ROUTE	JOB NUMBER	FEDERAL NUMBER	SHEET NO.	TOTAL SHEETS
I-75	08517A	I-75-2(176)62	1	

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS 1973 STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS.

PLANS OF PROPOSED

MICHIGAN PROJECT I-75-2(176)62

CONTROL SECTION Is 63174

JOB NUMBER 08517A

I-75

OAKLAND COUNTY

CITIES OF MADISON HEIGHTS AND ROYAL OAK

INDEX	SH. NO.
TITLE SHEET	1
TYPICAL CROSS SECTION	2
NOTE SHEET	3
PLAN SHEETS - ROAD	4 - 7
PROFILE SHEETS-ROAD	8
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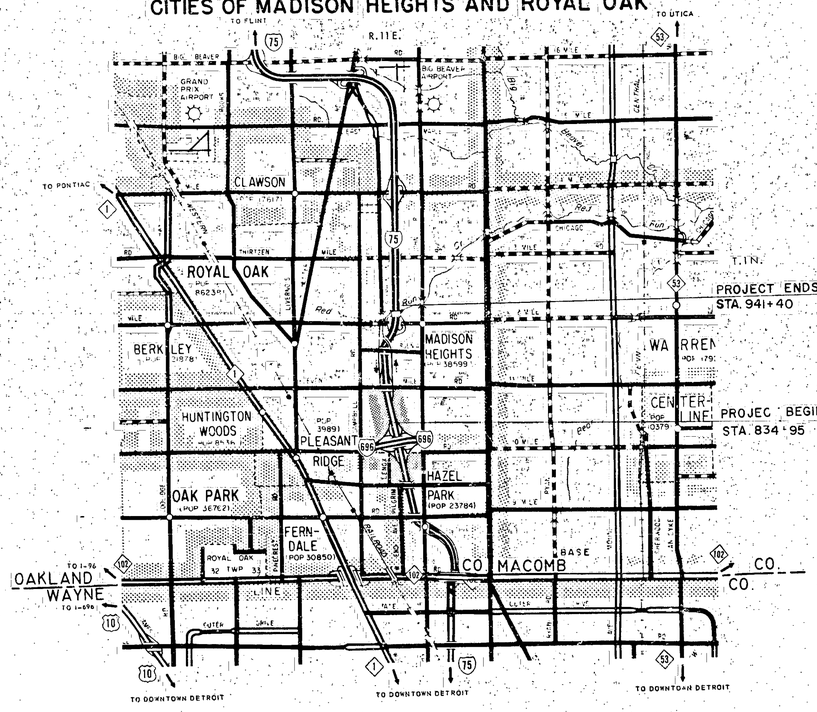
ELECTRICAL PLANS	18 - 23
ELECTRICAL DETAILS	24 - 31
TRUSS EXTENSION DETAILS	32 - 33
QUANTITY SHEETS	34 - 36



CS Is 63174. JOB NO. 08517A
MICH. PROJECT I-75-2(176)62

AS CONSTRUCTED

ITEM NO. N1762

CONTRACT FOR FREEWAY LIGHTING AND MEDIAN RECONSTRUCTION

APPROVALS

CHECKED	ENGINEER - ROAD DESIGN	1-7-75 DATE
RECOMMENDED FOR APPROVAL	for ENGINEER OF DESIGN	1-9-75 DATE
RECOMMENDED FOR APPROVAL	for ENGINEER OF TRAFFIC & SAFETY	1-14-75 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF CONSTRUCTION	1/14/75 DATE

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JOHN P. WOODFORD - DIRECTOR

APPROVED BY: [redacted] DEPUTY DIRECTOR - HIGHWAYS — 1-9-75 DATE

PLANS PREPARED BY MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JILDEH
SQUADS ROUSH

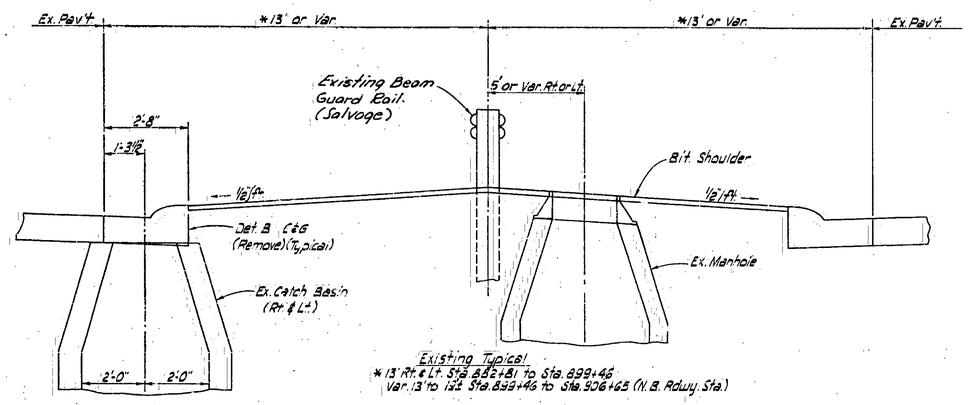
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED [redacted]

Is63174

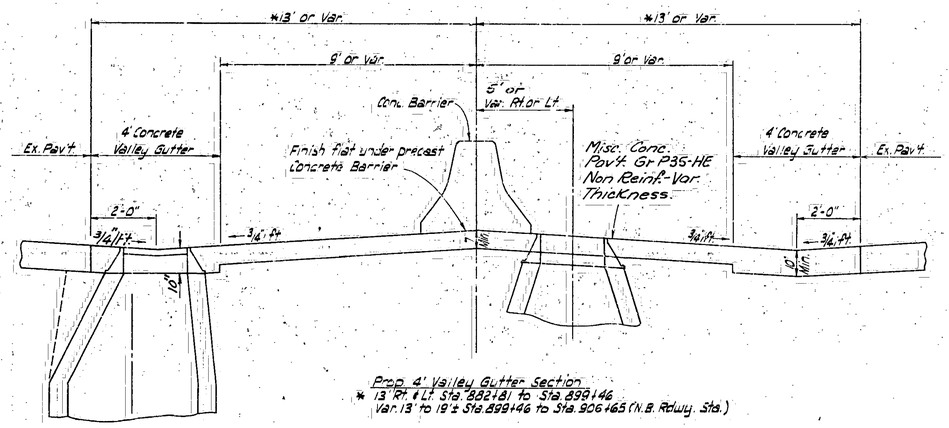
JOB NUMBER	FEDERAL PROJECT	SHEET NO.
08517A	I-75-2(176)62	1

CONTROL SECTION - JOB NUMBER
Is63174 - 08517A

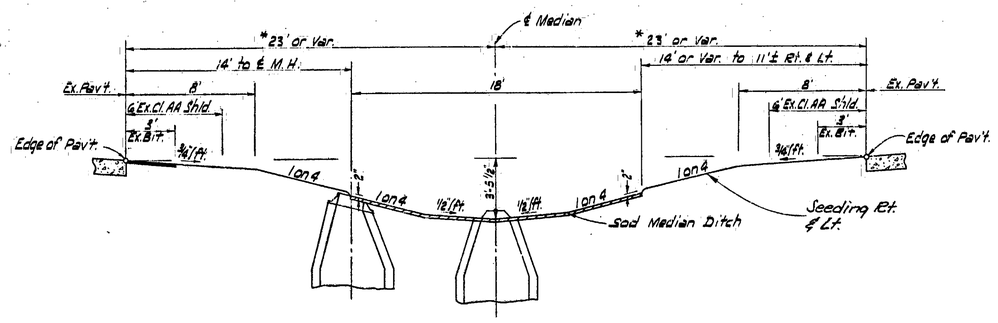
P.H.W.A. REG NO	STATE	FEDERAL PROJECT	R.O.W. NO	SHEET NO	TOTAL SHEETS
5	MICH.	I-75-2(170)62		2	
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	OAKLAND	1s 63174		08517A	



Existing Typical
* 13' Rt. & Lt. Sta. 882+81 to Sta. 899+46
Var. 13' to 12± Sta. 899+46 to Sta. 906+65 (N.B. Rdwy. Sta.)

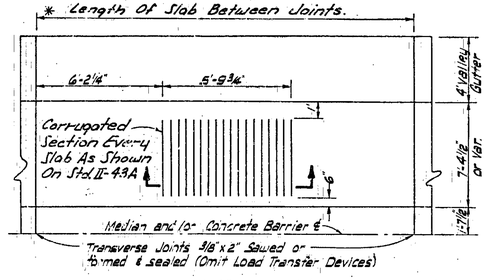


Prop. 4' Valley Gutter Section
* 13' Rt. & Lt. Sta. 882+81 to Sta. 899+46
Var. 13' to 19'± Sta. 899+46 to Sta. 906+65 (N.B. Rdwy. Sta.)

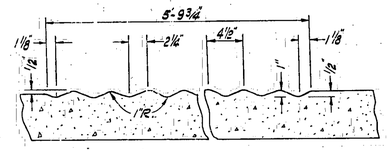


Prop. Median Ditch Section
* Var. 20'± to 23' Sta. 906+65 to Sta. 909+86 (N.B. Rdwy. Sta.)
23' Sta. 909+86 to Sta. 922+80

* Joints in Misc. Conc. Pav't & Conc. Barrier Will Occur Where Transverse Joints Occur In The Adjacent Existing Pavement.

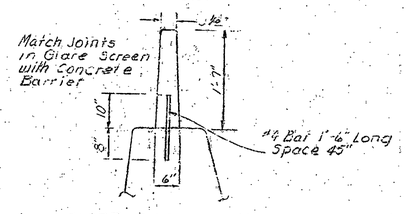


Concrete Median Joint & Corrugated Section
Sta. 882+81 to Sta. 906+65



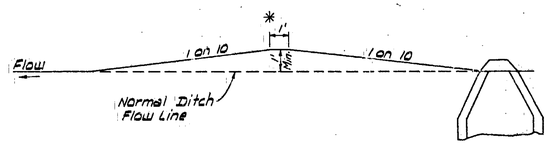
SECTION A-A

As Const.



GLARE SCREEN EXTRA
Sta. 882+81 to Sta. 906+65
Omit @ Bridge Piers

*Or As Shown On Plans.



DETAILS FOR DYKE IN DITCHES

NOTES

No Lane Ties will be required on this job.

The edge of the existing pavement shall be thoroughly cleaned before concrete shoulder is placed.

Place 1" transverse expansion joints in concrete shoulders in line with all joints in the adjacent pavement, omitting the load transfer device.

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	R.O.W. NO	SHEET NO
1s63174	08517A	I-75-2(170)62		2

Issued - Revised - 74

NOTE SHEET

F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(176)62		3	
ROUTE	COUNTY	CONTROL SECTION	JOB NO.		
I-75	OAKLAND	Is 63174	08517A		

GENERAL PLAN NOTES

CLASS B SODDING

Where Class B Sodding is called for on the plans, the beds shall be trimmed within the tolerances specified for Class A slopes.

DELINEATORS

Delineators may be removed, salvaged & replaced as per Engineer. This will not be paid for seperately but will be incidental to Removing Beam Guard Rail.

MISCELLANEOUS ESTIMATES

The following items of work shall be done as they apply throughout the project. These items are not detailed or included on the plan and profile sheets.

Federal Participation	Royal Oak	Madison Hts.	
Maintaining Traffic	42 %	48 %	L.S.
Subgrade Undercutting Type I (To be backfilled with Granular Material Class II).	100		C. Yd.
Edge Drains-6 " (For undercutting areas)	100		L. Ft.
Edge Drains-6 " (For reconnecting existing edge drain)	25		L. Ft.
6" Sewer Taps	5		Ea.
Lighted Arrow Type A - Furnished	47 %	53 %	Ea.
Lighted Arrow Type A - Operated	47 %	53 %	Ea.
Hazard Light - Furnished	47 %	53 %	Ea.
Hazard Light - Operated	47 %	53 %	Ea.

Non Federal Participation			
Maintainiнq Traffic	4%	6 %	L.S.

PUBLIC UTILITIES

The existing utilities listed below have been shown on the plans as they appeared on various "as constructed" highway plans. This information does not relieve the contractor of the responsibility to satisfy himself as to their accuracy or his responsibility in case utilities have been constructed, relocated or removed, and do not conform to these plans.

NAME AND ADDRESS OF OWNER	KIND OF UTILITY
Dept. of Public Services City of Southfield	Water, Sewer
S.E. Oakland Co. Water Auth. Berkley	Water
Detroit Metro Water Services	Water, Sewer
Consumers Power Company 212 Michigan Avenue Jackson, Michigan 49201	Gas
Mich. Consolidated Cas Company One Woodward Ave. Detroit, Michigan 48226	Gas
Detroit Edison Co. 2000 Second Ave. Detroit, Michigan	Electric
Mich. Bell Telephone Company 23500 Northwestern Southfield, Michigan	Telephone

The Contractor may call the "Miss Dig" telephone number 24 hours in advance of any operation to obtain underground utility information.

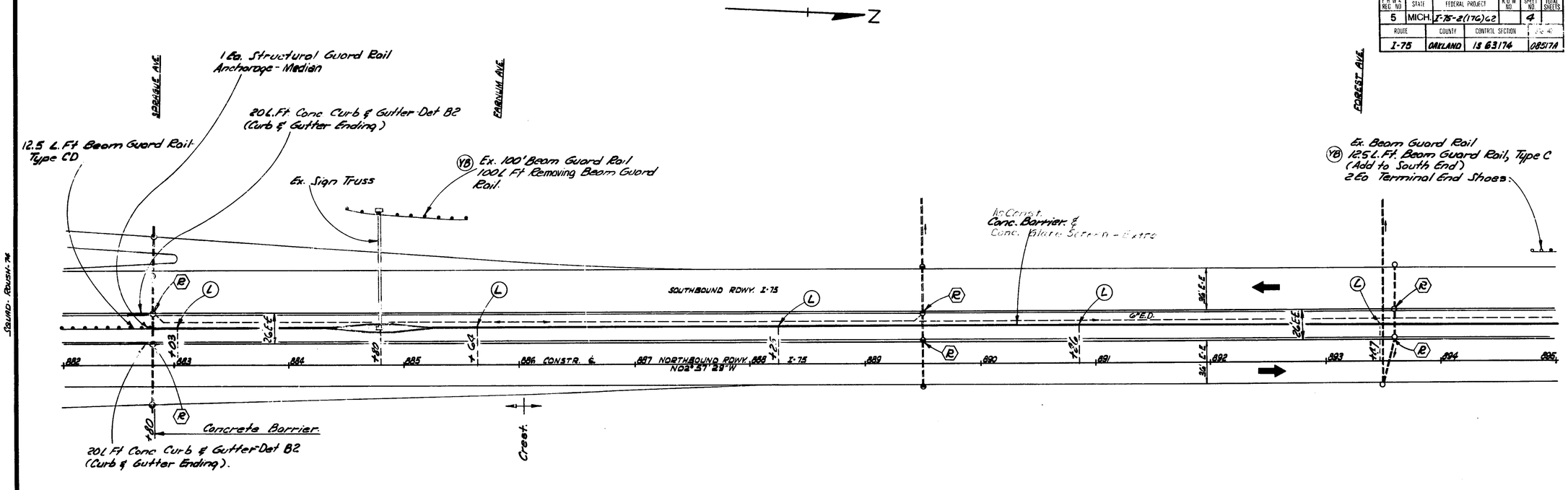
NOTES APPLYING TO STANDARD PLANS

Where the following items are called for on plans, they are to be constructed according to the standard plan given below opposite each item unless otherwise indicated.

Manholes 42" Pipe and Under	I-1B
Catch Basins and Inlets	I-5B
Cover D	I-9B
Concrete Curb and Concrete Curb & Gutter	II-30A
Corrugated Concrete Divider	II-38A
Location of Transverse Expan & Contr. Joints in Conc. Pav't	II-43A
Concrete Barrier	II-49 (Special Detail)
Light Std. Foundation (Concrete Barrier)	II-50 (Special Detail)
Concrete Valley Gutter	II-53A
Guard Rail Ending with Cable Anchorage	III-58A
Beam Guard Rail (Terminal End Shoes)	III-60B
Beam Guard Rail - Type C	III-63B
Structure Guard Rail Anchorage (Type C)	III-69A
Beam Guard Rail - Type CD	III-64B
Granular Blanket, Underdrains, & 6" Culvert End Section	IV-80A
Utility Trenches	IV-83B (Special Detail)
Drum Guide Rail, Drum Guide Rail Double, Drums, Timber Curb & Snow Fence, Timber Curb & Splash	IV-124B
Types II & III Barricades and Lighted Arrows	VI-125C
Sodding	E-4-A-10E
Concrete Barrier at Existing Sign Trusses	(Special Detail)
Guard Rail Flairing Details	(Special Detail)
Beam Guard Rail – Type B	III-61B
Structure Guard Rail Anch. (Median)	(Special Detail)
Post And Delineator	(Special Detail)
Erosion Control	V-96A

SQUAD: ROUSH

F.H.W.A. REG. NO	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(17G)62		4	
ROUTE	COUNTY	CONTROL SECTION			
I-75	OAKLAND	1S 63174		08517A	



POB STA: 834+54
C.S. 1s 63174. Job No. 08517A

LEGEND.

Erosion Control Work	(I-50)
Yellow Book Safety Work	(YB)
Reconstruct Drainage Structure	(R)
Adjust Drainage Structure Cover	(Adj)
Light Standard Foundation - Conc Barrier (For Details See Sheet # 11)	(L)

NOTE:
If There Is A Conflict Between The Light Standard Foundation CB And Existing Drainage Structures, The Light Standard Foundation Location May Be Moved As Directed By The Engineer.
Where called For On Plans Slopes Shall Be Flattened To 1 on 4 Or Flatter

QUANTITIES THIS SHEET.

Federal Participation	City Of Royal Oak.
Beam Guard Rail - Type C	12.5 L.Ft.
Terminal End Shoes	2 Ea.
Removing Curb & Gutter	2480 L.Ft.
Removing Beam Guard Rail	1345 L.Ft.
Earth Excavation - Special	12 ? Plcs.
Misc Conc Pav't Grade 35 P-1E- Variable Thickness Non Reinforced	3530.4 S.Yd.
Concrete Barrier	1220 L.Ft.
Conc. Curb & Gutter Det. B2 (C & G. Ending)	40 L.Ft.
*Light Standard Foundation - Conc Barrier	5 Ea.
Reconstruct Drainage Structures	6 Ea.
Drainage Structure Covers (G Cover D)	2730 Lbs
Beam Guard Rail - Type CD	12.5 L.Ft.
Structure Guard Rail Anchorage - Median	1 Each

* Federal Participation Non - City

I-75 STA 882+00 To STA 895+00

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	R.O.W. SH.	SHEET NO.
1s 63174	08517A	I-75-2(17G)62		9

F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	S.D.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(176)62		5	
ROUTE	COUNTY	CONTROL SECTION	JOB NO.		
I-75	OAKLAND	IS63174	08405		

B.M.#76A El. 637.24
R.R. spike in P. Pole
133 Rt. of N.B. ℄
Sta. 894+64

Wit. to P.C. 899+46.29 N.B.
N.47°W. 40.62' S.E. cor.
S. Bridge Pier
S.89°W. 41.88' N.E. cor. of C.B.
Due E. 20.20' N.E. cor. of C.B.

Z

Curve Data N.B. Const.
Δ = 29° 59' 33"
D = 3° 00' 00"
R = 1909.86'
T = 511.71'
L = 999.94'
E = 67.36'
P.C. = 899+46.29
P.I. = 904+58.00
P.T. = 909+46.23
S.E. = 0.06'/Ft.

Curve Data S.B. Const.
Δ = 29° 59' 33"
D = 2° 52' 55"
R = 1991.86'
T = 533.68'
L = 1042.87'
E = 70.26'
P.C. = 899+80.93
P.I. = 905+14.61
P.T. = 910+23.80
S.E. = 0.06'/Ft.

B.M.#75A El. 638.06
M.S.H.D. tag in 8" Oak 14'± Rt. of
Sta. 899+71 N.B.

Wit. to P.C. Sta. 899+80.93

Wit. to P.C. 899+80.93 S.B.
N.12°W. 83.30' S.W. cor. of C.B.
N.32°E. 56.76' S.W. cor. N. Piling
S.30°E. 40.32' N.E. cor. of C.B.

162.5 L. Ft. Beam Guard Rail - Type C
(YB) (Flare Into Slope)
1 Ea. Structure G. Rail Anch. - Type C
2 Ea. Terminal End Shoes.

200 L.Ft. Beam Guard Rail - Type C
(YB) (Flare Into Slope)
1 Ea. Structure Guard Rail Anch. - Type C.
2 Ea. Terminal End Shoes

Ex. Beam Guard Rail
12.5 L. Ft. Removing Beam Guard Rail
(YB) (From North End).
62.5 L.Ft. Beam Guard Rail - Type C
(Add To North End) (Flare Into Slope)
2 Ea. Terminal End Shoes.

Ex. Sign Truss.

Concrete Barrier End Section.

SOUTHBOUND RDWY. I-75

NORTHBOUND RDWY. CONSTR. ℄

SOUTH BD.

GARDENIA AVE.

NORTH BOUND SERVICE RD.

PUMP HSE.

SOI of 63174

SOE of 63174

Sag.

CITY OF ROYAL OAK
CITY OF MADISON HEIGHTS

As Const. Concrete Barrier & Glare Screen

162.5 L.Ft. Beam Guard Rail - Type C
(YB) (Flare Into Slope)
1 Ea. Structure Guard Rail Anch. - Type C
2 Ea. Terminal End Shoes.

SALINO-ROUSH 1-74

QUANTITIES THIS SHEET
Non-Federal Participation

	Royal Oak	Madison Heights	
Earth Excavation	50	10	C.Yd.
Embankment (C.I.P.)	10	23	C.Yd.
Machine Grading	.50	.70	Sta.
Roadside Seeding	1	1	Lbs.
Mulch	.02	.03	Ton
Chemical Fertilizer Nutriant	2	3	Lb.
Sediment Traps	1		Ea.

QUANTITIES THIS SHEET
Federal Participation

	Royal Oak	Madison Heights	
Beam Guard Rail - Type C	587.5		L.Ft.
Structural Guard Rail Anchorage - Type C	3		Ea.
Terminal End Shoes	8		Ea.
Removing Curb & Gutter	2372		L.Ft.
Removing Beam Guard Rail	1079.0		L.Ft.
Earth Excavation - Special	11.8		Sta.
Concrete Barrier	1174		L.Ft.
Misc. Conc. Pav't. Gr. 35P-HE-Variable Thick-Non Reinf.	3920.6		S.Yd.
* Light Standard Foundation - Conc. Barrier	5		Ea.
Reconstruct Drainage Structure	9		Ea.
Drainage Structure Covers (9 Cover D)	4095		Lb.
Adjust Drainage Structure Cover	5		Ea.

* Federal Participation - Non City

I-75 STA. 895+00 To STA. 908+00 (North Bd. Sta.).

CONTROL SECTION	JOB NO.	F.H.W.A. REG. NO.	SHEET NO.
IS63174	08517A	I-75-2(176)62	5

F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(176)62		6	
ROUTE	COUNTY	CONTROL SECTION	JOB NO.		
I-75	OAKLAND	IS 63174	08517A		

Witness to P.C. North Bound
913+39.23 Boat Spike
N64°E 65.11' ℄ in Sta. 914+00
S 0°E 32.92' S.W. Bolt Light P.
S 77°E 63.02' ℄ in Sta. 914+00

Curve Data.
Δ = 29°02'20"
D = 3°00'00"
R = 1909.86'
T = 494.61'
L = 967.96'
E = 63.01'
P.C. = 913+39.23
P.I. = 920+33.84
P.T. = 923+07.19
Super = 0.037/ft.

N

CITY OF ROYAL OAK
CITY OF MADISON HEIGHTS

(YB) Ex. Beam Guard Rail
75 L.Ft. Removing Beam Guard Rail
150 L.Ft. Beam Guard Rail - Type C
1 Ea. Guard Rail Anchorage, Cable - Def. 2.
2 Ea. Terminal End Shoes.

Ex. 30' of 12" Culvert With Concrete Headwalls.
Remove (Incidental To Earth Excavation)

(YB) 75 L.Ft. Beam Guard Rail, Type C
1 Ea. Guard Rail Anchorage, Cable - Def. 1. (North End).
1 Ea. Guard Rail Anchorage, Cable - Def. 1. (Without Cable South End).

For Quantities See Next Sheet

908 909 910 911 912 913 914 915 916 917 918 919 920 921

S.B. RDWY.

N.B. RDWY. CONST. ℄ N27°02'24"E

MHIA (1) (40)
CBIOE (1) (40)

100'
62.5' 125' 62.5'
20'
14'
17'

Ex. 42"

P.T. 910+33.23
909+46.23 Ahead

Ft. 46.23

87.5'

Ex. Sign Truss. (Cantilever).

P.O.T. of 63174

P.C. 914+28

(YB) Ex. 18" Culvert
36 L.Ft. 18" Cl. C Culvert (Extend S. End').
1 Ea. Salvaged End Section.

(YB) 75 L.Ft. Beam Guard Rail, Type C
1 Ea. Guard Rail Anchorage, Cable - Def. 1 (South End)
1 Ea. Guard Rail Anchorage, Cable - Def. 1 (Without Cable North End).

P.T. 920+33.84
N01°59'56"W

(32) (3) (1) (10)

ENCASED

Ex. 6" WATER MAIN

(YB) Ex. Guard Rail
237.5 L.Ft. Remove Beam Guard Rail
500 C. Yds. Embankment (C.I.P.)
(To Flatten Slope On South Side).
1150 S. Yd. Cl. B Seeding.

(YB) Ex. Guard Rail
150 L.Ft. Removing Beam Guard Rail
150 L.Ft. Beam Guard Rail - Type B Def. 1.
1 Ea. Guard Rail Anchorage, Cable - Def. 2. (On South End').
1 Ea. Terminal End Shoe.

SQUARE = ROUND = 1%

QUANTITIES THIS SHEET
Non-Federal Participation

	City of Madison Heights
Drainage Structure 4'(0-8)(CB IOE)	2 Each
Drainage Structure 4'(0-8)(MH IA)	3 Each
Drainage Structure Covers (2 Cover E)	400 Lbs.
Drainage Structure Covers (2 Cover A)	1170 Lbs.
12" Sewer CM II (Tr. Det. 2)	766 L.Ft.
Roadside Seeding	35.0 Lbs.
Mulch	1.04 Tons
Chemical Fertilizer Nutrient	84 Lbs.
Embankment (C. I. P.)	411 C.Yd.
Machine Grading	13.04 Sta.
Sediment Traps	3 Ea.
Straw Bales	30 Ea.

QUANTITIES THIS SHEET
Federal Participation

	City of Madison Heights
Removing Beam Guard Rail	575 L.Ft.
Beam Guard Rail - Type C	800 L.Ft.
Guard Rail Anchorage, Cable - Def. 2	3 Each
Guard Rail Anchorage, Cable - Def. 1	4 Each
Terminal End Shoes	5 Each
Salvaged End Section	1 Each
18" Class C Culvert	36 L.Ft.
Embankment (C. I. P.)	500 C.Yd.
Beam Guard Rail - Type B Def. 1	150 L.Ft.
Class B Seeding	1150 S.Yd.
Straw Bales	10 Ea.
Water (For Seeding)	3.2 Unit

I-75 STA. 908+00 To STA. 921+00 (North Bd. Sta.)

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	SHEET NO.	TOTAL SHEETS
IS 63174	08517A	I-75-2(176)GE		6

F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(176)62		7	
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	OAKLAND	1s 63174		08517A	

Match Line. *

Wit. to P.T. Median ℄ Sta. 925+07.19 Boatspike
S40°W 62.77' P.K. nail in joint
S80°W 53.22' P.K. nail in joint
S30°E 61.83' P.K. nail in Br. joint

℄ 120 K.V. Transmission Line.

HAZARDOUS MATERIAL

(YB) Ex. Guard Rail
12.5 L.Ft. Removing Beam Guard Rail
1 Ea. Guard Rail Anchorage, Cable - Det. 1.

(YB) Ex. Guard Rail
12.5 L.Ft. Removing Beam Guard Rail
1 Ea. Guard Rail Anchorage, Cable - Det. 2.

(YB) Ex. Guard Rail
562.5 L.Ft. Removing Beam Guard Rail
550 L.Ft. Beam Guard Rail - Type C B
1 Ea. Structural Guard Rail Anchorage - Type C.
2 Ea. Terminal End Shoes.

(YB) Ex. Guard Rail
137.5 L.Ft. Removing Beam Guard Rail.
100 L.Ft. Beam Guard Rail - Type C
25 L.Ft. Beam Guard Rail - Type B Det. 1.
1 Ea. Structure Guard Rail Anchorage - Type C. E
1 Ea. Terminal End Shoe.

(YB) Ex. Guard Rail
200 L.Ft. Removing Beam Guard Rail
162.5 L.Ft. Beam Guard Rail - Type C
1 Ea. Structure Guard Rail Anchorage - Type C. E
1 Ea. Guard Rail Anchorage, Cable - Det. 2.

(YB) Ex. Guard Rail
350 L.Ft. Removing Beam Guard Rail
175 L.Ft. Beam Guard Rail - Type C
1 Ea. Structure Guard Rail Anchorage - Type C. B
1 Ea. Guard Rail Anchorage, Cable - Det. 2.

(YB) Ex. Guard Rail
175 L.Ft. Removing Beam Guard Rail
700 C.Yds. Embankment (C.I.P.) (To Flatten Slope).
78 S.Yd. Cl. B Sodding

(YB) Ex. Guard Rail
226 L.Ft. Removing Beam Guard Rail
175 L.Ft. Beam Guard Rail - Type C
1 Ea. Structure Guard Rail Anchorage - Type C. E
1 Ea. Guard Rail Anchorage, Cable - Det. 2
25 C.Yds. Embankment (C.I.P.) (To Flatten Slope.)
50 S.Yd. Cl. B Sodding.

(YB) Ex. Guard Rail
100 L.Ft. Removing Beam Guard Rail
100 L.Ft. Beam Guard Rail - Type C
1 Ea. Structure Guard Rail Anchorage - Type C. E
1 Ea. Guard Rail Anchorage, Cable Det. 1.

(YB) Ex. Guard Rail
437.5 L.Ft. Removing Beam Rail
425 L.Ft. Beam Guard Rail - Type C. B
2 Ea. Terminal End Shoes.
1 Ea. Structure Guard Rail Anchorage - Type C.

(YB) Ex. Guard Rail
250 L.Ft. Removing Beam Guard Rail.
200 L.Ft. Beam Guard Rail - Type C.
37.5 L.Ft. Beam Guard Rail - Type B. Det. 1.
1 Ea. Structure Guard Rail Anchorage - Type C. E
1 Ea. Terminal End Shoes.

(YB) Ex. Guard Rail
100 L.Ft. Removing Beam Guard Rail
125 L.Ft. Beam Guard Rail - Type C B
1 Ea. Structure Guard Rail Anchorage - Type C
1 Ea. Guard Rail Anchorage, Cable - Det. 2.

(YB) Ex. Guard Rail
12.5 L.Ft. Removing Beam Guard Rail
1 Ea. Guard Rail Anchorage, Cable - Det. 1.

Ex. Guard Rail
50 L.Ft. Remove Beam Guard Rail.

(YB) Ex. Guard Rail
25 L.Ft. Rem. Beam Guard Rail
37.5 L.Ft. Beam Guard Rail - Type C.
1 Ea. Guard Rail Anchorage, Cable - Det. 2.
2 Ea. Terminal End Shoes.

P.O.E. Sta. 941+40
C.S.I's 63174, Job No. 08517A

Ex. 12" Culvert
Remove Headwall
25 L.Ft. 12" Cl. B Culvert
1 Ea. 12" Culvert End Section.
40 C.Yd. Earth Excavation

Backfill Ex. Ditch
100 C.Yd. Embankment (C.I.P.)
140 S.Yd. Class B Sodding

Ex. 12" Culvert
Remove Headwall
25 L.Ft. 12" Cl. B Culvert
1 Ea. 12" Culvert End Section.

℄ 12 Mile Rd.
N88°11'35"W

12 MILE RD.
S.B. Const. ℄
N.B. Const. ℄
S.B. Roadway
E. Red Run Drain Channel
Ex. Sign Truss
South Bd.
North Bd.
Match Line
Crest.
Sta. 923+72.45 N.B. ℄
Sta. 591.36.24 12 Mile Rd.
SO3 of 63174

QUANTITIES THIS SHEET
Non-Federal Participation — City of Madison Heights

Roadside Seeding	5.0 Lbs.
Mulch	.15 Tons.
Chemical Fertilizer Nutrient	12 Lbs.
Embankment (C.I.P.)	155 C.Yds
Machine Grading	1.76 Sta.
Class B Sodding	140 S.Yd.
12" Class B Culvert	50 L.Ft.
12" Culvert End Sections	2 Ea.
Earth Excavation	40 C.Yd.

QUANTITIES THIS SHEET
Federal Participation — City Of Madison Heights

Removing Beam Guard Rail	2850 L.Ft.
Beam Guard Rail - Type C	2212.5 L.Ft.
Terminal End Shoes	8 Ea.
Structure Guard Rail Anchorage - Type C	10 Ea.
Guard Rail Anchorage, Cable - Det. 1	3 Ea.
Embankment (C.I.P.)	725 C.Yd.
Guard Rail Anchorage, Cable - Det. 2	7 Ea.
Class B Sodding	128 S.Yd.
Beam Guard Rail - Type B Det. 1	62.5 L.Ft.
Water (For Sodding)	.5 Unit.
Straw Bales	10 Ea.

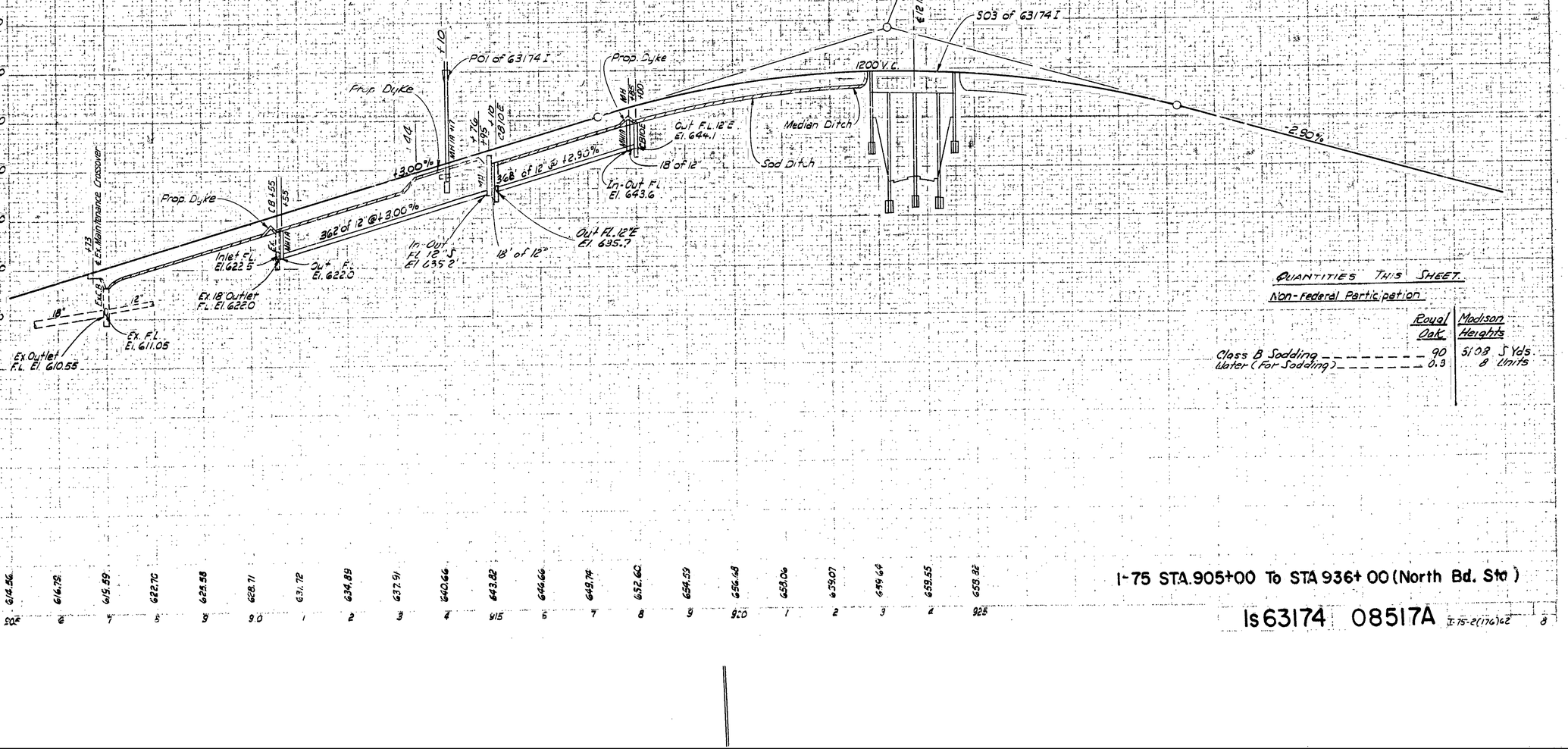
I-75 STA. 921+00 To STA. 941+00 (North Bd. Sta.)

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.
1s 63174	08517A	I-75-2(176)62		7

SHEET 5 OF 8 SHEETS 7-1-74

PLAN & PROFILE
MEDIAN 4+80.22 to 9+36.42

PLOTTED
DRAFTED
CHECKED
UNBOUND



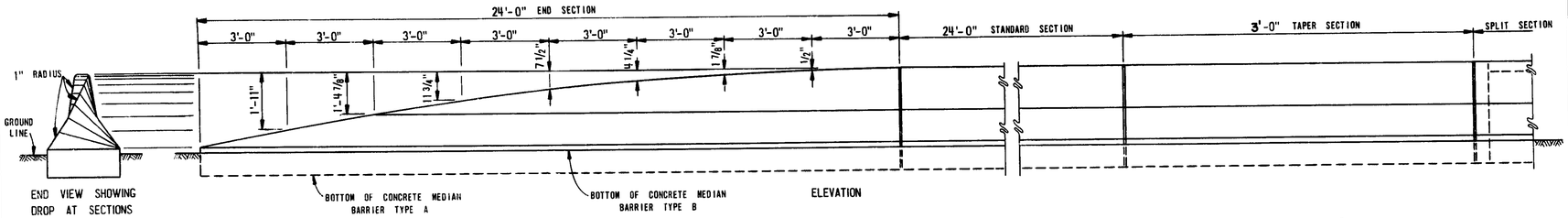
QUANTITIES THIS SHEET.
Non-Federal Participation

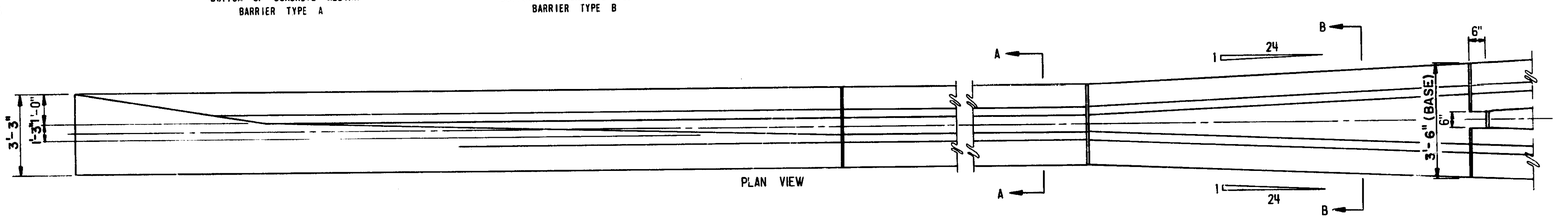
	Royal Oak	Madison Heights
Class B Sodding	90	5108 S Yds.
Water (For Sodding)	0.3	8 Units

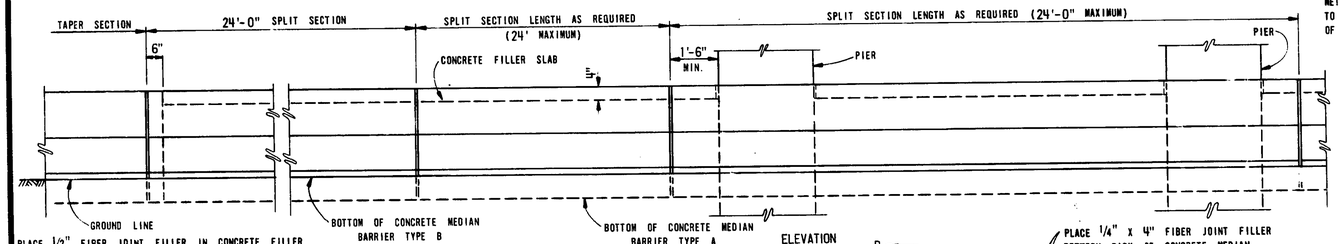
614.56	614.78	615.99	622.76	628.58	628.71	631.72	634.89	637.91	640.66	643.82	644.66	649.74	652.62	654.53	656.68	658.06	659.07	659.64	659.55	658.32
902	6	7	8	9	9.0	1	2	3	4	415	5	7	8	9	9.20	1	2	3	4	9.25

I-75 STA. 905+00 To STA 936+00 (North Bd. Sta.)

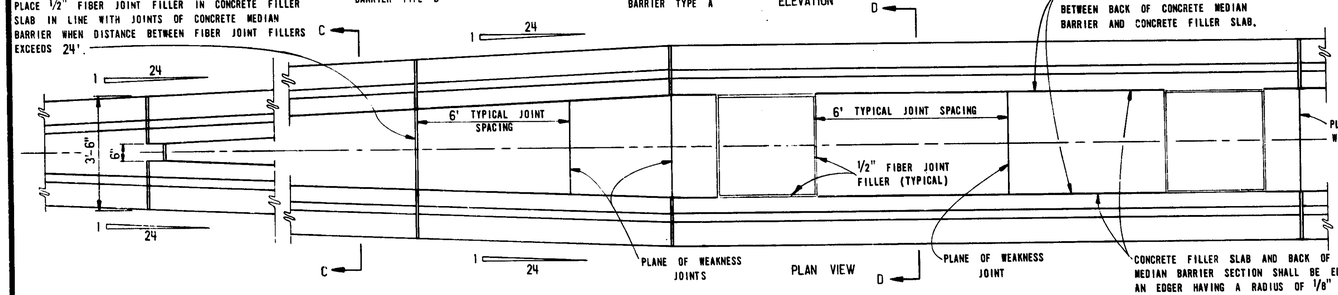
1s63174 08517A I-75-2(176)C2 8





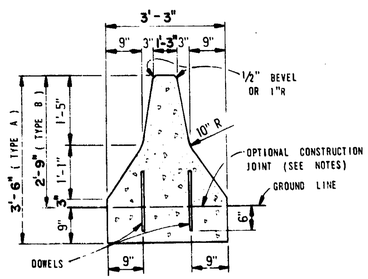


PLACE 1/2" FIBER JOINT FILLER IN CONCRETE FILLER SLAB IN LINE WITH JOINTS OF CONCRETE MEDIAN BARRIER WHEN DISTANCE BETWEEN FIBER JOINT FILLERS EXCEEDS 24'.

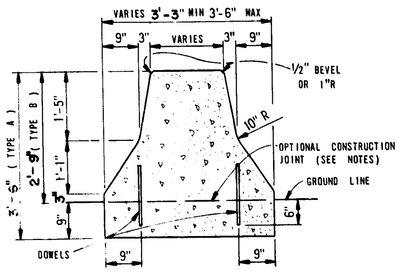


PLACE 1/4" X 4" FIBER JOINT FILLER BETWEEN BACK OF CONCRETE MEDIAN BARRIER AND CONCRETE FILLER SLAB.

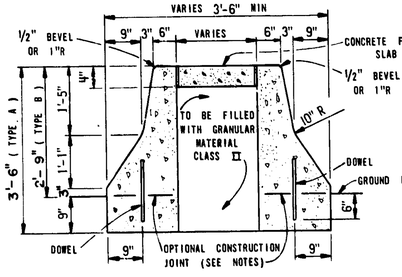
CONCRETE FILLER SLAB AND BACK OF CONCRETE MEDIAN BARRIER SECTION SHALL BE EDGED WITH AN EDGER HAVING A RADIUS OF 1/8" TO 1/4".



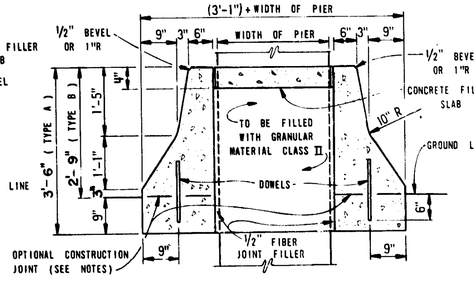
SECTION A – A



SECTION B – B

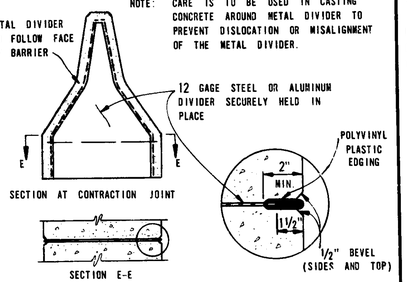


SECTION C – C

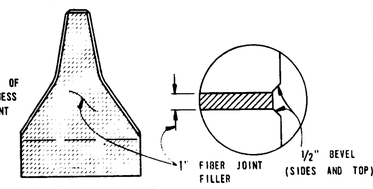


SECTION D – D

NOTE: CARE IS TO BE USED IN CASTING CONCRETE AROUND METAL DIVIDER TO PREVENT DISLOCATION OR MISALIGNMENT OF THE METAL DIVIDER.



METAL DIVIDER FOR CONTRACTION JOINT



EXPANSION JOINT

NOTES:

ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS.

BARRIER TYPE A IS TO BE USED WITH BITUMINOUS AGGREGATE SHOULDERS AND MAY BE CAST IN ONE PIECE OR CAST WITH OPTIONAL CONSTRUCTION JOINT USING 3/4" DIAMETER X 1'-3" DEFORMED DOWELS PLACED AS CALLED FOR ON THIS STANDARD. BARRIER TYPE B IS TO BE PLACED ON CONCRETE SHOULDERS USING 3/4" DIAMETER X 1'-3" DEFORMED DOWELS PLACED AS CALLED FOR ON THIS STANDARD.

DOWELS USED IN OPTIONAL CONSTRUCTION JOINT SHALL BE LOCATED 1'-6" FROM END OF EACH SECTION ON BOTH SIDES AND SPACED AT 6' CENTERS ON EACH SIDE AND STAGGERED FOR 3' SPACING IN ALL SECTIONS EXCEPT SPLIT SECTIONS WHERE DOWELS SHALL BE SPACED AT 3' CENTERS EACH SIDE.

PRECAST SECTIONS NOT SHORTER THAN 12'-0" NOR LONGER THAN 24'-0" WILL BE PERMITTED. IF CONTRACTOR ELECTS TO USE PRECAST SECTIONS, HE SHALL PROVIDE INSERTS AND REINFORCING ADEQUATE FOR HANDLING AND INSTALLATION. PRECAST SECTIONS OF BARRIER TYPE B SHALL BE PLACED ON A MORTAR BED TO ASSURE PROPER SEATING AND ALIGNMENT. 3" DIAMETER HOLES SHALL BE PROVIDED AT THE SPACING CALLED FOR ON THIS STANDARD TO FACILITATE POSITIONING OVER DOWELS

CAST IN PLACE CONCRETE MEDIAN BARRIER SHALL HAVE 1" EXPANSION JOINTS PLACED AT 72'-0" MAXIMUM CENTERS AND AT THE BEGINNING OF SPLIT SECTIONS AND AT ALL STRUCTURES (INCLUDING SIGN TRUSS SUPPORTS, LIGHT STANDARD FOUNDATIONS, BRIDGE PIERS, OR ANY OTHER STRUCTURE WITH A FOUNDATION) WITH INTERMEDIATE CONTRACTION JOINTS AT 24'-0" MAXIMUM CENTERS.

CONTRACTION JOINTS MAY BE CONSTRUCTED BY TEMPORARILY BULKHEADING FOR AN END OF POUR JOINT OR SEPARATING ABUTTING POURS WITH A METAL DIVIDER AS SHOWN ON THIS STANDARD.

THE FINISHED SURFACE OF THE BARRIER SHALL BE SMOOTH, DENSE, AND RELATIVELY FREE OF PITS, AIR BUBBLE POCKETS, DEPRESSIONS AND HONEYCOMB.

CONTRACTOR MAY SUBMIT ALTERNATE DESIGNS OF CONCRETE MEDIAN BARRIER FOR CONSIDERATION BY THE DEPARTMENT. SUCH ALTERNATE DESIGNS WILL NOT BE CONSIDERED IF THEY CHANGE THE BASIC SIDE CONFIGURATION OR DECREASE THE BARRIER WIDTH.

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS
STANDARD PLAN FOR

CONCRETE BARRIER

SPECIAL DETAIL

APPROVALS

CHECKED	ENGINEER DESIGN SECTION I	DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF DESIGN	DATE
RECOMMENDED FOR APPROVAL	TRAFFIC AND SAFETY DIVISION	DATE
RECOMMENDED FOR APPROVAL	CONSTRUCTION DIVISION	DATE
RECOMMENDED FOR APPROVAL	CHIEF BUREAU OF ENGINEERING	DATE

DEPARTMENT OF STATE HIGHWAYS

BY _____ DEPUTY STATE HIGHWAY DIRECTOR DATE

DRAWN BY	CHECKED BY	REVISED BY	DATE
H.A.W.			11-20-73

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	R.O.W.	SHEET NO.
1s63174	08517A	I-75-2(176)X3		9

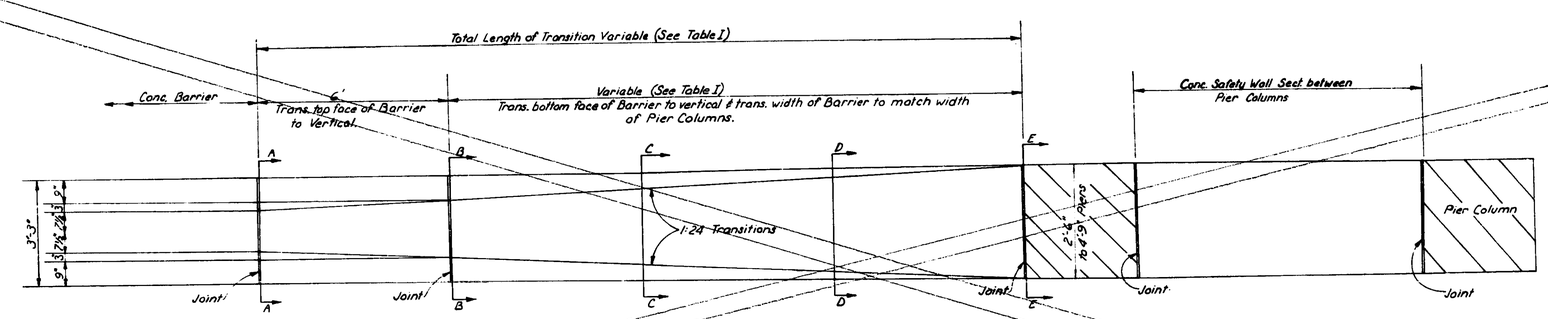
SCUM-RUSH

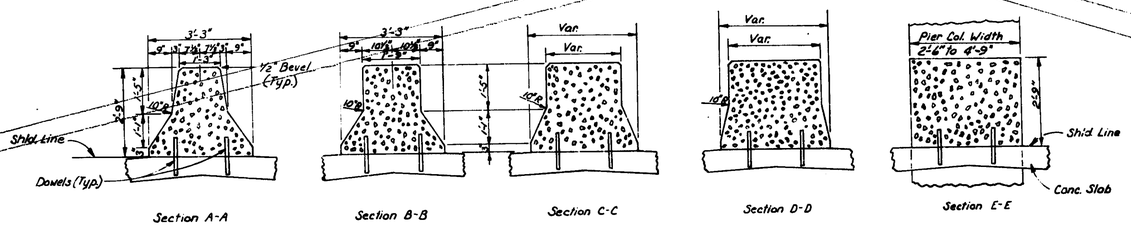
FHB P10 9-72 5M2SC+

SQUAD - ROUSH

5	MICH.	I-75-2(176)62		10	
I-75	OAKLAND	1s63174		08517A	

Concrete Barrier Transition Details to Vertical Face at Pier Columns (2'-6" to 4'-9" in Width)

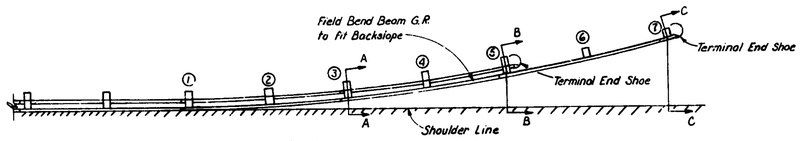




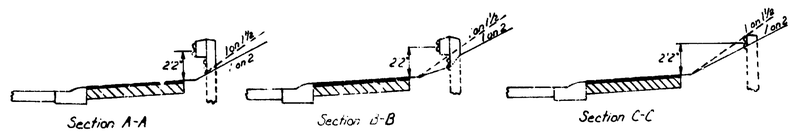
Note: See Special Details of Conc. Barrier Sh. No. Transitions will be Paid for as Concrete Barrier.

TABLE I

Width of Pier Columns (Ft.)	Variable Part of Trans. Length (Ft.)	Total Length of Transition of Conc. Bar. (Ft.)
2'-6"	9'	15'
3'-0"	15'	21'
3'-3"	18'	24'
3'-6"	21'	27'
4'-0"	27'	33'
4'-6"	33'	39'
4'-8"	35'	41'
4'-9"	36'	42'



Guardrail Flared End will be paid for as "Beam Guardrail Type C" in L.Ft. and "Terminal End Shoes" as Each.



POST NO.	OFFSET DISTANCE FROM FACE OF GUARDRAIL TO SHOULDER LINE	
	1 on 2 B.S.	1 on 10 B.S.
1	0	0
2	4"	1"
3	9"	3"
4	1'-3"	10"
5	2'-3"	1'-7"
6	3'-6"	2'-5"
7	5'-0"	3'-6"

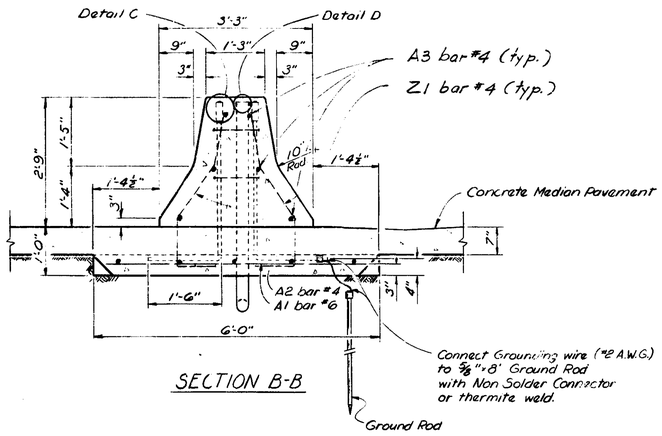
Guardrail offset distances may be modified to fit backslope conditions

GUARDRAIL FLARING DETAIL FOR URBAN DEPRESSED ROADWAYS

SPECIAL DETAILS

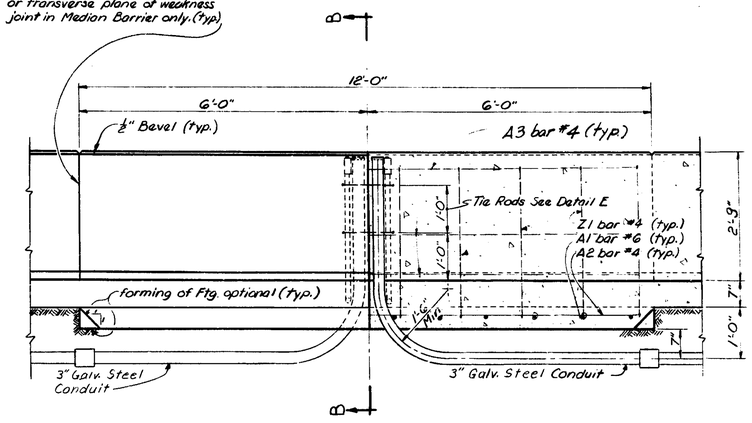
Guard Rail Flaring Details

1s63174	08517A	I-75-2(176)62		10

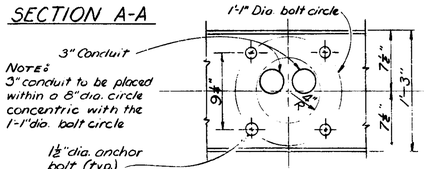


SECTION B-B

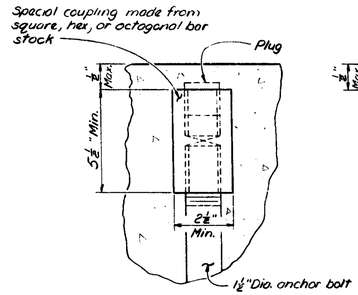
Note: Optional construction joint in Median Barrier and footing, or transverse plane of weakness joint in Median Barrier only. (typ.)



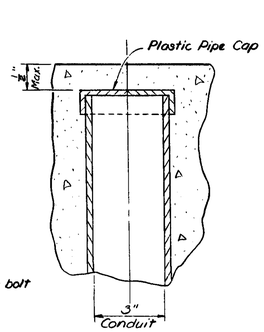
SECTION A-A



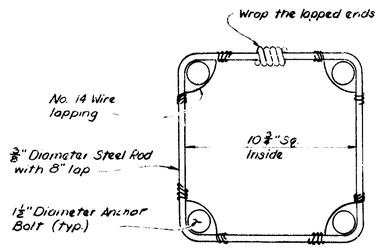
DETAIL F



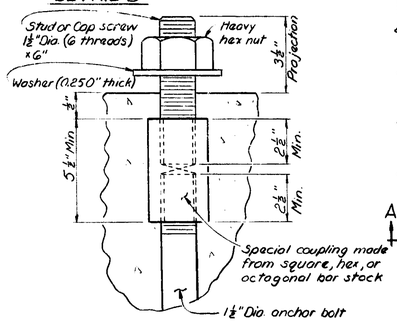
DETAIL C



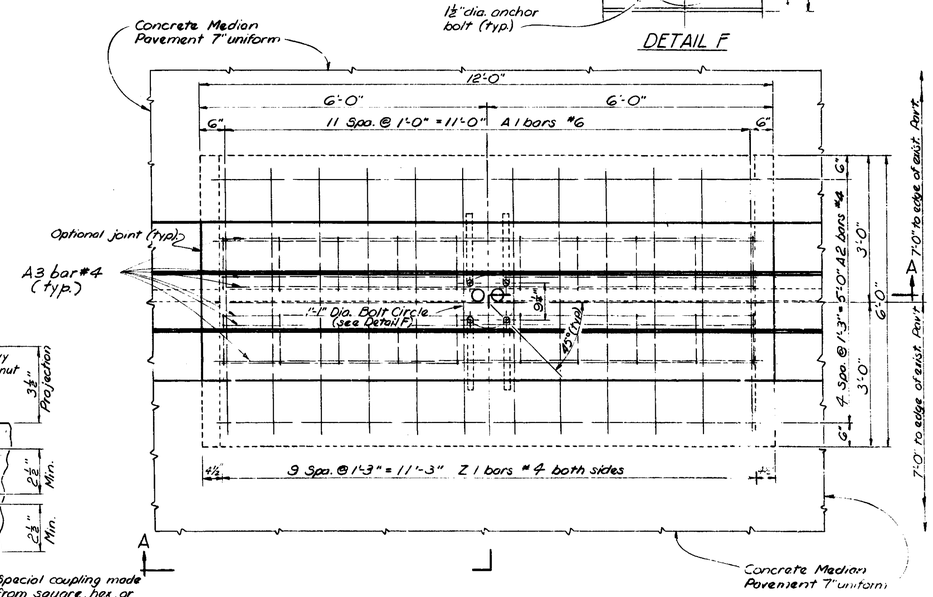
DETAIL D



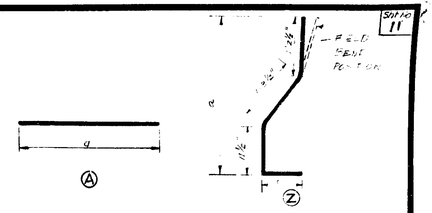
DETAIL E
Tie Rods



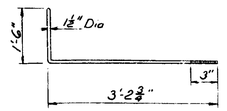
SHEAR STUD DETAIL



PLAN VIEW



BAR BENDING DIAGRAM



ANCHOR BOLT DETAIL

STEEL REINFORCEMENT SCHEDULE

Bar	DIMENSIONS a	b	Size	Length	No	Weight
A1	5'-6"		6	5'-6"	12	99
A2	11'-6"		4	11'-6"	5	39
A3	11'-6"		4	11'-6"	6	47
Z1	3'-3"	10"	4	4'-3"	20	57
*TOTAL WEIGHT OF STEEL				(Lbs.)		242

NOTES:

All materials and workmanship shall be in accordance with the current standard specifications.

Anchor bolts and associated nuts, studs, and couplings shall conform to the requirements of current Standard specifications for low-carbon externally and internally threaded standard fasteners, ASTM designation A307 or equivalent. Nuts, washers, studs, couplings, and 3" of threaded ends of anchor bolts shall be galvanized in accordance with ASTM designation A153.

A coupling shall be placed on the ends of all conduit terminations and plugged with a suitable removable plug.

Ground wire to be #2 A.W.G. Bare Stranded Ground Wire with not less than 2'-0" slack below foundation.

MISCELLANEOUS QUANTITIES

ITEM	UNIT
Anchor Bolts (1½ dia.)	* 4 ea.
Anchor Bolt Coupling	* 4 ea.
Stud or Cap Screw (1½" dia 6 threads x6")	* 4 ea.
Washer (0.250" thick)	* 4 ea.
Tie Rods (¾" dia.)	* 2 ea.
Ground Rod (⅝" x 8')	* 1 ea.
Nut	* 4 ea.
#2 A.W.G. Bare Stranded Ground Wire	* 3 Ft.

* These quantities are not Pay Items & are for each Light Standard Fdn.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

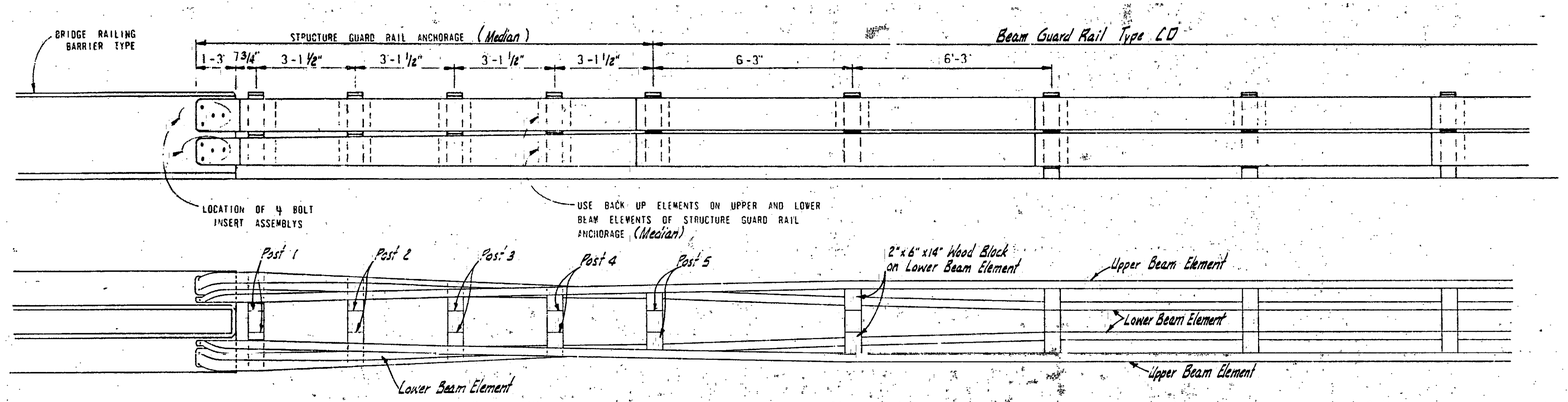
LIGHT STANDARD FOUNDATION — CONCRETE MEDIAN BARRIER

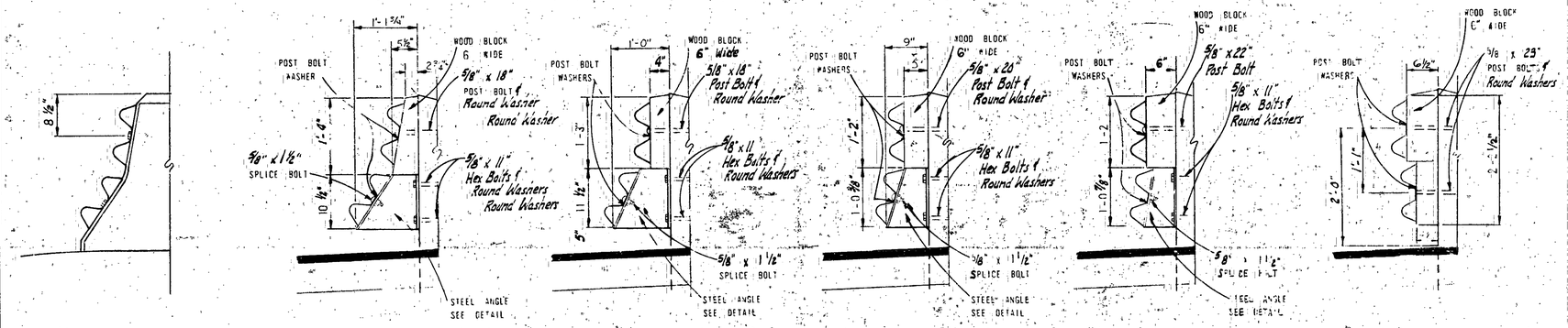
REVISIONS			
NO	DESCRIPTION	DATE	BY

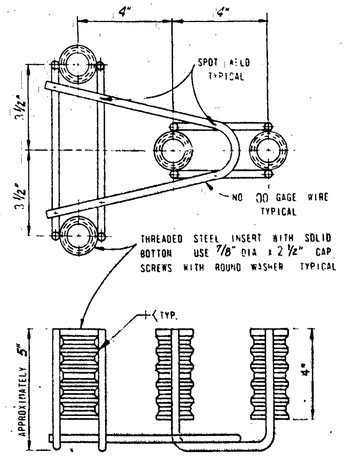
ROAD BOSS	Soldiron
DRAWN BY	Kelley
TRACED BY	
CHECKED BY	
SHEET	OF

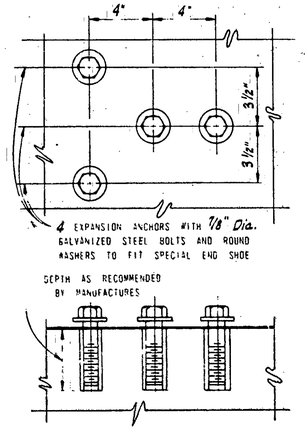
CONTROL SECTION	JOB NO.	FEDERAL PROJECT	ROW NO.	SHEET NO
1s63174	08517A	I-75-2(176)62		11

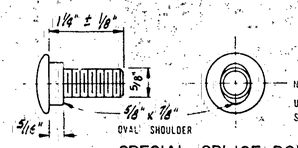
Issued 11 Revised 1-74

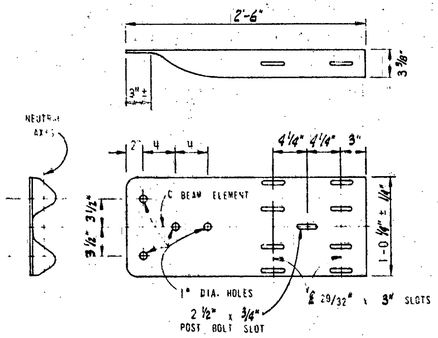


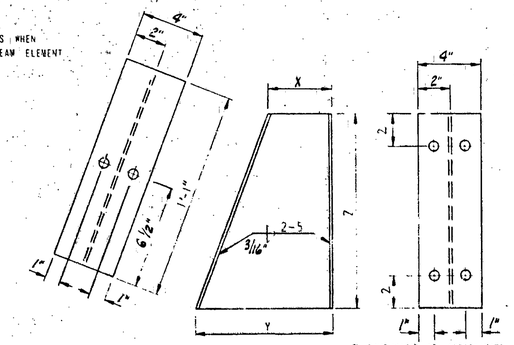












POST	X	Y	Z
1	5 1/2"	13 1/8	10 1/2"
2	5 1/8"	12"	11 1/2"
3	5"	9"	12 3/8"
4	4 7/8"	6 3"	17 7/8"

NOTES:

ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS.

ALL WOOD POSTS AND BLOCKS, BEAM AND BACK UP ELEMENTS, ANGLES, FITTINGS: INCLUDING BOLTS, NUTS, AND WASHERS SHALL CONFORM TO THE DIMENSIONS AND SPECIFICATIONS SHOWN ON THE CURRENT STANDARD PLAN III-63 SERIES, BEAM GUARD RAIL TYPE C WHERE APPLICABLE, EXCEPT AS SHOWN ON THIS STANDARD.

THE PAY ITEM FOR STRUCTURE ANCHORAGE DETAILS SHOWN ON THIS SHEET WILL BE STRUCTURE GUARD RAIL ANCHORAGE (MEDIAN)

STRUCTURE GUARD RAIL ANCHORAGE (MEDIAN) WHICH INCLUDES SPECIAL END SHOES SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH WHICH PRICE INCLUDES PAYMENT IN FULL FOR ALL WORK AND MATERIALS.

SPECIAL END SHOES SHALL BE GALVANIZED AND OF THE MATERIAL USED FOR BEAM ELEMENTS IN THE CURRENT STANDARD SPECIFICATIONS, EXCEPT THAT THEY SHALL NOT BE LIGHTER THAN 10 GAGE.

ALL WIRES SHOWN ARE MINIMUM ALLOWABLE SIZE AND SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATIONS FOR COLD DRAWN STEEL WIRE ASTM DESIGNATION A 82.

THE SIZE OF WIRE SHOWN SHALL CONFORM TO THE UNITED STATES STEEL WIRE GAGE STANDARD.

EXPANSION ANCHORS OF THE SIZE INDICATED SHALL BE PHILLIPS HEAD ANCHOR CHICAGO EXPANSION BOLT CO SPECIAL FLUSH SELF DRILLING ANCHOR OR APPROVED EQUAL.

BEAM ELEMENTS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC.

SECTIONS OF BEAM ELEMENT REQUIRED TO BE TWISTED FOR USE IN ANCHORAGE SHALL BE FIELD BENT.

ALL STEEL ANGLES SHALL BE 7 GAGE MINIMUM AND GALVANIZED AFTER FABRICATION ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR STEEL POSTS

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS
STANDARD PLAN FOR

STRUCTURE GUARD RAIL ANCHORAGE (MEDIAN)

APPROVALS

CHECKED
ENGINEER DESIGN SECTION C — DATE

RECOMMENDED FOR APPROVAL
ENGINEER OF DESIGN — DATE

RECOMMENDED FOR APPROVAL
TRAFFIC DIVISION — DATE

RECOMMENDED FOR APPROVAL
CONSTRUCTION DIVISION — DATE

RECOMMENDED FOR APPROVAL
CHIEF BUREAU OF ENGINEERING — DATE

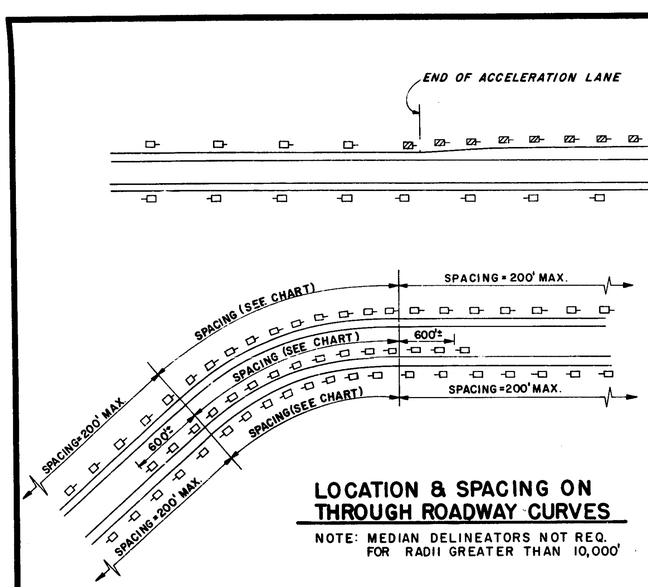
DEPARTMENT OF STATE HIGHWAYS
HENRY E STAFSETH STATE HIGHWAY DIRECTOR

BY
DEPUTY STATE HIGHWAY DIRECTOR — DATE

DRAWN BY	CHECKED BY	REVISED BY	DATE
H.A.W			4-8-70

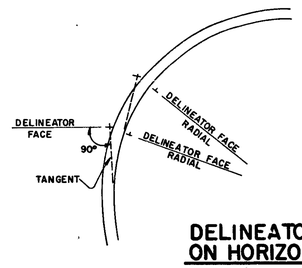
CONTROL SECTION	JOB NO.	FEDERAL PROJECT	ROW NO.	SHEET NO.
1s63174	08517A	I-75-2(116)62		12

SDD. ✉ 8OLSH-74

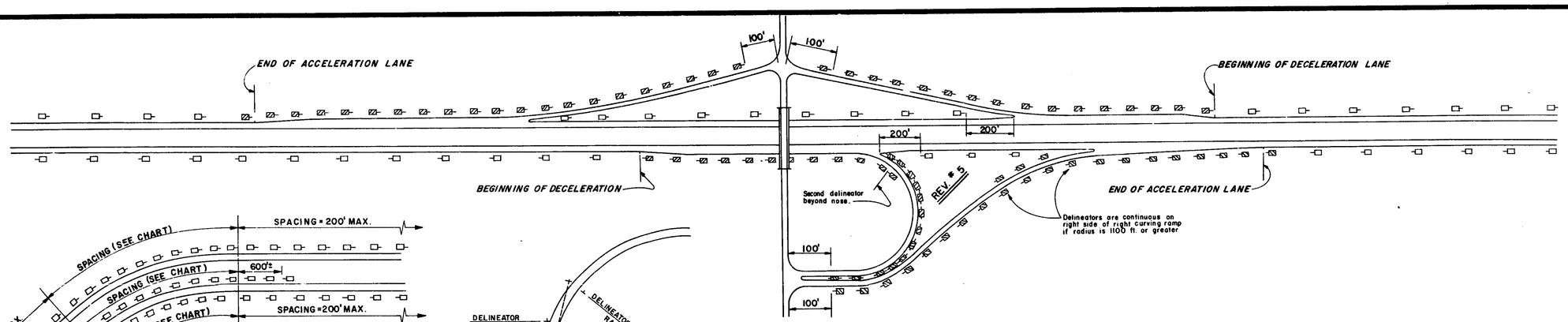


LOCATION & SPACING ON THROUGH ROADWAY CURVES

NOTE: MEDIAN DELINEATORS NOT REQ. FOR RADII GREATER THAN 10,000'



DELINEATOR ORIENTATION ON HORIZONTAL CURVES

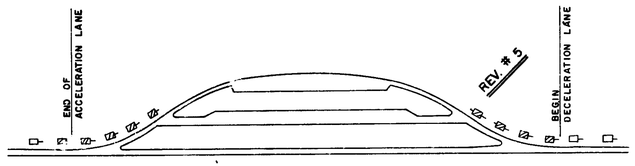


SPACING FOR HIGHWAY DELINEATORS ON HORIZONTAL CURVES

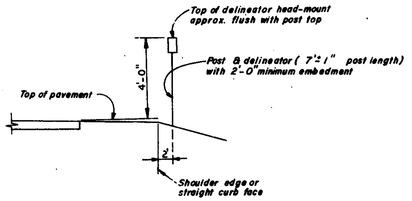
DEGREE OF CURVE	RADIUS IN FEET	SPACING ON CURVE	SPACING IN ADVANCE AND BEYOND CURVE		
			1 ST SPACE	2 ND SPACE	3 RD SPACE
	10,000	200	200	200	200
1		152	200	200	200
	5,000	141	200	200	200
	3,000	109	196	200	200
2		106	191	200	200
	2,500	99	178	200	200
	2,000	88	158	200	200
3		86	155	200	200
	1,800	84	151	200	200
	1,600	78	140	200	200
4		74	133	200	200
	1,400	74	133	200	200
	1,200	68	122	200	200
5		66	119	198	200
	1,000	62	112	186	200
	900	58	104	174	200
7		55	99	165	200
	800	55	99	165	200
	700	51	92	153	200
9		48	86	144	200
	600	47	85	141	200
	500	42	76	126	200
12		41	74	123	200
	400	37	67	111	200
15		36	65	108	200
	350	35	63	105	200
18		33	59	99	198
	300	32	58	96	192
21		30	54	90	180
	250	28	50	84	168
25		28	50	84	168
	200	24	43	72	144
30		24	43	72	144
	150	20	36	60	120
40		19	34	57	114
	100	14	25	42	84

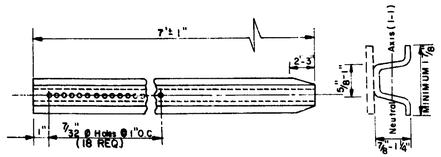
THE SPACING S ON THE CURVE IS FOUND FROM THE FORMULA $S = 2\sqrt{R-50}$, WHERE R IS THE RADIUS OF THE CURVE IN FEET. THE SPACING TO THE FIRST DELINEATOR IN ADVANCE OF AND BEYOND THE CURVE IS 1.8 S, TO THE NEXT DELINEATOR 3 S, AND TO THE NEXT 6 S, BUT NOT TO EXCEED 200 FEET.

MINIMUM SPACING = 10 FEET



REST AREA & WEIGH STATION

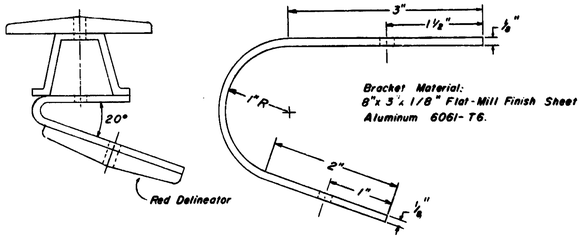




NOTE: Minimum weight - 1.33 lbs. per ft.
Minimum thickness - 3/32 in.
Minimum moment of inertia about I-I axis - 0.040 in.⁴
Dimensions shown are minimum and maximum permissable.

GALVANIZED POST DETAIL

REV. # 4



Bracket Material:
6"x 3¼ x 1/8" Flat-Mill Finish Sheet Aluminum 6061-T6.

RED DELINEATOR MOUNTING BRACKET

REV. # 5

REV. # 6

NOTES:

9. Delineator to post attachment shall be as specified in the M.D.S.H. current Standard Specifications For Highway Construction. Crimp Type Collar may be swaged on either the delineator face side or the post side.

NOTES:

1. Single crystal delineators a 200' max. spacing
   Double yellow delineators @ 100' max. spacing
   Single red delineators on back of double yellow
2. Delineators shall be placed two feet beyond the outer eage of the roadway shoulder, two feet beyond the face of a barrier curb, or in the line of the guard rail.
3. Delineators shall be located along the outside of the ramps, i.e., on the left side for right-curving ramps and on the right for others. Delineators shall also be located on the right for right-curving ramps which have radii of 1100 ft. or greater.
4. Where delineation on one side of the roadway or ramp ends and delineation on the other side appears, the delineators should be overlapped for a distance required to place a minimum of two units.
5. On speed change lanes, delineators shall be located on right for right-hand connections and on the left for left-hand connections.
6. Delineators shall be omitted along the through roadway between interchanges where fixed source lighting exists but shall be placed on all roadways at all interchange, whether or not the interchanges are lighted.
7. Single crystal delineators at 100' max. spacing shall be used in lieu of double yellow delineators at interchanges where both roadways are interstate.
8. Red delineators shall be located on the back of double yellow ramp delineators to face possible wrong way traffic movements. Placement shall start at ramp terminal and end at last double yellow delineator before gore between ramp and freeway.

REV. # 5

5. RED DELINEATORS, MOUNTING BRACKET & NOTE # 8 ADDED 10-72
6. NOTE 9 ADDED Re: SPEC. COMPLIANCE.
4. POST DEPTH CHANGED 6-72

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

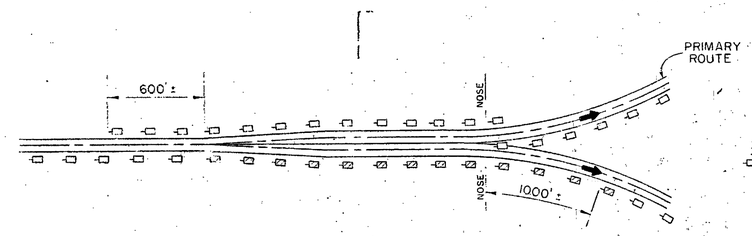
POST & DELINEATOR

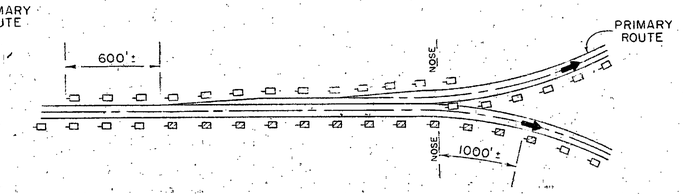
NO	REVISIONS DESCRIPTION	DATE	BY
1	NOTE CLARIFICATION & ELIMINATION		

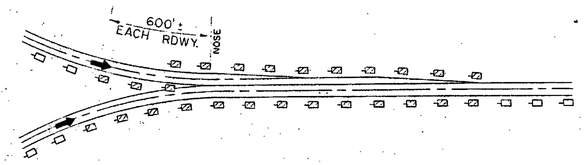
SQUAD BOSS
DRAWN BY RDS 11-12-63
TRACED BY
CHECKED BY
SHEET 1 OF 2

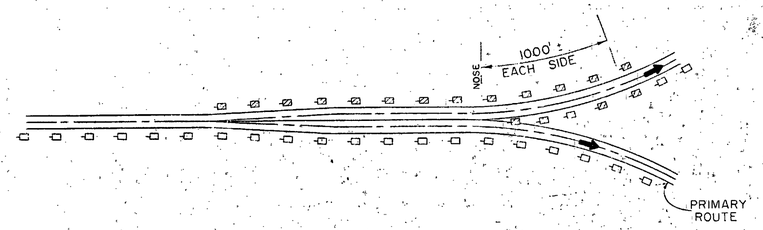
CONTROL SECTION 1s 63174 JOB NO. 08517A
FEDERAL PROJECT II-75-2(176)62 ROAD
SHEET NO. 13

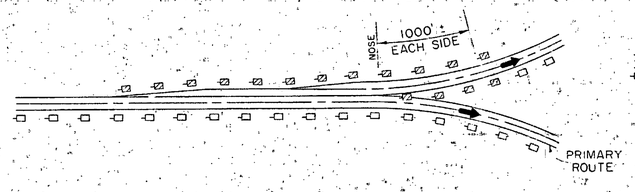
JUNCTION OF MAJOR ROADWAYS

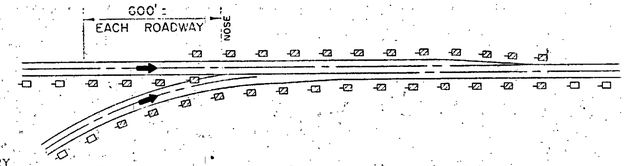


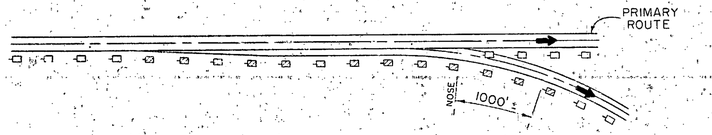


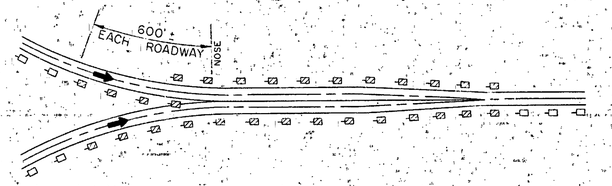


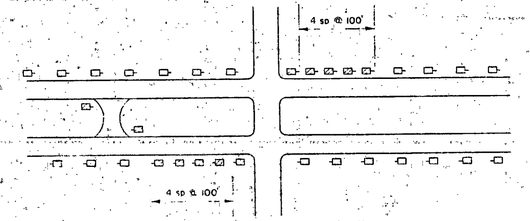




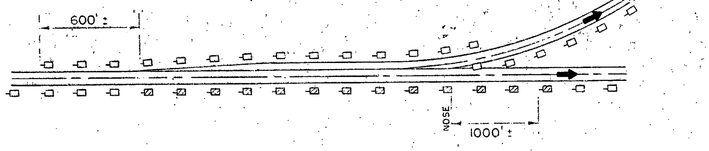


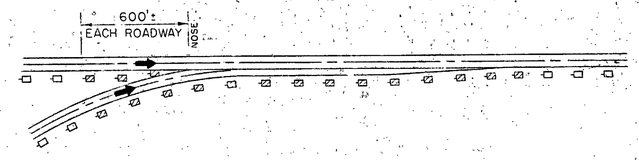


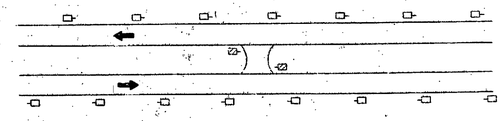




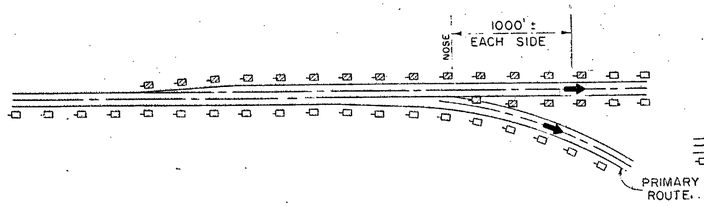
DIVIDED HIGHWAY

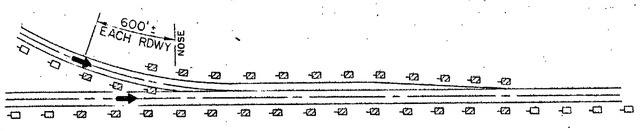






MEDIAN CROSSOVER
FREEWAY





NOTE:

Single crystal delineators at 100' max. spacing shall be used in lieu of double yellow delineators at interchanges where both roadways are Interstate.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

POST & DELINEATOR

NO.	REVISIONS DESCRIPTION	DATE	BY
1	NOTE ADDED	7-66	

SQUAD BOSS
DRAWN BY
TRACED BY
CHECKED BY
SHEET 2 OF 2

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	R.O.W.	SHEET NO.
Is 63174	08517A	I-75-2(176)68		14

UNDERGROUND

- EXISTING MANHOLE
- MANHOLE (2-WAY)
- MANHOLE (3-WAY)
- MANHOLE (4-WAY)
- MANHOLE (CORNER)
- EXISTING HANDHOLE
- HANDHOLE
- EXISTING CONDUIT (4-3" SHOWN)
- ABANDON EXISTING CONDUIT
- ENCASED CONDUIT (1-3 SHOWN)
- GALVANIZED STEEL CONDUIT (1-3 SHOWN)
- GALVANIZED STEEL CONDUIT, JACKING-BORING (1-2" SHOWN)
- CONDUIT RUN - "NOT A PART OF ELECTRICAL CONTRACT"
- DIRECT BURIAL CABLE (NO. & SIZE AS INDICATED)
- EXISTING DIRECT BURIAL CABLE
- ABANDON CABLE
- BUILD 6" SEWER
- DIRECT BURIAL CONDUIT TYPE II (1-3" SHOWN)
- CONCRETE FOUNDATION FOR PAD MOUNT TRANSFORMER
- CONCRETE FOUNDATION FOR FIRE OR POLICE CALL BOX
- EXISTING UG-FED ST. LTG. UNIT
- REMOVE UG-FED ST. LTG. UNIT (BY OTHERS)
- INSTALL SALVAGED UG-FED ST. LTG UNIT ON NEW FDN.
- UG-FED, 250 W. TYPE II, CLEAR, HIGH PRESSURE SODIUM LTG UNIT WITH 12 FT. BRACKET ARM ON NEW FOUNDATION WITH 30 FT. MOUNTING HEIGHT (EXCEPT WHERE OTHERWISE NOTED)
- UG-FED, 400 W. TYPE III, CLEAR, HIGH PRESSURE SODIUM LTG UNIT WITH 15 FT. BRACKET ARM ON NEW FOUNDATION WITH 45 FT. MOUNTING HEIGHT (EXCEPT WHERE OTHERWISE NOTED)
- UG-FED, 400 W. TYPE III, CLEAR, HIGH PRESSURE SODIUM LTG. UNIT WITH DBL. BRACKET ARM (30FT.) ON MEDIAN WALL WITH 45 FT. MOUNTING HEIGHT (EXCEPT WHERE OTHERWISE NOTED)
- UG-FED 250 W. TYPE II, CLEAR, HIGH PRESSURE SODIUM LTG. WITH 10 FT. BRACKET ARM ON BRIDGE OR RETAINING WALL WITH 30 FT. MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- WALL MOUNTED MERCURY VAPOR U.B. LTG. UNIT.
- FB – INDICATES ST. LTG STANDARD WITH FRANGIBLE TRANSFORMER BASE
- FUTURE LIGHT STANDARD
- U.G. FED 400 W. HIGH PRESSURE SODIUM LUMINAIRE-(SPECIAL) ON LIGHT STANDARD WITH NO ARM, 40 FT. MOUNTING HEIGHT, SHAFT LENGTH AS SPECIFIED. SEE DETAIL ON SHEET #8 OF PLANS.
- TOWER LIGHTING UNIT WITH 1000 W. METAL HALIDE LUMINAIRES TYPE V, 100 FT. MOUNTING HEIGHT (T2 TOWER NO. SHOWN & 8 NO. OF LUMINAIRES). (EXCEPT AS OTHERWISE NOTED)
- TOWER LIGHTING UNIT WITH 4-1000 W. METAL HALIDE LUMINAIRES WITH ASYMMETRIC LIGHT DISTRIBUTION, 2 LUMINAIRES ON EACH SIDE OF POLE WITH LONG AXES OF PATTERNS IN DIRECTION OF ARROWS, 80 FT. MOUNTING HEIGHT. (T1 TOWER NO. SHOWN).

OVERHEAD

- EXISTING WOOD POLE
- WOOD POLE (HEIGHT & CLASS AS INDICATED)
- O.H.-FED, 400 W. TYPE II, CLEAR, MERCURY VAPOR ST. LTG. UNIT WITH 15 FT. BRACKET ARM ON WOOD POLE AND 30 FT. MOUNTING HEIGHT.
- EXISTING O.H.-FED ST. LTG. UNIT WITH WOOD POLE
- EXISTING O.H LINE (3-#6 SHOWN)
- OVERHEAD LINE (2-#6 SHOWN)
- REMOVE O.H. LINE
- 400 W. TYPE I CLEAR, MERCURY VAPOR ST. LTG. UNIT ON SPAN WIRE AND MIN. 25 FT. MOUNTING HEIGHT.

GENERAL

- R.O.W. — RIGHT OF WAY LINE
- L.A.R.O.W. — LIMITED ACCESS RIGHT OF WAY LINE
- PROPOSED PAVEMENT JOINT LINE
- P.L.C. — INDICATES THE PUBLIC LIGHTING COMMISSION
- D.E.CO. — INDICATES THE DETROIT EDISON COMPANY
- C.P.CO. — INDICATES THE CONSUMERS POWER COMPANY

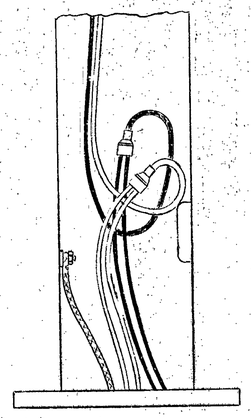
20. THE ITEM "DOUBLE BEAM GUARD RAIL SPECIAL-TYPE I" SHALL INCLUDE REMOVING THE EXISTING SECTIONS OF 6" CHANNEL BEAM, INSTALLING THE REQUIRED SPACING BLOCKS, AND INSTALLING BEAM GUARD RAIL COMPLETE AS SHOWN ON THE PLAN DETAIL.
21. THE ITEM "DOUBLE BEAM GUARD RAIL SPECIAL-TYPE II" SHALL INCLUDE REMOVING THE LOWER BEAM GUARD RAIL, INSTALLING THE REQUIRED SPACING BLOCKS AND REINSTALLING THE BEAM GUARD RAIL AS SHOWN ON THE PLAN DETAIL.
22. EXISTING LIGHTS ARE TO REMAIN IN OPERATION UNTIL THE PROPOSED LIGHTS ARE IN OPERATION AND ACCEPTED AS DIRECTED BY THE ENGINEER. ANY DAMAGES TO THE EXISTING SYSTEM CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S OWN EXPENSE WITHIN A REASONABLE TIME AS DIRECTED BY THE ENGINEER.
23. THE MAINTENANCE DIVISION OF THE M.D.S.H. & TR. WILL REMOVE AND SALVAGE STREET LIGHT STANDARDS THAT ARE TO BE REMOVED INCLUDING ARM AND LUMINAIRE.
24. LIGHT STANDARD FOUNDATIONS ARE TO BE REMOVED ENTIRELY. NECESSARY BACKFILLING AND SHOULDER RESTORATION WILL BE INCIDENTAL TO THE ITEM "REMOVE LIGHT STANDARD FOUNDATION" AND WILL NOT BE PAID FOR SEPARATELY.
25. THE 6" EDGE DRAIN REQUIRED TO REPLACE DAMAGED EDGE DRAIN DUE TO LIGHTING CONSTRUCTION SHALL BE INCIDENTAL TO THE PROJECT AND WILL NOT BE PAID FOR SEPARATELY.
26. TRUSS FOUNDATION IS TO BE REMOVED ENTIRELY. NECESSARY BACKFILLING AND SHOULDER RESTORATION WILL BE INCIDENTAL TO THE ITEM, "REMOVE TRUSS FOUNDATION" AND WILL NOT BE PAID FOR SEPARATELY.

GENERAL NOTES

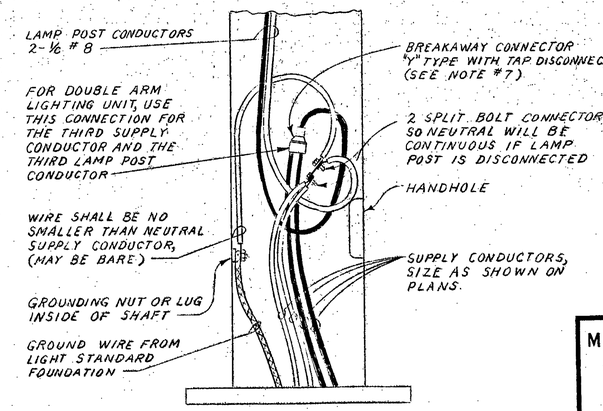
1. ALL CONDUITS CROSSING PAVEMENTS, SHALL EXTEND 4' BACK OF CURB OR EDGE OF PAVEMENT (EXCEPT AS OTHERWISE NOTED) AND SHALL HAVE A MINIMUM OF 2'-6" COVER.
2. ALL DIRECT BURIAL CABLES SHALL BE INSTALLED IN CONTINUOUS UNCUT LENGTH BETWEEN STREET LIGHTING STANDARDS OR HANDHOLES.
3. STREET LIGHTING LUMINAIRES SHALL BE HIGH PRESSURE SODIUM, TYPE AS INDICATED, MEDIUM DISTRIBUTION, SEMICUTOFF, WITH 240 V. INTEGRAL BALLAST, EXCEPT AS OTHERWISE NOTED.
4. LIGHT STANDARDS SHALL BE ALUMINUM OR GALVANIZED STEEL.
5. DIRECT BURIAL CONDUIT, UNDER PAVED MEDIAN SHALL HAVE A MINIMUM OF 2' COVER.
6. ALL LIGHT STANDARDS WITH FRANG. TRANSFORMER BASES LOCATED ON RAMPS SHALL BE SET BACK 12' FROM THE EDGE OF THE PAVEMENT.
7. BREAKAWAY CONNECTOR SHALL BE ELASTIMOLD STYLE #83S; JOY MFG. CO. #X8918, BUSSMAN TYPE HEP WITH INSULATING BOOTS, OR APPROVED EQUAL.
8. THE ITEM "1-3" DIRECT BURIAL CONDUIT (SPECIAL)" SHALL INCLUDE SAWING THE BITUMINOUS MEDIAN PAVEMENT, REMOVING BITUMINOUS, TRENCHING, FURNISHING AND LAYING CONDUIT, BACKFILLING & COMPACTING, SURFACING & RESTORING THE BLACK TOP SHOULDERS WITH THE SAME MATERIAL AS THE EXISTING CONSTRUCTION.
9. THE ITEM "1-3" GALV. STEEL CONDUIT, JACKING-BORING" SHALL INCLUDE RESTORING SHOULDER AND BITUMINOUS SHOULDER PAVEMENT & SHOULDERS (INCLUDING SEEDING & SODDING).
10. JACKING PITS SHALL BE LOCATED OUTSIDE OF SHOULDER AREA AS DIRECTED BY THE ENGINEER.
11. ELECTRIC SERVICE FOR TOWER LIGHTING SHALL BE 480 VOLT, SINGLE PHASE, 2 WIRE.
12. THE CONTRACTOR MAY BUILD EITHER CYLINDRICAL OR SPREAD FOOTING TYPE FDN. EXCEPT THAT AT STA. 917+40 AS DETAILED ON SHEET #4 WITHOUT ADDITIONAL COST.
13. IN THE EVENT THERE IS DAMAGED GUARD RAIL, THE MDSH WILL REPAIR OR REPLACE THE SECTIONS OF GUARD RAIL PRIOR TO THE SETTING OF LIGHT STANDARDS.
14. LUMINAIRES FOR TOWER LIGHTING SHALL BE PROVIDED WITH 480 V. METAL HALIDE TYPE BALLAST.
15. THE POLES FOR TOWER LIGHTING UNITS MAY BE ONE SECTION, OR NOT MORE THAN 4 SECTIONS FOR THE 100' POLE, OR 3 SECTIONS FOR THE 80' POLE.
16. THE LUMINAIRE MOUNTING FRAMES FOR THE TOWER LIGHTING UNITS WITH 4 ASYMMETRICAL LUMINAIRES SHALL BE EQUIPPED IN SUCH A MANNER THAT MAKES IT ADAPTABLE FOR ADDITIONAL LIGHTING IN THE FUTURE. THE LUMINAIRE MOUNTING FRAME SHALL BE DESIGNED SIMILAR TO THAT FOR THE EIGHT LUMINAIRES WITH UNUSED HOLES PLUGGED.
17. ALL LIGHT STANDARDS FURNISHED ON THIS CONTRACT SHALL BE OF THE SAME STYLE AND MATERIAL, AND FROM THE SAME MANUFACTURER, EXCEPT WHERE OTHERWISE SPECIFIED ON THE PLANS.
18. ALL TOWER LIGHTING UNITS SHALL BE MADE BY THE SAME MANUFACTURER.
19. ELECTRIC SERVICE FOR CONVENTIONAL LIGHTING BETWEEN STA. 835+26 TO 905+75 SHALL BE 480/240 V, 1Ø, 3 WIRE & BETWEEN STA. 907+46 TO 940+40 SHALL BE 480 V, 1Ø, 2 WIRE.

DESIGN CRITERIA

AVERAGE INITIAL INTENSITY 1. FC
AVERAGE UNIFOMITY RATIO 3 TO 1



TYPICAL MULTIPLE STREET LIGHTING CONNECTION FOR 2-WIRE, 480 V. 1 Φ, UNDERGROUND SYSTEM FOR CONVENTIONAL LIGHTING



TYPICAL MULTIPLE STREET LIGHTING CONNECTION FOR 3-WIRE, SINGLE PHASE UNDERGROUND SYSTEM FOR CONVENTIONAL LIGHTING

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
NOTES & LEGEND
FREEWAY

REVISIONS			
NO	DESCRIPTION	DATE	BY

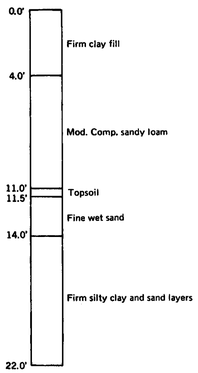
BOOKED BOSS	J.J.Jak	1970
DRAWN BY		
TRACED BY	J.W	3-23-70
CHECKED BY		

SHEET 15 OF
JOB NO. 63174 08517 A

TOWER NO. 1

T. H. # 1

50' Rt. of Sta. 917+40

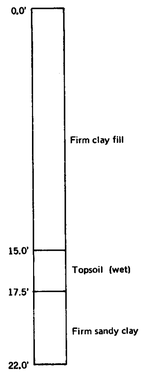


W.T. @ 9.0'
E.O.B. = 22.0'

TOWER NO. 2

T. H. # 2

80' Rt. of Sta. 921+40

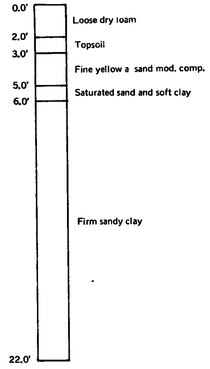


E.O.B. = 22.0'

TOWER NO. 3

T. H. # 3

100' Lt. of Sta. 926+38

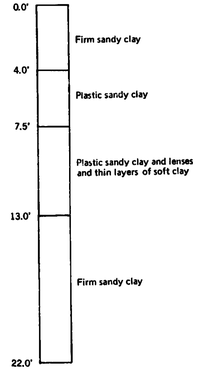


E.O.B. = 22.0'

TOWER NO. 4

T. H. # 4

80' Lt. of Sta. 931+90



E.O.B. = 22.0'

SQUAD: JILDEH

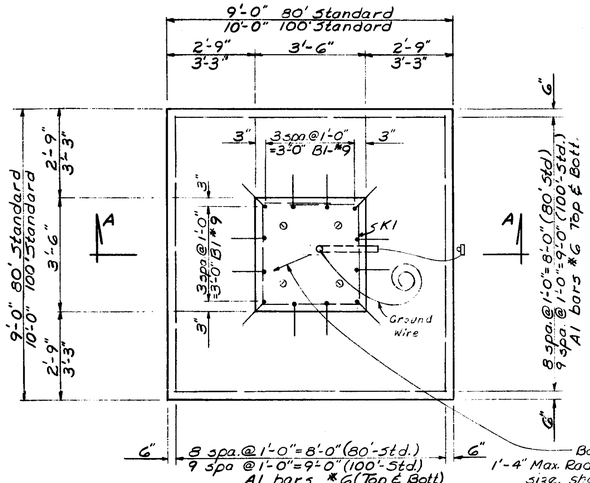
1-75 & 12 MILE ROAD
INTERCHANGE

TOWER LIGHTING

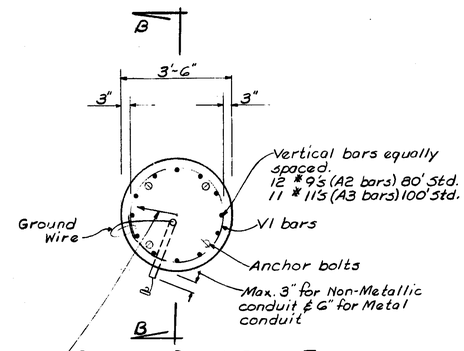
MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

SOIL BORING DATA

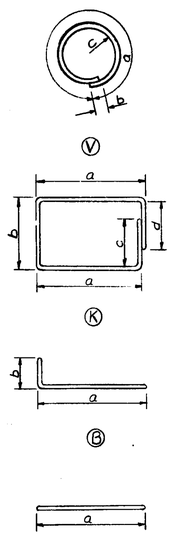
CONTROL SECTION	JOB NO.	FEDERAL PROJECT	SHEET NO.
63174	08517A	I-75-2(176)46	16



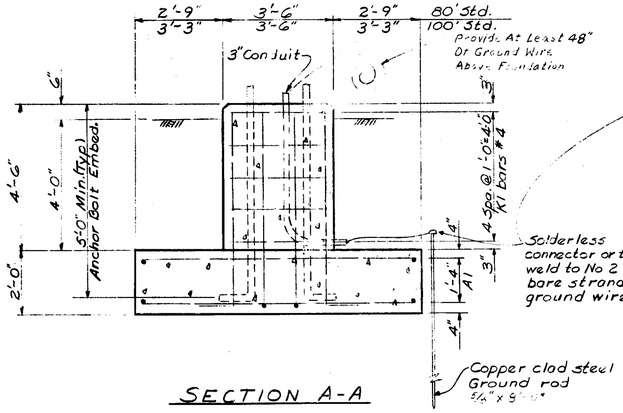
PLAN OF SPREAD FOOTING



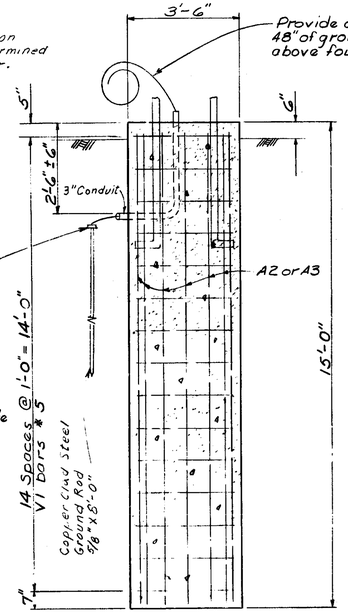
PLAN OF CYLINDRICAL FOUNDATION



BAR BENDING DIAGRAM



SECTION A-A



SECTION B-B

STEEL REINFORCEMENT SCHEDULE

	Bar	Dimensions a	b	c	d	e	Size	Length	No.	Total Weight
SPREAD FOOTING (80' T.L. UNIT)	A1	8'-0"					6	8'-0"	36	433
	B1	6'-0"	1'-1"				9	7'-0"	12	256
	K1	3'-2"	3'-2"	1'-6½"	1'-6½"		4	12'-6"	5	42
								Total		761
SPREAD FOOTING (100' T.L. UNIT)	A1	9'-0"					6	9'-0"	40	541
	B1	6'-0"	1'-1"				9	7'-0"	12	286
	K1	3'-2"	3'-2"	1'-6½"	1'-6½"		4	12'-6"	5	42
								Total		869
CYLINDRICAL FOUNDATION (80' T.L. UNIT)	A2	17'-6"					9	14'-6"	12	592
	V1	9'-2"	1'-10"	1'-4"			5	10'-2"	15	159
								Total		751
CYLINDRICAL FOUNDATION (100' T.L. UNIT)	A3	17'-6"					11	14'-6	11	847
	V1	9'-2"	1'-10"	1'-4"			5	10'-2"	15	159
								Total		1006

CONCRETE QUANTITIES GRADE 3S5

Spread Footing-(80' Tower Ltg. Unit)	Cu.Yds.	8.0
Spread Footing-(100' Tower Ltg. Unit)	Cu.Yds.	9.4
Cylindrical Foundation	Cu.Yds.	5.3

NOTE:
All concrete to be Grade 3S5

The grades and working stresses of the structural materials used in these foundations are as follows:

Steel Reinforcement f_s = 20000 psi
Concrete Grade 3S5 f_c = 3000 psi

These Tower Ltg. Unit foundations are to be poured against undisturbed soil insomuch as possible

Maximum average foundation pressure
D.L. only - (80' T.L. Unit) - 900 psi
(100' T.L. Unit) - 850 psi

Maximum Foundation pressure
D.L. + L.L. - (80' T.L. Unit) - 2700 psi
(100' T.L. Unit) - 2750 psi

Either type foundation is acceptable at each site, except that spread footing type required for tower located 50' Rt. of Sta. 917+40

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

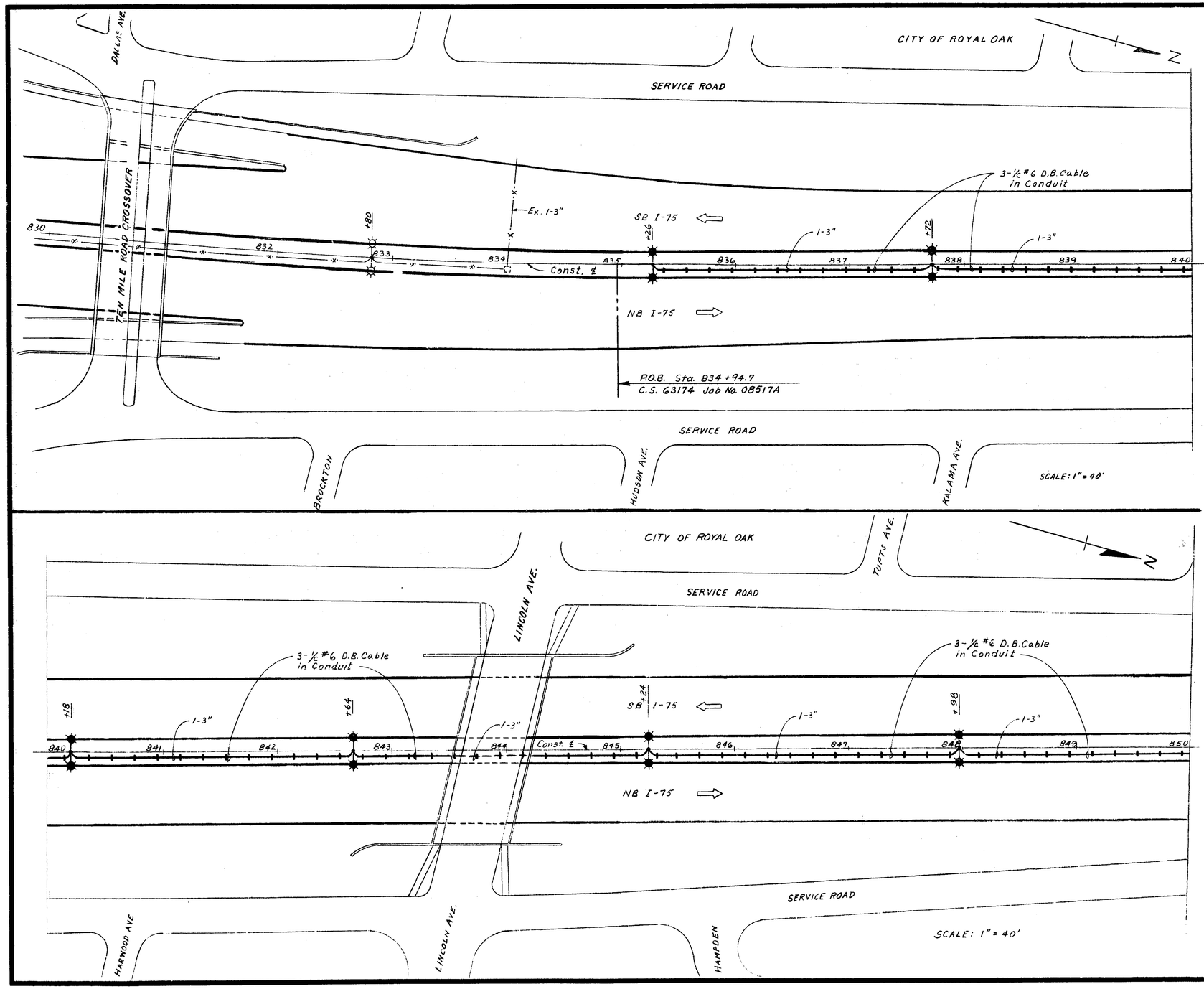
FOUNDATION DETAILS FOR TOWER LIGHTING UNIT
I-75 AND 12 MILE ROAD INTERCHANGE

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	A. Caldwell	1974
DRAWN BY	DFJ	2-5-74
TRACED BY		
CHECKED BY		

SHEET 17 OF

63174 08517A



ENTIRE PROJECT

THE FOLLOWING ITEM OF WORK SHALL BE DONE AS IT APPLIES THROUGHOUT THE ENTIRE PROJECT. THIS ITEM IS NOT INCLUDED ON THE PLANS.

ELECTRIC DRILL ---------- 1 EACH

QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
1-3" Direct Burial Conduit (Special)	L.Ft.	1474
600 V., 3-1/c No 6 Direct Burial Cable in Conduit	L.Ft.	1474
Lt. Std. 45 Ft. M.H. 12 Ft. Dbl. Arm, New Foundation	Each	6
400 W. High Pressure Sodium Luminaire	Each	12
Double Beam Guard Rail Special-Type I	L.Ft.	375

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
FREEWAY LIGHTING

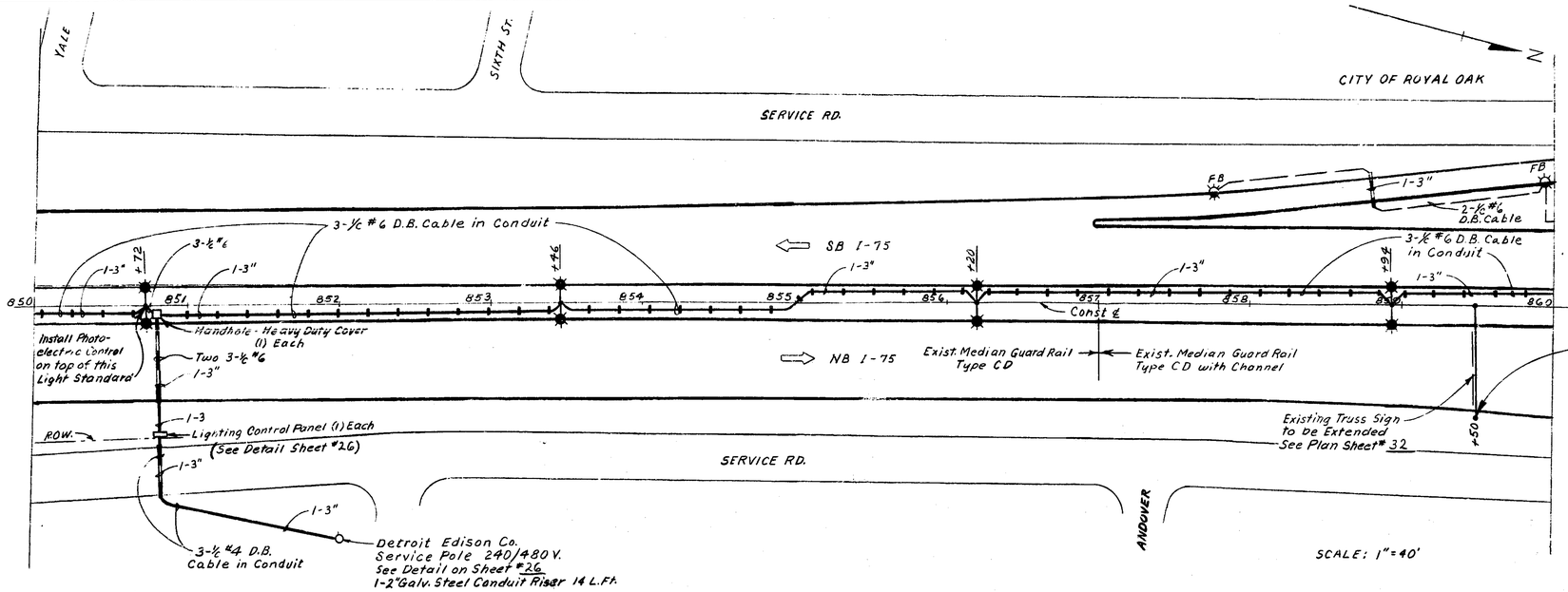
I-75 FROM I-696 FREEWAY TO 12 MILE RD.
CITY OF ROYAL OAK

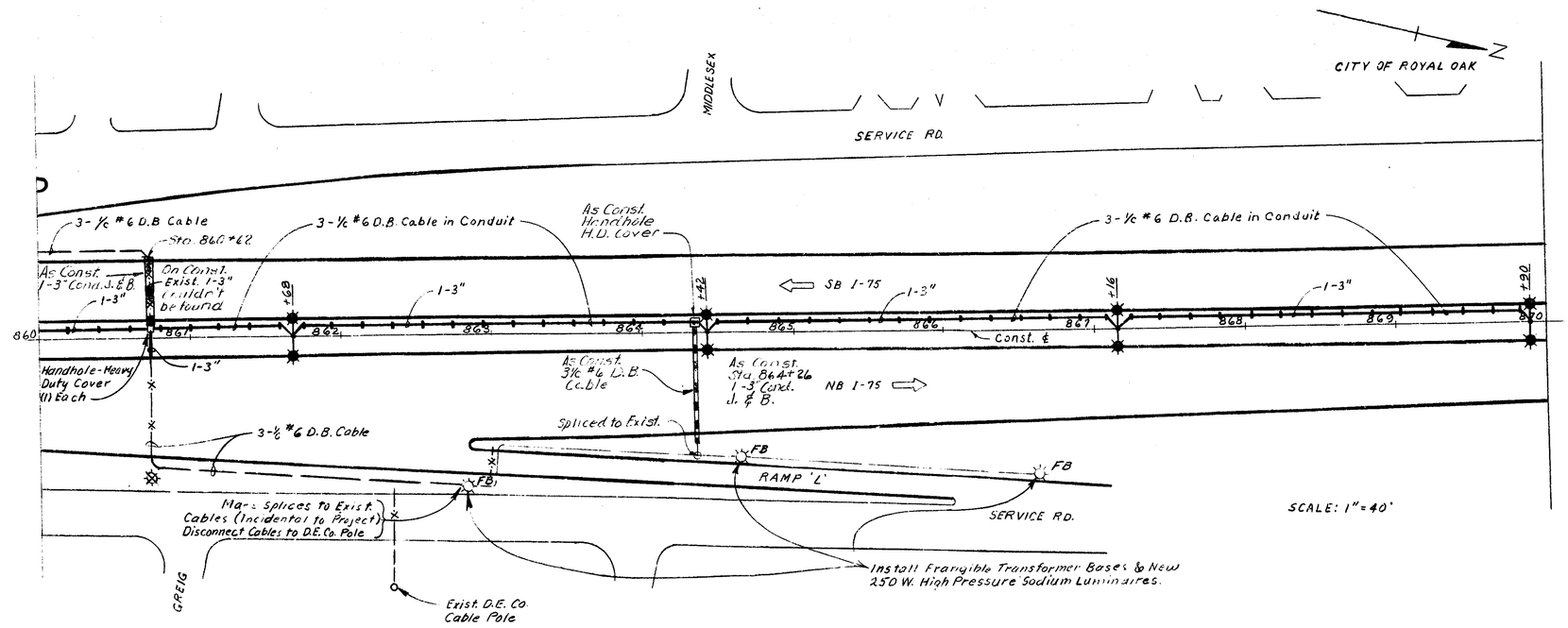
REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	F. Jildeh 1973
DRAWN BY	K.B. 10-21-74
TRACED BY	C. Potter 5-30-73
CHECKED BY	C.B. & T.J. 10-22-74
SHEET	18 OF

JOB NO. 63174 08517A





QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
Lighting Control Panel	Each	1
600V., 3-½ No. 4 Direct Burial Cable in Conduit	L.Ft.	160
1-2" Galv. Steel Conduit Riser	L.Ft.	14
1-3" Galv. Steel Conduit	L.Ft.	175
1-3" Galv. Steel Conduit, Jacking-Boring	L.Ft.	125
1-3" Direct Burial Conduit (Special)	L.Ft.	2000
Handhole - Heavy Duty Cover	Each	2
600V. 3-½ No. 6 D.B. Cable in Conduit	L.Ft.	2170
600V. Two 3-½ No. 6 D.B. Cable in Conduit	L.Ft.	80
600V. 2-½ No. 6 D.B. Cable in Earth	L.Ft.	220
600V. 2-½ No. 6 D.B. Cable in Conduit	L.Ft.	20
600V. 3-½ No. 6 D.B. Cable in Earth	L.Ft.	315
Lt. Std., 35 Ft. M.H., 12 Ft. Dbl. Arm, New Fdn.	Each	8
Lt Std., 30 Ft. M.H., 12 Ft. Arm, Frng. Trnsf. Base & Fdn.	Each	2
250 W. High Pressure Sodium Luminaire	Each	5
400 W. High Pressure Sodium Luminaire	Each	16
Double Beam Guard Rail, Special-Type I	L.Ft.	1675
Install Frng. Trnsf. Base on Existing Ltg. Unit	Each	3
Dbl. Beam Guard Rail Special-Type II	L.Ft.	312.5
Remove Lt. Std. Foundation	Each	1

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
FREEWAY LIGHTING
I-75 FROM I-696 FREEWAY TO 12 MILE RD.
CITY OF ROYAL OAK

REVISIONS

NO.	DESCRIPTION	DATE	BY

BOARD BOSS	T. Jilek	1973
DRAWN BY	K.P.	10-21-74
TRACED BY	C. Potter	5-31-75
CHECKED BY	EE, GTJ	10-22-74
SHEET 19 OF		

JOB NO. 63174 08517A

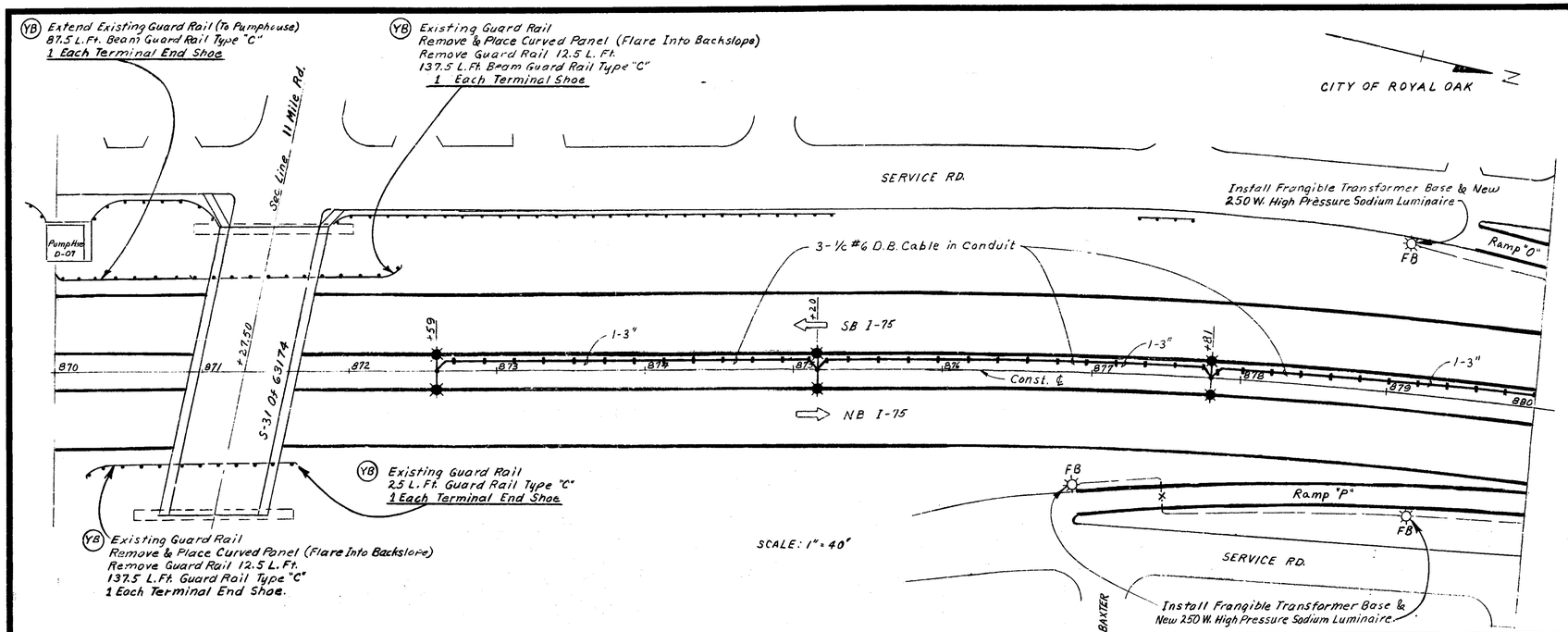
FHWA FORM 9-72 SHEET-

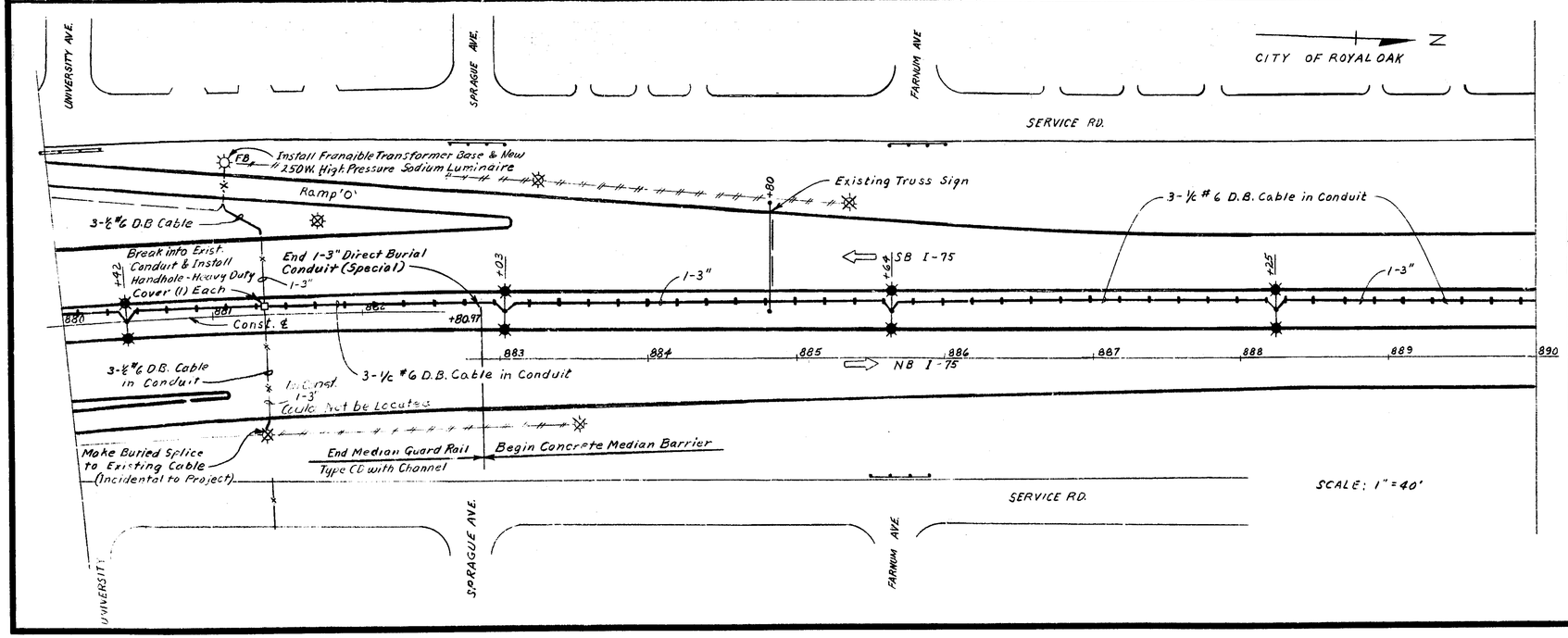
(YB) Extend Existing Guard Rail (To Pumphouse)
87.5 L.Ft. Beam Guard Rail Type "C"
1 Each Terminal End Shoe

(YB) Existing Guard Rail
Remove & Place Curved Panel (Flare Into Backslope)
Remove Guard Rail 12.5 L. Ft.
137.5 L.Ft. Beam Guard Rail Type "C"
1 Each Terminal Shoe

(YB) Existing Guard Rail
Remove & Place Curved Panel (Flare Into Backslope)
Remove Guard Rail 12.5 L.Ft.
137.5 L.Ft. Guard Rail Type "C"
1 Each Terminal End Shoe.

(YB) Existing Guard Rail
2.5 L.Ft. Guard Rail Type "C"
1 Each Terminal End Shoe.





(YB) QUANTITIES CITY OF ROYAL OAK

387.5 Lin. Ft. Beam Guard Rail Type "C"
25. Lin. Ft. Remove Beam Guard Rail
4 Each Terminal End Shoe.

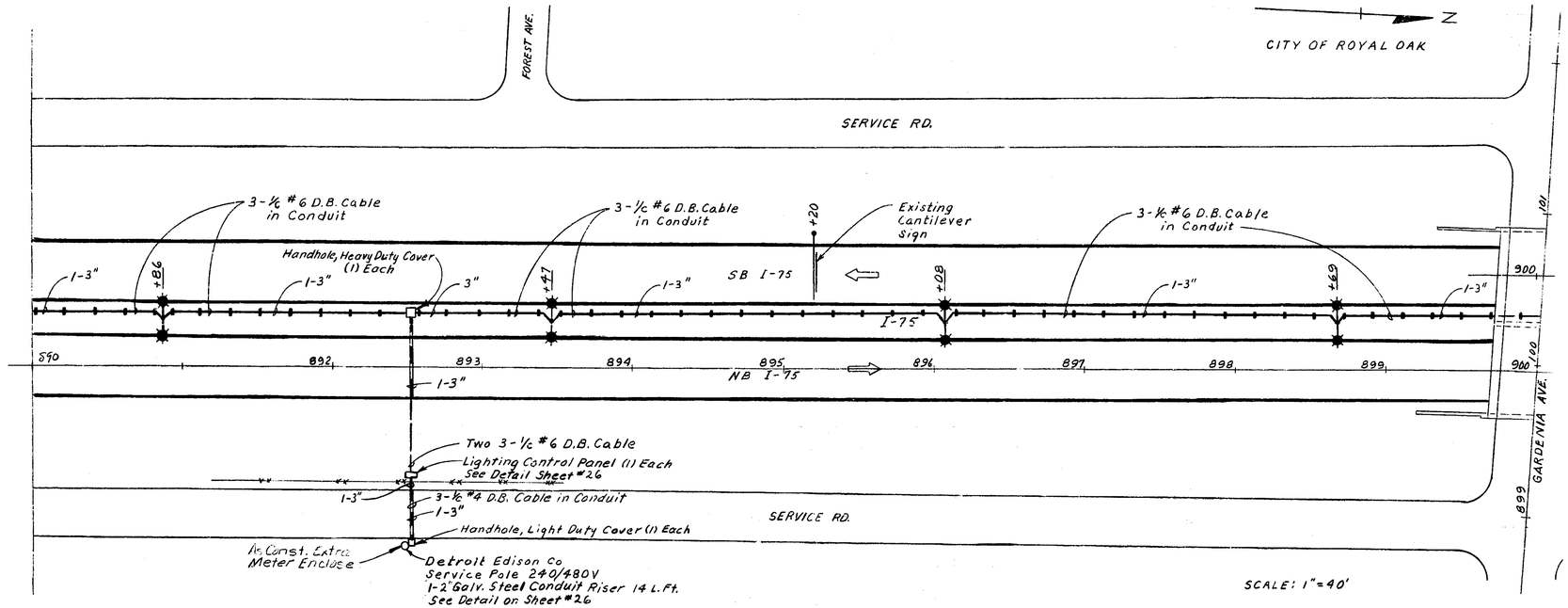
QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
Remove Lt. Std. Foundation	Each	5
Handhole - Heavy Duty Cover	Each	1
600 V, 3-#6 No. 6 D.B. Cable in Earth	L.Ft.	35
1-3" Direct Burial Conduit (Special)	L. Ft.	1022
600 V. 3-1/c No. 6 D.B. Cable in Conduit	L.Ft.	1896
Lt. Std., 45 Ft. M.H., 12 Ft. Dbl. Arm, New Fdn.	Each	4
Lt. Std., 45 Ft. M.H., 12 Ft. Dbl. Arm - Med. Wall	Each	3
400 W. High Pressure Sodium Luminaire	Each	14
Double Beam Guard Rail Special Type II	L.Ft.	250
250 W. High Pressure Sodium Luminaire	Each	4
Install Frng. Trnsf. Base In Existing Ltg. Unit.	Each	4
1-3" Direct Burial Conduit	L.Ft.	719

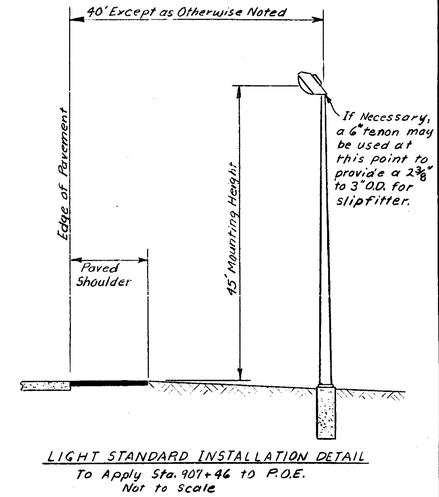
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
FREEWAY LIGHTING
I-75 FROM I-696 FREEWAY TO 12 MILE RD.
CITY OF ROYAL OAK

REVISIONS			
NO.	DESCRIPTION	DATE	BY

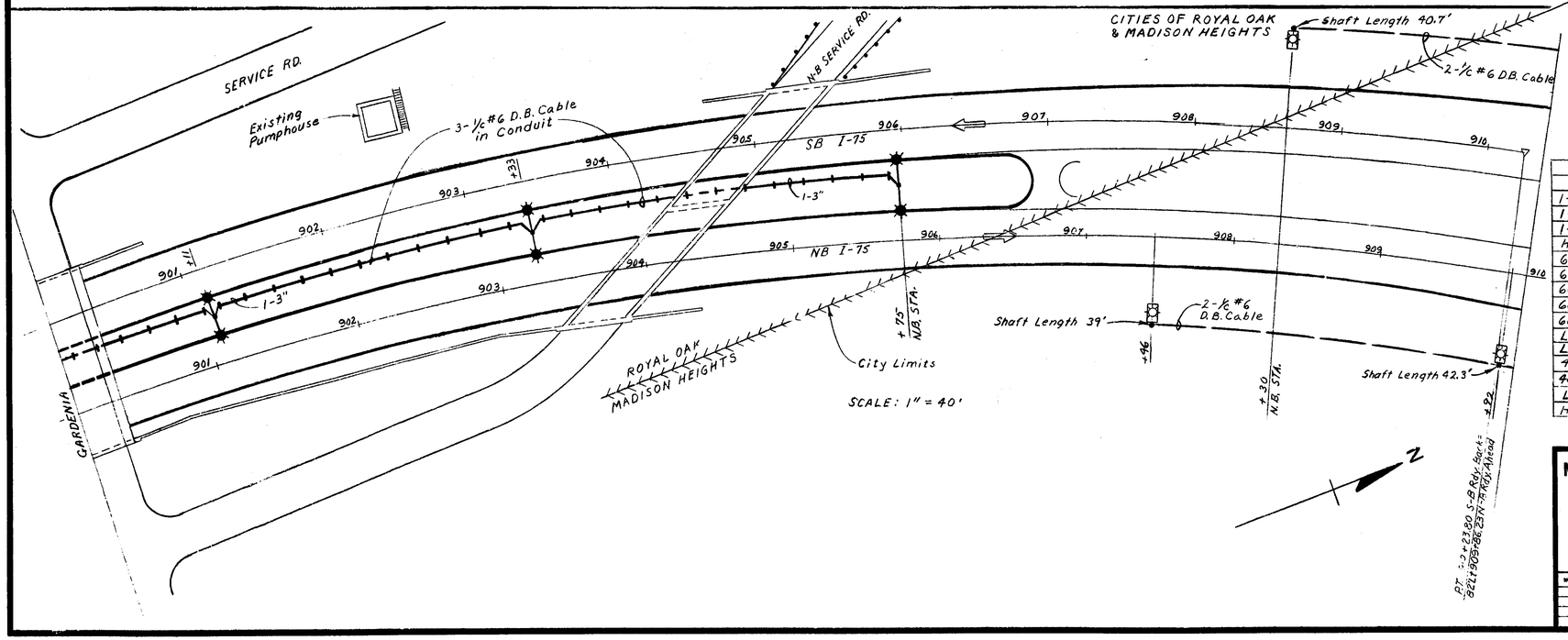
SIGNED BOSS	T. Wilden	1973
DRAWN BY	K.B.	10-21-74
TRACED BY	C. Potter	6-5-73
CHECKED BY	C.G.T.T.	10-22-74

SHEET 20 OF
JOB NO. 63174 08517A





LIGHT STANDARD INSTALLATION DETAIL
To Apply Sta. 907+46 to P.O.E.
Not to scale



NOTE:
The 400 W. High Pressure Sodium Luminaire-Special shall be Interstate Type Luminaire Manufactured by Ames Electric. ITT Catalog No. 185-6646 or Holophane Expressway Luminaire, Catalog No. 1230-480-O. The Unit Shall be Furnished With Lamp.

QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
1-2" Galv. Steel Conduit Riser	L. Ft.	14
1-3" Galv. Steel Conduit, Jacking-Boring	L. Ft.	90
1-3" Direct Burial Conduit	L.Ft.	1575
Handhole - Heavy Duty Cover	Each	1
600 V., 3-1/c No. 6 D.B. Cable in Conduit	L.Ft.	1575
600 V., Two 3-1/c No. 6 D.B. Cable in Conduit	L. Ft.	90
600V., 2-1/c No 6 D.B. Cable in Earth	L.Ft.	430
600V., 3-1/c No. 4 D.B. Cable in Conduit	L.Ft.	50
600V. Two 3-1/c No. 6 D.B. Cable In Earth	L.Ft.	60
Lt. Std., 45 Ft. M.H., & Foundation	Each	3
Lt. Std., 45 Ft. M.H., 12 Ft. Dbl. Arm - Med. Wall	Each	7
400 W. High Pressure Sodium Luminaire	Each	14
400 W. High Pressure Sodium Luminaire - Special	Each	3
Lighting Control Panel	Each	1
Handhole, Light Duty Cover	Each	1

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
FREEWAY LIGHTING
I-75 FROM I-396 FREEWAY TO 12 MILE RD.
CITIES OF ROYAL OAK & MADISON HEIGHTS

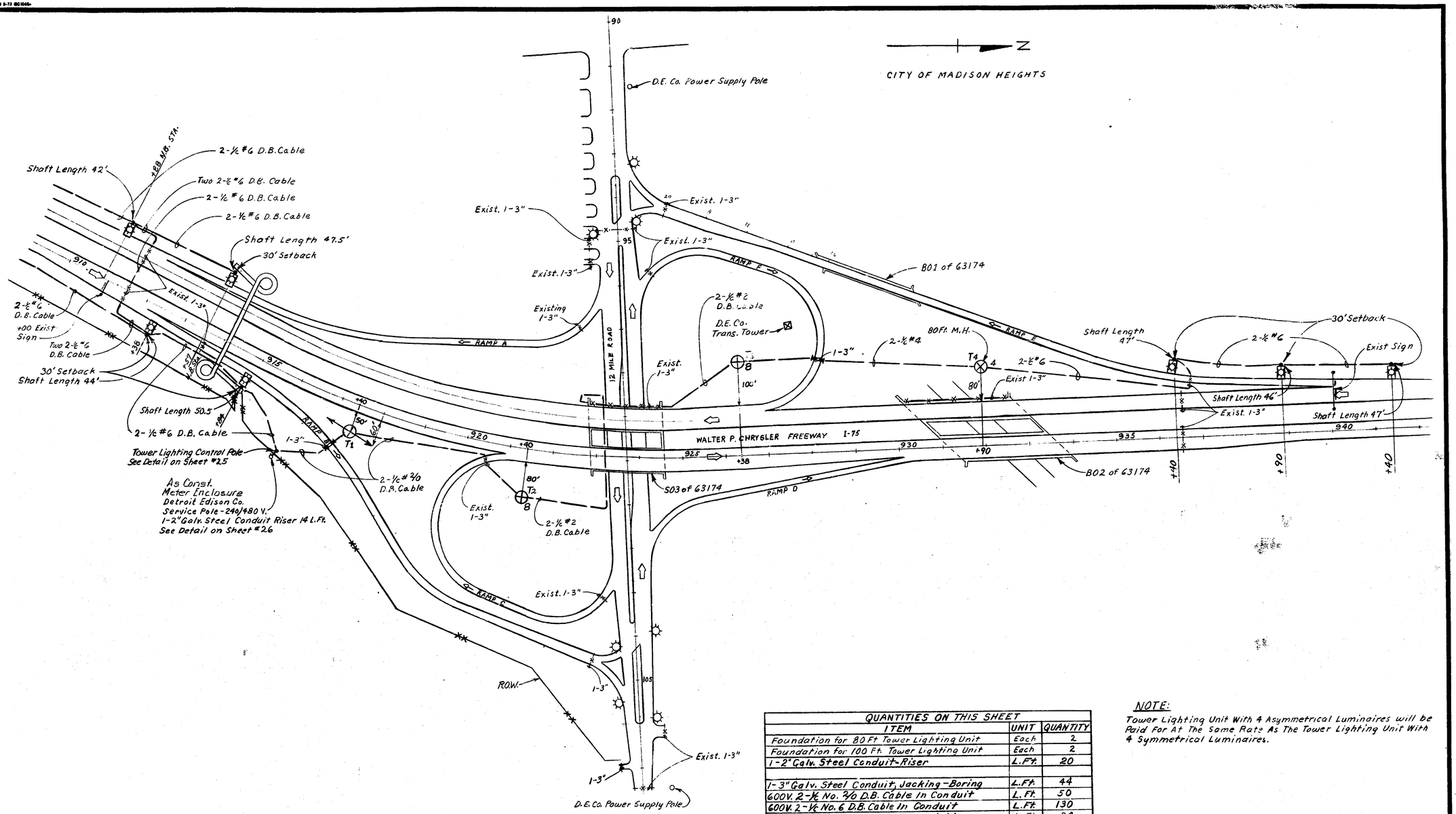
REVISIONS

NO.	DESCRIPTION	DATE	BY

ROAD BOSS	T.J. Idch	1971
DRAWN BY	K.B.	10-2-74
TRACED BY	C. Fetter	10-6-74
CHECKED BY	C.F. T.J.	10-25-74

SHEET 21 OF

JOB NO. 63174 08517A



SCALE 1" = 100'

QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
Foundation for 80 Ft Tower Lighting Unit	Each	2
Foundation for 100 Ft. Tower Lighting Unit	Each	2
1-2" Galv. Steel Conduit-Riser	L.Ft.	20
1-3" Galv. Steel Conduit, Jacking-Boring	L.Ft.	44
600V. 2-½ No. 3/0 D.B. Cable In Conduit	L.Ft.	50
600V. 2-½ No. 6 D.B. Cable In Conduit	L.Ft.	130
600V. 2-½ No. 4 D.B. Cable In Conduit	L.Ft.	24
600V. 2-½ No. 2 D.B. Cable In Conduit	L.Ft.	180
600V. Two 2-½ No. 6 D.B. Cable In Earth	L.Ft.	160
600V. 2-½ No. 6 D.B. Cable in Earth	L.Ft.	2030
600V. 2-½ No. 4 D.B. Cable in Earth	L.Ft.	540
600V. 2-½ No. 2 D.B. Cable in Earth	L.Ft.	820
600V. 2-½ No. 2/0 D.B. Cable in Earth	L.Ft.	600
Lt. Std., 45 Ft. M.H. & Foundation	Each	7
Tower Lighting Unit, 100 Ft., 8 Luminaire	Each	2
Tower Lighting Unit, 80 Ft., 4 Luminaire	Each	2
400W. High Pressure Sodium Luminaire (Special)	Each	7
Tower Lighting Control Pole	Each	1

NOTE:
Tower Lighting Unit With 4 Asymmetrical Luminaires will be Paid For At The Same Rate As The Tower Lighting Unit With 4 Symmetrical Luminaires.

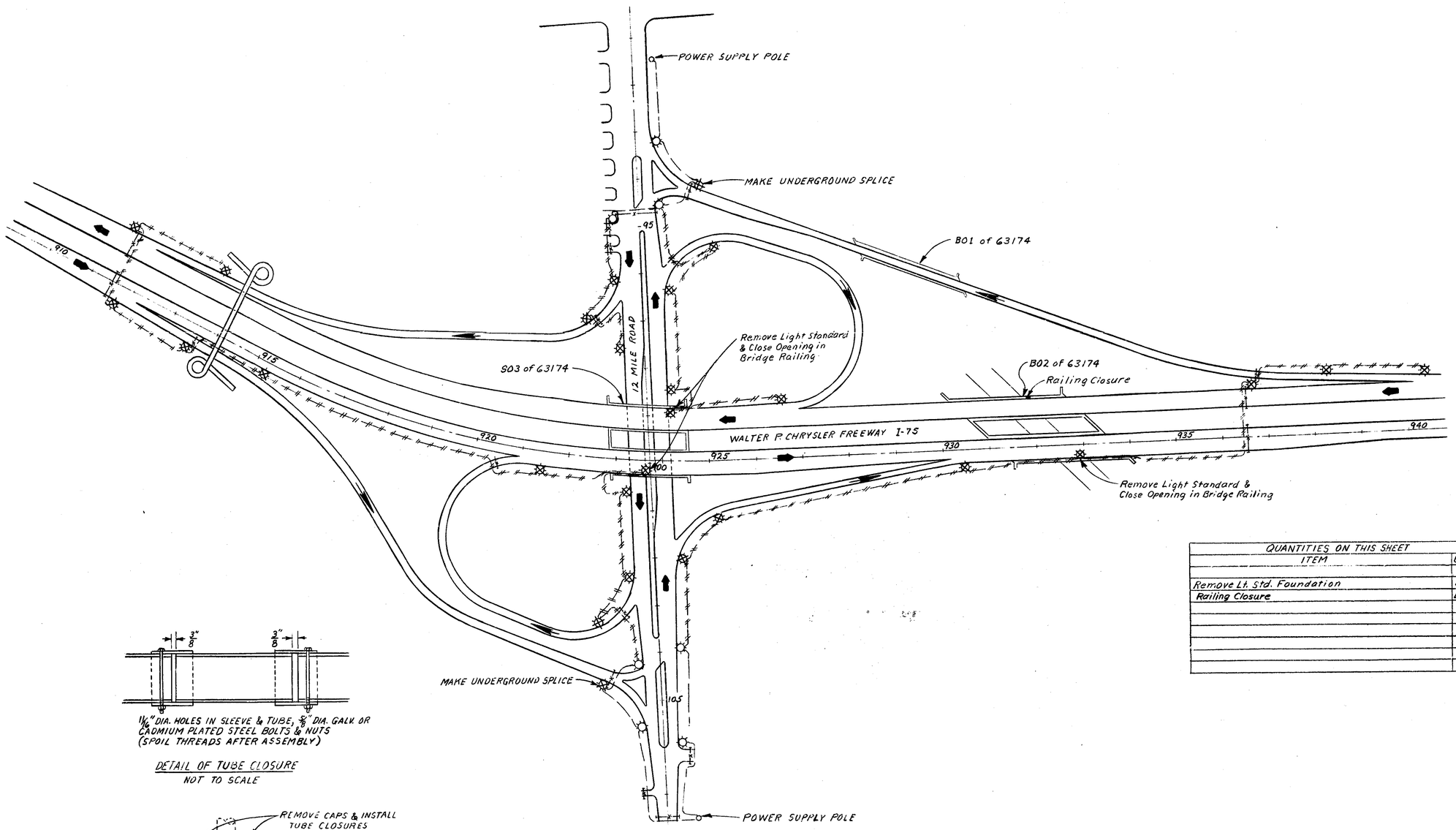
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
FREEWAY LIGHTING
I-75 FROM I-696 FREEWAY TO 12 MILE RD.
CITY OF MADISON HEIGHTS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD DESIGN	T. Jilden	1974
DRAWN BY	K.P.	10-21-74
TRACED BY	C. Potter	5-31-74
CHECKED BY	C.L. S[illegible]	10-23-74

SHEET 2.2 OF

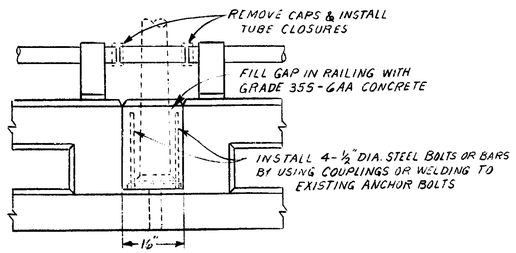
JOB NO. 63174 08517A



SCALE: 1" = 100'

1 1/16" DIA. HOLES IN SLEEVE & TUBE, 5/8" DIA. GALV. OR CADMIUM PLATED STEEL BOLTS & NUTS (SPOIL THREADS AFTER ASSEMBLY)

DETAIL OF TUBE CLOSURE
NOT TO SCALE



RAILING CLOSURE TYPE I DETAILS
NOT TO SCALE

QUANTITIES ON THIS SHEET

ITEM	UNIT	QUANTITY
Remove Lt. Std. Foundation	Each	24
Railing Closure	Each	4

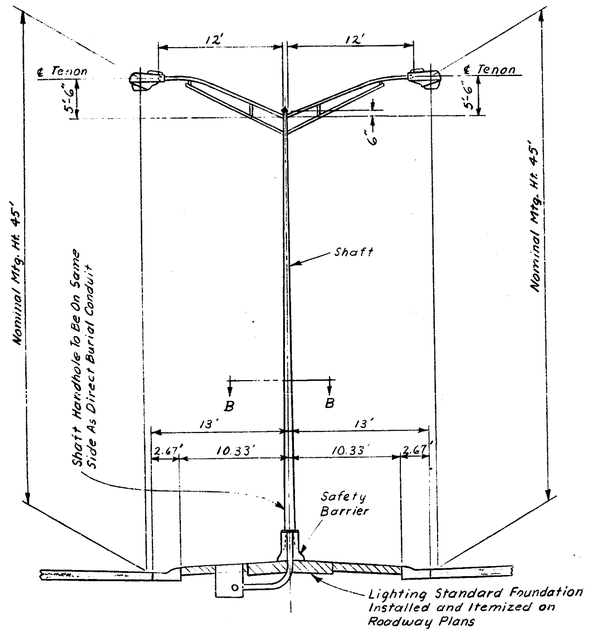
REMOVAL SHEET

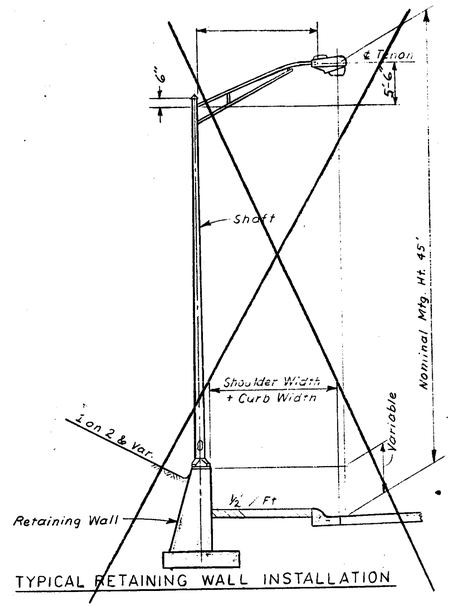
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
FREEWAY LIGHTING REMOVAL
I-75 FROM I-696 FREEWAY TO 12 MILE RD.
CITY OF MADISON HEIGHTS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

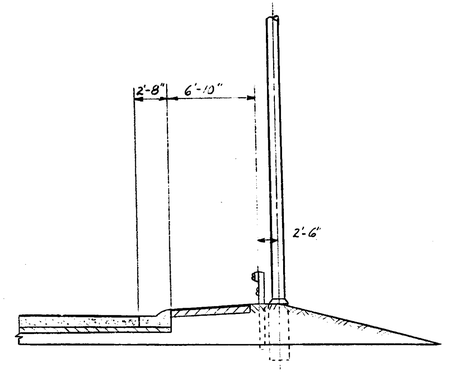
SQUAD BOSS	T.J.Ideh	1974
DRAWN BY	K.G.	10-21-74
TRACED BY	D.W.	10-23-74
CHECKED BY	K.G. & T.J.	10-23-74
SHEET 23 OF		

63174 | 08517A

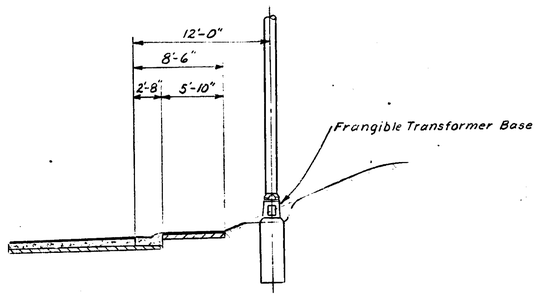




TYPICAL RETAINING WALL INSTALLATION

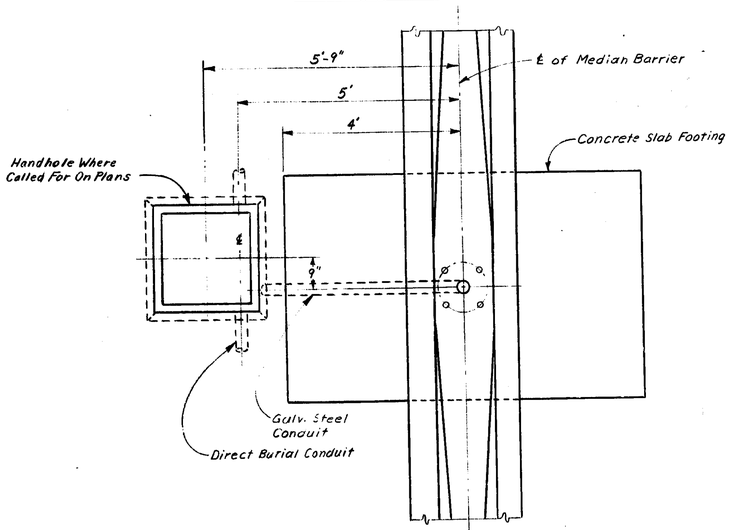


TYPICAL RAMP IN FILL



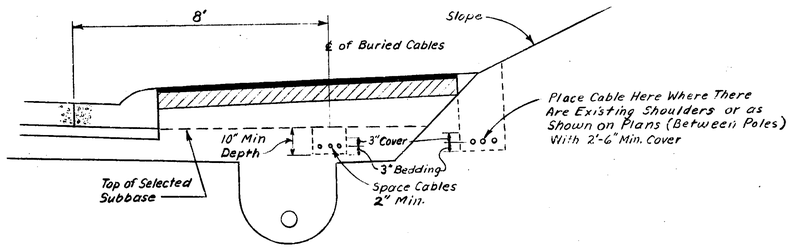
TYPICAL RAMP IN CUT

TYPICAL BARRIER SECTION INSTALLATION



SECTION B-B

To Apply From Sta. 882+80.97 To 903+33



LOCATION OF DIRECT BURIAL CABLES

NOT TO SCALE

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
TYPICAL FREEWAY LIGHTING STANDARD INSTALLATION

ROAD DESIGN	T. Jildeh	1973
DESIGN BY		
TRACED BY		11-12-73
CHECKED BY	T. Jildeh	11-15-73
SHEET	24	OF

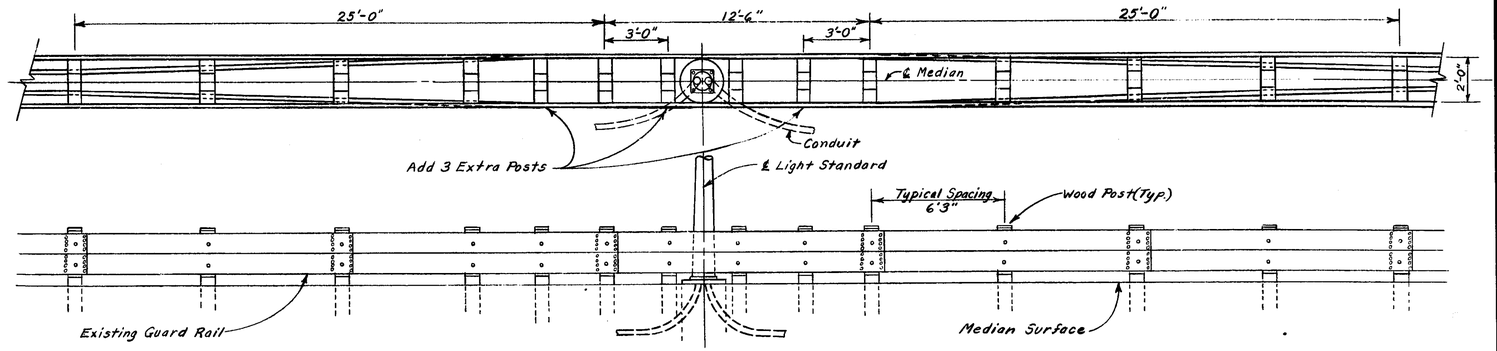
CONTROL SECTION 63174

JOB NO. 08517 A

* Chain Reduction Gear Type Lowering Device Will be Accepted in Lieu of Cable Drum Type Hoist.

NOTE:
The Following Features Shall Be Used & Incorporated In The Design Of The Lowering Device:
1. Swivel Between The Three Cables & The Single Drum Cable And/Or
2. Guide Cable.

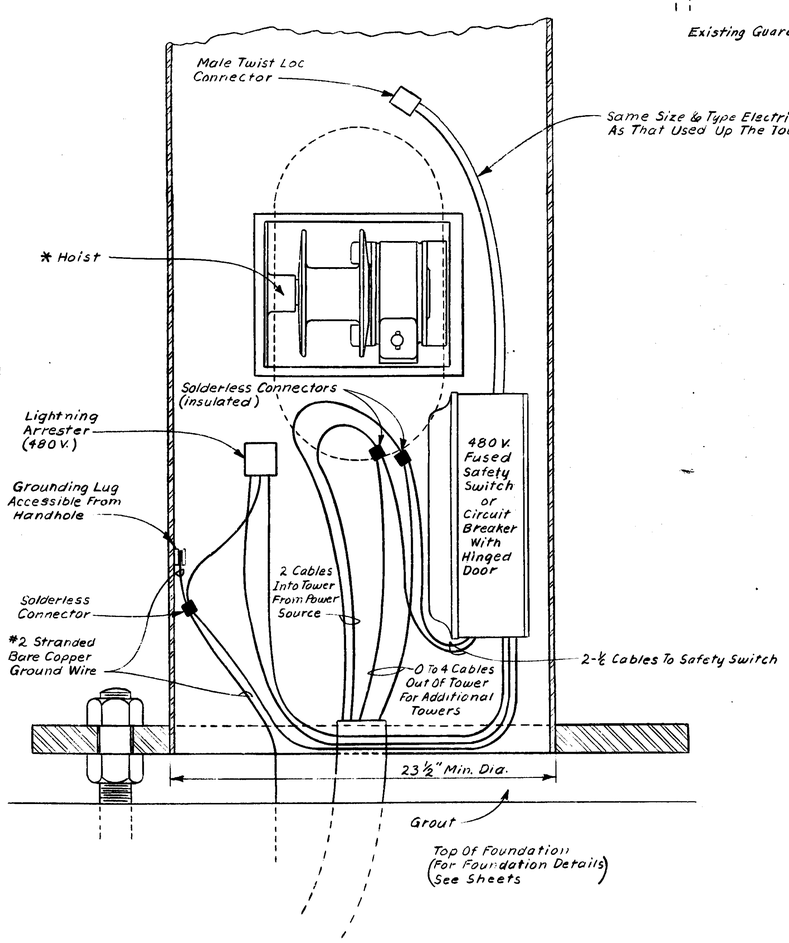
Minor Variations Will Be Adjusted, Subject To Approval Of The Design Section.



DETAIL OF "DOUBLE BEAM GUARD RAIL TYPE II"

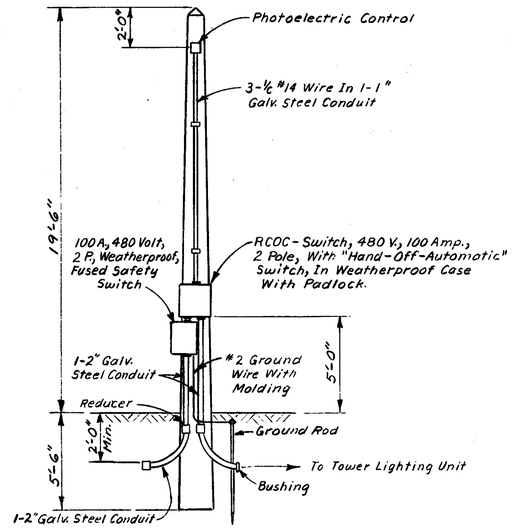
To Apply at Light Standards, Station 834+94.7 to 857+00.
(Beam Guard Rail, Hardware, Wood Blocks, and Related Material Shall be in Accordance to Standard Plan III-64B)

(Not to Scale)



DETAIL OF CONNECTIONS INSIDE TOWER

Not to Scale



TOWER LIGHTING CONTROL POLE

Not to Scale

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
ELECTRICAL DETAILS

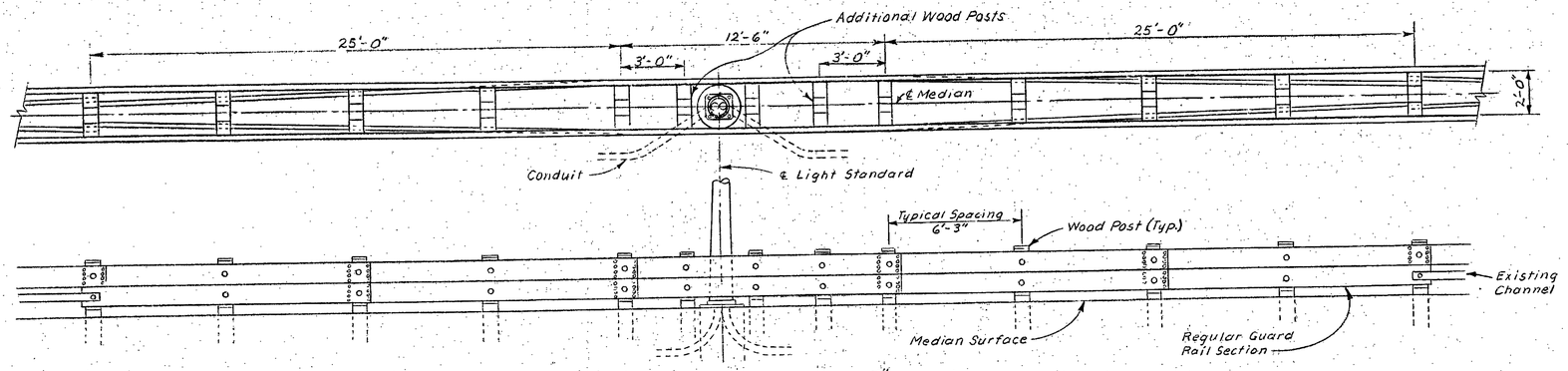
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	T. Jirdeh	1974
DRAWN BY		
TRACED BY	D.W.	6-13-74
CHECKED BY		

SHEET 23 OF

JOB NO. 63174 08517A

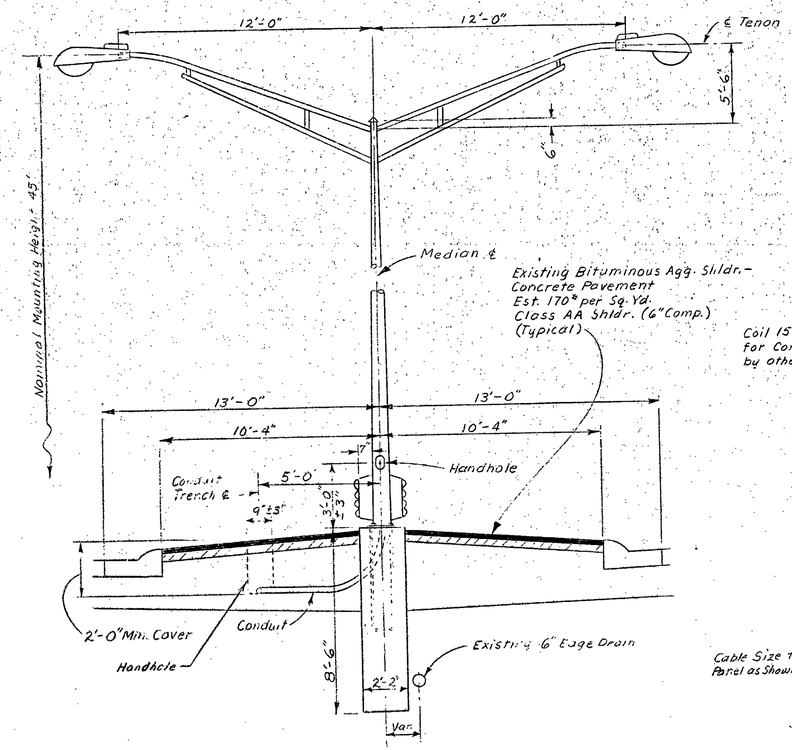
Kad 19 (253 8-73 MC1045)



DETAIL OF "DOUBLE BEAM GUARD RAIL SPECIAL TYPE I"

To Apply at Light Standards, Station 857+00 to Station 882+80.97
(Beam Guard Rail, Hardware, Wood Blocks, and Related Material Shall be in Accordance to Standard Plan III-64B

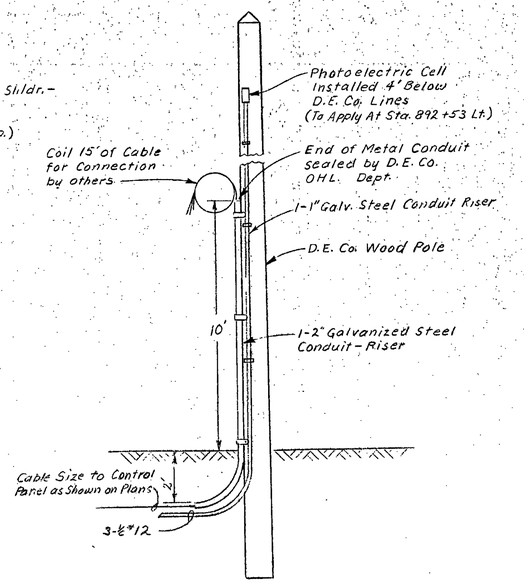
(Not to Scale)



TYPICAL MEDIAN INSTALLATION

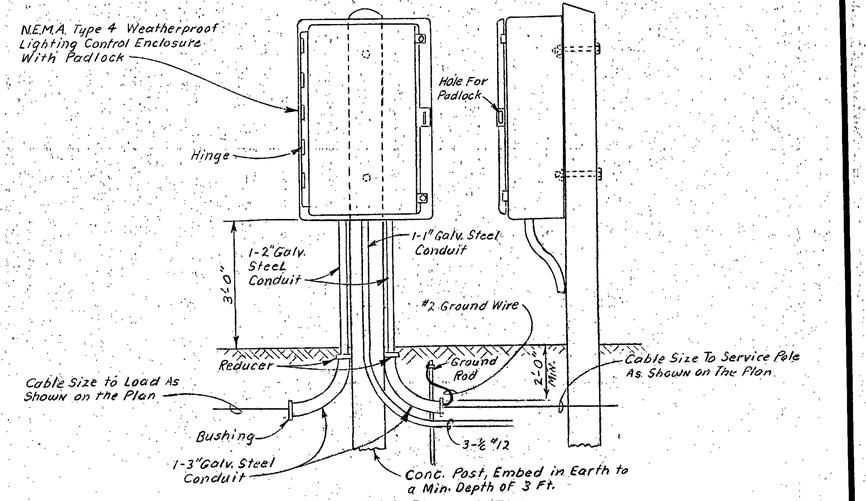
(Not to Scale)

To Apply: Sta. 834+94.7 To 882+80.97



DETAIL OF CONDUIT AND CABLE INSTALLATION ON D.E. CO. SERVICE POLE

(Not to Scale)



LIGHTING CONTROL PANEL DETAIL

(Not to Scale)

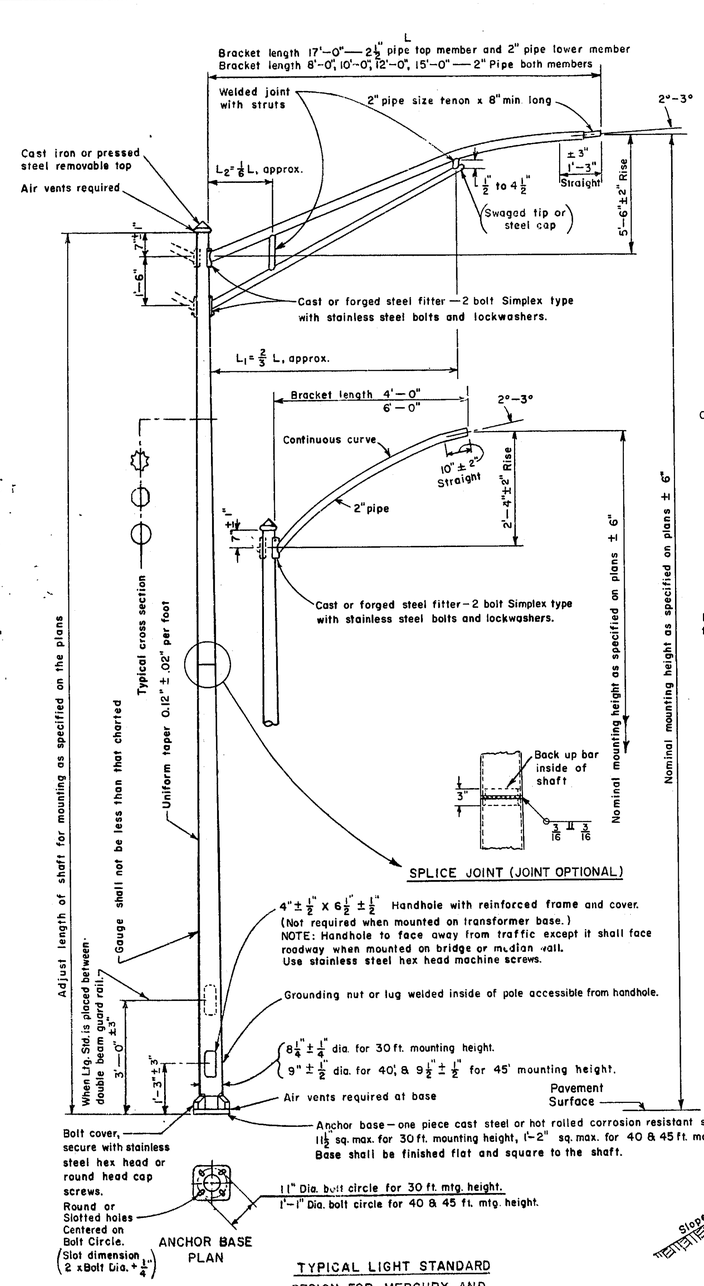
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
ELECTRICAL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

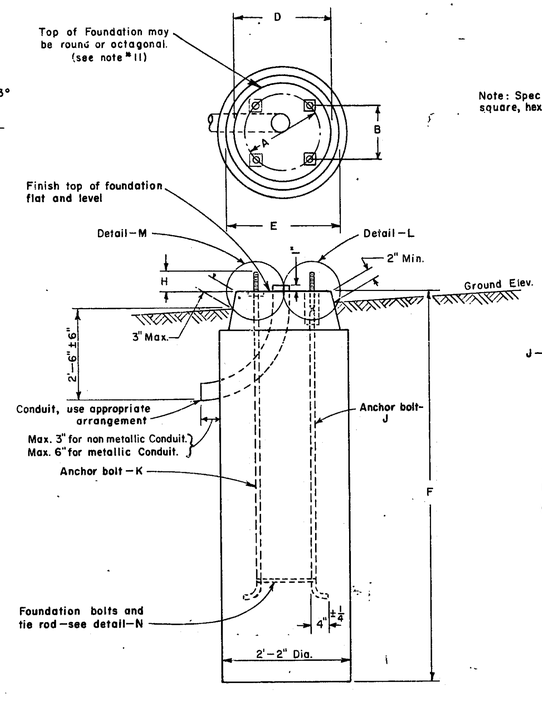
BOARD BOSS	T.J.L./D.C.H.	1-7-74
DRAWN BY	K.B.	10-23-73
TRACED BY	D.W.	6-14-74
CHECKED BY	C.E.L.J.	10-25-74
SHEET 26 OF		

63174 | JOB NO. 08517 A

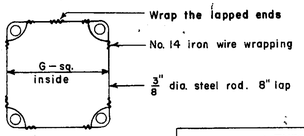
Revised 6-26-68 (Anchor Bolt Plan changed to Anchor Base Plan)
Revised 1-8-68 (B.C. for 40 & 45' M.H. & Horn T.B. for 30' M.H.)
Revised 7-17-68 (B.C. & Four Hole Pattern)
Revised 12-A-67
Revised 7-25-67 (Added Anchor Base Thickness Chart)
Revised 6-1-67 (Rods at Foundation Deleted)
Revised 7-17-68 (B.C. & Four Hole Pattern) (7) Rev. 4-25-69 Deleted Fluorescent Bkt. Arm Design



TYPICAL LIGHT STANDARD DESIGN FOR MERCURY AND INCANDESCENT LUMINAIRES

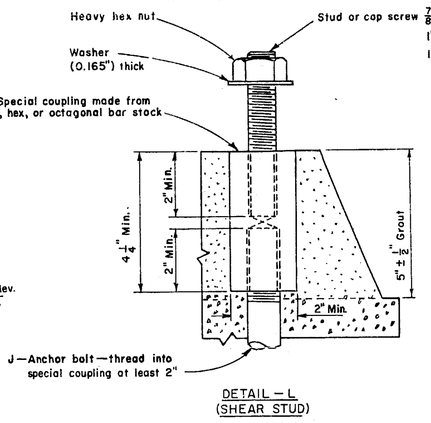


TYPICAL LIGHT STANDARD FOUNDATION WITH OR WITHOUT SHEAR STUDS
(FOUNDATION INCIDENTAL TO LIGHT STANDARD)

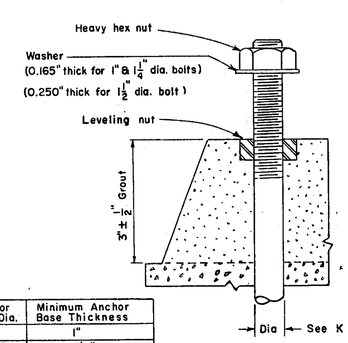


DETAIL—N

ANCHOR BOLTS & TIE ROD



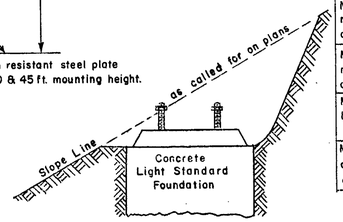
DETAIL—L (SHEAR STUD)



DETAIL—M

Anchor Bolt Dia.	Minimum Anchor Base Thickness
1"	1"
1¼"	1⅛"
1½"	1⅜"

ANCHOR BASE THICKNESS CHART



FOUNDATION DETAIL
(ON FILL OR CUT SLOPE)

TYPE	A	B	D	E	F	G	H	Ga. (min.)	J	K
Mercury vapor or incandescent transformer base for 30 ft. mounting height.	11"	7 3/16"	1'-7"	1'-9"	6'-0"	8 3/16"	2 5/16"	see note 6		see note 7
Mercury vapor anchor base for 30 ft. mounting height and 4 or 6 ft. single or double bracket arm.	11"	7¾"	1'-7"	1'-9"	5'-0"	8 3/16"	2 5/16"	11	1"ϕ x 3'-4"	1"ϕ x 3'-9"
Mercury vapor anchor base for 30 ft. mounting height and 8, 10, 12 ft. single or double bracket arm.	11"	7¾"	1'-7"	1'-9"	6'-0"	8 3/16"	2 5/16"	11	1"ϕ x 5'-0"	1"ϕ x 5'-0"
Mercury vapor anchor base for 30 ft. mounting height and 17 ft. single or double bracket arm.	11"	7¾"	1'-7"	1'-9"	6'-0"	9"	3"	7		1¼"ϕ x 5'-0"
Mercury vapor anchor base ft. 30 ft. mounting height and 15 ft. single or double bracket arm.	11"	7¾"	1'-7"	1'-9"	6'-0"	8 3/16"	2 5/16"	7	1"ϕ x 5'-0"	1"ϕ x 5'-0"
Mercury vapor or incandescent transformer base for 40 & 45 ft. mounting height.	1'-5¼"	1'-0 3/16"	2'-0"	2'-2"	8'-6"	1'-1 11/16"	3½"	see note 6		see note 7
Mercury vapor anchor base for 40 & 45 ft. and 4, 6, 8, 10, 12, 15, 17 ft. single or double bracket arm.	1'-1"	9¼"	2'-0"	2'-2"	8'-6"	10 3/16"	3½"	11 Ga. up to 15' Brkt. Arm 7 Ga. for 17' Brkt. Arm		1½"ϕ x 5'-0"

NOTES:

1. All materials and workmanship shall be in accordance with the current Michigan Department of State Highways Supplemental Specifications For Electrical Construction.
2. Use detail "M" anchor bolts unless shear studs are specified in the plans. Anchor bolt length "J" or "K" is length before bending. Final Standard adjustment shall be leveled by use of galvanized sheet steel shims if required.
3. Supply bracket arm fitters for each arm used only.
4. Supply ⅛" elastomeric fabric bound pad for mounting between street light standard base and foundation on bridge mounted units only (incidental).
5. Cast steel or hot rolled plate anchor bases shall have a thickness as shown in Chart below.
6. Standards mounted on transformer bases shall have the same dimensions as anchor base types, except shaft length.
7. Use the same anchor bolts for transformer base as for corresponding anchor base types.
8. For grounding Light Standards see Light Standard Grounding Details sheet.
9. Bolt Circle dimension "A" for Anchor Bolts must be exact. Anchor Bolts are to be set to a template.
10. Non metallic Conduit for Foundation shall be asbestos cement, plastic, or bituminized fiber. Metallic Conduit shall be rigid galvanized steel. In lieu of Conduit, a raceway formed by a Murray Hose is acceptable. Conduit of whatever material, if used, is incidental to the Light Standard.
11. If octagonal Foundation top is used, top of Foundation must extend 1" min. outside of Light Standard Base.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
ELECTRICAL DETAILS
STEEL LIGHT STANDARDS
FOR 30, 40, & 45 FT. MOUNTING HEIGHTS

E-3
APPR. [illegible]
DATE 6-24-68

SQUAD BOSS	T. Jilden	1967
DRAWN BY		
TRACED BY	D. Wiegert	7-11-67
CHECKED BY	H.E.?	8-11-67

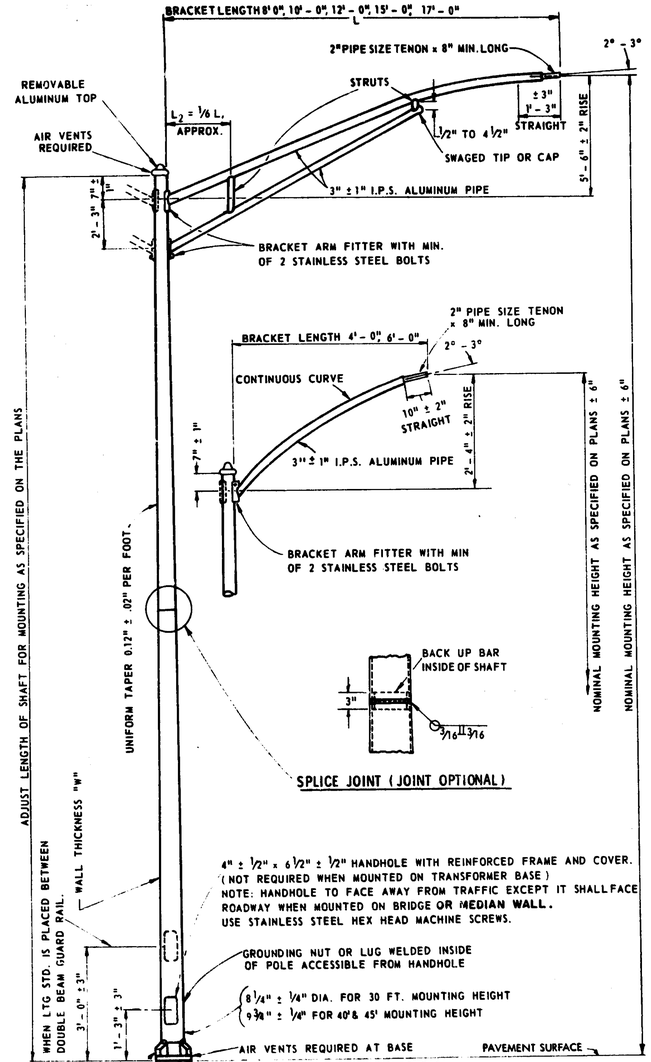
SHEET 27 OF

63174

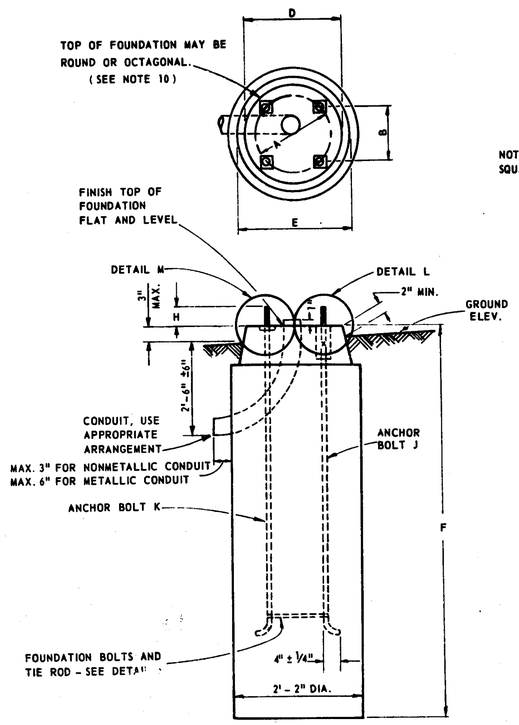
JOB NO. 08517A

REVISIONS

NO	DESCRIPTION	DATE	BY

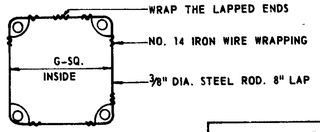


TYPICAL LIGHT STANDARD DESIGN FOR MERCURY AND INCANDESCENT LUMINAIRES



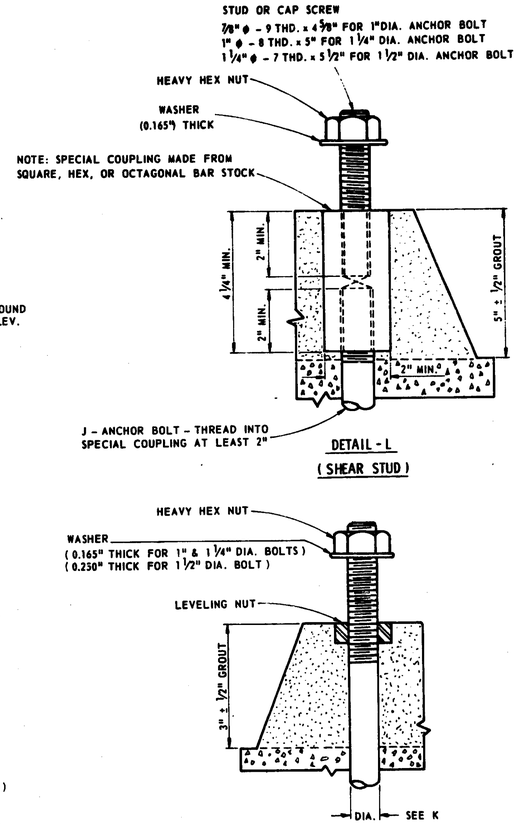
TYPICAL LIGHT STANDARD FOUNDATION WITH OR WITHOUT SHEAR STUDS

(FOUNDATION INCIDENTAL TO LIGHT STANDARD)



DETAIL - N

ANCHOR BOLTS & TIE RODS



DETAIL - L

(SHEAR STUD)

DETAIL - M

TYPE	A	B	D	E	F	G	H	W. (min.)	J	K
MERCURY VAPOR OR INCANDESCENT TRANSFORMER BASE FOR 30 FT. MOUNTING HEIGHT.	11"	7 3/4"	1' - 7"	1' - 9"	6' - 0"	8 3/4"	2 5/8"	SEE NOTE 5		SEE NOTE 6
MERCURY VAPOR ANCHOR BASE FOR 30 FT. MOUNTING HEIGHT AND 4 OR 6 FT. SINGLE OR DOUBLE BRACKET ARM.	11"	7 3/4"	1' - 7"	1' - 9"	5' - 0"	8 3/4"	2 5/8"	.188"	1" ϕ x 3' - 4"	1" ϕ x 3' - 9"
MERCURY VAPOR ANCHOR BASE FOR 30 FT. MOUNTING HEIGHT AND 8, 10, 12, 15 FT. SINGLE OR DOUBLE BRACKET ARM.	11"	7 3/4"	1' - 7"	1' - 9"	6' - 0"	8 3/4"	2 5/8"	.188" SGL. BKT. ARM .219" DBL. BKT. ARM	1" ϕ x 5' - 0"	1" ϕ x 5' - 0"
MERCURY VAPOR ANCHOR BASE FOR 30 FT. MOUNTING HEIGHT AND 17 FT. SINGLE OR DOUBLE BRACKET ARM.	11"	7 3/4"	1' - 7"	1' - 9"	6' - 0"	9"	3"	.188" SGL. BKT. ARM .219" DBL. BKT. ARM		1 1/4" ϕ x 5' - 0"
MERCURY VAPOR OR INCANDESCENT TRANSFORMER BASE FOR 40 & 45 FT. MOUNTING HEIGHT.	1' - 5 3/8"	1' - 0 3/16"	2' - 0"	2' - 2"	8' - 6"	1' - 1 13/16"	3 1/2"	SEE NOTE 5		SEE NOTE 6
MERCURY VAPOR ANCHOR BASE FOR 40 FT. MOUNTING HEIGHT AND 4, 6, 8, 10, 12, 15, 17 FT. SINGLE OR DOUBLE BRACKET ARM.	1' - 1"	9 1/4"	2' - 0"	2' - 2"	8' - 6"	10 3/4"	3 1/2"	.188" SGL. BKT. ARM .219 DBL. BKT. ARM		1 1/2" ϕ x 5' - 0"
MERCURY VAPOR ANCHOR BASE FOR 45 FT. MOUNTING HEIGHT AND 4, 6, 8, 10, 12, 15, 17 FT. SINGLE OR DOUBLE BRACKET ARM.	1' - 1"	9 1/4"	2' - 0"	2' - 2"	8' - 6"	10 3/4"	3 1/2"	.219" LOWER SECTION .188" UPPER SECTION		1 1/2" ϕ x 5' - 0"

NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT MICHIGAN DEPARTMENT OF STATE HIGHWAYS SPECIFICATIONS FOR ELECTRICAL CONSTRUCTION.
2. USE DETAIL "M" ANCHOR BOLTS UNLESS SHEAR STUDS ARE SPECIFIED IN THE PLANS. ANCHOR BOLT LENGTH "J" OR "K" IS LENGTH BEFORE BENDING. FINAL STANDARD ADJUSTMENT SHALL BE LEVELED BY USE OF GALVANIZED SHEET STEEL SHIMS IF REQUIRED.
3. SUPPLY BRACKET ARM FITTERS FOR EACH ARM USED ONLY.
4. PLACE 1/8" ELASTOMERIC FABRIC BOUND PAD FOR MOUNTING ONLY BETWEEN STREET LIGHT STANDARD BASE AND FOUNDATION.
5. STANDARDS MOUNTED ON TRANSFORMER BASES SHALL HAVE THE SAME DIMENSIONS AS ANCHOR BASE TYPES, EXCEPT SHAFT LENGTH.
6. USE THE SAME ANCHOR BOLTS FOR TRANSFORMER BASE AS FOR CORRESPONDING ANCHOR BASE TYPES.
7. FOR GROUNDING LIGHT STANDARDS SEE LIGHT STANDARD GROUNDING DETAILS SHEET.
8. BOLT CIRCLE DIMENSION "A" FOR ANCHOR BOLTS MUST BE EXACT. ANCHOR BOLTS ARE TO BE SET TO A TEMPLATE.
9. NON METALLIC CONDUIT FOR FOUNDATION SHALL BE ASBESTOS CEMENT, PLASTIC, OR BITUMINIZED FIBER. METALLIC CONDUIT SHALL BE RIGID GALVANIZED STEEL. IN LIEU OF CONDUIT, A RACEWAY FORMED BY A MURRAY HOSE IS ACCEPTABLE. CONDUIT OF WHATEVER MATERIAL, IF USED, IS INCIDENTAL TO THE LIGHT STANDARD.
10. IF OCTAGONAL FOUNDATION TOP IS USED, TOP OF FOUNDATION MUST EXTEND 1" MIN. OUTSIDE OF LIGHT STANDARD BASE, OR T-BASE

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ELECTRICAL DETAILS

ALUMINUM LIGHT STANDARDS

FOR 30, 40 & 45 FT. MOUNTING HEIGHTS

E-4

APPR.

