.25	293.14
	1.700	11.50	156.20	410.20	827.50	1150.00	835.37	0.00	836.76	13.17	4.00	232.06	311.17
	1.700	11.50	96.40	454.30	827.50	1150.00	835.41	0.00	836.78	12.92	3.91	230.20	311.51
	2.100	10.30	0.00	0.00	827.60	1150.00	835.68	0.00	835.87	5.77	3.62	561.69	470.61
	2.100	50.00	0.00	0.00	827.60	1150.00	835.70	0.00	835.89	5.70	3.60	564.78	481.75
	2.200	1141.00	0.00	0.00	825.30	1150.00	836.26	0.00	838.26	1.99	2.51	1481.54	628.72
	2.200	1141.00	0.00	0.00	825.30	1150.00	836.26	0.00	838.26	1.91	2.50	1481.15	615.67
	2.300	1250.00	0.00	0.00	830.00	1150.00	836.63	0.00	837.23	27.37	8.61	279.49	219.83
	2.300	1250.00	0.00	0.00	830.00	1150.00	836.69	0.00	837.27	26.54	6.53	245.60	224.09
	2.350	435.00	0.00	0.00	831.70	1150.00	838.12	0.00	838.09	46.61	8.12	178.23	163.27
	2.350	435.00	0.00	0.00	831.70	1150.00	838.13	0.00	838.09	46.66	8.11	178.32	163.30
	2.400	485.00	0.00	0.00	833.40	1150.00	840.34	0.00	841.18	37.47	8.01	209.02	187.86
	2.400	435.00	0.00	0.00	833.40	1150.00	840.34	0.00	841.16	37.51	8.02	208.94	187.78
	2.450	500.00	0.00	0.00	834.90	1150.00	842.19	139.73	842.81	26.01	9.17	3056.91	1217.26
	2.450	500.00	0.00	0.00	834.90	1150.00	842.97	0.00	842.06	25.97	7.66	246.46	210.05
	2.500	720.00	0.00	0.00	837.00	1150.00	843.83	0.00	844.01	12.57	4.57	704.29	324.38
	2.500	720.00	0.00	0.00	837.00	1150.00	843.92	0.00	844.11	12.73	4.64	628.69	322.26
	2.550	250.00	0.00	0.00	837.00	650.00	844.14	0.00	844.13	1.43	2.55	1619.31	536.39
	2.550	250.00	0.00	0.00	837.00	650.00	844.23	0.00	844.24	1.52	2.58	1709.75	527.44
	2.800	900.00	0.00	0.00	838.40	650.00	844.29	0.00	844.35	6.97	3.03	649.83	238.56
	2.800	900.00	0.00	0.00	838.40	650.00	844.39	0.00	844.45	6.24	2.90	678.57	252.14
	2.850	100.00	0.00	0.00	838.70	650.00	844.37	0.00	844.42	6.08	2.95	677.45	243.80
	2.850	100.00	0.00	0.00	838.70	650.00	844.46	0.00	844.51	6.02	2.94	703.79	256.26
	3.000	55.00	864.40	841.80	838.70	650.00	845.10	0.00	845.13	3.15	2.20	898.19	354.75
	3.000	55.00	864.40	841.80	838.70	650.00	845.11	0.00	845.14	3.13	2.20	900.91	356.21
	3.150	90.00	0.00	0.00	838.40	650.00	845.12	0.00	845.14	2.89	2.15	908.31	370.54
	3.150	90.00	0.00	0.00	838.40	650.00	845.13	0.00	845.15	2.87	2.14	900.66	372.93

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SECND	XLCH	ELTRD	ELLC	ELMIX	Q	CMSEL	CRIWS	EG	TOK*S	VCH	AREA	.01%
3.150	350.00	0.00	0.00	839.00	630.00	845.22	0.00	845.27	4.25	2.81	754.08	305.74
3.150	350.00	0.00	0.00	839.00	630.00	845.22	0.00	845.27	4.25	2.81	754.08	305.74
3.200	500.00	0.00	0.00	839.00	630.00	845.70	0.00	845.80	15.43	4.74	274.27	171.12
3.200	500.00	0.00	0.00	839.00	630.00	845.71	0.00	845.69	13.35	4.73	275.20	172.45
3.300	99.00	0.00	0.00	839.60	630.00	845.54	0.00	845.81	11.57	4.49	297.64	185.22
3.300	99.00	0.00	0.00	839.60	630.00	845.55	0.00	845.81	11.59	4.50	296.68	185.60
3.400	2.00	842.00	839.00	839.00	630.00	845.22	839.61	845.97	20.02	7.54	204.80	129.02
3.400	2.00	842.00	839.00	839.00	630.00	845.21	839.63	845.97	23.30	7.81	206.19	130.51
3.500	2.00	0.00	0.00	840.40	630.00	845.00	0.00	846.02	11.24	4.36	323.80	187.09
3.500	2.00	0.00	0.00	839.40	630.00	845.22	0.00	846.03	11.22	4.34	326.13	198.07
3.600	14.00	0.00	0.00	839.00	630.00	845.51	0.00	846.22	10.46	4.05	352.37	196.78
3.600	14.00	0.00	0.00	839.00	630.00	845.55	0.00	846.14	10.45	4.06	352.52	194.87
3.700	2.00	842.40	839.60	839.60	630.00	845.22	0.00	846.22	13.09	6.25	297.96	169.07
3.700	2.00	842.40	839.60	839.60	630.00	845.22	0.00	846.22	13.14	6.27	296.68	170.34
3.800	2.00	0.00	0.00	841.20	630.00	845.70	0.00	846.25	1.11	4.23	362.71	190.00
3.800	2.00	0.00	0.00	841.20	630.00	845.68	0.00	846.25	10.68	4.75	362.75	191.01
3.900	22.00	0.00	0.00	840.60	630.00	845.70	0.00	846.25	13.71	4.63	377.66	170.17
3.900	2.00	0.00	0.00	841.20	630.00	845.70	0.00	846.25	13.74	4.63	377.16	170.25
4.000	48.00	847.60	844.60	840.80	630.00	847.92	0.00	848.00	5.99	3.45	532.29	257.32
4.000	48.00	847.60	844.60	840.80	630.00	847.92	0.00	848.00	5.99	3.45	532.29	257.32
4.200	52.00	0.00	0.00	840.00	630.00	847.95	0.00	848.03	5.80	3.41	538.65	261.51
4.200	52.00	0.00	0.00	840.00	630.00	847.95	0.00	848.03	5.80	3.41	538.65	261.51
4.300	300.00	0.00	0.00	842.80	630.00	848.20	0.00	848.65	31.15	5.79	274.46	112.20
4.300	300.00	0.00	0.00	842.80	630.00	848.28	0.00	848.64	35.84	6.16	251.90	105.26
4.700	575.00	0.00	0.00	844.50	630.00	849.65	0.00	850.00	23.55	5.01	229.73	129.02
4.700	575.00	0.00	0.00	844.50	630.00	849.71	0.00	850.05	21.67	4.58	243.05	145.76
4.900	300.00	0.00	0.00	844.50	630.00	849.99	0.00	850.28	16.71	3.91	272.56	154.16
4.900	300.00	0.00	0.00	844.50	630.00	850.03	0.00	850.26	15.81	4.32	302.82	158.42
5.000	42.00	851.20	848.00	864.10	630.00	851.98	0.00	852.01	2.32	.86	809.14	413.42
5.000	42.00	851.20	848.00	864.10	630.00	851.99	0.00	852.01	2.32	.86	810.06	414.01
5.100	50.00	0.00	0.00	863.90	630.00	851.99	0.00	852.02	1.55	1.87	830.50	506.29
5.100	50.00	0.00	0.00	863.90	630.00	851.99	0.00	852.02	1.55	1.81	831.43	505.90
5.150	600.00	0.00	0.00	845.20	630.00	852.12	0.00	852.15	3.53	2.44	796.72	335.24
5.150	600.00	0.00	0.00	845.20	630.00	852.12	0.00	852.15	3.80	2.54	791.03	323.26
5.200	600.00	0.00	0.00	846.50	630.00	852.00	0.00	852.53	8.44	3.57	556.05	205.00
5.200	600.00	0.00	0.00	846.50	630.00	852.46	0.00	852.52	10.14	3.72	515.24	197.33
5.250	575.00	0.00	0.00	847.65	630.00	852.96	0.00	852.98	8.09	3.14	901.43	221.52
5.250	575.00	0.00	0.00	847.65	630.00	853.10	0.00	853.05	4.98	3.21	877.00	473.11

SECNO	XLCR	ELTRD	ELLC	ELMIN	Q	CMSEL	CRIMS	EG	10K*S	VCH	AREA	.01K
5.300	575.00	0.00	0.00	848.40	630.00	[illegible]	0.00	853.60	19.17	4.56	663.40	143.90
[illegible]	575.00	0.00	0.00	[illegible]	630.00	[illegible]	0.00	[illegible]	[illegible]	4.66	[illegible]	142.[illegible]
5.350	525.00	0.00	0.00	850.25	630.00	[illegible]	0.00	[illegible]	[illegible]	[illegible]	516.[illegible]	171.[illegible]
5.350	525.00	0.00	0.00	850.25	630.00	854.[illegible]	0.00	854.51	13.37	3.45	487.61	172.50
5.400	525.00	0.00	0.00	851.90	630.00	855.24	0.00	855.44	40.34	5.14	344.72	99.19
[illegible]	525.00	0.00	0.00	851.90	630.00	855.[illegible]	0.00	[illegible]	[illegible]	5.25	318.51	99.04
5.500	465.00	0.00	0.00	853.25	630.00	[illegible]	0.00	[illegible]	[illegible]	[illegible]	376.13	111.[illegible]
5.500	465.00	0.00	0.00	853.25	630.00	855.84	0.00	857.01	31.61	4.78	351.41	112.05
5.600	465.00	0.00	0.00	856.60	630.00	858.18	0.00	858.46	44.64	5.66	266.69	94.29
[illegible]	[illegible]	0.00	0.00	[illegible]	630.00	[illegible]	0.00	[illegible]	[illegible]	3.47	275.79	[illegible]
5.700	465.00	0.00	0.00	855.90	630.00	[illegible]	0.00	[illegible]	[illegible]	7.54	[illegible]	81.77
5.700	465.00	0.00	0.00	855.90	630.00	860.11	0.00	860.[illegible]	61.19	7.57	117.21	80.56
5.800	100.00	0.00	0.00	856.20	630.00	860.72	0.00	861.76	83.69	8.20	76.84	66.90
[illegible]	[illegible]	0.00	0.00	[illegible]	[illegible]	[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5.900	1.00	890.00	864.20	856.20	630.00	860.5[illegible]	0.00	[illegible]	[illegible]	[illegible]	71.38	59.[illegible]
5.900	1.00	890.00	864.20	856.20	630.00	860.63	0.00	861.85	116.03	8.86	71.14	59.00
6.000	300.00	890.00	864.70	856.70	630.00	863.26	0.00	863.80	35.44	6.01	104.[illegible]	105.82
[illegible]	300.00	890.00	[illegible]	856.70	630.00	[illegible]	0.00	[illegible]	[illegible]	6.01	104.91	105.[illegible]
6.100	1.00	0.00	0.00	856.70	630.00	863.34	0.00	[illegible]	27.90	[illegible]	112.9[illegible]	119.[illegible]
6.100	1.00	0.00	0.00	856.70	630.00	863.34	0.00	863.33	27.88	5.58	112.92	119.31
6.200	50.00	0.00	0.00	856.70	630.00	863.05	0.00	863.99	6.64	3.55	369.13	244.46
[illegible]	50.00	0.00	0.00	[illegible]	630.00	[illegible]	0.00	[illegible]	6.63	3.55	369.2[illegible]	244.5[illegible]

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MINGES BROOK EMMETT TWP.

SUMMARY PRINTOUT TABLE 557

	DEPTH		FLOW	OFFSET	PERM	BEAM	TOP ELE	SLOPE
*	1.000	1150.00	830.92	0.00	0.00	0.32	43.97	0.00
*	1.000	1150.00	830.92	0.00	0.00	0.32	43.90	0.70
	1.100	1150.00	833.36	0.00	2.64	0.01	42.76	350.00
	1.100	1150.00	833.36	0.00	2.64	0.01	42.76	350.00
	1.500	1150.00	834.35	0.00	0.79	0.00	190.79	350.00
	1.500	1150.00	834.34	0.00	0.79	-0.00	116.96	350.00
	1.700	1150.00	834.85	0.00	0.53	0.00	33.00	200.00
	1.700	1150.00	834.86	0.00	0.53	0.00	33.00	200.00
	1.900	1150.00	834.99	0.00	0.06	0.00	33.00	100.00
	1.900	1150.00	835.00	0.00	0.06	0.00	33.00	100.00
	2.000	1150.00	835.03	0.00	0.31	0.00	33.00	50.00
	2.000	1150.00	835.03	0.00	0.31	0.00	33.00	50.00
	2.100	1150.00	835.68	0.00	0.31	0.00	133.00	50.00
	2.100	1150.00	835.71	0.00	0.31	0.00	133.00	50.00
	2.300	1150.00	836.63	0.00	0.53	0.00	436.67	1100.00
	2.300	1150.00	836.63	0.00	0.53	0.00	260.71	1100.00
	2.300	1150.00	836.63	0.00	0.40	0.00	104.32	1250.00
	2.300	1150.00	836.69	0.00	0.43	0.00	105.96	1250.00
	2.350	1150.00	839.13	0.00	2.19	0.00	47.50	435.00
	2.350	1150.00	839.13	0.00	2.19	0.00	47.51	435.00
	2.400	1150.00	840.34	0.00	2.21	0.00	43.44	485.00
	2.400	1150.00	840.34	0.00	2.20	0.00	43.43	485.00
	2.450	1150.00	842.10	0.00	1.84	0.00	350.41	570.00
	2.450	1150.00	842.11	0.00	1.83	-0.01	92.81	570.00
	2.500	1150.00	843.83	0.00	1.65	0.00	319.98	720.00
	2.500	1150.00	843.82	0.00	1.76	0.00	199.05	720.00
	2.600	630.00	844.12	0.00	0.39	0.00	384.12	463.00
	2.600	630.00	844.12	0.00	0.30	0.00	384.72	463.00
	2.800	630.00	844.29	0.00	0.17	0.00	290.20	900.00
	2.800	630.00	844.39	0.00	0.16	0.00	292.58	900.00
	2.900	630.00	844.87	0.00	0.03	0.00	292.72	307.00
	2.900	630.00	844.88	0.00	0.17	0.00	294.36	100.00
	3.000	630.00	845.12	0.00	0.73	0.00	309.85	55.00
	3.000	630.00	845.11	0.00	0.65	0.00	310.06	55.00
	3.000	630.00	845.13	0.00	0.00	0.00	310.42	10.00
	3.000	630.00	845.08	0.00	0.01	0.00	310.62	10.00

SECNO	Q	CUSEL	DIFUSP	DIFUSX	DIFKUS	TOPWID	XLCH
3.150	630.00	843.22	0.00	0.10	0.00	202.25	350.00
3.150	630.00	843.23	0.00	0.10	0.01	192.45	350.00
3.200	630.00	845.40	0.00	0.16	0.00	137.00	500.00
3.200	630.00	845.41	0.00	0.16	0.01	137.20	500.00
3.300	630.00	845.56	0.00	0.16	0.00	141.79	99.00
3.300	630.00	845.57	0.00	0.16	0.01	141.99	99.00
3.400	630.00	845.20	0.00	-0.36	0.00	131.62	2.00
3.400	630.00	845.21	0.00	-0.35	0.01	131.92	2.00
3.500	630.00	845.01	0.00	0.60	0.00	148.71	2.00
3.500	630.00	845.01	0.00	0.60	0.01	148.77	2.00
3.600	630.00	845.96	0.00	0.16	0.00	153.22	114.00
3.600	630.00	845.96	0.00	0.15	0.00	153.25	114.00
3.700	630.00	845.79	0.00	-0.17	0.00	148.33	2.00
3.700	630.00	845.79	0.00	-0.17	0.00	148.40	2.00
3.800	630.00	846.08	0.00	0.29	0.00	156.68	2.00
3.800	630.00	846.09	0.00	0.29	0.00	156.59	2.00
3.900	630.00	846.10	0.00	0.02	0.00	161.36	21.00
3.900	630.00	846.10	0.00	0.02	0.00	161.90	21.00
4.000	630.00	847.92	0.00	1.82	0.00	155.23	48.00
4.000	630.00	847.92	0.00	1.82	0.00	155.23	48.00
4.200	630.00	847.95	0.00	0.03	0.00	155.23	50.00
4.200	630.00	847.93	0.00	0.03	0.00	155.23	50.00
4.300	630.00	848.33	0.00	0.33	0.00	149.00	500.00
4.300	630.00	848.28	0.00	0.33	-0.02	126.62	500.00
4.700	630.00	849.66	0.00	1.36	0.00	197.30	575.00
4.700	630.00	849.74	0.00	1.44	0.00	198.51	575.00
4.900	630.00	849.91	0.00	0.32	0.00	202.53	100.00
4.900	630.00	850.03	0.00	0.29	0.05	203.49	100.00
5.000	630.00	851.98	0.00	2.00	0.00	236.61	42.00
5.000	630.00	851.98	0.00	1.95	0.00	236.57	42.00
5.100	630.00	851.99	0.00	0.01	0.00	236.73	50.00
5.100	630.00	851.99	0.00	0.01	0.00	236.80	50.00
5.150	630.00	852.12	0.00	0.13	0.00	245.25	600.00
5.150	630.00	852.13	0.00	0.13	0.00	238.09	600.00
5.200	630.00	852.42	0.00	0.28	0.00	238.42	600.00
5.200	630.00	852.43	0.00	0.33	0.00	199.97	600.00
5.250	630.00	852.94	0.00	0.53	0.00	613.32	575.00
5.250	630.00	853.07	0.00	0.57	0.00	612.81	575.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKHS	TOPWID	XLCH
5.300	630.00	853.36	0.00	0.62	0.00	634.56	575.00
5.400	630.00	853.53	0.00	0.[illegible]	0.00	471.37	575.00
5.450	630.00	854.33	0.00	0.77	0.00	235.70	525.00
5.500	630.00	854.45	0.00	0.78	0.00	198.45	525.00
5.600	630.00	855.24	0.00	0.91	0.00	225.42	525.00
5.650	630.00	855.37	0.00	0.91	0.00	113.[illegible]	525.00
5.700	630.00	856.73	0.00	1.49	0.00	227.[illegible]	465.00
5.800	630.00	856.84	0.00	1.50	0.11	136.82	465.00
5.800	630.00	858.18	0.00	1.45	0.00	135.00	465.00
5.850	630.00	858.2[illegible]	0.00	1.40	0.00	135.00	465.00
5.900	630.00	860.[illegible]	0.00	1.36	0.00	67.[illegible]	465.00
5.700	630.00	860.11	0.00	1.37	-0.03	66.72	465.00
5.800	630.00	860.72	0.00	0.58	0.00	17.00	300.00
5.850	630.00	860.71	0.00	0.50	-0.01	17.00	300.00
5.900	630.00	860.65	0.00	-0.02	0.00	17.00	1.00
5.400	630.00	860.63	0.00	-0.07	-0.01	17.00	1.00
6.000	630.00	863.24	0.00	2.59	0.00	17.00	300.00
6.050	630.00	863.24	0.00	2.51	0.00	17.00	300.00
6.100	630.00	863.34	0.00	0.10	0.00	17.00	1.00
6.100	630.00	863.34	0.00	0.10	0.00	17.00	1.00
6.200	630.00	863.85	0.00	0.31	0.00	115.08	50.00
6.200	630.00	863.85	0.00	0.31	0.00	115.08	50.00

SUMMARY OF ERRORS

CAUTION SECNO= 1.000 PROFILE# 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE# 2 CRITICAL DEPTH ASSUMED

FLOODWAY DATA, MINGES BROOK EMMETT TWP.
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
1.000	49.	130.	6.9	833.9	833.9	0.0
1.100	63.	257.	4.9	833.6	833.6	0.0
1.300	117.	421.	2.7	834.4	834.4	0.0
1.700	83.	334.	3.3	834.9	834.9	0.0
1.900	33.	218.	5.3	835.0	835.0	0.0
2.000	33.	231.	5.0	835.4	835.4	0.0
2.100	103.	348.	2.1	833.7	833.7	0.0
2.200	351.	1391.	0.8	836.2	836.2	0.0
2.300	98.	286.	4.0	836.7	836.6	0.1
2.350	48.	179.	6.4	838.1	838.1	0.0
2.400	43.	209.	5.5	840.3	840.3	0.0
2.450	95.	246.	4.7	842.2	842.2	0.0
2.500	99.	629.	0.8	843.3	843.3	0.1
2.600	99.	209.	1.5	844.2	844.2	0.1
2.800	243.	629.	0.5	844.5	844.3	0.1
2.900	294.	734.	0.9	844.5	844.4	0.1
3.000	310.	931.	0.7	845.1	845.1	0.0
3.100	311.	931.	0.7	845.1	845.1	0.0
3.150	25.	107.	0.1	845.2	845.2	0.0
3.200	127.	271.	2.3	845.4	845.4	0.0
3.300	112.	290.	2.1	845.6	845.6	0.0
3.400	132.	206.	3.1	845.2	845.2	0.0
3.500	149.	324.	1.9	845.8	845.8	0.0
3.600	153.	353.	1.8	846.0	846.0	0.0
3.700	140.	230.	2.2	845.0	845.0	0.0
3.800	157.	365.	1.7	846.1	846.1	0.0
3.900	160.	370.	1.7	846.1	846.1	0.0
4.000	153.	532.	1.2	847.9	847.9	0.0
4.200	155.	539.	1.2	848.0	848.0	0.0
4.300	127.	252.	2.5	848.3	848.3	0.0
4.700	159.	245.	2.6	849.0	849.7	0.0
4.900	203.	303.	2.0	850.0	850.0	0.0
5.000	237.	800.	0.8	852.0	852.0	0.0
5.100	237.	831.	0.8	852.0	852.0	0.0
5.150	200.	741.	0.9	852.1	852.1	0.0
5.200	200.	515.	1.2	852.4	852.4	0.0
5.250	513.	628.	0.8	853.0	852.9	0.1
5.300	471.	584.	1.0	853.7	853.6	0.1
5.350	193.	483.	1.3	854.4	854.3	0.1
5.400	183.	319.	2.0	855.3	855.2	0.1
5.500	187.	331.	1.8	856.8	856.7	0.1
5.600	135.	276.	2.3	858.3	858.2	0.1
5.700	47.	117.	3.4	860.1	860.1	0.0
5.800	17.	77.	3.2	860.7	860.7	0.0
5.900	17.	71.	4.3	860.6	860.6	0.0
6.000	17.	105.	6.0	863.2	863.2	0.0
6.100	17.	113.	5.6	863.3	863.3	0.0
6.200	115.	369.	1.7	863.9	863.9	0.0

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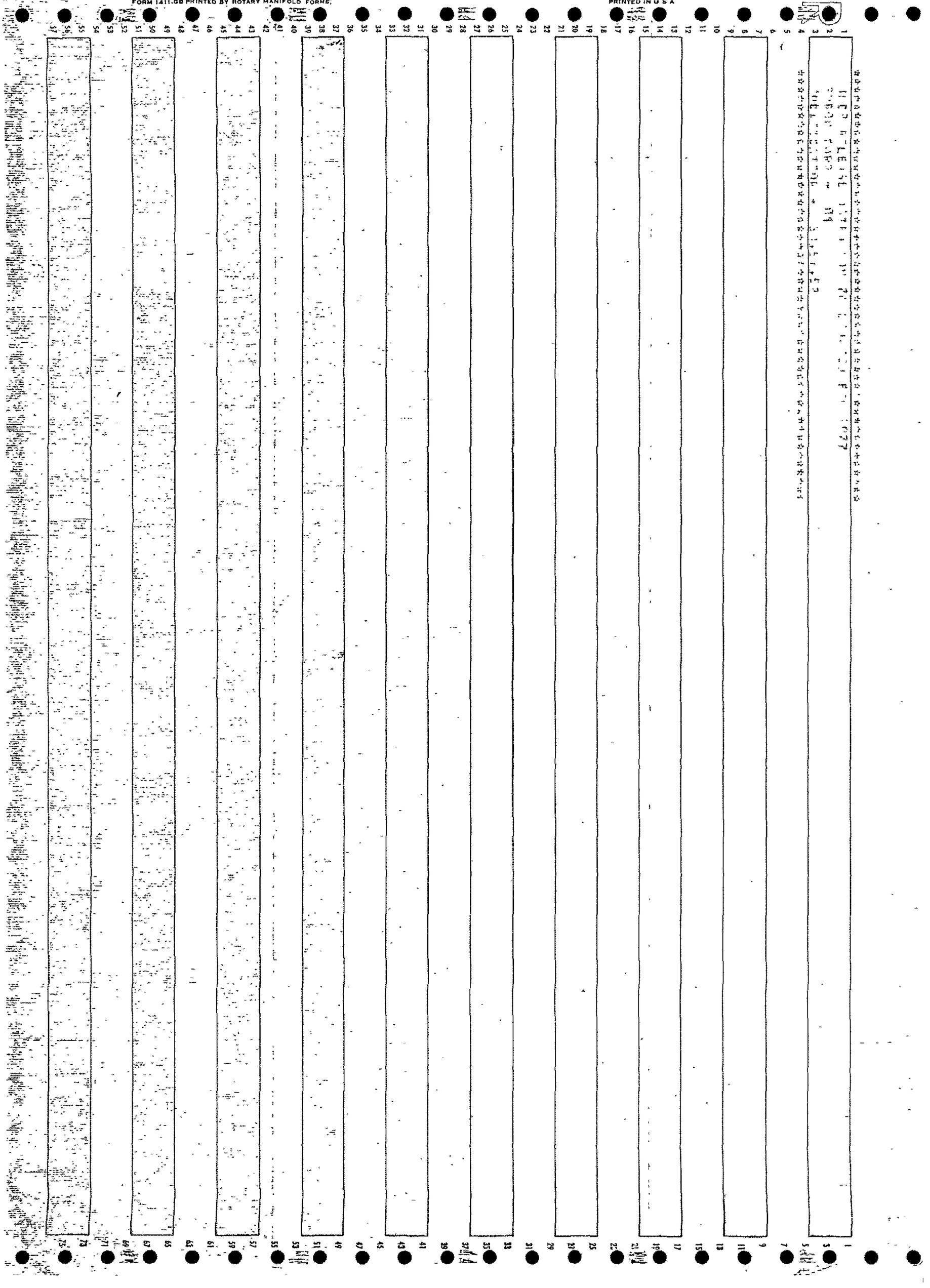

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Emmett Twp

3) WATERCOURSE: Minges Brook

4) DOCUMENT TYPE: 100 yr : natural

00BREAK00

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**********************************************************************
     HEC2 SELECT PAGE FLOW 7 UPDATED F.O 1977
     ICODE CITY =  5
     CONVERSION =  50.01.52
**********************************************************************


C
T1 PRESENT TO PROPOSED FLOOD INSURANCE STUDY
T2 TRIB-4 AT MP DUPAR R.D.
T3       PINGIS BROOK PORTAGE TWP.

J1  ICHECK    INQ        NINV       IDTS       G1HT       METRIC     HVINS      C          MSEL       PG
          .0          .          0.         0.       1.000.00       0.0          1.0          0.       500.00       5.050

J2  SPROF     IPLOT      PRTPL      NSECW      XSECH      ZU         ALLDC      IBW        CHNIM      ITRACE
        1.000      0.000     -1.000      0.000      1.000      3.000      5.000      7.000      0.000     15.000

J3  VARIABLE INPUT - FOR 30 CROSS SECTIONS
      150.000    110.000    200.000      3.000      0.000      0.000      1.000      1.000      3.000      0.700

QT        2.000    500.000    900.000   1150.000   1150.000   1320.000      0.000      0.300      0.700      0.000
QT        1.00       1.00       1.00       0.95       1.00       0.00       0.00       0.00       1.00       0.00


                MILDES BROOK AT CONFLUENCE OF KALAMAZOO RIVER    CROSS SECTION 26

X1        1.000     20.000    962.000    980.000      0.000      0.000      0.000      0.000      0.000      0.000
GR      [illegible]
GR      [illegible]
GR      [illegible]
GR      826.400    985.000    829.000    983.000    836.700   1016.000    838.000   1062.000    840.400   1132.000

X1        1.000      0.000      0.000      0.000    750.000    750.000    750.000      0.000      0.000      0.000
GR        0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

      ---VALLEY SECTION---                                    CROSS SECTION 27

X1        1.500      0.000   1115.000   1150.000    750.000    750.000    750.000      0.000      0.000      0.000
GR      824.000    950.000    841.000    976.000    840.700    850.400    837.400    940.000    853.000   1012.000
GR      832.400   1004.000    832.300    991.000    830.500   1109.000    822.700   1115.000    827.000   1134.000
GR      828.600   1149.000    831.100   1152.000    833.000   1169.000    835.000   1206.000    835.700   1278.000
GR      838.400   1341.000      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      0.030      0.000      0.000      0.000      0.000      0.000
ET        0.300      0.100      0.100      7.400      7.100      0.000   1095.500   1115.500      0.000      0.000


      100 FT D/S GOLDEN AVE.                                  CROSS SECTION 27

X1        1.700      0.000   1117.500   1150.500    600.000    600.000    600.000      3.000      0.000      3.000
GR      [illegible]
GR      [illegible]
GR      [illegible]
GR      831.700   1152.000    833.600   1161.000    835.600   1299.000    850.000   1300.000      0.000      0.000
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D/S FACE GOLDEN AVE. CROSS SECTION 27

X1	1.900	0.000	2.050	0.300	100.000	100.000	100.000	0.000	0.000	0.000
X3	10.000	0.300	2.050	0.300	0.000	0.300	0.000	375.500	439.500	0.000
S1	0.200	1.671	2.000	0.700	52.000	1.700	300.000	0.000	150.100	0.000

U/S FACE GOLDEN AVE. CROSS SECTION 27328

X1	2.000	0.300	0.000	0.000	31.000	31.000	31.000	0.000	0.000	0.000
X3	0.000	0.300	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X2	10.000	0.300	0.300	0.000	0.000	0.000	0.000	436.300	439.300	0.000
BT	10.000	0.300	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	1100.000	835.000	0.300	1109.000	836.900	0.000	1117.500	836.900	0.000	1117.500
BT	836.900	835.000	1135.500	834.900	835.200	1133.100	836.900	0.000	1133.900	836.900
BT	0.000	1135.000	836.900	835.200	1150.400	834.950	835.200	1150.500	836.900	0.300
BT	1152.000	0.000	0.300	1121.000	1.300	0.000	1200.000	0.300	0.000	0.300
BT	300.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.300
BT	0.000	0.000	0.300	0.000	0.000	0.000	1147.300	1200.300	0.000	0.300

U/S FACE GOLDEN AVE. CROSS SECTION 27

X1	2.000	0.000	2.000	0.300	50.000	50.000	50.300	0.000	0.000	0.000
X2	0.000	0.000	2.000	0.300	0.300	0.000	0.000	0.000	0.000	0.000
BT	0.300	0.000	0.000	0.000	1.413	0.000	0.300	0.000	0.000	0.000

VALLEY SECTION CROSS SECTION 27

X1	2.300	0.000	2.000	0.300	200.000	0.300	0.000	0.000	0.000	0.000
GR	680.400	230.300	355.300	320.200	850.200	680.000	840.000	434.000	338.000	412.000
GR	835.000	302.200	335.000	513.000	701.500	525.000	829.400	533.000	328.000	541.000
GR	629.400	549.000	432.600	554.000	832.100	604.000	832.600	732.000	353.200	856.000
GR	837.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	189.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION CROSS SECTION 30

X1	2.300	31.000	709.000	733.300	1275.000	0.300	0.000	0.000	0.000	0.000
GR	653.000	632.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	843.000	634.000	842.400	656.000	959.600	707.000	830.800	709.000	830.000	721.000
GR	832.600	733.000	833.900	730.000	834.700	756.000	840.000	900.000	840.000	912.000
GR	842.200	1020.000	840.300	1116.000	842.400	1210.000	842.000	1276.000	852.000	1342.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	2.350	12.000	709.000	733.000	685.000	685.000	685.000	0.000	0.000	0.000
GR	750.000	450.000	843.000	500.000	842.500	650.000	841.000	705.000	833.500	709.000
GR	831.700	721.000	833.500	733.000	835.000	776.000	840.000	765.000	842.500	800.000
GR	841.000	833.000	850.000	1067.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION CROSS SECTION 31

X1	2.400	21.000	719.000	737.000	685.000	685.000	685.000	0.000	0.000	0.000
GR	872.300	772.000	842.400	814.000	857.200	857.000	847.200	833.300	845.500	850.000
GR	842.900	444.000	841.300	866.000	841.600	844.000	841.800	736.300	836.900	710.000
GR	835.100	815.000	834.600	730.000	833.400	726.000	833.600	737.000	835.600	739.000
GR	842.200	795.300	842.800	850.000	843.100	862.000	851.800	912.000	860.400	988.000
GR	874.200	1078.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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X1	2.450	16.000	719.000	737.000	500.000	500.000	500.000	0.000	0.000	0.000
GR	860.000	150.000	850.200	252.000	842.500	352.000	342.000	500.000	941.800	706.000
GT	138.000	795.000	36.400	715.000	554.500	713.000	756.300	591.100	595.700	737.000
GR	456.400	727.000	161.200	735.000	842.500	417.000	747.700	1.2.300	851.100	912.300
GT	302.400	914.000	0.000	0.300	0.000	0.000	0.300	0.100	0.500	0.200

VALLEY SECTION CROSS SECTION 52

X1	2.400	12.300	964.000	986.000	400.000	420.300	720.000	0.000	0.000	0.000
GT	270.700	55.700	661.100	533.000	342.600	324.100	845.100	702.000	842.700	804.000
GR	841.400	892.000	840.000	559.000	836.900	945.000	877.500	965.000	837.000	976.000
GR	837.900	886.700	339.500	991.000	963.300	1032.000	848.400	1060.000	851.200	1164.000
GR	845.200	1276.700	845.300	1388.000	852.500	1430.200	855.200	1206.000	0.000	0.000
GT	5.000	300.000	37.300	0.000	430.000	870.000	0.000	0.000	0.000	0.000

SHEET U/S CONFLUENCE TO PAPET CREEK CROSS SECTION 51

X1	2.400	12.000	1014.000	1027.000	250.000	257.000	250.000	0.000	0.000	0.300
GT	271.300	55.000	662.200	501.300	342.200	324.000	844.300	702.000	842.700	804.000
GR	841.300	892.000	840.000	1000.000	836.900	1011.000	877.500	1060.000	837.000	1024.000
GR	837.900	1276.000	845.200	1396.000	842.500	1430.000	845.200	1206.000	842.700	1324.000
GT	146.400	1276.000	849.200	2024.000	0.000	0.000	0.300	0.000	0.000	0.000
GR	0.300	0.000	0.040	0.300	0.500	0.000	0.300	0.000	0.000	0.000
GT	0.300	0.000	0.000	0.000	0.100	0.000	0.000	0.000	555.000	1536.000

CROSS SECTION 52

X1	2.600	22.000	906.200	1000.000	650.200	650.000	900.000	0.000	0.000	0.000
GT	475.000	544.000	872.200	579.000	644.800	623.000	359.600	651.000	855.200	603.000
GT	138.000	795.000	36.400	715.000	554.500	713.000	756.300	591.100	595.700	737.000
GR	456.400	727.000	161.200	735.000	842.500	417.000	747.700	1.2.300	851.100	912.300
GT	302.400	914.000	0.000	0.300	0.000	0.000	0.300	0.100	0.500	0.200
GR	849.500	1536.000	875.000	1536.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE JUANITA DR. CROSS SECTION 53

X1	2.000	22.000	906.200	1000.000	100.000	100.000	100.000	0.000	0.000	0.000
X2	10.000	358.700	0.000	0.000	0.000	0.000	0.300	842.500	842.500	0.000
GT	854.800	623.000	859.600	851.300	855.200	603.000	854.000	745.000	849.400	765.000
GR	846.600	859.000	842.000	876.000	871.000	970.000	841.500	980.000	839.000	989.000
GR	837.100	975.400	355.000	980.100	838.100	997.200	837.100	998.200	838.100	975.000
GR	844.000	959.400	839.000	992.300	838.100	980.200	838.100	997.900	839.100	992.000
GR	838.100	995.200	838.100	993.300	838.200	992.200	838.000	994.000	839.100	995.000
GR	838.100	995.700	838.100	996.000	838.100	997.900	838.100	998.600	839.000	995.000
GR	841.600	1003.000	842.200	1008.000	842.200	1116.000	847.300	1196.000	846.700	1324.000
GR	846.900	1476.000	849.500	1536.000	875.000	1537.000	0.000	0.000	0.000	0.000
GT	0.300	2.700	3.000	0.300	12.600	0.000	39.500	0.300	638.220	638.750

U/S FACE JUANITA DR. CROSS SECTION 53

X1	5.000	0.000	0.300	2.000	55.200	58.000	85.000	0.000	0.000	0.000
X2	1.000	1.000	1.300	361.300	841.400	1.000	1.000	0.000	0.000	0.000
GR	10.000	358.500	0.000	0.000	0.000	0.000	1.000	842.500	842.500	0.000
GT	30.700	623.000	859.600	0.000	855.200	855.000	0.300	845.000	839.200	0.000
GT	745.300	854.000	0.000	765.000	869.000	0.000	839.200	846.000	0.000	870.300
GT	846.400	0.000	970.000	846.400	0.000	900.000	842.400	0.000	985.000	844.600
GT	39.000	935.400	844.400	840.400	98.000	844.400	842.400	0.000	844.400	842.800

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BT	988.300	844.400	841.300	989.000	844.400	344.400	989.300	844.400	839.000	989.800
BT	844.400	839.000	990.200	844.400	840.400	990.900	844.400	841.400	992.200	844.400
BT	841.600	993.100	844.400	841.400	993.300	344.600	840.400	994.200	844.400	839.000
BT	996.600	844.400	839.200	995.000	844.400	343.400	995.700	844.400	841.400	996.500
BT	844.830	841.000	997.300	844.400	841.400	997.600	844.400	840.400	839.000	995.400
BT	839.100	1000.700	844.500	840.400	1000.200	844.400	0.000	1000.400	842.900	0.200
BT	1000.700	844.400	0.200	1000.400	840.700	0.000	1000.300	841.300	0.200	1000.700
BT	849.530	0.200	1537.300	875.000	0.200	0.000	0.000	0.000	0.200	0.200

D/S OF DAM CROSS SECTION 33

.1	3.140	22.00	841.300	1000.00	30.200	5.000	20.000	0.000	0.200	0.200
GR	879.020	545.200	872.800	879.000	844.800	820.000	859.500	851.000	855.200	873.200
GR	854.000	745.200	849.400	765.000	846.600	859.000	862.000	878.000	841.870	874.200
GR	841.520	930.200	830.400	984.000	839.000	992.000	839.000	1070.000	841.600	1075.200
GR	843.200	1000.200	840.200	1100.00	842.200	1000.00	840.200	1394.000	842.200	1000.200
GR	844.230	1050.00	879.230	1200.000	0.200	1.000	1.100	0.000	0.200	0.25
GR	849.0	0.00	0.52	1.00	0.200	1.000	0.300	0.000	0.200	0.200
X1	3.150	0.200	0.200	2.000	850.200	852.000	850.200	0.000	0.200	0.200

[illegible] CROSS SECTION [illegible]

X1	3.250	23.230	990.230	1010.000	250.230	252.010	500.000	0.300	0.230	0.250
GR	862.020	851.200	831.200	845.000	842.400	900.000	844.400	946.000	845.000	976.000
GR	844.610	22.00	841.230	995.000	840.200	1000.00	840.200	1350.000	842.230	1000.200
GR	849.830	1000.230	850.200	1200.000	850.200	1200.000	0.200	0.000	0.200	0.250
T	3.050	2.250	0.200	2.00	0.200	2.000	2.200	1.200	0.250	0.200

D/S OF DAM CROSS SECTION 34

X1	3.300	4.000	3.021	0.200	49.030	52.000	50.000	0.200	3.020	3.021
T	0.000	7.100	0.000	0.300	0.230	1.000	537.200	1067.000	1.020	0.200
BC	0.000	7.000	0.020	0.000	0.020	0.000	0.300	0.300	0.020	0.020

TOP OF DAM CROSS SECTION 35

X	3.300	5.000	0.000	0.230	5.000	2.300	3.020	3.020	0.000	0.000
X2	0.300	0.000	0.000	839.630	342.000	0.000	2.000	3.020	0.000	0.000
ET	0.300	7.100	0.000	0.020	0.000	0.300	987.000	1067.020	0.000	0.000
BC	0.000	0.000	0.035	0.020	0.000	0.300	0.020	3.000	0.000	0.000

D/S OF DAM CROSS SECTION 36

X1	3.530	13.200	990.000	1010.000	2.000	2.000	2.000	0.000	0.000	0.200
X3	0.000	840.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	883.100	850.700	851.200	845.000	849.400	900.000	848.400	946.000	845.000	976.000
GR	844.630	847.200	840.230	990.000	840.200	1000.000	840.500	1011.000	843.000	1014.000
GR	844.430	1000.230	850.230	1200.000	850.200	1200.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	0.000	0.000	0.000	0.000	987.000	1042.000	0.000	0.000

D/S DAM LOCATED AT FT D/S 3 CHAN CROSS SECTION 38

X1	3.000	13.000	990.000	1011.000	100.000	75.000	100.000	0.200	3.000	2.000
GR	860.000	750.000	851.000	845.000	849.400	900.000	848.400	946.000	845.000	976.000
GR	843.200	965.000	841.000	990.000	841.000	1000.000	840.500	1011.000	843.000	1014.000
GR	844.400	1000.000	850.000	1200.000	850.000	1200.000	0.000	0.000	0.000	0.000

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ET	0.000	7.100	0.000	0.000	0.000	0.000	980.000	1002.000	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

	T/S OF [illegible]				CROSS SECTION 54					
X1	3.230	0.300	0.200	2.000	2.200	2.000	2.300	0.000	0.230	0.000
X2	0.000	0.300	0.200	843.500	542.400	0.000	0.300	0.000	0.200	0.000
ET	0.200	7.100	0.200	0.000	0.200	0.000	980.000	1002.000	0.200	0.000
NC	0.000	0.000	0.235	0.000	0.200	0.000	0.000	0.000	0.000	0.000

	U/S OF [illegible]				CROSS SECTION 55					
X1	3.300	13.900	990.000	1019.000	2.000	2.000	2.000	0.000	0.000	0.000
X3	0.200	841.300	0.000	2.000	0.000	2.000	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]	0.000	0.000	0.200	0.000
NC	0.100	0.200	0.235	0.300	0.300	2.000	0.000	0.000	0.000	0.000

	[illegible]				CROSS SECTION 56					
X1	[illegible]	[illegible]	[illegible]	[illegible]	21.300	[illegible]	21.000	0.000	[illegible]	[illegible]
X3	90.000	240.900	0.200	0.000	0.300	2.000	0.000	945.000	845.000	0.000
ET	650.700	750.100	331.300	644.000	349.600	907.000	841.400	946.000	847.000	974.000
[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]	0.000	0.000	0.200	0.000
SI	0.300	[illegible]	[illegible]	0.200	[illegible]	[illegible]	27.000	[illegible]	[illegible]	[illegible]

	U/S FACE E DRIVE				CROSS SECTION 55					
[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]
DT	25.000	750.100	860.000	0.000	900.000	360.000	0.300	934.000	860.000	0.200
BT	965.000	843.700	0.000	985.000	847.600	0.000	583.300	847.600	0.100	994.400
DT	842.600	841.500	994.500	847.600	843.400	905.300	847.600	846.400	996.500	847.600
DT	845.000	847.100	847.200	344.400	858.100	200.000	855.400	530.300	847.600	843.500
DT	1301.500	1047.600	841.600	1301.900	847.600	943.400	1002.900	847.300	844.600	1003.500
DT	847.600	845.600	1001.500	847.600	841.400	1305.300	847.600	845.400	1005.800	847.600
DT	861.500	1007.000	847.600	0.000	1010.000	846.700	0.000	1090.000	846.700	0.000
BT	1120.000	847.600	0.000	1121.000	860.000	0.300	0.000	0.600	0.000	0.000
ST	860.000	750.000	860.000	900.000	860.000	964.000	847.500	965.000	842.900	985.000
BT	941.400	907.000	841.600	897.300	847.600	954.900	843.500	995.000	847.500	855.500
BT	848.500	997.100	842.500	895.900	841.500	994.500	841.500	1000.800	842.500	1301.000
DT	1.00.500	1002.100	860.000	1003.900	842.500	10[illegible].200	845.500	1005.100	841.500	1309.600
GR	841.300	1007.000	845.000	1010.300	845.000	1090.000	845.000	1120.000	860.000	1121.000
ET	0.300	7.100	0.000	0.000	0.000	0.000	970.000	1080.000	0.000	0.000

	30 FT [illegible]									
X1	4.200	0.000	0.000	0.000	50.300	50.000	50.000	0.000	0.000	0.000
NC	0.100	0.100	0.040	0.100	0.300	0.000	0.200	0.000	0.600	0.000
ET	0.000	0.000	0.000	0.000	1.410	0.000	0.300	0.000	0.000	0.000
X2	4.300	3.000	0.000	0.000	250.000	450.000	450.000	0.300	2.000	0.000
NC	0.100	0.100	0.040	0.300	0.500	0.000	0.000	0.300	0.000	0.000
ET	0.000	0.000	0.000	0.000	9.100	0.000	0.000	0.000	565.000	1500.000

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100 FT D/S 6.5 MILE ROAD

X1	4.700	14.200	321.500	644.200	230.000	461.500	575.000	0.000	0.000	0.000
GR	872.100	584.000	366.000	618.000	856.000	642.000	849.000	668.000	849.000	736.000
GR	848.000	813.000	844.600	819.000	845.000	621.500	844.400	822.000	844.400	823.500
GR	844.400	824.500	844.400	825.500	844.600	827.000	845.000	827.500	845.900	836.500

D/S FACE 61/2 MILE RD. CROSS SECTION 56

X1	2.900	14.200	5.000	0.210	100.000	100.000	100.000	2.000	0.000	1.000
X2	10.100	1.000	1.000	0.200	1.000	0.000	1.000	100.000	100.000	1.000
X3	0.000	2.700	3.000	0.300	5.500	0.200	37.000	0.000	874.100	844.500

D/S FACE 61/2 MILE RD. CROSS SECTION 57

X1	5.000	17.200	65.200	544.200	42.000	42.200	42.500	0.200	1.000	1.000
X2	1.000	1.000	1.000	840.000	651.200	0.000	0.000	0.000	0.000	0.000
X3	10.000	1.500	0.000	0.000	0.000	1.000	0.000	851.500	851.500	0.000
GT	32.000	824.200	572.200	0.000	600.200	860.000	0.200	642.200	856.000	0.000
GT	827.500	851.200	845.200	836.500	231.200	845.900	937.000	851.200	847.200	838.000
GT	851.200	847.000	331.500	851.200	847.900	839.000	351.200	847.000	840.100	851.200
GT	847.200	840.500	851.200	845.900	840.700	851.200	845.700	851.200	851.200	837.000
GT	852.300	851.200	847.500	839.200	851.200	837.200	842.200	851.200	847.500	824.300
GT	851.200	845.300	844.700	851.200	845.700	844.000	851.200	0.000	856.000	841.200
GR	0.200	1300.000	870.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	872.200	584.000	366.000	618.000	856.000	642.000	849.000	668.000	849.000	736.000
GR	848.000	813.000	844.600	819.000	845.000	621.500	844.400	822.000	844.400	823.500
GR	844.400	824.500	844.400	825.500	844.600	827.000	845.000	827.500	845.900	836.500
GR	846.300	837.100	844.000	839.000	844.700	842.500	844.100	839.000	856.000	840.000
GR	845.900	840.300	845.700	843.700	844.500	841.200	844.200	842.200	844.200	842.700
GR	844.200	843.300	844.000	844.200	845.700	844.700	845.500	844.000	849.000	836.000
GR	860.000	1300.000	870.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.200	2.100	0.000	0.000	0.000	0.000	740.000	860.000	0.000	0.000

SLOPE D/S 61/2 MILE RD.

X1	5.100	14.000	819.000	846.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	872.200	584.000	366.800	618.000	856.000	642.000	849.000	668.000	849.000	736.000
GR	848.000	813.000	844.600	819.000	843.900	824.500	844.100	836.500	844.200	843.200
GR	845.500	844.200	844.200	854.000	840.100	842.000	870.000	1300.000	0.500	0.000
WC	5.170	14.200	0.170	0.110	0.300	2.000	0.000	40.000	0.100	0.000
ET	0.200	0.300	0.200	2.000	1.410	2.000	0.000	0.300	0.200	0.000

X1	5.150	16.000	506.300	516.000	575.000	575.000	600.000	0.000	41.300	0.000
GR	845.700	832.200	875.600	862.000	842.800	896.000	853.400	842.700	850.200	838.200
GR	850.500	692.200	840.700	801.000	846.500	804.000	840.700	810.700	847.900	838.200
GR	848.200	823.200	850.400	851.000	850.600	846.000	853.300	836.200	857.200	838.200
GR	865.300	766.200	873.900	874.000	882.400	1051.000	0.000	0.000	0.000	0.000

VALLEY SECTION CROSS SECTION 57

X1	5.250	20.000	1400.000	1418.000	600.000	525.000	575.000	0.000	41.000	0.000

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GR	870.300	1140.300	852.400	1141.020	852.400	1362.020	853.000	1378.000	853.000	1398.000
GR	851.600	1403.000	846.600	1408.000	846.600	1413.020	849.500	1413.000	853.000	1426.000
GR	853.000	1436.000	851.400	1456.000	852.000	1492.020	852.000	1362.000	852.600	1624.000
GR	853.100	1236.000	850.400	1864.020	366.600	1552.020	874.300	1902.000	983.200	1926.000

VALLEY SECTION CROSS SECTION 56

X1	5.300	0.000	0.000	0.000	600.000	525.020	575.000	0.000	1.000	0.000

X1	5.350	24.000	995.000	1016.020	600.000	425.020	575.000	0.000	-1.000	0.000
GR	46.000	0.000	873.300	850.600	866.100	210.020	865.600	404.000	469.000	488.000
GR	867.800	586.000	864.100	648.000	862.000	736.000	869.200	824.000	864.500	980.000
GR	850.000	914.000	854.000	960.000	853.600	937.000	852.000	999.000	851.900	1507.000
GR	852.300	2016.000	858.300	1021.000	853.900	1058.000	853.900	1139.000	862.300	1188.000
GR	871.300	1371.000	872.000	1384.000	875.000	1331.020	875.250	1404.000	0.000	0.000

VALLEY SECTION CROSS SECTION 59

X1	5.600	0.000	0.000	0.000	600.000	425.020	525.000	0.000	1.650	0.000

X1	5.600	0.000	0.000	0.000	535.000	365.020	465.000	0.000	1.350	0.000

X1	5.600	0.000	0.000	0.000	535.000	365.020	465.000	0.000	1.350	0.000
GR	0.000	0.000	0.000	0.000	0.000	1.020	0.000	1.000	0.000	0.000
GR	0.100	0.100	1.047	0.300	0.000	0.000	0.020	0.000	0.000	0.000

100 FT D/S I-194 CROSS SECTION 20

X1	5.700	15.000	914.000	1031.020	535.000	495.020	465.000	0.000	56.000	0.000
X3	0.000	0.000	0.000	1799.020	0.000	1636.020	0.000	0.000	0.000	0.000
GR	890.000	1764.000	862.000	1783.020	861.000	1752.020	861.200	1806.020	859.900	1814.000
GR	855.900	1814.100	855.900	1822.000	855.900	1822.170	855.900	1822.900	855.900	1825.000
GR	855.900	1830.000	855.900	1831.000	859.600	1836.020	862.000	1880.000	890.000	1891.000
ET	0.300	0.300	0.000	0.000	0.300	0.020	0.000	0.000	1765.000	1891.000

X1	5.300	0.300	0.000	0.000	100.000	100.000	100.000	0.000	0.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	890.000	890.000	0.000

CROSS SECTION 2

X1	5.900	0.000	0.000	0.000	0.000	1.300	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.300	0.000	890.000	890.000	0.000
BT	15.000	1764.000	890.000	0.000	1765.000	890.300	0.000	1792.000	890.000	0.000
BT	1806.000	890.000	0.000	1814.300	890.000	0.300	1814.100	890.000	864.200	1822.000
BT	890.000	864.200	822.100	890.000	0.000	1822.300	890.000	0.000	1822.000	890.000
BT	864.200	822.900	890.000	864.200	831.000	890.300	0.000	0.000	0.000	0.000
BT	1830.000	890.000	0.000	1881.300	890.000	0.300	0.000	0.000	0.000	0.000

D/S FACE I-195 CROSS SECTION 18

X1	6.000	0.300	0.000	0.000	300.000	300.000	300.000	0.000	0.300	0.000
X3	0.000	0.300	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	890.000	890.000	0.000

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X1	6.100	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	890.000	890.000	0.000

50 FT [illegible] 2-1 [illegible] [illegible] SECTION [illegible]

[illegible]	[illegible]	[illegible]	0.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EJ	0.000	0.000	0.000	0.000	0.000	[illegible]	0.000	0.000	0.000	0.000

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*PROF 1

CCHV=   0.200 CEHV=   0.300
*SECNO  1.00
   SECNO      DEPTH      PWEEL      CRIWS      HSTLK      EG         IP         AI         ELOSS    BANK FLAG
     2        PLOB       ICI        CBOD       ALC        XCH        CHAN       AOL        T.A      LEFT/RIGHT
   TIME       VLOB       VCI        VROB       XNL        XSCH       XTR        TW         ELCHA       SSTA
   SLOPE      XLOLL      XLCH       XLOOR      ITRIAL     IN2        ICONT      CUMAX      TOPWID      ENDST

BYPASS CRITICAL DEPTH ASSUMED

          *INGES PROJ: AT CONFLUENCE OF KALAMAZOO RIVER , CROSS SECTION 28

      1.00       4.32     830.92     830.92     832.60     832.61      1.89       3.05       0.00     829.60
     1150.         3.       97.       11.        15.        154.        7.         0.         0.       825.75
      0.02       1.76      11.67      1.50       5.105      0.035      0.100      0.00     827.90     1001.42
  0.002755          0.         0.         1.         3          2          0          0.0     62.76     994.97


FLOW DISTRIBUTION FOR SECNO=      1.20          CHSEL=    830.92

 STA=      1001.      1012.      1046.      1100.      1119.      1119.      1169.      1152.      1163.      1192.
   PER Q=      0.1        2.0        1.3        6.4        3.6       77.0        1.5        5.5        1.6
   AREA=      3.0       42.3      111.2       26.0       49.6      196.0       35.5       25.4       19.8
    VEL=      0.2        0.3        0.2        1.0        0.3        4.6        1.1        0.4        3.4

  1.10       6.91     833.56       0.00       0.00     834.11       0.55       1.39       0.11     829.75
 1150.         87.      1023.        35.        60.        164.        32.         2.         0.     829.35
  0.02       1.75       6.37       1.00       0.150      0.035      0.100      0.035    824.65     1001.51
 0.002059       360.       305.       350.          9                     0          0.07     62.76     1003.32

FLOW DISTRIBUTION FOR SECNO=      1.10          CHSEL=    833.56

 STA=      1001.      1046.      1060.      1096.      1103.
   PER Q=      6.0        0.8       44.4       48.8
   AREA=      11.3       49.5      104.0       32.3
    VEL=      0.9        1.6        6.3        1.1

*SECNO 1.500

          VALLEY SECTION                    CROSS SECTION 27

     -1.50       7.35     834.35       0.00       0.00     836.62       0.27       0.48       0.03     828.70
     1150.        199.       909.        42.       233.        196.        59.         5.         1.     828.60
      0.04       0.85       4.64       0.72       0.100      0.035      0.100      0.035    827.00     1001.42
 0.000903          362.       380.       350.          2          0                     0.00     190.79     1192.21

FLOW DISTRIBUTION FOR SECNO=      1.50          CHSEL=    834.33

 STA=      1001.      1012.      1046.      1100.      1119.      1119.      1169.      1152.      1163.      1192.
   PER Q=      0.1        2.0        1.3        6.4        3.6       77.0        1.5        5.5        1.6
   AREA=      3.0       42.3      111.2       26.0       49.6      196.0       35.5       25.4       19.8
    VEL=      0.2        0.3        0.2        1.0        0.3        4.6        1.1        0.4        3.4

CCHV=   0.300 CEHV=   0.500
*SECNO  1.700
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3670 ENCROACHMENT STATIONS= 1092.5 1175.5 TYPE= 1 TARGET= 03.000

100 FT D/S GOLDEN AVE. CROSS SECTION 27

1.70	7.39	834.99	0.00	0.00	834.26	0.43	0.72	0.05	829.30
1150.	0.	1150.	0.	0.	217.	0.	11.	3.	829.20
0.00	0.00	5.29	0.00	0.100	0.035	0.100	0.035	827.60	1092.50
0.001667	600.	600.	600.	2	0	0	3.00	03.00	1175.50

FLOW DISTRIBUTION FOR SECNO= 1.70 CWSEL= 834.99

STA=	1093.	1100.	1109.	1118.	1151.	1152.	1161.	1175.
PER Q=	1.3	2.8	4.3	88.3	0.5	1.4	0.6	
AREA=	20.4	30.5	41.3	215.5	6.7	20.4	17.6	
VEL=	0.7	1.1	1.3	4.9	0.8	0.9	0.5	

*SECNO 1.00

SECNO	DEPTH	CWSEL	CRITWS	AREA	CG	HV	HL	OLOSS	BANK ELEV
0	SLO	ICH	OBCD	ALOB	ACH	ARCH	WCL	TUA	LEFT/RIGHT
TYPE	WLO	WCH	WRCD	ARL	XNCH	XNOB	WTH	ELTRM	SSTA
FLOPL	RLPL	FLCH	RLWR	ELTRG	JUP	JDP T	CDWR	TOPJE	ESTA

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,CLEN= 835.50 ELFEA= 835.50

D/S GOLDEN AVE. CROSS SECTION 27

1.90	7.39	834.99	0.00	0.00	835.43	0.43	0.72	0.05	829.30
1150.	0.	1150.	0.	0.	217.	0.	11.	3.	829.20
0.09	0.00	5.29	0.00	0.100	0.035	0.100	0.035	827.60	1117.50
0.001667	600.	600.	600.	2	0	0	0.00	03.00	1175.50