DATE

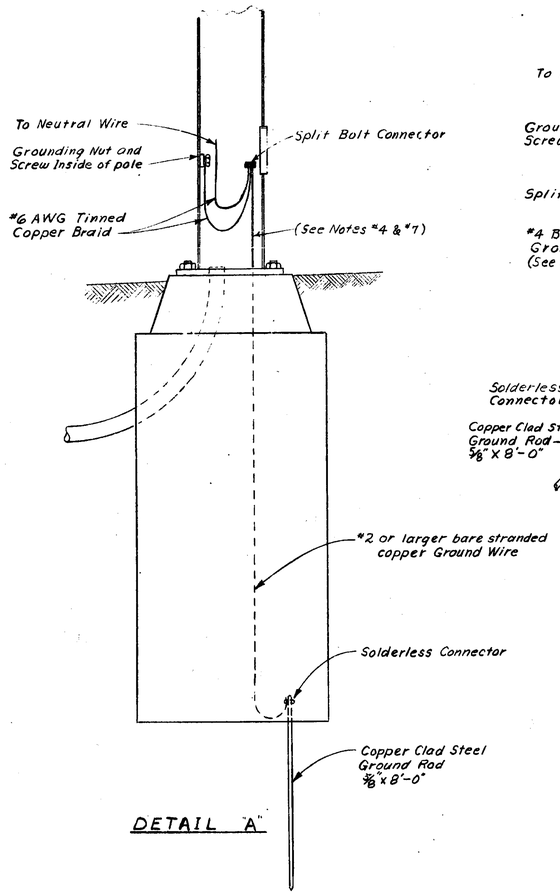
REVISIONS			
NO.	DESCRIPTION	DATE	BY

ORIGINAL DESIGN	T. Hilden	1968
DRAWN BY		
TRACED BY	DW	1-8-68
CHECKED BY		

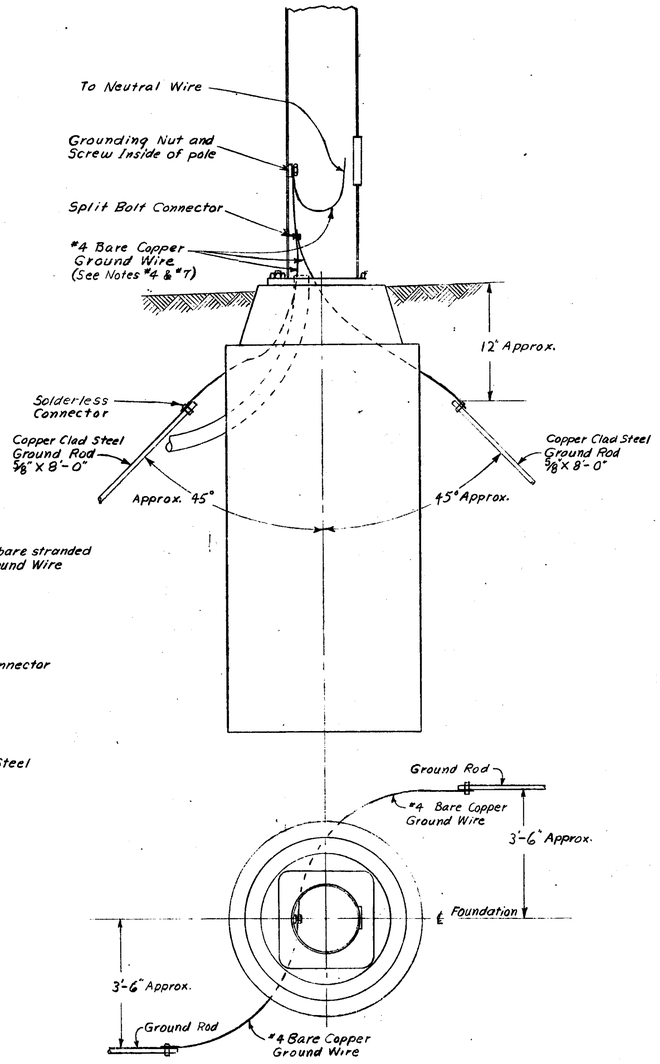
SHEET 28 OF

63174

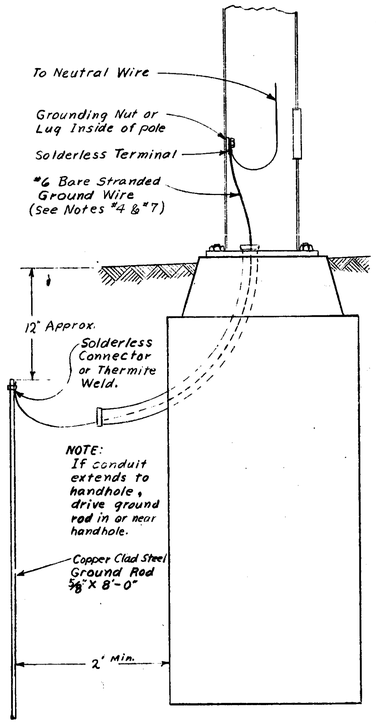
JOB NO 08517A



DETAIL "A"



DETAIL "B"



DETAIL "C"

NOTES:

1. Detail "A" is to be used for Lighting Standards maintained by City of Detroit Public Lighting Commission.
2. ~~Detail "B" is to be used for Lighting Standards maintained by Detroit Edison Co.~~
3. Detail "C" is to be used for Lighting Standards maintained by other than P.L.C.
4. If Frangible Base is used between foundation and pole base, increase length of ground wire above foundation by height of Frangible Base.
5. Ground Lighting Standards on bridges, retaining walls, and other structures by #6 copper bare or green insulated wire. Connect to ground rods driven near structure, to nearest ground of lighting system or to structural steelwork (if steelwork is grounded).
6. Resistance of grounding electrodes shall be in accordance with The National Electrical Code.
7. Ground wire shall be stranded soft drawn copper wire per A.S.T.M. B8.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

LIGHTING STANDARD GROUNDING DETAILS

E-7

APPR. DATE

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	T. Jilek	1967
DRAWN BY		
TRACED BY	D. Wingard	12-11-67
CHECKED BY		

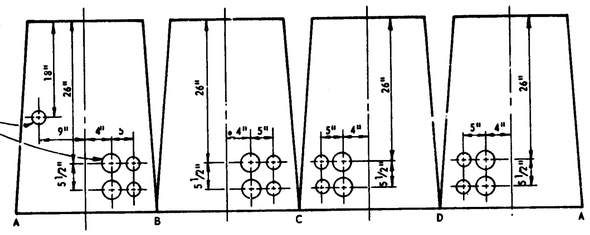
SHEET 29 OF

63174

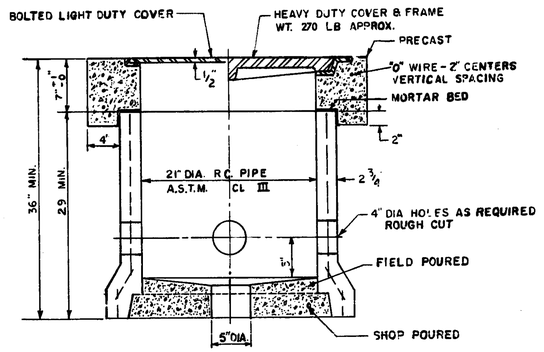
JOB NO. 08517A

ENTRANCE HOLES AS REQUIRED FOR 3" & 4" CONDUIT

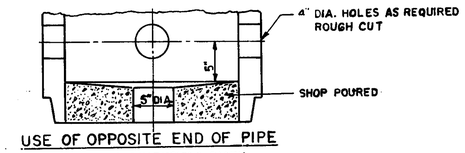
CONDUIT ARRANGEMENT MAY BE MODIFIED. ADDITIONAL OPENINGS SHALL BE PROVIDED AS REQUIRED. SEE PLANS. PLUG ALL UNUSED ENTRANCE HOLES AND SEAL AROUND HOLES ENTERED.



INTERIOR WALL ELEVATIONS-LIGHT AND HEAVY DUTY COVER TYPES



ALTERNATE PRECAST CONCRETE HANDHOLE
USING R.C. PIPE



USE OF OPPOSITE END OF PIPE
(ALL OTHER DIMENSIONS SAME)

NOTES:

THE MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT M.D.S.H. STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY CONSTRUCT THE HANDHOLE STRUCTURE OF BRICK, CEMENT CONCRETE MASONRY, OR OF PRECAST REINFORCED CONCRETE.

ALL CONCRETE MASONRY SHALL BE GRADE C.

THE INNER SURFACE OF THE HANDHOLE SHALL BE SMOOTH.

HEAVY DUTY COVERS SHALL BE CASTINGS WHICH MEET THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR GRAY IRON CASTINGS ASTM DESIGNATION A48 AND SHALL HAVE A MINIMUM STRENGTH AS PROVIDED FOR CLASS NO. 30 GRAY IRON CASTING.

ALL CASTINGS SHALL BE CLEANED BY SAND BLASTING.

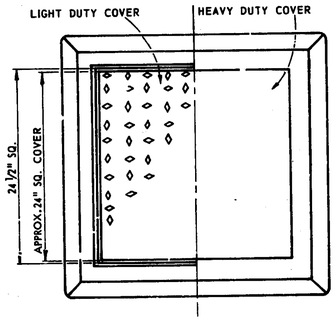
THE SEATING FACE OF THE COVER AND THE SEAT FOR SAME ON THE FRAME IF REQUIRED, SHALL BE GROUND OR MACHINED SO THAT THE COVER SHALL HAVE AN EVEN BEARING ON ITS SEAT TO PREVENT ROCKING OR TILTING.

THE CASTINGS SHALL BE FREE OF POURING FAULTS, BLOW HOLES, CRACKS, AND OTHER IMPERFECTIONS. THEY SHALL BE SOUND, TRUE TO FORM AND THICKNESS, CLEAN AND NEATLY FINISHED AND SHALL BE COATED WITH COAL TAR PITCH VARNISH.

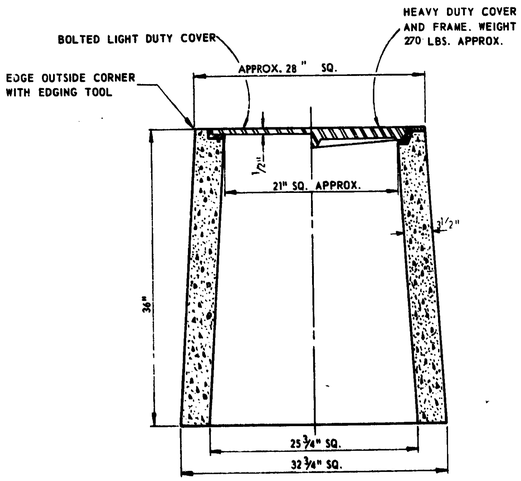
LIGHT DUTY COVER SHALL BE BOLTED TO FRAME WITH NOT LESS THAN 2 COUNTERSUNK HEX HEAD BRONZE BOLTS.

PRECAST HANDHOLE WITH HEAVY DUTY COVER SHALL BE SET ON A CONCRETE SLAB SIMILAR TO DETAIL FOR BRICK HANDHOLE.

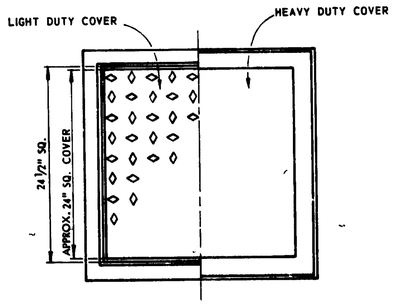
THE HEAVY DUTY COVER & FRAME SHALL BE EAST JORDAN IRON WORKS #8206, NEENAH FOUNDRY #R-6662-HP OR APPROVED EQUAL



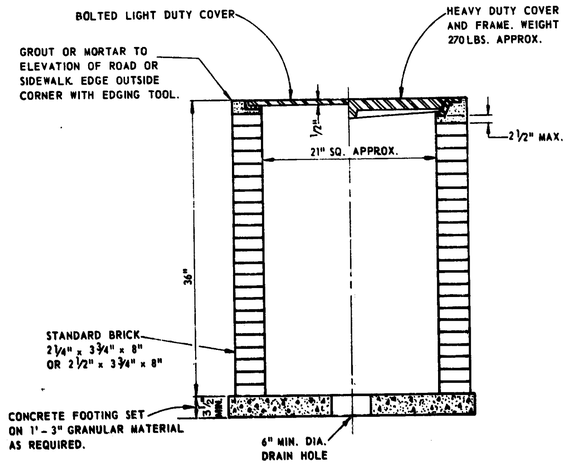
TOP PLAN VIEW OF CONCRETE HANDHOLE



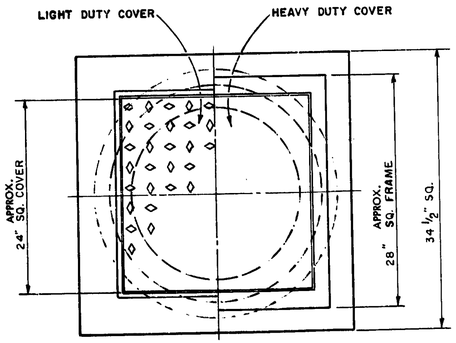
PRECAST CONCRETE HANDHOLE



TOP PLAN VIEW OF BRICK HANDHOLE



BRICK HANDHOLE



TOP PLAN VIEW OF R.C. PIPE HANDHOLE

Rev. 8-31-72 Changed Weight Of Cover And Added Note T.J.
Rev. 8-13-71 Removed (Minimum) from 36 Dim. (T.J.)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ELECTRICAL HANDHOLE DETAILS E-8

APPR
DATE

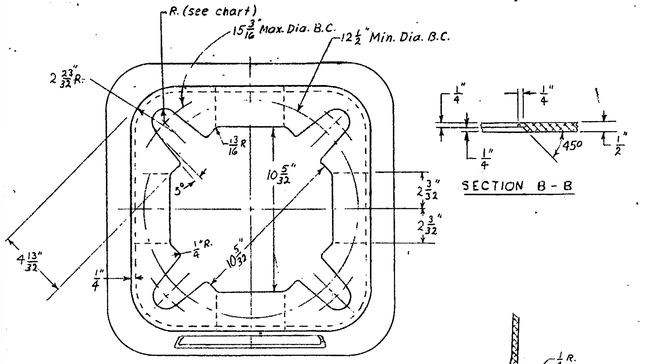
NO	REVISIONS DESCRIPTION	DATE	BY

SOILD BOSS	T. TILDEN	9-71
DRAWN BY		
TRACED BY	D. NEGRA	11-5-71
CHECKED BY		

SHEET 30 OF

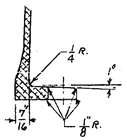
63174

JOB NO. 08517A



TOP VIEW

SECTION B - B



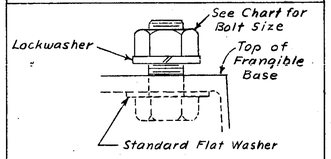
SECTION C-C

TYPE OF MOUNTING	BOLT SIZE ∅ IN INCHES	BOLT LENGTH IN INCHES	SLOT RADIUS (R) IN INCHES
A	1	3 1/2	5/8
B	1 1/4	4	3/4
C	1 1/2	4 3/4	7/8

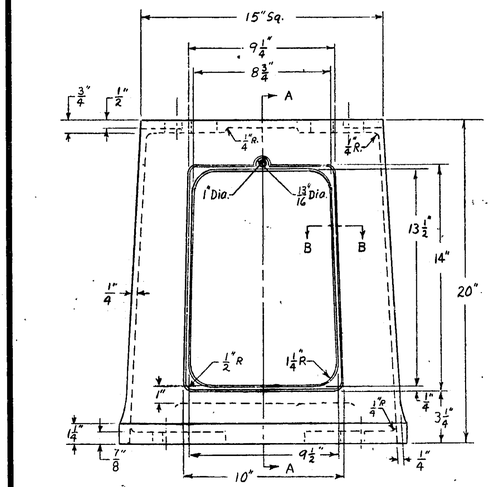
A - 30' nom. mounting height M.V. luminaire with single or double bracket arm up to 15 ft.

B - 30' nom. mounting height M.V. luminaire with single or double 17 ft. bracket arm, or fluorescent luminaire with single or double bracket arm up to 6 ft.

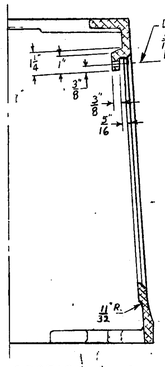
C - 40' & 45' nom. mounting height M.V. luminaire with single or double bracket arm up to 17 ft.



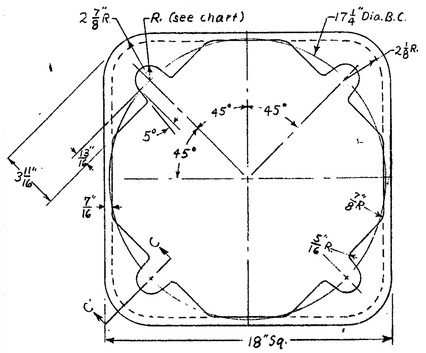
Typical Bolt and Washer Detail



FRONT VIEW

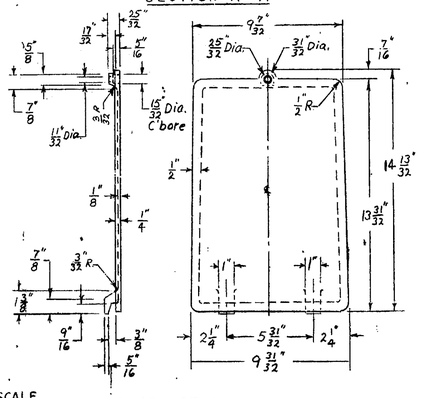


SECTION A-A



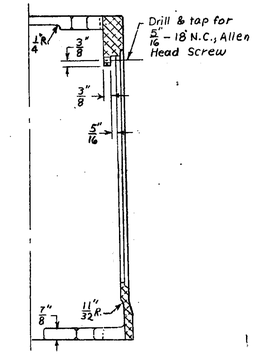
BOTTOM VIEW

NOT TO SCALE

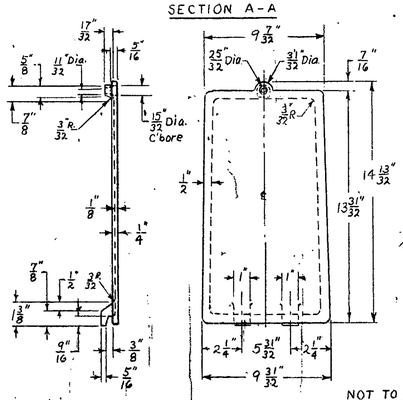


DOOR DETAILS

BASE FOR 40' & 45' MOUNTING HEIGHTS



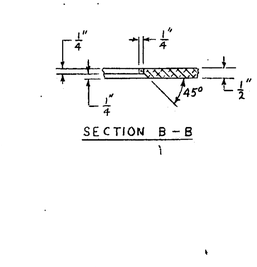
SECTION A-A



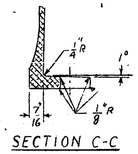
DOOR DETAILS

NOT TO SCALE

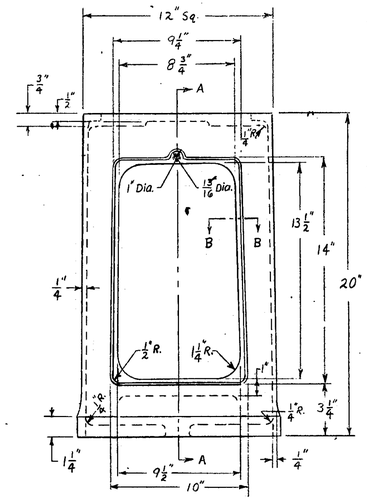
BASE FOR 30' MOUNTING HEIGHT



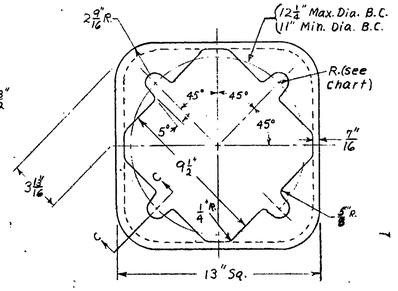
TOP VIEW



SECTION C-C



FRONT VIEW



BOTTOM VIEW

NOTES:

1. MINOR VARIATIONS IN THE DESIGN OF THE FRANGIBLE T-BASE MAY BE ACCEPTABLE UPON DEMONSTRATION BY THE MANUFACTURER THAT THE UNIT WILL SUSTAIN THE TEST LOADS PRESCRIBED IN THE M.D.S.H. SPECIFICATIONS.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

FRANGIBLE TRANSFORMER BASE DETAILS

FOR 30', 40' & 45' NOMINAL MOUNTING HEIGHTS
LIGHT STANDARDS

E-6

APPR.
DATE

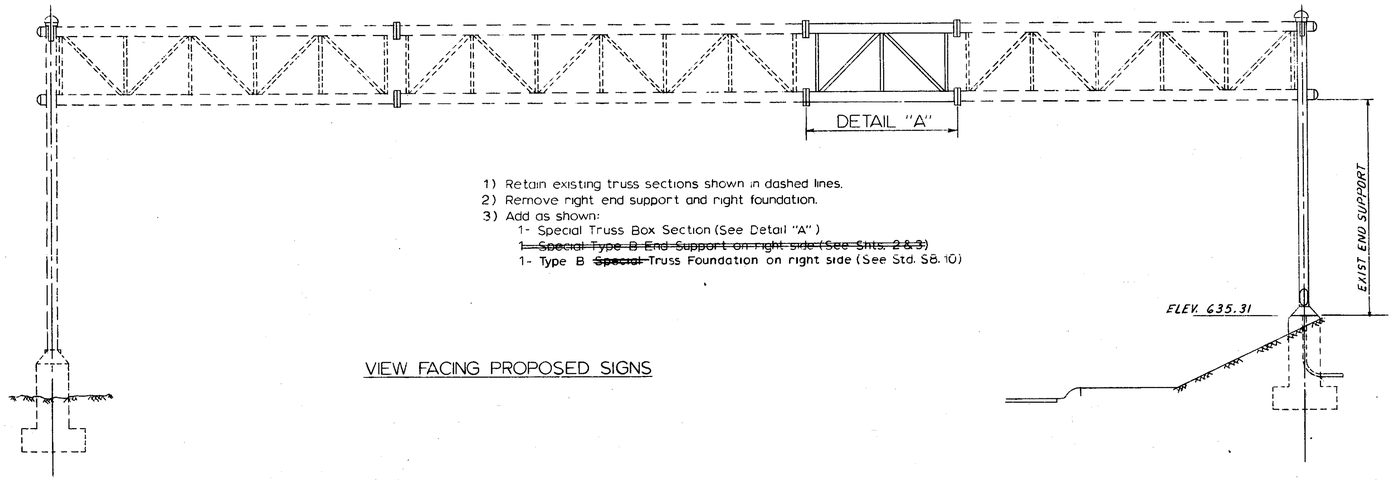
BUREAU OF	T. Wilder	1968
DRAWN BY		
TRACED BY	D.W.	1-5-68
CHECKED BY	H.E.P. & L.M.F.	1-8-68
SHEET	31 OF	

REVISIONS

NO.	DESCRIPTION	DATE	BY

63174

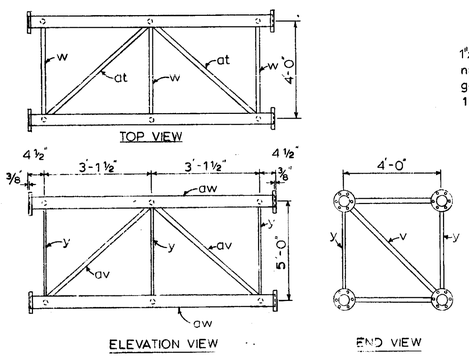
JOB NO. 08517A



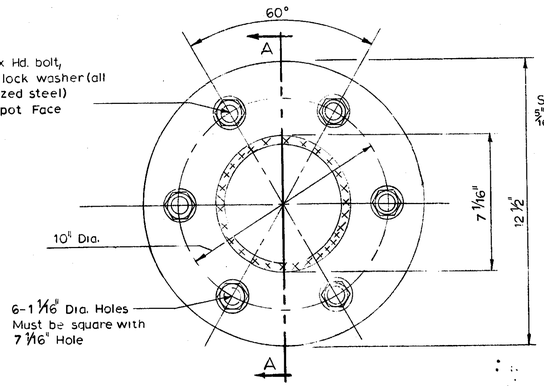
1) Retain existing truss sections shown in dashed lines.
2) Remove right end support and right foundation.
3) Add as shown:
   1- Special Truss Box Section (See Detail "A")
   ~~1- Special Type B End Support on right side (See Shts. 2 & 3)~~
   1- Type B ~~Special~~ Truss Foundation on right side (See Std. S8.10)

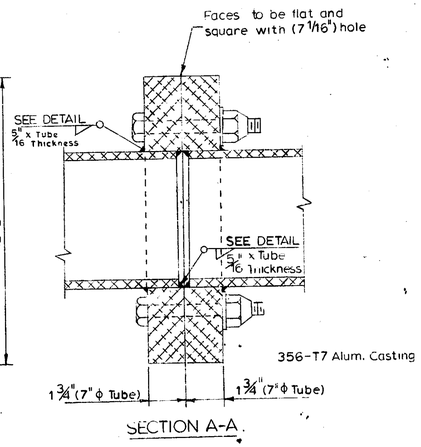
VIEW FACING PROPOSED SIGNS

Part Mark No.	Section Sym.	DESCRIPTION OF MATERIAL	LENGTH FEET	LENGTH INCH	Parts For One Unit
		TRUSS SECTION			
aw	Tube	7" Dia. x .1875	9	6 1/4	4
at	"	3 1/2" Dia. x .1875	5	6 7/8	4
v	"	2" Dia. x .125	5	2 5/8	3
av	"	2" Dia. x .125	5	6 1/2	4
w	"	2" Dia. x .125	3	6 3/4	6
y	"	2" Dia. x .125	3	6 5/8	6

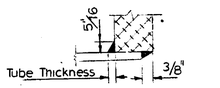


DETAIL A





SECTION A-A



WELD DETAIL
CHORD CONNECTION

NOTES:

1) Materials and fabrication shall conform to the requirements of Michigan Department of State Highways Standard and Supplemental Specifications.
2) All chord members shall be aluminum alloy 6061-T6. All web members shall be aluminum alloy 6063-T6. Castings shall be aluminum alloy 356-T7 Connections shall be welded with filler alloy 5356.
3) METHOD of MEASUREMENT: Truss (Extended) Type B will be measured as a unit.
4) BASIS of PAYMENT: Truss (Extended) Type B, will be paid for at the contract unit price each, which price shall be payment in full for fabrication and erection of the horizontal section, ~~removal of those portions of the truss being replaced~~, furnishing all necessary fastening devices (including nuts, bolts and washers) for erection of the new portion and removal of the entire truss (if required) in the process of the work.
5) For existing 3 span trusses, the special truss box section (Detail A) shall be inserted between spans 2 and 3. For existing 4 span trusses, the special truss box shall be inserted between spans 3 and 4

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

EXTENDED ALUMINUM TRUSS
TYPE B
STA 859-50 N.B. I-75

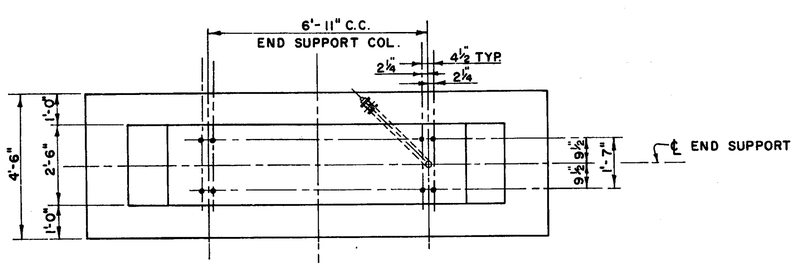
S6.04

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS		
DRAWN BY	KJO	8-28-70
TRACED BY		
CHECKED BY		

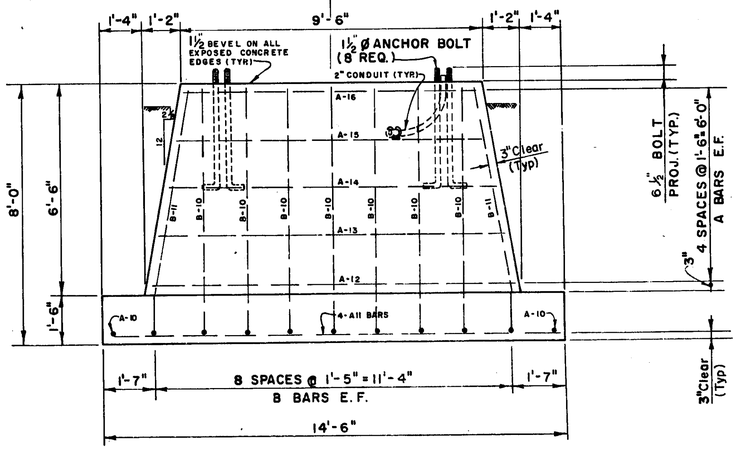
SHEET 32 OF

63174 08517A



PLAN

DIRECTION OF TRAFFIC



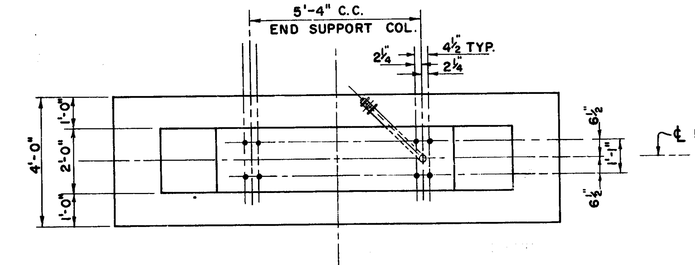
ELEVATION

STEEL REINFORCEMENT			
BAR	SIZE	DIMENSIONS	NO REQ.
A-10	#4	4'-0"	2
A-11	#4	14'-0"	4
A-12	#4	11'-3"	2
A-13	#4	10'-8"	2
A-14	#4	10'-2"	2
A-15	#4	9'-7"	2
A-16	#4	9'-1"	2
B-10	#4	7'-6" / 3'-0"	14
B-11	#4	7'-7" / 3'-0"	4

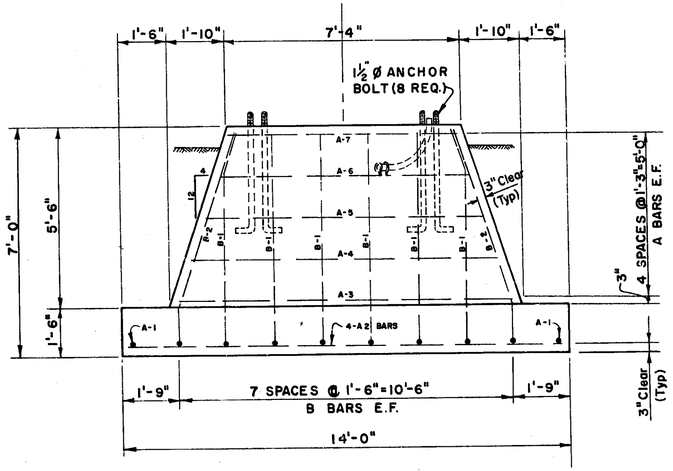
10.0 CU. YDS. CONC.
237 # REINF. STEEL

REV. #3

TYPE C
SCALE ½" = 1'-0"



PLAN



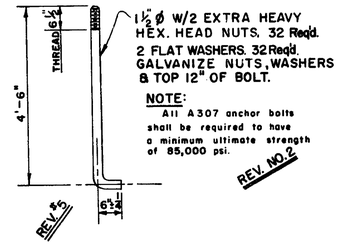
ELEVATION

STEEL REINFORCEMENT			
BAR	SIZE	DIMENSIONS	NO REQ.
A-1	#4	3'-6"	2
A-2	#4	13'-6"	4
A-3	#4	10'-4"	2
A-4	#4	9'-6"	2
A-5	#4	8'-8"	2
A-6	#4	7'-10"	2
A-7	#4	7'-0"	2
B-1	#4	6'-6" / 2'-6"	12
B-2	#4	6'-9" / 2'-6"	4

6.82 CU. YDS. CONC.
196 # REINF. STEEL

REV. #3

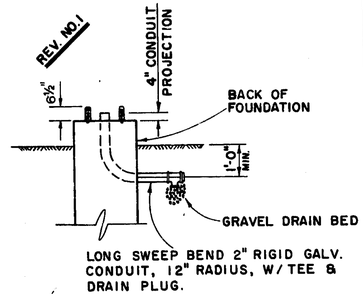
TYPE B
SCALE ½" = 1'-0"



NOTE:
All A307 anchor bolts shall be required to have a minimum ultimate strength of 85,000 psi.

ANCHOR BOLT DETAIL
16 Required

REV. #5



CONDUIT DETAIL

NOTES:
1) CONDUIT SHALL BE INSTALLED IN RIGHT FOUNDATION OR AS OTHERWISE SPECIFIED BY THE ENGINEER.
2) TOP OF CONC. SHALL BE 3" MIN. ABOVE GROUND (DESIRABLE)
3) ANCHOR BOLTS SHALL BE CAREFULLY SET AND HELD VERTICAL AT THE CORRECT LOCATION AND AT THE PROPER ELEVATION UNTIL CONCRETE HAS SET, IF DESIRED, EACH SET OF FOUR BOLTS MAY BE TIED TOGETHER NEAR THE TOP AND BOTTOM BY WELDING INTO A BASKET WITH BAR STOCK OR EQUIVALENT MATERIAL.

REV. #4

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

TRUSS FOUNDATION
TYPE B, C
STA. 859+50 NB I75

S8.10

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	WIRE ENTRANCE	11/66	TMW
2	Anchor bolt strength note	3-3-67	TMW
3	Re-bar dimension change	3/20/67	TMW
4	NOTE ADDED	5-26-69	TMW
5	ANCHOR BOLT DETAIL REVISED	6/73	TMW
6	QUANTITIES ADDED TO ANCHOR BOLT DETAIL	2/74	JDB

SQUAD BOSS	
DRAWN BY	R.D.S. 7-64
TRACED BY	
CHECKED BY	D.MC
SHEET 33 OF	

63174 | 08517A

ITEM	UNIT	QUANTITY AS PER PLAN	QUANTITY AS CONSTRUCTED
		FEDERAL PARTICIPATION — NON CITY	
HANDHOLE, LIGHT DUTY COVER	EACH	1	1 ✓
1-3" DIRECT BURIAL CONDUIT	L. FT.	2294	2294 ✓
1-3" DIRECT BURIAL CONDUIT (SPECIAL)	L. FT.	4496	4651 ✓
1-3" GALV. STEEL CONDUIT	L. FT.	175	143 ✓
1-3" GALV. STEEL CONDUIT - JACKING BORING	L. FT.	259	316 ✓
1-2" GALV. STEEL CONDUIT - RISER	L. FT.	48	46 ✓
HANDHOLE, HEAVY DUTY COVER	EACH	4	5 ✓
600V. 2-1/6 NO. 2/0 D.B. CABLE IN EARTH	L. FT.	600	630 ✓
600V. 2-1/6 NO. 2/0 D.B. CABLE IN CONDUIT	L. FT.	50	70 ✓
600V. 2-1/6 NO. 2 D.B. CABLE IN EARTH	L. FT.	820	756 ✓
600V. 2-1/6 NO. 2 D.B. CABLE IN CONDUIT	L. FT.	180	170 ✓
600V. 2-1/6 NO. 4 D.B. CABLE IN EARTH	L. FT.	540	536 ✓
600V. 2-1/6 NO. 4 D.B. CABLE IN CONDUIT	L. FT.	24	40 ✓
600V. 2-1/6 NO. 6 D.B. CABLE IN EARTH	L. FT.	2680	2598 ✓
600V. 2-1/6 NO. 6 D.B. CABLE IN CONDUIT	L. FT.	150	180 ✓
600V. 3-1/6 NO. 2 D.B. CABLE IN EARTH	L. FT.	350	134 ✓
600V. 3-1/6 NO. 6 D.B. CABLE IN CONDUIT	L. FT.	7115	7212 ✓
600V. TWO 3-1/6 NO. 6 D.B. CABLE IN EARTH	L. FT.	60	96 ✓
600V. TWO 3-1/6 NO. 6 DB CABLE IN CONDUIT	L. FT.	170	139 ✓
LT. STD. 30 FT. M.H. 12 FT. ARM, FRNG. TRNSF. BASE & FDN.	EACH	2	2 ✓
LT. STD. 45 FT. M.H. 12 FT. DBL. ARM, NEW FDN.	EACH	18	18 ✓
LT. STD. 45 FT. M.H. 12 FT. DBL. ARM - MED. WALL	EACH	10	10 ✓
LT. STD. 45 FT. M.H. AND FOUNDATION	EACH	10	10 ✓
250W. HIGH PRESSURE SODIUM LUMINAIRE	EACH	9	9 ✓
400W. HIGH PRESSURE SODIUM LUMINAIRE	EACH	56	56 ✓
TOWER LIGHTING UNIT, 100 FT., 8 LUMINAIRE	EACH	2	2 ✓
TOWER LIGHTING UNIT, 80 FT., 4 LUMINAIRE	EACH	2	2 ✓
TOWER LIGHTING CONTROL POLE	EACH	1	1 ✓
DOUBLE BEAM GUARD RAIL - SPECIAL TYPE I	L. FT.	562.5	562.5 ✓
DOUBLE BEAM GUARD RAIL - SPECIAL TYPE II	L. FT.	562.5	562.5 ✓
INSTALL FRNG. TRNSF. BASE IN EXISTING LTG. UNIT	EACH	7	7 ✓
REMOVE LT. STD. FOUNDATION	EACH	30	28 ✓
600V. 3-1/6 NO. 4 D.B. CABLE IN CONDUIT	L. FT.	210	243 ✓
600V. TWO 2-1/6 NO. 6 DB. CABLE IN EARTH	L. FT.	160	185 ✓
RAILING CLOSURE	EACH	4	4 ✓
400W. HIGH PRESSURE SODIUM LUMINAIRE (SPECIAL)	EACH	10	10 ✓
LIGHTING CONTROL PANEL	EACH	2	2 ✓
ON THE JOB TRAINING	EACH	1	.05 ✓
ELECTRIC DRILL	EACH	1	1 ✓
FOUNDATION FOR 80 FT. TOWER LIGHTING UNIT	EACH	2	2 ✓
FOUNDATION FOR 100 FT. TOWER LIGHTING UNIT	EACH	2	2 ✓

PLAN EXTRAS

AUTH. NO. DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL
2001 3-26	Glare Screen	LFT	2210	2236 ✓
2002	Meter Enclosure	Ea.	3	3
2003	Struct. Guard Rail Anch. - Type B	Ea.	10	10 ✓
	ADJUSTMENTS			
4001	Maintaining Traffic	L.S.		3150.00 ✓

CHECKED
CONTRACT SECTION
DATE 10-18-76

MICHIGAN STATE HIGHWAY DEPARTMENT

BILL OF MATERIAL

SQUAD BOSS	T. Work	10-14
DRAWN BY		
TRACED BY	[illegible]	[illegible]
CHECKED BY		

SHEET OF

63174 | 08517A

B.P.R. DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
A	MICH				

ROUTE	STATE PROJECT	COUNTY	TWP.	SHEET NO.	TOTAL SHEETS
I-75		OAKLAND		35	

AS PER PLANS

	REMOVALS		GRADING					CONCRETE & STEEL				GUARD RAIL								DRAINAGE ITEMS														MAINTAINING TRAFFIC ITEMS					MISCELLANEOUS										
Sheet No.	Removing Beam Guard Rail L.Ft.	Removing Curb and Gutter L.Ft.	Type I Subgrade Undercutting C.Yd.	Earth Excavation C.Yd.	Embankment (C.I.P.) C.Yd.	Machine Grading Sta.	Earth Excavation Special Stas.	Misc. Conc. Pavt. Gr. 35P, Var. Thick, Non-Reinf. S.Yd.	Concrete Barrier L.Ft.	Concrete Curb and Gutter Det. B2 L.Ft.	Light Std. Fndn. Conc. Barrier Ea.	Structural Guard Rail Anch.-Median Ea.	Beam Guard Rail Type CD L.Ft.	Beam Guard Rail Type C L.Ft.	Str. Guard Rail Anch.-Type C Ea.	Guard Rail Anch. Cable-Det. 2 Ea.	Terminal End Shoes Ea.	Beam Guard Rail Type B Det. 1 L.Ft.	Guard Rail Anch. Cable-Det. 1 Ea.	Reconstruct. Drain. Str. Ea.	Drainage Str. Covers Lb.	Adjust Drain. Str. Covers Ea.	Drain. Structure 4 Ft. (C-8') Ea.	12" Sewer C-76 II (Tr. Det. 2) L.Ft.	Edge Drains 6 Inch L.Ft.	6 Inch Sewer Tap Ea.	Cover D	Catch Basin Det. 10 Covers (For information only - not a pay item)	Manhole 'A' Cover (For information only - not a pay item)	Salvaged End Section Ea.	B.C.I.C. Culvert L.Ft.	12' Class B Culvert L.Ft.	12" Culvert End Section Ea.	Maintaining Traffic L.S.	Lighted Arrow Type A-Furnish'd Ea.	Lighted Arrow Type A-Operated Ea.	Hazard Light-Furnished Ea.	Hazard Light-Operated Ea.	Roadside Seeding Lb.	Mulch Ton	Chemical Fertilizer Nutrient Lb.	Class B Sodding S.Yd.	Water Units	Sediment Traps Ea.	Straw Bales Ea.	Truss (Extended) Type "B" Ea.	Truss Foundation Type "B" Ea.	Removing Truss Foundation Ea.	On the Job Training - Ea.
FEDERAL PARTICIPATION - CITY OF ROYAL OAK																																																	
3			100																						25	5								42%	47%	47%	47%	47%											
4	1345	2480					12.2	3524.4	1220	40		1	12.5	12.5			2			6	2730						6																						
5	1079	2372					11.8	3920.6	1174					587.5	3		8			9	4095	5					9																						
19	41																																																
20	26													387.5			4																																
Subtotal	2490	4852	100				24.0	7445	2394	40		1	12.5	987.5	3		14			15	6825	5			25	5	15							42%	47%	47%	47%	47%											
FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS																																																	
3																									100									48%	53%	53%	53%	53%											
6	575				500									800		3	5	150	4											1	36											1150	3.2		10				
7	2850				725									2212.5	10	7	8	62.5	3																							128	.5		10				
Subtotal	3425				1225									3012.5	10	10	13	212.5	7						100					1	36			48%	53%	53%	53%	53%				1278	3.7		20				
NON-FEDERAL PARTICIPATION - CITY OF ROYAL OAK																																																	
3																																		4%															
5				50	10	.50																																	1.0	.02	2			1					
8																																										90	0.3						
Subtotal				50	10	.50																												4%					1.0	.02	2	90	0.3	1					
NON-FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS																																																	
3																																		6%															
5				10	23	.70																																	1.0	.03	3								
6					411	13.04															1570		5	766				2	3										35.0	1.04	84			3	30				
7				40	155	1.76																										50	2						5.0	.15	12	140							
8																																										3108	8.0						
Subtotal				50	589	15.5															1570		5	766				2	3			50	2	6%					41.0	1.22	99	3248	8.0	3	30				
FEDERAL PARTICIPATION - NON CITY																																																	
4											5																																						
5											5																																						
19																																														1	1	1	
Subtotal											10																																			1	1	1	1
TOTALS	5915	4852	100	100	1824	16	24	7445	2394	40	10	1	12.5	4000.0	13	10	27	212.5	7	15	8395	5	5	766	125	5	15	2	3	1	36	50	2	L.S.	2	2	1	1	42	1.24	101	4616	12	4	50	1	1	1	1

All as per plan quantities except Bm. Guard Rail & Mulching are shown to the nearest whole unit.

CONTRACT SECTION

SQUAD - ROUSH '74.

PLAN ESTIMATE BY F.R., B.B. DATE Aug. '74 CHECKED BY G.J., B.B. DATE Dec. '74 DATE DATA COMPLETED PROJ ENG DATE HISTORY CHECKED ENTERED ON PLANS BY DATE

CONTROL SECTION	JOB NO.	STATE PROJECT	FEDERAL PROJECT	SHEET NO.
63174	08517A		I-75-2(176)63	35

AS CONSTRUCTED

B.P.R. DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	MICH.				

ROUTE	STATE PROJECT	COUNTY	TWP.	SHEET NO.	TOTAL SHEETS
				36	

SQUAD - ROUSH '74.

REMOVALS / GRADING

Sheet No.	REMOVING BEAM GUARD RAIL L.FT.	REMOVING CURB AND GUTTER L.FT.	TYPE I SUBGRADE UNDERCUTTING C.YD.	EARTH EXCAVATION C.YD.	EMBANKMENT (C.I.P.) C.YD.	MACHINE GRADING STA.	EARTH EXCAVATION SPECIAL STAS.
FEDERAL PARTICIPATION - CITY OF ROYAL OAK							
3			0				
4	1231.5	2460					12.2
5	1055.6	2309					11.8
19	625						
20	25						
Subtotal	2974.6	4789					24.0
FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS							
3							
6	600			58	1096.5		
7	3000				740		
Subtotal	3600				1836.5		
NON-FEDERAL PARTICIPATION - CITY OF ROYAL OAK							
3							
5				0	0	0.5	
8							
Subtotal					0	0.5	
NON-FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS							
3							
5				0	0	0.7	
6					0	13.04	
7				108	170	1.76	
8							
Subtotal					170	15.5	
FEDERAL PARTICIPATION - NON CITY							
4							
5							
19							
Subtotal							
Totals	6014.6	4789	0	166	1996.5	16.0	24.0

CONCRETE & STEEL

Sheet No.	MISC. CONC. PAVT. GR 35P NRE VAR. THICK. NON-REINF. SYD.	CONCRETE BARRIER L.FT.	CONCRETE CURB AND GUTTER DET B2 L.FT.	LIGHT STD FNDN CONC BARRIER EA.	Glare Screen LFT EXTRA	Struc. Foral GR. Anch. Type B Ea. Extra	STRUCTURAL GUARD RAIL ANCH.-MEDIAN EA.
FEDERAL PARTICIPATION - CITY OF ROYAL OAK							
4	3541.1	1222	39		1222		1
5	4004.9	1170			1036.4		
Subtotal	7546.0	2392	39		2258.4		1
FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS							
7						10	
Subtotal						10	
FEDERAL PARTICIPATION - NON CITY							
4				5			
5				5			
19							
Subtotal				10			
Totals	7546.0	2392	39	10	2258.4	10	1

GUARD RAIL

Sheet No.	BEAM GUARD RAIL TYPE CD L.FT.	BEAM GUARD RAIL-TYPE C L.FT.	STR. GUARD RAIL ANCH.-TYPE C EA.	GUARD RAIL ANCH. CABLE-DET.2 EA.	TERMINAL END SHOES EA.	BEAM GUARD RAIL-TYPE B DET. 1 L.FT.	GUARD RAIL ANCH. CABLE-DET.1 EA.
FEDERAL PARTICIPATION - CITY OF ROYAL OAK							
4	125	125			2		
5		5875	3		8		
20		3250			8		
Subtotal	125	9250	3		18		
FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS							
6		8000		3	5	1500	4
7		23250	0	7	8	625	3
Subtotal		31250	0	10	13	2125	7
Totals	125	41000	3	10	31	2125	7

DRAINAGE ITEMS (FOR INFORMATION ONLY-NOT A PAY ITEM: Catch B'S'N, Manhole, Salvaged End Section, 18" C.C. Culvert)

Sheet No.	RECONSTRUCT. DRAIN. STR. EA.	DRAINAGE STR. COVERS LB.	ADJUST DRAIN. STR. COVERS EA.	DRAIN. STRUCTURE 4 FT. (0-8') EA.	12" SEWER C-76 II (TR. DET. 2) L.FT.	EDGE DRAINS-6 INCH L.FT.	6 INCH SEWER TAP EA.	COVER D	CATCH B'S'N DET 1C COVER E	Manhole 'A' Cover	Salvaged End Section Ea.	18" C.C. Culvert Lft.	12" CLASS B CULVERT L.FT.	12" CULVERT END SECTION EA.
FEDERAL PARTICIPATION - CITY OF ROYAL OAK														
3						0	0							
4	6	2730												
5	9	4095	5											
Subtotal	15	6825	5			0	0							
FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS														
3						0								
6											1	32		
Subtotal						0					1	32		
NON-FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS														
6		1570		5	770									
7													48	1
Subtotal		1570		5	770								48	1
Totals	15	8395	5	5	770	0	0				1	32	48	1

MAINTAINING TRAFFIC ITEMS

Sheet No.	MAINTAINING TRAFFIC L.S.	LIGHTED ARROW TYPE A-FURNISH'D. EA.	LIGHTED ARROW TYPE A-OPERATED EA.	HAZARD LIGHT-FURNISHED EA.	HAZARD LIGHT-OPERATED EA.
FEDERAL PARTICIPATION - CITY OF ROYAL OAK					
3	42%	47%	47%	47%	47%
Subtotal	42%	47%	47%	47%	47%
FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS					
3	48%	53%	53%	53%	53%
Subtotal	48%	53%	53%	53%	53%
NON-FEDERAL PARTICIPATION - CITY OF ROYAL OAK					
3	4%				
Subtotal	4%				
NON-FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS					
3	6%				
Subtotal	6%				
Totals	100%	2	2	12	12

MISCELLANEOUS

Sheet No.	ROADSIDE SEEDING LB.	MULCH TON	CHEMICAL FERTILIZER NUTRIENT CLASS B LB.	SODDING S.YD.	Water Units	SEDIMENT TRAPS EA.	STRAW BALES EA.	TRUSS (EXTENDED) TYPE "B" EA.	TRUSS FOUNDATION TYPE "B" EA.	REMOVING TRUSS FOUNDATION EA.
FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS										
6	27	0.35	66.0	1122.0	4.5		0			
7	16	0.12	38.4	1210.9	4.0		0			
Subtotal	43	0.47	104.4	2332.9	8.5		0			
NON-FEDERAL PARTICIPATION - CITY OF ROYAL OAK										
5	1	0.2	20			1				
8				78.6	0.3					
Subtotal	1	0.2	20	78.6	0.3	1				
NON-FEDERAL PARTICIPATION - CITY OF MADISON HEIGHTS										
5	1	0.3	3.5							
6	53	1.6	129.3			3	0			
7	15	0.45	35.8							
8				2580.5	9.2					
Subtotal	69	2.35	178.6	2580.5	9.2	3	0			
FEDERAL PARTICIPATION - NON CITY										
19								1	1	1
				100						
				91.5						
Subtotal				51.5				1	1	1
Totals	113	3.02	275.0	5013.9	18.0	4	0	1	1	1

PLAN ESTIMATE BY________________DATE________ CHECKED BY________________DATE________ DATE________ DATA COMPLETED________ PROJ. ENG ________DATE________ HISTORY CHECKED ENTERED ON PLANS BY________________ DATE________

CONTROL SECTION IS 63174 JOB NO. 08517A

STATE PROJECT	FEDERAL PROJECT	SHEET NO.
	I-75-2(176)	36

63174-09458A

CS: 63174

ID: 09458A

Ms 63174 - 09458A
0.18 mi of geometric improvements, including G&DS, concrete base crse wdng, concrete curb & gutter, and bit. concrete surface on the SE I-75 Service Rd. commencing 275' S of 9-Mile Rd., thence N'ly to a point 700' N of 9-Mile Rd., City of Hazel Park, Oakland Co. Item 4 Invitational

ROUTE	JOB NUMBER	FEDERAL NUMBER	SHEET NO.	TOTAL SHEETS
I-75	09458A		1	3

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

PLANS OF PROPOSED

MICHIGAN PROJECT

CONTROL SECTION Ms 63174

JOB NUMBER 09458A

I – 75 AT NINE MILE ROAD

OAKLAND COUNTY

CITY OF HAZEL PARK

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS 1973 STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS.

ROAD PLANS	SHEET NO'S.
TITLE	1
TYPICAL CROSS SECTION	2
NOTE SHEET	
PLANS & PROFILES	3
SPECIAL DETAILS	
MASS DIAGRAMS	
QUANTITY SHEETS	3

BRIDGE PLANS

SIGNING PLANS

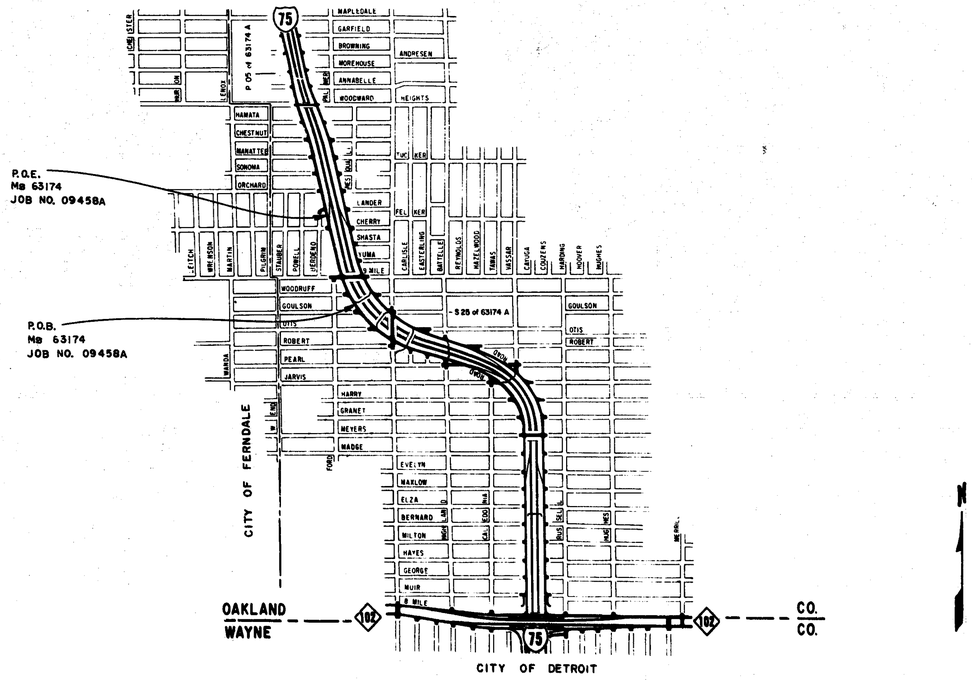
LEGEND

A.D.T.....

D.H.V.....

COMM. %.....

DESIGN SPEED.....



TITLE SHEET LEGEND

EXISTING CONDITION

PROPOSED PROJECT .....

PAVED .....

BITUMINOUS .....

GRAVEL .....

UNIMPROVED OR CITY STREET .....

SECTION LINE .....

TOWNSHIP LINE .....

COUNTY LINE .....

CITY OR VILLAGE LIMITS .....

RAILROADS .....

3-79

AS CONSTRUCTED
ACCORDING TO MARKED PLANS
PREPARED BY PROJECT ENGINEER

SAFETY INVENTORY ITEM NO. 1262 S

CONTRACT FOR INTERSECTION IMPROVEMENT

APPROVALS

CHECKED	ENGINEER–ROAD DESIGN	8-22-75 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF DESIGN	8-29-75 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF TRAFFIC & SAFETY	9/2/75 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF CONSTRUCTION	9/29/75 DATE

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JOHN P. WOODFORD – DIRECTOR

APPROVED BY: _____ DEPUTY DIRECTOR – HIGHWAYS 9/2/75 DATE

PLANS PREPARED BY MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
LUTHER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

CONTROL SECTION	JOB NUMBER	FEDERAL PROJECT	SHEET NO.
Ms 63174	09458A		1

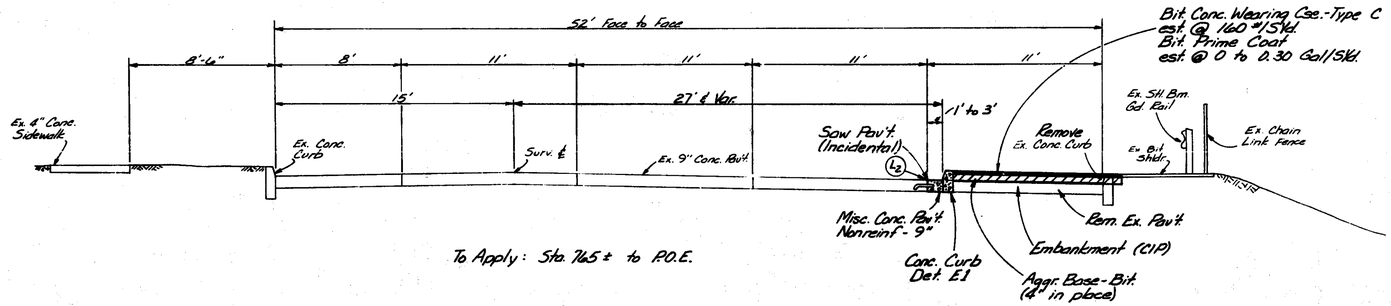
JOB NUMBER 09458A

TYPICAL CROSS-SECTIONS

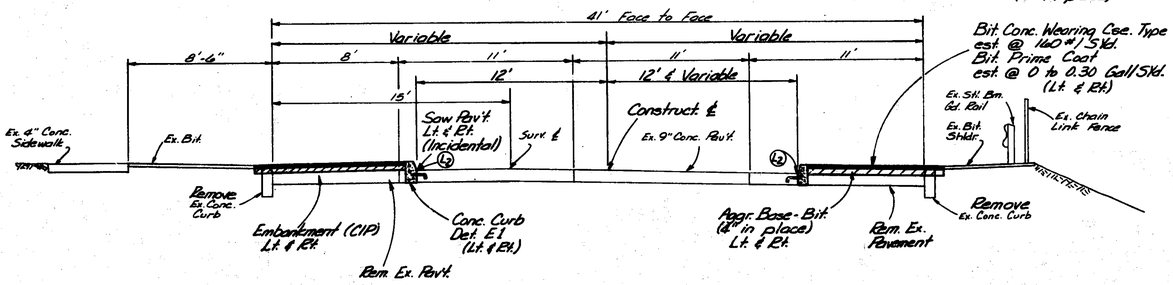
F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.			2	
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	Oakland	Ms 63174		09458A	

FINAL R.O.W.

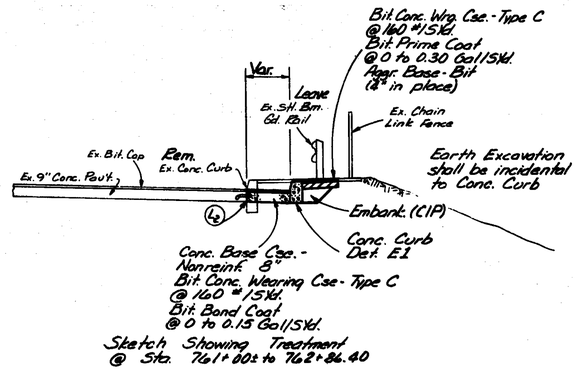
Saved: Luther 1975



To Apply: Sta. 765 ± to P.O.E.



To Apply: 759+50 to 761+00 ±



Sketch Showing Treatment @ Sta. 761+00± to 762+86.40

Notes:

The edges of the existing pavement shall be thoroughly cleaned before concrete widening or curb is placed.

Bit. Concrete Wearing Cse.- Type C shall be applied at a rate of 160 #/Syd. (1½" thick) with an asphalt penetration of 85-100

Joint Legend:

L_2 - Longitudinal Bulkhead Construction Joint, according to Std. Plan II-39C, Detail 4A. (Widening with Expansion Anchored Lane Ties)

Hand finishing, according to Article 4.14.11-b of the Standard Specifications will be permitted on all pavement to be placed on this project.

Notes Applying to Standard Plans

Where the following items are called for on plans, they are to be constructed according to the Standard Plan given below opposite each item unless otherwise indicated:

Catch Basins and Inlets	I-5B
Cover D	I-9B
Cover M	I-17B
Sidewalk Ramp Details	II-28F
Concrete Driveway Openings, Concrete Pavement 7" Uniform and Concrete Sidewalk	II-29A
Concrete Curb and Concrete Curb and Gutter	II-30B
Concrete Pavement Joints	II-39C
Utility Trenches	IV-83B
Types II & III Barricades and Lighted Arrows	VI-125C

PUBLIC UTILITIES

Name of Owner	Kind of Utility
Consumers Power Co.	Gas
Detroit Edison Co.	Electricity
Michigan Bell Telephone	Telephone
City of Hazel Park	Water

The existing utilities listed above and shown on the plans represent the best information available as obtained from original construction plans dated January, 1965. This information does not relieve the contractor of the responsibility to satisfy himself as to their accuracy or of his responsibility in case utilities have been constructed or removed since the above date. For protection of underground utilities the contractor shall dial "Miss Dig" (647-7344) a minimum of 48 hours prior to excavating in the vicinity of utility lines.

Removing Curb, shown
Removing Sidewalk, shown
Removing Pavement, shown

T 1 N; R 11 E
Sec. 35

Note:
Any bituminous repair work needed as a result of Sidewalk Ramp construction shall be incidental to the Sidewalk Ramp.
Earth Excavation for Sidewalk Ramps shall be incidental to the Sidewalk Ramp.

Curve Data
Construct ℄
Δ = 10°29'00" Rt.
D = 3°40'
R = 1562.61'
T = 143.35'
L = 285.91'
E = 6.56'
P.C. = 760+00.49
P.I. = 761+43.84
P.T. = 762+86.40 Back =
11 Rt. 762+70.76 Surv. ℄

T 1 N; R 11 E
Sec. 26

Curve Data (Surv & Constr)
Δ = 2°57'40" Lt.
D = 1°30'
R = 3819.72'
T = 98.73'
L = 197.61'
E = 1.28'
P.C. = 764+28.34
P.I. = 765+27.05
P.T. = 766+25.73

Curve Data (Ramp)
Δ = 3°21'44" Lt.
D = 5°20'
R = 1074.30'
T = 31.53'
L = 63.04'
E = 0.46'
P.C. = 767+79.11 (26' Rt Constr ℄)
P.I. = 768+10.67 (26' Rt 768+05.64 Constr ℄)
P.T. = 768+42.18

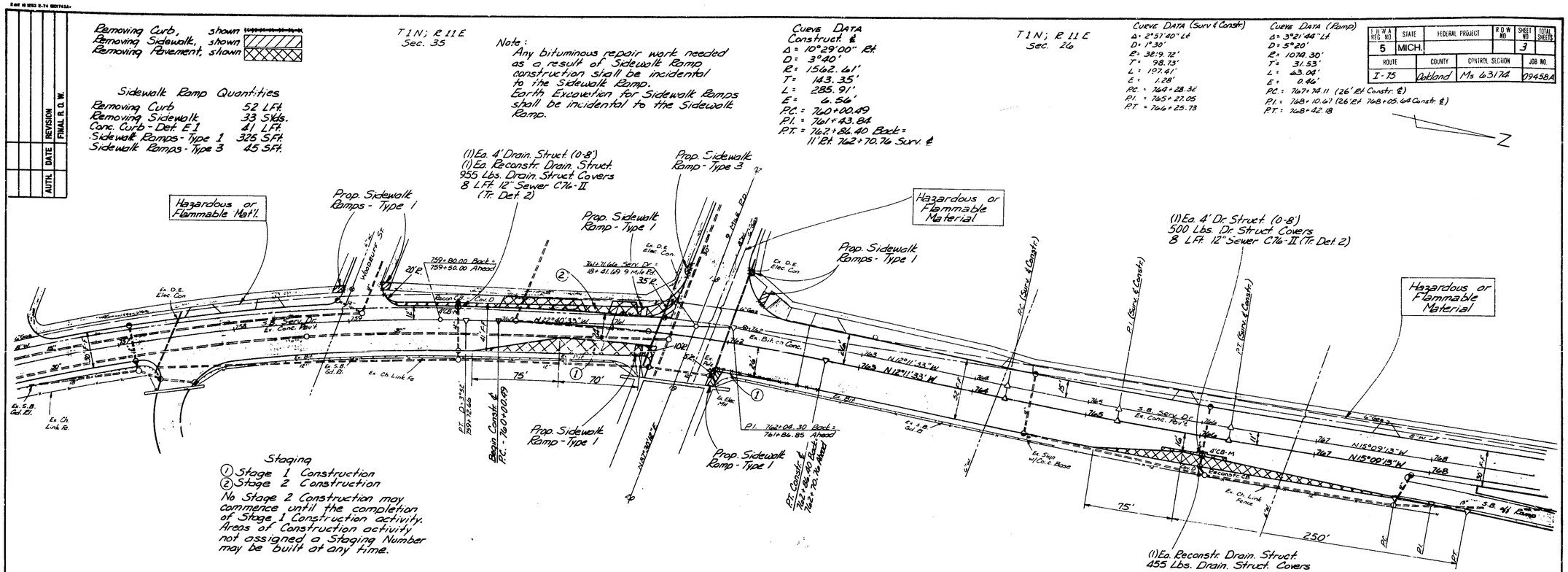
F.A.I.M.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO	SHEET NO	TOTAL SHEETS
5	MICH.			3	
ROUTE	COUNTY	CONTROL SECTION	JOB NO.		
I-75	Oakland	Ms 63174	09458A		

AUTH.	DATE	REVISION
		FINAL R.O.W.

Sidewalk Ramp Quantities

Removing Curb	52 LFt.
Removing Sidewalk	33 SYds.
Conc. Curb - Det. E1	41 LFt.
Sidewalk Ramps - Type 1	325 SFt.
Sidewalk Ramps - Type 3	45 SFt.

Staging
① Stage 1 Construction
② Stage 2 Construction
No Stage 2 Construction may commence until the completion of Stage 1 Construction activity. Areas of Construction activity not assigned a Staging Number may be built at any time.



QUANTITIES

As Per Plans Item	Unit	Amount	As Constructed Item	Unit	Amount	Auth
Removing Pavement	Sq Yd	687		Sq Yd	595	1003
Removing Curb	L Ft	154		L Ft	44	1003
Removing Sidewalk	Sq Yd	33		Sq Yd	49	1003
Embankment (CIP)	Cu Yd	128		Cu Yd	149	1003
Aggr. Base - Fill (@ in place)	Sq Yd	510		Sq Yd	478	1003
Aggr. Base Course - Nominal 8"	Sq Yd	41		Sq Yd	37	1003
Bit Conc. Wearing Crs. - Type C	Ton	45		Ton	48	1001
Bit Prime Coat	Gal	153		Gal	65	1003
Conc. Pavt. - Nominal 7"	Sq Yd	100		Sq Yd	122	1001, 1003
Misc. Concrete Pavt. - Nominal 9"	Sq Yd	15		Sq Yd	29	1001, 1003
Expansion Anchors for Load Ties	Sta	9		Sta	9	1003
12" Sewer C76-II (Tr. Det 2)	L Ft	16		L Ft	63	1001
Drainage Struct. (0-8)	Each	2		Each	3	1001
Drainage Struct. Covers	Lb.	1910		Lb.	1955	1003
Reconstruct Drain Struct	Each	2		Each	1	1002
Concrete Curb - Det E1	L Ft	900		L Ft.	760	1003
Sidewalk Ramps - Type 1	Sq Ft	325		Sq Ft.	311	1003
Sidewalk Ramps - Type 3	Sq Ft	45		Sq Ft.	0	1003
Lighted Arrow - Type A (Furnished)	Each	2		Each	2	
Lighted Arrow - Type A (Operated)	Each	2		Each	2	
Minor Traffic Devices	Lump Sum	1		Lump Sum	1	

EXTRAS

2001		Rem. Drainage Structures	Rea. h @	$250.00
2001		12" Sewer Tap	1 Each @	25.00
2001	2002	4" Conc. Sidewalk	337 S.Ft. @	1.25
2001		Cement	9 Sacks @	2.40
2001		Extra Work & Corr. Drain.	1 Each @	225.00

CHECKED
CONTRACT SECTION

OPERATION	BY	DATE
SURVEYED		
PLAN PLOTTED		
PROFILE PLOTTED		
PROFILE CHECKED		
PRELIMINARY GRADE		
GRADE INSPECTION		
FINAL INSPECTION		

OPERATION	BY	DATE
PRELIMINARY R.O.W. ORDERED		
FINAL DESIGN		
FINAL DESIGN CHECKED		
TRACED R.O.W.		
QUANTITIES		
QUANTITIES CHECKED		
ISSUED	Luther	1975

CONTROL SECTION	Ms 63174	JOB NO.	09458A	FEDERAL PROJECT	SHEET NO. 3

63174-10453

LOG JOB

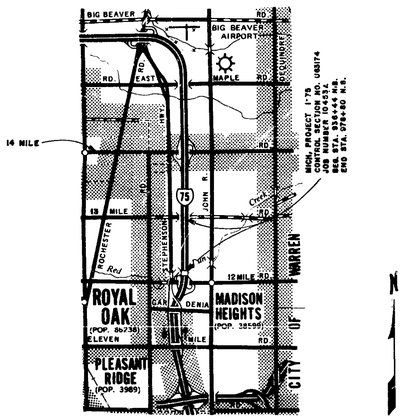
CS: 63174

ID: 10453

1

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
CONTROL SECTION U63174
JOB NUMBER 10453 A
I-75
OAKLAND COUNTY
CITY OF MADISON HEIGHTS

Mich. Proj UI 75-2(186)



Item 947

SQUAD: CLOCK

TITLE	DATE	SIGNATURE
Design Engr. Road	12-24-75	C.J. Zajac
Engr. of Design	12-24-75	M. Rybicki
Construction Division	12/29/75	W. Cap

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JOHN P. WOODFORD DIRECTOR
APPROVED _____ DEPUTY DIRECTOR DATE 1/19/76
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
APPROVED
MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

2

LOG OF JOB NO. 10453A

Location of Work

Commencing on I-75 399' North of Red Run Drain at a point 110' east of I-75 CL N.B., thence northerly along R.O.W. Fence Line to a point adjacent to S.E. bridge abutment at 13 Mile Rd. Structure.

Description of Work

Remove Woven Wire Fence and replace with 4' Chain Link Fence along I-75 R.O.W.

All connections to existing chain link fence shall be made to existing corner or end posts.

Standard Plan

Chain Link Fence V-98A

Quantities - Entire Project

48 inch Chain Link Fence	4300 Lin.Ft.
Removing Fence	4300 Lin.Ft.
Sign, Type IIB Temporary	128 Sq.Ft.
Minor Traffic Devices	1 Lump Sum

3

PAY ITEM	UNIT	AS PER PLANS 10453A	AS PER PLANS TOTALS	AS CONSTRUCTED 10453A	AS CONSTRUCTED TOTALS
48inch Chain Link Fence	Lin.Ft.	4300	4300		
Removing Fence	Lin.Ft.	4300	4300		
Sign, Type IIB Temporary	Sq.Ft.	128	128		
Minor Traffic Devices	Lump Sum	1	1		

10453A

4

CONTRACTORS CODE
1
ITEM NUMBER

BUREAU OF HIGHWAYS

PROPOSAL FOR PROJECT

INVITATIONAL BID

PROJECT	JOB NO.	FEDERAL NO.
U 63174	10453 A	UI 75-2(186)

BIDS WILL BE OPENED AT 3:30 P.M., E.S.T.,ON WEDNESDAY, FEBRUARY 18, 1976 IN THE FIRST FLOOR CONFERENCE ROOM, HIGHWAYS BUILDING, LANSING, MICHIGAN

THE RIGHT IS RESERVED TO REJECT ANY OR ALL PROPOSALS

NOTE TO BIDDERS
This bid proposal must be signed by the bidder on Page III.

– SEE INSIDE OF COVER PAGE FOR INSTRUCTIONS TO BIDDERS –

5

CON-SEC ID	JOB NO.	MICHIGAN PROJECT
U 63174	10453A	UI 75-2(186)

LOCATION:

City of Madison Heights in Oakland County.

TYPE OF WORK:

48" Chain Link Fence.

DESCRIPTION:

Along Northbound I-75 between 12 Mile and 13 Mile Roads.

63174-10454

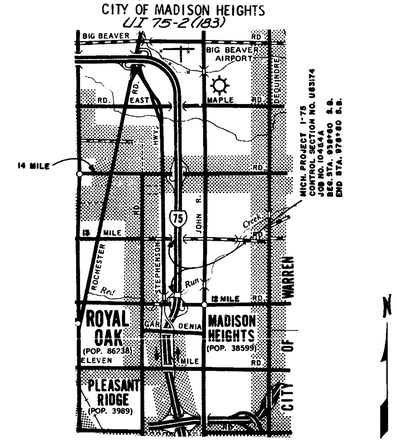
LOG JOB

CS: 63174

ID: 10454

1

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
CONTROL SECTION U63174
JOB NUMBER 10454A
I-75
OAKLAND COUNTY
CITY OF MADISON HEIGHTS
UI 75-2(183)



ITEM 944

SQUAD: CLOCK

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JOHN P. WOODFORD, DIRECTOR
APPROVED _____ DEPUTY DIRECTOR
DATE 1/14/76

TITLE	DATE	SIGNATURE
Design| Engr. Road	12-30-75	G.A. Sajec
Engr. of Design	12-30-75	M. Dalan
Construction Division	1/5/76	W. Cox

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
APPROVED

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

2

LOG OF JOB NO 10454A

Location of Work

Commencing on I-75, 615' north of Red Run Drain at a point 100' west of I-75 S.B., thence northerly along R.O.W. fence line to a point adjacent to the S.W. bridge abutment of 13 Mi. Rd. Structure.

Description of Work

Remove Woven Wire Fence and replace with 4' Chain Line Fence along S.B. I-75 R.O.W. excent as noted in the following:

a. Omit from Sta. 963+15 to 968+00 I-75 S.B. and connect to existing private fence on east-west fence line.

b. At approximately Sta. 978+80 I-75 S.B. connect fence to S.W. bridge abutment.

All connections to private fence shall be made to existing corner or end posts except as noted.

Standard Plan

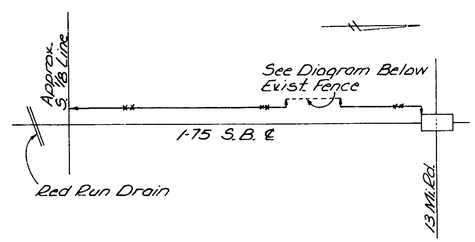
Chain Link Fence V-98A.

QUANTITIES - ENTIRE PROJECT

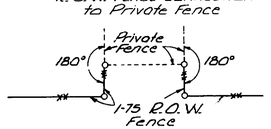
Removing Fence	4080 Lin. Ft.
48 inch Chain Link Fence	3680 Lin. Ft.
Sign, Type II B Temporary	128 Sq. Ft.
Minor Traffic Devices	1 Lump Sum

3

FENCE UPGRADING LIMITS OF JOB NO. 10454A



R.O.W. Fence Connection to Private Fence



4

PAY ITEM	UNIT	AS PER PLANS 10454A	AS PER PLANS TOTALS	AS CONSTRUCTED 10454A	AS CONSTRUCTED TOTALS
Removing Fence	Lin.Ft.	4080	4080		
48 inch Chain Link Fence	Lin.Ft.	3680	3680		
Sign Type IIB Temporary	Sq.Ft.	128	128		
Minor Traffic Devices	Lump Sum	1	1		

10454A

5

CONTRACTORS CODE

1

ITEM NUMBER

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

BUREAU OF HIGHWAYS

PROPOSAL FOR PROJECT

INVITATIONAL BID

PROJECT	JOB NO.	FEDERAL NO.
U 63174	10454A	UI 75-2(183) Alt 1 Log

BIDS WILL BE OPENED AT 3:30 P.M., E.S.T., ON WEDNESDAY, APRIL 21, 1976
IN THE FIRST FLOOR CONFERENCE ROOM, STATE HIGHWAYS BUILDING, LANSING, MICHIGAN

THE RIGHT IS RESERVED TO REJECT ANY OR ALL PROPOSALS

- SEE INSIDE OF COVER PAGE FOR INSTRUCTIONS TO BIDDERS -

6

CON-SEC ID	JOB NO.	MICHIGAN PROJECT
U 63174	10454A	UI 75-2(183)

LOCATION:

City of Madison Heights in Oakland County.

TYPE OF WORK:

48" Chain Link Fence.

DESCRIPTION:

On I-75 southbound between 12 Mile and 13 Mile Roads.

63174-10455

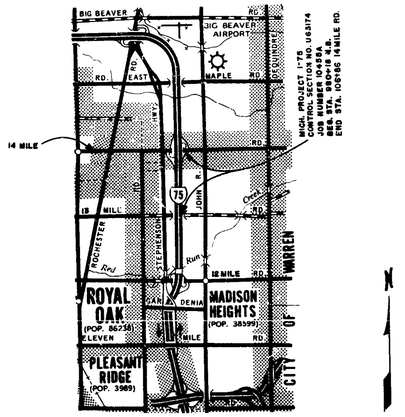
LOG JOB

CS: 63174

ID: 10455

1

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
CONTROL SECTION U63174
JOB NUMBER 10455A
Mich. Proj. UI 75-2(187)
I-75
OAKLAND COUNTY
CITY OF MADISON HEIGHTS



Item 948

SQUAD: CLOCK

TITLE	DATE	SIGNATURE
Design Engr. Road	12-24-75	C.L. Zajac
Engr. of Design	12-24-75	[illegible]
Construction Division	12/24/75	W.C.

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JOHN P. WOODFORD DIRECTOR
APPROVED: [signature] DEPUTY DIRECTOR 12/24/75 DATE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
APPROVED:

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

2

LOG OF JOB NO. 10455A

Location of Work

Commencing on I-75, 70' north of 13 Mi. Rd. CL 110' east of I-75 CL N.B., thence northerly along R.O.W. fence line to a point 100' south of Sta. 1061+86 14 Mi. Rd.

Description of Work

Remove woven wire fence and replace with 6' chain link fence from Sta. 980+18 N.B. to Sta. 1018+98 N.B. (Approximate north line of adjacent apartment complex.)

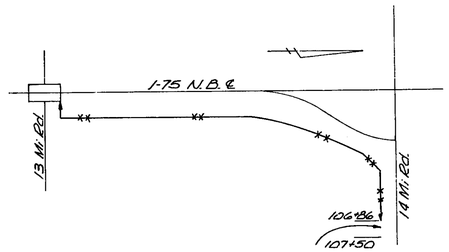
Remove woven wire fence and replace with 4' chain link fence from Sta. 1018+98 N.B. to Sta. 1061+86 14 Mi. Rd.

Standard Plan

Chain Link Fence V-98A.

Quantities - Entire Project

72 Inch Chain Link Fence	3946 Lin. Ft.
48 Inch Chain Link Fence	1489 Lin. Ft.
Removing Fence	5499 Lin. Ft.
Sign, Type IIB Temporary	128 Sq. Ft.
Minor Traffic Devices	1 Lump Sum



Remove Woven Wire
Do Not Replace With Fence

3

PAY ITEM	UNIT	AS PER PLANS 10455A	AS PER PLANS TOTALS	AS CONSTRUCTED 10455A	AS CONSTRUCTED TOTALS
72inch Chain Link Fence	Lin.Ft.	3946	3946		
48 inch. Chain Link Fence	Lin.Ft.	1489	1489		
Removing Fence	Lin.Ft.	5499	5499		
Sign, Type IIB Temporary	Sq.Ft.	128	128		
Minor Traffic Devices	Lump Sum	1	1		

10455A

4

CONTRACTORS CODE
2
ITEM NUMBER

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

BUREAU OF HIGHWAYS

PROPOSAL FOR PROJECT

INVITATIONAL BID

PROJECT	JOB NO.	FEDERAL NO.
U 63174	10455 A	UI 75-2(187)

BIDS WILL BE OPENED AT 3:30 P.M., E.S.T., ON WEDNESDAY, FEBRUARY 18, 1976 IN THE FIRST FLOOR CONFERENCE ROOM, HIGHWAYS BUILDING, LANSING, MICHIGAN

THE RIGHT IS RESERVED TO REJECT ANY OR ALL PROPOSALS

NOTE TO BIDDERS
This bid proposal must be signed by the bidder on Page III.

– SEE INSIDE OF COVER PAGE FOR INSTRUCTIONS TO BIDDERS –

5

CON-SEC ID	JOB NO.	MICHIGAN PROJECT
U 63174	10455A	UI 75-2(187)

LOCATION:
City of Madison Heights in Oakland County.

TYPE OF WORK:
48" and 72" Chain Link Fence.

DESCRIPTION:
Along Northbound I-75 between 13 and 14 Mile Roads.

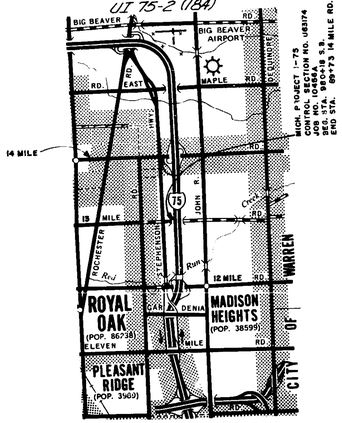
63174-10456A

LOG JOB

CS: 63174

ID: 10456A

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
CONTROL SECTION U63174
JOB NUMBER 10456A
I-75
OAKLAND COUNTY
CITY OF MADISON HEIGHTS
UI 75-2 (184)



ITEM 945

SQUAD: CLOCK		
TITLE	DATE	SIGNATURE
Design Engr. Road	12-30-75	O.J. Zaiac
Engr. of Design	12-30-75	M. Rabun
Construction Division	1/5/76	W. Cot

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JOHN P. WOODFORD, DIRECTOR
APPROVED: [signature] DEPUTY DIRECTOR — 1/8/76 DATE
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION — APPROVED
MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

LOG OF JOB NO. 10456A

Location of Work

Commencing on I-75, at 13 Mi. Rd. and 100' west of I-75 S.B., thence northerly along R.O.W. fence line to a point 100' south of Sta. 89+73 14 Mi. Rd.

Description of Work

Remove existing Woven Wire Fence and replace with 4' Chain Link Fence from Sta. 980+18 S.B. to 89+73 14 Mi. Rd. except as noted in the following:

a. Extend 4' Chain Link Fence along R.O.W. fence line at Sta. 1011+49. Remove existing woven wire fence to culvert headwall. Do not replace it.

Standard Plan

Chain Link Fence V-98A.

QUANTITIES - ENTIRE PROJECT

Removing Fence	5604 Lin.Ft.
48 inch Chain Link Fence	5452 Lin.Ft.
Sign Type IIB Temporary	128 Sq.Ft.
Minor Traffic Devices	1 Lump Sum
Mobilization	1 Lump Sum

LOG OF JOB NO. 10456A

Location of Work

Commencing on I-75, at 13 Mi. Rd. and 100' west of I-75 S.B., thence northerly along R.O.W. fence line to a point 100' south of Sta. 89+73 14 Mi. Rd.

Description of Work

Remove existing Woven Wire Fence and replace with 4' Chain Link Fence from Sta. 980+18 S.B. to 89+73 14 Mi. Rd. except as noted in the following:

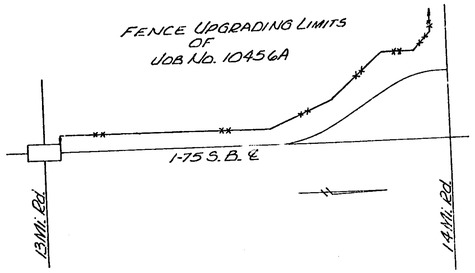
a. Extend 4' Chain Link Fence along R.O.W. fence line at Sta. 1011+49. Remove existing woven wire fence to culvert headwall. Do not replace it.

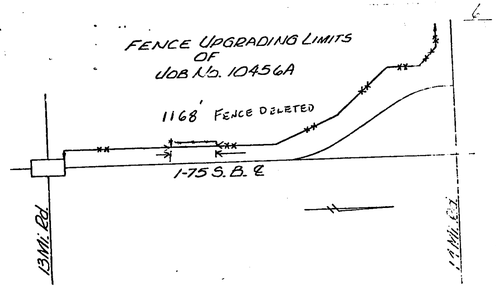
Standard Plan

Chain Link Fence V-98A.

QUANTITIES - ENTIRE PROJECT

Removing Fence	5604 Lin.Ft.
48 inch Chain Link Fence	5452 Lin.Ft.
Sign Type IIB Temporary	128 Sq.Ft.
Minor Traffic Devices	1 Lump Sum
Mobilization	1 Lump Sum





PAY ITEM	UNIT	AS PER PLAN 10456A	AS PER PLAN TOTALS	AS CONSTRUCTED 10456A	AS CONSTRUCTED TOTALS
Removing Fence	Lin.Ft.	5604	5604	5124	5124
48 inch Chain Link Fence	Lin.Ft.	5452	5452	4284	4284
Sign Type IIB Temporary	Sq.Ft.	128	128	64	64
Minor Traffic Devices	Lump Sum	1	1	1	1
Mobilization	Lump Sum	1	1	1	1
REMOVE CORNER POST				3	3
72" CHAIN LINK FENCE				10	10
LIQUIDATED DAMAGE - ADJ.				-340	-340
				-210	-210

10456A-4

CONTRACTORS CODE

1

ITEM NUMBER

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

BUREAU OF HIGHWAYS

Check Req

PROPOSAL FOR PROJECT

INVITATIONAL BID

PROJECT	JOB NO.	FEDERAL NO.
U 63174	10456 A	UI 75-2(184)

BIDS WILL BE OPENED AT 3:30 P.M., E.D.T., ON WEDNESDAY, MAY 19, 1976
IN THE FIRST FLOOR CONFERENCE ROOM, HIGHWAYS BUILDING, LANSING, MICHIGAN

THE RIGHT IS RESERVED TO REJECT ANY OR ALL PROPOSALS

– SEE INSIDE OF COVER PAGE FOR INSTRUCTIONS TO BIDDERS –

CON-SEC ID	JOB NO.	MICHIGAN PROJECT
U 63174	10456A	UI 75-2(184)

LOCATION:

City of Madison Heights in Oakland County.

TYPE OF WORK:

48" Chain Link Fence.

DESCRIPTION:

On I-75 southbound between 13 Mile and 14 Mile Roads.

63174-14165A
14166A
14824A

63174 14165A I 75 2(222)59
63174 14166A FIR 75 2(223)59
63174 14824A I 75 2(199)

4.5 MI OF CONC SHLDRS,MEDIAN BARRIER,
FILLER WALLS & BARRIER AT BRIDGE PIERS.
ALSO,JT REPAIR & SIGNING,ALL ON I-75 FR
S OAKLAND CO LINE(8 MILE RD),THENCE N'LY
TO N OF 12 MILE RD IN CITIES OF HAZEL
PARK,ROYAL OAK & MADISON HGTS, OAKLAD CO
ITEM 7910009

CS: 63174

ID: 14165A 14166A 14824A

ROUTE	JOB NUMBER	FEDERAL NUMBER	SHEET NO.	TOTAL SHEETS
I-75	14165A 14824A 14166A	I-75-2(222)59 I-75-2(199) FIR-75-2(223)59	1	96

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS 1976 STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS.

ROAD PLANS	SHEET NO'S.	
TITLE	1	
TYPICAL CROSS SECTION	2	
NOTE SHEET	3	
PLANS & PROFILES	4-9	14165A I-75-2(222)59
SPECIAL DETAILS	10-19	
Joint Repair Sheets	20-24	14166A FIR-75-2(223)59
Lighting Plans	25-40 & 35A	added by Rev'd 1-9-80 T.J.
Signing Plans	41-93	14824A I-75-2(199)
Quantity Sheets	94-96	

PLANS OF PROPOSED

MICHIGAN PROJECT I-75-2(222)59 & I-75-2(199) FIR-75-2(223)59

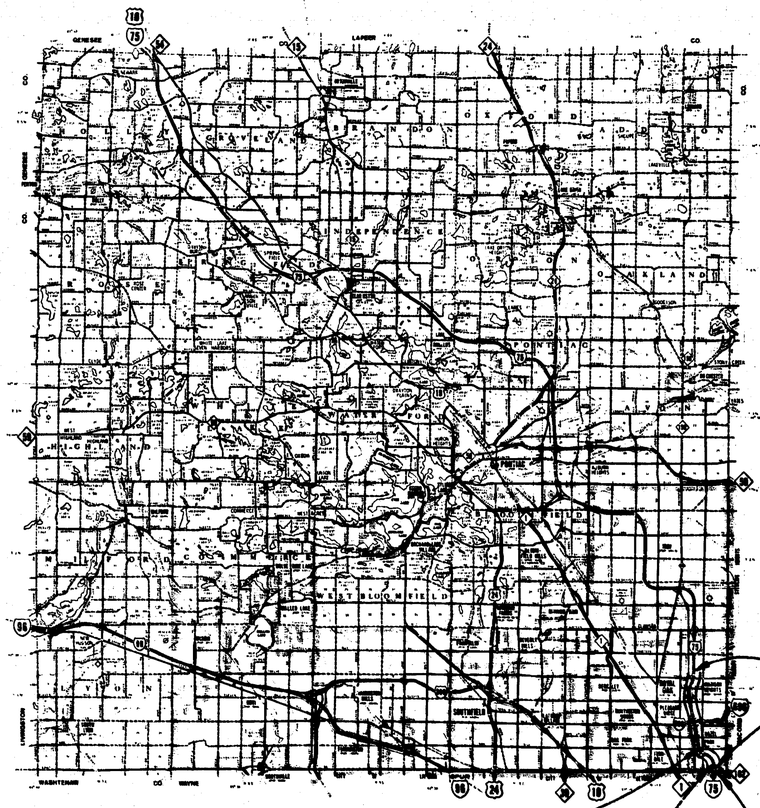
CONTROL SECTION Is 63174 & FUR 63174

JOB NUMBER 14165A & 14824A 14166A

I-75

OAKLAND COUNTY

CITIES OF HAZEL PARK, ROYAL OAK, MADISON HEIGHTS



Mich. Proj. I-75-2(222)59
Mich. Proj. I-75-2(199)
Cont. Sect. Is 63174
Job Number 14165A; 14824A

Mich. Proj. FIR-75-2(223)59
Cont. Sect. FUR 63174
Job Number 14166A

Begins Sta. 272+99.36
Ends Sta. 940+00

Station Equation
Sta. 161+50.59 Back =
Sta. 161+57.64 Ahead
Line Shortens 7.05'

Station Equation
Sta. 272+98.36 Back =
Sta. 272+99.36 Ahead
Line Shortens 0.50'

Station Relation
Sta. 285+81.50 Back =
Sta. 706+53.00 Ahead

LEGEND	1975	
A.D.T.	12 Mi.	89,200
D.H.V.	11 Mi.	107,000
COMM. % 7%		105,000
DESIGN SPEED	9 Mi.	103,700
	8 Mi.	126,800

TITLE SHEET LEGEND

EXISTING CONDITION

PROPOSED PROJECT	
PAVED	
BITUMINOUS	
GRAVEL	
UNIMPROVED OR CITY STREET	
SECTION LINE	
TOWNSHIP LINE	
COUNTY LINE	
CITY OR VILLAGE LIMITS	
RAILROADS	

AS CONSTRUCTED
ACCORDING TO MARKED PLANS
PREPARED BY PROJECT ENGINEER

ITEM NO. (Is) 92329 (Is) 92055 (FUR) 90175

CONTRACT FOR "Yellowbook" Roadside Safety Improvements & Joint Repair

APPROVALS

CHECKED	C. D. Zeigler	6/18/79 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF DESIGN	6/19/79 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF TRAFFIC & SAFETY	6/19/79 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF CONSTRUCTION	DATE

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JOHN P. WOODFORD - DIRECTOR

APPROVED BY: [signature] DEPUTY DIRECTOR - HIGHWAYS 6/28/79 DATE

PLANS PREPARED BY MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION ON CHRISTY

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED [redacted]

CONTROL SECTION	JOB NUMBER	FEDERAL PROJECT NUMBER	SHEET NO.
Is 63174 FUR 63174	14165A 14824A 14166A	I-75-2(222)59 I-75-2(199) FIR-75-2(223)59	1

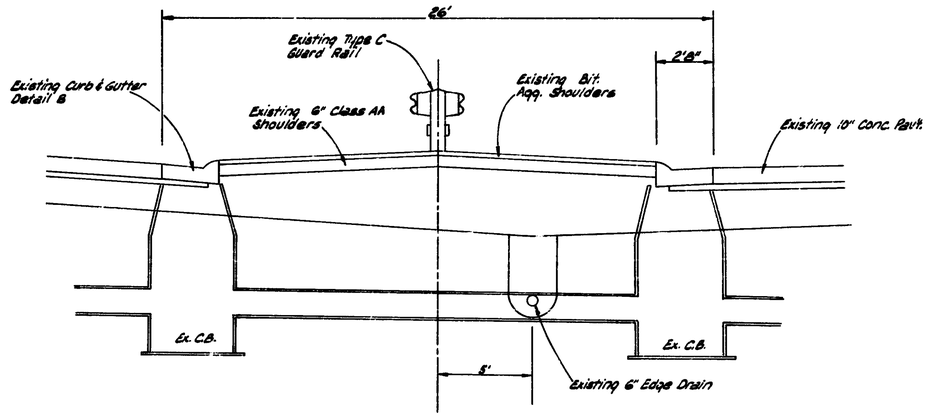
Is 63174; 14165A & 14824A-FUR63174; 14166A

FINAL R.O.W.

K. Ayers 4-20-78 Squad AM Christy

TYPICAL CROSS-SECTIONS

F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(222)59		2	96
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	Oakland	63174		14165	

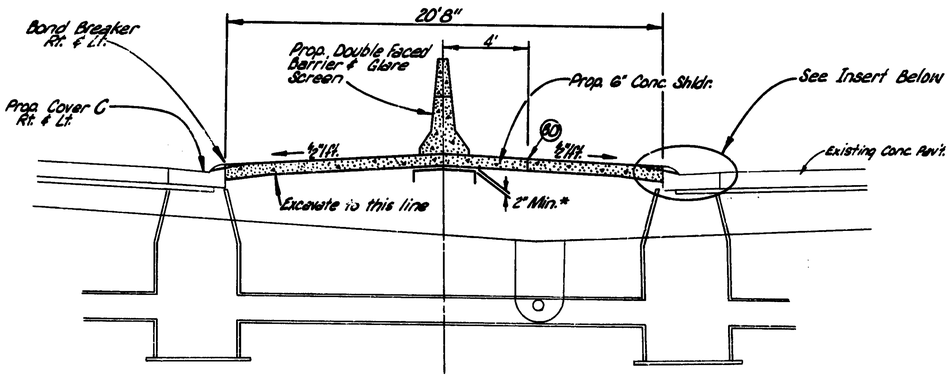


EXISTING SECTION

NOTES:
The edges of the existing pavement shall be thoroughly cleaned before concrete widening is placed.

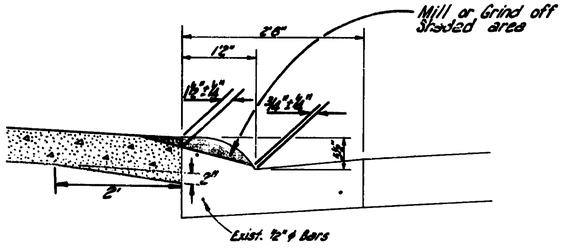
Class 4 Slopes will be required on this project.

* Remove the base of the existing lighting foundations to a minimum of 2" below the bottom of the proposed 6" Concrete Shoulders.



PROPOSED SECTION

The ½" per foot slope is a minimum and may vary depending upon the elevation of the respective curbs, which are not always equal.



NOTE:
The existing reinforcement may not occur exactly where it is shown. If a reinforcing bar is encountered at the intended grade and in the opinion of the Engineer it should be removed, the bar shall be removed and the surface lowered to eliminate the indentation left after removal of the bar. The removal of the bar will be paid for in Linear Feet as "Removing Curb Reinforcement".

DETAIL SHOWING "REMOVING CURB-PARTIAL"

JOINT LEGEND FOR PAVEMENT JOINTS

B - Longitudinal Bulkhead Construction Joint, according to Standard Plan II-41C

D - Longitudinal Lane Tie Joint with Tie Bars, according to Standard Plan II-41C

BD - Optional B or D

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.
1s 63174	14165	I-75-2(222)59		12

R.O.W. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	S-75-2(222)59 FI(I-75-2(223)59		3	96
ROUTE	COUNTY	CONTROL SECTION	JOB NO.		
I-75	OAKLAND	FUR& IS 63174	14165A & 14166A		

NOTE SHEET

GENERAL PLAN NOTES

UNDERGROUND UTILITIES

For protection of underground utilities, the contractor shall dial 1-800-482-7171 a minimum of 48 hours prior to excavating in the vicinity of utility lines. All "Miss Dig" participating members will thus be routinely notified. This does not relieve the contractor of the responsibility of notifying utility owners who may not be a part of the "Miss Dig" alert system.

ADJUSTING MONUMENT BOXES

It is the intent that all government corners on this project be preserved and that, where necessary, monument boxes be placed or adjusted, whether shown or not.

HAND FINISHING

Hand finishing of concrete pours to be struck off and consolidated by hand methods will be permitted on all pavement to be placed on this project.

CLASS B SODDING

Where Class B Sodding is called for in the plans, the beds shall be trimmed within the tolerances specified for Class A Slopes.

BEDDING AND FILLING

Bedding and filling around pipe culverts shall be done as specified on Standard Plan IV-82 Series.

MISCELLANEOUS ESTIMATES

The following items of work shall be done as they apply throughout the project. These items are not detailed or included on the plan or profile sheets:

	M.D.O.T.	City of Royal Oak	City of Madison Hts	
Lighted Arrow Type A-Furnished	1	1	1	Each
Lighted Arrow Type A-Operated	1	1	1	Each
Barricade Type II Lighted-Furnished	540	444	156	Each
Barricade Type II Lighted-Operated	202	167	58	Each
Sign Type IIB Temporary	324	266	94	S. F.
3 lb. Steel Post Temporary	450	370	130	L. F.
Removing Pavement Markings	76	63	22	L. F.
Minor Traffic Devices	.45	.37	.13	L. S.
Mobilization	.45	.37	.13	L. S.
On-the-Job Training	1	1	1	Each
Drainage Marker Post			7	Each
Reflectorized Washers			22	Each
Class B Sodding	4750	3515	1235	S. Y.
Removing Curb Reinforcement	2882	1518		L. F.

PUBLIC UTILITIES

The existing utilities listed below and shown on these plans represent the best information available as obtained on our office inquiry dated 4-12-79. This information does not relieve the contractor of the responsibility to satisfy himself as to their accuracy or of his responsibility in case utilities have been constructed or removed since the above survey date.

NAME AND ADDRESS OF OWNER	KIND OF UTILITY
Michigan Bell Telephone	Telephone
Detroit Edison Co.	Electric
Consumers Power Co.	Gas
Michigan Consolidated Gas	Gas

Owners of public utilities will not be required by the Department to move additional poles and structures that are not within grading or structure limits in order to facilitate the operation of construction equipment, unless it is determined by the engineer that such pole line or structures constitute a hazard to the public or are extraordinarily dangerous to the Contractor's operations.

NOTES APPLYING TO STANDARD PLANS

Where the following items are called for on plans, they are to be constructed according to standard plan given below opposite each item unless otherwise indicated.

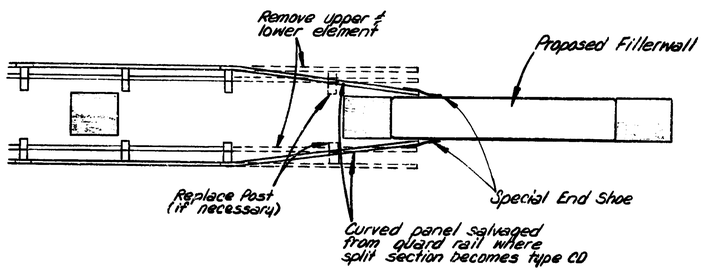
Cover A	I-7A
Longitudinal Pavement Joints	II-41C
Concrete Pavement Repair	II-44C
Concrete Barrier - Median	II-49D
Light Standard Foundation (Concrete Barrier - Median)	II-50C
Truss Support Foundation (Concrete Barrier - Median)	II-51C
Concrete Valley Gutter	II-53C
Guard Rail Ending with Cable Anchorage	III-58D
Guard Rail at Structures	III-59C
Beam Guard Rail - Types A, B, and C	III-60D
Concrete Glare Screen	III-76E
Bedding and Filling around Pipe Culverts	IV-82D
Outlet Headwalls, Concrete Rings, Drainage Marker, Mailbox & Wood Guard Posts	IV-85C
Precast Concrete End Section for Pipe Culvert	IV-86A (Except the Concrete Shall Have Air Entrained Content of 6 ± 2 Percent)
Sodding	V-100A
Drum Guide Rail, Drum Guide Rail Double, Drums, Timber Curb & Snow Fence, Timber Curb, and Splash Boards	VI-124C
Types II & III Barricades and Lighted Arrows	VI-125D

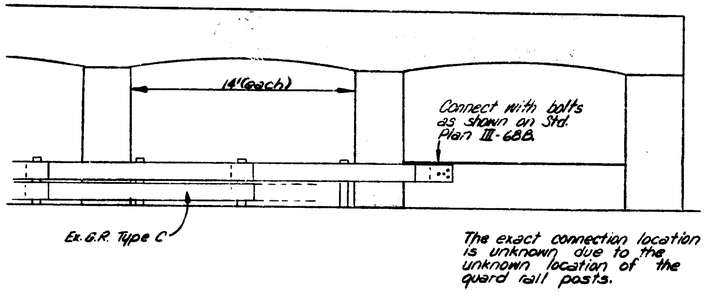
Special Details not listed under Standard Plans

	SPECIAL DETAIL
Fillerwalls between Existing Bridge Piers	5
Structure Guard Rail Anchorage	7-1
Concrete Barrier - Single Face	II-54A
Freeway Shoulders	V-112D

UNIT: CHRISTY

F.H.W.A. REG. NO	STATE	FEDERAL PROJECT	R.O.W. NO	SHEET NO	TOTAL SHEETS
5	MICH.	I-75-2(222)59		4	96
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	Oakland	63174		14165	





The exact connection location is unknown due to the unknown location of the guard rail posts.

DETAIL OF TEMPORARY GUARD RAIL CONNECTION

Incidental to "Fillerwall Concrete-Grade 35S"

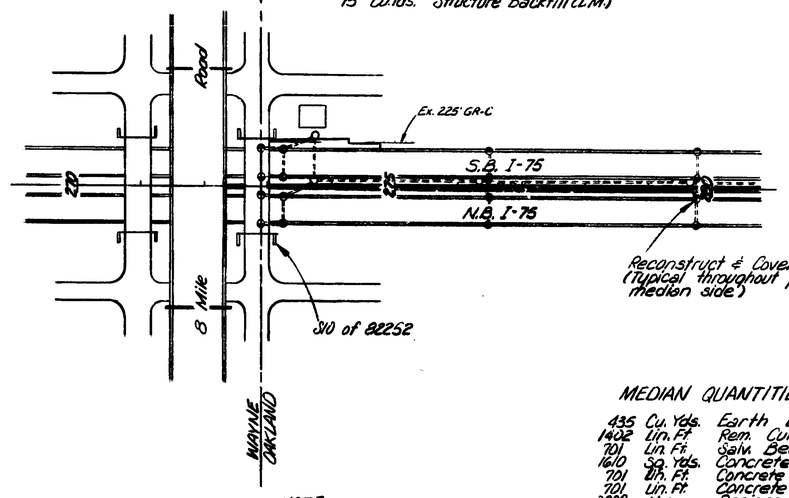
N

CITY OF DETROIT

CITY OF HAZEL PARK

S10 of 82252 (Outside)
Remove existing guard rail and place barrier & Fillerwall.

225	Lin. Ft.	Salv. Beam Guard Rail
125	Lin. Ft.	Concrete Barrier-Single Face
1.4	Cu. Yds.	Fillerwall Concrete Grade 35S
89	Lbs.	Steel Reinforcement
6	Each	3/4" Expansion Anchored Bolt
141	Lin. Ft.	Rem. Curb-Partial
232	Sq. Yds.	Concrete Shoulders
75	Cu. Yds.	Structure Backfill (LM)

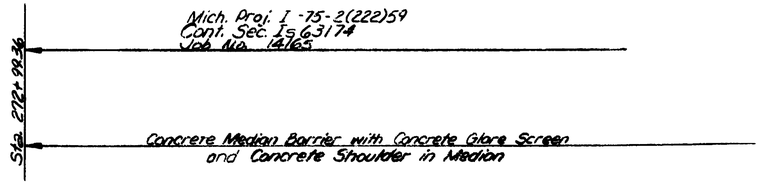


MEDIAN QUANTITIES: This Sheet

435	Cu. Yds.	Earth Excavation
1402	Lin. Ft.	Rem. Curb-Partial
701	Lin. Ft.	Salv. Beam Guard Rail
1610	Sq. Yds.	Concrete Shoulder
701	Lin. Ft.	Concrete Barrier-Double Face
701	Lin. Ft.	Concrete Glare Screen
3000	Lbs.	Drainage Structure Covers (6 Cov C's)
6	Each	Reconstruct Drainage Structure
5.5	Cu. Yds.	Fillerwall Concrete Grade 35S
147	Lbs.	Steel Reinforcement
8	Each	3/4" Expansion Anchored Bolt
3	Each	Light Standard Foundation, Concrete Barrier

NOTE:
See "Lighting Plans for locations of "Light Standard Foundation, Concrete Barrier".

STATION EQUATION
Sta. 272+98.86 Back =
Sta. 272+99.36 Ahead
Line Shortens 0.50'



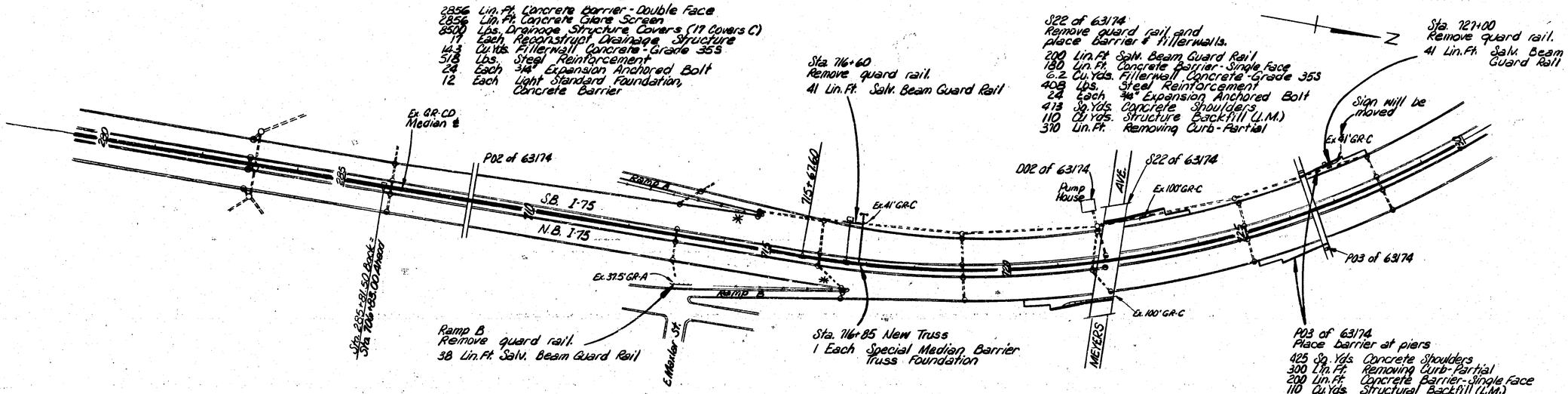
F.H.W.A. PROJ. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(222)59		5	96
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	Oakland	63174		14165	

City of Hazel Park

MEDIAN QUANTITIES
Sta. 280+00 to Sta. 730+00

2899 Lin. Ft. Salvaging Beam Guard Rail
5798 Lin. Ft. Removing Curb - Partial
1110 Cu. Yds. Earth Excavation
6657 Sq. Yds. Concrete Shoulders

2856 Lin. Ft. Concrete Barrier - Double Face
2856 Lin. Ft. Concrete Glare Screen
8500 Lbs. Drainage Structure Covers (17 Covers C)
17 Each Reconstruct Drainage Structure
14.3 Cu. Yds. Fillerwall Concrete - Grade 35S
518 Lbs. Steel Reinforcement
24 Each 3/4" Expansion Anchored Bolt
12 Each Light Standard Foundation, Concrete Barrier



Concrete Median Barrier with Concrete Glare Screen and Concrete Shoulders in median

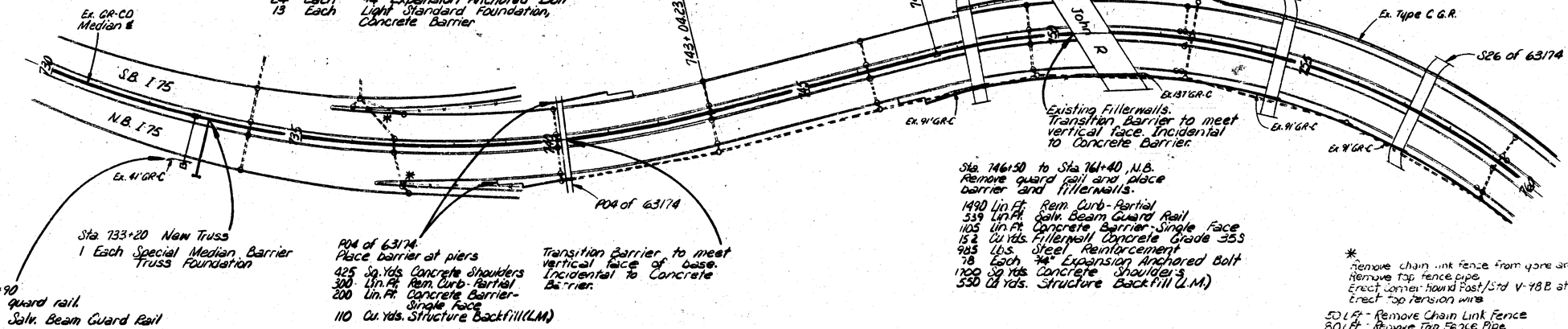
City of Hazel Park

MEDIAN QUANTITIES
Sta. 730+00 to Sta. 760+00

2025 Lin. Ft. Salv. Beam Guard Rail
6000 Lin. Ft. Rem. Curb - Partial
1150 Cu. Yds. Earth Excavation

6889 Sq. Yds. Concrete Shoulders
2845 Lin. Ft. Concrete Barrier-Double face

2845 Lin. Ft. Concrete Glare Screen
18 Each Reconstruct Drainage Structure
9000 Lbs. Drainage Structure Covers (18 Covers C)
18.8 Cu. Yds. Fillerwall Concrete Grade - 35S
485 Lbs. Steel Reinforcement
24 Each 3/4" Expansion Anchored Bolt
19 Each Light Standard Foundation, Concrete Barrier



Sta. 748+00 to Sta. 762+80, S.B.
Remove guard rail and place barrier and fillerwalls.

1563 Lin. Ft. Salv. Beam Guard Rail
1295 Lin. Ft. Concrete Barrier - Single Face
15.5 Cu. Yds. Fillerwall Concrete Grade 35S
985 Lbs. Steel Reinforcement
18 Each 3/4" Expansion Anchored Bolt
1996 Sq. Yds. Concrete Shoulders
2000 Cu. Yds. Structure Backfill (L.M.)
1345 Lin. Ft. Removing Curb - Partial

Transition barrier to meet vertical face of pump house, Incidental to Concrete barrier.

Sta. 746+50 to Sta. 761+40, N.B.
Remove guard rail and place barrier and fillerwalls.

1490 Lin. Ft. Rem. Curb - Partial
539 Lin. Ft. Salv. Beam Guard Rail
1105 Lin. Ft. Concrete Barrier - Single Face
15.2 Cu. Yds. Fillerwall Concrete Grade 35S
985 Lbs. Steel Reinforcement
18 Each 3/4" Expansion Anchored Bolt
1100 Sq. Yds. Concrete Shoulders
550 Cu. Yds. Structure Backfill (L.M.)

* Remove chain link fence from gore area
Remove Top fence pipe
Erect corner round post/Std V-98B at new ending
Erect Top Tension wire

50 Lft - Remove Chain Link Fence
80 Lft - Remove Top Fence Pipe
1 Ea - Corner post V 98 B
80 Ea - Furnish and Install Tension Wire

Concrete Median Barrier with Concrete Glare Screen and Concrete Shoulders in Median

CONTROL SECTION	JOB NO.	FEDERAL PROJECT		
63174	14165	I-75-2(222)59		5

K. Claus 5-78
K. Claus 5-78
P.M. Christy 1978
M.S. Hayhurst 2-18-79

P.R.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(222)59		6	96
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	Oakland	63174		14165	

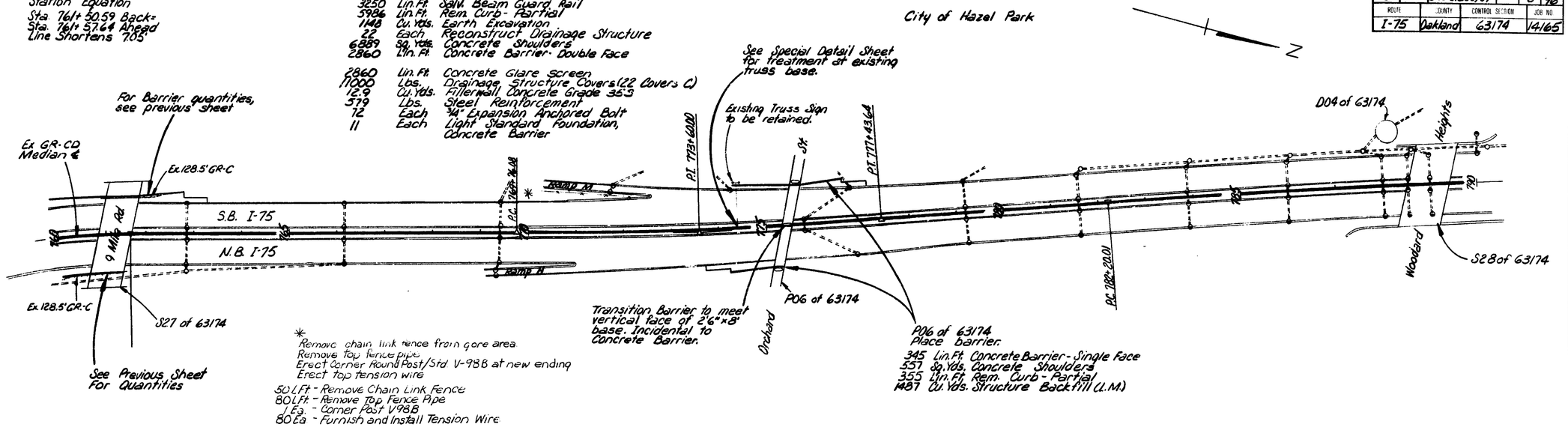
K. Claus 5-78
K. Claus 5-78
AM. Christy 1978

MEDIAN QUANTITIES
Sta. 760+00 to Sta. 790+00

3250	Lin. Ft.	Salv. Beam Guard Rail
5986	Lin. Ft.	Rem. Curb - Partial
1148	Cu. Yds.	Earth Excavation
22	Each	Reconstruct Drainage Structure
6889	Sq. Yds.	Concrete Shoulders
2860	Lin. Ft.	Concrete Barrier - Double Face
2860	Lin. Ft.	Concrete Glare Screen
11000	Lbs.	Drainage Structure Covers (22 Covers C)
12.9	Cu. Yds.	Fillerwall Concrete Grade 35 S
579	Lbs.	Steel Reinforcement
72	Each	3/4" Expansion Anchored Bolt
11	Each	Light Standard Foundation, Concrete Barrier

Station Equation
Sta. 76+50.59 Back =
Sta. 76+57.64 Ahead
Line Shortens 7.05

City of Hazel Park



* Remove chain link fence from gore area.
Remove Top fence pipe.
Erect Corner Round Post/Std. V-988 at new ending
Erect Top Tension wire
50 L.Ft. - Remove Chain Link Fence
80 L.Ft. - Remove Top Fence Pipe
1 Ea. - Corner Post V988
80 Ea. - Furnish and Install Tension Wire

Concrete Median Barrier with Concrete Glare Screen and Concrete Shoulders in Median

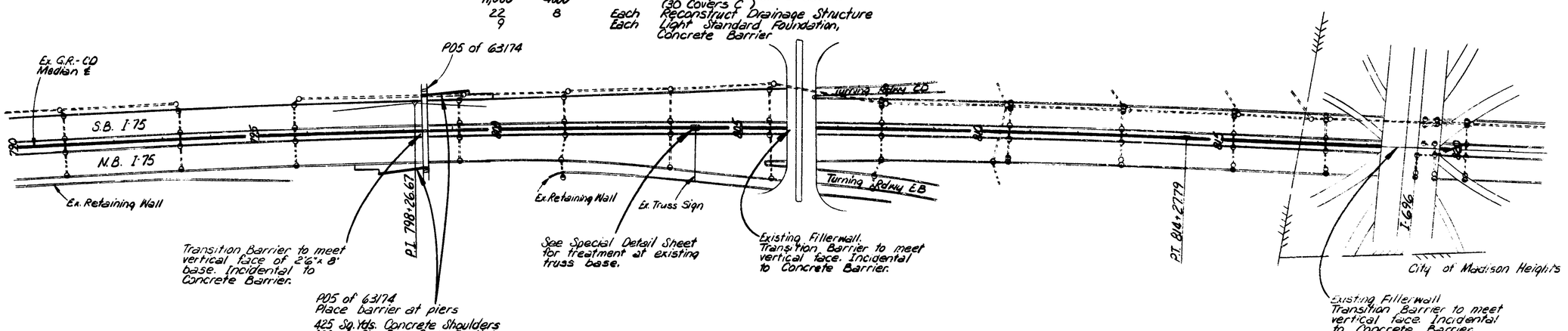
A.T. Nugent 2-13-79

MEDIAN QUANTITIES
Sta. 790+00 to Sta. 820+00

M.D.O.T.	ROYAL OAK	
2610	215	Lin. Ft. Salv. Beam Guard Rail
3320	680	Lin. Ft. Rem. Curb - Partial
1018	130	Cu. Yds. Earth Excavation
6108	780	Sq. Yds. Concrete Shoulders
2597	225	Lin. Ft. Concrete Barrier - Double Face
2597	225	Lin. Ft. Concrete Glare Screen
11,000	4000	Lbs. Drainage Structure Covers (30 Covers C)
22	8	Each Reconstruct Drainage Structure
9		Each Light Standard Foundation, Concrete Barrier

City of Hazel Park

City of Royal Oak



P05 of 63174
Place barrier at piers
425 Sq. Yds. Concrete Shoulders
300 Lin. Ft. Rem. Curb - Partial
200 Lin. Ft. Concrete Barrier - Single Face
110 Cu. Yds. Structure Backfill (L.M.)
1 Each Reconstruct Drainage Structure
500 Lbs. Drainage Structure Covers (1 Cover)

Concrete Median Barrier with Concrete Glare Screen and Concrete Shoulders in Median

63174	14165	I-75-2(222)59		6

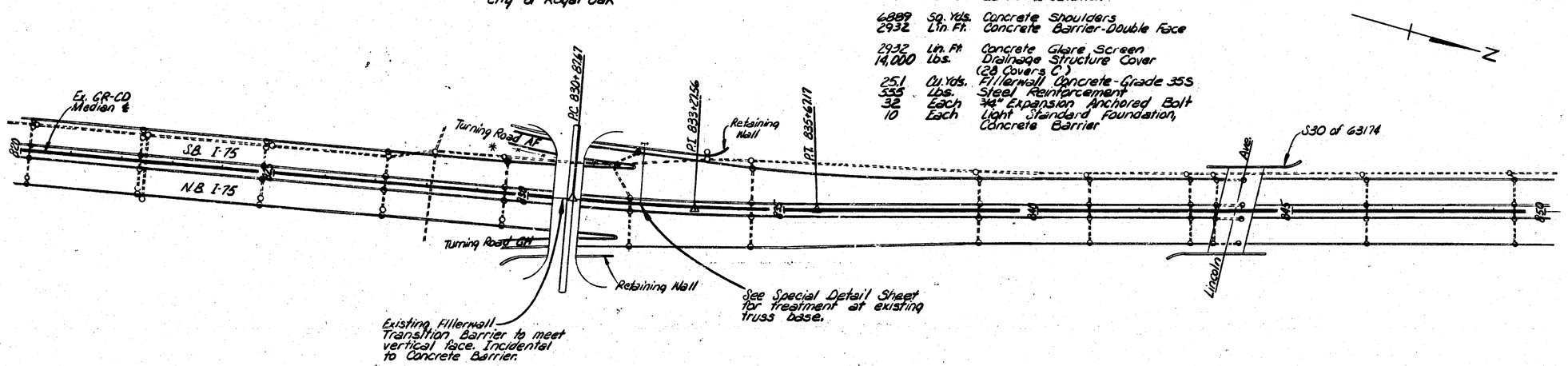
F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(222)59		7	96
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	Oakland	63174		14165	

K. Davis 5-78
K. Davis 6-78
RM Christy 1978

H.F. Nyquist 2-13-79

MEDIAN QUANTITIES
Sta. 820+00 to 850+00

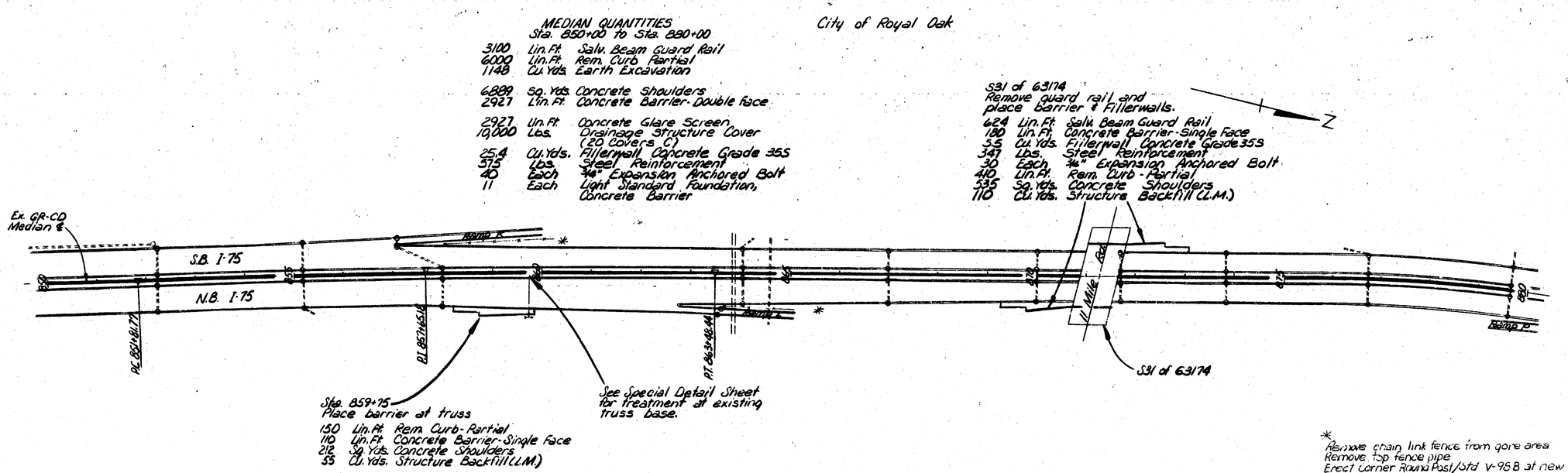
2945	Lin. Ft.	Salv. Beam Guard Rail
6000	Lin. Ft.	Rem. Curb - Partial
1148	Cu. Yds.	Earth Excavation
6889	Sq. Yds.	Concrete Shoulders
2932	Lin. Ft.	Concrete Barrier-Double Face
2932	Lin. Ft.	Concrete Glare Screen
14,000	Lbs.	Drainage Structure Cover (28 Covers C)
25.1	Cu. Yds.	Fillerwall Concrete-Grade 35S
535	Lbs.	Steel Reinforcement
32	Each	3/4" Expansion Anchored Bolt
10	Each	Light Standard Foundation, Concrete Barrier



Concrete Median Barrier with Concrete Glare Screen and Concrete Shoulders in Median

MEDIAN QUANTITIES
Sta. 850+00 to Sta. 880+00

3100	Lin. Ft.	Salv. Beam Guard Rail
6000	Lin. Ft.	Rem. Curb Partial
1148	Cu. Yds.	Earth Excavation
6889	Sq. Yds.	Concrete Shoulders
2927	Lin. Ft.	Concrete Barrier-Double face
2927	Lin. Ft.	Concrete Glare Screen
10,000	Lbs.	Drainage Structure Cover (20 Covers C)
25.4	Cu. Yds.	Fillerwall Concrete Grade 35S
375	Lbs.	Steel Reinforcement
40	Each	3/4" Expansion Anchored Bolt
11	Each	Light Standard Foundation, Concrete Barrier



Concrete Median Barrier with Concrete Glare Screen and Concrete Shoulders in Median

* Remove chain link fence from gore area
Remove top fence pipe
Erect corner Round Post/Std V-98 B at new ending
Erect top tension wire

50 Lft - Remove Chain Link Fence
80 Lft - Remove Top Fence Pipe
1 Ea - Corner Post V 98 B
80 Ea - Furnish and Install Tension Wire

CONTROL SECTION	JOB NO.	FEDERAL PROJECT		
63174	14165	I-75-2(222)59		7

F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(222)59		8	96
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	Oakland	Is63174		14165	

K. Claus 5-78
K. Claus 5-78
R.M. Christy 1978
H.T. Higuist 2-15-79

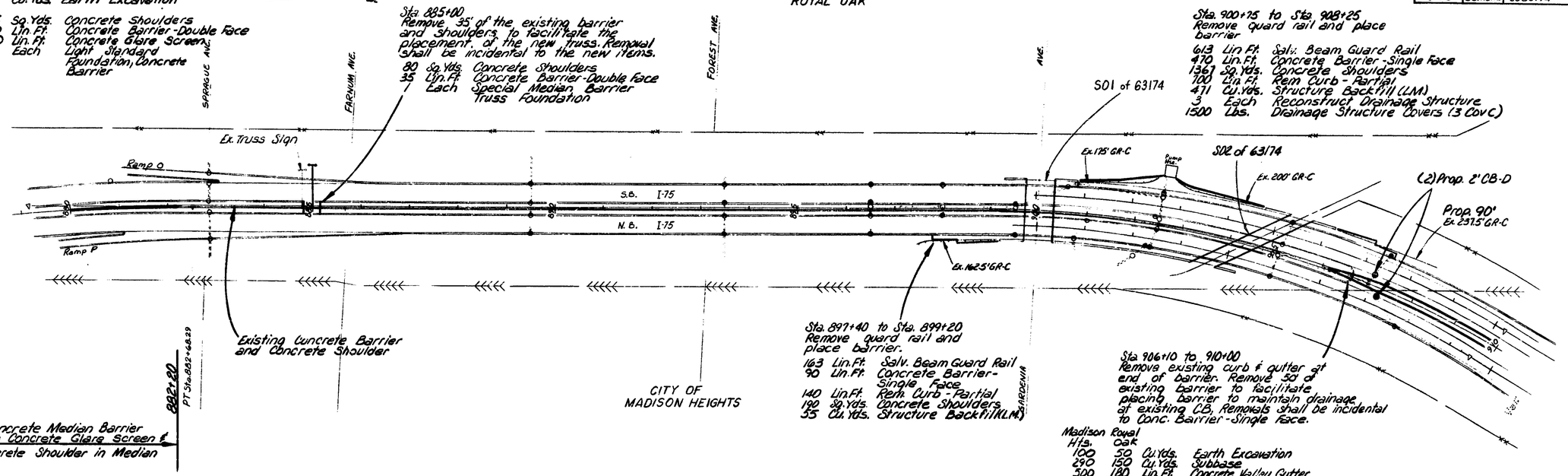
MEDIAN QUANTITIES
Sta. 880+00 to 882+20

220	Lin.Ft.	Salv. Beam Guard Rail
440	Lin.Ft.	Rem. Curb - Partial
84	Cu.Yds.	Earth Excavation
505	Sq.Yds.	Concrete Shoulders
220	Lin.Ft.	Concrete Barrier - Double Face
220	Lin.Ft.	Concrete Glare Screen
1	Each	Light Standard Foundation, Concrete Barrier

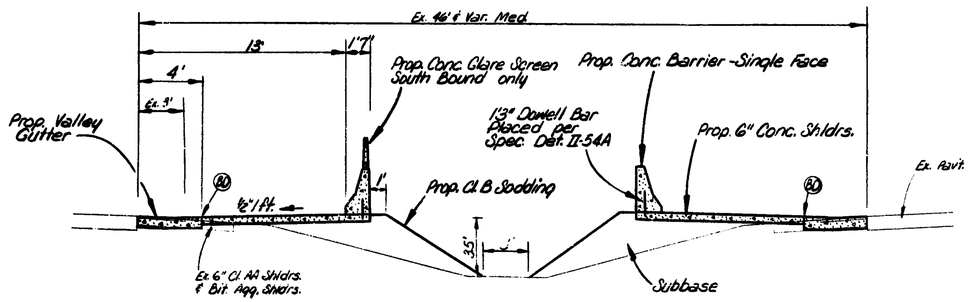
ROYAL OAK TWP.
Sec. 14
T1N R11E

CITY OF
ROYAL OAK

B.M. No. 73, Elev. 638.77
U.S.N.D. Tag in base of 20" Oak Tree 248' Lt. of Sta. 903 + 37 Survey



Madison	Royal Oak		
Hts.			
100	50	Cu.Yds.	Earth Excavation
290	150	Cu.Yds.	Subbase
500	190	Lin.Ft.	Concrete Valley Gutter
525	275	Sq.Yds.	Concrete Shoulders
520	260	Lin.Ft.	Concrete Barrier - Single Face
235	155	Lin.Ft.	Concrete Glare Screen
1	1	Each	2' Dia. Drainage Structure
455	455	Lbs.	Drainage Structure Covers (2 Cov D)



SECTION TO APPLY
Sta. 906+65 to 931+15

JOINT LEGEND FOR PAVEMENT JOINTS
(A) Longitudinal Bulkhead Joint, according to Standard Plan II-41C
(D) Longitudinal Lane Tie Joint with Tie Bars, according to Standard Plan II-41C
(B,D) Optional B or D

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.
63174	14165	I-75-2(222)59		8

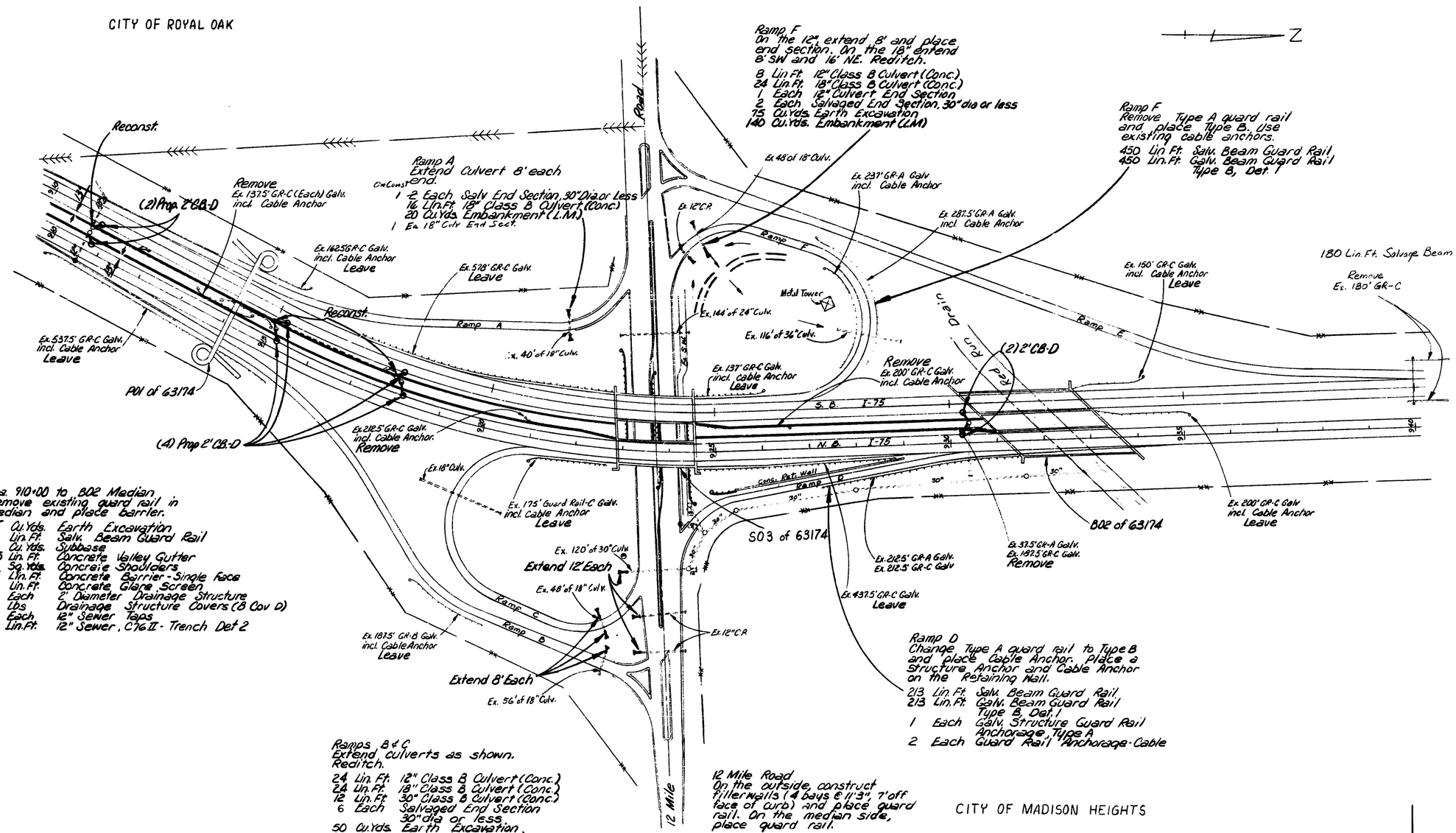
F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(222)59		9	96
ROUTE	COUNTY	CONTROL SECTION	JOB NO.		
I-75	Oakland	Is 63174	14165		

B.M. No. 71, Elev. 638.34
M.S.H.D. Tag in Root of 24" Elm
167' Rt. 912 + 60 N. B. Rdwy.

B.M. No. 68 Elev. 638.31
M.S.H.D. Tag in Root of 24" Elm
241' Lt. 939 + 43 N. B. Rdwy.

Sec. 14
T1N R11E
Royal Oak Twp.

CITY OF ROYAL OAK



Sta. 910+00 to B02 Median
Remove existing guard rail in median and place barrier.

425	Cu.Yds.	Earth Excavation
213	Lin.Ft.	Salv. Beam Guard Rail
1975	Cu. Yds.	Subbase
3805	Lin. Ft.	Concrete Valley Gutter
665	Sq. Yds.	Concrete Shoulders
3805	Lin. Ft.	Concrete Barrier - Single Face
1885	Lin. Ft.	Concrete Glare Screen
8	Each	2' Diameter Drainage Structure
3640	Lbs.	Drainage Structure Covers (8 Cov D)
8	Each	12" Sewer Taps
128	Lin.Ft.	12" Sewer, C76 II - Trench Det 2

Ramps B & C
Extend culverts as shown.
Reditch.

24	Lin. Ft.	12" Class B Culvert (Conc.)
24	Lin. Ft.	18" Class B Culvert (Conc.)
12	Lin. Ft.	30" Class B Culvert (Conc.)
6	Each	Salvaged End Section 30" dia or less
50	Cu. Yds.	Earth Excavation
75	Cu. Yds.	Embankment (L.M.)

Ramp D
Change Type A guard rail to Type B and place Cable Anchor. Place a Structure Anchor and Cable Anchor on the Retaining Wall.

213	Lin. Ft.	Salv. Beam Guard Rail
213	Lin. Ft.	Galv. Beam Guard Rail Type B, Det. 1
1	Each	Galv. Structure Guard Rail Anchorage, Type A
2	Each	Guard Rail Anchorage - Cable

12 Mile Road
On the outside, construct Fillerwalls (4 bays @ 11'3", 7' off face of curb) and place guard rail. On the median side, place guard rail.

17.2	Cu. Yds.	Concrete Grade, 35S, Fillerwalls
298	Lbs.	Steel Reinforcement
24	Each	3/4" Expansion Anchored Bolt
325	Lin. Ft.	Galv. Beam Guard Rail, Type B, Det. 1
4	Each	Guard Rail Anchorage, Cable
2	Each	Terminal End Shoe

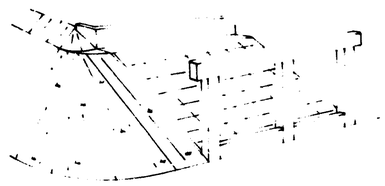
CITY OF MADISON HEIGHTS

Sec. 11
T1N R11E
Royal Oak Twp.

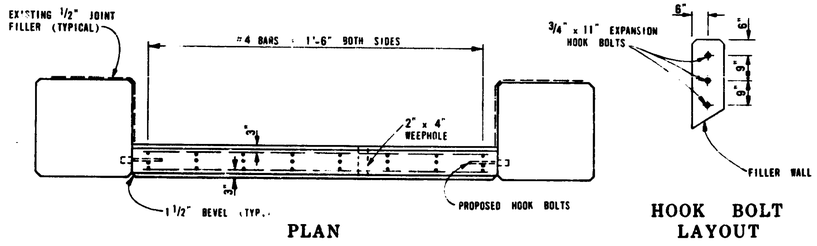
Mich. Project I-75-2(222)59
Cont. Section Is 63174
Job Number 14165
Ends Sta. 940+00

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.
63174	14165	I-75-2(222)59		9

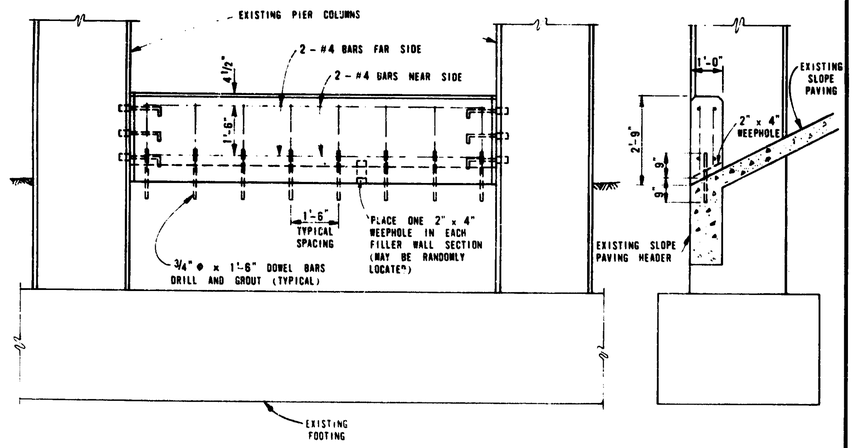
XS Class 6-78
K. McFee
K. Class 6-78
P.M. Christy 1978
M.J. Nguyen 2-13-79



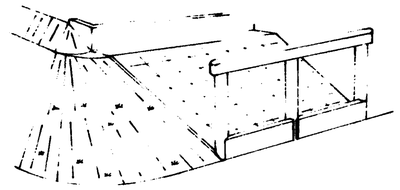
SKETCH OF FILLER WALLS AT SQUARE PIER COLUMNS



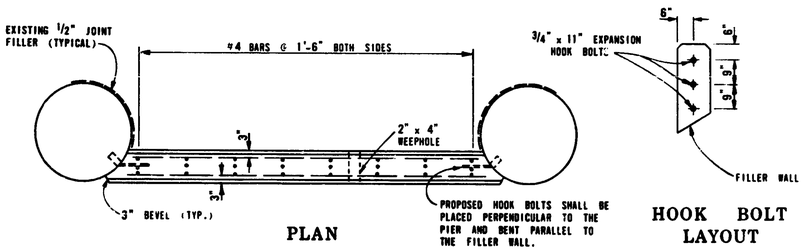
PLAN — HOOK BOLT LAYOUT



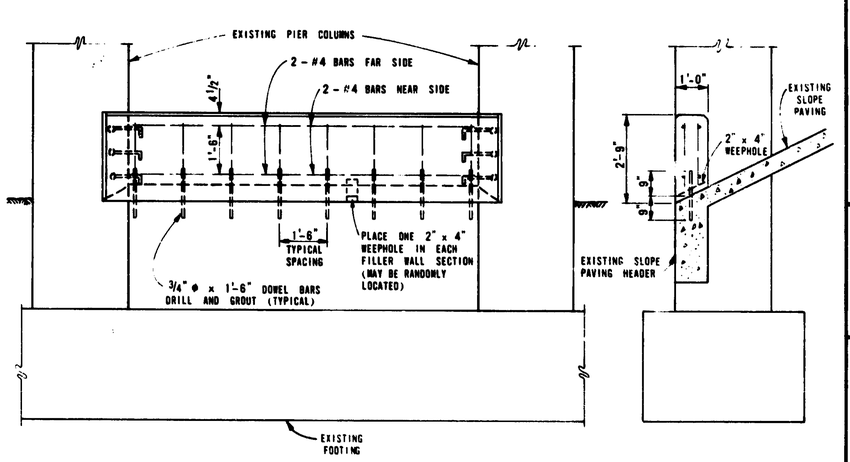
ELEVATION — SECTION



SKETCH OF FILLER WALLS AT ROUND PIER COLUMNS



PLAN — HOOK BOLT LAYOUT



ELEVATION — SECTION

NOTES:

GUARD RAIL ATTACHMENT TO FILLER WALLS SHALL BE AS SHOWN ON SPECIAL DETAIL 7-1.

WHEN "NEW JERSEY" SHAPE BARRIER IS PLACED IN FRONT OF BRIDGE PIERS. SEE STANDARD PLAN II-49 SERIES.

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
SPECIAL DETAIL

FILLER WALLS BETWEEN EXISTING BRIDGE PIERS

APPROVALS

CHECKED	C. J. Zajac, ENGINEER - ROAD DESIGN	1-30-78 DATE
CHECKED	L. J. Mac Leary, ENGINEER - BRIDGE DESIGN	1/30/78 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF DESIGN	DATE
RECOMMENDED FOR APPROVAL	R. C. Bruchnell, ENGINEER OF TRAFFIC AND SAFETY	2-24-78 DATE
RECOMMENDED FOR APPROVAL	W. L. Evans, ENGINEER OF CONSTRUCTION	3-17-78 DATE

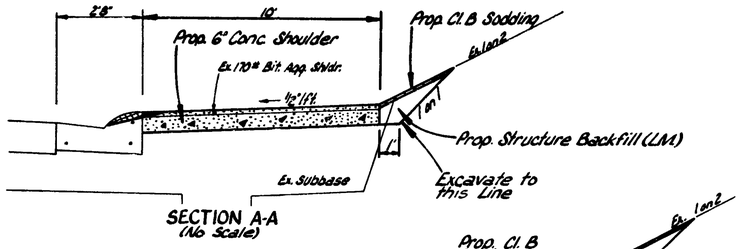
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JOHN P. WOODFORD - DIRECTOR

BY Glenn Canby, DEPUTY DIRECTOR - HIGHWAYS — 3/22/78 DATE

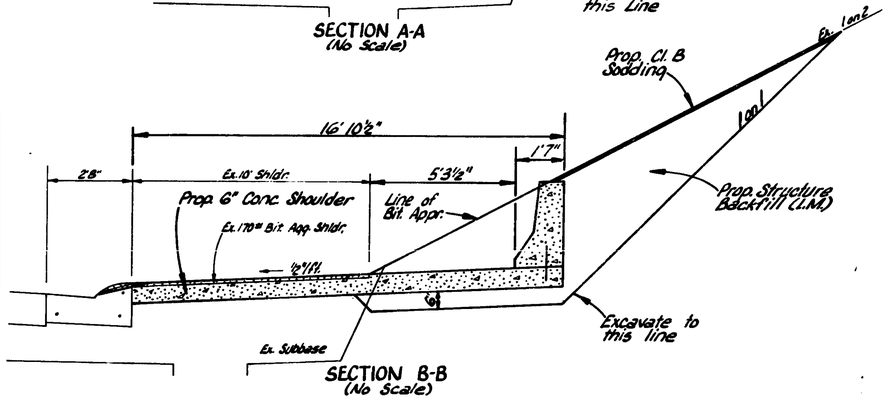
DRAWN BY H A ø	CHECKED BY V R	REVISED BY	2-9-79 DATE
PREPARED BY DESIGN DIVISION	APPROVED F.H.W.A. DATE	SPECIAL DETAIL	5

CONTROL SECTION 1s 63174 JOB NO 14165 I-75-2(222)59 10

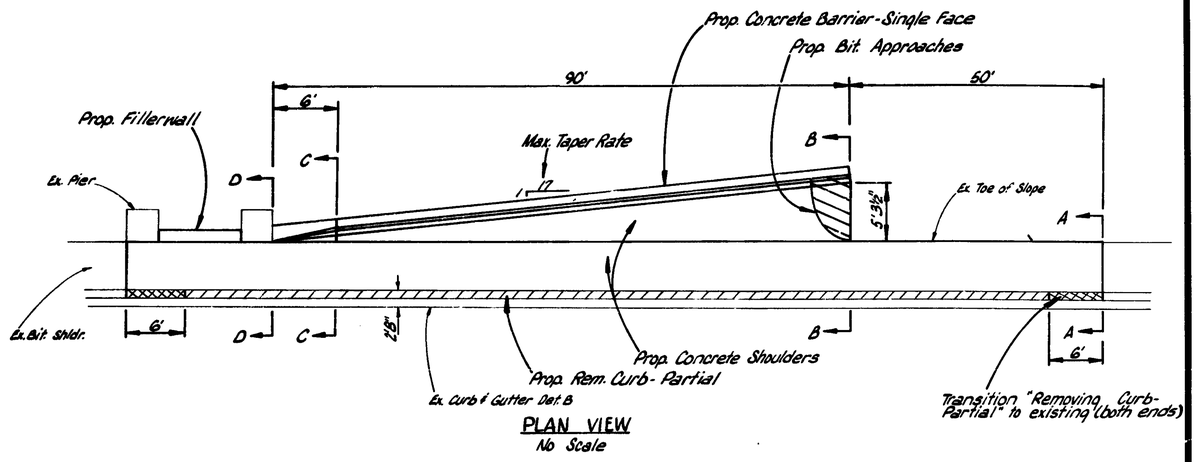
F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. SHEET NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(222)59		11	96
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	Oakland	63174		14165	



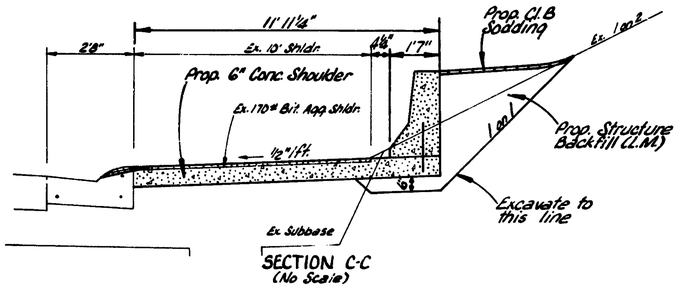
SECTION A-A
(No Scale)



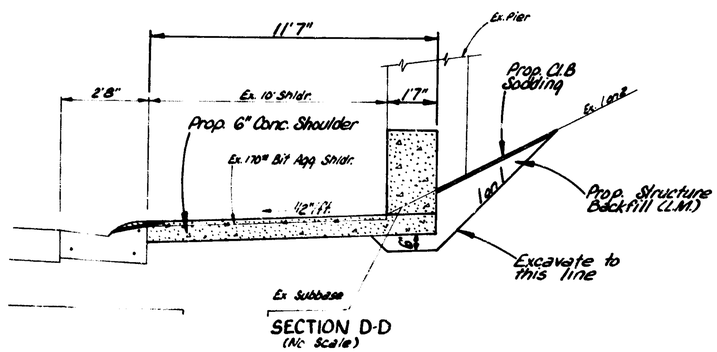
SECTION B-B
(No Scale)



PLAN VIEW
No Scale



SECTION C-C
(No Scale)



SECTION D-D
(No Scale)

NOTES:

See Special Detail II-54A for cross-section of barrier, location of steel and location of joints.

See TYPICAL CROSS-SECTION sheet for detail of "Removing Curb-Partial".

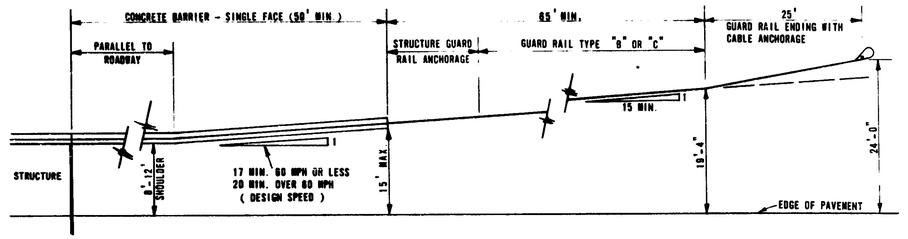
The necessary excavation to install the barrier and shoulders shall be incidental to "Concrete Shoulders".

"Bituminous Approaches" shall be incidental to "Concrete Barrier-Single Face".

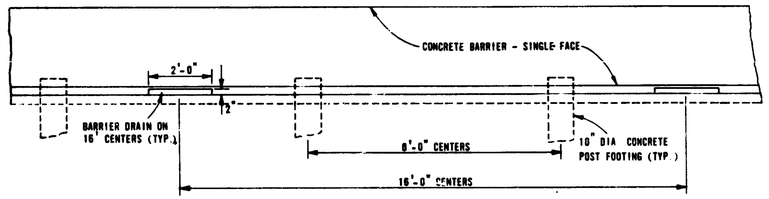
SPECIAL DETAIL FOR CONCRETE BARRIER-SINGLE FACE

IS	63174	14165	I-75-2(222)59		

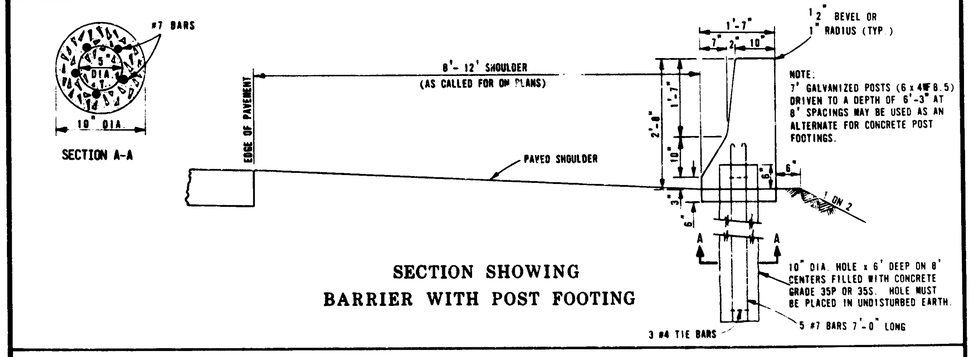
Squad. P.M. Christy Drawn by K. Claus



CONCRETE BARRIER - SINGLE FACE WITH GUARD RAIL ENDING



SECTION SHOWING BARRIER DRAIN



SECTION SHOWING BARRIER WITH POST FOOTING

NOTES:

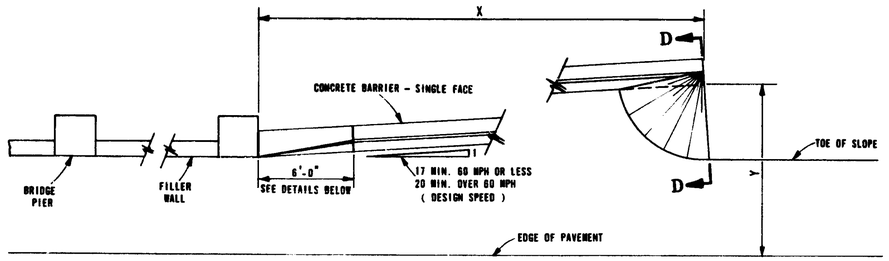
PLACE 1" EXPANSION JOINTS IN BARRIER AT 400' INTERVALS. ALSO, PLACE 1" EXPANSION JOINTS AT BEGINNING OF SECTIONS AT STRUCTURES (INCLUDING SIGN SUPPORTS, LIGHT STANDARD FOUNDATIONS, BRIDGE PIERS, OR ANY STRUCTURE WITH A FOUNDATION) AND AT THE P.C. AND P.T. OF CURVED BARRIER WHEN THE CURVE IS SHARPER THAN 2°30'. LOCATION OF EXPANSION JOINTS SHOULD BE ADJUSTED TO MATCH EXPANSION JOINTS IN SHOULDER. PLANE OF WEAKNESS JOINT SPACING SHALL BE 20'-0" MAXIMUM AND 12'-0" MINIMUM. IF THE BARRIER IS ON A CONCRETE SHOULDER, PLANE OF WEAKNESS JOINT SPACING SHALL COINCIDE WITH THAT IN THE SHOULDER.

PLANE OF WEAKNESS JOINTS IN BARRIER SHALL BE TO A DEPTH OF AT LEAST 4" AND SHALL BE EDGED.

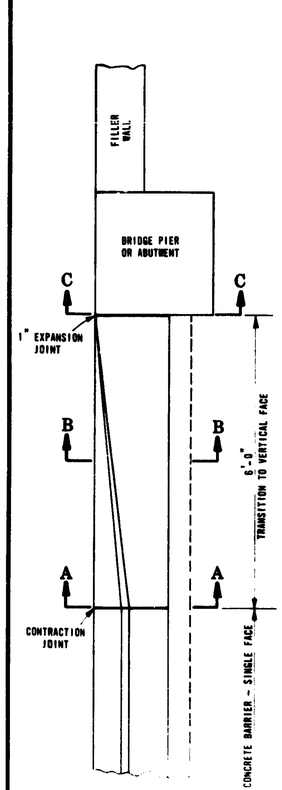
BARRIER SHALL BE ENDED BY BURYING IN SIDE SLOPE (DEPRESSED ROADWAY), AND BY GUARD RAIL ENDING WITH CABLE ANCHORAGE (FILL AREAS) IN ACCORDANCE WITH CURRENT STANDARD PLAN III-58 SERIES.

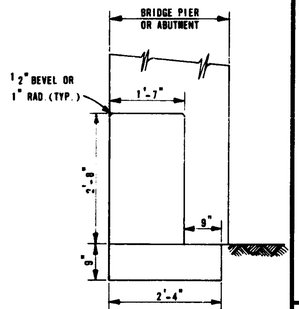
[illegible] GUARD RAIL ANCHORAGE. SEE STANDARD PLAN III-67 SERIES.

PREPARED BY DESIGN DIVISION	C.J. Zyzo — ENGINEER - ROAD DESIGN	L. Miller Creary — ENGINEER OF DESIGN	MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION STANDARD PLAN FOR **CONCRETE BARRIER - SINGLE FACE** (FILL AREAS)
DRAWN BY D F W	ENGINEER OF TRAFFIC AND SAFETY	DEPARTMENT DIRECTOR JOHN P. WOODFORD	
CHECKED BY V R	ENGINEER OF CONSTRUCTION	BY: DEPUTY DIRECTOR - HIGHWAYS	F H W A APPROVAL DATE · 4-18-78 PLAN DATE · II - 54A · SHEET 1 OF 3
			CONTROL SECTION 1s 63174 · JOB NO 14165 · FEDERAL PROJECT (S) 31222)59 · ROW NO · SHEET NO 12

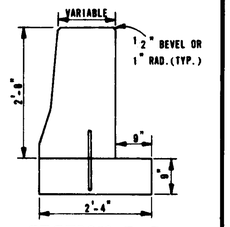


SHOULDER WIDTH 8' OR LESS

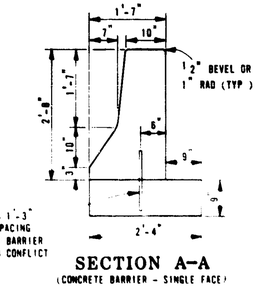




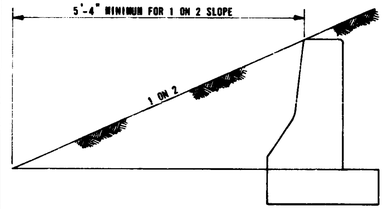
SECTION C-C



SECTION B-B



SECTION A-A
(CONCRETE BARRIER - SINGLE FACE)

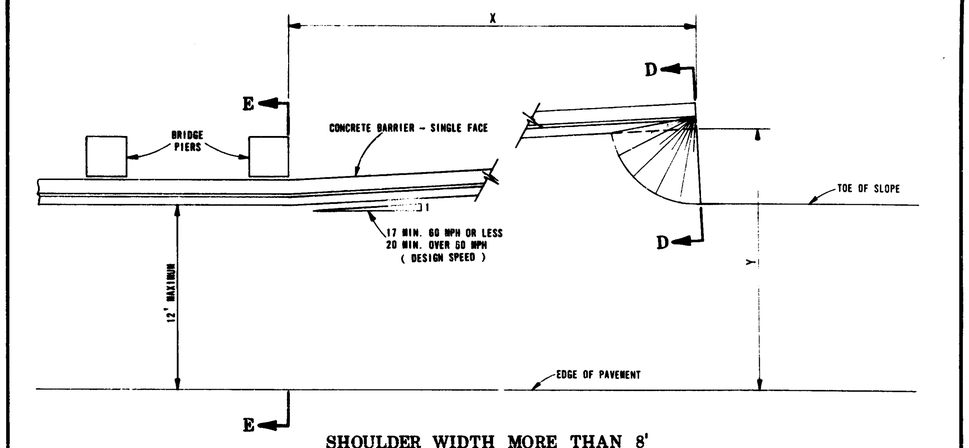


SECTION D-D

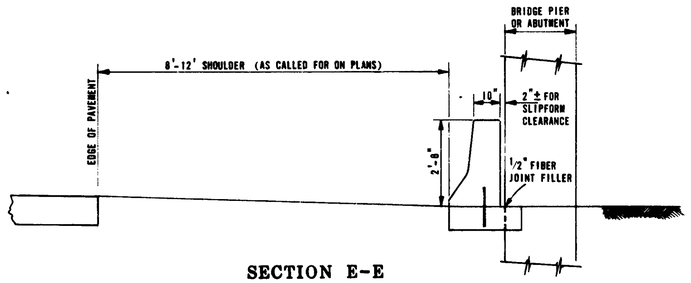
SHOULDER WIDTH	MIN. LENGTH X	MIN. OFFSET Y
6'	170'	11.3'
8'	130'	13.3'
10'	90'	15.3'
12'	90'	17.3'

CORBELS SHALL BE #6 DEFORMED BARS 1'-3" LONG AND SHALL BE PLACED AT 3' SPACING STARTING 1'-6" FROM BEGINNING OF BARRIER SPACING MAY BE ADJUSTED TO AVOID CONFLICT WITH EXPANSION JOINT

PREPARED BY DESIGN DIVISION	C. D. Zajac — ENGINEER - ROAD DESIGN	W. MacInerney — ENGINEER OF DESIGN	MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION STANDARD PLAN FOR CONCRETE BARRIER · SINGLE FACE (DEPRESSED ROADWAY)
DRAWN BY D F W		DEPARTMENT DIRECTOR JOHN P. WOODFORD	
CHECKED BY V R	ENGINEER OF TRAFFIC AND SAFETY	BY: DEPUTY DIRECTOR - HIGHWAYS	
	ENGINEER OF CONSTRUCTION		F H W A APPROVAL DATE · 4-18-78 PLAN DATE · II - 54A · SHEET 2 OF 3



SHOULDER WIDTH MORE THAN 8'

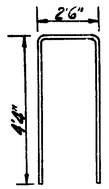


SECTION E-E

PREPARED BY DESIGN DIVISION	C. D. Zajac — ENGINEER - ROAD DESIGN	W. MacInerney — ENGINEER OF DESIGN	MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION STANDARD PLAN FOR CONCRETE BARRIER · SINGLE FACE (DEPRESSED ROADWAY)
DRAWN BY D F W		DEPARTMENT DIRECTOR JOHN P. WOODFORD	
CHECKED BY V R	ENGINEER OF TRAFFIC AND SAFETY	BY: DEPUTY DIRECTOR - HIGHWAYS	
	ENGINEER OF CONSTRUCTION		F H W A APPROVAL DATE · 4-18-78 PLAN DATE · II - 54A · SHEET 3 OF 3

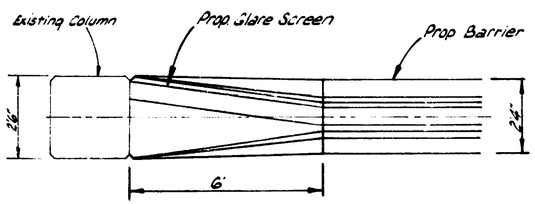
P.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(222)59		14	76
ROUTE	COUNTY	CONTROL SECTION	JOB NO.		
I-75	Oakland	63174	14165		

Variable Length

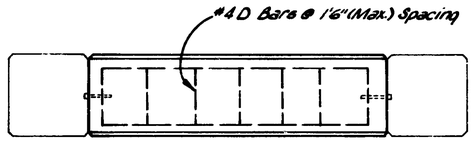


#4 A Bar #4 D Bar

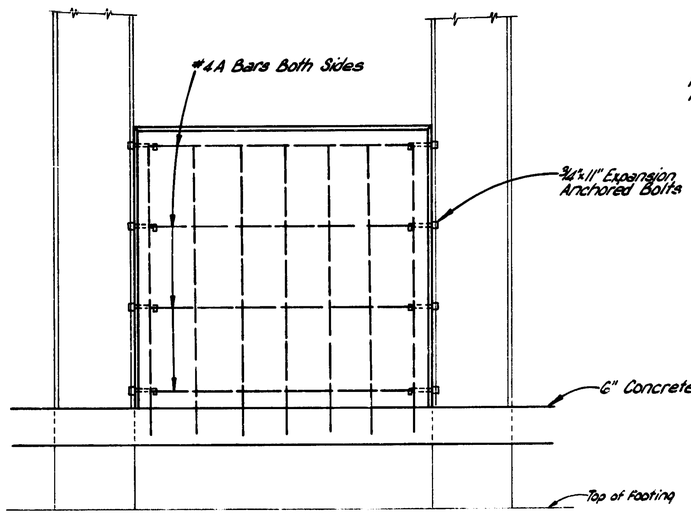
Structure Number & Location	Number of Bays	Bay Width
S10 of 82252 - 8 Mile	1	14'
S22 of 63174 - Meyers	3	10'1"
S23 of 63174	1	16'
S24 of 63174 - John R	5	11'9"
S25 of 63174	1	16'
S26 of 63174	1	15'
S27 of 63174 - 9 Mile	5	9'6"
S28 of 63174 - Woodward Hts.	4	13'5"
S30 of 63174 - Lincoln	4	13'4"
S31 of 63174 - 11 Mile	5	10'9"



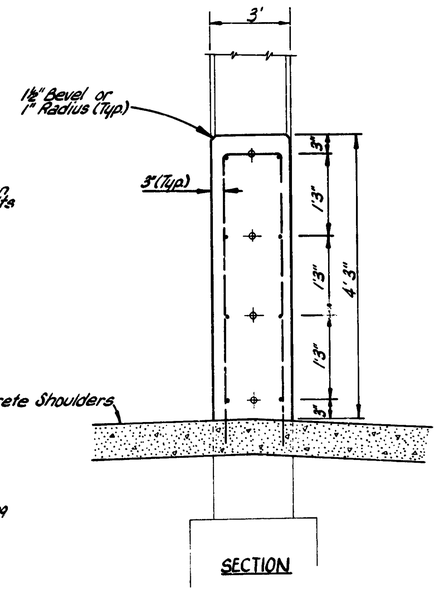
DETAIL SHOWING
BARRIER TRANSITION TO
BRIDGE COLUMN
(At no additional cost to "Concrete Barrier - Double Face".)



PLAN



ELEVATION



SECTION

SPECIAL DETAIL
FOR
MEDIAN PIER FILLERWALLS

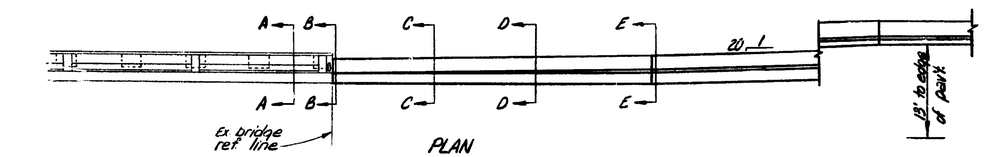
Squad: P.M. Christy Drawn by: K. Claus

S 63174	14165	I-75-2(222)59	14

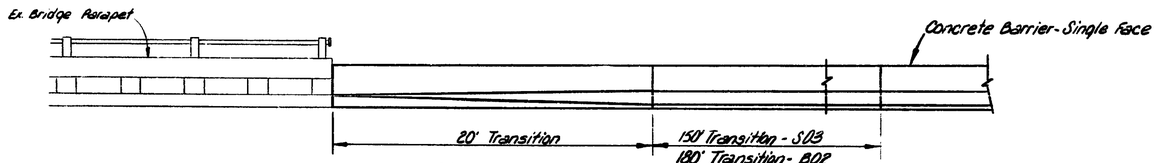
F.H.W.A. REG. NO	STATE	FEDERAL PROJECT	R.O.W. NO	SHEET NO	TOTAL SHEETS
5	MICH.	I-75-2(222)59		15	96
ROUTE	COUNTY	CONTROL SECTION	JOB NO.		
I-75	Oakland	63174	14165		

FINAL R.O.W.

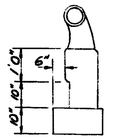
Squad P.M. Christy Drawn by K. Olsen 3-22-79



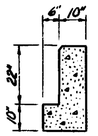
PLAN



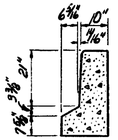
ELEVATION



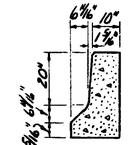
SECTION A-A



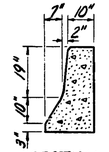
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

Sections Apply at both approach & departure end

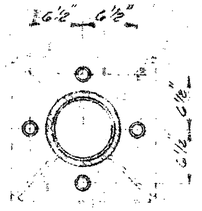
DETAIL OF
CONCRETE BARRIER TRANSITION
TO BRIDGE PARAPET
AT
S03 OF 63174 (Over 12 Mile)
&
B02 OF 63174 (Over Red Run Drain)

SPECIAL DETAIL
SHOWING
CONCRETE BARRIER TRANSITION
TO BRIDGE PARAPET

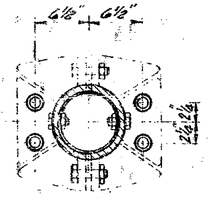
63174	14165	I-75-2(222)59	15

REG. NO	STATE	DIST.	PROJECT NO	SHEET NO	TOTAL SHEETS
			I-75-2(222)59	16	96
			12-18 Oakland	I 63174	14165

EXIST. BASE CASTING



EXIST. BASE CASTING

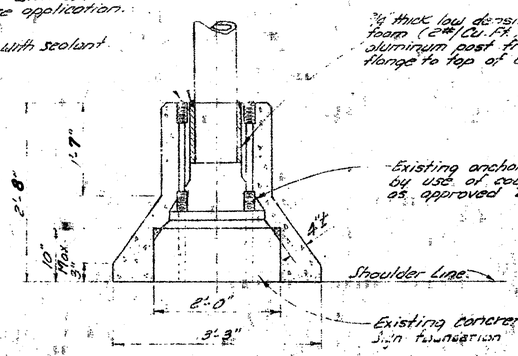


Non-sag sealant, Fed. Specs. T-T-S-230C on 3/4" x 3/4" annular space thoroughly cleaned by sand blasting or with steel wool before application.

Coupling with Sealant

1'-9"

3" Dia.



½" thick low density polyethylene foam (2# cu. ft.) wrapped around aluminum post from top of base flange to top of concrete barrier.

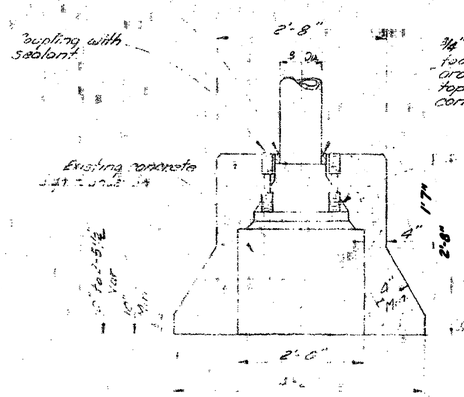
Existing anchor bolt, extended by use of coupling or weld as approved by the Engineer.

Shoulder Line

Existing concrete sign foundation

SECTION AA

Non-sag sealant, Fed. Specs. T-T-S-230C on 3/4" x 3/4" annular space thoroughly cleaned by sand blasting or with steel wool before application.

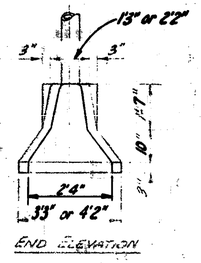


¼" Thick low density polyethylene foam (2# cu. ft.) wrapped around aluminum post from top of base flange to top of concrete barrier.

Existing anchor bolt, extended by use of coupling or weld as approved by the Engineer.

Shoulder Line

SECTION BB



END ELEVATION

Regular Concrete Barrier

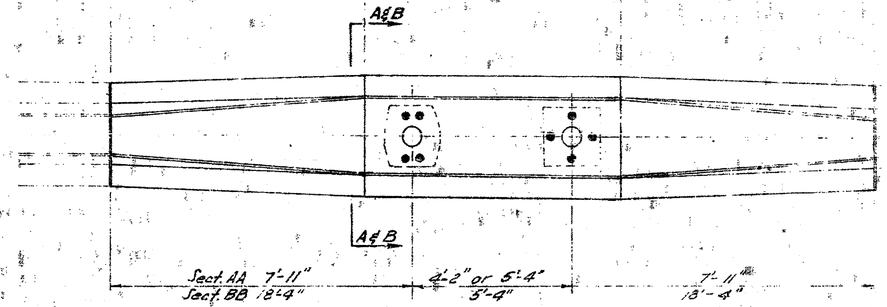
Regular Concrete Barrier

Sect. AA 20'-00"
Sect. BB 4'-03"

Sect. AA 6'-0"
Sect. BB 17'-0"

8'-0"
8'-0"

6'-0"
17'-0"



Sect. AA 7'-11"
Sect. BB 18'-4"

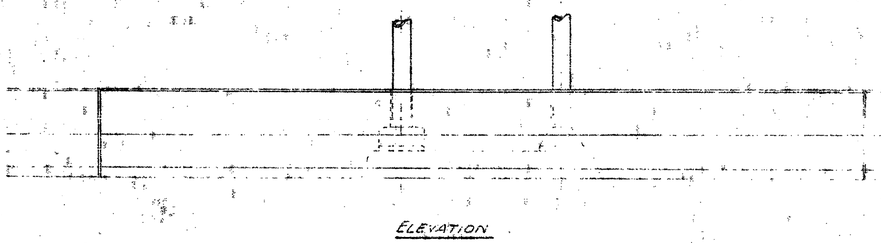
4'-2" or 5'-4"
5'-4"

7'-11"
18'-4"

PLAN

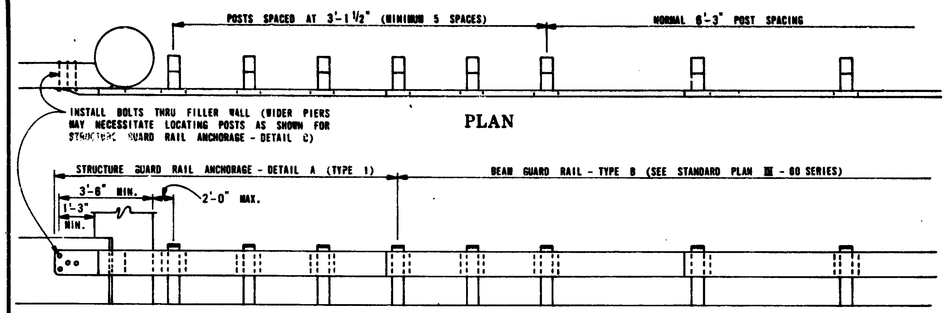
Notes

1. The existing concrete sign foundation shall be thoroughly cleaned before the new concrete barrier is poured around it.
2. Two different bolt patterns are shown. Extend the bolt using the pattern existing in the field.
3. The additional work involved in placing the concrete barrier around the existing sign foundation shall be included in the item of Concrete Barrier. No additional payment will be made for this work.
4. All material and workmanship shall be in accordance with the Current Standard Specification, Special Provisions, and the Special Details for Concrete Barrier.

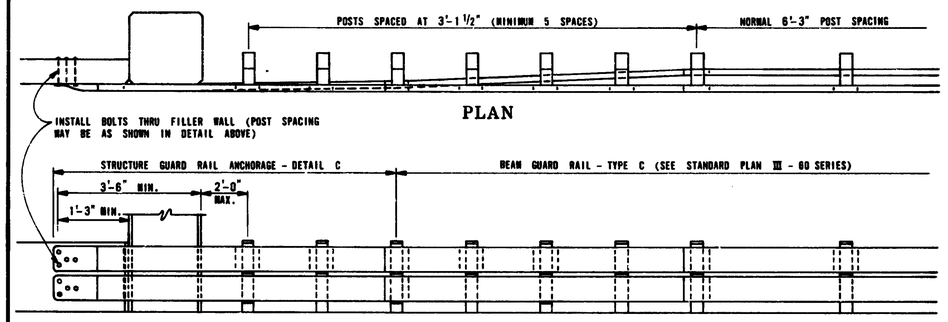


ELEVATION

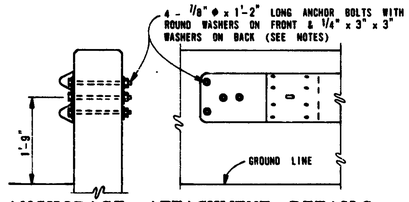
DETAIL OF CONCRETE BARRIER AT EXISTING SIGN TRUSSES.



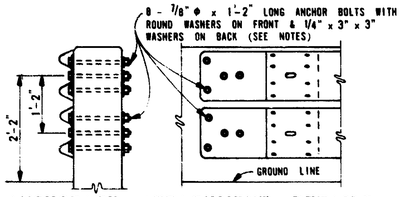
ELEVATION OF ANCHORAGE USING BEAM GUARD RAIL - TYPE B



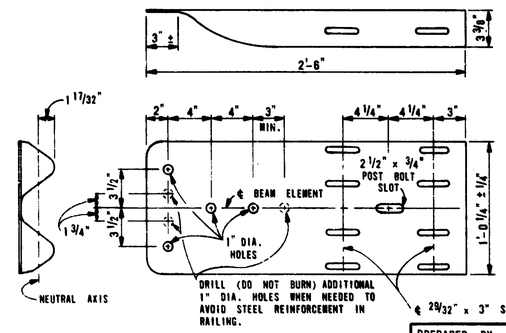
ELEVATION OF ANCHORAGE USING BEAM GUARD RAIL - TYPE C



ANCHORAGE ATTACHMENT DETAILS
FOR BEAM GUARD RAIL - TYPE B



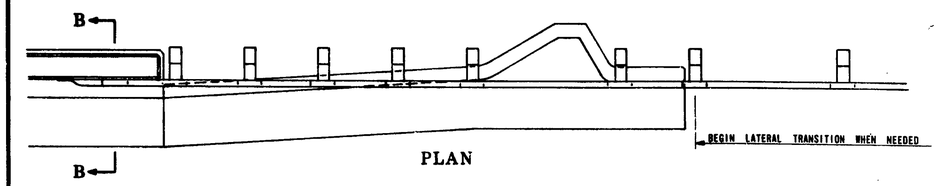
ANCHORAGE ATTACHMENT DETAILS
FOR BEAM GUARD RAIL - TYPE C



SPECIAL END SHOE

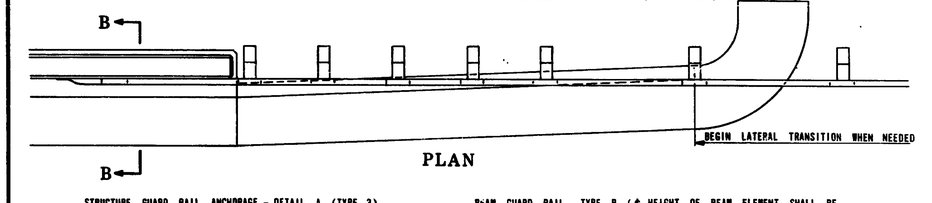
PREPARED BY DESIGN DIVISION

ENGINEER - BRIDGE DESIGN	ENGINEER - ROAD DESIGN	ENGINEER OF DESIGN	MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION SPECIAL DETAIL FOR
DRAWN BY H.A.W.	ENGINEER OF TRAFFIC AND SAFETY	DEPARTMENT DIRECTOR JOHN P. WOODFORD	STRUCTURE GUARD RAIL ANCHORAGES
CHECKED BY V.R.	ENGINEER OF CONSTRUCTION	BY DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL — DATE — 12-14-78 PLAN DATE — SPECIAL DETAIL 7-1 — SHEET 1 OF 2



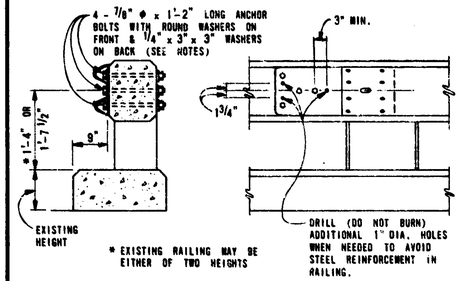
ELEVATION

TO BE USED WHEN ANCHORING GUARD RAIL TO EXISTING BRIDGE PARAPET RAILING WHERE THERE IS AN EXISTING DOWNSPOUT HEADER (SHOWN) OR WHERE THERE IS NO DOWNSPOUT HEADER (NOT SHOWN, BUT NOTED)



ELEVATION

TO BE USED WHEN ANCHORING GUARD RAIL TO EXISTING BRIDGE PARAPET RAILING WHERE THERE IS AN EXISTING SPILLWAY



SECTION B-B

ELEVATION SHOWING BOLT PLACEMENT

NOTES:

THIS SPECIAL DETAIL IS INTENDED FOR USE IN SAFETY UP-DATING OF EXISTING GUARD RAIL. FOR NEW CONSTRUCTION, AND FOR DETAILS OF GUARD RAIL HARDWARE, SEE STANDARD PLANS.

PLANS WILL SHOW APPLICABLE ANCHORAGE DETAIL TO GO WITH INDIVIDUAL GUARD RAIL INSTALLATIONS. THE PAY ITEM FOR STRUCTURE ANCHORAGE DETAILS SHOWN ON THIS PLAN WILL BE "STRUCTURE GUARD RAIL ANCHORAGE - DETAIL __", EACH.

NUTS, BOLTS AND WASHERS SHALL BE GALVANIZED OR CORROSION RESISTANT STEEL IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS.

BEAM ELEMENTS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC.

CONNECT STRUCTURE GUARD RAIL OR ANCHORAGE TO APPROACH GUARD RAIL WITH A 1 ON 15 LATERAL SHIFT.

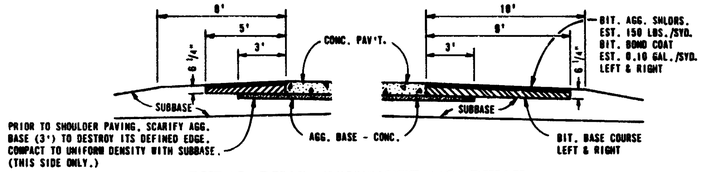
7/8" ϕ ANCHOR BOLTS SHALL BE MADE OF HIGH STRENGTH STEEL.

PREPARED BY DESIGN DIVISION

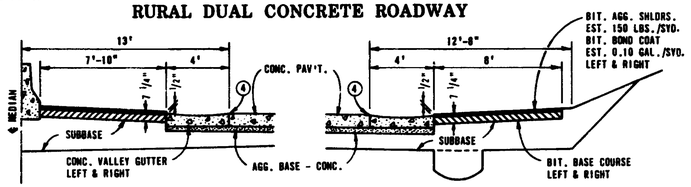
ENGINEER - BRIDGE DESIGN	ENGINEER - ROAD DESIGN	ENGINEER OF DESIGN	MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION SPECIAL DETAIL FOR
DRAWN BY H.A.W.	ENGINEER OF TRAFFIC AND SAFETY	DEPARTMENT DIRECTOR JOHN P. WOODFORD	STRUCTURE GUARD RAIL ANCHORAGES
CHECKED BY V.R.	ENGINEER OF CONSTRUCTION	BY DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL — DATE — 12-14-78 PLAN DATE — SPECIAL DETAIL 7-1 — SHEET 2 OF 2

CONTROL SECTION 1s 63174 — JOB NO. 14165 — FEDERAL PROJECT I-75-2(222)59 — ROW SHEET NO 17

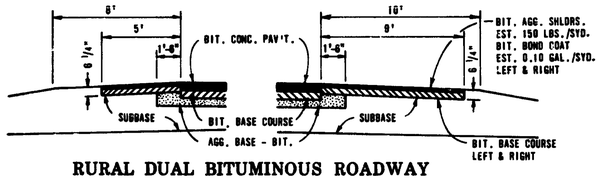
BITUMINOUS PAVED SHOULDERS



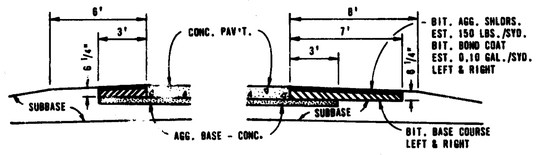
RURAL DUAL CONCRETE ROADWAY



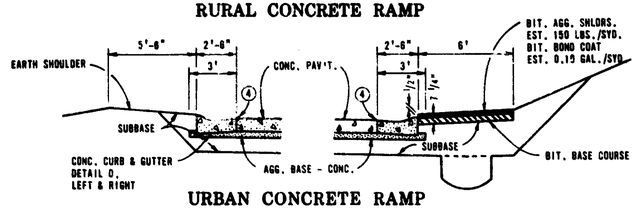
URBAN DUAL CONCRETE ROADWAY



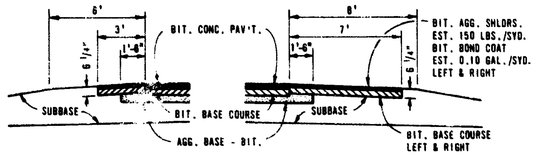
RURAL DUAL BITUMINOUS ROADWAY



RURAL CONCRETE RAMP



URBAN CONCRETE RAMP



RURAL BITUMINOUS RAMP

PREPARED BY DESIGN DIVISION	C. J. Zajac ENGINEER - ROAD DESIGN	ENGINEER OF DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR	
DRAWN BY J.L.R.	ENGINEER OF TESTING AND RESEARCH	DEPARTMENT DIRECTOR JOHN P. WOODFORD	FREEWAY SHOULDERS	
CHECKED BY V.R.	ENGINEER OF CONSTRUCTION	BY: DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL DATE / 5-2-79 PLAN DATE	V-112E SHEET 1 OF 4

OPTIONAL, ROUND OR SQUARE.
LANE TIE DIAMETER.
1/2" MINIMUM
1 1/2" MIN. 2" MAX.

SLEEVE DETAIL
(INCIDENTAL TO LANE TIE)

LONGITUDINAL JOINT TYPE
(SEE STANDARD PLAN II-41 SERIES)

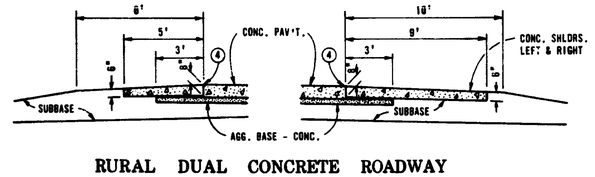
1. OPTIONAL B OR D ON ONE SIDE OF MEDIAN BARRIER ONLY. SEAL JOINT BUT OMIT LANE TIES. OMIT JOINT WHEN MEDIAN WIDTH IS LESS THAN 26' EDGE TO EDGE OF TRAVELED LANES. SAWING AND SEALING WILL NOT BE PAID FOR SEPARATELY.
2. 1/2" LONGITUDINAL EXPANSION JOINT WHEN MEDIAN IS ENTIRELY PAVED WITH PORTLAND CEMENT CONCRETE. OTHERWISE, B OR D WITHOUT LANE TIES OR SEALS.
3. B JOINT, OMIT SEALS AND LANE TIES. APPLY TWO ADDITIONAL COATS OF CURING COMPOUND, AS A BOND BREAKER, AT THE RATE OF 1 GALLON PER 100 SQUARE FEET PER COAT. IF THE SHOULDER IS RESTRAINED ON THE OUTSIDE BY A RETAINING WALL, ABUTMENT, OR SLOPE PAVING TOE HEADER, PLACE 1/2" EXPANSION JOINT FILLER BETWEEN THE SHOULDER AND STRUCTURE.
4. OPTIONAL B OR D.

NOTE: IF CONTRACTOR ELECTS TO CAST CONCRETE SHOULDERS THICKER THAN CALLED FOR, "D" JOINTS SHALL BE MINIMUM 1/4 DEPTH OF MAXIMUM THICKNESS.

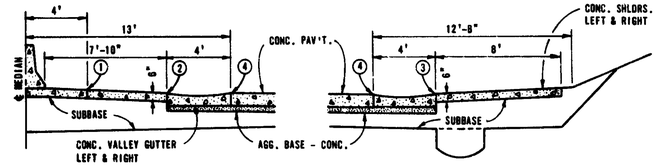
IF THE CONTRACTOR ELECTS TO CAST CONCRETE SHOULDERS AS PART OF THE "FREEWAY SHOULDER" OPTION, THE EXTERNAL LONGITUDINAL JOINT WILL NOT BE PAID FOR SEPARATELY.

FOR CONCRETE SHOULDERS ADJACENT TO CONTINUOUSLY REINFORCED CONCRETE PAVEMENT SEE SPECIAL DETAILS.

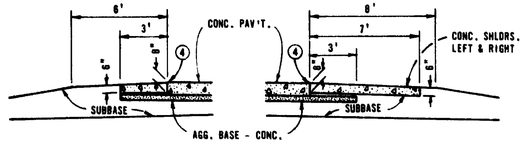
CONCRETE PAVED SHOULDERS



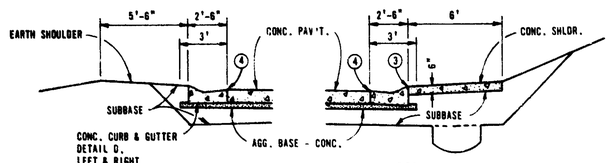
RURAL DUAL CONCRETE ROADWAY



URBAN DUAL CONCRETE ROADWAY

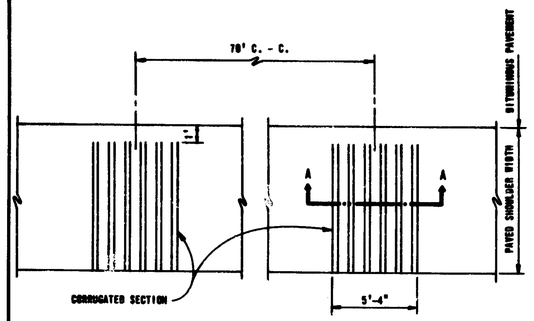


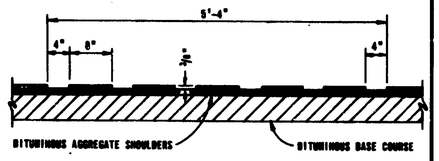
RURAL CONCRETE RAMP



URBAN CONCRETE RAMP
(ROLL CURB AND GUTTER ILLUSTRATED)

PREPARED BY DESIGN DIVISION	C. J. Zajac ENGINEER - ROAD DESIGN	ENGINEER OF DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR	
DRAWN BY J.L.R.	ENGINEER OF TESTING AND RESEARCH	DEPARTMENT DIRECTOR JOHN P. WOODFORD	FREEWAY SHOULDERS	
CHECKED BY V.R.	ENGINEER OF CONSTRUCTION	BY: DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL DATE / 5-2-79 PLAN DATE	V-112E SHEET 2 OF 4
			CONTROL SECTION 63174	JOB NO 14165
			FEDERAL PROJECT I-75-2(222)59	ROW NO / SHEET NO 18

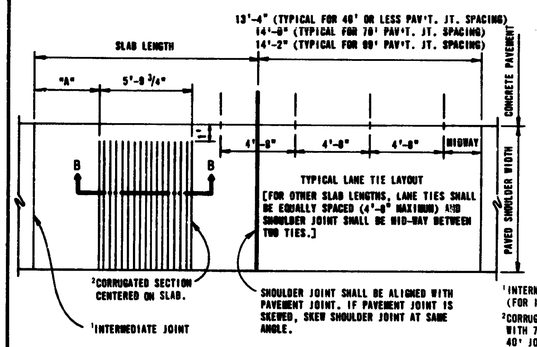


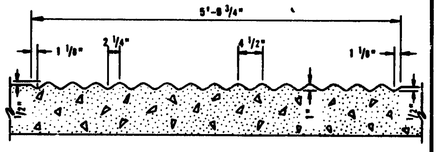


SECTION A - A

BITUMINOUS SHOULDER CORRUGATIONS TO BE USED ONLY ON RURAL FREEWAYS ADJACENT TO BITUMINOUS PAVEMENT. SEE "NOTES" FOR ALLOWABLE VARIATION FROM SECTION SHOWN.

BITUMINOUS SHOULDER AND CORRUGATED SECTION





SECTION B - B

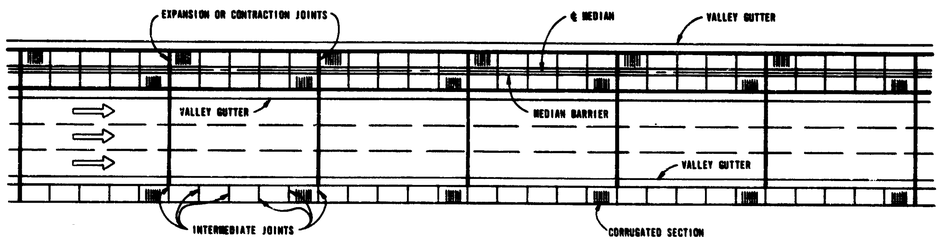
NOTE: FOR MEDIANS, STOP CORRUGATIONS 6" FROM MEDIAN BARRIER.
"A" = 3'-8" FOR 13'-4" SLAB
= 4'-1" FOR 14'-0" SLAB
= 4'-2" FOR 14'-2" SLAB

[1]INTERMEDIATE JOINTS, 1/8" x 2" SAWED OR 1/4" x 2" FORMED (OMIT LOAD TRANSFER DEVICES). (FOR INITIAL CRACK CONTROL ONLY - JOINT MUST BE WIDENED FOR SEAL - SEE NOTES.)

[2]CORRUGATED SECTIONS CENTERED ON SLAB ADJACENT TO EVERY PAVEMENT JOINT ON PAVEMENT WITH 70' JOINT SPACING AND ADJACENT TO EVERY OTHER PAVEMENT JOINT ON PAVEMENT WITH 40' JOINT SPACING.

CONCRETE SHOULDER, JOINTS, AND CORRUGATED SECTION

(SHOWN ADJACENT TO JOINTED PAVEMENT)



CONCRETE SHOULDER JOINT LAYOUT ON URBAN EXPRESSWAY

(SHOWN FOR CONCRETE PAVEMENT WITH 70' JOINT SPACING)

PREPARED BY DESIGN DIVISION	C. J. Zajac, ENGINEER - ROAD DESIGN	Kurt Vaas Searcy, ENGINEER OF DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR
DRAWN BY J.L.R.	Y. A. Alkemin, ENGINEER OF TESTING AND RESEARCH	DEPARTMENT DIRECTOR JOHN P. WOODFORD	FREEWAY SHOULDERS
CHECKED BY V.R.	H. B. La Mance, ENGINEER OF CONSTRUCTION	BY: Byron C. Card, DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL DATE; 5-2-79 PLAN DATE; V-112E; SHEET 3 OF 4

NOTES:

RURAL FREEWAY SHOULDER WIDTHS ARE FOR TWO - LANE ROADWAYS. FOR THREE OR MORE LANES, INSIDE SHOULDER WIDTH IS INCREASED TO 10' WITH 9' PAVED. WHEN TRUCK VOLUMES EXCEED 250 VEHICLES PER HOUR, OUTSIDE SHOULDER MAY BE WIDENED TO 12' WITH 11' PAVED (WIDTHS SHOWN ON TYPICAL CROSS - SECTION SHEET SHALL GOVERN).

NORMAL SHOULDER SLOPE IS 1/2" PER FOOT FOR ALL SECTIONS.

CORRUGATIONS IN CONCRETE AND BITUMINOUS SHOULDERS:

USE WITH:

a. FULL WIDTH SHOULDERS (7' OUTSIDE, 5' INSIDE, OR WIDER).

b. VALLEY GUTTER AND SHOULDER.

DO NOT USE WITH:

a. 3' INSIDE SHOULDERS.

b. ROLL CURB AND GUTTER.

SLEEVE TO BE MADE OF SOFT RUBBER, CORK, EXPANDED POLYETHYLENE OR OTHER APPROVED COMPRESSIBLE MATERIAL. SLEEVE MUST BE PLACED ADJACENT TO FIRST POUR.

CONCRETE SHOULDERS ADJACENT TO CONCRETE PAVEMENT:

CAST SEPARATELY FROM CONVENTIONAL REINFORCED PAVEMENT:

a. PLACE SLEEVES ON ALL LANE TIES.

b. TRANSVERSE SHOULDER JOINT CORRESPONDING WITH PAVEMENT JOINT SHALL BE SAME SIZE, TYPE AND SEALANT, OMITTING LOAD TRANSFER DEVICE. THE NEOPRENE SEALS, IF USED, SHALL BE INSTALLED IN ONE CONTINUOUS PIECE ACROSS BOTH PAVEMENT AND SHOULDER(S), AND CONTINUED DOWN THE OUTSIDE EDGE OF THE SHOULDER.

c. THE CONTRACTOR SHALL HAVE THE OPTION OF SEALING INTERMEDIATE JOINTS IN THE CONCRETE SHOULDER USING ONE OF THE FOLLOWING METHODS:

1. HOT - POURED TYPE JOINT SEALANT - THE RESERVOIR SHALL BE SAWED OR FORMED 3/4" WIDE AND 1" DEEP, WITH THE TOP OF SEALANT DEPRESSED 1/4" BELOW THE TOP OF SHOULDER ELEVATION. AN APPROVED BOND BREAKER SHALL BE USED AS SHOWN FOR SYMBOL (C2) ON STANDARD PLAN R-30 SERIES.

2. PREFORMED NEOPRENE JOINT SEALER - THE JOINT SHALL BE IN ACCORDANCE WITH SYMBOL (B) ON STANDARD PLAN R-30 SERIES.

d. PLACE A BOND BREAKER BETWEEN SHOULDER AND PAVEMENT. BOND BREAKER SHALL BE TWO ADDITIONAL COATS OF CURING COMPOUND AT THE RATE OF 1 GALLON PER 150 SQUARE FEET PER COAT.

CAST INTEGRALLY WITH CONVENTIONAL REINFORCED PAVEMENT:

e. OMIT COMPRESSIBLE SLEEVES FROM LANE TIES.

f. FOR RAMPS ONLY, CROSS - SLOPE MAY BE INCREASED TO 3/16" PER FOOT AND NORMAL SHOULDER SLOPE MAY BE REDUCED TO 3/16" PER FOOT. IN SUPERELEVATION THE RAMP AND SHOULDERS MAY BE SLOPED AT THE SAME RATE.

g. TRANSVERSE JOINTS AS IN "b" AND "c" ABOVE.

CAST SEPARATELY FROM NON - REINFORCED PAVEMENT (RAMPS):

h. PLACE SLEEVES ON ALL LANE TIES.

i. TRANSVERSE JOINTS AS IN "b" ABOVE EXCEPT INTERMEDIATE JOINTS WILL BE SEALED WITH NEOPRENE SEALS.

j. USE BOND BREAKER AS IN "d" ABOVE.

CAST INTEGRALLY WITH NON - REINFORCED PAVEMENT (RAMPS):

k. OMIT COMPRESSIBLE SLEEVES FROM LANE TIES.

l. SEE "f" ABOVE FOR CROSS - SLOPE.

m. TRANSVERSE JOINTS AS IN "b" ABOVE EXCEPT INTERMEDIATE JOINTS WILL BE SEALED WITH NEOPRENE SEALS.

CONCRETE SHOULDERS SEPARATED FROM CONCRETE PAVEMENT BY CURB AND GUTTER OR VALLEY GUTTER:

a. PLACE 1" EXPANSION JOINTS IN THE OUTSIDE CONCRETE SHOULDERS AT APPROXIMATELY 400' INTERVALS BETWEEN SEPTEMBER 15th AND MAY 15th, SEALED IN ACCORDANCE WITH DETAILS SHOWN FOR SYMBOL (E) OF STANDARD PLAN R-30 SERIES. EXPANSION AND INTERMEDIATE JOINTS IN MEDIAN SHOULDERS AND CONCRETE MEDIAN BARRIER MUST COINCIDE.[3]

b. FOR INITIAL CUT, PLACE 2" - DEEP TRANSVERSE INTERMEDIATE JOINT IN THE OUTSIDE CONCRETE SHOULDER AT 13'-4" INTERVALS FOR 40', OR 14'-0" INTERVALS FOR 70', OR 14'-2" INTERVALS FOR 80' PAVEMENT JOINT SPACING, LINING UP THE JOINTS WITH THE JOINTS IN THE CURB AND GUTTER, OR VALLEY GUTTER. ALL JOINTS IN THE OUTSIDE SHOULDER ARE INTERMEDIATE JOINTS, EXCEPT THE EXPANSION JOINTS AT 400' INTERVALS (IF USED).

c. SEAL INTERMEDIATE JOINTS IN ACCORDANCE WITH "c" UNDER "CONCRETE SHOULDERS ADJACENT TO CONCRETE PAVEMENT".

BITUMINOUS SHOULDERS ADJACENT TO BITUMINOUS PAVEMENT:

FOR RAMPS ONLY, CROSS - SLOPE MAY BE INCREASED TO 3/16" PER FOOT AND NORMAL SHOULDER SLOPE MAY BE REDUCED TO 3/16" PER FOOT. IN SUPERELEVATION, THE RAMP AND SHOULDERS MAY BE SLOPED AT THE SAME RATE.

FOR CORRUGATIONS IN BITUMINOUS SHOULDERS, THE CONTRACTOR MAY SUBMIT, FOR THE APPROVAL OF THE ENGINEER OF CONSTRUCTION, ALTERNATE DIMENSIONS OR CONFIGURATIONS WHICH WILL PROVIDE AN EQUIVALENT "RUMBLE" EFFECT. THE CONTRACTOR WILL HAVE THE OPTION OF FORMING OR CUTTING GROOVES IN THE SHOULDER TO FORM THE RUMBLE STRIP. IF THE RUMBLE STRIP IS TO BE SAWED IN, OR ROTO-MILLED IN, THE CONTRACTOR SHOULD WAIT A MINIMUM OF 72 HOURS AFTER THE MAT IS PLACED BEFORE SAWING OR ROTO-MILLING.

[3]SEE STANDARD PLAN R-49 SERIES.

PREPARED BY DESIGN DIVISION	C. J. Zajac, ENGINEER - ROAD DESIGN	Kurt Vaas Searcy, ENGINEER OF DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR
DRAWN BY J.L.R.	Y. A. Alkemin, ENGINEER OF TESTING AND RESEARCH	DEPARTMENT DIRECTOR JOHN P. WOODFORD	FREEWAY SHOULDERS
CHECKED BY V.R.	H. B. La Mance, ENGINEER OF CONSTRUCTION	BY: Byron C. Card, DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL DATE; 5-2-79 PLAN DATE; V-112E; SHEET 4 OF 4

CONTROL SECTION 1s 63174 | JOB NO. 14165 | FEDERAL PROJECT 1-75-2(222)59 | R.O.W. SHEET NO.

NOTE SHEET

SQUAD: CHRISTY

DESCRIPTION OF WORK

Saw deteriorated joints and pavement sections, as shown on plans or as designated by the Engineer, and repair with Fast-Setting Concrete Pavement Patching and Joint Filler. Place Joint Filler as shown on plans or as designated by the Engineer. Place pressure relief joints as shown on the plans. Pavement repairs shall be done in conformance with details 1, 2 and 3 of Standard Plan II-44C. Maintain traffic throughout the entire project.

NOTES

Stationing on this project was measured by a footmeter and taken from old plans, and is not necessarily correct.

It is the intent that all government corners occurring on this project be preserved and that, where necessary, monument boxes be placed or adjusted, whether shown or not.

Sizes shown for slab repair are estimates only. Actual sizes are to be determined by the Engineer on construction with no extra compensation above contract unit prices to be allowed for size differential.
Materials used to form joint grooves shall be as specified under Section 4.52.04b. Styrofoam or similar materials are not suitable.
Each repair shall be placed in one continuous full-depth operation. The concrete shall be consolidated in place by use of immersion type vibration. The surface shall be struck off using a screed parallel to the pavement centerline, so as to be flush with the existing pavement at the repair limits. Deviation from a straight edge across the repair parallel to the pavement centerline shall not exceed 1/8 in. in 6 ft.

The minimum length of slab repair shall be six (6) feet.

Waste concrete or concrete fragments shall not be buried in the shoulder because of potential damage to shoulder stabilization equipment.

Bituminous to replace shoulder material adjacent to slab repairs shall be incidental to construction.

The plans for joint repair may contain some joints which have already been repaired prior to construction of this project.

Joint type shall be as called for on plans or as directed by the Engineer.

Any bituminous overlay occurring adjacent to areas to be repaired shall be removed incidental to construction.

For protection of underground utilities, the contractor shall dial 1-800-482-7171 a minimum of 48 hours prior to excavating in the vicinity of utility lines. All "Miss Dig" participating members will thus be routinely notified. This does not relieve the contractor of the responsibility of notifying utility owners who may not be a part of the "Miss Dig" alert system.

KEY
PRJ - Pressure relief joint of the length specified, are Type I unless otherwise specified.

Type B - Concrete pavement repair joint of the length, width, and joint type specified.

Type C - Concrete pavement repair joint of the length, width, and joint type specified.

CPSE - Existing Concrete Patch with Expansion Material.

CPS - Existing Concrete Patch No Expansion provided.

Existing Bituminous patches removed as part of pavement patching will be measured and paid for as "Removing Old Pavement (Patching)".

NOTES APPLYING TO STANDARD PLANS

Where the following items are called for on plans, they are to be constructed according to the standard plan given below opposite each item unless otherwise indicated.

Concrete Pavement Repair	II-44C
Pavement Reinforcement	II-45B
Types II & III Barricades and Lighted Arrows	VI-125D
Drum Guide Rail and Drums	VI-124C

QUANTITY SHEET

S.T. & F. REG. NO.	STATE	FEDERAL PROJECT	R.S.D. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	FIR-75-2(223)59		20	96
ROUTE	COUNTY	CONTROL SECTION	JOB NO.		
I-75	Oakland	PIR6374	14166A		

AS PER PLANS							AS CONSTRUCTED						
	UNIT	ITEM CODE	TOTAL	JOB NUMBER			TOTAL	JOB NUMBER					

State of Michigan
Department of Transportation

SQUAD				
Christy				
DATE	SCALE	CONT. SEC.	JOB NO.	Sheet No.
		PIR 6374	14166A	20

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	S.T. & F. REG. NO.	SHEET NO.
		FIR-75-2(223)59		

1

Wayne Co. Line

Sta. Equation
285+81.5 Back =
706+83 Ahead

Start of Saw Cut

End of Saw Cut

Sta. Equation
850+89 Back =
850+84 Ahead

Oakland Co.

SCALE 1" = 60'

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

RESEARCH LAB. TESTING AND RESEARCH DIVISION

PRESSURE RELIEF LOCATION SHEET

LOCATION Oakland Co (NB Direc.)

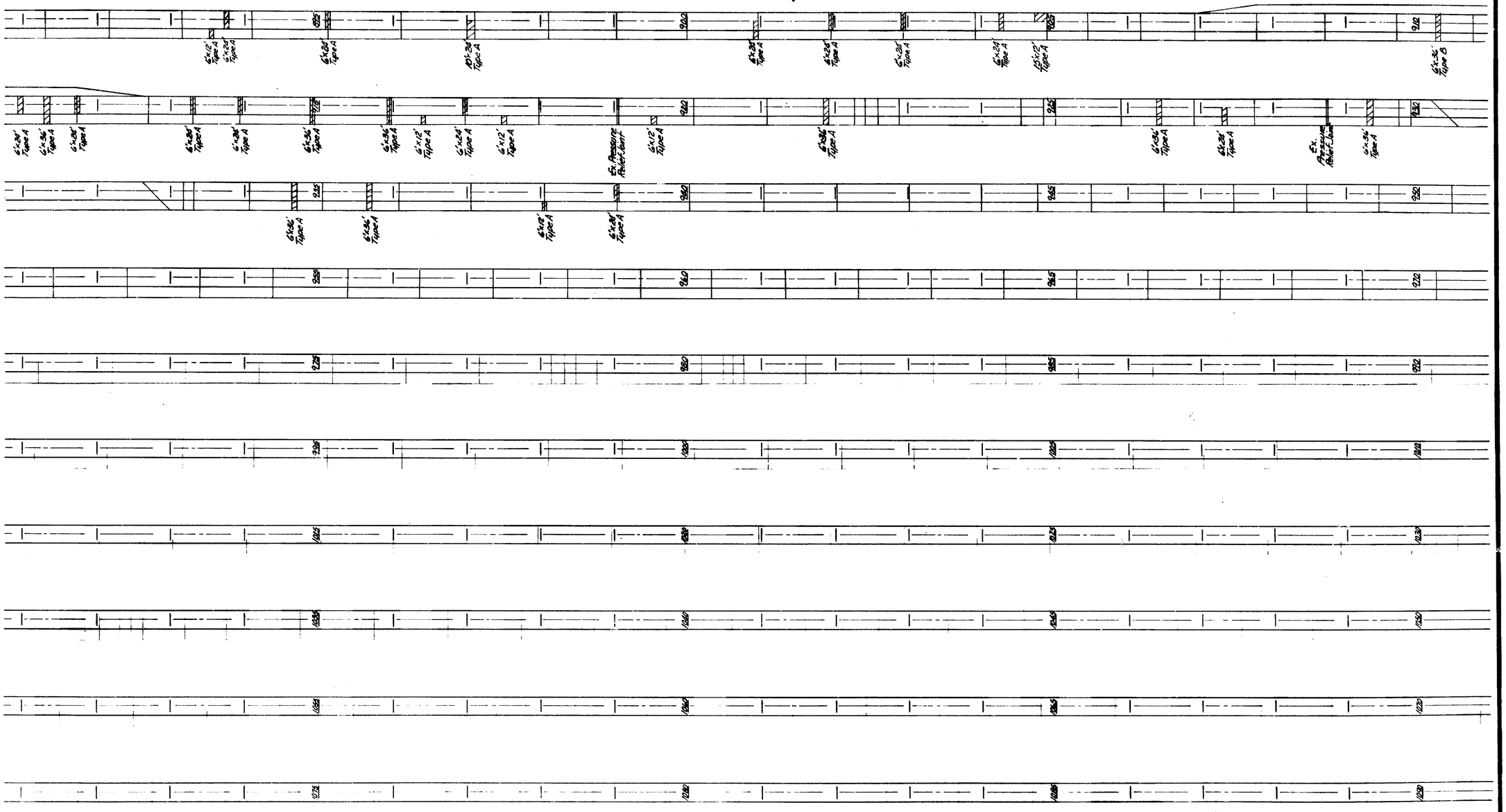
SHEET ___ OF ___

STATE PROJECT ___ MAINT. PROJECT ___

ROUTE I-75

CONTROL SECTION 63174 JOB NO. 14166 A

Sheet No. ___



STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

RESEARCH LAB TESTING AND RESEARCH DIVISION

PRESSURE RELIEF LOCATION SHEET

LOCATION Oakland Co. (I-B Conv.)

SHEET ___ OF ___

STATE PROJECT ___ MAINT PROJECT ___

ROUTE I-75

CONTROL SECTION 63174 JOB NO. 14166 A

Sheet No. ___

Sta Equation
272+99.66 B. =
272+98.6 A

Sta. Equation
285+81.5 B. =
706+83 A

Wayne

Co Line

Saw Cuts

End of Saw Cuts

Ramp

SCALE 1" = 60'

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

RESEARCH LAB. TESTING AND RESEARCH DIVISION

PRESSURE RELIEF LOCATION SHEET

LOCATION: Oakland Co (S.B Relwy.)

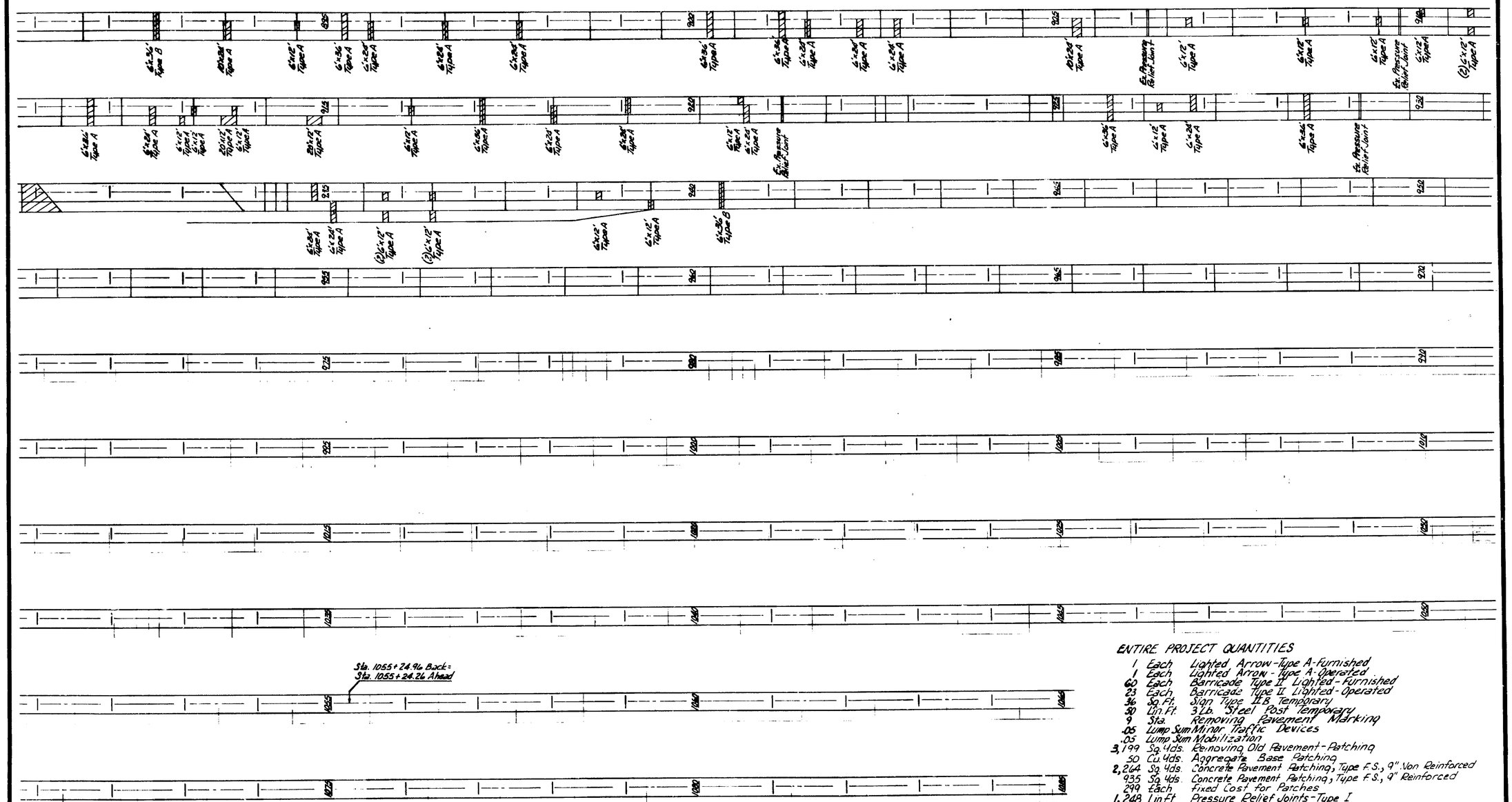
SHEET ___ OF ___

STATE PROJECT ___ MAINT PROJECT ___

ROUTE I-75

CONTROL SECTION 63174 JOB NO. 14166 A

Sheet No. ___



SCALE 1" = 60'

ENTIRE PROJECT QUANTITIES

1	Each	Lighted Arrow - Type A - furnished
1	Each	Lighted Arrow - Type A - Operated
60	Each	Barricade Type II Lighted - Furnished
23	Each	Barricade Type II Lighted - Operated
36	Sq. Ft.	Sign Type IIB Temporary
30	Lin. Ft.	3 Lb. Steel Post Temporary
9	Sta.	Removing Pavement Marking
.05	Lump Sum	Minor Traffic Devices
.05	Lump Sum	Mobilization
3,199	Sq. Yds.	Removing Old Pavement - Patching
50	Cu. Yds.	Aggregate Base Patching
2,264	Sq. Yds.	Concrete Pavement Patching, Type F.S., 9" Non Reinforced
935	Sq. Yds.	Concrete Pavement Patching, Type F.S., 9" Reinforced
299	Each	Fixed Cost for Patches
1,248	Lin. Ft.	Pressure Relief Joints - Type I

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

RESEARCH LAB. TESTING AND RESEARCH DIVISION

PRESSURE RELIEF LOCATION SHEET

LOCATION Oakland Co. (N.B. Roadway)

SHEET ___ OF ___

STATE PROJECT ___ MAINT. PROJECT ___

ROUTE I-75

CONTROL SECTION 63174 JOB NO. 14166 A

Sheet No. ___

UNDERGROUND

- EXISTING MANHOLE
- MANHOLE (2-WAY)
- MANHOLE (3-WAY)
- MANHOLE (4-WAY)
- MANHOLE (CORNER)
- EXISTING HANDHOLE
- HANDHOLE
- EXISTING CONDUIT (4-3" SHOWN)
- ABANDON EXISTING CONDUIT
- ENCASED CONDUIT (1-3" SHOWN)
- GALVANIZED STEEL CONDUIT (1-3" SHOWN)
- GALVANIZED STEEL CONDUIT, JACKING-BORING (1-2" SHOWN)
- CONDUIT RUN - "NOT A PART OF ELECTRICAL CONTRACT".
- DIRECT BURIAL CABLE (NO. & SIZE AS INDICATED)
- EXISTING DIRECT BURIAL CABLE
- ABANDON CABLE
- BUILD 6" SEWER
- DIRECT BURIAL CONDUIT TYPE II (1-3" SHOWN)
- CONCRETE FOUNDATION FOR PAD MOUNT TRANSFORMER
- CONCRETE FOUNDATION FOR FIRE OR POLICE CALL BOX
- EXISTING U.G.-FED ST. LTG. UNIT
- REMOVE U.G.-FED ST. LTG. UNIT
- INSTALL SALVAGED U.G.-FED ST. LTG. UNIT ON NEW FDN.
- U.G.-FED, 250 W. TYPE II, HIGH PRESSURE SODIUM ST. LTG. UNIT WITH ___ FT. BRACKET ARM ON NEW FOUNDATION WITH 30 FT. MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- U.G.-FED, 400 W. TYPE III, HIGH PRESSURE SODIUM ST. LTG. UNIT WITH ___ FT. BRACKET ARM ON NEW FOUNDATION WITH 45 FT. MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- U.G.-FED, 400 W. TYPE III, HIGH PRESSURE SODIUM ST. LTG. UNIT WITH DBL. BRACKET ARM (12 FT.) ON MEDIAN WALL WITH 45 FT. MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- U.G.-FED 250 W TYPE II, HIGH PRESSURE SODIUM ST. LTG. UNIT WITH ___ FT. BRACKET ARM ON BRIDGE OR RETAINING WALL WITH 30 FT. MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- WALL MOUNTED U.B. LIGHTING UNIT

FB — INDICATES ST. LTG STANDARD WITH FRANGIBLE TRANSFORMER BASE

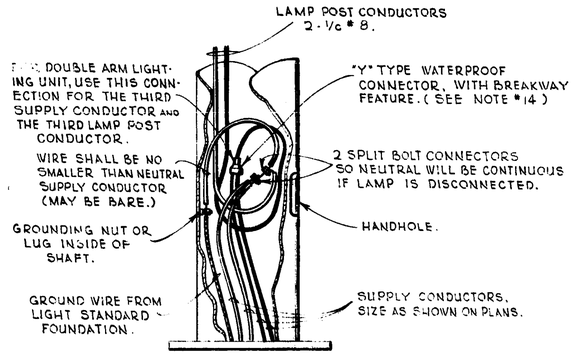
RF — INDICATES FOUNDATION TO BE REMOVED

OVERHEAD

- EXISTING WOOD POLE
- WOOD POLE (HEIGHT & CLASS AS INDICATED)
- O.H.-FED, 400 W. TYPE II, CLEAR, MERCURY VAPOR ST. LTG. UNIT WITH 15 FT. BRACKET ARM ON WOOD POLE AND 30 FT. MOUNTING HEIGHT.
- EXISTING O.H.-FED ST. LTG. UNIT WITH WOOD POLE
- EXISTING O.H. LINE (3-#6 SHOWN)
- OVERHEAD LINE (2-#6 SHOWN)
- REMOVE O.H. LINE
- 400 W. TYPE I CLEAR, MERCURY VAPOR ST. LTG. UNIT ON SPAN WIRE AND MIN. 25 FT. MOUNTING HEIGHT.

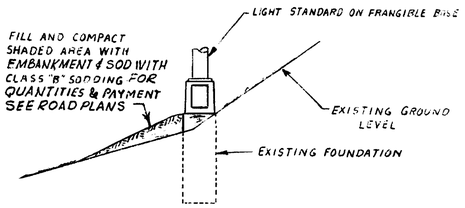
GENERAL

- R.O.W. — RIGHT OF WAY LINE
- L.A.R.O.W. — LIMITED ACCESS RIGHT OF WAY LINE
- PROPOSED PAVEMENT JOINT LINE
- P.L.D. — INDICATES THE PUBLIC LIGHTING DEPARTMENT.
- D.E. CO. — INDICATES THE DETROIT EDISON COMPANY
- C.P. CO. — INDICATES THE CONSUMERS POWER COMPANY



TYPICAL MULTIPLE STREET LIGHTING CONNECTION

NOT TO SCALE



DETAIL OF TREATMENT OF EXPOSED LIGHT STD. FOUNDATION

(NOT TO SCALE)

NOTES

1. NOTIFY THE SYSTEM OPERATING ENGINEER D.E. CO. 48 HRS. PRIOR TO WORKING ON LIGHTING CIRCUITS.
2. WHERE ABANDONING U.G. CABLES, THE CONTRACTOR SHALL CUT AND REMOVE CABLES WITHIN HANDHOLES AND MANHOLES. (INCIDENTAL)
3. HIGH PRESSURE SODIUM LUMINAIRES SHALL BE MEDIUM DISTRIBUTION IES TYPE III SEMI-CUTOFF FOR 400 W & TYPE II FOR 250 W.
4. STREET LIGHTING STANDARD SHALL BE EITHER ALUMINUM OR GALVANIZED STEEL.
5. WHERE THE EXISTING LUMINAIRE IS TO BE REPLACED WITH HIGH PRESSURE SODIUM, THE REMOVAL OF THE EXISTING LUMINAIRE SHALL BE INCIDENTAL TO THE PROJECT AND WILL NOT BE PAID FOR SEPARATELY.
6. LIGHT STANDARD FOUNDATIONS, WHERE INDICATED, SHALL BE REMOVED ENTIRELY. NECESSARY BACKFILLING AND SHOULDER RESTORATION WILL BE INCIDENTAL TO THE ITEM "REMOVE FOUNDATION" AND WILL NOT BE PAID FOR SEPARATELY.
7. LUMINAIRE BALLASTS SHALL BE 240 V.
8. EXISTING LIGHTS ARE TO REMAIN IN OPERATION UNTIL THE PROPOSED LIGHTS ARE IN OPERATION AND ACCEPTED, AS DIRECTED BY THE ENGINEER.
9. THE FRANGIBLE TRANSFORMER BASE SHALL BE 2.0" HIGH, MADE OF ALUMINUM ALLOY 356 HEAT TREATED TO T55 TEMPER, MEETING THE 1976 A.A.S.H.T.O. REQUIREMENTS FHWA NOTICE N 5040.20 (CERTIFICATION WILL BE REQUIRED)
10. THE 6" EDGE DRAIN REQUIRED TO REPLACE DAMAGED EDGE DRAIN DUE TO LIGHTING CONSTRUCTION SHALL BE INCIDENTAL TO THE PROJECT AND WILL NOT BE PAID FOR SEPARATELY.
11. ALL SPLICES, TEMPORARY CIRCUITS, AND CABLE CUTTING, REQUIRED TO MAINTAIN CONTINUITY OF THE CIRCUITS ARE INCIDENTAL TO THE PROJECT AND WILL NOT BE PAID FOR SEPARATELY.
12. ANY DAMAGES TO THE FREEWAY LIGHTING SYSTEM CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTORS OWN EXPENSE, WITHIN A REASONABLE TIME, AS DIRECTED BY THE ENGINEER.
13. DIRECT BURIAL CONDUIT UNDER PAVED MEDIAN SHALL BE INSTALLED AS SHOWN ON PLANS.
14. BREAKAWAY CONNECTOR SHALL BE ELASTIMOLD STYLE # 83 S; JOY MFG. CO. #X 8918, BUSSMAN TYPE HEB WITH INSULATING BOOTS, OR APPROVED EQUAL.
15. THE CONTRACTOR SHALL GAP OUT THE CONCRETE BARRIER WALL AT THE EXISTING STREET LIGHTING IN THE MEDIAN. IF, FOR ANY REASON, THE CABLE IS CUT IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO EXTEND & SPLICE THE CABLE ON THE SAME DAY IN ORDER TO KEEP THE LIGHTING SYSTEM OPERATIONAL. AFTER THE NEW PROPOSED LIGHTING IS INSTALLED AND OPERATIONAL, THE CONTRACTOR WILL REMOVE THE EXISTING LIGHTING UNITS (POLES, BRACKET ARMS & LUMINAIRES) AND POUR CONCRETE TO PAVE THE MEDIAN SHOULDER AND FILL IN THE GAP WITH CONCRETE BARRIER WALL. ALL THIS WORK WILL BE PART OF THE ITEM "CONCRETE BARRIER-DOUBLE FACE" AND WILL NOT BE PAID FOR SEPARATELY.
16. EXISTING LIGHTS ON RAMPS WHERE FRANGIBLE TRANSFORMER BASES ARE TO BE INSTALLED & LUMINAIRES TO BE REPLACED SHALL REMAIN OPERATIONAL AT ALL TIMES. (ALL WORK TO BE DONE DURING DAYLIGHT HOURS.)
17. THE ITEM "REMOVE U.G. FED STREET LIGHTING UNIT" SHALL INCLUDE THE REMOVAL OF THE LIGHT STANDARD, LUMINAIRE, ARM OR DOUBLE ARMS.
18. ALL LIGHT STANDARDS FURNISHED ON THIS CONTRACT SHALL BE OF THE SAME STYLE AND MATERIAL AND FROM THE SAME MANUFACTURER; EXCEPT WHERE OTHERWISE SPECIFIED ON THE PLANS.
19. THE ITEM "INSTALL NEW FRANGIBLE TRANSFORMER BASE" SHALL INCLUDE REMOVING EXISTING LIGHT STANDARD, INSTALLING A NEW FRANGIBLE TRANSFORMER BASE ON THE EXISTING FOUNDATION AND INSTALLING THE EXISTING LIGHT STANDARD ON THE NEW FRANGIBLE TRANSFORMER BASE.
20. THE 1-2" GALV. STEEL CONDUIT ATTACHED TO THE DETROIT EDISON CO. POLE WILL BE PAID FOR AT THE SAME RATE AS THE "1-2" GALV. STEEL CONDUIT". ALL FASTENERS AND HARDWARE NEEDED TO INSTALL THE CONDUIT WILL BE INCIDENTAL TO THE PAY ITEM, "1-2" GALV. STEEL CONDUIT", AND WILL NOT BE PAID FOR SEPARATELY.
21. EXISTING FOUNDATIONS BETWEEN THE MEDIAN GUARD RAILS ARE TO BE PARTIALLY REMOVED AND ANCHOR BOLTS TO BE CUT OFF TO A LINE BELOW GRADE.

E-1

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

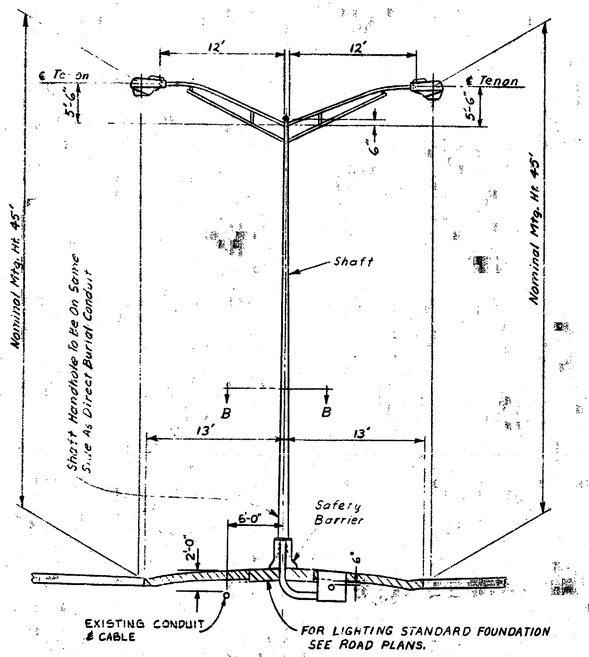
NOTES & LEGEND

FREEWAY

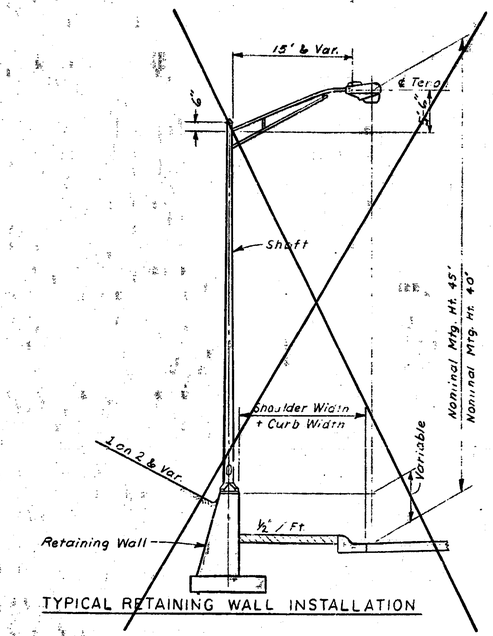
REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD BOSS
DRAWN BY
TRACED BY
CHECKED BY
SHEET OF

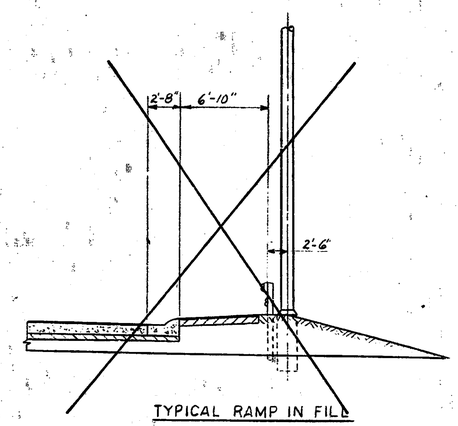
63174 | 14165A



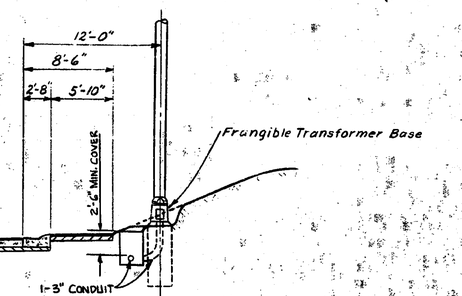
TYPICAL BARRIER SECTION INSTALLATION



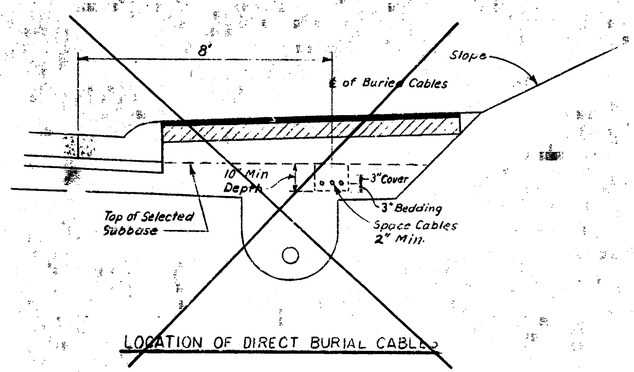
TYPICAL RETAINING WALL INSTALLATION



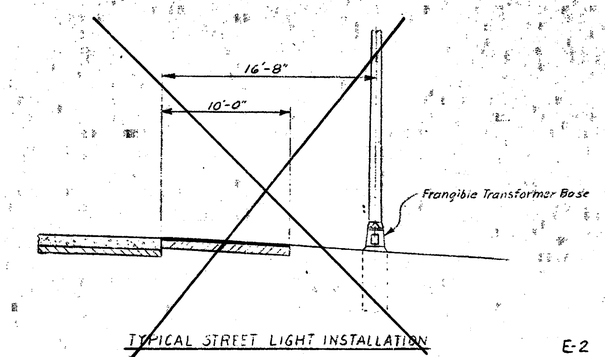
TYPICAL RAMP IN FILL



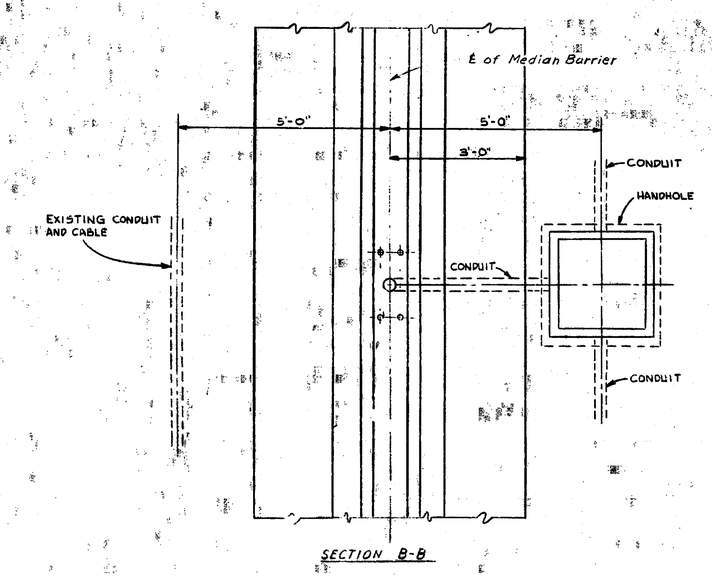
TYPICAL RAMP IN CUT



LOCATION OF DIRECT BURIAL CABLES



TYPICAL STREET LIGHT INSTALLATION



SECTION B-B

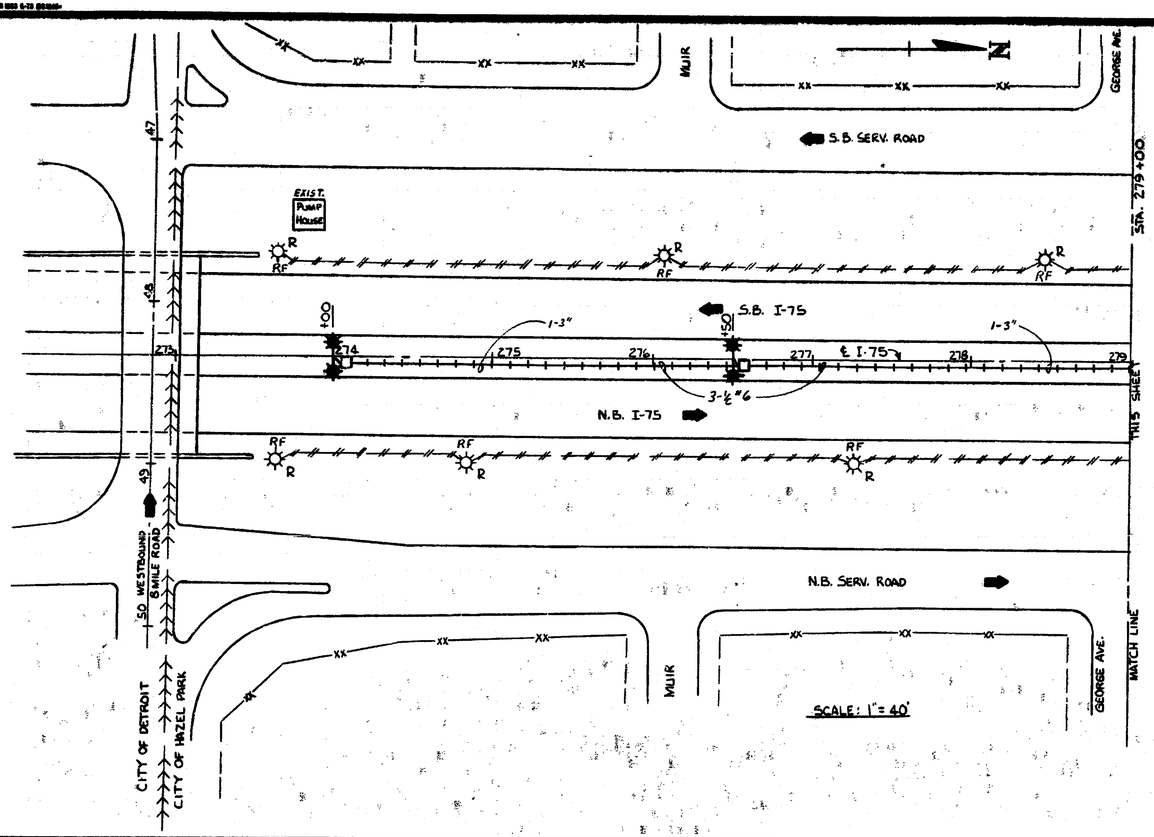
NOT TO SCALE

E-2

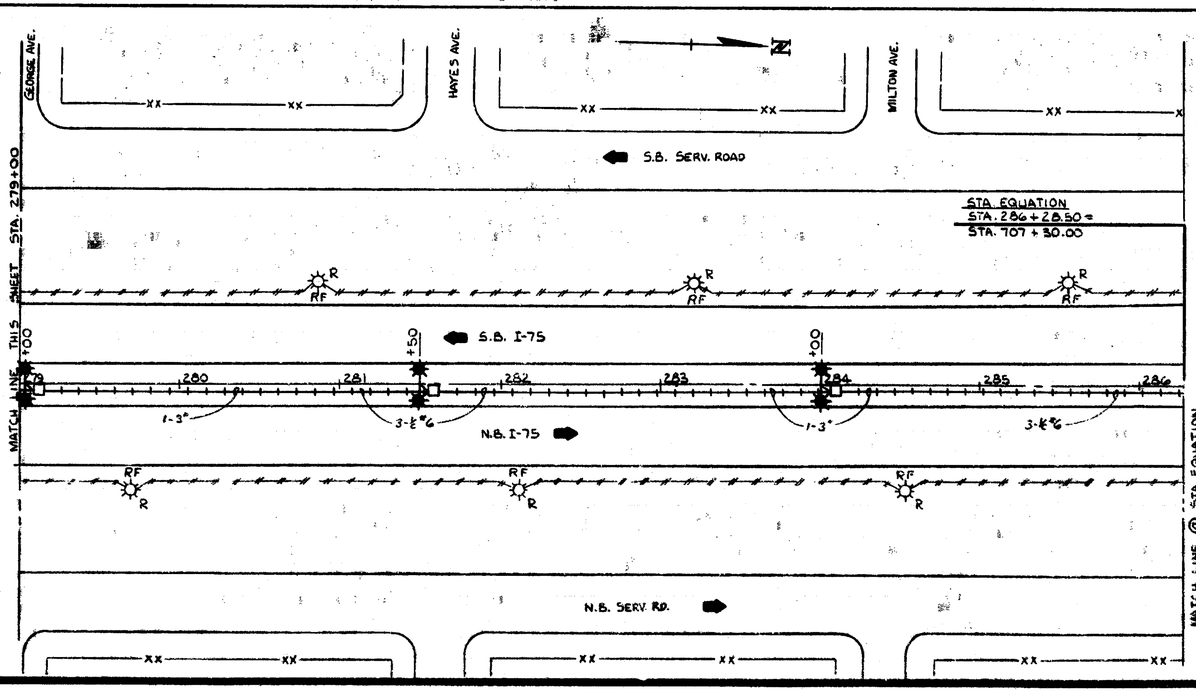
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
TYPICAL FREEWAY LIGHTING STANDARD INSTALLATION

ROAD DES	T. Wilder	1973
DRAWN BY		
TRACED BY	D.W.	11-5-73
CHECKED BY	T. Wilder	11-15-73
SHEET NO.		

CONTROL SECTION 63174
JOB NO. 14165 A



QUANTITIES ON THIS SHEET.		
ITEM	UNIT	QUANTITY
REMOVE U.G. FED ST. LTG. UNIT	EA.	12
1-3" DIRECT BURIAL CONDUIT	L.FT.	1228
HANDHOLE-HEAVY DUTY COVER	EA	5
600V 3 1/C NO. 6 P.B CABLE IN CONDUIT	L.FT.	1228
LT. STD. 45 FT. M.H. 12 FT. DBL. ARM ON MEDIAN WALL	EACH	5
400 W. HIGH PRESSURE SODIUM LUMINAIRE	EACH	10
REMOVE FOUNDATION	EACH	12



E-3

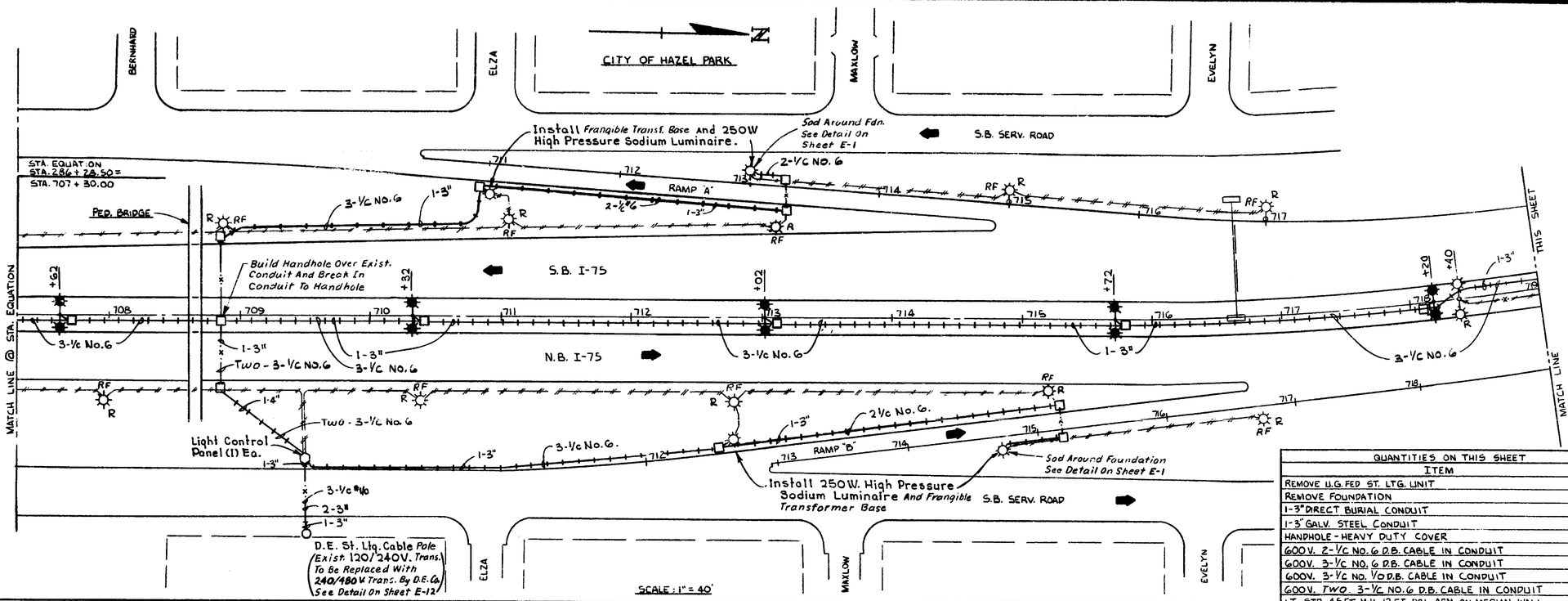
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
FREEWAY LIGHTING
I-75
8 MILE RD. TO 12 MILE RD.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

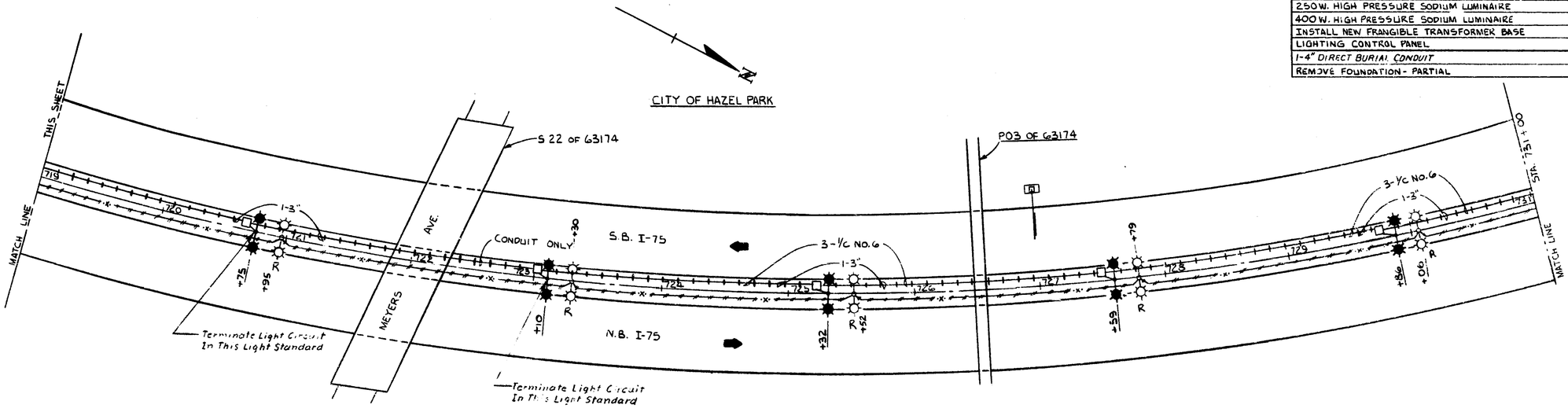
DESIGNED BY	T.N. BLOCH	1977
DRAWN BY	J.N.B.C.R.	5-79
TRACED BY	R.O.A.	5-77
CHECKED BY	T.J.S.C.O.	5-79

SHEET OF

63174 14165A



QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
REMOVE U.G. FED ST. LTG. UNIT	EACH	16
REMOVE FOUNDATION	EACH	10
1-3" DIRECT BURIAL CONDUIT	L.FT.	3480
1-3" GALV. STEEL CONDUIT	L.FT.	20
HANDHOLE - HEAVY DUTY COVER	EACH	19
600V. 2-1/C NO. 6 D.B. CABLE IN CONDUIT	L.FT.	595
600V. 3-1/C NO. 6 D.B. CABLE IN CONDUIT	L.FT.	2725
600V. 3-1/C NO. 1/0 D.B. CABLE IN CONDUIT	L.FT.	50
600V. TWO 3-1/C NO. 6 D.B. CABLE IN CONDUIT	L.FT.	140
LT. STD. 45FT. M.H. 12FT. DBL. ARM ON MEDIAN WALL	EACH	10
250W. HIGH PRESSURE SODIUM LUMINAIRE	EACH	4
400W. HIGH PRESSURE SODIUM LUMINAIRE	EACH	20
INSTALL NEW FRANGIBLE TRANSFORMER BASE	EACH	4
LIGHTING CONTROL PANEL	EACH	1
1-4" DIRECT BURIAL CONDUIT	L.FT.	80
REMOVE FOUNDATION - PARTIAL	EACH	6



E-4

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
FREEWAY LIGHTING
I-75

8 MILE RD TO 12 MILE RD.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD DESIGN	T.N. ALEKH	9-77
DRAWN BY	J.A.G.B.	3-79
TRACED BY	R.D.A.	5-79
CHECKED BY	T.N.A.C.H.	5-79
SHEET	OF	

63174 | 14165A

CITY OF HAZEL PARK

Disconnecting Cable From D.E. Co. Transformer And Remove Cable, Conduit Riser & Hardware From D.E. Co. Pole. This Work Will Be Incidental To The Project And Will Not Be Paid For Separately.

D 120V/240 CABLE POLE (D.E. Co.)

N

STA. 731+00

MATCH LINE

Install Frangible Transf. Base And 250W. High Pressure Sodium Luminaire.

Build Handhole Over Exist Conduit And Break In Conduit To Handhole

Adjusting Handhole

Sod Around Foundation See Detail On Sheet E-1

S.B. I-75

N.B. I-75

RAMP

RF

Two 3-#6

Build Handhole Over Exist. Conduit And Break In Conduit To Handhole

LIGHTING CONTROL PANEL (1) EACH

3-½"1/0

Exist. D.E. Co. Cable Pole See Detail On Sheet E-12

Install Frangible Transf. Base And 250W High Pressure Sodium Luminaire.

THIS SHEET

MATCH LINE

P04 OF 63174

SCALE: 1" = 40'

CITY OF HAZEL PARK

STA 733+00

THIS SHEET

MATCH LINE

JOHN R

S.B. I-75

N.B. I-75

S 25 OF 63174

S 24 OF 63174

SCALE: 1" = 40'

QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
REMOVE FOUNDATION	EACH	2
1-3" DIRECT BURIAL CONDUIT	L.FT.	3,090
2-3" GALV. STEEL CONDUIT	L.FT.	10
REMOVE U.G. FED. ST. LTG. UNIT	EACH	11
HANDHOLE - HEAVY DUTY COVER	EACH	16
600V, 2-½ NO. 6 D.B. CABLE IN CONDUIT	L.FT.	375
600V, 3-½ NO. 6 D.B. CABLE IN CONDUIT	L.FT.	2,805
600V, TWO 3-½ NO. 6 DB. CABLE IN CONDUIT	L.FT.	110
600V. 3-½ NO. 1/0 D.B. CABLE IN CONDUIT	L.FT.	145
LT. STD., 45 FT. M.H., 12 FT. DBL. ARM ON MEDIAN WALL	EACH	9
INSTALL NEW FRANGIBLE TRANSFORMER BASE	EACH	4
LIGHTING CONTROL PANEL	EACH	1
250 W. HIGH PRESSURE SODIUM LUMINAIRE	EACH	4
400 W. HIGH PRESSURE SODIUM LUMINAIRE	EACH	18
ADJUSTING HANDHOLE	EACH	1
REMOVE FOUNDATION - PARTIAL	EACH	9

ES

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

FREEWAY LIGHTING

I-75

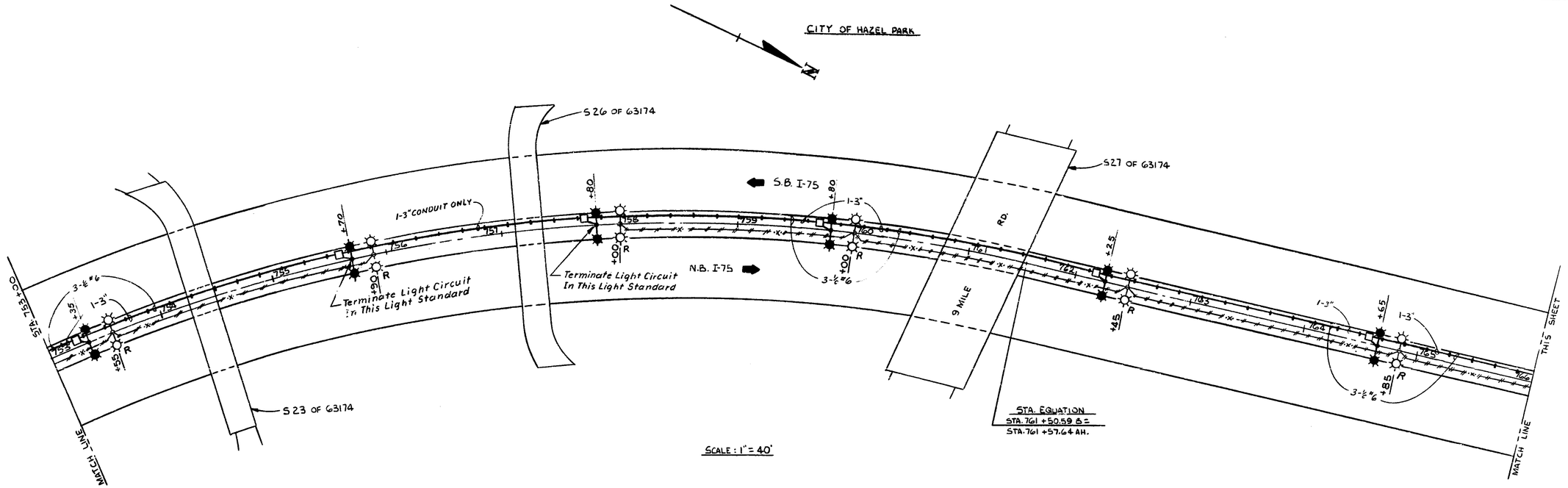
8 MILE RD. TO 12 MILE RD.

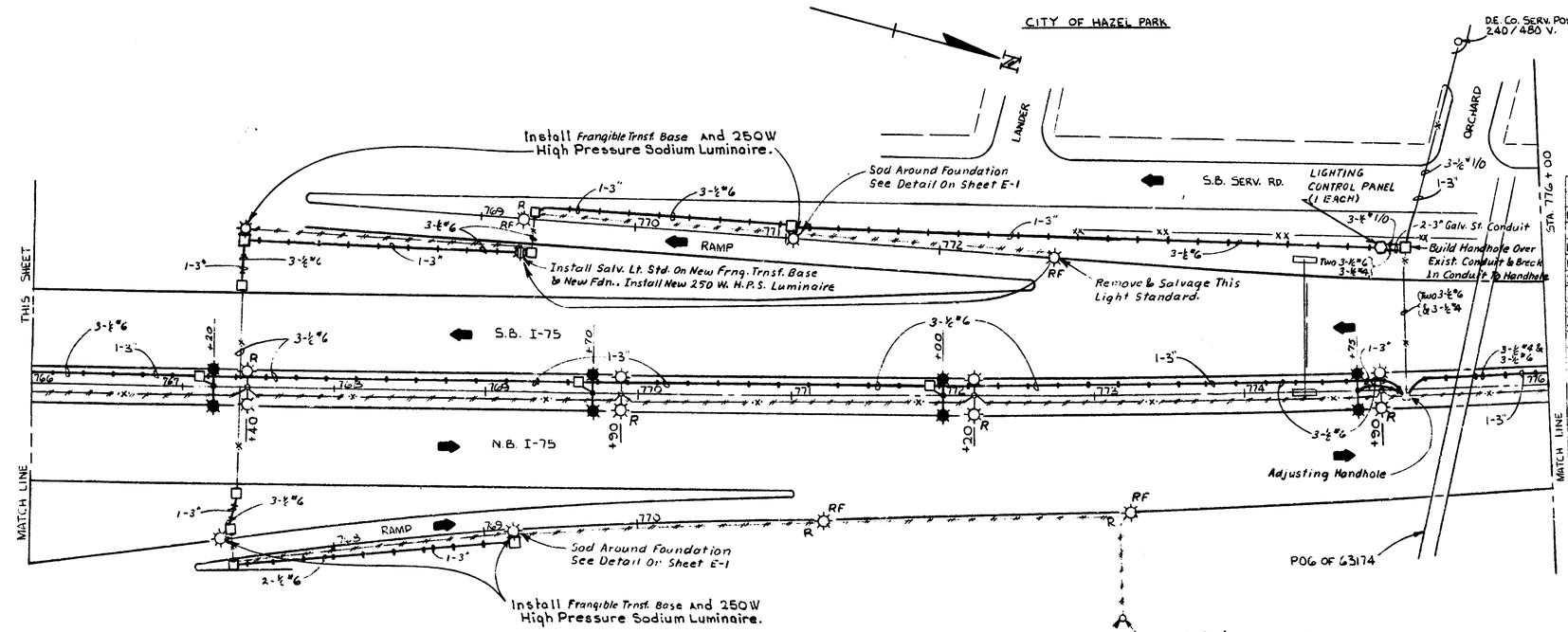
REVISIONS			
NO.	DESCRIPTION	DATE	BY

BOARD BOOK	T.N. ULRICH	1977
DRAWN BY	J.N. & G.B.	3-79
TRACED BY	R.D.A.	3-79
CHECKED BY	T.N. & C.G.	3-79

63174 | 14165A

Sheet # 29





QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
REMOVE U.G. FED ST. LTG. UNIT	EACH	13
REMOVE FOUNDATION	EACH	4
1-3" DIRECT BURIAL CONDUIT	L.FT.	3,345
HANDHOLE - HEAVY DUTY COVER	EACH	19
INSTALL NEW FRANGIBLE TRANSFORMER BASE	EACH	4
2-3" GALV STEEL CONDUIT	L.FT.	10
250W. HIGH PRESSURE SODIUM LUMINAIRE	EACH	5
400W. HIGH PRESSURE SODIUM LUMINAIRE	EACH	20
600V., 2-1/c NO. 6 D.B. CABLE IN CONDUIT	L.FT.	205
600V., 3-1/c NO. 6 D.B. CABLE IN CONDUIT	L.FT.	3,010
600V., TWO 3-1/c NO. 6 & 3-1/c NO. 4 D.B. CABLE IN CONDUIT	L.FT.	105
600V., 3-1/c NO. 1/0 D.B. CABLE IN CONDUIT	L.FT.	150
600V., 3-1/c NO. 6 & 3-1/c NO. 4 D.B. CABLE IN CONDUIT	L.FT.	95
LT. STD., 45 FT. M.H., 12 FT. OBL. ARM ON MEDIAN WALL	EACH	10
LIGHTING CONTROL PANEL	EACH	1
REMOVE & SALVAGE U.G. FED STREET LIGHTING UNIT	EACH	1
INSTALL SALV. UG. FED ST. LTG. UNIT WITH FRNG. TRNSF. BASE & FDN.	EACH	1
ADJUSTING HANDHOLE	EACH	1
REMOVE FOUNDATION - PARTIAL	EACH	10

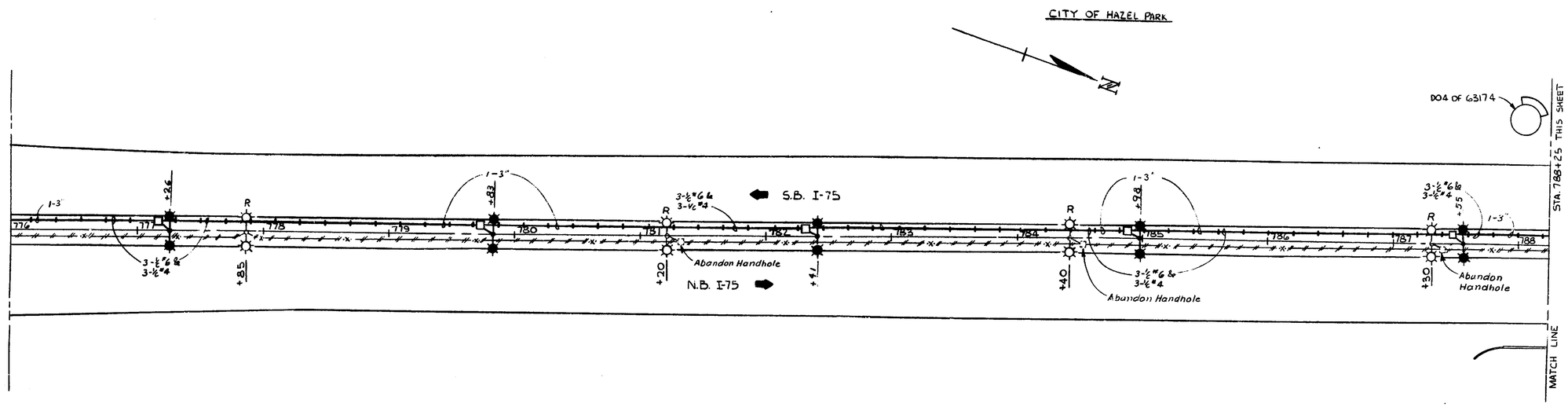
E-6

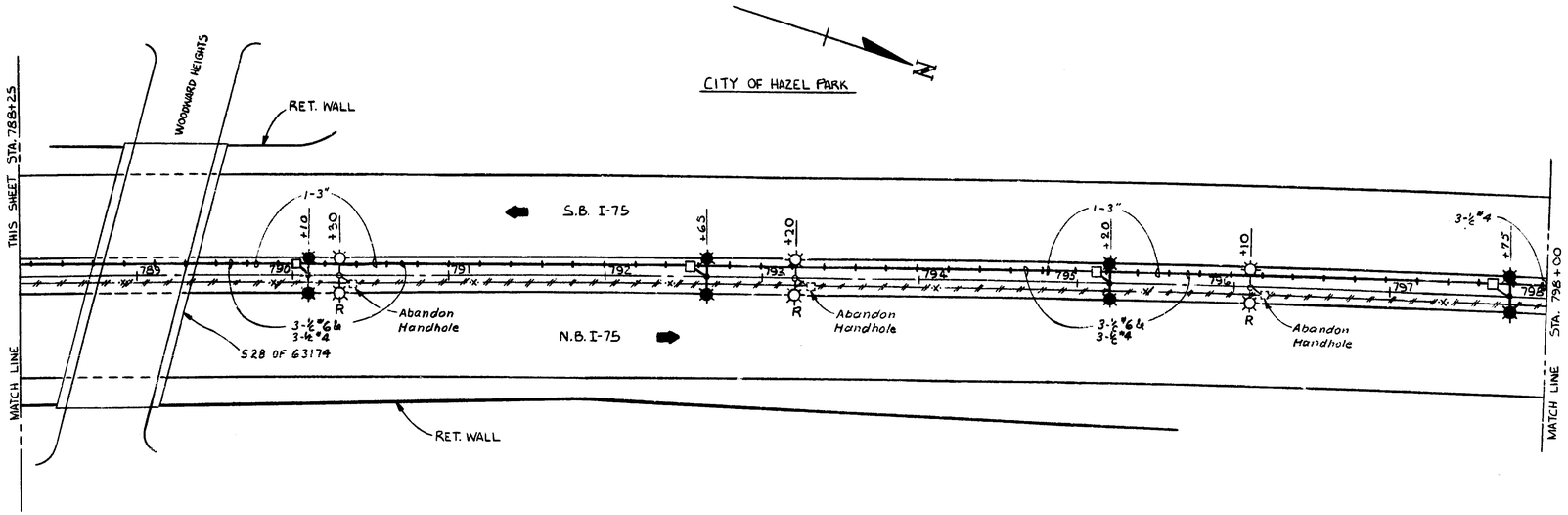
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
FREEWAY LIGHTING
I-75
8 MILE RD. TO 12 MILE RD

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD DES.	F.N. ALDEN	1977
DRAWN BY	J.N. & G.B.	3-79
TRACED BY	R.D.A.	5-79
CHECKED BY	J.L. & C.B.	3-79
SHEET	OF	

63174 | 14165A





QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
REMOVE U.G. FED ST. LTG. UNIT	EACH	7
HANDHOLE - HEAVY DUTY COVER	EACH	9
LT. STD., 45' FT. M.H., 12 FT. DBL. ARM ON MEDIAN WALL	EACH	9
400 W HIGH PRESSURE SODIUM LUMINAIRE	EACH	18
1-3" DIRECT BURIAL CONDUIT	L.FT.	2,240
600V, 3-½ NO.6 & 3-½ NO.4 D.B. CABLE IN CONDUIT	L.FT	2,175
600V, 3-½ NO.4 D.B. CABLE IN CONDUIT	L.FT.	25
600V, 3-½ NO. 6 D.B. CABLE IN CONDUIT	L.FT.	40
REMOVE FOUNDATION - PARTIAL	EACH	7
ABANDON HANDHOLE - ELECTRICAL	EACH	6

E-7

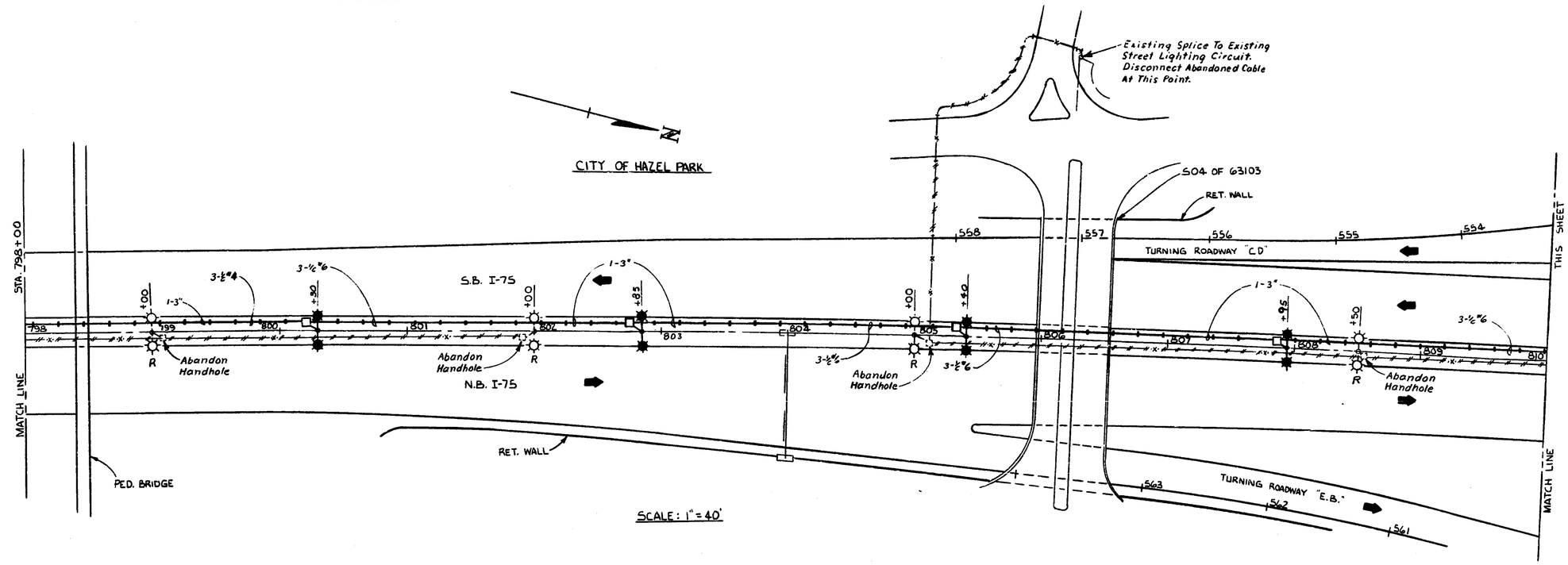
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
FREEWAY LIGHTING
I-75
8 MILE RD. TO 12 MILE RD.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	T.N. III. DEM	1977
DRAWN BY	V.H. & G.B.	3-79
TRACED BY	R.O.A.	3-79
CHECKED BY	T.N. & G.B.	3-79

63174 | 14165A

Sheet 31



QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
REMOVE U.G. FED ST. LTG. UNIT	EACH	8
1-3" DIRECT BURIAL CONDUIT	L.FT.	2470
LT. STD., 45 FT. M.H., 12 FT. DBL. ARM ON MEDIAN WALL	EACH	10
400 W. HIGH PRESSURE SODIUM LUMINAIRE	EACH	20
600 V., 3-#2 NO. 6 D.B. CABLE IN CONDUIT	L.FT.	2,240
600 V., 3-#2 NO. 4 D.B. CABLE IN CONDUIT	L.FT.	230
HANDHOLE - HEAVY DUTY COVER	EACH	10
REMOVE FOUNDATION - PARTIAL	EACH	8
ABANDON HANDHOLE - ELECTRICAL	EACH	9

E-8

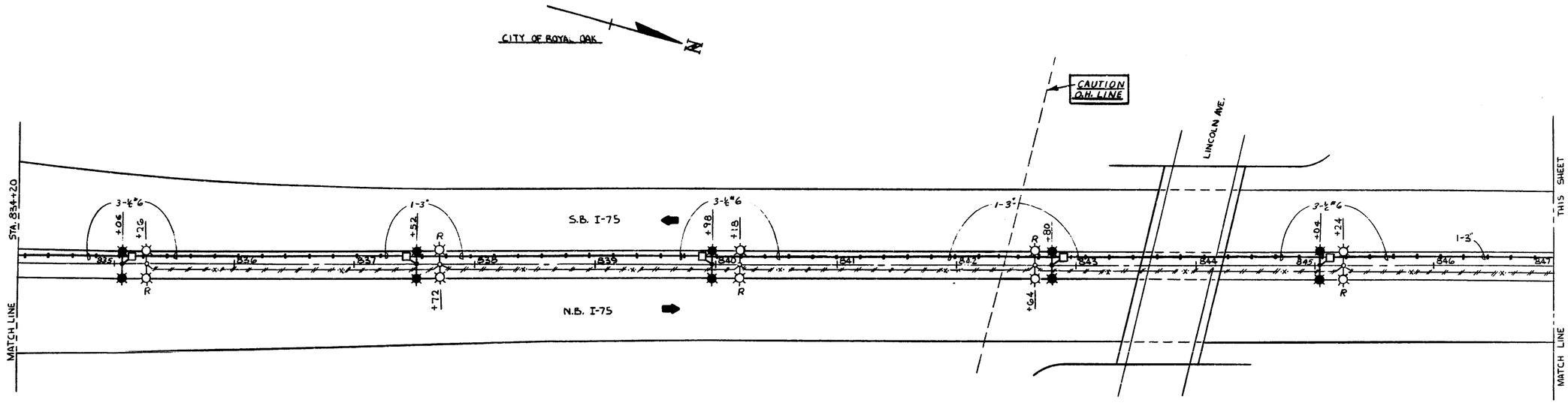
MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

FREEWAY LIGHTING
I-75
8 MILE RD. TO 12 MILE RD.

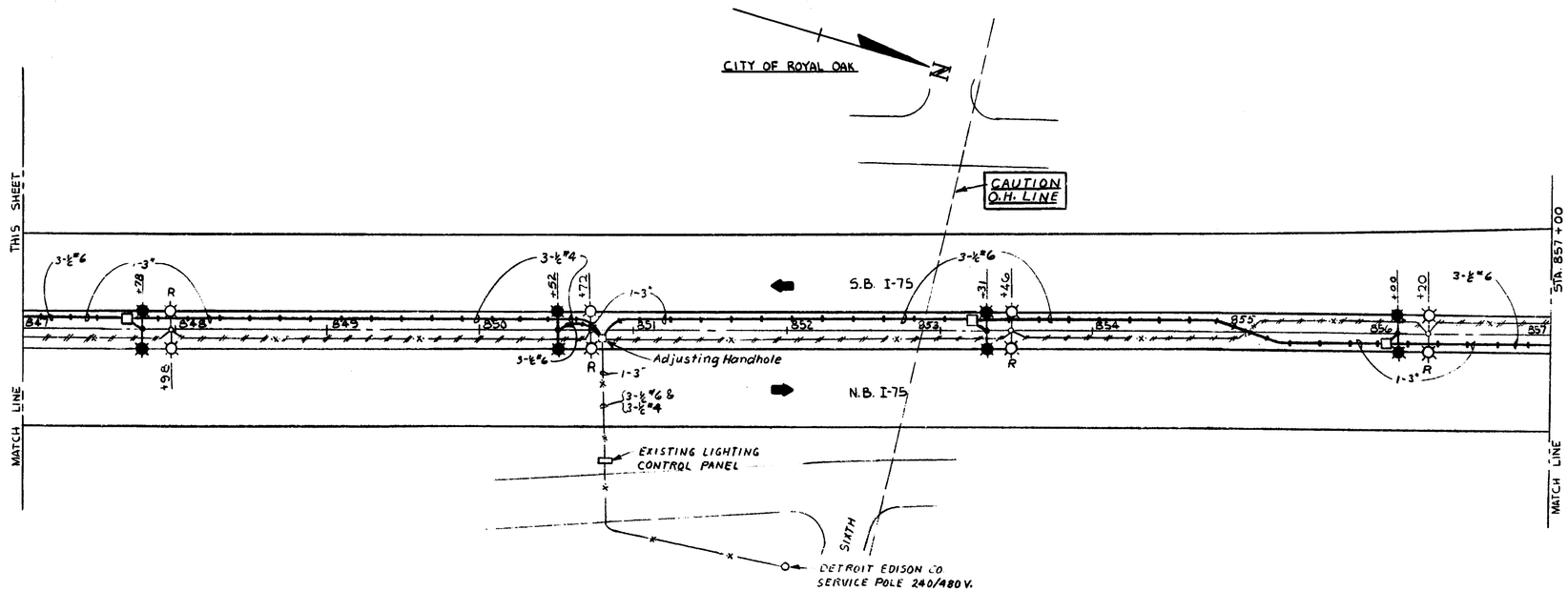
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	T.N. JILDEN	1977
DRAWN BY	J.H. & G.B.	3-79
TRACED BY	R.O.L.	5-77
CHECKED BY	T.J. & C.B.	3-79

SHEET 63174 OF 14165A



SCALE : 1" = 40'



SCALE: 1" = 40'

QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
REMOVE U.G. FED ST. LTG. UNIT	EACH	9
1-3" DIRECT BURIAL CONDUIT	EACH	2300
HANDHOLE - HEAVY DUTY COVER	EACH	8
L.T. STD., 45 FT. M.H., 12 FT. DBL. ARM ON MEDIAN WALL	EACH	9
400 W HIGH PRESSURE SODIUM LUMINAIRE	EACH	18
600 V, 3-#6 NO. 6 D.B. CABLE IN CONDUIT	L.FT.	2,000
600 V, 3-½ NO. 4 D.B. CABLE IN CONDUIT	L.FT.	314
600 V, 3-#6 NO. 6 & 3-½"4 D.B. CABLE IN CONDUIT	L.FT.	90
ADJUSTING HANDHOLE	EACH	1
REMOVE FOUNDATION - PARTIAL	EACH	9

E-9

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
FREEWAY LIGHTING
I-75
8 MILE RD. TO 12 MILE RD.

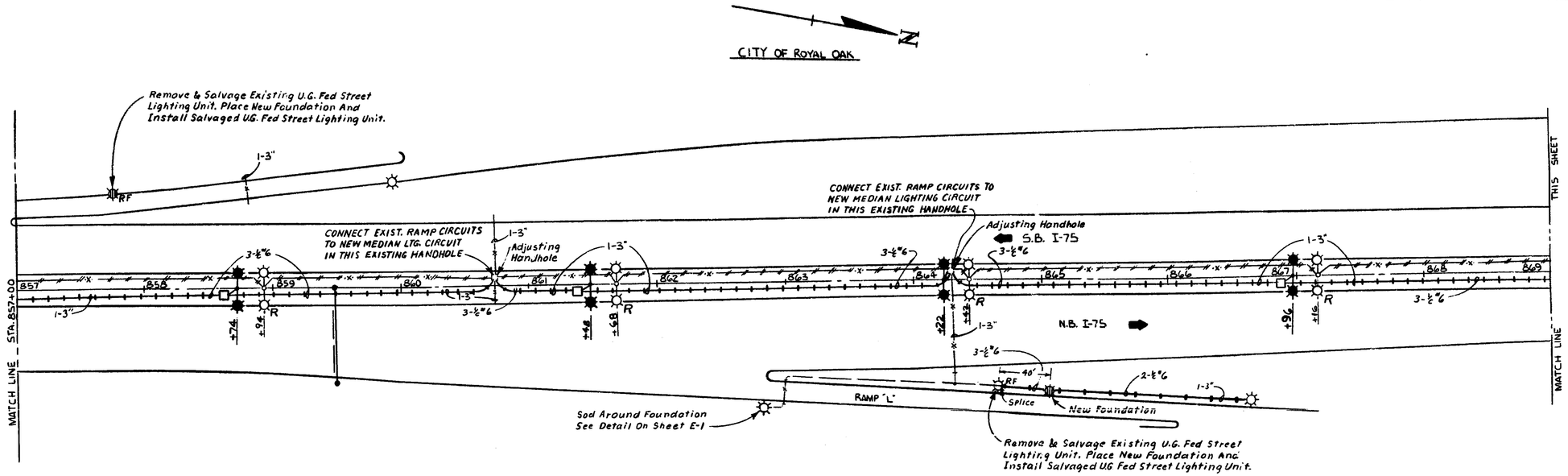
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD MOSS	T.N. JILDEN	1977
DRAWN BY	JW & GB	3-79
TRACED BY	R.O.A.	5-77
CHECKED BY	T.J. & C.B.	3-79

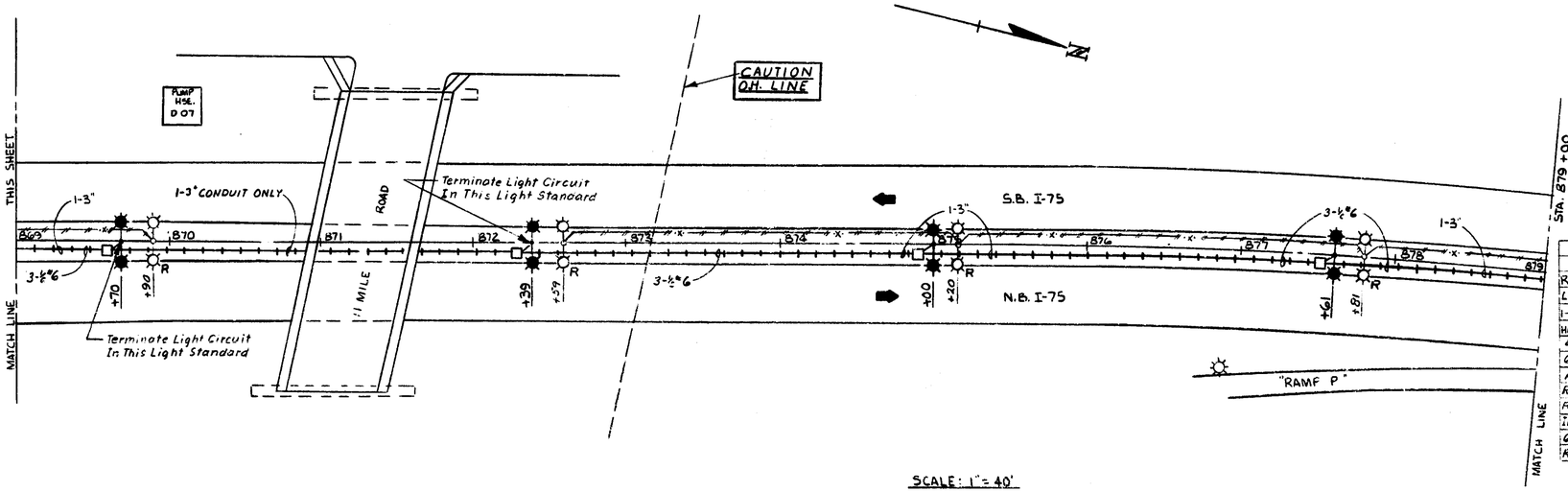
SHEET OF

63174 14165A

Sheet # 33



SCALE: 1" = 40'



SCALE: 1" = 40'

QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
REMOVE U.G. FED ST. LTG. UNIT	EACH	8
LT. STD., 45 FT. M.H., 12 FT. DBL. ARM ON MEDIAN WALL	EACH	8
1-3" DIRECT BURIAL CONDUIT	L.FT.	2,910
HANDHOLE - HEAVY DUTY COVER	EACH	7
400 W. HIGH PRESSURE SODIUM LUMINAIRE	EACH	16
600 V, 3-#1 NO. 6 D.B. CABLE IN CONDUIT	L.FT.	2,000
ADJUSTING HANDHOLE	EACH	2
REMOVE FOUNDATION	EACH	2
REMOVE & SALVAGE U.G. FED STREET LIGHTING UNIT	EACH	2
INSTALL SALV. U.G. FED ST. LTG UNIT WITH FRNG. TRNSF. BASE & FDN.	EACH	2
600V. 2-#1 NO. 6 D.B. CABLE IN CONDUIT	L.FT.	160
REMOVE FOUNDATION	EACH	8

E-10

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

FREEWAY LIGHTING

I-75

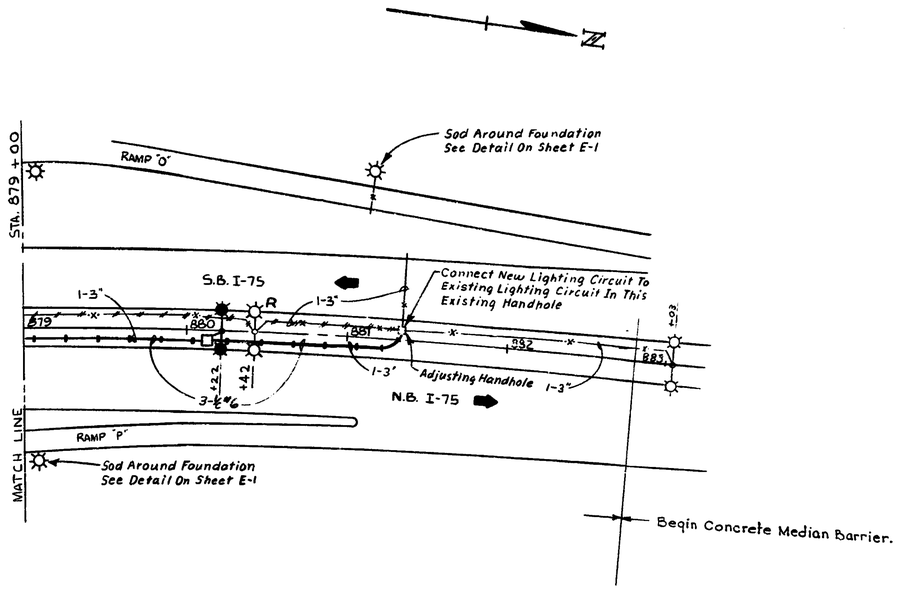
8 MILE RD. TO 12 MILE RD.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SUPV. BOSS	T.N. JILDEN	9-77
DRAWN BY	W.H.S & G.C.	3-79
TRACED BY	R.D.A.	5-77
CHECKED BY	T.J.S & C.S.	3-79

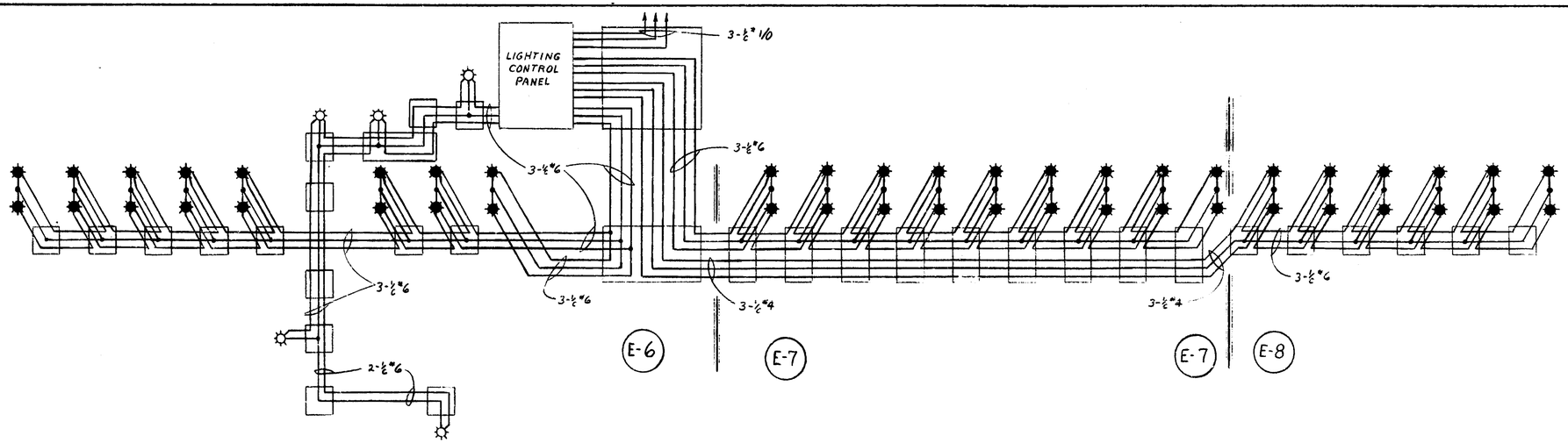
SHEET NO.

63174 | 14165A



SCALE: 1"=40'

QUANTITIES ON THIS SHEET		
ITEM	UNIT	QUANTITY
REMOVE U.G. FED ST. LTG. UNIT	EACH	1
HANDHOLE - HEAVY DUTY COVER	EACH	1
LT. STD., 45 FT. M.H., 12 FT. DBL. ARM ON MEDIAN WALL	EACH	1
600 V., 3-#6 No. 6 D.B. CABLE IN CONDUIT	L.FT.	240
400 W., HIGH PRESSURE SODIUM LUMINAIRE	EACH	2
1-3" DIRECT BURIAL CONDUIT	L.FT	240
ADJUSTING HANDHOLE	EACH	1
REMOVE FOUNDATION - PARTIAL	EACH	1



E-11

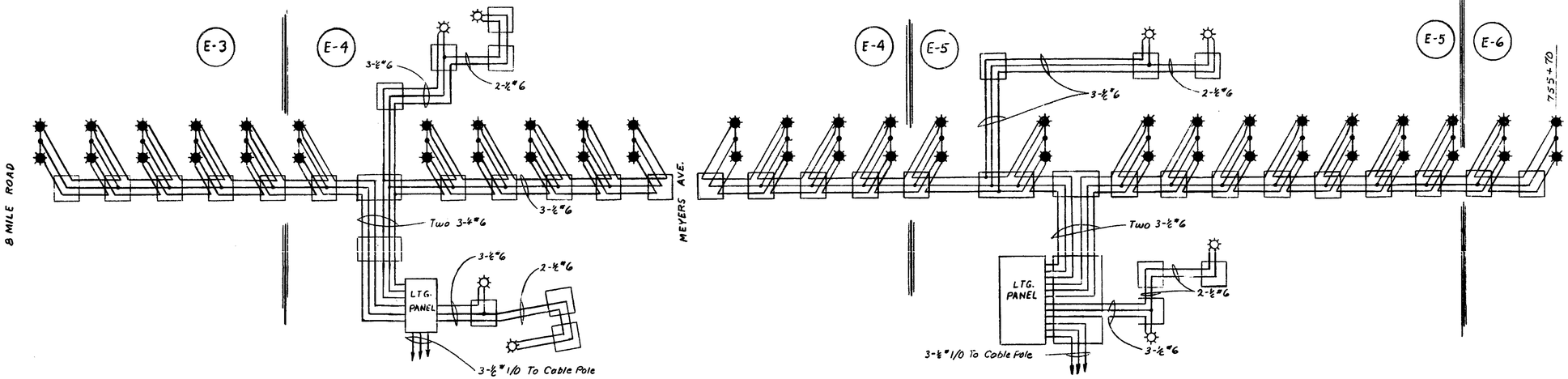
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
AND TRANSPORTATION
FREEWAY LIGHTING
I-75
8 MILE RD. TO 12 MILE RD.

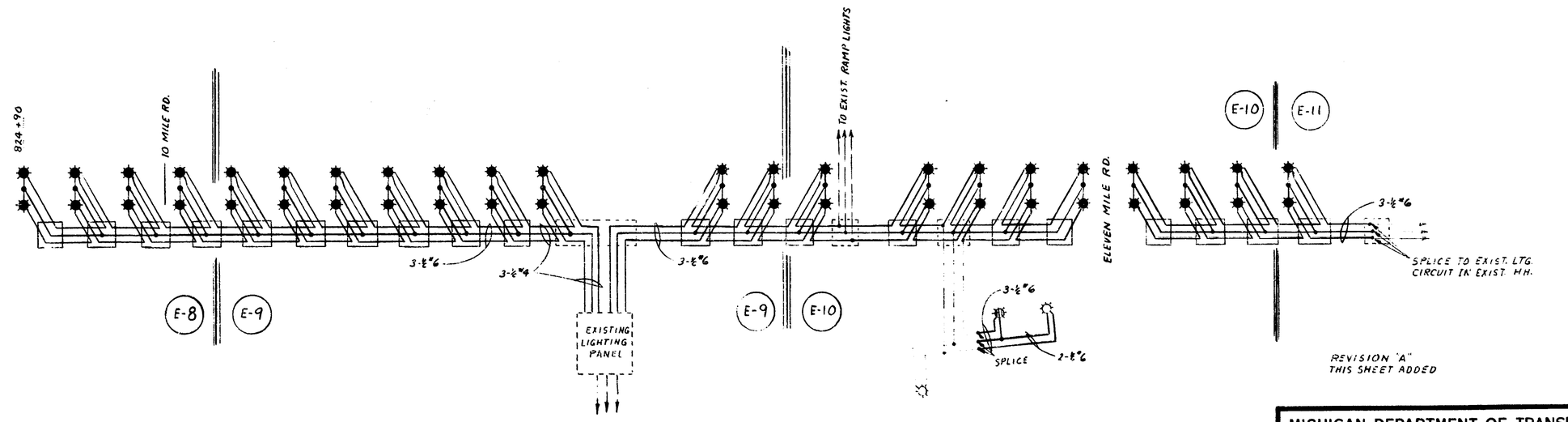
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD (BUSS)	TN JILDEH	1977
DRAWN BY	JH & GB	2-79
TRACED BY	R.O.A	5-77
CHECKED BY	T.J. & C.B.	3-79
SHEET	OF	

63174 | 14165A

Sheet #35





REVISION "A"
THIS SHEET ADDED

E-11A

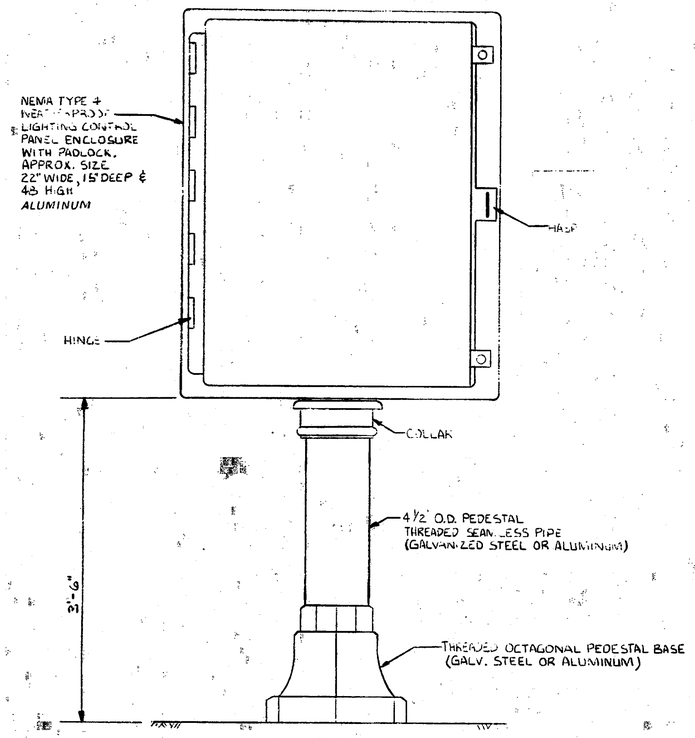
MICHIGAN DEPARTMENT OF TRANSPORTATION
FREEWAY LIGHTING I-75
8 MILE RD. TO 12 MILE RD.

NO	REVISIONS DESCRIPTION	DATE	BY
A	This Sheet Added	2-20	D.W.

DESIGNED BY	T. Jilek	1980
DRAWN BY		
TRACED BY	D.W.	1-80
CHECKED BY	J.N.C.B.	1-80
SHEET 35A OF		

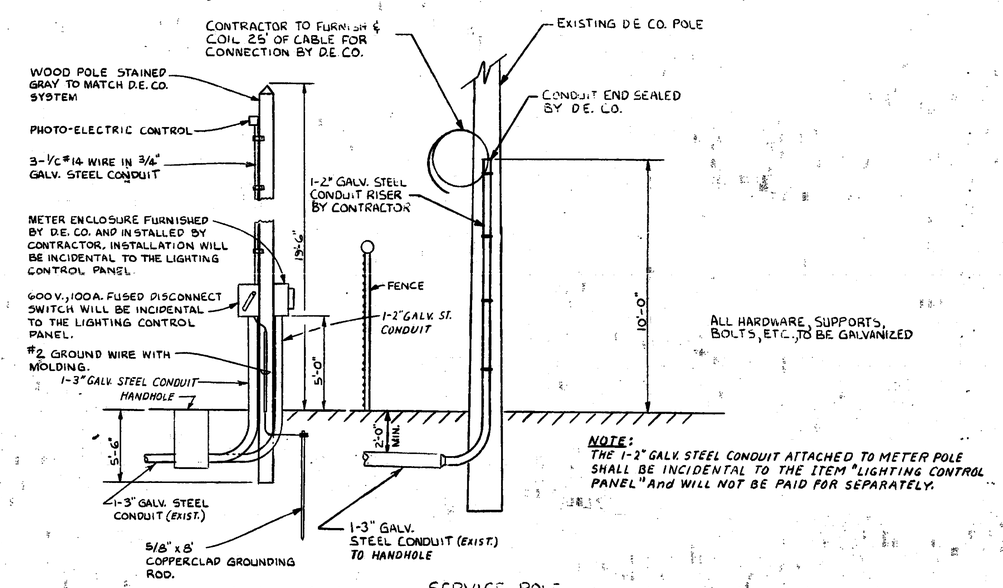
63174 | 14165A

Sheet 35A



LIGHTING CONTROL PANEL

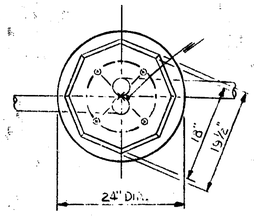
NOT TO SCALE

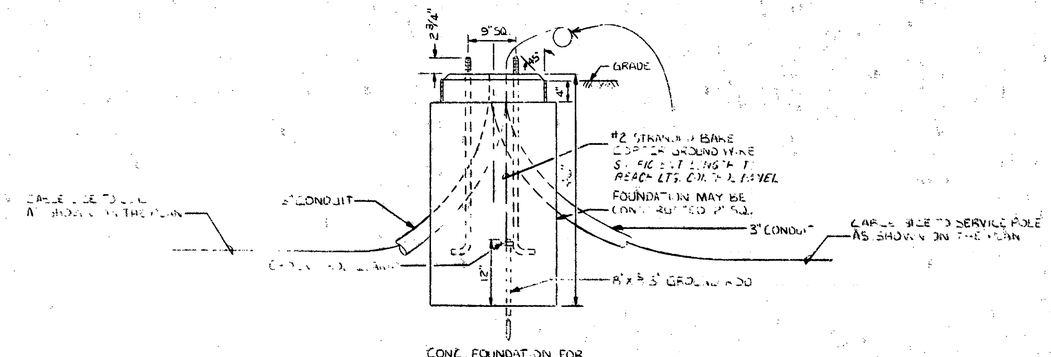


NOTE: THE 1-2" GALV. STEEL CONDUIT ATTACHED TO METER POLE SHALL BE INCIDENTAL TO THE ITEM "LIGHTING CONTROL PANEL" And WILL NOT BE PAID FOR SEPARATELY.

SERVICE POLE

NOT TO SCALE





CONC. FOUNDATION FOR LIGHTING CONTROL PANEL

E-12

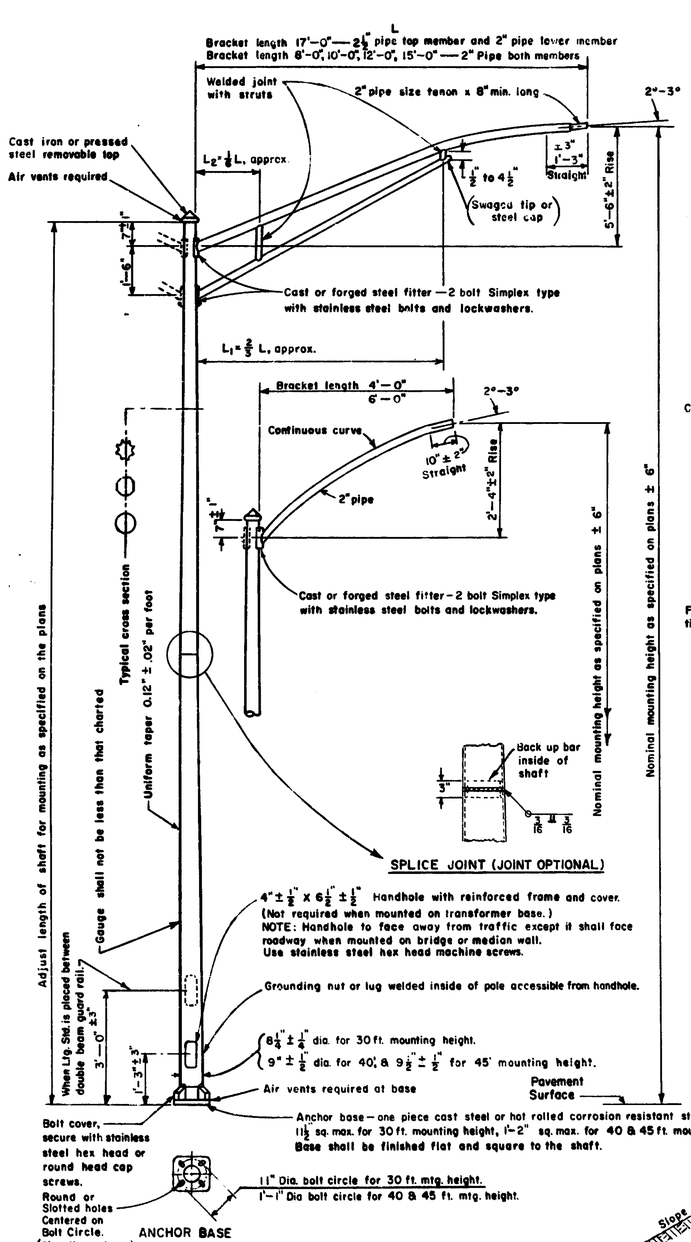
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
FREEWAY LIGHTING
LIGHTING CONTROL PANEL DETAIL

REVISIONS			
NO.	DESCRIPTION	DATE	BY

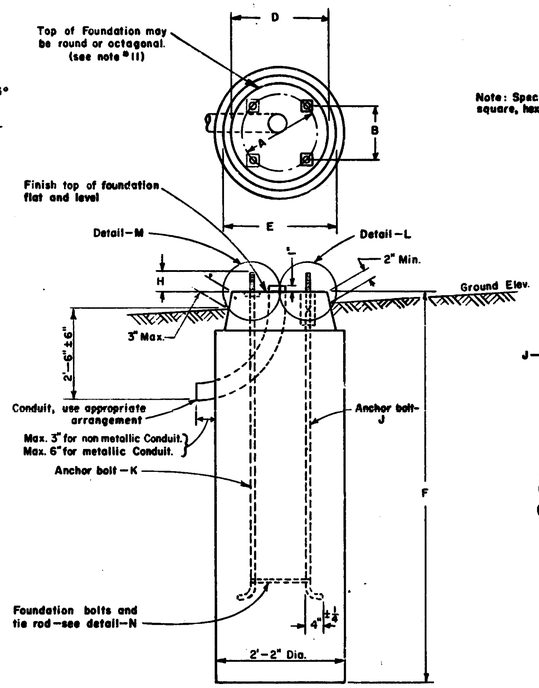
SIGNAL DESIGN	T. HUDEN	4-75
DRAWN BY	D.T.	5-75
TRACED BY		
CHECKED BY		
SHEET	OF	

63174 | 14165A

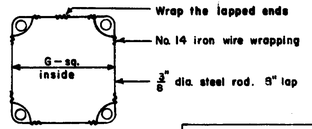
Sheet # 36



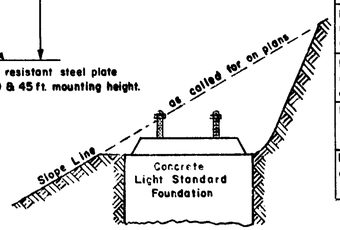
TYPICAL LIGHT STANDARD DESIGN FOR MERCURY AND INCANDESCENT LUMINAIRES



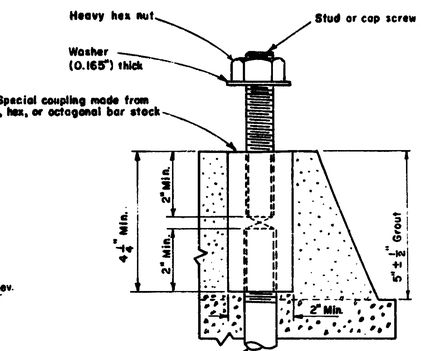
TYPICAL LIGHT STANDARD FOUNDATION WITH OR WITHOUT SHEAR STUDS
(FOUNDATION INCIDENTAL TO LIGHT STANDARD)



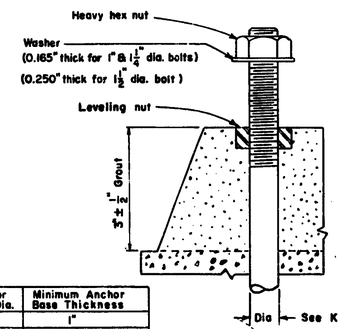
DETAIL—N
ANCHOR BOLTS & TIE ROD



FOUNDATION DETAIL
(ON FILL OR CUT SLOPE)



DETAIL—L
(SHEAR STUD)



DETAIL—M

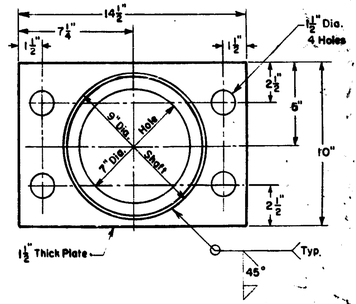
Anchor Bolt Dia.	Minimum Anchor Base Thickness
1"	1"
1¼"	1⅛"
1½"	1⅜"

ANCHOR BASE THICKNESS CHART

NOTES:

1. All materials and workmanship shall be in accordance with the current Michigan Department of State Highways Supplemental Specifications For Electrical Construction.
2. Use detail "M" anchor bolts unless shear studs are specified in the plans. Anchor bolt length "J" or "K" is length before bending. Final Standard adjustment shall be leveled by use of galvanized sheet steel shims if required.
3. Supply bracket arm fitters for each arm used only.
4. Supply ½" elastomeric fabric bound pad for mounting between street light standard base and foundation on bridge mounted units only (incidental).
5. Cast steel or hot rolled plate anchor bases shall have a thickness as shown in Chart below.
6. Standards mounted on transformer bases shall have the same dimensions as anchor base types, except shaft length.
7. Use the same anchor bolts for transformer base as for corresponding anchor base types.
8. For grounding Light Standards see Light Standard Grounding Details sheet.
9. Bolt Circle dimension "A" for Anchor Bolts must be exact. Anchor Bolts are to be set to a template.
10. Non metallic Conduit for Foundation shall be asbestos cement, plastic, or bituminized fiber. Metallic Conduit shall be rigid galvanized steel. In lieu of Conduit, a raceway formed by a Murray Hose is acceptable. Conduit of whatever material, if used, is incidental to the Light Standard.
11. If octagonal Foundation top is used, top of Foundation must extend 1" min. outside of Light Standard Base.

TYPE	A	B	D	E	F	G	H	Ga (min.)	J	K
Mercury vapor or incandescent transformer base for 30 ft. mounting height.	11"	7¾"	1'-7"	1'-9"	6'-0"	8¾"	2½"	see note 6		see note 7
Mercury vapor anchor base for 30 ft. mounting height and 4 or 6 ft. single or double bracket arm.	11"	7¾"	1'-7"	1'-9"	5'-0"	8¾"	2½"	11	1"ϕ x 3'-4"	1"ϕ x 3'-9"
Mercury vapor anchor base for 30 ft. mounting height and 8, 10, 12 ft. single or double bracket arm.	11"	7¾"	1'-7"	1'-9"	6'-0"	8¾"	2½"	11	1"ϕ x 5'-0"	1"ϕ x 5'-0"
Mercury vapor anchor base for 30 ft. mounting height and 17 ft. single or double bracket arm.	11"	7¾"	1'-7"	1'-9"	6'-0"	9"	3"	7		1¼"ϕ x 5'-0"
Mercury vapor anchor base ft. 30 ft. mounting height and 15 ft. single or double bracket arm.	11"	7¾"	1'-7"	1'-9"	6'-0"	8¼"	2½"	7	1"ϕ x 5'-0"	1"ϕ x 5'-0"
Mercury vapor or incandescent transformer base for 40 & 45 ft. mounting height.	1'-5¼"	1'-0⅝"	2'-0"	2'-2"	8'-6"	1'-1⅛"	3½"	see note 6		see note 7
Mercury vapor anchor base for 40 & 45 ft. and 4, 6, 8, 10, 12, 15, 17 ft. single or double bracket arm.	1'-1"	9¼"	2'-0"	2'-2"	8'-6"	10½"	3½"	11 Ga. up to 15' Brkt. Arm 7 Ga. for 17' Brkt. Arm		1¼"ϕ x 5'-0"



ANCHOR BASE DETAIL FOR LIGHT STANDARDS USED ON 10" TOP CONCRETE BARRIER
See Detail Sheet For Light Standard Foundation (Concrete Barrier)

E-13

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
ELECTRICAL DETAILS
STEEL LIGHT STANDARDS
FOR 30, 40, & 45 FT. MOUNTING HEIGHTS

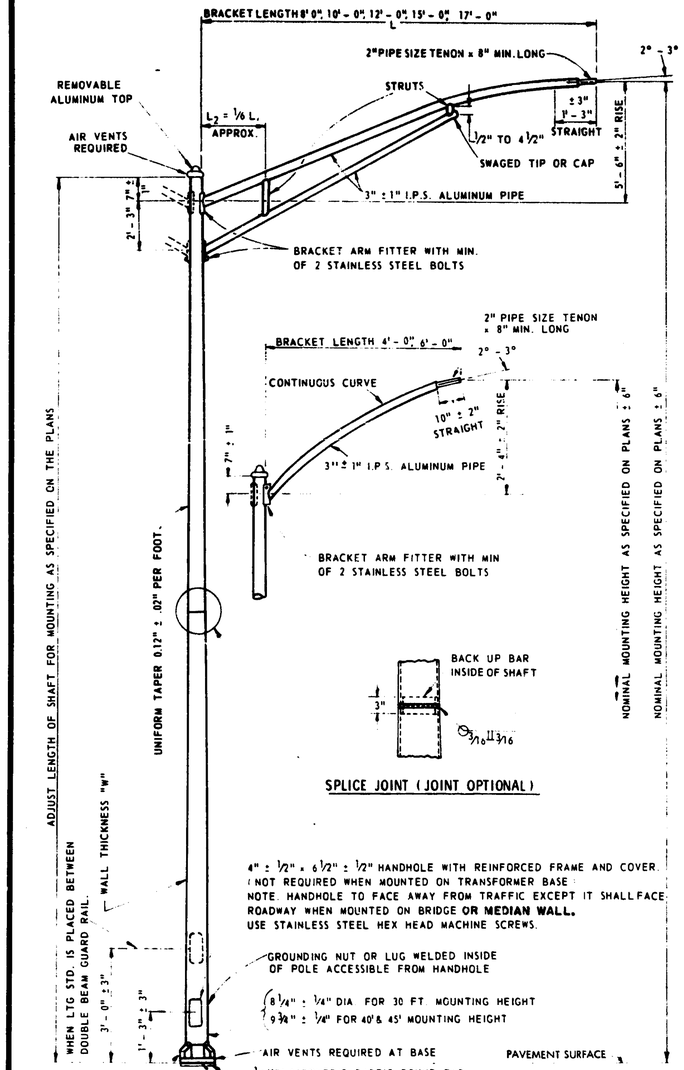
E-3
APPR.
DATE: June 20

REVISIONS			
NO	DESCRIPTION	DATE	BY

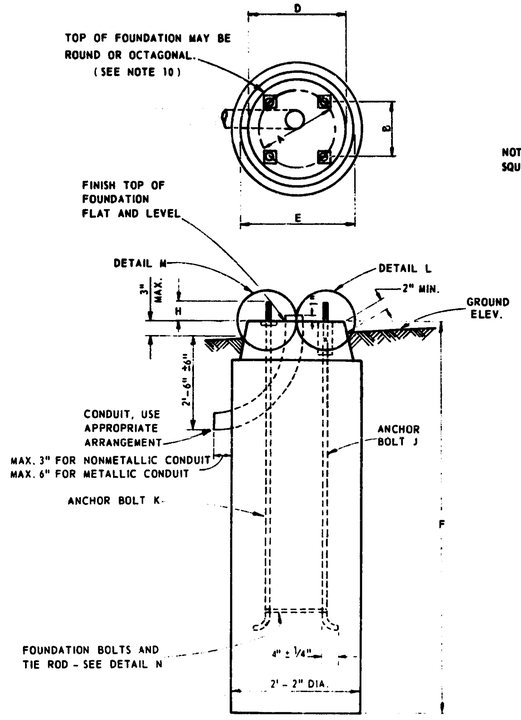
ROAD DESIGN: T. Jindal 1967
DRAWN BY:
TRACED BY: D. Lyon 7-11-67
CHECKED BY: A. 8-11-67
SHEET
63174
JOB NO
14165A

Sheet 4 37

Revised 6-16-66 (Anchor Bolt Plan changed to Anchor Base Plan)
Revised 2-1-66 (Top of Handhole, D =)
Revised 1-17-68 (Top of Handhole, D =) Revised 4-25-68 Deleted Flowestem Fit Arm Detail

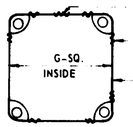


TYPICAL LIGHT STANDARD DESIGN FOR MERCURY AND INCANDESCENT LUMINAIRES



TYPICAL LIGHT STANDARD FOUNDATION WITH OR WITHOUT SHEAR STUDS

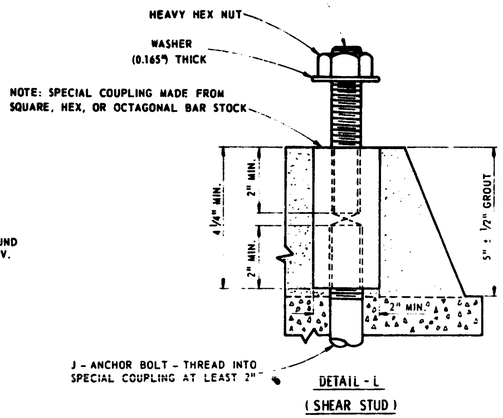
(FOUNDATION INCIDENTAL TO LIGHT STANDARD



DETAIL - N

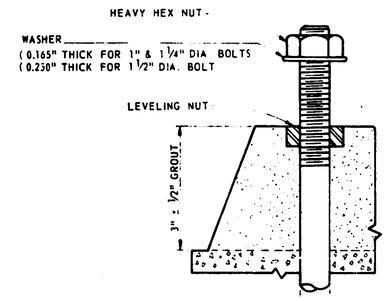
ANCHOR BOLTS & TIE RODS

TYPE	A	B	D	E	F	G	H	W	J	K
MERCURY VAPOR OR INCANDESCENT TRANSFORMER BASE FOR 30 FT. MOUNTING HEIGHT.	11"	7 3/4"	1'-7"	1'-9"	6'-0"	8 3/4"	2 5/8"	SEE NOTE 5		SEE NOTE 6
MERCURY VAPOR ANCHOR BASE FOR 30 FT. MOUNTING HEIGHT AND 4 OR 6 FT. SINGLE OR DOUBLE BRACKET ARM.	11"	7 3/4"	1'-7"	1'-9"	5'-0"	8 3/4"	2 5/8"	.188"	1"Ø x 3'-4"	1"Ø x 3'-7"
MERCURY VAPOR ANCHOR BASE FOR 30 FT. MOUNTING HEIGHT AND 8, 10, 12, 15 FT. SINGLE OR DOUBLE BRACKET ARM.	11"	7 3/4"	1'-7"	1'-9"	6'-0"	8 3/4"	2 5/8"	.188" SGL BKT ARM .219" DBL BKT ARM	1"Ø x 5'-0"	1"Ø x 5'-0"
MERCURY VAPOR ANCHOR BASE FOR 30 FT. MOUNTING HEIGHT AND 17 FT. SINGLE OR DOUBLE BRACKET ARM.	11"	7 3/4"	1'-7"	1'-9"	6'-0"	9"	3"	.188" SGL BKT ARM .219" DBL BKT ARM		1 1/4"Ø x 5'-0"
MERCURY VAPOR OR INCANDESCENT TRANSFORMER BASE FOR 40 & 45 FT. MOUNTING HEIGHT.	1'-5 1/4"	1'-0 3/16"	2'-0"	2'-2"	8'-6"	11'-1 3/16"	3 1/2"	SEE NOTE 5		SEE NOTE 6
MERCURY VAPOR ANCHOR BASE FOR 40 FT. MOUNTING HEIGHT AND 4, 6, 8, 10, 12, 15, 17 FT. SINGLE OR DOUBLE BRACKET ARM.	1'-1"	9 1/4"	2'-0"	2'-2"	8'-6"	10 3/4"	3 1/2"	.188" SGL BKT. ARM .219 DBL BKT. ARM		1 1/2"Ø x 5'-0"
MERCURY VAPOR ANCHOR BASE FOR 45 FT. MOUNTING HEIGHT AND 4, 6, 8, 10, 12, 15, 17 FT. SINGLE OR DOUBLE BRACKET ARM.	1'-1"	9 1/4"	2'-0"	2'-2"	8'-6"	10 3/4"	3 1/2"	.219" LOWER SECTION .188" UPPER SECTION		1 1/2"Ø x 5'-0"



DETAIL - L

(SHEAR STUD)



DETAIL - M

NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT MICHIGAN DEPARTMENT OF STATE HIGHWAYS SPECIFICATIONS FOR ELECTRICAL CONSTRUCTION.
2. USE DETAIL "M" ANCHOR BOLTS UNLESS SHEAR STUDS ARE SPECIFIED IN THE PLANS. ANCHOR BOLT LENGTH "J" OR "K" IS LENGTH BEFORE BENDING. FINAL STANDARD ADJUSTMENT SHALL BE LEVELED BY USE OF GALVANIZED SHEET STEEL SHIMS IF REQUIRED.
3. SUPPLY BRACKET ARM FITTERS FOR EACH ARM USED ONLY.
4. PLACE 1/8 "ELASTOMERIC FABRIC BOUND PAD FOR MOUNTING ONLY BETWEEN STREET LIGHT STANDARD BASE AND FOUNDATION.
5. STANDARDS MOUNTED ON TRANSFORMER BASES SHALL HAVE THE SAME DIMENSIONS AS ANCHOR BASE TYPES, EXCEPT SHAFT LENGTH.
6. USE THE SAME ANCHOR BOLTS FOR TRANSFORMER BASE AS FOR CORRESPONDING ANCHOR BASE TYPES.
7. FOR GROUNDING LIGHT STANDARDS SEE LIGHT STANDARD GROUNDING DETAILS SHEET.
8. BOLT CIRCLE DIMENSION "A" FOR ANCHOR BOLTS MUST BE EXACT. ANCHOR BOLTS ARE TO BE SET TO A TEMPLATE.
9. NON METALLIC CONDUIT FOR FOUNDATION SHALL BE ASBESTOS CEMENT, PLASTIC, OR BITUMINIZED FIBER METALLIC CONDUIT SHALL BE RIGID GALVANIZED STEEL. IN LIEU OF CONDUIT, A RACEWAY FORMED BY A MURRAY HOSE IS ACCEPTABLE. CONDUIT OF WHATEVER MATERIAL, IF USED, IS INCIDENTAL TO THE LIGHT STANDARD.
10. IF OCTAGONAL FOUNDATION TOP IS USED, TOP OF FOUNDATION MUST EXTEND 1" MIN. OUTSIDE OF LIGHT STANDARD BASE, OR T-BASE

ALUMINUM LIGHT STANDARDS WITH RECTANGULAR BASE (10"x 14½") WITH ELIPTICAL SHAFT AT BOTTOM FOR USE ON MEDIAN BARRIER WALL WILL BE CONSIDERED UPON APPROVAL BY THE ENGINEER.

E-14

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ELECTRICAL DETAILS

ALUMINUM LIGHT STANDARDS

FOR 30, 40 & 45 FT. MOUNTING HEIGHTS

E-4

APPR. DATE

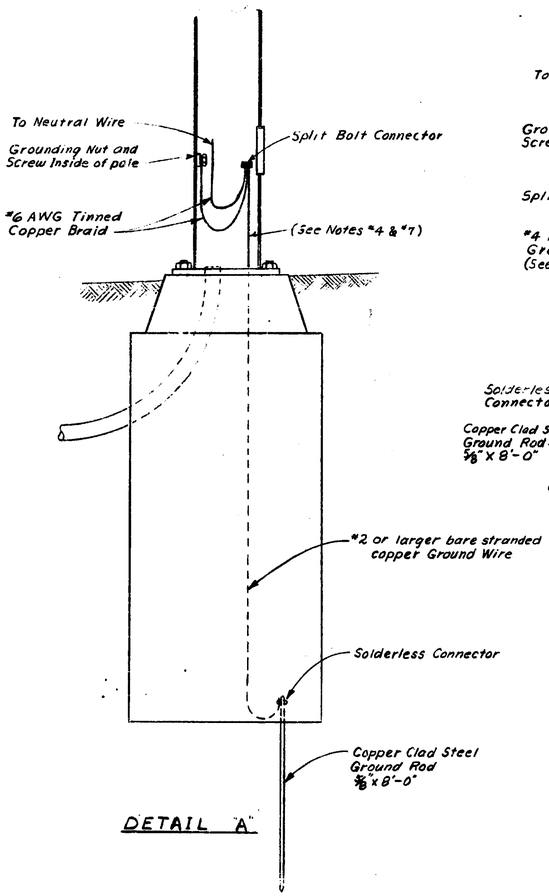
REVISIONS			
NO	DESCRIPTION	DATE	BY

DESIGNED BY	T. Jilek	1968
DRAWN BY	DW	1-8-68
TRACED BY		
CHECKED BY		
SHEET	OF	

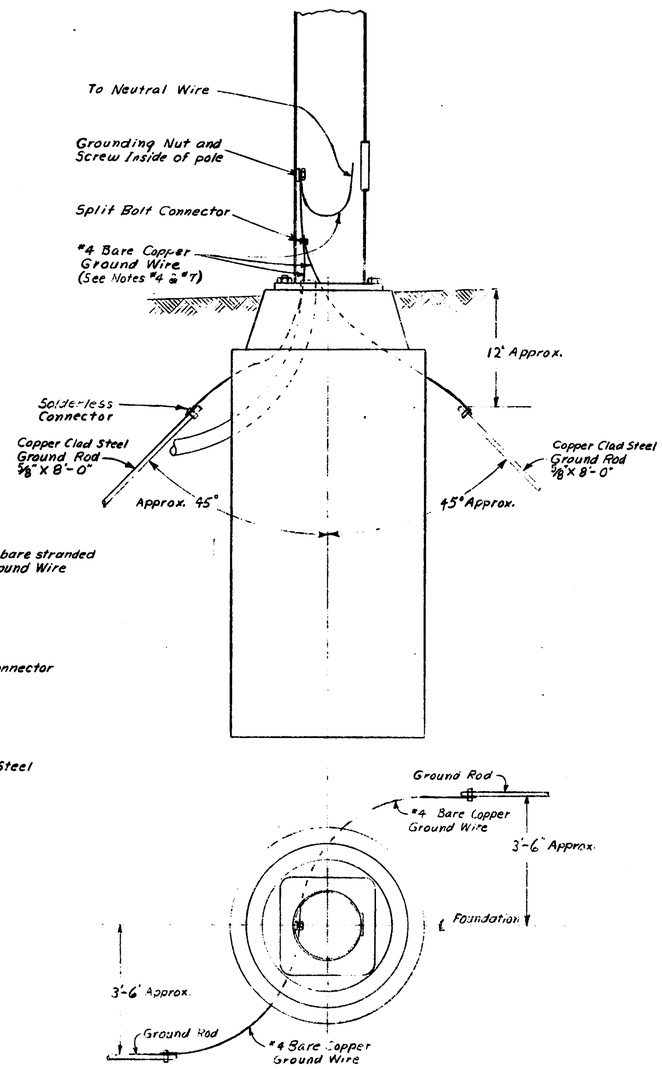
63174

JOB NO 14165A

Sheet # 38



DETAIL "A"



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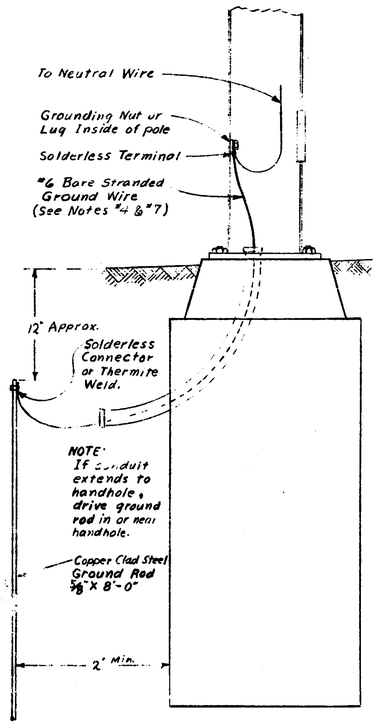


DETAIL "C"

NOTES:

1. Detail "A" is to be used for Lighting Standards maintained by City of Detroit Public Lighting Commission.
2. Detail "B" is to be used for Lighting Standards maintained by Detroit Edison Co.
3. Detail "C" is to be used for Lighting Standards maintained by other than the above.
4. If Frangible Base is used between foundation and pole base, increase length of ground wire above foundation by height of Frangible Base.
5. Ground Lighting Standards on bridges, retaining walls, and other structures by #6 copper bare or green insulated wire. Connect to ground rods driven near structure, to nearest ground of lighting system or to structural steelwork (if steelwork is grounded).
6. Resistance of grounding electrodes shall be in accordance with The National Electrical Code.
7. Ground wire shall be stranded soft drawn copper wire per A.S.T.M. 'B8'.

E-15

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

LIGHTING STANDARD GROUNDING DETAILS

E-7

APPR.
DATE

ROAD DES.	T. Silden 1967
DRAWN BY	
TRACED BY	D. Wiegand 12-11-67
CHECKED BY	
SHEET	OF

63174

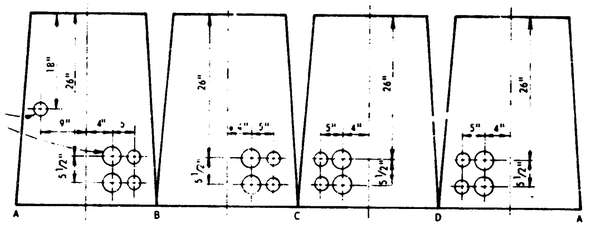
JOB NO. 14165A

REVISIONS

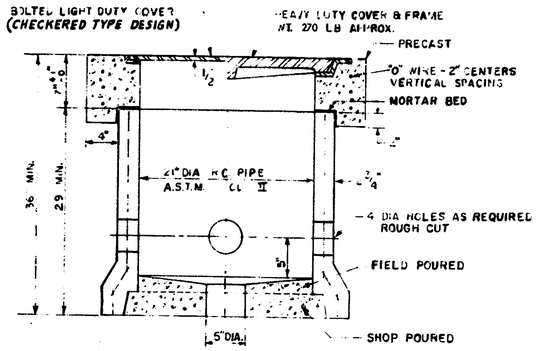
NO.	DESCRIPTION	DATE	BY

ENTRANCE HOLES AS REQUIRED FOR 3" & 4" CONDUIT

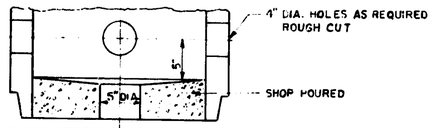
CONDUIT ARRANGEMENT MAY BE MODIFIED. ADDITIONAL OPENINGS SHALL BE PROVIDED AS REQUIRED. SEE PLANS. PLUG ALL UNUSED ENTRANCE HOLES AND SEAL AROUND HOLES ENTERED



INTERIOR WALL ELEVATIONS-LIGHT AND HEAVY DUTY COVER TYPES



ALTERNATE PRECAST CONCRETE HANDHOLE USING R C PIPE



USE OF OPPOSITE END OF PIPE
(ALL OTHER DIMENSIONS SAME)

NOTES

THE MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT M.D.S.H. STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY CONSTRUCT THE HANDHOLE STRUCTURE OF BRICK, CEMENT CONCRETE MASONRY OR OF PRECAST REINFORCED CONCRETE.

ALL CONCRETE MASONRY SHALL BE GRADE **30M**

THE INNER SURFACE OF THE HANDHOLE SHALL BE SMOOTH.

HEAVY DUTY COVERS SHALL BE CASTINGS WHICH MEET THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR GRAY IRON CASTINGS ASTM DESIGNATION A48 AND SHALL HAVE A MINIMUM STRENGTH AS PROVIDED FOR CLASS NO. 30 GRAY IRON CASTINGS.

ALL CASTINGS SHALL BE CLEANED BY SAND BLASTING.

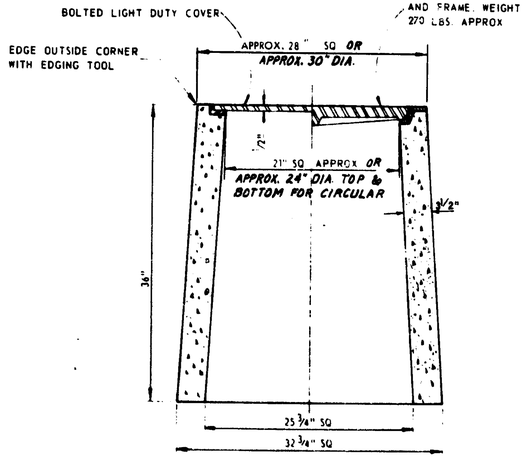
THE SEATING FACE OF THE COVER AND THE SEAT FOR SAME ON THE FRAME IF REQUIRED SHALL BE GROUND OR MACHINED SO THAT THE COVER SHALL HAVE AN EVEN BEARING ON ITS SEAT TO PREVENT ROCKING OR TILTING.

THE CASTINGS SHALL BE FREE OF POURING FAULTS, BLOW HOLES, CRACKS, AND OTHER IMPERFECTIONS. THEY SHALL BE SOUND, TRUE TO FORM AND THICKNESS, CLEAN AND NEATLY FINISHED AND SHALL BE COATED WITH COAL TAR PITCH VARNISH.

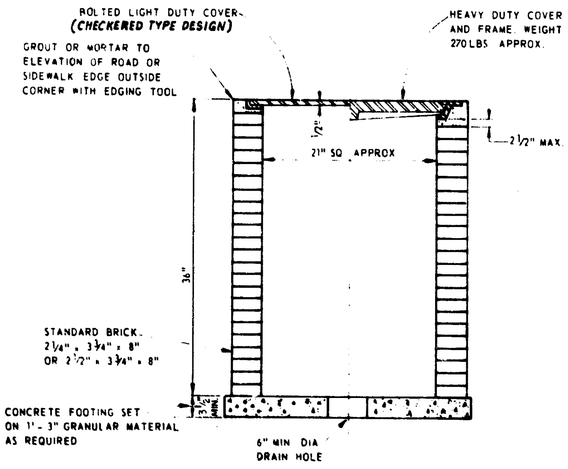
LIGHT DUTY COVER SHALL BE BOLTED TO FRAME WITH NOT LESS THAN 2 COUNTERSUNK HEX HEAD BRONZE BOLTS.

PRECAST HANDHOLE WITH HEAVY DUTY COVER SHALL BE SET ON A CONCRETE SLAB SIMILAR TO DETAIL FOR BRICK HANDHOLE.

THE HEAVY DUTY COVER & FRAME SHALL BE EAST JORDAN IRON WORKS #8206, NEENAH FOUNDRY #R-6662-HP **FOR SQUARE COVER OR EAST JORDAN IRON WORKS #2860 TYPE "A", NEENAH FOUNDRY #R-6052 D FOR CIRCULAR COVER OR AN APPROVED EQUAL.**



PRECAST CONCRETE HANDHOLE



BRICK HANDHOLE

E-16

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ELECTRICAL HANDHOLE DETAILS E-8

JILDEH

63174

14165 A

Sheet # 40

Rev. 8-31-72 Changed weight of Cover And Added Note T.J.
Rev. 8-13-71 Removed (Minimum) from 36" Dim (T.J.)
Rev. 8-13-75 Added Round Cover (T.J.)

INDEX

STD.PLAN NO.	SIGN NO.	TITLE
S 1.10		STD. SIGN INSTALLATIONS
S 1.20		STD. ROUTE MARKER INSTALLATIONS
S 2.10		TYPICAL LOCATIONS SIGNS & SUPPORTS.
S 2.20		TYPICAL LOCATIONS & SUPPORT FOR CONSTRUCTION SIGNS.
S 3.10		STEEL POST - 2", 3", 4"
S 3.20		STEEL POST - 6", 8"
S 3.30		WOOD POST - 4"x6", 6"x8"
S 4.30		STEEL COLUMN (I)
S 4.40		STEEL COLUMN (B, WF)
S 4.50		COLUMN FOUNDATION
S 5.10		STEEL CANTILEVER TYPE A, B, C, D & E.
S 5.20		STEEL CANTILEVER DETAILS TYPE A, B, C, D & E.
S 5.30		CANTILEVER FOUNDATION TYPE A, B, C, D & E.
S 5.40		STEEL CANTILEVER TYPE G, H.
S 5.50		STEEL CANTILEVER DETAILS TYPE G, H.
S 5.60		CANTILEVER FOUNDATION TYPE G, H.
S 6.10		ALUMINUM TRUSS - TYPE B
S 6.20		ALUMINUM TRUSS - TYPE C.
S 6.30		ALUMINUM TRUSS DETAILS TYPE B, C.
S 6.40		ALUMINUM END SUPPORT DETAILS - TYPE B, C.
S 6.50		ALUMINUM TRUSS - TYPE D
S 6.60		ALUMINUM TRUSS DETAILS TYPE D.
S 6.70		ALUMINUM TRUSS DETAILS TYPE D.

STD.PLAN NO.	SIGN NO.	TITLE
S 7.10		A-588 STEEL TRUSS TYPE C - 50' TO 70'
S 7.20		A-588 STEEL TRUSS DETAILS TYPE C
S 7.30		A-588 STEEL TRUSS DETAILS TYPE C
S 7.40		A-588 STEEL TRUSS TYPE C - 75' TO 100'
S 7.50		A-588 STEEL TRUSS DETAILS TYPE C
S 7.60		A-588 STEEL TRUSS TYPE D - 105' TO 125'
S 7.70		A-588 STEEL TRUSS DETAILS TYPE D
S 7.80		A-588 STEEL TRUSS DETAILS TYPE D
S 7.81		A-36 GALVANIZED STEEL TRUSS TYPE D - 105' TO 125'
S 7.82		A-36 GALVANIZED STEEL TRUSS DETAILS - TYPE D.
S 7.83		A-36 GALVANIZED STEEL TRUSS DETAILS - TYPE D
S 7.84		A-36 GALVANIZED STEEL TRUSS TYPE C - 75' TO 100'
S 7.85		A-36 GALVANIZED STEEL TRUSS DETAILS - TYPE C
S 7.86		A-36 GALVANIZED STEEL TRUSS DETAILS - TYPE C
S 7.87		A-36 GALVANIZED STEEL TRUSS TYPE C - 50' TO 70'
S 7.88		A-36 GALVANIZED STEEL TRUSS DETAILS - TYPE C
S 7.89		A-36 GALVANIZED STEEL TRUSS DETAILS - TYPE C
S 8.10		TRUSS FOUNDATION - TYPE B, C
S 8.20		TRUSS FOUNDATION - TYPE D
S 9.10		SIGN CONNECTION DETAILS TRUSS-CANTILEVER-EXIT NO.
S 9.10A		SIGN CONNECTION DETAILS COLUMN
S 9.20		MISCELLANEOUS SIGN CONNECTION DETAILS
S 9.30		MISCELLANEOUS SIGN CONNECTION DETAILS
S 9.12A		CONCRETE GLARE SCREEN SIGN CONNECTION - TYPE II
S10.50		BOLTED BRIDGE CONNECTION TYPE A, B
S10.60		BOLTED BRIDGE CONNECTION TYPE C, D
S10.70		BOLTED BRIDGE CONNECTION TYPE E, F
S11.10		GUARD RAIL
S11.20		GUIDELINES FOR LATERAL PLACEMENT OF RIGID SIGN SUPPORTS(F/W)

STD.PLAN NO.	SIGN NO.	TITLE
S13.10	E1-1	ADVANCE GUIDE SIGNS
S13.20	E6-1	EXIT DIRECTION SIGNS OVERHEAD GORE.
S13.30	E6-2	THROUGH DESTINATION SIGNS.
S13.40		ROUTE MARKER DETAIL - 30" 13.3 & 10" GUIDE SIGN USE.
S13.50	SB-126 R3-32-24D I-B-281 G5-17	FREEWAY ENTRANCE SIGN VEHICLE PROHIBITION FWY. S. L. LIMIT FOR FWY ENTRANCE TO STATE SIGN OVERLAY PANEL

GENERAL NOTES

1) MINIMUM VERTICAL CLEARANCE FOR OVERHEAD SIGNS SHALL BE AS INDICATED ON THE PLAN SHEETS.
2) ROADSIDE SIGN SUPPORT LENGTH QUANTITIES ARE APPROXIMATE ONLY AND BASED ON TYPICAL SIGN LOCATIONS.
3) ALL SIGNS SHALL BE INSTALLED ACCORDING TO THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" 1973 EDITION INCLUDING REVISIONS.
4) OVERHEAD SIGNS ATTACHED TO BRIDGE STRUCTURES SHALL BE SHIFTED SLIGHTLY TO THE LEFT OR RIGHT TO AVOID STIFFENERS OR EXPANSION JOINTS WHEN NECESSARY.
5) SIGNS SHALL NOT BE INSTALLED BEHIND ANY OBSTRUCTIONS. (BRIDGE PIERS, LIGHT POLES, ETC.)
6) RETAIN ALL OTHER SIGNS NOT SHOWN ON THESE PLANS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
7) ALL NUMERAL AND INITIAL LETTERS FOR WORDS UTILIZING UPPER AND LOWER CASE LETTERS SHALL BE SERIES "E" (MODIFIED) F. H. W. A. STANDARD ALPHABET. STROKE WIDTH SHALL BE 1/6 OF THE UPPER CASE LETTER HEIGHT.
8) LOCATE BRIDGE MOUNTED ROAD NAME SIGNS WITH LEFT EDGE OF SIGN OVER RIGHT EDGE OF RIGHT SHOULDER UNLESS OTHERWISE SHOWN IN THE PLANS. THE LOCATION SHALL BE VARIED SLIGHTLY TO AVOID STIFFENERS AND EXPANSION JOINTS WHEN NECESSARY.
9) LOCATE LOW CLEARANCE SIGNS (W12-3) WITH LEFT EDGE OF SIGN OVER LEFT EDGE OF RIGHT LANE UNLESS OTHERWISE SHOWN IN THE PLANS. THE LOCATION SHALL BE VARIED SLIGHTLY TO AVOID THE STIFFENERS AND EXPANSION JOINTS WHEN NECESSARY.
10) LATERAL "OFFSET" IS DEFINED AS THE DISTANCE FROM THE EDGE OF THE PAVEMENT TO THE EDGE OF THE SIGN.
11) [ ] DENOTES NON-FEDERAL PARTICIPATION.
12) * DENOTES EXIT NUMBERING FEDERAL PARTICIPATION.

NOTES TO CONTRACTOR

1.) ALL OVERHEAD GUIDE SIGNS SHALL BE HIGH-INTENSITY REFLECTIVE SHEETING, LEGENDS AND BORDERS (TYPE 3) OR DEMOUNTABLE CHARACTERS WITH PLASTIC REFLECTORS, ON HIGH INTENSITY REFLECTIVE SHEETING BACKGROUND (TYPE 3). ALL ROADSIDE GUIDE SIGNS SHALL BE ENGINEERING GRADE LEGENDS AND BORDERS (TYPE 3) OR DEMOUNTABLE CHARACTERS WITH PLASTIC REFLECTORS, ON HIGH INTENSITY REFLECTIVE SHEETING BACKGROUND (TYPE 3). INTERSTATE SHIELDS FOR GUIDE SIGN USE AND INDEPENDENT USE INCLUDING AUXILIARY PANELS SHALL BE TYPE 3.

2.) GUARDRAIL, CALLED FOR REMOVAL IN THE PLANS, SHALL BE REMOVED WITHIN 48 HOURS AFTER ALL SIGNS, SUPPORTS AND FOUNDATIONS BEHIND THE GUARDRAIL HAVE BEEN REMOVED.

3.) SIGNS OFFSET 30' OR MORE FROM EDGE OF PAVEMENT SHALL HAVE A MINIMUM BOTTOM HEIGHT OF 5'-0". SIGNS ERECTED ON THE BACKSLOPES SHALL HAVE MINIMUM DISTANCE OF 4'-0" FROM GROUND TO BOTTOM EDGE OF SIGN.

4.) WHEN EXISTING SIGNS ARE BEING REPLACED BY A NEW SIGN OR SIGNS, THE CONTRACTOR SHALL REMOVE ALL THE SIGNS BEING REPLACED AT THE SAME TIME THAT THE NEW SIGNS BECOME VISIBLE TO THE MOTORIST.

5.) WHEN TRUSSES ARE CALLED FOR REMOVAL IN THE PLANS, THE TRUSS BOX SHALL BE CAREFULLY DISMANTLED BEFORE THE END SUPPORTS ARE REMOVED.

6.) ALL R1-1 AND R1-2 SIGNS SHALL BE RED TRANSPARENT SCREENED ON HIGH-INTENSITY (TYPE 3) SILVER SHEETING.

7.) ALL OVERHEAD GUIDE SIGNS MUST REMAIN IN PLACE UNTIL THE NEW SIGNS ARE ERECTED.

8.) THE SECOND SENTENCE OF ARTICLE 6.26.14 "REMOVAL OF SIGNS" IN THE DEPARTMENT'S 1976 STANDARD SPECIFICATIONS IS HEREBY REVISED AS FOLLOWS:
THE TRUSS(ES) AND/OR CANTILEVER(S) DESIGNATED AS "PROPERTY OF MDOT" (MICHIGAN DEPARTMENT OF TRANSPORTATION), ALL STEEL COLUMNS & WOOD POSTS, ALONG WITH SIGNS AND SUPPORTS CALLED FOR RELOCATION IN THE PLANS ARE THE PROPERTY OF THE DEPARTMENT. ALL OTHER ITEMS CALLED FOR REMOVAL IN THE PLANS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT SITE AS DIRECTED BY THE PROJECT ENGINEER. THE "PROPERTY OF MDOT" ITEMS NOT CALLED FOR RELOCATION SHALL BE CAREFULLY REMOVED, HAULED AND NEATLY STOCKPILED AT THE FOLLOWING LOCATION(S): (THE CONTRACTOR SHALL NOTIFY MR. JERRY RADEMACHER, TELEPHONE (517) 373-2155 AT THE TIME THE MATERIAL IS STOCKPILED.)

MDOT MAINTENANCE YARD
173 SOUTH FORMAN STREET.
DETROIT, MICHIGAN.

[CONTRACTOR SHALL CONTACT ROBERT SOMMERS TELEPHONE 313-843-1223 OR HAROLD SHEFFER TELEPHONE 313-569-3993 TO ARRANGE ACCESS TO THE YARD.]