FLOW DISTRIBUTION FOR SECNO= 1.90 CWSEL= 834.99

STA=	1118.	1151.
PER Q=	100.0	
AREA=	217.5	
VEL=	5.3	

SPECIAL BRIDGE

SECNO	KRADI	COPD	IDISP	CWC	CDP	BADEA	SS	ELCLO	ELCLD
0.00	1.50	5.00	0.70	33.03	0.65	809.00	0.00	829.20	832.30

*SECNO 2.000
PRESSURE FLOW

ECPRS	ECLWC	IS	E_I	CPI	EAIE	SLOPE,DO	ELLO	ELTO
					AREA			
835.70	835.43	0.20	0.	1150.	205.	223.	833.20	836.90

3496 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELEA= 836.90 ELREA= 836.90

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2.00	7.77	835.37	0.00	0.00	835.76	0.39	0.33	0.20	829.30
1150.	0.	1150.	0.	0.	230.	0.	12.	4.	829.20
0.39	0.00	0.00	0.00	0.100	0.035	0.100	0.035	827.50	1117.50
1.000137	51.	1.	51.	2		1	0.30	35.50	1151.5

FLOW DISTRIBUTION FOR SECNO= 2.00 CHSEL= 835.37

STA= 1113. 1151.
PCT = 100.0
VEL= 0.0

*SECNO 2.100

2.10	3.09	835.66	0.00	0.00	835.57	3.15	0.04	0.06	829.30
1150.	121.	917.	62.	155.	265.	190.	12.	4.	829.20
0.	0.00	0.00	0.00	0.100	0.035	0.100	1.30	827.00	1067.51
1.000137	0.	50.	0.	2		1	0.30	113.30	1200.5

FLOW DISTRIBUTION FOR SECNO= 2.10 CHSEL= 835.66

STA=	1150.	1100.	1113.	1131.	1145.	1157.	1181.	1200.	
PCT =	19.2	7.2	20.3	9.6	29.0	3.1	1.0	3.2	
CHSEL=	835.7	835.7	835.7	835.7	835.7	835.7	835.7	835.7	
VEL=	0.6	0.9	1.1	3.8	0.7	0.7	0.5		

CCHV= 0.100 CEHV= 0.300
*ELSCO 2.200

VALLEY SECTION CROSS SECTION 2

2.20	7.43	836.23	0.00	0.00	836.26	0.03	0.38	0.02	829.40
1150.	96.	207.	807.	83.	114.	1284.	27.	6.	829.40
0.32	0.37	2.50	0.69	0.100	0.040	0.100	0.003	828.80	835.00
0.000138	1053.	1198.	705.	2	0	0	0.00	442.57	540.43

FLOW DISTRIBUTION FOR SECNO= 2.20 CHSEL= 836.23

STA=	450.	513.	525.	535.	549.	554.	566.	702.	951.
PCT =	1.1	1.9	3.4	27.9	1.2	11.3	30.3	22.2	1.3
CHSEL=	836.2	836.2	836.2	836.2	836.2	836.2	836.2	836.2	836.2
VEL=	0.1	0.3	0.9	2.5	0.7	0.7	0.7	0.4	0.4

*SECNO 2.300

330 FT CHANNEL MORE THAN 1 VEL

VALLEY SECTION CROSS SECTION 30

2.30	6.85	836.03	0.43	0.00	836.23	0.59	0.79	0.17	830.80
1150.	16.	937.	37.	4.	191.	115.	40.	13.	830.40
0.37	1.17	4.61	0.19	0.200	0.040	0.100	0.003	830.00	730.35
0.002737	1075.	1250.	850.	2	0	0	0.00	104.32	808.57

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FLOW DISTRIBUTION FOR SECNO= 2.30 CWSEL= 836.63

STA=	704.	709.	733.	736.	756.	809.
FRE I=	1.0	96.7	2.3	5.7	3.6	
AREA=	17.3	150.3	27.9	62.1	50.5	
VEL=	1.7	0.3	2.1	1.4	1.1	

*SECNO 2.350

SECNO	DEPTH	CWSEL	CRIWS	WSELK	ES	IV	FL	FLOBS	BANK ELEV
Q	QLOB	ZCH	CROB	ALOB	PCH	AROB	VOL	T.S	LEFT/RIGHT
TIME	VLOB	ACH	VROB	ROL	X CH	KHR	.OM	LLHT	SET
SLOPE	QLOBL	ALCH	ZLOBT	ITRIAL	Y.S	ICONT	CONVI	TOPLTO	LOB T
2.35	6.42	836.12	0.00	0.00	839.39	0.96	1.75	0.11	833.50
1150.	6.	1076.	67.	6.	133.	40.	44.	14.	833.50
0.09	0.1	1.16	1.00	0.000	0.040	0.100	0.043	831.70	836.50
3.0[illegible]91	465.	415.	485.	3	0	3.	0.00	47.39	854.12

FLOW DISTRIBUTION FOR SECNO= 2.35 CWSEL= 836.12

STA=	[illegible]	[illegible]	[illegible]	736.	756.	784.
FRE I=	0.5	[illegible]	[illegible]	8.		
AREA=	3	[illegible]	14.3	21.7		
VEL=	1.7	0.1	2.4	1.4		

*SECNO 2.400

WALL SECTION	CROSS SECTION 37

2.40	6.94	840.36	0.00	0.00	841.18	0.64	2.00	0.01	834.40
1150.	120.	957.	73.	49.	119.	40.	50.	15.	833.60
0.43	2.45	0.01	1.82	0.100	0.043	0.100	0.042	833.40	707:17
2.0[illegible]97	49.	[illegible]	985.	2	1	6	0.00	49.49	754.67

FLOW DISTRIBUTION FOR SECNO= 2.40 CWSEL= 840.36

STA=	707.	710.	715.	719.	737.	739.	751.
FRE I=	1.0	1.5	3.5	33.3	2.7	3.0	
AREA=	5.0	21.3	28.3	179.4	15.7	30.7	
VEL=	1.0	2.3	3.7	1.0	2.7	1.3	

*SECNO 2.450

2.45	7.28	842.13	839.76	0.00	842.81	0.63	1.61	0.02	835.90
1150.	120.	1001.	73.	125.	126.	54.	52.	17.	833.70
0.43	1.20	0.97	1.38	2.100	0.040	0.100	0.043	834.90	844.50
2.0[illegible]250	5.0	30.	53.	3	15	0	5.02	30[illegible].21	754.09

FLOW DISTRIBUTION FOR SECNO= 2.45 CWSEL= 842.18

STA=	655.	690.	705.	710.	715.	716.	737.	739.	779.
FRE I=	0.	1.2	3.	5.	1.2	1.2	2.1	3.5	
AREA=	4.1	58.1	11.5	27.4	43.7	125.7	12.6	42.1	
VEL=	0.2	0.3	1.2	2.4	3.0	7.3	2.2	1.5	

*SECNO 2.500

WALL SECTION	CROSS SECTION 38

2.50	6.80	843.83	0.00	0.00	844.01	0.17	1.15	0.05	837.50
1150.	120.	992.	73.	134.	126.	54.	50.	20.	837.60

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	0.69	0.95	4.57	1.06	0.100	0.040	0.100	0.043	837.00	715.55
	0.001257	400.	720.	720.	2	0	0	0.00	319.08	1035.54

FLOW DISTRIBUTION FOR SECNO= 2.05 CHSEL= 845.2

STA=	210.	175.	192.	540.	605.	550.	90.	901.	1152.	1330.
PER Q=	1.9	12.3	20.6	2.1	2.3	51.5	3.4	1.2	0.0	
AREA=	51.1	153.1	209.9	17.5	16.9	127.6	25.7	99.7	0.9	
VEL=	0.4	2.8	1.3	2.4	1.6	4.6	2.5	0.9	0.2	

*SECNO 2.00

57 FT U/S CONFLUENCE TO LOPER CREEK CROSS SECTION 51

	2.00	7.12	844.19	0.00	0.00	844.17	0.01	0.11	0.02	834.00
	550.	192.	400.	93.	554.	116.	373.	45.	22.	37.50
	2.55	0.35	0.52	0.56	0.03	0.029	0.10	0.043	137.00	319.08
	0.000713	155.	58.	300.	2	0	0	0.00	305.13	1035.54

FLOW DISTRIBUTION FOR SECNO= 2.01 CHSEL= 844.12

STA=	111.	210.	305.	1 1.	5037.	1192.	1150.	1210.	1400.
PER Q=	3.1	1 .	1.	20.9	2.1	31.2	25.5	2.1	
AREA=	215.2	51.0	16.7	106.3	25.9	451.4	353.1	89.7	
VEL=	0.2	0.4	0.3	1.6	0.5	0.4	0.3	0.1	

CC L= 0.300 FLOW= 0.00
*SECNO 2.00L

SECNO	DESCR	LOCH	SECID	CHSL	XC	YV	ZI	BLOSS	ADJ ELEV
0	DLOS	GCH	GROO	ALOB	ACH	AROB	VCL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XXL	XNCH	XXR	WTN	ELMIN	SSTA
SLOPE	XLOBL	YLCH	XLOBR	ITRIAL	IH2	ICONT	CORAR	TOPWID	ENDST

100 FT D/S JUANITA DR. CROSS SECTION 52

	2.90	5.89	844.39	0.00	0.00	844.33	0.06	0.19	0.03	838.40
	613.	15.	224.	122.	279.	27.	97.	0 1.	22.	54.00
	0.71	0.69	0.03	0.62	0.000	0.040	0.10	0.43	838.40	850.59
	0.700437	450.	60.	400.	2	0	0	0.00	290.20	1140.79

FLOW DISTRIBUTION FOR SECNO= 2.80 CHSEL= 844.29

STA=	050.	870.	980.	900.	984.	1000.	1005.	1005.	1115.	1140.
PER Q=	1.5	24.5	2.3	1.5	42.9	1.1	1.3	24.0	2.0	
AREA=	22.2	219.9	21.4	15.4	87.0	12.0	12.0	225.7	34.3	
VEL=	0.4	0.7	0.7	0.8	3.0	0.3	0.7	0.6	1.4	

*SECNO 2.90

00 FEET D/S JUANITA DR. CROSS SECTION 53

	2.90	5.47	844.37	0.00	0.00	844.42	0.05	0.07	0.00	839.00
	639.	306.	233.	119.	299.	79.	300.	82.	28.	839.00
	0.73	0.73	1.05	0.59	0.00	0.040	5.10	0.03	838.70	850.91
	0.000440	100.	100.	100.	2	0	0	0.00	290.20	1150.03

FLOW DISTRIBUTION FOR SECNO= 2.90 CHSEL= 844.37

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STA=	858.	878.	970.	980.	985.	999.	1003.	1008.	1116.	1150.
PER Q=	1.6	25.3	3.2	3.0	36.9	2.2	1.4	23.9	2.4	
AREA=	23.8	227.2	27.2	20.6	78.0	16.3	12.3	234.3	33.9	
VEL=	0.2	0.7	0.7	0.3	1.0	0.1	0.7	0.4	0.4	

SPECIAL CONDITION

SO	KK	KWOR	CORG	ROLEN	L/C	BUP	DARTA	SS	ELCLJ	ELCND
	0.30	2.74	3.00	0.0	12.00	0.00	39.00	0.00	838.70	830.70

WSECNO 3.120
PRESSURE FLOW

EGPRS	ELLWC	'S	OLSIR	GCR	FARFA	TRANSITIONED	ELLC	ELTRD
						WSEL=		
845.7	844.92	0.20	847.	209.	39.	39.	841.0	840.47

C/S FACE (UPSTREAM) CROSS SECTION 54

0.0	1.00	10.1	0.00	0.53	845.13	0.15	3.7	0.0	839.0	
370.	22.	0.	0.	30.	39.	213.	0.	30.	38.50	
0.75	0.56	2.22	0.51	0.100	0.042	0.100	2.043	838.75	851.69	
0.000515	55.	55.	55.	2		2	0.00	309.85	1161.54	

FLO DISTRIBUTION FOR SEC NO= 3.01 CWSEL= 845.13

STA=	852.	876.	970.	980.	985.	999.	1003.	1008.	1116.	1152.
PER Q=	2.5	26.8	3.3	2.7	31.1	2.0	1.5	26.7	3.5	
AREA=	40.0	294.7	34.5	24.3	89.5	19.2	16.0	313.5	66.1	
VEL=	0.4	0.5	0.6	0.7	2.5	0.7	0.5	0.5	0.3	

WSECNO 3.1 3

50 FT D/S JUANITA DRIVE CROSS SECTION 55

0.0	1.00	10.1	0.00	1.00	845.11	0.02	20.00	0.00	838.00	
820.	211.	211.	30.	39.	39.	624.	0.	30.	39.00	
0.70	1.54	2.15	0.45	0.100	0.042	0.100	2.043	838.65	851.42	
0.000299	50.	50.	50.	0	0	0	0.00	310.44	1161.92	

FLO DISTRIBUTION FOR SECNO= 3.10 CWSEL= 845.12

STA=	858.	878.	970.	980.	984.	1000.	1003.	1008.	1116.	1152.
PER Q=	2.2	26.0	3.2	2.1	34.2	1.4	1.4	25.9	3.5	
AREA=	41.5	296.9	34.8	20.7	100.4	14.9	14.1	316.2	67.2	
VEL=	0.3	0.6	0.6	0.6	2.1	0.6	0.5	0.5	0.3	

CONV= 0.100 CWR= 1.50
WSECNO 3.15

3.15	4.22	845.22	2.00	0.20	845.77	0.05	0.13	2.01	839.07	
630.	193.	260.	177.	328.	92.	334.	91.	33.	038.40	
0.83	0.59	2.87	2.53	0.100	0.036	0.100	2.043	838.05	855.76	
0.000425	260.	351.	330.	0		1	0.01	299.25	1159.04	

FLOW DISTRIBUTION FOR SECNO= 3.15 CWSEL= 845.22

STA=	858.	878.	970.	980.	984.	1000.	1003.	1008.	1116.	1152.

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PER Q=	1.7	23.7	3.0	2.2	41.2	1.4	1.3	27.9	2.5
AREA=	29.2	250.5	29.7	18.7	92.4	13.0	13.6	261.7	46.1
VEL=	0.4	0.6	0.6	0.7	2.9	0.7	0.6	0.6	0.3

SEC 0 3.20

SECID	DEPTH	CWSEL	CRIWS	TOPWID	EG	HG	HV	ELEV	LEW ELEV
Q	OLDQ	XCS	AREA	ALPH	PIR	SAREA	VOL	PWP	REW ELEV
TIME	VLOB	WCH	VROB	XBL	XSCH	WTB	WTI	ELTRD	SSTA
SLOPE	XLOBL	WLCH	XLOBR	ITRIAL	I42	ICONT	CORAR	TOPWID	ESTA

10 CROSS PTS FOR COMBINED PROFILE, AT XS USE = BRIDGE CODE, SECTION 54

3.20	5.60	845.40	0.00	0.00	845.68	0.26	0.34	0.07	843.70
630.	9.	504.	117.	15.	136.	152.	97.	35.	839.60
0.67	0.33	4.76	0.77	0.100	0.035	0.100	0.342	839.60	971.36
0.001343	34.	90.	50.	2	2	0	0.00	141.73	1112.59

FLOW DISTRIBUTION FOR SECNO= 3.20 CWSEL= 845.40

STA=	971.	976.	987.	990.	1012.	1013.	1090.	1193.
Q=	0.1	0.6	1.0	76.2	2.0	17.2	10.7	
AREA=	1.4	1.4	0.7	139.7	12.0	42.4	15.9	
VEL=	0.2	1.2	2.7	2.5	1.0	0.3	0.4	

SECNO 3.30

CROSS SECTION 54

3.30	5.96	845.56	0.00	0.00	845.81	0.25	0.12	0.00	840.70
630.	10.	492.	127.	19.	110.	169.	97.	35.	839.60
0.67	0.56	6.49	0.75	0.100	0.035	0.100	0.342	839.60	971.36
0.002167	34.	90.	50.	2	2	0	0.00	141.73	1112.59

FLOW DISTRIBUTION FOR SECNO= 3.30 CWSEL= 845.56

STA=	971.	976.	987.	990.	1012.	1013.	1090.	1193.
Q=	0.1	0.6	1.0	76.2	2.0	17.2	10.7	
AREA=	1.4	1.4	0.7	139.7	12.0	42.4	15.9	
VEL=	0.2	1.2	2.7	2.5	1.0	0.3	0.4	

SECNO 3.400

4577 CRITICAL DEPTH ASSUMED HELD ALL OF 199.600 FLOW= 840.900 EGL= 845.945 WSEL= 843.502

555, 0 TOTAL ORE THAT WENT

3370 NORMAL BRIDGE,NRO= 0 MIN ELTRD= 842.00 MAX ELLC= 839.60

TOP OF RO CROSS SECTION 54

3.40	5.62	845.20	839.60	3.00	845.97	0.76	0.00	0.16	840.70
630.	6.	603.	121.	10.	64.	450.	97.	35.	839.60
0.67	0.67	7.04	0.68	0.00	0.020	0.100	0.342	839.60	971.36
0.002462	34.	90.	50.	6	40	2	-44.09	151.62	1105.41

FLOW DISTRIBUTION FOR SECNO= 3.40 CWSEL= 845.20

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STA=      974.      987.      990.     1010.     1013.     1090.     1106.
  PER Q=      0.3       0.7      79.8       1.4      17.4       0.4
   AREA=      4.6       5.7      64.1       2.1     115.9       6.4
    VEL=      [illegible]       [illegible]       [illegible]       [illegible]       [illegible]

*SECNO 3.[illegible]

3301 HV CHANGED MORE THAN HVINS

        D/S [illegible]                                    CROSS SECTION 5[illegible]

     [illegible]      [illegible]      [illegible]      0.[illegible]      [illegible]      [illegible]      0.22      [illegible]      [illegible]      [illegible]
     630.       14.      463.      153.       23.      107.      194.       97.       35.     840.40
     0.87      0.59      4.34      0.79     0.100     0.035     0.100     0.042    840.40    968.90
 0.001124        2.        2.        2.         3         0         0      0.00    148.71   1117.6[illegible]

FLOW DISTRIBUTION FOR SECNO=      [illegible]          CWSEL=     [illegible]

STA=      969.      976.      987.      990.     1010.     1013.     1090.     1113.
  PER Q=      [illegible]       [illegible]       1.2      73.5       2.1      21.[illegible]       1.2
   AREA=      [illegible]       [illegible]       [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
    VEL=      [illegible]       [illegible]       [illegible]       [illegible]       [illegible]       [illegible]       [illegible]

*SECNO 3.60[illegible]

        D/S DAM LOCATED 22 FT D/S 5 DRIVE                  CROSS SECTION 5[illegible]

     [illegible]      [illegible]      [illegible]      0.[illegible]      0.[illegible]      [illegible]      0.[illegible]      0.11      [illegible]      [illegible]
     [illegible]       [illegible]      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
     0.88      0.80      4.06      0.79     0.100     0.035     0.100     0.042    840.50    967.50
 0.001046       160.      114.       75.         2         0         0      0.00    153.22   1120.72

FLOW DISTRIBUTION FOR SECNO=      [illegible]          CWSEL=     845.96

STA=      967.      976.      983.      990.     1011.     1014.     1090.     1121.
  PER Q=      [illegible]       1.5       [illegible]      69.0       2.1      22.6       1.6
   AREA=      4.1      14.5      18.1     107.0      12.6     172.0      24.0
    VEL=      [illegible]       [illegible]       [illegible]       [illegible]       [illegible]       [illegible]       [illegible]

*SECNO 3.20[illegible]
   SECNO     DEPTH     CWSEL     CRINS     WSELK     EG        HV        HL        CLOSS    BANK ELEV
   Q         SLOP      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VPCH      XNL       XNCH      XNR       XTN       F.MIN      SSTA
   SLOPE     [illegible]      XLCH      XLOB      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  842.40 MAX ELLC=  840.50

        TOP OF DAM                                         CROSS SECTION 5[illegible]

     3.70      5.29    845.79      0.30      0.03    846.22      0.45      0.30      0.08    841.0[illegible]
     630.       24.      445.      161.       29.       71.      187.       98.       36.     840.50
     0.88      0.80      6.25      0.86     0.100     0.020     0.100     0.042    840.50    969.01
 0.001368        [illegible]        [illegible]        [illegible]         [illegible]         [illegible]      [illegible]      [illegible]