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

STANDARD PLAN INDEX

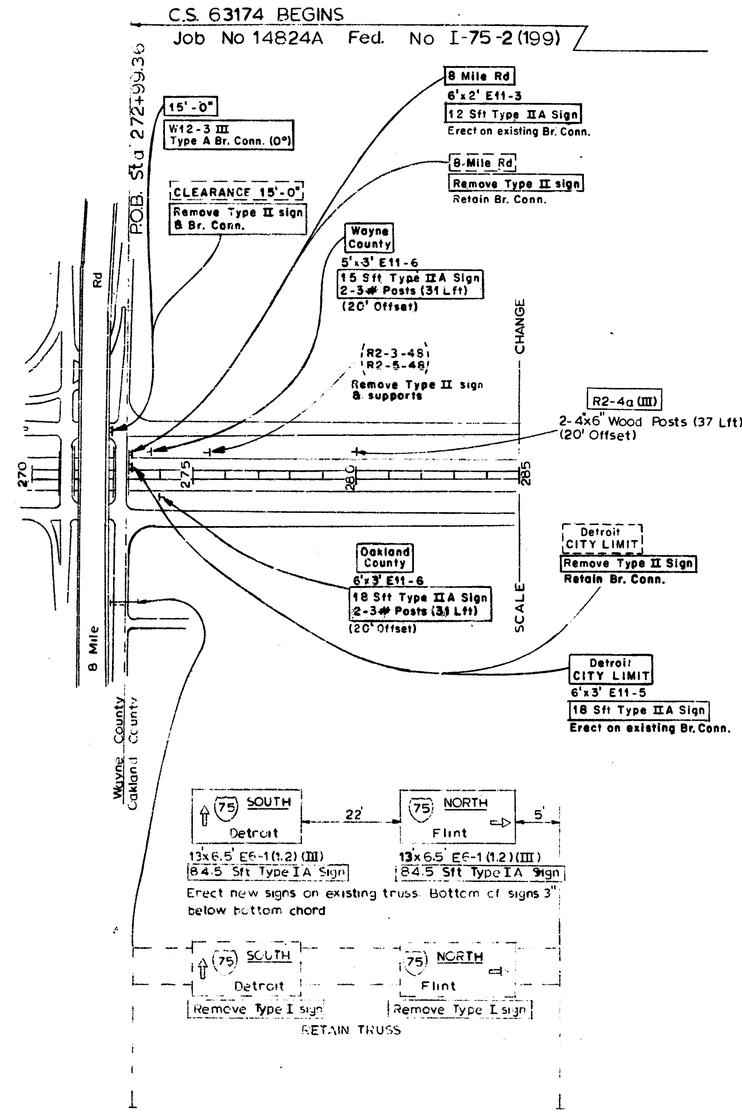
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY
DRAWN BY
TRACED BY
CHECKED BY
SHEET OF

CS 63174 Job No 14824A

Sheet # 41

A.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(199)		42	96
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	Oakland	63174		14824A	



CONTROL SECTION 63174	JOB NO. 14824A	FEDERAL PROJECT I-75-2 (199)		42

F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO	SHEET NO	TOTAL SHEETS
5	MICH.	I-75-2(159)		43	96
ROUTE	COUNTY	CONTROL SECTION		JOB NO	
I-75	Oakland	63174		14824A	

95'
7'
16'
23'
9'x2' E1-2
EXIT 58
7 Mile Rd
1 MILE
3"
9'x2' E1-2
EXIT 59
8 Mile Rd
EXIT ONLY
12'x6' E1-1 (1.3)(I)
72 Sft Type IA Sign
16'x8' E6-1 (1.12)(I)
96 Sft Type IA Sign
32 Sft Type IB Sign
NOTE: All M-102 Route Markers used on this contract are 36"x45" See S13.40 for details
14'-6"
16'-9" Min underclearance
15' 0"
13'
59'
23'
Edge of pav't
Edge of pav't
See Concrete Barrier Median plans see Sht# 4 for foundation
1-95' Type C Truss
1-Type C Truss Found
Erect at Sta 716+85
CHANGE
(E5-1)
Remove Type II sign & supports & 2-Breakaway Foundations.
6x5' E5-1a (59)
Rd
285
Bernard
Sta 285+81.50 Back
Sta 706+83.00 Ahead
SCALE
715
7 Mile Rd
1 MILE
8 Mile Rd
Remove 2 Type I signs truss & 2-Foundations
This Truss to remain the property of the MDOT.
20'-6"
EXIT 59
8 Mile Rd.
EXIT ONLY
17'x10' E1-1 (1.12) (I) E11-1b
85 Sft Type IA Sign
42.5 Sft Type IA Sign
42.5 Sft Type IB Sign
16-3" Min. underclearance
16'-0"
24'
Edge of pav't
1-Type G Cantilever
1-Type G-3 Cantilever found
Erect 25' south of exist Cantilever.
16'x7.5'
8 Mile Rd
EXIT ONLY
Remove Type I sign, cantilever & foundation.
This Cantilever to remain the property of the MDOT.
(75)
Remove Type III sign support & 1-Breakaway Foundation.
R6-1 (II) R
1-Glare Screen Conn. (Type II)
(R6-1)
Remove Type II sign & supports
S M3-3a(II)
75 M1-1(III)
1-4"x6" Wood Post (16 Lft.) (20" Offset)
R2-3-48
R2-5-48
Remove Type II sign & supports
R6-1 II R
1-Glare Screen Conn.(Type II)
(R6-1)
Remove Type II sign & support
Meyers Ave
Remove Type II sign
Retain Br Conn
Meyers Ave
8'x2' E11-3
16 Sft. Type II A Sign
Erect new sign on existing Br. Conn.
Meyers Ave
Remove Type II sign
Retain Br. Conn.
Remove 1 Breakaway Foundation
N M3-1a (II)
75 M1-1(III)
1-6# Post (12 Lft)
Erect behind Barrier.
Harry Ave
7'x2' E11-3
14 Sft Type II A Sign
Type B Br. Conn. (0°)
Harry
Ave
(R2-1-48)
(R2-5-48)
Remove Type II sign & supports
Bernhard Rd
8x2' E11-3
16 Sft Type II A Sign
Type B Br Conn (0°)
Bernhard Rd
8x2' E11-3
16 Sft Type II A Sign
Type B Br Conn (0°)
Meyers Ave
8x2' E11-3
16 Sft Type II A Sign
Erect new sign on existing Br Conn
8 Mile Rd
NEXT RIGHT
Return sign & conn
EXIT
Next Exit
E3-1
EXIT 61
696
EAST
W P Reuther Fwy
1 1/4 MILES
John R St
9 Mile Rd
Remove 2-Type I signs truss & 2-foundations
16'-6"
See Concrete Barrier Median plans see Sht#4 for foundation
John R St
Remove Type II sign
Retain Br Conn
John R St
7x2' E11-3
14 Sft Type II A Sign
Erect new sign on existing Br Conn
Highland Ave.
8'x2' E11-3
16 Sft. Type II A Sign
Type B Br. Conn. (0°)
Highland Ave
8x2 E11 3
16 Sft Type II A Sign
Type B Br Conn (0°)
Highland
(E5-1)
Remove Type II sign & supports
D10-2
Remove Type III sign & support
Re-erect Salvaged sign on 1-3# Post (12 Lft.) (2' behind barrier)
6x5' E5-1a (60)
Relocate E1-2 to 4" right edge of sign
2'
15'
35'
EXIT 61
EAST
W P Reuther Fwy
1 1/4 MILES
Re-erect Salvaged sign from existing truss
9'x2' E1-2
EXIT 60
John R St
9 Mile Rd
15'x6' E 1 1a (1)
95 Sft Type IA Sign
16'-9" Min. underclearance
13'-0"
Edge of pav't
Edge of pav't
13'
57'
35'
105'
1-125' Type C Truss
1-Type C Truss Found
Erect at Sta 777+20
155
160
John R St
Rd
Ave
Highland
750
755
760
765
770
775
780
785
790
795
800
805
810
815
820
825
830
835
840
845
850
855
860
865
870
875
880
885
890
895
900
905
910
915
920
925
930
935
940
945

F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO	SHEET NO	TOTAL SHEETS
5	MICH.	I-75-2 (199)		44	96
ROUTE	COUNTY	CONTROL SECTION	JOB NO		
I-75	Oakland	63174	14824A		

16' 10 4'

9 Mile Rd EAST ONLY

TO 75 NORTH

10'x8' See Det. A This Sheet.

6'x9' See Det. B This Sheet.

Fence

45 Sft Type IA Sign
35 Sft Type IB Sign

54 Sft Type IA Sign.

1-Type G Cantilever
1-Type G-3 Cant. Foundation.

16'-9" Min. underclearance

23'-0"

Edge of pavt

10'

Erect '65 South of existing Cantilever

9 Mile Rd EAST ONLY

TO 75 NORTH

Remove 2 Type I signs cantilever & found

9'x2' E1-2*
EXIT 59

102 8 Mile Rd

1 MILE

17'x7' E1-1 (1.12) (I)

119 Sft. Type IA Sign

9x2' E1-2*
EXIT 60

9 Mile Rd

4' 20'

11'x6' E6-1 (1.12) (I)

66 Sft Type IA Sign

Erect new signs on existing truss
Bottom of signs 3" below bottom chord

102 8 Mile Rd

1 MILE

9 Mile Rd

Remove 2-Type I signs
Retain Truss

(R2-3-4S)
(R2-5-4S)
Remove Type II sign & supports

(E5-1)*
Remove Type II sign
Retain supports

6'x5' E5-1a (60)*
Erect new sign on existing supports

Woodward Heights
10'x2' E11-3
20 Sft. Type IIA Sign
Type A Br. Conn. (10°)

R2-4a (III)
2-6" Posts (38 Lft.)
Erect behind Barrier.

M3-3a (II)
M1-1 (III)
1-4x6" Wood Post (16 Lft)
(20' Offset)

760 765 770 775 780 785 790 795

9 Mile Rd

St

CHANGE

Woodward Heights

SCALE

Orchard

Nine Mile Rd
Remove Type II sign
Retain Br Conn

9 Mile Rd
8x2' E11-3
16 Sft Type IIA Sign
Erect new sign to existing Br Conn

Nine Mile Rd
Remove Type II sign
Retain Br Conn

9 Mile Rd
8x2' E11-3
16 Sft Type IIA Sign
Erect new sign on existing Br Conn

R6-1 (II) R
1-Glare Screen Conn (Type II)

(R6-1)
Remove Type II sign & supports

Orchard St
7x2' E11-3
14 Sft Type IIA Sign
Type B Br Conn (10°)

Orchard St
7x2' E11-3
14 Sft Type IIA Sign
Type B Br Conn (10°)

M3-1a (II)
M1-1 (III)
1-4"x6" Wood Post (16 Lft.)
(20' Offset)

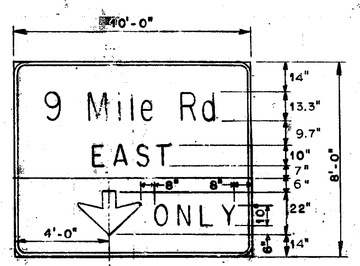
(R2-3-4S)
(R2-5-4S)
Remove Type II sign & supports

R2-4a (III)
2-4"x6" Wood Posts (37 Lft.)
(20' Offset)

Remove Type III sign support & 1-Breakaway Foundation.

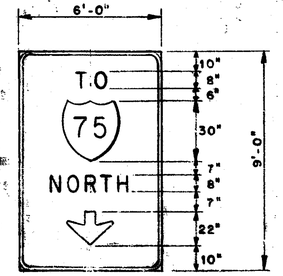
Woodward Heights
10'x2' E11-3
20 Sft. Type IIA Sign
Type A Br. Conn. (10°)

DETAIL A



SPECIFICATIONS
Same as E1-1 & E11-1b except where shown.

DETAIL B



SPECIFICATIONS
Same as E6-2 except where shown.

CONTROL SECTION	JOB NO	FEDERAL PROJECT	R.O.W. NO	SHEET NO
63174	14824A	I-75-2 (199)		44

F.H.W.A. REG. NO.	STATE	FEDERAL PROJECT	R.O.W. NO.	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2 (199)		45	96
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	
I-75	Oakland	63174		14824C	

9x2' E1-2*
EXIT 60
9 Mile Rd
1 MILE
Erect new sign on existing truss
Bottom of sign 3" below bottom chord
37'
12'x6' E1-1 (1.3) (I)
72 Sft Type IA Sign
EXIT 61
Relocate E1-2 to right edge of sign
12'x6'
9 Mile Rd
1 MILE
696 EAST
W P Reuther Fwy
Remove Type I sign
Retain sign
RETAIN TRUSS

Shevlin Ave
8x2' E11-3
16 Sft Type IIA Sign
Type A Br Conn (0°)

Browning Ave
9x2' E11-3
18 Sft Type IIA Sign
Type B Br Conn (0°)

Dallas Ave
7x2' E11-3
14 Sft Type IIA Sign
Type A Br Conn (0°)

Lincoln Ave
7x2' E11 3
14 Sft Type IIA Sign
Type A Br Conn (10°)

R2-3-48
R2-5-48
Remove Type II sign & supports

(S) M3-3a (II)
(75) M1-1 (III)
1-4x6" Wood Post (16 Lft)
(20' Offset)

(S) (75)
Remove Type III sign & support

R3-7a Right
(20' Offset)

I-696

Browning Ave
Shevlin Ave
Dallas Ave
Lincoln Ave

795 800 805 810 815 820 825 830 835 840 845 850 855

R6-1 (III) R
1-Glare Screen
Conn (Type II)

R6-1
Remove Type II sign & supports

R6-1 (II) R
1-Glare Screen
Conn (Type II)

Dallas Ave
7x2' E11-3
14 Sft Type IIA Sign
Type A Br Conn (0°)

R2-3-48
R2-5-48
Remove Type II sign & supports

(N) M3-1a (II)
(75) M1-1 (III)
1-4x6" Wood Posts (16 Lft)
(20' Offset)

16'x6.5'
11 Mile Rd
EXIT ONLY
Remove Type I sign
Retain Br Conn

9x2' E1-2*
EXIT 62
11 Mile Rd
EXIT ONLY
16'x6.5' E1-1 (1.3) (I) & E11-1b
64 Sft Type IA Sign
40 Sft Type IB Sign
Erect new sign on existing Br Conn

Lincoln Ave
7x2' E11-3
14 Sft Type IIA Sign
Type A Br Conn (10°)

Browning Ave
9x2' E11-3
18 Sft Type IIA Sign
Type B Br Conn (0°)

9x2' E1-2*
EXIT 62
11 Mile Rd
1 1/4 MILES
37'
12'x6' E1-1 (1.3) (I)
72 Sft Type IA Sign
Erect new sign on existing truss.
Bottom of sign 3" below bottom chord
EXIT 61
Relocate E1-2 to right edge of sign
12'x6'
11 Mile Rd
1 1/4 MILES
696 EAST
W P Reuther Fwy
Remove Type I sign
Retain sign
RETAIN TRUSS

Shevlin Ave
8x2' E11-3
16 Sft Type IIA Sign
Type A Br Conn (0°)

Oakland
Comm College
Royal Oak Campus
NEXT RIGHT
Retain sign & conn

EXIT 62
14x2' Overlay Similar to E3-1
28 Sft Type IV A Sign*

Madison Heights
CITY LIMIT
Remove Type II sign & supports

Royal Oak
CITY LIMIT
6x3' E11-3
18 Sft Type IIA Sign
2-3" Posts (31 Lft)

63174	14824A	I-75-2 (199)	45

F.H.W.A. REG. NO	STATE	FEDERAL PROJECT	R.O.W. NO	SHEET NO	TOTAL SHEETS
5	MICH.	I-75-2(199)		46	96
ROUTE	COUNTY	CONTROL SECTION	JOB NO		
I-75	Oakland	63174	14824A		

R6-1,
Remove Type II
sign & supports

R6-1(II)R
1-Glare Screen
Conn (Type II)

11 Mile Rd
9'x2' E11-3
18 Sft Type II A Sign
Erect new sign on
existing Br Conn

Eleven Mile Rd
Remove Type II sign
Retain Br Conn

6'x5' E5-1a(62)
Erect new sign to
existing supports

E5-1
Remove Type II
sign Retain
supports

EXIT 61
696 EAST
W P Reuther Fwy
1 MILE
11 Mile Rd
10 Mile Rd WEST

Remove 2 Type I signs, truss, & foundation on the
right side
Signs to be used on new truss as described
below

Carlenia Ave
8'x2' E11-3
16 Sft Type II A Sign
Type A Br Conn (C*)

Gardenia Ave
Remove Type II
sign & Br Conn

Royal Oak
CITY LIMIT
Remove Type II
sign & supports

855 860 865 870 11 Mile Rd 875 880 885 890 895

R3-7a
Remove Type II sign
& supports.

E5-1
Remove Type II
sign Retain
supports

6'x5' E5-1a(62)
Erect new sign on
existing supports

R6-1
Remove Type II
sign & supports

R6-1(II)R
1-Glare Screen
Conn (Type II)

18'x9'
Oakland
Comm. College
Royal Oak Campus
NEXT RIGHT
EXIT 62
Retain sign & supports

14'x2' Overlay
Similar to E3-1
28 Sft. Type II A Sign *

R2-3-48
R2-5-48
Remove Type II
sign & support.

M3-1a(II)
M1-1(III)
1-4"x6" Wood Post (16 Lft.)
(20' Offset)

Remove Type III
sign & support

M3-3a(II)
M1-1(III)
1-6# Post (16 Lft.)
Erect behind Barrier

Gardenia Ave

4' 12' 12'

9'x2' E1-2
EXIT 63
12 Mile Rd
1 MILE

9'x2' E1-2
EXIT 62
11 Mile
Rd
EXIT ONLY

13'x6' E1-1 (1.3) (I)
78 Sft Type I A Sign

12'x8.5' E6-1 (1.12) (I) & Detail 3
72 Sft Type I A Sign
30 Sft Type I B Sign

Erect new signs on existing truss
Bottom of signs 3' below bottom chord

R2-4a(III)
2-6# Posts (38 Lft.)
Erect behind Barrier

Eleven Mile Rd
Remove Type II sign
Retain Br Conn.

Gardenia Ave
Remove Type II
sign & Br. Conn.

Gardenia Ave
8'x2' E11-3
16 Sft. Type II A Sign
Type A Br. Conn. (0°)

R2-3-48
R2-5-48
Remove Type II
sign & supports

R2-4a(III)
2-6# Posts (38 Lft)
Erect behind Barrier

NB Service Dr

905 910

Royal Oak
CITY LIMIT
6'x3' E11-5
18 Sft. Type II A Sign
2-3# Posts (31 Sft.)

12 Mile Rd
13'x6'
EXIT 1 MILE
Remove Type I sign

11 Mile
Rd
12'x6.5'
Remove Type I sign

RETAIN TRUSS

11 Mile Rd
9'x2' E11-3
18 Sft Type II A Sign
Erect new sign on
existing Br. Conn.

Relocate E1-2 to
right edge of sign

1' 22' 31'

EXIT 61
696 EAST
W P Reuther Fwy
1 MILE

20'x9'

9'x2' E1-2
22'x6'
EXIT 62
11 Mile Rd
10 Mile Rd WEST

35

Reerect Salvaged sign

Reerect Salvaged sign

15'-6"

18'-6" Min.
Underclearance

20'-6"

Edge of pav't

13' 51' Edge of pav't 31'

1-95' Type C Truss
1-Type C Truss Foundation
Erect 20' North of Existing Truss.

See Concrete Barrier Median Plans Sht # 7 for
foundation

Madison Heights
CITY LIMIT
9'x3' E11-5
27 Sft. Type II A Sign
3-3# Posts (48 Lft.)
(20' Offset)

CONTROL SECTION	JOB NO	FEDERAL PROJECT		
63174	14824A	I-75-2(199)		46

F.H.W.A. REG. NO	STATE	FEDERAL PROJECT	R.O.W. NO	SHEET NO.	TOTAL SHEETS
5	MICH.	I-75-2(199)		47	96
ROUTE	COUNTY	CONTROL SECTION	JOB NO		
I-75	Oakland	63174	14824A		

C.S. 63174 ENDS
Job No 14824A Fed No I-75-2(199)

P.O.E. Sta 940+00

9'x2' E1-2*
EXIT 62
19'x8.5' 11 Mile Rd
10 Mile Rd WEST
1/2 1 MILE
12 Mile Rd

2x2' Overlay Similar to E1-1
4 Sft Type IV A Sign

Remove Type I sign
Reerect Salvaged sign on pedestrain bridge
Type C Br Conn
2-Cols-Alum 6 WF 7.85
Right edge of sign over Right edge of thru lane pav't

Remove Type I sign, truss, & 2-foundations

EXIT 63
12 Mile Rd
13'x8.5' E6-1 (1.12) (I)
78 Sft Type I A Sign
32.5 Sft Type IA Sign*
18'-6" Min underclearance
25'-0"
Edge of pav't
33'

1-Type H Cantilever
1-Type H-3 Cantilever Found.
Erect at Sta 941+00

12 Mile Rd
7'x2' E11-3
14 Sft Type II A Sign
2-3" Posts (30 Lft)

Twelve Mile Rd
Remove Type II sign & supports

E5-1*
Remove Type II sign & supports

Twelve Mile Rd
Remove Type II sign & supports

6'x5' E5-1a(62)*

Drum

910 915 920 925 930 935 940 945 950 955 960 965 970

Rd

12 Mile

Rad Run

CLEARANCE 15 FT 10 IN
Remove Type II sign & Br Conn

12 Mile Rd
7'x2' E11-3
14 Sft Type II A Sign
2-3" Posts (30 Lft)

(N) 75 M3-1a (II)
M1-1 (III)
1-4x6" Wood Post (16 Lft)
(20' Offset)

(N) 75
Remove Type III sign & supports

16'x4'
12 Mile Rd
Remove Type I sign cantilever & found

E5-1*
Remove Type II sign & supports

6'x5' E5-1a (63)*

15 FT 10 IN
W12-3 (III)
Type B Br Conn (0°)

EXIT 62
12 Mile Rd
13'x8.5' E6-1 (1.12) (I)
78 Sft Type I A Sign
32.5 Sft Type IA Sign*
1-Type G Cantilever
1-Type G-3 Cantilever Found
Edge of pav't
19'-0"
18'-6" Min underclearance
23'
Erect 70' South of light pole

CONTROL SECTION	JOB NO		
63174	14824A	I-75-2(199)	47

SIZE	SIGN NO.	SIZE FT.	SIGN AREA SQ. FT.	SIGN TYPE	SUPPORT NO.	SUPPORT SIZE	SUPPORT TOTAL LIN. FT.	SUPPORT BOT HT.	FOUNDATION
STOP	R1-1(II)	2.5x2.5	6.3	IIIA	1	3#	13	5	
							15	7	
	R1-1(III)	3x3	9	IIIA	2	3#	28	5	
							32	7	
YIELD	R1-2(II)	3x3x3	4	IIIA	1	2#	14	5	
							16	7	
	R1-2(III)	4x4x4	7	IIA	2	3#	30	5	
							34	7	
SPEED LIMIT 55	R2-1(II)	2x2.5	5	IIIB	1	3#	12	5	
							13	6	
	R2-1(III)	3x4	12	IIB	2	3#	14	7	
							30	5	
							32	6	
							34	7	
SPEED LIMIT 70 / 45	R2-4a(III)	4x8	32	IIB	2	4"x6" WOOD	37	6	
					2	6#	38	6	
NO RIGHT TURN (COMBINATION)	R3-1(III)	3x3	9	IIIB	2	3#	28	4	
	PLAQUE (II)	3x2	6	IIIB					
LEFT LANE MUST EXIT	R3-7A	4x4	16	IIB	2	3#	34	7	
	R4-7(II)	2x2.5	5	IIIB	1	3#	13	5	
	R4-7(III)	3x4	12	IIB	2	3#	30	5	
DO NOT ENTER	R5-1(I)	2.5x2.5	6.3	IIIA	1	3#	13	5	
	R5-1(II)	3x3	9	IIIA	2	2#	28	5	
WRONG WAY	R5-9(II)	3x2	6	IIIA	2	2#	26	5	
DO NOT ENTER / WRONG WAY (COMBINATION)	R5-1(I) R5-9(I)	2.5x2.5 2.5x1.5	10	IIIA	1	3#	13	4	
	R5-1(II) R5-9(II)	3x3 3x2	15	IIIA	2	3#	28	4	
MOTOR VEHICLES ONLY	R5-11	2x2.5	5	IIIB	1	3#	13	4	
PROHIBITED (COMBINATION)	R5-12	2x2.5	5	IIIB					
AUTHORIZED VEHICLES ONLY	R5-15	2x2	4	IIIB	1	3#	16	6	
ONE WAY	R6-1(I)L	3x1	3	IIIB	1	2#	13	7	
ONE WAY	R6-1(I)R	3x1	3						

SIZE	SIGN NO.	SIZE FT.	SIGN AREA SQ. FT.	SIGN TYPE	SUPPORT NO.	SUPPORT SIZE	SUPPORT TOTAL LIN. FT.	SUPPORT BOT HT.	FOUNDATION
ONE WAY	R6-1(II)L	6x2	12	IIB	2	2#	26	6	
ONE WAY	R6-1(II)R	6x2	12						
	W1-1(III)	3x3	9	IIIB	2	2#	29	5	
	W1-1(IV)	4x4	16	IIB	2	3#	30	5	
	W1-2(III)	3x3	9	IIIB	2	2#	29	5	
	W1-2(IV)	4x4	16	IIB	2	3#	30	5	
35 MPH (COMBINATION)	W1-1(III) W13-1(II)	3x3 2x2	13	IIIB	2	3#	28	4	
35 MPH (COMBINATION)	W1-1(IV) W13-1(II)	4x4 2x2	16 4	IIB IIIB	2	3#	29	6	
35 MPH (COMBINATION)	W1-2(III) W13-1(II)	3x3 2x2	13	IIIB	2	3#	28	4	
35 MPH (COMBINATION)	W1-2(IV) W13-1(II)	4x4 2x2	16 4	IIB IIIB	2	3#	29	6	
	W1-6(II)	4x2	8	IIB	2	2#	26	5	
	W1-6(III)	6x3	18	IIB	2	3#	27	5	
	W1-7(II)	4x2	8	IIB	2	2#	26	5	
	W1-7(III)	5x2.5	12.5	IIB	2	2#	26	5	
STOP AHEAD	W3-1(II)	3x3	9	IIIB	2	2#	29	5	
	W3-1(III)	4x4	16	IIB	2	3#	30	5	
YIELD AHEAD	W3-2(II)	3x3	9	IIIB	2	2#	29	5	
	W3-2(III)	4x4	16	IIB	2	3#	30	5	
	W3-3(II)	3x3	9	IIIB	2	3#	26	5	
	W3-3(III)	4x4	16	IIB	2	3#	30	6	
	W4-1(II)	2.5x2.5	6.25	IIIB	1	3#	13	5	
	W4-1(IV)	4x4	16	IIB	2	3#	30	6	
	W4-2(II)	3x3	9	IIIB	2	2#	29	5	
	W4-2(III)	4x4	16	IIB	2	3#	32	6	
	W6-1 (II)	3x3	9	IIIB	2	3#	26	5	
	W6-1 (III)	4x4	16	IIB	2	3#	30	6	

SIZE	SIGN NO.	SIZE FT.	SIGN AREA SQ. FT.	SIGN TYPE	SUPPORT NO.	SUPPORT SIZE	SUPPORT TOTAL LIN. FT.	SUPPORT BOT HT.	FOUNDATION
	W6-3(III)	3x3	9	IIIB	2	3#	26	5	
	W6-3(IV)	4x4	16	IIB	2	3#	30	6	
FREEWAY ENDS 1 MILE (COMBINATION)	W6-4	4x4	16	IIB	2	3#	32	6	
	PLAQUE FOR W6-4	4x2	8	IIB					
RIGHT LANE ENDS	W9-1 (III)	3x3	9	IIIB	2	2#	29	5	
	W9-1(IV)	4x4	16	IIB	2	3#	32	6	
LANE ENDS MERGE LEFT	W9-2(II)	3x3	9	IIIB	2	2#	29	5	
	W9-2(III)	4x4	16	IIB	2	3#	32	6	
EXIT 25 MPH	W13-2(II) OR W13-3(II)	4x5	20	IIB	2	3#	34	6	
EXIT	E5-1	6x5	30	IIA	3	3#	46	7	
EXIT 44	E5-1a	6x5	30	IIA	3	3#	46	7	
		7.5x5	37.5						
		9x5	45		3	4"x6" WOOD	46		
MILE 4 4	D10-1	1x2	2	IIIA	1	2#	11	4	
	D10-2	1x3	3				12		
	D10-3	1x4	4				13		

GENERAL NOTES

1. TOTAL SUPPORT LENGTHS ARE BASED ON TYPICAL SIGN LOCATIONS & SLOPES AND ARE FOR ESTIMATING PURPOSES ONLY
2. ROUTE MARKER CLUSTERS SHALL BE ERECTED ON POST; COLUMN, OR CANTILEVER POLE AS SHOWN ON SIGN LOCATION PLANS SEE STD. PLAN S1.20 & S9.20 FOR ERECTION DETAILS
3. THE SUPPORT(S) LISTED FOR STANDARD SIGNS SHALL BE USED, UNLESS SHOWN OTHERWISE ON SIGN LOCATION PLAN SHEETS
4. ALLOW A VALUE OF h-2" FOR INSTALLATIONS WITH COMBINATIONS OF TWO PANELS

FOR INFORMATION ONLY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

STANDARD SIGN INSTALLATIONS

NO.	REVISIONS DESCRIPTION	DATE	BY
1	CHANGE EXIT SPEED SIGN SIZE	11/74	LRP

S1.10

U.S. & MICHIGAN

SIGN	SIGN NO.	SIZE	SIGN AREA (SFT.)	SIGN TYPE
	M1-4(I)	2 x 2	4	IIIB
	M1-4(II)	2.5 x 2	5	IIIB
	M1-4(III)	3 x 3	9	IIIB
	M1-4(IV)	3.75 x 3	11.25	IIIB
	M1-6(I)	2 x 2	4	IIIB
	M1-6(II)	3 x 3	9	IIIB
JCT	M2-1	1.75 x 1.25	2.2	IIIB
NORTH	M3-1(I)	2 x 1	2	IIIB
	M3-1(II)	2.5 x 1.25	3.1	IIIB
EAST	M3-2(I)	2 x 1	2	IIIB
	M3-2(II)	2.5 x 1.25	3.1	IIIB
SOUTH	M3-3(I)	2 x 1	2	IIIB
	M3-3(II)	2.5 x 1.25	3.1	IIIB
WEST	M3-4(I)	2 x 1	2	IIIB
	M3-4(II)	2.5 x 1.25	3.1	IIIB
BUSINESS	M4-3(I)	2 x 1	2	IIIB
	M4-3(II)	2.5 x 1.25	3.1	IIIB
TO	M4-5(I)	2 x 1	2	IIIB
	M4-5(II)	2.5 x 1.25	3.1	IIIB
TEMPORARY	M4-7(I)	2 x 1	2	IIIB
	M4-7(II)	2.5 x 1.25	3.1	IIIB
	M5-1(I)	1.75 x 1.25	2.2	IIIB
	M5-1(II)	2.5 x 1.75	4.4	IIIB
	M5-2(I)	1.75 x 1.25	2.2	IIIB
	M5-2(II)	2.5 x 1.75	4.4	IIIB
	M6-1(I)	1.75 x 1.25	2.2	IIIB
	M6-1(II)	2.5 x 1.75	4.4	IIIB
	M6-2(I)	1.75 x 1.25	2.2	IIIB
	M6-2(II)	2.5 x 1.75	4.4	IIIB
	M6-3(I)	1.75 x 1.25	2.2	IIIB
	M6-3(II)	2.5 x 1.75	4.4	IIIB
	M6-4(I)	1.75 x 1.25	2.2	IIIB
	M6-4(II)	2.5 x 1.75	4.4	IIIB
	M6-5(I)	1.75 x 1.25	2.2	IIIB
	M6-5(II)	2.5 x 1.75	4.4	IIIB
	M6-6(I)	1.75 x 1.25	2.2	IIIB
	M6-6(II)	2.5 x 1.75	4.4	IIIB
	M6-7(I)	1.75 x 1.25	2.2	IIIB
	M6-7(II)	2.5 x 1.75	4.4	IIIB
ENDS	M6-8(I)	1.75 x 1.25	2.2	IIIB
	M6-8(II)	2.5 x 1.75	4.4	IIIB

INTERSTATE

SIGN	SIGN NO.	SIZE	SIGN AREA (SFT.)	SIGN TYPE
	M1-1(I)	2 x 2	4	IIIA
	M1-1(II)	2.5 x 2	5	IIIA
	M1-1(III)	3 x 3	9	IIIA
	M1-1(IV)	3.75 x 3	11.25	IIIA
JCT	M2-1a	1.75 x 1.25	2.2	IIIA
NORTH	M3-1a(I)	2 x 1	2	IIIA
	M3-1a(II)	2.5 x 1.25	3.1	IIIA
EAST	M3-2a(I)	2 x 1	2	IIIA
	M3-2a(II)	2.5 x 1.25	3.1	IIIA
SOUTH	M3-3a(I)	2 x 1	2	IIIA
	M3-3a(II)	2.5 x 1.25	3.1	IIIA
WEST	M3-4a(I)	2 x 1	2	IIIA
	M3-4a(II)	2.5 x 1.25	3.1	IIIA
TO	M4-5a(I)	2 x 1	2	IIIA
	M4-5a(II)	2.5 x 1.25	3.1	IIIA
TEMPORARY	M4-7a(I)	2 x 1	2	IIIA
	M4-7a(II)	2.5 x 1.25	3.1	IIIA
	M5-1a(I)	1.75 x 1.25	2.2	IIIA
	M5-1a(II)	2.5 x 1.25	4.4	IIIA
	M5-2a(I)	1.75 x 1.25	2.2	IIIA
	M5-2a(II)	2.5 x 1.75	4.4	IIIA
	M6-1a(I)	1.75 x 1.25	2.2	IIIA
	M6-1a(II)	2.5 x 1.75	4.4	IIIA
	M6-2a(I)	1.75 x 1.25	2.2	IIIA
	M6-2a(II)	2.5 x 1.75	4.4	IIIA
	M6-3a(I)	1.75 x 1.25	2.2	IIIA
	M6-3a(II)	2.5 x 1.75	4.4	IIIA
	M6-4a(I)	1.75 x 1.25	2.2	IIIA
	M6-4a(II)	2.5 x 1.75	4.4	IIIA
	M6-5a(I)	1.75 x 1.25	2.2	IIIA
	M6-5a(II)	2.5 x 1.75	4.4	IIIA
	M6-6a(I)	1.75 x 1.25	2.2	IIIA
	M6-6a(II)	2.5 x 1.75	4.4	IIIA
	M6-7a(I)	1.75 x 1.25	2.2	IIIA
	M6-7a(II)	2.5 x 1.75	4.4	IIIA

OFF-INTERSTATE LOOP OR SPUR

SIGN	SIGN NO.	SIZE	SIGN AREA (SFT.)	SIGN TYPE
(LOOP)	M1-2(I)	2 x 2	4	IIIA
	M1-2(II)	2.5 x 2	5	IIIA
	M1-2(III)	3 x 3	9	IIIA
	M1-2(IV)	3.75 x 3	11.25	IIIA
(SPUR)	M1-3(I)	2 x 2	4	IIIA
	M1-3(II)	2.5 x 2	5	IIIA
	M1-3(III)	3 x 3	9	IIIA
	M1-3(IV)	3.75 x 3	11.25	IIIA
JCT	M2-1b	1.75 x 1.25	2.2	IIIA
NORTH	M3-1b(I)	2 x 1	2	IIIA
	M3-1b(II)	2.5 x 1.25	3.1	IIIA
EAST	M3-2b(I)	2 x 1	2	IIIA
	M3-2b(II)	2.5 x 1.25	3.1	IIIA
SOUTH	M3-3b(I)	2 x 1	2	IIIA
	M3-3b(II)	2.5 x 1.25	3.1	IIIA
WEST	M3-4b(I)	2 x 1	2	IIIA
	M3-4b(II)	2.5 x 1.25	3.1	IIIA
TO	M4-5b(I)	2 x 1	2	IIIA
	M4-5b(II)	2.5 x 1.25	3.1	IIIA
	M5-1b(I)	1.75 x 1.25	2.2	IIIA
	M5-1b(II)	2.5 x 1.75	4.4	IIIA
	M5-2b(I)	1.75 x 1.25	2.2	IIIA
	M5-2b(II)	2.5 x 1.75	4.4	IIIA
	M6-1b(I)	1.75 x 1.25	2.2	IIIA
	M6-1b(II)	2.5 x 1.75	4.4	IIIA
	M6-2b(I)	1.75 x 1.25	2.2	IIIA
	M6-2b(II)	2.5 x 1.75	4.4	IIIA
	M6-3b(I)	1.75 x 1.25	2.2	IIIA
	M6-3b(II)	2.5 x 1.75	4.4	IIIA
	M6-4b(I)	1.75 x 1.25	2.2	IIIA
	M6-4b(II)	2.5 x 1.75	4.4	IIIA
	M6-5b(I)	1.75 x 1.25	2.2	IIIA
	M6-5b(II)	2.5 x 1.75	4.4	IIIA
	M6-6b(I)	1.75 x 1.25	2.2	IIIA
	M6-6b(II)	2.5 x 1.75	4.4	IIIA
	M6-7b(I)	1.75 x 1.25	2.2	IIIA
	M6-7b(II)	2.5 x 1.75	4.4	IIIA
ENDS	M6-8a(I)	1.75 x 1.25	2.2	IIIA
	M6-8a(II)	2.5 x 1.75	4.4	IIIA

REV. NO. 1

SIGN	STEEL SUPPORTS NO. OF POSTS	STEEL SUPPORTS POST SIZE	STEEL SUPPORTS LENGTH REQ. (L.F.)	STEEL SUPPORTS BOT. HT.	WOOD SUPPORTS NO. OF POSTS	WOOD SUPPORTS POST SIZE	WOOD SUPPORTS LENGTH REQ. (L.F.)	WOOD SUPPORTS BOT. HT.
JCT 1.75 x 1.25 2 x 2	1	3#	13	5				
			15	7				
JCT	1	4#	13	5				
			15	7				
2 x 1 2 x 2	1	3#	13	5				
			15	7				
	1	4#	13	5				
			15	7				
2 x 2 1.75 x 1.25	1	3#	13	5				
			15	7				
	1	6#	14	5	1	4" x 6"	14	5
			16	7			16	7
	1	8#	18	5	1	4" x 6"	18	5
			20	7			20	7
2 x 1 2 x 2 1.75 x 1.25	1	4#	15	5				
			17	7				
	1	6#	15	5	1	4" x 6"	15	5
			17	7			17	7
	1	8#	20	5	1	6" x 8"	23	5
			22	7			25	7
	2	6#	34	5	2	4" x 6"	34	5
			38	7			38	7
	2	8#	42	5	2	6" x 8"	45	5
			46	7			49	7
2.5 x 1.25 3 x 3	1	6#	16	6	1	4" x 6"	16	6
2.5 x 1.25 3 x 3 2 x 2	1	6#	18	6	1	4" x 6"	18	6
2.5 x 1.25 3 x 3 2 x 1 2 x 2	1	6#	19	6	1	4" x 6"	19	6
2.5 x 1.25 3 x 3 2.5 x 1.75	1	6#	19	6	1	4" x 6"	19	6
2.5 x 1.25 3.75 x 3	2	3#	30	6				
2.5 x 1.25 3.75 x 3 2 x 2	2	4#	34	6				
2.5 x 1.25 3.75 x 3 2 x 1 2 x 2	2	4#	36	6				
2.5 x 1.25 3.75 x 3 2.5 x 1.75	2	4#	36	6				

FOR INFORMATION ONLY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
STANDARD ROUTE MARKER INSTALLATIONS

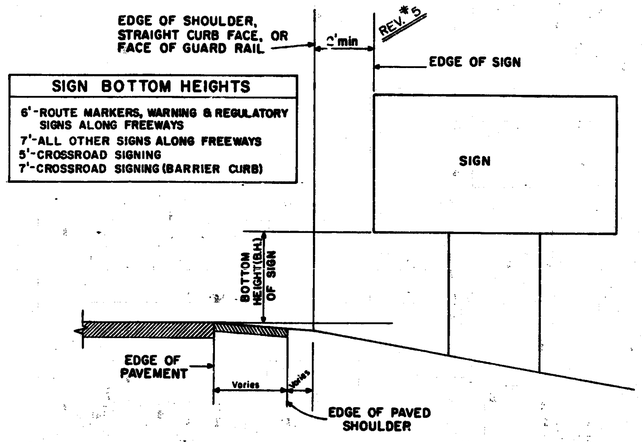
NO.	DESCRIPTION	DATE	BY
1	Change U.S. & Mich. R.I.Mark. to E'Smaller sl	5-1-74	L.G.P.

SIGNS 0055
DRAWN BY
TRACED BY
CHECKED BY
SHEET OF

S1.20

CS 63174 Job. No 14824A SHEET NO. 49

SIGN LOCATION

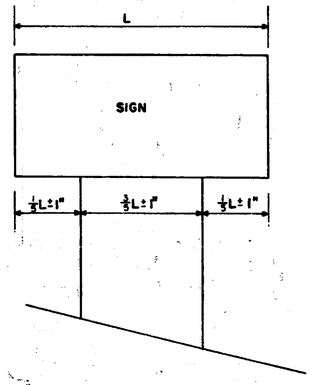


SIGN PLACEMENT - LEFT OR RIGHT SIDE
RAMPS, CROSSROAD OR THROUGH ROADWAY INSTALLATIONS

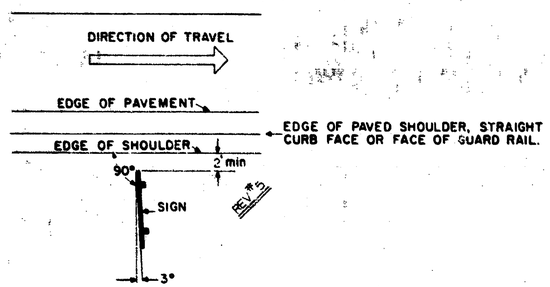
NOTES

1) LATERAL CLEARANCE OF ALL SIGNS SHALL BE AS INDICATED UNLESS OTHERWISE SHOWN ON SIGNING PLANS.
2) THE TERM "SIGN" AS USED ON THIS PLAN MEANS ONE OR A GROUP OF PANELS COMBINED TO FORM ONE INSTALLATION.
3) OVERHEAD SIGNS SHALL BE INSTALLED AT LOCATIONS AS SHOWN ON THE SIGNING PLANS.
4) BOTTOM HEIGHT SHALL BE AS INDICATED UNLESS OTHERWISE SHOWN ON SIGNING PLANS. BOTTOM HEIGHT (B.H.) IS THE HEIGHT FROM THE NEAR EDGE OF THE PAVEMENT TO THE BOTTOM OF THE SIGN.
5) SUPPORT LOCATIONS SHALL BE AS SHOWN UNLESS OTHERWISE SPECIFIED ON SIGN DETAIL STANDARDS.

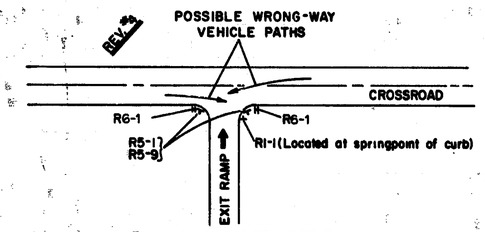
SUPPORT LOCATION



LOCATION SKETCH

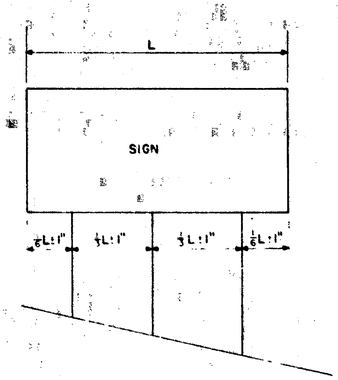


POSITIONING OF SIGNS AT EXIT RAMP TERMINALS



Typical location of R5-1 & R5-9 on exit ramps. These signs should be turned approximately 20° from the crossroad to face the paths of possible wrong-way vehicles.

2 SUPPORT ASSEMBLY



3 SUPPORT ASSEMBLY

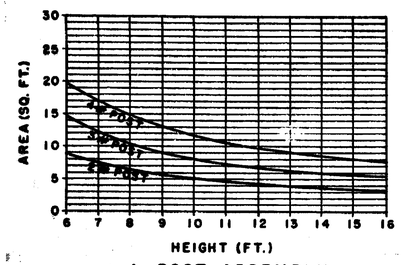
REVISIONS			
NO	DESCRIPTION	DATE	BY
1	REVISED & REDRAWN	10-68	CC
2	S5-5 B.H. ADDED TO SIGN LOCATION	10-71	KJO
3	SIGN B.H. TABLE, NOTES 1,4 & 5 ADDED	3-72	TMW
4	POSITION OF SIGNS AT EXIT RAMP TERMINALS ADDED	6-72	TMW
5	SET BACK DISTANCE CHANGED	LRP	8-74

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

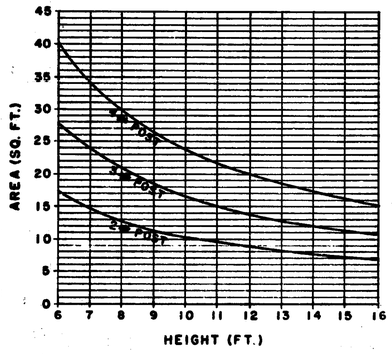
TYPICAL LOCATIONS
ROADSIDE SIGNS & SUPPORTS

DESIGNED BY CC
DRAWN BY
TRACED BY
CHECKED BY

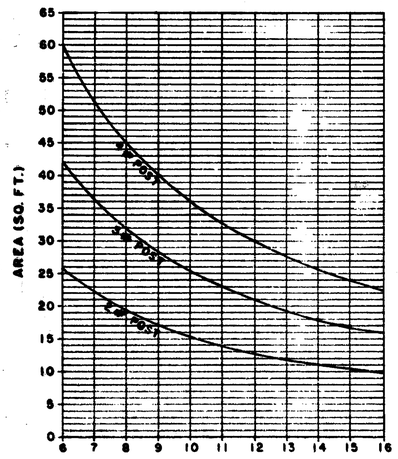
SHEET S2.10



1 - POST ASSEMBLY

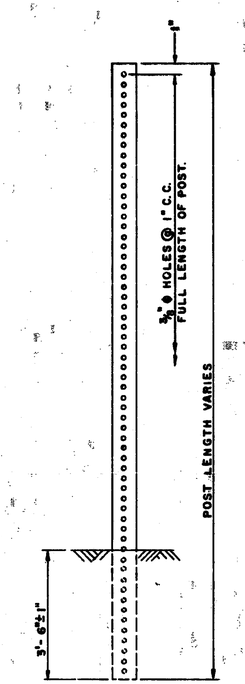


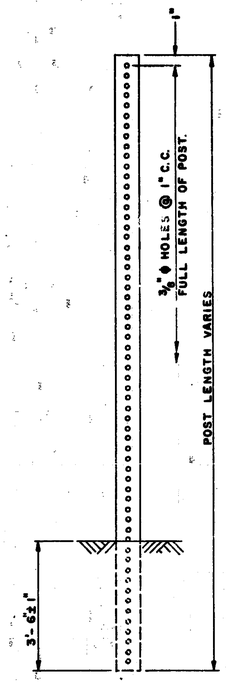
2 - POST ASSEMBLY

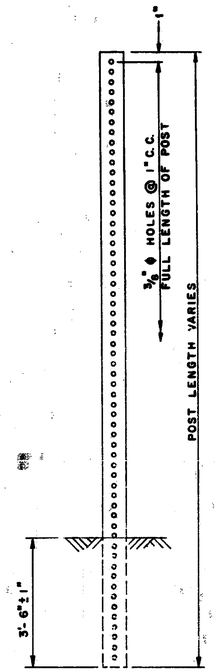


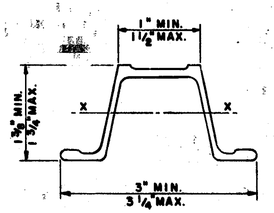
3 - POST ASSEMBLY

HEIGHT = DISTANCE FROM GROUND TO CENTER OF SIGN OR SIGN CLUSTER.





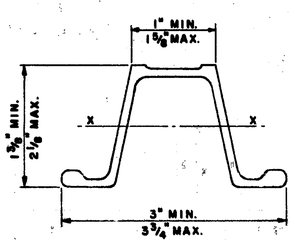




WEIGHT = 2 LB/FT MIN.

SECTION MODULUS X - X = 0.19 IN.3 MIN.

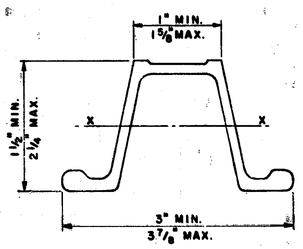
2# STEEL POST



WEIGHT = 3 LB/FT MIN.

SECTION MODULUS X - X = 0.31 IN.3 MIN.

3# STEEL POST



WEIGHT = 4 LB/FT MIN.

SECTION MODULUS X - X = 0.44 IN.3 MIN.

4# STEEL POST

NOTES:
(1.) POST SHALL BE GALVANIZED.
(2.) SEE STANDARD PLAN S 9.20 FOR SIGN CONNECTION.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

STEEL POST

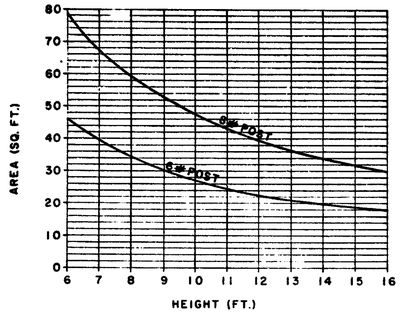
REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD DES.		
DRAWN BY	W.C.G.	8-7-75
TRACED BY		
CHECKED BY	L.W.P.	8-13-75
SHEET	OF	

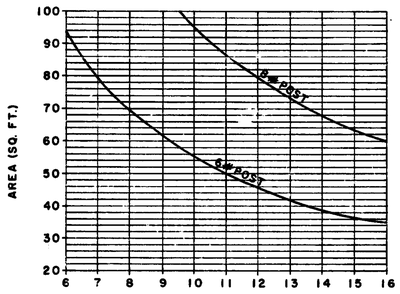
S 3.10

CS 63174 Job No 14624A

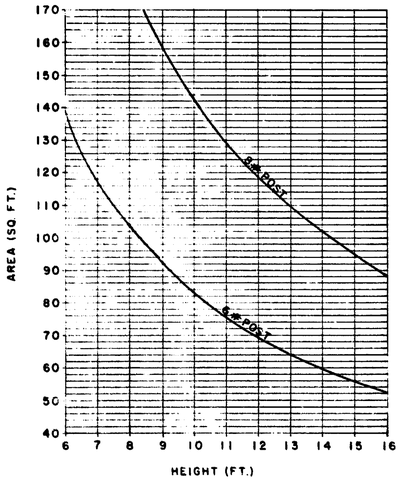
SHEET NOS



1-POST ASSEMBLY

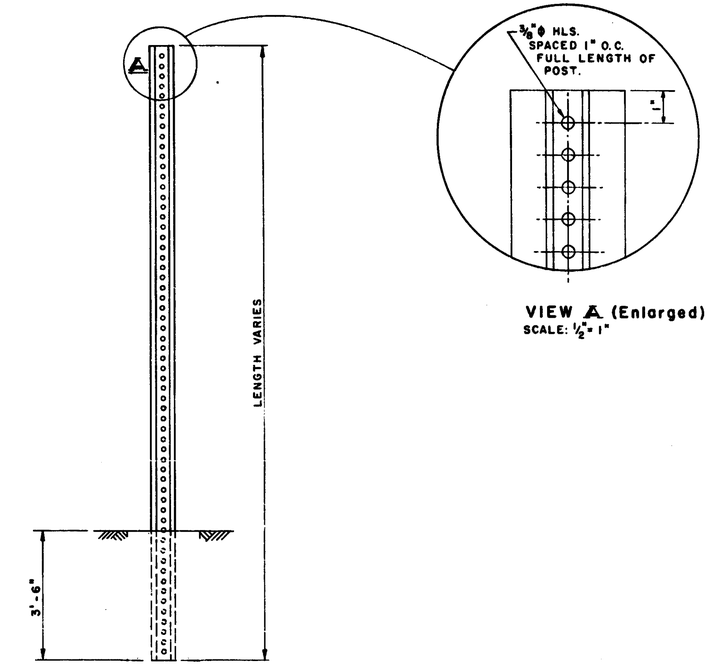


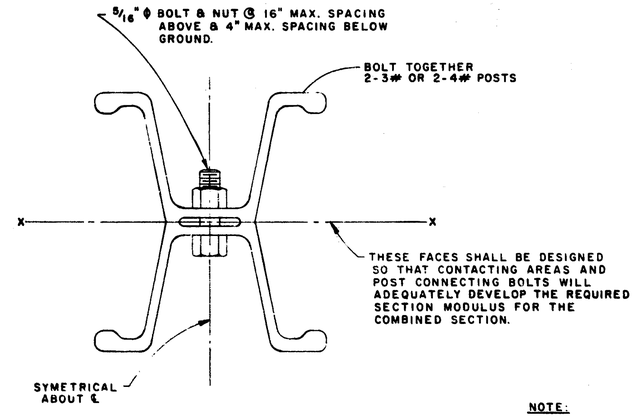
2-POST ASSEMBLY



3-POST ASSEMBLY

HEIGHT = DISTANCE FROM GROUND TO CENTER OF SIGN OR SIGN CLUSTER.





WEIGHT = 6#/FT. MIN.
SECT. MOD. X.-X. = 1.02 in³ MIN.

WEIGHT = 8#/FT. MIN.
SECT. MOD. X.-X. = 1.75 in³ MIN.

6# OR 8# STEEL POST

NOTE:
1.- POST, BOLTS & NUTS SHALL BE GALVANIZED.
2.- SEE STD. PLAN S 9.20 FOR SIGN CONNECTION.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

STEEL POST

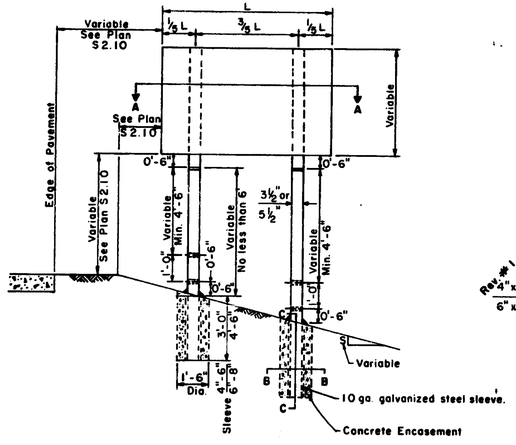
REVISIONS			
NO	DESCRIPTION	DATE	BY

BOARD BOOK		
DRAWN BY	W.C.G.	8-11-75
TRACED BY		
CHECKED BY	L.W.P.	8-13-75
SHEET	OF	

S 3.20

CS #312 Job No. 10282A

SHEET NO. 52

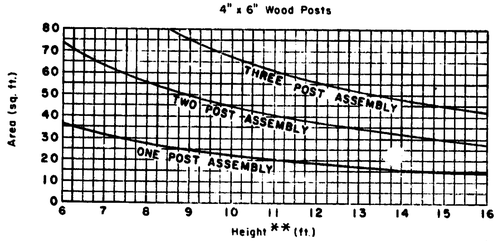


NOTE:

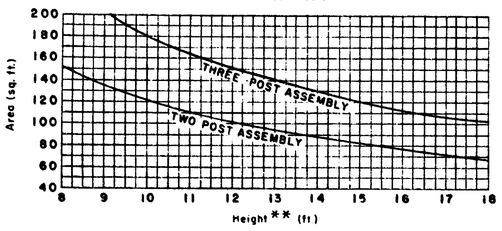
1. Above elevation details are for both the 4"x6" and 6"x8" wood posts. Whenever two dimensions are shown for the same item, the first one is intended for the 4"x6" rectangular section and the second one for the 6"x8" rectangular section.
2. Post sizes can be obtained from the design charts for different elevations of signs above ground.
3. Omit the saw cut in one post assemblies.
4. All 1½" and 3½" drilled holes are to be carefully centered on the posts.
5. All concrete foundations shall be finished as shown in section C-C and any surplus material shall be completely removed.

WOOD POSTS DESIGN CHARTS

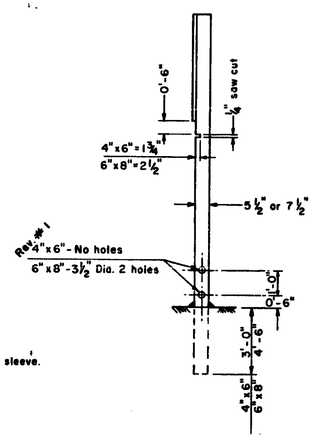
4" x 6" Wood Posts



6" x 8" Wood Posts

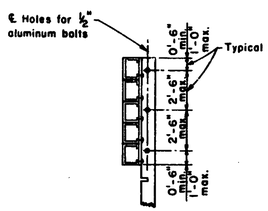


** Height = Distance from ground to center of sign or sign cluster.

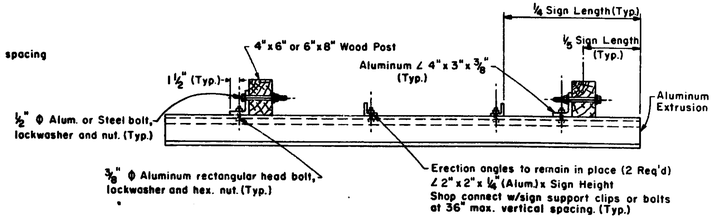


END VIEW
TYPE II & III SIGN

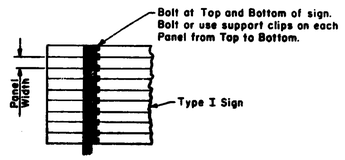
TYPE I SIGN - ERECTION DETAILS



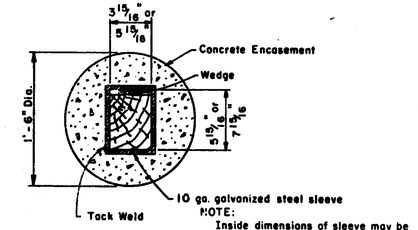
END VIEW
TYPE I SIGN



SECTION A-A



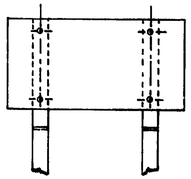
SIGN SUPPORT BOLT AND CLIP ARRANGEMENT

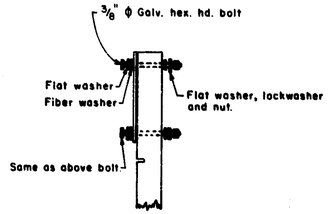


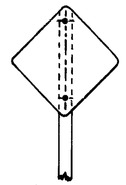
NOTE:
Inside dimensions of sleeve may be a maximum of ⅛" greater than shown.

SECTION B-B

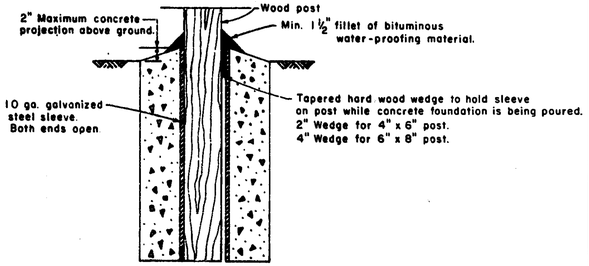
TYPES II AND III SIGNS - ERECTION DETAILS







END VIEW



SECTION C-C

NOTES:
1.) All connections are incidental to "SIGN".

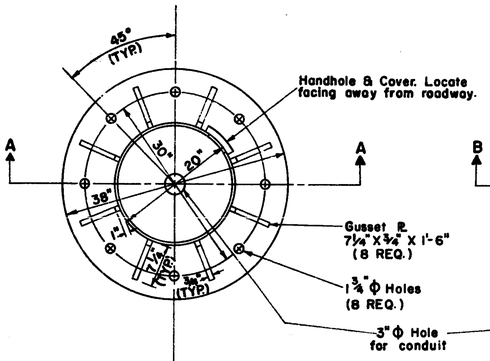
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

WOOD POSTS

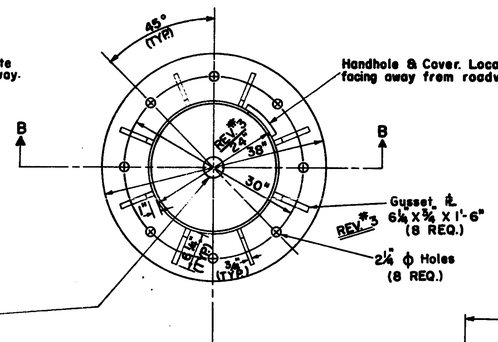
REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	Deleted (2) 1 1/2" Dia. Hls. - 4"x6" post	8/78	W.C.G.

DESIGNED BY	
DRAWN BY	W.C.G.
TRACED BY	
CHECKED BY	
SHEET	OF

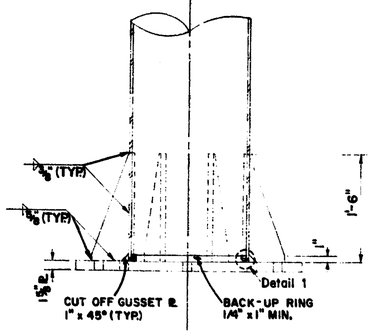
S3.30



BASE PL DETAIL
TYPE G

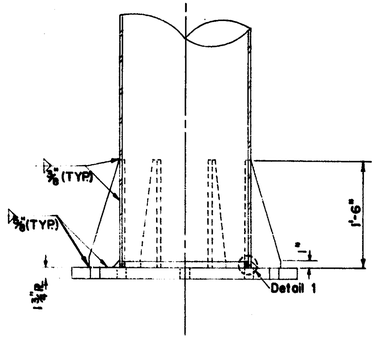


BASE PL DETAIL
TYPE H

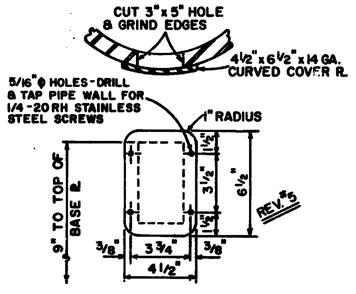


SECTION A-A

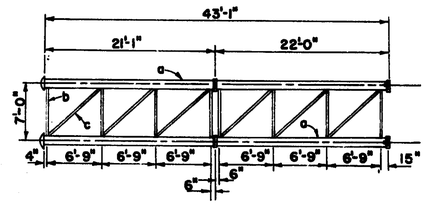
REV. #5



SECTION B-B

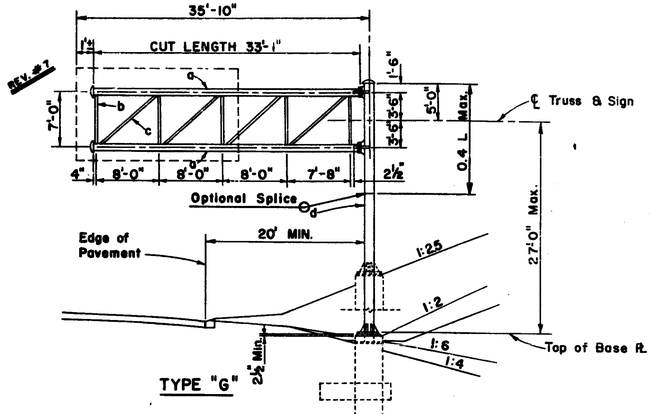


HANDHOLE & COVER PL
DETAIL

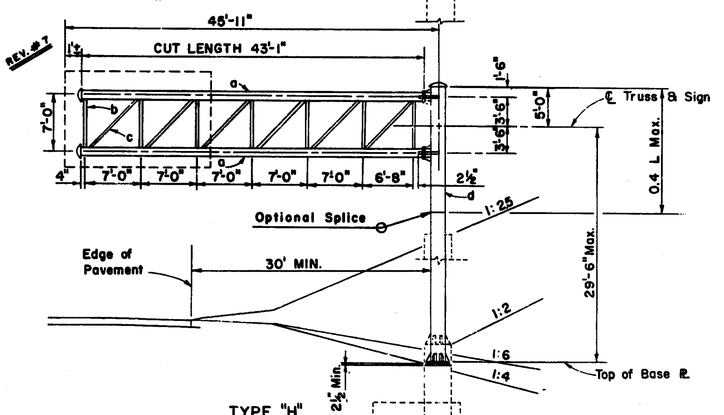


OPTIONAL TYPE "H" WITH MID-SPAN SPLICE

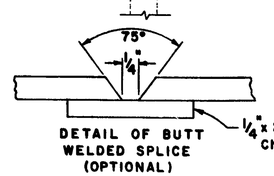
REV. #1



TYPE "G"



TYPE "H"



DETAIL OF BUTT WELDED SPLICE (OPTIONAL)

REV. #3

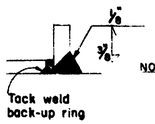
CANTILEVER SCHEDULE

MEMBER	TYPE "G"	TYPE "H"	STEEL
a	10" Φ x .438" x 48.19 #/'	12" Φ x .438" x 57.53 #/'	A-441 or API 5L, Grade X52
b	4" Φ x .237" x 10.79 #/'	4" Φ x .237" x 10.79 #/'	API 5L, Grade X52
c	do	do	API 5L, Grade X52
d	20" Φ x .375" x 78.60 #/'	24" Φ x .375" x 94.61 #/'	A-441 or API 5L, Grade X52
Base PL	38" DIA. X 1 5/8"	38" DIA. X 1 5/8"	A-36
Flange PL	20" DIA. X 1 5/8"	22" DIA. X 1 5/8"	A-441
FLANGE & STIFFENERS	———	———	A-441

REV. #2

REV. #3

NOTES:
1) Weld at truss members - use 3/16" fillet weld on all vertical & diagonal member connections to the horizontal pipes.
2) See S 9.10 for sign connection details.
~~3) See S 9.10 for handhole details.~~



DETAIL 1

NOTE: PROVIDE 2-1/2" Φ GALV. DRAIN HOLES THRU PIPE & BACK-UP RING AS REQUIRED.

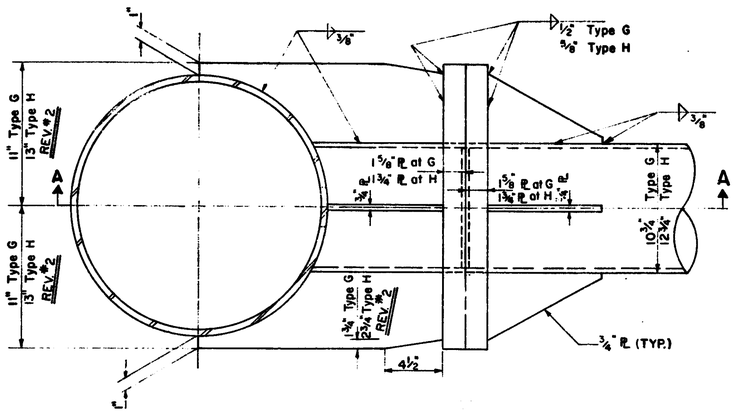
4	ALTERNATE CANTILEVER SCHEDULE ADDED	11/74	LRP
5	HANDHOLE DETAIL ADD, NOTE 3 DELETED	4/76	TMW
5	NOTES FOR SECTION A-A ADD.		
6	REVISION #4 DELETED	8/77	W.C.G.
7	MAX. SIGN SIZE DELETED	8/77	W.C.G.

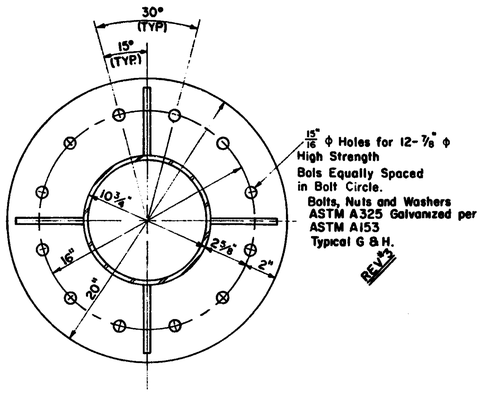
NO.	DESCRIPTION	DATE	BY
1	OPTIONAL TYPE "H" W/MID-SPAN SPLICE	ADDED-8/69	TMW
2	ADDITION TO CANTILEVER SCHEDULE	10/69	TMW
3	SIZE & STEEL CHANGES (MEMBERS) & WELD SIZE CHANGE	1/70	TMW

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
STEEL CANTILEVER
TYPE G,H

ROAD BOSS	
DRAWN BY	
TRACED BY	
CHECKED BY	
SHEET	1 OF 3

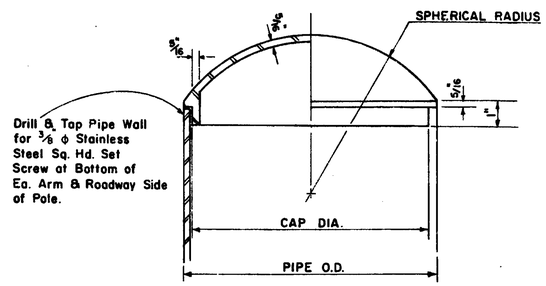
S5.40





TYPE G

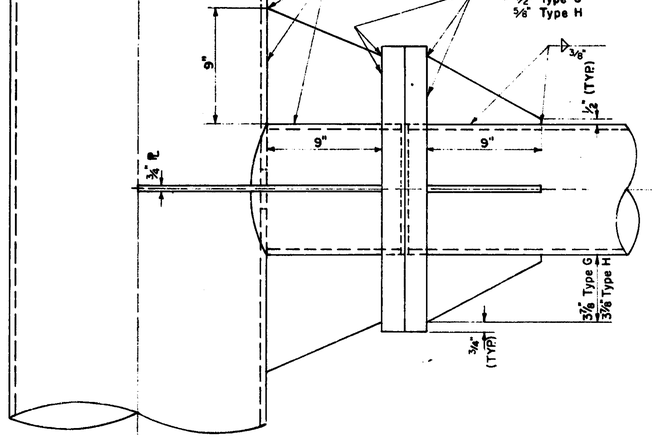
FOR ALTERNATE CANTILEVER DIMENSIONING SEE SCHEDULE ON (SHEET 1 of 3) S5.40



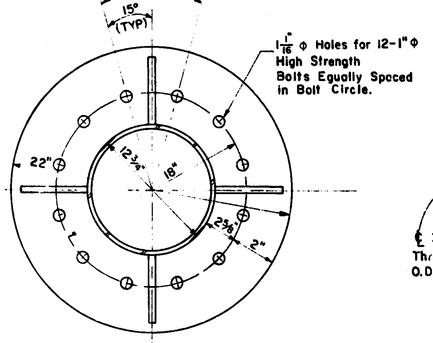
PIPE CAST DETAILS
(CAST IRON)

CAP DIMENSIONS		
PIPE O.D.	CAP DIA.	SPHERICAL RADIUS
10 3/4"	9 13/16"	6 3/8"
12 3/4"	11 13/16"	7 3/8"
20"	19 3/16"	11 3/4"
24"	23 13/16"	14 9/16"

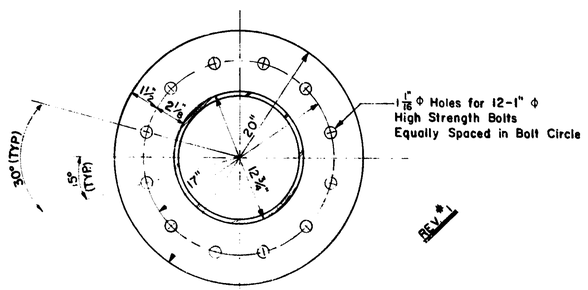
REV.#2



ARM CONNECTION

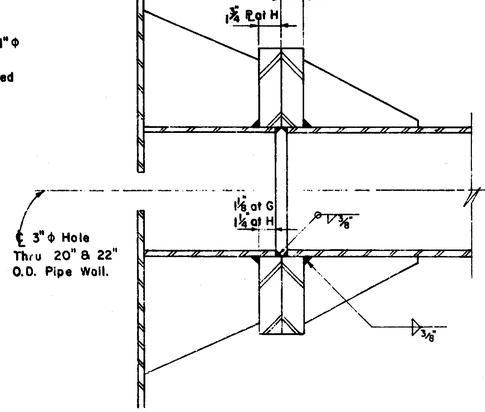


TYPE H

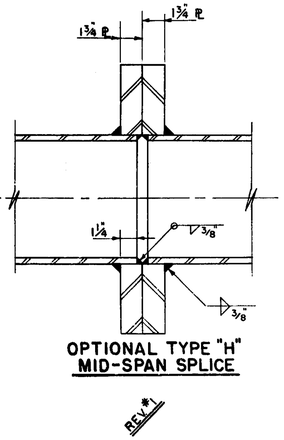


OPTIONAL TYPE "H" MID-SPAN SPLICE

REV.#1



SECTION A-A



OPTIONAL TYPE "H" MID-SPAN SPLICE

REV.#

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

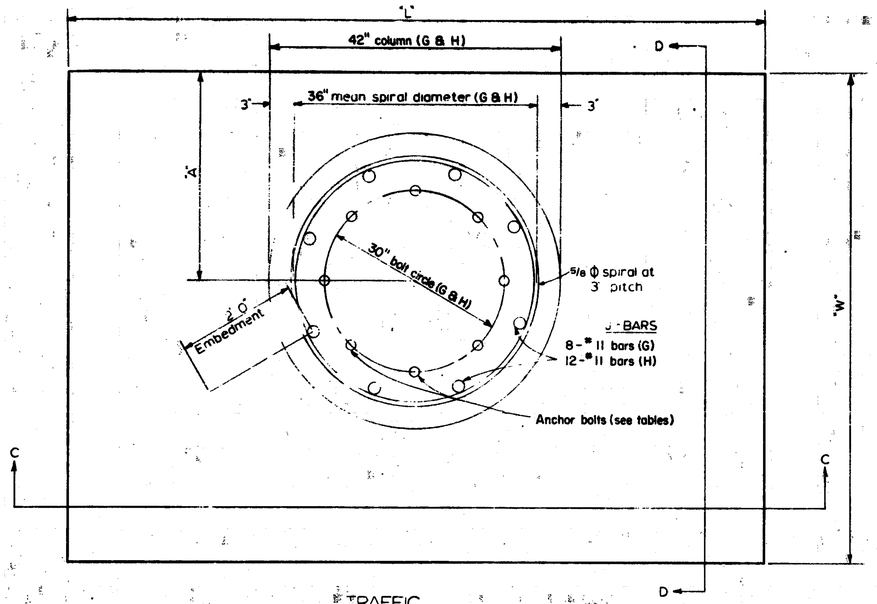
STEEL CANTILEVER DETAILS

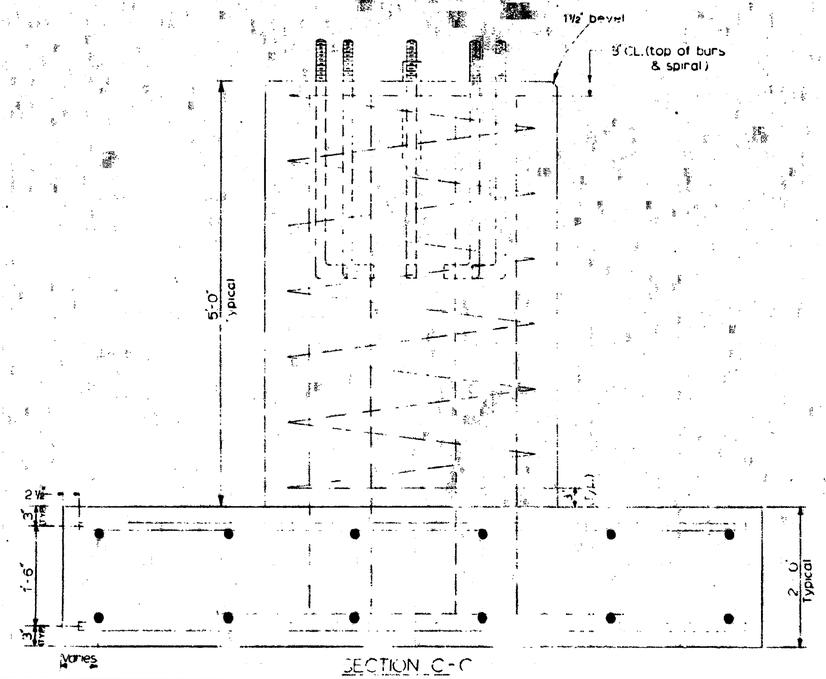
TYPE G, H

NO	DESCRIPTION	DATE	BY
1	OPTIONAL TYPE "H" MID-SPAN SPLICE ADDED	9/69	TMW
2	DIMENSION CHANGES	1/70	TMW
3	ASTM SPEC ADDED	2/76	JDB

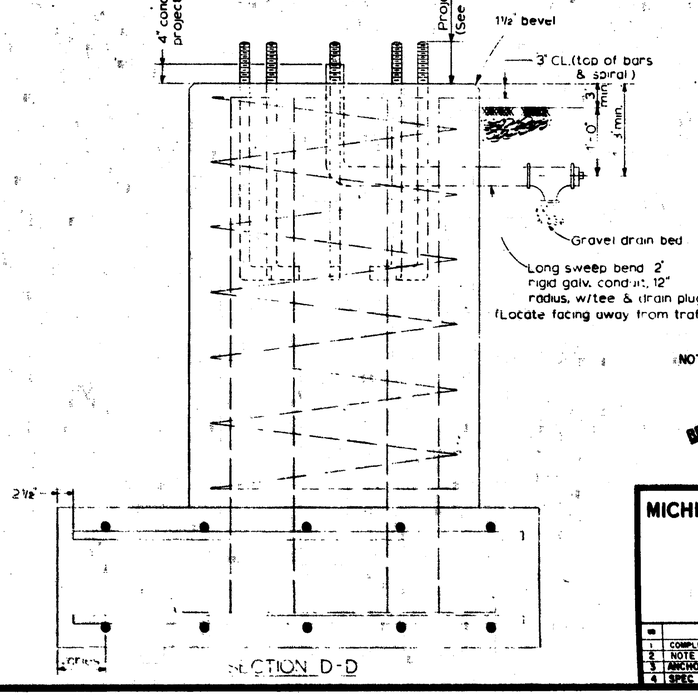
SQUAD BOSS
DRAWN BY
TRACED BY
CHECKED BY
SHEET 2 OF 3

S5.50





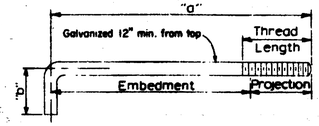
SECTION C-C



SECTION D-D

TYPE	SOIL CONDITIONS		FOOTING SIZE		"A" DISTANCE	ANCHOR BOLT	LONGITUDINAL FOOTING REINFORCEMENT TOP & BOTTOM	TRANSVERSE FOOTING REINFORCEMENT TOP & BOTTOM	CONCRETE CU. YD. (FOOTING & PEDESTAL)	REIN. STEEL WT. (FOOTING & PEDESTAL)
	S_C	N	"W"	"L"						
G-1	> 500	> 15	9'	10'	2'-9"	8 - 1½" ϕ	#6 Bars 7 Spa. @ 1'-2" = 8'-2"	#6 Bars 14 Spa. @ 8" = 9'-4"	8.4	1185.4#
G-2	≥ 250 ≤ 500	≥ 10 ≤ 15	9'	11'	2'-9"	8 - 1½" ϕ	#5 Bars 10 Spa. @ 10" = 8'-4"	#5 Bars 14 Spa. @ 9" = 10'-6"	9.1	1079.7#
G-3	≥ 100 < 250	≥ 5 < 10	11'	16'	2'-9"	8 - 1½" ϕ	#5 Bars 11 Spa. @ 11½" = 10'-6½"	#5 Bars 13 Spa. @ 1'-2¼" = 15'-5¼"	14.8	1267.4#
H-1	> 500	> 15	10'	11'	2'-9"	8 - 2" ϕ	#7 Bars 8 Spa. @ 1'-2" = 9'-4"	#7 Bars 18 Spa. @ 7" = 10'-6"	9.9	1882.6#
H-2	≥ 250 ≤ 500	≥ 10 ≤ 15	10'	12'	2'-9"	8 - 2" ϕ	#6 Bars 10 Spa. @ 11" = 9'-2"	#6 Bars 18 Spa. @ 7½" = 11'-3"	10.7	1678.6#
H-3	≥ 100 < 250	≥ 5 < 10	14'	16'	2'-9"	8 - 2" ϕ	#6 Bars 10 Spa. @ 1'-4¼" = 13'-6½"	#6 Bars 16 Spa. @ 11½" = 15'-4"	18.4	1957.5#

Sc = Allowable shear in cohesive soils #/Ft.²
N = Blows / foot of penetration (ASTM testing procedure)



Cant. Type	a	b	Thread Length	Projection
G	4'-6"	6"±1/8	6½"	6¼"
H	4'-6"	6"±1/4	7"	6⅞"

REV #3

ANCHOR BOLT TABLE

REV #3 ANCHOR BOLTS: Minimum tensile strength 85,000 psi. and galvanized in accordance with ASTM A153.

NUTS: Extra heavy hex. head galvanized. 16 Req'd. ASTM A307.

WASHERS: 1½" ϕ Type G; 2" ϕ Type H. Two per anchor bolt, Standard flat galvanized. 16 Req'd.

NOTES: (1)

~~All reinforcing steel~~ shall conform to standard specifications 8.05.03. ~~Deformed bars shall be ASTM A615-Grade 60 Spirals shall be ASTM A 306-Grade 80.~~

REV #2 Deformed bars shall be ASTM A615-Grade 60. Spirals shall be ASTM A306-Grade 60.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

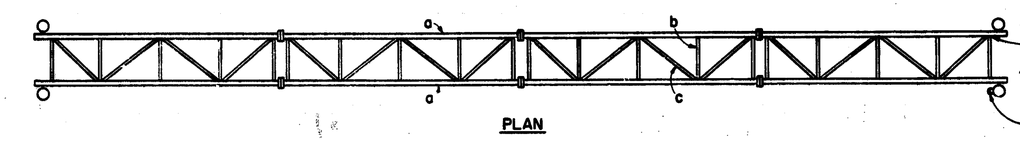
CANTILEVER FOUNDATIONS

TYPE G & H

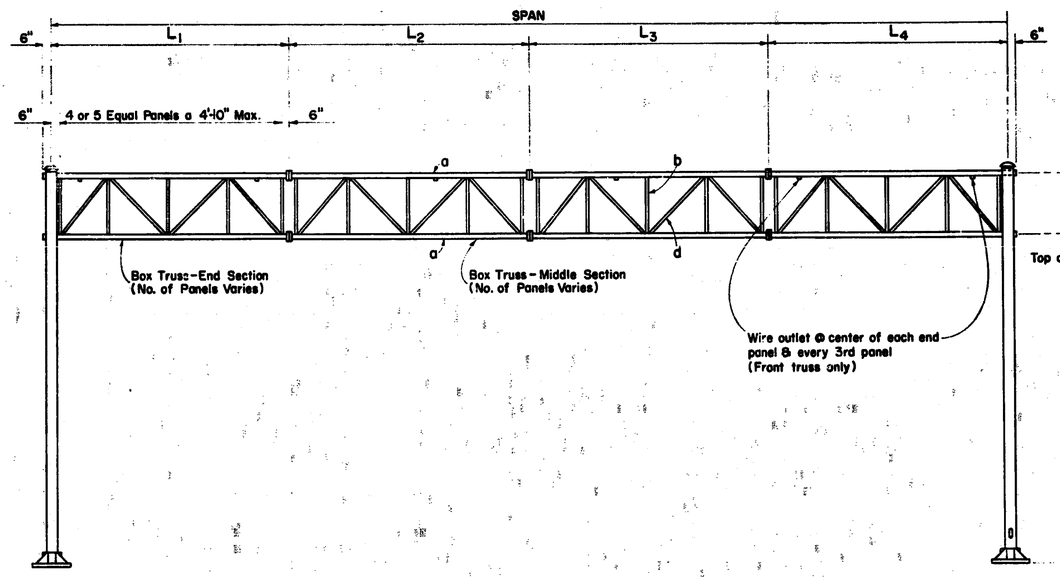
NO	DESCRIPTION	DATE	BY
1	COMPLETE REVISION	7/71	KJO
2	NOTE #1 REVISED	4/72	TMW
3	ANCHOR BOLT TABLE REVISED	6/73	
4	SPEC CHANGES	8/78	JDB

SHEET 3 OF 3

S5.60

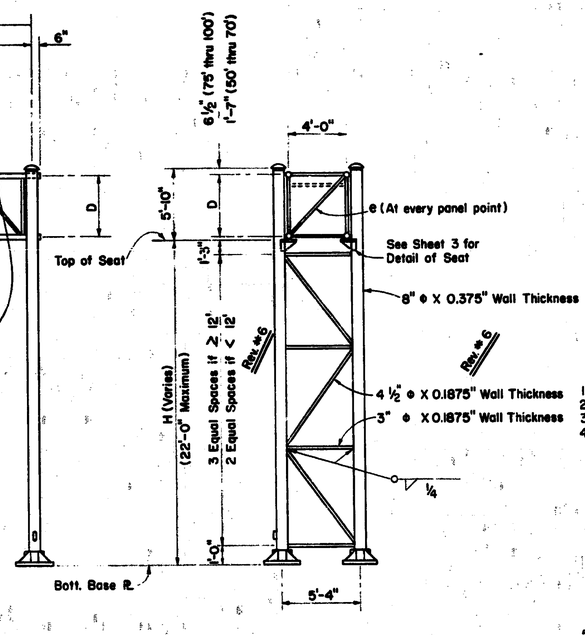


PLAN



ELEVATION

FACING TRAFFIC



END VIEW

TRUSS SCHEDULE												
SPAN	L_1	L_2	L_3	L_4	D	a	b	c	d	e *	Estimated Weight (Lbs./ft.)	Camber **
50'-0"	25'-0"			25'-0"	4'-0"	6"⌀X.1875 Wall Thick.	2"⌀X.125 Wall Thick.	3"⌀X.1875 Wall Thick.	2"⌀X.125 Wall Thick.	2"⌀X.125 Wall Thick.	30	7/8"
55'-0"	20'-0"	15'-0"		20'-0"	do	do	do	do	do	do	do	1"
60'-0"	20'-0"	20'-0"		20'-0"	do	do	do	do	do	do	do	1 1/8"
65'-0"	20'-0"	25'-0"		20'-0"	do	do	do	do	do	do	do	1 1/4"
70'-0"	25'-0"	20'-0"		25'-0"	4'-0"	6"⌀X.1875 Wall Thick.	do	3"⌀X.1875 Wall Thick.	do	2"⌀X.125 Wall Thick.	30	1 1/2"
75'-0"	25'-0"	25'-0"		25'-0"	5'-0"	7"⌀X.1875 Wall Thick	do	3 1/2"⌀X.1875 Wall Thick.	do	2"⌀X.125 Wall Thick.	31	1 1/2"
80'-0"	20'-0"	20'-0"	20'-0"	20'-0"	do	do	do	do	do	do	do	1 3/4"
85'-0"	20'-0"	25'-0"	20'-0"	20'-0"	do	do	do	do	do	do	do	1 7/8"
90'-0"	20'-0"	25'-0"	25'-0"	20'-0"	do	do	do	do	do	do	do	2 1/8"
95'-0"	25'-0"	20'-0"	25'-0"	25'-0"	do	do	do	do	do	do	do	2 1/2"
100'-0"	25'-0"	25'-0"	25'-0"	25'-0"	5'-0"	7"⌀X.1875 Wall Thick.	2"⌀X.125 Wall Thick.	3 1/2"⌀X.1875 Wall Thick.	2"⌀X.125 Wall Thick.	2"⌀X.125 Wall Thick.	31	2 3/4"

* For transverse diagonals at panels adjacent to columns use 3 1/2"⌀X.1875

** Ordinate at center of assembled truss prior to dead load deflection. Allowable camber tolerance for truss is ± 25%

Notes: Rev. # 3

1. All columns and chord members shall be aluminum alloy 6061-T6.
2. All web members shall be alluminum alloy 6063-T6.
3. Connections shall be welded with filler alloy 5356.
4. The design of this structure is based on the American Association of State Highway Officials' Specifications for the Design and Construction of Structural Supports for Highway Signs. (1961 Edition)

Max. projection of sign beyond chord is 4 ft. Rev. #5

Design based on a wind load of 35 psf. on sign area. Rev. # 4

All U-Bolts and accompanying washers shall be stainless steel— ASTM A 320, Grade B8 (AISI Type 304). # Rev. # 7

5. See std. plan S9.10 for sign connection.
6. The cambering shall be provided in the fabrication so that the flanges are correctly sloped to assure obtaining full contact in the relaxed position prior to snugging up the flange bolts. The flange bolts shall not be torqued in an attempt to close any flange misalignment. Trusses shall not be lifted by the web members. Rev. #8
7. # All other connecting bolts, nuts and washers shall be stainless steel AISI 300 series alloy. Bolts shall have a minimum yield strength of 30,000 psi. Nut shall be the self locking type. REV

REVISIONS
5 V-4 SIGN PROJECTION ABOVE TOP CHORD CHANGED 1-3-67
6 END SUPPORT SCHEDULE REMOVED; MAXIMUM END SUPPORT LENGTH ADDED; BRACE SPACING & SIZES ADDED 7-6-67
7 U-BOLT DESIGNATION ADDED 12-67
8 NOTE #6 ADDED 3-70
9 NOTE #7 ADDED 2-76
10 NOTE #7 Revised 11-76

Work this sheet with Sheets 3 & 4

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

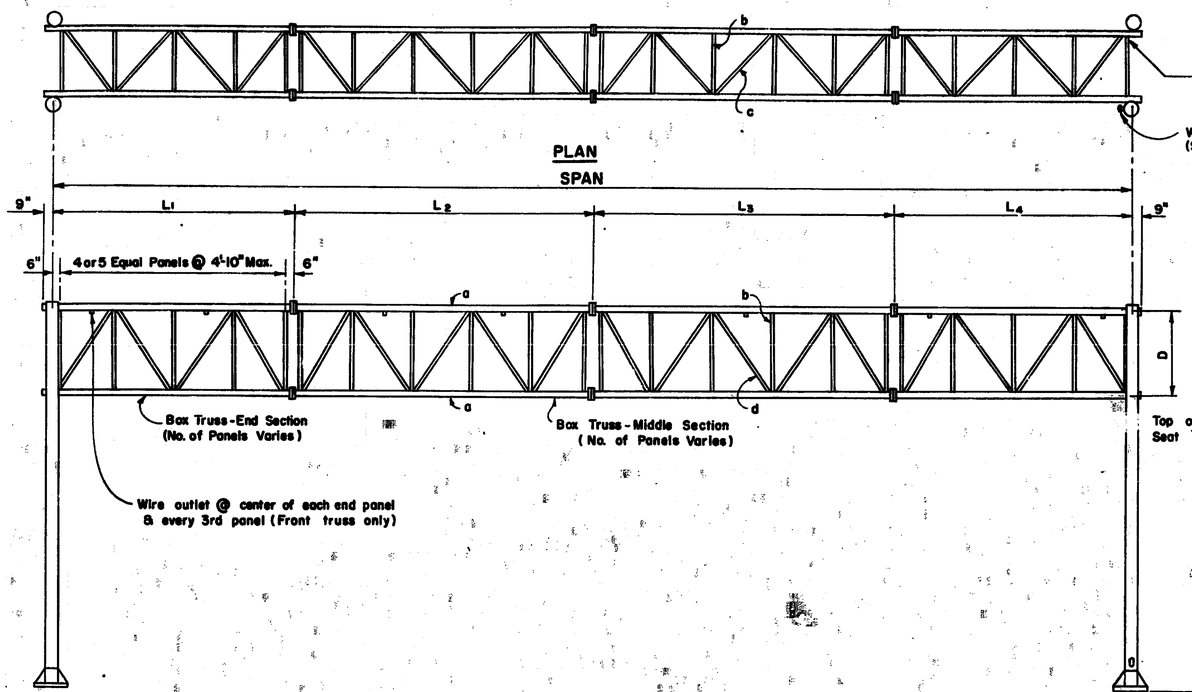
ALUMINUM TRUSS
TYPE B

REVISIONS		
NO	REVISION	DATE
1	DIMENSION CHANGES	11-26
2	RELOCATE WIRE OUTLET	5-1-64
3	ALLOY CHANGE	3-25-65
4	U-BOLT CHANGED TO STLESS STL	5-25-65

SQUAD BOSS WDB 2-12-63
DRAWN BY
TRACED BY
CHECKED BY
SHEET 1 OF 4

S 6.10

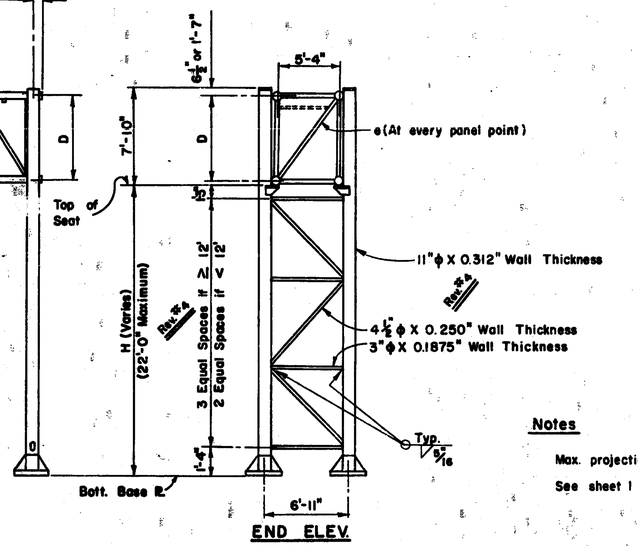
CS 8317 Job No. 14824A SHEET NO. 57



ELEVATION
Facing – Traffic

End internal diagonal e shall connect to the chord where the top horizontal diagonal connects to this chord as shown plan and end elevation.

Wire outlet @ column (See detail sheet #3)



Notes

Max. projection of sign beyond chord is 6 ft. Rev. #3

See sheet 1 for additional notes.

TRUSS SCHEDULE

SPAN	L_1	L_2	L_3	L_4	D	a	b	c	d	e *	Estimated Weight (Lbs / Ft.)	Camber **
50'-0"	25'-0"			25'-0"	6'-0"	6"ϕ X .1875" Wall Thick	2"ϕ X .125" Wall Thick.	4½"ϕ X .1875" Wall Thick.	2½"ϕ X .125" Wall Thick.	2½"ϕ X .125" Wall Thick.	38	¾"
55'-0"	20'-0"	15'-0"		20'-0"	do.	do.	do.	do.	do.	do.	do.	⅞"
60'-0"	20'-0"	20'-0"		20'-0"	do.	do.	do.	do.	do.	do.	do.	1"
65'-0"	20'-0"	25'-0"		20'-0"	do.	do.	do.	do.	do.	do.	do.	1⅛"
70'-0"	25'-0"	20'-0"		25'-0"	6'-0"	6"ϕ X .1875" Wall Thick	2"ϕ X .125" Wall Thick.	4½"ϕ X .1875" Wall Thick	2½"ϕ X .125" Wall Thick.	2½"ϕ X .125" Wall Thick	38	1¼"
75'-0"	25'-0"	25'-0"		25'-0"	7'-0"	7"ϕ X .250" Wall Thick	2"ϕ X .125" Wall Thick	4½"ϕ X .250" Wall Thick	2½"ϕ X .125" Wall Thick	2½"ϕ X .125" Wall Thick	52	1⅜"
80'-0"	20'-0"	20'-0"	20'-0"	20'-0"	do.	do.	do.	do.	do.	do.	do.	1½"
85'-0"	20'-0"	25'-0"	20'-0"	20'-0"	do.	do.	do.	do.	do.	do.	do.	1⅝"
90'-0"	20'-0"	25'-0"	25'-0"	20'-0"	do.	do.	do.	do.	do.	do.	do.	1¾"
95'-0"	25'-0"	20'-0"	25'-0"	25'-0"	do.	do.	do.	do.	do.	do.	do.	1⅞"
100'-0"	25'-0"	25'-0"	25'-0"	25'-0"	7'-0"	7"ϕ X .250" Wall Thick	2"ϕ X .125" Wall Thick	4½"ϕ X .250" Wall Thick	2½"ϕ X .125" Wall Thick.	2½"ϕ X .125" Wall Thick	52	2"

* Use 4½" ϕ X .250" Wall thick panels adjacent to Columns.

** Ordinate at center of assembled truss prior to dead load deflection. Allowable camber tolerance for truss is ± 25 %.

Work this sheet with sheets 3 & 4

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

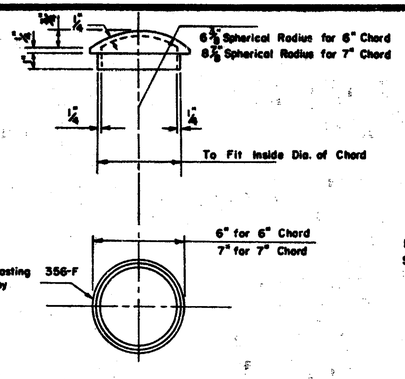
ALUMINUM TRUSS
TYPE C

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	DIMENSION CHANGES	11-26	
2	RELOCATE WIRE OUTLET	5-1-64	
3	Max. Sign projection above top chord changed	3-3-67	TMW
4	End support schedule removed; Max. end support length added, Brace spacing & sizes added.	7-7-67	TMW
5	NOTE # 3 Revised	11-16-76	RJM

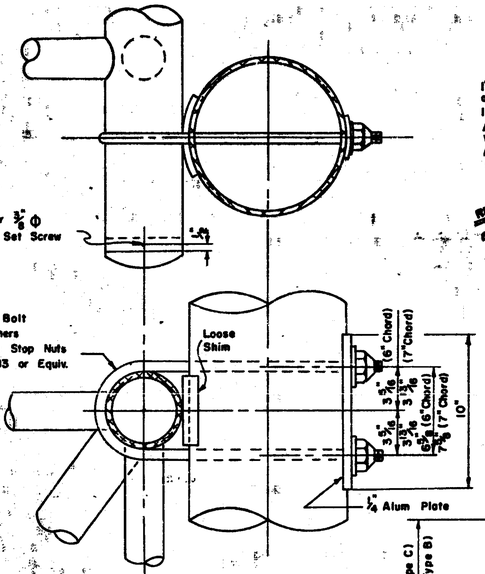
DESIGNED BY	WDB	2-12-63
DRAWN BY	HBS	2-6-63
TRACED BY		
CHECKED BY	JDB	2-12-63
SHEET	2 OF 4	

S6.20

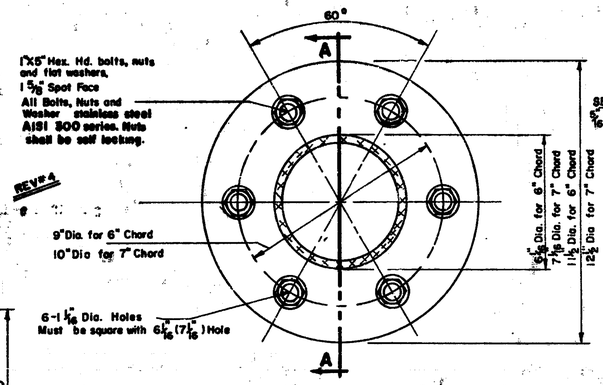
CS 63174 NO 58
Job No 14824C

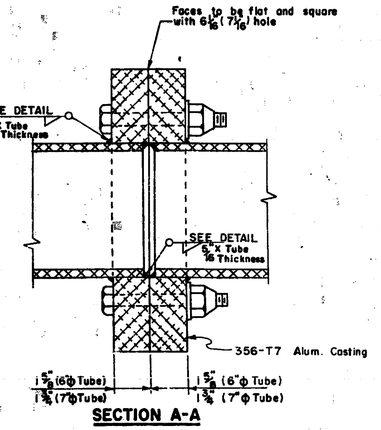


Detail of End Cap
For Horiz. Members
8 Req'd

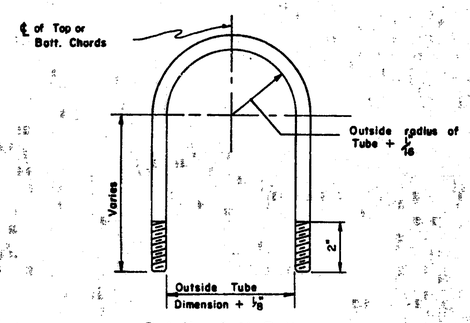


Detail of Upper Clamp

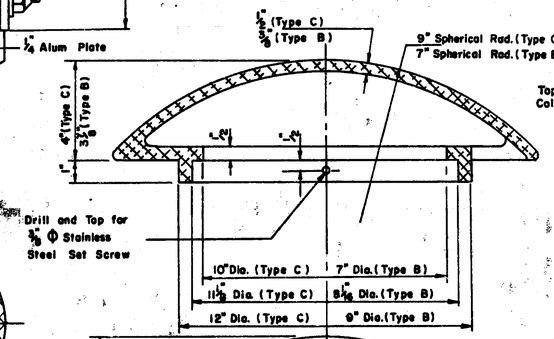




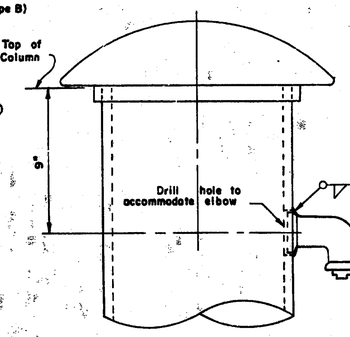
SECTION A-A

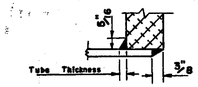


Detail of U Bolt
4 Req'd Upper Clamp
8 Req'd Lower Clamp



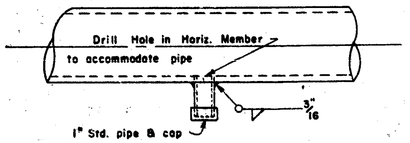
Chord Connection Detail



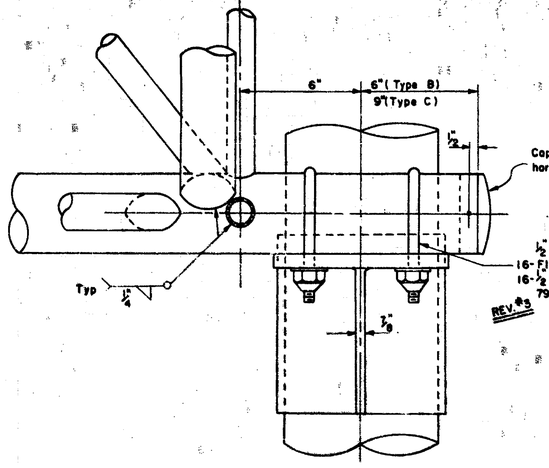


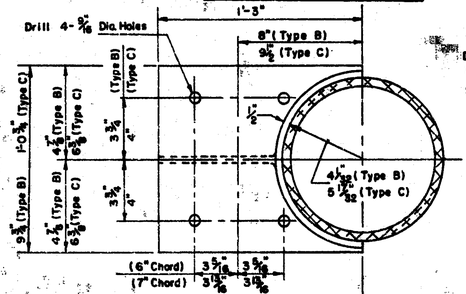
WELD DETAIL
CHORD CONNECTION

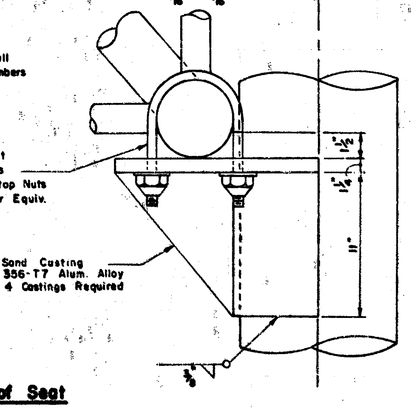
Detail of Electrical Outlet At Column



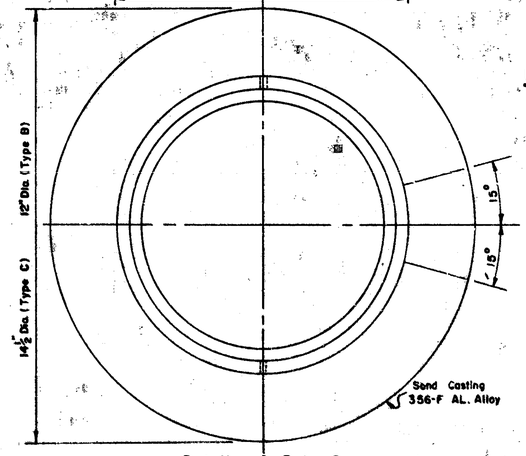
Detail of Electrical Outlet At Chord







Detail of Seat



Detail of Pole Cap
4 Req'd

Work this sheet with sheets 1 & 2

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ALUMINUM TRUSS DETAILS
TYPE B,C

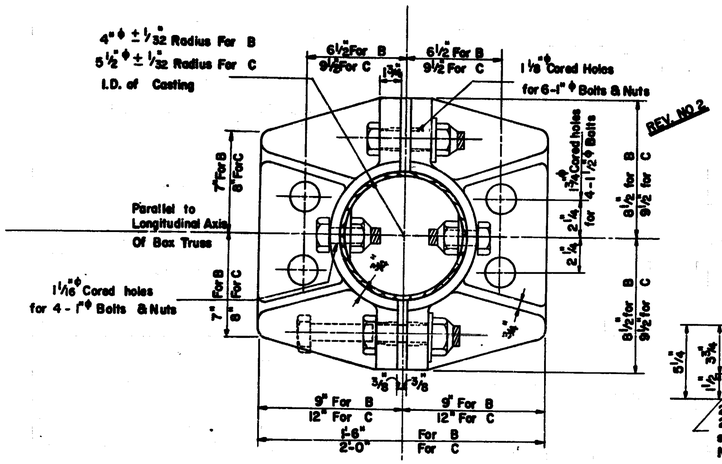
REVISIONS			
No.	DESCRIPTION	DATE	BY
1	Weld Detail	4-26	
2	Revise electrical outlet	8-1-84	
3	U-Bolt & Nut changed to Stainless (B)		4-25-85
4	SPEC CHANGED	8/75	JDB
5	NOTE #4 Revised	11-76	RJM

SIGNED BY	WDB	2-18-63
DRAWN BY	JDB	2-8-63
TRACED BY		
CHECKED BY	HBS	2-18-63
SHEET 3 OF 4		

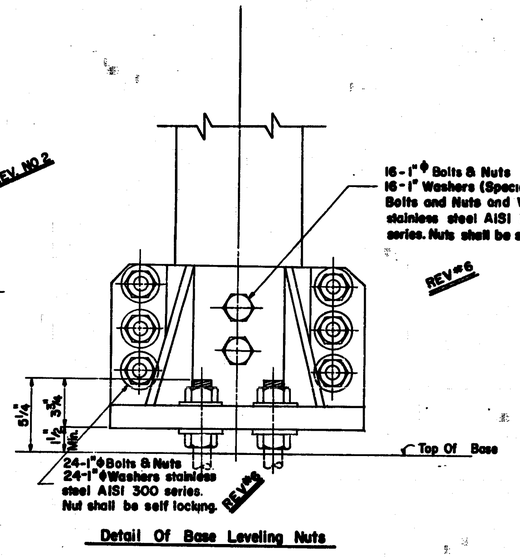
S 6.30

CS 63174 NO 59

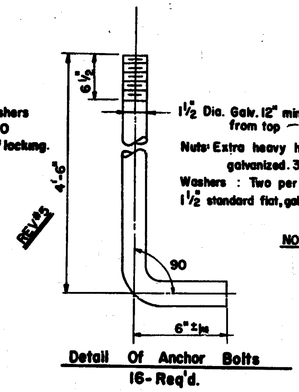
Job No. 14824A



Section Above Base Casting



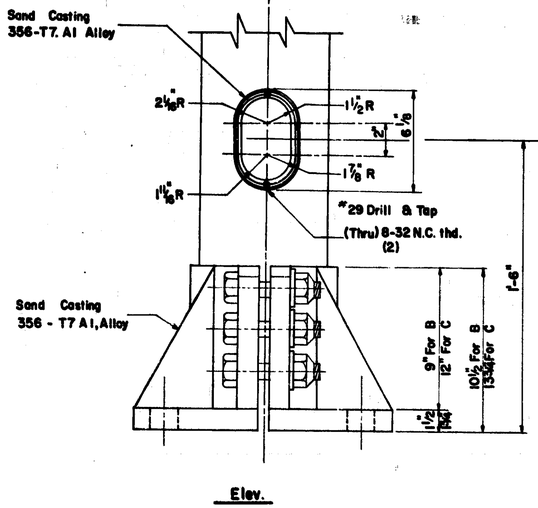
Detail Of Base Leveling Nuts



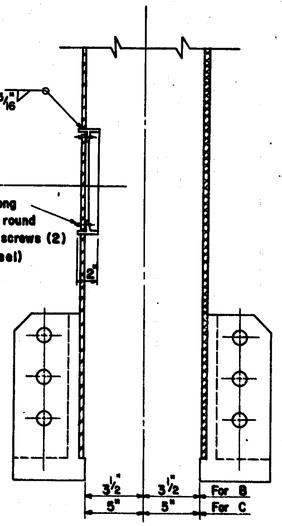
Detail Of Anchor Bolts
16- Req'd.

NOTE:
All A307 anchor bolts shall be required to have a minimum ultimate strength of 85,000 psi.

REV. NO. 4



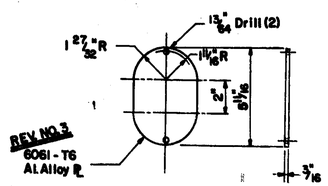
Elev.



Section

Detail Of Base And Hand Hole Units

Req'd. - 2 Hand hole units - One each tower.
" - 4 Bases. Complete



Hand Hole Unit Cover
2 - Req'd

Work this sheet with sheets 1, 2 & 3

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

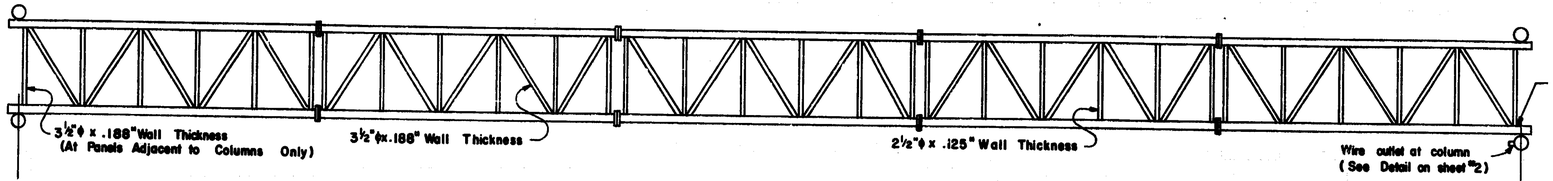
ALUMINUM END SUPPORT DETAILS
TYPE B,C

REVISIONS

NO	DESCRIPTION	DATE	BY
1	GALVANIZED	1/64	RDS
2	DIMENSION OF BASE CASTING	8/65	RLD
3	ALLOY CHANGE		
4	ANCHOR BOLT STRENGH NOTE	3-3-67	TMH
5	ANCHOR BOLT DETAIL REVISED	2/74	JDB
6	SPEC CHANGED	2/75	JDB
7	NOTE #6 Revised	11-75	RJM

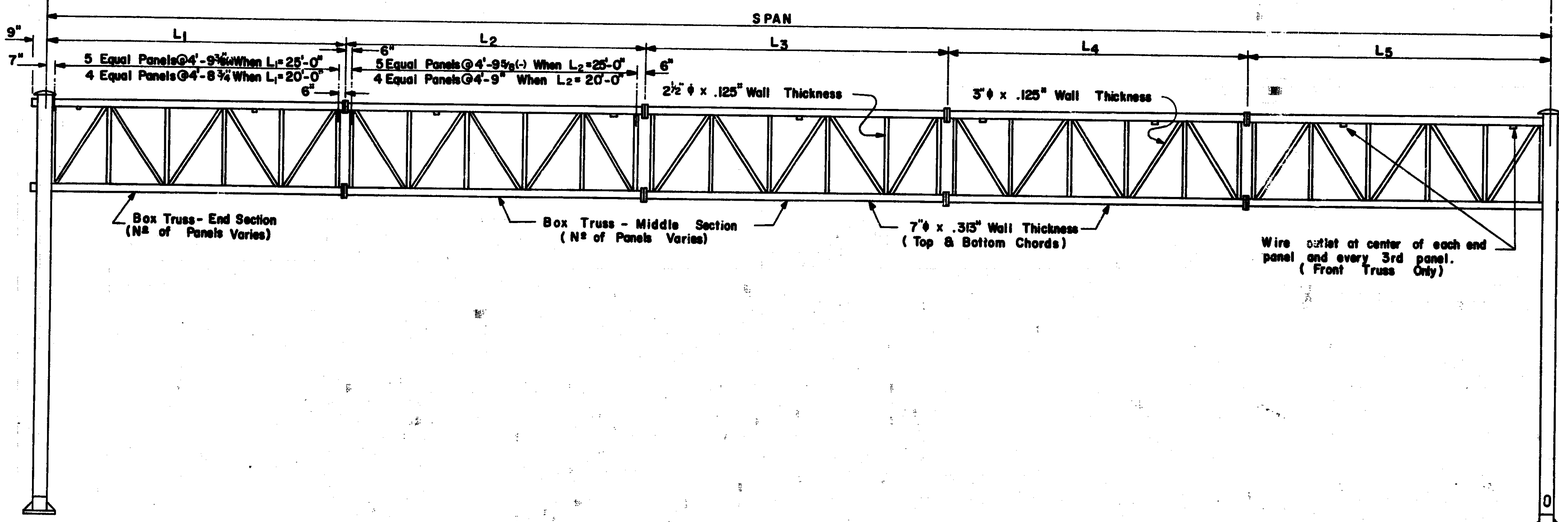
BOARD BASS	W DB	2-12-63
DRAWN BY	HBS	2-6-63
TRACED BY		
CHECKED BY	JDB	2-12-63
SHEET 4 OF 4		

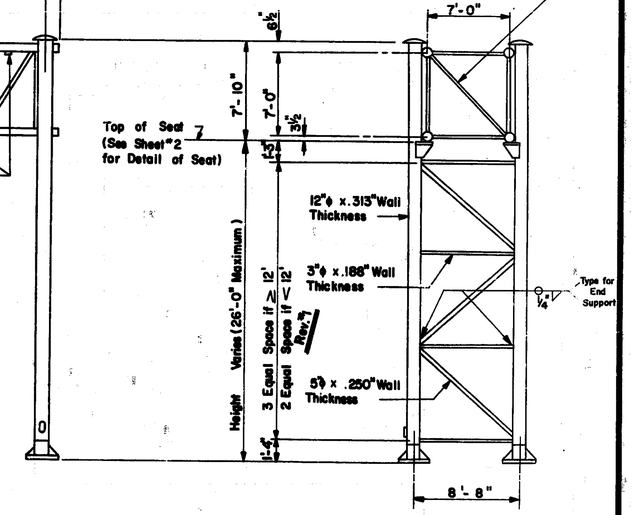
S 6.40



The end internal diagonal shall connect to the chord where the top horizontal diagonal connects to this chord as shown in plan and end elevation.

PLAN





ELEVATION
FACING TRAFFIC

END ELEVATION

* The internal diagonal shall be 4½"ϕ x .188" Wall thickness at panels adjacent to columns.

Truss Data						
SPAN	L_1	L_2	L_3	L_4	L_5	CAMBER
105'-0"	20'-0"	20'-0"	25'-0"	20'-0"	20'-0"	2 ¼"
110'-0"	20'-0"	25'-0"	20'-0"	25'-0"	20'-0"	2 ½"
115'-0"	20'-0"	25'-0"	25'-0"	25'-0"	20'-0"	2¾"
120'-0"	25'-0"	25'-0"	20'-0"	25'-0"	25'-0"	3 ⅛"
125'-0"	25'-0"	25'-0"	25'-0"	25'-0"	25'-0"	3⅜"

CAMBER: The camber given in the above table is the ordinate at the center of the assembled truss prior to dead load deflection. Allowable camber tolerance for truss is ± 25%.

NOTES:
All columns and chord members shall be aluminum alloy 6061-T6.
All web members shall be aluminum alloy 6063 T6.
Connections shall be welded with filler alloy 5356.
The design of this structure is based on the American Association of State Highway Officials Specifications for the Design and Construction of Structural Supports for Highway Sign (1961 Edition)

Max. projection of sign beyond chord is 6ft.
The design is based on a wind load of 35 p.s.f. on sign area.
All connecting bolts, nuts and washers shall be stainless steel AISI 300 series alloy. Bolts shall have a minimum yield strength of 30,000 PSI. Nuts shall be of the self locking type. See standard plan S9.10 for sign connection.
The cambering shall be provided in the fabrication so that the flanges are correctly sloped to assure obtaining full contact in the relaxed assembled position prior to snugging up the flange bolts. The flange bolts shall not be torqued in an attempt to close any flange misalignment. Truss shall not be lifted by the web member.

Rev #2
Rev #3

Work this sheet with sheets 2 & 3

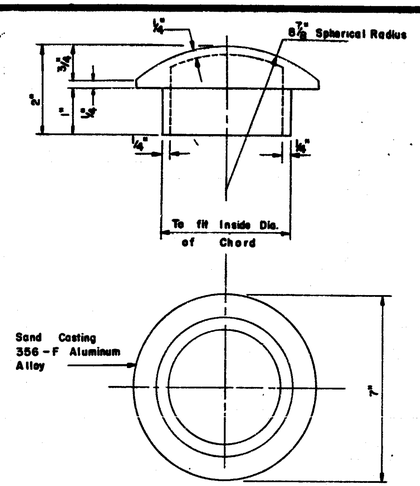
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ALUMINUM TRUSS
TYPE D

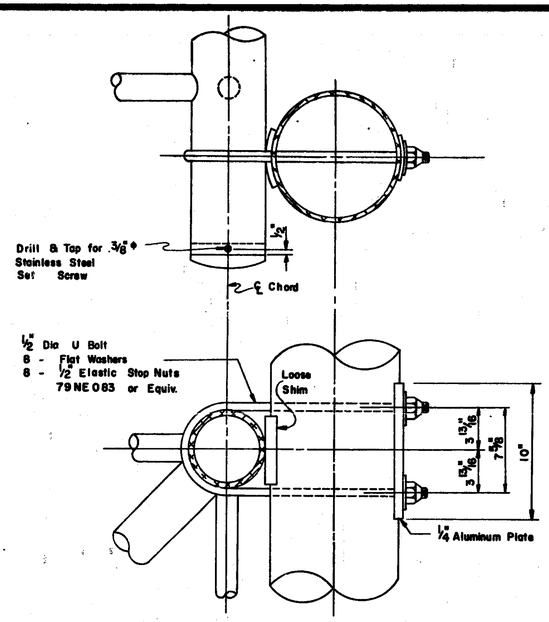
REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	Brace bolting added	7-7-67	TMW
2	Rivets added	3-18-70	WJH
3	SPEC CHANGED	8/70	JDB
4	NOTE # 3 REVISED	11-76	RJW

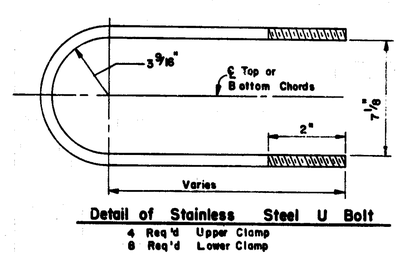
SQUAD BOSS	W. D. B.	2-7-67
DRAWN BY	J. D. B.	11-22-66
TRACED BY		
CHECKED BY	F. H.	1-31-67
SHEET 1 OF 3		

S6.50

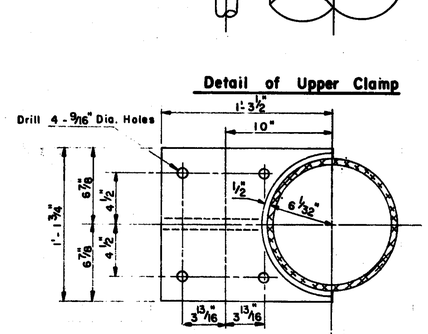


Detail of End Cap
For Horizonal members
8 Required

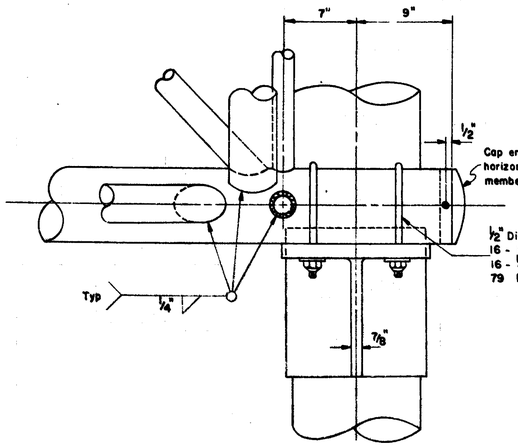


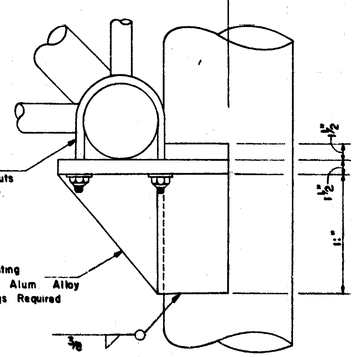


Detail of Stainless Steel U Bolt
4 Req'd Upper Clamp
8 Req'd Lower Clamp



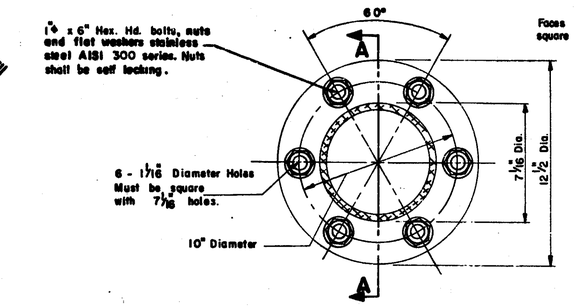
Detail of Upper Clamp

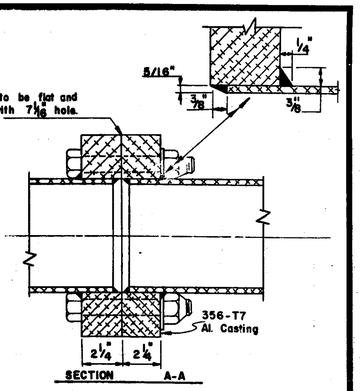




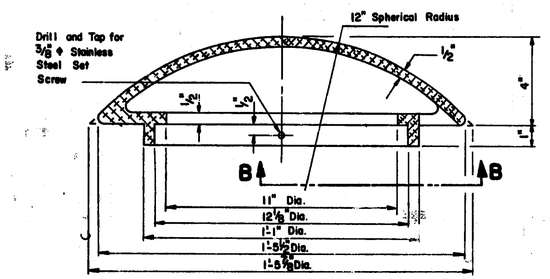
Detail of Seat

REV'D

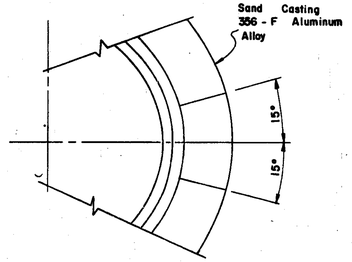




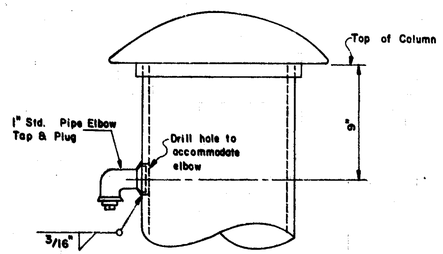
Detail of Chord Connection



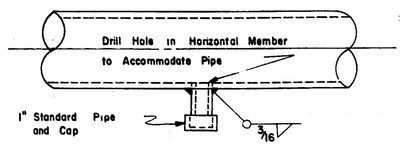
Detail of Pole Cap



View B-B



Detail of Electrical Outlet at Column



Detail of Electrical Outlet at Chord

Work the sheet with sheet 1*

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

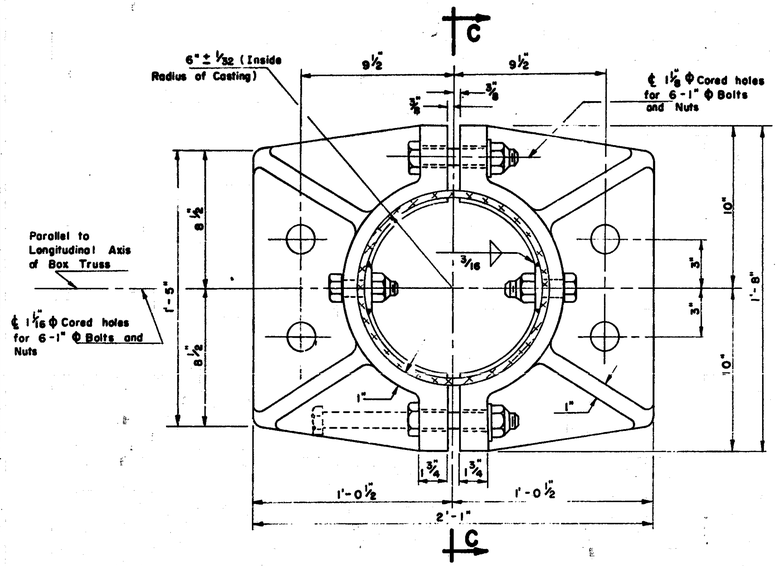
ALUMINUM TRUSS DETAILS

TYPE D

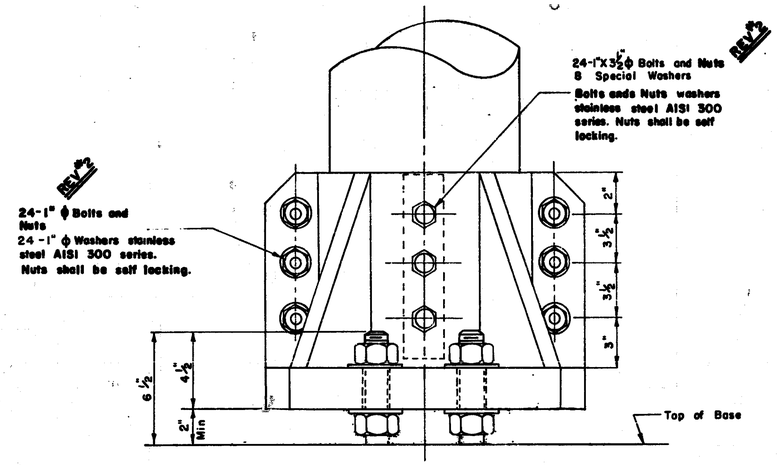
NO	REVISIONS DESCRIPTION	DATE	BY
1	CHANGE IN DETAIL OF CHORD CONNECTION	8/76	JDB
2	NOTE @ 1 Revised	11-76	RJM

SQUAD BOSS	W.D.B.	2-7-67
DRAWN BY	J.D.B.	11-29-66
TRACED BY		
CHECKED BY	F.H.	1-25-67
SHEET 2 OF 3		

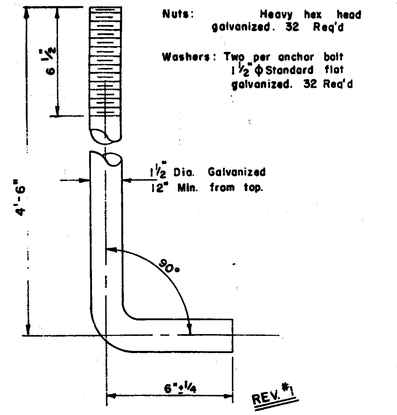
S6.60



Section D-D



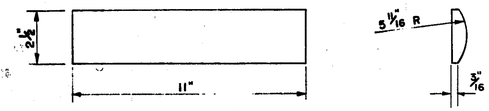
Side Elevation



Detail of Anchor Bolt

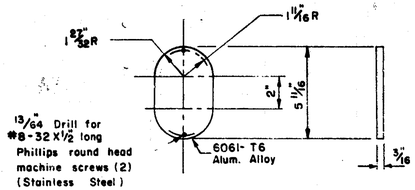
16 Required

Anchor Bolts are to be A 307 Steel With an Ultimate Strength of 65,000 P.S.I.



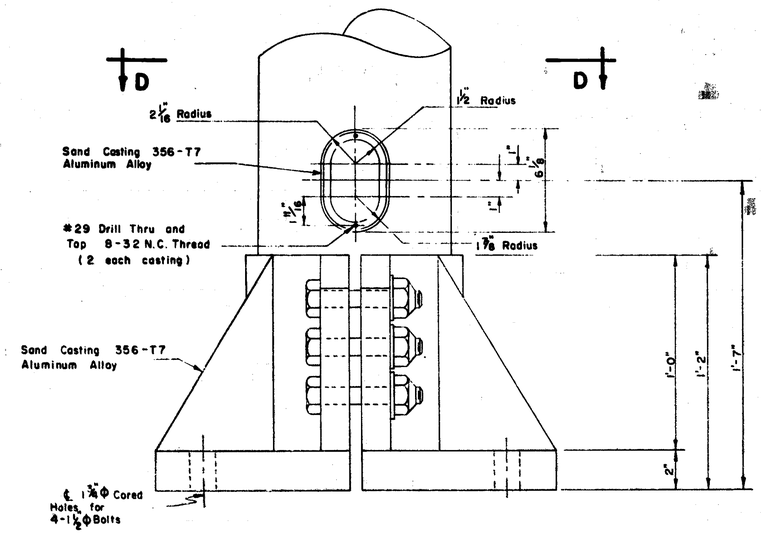
Detail of Special Washer

Washer to be welded to inside of column prior to drilling 13/16" holes through column and washer.

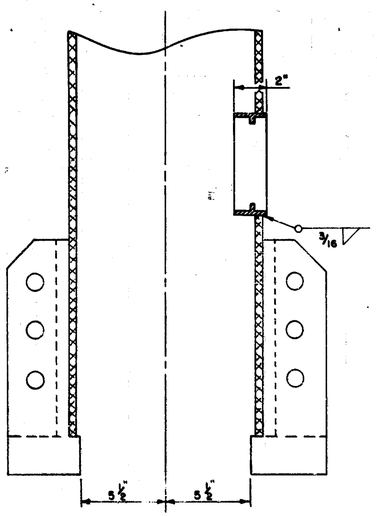


Hand Hole Unit Cover

2 Required



Front Elevation



Section C-C

Detail of Base and Hand Hole Units

2 Handhole units req'd - One each tower
4 Bases req'd - Complete

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ALUMINUM TRUSS DETAILS

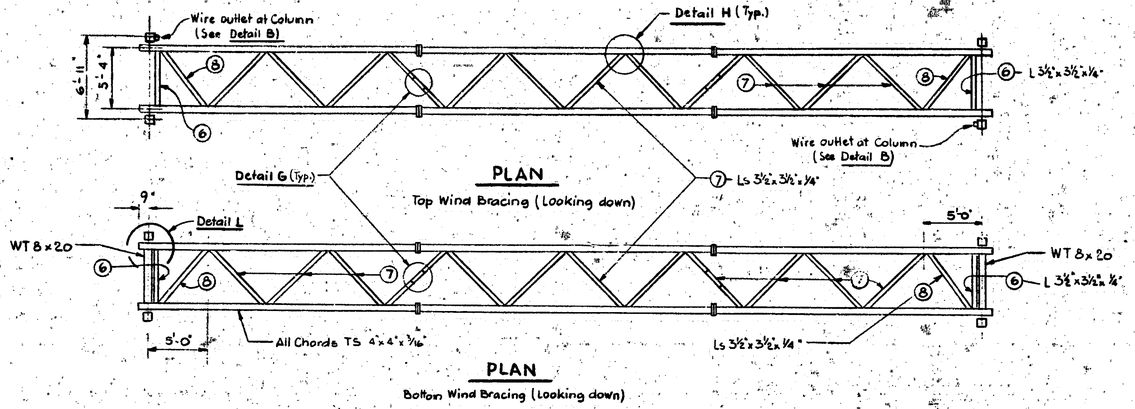
TYPE D

REVISIONS

NO	DESCRIPTION	DATE	BY
1	ANCHOR BOLT DETAIL REVISED	6/73	TMW
2	SPEC CHANGED	8/76	JDB
3	NOTE # 2 REVISED	11 76	RJM

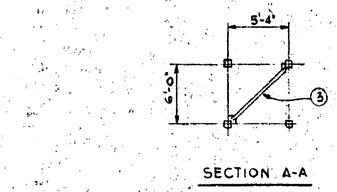
SQUAD BOSS	W.D.B.	2-7-67
DRAWN BY	J.D.B.	11-29-66
TRACED BY		
CHECKED BY	F.H.	1-31-67
SHEET	3 OF 3	

S 6.70

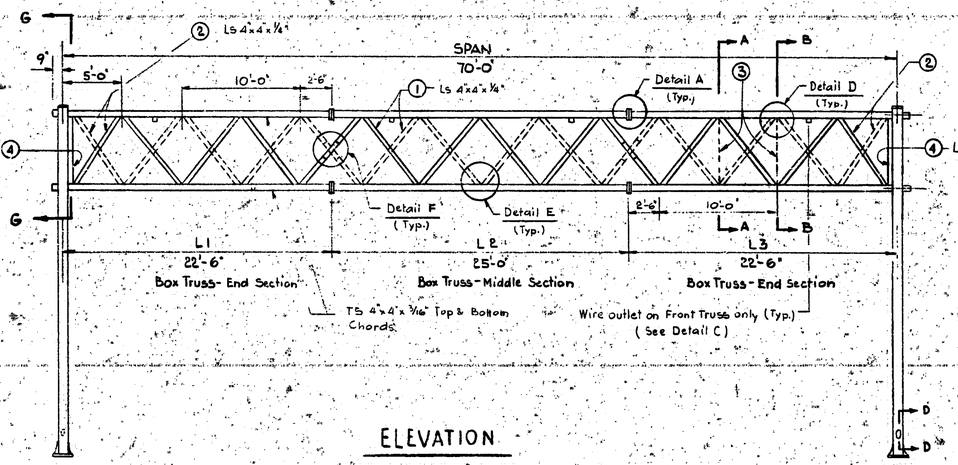


PLAN

Bottom Wind Bracing (Looking down)

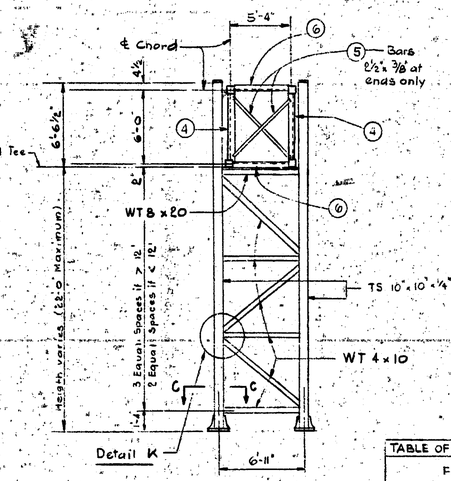


SECTION B-B



ELEVATION

Facing Traffic



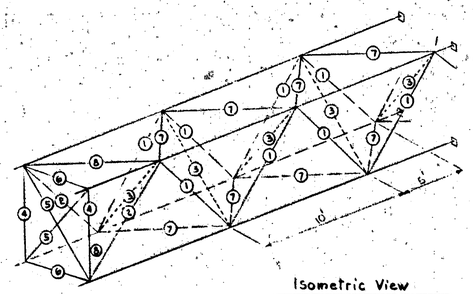
END ELEVATION

TRUSS DATA - A 588 STEEL						Approx. Weight of Truss. Lbs/Ft.
SPAN	L1	L2	L3	CAMBER	BOX TRUSS	
50'-0"	17'-6"	15'-0"	17'-6"	5/8"	6'-0" x 5'-4"	82
55'-0"	17'-6"	20'-0"	17'-6"	3/4"	6'-0" x 5'-4"	
60'-0"	22'-6"	15'-0"	22'-6"	7/8"	6'-0" x 5'-4"	
65'-0"	22'-6"	20'-0"	22'-6"	1"	6'-0" x 5'-4"	
70'-0"	22'-6"	25'-0"	22'-6"	1⅛"	6'-0" x 5'-4"	82

CAMBER: The camber given in the above table is the ordinate at the center of the assembled truss prior to dead load deflection. Allowable camber tolerance for truss is ±5%.

NOTES

- The design of this structure is based on the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals (1975 Edition)
- Sign area = 500 Sq.Ft. maximum. Maximum projection of sign beyond chord is 6 Ft.
- Design is based on a wind load of 35 p.s.f. on sign area.
- All square tubes, angles, plates, bars, and WT shapes shall be ASTM A-588 Structural steel. All connection bolts, except U-bolts, anchor bolts, and bolts used in the upper clamp connection, shall conform to ASTM A-325, Type 3. U-bolts and bolts in the upper clamp connection and washers shall conform to ASTM A-307 Grade A.
- Welding shall conform to the requirements as specified under Structural Steel Construction, S.04 of the Standard Specifications for Highway Construction 1976.
- Bolts, U-bolts, nuts & washers shall be zinc coated in conformance with the requirements of ASTM A-153.
- The camber-ing shall be provided in the fabrication so that the flanges are correctly sloped to assure obtaining full contact in the relaxed assembled position prior to snugging up the flange bolts. The flange bolts shall not be torqued in an attempt to close any flange misalignment. Trusses shall not be lifted by the web members.
- See Standard Plan S 9.10 for sign connection.



Isometric View

Showing end Section of Truss

TABLE OF SECTIONS & DETAILS SHOWN ON SH. 5&7		
For	See	
Section C-C	Type D	sheet 7
Section D-D		
Hand Hole Cover		
Detail of Anchor Bolts		
Front Elevation of Base		
Base-Leveling Nuts		
Detail B		
Detail C	Type D	sheet 7
Detail G	Type C	sheet 5
Detail R	Type D	sheet 7

Work this sheet with sheets 2, 3 & 7

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS

TYPE C (70 Ft.)

A-588 STEEL

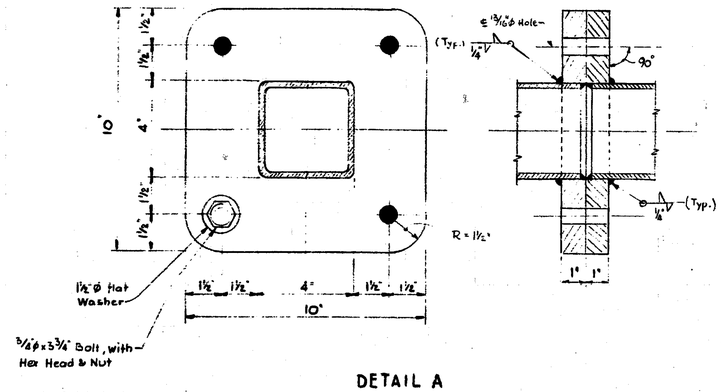
REVISIONS		
NO.	DESCRIPTION	DATE BY

DESIGNED BY	Sutton	2-16-77
DRAWN BY	P R N	12-23-76
TRACED BY		
CHECKED BY	J M	1-17-77

SHEET 1 OF 5

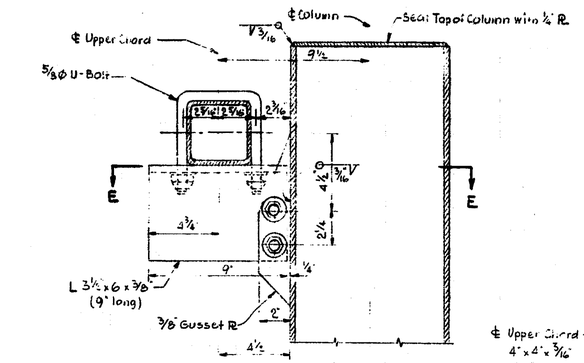
S 7.10

CS 63174 JOB NO 148241 SHEET NO 64

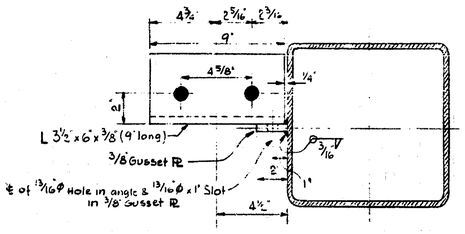


DETAIL A

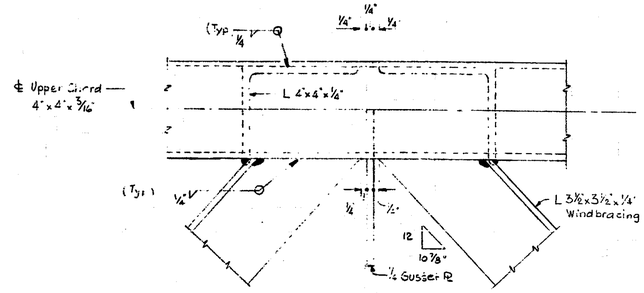
Chord Connection Details



DETAIL OF UPPER CLAMP



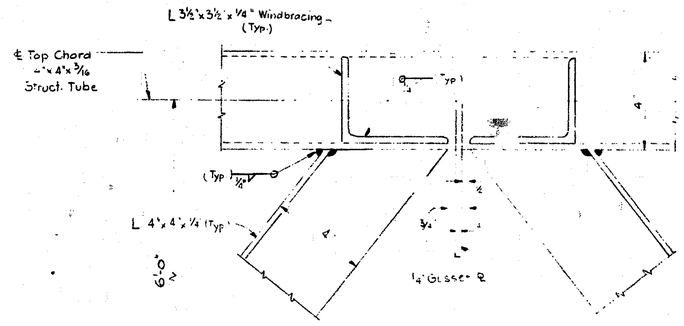
SECTION E-E



DETAIL H

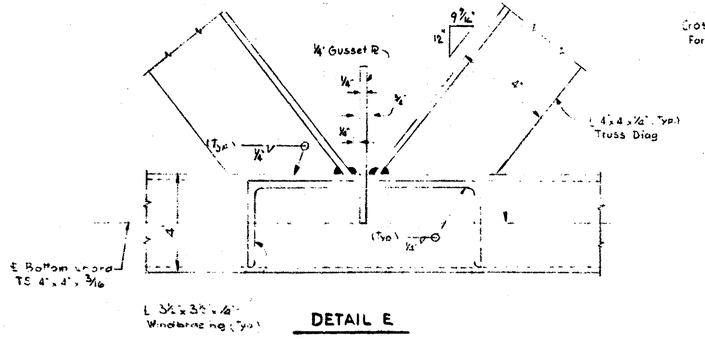
View of top windbracing looking from the top down.

Note. The slope shown is typical only in the interior bays. It is different in the end bays due to the horizontal end column.

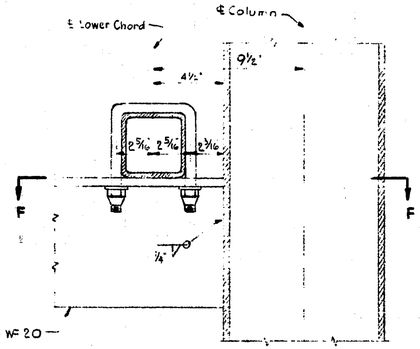


DETAIL D

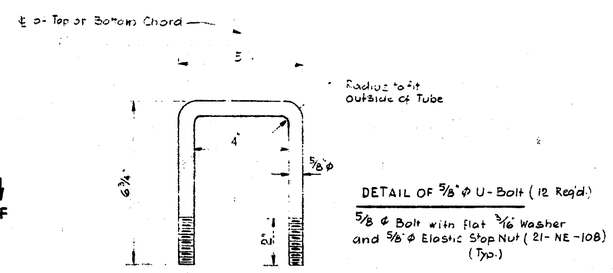
Crossbracing angle not shown
For Crossbracing see Detail M



DETAIL E

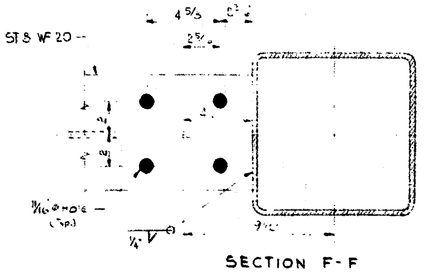


DETAIL OF SEAT



DETAIL OF 5/8"ϕ U-Bolt (12 Req'd.)

5/8"ϕ Bolt with flat 3/16" Washer and 5/8"ϕ Elastic Stop Nut (21-NE-108) (Typ.)



SECTION F-F

Work this Sheet with Sheets 1 & 3

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS

TYPE C (70 ft.)

A-588 Steel

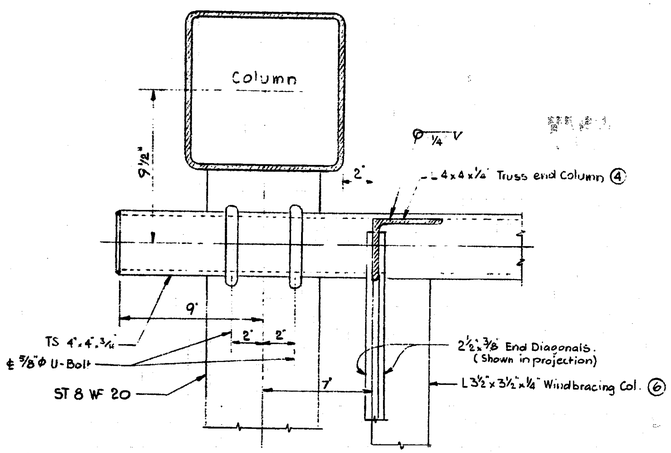
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DRAWN BY	Burton	2-16-77
TRACED BY	M.R.H.	12-27-76
CHECKED BY	R.N.	2-17-77
SHEET	S OF 8	

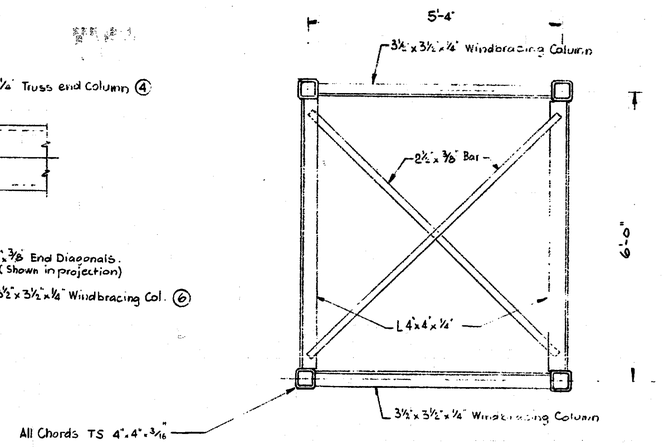
S 72.

CS [illegible] JOB NO. [illegible]

SHEET NO. 65

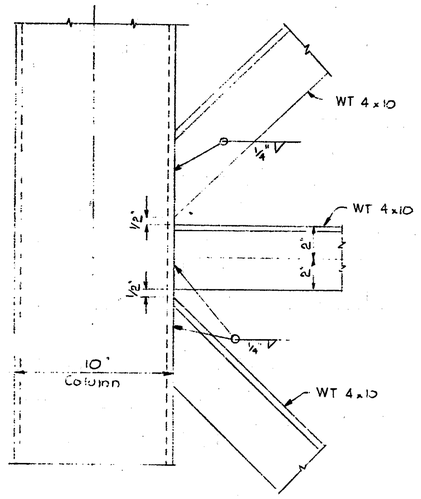


DETAIL L

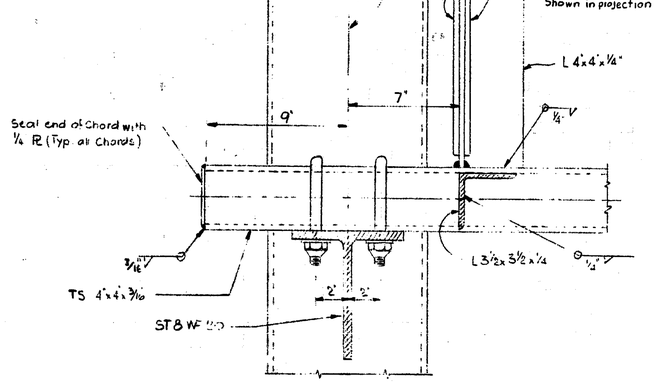


SECTION G-G

View of end crossframe looking from inside the truss outside.



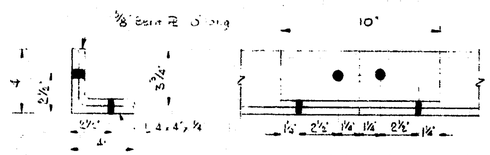
DETAIL K



ELEVATION

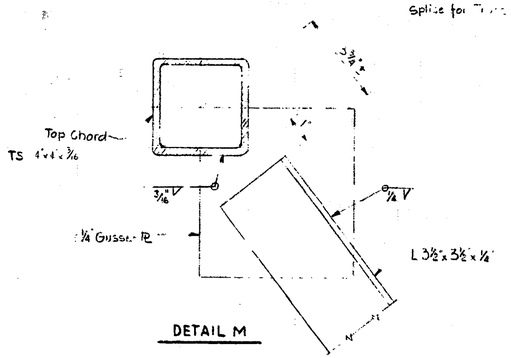
End connection and end frame details

Note: All bolt holes are 13/16"Ø (Typ.) except as noted.



DETAIL F

Splice for Truss Diagonal



DETAIL M

Work this Sheet with Sheet 1 & 2

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS

TYPE C

A-588 STEEL

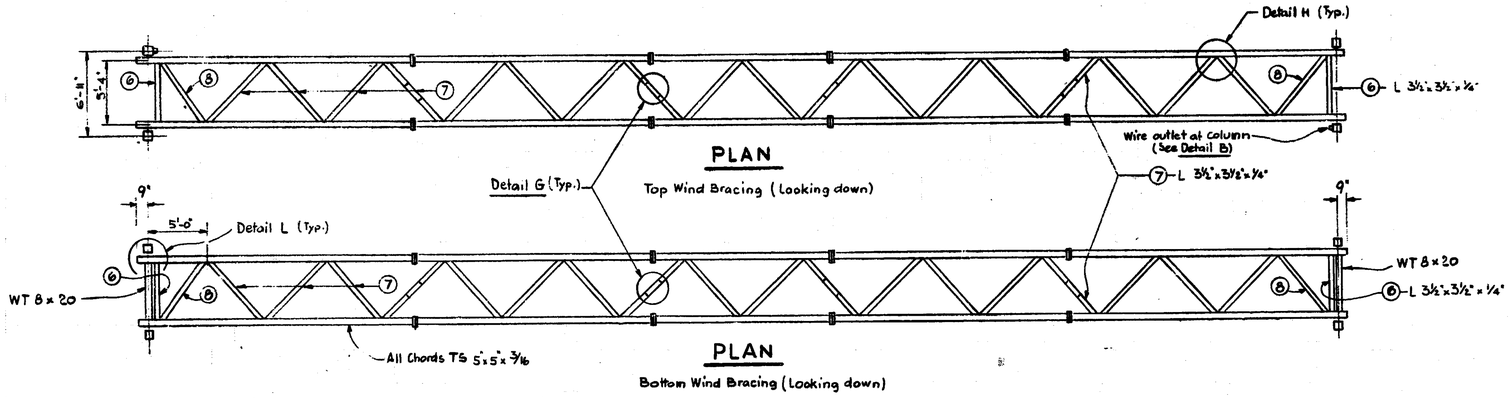
REVISIONS			
NO	DESCRIPTION	DATE	BY

ROAD DESIGN	B. Hen	11
DRAWN BY	S E N	
TRACED BY		
CHECKED BY		7-27-77
SHEET 3	OF 3	

S T R

CS 7 31 . J F N 1 - 2 A

SHEET NO 66

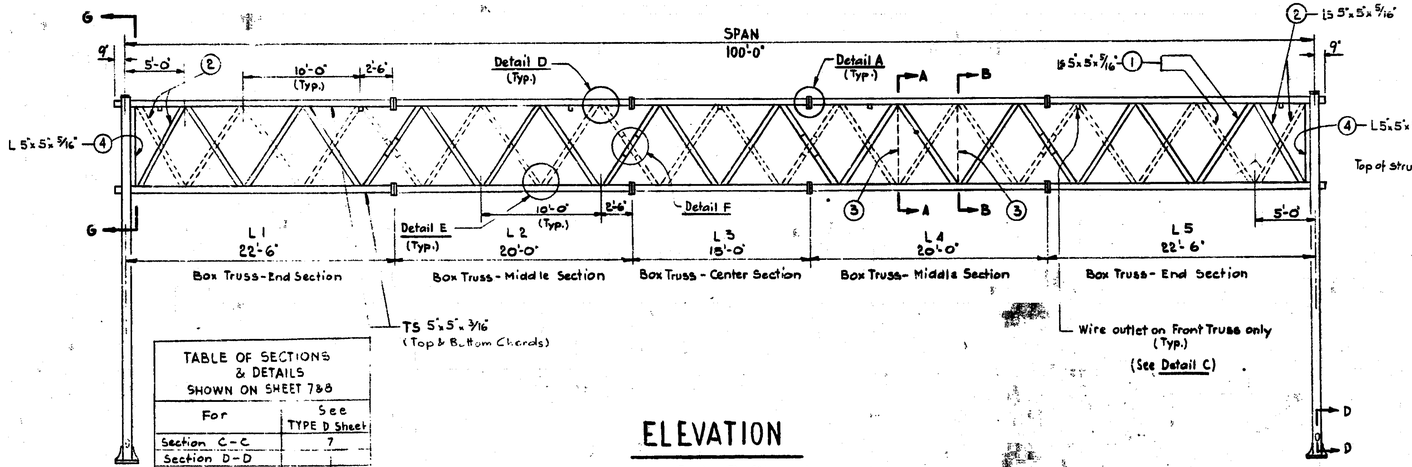


PLAN

Top Wind Bracing (Looking down)

PLAN

Bottom Wind Bracing (Looking down)



ELEVATION

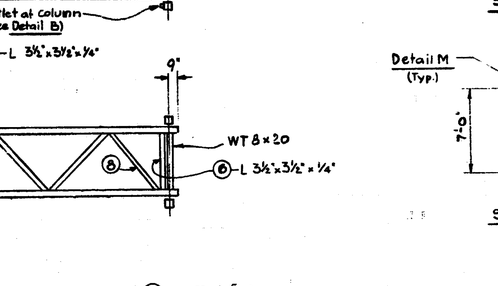
Facing Traffic

TABLE OF SECTIONS & DETAILS SHOWN ON SHEET 7&8	
For	See TYPE D Sheet
Section C-C	7
Section D-D	
Hand Hole Cover	
Anchor Bolts	
Front Elev. of Base	
Base-Leveling Nuts	
Detail A	
Detail B	
Detail C	7
Detail E	8
Detail K	8
Detail R	7

TRUSS DATA - A-588 Steel								APROX. WEIGHT OF TRUSS lbs./ft.
SPAN	L1	L2	L3	L4	L5	CAMBER	Box Truss	
75'-0"	12'-6"	5-0	20'-0"	15'-0"	12'-6"	1⅛"	7'-0" x 5'-4"	108
80'-0"	17'-6"	15'-0"	15'-0"	15'-0"	17'-6"	1¼"	7'-0" x 5'-4"	
85'-0"	17'-6"	15'-0"	20'-0"	15'-0"	17'-6"	1⅜"	7'-0" x 5'-4"	
90'-0"	22'-6"	15-0"	15'-0"	15'-0"	22'-6"	1⅝"	7'-0" x 5'-4"	
95'-0"	17'-6"	20'-0"	20'-0"	20'-0"	17'-6"	1¾"	7'-0" x 5'-4"	
100'-0"	22'-6"	20'-0"	15'-0"	20'-0"	22'-6"	2"	7'-0" x 5'-4"	108

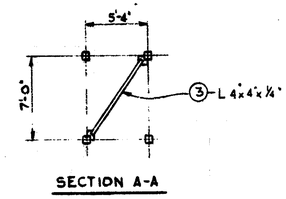
CAMBER The camber given in the above table is the ordinate at the center of the assembled truss prior to dead load deflection Allowable camber tolerance for truss is 25%.

For Notes See Sheet No 1

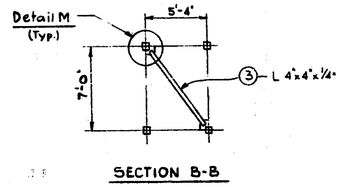


Isometric View

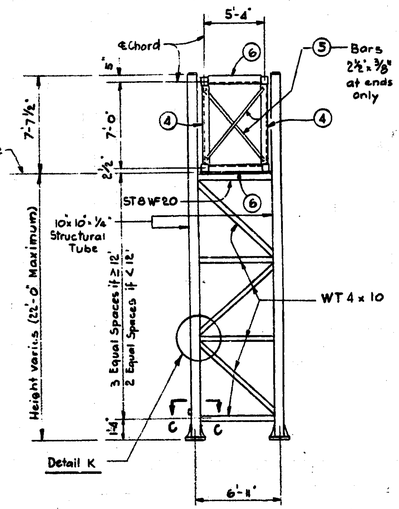
Showing end Section of Truss



SECTION A-A



SECTION B-B



END ELEVATION

Work this Sheet with Sheets # 1 & 8

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS

TYPE C (100 Ft.)

A-588 STEEL

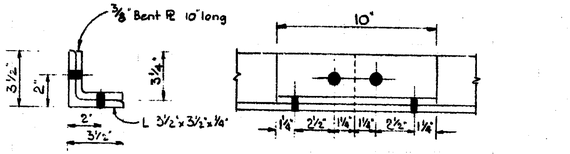
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DRAWN BY	Sullen	2-16-77
CHECKED BY	P R N	12-15-76
TRACED BY		
PROOFED BY	F H	1-10-77
SHEET	4 OF 18	

S 7...

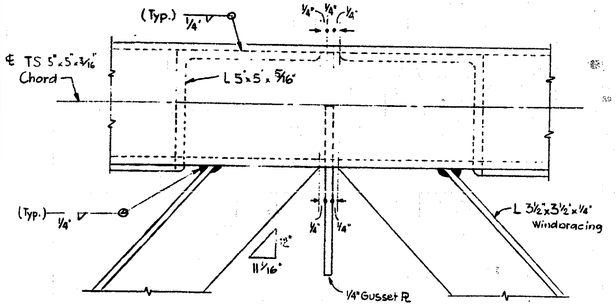
CS 63174 JOB NO 1482-A

SHEET NO 67



DETAIL G

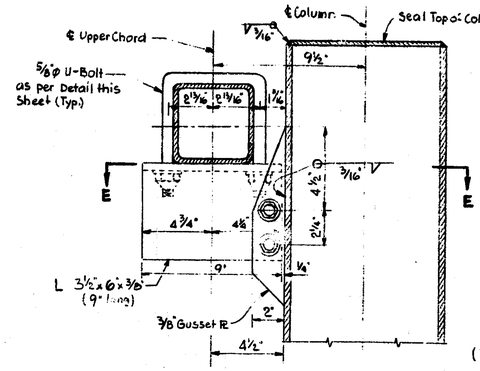
Splice for Windbracing Diag.
All holes 15/16"ϕ for Splices only.



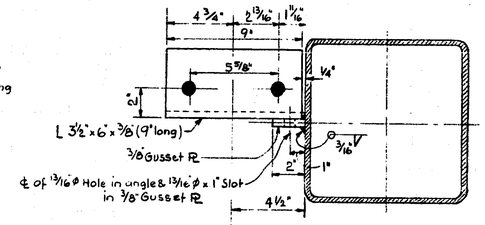
DETAIL H

View of top windbracing looking from the top down.

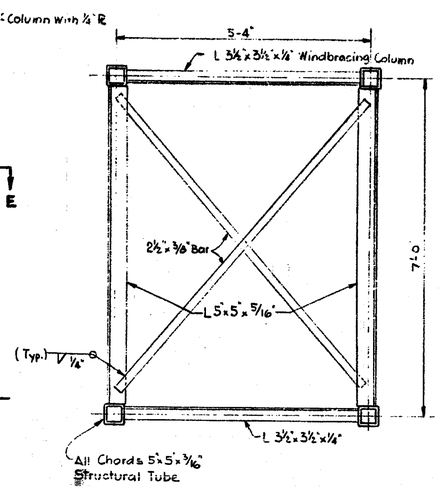
Note: The angle shown is typical only in the interior bays. It is different in the end bays due to the horizontal end column.



DETAIL OF UPPER CLAMP

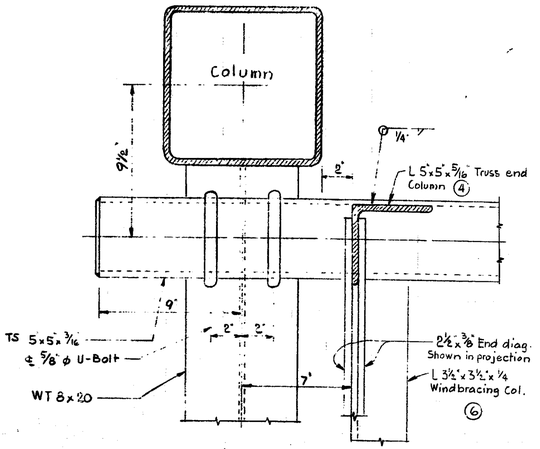


SECTION E-E

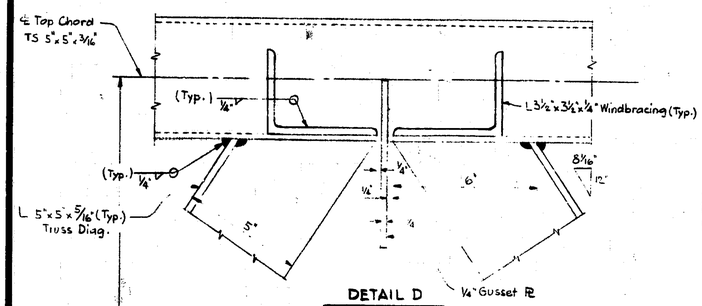


SECTION G-G

View of end crossframe looking from inside of the truss outside

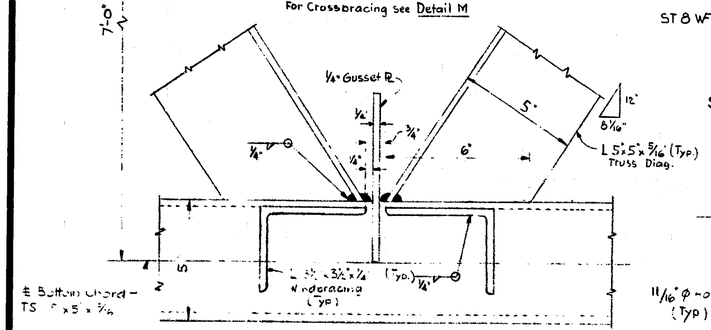


DETAIL L

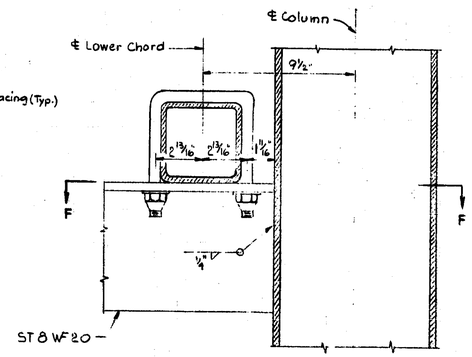


DETAIL D

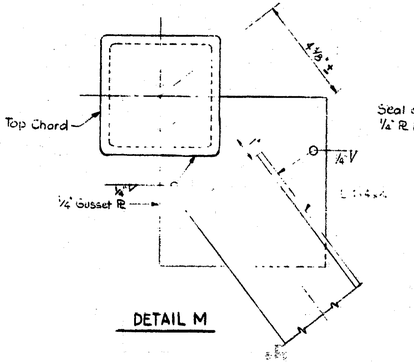
Crossbracing angle not shown
For Crossbracing see Detail M



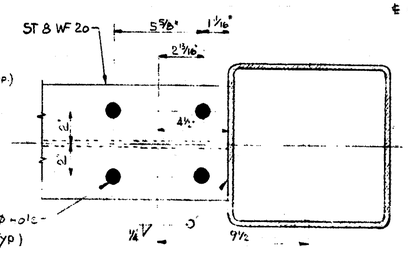
DETAIL E



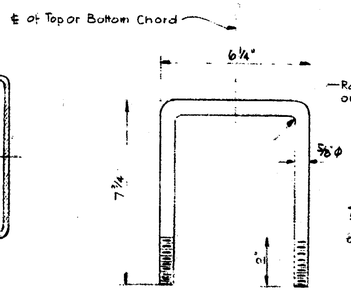
DETAIL OF SEAT



DETAIL M

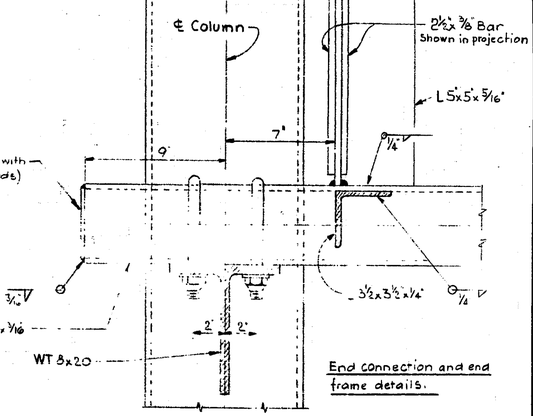


SECTION F-F



DETAIL OF 5/8"ϕ U-Bolt (12 Reqd.)

5/8"ϕ Bolt with Dia. 3/16" Washer and 5/8"ϕ Elastic Stop Nut (21-NE-108) (Typ.)



End connection and end frame details.

ELEVATION

NOTE All bolt holes are 13/16"ϕ (Typ.) except as noted.

Work this sheet with sheet # 1

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS

TYPE C

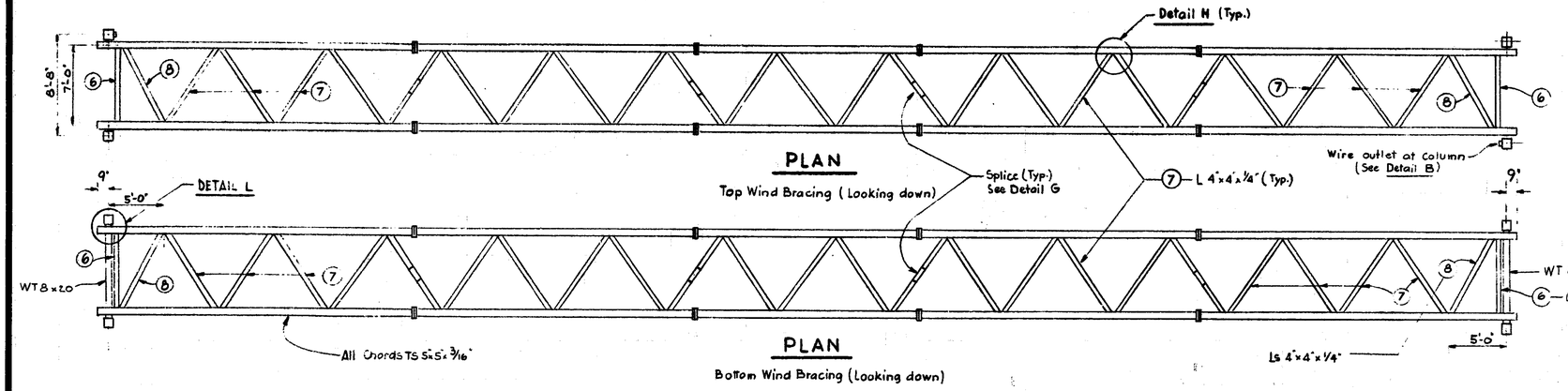
A-588 STEEL

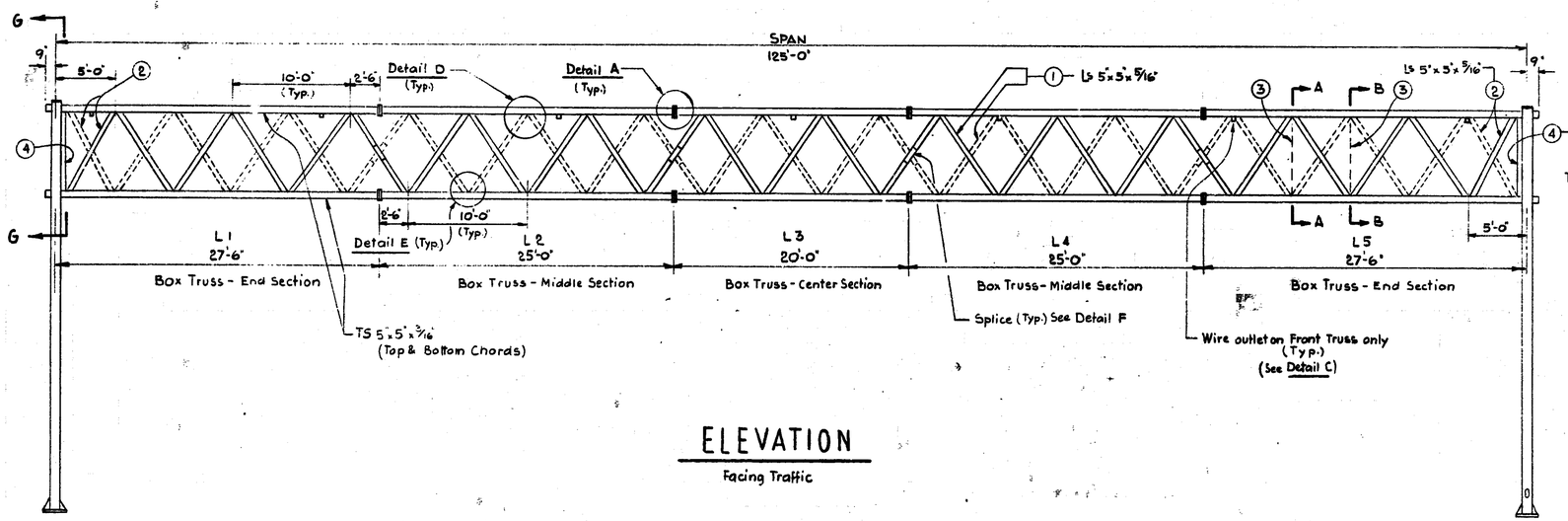
REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD DESIGN	Bullen	2-14-77
DRAWN BY	PRN	12-28-76
TRACED BY		
CHECKED BY	FH	1-13-77
SHEET	5 OF	3

S 7

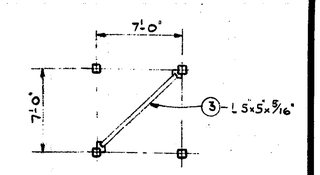
CS 8317 JOB NO 142284A SHEET NO 68



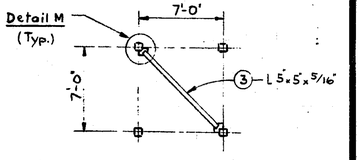


ELEVATION

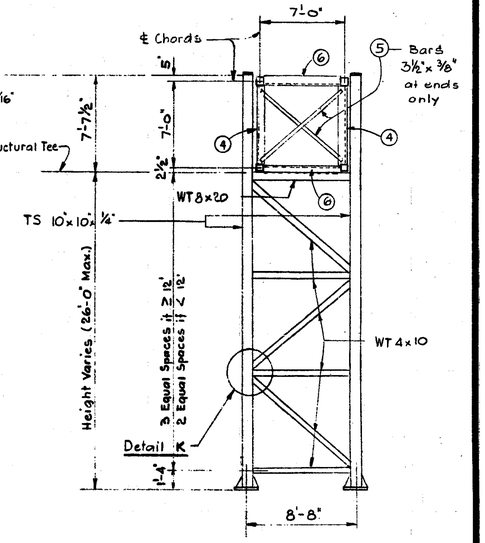
Facing Traffic



SECTION A-A



SECTION B-B



END ELEVATION

For Notes see Sheet No 1

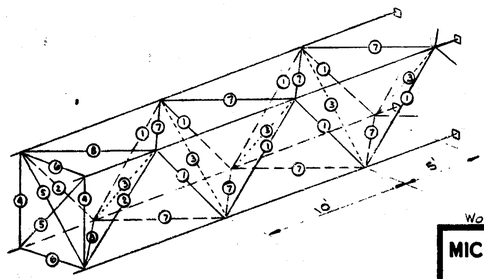
TRUSS DATA - A-588 Steel								APPROX. WEIGHT OF TRUSS lbs/ft.
SPAN	L1	L2	L3	L4	L5	CAMBER	Box TRUSS	
105'-0"	22'-6"	20'-0	20'-0	20'-0	22'-6"	2⅛"	7'-0"x 7'-0"	123
110'-0"	22'-6"	20'-0"	25'-0	20'-0	22'-6"	2½	7'-0"x 7'-0"	
115'-0"	22'-6"	25'-0"	20'-0	25'-0	22'-6	2⅞	7'-0"x 7'-0"	
120'-0"	27'-6"	20'-0"	25'-0"	20'-0	27'-6"	3"	7'-0"x 7'-0"	
125'-0"	27'-6"	25'-0"	20'-0"	25'-0	27'-6	3¼	7'-0"x 7'-0"	123

CAMBER The camber given in the above table is the Ordinate at the center of the assembled truss prior to dead load deflection. Allowable camber tolerance for truss is 25%

ADDITIONAL NOTES

(Type D only)

For proper damping characteristics the Minimum size of sign for this structure is 6'x12'.



Isometric View

Showing end Section of Truss

Work this sheet with sheets # 1, 7 & 8

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS

— TYPE D (125 Ft.)

A-588 STEEL

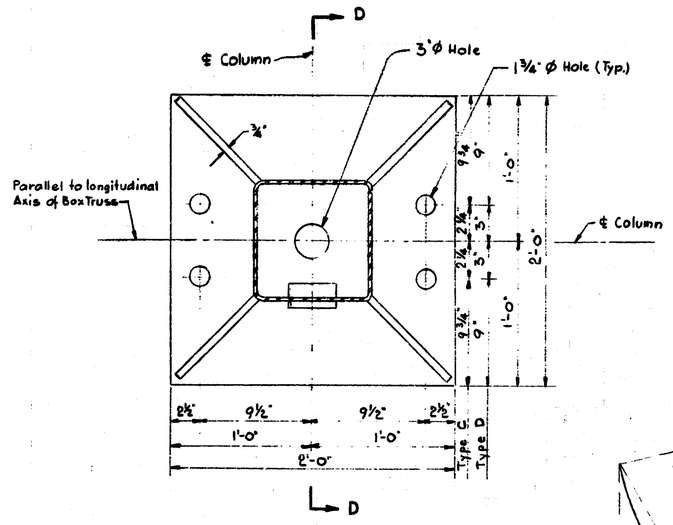
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD CHIEF	Bullen	3-16-77
DRAWN BY	P R N	10-26-76
TRACED BY		
CHECKED BY	FH	11-5-77
SHEET 6 OF 8		

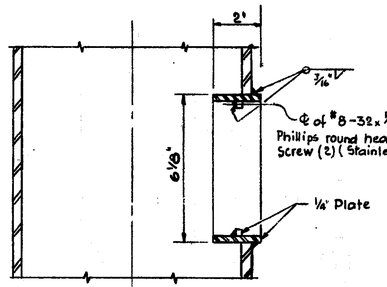
S 7.EC

CS 63174 Job No 14824A

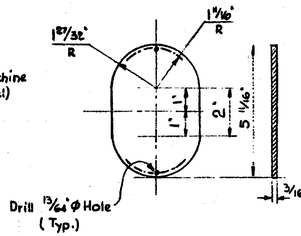
SHEET NO 69



SECTION C-C

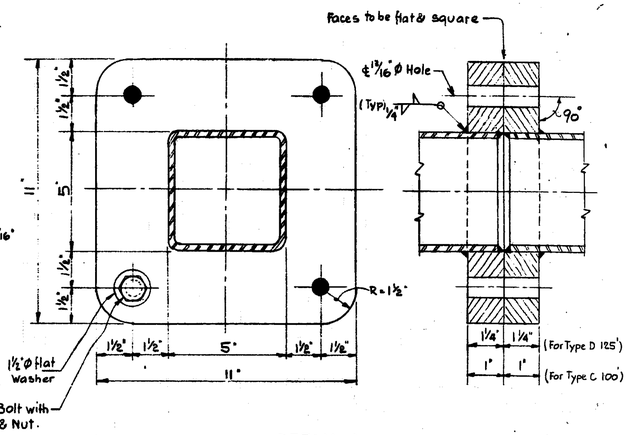


SECTION D-D



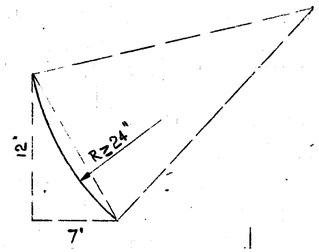
HAND HOLE COVER

2 Req'd. per Truss

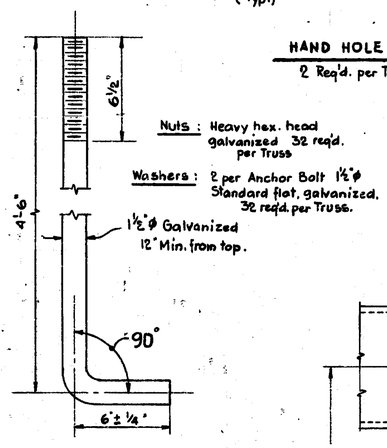


DETAIL A

Chord Connection Details



DETAIL R

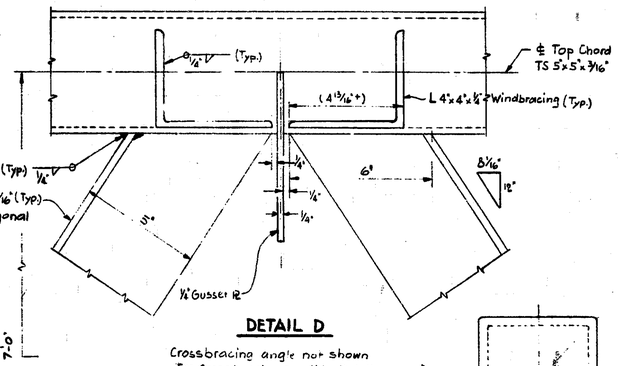


Nuts : Heavy hex. head galvanized 32 req'd. per Truss

Washers : 2 per Anchor Bolt 1½"ϕ Standard flat, galvanized, 32 req'd. per Truss.

DETAIL OF ANCHOR BOLT (16 Req'd.)

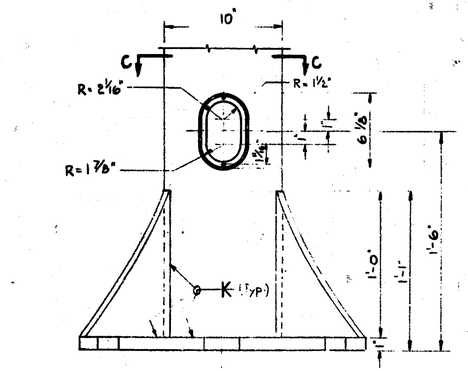
Anchor Bolts shall be in accordance with Art. 8.07.14 of the Std. Spec.



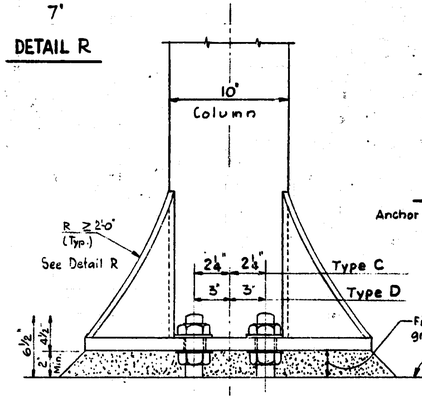
DETAIL D

Crossbracing angle not shown

For Crossbracing see this Detail



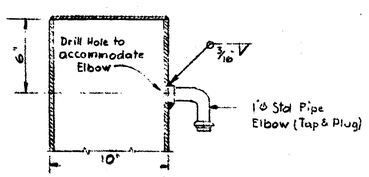
FRONT ELEVATION



DETAIL OF BASE-LEVELING NUTS

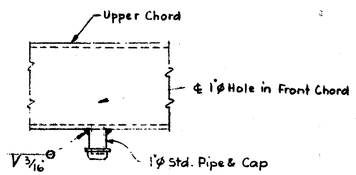
NOTE

All bolts holes are 13/16"ϕ (Typ)



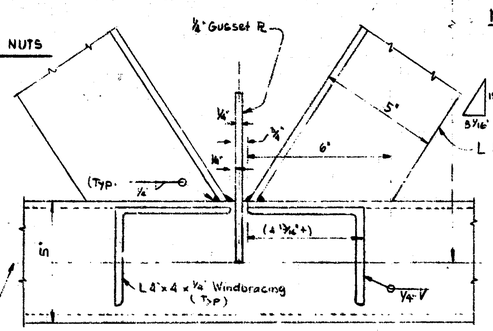
DETAIL B

Detail of electrical outlet at Column

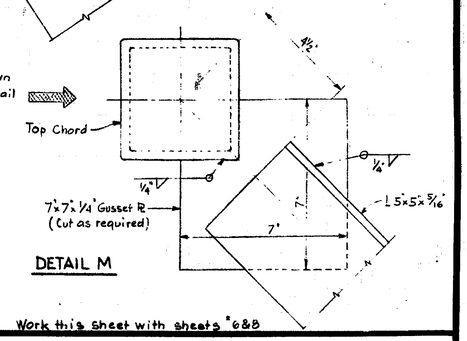


DETAIL C

Detail of electrical Outlet at upper Chord only



DETAIL E



DETAIL M

Work this sheet with sheets 6&8

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS

TYPE D (125 Ft.)

A-588 STEEL

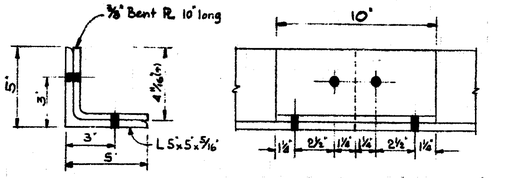
REVISIONS			
NO.	DESCRIPTION	DATE	BY
C	Anchor Bolt Spacing	6-24-77	WDB

BRIDGE DESIGN	Bullen	2-14-77
DRAWN BY	PRN	10-21-76
TRACED BY		
CHECKED BY	FH	1-5-77
SHEET 7 OF 8		

S 7.70

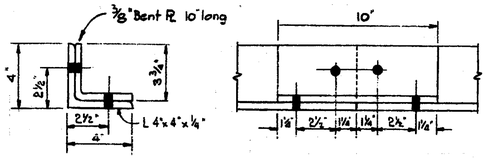
CS 63174 Job No. 14824A

SHEET NO. 70



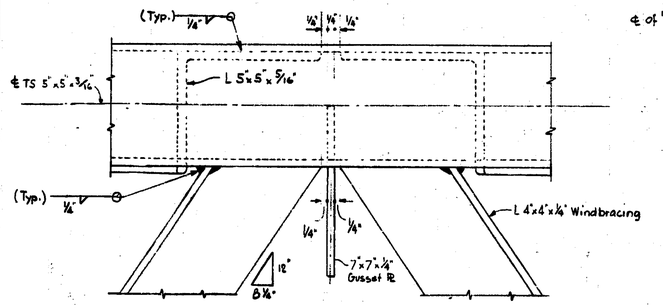
DETAIL F

Splice for Truss Web Member
All holes 15/16"ϕ for splice only.



DETAIL G

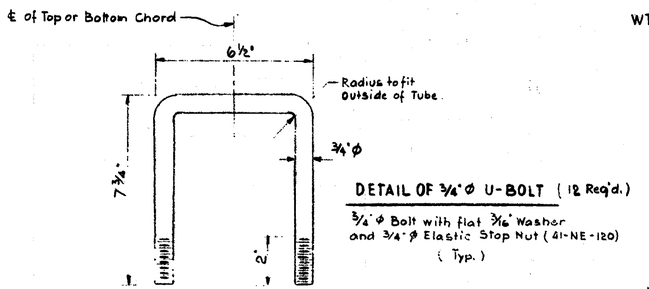
Splice for Windbracing Diag.
All holes 15/16"ϕ for splice only.



DETAIL H

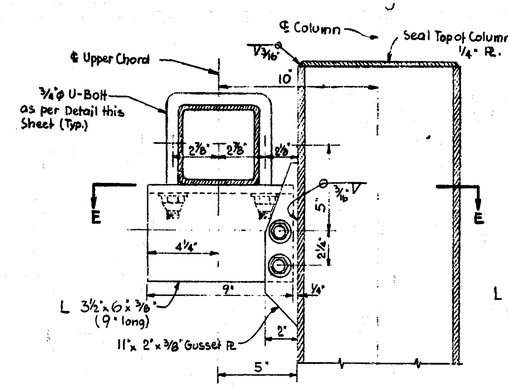
View of top windbracing looking from the top down.

Note: The angle shown is typical only in the interior bays. It is different in the end bays due to the horizontal end column.

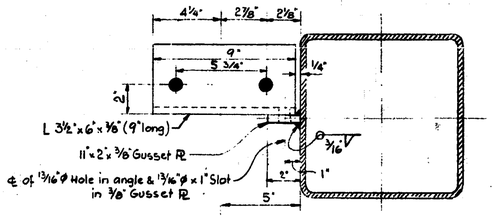


DETAIL OF ¾"ϕ U-BOLT (12 Req'd.)

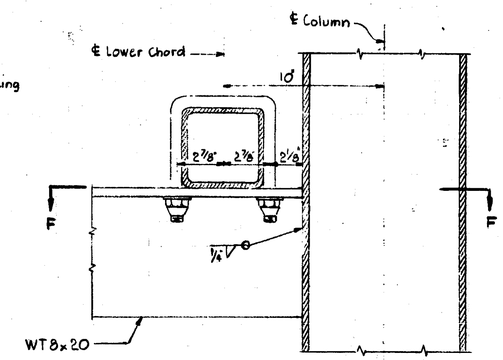
¾"ϕ Bolt with flat 3/16" Washer and ¾"ϕ Elastic Stop Nut (41-NE-120) (Typ.)



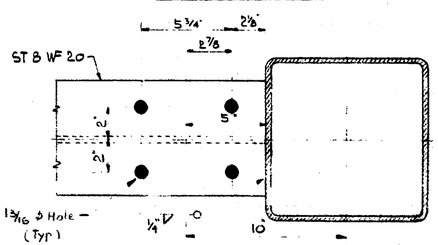
DETAIL OF UPPER CLAMP



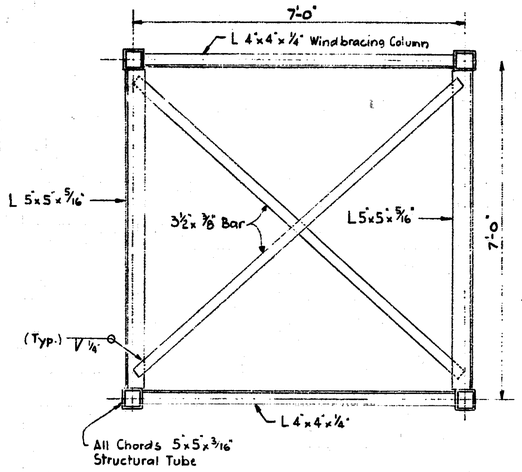
SECTION E-E



DETAIL OF SEAT

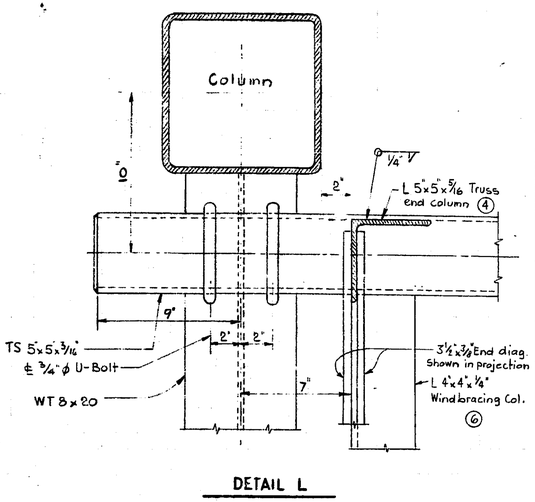


SECTION F-F

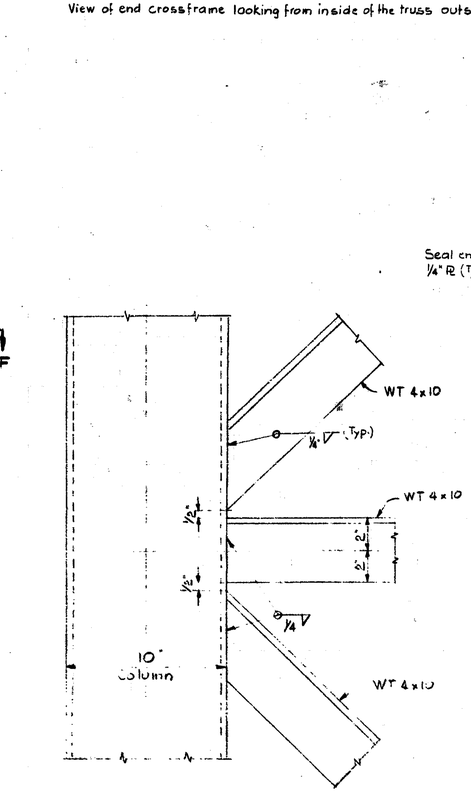


SECTION G-G

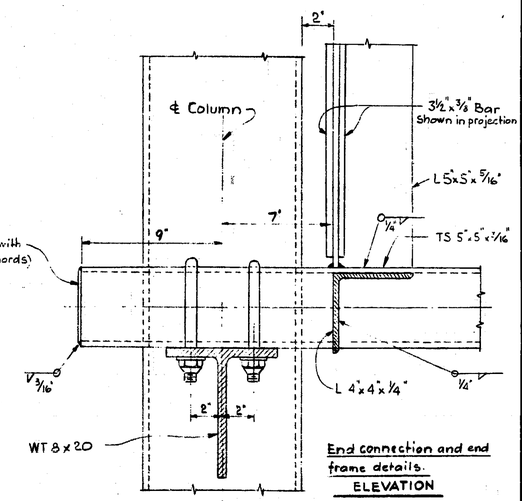
View of end crossframe looking from inside of the truss outside



DETAIL L



DETAIL K



End connection and end frame details.
ELEVATION

NOTE All bolt holes are 13/16"ϕ (Typ.)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS

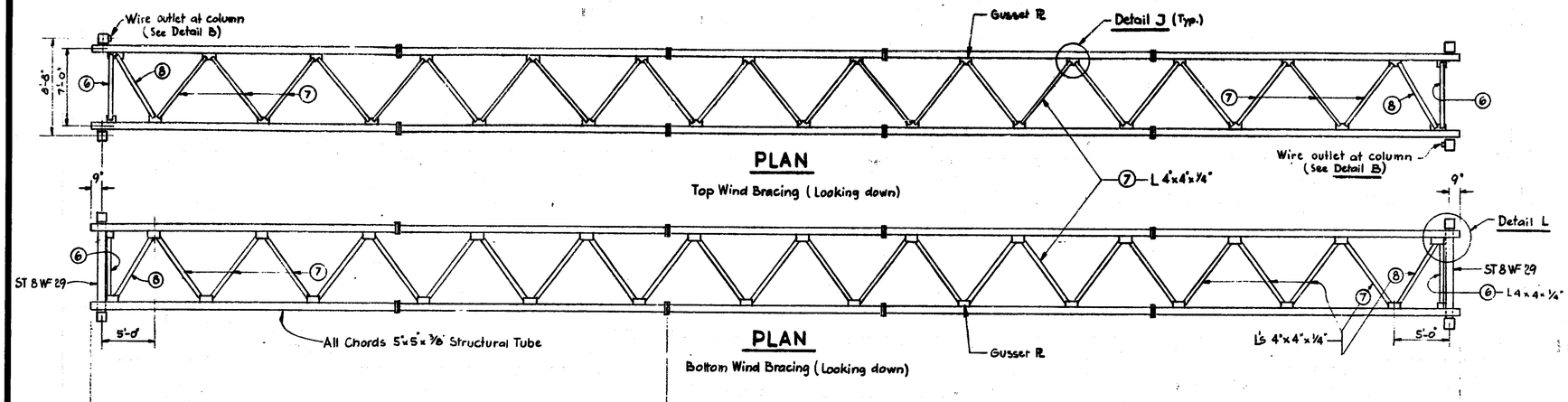
TYPE D (125 ft.)
A-588 STEEL

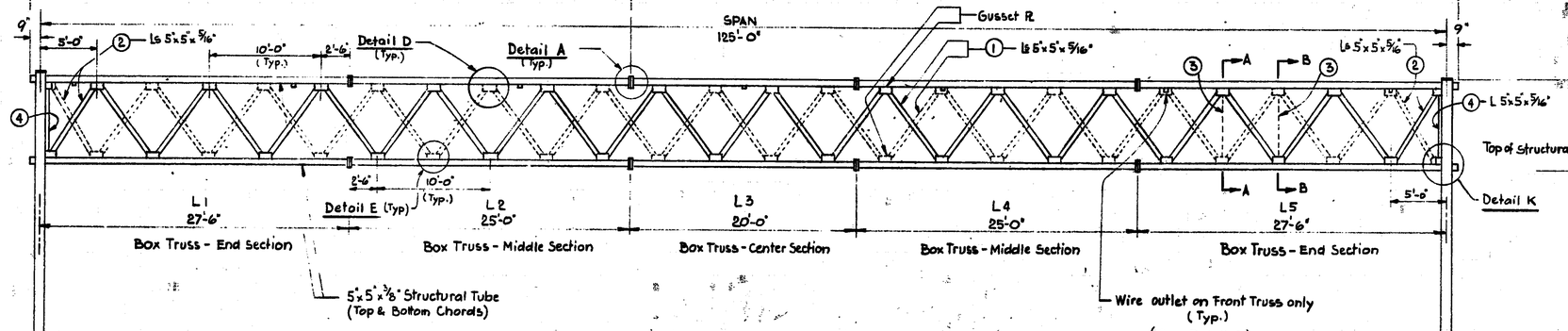
REVISIONS			
NO.	DESCRIPTION	DATE	BY

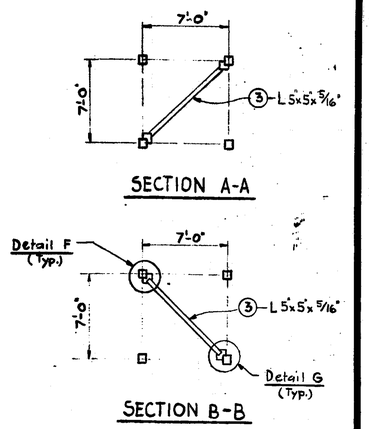
BRIDGE ENGR	Bullen	2-16-77
DRAWN BY	SRN	11-1-76
TRACED BY		
CHECKED BY	FH	1-3-77
SHEET	3 OF	5

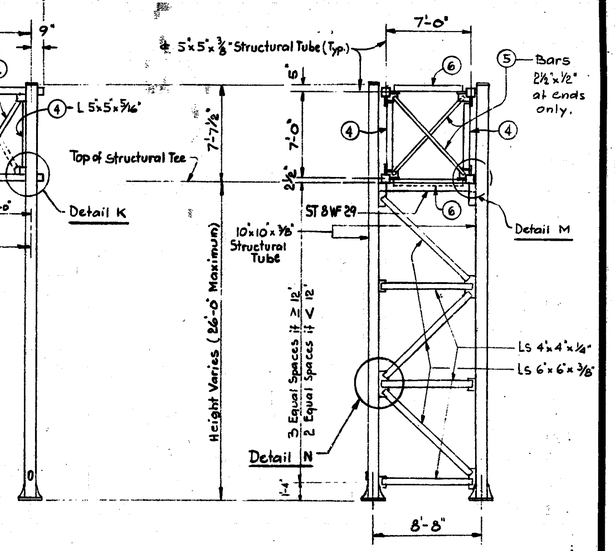
S 7.

CS 63174 J E N 14-2...A SHEET NO 71









ELEVATION

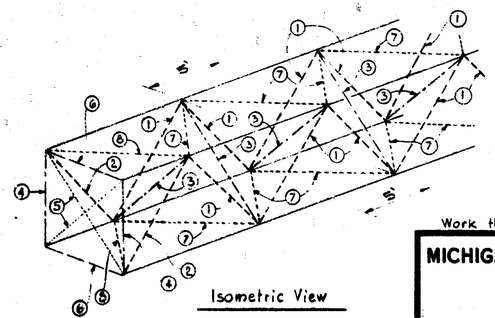
Facing Traffic

NOTES

The design of this structure is based on the AASHTO Standard Specifications for Structural Supports for Highway signs, Luminaires and Traffic Signals (1975 Edition). Sign area = 500 Sq. Ft. maximum. Maximum projection of sign beyond chord is 6 ft. Design is based on a wind load of 35 p.s.f. on sign area.
All structural steel, bolts, welding & galvanizing shall be according to Art. 8.26.08 b of Standard Specifications for Highway Construction. All truss components shall be hot-dip galvanized prior to bolted assembly.
The cambering shall be provided in the fabrication so that the flanges are correctly sloped to assure obtaining full contact in the relaxed assembled position prior to snugging up the flange bolts. The flange bolts shall not be torqued in an attempt to close any flange misalignment. Trusses shall not be lifted by the web members.
See Standard plan S 9.10 for sign connection.

TRUSS DATA - A-36 Galv.							
SPAN	L1	L2	L3	L4	L5	CAMBER	BOX TRUSS
105'-0"	22'-6"	20'-0"	20'-0"	20'-0"	22'-6"	1 7/8"	7'-0" x 7'-0"
110'-0"	22'-6"	20'-0"	25'-0"	20'-0"	22'-6"	2 "	7'-0" x 7'-0"
115'-0"	22'-6"	25'-0"	20'-0"	25'-0"	22'-6"	2 1/8"	7'-0" x 7'-0"
120'-0"	27'-6"	20'-0"	25'-0"	20'-0"	27'-6"	2 1/2"	7'-0" x 7'-0"
125'-0"	27'-6"	25'-0"	20'-0"	25'-0"	27'-6"	2 5/8"	7'-0" x 7'-0"

CAMBER The camber given in the above table is the ordinate at the center of the assembled truss prior to dead load deflection. Allowable camber tolerance for truss is 25%.



Isometric View

Showing end part of Truss

Work this sheet with sheets 2 & 3

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS TYPE D (125')

A-36 Galv.

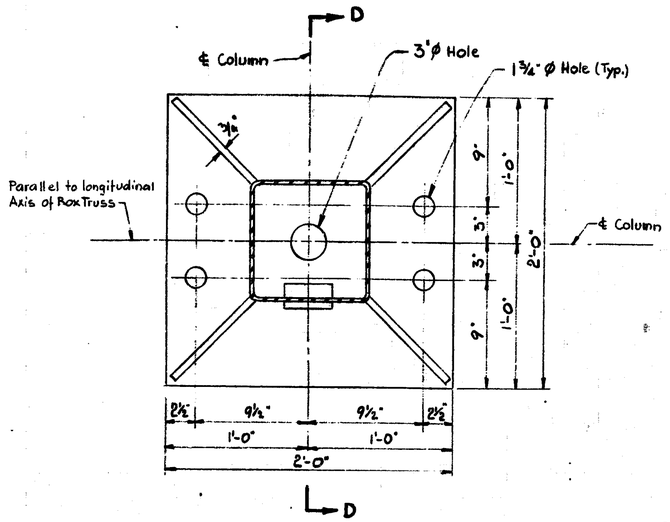
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DRAWN BY	BULLEN	5-9-77
DESIGN BY	P.R.N.	7-13-76
TRACED BY		
CHECKED BY		

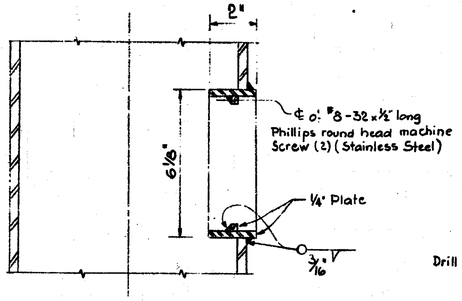
SHEET 1 OF 9

S 7.81

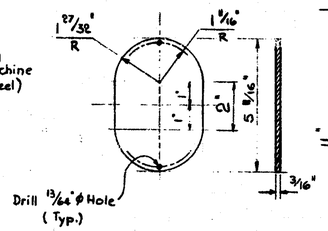
CS 63174 Job No 14824A SHEET NO. 72



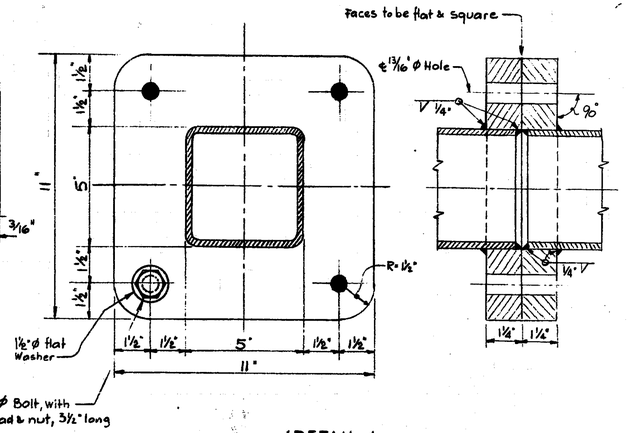
SECTION C-C



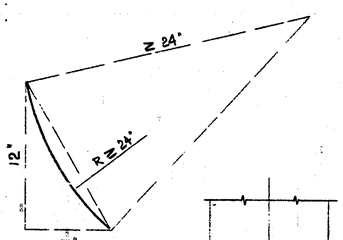
SECTION D-D



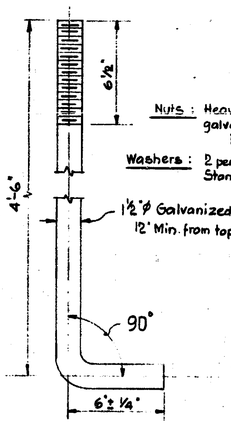
HAND HOLE COVER
(2 req'd per Truss)



DETAIL A
Chord Connection Details



DETAIL R

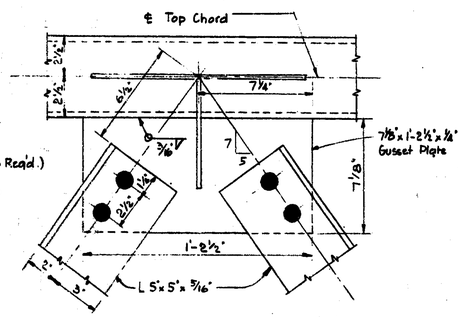


Nuts : Heavy hex. head galvanized 32 req'd. per Truss

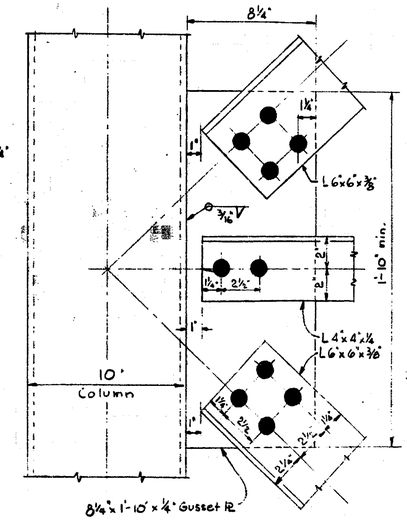
Washers : 2 per Anchor Bolt 1½"ϕ Standard flat, galvanized. 32 req'd per Truss.

DETAIL OF ANCHOR BOLT (16 Req'd.)

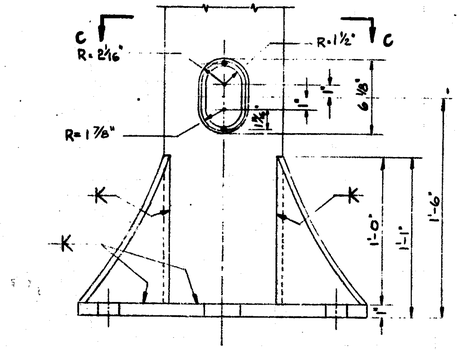
Anchor Bolts shall be in accordance with Art 8.07.14 of the Std. Spec.



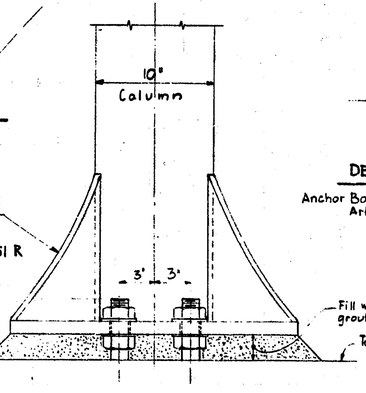
DETAIL D



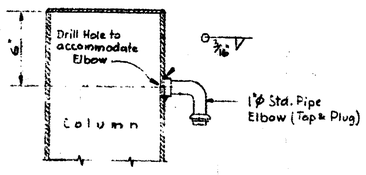
DETAIL N



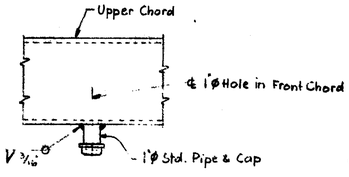
FRONT ELEVATION



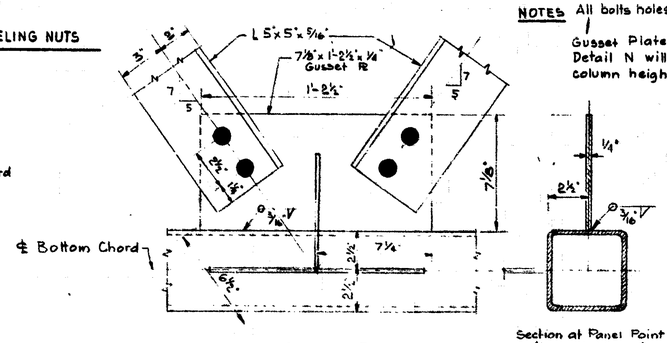
DETAIL OF BASE-LEVELING NUTS



DETAIL B
Detail of electrical outlet at Column



DETAIL C
Detail of electrical Outlet at upper Chord only.



DETAIL E

Section at Panel Point (Ls not shown)

NOTES All bolts holes are 13/16"ϕ (Typ.)

Gusset Plate size shown in Detail N will vary with different column heights.

Work this sheet with sheets 1 & 3

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS TYPE D (125')

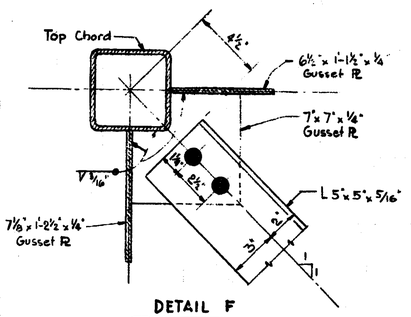
A-36 Galv.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

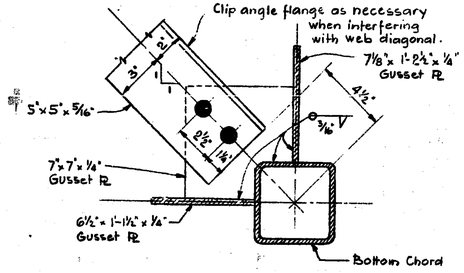
ROAD DES	BULEN	5-9-77
DRAWN BY	SRR	8-0-76
TRACED BY		
CHECKED BY		
SHEET 2 OF 9		

S7.82

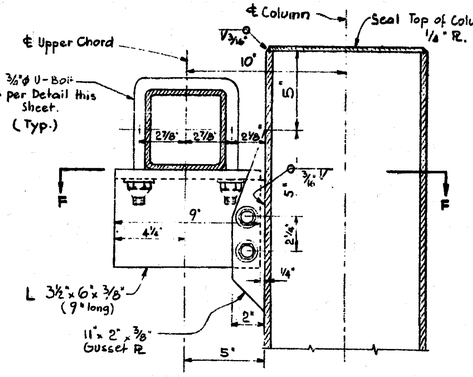
CS 63114 JOB NO 14F244A SHEET NO 73



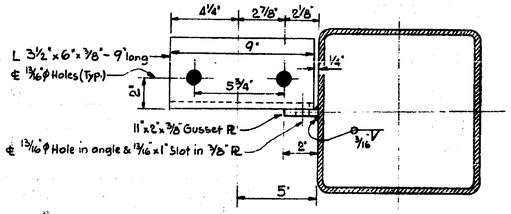
DETAIL F



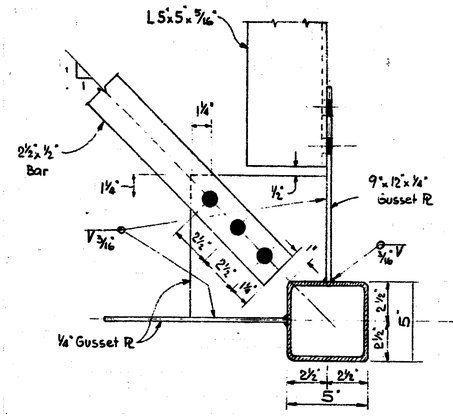
DETAIL G



DETAIL OF UPPER CLAMP

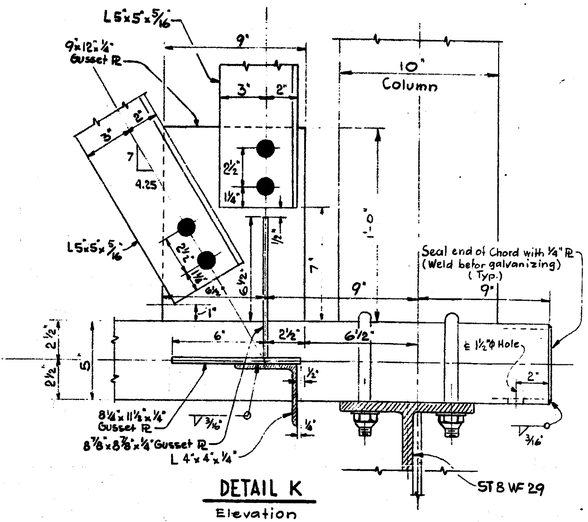


SECTION F-F

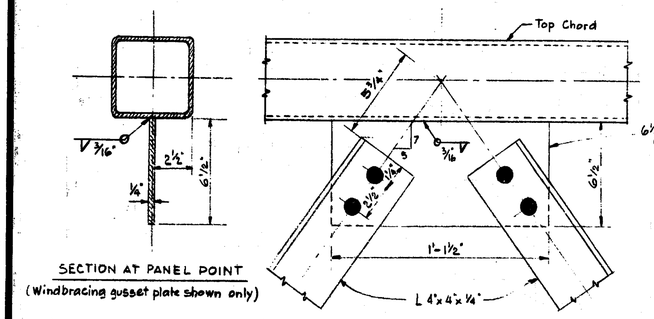


DETAIL M

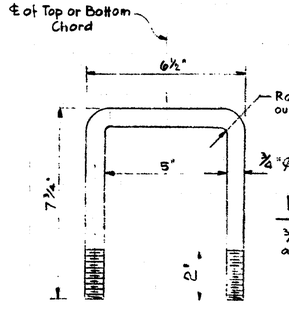
NOTE All bolt holes are 13/16"ϕ.



DETAIL K
Elevation

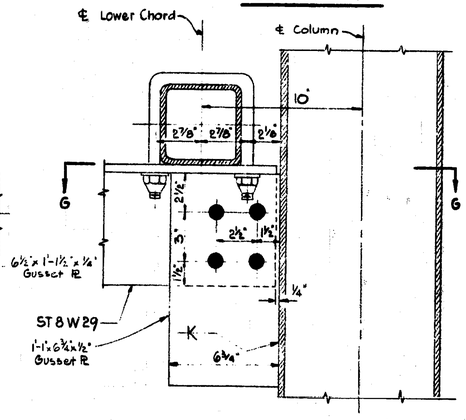


DETAIL J
(Windbracing - Top plate Shown in Plan)

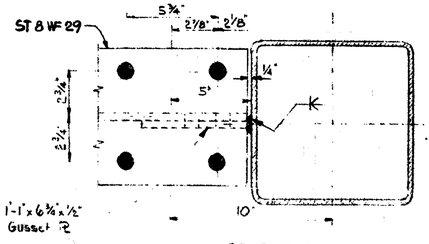


DETAIL OF ¾"ϕ U-BOLT 12 Req'd.)

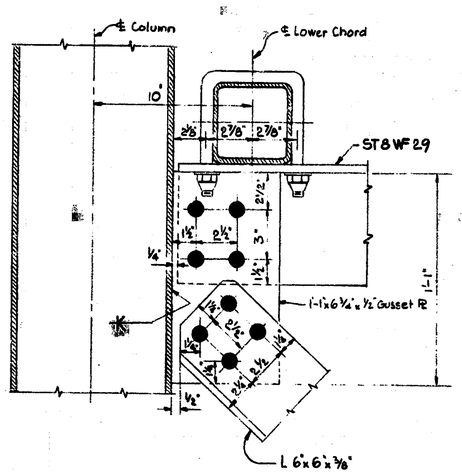
¾"ϕ Bolt with flat 3/16 Washer and ¾"ϕ Elastic Stop Nut (41-NE-120) (Typ.)



DETAIL OF SEAT (With no Diagonal shown)



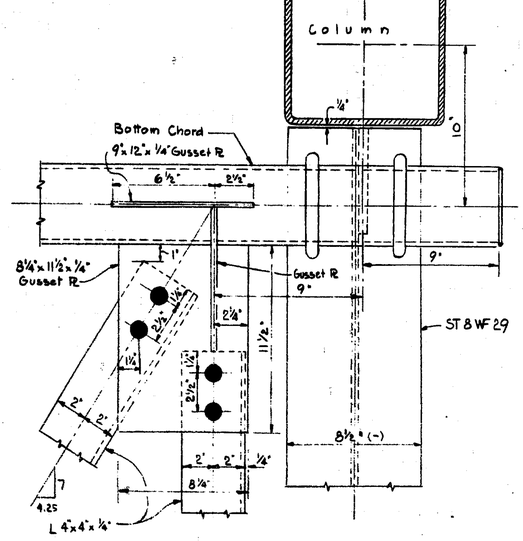
SECTION G-G



DETAIL OF SEAT
(With Diagonal shown)

NOTE

Gusset Plate size shown in the Detail above for the seat with diagonals will vary with different column height.



DETAIL L
Bottom Windbracing
Plan

Work this Sheet with sheets # 1 & 2

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS TYPE D (125')

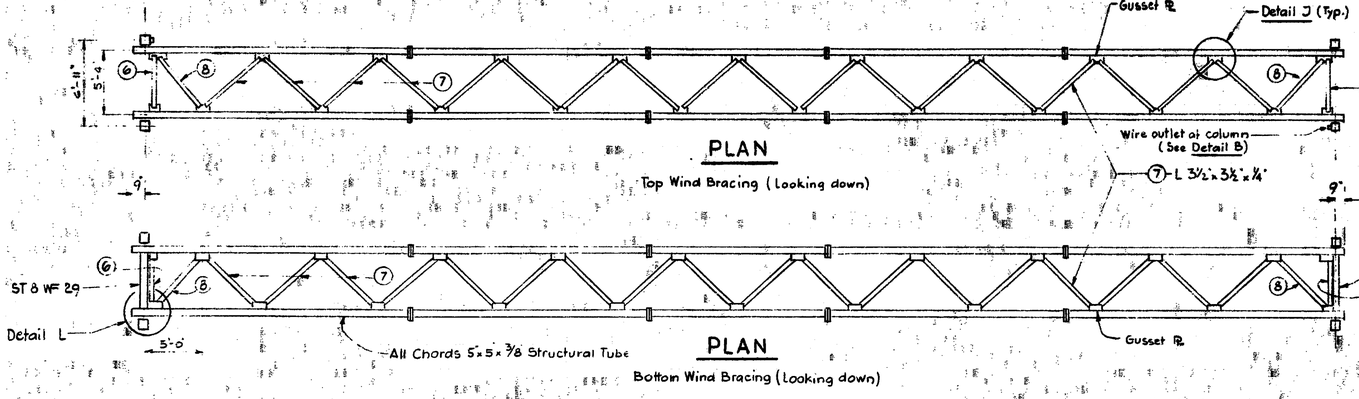
A-36 Galv.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BASIS	BULLEN	5-9-77
DRAWN BY	B R N	0-18-'94
TRACED BY		
CHECKED BY		
SHEET	3 OF	9

S7.83

CS 63174 Job No 14824A SHEET NO 74

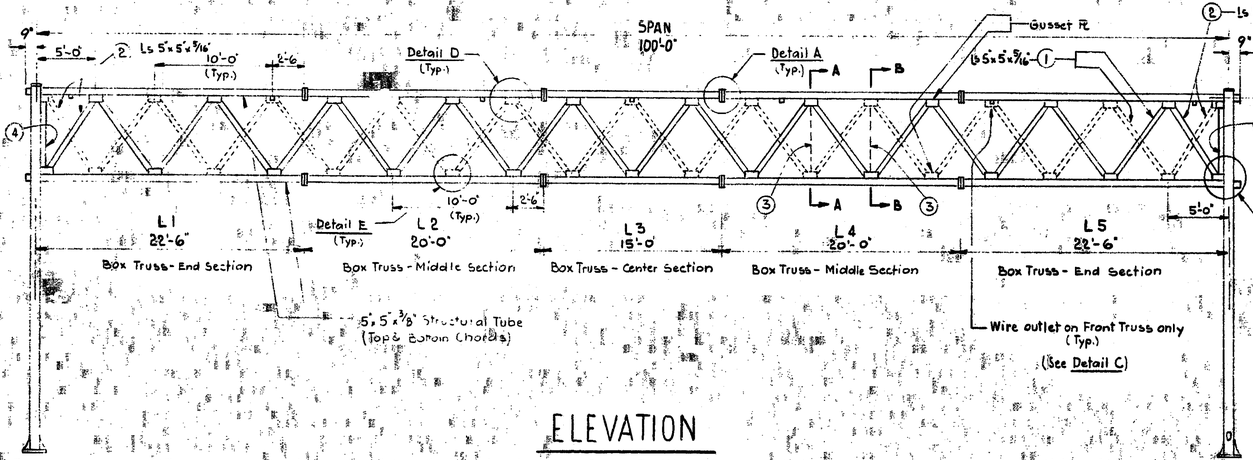


PLAN

Top Wind Bracing (Looking down)

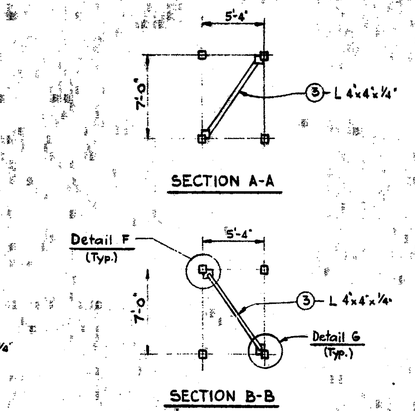
PLAN

Bottom Wind Bracing (Looking down)



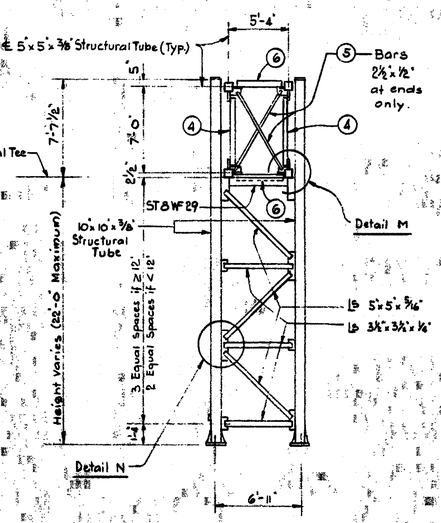
ELEVATION

Facing Traffic



SECTION A-A

SECTION B-B



END ELEVATION

TRUSS DATA - A-36 Galv.								Approx Net Wt of Truss lbs/ft
SPAN	L1	L2	L3	L4	L5	CAMBER	Box TRUSS	
75'-0	12'-6	15'-0	20'-0	15'-0	12'-6	1"	7'-0 x 5'-4	123
80'-0	17'-6	15'-0	15'-0	15'-0	17'-6	1⅛	7'-0 x 5'-4	
85'-0	17'-6	15'-0	20'-0	15'-0	17'-6	1¼	7'-0 x 5'-4	
90'-0	22'-6	15'-0	15'-0	15'-0	22'-6	1⅜	7'-0 x 5'-4	
95'-0	17'-6	20'-0	20'-0	20'-0	17'-6	1½	7'-0 x 5'-4	
100'-0	22'-6	20'-0	15'-0	20'-0	22'-6	1⅝	7'-0 x 5'-4	123

CAMBER The camber given in the above table is the ordinate at the center of the assembled truss prior to dead load deflection. Allowable camber tolerance for truss is 25%

Isometric View

Showing end Section of Truss

For Notes see sheet 1 of Steel Truss Type D
Work this sheet with sheets 5 & 6

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

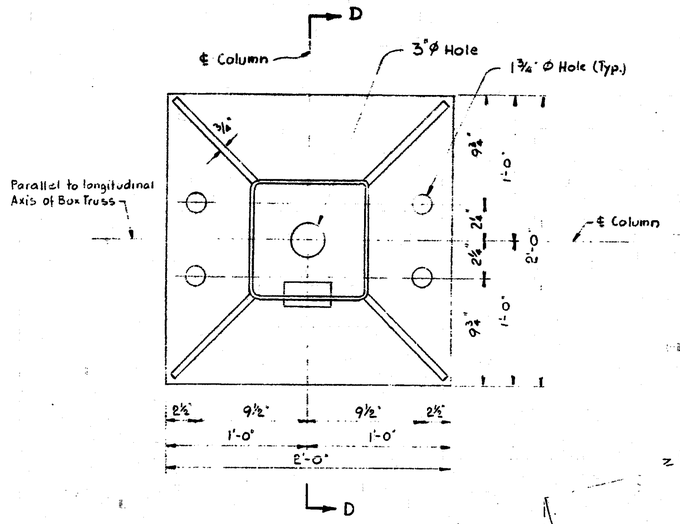
STEEL TRUSS TYPE C (100')

A-36 Galv.

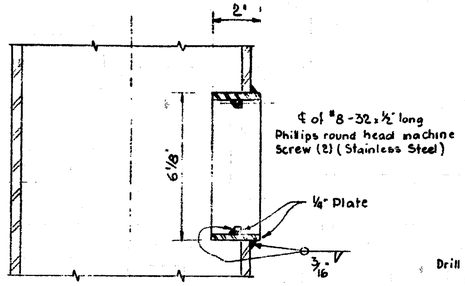
REVISIONS			
NO.	DESCRIPTION	DATE	BY

BOARD BOOK	BULLEN	5-9-77
DRAWN BY	DRN	11-4-76
TRACED BY		
CHECKED BY		
SHEET	4 OF 6	

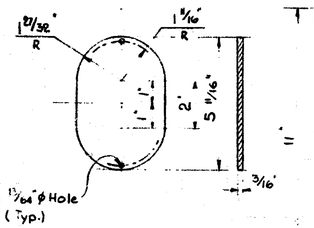
3784



SECTION C-C



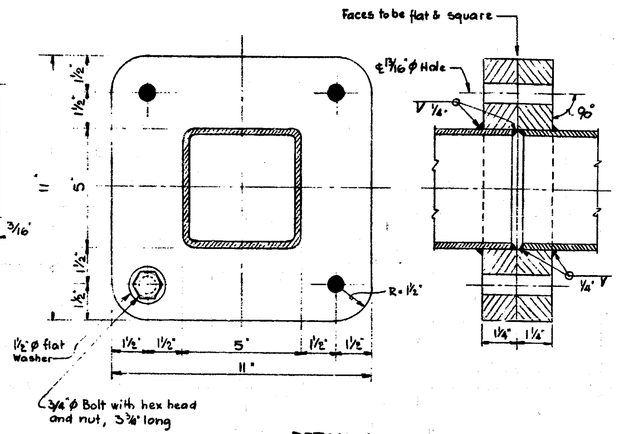
SECTION D-D



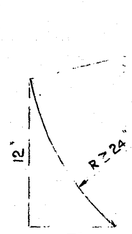
HAND HOLE COVER
(2 req'd. per Truss)

Nuts : Heavy hex. head galvanized 32 req'd. per Truss

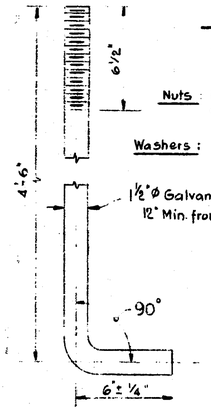
Washers : 2 per Anchor Bolt 1½"ϕ Standard flat, galvanized. 32 req'd per Truss.



DETAIL A
Chord Connection Details

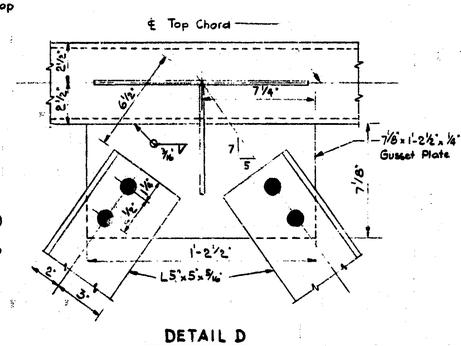


DETAIL R



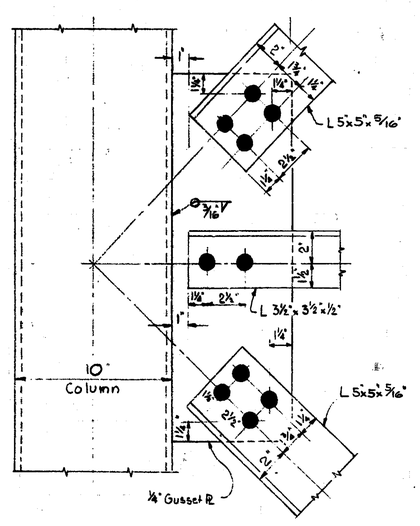
DETAIL OF ANCHOR BOLT (16 Req'd.)

Anchor Bolts shall be in accordance with Art. 8.07.16 of the Std. Spec.

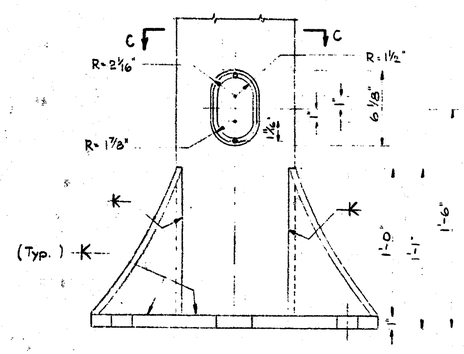


DETAIL D

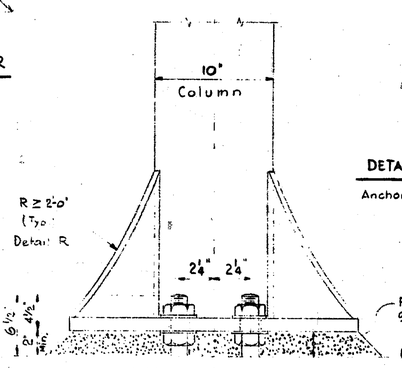
NOTES All bolts holes are 13/16"ϕ (Typ.)



DETAIL N



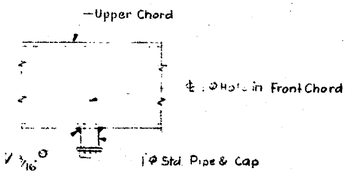
FRONT ELEVATION



DETAIL OF BASE-LEVELING NUTS

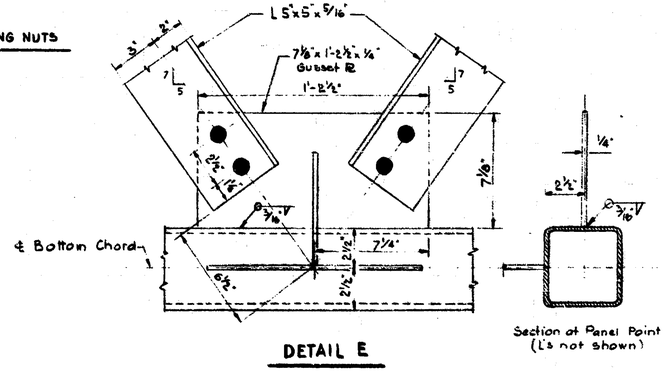
DETAIL B

Detail of electrical conduit



DETAIL C

Detail of electrical conduit at upper chord only.



DETAIL E

Work this sheet with sheets 4 & 6

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

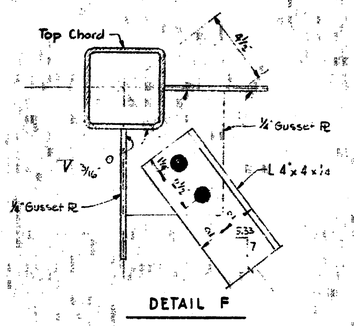
STEEL TRUSS TYPE C (100')

A-36 Galv.

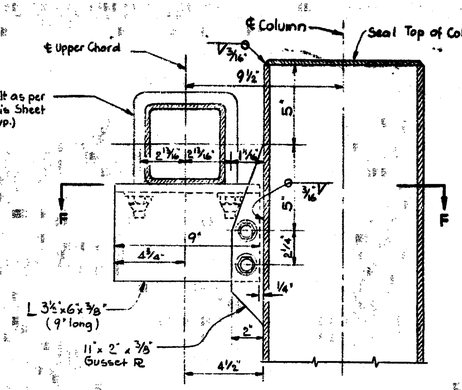
DESIGNED BY	BULLEN	5-9-77
DRAWN BY	P R N	11-10-76
TRACED BY		
CHECKED BY		
SHEET	5 OF 9	

REVISIONS			
NO.	DESCRIPTION	DATE	BY

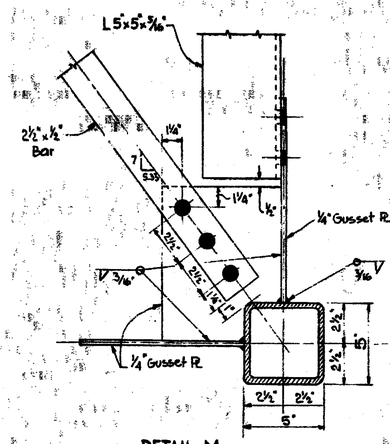
S785



DETAIL F

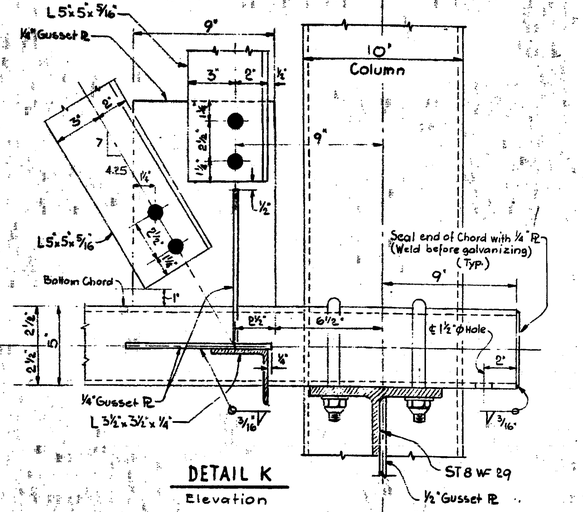


DETAIL OF UPPER CLAMP



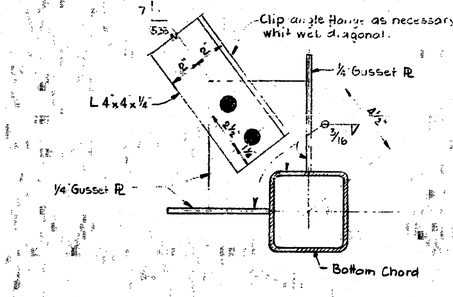
DETAIL M

NOTE All bolt holes are 13/16" ϕ except as indicated.

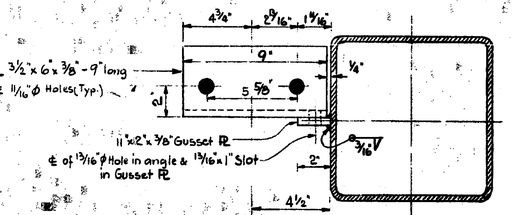


DETAIL K

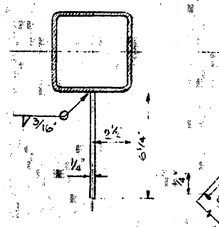
Elevation



DETAIL G

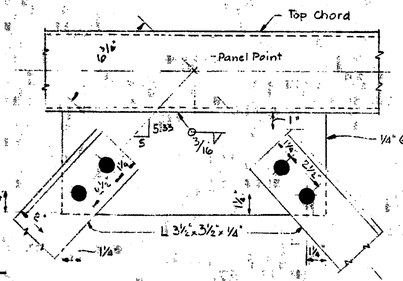


SECTION F-F



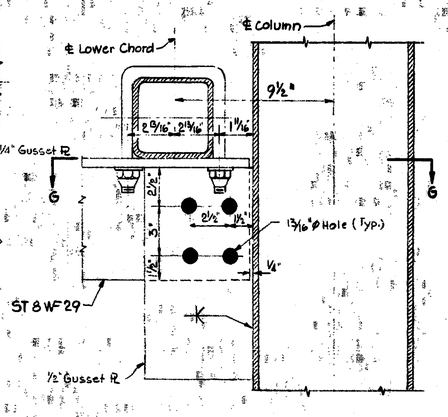
SECTION AT PANEL POINT

(Windbracing gusset plate shown only)

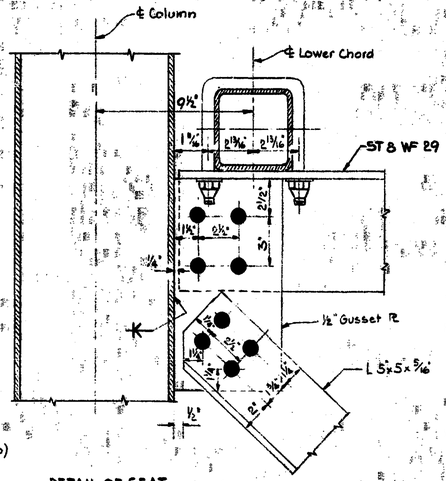


DETAIL J

(Windbracing Top plate shown in Plan)

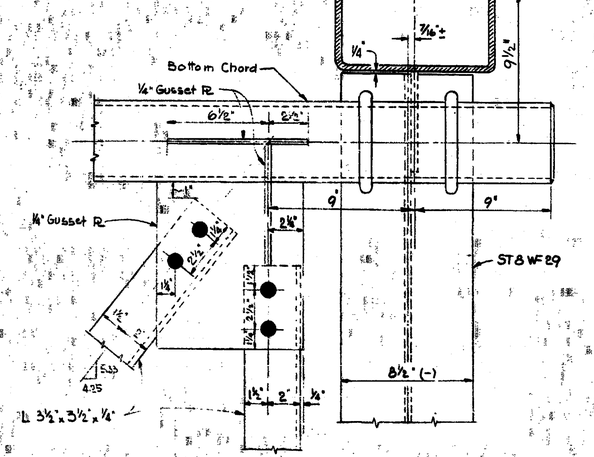


DETAIL OF SEAT (With no Diagonal shown)



DETAIL OF SEAT

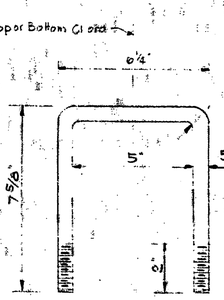
(With Diagonal shown)



DETAIL L

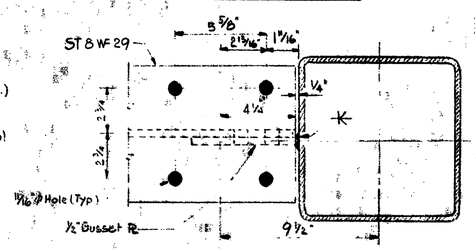
Bottom Wind bracing

Plan



DETAIL OF 5/8" ϕ U-BOLT (12 Req'd.)

5/8" ϕ Bolt with Flat 3/16 Washer and 5/8" ϕ Elastic Stop Nut (4-NE-120) (Typ.)



SECTION G-G

Work this sheet with sheets 84 & 5

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

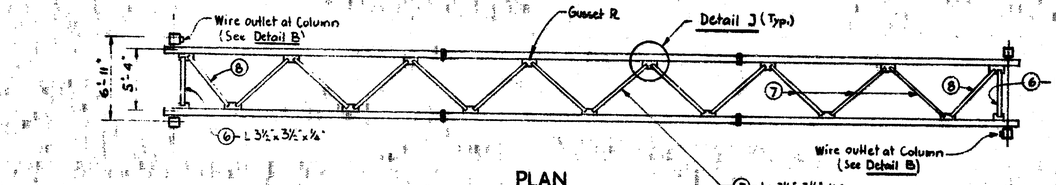
STEEL TRUSS TYPE C (100')

A-36 Galv.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

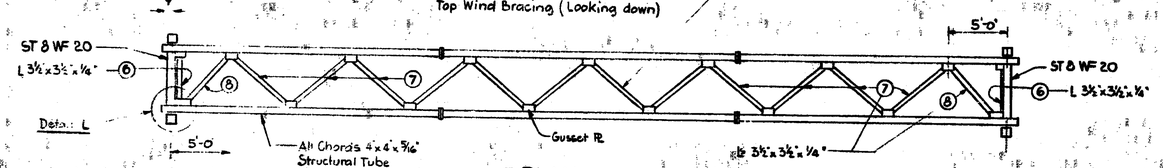
ROAD CODE	BULLEN	5-4-77
DRAWN BY	PRN	11-15-76
TRACED BY		
CHECKED BY		
SHEET	6 OF 9	

S786 55



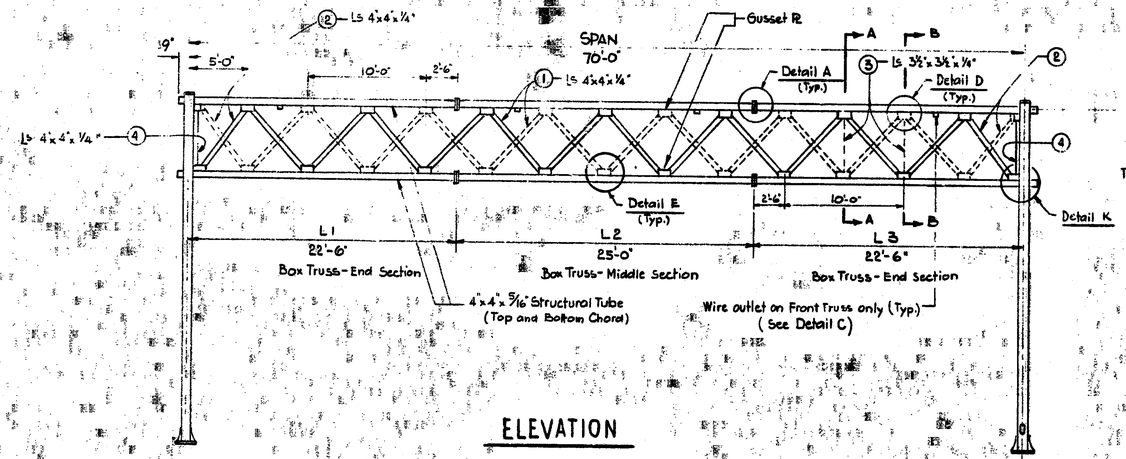
PLAN

Top Wind Bracing (Looking down)



PLAN

Bottom Wind Bracing (Looking down)

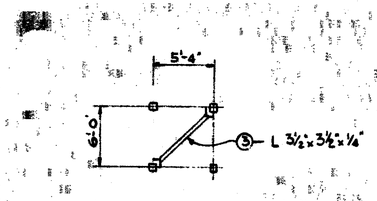


ELEVATION

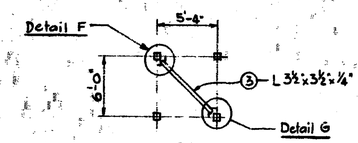
Facing Traffic

TRUSS DATA - A-36 Galv.					
SPAN	L1	L2	L3	CAMBER	BOX TRUSS
50'-0	17'-6	15'-0	17'-6	5/8"	6'-0" x 5'-4"
55'-0	17'-6"	20'-0"	17'-6"	3/4"	6'-0" x 5'-4"
60'-0"	22'-6"	15'-0	22'-6	7/8"	6'-0" x 5'-4"
65'-0	22'-6	20'-0	22'-6	1"	6'-0" x 5'-4"
70'-0	22'-6'	25'-0"	22'-6'	1"	6'-0" x 5'-4"

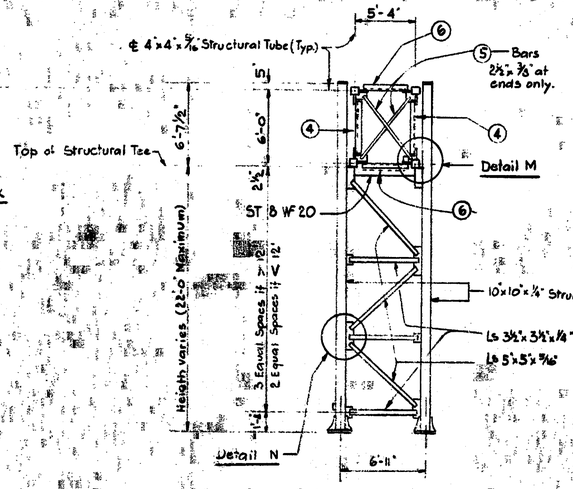
CAMBER The camber given in the above table is the ordinate at the center of the assembled truss prior to dead load deflection. Allowable camber tolerance for truss is 25%.



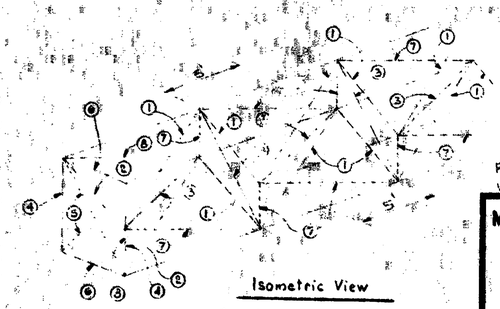
SECTION A-A



SECTION B-B



END ELEVATION



Isometric View

Showing end part of Truss

For Notes see sheet 1 of Steel Truss Type D
Work this sheet with sheet a 3 9

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS TYPE C (70)

A-36 Galv.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	BULLEN	5-4-77
DRAWN BY	P R N	11-24-76
TRACED BY		
CHECKED BY		
SHEET 7 OF 9		

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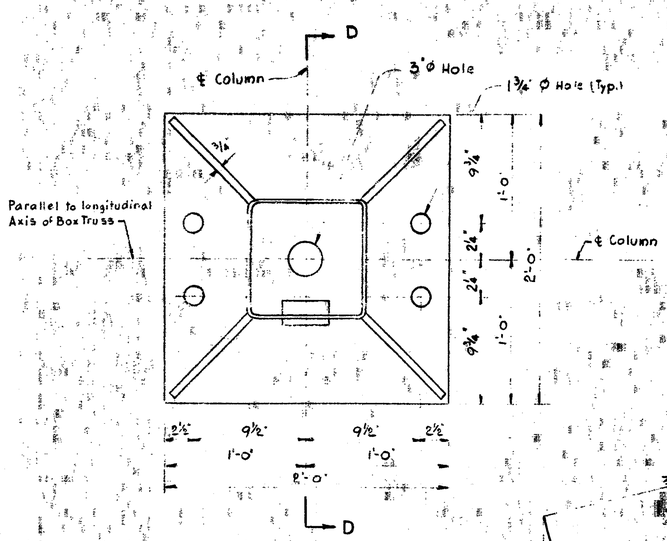
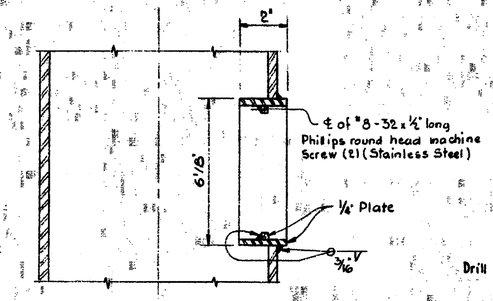
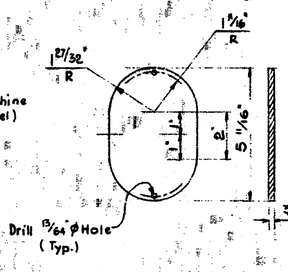


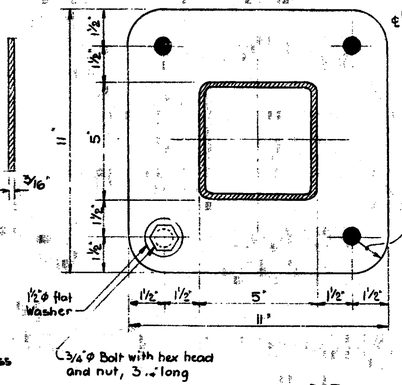
SECTION C-C

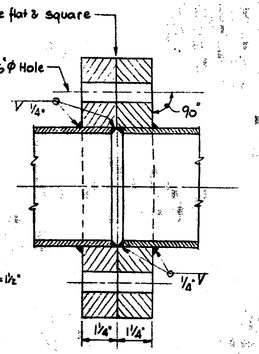


SECTION D-D

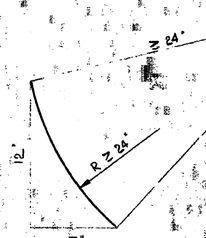


HAND HOLE COVER
(2 req'd. per Truss)

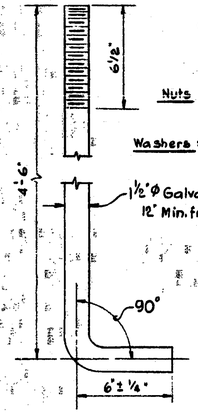




DETAIL A
Chord Connection Details



DETAIL R

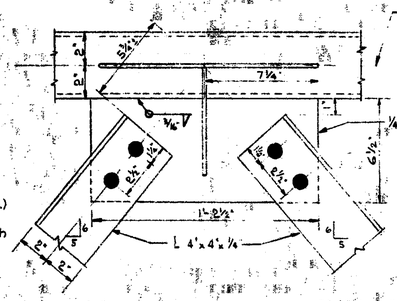


DETAIL OF ANCHOR BOLT (16 Req'd.)

Anchor Bolts shall be in accordance with Art. 8.07.14 of the Std. Spec.

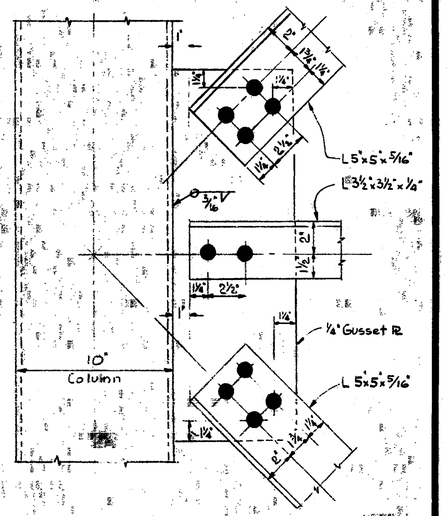
Nuts: Heavy hex head galvanized 32 req'd per Truss

Washers: 2 per Anchor Bolt 1½"ϕ Standard flat galvanized 32 req'd per Truss.

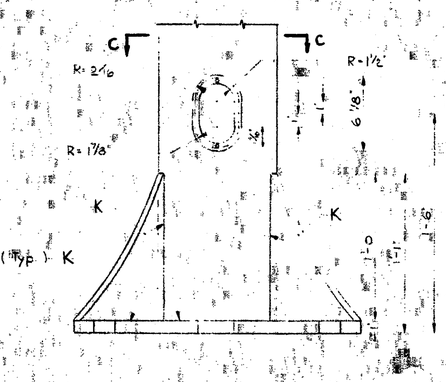


DETAIL D

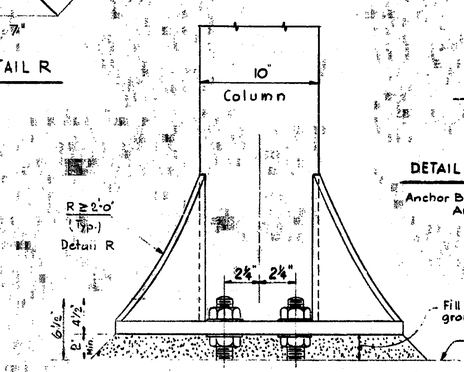
NOTES
All bolts holes are 13/16"ϕ (Typ.)
Gusset Plate Size shown in Detail N will vary with different Column heights.



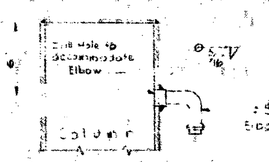
DETAIL N



FRONT ELEVATION

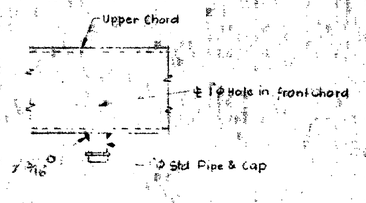


DETAIL OF BASE-LEVELING NUTS

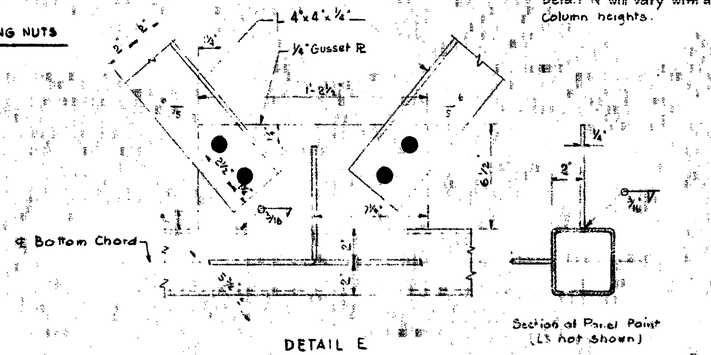


DETAIL B

Detail of Electrical Outlet at upper chord only



DETAIL C



DETAIL E

Section at Panel Point (LS not shown)

Work this sheet with sheets 1 & 9

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS TYPE C (70')

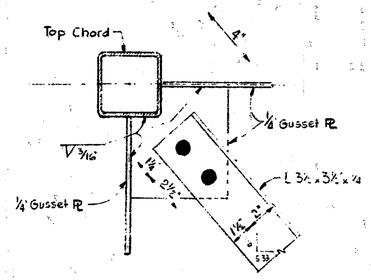
A-36 Galv.

BRIDGE ENGR.	BULLEN	5-6-77	
DRAWN BY	P.R.N.	12-2-76	
TRACED BY			
CHECKED BY			
SHEET 8 OF 9			

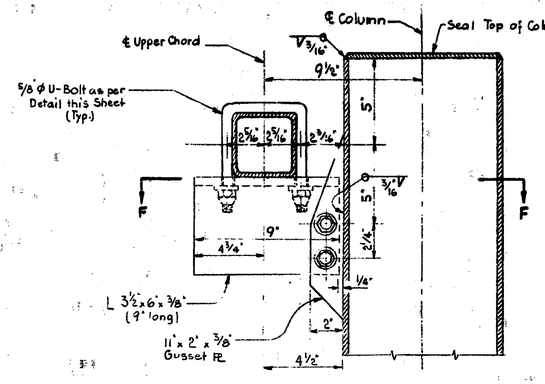
REVISIONS

NO.	DESCRIPTION	DATE	BY

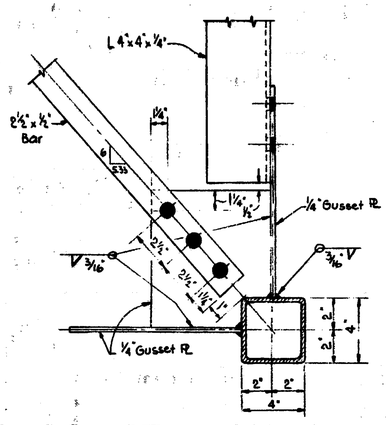
S7.98



DETAIL F

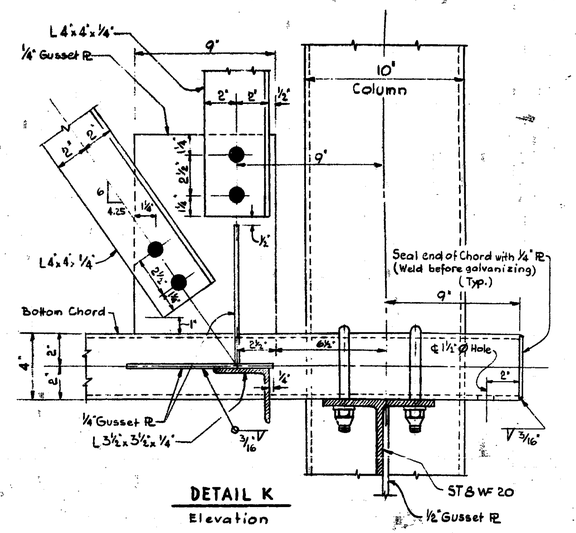


DETAIL OF UPPER CLAMP

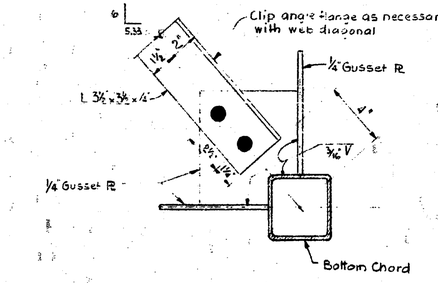


DETAIL M

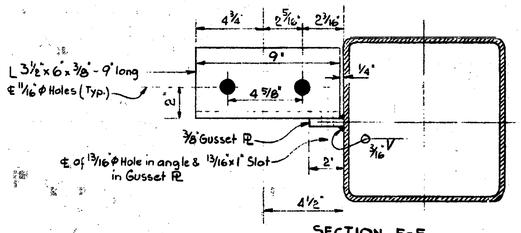
NOTE All bolt holes are 13/16" ϕ except as indicated.



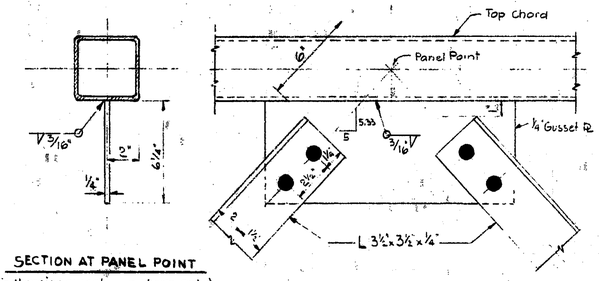
DETAIL K
Elevation



DETAIL G

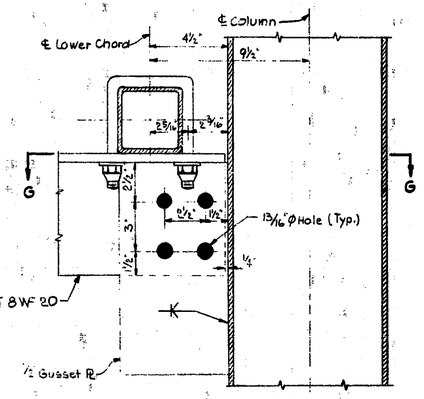


SECTION F-F

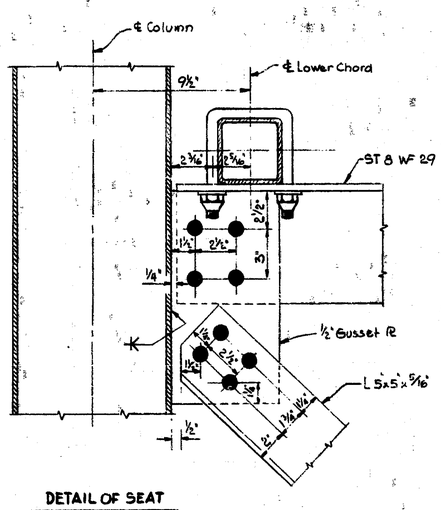


SECTION AT PANEL POINT
(Windbracing gusset plates shown only)

DETAIL J
(Windbracing top plate shown in Plan)

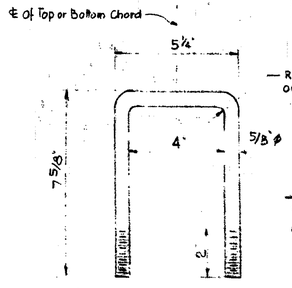


DETAIL OF SEAT (With no Diagonal Shown)

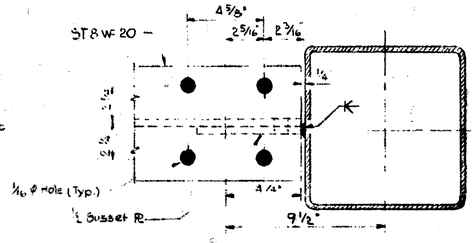


DETAIL OF SEAT
(With Diagonal Shown)

DETAIL L
Bottom Windbracing
Plan



DETAIL OF 5/8" ϕ U-BOLT
5/8" ϕ Bolt with Std. Sq. Washer and 5/8" ϕ Elastic Stop Nut (4 REQ'D) (Typ.)



SECTION G-G

Work this sheet with sheets #7 & 8

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STEEL TRUSS TYPE C (70')

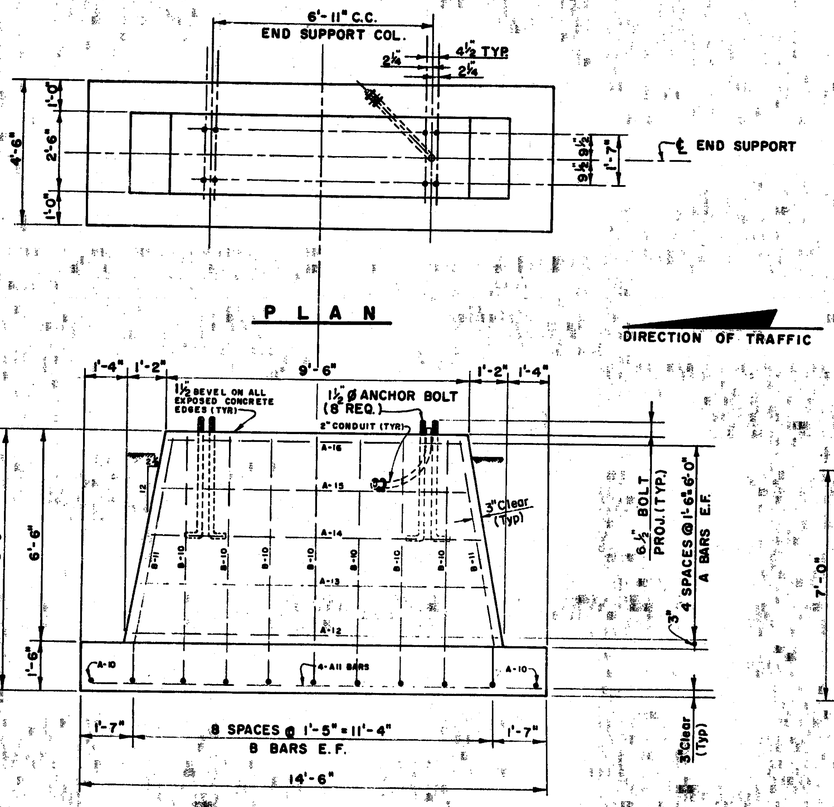
A-36 Galv.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	BULLEN	5-9-77
DRAWN BY	PRN	12-10-76
TRACED BY		
CHECKED BY		
SHEET 9 OF 9		

S7.80 1

CS F 3174 Job No 14892A - SHEET NO 80



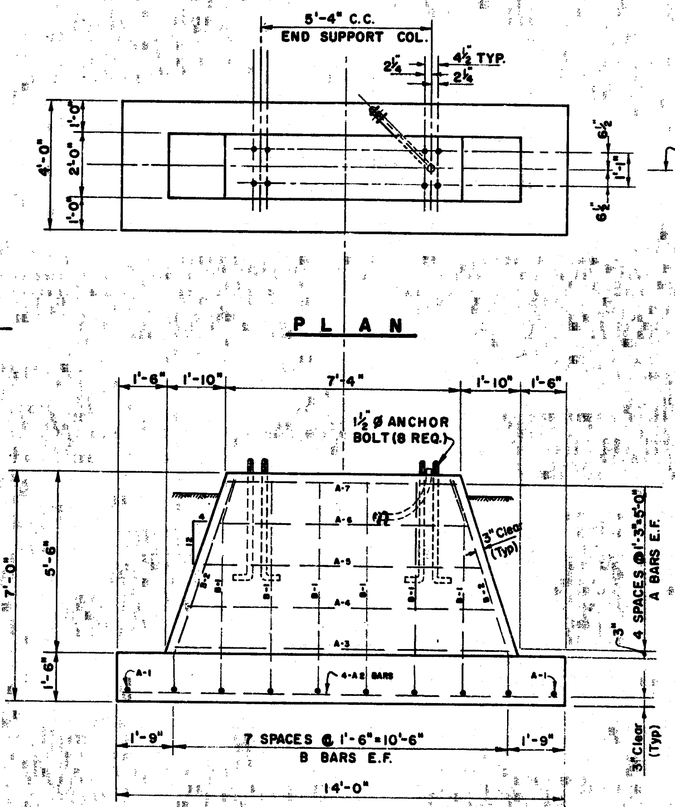
ELEVATION

STEEL REINFORCEMENT			
BAR	SIZE	DIMENSIONS	NO REQ.
A-10	#4	4'-0"	2
A-11	#4	14'-0"	4
A-12	#4	11'-3"	2
A-13	#4	10'-8"	2
A-14	#4	10'-2"	2
A-15	#4	9'-7"	2
A-16	#4	9'-1"	2
B-10	#4	7'-6" / 3'-0"	14
B-11	#4	7'-7" / 3'-0"	4

10.0 CU. YDS. CONC.
237 # REINF. STEEL

REV. #3

TYPE C
SCALE ½"=1'-0"



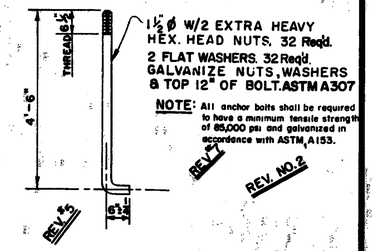
ELEVATION

STEEL REINFORCEMENT			
BAR	SIZE	DIMENSIONS	NO REQ.
A-1	#4	3'-6"	2
A-2	#4	13'-6"	4
A-3	#4	10'-4"	2
A-4	#4	9'-6"	2
A-5	#4	8'-8"	2
A-6	#4	7'-10"	2
A-7	#4	7'-0"	2
B-1	#4	6'-6" / 2'-6"	12
B-2	#4	6'-9" / 2'-6"	4

6.82 CU. YDS. CONC.
196 # REINF. STEEL

REV. #3

TYPE B
SCALE ½"=1'-0"

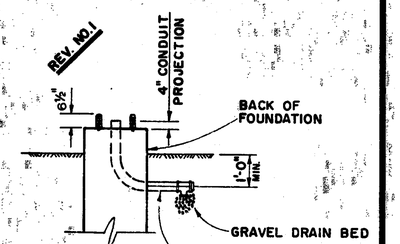


NOTE: All anchor bolts shall be required to have a minimum tensile strength of 85,000 psi and galvanized in accordance with ASTM A153.

ANCHOR BOLT DETAIL

16 Required

REV. #5



CONDUIT DETAIL

NOTES:

1) CONDUIT SHALL BE INSTALLED IN RIGHT FOUNDATION OR AS OTHERWISE SPECIFIED BY THE ENGINEER.
2) TOP OF CONC. SHALL BE 3" MIN. ABOVE GROUND (DESIRABLE)
3) ANCHOR BOLTS SHALL BE CAREFULLY SET AND HELD VERTICAL AT THE CORRECT LOCATION AND AT THE PROPER ELEVATION UNTIL CONCRETE HAS SET, IF DESIRED, EACH SET OF FOUR BOLTS MAY BE TIED TOGETHER NEAR THE TOP AND BOTTOM BY WELDING INTO A BASKET WITH BAR STOCK OR EQUIVALENT MATERIAL.

REV. #4

7 Anchor Bolt Note Changed 2/74

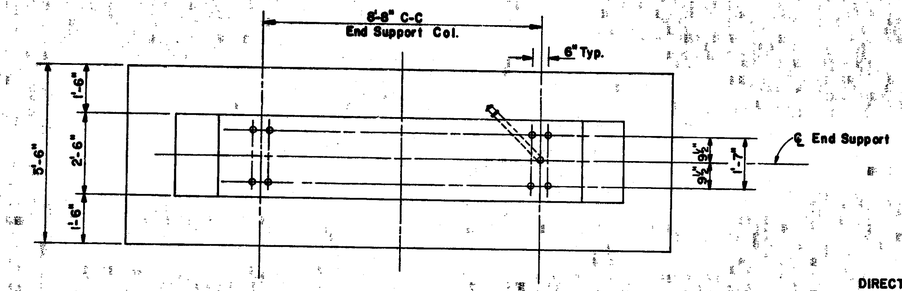
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

TRUSS FOUNDATION
TYPE B, C

REVISIONS			
No	DESCRIPTION	DATE	BY
1	WIRE ENTRANCE	11/66	TMW
2	Anchor bolt strength note	3-3-67	TMW
3	Re-bar dimension change	3/20/67	TMW
4	NOTE ADDED	5-26-69	TMW
5	ANCHOR BOLT DETAIL REVISED	6/73	TMW
6	QUANTITIES ADDED TO ANCHOR BOLT DETAIL	2/74	JDB

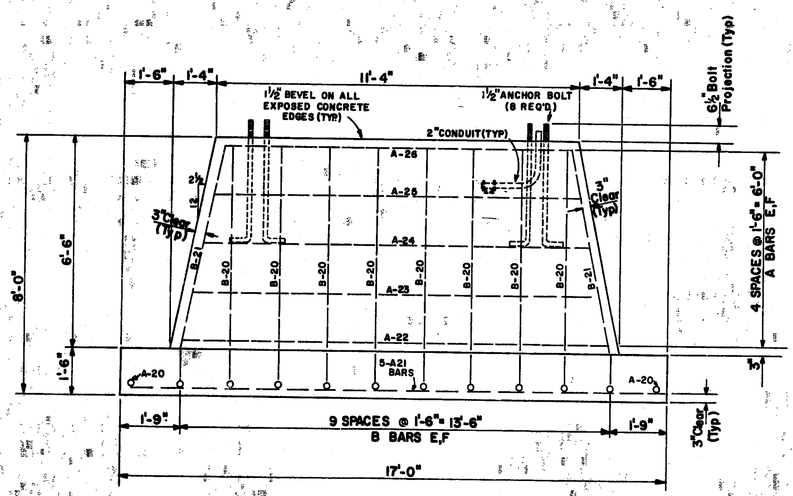
ROAD ROSS		
DRAWN BY	R.D.S	7-64
TRACED BY		
CHECKED BY	D.Mc	
SHEET	1 OF 1	

S8.10



PLAN

DIRECTION OF TRAFFIC

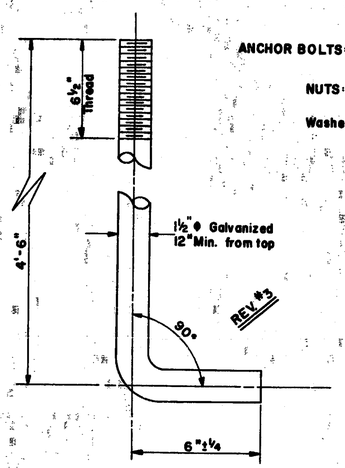


ELEVATION

STEEL REINFORCEMENT			
BAR	SIZE	DIMENSIONS	NO. REQ.
A-20	#4	5'-0"	2
A-21	#4	16'-6"	5
A-22	#4	13'-5"	2
A-23	#4	12'-9"	2
A-24	#4	12'-2"	2
A-25	#4	11'-6"	2
A-26	#4	10'-11"	2
B-20	#5	7'-6" / 3'-6"	16
B-21	#5	7'-7" / 3'-6"	4

12.82 Cu. Yds. Conc.
373# Reinf. Steel

SCALE: ½" = 1'-0"



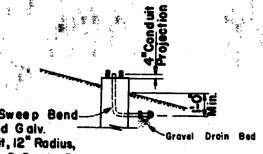
DETAIL of ANCHOR BOLT
16 Required

ANCHOR BOLTS: Steel with a minimum tensile strength of 85,000 psi and galvanized in accordance with ASTM A153. REV #3

NUTS: Heavy hex. head galvanized, 32 Req'd. ASTM A307

Washers: Two per anchor bolt, 1½" ϕ Standard flat galvanized, 32 Req'd. REV #3

REV #4



Long Sweep Bend
2" Rigid Galv.
Conduit, 12" Radius,
w/ Tee & Drain Plug.

CONDUIT DETAIL

NOTES
1) Conduit shall be installed in the right foundation or as otherwise specified by the engineer.
2) Top of conc. shall be 3" min. above ground (desirable).
3) Anchor bolts shall be carefully set and held veritical at the correct location and at the proper elevation until concrete has set. If desired, each set of four bolts may be tied together near the top and bottom by welding into a basket with bar stock or equivalent material. REV #1

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

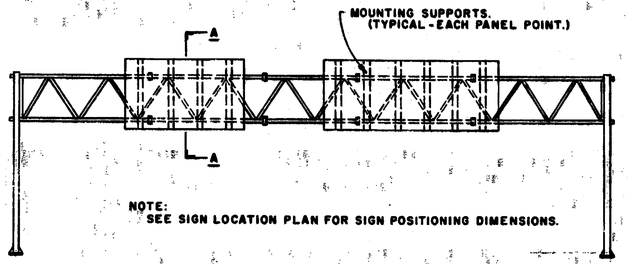
TRUSS FOUNDATION
TYPE D

NO.	REVISIONS DESCRIPTION	DATE	BY
1	NUMBER OF ANCHOR BOLTS CHANGED	2-5-68	TMW
2	NOTE ADDED	5-26-68	TMW
3	ANCHOR BOLT DETAIL REVISED	6/73	TMW
4	QUANTITIES CHGD.-ANCHOR BOLT DETAIL	2/74	JDB
5	ANCHOR BOLT SPEC. CHANGED	2/76	JDB

BRIDGE DESIGN		
DESIGNED BY	T.M.W.	3-67
TRACED BY		
CHECKED BY		3-67
SHEET	OF	

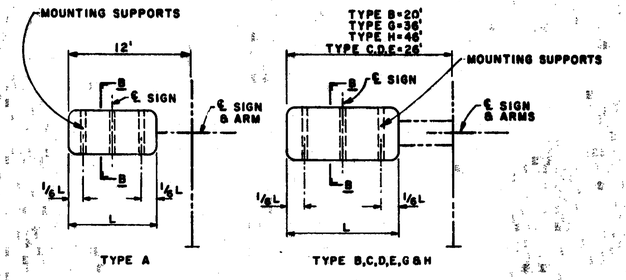
S8.20

CS 63174 JCB NC 14824A SHEET NO 82

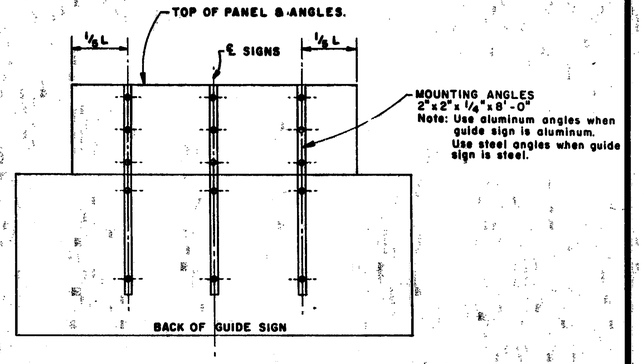


NOTE: SEE SIGN LOCATION PLAN FOR SIGN POSITIONING DIMENSIONS.

ELEVATION TRUSS

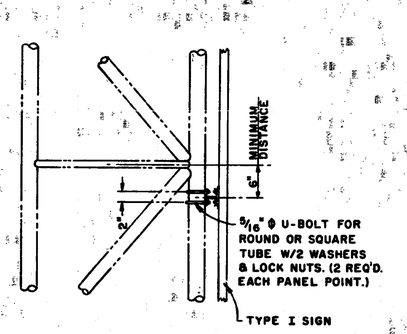


ELEVATION CANTILEVER

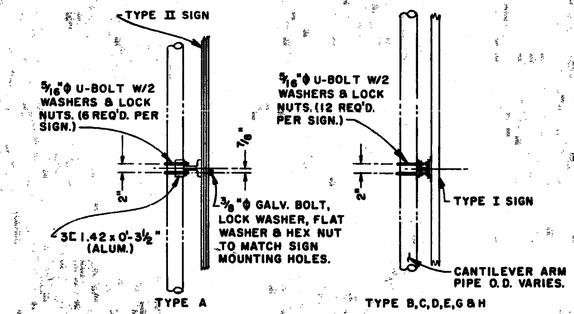


DETAIL OF EXIT NUMBER PANEL ERECTION TO OVERHEAD SIGNS

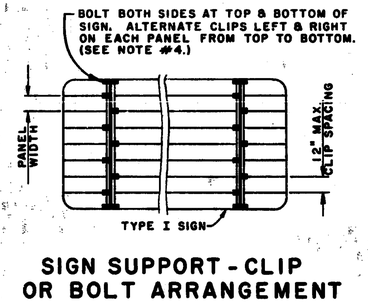
NOTES:
1. - All mounting angles and connections are incidental to "sign".
2. - Shift the mounting angles a minimal distance to avoid conflict with guide sign supports.
3. - Where guide sign is less than 6' in height, shorten mounting angles to match bottom of guide sign.
4. - Exit Number Panel shall be direct bolted at top, middle and bottom to mounting angle (3 bolts req'd. per mounting angle). For attaching mounting angles to parent guide sign, use direct bolting at top of parent guide sign and at bottom of mounting angles (2 bolts req'd. per mounting angle). Sign support clips or direct bolting shall be used on each intermediate panel point. For bolting, use 3/8"ϕ Rectangular Flat Head bolts w/lock nut and flat washers. Physical properties of direct bolts and sign support clips shall be as defined in MDSH&T SPECIFICATIONS.



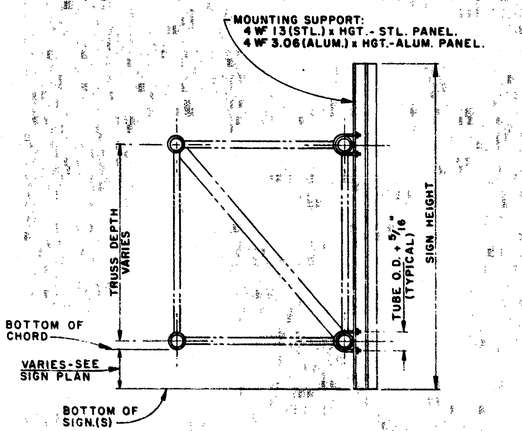
PLAN - TRUSS CONNECTION
TYP. - EACH PANEL PT.



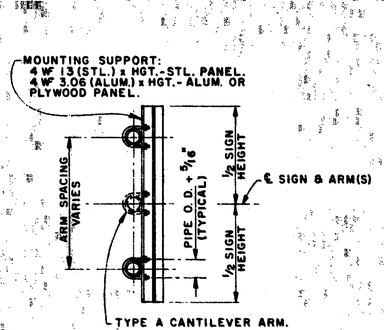
PLAN - CANTILEVER CONNECTION
TYP. - 3 PLACES



SIGN SUPPORT - CLIP OR BOLT ARRANGEMENT FOR OVERHEAD SIGNS



SECTION A - A



SECTION B-B

CANTILEVER

TRUSS

"U" - BOLT DIMENSIONS				
TRUSS TYPE	CANTILEVER TYPE	INSIDE BEND DIAMETER (D)	INSIDE BEND RADIUS (R)	U-BOLT LENGTH
C (70') A-588		4"	3/8"	1'-2 5/8"
C (100') A-588		5"	3/8"	1'-3 5/8"
D (125') A-588		5"	3/8"	1'-3 5/8"
C (70') A- 36		4"	3/8"	1'-2 5/8"
C (100') A- 36		5"	7/8"	1'-3 1/4"
D (125') A- 36		5"	7/8"	1'-3 1/4"
B (Alum.)		6" or 7"	3" or 3 1/2"	1'-5 1/2" or 1'-8"
C (Alum.)		6" or 7"	3" or 3 1/2"	1'-5 1/2" or 1'-8"
D (Alum.)		7"	3 1/2"	1'-8"
	A	4 1/2"	2 1/4"	1'-3 1/2"
	B	6 5/8"	3 5/16"	1'-7 1/2"
	C	8 5/8"	4 5/16"	2'-1"
	D & E	10 3/4"	5 3/8"	2'-8"
	G	10 3/4"	5 3/8"	2'-8"
	H	12 3/4"	6 3/8"	2'-11 1/2"

NOTE:
ALL U-BOLTS SHALL HAVE 1 1/4" THREAD LENGTH. (MIN.)
ALL U-BOLTS AND ACCOMPANYING LOCKNUTS AND FLAT WASHERS SHALL BE STAINLESS STEEL - ASTM A 320, GRADE B 8 (AISI TYPE 304) FOR U-BOLTS AND WASHERS, AND GRADE B 8F (AISI TYPE 303) FOR LOCKNUTS.

NOTES:
1. - ERECTION ANGLES & WF MOUNTING SUPPORTS SHALL BE SHOP CONNECTED BEFORE HANDLING FINISHED SIGN. (INCIDENTAL TO SIGN.)
2. - ALL CONNECTIONS ARE INCIDENTAL TO "SIGN".
3. - SIGN PANEL CONNECTIONS —
BOLTS - 3/8"ϕ BOLT & HEX. NUT @ 24" O.C. FOR ALUMINUM & STEEL PANELS.
RIVETS - 1/4"ϕ @ 24" O.C. FOR ALUMINUM PANELS ONLY.
4. - FOR ATTACHMENT OF TYPE I SIGN TO OVERHEAD SIGN MOUNTING SUPPORTS, USE 3/8"ϕ RECTANGULAR FLAT HEAD BOLTS W/LOCK NUT AND FLAT WASHER AT THE TOP & BOTTOM. (4 REQ'D PER MOUNTING SUPPORT.) SUPPORT CLIPS MAY BE USED INTERMEDIATELY.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

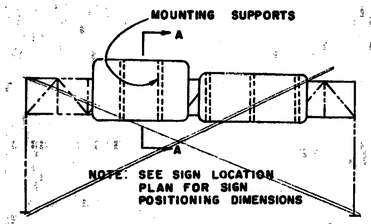
SIGN CONNECTION DETAILS
TRUSS - CANTILEVER - EXIT NUMBER

REVISIONS			
NO	DESCRIPTION	DATE	BY

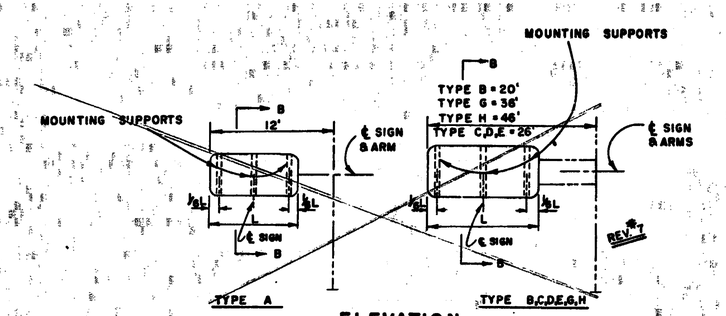
BRIDGE DESIGN	
DRAWN BY	W.C.G.
TRACED BY	
CHECKED BY	
SHEET	OF

5777

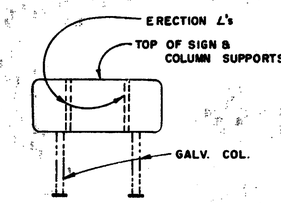
S 9.10



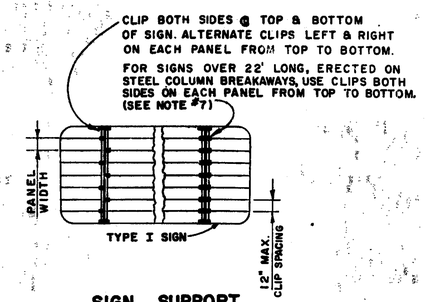
ELEVATION
TRUSS



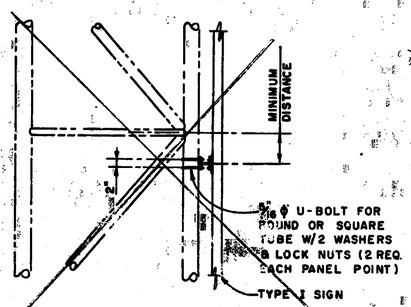
ELEVATION
CANTILEVER



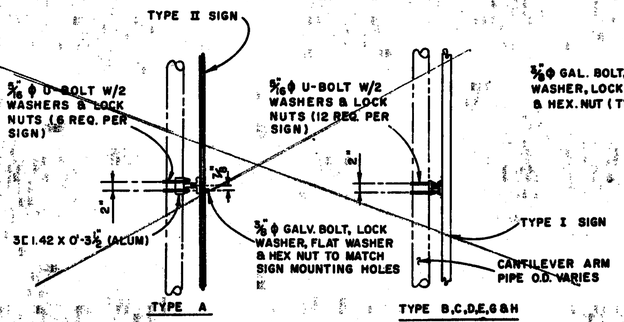
ELEVATION
STEEL COLUMN BREAKAWAY



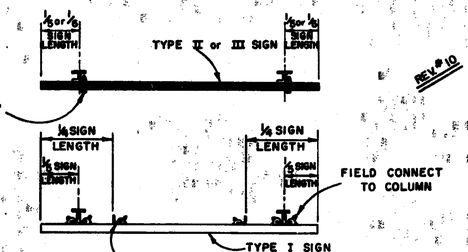
SIGN SUPPORT
CLIP OR BOLT ARRANGEMENT



PLAN- TRUSS CONNECTION
TYP - EACH PANEL PT.



PLAN-CANTILEVER CONNECTION
TYP - 3 PLACES



ERECTION ANGLES TO REMAIN IN PLACE (2 REQ.).
L2 X 2 X ⅛ (ALUM) X SIGN HEIGHT – ALUMINUM PANEL
L2 X 2 X ⅛ (STEEL) X SIGN HEIGHT – STEEL PANEL
SHOP CONNECT W/SIGN SUPPORT CLIPS OR BOLTS @ 36" MAX. VERTICAL SPACING.

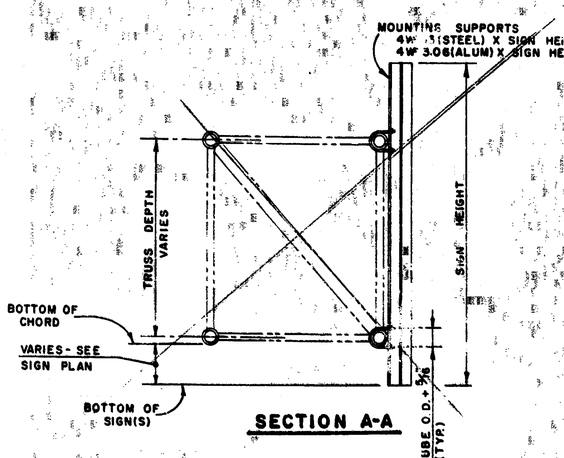
PLAN

REV. #10

ATTACHMENT OF EXIT NUMBER PANELS TO OTHER HIGHWAY GUIDE SIGNS

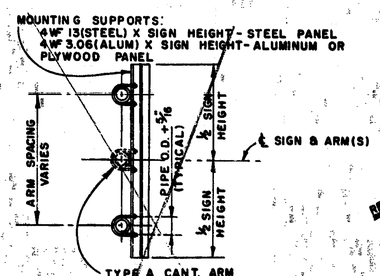
WHERE AN EXIT NUMBER PANEL IS TO BE ERECTED ABOVE A COLUMN-SUPPORTED SIGN, THE SIGN'S ERECTION ANGLES SHALL BE EXTENDED TO THE TOP OF THE EXIT NUMBER PANEL. WHERE AN EXIT NUMBER PANEL IS TO BE ERECTED ABOVE AN OVERHEAD SIGN, ERECTION ANGLES SHALL BE ADDED TO THE SIGN AND EXTENDED TO THE TOP OF THE EXIT NUMBER PANEL. WHERE NECESSARY, SIGN ERECTION ANGLES MAY BE SHIFTED TOWARD THE CENTER OF A SIGN TO PROVIDE SUPPORT FOR THE EXIT NUMBER PANEL. ALL ERECTION ANGLES ADDED TO OVERHEAD SIGNS SHALL BE THE SAME AS THOSE SPECIFIED FOR COLUMN-SUPPORTED SIGNS.

REV. #11



SECTION A-A

TRUSS



SECTION B-B

CANTILEVER

REV. #6

STEEL COLUMN BREAKAWAY

U-BOLT DIMENSIONS			
ALUM. TRUSS TYPE	CANTILEVER TYPE	INSIDE BEND-DIA.	U-BOLT LENGTH
B		6" or 7"	1'-5½" or 1'-8"
C		6" or 7"	1'-5½" or 1'-8"
D		7"	1'-8"
	A	4½"	1'-3½"
	B	6⅝"	1'-7½"
	C	8⅝"	2'-1"
	D & E	10¾"	2'-5½"
	G	10¾"	2'-5½"
	H	12¾"	2'-11½"

NOTE: ALL U-BOLTS SHALL HAVE 1" THREAD LENGTH (MIN.)

ALL U-BOLTS AND ACCOMPANYING LOCKNUTS AND WASHERS SHALL BE STAINLESS STEEL – ASTM A 320, GRADE B 8 (AISI TYPE 304) FOR U-BOLTS AND WASHERS, AND GRADE B 8F (AISI TYPE 303) FOR LOCKNUTS.

REV. #12

REV. #13

NOTE:
1. ERECTION ANGLES & W MOUNTING SUPPORTS SHALL BE SHOP CONNECTED BEFORE HANDLING FINISHED SIGN. (INCIDENTAL TO SIGN)
2. ALL CONNECTIONS ARE INCIDENTAL TO "SIGN".
3. SIGN PANEL CONNECTIONS –
   BOLTS - ⅜" ϕ BOLT & HEX. NUT @ 24" O.C. FOR ALUMINUM & STEEL PANELS.
   RIVETS - ¼ ϕ @ 24" O.C. FOR ALUMINUM PANELS ONLY.

REV. #8

~~4. TORQUE ALUMINUM CLIP BOLTS TO 225 INCH POUNDS~~

REV. #5

~~5. WHEN AN EXIT NUMBER PANEL IS CALLED FOR ON THE PLANS FOR INCLUSION WITH AN OVERHEAD SIGN, THIS MOUNT'G SUPPORT SHALL BE EXTENDED TO THE TOP OF THE EXIT NUMBER PANEL.~~

REV. #9

~~6. ON GROUND MOUNTED SIGNS, THE ERECTION ANGLES SHALL BE EXTENDED TO THE TOP OF AN EXIT NUMBER PANEL, IF NECESSARY, THE LOCATION OF ERECTION ANGLES MAY BE ADJUSTED TOWARD THE CENTER OF THE SIGN TO SUPPORT AN EXIT NUMBER PANEL.~~

REV. #12

7. SIGN SUPPORT CLIPS TO BE USED ONLY FOR TYPE I SIGN ATTACHMENTS TO ROADSIDE STEEL COLUMN BREAKAWAYS. FOR ATTACHMENT OF TYPE I SIGN TO OVERHEAD SIGN MOUNTING SUPPORTS, USE 3/8" ϕ RECTANGULAR FLAT HEAD BOLTS W/LOCK NUT AND FLAT WASHER, AT TOP & BOTTOM. (4 REQ'D PER MOUNTING SUPPORTS) SUPPORT CLIPS MAY BE USED INTERMEDIATELY.

REV. #13

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SIGN CONNECTION DETAILS

~~TRUSS~~ — ~~CANTILEVER~~ — COLUMN

REVISIONS			
NO	DESCRIPTION	DATE	BY
5	DELETE NOTES #5 AND #6	4-71	
10	ADD OF ATTACHMENT OF EXIT NUMBER PANELS	4-71	
8	DELETE REV #10	10-71	
12	DELETE O'HEAD SUPPORT CLIPS, NOTE #7 ADDED	3-72	
13	ADDITIONS MADE TO NOTES #1 & #7	7-74	LRP

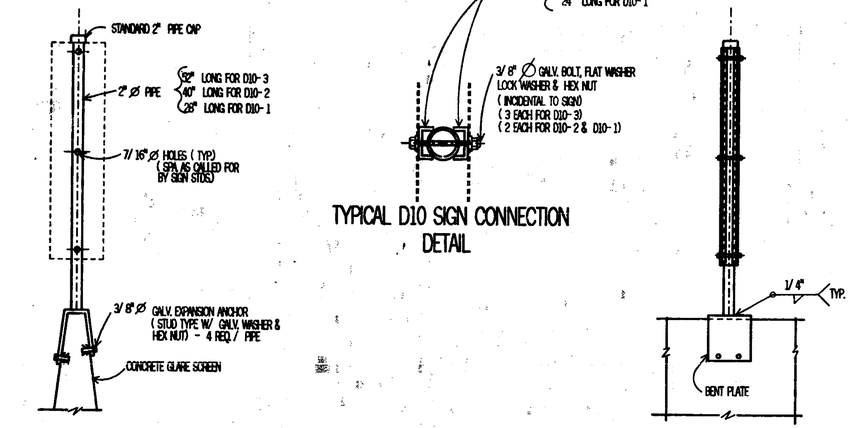
REVISIONS			
NO	DESCRIPTION	DATE	BY
1	DIMENSION CHANGE	7-15-65	G.R.H.
2	CONNECTION PLAN ADDED	4-66	R.L.D.
3	ADD OF STEEL SIGN PANEL	10-66	T.M.W.
4	U-BOLT DESIGNATION ADDED	12-67	D.A.R.
5	NOTES 5 & 6 ADDED	10-68	
6	U BOLT CHART CHANGED	10-68	
7	& BH DIMENSIONS ADDED	10-68	
8	DELETE NOTE #4	3-71	

BRIDGE DESIGN		
DRAWN BY	R.D.S.	MAY 64
TRACED BY		
CHECKED BY		
SHEET 1 OF 3		

S9.10A

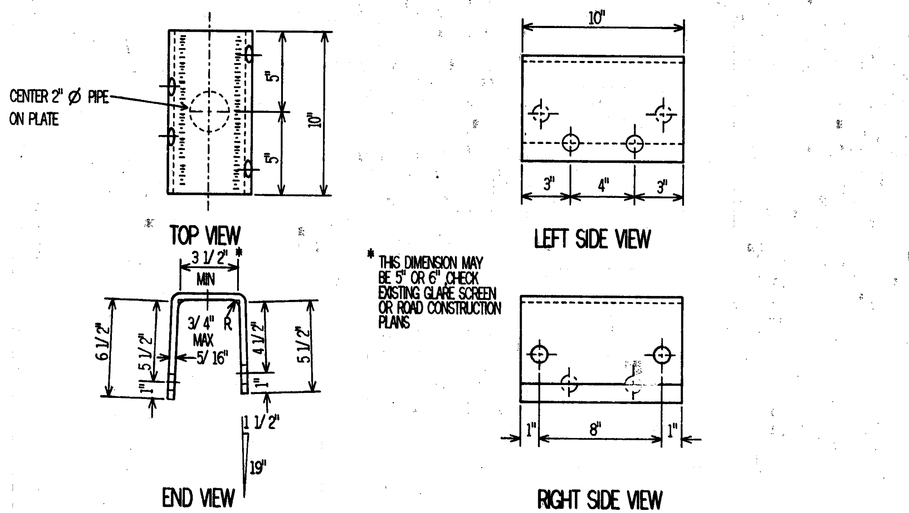
CS 63174 NO 84

Job No 14824A



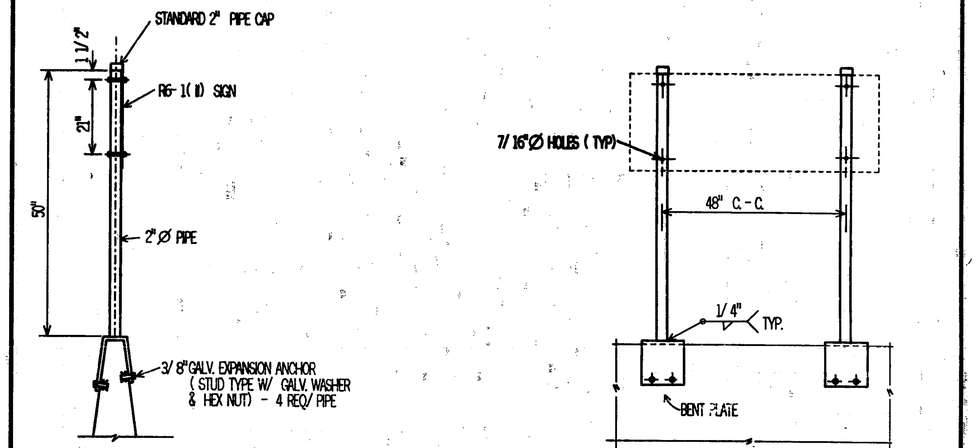
GLARE SCREEN CONNECTION - TYPE I

MILE POST SIGN



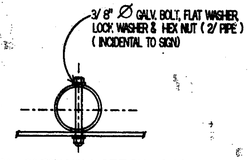
BENT PLATE DETAILS

PREPARED BY ENG. DEV. TR & S DIV.	ENGINEER OF DESIGN	ENGINEER OF TRAFFIC & SAFTEY	MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION STANDARD PLAN FOR TYPE I & II SIGN CONNECTIONS TO CONCRETE GLARE SCREEN		
CHECKED BY REG. DEV.	ENGINEER OF CONSTRUCTION	DEPARTMENT DIRECTOR JOHN P. WOODFORD			
DRAWN BY		BY:			
CHECKED BY A.E.	ENGINEER OF TESTING & RESEARCH	DEPUTY DIRECTOR HIGHWAYS	F.H.W.A. APPROVAL DATE	DATE	S-9-12A SHEET 1 OF 2



GLARE SCREEN CONNECTION - TYPE II

ONE- WAY ARROW SIGN



TYPICAL ONE WAY ARROW SIGN CONNECTION DETAIL

NOTES:

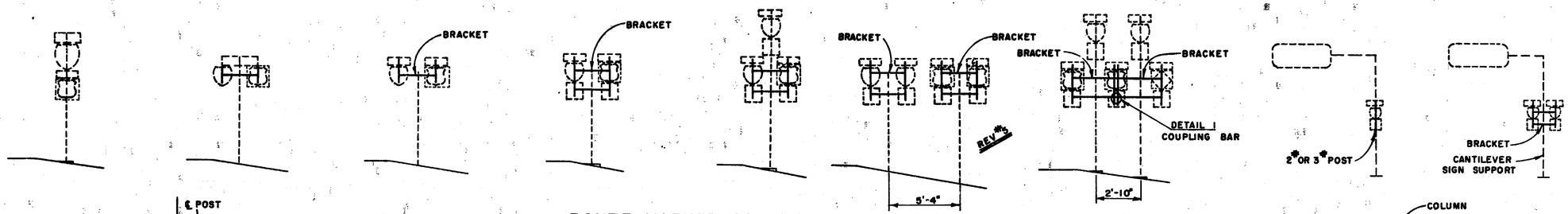
ENTIRE SECTION (PIPE & PLATE) TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH A.S.T.M. A 123 AFTER FABRICATION.

ALL CHANNELS, BOLTS, NUTS AND WASHERS TO BE GALVANIZED.

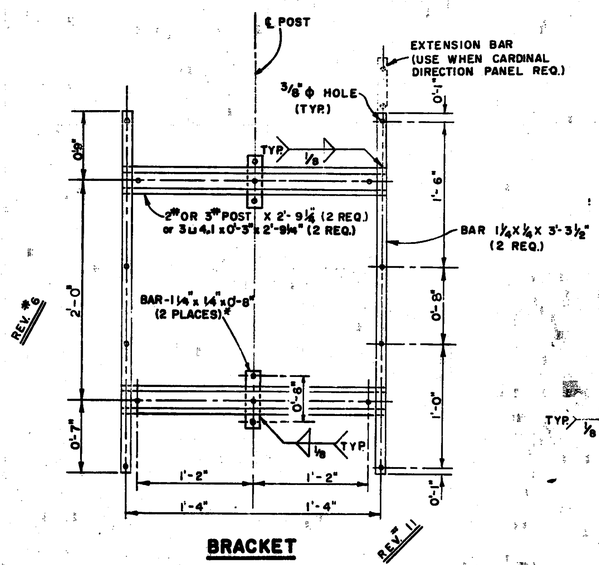
STEEL PIPES SHALL BE OF " STANDARD WEIGHT" AND CONFORM TO A.S.T.M. A 53 (GRADE B)

ALL PLATES AND CHANNELS TO BE STRUCTURAL STEEL A.S.T.M. A 36.

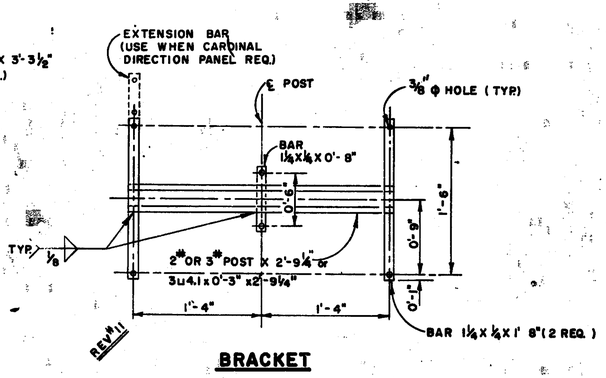
S-9-12A SHEET 2 OF 2



ROUTE MARKER ASSEMBLY
TYPICAL INSTALLATIONS



BRACKET



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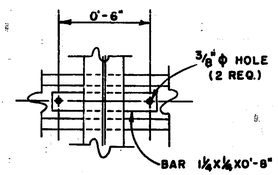
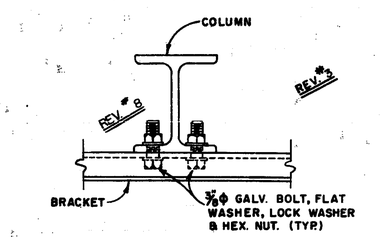
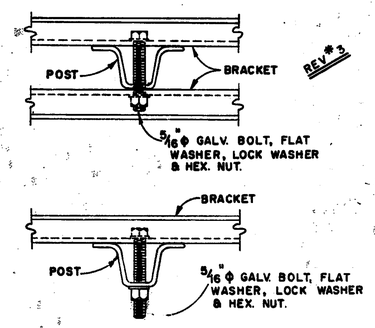


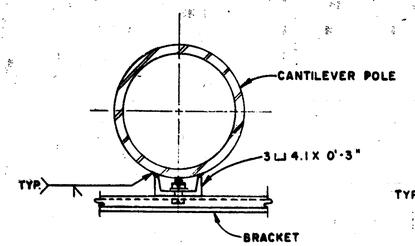
DETAIL I (TYP. - 2 PLACES)
COUPLING BAR

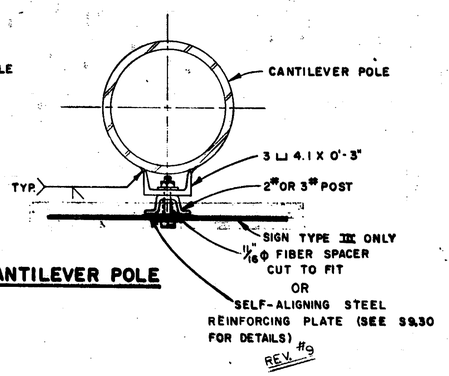


BRACKET TO COLUMN

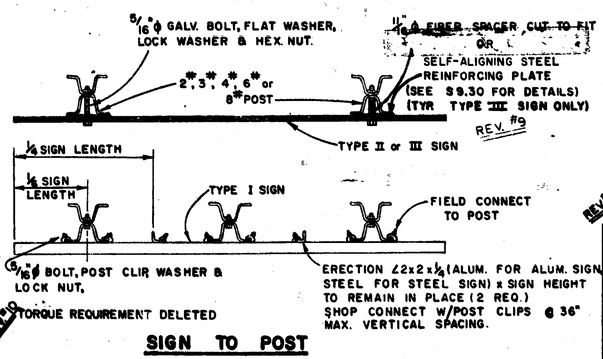


BRACKET TO POST





BRACKET OR SIGN TO CANTILEVER POLE



EXTENSION BAR

SIGN TO POST

NOTE:
1. ALL CONNECTIONS ARE INCIDENTAL TO "SIGN".
2. ALL STEEL PARTS SHALL BE GALVANIZED.
3. FOR SIGN CONNECTIONS TO WOOD SUPPORTS SEE PLAN S3.30
4. USE BAR FOR BRACKET WHEN "STRAPPING CONNECTION TO POLE" (S 9.30) IS USED.

TYPICAL CONNECTIONS

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
MISCELLANEOUS
SIGN CONNECTION DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1		1-64	
2		6-64	
3	PIGGYBACK CONN. DELETED, VIEWS ADD.	4-14-66	G.R.H.
4	6"& 8" POSTS ADD. to "SIGN TO POST" VIEW	4-11-67	T.W.W.

ROAD DESIGN		
DRAWN BY	G.R.H.	4-14-66
TRACED BY		
CHECKED BY	T.R.K.	4-15-66
SHEET 2 OF 3		

S9.20

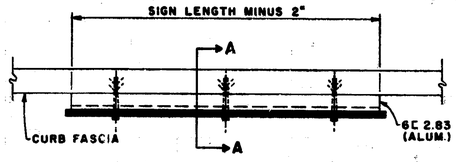
CS 63174
Job No 14c24A

12. Holes changed to 5/8"

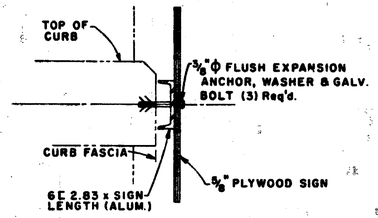
8. BRACKET REDESIGNED, NOTE #4 ADDED, EXTENSION BAR CHANGED, ALTERNATE BRACKET MATERIAL PROVIDED 6-72
12. Sign to post, Bracket to column & post-Bolts changed from 3/8" to 5/16".

5 CHANGE 4-SIGN CLUSTER MOUNTING ARRANGEMENT. 11-29-67 R&P
6 BRACKET DIMENSIONS CHANGED 2-13-68 TWW
7 NOTE #3 ADDED 11-68 CD
8 SECOND BOLT ADDED 3-71 KJO

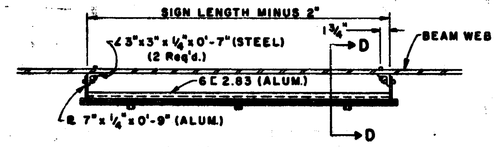
9. STEEL REINFORCING PLATE ADDED 3-71 WJH
10 TORQUE REQUIREMENT DELETED



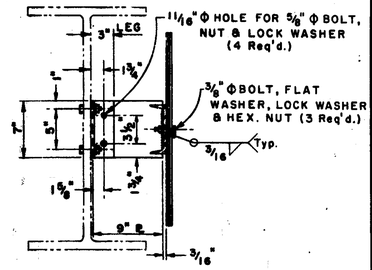
PLAN (TYPE A)
0° CONNECTION



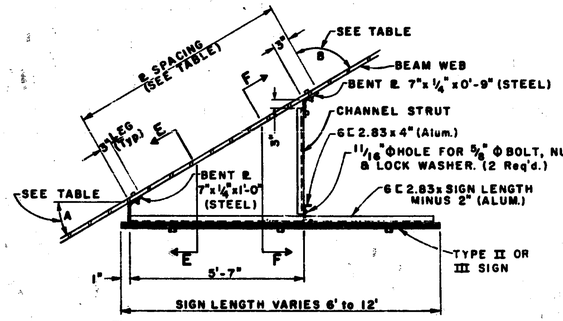
SECTION A-A



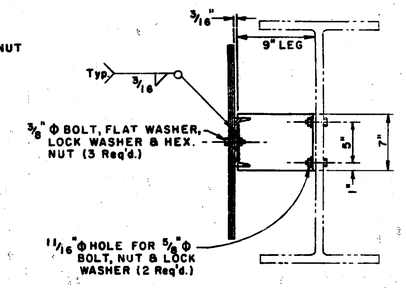
PLAN (TYPE B)
0° CONNECTION



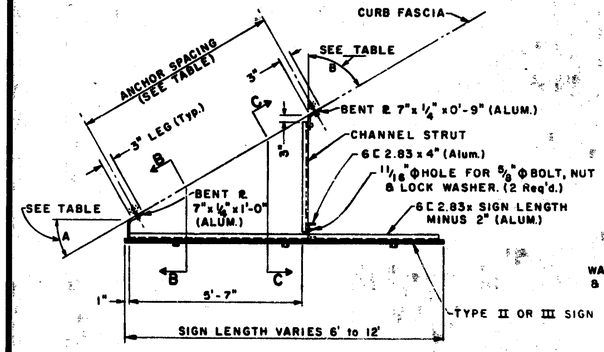
SECTION D-D



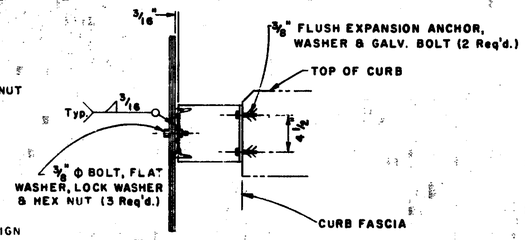
PLAN (TYPE B)
10°, 20°, 30° & 40° CONNECTIONS



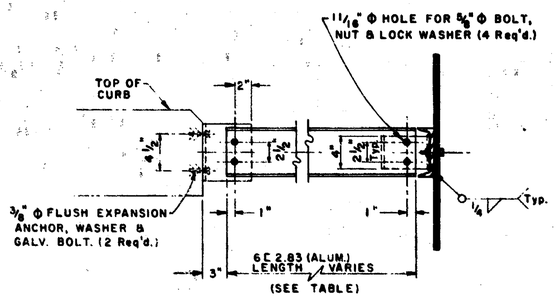
SECTION E-E



PLAN (TYPE A)
10°, 20°, 30° & 40° CONNECTIONS



SECTION B-B

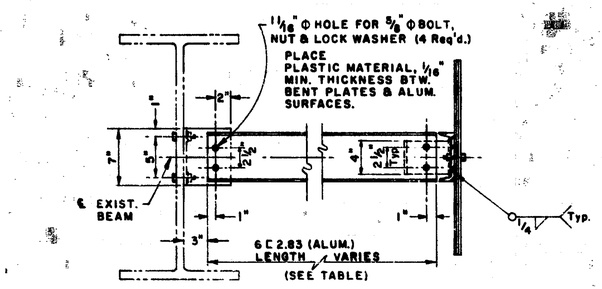


SECTION C-C

TYPE A BRIDGE CONNECTION TABLE

SKEW	CONNECTION (ANGLE A)	ANGLE B	CHANNEL STRUT LENGTH	ANCHOR SPACING
0°-10°	0°	——	——	MATCH SIGN HOLES
10°-20°	10°	80°	6 C 2.83 x 1'-4 3/4"	5'- 6"
20°-30°	20°	70°	do x 2'- 5 1/4"	5'-11 1/2"
30°-40°	30°	60°	do x 3'- 7 1/2"	6'- 5 1/2"
40°-50°	40°	50°	6 C 2.83 x 5'- 1 1/4"	7 - 3 1/4"

BRIDGE CONNECTION
TYPE A



SECTION F-F

TYPE B BRIDGE CONNECTION TABLE

SKEW	CONNECTION (ANGLE A)	ANGLE B	CHANNEL STRUT LENGTH	℄ SPACING
0°-10°	0°	——	——	——
10°-20°	10°	80°	6 C 2.83 x 1'-4 3/4"	5'-11"
20°-30°	20°	70°	do x 2'- 5 1/4"	6'- 2 1/2"
30°-40°	30°	60°	do x 3'- 7 1/2"	6' 8 1/2"
40°-50°	40°	50°	6 C 2.83 x 5'- 1 1/4"	7'- 6 1/2"

BRIDGE CONNECTION
TYPE B

NOTES:

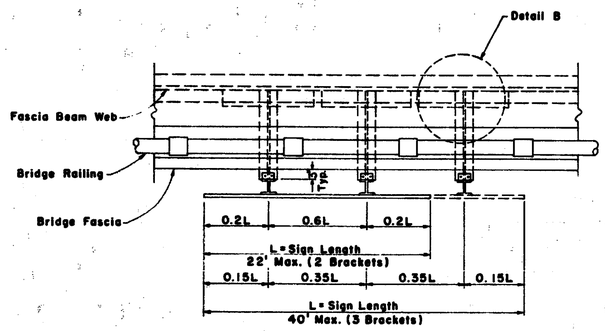
1.) All bolts, nuts and washers shall be galvanized steel. Nuts shall be tapped 0.015 oversize.
2.) All aluminum components shall be 6061-T6 aluminum alloy. All steel components shall be A-36 and shall be hot-dip galvanized according to ASTM A-123. A-588 steel components may be used as an alternate on existing A-588 Fascia beams.
3.) Sign location may be shifted to avoid joints or stiffeners.
4.) Threads on all bolts shall be burred after final torquing.
5.) Bottom edge of sign shall be horizontal when erected and shall be a minimum of 1'-6" above the bridge beam flange at all points.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
BOLTED BRIDGE CONNECTION
TYPE A & B

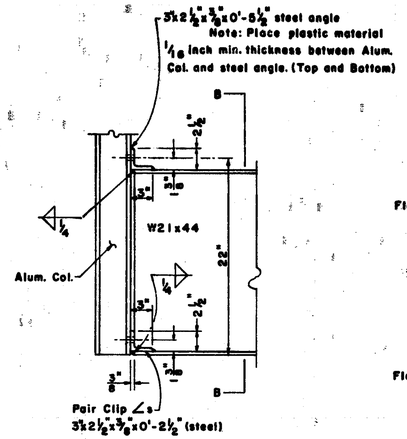
REVISIONS			
NO	DESCRIPTION	DATE	BY
1	Notes Revised	4/78	JDB

DRAWN BY W.C.G.
TRACED BY
CHECKED BY
SHEET OF

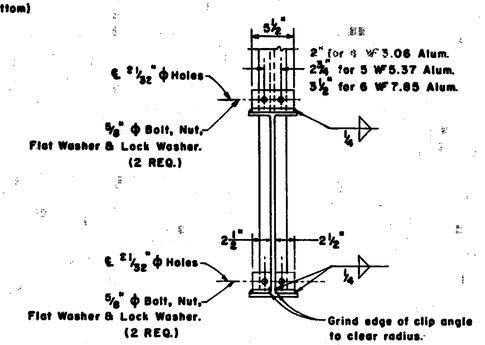
S 10.50



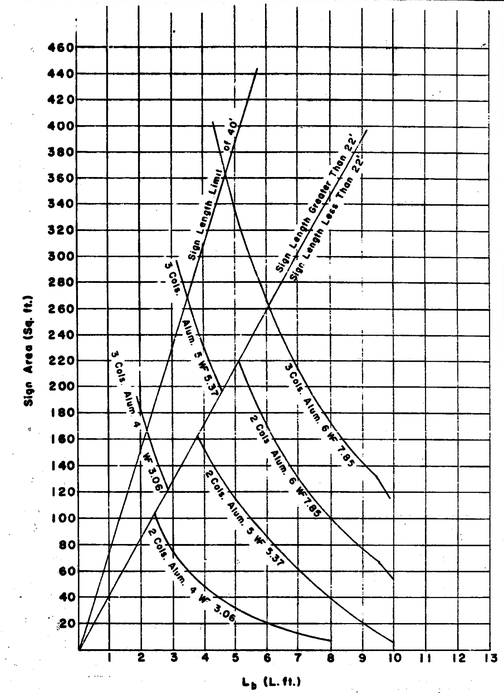
PLAN



DETAIL A

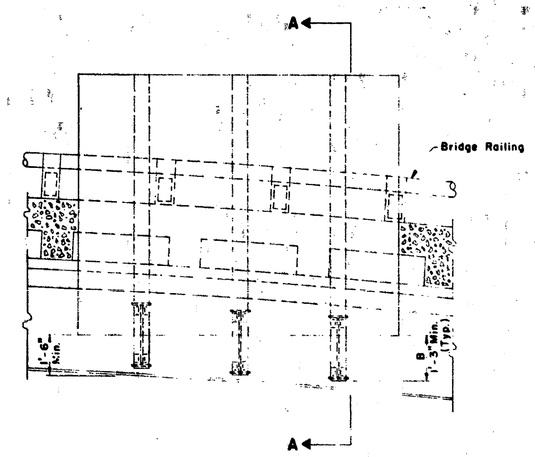


SECTION B-B

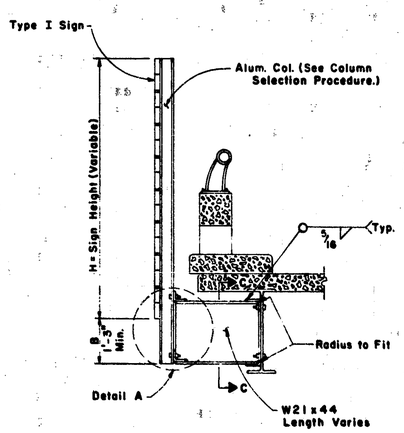


COLUMN SELECTION PROCEDURE

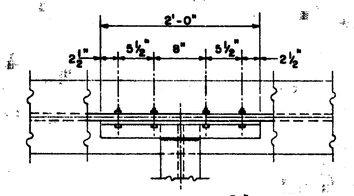
1.) Determine B using the longest required column.
2.) $L_b = \frac{1}{2}$ of the distance between the top of the sign and the top clip angle bolt. $L_b = \frac{1}{2}[(H+B)-2.0]$
3.) Determine the sign area. (Sq. ft.)
4.) Using the chart determine the size and number of columns required.



ELEVATION

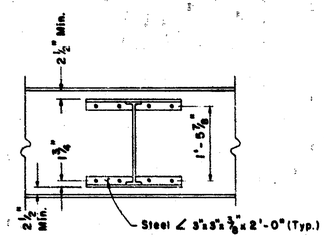


SECTION A-A



If beam web is less than 7/16" thick add ⅜"x3"x2'-0" Steel ∠ on inside face.

DETAIL B



Drill 11/16" ϕ Holes to Template
For ⅝" ϕ bolts, nuts, flat washers and lock washers.

SECTION C-C

NOTES:

1.) All bolts shall be galvanized high strength bolts (ASTM A325). All bolts, nuts and washers shall be hot dip galvanized according to ASTM A-153. Nuts shall be tapped 0.015 oversize.
2.) All alum. components shall be 6061-T6 alum. alloy. All steel components shall be A-36 and shall be hot-dip galvanized according to ASTM A-123. A-588 steel components may be used as an alternate on existing A-588 Fascia beams.
3.) Sign location may be shifted to avoid joints or stiffeners.
4.) Threads on all bolts shall be burred after final torquing.
5.) Bottom edge of sign shall be horizontal when erected and shall be a minimum of 1'-6" above the lower bridge beam flange at all points.
6.) Type C connection denotes a two-bracket sign connection.
7.) Type D connection denotes a three-bracket sign connection.
8.) Sign connections to mounting support columns shall have the same bolt arrangement as shown for connections for sign to mounting supports for cantilevers and trusses. (Standard Plan S 9.10.)

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

BOLTED BRIDGE CONNECTION TYPES C & D (Θ = 0°)

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	Notes Revised	4/76	JDB
2	Added Flat Washers to Dtwg.	4/77	WCG

SQUAD BOSS	
DRAWN BY	W. C. G.
TRACED BY	
CHECKED BY	
SHEET	OF

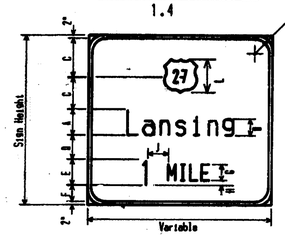
S10.60

SIGN DETAIL SHEET

P.A.&P. PROJ. NO.	STATE	FEDERAL PROJECT	R.O.W. SHEET NO.	SHEET NO.	TOTAL SHEETS
				89	96
ROUTE	COUNTY	CONTROL SECTION		JOB NO.	

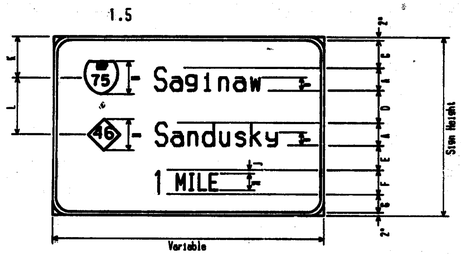
E1-1 SIGNS

1.4



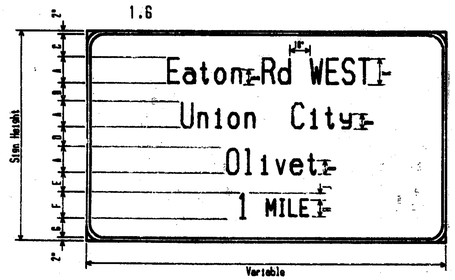
PANEL	LEGEND SIZE	DIMENSION (INCHES)											SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	L	M	
I	16"UC 12"LC	16	12	20	12	15	11	10	7.5	10	30		9'-0"
II	20"UC 15"LC	20	15	31	15	18	19	12	3.0	12	36		11'-0"
III	24"UC 18"LC	24	18	39	18	18	14	12	3.0	12	36		12'-0"
IV	13.5"UC 10"LC	13.5	10	24	9.4	12	9.3	10	1.0	10	30		8'-0"

1.5

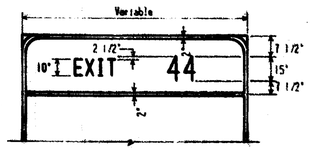


PANEL	LEGEND SIZE	DIMENSION (INCHES)													SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	K	L	M	N	
I	16"UC 12"LC	16	12	18	27	18	15	18	18	2.5	29	43	36		10'-6"
II	20"UC 15"LC	20	15	18	24	18	18	15	12	3.0	30	46	36		11'-6"
III	24"UC 18"LC	24	18	16	20	16	18	15	12	3.0	30	46	36		11'-6"
IV	13.5"UC 10"LC	13.5	10	10.35	26.7	10.35	12	10	10	1.0	27	40	30		9'-6"

1.6



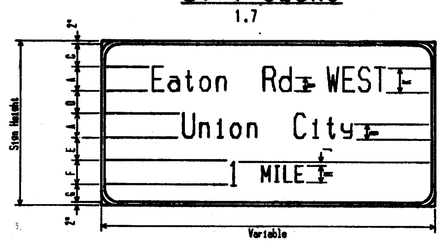
PANEL	LEGEND SIZE	DIMENSION (INCHES)											SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	K	L	
I	16"UC 12"LC	16	12	11.5	12	12	15	11.5	10	2.5	15		10'-6"
II	20"UC 15"LC	20	15	14.5	15	15	18	14.5	12	3.0	18		13'-0"
III	24"UC 18"LC	24	18	17	17	18	18	17	12	3.0	18		15'-6"
IV	13.5"UC 10"LC	13.5	10	11	10	10.1	12	11	10	1.0	12		9'-0"



EXIT NUMBER DETAIL WHEN USED AS PART OF PARENT SIGN

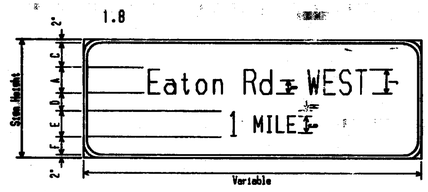
E1-1 SIGNS

1.7



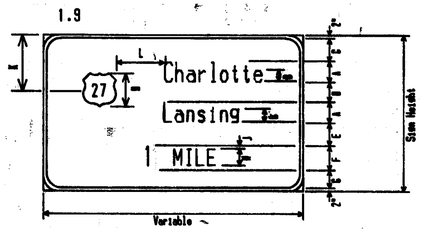
PANEL	LEGEND SIZE	DIMENSION (INCHES)											SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	K		
I	16"UC 12"LC	16	12	18	12	18	15	18	18	2.5	15		8'-6"
II	20"UC 15"LC	20	15	14	15	15	18	14	12	3.0	18		10'-0"
III	24"UC 18"LC	24	18	17	17	17	18	17	12	3.0	18		11'-6"
IV	13.5"UC 10"LC	13.5	10	10.7	10	10	12	10.7	10	1.0	12		7'-6"

1.8



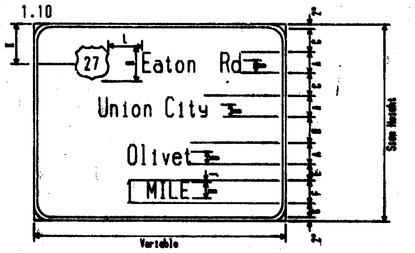
PANEL	LEGEND SIZE	DIMENSION (INCHES)										SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	K	
I	16"UC 12"LC	16	12	12.5	12	15	12.5	10	2.5	15		8'-6"
II	20"UC 15"LC	20	15	18.5	15	18	18.5	12	3.0	18		11'-6"
III	24"UC 18"LC	24	18	19.5	18	18	18.5	12	3.0	18		11'-6"
IV	13.5"UC 10"LC	13.5	10	10	10.7	12	10	10	1.0	12		9'-6"

1.9



PANEL	LEGEND SIZE	DIMENSION (INCHES)													SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	K	L	M	N	
I	16"UC 12"LC	16	12	13	12	16	15	13	10	2.5	27	12	30		8'-6"
II	20"UC 15"LC	20	15	14	15	15	18	14	12	3.0	43.5	15	36		10'-6"
III	24"UC 18"LC	24	18	17	17	17	18	17	12	3.0	51.5	18	36		11'-6"
IV	13.5"UC 10"LC	13.5	10	10.7	10	10	12	10.7	10	1.0	31	10	30		7'-6"

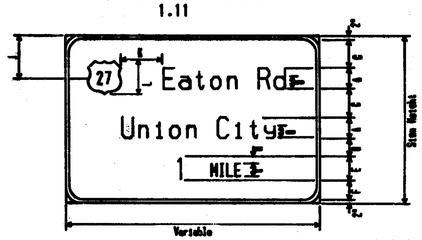
1.10



PANEL	LEGEND SIZE	DIMENSION (INCHES)													SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	K	L	M	N	
I	16"UC 12"LC	16	12	19	12	11	15	10	10	2.5	29	12	30		11'-6"
II	20"UC 15"LC	20	15	22	15	15	18	12	12	3.0	34	15	36		14'-6"
III	24"UC 18"LC	24	18	23	18	17	18	17	12	3.0	39	18	36		16'-6"
IV	13.5"UC 10"LC	13.5	10	17.3	10	10	12	9.5	10	1.0	28	10	30		10'-6"

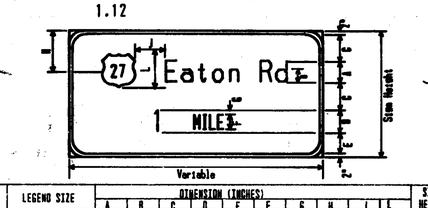
E1-1 SIGNS

1.11



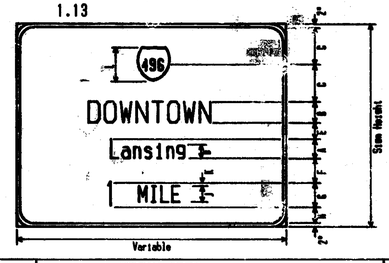
PANEL	LEGEND SIZE	DIMENSION (INCHES)												SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	K	L	M	
I	16"UC 12"LC	16	12	20	12	15	11	10	7.5	30	12	30		9'-6"
II	20"UC 15"LC	20	15	21	15	18	18	12	3.0	31	15	36		11'-6"
III	24"UC 18"LC	24	18	21	18	18	14	12	3.0	30	18	36		12'-6"
IV	13.5"UC 10"LC	13.5	10	17.35	9.4	12	9.3	10	1.0	29	10	30		9'-6"

1.12



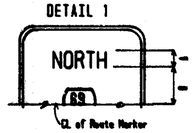
PANEL	LEGEND SIZE	DIMENSION (INCHES)												SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	K	L	M	
I	16"UC 12"LC	16	12	28	15	9	10	2.5	30	12	30			7'-6"
II	20"UC 15"LC	20	15	27.5	18	15	12	3.0	32	15	36			9'-6"
III	24"UC 18"LC	24	18	32	18	18	12	3.0	36	18	36			9'-6"
IV	13.5"UC 10"LC	13.5	10	18.35	12	18	10	1.0	28	10	30			8'-6"

1.13



PANEL	LEGEND SIZE	DIMENSION (INCHES)												SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	K	L	M	
I	16"UC 12"LC	16	12	27	15	12	12	15	10	10	2.5	30		11'-6"
II	20"UC 15"LC	20	15	32	18	15	15	18	14	12	3.0	36		14'-6"
III	24"UC 18"LC	24	18	37	18	18	18	18	14	12	3.0	36		16'-6"
IV	13.5"UC 10"LC	13.5	10	24	12	12	18	10	10.7	10	1.0	30		10'-6"

DETAIL 1



DETAIL 2

Where cardinal direction is placed above route marker, it shall be repositioned as shown with sign height increased. 18" for PANEL I & IV & 24" for PANEL II & III.

PANEL	LEGEND SIZE	DIMENSION (INCHES)	
		A	B
I	16"UC 12"LC	12	24
II	20"UC 15"LC	15	24
III	24"UC 18"LC	15	24
IV	13.5"UC 10"LC	10	21

PANEL	LEGEND SIZE	DIMENSION (INCHES)	
		A	B
I	16"UC 12"LC	15	7
II	20"UC 15"LC	18	7
III	24"UC 18"LC	18	7
IV	13.5"UC 10"LC	12	8

NOTE: All lines of Legends are to be optically centered.

S13.10

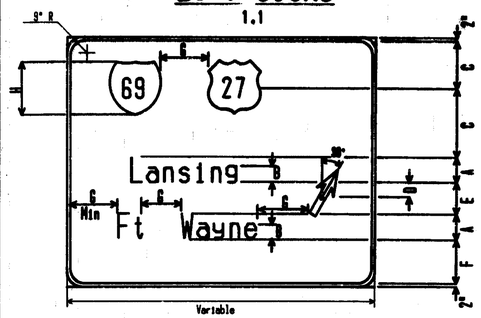
CONTROL SECTION	63174	JOB NO.	14824 A	FEDERAL PROJECT	R.O.W. SHEET NO.	SHEET NO. 89

SIGN DETAIL SHEET

F.A.R.S. or F.A.S. NO.	STATE	FEDERAL PROJECT	R.R.X. NO.	SHEET NO.	TOTAL SHEETS
				90	96
ROUTE	COUNTY	CONTROL SECTION	JOB NO.		

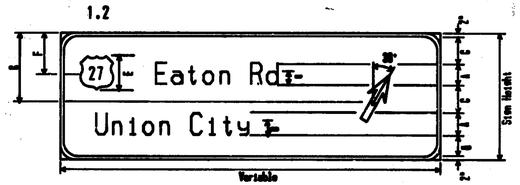
E6-1 SIGNS

1.1



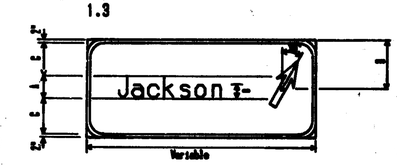
PANEL	LEGEND SIZE	DIMENSION (INCHES)								SIGN HEIGHT	ARROW SIZE
		A	B	C	D	E	F	G	H		
I	16"UC 12"LC	16	12	27	8	12	12	12	36	5'-6"	20 A
II	20"UC 15"LC	20	15	32	9	15	15	15	36	11'-6"	24 A
III	19.5"UC 16"LC	19.5	16	25.5	5	16	16.4	16	36	8'-6"	16 A

1.2



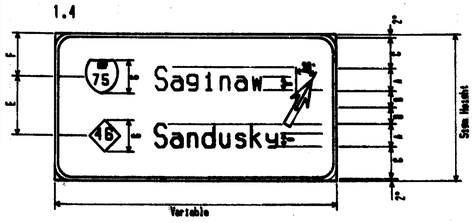
PANEL	LEGEND SIZE	DIMENSION (INCHES)							SIGN HEIGHT	ARROW SIZE
		A	B	C	D	E	F	G		
I	16"UC 12"LC	16	12	21	12	36	31	49.5	7'-6"	20A
II	20"UC 15"LC	20	15	22	14	36	32	66	11'-6"	24A
III	19.5"UC 16"LC	19.5	16	18.4	16.81	36	27	42	8'-6"	16A

1.3



PANEL	LEGEND SIZE	DIMENSION (INCHES)				SIGN HEIGHT	ARROW SIZE
		A	B	C	D		
I	16"UC 12"LC	16	12	14	24	4'-6"	20A
II	20"UC 15"LC	20	16	15	27	6'-6"	24A
III	19.5"UC 16"LC	19.5	16	12.36	21	5'-6"	16A

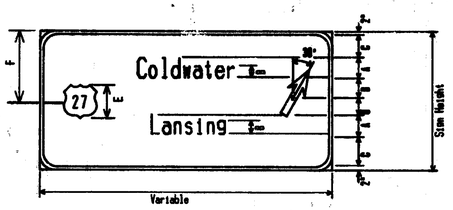
1.4



PANEL	LEGEND SIZE	DIMENSION (INCHES)							SIGN HEIGHT	ARROW SIZE
		A	B	C	D	E	F	G		
I	16"UC 12"LC	16	12	18	16	48	28	38	8'-6"	20A
II	20"UC 15"LC	20	15	19.5	15.5	51	31.5	38	8'-6"	24A
III	19.5"UC 16"LC	19.5	16	16.4	19.3	59.9	28.65	38	6'-6"	16A

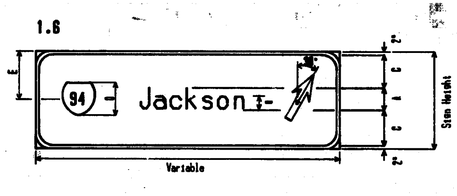
E6-1 SIGNS

1.5



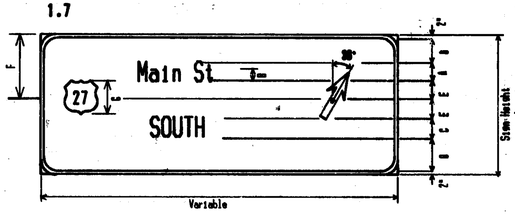
PANEL	LEGEND SIZE	DIMENSION (INCHES)						SIGN HEIGHT	ARROW SIZE
		A	B	C	D	E	F		
I	16"UC 12"LC	16	12	12	8	36	36	6'-6"	20A
II	20"UC 15"LC	20	15	15	8	36	45	7'-6"	24A
III	19.5"UC 16"LC	19.3	16	9.8	4.8	36	36	5'-6"	16A

1.6



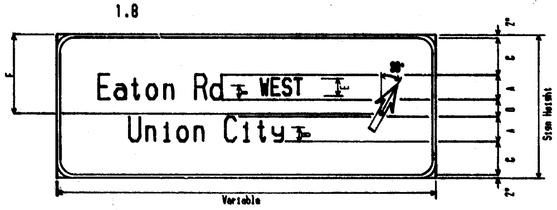
PANEL	LEGEND SIZE	DIMENSION (INCHES)					SIGN HEIGHT	ARROW SIZE
		A	B	C	D	E		
I	16"UC 12"LC	16	12	20	36	36	5'-6"	20A
II	20"UC 16"LC	20	15	21	36	36	5'-6"	24A
III	19.5"UC 16"LC	19.5	16	18.95	36	27	4'-6"	16A

1.7



PANEL	LEGEND SIZE	DIMENSION (INCHES)							SIGN HEIGHT	ARROW SIZE
		A	B	C	D	E	F	G		
I	16"UC 12"LC	16	12	12	19.5	6.5	36	36	6'-6"	20A
II	20"UC 15"LC	20	15	15	15	7.5	45	36	7'-6"	24A
III	19.5"UC 16"LC	19.3	16	10	11	5.35	36	36	5'-6"	16A

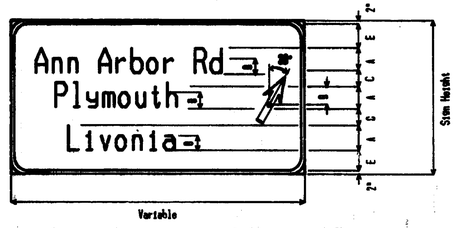
1.8



PANEL	LEGEND SIZE	DIMENSION (INCHES)						SIGN HEIGHT	ARROW SIZE
		A	B	C	D	E	F		
I	16"UC 12"LC	16	12	12	12	15	36	6'-6"	20A
II	20"UC 15"LC	20	15	15	16	18	45	7'-6"	24A
III	19.5"UC 16"LC	19.3	16	9.8	9.5	12	36	5'-6"	16A

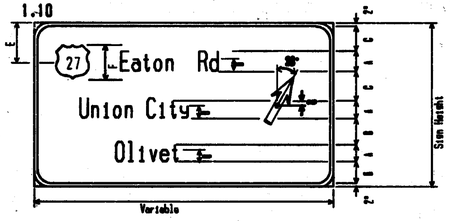
E6-1 SIGNS

1.9



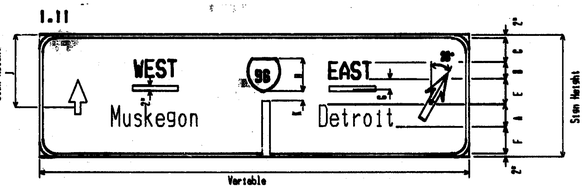
PANEL	LEGEND SIZE	DIMENSION (INCHES)					SIGN HEIGHT	ARROW SIZE
		A	B	C	D	E		
I	16"UC 12"LC	16	12	12	8	13	8'-6"	20A
II	20"UC 15"LC	20	15	15	10	16	10'-6"	24A
III	19.5"UC 16"LC	19.3	16	10	6.65	10.05	7'-6"	16A

1.10



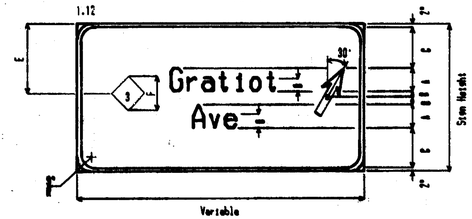
PANEL	LEGEND SIZE	DIMENSION (INCHES)							SIGN HEIGHT	ARROW SIZE
		A	B	C	D	E	F	G		
I	16"UC 12"LC	16	12	19	12	32	32	4.5	9'-6"	20A
II	20"UC 15"LC	20	15	22	15	36	36	6	11'-6"	24A
III	19.5"UC 16"LC	19.3	16	18.85	18.4	27	30	3	8'-6"	16A

1.11



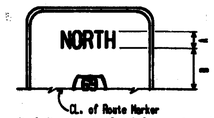
PANEL	LEGEND SIZE	DIMENSION (INCHES)										SIGN HEIGHT	ARROW SIZE
		A	B	C	D	E	F	G	H	J	K		
I	16"UC 12"LC	16	12	12	15	19	12	7	36	39	6	8'-6"	20A
II	19.5"UC 16"LC	19.3	16	13	12	18.7	13	6	36	39	5	6'-6"	16A

1.12



PANEL	LEGEND SIZE	DIMENSION (INCHES)						SIGN HEIGHT	ARROW SIZE
		A	B	C	D	E	F		
I	16"UC 12"LC	16	12	12	8	45	36	7'-6"	20A
II	20"UC 15"LC	20	15	15	8	45	36	7'-6"	24A
III	19.5"UC 16"LC	19.3	16	9.8	4.8	30	30	5'-6"	16A

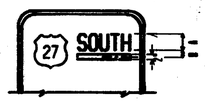
DETAIL 1



Where cardinal direction is placed above route marker, it shall be positioned as shown with sign height increased. 18" for PANEL I & III, 24" for PANEL II

PANEL	LEGEND SIZE	DIMENSION (INCHES)	
		A	B
I	16"UC 12"LC	12	24
II	20"UC 15"LC	15	24
III	19.5"UC 16"LC	10	21

DETAIL 2



PANEL	LEGEND SIZE	DIMENSION (INCHES)	
		A	B
I	16"UC 12"LC	15	8
II	20"UC 15"LC	10	7
III	19.5"UC 16"LC	12	8

DETAIL 3

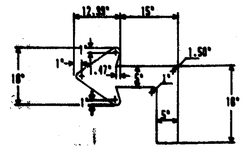
EXIT ONLY DETAIL WHEN USED AS PART OF PARENT SIGN

SPECIFICATIONS

1. Sign Panels: Integral portion of parent sign.
2. Sign Faces: Type B
   (a.) Legends: Letter Series E of the height indicated.
   (b.) Color: Black letters and border on yellow background.
   (c.) Reflectorization: Yellow sheeting
   Height of sign usually increases by 18" for Panel I, 24" for Panel II, 30" for Panel III

PANEL	LEGEND SIZE	DIMENSION (INCHES)				
		A	B	C	D	E
I	16"UC 12"LC	12	6	6	12	2
II	20"UC 15"LC	15	12	7	12	15
III	19.5"UC 16"LC	10	5	5	8	10

DETAIL 4



NOTES:
1.- See Std. S13.10 for Exit Number Detail Drawing.
2.- All lines of Legends are to be optically centered.

S13.20

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	R.R.X. NO.	SHEET NO.
63174	14624A			92

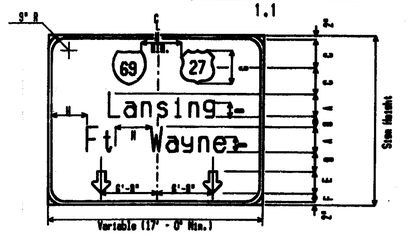
SIGN DETAIL SHEET

F.A.H.A. RTE. NO.	STATE	FEDERAL PROJECT	R.R.S. NO.	SHEET NO.	TOTAL SHEETS
				91	96

ROUTE	COUNTY	CONTROL SECTION	JOB NO.

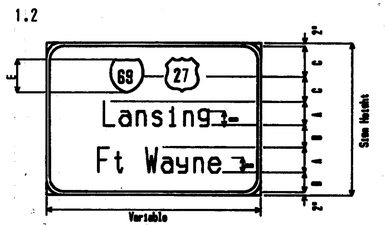
E6-2 SIGNS

1.1



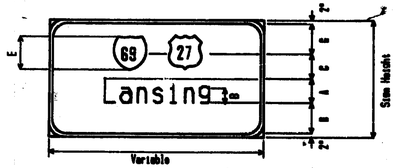
PANEL	LEGEND SIZE	DIMENSION (INCHES)								SIGN HEIGHT
		A	B	C	D	E	F	G	H	
I	16"UC 12"LC	16	12	27	12	22	8	36	12	12'-6"
II	20"UC 15"LC	20	15	36	15	22	12	36	15	14'-6"
III	13.3"UC 10"LC	13.3	10	24	9	22	7.4	36	10	10'-6"

1.2



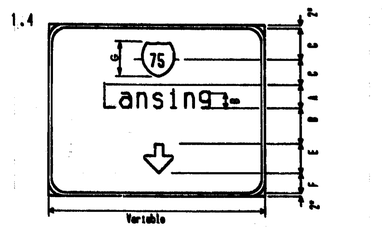
PANEL	LEGEND SIZE	DIMENSION (INCHES)								SIGN HEIGHT
		A	B	C	D	E	F	G	H	
I	16"UC 12"LC	16	12	27	12	22	8	36	12	11'-6"
II	20"UC 15"LC	20	15	36	14	22	12	36	15	13'-6"
III	13.3"UC 10"LC	13.3	10	25.5	10.7	22	8	36	10	9'-6"

1.3



PANEL	LEGEND SIZE	DIMENSION (INCHES)						SIGN HEIGHT
		A	B	C	D	E	F	
I	16"UC 12"LC	16	12	28	12	36	8	7'-6"
II	20"UC 15"LC	20	15	32	14	36	8	8'-6"
III	13.3"UC 10"LC	13.3	10	25	10.7	36	8	6'-6"

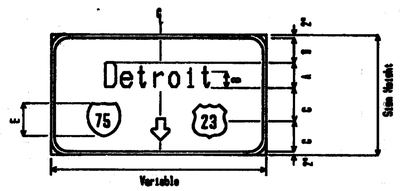
1.4



PANEL	LEGEND SIZE	DIMENSION (INCHES)							SIGN HEIGHT
		A	B	C	D	E	F	G	
I	16"UC 12"LC	16	12	27	18	22	8	36	9'-6"
II	20"UC 15"LC	20	15	29	14	22	8	36	10'-6"
III	13.3"UC 10"LC	13.3	10	25	10.7	22	8	36	8'-6"

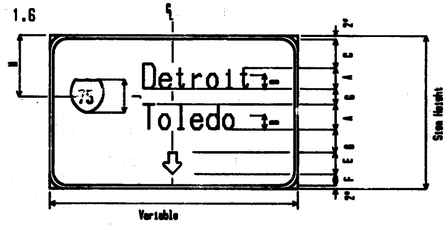
E6-2 SIGNS

1.5



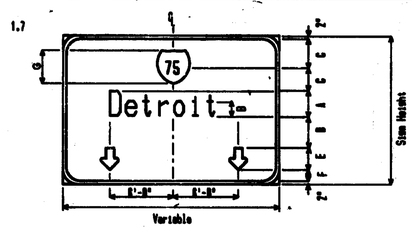
PANEL	LEGEND SIZE	DIMENSION (INCHES)					SIGN HEIGHT
		A	B	C	D	E	
I	16"UC 12"LC	16	12	28	14	36	7'-6"
II	20"UC 15"LC	20	15	32	14	36	8'-6"
III	13.3"UC 10"LC	13.3	10	25	10.7	36	6'-6"

1.6



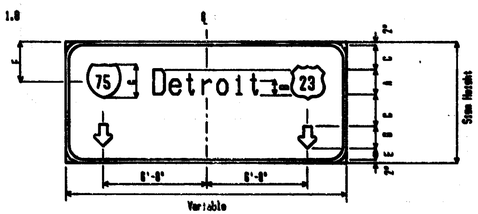
PANEL	LEGEND SIZE	DIMENSION (INCHES)									SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	
I	16"UC 12"LC	16	12	12	12	22	8	12	35	36	8'-6"
II	20"UC 15"LC	20	15	14	12	22	8	14	41	36	9'-6"
III	13.3"UC 10"LC	13.3	10	10	10	22	8	9.4	32	36	7'-6"

1.7



PANEL	LEGEND SIZE	DIMENSION (INCHES)							SIGN HEIGHT
		A	B	C	D	E	F	G	
I	16"UC 12"LC	16	12	27	18	22	8	36	9'-6"
II	20"UC 15"LC	20	15	29	14	22	8	36	10'-6"
III	13.3"UC 10"LC	13.3	10	25	10	22	8.7	36	8'-6"

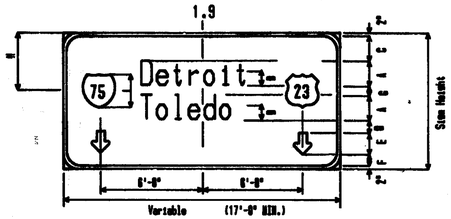
1.8



PANEL	LEGEND SIZE	DIMENSION (INCHES)							SIGN HEIGHT
		A	B	C	D	E	F	G	
I	16"UC 12"LC	16	12	28	22	8	36	36	7'-6"
II	20"UC 15"LC	20	15	34	22	8	36	36	8'-6"
III	13.3"UC 10"LC	13.3	10	18	22	8.7	36	36	7'-6"

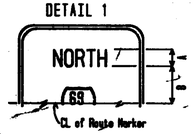
E6-2 SIGNS

1.9



PANEL	LEGEND SIZE	DIMENSION (INCHES)									SIGN HEIGHT
		A	B	C	D	E	F	G	H	J	
I	16"UC 12"LC	16	12	12	12	22	8	12	35	36	8'-6"
II	20"UC 15"LC	20	15	14	12	22	8	14	41	36	9'-6"
III	13.3"UC 10"LC	13.3	10	10	10	22	8	9.4	32	36	7'-6"

DETAIL 1



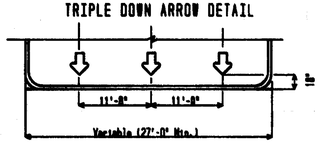
Where cardinal direction is placed above route marker, it shall be positioned as shown with sign height increased. 18" for Panel I & III. 24" for Panel II

PANEL	LEGEND SIZE	DIMENSION (INCHES)	
		A	B
I	16"UC 12"LC	12	24
II	20"UC 15"LC	15	24
III	13.3"UC 10"LC	10	21

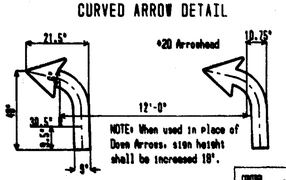
DETAIL 2

PANEL	LEGEND SIZE	DIMENSION (INCHES)	
		A	B
I	16"UC 12"LC	15	7
II	20"UC 15"LC	18	7
III	13.3"UC 10"LC	12	6

TRIPLE DOWN ARROW DETAIL



CURVED ARROW DETAIL



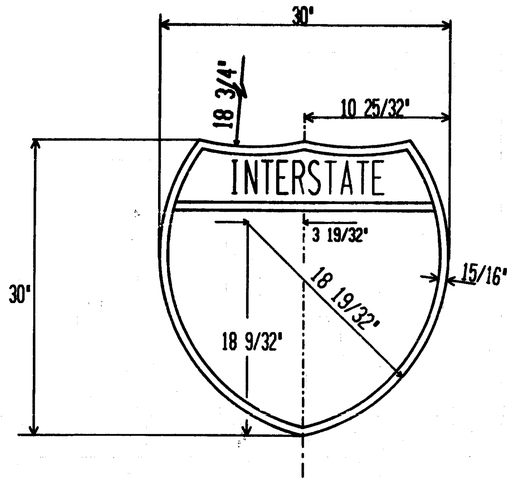
NOTE: When used in place of Down Arrows, sign height shall be increased 18".

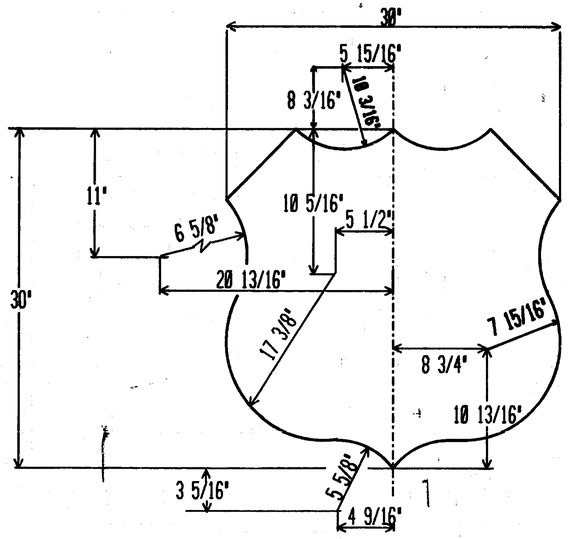
NOTE:
All lines of Legends are to be optically centered.

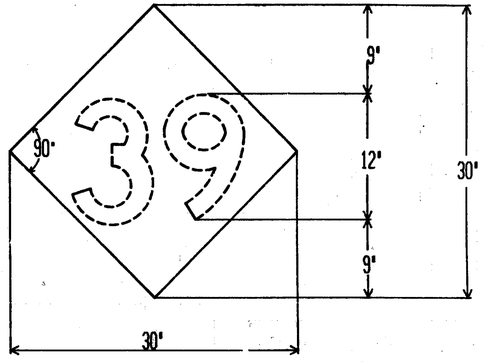
S13.30

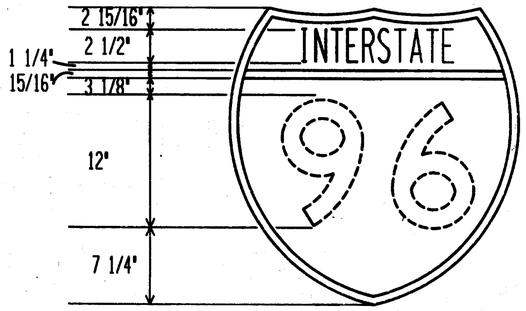
CONTROL SECTION	63174	JOB NO.	14824A	FEDERAL PROJECT	R.R.S. NO.	SHEET NO.
						91

ROUTE MARKER DETAILS 30" FOR 13.3 " & 10" GUIDE SIGN USE





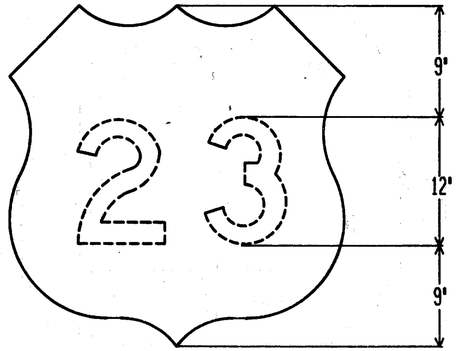




SPECIFICATIONS

1. Sign Panel: Type III, Sheet aluminum or approved equal (for demountable route markers only).
2. Sign Face: Type A,
   (a) Legend: As indicated.
   (b) Color: Silver letters, numerals and border on an Interstate Red and Interstate Blue background.
   (c) Reflectorization: Letters, numerals and border - Silver sheeting or demountable. Background - Interstate Red and Interstate Blue transparent screened on silver sheeting.

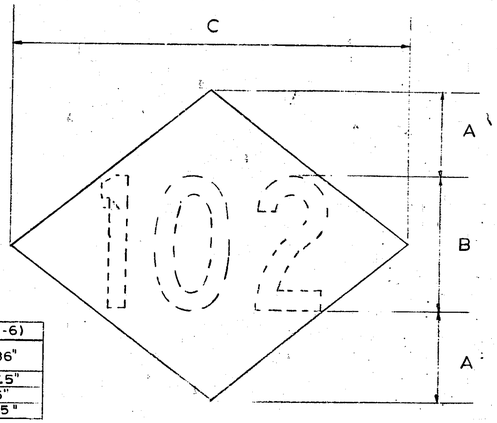
NOTE: Letters, numerals and spacing between letters and numerals shall be in accordance with standards prepared by the FHWA. All lines of legend shall be optically centered horizontally on the sign.



SPECIFICATIONS

1. Sign Panel: Type III, Sheet aluminum or approved equal (for demountable route markers only).
2. Sign Face: Type B,
   (a) Legend: Series "D" numerals of the height indicated
   (b) Color: Black numerals on a silver background.
   (c) Reflectorization: Silver sheeting.

NOTE: Numerals, and spacing between numerals, shall be in accordance with standards prepared by the FHWA. The route number shall be optically centered horizontally on the sign.



	3 DIGIT (M1-6)	
	30"	36"
A	9"	7.5"
B	12"	15"
C	36"	45"

SPECIFICATIONS

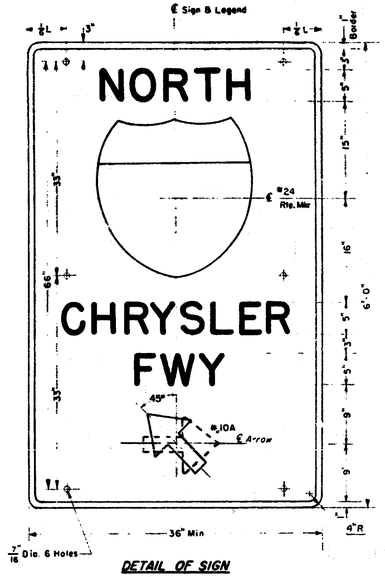
1. Sign Panel: Type III, Sheet aluminum or approved equal (for demountable route markers only).
2. Sign Face: Type B,
   (a) Legend: As indicated (See notes below).
   (b) Color: Black numerals on a silver background.
   (c) Reflectorization: Silver sheeting.

NOTES: 1. All 1 and 2 digit designations Series "D" of the height indicated except the combination "22" which shall be Series "C". All 3 digit designations shall be either Series "C" or Series "B". (Use the wider series whenever possible).
2. Where necessary, spacing between numerals may be somewhat less than that specified by FHWA standards. The route number shall be optically centered horizontally on the sign.

S13.40

CONTROL SECTION	JOB NO.	FEDERAL PROJECT	D.H.V. NO.	SHEET NO.
63174	1482 4A			92

	STATE			SHEET NO.	TOTAL SHEETS
	5	MICH.		93	96
		IDENTIFY	DIVISION SECTION	JOB NO.	



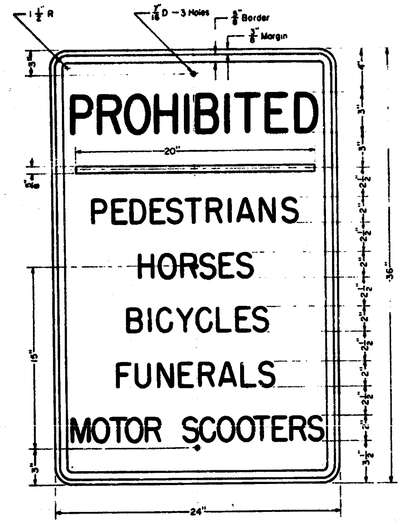
DETAIL OF SIGN
Scale: None

SPECIFICATIONS

1. Sign Panel: Type II $\frac{1}{8}$" Plywood or approved equal
2. Sign Face: Type A
   (a) Legend: 5" Series "D" letters M S H D standard alphabet with a no 24 Route marker overlay. (SB-36)
   (b) Color: Silver letters and border on a green backround
   (c) Reflectorization: Full

Type II A Sign

FREEWAY ENTRANCE SIGN	AUTH. NO.	DRAWN
	CONT. SEC.	DATE
	REF.	SCALE
	SHEET 1 OF 1	PLAN SB-126



DETAIL OF SIGN
Scale: None

REVISIONS

NO	DESCRIPTIONS	DATE

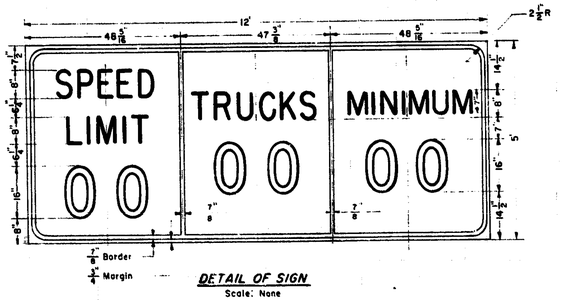
SPECIFICATIONS

1. Sign Panel: Type III, Sheet aluminum or approved equal.
2. Sign Face: Type B
   (a) Legend: 2" and 3" Series "C" modified letters – M.S.H.D. standard alphabet
   (b) Color: Black letters, divider bar and border on a silver background
   (c) Reflectorization: Silver sheeting

Note: Letter spacing shall be in accordance with spacing charts prepared by Traffic Division.