FLOW DISTRIBUTION FOR SECNO=      3.70          CWSEL=     845.79

STA=      969.      976.      985.      990.     1011.     1014.     1090.     1117.
```

PER Q=	0.1	1.4	2.2	70.6	1.5	22.9	1.3
AREA=	2.8	13.0	13.7	71.2	9.3	159.0	19.0
VEL=	0.3	0.7	1.0	4.2	1.0	- 0.9	0.4

ASSUMED W.S.ELEV

U/S FACE & DRIVE — CROSS SECTION 56

3.80	4.83	846.08	0.00	0.00	845.28	0.17	0.00	0.03	841.28
630.	52.	414.	196.	39.	303.	221.	98.	36.	841.30
0.36	0.87	1.07	0.19	0.170	0.005	0.000	0.062	841.27	846.42
0.031086	2.	2.	2.	2		0	0.00	155.63	1125.17

FLOW DISTRIBUTION FOR SECNO= 3.80 CHSEL= 846.08

STA=	568.	698.	885.	940.	1007.	1210.	1240.	1425.
PER Q=	0.2	1.4	2.2	70.7	2.1	20.2	1.5
AREA=	3.2	15.0	13.2	157.1	12.0	131.5	27.9
VEL=	0.3	0.7	1.1	4.5	1.1	0.9	0.4

CCHV= 0.320 CCHV= 0.500

U/S FACE & DRIVE — CROSS SECTION 55

3.90	5.20	846.10	0.00	0.00	846.20	0.10	0.03	0.01	841.30
530.	23.	329.	215.	76.	71.	233.	91.	36.	841.50
0.23	1.19	1.45	0.66	0.183	0.135	2.170	0.162	841.27	846.44
0.000599	21.	21.	21.	1	0	0	0	161.28	1123.32

FLOW DISTRIBUTION FOR SECNO= 3.90 CHSEL= 846.10

STA=	568.	698.	885.	940.	1007.	1210.	1240.	1425.
PER Q=	1.4	1.4	82.3	2.3	10.8	2.2		
AREA=	3.2	15.0	71.1	11.6	132.5	28.4		
VEL=	0.6	1.2	4.6	1.3	1.0	0.5		

SPECIAL DISCHG

EQ CHK	HLOA	COF	ADJFLO	QHC	QUP	CAREA	SS	ELCNO	ELSUP
0.00	3.00	3.00	0.00	7.00	0.00	27.00	0.00	840.80	840.90

*BRGNO 4.000

PROPOSED CHL MEAD FLO

SQPRS	EGL.C	H3	QWEIR	QPR	OAREA	TRAPEZOID AREA	ELLC	ELTRD
871.55	848.00	0.00	458.	172.	27.	27.	844.60	847.60

U/S FACE & DRIVE — CROSS SECTION 55

4.00	7.12	847.92	0.00	0.00	848.00	0.08	1.72	0.00	841.50
530.	23.	329.	215.	76.	71.	233.	91.	36.	841.50
0.09	1.04	1.45	0.76	0.107	0.135	2.170	0.142	841.27	846.44
0.000599	21.	21.	21.	1	0	0	0	161.28	1123.32

FLOW DISTRIBUTION FOR SECNO= 4.000 CHSEL= 847.92

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STA=	965.	965.	993.	994.	1006.	1007.	1010.	1090.	1120.	1120.
PER Q=	6.0	8.5	1.8	42.2	1.8	1.8	27.4	10.3	0.0	
AREA=	54.4	46.5	9.3	77.0	9.3	14.1	235.1	97.6	0.3	
VEL=	1.7	1.8	1.9	1.5	1.8	0.7	1.7	1.7	1.1	

*SECNO 4.00

50 FT D/S E DRIVE

5.83	1.15	847.08	0.30	3.00	844.08	0.16	1.13	1.02	844.50
840.	100.	250.	250.	111.	77.	351.	99.	96.	841.50
1.00	1.53	1.41	0.72	1.100	0.155	0.170	1.043	842.02	965.55
0.000580	50.	50.	50.	2	0	0	0.00	155.23	1120.29

FLOW DISTRIBUTION FOR SECNO= 5.00 CHSEL= 847.08

STA=	965.	965.	993.	994.	1006.	1007.	1010.	1090.	1120.	1120.
PER Q=	5.9	8.4	1.8	41.9	1.8	1.8	27.8	10.4	0.0	
AREA=	55.2	46.5	9.3	77.5	9.6	14.0	236.9	98.2	0.3	
VEL=	1.7	1.8	1.8	3.4	1.2	0.7	0.7	0.7	0.1	

CCHV= 0.00 CEHV= 1.50
*SECNO 4.10

SECNO	DEPTH	CHSEL	CHIS	ISELV	BS	HV	AL	PLOSS	PEAK ELEV
S	FLO	ECH	QPCH	ALOS	ACH	APCH	VOL	TW	LEFT/RIGHT
T.C	V.CH	VCH	VLCH	X/L	X.CH	X/R	.TW	FLOIN	SSTA
S.CHL=	1.00	FLOW	XLCH=	CTF3/L	1.2	ICONT	CONV=	TOPIN	ESTA
4.30	5.50	848.30	0.00	0.00	848.60	0.30	0.50	0.06	843.50
630.	116.	341.	172.	65.	59.	160.	103.	38.	963.50
0.93	1.79	3.79	1.08	0.100	0.040	0.100	0.042	842.80	970.20
0.006153	300.	307.	430.	2	0	0	0.00	130.38	1120.79

FLOW DISTRIBUTION FOR SECNO= 4.30 CHSEL= 843.30

STA=	670.	995.	993.	994.	1006.	1007.	1010.	1090.	1120.
PER Q=	4.3	12.2	2.3	36.	2.7	2.1	30.5	6.81	
AREA=	38.2	33.2	6.7	58.2	7.1	5.9	196.2	39.1	
VEL=	1.2	2.4	1.2	3.1	2.4	1.1	1.3	1.5	

CCHV= 0.300 CEHV= 0.500
*SECNO 4.200

300 FT DIA S.S PILE ROAD

4.70	5.16	849.66	0.00	0.00	850.00	0.34	1.38	0.02	844.50
630.	59.	542.	29.	96.	108.	25.	106.	39.	845.50
0.96	0.61	5.01	1.14	0.100	0.040	0.100	0.042	844.50	665.53
0.003855	350.	375.	50.	2	0	0	3.03	197.30	362.83

FLOW DISTRIBUTION FOR SECNO= 4.20 CHSEL= 849.66

STA=	666.	668.	736.	815.	822.	845.	854.	868.
PER Q=	0.5	4.9	2.1	3.5	66.	4.1	21.	
AREA=	0.6	66.2	32.2	17.3	306.3	23.5	3.9	
VEL=	0.5	0.5	0.4	1.2	5.0	1.2	0.8	

*SECNO 4.900

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D/S FACE 61/2 MILE RD. CROSS SECTION 56

4.90	5.68	869.98	0.00	0.00	850.22	-0.25	0.20	0.03	844.50
630.	90.	559.	31.	147.	115.	52.	137.	73.	845.50
0.93	5.67	4.41	3.99	0.000	0.541	5.1	0.342	844.50	844.50
0.001570	130.	127.	100.	2	1		0.00	232.44	232.30

FLOW DISTRIBUTION FOR SECNO= 4.90 CWSEL= 849.98

STA=	338.	540.	718.	8 5.	922.	1045.	1134.	1247.
PER=	0.1	2.3	4.3	9.2	30.8	4.6	0.4	
AREA=	1.3	44.2	57.5	30.4	115.5	25.2	0.4	
VEL=	0.4	0.6	0.5	1.1	4.4	1.1	0.4	

SPECIAL BRIDGE

SRCDAT	WSPT	QCRT	PRATIO	QWR	QBR	LAREA	SS	LCHORD	RCHORD
0.30	2.71	3.30	0.00	9.50	0.20	37.30	0.00	844.10	844.50

#SPECIAL BRIDGE

PROGRAM CONTINUES

EGRPS	EGLWC	WS	QWEIR	QBR	AREA	TRAPEZOID AREA	ELLC	ELTRD
262.18	850.09	0.53	376.	252.	37.	37.	846.00	851.20

D/S FACE 61/2 MILE RD. CROSS SECTION 56

5.00	7.38	851.93	0.00	0.00	852.91	0.03	1.76	0.30	845.00
630.	275.	507.	47.	339.	165.	105.	107.	47.	846.70
0.95	0.31	1.82	0.44	1.120	2.043	0.100	0.042	844.10	850.95
0.000232	42.	42.	42.	2	2	6	0.50	234.07	233.52

FLOW DISTRIBUTION FOR SECNO= 5.00 CWSEL= 851.98

STA=	563.	661.	736.	813.	919.	1032.	1045.	1060.	1154.	1394.
PER=	0.0	2.6	20.1	3.6	2.4	43.7	1.0	5.0	8.0	
AREA=	16.5	202.6	267.9	34.1	17.9	165.1	8.3	37.8	56.9	
VEL=	0.3	0.5	0.5	0.7	0.8	1.9	0.8	0.6	0.3	

ANCHO 3.100

30 FT U/S 6TH ST.

5.10	8.09	851.99	0.00	0.00	852.02	0.03	0.01	0.00	844.60
630.	215.	332.	33.	522.	211.	97.	108.	40.	845.50
0.09	2.41	1.51	1.34	0.000	0.240	2.150	0.342	843.90	850.91
0.000159	10.	50.	50.	2	0	2	0.00	234.75	893.64

FLOW DISTRIBUTION FOR SECNO= 5.10 CWSEL= 851.99

STA=	557.	668.	739.	81 .	911.	1045.	1 5.	1 4.	
PER=	0.6	12.4	10.2	3.6	60.7	8.0	2.1		
AREA=	16.6	203.1	250.5	34.1	211.2	37.9	19.2		
VEL=	0.2	0.4	0.4	0.5	1.8	0.5	0.2		

CCRV= 0.10 CCHV= 0.500

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*SECNO 5.150

SECNO	DEPTH	CWSEL	CRIWS	LSELK	ES	HV	HL	CLOSS	BANK ELEV
Q	QLOB	QCH	QROB	QLOB	ACH	AROB	VOL	TOA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XSCH	XSOB	TA	ELOSS	SSTA
CUMQ	XLOB	SLOP	XLOB	STAMIN	LOB	ICOH	CUMQA	TOPWID	CUMA
5.15	6.92	852.12	0.00	0.50	852.15	0.07	0.13	0.00	845.20
630.	169.	192.	269.	278.	79.	440.	119.	43.	846.20
1.13	0.61	3.44	0.61	0.100	0.040	0.100	0.042	845.20	491.98
0.000055	575.	60°.	575.	1	1	0	0.00	233.35	657.25

FLOW DISTRIBUTION FOR SECNO= 5.15 CWSEL= 852.12

STA=	412.	436.	492.	501.	504.	516.	523.	558.	646.	656.
PER Q=	2.3	9.2	4.1	2.2	30.5	4.2	12.7	24.3	0.7	
Q=	11.9	47.5	58.5	47.4	73.7	35.1	124.1	254.2	15.1	
VEL=	0.3	0.6	2.7	0.7	2.4	5.6	0.7	0.3	0.4	

*SECNO 5.200

			CROSS SECTION 57						
5.20	4.30	852.41	0.00	0.50	852.43	0.08	0.32	0.01	846.30
630.	154.	238.	239.	189.	67.	300.	123.	46.	847.50
1.21	0.81	3.57	0.79	0.100	0.040	0.100	0.042	846.30	419.40
0.000566	575.	60°.	575.	2	0	2	0.00	233.42	652.90

FLOW DISTRIBUTION FOR SECNO= 5.20 CWSEL= 852.40

STA=	419.	436.	492.	501.	504.	516.	523.	550.	646.	653.
PER Q=	1.4	16.7	4.2	2.6	37.7	5.0	12.1	20.3	0.5	
Q=	6.2	73.9	23.5	11.4	65.6	22.0	53.3	176.2	4.9	
VEL=	0.5	1.8	1.0	1.1	3.6	1.1	0.9	0.7	0.4	

*SECNO 5.250

5.25	5.39	852.94	0.00	0.00	852.98	0.04	0.49	0.00	847.55
630.	243.	362.	226.	618.	52.	431.	137.	52.	840.45
1.34	0.81	1.14	0.32	0.103	0.040	0.100	0.043	847.55	1140.0
0.000360	600.	575.	525.	2	0	0	0.00	613.32	1754.23

FLOW DISTRIBUTION FOR SECNO= 5.25 CWSEL= 852.94

STA=	140.	1562.	1603.	1601.	1414.	1436.	1463.	1492.	1502.	1624.	1736.	1754.
PER Q=	11.6	3.7	2.5	25.7	3.3	5.2	5.9	11.2	5.3	5.3	0.3	
Q=	38.5	16.7	8.4	51.0	33.7	32.1	67.9	132.5	75.7	127.1	3.9	
VEL=	0.6	0.5	0.9	3.1	0.7	0.6	0.6	0.5	0.5	0.5	0.2	

*SECNO 5.300

			VALLEY SECTION		CROSS SECTION 55				
5.30	4.96	853.56	0.00	0.00	853.63	0.12	0.60	0.02	848.60
630.	223.	216.	130.	305.	47.	291.	147.	59.	849.50
1.42	0.74	6.56	0.65	0.100	0.040	0.100	0.042	848.60	1140.98
0.001197	600.	575.	525.	2	1	1	0.20	655.55	1743.30

FLOW DISTRIBUTION FOR SECNO= 5.30 CWSEL= 853.56

STA=	1140.	1562.	1402.	1418.	1426.	1456.	1492.	1562.	1624.	1736.	1745.

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PER Q=	29.3	6.5	34.3	3.1	3.6	7.0	4.6	5.0	6.5	0.1
AREA=	256.6	48.6	47.4	18.5	31.2	52.6	53.3	53.4	79.6	2.2
VEL=	0.7	0.8	4.6	1.1	0.7	0.8	0.5	0.6	0.5	0.2

*SECNO 5.950

5.78	6.00	956.33	2.00	0.20	955.40	0.07	0.70	0.00	957.35
630.	33.	223.	309.	10.	67.	334.	159.	64.	1205.65
1.49	0.84	3.40	0.92	0.100	0.040	0.100	0.042	950.25	937.21
0.001344	400.	525.	425.	2	0	0	0.00	239.70	1172.93

FLOW DISTRIBUTION FOR SECNO= 5.95 SUMQ= 354.33

STA=	937.	960.	997.	999.	1016.	1021.	1050.	1168.	1173.
PER Q=	1.9	11.7	1.0	35.7	2.9	13.5	22.2	9.4	
AREA=	22.5	88.6	6.4	67.1	15.9	36.2	223.6	5.1	
VEL=	0.9	2.9	1.3	7.4	1.2	1.1	1.0	2.3	

*SECNO 5.601

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	HV	HL	CLOSS	BANK ELEV
Q	QLOB	WCH	QROD	ALOB	ACH	AROD	VOL	TOK	LEFT/RIGHT
TIME	VLOB	VCH	VROD	KNL	XNCH	XSA	TH	ELMIN	STA
SLOPE	AREA	WSEL	VLOBE	CTRWSL	TIME	ICONV	CONVEY	CONTR	EXPAN

WALLEY SECTION CROSS SECTION 59

5.45	3.58	959.24	2.00	0.20	955.67	0.27	1.30	0.75	958.70
630.	70.	201.	279.	67.	59.	229.	157.	65.	859.35
1.3	1.15	4.35	1.22	0.120	0.043	0.107	0.042	951.50	945.70
0.004034	400.	525.	425.	2	0	0	0.00	225.49	1171.20

FLOW DISTRIBUTION FOR SECNO= 5.97 SUMQ= 353.24

STA=	943.	960.	997.	999.	1016.	1021.	1057.	1168.	1171.
PER Q=	1.0	10.2	1.1	44.5	3.3	12.7	26.9	0.2	
AREA=	8.9	53.4	4.9	54.6	12.2	60.8	147.8	2.1	
VEL=	0.7	1.3	1.5	5.1	1.7	1.3	1.1	0.7	

*SECNO 5.901

5.60	3.30	958.72	0.00	0.20	956.69	0.16	1.43	0.00	959.35
630.	87.	268.	281.	75.	57.	244.	160.	68.	853.65
1.30	1.23	4.70	1.15	0.100	0.040	0.100	0.042	953.25	944.11
0.003125	335.	465.	365.	3	0	0	0.00	227.42	1177.53

FLOW DISTRIBUTION FOR SECNO= 5.80 SUMQ= 336.75

STA=	944.	960.	997.	999.	1018.	1021.	1058.	1168.	1172.
PER Q=	1.1	10.6	1.1	42.5	3.2	12.9	28.2	0.3	
AREA=	11.0	51.5	5.2	57.0	12.9	68.9	155.2	1.6	
VEL=	0.7	1.1	1.3	4.7	1.6	1.2	1.1	0.7	

*SECNO 5.600

3470 ENCROACHMENT STATIONS= 962.0 1097.0 TYPE= 1 TARGET= 135.000

5.60	3.58	958.18	0.00	0.20	956.26	0.21	1.55	1.04	959.73
630.	69.	241.	310.	67.	54.	144.	165.	69.	853.70
1.31	1.25	5.66	1.45	0.100	0.040	0.100	0.042	954.60	944.01
0.004464	335.	465.	365.	1	0	0	0.00	135.00	1097.00

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FLOW DISTRIBUTION FOR SECNO= 5.6? CHSEL= 858.18

STA=	962.	997.	999.	1016.	1021.	1058.	1097.
PER Q=	12.5	1.4	32.6	5.0	16.0	32.7	
[illegible]	50.5	5.5	50.5	17.4	66.5	31.1	
VEL=	.4	1.0	5.7	.5	1.?	1.1	

CONV= 0.500 DIV= 0.500

*SECNO 5.700

5670 BACKWATER AT STATION= 4713.0 3956.0 TYPE= 1 TARGET= 857.70?

300 FT AVG [illegible] CROSS SECTION 2

5.70	4.24	860.14	0.00	0.00	860.90	0.76	2.25	0.24	855.92
630.	67.	541.	22.	32.	72.	15.	365.	70.	855.90
1.63	0.04	5.20	1.55	0.100	0.240	0.100	0.042	855.92	1798.44
0.011289	.355.	.96.	.365.	2	0	0	0.0?	47.25	1375.54

FLOW DISTRIBUTION FOR SECNO= 5.7? CHSEL= 860.14

[illegible]	[illegible]	[illegible]	12?4.	1?3?.	1356.	1?48.
PER [illegible]	[illegible]	[illegible]	[illegible]	3.6	?.?	
[illegible]	?.	?.?	??.	17.0	?.?	
VEL=	1.1	2.?	?.3	1.?	?.5	

*SECNO 5.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEN= 890.20 ELREA= 890.00

5.80	4.52	860.72	0.00	0.00	861.76	1.04	0.72	0.14	856.20
630.	0.	630.	0.	0.	77.	0.	165.	70.	856.20
1.63	0.00	8.23	0.00	0.100	0.340	0.100	0.042	856.20	1814.02
0.011289	.0?.	?30.	151.	2	0	0	0.??	17.00	1331.02

FLOW DISTRIBUTION FOR SECNO= 5.8? CHSEL= 860.72

STA= 3914. 4831.

PER Q=	10.0	0
[illegible]	?5.0	
VEL=	5.2	

*SECNO 5.900

SECNO	DEPTH	CHSEL	CRIWS	VELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	LOB	YCH	XLOB	XCH	SEQO	WQL	T	LEFT/RIGHT
TW	WLOB	YCH	YTOP	RHL	XCH	RHS	TW	LLIMIT	RLIMIT
SLOPE	XLOBL	YLEN	XLOBR	STRICKL	ITR	ICONT	CONV	TOPWID	ENDST

3520 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEN= 890.20 ELREA= 884.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEN= 890.20 ELREA= 890.00

15 FACE E-12

CROSS SECTION 2

5.90	4.45	860.35	0.00	0.00	861.86	1.51	0.01	NONE	856.35
630.	0.	630.	0.	0.	71.	0.	165.	70.	856.20
1.63	0.00	8.83	0.00	0.100	0.340	0.100	0.042	856.20	1814.00
0.011289	1	1	1	2	0	0	14.21	17.00	1831.00

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FLOW DISTRIBUTION FOR SECNO= 5.90 CWSEL= 860.65

STA= [illegible]
PER C= 100.0
[illegible]
VEL= [illegible]

*SECNO 6.000

3501 [illegible] CHANGED [illegible] EVENS

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 890.00 MAX ELLC= 864.70

3495 [illegible] ASSUMED NON-EFFECTIVE, ELEA= 890.00 ELREA= [illegible]

U/S FACE I-194 CROSS SECTION 18

[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]
0.003564	300.	300.	300.	2	0	0	-29.63	17.00	1331.00

FLOW DISTRIBUTION FOR SECNO= [illegible] CWSEL= [illegible]

STA= [illegible]
PER C= 100.0
AREA= 104.9
VEL= 6.0

*SECNO 6.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 890.00 ELREA= 890.00

6.10	6.64	863.34	0.00	0.00	863.82	0.68	0.00	0.02	856.70
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	70.	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	2	0	0	0.00	17.00	[illegible]

FLOW DISTRIBUTION FOR SECNO= 6.10 CWSEL= 863.34

STA= [illegible]
PER C= 100.0
AREA= 112.9
VEL= 5.6

*SECNO 6.200

[illegible] U/S I-194 CROSS SECTION 19

6.20	7.15	863.85	0.00	0.00	863.99	0.14	0.06	0.10	856.70
630.	106.	432.	92.	122.	122.	[illegible]	166.	70.	856.70
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	50.	50.	50.	2	[illegible]	[illegible]	0.00	[illegible]	[illegible]

FLOW DISTRIBUTION FOR SECNO= 6.20 CWSEL= 863.85

STA=	1765.	1792.	1806.	1814.	1831.	1836.	1860.
PEP Q=	2.1	5.6	9.4	63.6	4.2	10.3	
AREA=	31.1	42.7	46.3	121.6	26.5	49.1	
VEL=	2.4	3.5	1.2	3.6	1.0	1.7	

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00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Emmett Twp

3) WATERCOURSE: Minges Brook

4) DOCUMENT TYPE: Summary for 4 profiles

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[illegible]

[illegible]

[illegible]

SECNO	XLCH	FLTRD	ELLC	SLTIN	Q	CMSEL	CRIMS	FO	10K*S	VCH	AREA	.01K
2.300	1250.00	0.00	0.00	850.00	600.00	835.33	0.00	895.53	15.20	4.72	165.33	136.93
2.350	485.00	0.00	0.00	835.75	900.50	836.50	0.00	857.08	44.12	5.21	109.42	80.35
2.350	485.00	0.00	0.00	833.75	900.50	837.50	0.00	858.53	43.37	7.38	156.16	141.21
2.350	485.00	0.00	0.00	833.75	900.50	838.50	0.00	859.08	42.62	9.55	202.90	201.77
2.350	485.00	0.00	0.00	833.75	900.50	839.50	0.00	859.63	41.87	11.72	249.64	262.33
2.400	485.00	0.00	0.00	833.40	600.00	836.40	0.00	853.09	33.84	6.05	933.52	103.64
2.400	485.00	0.00	0.00	833.40	900.00	839.02	0.00	860.56	36.49	7.40	187.05	162.23
2.400	485.00	0.00	0.00	833.40	1150.00	840.36	0.00	861.13	37.47	8.01	259.02	187.86
2.400	485.00	0.00	0.00	833.40	1400.00	841.70	0.00	861.70	38.44	8.62	330.99	213.49
2.400	485.00	0.00	0.00	833.40	1650.00	843.04	0.00	862.27	39.42	9.23	402.96	239.12
2.400	485.00	0.00	0.00	833.40	1900.00	844.38	0.00	862.84	40.39	9.84	474.93	264.75
2.400	485.00	0.00	0.00	833.40	2150.00	845.72	0.00	863.41	41.36	10.45	546.90	290.38
2.400	485.00	0.00	0.00	833.40	2400.00	847.06	0.00	863.98	42.34	11.06	618.87	316.01
2.400	485.00	0.00	0.00	833.40	2650.00	848.40	0.00	864.55	43.31	11.67	690.84	341.64
2.400	485.00	0.00	0.00	833.40	2900.00	849.74	0.00	865.12	44.28	12.28	762.81	367.27
2.400	485.00	0.00	0.00	833.40	3150.00	851.08	0.00	865.69	45.26	12.89	834.78	392.90
2.400	485.00	0.00	0.00	833.40	3400.00	852.42	0.00	866.26	46.23	13.50	906.75	418.53
2.400	485.00	0.00	0.00	833.40	3650.00	853.76	0.00	866.83	47.20	14.11	978.72	444.16
2.400	485.00	0.00	0.00	833.40	3900.00	855.10	0.00	867.40	48.18	14.72	1050.69	469.79
2.400	485.00	0.00	0.00	833.40	4150.00	856.44	0.00	867.97	49.15	15.33	1122.66	495.42
2.400	485.00	0.00	0.00	833.40	4400.00	857.78	0.00	868.54	50.12	15.94	1194.63	521.05
2.400	485.00	0.00	0.00	833.40	4650.00	859.12	0.00	869.11	51.10	16.55	1266.60	546.68
2.400	485.00	0.00	0.00	833.40	4900.00	860.46	0.00	869.68	52.07	17.16	1338.57	572.31
2.400	485.00	0.00	0.00	833.40	5150.00	861.80	0.00	870.25	53.04	17.77	1410.54	597.94
2.400	485.00	0.00	0.00	833.40	5400.00	863.14	0.00	870.82	54.02	18.38	1482.51	623.57
2.400	485.00	0.00	0.00	833.40	5650.00	864.48	0.00	871.39	54.99	18.99	1554.48	649.20
2.400	485.00	0.00	0.00	833.40	5900.00	865.82	0.00	871.96	55.96	19.60	1626.45	674.83
2.400	485.00	0.00	0.00	833.40	6150.00	867.16	0.00	872.53	56.94	20.21	1698.42	700.46
2.400	485.00	0.00	0.00	833.40	6400.00	868.50	0.00	873.10	57.91	20.82	1770.39	726.09
2.400	485.00	0.00	0.00	833.40	6650.00	869.84	0.00	873.67	58.88	21.43	1842.36	751.72
2.400	485.00	0.00	0.00	833.40	6900.00	871.18	0.00	874.24	59.86	22.04	1914.33	777.35
2.400	485.00	0.00	0.00	833.40	7150.00	872.52	0.00	874.81	60.83	22.65	1986.30	802.98
2.400	485.00	0.00	0.00	833.40	7400.00	873.86	0.00	875.38	61.80	23.26	2058.27	828.61
2.400	485.00	0.00	0.00	833.40	7650.00	875.20	0.00	875.95	62.78	23.87	2130.24	854.24
2.400	485.00	0.00	0.00	833.40	7900.00	876.54	0.00	876.52	63.75	24.48	2202.21	879.87
2.400	485.00	0.00	0.00	833.40	8150.00	877.88	0.00	877.09	64.72	25.09	2274.18	905.50
2.400	485.00	0.00	0.00	833.40	8400.00	879.22	0.00	877.66	65.70	25.70	2346.15	931.13
2.400	485.00	0.00	0.00	833.40	8650.00	880.56	0.00	878.23	66.67	26.31	2418.12	956.76
2.400	485.00	0.00	0.00	833.40	8900.00	881.90	0.00	878.80	67.64	26.92	2490.09	982.39
2.400	485.00	0.00	0.00	833.40	9150.00	883.24	0.00	879.37	68.62	27.53	2562.06	1008.02
2.400	485.00	0.00	0.00	833.40	9400.00	884.58	0.00	879.94	69.59	28.14	2634.03	1033.65
2.400	485.00	0.00	0.00	833.40	9650.00	885.92	0.00	880.51	70.56	28.75	2706.00	1059.28
2.400	485.00	0.00	0.00	833.40	9900.00	887.26	0.00	881.08	71.54	29.36	2777.97	1084.91
2.400	485.00	0.00	0.00	833.40	10150.00	888.60	0.00	881.65	72.51	29.97	2849.94	1110.54
2.400	485.00	0.00	0.00	833.40	10400.00	889.94	0.00	882.22	73.48	30.58	2921.91	1136.17
2.400	485.00	0.00	0.00	833.40	10650.00	891.28	0.00	882.79	74.46	31.19	2993.88	1161.80
2.400	485.00	0.00	0.00	833.40	10900.00	892.62	0.00	883.36	75.43	31.80	3065.85	1187.43
2.400	485.00	0.00	0.00	833.40	11150.00	893.96	0.00	883.93	76.40	32.41	3137.82	1213.06
2.400	485.00	0.00	0.00	833.40	11400.00	895.30	0.00	884.50	77.38	33.02	3209.79	1238.69
2.400	485.00	0.00	0.00	833.40	11650.00	896.64	0.00	885.07	78.35	33.63	3281.76	1264.32
2.400	485.00	0.00	0.00	833.40	11900.00	897.98	0.00	885.64	79.32	34.24	3353.73	1289.95
2.400	485.00	0.00	0.00	833.40	12150.00	899.32	0.00	886.21	80.30	34.85	3425.70	1315.58
2.400	485.00	0.00	0.00	833.40	12400.00	900.66	0.00	886.78	81.27	35.46	3497.67	1341.21
2.400	485.00	0.00	0.00	833.40	12650.00	902.00	0.00	887.35	82.24	36.07	3569.64	1366.84
2.400	485.00	0.00	0.00	833.40	12900.00	903.34	0.00	887.92	83.22	36.68	3641.61	1392.47
2.400	485.00	0.00	0.00	833.40	13150.00	904.68	0.00	888.49	84.19	37.29	3713.58	1418.10
2.400	485.00	0.00	0.00	833.40	13400.00	906.02	0.00	889.06	85.16	37.90	3785.55	1443.73
2.400	485.00	0.00	0.00	833.40	13650.00	907.36	0.00	889.63	86.14	38.51	3857.52	1469.36
2.400	485.00	0.00	0.00	833.40	13900.00	908.70	0.00	890.20	87.11	39.12	3929.49	1494.99
2.400	485.00	0.00	0.00	833.40	14150.00	910.04	0.00	890.77	88.08	39.73	4001.46	1520.62
2.400	485.00	0.00	0.00	833.40	14400.00	911.38	0.00	891.34	89.06	40.34	4073.43	1546.25
2.400	485.00	0.00	0.00	833.40	14650.00	912.72	0.00	891.91	90.03	40.95	4145.40	1571.88
2.400	485.00	0.00	0.00	833.40	14900.00	914.06	0.00	892.48	91.00	41.56	4217.37	1597.51
2.400	485.00	0.00	0.00	833.40	15150.00	915.40	0.00	893.05	91.98	42.17	4289.34	1623.14
2.400	485.00	0.00	0.00	833.40	15400.00	916.74	0.00	893.62	92.95	42.78	4361.31	1648.77
2.400	485.00	0.00	0.00	833.40	15650.00	918.08	0.00	894.19	93.92	43.39	4433.28	1674.40
2.400	485.00	0.00	0.00	833.40	15900.00	919.42	0.00	894.76	94.90	44.00	4505.25	1700.03
2.400	485.00	0.00	0.00	833.40	16150.00	920.76	0.00	895.33	95.87	44.61	4577.22	1725.66
2.400	485.00	0.00	0.00	833.40	16400.00	922.10	0.00	895.90	96.84	45.22	4649.19	1751.29
2.400	485.00	0.00	0.00	833.40	16650.00	923.44	0.00	896.47	97.82	45.83	4721.16	1776.92
2.400	485.00	0.00	0.00	833.40	16900.00	924.78	0.00	897.04	98.79	46.44	4793.13	1802.55
2.400	485.00	0.00	0.00	833.40	17150.00	926.12	0.00	897.61	99.76	47.05	4865.10	1828.18
2.400	485.00	0.00	0.00	833.40	17400.00	927.46	0.00	898.18	100.74	47.66	4937.07	1853.81
2.400	485.00	0.00	0.00	833.40	17650.00	928.80	0.00	898.75	101.71	48.27	5009.04	1879.44
2.400	485.00	0.00	0.00	833.40	17900.00	930.14	0.00	899.32	102.68	48.88	5081.01	1905.07
2.400	485.00	0.00	0.00	833.40	18150.00	931.48	0.00	899.89	103.66	49.49	5152.98	1930.70
2.400	485.00	0.00	0.00	833.40	18400.00	932.82	0.00	900.46	104.63	50.10	5224.95	1956.33
2.400	485.00	0.00	0.00	833.40	18650.00	934.16	0.00	901.03	105.60	50.71	5296.92	1981.96
2.400	485.00	0.00	0.00	833.40	18900.00	935.50	0.00	901.60	106.58	51.32	5368.89	2007.59
2.400	485.00	0.00	0.00	833.40	19150.00	936.84	0.00	902.17	107.55	51.93	5440.86	2033.22
2.400	485.00	0.00	0.00	833.40	19400.00	938.18	0.00	902.74	108.52	52.54	5512.83	2058.85
2.400	485.00	0.00	0.00	833.40	19650.00	939.52	0.00	903.31	109.50	53.15	5584.80	2084.48
2.400	485.00	0.00	0.00	833.40	19900.00	940.86	0.00	903.88	110.47	53.76	5656.77	2110.11
2.400	485.00	0.00	0.00	833.40	20150.00	942.20	0.00	904.45	111.44	54.37	5728.74	2135.74
2.400	485.00	0.00	0.00	833.40	20400.00	943.54	0.00	905.02	112.42	54.98	5800.71	2161.37
2.400	485.00	0.00	0.00	833.40	20650.00	944.88	0.00	905.59	113.39	55.59	5872.68	2187.00
2.400	485.00	0.00	0.00	833.40	20900.00	946.22	0.00	906.16	114.36	56.20	5944.65	2212.63
2.400	485.00	0.00	0.00	833.40	21150.00	947.56	0.00	906.73	115.34	56.81	6016.62	2238.26
2.400	485.00	0.00	0.00	833.40	21400.00	948.90	0.00	907.30	116.31	57.42	6088.59	2263.89
2.400	485.00	0.00	0.00	833.40	21650.00	950.24	0.00	907.87	117.28	58.03	6160.56	2289.52
2.400	485.00	0.00	0.00	833.40	21900.00	951.58	0.00	908.44	118.26	58.64	6232.53	2315.15
2.400	485.00	0.00	0.00	833.40	22150.00	952.92	0.00	909.01	119.23	59.25	6304.50	2340.78
2.400	485.00	0.00	0.00	833.40	22400.00	954.26	0.00	909.58	120.20	59.86	6376.47	2366.41
2.400	485.00	0.00	0.00	833.40	22650.00	955.60	0.00	910.15	121.18	60.47	6448.44	2392.04
2.400	485.00	0.00	0.00	833.40	22900.00	956.94	0.00	910.72	122.15	61.08	6520.41	2417.67
2.400	485.00	0.00	0.00	833.40	23150.00	958.28	0.00	911.29	123.12	61.69	6592.38	2443.30
2.400	485.00	0.00	0.00	833.40	23400.00	959.62	0.00	911.86	124.10	62.30	6664.35	2468.93
2.400	485.00	0.00	0.00	833.40	23650.00	960.96	0.00	912.43	125.07	62.91	6736.32	2494.56
2.400	485.00	0.00	0.00	833.40	23900.00	962.30	0.00	913.00	126.04	63.52	6808.29	2520.19
2.400	485.00	0.00	0.00	833.40	24150.00	963.64	0.00	913.57	127.02	64.13	6880.26	2545.82
2.400	485.00	0.00	0.00	833.40	24400.00	964.98	0.00	914.14	127.99	64.74	6952.23	2571.45
2.400	485.00	0.00	0.00	833.40	24650.00	966.32	0.00	914.71	128.96	65.35	7024.20	2597.08
2.400	485.00	0.00	0.00	833.40	24900.00	967.66	0.00	915.28	129.94	65.96	7096.17	2622.71
2.400	485.00	0.00	0.00	833.40	25150.00	969.00	0.00	915.85	130.91	66.57	7168.14	2648.34
2.400	485.00	0.00	0.00	833.40	25400.00	970.34	0.00	916.42	131.88	67.18	7240.11	2673.97
2.400	485.00	0.00	0.00	833.40	25650.00	971.68	0.00	916.99	132.86	67.79	7312.08	2699.60
2.400	485.00	0.00	0.00	833.40	25900.00	973.02	0.00	917.56	133.83	68.40	7384.05	2725.23
2.400	485.00	0.00	0.00	833.40	26150.00	974.36	0.00	918.13	134.80	69.01	7456.02	2750.86
2.400	485.00	0.00	0.00	833.40	26400.00	975.70	0.00	918.70	135.78	69.62	7527.99	2776.49
2.400	485.00	0.00	0.00	833.40	26650.00	977.04	0.00	919.27	136.75	70.23	7599.96	2802.12
2.400	485.00	0.00	0.00	833.40	26900.00	978.38	0.00	919.84	137.72	70.84	7671.93	2827.75
2.400	485.00	0.00	0.00	833.40	27150.00	979.72	0.00	920.41	138.70	71.45	7743.90	2853.38
2.400	485.00	0.00	0.00	833.40	27400.00	981.06	0.00	920.98	139.67	72.06	7815.87	2879.01
2.400	485.00	0.00	0.00	833.40	27650.00	982.40	0.00	921.55	140.64	72.67	7887.84	2904.64
2.400	485.00	0.00	0.00	833.40	27900.00	983.74	0.00	922.12	141.62	73.28	7959.81	2930.27
2.400	485.00	0.00	0.00	833.40	28150.00	985.08	0.00	922.69	142.59	73.89	8031.78	2955.90
2.400	485.00	0.00	0.00	833.40	28400.00	986.42	0.00	923.26	143.56	74.50	8103.75	2981.53
2.400	485.00	0.00	0.00	833.40	28650.00	987.76	0.00	923.83	144.54	75.11	8175.72	3007.16
2.400	485.00	0.00	0.00	833.40	28900.00	989.10	0.00	924.40	145.51	75.72	8247.69	3032.79
2.400	485.00	0.00	0.00	833.40	29150.00	990.44	0.00	924.97	146.48	76.33	8319.66	3058.42
2.400	485.00	0.00	0.00	833.40	29400.00	991.78	0.00	925.54	147.46	76.94	8391.63	3084.05
2.400	485.00	0.00	0.00	833.40	29650.00	993.12	0.00	926.11	148.43	77.55	8463.60	3109.68
2.400	485.00	0.00	0.00	833.40	29900.00	994.46	0.00	926.68	149.40	78.16	8535.57	3135.31
2.400	485.00	0.00	0.00	833.40	30150.00	995.80	0.00	927.25	150.38	78.77	8607.54	3160.94
2.400	485.00	0.00	0.00	833.40	30400.00	997.14	0.00	927.82	151.35	79.38	8679.51	3186.57
2.400	485.00	0.00	0.00	833.40	30650.00	998.48	0.00	928.39	152.32	79.99	8751.48	3212.20
2.400	485.00	0.00	0.00	833.40	30900.00	999.82	0.00	928.96	153.30	80.60	8823.45	3237.83
2.400	485.00	0.00	0.00	833.40	31150.00	1001.16	0.00	929.53	154.27	81.21	8895.42	3263.46
2.400	485.00	0.00	0.00	833.40	31400.00	1002.50	0.00	930.10	155.24	81.82	8967.39	3289.09
2.400	485.00	0.00	0.00	833.40	31650.00	1003.84	0.00	930.67	156.22	82.43	9039.36	3314.72
2.400	485.00	0.00	0.00	833.40	31900.00	1005.18	0.00	931.24	157.19	83.04	9111.33	3340.35
2.400	485.00	0.00	0.00	833.40	32150.00	1006.52	0.00	931.81	158.16	83.65	9183.30	3365.98
2.400	485.00	0.00	0.00	833.40	32400.00	1007.86	0.00	932.38	159.14	84.26	9255.27	3391.61
2.400	485.00	0.00	0.00	833.40	32650.00	1009.20	0.00	932.95	160.11	84.87	9327.24	3417.24
2.400	485.00	0.00	0.00	833.40	32900.00	1010.54	0.00	933.52	161.08	85.48	9399.21	3442.87
2.400	485.00	0.00	0.00	833.40	33150.00	1011.88	0.00	934.09	162.06	86.09	9471.18	3468.50
2.400	485.00	0.00	0.00	833.40	33400.00	1013.22	0.00	934.66	163.03	86.70	9543.15	3494.13
2.400	485.00	0.00	0.00	833.40	33650.00	1014.56	0.00	935.23	164.00	87.31	9615.12	3519.76
2.400	485.00	0.00	0.00	833.40	33900.00	1015.90	0.00	935.80	164.98	87.92	9687.09	3545.39
2.400	485.00	0.00	0.00	833.40	34150.00	1017.24	0.00	936.37	165.95	88.53	9759.06	3571.02
2.400	485.00	0.00	0.00	833.40	34400.00	1018.58	0.00	936.94	166.92	89.14	9831.03	3596.65
2.400	485.00	0.00	0.00	833.40	34650.00	1019.92	0.00	937.51	167.90	89.75	9903.00	3622.28
2.400	485.00	0.00	0.00	833.40	34900.00	1021.26	0.00	938.08	168.87	90.36	9974.97	3647.91
2.400	485.00	0.00	0.00	833.40	35150.00	1022.60	0.00	938.65	169.84	90.97	10046.94	3673.54
2.400	485.00	0.00	0.00	833.40	35400.00	1023.94	0.00	939.22	170.82	91.58	10118.91	3699.17
2.400	485.00	0.00	0.00	833.40	35650.00	1025.28	0.00	939.79	171.79	92.19	10190.88	3724.80
2.400	485.00	0.00	0.00	833.40	35900.00	1026.62	0.00	940.36	172.76	92.80	10262.85	3750.43
2.400	485.00	0.00	0.00	833.40	36150.00	1027.96	0.00	940.93	173.74	93.41	10334.82	3776.06
2.400	485.00	0.00	0.00	833.40	36400.00	1029.30	0.00	941.50	174.71	94.02	10406.79	3801.69
2.400	485.00	0.00	0.00	833.40	36650.00	1030.64	0.00	942.07	175.68	94.63	10478.76	3827.32
2.400	485.00	0.00	0.00	833.40	36900.00	1031.98	0.00	942.64	176.66	95.24	10550.73	3852.95
2.400	485.00	0.00	0.00	833.40	37150.00	1033.32	0.00	943.21	177.63	95.85	10622.70	3878.58
2.400	485.00	0.00	0.00	833.40	37400.00	1034.66	0.00	943.78	178.60	96.46	10694.67	3904.21
2.400	485.00	0.00	0.00	833.40	37650.00	1036.00	0.00	944.35	179.58	97.07	10766.64	3929.84
2.400	485.00	0.00	0.00	833.40	37900.00	1037.34	0.00	944.92	180.55	97.68	10838.61	3955.47
2.400	485.00	0.00	0.00	833.40	38150.00	1038.68	0.00	945.49	181.52	98.29	10910.58	3981.10
2.400	485.00	0.00	0.00	833.40	38400.00	1040.02	0.00	946.06	182.50	98.90	10982.55	4006.73
2.400	485.00	0.00	0.00	833.40	38650.00	1041.36	0.00	946.63	183.47	99.51	11054.52	4032.36
2.400	485.00	0.00	0.00	833.40	38900.00	1042.70	0.00	947.20	184.44	100.12	11126.49	4057.99
2.400	485.00	0.00	0.00	833.40	39150.00	1044.04	0.00	947.77	185.42	100.73	11198.46	4083.62
2.400	485.00	0.00	0.00	833.40	39400.00	1045.38	0.00	948.34	186.39	101.34	11270.43	4109.25
2.400	485.00	0.00	0.00	833.40	39650.00	1046.72	0.00	948.91	187.36	101.95	11342.40	4134.88
2.400	485.00	0.00	0.00	833.40	39900.00	1048.06	0.00	949.48	188.34	102.56	11414.37	4160.51
2.400	485.00	0.00	0.00	833.40	40150.00	1049.40	0.00	950.05	189.31	103.17	11486.34	4186.14
2.400	485.00	0.00	0.00	833.40	40400.00	1050.74	0.00	950.62	190.28	103.78	11558.31	4211.77
2.400	485.00	0.00	0.00	833.40	40650.00	1052.08	0.00	951.19	191.26	104.39	11630.28	4237.40
2.400	485.00	0.00	0.00	833.40	40900.00	1053.42	0.00	951.76	192.23	105.00	11702.25	4263.03
2.400	485.00	0.00	0.00	833.40	41150.00	1054.76	0.00	952.33	193.20	105.61	11774.22	4288.66
2.400	485.00	0.00	0.00	833.40	41400.00	1056.10	0.00	952.90	194.18	106.22	11846.19	4314.29
2.400	485.00	0.00	0.00	833.40	41650.00	1057.44	0.00	953.47	195.15	106.83	11918.16	4339.92
2.400	485.00	0.00	0.00	833.40	41900.00	1058.78	0.00	954.04	196.12	107.44	11990.13	4365.55
2.400	485.00	0.00	0.00	833.40	42150.00	1060.12	0.00	954.61	197.10	108.05	12062.10	4391.18
2.400	485.00	0.00	0.00	833.40	42400.00	1061.46	0.00	955.18	198.07	108.66	12134.07	4416.81
2.400	485.00	0.00	0.00	833.40	42650.00	1062.80	0.00	955.75	199.04	109.27	12206.04	4442.44
2.400	485.00	0.00	0.00	833.40	42900.00	1064.14	0.00	956.32	200.02	109.88	12278.01	4468.07
2.400	485.00	0.00	0.00	833.40	43150.00	1065.48	0.00	956.89	200.99	110.49	12349.98	4493.70
2.400	485.00	0.00	0.00	833.40	43400.00	1066.82	0.00	957.46	201.96	111.10	12421.95	4519.33
2.400	485.00	0.00	0.00	833.40	43650.00	1068.16	0.00	958.03	202.94	111.71	12493.92	4544.96
2.400	485.00	0.00	0.00	833.40	43900.00	1069.50	0.00	958.60	203.91	112.32	12565.89	4570.59
2.400	485.00	0.00	0.00	833.40	44150.00	1070.84	0.00	959.17	204.88	112.93	12637.86	4596.22
2.400	485.00	0.00	0.00	833.40	44400.00	1072.18	0.00	959.74	205.86	113.54	12709.83	4621.85
2.400	485.00	0.00	0.00	833.40	44650.00	1073.52	0.00	960.31	206.83	114.15	12781.80	4647.48
2.400	485.00	0.00	0.00	833.40	44900.00	1074.86	0.00	960.88	207.80	114.76	12853.77	4673.11
2.400	485.00	0.00	0.00	833.40	45150.00	1076.20	0.00	961.45	208.78	115.37	12925.74	4698.74
2.400	485.00	0.00	0.00	833.40	45400.00	1077.54	0.00	962.02	209.75	115.98	12997.71	4724.37
2.400	485.00	0.00	0.00	833.40	45650.00	1078.88	0.00	962.59	210.72	116.59	13069.68	4750.00
2.400	485.00	0.00	0.00	833.40	45900.00	1080.22	0.00	963.16	211.70	117.20	13141.65	4775.63
2.400	485.00	0.00	0.00	833.40	46150.00	1081.56	0.00	963.73	212.67	117.81	13213.62	4801.26
2.400	485.00	0.00	0.00	833.40	46400.00	1082.90	0.00	964.30	213.64	118.42	13285.59	4826.89
2.400	485.00	0.00	0.00	833.40	46650.00	1084.24	0.00	964.87	214.62	119.03	13357.56	4852.52
2.400	485.00	0.00	0.00	833.40	46900.00	1085.58	0.00	965.44	215.59	119.64	13429.53	4878.15
2.400	485.00	0.00	0.00	833.40	47150.00	1086.92	0.00	966

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CMSEL	CRITS	EG	TOK#S	VCP	AREA	.01K
3.200	520.20	0.20	0.20	839.60	810.00	444.27	0.00	646.85	6.79	2.92	189.00	125.64
3.100	520.20	0.00	0.00	839.60	830.00	445.21	0.00	646.85	6.79	2.92	189.00	125.64
3.100	520.20	0.00	0.00	839.60	830.00	445.21	0.00	646.85	6.79	2.92	189.00	125.64
3.100	520.20	0.00	0.00	839.60	830.00	445.21	0.00	646.85	6.79	2.92	189.00	125.64
3.200	99.00	0.00	0.00	839.60	810.00	444.27	0.00	646.85	6.79	2.92	189.00	125.64
3.200	99.00	0.00	0.00	839.60	829.00	445.21	0.00	646.85	6.79	2.92	189.00	125.64
3.200	99.00	0.00	0.00	839.60	829.00	445.21	0.00	646.85	6.79	2.92	189.00	125.64
3.200	99.00	0.00	0.00	839.60	829.00	445.21	0.00	646.85	6.79	2.92	189.00	125.64
3.400	2.00	642.00	639.60	839.60	590.00	446.56	0.00	646.85	12.61	5.43	125.01	86.29
3.400	2.00	642.00	639.60	839.60	529.00	443.65	0.00	646.85	23.02	6.99	165.99	117.34
3.400	2.00	642.00	639.60	840.00	630.00	445.20	259.60	646.85	23.02	7.84	204.80	129.82

	SECND	XLCH	ELTRD	ELLC	ELMIN	C	CMSEL	CRDPS	EG	TDK*S	VCH	ARCA	.01K
	5.200	575.00	0.00	0.00	646.50	330.00	858.52	0.00	918.71	17.56	3.53	103.96	73.93
1	5.250	575.00	0.00	0.00	646.50	525.00	858.52	0.00	918.71	17.56	5.63	172.47	110.60
2	5.150	575.0	0.00	0.00	646.50	630.0	858.52	0.00	918.71	17.56	[illegible]	210.63	129.[illegible]
3	5.250	575.00	0.00	0.00	646.50	900.00	858.52	0.00	918.71	17.56	[illegible]	302.[illegible]	178.[illegible]
4													
5	4.300	100.00	0.00	0.00	647.50	300.00	858.52	0.00	868.90	14.78	3.61	85.77	71.54
6	4.300	100.00	0.00	0.00	647.50	525.00	858.52	0.00	868.89	14.67	4.21	220.91	128.39
7	4.300	100.00	0.00	0.00	647.50	630.00	858.52	0.00	868.89	14.67	5.05	272.26	157.[illegible]
8	4.300	100.00	0.00	0.00	647.50	900.00	858.52	0.00	868.89	14.67	7.21	420.90	243.[illegible]
9													
10	5.000	42.00	851.20	840.00	846.50	300.00	851.28	0.00	851.33	5.56	2.00	148.92	148.53
11	5.000	42.00	851.20	840.00	846.50	525.00	851.02	0.00	851.24	1.81	1.42	772.20	349.95
12	5.000	42.00	851.20	840.00	846.50	630.00	851.96	0.00	852.01	2.32	1.86	909.14	413.47
13	5.000	42.00	851.20	840.00	846.50	900.00	851.96	0.00	852.15	3.32	2.67	1308.00	592.[illegible]
14													
15	5.100	50.00	0.00	0.00	845.00	300.00	851.99	0.00	851.99	0.77	1.20	459.11	356.[illegible]
16	5.100	50.00	0.00	0.00	845.00	525.00	851.99	0.00	851.95	1.20	1.57	753.15	470.17
17	5.100	50.00	0.00	0.00	845.00	630.00	851.99	0.00	852.12	1.55	1.81	839.50	505.25
18	5.100	50.00	0.00	0.00	845.00	900.00	851.99	0.00	852.37	2.57	2.39	1251.74	561.34
19													
20	5.150	500.00	0.00	0.00	845.00	300.00	851.99	0.00	851.99	1.15	1.20	611.05	212.[illegible]
21	5.150	500.00	0.00	0.00	845.00	525.00	851.99	0.00	851.99	1.15	1.57	751.51	30[illegible].1
22	5.150	500.00	0.00	0.00	845.25	630.00	852.13	0.00	852.19	2.04	1.81	796.72	535.24
23	5.150	500.00	0.00	0.00	845.25	900.00	852.53	0.00	852.37	5.05	2.59	1149.72	398.75
24													
25	5.200	500.00	0.00	0.00	846.50	300.00	858.52	0.00	858.71	11.32	2.03	511.[illegible]	125.[illegible]
26	5.150	500.00	0.00	0.00	846.50	525.00	858.52	0.00	858.71	11.32	3.55	801.[illegible]	120.[illegible]
27	5.200	500.00	0.00	0.00	846.50	630.00	858.52	0.00	858.71	11.32	4.27	953.[illegible]	205.[illegible]
28	5.200	600.00	0.00	0.00	846.50	900.00	858.52	0.00	858.71	11.32	4.14	677.22	267.32
29													
30	5.250	575.00	0.00	0.00	847.50	710.00	858.14	0.00	858.17	14.45	3.72	570.15	01.54
31	5.250	575.00	0.00	0.00	847.50	710.00	858.14	0.00	858.17	14.45	3.72	570.15	01.54
32	5.250	575.00	0.00	0.00	847.50	900.00	858.14	0.00	858.31	18.32	4.71	722.[illegible]	284.[illegible]
33	5.250	575.00	0.00	0.00	847.50	900.00	858.14	0.00	858.31	18.32	4.71	722.[illegible]	284.[illegible]
34													
35	5.300	575.00	0.00	0.00	848.50	510.00	858.96	0.00	873.35	19.93	6.37	309.66	69.44
36	5.300	575.00	0.00	0.00	848.50	525.00	858.30	0.00	858.51	20.57	6.56	534.51	176.38
37	5.300	575.00	0.00	0.00	848.50	630.00	858.96	0.00	858.96	15.[illegible]	4.[illegible]	645.[illegible]	332.[illegible]
38	5.300	575.00	0.00	0.00	848.50	900.00	858.01	0.00	858.09	12.59	4.[illegible]	911.[illegible]	324.[illegible]
39													
40	5.350	525.00	0.00	0.00	850.25	510.00	858.76	0.00	858.76	8.22	2.37	367.75	108.13
41	5.350	525.00	0.00	0.00	850.25	525.00	858.15	0.00	858.21	11.36	3.90	672.56	352.60
42	5.350	525.00	0.00	0.00	850.25	630.00	858.33	0.00	858.40	13.46	3.40	514.25	171.86
43	5.350	525.00	0.00	0.00	850.25	900.00	858.76	0.00	858.83	8.32	2.[illegible]	690.[illegible]	329.[illegible]
44													
45	5.400	525.00	0.00	0.00	851.00	710.00	858.37	0.00	858.[illegible]	14.[illegible]	3.96	595.35	2[illegible].60
46	5.400	525.00	0.00	0.00	851.00	525.00	858.00	0.00	858.21	45.43	5.26	291.17	79.64
47	5.400	525.00	0.00	0.00	851.00	670.00	858.24	0.00	858.44	40.34	5.[illegible]	346.72	99.19
48	5.400	525.00	0.00	0.00	851.00	900.00	858.76	0.00	858.95	36.75	5.42	463.35	148.46
49													
50	5.500	465.00	0.00	0.00	853.25	300.00	858.[illegible]	0.00	864.[illegible]	[illegible].[illegible]	3.56	[illegible].[illegible]	[illegible].[illegible]
51	5.500	465.00	0.00	0.00	853.25	525.00	858.[illegible]	0.00	[illegible].[illegible]	20.[illegible]	[illegible].[illegible]	333.[illegible]	94.[illegible]
52	5.500	465.00	0.00	0.00	853.25	630.00	858.73	0.00	858.89	3.[illegible]	4.70	376.13	111.46
53	5.500	465.00	0.00	0.00	853.25	900.00	857.40	0.00	857.36	[illegible].62	5.24	478.32	155.27
54													
55													
56													
57													

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	SECMO	XLCH	ELTRO	ELLC	ELMIN	G	CUSCL	CRIWS	FG	TOK=S	VOL	AREA	.01K
	5.601	465.00	0.00	0.00	354.60	315.0[illegible]	[illegible]37.3[illegible]	0.0[illegible]	857.3[illegible]	61.0[illegible]	6.57	156.30	47.93
1	[illegible]	9[illegible].00	[illegible].00	[illegible].00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4													
5	5.120	465.00	[illegible].0[illegible]	[illegible].00	355.90	310.00	[illegible]39.29	0.20	859.66	63.16	6.11	79.12	48.92
6	3.791	465.00	[illegible].01	[illegible].0[illegible]	355.90	525.10	[illegible]32.99	0.20	400.47	54.69	5.65	105.13	72.[illegible]5
7	[illegible].730	[illegible]68.00	[illegible].0[illegible]	[illegible].0[illegible]	[illegible]55.9[illegible]	[illegible]10.20	[illegible]0[illegible].56	0.[illegible]0	[illegible]0[illegible].[illegible]	[illegible]1.[illegible]6	7.51	[illegible]1.[illegible]6	[illegible].[illegible]9
8	5.720	[illegible]65.0[illegible]	[illegible].0[illegible]	[illegible].0[illegible]	[illegible]55[illegible].[illegible]	[illegible]5[illegible].[illegible]0	[illegible]3[illegible].7[illegible]	0.[illegible]0	[illegible].[illegible]4	[illegible].[illegible]6[illegible]	[illegible].[illegible]0	[illegible]0[illegible].[illegible]1	[illegible]2[illegible].[illegible]
9													
10	5.500	100.02	0.00	0.03	856.20	590.30	959.39	0.00	859.93	56.56	5.35	56.14	41.22
11	3.700	101.67	0.00	0.03	855.20	525.30	360.35	0.00	661.23	74.44	7.59	71.60	59.27
12	3.500	100.00	0.00	0.03	856.20	690.30	[illegible]00.73	0.00	869.7[illegible]	77.67	8.30	74.24	66.90
13	[illegible].[illegible]0[illegible]	[illegible]0[illegible].[illegible]	[illegible].0[illegible]	[illegible].0[illegible]	[illegible]0[illegible].[illegible]	[illegible]90.30	[illegible]61.79	0.00	[illegible]6[illegible].[illegible]	[illegible]7.[illegible]	[illegible]0.[illegible]	[illegible]7.[illegible]	[illegible]1.[illegible]
14													
15	[illegible].[illegible]0	[illegible].00	[illegible]30.[illegible]	[illegible].[illegible]0	[illegible]3[illegible].[illegible]0	[illegible]10.00	[illegible].[illegible]6[illegible]	[illegible].00	[illegible]6[illegible].[illegible]2	[illegible].[illegible]6	[illegible].[illegible]1	[illegible]5[illegible].[illegible]	[illegible]7.[illegible]1
16	5.302	1.30	830.30	266.20	256.20	525.00	162.32	5.00	641.20	39.30	7.91	56.14	52.70
17	5.901	1.00	870.00	264.20	526.30	30.00	961.65	5.00	641.26	112.39	6.63	71.38	59.29
18	5.900	1.30	900.30	266.20	526.20	900.00	162.25	5.00	860.77	153.12	11.04	61.32	72.57
19													
20	[illegible].[illegible]02	250.[illegible]0	[illegible]0[illegible].00	[illegible]56.70	[illegible]1[illegible].[illegible]0	[illegible]1[illegible].[illegible]	[illegible]1[illegible].[illegible]0	[illegible].[illegible]0	[illegible].[illegible]7	[illegible].[illegible]8	[illegible].[illegible]1	[illegible]0.[illegible]0	[illegible].[illegible]1
21	[illegible].[illegible]09	3[illegible]5.30	[illegible].0[illegible].0[illegible]	3[illegible].[illegible]0	[illegible]8.[illegible]0	[illegible]8[illegible].[illegible]	[illegible].[illegible]0[illegible]	[illegible].[illegible]1[illegible]	[illegible].[illegible]3[illegible]	[illegible].[illegible]7[illegible]	[illegible].[illegible]1	[illegible].[illegible]4	[illegible].[illegible]1[illegible]
22	5.030	300.00	893.00	264.20	854.30	693.00	820.24	0.00	855.00	55.46	6.09	104.60	103.22
23	6.030	300.00	843.00	266.20	852.20	900.00	846.10	0.20	766.76	60.69	7.09	123.47	100.26
24													
25	[illegible].[illegible]30	[illegible].0[illegible]	[illegible].0[illegible]	[illegible].0[illegible]	[illegible].[illegible]5	[illegible]10.[illegible]	[illegible]1[illegible].[illegible]5	[illegible].[illegible]0	[illegible]6[illegible].[illegible]5	[illegible].[illegible]6	[illegible].[illegible]	[illegible].[illegible]5	[illegible].[illegible]5
26	[illegible].[illegible]16	[illegible].0[illegible]	[illegible].0[illegible]	[illegible].0[illegible]	[illegible].[illegible]3	[illegible]1[illegible].[illegible]	[illegible].[illegible]7	[illegible].[illegible]0	[illegible]0[illegible].[illegible]2	[illegible].[illegible]5	[illegible].[illegible]1	[illegible]0[illegible].[illegible]	[illegible]0[illegible].[illegible]
27	[illegible].[illegible]1	[illegible].0[illegible]	[illegible].0[illegible]	[illegible].0[illegible]	[illegible].[illegible]2	[illegible].[illegible]2	[illegible].[illegible]6	[illegible].[illegible]0	[illegible].[illegible]2	[illegible].[illegible]2	[illegible].[illegible]	[illegible].[illegible]1	[illegible].[illegible]1
28	6.900	2.01	0.01	0.02	856.70	920.50	842.40	0.00	866.84	13.97	5.46	166.85	206.65
29													
30	6.200	50.00	0.02	3.02	856.70	310.20	361.96	0.00	861.57	13.16	7.30	160.27	97.37
31	[illegible].[illegible]10	[illegible].0[illegible]	[illegible].0[illegible]	[illegible].0[illegible]	[illegible].[illegible]3	[illegible]2.[illegible]8	[illegible]69.3[illegible]	0.[illegible]0	[illegible]3[illegible].[illegible]2	[illegible].[illegible]0	[illegible].[illegible]1	[illegible].[illegible]2	[illegible]0[illegible].[illegible]
32	6.310	[illegible]2.0[illegible]	[illegible].0[illegible]	[illegible].0[illegible]	[illegible]1.[illegible]3	6[illegible].[illegible]0	165.35	0.30	[illegible]6.[illegible]5	[illegible].[illegible]3	5[illegible].[illegible]3	[illegible]4[illegible].[illegible]	[illegible]4[illegible].[illegible]
33	6.210	[illegible]2.0[illegible]	[illegible].0[illegible]	[illegible].0[illegible]	[illegible].[illegible]2	[illegible]70.30	[illegible]50.[illegible]5	0.30	[illegible]3[illegible].0[illegible]	[illegible].[illegible]4	2.[illegible]	[illegible]2.[illegible]0	5[illegible].[illegible]3
34													
35													
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HINGES BROOK EMMETT TWP.

SUMMARY PRINTOUT TABLE 25C

FROM	TO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000	420.00	830.60	0.05	0.02	0.07	47.13	0.00
1.000	930.00	332.60	[illegible]	[illegible]	[illegible]	47.13	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.100	600.00	834.77	0.05	1.47	0.00	51.32	350.05
1.100	980.00	833.07	0.03	2.47	0.00	58.32	350.00
1.100	1150.00	833.56	0.05	2.86	0.00	62.76	350.00
1.100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.300	980.00	833.47	0.00	0.74	0.00	186.64	350.00
1.300	1150.00	834.33	0.00	0.79	0.00	196.79	350.00
1.300	1620.00	833.45	0.00	0.96	0.00	220.67	350.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.700	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.700	1150.00	834.93	0.00	0.53	1.06	83.06	650.00
1.700	1620.00	836.97	0.00	0.53	0.00	303.05	650.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.900	1620.00	836.24	0.00	2.07	0.00	394.05	100.00
2.000	600.00	833.19	0.00	0.03	0.03	33.03	31.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.100	600.00	833.31	0.00	0.15	0.00	82.14	50.00
2.100	980.00	836.76	0.00	0.82	1.49	133.02	50.00
2.100	1150.00	835.85	0.00	[illegible]	2.51	153.0	50.00
2.100	1620.00	837.24	0.00	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.200	600.00	830.38	0.00	0.06	0.00	365.66	1155.00
2.200	980.00	835.48	0.00	0.71	1.35	385.55	1155.00
2.200	1150.00	836.23	0.00	0.75	2.06	442.57	1155.00
2.200	1620.00	837.55	0.00	0.90	0.00	512.06	1155.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.300	600.00	829.30	0.00	1.00	0.00	87.00	1250.00
2.300	980.00	834.13	0.00	0.60	0.05	80.01	1250.00
2.300	1150.00	836.65	0.00	0.80	1.33	104.32	1250.00
2.300	1620.00	837.73	0.00	0.97	0.00	134.09	1250.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.350	600.00	830.50	0.00	1.20	0.00	57.32	465.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.350	1150.00	830.12	0.00	1.49	1.03	97.30	465.00
2.350	1620.00	839.13	0.00	1.39	0.00	58.67	465.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.400	1620.00	841.56	0.00	2.44	0.00	134.11	485.00

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SECTO	S	CUSEL	DIFUSP	DIFUSX	DIFUS	TOPJIC	XLSH
2.453	670.70	840.11	0.00	1.63	5.00	43.32	530.00
2.453	590.70	841.60	0.00	1.27	4.45	47.59	530.00
2.453	1140.70	842.78	0.00	2.65	2.17	330.41	900.00
2.453	1170.70	842.51	0.00	2.80	2.65	570.12	370.00
2.500	600.00	841.97	0.00	1.07	0.00	143.52	720.00
2.500	930.00	842.34	0.00	1.71	0.32	272.40	720.00
2.500	1130.00	843.05	0.00	2.65	2.46	470.98	720.00
2.500	1170.00	844.39	0.00	1.92	0.13	342.30	721.00
2.600	310.00	842.45	0.00	0.42	0.20	389.05	250.00
2.600	525.00	843.07	0.00	0.53	1.22	535.02	250.00
2.600	630.00	844.12	0.00	0.22	1.67	589.17	250.00
2.600	905.00	845.93	0.00	0.71	0.00	510.15	250.00
2.700	310.00	842.29	0.00	0.10	0.00	129.11	90.00
2.700	525.00	843.36	0.00	0.19	1.01	290.91	900.00
2.700	630.00	844.25	0.00	0.17	1.50	250.21	900.00
2.700	900.50	845.00	0.00	0.12	0.00	307.35	550.20
2.900	310.00	842.37	0.00	0.10	0.00	29[illegible].03	130.20
2.900	525.00	843.32	0.00	0.06	0.94	2[illegible].01	130.20
2.900	630.00	844.37	0.00	0.05	0.45	252.17	100.20
2.900	900.00	845.05	0.00	0.06	1.00	279.23	100.20
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.000	900.00	845.46	0.00	0.36	0.00	337.37	50.00
3.100	310.00	844.62	0.00	0.03	0.00	297.76	90.00
3.100	525.00	845.04	0.00	0.04	0.00	317.10	90.00
3.100	630.00	845.13	0.00	0.03	0.00	307.44	90.00
3.100	900.00	845.94	0.00	0.02	0.00	338.65	90.00
3.150	310.00	844.69	0.00	0.04	0.00	286.20	550.00
3.150	525.00	845.06	0.00	0.02	0.00	306.45	550.00
3.150	630.00	845.22	0.00	0.01	0.00	296.83	550.00
3.150	900.00	845.53	0.00	0.18	0.00	327.35	550.00
3.200	310.00	844.73	0.00	0.09	0.00	192.87	500.00
3.200	525.00	845.21	0.00	0.13	0.49	112.67	500.00
3.200	630.00	845.42	0.00	0.18	0.67	137.00	550.00
3.200	900.00	845.94	0.00	0.21	0.00	149.69	100.00
3.300	310.00	844.81	0.00	0.05	0.00	30.07	90.00
3.300	525.00	845.34	0.00	0.13	0.55	155.57	99.00
3.300	630.00	845.56	0.00	0.16	0.76	141.72	99.00
3.300	900.00	846.08	0.00	0.24	0.00	156.43	99.00
3.400	310.00	844.85	0.00	0.12	0.00	50.00	2.00
3.400	525.00	845.38	0.00	0.12	0.52	127.74	2.00
3.400	630.00	845.60	0.00	0.16	0.57	131.62	2.00
3.400	900.00	846.51	0.00	0.57	0.00	140.23	2.00

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SECNO	Q	CUSEL	DIFLSP	DIFJSX	DIFKWS	TOPWID	XLCH
3.500	310.00	844.09	0.00	0.25	0.00	60.00	2.00
3.500	525.00	845.73	0.00	[illegible]	[illegible]	[illegible]	2.00
3.500	630.00	845.21	0.00	[illegible]	[illegible]	[illegible]	2.00
3.500	900.00	[illegible]	0.00	[illegible]	0.00	[illegible]	2.00
3.600	310.00	844.93	0.00	0.04	0.00	24.00	114.00
3.600	525.00	845.67	0.00	0.14	0.74	144.79	114.00
3.600	630.00	845.95	0.00	0.16	1.33	[illegible]	114.00
3.600	900.00	845.69	0.00	[illegible]	0.00	[illegible]	114.00
3.700	310.00	844.63	0.00	-0.33	0.00	24.00	2.00
3.700	525.00	843.51	0.00	-0.16	0.91	140.32	2.00
3.700	630.00	843.79	0.00	-0.17	1.19	148.33	2.00
3.700	900.00	[illegible]	0.00	[illegible]	0.00	[illegible]	2.00
[illegible]	[illegible]	[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]
3.800	525.00	845.77	0.00	0.26	0.66	147.59	2.00
3.800	630.00	846.00	0.00	0.29	0.97	156.62	2.00
3.800	900.00	846.82	0.00	0.32	0.00	177.64	2.00
3.900	310.00	845.27	[illegible]	[illegible]	[illegible]	[illegible]	21.00
3.900	525.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.00
3.900	630.00	846.10	0.00	0.02	0.93	141.98	21.00
3.900	900.00	846.84	0.00	[illegible]	0.00	141.33	21.00
4.000	310.00	[illegible]	[illegible]	[illegible]	0.00	[illegible]	[illegible]
4.000	525.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4.000	630.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4.000	900.00	848.29	0.00	1.42	0.00	135.26	68.00
4.200	310.00	847.40	0.00	0.41	0.00	110.00	50.00
4.200	525.00	[illegible]	[illegible]	[illegible]	0.30	[illegible]	50.00
4.200	630.00	847.96	[illegible]	[illegible]	0.33	[illegible]	50.00
4.200	900.00	[illegible]	[illegible]	[illegible]	0.00	[illegible]	50.00
4.300	310.00	847.59	0.00	0.18	0.00	146.69	500.00
4.300	525.00	848.05	0.00	0.27	0.48	148.79	500.00
4.300	630.00	[illegible]	0.00	[illegible]	0.72	149.48	500.00
4.300	900.00	849.67	[illegible]	[illegible]	0.00	132.40	500.00
4.700	310.00	848.52	0.00	0.34	0.00	36.42	575.00
4.700	525.00	849.36	0.00	[illegible]	0.26	170.69	575.00
4.700	630.00	849.66	0.00	0.36	1.14	197.50	575.00
4.700	900.00	850.28	0.00	[illegible]	0.00	207.16	575.00
4.900	310.00	848.65	[illegible]	[illegible]	0.00	23.60	100.00
4.900	525.00	849.65	0.00	0.29	0.95	197.30	100.00
4.900	630.00	849.98	0.00	0.32	1.29	202.63	100.00
4.900	900.00	850.63	0.00	0.34	0.00	213.60	100.00
5.000	310.00	851.20	0.00	2.59	[illegible]	23.20	42.00
5.000	525.00	851.82	0.00	2.17	0.54	233.24	42.00
5.000	630.00	851.98	0.00	2.00	0.73	236.67	42.00
5.000	900.00	852.30	0.00	1.68	0.00	242.07	42.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKUS	TCPWID	XLCH
5.100	310.00	851.35	0.00	0.07	0.30	120.00	50.00
5.100	525.00	851.63	0.00	0.21	0.47	[illegible]	[illegible]
5.100	630.00	851.95	0.00	0.31	0.45	[illegible]	[illegible]
5.100	900.00	852.31	0.00	0.31	0.50	[illegible]	[illegible]
5.150	310.00	851.42	0.00	0.07	0.00	234.91	600.00
5.150	525.00	852.93	0.00	0.10	0.31	242.41	600.00
5.150	630.00	852.12	0.00	0.11	0.70	245.24	600.00
5.150	900.00	852.93	0.00	0.11	0.00	[illegible]	600.00
5.200	310.00	851.76	0.00	0.14	0.00	224.23	630.00
5.200	525.00	852.17	0.00	0.24	0.61	230.[illegible]	630.00
5.200	630.00	852.40	0.00	0.28	0.74	233.42	600.00
5.200	900.00	852.71	0.00	[illegible]	[illegible]	[illegible]	600.00
5.250	310.00	[illegible]	0.00	[illegible]	[illegible]	[illegible]	575.00
5.250	525.00	852.69	0.00	0.32	0.43	[illegible]	575.00
5.250	630.00	852.95	0.00	0.58	0.88	61[illegible]	575.00
5.250	900.00	853.42	0.00	0.56	0.90	624.46	575.00
5.300	310.00	[illegible]	[illegible]	[illegible]	0.30	[illegible]	[illegible]
5.300	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5.300	630.00	853.36	0.00	0.62	0.97	504.38	575.00
5.300	900.00	854.01	0.00	[illegible]	0.00	613.61	575.00
5.350	310.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5.350	525.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5.350	630.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5.350	900.00	854.73	0.00	0.73	0.00	241.29	525.00
5.400	310.00	854.37	0.00	0.43	0.00	213.39	525.00
5.400	525.00	855.00	0.00	[illegible]	0.63	222.17	525.00
5.400	630.00	855.26	0.00	[illegible]	0.87	223.40	525.00
5.400	900.00	855.76	0.00	[illegible]	1.02	222.[illegible]	525.00
5.500	310.00	856.13	0.00	1.76	0.00	219.11	465.00
5.500	525.00	856.54	0.00	1.54	0.40	226.80	465.00
5.500	630.00	856.73	0.00	1.49	0.60	227.43	465.00
5.500	900.00	857.15	0.00	1.42	0.00	233.37	465.00
5.600	310.00	857.36	0.00	1.23	0.00	135.00	465.00
5.600	525.00	857.95	0.00	1.40	0.50	135.40	465.00
5.600	630.00	858.18	0.00	1.43	0.82	135.00	465.00
5.600	900.00	858.66	0.00	1.51	0.00	135.00	465.00
5.700	310.00	859.09	0.00	1.73	0.00	38.30	465.00
5.700	525.00	859.03	0.00	1.59	0.74	40.57	465.00
5.700	630.00	860.14	0.00	1.96	1.05	47.49	465.00
5.700	900.00	860.78	0.00	2.10	0.00	60.84	465.00
5.800	310.00	859.51	0.00	0.42	0.00	17.00	100.00
5.800	525.00	860.39	0.00	0.54	0.96	17.00	100.00
5.800	630.00	860.72	0.00	0.58	1.21	17.00	100.00
5.800	900.00	861.43	0.00	0.63	0.00	17.00	100.00

FORM 1411-DD-PRINTED BY ROTARY MANIFOLD FORMS
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SECNO	Q	CHSEL	DIFUSP	DIFUSX	DIFKLS	TOPWID	XLCH
5.900	310.00	859.79	0.00	-0.03	0.00	17.00	1.00
5.900	525.00	[illegible]	0.00	[illegible]	[illegible]	17.00	1.00
5.900	[illegible]	[illegible]	0.00	[illegible]	[illegible]	17.00	1.00
5.900	[illegible]	[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]
6.000	310.00	861.07	0.00	1.57	0.00	17.00	300.00
6.000	525.00	[illegible]	0.00	2.24	[illegible]	17.00	300.00
6.000	[illegible]	[illegible]	0.00	[illegible]	[illegible]	17.00	[illegible]
6.000	[illegible]	[illegible]	0.00	[illegible]	[illegible]	17.00	[illegible]
6.100	310.00	861.13	0.00	0.05	0.00	17.00	1.00
6.100	525.00	862.67	0.00	0.09	1.56	17.00	1.00
6.100	630.00	863.34	0.00	0.10	2.82	17.00	1.00
6.100	[illegible]	[illegible]	0.00	[illegible]	[illegible]	17.00	1.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00	[illegible]	[illegible]
6.250	525.00	865.08	0.00	0.41	1.72	115.00	50.00
6.200	630.00	865.05	0.00	0.51	2.40	115.00	50.00
6.200	500.00	866.93	0.00	0.74	0.00	115.00	50.00

SUMMARY OF ERRORS

[illegible]
[illegible]

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FORM 1-11-00-PRINTED BY ROTARY MANIFOLD FORMS.

FORM 1411.CB PRINTED BY ROTARY MANIFOLD FORMS,

PRINTED IN U.S.A.

FLOOD INSURANCE ZONE DATA FOR "INGES ZOOK FMPFTT TRIP,

FLOOD HAZARD FACTOR FOR ENTIRE ZONE IS 9 RESIDENTS

ELEVATION	CUMULATIVE	ELEVATION REFERENCE	
MEAN	DIFFERENCE	DEVICE1 BASE FLOOD ELEV	
1.00			
1.25			
1.50	1350	-1.0	-0.5
1.75	1350	-1.0	-0.5
2.00	1350	-1.0	-0.5
2.25	1350	-1.0	-0.5
2.50	1350	-1.0	-0.5
2.75	1350	-1.0	-0.5
3.00	1350	-1.0	-0.5
3.25	1350	-1.0	-0.5
3.50	1350	-1.0	-0.5
3.75	1350	-1.0	-0.5
4.00	1350	-1.0	-0.5
4.25	1350	-1.0	-0.5
4.50	1350	-1.0	-0.5
4.75	1350	-1.0	-0.5
5.00	1350	-1.0	-0.5
5.25	1350	-1.0	-0.5
5.50	1350	-1.0	-0.5
5.75	1350	-1.0	-0.5
6.00	1350	-1.0	-0.5
6.25	1350	-1.0	-0.5
6.50	1350	-1.0	-0.5
6.75	1350	-1.0	-0.5
7.00	1350	-1.0	-0.5
7.25	1350	-1.0	-0.5
7.50	1350	-1.0	-0.5
7.75	1350	-1.0	-0.5
8.00	1350	-1.0	-0.5
8.25	1350	-1.0	-0.5
8.50	1350	-1.0	-0.5
8.75	1350	-1.0	-0.5
9.00	1350	-1.0	-0.5
9.25	1350	-1.0	-0.5
9.50	1350	-1.0	-0.5
9.75	1350	-1.0	-0.5
10.00	1350	-1.0	-0.5
10.25	1350	-1.0	-0.5
10.50	1350	-1.0	-0.5
10.75	1350	-1.0	-0.5
11.00	1350	-1.0	-0.5
11.25	1350	-1.0	-0.5
11.50	1350	-1.0	-0.5
11.75	1350	-1.0	-0.5
12.00	1350	-1.0	-0.5
12.25	1350	-1.0	-0.5
12.50	1350	-1.0	-0.5
12.75	1350	-1.0	-0.5
13.00	1350	-1.0	-0.5
13.25	1350	-1.0	-0.5
13.50	1350	-1.0	-0.5
13.75	1350	-1.0	-0.5
14.00	1350	-1.0	-0.5
14.25	1350	-1.0	-0.5
14.50	1350	-1.0	-0.5
14.75	1350	-1.0	-0.5
15.00	1350	-1.0	-0.5
15.25	1350	-1.0	-0.5
15.50	1350	-1.0	-0.5
15.75	1350	-1.0	-0.5
16.00	1350	-1.0	-0.5
16.25	1350	-1.0	-0.5
16.50	1350	-1.0	-0.5
16.75	1350	-1.0	-0.5
17.00	1350	-1.0	-0.5
17.25	1350	-1.0	-0.5
17.50	1350	-1.0	-0.5
17.75	1350	-1.0	-0.5
18.00	1350	-1.0	-0.5
18.25	1350	-1.0	-0.5
18.50	1350	-1.0	-0.5
18.75	1350	-1.0	-0.5
19.00	1350	-1.0	-0.5
19.25	1350	-1.0	-0.5
19.50	1350	-1.0	-0.5
19.75	1350	-1.0	-0.5
20.00	1350	-1.0	-0.5
20.25	1350	-1.0	-0.5
20.50	1350	-1.0	-0.5
20.75	1350	-1.0	-0.5
21.00	1350	-1.0	-0.5
21.25	1350	-1.0	-0.5
21.50	1350	-1.0	-0.5
21.75	1350	-1.0	-0.5
22.00	1350	-1.0	-0.5
22.25	1350	-1.0	-0.5
22.50	1350	-1.0	-0.5
22.75	1350	-1.0	-0.5
23.00	1350	-1.0	-0.5
23.25	1350	-1.0	-0.5
23.50	1350	-1.0	-0.5
23.75	1350	-1.0	-0.5
24.00	1350	-1.0	-0.5
24.25	1350	-1.0	-0.5
24.50	1350	-1.0	-0.5
24.75	1350	-1.0	-0.5
25.00	1350	-1.0	-0.5
25.25	1350	-1.0	-0.5
25.50	1350	-1.0	-0.5
25.75	1350	-1.0	-0.5
26.00	1350	-1.0	-0.5
26.25	1350	-1.0	-0.5
26.50	1350	-1.0	-0.5
26.75	1350	-1.0	-0.5
27.00	1350	-1.0	-0.5
27.25	1350	-1.0	-0.5
27.50	1350	-1.0	-0.5
27.75	1350	-1.0	-0.5
28.00	1350	-1.0	-0.5
28.25	1350	-1.0	-0.5
28.50	1350	-1.0	-0.5
28.75	1350	-1.0	-0.5
29.00	1350	-1.0	-0.5
29.25	1350	-1.0	-0.5
29.50	1350	-1.0	-0.5
29.75	1350	-1.0	-0.5
30.00	1350	-1.0	-0.5
30.25	1350	-1.0	-0.5
30.50	1350	-1.0	-0.5
30.75	1350	-1.0	-0.5
31.00	1350	-1.0	-0.5
31.25	1350	-1.0	-0.5
31.50	1350	-1.0	-0.5
31.75	1350	-1.0	-0.5
32.00	1350	-1.0	-0.5
32.25	1350	-1.0	-0.5
32.50	1350	-1.0	-0.5
32.75	1350	-1.0	-0.5
33.00	1350	-1.0	-0.5
33.25	1350	-1.0	-0.5
33.50	1350	-1.0	-0.5
33.75	1350	-1.0	-0.5
34.00	1350	-1.0	-0.5
34.25	1350	-1.0	-0.5
34.50	1350	-1.0	-0.5
34.75	1350	-1.0	-0.5
35.00	1350	-1.0	-0.5
35.25	1350	-1.0	-0.5
35.50	1350	-1.0	-0.5
35.75	1350	-1.0	-0.5
36.00	1350	-1.0	-0.5
36.25	1350	-1.0	-0.5
36.50	1350	-1.0	-0.5
36.75	1350	-1.0	-0.5
37.00	1350	-1.0	-0.5
37.25	1350	-1.0	-0.5
37.50	1350	-1.0	-0.5
37.75	1350	-1.0	-0.5
38.00	1350	-1.0	-0.5
38.25	1350	-1.0	-0.5
38.50	1350	-1.0	-0.5
38.75	1350	-1.0	-0.5
39.00	1350	-1.0	-0.5
39.25	1350	-1.0	-0.5
39.50	1350	-1.0	-0.5
39.75	1350	-1.0	-0.5
40.00	1350	-1.0	-0.5
40.25	1350	-1.0	-0.5
40.50	1350	-1.0	-0.5
40.75	1350	-1.0	-0.5
41.00	1350	-1.0	-0.5
41.25	1350	-1.0	-0.5
41.50	1350	-1.0	-0.5
41.75	1350	-1.0	-0.5
42.00	1350	-1.0	-0.5
42.25	1350	-1.0	-0.5
42.50	1350	-1.0	-0.5
42.75	1350	-1.0	-0.5
43.00	1350	-1.0	-0.5
43.25	1350	-1.0	-0.5
43.50	1350	-1.0	-0.5
43.75	1350	-1.0	-0.5
44.00	1350	-1.0	-0.5
44.25	1350	-1.0	-0.5
44.50	1350	-1.0	-0.5
44.75	1350	-1.0	-0.5
45.00	1350	-1.0	-0.5
45.25	1350	-1.0	-0.5
45.50	1350	-1.0	-0.5
45.75	1350	-1.0	-0.5
46.00	1350	-1.0	-0.5
46.25	1350	-1.0	-0.5
46.50	1350	-1.0	-0.5
46.75	1350	-1.0	-0.5
47.00	1350	-1.0	-0.5
47.25	1350	-1.0	-0.5
47.50	1350	-1.0	-0.5
47.75	1350	-1.0	-0.5
48.00	1350	-1.0	-0.5
48.25	1350	-1.0	-0.5
48.50	1350	-1.0	-0.5
48.75	1350	-1.0	-0.5
49.00	1350	-1.0	-0.5
49.25	1350	-1.0	-0.5
49.50	1350	-1.0	-0.5
49.75	1350	-1.0	-0.5
50.00	1350	-1.0	-0.5
50.25	1350	-1.0	-0.5
50.50	1350	-1.0	-0.5
50.75	1350	-1.0	-0.5
51.00	1350	-1.0	-0.5
51.25	1350	-1.0	-0.5
51.50	1350	-1.0	-0.5
51.75	1350	-1.0	-0.5
52.00	1350	-1.0	-0.5
52.25	1350	-1.0	-0.5
52.50	1350	-1.0	-0.5
52.75	1350	-1.0	-0.5
53.00	1350	-1.0	-0.5
53.25	1350	-1.0	-0.5
53.50	1350	-1.0	-0.5
53.75	1350	-1.0	-0.5
54.00	1350	-1.0	-0.5
54.25	1350	-1.0	-0.5
54.50	1350	-1.0	-0.5
54.75	1350	-1.0	-0.5
55.00	1350	-1.0	-0.5
55.25	1350	-1.0	-0.5
55.50	1350	-1.0	-0.5
55.75	1350	-1.0	-0.5
56.00	1350	-1.0	-0.5
56.25	1350	-1.0	-0.5
56.50	1350	-1.0	-0.5
56.75	1350	-1.0	-0.5
57.00	1350	-1.0	-0.5
57.25	1350	-1.0	-0.5
57.50	1350	-1.0	-0.5
57.75	1350	-1.0	-0.5
58.00	1350	-1.0	-0.5
58.25	1350	-1.0	-0.5
58.50	1350	-1.0	-0.5
58.75	1350	-1.0	-0.5
59.00	1350	-1.0	-0.5
59.25	1350	-1.0	-0.5
59.50	1350	-1.0	-0.5
59.75	1350	-1.0	-0.5
60.00	1350	-1.0	-0.5
60.25	1350	-1.0	-0.5
60.50	1350	-1.0	-0.5
60.75	1350	-1.0	-0.5
61.00	1350	-1.0	-0.5
61.25	1350	-1.0	-0.5
61.50	1350	-1.0	-0.5
61.75	1350	-1.0	-0.5
62.00	1350	-1.0	-0.5
62.25	1350	-1.0	-0.5
62.50	1350	-1.0	-0.5
62.75	1350	-1.0	-0.5
63.00	1350	-1.0	-0.5
63.25	1350	-1.0	-0.5
63.50	1350	-1.0	-0.5
63.75	1350	-1.0	-0.5
64.00	1350	-1.0	-0.5
64.25	1350	-1.0	-0.5
64.50	1350	-1.0	-0.5
64.75	1350	-1.0	-0.5
65.00	1350	-1.0	-0.5
65.25	1350	-1.0	-0.5
65.50	1350	-1.0	-0.5
65.75	1350	-1.0	-0.5
66.00	1350	-1.0	-0.5
66.25	1350	-1.0	-0.5
66.50	1350	-1.0	-0.5
66.75	1350	-1.0	-0.5
67.00	1350	-1.0	-0.5
67.25	1350	-1.0	-0.5
67.50	1350	-1.0	-0.5
67.75	1350	-1.0	-0.5
68.00	1350	-1.0	-0.5
68.25	1350	-1.0	-0.5
68.50	1350	-1.0	-0.5
68.75	1350	-1.0	-0.5
69.00	1350	-1.0	-0.5
69.25	1350	-1.0	-0.5
69.50	1350	-1.0	-0.5
69.75	1350	-1.0	-0.5
70.00	1350	-1.0	-0.5
70.25	1350	-1.0	-0.5
70.50	1350	-1.0	-0.5
70.75	1350	-1.0	-0.5
71.00	1350	-1.0	-0.5
71.25	1350	-1.0	-0.5
71.50	1350	-1.0	-0.5
71.75	1350	-1.0	-0.5
72.00	1350	-1.0	-0.5
72.25	1350	-1.0	-0.5
72.50	1350	-1.0	-0.5
72.75	1350	-1.0	-0.5
73.00	1350	-1.0	-0.5
73.25	1350	-1.0	-0.5
73.50	1350	-1.0	-0.5
73.75	1350	-1.0	-0.5
74.00	1350	-1.0	-0.5
74.25	1350	-1.0	-0.5
74.50	1350	-1.0	-0.5
74.75	1350	-1.0	-0.5
75.00	1350	-1.0	-0.5

ZONE FOR THE REACH = A 3

CONTRIB. FLOW - SUM EACH BY 3 & 7 ISTATS

ISTA	TOTAL LENGTH	AVG ELEVATION DATA		DIFF.	SLOPE	SEC	PERCENT IMPER
						SEC.	1.570
1	100.	830.8	831.5	-0.5	-0.5	005	10.
2	600.	831.1	832.1	-1.0	-0.7	003	10.
3	900.	831.4	832.8	-1.4	-1.0	013	100.
	900.					SEC.	1.600
4	1.	831.2	833.	-1.7	-1.9	01.	1.
5	301.	831.5	833.	-1.	-1.	015	1.
6	600.	833.1	834.0	-1.9	-1.4	015	67.
	700.					SEC.	1.500
7	701.	832.3	834.2	-1.9	-1.5	015	71.
8	1.	832.	834.	-1.	-1.	015	1.
9	301.	832.1	834.	-1.	-1.	015	1.
10	1000.	832.3	834.2	-1.9	-1.5	015	34.
11	1100.	832.3	834.2	-1.9	-1.5	015	32.
12	1200.	832.3	834.2	-1.9	-1.5	015	33.
	1300.					SEC.	1.700
13	1301.	832.3	834.2	-1.9	-1.5	015	1.
	1400.					SEC.	2.000
	1401.					SEC.	2.100
14	1500.	833.3	835.2	-2.4	-1.7	013	30.
15	1600.	833.6	835.4	-2.4	-1.8	025	30.
16	1700.	833.6	835.4	-2.4	-1.8	025	30.
17	1800.	833.6	835.4	-2.4	-1.8	025	30.
18	1900.	833.6	835.9	-2.3	-1.8	025	79.
19	2000.	833.7	835.9	-2.2	-1.8	025	80.
20	2100.	833.7	835.9	-2.2	-1.8	025	80.
21	2200.	833.8	836.0	-2.2	-1.8	025	80.
22	2300.	834.0	836.1	-2.1	-1.8	025	80.
23	2400.	834.0	836.1	-2.1	-1.8	025	80.
24	2500.	834.0	836.1	-2.1	-1.8	020	80.
25	2600.	834.0	836.2	-2.1	-1.9	020	80.
	2665.					SEC.	2.200
26	2700.	834.2	836.2	-2.1	-1.9	020	80.
27	2800.	834.2	836.3	-2.1	-1.9	020	80.
28	2900.	834.3	836.3	-2.0	-1.9	020	80.
29	3000.	834.4	836.3	-1.9	-1.9	020	90.
30	3100.	834.5	836.4	-1.9	-1.9	020	90.
31	3200.	834.5	836.5	-1.9	-1.9	020	91.
32	3300.	834.6	836.5	-1.9	-1.9	020	91.
33	3400.	834.6	836.5	-1.9	-1.9	020	91.
34	3500.	834.6	836.5	-1.9	-1.9	020	91.
35	3600.	834.6	836.5	-1.9	-1.9	020	92.
36	3700.	834.6	836.5	-1.9	-1.9	020	92.
37	3800.	834.6	836.5	-1.9	-1.9	020	92.
	3900.					SEC.	2.210
38	4000.	834.6	836.6	-1.9	-1.9	020	90.
39	4100.	834.6	836.6	-1.9	-1.9	020	90.
40	4200.	834.6	836.7	-1.9	-1.9	020	88.

	44	6420.	836.4	838.0	-1.6	-1.8	020	89.
		6491.				SEC;		2.350
	45	6550.	836.7	838.3	-1.6	-1.8	020	89.
	46	6610.	837.1	837.8	-1.7	-1.8	020	89.
	47	6650.	837.4	839.1	-1.7	-1.8	020	89.
		6710.						
		6750.						
		6791.				SEC.		2.300
	48	6800.	838.3	840.2	-1.8	-1.9	020	90.
	49	6850.	838.7	840.6	-1.9	-1.9	020	90.
	50	6900.	839.0	840.8	-1.8	-1.9	020	90.
	51	6950.	839.3	841.2	-1.9	-1.9	020	90.
	52	6990.	839.7	841.6	-1.9	-1.9	020	90.
	53	7050.	840.0	841.9	-1.9	-1.9	020	91.
		7091.				SEC.		2.300
	54	7100.	840.0	842.1	-2.1	-1.8	020	91.
	55	7150.	840.3	842.3	-2.0	-1.9	020	92.
	56	7200.	840.5	842.5	-2.0	-1.8	020	92.
	57	7250.	840.7	842.7	-2.0	-1.8	020	92.
	58	7300.	841.0	843.0	-2.0	-1.8	020	92.
	59	7350.	841.2	843.2	-2.0	-1.8	020	93.
	60	7400.	841.5	843.4	-1.9	-1.8	020	93.
	61	7450.	841.8	843.7	-1.9	-1.8	020	93.
		7496.				SEC.		2.300
		7550.				SEC.		2.300
		7591.				SEC.		2.300
	62	7600.	842.4	844.3	-1.9	-1.8	020	94.
	63	7650.	842.7	844.4	-1.7	-1.8	020	94.
	64	7700.	842.9	844.8	-1.9	-1.9	020	94.
		7750.						
		7791.						
	65	7800.	843.2	845.1	-1.9	-1.9	020	94.
	66	7850.	843.4	845.1	-1.8	-1.9	020	94.
	67	7900.	843.7	845.2	-1.5	-1.9	015	94.
		7911.				SEC.		3.150
	68	7950.	843.7	845.2	-1.5	-1.7	015	94.
	69	8000.	844.7	845.3	-1.6	-1.7	015	94.
	70	8050.	844.7	845.4	-1.7	-1.7	015	94.
	71	8100.	844.7	845.4	-1.7	-1.7	015	94.
	72	8150.	844.7	845.4	-1.7	-1.7	015	94.
		8191.				SEC.		3.200
	73	8200.	844.7	845.4	-1.7	-1.7	015	94.
		8250.				SEC.		3.300
		8291.				SEC.		3.400
		8350.				SEC.		3.500
	74	8400.	844.9	845.6	-1.6	-1.6	015	94.
		8423.				SEC.		3.600
		8450.				SEC.		3.700
		8491.				SEC.		3.810
		8550.				SEC.		3.910
	75	8600.	845.2	846.1	-0.9	-1.6	015	94.
		8651.				SEC.		4.000
		8691.				SEC.		4.120
	76	8700.	847.4	848.0	-0.6	-1.6	015	76.

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	08	8800.	847.4	848.0	-0.6	-1.6	015	68.
	09	8900.	847.5	848.1	-0.6	-1.6	015	67.
	90	9000.	847.5	848.2	-0.7	-1.6	015	66.
	91	9100.	847.5	848.2	-0.7	-1.6	015	65.
		9131.				SEC.	5.200	
	93	9300.	847.8	848.4	-0.7	-1.6	015	63.
	94	9400.	847.9	848.5	-0.6	-1.6	015	62.
	95	9500.	848.1	848.7	-0.6	-1.6	015	60.
	96	9600.	848.2	848.8	-0.6	-1.6	015	59.
	97	9700.	848.4	849.5	-1.1	-1.6	015	58.
		9731.				SEC.	5.200	
	98	9800.	848.5	849.7	-1.2	-1.6	015	57.
		9825.				SEC.	4.900	
		9828.				SEC.	5.000	
	99	9900.	851.3	852.0	-0.7	-1.6	015	60.
		9931.				SEC.	5.200	
	100	10000.	851.3	852.0	-0.6	-1.6	015	61.
	101	10100.	851.4	852.0	-0.6	-1.6	015	60.
	102	10200.	851.4	852.0	-0.7	-1.6	015	59.
	103	10300.	851.4	852.1	-0.7	-1.6	015	58.
	104	10400.	851.4	852.1	-0.7	-1.6	015	57.
	105	10431.	851.4	852.1	-0.7	-1.6	015	56.
		10481.				SEC.	5.200	
	106	10500.	851.4	852.1	-0.7	-1.6	015	55.
	107	10700.	851.5	852.2	-0.7	-1.6	015	53.
	108	10800.	851.5	852.3	-0.8	-1.6	015	52.
	109	10900.	851.6	852.3	-0.7	-1.6	015	51.
	110	11000.	851.6	852.4	-0.8	-1.6	015	50.
	111	11100.	851.7	852.4	-0.7	-1.6	015	49.
		11131.				SEC.	5.200	
	112	11200.	851.6	852.4	-0.8	-1.6	015	48.
	113	11300.	851.7	852.5	-0.8	-1.6	015	47.
	114	11400.	851.8	852.6	-0.8	-1.6	015	46.
	115	11500.	851.8	852.7	-0.9	-1.6	015	45.
	116	11600.	851.9	852.8	-0.9	-1.6	015	44.
		11631.				SEC.	5.200	
	117	11700.	852.0	852.9	-0.9	-1.6	015	43.
	118	11800.	852.1	853.0	-0.8	-1.6	015	42.
	119	11900.	852.3	853.1	-0.8	-1.6	015	42.
	120	12000.	852.4	853.2	-0.8	-1.6	015	42.
	121	12100.	852.5	853.3	-0.8	-1.6	015	41.
	122	12200.	852.6	853.4	-0.8	-1.6	015	42.
		12263.				SEC.	5.500	
	123	12300.	852.8	853.5	-0.8	-1.6	015	37.
	124	12400.	852.9	853.7	-0.8	-1.6	015	36.
	125	12500.	853.2	853.9	-0.8	-1.6	015	34.
	126	12600.	853.4	854.0	-0.8	-1.6	015	34.
	127	12700.	853.5	854.1	-0.8	-1.6	015	34.
		12731.				SEC.	5.350	
	128	12800.	853.8	854.3	-0.8	-1.6	015	32.
	129	12900.	853.8	854.4	-0.7	-1.6	015	32.
	130	13000.	853.9	854.5	-0.7	-1.6	015	31.
	131	13100.	854.0	854.6	-0.7	-1.6	015	31.
	132	13200.	854.2	854.8	-0.6	-1.6	015	31.
	133	13300.	854.3	854.9	-0.6	-1.6	015	30.
		13331.				SEC.	5.400	
	134	13400.	854.3	854.9	-0.6	-1.6	015	30.
	135	13500.	854.4	855.0	-0.6	-1.6	015	30.
	136	13600.	854.4	855.1	-0.7	-1.6	015	30.
	137	13700.	854.5	855.2	-0.7	-1.6	015	30.
		13763.				SEC.	5.500	
	138	13800.	854.6	855.3	-0.7	-1.6	015	30.
	139	13900.	854.7	855.4	-0.7	-1.6	015	30.

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140	14000.	856.6	857.3	-0.7	-1.3	015	38.
141	14100.	856.8	857.6	-0.7	-1.3	015	38.
142	14200.	857.1	857.9	-0.8	-1.3	015	37.
	14250.					[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	-0.3	-1.3	[illegible]	[illegible]
[illegible]	14300.	[illegible]	[illegible]	-0.[illegible]	-1.3	[illegible]	[illegible]
[illegible]	14300.	[illegible]	[illegible]	-0.[illegible]	-1.3	[illegible]	[illegible]
146	14600.	850.5	859.5	-1.[illegible]	-1.3	015	39.
147	14700.	859.9	859.9	-1.0	-1.3	015	40.
	14713.					[illegible]	5.70[illegible]
[illegible]	14800.	[illegible]	[illegible]	-1.[illegible]	-1.3	[illegible]	41.
	[illegible]					[illegible]	[illegible]
	[illegible]					[illegible]	[illegible]
149	14900.	859.7	861.[illegible]	-1.3	-1.3	015	41.
150	15000.	860.2	861.9	-1.3	-1.3	015	41.
151	15100.	860.7	862.7	-2.0	-1.3	015	40.
	[illegible]					[illegible]	[illegible]
	[illegible]					[illegible]	[illegible]
	[illegible]					[illegible]	[illegible]

THIS TRACK CAN BE SUBDIVIDED BY [illegible], TO MEET PLA[illegible] [illegible]
INPUT [illegible] IS THE NUMBER OF [illegible] AND [illegible] [illegible]
OF [illegible]
[illegible]

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FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS.

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Homer, Village of

3) WATERCOURSE: Kalamazoo River

4) DOCUMENT TYPE: 100-year : Natural

00BREAK00

MOORE BUSINESS FORMS, INC 23

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR.-  01.02.03
  MODIFICATION -  50.51.52.53
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C
T1   THE VILLAGE OF HOMER
T2  THE KALAMAZOO RIVER
T3  THE 100 YEAR FLOOD (NATURAL)
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	1.	4.	0.	0.	0.000000	0.00	0.0	0.	964.340	0.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.000	-1.000	0.000	0.000	-1.290	0.000	0.000	0.000	0.000

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

	150.000	200.000	38.000	1.000	53.000	21.000	22.000	54.000	4.000	30.000
	110.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

QT	5.000	500.000	635.000	690.000	820.000	690.000	0.000	0.000	0.000	0.000
NC	.080	.080	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

SURVEYED VALLEY SECTION

D/S LIMIT OF THE VILLAGE OF HOMER (A)

X1	36.000	40.000	2006.000	2092.000	2680.000	0.000	0.000	0.000	0.000	0.000
GR	974.600	495.000	973.900	578.000	973.000	680.000	971.900	784.000	971.400	886.000
GR	968.700	986.000	967.800	1102.000	969.100	1206.000	968.300	1304.000	967.100	1400.000
GR	967.800	1450.000	967.500	1572.000	965.800	1664.000	965.600	1750.000	965.300	1882.000
GR	964.700	2000.000	962.800	2006.000	961.700	2022.000	961.600	2038.000	961.300	2054.000
GR	961.400	2067.000	961.500	2076.000	962.800	2086.000	963.200	2092.000	966.200	2175.000
GR	972.300	2302.000	972.300	2334.000	974.000	2378.000	975.100	2484.000	974.900	2591.000
GR	974.900	2684.000	975.000	2804.000	975.700	2906.000	976.700	3004.000	977.700	3100.000
GR	979.200	3202.000	981.200	3306.000	984.800	3414.000	990.300	3514.000	992.300	3574.000
QT	5.000	475.000	605.000	655.000	780.000	655.000	0.000	0.000	0.000	0.000

X1	36.800	35.000	2014.000	2098.000	1120.000	920.000	1000.000	0.000	0.000	0.000
GR	977.700	494.000	981.300	594.000	979.600	698.000	977.800	798.000	977.700	864.000
GR	977.000	946.000	977.000	1016.000	973.600	1074.000	971.900	1178.000	970.800	1388.000
GR	970.100	1402.000	969.500	1526.000	968.800	1636.000	968.800	1754.000	968.000	1892.000
GR	965.000	2000.000	963.300	2014.000	962.100	2026.000	962.300	2040.000	962.800	2054.000
GR	963.200	2066.000	963.100	2082.000	963.400	2098.000	965.100	2100.000	965.800	2212.000
GR	970.600	2230.000	970.800	2258.000	966.600	2270.000	957.800	2370.000	969.300	2470.000
GR	970.700	2574.000	973.400	2631.000	978.900	2727.000	983.700	2825.000	986.500	2905.000
NC	.070	.060	.035	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	36.900	39.000	2182.000	2288.000	340.000	10.000	200.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	971.500	971.150	0.000
GR	988.100	1272.000	985.800	1410.000	980.900	1548.000	977.100	1654.000	974.600	1790.000
GR	974.100	1898.000	973.600	2000.000	973.100	2106.000	972.800	2182.000	968.500	2182.000
GR	963.600	2195.000	963.000	2212.000	963.500	2227.000	963.500	2233.000	963.500	2233.100
GR	963.500	2235.000	963.500	2235.100	963.600	2242.000	960.900	2257.000	961.200	2272.000
GR	963.200	2279.000	967.900	2288.000	972.400	2288.000	972.000	2388.000	971.400	2494.000
GR	971.100	2550.000	970.700	2602.000	970.100	2708.000	970.100	2814.000	970.200	2922.000
GR	970.700	3026.000	971.300	3128.000	971.700	3230.000	971.800	3300.000	972.200	3380.000
GR	972.500	3502.000	973.100	3608.000	973.000	3716.000	972.400	3824.000	0.000	0.000
NC	.060	.060	.020	.300	.500	0.000	0.000	0.000	0.000	0.000

D/S FACE OF WEBSTER ST. BRIDGE.CONCRETE (H)

X1	37.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	10.000	2106.000	973.100	0.000	2182.000	972.800	968.500	2182.000	972.800	970.200
BT	2233.000	972.600	970.100	2233.100	972.600	963.500	2235.000	972.600	963.500	2235.100
BT	972.600	970.100	2288.000	972.400	969.900	2288.000	972.400	967.900	2388.000	972.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	37.100	39.000	2174.000	2280.000	32.500	32.500	32.500	0.000	0.000	0.000
BT	10.000	2106.000	973.100	0.000	2174.000	972.800	968.200	2174.000	972.800	970.300
BT	2225.000	972.600	970.100	2225.100	972.600	961.000	2227.000	972.600	961.000	2227.100
BT	972.600	970.100	2280.000	972.400	969.900	2280.000	972.400	967.500	2388.000	972.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	988.100	1272.000	985.800	1410.000	980.900	1548.000	977.100	1654.000	974.600	1790.000
GR	974.100	1898.000	973.600	2000.000	973.100	2106.000	972.800	2174.000	968.200	2174.000
GR	963.600	2184.000	961.800	2204.000	960.900	2219.000	961.000	2225.000	961.000	2225.100
GR	961.000	2227.000	961.000	2227.100	961.100	2234.000	960.000	2249.000	962.000	2264.000
GR	963.300	2269.000	967.500	2280.000	972.400	2280.000	972.000	2388.000	971.400	2494.000
GR	971.100	2550.000	970.700	2602.000	970.100	2708.000	970.100	2814.000	970.200	2922.000
GR	970.700	3026.000	971.300	3128.000	971.700	3230.000	971.800	3300.000	972.200	3380.000
GR	972.500	3502.000	973.100	3608.000	973.000	3716.000	972.400	3824.000	0.000	0.000
NC	.070	.070	.035	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	37.200	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	972.800	972.400	0.000

X1	37.300	33.000	2114.000	2158.000	40.000	40.000	40.000	0.000	0.000	0.000
GR	987.200	1422.000	986.800	1492.000	984.100	1526.000	982.800	1552.000	976.300	1612.000
GR	972.200	1717.000	973.000	1728.000	971.300	1739.000	970.100	1800.000	969.900	1904.000
GR	970.000	1930.000	973.700	1958.000	973.600	2000.000	973.100	2036.000	968.800	2068.000
GR	965.500	2088.000	963.700	2114.000	961.500	2124.000	961.100	2132.000	961.500	2140.000
GP	962.000	2150.000	962.900	2158.000	965.000	2161.000	964.900	2230.000	966.900	2326.000
GR	968.600	2422.000	970.900	2520.000	973.000	2624.000	975.500	2722.000	978.300	2762.000
GP	980.400	2898.000	982.600	3002.000	984.700	3100.000	0.000	0.000	0.000	0.000
NC	.060	.060	.035	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	37.800	13.000	2336.000	2383.000	600.000	740.000	675.000	0.000	0.000	0.000
GR	985.600	2000.000	985.200	2056.000	972.300	2104.000	968.300	2216.000	964.700	2336.000
GP	962.400	2356.000	964.600	2380.000	965.700	2383.000	965.900	2452.000	968.600	2562.000
GR	975.700	2696.000	982.500	2852.000	985.900	2922.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC 23

X1	37.900	17.000	2290.000	2362.000	140.000	240.000	200.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	980.300	979.400	0.000
GR	985.600	2000.000	965.200	2100.000	984.100	2198.000	982.500	2290.000	965.700	2290.000
GR	963.600	2299.000	963.300	2310.000	963.100	2321.000	964.000	2331.000	964.700	2340.000
GR	967.900	2362.000	981.600	2362.000	980.400	2464.000	979.800	2566.000	980.300	2668.000
GR	985.900	2880.000	965.800	2982.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.017	.017	.017	.300	.500	0.000	0.000	0.000	0.000	0.000

D/S FACE OF M-50 BRIDGE.CONCRETE (C)

X1	38.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	6.000	2198.000	984.100	0.000	2290.000	982.500	965.700	2290.000	982.500	978.100
BT	2362.000	981.600	977.200	2362.000	981.600	967.900	2464.000	980.400	0.000	0.000

X1	38.100	17.000	2290.000	2362.000	50.000	50.000	50.000	0.000	0.000	0.000
BT	6.000	2198.000	984.100	0.000	2290.000	982.500	965.000	2290.000	982.500	978.100
BT	2362.000	981.600	977.200	2362.000	981.600	969.000	2464.000	980.400	0.000	0.000
GR	985.600	2000.000	965.200	2100.000	984.100	2198.000	982.500	2290.000	965.000	2290.000
GR	964.400	2299.000	964.200	2310.000	963.700	2321.000	964.000	2331.000	964.900	2346.000
GR	969.000	2362.000	981.600	2362.000	980.400	2464.000	979.800	2566.000	980.300	2668.000
GR	985.900	2880.000	965.800	2982.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.070	.035	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	38.200	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	982.500	981.600	0.000

X1	38.300	27.000	2034.000	2150.000	40.000	40.000	40.000	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	989.100	1566.000	989.000	1582.000	985.900	1600.000	983.500	1714.000	981.100	1816.000
GR	978.400	1838.000	972.600	1864.000	968.400	1950.000	965.400	1962.000	965.300	2000.000
GR	968.000	2000.000	968.800	2034.000	965.400	2038.000	964.000	2048.000	963.700	2060.000
GR	963.400	2074.000	963.500	2086.000	963.700	2100.000	963.100	2114.000	962.400	2132.000
GR	965.400	2150.000	968.900	2210.000	972.300	2302.000	979.800	2414.000	970.600	2474.000
GR	976.700	2622.000	979.700	2706.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	38.900	15.000	1992.000	2080.000	220.000	160.000	180.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	978.100	978.100	0.000
GR	978.400	1838.000	972.590	1864.000	968.430	1950.000	967.200	1992.000	965.730	1992.000
GR	965.500	2010.000	965.300	2020.000	965.300	2030.000	965.300	2040.000	965.200	2050.000
GR	965.200	2060.000	965.400	2080.000	967.500	2080.000	968.900	2210.000	972.300	2302.000
NC	.060	.060	.030	.300	.500	0.000	0.000	0.000	0.000	0.000

U/S FACE OF BYRON BRIDGE.CONCRETE (D)

U/S LIMIT OF VILLAGE OF HOMER

X1	39.000	12.000	2000.000	2072.000	22.000	22.000	22.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	978.100	978.100	0.000
BT	18.000	1898.000	978.400	0.000	2000.000	978.620	0.000	2000.000	978.620	977.200
BT	2015.700	978.600	977.200	2015.700	978.600	965.500	2018.300	978.600	965.500	2018.300
BT	978.600	977.200	2033.700	978.600	977.200	2033.700	978.600	965.300	2036.300	978.600
BT	965.300	2036.300	978.600	977.200	2052.700	978.600	977.200	2052.700	978.600	965.200
BT	2055.300	978.600	965.200	2055.300	978.600	977.200	2072.000	978.600	977.200	2072.000

MOORE BUSINESS FORMS, INC 23

BT	978.600	0.000	2176.000	974.200	0.000	0.000	0.000	0.000	0.000	0.000
GR	978.400	1898.000	978.600	2000.000	965.700	2000.000	965.500	2015.700	965.500	2018.300
GR	965.300	2033.700	965.300	2036.300	965.200	2052.700	965.200	2055.300	965.300	2072.000
GR	978.600	2072.000	978.200	2176.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	39.100	27.000	2000.000	2072.000	28.000	28.000	28.000	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	977.900	977.900	0.000
GR	978.400	1898.000	978.600	2000.000	969.200	2000.000	969.200	2015.700	969.100	2018.300
GR	969.000	2021.000	966.300	2022.000	966.000	2026.000	966.100	2030.000	969.000	2031.000
GR	969.000	2033.700	969.100	2036.300	968.900	2040.000	966.500	2041.000	966.200	2045.000
GR	966.800	2050.000	969.100	2052.700	969.100	2053.000	969.100	2055.300	969.100	2058.000
GR	966.800	2058.000	966.100	2063.000	966.600	2069.000	969.100	2070.000	969.100	2072.000
GR	978.600	2072.000	978.200	2176.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	39.200	26.000	1991.000	2041.000	22.000	22.000	22.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	979.200	979.100	0.000
GR	989.700	1506.000	989.400	1528.000	988.500	1612.000	982.400	1640.000	979.900	1728.000
GR	979.400	1776.000	973.600	1798.000	972.000	1798.000	970.400	1814.000	971.400	1832.000
GR	974.500	1832.000	977.400	1898.000	979.000	1991.000	965.500	1991.000	965.500	2010.000
GR	965.300	2020.000	965.300	2030.000	965.300	2040.000	965.300	2050.000	965.200	2060.000
GR	965.400	2081.000	978.900	2081.000	977.200	2176.000	972.200	2280.000	978.000	2386.000
GR	981.100	2486.000	965.400	2562.000	986.400	2600.000	0.000	0.000	0.000	0.000
X1	39.300	23.000	2008.000	2068.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	989.700	1560.000	987.900	1659.000	981.300	1666.000	980.800	1704.000	979.300	1794.000
GR	971.300	1910.000	968.300	2000.000	967.800	2008.000	965.100	2022.000	964.400	2032.000
GR	964.500	2040.000	965.400	2048.000	964.700	2060.000	967.600	2068.000	968.200	2071.000
GR	969.000	2182.000	971.300	2342.000	973.600	2392.000	977.200	2440.000	978.200	2462.000
GR	975.500	2488.000	976.600	2550.000	989.200	2620.000	0.000	0.000	0.000	0.000
FJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC.

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 36.000

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

SURVEYED VALLEY SECTION

D/S LIMIT OF THE VILLAGE OF HOMER (A)

36.00	3.04	964.34	0.00	964.34	964.49	.15	0.00	0.00	962.80
690.	3.	675.	12.	4.	218.	18.	0.	0.	963.20
0.00	.77	3.10	.65	.080	.045	.080	0.000	961.30	2001.14
.002588	2680.	0.	0.	0	0	0	0.00	122.40	2123.54

*SECNO 36.800

36.80	3.88	965.98	0.00	0.00	966.05	.07	1.56	.01	963.30
655.	29.	600.	26.	43.	265.	63.	7.	4.	963.40
.13	.68	2.26	.41	.080	.045	.080	.045	962.10	1964.64
.001022	1120.	1000.	920.	3	0	0	0.00	248.05	2212.68

CCHV= .100 CEHV= .300
*SECNO 36.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 971.50 ELREA= 971.15

36.90	5.27	966.17	0.00	0.00	966.24	.07	.19	.00	972.80
655.	0.	655.	0.	0.	313.	0.	9.	5.	972.40
.16	0.00	2.09	0.00	.070	.045	.060	.045	960.90	2188.17
.000860	340.	200.	10.	2	0	0	0.00	96.52	2284.70

CCHV= .300 CEHV= .500
*SECNO 37.000

3370 NORMAL BRIDGE.NRD= 10 MIN ELTRD= 972.00 MAX ELLC= 970.20

D/S FACE OF WEBSTER ST. BRIDGE.CONCRETE (B)

37.00	5.27	966.17	0.00	0.00	966.24	.07	.00	.00	972.80
655.	0.	655.	0.	0.	308.	0.	9.	5.	972.40
.16	0.00	2.13	0.00	.060	.026	.060	.045	960.90	2188.17
.000311	1.	1.	1.	0	0	0	-5.19	96.53	2284.70

*SECNO 37.100

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

MOORE BUSINESS FORMS, INC. 23

3370 NORMAL BRIDGE.NRD= 10 MIN ELTRD= 972.00 MAX ELLC= 970.30

37.10	6.22	966.22	0.00	0.00	966.26	.04	.01	.01	972.80
655.	0.	655.	0.	0.	411.	0.	9.	5.	972.40
.16	0.00	1.59	0.00	.060	.026	.060	.044	960.00	2178.31
.000129	33.	33.	33.	2	0	0	-10.22	98.34	2276.65

CCHV= .300 CEHV= .500
*SECNO 37.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 972.80 ELREA= 972.40

37.20	6.22	966.22	0.00	0.00	966.26	.04	.00	.00	972.80
655.	0.	655.	0.	0.	422.	0.	9.	5.	972.40
.16	0.00	1.55	0.00	.070	.045	.070	.044	960.00	2178.30
.000327	1.	1.	1.	0	0	0	0.00	98.34	2276.65

*SECNO 37.300

37.30	5.12	966.22	0.00	0.00	966.31	.09	.02	.03	963.70
655.	39.	519.	97.	44.	190.	137.	9.	5.	962.90
.17	.90	2.73	.71	.070	.045	.070	.044	961.10	2083.61
.000988	40.	40.	40.	1	0	0	0.00	209.92	2293.53

CCHV= .100 CEHV= .300
*SECNO 37.800

37.80	4.63	967.03	0.00	0.00	967.12	.09	.81	.00	964.70
655.	94.	452.	108.	90.	160.	110.	15.	9.	965.70
.25	1.05	2.83	.98	.060	.045	.060	.045	962.40	2258.54
.001468	600.	675.	740.	2	0	0	0.00	239.24	2497.78

*SECNO 37.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 980.30 ELREA= 979.40

37.90	4.25	967.35	0.00	0.00	967.51	.16	.37	.02	982.50
655.	0.	655.	0.	0.	202.	0.	16.	9.	981.60
.27	0.00	3.25	0.00	.060	.045	.060	.045	963.10	2290.00
.002385	180.	200.	240.	2	0	0	0.00	68.20	2358.20

CCHV= .300 CEHV= .500
*SECNO 38.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	AL	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

3370 NORMAL BRIDGE.NRD= 6 MIN ELTRD= 980.40 MAX ELLC= 978.10

D/S FACE OF M-60 BRIDGE.CONCRETE (C)

MOORE BUSINESS FORMS, INC 23

38.00	4.25	967.35	0.00	0.00	967.51	.16	.00	.00	982.50
655.	0.	655.	0.	0.	202.	0.	16.	9.	981.60
.27	0.00	3.24	0.00	.017	.022	.017	.045	963.10	2290.00
.000579	1.	1.	1.	0	0	0	0.00	68.22	2358.22

*SECNO 38.100

3370 NORMAL BRIDGE.NRD= 6 MIN ELTRD= 980.40 MAX ELLC= 978.10

38.10	3.67	967.37	0.00	0.00	967.56	.19	.03	.01	982.50
655.	0.	655.	0.	0.	186.	0.	16.	9.	981.60
.27	0.00	3.52	0.00	.017	.022	.017	.044	963.70	2290.00
.000742	50.	50.	50.	2	0	0	0.00	65.63	2355.63

CCHV= .100 CEHV= .300
*SECNO 38.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 982.50 ELREA= 981.60

38.20	3.67	967.37	0.00	0.00	967.56	.19	.00	.00	982.50
655.	0.	655.	0.	0.	186.	0.	16.	9.	981.60
.27	0.00	3.52	0.00	.070	.045	.070	.044	963.70	2290.00
.003004	1.	1.	1.	0	0	0	0.00	65.63	2355.63

*SECNO 38.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 968.80 ELREA= 965.40

38.30	5.17	967.57	0.00	0.00	967.61	.03	.03	.02	968.80
655.	0.	639.	16.	0.	449.	41.	17.	10.	965.40
.28	0.00	1.42	.39	.070	.045	.070	.044	962.40	2035.44
.000307	40.	40.	40.	2	0	0	0.00	151.84	2187.28

*SECNO 38.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 978.10 ELREA= 978.10

38.90	2.41	967.61	0.00	0.00	967.78	.17	.13	.04	967.20
655.	0.	655.	0.	0.	198.	0.	18.	10.	967.50
.30	0.00	3.30	0.00	.070	.045	.070	.044	965.20	1992.00
.003599	220.	180.	160.	2	0	0	0.00	88.00	2080.00

CCHV= .300 CEHV= .500
*SECNO 39.000

SECNO	DEPTH	CWSEL	CRIWS	WSELR	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
SEOPE	XLOFL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE.NRD= 18 MIN ELTRD= 978.20 MAX ELLC= 977.20

MOORE BUSINESS FORMS, INC 23

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 978.10 ELREA= 978.10

D/S FACE OF BYRON BRIDGE.CONCRETE (D)

U/S LIMIT OF VILLAGE OF HOMER

39.00	2.44	967.64	0.00	0.00	967.96	.31	.11	.07	978.60
655.	0.	655.	0.	0.	146.	0.	18.	10.	978.60
.30	0.00	4.47	0.00	.060	.039	.060	.044	965.20	2000.00
.006750	22.	22.	22.	0	0	0	-18.09	72.00	2072.00

*SECNO 39.100

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	AL	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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 977.90 ELREA= 977.90

39.10	2.80	968.80	968.80	0.00	969.95	1.15	.32	.42	978.60
655.	0.	655.	0.	0.	76.	0.	18.	10.	978.60
.30	0.00	8.60	0.00	.060	.039	.060	.044	966.00	2021.07
.023846	28.	28.	28.	20	8	0	0.00	34.04	2069.88

*SECNO 39.200

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 979.20 ELREA= 979.10

39.20	5.06	970.26	0.00	0.00	970.30	.03	.02	.33	979.00
655.	0.	655.	0.	0.	443.	0.	18.	10.	978.90
.30	0.00	1.48	0.00	.060	.039	.060	.044	965.20	1991.00
.000204	22.	22.	22.	2	0	0	0.00	90.00	2081.00

*SECNO 39.300

39.30	5.87	970.27	0.00	0.00	970.31	.04	.01	.00	967.80
655.	34.	499.	122.	76.	294.	250.	19.	10.	967.60
.31	.44	1.70	.49	.060	.039	.060	.044	964.40	1940.73
.000240	50.	50.	50.	2	0	0	0.00	330.02	2270.74

MOORE BUSINESS FORMS, INC 23

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Homer Village of

3) WATERCOURSE: Kalamazoo

4) DOCUMENT TYPE: 100-year Encroached

00BREAK00

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

T1   THE VILLAGE OF HOMER
T2  THE KALAMAZOO RIVER
T3  THE 100 YEAR FLOOD (ENCROACHED)

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.        6.        0.        0.  0.000000      0.00       0.0       0.   964.360     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITR CF
     15.000     0.000    -1.000     0.000     0.000    -1.250     0.000     0.000     0.000     0.000

*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 36.000
 2800 NAT Q1=     135.64  WSEL=     964.34  ENC Q1=     141.65  WSEL=     964.44  RATIO=  -. 443
 NAT Q1=     145.  RATIOS LOB,CH,ROB=    .0046    .9756    .0198  WSEL=     964.44
   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       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     COPAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=     2006.0     2092.0  TYPE=      4  TARGET=        .024
        SURVEYED VALLEY SECTION

        D/S LIMIT OF THE VILLAGE OF HOMER    (A)

    36.00      3.06    964.36      0.00    964.34    964.51       .15      0.00      0.00    962.80
     690.        0.      690.        0.        0.      219.        0.        0.        0.    963.20
     0.00      0.00      3.15      0.00      .080      .045      .080     0.000    961.30   2006.00
  .002742     2680.        0.        0.         0         0         0      0.00     86.00   2092.00

*SECNO 36.800
 2800 NAT Q1=     204.91  WSEL=     965.98  ENC Q1=     204.91  WSEL=     966.08  RATIO=  0.0000
 NAT Q1=     219.  RATIOS LOB,CH,ROB=    .0473    .9045    .0482  WSEL=     966.08

3470 ENCROACHMENT STATIONS=     2008.9     2118.0  TYPE=      4  TARGET=        .063
    36.80      3.96    966.06      0.00    965.98    966.14       .08      1.62       .01    963.30
     655.       11.      633.       12.       12.      272.       20.        6.        2.    963.40
      .12       .86      2.33       .58      .080      .045      .080      .045    962.10   2008.92
  .001043     1120.     1000.      920.         1         0         0      0.00    109.12   2118.04

CCHV=     .100 CEHV=     .300
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MOORE BUSINESS FORMS, INC. 23

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*SECNO 36.900
 2800 NAT Q1=     223.36  WSEL=     966.17  ENC Q1=     234.19  WSEL=     966.27  RATIO=  -.0485
 NAT Q1=     234.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     966.27

3470 ENCROACHMENT STATIONS=     2182.0     2288.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      971.50 ELREA=      971.15

     36.90      5.36    966.26      0.00    966.17    966.32      .06       .18       .00    972.80
       655.        0.      655.        0.        0.      321.        0.        7.        3.    972.40
        .15       0.00      2.04      0.00      .070      .045      .060      .045    960.90   2187.96
   .000796       340.      200.       10.         2         0         0      0.00     96.89   2284.85

CCHV=    .300 CEHV=    .500
*SECNO 37.000
    3700.   BRIDGE STENCL=    2182.00     STENCR=    2288.00
 2800 NAT Q1=     371.68  WSEL=     966.17  ENC Q1=     368.86  WSEL=     966.27  RATIO=  -.0462
 NAT Q1=     389.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     966.27

3370 NORMAL BRIDGE.NRD= 10 MIN ELTRD=  972.00 MAX ELLC=  970.20

3470 ENCROACHMENT STATIONS=     2182.0     2288.0  TYPE=      4  TARGET=        0.000
          D/S FACE OF WEBSTER ST. BRIDGE.CONCRETE    (R)
     37.00      5.35    966.25      0.00    966.17    966.32      .07       .00       .00    972.80
       655.        0.      655.        0.        0.      316.        0.        7.        3.    972.40
        .15       0.00      2.07      0.00      .060      .026      .060      .045    960.90   2187.95
   .000288         1.        1.        1.         0         0         0     -5.35     96.90   2284.85

*SECNO 37.100
    3700.   BRIDGE STENCL=    2182.00     STENCR=    2288.00
 2800 NAT Q1=     576.13  WSEL=     966.22  ENC Q1=     596.22  WSEL=     966.32  RATIO=  -.0349
 NAT Q1=     596.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     966.32
   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

3370 NORMAL BRIDGE.NRD= 10 MIN ELTRD=  972.00 MAX ELLC=  970.30

3470 ENCROACHMENT STATIONS=     2174.0     2280.0  TYPE=      4  TARGET=        0.000
     37.10      6.30    966.30      0.00    966.22    966.34      .04       .01       .01    972.80
       655.        0.      655.        0.        0.      419.        0.        8.        3.    972.40
        .16       0.00      1.56      0.00      .060      .026      .060      .044    960.00   2178.14
   .000123        33.       33.       33.         2         0         0    -10.37     98.72   2276.85

CCHV=    .300 CEHV=    .500
*SECNO 37.200
 2800 NAT Q1=     362.27  WSEL=     966.22  ENC Q1=     375.51  WSEL=     966.32  RATIO=  -.0366
 NAT Q1=     376.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     966.32

3470 ENCROACHMENT STATIONS=     2174.0     2280.0  TYPE=      4  TARGET=        0.000
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      972.80 ELREA=      972.40

     37.20      6.30    966.30      0.00    966.22    966.34      .04      .00      .00    972.80
      655.         0.      655.        0.        0.      429.       0.       8.       3.    972.40
       .16      0.00      1.53      0.00      .070      .045      .070     .044   960.00   2178.13
  .000309         1.        1.        1.         0         0         0     0.00    98.72   2276.85

*SECNO 37.300
 2800 NAT Q1=     208.35  WSEL=    966.22  ENC Q1=     208.35  WSEL=    966.32  RATIO=  0.0000
 NAT Q1=     220.  RATIOS LOB,CH,ROB=    .0627    .7777    .1596  WSEL=    966.32

3470 ENCROACHMENT STATIONS=     2103.0    2237.7  TYPE=      4  TARGET=                .051
     37.30      5.19    966.29      0.00    966.22    966.39      .10      .02      .03    963.70
      655.        25.      539.        91.       24.      193.      109.       8.       3.    962.90
       .16      1.03      2.60       .83      .070      .045      .070     .044   961.10   2102.99
  .001018        40.        40.       40.         2         0         0     0.00   134.72   2237.70

CCHV=     .100 CEHV=     .300
*SECNO 37.800
 2800 NAT Q1=     170.94  WSEL=    967.03  ENC Q1=     170.94  WSEL=    967.13  RATIO=  0.0000
 NAT Q1=     185.  RATIOS LOB,CH,ROB=    .1498    .6723    .1780  WSEL=    967.13

3470 ENCROACHMENT STATIONS=     2308.6    2449.2  TYPE=      4  TARGET=                .074
     37.80      4.71    967.11      0.00    967.03    967.22      .10      .83      .00    964.70
      655.        80.      476.        99.       55.      164.       87.      13.       5.    965.70
       .24      1.46      2.90       1.13      .060      .045      .060     .045   962.40   2308.60
  .001487         600.      675.      740.         2         0         0     0.00   140.60   2449.19

*SECNO 37.900
 2800 NAT Q1=     134.13  WSEL=    967.35  ENC Q1=     140.75  WSEL=    967.45  RATIO=  -.0493
 NAT Q1=     141.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    967.45

3470 ENCROACHMENT STATIONS=     2290.0    2362.0  TYPE=      4  TARGET=              0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      980.30 ELREA=      979.40

     37.90      4.34    967.44      0.00    967.35    967.59      .15      .36      .02    982.50
      655.         0.      655.        0.        0.      208.       0.      14.       6.    981.60
       .25      0.00      3.15       0.00      .060      .045      .060     .045   963.10   2290.00
  .002184         180.      200.      240.         2         0         0     0.00    68.83   2358.83

CCHV=     .300 CEHV=     .500
*SECNO 38.000
    3700.   BRIDGE STENCL=    2290.00     STENCR=    2362.00
 2800 NAT Q1=     272.17  WSEL=    967.35  ENC Q1=     281.68  WSEL=    967.45  RATIO=  -.0349
 NAT Q1=     282.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    967.45
   SECNO      DEPTH      CWSEL      CRIWS      WSELA      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

3370 NORMAL BRIDGE,NRD=  6 MIN ELTRD=  980.40 MAX ELLC=  978.10
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MOORE BUSINESS FORMS, INC 23

MOORE BUSINESS FORMS, INC 23

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 3470 ENCROACHMENT STATIONS=     2290.0     2362.0  TYPE=      4  TARGET=         0.000
          D/S FACE OF M-60 BRIDGE.CONCRETE    (C)
      38.00      4.34   967.44      0.00   967.35   967.59      .16      .00      .00   982.50
        655.        0.     655.        0.       0.     207.       0.      14.       6.   981.60
         .25       0.00    3.16      0.00     .017     .022     .017     .045   963.10  2290.00
     .000545         1.      1.        1.        0        0        0    -1.11    68.84  2358.84

 *SECNO 38.100
      3700.   BRIDGE STENCL=    2290.00    STENCR=    2362.00
 2800 NAT QI=      240.44  WSEL=     967.37  ENC QI=     247.49  WSEL=     967.47  RATIO=   -.0297
 NAT QI=     247.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     967.47

 3370 NORMAL BRIDGE,NRD=   6 MIN ELTRD=  980.40 MAX ELLC=  978.10

 3470 ENCROACHMENT STATIONS=     2290.0     2362.0  TYPE=      4  TARGET=         0.000
      38.10      3.76   967.46      0.00   967.37   967.64      .18      .03      .01   982.50
        655.        0.     655.        0.       0.     190.       0.      14.       6.   981.60
         .26       0.00    3.44      0.00     .017     .022     .017     .044   963.70  2290.00
     .000703        50.     50.       50.        1        0        0    -2.10    66.00  2356.00

 CCHV=     .100 CEHV=     .300
 *SECNO 38.200
  2800 NAT QI=      119.50  WSEL=     967.37  ENC QI=     126.06  WSEL=     967.47  RATIO=   -.0549
  NAT QI=     126.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     967.47

 3470 ENCROACHMENT STATIONS=     2290.0     2362.0  TYPE=      4  TARGET=         0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      982.50 ELREA=      981.60

      38.20      3.76   967.46      0.00   967.37   967.64      .18      .00      .00   982.50
        655.        0.     655.        0.       0.     192.       0.      14.       6.   981.60
         .26       0.00    3.41      0.00     .070     .045     .070     .044   963.70  2290.00
     .002732         1.      1.        1.        0        0        0     0.00    65.98  2355.98

 *SECNO 38.300
  2800 NAT QI=      374.13  WSEL=     967.57  ENC QI=     380.36  WSEL=     967.67  RATIO=   -.0167
  NAT QI=     391.  RATIOS LOB,CH,ROB=  0.0000   .9738   .0262  WSEL=     967.67

 3470 ENCROACHMENT STATIONS=     2034.0     2150.0  TYPE=      4  TARGET=         .026

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      968.80 ELREA=      965.40

      38.30      5.25   967.65      0.00   967.57   967.68      .03      .03      .01   968.80
        655.        0.     655.        0.       0.     458.       0.      15.       6.   965.40
         .27       0.00    1.43      0.00     .070     .045     .070     .044   962.40  2035.35
     .000310        40.     40.       40.        2        0        0     0.00   114.65  2150.00

 *SECNO 38.900
  2800 NAT QI=      109.18  WSEL=     967.61  ENC QI=     117.21  WSEL=     967.71  RATIO=   -.0736
  NAT QI=     117.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     967.71

 3470 ENCROACHMENT STATIONS=     1992.0     2080.0  TYPE=      4  TARGET=         0.000
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MOORE BUSINESS FORMS, INC 23

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 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      978.10 ELREA=      978.10

      38.90      2.49    967.69      0.00    967.61    967.85       .16       .13       .04    967.20
        655.        0.      655.        0.        0.       206.        0.       16.        6.    967.50
         .28       0.00      3.19      0.00      .070      .045      .070      .044    965.20   1992.00
    .003195       220.       180.       160.         2         0         0      0.00     88.00   2080.00

 CCHV=     .300 CEHV=     .500
 *SECNO 39.000
     3700.   BRIDGE STENCL=    1992.00     STENCR=    2080.00
  2800 NAT QI=      79.72  WSEL=     967.64  ENC QI=      84.57  WSEL=     967.74  RATIO=   -.0608
 NAT QI=     85.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     967.74
    SECNO     DEPTH     CWSEL     CRIWS     WSELR     EG        HV        HL        QLOSS     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

 3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  976.20 MAX ELLC=  977.20

 3470 ENCROACHMENT STATIONS=     2000.0     2072.0  TYPE=      4  TARGET=        0.000
 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      978.10 ELREA=      978.10

      D/S FACE OF BYRON BRIDGE.CONCRETE   (D)

      U/S LIMIT OF VILLAGE OF HOMER

      39.00      2.52    967.72      0.00    967.64    968.01       .29       .10       .07    978.60
        655.        0.      655.        0.        0.       151.        0.       16.        6.    978.60
         .28       0.00      4.34      0.00      .060      .039      .060      .044    965.20   2000.00
    .006176        22.        22.        22.         2         0         0    -18.63     72.00   2072.00

 *SECNO 39.100
 2800 NAT QI=      42.42  WSEL=     968.80  ENC QI=      45.17  WSEL=     968.90  RATIO=   -.0648
 NAT QI=     45.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     968.90

 3265 DIVIDED FLOW

 3301 HV CHANGED MORE THAN HVINS

    SECNO     DEPTH     CWSEL     CRIWS     WSELR     EG        HV        HL        QLOSS     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

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     2000.0     2072.0  TYPE=      4  TARGET=        0.000
```