Type III B Sign

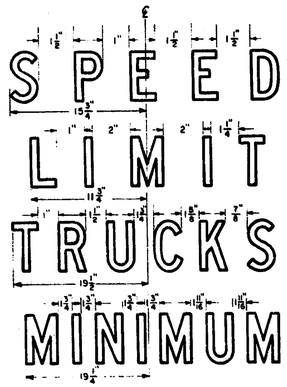
R3-32-24D VEHICLE PROHIBITION FREEWAY SIGN	AUTH. NO.	DRAWN M.St.G.
	CONT. SEC.	DATE 2/28/66
	REF.	SCALE None
	SHEET 2 OF 2	PLAN R3-32-24D



DETAIL OF SIGN
Scale: None

SPECIFICATIONS

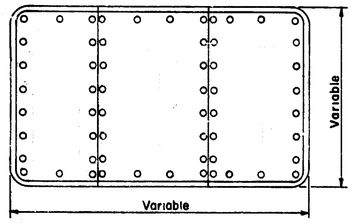
1. Sign Panel: Type I Aluminum extrusions or approved equal
2. Sign Face: Type "B"
   Legend: SPEED LIMIT, TRUCKS, 8" series "D" modified letters
   MINIMUM, 7" Series "C" modified letters.
   M.S.H.D Standard Alphabet
   Color, Black legend, border and silver background
   Reflectorization; Silver sheeting.



DETAIL OF LETTER SPACING
Scale: None

Type IB Sign

SPEED LIMIT SIGN FOR FREEWAY ENTRANCES TO STATE	AUTH. NO.	DRAWN W.P.B.
	CONT. SEC.	DATE 12-16-65
	REF.	SCALE None
	SHEET 1 OF 1	PLAN B-28I



NOTES:

1. Use 10-16 x $\frac{3}{4}$" Hex. Washer Head, Teks #3 with long pilot, Teks #634-101280-02-0200 Cad. plated (or equivalent) to fasten sign overlay to sign face.
2. Allow 9" maximum spacing between self-tapping screws and $\frac{3}{4}$" minimum - 1½" maximum from edge of sign overlay along outside edge. Allow 1" maximum from cut to interior screws.
3. Care shall be exercised in attaching overlays to ensure a flat surface.

SPECIFICATIONS

1. Sign Panel: Type IV, 0.040" sheet aluminum.
2. Sign Face: Type A,
   (a) Legend: None, unless otherwise specified on sign location plans.
   (b) Color; As specified on sign standard appropriate to overlay layout.
   (c) Reflectorization; Sheeting as required by the appropriate sign standard.

REVISIONS

NO.	DESCRIPTION	DATE

	DRAWN TMW	G5-17
	DATE 6-72	SIGN OVERLAY PANEL
	SCALE NONE	

S13.EC

6317-	14824A		93

014165A ROAD TOTAL

SUMMARY OF QUANTITIES

AS CONSTRUCTED 14165A

CONTROL SECTION 63174 JOB NUMBER 14165A

CONTROL SECTION FUR 63174 JOB NUMBER 14166A

ITEM DESCRIPTION	ITEM CODE	UNIT	PROJECT TOTAL	JOB SUBTOTAL	SHEET 003	SHEET 004	SHEET 005	SHEET 006	SHEET 007	SHEET 008	SHEET 009	JOB SUBTOTAL	SHEET 024	ITEM CODE	UNIT	PROJECT TOTAL	JOB SUBTOTAL	SHEET 003	SHEET 004	SHEET 005	SHEET 006	SHEET 007	SHEET 008	SHEET 009	JOB SUBTOTAL	SHEET 007	JOB SUBTOTAL	SHEET 024
REMOVING OLD PAVEMENT (PATCHING)	2070017	SYD	3199	43627		1543	15603	12641	12560	1280		3199	3199			6029										6029 //	6029
REMOVING CURB PARTIAL	2077000	LFT	43627	4400	4400											Ø											
REMOVING CURB REINFORCEMENT	2077001	LFT	4400	8071		435	2260	2296	2296	234	550					11,864	11,864 //		352	3436	2636	2689	462	1763			
EARTH EXCAVATION	2080001	CYD	8071	5243		75	2880	1597	165	526						1977	1977 //		48	1243	217	199	270					
STRUCTURE BACKFILL (LM)	2090006	CYD	5243																									
SUBBASE	2110001	CYD	2415	2415						440	1975					4647	4647 //						709	3938				
AGGREGATE-BASE PATCHING	3030005	CYD	50									50	50			50										50 //	50
PRESSURE RELIEF JOINTS TYPE I	4147000	LFT	1248									1248	1248			1078										1078 //	1078
CONCRETE SHOULDERS	4250004	SYD	57748	57748		1842	17515	14759	14525	2942	6165					56,817	56,817 //		1859	12815	14929	14613	2874	4127			
CONCRETE PAVEMENT PATCHING TYPE FS18" NONREINFORCED	4520016	SYD	2264									2264	2264			4137										4137 //	4137
CONCRETE PAVEMENT PATCHING TYPE FS18" REINFORCED	4520023	SYD	935									935	935			1890										1570 //	1570
FIXED COST FOR PATCHES	4520024	EACH	299									299	299			588										558 //	558
STEEL REINFORCEMENT	5030030	LBS	5971	5971		236	3381	579	1477		298					5879	5879 //		139	2484	1010	1269		1017			
3/4" EXPANSION ANCHORED BOLTS	5030141	EACH	440	440		14	228	72	102		24					484	484 //		8	180	100	100		96			
12" CLASS B CULVERT (CONCRETE)	5110133	LFT	32	32							32					48	48 //							48			
18" CLASS B CULVERT (CONCRETE)	5110135	LFT	64	64							64					64	64 //							64			
12" CULVERT END SECTIONS	5111021	EACH	1	1							1					2	2 //							2			
SALVAGED END SECTION 30" DIAMETER OR LESS	5111038	EACH	10	10							10					9	9 //							9			
DRAINAGE MARKER POST	5111051	EACH	7	7	7											8	8 //							8			
2' Dia. Drainage Structure	5140034	EACH	10	10						2	8					3640	3640 //							3640			
DRAINAGE STRUCTURE COVERS	5140042	LBS	77050	77050		3000	17500	26500	24000	2410	3640					7	7 //		3	1				3			
RECONSTRUCTING DRAINAGE STRUCTURES	5140047	EACH	97	97		6	35	53		3																	
CONCRETE VALLEY GUTTER	6090036	LFT	4485	4485						680	3805					4464	4464 /						672	3792			
CONCRETE BARRIER - SINGLE FACE	6120001	LFT	9085	9085		125	2880	545	280	1340	3805					9295	9295 //		125	2862	661	383	1459	3805			
CONCRETE BARRIER - DOUBLE FACE	6120002	LFT	18198	18198		701	5701	5682	5859	255						18,192	18,192 //		623	5709	5664	5802	334				
LIGHT STANDARD FOUNDATION, CONCRETE BARRIER	6120020	EACH	70	70		3	25	20	21	1						71	71 //	3	25	21	21	1						
GLARE SCREEN, CONCRETE	6120022	LFT	20438	20438		701	5701	5682	5859	610	1885					20680	20680 /		683	5709	5664	5802	937	1885			
SPECIAL MEDIAN BARRIER TRUSS FOUNDATION	6127000	EACH	3	3			2			1						3	3 //		2			1					
GALVANIZED BEAM GUARD RAIL TYPE B DETAIL 1	6130002	LFT	988	988							988					1200	1200 /							1200			
GALVANIZED STRUCTURE GUARD RAIL ANCHORAGE, TYPE A	6130009	EACH	1	1							1					7	7 //							7			
GUARD RAIL ANCHORAGE, CABLE	6130066	EACH	6	6							6					6	6 //							6			
SALVAGED BEAM GUARD RAIL	6130073	LFT	24709	24709		926	8287	6075	6669	998	1956					24650	24650 /		821	8405	6011	6500	1045	1868			
REFLECTORIZED WASHERS	6130080	EACH	22	22	22											4	4 //							4			
TERMINAL END SHOES	6130085	EACH	2	2							2					1	0.95 //	0.95								0.05 //	0.05
MOBILIZATION	6230001	LSUM	1	.95	.95							.05	.05			9	9										
REMOVING PAVEMENT MARKINGS	6310006	LFT	170	161	161							9	9			3	3 //	3								2 //	2
LIGHTED ARROW, TYPE A, FURNISHED	6310011	EACH	4	3	3							1	1			4	2 //	2								2 //	2
LIGHTED ARROW, TYPE A OPERATED	6310012	EACH	4	3	3							1	1			4	2 //	2									
BARRICADE, TYPE II, LIGHTED, FURNISHED	6310021	EACH	1200	1140	1140							60	60			1026	884 //	884								142 //	142
BARRICADE, TYPE II, LIGHTED, OPERATED	6310022	EACH	450	427	427							23	23			470	458 //	458								12 //	12
SIGN, TYPE IIB TEMPORARY	6310036	SFT	720	684	684							36	36			952	608 //	608								344 //	344
3# STEEL POST TEMPORARY	6310044	LFT	1000	950	950							50	50			1333	841 //	841								492 //	492
MINOR TRAFFIC DEVICES	6310054	LSUM	1	.95	.95							.05	.05			1	0.95 //	0.95								0.05 //	0.05
FUEL (MAX $190,000.00)	6327001	LSUM	1	.95	.95							.05	.05				0.95 //	0.95								0.05 //	0.05
CLASS B SODDING	6510002	SYD	9500	9500	9500											8033	8033 //	8033									
ON THE JOB TRAINING	6920000	EACH	3	3	3											41	41 //	1:1									
FILLERWALL CONCRETE GRADE 355	5030006	CYD	168	168		6.9	70.0	12.9	56.0		172					160.2	160.2 //		6.6	61.9	31.2	35.4		25.1			
12" Sewer Tap	5130624	EACH	8	8							8					7	7 //							7			
12" Sewer C76II, Trench Detail 2	5130211	LIN.FT.	128	128							128					151	151 //							21			
30" CLASS B CULVERT (CONC)	5140439	Lin.Ft.	12	12							12					16	16 //							6			
EMBANKMENT (LM)	2020020	CYD.	235	235							235					188	188 //							186			
Removing Fence	2070012	Lin.Ft.	400	400			200	50	150							236	236 //			49	42	98	47				
Remove Top Fence Pipe	2077002	Lin.Ft.	640	640			320	80	240							894	894 //			300	197	197	196				
Corner Round Post Std. V 1918	6201200	Each	8	8			4	1	3							5	5 //			1	1	2	1				
Furnish & Install Tension Wire	6217001	Lin.Ft.	640	640			320	80	240							894	894 //			300	147	149	196				

EXTRAS 14166A

900 001 FUEL ADJ 851 DLRS

CHECKED CONTROL SECTION DATE 8/24/82

Conc Shldrs, Barrier and Joint Repair

CONTROL SECTION	JOB NUMBER	FEDERAL PROJECT	SHEET NUMBER
ls 63174 FUR 63174	14165A 14166A	I-75-2(222)159 P/E-75-2(223)159	94

ls 63174, 14165A FUR 63174, 14166A

014165# ROAD TOTAL

SUMMARY OF QUANTITIES

14165A AS CONSTRUCTED

JOB NUMBER 14165A
CONTROL SECTION 63174

ITEM DESCRIPTION	ITEM CODE	UNIT	PROJECT TOTAL	JOB SUBTOTAL	SHEET 27	SHEET 28	SHEET 29	SHEET 30	SHEET 31	SHEET 32	SHEET 33	SHEET 34	SHEET 35	SHEET 25	TOTAL	SUBTOTAL	SHEET 27	SHEET 28	SHEET 29	SHEET 30	SHEET 31	SHEET 32	SHEET 33	SHEET 34	SHEET 35
ABANDON HANDHOLE - ELECTRICAL	6900003	EACH	15	15				6	9						15	15 //									
REMOVE FOUNDATION	6900007	EACH	30	30	12	10	2	4				2			30	30 //	12	10	2	4					
REMOVE UNDERGROUND FED																									
STREET LIGHTING UNIT	6900017	EACH	85	85	12	16	11	13	7	8	9	6	1		84	84 //	12	16	10	13	7	8	9	8	1
REMOVE AND SALVAGE UNDERGROUND																									
FED STREET LIGHTING UNIT	6900018	EACH	3	3				1				2			3	3 //				1				2	
1-3" DIRECT BURIAL CONDUIT	6900062	LFT	20803	20803	1228	3480	3090	3345	2240	2470	2900	2410	240		21,155	21,155 //	1237	3539	3313	3378	2216	2492	2328	2466	236
1-3" GALVANIZED STEEL CONDUIT	6900070	LFT	20	20		20									0	0 //									
2-3" GALVANIZED STEEL CONDUIT	6900071	LFT	20	20			10	10							24	24 //		10	6	8					
HANDHOLE, HEAVY DUTY COVER	6900092	EACH	94	94	5	19	16	19	9	10	8	7	1		95	95 //	5	20	16	19	9	10	8	7	1
ADJUSTING HANDHOLE	6900094	EACH	6	6			1	1			1	2	1		2	2 //			1	1					
600V 2-1/C #6 DIRECT BURIAL CABLE IN CONDUIT	6900128	LFT	1335	1335		595	375	205				160			1279	1279 //		588	315	221				155	
600V 3-1/C #6 DIRECT BURIAL CABLE IN CONDUIT	6900129	LFT	16288	16288	1228	2725	2805	3010	40	2240	2000	2000	240		17035	17035 //	1253	2737	2379	3269	45	2245	2094	2275	238
600V 3-1/C #4 DIRECT BURIAL CABLE IN CONDUIT	6900134	LFT	569	569					25	230	314				643	643 //					25	230	388		
600V 3-1/C #1/0 DIRECT BURIAL CABLE IN CONDUIT	6900141	LFT	345	345		50	145	150							336	336 //		118	45	173					
LIGHTING CONTROL PANEL	6900310	EACH	3	3		1	1	1							3	3 //		1	1	1					
LIGHT STANDARD 45' MOUNTING HEIGHT WITH 12' DOUBLE ARM ON MEDIAN WALL	6900523	EACH	71	71	5	10	9	10	9	10	9	8	1		71	71 //	5	10	9	10	9	10	9	8	1
INSTALL NEW FRANGABLE TRANSFORMER BASE	6900590	EACH	12	12		4	4	4							12	12 //		4	4	4					
250W HIGH PRESSURE SODIUM LUMINAIRE	6900612	EACH	13	13		4	4	5							13	13 //		4	4	5					
400W HIGH PRESSURE SODIUM LUMINAIRE	6900613	EACH	142	142	10	20	18	20	18	20	18	16	2		142	142 //	10	20	18	20	18	20	18	16	2
600V TWO 3-1/C #6 DIRECT BURIAL CABLE IN CONDUIT	6907000	LFT	250	250		140	110								315	315 //		209	106						
1-4" DIRECT BURIAL CONDUIT	6907001	LFT	80	80		80									94	94 //		94							
600V TWO 3-1/C #6 AND 3-1/C #4 DIRECT BURIAL CABLE IN CONDUIT	6907002	LFT	105	105				105							78	78 //				78					
600V 3-1/C #6 AND 3-1/C #4 DIRECT BURIAL CABLE IN CONDUIT	6907003	LFT	2360	2360				95	2175		90				2279	2279 //				104	2175				
INSTALL SALVAGED UNDERGROUND FED STREET LIGHTING UNIT WITH FRANGIBL TRANSFORMER BASE AND FOUNDATION	6907004	EACH	3	3				1				2			3	3 //				1				2	
Removing Foundation - Partial	6907005	EACH	58	58		6	9	10	7	8	9	8	1		58	58 //		6	9	10	7	8	9	8	1
(ADJUSTMENTS 14165A) *																									
FUEL ADJUSTMENT	9007002	DLRS	15,865																						
CONC. SHLD. ADJ.	9007000	LFT.	19,819																						
(EXTRAS 14165A) *																									
WATER	9007007	UNIT	10																						
HAND PATCHING	9007006	TON	18.93																						
REM. BRIDGE APP. CURB GUTTER	9007005	LFT.	150																						
18" CLVT. END SECT.	9007004	EA.	1																						
REM. MASONARY & CONR. STR.	9007003	CYD	7																						

Is 63174, 14165A

Lighting

CONTROL SECTION	JOB NUMBER	FEDERAL PROJECT	SHEET NUMBER
Is 63174	14165A	I-75-2(222)59	95

014824A ROAD TOTAL

SUMMARY OF QUANTITIES

ITEM DESCRIPTION	ITEM CODE	UNIT	PROJECT TOTAL
95' OVERHEAD TRUSS, TYPE C	6260025	EACH	2
TRUSS FOUNDATION, TYPE C	6260028	EACH	2
105' OVERHEAD TRUSS, TYPE D	6260030	EACH	1
TRUSS FOUNDATION, TYPE D	6260038	EACH	1
CANTILEVER, TYPE D	6260072	EACH	3
CANTILEVER FOUNDATION, TYPE D-3	6260075	EACH	3
CANTILEVER, TYPE H	6260078	EACH	1
CANTILEVER FOUNDATION, TYPE H-3	6260081	EACH	1
3# STEEL POST	6260101	LFT	462
6# STEEL POST	6260103	LFT	146
POST 4" X 6" WOOD	6260106	LFT	186
SIGN, TYPE IA	6260116	SFT	1624
SIGN, TYPE IIA	6260117	SFT	808
SIGN, TYPE IIIA	6260118	SFT	110
SIGN, TYPE IB	6260119	SFT	180
SIGN, TYPE IIB	6260120	SFT	292
BRIDGE CONNECTION, TYPE A	6260130	EACH	11
BRIDGE CONNECTION, TYPE B	6260131	EACH	11
BRIDGE CONNECTION, TYPE C	6260132	EACH	1
RELOCATING SIGNS	6260138	LSUM	1
REMOVAL OF SIGN, TYPE I	6260150	EACH	21
REMOVAL OF SIGN, TYPE II	6260151	EACH	43
REMOVAL OF SIGN, TYPE III	6260152	EACH	8
REMOVAL OF BREAKAWAY FOUNDATION	6260160	EACH	5
REMOVAL OF CANTILEVER FOUNDATION	6260161	EACH	3
REMOVAL OF TRUSS FOUNDATION	6260162	EACH	7
REMOVAL OF CANTILEVER	6260163	EACH	3
REMOVAL OF TRUSS	6260170	EACH	4
SALVAGED SIGN, TYPE I	6260171	EACH	4
SALVAGED SIGN, TYPE III	6260173	EACH	1
GLARE SCREEN CONN., TYPE II	6267000	EACH	5
SIGN TYPE IVA	6267001	SFT	88

Yellow Book Sign Upgrading — CONTROL SECTION I63174

JOB SUBTOTAL	SHEET 42	SHEET 43	SHEET 44	SHEET 45	SHEET 46	SHEET 47
2		1			1	
2		1			1	
1		1				
1		1				
3		1	1			1
3		1	1			1
1						1
1						1
12		12				
130			38		92	
154	37		53	32	16	16
25			12.10	12.10		
62		32			30	
84		24	12	24	24	
1						1
12		5	2		2	3
19	1	4	3	7	4	
5		1		1	2	1
3			1			1
7		4			1	2
3		1	1			1
4		2			1	1
4		1			2	1
1		1				
5		2	1	2		
4						4

Sign Maintenance — CONTROL SECTION MS 63174

JOB SUBTOTAL	SHEET 42	SHEET 43	SHEET 44	SHEET 45	SHEET 46	SHEET 47
266	62			65	79	60
16		16				
32		16	16			
1300	169	343	274	208	150	156
598	63	152	100	142	113	28
85		24.20	12.10	12.10	24.20	12.10
118		42.5	35	40		
208	48		64	16	64	16
11	1		2	6	2	
11		6	2	2		1
9	2		2	3	2	
17	3	4	2		5	3
3		1	1	1		
3		2	1			

Exit Numbering — CONTROL SECTION I63174

JOB SUBTOTAL	SHEET 43	SHEET 44	SHEET 45	SHEET 46	SHEET 47
184	92			92	
324	96.5	36	54	54	83
210	60	30		60	60
1	1				
7	2	1		2	2
2	2				
84	28		28	28	

NOTE: All Totals Are Rounded To The Whole Unit

Signing

CONTROL SECTION	JOB NUMBER	FEDERAL PROJECT	SHEET NUMBER
63174	14824A	I-75-2 (199)	96

Is 63174, 14824A

014824A ROAD TOTAL

SUMMARY OF QUANTITIES AS CONSTRUCTED

ITEM DESCRIPTION	ITEM CODE	UNIT	Project Total	Job Subtotal	Sheet #2	Sheet #3	Sheet #4	Sheet #5	Sheet #6	Sheet #7	Job Subtotal	Sheet #2	Sheet #3	Sheet #4	Sheet #5	Sheet #6	Sheet #7	Job Subtotal	Sheet #2	Sheet #3	Sheet #4	Sheet #5	Sheet #6	Sheet #7
				Control/Section IS 63174 Yellow Post Upgrading							Control/Section MS 63174 Sign Maintenance							Control/Section I 63174 Exit Numbering						
REMOVING FENCE	2070012	LFT																						
REMOVING OLD PAVEMENT (PATCHING)	2070017	SYD																						
REMOVING CURB PARTIAL	2077000	LFT																						
REMOVING CURB REINFORCEMENT	2077001	LFT																						
REMOVE TOP FENCE PIPE	2077002	LFT																						
EARTH EXCAVATION	2080001	CYD																						
EMBANKMENT (LM)	2080020	CYD																						
STRUCTURE BACKFILL (LM)	2090006	LYD																						
SUBBASE	2110001	CYD																						
AGGREGATE-BASE PATCHING	3030005	CYD																						
PRESSURE RELIEF JOINTS TYPE I	4147000	LFT																						
CONCRETE SHOULDERS	4250004	SYD																						
CONCRETE PAVEMENT PATCHING TYPE FS 10" NONREINFORCED	4520017	SYD																						
CONCRETE PAVEMENT PATCHING TYPE FS 10" REINFORCED	4520023	SYD																						
FIXED COST FOR PATCHES	4520024	EACH																						
FILLER WALL CONCRETE, GRADE 35	5030008	CYD																						
STEEL REINFORCEMENT	5030031	LBS																						
3/4" EXPANSION ANCHORED BOLTS	5030141	EACH																						
12" CLASS B CULVERT (CONCRETE)	5110133	LFT																						
18" CLASS B CULVERT (CONCRETE)	5110135	LFT																						
30" CLASS B CULVERT (CONCRETE)	5110139	LFT																						
12" CULVERT END SECTIONS	5111021	EACH																						
SALVAGED END SECTION 30" DIAMETER OR LESS	5111038	EACH																						
DRAINAGE MARKER POST	5111051	EACH																						
12" SEWER C76-II TRENCH DETAIL 2	5130211	LFT																						
12" SEWER TAP	5130524	EACH																						
2' DIAMETER DRAINAGE STRUCTURE	5140034	EACH																						
DRAINAGE STRUCTURE COVERS	5140042	LBS																						
RECONSTRUCTING DRAINAGE STRUCTURES	5140047	EACH																						
CONCRETE VALLEY GUTTER	6090036	LFT																						
CONCRETE BARRIER - SINGLE FACE	6120001	LFT																						
CONCRETE BARRIER - DOUBLE FACE	6120002	LFT																						
LIGHT STANDARD FOUNDATION, CONCRETE BARRIER	6120020	EACH																						
GLARE SCREEN, CONCRETE	6120022	LFT																						
SPECIAL MEDIAN BARRIER TRUSS FOUNDATION	6127000	EACH																						
GALVANIZED BEAM GUARD RAIL, TYPE B DETAIL 1	6130002	LFT																						
GALVANIZED STRUCTURE GUARD RAIL ANCHORAGE, TYPE A	6130009	EACH																						
GUARD RAIL ANCHORAGE, CABLE	6130066	EACH																						
SALVAGED BEAM GUARD RAIL	6130073	LFT																						
REFLECTORIZED WASHERS	6130080	EACH																						
TERMINAL END SHOES	6130085	EACH																						
CORNER ROUND POST STD V 369	6207000	EACH																						
FURNISH & INSTALL TENSION WIRE	6217001	LFT																						
MOBILIZATION	6230001	LSUM																						
95' OVERHEAD TRUSS TYPE C	6260025	EACH	2	2		1			1															
TRUSS FOUNDATION, TYPE C	6260026	EACH	2	2		1			1															
105' OVERHEAD TRUSS, TYPE D	6260030	EACH	1	1		1																		
TRUSS FOUNDATION, TYPE D	6260038	EACH	1	1		1																		
CANTILEVER, TYPE G	6260072	EACH	3	3		1	1			1														
CANTILEVER FOUNDATION, TYPE G-3	6260075	EACH	3	3		1	1			1														
CANTILEVER, TYPE H	6260076	EACH	1	1						1														
CANTILEVER FOUNDATION, TYPE H-3	6260081	EACH	1	1						1														
3# STEEL POST	6260101	LFT	442	46		11				35	203	49				46	63	45	193				98	
6# STEEL POST	6260103	LFT	121	109			32		77		12		12							95				
POST 4" X 6" WOOD	6260106	LFT	151	129	35		44	23	11	6	2		11	11										
SIGN, TYPE IA	6260116	SFT	1234								1316	49	343	284	208	150	156	324	17	36	54	54	83	
SIGN, TYPE IIA	6260117	SFT	5184								598	65	152	66	142	113	28	210	60	30		60	60	
SIGN, TYPE IIIA	6260118	SFT	109	24			2	12			32		25	12	12	24	15							
SIGN, TYPE IB	6260119	SFT	150	62		32			30		118		83	35	40									
SIGN, TYPE IIB	6260120	SFT	340	148		24	12	40	24	48	192	48		64		64	16							
BRIDGE CONNECTION, TYPE A	6260130	EACH	11								11	1		2	6	2								
BRIDGE CONNECTION, TYPE B	6260131	EACH	11								11		6	2	2		1							
BRIDGE CONNECTION, TYPE C	6260132	EACH	1	1						1														
RELOCATING SIGNS	6260138	LSUM	1																					
REMOVAL OF SIGN, TYPE I	6260150	EACH	21	12		2	2		2	3	4	2			2	3	2	1						

CHECKED
DATE 3/15/02

SIGNING

CONTRACT SECTION	JOB NUMBER	FEDERAL PROJECT	SHEET NUMBER
63174	14824A	I-75-2 (199)	97

014824A

SUMMARY OF QUANTITIES

ROAD TOTAL

AS CONSTRUCTED FED

ITEM DESCRIPTION	ITEM CODE	UNIT	Project Total	Job Subtotal	Sheet 42	Sheet 43	Sheet 44	Sheet 45	Sheet 46	Sheet 47
REMOVAL OF SIGN, TYPE II	6260151	EACH	56	23	1	4	3	7	5	3
REMOVAL OF SIGN, TYPE III	6260152	EACH	5	3		1		1	1	
REMOVAL OF BREAKAWAY FOUNDATION	6260160	EACH	4							
REMOVAL OF CANTILEVER FOUNDATION	6260161	EACH	3	3		1	1			1
REMOVAL OF TRUSS FOUNDATION	6260162	EACH	7	7		4			1	2
REMOVAL OF CANTILEVER	6260163	EACH	3	3		1	1			1
REMOVAL OF TRUSS	6260170	EACH	4	4		2			1	1
SALVAGED SIGN, TYPE I	6260171	EACH	4	4		1			2	1
SALVAGED SIGN, TYPE III	6260173	EACH	1	1		1				
GLARE SCREEN CONN , TYPE II	6287000	EACH	18	18		4	2	4	4	4
SIGN TYPE IVA	6287001	SFT	88	4						4
REMOVING PAVEMENT MARKINGS	6310005	LFT								
LIGHTED ARROW, TYPE A, FURNISHED	6310011	EACH								
LIGHTED ARROW, TYPE A OPERATED	6310012	EACH								
BARRICADE, TYPE II, LIGHTED, FURNISHED	6310021	EACH								
BARRICADE, TYPE II, LIGHTED, OPERATED	6310022	EACH								
SIGN, TYPE IIB TEMPORARY	6310036	SFT								
5# STEEL POST TEMPORARY	6310044	LFT								
MINOR TRAFFIC DEVICES	6310054	LSUM								
CLASS B SODDING	6510002	SYD								
ABANDON HANDHOLE - ELECTRICAL	6900003	EACH								
REMOVE FOUNDATION	6900007	EACH								
REMOVE UNDERGROUND FED STREET LIGHTING UNIT	6900017	EACH								
REMOVE AND SALVAGE UNDERGROUND FED STREET LIGHTING UNIT	6900018	EACH								
1-3" DIRECT BURIAL CONDUIT	6900062	LFT								
1-3" GALVANIZED STEEL CONDUIT	6900070	LFT								
2-3" GALVANIZED STEEL CONDUIT	6900071	LFT								
HANDHOLE, HEAVY DUTY COVER	6900092	EACH								
ADJUSTING HANDHOLE	6900094	EACH								
600V 2-1/C #6 DIRECT BURIAL CABLE IN CONDUIT	6900128	LFT								
600V 3-1/C #6 DIRECT BURIAL CABLE IN CONDUIT	6900129	LFT								
600V 3-1/C #4 DIRECT BURIAL CABLE IN CONDUIT	6900134	LFT								
600V 3-1/C #1/0 DIRECT BURIAL CABLE IN CONDUIT	6900141	LFT								
LIGHTING CONTROL PANEL	6900310	EACH								
LIGHT STANDARD 45' MOUNTING HEIGHT WITH 12' DOUBLE ARM ON MEDIAN WALL	6900523	EACH								
INSTALL NEW FRANGABLE TRANSFORMER BASE	6900590	EACH								
250W HIGH PRESSURE SODIUM LUMINAIRE	6900812	EACH								
400W HIGH PRESSURE SODIUM LUMINAIRE	6900813	EACH								
600V TWO 3-1/C #8 DIRECT BURIAL CABLE IN CONDUIT	6907000	LFT								
1-4" DIRECT BURIAL CONDUIT	6907001	LFT								
600V TWO 3-1/C #6 AND 3-1/C #4 DIRECT BURIAL CABLE IN CONDUIT	6907002	LFT								
600V 3-1/C #6 AND 3-1/C #4 DIRECT BURIAL CABLE IN CONDUIT	6907003	LFT								
INSTALL SALVAGED UNDERGROUND FED STREET LIGHTING UNIT WITH FRANGIBL TRANSFORMER BASE AND FOUNDATION	6907004	EACH								
REMOVE FOUNDATIONS PARTIAL	6907005	EACH								
ON THE JOB TRAINING	6920000	EACH								
FUEL (MAX. $100,000.00)	6927001	LSUM								

Control Section 16317 — Yellow Book Sign Upgrading

	Job Subtotal	Sheet 42	Sheet 43	Sheet 44	Sheet 45	Sheet 46	Sheet 47
	4						4

Control Section MS63174 — Sign Maintenance

	Job Subtotal	Sheet 42	Sheet 43	Sheet 44	Sheet 45	Sheet 46	Sheet 47
	20	3	6	3	1	5	2
	2		2				
	2						

Control Section 16317 — Exit Numbering

	Job Subtotal	Sheet 42	Sheet 43	Sheet 44	Sheet 45	Sheet 46	Sheet 47
	84		28		28	28	
	7		2	1		2	2
	2		2				

CHECKED
CONTRACT SECTION
DATE 5/25/82

SIGNING

CONTROL SECTION	JOB NUMBER	FEDERAL PROJECT	SHEET NUMBER
63174	14824A	I-75-2(199)	98

63174-18874A

CS: 63174

ID: 18874A

√

ROUTE	JOB NUMBER	FEDERAL NUMBER	SHEET NO.	TOTAL SHEETS
I-75	18874A	IR-75-2(266)	1	

MICHIGAN
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED

MICHIGAN PROJECT IR-75-2(266)
CONTROL SECTION IR 63174
JOB NUMBER 18874A

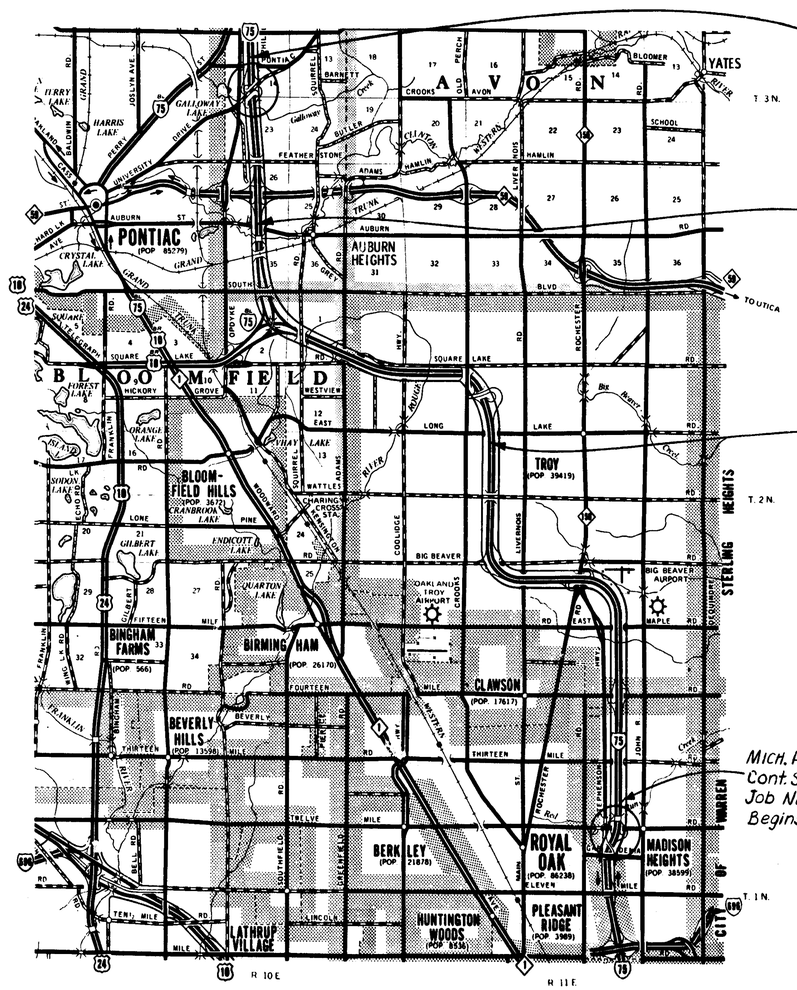
I-75
OAKLAND COUNTY
BLOOMFIELD AND PONTIAC TOWNSHIPS
CITIES OF MADISON HEIGHTS AND TROY

ROAD PLANS	SHEET NO'S.
TITLE	1
TYPICAL CROSS SECTION	
NOTE SHEET	2
PLANS	3-9
SPECIAL DETAILS	
MASS DIAGRAMS	
QUANTITY SHEETS	2

Note. ——— Sheet 5 Deleted
As Const. Sheets — 2A, 2B, 3A, 5A, 6A, 7A, 8A

BRIDGE PLANS

SIGNING PLANS



MICH. PROJ. IR-75-2(266)
Cont. Sect. IR 63174
Job Number 18874A
Ends Sta. 180+00

STATION EQUATION
Sta. 838+87.65 Back =
Sta. 38+87.65 Ahead

STATION EQUATION
Sta. 1326+20.19 Back =
Sta. 518+61.05 Ahead

MICH. PROJ. IR-75-2(266)
Cont. Sect. IR 63174
Job Number 18874A
Begins Sta. 946+00

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 1979 STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS

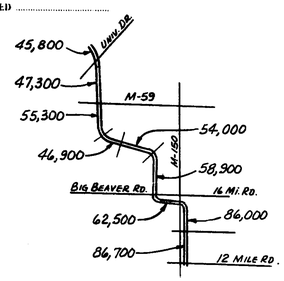
YEAR 1977

A.D.T. .....

D.H.V. .....

COMM. % ..... 10 %

DESIGN SPEED .....



NP Length 15.94 Mile

CONTRACT FOR Conc. Pav't. Joint Repair on I-75

APPROVALS

CHECKED	J. H. Williams, ENGINEER BOARD DESIGN	9-13-82 DATE
RECOMMENDED FOR APPROVAL	Wm. Creary, ENGINEER OF DESIGN	9/14/82 DATE
RECOMMENDED FOR APPROVAL	M.E.W. Steven, ENGINEER OF TRAFFIC & SAFETY	9/13/82 DATE
RECOMMENDED FOR APPROVAL	Robert P. Lesawo, ENGINEER OF CONSTRUCTION	9-14-82 DATE

MICHIGAN
DEPARTMENT OF TRANSPORTATION
JOHN P. WOODFORD - DIRECTOR

APPROVED BY Dayne C. Early, DEPUTY DIRECTOR FOR HIGHWAYS, 9/14/82 DATE

PLANS PREPARED BY CHRISTY, DESIGN UNIT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED _____ DIVISION ADMINISTRATOR DATE

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	ITEM	SHEET NO.
IR 63174	18874A	IR 75-2(266)	NP, I-75	1.

IR 63174-18874A
JOB NUMBER
CONTROL SECTION

TITLE SHEET LEGEND

- PROPOSED PROJECT
- EXISTING ROADS
  - PAVED
  - BITUMINOUS
  - GRAVEL
  - UNIMPROVED OR CITY STREET
- SECTION LINE
- TOWNSHIP LINE
- COUNTY LINE
- CITY OR VILLAGE LIMITS
- RAILROADS

NOTE SHEET

DESCRIPTION OF WORK:

SAW DETERIORATED JOINTS AND PAVEMENT SECTIONS, AS SHOWN ON PLANS, PLACE PRESSURE RELIEF JOINTS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, AND REPAIR WITH FAST SETTING CONCRETE PAVEMENT PATCHING AND JOINT FILLER. PLACE JOINT FILLER AS SHOWN ON THE PLANS OR AS DESIGNATED BY THE ENGINEER. PAVEMENT REPAIRS SHALL BE DONE IN CONFORMANCE WITH SPECIAL DETAILS X & Y ON SHEET NO.10. MAINTAIN TRAFFIC THROUGHOUT THE ENTIRE PROJECT.

NOTES:

STATIONING ON THIS PROJECT WAS MEASURED BY A FOOTMETER AND TAKEN FROM OLD PLANS, AND IS NOT NECESSARILY CORRECT.

IT IS THE INTENT THAT ALL GOVERNMENT CORNERS OCCURRING ON THIS PROJECT BE PRESERVED AND THAT, WHERE NECESSARY, MONUMENT BOXES BE PLACED OR ADJUSTED, WHETHER SHOWN OR NOT.

SIZES SHOWN FOR SLAB REPAIR ARE ESTIMATES ONLY. ACTUAL SIZES ARE TO BE DETERMINED BY THE ENGINEER ON CONSTRUCTION WITH NO EXTRA COMPENSATION ABOVE CONTRACT UNIT PRICES TO BE ALLOWED FOR SIZE DIFFERENTIAL.

WASTE CONCRETE OR CONCRETE FRAGMENTS SHALL NOT BE BURIED IN THE SHOULDER BECAUSE OF POTENTIAL DAMAGE TO SHOULDER STABILIZATION EQUIPMENT.

THE PLANS FOR JOINT REPAIR MAY CONTAIN SOME JOINTS WHICH HAVE ALREADY BEEN REPAIRED PRIOR TO CONSTRUCTION OF THIS PROJECT.

JOINT TYPE SHALL BE X&Y UNLESS OTHERWISE CALLED FOR ON PLANS OR AS DIRECTED BY THE ENGINEER.

ANY BITUMINOUS OVERLAY OCCURRING ADJACENT TO AREAS TO BE REPAIRED SHALL BE REMOVED INCIDENTAL TO CONSTRUCTION.

FOR THE PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF 48 HOURS PRIOR TO EXCAVATING IN THE VICINITY OF UTILITY LINES. ALL "MISS DIG" PARTICIPATING MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

KEY:

TYPE X- CONCRETE PAVEMENT REPAIR OF THE LENGTH, WIDTH, AND JOINT TYPE SPECIFIED

TYPE Y- CONCRETE PAVEMENT REPAIR OF THE LENGTH, WIDTH, AND JOINT TYPE SPECIFIED

Note: Ramp repairs less than 12' wide may be undoweled repairs. In 16' ramp repairs, the spacing of dowels or tie bars shall be the same as for 12' wide patches, with the center of the spacing coinciding with the centerline of the 16' wide ramp.

PUBLIC UTILITIES

The existing utilities listed below and shown on these plans represent the best information as obtained on our G.I. dated 2-28-80. This information does not relieve the Contractor of the responsibility to satisfy himself as to their accuracy or of his responsibility in case utilities have been constructed or removed since the above G.I. date.

NAME AND ADDRESS OF OWNER	KIND OF UTILITY
Detroit Edison Co.	Electricity
Consumers Power Co.	Gas
Michigan Bell Telephone Co.	Telephone

Owners of public utilities will not be required by the Department to move additional poles and structures that are not within grading or structure limits in order to facilitate the operation of construction equipment, unless it is determined by the Engineer that such pole line or structures constitute a hazard to the public or are extraordinarily dangerous to the Contractor's operations.

DATE OF REPAIR

The Contractor will be required to stencil the month and year of repair in each patch, incidental to the item of "Fixed Cost for Patches".

NOTES APPLYING TO STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

CONCRETE PAVEMENT REPAIR JOINT REPAIRS - TYPES "X" & "Y" PAVEMENT REINFORCEMENT	11-44E SPECIAL DETAIL 11-45C
TYPES II & III BARRICADES AND LIGHTED ARROWS	VI-125E
TRANSVERSE PAVEMENT JOINTS	II-39G
LOAD TRANSFER ASSY'S FOR TRANSVERSE JOINTS	II-40D
LONGITUDINAL PAVEMENT JOINTS	II-41D
LOCATION OF TRANSVERSE JOINTS IN CONC. PAV'T.	II-43C

MISCELLANEOUS ESTIMATES

The following items of work shall be done as they apply throughout the project. These items are not detailed or included on the plan and profile sheets.

MOBILIZATION	1 L.SUM
MINOR TRAFFIC DEVICES	1 L.SUM
SIGNS - TYPE B TEMPORARY	932 S.FT
LIGHTED ARROW, TYPE A - FURNISHED	4 EACH
LIGHTED ARROW, TYPE A - OPERATED	4 EACH
BARRICADES, TYPE II LIGHTED-FURNISHED	350 EACH
BARRICADES, TYPE II LIGHTED-OPERATED	280 EACH
ON THE JOB TRAINING	3 EACH
REMOVING PAVEMENT MARKINGS	500 LFT
TEMPORARY PAVEMENT MARKINGS-NR	100 LFT

QUANTITY SHEET

ITEM DESCRIPTION	UNIT	ITEM CODE	AS PER PLANS TOTAL	SHEET 2	SHEET 3	SHEET 4	SHEET 5	SHEET 6	SHEET 7	SHEET 8	SHEET 9	AS CONSTRUCTED TOTAL	SHEET 2	SHEET 3	SHEET 4	SHEET 5	SHEET 6	SHEET 7	SHEET 8	SHEET 9
REMOVING OLD PAVEMENT - PATCHING	SYD	4520001	23532		4651	3011	2251	2919	5640	3545	1515									
CONCRETE PAVEMENT PATCHING TYPE FS 10" REINFORCED	SYD	4520044	23532		4651	3011	2251	2919	5640	3496	1515									
FIXED COST FOR PATCHES - TYPE X	EACH	4527003	1028		186	104	124	172	224	142	76									
FIXED COST FOR PATCHES - TYPE Y	EACH	4527005	1528		280	168	119	169	438	295	109									
LIGHTED ARROW, TYPE A, FURNISHED	EACH	6310011	4	4																
LIGHTED ARROW, TYPE A, OPERATED	EACH	6310012	4	4																
SIGN, TYPE B TEMPORARY	SFT	6310057	932	932																
	SFT																			
MOBILIZATION	LSUM	6230001	1	1																
MINOR TRAFFIC DEVICES	LSUM	6310054	1	1																
BARRICADE, TYPE II LIGHTED - FURNISHED	EACH	6310026	350	350																
BARRICADE, TYPE II LIGHTED - OPERATED	EACH	6310027	280	280																
REMOVING PAVEMENT	SYD	2070002	1949		639	87	240	162	591	162	68									
* MISCELLANEOUS CONCRETE PAV'T., REINF 9"	SYD	4500033	1949		639	87	240	162	591	162	68									
CEMENT	TONS	4500090	24		8	1	3	2	7	2	1									
INTERMEDIATE SAW CUTS	LFT	4520004	5080		1560	1448	228	336	612	744	72									
REMOVING PAVEMENT MARKINGS	LFT	6310003	500	500																
TEMP. PAVEMENT MARKING - NR	LFT	6310061	100	100																
HOOK BOLT LANE TIES	EACH	4507001	148		52	71		8	17											
ON THE JOB TRAINING	EACH	6920000	3	3																

* Concrete, Grade 35P - Additional 94 Lbs of cement per cubic yard of concrete.

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 CONC. PAV'T. JOINT REPAIR

N.B. - SQUARE LK. RD. N. to UNIV. DR.
S.B. - 12 MILE RD. N. to UNIV. DR.

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
2/ 8/82	1" = NONE	IR 63174	19874 A	CHRISTY	R.O.W. CONST. 2

NBD POB to STA 685+00

POB

USE SHEET 3A

USE SHEET 3A

USE SHEET 3A

USE SHEET 3A

SHEET 3A

Sheet 2A

(3A) NBD STA 682+ to STA 722+

(3B) NBD STA 722+ to STA 761+

(3C) NBD STA 761+ to STA 801+

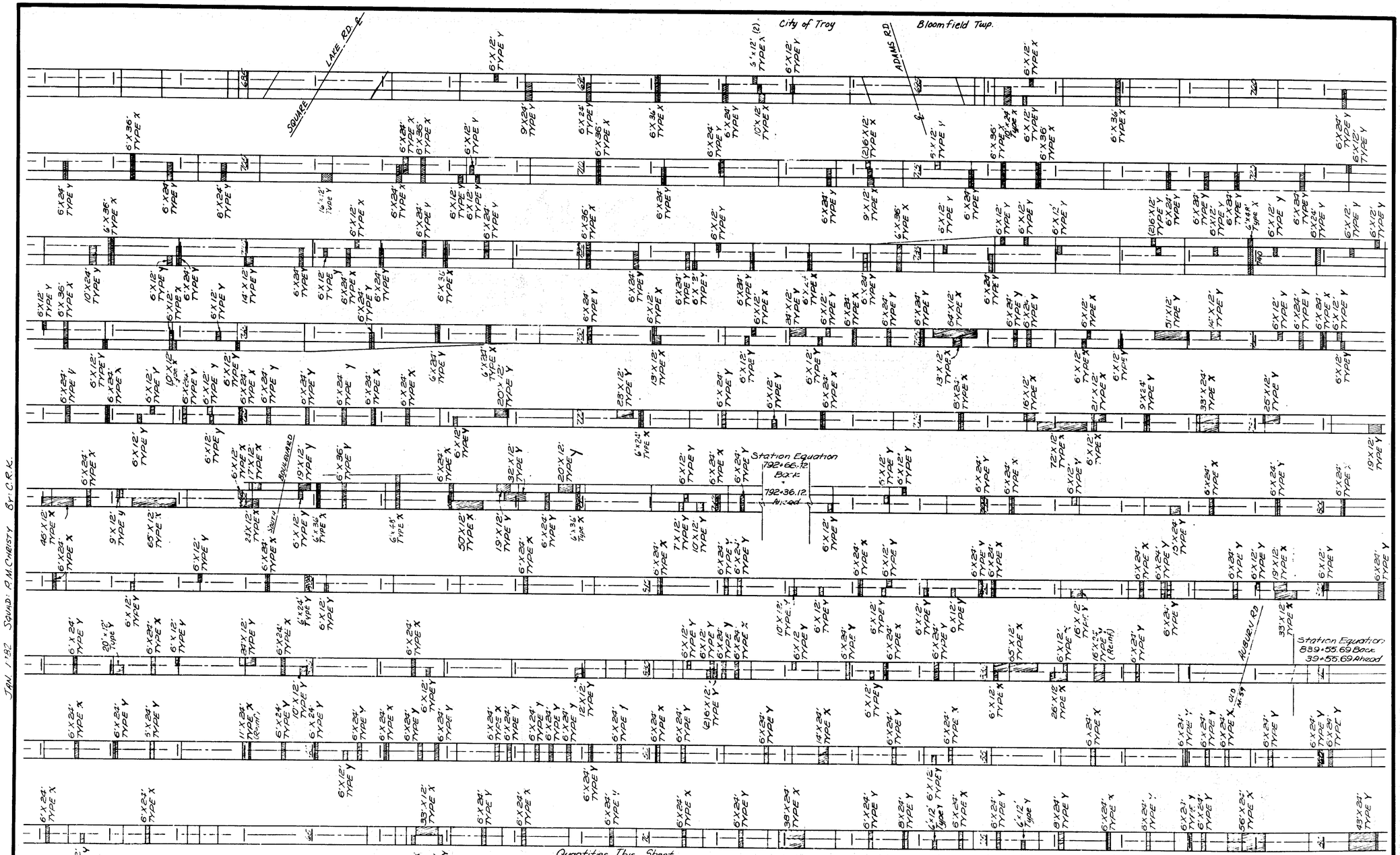
LOOKING NBD

LOOKING NBD

LOOKING NBD

Use Sheet 4A from Sta 801+

Sheet 2B



Quantities This Sheet

4651 Syd Removing Old Pavement (Patching)

52 Each Hook Bolt Lane Ties
4651 Syd Conc. Pvt. Patching-Type F.S., 10" Reinf.
639 Syd Removing Pavement
639 Syd Misc. Concrete Pavement Reinf. 9"

1560 L.F.T. Intermediate Saw Cuts
186 Each, Fixed Cost for Patches - Type X
280 Each, Fixed Cost for Patches - Type Y
8 Tons Cement

SCALE 1" = 60'

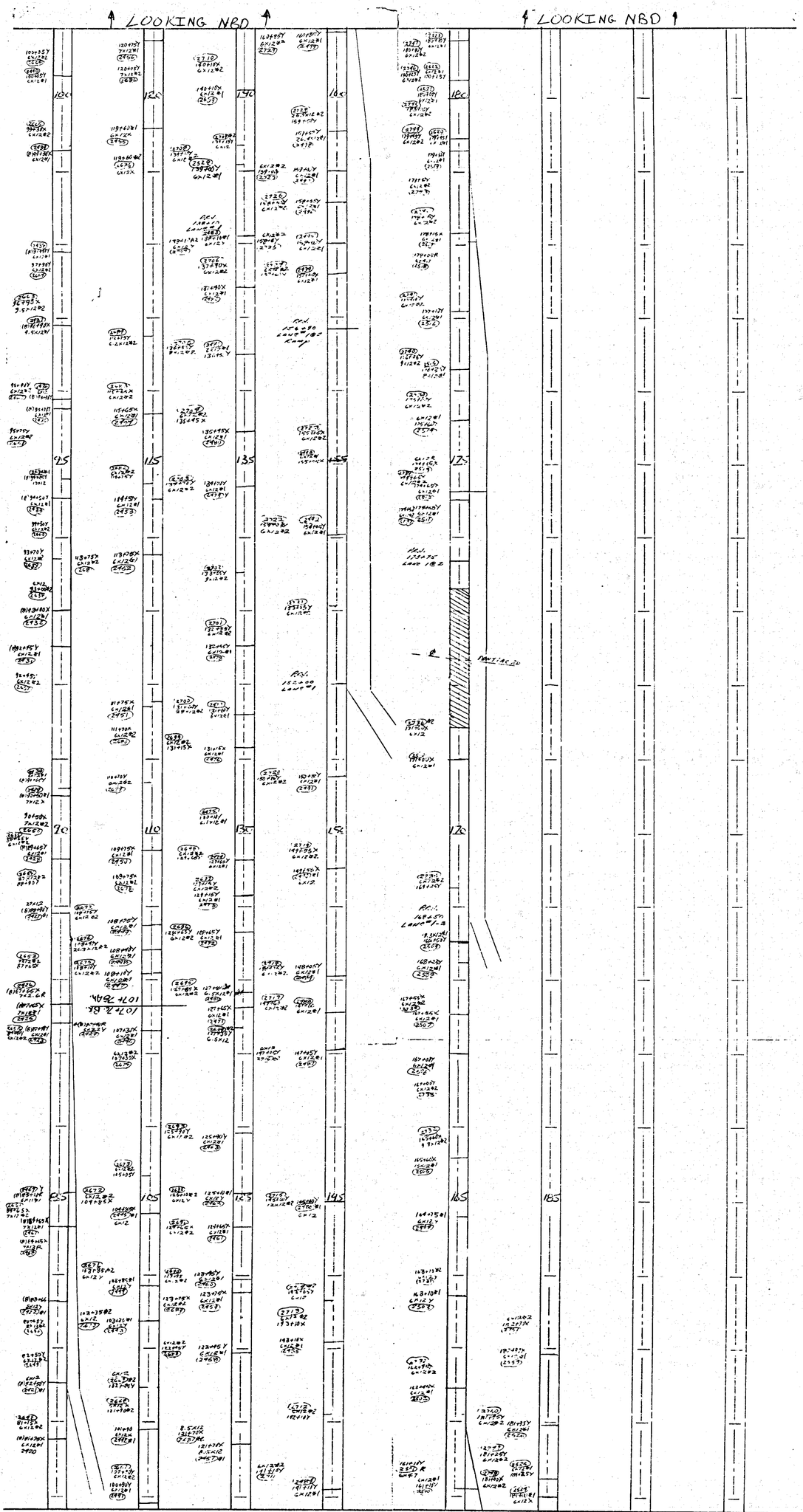
THIS SHEET: STA 686+00 to STA. 792+66.12
STA 792+66.12 Back = STA. 792+36.12 Ahead
STA 792+36.12 to STA. 839+55.69
STA 839+55.69 Back = STA. 39+55.69 Ahead
STA. 39+55.69 to STA. 81+00

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
RESEARCH LAB. TESTING AND RESEARCH DIVISION

CONC. JOINT REPAIR LOCATION SHEET

LOCATION I-75 NORTHBOUND from SQUARE LAKE RD NORTHERLY TO UNIVERSITY DRIVE
STATE PROJECT IR 63(C)A MAINT PROJECT 188114 A
ROUTE I-75

SHEET NO. 3



(4A) N.B.D. STA. 81- to STA 160+

(4B) NBD STA. 161- to STA. P.O.E.

Sheet 3A

Station Equation 107+76.86 Back = 107+78.33 Ahead

P.O.E. I-75 N.B.
C.S. 63174 - J.N. 18874A

QUANTITIES THIS SHEET

I-75 Mainline :

- 3011 Syd. Removing Old Patching (Patching)
- 71 Each Hook Bolt Lane Ties
- 3011 Syd. Conc. Pav't. Patching - Type F.S.10"(Reinf.)
- 87 Syd. Removing Pavement
- 87 Syd. Misc. Concrete Pavement Reinf. 9"
- 1468 LFT. Intermediate Saw Cuts
- 104 Each Fixed Cost For Patches - Type X
- 168 Each Fixed Cost For Patches - Type Y
- 1 Ton Cement

PROPOSED CONC. RAMP PAV'T JOINT REPAIR:

I-75 N.B. OFF-RAMP TO ADAMS ROAD

I-75 Stationing

Ramp Stationing

RAMP

I-75 N.B. OFF-RAMP TO W.B. US-24 Conn.

RAMP "NW" (To US-24 Conn.)

I-75 N.B.

ADAMS ROAD ON-RAMP TO I-75 N.B.

I-75 N.B.

RAMP

I-75 N.B. OFF-RAMP TO M-59 W.B.

From M-59 E.B.

I-75 N.B.

To M-59 W.B.

M-59 W.B. ON-RAMP "B" TO I-75 N.B.

RAMP B

I-75 N.B.

UNIVERSITY DRIVE ON-RAMP TO I-75 N.B.

RAMP "N"

I-75 N.B.

SCALE 1" = 60'

THIS SHEET: STA. 81+00 to 107+76.86
STA. 107+76.86 Back = 107+78.33 Ahead
STA. 107+78.33 to 183+00

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

RESEARCH LAB. TESTING AND RESEARCH DIVISION

CONC. JOINT REPAIR LOCATIONS

LOCATION I-75 NORTHBOUND from SQUARE LAKE RD. NORTHERLY TO UNIVERSITY DRIVE

CONTROL SECTION IR 63174 JOB NUMBER 18874A

ROUTE I-75

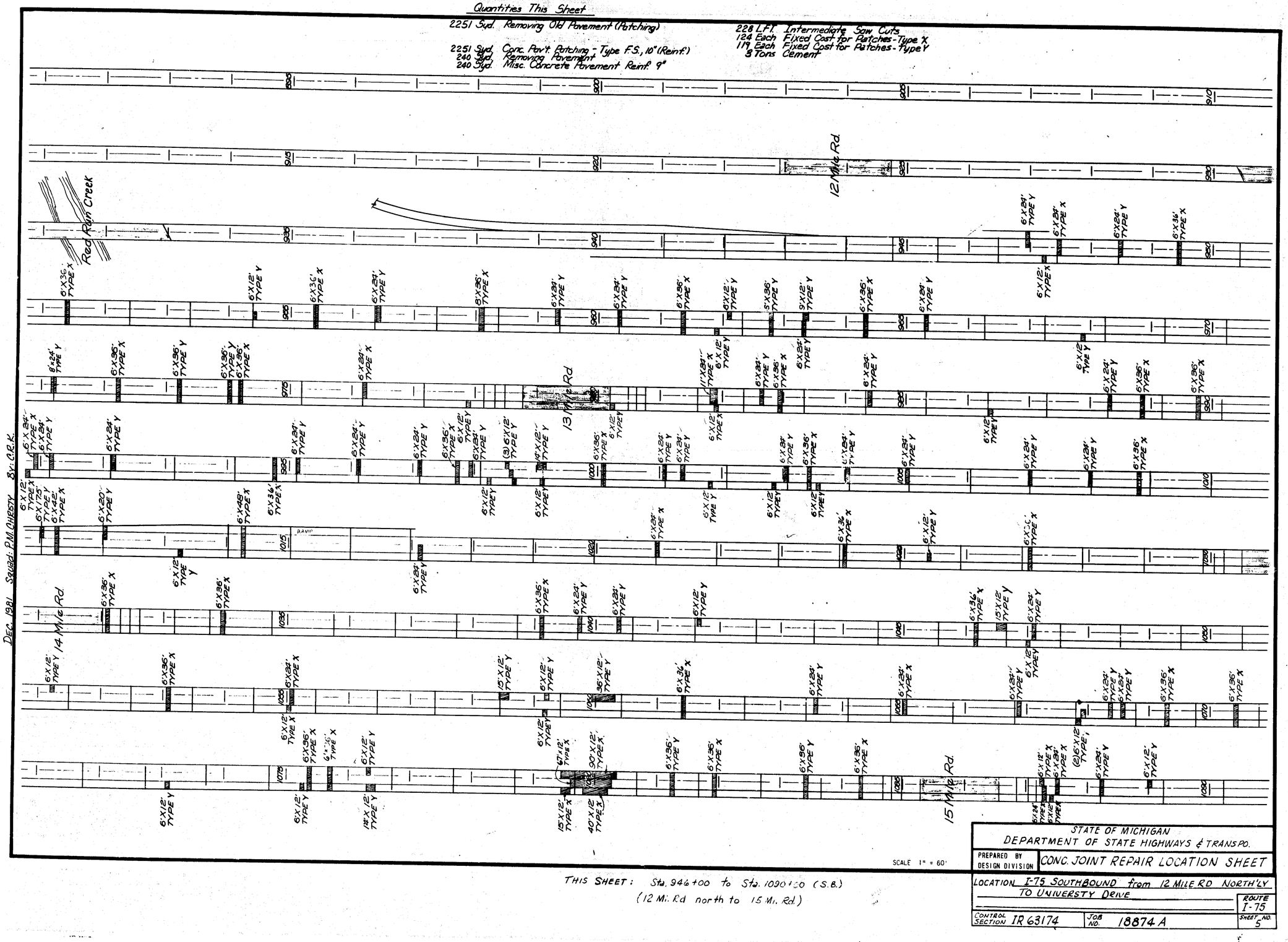
SHEET NO. 4

Quantities This Sheet

2251 Syd. Removing Old Pavement (Patching)

2251 Syd. Conc. Pvt. Patching - Type F.S., 10" (Reinf.)
240 Syd. Removing Pavement
240 Syd. Misc. Concrete Pavement Reinf. 9"

228 L.F. Intermediate Saw Cuts
124 Each Fixed Cost for Patches - Type X
119 Each Fixed Cost for Patches - Type Y
8 Tons Cement



THIS SHEET: Sta. 946+00 to Sta. 1090+20 (S.B.)
(12 Mi. Rd north to 15 Mi. Rd.)

DEC. 1981 Squad: P.M. CHESTY By: C.R.K.

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS & TRANSPO.

PREPARED BY DESIGN DIVISION	CONC. JOINT REPAIR LOCATION SHEET
LOCATION I-75 SOUTHBOUND from 12 MILE RD NORTH'LY TO UNIVERSTY DRIVE	ROUTE I-75
CONTROL SECTION IR 63174	JOB NO. 18874 A
	SHEET NO. 5

LOOKING S&D 1

SEE STRIP 6A TO FOLLOW

P.O.B.

BEGIN DESCRIPT

Sheet 5A

DEC. 1981 SQUAD PM OBESITY BY CBL

RAMP 'C'

RAMP 'D'

RAMP 'A'

RAMP 'B'

LIVERNOIS RD.

M-150

BIG BEAVER RD.

WATTLES RD. (EAST)

17 MILE RD.

Quantities This Sheet

2919 Syd Removing Old Pavement (Patching)

8 Each Hook Bolt Lane Ties

2919 Syd Conc Pvt Patching - Type FS.10" (Reinf)

102 Syd Removing Pavement

102 Syd Misc Concrete Pavement Reinf 9"

336 LFT Intermediate Saw Cuts

172 Each Fixed Cost For Patches - Type X

169 Each Fixed Cost For Patches - Type Y

2 Tons Cement

SCALE 1" = 60'

THIS SHEET: Sta. 1091+00 to Sta. 1290+00

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

PREPARED BY DESIGN DIVISION

CONC. JOINT REPAIR LOCATION SHEET

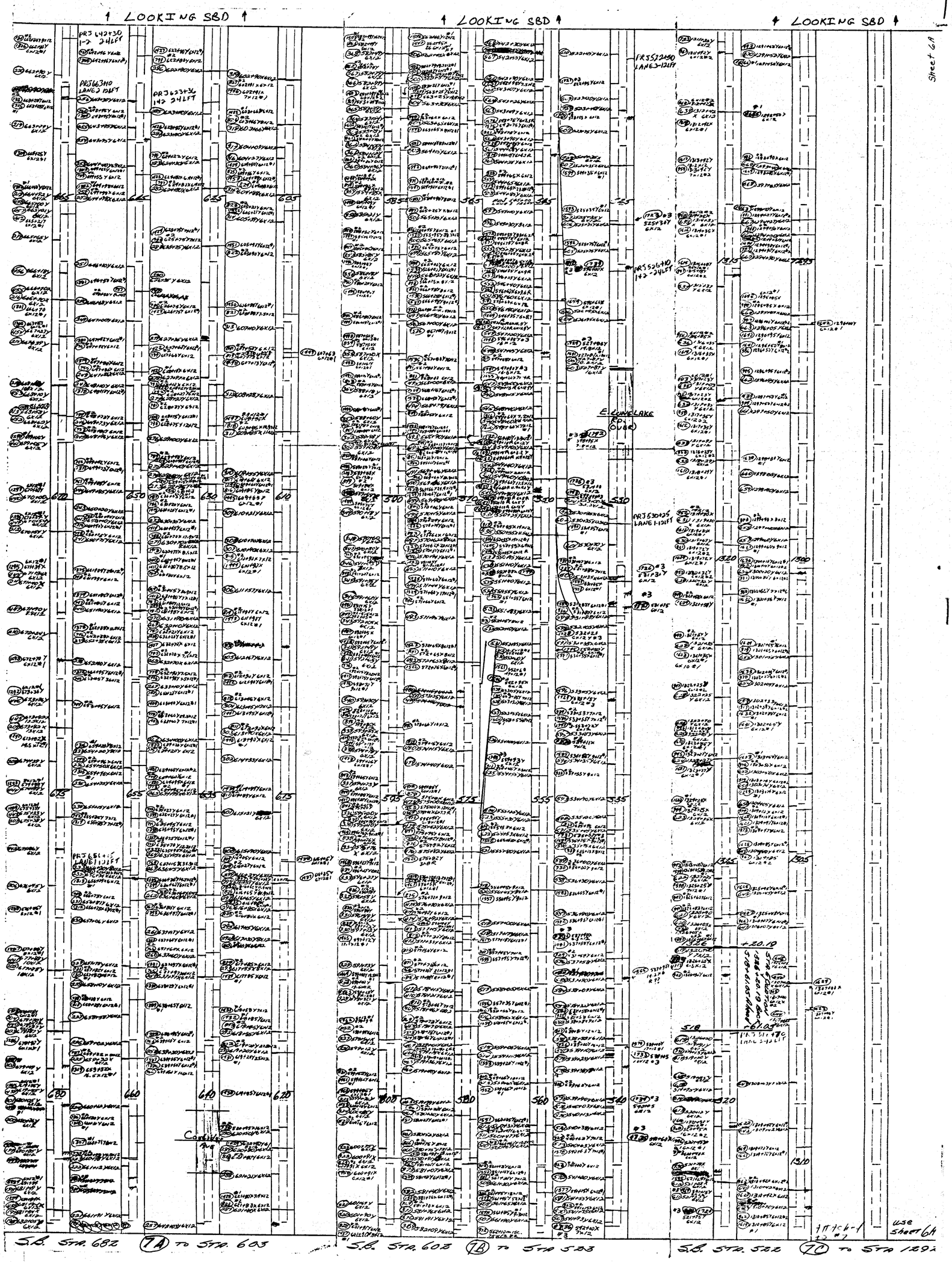
LOCATION I-75 SOUTHBOUND from 12 MILE RD. NORTH'LY TO UNIVERSITY DRIVE

ROUTE I-75

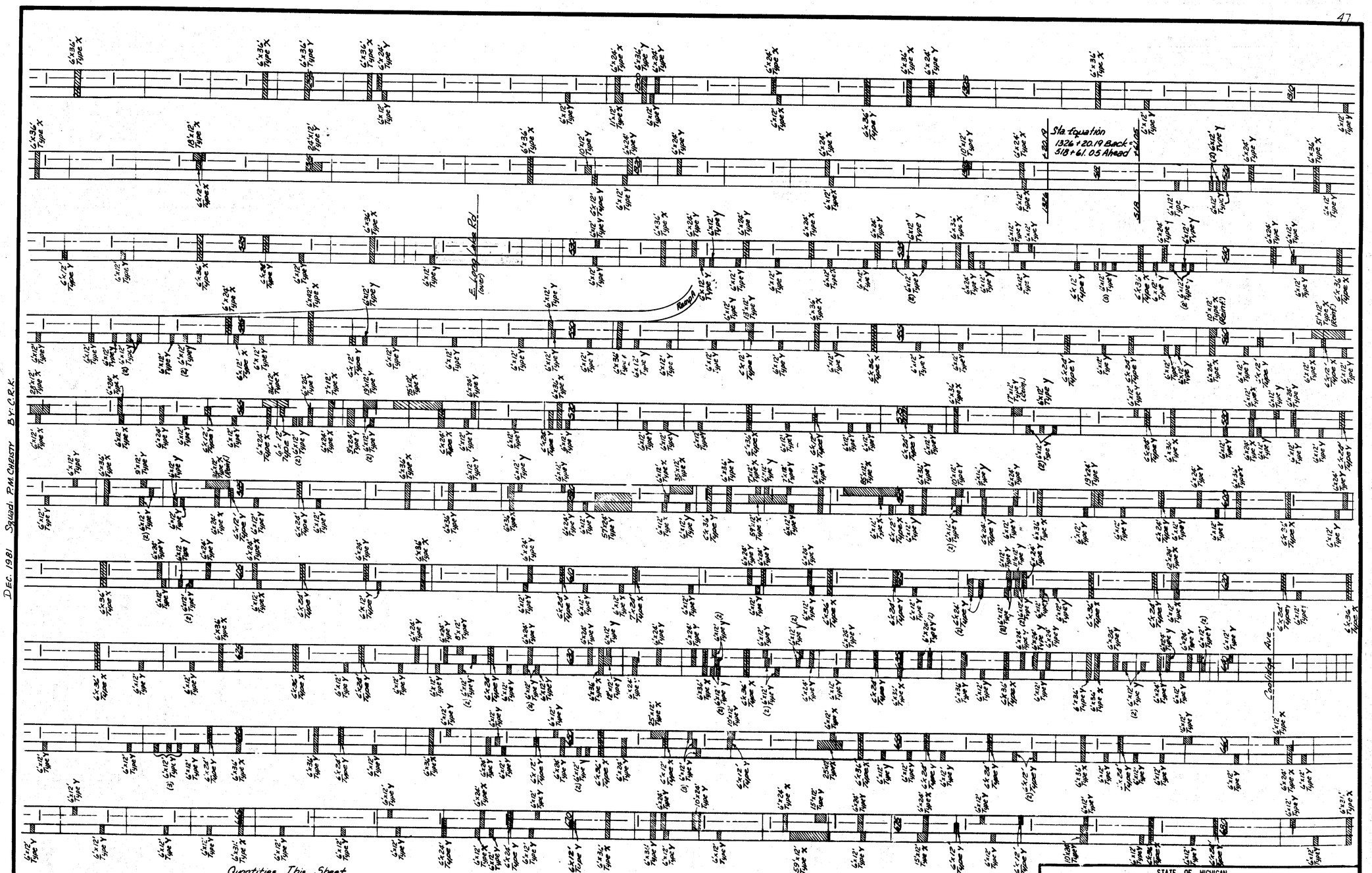
CONTROL SECTION TR 63174

JOB NO. 18874 A

SHEET NO. 6


LOOKING SBD
LOOKING SBD
LOOKING SBD
PRJ 142+30 I-2 24LEFT
PRJ 146+10 LANE 2 DEPT
PRJ 143+36 142 24LEFT
PRJ 6[illegible] LANE 1 12LEFT
PRJ 512+50 LANE 3 12LEFT
PRJ 526+10 142 24LEFT
PRJ 530+25 LANE 1 12LEFT
E LONG LAKE RD OVER
CONNECTOR
STA 600+00.19 BK = STA 600+00.00 AHD
STA 600+00.00 BK = STA 600+00.19 AHD
+20.19
S.B. STA. 682 (7A) to STA 603
S.B. STA. 603 (7B) to STA 523
S.B. STA. 523 (7C) to STA 1289
Attach-1 to Sheet 6A
Use Sheet 6A
Sheet 6A

DEC. 1981 Squad: P.M. CHRISTY BY: C.R.K.



Quantities This Sheet
5640 Syd Removing Old Pavement (Patching)

17 Each Hook Book Lane Ties
5640 Syd. Conc. Pavt. Patching - Type F.S., 10" (Reinf.)
591 Syd. Removing Pavement
591 Syd Misc. Concrete Pavement Reinf. 9"

612 LFT. Intermediate Saw Cuts
224 Each Fixed Cost for Patches - Type X
438 Each Fixed Cost for Patches - Type Y
7 Tons Cement

This Sheet:
Sta. 1291+00 to 1326+20.19
Sta. 1326+20.19 Back = Sta. 518+61.05 (Station Equation)
Sta. 518+61.05 to Sta. 681+00

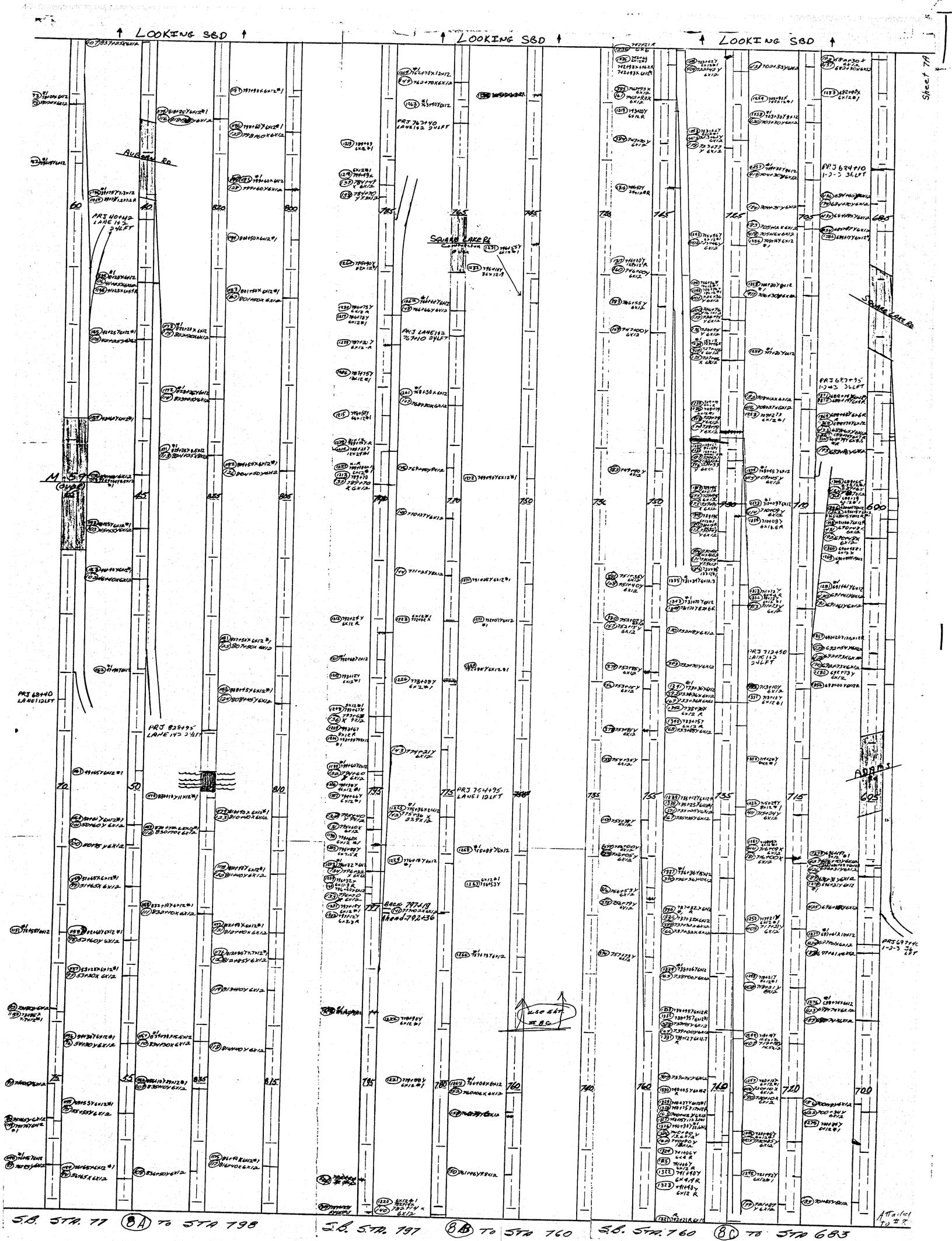
SCALE 1" = 60'

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

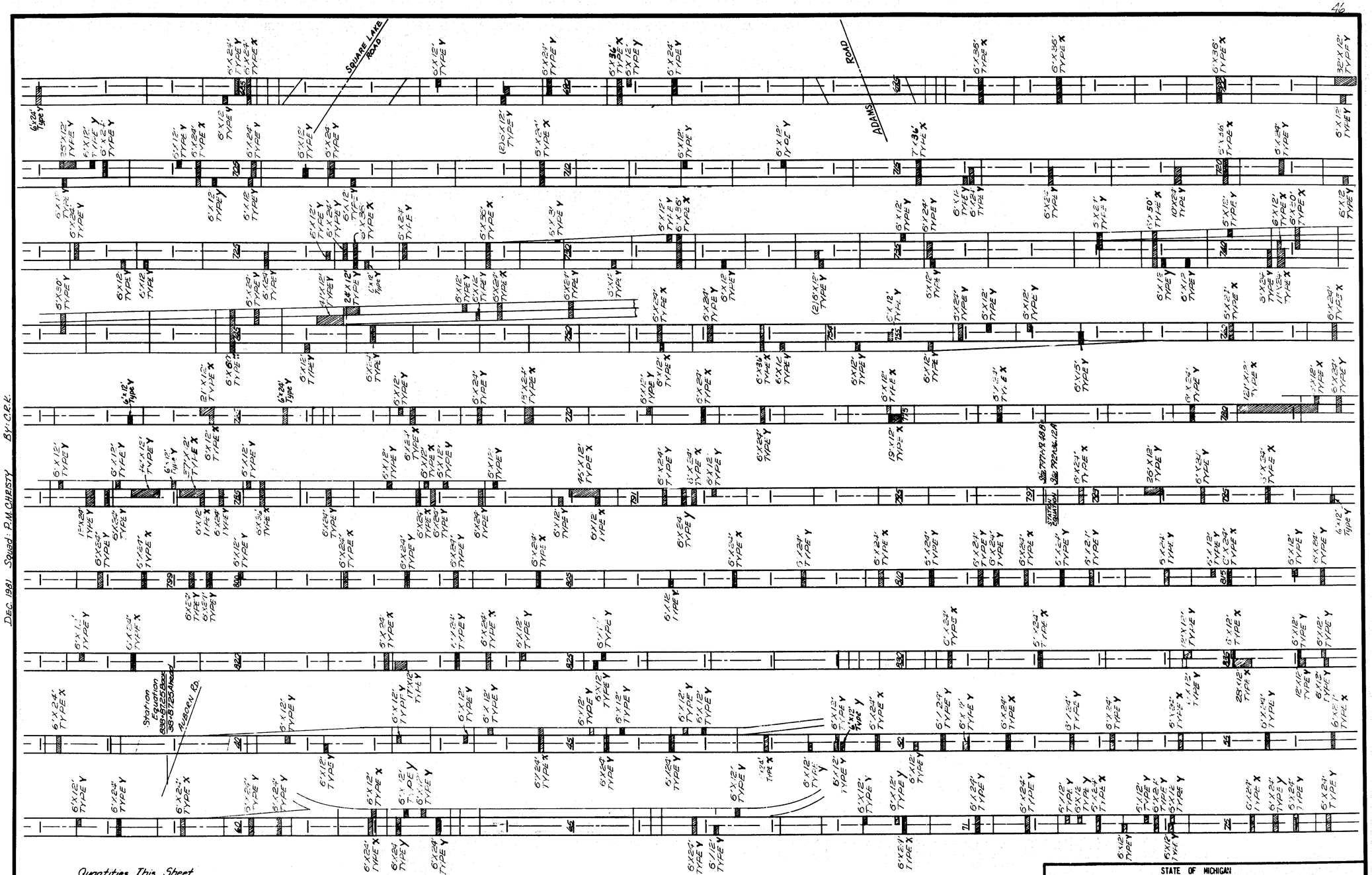
RESEARCH LAB. TESTING AND RESEARCH DIVISION

CONC. JOINT REPAIR LOCATION SHEET

LOCATION I-75 SOUTHBOUND from 12 MILE RD. NORTHERLY TO UNIVERSITY DRIVE SHEET __ OF __
STATE PROJECT __ MAINT. PROJECT __
ROUTE I-75
CONTROL SECTION IR 63174
JOB NO. 18874 A
SHEET NO. 7


LOOKING SBD
LOOKING SBD
LOOKING SBD
Sheet 7A
Auburn Rd
PRJ H09442
LANE 1&2
3 VLEFT
SQUARE LAKE RL
PRJ LANE1&2
7&7H10 3VLEFT
PRJ 7&3H40
LANE1&2 3VLEFT
PRJ 6&8H40
LANE1 1VLEFT
PRJ 8&9H95
LANE1&2 3VLEFT
PRJ 7&4H95
LANE1 1VLEFT
PRJ 7&2H50
LANE1&2
3VLEFT
PRJ 6&4H10
1-2-3 3VLEFT
PRJ 6&7H95
1-2-3 3VLEFT
SQUARE LAKE RD
ADAMS
PRJ 6&9H10
1-2-3 3VLEFT
M-59
(CHAR)
BACK 797+19
AHead 792+36
S.B. STA. 77 (8A) TO STA 798
S.B. STA. 797 (8B) TO STA 760
S.B. STA. 760 (8C) TO STA 683
Attached to #7

DEC. 1981 Squad: P.M. CHESTY BY: C.R.K.



Quantities This Sheet

3545 Syd Removing Old Pavement (Patching)
2 Tons Cement
3545 Syd Conc. Pavt. Patching - Type F.S., 10" (Reinf.)
162 Syd Removing Pavement
162 Syd Misc. Concrete Pavement Reinf. 9"

744 LFT Intermediate Saw Cuts
192 Each Fixed Cost for Patches - Type X
245 Each Fixed Cost for Patches - Type Y

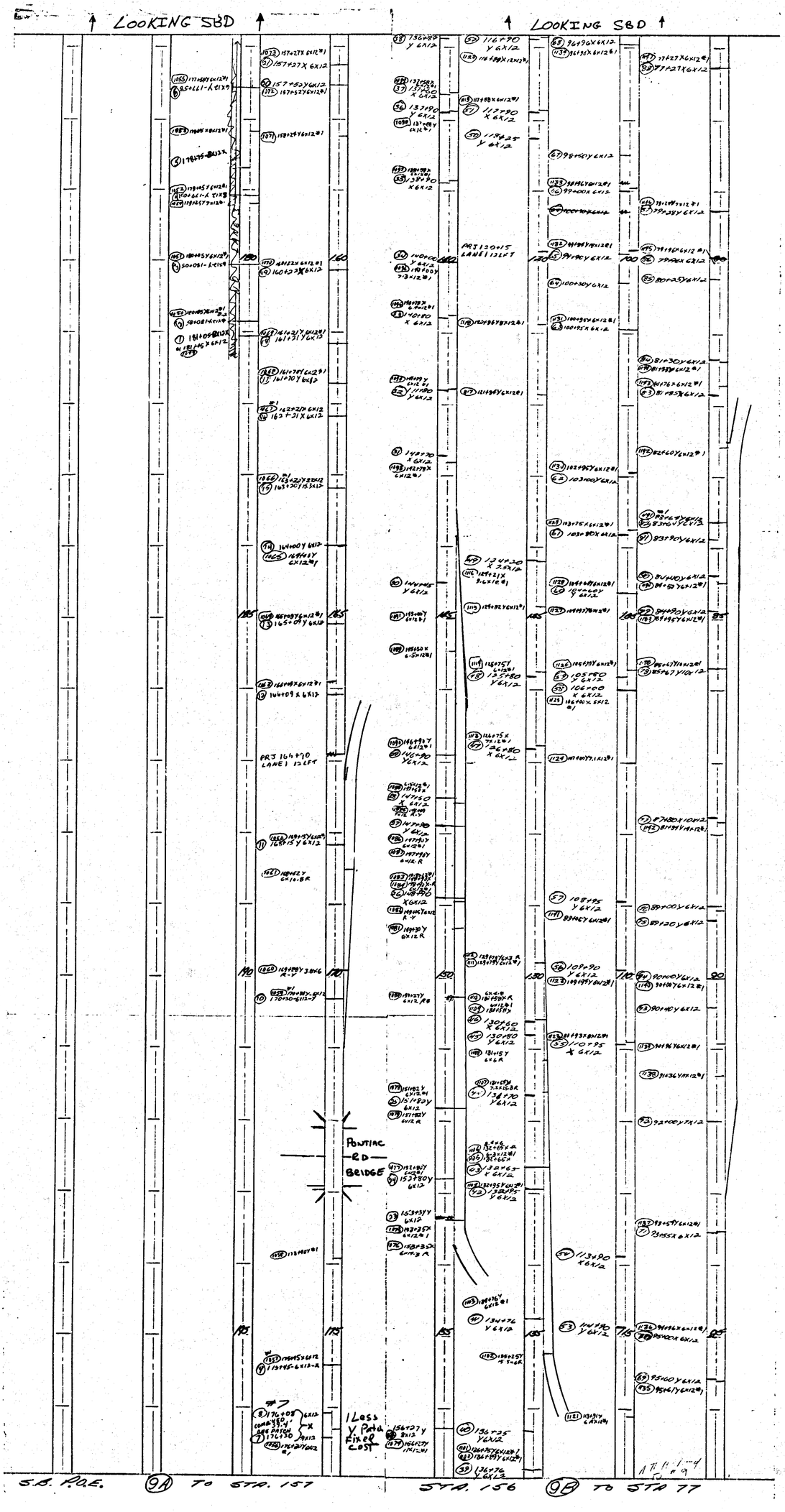
SCALE 1" = 60'

THIS SHEET: Sta. 682+00 to Sta. 838+87.25
Sta. 838+87.25 B = Sta. 38+87.25 A. (STATION EQUATION)
Sta. 38+87.25 to Sta. 76+50

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
RESEARCH LAB. TESTING AND RESEARCH DIVISION

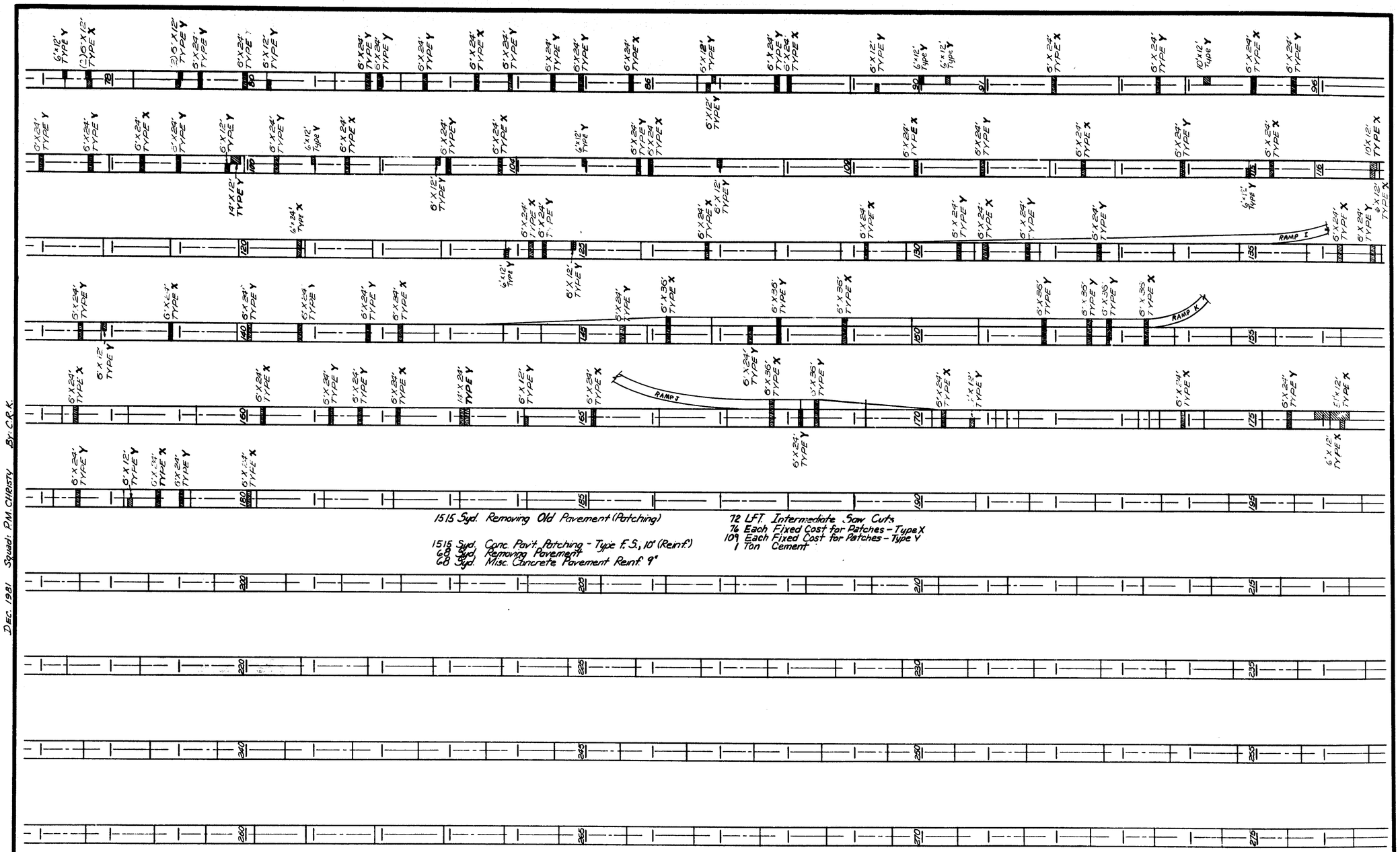
CONC. JOINT REPAIR LOCATION SHEET

LOCATION I-75 SOUTHBOUND from 12 MILE RD. NORTHERLY TO UNIVERSITY DRIVE SHEET ___ OF ___
STATE PROJECT ___ MAINT. PROJECT ___ ROUTE I-75
CONTROL SECTION IR 63174 JOB NO. 18874A SHEET NO. 8


LOOKING SBD
LOOKING SBD
PONTIAC RD BRIDGE
PRJ 130-15 LANE 1 LEFT
PRJ 164-10 LANE 1 LEFT
#7
1 Less Y Patd Fixed Cost
S.B. RAE.
9A TO STA. 157
STA. 156
9B TO STA 77

Sheet 8A

DEC. 1981 Squad: P.M. CHRISTY By: C.R.K.



1515 Syd. Removing Old Pavement (Patching)

1515 Syd. Conc. Pavt. Patching - Type F.S., 10" (Reinf.)
68 Syd. Removing Pavement
68 Syd. Misc. Concrete Pavement Reinf. 9"

72 LFT. Intermediate Saw Cuts
76 Each Fixed Cost for Patches - Type X
109 Each Fixed Cost for Patches - Type Y
1 Ton Cement

SCALE 1" = 60'

THIS SHEET: Sta. 77+00 to Sta. 180+50 (P.O.E.)
(University Drive)

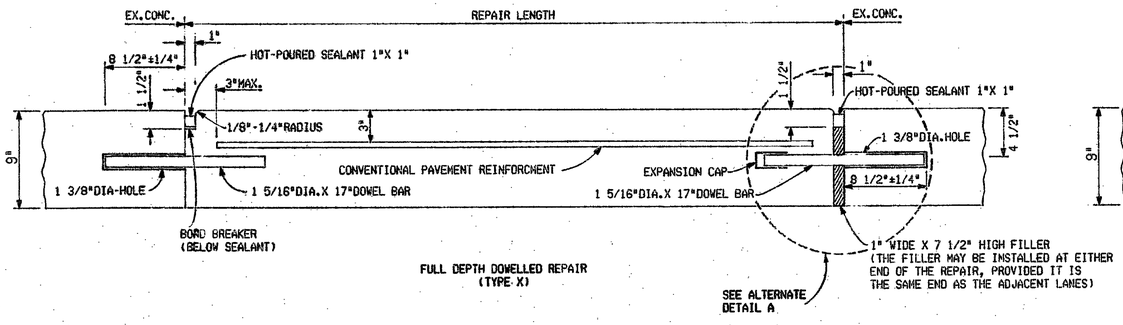
STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

RESEARCH LAB. TESTING AND RESEARCH DIVISION — CONC. JOINT REPAIR LOCATION SHEET

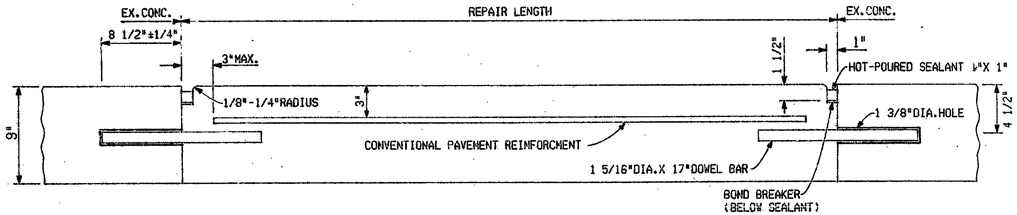
LOCATION I-75 SOUTHBOUND from 12 MILE RD. NORTHERLY TO UNIVERSITY DRIVE — ROUTE I-75

CONTROL SECTION	JOB NO.	SHEET NO.
IR 63174	18874 A	9

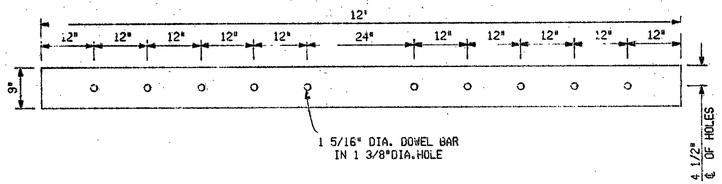
AUTH	DATE	NO.	FINAL R.O.V. REVISION



FULL DEPTH DOWELLED REPAIR
(TYPE X)

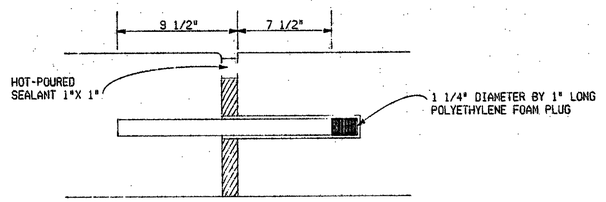


FULL DEPTH DOWELLED REPAIR
(TYPE Y)



NOTE: THE HOLE SPACING MAY BE ADJUSTED 1"HORIZONTALLY, RAISED 1/2", OR LOWERED 1"FROM THE ABOVE LOCATIONS TO AVOID DRILLING INTO THE REINFORCEMENT.

DOWEL BAR SPACING FOR TYPE X AND TYPE Y REPAIRS



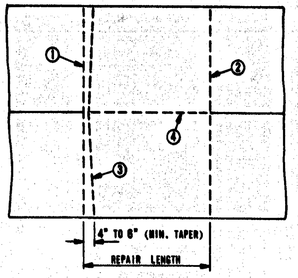
ALTERNATE DETAIL A

NOTE:
FOR ADDITIONAL INFORMATION ON THE EXPANSION JOINT DETAIL AND ALTERNATE DETAIL A, REFER TO THE SPECIAL PROVISION FOR FULL DEPTH DOWELLED REPAIRS TYPE X AND TYPE Y.

A BOND BREAKING COAT OF LIQUID ASPHALT (MDOT AC-25C) IS REQUIRED ON THE PORTION OF THE DOWEL BAR EXTENDING INTO THE NEW CONCRETE WHEN EXPANSION CAPS ARE USED.

SPECIAL DETAIL - JOINT REPAIR SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W. CONST.
11/29/82	1" =	63174	18874A	CHRISTY	10



Plan of Sawing Diagram

THIS METHOD OF REMOVING DISTRESSED CONCRETE SHALL BE USED IN CONJUNCTION WITH CAST-IN-PLACE REPAIR DETAILS 2 AND 3.

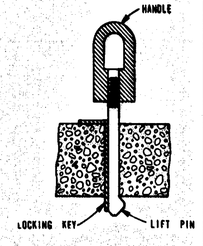
ALL SAWCUTS SHALL BE FULL DEPTH.

①&② THESE SAWCUTS SHALL BE PERPENDICULAR TO THE EDGE OF THE ROADWAY.

③ THIS SAWCUT IS MADE TO FACILITATE OPENING A TRENCH ACROSS THE SLAB TO RELIEVE COMPRESSION IN THE PAVEMENT PRIOR TO LIFTING OUT THE FAILED AREA. THIS SAWCUT MAY BE OMITTED PROVIDED NO SPALLING OF THE REMAINING CONCRETE PAVEMENT OCCURS. IF SPALLING DOES OCCUR, THE CONTRACTOR WILL BE REQUIRED TO MAKE THIS SAWCUT ON SUBSEQUENT PATCHES.

④ THIS SAWCUT IS MADE BETWEEN LANES, BETWEEN A LANE AND A CURB, AND BETWEEN A LANE AND A RAMP.

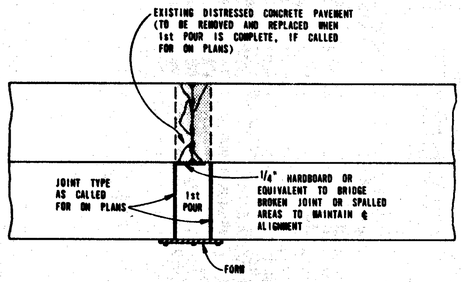
ADDITIONAL SAWCUTS MAY BE MADE INSIDE THE REPAIR LIMITS AT THE CONTRACTOR'S OPTION, TO FACILITATE REMOVAL.



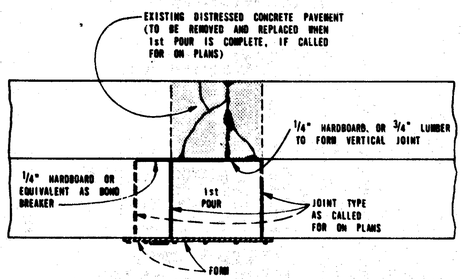
Schematic of Typical Lift Pin Assembly

SAWING DIAGRAM & LIFT PIN FOR REMOVING OLD SLAB

DETAIL 1



Repair Length 12′ or Less



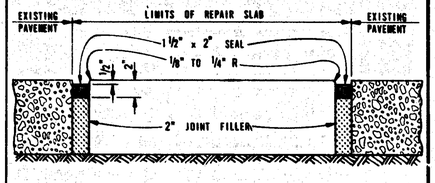
WHERE REPAIRS LONGER THAN 12 FEET ARE REQUIRED, A NEW GRADE MUST BE ESTABLISHED ALONG THE OLD PAVEMENT INNER JOINT LINE INDEPENDENT OF THE OLD PAVEMENT SURFACE, SO THAT SCREEDING MAY BE DONE PERPENDICULAR TO THE CENTERLINE.

Repair Length More Than 12′

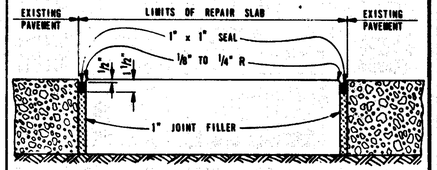
NOTE: STAKES USED TO HOLD BITUMINOUS FILLER OR HARDBOARD IN PLACE DURING CONCRETE PLACEMENT SHALL BE REMOVED BEFORE SCREEDING THE CONCRETE.

FORMING REQUIREMENTS FOR CAST-IN-PLACE REPAIR

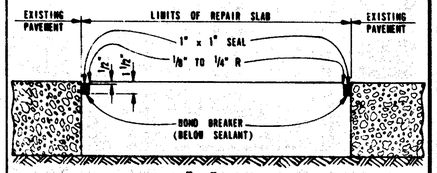
DETAIL 2



Type "A" Joint



Type "B" Joint



Type "C" Joint

NOTE: WHEN PLACING CONCRETE PAVEMENT PATCHES IN BITUMINOUS OVER CONCRETE PAVEMENTS, THE PATCH SHALL BE CONSTRUCTED AS SHOWN ABOVE WITH TOP OF PATCH LEVEL WITH TOP OF EXISTING BITUMINOUS SURFACE.

CAST-IN-PLACE REPAIR JOINTS

DETAIL 3

PREPARED BY DESIGN DIVISION

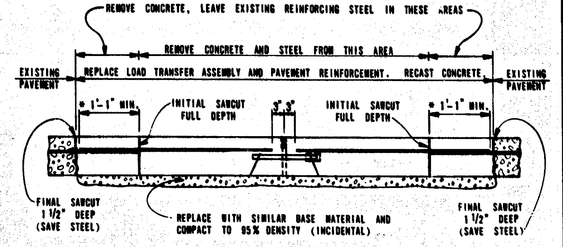
DRAWN BY: H.A.W.
CHECKED BY: V.R.

H.B. LaFrance — ENGINEER OF CONSTRUCTION
Donald E. Dunn — ENGINEER OF MAINTENANCE
K.A. Allemeier — ENGINEER OF TESTING AND RESEARCH
M.E. Wittmann — ENGINEER OF TRAFFIC AND SAFETY
A. Zaldivar — ENGINEER - ROAD DESIGN
W.J. MacGregor — ENGINEER OF DESIGN
DEPARTMENT DIRECTOR JOHN P. WOODFORD
Sam C. Curtis — DEPUTY DIRECTOR - HIGHWAYS

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

CONCRETE PAVEMENT REPAIR

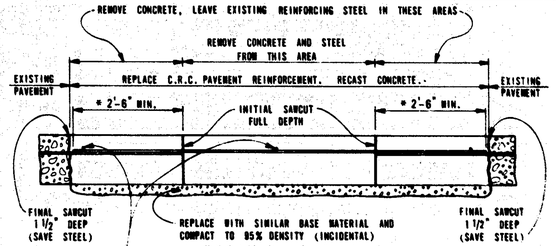
F.H.W.A. APPROVAL | 8-6-82 PLAN DATE | II-44E | SHEET 1 OF 3



* NOTE:
IF EXISTING REINFORCEMENT LAPS ARE ENCOUNTERED IN THIS AREA, FINAL SAW CUT MUST BE MOVED BACK TO PROVIDE MINIMUM 1'-1" LAP OF PAVEMENT REINFORCEMENT.

TRANSVERSE JOINT REPAIR USING LOAD TRANSFER ASSEMBLY

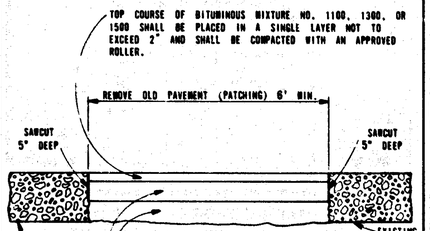
DETAILS (CONTRACTION JOINT) 4 (EXPANSION JOINT) (SHOWN DASHED) 4A



* NOTE:
IF EXISTING REINFORCEMENT LAPS ARE ENCOUNTERED IN THIS AREA, FINAL SAW CUT MUST BE MOVED BACK TO PROVIDE MINIMUM 2'-6" LAP OF PAVEMENT REINFORCEMENT.

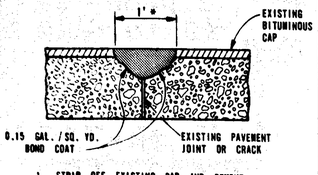
PATCHING CONTINUOUSLY REINFORCED CONCRETE

DETAIL 5



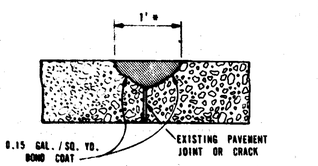
PATCHING WITH BITUMINOUS MATERIAL

DETAIL 6



1. STRIP OFF EXISTING CAP AND REMOVE LOOSE DETERIORATED CONCRETE.
2. REPLACE BITUMINOUS CAP AND LOOSE DETERIORATED CONCRETE WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 AND COMPACT WITH A MACHINE VIBRATOR OR APPROVED ROLLER. THE COMPACTED BITUMINOUS MIXTURE SHALL BE FLUSH WITH EXISTING BITUMINOUS CAP.

* FOR QUANTITY ESTIMATE PURPOSES ONLY

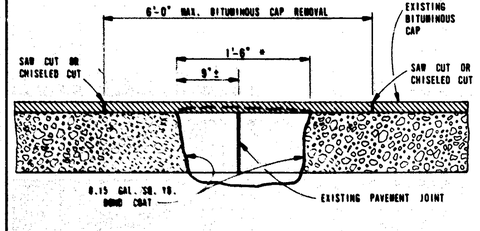


1. WHERE NO BITUMINOUS CAP EXISTS, REMOVE LOOSE DETERIORATED CONCRETE.
2. REPLACE LOOSE DETERIORATED CONCRETE WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 AND COMPACT WITH A MACHINE VIBRATOR OR APPROVED ROLLER. THE COMPACTED BITUMINOUS MIXTURE SHALL BE FLUSH WITH EXISTING CONCRETE PAVEMENT.

* FOR QUANTITY ESTIMATE PURPOSES ONLY

TRANSVERSE OR LONGITUDINAL JOINT OR CRACK REPAIR

DETAIL 7



1. STRIP OFF EXISTING BITUMINOUS CAP AND BREAK OUT EXISTING CONCRETE PAVEMENT.
2. REPLACE BROKEN-OUT AREA WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 AND COMPACT WITH WHEELED OR VIBRATORY EQUIPMENT.
3. REPLACE BITUMINOUS CAP WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 AND COMPACT WITH APPROVED ROLLER. THE COMPACTED BITUMINOUS MIXTURE SHALL BE FLUSH WITH ADJACENT PAVEMENT SURFACE.

* FOR QUANTITY ESTIMATE PURPOSES ONLY

TRANSVERSE JOINT REPAIR

DETAIL 8

PREPARED BY DESIGN DIVISION

DRAWN BY: H.A.W.
CHECKED BY: V.R.

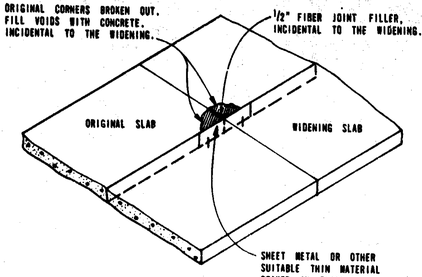
H.B. LaFrance — ENGINEER OF CONSTRUCTION
Donald E. Dunn — ENGINEER OF MAINTENANCE
K.A. Allemeier — ENGINEER OF TESTING AND RESEARCH
M.E. Wittmann — ENGINEER OF TRAFFIC AND SAFETY
A. Zaldivar — ENGINEER - ROAD DESIGN
W.J. MacGregor — ENGINEER OF DESIGN
DEPARTMENT DIRECTOR JOHN P. WOODFORD
Sam C. Curtis — DEPUTY DIRECTOR - HIGHWAYS

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

CONCRETE PAVEMENT REPAIR

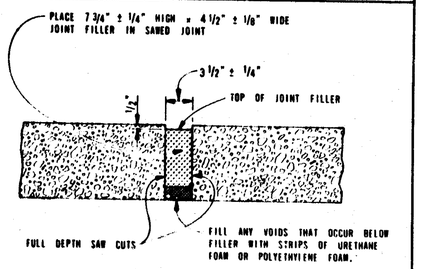
F.H.W.A. APPROVAL | 8-6-82 PLAN DATE | II-44E | SHEET 2 OF 3

C.S. IR 63174 J.N. 18874A SHEET NO. 11



JOINT PATCH ADJACENT TO WIDENING SLAB

DETAIL 9

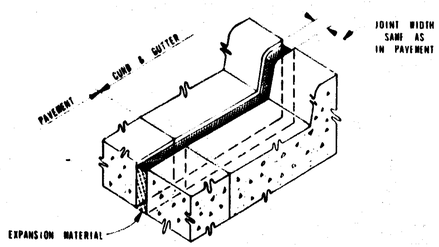


NOTE: WHEN PRESSURE RELIEF JOINT IS TO BE CONSTRUCTED THROUGH 6" CONCRETE SHOULDER, TRENCH BELOW CONCRETE 2"+ TO ALLOW ROOM FOR 7 3/4" FILLER.

PRESSURE RELIEF JOINT

(THIS DETAIL ALSO APPLIES TO BITUMINOUS SURFACED PAVEMENTS REQUIRING PRESSURE RELIEF JOINTS)

DETAIL 10



CURB, GUTTER AND CURB FACE SHALL BE SAWED AS DEEPLY AS POSSIBLE. THE REMAINING CONCRETE SHALL BE BROKEN OUT AND EXPANSION MATERIAL OF SUFFICENT THICKNESS SHALL BE PLACED IN SAWED JOINT TO FILL THE GAP AS DIRECTED BY THE ENGINEER.

PRESSURE RELIEF JOINT THRU CURB

DETAIL 11

NOTES APPLYING TO STANDARD PLAN II-44E:

CONCRETE PAVEMENT REPAIR OR EXPANSION RELIEF DETAIL WILL BE AS CALLED FOR ON PLANS OR IN LOG OF PROJECT.

IF EXISTING PAVEMENT HAS AN ASPHALT SURFACE, THE SAW CUTS SHALL EXTEND THE DEPTH SHOWN INTO THE PORTLAND CEMENT CONCRETE.

WHEN CONCRETE PAVEMENT PATCHES ARE LONGER THAN 20' AND ARE TO BE RESURFACED, TRANSVERSE PLANE OF WEAKNESS JOINTS, SYMBOL (U), SHALL BE PLACED IN LINE WITH EXISTING TRANSVERSE JOINTS, WORKING CRACKS, OR AT 20-FOOT MAX., 6-FOOT MIN. INTERVALS. TRANSVERSE PLANE OF WEAKNESS JOINTS, SYMBOL (DI), SHALL BE PLACED IN CONCRETE PAVEMENT PATCHES NOT TO BE RESURFACED AS SHOWN IN (DETAIL 12). FOR SYMBOL (U) AND SYMBOL (DI) JOINTS, SEE STANDARD PLAN II-39 SERIES.

WHEN CAST-IN-PLACE REPAIRS ARE MADE IN JOINTED PAVEMENT, STANDARD PAVEMENT REINFORCEMENT SHALL BE USED TO REINFORCE CONCRETE PATCHES 10' OR LONGER.

WHEN PATCHING PAVEMENTS WITH CAST-IN-PLACE REPAIR JOINTS (DETAIL 3), THE JOINT TYPES SELECTED SHOULD PROVIDE FOR NO MORE EXPANSION SPACE THAN 4" IN 850' FOR PAVEMENTS WITH 99' JOINT SPACING, OR 2" IN 850' FOR PAVEMENTS WITH 71' JOINT SPACING AND NEOPRENE SEALS.

EXPANSION SPACE SHOULD BE DISTRIBUTED THROUGHOUT THE SECTION RATHER THAN INSTALLING IT ALL AT ONE LOCATION. TO ALLOW FOR DISTRIBUTION OF PAVEMENT EXPANSION, CAST-IN-PLACE PATCHES MAY HAVE A TYPE "C" JOINT ON ONE END AND A TYPE "A" OR "B" JOINT ON THE OTHER END. TYPE "A" JOINTS SHOULD NOT BE USED IN PATCHES ON NEOPRENE SEALED PAVEMENTS.

WHEN THERE ARE NO REPAIR LOCATIONS WITHIN AN 850' LENGTH, NO EXPANSION SPACE WILL BE REQUIRED.

EQUAL EXPANSION SPACE SHOULD BE PROVIDED IN ADJACENT LANES. TYPE "C" JOINTS SHOULD BE USED IN PATCHES WHICH DO NOT EXTEND ACROSS ALL LANES.

WHEN CAST-IN-PLACE REPAIR JOINT TYPES "A" AND "B" ARE PLACED ADJACENT TO CONCRETE CURB AND GUTTER AND WHERE REMOVAL OF CURB AND GUTTER IS NOT NECESSARY AS DETERMINED BY THE ENGINEER, AN EQUIVALENT EXPANSION JOINT WIDTH PER PATCH SHALL BE PROVIDED IN THE CURB AND GUTTER.

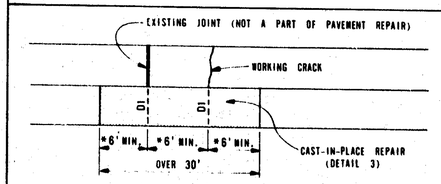
TRANSVERSE JOINTS (DETAIL 3) SHALL BE SANDBLASTED FOLLOWED BY A FINAL CLEANING WITH OIL-FREE COMPRESSED AIR PRIOR TO SEALING WITH HOT-POURED RUBBER-ASPHALT JOINT SEALER. BOND BREAKER (ALSO SHOWN IN DETAIL 3) SHALL BE PRESSURE SENSITIVE SILICONE BACKED TAPE OR AN EQUIVALENT APPROVED BY THE ENGINEER.

THE PAVEMENT REINFORCEMENT SHALL BE PLACED 3" BELOW FINISHED SURFACE.

TRANSVERSE JOINTS (DETAIL 4 AND 4A) SHALL BE SEALED IN ACCORDANCE WITH STANDARD PLAN II-39 SERIES.

SAWING OVERCUTS OCCURING IN ADJACENT SLAB, GUTTER, OR SHOULDER, WHICH WILL REMAIN IN PLACE, SHALL BE SEALED.

THE DATE OF CASTING SHALL BE STENCILLED ON EACH CONCRETE PATCH.



* MAX. JOINT SPACING 30'

JOINTS IN CONCRETE PAVEMENT PATCHES

(THIS DETAIL APPLIES TO DETAIL 3 CAST-IN-PLACE REPAIRS LONGER THAN 30')

DETAIL 12

PREPARED BY DESIGN DIVISION

DRAWN BY: H.A.W.

CHECKED BY: V.R.

ENGINEER OF CONSTRUCTION

ENGINEER OF MAINTENANCE

ENGINEER OF TESTING AND RESEARCH

ENGINEER OF TRAFFIC AND SAFETY

ENGINEER - ROAD DESIGN

ENGINEER OF DESIGN

DEPARTMENT DIRECTOR JOHN P. WOODFORD

BY: DEPUTY DIRECTOR - HIGHWAYS

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

CONCRETE PAVEMENT REPAIR

F.H.W.A. APPROVAL	8-6-82 PLAN DATE	II-44E	SHEET 3 OF 3

C.S. IR 63174 J.N. 18874A SHEET NO. 12

63174-23749A
25091A)

CS: 63174

ID: 23749A 25091A

CONTRAL SECTION NHI 63174 | JOB NO. 23749A 25091A | SH. NO. 1

PART 1 ROAD PLANS	SHEET NUMBERS
TITLE	1
TYPICAL CROSS SECTIONS	2-3
MISCELLANEOUS DETAIL	4-5
NOTE SHEET	6
STANDARD SYMBOLS	7
WALL ALIGNMENTS	8-11
PLAN & PROFILE	12-32
PLANTING DETAIL	33
LOG OF BORINGS	34-39
SPECIAL DETAILS	40-44

MICHIGAN
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED

MICHIGAN PROJECT NH9663076, IM9663077

CONTROL SECTION NHI 63174

JOB NUMBER 23749A, 25091A

I-75

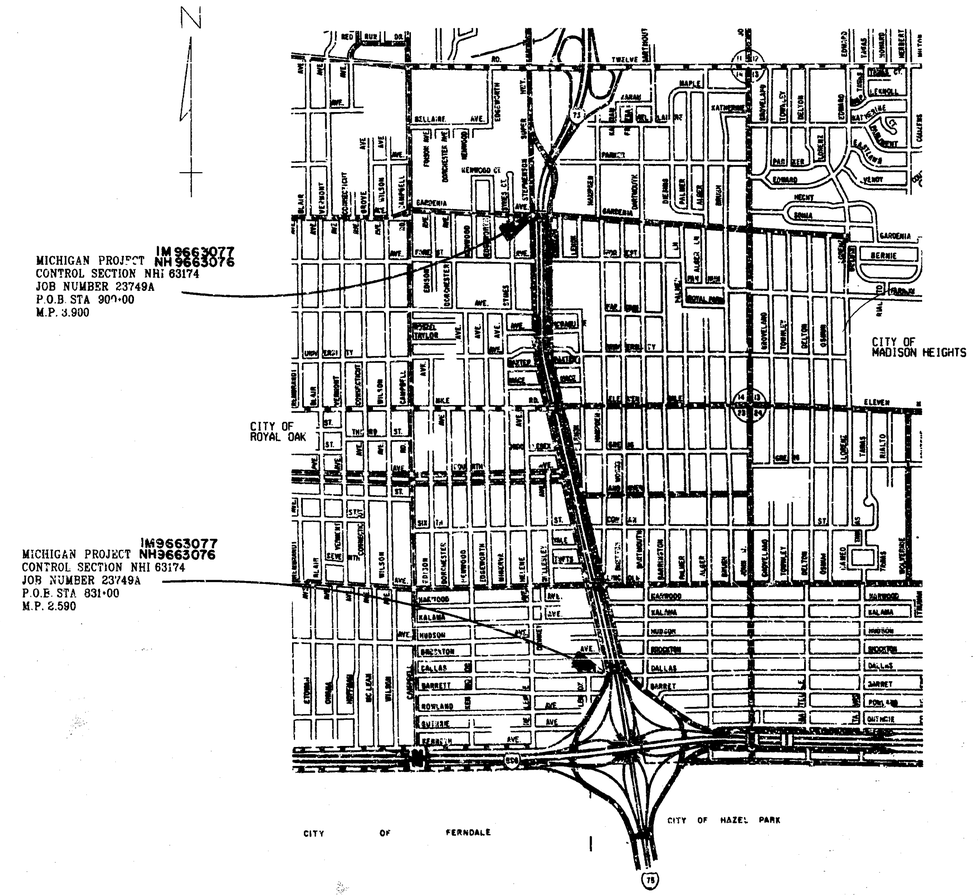
OAKLAND COUNTY

CITY OF ROYAL OAK

CITY OF MADISON HEIGHTS

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 1990 STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS.

	1993 YEAR	YEAR
A.D.T.	288862	
D.H.V.	28074	
COMM. %	4%	
DESIGN SPEED	N/A	



TITLE SHEET LEGEND

- PROPOSED PROJECT
- EXISTING ROADS
  - PAVED
  - BITUMINOUS
  - GRAVEL
  - UNIMPROVED OR CITY STREET
- SECTION LINE
- TOWNSHIP LINE
- COUNTY LINE
- CITY OR VILLAGE LIMITS
- RAILROADS

As Constructed 4-99
Plan Revision R-1

CONTRACT FOR: SOUNDWALL CONSTRUCTION 1.31 MILES (23749A)
LANDSCAPING (25091A)

APPROVALS

RECOMMENDED FOR APPROVAL — ENGINEER ROAD DESIGN — DATE 9/9/96
RECOMMENDED FOR APPROVAL — ENGINEER OF DESIGN — DATE 9/10/96
RECOMMENDED FOR APPROVAL — ENGINEER OF TRAFFIC & SAFETY — DATE 9/10/96
RECOMMENDED FOR APPROVAL — ENGINEER OF CONSTRUCTION — DATE 9/3/96

MICHIGAN
DEPARTMENT OF TRANSPORTATION
ROBERT A. WELKE - DIRECTOR

APPROVED BY — DEPUTY DIRECTOR - HIGHWAYS — DATE 9/10/96

PLANS PREPARED BY : PENA
DESIGN UNIT

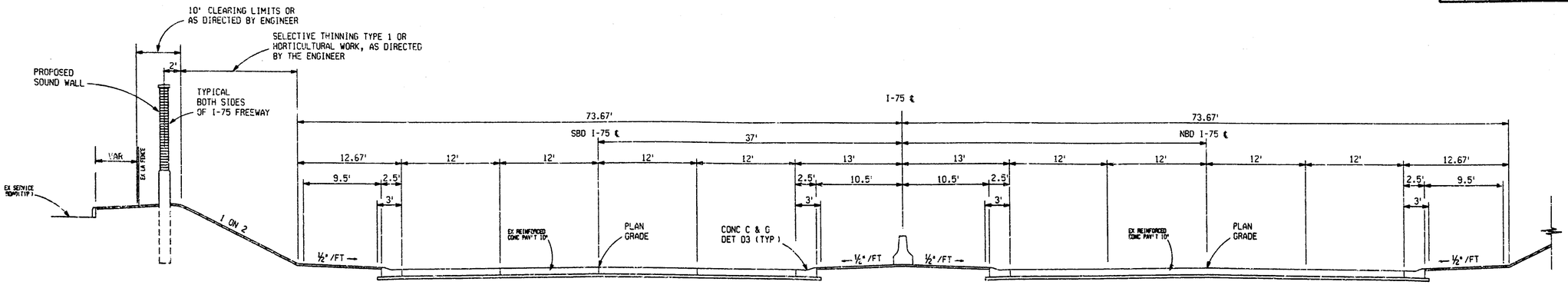
CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	FEDERAL NUMBERS ITEM	SHEET NO.
NHI 63174	23749A	IM9663076	KK0445	1
	25091A	IM9663077	KK0446	

CONTROL SECTION — JOB NUMBER: C.S. NHI 63174 J.N. 23749A, 25091A

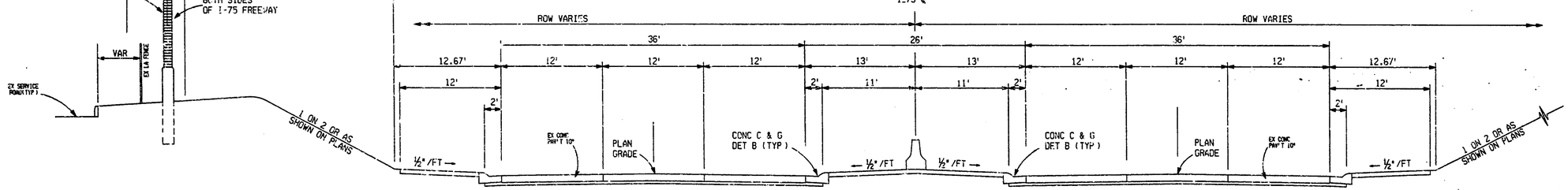
AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

DATE: 9-13-93
DATE:
DATE: 07/21/96

EXISTING BY: NB
PROPOSED BY:
LAST CORRECTION BY: WALTEH



I-75 TYPICAL CROSS SECTION
TO APPLY:
STA 831+00 TO STA 857+00



I-75 TYPICAL CROSS SECTION
TO APPLY:
STA 857+00 TO STA 900+00

I-75 EXISTING TYPICAL CROSS SECTION						
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
07/21/96	1"=6'	63174	23749 A	PENA		2

10/07/96 Engineering Print

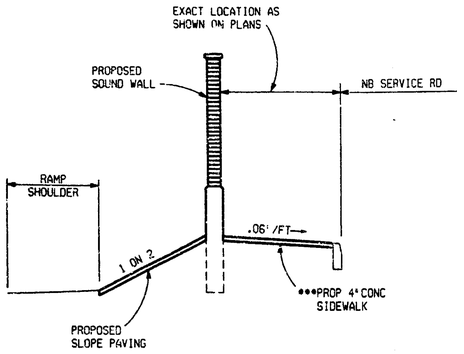
CONSTRUCTION AS PER PLANS, APRIL 1996

FILE NAME: 23749.TY1
1 2 3

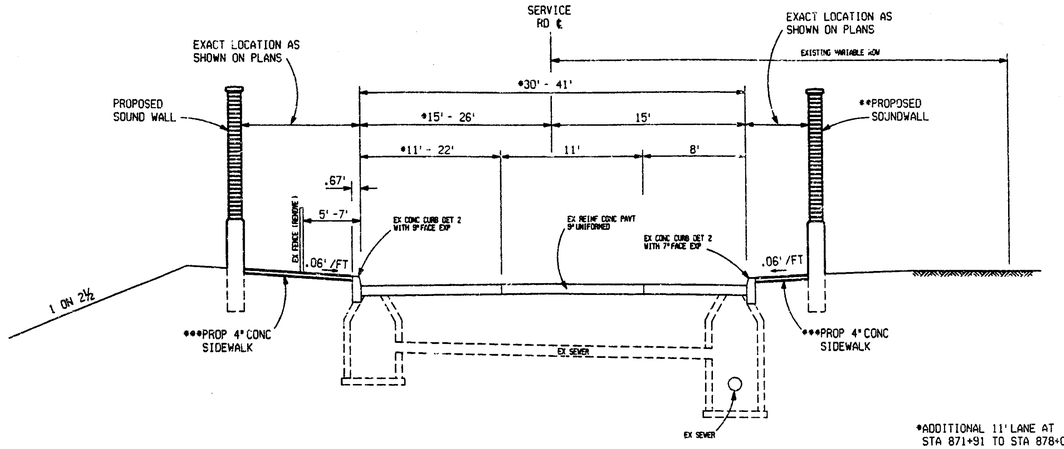
			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

DATE:
DATE:
DATE: 07/12/96

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: WALTER



TYPICAL CROSS SECTION
TO APPLY:
STA 851+30 TO STA 855+00(NB SERVICE RD)

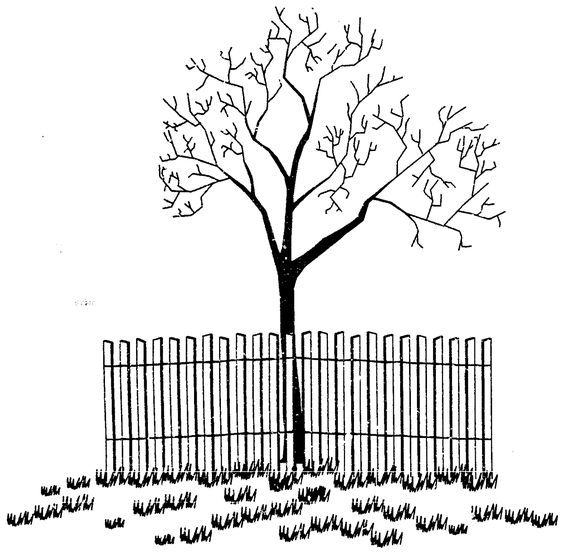


TYPICAL CROSS SECTION
TO APPLY:
NBD AND SBD SERVICE ROAD

*ADDITIONAL 11' LANE AT
STA 871+91 TO STA 878+00 SBD

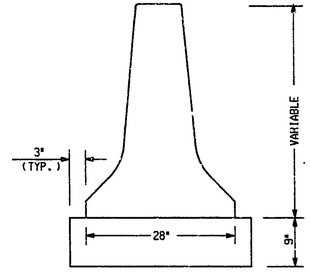
**APPLIES STA 859+00 TO 868+72
EAST SIDE OF NORTHBOUND ROADWAY

***APPLIES TO WALLS
'A','B','C','E' AND 'F' ONLY



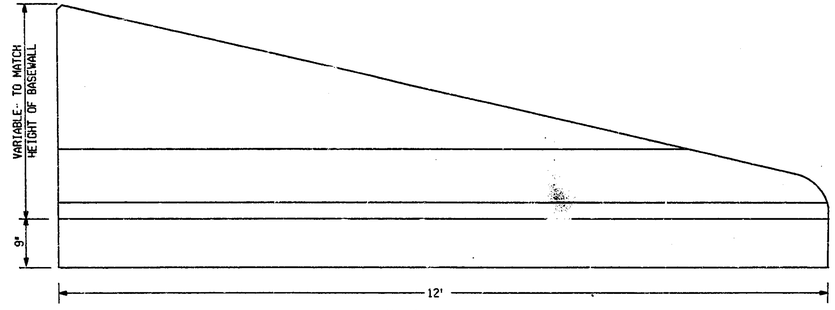
TEMPORARY TREE PROTECTION
DETAIL

TEMPORARY TREE PROTECTION SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER TO PREVENT DAMAGE TO VALUABLE EXISTING TREES ENDANGERED BY CONSTRUCTION OPERATIONS. FENCING SHALL BE PLACED PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY AND REMOVED ONLY WHEN ALL WORK IS COMPLETED. LOWER BRANCHES OF TREES SHALL NOT BE REMOVED.

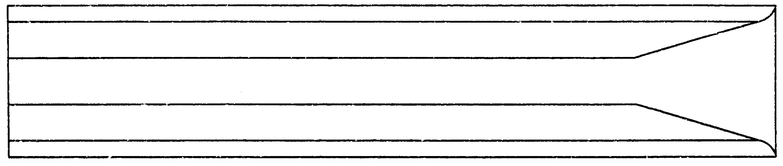


SLOPED END TREATMENT
TO APPLY:
NBD SERVICE DR. STA 532+50 (LEFT)
545+30 (LEFT)
859+00 (RIGHT)
SBD SERVICE DR. STA 858+00 (LEFT)

NOT TO SCALE



ELEVATION



TOP VIEW

MICHIGAN DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTION

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
08/22/96	1" = 5'	63174	23749 A	PENA		3

(CONSTRUCTED AS PER PLANS APRIL 1999)

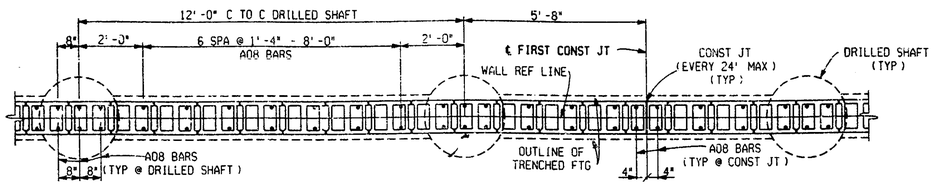
10/07/96 Engineering Print

FILE NAME: 23749.tyl
1 2 3

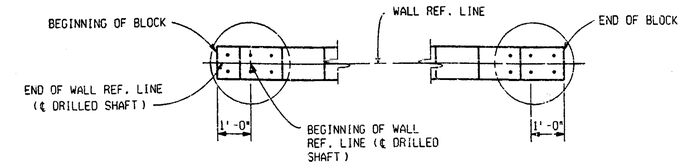
CONTRACT SECTION 63192 JOB NO. 23749 A SHEET NO. 4

CONSTRUCTED AS PER PLANS APRIL 1995

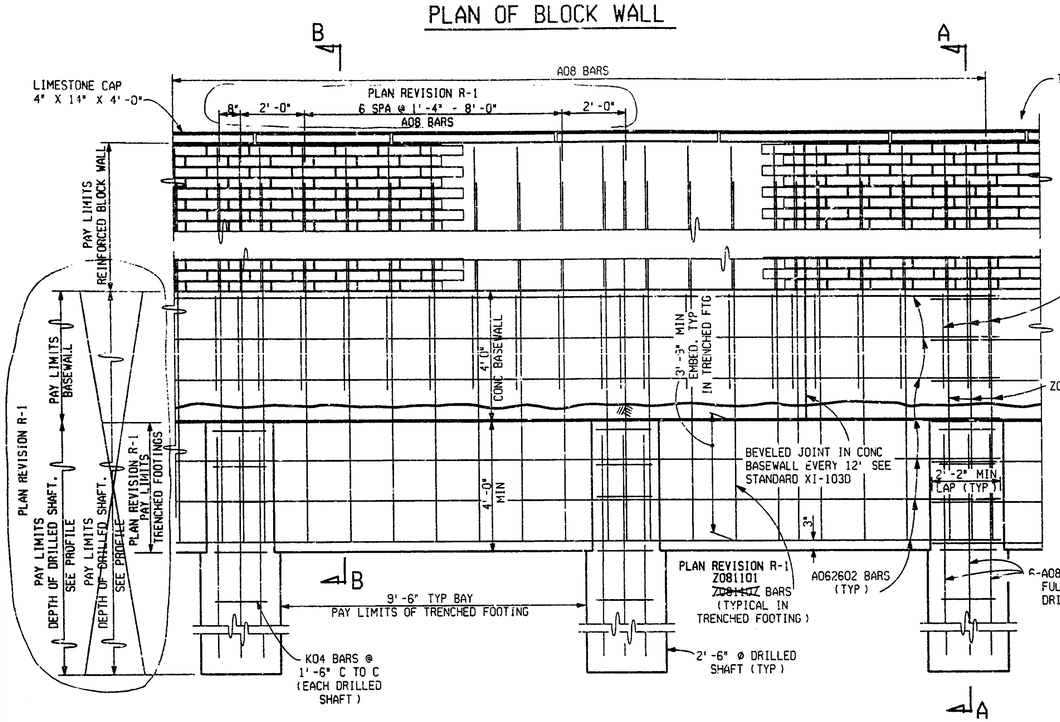
DRAWN BY:
LAST CORRECTION BY: DAVID DATE: 11/20/96
FILE NAME: 23749det.dgn DATE:
1 3



PLAN OF BLOCK WALL

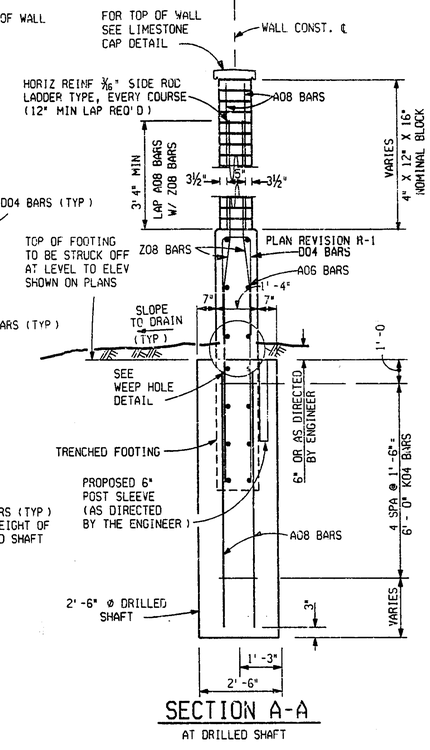


BEGINNING AND END OF WALL DETAILS



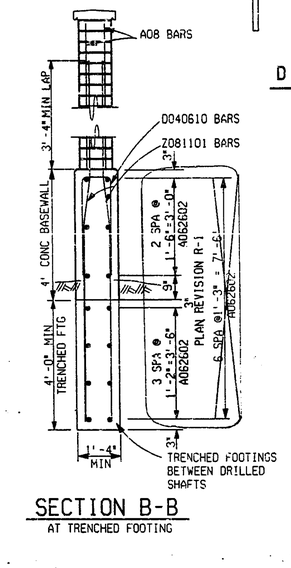
ELEVATION

(TYPICAL 24' SECTION)



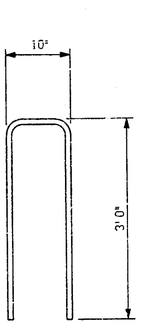
SECTION A-A

AT DRILLED SHAFT

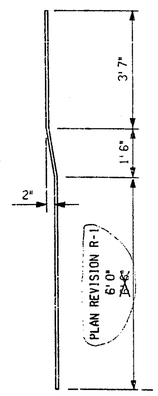


SECTION B-B

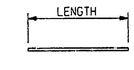
AT TRENCHED FOOTING



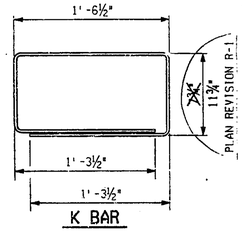
D BAR



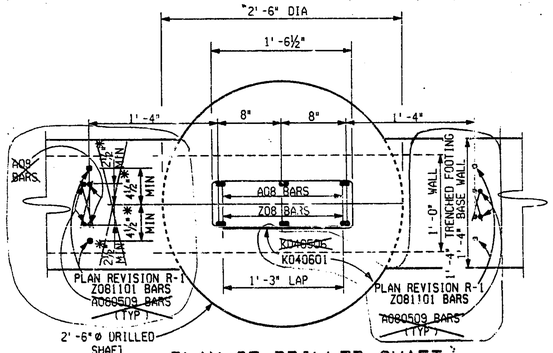
Z BAR



A BAR



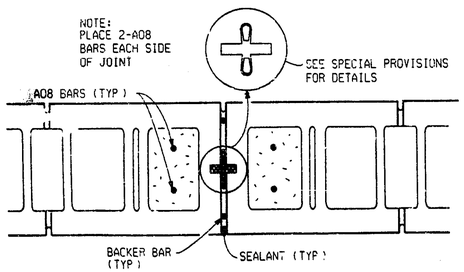
K BAR



PLAN OF DRILLED SHAFT

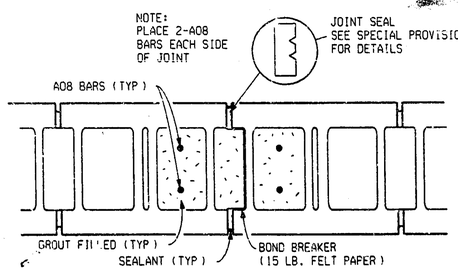
*CONTRACTOR SHALL VERIFY BLOCK CORE WIDTH PRIOR TO PLACEMENT OF VERTICAL BARS IN TRENCHED FOOTING.
*BLOCK SHALL NOT BE CUT TO FIT OVER REBAR. WHERE WALL HEIGHT EXCEEDS 18'-0", ENGINEER SHALL PROVIDE ALTERNATE SPACING FOR VERTICAL BARS IN TRENCHED FOOTING (A080509) OF 8" MAXIMUM.

MAXIMUM DESIGN WALL HEIGHT IS 25'.



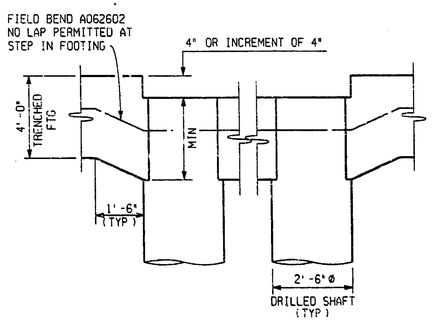
EXPANSION JOINT

(EVERY 4TH JOINT, 96' MAX.)
(MAY BE USED AS CONSTRUCTION JOINT)
(SHALL EXTEND THROUGH LIMESTONE CAP)



CONSTRUCTION JOINT

(EVERY 24'-0" MAX.)



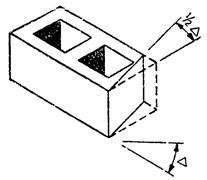
STEP IN FOOTING

PLAN REVISION R-1

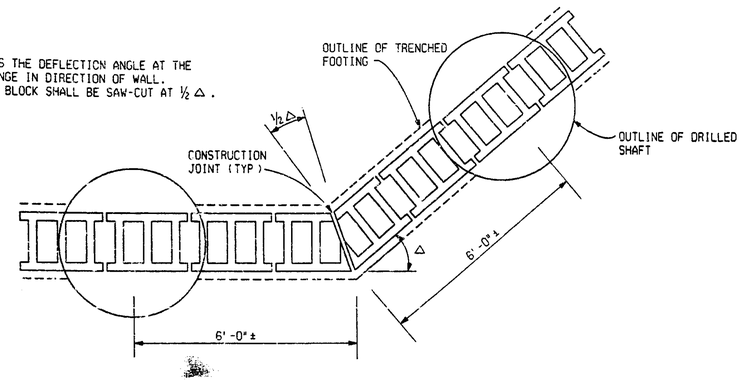
PROPOSED 4" REINFORCED BLOCK WALL					
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W. / CONST.
11/20/96		63174	23749A	PENA	4

CONTROL SECTION 63192 JOB NO. 23749 A SHEET NO. 5

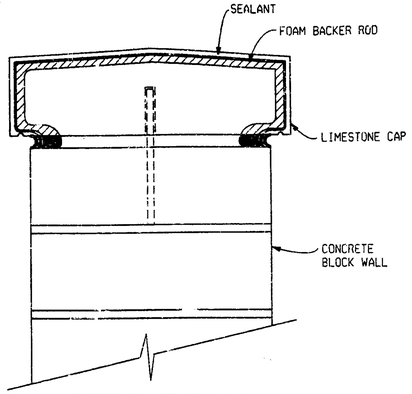
PLANS APPROVED AS PER FHWA 1999



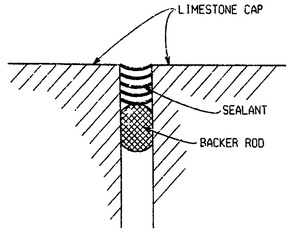
NOTE:
NOTE: △ IS THE DEFLECTION ANGLE AT THE CHANGE IN DIRECTION OF WALL. THE BLOCK SHALL BE SAW-CUT AT ½ △ .



BLOCK DETAIL AT DEFLECTIONS IN WALL ALIGNMENT



SECTION THRU WALL

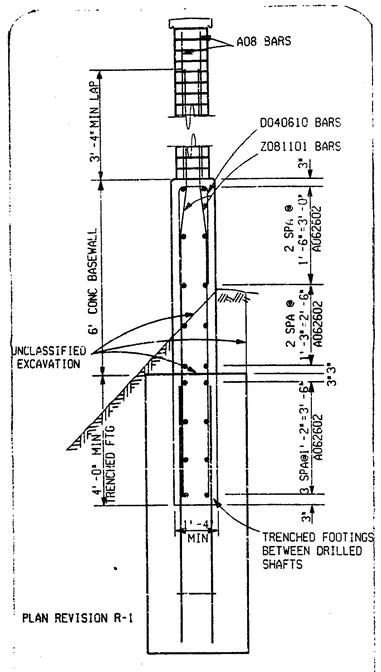


JOINT SECTION

VERTICAL JOINT DETAILS

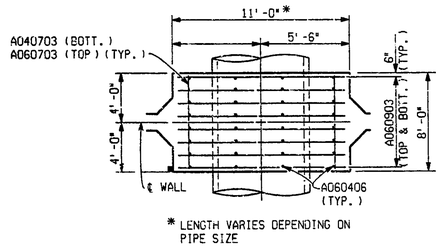
NOTE:

VERTICAL JOINT IN LIMESTONE CAP SHALL NOT CONCIDE WITH THE EXPANSION JOINTS IN THE WALL. CAP JOINT SHALL BE OFFSET TO INSURE CONTINUOUS MOISTURE BARRIER FOR THE LENGTH OF THE WALL.



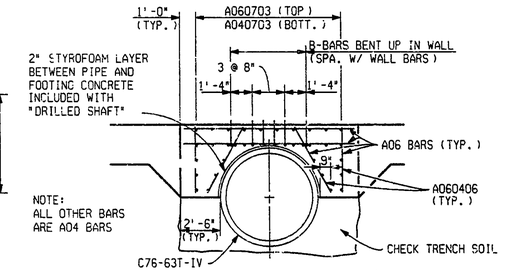
SECTION A-A

SECTION APPLIES TO:
STA 529+25 TO STA 855+06 NB
STA 554+24 TO STA 834+82 SB
*SHOWS 6' HIGH CONC BASEWALL



* LENGTH VARIES DEPENDING ON PIPE SIZE

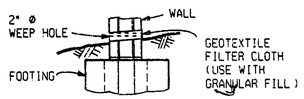
PLAN



ELEVATION

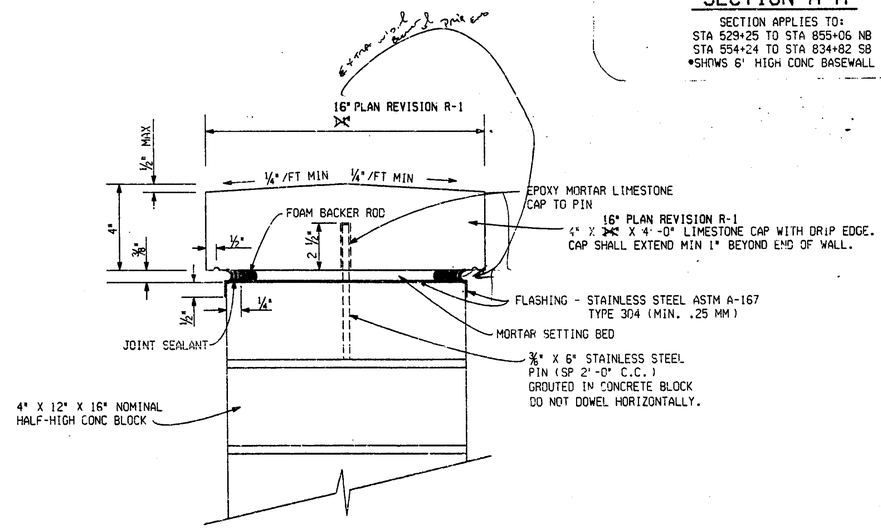
FOOTING CROSSING UTILITY DETAILS

LOCATE UTILITY BEFORE DRILLING DRILLED SHAFT.
USE WHERE DRILLED SHAFT OCCURS AT UTILITY.
LOCATION TO BE DETERMINED BY THE ENGINEER.
NOT TO BE PAID FOR SEPERATELY BUT INCLUDED IN PAY ITEM "DRILLED SHAFT"



WEEP HOLE DETAIL

PROVIDE WEEP HOLE WHERE FINISH GRADE SLOPES TOWARD THE WALL.
LOCATION TO BE DETERMINED BY THE ENGINEER.



LIMESTONE CAP DETAIL

PLAN REVISION R-1

DRAWN BY:
AST CORRECTION BY: DAVID DATE: 11/20/96
FILE NAME: 23749det.dgn DATE: 11/20/96

MICHIGAN DEPARTMENT OF TRANSPORTATION

PROPOSED 4" REINFORCED BLOCK WALL

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
11/20/96		63174	23749A	PENA		5

ENGINEERING REPORT NO	ENVIRON IMPACT STMT	
METHOD OF SURVEY		YEAR
SURVEY ORDER	SURVEY CHIEF	YEAR
AERIAL SURVEY NO		YEAR
HORIZ DATUM	VERT DATUM	
ROAD DESIGN INITIATED	COMPLETED	
PRELIMINARY PLANS BY	FINAL PLANS BY	
FIELD INSPECTION (GI) BY		DATE
PLANS-IN-HAND BY (FHWA)	AND (MDOT)	DATE

GENERAL PLAN NOTES

UNDERGROUND UTILITIES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

MDOT'S FREEWAY LIGHTING SYSTEM, THE SCANDI SYSTEM AND OTHER MISCELLANEOUS ELECTRICAL SYSTEMS ARE NOT A PART OF MISS DIG. CONTRACTORS WORKING IN THE METRO DISTRICT SHALL CALL:

FREEWAY LIGHTING-	MDOT DISTRICT MAINTENANCE FREEWAY LIGHTING COORDINATOR: (313)559-3993
SCANDI-	FREEWAY OPERATIONS CENTER: (313)256-2704
LIGHTING AND TRAFFIC-SIGNAL CABLE (WITHIN THE CITY OF DETROIT)	PUBLIC LIGHTING DEPARTMENT: (313)224-0500

CONCRETE SIDEWALK

THE REMOVAL OF THE BITUMINOUS IN THE AREA OF THE PROPOSED SIDEWALK, REGARDLESS OF DEPTH, WILL BE PAID FOR AS "REMOVING BIT SURFACE". THE COST FOR EXCAVATION NEEDED TO PREPARE THE SITE FOR PLACEMENT OF CONCRETE SIDEWALK WILL BE INCLUDED IN THE ITEM "CONC SIDEWALK, 4" ".

SLOPES

CLASS A SLOPES WILL BE REQUIRED ON THIS PROJECT.

SOIL BORINGS

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY INFERS THAT SUBSURFACE CONDITIONS ARE THE SAME OTHER THAN THE EXACT LOCATION OF THE BORINGS.

STATIONING

STATIONING ON THIS PROJECT WAS TAKEN FROM OLD PLANS AND PAVEMENT STENCILED STATIONING AND IS NOT NECESSARILY CORRECT.

WALL ALIGNMENT & PROFILE

ANY COLUMN SPACING WHICH IS NOT DIMENSIONED ON THE PLANS SHALL BE THE STANDARD SPACING SHOWN ON THE TYPICAL. EXACT WALL ALIGNMENT MAY BE ADJUSTED BY THE ENGINEER TO AVOID EXISTING VEGETATION OR UTILITIES. THE EXISTING GROUND PROFILE SHOWN ON THE PLANS IS THE BEST INFORMATION AVAILABLE. IF THE GROUND PROFILE IS INCORRECT, THE TOP OF WALL PROFILE MAY HAVE TO BE ADJUSTED. THE WALL HEIGHTS MUST NOT GO BELOW ELEVATIONS SHOWN ON THE PLANS. THEREFORE, THE ONLY ADJUSTMENT IF NEEDED WOULD BE UP.

DEPTH OF EMBEDMENT

THE FOOTING DEPTH OF EMBEDMENTS WILL HAVE TO BE ADJUSTED IF THE WALL HEIGHTS VARY FROM THOSE SHOWN ON THE PLANS. GENERALLY, AN INCREASE IN WALL HEIGHT OF TWO FEET WILL REQUIRE AN ADDITIONAL ONE FOOT OF EMBEDMENT.

FENCE REMOVAL

PRIVATE FENCES THAT HAVE BEEN EXTENDED ACROSS THE EASEMENT TO MDOT RIGHT OF WAY FENCE SHALL BE SALVAGED & MOVED TO CLEAR THE WORK AREA AND RE-ERECTED UPON WORK COMPLETION. THIS WORK WILL BE CONSIDERED INCLUDED WITH REMOVING FENCE PAY ITEM SHOWN ON PLANS.

RIPRAP

A NON-WOVEN GEOTEXTILE LINER SHALL BE PLACED UNDER ALL RIPRAP ON THIS PROJECT AND WILL BE CONSIDERED INCLUDED IN THE RIPRAP PAY ITEM.

RIGHT-OF-WAY FENCE

ALL RIGHT-OF-WAY FENCE NOT REMOVED ON THIS PROJECT SHALL BE RECONNECTED TO THE PROPOSED SOUNDWALLS, AS DIRECTED BY THE ENGINEER. PAYMENT FOR THIS WORK WILL BE INCLUDED IN THE ITEM OF "REMOVING FENCE".

OLD PLANS

THE FOLLOWING OLD PLANS WERE REFERRED TO IN THE DESIGN OF THIS PROJECT.

63103, 030
63174, C61
63174, C9
JOB NO 315 OAKLAND COUNTY DRAIN COMMISSION
CONTRACT SS2 OAKLAND COUNTY DRAIN COMMISSION

IN ADDITION, OTHER OLD PLANS THAT PREDATE THIS PROJECT MAY BE AVAILABLE. THESE PLANS MAY BE REVIEWED IN THE LANSING DESIGN OFFICE DURING NORMAL WORKING HOURS.

RESIDENTIAL FENCES

ALL RESIDENTIAL FENCES LOCATED BEHIND WALL "C" WILL BE EXTENDED TO MEET THE PROPOSED SOUNDWALL. THE ACTUAL HEIGHT OF FENCES MAY VARY. THE PLACEMENT OF THE FENCE REGUARDLESS OF THE ACTUAL HEIGHT WILL BE PAID FOR AS "CHAIN LINK FENCE, 60". A MISCELLANEOUS QUANTITY OF "CHAIN LINK FENCE, 60" " IS LISTED ON THE NOTE SHEET TO COVER THIS WORK.
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE CORRECT HEIGHT AND MATCH THE EXISTING FENCE FENCE AT EACH RESIDENCE.

SEWER CONFLICTS PLAN REVISION R-1

THE EXACT LOCATION&DEPTH OF SEWERS AND OTHER UTILITIES, WHICH MAY CROSS UNDER THE SOUNDWALL, IS NOT KNOWN AND MUST BE DETERMINED IN THE FIELD. DURING CONSTRUCTION.

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED ON OUR SURVEYS DATED , 19 . THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO IT'S ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

NAME OF OWNER	KIND OF UTILITY
CONSUMERS POWER MR. WILLIAM J. MEADOWCROFT ATTN: JEANNIE KING 1945 PARNALL RD., ROOM P21-204 JACKSON, MI 49201 PHONE: (517) 788-1073	GAS
CONSUMERS POWER JOSEPHINE VANEPPS 1955 WEST PARNALL ROAD, RM JFC 202 JACKSON, MI 49201 PHONE: (517) 788-1678	GAS
COMCAST CABLEVISION ATTN: TIM FRANK 6804 19 1/2 MILE ROAD STERLING HEIGHTS, MI 48314	CABLE TV
CONTINENTAL CABLEVISION OF MICHIGAN (METRO ONLY) ATTN: MR. JOHN CLARK 10160 NINE MILE ROAD OAK PARK, MI 48237 PHONE: (810) 541-4050	CABLE TV
AMETITECH MS. LYNN DUTTON 444 MICHIGAN AVENUE ROOM 630 DETRIOT, MI 48226-11103 PHONE: (313) 496-8305 FAX: (313 496-9315	TELEPHONE
BOOTH AMERICAN COMPANY 333 WEST FORT STREET DETROIT,MI 48226	CABLE TV
DETROIT EDISON COMPANY ATTN: GLENN SPENCE 2000 SECOND AVENUE- RM 504 SB DETROIT, MI 48226 PHONE: (313) 237-6447 FAX: (313) 237-6495	ELECTRIC
TCI OF MICHIGAN 616 SOUTH CREYTS ROAD, SUITE C LANSING, MI 48917 MGR ROSS ANTHONY ENGR. SAM TOWERS PHONE (517) 321-9339	CABLE TV
CITY OF ROYAL OAK ATTN: THOMAS TRICE 211 WILLIAMS ST P.O. BOX 64 ROYAL OAK, MI 48060-0064	WATER,STORM SANITARY SEWER
CITY OF MADISON HEIGHTS ATTN: PETER CONNORS 300N W THIRTEEN MILE RD MADISON HEIGHTS, MI 48071-1899	WATER,STORM SANITARY SEWER
MR. GEORGE W KUHN OAKLAND COUNTY DRAIN COMMISSIONER ONE PUBLIC WORKS DRIVE WATERFORD, MI 48328 ATTN: GLEN YRJANAINEN DEPUTY/CHIEF ENGINEER	TWELVE TOWNS DRAIN 66" SANITARY SEWER

GENERAL PLAN NOTES (CONT'D)

LANDSCAPING

ALL PLANT MATERIAL NOT MARKED FOR REMOVAL BY MDOT, SHALL BE PROTECTED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THIS WILL BE DONE PRIOR TO STARTING ANY CONSTRUCTION OPERATION. THIS TEMPORARY TREE PROTECTION WILL REMAIN IN PLACE UNTIL COMPLETION OF ALL WORK OPERATIONS. DAMAGE TO ANY EXISTING TREES NOT MARKED FOR REMOVAL WILL BE PAID FOR AT THE CONTRACTOR'S EXPENSE AND MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, REPLACEMENT IN KIND.

LOCATION FOR ALL PLANT MATERIAL SHALL BE STAKED BY THE LANDSCAPE ARCHITECT AND/OR THE DISTRICT RESOURCE SPECIALIST.

ALL VINES AND DAYLILIES SHALL BE PLANTED IN MULCHED BEDS ACCORDING TO THE DETAILS SHOWN IN THE PLANS.

INITIAL LANDSCAPE PLANTING SHALL BE COMPLETED BY MAY 15 (DECIDUOUS PLANTS) AND JUNE 1 (EVERGREENS ONLY) OF THE SPRING IMMEDIATELY FOLLOWING COMPLETION OF THE SOUND WALL. NO FALL PLANTING WILL BE PERMITTED ON THIS CONTRACT.

ALL LANDSCAPE PLANTING SHALL BE DONE IN ACCORDANCE WITH THE 1990 MDOT STANDARD SPECIFICATION FOR CONSTRUCTION.

NOTES APPLYING TO STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALKS	II-29E
CONCRETE CURB AND CONCRETE CURB AND GUTTER	II-30D
GUARDRAIL ENDINGS WITH CABLE ANCHORAGE (SRT)	III-58N (SPEC DET)
BEAM GUARDRAIL - TYPES A,B,BD,T & TD	III-60H
GUARDRAIL ANCHORAGE - BRIDGE, DETAILS	III-67D
UTILITY TRENCHES	IV-83H
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	V-96D
CHAIN LINK FENCE (USING TENSION WIRE)	V-98F
SODDING AND SEEDING	V-100C
LANE CLOSURES AND CROSSOVERS (URBAN)	V-114C
LIGHTED ARROWS AND BARRICADES	VI-125H
STANDARD SLOPE PAVING DETAILS (SP2)	XI-102A

MISCELLANEOUS ESTIMATES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

25091A	23749A		
	1	LSUM	PROJECT CLEANUP
	1	LSUM	MOBILIZATION
	1500	HRS	ON THE JOB TRAINING
	1	LSUM	WINOR TRAF DEVICES
	2	EACH	LIGHTED ARROW, TYPE A - FURN
	2	EACH	LIGHTED ARROW, TYPE A - OPERATED
	200	EACH	BARRICADE, TYPE II, LIGHTED - FURN
	180	EACH	BARRICADE, TYPE II, LIGHTED - OPERATED
	500	LFT	PAVT WRKG,OPTIONAL MATERAL 4", WHITE
	5	EACH	BARRICADE, TYPE III, LIGHTED FURN
	5	EACH	BARRICADE, TYPE III, LIGHTED - OPERATED
	1	EACH	VEHICLE MOUNTED ATTENUATOR - FURN
	1	EACH	VEHICLE MOUNTED ATTENUATOR - OPERATED
	18	SFT	SIGN, TYPE A TEMP - FURN
	18	SFT	SIGN, TYPE A TEMP - OPERATED
	500	SFT	SIGN, TYPE B TEMP - FURN
	450	SFT	SIGN, TYPE B TEMP - OPERATED
	4	EACH	SIGN COVER
	800	LFT	TEMP PAVT WRKG, TYPE R, 4", WHITE
	800	LFT	TEMP PAVT WRKG, TYPE R, 4", YELLOW
	450	LFT	REM PAVT WRKG, LONGIT, 5" OR LESS WIDTH
	20	SFT	SIGN, TYPE IIB
	50	SFT	SIGN, TYPE IIIA
	225	SFT	SIGN, TYPE IIIB
	3	EACH	REM OF SIGN, TYPE II
	69	EACH	REM OF SIGN, TYPE III
	1050	LFT	STEEL POST, 3 POUND
	8	EACH	BANDING SIGN TO POLE
	250	SFT	SIGN, TYPE B TEMP, PRISMATIC RETROREFLECTIVE SHEETING, FURN
	225	SFT	SIGN, TYPE B TEMP, PRISMATIC RETROREFLECTIVE SHEETING, OPERATED
	42	EACH	REM TREE, 8-18"
	11529	SYD	TOPSOIL SURFACE, 3"
	5765	SYD	MULCH BLANKETS
	5765	SYD	MULCH
	5765	SYD	ANCHORING MULCH
	572	LBS	CHEMICAL FERTILIZER NUTRIENT
	477	LBS	ROADSIDE SEEDING - MODIFIED
	140	LFT	CHAIN LINK FENCE, 60"
	3	ACRE	CLEARING
1		LSUM	SITE PREPARATION (MAX. $12,400)
1		LSUM	WATERING AND CULTIVATING, FIRST YEAR (MIN. $6400)
1		LSUM	WATERING AND CULTIVATING, SECOND YEAR (MIN. $6000)
850		EACH	PARTHENOCISSUS QUINQUEFOLIA 2 YEAR, NO. 1 CONTAINER
850		EACH	PARTHENOCISSUS TRICUSPIDATA 2 YEAR, NO. 1 CONTAINER
1200		EACH	HEMEROCALLIS "STELLA D'ORO" CLUMP NO.2 CONTAINER
18		EACH	ACER X "CELEBRATION" 2 1/2" BB
18		EACH	FRAXINUS P. 'CIMZAM' 2 1/2" BB
15		EACH	AMELANCHIER X GRANDIFOLIA 'AUTUMN BRILLIANCE' 1 3/4" BB
15		EACH	CRATAEGUS C. INERMIS 'CRUZAM' 1 3/4"
20		EACH	MALUS 'SNOWDRIFT' 1 3/4"
20		EACH	MALUS 'SUGAR TYME' 1 3/4" BB
10		EACH	PINUS NIGRA 5'
	75	CRHR	HORTICULTURE WORK
	2	ACRE	SELECTIVE THINNING - TYPE I
	20	EACH	REM TREE, 8-18" (SELECTIVE)
	600	LFT	TEMP FENCE
	1000	LFT	TEMPORARY TREE PROTECTION
	1692	CYD	LOW TEMPERATURE PROTECTION, SUBSTRUCTURE CONC

PLAN REVISION R-1

MICHIGAN DEPARTMENT OF TRANSPORTATION

NOTE SHEET

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
11/22/96	63174	23749A	PENA		6

CONTROL SECTION 63174 JOB NO. 23749A SHT. NO. 6

CONSTRUCTED AS PER PLANS APRIL 1999

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: DAVID DATE: 11/22/96
FILE NAME: 23749NOTE.DGN DATE:
12

DATE:
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

WATER & DRAINAGE SYMBOLS

- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING MANHOLE
- PROPOSED MANHOLE
- EXISTING CULVERT END SECTION
- PROPOSED CULVERT END SECTION
- EXISTING HEADWALL
- PROPOSED HEADWALL
- WATER SHUTOFF (Service Valve)
- GATE VALVE
- GATEWELL
- WATER METER
- WATER MANHOLE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- (ADJ-HYD) ADJUST FIRE HYDRANT
- (ADJ) ADJUST DRAINAGE STRUCTURE
- (ADJ-K) ADJUST DRAINAGE STRUCTURE W/COVER
- (ADJ-B/O) ADJUST DRAINAGE STRUCTURE BY OTHERS
- (REC) RECONSTRUCT DRAINAGE STRUCTURE
- (REC-K) RECONSTRUCT DRAINAGE STRUCTURE W/COVER
- (REL-B/O) RELOCATE - BY OTHERS
- (SR-1) SIDEWALK RAMP TYPE
- CHECK DAM (PROFILES)
- DIKE (PROFILES)
- W.T. WATER TABLE (PROFILES)
- GUARD POST
- WATER WELL

REAL ESTATE SYMBOLS

- PROPERTY OWNERSHIP ARROW
- CONTIGUOUS PROPERTY SYMBOL
- 123456 PARCEL NUMBER BOX
- PARCEL LINES

UTILITIES SYMBOLS

- POWER POLE
- TELEPHONE POLE
- GUY POLE
- LIGHT POLE
- POWER LIGHT POLE
- TELEPHONE MANHOLE
- POWER TOWER
- GAS VALVE
- WALK/NO-WALK
- DEADMAN FOR GUYWIRE
- RAILROAD SIGNAL
- ELECTRICAL MANHOLE
- ELECTRICAL HANDHOLE
- TELEPHONE PEDESTAL/RISER

MISCELLANEOUS SYMBOLS

- RIPRAP
- SIGN
- STUMP
- SWAMP
- DECIDUOUS TREE
- EVERGREEN TREE
- MAIL BOX
- QUARTER CORNER
- SECTION CORNER
- HALF QUARTER SECTION
- T.H.# TEST HOLE NO.
- (123) BEAM G. R. RUN NUMBER (EXISTING)
- (123) BEAM G. R. RUN NUMBER (PROPOSED)

HAZARDOUS OR FLAMMABLE MATERIAL — USED WITH UNDERGROUND GAS & ELECTRICAL LINES

CAUTION - CRITICAL UNDERGROUND UTILITY — USED WITH FIBER OPTICS LINES

PROP 36" ---------- PROPOSED CULVERT/SEWER

EX 12" CMP ---------- EXISTING CULVERT/SEWER

UTILITY PATTERNS

- ELEC — ELECTRICAL LINE
- 24" GAS — GAS LINE
- 12" OIL — OIL LINE
- TELE — TELEPHONE LINE
- 36" WM — WATER LINE
- CTV — AERIAL CABLE ONLY
- TELE FO — FIBER OPTICS
- POWER TRANSMISSION LINE

R.O.W. PATTERNS

- EX. LIMITED ACCESS R.O.W.
- EXISTING R.O.W.
- PROP LIMITED ACCESS R.O.W.
- PROP FREE ACCESS R.O.W.
- SECTION LINE

TOPO PATTERNS

- HEDGE LINE
- TREE LINE
- EXISTING FENCE
- PROPOSED FENCE
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- DRAINAGE CRS/EDGE OF WATER
- WETLANDS AREA
- ABANDON ANY UTILITY
- CITY LIMITS
- RAILROAD
- SOUND ABATEMENT WALL
- CONCRETE MEDIAN BARRIER
- SLOPE STAKE LINE

DRIVE/APPROACH LEGEND

- CONCRETE
- BITUMINOUS
- AGGREGATE

REMOVAL LEGEND

- REMOVING BITUMINOUS
- REMOVING SIDEWALK
- REMOVING PAVEMENT
- REMOVING CURB & GUTTER
- REMOVING ..... (R)
- ABANDONING ..... (A)
- SAVE ..... (S)
- BULKHEAD ..... (B)
- CLEARING ..... (C)

SPECIAL SYMBOLS THIS PROJECT:

- TWELVE TOWNS DRAIN
- GROUTED FLAGSTONE

10/07/96 Engineering Print

(CONSTRUCTED AS PER PLANS APRIL 1999)

FILE NAME: 23749sg.dgn

MICHIGAN DEPARTMENT OF TRANSPORTATION

STANDARD SYMBOLS

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
08/03/95	1" = 50'	63174	23749 A	PENA		7

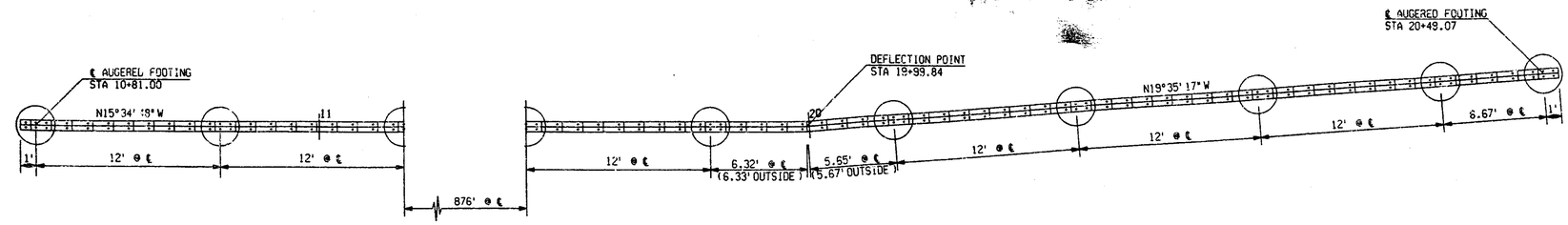
			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

DATE:
DATE:
DATE: 07/08/96

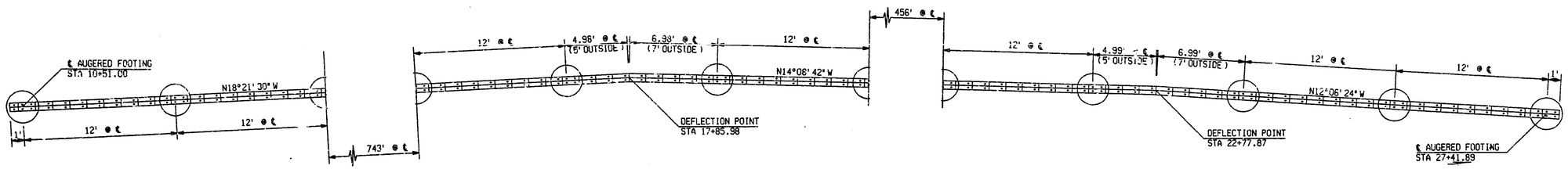
EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: WALTER

CONSTRUCTED AS PER PLANS, APRIL 1999

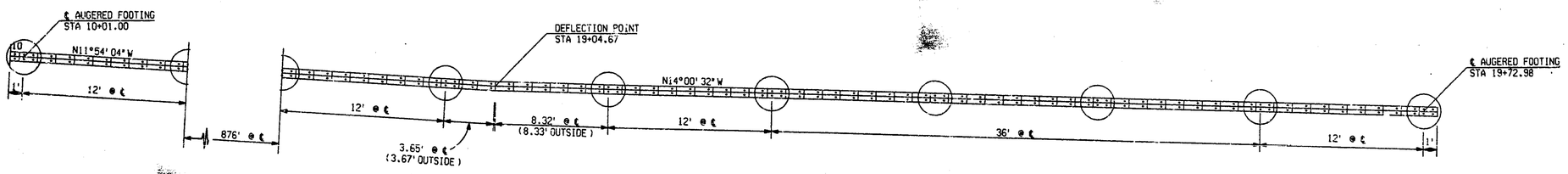
10/07/96 Engineering Print



WALL "A"



WALL "B"



WALL "C"

MICHIGAN DEPARTMENT OF TRANSPORTATION

WALL "A","B" AND "C" ALIGNMENT SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. P.O.W	SHEET NO. CONST.
07/08/96	1"=4'	63174	23749	PENA		8

FILE NAME: 23749wall.alt
10
12

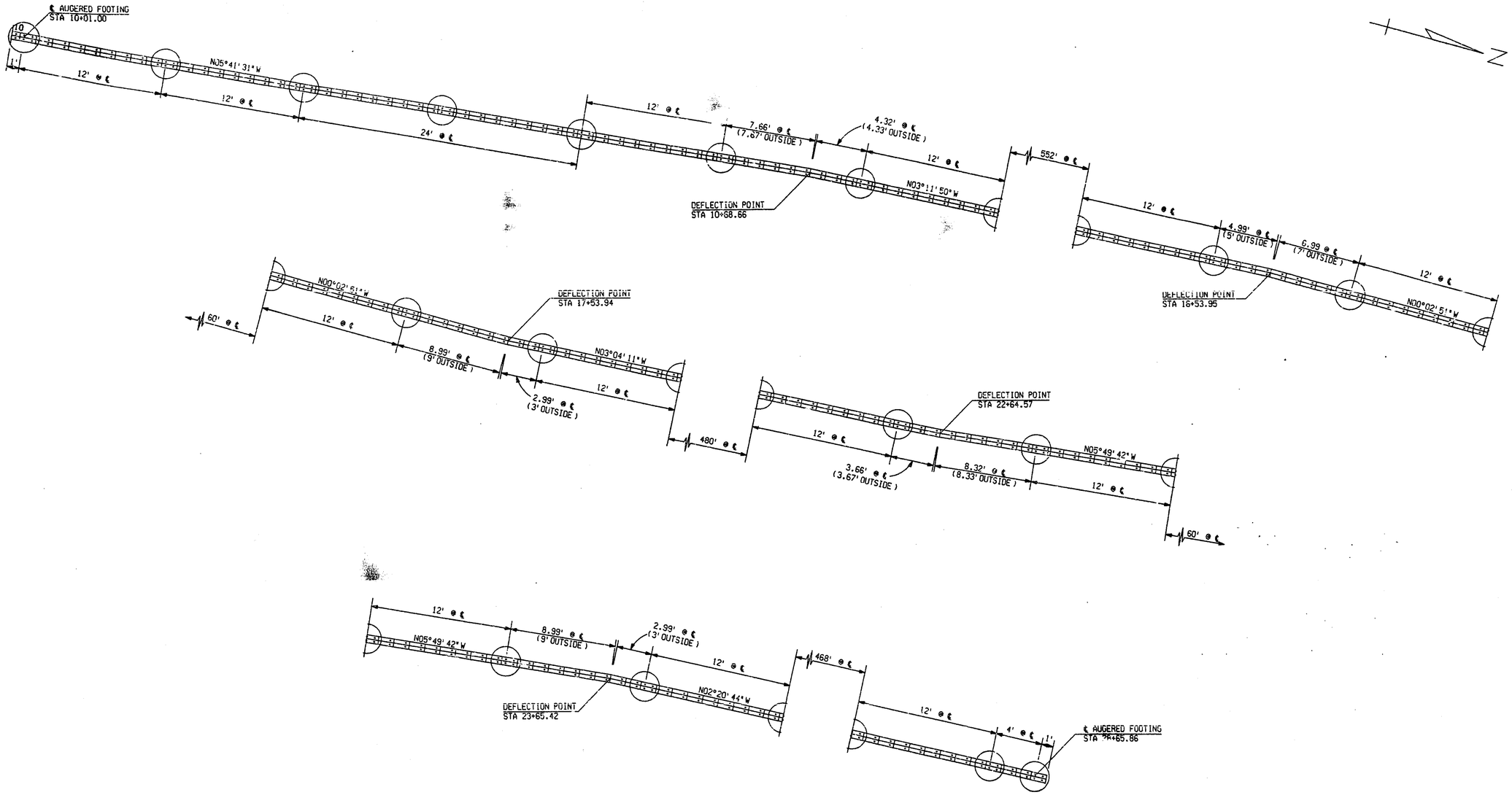
			FINAL R.O.W.
AUTH.	DATE	NO.	REVISION

DATE:
DATE:
DATE: 07/08/96

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: WALTER

CONSTRUCTED AS PER PLANS, APRIL 1999

16/07/96 Engineering Print



WALL "D"

FILE NAME: 23749wall.dl2
10
12

MICHIGAN DEPARTMENT OF TRANSPORTATION

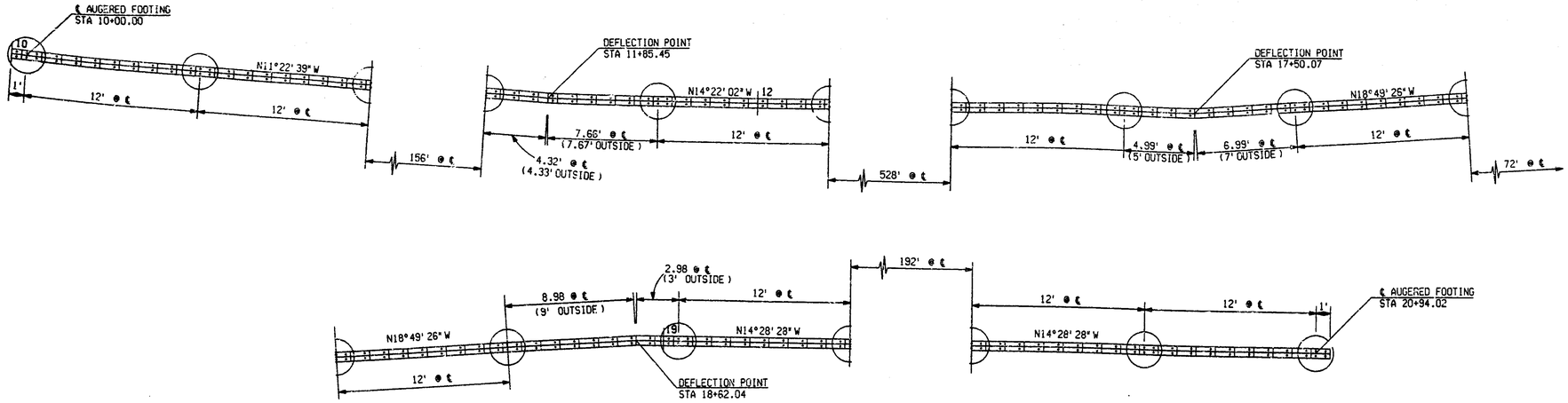
WALL "D" ALIGNMENT SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
07/08/96	1" = 4'	63174	23749	PENA		9

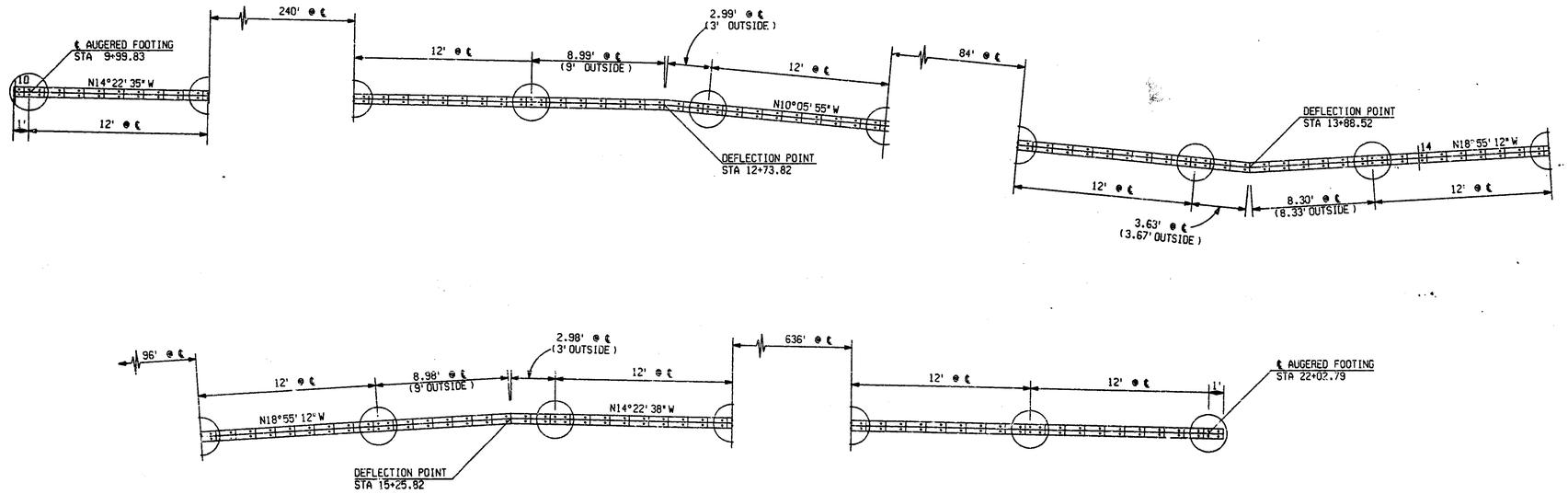
			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

DATE: 08/21/96
DES: DATE: 08/21/96

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: DAVID



WALL "E"



WALL "F"

FILE NAME: 23749wall.al2
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12

MICHIGAN DEPARTMENT OF TRANSPORTATION

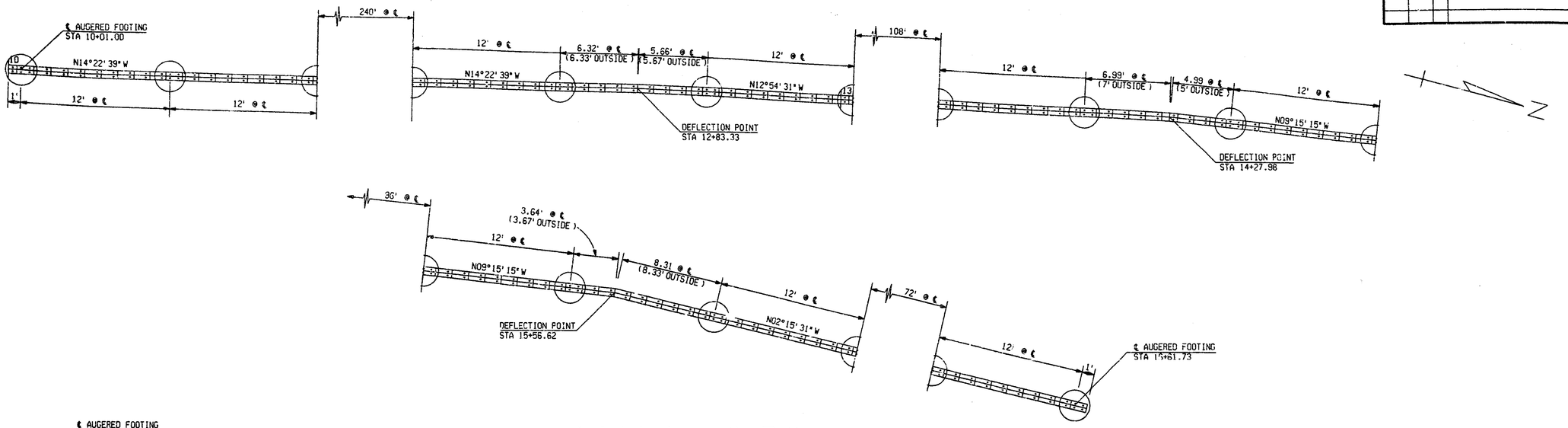
WALL "E" AND "F" ALIGNMENT SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
08/21/96	1" = 4'	63174	23749	PENA		10

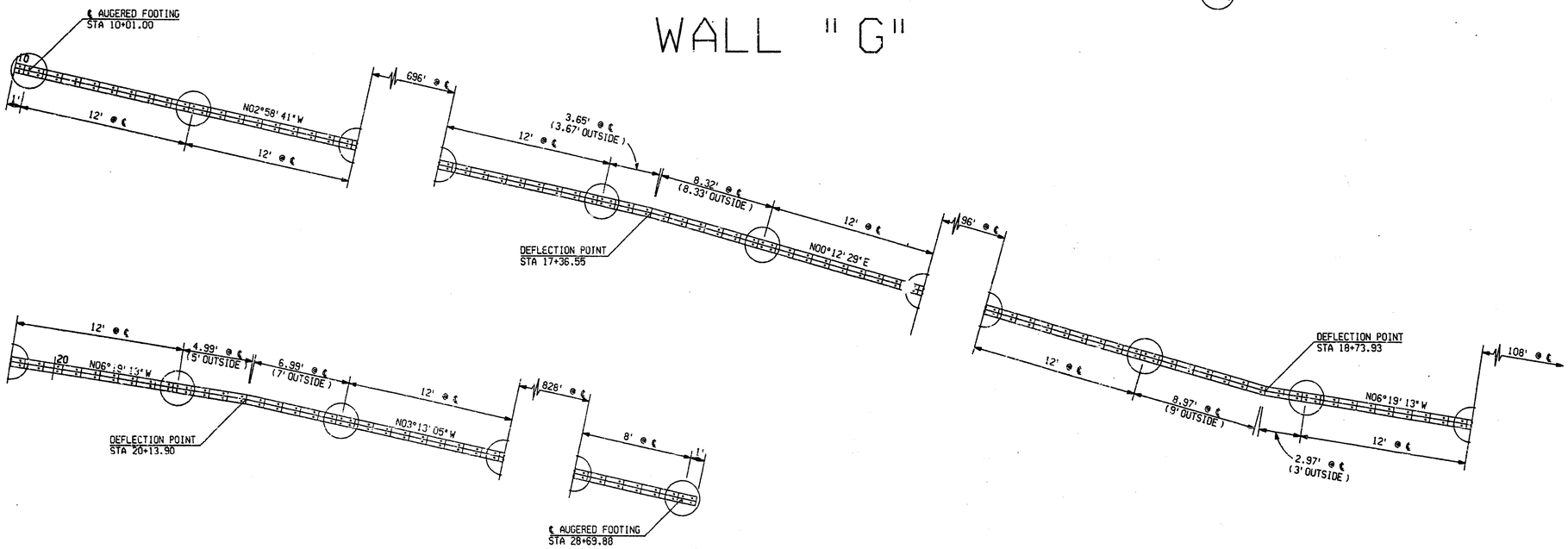
DATE:
DATE: 07/08/96

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: WALTER

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



WALL "G"



WALL "H"

MICHIGAN DEPARTMENT OF TRANSPORTATION	WALL "G" AND "H" ALIGNMENT SHEET					
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
07/08/96	1" = 4'	63174	23749	PENA		11

FILE NAME: 23749wall.dl2
10
12

10/07/96 Engineering Print

CONTRACT SECTION 63174 | JOB NO. 23749 | SHT. NO. 12

DATE:
DATE: 11/20/96
EXISTING BY: PENA'S UNIT
PROPOSED BY:
LAST CORRECTION BY: DAVID

FILE NAME: 23749829.DNJ

BROCKTON AVE — HUDSON AVE — KALAMA AVE

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

STATION RELATION SBD SERVICE RD
STA 554+67.02 BACK =
STA 833+20.53 AHEAD

CITY OF ROYAL OAK

QUANTITIES (WALL E)

1078 LFT	SOUNDWALL DRILLED SHAFTS, UNCASED 30" DIAM
899 LFT	REINFORCED TRENCHED FOOTINGS
12227 SFT	REINFORCED BLOCK WALL
1095 LFT	CONC BASEWALL
1095 LFT	LIMESTONE CAP
2866 LBS	STEEL REINFORCEMENT
20 CYD	CONC. GRADE 35S
15 CYD	UNCLASSIFIED EXCAV.
PLAN REVISION R-1	
18,355 SFT	Concrete Sidewalk 4"

EX 50' ROW — EX 50' ROW — EX 50' ROW

HAZARDOUS OR FLAMMABLE MATERIAL

HAZARDOUS OR FLAMMABLE MATERIAL

DALLAS AVE — BROCKTON AVE — HUDSON AVE — KALAMA AVE

PT=553+47.72

PI=554+67.02
PI=833+20.53

BUSHES

551 — 552 — SBD SERVICE RD — 553 — 554 — 834 N 14°28'07" W — 835 — 836 — 837 — 838 — 839 — 840

EX 30" CONC

NO PARKING

TWELVE TOWNS RELIEF DRAIN

HAZARDOUS OR FLAMMABLE MATERIAL

RAMP AF

N11°22' 39" W

EX SANITARY MH

36.5' RT OF STA 834+38.69
SB SERVICE RD =
STA 11+85.45 WALL "E"

N14°22' 02" W

PROP WALL "E"

37.5' RT OF STA 840+03.31
SB SERVICE RD =
STA 17+50.07 WALL "E"

EX SANITARY MH

TRUSS FOUNDATION ON WALL

22.5' RT OF STA 554+66
SB SERVICE RD=
~~STA 10+80 WALL "E"~~
10+26

BEE HIVE MH BEHIND WALL

SOUTHBOUND I-75

S06 OF 63103

PC=830+87.66

PI=833+27.55

SOUTHBOUND I-75

PT=835+67.16

829 — I-75 MEDIAN SURVEY ℄ — 830 — 831 — 832 — 833 — 834 — I-75 MEDIAN SURVEY ℄ — 835 — 836 N15°32' 39" W — 837 — 838 — 839 — 840

NORTHBOUND I-75

F:AMP GH

TEA CURVED RAIL ANCHORAGE - BRIDGE DETAIL T-2

PLACE SLOPED END TREATMENT
1 EACH CONC BARRIER END SECTION

19.5' LT OF STA 545+20
NBD SERVICE RD=
STA 10+80 WALL "A"

NORTHBOUND I-75

PROP WALL "A"

546 — NBD SERVICE RD — 547 — 548 — 545 — 544 — 543 — 542 — 541 S15°35' 05" E — 540 — 539 — 538 — 537

N15°34' 05" W 15

DALLAS AVE S88°15' 24" W

BROCKTON AVE

HUDSON AVE

KALAMA AVE

QUANTITIES (WALL A)

896 LFT	SOUNDWALL DRILLED SHAFTS, UNCASED 30" DIAM
805 LFT	REINFORCED TRENCHED FOOTINGS
8880 SFT	REINFORCED BLOCK WALL
969 LFT	CONC BASEWALL
969 LFT	LIMESTONE CAP
1,145 SFT	Concrete Sidewalk 4"

QUANTITIES

1570 LFT	REM FENCE
255 LFT	REM BEAM GUARDRAIL
1036 SYD	REM BIT SURFACE
19378 SFT	CONC SIDEWALK, 4"

NBD SERVICE RD
CURVE DATA
Δ=43°19' 24" LT
D=08°45' 00"
R=654.81'
T=260.07'
L=495.13'
E=495.76'
PC =546+06.55
PI =548+66.62
PT =551+01.68

EX 60' ROW — EX 50' ROW — EX 50' ROW — EX 50' ROW

CITY OF MADISON HEIGHTS

PLAN REVISION R-1
CONSTRUCTION SHEET

MICHIGAN DEPARTMENT OF TRANSPORTATION

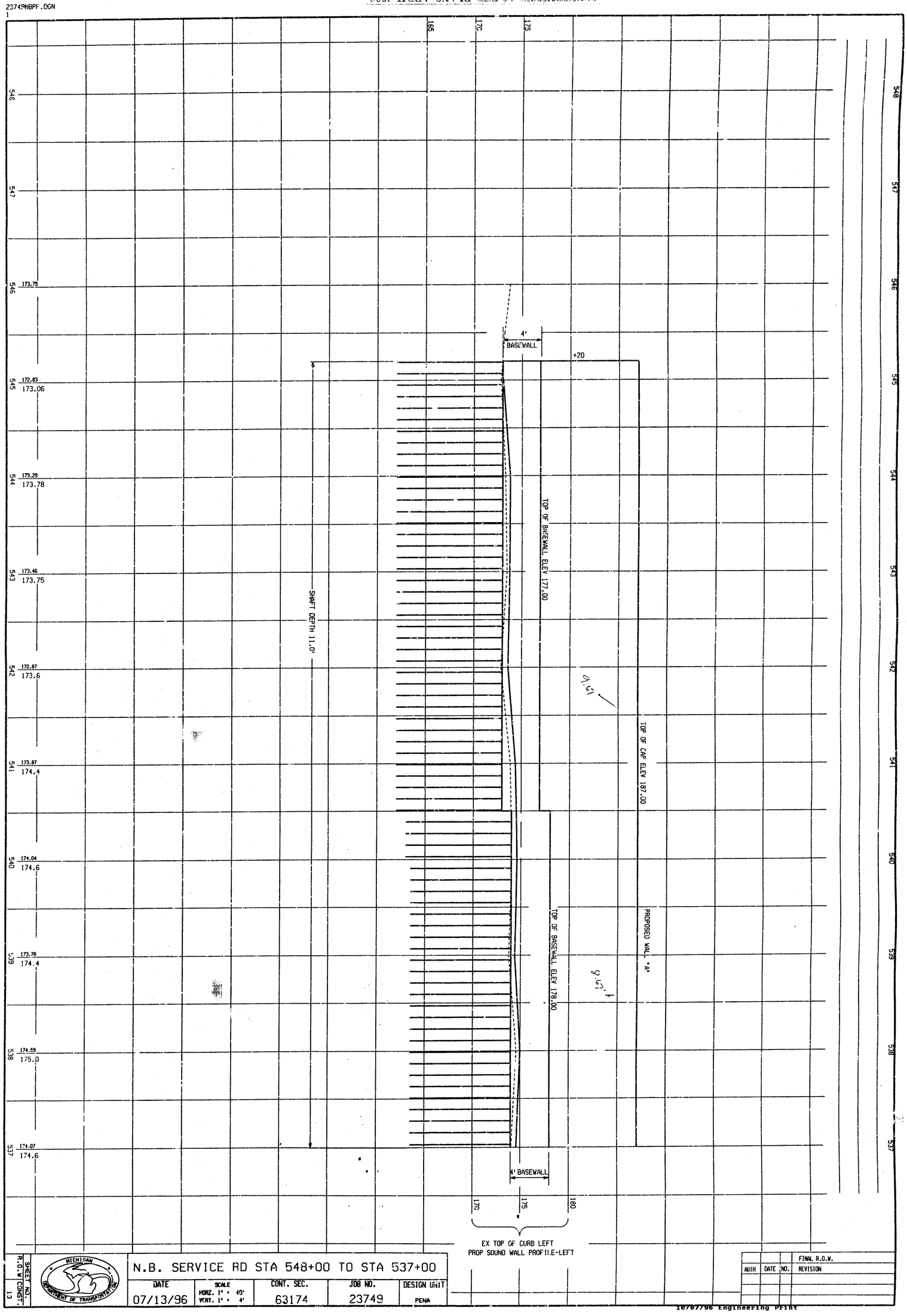
I-75 STA 829+00 TO STA 840+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
11/20/96	1" = 40'	63174	23749	PENA		12

PLANS APRIL 1999

CONFORMED AS PER PLANS APRIL 1999

2374SNBPF.DGN



R.O.W CONST.	SHEET NO.
	13

MICHIGAN DEPARTMENT OF TRANSPORTATION

N.B. SERVICE RD STA 548+00 TO STA 537+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT
07/13/96	HORZ. 1" = 10' VERT. 1" = 4'	63174	23749	PENA

AUTH	DATE	NO.	FINAL R.O.W. REVISION

10/07/96 Engineering Print

552 553 554 834 835 836 837 838 839 840

TOP OF CAP ELEV 189.00

PROP WALL "E"

TOP OF CAP ELEV 189.00

11.51'

11.00'

TOP OF BASEWALL ELEV 177.00

TOP OF BASEWALL ELEV 177.00

TOP OF BASEWALL ELEV 177.67

180
175
170
165
160
155
150
145
140

4' BASEWALL

EL=173.31

6' BASEWALL

EL=173.31

4' BASEWALL

PLAN REVISION R-1

+18

+82

554+67.02 BACK

833+20.53 AHEAD

SHAFT DEPTH 11'

SHAFT DEPTH 11'

TWELVE TOWN RELIEF DRAIN
14'3" X 13'3" DOUBLE BOX

66" SANITARY SEWER

EX TOP OF CURB AT
PROP SOUND WALL PROFILE-RIGHT

180
175
170

173.94 173.40 173.21 173.6 173.64 174.2 172.85 174.5 174.24 174.8 174.59 174.8 174.43 174.6 173.98 174.3

551 552 553 554 834 835 836 837 838 839 840

NO.	DATE	REVISION

FINAL R.O.W.

PLAN REVISION R-1

S.B. SERVICE RD STA 550+00 TO STA 840+00

DESIGN UNIT	JOB NO.	COMT. SEC.	SCALE	DATE
PENA	23749	63174	HORZ. 1": 40' VERT. 1": 4'	11/20/96

MICHIGAN DEPARTMENT OF TRANSPORTATION

SHEET NO. | R.O.W. | CONST.
14

SECTION 63174 NO. 63174 11

3749bpf.dgn
3 7 41

PLANS APPROVED APRIL 1999

LINCOLN AVE

TUFTS AVE

YALE AVE

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SBD SERVICE RD
CURVE DATA
Δ=00°05' 28" RT
NO CURVE

STATION EQUATION SBD SERVICE RD
STA 843+89.55 BACK = STA 843+89.11 AHEAD
LINE LENGTHENS 1.69'

STATION EQUATION MEDIAN ℄
STA 850+86.90 BACK = STA 850+85.22 AHEAD
LINE LENGTHENS 1.68'

FOR QUANTITIES ON WALL F
SEE SHEET #18

FOR QUANTITIES ON WALL E
SEE SHEET #12

CITY OF ROYAL OAK
SECTION 23
T1N ,R11E
ROYAL OAK TWP

EX 90' ROW

EX 60' ROW

EX 60' ROW

LINCOLN AVENUE
N88°16' 53"E

TUFTS AVE

YALE AVE

N14°22' 38"W

N18°49' 26"W

29.0' RT OF STA 841+14.96
SBD SERVICE RD =
STA 18+62.04 WALL "E"

PROP WALL "E"

29.0' RT OF STA 843+46.94
SBD SERVICE RD=
STA 20+94.02 WALL "E"

HAZARDOUS OR
FLAMMABLE MATERIAL

PI=843+89.55 BACK=
843+89.11 AHEAD

28.7' RT OF STA 845+99.83
SBD SERVICE RD=
STA 9+99.83 WALL "F"

HAZARDOUS OR
FLAMMABLE MATERIAL

SBD SERVICE RD

EX 30' CONC

TWELVE TOWNS RELIEF DRAIN

N14°22' 39"W

N10°06' 04" W

N10°55' 12" W

28.7' RT OF STA 848+73.32
SBD SERVICE RD=
STA 12+73.82 WALL "F"

PROP WALL "F"

PLAN REVISION R-1 ~~32.8'~~ RT OF STA 849+88.12
SBD SERVICE RD=
STA 13+88.52 WALL "F"

PI= 850+86.91 BACK=
850+85.22 AHEAD

SOUTHBOUND I-75

840 841 842 843 844 845 846 I-75 MEDIAN ℄ 847 848 N15°32' 39"W 849 850 851

EX 48'

EX 48'

CAUTION - CRITICAL
UNDERGROUND UTILITY

NORTHBOUND I-75

S30 OF 63103

19.5' LT OF STA 536+00
NBD SERVICE RD=
STA 19+99.84 WALL "A"

22.9' LT OF STA 535+51.32
NB SERVICE RD=
STA 20+49.07 WALL "A"

20.0' LT OF STA 532+50
NBD SERVICE RD=
STA 10+50 WALL "B"

PROP WALL "A"

PROP WALL "B"

N15°34' 05"W

N19°35' 17"W

N18°21' 30"W

PI=532+54.38

PC=531+34.64

PI=533+74.06

PI=527+62.17

537 586 635 N15°35' 05"W 534 533 532 531 NBD SERVICE DR 530 N18°34' 39"W 529 528 850 851

EX 30' CONC

PI=849+50.00

NBD SERVICE RD ℄
SHIFTS 4' RT

AERIAL CABLE

AERIAL CABLE

PLACE SLOPED END SECTION
1 EACH CONC BARRIER F[illegible] SECTION

FOR QUANTITIES ON WALL B
SEE SHEET #18

HAMPDEN RD

HARDWOOD AVE

LINCOLN AVE

APPROX LOCATION OF MERITOR, FORD, & UNITED CORE

EX 50' ROW

EX 50' ROW

EX 66' ROW

FOR QUANTITIES ON WALL A
SEE SHEET #12

NBD SERVICE RD
CURVE DATA
Δ=02°59' 34"RT
D=01°15' 00"
R=4583.66'
T=119.74'
L=239.42'
E=1.56'
PC =531+34.64
PI =532+54.38
PT =533+74.06

CITY OF MADISON HEIGHTS

QUANTITIES

1630	LFT	REM FENCE
210	LFT	REM BEAM GUARDRAIL
1099	SYD	REM BIT SURFACE
15954	SFT	CONC SIDEWALK, 4"
9	EACH	ADJ DR. STRUCTURE COVER, CASE 2

PLAN REVISION R-1
CONSTRUCTION SHEET

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 840+00 TO STA 851+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
11/20/96	1" = 40'	63174	23749 A	PENA		15

CONTROL SECTION 63174 JOB NO. 23749

EXISTING BY: PENA'S UNIT DATE:
PROPOSED BY: DATE:
LAST CORRECTION BY: DAVID DATE: 11/20/96

FILE NAME: 23749840.DN1

PLOTTED AS PER PLANS, APRIL 1999

CONTROL SECTION 63174 JOB NO. 23749 A SHT. NO. 16

537 536 535 534 533 532 531 530 529 528 850 851

PROPOSED WALL A
TOP OF CAP ELEV 187.0

PROPOSED WALL B

TOP OF CAP ELEV 188.00

TOP OF CAP ELEV 188.00

9.67'

+50

10.67'

+50

9.67'

180

175

170

TOP OF BASEWALL ELEV 178.00

4' BASEWALL

TOP OF BASEWALL ELEV 177.0

4' BASEWALL

TOP OF BASEWALL ELEV 178.0

EL. 175.19
+62.17

+25

TOP OF BASEWALL ELEV 178.0

EL. 175.19
+50

PLAN REVISION R-1

6' BASEWALL

180

175

170

EX TOP OF CURB LEFT
PROP SOUND WALL PROFILE-LEFT

SHAFT DEPTH 10.5'

SHAFT DEPTH 11.0'

SHAFT DEPTH 10.5

527+62.17 BACK
849+50.00 AHEAD

PLAN REVISION R-1

174.07	173.45	175.47	173.95	173.97	173.56	173.82	174.25	171.63	174.97	174.92	174.59	
174.6	174.2				173.8	174.0	174.7	174.9	175.25	175.1	174.8	
537	536	535	534	533	532	531	530	529	528	850	851	

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

N.B. SERVICE RD STA 537+00 TO STA 851+00

PLAN REVISION R-1

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT
11/20/96	HORZ. 1" = 40' VERT. 1" = 4'	63174	23749	PEN

MICHIGAN DEPARTMENT OF TRANSPORTATION

SHEET NO.
R.O.W. CONST.
16

23749NBPF.DGN
2.4

CONTROL SECTION 63174 | JOB NO. 23749 A | SHT. NO. 17

840 841 842 843 844 845 846 847 848 849 850 851

PROP WALL 'E'

TOP OF CAP ELEV 189.00

11.00'

+50

180

TOP OF BASEWALL ELEV 177.67

4' BASEWALL

175

170

SHAFT DEPTH 11'

843+89.55 BACK

843+89.11 AHEAD

LINCOLN AVE

-00

PROP WALL 'F'

TOP OF CAP ELEV 189.00

12.00'

10.67'

180

TOP OF BASEWALL ELEV 178.00

TOP OF BASEWALL ELEV 176.67

4' BASEWALL

175

170

EX TOP OF CURB RT
PROP SOUND WALL PROFILE-RIGHT

TWELVE TOWN RELIEF DRAIN
14'3" X 13'3" DOUBLE BOX

SHAFT DEPTH 10'

SHAFT DEPTH 9'

PLAN REVISION R-1
11'
SHAFT DEPTH ~~X~~
SHAFT DEPTH 9'

66" SANITARY SEWER

PLAN REVISION R-1

AU	DATE	NO.	REVISION
			FINAL R.O.W.

S.B. SERVICE RD STA 840+00 TO STA 851+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT
11/20/96	HORZ. 1" = 40' VERT. 1" = 4'	63174	23749	FENA

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET NO. | R.O.W. | CONST.
17

173.38	173.44	173.39	174.14	173.75	173.33	173.16	173.95	173.85	174.14		
174.3	174.4	174.0	174.4	174.0	173.5	173.7	174.2	174.5	174.6		
840	841	842	843	844	845	846	847	848	849	850	851

23749sbsf.dgn
2.4.6
42

PLANS APPROVED AS PER PLANS DATED 1999

SIXTH ST

FOURTH ST

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

NBD SERVICE RD
CURVE DATA
Δ=04°12'00"RT
PI =852+47.80 BACK
=852+46.61 AHEAD
NO CURVE

PLAN REVISION R-1

QUANTITIES (WALL F)	
897 LFT	SOUNDWALL DRILLED SHAFTS, UNCASED 30" DIAM
1001 LFT	REINFORCED TRENCHED FOOTINGS
13809 SFT	REINFORCED BLOCK WALL
1203 LFT	CONC BASEWALL
1203 LFT	LIMESTONE CAP

14,180 SFT concrete sidewalk 6"

I-75 MEDIAN ℄
CURVE DATA
Δ=02°20'00"RT
D=00°12'00"
R=28647.89'
T=583.41'
L=1166.67'
E=05.94'
PC =851+81.77
PI =857+65.18
PT =863+48.44

CITY OF ROYAL OAK

EX 60' ROW

SIXTH ST
N87°04'00"E

HAZARDOUS OR FLAMMABLE MATERIAL

HAZARDOUS OR FLAMMABLE MATERIAL

EX 200' ROW

BUSHES

FOURTH ST

N

851 852 853 854 855 856 N14°22'39"W 857 858 SBD SERVICE RD 859 860 861 862

PLAN REVISION R-1

TWELVE TOWNS RELIEF DRAIN

ADJ

68" SAN

N14°22'38"W PROP WALL "F"

26.5' RT OF 851+25
SBD SERVICE RD=
STA 15+25.82 WALL "F"

26.5' RT 858+00.97
SBD SERVICE RD=
22+02.79 WALL "F"

EX 30" CONC

12"S-HP

4"S-HP

RAMP K

PLACE SLOPED END TREATMENT
1 EACH CONC BARRIER END SECTION

SOUTHBOUND I-75

VARIABLE

EX 36"

EX 48" AND VARIABLE

PC=851+81.77

PI=857+65.18

NORTHBOUND I-75

SIGN TRUSS

851 852 853 854 855 856 N15°32'39"W 857 858 I-75 MEDIAN ℄ 859 860 861 N13°12'39"W 862

20.6' LT 857+37.44
NBC SERVICE RD=
STA 23+27.88 WALL "B"

ALL "B"

20.5' LT 862+01.45
NBD SERVICE RD=
STA 27+91.89 WALL "B"

NEW TRUSS FND

RETAINING WALL

CONC

856 857 858 NBD SERVICE RD 859 860 N12°07'02"W 861 PROP WALL "C" 862

EX 30" CONC

N11°54'04"W

PLACE SLOPED END TREATMENT
1 EACH CONC BARRIER END SECTION

21.0' RT 859+00
NBD SERVICE RD=
STA 10+00 WALL "C"

PLAN REVISION R-1

ADJ

N18°24'30"W

N18°34'39"W

3" conduit
2en Handhole
EXISTING METER

SEE PAGE 15 ALSO

SERIAL CABLE

SIXTH ST

EX 60' ROW

ANDOVER ST
N87°55'49"E

EX 45' ROW

P.I.=857+35.25

FOR QUANTITIES ON WALL C SEE SHEET #21

NBD SERVICE RD
CURVE DATA
Δ=02°15'37"RT
PI =857+35.25
NO CURVE

CITY OF MADISON HEIGHTS

QUANTITIES

2100 LFT	REM FENCE
310 SYD	SLOPE PAVING, CONC
124 LFT	REM BEAM GUARDRAIL
1156 SYD	REM BIT SURFACE
13577 SFT	CONC SIDEWALK, 4"
605 SYD	REM SIDEWALK
3 EACH	ADJ DR. STRUCTURE COVER, CASE 2

MICHIGAN DEPARTMENT OF TRANSPORTATION
FREEWAY LIGHTING CONTRACT

PULL CABLES COILED IN HH TO LIGHTING CONTACTOR IN LTG CONTROL PANEL. INSTALL 3-1/C#2 FROM DISC SWITCH IN LTG CONTROL PANEL TO NEW DISC SWITCH MOUNTED ON WOOD POLE

INSTALL SALV LTG CONTROL PANEL ON WOOD POLE

EX DE CO POLE

3-1/C#2 & 1#2 GRD

SOUND WALL

REMOVE EX CONDUIT AND CABLE BELOW METER. INSTALL NEW 1" FUSIBLE DISC SWITCH IN NEW STAINLESS STEEL ENCLOSURE INSTALL 2" GALV STEEL S BETWEEN METER AND DISC INSTALL 3" SCH 80 PVC & 3-1/C#2 & 1#2 GROUND SWITCH TO HANDHOLE

P.I.= 850+86.91 BACK
850+85.22 AHEAD

REMOVE & SALVAGE EX LTG CONTROL PANEL

REMOVE EX CABLES IN CONDUIT FROM HH TO LTG CONTROL PANEL. COIL CABLES IN HH AND SPLICE EX CABLES FROM MEDIAN LIGHTING TO CABLES FROM POWER POLE IN HH

STAGE II
NO SCALE

TRAFFIC DESIGN UNIT

PLAN REVISION R-1
CONSTRUCTION SHEET

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 851+00 TO STA 862+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
11/22/96	1" = 40'	63174	23749 A	PENA		18

DATE:
DATE:
DATE: 11/22/96

EXISTING BY: FELDING'S UNIT
PROPOSED BY:
LAST CORRECTION BY: DAVID

SECTION 63174

FILE NAME: 23749851.DWI

APRIL 1999

851 852 853 854 855 856 857 858 859 860 861 862

852+97.06

PROPOSED WALL "B"

TOP OF CAP ELEV 188.00

TOP OF CAP ELEV 189.33

9.67'

11.00'

11.67'

11.00'

180

TOP OF CAP ELEV 178.00

TOP OF BASEWALL ELEV 178.00

TOP OF BASEWALL ELEV 177.33

TOP OF BASEWALL ELEV 178.00

EL. 174.5

EL. 174.5

+06

PLAN REVISION R-1

6' BASEWALL

175

170

EL. 174.59

+00

175

4' BASEWALL

180

170

EX TOP OF CURB LEFT

PROP SOUND WALL PROFILE LEFT

SHAFT DEPTH 15'

SHAFT DEPTH 15'

SHAFT DEPTH 13.5'

SHAFT DEPTH 10.5'

174.59 174.8

174.22 174.5

174.32 174.5

174.66 174.9

174.71 175.0

174.43 174.6

173.98 174.2

173.90 174.5

174.30 174.7

174.72 175.25

174.54 175.2

174.59 174.6

TOP OF CAP ELEV 187.00

PROPOSED WALL "C"

9.00'

+00

180

TOP OF BASEWALL ELEV 177.67

4' BASEWALL

175

170

EL. 173.90

+00

EX TOP OF CURB RIGHT

PROP SOUND WALL PROFILE RIGHT

SHAFT DEPTH 8.5'

174.25 174.5

174.63 174.8

174.93 174.8

174.57 174.65

852+47.80 BACK

852+46.61 AHEAD

851 852 853 854 855 856 857 858 859 860 861 862

23749NBPF.DGN

PLAN REVISION R-1 PROP SOUND WALL PROFILE RIGHT

N.B. SERVICE RD STA 851+00 TO STA 862+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT
11/22/96	HORZ. 1" = 40' VERT. 1" = 4'	63174	23749	PENA

MICHIGAN DEPARTMENT OF TRANSPORTATION

SHEET NO.
R.O.W. CONST.
19

NUM	DATE	REVISION
		FINAL R.O.W.

851 852 853 854 855 856 857 858 859 860 861 862

851+93.85

TOP OF CAP ELEV 190.00

PROP WALL "F"

11.67'

180

TOP OF BASEWALL ELEV 178.00

175

4' BASEWALL

170

180
175
170
EX TOP OF CURB RT
PROP SOUND WALL PROFILE-RIGHT

TWELVE TOWN RELIEF DRAIN
14'3" X 13'3" DOUBLE BOX

SHAFT DEPTH 9'

SHAFT DEPTH 8'

SHAFT DEPTH 10'

66' SANITARY SEWER

174.14 174.6 | 174.58 174.5 | 174.81 175.2 | 174.76 175.3 | 174.62 175.2 | 174.17 174.5 | 174.58 174.9 | 174 175.0

851 852 853 854 855 856 857 858 859 860 861 862

FINAL R.O.W.

AUTH	DATE	NO.	REVISION

10/07/96 Engineering Print

S.B. SERVICE RD STA 851+00 TO STA 862+00

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT
07/12/96	63174	23749	PENA

SCALE HORZ. 1" = 40'
VERT. 1" = 4'

MICHIGAN DEPARTMENT OF TRANSPORTATION

SHEET NO.	
R.O.W	CONST.
	20

23749SBPF.DGN
1 3 7 41

(CONSTRUCTION AS PER PLANS APPROVED 1999)

CONTRACT 63174 | JOB NO. 23749 | SHT. NO. 21

DATE:
DATE: 11/20/96
EXISTING BY: FELSING'S UNIT
PROPOSED BY:
LAST CORRECTION BY: DAVID

CONSTRUCTED AS PER PLANS, APRIL 1999

FILE NAME: 23749862.DWI
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

GREIG ST

11 MILE RD

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

NBD SERVICE RD
CURVE DATA
Δ=00°33' 35" RT
PI =863+94.79

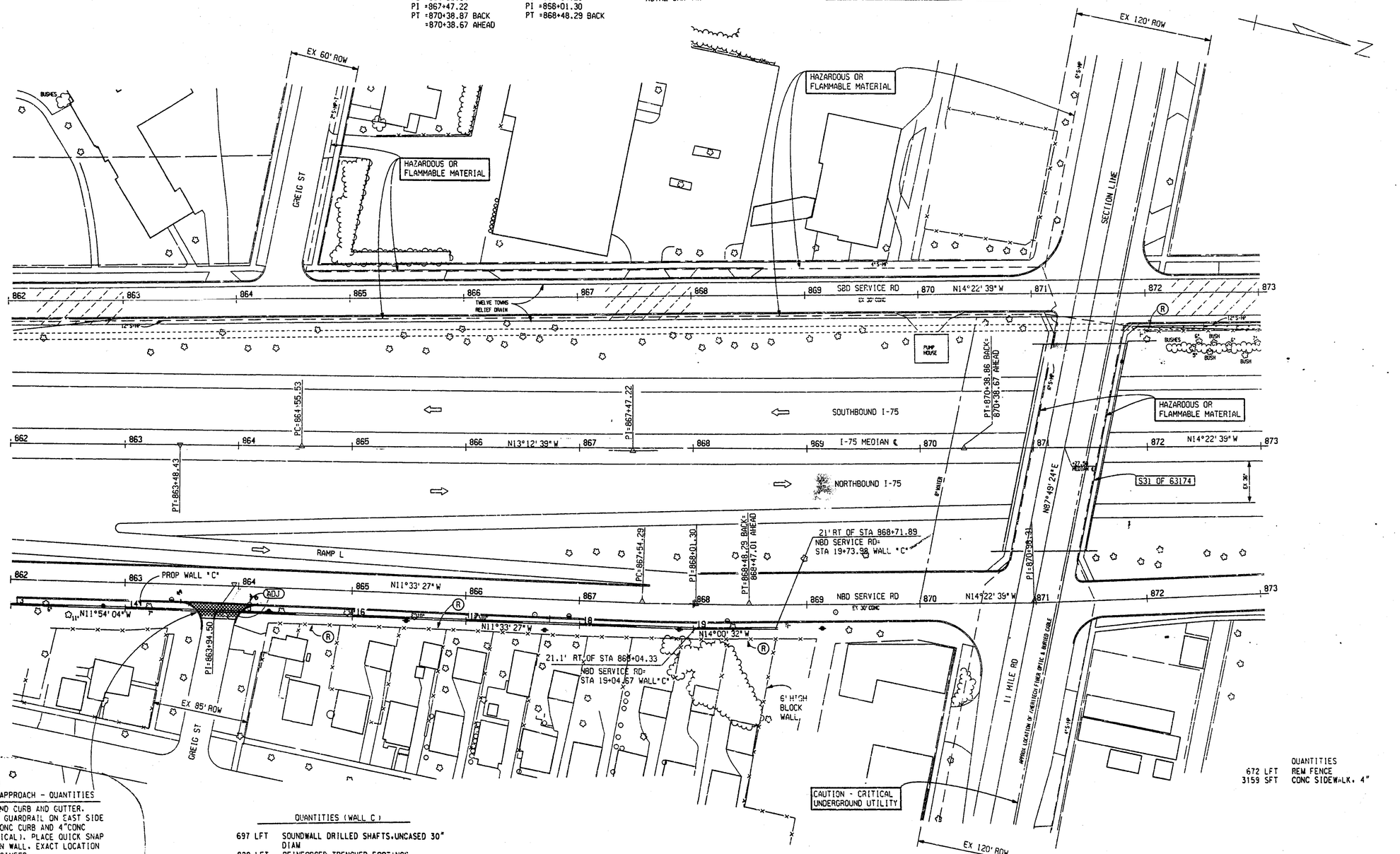
I-75 MEDIAN ℄
CURVE DATA
Δ=01°10' 00"LT
D=00°12' 00"
R=28647.89'
T=291.68'
L=583.33'
E=01.48'
PC =864+55.54
PI =867+47.22
PT =870+38.87 BACK
=870+38.67 AHEAD

NBD SERVICE RD
CURVE DATA
Δ=02°49' 12"LT
D=03°00' 00"
R=1909.86'
T=47.01'
L=94.00'
E=0.58'
PC =867+54.29
PI =868+01.30
PT =868+48.29 BACK

CITY OF ROYAL OAK
SECTION 23
T1N ,R11E
ROYAL OAK TWP

STATION EQUATION MEDIAN ℄
STA 870+38.57 BACK = STA 870+38.67 AHEAD
LINE LENGTHENS 0.10'

NBD SERVICE RD
CURVE DATA
Δ=01°50' 00"LT
PI =870+98.31
NO CURVE



PLAN REVISION R-1
CLOSING GREIG ST APPROACH - QUANTITIES

REMOVE PAVEMENT AND CURB AND GUTTER. PLACE TYPE A BEAM GUARDRAIL ON EAST SIDE OF WALL. PLACE CONC CURB AND 4"CONC SIDEWALK (SEE TYPICAL). PLACE QUICK SNAP HYDRANT HOOK-UP IN WALL. EXACT LOCATION AS DIRECTED BY ENGINEER.

59	SYD	REM PAVT
1	EACH	ADJ DR. STRUCTURE COVER, CASE 1
32	LFT	CALV BEAM GUARDRAIL, TYPE A
2	EACH	TERMINAL END SHOE
68	LFT	CONC CURB, DET E, MODIFIED
1	EACH	QUICK SNAP HYDRANT HOOK-UPS

NO CURVE

QUANTITIES (WALL C)

697	LFT	SOUNDWALL DRILLED SHAFTS,UNCASED 30" DIAM
820	LFT	REINFORCED TRENCHED FOOTINGS
8871	SFT	REINFORCED BLOCK WALL
984	LFT	CONC BASEWALL
984	LFT	LIMESTONE CAP

5,616 SFT Concrete sidewalk 4"

CITY OF MADISON HEIGHTS

STATION EQUATION NBD SERVICE RD
STA 868+48.29 BACK = STA 868+47.02 AHEAD
LINE LENGTHENS 1.27'

QUANTITIES
672 LFT REM FENCE
3159 SFT CONC SIDEWALK, 4"

PLAN REVISION R-1
CONSTRUCTION SHEET

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 862+00 TO STA 873+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
11/20/96	1" = 40'	63174	23743 A	PENA		21

CONSTRUCTION PLANS APRIL 1999

862 863 864 865 866 867 868 869 870 871 872 873

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

10/07/96 Engineering Print

864+46.89

PROPOSED WALL C

TOP OF CAP ELEV 187.00

TOP OF CAP ELEV 188.00

9.00'

9.67'

9.00'

180

175

170

TOP OF BASEWALL ELEV 177.67

TOP OF BASEWALL ELEV 178.00

TOP OF BASEWALL ELEV 178.67

4' BASEWALL

EL. 175.8

SHAFT DEPTH 8.5'

868+48.29

868+47.02

+73

EX TOP OF CURB LEFT

PROP SOUND WALL PROFILE-LEFT

174.57 174.7 862

174.18 174.5 863

174.15 174.5 864

174.56 175.2 865

175.32 175.9 866

175.18 175.5 867

175.69 175.6 868

176.22 176.2 869

870 871 872 873

23749NDPF.DGN
2 4 6

N.B. SERVICE RD STA 862+00 TO STA 873+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT
07/11/96	HORZ. 1": 40' VERT. 1": 4'	63174	23749	PENA

MICHIGAN DEPARTMENT OF TRANSPORTATION

SHEET NO.
R.O.W CONST.
22

862 863 864 865 866 867 868 869 870 871 872 873

180
175
170

EX TOP OF CURB RT
PROP SOUND WALL PROFILE-RIGHT

TWELVE TOWN RELIEF DRAIN
14'3" X 13'3" DOUBLE BOX

EX 66" SAN

177.00
176.70

AUTH	DATE NO.	REVISION
		FINAL R.O.W.

10/07/96 Engineer's Print

S.B. SERVICE RD STA 862+00 TO STA 873+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT
07/12/96	HORZ. 1" = 40' VERT. 1" = 4'	63174	23749	PENNA

SHEET NO.
R.O.W. CONST.
23

CONSTRUCTED AS PER PLANS APRIL 1999

23749sbpf.dgn
2 4 6 42

MACE RD BAXTER RD UNIVERSITY AVE

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

DATE:
DATE:
DATE: 06/26/96

EXISTING BY: FELSING'S UNIT
PROPOSED BY:
LAST CORRECTION BY: DAVID

CONSTRUCTED AS PER PLANS APRIL 1999

QUANTITIES (WALL G)

546	LFT	SOUNDWALL DRILLED SHAFTS, UNCASED 30" DIAM
531	LFT	REINFORCED TRENCHED FOOTINGS
8367	SFT	REINFORCED BLOCK WALL
661	LFT	CONC BASEWALL
661	LFT	LIMESTONE CAP

CITY OF ROYAL OAK

SBD SERVICE RD
CURVE DATA
Δ=11°39' 11" RT
D=02°00' 00"
R=2864.79'
T=292.33'
L=582.65'
E=14.88'
PC =876+23.25
PI =879+15.58
PT =882+05.90

I-75 MEDIAN ℄
CURVE DATA
Δ=11°25' 10" RT
D=01°40' 00"
R=3437.75'
T=343.72'
L=685.17'
E=17.14'
PC =875+69.33
PI =879+13.05
PT =882+54.50

PLACE 6-BAY ATTENUATOR

1	EACH	G.R.E.A.T. ATTENUATOR (6-BAY WIDE), FURN
1	EACH	INSTALL IMPACT ATTENUATOR
2	EACH	EPOXY ANCHORED BOLT, 3/4"
200	LFT	REM CURB AND GUTTER
200	LFT	CONC VALLEY GUTTER
10	SYD	MISC CONC PAVT - NONREINF 8"

REM & REPLACE GUARDRAIL AND ANCHOR TO CONC BASEWALL

350	LFT	REM BEAM GUARDRAIL
100	LFT	GALV BEAM GUARDRAIL, TYPE B
~~1~~	~~EACH~~	~~GUARDRAIL ANCH, CABLE - DEPARTING END~~
1	EACH	GUARDRAIL ANCH - BRIDGE, DET T-2

EX 60' ROW
MACE AVE
BAXTER AVE
UNIVERSITY AVE
HAZARDOUS OR FLAMMABLE MATERIAL
PI=879+15.58
TWELVE TOWNS RELIEF DRAIN
SBD SERVICE RD
NBD SERVICE RD
PROP WALL "G"
PROP WALL "H"
PROP WALL "D"
N14°22' 39" W
N12°54' 31" W
N09°15' 15" W
N02°15' 31" W
N02°58' 41" W
N16°12' 39" W
N05°41' 31" W
N03°11' 50" W
N02°57' 29" W
36.0' RT 873+40 SBD SERVICE RD= STA ~~10+00~~ WALL "G"
36.0' RT 876+23.34 SBD SERVICE RD= STA 12+83.33 WALL "G"
36.0' RT 877+69.83 SBD SERVICE RD= STA 14+27.98 WALL "G"
38.0' RT 879+00.16 SBD SERVICE RD= STA 15+56.62 WALL "G"
48' RT 880+05 SBD SERVICE RD= STA 16+61.73 WALL "G"
27.0' RT 881+00 SBD SERVICE RD= STA 10+00 WALL "H"
21.5' LT 879+25 NBD SERVICE RD= STA 10+00 WALL "D"
23.3' LT 879+92.54 NBD SERVICE RD= STA 10+68.66 WALL "D"
PC 876+23.34
PT 882+05.90
PC=876+57.39
PI=878+23.80
PI=879+88.72
PI=875+69.32
PI=879+13.05
SOUTHBOUND I-75
NORTHBOUND I-75
1 EACH Concrete Barrier End Section
RAMP P
AERIAL CABLE
S.O.C.S.O.S.
EX 30' CONC
2'S-MP
1'S-MP
FOR QUANTITIES ON WALL H SEE SHEET #27
FOR QUANTITIES ON WALL D SEE SHEET #27

WALL H Ends
N Sta 881+37 SBD S.D.
Sta 10+57 WALL H
as per Traffic & Safety
for Sight Distance

Put in trees or shrubs in this area

QUANTITIES
1090 LFT REM FENCE
33 LFT REM BEAM GUARDRAIL

CITY OF MADISON HEIGHTS

NBD SERVICE RD
CURVE DATA
Δ=13°15' 10" RT
D=04°00' 00"
R=1432.40'
T=166.40'
L=331.32'
E=9.63'
PC =876+57.40
PI =878+23.80
PT =879+88.72

CONSTRUCTION SHEET

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 873+00 TO STA 882+00

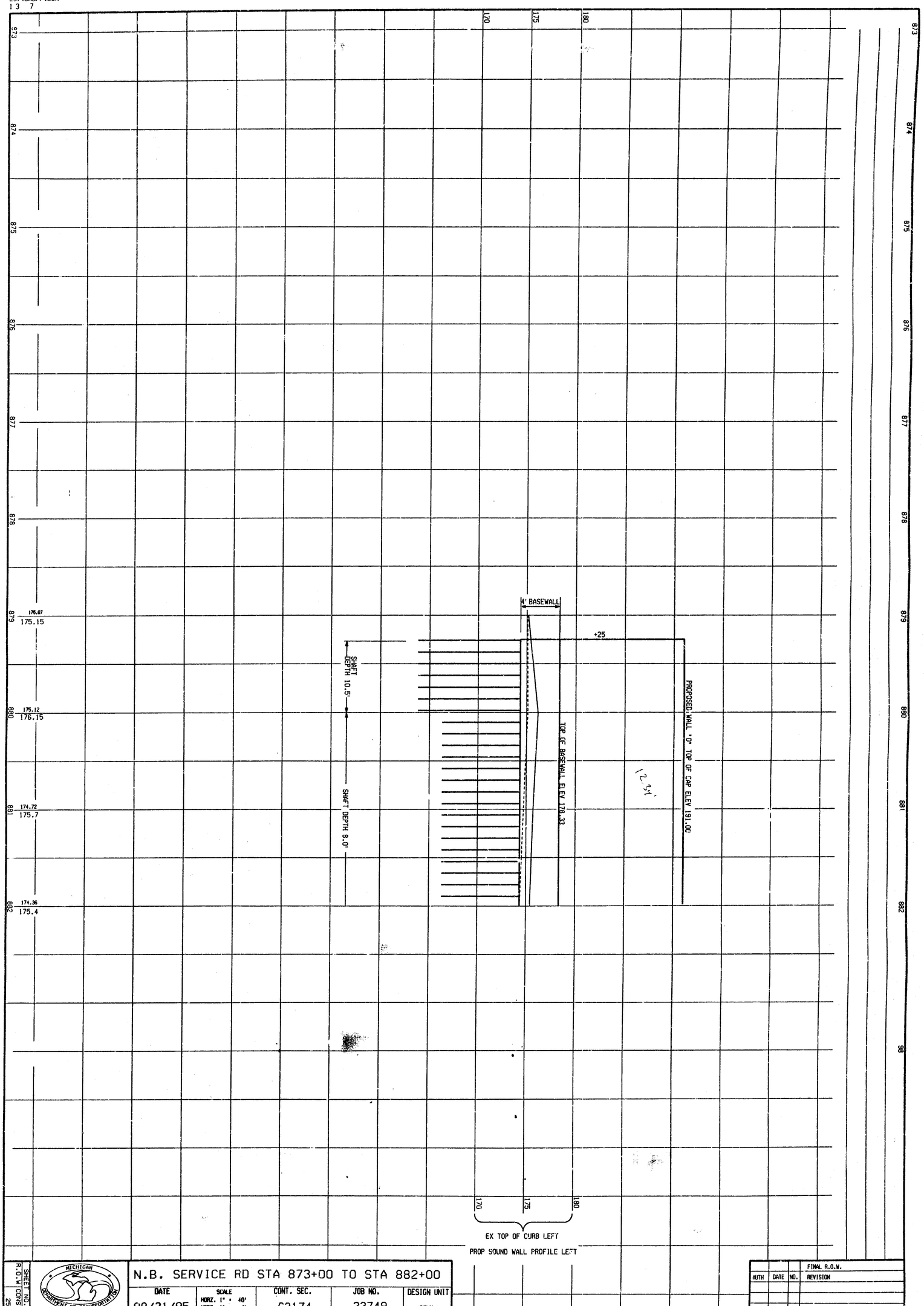
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
08/26/96	1" = 40'	63174	23749	PENA		24

10/07/96 Engineering Print

FILE NAME: 23749873.DN1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22 23 24 25 26 27 28 29 33 34 35

(CONSTRUCTED AS PER PLANS APRIL 1999)

23749NBPF.DGN
I 3 7



R.O.W.	SHEET NO.
CONST.	25

MICHIGAN DEPARTMENT OF TRANSPORTATION

N.B. SERVICE RD STA 873+00 TO STA 882+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT
08/31/95	HORZ. 1" = 40' VERT. 1" = 4'	63174	23749	PENA

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

10/07/96 Engineering Print

873 874 875 876 877 878 879 880 881 882

PROP WALL "G"

TOP OF CAP ELEV 190.00

11.67'

PROP WALL "H"

TOP OF CAP ELEV 191.00

10.67'

+40

+05

+00

180

175

170

TOP OF BASEWALL ELEV 178.00

4' BASEWALL

4' BASEWALL

TOP OF BASEWALL ELEV 180.00

4' BASEWALL

180
175
170
EX TOP OF CURB RT
PROP SOUND WALL PROFILE-RIGHT

TWELVE TOWN RELIEF DRAIN
14'3" X 13'3" DOUBLE BOX

SHAFT DEPTH 11'

SHAFT DEPTH 9'

SHAFT DEPTH 11'

SHAFT DEPTH 11'

66' SANITARY SEWER

175.38 174.84 175.5 175.19 175.2 174.84 175.25 174.51 175.0 174.34 174.5 174.41 174.6 174.84 176.4 176.4 176.9 176.9

873 874 875 876 877 878 879 880 881 882

(CONSTRUCTED AS PER PLANS APRIL 1999)

237495BPF.DGN
41
13

FINAL R.O.W.

AUTH	DATE	NO.	REVISION

10/07/96 Engineering Print

S.B. SERVICE RD STA 873+00 TO STA 882+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT
07/12/96	HORZ. 1" = 40' VERT. 1" = 4'	63174	23749	PENA

MONTANA DEPARTMENT OF TRANSPORTATION

SHEET NO.	
R.O.W	CONST.
	26

CONTRACT SECTION 63174 | JOB NO. 23749 | SH. NO. 27

DATE: 11/22/96
DATE:
DATE:

EXISTING BY: FELSING'S UNIT
PROPOSED BY:
LAST CORRECTION BY: DAVID

SPRAGUE AVE

FARNUM AVE

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

STATION RELATION SBD SERVICE RD
STA 883+03.18 BACK =
STA 102+71.97 AHEAD

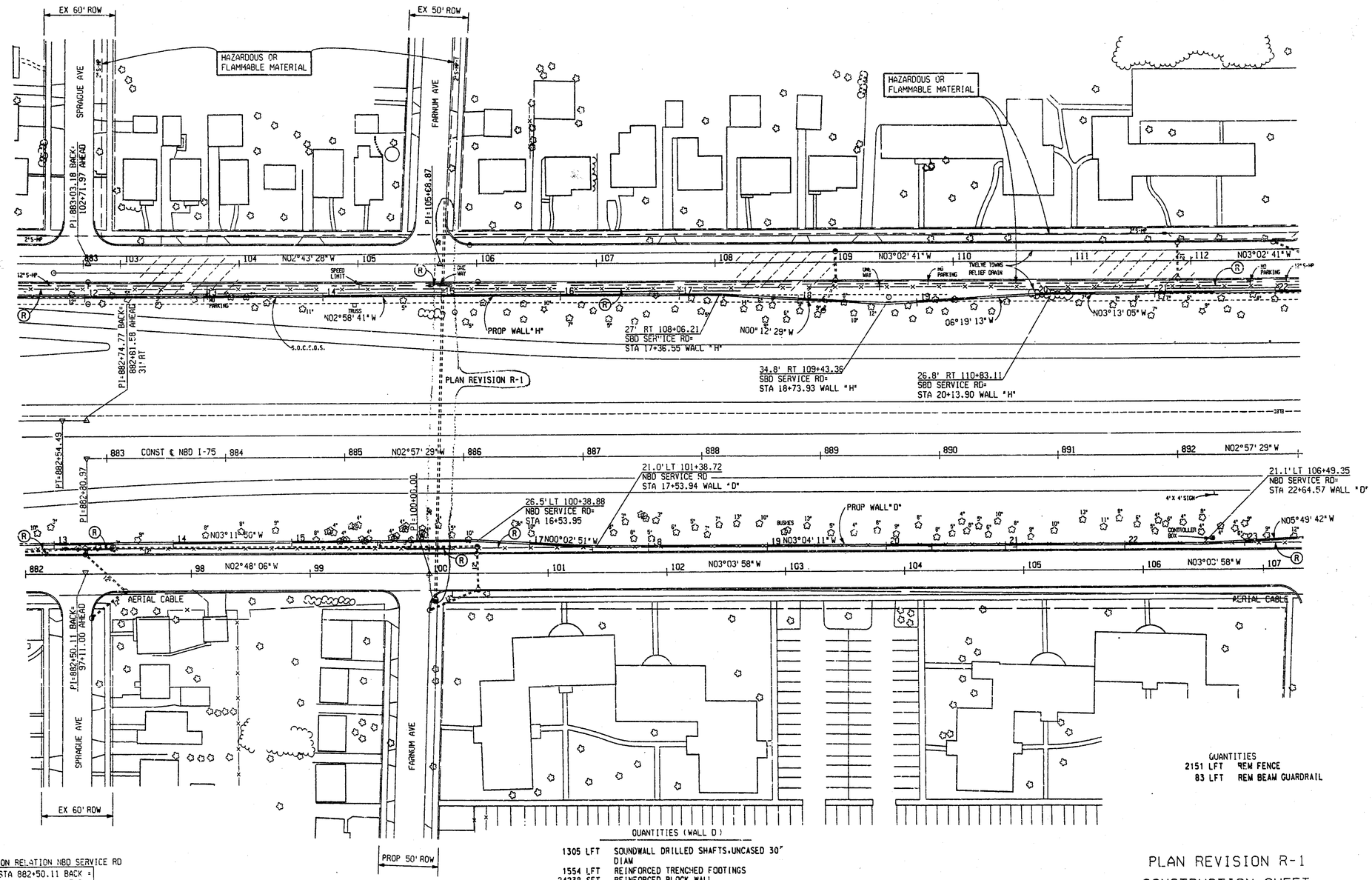
STATION RELATION MEDIAN ℄
STA 882+74.77 BACK =
STA 882+81.58 AHEAD

SBD SERVICE RD
CURVE DATA
Δ=00°19' 13"LT
NO CURVE

CITY OF ROYAL OAK

QUANTITIES (WALL H)

1493 LFT	SOUNDWALL DRILLED SHAFTS,UNCASED 30" DIAM
1556 LFT	REINFORCED TRENCHED FOOTINGS
20496 SFT	REINFORCED BLOCK WALL
1870 LFT	CONC BASEWALL
1870 LFT	LIMESTONE CAP



QUANTITIES
2151 LFT REM FENCE
83 LFT REM BEAM GUARDRAIL

STATION RELATION NBD SERVICE RD
STA 882+50.11 BACK =
STA 97+11.00 AHEAD

CITY OF MADISON HEIGHTS

NBD SERVICE RD
CURVE DATA
Δ=00°09' 23"RT
PI =882+50.11 BACK
=97+11.00 AHEAD
NO CURVE

NBD SERVICE RD
CURVE DATA
Δ=00°15' 52"LT
PI =100+00.00
NO CURVE

QUANTITIES (WALL D)

1305 LFT	SOUNDWALL DRILLED SHAFTS,UNCASED 30" DIAM
1554 LFT	REINFORCED TRENCHED FOOTINGS
24238 SFT	REINFORCED BLOCK WALL
1866 LFT	CONC BASEWALL
1866 LFT	LIMESTONE CAP
2,433 SFT	Concrete Sidewalk 4"

PLAN REVISION R-1
CONSTRUCTION SHEET

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 882+00 TO STA 893+00

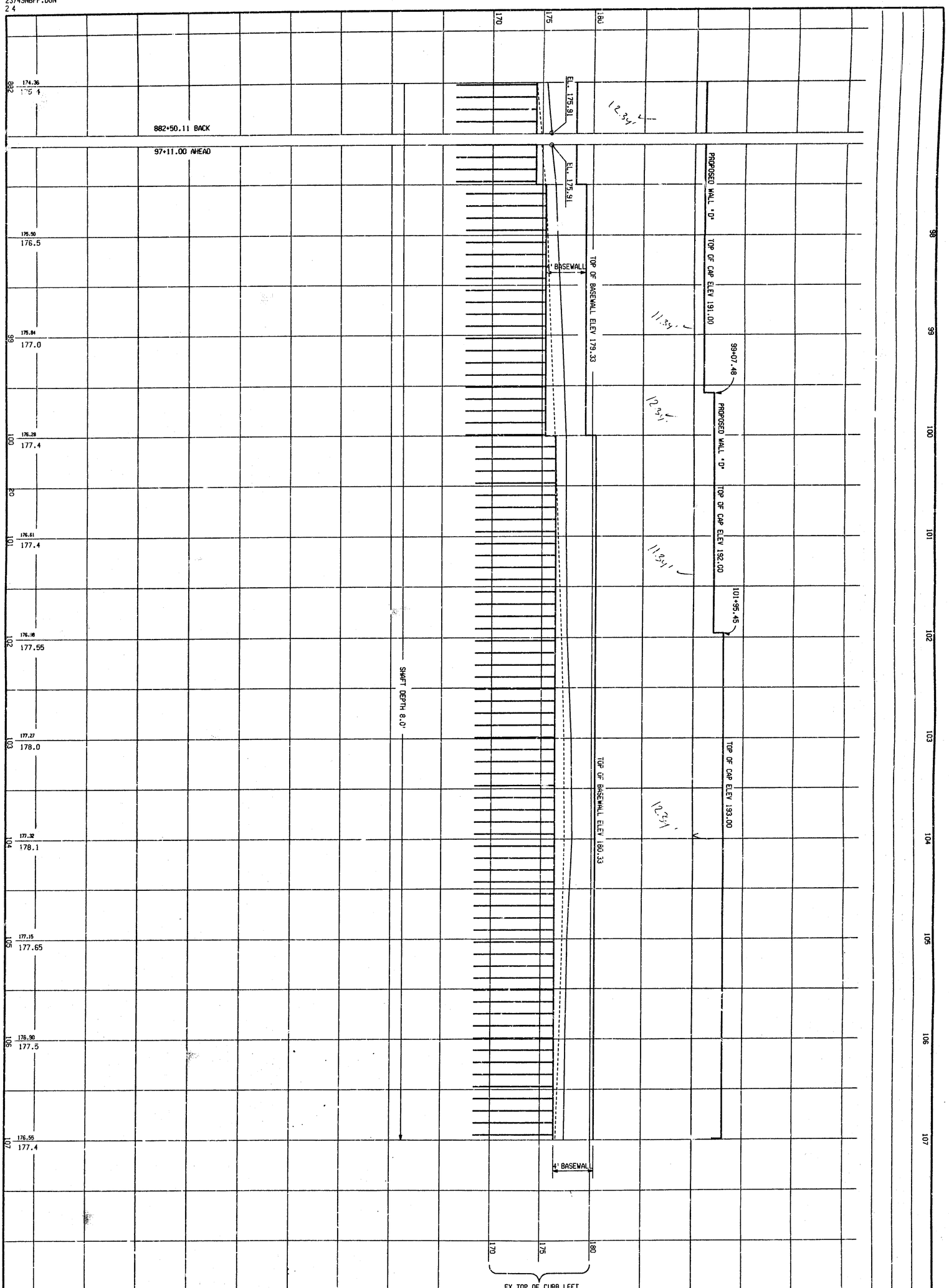
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
11/22/96	1" = 40'	63174	23749	PENA		27

FILE NAME: 23749802.DNI
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22 23 24 25 26 27 28 29 30 33 34 35

(CONSTRUCTION AS PER PLANS, APRIL 1999)

CONSTRUCTED AS PER PLANS, APRIL 1999

23749NBPF.DGN
2 4



R.O.W. CONST.	SHEET NO.
	28

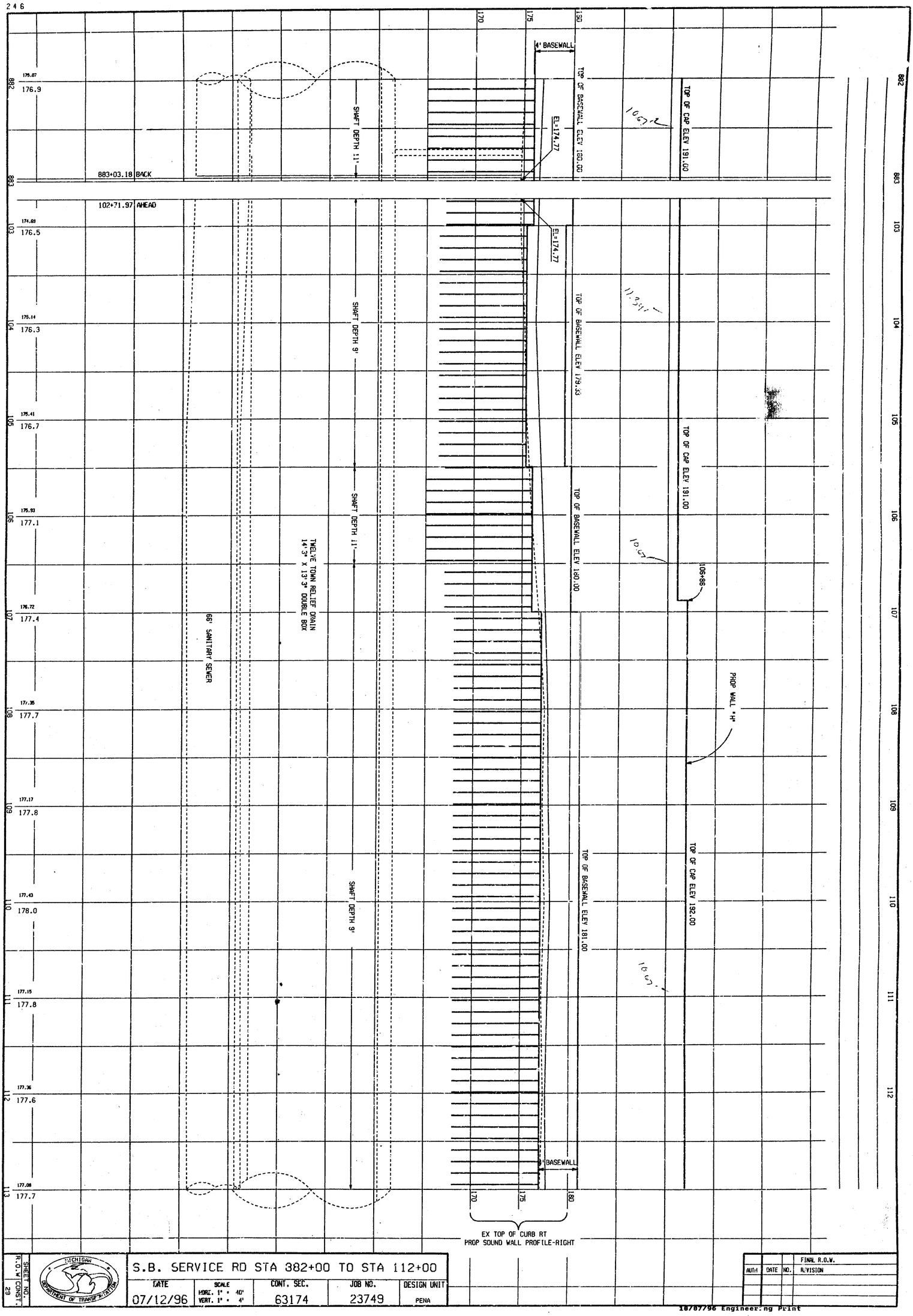
MICHIGAN DEPARTMENT OF TRANSPORTATION

N.B. SERVICE RD STA 882+00 TO STA 107+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT
07/11/96	HORZ. 1" = 40' VERT. 1" = 4'	63174	23749	PENA

FINAL R.O.W.			
AUTH	DATE	NO.	REVISION

10/07/96 Engineering Print



R.O.W. CONST. SHEET NO. 23	MICHIGAN DEPARTMENT OF TRANSPORTATION	S.B. SERVICE RD STA 382+00 TO STA 112+00			
DATE 07/12/96	SCALE HORZ. 1" = 40' VERT. 1" = 4'	CONT. SEC. 63174	JOB NO. 23749	DESIGN UNIT PENA	

AUTH	DATE	NO.	FINAL R.O.W. REVISION

10/07/96 Engineering Print

CONTROL SECTION 63174 | JOB NO. 23749 A | SHT. NO. 30

DATE:
DATE:
DATE: 11/22/96

EXISTING BY: PENA'S UNIT
PROPOSED BY:
LAST CORRECTION BY: DAVID

(CONSTRUCTED AS PER AS-BUILT PLANS, APRIL 1999)

FILE NAME: 23749a3.DN1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22 23 24 25 26 27 28 33 34 35

AUTH	DATE	NO.	REVISION
			FINAL R.J.W.

FOREST AVE

GARDENIA AVE

SBD SERVICE RD
CURVE DATA
Δ=00°14'14"LT
NO CURVE

CITY OF ROYAL OAK
SECTION 14
T1N ,R11E
ROYAL OAK TWP

FOR QUANTITIES ON WALL H
SEE SHEET #27

EX 55' ROW

EX 90' ROW

FOREST AVE

PI=113+16.47

GARDENIA AVE

CAUTION - CRITICAL
UNDERGROUND UTILITY

27.0' RT 119+39
SBD SERVICE RD=
STA 28+69.88 WALL "H"

N

HAZARDOUS OR
FLAMMABLE MATERIAL

SBD SERVICE RD
EX 30' CONC

N03°16' 55"W

TWELVE TOWNS
RELIEF OAK

CONTROL
BOX/TRAFFIC

HAZARDOUS OR
FLAMMABLE MATERIAL

6" 66" SAN

O.C.C.S.D.S.

OAKLAND COUNTY
COMMUNITY COLLEGE

PROP WALL "H"

N03°13' 05"W

NO
PARKING

WALK/
DON'T WALK

PT=899+46.29 LSBD
PC=899+46.29 NBD
62" LT

PC=899+00.00

66" SAN

PUMP
HOUSE

SOUTHBOUND I-75

SOI OF 63174

NET CIRCUIT BARRETT, 20' NORTH

NORTHBOUND I-75

26.0' RT 112+50.20
NBD SERVICE RD=
STA 28+65.86 WALL "D"

26.0' RT 107+50.25
NBD SERVICE RD=
STA 23+65.42 WALL "D"

TRAFFIC
SIGNAL
AHEAD

PROP WALL "D"

NO
PARKING

N02°20' 45"W

PLAN REVISION R-I

CONTROL
BOX

NO
PARKING

65-55 MPH
SPEED LIMIT

WALK/
DON'T WALK

CURVE/25MPH
SPEED LIMIT

PC=899+46.28

NBD SERVICE RD
EX 30' CONC

N02°20' 52"W

AERIAL CABLE

AERIAL CABLE

PI=107+48.08

FOREST AVE

GARDENIA AVE

EX 55' ROW

EX 90' ROW

FOR QUANTITIES ON WALL J
SEE SHEET #27

QUANTITIES
1159 LFT REM FENCE

NBD SERVICE RD
CURVE DATA
Δ=00°43' 06"RT
PI =107+48.08
NO CURVE

CITY OF MADISON HEIGHTS

PLAN REVISION R-1
CONSTRUCTION SHEET

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 893+00 TO STA 900+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET R.O.W	SHEET CC
11/22/96	1"=40'	63174	23749 A	PENA		31

CONSTRUCTION PLANS APRIL 1996

107 108 109 110 111 112 113 114

106+99.39

TOP OF CAP ELEV 192.00

PROPOSED WALL "D"

12.67'

12.00'

11.97'

180

175

170

180.33

TOP OF CAP ELEV 179.67

TOP OF BASEWALL ELEV 179.00

4' BASEWALL

4' BASEWALL

EL. 177.03
+60

EX TOP OF CURB LEFT
PROP SOUND WALL PROFILE LEFT

SHAFT DEPTH 8.0'

SHAFT DEPTH 11.0'

107	108	109	110	111	112	113
176.55 / 177.4	176.29 / 177.0	175.92 / 176.9	175.62 / 176.3	175.51 / 176.2	176.03 / 176.5	176.76 / 176.9

10/07/96 Engineering Print

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

N.B. SERVICE RD S - 107+00 TO STA 114+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT
09/06/96	HORZ. 1": 40' VERT. 1": 4'	63174	23749	PENA

MICHIGAN DEPARTMENT OF TRANSPORTATION

SHEET NO.	
R.O.W.	CONST.
	31

23749NBPF.DGN
13 7

CONSTRUCTED AS PER PLANS, APRIL 1999

112 113 114 115 116 117 118 119

PROP WALL "H"

116+47.81

TOP OF CAP ELEV 192.00

TOP OF CAP ELEV 191.00

TOP OF BASEWALL ELEV 181.00

TOP OF BASEWALL ELEV 180.33

TOP OF BASEWALL ELEV 179.33

H BASEWALL

+40

180

175

170

EX TOP OF CURB RT.
PROP SOUND WALL PROFILE-RIGHT

SHAFT DEPTH 9'

SHAFT DEPTH 10'

SHAFT DEPTH 11'

TWELVE TOWN RELIEF DRAIN
14'3" X 13'3" TRIPLE BOX

66" SANITARY SEWER

177.08 177.7 113
176.99 177.5 114
176.86 177.3 115
176.43 177.0 116
176.26 177.6 117
176.12 176.5 118
176.09 176.3 119
175.86 176.1 +50
120

FINAL R.O.W.			
AUTH	DATE	NO.	REVISION

10/07/96 Engineering Print

S.B. SERVICE RD. STA 112+00 TO STA 120+00

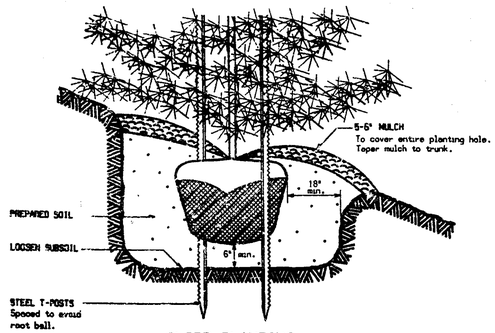
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT
09/20/95	HORZ. 1" = 40' VERT. 1" = 4'	63174	23749	PENA

MICHIGAN DEPARTMENT OF TRANSPORTATION

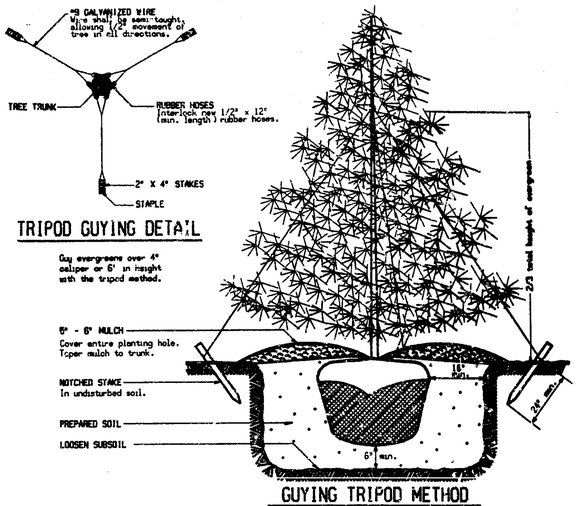
SHEET NO.	
R.O.W	CONST.
	32

23749SBPF.DGN
13 41

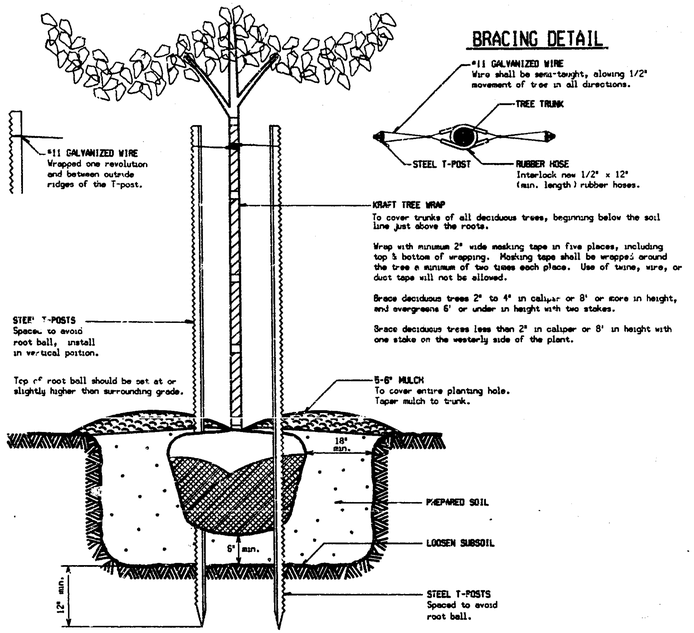
			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



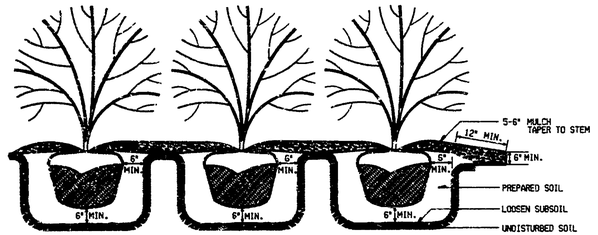
SLOPE PLANTING



GUYING TRIPOD METHOD

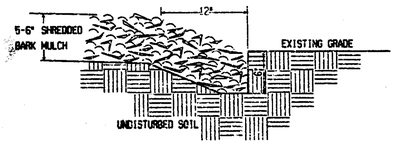


BRACING - VERTICAL STAKES

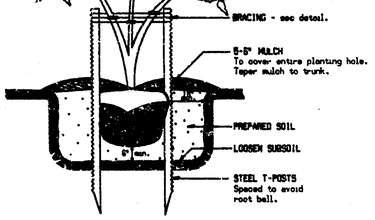


SHRUB BED DETAIL N.T.S.

-FIRST AND SECOND WATERING AND CULTIVATION SHALL INCLUDE SHRUB BEDS.
-CUT 6" X 12" (MIN.) EDGING AROUND THE PERIMETER OF ALL SHRUB BEDS SHOWN ON THE PLANS. SPRAY A NON-PERSISTANT GLYPHOSATE HERBICIDE TO ENTIRE SHRUB BEDS PRIOR TO PLANTING AND BARK PLACEMENT.
-SHRUB BEDS ARE TO BE PAID FOR BY THE PAY ITEM 'SITE PREPARATION'.
-ALL PLANTS SHALL BE SET PLUMB AND HAVE THE BEST SIDE OF PLANT FACING THE MAIN VIEWING DIRECTION.



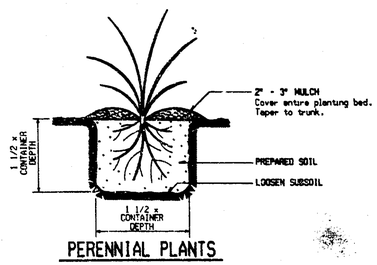
PLANTING BED EDGE DETAIL



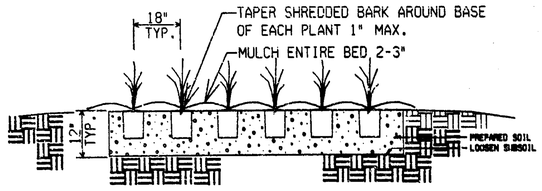
MULTIPLE STEM TREES

PLANTING TREES, SHRUBS, AND EVERGREENS

1. Dig plant pocket for deciduous and evergreen trees a minimum of 36" wider and 6" deeper than root ball, unless otherwise specified.
2. Dig plant pocket for shrubs a minimum of 12" wider and 6" deeper than the root ball, unless otherwise specified.
3. Loosen subsoil to a depth of 4". Loosen earth on sides of plant pocket to break any glazing caused by digging.
4. Set plants at the same or slightly higher depth than at the nursery.
5. Fill prepared soil to 1/2 the depth of the root ball, pack firmly, and puddle with water.
6. Loosen and remove burlap and all lacing from upper half of root ball.
7. Backfill with prepared soil which, after compaction, is flush with surrounding ground level.
8. Cover entire plant pocket area with 5 - 6" mulch.
   Prune, wrap, and brace & guy as specified.



PERENNIAL PLANTS



-FIRST AND SECOND WATERING AND CULTIVATION SHALL INCLUDE DAYLILY BEDS.
-DAYLILIES ARE TO BE FULLY DEVELOPED TWO YEAR #2 CONTAINER PLANTS.
-VARIETIES OF DAYLILIES SHALL BE EVENLY MIXED IN THE BEDS.
-ENTIRE DAYLILY BED SHALL BE EXCAVATED DOWN 12" AND REPLACED WITH 12" OF PREPARED SOIL.
-DAYLILY BEDS ARE TO BE PAID FOR BY THE PAY ITEM 'SITE PREPARATION'.

GENERAL NOTES

When plants are furnished in containers, the containers shall be completely removed at the time of planting.

All excavated material shall be removed from the site - immediately.

All heights are shown before pruning.

All depths are shown after settling.

Trees and shrubbery shall not be planted within 50' and 30' respectively of the nearest edge of metal - except near structures or guardrails, and where inaccessable to vehicles.

MICHIGAN DEPARTMENT OF TRANSPORTATION

PLANTING DETAIL

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
08/02/96	N.T.S.	63174	25191 A	MULLER		33

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: DAVID
DATE:
DATE:
DATE: 08/02/96

10/07/96 Engineering Print

CONFORMED AS PER PLANS, APRIL 1999

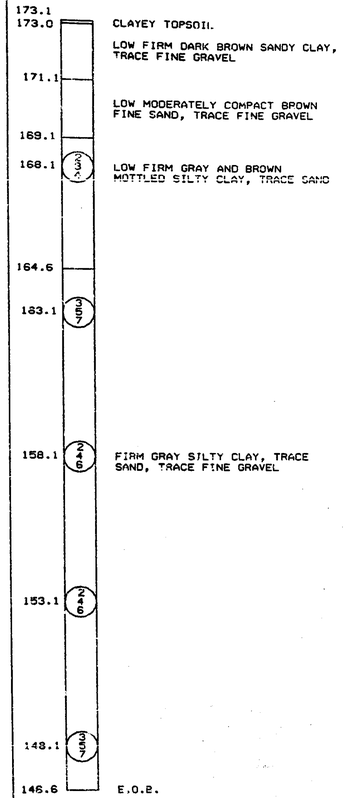
FILE NAME: 23749land.dgn

DATE:
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

TEST HOLE NO. A#1

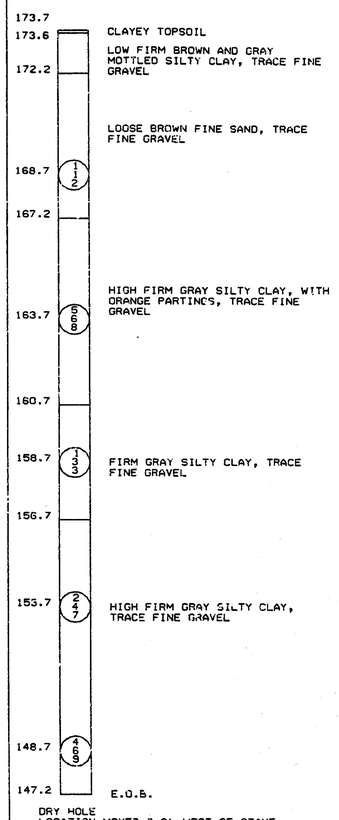
ELEV. LOCATION STATION 544+90 20' RT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 173.1



DRY HOLE
LOCATION MOVED 3.0' WEST OF STAKE
STORM SEWER 2.0' EAST OF STAKE
SEWER RUNS PARALLEL WITH
PROPOSED WALL

TEST HOLE NO. A#2

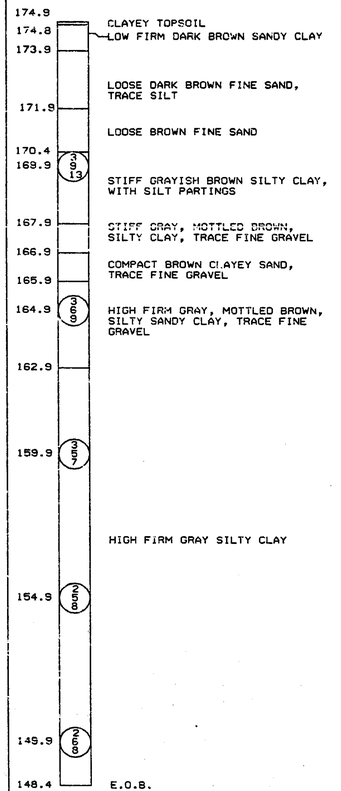
ELEV. LOCATION STATION 542+10 20' RT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 173.7



DRY HOLE
LOCATION MOVED 3.0' WEST OF STAKE
STORM SEWER 2.0' EAST OF STAKE
SEWER RUNS PARALLEL WITH
PROPOSED WALL

TEST HOLE NO. A#3

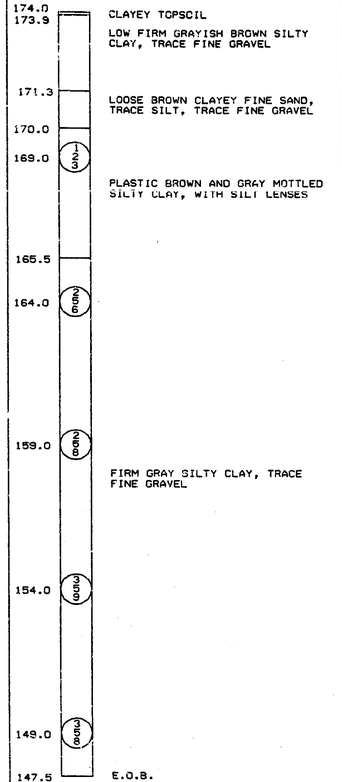
ELEV. LOCATION STATION 538+60 20' RT. OF C/L
N. B. I-75 SERVICE DR.
23 MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 174.9



DRY HOLE
LOCATION MOVED 3.0' WEST OF STAKE
STORM SEWER 2.0' EAST OF STAKE
SEWER RUNS PARALLEL WITH
PROPOSED WALL

TEST HOLE NO. A#4

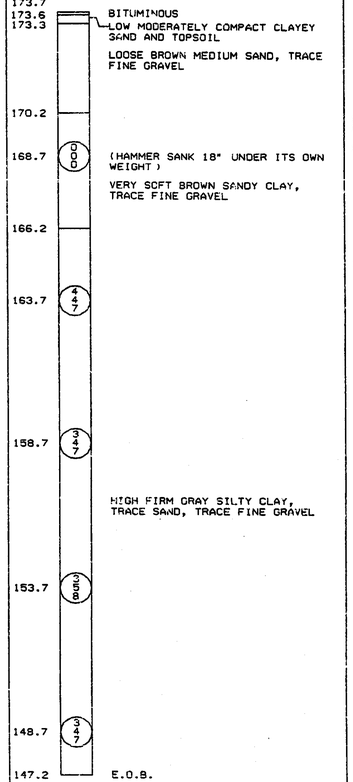
ELEV. LOCATION STATION 535+90 20' RT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 174.0



DRY HOLE
LOCATION MOVED 3.0' WEST OF STAKE
STORM SEWER 2.0' EAST OF STAKE
SEWER RUNS PARALLEL WITH
PROPOSED WALL

TEST HOLE NO. B#1

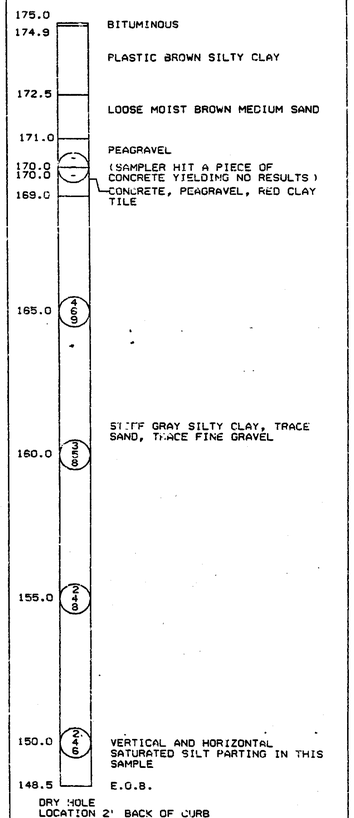
ELEV. LOCATION STATION 531+80 14' RT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 173.7



DRY HOLE
LOCATION MOVED JUST BACK OF CURB
STORM SEWER 2.0' EAST OF STAKE
SEWER RUNS PARALLEL WITH
PROPOSED WALL

TEST HOLE NO. B#2

ELEV. LOCATION STATION 528+50 16' RT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 175.0



DRY HOLE
LOCATION 2' BACK OF CURB
NO ACTIVE SEWER IN THIS AREA

(0 0 0) 1st 6"
2nd 6"
3rd 6"

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 2.00" O.D. X 1.50" I.D. SPLIT SPOON SAMPLER 3 SUCCESSIVE 6" INCREMENTS USING A 140# HAMMER FALLING 30".

CONSISTENCY DETERMINED BY INSPECTION OF SAMPLES AND BY SOIL RESISTANCE TO PENETRATION BY JET ROD AND CASING OR AUGER.

WATER LEVELS MAY BE INFLUENCED BY RESIDUAL BORING WATER

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT THE SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

MICHIGAN DEPARTMENT OF TRANSPORTATION

SOIL BORING SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
06/21/95	1" =	63174	23749 A	PENA		34

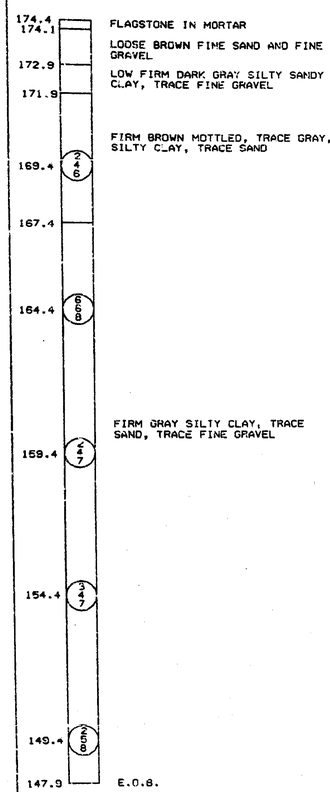
FILE NAME:

PLOTTED: 10/27/95 11:11 by PENA

PLOT DIRECTIVES: PLANS APRIL 1993

TEST HOLE NO. B#3

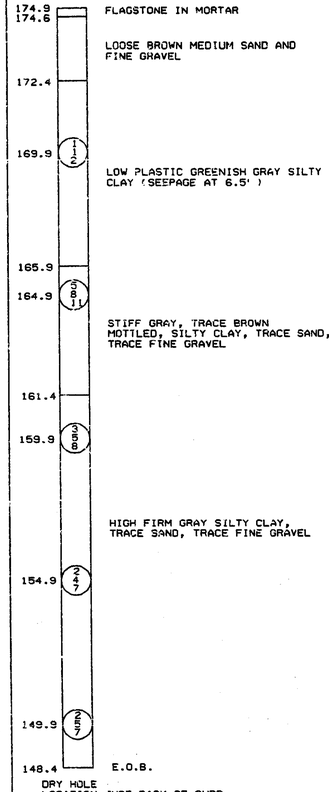
ELEV. | LOCATION STATION 851+85 17' LT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 174.4



DRY HOLE
LOCATION JUST BACK OF CURB
24" STORM DRAIN 1.5' EAST OF FENCE

TEST HOLE NO. B#4

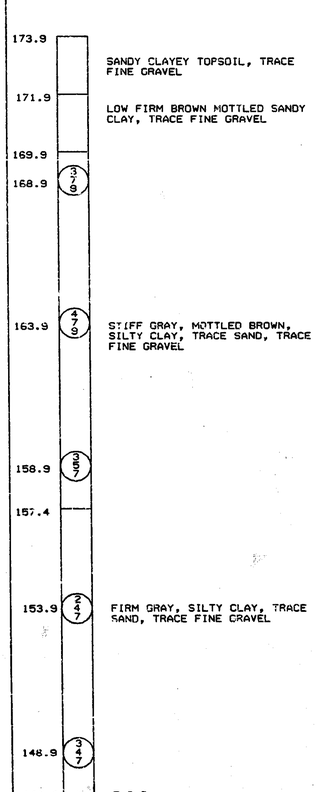
ELEV. | LOCATION STATION 854+60 17' LT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 174.9



DRY HOLE
LOCATION JUST BACK OF CURB
24" STORM DRAIN 1.5' EAST OF FENCE

TEST HOLE NO. B#5

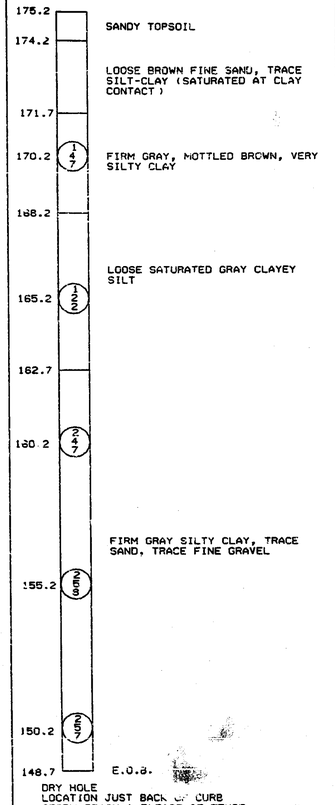
ELEV. | LOCATION STATION 857+60 17' LT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 173.9



DRY HOLE
LOCATION JUST BACK OF CURB
24" STORM DRAIN 1.5' EAST OF FENCE

TEST HOLE NO. B6, C1

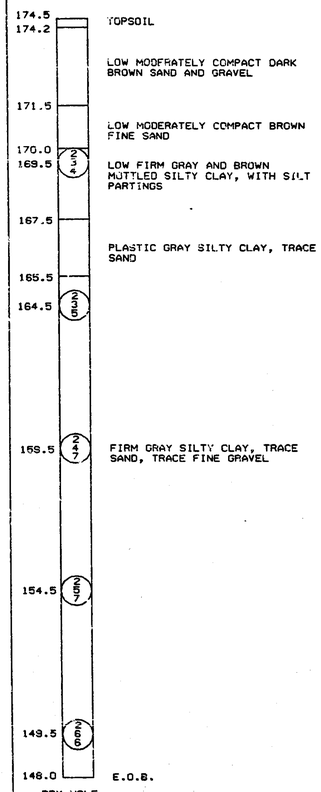
ELEV. | LOCATION STATION 860+60 17' LT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 175.2



DRY HOLE
LOCATION JUST BACK OF CURB
STORM DRAIN 1.5' EAST OF FENCE

TEST HOLE NO. C#2

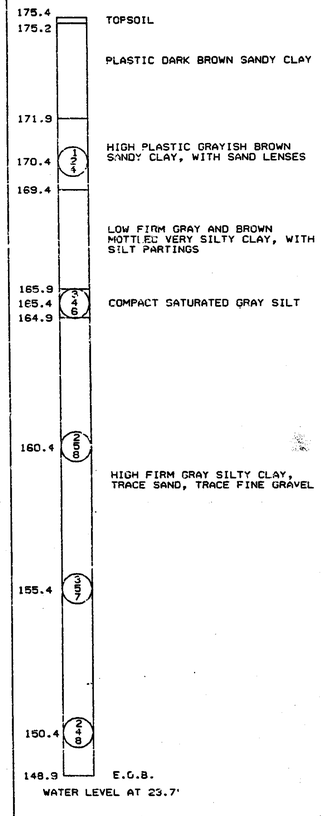
ELEV. | LOCATION STATION 863+55 35' RT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 174.5



DRY HOLE

TEST HOLE NO. C#3

ELEV. | LOCATION STATION 866+80 19' RT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 175.4



WATER LEVEL AT 23.7'

(0 0 0) 1st 6"
2nd 6"
3rd 6"

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 2.00" O.D. X 1.50" I.D. SPLIT SPOON SAMPLER 3 SUCCESSIVE 6" INCREMENTS USING A 140# HAMMER FALLING 30".

CONSISTENCY DETERMINED BY INSPECTION OF SAMPLES AND BY SOIL RESISTANCE TO PENETRATION BY JET ROD AND CASING OR AUGER.

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MICHIGAN DEPARTMENT OF TRANSPORTATION

SOIL BORING SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
06/20/95	1" =	63174	23749 A	PENA		35

EXISTING BY: DATE:
PROPOSED BY: DATE:
LAST CORRECTION BY: DATE:

SECTION 01 / 02

FILE NAME:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

10/07/96 Engineering Print

DATE:
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

LOCATION

(CONSTRUCTION AS PER PLANS APRIL 1999)

FILE NAME:

TEST HOLE NO. D#1

ELEV. LOCATION STATION 681+20 17' LT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 175.0

ELEV.	
175.0	
174.9	TOPSOIL
	LOW MODERATELY COMPACT BROWN FINE SAND, TRACE FINE GRAVEL
171.0	
170.0	STIFF GRAY CLAY, WITH SILT PARTINGS
166.5	
165.0	PLASTIC TO LOW FIRM GRAY SILTY CLAY, WITH SILT LAYER AT 10'
161.0	
160.0	STIFF GRAY SILTY CLAY, TRACE SAND AND FINE GRAVEL
155.0	
155.0	FIRM GRAY SILTY CLAY. TRACE SAND, TRACE FINE GRAVEL
153 0	
	STIFF GRAY SILTY CLAY, TRACE SAND, TRACE FINE GRAVEL
150.0	
148.5	E.O.B.

DRY HOLE

TEST HOLE NO. D#2

ELEV. LOCATION STATION 98+85 17' LT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 176.0

ELEV.	
176.0	
175.8	TOPSOIL
	LOW MODERATELY COMPACT DARK GRAY CLAYEY FINE SAND, TRACE TOPSOIL
172.5	
172.0	LOW MODERATELY COMPACT MOIST BROWN FINE SAND, TRACE SILT
171.0	
	FIRM GRAY, MOTTLED BROWN, SILTY CLAY, TRACE SAND
166.5	
166.0	COMPACT GRAY SILT, TRACE CLAY
165.5	
161.0	FIRM GRAY SANDY CLAY, TRACE FINE GRAVEL
158.0	
151.0	
149.5	E.O.B.

DRY HOLE

TEST HOLE NO. D#3

ELEV. LOCATION STATION 101+85 17' LT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 177.2

ELEV.	
177.2	
177.0	CLAYEY TOPSOIL
	LOW MODERATELY COMPACT DARK BROWN CLAYEY FINE SAND, TRACE TOPSOIL
174.7	
	MODERATELY COMPACT BROWN FINE SAND, TRACE CLAY
172.2	
171.2	
	FIRM GRAY SILTY CLAY, WITH SILT PARTINGS AND LENSES OF SILT
167.2	
165.2	
162.2	FIRM GRAY SILTY CLAY, TRACE SAND, TRACE FINE GRAVEL
157.2	(STONE IN MOUTH OF SAMPLER)
156.2	
	STIFF GRAY SILTY CLAY, TRACE SAND, TRACE FINE GRAVEL
152.2	
150.7	E.O.B.

HOLE COLLAPSE AT 4.5'

TEST HOLE NO. D#4

ELEV. LOCATION STATION 104+85 17' LT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 176.7

ELEV.	
176.7	
176.5	TOPSOIL
	LOW MODERATELY COMPACT DARK BROWN CLAYEY FINE SAND, TRACE TOPSOIL
175.2	
	FIRM GRAY VERY SILTY CLAY, WITH SAND AND SILT PARTINGS
171.7	
171.4	
166.7	
	HIGH FIRM GRAY VERY SILTY CLAY, WITH SAND AND SILT PARTINGS
161.7	
156.7	
151.7	
150.2	E.O.B.

HOLE DRY

TEST HOLE NO. D#5

ELEV. LOCATION STATION 107+85 17' LT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 175.6

ELEV.	
175.6	
175.4	TOPSOIL
	LOW MODERATELY COMPACT DARK BROWN FINE SAND, TRACE CLAY
171.6	
170.6	LOOSE WET BROWN FINE SAND (SATURATED AT CLAY CONTACT)
169.1	
165.6	HIGH FIRM GRAY CLAY, WITH LOW FIRM GRAY SILTY CLAY LENSES
162.6	
160.6	
	STIFF GRAY SILTY SANDY CLAY, TRACE FINE GRAVEL
155.6	
150.6	
149.1	E.O.B.

HOLE DRY

TEST HOLE NO. D#6

ELEV. LOCATION STATION 110+85 17' LT. OF C/L
N. B. I-75 SERVICE DR.
MADISON HTS. OAKLAND CO.
GROUND SURFACE ELEVATION: 174.9

ELEV.	
174.9	CLAYEY TOPSOIL
174.6	
	LOW FIRM DARK BROWN SANDY CLAY
172.6	
	LOW FIRM BROWN SANDY CLAY
170.4	
169.9	LOOSE SATURATED BROWN MEDIUM AND FINE SAND
169.7	
	HIGH FIRM GRAY SILTY CLAY, WITH BROWN SILT PARTINGS
167.9	
164.9	
159.9	STIFF GRAY SILTY CLAY, TRACE MEDIUM SAND AND FINE GRAVEL
154.9	
149.9	
148.4	E.O.B.

WATER LEVEL AT 23.4' WITH AUGER IN.

(00) 1st 6"
2nd 6"
3rd 6"

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 2.00" O.D. X 1.50" I.D. SPLIT SPOON SAMPLER 3 SUCCESSIVE 6" INCREMENTS USING A 140# HAMMER FALLING 30".

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MICHIGAN DEPARTMENT OF TRANSPORTATION

SOIL BORING SHEET

DATE	SCALE	CONT. SEC.	JOB N.	DESIGN UNIT	SHEET NO.	
					R.O.W	CONST.
06/20/95	1" =	63174	23749 A	PENA		36

10/07/96 Engineering Print

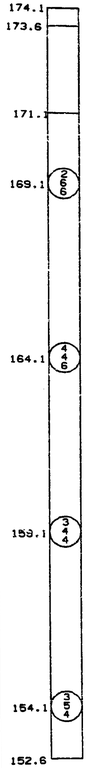
DATE:
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

TEST HOLE NO. 1

ELEV. 174.1

LOCATION STATION 834+95 12' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 174.1

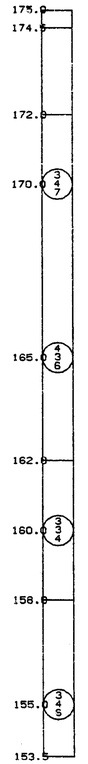


DATE: 5-17-95
WATER LEVEL: DRY

TEST HOLE NO. 2

ELEV. 175.0

LOCATION STATION 838+24 15' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 175.0

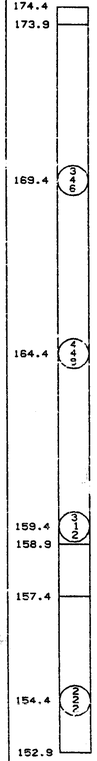


DATE: 5-16-95
WATER LEVEL: DRY

TEST HOLE NO. 3

ELEV. 174.4

LOCATION STATION 840+33 15' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 174.4

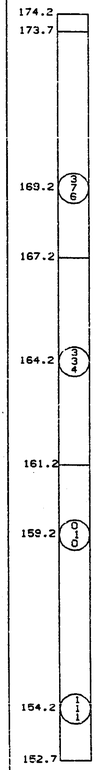


DATE: 5-16-95
WATER LEVEL: DRY

TEST HOLE NO. 4

ELEV. 174.2

LOCATION STATION 842+17 13' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 174.2

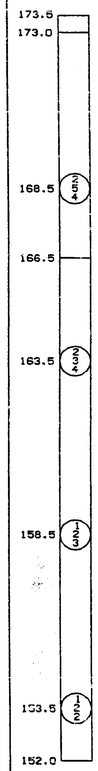


DATE: 5-11-95
WATER LEVEL: DRY

TEST HOLE NO. 5

ELEV. 173.5

LOCATION STATION 847+65 14' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 173.5

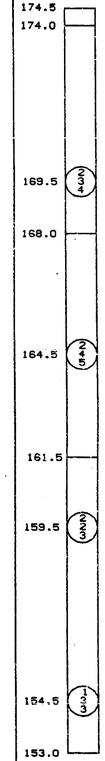


DATE: 5-11-95
WATER LEVEL: DRY

TEST HOLE NO. 6

ELEV. 174.5

LOCATION STATION 850+40 13' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 174.5



DATE: 5-11-95
WATER LEVEL: DRY

(000) 1st 6
2nd 6"
3rd 6"

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 2.00" O.D. X 1.50" I.D. SPLIT SPOON SAMPLER 3 SUCCESSIVE 6" INCREMENTS USING A 140# HAMMER FALLING 30".

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MICHIGAN DEPARTMENT OF TRANSPORTATION

SOIL BORING SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
06/20/95	1" =	63174	23749 A	PENA		37

FILE NAME: 23749sbi.dgn

CONSTRUCTED AS PER PLANS APRIL 1995

10/07/96 Engineering Print

DATE:
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

FILE NAME:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

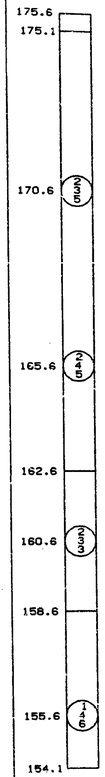
PLANS, APRIL 1999

10/07/96 Engineering Print

TEST HOLE NO. 7

ELEV. 175.6

LOCATION STATION 853+35 13' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 175.6

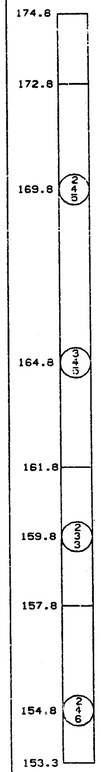


DATE: 5-11-95
WATER LEVEL: DRY

TEST HOLE NO. 8

ELEV. 174.8

LOCATION STATION 856+95 15' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 174.8



DATE: 5-11-95
WATER LEVEL: DRY

TEST HOLE NO. 9

ELEV. 175.8

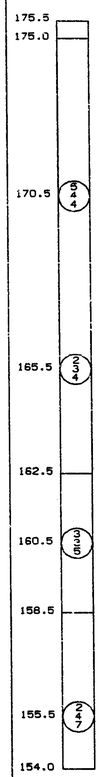
LOCATION STATION 874+10 9' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 175.8

DATE: 5-17-95
WATER LEVEL: DRY

TEST HOLE NO. 10

ELEV. 175.5

LOCATION STATION 876+35 13' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 175.5

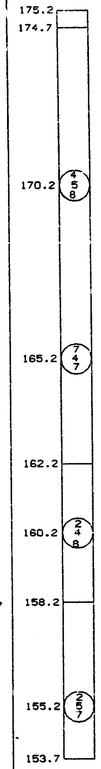


DATE: 5-16-95
WATER LEVEL: DRY

TEST HOLE NO. 11

ELEV. 175.2

LOCATION STATION 879+50 11' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 175.2

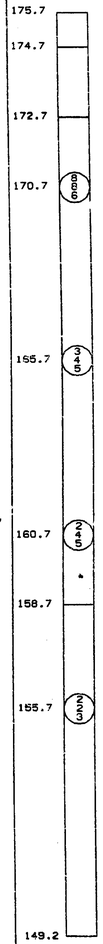


DATE: 5-16-95
WATER LEVEL: DRY

TEST HOLE NO. 12

ELEV. 175.7

LOCATION STATION 103+00 11' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 175.7



DATE: 5-16-95
WATER LEVEL: DRY

(0 0 0) 1st 6
2nd 6"
3rd 6"

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 2.00" O.D. X 1.50" I.D. SPLIT SPOON SAMPLER 3 SUCCESSIVE 6" INCREMENTS USING A 140# HAMMER FALLING 30".

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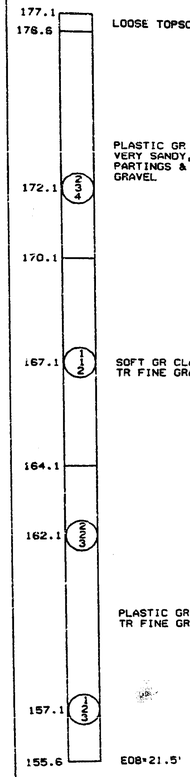
MICHIGAN DEPARTMENT OF TRANSPORTATION

SOIL BORING SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
06/20/95	1" =	63174	23749 A	PENA		39

TEST HOLE NO. 13

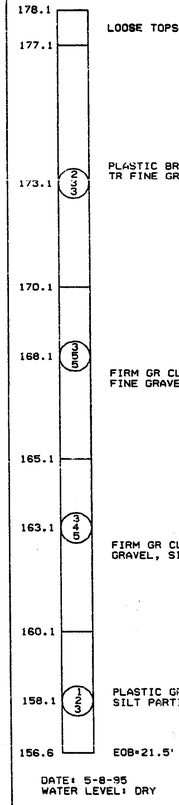
ELEV. | LOCATION STATION 106+32 7' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 177.1



DATE: 5-16-95
WATER LEVEL: DRY

TEST HOLE NO. 14

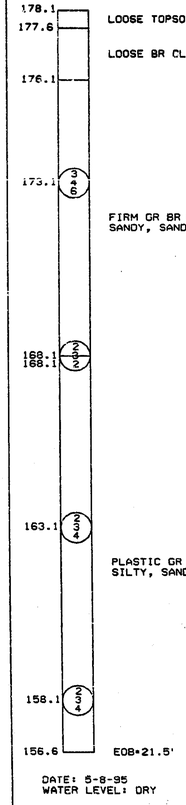
ELEV. | LOCATION STATION 108+74 14' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 178.1



DATE: 5-8-95
WATER LEVEL: DRY

TEST HOLE NO. 15

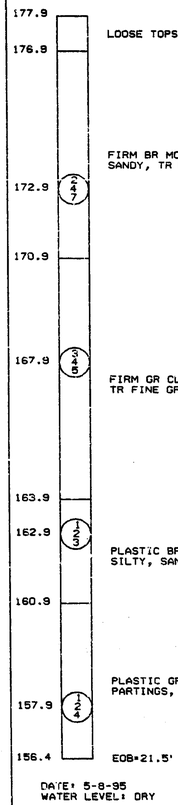
ELEV. | LOCATION STATION 111+20 10' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 178.1



DATE: 5-8-95
WATER LEVEL: DRY

TEST HOLE NO. 16

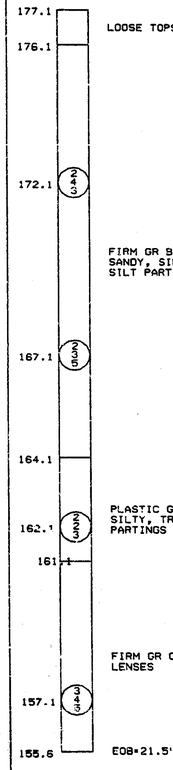
ELEV. | LOCATION STATION 112+97 10' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 177.9



DATE: 5-8-95
WATER LEVEL: DRY

TEST HOLE NO. 17

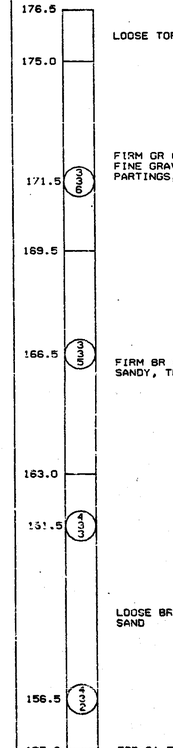
ELEV. | LOCATION STATION 116+65 13' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 177.1



DATE: 5-8-95
WATER LEVEL: DRY

TEST HOLE NO. 18

ELEV. | LOCATION STATION 119+50 13' RT EOM
SB I-75 SOUNDWALL, I-696
TO GARDENIA AVE, ROYAL OAK
GROUND SURFACE ELEVATION: 176.5



DATE: 5-8-95
WATER LEVEL: DAY

(00) 1st 8"
2nd 6"
3rd 6"

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 2.00" O.D. X 1.50" I.D. SPLIT SPOON SAMPLER 3 SUCCESSIVE 6" INCREMENTS USING A 140# HAMMER FALLING 30".

CONSISTENCY DETERMINED BY INSPECTION OF SAMPLES AND BY SOIL RESISTANCE TO PENETRATION BY JET ROD AND CASING OR AUGER.

WATER LEVELS MAY BE INFLUENCED BY RESIDUAL BORING WATER

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT THE SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

MICHIGAN DEPARTMENT OF TRANSPORTATION

SOIL BORING SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
06/20/95	1" =	63174	23749 A	PENA		39

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:
DATE:
DATE:
DATE:

FILE NAME:

(OFFICES AS PER PLANS APRIL 1999)

6/8/96 Engineering Print

(CONSTRUCTED AS PER PLANS, APRIL 1999)

PREPARED BY DESIGN DIVISION
DRAWN BY: B.L.T.
CHECKED BY: R.K.P.

ENGINEER OF CONSTRUCTION
ENGINEER OF MAINTENANCE
ENGINEER OF MATERIALS & TECHNOLOGY
ENGINEER OF TRAFFIC AND SAFETY
ENGINEER - ROAD DESIGN
ENGINEER OF DESIGN
DEPARTMENT DIRECTOR
ROBERT A WELKE
BY:
BUREAU DIRECTOR
HIGHWAY TECHNICAL SERVICES

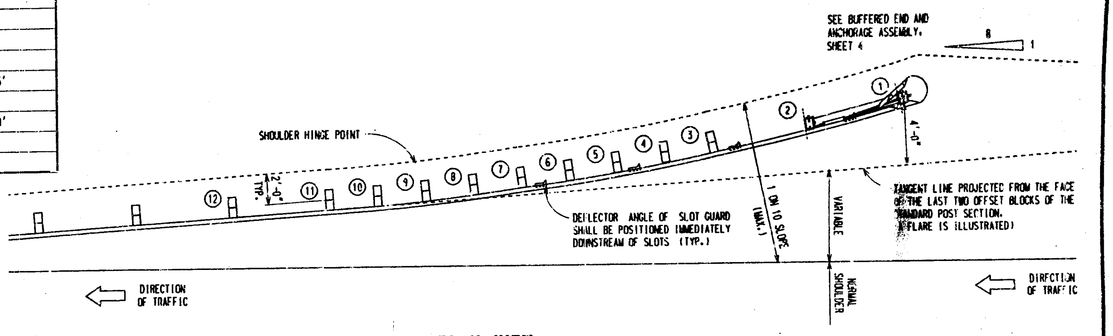
F.H.W.A. APPROVAL
PLAN DATE 4-22-96
III-58N
SHEET 1 OF 10

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

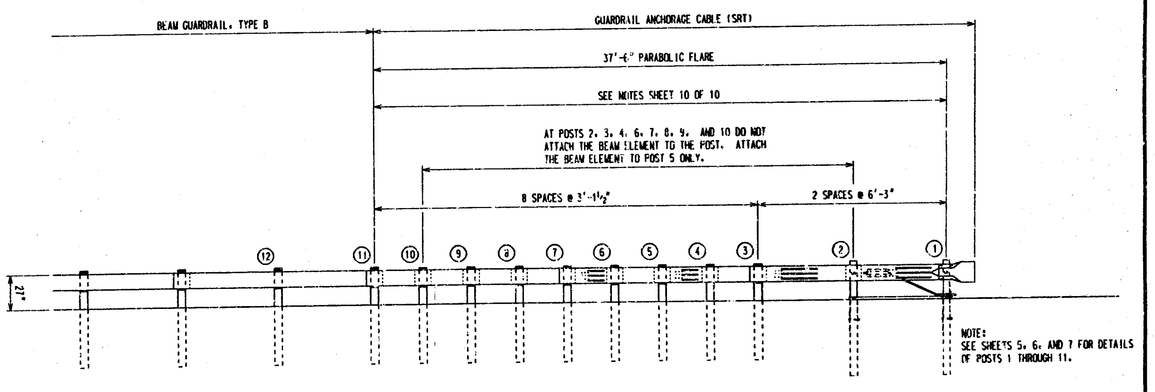
GUARDRAIL ENDING WITH CABLE ANCHORAGE (SRT)

POST	POST OFFSET DISTANCE
1	4.0'
2	2.8'
3	1.8'
4	1.4'
5	1.0'
6	0.7'
7	0.5'
8	0.25'
9	0.1'
10	0.04'
11	0
12	0

THE POST OFFSET DIMENSIONS ARE GIVEN TO THE CENTER OF THE TRAFFIC FACE OF THE WOOD OFFSET BLOCKS, EXCEPT FOR THE FIRST AND SECOND POSTS WHICH ARE GIVEN TO THE CENTER OF THE TRAFFIC FACE OF THE POST. OFFSET POINTS ARE TO BE LOCATED BY CHORD MEASUREMENTS AT THE BACK OF THE RAIL EQUAL TO THE NOMINAL POST SPACINGS SPECIFIED. POSTS ARE TO BE SET APPROXIMATELY TANGENT TO THE BEAM ELEMENT AT EACH POST LOCATION.



PLAN VIEW



ELEVATION

APPROACH END OF GUARDRAIL ANCHORAGE, CABLE FOR BEAM GUARDRAIL, TYPE B

PREPARED BY DESIGN DIVISION
DRAWN BY: B.L.T.
CHECKED BY: R.K.P.

ENGINEER OF CONSTRUCTION
ENGINEER OF MAINTENANCE
ENGINEER OF MATERIALS & TECHNOLOGY
ENGINEER OF TRAFFIC AND SAFETY
ENGINEER - ROAD DESIGN
ENGINEER OF DESIGN
DEPARTMENT DIRECTOR
ROBERT A WELKE
BY:
BUREAU DIRECTOR
HIGHWAY TECHNICAL SERVICES

F.H.W.A. APPROVAL
PLAN DATE 4-22-96
III-58N
SHEET 2 OF 10

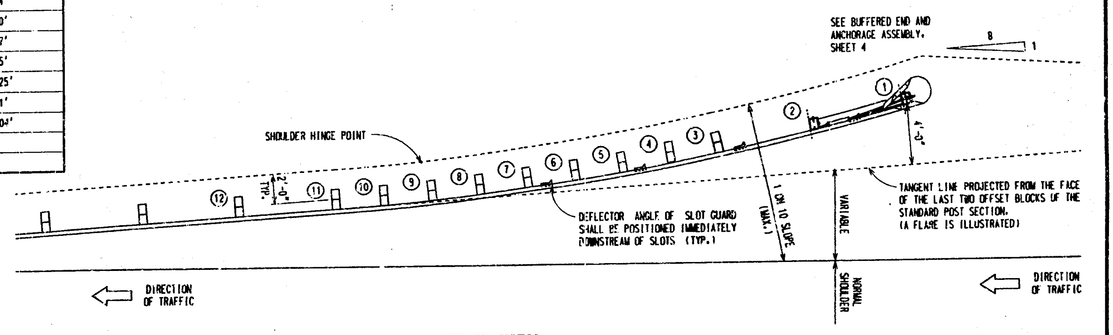
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL ENDING WITH CABLE ANCHORAGE (SRT)

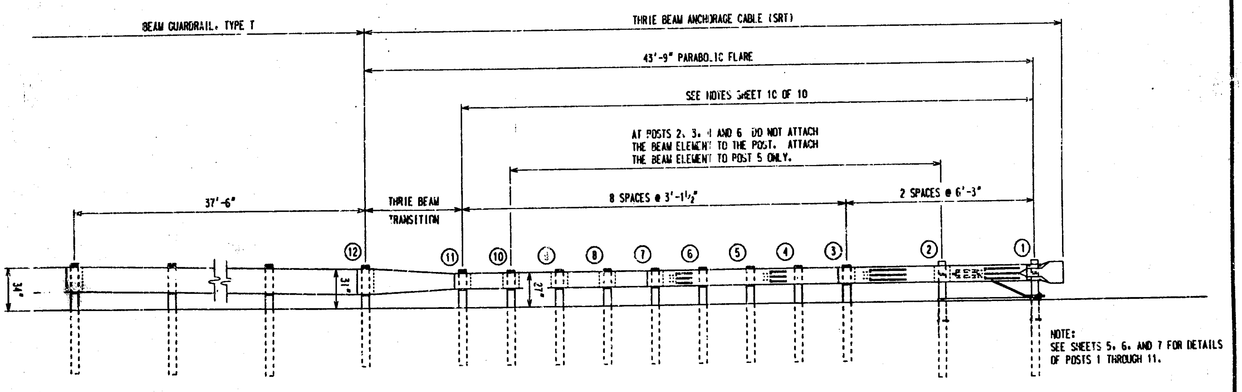
CONTROL SECTION 63174
JOB NO. 23749A
SHEET NO. 40

POST	POST OFFSET DISTANCE
1	4.0'
2	2.8'
3	1.8'
4	1.4'
5	1.0'
6	0.7'
7	0.5'
8	0.25'
9	0.1'
10	0.04'
11	0
12	0

THE POST OFFSET DIMENSIONS ARE GIVEN TO THE CENTER OF THE TRAFFIC FACE OF THE WOOD OFFSET BLOCKS, EXCEPT FOR THE FIRST AND SECOND POSTS WHICH ARE GIVEN TO THE CENTER OF THE TRAFFIC FACE OF THE POST. OFFSET POINTS ARE TO BE LOCATED BY CHORD MEASUREMENTS AT THE BACK OF THE RAIL EQUAL TO THE NOMINAL POST SPACINGS SPECIFIED. POSTS ARE TO BE SET APPROXIMATELY TANGENT TO THE BEAM ELEMENT AT EACH POST LOCATION.

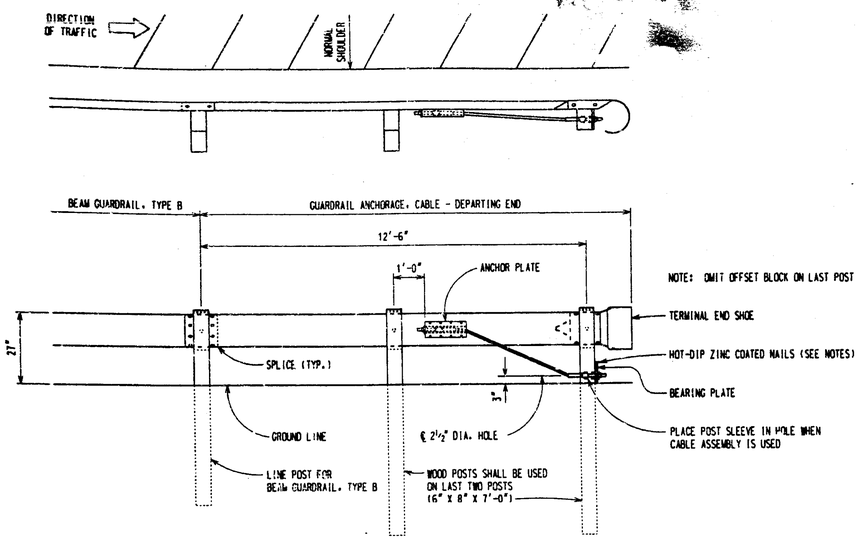


PLAN VIEW



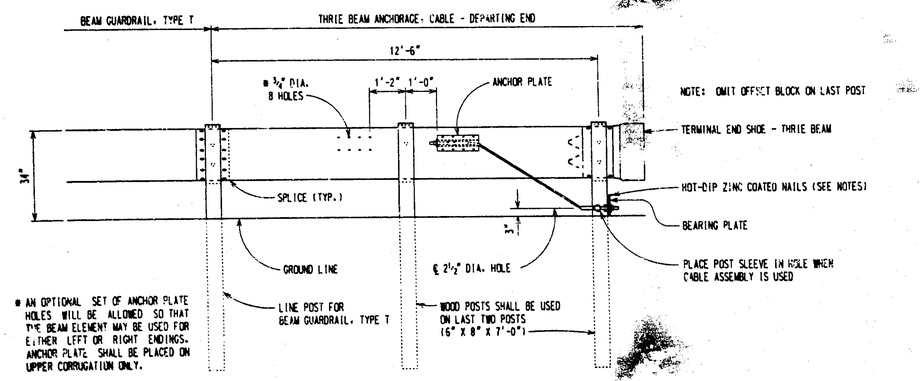
ELEVATION

APPROACH END OF THRIE BEAM ANCHORAGE, CABLE FOR BEAM GUARDRAIL, TYPE T



GUARDRAIL ANCHORAGE, CABLE - DEPARTING END

(ONE-WAY ROADWAYS ONLY)



* AN OPTIONAL SET OF ANCHOR PLATE HOLES WILL BE ALLOWED SO THAT TYPE BEAM ELEMENT MAY BE USED FOR EITHER LEFT OR RIGHT ENDINGS. ANCHOR PLATE SHALL BE PLACED ON UPPER CORRUGATION ONLY.

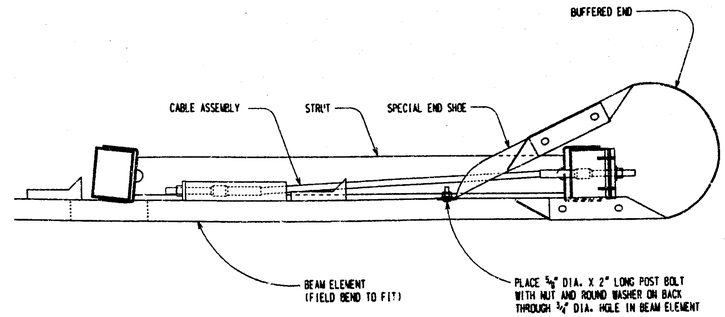
THRIE BEAM ANCHORAGE, CABLE - DEPARTING END

(ONE-WAY ROADWAYS ONLY)

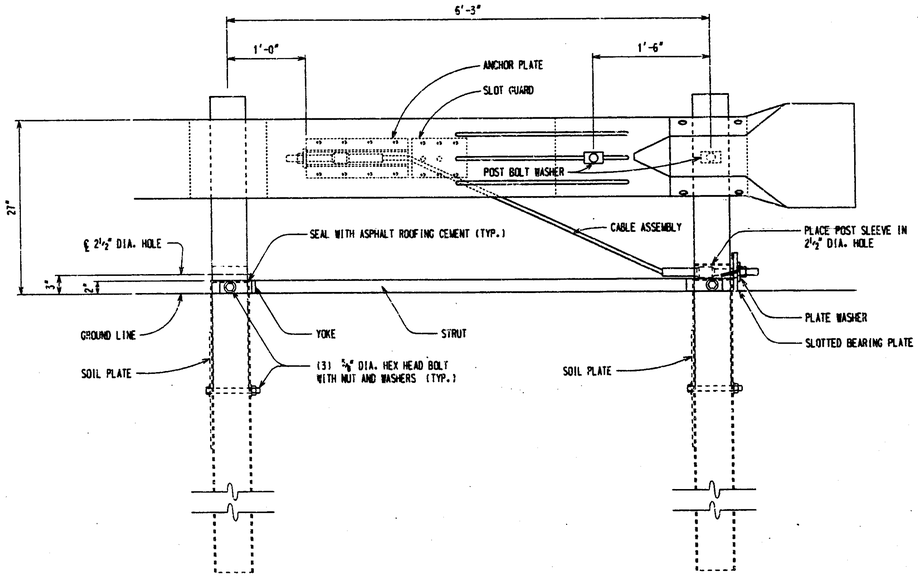
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL ENDING WITH CABLE ANCHORAGE (SRT)

F.H.W.A. APPROVAL	4-22-96 PLAN DATE	III-58N	SHEET 3 OF 10



PLAN VIEW



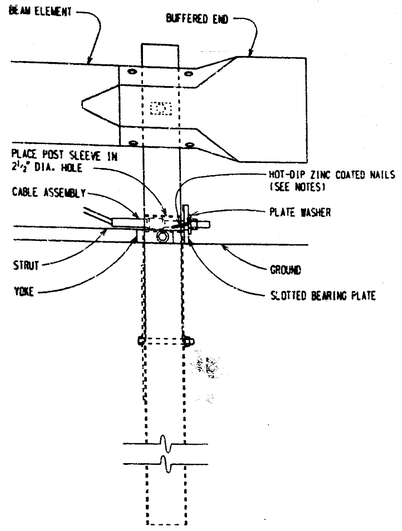
ELEVATION

BUFFERED END AND ANCHORAGE ASSEMBLY

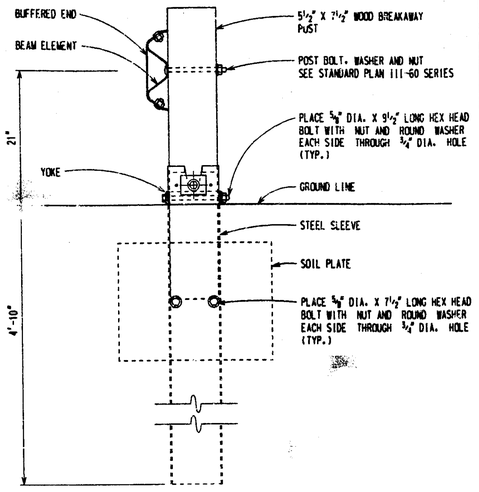
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL ENDING WITH CABLE ANCHORAGE (SRT)

F.H.W.A. APPROVAL	4-22-96 PLAN DATE	III-58N	SHEET 4 OF 10
CONTROL SECTION 63174	JOB NO. 23749A		SHEET NO. 41

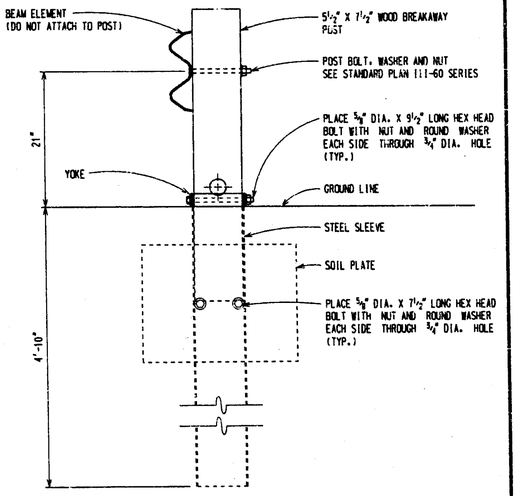


ELEVATION



SIDE

POST 1 DETAIL



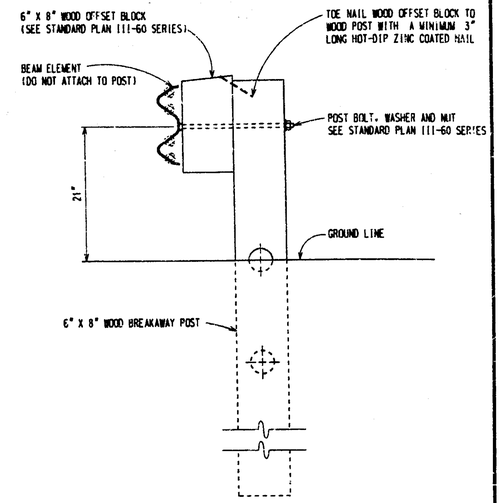
POST 2 DETAIL

BACK-UP ELEMENT REQUIRED. SEE STANDARD PLAN III-60 SERIES

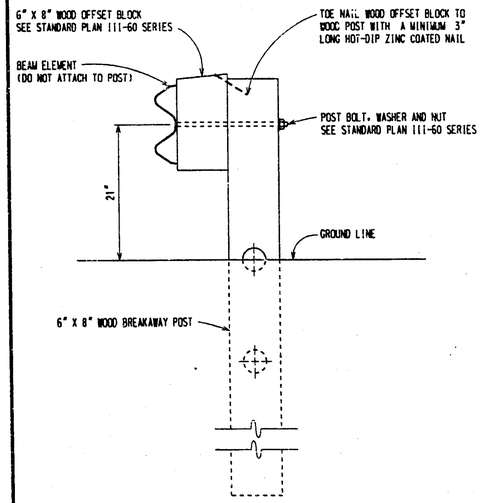
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL ENDING WITH CABLE ANCHORAGE (SRT)

F.H.W.A. APPROVAL	4-22-96 PLAN DATE	III-58N	SHEET 5 OF 10

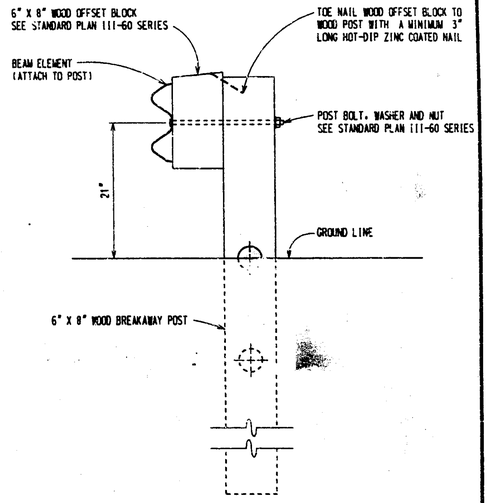


POST 3 DETAIL



POST 4, 6, 7, 8, 9, 10 DETAIL

BACK-UP ELEMENT REQUIRED AT ALL POSTS EXCEPT POST 7. SEE STANDARD PLAN III-60 SERIES



POST 5 DETAIL

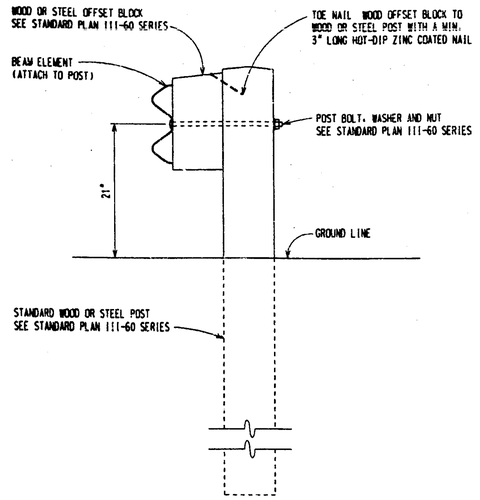
BACK-UP ELEMENT REQUIRED. SEE STANDARD PLAN III-60 SERIES

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL ENDING WITH CABLE ANCHORAGE (SRT)

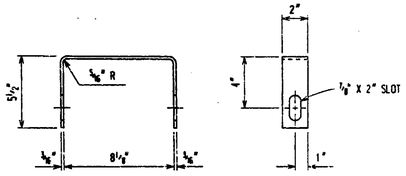
F.H.W.A. APPROVAL	4-22-96 PLAN DATE	III-58N	SHEET 6 OF 10

CONTROL SECTION	JOB NO.	SHEET NO.
63174	23749A	42

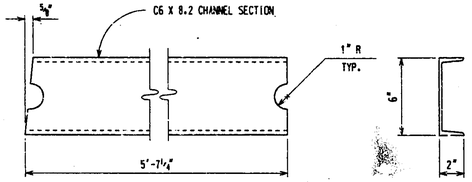


POST 11 DETAIL

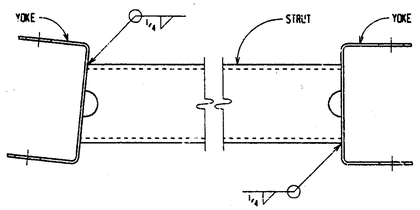
WOOD POST AND OFFSET BLOCK ILLUSTRATED



YOKE DETAIL



STRUT DETAIL



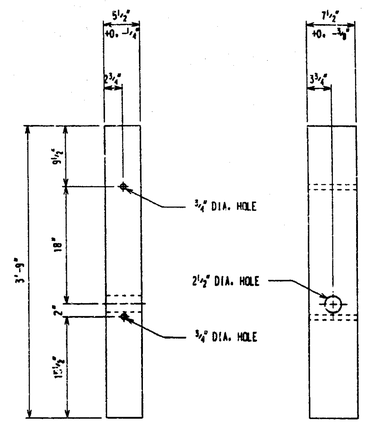
ASSEMBLY DETAIL

STRUT AND YOKE ASSEMBLY

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

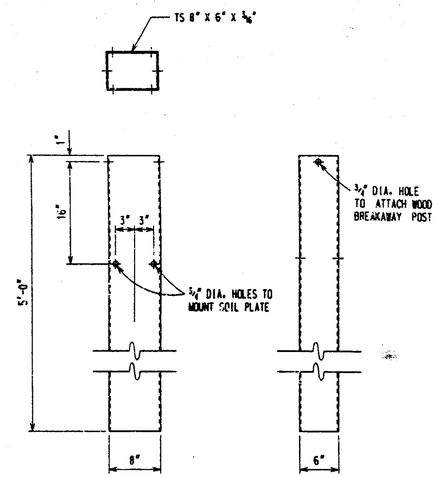
GUARDRAIL ENDING WITH CABLE ANCHORAGE (SRT)

F.H.W.A. APPROVAL	4-22-96 PLAN DATE	III-58N	SHEET 7 OF 10

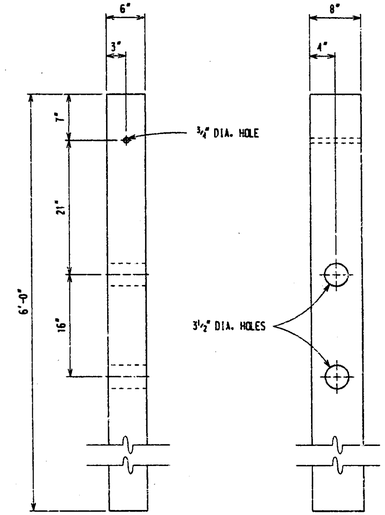


WOOD BREAKAWAY POST

(POSTS 1 AND 2)

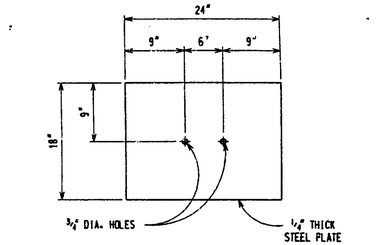


STEEL SLEEVE

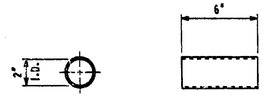


WOOD BREAKAWAY POST

(POSTS 3 THROUGH 10)

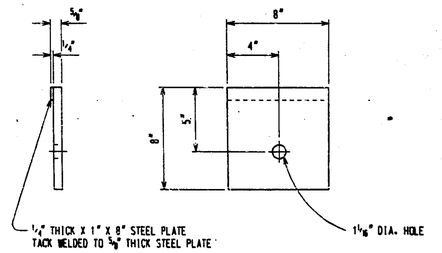


SOIL PLATE



POST SLEEVE

(FOR POST 1)



BEARING PLATE

FOR USE ON DEPARTING END ANCHORAGES ON ONE WAY ROADWAYS ONLY

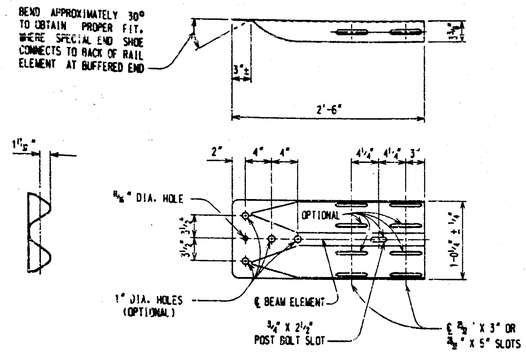
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL ENDING WITH CABLE ANCHORAGE (SRT)

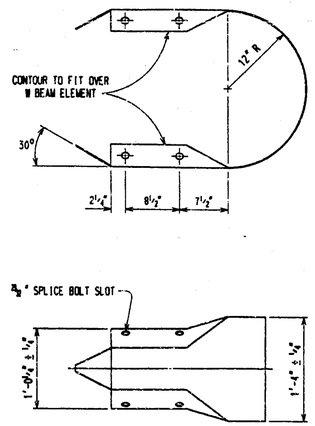
F.H.W.A. APPROVAL	4-22-96 PLAN DATE	III-58N	SHEET 8 OF 10
CONTROL SECTION 63174	JOB NO. 23749 A		SHEET NO. 49

CONTROL SECTION 63174 JOB NO. 23749A

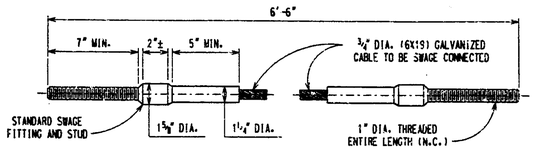
CONSTRUCTED AS PER PLANS APRIL 1996



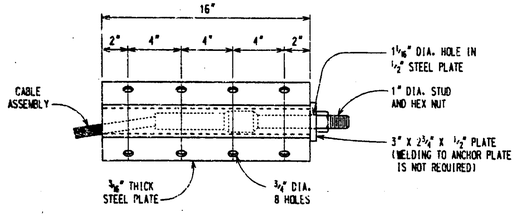
SPECIAL END SHOE
(FOR BUFFERED END)

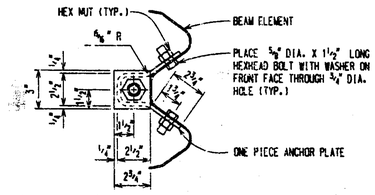


BUFFERED END
(FOR W BEAM ELEMENT)

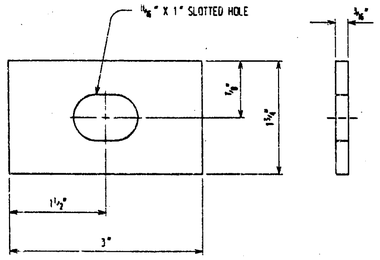


CABLE ASSEMBLY





ANCHOR PLATE DETAILS

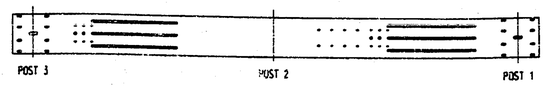


POST BOLT WASHER

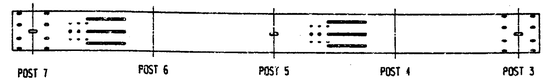
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL ENDING WITH CABLE ANCHORAGE (SRT)

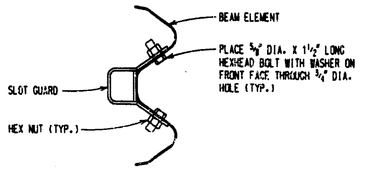
F.H.W.A. APPROVAL	4-22-96 PLAN DATE	III-58N	SHEET 9 OF 10



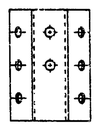
SLOTTED RAIL BEAM ELEMENT
(POST 1 THROUGH 3)

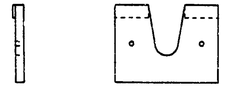


SLOTTED RAIL BEAM ELEMENT
(POST 3 THROUGH 7)

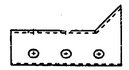


ASSEMBLY DETAIL





SLOTTED BEARING PLATE



SLOT GUARD DETAILS

PLATE WASHER

NOTE: ALL ITEMS ILLUSTRATED WITHOUT DIMENSIONS SHALL BE ACCORDING TO THE MANUFACTURERS SPECIFCATION.

NOTES:

ALL POSTS, OFFSET BLOCKS, BEAM AND BACK-UP ELEMENTS, AND HARDWARE (INCLUDING BOLTS, NUTS, AND WASHERS) SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATIONS AND TO THE CURRENT STANDARD PLAN III-60 SERIES, WHERE APPLICABLE, EXCEPT AS SPECIFIED ON THIS STANDARD.

STEEL SLEEVE WELDS SHALL BE MADE FULL LENGTH.

THE BUFFERED END AND SPECIAL END SHOE SHALL BE MADE OF A MINIMUM 0.109" THICK STEEL SHEET.

ALL 1 ON 10 SLOPES SHALL BE GRADED TO CLASS A SLOPE TOLERANCES.

FOR DETAILS OF GUARDRAIL PLACEMENT, SEE STANDARD PLAN III-59 SERIES.

AFTER THE CABLE ASSEMBLY HAS BEEN TIGHTENED, THE THREADS OUTSIDE THE NUTS SHALL BE BURRED SLIGHTLY SO THE NUTS WILL NOT LOOSEN.

ON THE GUARDRAIL ANCHORAGE, CABLE - DEPARTING END TWO HOT-DIP ZINC COATED NAILS SHALL BE DRIVEN INTO THE WOOD POST AT THE TOP OF THE BEARING PLATE TO KEEP THE BEARING PLATE FROM ROTATING.

ON THE GUARDRAIL ANCHORAGE CABLE (SRT) TWO HOT-DIP ZINC COATED NAILS SHALL BE DRIVEN THROUGH THE HOLES IN THE SLOTTED BEARING PLATE TO KEEP THE PLATE FROM ROTATING.

WHEN ADDITIONAL POST BOLT SLOTS ARE REQUIRED, THEY SHALL BE DRILLED OR PUNCHED AND REGALVANIZED. BURNING WILL NOT BE ALLOWED.

BACK-UP ELEMENTS SHALL NOT BE USED ON DEPARTING END ANCHORAGES.

BACK-UP ELEMENTS ARE REQUIRED ON POSTS 2, 4, 5, 6, 8, 9, AND 10 OF THE GUARDRAIL APPROACH ANCHORAGE. SEE STANDARD PLAN III-60 SERIES.

HARDWARE BETWEEN POST 1 AND POST 11 ARE PROPRIETARY ITEMS OF THE SRT AND MUST BE PURCHASED FROM AN AUTHORIZED DISTRIBUTER.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL ENDING WITH CABLE ANCHORAGE (SRT)

F.H.W.A. APPROVAL	4-22-96 PLAN DATE	III-58N	SHEET 10 OF 10

CONTROL SECTION 63174	JOB NO. 23749A	SHEET NO. 44

10/07/96 Engineering Print

MICROFILM CONTENT SHEET

BATCH 07-8G **OUT TO MICROFILM 8/31/2007**

Control Section	Structure	Job Number	Sheet Number	Let Date	Region	Total Sheets	Plan Set	Box
63174		28991	(ONE ROLL)	11/14/1990	METRO	23		3
			AS LET					
	63174-28991 BIT SURF AND SAFETY UP GRADING							

CONTROL SECTION IR 63174 | JOB NO. 28991A | SH. NO. 1

ROUTE	JOB NUMBER	FEDERAL NUMBER	SHEET NO.	TOTAL SHEETS
I-75	28991 A	IR 75-2(384)63	1	

MICHIGAN
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED

MICHIGAN PROJECT IR 75-2(384)63

CONTROL SECTION IR 63174

JOB NUMBER 28991 A

I-75

OAKLAND CO.

BLOOMFEILD TWP.

CITIES OF TROY & MADISON HEIGHTS

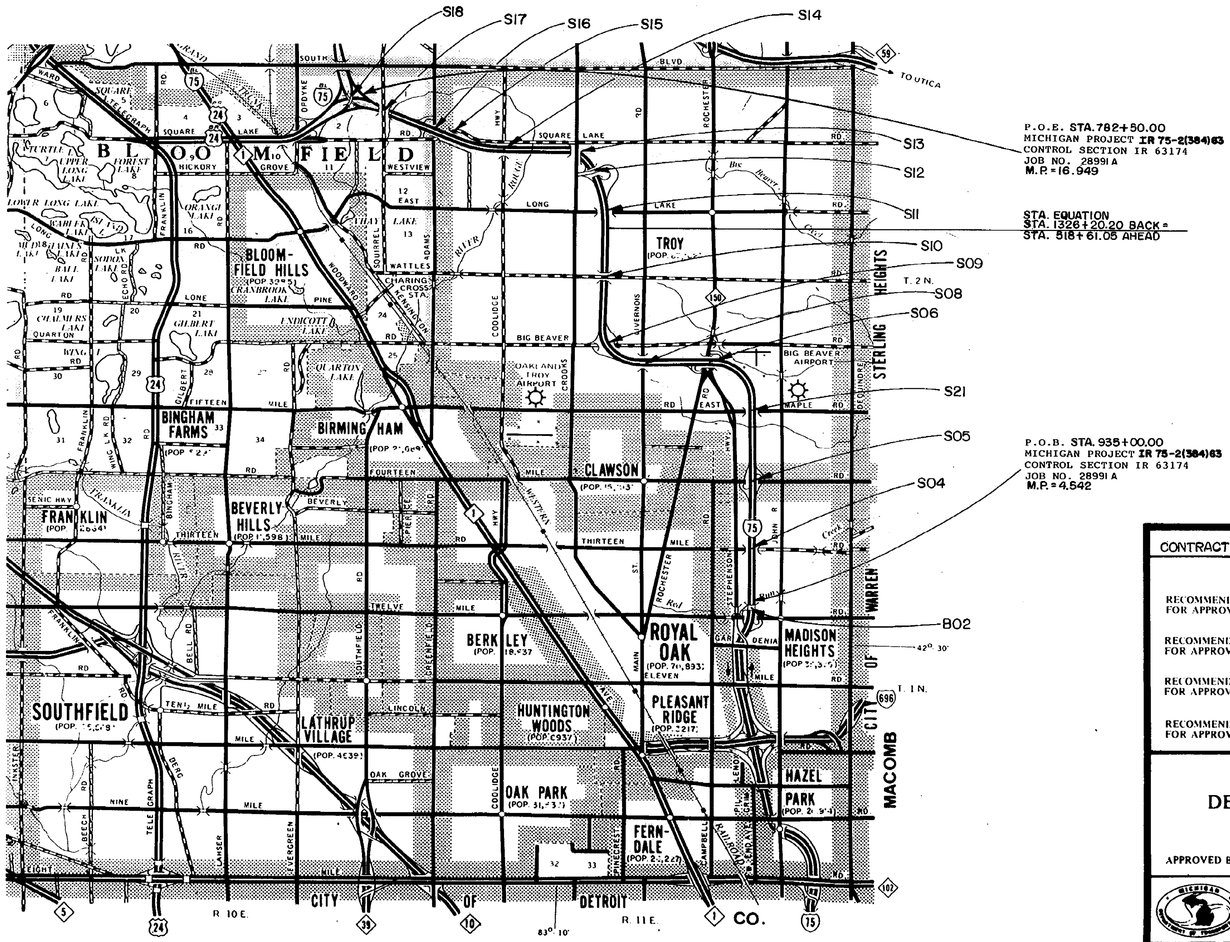
THE IMPROVEMENT COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 1984 STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS.

	YEAR 1990
A.D.T.	159700
D.H.V.	8827
COMM. %	9%
DESIGN SPEED	70 MPH

ROAD PLANS	SHEET NO'S.
TITLE	1
TYPICAL CROSS SECTION	2-3
NOTE SHEET	4
PLANS & PROFILES	5-17
SPECIAL DETAILS	18-22
QUANTITY SHEETS	23

BRIDGE PLANS

SIGNING PLANS



TITLE SHEET LEGEND

- PROPOSED PROJECT
- EXISTING ROADS
  - PAVED
  - BITUMINOUS
  - GRAVEL
  - UNIMPROVED OR CITY STREET
- SECTION LINE
- TOWNSHIP LINE
- COUNTY LINE
- CITY OR VILLAGE LIMITS
- RAILROADS

CONTRACT FOR: BIT. SURFACING & SAFETY UPGRADING

APPROVALS

RECOMMENDED FOR APPROVAL	J. H. Williams, ENGINEER ROAD DESIGN	9-13-90 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF DESIGN	9-14-90 DATE
RECOMMENDED FOR APPROVAL	for ENGINEER OF TRAFFIC & SAFETY	9/24/90 DATE
RECOMMENDED FOR APPROVAL	Robert E. Sommers, FOR ENGINEER OF CONSTRUCTION	10/11/90 DATE

MICHIGAN

DEPARTMENT OF TRANSPORTATION

JAMES P. PITZ - DIRECTOR

APPROVED BY _____ DEPUTY DIRECTOR - HIGHWAYS 10/12/90 DATE

PLANS PREPARED BY PALMER, DESIGN UNIT

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED _____ DIVISION ADMINISTRATOR DATE

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	FEDERAL NUMBERS ITEM	SHEET NO.
IR 63174	28991 A	IR75-2(384)63	NP1137	1

AS LET PLANS

IR 63174 -- 28991 A

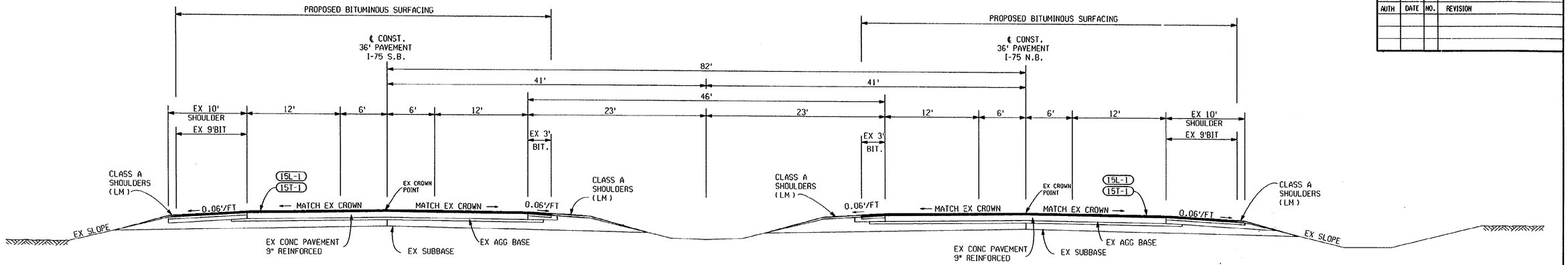
CONTROL SECTION — JOB NUMBER

DEC. -88

13-4

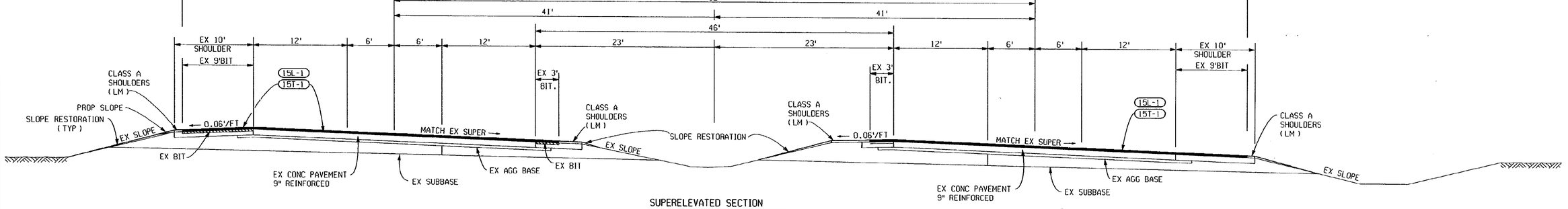
CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO. 2

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



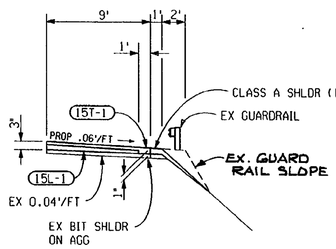
NORMAL SECTION

TO APPLY: 12 MILE RD. TO I-75 BL



SUPERELEVATED SECTION

TO APPLY: 12 MILE RD. TO I-75 BL



SHOULDER DETAIL

SHOWING BITUMINOUS SUFACING

BITUMINOUS APPLICATION ESTIMATE

	IDENT NO.	ITEM	RATE PER SYD	ESTIMATED THICKNESS	ASPHALT PENETRATION	REMARKS
	15T-1	BITUMINOUS MIXTURE "1500T,20AAA-RUBBER	160#	1 1/2"	85-100	I-75 ROADWAY & RAMPS
	15L-1	BITUMINOUS MIXTURE "1500L,20AAA-RUBBER	170#	1 1/2"	85-100	I-75 ROADWAY & SHLDRS
**	BA	BITUMINOUS MIXTURE "1500T,20AAA	330#	3"	85-100	TURNAROUNDS
***	15L-2	BITUMINOUS MIXTURE "1500L,20AAA-RUBBER	250#	2 1/2"	85-100	EX CONC PATCH REPAIR
		* BITUMINOUS BOND COAT	0-0.10 GAL			

*FOR INFORMATION ONLY
** TO BE PAID FOR AS BITUMINOUS APPROACHES
*** TO BE PAVED IN TWO LIFTS

MICHIGAN DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTION

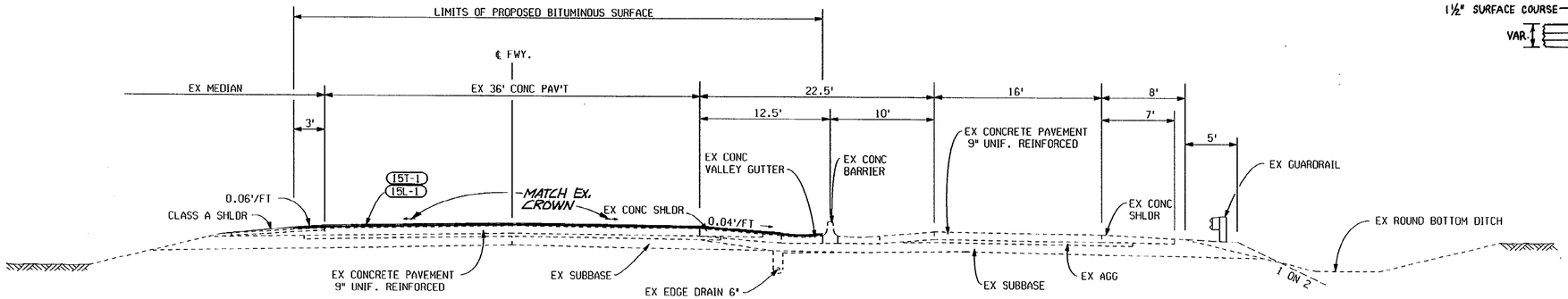
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
09/10/90	1"=6'	63174	28991A	PALMER		2

EXIS. /:
PROPOSED BY:
LAST CORRECTION BY:
FILE NAME: 28991.TY1
1 3 4

DATE:
DATE:
DATE: 09-10-90

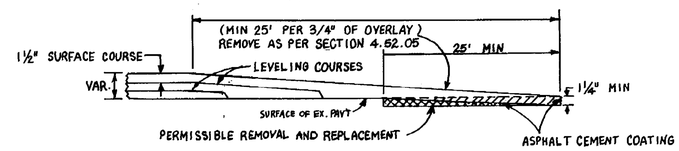
CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO. 3

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



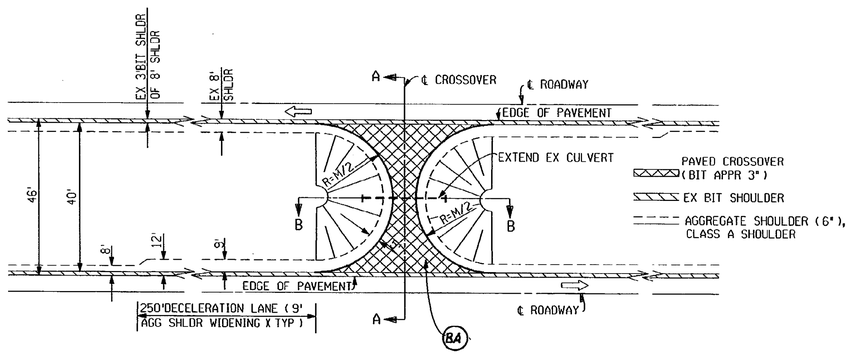
NORMAL SECTION

TO APPLY: NB FWY STA 1208+00 TO STA 1241+50
SB FWY STA 1211+00 TO STA 1248+00

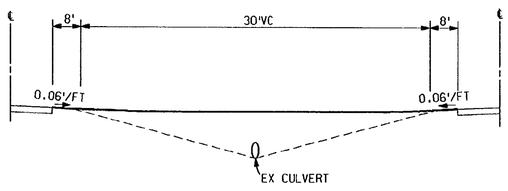


FEATHERING DETAIL-BUTT JOINT TYPE

TO APPLY: POB, ALL RAMPS,
S04, S05, S21, S06, S08, S09,
S11, S14, S15, S16, S18, & POE.

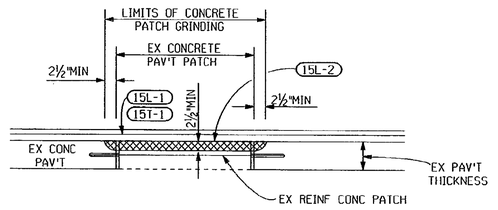


MAINTENANCE CROSS-OVER TYPICAL DESIGN

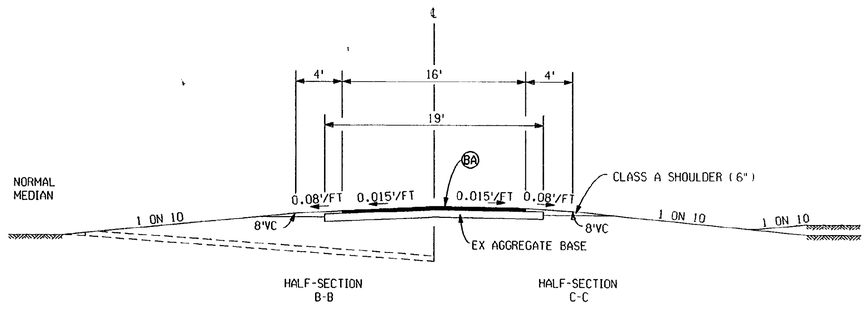


SECTION A-A

NOTE: ESTIMATED QUANTITIES FOR THIS WORK
FOR ALL CROSSOVERS ARE ON CONSTRUCTION SHEETS.



LONGITUDINAL DETAIL SHOWING TREATMENT
OF EX CONC PAV'T PATCH
NOT TO SCALE
TO APPLY: AS DIRECTED BY THE ENGINEER



TYPICAL CROSS-SECTION MAINTENANCE CROSS-OVER

DATE:
DATE: 09-10-90

EXIS.
PROPOSED BY:
LAST CORRECTION BY:
FILE NAME: 28991.TY1
1 3 4

MICHIGAN DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTION

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
09/10/90	1"=6'	63174	28991	PALMER		3

ENGINEERING REPORT NO	ENVIRON IMPACT STMT	
METHOD OF SURVEY		YEAR
SURVEY ORDER	SURVEY CHIEF	YEAR
AERIAL SURVEY NO		YEAR
HORIZ DATUM	VERT DATUM	
ROAD DESIGN INITIATED 5-5-88	COMPLETED 9-90	
PRELIMINARY PLANS BY D.VAUGHN	FINAL PLANS BY T.PALMER	
FIELD INSPECTION (GI) BY K.KRUGER	M. FISHER	DATE 12-7-88
PLANS-IN-HAND BY (FHWA) M. HOVEL	AND (MDOT) D. HILL	DATE 1-30-89

GENERAL PLAN NOTES

UNDERGROUND UTILITIES

FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF 48 HOURS PRIOR TO EXCAVATING IN THE VICINITY OF UTILITY LINES. ALL "MISS DIG" PARTICIPATING MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM.

ADJUSTING MONUMENT BOXES

IT IS THE INTENT THAT ALL GOVERNMENT CORNERS ON THIS PROJECT BE PRESERVED AND THAT, WHERE NECESSARY, MONUMENT BOXES BE PLACED OR ADJUSTED, WHETHER SHOWN OR NOT.

OLD PLANS

THE FOLLOWING OLD PLANS WERE REFERRED TO IN THE DESIGN OF THIS PROJECT.

63174- C2,3,4,5,8,14
JN'S 08386A, 19958A, 25414A
63103 - 030

IN ADDITION, OTHER OLD PLANS THAT PREDATE THIS PROJECT MAY BE AVAILABLE. THESE PLANS MAY BE REVIEWED IN THE LANSING DESIGN OFFICE DURING NORMAL WORKING HOURS.

SHOULDER CORES

THE **CORING** LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY INFERS THAT SUBSURFACE CONDITIONS ARE THE SAME OTHER THAN THE EXACT LOCATION OF THE **CORINGS**.

STATIONING

STATIONING ON THIS PROJECT WAS TAKEN FROM OLD PLANS AND PAVEMENT STENCILED STATIONING AND IS NOT NECESSARILY CORRECT.

SIGNS

ALL SIGNS REQUIRING RELOCATION DUE TO CONSTRUCTION OPERATIONS SHALL BE SALVAGED AND RESET BY THE CONTRACTOR AT LOCATIONS DESIGNATED BY THE ENGINEER. THIS WORK WILL BE CONSIDERED AS INCIDENTAL TO CONSTRUCTION OF THE PROJECT.

GUARDRAIL MATERIAL

ONLY GALVANIZED BEAM GUARDRAIL WILL BE USED ON THIS PROJECT.

BRIDGE UNDERCLEARANCES

UNDERCLEARANCES FOR EXISTING BRIDGES OVER I-75 SHALL NOT BE REDUCED BY NEW BITUMINOUS SURFACING BELOW 16'-0".

JOINT AND CRACK CLEANOUT

JOINT AND CRACK CLEANOUT IS ONLY FOR THE REMOVAL OF PRESSURE RELIEF JOINTS BEFORE OVERLAYING WITH BITUMINOUS, AS DIRECTED BY THE ENGINEER. THE SEALING OF THESE JOINTS WILL CONSIST OF A BITUMINOUS MIXTURE AS APPROVED BY THE ENGINEER. THIS WILL BE PAID FOR BY THE TON AS "HAND PATCHING."

COOLING OF BITUMINOUS MAT

IT WILL BE THE CONTRACTORS RESPONSIBILITY TO MAKE SURE THE BITUMINOUS MAT IS PROPERLY COOLED BEFORE OPENING TO TRAFFIC. THIS OPERATION IS INCLUDED IN THE COST OF THE BITUMINOUS.

SLOPE RESTORATION

ALL GRADED SLOPES SHALL BE MULCHED AND SEEDED AS DESCRIBED UNDER THE PAY ITEM "SLOPE RESTORATION".

STAGING SEQUENCE

CENTER LANE JOINT REPAIRS SHALL BE DONE HALF AT A TIME. TRAFFIC WILL NOT BE ALLOWED TO DRIVE ON THE SHOULDER. TAPER JOINTS MUST BE USED AND AT THE TIME OF PAVING THE CENTER LANE, TRAFFIC MUST BE SHIFTED TO A PREVIOUSLY PAVED LANE.

BITUMINOUS CONSTRUCTION JOINTS

BIT. CONST. JOINTS MUST BE AT LEAST 4-1/2' LONG FOR A 1-1/2" COURSE. THIS SHALL BE IN PLACE BEFORE TRAFFIC CAN BE SHIFTED. BITUMINOUS TAPER JOINTS ARE REQUIRED ON THIS PROJECT. SEE THE SPECIAL PROVISION FOR DETAILS.

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO IT'S ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

NAME OF OWNER	KIND OF UTILITY
CITY OF MADISON HEIGHTS 300 W. 13 MILE RD. MADISON HEIGHTS, MICHIGAN 48071 ATTN:MR. PETER CONNERS,PUBLIC WORKS	SEWER,WATER
CITY OF TROY 500 W. BIG BEAVER TROY, MICHIGAN 48084-5285 ATTN:ROBERT QUIGLEY, ENGINEER	SEWER,WATER
CONSUMERS POWER COMPANY 1955 PARNALL RD., ROOM JSC-202A JACKSON, MICHIGAN 49201 ATTN:W. ZIMMERMAN, LAND & ROW DEPT.	GAS
DETROIT EDISON COMPANY 2000 SECOND AVE. ROOM 660SB DETROIT, MICHIGAN 48226 ATTN: PAUL NORMANDIN	ELECTRIC
MICHIGAN BELL TELEPHONE COMPANY 444 MICHIGAN AVE. ROOM 635 DETROIT, MICHIGAN 48226 ATTN: KEITH REGAN	TELEPHONE
OAKLAND COUNTY DRAIN COMMISSION PUBLIC WORKS DRIVE PONTIAC, MICHIGAN 48054 ATTN: D. SNYDER, DEPUTY & CHIEF ENGINEER	SEWER
BUCKEYE PIPELINE COMPANY P.O. BOX 368 EMMAUS, PA. 18049-0368 ATTN: GEORGE FOX	OIL

NOTES APPLYING TO STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

CONCRETE PAVEMENT REPAIR	II-44G (SPECIAL DET)
GUARDRAIL BULLNOSE	III-56B (SPECIAL DET)
GUARDRAIL ENDINGS WITH CABLE ANCHORAGE	III-58K (SPECIAL DET)
GUARDRAIL AT BRIDGES AND EMBANKMENTS	III-59G
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	V-96C
SODDING AND SEEDING	V-100
SHOULDERS - FREEWAYS	V-112K
LIGHTED ARROWS AND BARRICADES	VI-125G

MISCELLANEOUS ESTIMATES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

	A	B	MDOT	TOTAL	UNIT
CLEANING EXISTING PAVEMENT	.15	.72	.13	1	LSUM
FLAG CONTROL	.15	.72	.13	1	LSUM
MINOR TRAFFIC DEVICES	.15	.72	.13	1	LSUM
LIGHTED ARROW, TYPE A - FURNISHED	2	4	2	8	EACH
LIGHTED ARROW, TYPE A - OPERATED	2	4	2	8	EACH
BARRICADE, TYPE II, LIGHTED - FURNISHED	217	1044	189	1450	EACH
BARRICADE, TYPE II, LIGHTED - OPERATED	126	605	109	840	EACH
SIGN, TYPE A , TEMPORARY	12	58	10	80	SFT
SIGN, TYPE B , TEMPORARY	450	2160	390	3000	SFT
TEMPORARY PAVEMENT MARKING, TYPE R 4" WHITE	12510	60048	10842	83400	LFT
TEMPORARY PAVEMENT MARKING, TYPE R 4" YELLOW	2358	11318	2044	15720	LFT
THERMOPLASTIC PAVEMENT MARKING, 4" WHITE			314500	314500	LFT
THERMOPLASTIC PAVEMENT MARKING, 4" YELLOW			157000	157000	LFT
THERMOPLASTIC PAVEMENT MARKING, 6" CROSS WALK LINE			6000	6000	LFT
THERMOPLASTIC PAVEMENT MARKING, 12" CROSS WALK LINE			20000	20000	LFT
TEMPORARY PAVEMENT MARKING, TYPE NR (TAPE 4"WHITE	11898	57110	10312	79320	LFT
TEMPORARY PAVEMENT MARKING, TYPE NR (TAPE 4"YELLOW	2358	11318	2044	15720	LFT
BARRICADE, TYPE III, LIGHTED-FURNISHED	5	21	4	30	EACH
BARRICADE, TYPE III, LIGHTED-OPERATED	4	17	3	24	EACH
STRAW MULCH BLANKET		6259	5146	11405	SYD
SLOPE RESTORATION		6259	5146	11405	SYD
CEREAL RYE SEEDING	146	698	126	970	LBS
BIT.MIX.NO.1500L,20AAA-RUBBER(PATCH GRINDING AREA)	2250	10800	1950	15000	TON
HAND PATCHING	82	396	72	550	TON
LONGITUDINAL JOINT REPAIR	1500	7200	1300	10000	LFT
CONCRETE PATCH GRINDING	9150	43920	7930	61000	SYD
JOINT AND CRACK CLEANOUT	375	1800	325	2500	LFT
ON-THE-JOB TRAINING	450	2160	390	3000	HOUR
REPAIRING PAV'T JOINTS AND CRACKS DETAIL 7	750	3600	650	5000	LFT
MOBILIZATION	.15	.72	.13	1	LSUM
REMOVAL OF SIGN,TYPE II	1	2	1	4	EACH
LIGHTING FOR NIGHT PAVING	.15	.72	.13	1	LSUM

EROSION AND SEDIMENTATION CONTROL QUANTITIES

HAY OR STRAW BALES	9	43	8	60	EACH
SEDIMENT TRAPS	1	4	1	6	EACH
SEDIMENT EXCAVATION-MAINTENANCE	2	9	1	12	CYD

A - CITY OF MADISON HEIGHTS

B - CITY OF TROY

MICHIGAN DEPARTMENT OF TRANSPORTATION

NOTE SHEET

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
9/ 4/90	63174	28991A	PALMER		4

CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO. 4

EXIS :
PROPOSED BY:
LAST CORRECTION BY: RHODABECK/1
FILE NAME: 28991.NT1
12

DATE:
DATE: 9-4-90

CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO.

DATE: 9-88
DATE:
DATE: 07-10-90

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

RED RUN DRAIN

I-75 CONST. ℄
CURVE DATA
Δ=29°02'20"LT
D=03°00'00"
R=1909.86'
T=494.61'
L=967.96'
E=63.01'
PC =915+39.22
PI =920+33.83
PT =925+07.18

CITY OF MADISON HEIGHTS

MICHIGAN PROJECT: IR 75-2(384)63
P.O.B STA. 935+00 NBD I-75
CONTROL SECTION IR63174
JOB NO. 28991A

LOCATION OF CROSSOVERS

STA 953+00	STA 1317+70
STA 997+00	STA 532+00
STA 1068+00	STA 597+00
STA 1114+80	STA 632+00
STA 1185+20	STA 678+50
STA 1269+20	STA 728+00

RAMP E
CURVE DATA
Δ=18°24'21"
D=5°00'
R=1145.92'
T=185.66'
L=368.12'
E=14.94'
PC =6+27.41 (STA 938+27.41 SB RDWY)
PI =8+13.07
PT =9+95.53
EX SUPER = 0.07'/FT

N

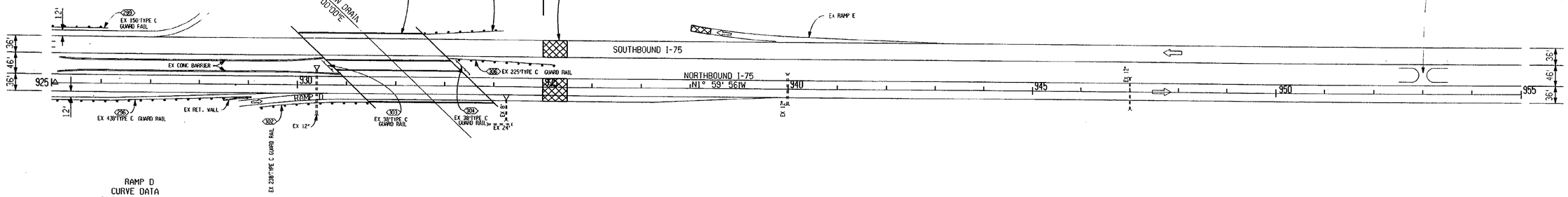
B02 OF 63174

RED RUN DRAIN N43°00'00"E

CHIPPING CONC FOR BUTT JOINT (TYPICAL)

EX. CROSSOVER GRADE AND SURFACE (FOR DETAILS SEE TYPICAL CROSS-SECTION)

18 TON BIT APPROACHES
36 CYD AGG BASE - BIT (LM)
125 CYD CLASS A SHOULDERS (LM)
270 CYD EMBANKMENT (LM)



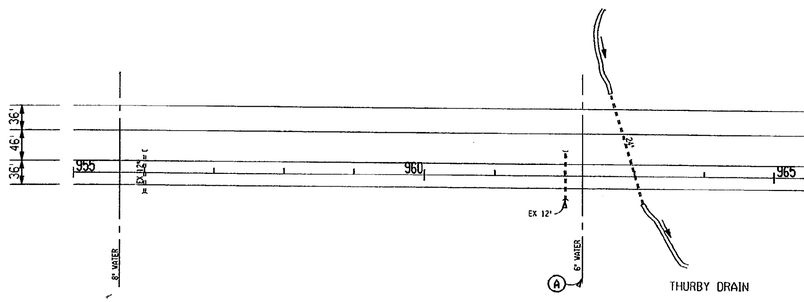
RAMP D
CURVE DATA
Δ=8°49'17"
D=7°00'
R=818.51'
T=63.13'
L=126.02'
E=2.43'
PC =6+43.81
PI =7+06.94
PT =7+69.83
(30'RT STA 930+00 N.B. RDWY)

CITY OF MADISON HEIGHTS

QUANTITIES

720 CYD	CLASS A SHOULDERS (LM)
1307 SYD	CHIPPING CONC PAVT FOR JOINTS
4487 TON	BIT MIXTURE NO.1500L, 20AAA-RUBBER
4223 TON	BIT MIXTURE NO.1500T, 20AAA-RUBBER

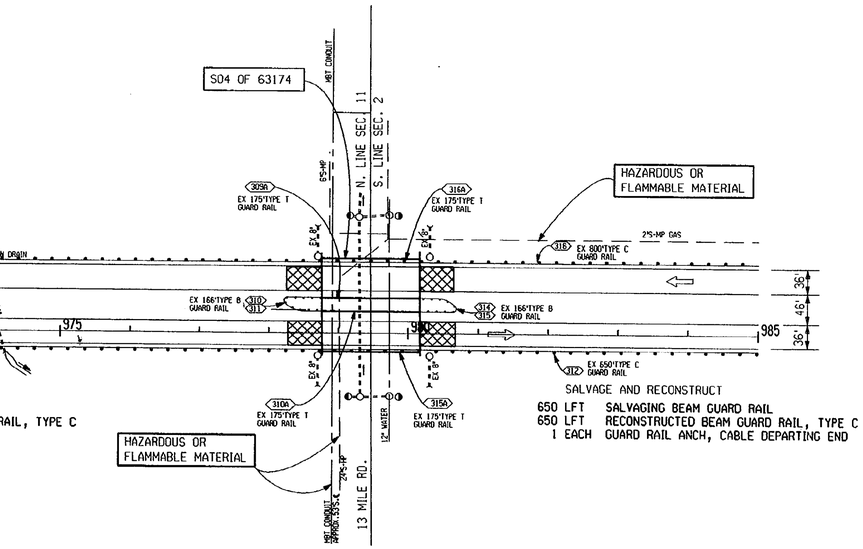
THURBY DRAIN



LAWSON DRAIN

CITY OF MADISON HEIGHTS

13 MILE RD.



SALVAGE AND RECONSTRUCT

1100 LFT SALVAGING BEAM GUARD RAIL
1100 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE C
1 EACH GUARD RAIL ANCH, CABLE

SALVAGE AND RECONSTRUCT

650 LFT SALVAGING BEAM GUARD RAIL
650 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE C
1 EACH GUARD RAIL ANCH, CABLE DEPARTING END

LEGEND

CHIPPING CONC PAVT FOR JOINTS
(A) ABANDON

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 925+00 TO STA 985+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
07/10/90	1"=100'	63174	28991 A	PALMER		5

FILE NAME: 28991025.DN1

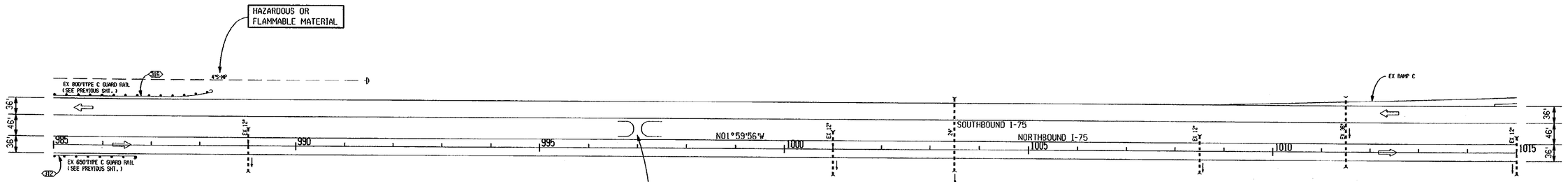
CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO.