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 977.90 ELREA= 977.90

39.10	2.77	966.77	968.77	968.80	969.95	1.18	.31	.44	978.60
655.	0.	655.	0.	0.	75.	0.	16.	6.	978.60
.28	0.00	8.70	0.00	.060	.039	.060	.044	966.00	2021.08
.024660		28.	28.	28.	20	9	0	0.00	33.97	2069.87

*SECNO 39.200
2800 NAT Q1= 459.12 WSEL= 970.26 ENC Q1= 473.97 WSEL= 970.36 RATIO= -.0324
NAT Q1= 474. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 970.36

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1991.0 2081.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 979.20 ELREA= 979.10

39.20	5.07	970.27	0.00	970.26	970.31	.03	.01	.34	979.00
655.	0.	655.	0.	0.	443.	0.	16.	6.	978.90
.29	0.00	1.48	0.00	.060	.039	.060	.044	965.20	1991.00
.000202		22.	22.	22.	2	0	0	0.00	90.00	2081.00

*SECNO 39.300
2800 NAT Q1= 422.50 WSEL= 970.27 ENC Q1= 422.50 WSEL= 970.37 RATIO= 0.0000
NAT Q1= 445. RATIOS LOB,CH,ROB= .0549 .7485 .1965 WSEL= 970.37

3470 ENCROACHMENT STATIONS= 1992.5 2166.0 TYPE= 4 TARGET= .050

39.30	5.86	970.28	0.00	970.27	970.32	.04	.01	.00	967.80
655.	20.	522.	113.	32.	294.	199.	17.	6.	967.60
.30	.61	1.78	.57	.060	.039	.060	.044	964.40	1992.46
.000262		50.	50.	50.	0	0	0	0.00	193.55	2186.01

MOORE BUSINESS FORMS, INC 23

MOORE BUSINESS FORMS, INC 23

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01.02.03
  MODIFICATION -  50.51.52.53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100 YEAR FLOOD (NATURAL)
SUMMARY PRINTOUT

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
36.000	964.34	2001.14	2006.00	2092.00	2123.54	122.40	0.00
36.000	964.36	2006.00	2006.00	2092.00	2092.00	86.00	0.00
36.800	965.98	1964.64	2014.00	2098.00	2212.68	248.05	1000.00
36.800	966.06	2008.92	2014.00	2098.00	2118.04	109.12	1000.00
36.900	966.17	2188.17	2182.00	2288.00	2284.70	96.52	200.00
36.900	966.26	2187.96	2182.00	2288.00	2284.85	96.89	200.00
37.000	966.17	2188.17	2182.00	2288.00	2284.70	96.53	1.00
37.000	966.25	2187.95	2182.00	2288.00	2284.85	96.90	1.00
37.100	966.22	2178.31	2174.00	2280.00	2276.65	98.34	32.50
37.100	966.30	2178.14	2174.00	2280.00	2276.85	98.72	32.50
37.200	966.22	2178.30	2174.00	2280.00	2276.65	98.34	1.00
37.200	966.30	2178.13	2174.00	2280.00	2276.85	98.72	1.00
37.300	966.22	2063.61	2114.00	2158.00	2293.53	209.92	40.00
37.300	966.29	2102.99	2114.00	2158.00	2237.70	134.72	40.00
37.800	967.03	2258.54	2336.00	2383.00	2497.78	239.24	675.00
37.800	967.11	2308.60	2336.00	2383.00	2449.19	140.60	675.00
37.900	967.35	2290.00	2290.00	2362.00	2358.20	68.20	200.00
37.900	967.44	2290.00	2290.00	2362.00	2358.83	68.83	200.00
38.000	967.35	2290.00	2290.00	2362.00	2358.22	68.22	1.00
38.000	967.44	2290.00	2290.00	2362.00	2358.84	68.84	1.00
38.100	967.37	2290.00	2290.00	2362.00	2355.63	65.63	50.00
38.100	967.46	2290.00	2290.00	2362.00	2356.00	66.00	50.00
38.200	967.37	2290.00	2290.00	2362.00	2355.63	65.63	1.00
38.200	967.46	2290.00	2290.00	2362.00	2355.98	65.98	1.00
38.300	967.57	2035.44	2034.00	2150.00	2187.28	151.84	40.00
38.300	967.65	2035.35	2034.00	2150.00	2150.00	114.65	40.00

	SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
	38.900	967.61	1992.00	1992.00	2060.00	2080.00	88.00	180.00
	38.900	967.69	1992.00	1992.00	2060.00	2080.00	88.00	180.00
	39.000	967.64	2000.00	2000.00	2072.00	2072.00	72.00	22.00
	39.000	967.72	2000.00	2000.00	2072.00	2072.00	72.00	22.00
*	39.100	968.80	2021.07	2000.00	2072.00	2069.88	34.04	28.00
*	39.100	968.77	2021.08	2000.00	2072.00	2069.87	33.97	28.00
	39.200	970.26	1991.00	1991.00	2081.00	2081.00	90.00	22.00
	39.200	970.27	1991.00	1991.00	2081.00	2081.00	90.00	22.00
	39.300	970.27	1940.73	2008.00	2068.00	2270.74	330.02	50.00
	39.300	970.28	1992.46	2008.00	2068.00	2186.01	193.55	50.00

MOORE BUSINESS FORMS, INC 23

100 YEAR FLOOD (NATURAL)

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
36.000	964.34	0.00	964.44	122.40	2.88	675.45	11.67	0.00	0.00	2006.00	2092.00	0.00
36.000	964.36	.02	964.51	86.00	0.00	690.00	0.00	.02	2006.00	2006.00	2092.00	2092.00
36.800	965.98	0.00	966.05	248.05	29.12	600.16	25.73	0.00	0.00	2014.00	2098.00	0.00
36.800	966.06	.07	966.14	109.12	10.73	632.64	11.63	.06	2008.92	2014.00	2098.00	2118.04
36.900	966.17	0.00	966.24	96.52	0.00	655.00	0.00	0.00	0.00	2182.00	2288.00	0.00
36.900	966.26	.08	966.32	96.89	0.00	655.00	0.00	0.00	2182.00	2182.00	2288.00	2288.00
37.000	966.17	0.00	966.24	96.53	0.00	655.00	0.00	0.00	0.00	2182.00	2288.00	0.00
37.000	966.25	.08	966.32	96.90	0.00	655.00	0.00	0.00	2182.00	2182.00	2288.00	2288.00
37.100	966.22	0.00	966.26	98.34	0.00	655.00	0.00	0.00	0.00	2174.00	2280.00	0.00
37.100	966.30	.08	966.34	98.72	0.00	655.00	0.00	0.00	2174.00	2174.00	2280.00	2280.00
37.200	966.22	0.00	966.26	98.34	0.00	655.00	0.00	0.00	0.00	2174.00	2280.00	0.00
37.200	966.30	.08	966.34	98.72	0.00	655.00	0.00	0.00	2174.00	2174.00	2280.00	2280.00
37.300	966.22	0.00	966.31	209.92	39.39	518.51	97.10	0.00	0.00	2114.00	2158.00	0.00
37.300	966.29	.07	966.39	134.72	25.15	539.24	90.61	.05	2102.99	2114.00	2158.00	2237.70
37.600	967.03	0.00	967.12	239.24	94.37	452.33	108.30	0.00	0.00	2336.00	2383.00	0.00
37.600	967.11	.09	967.22	140.60	60.25	475.70	99.05	.07	2308.60	2336.00	2383.00	2449.19
37.900	967.35	0.00	967.51	68.20	0.00	655.00	0.00	0.00	0.00	2290.00	2362.00	0.00
37.900	967.44	.09	967.59	68.83	0.00	655.00	0.00	0.00	2290.00	2290.00	2362.00	2362.00
38.000	967.35	0.00	967.51	68.22	0.00	655.00	0.00	0.00	0.00	2290.00	2362.00	0.00
38.000	967.44	.09	967.59	66.84	0.00	655.00	0.00	0.00	2290.00	2290.00	2362.00	2362.00
38.100	967.37	0.00	967.56	65.63	0.00	655.00	0.00	0.00	0.00	2290.00	2362.00	0.00
38.100	967.46	.09	967.64	66.00	0.00	655.00	0.00	0.00	2290.00	2290.00	2362.00	2362.00
38.200	967.37	0.00	967.56	65.63	0.00	655.00	0.00	0.00	0.00	2290.00	2362.00	0.00
38.200	967.46	.09	967.64	65.98	0.00	655.00	0.00	0.00	2290.00	2290.00	2362.00	2362.00
38.300	967.57	0.00	967.61	151.84	0.00	639.09	15.91	0.00	0.00	2034.00	2150.00	0.00
38.300	967.65	.08	967.68	114.65	0.00	655.00	0.00	.03	2034.00	2034.00	2150.00	2150.00
38.900	967.61	0.00	967.78	88.00	0.00	655.00	0.00	0.00	0.00	1992.00	2080.00	0.00
38.900	967.69	.08	967.85	88.00	0.00	655.00	0.00	0.00	1992.00	1992.00	2080.00	2080.00
39.000	967.64	0.00	967.96	72.00	0.00	655.00	0.00	0.00	0.00	2000.00	2072.00	0.00
39.000	967.72	.08	968.01	72.00	0.00	655.00	0.00	0.00	2000.00	2000.00	2072.00	2072.00
39.100	968.80	0.00	969.95	34.04	0.00	655.00	0.00	0.00	0.00	2000.00	2072.00	0.00
39.100	968.77	-.03	969.95	33.97	0.00	655.00	0.00	0.00	2000.00	2000.00	2072.00	2072.00
39.200	970.26	0.00	970.30	90.00	0.00	655.00	0.00	0.00	0.00	1991.00	2081.00	0.00
39.200	970.27	.01	970.31	90.00	0.00	655.00	0.00	0.00	1991.00	1991.00	2081.00	2081.00
39.300	970.27	0.00	970.31	330.02	33.93	499.40	121.67	0.00	0.00	2008.00	2068.00	0.00

MOORE BUSINESS FORMS, INC. 23

34.300	970.28	.01	970.32	193.55	19.60	522.47	112.93	.05	1992.46	2008.00	2068.00	2186.01	

MOORE BUSINESS FORMS, INC. 23

100 YEAR FLOOD (NATURAL)

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
36.000	0.00	0.00	0.00	961.30	690.00	964.34	0.00	964.49	25.88	3.10	239.26	135.64
36.000	0.00	0.00	0.00	961.30	690.00	964.36	0.00	964.51	27.42	3.15	219.26	131.78
36.600	1000.00	0.00	0.00	962.10	655.00	965.98	0.00	966.05	10.22	2.26	371.39	204.91
36.800	1000.00	0.00	0.00	962.10	655.00	966.06	0.00	966.14	10.43	2.33	304.56	202.85
36.900	200.00	0.00	0.00	960.90	655.00	966.17	0.00	966.24	8.60	2.09	313.29	223.36
36.900	200.00	0.00	0.00	960.90	655.00	966.26	0.00	966.32	7.96	2.04	321.12	232.11
37.000	1.00	972.00	970.20	960.90	655.00	966.17	0.00	966.24	3.11	2.13	308.19	371.68
37.000	1.00	972.00	970.20	960.90	655.00	966.25	0.00	966.32	2.88	2.07	315.82	385.71
37.100	32.50	972.00	970.30	960.00	655.00	966.22	0.00	966.26	1.29	1.59	411.28	576.13
37.100	32.50	972.00	970.30	960.00	655.00	966.30	0.00	966.34	1.23	1.56	418.81	591.78
37.200	1.00	0.00	0.00	960.00	655.00	966.22	0.00	966.26	3.27	1.55	421.52	362.27
37.200	1.00	0.00	0.00	960.00	655.00	966.30	0.00	966.34	3.09	1.53	429.21	372.34
37.300	40.00	0.00	0.00	961.10	655.00	966.22	0.00	966.31	9.88	2.73	370.48	208.35
37.300	40.00	0.00	0.00	961.10	655.00	966.29	0.00	966.39	10.18	2.80	326.46	205.34
37.800	675.00	0.00	0.00	962.40	655.00	967.03	0.00	967.12	14.68	2.83	359.83	170.94
37.800	675.00	0.00	0.00	962.40	655.00	967.11	0.00	967.22	14.87	2.90	306.15	169.86
37.900	200.00	0.00	0.00	963.10	655.00	967.35	0.00	967.51	23.85	3.25	201.84	134.13
37.900	200.00	0.00	0.00	963.10	655.00	967.44	0.00	967.59	21.84	3.15	208.09	140.15
38.000	1.00	980.40	978.10	963.10	655.00	967.35	0.00	967.51	5.79	3.24	201.97	272.17
38.000	1.00	980.40	978.10	963.10	655.00	967.44	0.00	967.59	5.45	3.16	207.07	280.53
38.100	50.00	980.40	978.10	963.70	655.00	967.37	0.00	967.56	7.42	3.52	186.15	240.44
38.100	50.00	980.40	978.10	963.70	655.00	967.46	0.00	967.64	7.03	3.44	190.36	246.98
38.200	1.00	0.00	0.00	963.70	655.00	967.37	0.00	967.56	30.04	3.52	186.19	119.50
38.200	1.00	0.00	0.00	963.70	655.00	967.46	0.00	967.64	27.32	3.41	192.08	125.32
38.300	40.00	0.00	0.00	962.40	655.00	967.57	0.00	967.61	3.07	1.42	489.66	374.13
38.300	40.00	0.00	0.00	962.40	655.00	967.65	0.00	967.68	3.10	1.43	458.02	372.10
38.900	180.00	0.00	0.00	965.20	655.00	967.61	0.00	967.78	35.99	3.30	198.23	109.18
38.900	180.00	0.00	0.00	965.20	655.00	967.69	0.00	967.85	31.95	3.19	205.63	115.89
39.000	22.00	978.20	977.20	965.20	655.00	967.64	0.00	967.96	67.50	4.47	146.43	79.72
39.000	22.00	978.20	977.20	965.20	655.00	967.72	0.00	968.01	61.76	4.34	150.86	83.34
39.100	28.00	0.00	0.00	966.00	655.00	968.80	968.80	969.95	238.46	8.60	76.15	42.42
39.100	28.00	0.00	0.00	966.00	655.00	968.77	968.77	969.95	246.60	8.70	75.27	41.71
39.200	22.00	0.00	0.00	965.20	655.00	970.26	0.00	970.30	2.04	1.48	442.50	459.12
39.200	22.00	0.00	0.00	965.20	655.00	970.27	0.00	970.31	2.02	1.48	443.44	460.68
39.300	50.00	0.00	0.00	964.40	655.00	970.27	0.00	970.31	2.40	1.70	619.84	422.50

MOORE BUSINESS FORMS, INC 2J

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100 YEAR FLOOD (NATURAL)

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
36.000	690.00	964.34	0.00	0.00	0.00	122.40	0.00
36.000	690.00	964.36	.02	0.00	.02	86.00	0.00
36.800	655.00	965.98	0.00	1.64	0.00	248.05	1000.00
36.800	655.00	966.06	.07	1.70	.07	109.12	1000.00
36.900	655.00	966.17	0.00	.19	0.00	96.52	200.00
36.900	655.00	966.26	.08	.20	.08	96.89	200.00
37.000	655.00	966.17	0.00	-.00	0.00	96.53	1.00
37.000	655.00	966.25	.08	-.00	.08	96.90	1.00
37.100	655.00	966.22	0.00	.05	0.00	98.34	32.50
37.100	655.00	966.30	.08	.04	.08	98.72	32.50
37.200	655.00	966.22	0.00	.00	0.00	98.34	1.00
37.200	655.00	966.30	.08	.00	.08	98.72	1.00
37.300	655.00	966.22	0.00	-.01	0.00	209.92	40.00
37.300	655.00	966.29	.07	-.01	.07	134.72	40.00
37.800	655.00	967.03	0.00	.81	0.00	239.24	675.00
37.800	655.00	967.11	.09	.83	.09	140.60	675.00
37.900	655.00	967.35	0.00	.32	0.00	68.20	200.00
37.900	655.00	967.44	.09	.32	.09	68.83	200.00
38.000	655.00	967.35	0.00	.00	0.00	68.22	1.00
38.000	655.00	967.44	.09	.00	.09	68.84	1.00
38.100	655.00	967.37	0.00	.02	0.00	65.63	50.00
38.100	655.00	967.46	.09	.02	.09	66.00	50.00
38.200	655.00	967.37	0.00	.00	0.00	65.63	1.00
38.200	655.00	967.46	.09	.00	.09	65.98	1.00
38.300	655.00	967.57	0.00	.21	0.00	151.84	40.00
38.300	655.00	967.65	.08	.19	.08	114.65	40.00
38.900	655.00	967.61	0.00	.03	0.00	88.00	180.00
38.900	655.00	967.69	.08	.04	.08	88.00	180.00
39.000	655.00	967.64	0.00	.04	0.00	72.00	22.00
39.000	655.00	967.72	.08	.03	.08	72.00	22.00
* 39.100	655.00	968.80	0.00	1.15	0.00	34.04	28.00
* 39.100	655.00	968.77	-.03	1.05	-.03	33.97	28.00
39.200	655.00	970.26	0.00	1.46	0.00	90.00	22.00
39.200	655.00	970.27	.01	1.50	.01	90.00	22.00
39.300	655.00	970.27	0.00	.01	0.00	330.02	50.00

39.300	655.00	970.28	.01	.01	.01	193.55	50.00

SUMMARY OF ERRORS

CAUTION	SECNO=	39.100	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	39.100	PROFILE= 1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	39.100	PROFILE= 1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	39.100	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	39.100	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	39.100	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOODWAY DATA, 100 YEAR FLOOD (NATURAL)
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
36.000	86.	219.	3.1	964.3	964.3	0.0
36.800	109.	305.	2.2	966.1	966.0	.1
36.900	97.	321.	2.0	966.3	966.2	.1
37.000	57.	316.	2.1	966.3	966.2	.1
37.100	99.	414.	1.6	966.3	966.2	.1
37.200	99.	429.	1.5	966.3	966.2	.1
37.300	135.	326.	2.0	966.3	966.2	.1
37.800	141.	306.	2.1	967.1	967.0	.1
37.900	69.	208.	3.1	967.4	967.3	.1
38.000	69.	207.	3.2	967.4	967.3	.1
38.100	66.	190.	3.4	967.5	967.4	.1
38.200	66.	194.	3.4	967.5	967.4	.1
38.300	115.	458.	1.4	967.7	967.6	.1
38.900	88.	206.	3.2	967.7	967.6	.1
39.000	72.	151.	4.3	967.7	967.6	.1
39.100	49.	75.	8.7	968.8	968.8	0.0
39.200	90.	443.	1.5	970.3	970.3	0.0
39.300	194.	525.	1.2	970.3	970.3	0.0

MOORE BUSINESS FORMS, INC.

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Homer, Village of

3) WATERCOURSE: Kalamazoo River

4) DOCUMENT TYPE: Summary

00BREAK00

MOORE BUSINESS FORMS, INC 23

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

50 YEAR FLOW

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	FLMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
36.000	0.00	0.00	0.00	961.30	500.00	964.07	0.00	964.17	20.12	2.54	207.34	111.47
36.000	0.00	0.00	0.00	961.30	635.00	964.28	0.00	964.41	23.83	2.93	231.97	130.07
36.000	0.00	0.00	0.00	961.30	690.00	964.34	0.00	964.49	25.88	3.10	239.26	135.64
36.000	0.00	0.00	0.00	961.30	820.00	964.48	0.00	964.66	30.25	3.48	256.70	149.09
36.800	1000.00	0.00	0.00	962.10	475.00	965.51	0.00	965.58	10.16	2.02	264.65	148.98
36.800	1000.00	0.00	0.00	962.10	605.00	965.86	0.00	965.93	10.26	2.21	341.25	188.87
36.800	1000.00	0.00	0.00	962.10	655.00	965.98	0.00	966.05	10.22	2.26	371.39	204.91
36.800	1000.00	0.00	0.00	962.10	780.00	966.25	0.00	966.33	10.23	2.39	440.53	243.88
36.900	200.00	0.00	0.00	960.90	475.00	965.70	0.00	965.75	7.35	1.77	268.16	175.17
36.900	200.00	0.00	0.00	960.90	605.00	966.05	0.00	966.11	8.26	2.01	301.55	210.47
36.900	200.00	0.00	0.00	960.90	655.00	966.17	0.00	966.24	8.60	2.09	313.28	223.36
36.900	200.00	0.00	0.00	960.90	780.00	966.45	0.00	966.53	9.50	2.30	339.52	253.09
37.000	1.00	972.00	970.20	960.90	475.00	965.70	0.00	965.75	2.62	1.80	263.99	293.55
37.000	1.00	972.00	970.20	960.90	605.00	966.05	0.00	966.12	2.97	2.04	296.70	350.83
37.000	1.00	972.00	970.20	960.90	655.00	966.17	0.00	966.24	3.11	2.13	308.19	371.68
37.000	1.00	972.00	970.20	960.90	780.00	966.44	0.00	966.53	3.45	2.34	334.00	419.79
37.100	32.50	972.00	970.30	960.00	475.00	965.74	0.00	965.76	.97	1.30	364.40	481.44
37.100	32.50	972.00	970.30	960.00	605.00	966.10	0.00	966.13	1.20	1.52	399.32	551.52
37.100	32.50	972.00	970.30	960.00	655.00	966.22	0.00	966.26	1.29	1.59	411.28	576.13
37.100	32.50	972.00	970.30	960.00	780.00	966.50	0.00	966.55	1.52	1.78	438.25	632.71
37.200	1.00	0.00	0.00	960.00	475.00	965.74	0.00	965.76	2.46	1.27	374.60	302.67
37.200	1.00	0.00	0.00	960.00	605.00	966.10	0.00	966.13	3.05	1.48	409.31	346.44
37.200	1.00	0.00	0.00	960.00	655.00	966.22	0.00	966.26	3.27	1.55	421.52	362.27
37.200	1.00	0.00	0.00	960.00	780.00	966.50	0.00	966.55	3.83	1.74	449.06	398.72
37.300	20.00	0.00	0.00	961.10	475.00	965.73	0.00	965.81	9.36	2.45	274.71	155.24
37.300	20.00	0.00	0.00	961.10	605.00	966.09	0.00	966.18	9.77	2.66	344.50	193.53
37.300	20.00	0.00	0.00	961.10	655.00	966.22	0.00	966.31	9.88	2.73	370.48	208.35
37.300	20.00	0.00	0.00	961.10	780.00	966.50	0.00	966.60	10.19	2.89	431.68	244.34
37.600	475.00	0.00	0.00	962.40	475.00	966.55	0.00	966.64	16.65	2.73	253.77	116.40
37.800	675.00	0.00	0.00	962.40	605.00	966.90	0.00	966.99	15.13	2.81	330.93	155.53
37.800	675.00	0.00	0.00	962.40	655.00	967.03	0.00	967.12	14.68	2.83	359.83	170.94
37.800	675.00	0.00	0.00	962.40	780.00	967.31	0.00	967.40	13.83	2.90	429.87	209.73

SE_NO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
37.900	200.00	0.00	0.00	963.10	475.00	966.89	0.00	967.01	20.09	2.77	171.59	105.98
37.900	200.00	0.00	0.00	963.10	605.00	967.23	0.00	967.38	22.84	3.12	193.93	126.60
37.900	200.00	0.00	0.00	963.10	655.00	967.35	0.00	967.51	23.85	3.25	201.84	134.13
37.900	200.00	0.00	0.00	963.10	780.00	967.61	0.00	967.81	26.32	3.54	220.18	152.03
38.000	1.00	980.40	978.10	963.10	475.00	966.89	0.00	967.01	4.84	2.77	171.71	215.84
38.000	1.00	980.40	978.10	963.10	605.00	967.23	0.00	967.38	5.54	3.12	194.06	257.12
38.000	1.00	980.40	978.10	963.10	655.00	967.35	0.00	967.51	5.79	3.24	201.97	272.17
38.000	1.00	980.40	978.10	963.10	780.00	967.61	0.00	967.81	6.42	3.54	220.32	307.89
38.100	50.00	980.40	978.10	963.70	475.00	966.91	0.00	967.05	6.59	3.03	156.61	185.10
38.100	50.00	980.40	978.10	963.70	605.00	967.25	0.00	967.43	7.19	3.38	178.49	225.67
38.100	50.00	980.40	978.10	963.70	655.00	967.37	0.00	967.56	7.42	3.52	186.15	240.44
38.100	50.00	980.40	978.10	963.70	780.00	967.63	0.00	967.86	8.02	3.83	203.79	275.44
38.200	1.00	0.00	0.00	963.70	475.00	966.91	0.00	967.06	26.85	3.03	156.65	91.66
38.200	1.00	0.00	0.00	963.70	605.00	967.25	0.00	967.43	29.15	3.39	178.52	112.06
38.200	1.00	0.00	0.00	963.70	655.00	967.37	0.00	967.56	30.04	3.52	186.19	119.50
38.200	1.00	0.00	0.00	963.70	780.00	967.64	0.00	967.86	32.33	3.83	203.84	137.18
38.300	40.00	0.00	0.00	962.40	475.00	967.07	0.00	967.09	2.57	1.20	415.28	296.04
38.300	40.00	0.00	0.00	962.40	605.00	967.44	0.00	967.47	2.94	1.36	469.94	353.07
38.300	40.00	0.00	0.00	962.40	655.00	967.57	0.00	967.61	3.07	1.42	489.66	374.13
38.300	40.00	0.00	0.00	962.40	780.00	967.88	0.00	967.91	3.37	1.56	536.25	424.82
38.900	180.00	0.00	0.00	965.20	475.00	967.10	0.00	967.25	44.09	3.09	153.49	71.54
38.900	180.00	0.00	0.00	965.20	605.00	967.48	0.00	967.64	37.50	3.24	186.68	98.80
38.900	180.00	0.00	0.00	965.20	655.00	967.61	0.00	967.78	35.99	3.30	198.23	109.18
38.900	180.00	0.00	0.00	965.20	780.00	967.91	0.00	968.10	33.60	3.47	224.73	134.57
39.000	22.00	978.20	977.20	965.20	475.00	967.17	0.00	967.43	74.05	4.14	114.72	55.20
39.000	22.00	978.20	977.20	965.20	605.00	967.52	0.00	967.82	68.61	4.38	138.10	73.04
39.000	22.00	978.20	977.20	965.20	655.00	967.64	0.00	967.96	67.50	4.47	146.43	79.72
39.000	22.00	978.20	977.20	965.20	780.00	967.93	0.00	968.28	67.14	4.73	165.02	95.19
39.100	28.00	0.00	0.00	966.00	475.00	968.34	968.34	969.29	238.79	7.79	60.95	30.74
39.100	28.00	0.00	0.00	966.00	605.00	968.70	968.70	969.77	232.89	8.33	72.65	39.64
39.100	28.00	0.00	0.00	966.00	655.00	968.80	968.80	969.95	238.46	8.60	76.15	42.42
39.100	28.00	0.00	0.00	966.00	780.00	969.46	969.46	970.22	222.02	6.97	111.87	52.35
39.200	22.00	0.00	0.00	965.20	475.00	969.55	0.00	969.58	1.77	1.26	378.38	357.09
39.200	22.00	0.00	0.00	965.20	605.00	970.07	0.00	970.10	1.98	1.42	425.02	430.41
39.200	22.00	0.00	0.00	965.20	655.00	970.26	0.00	970.30	2.04	1.48	442.50	459.12
39.200	22.00	0.00	0.00	965.20	780.00	970.40	0.00	970.45	2.64	1.71	455.12	480.23
39.300	50.00	0.00	0.00	964.40	475.00	969.56	0.00	969.59	2.81	1.65	407.69	283.43
39.300	50.00	0.00	0.00	964.40	605.00	970.08	0.00	970.11	2.54	1.70	556.31	379.91
39.300	50.00	0.00	0.00	964.40	655.00	970.27	0.00	970.31	2.40	1.70	619.84	422.50
39.300	50.00	0.00	0.00	964.40	780.00	970.42	0.00	970.46	2.92	1.91	669.88	456.59

MOORE BUSINESS FORMS, INC. 23

10 YEAR FLOW

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
36.000	500.00	964.07	0.00	0.00	0.00	114.08	0.00
36.000	635.00	964.28	.21	0.00	0.00	120.55	0.00
36.000	690.00	964.34	.06	0.00	0.00	122.40	0.00
36.000	820.00	964.48	.14	0.00	0.00	126.72	0.00
36.800	475.00	965.51	0.00	1.44	0.00	163.34	1000.00
36.800	605.00	965.86	.34	1.58	0.00	243.17	1000.00
36.800	655.00	965.98	.12	1.64	0.00	248.05	1000.00
36.800	780.00	966.25	.27	1.77	0.00	258.89	1000.00
36.900	475.00	965.70	0.00	.19	0.00	94.36	200.00
36.900	605.00	966.05	.35	.19	0.00	95.97	200.00
36.900	655.00	966.17	.12	.19	0.00	96.52	200.00
36.900	780.00	966.45	.27	.19	0.00	97.76	200.00
37.000	475.00	965.70	0.00	-.00	0.00	94.37	1.00
37.000	605.00	966.05	.35	-.00	0.00	95.97	1.00
37.000	655.00	966.17	.12	-.00	0.00	96.53	1.00
37.000	780.00	966.44	.27	-.00	0.00	97.77	1.00
37.100	475.00	965.74	0.00	.04	0.00	95.98	32.50
37.100	605.00	966.10	.36	.04	0.00	97.74	32.50
37.100	655.00	966.22	.12	.05	0.00	98.34	32.50
37.100	780.00	966.50	.28	.05	0.00	99.67	32.50
37.200	475.00	965.74	0.00	.00	0.00	96.03	1.00
37.200	605.00	966.10	.36	.00	0.00	97.75	1.00
37.200	655.00	966.22	.12	.00	0.00	98.34	1.00
37.200	780.00	966.50	.28	.00	0.00	99.68	1.00
37.300	475.00	965.73	0.00	-.01	0.00	183.60	40.00
37.300	605.00	966.09	.36	-.01	0.00	203.12	40.00
37.300	655.00	966.22	.13	-.01	0.00	209.92	40.00
37.300	780.00	966.50	.28	-.00	0.00	225.13	40.00
37.800	475.00	966.55	0.00	.82	0.00	203.78	675.00
37.800	605.00	966.90	.36	.81	0.00	230.12	675.00
37.800	655.00	967.03	.12	.81	0.00	239.24	675.00
37.800	780.00	967.31	.28	.81	0.00	260.03	675.00
37.900	475.00	966.89	0.00	.35	0.00	65.08	200.00
37.900	605.00	967.23	.34	.33	0.00	67.40	200.00
37.900	655.00	967.35	.12	.32	0.00	68.20	200.00
37.900	780.00	967.61	.27	.30	0.00	70.03	200.00
38.000	475.00	966.89	0.00	.00	0.00	65.10	1.00
38.000	605.00	967.23	.34	.00	0.00	67.42	1.00
38.000	655.00	967.35	.12	.00	0.00	68.22	1.00
38.000	780.00	967.61	.27	.00	0.00	70.04	1.00
38.100	475.00	966.91	0.00	.02	0.00	63.85	50.00
38.100	605.00	967.25	.34	.02	0.00	65.17	50.00

MOORE BUSINESS FORMS, INC. 23

38.100	655.00	967.37	.12	.02	0.00	65.63	50.00
38.100	780.00	967.63	.27	.02	0.00	66.67	50.00

MOORE BUSINESS FORMS, INC. 23

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	38.200	475.00	966.91	0.00	.00	0.00	63.85	1.00
	38.200	605.00	967.25	.34	.00	0.00	65.17	1.00
	38.200	655.00	967.37	.12	.00	0.00	65.63	1.00
	38.200	780.00	967.64	.27	.00	0.00	66.67	1.00
	38.300	475.00	967.07	0.00	.16	0.00	142.58	40.00
	38.300	605.00	967.44	.37	.19	0.00	149.44	40.00
	38.300	655.00	967.57	.13	.21	0.00	151.84	40.00
	38.300	780.00	967.88	.30	.24	0.00	157.36	40.00
	38.900	475.00	967.10	0.00	.03	0.00	88.00	180.00
	38.900	605.00	967.48	.38	.03	0.00	88.00	180.00
	38.900	655.00	967.61	.13	.03	0.00	88.00	180.00
	38.900	780.00	967.91	.30	.03	0.00	88.00	180.00
	39.000	475.00	967.17	0.00	.06	0.00	72.00	22.00
	39.000	605.00	967.52	.35	.04	0.00	72.00	22.00
	39.000	655.00	967.64	.12	.04	0.00	72.00	22.00
	39.000	780.00	967.93	.29	.02	0.00	72.00	22.00
*	39.100	475.00	968.34	0.00	1.16	0.00	32.81	28.00
*	39.100	605.00	968.70	.35	1.18	0.00	33.76	28.00
*	39.100	655.00	968.80	.10	1.15	0.00	34.04	28.00
*	39.100	780.00	969.46	.66	1.53	0.00	72.00	28.00
	39.200	475.00	969.55	0.00	1.21	0.00	90.00	22.00
	39.200	605.00	970.07	.52	1.37	0.00	90.00	22.00
	39.200	655.00	970.26	.19	1.46	0.00	90.00	22.00
	39.200	780.00	970.40	.14	.94	0.00	90.00	22.00
	39.300	475.00	969.56	0.00	.00	0.00	258.20	50.00
	39.300	605.00	970.08	.52	.01	0.00	310.26	50.00
	39.300	655.00	970.27	.20	.01	0.00	330.02	50.00
	39.300	780.00	970.42	.15	.02	0.00	344.78	50.00

SUMMARY OF ERRORS

CAUTION	SECNO=	39.100	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	39.100	PROFILE= 1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	39.100	PROFILE= 1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	39.100	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	39.100	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	39.100	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	39.100	PROFILE= 3	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	39.100	PROFILE= 3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	39.100	PROFILE= 3	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	39.100	PROFILE= 4	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	39.100	PROFILE= 4	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	39.100	PROFILE= 4	20 TRIALS ATTEMPTED TO BALANCE WSEL

MOORE BUSINESS FORMS, INC 23

FLOOD INSURANCE ZONE DATA FOR 10 YEAR FLOW

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
36.000	0.	-.27	-.06	.14
36.800	1000.	-.47	-.12	.27
36.900	1200.	-.47	-.12	.27
37.000	1201.	-.47	-.12	.27
37.100	1234.	-.48	-.12	.28
37.200	1235.	-.48	-.12	.28
37.300	1275.	-.49	-.13	.28
37.800	1950.	-.48	-.12	.28
37.900	2150.	-.45	-.12	.27
38.000	2151.	-.45	-.12	.27
38.100	2201.	-.46	-.12	.27
38.200	2202.	-.46	-.12	.27
38.300	2242.	-.51	-.13	.30
38.900	2422.	-.51	-.13	.30
39.000	2444.	-.48	-.12	.29
39.100	2472.	-.45	-.10	.66
39.200	2494.	-.71	-.19	.14
39.300	2544.	-.72	-.20	.15
WEIGHTED AVG FOR REACH		-.44	-.11	.25

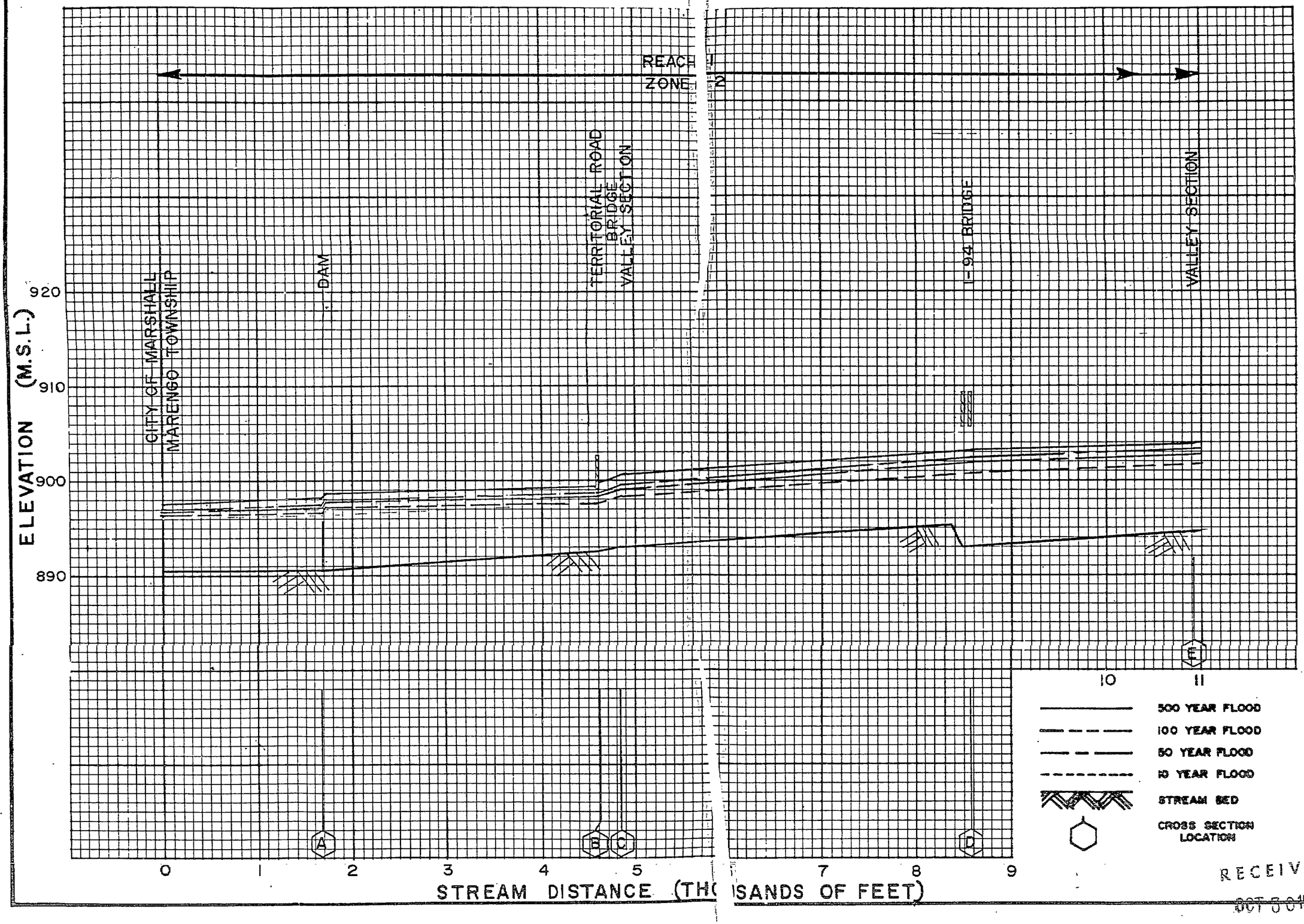
FHF FOR THE REACH = 005 WITH 100.0_ OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 1

MOORE BUSINESS FORMS, INC 23

FLOOD PROFILE

RICE CREEK

MARENGO TOWNSHIP

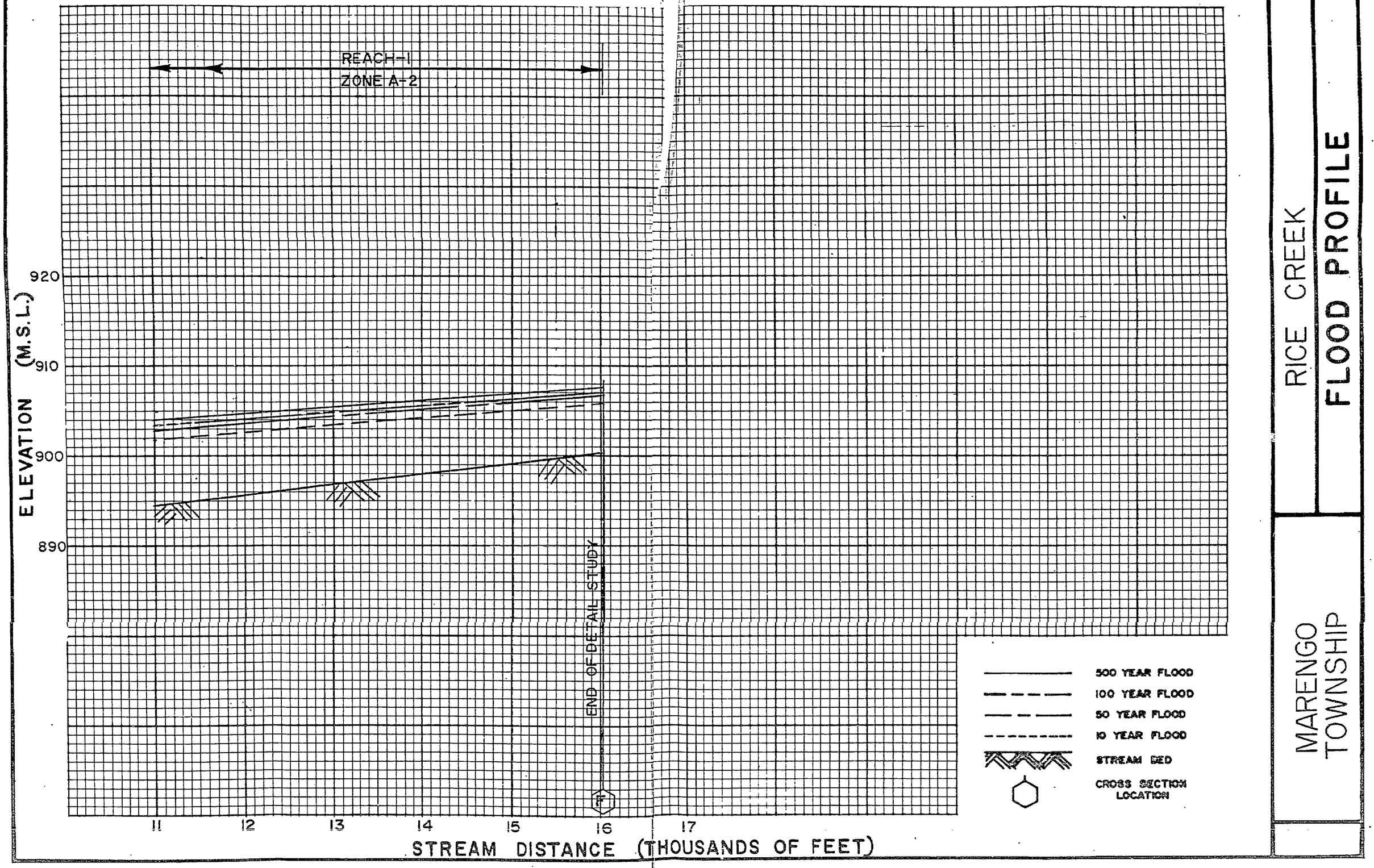


RECEIVED
OCT 5 01989
WATER MANAGEMENT

FLOOD PROFILE

RICE CREEK

MARENGO TOWNSHIP



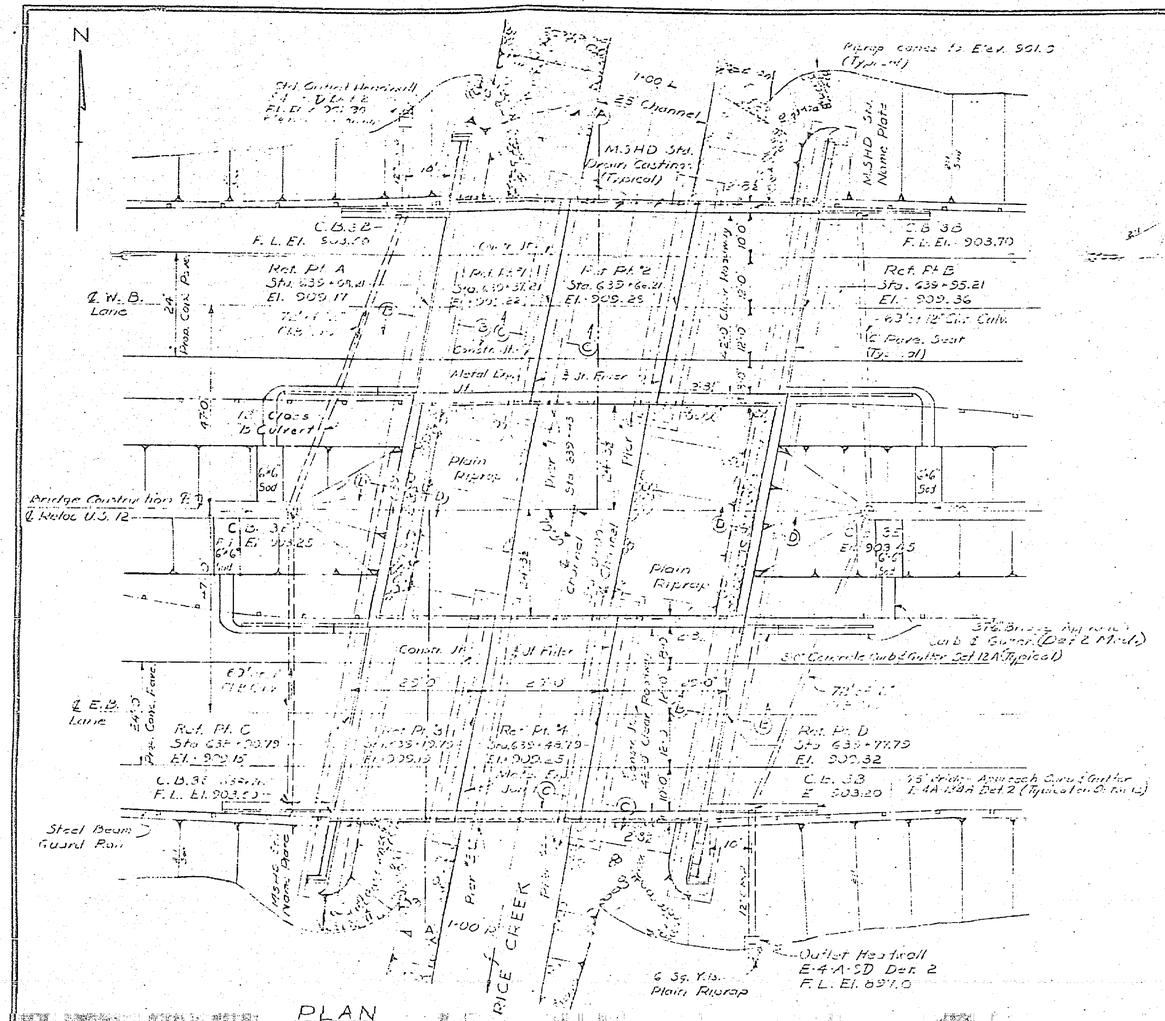
FLOOD PROFILE

MILL RACE

MARENGO TOWNSHIP
CALHOUN COUNTY

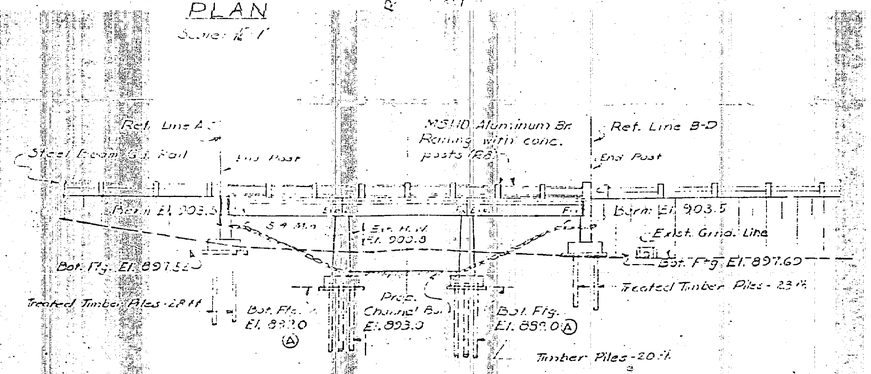


RECEIVED
OCT 30 1980
WATER MANAGEMENT



PLAN

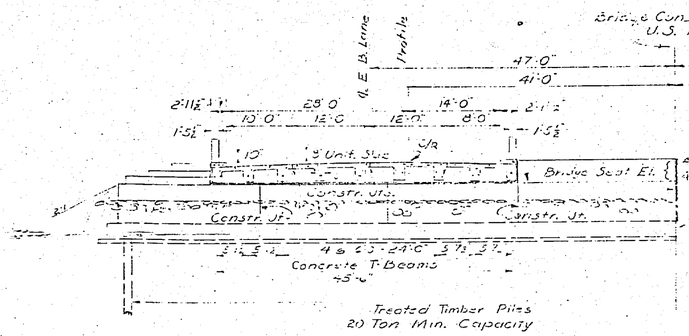
Scale: 1" = 1'

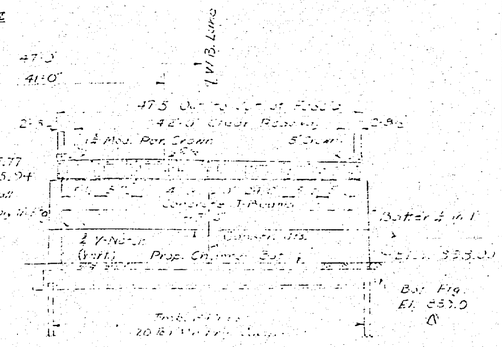


ELEVATION

NORMAL TO ℄ CHANNEL

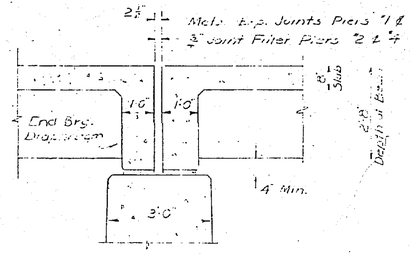
Scale: 1/4" = 1'





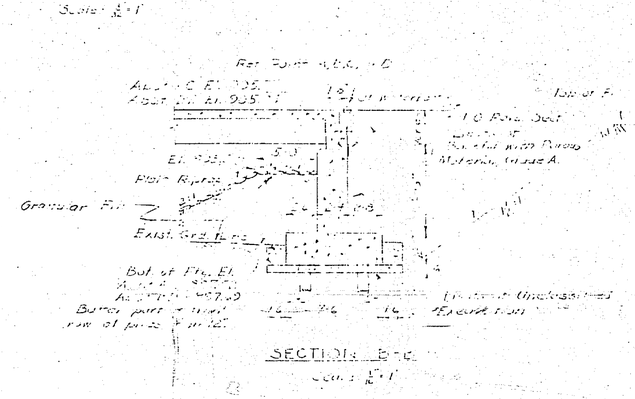
SECTION A-A

Scale: ½" = 1'



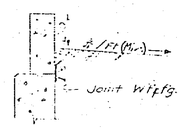
DETAIL C

Scale: 1" = 1'



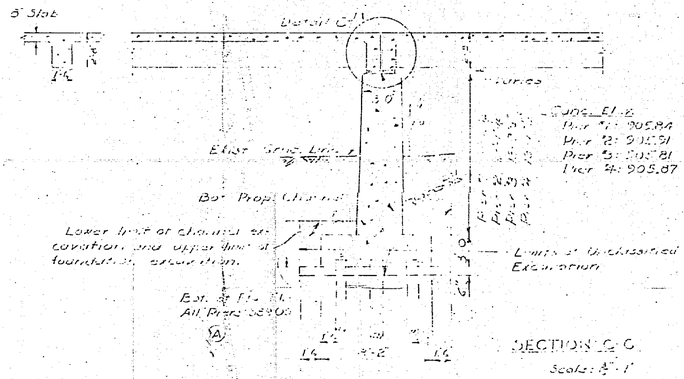
SECTION B-B

Scale: ½" = 1'



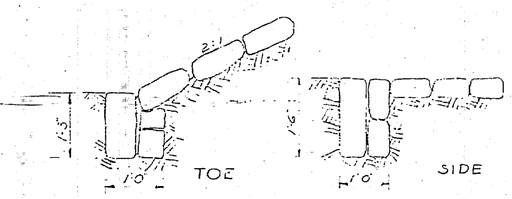
SECTION D-D

Scale: ½" = 1'-0"



SECTION C-C

Scale: ½" = 1'



HEADER DETAILS

(Incidental to Plain Riprap)

Scale: ½" = 1'-0"

Miscellaneous Quantities		
Plain Riprap	Sq. Yds.	1034

NOTES

1. The tops of roadway slabs, sidewalk, and fascia lines are parallel to the crown of roadway.

REVISIONS

No.	Description	Date	By
A	Revised Pier Excl. 123	4-2-58	HWG

Rev. 1 - Revised type of bridge railing 11-19-58 REP

MICHIGAN STATE HIGHWAY DEPARTMENT

U.S. 12 (RELOC.) CROSSING RICE CREEK 11 MILES E. OF E. LIMITS OF MASON

GENERAL PLAN OF STRUCTURE

APPROVED _____

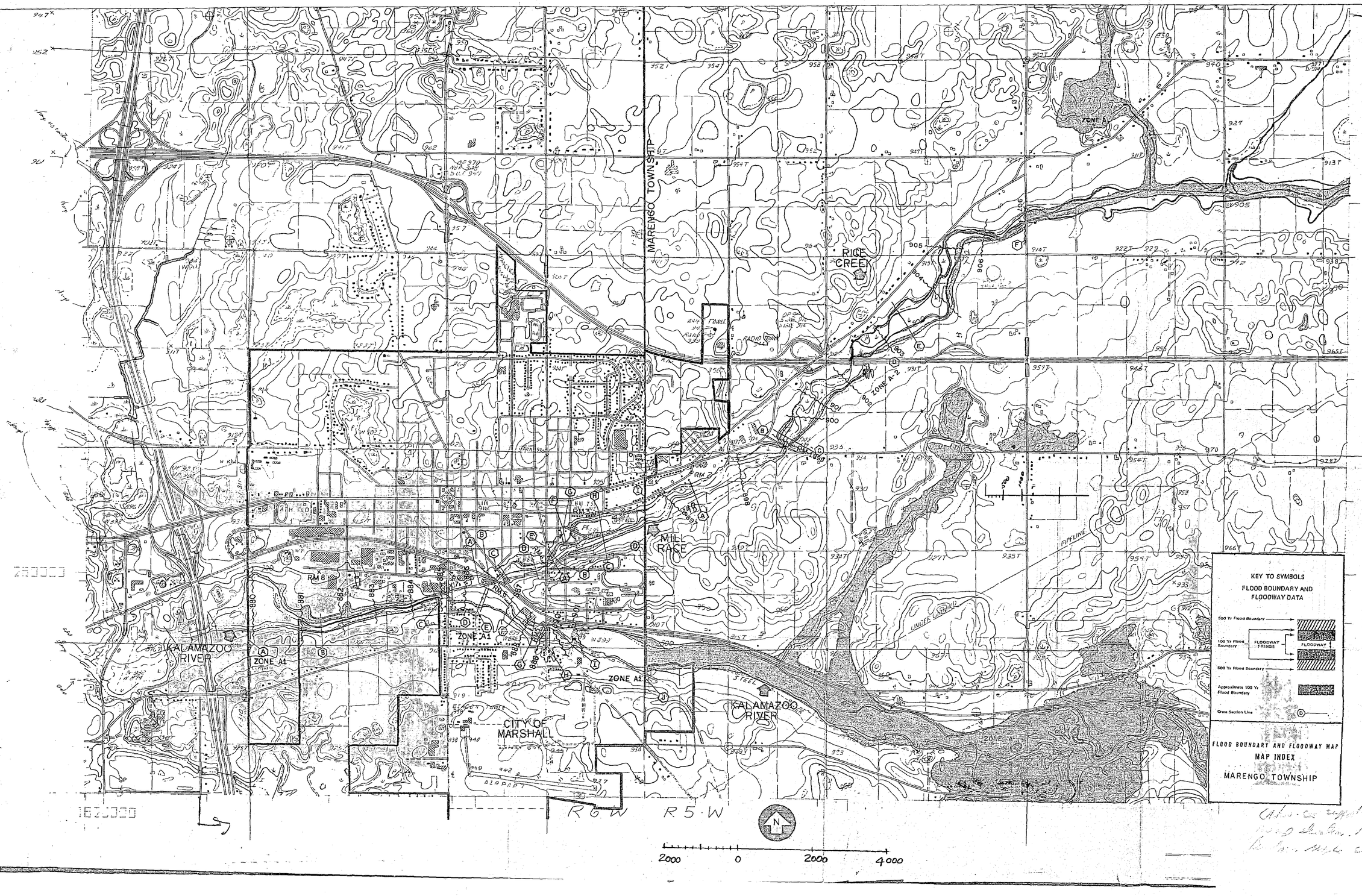
APPROVED J. V. Murray 3-10-58 COORDINATING ENGINEER

APPROVED _____ ENGINEER OF DESIGN - CONSULTANTS

SQUAD DES'S	REP
DRAWN BY	GJC
TRACED BY	GJC
CHECKED BY	REP
SHEET 31 OF 168	

B3 of 13-15-4

B01 of 13083 KN


MARENGO TOWNSHIP
RICE CREEK
ZONE A
ZONE A-2
MILL RACE
KALAMAZOO RIVER
ZONE A1
CITY OF MARSHALL
KALAMAZOO RIVER
R6W R5W
2000 0 2000 4000
KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOODWAY DATA
500 Yr Flood Boundary
100 Yr Flood Boundary
FLOODWAY FRINGE
FLOODWAY
500 Yr Flood Boundary
Approximate 100 Yr Flood Boundary
Cross Section Line
FLOOD BOUNDARY AND FLOODWAY MAP
MAP INDEX
MARENGO TOWNSHIP

827

ZONE A

MICH. 126
MAR 5.3 MI.

MARENGO TOWNSHIP

R5W R4W

2000 0 2000 4000

1863000

4630000

4625000

42° 15' 00"

84° 45' 00"

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500 Yr Flood Boundary

100 Yr Flood Boundary

FLOODWAY FRINGE

FLOODWAY

500 Yr Flood Boundary

Approximate 100 Yr Flood Boundary

Cross Section Line

FLOOD BOUNDARY AND FLOODWAY MAP

MAP INDEX

MARENGO TOWNSHIP

MARSHALL SE

928

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Marengo Twp

3) WATERCOURSE: Kalamazoo River

4) DOCUMENT TYPE: 100 yr Natural and encroachment

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      NORMAL BACKWATER-START BY SLOPE-AREA METHOD
T2      100 YEAR FLOOD NATURAL PROFILE
T3      KALAMAZOO RIVER AT MARENGO
J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        0.       4.         0.         0.   0.000000       0.00       0.0         0.     908.410    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
   38.000      1.000     42.000     41.000     40.000     53.000     27.000     21.000     22.000     28.000
   54.000      4.000     39.000      0.000    150.000    200.000      0.000      0.000      0.000      0.000
QT  5.000    970.000   1430.000   1600.000   2070.000   1600.000      0.000      0.000      0.000      0.000
ET  0.000      0.000      0.000      0.000      0.000      1.400      0.000      0.000      0.000      0.000
NC   .090       .090       .045       .100       .300      0.000      0.000      0.000      0.000      0.000

                VALLEY SECTION A DOWNSTREAM LIMIT NEAR 22 MILE ROAD
X1  6.490     21.000   2000.000   2097.000      0.000      0.000      0.000      0.000      0.000      0.000
GR  928.320   1449.000   925.890   1479.000   915.640   1666.000   914.460   1706.000   911.610   1793.000
GR  909.950   1860.000   905.970   1953.000   905.910   2000.000   904.670   2004.000   901.340   2026.000
GR  900.500   2048.000   901.030   2060.000   904.600   2092.000   906.600   2097.000   906.600   2109.000
GR  906.360   2142.000   909.840   2306.000   919.100   2399.000   921.670   2466.000   923.020   2569.000
GR  926.370   2676.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC   .100       .100       .045      0.000      0.000      0.000      0.000      0.000      0.000      0.000

                VALLEY SECTION B
X1  6.590     33.000   2000.000   2085.000   1000.000    910.000   1000.000      0.000      0.000      0.000
GR  932.030   1354.000   929.340   1414.000   927.330   1471.000   924.770   1524.000   922.540   1597.000
GR  920.630   1664.000   915.130   1744.000   911.470   1807.000   907.810   1877.000   906.960   1920.000
GR  907.000   1980.000   907.000   2000.000   905.010   2003.000   902.070   2023.000   903.020   2043.000
GR  902.320   2063.000   904.960   2080.000   906.210   2085.000   906.140   2107.000   908.740   2220.000
GR  915.980   2230.000   923.000   2397.000   922.500   2474.000   921.910   2661.000   921.710   2841.000
GR  921.290   3001.000   925.640   3168.000   928.700   3341.000   928.070   3488.000   928.580   3728.000
GR  929.220   3881.000   928.460   3895.000   934.190   3928.000      0.000      0.000      0.000      0.000
NH    5.000      .090  2000.000       .045  2026.000       .060   2053.000       .045  2140.000       .060
NH 3562.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
```

Note: SECNOs are not in reference to River miles on profile. Refer to Cross section letters.

MOORE BUSINESS FORMS, INC. 2J

VALLEY SECTION C

X1	6.690	33.000	2040.000	2140.000	2200.000	2000.000	2100.000	0.000	0.000	0.000
GR	930.640	1804.000	928.360	1824.000	919.370	1897.000	916.890	1923.000	908.310	2000.000
GR	908.250	2004.000	908.510	2006.000	908.320	2026.000	907.810	2040.000	906.320	2053.000
GR	904.850	2073.000	905.830	2086.000	905.790	2106.000	904.740	2120.000	904.310	2133.000
GR	905.350	2140.000	907.880	2140.000	908.180	2144.000	908.070	2243.000	910.650	2300.000
GR	914.080	2326.000	915.490	2439.000	915.490	2526.000	918.600	2646.000	921.230	2773.000
GR	923.730	2879.000	925.280	3016.000	926.630	3116.000	928.310	3319.000	930.680	3459.000
GR	930.600	3529.000	929.830	3537.000	934.820	3562.000	0.000	0.000	0.000	0.000
NC	.060	.090	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D

X1	6.800	36.000	1999.000	2068.000	1250.000	1150.000	1300.000	0.000	0.000	0.000
GR	937.300	1803.000	925.600	1856.000	921.900	1868.000	908.800	1924.000	908.600	1999.000
GR	907.200	2000.000	905.900	2016.000	904.800	2024.000	905.200	2032.000	904.800	2043.000
GR	904.100	2049.000	904.800	2057.000	906.800	2068.000	908.900	2068.000	909.100	2118.000
GR	908.600	2180.000	907.000	2184.000	906.500	2190.000	907.000	2201.000	907.900	2204.000
GR	908.700	2244.000	909.600	2292.000	908.700	2386.000	912.300	2462.000	913.300	2538.000
GR	914.400	2618.000	912.800	2694.000	913.300	2786.000	913.100	2894.000	917.600	3092.000
GR	920.400	3148.000	916.800	3238.000	918.200	3330.000	920.400	3422.000	922.300	3498.000
GR	924.300	3540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.040	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1991.500	2085.100	0.000	0.000

X1	6.900	29.000	1991.500	2085.000	315.000	315.000	315.000	0.000	0.000	0.000
GR	930.100	1604.000	923.600	1704.000	920.800	1784.000	917.300	1880.000	913.100	1978.000
GR	907.400	1991.500	905.700	2010.000	905.100	2016.000	904.900	2024.000	904.500	2038.000
GR	905.100	2056.000	907.200	2084.000	912.300	2085.000	909.200	2184.000	909.200	2279.000
GR	909.300	2372.000	911.400	2404.000	913.800	2490.000	913.500	2598.000	912.600	2692.000
GR	914.400	2788.000	913.400	2892.000	914.000	2994.000	907.800	3076.000	911.500	3170.000
GR	914.700	3302.000	917.500	3399.000	921.000	3499.000	923.200	3659.000	0.000	0.000

X1	6.950	31.000	1998.000	2078.000	6.500	6.500	6.500	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	915.400	914.000	0.000
GR	933.100	1536.000	929.600	1614.000	926.200	1692.000	921.600	1806.000	918.600	1872.000
GR	907.300	1998.000	906.700	2017.400	906.700	2017.500	906.700	2018.400	906.700	2018.500
GR	905.400	2038.000	906.400	2057.400	906.400	2057.500	906.400	2058.400	906.400	2058.500
GR	905.900	2068.000	908.300	2078.000	912.100	2196.000	912.000	2288.000	912.300	2350.000
GR	913.300	2474.000	913.300	2560.000	913.500	2648.000	914.600	2780.000	914.800	2880.000
GR	915.500	2978.000	917.300	3082.000	919.700	3178.000	921.500	3244.000	925.100	3384.000
GR	928.300	3492.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.020	.020	.020	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	7.000	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	916.000	915.000	0.000
BT	16.000	1872.000	918.600	0.000	1998.000	916.200	907.300	1998.000	916.200	914.600
BT	2017.400	915.800	914.300	2017.500	915.800	906.700	2018.400	915.800	906.700	2018.500
BT	915.800	914.300	2038.000	915.500	914.000	2057.400	915.300	913.600	2057.500	915.300
BT	906.400	2058.400	915.300	906.400	2058.500	915.300	913.600	2068.000	915.200	913.200
ET	2078.000	915.100	912.900	2078.000	915.100	908.300	2978.000	915.500	0.000	0.000

BRIDGE SECTION E UPSTREAM FACE B DRIVE NORTH

KNOWL BUSINESS FOR S, INC 23

MOORE BUSINESS FORMS INC 2J

XI	8.000	32.000	2000.000	2034.000	850.000	1250.000	1050.000	0.000	0.000	0.000
GR	932.200	1442.000	929.900	1558.000	922.300	1708.000	918.100	1746.000	914.800	1772.000
GR	913.200	1819.000	920.100	1886.000	911.100	1932.000	913.800	1954.000	917.800	1974.000
GR	910.800	2000.000	908.900	2006.000	908.100	2012.000	908.200	2020.000	911.100	2026.000
GR	915.000	2034.000	919.500	2078.000	920.200	2128.000	916.900	2170.000	917.600	2258.000
GR	916.000	2402.000	914.900	2530.000	925.400	2564.000	925.700	2578.000	915.300	2608.000
GR	914.500	2774.000	917.800	2912.000	925.800	2980.000	927.700	3084.000	931.900	3162.000
GR	939.200	3206.000	942.100	3238.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.085	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2055.100	0.000	0.000	0.000

VALLEY SECTION I

XI	8.800	25.000	1997.000	2096.000	420.000	530.000	500.000	0.000	0.000	0.000
GR	931.400	1700.000	930.100	1810.000	922.600	1890.000	924.400	1919.000	924.700	1941.000
GR	922.300	1973.000	912.700	1997.000	911.300	2000.000	909.300	2015.000	909.600	2035.000
GR	908.900	2043.000	908.600	2051.000	909.300	2071.000	908.300	2083.000	911.300	2093.000
GR	913.500	2096.000	915.500	2139.000	918.600	2415.000	921.500	2569.000	932.400	2753.000
GR	928.400	2924.000	928.600	3086.000	932.000	3238.000	937.000	3405.000	939.300	3513.000
NC	.080	.080	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2055.100	0.000	0.000
XI	8.900	26.000	2000.000	2055.000	219.000	219.000	219.000	0.000	0.000	0.000
GR	932.400	1600.000	932.200	1700.000	927.700	1818.000	928.700	1950.000	925.900	2000.000
GR	911.300	2000.000	909.200	2006.000	908.800	2007.000	908.500	2016.000	908.500	2022.000
GR	908.500	2028.000	908.600	2034.000	909.900	2038.000	911.300	2046.000	912.300	2055.000

VALLEY SECTION H

XI	7.500	14.000	1175.000	1280.000	1600.000	1700.000	1700.000	0.000	0.000	0.000
GR	950.000	0.000	940.000	600.000	930.000	775.000	920.000	980.000	910.000	1050.000
GR	908.000	1175.000	905.750	1193.000	905.800	1211.000	905.900	1228.000	906.200	1245.000
GR	907.000	1275.000	908.000	1280.000	920.000	1950.000	927.000	2100.000	0.000	0.000
NC	.085	.070	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	7.100	1794.000	2032.000	0.000	0.000

VALLEY SECTION G

XI	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	918.400	2908.000	921.610	3115.000	924.410	3275.000	926.150	3371.000	932.980	3408.000
GR	908.350	2208.000	909.510	2275.000	912.470	2368.000	912.060	2528.000	915.060	2751.000
GR	904.750	2018.000	904.760	2036.000	904.950	2053.000	907.390	2070.000	910.040	2075.000
GR	929.150	1837.000	913.300	1957.000	911.050	1993.000	909.310	2000.000	907.420	2001.000
XI	7.310	20.000	2000.000	2075.000	90.000	120.000	100.000	0.000	0.000	0.000

VALLEY SECTION F

XI	7.200	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	916.200	915.100	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2280.000	0.000	0.000

XI	7.100	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
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	916.000	915.000	0.000

GR	925.700	2055.000	913.800	2150.000	914.100	2266.000	917.600	2390.000	922.100	2416.000
GR	922.000	2442.000	922.700	2726.000	925.100	2946.000	930.500	3231.000	938.100	3497.000
GR	939.000	3523.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.017	.017	.017	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	8.950	27.000	2000.000	2055.000	5.000	5.000	5.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	924.500	924.150	0.000
GR	932.400	1628.000	930.500	1716.000	928.500	1800.000	926.200	1942.000	925.900	2000.000
GR	911.900	2000.000	911.600	2011.000	910.800	2022.000	910.000	2027.500	910.600	2033.000
GR	911.200	2044.000	910.920	2055.000	925.700	2055.000	925.200	2102.000	924.400	2208.000
GR	924.000	2310.000	923.800	2400.000	923.400	2497.000	923.400	2612.000	923.300	2718.000
GR	923.700	2822.000	925.100	2928.000	928.800	3030.000	928.200	3132.000	928.900	3206.000
GR	931.600	3314.000	934.400	3394.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	9.000	1942.000	926.200	0.000	2000.000	925.900	911.900	2000.000	925.900	922.800
BT	2022.000	925.900	922.700	2033.000	925.800	922.700	2044.000	925.800	922.600	2055.000
BT	925.700	922.600	2055.000	925.700	910.900	2102.000	925.200	0.000	0.000	0.000

BRIDGE SECTION J UPSTREAM FACE 23 MILE ROAD

X1	9.100	0.000	0.000	0.000	26.000	26.000	26.000	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	.080	.080	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	9.200	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	925.900	925.700	0.000
X1	9.300	0.000	0.000	0.000	55.000	55.000	55.000	0.000	0.000	0.000
NC	.085	.085	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

VALLEY SECTION K

X1	10.000	36.000	2000.000	2138.000	4050.000	4050.000	4050.000	0.000	0.000	0.000
GR	940.600	930.000	936.900	1040.000	932.500	1138.000	933.900	1270.000	932.400	1298.000
GR	933.000	1478.000	929.700	1612.000	929.000	1740.000	923.000	1886.000	919.200	1945.000
GR	916.000	1998.000	914.600	2000.000	913.300	2016.000	913.300	2028.000	913.000	2038.000
GR	913.500	2052.000	913.400	2060.000	913.800	2080.000	913.800	2094.000	913.700	2110.000
GR	913.400	2124.000	914.500	2138.000	915.400	2144.000	917.100	2158.000	921.500	2244.000
GR	926.600	2466.000	927.700	2544.000	931.200	2722.000	933.100	2782.000	939.200	2824.000
GR	939.700	2838.000	936.100	2856.000	937.400	2870.000	937.800	2882.000	937.100	2904.000
GR	941.600	2918.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION L EAST BOUNDARY LINE MARENGO TOWNSHIP LINE

X1	11.000	23.000	2000.000	2072.000	1550.000	1600.000	1650.000	0.000	0.000	0.000
GR	936.000	1340.000	933.300	1440.000	924.700	1568.000	920.700	1680.000	917.500	1828.000
GR	917.600	1996.000	915.400	2000.000	912.000	2008.000	911.600	2016.000	911.900	2022.000
GR	912.300	2030.000	913.100	2036.000	913.700	2042.000	914.300	2051.000	915.100	2056.000
GR	915.400	2072.000	916.500	2082.000	919.300	2186.000	925.300	2324.000	936.500	2354.000
GR	936.400	2367.000	951.500	2419.000	951.400	2450.000	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

MOORE BUSINESS FORMS, INC. 23

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 6.490

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
		VALLEY SECTION A DOWNSTREAM LIMIT NEAR 22 MILE ROAD							
6.49	7.91	908.41	0.00	908.41	908.49	.08	0.00	0.00	905.91
1600.	108.	1407.	86.	186.	581.	184.	0.	0.	906.60
0.00	.58	2.42	.46	.090	.045	.090	0.000	900.50	1895.98
.000501	0.	0.	0.	0	0	0	0.00	342.62	2238.61

*SECNO 6.590

VALLEY SECTION B

6.59	6.91	908.98	0.00	0.00	909.08	.10	.58	.01	907.00
1600.	140.	1320.	140.	242.	481.	236.	21.	8.	906.21
.12	.58	2.75	.59	.100	.045	.100	.045	902.07	1854.58
.000700	1000.	1000.	910.	2	0	0	0.00	365.76	2220.33

1490 NH CARD USED

*SECNO 6.690

VALLEY SECTION C

6.69	6.13	910.44	0.00	0.00	910.51	.07	1.43	.00	907.81
1600.	120.	1167.	313.	107.	489.	301.	66.	24.	907.88
.40	1.13	2.39	1.04	.053	.045	.060	.045	904.31	1980.85
.000667	2200.	2100.	2000.	2	0	0	0.00	314.59	2295.44

*SECNO 6.800

VALLEY SECTION D

6.80	7.03	911.13	0.00	0.00	911.19	.06	.67	.00	908.60
1600.	177.	936.	487.	194.	391.	803.	98.	36.	908.90
.61	.91	2.39	.61	.060	.040	.090	.044	904.10	1914.04
.000435	1250.	1300.	1150.	2	0	0	0.00	523.25	2437.29

CCHV= .300 CEHV= .500

*SECNO 6.900

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

MOORE BUSINESS FORMS, INC. 23

3470 ENCROACHMENT STATIONS= 1991.5 2085.1 TYPE= 1 TARGET= 93.600

6.90	6.76	911.26	0.00	0.00	911.41	.14	.18	.04	907.40
1600.	0.	1600.	0.	0.	525.	0.	105.	38.	912.30
.64	0.00	3.05	0.00	.080	.040	.080	.044	904.50	1991.50
.000743	315.	315.	315.	2	0	0	0.00	93.30	2084.80

*SECNO 6.950

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 915.40 ELREA= 914.00

6.95	5.81	911.21	0.00	0.00	911.48	.27	.01	.06	907.30
1600.	0.	1600.	0.	0.	384.	0.	105.	38.	908.30
.64	0.00	4.16	0.00	.080	.040	.080	.044	905.40	1998.00
.001557	7.	7.	7.	2	0	0	0.00	80.00	2078.00

CCHV= .300 CEHV= .500
*SECNO 7.000

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 915.10 MAX ELLC= 914.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 916.00 ELREA= 915.00

7.00	5.80	911.20	0.00	0.00	911.48	.28	.00	.01	907.30
1600.	0.	1600.	0.	0.	376.	0.	105.	38.	908.30
.64	0.00	4.26	0.00	.020	.020	.020	.044	905.40	1998.00
.000594	1.	1.	1.	0	0	0	-140.20	80.00	2078.00

*SECNO 7.100

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 915.10 MAX ELLC= 914.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 916.00 ELREA= 915.00

BRIDGE SECTION E UPSTREAM FACE B DRIVE NORTH

7.10	5.82	911.22	0.00	0.00	911.50	.28	.02	.00	907.30
1600.	0.	1600.	0.	0.	377.	0.	105.	38.	908.30
.64	0.00	4.24	0.00	.020	.020	.020	.044	905.40	1998.00
.000587	29.	29.	29.	1	0	0	-141.99	80.00	2078.00

*SECNO 7.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 916.20 ELREA= 915.10

7.20	5.84	911.24	0.00	0.00	911.50	.27	.00	.00	907.30
1600.	0.	1600.	0.	0.	386.	0.	105.	38.	908.30
.64	0.00	4.14	0.00	.020	.020	.020	.044	905.40	1998.00
.000383	1.	1.	1.	1	0	0	0.00	80.00	2078.00

*SECNO 7.310

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

MOORE BUSINESS FORMS, INC. 23

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

3470 ENCROACHMENT STATIONS= 2000.0 2280.0 TYPE= 1 TARGET= 280.000

VALLEY SECTION F

7.31	6.78	911.53	0.00	0.00	911.58	.06	.02	.06	909.31
1600.	0.	968.	632.	0.	436.	494.	107.	38.	910.04
.66	0.00	2.22	1.28	.020	.020	.020	.043	904.75	2000.00
.000092	90.	100.	120.	2	0	0	0.00	280.00	2280.00

*SECNO 7.500

VALLEY SECTION G

7.50	6.07	911.82	0.00	0.00	911.87	.05	.28	.00	908.00
1600.	233.	1163.	204.	364.	576.	408.	151.	53.	908.00
.95	.64	2.02	.50	.090	.045	.090	.044	905.75	1037.25
.000388	1600.	1700.	1700.	2	0	0	0.00	456.13	1493.37

CCHV= .100 CEHV= .300
*SECNO 8.000

3265 DIVIDED FLOW

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	IDC	ICONT	CORAR	TOPWID	ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

VALLEY SECTION H

8.00	5.95	914.05	914.05	0.00	915.46	1.42	1.09	.41	910.80
1600.	177.	1423.	0.	91.	141.	0.	170.	59.	915.00
.98	1.95	10.10	0.00	.085	.035	.070	.042	908.10	1794.16
.008414	850.	1050.	1250.	20	8	0	0.00	115.43	2032.04

CCHV= .100 CEHV= .300
*SECNO 8.800

3301 HV CHANGED MORE THAN HVINS

VALLEY SECTION I

8.80	7.61	915.91	0.00	0.00	916.01	.09	.42	.13	912.70

MOORE BUSINESS FORMS, INC. 33

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    1600.       5.     1571.      24.      13.     632.      69.     175.      61.    913.50
     1.03      .42      2.48      .35     .080     .035     .085     .042    908.30   1988.96
  .000295     420.      500.     530.        3        0        0     0.00    187.11   2176.07

CCHV=     .100 CEHV=     .300
*SECNO 8.900

3470 ENCROACHMENT STATIONS=     2000.0     2055.1  TYPE=      1  TARGET=       55.100
     8.90     7.36    915.86     0.00     0.00   916.20      .34      .12       .07    925.90
    1600.       0.     1600.       0.       0.     343.       0.     178.       62.    925.70
     1.05     0.00      4.66     0.00     .080     .035     .080     .042    908.50   2000.00
  .001284     219.      219.     219.        2        0        0     0.00     55.00   2055.00

CCHV=     .300 CEHV=     .500
*SECNO 8.950
   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=       924.50 ELREA=       924.15

     8.95     5.74    915.74     0.00     0.00   916.34      .60      .00       .13    925.90
    1600.       0.     1600.       0.       0.     258.       0.     178.       62.    925.70
     1.05     0.00      6.21     0.00     .017     .017     .017     .042    910.00   2000.00
  .000784       5.        5.       5.        2        0        0     0.00     55.00   2055.00

*SECNO 9.000

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  925.20 MAX ELLC=  922.80

     9.00     5.74    915.74     0.00     0.00   916.34      .60      .00       .00    925.90
    1600.       0.     1600.       0.       0.     258.       0.     178.       62.    925.70
     1.05     0.00      6.21     0.00     .017     .017     .017     .042    910.00   2000.00
  .000929       1.        1.       1.        0        0        0     0.00     55.00   2055.00

*SECNO 9.100

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  925.20 MAX ELLC=  922.80

                BRIDGE SECTION J UPSTREAM FACE 23 MILE ROAD

     9.10     5.77    915.77     0.00     0.00   916.36      .59      .02       .00    925.90
    1600.       0.     1600.       0.       0.     259.       0.     178.       62.    925.70
     1.05     0.00      6.18     0.00     .017     .017     .017     .042    910.00   2000.00
  .000916      26.       26.      26.        0        0        0     0.00     55.00   2055.00

CCHV=     .100 CEHV=     .300
*SECNO 9.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       925.90 ELREA=       925.70
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MOORE BUSINESS FORMS, INC. 23

9.20	5.77	915.77	0.00	0.00	916.36	.59	.00	.00	925.90
1600.	0.	1600.	0.	0.	259.	0.	178.	62.	925.70
1.05	0.00	6.17	0.00	.080	.035	.080	.042	910.00	2000.00
.003253	1.	1.	1.	0	0	0	0.00	55.00	2055.00

*SECNO 9.300

9.30	6.00	916.00	0.00	0.00	916.53	.54	.17	.01	925.90
1600.	0.	1600.	0.	0.	272.	0.	178.	62.	925.70
1.05	0.00	5.88	0.00	.080	.035	.080	.042	910.00	2000.00
.002805	55.	55.	55.	2	0	0	0.00	55.00	2055.00

CCHV= .100 CEHV= .300

*SECNO 10.000

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	ICUNT	CORAR	TOPWID	ENDST

VALLEY SECTION K

10.00	5.95	918.95	0.00	0.00	919.01	.06	2.43	.05	914.60
1600.	30.	1524.	46.	79.	737.	95.	233.	76.	914.50
1.62	.38	2.07	.48	.085	.035	.085	.039	913.00	1949.15
.000254	4050.	4050.	4050.	6	0	0	0.00	245.01	2194.15

*SECNO 11.000

VALLEY SECTION L EAST BOUNDARY LINE MARENGO TOWNSHIP LINE

11.00	7.86	919.46	0.00	0.00	919.57	.11	.54	.01	915.40
1600.	224.	1264.	111.	422.	430.	198.	270.	89.	915.40
1.80	.53	2.94	.56	.085	.035	.085	.039	911.60	1737.27
.000450	1550.	1650.	1600.	3	0	0	0.00	452.46	2189.72

MOORE BUSINESS FORMS, INC. 23

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1
T2
T3

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
      -10.       6.         0.         0.  0.000000       0.00       0.0        0.       908.410     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
*PROF 2

CCHV=    .100 CEHV=    .300
*SECNO 6.490
 2800 NAT Q1=     714.67  WSEL=     908.41  ENC Q1=     714.67  WSEL=     908.51  RATIO=  0.0000
 NAT Q1=     740.  RATIOS LOB,CH,ROB=    .0703    .8724    .0573  WSEL=     908.51
 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=     1950.4     2154.3  TYPE=      4  TARGET=         .035
                    VALLEY SECTION A DOWNSTREAM LIMIT NEAR 22 MILE ROAD

      6.49       7.91     908.41       0.00     908.41     908.50        .09       0.00       0.00     905.91
     1600.        84.      1453.        63.       122.       581.       109.         0.         0.      906.60
      0.00        .69       2.50        .58        .090       .045       .090     0.000     900.50    1950.38
   .000535         0.         0.         0.          0          0          0      0.00     203.88    2154.26

*SECNO 6.590
 2800 NAT Q1=     604.80  WSEL=     908.98  ENC Q1=     604.80  WSEL=     909.08  RATIO=  0.0000
 NAT Q1=     630.  RATIOS LOB,CH,ROB=    .0921    .8161    .0917  WSEL=     909.08

3470 ENCROACHMENT STATIONS=     1909.3     2146.9  TYPE=      4  TARGET=         .039
                    VALLEY SECTION B

      6.59       6.95     909.02       0.00     908.98     909.12        .11        .62        .01     907.00
     1600.       117.      1365.       118.       183.       484.       159.        19.         5.      906.21
       .11        .64       2.82        .74        .100       .045       .100       .045     902.07    1909.34
   .000733     1000.      1000.       910.          2          0          0      0.00     237.57    2146.91

1490 NH CARD USED
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MOORE BUSINESS FORMS INC 91

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*SECNO 6.690
 2800 NAT Q1=     619.39  WSEL=     910.44  ENC Q1=     619.39  WSEL=     910.54  RATIO=  0.0000
 NAT Q1=     648.  RATIOS LOB,CH,ROB=    .0779    .7203    .2018  WSEL=     910.54

3470 ENCROACHMENT STATIONS=    2007.3    2248.2  TYPE=      4  TARGET=        .045

                VALLEY SECTION C

     6.69      6.22    910.53      0.00    910.44    910.60       .07      1.48       .00    907.81
     1600.       93.    1209.      298.       74.      497.      260.       58.       16.    907.88
      .38      1.26      2.43      1.15      .052      .045      .060      .045    904.31   2007.30
  .000678     2200.     2100.     2000.         2         0         0      0.00    240.88   2248.19

*SECNO 6.800
 2800 NAT Q1=     766.82  WSEL=     911.13  ENC Q1=     766.82  WSEL=     911.23  RATIO=  0.0000
 NAT Q1=     803.  RATIOS LOB,CH,ROB=    .1130    .5751    .3119  WSEL=     911.23

3470 ENCROACHMENT STATIONS=    1935.5    2380.3  TYPE=      4  TARGET=        .045

                VALLEY SECTION D

     6.80      7.12    911.22      0.00    911.13    911.28       .06       .68       .00    908.60
     1600.      152.     964.      484.      161.      398.      757.       88.       26.    908.90
      .58       .94      2.42       .64      .060      .040      .090      .044    904.10   1935.47
  .000438     1250.     1300.     1150.         2         0         0      0.00    444.85   2380.31

CCHV=     .300 CEHV=     .500
*SECNO 6.900
   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=    1991.5    2085.1  TYPE=      1  TARGET=       93.600
     6.90      6.86    911.36      0.00    911.26    911.50       .14       .17       .04    907.40
     1600.       0.    1600.       0.        0.      534.        0.        95.       28.    912.30
      .61      0.00      3.00      0.00      .080      .040      .080      .044    904.50   1991.50
  .000705      315.      315.      315.         2         0         0      0.00     93.31   2084.81

*SECNO 6.950

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      915.40 ELREA=      914.00

     6.95      5.90    911.30      0.00    911.21    911.56       .26       .01       .06    907.30
     1600.       0.    1600.       0.        0.      392.        0.        95.       28.    908.30
      .61      0.00      4.08      0.00      .080      .040      .080      .044    905.40   1998.00
  .001458        7.        7.        7.         2         0         0      0.00     80.00   2078.00

CCHV=     .300 CEHV=     .500
*SECNO 7.000

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  915.10 MAX ELLC=  914.60
```

MOORE BUSINESS FORMS, INC 23

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 916.00 ELREA= 915.00

7.00	5.90	911.30	0.00	911.20	911.57	.27	.00	.01	907.30
1600.	0.	1600.	0.	0.	383.	0.	95.	28.	908.30
.61	0.00	4.18	0.00	.020	.020	.020	.044	905.40	1998.00
.000560	1.	1.	1.	0	0	0	-149.24	80.00	2078.00

*SECNO 7.100

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 915.10 MAX ELLC= 914.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 916.00 ELREA= 915.00

BRIDGE SECTION E UPSTREAM FACE B DRIVE NORTH

7.10	5.92	911.32	0.00	911.22	911.58	.27	.02	.00	907.30
1600.	0.	1600.	0.	0.	385.	0.	95.	28.	908.30
.62	0.00	4.16	0.00	.020	.020	.020	.044	905.40	1998.00
.000552	29.	29.	29.	0	0	0	-151.42	80.00	2078.00

*SECNO 7.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 916.20 ELREA= 915.10

7.20	5.93	911.33	0.00	911.24	911.59	.26	.00	.00	907.30
1600.	0.	1600.	0.	0.	394.	0.	95.	28.	908.30
.62	0.00	4.06	0.00	.020	.020	.020	.044	905.40	1998.00
.000359	1.	1.	1.	1	0	0	0.00	80.00	2078.00

*SECNO 7.310

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= 2000.0 2280.0 TYPE= 1 TARGET= 280.000

VALLEY SECTION F

7.31	6.86	911.61	0.00	911.53	911.67	.05	.02	.06	909.31
1600.	0.	955.	645.	0.	443.	512.	97.	28.	910.04
.63	0.00	2.16	1.26	.020	.020	.020	.043	904.75	2000.00
.000085	90.	100.	120.	2	0	0	0.00	280.00	2280.00

*SECNO 7.500

2800 NAT Q1= 812.05 WSEL= 911.82 ENC Q1= 812.05 WSEL= 911.92 RATIO= 0.0000
NAT Q1= 845. RATIOS LOB,CH,ROB= .1483 .7202 .1315 WSEL= 911.92

3470 ENCROACHMENT STATIONS= 1074.0 1367.7 TYPE= 4 TARGET= .039

VALLEY SECTION G

HYDROLOGY & HYDRAULICS, INC '93

```
     7.50      6.14    911.89      0.00    911.82    911.94       .05       .27       .00    908.00
     1600.      213.     1200.      187.      311.      582.      272.      138.       39.    908.00
      .91       .69      2.06       .69      .090      .045      .090      .044    905.75   1074.00
  .000397      1600.     1700.     1700.         2         0         0      0.00    293.68   1367.68

CCHV=     .100 CEHV=     .300
*SECNO 8.000

3265 DIVIDED FLOW

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    1794.0    2032.0  TYPE=       1  TARGET=     238.000

                VALLEY SECTION H

     8.00      5.95    914.05    914.05    914.05    915.46      1.42      1.11       .41    910.80
     1600.      177.     1423.        0.        91.       141.         0.      155.       44.  100000.00
      .94       1.94     10.10      0.00      .085      .035      .070      .042    908.10   1794.17
  .008410      850.     1050.     1250.        20         8         0      0.00    115.37   2032.00

CCHV=     .100 CEHV=     .300
*SECNO 8.800

3301 HV CHANGED MORE THAN HVINS

                VALLEY SECTION I

     8.80      7.61    915.91      0.00    915.91    916.01       .09       .42       .13    912.70
     1600.        5.     1571.       24.       13.       632.       69.      160.       46.    913.50
      .99       .42      2.48       .35      .080      .035      .085      .042    908.30   1988.96
  .000295      420.      500.      530.         3         0         0      0.00    187.14   2176.09

CCHV=     .100 CEHV=     .300
*SECNO 8.900

3470 ENCROACHMENT STATIONS=    2000.0    2055.1  TYPE=       1  TARGET=      55.100
     8.90      7.36    915.86      0.00    915.86    916.20       .34       .12       .07    925.90
     1600.        0.     1600.        0.        0.       343.         0.      163.       46.    925.70
      1.01      0.00      4.66      0.00      .080      .035      .080      .042    908.50   2000.00
  .001284      219.      219.      219.         2         0         0      0.00     55.00   2055.00

CCHV=     .300 CEHV=     .500
*SECNO 8.950
```

MOORE BUSINESS FORMS, INC. 23

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 924.50 ELREA= 924.15

8.95	5.74	915.74	0.00	915.74	916.34	.60	.00	.13	925.90
1600.	0.	1600.	0.	0.	258.	0.	163.	46.	925.70
1.01	0.00	6.21	0.00	.017	.017	.017	.042	910.00	2000.00
.000784	5.	5.	5.	2	0	0	0.00	55.00	2055.00

*SECNO 9.000

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 925.20 MAX ELLC= 922.80

9.00	5.74	915.74	0.00	915.74	916.34	.60	.00	.00	925.90
1600.	0.	1600.	0.	0.	258.	0.	163.	46.	925.70
1.01	0.00	6.21	0.00	.017	.017	.017	.042	910.00	2000.00
.000929	1.	1.	1.	0	0	0	0.00	55.00	2055.00

*SECNO 9.100

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 925.20 MAX ELLC= 922.80

BRIDGE SECTION J UPSTREAM FACE 23 MILE ROAD

9.10	5.77	915.77	0.00	915.77	916.36	.59	.02	.00	925.90
1600.	0.	1600.	0.	0.	259.	0.	163.	46.	925.70
1.01	0.00	6.18	0.00	.017	.017	.017	.042	910.00	2000.00
.000916	26.	26.	26.	0	0	0	0.00	55.00	2055.00

CCHV= .100 CEHV= .300

*SECNO 9.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 925.90 ELREA= 925.70

9.20	5.77	915.77	0.00	915.77	916.36	.59	.00	.00	925.90
1600.	0.	1600.	0.	0.	260.	0.	163.	46.	925.70
1.01	0.00	6.17	0.00	.080	.035	.080	.042	910.00	2000.00
.003252	1.	1.	1.	0	0	0	0.00	55.00	2055.00

*SECNO 9.300

9.30	6.00	916.00	0.00	916.00	916.54	.54	.17	.01	925.90
1600.	0.	1600.	0.	0.	272.	0.	163.	47.	925.70
1.01	0.00	5.88	0.00	.080	.035	.080	.042	910.00	2000.00
.002805	55.	55.	55.	2	0	0	0.00	55.00	2055.00

CCHV= .100 CEHV= .300

*SECNO 10.000

2800 NAT Q1= 1004.27 WSEL= 918.95 ENC Q1= 1004.27 WSEL= 919.05 RATIO= 0.0000

NAT Q1= 1038. RATIOS LOB,CH,ROB= .0198 .9504 .0297 WSEL= 919.05

MOORE BUSINESS FORMS, INC. 23

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= 1996.9 2147.1 TYPE= 4 TARGET= .032

VALLEY SECTION K

10.00	6.00	919.00	0.00	918.95	919.07	.07	2.49	.05	914.60
1600.	5.	1573.	21.	11.	745.	35.	213.	56.	914.50
1.55	.49	2.11	.62	.085	.035	.085	.039	913.00	1996.93
.000262	4050.	4050.	4050.	4	0	0	0.00	150.12	2147.05

*SECNO 11.000
2800 NAT Q1= 753.87 WSEL= 919.46 ENC Q1= 753.87 WSEL= 919.56 RATIO= 0.0000
NAT Q1= 785. RATIOS LOB,CH,ROB= .1474 .7797 .0728 WSEL= 919.56

3470 ENCROACHMENT STATIONS= 1824.6 2113.8 TYPE= 4 TARGET= .040

VALLEY SECTION L EAST BOUNDARY LINE MARENGO TOWNSHIP LINE

11.00	7.93	919.53	0.00	919.46	919.64	.11	.56	.01	915.40
1600.	209.	1303.	88.	352.	435.	119.	244.	64.	915.40
1.73	.59	3.00	.74	.085	.035	.085	.039	911.60	1824.64
.000460	1550.	1650.	1600.	1	0	0	0.00	289.15	2113.78

FACTORY BUSINESS FORMS, INC. 23



1) COUNTY: Calhoun

2) STUDY NAME: Marengo Twp

3) WATERCOURSE: Kalamazoo River

4) DOCUMENT TYPE: report



13

Pack 1

Flood Boundary [illegible]

Head [illegible]

A) [illegible]

B) [illegible]

HYDRAULIC ANALYSIS REPORT

KALAMAZOO RIVER AT THE

TOWNSHIP OF MARENGO

CALHOUN COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 EAST WASHINGTON AVENUE
JACKSON, MICHIGAN 49201

SEPTEMBER, 1980

INTRODUCTION

This hydraulic analysis report covers calculations performed for the Kalamazoo River within the corporate boundary of the township of Marengo. The reach studied in detail began near 22-Mile Road and extended about 14,110 feet upstream to the east township boundary line. Selected cross sections used in the hydraulic computations were surveyed by Commonwealth Associates in August, 1979. In addition to field cross section data, a preliminary 7.5 minute series topographic map with a 10-foot contour interval was used.

The flows for the 10-, 50-, 100-, and 500-year recurrence intervals were determined by computer analysis using the TR-20 model. The flows were approved by the Michigan Department of Natural Resources in a letter dated July 6, 1979.

Analysis of the hydraulic characteristics of the flooding source studied in detail was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was V. Danushkodi, P.E.

METHOD OF ANALYSIS

Water surface elevations of floods of the selected recurrence intervals were computed through the use of the Corps of Engineers' HEC-2 step-backwater computer program.

VARIABLES AND COEFFICIENTS

Manning's coefficient of roughness "n" depends on several factors such as type and amount of vegetation, channel configuration and alignment, and channel material. Without an in-depth study, an "n" value can only be estimated. The channel roughness factors used in the hydraulic computations were chosen by engineering judgment based on field observations and photographs of the surveyed cross sections.

Manning's Roughness Coefficients

For channel	.035-.045
For overbank	.053-.10

Coefficients for Natural Channels

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

HIGH-WATER MARKS

There are no known high-water marks for the reach studied.

STARTING CONDITIONS

The starting water surface elevations were specified by the slope area method. A starting slope of .0008 foot per foot was used. The starting water surface elevation was varied by plus and minus one foot from the slope-area depth to ensure that the water surface converged at the downstream limit of the study. A copy of the convergence run printout is contained in Appendix B.

SPECIAL PROBLEMS

There were no special problems associated with this study. However, we would like to call your attention to the critical depth message at Section 8. This condition is reasonable. Included in Appendix A are photos showing fast-moving water occurring at the time of survey. Also contained in the Appendix are hand calculations to verify the condition.

CROSS SECTION REFERENCE

Cross Section I.D. in Profile/Table	Sec. No. in HEC-2 Program	Description
A	6.49	Valley Section near 22-Mile Road
B	6.59	Valley Section
C	6.69	Valley Section
D	6.8	Valley Section
	6.9	Valley Section
	6.95	Valley Section
E	7.0	Bridge Section
	7.1	Upstream Face, B Drive North
	7.2	1 Foot upstream
F	7.3	Valley Section
G	7.5	Valley Section
H	8.0	Valley Section
I	8.8	Valley Section
	8.9	Valley Section
	8.95	Valley Section
	9.0	Bridge Section
J	9.1	Upstream Face 23-Mile Road
	9.2	1 Foot upstream
	9.3	Valley Section
K	10.0	Valley Section
L	11.0	Valley Section, east boundary line, Marengo Township

BRIDGE NOTES AND SKETCHES

Bridge notes and sketches are contained in Appendix B.

CROSS SECTION PLOTS

Cross section plots showing floodway delineation and approximate 100-year elevation are contained in Appendix C.

PROFILES

Copies of the water surface profiles are contained in Appendix D.

MAP

A copy of the 100-year flood plain and floodway showing cross section is contained in Appendix E.

COMPUTER BACKWATER RUNS/PRINTOUTS

The final HEC-II printouts for multi-profile run and floodway run are contained in Appendix E.

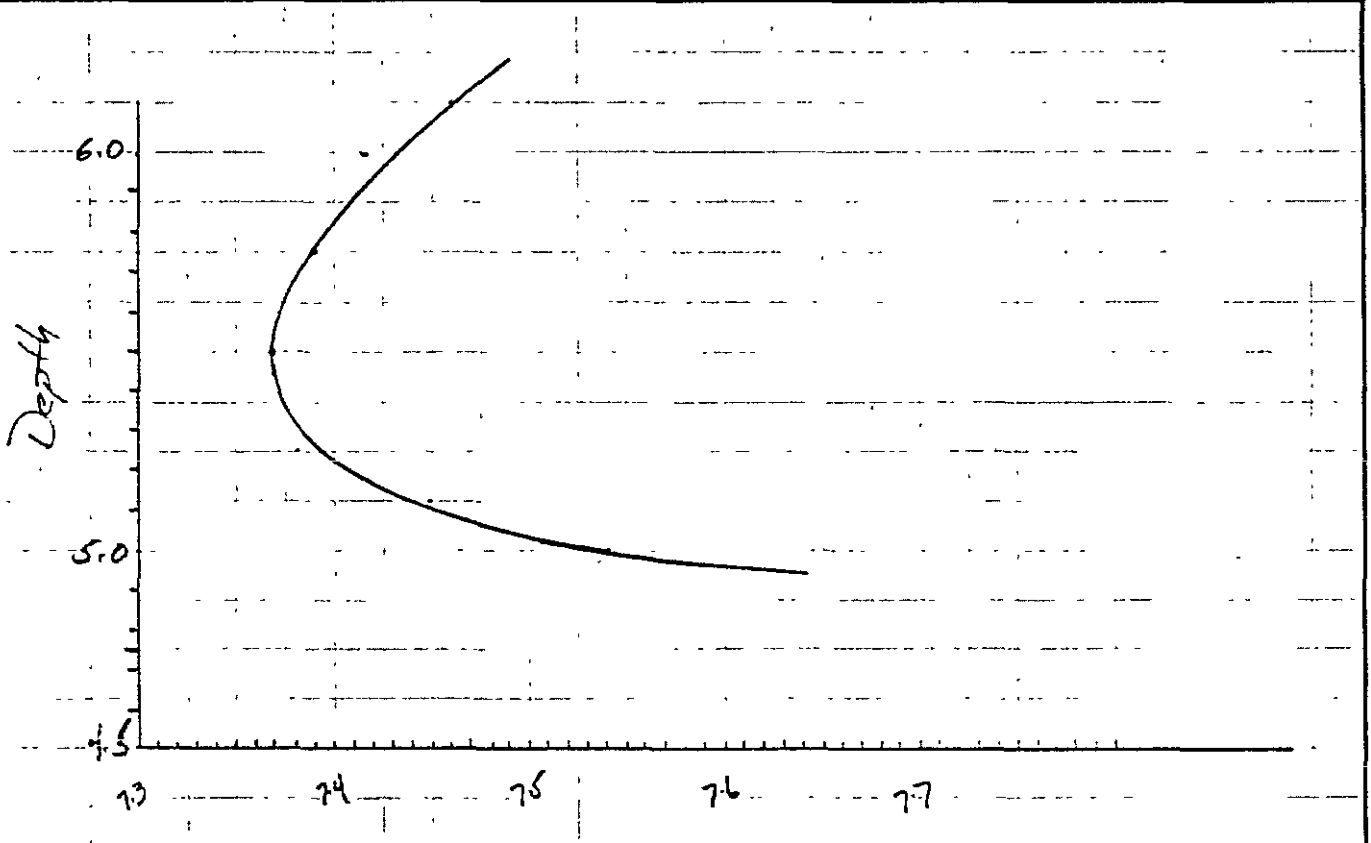
APPENDIX A

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER: Flood Insurance Study Township of Marengo Kalamazoo River	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Critical Depth Calculation
	SHEET OF / BOOK NO.



Depth	V	$\frac{V^2}{2g}$	$D+\frac{V^2}{2g}$
5	12.8	2.54	7.54
5.1	12.42	2.35	7.45
5.25	11.72	2.13	7.38
5.5	10.98	1.87	7.37
5.75	10.30	1.65	7.39
6.0	9.52	1.41	7.41
6.1	9.36	1.36	7.46
6.5	8.42	1.10	7.59

Flow

Approximate Area

$\left(\frac{TW + 12}{2}\right) D$

Critical Depth = 913.7

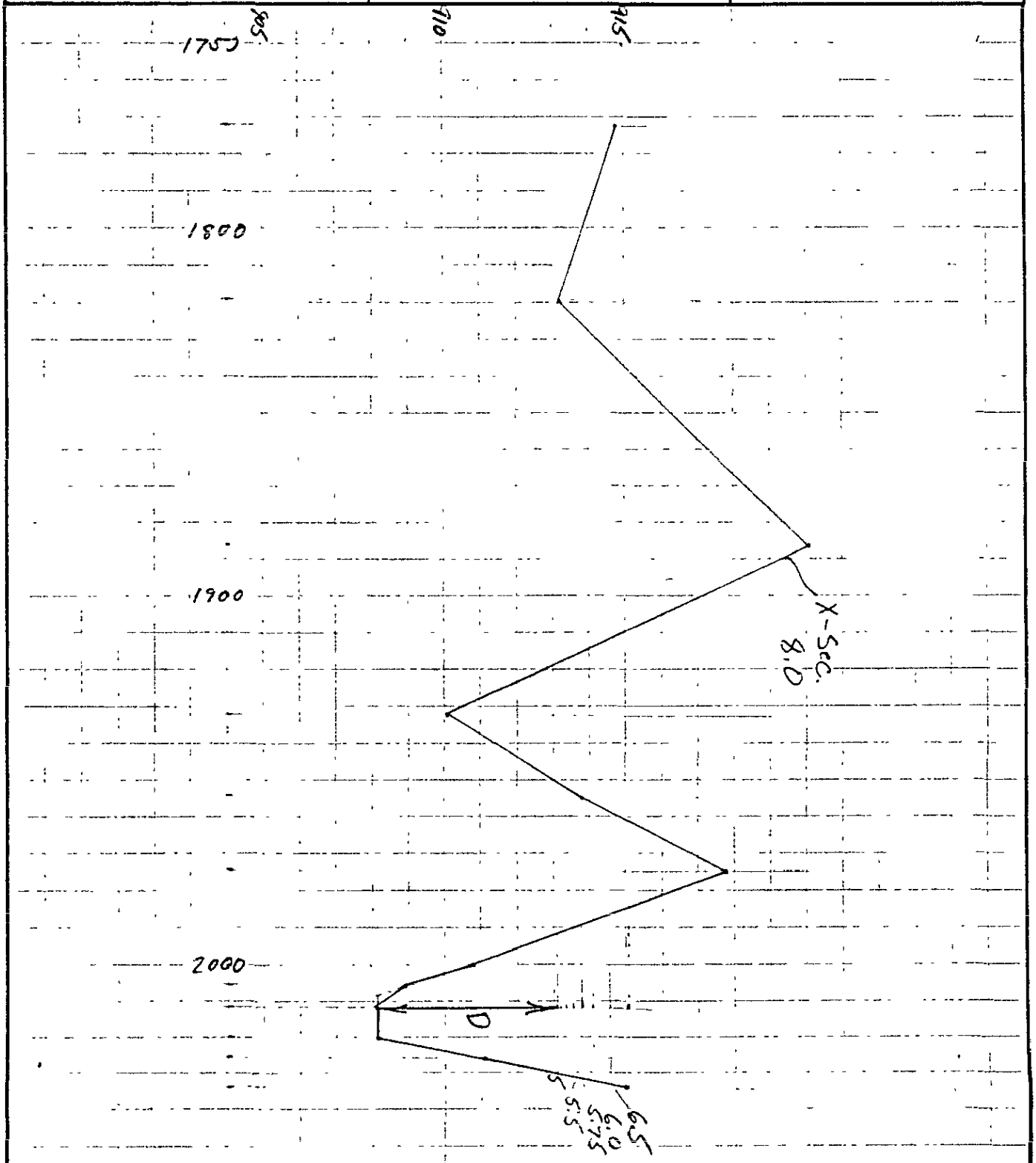
Computer shows 914.05, Close enough due to Approximation on Area in Bond calcs.

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER: Flood Insurance Study Township of Marengo Kalamazoo River	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE): Mark Guistredi	SUBJECT
CHECKED BY/DATE (SIGNATURE)	SHEET OF / BOOK NO.



APPENDIX B

****
HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
ERROR CORR - 01,02,03
MODIFICATION - 50.51,52,53
****

Convergence Run
Marengo Twp.
Kalamazoo River

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

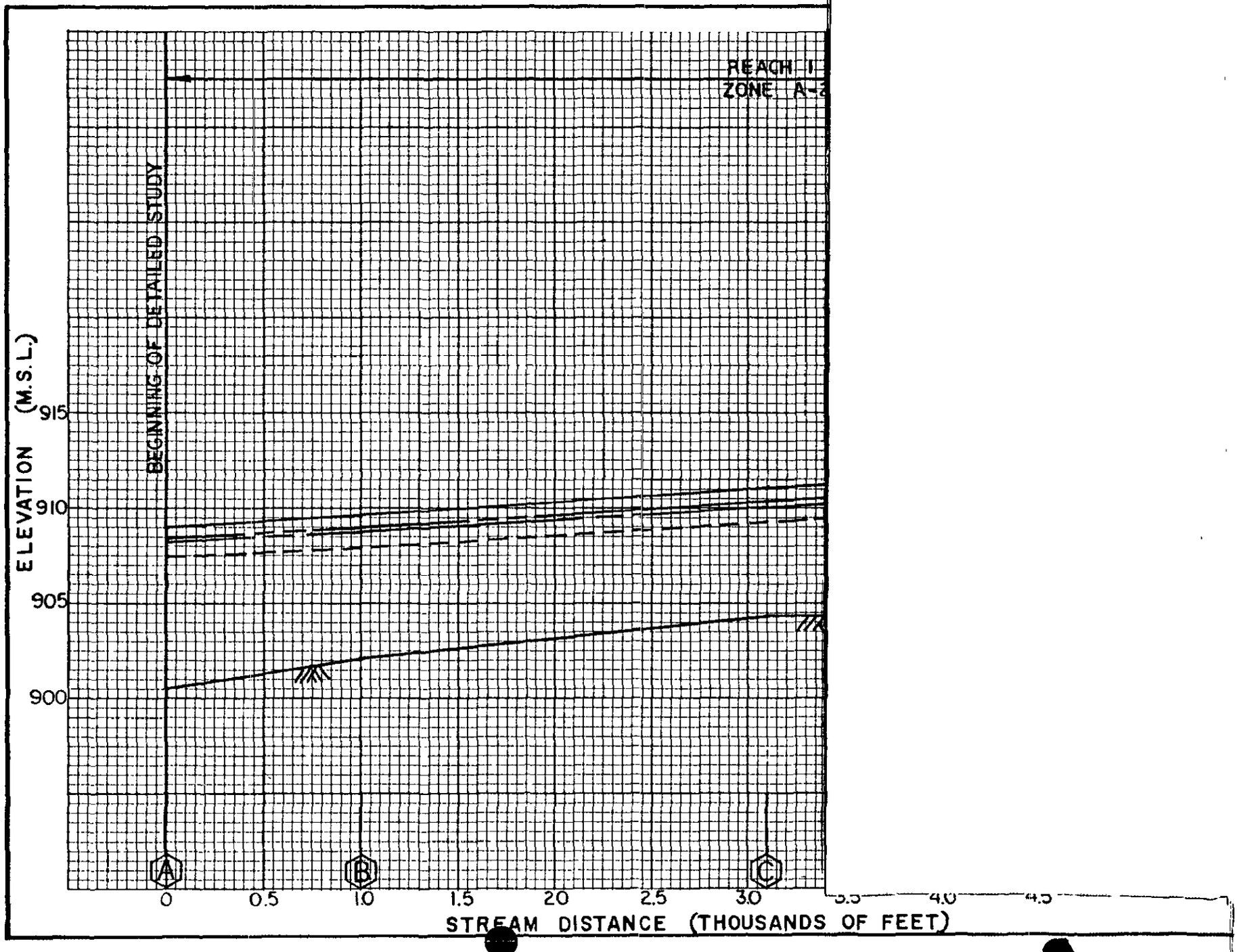
KALAMAZOO RIVER AT MAREN

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
6.190	903.23	897.50	0.00	0.00	1591.06	0.00	2000.00	2070.00	0.00	2179.06	588.01	0.00
6.190	902.23	897.50	0.00	0.00	1663.33	0.00	2000.00	2070.00	0.00	2170.07	506.74	0.00
6.190	904.23	897.50	0.00	0.00	1570.21	0.00	2000.00	2070.00	0.00	2188.07	617.86	0.00
6.290	906.49	900.20	0.00	0.00	1621.10	0.00	2000.00	2070.00	0.00	2314.83	693.74	3400.00
6.290	906.85	900.20	0.00	0.00	1618.88	0.00	2000.00	2070.00	0.00	2318.53	699.64	3400.00
6.290	906.17	900.20	0.00	0.00	1623.01	0.00	2000.00	2070.00	0.00	2311.65	688.63	3400.00
6.390	907.65	900.46	0.00	0.00	1598.37	0.00	2002.00	2075.00	0.00	2378.29	779.92	2200.00
6.390	907.76	900.46	0.00	0.00	1598.16	0.00	2002.00	2075.00	0.00	2379.78	781.62	2200.00
6.390	907.60	900.46	0.00	0.00	1598.48	0.00	2002.00	2075.00	0.00	2377.50	779.03	2200.00
6.490	908.41	900.50	0.00	0.00	1896.22	0.00	2000.00	2097.00	0.00	2238.14	341.92	2280.00
6.490	908.46	900.50	0.00	0.00	1894.94	0.00	2000.00	2097.00	0.00	2240.72	345.79	2280.00
6.490	908.38	900.50	0.00	0.00	1896.66	0.00	2000.00	2097.00	0.00	2237.25	340.59	2280.00
6.590	908.98	902.07	0.00	0.00	1854.60	0.00	2000.00	2085.00	0.00	2220.33	365.73	1000.00
6.590	909.01	902.07	0.00	0.00	1854.01	0.00	2000.00	2085.00	0.00	2220.38	366.36	1000.00
6.590	908.96	902.07	0.00	0.00	1854.93	0.00	2000.00	2085.00	0.00	2220.31	365.38	1000.00
6.690	910.44	904.31	0.00	0.00	1980.85	0.00	2040.00	2140.00	0.00	2295.44	314.58	2100.00
6.690	910.45	904.31	0.00	0.00	1980.79	0.00	2040.00	2140.00	0.00	2295.59	314.80	2100.00
6.690	910.44	904.31	0.00	0.00	1980.89	0.00	2040.00	2140.00	0.00	2295.35	314.47	2100.00
6.800	911.13	904.10	0.00	0.00	1914.04	0.00	1999.00	2068.00	0.00	2437.29	523.25	1300.00
6.800	911.13	904.10	0.00	0.00	1914.03	0.00	1999.00	2068.00	0.00	2437.37	523.34	1300.00
6.800	911.13	904.10	0.00	0.00	1914.05	0.00	1999.00	2068.00	0.00	2437.25	523.20	1300.00
6.900	911.26	904.50	0.00	0.00	1982.36	0.00	1991.50	2085.00	0.00	3163.85	519.57	315.00
6.900	911.26	904.50	0.00	0.00	1982.36	0.00	1991.50	2085.00	0.00	3163.93	519.85	315.00
6.900	911.26	904.50	0.00	0.00	1982.37	0.00	1991.50	2085.00	0.00	3163.80	519.41	315.00
6.950	911.16	905.40	0.00	0.00	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	6.50
6.950	911.16	905.40	0.00	0.00	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	6.50
6.950	911.15	905.40	0.00	0.00	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	6.50
7.000	911.15	905.40	914.60	915.10	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	1.00
7.000	911.15	905.40	914.60	915.10	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	1.00
7.000	911.15	905.40	914.60	915.10	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	1.00

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	ARFA	.01K
7.500	1700.00	0.00	0.00	905.75	1600.00	911.77	0.00	911.82	4.04	2.05	1325.84	796.52
7.500	1700.00	0.00	0.00	905.75	1600.00	911.78	0.00	911.82	4.03	2.05	1326.81	797.20
7.500	1700.00	0.00	0.00	905.75	1600.00	911.77	0.00	911.82	4.04	2.05	1325.32	796.15
8.000	1050.00	0.00	0.00	908.10	1600.00	913.99	913.99	915.46	88.33	10.29	225.29	170.24
8.000	1050.00	0.00	0.00	908.10	1600.00	913.99	913.99	915.46	88.43	10.29	225.13	170.14
8.000	1050.00	0.00	0.00	908.10	1600.00	913.99	913.99	915.46	88.27	10.28	225.38	170.30
8.800	500.00	0.00	0.00	908.30	1600.00	915.92	0.00	916.02	2.94	2.48	715.74	933.55
8.800	500.00	0.00	0.00	908.30	1600.00	915.92	0.00	916.02	2.94	2.48	715.79	933.61
8.800	500.00	0.00	0.00	908.30	1600.00	915.92	0.00	916.02	2.94	2.48	715.71	933.51
8.900	219.00	0.00	0.00	908.50	1600.00	915.95	0.00	916.15	8.77	3.88	661.74	540.38
8.900	219.00	0.00	0.00	908.50	1600.00	915.95	0.00	916.15	8.77	3.88	661.80	540.43
8.900	219.00	0.00	0.00	908.50	1600.00	915.95	0.00	916.15	8.77	3.88	661.70	540.35
8.950	5.00	0.00	0.00	910.00	1600.00	915.76	0.00	916.35	7.72	6.18	259.00	575.90
8.950	5.00	0.00	0.00	910.00	1600.00	915.76	0.00	916.35	7.72	6.18	259.02	575.95
8.950	5.00	0.00	0.00	910.00	1600.00	915.76	0.00	916.35	7.72	6.18	259.00	575.87
9.000	1.00	925.20	922.80	910.00	1600.00	915.76	0.00	916.35	9.15	6.18	259.01	528.88
9.000	1.00	925.20	922.80	910.00	1600.00	915.76	0.00	916.35	9.15	6.18	259.02	528.92
9.000	1.00	925.20	922.80	910.00	1600.00	915.76	0.00	916.35	9.15	6.18	259.00	528.85
9.100	26.00	925.20	922.80	910.00	1600.00	915.79	0.00	916.38	9.03	6.15	260.21	532.56
9.100	26.00	925.20	922.80	910.00	1600.00	915.79	0.00	916.38	9.02	6.15	260.23	532.61
9.100	26.00	925.20	922.80	910.00	1600.00	915.79	0.00	916.38	9.03	6.15	260.21	532.54
9.200	1.00	0.00	0.00	910.00	1600.00	915.80	0.00	916.38	32.04	6.14	260.75	282.69
9.200	1.00	0.00	0.00	910.00	1600.00	915.80	0.00	916.38	32.03	6.14	260.76	282.71
9.200	1.00	0.00	0.00	910.00	1600.00	915.80	0.00	916.38	32.04	6.14	260.74	282.67
9.300	55.00	0.00	0.00	910.00	1600.00	916.02	0.00	916.55	27.72	5.86	273.08	303.89
9.300	55.00	0.00	0.00	910.00	1600.00	916.02	0.00	916.55	27.72	5.86	273.09	303.91
9.300	55.00	0.00	0.00	910.00	1600.00	916.02	0.00	916.55	27.72	5.86	273.07	303.88
10.000	4050.00	0.00	0.00	913.00	1600.00	918.95	0.00	919.02	2.53	2.06	912.89	1005.44
10.000	4050.00	0.00	0.00	913.00	1600.00	918.95	0.00	919.02	2.53	2.06	912.90	1005.46
10.000	4050.00	0.00	0.00	913.00	1600.00	918.95	0.00	919.02	2.53	2.06	912.89	1005.44
11.000	1650.00	0.00	0.00	911.60	1600.00	919.46	0.00	919.57	4.50	2.94	1050.79	754.60
11.000	1650.00	0.00	0.00	911.60	1600.00	919.46	0.00	919.57	4.50	2.94	1050.80	754.61
11.000	1650.00	0.00	0.00	911.60	1600.00	919.46	0.00	919.57	4.50	2.94	1050.79	754.60

APPENDIX D


REACH I
ZONE A-3
BEGINNING OF DETAILED STUDY
ELEVATION (M.S.L.)
915
910
905
900
A
B
C
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0.5
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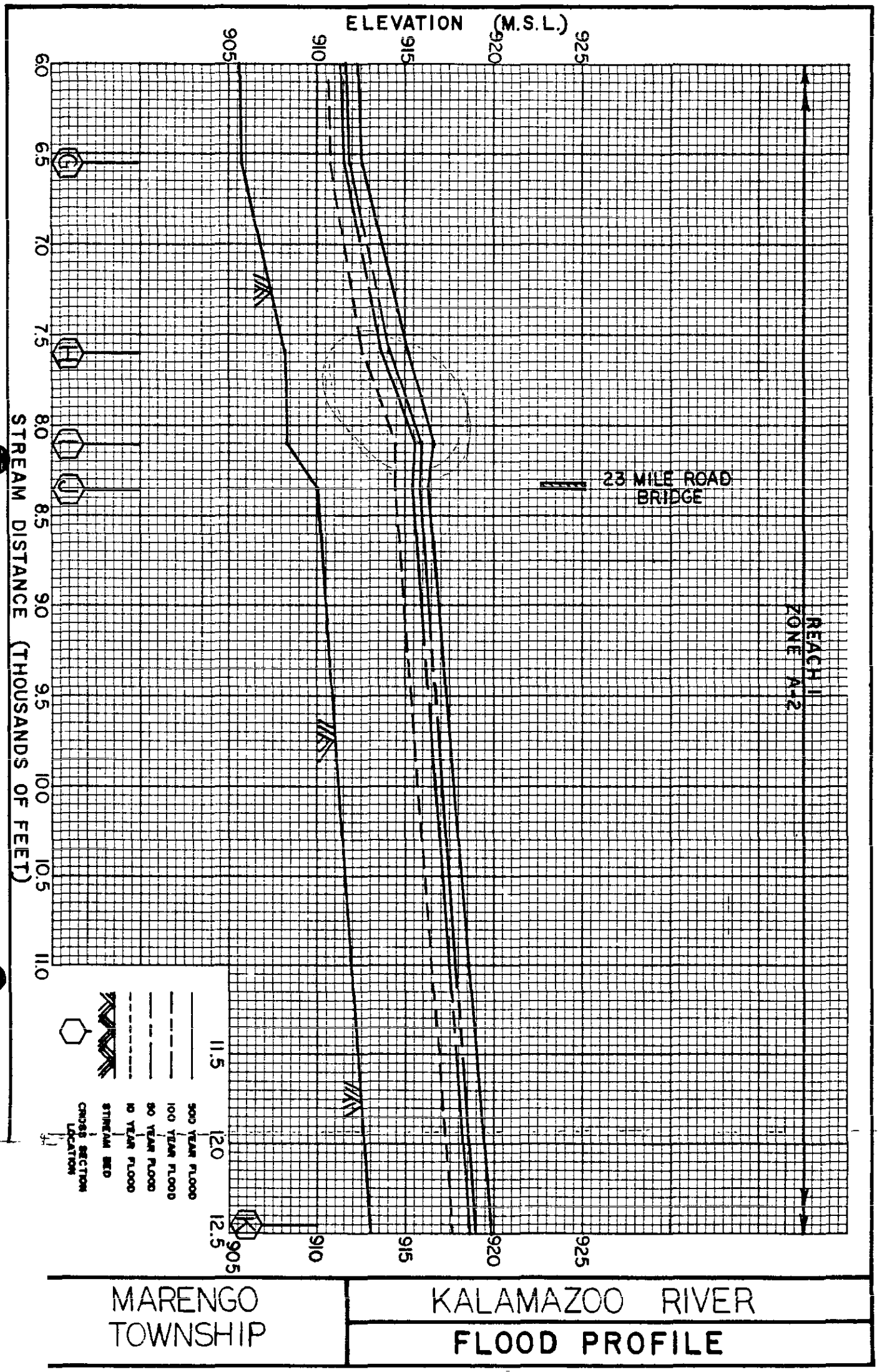
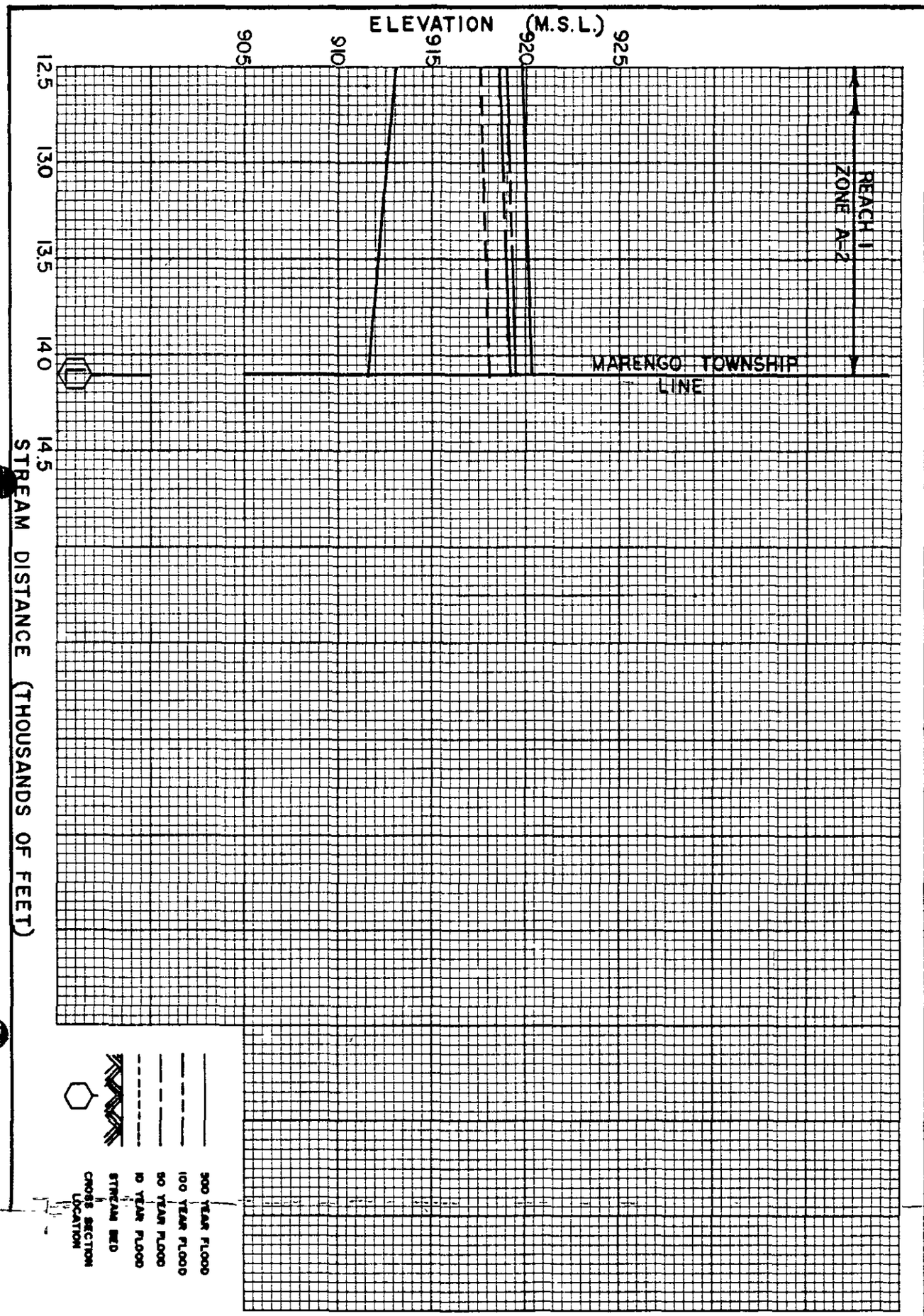
1.5
2.0
2.5
3.0
3.5
4.0
4.5
STREAM DISTANCE (THOUSANDS OF FEET)



MARENGO TOWNSHIP

KALAMAZOO RIVER

FLOOD PROFILE



MARENGO TOWNSHIP	KALAMAZOO RIVER
	FLOOD PROFILE

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Marengo Twp

3) WATERCOURSE: Kalamazoo River

4) DOCUMENT TYPE: Summary

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

KALAMAZOO RIVER AT MAREN

SUMMARY PRINTOUT

	SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
	6.490	908.41	900.50	0.00	0.00	1895.98	0.00	2000.00	2097.00	0.00	2238.61	342.62	0.00
	6.490	908.41	900.50	0.00	0.00	1950.38	1950.38	2000.00	2097.00	2154.26	2154.26	203.88	0.00
	6.590	908.98	902.07	0.00	0.00	1854.58	0.00	2000.00	2085.00	0.00	2220.33	365.76	1000.00
	6.590	909.02	902.07	0.00	0.00	1909.34	1909.34	2000.00	2085.00	2146.91	2146.91	237.57	1000.00
	6.690	910.44	904.31	0.00	0.00	1980.85	0.00	2040.00	2140.00	0.00	2295.44	314.59	2100.00
	6.690	910.53	904.31	0.00	0.00	2007.30	2007.30	2040.00	2140.00	2248.19	2248.19	240.88	2100.00
	6.800	911.13	904.10	0.00	0.00	1914.04	0.00	1999.00	2068.00	0.00	2437.29	523.25	1300.00
	6.800	911.22	904.10	0.00	0.00	1935.47	1935.47	1999.00	2068.00	2380.31	2380.31	444.85	1300.00
	6.900	911.26	904.50	0.00	0.00	1991.50	1991.50	1991.50	2085.00	2085.10	2084.80	93.30	315.00
	6.900	911.36	904.50	0.00	0.00	1991.50	1991.50	1991.50	2085.00	2085.10	2084.81	93.31	315.00
	6.950	911.21	905.40	0.00	0.00	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	6.50
	6.950	911.30	905.40	0.00	0.00	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	6.50
	7.000	911.20	905.40	914.60	915.10	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	1.00
	7.000	911.30	905.40	914.60	915.10	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	1.00
	7.100	911.22	905.40	914.60	915.10	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	29.00
	7.100	911.32	905.40	914.60	915.10	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	29.00
	7.200	911.24	905.40	0.00	0.00	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	1.00
	7.200	911.33	905.40	0.00	0.00	1998.00	0.00	1998.00	2078.00	0.00	2078.00	80.00	1.00
	7.310	911.53	904.75	0.00	0.00	2000.00	2000.00	2000.00	2075.00	2280.00	2280.00	280.00	100.00
	7.310	911.61	904.75	0.00	0.00	2000.00	2000.00	2000.00	2075.00	2280.00	2280.00	280.00	100.00
	7.500	911.82	905.75	0.00	0.00	1037.25	0.00	1175.00	1280.00	0.00	1493.37	456.13	1700.00
	7.500	911.89	905.75	0.00	0.00	1074.00	1074.00	1175.00	1280.00	1367.68	1367.68	293.68	1700.00
*	8.000	914.05	908.10	0.00	0.00	1794.16	0.00	2000.00	2034.00	0.00	2032.04	115.43	1050.00
*	8.000	914.05	908.10	0.00	0.00	1794.17	1794.00	2000.00	2034.00	2032.00	2032.00	115.37	1050.00
	8.800	915.91	908.30	0.00	0.00	1988.96	0.00	1997.00	2096.00	0.00	2176.07	187.11	500.00
	8.800	915.91	908.30	0.00	0.00	1988.96	0.00	1997.00	2096.00	0.00	2176.09	187.14	500.00

MOORE BUSINESS FORMS, INC. 95

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
8.900	915.86	908.50	0.00	0.00	2000.00	2000.00	2000.00	2055.00	2055.10	2055.00	55.00	219.00
8.900	915.86	908.50	0.00	0.00	2000.00	2000.00	2000.00	2055.00	2055.10	2055.00	55.00	219.00
8.950	915.74	910.00	0.00	0.00	2000.00	0.00	2000.00	2055.00	0.00	2055.00	55.00	5.00
8.950	915.74	910.00	0.00	0.00	2000.00	0.00	2000.00	2055.00	0.00	2055.00	55.00	5.00
9.000	915.74	910.00	922.80	925.20	2000.00	0.00	2000.00	2055.00	0.00	2055.00	55.00	1.00
9.000	915.74	910.00	922.80	925.20	2000.00	0.00	2000.00	2055.00	0.00	2055.00	55.00	1.00
9.100	915.77	910.00	922.80	925.20	2000.00	0.00	2000.00	2055.00	0.00	2055.00	55.00	26.00
9.100	915.77	910.00	922.80	925.20	2000.00	0.00	2000.00	2055.00	0.00	2055.00	55.00	26.00
9.200	915.77	910.00	0.00	0.00	2000.00	0.00	2000.00	2055.00	0.00	2055.00	55.00	1.00
9.200	915.77	910.00	0.00	0.00	2000.00	0.00	2000.00	2055.00	0.00	2055.00	55.00	1.00
9.300	916.00	910.00	0.00	0.00	2000.00	0.00	2000.00	2055.00	0.00	2055.00	55.00	55.00
9.300	916.00	910.00	0.00	0.00	2000.00	0.00	2000.00	2055.00	0.00	2055.00	55.00	55.00
10.000	918.95	913.00	0.00	0.00	1949.15	0.00	2000.00	2138.00	0.00	2194.15	245.01	4050.00
10.000	919.00	913.00	0.00	0.00	1996.93	1996.93	2000.00	2138.00	2147.05	2147.05	150.12	4050.00
11.000	919.46	911.60	0.00	0.00	1737.27	0.00	2000.00	2072.00	0.00	2189.72	452.46	1650.00
11.000	919.53	911.60	0.00	0.00	1824.64	1824.64	2000.00	2072.00	2113.78	2113.78	289.15	1650.00

MOORE BUSINESS FORMS, INC. 23

KALAMAZOO RIVER AT MAREN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
6.490	0.00	0.00	0.00	900.50	1600.00	908.41	0.00	908.49	5.01	2.42	951.08	714.67
6.490	0.00	0.00	0.00	900.50	1600.00	908.41	0.00	908.50	5.35	2.50	812.29	691.63
6.590	1000.00	0.00	0.00	902.07	1600.00	908.98	0.00	909.08	7.00	2.75	958.32	604.80
6.590	1000.00	0.00	0.00	902.07	1600.00	909.02	0.00	909.12	7.33	2.82	825.89	590.82
6.690	2100.00	0.00	0.00	904.31	1600.00	910.44	0.00	910.51	6.67	2.39	897.36	619.39
6.690	2100.00	0.00	0.00	904.31	1600.00	910.53	0.00	910.60	6.78	2.43	831.34	614.50
6.800	1300.00	0.00	0.00	904.10	1600.00	911.13	0.00	911.19	4.35	2.39	1388.44	766.82
6.800	1300.00	0.00	0.00	904.10	1600.00	911.22	0.00	911.28	4.38	2.42	1315.82	764.84
6.900	315.00	0.00	0.00	904.50	1600.00	911.26	0.00	911.41	7.43	3.05	525.36	587.10
6.900	315.00	0.00	0.00	904.50	1600.00	911.36	0.00	911.50	7.05	3.00	534.12	602.75
6.950	6.50	0.00	0.00	905.40	1600.00	911.21	0.00	911.48	15.57	4.16	384.42	405.42
6.950	6.50	0.00	0.00	905.40	1600.00	911.30	0.00	911.56	14.58	4.08	392.13	419.07
7.000	1.00	915.10	914.60	905.40	1600.00	911.20	0.00	911.48	5.94	4.26	375.54	656.67
7.000	1.00	915.10	914.60	905.40	1600.00	911.30	0.00	911.57	5.60	4.18	383.05	676.20
7.100	29.00	915.10	914.60	905.40	1600.00	911.22	0.00	911.50	5.87	4.24	377.04	660.58
7.100	29.00	915.10	914.60	905.40	1600.00	911.32	0.00	911.58	5.52	4.16	384.83	680.85
7.200	1.00	0.00	0.00	905.40	1600.00	911.24	0.00	911.50	3.83	4.14	386.26	817.32
7.200	1.00	0.00	0.00	905.40	1600.00	911.33	0.00	911.59	3.59	4.06	393.89	844.40
7.310	100.00	0.00	0.00	904.75	1600.00	911.53	0.00	911.58	.92	2.22	930.67	1669.22
7.310	100.00	0.00	0.00	904.75	1600.00	911.61	0.00	911.67	.85	2.16	954.23	1731.56
7.500	1700.00	0.00	0.00	905.75	1600.00	911.82	0.00	911.87	3.88	2.02	1347.81	812.05
7.500	1700.00	0.00	0.00	905.75	1600.00	911.89	0.00	911.94	3.97	2.06	1165.10	802.56
* 8.000	1050.00	0.00	0.00	908.10	1600.00	914.05	914.05	915.46	84.14	10.10	231.86	174.43
* 8.000	1050.00	0.00	0.00	908.10	1600.00	914.05	914.05	915.46	84.10	10.10	231.80	174.47
8.800	500.00	0.00	0.00	908.30	1600.00	915.91	0.00	916.01	2.95	2.48	713.98	931.10
8.800	500.00	0.00	0.00	908.30	1600.00	915.91	0.00	916.01	2.95	2.48	714.02	931.17
8.900	219.00	0.00	0.00	908.50	1600.00	915.86	0.00	916.20	12.84	4.66	343.11	446.44
8.900	219.00	0.00	0.00	908.50	1600.00	915.86	0.00	916.20	12.84	4.66	343.13	446.47
8.950	5.00	0.00	0.00	910.00	1600.00	915.74	0.00	916.34	7.84	6.21	257.67	571.27
8.950	5.00	0.00	0.00	910.00	1600.00	915.74	0.00	916.34	7.84	6.21	257.69	571.32
9.000	1.00	925.20	922.80	910.00	1600.00	915.74	0.00	916.34	9.29	6.21	257.71	524.93
9.000	1.00	925.20	922.80	910.00	1600.00	915.74	0.00	916.34	9.29	6.21	257.73	524.98
9.100	26.00	925.20	922.80	910.00	1600.00	915.77	0.00	916.36	9.16	6.18	258.94	528.67
9.100	26.00	925.20	922.80	910.00	1600.00	915.77	0.00	916.36	9.16	6.18	258.95	528.72
9.200	1.00	0.00	0.00	910.00	1600.00	915.77	0.00	916.36	32.53	6.17	259.49	280.54

MOORE BUSINESS FORMS, INC 23

9.200	1.00	0.00	0.00	910.00	1600.00	915.77	0.0	916.36	32.52	6.17	259.50	280.57

ADCORE BUSINESS FORMS, INC.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9.300	55.00	0.00	0.00	910.00	1600.00	916.00	0.00	916.53	28.05	5.88	272.05	302.10
9.300	55.00	0.00	0.00	910.00	1600.00	916.00	0.00	916.54	28.05	5.88	272.06	302.12
10.000	4050.00	0.00	0.00	913.00	1600.00	918.95	0.00	919.01	2.54	2.07	912.04	1004.27
10.000	4050.00	0.00	0.00	913.00	1600.00	919.00	0.00	919.07	2.62	2.11	790.23	989.12
11.000	1650.00	0.00	0.00	911.60	1600.00	919.46	0.00	919.57	4.50	2.94	1049.74	753.87
11.000	1650.00	0.00	0.00	911.60	1600.00	919.53	0.00	919.64	4.60	3.00	905.92	746.13

ACCO BUSINESS FORMS, INC. 23

KALAMAZOO RIVER AT MAREN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6.490	1600.00	908.41	0.00	0.00	0.00	342.62	0.00
6.490	1600.00	908.41	0.00	0.00	0.00	203.88	0.00
6.590	1600.00	908.98	0.00	.57	0.00	365.76	1000.00
6.590	1600.00	909.02	.03	.61	.03	237.57	1000.00
6.690	1600.00	910.44	0.00	1.46	0.00	314.59	2100.00
6.690	1600.00	910.53	.08	1.51	.08	240.88	2100.00
6.800	1600.00	911.13	0.00	.69	0.00	523.25	1300.00
6.800	1600.00	911.22	.09	.70	.09	444.85	1300.00
6.900	1600.00	911.26	0.00	.13	0.00	93.30	315.00
6.900	1600.00	911.36	.09	.13	.09	93.31	315.00
6.950	1600.00	911.21	0.00	-.06	0.00	80.00	6.50
6.950	1600.00	911.30	.10	-.05	.10	80.00	6.50
7.000	1600.00	911.20	0.00	-.01	0.00	80.00	1.00
7.000	1600.00	911.30	.10	-.01	.10	80.00	1.00
7.100	1600.00	911.22	0.00	.02	0.00	80.00	29.00
7.100	1600.00	911.32	.10	.02	.10	80.00	29.00
7.200	1600.00	911.24	0.00	.02	0.00	80.00	1.00
7.200	1600.00	911.33	.09	.02	.09	80.00	1.00
7.310	1600.00	911.53	0.00	.29	0.00	280.00	100.00
7.310	1600.00	911.61	.08	.28	.08	280.00	100.00
7.500	1600.00	911.82	0.00	.29	0.00	456.13	1700.00
7.500	1600.00	911.89	.06	.27	.06	293.68	1700.00
* 8.000	1600.00	914.05	0.00	2.22	0.00	115.43	1050.00
* 8.000	1600.00	914.05	-.00	2.16	-.00	115.37	1050.00
8.800	1600.00	915.91	0.00	1.87	0.00	187.11	500.00
8.800	1600.00	915.91	.00	1.87	.00	187.14	500.00
8.900	1600.00	915.86	0.00	-.05	0.00	55.00	219.00
8.900	1600.00	915.86	.00	-.05	.00	55.00	219.00
8.950	1600.00	915.74	0.00	-.13	0.00	55.00	5.00
8.950	1600.00	915.74	.00	-.13	.00	55.00	5.00
9.000	1600.00	915.74	0.00	.00	0.00	55.00	1.00
9.000	1600.00	915.74	.00	.00	.00	55.00	1.00
9.100	1600.00	915.77	0.00	.03	0.00	55.00	26.00
9.100	1600.00	915.77	.00	.03	.00	55.00	26.00
9.200	1600.00	915.77	0.00	.00	0.00	55.00	1.00

MOORE BUSINESS FORMS, INC. 23

9.200	1600.00	915.77	.00	.00	.00	55.00	1.00

MOORE BUSINESS FORMS, INC 23

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
9.300	1600.00	916.00	0.00	.22	0.00	55.00	55.00
9.300	1600.00	916.00	.00	.22	.00	55.00	55.00
10.000	1600.00	918.95	0.00	2.95	0.00	245.01	4050.00
10.000	1600.00	919.00	.05	3.00	.05	150.12	4050.00
11.000	1600.00	919.46	0.00	.51	0.00	452.46	1650.00
11.000	1600.00	919.53	.07	.53	.07	289.15	1650.00

SUMMARY OF ERRORS

```
CAUTION  SECNO=    8.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    8.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    8.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    8.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    8.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    8.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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MOORE BUSINESS FORMS, INC. 23

FLOODWAY DATA. KALAMAZOO RIVER AT MAREN
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
6.490	204.	812.	2.0	908.4	908.4	0.0
6.590	238.	826.	1.9	909.0	909.0	0.0
6.690	241.	831.	1.9	910.5	910.4	.1
6.800	445.	1316.	1.2	911.2	911.1	.1
6.900	93.	534.	3.0	911.4	911.3	.1
6.950	80.	392.	4.1	911.3	911.2	.1
7.000	80.	383.	4.2	911.3	911.2	.1
7.100	80.	385.	4.2	911.3	911.2	.1
7.200	80.	394.	4.1	911.3	911.2	.1
7.310	280.	954.	1.7	911.6	911.5	.1
7.500	294.	1165.	1.4	911.9	911.8	.1
8.000	238.	232.	6.9	914.0	914.0	0.0
8.800	187.	714.	2.2	915.9	915.9	0.0
8.900	55.	343.	4.7	915.9	915.9	0.0
8.950	55.	258.	6.2	915.7	915.7	0.0
9.000	55.	258.	6.2	915.7	915.7	0.0
9.100	55.	259.	6.2	915.8	915.8	0.0
9.200	55.	260.	6.2	915.8	915.8	0.0
9.300	55.	272.	5.9	916.0	916.0	0.0
10.000	150.	790.	2.0	919.0	918.9	.1
11.000	289.	906.	1.8	919.6	919.5	.1

MOORE BUSINESS FORMS, INC. 23

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**********************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
 ERROR CORR -   01,02,03
 MODIFICATION -  50,51,52,53
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MOORE BUSINESS FORMS, INC 23

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Marengo Twp

3) WATERCOURSE: Rice creek

4) DOCUMENT TYPE: 10 50 100 500 profiles

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01.02.03.04
  MODIFICATION -  50,51,52,53,54
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C
T1      FIS  MARENGO TWP.,  CALHOUN COUNTY,  MICHIGAN.
T2       10-YEAR FLOOD
T3      RICE CREEK
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	0.000000	0.00	0.0	0.	896.400	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									
	38.000	1.000	53.000	21.000	22.000	54.000	4.000	39.000	150.000	201.000

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
NC	.100	.100	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	5.000	420.000	700.000	840.000	1180.000	840.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	55.100	21.000	2184.000	2222.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	897.900	2067.000	897.900	2067.000	897.900	2067.000	897.900	2067.000	896.500	2074.000
GR	893.600	2086.000	892.700	2184.000	891.300	2186.000	890.500	2194.000	891.200	2206.000
GP	893.300	2222.000	894.500	2264.000	897.100	2294.000	899.000	2366.000	903.600	2492.000
GR	904.400	2502.000	912.300	2841.000	914.300	2933.000	922.000	3033.000	929.400	3095.000
GR	934.200	3124.000	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	9.100	0.000	0.000	2000.000	2122.000
X1	55.900	22.000	2000.000	2080.000	1700.000	1400.000	1690.000	0.000	0.000	0.000
GR	897.700	1982.000	897.700	1982.000	897.800	1991.000	897.900	2000.000	891.200	2000.000
GR	891.300	2006.000	890.500	2014.000	890.600	2025.000	890.600	2038.000	890.800	2048.000
GR	890.600	2058.000	891.300	2070.000	896.000	2080.000	897.000	2117.000	900.000	2190.000
GR	904.600	2344.000	905.600	2398.000	909.900	2542.000	912.300	2642.000	912.200	2698.000
GR	928.800	2932.000	932.900	2958.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.500	3.060	0.000	.200	0.000	.300	0.000	890.500	890.500

MOORE BUSINESS FORMS INC 27

LOW DAM (A)

X1	56.000	20.000	1892.000	2078.000	10.000	10.000	10.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	892.000	895.400	0.000	0.000	0.000	0.000	0.000
BT	9.000	2000.000	900.000	0.000	2000.000	895.500	0.000	2031.000	895.500	0.000
BT	2067.000	895.400	0.000	2067.000	897.800	0.000	2078.000	896.400	0.000	2117.000
BT	897.000	0.000	2190.000	900.000	0.000	2344.000	904.600	0.000	0.000	0.000
GR	903.300	1475.000	899.300	1606.000	897.600	1661.000	896.300	1722.000	896.400	1776.000
GR	894.400	1892.000	893.000	1914.000	890.500	1926.000	890.400	1940.000	891.400	1956.000
GR	891.400	1968.000	891.200	1982.000	891.200	2000.000	890.500	2031.000	890.800	2067.000
GR	891.300	2067.000	896.000	2078.000	897.000	2117.000	900.000	2190.000	904.600	2344.000
QT	5.000	710.000	1080.000	1270.000	1710.000	1270.000	0.000	0.000	0.000	0.000
X1	56.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	56.800	30.000	2120.000	2160.000	2780.000	2780.000	2780.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	2100.000	0.000	2200.000	0.000	0.000	0.000	0.000
GR	925.350	1509.000	922.140	1559.000	916.240	1589.000	922.090	1642.000	918.480	1729.000
GR	900.770	1796.000	905.100	1896.000	900.770	1943.000	897.590	1985.000	896.240	1991.000
GR	896.640	2000.000	895.690	2120.000	895.300	2123.000	893.730	2137.000	893.050	2151.000
GR	893.120	2166.000	894.970	2180.000	896.440	2180.000	897.690	2213.000	898.940	2300.000
GR	899.160	2367.000	901.510	2430.000	905.910	2490.000	906.620	2503.000	904.900	2623.000
GR	906.550	2757.000	909.410	2773.000	910.210	2787.000	909.150	2830.000	907.420	2857.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	2000.000	2050.000
X1	56.900	22.000	2000.000	2050.000	99.000	99.000	99.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	901.000	901.000	0.000
GR	906.200	1850.000	904.400	1900.000	902.900	1950.000	902.900	2000.000	895.400	2000.000
GR	893.900	2010.000	893.400	2020.000	893.000	2030.000	893.200	2040.000	895.400	2050.000
GR	902.600	2050.000	902.700	2100.000	902.800	2150.000	903.400	2200.000	903.700	2250.000
GR	903.900	2300.000	903.900	2350.000	904.000	2400.000	904.100	2450.000	904.100	2700.000
GR	905.400	2900.000	906.300	3100.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	57.000	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	901.000	901.000	0.000
BT	18.000	1850.000	906.200	0.000	1900.000	904.400	0.000	1950.000	902.900	0.000
BT	2000.000	902.900	0.000	2000.000	902.900	899.000	2050.000	902.600	898.900	2050.000
BT	902.600	0.000	2100.000	902.700	0.000	2150.000	902.800	0.000	2200.000	903.400
BT	0.000	2250.000	903.700	0.000	2300.000	903.900	0.000	2350.000	903.900	0.000
BT	2400.000	904.000	0.000	2450.000	904.100	0.000	2700.000	904.100	0.000	2900.000
BT	905.400	0.000	3100.000	906.300	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

BRIDGE U/S (B)

X1	57.100	22.000	2000.000	2050.000	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	902.900	902.600	0.000
BT	18.000	1850.000	906.200	0.000	1900.000	904.400	0.000	1950.000	902.900	0.000
BT	2000.000	902.900	0.000	2000.000	902.900	899.000	2050.000	902.600	898.900	2050.000
BT	902.600	0.000	2100.000	902.700	0.000	2150.000	902.800	0.000	2200.000	903.400
BT	0.000	2250.000	903.700	0.000	2300.000	903.900	0.000	2350.000	903.900	0.000
BT	2400.000	904.000	0.000	2450.000	904.100	0.000	2700.000	904.100	0.000	2900.000
BT	905.400	0.000	3100.000	906.300	0.000	0.000	0.000	0.000	0.000	0.000
GR	906.200	1850.000	904.400	1900.000	902.900	1950.000	902.900	2000.000	895.300	2000.000
GR	893.000	2010.000	892.500	2020.000	893.000	2030.000	894.700	2040.000	896.300	2050.000
GR	902.600	2050.000	902.700	2100.000	902.800	2150.000	903.400	2200.000	903.700	2250.000
GR	903.900	2300.000	903.900	2350.000	904.000	2400.000	904.100	2450.000	904.100	2700.000
GR	905.400	2900.000	906.300	3100.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	57.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
QT	5.000	710.000	1000.000	1260.000	1700.000	1260.000	0.000	0.000	0.000	0.000
FT	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

(C)

X1	57.300	30.000	2120.000	2160.000	229.000	229.000	229.000	0.000	0.000	0.000
GR	925.350	1509.000	922.140	1559.000	916.240	1589.000	922.090	1642.000	918.480	1729.000
GR	900.770	1796.000	905.100	1896.000	900.770	1943.000	897.590	1985.000	896.240	1991.000
GR	896.640	2000.000	895.690	2120.000	895.300	2123.000	893.730	2137.000	893.050	2151.000
GR	893.120	2166.000	894.970	2180.000	896.440	2180.000	897.690	2213.000	898.940	2300.000
GR	899.160	2367.000	901.510	2430.000	905.910	2490.000	906.620	2503.000	904.900	2623.000
GR	906.550	2757.000	909.410	2773.000	910.210	2787.000	909.150	2830.000	907.420	2857.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	57.800	25.000	2000.000	2057.000	2800.000	2850.000	3530.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1962.000	0.000	2095.000	0.000	0.000	0.000	0.000
GR	914.690	1004.000	910.960	1167.000	905.620	1417.000	903.940	1550.000	901.710	1750.000
GR	903.280	1800.000	903.130	1850.000	899.370	1900.000	898.460	1950.000	898.180	1987.000
GR	898.840	2000.000	898.450	2002.000	896.810	2005.000	895.400	2014.000	895.110	2024.000
GR	895.210	2034.000	896.820	2043.000	902.010	2057.000	903.510	2090.000	905.160	2220.000
GR	902.460	2277.000	902.260	2347.000	904.400	2450.000	905.870	2563.000	904.160	2603.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	2007.000	2080.000
X1	57.900	16.000	2000.000	2087.000	99.000	99.000	99.000	0.000	0.000	0.000
GR	909.200	2000.000	903.500	2000.000	903.500	2005.000	893.000	2026.000	893.000	2027.500
GR	893.000	2027.500	893.000	2030.500	893.000	2030.500	893.000	2056.500	893.000	2056.500
GR	893.000	2059.500	893.000	2059.500	893.000	2061.000	903.500	2082.000	903.500	2087.000
GR	909.300	2087.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	58.000	16.000	2000.000	2087.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	4.000	2000.000	909.200	0.000	2000.000	909.200	905.800	2087.000	909.300	905.800
BT	2087.000	909.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	909.200	2000.000	903.500	2000.000	903.500	2005.000	893.000	2026.000	893.000	2027.500
GR	905.800	2027.500	905.800	2030.500	893.000	2030.500	893.000	2056.500	905.800	2056.500
GR	905.800	2059.500	893.000	2059.500	893.000	2061.000	903.500	2082.000	903.500	2087.000
GR	909.300	2087.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	58.010	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
X1	58.020	16.000	2000.000	2087.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	909.200	2000.000	903.500	2000.000	903.500	2005.000	893.000	2026.000	893.000	2027.500
GR	893.000	2027.500	893.000	2030.500	893.000	2030.500	893.000	2056.500	893.000	2056.500
GR	893.000	2059.500	893.000	2059.500	893.000	2061.000	903.500	2082.000	903.500	2087.000
GR	909.300	2087.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	58.030	0.000	0.000	0.000	39.000	39.000	39.000	0.000	0.000	0.000
X1	58.040	16.000	2000.000	2087.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	4.000	2000.000	909.200	0.000	2000.000	909.200	905.800	2087.000	909.300	905.800
BT	2087.000	909.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	909.200	2000.000	903.500	2000.000	903.500	2005.000	893.000	2026.000	893.000	2027.500
GR	905.800	2027.500	905.800	2030.500	893.000	2030.500	893.000	2056.500	905.800	2056.500
GR	905.800	2059.500	893.000	2059.500	893.000	2061.000	903.500	2082.000	903.500	2087.000
GR	909.300	2087.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

I-94 BRIDGE U/S (D)

X1	58.050	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
X1	58.060	16.000	2000.000	2087.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	909.200	2000.000	903.500	2000.000	903.500	2005.000	893.000	2026.000	893.000	2027.500
GR	893.000	2027.500	893.000	2030.500	893.000	2030.500	893.000	2056.500	893.000	2056.500
GR	893.000	2059.500	893.000	2059.500	893.000	2061.000	903.500	2082.000	903.500	2087.000
GR	909.300	2087.000	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	1.400	0.000	0.000	0.000	0.000
X1	58.300	34.000	2000.000	2053.000	99.000	99.000	99.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1886.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	915.440	649.000	914.760	729.000	912.200	822.000	910.910	919.000	909.220	1015.000
GR	907.280	1088.000	905.780	1188.000	904.190	1298.000	903.550	1381.000	901.680	1474.000
GR	900.060	1601.000	899.210	1687.000	899.260	1767.000	899.170	1847.000	900.910	1937.000
GR	901.000	1997.000	901.070	2000.000	896.870	2006.000	894.530	2013.000	894.120	2021.000

MOORE BUSINESS FORMS INC 27

GR	894.780	2029.000	896.900	2036.000	903.250	2053.000	904.080	2073.000	905.690	2146.000
GR	906.640	2250.000	907.170	2339.000	907.650	2426.000	908.880	2496.000	909.540	2563.000
GR	909.680	2633.000	911.000	2736.000	910.830	2783.000	908.740	2809.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

(E)

XJ	59.000	42.000	2000.000	2046.000	1230.000	1900.000	2240.000	0.000	0.000	0.000
GR	916.630	550.000	913.810	610.000	911.810	677.000	908.940	763.000	906.170	830.000
GR	905.370	923.000	911.920	988.000	910.130	1170.000	908.880	1250.000	901.580	1277.000
GR	899.290	1390.000	898.350	1447.000	896.500	1511.000	898.570	1576.000	899.470	1577.000
GR	899.920	1600.000	899.800	1667.000	899.500	1807.000	901.180	1880.000	900.260	1985.000
GR	901.420	1996.000	900.150	2000.000	898.960	2005.000	895.720	2014.000	894.360	2023.000
GR	895.990	2033.000	898.960	2043.000	900.310	2046.000	900.690	2074.000	905.200	2081.000
GR	906.150	2087.000	907.400	2147.000	910.910	2227.000	911.080	2275.000	910.840	2455.000
GR	904.660	2598.000	905.720	2625.000	913.640	2692.000	915.210	2772.000	916.190	2872.000
GR	914.350	2878.000	915.400	2897.000	0.000	0.000	0.000	0.000	0.000	0.000

XJ	60.000	38.000	2000.000	2046.000	2650.000	2880.000	2880.000	0.000	0.000	0.000
GP	908.980	974.000	908.790	1034.000	907.520	1107.000	906.780	1174.000	906.310	1260.000
GR	906.140	1320.000	905.730	1387.000	905.510	1440.000	905.680	1520.000	904.580	1613.000
GP	902.790	1673.000	901.990	1733.000	902.930	1833.000	902.100	1882.000	904.580	1893.000
GR	902.120	1904.000	903.280	1993.000	902.510	2000.000	900.500	2002.000	898.050	2011.000
GP	897.200	2021.000	897.850	2032.000	900.600	2040.000	903.380	2046.000	904.050	2060.000
GR	908.780	2073.000	911.860	2090.000	912.400	2100.000	912.350	2113.000	911.200	2120.000
GR	914.090	2125.000	913.910	2133.000	913.870	2220.000	914.990	2306.000	914.530	2373.000
GP	915.200	2466.000	916.210	2549.000	917.270	2699.000	0.000	0.000	0.000	0.000

(F)

XJ	61.000	23.000	2000.000	2053.000	2100.000	2220.000	2220.000	0.000	0.000	0.000
GR	912.840	1137.000	911.770	1357.000	910.500	1443.000	911.440	1443.000	911.800	1470.000
GR	911.980	1583.000	911.440	1670.000	910.170	1750.000	908.560	1793.000	905.310	1986.000
GR	902.170	2000.000	901.120	2006.000	900.180	2013.000	900.220	2019.000	902.130	2026.000
GP	903.430	2053.000	904.260	2120.000	904.790	2193.000	907.490	2263.000	910.470	2383.000
GR	912.200	2456.000	916.040	2723.000	917.750	2734.000	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

MOORE BUSINESS FORMS INC 27

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1
T2 50-YEAR FLOOD
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSFL	FQ
	-10.	3.	0.	0.	0.000000	0.00	0.0	0.	896.800	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

MOORE BUSINESS FORMS INC 27

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50.51.52.53.54
**********************************************************

T1
T2       100-YEAR FLOOD
T3

J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       4.        0.        0.  0.000000      0.00      0.0       0.     897.000     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
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FORMS INC 27
MOORE BUSINESS

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01.02.03.04
  MODIFICATION -  50.51.52.53.54
**************************************************

T1
T2       500-YEAR FLOOD
T3

J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -10.       5.        0.        0.  0.000000      0.00      0.0       0.    897.500     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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MOORE BUSINESS FORMS INC. 27

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HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
ERROR CORR - 01,02,03,04
MODIFICATION - 50,51,52,53,54
****

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

RICE CREEK

SUMMARY PRINTOUT

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
55.100	896.40	2074.41	2184.00	2222.00	2285.92	211.51	0.00
55.100	896.80	2072.50	2184.00	2222.00	2290.54	218.04	0.00
55.100	897.00	2071.50	2184.00	2222.00	2292.85	221.35	0.00
55.100	897.50	2069.00	2184.00	2222.00	2309.16	240.16	0.00
55.900	896.62	2000.00	2000.00	2060.00	2102.79	102.79	1690.00
55.900	897.22	2000.00	2000.00	2060.00	2122.41	122.41	1690.00
55.900	897.52	2000.00	2000.00	2060.00	2129.57	129.57	1690.00
55.900	898.20	1982.00	2000.00	2060.00	2146.25	164.25	1690.00
56.000	897.08	1685.36	1892.00	2078.00	2118.97	433.61	10.00
56.000	897.66	1658.88	1892.00	2078.00	2133.20	474.32	10.00
56.000	897.95	1649.59	1892.00	2078.00	2140.18	490.58	10.00
56.000	898.58	1629.05	1892.00	2078.00	2155.63	526.57	10.00
56.100	897.08	1685.46	1892.00	2078.00	2118.92	433.45	1.00
56.100	897.66	1659.03	1892.00	2078.00	2133.09	474.06	1.00
56.100	897.94	1649.78	1892.00	2078.00	2140.04	490.26	1.00
56.100	898.57	1629.33	1892.00	2078.00	2155.42	526.09	1.00
56.800	897.30	2100.00	2120.00	2180.00	2200.00	100.00	2780.00
56.800	898.01	2100.00	2120.00	2180.00	2200.00	100.00	2780.00
56.800	898.34	2100.00	2120.00	2180.00	2200.00	100.00	2780.00
56.800	899.05	2100.00	2120.00	2180.00	2200.00	100.00	2780.00
56.900	897.49	2000.00	2000.00	2050.00	2050.00	50.00	99.00
56.900	898.22	2000.00	2000.00	2050.00	2050.00	50.00	99.00
56.900	898.55	2000.00	2000.00	2050.00	2050.00	50.00	99.00
56.900	899.25	2000.00	2000.00	2050.00	2050.00	50.00	99.00
57.000	897.49	2000.00	2000.00	2050.00	2050.00	50.00	1.00
57.000	898.22	2000.00	2000.00	2050.00	2050.00	50.00	1.00
57.000	898.56	2000.00	2000.00	2050.00	2050.00	50.00	1.00
57.000	899.22	2000.00	2000.00	2050.00	2050.00	50.00	1.00

MOORE BUSINESS FORMS INC 27

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
57.100	897.60	2000.00	2000.00	2050.00	2050.00	50.00	35.00
57.100	898.38	2000.00	2000.00	2050.00	2050.00	50.00	35.00
57.100	898.74	2000.00	2000.00	2050.00	2050.00	50.00	35.00
57.100	899.70	2000.00	2000.00	2050.00	2050.00	50.00	35.00
57.200	897.61	2000.00	2000.00	2050.00	2050.00	50.00	1.00
57.200	898.36	2000.00	2000.00	2050.00	2050.00	50.00	1.00
57.200	898.74	2000.00	2000.00	2050.00	2050.00	50.00	1.00
57.200	899.97	2000.00	2000.00	2050.00	2050.00	50.00	1.00
57.300	898.07	1978.65	2120.00	2180.00	2239.46	260.82	229.00
57.300	899.02	1966.15	2120.00	2180.00	2323.46	357.31	229.00
57.300	899.46	1960.35	2120.00	2180.00	2374.94	414.59	229.00
57.300	900.72	1943.75	2120.00	2180.00	2408.64	464.89	229.00
57.800	900.78	1962.00	2000.00	2057.00	2053.70	91.70	3530.00
57.800	901.75	1962.00	2000.00	2057.00	2056.31	94.31	3530.00
57.800	902.11	1962.00	2000.00	2057.00	2059.46	97.46	3530.00
57.800	902.84	1962.00	2000.00	2057.00	2075.23	113.23	3530.00
57.900	900.91	2010.19	2000.00	2087.00	2076.81	66.62	99.00
57.900	901.90	2008.19	2000.00	2087.00	2078.81	70.61	99.00
57.900	902.28	2007.44	2000.00	2087.00	2079.56	72.13	99.00
57.900	903.05	2005.90	2000.00	2087.00	2081.10	75.19	99.00
58.000	900.90	2010.19	2000.00	2087.00	2076.81	60.62	1.00
58.000	901.89	2008.20	2000.00	2087.00	2078.80	64.59	1.00
58.000	902.27	2007.45	2000.00	2087.00	2079.55	66.11	1.00
58.000	903.03	2005.92	2000.00	2087.00	2081.08	69.16	1.00
58.010	900.92	2010.17	2000.00	2087.00	2076.83	60.65	29.00
58.010	901.92	2008.17	2000.00	2087.00	2078.83	64.65	29.00
58.010	902.30	2007.40	2000.00	2087.00	2079.60	66.19	29.00
58.010	903.08	2005.86	2000.00	2087.00	2081.14	69.28	29.00
58.020	900.94	2010.14	2000.00	2087.00	2076.86	66.71	1.00
58.020	901.95	2008.10	2000.00	2087.00	2078.90	70.81	1.00
58.020	902.34	2007.32	2000.00	2087.00	2079.68	72.36	1.00
58.020	903.13	2005.74	2000.00	2087.00	2081.26	75.52	1.00
58.030	900.95	2010.09	2000.00	2087.00	2076.91	66.82	39.00
58.030	901.97	2008.05	2000.00	2087.00	2078.95	70.90	39.00
58.030	902.36	2007.27	2000.00	2087.00	2079.73	72.46	39.00
58.030	903.16	2005.67	2000.00	2087.00	2081.33	75.66	39.00
58.040	900.94	2010.10	2000.00	2087.00	2076.90	60.79	1.00
58.040	901.96	2008.07	2000.00	2087.00	2078.93	64.85	1.00
58.040	902.35	2007.29	2000.00	2087.00	2079.71	66.41	1.00
58.040	903.14	2005.70	2000.00	2087.00	2081.30	69.59	1.00

MOORE BUSINESS FORMS INC 27

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
58.050	900.96	2010.09	2000.00	2067.00	2076.91	60.82	29.00
58.050	901.99	2008.04	2000.00	2067.00	2078.96	64.91	29.00
58.050	902.38	2007.26	2000.00	2067.00	2079.74	66.48	29.00
58.050	903.18	2005.65	2000.00	2087.00	2081.35	69.70	29.00
58.060	900.98	2010.06	2000.00	2067.00	2076.94	66.88	1.00
58.060	902.02	2007.97	2000.00	2067.00	2079.03	71.07	1.00
58.060	902.42	2007.17	2000.00	2087.00	2079.83	72.66	1.00
58.060	903.23	2005.53	2000.00	2087.00	2081.47	75.94	1.00
58.300	900.97	1886.00	2000.00	2053.00	2046.90	139.02	99.00
58.300	902.03	1886.00	2000.00	2053.00	2049.73	143.73	99.00
58.300	902.44	1886.00	2000.00	2053.00	2050.82	144.82	99.00
58.300	903.28	1886.00	2000.00	2053.00	2053.75	147.75	99.00
59.000	901.70	1276.54	2000.00	2046.00	2075.58	799.04	2240.00
59.000	902.71	1272.83	2000.00	2046.00	2077.13	804.31	2240.00
59.000	903.11	1271.33	2000.00	2046.00	2077.76	806.43	2240.00
59.000	903.96	1268.18	2000.00	2046.00	2079.08	810.90	2240.00
60.000	902.47	1696.98	2000.00	2046.00	2044.04	183.06	2880.00
60.000	903.33	1654.65	2000.00	2046.00	2045.91	380.19	2880.00
60.000	903.72	1641.85	2000.00	2046.00	2053.09	403.58	2880.00
60.000	904.54	1614.22	2000.00	2046.00	2061.36	446.82	2880.00
61.000	905.94	1948.53	2000.00	2053.00	2222.84	274.31	2220.00
61.000	906.70	1903.45	2000.00	2053.00	2242.52	339.07	2220.00
61.000	906.96	1888.45	2000.00	2053.00	2249.07	360.62	2220.00
61.000	907.49	1856.76	2000.00	2053.00	2262.90	406.15	2220.00

MOORE BUSINESS FORMS INC 27

RICE CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	FLMIN	Q	CRIWS	EG	10K*S	VCH	AREA	.01K
55.100	0.00	0.00	0.00	890.50	420.00	896.40	0.00	896.41	1.80	1.26	646.35	313.33
55.100	0.00	0.00	0.00	890.50	700.00	896.90	0.00	896.83	3.55	1.87	732.24	371.52
55.100	0.00	0.00	0.00	890.50	840.00	897.00	0.00	897.04	4.36	2.12	776.18	402.42
55.100	0.00	0.00	0.00	890.50	1180.00	897.50	0.00	897.56	5.90	2.62	891.03	485.67
55.900	1690.00	0.00	0.00	890.50	420.00	896.62	0.00	896.63	.96	.96	445.85	428.24
55.900	1690.00	0.00	0.00	890.50	700.00	897.22	0.00	897.25	1.88	1.43	514.66	510.30
55.900	1690.00	0.00	0.00	890.50	840.00	897.52	0.00	897.56	2.31	1.63	551.75	553.19
55.900	1690.00	0.00	0.00	890.50	1180.00	898.20	0.00	898.27	3.17	2.04	653.48	662.57
56.000	10.00	895.40	892.00	890.40	420.00	897.08	0.00	897.08	.14	.38	1318.92	1137.05
56.000	10.00	895.40	892.00	890.40	700.00	897.66	0.00	897.67	.26	.56	1584.61	1375.65
56.000	10.00	895.40	892.00	890.40	840.00	897.95	0.00	897.95	.31	.64	1723.05	1503.53
56.000	10.00	895.40	892.00	890.40	1180.00	898.58	0.00	898.59	.42	.79	2045.93	1810.43
56.100	1.00	0.00	0.00	890.40	710.00	897.08	0.00	897.08	.39	.65	1317.99	1136.23
56.100	1.00	0.00	0.00	890.40	1080.00	897.66	0.00	897.67	.62	.87	1582.46	1373.69
56.100	1.00	0.00	0.00	890.40	1270.00	897.94	0.00	897.95	.72	.97	1720.25	1500.91
56.100	1.00	0.00	0.00	890.40	1710.00	898.57	0.00	898.59	.90	1.15	2041.42	1806.07
56.800	2780.00	0.00	0.00	893.05	710.00	897.30	0.00	897.46	19.42	3.27	248.37	161.12
56.800	2780.00	0.00	0.00	893.05	1080.00	898.01	0.00	898.24	23.09	4.04	318.84	224.74
56.800	2780.00	0.00	0.00	893.05	1270.00	898.34	0.00	898.61	24.22	4.35	352.21	258.05
56.800	2780.00	0.00	0.00	893.05	1710.00	899.05	0.00	899.40	26.04	4.97	423.11	335.10
56.900	99.00	0.00	0.00	893.00	710.00	897.49	0.00	897.72	26.27	3.83	185.50	138.52
56.900	99.00	0.00	0.00	893.00	1080.00	898.22	0.00	898.59	34.66	4.87	221.88	183.45
56.900	99.00	0.00	0.00	893.00	1270.00	898.55	0.00	898.99	38.19	5.32	238.66	205.51
56.900	99.00	0.00	0.00	893.00	1710.00	899.25	0.00	899.86	45.30	6.25	273.71	254.07
57.000	1.00	902.60	899.00	893.00	710.00	897.49	0.00	897.72	28.94	3.83	185.61	131.98
57.000	1.00	902.60	899.00	893.00	1080.00	898.22	0.00	898.59	39.31	4.86	222.02	172.26
57.000	1.00	902.60	899.00	893.00	1270.00	898.56	0.00	899.00	43.87	5.32	238.81	191.73
57.000	1.00	902.60	899.00	893.00	1710.00	899.22	0.00	899.90	135.60	6.62	258.50	146.85
57.100	35.00	902.60	899.00	892.50	710.00	897.60	0.00	897.82	26.26	3.74	189.78	138.55
57.100	35.00	902.60	899.00	892.50	1080.00	898.38	0.00	898.73	34.86	4.72	229.00	182.92
57.100	35.00	902.60	899.00	892.50	1270.00	898.74	0.00	899.15	38.67	5.14	246.95	204.23
57.100	35.00	902.60	899.00	892.50	1710.00	899.70	0.00	900.38	135.11	6.64	257.50	147.12
57.200	1.00	0.00	0.00	892.50	710.00	897.61	0.00	897.82	23.92	3.73	190.25	145.17
57.200	1.00	0.00	0.00	892.50	1080.00	898.38	0.00	898.73	30.90	4.71	229.19	194.29
57.200	1.00	0.00	0.00	892.50	1270.00	898.74	0.00	899.15	33.80	5.14	247.15	218.46
57.200	1.00	0.00	0.00	892.50	1710.00	899.97	0.00	900.45	30.90	5.54	308.74	307.63

MOORE BUSINESS FORMS INC 27

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	C&SEL	CRIWS	FG	10K*S	VCH	AREA	.01K
57.300	229.00	0.00	0.00	893.05	710.00	898.07	0.00	898.13	6.56	2.17	544.16	277.28
57.300	229.00	0.00	0.00	893.05	1080.00	899.02	0.00	899.08	6.10	2.40	828.86	437.30
57.300	229.00	0.00	0.00	893.05	1260.00	899.46	0.00	899.52	5.64	2.43	1004.26	530.65
57.300	229.00	0.00	0.00	893.05	1700.00	900.72	0.00	900.77	3.84	2.30	1557.03	867.70
57.800	3530.00	0.00	0.00	895.11	710.00	900.78	0.00	900.89	10.13	2.74	324.07	223.04
57.800	3530.00	0.00	0.00	895.11	1080.00	901.75	0.00	901.90	11.91	3.30	413.95	313.01
57.800	3530.00	0.00	0.00	895.11	1260.00	902.11	0.00	902.29	12.82	3.55	449.00	351.84
57.800	3530.00	0.00	0.00	895.11	1700.00	902.84	0.00	903.07	15.01	4.18	524.50	438.75
57.900	99.00	0.00	0.00	893.00	710.00	900.91	0.00	900.95	2.81	1.77	401.72	423.81
57.900	99.00	0.00	0.00	893.00	1080.00	901.90	0.00	901.99	4.17	2.30	470.14	528.71
57.900	99.00	0.00	0.00	893.00	1260.00	902.28	0.00	902.38	4.86	2.53	497.20	571.79
57.900	99.00	0.00	0.00	893.00	1700.00	903.05	0.00	903.19	6.55	3.07	553.62	664.29
58.000	1.00	909.20	905.80	893.00	710.00	900.90	0.00	900.96	6.45	2.00	354.33	279.48
58.000	1.00	909.20	905.80	893.00	1080.00	901.89	0.00	902.00	9.75	2.59	416.41	345.88
58.000	1.00	909.20	905.80	893.00	1260.00	902.27	0.00	902.40	11.40	2.86	441.12	373.17
58.000	1.00	909.20	905.80	893.00	1700.00	903.03	0.00	903.21	15.51	3.45	492.75	431.63
58.010	29.00	909.20	905.80	893.00	710.00	900.92	0.00	900.98	6.44	2.00	354.71	279.88
58.010	29.00	909.20	905.80	893.00	1080.00	901.92	0.00	902.03	9.69	2.59	417.34	346.90
58.010	29.00	909.20	905.80	893.00	1260.00	902.30	0.00	902.43	11.30	2.85	442.56	374.77
58.010	29.00	909.20	905.80	893.00	1700.00	903.08	0.00	903.26	15.35	3.44	494.78	433.97
58.020	1.00	0.00	0.00	893.00	710.00	900.94	0.00	900.99	2.78	1.76	403.19	425.99
58.020	1.00	0.00	0.00	893.00	1080.00	901.95	0.00	902.03	4.09	2.28	473.60	534.17
58.020	1.00	0.00	0.00	893.00	1260.00	902.34	0.00	902.44	4.74	2.51	501.40	578.54
58.020	1.00	0.00	0.00	893.00	1700.00	903.13	0.00	903.27	6.35	3.04	559.76	674.57
58.030	39.00	0.00	0.00	893.00	710.00	900.95	0.00	901.00	2.74	1.75	404.99	428.69
58.030	39.00	0.00	0.00	893.00	1080.00	901.97	0.00	902.05	4.05	2.27	475.14	536.61
58.030	39.00	0.00	0.00	893.00	1260.00	902.36	0.00	902.46	4.69	2.50	503.24	581.51
58.030	39.00	0.00	0.00	893.00	1700.00	903.16	0.00	903.30	6.27	3.02	562.37	678.95
58.040	1.00	909.20	905.80	893.00	710.00	900.94	0.00	901.00	6.33	1.99	356.88	282.15
58.040	1.00	909.20	905.80	893.00	1080.00	901.96	0.00	902.06	9.49	2.57	420.64	350.52
58.040	1.00	909.20	905.80	893.00	1260.00	902.35	0.00	902.47	11.06	2.82	446.24	378.88
58.040	1.00	909.20	905.80	893.00	1700.00	903.14	0.00	903.32	14.91	3.40	500.23	440.26
58.050	29.00	909.20	905.80	893.00	710.00	900.96	0.00	901.02	6.31	1.99	357.27	282.55
58.050	29.00	909.20	905.80	893.00	1080.00	901.99	0.00	902.09	9.44	2.56	421.56	351.53
58.050	29.00	909.20	905.80	893.00	1260.00	902.38	0.00	902.50	10.99	2.82	447.32	380.09
58.050	29.00	909.20	905.80	893.00	1700.00	903.18	0.00	903.36	14.76	3.39	502.20	442.54
58.060	1.00	0.00	0.00	893.00	710.00	900.98	0.00	901.03	2.72	1.75	405.98	430.17
58.060	1.00	0.00	0.00	893.00	1080.00	902.02	0.00	902.10	3.98	2.26	478.16	541.38
58.060	1.00	0.00	0.00	893.00	1260.00	902.42	0.00	902.51	4.60	2.49	506.88	587.41
58.060	1.00	0.00	0.00	893.00	1700.00	903.23	0.00	903.37	6.11	2.99	567.68	687.88

MOORE BUSINESS FORMS INC 27

SECNO	XLCH	ELTRD	ELLC	FLMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
58.300	99.00	0.00	0.00	894.12	710.00	900.97	0.00	901.14	14.27	3.29	241.97	187.97
58.300	99.00	0.00	0.00	894.12	1080.00	902.03	0.00	902.22	14.77	3.71	412.79	280.97
58.300	99.00	0.00	0.00	894.12	1260.00	902.44	0.00	902.64	14.97	3.87	480.18	325.70
58.300	99.00	0.00	0.00	894.12	1700.00	903.28	0.00	903.51	15.57	4.22	620.20	430.87
59.000	2240.00	0.00	0.00	894.36	710.00	901.70	0.00	901.71	1.23	1.03	1783.52	641.02
59.000	2240.00	0.00	0.00	894.36	1080.00	902.71	0.00	902.71	1.04	1.07	2588.09	1061.37
59.000	2240.00	0.00	0.00	894.36	1260.00	903.11	0.00	903.12	1.00	1.10	2913.31	1259.00
59.000	2240.00	0.00	0.00	894.36	1700.00	903.96	0.00	903.97	.97	1.18	3602.34	1725.60
60.000	2880.00	0.00	0.00	897.20	710.00	902.47	0.00	902.75	31.26	4.29	193.53	126.99
60.000	2880.00	0.00	0.00	897.20	1080.00	903.33	0.00	903.60	27.30	4.49	458.76	296.72
60.000	2880.00	0.00	0.00	897.20	1260.00	903.72	0.00	903.94	23.00	4.35	608.30	262.72
60.000	2880.00	0.00	0.00	897.20	1700.00	904.54	0.00	904.71	16.53	4.10	960.23	418.18
61.000	2220.00	0.00	0.00	900.18	710.00	905.94	0.00	906.01	8.42	2.43	519.56	244.69
61.000	2220.00	0.00	0.00	900.18	1080.00	906.70	0.00	906.78	8.83	2.79	752.39	363.36
61.000	2220.00	0.00	0.00	900.18	1260.00	906.96	0.00	907.05	9.46	2.99	840.74	409.56
61.000	2220.00	0.00	0.00	900.18	1700.00	907.49	0.00	907.60	10.73	3.40	1045.34	518.98

MOORE BUSINESS FORMS INC 27

RICE CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	C.SEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
55.100	420.00	896.40	0.00	0.00	0.00	211.51	0.00
55.100	700.00	896.80	.40	0.00	0.00	218.04	0.00
55.100	840.00	897.00	.20	0.00	0.00	221.35	0.00
55.100	1180.00	897.50	.50	0.00	0.00	240.16	0.00
55.900	420.00	896.62	0.00	.22	0.00	102.79	1690.00
55.900	700.00	897.22	.61	.42	0.00	122.41	1690.00
55.900	840.00	897.52	.29	.52	0.00	129.57	1690.00
55.900	1180.00	898.20	.69	.70	0.00	164.25	1690.00
56.000	420.00	897.08	0.00	.46	0.00	433.61	10.00
56.000	700.00	897.66	.58	.44	0.00	474.32	10.00
56.000	840.00	897.95	.29	.43	0.00	490.58	10.00
56.000	1180.00	898.58	.63	.38	0.00	526.57	10.00
56.100	710.00	897.08	0.00	-.00	0.00	433.45	1.00
56.100	1080.00	897.66	.58	-.00	0.00	474.06	1.00
56.100	1270.00	897.94	.28	-.01	0.00	490.26	1.00
56.100	1710.00	898.57	.63	-.01	0.00	526.09	1.00
56.800	710.00	897.30	0.00	.23	0.00	100.00	2780.00
56.800	1080.00	898.01	.70	.35	0.00	100.00	2780.00
56.800	1270.00	898.34	.33	.40	0.00	100.00	2780.00
56.800	1710.00	899.05	.71	.48	0.00	100.00	2780.00
56.900	710.00	897.49	0.00	.19	0.00	50.00	99.00
56.900	1080.00	898.22	.73	.21	0.00	50.00	99.00
56.900	1270.00	898.55	.34	.21	0.00	50.00	99.00
56.900	1710.00	899.25	.70	.21	0.00	50.00	99.00
57.000	710.00	897.49	0.00	.00	0.00	50.00	1.00
57.000	1080.00	898.22	.73	.00	0.00	50.00	1.00
57.000	1270.00	898.56	.34	.00	0.00	50.00	1.00
57.000	1710.00	899.22	.67	-.03	0.00	50.00	1.00
57.100	710.00	897.60	0.00	.11	0.00	50.00	35.00
57.100	1080.00	898.38	.78	.16	0.00	50.00	35.00
57.100	1270.00	898.74	.36	.18	0.00	50.00	35.00
57.100	1710.00	899.70	.96	.47	0.00	50.00	35.00
57.200	710.00	897.61	0.00	.00	0.00	50.00	1.00
57.200	1080.00	898.38	.78	.00	0.00	50.00	1.00
57.200	1270.00	898.74	.36	.00	0.00	50.00	1.00
57.200	1710.00	899.97	1.23	.28	0.00	50.00	1.00

MOORE BUSINESS FORMS INC 27

SECNO	Q	C.SEL	DIF.SP	DIF.SX	LIFKWS	TOPWID	XLCH
57.300	710.00	898.07	0.00	.46	0.00	260.82	229.00
57.300	1080.00	899.02	.95	.63	0.00	357.31	229.00
57.300	1260.00	899.46	.44	.71	0.00	414.59	229.00
57.300	1700.00	900.72	1.26	.75	0.00	464.89	229.00
57.800	710.00	900.78	0.00	2.71	0.00	51.70	3530.00
57.800	1080.00	901.75	.97	2.73	0.00	54.31	3530.00
57.800	1260.00	902.11	.36	2.66	0.00	57.46	3530.00
57.800	1700.00	902.84	.72	2.12	0.00	113.23	3530.00
57.900	710.00	900.91	0.00	.12	0.00	66.62	99.00
57.900	1080.00	901.90	1.00	.15	0.00	70.61	99.00
57.900	1260.00	902.28	.38	.17	0.00	72.13	99.00
57.900	1700.00	903.05	.77	.21	0.00	75.19	99.00
58.000	710.00	900.90	0.00	-.01	0.00	60.63	1.00
58.000	1080.00	901.89	.99	-.01	0.00	64.59	1.00
58.000	1260.00	902.27	.38	-.01	0.00	66.11	1.00
58.000	1700.00	903.03	.76	-.02	0.00	69.16	1.00
58.010	710.00	900.92	0.00	.02	0.00	60.65	29.00
58.010	1080.00	901.92	1.00	.03	0.00	64.65	29.00
58.010	1260.00	902.30	.38	.03	0.00	66.19	29.00
58.010	1700.00	903.08	.77	.05	0.00	69.28	29.00
58.020	710.00	900.94	0.00	.02	0.00	66.71	1.00
58.020	1080.00	901.95	1.01	.03	0.00	70.81	1.00
58.020	1260.00	902.34	.39	.04	0.00	72.36	1.00
58.020	1700.00	903.13	.79	.05	0.00	75.52	1.00
58.030	710.00	900.95	0.00	.01	0.00	66.82	39.00
58.030	1080.00	901.97	1.02	.02	0.00	70.90	39.00
58.030	1260.00	902.36	.39	.02	0.00	72.46	39.00
58.030	1700.00	903.16	.80	.03	0.00	75.66	39.00
58.040	710.00	900.94	0.00	-.01	0.00	60.79	1.00
58.040	1080.00	901.96	1.02	-.01	0.00	64.85	1.00
58.040	1260.00	902.35	.39	-.01	0.00	66.41	1.00
58.040	1700.00	903.14	.79	-.02	0.00	69.59	1.00
58.050	710.00	900.96	0.00	.02	0.00	60.82	29.00
58.050	1080.00	901.99	1.03	.03	0.00	64.91	29.00
58.050	1260.00	902.38	.39	.03	0.00	66.48	29.00
58.050	1700.00	903.18	.80	.04	0.00	69.70	29.00
58.060	710.00	900.98	0.00	.02	0.00	66.88	1.00
58.060	1080.00	902.02	1.04	.03	0.00	71.07	1.00
58.060	1260.00	902.42	.40	.04	0.00	72.66	1.00
58.060	1700.00	903.23	.82	.05	0.00	75.94	1.00

MOORE BUSINESS FORMS INC 27

SECNO	Q	C#SEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
58.300	710.00	900.97	0.00	-.01	0.00	139.02	99.00
58.300	1080.00	902.03	1.06	.01	0.00	163.73	99.00
58.300	1260.00	902.44	.41	.02	0.00	164.82	99.00
58.300	1700.00	903.28	.84	.05	0.00	167.75	99.00
59.000	710.00	901.70	0.00	.73	0.00	799.04	2240.00
59.000	1080.00	902.71	1.00	.68	0.00	804.31	2240.00
59.000	1260.00	903.11	.40	.67	0.00	806.43	2240.00
59.000	1700.00	903.96	.85	.68	0.00	810.90	2240.00
60.000	710.00	902.47	0.00	.76	0.00	183.06	2880.00
60.000	1080.00	903.33	.86	.63	0.00	380.19	2880.00
60.000	1260.00	903.72	.38	.61	0.00	403.58	2880.00
60.000	1700.00	904.54	.83	.58	0.00	446.82	2880.00
61.000	710.00	905.94	0.00	3.47	0.00	274.31	2220.00
61.000	1080.00	906.70	.76	3.37	0.00	339.07	2220.00
61.000	1260.00	906.96	.26	3.24	0.00	360.62	2220.00
61.000	1700.00	907.49	.53	2.95	0.00	406.15	2220.00

MOORE BUSINESS FORMS INC 22

FLOOD INSURANCE ZONE DATA FOR RICE CREEK

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
55.100	0.	-.60	-.20	.50
55.900	1690.	-.90	-.29	.69
56.000	1700.	-.87	-.29	.63
56.100	1701.	-.87	-.28	.63
56.800	4481.	-1.04	-.33	.71
56.900	4580.	-1.06	-.34	.70
57.000	4581.	-1.06	-.34	.67
57.100	4616.	-1.14	-.36	.96
57.200	4617.	-1.14	-.36	1.23
57.300	4846.	-1.39	-.44	1.26
57.800	8376.	-1.33	-.36	.72
57.900	8475.	-1.38	-.38	.77
58.000	8476.	-1.37	-.38	.76
58.010	8505.	-1.39	-.38	.77
58.020	8506.	-1.40	-.39	.79
58.030	8545.	-1.41	-.39	.80
58.040	8546.	-1.41	-.39	.79
58.050	8575.	-1.42	-.39	.80
58.060	8576.	-1.44	-.40	.82
58.300	8675.	-1.47	-.41	.84
59.000	10915.	-1.41	-.40	.85
60.000	13795.	-1.25	-.33	.63
61.000	16015.	-1.02	-.26	.53
WEIGHTED AVG FOR REACH		-1.19	-.36	.80

FHF FOR THE REACH = 010 WITH 100.0 PERCENT OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 2

00BREAK00

1) COUNTY: Calhoun

2) STUDY NAME: Marengo Twp

3) WATERCOURSE: Rice Creek

4) DOCUMENT TYPE: 100 yr natural and encroachment

00BREAK00

RECEIVED
OCT 30 1980
WATER MANAGEMENT

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************
C
T1      FIS  MAKENGO TWP.,  CALHOUN COUNTY,  MICHIGAN.
T2      100-YEAR FLOOD
T3      RICE CREEK
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        4.        0.        0.  0.000000      0.00      0.0       0.    897.000     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
    38.000     1.000    53.000    21.000    22.000    54.000     4.000    39.000   150.000   200.000
NC      .100      .100      .045      .100      .300     0.000     0.000     0.000     0.000     0.000
OT     5.000   420.000   700.000   840.000  1180.000   840.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

X1    55.100    21.000  2184.000  2222.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   897.900  2067.000   897.900  2067.000   897.900  2067.000   897.900  2067.000   896.500  2074.000
GR   893.600  2086.000   892.700  2184.000   891.300  2186.000   890.500  2194.000   891.200  2206.000
GR   893.300  2222.000   894.500  2264.000   897.100  2294.000   899.000  2366.000   903.600  2492.000
GR   904.400  2502.000   912.300  2841.000   914.300  2933.000   922.000  3033.000   929.400  3095.000
GR   934.200  3124.000     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     9.100     0.000     0.000  2000.000  2122.000

X1    55.900    22.000  2000.000  2080.000  1700.000  1400.000  1690.000     0.000     0.000     0.000
GR   897.700  1982.000   897.700  1982.000   897.800  1991.000   897.900  2000.000   891.200  2000.000
GR   891.300  2006.000   890.500  2014.000   890.600  2025.000   890.600  2038.000   890.800  2048.000
GR   890.600  2058.000   891.300  2070.000   896.000  2080.000   897.000  2117.000   900.000  2190.000
GR   904.600  2344.000   905.600  2398.000   909.900  2542.000   912.300  2642.000   912.200  2698.000
GR   928.800  2932.000   932.900  2958.000     0.000     0.000     0.000     0.000     0.000     0.000
SB     0.000     1.500     3.080     0.000      .200     0.000      .300     0.000   890.500   890.500

          LOW DAM (A)
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X1	56.000	20.000	1892.000	2078.000	10.000	10.000	10.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	892.000	895.400	0.000	0.000	0.000	0.000	0.000
BT	9.000	2000.000	900.000	0.000	2000.000	895.500	0.000	2031.000	895.500	0.000
BT	2067.000	895.400	0.000	2067.000	897.800	0.000	2078.000	896.400	0.000	2117.000
BT	897.000	0.000	2190.000	900.000	0.000	2344.000	904.600	0.000	0.000	0.000
GR	903.300	1475.000	899.300	1606.000	897.600	1661.000	896.300	1722.000	896.400	1776.000
GR	894.400	1892.000	893.000	1914.000	890.500	1926.000	890.400	1940.000	891.400	1956.000
GR	891.400	1968.000	891.200	1962.000	891.200	2000.000	890.500	2031.000	890.800	2067.000
GR	891.300	2067.000	896.000	2078.000	897.000	2117.000	900.000	2190.000	904.600	2344.000
QT	5.000	710.000	1080.000	1270.000	1710.000	1270.000	0.000	0.000	0.000	0.000
X1	56.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	56.800	30.000	2120.000	2180.000	2780.000	2780.000	2780.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	2100.000	0.000	2200.000	0.000	0.000	0.000	0.000
GR	925.350	1509.000	922.140	1559.000	916.240	1589.000	922.090	1642.000	918.480	1729.000
GR	900.770	1796.000	905.100	1896.000	900.770	1943.000	897.590	1985.000	896.240	1991.000
GR	896.640	2000.000	895.690	2120.000	895.300	2123.000	893.730	2137.000	893.050	2151.000
GR	893.120	2166.000	894.970	2180.000	896.440	2180.000	897.690	2213.000	898.940	2300.000
GR	899.160	2367.000	901.510	2430.000	905.910	2490.000	906.620	2503.000	904.900	2623.000
GR	906.550	2757.000	909.410	2773.000	910.210	2787.000	909.150	2830.000	907.420	2857.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	2000.000	2050.000
X1	56.900	22.000	2000.000	2050.000	99.000	99.000	99.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	901.000	901.000	0.000
GR	906.200	1850.000	904.400	1900.000	902.900	1950.000	902.900	2000.000	895.400	2000.000
GR	893.900	2010.000	893.400	2020.000	893.000	2030.000	893.200	2040.000	895.400	2050.000
GR	902.600	2050.000	902.700	2100.000	902.800	2150.000	903.400	2200.000	903.700	2250.000
GR	903.900	2300.000	903.900	2350.000	904.000	2400.000	904.100	2450.000	904.100	2700.000
GR	905.400	2900.000	906.300	3100.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	57.000	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	901.000	901.000	0.000
BT	18.000	1850.000	906.200	0.000	1900.000	904.400	0.000	1950.000	902.900	0.000
BT	2000.000	902.900	0.000	2000.000	902.900	899.000	2050.000	902.600	898.900	2050.000
BT	902.600	0.000	2100.000	902.700	0.000	2150.000	902.800	0.000	2200.000	903.400
BT	0.000	2250.000	903.700	0.000	2300.000	903.900	0.000	2350.000	903.900	0.000
BT	2400.000	904.000	0.000	2450.000	904.100	0.000	2700.000	904.100	0.000	2900.000
BT	905.400	0.000	3100.000	906.300	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE U/S (R)

MOORE BUSINESS FORMS INC 27

X1	57.100	22.000	2000.000	2050.000	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	902.900	902.600	0.000
BT	18.000	1850.000	906.200	0.000	1900.000	904.400	0.000	1950.000	902.900	0.000
BT	2000.000	902.900	0.000	2000.000	902.900	899.000	2050.000	902.600	898.900	2050.000
BT	902.600	0.000	2100.000	902.700	0.000	2150.000	902.800	0.000	2200.000	903.400
BT	0.000	2250.000	903.700	0.000	2300.000	903.900	0.000	2350.000	903.900	0.000
BT	2400.000	904.000	0.000	2450.000	904.100	0.000	2700.000	904.100	0.000	2900.000
BT	905.400	0.000	3100.000	906.300	0.000	0.000	0.000	0.000	0.000	0.000
GR	906.200	1850.000	904.400	1900.000	902.900	1950.000	902.900	2000.000	895.300	2000.000
GR	893.000	2010.000	892.500	2020.000	893.000	2030.000	894.700	2040.000	896.300	2050.000
GR	902.600	2050.000	902.700	2100.000	902.800	2150.000	903.400	2200.000	903.700	2250.000
GR	903.900	2300.000	903.900	2350.000	904.000	2400.000	904.100	2450.000	904.100	2700.000
GR	905.400	2900.000	906.300	3100.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	57.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
QT	5.000	710.000	1080.000	1260.000	1700.000	1260.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
	(C)									
X1	57.300	30.000	2120.000	2180.000	229.000	229.000	229.000	0.000	0.000	0.000
GP	925.350	1509.000	922.140	1559.000	916.240	1589.000	922.090	1642.000	918.480	1729.000
GR	900.770	1796.000	905.100	1896.000	900.770	1943.000	897.590	1985.000	896.240	1991.000
GR	896.640	2000.000	895.690	2120.000	895.300	2123.000	893.730	2137.000	893.050	2151.000
GR	893.120	2166.000	894.970	2180.000	896.440	2180.000	897.690	2213.000	898.940	2300.000
GR	899.160	2367.000	901.510	2430.000	905.910	2490.000	906.620	2503.000	904.900	2623.000
GR	906.550	2757.000	909.410	2773.000	910.210	2787.000	909.150	2830.000	907.420	2857.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	57.800	25.000	2000.000	2057.000	2800.000	2850.000	3530.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1962.000	0.000	2095.000	0.000	0.000	0.000	0.000
GR	914.690	1004.000	910.960	1167.000	905.620	1417.000	903.940	1550.000	901.710	1750.000
GR	903.280	1800.000	903.130	1850.000	899.370	1900.000	898.460	1950.000	898.180	1987.000
GR	898.840	2000.000	898.450	2002.000	896.810	2005.000	895.400	2014.000	895.110	2024.000
GR	895.210	2034.000	896.820	2043.000	902.010	2057.000	903.510	2090.000	905.160	2220.000
GR	902.460	2277.000	902.260	2347.000	904.400	2450.000	905.870	2563.000	904.160	2603.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	2007.000	2080.000
X1	57.900	16.000	2000.000	2087.000	99.000	99.000	99.000	0.000	0.000	0.000
GR	909.200	2000.000	903.500	2000.000	903.500	2005.000	893.000	2026.000	893.000	2027.500
GR	893.000	2027.500	893.000	2030.500	893.000	2030.500	893.000	2056.500	893.000	2056.500
GR	893.000	2059.500	893.000	2059.500	893.000	2061.000	903.500	2082.000	903.500	2087.000
GR	909.300	2087.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS ... INC 27

X1	58.000	16.000	2000.000	2087.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	4.000	2000.000	909.200	0.000	2000.000	909.200	905.800	2087.000	909.300	905.800
BT	2087.000	909.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	909.200	2000.000	903.500	2000.000	903.500	2005.000	893.000	2026.000	893.000	2027.500
GR	905.800	2027.500	905.800	2030.500	893.000	2030.500	893.000	2056.500	905.800	2056.500
GR	905.800	2059.500	893.000	2059.500	893.000	2061.000	903.500	2082.000	903.500	2087.000
GR	909.300	2087.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	58.010	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
X1	58.020	16.000	2000.000	2087.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	909.200	2000.000	903.500	2000.000	903.500	2005.000	893.000	2026.000	893.000	2027.500
GR	893.000	2027.500	893.000	2030.500	893.000	2030.500	893.000	2056.500	893.000	2056.500
GR	893.000	2059.500	893.000	2059.500	893.000	2061.000	903.500	2082.000	903.500	2087.000
GR	909.300	2087.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	58.030	0.000	0.000	0.000	39.000	39.000	39.000	0.000	0.000	0.000
X1	58.040	16.000	2000.000	2087.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	4.000	2000.000	909.200	0.000	2000.000	909.200	905.800	2087.000	909.300	905.800
BT	2087.000	909.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	909.200	2000.000	903.500	2000.000	903.500	2005.000	893.000	2026.000	893.000	2027.500
GR	905.800	2027.500	905.800	2030.500	893.000	2030.500	893.000	2056.500	905.800	2056.500
GR	905.800	2059.500	893.000	2059.500	893.000	2061.000	903.500	2082.000	903.500	2087.000
GR	909.300	2087.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

I-94 BRIDGE U/S (D)

X1	58.050	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
X1	58.060	16.000	2000.000	2087.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	909.200	2000.000	903.500	2000.000	903.500	2005.000	893.000	2026.000	893.000	2027.500
GR	893.000	2027.500	893.000	2030.500	893.000	2030.500	893.000	2056.500	893.000	2056.500
GR	893.000	2059.500	893.000	2059.500	893.000	2061.000	903.500	2082.000	903.500	2087.000
GR	909.300	2087.000	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	1.400	0.000	0.000	0.000	0.000
X1	58.300	34.000	2000.000	2053.000	99.000	99.000	99.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1886.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	915.440	649.000	914.760	729.000	912.200	822.000	910.910	919.000	909.220	1015.000
GR	907.280	1088.000	905.780	1188.000	904.190	1298.000	903.550	1381.000	901.680	1474.000
GR	900.060	1601.000	899.210	1687.000	899.260	1767.000	899.170	1847.000	900.910	1937.000
GR	901.000	1997.000	901.070	2000.000	896.870	2006.000	894.530	2013.000	894.120	2021.000

MOORE BUSINESS INC 27

GR	894.780	2029.000	896.900	2036.000	903.250	2053.000	904.080	2073.000	905.690	2146.000
GR	906.640	2250.000	907.170	2339.000	907.650	2426.000	908.880	2496.000	909.540	2563.000
GR	909.680	2633.000	911.000	2736.000	910.830	2783.000	908.740	2809.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

(E)

X1	59.000	42.000	2000.000	2046.000	1230.000	1900.000	2240.000	0.000	0.000	0.000
GR	916.630	550.000	913.810	610.000	911.810	677.000	908.940	763.000	906.170	830.000
GR	905.370	923.000	911.920	988.000	910.130	1170.000	908.880	1250.000	901.580	1277.000
GR	899.290	1390.000	898.350	1447.000	896.500	1511.000	898.570	1576.000	899.470	1577.000
GR	899.920	1600.000	899.800	1687.000	899.500	1807.000	901.180	1880.000	900.260	1985.000
GR	901.420	1996.000	900.150	2000.000	898.960	2005.000	895.720	2014.000	894.360	2023.000
GR	895.990	2033.000	898.960	2043.000	900.310	2046.000	900.690	2074.000	905.200	2081.000
GR	906.150	2087.000	907.400	2147.000	910.910	2227.000	911.080	2275.000	910.840	2455.000
GR	904.660	2598.000	905.720	2625.000	913.640	2692.000	915.210	2772.000	916.190	2872.000
GR	914.350	2878.000	915.400	2897.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	60.000	38.000	2000.000	2046.000	2650.000	2880.000	2880.000	0.000	0.000	0.000
GR	908.980	974.000	908.790	1034.000	907.520	1107.000	906.780	1174.000	906.310	1260.000
GR	906.140	1320.000	905.730	1387.000	905.510	1440.000	905.680	1520.000	904.580	1613.000
GR	902.790	1673.000	901.990	1733.000	902.930	1833.000	902.100	1882.000	904.580	1893.000
GR	902.120	1904.000	903.280	1993.000	902.510	2000.000	900.500	2002.000	898.050	2011.000
GR	897.200	2021.000	897.850	2032.000	900.600	2040.000	903.380	2046.000	904.050	2060.000
GR	908.780	2073.000	911.860	2090.000	912.400	2100.000	912.350	2113.000	911.200	2120.000
GR	914.090	2125.000	913.910	2133.000	913.870	2220.000	914.990	2306.000	914.530	2373.000
GR	915.200	2466.000	916.210	2549.000	917.270	2699.000	0.000	0.000	0.000	0.000

(F)

X1	61.000	23.000	2000.000	2053.000	2100.000	2220.000	2220.000	0.000	0.000	0.000
GR	912.840	1137.000	911.770	1357.000	910.500	1443.000	911.440	1443.000	911.800	1470.000
GR	911.980	1583.000	911.440	1670.000	910.170	1750.000	908.560	1793.000	905.310	1986.000
GR	902.170	2000.000	901.120	2006.000	900.180	2013.000	900.220	2019.000	902.130	2026.000
GR	903.430	2053.000	904.260	2120.000	904.790	2193.000	907.490	2263.000	910.470	2383.000
GR	912.200	2456.000	916.040	2723.000	917.750	2734.000	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

MOORE BUSINESS FORMS INC 27

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	XNP	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 55.100

55.10	6.50	897.00	0.00	897.00	897.04	.04	0.00	0.00	892.70
840.	299.	443.	99.	401.	209.	166.	0.	0.	893.30
0.00	.74	2.12	.59	.100	.045	.100	0.000	890.50	2071.50
.000436	0.	0.	0.	0	0	0	0.00	221.35	2292.85

*SECNO 55.900

55.90	7.02	897.52	0.00	0.00	897.56	.04	.52	.00	897.90
840.	0.	831.	9.	0.	511.	41.	25.	6.	896.00
.29	0.00	1.63	.22	.100	.045	.100	.045	890.50	2000.00
.000231	1700.	1690.	1400.	2	0	0	0.00	129.57	2129.57

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	3.08	0.00	.20	0.00	.30	0.00	890.50	890.50

*SECNO 56.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
183506.21	897.56	0.00	842.	1.	0.	0.	892.00	895.40

LOW DAM (A)

56.00	7.55	897.95	0.00	0.00	897.95	.01	.39	0.00	894.40
840.	61.	773.	7.	446.	1210.	68.	25.	6.	896.00
.29	.14	.64	.10	.100	.045	.100	.045	890.40	1649.59
.000031	10.	10.	10.	0	0	10	0.00	490.58	2140.18

*SECNO 56.100

56.10	7.54	897.94	0.00	0.00	897.95	.01	.00	.00	894.40
1270.	92.	1168.	10.	444.	1209.	67.	25.	7.	896.00
.29	.21	.97	.15	.100	.045	.100	.045	890.40	1649.78
.000072	1.	1.	1.	0	0	0	0.00	490.26	2140.04

MOORE BUSINESS FORMS INC 27

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 56.800

3470 ENCROACHMENT STATIONS= 2100.0 2200.0 TYPE= 1 TARGET= 100.000

56.80	5.29	896.34	0.00	0.00	898.61	.27	.58	.08	895.69
1270.	65.	1176.	28.	51.	270.	30.	92.	25.	896.44
.48	1.27	4.35	.93	.100	.045	.100	.045	893.05	2100.00
.002422	2780.	2780.	2780.	2	0	0	0.00	100.00	2200.00

CCHV= .300 CEHV= .500
*SECNO 56.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 901.00 ELREA= 901.00

56.90	5.55	898.55	0.00	0.00	898.99	.44	.30	.08	902.90
1270.	0.	1270.	0.	0.	239.	0.	92.	26.	902.60
.49	0.00	5.32	0.00	.100	.045	.100	.045	893.00	2000.00
.003819	99.	99.	99.	2	0	0	0.00	50.00	2050.00

*SECNO 57.000

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 902.60 MAX ELLC= 899.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 901.00 ELREA= 901.00

57.00	5.56	898.56	0.00	0.00	899.00	.44	.00	.00	902.90
1270.	0.	1270.	0.	0.	239.	0.	92.	26.	902.60
.49	0.00	5.32	0.00	.100	.045	.100	.045	893.00	2000.00
.004387	1.	1.	1.	0	0	0	0.00	50.00	2050.00

*SECNO 57.100

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 902.60 MAX ELLC= 899.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 902.90 ELREA= 902.60

BRIDGE U/S (B)

57.10	6.24	898.74	0.00	0.00	899.15	.41	.14	.01	902.90
1270.	0.	1270.	0.	0.	247.	0.	92.	26.	902.60
.49	0.00	5.14	0.00	.100	.045	.100	.045	892.50	2000.00
.003867	35.	35.	35.	2	0	0	0.00	50.00	2050.00

MOORE BUSINESS FORMS INC 27

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 57.200									
57.20	6.24	898.74	0.00	0.00	899.15	.41	.00	.00	902.90
1270.	0.	1270.	0.	0.	247.	0.	92.	26.	902.60
.49	0.00	5.14	0.00	.100	.045	.100	.045	692.50	2000.00
.003380	1.	1.	1.	0	0	0	0.00	50.00	2050.00
*SECNO 57.300 (C)									
57.30	6.41	899.46	0.00	0.00	899.52	.06	.26	.10	895.69
1260.	346.	821.	93.	460.	337.	207.	96.	27.	896.44
.52	.75	2.43	.45	.100	.045	.100	.045	893.05	1960.35
.000564	229.	229.	229.	2	0	0	0.00	414.59	2374.94
CCHV= .100 CEHV= .300									
*SECNO 57.800									
3470 ENCROACHMENT STATIONS=		1962.0	2095.0	TYPE=	1	TARGET=		133.000	
57.80	7.00	902.11	0.00	0.00	902.29	.17	2.73	.03	898.84
1260.	173.	1087.	0.	143.	306.	0.	148.	44.	902.01
.81	1.21	3.55	.08	.100	.045	.100	.046	895.11	1962.00
.001282	2800.	3530.	2850.	3	0	0	0.00	97.46	2059.46
CCHV= .300 CEHV= .500									
*SECNO 57.900									
57.90	9.28	902.28	0.00	0.00	902.38	.10	.07	.02	909.20
1260.	0.	1260.	0.	0.	497.	0.	149.	45.	909.30
.82	0.00	2.53	0.00	.100	.045	.100	.046	893.00	2007.44
.000486	99.	99.	99.	2	0	0	0.00	72.13	2079.56
*SECNO 58.000									
3265 DIVIDED FLOW									
3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 909.20 MAX ELLC= 905.80									
58.00	9.27	902.27	0.00	0.00	902.40	.13	.00	.01	909.20
1260.	0.	1260.	0.	0.	441.	0.	149.	45.	909.30
.82	0.00	2.86	0.00	.100	.045	.100	.046	893.00	2007.45
.001140	1.	1.	1.	1	0	0	0.00	66.11	2079.55

MOORE BUSINESS FORMS INC 27

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 58.010

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 909.20 MAX ELLC= 905.80

58.01	9.30	902.30	0.00	0.00	902.43	.13	.03	.00	909.20
1260.	0.	1260.	0.	0.	443.	0.	149.	45.	909.30
.82	0.00	2.85	0.00	.100	.045	.100	.046	893.00	2007.40
.001130	29.	29.	29.	1	0	0	0.00	66.19	2079.60

*SECNO 58.020

58.02	9.34	902.34	0.00	0.00	902.44	.10	.00	.01	909.20
1260.	0.	1260.	0.	0.	501.	0.	149.	45.	909.30
.83	0.00	2.51	0.00	.100	.045	.100	.046	893.00	2007.32
.000474	1.	1.	1.	2	0	0	0.00	72.36	2079.68

*SECNO 58.030

58.03	9.36	902.36	0.00	0.00	902.46	.10	.02	.00	909.20
1260.	0.	1260.	0.	0.	503.	0.	150.	45.	909.30
.83	0.00	2.50	0.00	.100	.045	.100	.046	893.00	2007.27
.000469	39.	39.	39.	1	0	0	0.00	72.46	2079.73

*SECNO 58.040

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 909.20 MAX ELLC= 905.80

58.04	9.35	902.35	0.00	0.00	902.47	.12	.00	.01	909.20
1260.	0.	1260.	0.	0.	446.	0.	150.	45.	909.30
.83	0.00	2.82	0.00	.100	.045	.100	.046	893.00	2007.29
.001106	1.	1.	1.	1	0	0	0.00	66.41	2079.71

*SECNO 58.050

MOORE BUSINESS FORMS INC 27

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

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 909.20 MAX ELLC= 905.80

I-94 BRIDGE U/S (D)

58.05	9.38	902.38	0.00	0.00	902.50	.12	.03	.00	909.20
1260.	0.	1260.	0.	0.	447.	0.	150.	45.	909.30
.83	0.00	2.82	0.00	.100	.045	.100	.046	893.00	2007.26
.001099	29.	29.	29.	0	0	0	0.00	66.48	2079.74

*SECNO 58.060

58.06	9.42	902.42	0.00	0.00	902.51	.10	.00	.01	909.20
1260.	0.	1260.	0.	0.	507.	0.	150.	45.	909.30
.83	0.00	2.49	0.00	.100	.045	.100	.046	893.00	2007.17
.000460	1.	1.	1.	2	0	0	0.00	72.66	2079.83

*SECNO 58.300

3470 ENCROACHMENT STATIONS= 1886.0 2809.0 TYPE= 1 TARGET= -1886.000

58.30	8.32	902.44	0.00	0.00	902.64	.20	.08	.05	901.07
1260.	161.	1099.	0.	196.	284.	0.	151.	45.	903.25
.84	.82	3.87	0.00	.100	.045	.100	.046	894.12	1886.00
.001497	99.	99.	99.	2	0	0	0.00	164.82	2050.82

CCHV= .100 CEHV= .300

*SECNO 59.000
(E)

59.00	8.75	903.11	0.00	0.00	903.12	.01	.46	.02	900.15
1260.	922.	317.	21.	2547.	289.	78.	206.	60.	900.31
1.76	.36	1.10	.27	.100	.045	.100	.048	894.36	1271.33
.000100	1230.	2240.	1900.	3	0	0	0.00	806.43	2077.76

*SECNO 60.000

MOORE BUSINESS FORMS INC 27

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	XNP	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3265 DIVIDED FLOW									
60.00	6.52	903.72	0.00	0.00	903.94	.23	.76	.07	902.51
1260.	303.	956.	0.	387.	220.	1.	315.	97.	903.38
1.98	.78	4.35	.22	.100	.045	.100	.047	897.20	1641.85
.002300	2650.	2880.	2880.	3	0	0	0.00	403.58	2053.09
*SECNO 61.000 (F)									
61.00	6.78	906.96	0.00	0.00	907.05	.09	3.09	.01	902.17
1260.	76.	806.	378.	125.	270.	446.	351.	116.	903.43
2.26	.61	2.99	.85	.100	.045	.100	.047	900.18	1888.45
.000946	2100.	2220.	2220.	3	0	0	0.00	360.62	2249.07

MOORE BUSINESS FORMS INC 27

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************

T1      FIS  MARENGO TWP.,  CALHOUN COUNTY,  MICHIGAN.
T2      100-YEAR FLOODWAY
T3      RICE CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.      6.        0.        0.  0.000000      0.00      0.0       0.    897.100     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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MOORE BUSINESS FORMS INC. 27

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

*PROF 2

CCHV= .100 CEHV= .300

*SECNO 55.100

2800 NAT Q1= 402.42 WSEL= 897.00 ENC Q1= 402.42 WSEL= 897.10 RATIO= 0.0000

NAT Q1= 418. RATIOS LOB,CH,ROB= .3576 .5223 .1201 WSEL= 897.10

3470 ENCROACHMENT STATIONS=		2085.0	2264.8	TYPE=	4	TARGET=		.038	
55.10	6.60	897.10	0.00	897.00	897.14	.04	0.00	0.00	892.70
840.	298.	452.	90.	396.	212.	136.	0.	0.	893.30
0.00	.76	2.13	.66	.100	.045	.100	0.000	890.50	2085.01
.000428	0.	0.	0.	0	0	0	0.00	179.80	2264.81

*SECNO 55.900

3470 ENCROACHMENT STATIONS=		2000.0	2122.0	TYPE=	1	TARGET=		122.000	
55.90	7.10	897.60	0.00	897.52	897.64	.04	.50	.00	897.90
840.	0.	830.	10.	0.	518.	43.	25.	6.	896.00
.29	0.00	1.60	.23	.100	.045	.100	.045	890.50	2000.00
.000220	1700.	1690.	1400.	2	0	0	0.00	122.00	2122.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	3.08	0.00	.20	0.00	.30	0.00	890.50	890.50

*SECNO 56.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
183506.30	897.64	0.00	836.	1.	0.	0.	892.00	895.40

LOW DAM (A)

56.00	7.59	897.99	0.00	897.95	898.00	.01	.36	0.00	894.40
840.	62.	771.	7.	457.	1218.	70.	25.	6.	896.00
.30	.14	.63	.10	.100	.045	.100	.045	890.40	1648.15
.000030	10.	10.	10.	0	0	10	0.00	493.12	2141.27

MOORE BUSINESS FORMS INC 27

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 56.100									
56.10	7.59	897.99	0.00	897.94	898.00	.01	.00	.00	894.40
1270.	94.	1166.	10.	455.	1217.	70.	25.	6.	896.00
.30	.21	.96	.15	.100	.045	.100	.045	890.40	1648.33
.000070	1.	1.	1.	0	0	0	0.00	492.80	2141.13
*SECNO 56.800									
3470 ENCROACHMENT STATIONS=		2100.0	2200.0	TYPE=	1	TARGET=		100.000	
56.80	5.32	898.37	0.00	898.34	898.64	.27	.56	.08	895.69
1270.	66.	1175.	29.	52.	272.	31.	92.	25.	896.44
.49	1.26	4.32	.93	.100	.045	.100	.045	893.05	2100.00
.002361	2780.	2780.	2780.	2	0	0	0.00	100.00	2200.00
CCHV= .300 CEHV= .500									
*SECNO 56.900									
3470 ENCROACHMENT STATIONS=		2000.0	2050.0	TYPE=	1	TARGET=		50.000	
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=			901.00	ELREA=	901.00				
56.90	5.58	898.58	0.00	898.55	899.01	.43	.29	.08	902.90
1270.	0.	1270.	0.	0.	240.	0.	93.	25.	100000.00
.49	0.00	5.29	0.00	.100	.045	.100	.045	893.00	2000.00
.003755	99.	99.	99.	2	0	0	0.00	50.00	2050.00
*SECNO 57.000									
3370 NORMAL BRIDGE.NRD= 18 MIN ELTRD= 902.60 MAX ELLC= 899.00									
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=			901.00	ELREA=	901.00				
57.00	5.58	898.58	0.00	898.56	899.02	.43	.00	.00	902.90
1270.	0.	1270.	0.	0.	240.	0.	93.	25.	902.60
.49	0.00	5.29	0.00	.100	.045	.100	.045	893.00	2000.00
.004318	1.	1.	1.	0	0	0	0.00	50.00	2050.00

MOORE BUSINESS FORMS INC 27

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 57.100

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 902.60 MAX ELLC= 899.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 902.90 ELREA= 902.60

BRIDGE U/S (R)

57.10	6.26	898.76	0.00	898.74	899.17	.41	.14	.01	902.90
1270.	0.	1270.	0.	0.	248.	0.	93.	25.	902.60
.49	0.00	5.12	0.00	.100	.045	.100	.045	892.50	2000.00
.003816	35.	35.	35.	2	0	0	0.00	50.00	2050.00

*SECNO 57.200

57.20	6.27	898.77	0.00	898.74	899.17	.41	.00	.00	902.90
1270.	0.	1270.	0.	0.	248.	0.	93.	25.	902.60
.49	0.00	5.12	0.00	.100	.045	.100	.045	892.50	2000.00
.003332	1.	1.	1.	0	0	0	0.00	50.00	2050.00

*SECNO 57.300

2800 NAT QI= 530.65 WSEL= 899.46 ENC QI= 530.65 WSEL= 899.56 RATIO= 0.0000
NAT QI= 554. RATIOS LOB,CH,ROB= .2773 .6427 .0800 WSEL= 899.56

3470 ENCROACHMENT STATIONS= 1992.7 2244.1 TYPE= 4 TARGET= .042

(C)

57.30	6.43	899.48	0.00	899.46	899.55	.07	.27	.10	895.69
1260.	334.	851.	75.	419.	338.	128.	96.	26.	896.44
.53	.80	2.51	.59	.100	.045	.100	.045	893.05	1992.68
.000599	229.	229.	229.	2	0	0	0.00	251.41	2244.09

CCHV= .100 CEHV= .300

*SECNO 57.800

3470 ENCROACHMENT STATIONS= 1962.0 2095.0 TYPE= 1 TARGET= 133.000

57.80	7.08	902.19	0.00	902.11	902.36	.17	2.78	.03	898.84
1260.	175.	1085.	0.	146.	310.	0.	144.	38.	902.01
.82	1.19	3.50	.11	.100	.045	.100	.046	895.11	1962.00
.001218	2800.	3530.	2850.	3	0	0	0.00	99.20	2061.20

MOORE BUSINESS FORMS INC 27

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= .300 CEHV= .500
*SECNO 57.900

3470 ENCROACHMENT STATIONS= 2007.0 2080.0 TYPE= 1 TARGET= 73.000

57.90	9.35	902.35	0.00	902.28	902.45	.10	.07	.02	100000.00
1260.	0.	1260.	0.	0.	502.	0.	146.	38.	100000.00
.83	0.00	2.51	0.00	.100	.045	.100	.046	893.00	2007.30
.000472	99.	99.	99.	2	0	0	0.00	72.41	2079.70

*SECNO 58.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 909.20 MAX ELLC= 905.80

58.00	9.34	902.34	0.00	902.27	902.46	.12	.00	.01	909.20
1260.	0.	1260.	0.	0.	446.	0.	146.	38.	909.30
.83	0.00	2.83	0.00	.100	.045	.100	.046	893.00	2007.31
.001109	1.	1.	1.	1	0	0	0.00	66.39	2079.69

*SECNO 58.010

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 909.20 MAX ELLC= 905.80

58.01	9.37	902.37	0.00	902.30	902.50	.12	.03	.00	909.20
1260.	0.	1260.	0.	0.	447.	0.	146.	38.	909.30
.83	0.00	2.82	0.00	.100	.045	.100	.046	893.00	2007.27
.001102	29.	29.	29.	0	0	0	0.00	66.45	2079.73

*SECNO 58.020

58.02	9.41	902.41	0.00	902.34	902.51	.10	.00	.01	909.20
1260.	0.	1260.	0.	0.	506.	0.	146.	38.	909.30
.84	0.00	2.49	0.00	.100	.045	.100	.046	893.00	2007.18
.000461	1.	1.	1.	2	0	0	0.00	72.64	2079.82

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	FNDST
*SECNO 58.030									
58.03	9.43	902.43	0.00	902.36	902.52	.10	.02	.00	909.20
1260.	0.	1260.	0.	0.	508.	0.	146.	38.	909.30
.84	0.00	2.48	0.00	.100	.045	.100	.046	893.00	2007.13
.000457	39.	39.	39.	1	0	0	0.00	72.73	2079.87
*SECNO 58.040									
3265 DIVIDED FLOW									
3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 909.20 MAX ELLC= 905.80									
58.04	9.42	902.42	0.00	902.35	902.54	.12	.00	.01	909.20
1260.	0.	1260.	0.	0.	451.	0.	146.	38.	909.30
.84	0.00	2.80	0.00	.100	.045	.100	.046	893.00	2007.16
.001077	1.	1.	1.	1	0	0	0.00	66.69	2079.84
*SECNO 58.050									
3265 DIVIDED FLOW									
3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 909.20 MAX ELLC= 905.80									
I-94 BRIDGE U/S (D)									
58.05	9.45	902.45	0.00	902.38	902.57	.12	.03	.00	909.20
1260.	0.	1260.	0.	0.	452.	0.	147.	38.	909.30
.84	0.00	2.79	0.00	.100	.045	.100	.046	893.00	2007.12
.001070	29.	29.	29.	0	0	0	0.00	66.75	2079.88
*SECNO 58.060									
58.06	9.48	902.48	0.00	902.42	902.58	.09	.00	.01	909.20
1260.	0.	1260.	0.	0.	512.	0.	147.	38.	909.30
.84	0.00	2.46	0.00	.100	.045	.100	.046	893.00	2007.03
.000448	1.	1.	1.	2	0	0	0.00	72.93	2079.97

MOORE BUSINESS FORMS, INC 27

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	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICOUNT	CORAR	TOPWID	ENDST

*SECNO 58.300

3470 ENCROACHMENT STATIONS= 1886.0 2809.0 TYPE= 1 TARGET= -1886.000

58.30	8.38	902.50	0.00	902.44	902.70	.20	.07	.05	901.07
1260.	168.	1092.	0.	204.	287.	0.	148.	39.	903.25
.85	.82	3.80	0.00	.100	.045	.100	.046	894.12	1886.00
.001428	99.	99.	99.	2	0	0	0.00	165.00	2051.00

CCHV= .100 CEHV= .300

*SECNO 59.000

2800 NAT Q1= 1259.00 WSEL= 903.11 ENC Q1= 1259.00 WSEL= 903.21 RATIO= .0000

NAT Q1= 1310. RATIOS LOB,CH,ROB= .7346 .2481 .0173 WSEL= 903.21

3470 ENCROACHMENT STATIONS= 1328.6 2046.0 TYPE= 4 TARGET= .039
(E)

59.00	8.82	903.18	0.00	903.11	903.18	.01	.47	.02	900.15
1260.	943.	317.	0.	2481.	292.	0.	201.	52.	900.31
1.74	.38	1.09	0.00	.100	.045	.100	.048	894.36	1328.62
.000105	1230.	2240.	1900.	3	0	0	0.00	717.38	2046.00

*SECNO 60.000

2800 NAT Q1= 262.72 WSEL= 903.72 ENC Q1= 262.72 WSEL= 903.82 RATIO= .0000

NAT Q1= 279. RATIOS LOB,CH,ROB= .2595 .7401 .0004 WSEL= 903.82

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1727.7 2046.0 TYPE= 4 TARGET= .057

60.00	6.60	903.80	0.00	903.72	904.05	.24	.79	.07	902.51
1260.	269.	991.	0.	325.	224.	0.	303.	84.	903.38
1.95	.83	4.42	0.00	.100	.045	.100	.047	897.20	1727.68
.002348	2650.	2680.	2860.	3	0	0	0.00	311.45	2046.00

*SECNO 61.000

2800 NAT Q1= 409.56 WSEL= 906.96 ENC Q1= 409.56 WSEL= 907.06 RATIO= 0.0000

NAT Q1= 430. RATIOS LOB,CH,ROB= .0638 .6304 .3058 WSEL= 907.06

3470 ENCROACHMENT STATIONS= 1979.1 2194.4 TYPE= 4 TARGET= .047

MOORE BUSINESS FORMS INC. 27

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
	(F)								
61.00	6.89	907.07	0.00	906.96	907.16	.10	3.10	.01	902.17
1260.	53.	833.	374.	58.	276.	405.	335.	97.	903.43
2.22	.91	3.02	.92	.100	.045	.100	.047	900.18	1979.11
.000937	2100.	2220.	2220.	2	0	0	0.00	215.28	2194.39

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RICE CREEK

SUMMARY PRINTOUT

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
55.100	897.00	2071.50	2184.00	2222.00	2292.85	221.35	0.00
55.100	897.10	2065.01	2184.00	2222.00	2264.81	179.80	0.00
55.900	897.52	2000.00	2000.00	2080.00	2129.57	129.57	1690.00
55.900	897.60	2000.00	2000.00	2080.00	2122.00	122.00	1690.00
56.000	897.95	1649.59	1892.00	2078.00	2140.18	490.58	10.00
56.000	897.99	1648.15	1892.00	2078.00	2141.27	493.12	10.00
56.100	897.94	1649.78	1892.00	2078.00	2140.04	490.26	1.00
56.100	897.99	1648.33	1892.00	2078.00	2141.13	492.80	1.00
56.800	898.34	2100.00	2120.00	2160.00	2200.00	100.00	2780.00
56.800	898.37	2100.00	2120.00	2180.00	2200.00	100.00	2780.00
56.900	898.55	2000.00	2000.00	2050.00	2050.00	50.00	99.00
56.900	898.58	2000.00	2000.00	2050.00	2050.00	50.00	99.00
57.000	898.56	2000.00	2000.00	2050.00	2050.00	50.00	1.00
57.000	898.58	2000.00	2000.00	2050.00	2050.00	50.00	1.00
57.100	898.74	2000.00	2000.00	2050.00	2050.00	50.00	35.00
57.100	898.76	2000.00	2000.00	2050.00	2050.00	50.00	35.00
57.200	898.74	2000.00	2000.00	2050.00	2050.00	50.00	1.00
57.200	898.77	2000.00	2000.00	2050.00	2050.00	50.00	1.00
57.300	899.46	1960.35	2120.00	2180.00	2374.94	414.59	229.00
57.300	899.48	1992.68	2120.00	2180.00	2244.09	251.41	229.00
57.800	902.11	1962.00	2000.00	2057.00	2059.46	97.46	3530.00
57.800	902.19	1962.00	2000.00	2057.00	2061.20	99.20	3530.00

MC : BUSINESS : MS INC. 77

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
57.900	902.28	2007.44	2000.00	2087.00	2079.56	72.13	99.00
57.900	902.35	2007.30	2000.00	2087.00	2079.70	72.41	99.00
58.000	902.27	2007.45	2000.00	2087.00	2079.55	66.11	1.00
58.000	902.34	2007.31	2000.00	2087.00	2079.69	66.39	1.00
58.010	902.30	2007.40	2000.00	2087.00	2079.60	66.19	29.00
58.010	902.37	2007.27	2000.00	2087.00	2079.73	66.45	29.00
58.020	902.34	2007.32	2000.00	2087.00	2079.68	72.36	1.00
58.020	902.41	2007.18	2000.00	2087.00	2079.82	72.64	1.00
58.030	902.36	2007.27	2000.00	2087.00	2079.73	72.46	39.00
58.030	902.43	2007.13	2000.00	2087.00	2079.87	72.73	39.00
58.040	902.35	2007.29	2000.00	2087.00	2079.71	66.41	1.00
58.040	902.42	2007.16	2000.00	2087.00	2079.84	66.69	1.00
58.050	902.38	2007.26	2000.00	2087.00	2079.74	66.48	29.00
58.050	902.45	2007.12	2000.00	2087.00	2079.88	66.75	29.00
58.060	902.42	2007.17	2000.00	2087.00	2079.83	72.66	1.00
58.060	902.48	2007.03	2000.00	2087.00	2079.97	72.93	1.00
58.300	902.44	1686.00	2000.00	2053.00	2050.82	164.82	99.00
58.300	902.50	1886.00	2000.00	2053.00	2051.00	165.00	99.00
59.000	903.11	1271.33	2000.00	2046.00	2077.76	806.43	2240.00
59.000	903.18	1328.62	2000.00	2046.00	2046.00	717.38	2240.00
60.000	903.72	1641.85	2000.00	2046.00	2053.09	403.58	2880.00
60.000	903.80	1727.68	2000.00	2046.00	2046.00	311.45	2880.00
61.000	906.96	1888.45	2000.00	2053.00	2249.07	360.62	2220.00
61.000	907.07	1979.11	2000.00	2053.00	2194.39	215.28	2220.00

MOORE BUSINESS

RICE CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CrSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
55.100	0.00	0.00	0.00	890.50	840.00	897.00	0.00	897.04	4.36	2.12	776.18	402.42
55.100	0.00	0.00	0.00	890.50	840.00	897.10	0.00	897.14	4.28	2.13	739.33	406.23
55.900	1690.00	0.00	0.00	890.50	840.00	897.52	0.00	897.56	2.31	1.63	551.75	553.19
55.900	1690.00	0.00	0.00	890.50	840.00	897.60	0.00	897.64	2.20	1.60	561.01	565.94
56.000	10.00	895.40	892.00	890.40	840.00	897.95	0.00	897.95	.31	.64	1723.05	1503.53
56.000	10.00	895.40	892.00	890.40	840.00	897.99	0.00	898.00	.30	.63	1745.04	1524.06
56.100	1.00	0.00	0.00	890.40	1270.00	897.94	0.00	897.95	.72	.97	1720.25	1500.91
56.100	1.00	0.00	0.00	890.40	1270.00	897.99	0.00	898.00	.70	.96	1742.28	1521.47
56.800	2780.00	0.00	0.00	893.05	1270.00	898.34	0.00	898.61	24.22	4.35	352.21	258.05
56.800	2780.00	0.00	0.00	893.05	1270.00	898.37	0.00	898.64	23.61	4.32	355.45	261.38
56.900	99.00	0.00	0.00	893.00	1270.00	898.55	0.00	898.99	38.19	5.32	238.66	205.51
56.900	99.00	0.00	0.00	893.00	1270.00	898.58	0.00	899.01	37.55	5.29	239.96	207.26
57.000	1.00	902.60	899.00	893.00	1270.00	898.56	0.00	899.00	43.87	5.32	238.81	191.73
57.000	1.00	902.60	899.00	893.00	1270.00	898.58	0.00	899.02	43.18	5.29	240.12	193.27
57.100	35.00	902.60	899.00	892.50	1270.00	898.74	0.00	899.15	38.67	5.14	246.95	204.23
57.100	35.00	902.60	899.00	892.50	1270.00	898.76	0.00	899.17	38.16	5.12	248.09	205.60
57.200	1.00	0.00	0.00	892.50	1270.00	898.74	0.00	899.15	33.80	5.14	247.15	218.46
57.200	1.00	0.00	0.00	892.50	1270.00	898.77	0.00	899.17	33.32	5.12	248.29	220.01
57.300	229.00	0.00	0.00	893.05	1260.00	899.46	0.00	899.52	5.64	2.43	1004.26	530.65
57.300	229.00	0.00	0.00	893.05	1260.00	899.48	0.00	899.55	5.99	2.51	885.69	514.67
57.800	3530.00	0.00	0.00	895.11	1260.00	902.11	0.00	902.29	12.82	3.55	449.00	351.94
57.800	3530.00	0.00	0.00	895.11	1260.00	902.19	0.00	902.36	12.18	3.50	456.78	361.09
57.900	99.00	0.00	0.00	893.00	1260.00	902.28	0.00	902.38	4.86	2.53	497.20	571.79
57.900	99.00	0.00	0.00	893.00	1260.00	902.35	0.00	902.45	4.72	2.51	502.27	579.95
58.000	1.00	909.20	905.80	893.00	1260.00	902.27	0.00	902.40	11.40	2.86	441.12	373.17
58.000	1.00	909.20	905.80	893.00	1260.00	902.34	0.00	902.46	11.09	2.83	445.78	378.36
58.010	29.00	909.20	905.80	893.00	1260.00	902.30	0.00	902.43	11.30	2.85	442.56	374.77
58.010	29.00	909.20	905.80	893.00	1260.00	902.37	0.00	902.50	11.02	2.82	446.85	379.56
58.020	1.00	0.00	0.00	893.00	1260.00	902.34	0.00	902.44	4.74	2.51	501.40	578.54
58.020	1.00	0.00	0.00	893.00	1260.00	902.41	0.00	902.51	4.61	2.49	506.37	586.58
58.030	39.00	0.00	0.00	893.00	1260.00	902.36	0.00	902.46	4.69	2.50	503.24	581.51
58.030	39.00	0.00	0.00	893.00	1260.00	902.43	0.00	902.52	4.57	2.48	508.17	589.49

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
58.040	1.00	909.20	905.80	893.00	1260.00	902.35	0.00	902.47	11.06	2.82	446.24	378.88
58.040	1.00	909.20	905.80	893.00	1260.00	902.42	0.00	902.54	10.77	2.80	450.78	383.96
58.050	29.00	909.20	905.80	893.00	1260.00	902.38	0.00	902.50	10.99	2.82	447.32	380.09
58.050	29.00	909.20	905.80	893.00	1260.00	902.45	0.00	902.57	10.70	2.79	451.84	385.15
58.060	1.00	0.00	0.00	893.00	1260.00	902.42	0.00	902.51	4.60	2.49	506.88	587.41
58.060	1.00	0.00	0.00	893.00	1260.00	902.48	0.00	902.58	4.48	2.46	511.73	595.28
58.300	99.00	0.00	0.00	894.12	1260.00	902.44	0.00	902.64	14.97	3.87	480.18	325.70
58.300	99.00	0.00	0.00	894.12	1260.00	902.50	0.00	902.70	14.28	3.80	491.28	333.44
59.000	2240.00	0.00	0.00	894.36	1260.00	903.11	0.00	903.12	1.00	1.10	2913.31	1259.00
59.000	2240.00	0.00	0.00	894.36	1260.00	903.18	0.00	903.18	1.05	1.09	2773.00	1231.45
60.000	2880.00	0.00	0.00	897.20	1260.00	903.72	0.00	903.94	23.00	4.35	608.30	262.72
60.000	2880.00	0.00	0.00	897.20	1260.00	903.80	0.00	904.05	23.48	4.42	549.40	260.01
61.000	2220.00	0.00	0.00	900.18	1260.00	906.96	0.00	907.05	9.46	2.99	840.74	409.56
61.000	2220.00	0.00	0.00	900.18	1260.00	907.07	0.00	907.16	9.37	3.02	739.39	411.52

MOORE BUSINESS FORMS, INC.

RICE CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
55.100	840.00	897.00	0.00	0.00	0.00	221.35	0.00
55.100	840.00	897.10	.10	0.00	.10	179.80	0.00
55.900	840.00	897.52	0.00	.52	0.00	129.57	1690.00
55.900	840.00	897.60	.09	.50	.09	122.00	1690.00
56.000	840.00	897.95	0.00	.43	0.00	490.58	10.00
56.000	840.00	897.99	.04	.39	.04	493.12	10.00
56.100	1270.00	897.94	0.00	-.01	0.00	490.26	1.00
56.100	1270.00	897.99	.04	-.01	.04	492.80	1.00
56.800	1270.00	898.34	0.00	.40	0.00	100.00	2780.00
56.800	1270.00	898.37	.03	.38	.03	100.00	2780.00
56.900	1270.00	898.55	0.00	.21	0.00	50.00	99.00
56.900	1270.00	898.58	.03	.21	.03	50.00	99.00
57.000	1270.00	898.56	0.00	.00	0.00	50.00	1.00
57.000	1270.00	898.58	.03	.00	.03	50.00	1.00
57.100	1270.00	898.74	0.00	.18	0.00	50.00	35.00
57.100	1270.00	898.76	.02	.18	.02	50.00	35.00
57.200	1270.00	898.74	0.00	.00	0.00	50.00	1.00
57.200	1270.00	898.77	.02	.00	.02	50.00	1.00
57.300	1260.00	899.46	0.00	.71	0.00	414.59	229.00
57.300	1260.00	899.48	.02	.71	.02	251.41	229.00
57.800	1260.00	902.11	0.00	2.66	0.00	97.46	3530.00
57.800	1260.00	902.19	.08	2.72	.08	99.20	3530.00
57.900	1260.00	902.28	0.00	.17	0.00	72.13	99.00
57.900	1260.00	902.35	.07	.16	.07	72.41	99.00
58.000	1260.00	902.27	0.00	-.01	0.00	66.11	1.00
58.000	1260.00	902.34	.07	-.01	.07	66.39	1.00
58.010	1260.00	902.30	0.00	.03	0.00	66.19	29.00
58.010	1260.00	902.37	.07	.03	.07	66.45	29.00
58.020	1260.00	902.34	0.00	.04	0.00	72.36	1.00
58.020	1260.00	902.41	.07	.04	.07	72.64	1.00
58.030	1260.00	902.36	0.00	.02	0.00	72.46	39.00
58.030	1260.00	902.43	.07	.02	.07	72.73	39.00

MOORE BUSINESS FORMS, INC 27

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
58.040	1260.00	902.35	0.00	-.01	0.00	66.41	1.00
58.040	1260.00	902.42	.07	-.01	.07	66.69	1.00
58.050	1260.00	902.38	0.00	.03	0.00	66.48	29.00
58.050	1260.00	902.45	.07	.03	.07	66.75	29.00
58.060	1260.00	902.42	0.00	.04	0.00	72.66	1.00
58.060	1260.00	902.48	.07	.04	.07	72.93	1.00
58.300	1260.00	902.44	0.00	.02	0.00	164.82	99.00
58.300	1260.00	902.50	.07	.02	.07	165.00	99.00
59.000	1260.00	903.11	0.00	.67	0.00	806.43	2240.00
59.000	1260.00	903.18	.07	.67	.07	717.3P	2240.00
60.000	1260.00	903.72	0.00	.61	0.00	403.58	2880.00
60.000	1260.00	903.80	.09	.63	.09	311.45	2880.00
61.000	1260.00	906.96	0.00	3.24	0.00	360.62	2220.00
61.000	1260.00	907.07	.11	3.26	.11	215.28	2220.00

MOORE BUSINESS FORMS, INC. 27

FLOODWAY DATA. RICE CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
55.100	180.	739.	1.1	897.1	897.0	.1
55.900	122.	561.	1.5	897.6	897.5	.1
56.000	493.	1745.	.5	897.9	897.9	0.0
56.100	493.	1742.	.7	897.9	897.9	0.0
56.800	100.	355.	3.6	898.3	898.3	0.0
56.900	50.	240.	5.3	898.6	898.6	0.0
57.000	50.	240.	5.3	898.6	898.6	0.0
57.100	50.	248.	5.1	898.7	898.7	0.0
57.200	50.	248.	5.1	898.7	898.7	0.0
57.300	251.	886.	1.4	899.5	899.5	0.0
57.800	99.	457.	2.8	902.2	902.1	.1
57.900	72.	502.	2.5	902.4	902.3	.1
58.000	72.	446.	2.8	902.4	902.3	.1
58.010	72.	447.	2.8	902.4	902.3	.1
58.020	73.	506.	2.5	902.4	902.3	.1
58.030	73.	508.	2.5	902.5	902.4	.1
58.040	73.	451.	2.8	902.4	902.3	.1
58.050	73.	452.	2.8	902.5	902.4	.1
58.060	73.	512.	2.5	902.5	902.4	.1
58.300	165.	491.	2.6	902.5	902.4	.1
59.000	717.	2773.	.5	903.2	903.1	.1
60.000	318.	549.	2.3	903.8	903.7	.1
61.000	215.	739.	1.7	907.1	907.0	.1

MOORE BUSINESS FORMS INC 27

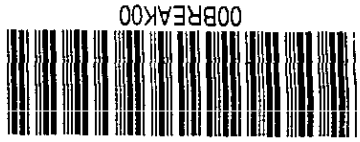


1) COUNTY: Calhoun

2) STUDY NAME: Marengo Twp

3) WATERCOURSE: Rice creek

4) DOCUMENT TYPE: report



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HYDRAULIC ANALYSIS REPORT

RICE CREEK AT MARENGO TOWNSHIP
CALHOUN COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 EAST WASHINGTON AVENUE
JACKSON, MICHIGAN 49201

AUGUST, 1980

Introduction

Hydraulic calculations were performed for the Rice Creek between Marshall city limits and 20-Mile Road in Marshall Township. Field cross section data were surveyed by Commonwealth Associates in September, 1978 and September, 1979. This study matches exactly at the downstream end with the city of Marshall study. Flood flows for 10-, 50-, 100-, and 500-year recurrence intervals were between Marshall city limits and D Drive. The same flows were used up to 20-Mile Road. An enlarged U.S.G.S. 7-1/2' preliminary topographic map available for the area was utilized. This study was performed by Commonwealth Associates Inc., Jackson, Michigan, and the Project Manager was V. Danushkodi, P.E.

Method of Analysis

The HEC-2 computer program was utilized for the entire hydraulic analysis.

Variables and Coefficients

Manning's Roughness Coefficients

For channel	0.045
For overbanks	0.100

Coefficients for floodway

Contraction	0.10
Expansion	0.30

Coefficients for bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

Weir Coefficients

Dam (Section A) = 3.08

High-Water Marks

None

Starting Conditions

Starting elevations were based on the FIS of Rice Creek at Marshall city.

Special Problems

Flood flows were divided between Rice Creek and Mill Race based on the rating curves generated by HEC-2 model. Actual rating curves were included in the Hydraulic Analysis Report for Rice Creek at Marshall City.

References

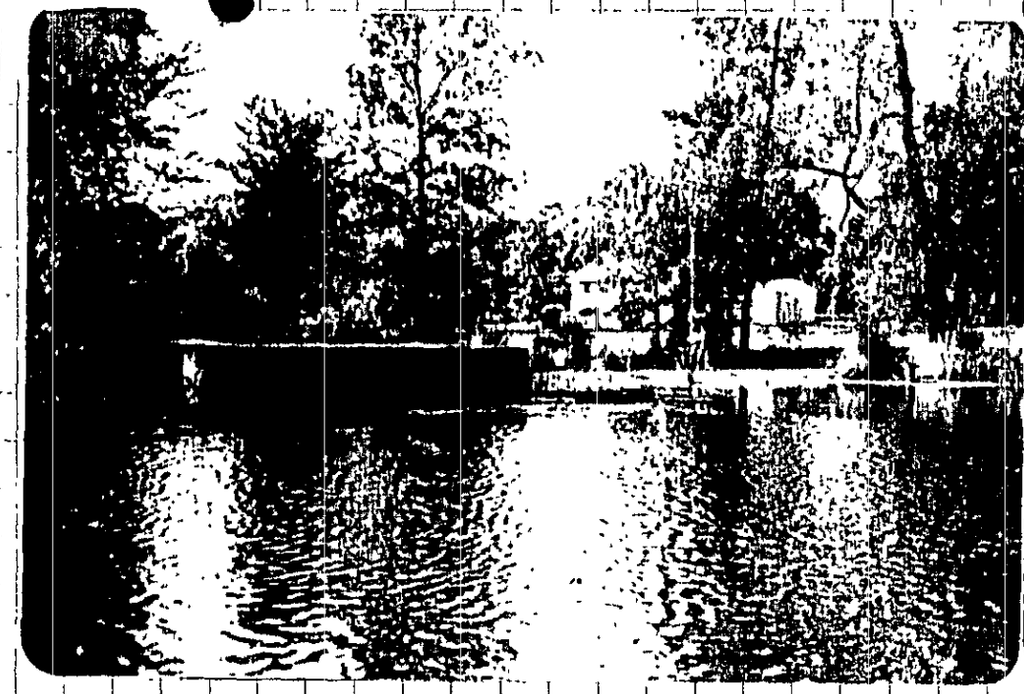
None

CROSS SECTION REFERENCES

SECNO	ID in Profile	Description
55.1	-	Made up valley section at corporate boundary
55.9	-	surveyed dam sections
56.0	A	
56.1	-	
56.8	-	Surveyed valley section
56.9	-	
57.0	-	
57.1	B	Surveyed bridge sections. D Drive bridge.
57.2	-	50 feet X 6 feet concrete box
57.3	C	
57.8	-	Bridge sections
57.9	-	I-94 eastbound lane - taken from Michigan
58.0	-	State Highway Maps
58.01	-	
58.02	-	
58.03	-	
58.04	-	Bridge sections
58.05	D	I-94 westbound lane - taken from Michigan
58.06	-	State Highway Maps
58.30	-	
59.0	E	Surveyed valley section
60.0	-	Surveyed valley section
61.0	F	Surveyed valley section - upstream limit of study

Bridge Notes and Sketches

All bridges were analyzed as normal bridges.





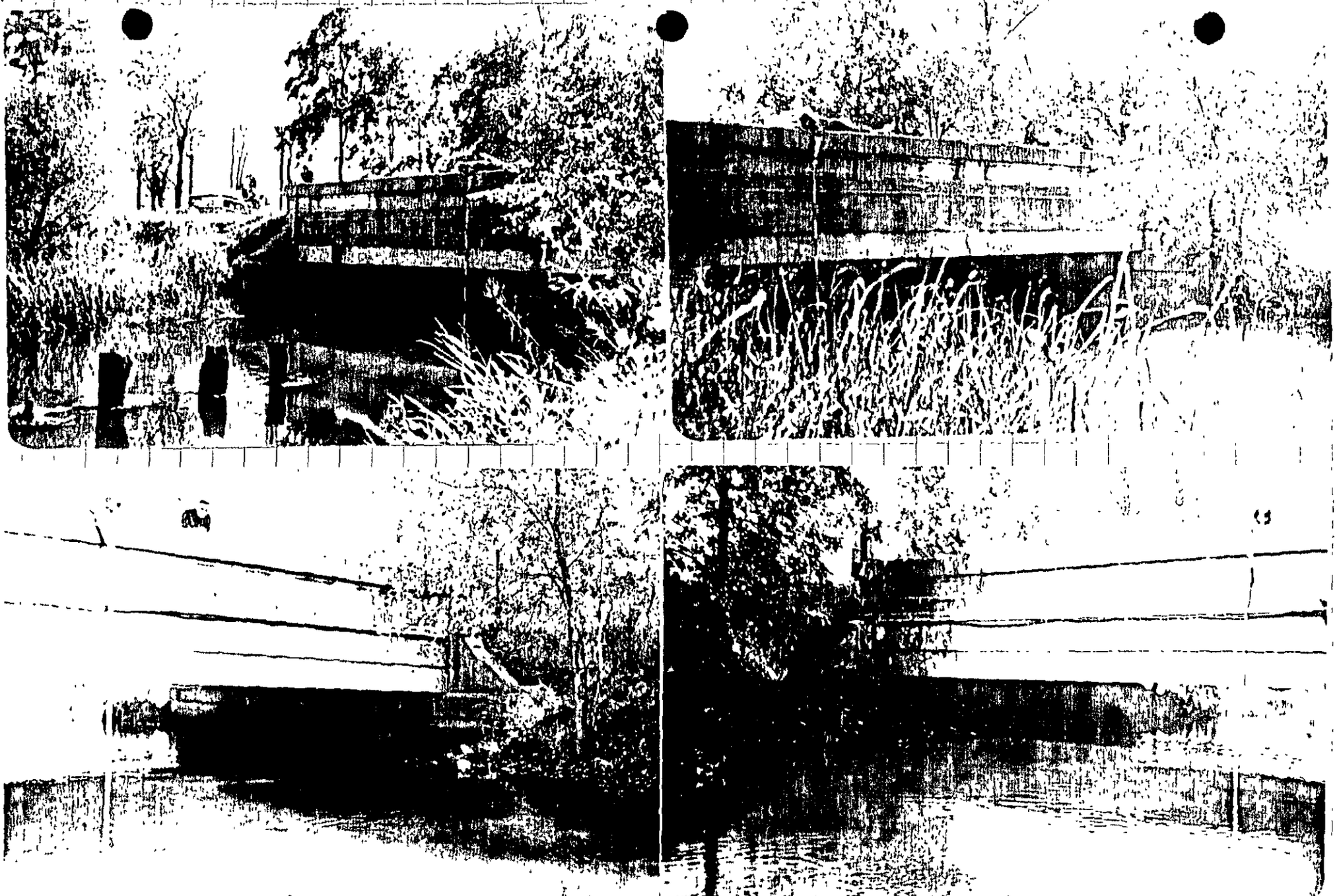
Downstream



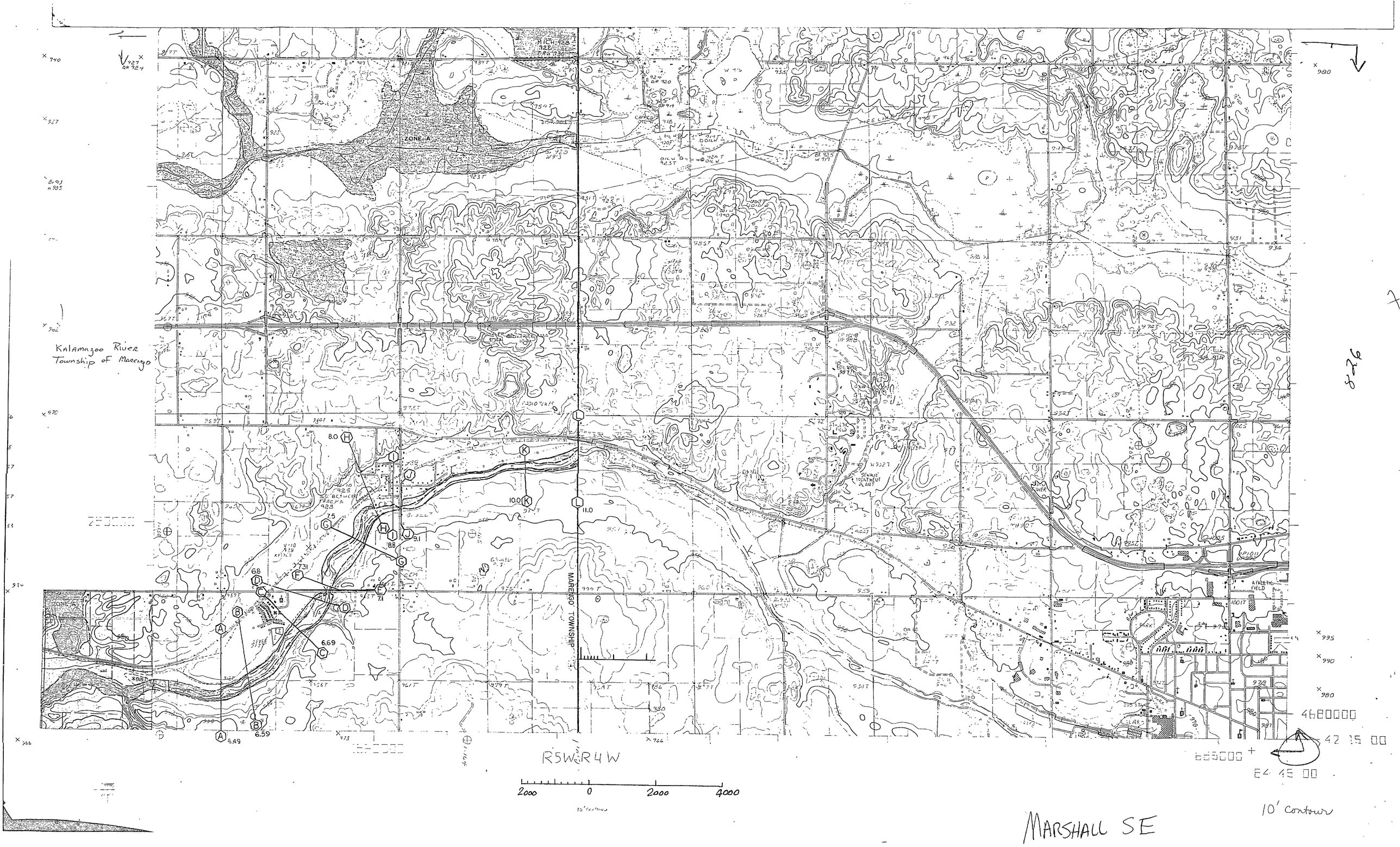


Upstream

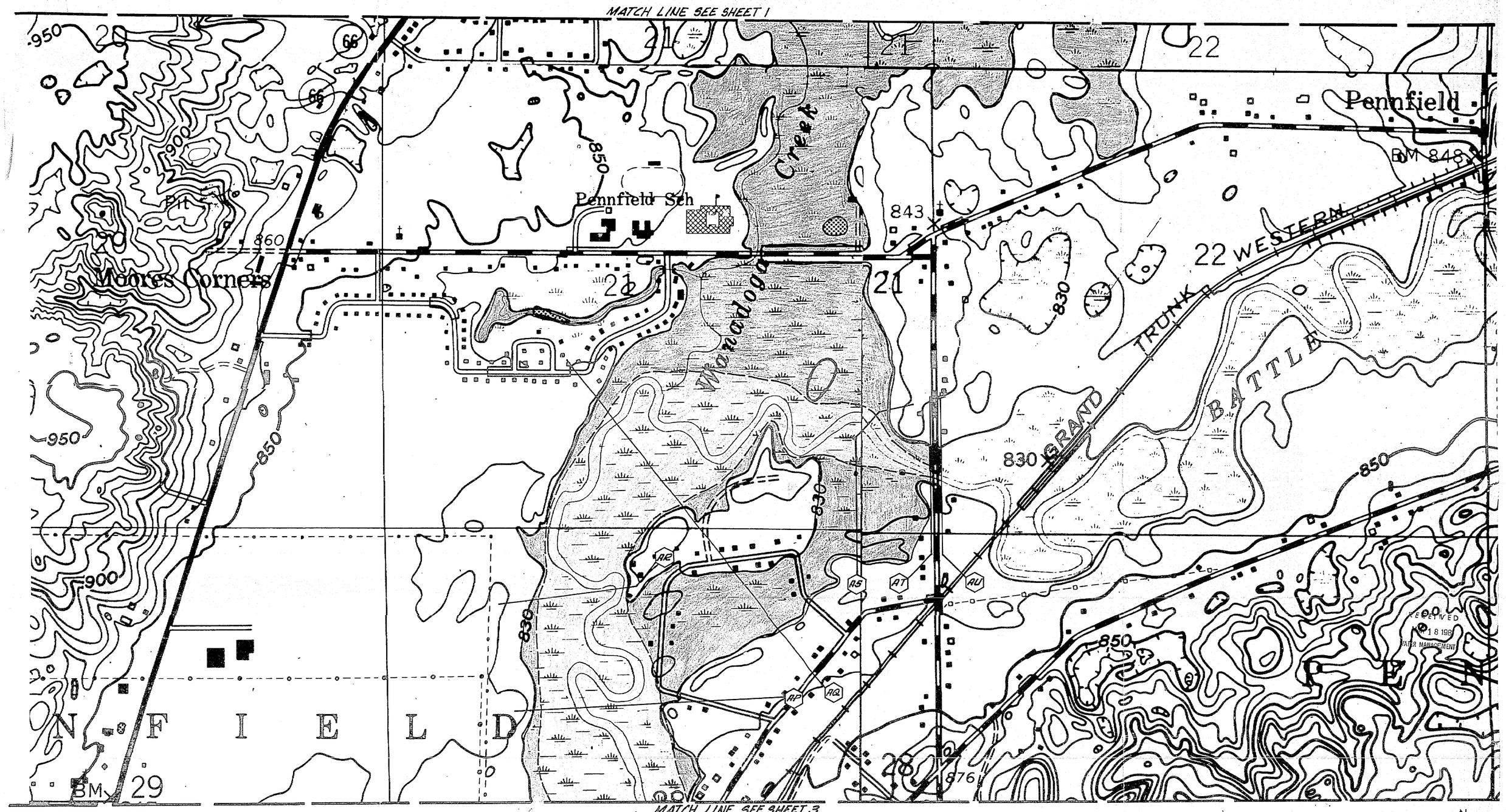
56.0 Rice Creek Dam to divide flows between Rice Creek and Mill Race



57. D Drive Bridge



Kalamazoo River
Township of Marengo
ZONE A
MARENGO TOWNSHIP
R5W R4W
2000 0 2000 4000
10' contours
4680000
42 15 00
685000
84 45 00
10' contour
MARSHALL SE



LEGEND

FLOODWAY — 100 YEAR BOUNDARY — 500 YEAR BOUNDARY

CROSS SECTION

CORPORATE BOUNDARIES

FLOOD MAP

PENNFIELD TOWNSHIP
CALHOUN COUNTY, MICHIGAN

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