DATE:
DATE:
DATE: 07-10-90

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

CITY OF MADISON HEIGHTS



RAMP E
CURVE DATA
Δ=88°19'46"
D=24°54'40"
R=230.00'
T=223.39'
L=354.38'
E=90.63'
PC =0+00.00
PI =2+23.39
PT =3+54.58
(30'LT - STA 1028+48.89 ℄ S.BD RDWY)
EX SUPER = 0.07'/FT

EX. CROSSOVER
GRADE AND SURFACE
CROSS-OVER

CITY OF MADISON HEIGHTS

18 TON	BIT APPROACHES
36 CYD	AGG BASE - BIT (LM)
125 CYD	CLASS A SHOULDERS (LM)
270 CYD	EMBANKMENT (LM)

CITY OF TROY	CITY OF MADISON HEIGHTS	QUANTITIES - THIS SHEET
1376 TON	4380 TON	BIT. MIXTURE NO.1500L, 20AAA-RUBBER
1295 TON	4122 TON	BIT MIXTURE NO.1500T, 20AAA-RUBBER
654 SYD	654 SYD	CHIPPING CONC PAVT FOR JOINTS
192 CYD	674 CYD	CLASS A SHOULDERS (LM)

14 MILE RD.

CITY OF MADISON HEIGHTS

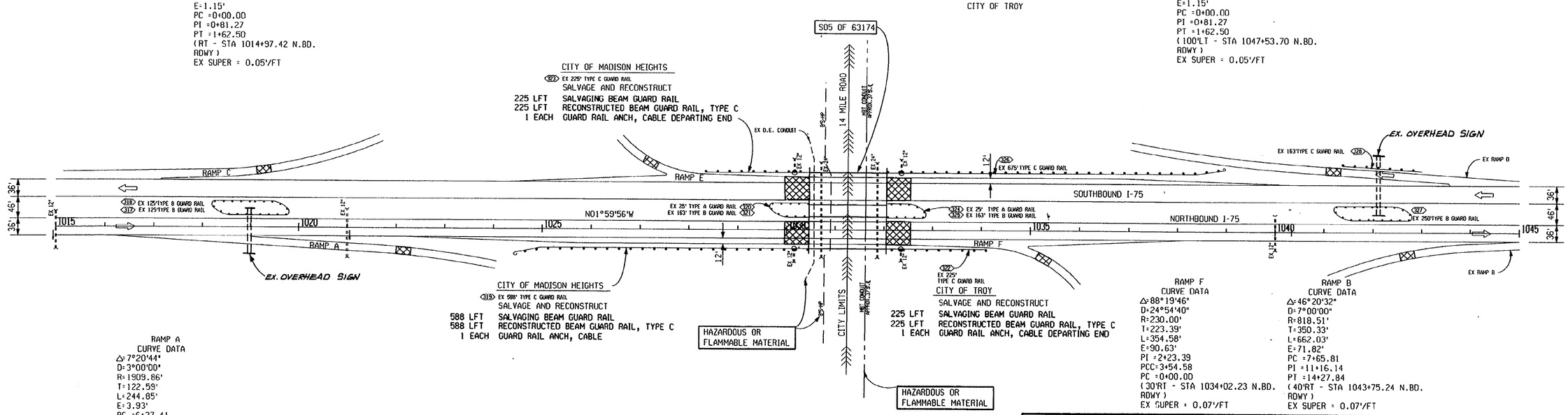
CITY OF TROY

RAMP C
CURVE DATA
Δ=3°15'00"
D=2°00'00"
R=2864.79'
T=81.27'
L=162.50'
E=1.15'
PC =0+00.00
PI =0+81.27
PT =1+62.50
(RT - STA 1014+97.42 N.BD. RDWY)
EX SUPER = 0.05'/FT

RAMP D
CURVE DATA
Δ=3°15'00"
D=2°00'00"
R=2864.79'
T=81.27'
L=162.50'
E=1.15'
PC =0+00.00
PI =0+81.27
PT =1+62.50
(100'LT - STA 1047+53.70 N.BD. RDWY)
EX SUPER = 0.05'/FT

S05 OF 63174

CITY OF MADISON HEIGHTS
EX 225' TYPE C GUARD RAIL
SALVAGE AND RECONSTRUCT
225 LFT SALVAGING BEAM GUARD RAIL
225 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE C
1 EACH GUARD RAIL ANCH, CABLE DEPARTING END



CITY OF MADISON HEIGHTS
EX 588' TYPE C GUARD RAIL
SALVAGE AND RECONSTRUCT
588 LFT SALVAGING BEAM GUARD RAIL
588 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE C
1 EACH GUARD RAIL ANCH, CABLE

HAZARDOUS OR FLAMMABLE MATERIAL

CITY LIMITS

HAZARDOUS OR FLAMMABLE MATERIAL

CITY OF TROY
SALVAGE AND RECONSTRUCT
225 LFT SALVAGING BEAM GUARD RAIL
225 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE C
1 EACH GUARD RAIL ANCH, CABLE DEPARTING END

RAMP A
CURVE DATA
Δ=7°20'44"
D=3°00'00"
R=1909.86'
T=122.59'
L=244.85'
E=3.93'
PC =6+27.41
PI =7+50.00
PT =8+72.26
EX SUPER = 0.06'/FT

RAMP F
CURVE DATA
Δ=88°19'46"
D=24°54'40"
R=230.00'
T=223.39'
L=354.58'
E=90.63'
PI =2+23.39
PCC=3+54.58
PC =0+00.00
(30'RT - STA 1034+02.23 N.BD. RDWY)
EX SUPER = 0.07'/FT

RAMP B
CURVE DATA
Δ=46°20'32"
D=7°00'00"
R=818.51'
T=350.33'
L=662.03'
E=71.82'
PC =7+65.81
PI =11+16.14
PT =14+27.84
(40'RT - STA 1043+75.24 N.BD. RDWY)
EX SUPER = 0.07'/FT

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 985+00 TO STA 1045+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
07/16/90	1"=100'	63174	28991 A	PALMER		6

FILE NAME: 289910985.DN1

CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO.

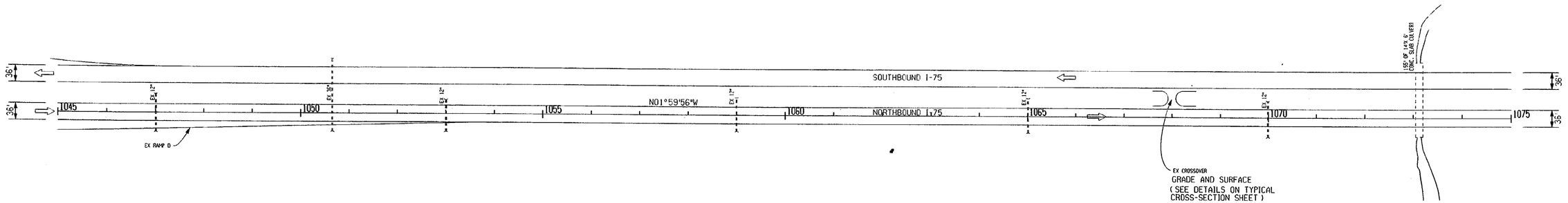
DATE:
DATE:
DATE: 07-10-90

STA 1042+50
EXISTING BY: HAGERMAN
PROPOSED BY:
LAST CORRECTION BY:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SPENCER DRAIN

CITY OF TROY



18 TON BIT APPROACHES
36 CYD AGG BASE - BIT (LM)
125 CYD CLASS A SHOULDERS (LM)
270 CYD EMBANKMENT (LM)

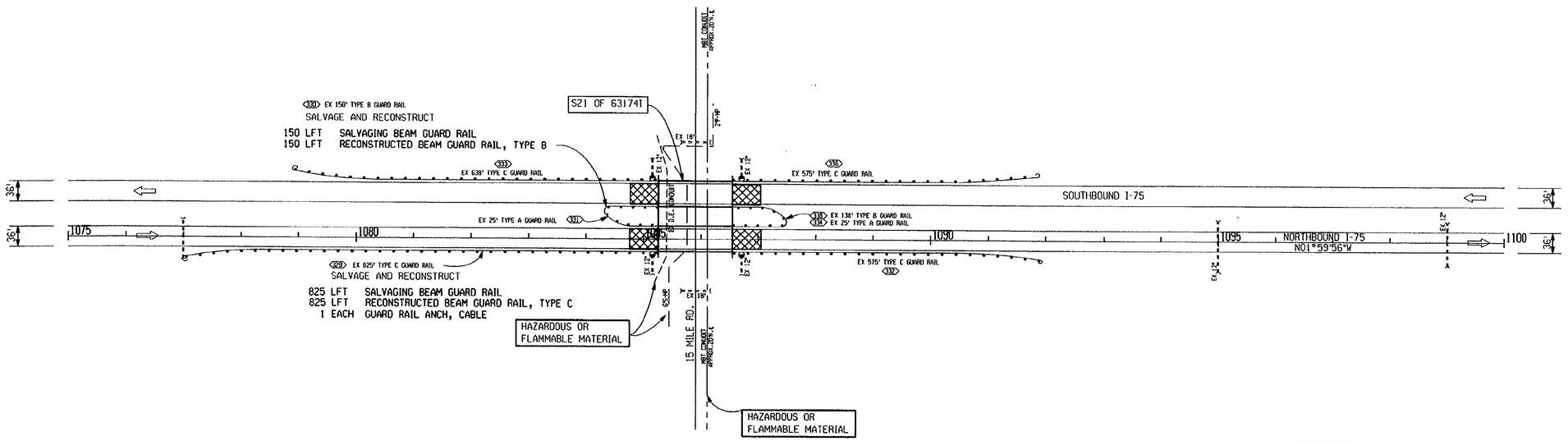
CITY OF TROY

QUANTITIES

4915 TON BIT MIXTURE NO.1500L, 20AAA-RUBBER
4626 TON BIT MIXTURE NO.1500T, 20AAA-RUBBER
797 CYD CLASS A SHOULDERS (LM)
800 SYD CHIPPING CONC PAVT FOR JOINTS

15 MILE RD.

CITY OF TROY



MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 1045+00 TO STA 1100+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
07/16/90	1"=100'	63174	28991 A	PALMER		7

FILE NAME: 288911045.DN1

CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO.

DATE:
DATE:
DATE: 07-10-90

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

I-75 CONST.℄
CURVE DATA
Δ=90°00'26" LT
D=02°15'00"
R=2546.48'
T=2546.80'
L=4000.32'
E=1055.01'
PC =1100+16.38
PI =1125+63.18
PT =1140+16.70
EX SUPER = 0.05'/FT

CITY OF TROY

CITY OF TROY

QUANTITIES - THIS SHEET

40 SYD	CHIPPING CONC PAVT FOR JOINTS
3701 TON	BIT MIXTURE NO.1500L, 20AAA— RUBBER
3483 TON	BIT MIXTURE NO.1500T, 20AAA — RUBBER
593 CYD	CLASS A SHOULDERS (LM)

HAWTHORN DRAIN

EX CROSSOVER
GRADE AND SURFACE
(FOR DETAILS SEE
TYPICAL CROSS-SECTION SHEET.)

18 TON	BIT APPROACHES
36 CYD	AGG BASE - BIT (LM)
125 CYD	CLASS A SHOULDERS (LM)
270 CYD	EMBANKMENT (LM)

RAMP B
CURVE DATA
Δ=11°27'27"
D=3°00'00"
R=1909.86'
T=191.60'
L=381.92'
E=9.59'
PC =1+46.46
PI =3+38.06
PT =5+28.38
(34'RT - STA 1132+24.47 N.BD. RDWY)
EX SUPER = 0.06'/FT

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 1100+00 TO STA 1140+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
07/16/90	1"=100'	63174	28991 A	PALMER		8

FILE NAME: 28991I100.DNI

CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO.

DATE: DATE: DATE: 07-10-90

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

STATION EQUATION
PI STA 1140+16.72 BACK=
PI STA 1140+15.78 AHEAD

ROCHESTER RD.

STEPHENSON HWY. & ROCHESTER RD.

CITY OF TROY

RAMP C
CURVE DATA
Δ=2°58'00"
D=1°45'00"
R=3274.04'
T=84.78'
L=169.52'
E=1.10'
PC =12+69.11
PI =13+53.89
PT =14+38.63
(112'LT - STA 1152+50 N.BD.
RDWY)
EX SUPER = 0.03'/FT

RAMP D
CURVE DATA
Δ=3°15'00"
D=2°00'00"
R=2864.79'
T=81.27'
L=162.50'
E=1.15'
PC =0+00
(100'LT - STA 1171+77.82 N.BD.
RDWY)
EX SUPER = 0.05'/FT

CITY OF TROY

(340) EX 192' TYPE B GUARD RAIL
SALVAGE AND RECONSTRUCT
192 LFT SALVAGING BEAM GUARD RAIL
192 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE B

(346) EX 388' TYPE C GUARD RAIL
SALVAGE AND RECONSTRUCT
388 LFT SALVAGING BEAM GUARD RAIL
388 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE C
1 EACH GUARD RAIL ANCH, CABLE

HAZARDOUS OR FLAMMABLE MATERIAL

(342) EX 1138' TYPE C GUARD RAIL
SECTION LINE
EX 12"
85'-8"
45°-0"
8" WATER
RAMP C
SOUTHBOUND I-75
EX 25' TYPE A GUARD RAIL (341)
(344) EX 25' TYPE A GUARD RAIL
1140 1145 1150 1155 1160 1165 1170
S88°00'04"W
N87°59'38"W
RAMP A
EX 36"
EX 12"
EX RAMP D
RAMP D
CONC CULV
EX 825' TYPE C GUARD RAIL (343)
NORTHBOUND I-75
36' 46' 36'

(338) EX 463' TYPE C GUARD RAIL
SALVAGE AND RECONSTRUCT
463 LFT SALVAGING BEAM GUARD RAIL
463 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE C
1 EACH GUARD RAIL ANCH, CABLE

SO6 OF 63174

(345) EX 188' TYPE B GUARD RAIL
SALVAGE AND RECONSTRUCT
188 LFT SALVAGING BEAM GUARD RAIL
188 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE B

RAMP A
CURVE DATA
Δ=2°58'00"
D=1°45'00"
R=3274.04'
T=84.78'
L=169.52'
E=1.10'
PCC=10+41.44
PI =11+26.22
PT =12+10.96
(30'RT - STA 1140+00 N.BD.
RDWY)
EX SUPER = 0.05'/FT

ROCHESTER RD.

CITY OF TROY — QUANTITIES - THIS SHEET

5426 TON	BIT MIXTURE NO.1500L, 20AAA - RUBBER
5107 TON	BIT MIXTURE NO.1500T, 20AAA - RUBBER
1987 SYD	CHIPPING CONC PAVT FOR JOINTS
889 CYD	CLASS A SHOULDERS (LM)

CITY OF TROY

EX. CROSSOVER
GRADE AND SURFACE EX CROSSOVER (FOR DETAILS SEE TYPICAL CROSS-SECTIONS SHEET)
18 TON BIT APPROACHES
36 CYD AGG BASE - BIT (LM)
125 CYD CLASS A SHOULDERS (LM)
270 CYD EMBANKMENT (LM)

RAMP D
SOUTHBOUND I-75
EX 12"
EX 42"
(350) EX 1163' TYPE C GUARD RAIL
1170 1175 1180 NORTHBOUND I-75 1185 1190 1195 1200
S88°00'04"W
CONC CULV
EX 1300' TYPE C GUARD RAIL (347)
EX 25' TYPE A GUARD RAIL (349)
EX 148' TYPE B GUARD RAIL (348)
(352) EX 25' TYPE A GUARD RAIL
(353) EX 140' TYPE B GUARD RAIL
(351) EX 183' TYPE C GUARD RAIL
(354) EX 387' TYPE C GUARD RAIL
EX 24"
EX 12"
36' 46' 36'

SO8 OF 63174
8" GAS
SECTION LINE
HAZARDOUS OR FLAMMABLE MATERIAL
#81 BURIED CABLE
LIVERNOIS RD.

CITY OF TROY

LIVERNOIS RD.

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 1140+00 TO STA 1200+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
07/16/90	1"=100'	63174	28991 A	PALMER		9

FILE NAME: 28991I140.DNI

MASTIN CO. DRAIN

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

DATE:
DATH:
DATE: 10-25-89

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

CONTROL SECTION 63174 JOB NO. 28991A

SH.
NO.

I-75 CONST. ℄
CURVE DATA
Δ=30°00'28"RT
D=03°00'00"
R=1909.86'
T=1910.12'
L=3000.36'
E=791.27'
PC =1207+12.72
PI =1226+22.84
PT =1237+12.96
EX SUPER = 0.06 FT/FT
EX SUPER = 0.07 FT/FT

CITY OF TROY

RAMP A
CURVE DATA
Δ=23°29'51"
D=5°00'00"
R=1145.92'
T=238.33'
L=469.85'
E=24.52'
PC =10+37.79
PI =13+36.11
PT =15+37.74
(20'LT - STA 1231+21 N.BD. RDWY)

S 88°51'15" W

EX 187' TYPE C GUARD RAIL

FEATHER BIT. SURFACE TO EDGE OF ATTENUATOR PAD

EX IMPACT ATTENUATOR 7-BAY, MODEL #SKOWSTM

SB C-D ROWY

NB C-D ROWY

I-75 CONST. ℄ NORTHBOUND

I-75 CONST. ℄ SOUTHBOUND

E CONCRETE BARRIER GUARDRAIL TYPE A (SPECIAL)

355 EX 150'TYPE B GUARD RAIL

SALVAGE AND RECONSTRUCT
150 LFT SALVAGING BEAM GUARD RAIL
150 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE B
1 EACH GUARD RAIL ANCH, CABLE

RAMP C
CURVE DATA
Δ=14°33'40"
D=3°00'00"
R=1909.86'
T=244.00'
L=485.37'
E=15.52'
PC =1+63.79
PI =4+07.79
PT =6+49.16

CITY OF TROY — QUANTITIES - THIS SHEET

3506	TON	BIT MIXTURE NO.1500L, 20AAA — RUBBER
3299	TON	BIT MIXTURE NO.1500T, 20AAA — RUBBER
361	CYD	CLASS A SHOULDERS (LM)
18	EACH	ADJ DR. STRUCTURE COVERS
887	SYD	CHIPPING CONC PAVT FOR JOINTS

RAMP D
CURVE DATA
Δ=41°52'52"
D=7°00'00"
R=818.51'
T=313.22'
L=598.30'
E=57.88'
PC =8+97.08
PI =12+10.30
PT =14+35.30
(40'RT - STA 1243+00 / N.BD. RDWY)

CITY OF TROY

RAMP A
RAMP B
RAMP C
RAMP D
RAMP E
RAMP F
RAMP G
RAMP H

16 MILE ROAD

BIG BEAVER RD

8"WATER
16"WATER

HOT CONDUIT APPROX. 22'N.℄

HAZARDOUS OR FLAMMABLE MATERIAL

EX CONCRETE BARRIER

EX 213'TYPE B GUARD RAIL

EX 250'TYPE B GUARD RAIL

EX 150'TYPE B GUARD RAIL

S09 OF 63174

ADJ

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 1200+00 TO STA 1235+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
07/16/90	1"=100'	63174	28991 A	PALMER		10

FILE NAME: 289911200.DN1

CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO.

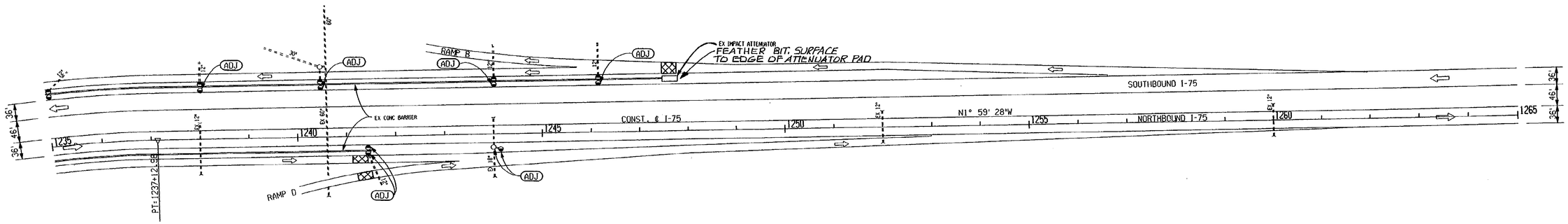
DATE: DATE: DATE: 07-10-90

EXISTING BY: PROPOSED BY: LAST CORRECTION BY:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

I-75 CONST.℄
CURVE DATA
Δ=90°00'28"RT
D=03°00'00"
R=1909.86'
T=1910.12'
L=3000.26'
E=791.27'
PC =1207+12.72
PI =1226+22.84
PT =1237+12.98
EX SUPER = 0.06'/FT

CITY OF TROY



CITY OF TROY — QUANTITIES - THIS SHEET

6449	TON	BIT MIXTURE NO.1500L, 20AAA— RUBBER
6070	TON	BIT MIXTURE NO.1500T, 20AAA— RUBBER
187	SYD	CHIPPING CONC PAVT FOR JOINTS
835	CYD	CLASS A SHOULDERS (LM)
8	EACH	ADJ DR. STRUCTURE COVERS

17 MILE RD.

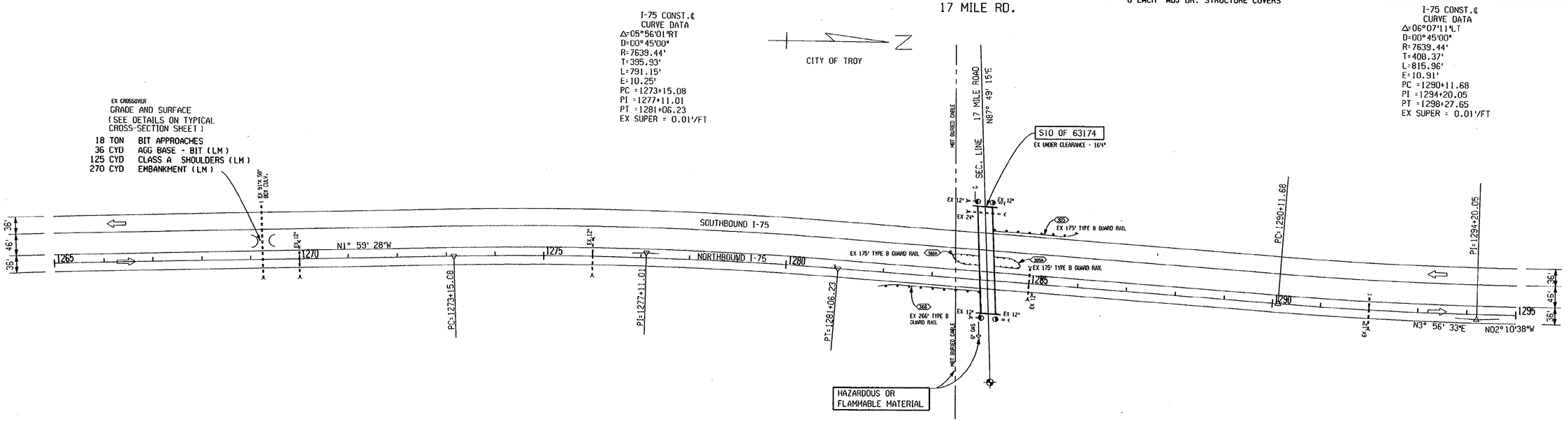
I-75 CONST.℄
CURVE DATA
Δ=05°56'01"RT
D=00°45'00"
R=7639.44'
T=395.93'
L=791.15'
E=10.25'
PC =1273+15.08
PI =1277+11.01
PT =1281+06.23
EX SUPER = 0.01'/FT

CITY OF TROY

I-75 CONST.℄
CURVE DATA
Δ=06°07'11"LT
D=00°45'00"
R=7639.44'
T=408.37'
L=815.96'
E=10.91'
PC =1290+11.68
PI =1294+20.05
PT =1298+27.65
EX SUPER = 0.01'/FT

EX CROSSOVER
GRADE AND SURFACE
(SEE DETAILS ON TYPICAL CROSS-SECTION SHEET)

18	TON	BIT APPROACHES
36	CYD	AGG BASE - BIT (LM)
125	CYD	CLASS A SHOULDERS (LM)
270	CYD	EMBANKMENT (LM)



MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 1235+00 TO STA 1295+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
07/16/90	1"=100'	63174	28991 A	PALMER		//

FILE NAME: 28991235.DNI

CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO.

DATE: DATE: DATE: 07-10-90

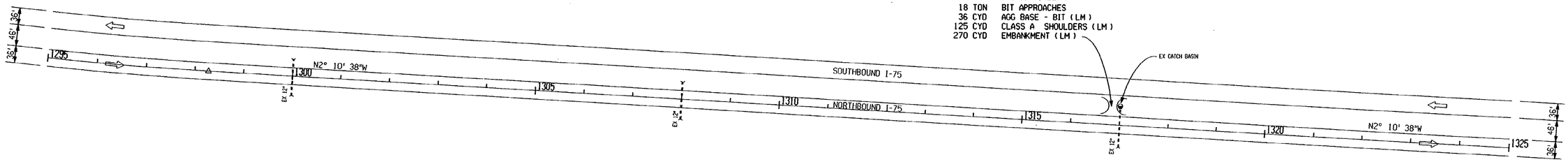
EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

I-75 CONST.℄
CURVE DATA
Δ=06°07'11"LT
D=00°45'00"
R=7639.44'
T=408.37'
L=815.96'
E=10.91'
PC =1290+11.68
PI =1294+20.05
PT =1298+27.65

CITY OF TROY

N



CITY OF TROY — QUANTITIES - THIS SHEET

5724 TON	BIT MIXTURE NO.1500L, 20AAA – RUBBER
5387 TON	BIT MIXTURE NO.1500T, 20AAA – RUBBER
854 SYD	CHIPPING CONC PAVT FOR JOINTS
908 CYD	CLASS A SHOULDERS (LM)

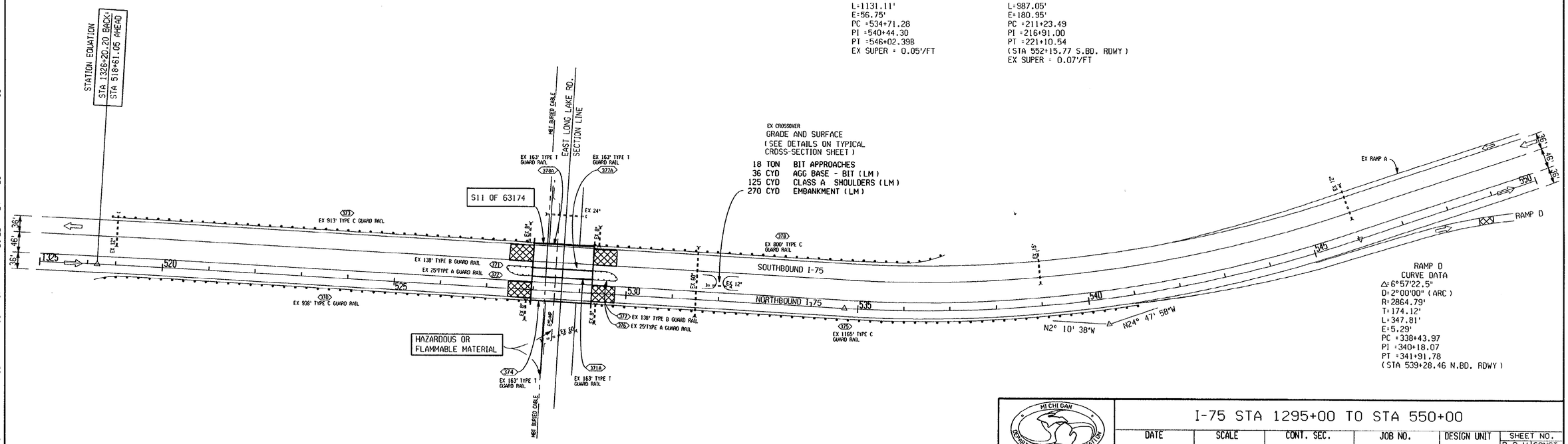
EAST LONG LAKE RD.

CITY OF TROY

I-75 CONST.℄
CURVE DATA
Δ=22°37'20"LT
D=02°00'00"
R=2864.79'
T=573.02'
L=1131.11'
E=56.75'
PC =534+71.28
PI =540+44.30
PT =546+02.39B
EX SUPER = 0.05'/FT

RAMP A
CURVE DATA
Δ=70°44'17"
D=7°10'00"
R=799.48'
T=567.51'
L=987.05'
E=180.95'
PC =211+23.49
PI =216+91.00
PT =221+10.54
(STA 552+15.77 S.BD. RDWY)
EX SUPER = 0.07'/FT

N



RAMP D
CURVE DATA
Δ=6°57'22.5"
D=2°00'00" (ARC)
R=2864.79'
T=174.12'
L=347.81'
E=5.29'
PC =338+43.97
PI =340+18.07
PT =341+91.78
(STA 539+28.46 N.BD. RDWY)

FILE NAME: 28991I295.DN1

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 1295+00 TO STA 550+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
07/16/90	1"=100'	63174	28991 A	PALMER		12

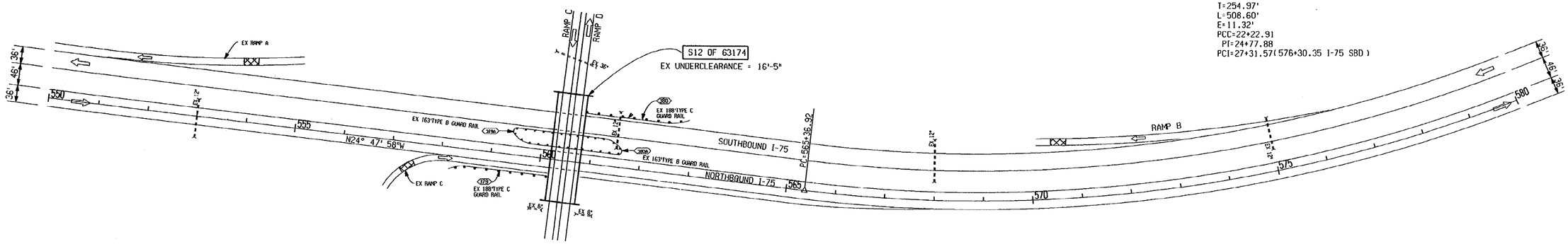
DATE:
DATE:
DATE: 07-11-90

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

CONTROL SECTION: 63174 | JOB NO. 28991A | SH. NO.

CROOKS RD CONNECTOR

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



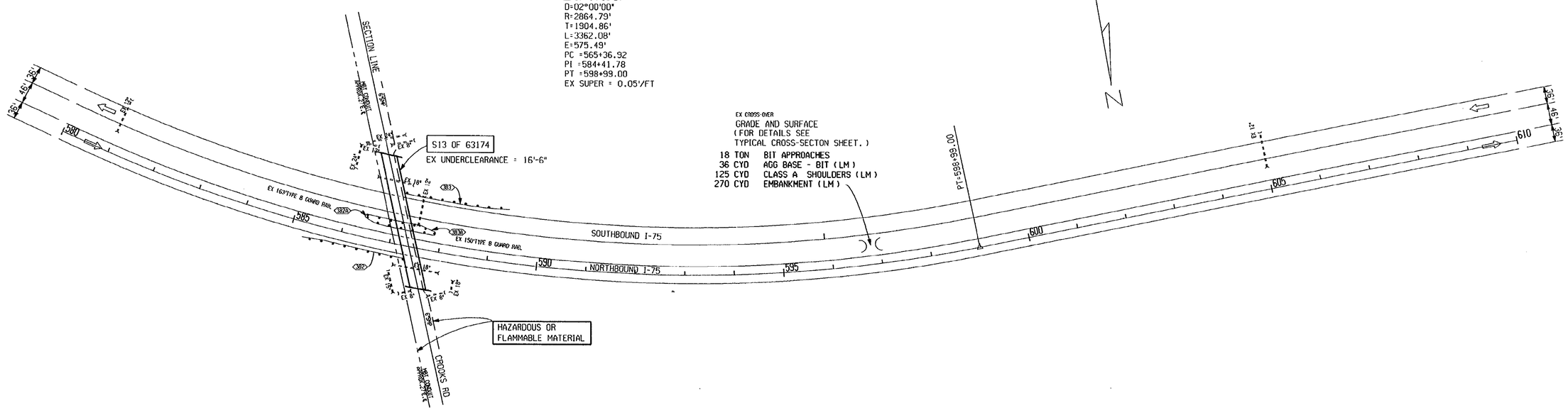
EX RAMP C
CURVE DATA
Δ=2°58'00"
D=1°45'00"(ARC)
R=3274.04'
T=84.78'
L=169.52'
E=1.10'
PC=131+09.12
PI=131+93.90
PT=132+78.64 (STA 559+58.78 NBD RDWY)

RAMP B
CURVE DATA
Δ=10°10'19"
D=2°00'(ARC)
R=2864.79'
T=254.97'
L=508.60'
E=11.32'
PCC=22+22.91
PI=24+77.88
PCI=27+31.57(576+30.35 I-75 SBD)

CITY OF TROY — QUANTITIES - THIS SHEET

5649 TON	BIT MIXTURE NO.1500L, 20AAA— RUBBER
5317 TON	BIT MIXTURE NO.1500T, 20AAA— RUBBER
160 SYD	CHIPPING CONC PAVT FOR JOINTS
889 CYD	CLASS A SHOULDERS (LM)

CROOKS RD.



I-75 CONST.℄
CURVE DATA
Δ=67°14'30"LT
D=02°00'00"
R=2864.79'
T=1904.86'
L=3362.08'
E=575.49'
PC =565+36.92
PI =584+41.78
PT =598+99.00
EX SUPER = 0.05'/FT

EX CROSS-OVER
GRADE AND SURFACE
(FOR DETAILS SEE
TYPICAL CROSS-SECTON SHEET.)

18 TON	BIT APPROACHES
36 CYD	AGG BASE - BIT (LM)
125 CYD	CLASS A SHOULDERS (LM)
270 CYD	EMBANKMENT (LM)

PT=598+99.00

FILE NAME: 28991500.DN1

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 550+00 TO STA 610+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
07/16/90	1"=100'	63174	28991 A	PALMER		13

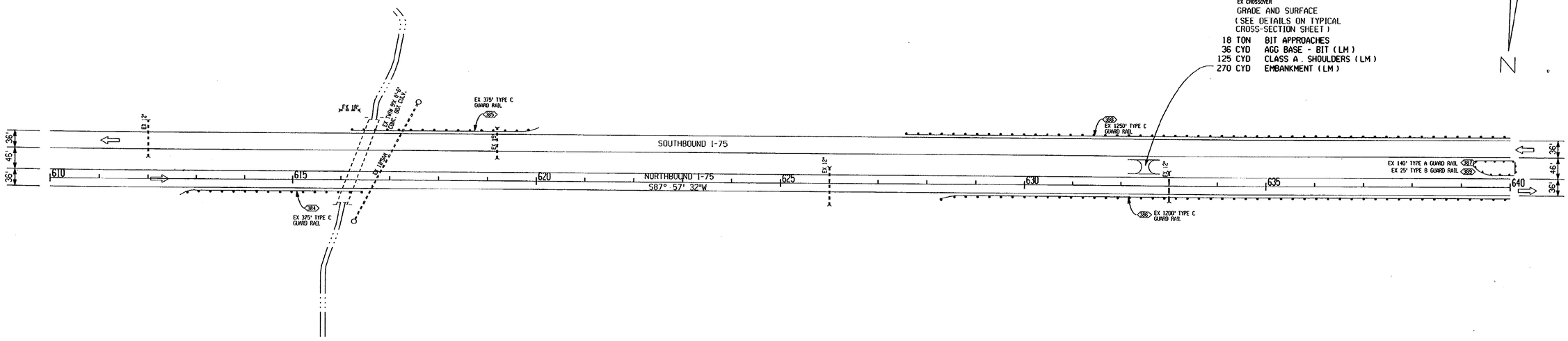
CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO.

EXISTING BY: DATE:
PROPOSED BY: DATE:
LAST CORRECTION BY: DATE: 07-11-90

SPRAGUE DRAIN

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

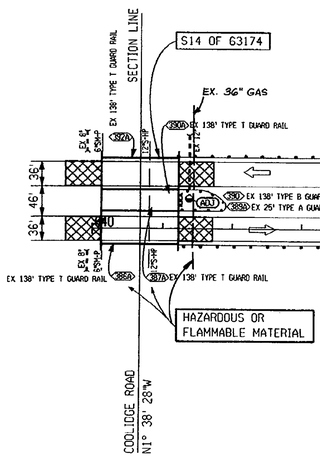
CITY OF TROY

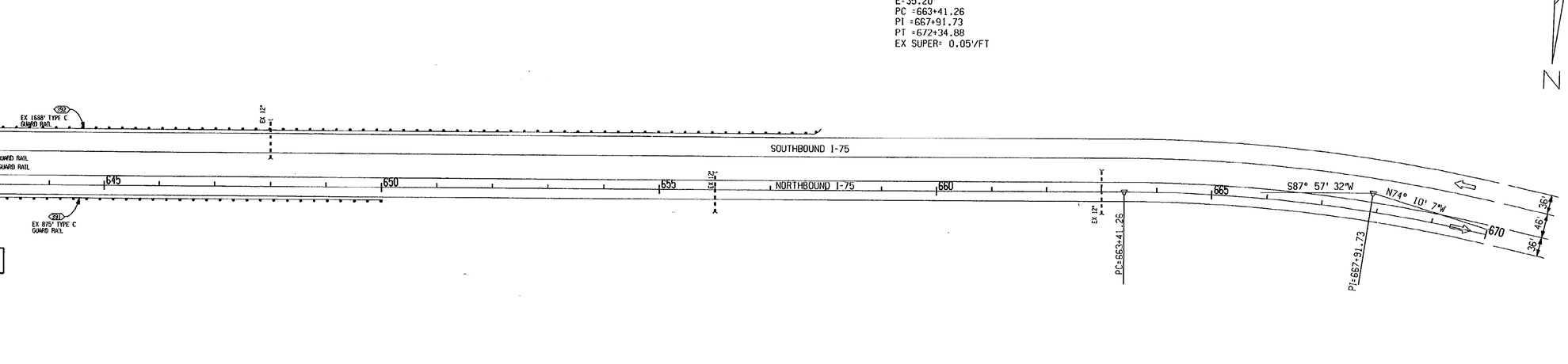


CITY OF TROY — QUANTITIES - THIS SHEET

5341 TON	BIT MIXTURE NO.1500L, 20AAA — RUBBER
5027 TON	BIT MIXTURE NO.1500T, 20AAA— RUBBER
800 SYD	CHIPPING CONC PAVT FOR JOINTS
873 CYD	CLASS A SHOULDERS (LM)

COOLIDGE RD.





BEACH RD.

I-75 CONST.℄ CURVE DATA
Δ=17°52'21"RT
D=02°00'00"
R=2864.79'
T=450.47'
L=893.63'
E=35.20'
PC =663+41.26
PI =667+91.73
PT =672+34.88
EX SUPER= 0.05'/FT

N

CITY OF TROY

FILE NAME: 28991100.DN

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 610+00 TO STA 670+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
07/16/90	1"=100'	63174	28991 A	PALMER		14

CONTROL SECTION 63174 | JOB NO. 28991A | SH. NO.

DATE: 07-11-90
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

RELOCATED SQUARE LAKE RD

ADAMS RD.

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

I-75 CONST.℄
CURVE DATA
Δ=17°52'21"RT
D=02°00'00"
R=2864.79'
T=450.47'
L=893.63'
E=35.20'
PC =663+41.26
PI =667+91.73
PT =672+34.88
EX SUPER = 0.05'/FT

CITY OF TROY

SECTION LINE

SOUTHBOUND I-75

NORTHBOUND I-75

N74° 10' 7"W

670 675 680 690

EX CROSSOVER
GRADE AND SURFACE
(SEE DETAILS ON TYPICAL CROSS-SECTION SHEET)

18 TON BIT APPROACHES
36 CYD AGG BASE - BIT (LM)
125 CYD CLASS A SHOULDERS (LM)
270 CYD EMBANKMENT (LM)

HAZARDOUS OR FLAMMABLE MATERIAL

S15 OF 63174

RELOCATED SQUARE LAKE ROAD

EX 200' TYPE B GUARD RAIL (394)
EX 31' TYPE A GUARD RAIL (395)
(388) EX 31' TYPE A GUARD RAIL
(399) EX 215' TYPE B GUARD RAIL
(393) EX 588' TYPE C GUARD RAIL
(397) EX 712' TYPE C GUARD RAIL

I-75 CONST.℄
CURVE DATA
Δ=03°52'08"RT
D=00°15'00"
R=22918.31'
T=774.07'
L=1547.56'
E=13.07'
PC =686+77.68
PI =694+51.75
PT =702+25.23
NO SUPER

CITY LIMITS & SECTION LINE

S16 OF 63174

HAZARDOUS OR FLAMMABLE MATERIAL

(102) EX 600' TYPE C GUARD RAIL
EX 125' TYPE I GUARD RAIL (406)
EX 125' TYPE I GUARD RAIL (406A)
(100) EX 225' TYPE C GUARD RAIL
RAMP G
EX 25' TYPE A GUARD RAIL (401)
EX 150' TYPE B GUARD RAIL (400)
(105) EX 150' TYPE B GUARD RAIL
(404) EX 25' TYPE A GUARD RAIL
N70° 17' 59"W
700
RAMP E
(397A)
(400A)
EX 175' TYPE I GUARD RAIL (405)
EX 175' TYPE I GUARD RAIL (405A)
(101) EX 175' TYPE C GUARD RAIL
ADAMS ROAD

SECTION 6
T2N ,R11E

CITY OF TROY

SECTION 1
T2N ,R10E
BLOOMFIELD TWP.

RAMP G
CURVE DATA
Δ=2°58'
D=1°45'00"
R=3274.04'
T=84.70'
L=169.52'
E=1.10'
PRC=95+63.44
PI=96+48.22
PCC=97+32.96 (STA 697+32.96 SBD RDWY)

RAMP E
CURVE DATA
Δ=1°08'41"
D=0°15'00.7"
R=22900.32'
T=228.77'
L=457.53'
E=1.14'
PC=297+51.00
PI=299+79.77
PCC=302+08.53 (STA 702+08.53 NBD RDWY)

MDOT	CITY OF TROY	QUANTITIES - THIS SHEET
3408 TON	2088 TON	BIT MIXTURE NO.1500L, 20AAA — RUBBER
3208 TON	1965 TON	BIT MIXTURE NO.1500T, 20AAA — RUBBER
660 SYD	1267 SYD	CHIPPING CONC PAVT FOR JOINTS
513 CYD	332 CYD	CLASS A SHOULDERS (LM)

SECTION 1
T2N ,R10E
BLOOMFIELD TWP.

EX 12"

EX RAMP H

EX 250' TYPE B GUARD RAIL (407) (407A)

700 705 710 715 720 725 730

RAMP E

RAMP F

SOUTHBOUND I-75

NORTHBOUND I-75

N70° 17' 59"W

EX RAMP F

EX 24"

EX CROSSOVER
GRADE AND SURFACE
(SEE DETAILS ON TYPICAL CROSS-SECTION SHEET)

18 TON BIT APPROACHES
36 CYD AGG BASE - BIT (LM)
125 CYD CLASS A SHOULDERS (LM)
270 CYD EMBANKMENT (LM)

RAMP H
CURVE DATA
Δ=64°59'41 "
D=6°00'
R=954.93'
T=608.30'
L=1083.25'
E=177.29'
PC=96+17.49
PI=102+25.79
PT=107+00.74 (STA 707+00.74 SBC RDWY)

RAMP F
CURVE DATA
Δ=39°21'14"
D=7°15'00"
R=799.48'
T=285.89'
L=549.13'
E=49.58'
PC=406+50.60
PI=409+36.49
PT=411+99.73 (STA 711+99.73 NBD RDWY)

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 670+00 TO STA 730+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
07/16/90	1"=100'	63174	28991 A	PALMER		15

FILE NAME: 289916700.DN1

CONTROL SECTION 63174
JOB NO. 28991A
SH. NO.

EXISTING BY: DATE:
PROPOSED BY: DATE:
LAST CORRECTION BY: DATE: 07-11-90

AUTH	DATE	NO.	FINAL R.O.W. REVISION

I-75 NB CONST. ℄
CURVE DATA
Δ=57°53'36"RT
D=01°00'00"
R=5729.57'
T=3168.99'
L=5789.33'
E=817.98'
PC =734+24.54
PI =765+93.53
PT =792+13.88
EX SUPER= 0.02'/FT

I-75 SB CONST. ℄
CURVE DATA
Δ=57°53'36"RT
D=03°00'00"
R=1909.86'
T=1056.33'
L=1929.78'
E=272.66'
PC =755+79.09 AHEAD
PI =766+35.42
PT =775+08.87
EX SUPER= 0.06'/FT

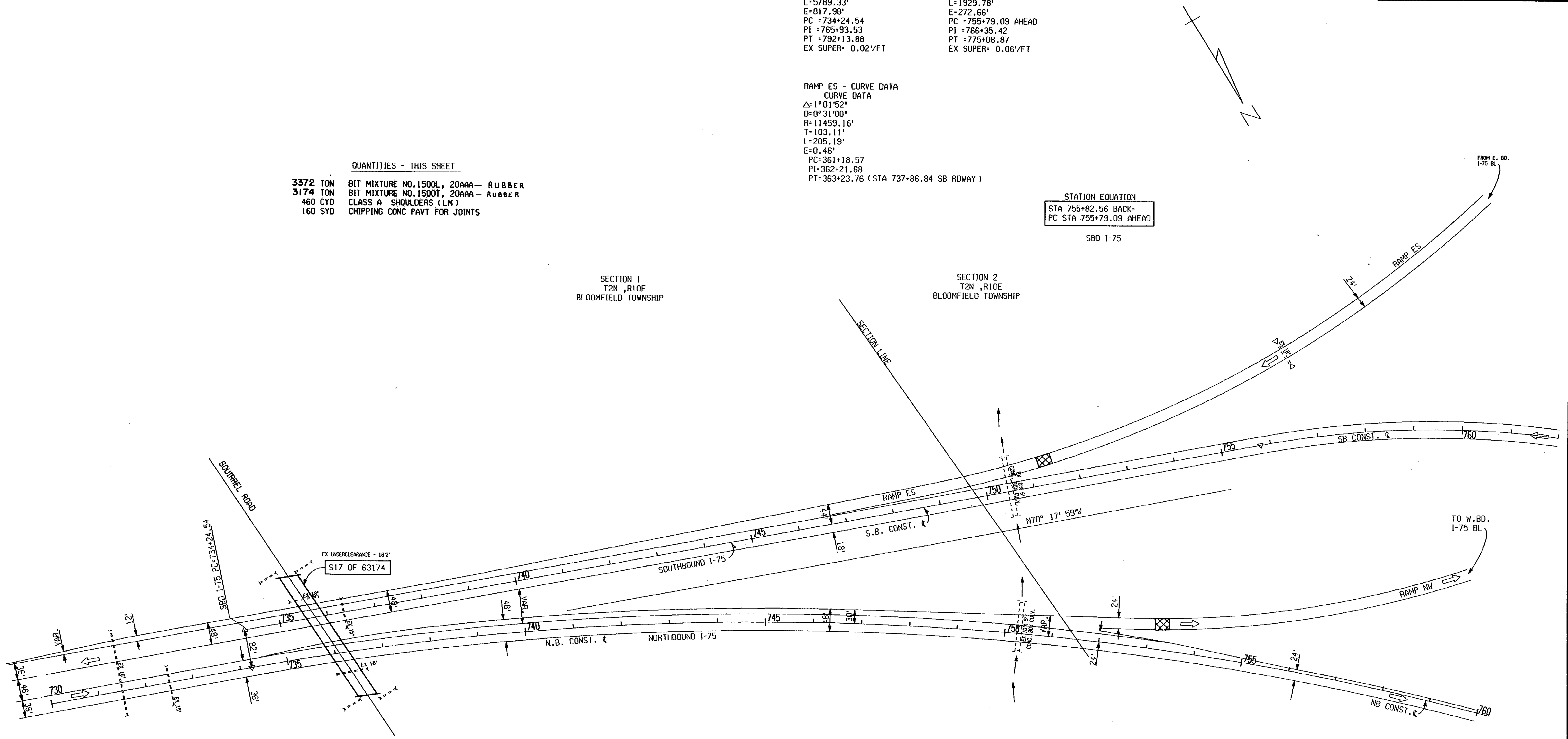
RAMP ES - CURVE DATA
CURVE DATA
Δ=1°01'52"
D=0°31'00"
R=11459.16'
T=103.11'
L=205.19'
E=0.46'
PC=361+18.57
PI=362+21.68
PT=363+23.76 (STA 737+86.84 SB RDWAY)

QUANTITIES - THIS SHEET

3372	TON	BIT MIXTURE NO.1500L, 20AAA— RUBBER
3174	TON	BIT MIXTURE NO.1500T, 20AAA— RUBBER
460	CYD	CLASS A SHOULDERS (LM)
160	SYD	CHIPPING CONC PAVT FOR JOINTS

STATION EQUATION
STA 755+82.56 BACK=
PC STA 755+79.09 AHEAD

SBD I-75



RAMP NW
CURVE DATA
Δ=91°22'30.3"
D=3°00'
R=1909.86'
T=1959.26'
L=3045.84'
E=824.09'
PC=1229+11.28
PI=1248+67.54
PT=1259+57.11 (STA 746+76.46 NB RDWAY)
EX SUPER= 0.06'/FT

FILE NAME: 289917300.DN1

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 730+00 TO N. BD. STA 760+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
07/16/90	1"=100	63174	28991 A	PALMER		16

CONTROL SECTION 63174 | JOB NO. 28991A | SH: NO.

DATE:
DATE:
DATE: 07-11-90

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

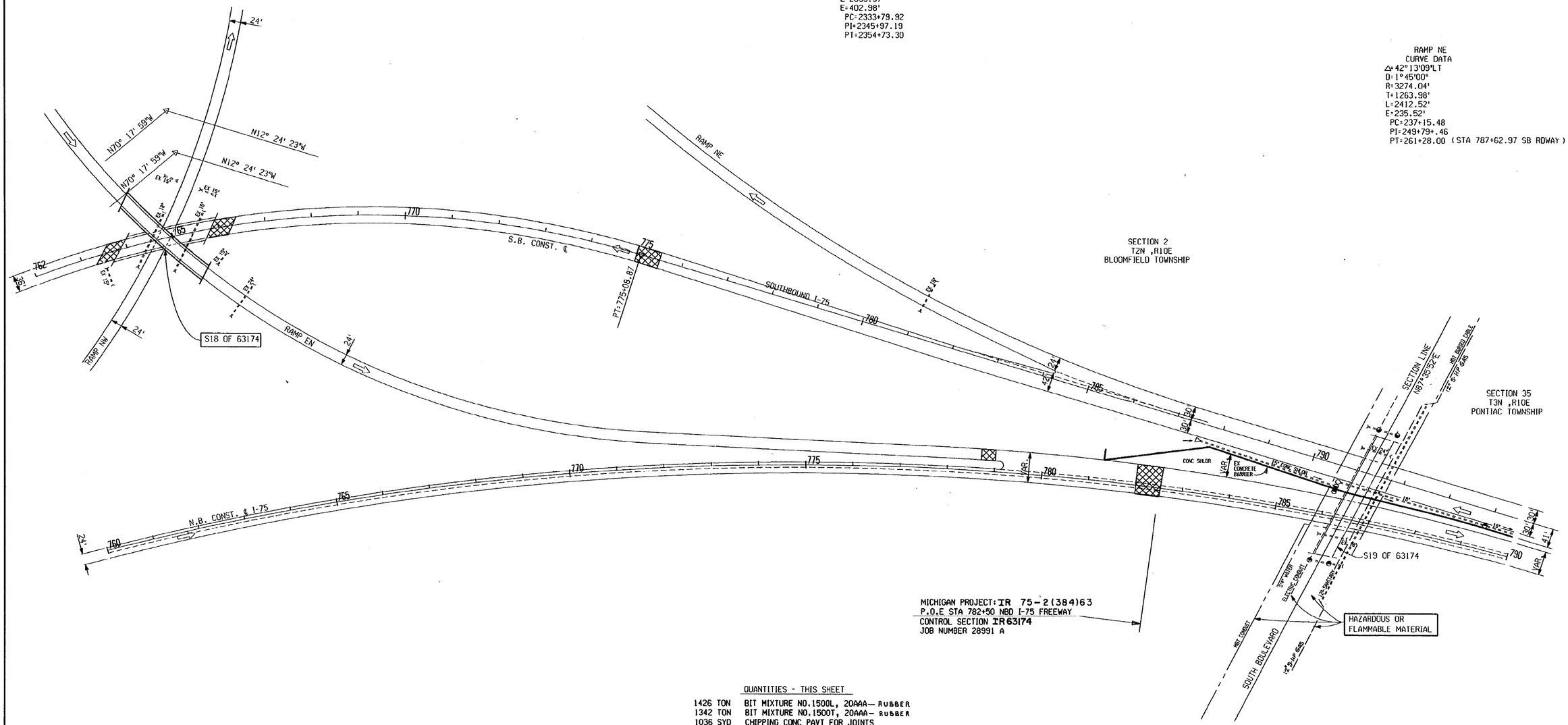
			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

I-75 NB CONST. ℄
CURVE DATA
Δ=57°53'36"RT
D=01°00'00"
R=5729.57'
T=3168.99'
L=5789.33'
E=817.98'
PC =734+24.54
PI =765+93.53
PT =792+13.88
EX SUPER= 0.02'/FT

I-75 SB CONST. ℄
CURVE DATA
Δ=57°53'36"RT
D=03°00'00"
R=1909.86'
T=1056.33'
L=1929.78'
E=272.66'
PC =755+79.09
PI =766+35.42
PT =775+08.87
EX SUPER= 0.06'/FT

RAMP EN
CURVE DATA
Δ=73°16'05.5"
D=3°30'
R=1637.02'
T=1217.27'
L=2093.37'
E=402.98'
PC=2333+79.92
PI=2345+97.19
PT=2354+73.30

RAMP NE
CURVE DATA
Δ=42°13'09"LT
D=1°45'00"
R=3274.04'
T=1263.98'
L=2412.52'
E=235.52'
PC=237+15.48
PI=249+79+.46
PT=261+28.00 (STA 787+62.97 SB ROWAY)



MICHIGAN PROJECT: IR 75-2(384)63
P.O.E STA 782+50 NBD I-75 FREEWAY
CONTROL SECTION IR63174
JOB NUMBER 28991 A

QUANTITIES - THIS SHEET

1426 TON	BIT MIXTURE NO.1500L, 20AAA— RUBBER
1342 TON	BIT MIXTURE NO.1500T, 20AAA— RUBBER
1036 SYD	CHIPPING CONC PAVT FOR JOINTS
252 CYD	CLASS A SHOULDERS (LM)

SOUTH BOULEVARD

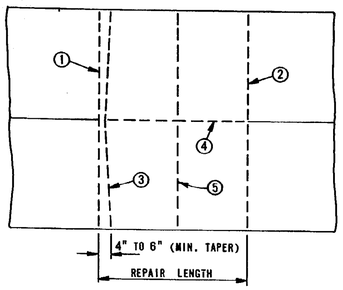
MICHIGAN DEPARTMENT OF TRANSPORTATION

NB I-75 STA 760+00 TO STA 790+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
07/16/90	1"=100'	63174	28991 A	PALMER		17

FILE NAME: 28991760D.DN1

CONTROL SECTION 63174 JOB NO. 28991A SHEET NO.



Plan of Sawing Diagram

THIS METHOD OF REMOVING DISTRESSED CONCRETE SHALL BE USED IN CONJUNCTION WITH FULL DEPTH CAST-IN-PLACE REPAIRS (DETAILS 3 & 3A) LESS THAN 50' LONG, AND IS OPTIONAL FOR REPAIRS OVER 50' IN LENGTH.

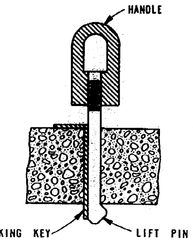
① & ② THESE SAW CUTS SHALL BE FULL DEPTH AND PERPENDICULAR TO THE EDGE OF THE ROADWAY, WITHIN A TOLERANCE OF 1".

③ THIS FULL DEPTH SAW CUT IS MADE TO FACILITATE OPENING A TRENCH ACROSS THE SLAB TO RELIEVE COMPRESSION IN THE PAVEMENT PRIOR TO LIFTING OUT THE FAILED AREA. THIS SAW CUT MAY BE OMITTED PROVIDED NO SPALLING OF THE REMAINING CONCRETE PAVEMENT OCCURS. IF SPALLING DOES OCCUR, THE CONTRACTOR WILL BE REQUIRED TO MAKE THIS SAW CUT ON SUBSEQUENT REPAIRS. WHEN THIS SAW CUT IS USED AND THE ADJACENT LANE IS NOT REPAIRED, NO OVERCUTTING INTO THAT LANE SHALL BE MADE.

④ THIS SAW CUT IS MADE FULL DEPTH BETWEEN LANES, BETWEEN A LANE AND A CURB, AND BETWEEN A LANE AND A RAMP.

⑤ IF REQUIRED, INTERMEDIATE SAW CUTS MAY BE MADE TO REMOVE A SECTION OF PAVEMENT LANE WHICH IS OVER 8 FEET IN LENGTH, TO PERMIT LOADING INTO THE HAULING UNITS.

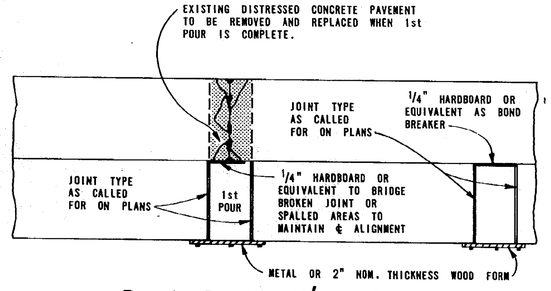
ADDITIONAL SAW CUTS, AT CONTRACTOR'S EXPENSE, MAY BE MADE INSIDE THE REPAIR LIMITS TO REDUCE 8-FOOT BY 12-FOOT SLABS INTO SMALLER PIECES TO FACILITATE REMOVAL.



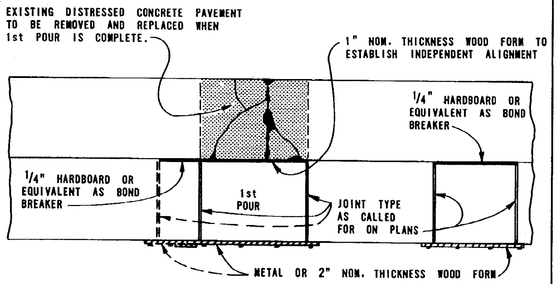
Schematic of Typical Lift Pin Assembly

SAWING DIAGRAM & LIFT PIN FOR REMOVING OLD SLAB

DETAIL 1



Repair Length 12' or Less



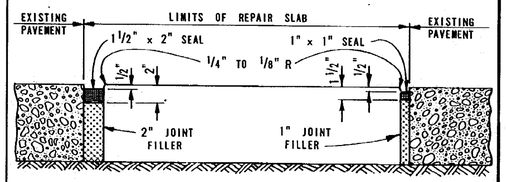
WHERE REPAIRS LONGER THAN 12 FEET ARE REQUIRED, A NEW GRADE MUST BE ESTABLISHED ALONG THE OLD PAVEMENT INNER JOINT LINE INDEPENDENT OF THE OLD PAVEMENT SURFACE, SO THAT SCREEDING MAY BE DONE PERPENDICULAR TO THE CENTERLINE AND INDEPENDENT OF THE OLD PAVEMENT GRADE.

Repair Length More Than 12'

NOTE: STAKES USED TO HOLD BITUMINOUS FILLER OR HARDBOARD IN PLACE DURING CONCRETE PLACEMENT SHALL BE REMOVED BEFORE SCREEDING THE CONCRETE.

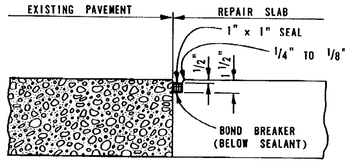
FORMING REQUIREMENTS FOR CAST-IN-PLACE REPAIR

DETAIL 2



Expansion Joint Type "A"

Expansion Joint Type "B"



Contraction Joint Type "C"

NOTE: WHEN PLACING CONCRETE PAVEMENT REPAIRS IN CONCRETE PAVEMENTS WITH BITUMINOUS OVERLAYS, THE REPAIR SHALL BE CONSTRUCTED AS SHOWN ABOVE EXCEPT THE SURFACE OF THE CONCRETE REPAIR SHALL BE CONSTRUCTED LEVEL WITH THE TOP OF THE EXISTING BITUMINOUS SURFACE.

UNDOWELED CAST-IN-PLACE REPAIR JOINTS Ur

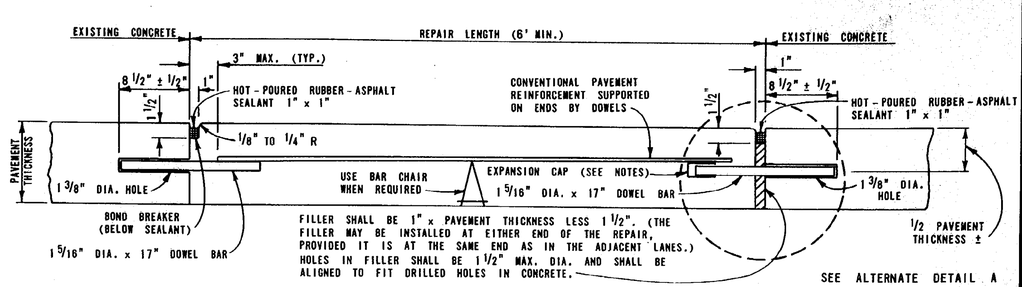
DETAIL 3

PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	ENGINEER - ROAD DESIGN
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN
	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ
DRAWN BY: H.A.W.		BY:
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	DEPUTY DIRECTOR - HIGHWAYS

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

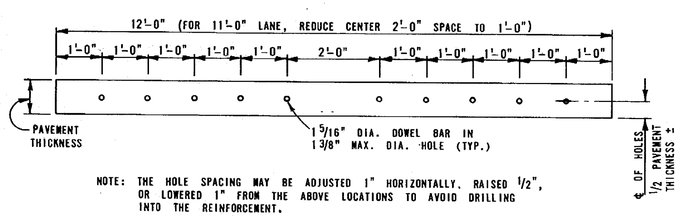
CONCRETE PAVEMENT REPAIR

F.H.W.A. APPROVAL	6-30-89 PLAN DATE	II-44G	SHEET 1 OF 4



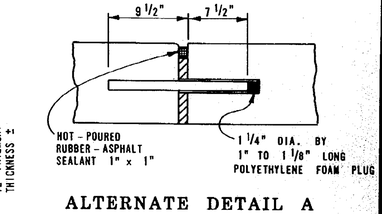
CONTRACTION JOINT Cr

EXPANSION JOINT Er

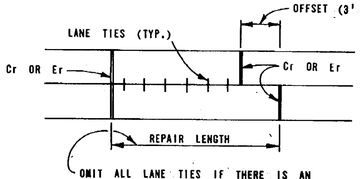


NOTE: THE HOLE SPACING MAY BE ADJUSTED 1" HORIZONTALLY, RAISED 1/2", OR LOWERED 1" FROM THE ABOVE LOCATIONS TO AVOID DRILLING INTO THE REINFORCEMENT.

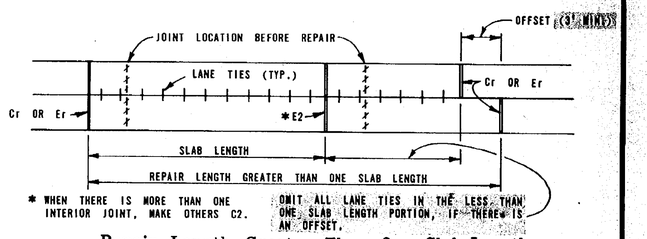
DOWEL BAR SPACING FOR REPAIRS



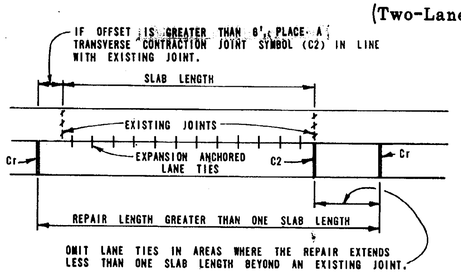
ALTERNATE DETAIL A



Repair Length Less Than One Slab Length



Repair Length Greater Than One Slab Length (Two-Lane Repairs)



Repair Length Greater Than One Slab Length (One-Lane Repairs)

LANE TIES FOR DOWELED REPAIRS

NOTES:

LONGITUDINAL LANE TIES, WHEN REQUIRED, SHALL BE SPACED IN ACCORDANCE WITH STANDARD PLAN II-41 SERIES, EXCEPT THE FIRST LANE TIE ADJACENT TO A TRANSVERSE JOINT SHALL BE INSTALLED AT A DISTANCE OF 1'-8".

EXPANSION CAPS SHALL BE FABRICATED FROM A MINIMUM 28 GAGE SHEET STEEL AND SHALL BE SIZED SO AS TO PROVIDE A SLIP FIT ON THE SHOP PAINTED DOWEL BAR. THE EXPANSION CAP SHALL CONTAIN A SINGLE LONGITUDINAL TIGHTLY ROLLED "S" SEAM, WITH A SUITABLE STOP TO MAINTAIN THE END OF THE CAP A MINIMUM DISTANCE OF 1" FROM THE END OF THE DOWEL DURING CONCRETE PLACEMENT AND TO PROVIDE A MINIMAL EXPANSION RESISTANCE FOR SUBSEQUENT MOVEMENT OF THE BAR IN THE CAP. THE EXPANSION CAP SHALL BE COMPLETELY CLOSED AT THE END BY CRIMPING AND SHALL BE OF A UNIFORM DIAMETER FOR A MINIMUM LENGTH OF 4". A SAMPLE OF EACH DESIGN OF EXPANSION CAP SHALL BE SUBMITTED TO THE ENGINEER OF TESTING AND RESEARCH ALONG WITH A SHOP DRAWING FOR APPROVAL PRIOR TO USE. CAPS MADE OF OTHER MATERIALS AND/OR DESIGNS, IF TESTED AND APPROVED BY THE ENGINEER, MAY BE USED AT THE OPTION OF THE CONTRACTOR.

A BOND-BREAKING COAT OF LIQUID ASPHALT (MDOT RC-250) IS REQUIRED ON THE PORTION OF THE DOWEL BAR EXTENDING INTO THE NEW CONCRETE WHEN EXPANSION CAPS ARE USED.

SEE STANDARD PLAN II-39 SERIES FOR TRANSVERSE PAVEMENT JOINTS SYMBOLS (C2) AND (E2).

DOWELED CAST-IN-PLACE REPAIR JOINTS

DETAIL 3A

PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	ENGINEER - ROAD DESIGN
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN
	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ
DRAWN BY: H.A.W.		BY:
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	DEPUTY DIRECTOR - HIGHWAYS

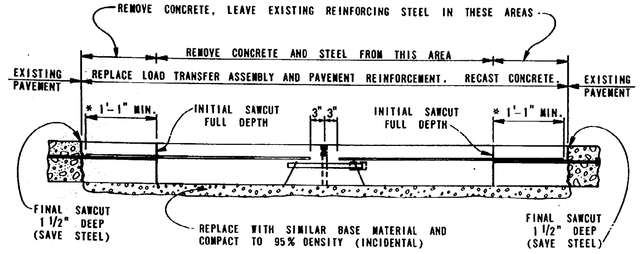
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

CONCRETE PAVEMENT REPAIR

F.H.W.A. APPROVAL	6-30-89 PLAN DATE	II-44G	SHEET 2 OF 4

63174 28991A 18

CONTROL SECTION 63174 JOB NO. 28991A SHEET NO.

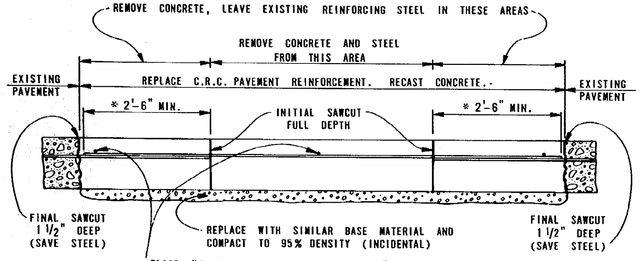


* NOTE:

IF EXISTING REINFORCEMENT LAPS ARE ENCOUNTERED IN THIS AREA, FINAL SAW CUT MUST BE MOVED BACK TO PROVIDE MINIMUM 1'-1" LAP OF PAVEMENT REINFORCEMENT.

TRANSVERSE JOINT REPAIR USING LOAD TRANSFER ASSEMBLY

DETAILS (CONTRACTION JOINT) 4 (EXPANSION JOINT) (SHOWN DASHED) 4A

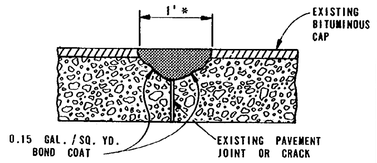


* NOTE:

IF EXISTING REINFORCEMENT LAPS ARE ENCOUNTERED IN THIS AREA, FINAL SAW CUT MUST BE MOVED BACK TO PROVIDE MINIMUM 2'-6" LAP OF PAVEMENT REINFORCEMENT.

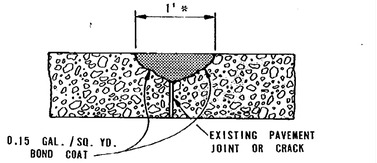
REPAIRING CONTINUOUSLY REINFORCED CONCRETE

DETAIL 5



1. STRIP OFF EXISTING CAP AND REMOVE LOOSE DETERIORATED CONCRETE.
2. REPLACE BITUMINOUS CAP AND LOOSE DETERIORATED CONCRETE WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 IN LAYERS NOT TO EXCEED 4" IN DEPTH AND COMPACT WITH A MACHINE VIBRATOR OR APPROVED ROLLER. THE COMPACTED BITUMINOUS MIXTURE SHALL BE FLUSH WITH EXISTING BITUMINOUS CAP.

* FOR QUANTITY ESTIMATE PURPOSES ONLY

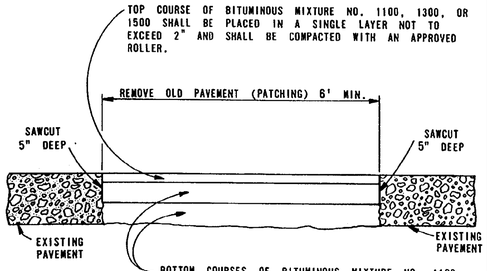


1. WHERE NO BITUMINOUS CAP EXISTS, REMOVE LOOSE DETERIORATED CONCRETE.
2. REPLACE LOOSE DETERIORATED CONCRETE WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 IN LAYERS NOT TO EXCEED 4" IN DEPTH AND COMPACT WITH A MACHINE VIBRATOR OR APPROVED ROLLER. THE COMPACTED BITUMINOUS MIXTURE SHALL BE FLUSH WITH EXISTING CONCRETE PAVEMENT.

* FOR QUANTITY ESTIMATE PURPOSES ONLY

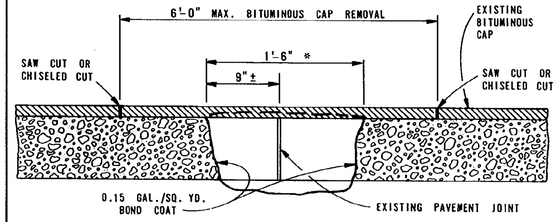
TRANSVERSE OR LONGITUDINAL JOINT OR CRACK REPAIR

DETAIL 7



REPAIRING WITH BITUMINOUS MATERIAL

DETAIL 6



1. STRIP OFF EXISTING BITUMINOUS CAP AND BREAK OUT EXISTING CONCRETE PAVEMENT.
2. REPLACE BROKEN-OUT AREA WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 IN LAYERS NOT TO EXCEED 4" IN DEPTH AND COMPACT WITH A MACHINE VIBRATOR OR APPROVED ROLLER.
3. REPLACE BITUMINOUS CAP WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 AND COMPACT WITH APPROVED ROLLER. THE COMPACTED BITUMINOUS MIXTURE SHALL BE FLUSH WITH ADJACENT PAVEMENT SURFACE.

* FOR QUANTITY ESTIMATE PURPOSES ONLY

TRANSVERSE JOINT REPAIR

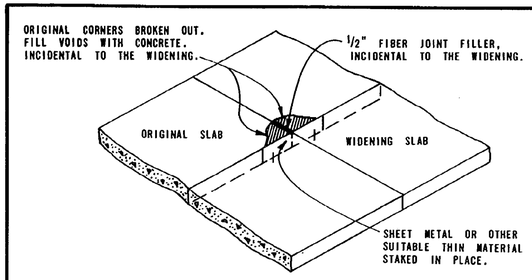
DETAIL 8

PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	ENGINEER - ROAD DESIGN
DRAWN BY: MAW	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN *DEPARTMENT DIRECTOR JAMES P. PITZ*
CHECKED BY: CAL	ENGINEER OF MATERIALS & TECHNOLOGY	BY: DEPUTY DIRECTOR - HIGHWAYS
	ENGINEER OF TRAFFIC AND SAFETY	

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

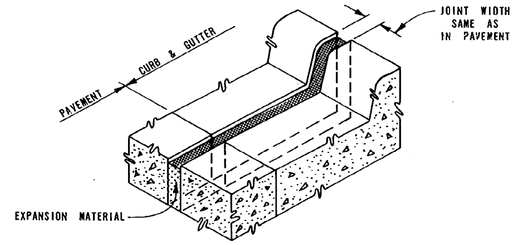
CONCRETE PAVEMENT REPAIR

F.H.W.A. APPROVAL	6-30-89 PLAN DATE	II-44G	SHEET 3 OF 4



JOINT PATCH ADJACENT TO WIDENING SLAB

DETAIL 9



CURB, GUTTER AND CURB FACE SHALL BE SAWED AS DEEP AS THE EXISTING PAVEMENT THICKNESS. THE REMAINING CONCRETE SHALL BE CHIPPED OUT AND EXPANSION MATERIAL OF SUFFICIENT THICKNESS SHALL BE PLACED IN SAWED JOINT TO FILL THE GAP AS DIRECTED BY THE ENGINEER.

EXPANSION JOINT Esc

DETAIL 11

NOTES APPLYING TO STANDARD PLAN II-44G:

CONCRETE PAVEMENT REPAIRS OR PRESSURE RELIEF JOINT DETAILS WILL BE AS CALLED FOR ON PLANS OR IN LOG OF PROJECT.

IF EXISTING PAVEMENT HAS AN ASPHALT SURFACE, THE SAW CUTS SHALL EXTEND THRU THE UNDERLYING PORTLAND CEMENT CONCRETE.

WHEN CONCRETE PAVEMENT REPAIRS ARE TO BE RESURFACED, REINFORCEMENT WILL BE OMITTED. IF THE REPAIR IS LONGER THAN 20', TRANSVERSE PLANE OF WEAKNESS JOINTS, SYMBOL (U), SHALL BE PLACED IN LINE WITH EXISTING TRANSVERSE JOINTS, WORKING CRACKS, OR AT 20-FOOT MAX., 6-FOOT MIN. INTERVALS. FOR SYMBOL (U) JOINTS, SEE STANDARD PLAN II-39 SERIES.

WHEN REPAIRING PAVEMENTS WITH CAST-IN-PLACE REPAIR JOINTS (DETAILS 3 & 3A), THE JOINT TYPES SELECTED SHOULD PROVIDE FOR NO MORE EXPANSION SPACE THAN 4" IN 900' FOR PAVEMENTS WITH 99' JOINT SPACING, OR 2" IN 900' FOR PAVEMENTS WITH 72' JOINT SPACING AND NEOPRENE SEALS.

WHEN THERE ARE NO REPAIR LOCATIONS WITHIN A 900' LENGTH, NO EXPANSION SPACE WILL BE PROVIDED.

EQUAL EXPANSION SPACE SHOULD BE PROVIDED IN ADJACENT LANES. NO EXPANSION SPACE SHALL BE PROVIDED IN REPAIRS WHICH DO NOT EXTEND ACROSS ALL LANES.

TRANSVERSE CONTRACTION JOINTS TYPE "C" AND Cr JOINT GROOVES (DETAIL 3 & 3A) SHALL BE SANDBLASTED FOLLOWED BY A FINAL CLEANING WITH OIL-FREE COMPRESSED AIR PRIOR TO SEALING WITH HOT-POURED RUBBER-ASPHALT JOINT SEALER. A BOND BREAKER (ALSO SHOWN IN DETAILS (3 & 3A) SHALL CONSIST OF A PRESSURE-SENSITIVE SILICONE-BACKED TAPE OR AN EQUIVALENT APPROVED BY THE ENGINEER.

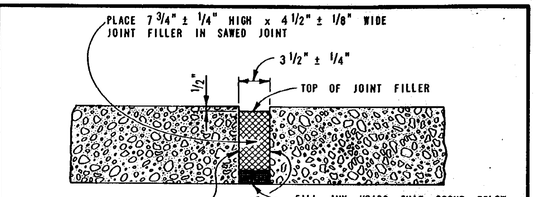
THE PAVEMENT REINFORCEMENT SHALL BE PLACED 3" BELOW FINISHED SURFACE IN UNDOWELED REPAIRS OR AS SHOWN IN DETAIL 3A FOR DOWELED REPAIRS.

WHEN UNDOWELED REPAIRS ARE MADE IN JOINTED PAVEMENT, STANDARD PAVEMENT REINFORCEMENT SHALL BE USED TO REINFORCE CONCRETE REPAIRS 10' OR LONGER.

FOR ALL REPAIRS, EXPANSION SPACE SHOULD BE DISTRIBUTED THROUGHOUT THE SECTION RATHER THAN INSTALLING IT ALL AT ONE LOCATION. TO ALLOW FOR DISTRIBUTION OF PAVEMENT EXPANSION, REPAIRS MAY HAVE A CONTRACTION JOINT ON ONE END AND AN EXPANSION JOINT ON THE OTHER END. THE TYPE "A" JOINT SHOULD NOT BE USED IN REPAIRS OF NEOPRENE SEALED PAVEMENTS.

WHEN TRANSVERSE EXPANSION JOINTS ARE PLACED ADJACENT TO CONCRETE CURB AND GUTTER AND WHERE REMOVAL OF CURB AND GUTTER IS NOT NECESSARY AS DETERMINED BY THE ENGINEER, AN EQUIVALENT WIDTH OF EXPANSION JOINT Esc SHALL BE EXTENDED THRU THE CURB AND GUTTER.

TRANSVERSE JOINTS (DETAIL 4 AND 4A) SHALL BE SEALED IN ACCORDANCE WITH STANDARD PLAN II-39 SERIES.

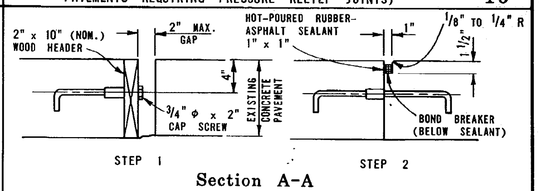


NOTE: WHEN PRESSURE RELIEF JOINT IS TO BE CONSTRUCTED THROUGH 6" CONCRETE SHOULDER, TRENCH BELOW CONCRETE 2" ± TO ALLOW ROOM FOR 7 3/4" FILLER.

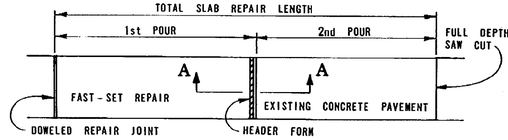
PRESSURE RELIEF JOINT

(THIS DETAIL ALSO APPLIES TO BITUMINOUS SURFACED PAVEMENTS REQUIRING PRESSURE RELIEF JOINTS)

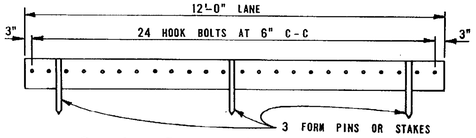
DETAIL 10



Section A-A



Plan View of Repair



Spacing Layout for Hook Bolts

NOTE: REFER TO STANDARD PLAN II-39 SERIES FOR HOOK BOLT DETAIL.

OVERNIGHT CONSTRUCTION JOINT IN FAST-SET REPAIR

DETAIL 12

NOTES: (CONTINUED)

SAWED OVERCUTS OCCURING IN ADJACENT SLAB, GUTTER, OR SHOULDER, WHICH WILL REMAIN IN PLACE, SHALL BE SEALED.

THE MONTH AND YEAR OF CASTING AND STATION NUMBER (IF REMOVED) SHALL BE STENCILLED ON EACH CONCRETE REPAIR.

PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	ENGINEER - ROAD DESIGN
DRAWN BY: MAW	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN *DEPARTMENT DIRECTOR JAMES P. PITZ*
CHECKED BY: CAL	ENGINEER OF MATERIALS & TECHNOLOGY	BY: DEPUTY DIRECTOR - HIGHWAYS
	ENGINEER OF TRAFFIC AND SAFETY	

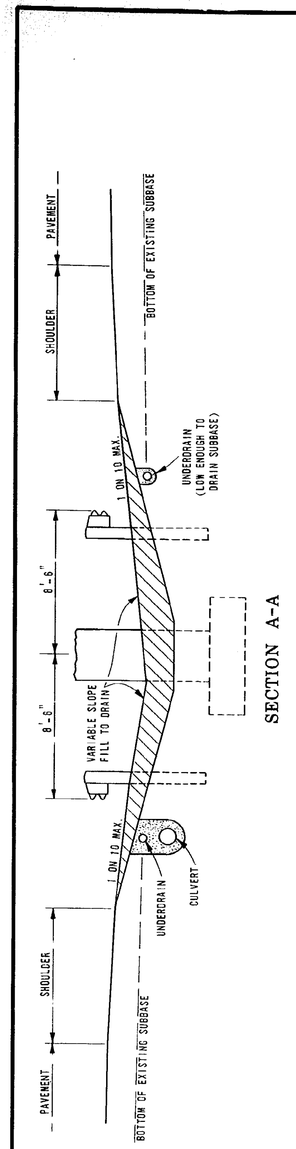
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

CONCRETE PAVEMENT REPAIR

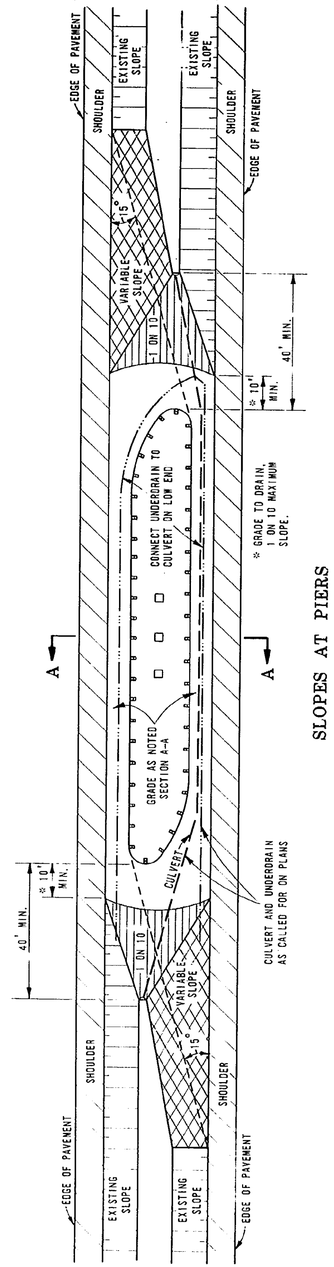
F.H.W.A. APPROVAL	6-30-89 PLAN DATE	II-44G	SHEET 4 OF 4

CONTROL SECTION 63174 JOB NO. 28991A SHEET NO. 19

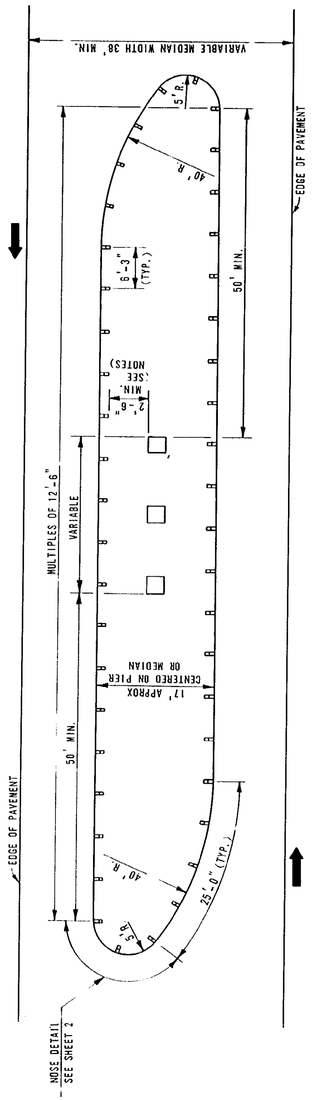
CONTROL SECTION 63174 JOB NO. 28991A SHEET NO.



SECTION A-A



SLOPES AT PIERS



TYPICAL LAYOUT AT PIERS AND SIGN SUPPORTS

PREPARED BY DESIGN DIVISION

DRAWN BY D.F.M.

CHECKED BY C.A.L.

ENGINEER OF CONSTRUCTION

ENGINEER OF MAINTENANCE

ENGINEER OF MATERIALS & TECHNOLOGY

ENGINEER OF TRAFFIC AND SAFETY

ENGINEER - ROAD DESIGN

ENGINEER OF DESIGN

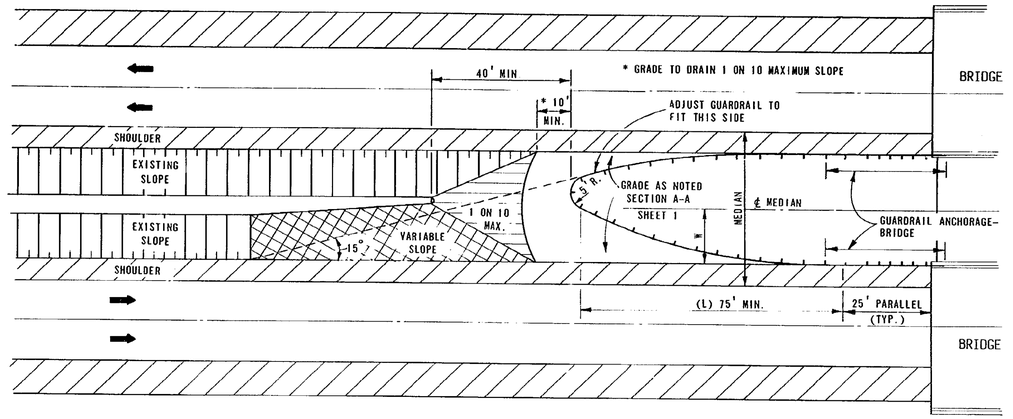
DEPARTMENT DIRECTOR JAMES P. PITZ

BY: DEPUTY DIRECTOR - HIGHWAYS

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

GUARDRAIL BULLNOSE

F.H.W.A. APPROVAL | 12-8-88 PLAN DATE | III-56B | SHEET 1 OF 2



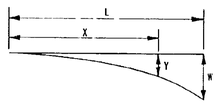
GUARDRAIL AT TWIN BRIDGE APPROACH

(FOR MEDIANS 46' OR LESS IN WIDTH)

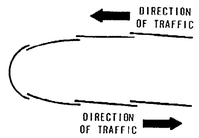
X = INTERMEDIATE DISTANCES Y = INTERMEDIATE OFFSETS
L = TOTAL LENGTH OF FLARE W = WIDTH OF FINAL OFFSET

OFFSETS BASED ON FORMULA

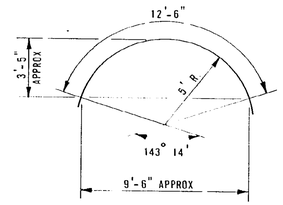
$$Y = W\frac{X^2}{L^2}$$



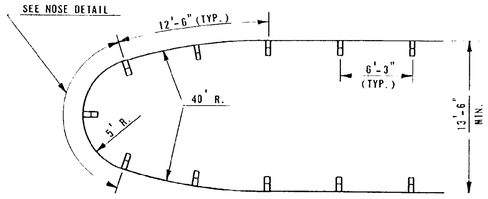
OFFSET FORMULA



DETAIL OF RAIL LAP



NOSE DETAIL



ALTERNATE INSTALLATION

FOR USE WHERE NARROW MEDIAN PROHIBITS USE OF CONVENTIONAL TREATMENT

NOTES:

ALL POSTS AND BLOCKS, BEAM AND BACK UP ELEMENTS AND FITTINGS, INCLUDING BOLTS, NUTS AND WASHERS, SHALL CONFORM TO THE DIMENSIONS AND SPECIFICATIONS SHOWN ON CURRENT STANDARD PLAN III-60 AND III-67 SERIES, WHERE APPLICABLE, EXCEPT AS SHOWN ON THIS STANDARD PLAN.

ONLY BEAM GUARDRAIL TYPE B SHALL BE USED FOR GUARDRAIL BULLNOSE INSTALLATIONS, EXCEPT IN "GUARDRAIL ANCHORAGE - BRIDGE, DETAIL ___".

WOOD POSTS WILL BE REQUIRED WHENEVER THE GUARDRAIL RADIUS IS 50' OR LESS, AND FOR ALL OF THE POSTS IN THE "GUARDRAIL AT TWIN BRIDGE APPROACH" EXCEPT THOSE IN THE GUARDRAIL ANCHORAGE - BRIDGE.

REMOVE CURB FROM 150' IN ADVANCE AND ALONG TOTAL LENGTH OF THE GUARDRAIL INSTALLATION UNLESS ONE FOOT OR LESS FROM FACE OF CURB TO FACE OF RAIL.

ADEQUATE DRAINAGE MUST BE PROVIDED WHEN EXISTING MEDIANS OR DITCHED AREAS ARE FILLED.

ANY PART OF THE GUARDRAIL SYSTEM SHOULD BE NO CLOSER THAN 2'-6" TO THE BRIDGE PIER COLUMNS. IF THIS MINIMUM IS IMPOSSIBLE TO OBTAIN, STIFFEN THE RAIL SYSTEM AS DIRECTED BY THE ENGINEER, SO ITS THEORETICAL DEFLECTION WILL NOT EXCEED THE AVAILABLE CLEARANCE. IF ADDITIONAL GUIDANCE IS NEEDED, CONTACT THE ROAD STANDARDS UNIT OF THE DESIGN DIVISION.

PREPARED BY DESIGN DIVISION

DRAWN BY D.F.M.

CHECKED BY C.A.L.

ENGINEER OF CONSTRUCTION

ENGINEER OF MAINTENANCE

ENGINEER OF MATERIALS & TECHNOLOGY

ENGINEER OF TRAFFIC AND SAFETY

ENGINEER - ROAD DESIGN

ENGINEER OF DESIGN

DEPARTMENT DIRECTOR JAMES P. PITZ

BY: DEPUTY DIRECTOR - HIGHWAYS

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

GUARDRAIL BULLNOSE

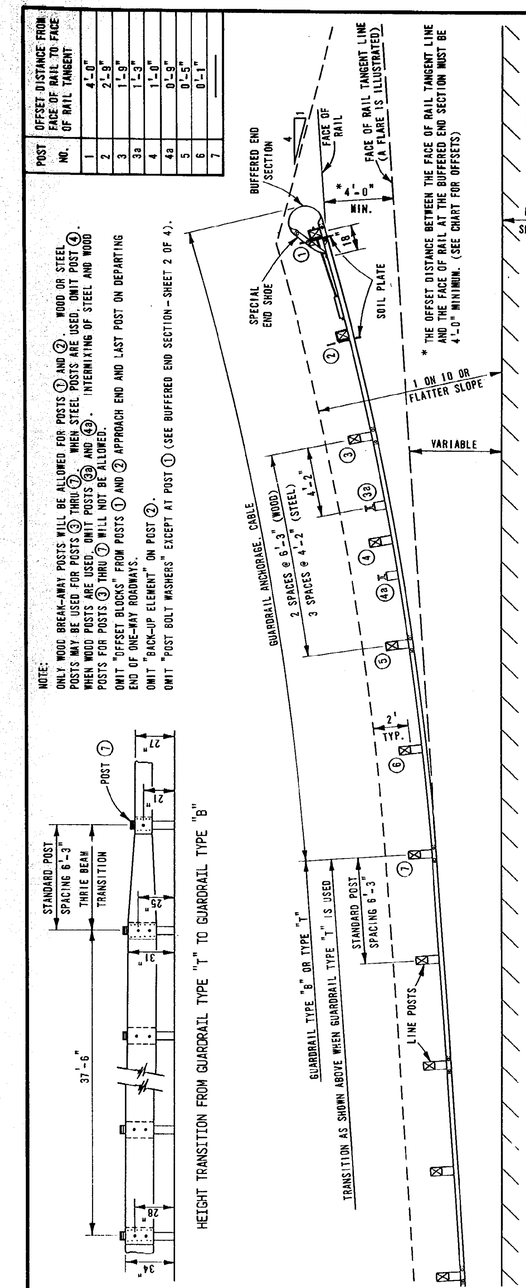
F.H.W.A. APPROVAL | 12-8-88 PLAN DATE | III-56B | SHEET 2 OF 2

CONTROL SECTION 63174 JOB NO. 28991A SHEET NO. 20

CONTROL SECTION 63174 | JOB NO. 28991A | SHEET NO.

POST NO.	OFFSET DISTANCE FROM FACE OF RAIL TO FACE OF RAIL TANGENT
1	4'-0"
2	2'-9"
3	1'-9"
3a	1'-3"
4	1'-0"
4a	0'-9"
5	0'-5"
6	0'-1"
7	

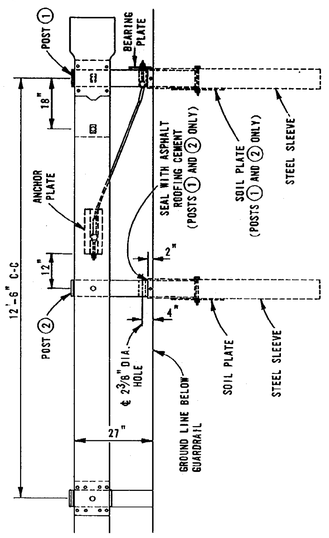
NOTE:
ONLY WOOD BREAK-AWAY POSTS WILL BE ALLOWED FOR POSTS ① AND ②. WOOD OR STEEL POSTS MAY BE USED FOR POSTS ③ THRU ⑦. WHEN STEEL POSTS ARE USED, OMIT POST ④. WHEN WOOD POSTS ARE USED, OMIT POSTS ③a AND ④a. INTERMIXING OF STEEL AND WOOD POSTS FOR POSTS ③ THRU ⑦ WILL NOT BE ALLOWED.
OMIT "OFFSET BLOCKS" FROM POSTS ① AND ② APPROACH END AND LAST POST ON DEPARTING END OF ONE-WAY ROADWAYS.
OMIT "BACK-UP ELEMENT" ON POST ②.
OMIT "POST BOLT WASHERS" EXCEPT AT POST ① (SEE BUFFERED END SECTION-SHEET 2 OF 4).



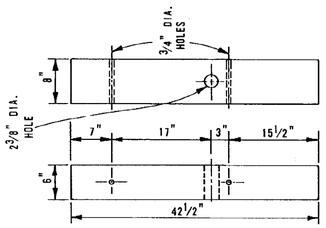
GUARDRAIL ENDING WITH CABLE ANCHORAGE
(APPROACH END)

* THE OFFSET DISTANCE BETWEEN THE FACE OF RAIL TANGENT LINE AND THE FACE OF RAIL AT THE BUFFERED END SECTION MUST BE 4'-0" MINIMUM. (SEE CHART FOR OFFSETS)

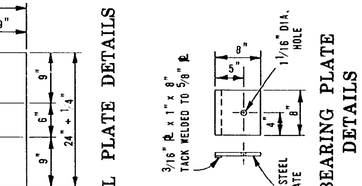
NOTE:
END POSTS ① AND ② SHOULD BE SELECTED TO FIT LOOSELY IN THE STEEL SLEEVE. SPACE AROUND THE POST SHOULD NOT EXCEED 1/4" IN ANY DIRECTION.



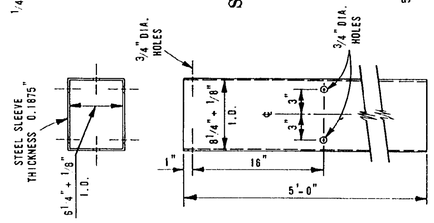
WOOD BREAKAWAY POST ANCHORAGE DETAIL



SOIL PLATE DETAILS

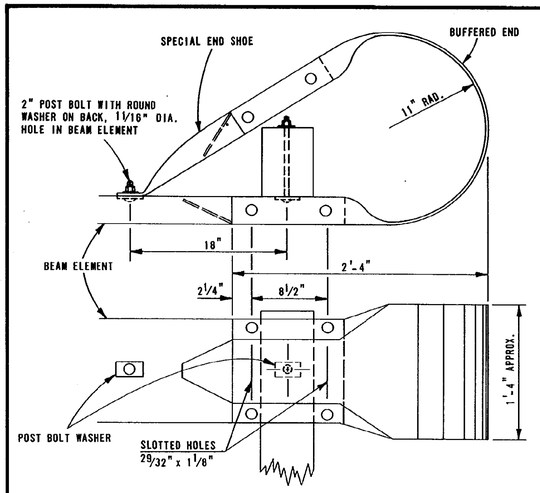


BEARING PLATE DETAILS

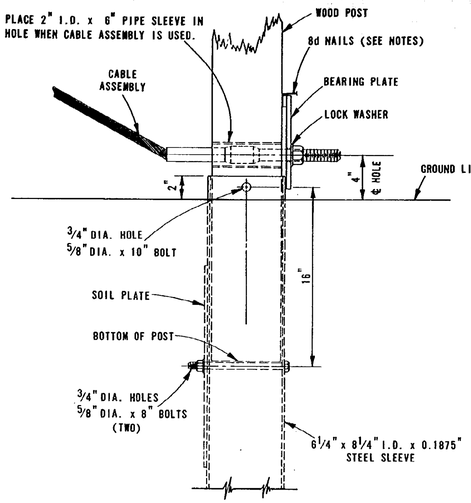


STEEL SLEEVE DETAILS

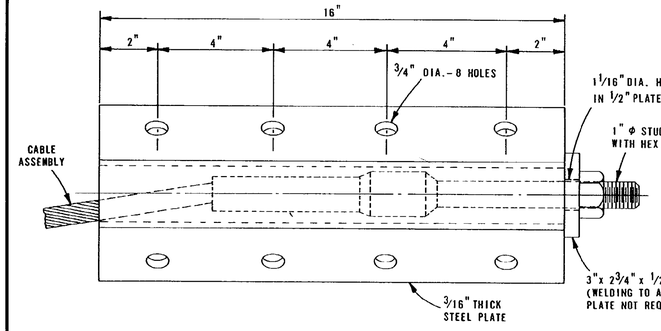
PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	ENGINEER – ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN	GUARDRAIL ENDINGS WITH CABLE ANCHORAGE
	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ	
DRAWN BY: D.F.M.		BY:	F.H.W.A. APPROVAL DATE: — PLAN DATE: 6-1-90 — III-58K — SHEET 1 OF 4
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	DEPUTY DIRECTOR – HIGHWAYS	

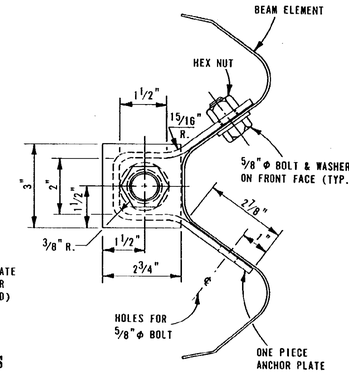


BUFFERED END SECTION
(ASSEMBLED)

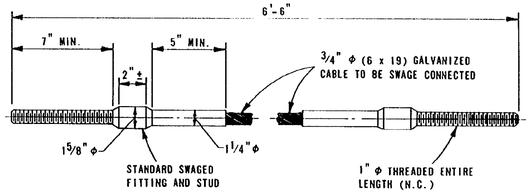


ANCHORAGE POST DETAILS





ANCHOR PLATE DETAILS



CABLE ASSEMBLY

NOTES:
ALL POSTS AND BLOCKS, BEAM AND BACK UP ELEMENTS AND FITTINGS, INCLUDING BOLTS, NUTS AND WASHERS, SHALL CONFORM TO THE DIMENSIONS AND SPECIFICATIONS SHOWN ON CURRENT STANDARD PLAN III-60 SERIES WHERE APPLICABLE, EXCEPT AS SHOWN ON THIS STANDARD.

STEEL SLEEVE WELDS SHALL BE MADE FULL LENGTH.

BUFFERED END SECTION SHALL BE MADE OF 12 GAGE (0.109") MINIMUM THICKNESS SHEET STEEL.

ALL 1 ON 10 SLOPES SHALL BE GRADED TO CLASS A SLOPE TOLERANCES.

FOR DETAILS OF GUARDRAIL PLACEMENT SEE STANDARD PLAN III-59 SERIES.

DIAPHRAGMS WILL BE ALLOWED IN THE BUFFERED END.

AFTER THE CABLE ASSEMBLY HAS BEEN TIGHTENED, THE THREADS OUTSIDE THE NUTS SHALL BE BURRED SLIGHTLY SO THE NUTS WILL NOT LOOSEN.

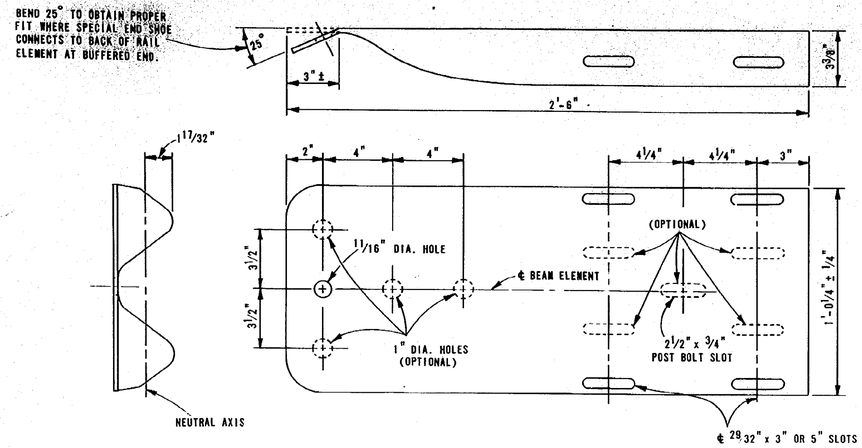
TWO 8d GALVANIZED NAILS SHALL BE DRIVEN INTO THE WOOD POST AT THE TOP OF THE BEARING PLATE TO KEEP THE BEARING PLATE FROM ROTATING.

WHEN ADDITIONAL POST BOLT SLOTS ARE REQUIRED, THEY SHALL BE DRILLED OR PUNCHED AND REGALVANIZED. BURNING WILL NOT BE ALLOWED.

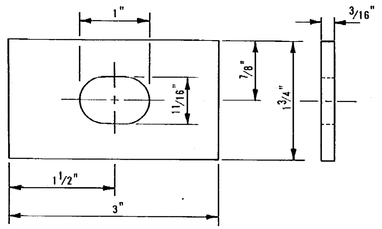
PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	ENGINEER – ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN	GUARDRAIL ENDINGS WITH CABLE ANCHORAGE
	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ	
DRAWN BY: D.F.M.		BY:	F.H.W.A. APPROVAL DATE: — PLAN DATE: 6-1-90 — III-58K — SHEET 2 OF 4
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	DEPUTY DIRECTOR – HIGHWAYS	

CONTROL SECTION 63174 | JOB NO. 28991A | SHEET NO. 27

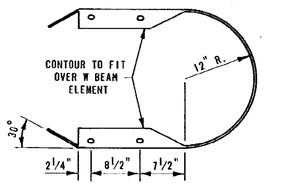
CONTROL SECTION 63174 JOB NO. 28991A SHEET NO.



SPECIAL END SHOE
(FOR BUFFERED END)

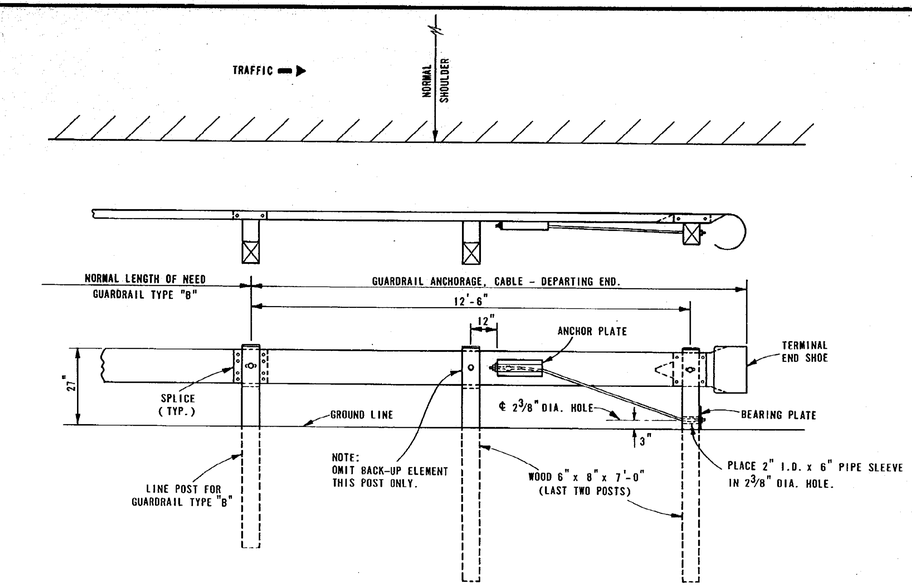


POST BOLT WASHER

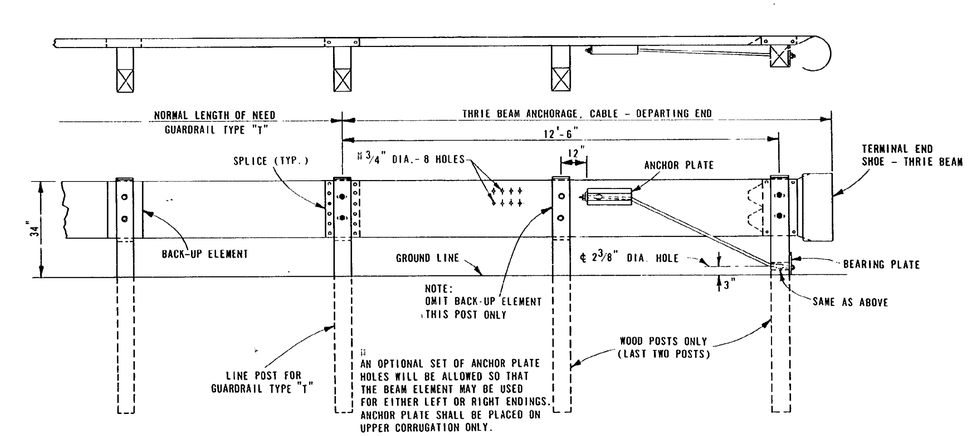


BUFFERED END
(FOR W BEAM ELEMENT)

PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	J. H. Williams ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN	GUARDRAIL ENDINGS WITH CABLE ANCHORAGE
	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ	
DRAWN BY: D.F.M.		BY:	
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL DATE · 6-1-90 PLAN DATE · III-58K · SHEET 3 OF 4



GUARDRAIL ANCHORAGE, CABLE - DEPARTING END
(ONE-WAY ROADWAYS ONLY)



THRIE BEAM ANCHORAGE, CABLE - DEPARTING END
(ONE-WAY ROADWAYS ONLY)

PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	J. H. Williams ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN	GUARDRAIL ENDINGS WITH CABLE ANCHORAGE
	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ	
DRAWN BY: D.F.M.		BY:	
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL DATE · 6-1-90 PLAN DATE · III-58K · SHEET 4 OF 4

CONTROL SECTION 63174 JOB NO. 28991A SHEET NO. 22

CONTROL SECTION 63174 JOB NO. 28991A SH. NO. 23

028991A ROAD TOTAL

SUMMARY OF QUANTITIES

ITEM DESCRIPTION	ITEM CODE	UNIT	PROJECT TOTAL	JOB SUBTOTAL	SHEET 004	SHEET 005	SHEET 006	SHEET 007	SHEET 008	SHEET 009	SHEET 010	SHEET 011	SHEET 012	SHEET 013	SHEET 014	SHEET 015	SHEET 016	SHEET 017
EMBANKMENT (LM)	2080020	CYD	3240	3240		270	270	270	270	270		270	540	270	270	540		
SEDIMENT TRAPS	2130002	EACH	6	6	6													
HAY OR STRAW BALES	2130003	EACH	60	60	60													
SEDIMENT EXCAVATION - MAINTENANCE	2130014	CYD	12	12	12													
AGGREGATE BASE - BITUMINOUS (LM)	3010001	CYD	432	432		36	36	36	36	36		36	72	36	36	72		
CLASS A SHOULDERS (LM)	3090007	CYD	10788	10788		845	991	922	718	1014	361	960	1158	1014	998	1095	460	252
CLEANING EXISTING PAVEMENT	4000003	LSUM	1.00	1.00	1.00													
CHIPPING CONCRETE PAVEMENT FOR JOINTS	4000010	SYD	11453	11453		1307	1308	800	40	1987	887	187	854	160	800	1927	160	1036
HAND PATCHING	4000015	TON	550	550	550													
BIT. MIX. NO. 1500L, 20AAA — RUBBER	4007001	TON	76248	76248	15000	4487	5756	4915	3701	5426	3506	6449	5724	5649	5341	5496	3372	1426
BIT. MIX. NO. 1500T, 20AAA — RUBBER	4007003	TON	57645	57645		4223	5417	4626	3483	5107	3299	6070	5387	5317	5027	5173	3174	1342
BITUMINOUS APPROACHES	4000120	TON	216	216		18	18	18	18	18		18	36	18	18	36		
CONCRETE PATCH GRINDING	4527001	SYD	61000	61000	61000													
ADJUSTING DRAINAGE STRUCTURE COVERS	5140045	EACH	26	26							18	8						
RECONSTRUCTED BEAM GUARD RAIL, TYPE B	6130011	LFT	680	680				150		380	150							
RECONSTRUCTED BEAM GUARD RAIL, TYPE C	6130012	LFT	4464	4464		1750	1038	825		851								
GUARD RAIL ANCHORAGE, CABLE	6130066	EACH	6	6		1	1	1		2	1							
GUARD RAIL ANCHORAGE, CABLE DEPARTING END	6130067	EACH	3	3		1	2											
SALVAGING BEAM GUARD RAIL	6130073	LFT	5144	5144		1750	1038	975		1231	150							
MOBILIZATION	6230001	LSUM	1.00	1.00	1.00													
REMOVAL OF SIGN, TYPE II	6260151	EACH	4	4	4													
LIGHTED ARROW, TYPE A, FURNISHED	6310011	EACH	8	8	8													
LIGHTED ARROW, TYPE A, OPERATED	6310012	EACH	8	8	8													
BARRICADE, TYPE II, LIGHTED, FURNISHED	6310026	EACH	1450	1450	1450													
BARRICADE, TYPE II, LIGHTED, OPERATED	6310027	EACH	840	840	840													
BARRICADE, TYPE III, LIGHTED, FURNISHED	6310036	EACH	30	30	30													
BARRICADE, TYPE III, LIGHTED, OPERATED	6310037	EACH	24	24	24													
MINOR TRAFFIC DEVICES	6310054	LSUM	1.00	1.00	1.00													
SIGN, TYPE A TEMPORARY	6310056	SFT	80	80	80													
SIGN, TYPE B TEMPORARY	6310057	SFT	3000	3000	3000													
FLAG CONTROL	6310055	LSUM	1	1	1													
TEMPORARY PAVEMENT MARKING, TYPE R, 4" WHITE	6310085	LFT	83400	83400	83400													
TEMPORARY PAVEMENT MARKING, TYPE R, 4" YELLOW	6310086	LFT	15720	15720	15720													
TEMPORARY PAVEMENT MARKING, TYPE NR, (TAPE), 4" WHITE	6310087	LFT	79320	79320	79320													
TEMPORARY PAVEMENT MARKING TYPE NR, (TAPE), 4" YELLOW	6310088	LFT	15720	15720	15720													
THERMOPLASTIC PAVEMENT MARKING 4" WHITE	6310210	LFT	314500	314500	314500													
THERMOPLASTIC PAVEMENT MARKING 4" YELLOW	6310211	LFT	157000	157000	157000													
THERMOPLASTIC PAVEMENT MARKING 6" CROSSWALK LINE	6310213	LFT	6000	6000	6000													
THERMOPLASTIC PAVEMENT MARKING, 12" CROSSWALK LINE	6310214	LFT	20000	20000	20000													
LIGHTING FOR NIGHT PAVING	6317001	LSUM	1.00	1.00	1.00													
CEREAL RYE SEEDING	6530008	LBS	970	970	970													
SLOPE RESTORATION	6530036	SYD	11405	11405	11405													
STRAW MULCH BLANKET	6530038	SYD	11405	11405	11405													
ON THE JOB TRAINING	6920002	HRS	3000	3000	3000													
LONGITUDINAL JOINT REPAIR	4000012	LFT	10000	10000	10000													
JOINT AND CRACK CLEANOUT	4000017	LFT	2500	2500	2500													
REPAIRING JOINTS AND CRACKS, DET. 7	4000020	LFT	5000	5000	5000													

JOB NUMBER 28991A
CONTROL SECTION 63174

QUANTITY SHEET

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
9/26/90	63174	28991A	PALMER	23

MICROFILM CONTENT SHEET

BATCH 07-8G **OUT TO MICROFILM 8/31/2007**

Control Section	Structure	Job Number	Sheet Number	Let Date	Region	Total Sheets	Plan Set	Box
63174		28991	(ONE ROLL)	11/14/1990	METRO	23		3
			AS LET					
	63174-28991 BIT SURF AND SAFETY UP GRADING							

MICROFILM CONTENT SHEET

BATCH 07-06F

OUT TO MICROFILM 6/29/2007

Control Section	Structure	Job Number	Sheet Number	Let Date	Region	Total Sheets	Plan Set	Box
63174		28992	(ONE ROLL)	3/13/1991	METRO	16		7
			AS LET					
	BIT OVERLAY							

CONTROL SECTION IR 63174 | JOB NO. 28992A | SH. NO. 1

ROUTE	JOB NUMBER	FEDERAL NUMBER	SHEET NO.	TOTAL SHEETS
I-75	28992A	FIR 75-2(387)58	1	

MICHIGAN
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED

MICHIGAN PROJECT FIR 75-2(387)58
CONTROL SECTION FUIR 63174
JOB NUMBER 28992A

I-75

OAKLAND CO.
CITIES OF HAZEL PARK,
MADISON HEIGHTS AND ROYAL OAK

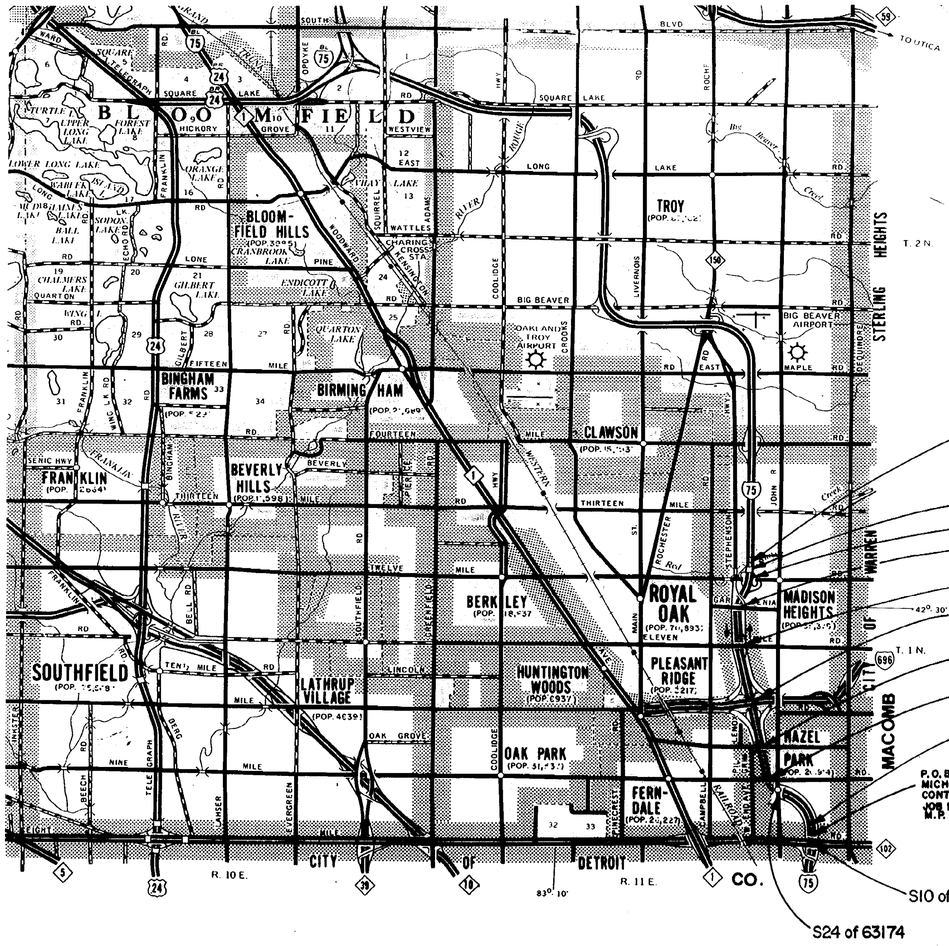
THE IMPROVEMENT COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 1984 STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS.

ROAD PLANS	SHEET NOS.
TITLE	1
TYPICAL CROSS SECTION	2-4
NOTE SHEET	5
PLANS & PROFILES	6-9
SPECIAL DETAILS	10-15
MASS DIAGRAMS	
QUANTITY SHEETS	16

BRIDGE PLANS

SIGNING PLANS

YEAR-1990	
A.D.T.	159700
D.H.V.	8827
COMM. %	9%
DESIGN SPEED	70 MPH



TITLE SHEET LEGEND

- PROPOSED PROJECT
- EXISTING ROADS
  - PAVED
  - BITUMINOUS
  - GRAVEL
  - UNIMPROVED OR CITY STREET
- SECTION LINE
- TOWNSHIP LINE
- COUNTY LINE
- CITY OR VILLAGE LIMITS
- RAILROADS

CONTRACT FOR : BIT. OVERLAY

APPROVALS

RECOMMENDED FOR APPROVAL	J. W. Williams, ENGINEER ROAD DESIGN	10/26/90 DATE
RECOMMENDED FOR APPROVAL	[illegible], ENGINEER OF DESIGN	10/29/90 DATE
RECOMMENDED FOR APPROVAL	[illegible], FOR ENGINEER OF TRAFFIC & SAFETY	11/5/90 DATE
RECOMMENDED FOR APPROVAL	[illegible], FOR ENGINEER OF CONSTRUCTION	11/6/90 DATE

MICHIGAN
DEPARTMENT OF TRANSPORTATION
JAMES P. PITZ - DIRECTOR

APPROVED BY [illegible], DEPUTY DIRECTOR - HIGHWAYS — 11/14/90 DATE

PLANS PREPARED BY PALMER (DESIGN UNIT)

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED _____ DIVISION ADMINISTRATOR — DATE

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	FEDERAL NUMBERS ITEM	SHEET NO.
IR 63174	28992A	FIR 75-2(387)58	NP1145	1

AS LET PLANS

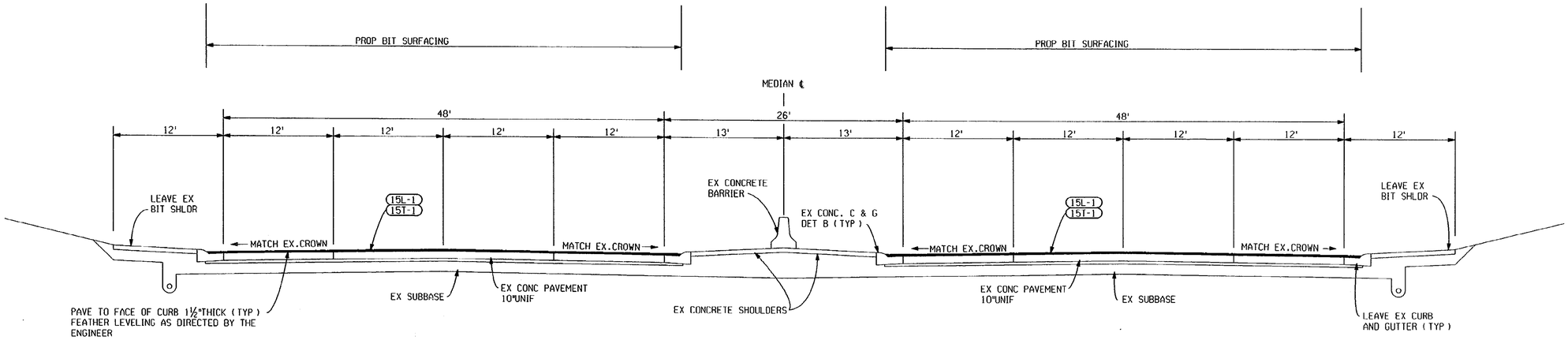
IR 63174 -- 28992A

CONTROL SECTION — JOB NUMBER

DEC. - 88

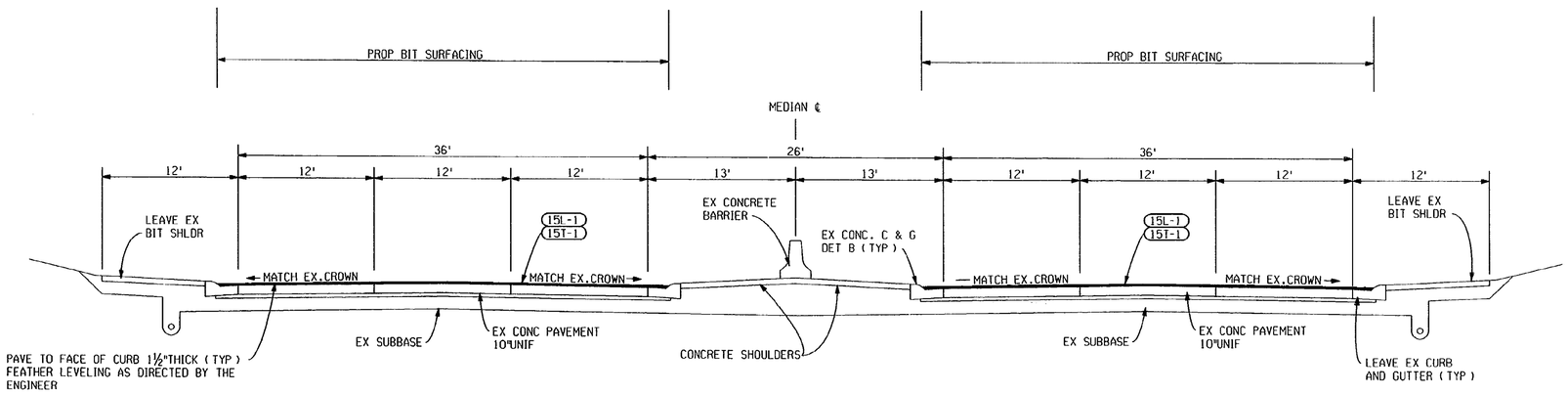
CONTROL SECTION 63174 | JOB NO. 28992A | SH. NO. 2

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



NORMAL FINISHED SECTION

TO APPLY: STA 273+50 TO STA 913+20
48' ROADWAY



NORMAL FINISHED SECTION

TO APPLY : STA 273+50 TO STA 913+20
36' ROADWAY

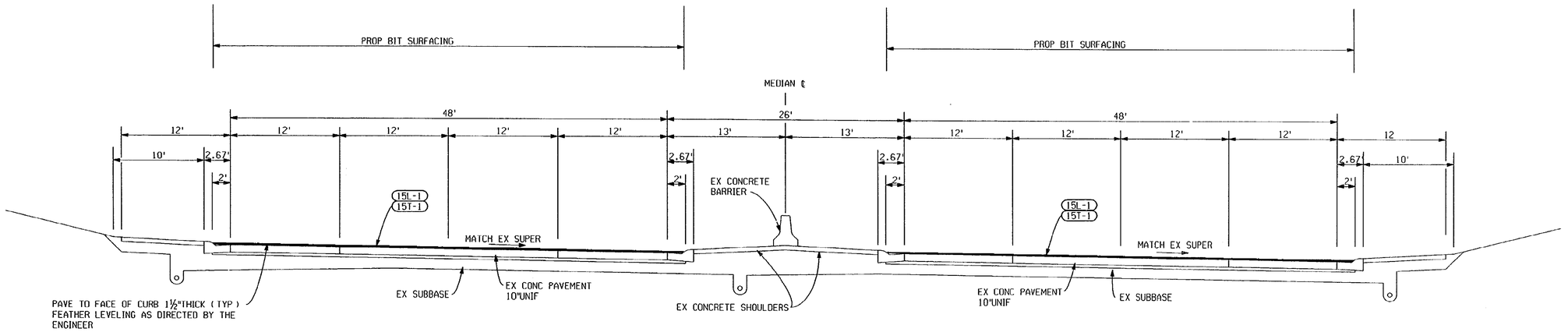
EXIS. JY:
PROPOSED BY:
LAST CORRECTION BY: M.MCCARTHY DATE: 10-16-90
FILE NAME: 28992.TY1 DATE:
I 3 4 DATE:

MICHIGAN DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTION

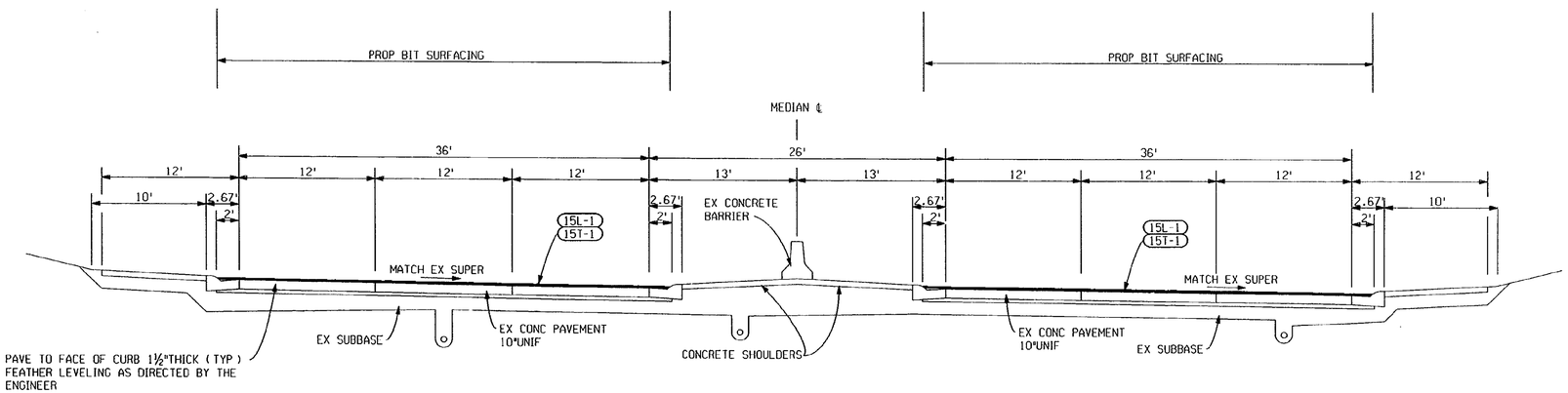
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
10/16/90	1"=6'	63174	28992 A	PALMER		2

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



SUPERELEVATED SECTION

TO APPLY: STA 273+50 TO STA 913+20
48' ROADWAY



SUPERELEVATED SECTION

TO APPLY : STA 273+50 TO STA 913+20
36' ROADWAY

CONTROL SECTION 63174 | JOB NO. 28992A | SH. NO. 3

EXL. BY:
PROPOSED BY:
LAST CORRECTION BY: M.MCCARTHY DATE: 10-16-90
FILE NAME: 28992.TY1 DATE:
1 3 4

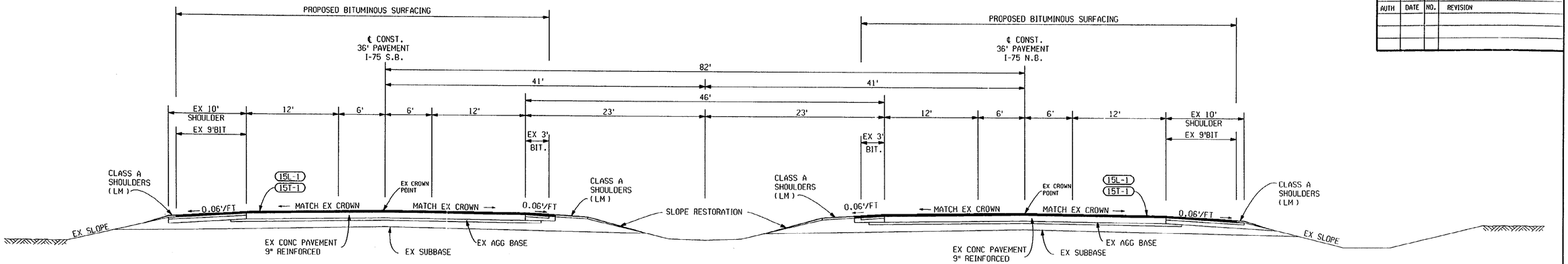
MICHIGAN DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTION

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
10/19/90	1"=6'	63174	28992 A	PALMER		3

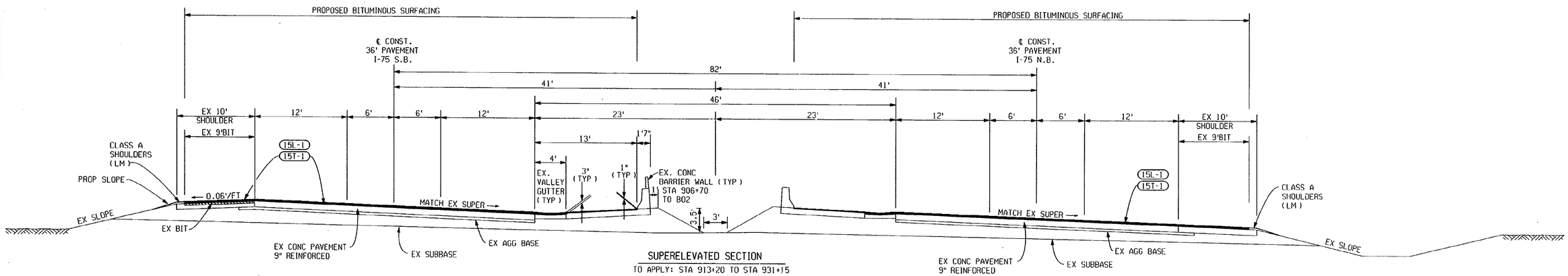
CONTROL SECTION 63174 JOB NO. 28992A SH. NO. 4

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



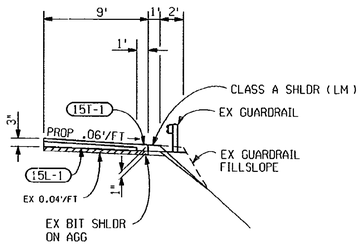
NORMAL SECTION

TO APPLY: B02 TO STA 935+00



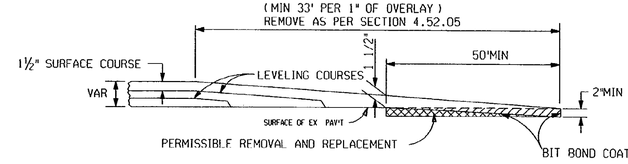
SUPERELEVATED SECTION

TO APPLY: STA 913+20 TO STA 931+15



SHOULDER DETAIL

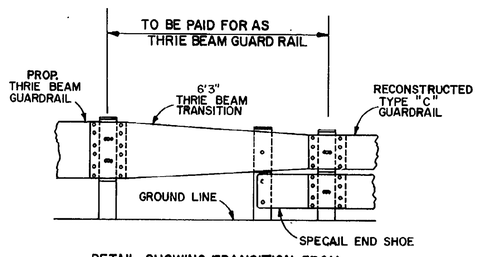
SHOWNING BITUMINOUS SUFACING



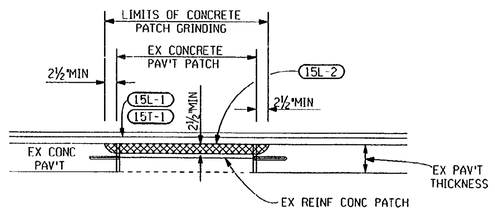
FEATHERING DETAIL-BUTT JOINT TYPE

TO APPLY: ALL RAMPS, P0B, S03, B02, F0E & UNDER BRIDGES WHERE SHOWN

NOTE: BUTT JOINTS WILL ONLY BE CUT ON THE DAY THAT THE OVERLAY WILL BE PLACED.



DETAIL SHOWING TRANSITION FROM TYPE "C" TO THRIE BEAM GUARDRAIL



LONGITUDINAL DETAIL SHOWING TREATMENT OF EX CONC PAV'T PATCH

NOT TO SCALE

TO APPLY: AS DIRECTED BY THE ENGINEER

BITUMINOUS APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE PER SYD	ESTIMATED THICKNESS	ASPHALT PENETRATION	REMARKS
15T-1	BITUMINOUS MIXTURE *1500T,20AAA -RUBBER	160#	1 1/2"	85-100	I-75 ROADWAY & RAMPS
15L-1	BITUMINOUS MIXTURE *1500L,20AAA -RUBBER	170#	1 1/2"	85-100	I-75 ROADWAY & SHLDRS
*** 15L-2	BITUMINOUS MIXTURE *1500L,20AAA	250#	2 1/2"	85-100	EX CONC PATCH REPAIR
	* BITUMINOUS BOND COAT	0-0.10 GAL			

*FOR INFORMATION ONLY

*** TO BE PAVED IN TWO LIFTS

MICHIGAN DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTION

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
10/19/90	1"=6'	63174	28992A	PALMER		4

EX: BY:
PROPOSED BY: DATE:
LAST CORRECTION BY: M.MCCARTHY DATE: 10-16-90
FILE NAME: 28892.TY1
1 3 4

ENGINEERING REPORT NO	ENVIRON IMPACT STMT	
METHOD OF SURVEY		YEAR
SURVEY ORDER	SURVEY CHIEF	YEAR
AERIAL SURVEY NO		YEAR
HORIZ DATUM	VERT DATUM	
ROAD DESIGN INITIATED 5-5-88	COMPLETED 9-90	
PRELIMINARY PLANS BY D.VAUGHN	FINAL PLANS BY T.PALMER	
FIELD INSPECTION (GI) BY K.KRUGER	M. FISHER	DATE 12-7-88
PLANS-IN-HAND BY (FHWA) M. HOVEL	AND (MDOT) D. HILL	DATE 1-30-89
J. PATTEN	T. PALMER	9-27-90
	J. KALMBACH	

CONTROL SECTION 63174 | JOB NO. 28992A | SH. NO. 5

GENERAL PLAN NOTES

UNDERGROUND UTILITIES

FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF 72 HOURS PRIOR TO EXCAVATING IN THE VICINITY OF UTILITY LINES. ALL "MISS DIG" PARTICIPATING MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM.

ADJUSTING MONUMENT BOXES

IT IS THE INTENT THAT ALL GOVERNMENT CORNERS ON THIS PROJECT BE PRESERVED AND THAT, WHERE NECESSARY, MONUMENT BOXES BE PLACED OR ADJUSTED, WHETHER SHOWN OR NOT.

OLD PLANS

THE FOLLOWING OLD PLANS WERE REFERRED TO IN THE DESIGN OF THIS PROJECT.

82252-142 63174-C14
63174-C61 63174-C66
63174-C70

IN ADDITION, OTHER OLD PLANS THAT PREDATE THIS PROJECT MAY BE AVAILABLE. THESE PLANS MAY BE REVIEWED IN THE LANSING DESIGN OFFICE DURING NORMAL WORKING HOURS.

SHOULDER CORES

THE CORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY INFERS THAT SUBSURFACE CONDITIONS ARE THE SAME OTHER THAN THE EXACT LOCATION OF THE CORINGS.

STATIONING

STATIONING ON THIS PROJECT WAS TAKEN FROM OLD PLANS AND PAVEMENT STENCILED STATIONING AND IS NOT NECESSARILY CORRECT.

SIGNS

ALL SIGNS REQUIRING RELOCATION DUE TO CONSTRUCTION OPERATIONS SHALL BE SALVAGED AND RESET BY THE CONTRACTOR AT LOCATIONS DESIGNATED BY THE ENGINEER. THIS WORK WILL BE CONSIDERED AS INCIDENTAL TO CONSTRUCTION OF THE PROJECT.

GUARDRAIL MATERIAL

ONLY GALVANIZED BEAM GUARDRAIL WILL BE USED ON THIS PROJECT.

BRIDGE UNDERCLEARANCES

EXISTING UNDECLEARANCES ON STRUCTURES OVER I-75 SHALL BE MAINTAINED AS NOTED ON PLANS OR DIRECTED BY THE ENGINEER.

SLOPE RESTORATION

ALL GRADED SLOPES SHALL BE MULCHED AND SEEDED AS DESCRIBED UNDER THE PAY ITEM "SLOPE RESTORATION".

JOINT & CRACK CLEANOUT

JOINT AND CRACK CLEANOUT IS ONLY FOR THE REMOVAL OF PRESSURE RELIEF JOINTS BEFORE OVERLAYING WITH BITUMINOUS AS DIRECTED BY THE ENGINEER. THE SEALING OF THESE JOINTS WILL CONSIST OF A BITUMINOUS MIXTURE AS APPROVED BY THE ENGINEER, THIS WILL BE PAID FOR BY THE TON AS "HAND PATCHING."

COOLING OF BITUMINOUS MAT

IT WILL BE THE CONTRACTORS RESPONSIBILIY TO MAKE SURE BITUMINOUS MAT IS PROPERLY COOLED BEFORE OPENING TO TRAFFIC. THIS OPERATION IS INCLUDED IN THE COST OF THE BITUMINOUS.

STAGING SEQUENCE

CENTER LANE JOINT REPAIRS SHALL BE DONE HALF AT A TIME. TRAFFIC WILL NOT BE ALLOWED TO DRIVE ON THE SHOULDER TAPER JOINTS MUST BE USED AND AT THE TIME OF PAVING THE CENTER LANE, TRAFFIC MUST BE SHIFTED TO A PREVIOUSLY PAVED LANE.

BITUMINOUS CONSTRUCTION JOINTS

BITUMINOUS CONSTRUCTION JOINTS MUST BE AT LEAST 4-1/2' LONG FOR A 1-1/2" COURSE, THIS SHALL BE IN PLACE BEFORE TRAFFIC CAN BE SHIFTED. BITUMINOUS TAPER JOINTS ARE REQUIRED ON THIS PROJECT. SEE THE SPECIAL PROVISION FOR DETAILS.

SHOULDER PATCHING

A MISCELANEOUS QUANTITY OF HAND PATCHING HAS BEEN SET UP FOR REPAIRING THE EXISTING SHOULDER AS DIRECTED BY THE ENGINEER.

GUARD RAIL ANCHORAGE - BRIDGE

THE EXISTING GUARDRAIL ANCHORAGES THAT ATTACH TO THE EXISTING BRIDGES SHALL BE PAID FOR AS SALVAGED AND RECONSTRUCTED BEAM GUARDRAIL. TWO EXTRA POSTS SHALL BE ADDED TO THE ANCHORS OF THESE AND ALL OTHER EXISTING BRIDGE ANCHORS AND WILL BE PAID FOR SEPARATELY. DRILLING OF HOLES IN GUARDRAIL BEAMS, ALL HARDWARE AND INSTALLATION OF THE POST WILL BE MEASURED AS UNITS OF "GUARD RAIL POST FURNISHED AND INSTALLED, 6."

EXIST. :
PROPOSED BY:
LAST CORRECTION BY: M.MCCARTHY DATE: 10-19-90
FILE NAME: 28991.NT1 DATE:
12

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO IT'S ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

NAME OF OWNER	KIND OF UTILITY
CITY OF MADISON HEIGHTS 300 W. 13 MILE RD. MADISON HEIGHTS, MICHIGAN 48071 ATTN:MR. PETER CONNERS,PUBLIC WORKS	SEWER,WATER
CITY OF ROYAL OAK 211 WILLIAM ST. ROYAL OAK, MICHIGAN 48067	SEWER,WATER
CONSUMERS POWER COMPANY 1955 PARNALL RD., ROOM JSC-202A JACKSON, MICHIGAN 49201 ATTN:W. ZIMMERMAN, LAND & ROW DEPT.	GAS
DETROIT EDISON COMPANY 2000 SECOND AVE. ROOM 660SB DETROIT, MICHIGAN 48226 ATTN: PAUL NORMANDIN	ELECTRIC
MICHIGAN BELL TELEPHONE COMPANY 444 MICHIGAN AVE. ROOM 635 DETROIT, MICHIGAN 48226 ATTN: KEITH REGAN	TELEPHONE
OAKLAND COUNTY DRAIN COMMISSION PUBLIC WORKS DRIVE PONTIAC, MICHIGAN 48054 ATTN: D. SNYDER, DEPUTY & CHIEF ENGINEER	SEWER
BUCKEYE PIPELINE COMPANY P.O. BOX 368 EMMAUS, PA. 18049-0368 ATTN: GEORGE FOX	OIL

NOTES APPLYING TO STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

CONCRETE PAVEMENT REPAIR	II-44G (SPECIAL DET)
GUARDRAIL BULLNOSE	III-56B (SPECIAL DET)
GUARDRAIL ENDINGS WITH CABLE ANCHORAGE	III-58K (SPECIAL DET)
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	V-96C
SODDING AND SEEDING	V-100B
* SHOULDERS - FREEWAYS	V-112K
LIGHTED ARROWS AND BARRICADES	VI-125G
## SUPER ELEVATION AND PAVEMENT CROWNS	V-107D

* INCLUDED FOR SHOULDER CORRUGATIONS ONLY

INCLUDED FOR SHOULDER SLOPE AND SUPER TRANSITION ONLY (SUPER IN ACCORDANCE WITH AASHTO STRAIGHT LINE FRICTION TABLE)

ROAD SPECIAL DETAIL

BRIDGE RAILING THRIE BEAM RETROFIT	X-23A(SPEC. DET.)

MISCELLANEOUS ESTIMATES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

	A	B	MDOT	TOTAL	UNIT
CLEANING EXISTING PAVEMENT	.12	.39	.49	1	LSUM
FLAG CONTROL	.12	.39	.49	1	LSUM
MINOR TRAFFIC DEVICES	.12	.39	.49	1	LSUM
LIGHTING FOR NIGHT PAVING	.12	.39	.49	1	LSUM
LIGHTED ARROW, TYPE A - FURNISHED	1	2	3	6	EACH
LIGHTED ARROW, TYPE A - OPERATED	1	2	3	6	EACH
BARRICADE, TYPE II, LIGHTED - FURNISHED	68	220	277	565	EACH
BARRICADE, TYPE II, LIGHTED - OPERATED	39	127	159	325	EACH
SIGN, TYPE A , TEMPORARY	2	8	10	20	SFT
SIGN, TYPE B , TEMPORARY	144	468	588	1200	SFT
TEMPORARY PAVEMENT MARKING, TYPE R 4" WHITE	5345	17375	21830	44550	LFT
TEMPORARY PAVEMENT MARKING, TYPE R 4" YELLOW	696	2262	2842	5800	LFT
THERMOPLASTIC PAVEMENT MARKING 4" WHITE			137240	137240	LFT
THERMOPLASTIC PAVEMENT MARKING 4" YELLOW			57800	57800	LFT
THERMOPLASTIC PAVEMENT MARKING 6" CROSS WALK LINE			2300	2300	LFT
THERMOPLASTIC PAVEMENT MARKING 12" CROSS WALK LINE			19815	19815	LFT
TEMPORARY PAVEMENT MARKING, TYPE NR (TAPE 4"WHITE	10692	34749	43659	89100	LFT
TEMPORARY PAVEMENT MARKING, TYPE NR (TAPE 4"YELLOW	1392	4524	5684	11600	LFT
BARRICADE, TYPE III, LIGHTED-FURNISHED	1	2	3	6	EACH
BARRICADE, TYPE III, LIGHTED-OPERATED	1	2	3	6	EACH
STRAW MULCH BLANKET	500			500	SYD
SLOPE RESTORATION	500			500	SYD
CEREAL RYE SEEDING	6			6	LBS
BIT.MIXNO.1500L,20AAA (PATCH GRINDING AREA)	48	156	196	400	TON
HAND PATCHING	10	40	50	100	TON
JOINT AND CRACK CLEANOUT	149	487	612	1248	LFT
CONCRETE PATCH GRINDING	383	1248	1568	3199	SYD
LONGITUDIAL JOINT REPAIR	240	780	980	2000	LFT
ON-THE-JOB TRAINING	180	285	285	750	HOUR
RECONSTRUCT DRAINAGE STRUCTURE	4	12	14	30	EACH
DRAINAGE STRUCTURE COVERS	1854	6026	7570	15450	LBS
MOBILIZATION	.12	.39	.49	1	LSUM
REPAIRING PAVEMENT JOINTS AND CRACKS,DET.7	120	390	490	1000	LFT
REMOVAL OF SIGN, TYPE II			1	1	EACH
GUARD RAIL POST FURNISHED AND INSTALLED, 6"	8			8	EACH

EROSION AND SEDIMENTATION CONTROL QUANTITIES

HAY OR STRAW BALES	4	16	20	40	EACH

A - CITY OF MADISON HEIGHTS

B - CITY OF ROYAL OAK

MICHIGAN DEPARTMENT OF TRANSPORTATION

NOTE SHEET

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
10/19/90	63174	28992A	PALMER		5

CONTROL SECTION 63174 | JOB NO. 28992A | SHT. NO. 6

EXISTING BY: HAGERMAN
PROPOSED BY:
LAST CORRECTION BY: RHODABECK/1

DATE:
DATE:
DATE: 10-16-90

AUTH	DATE	NO.	FINAL R.O.W. REVISION

8 MILE RD.

I-75 CONST. ℄
CURVE DATA
△=08°20'23"LT
D=01°15'00"
R=4583.66'
T=334.18'
L=667.18'
E=12.17'
PC =263+04.29
PI =266+38.47
PT =269+71.47
NO SUPER

CITY OF DETROIT
WAYNE COUNTY
T1S - R11E

POB=260+00.00
PC=263+04.29
PI=266+38.47
PT=269+71.47
W.BD CONST.℄ 8 MILE RD.
E.BD CONST.℄ 8 MILE RD.
SECTION LINE
STATION EQUATION
STA 272+97.86 BACK=
STA 272+99.36 AHEAD
CITY OF HAZEL PARK
STATION EQUATION
STA 285+81.50 BACK=
STA 706+83.00 AHEAD
MAINTAIN 14'-5"
P02 OF 63174A
CLEARANCE: 14'5"
36' 26' VAR.
N8° 44' 22"E
EX CONCRETE BARRIER
PUMP HOUSE
CITY OF DETROIT
S10 OF 82252
CHIPPING CONC PAVT FOR JOINT
MICHIGAN PROJECT FIR 75-2(387)58
P.O.B. STA 273+50±
CONTROL SECTION 63174
JOB NO. 28992A
SURFACING BEGINS
CITY LIMITS
MEDIAN CONST.℄ I-75
SOUTHBOUND I-75
NORTHBOUND I-75
N23° 59'E
N2° 30' 29"W
710
EX SIGN FOUNDATION
BEARING EQUATION
N00°23'59"E BACK=
N02°30'29"W AHEAD

QUANTITIES THIS SHEET

4167 TON	BIT MIXTURE NO.1500T, 20AAA -RUBBER
4427 TON	BIT MIXTURE NO.1500L, 20AAA -RUBBER
665 SYD	CHIPPING CONC PAVT FOR JOINTS
64 EACH	ADJ DR. STRUCTURE COVERS
2934 SYD	COLD-MILLING CONC SURFACE

I-75 CONST. ℄
CURVE DATA
△=72°59'28"LT
D=02°40'00"
R=2148.59'
T=1589.62'
L=2737.17'
E=524.11'
PC =715+67.06
PI =731+56.68
PT =743+04.23
EX & PROP SUPER = 0.05'/FT

36' 26' VAR.
N2° 30' 29"W
EX CONCRETE BARRIER
EX GR
BB-238
RN-502
EX TRUSS FOUNDATIONS
MEYERS ROAD
EX PUMP HOUSE
S22 OF 63174
CLEARANCE 15'1"
MAINTAIN 14'-7"
P03 OF 63174A
CLEARANCE 14'7"
CONCRETE BARRIER
SOUTHBOUND I-75
I-75 CONST.℄
NORTHBOUND I-75
CITY OF HAZEL PARK
MAINTAIN 14'-8"
P04 OF 63174A
CLEARANCE 14'-8"
N75° 29' 57"W
N2° 30' 29"W
46' 26' VAR.

LEGEND
- COLD-MILL EX CONC PAVT
- CHIPPING CONC PAVT FOR JOINTS
- (ADJ) ADJUST

MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 260+00 TO STA 745+00

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
10/19/88	1"=100'	63174	28992 A	PALMER		6

FILE NAME: 28922060.DN1
1 2 3 17 21 22 24 25 26 33

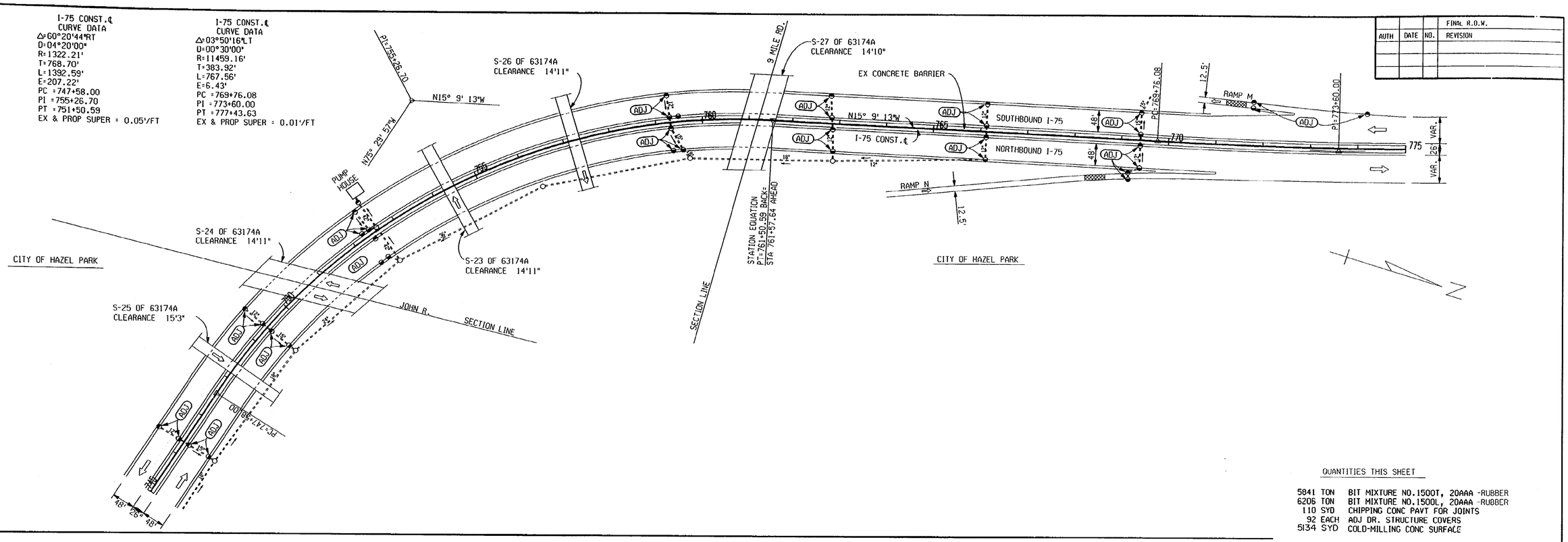
CONTROL SECTION 63174 | JOB NO. 28992A | SH. NO. 7

DATE: DATE: 10-16-90
EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: RHODABECK/1

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

I-75 CONST.℄
CURVE DATA
△=60°20'44"RT
D=04°20'00"
R=1322.21'
T=768.70'
L=1392.59'
E=207.22'
PC =747+58.00
PI =755+26.70
PT =751+50.59
EX & PROP SUPER = 0.05'/FT

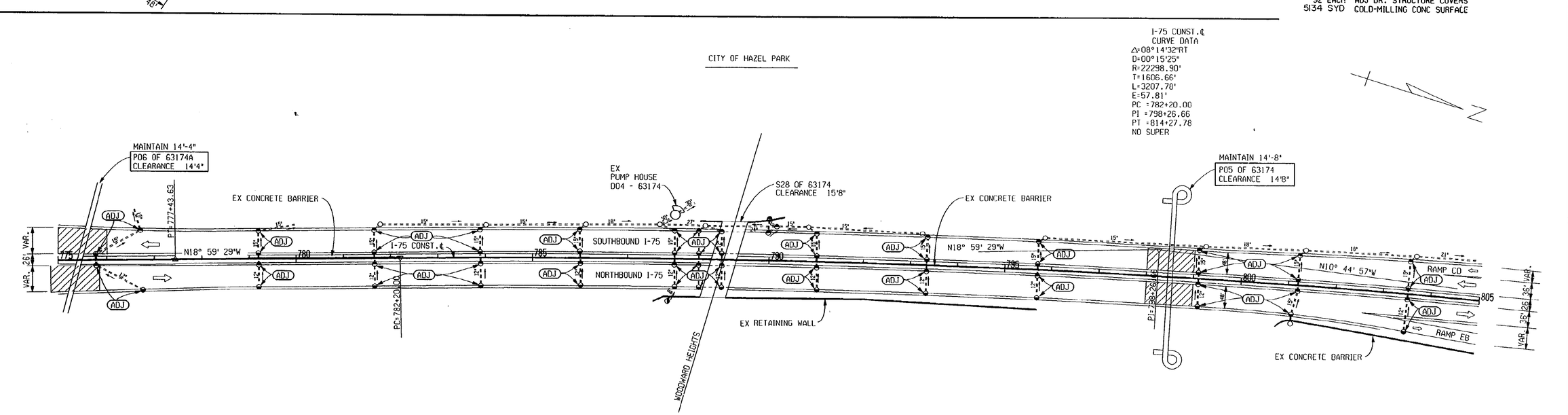
I-75 CONST.℄
CURVE DATA
△=03°50'16"LT
D=00°30'00"
R=11459.16'
T=383.92'
L=767.56'
E=6.43'
PC =769+76.08
PI =773+60.00
PT =777+43.63
EX & PROP SUPER = 0.01'/FT



QUANTITIES THIS SHEET

5841	TON	BIT MIXTURE NO.1500T, 20AAA -RUBBER
6206	TON	BIT MIXTURE NO.1500L, 20AAA -RUBBER
110	SYD	CHIPPING CONC PAVT FOR JOINTS
92	EACH	ADJ DR. STRUCTURE COVERS
5134	SYD	COLD-MILLING CONC SURFACE

I-75 CONST.℄
CURVE DATA
△=08°14'32"RT
D=00°15'25"
R=22298.90'
T=1606.66'
L=3207.70'
E=57.81'
PC =782+20.00
PI =798+26.66
PT =814+27.78
NO SUPER



DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W. / CONST.
10/19/88	1"=100'	63174	28992 A	PALMER	7

I-75 STA 745+00 TO STA 805+00

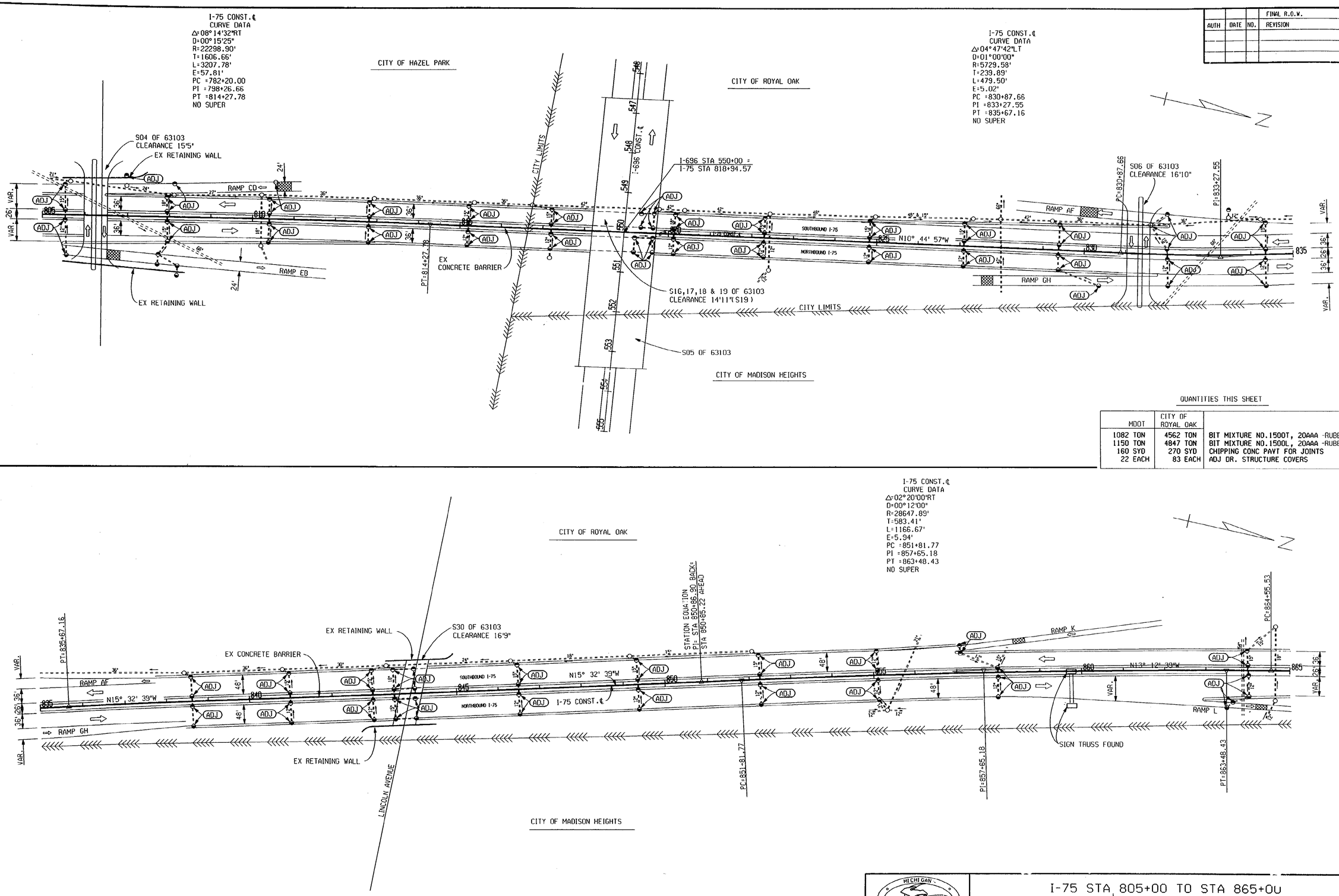
FILE NAME: 289920745.DN1
1 2 3 17 21 22 24 25 26 33

CONTROL SECTION 63174 | JOB NO. 28992A | SH. NO. 8

DATE:
DATE:
DATE: 10-16-90

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: RHODABECK/1

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



QUANTITIES THIS SHEET

MDOT	CITY OF ROYAL OAK	
1082 TON	4562 TON	BIT MIXTURE NO.1500T, 20AAA -RUBBER
1150 TON	4847 TON	BIT MIXTURE NO.1500L, 20AAA -RUBBER
160 SYD	270 SYD	CHIPPING CONC PAVT FOR JOINTS
22 EACH	83 EACH	ADJ DR. STRUCTURE COVERS

FILE NAME: 28992080S.DN1

MICHIGAN DEPARTMENT OF TRANSPORTATION	I-75 STA 805+00 TO STA 865+00					
	DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W. / CONST.
	10/19/90	1"=100'	63174	28992 A	PALMER	8

CONTROL SECTION 63174 | JOB NO. 28992 A | SH. NO. 9

DATE: 10-19-90
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: M.MCCARTHY

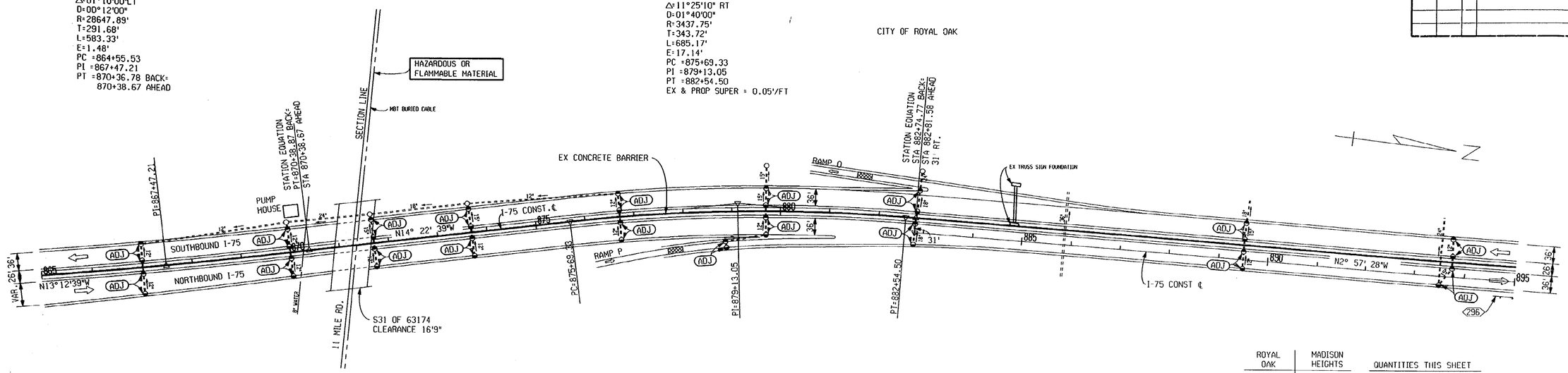
			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

11 MILE RD.

I-75 CONST.℄
CURVE DATA
Δ=01°10'00"LT
D=00°12'00"
R=28647.89'
T=291.68'
L=583.33'
E=1.48'
PC =864+55.53
PI =867+47.21
PT =870+36.78 BACK=
870+38.67 AHEAD

I-75 CONST.℄
CURVE DATA
Δ=11°25'10" RT
D=01°40'00"
R=3437.75'
T=343.72'
L=685.17'
E=17.14'
PC =875+69.33
PI =879+13.05
PT =882+54.50
EX & PROP SUPER = 0.05'/FT

CITY OF ROYAL OAK



ROYAL OAK	MADISON HEIGHTS	QUANTITIES THIS SHEET
3212 TON	3040 TON	BIT MIXTURE NO.1500T, 20AAA -RUBBER
3412 TON	2653 TON	BIT MIXTURE NO.1500L, 20AAA -RUBBER
107 SYD	2356 SYD	CHIPPING CONC PAVT FOR JOINTS
60 EACH	12 EACH	ADJ DR. STRUCTURE COVERS
	1040 LFT	BRIDGE RAILING THRIE BEAM RETROFIT
	1156 SYD	COLD-MILLING CONC SURFACE
	225 LFT	REMOVING BEAM GUARD RAIL

GARDENIA AVE.

HAZARDOUS OR FLAMMABLE MATERIAL
MBT CONDUIT BURIED 28' NORTH ℄
GARDENIA AVE.
POT SB STA 889+49.23 = 889+62.23 LT
PC SB STA 889+50.93 = 889+63.93 RT
PC=889+60.93 NB
PI=904+58.00
PI=905+14.61
S.30.
N.BD. SERVICE RD.
N27° 2' 24"E
S02 OF 63174
CLEARANCE 17'0"
PUMP HOUSE
S01 OF 63174
CLEARANCE 17'0"
EX CONCRETE BARRIER
CITY LIMITS
I-75 CONST ℄
PI=909+46.22
N27° 2' 23"E
NOTE: THE CONTRACTOR WILL NOT PARK VEHICLES IN THE RED RUN DRAIN AREA UNLESS APPROVED BY THE OWNER.
SURFACING ENDS
CITY OF ROYAL OAK
CITY OF MADISON HEIGHTS
STATION EQUATION
PT= 910+23.90 BACK SBD.=
NBD. STA 909+86.23 AHEAD
& 82' LT.
MAINTAIN 16'-0"
P01 OF 63174
CLEARANCE 16'0"
EX GUARDRAIL TYPE CC - 188'
RN-
RAMP A
PC=915+39.22
PI=920+33.83
SOUTHBOUND I-75
NORTHBOUND I-75
RAMP B
EX GUARDRAIL TYPE CC - 538'
RN-
EX GUARDRAIL TYPE C - 563'
RN-
SECTION LINE
12 EACH REFLECTORIZED WASHERS
910
915
920
925
N1° 59' 56"W
EX CONCRETE BARRIER
N27° 2' 24"E
EX GUARDRAIL TYPE C - 175'
RN-
50' TYP.
S03 OF 63174
OMIT SURFACING
12 MILE RD.
N89° 47' 45"E

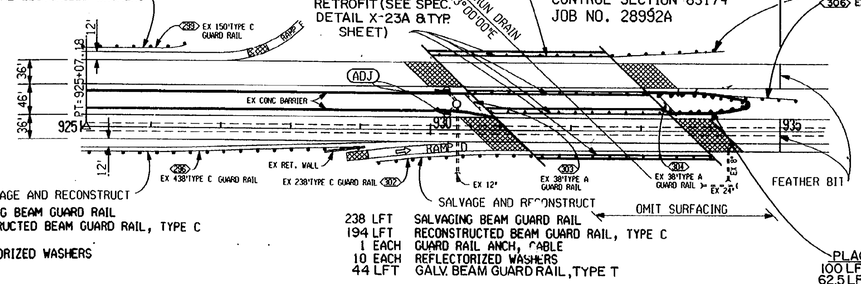
I-75 SB CONST.℄
CURVE DATA
Δ=29°59'53"RT
D=02°52'35"
R=1991.86
T=533.68'
L=1042.87'
E=70.26'
PC =899+80.93
PI =905+14.61
PT =910+23.80
EX & PROP SUPER = 0.06'/FT

I-75 CONST.℄
CURVE DATA
Δ=29°02'20"LT
D=03°00'00"
R=1909.86'
T=494.61'
L=967.96'
E=63.01'
PC =915+39.22
PI =920+33.83
PT =925+07.18
EX & PROP SUPER = 0.57'/FT

SALVAGE AND RECONSTRUCT
150 LFT SALVAGING BEAM GUARD RAIL
150 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE C
1 EACH GUARD RAIL ANCH, CABLE
7 EACH REFLECTORIZED WASHERS

B02 OF 63174
PROP. BRIDGE RAILING THRIE BEAM RETROFIT (SEE SPEC. DETAIL X-23A & TYP. SHEET)
MICHIGAN PROJ FIR 75-2(387)58
P.O.E STA. 935+00 NBD I-75
CONTROL SECTION 63174
JOB NO. 28992A
RED RUN DRAIN N43°00'00"E
REMOVE
306 EX 225'TYPE C GUARD RAIL

SALVAGE & RECONSTRUCT
305 EX. 154' TYPE C GUARD RAIL
154 LFT SALVAGING BEAM GUARD RAIL
110 LFT RECONST. BEAM GUARD RAIL, TYPE C
1 EACH GUARD RAIL ANCH, CABLE
7 EACH REFLECTORIZED WASHERS
44 LFT GALV. BEAM GUARD RAIL, TYPE T



SALVAGE AND RECONSTRUCT
438 LFT SALVAGING BEAM GUARD RAIL
438 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE C
14 EACH REFLECTORIZED WASHERS

SALVAGE AND RECONSTRUCT
238 LFT SALVAGING BEAM GUARD RAIL
194 LFT RECONSTRUCTED BEAM GUARD RAIL, TYPE C
1 EACH GUARD RAIL ANCH, CABLE
10 EACH REFLECTORIZED WASHERS
44 LFT GALV. BEAM GUARD RAIL, TYPE T
OMIT SURFACING

PLACE NEW GUARD RAIL BULLNOSE
100 LFT GALV. BEAM GUARD RAIL, TYPE B
62.5 LFT GALV. CURVED BEAM GUARD RAIL, TYPE B
6 EACH REFLECTORIZED WASHERS
50 CYD EMBANKMENT(LM)
88 LFT GALV. BEAM GUARD RAIL, TYPE T

I-75 CONST.℄
CURVE DATA
Δ=29°59'53"RT
D=03°00'00"
R=1909.86'
T=511.71'
L=999.94'
E=67.36'
PC =899+46.29
PI =904+58.00
PT =909+46.22
EX & PROP SUPER = 0.05'/FT

RAMP D
CURVE DATA
Δ=8°49'17"
D=7°00'00"
R=818.51'
T=63.13'
L=126.02'
E=2.43'
PC =6+43.81
PI =7+06.94
PI =7+69.83
(30'RT STA 930+00 NBD RDWY)
EX SUPER = 0.07'/FT

12 MILE RD.

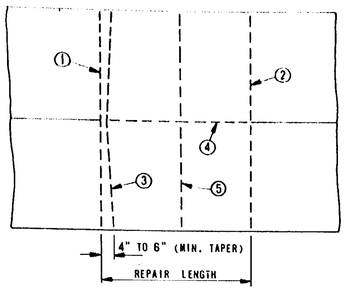
MICHIGAN DEPARTMENT OF TRANSPORTATION

I-75 STA 865+00 TO STA 935+00 (P.O.E.)

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
10/19/90	1"=100'	63174	28992 A	PALMER		9

FILE NAME: 289920865.DN1

CONTROL SECTION 63174 JOB NO. 28992A SHEET NO. 10



Plan of Sawing Diagram

THIS METHOD OF REMOVING DISTRESSED CONCRETE SHALL BE USED IN CONJUNCTION WITH FULL DEPTH CAST-IN-PLACE REPAIRS (DETAILS 3 & 3A) LESS THAN 50' LONG, AND IS OPTIONAL FOR REPAIRS OVER 50' IN LENGTH.

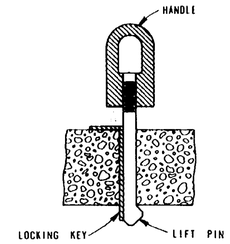
① & ② THESE SAW CUTS SHALL BE FULL DEPTH AND PERPENDICULAR TO THE EDGE OF THE ROADWAY, WITHIN A TOLERANCE OF 1".

③ THIS FULL DEPTH SAW CUT IS MADE TO FACILITATE OPENING A TRENCH ACROSS THE SLAB TO RELIEVE COMPRESSION IN THE PAVEMENT PRIOR TO LIFTING OUT THE FAILED AREA. THIS SAW CUT MAY BE OMITTED PROVIDED NO SPALLING OF THE REMAINING CONCRETE PAVEMENT OCCURS. IF SPALLING DOES OCCUR, THE CONTRACTOR WILL BE REQUIRED TO MAKE THIS SAW CUT ON SUBSEQUENT REPAIRS. WHEN THIS SAW CUT IS USED AND THE ADJACENT LANE IS NOT REPAIRED, NO OVERCUTTING INTO THAT LANE SHALL BE MADE.

④ THIS SAW CUT IS MADE FULL DEPTH BETWEEN LANES, BETWEEN A LANE AND A CURB, AND BETWEEN A LANE AND A RAMP.

⑤ IF REQUIRED, INTERMEDIATE SAW CUTS MAY BE MADE TO REMOVE A SECTION OF PAVEMENT LANE WHICH IS OVER 6 FEET IN LENGTH, TO PERMIT LOADING INTO THE HAULING UNITS.

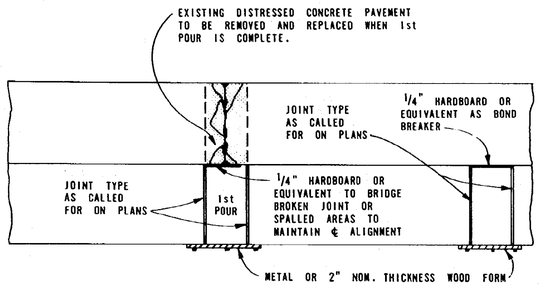
ADDITIONAL SAW CUTS, AT CONTRACTOR'S EXPENSE, MAY BE MADE INSIDE THE REPAIR LIMITS TO REDUCE 6-FOOT BY 12-FOOT SLABS INTO SMALLER PIECES TO FACILITATE REMOVAL.



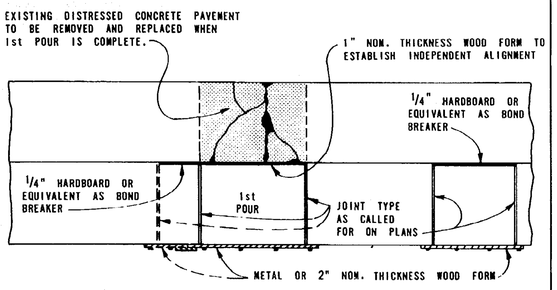
Schematic of Typical Lift Pin Assembly

SAWING DIAGRAM & LIFT PIN FOR REMOVING OLD SLAB

DETAIL 1



Repair Length 12′ or Less



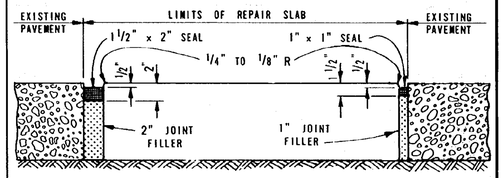
WHERE REPAIRS LONGER THAN 12 FEET ARE REQUIRED, A NEW GRADE MUST BE ESTABLISHED ALONG THE OLD PAVEMENT INNER JOINT LINE INDEPENDENT OF THE OLD PAVEMENT SURFACE, SO THAT SCREEDING MAY BE DONE PERPENDICULAR TO THE CENTERLINE AND INDEPENDENT OF THE OLD PAVEMENT GRADE.

Repair Length More Than 12′

NOTE: STAKES USED TO HOLD BITUMINOUS FILLER OR HARDBOARD IN PLACE DURING CONCRETE PLACEMENT SHALL BE REMOVED BEFORE SCREEDING THE CONCRETE.

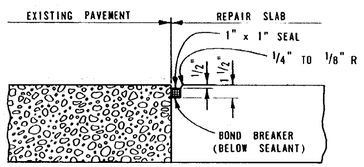
FORMING REQUIREMENTS FOR CAST-IN-PLACE REPAIR

DETAIL 2



Expansion Joint Type "A"

Expansion Joint Type "B"



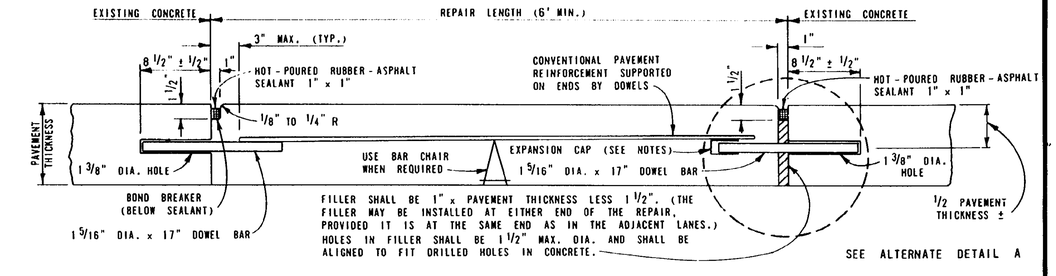
Contraction Joint Type "C"

NOTE: WHEN PLACING CONCPETE PAVEMENT REPAIRS IN CONCRETE PAVEMENTS WITH BITUMINOUS OVERLAYS, THE REPAIR SHALL BE CONSTRUCTED AS SHOWN ABOVE EXCEPT THE SURFACE OF THE CONCRETE REPAIR SHALL BE CONSTRUCTED LEVEL WITH THE TOP OF THE EXISTING BITUMINOUS SURFACE.

UNDOWELED CAST-IN-PLACE REPAIR JOINTS Ur

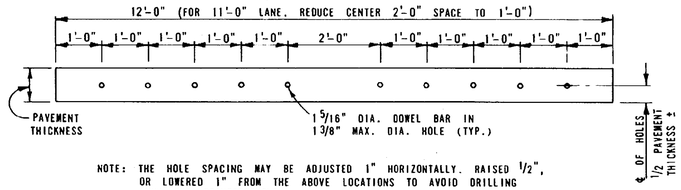
DETAIL 3

PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR	
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN	CONCRETE PAVEMENT REPAIR	
DRAWN BY: H.A.W.	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ		
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	BY: DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL / 6-30-89 PLAN DATE / II-44G	SHEET 1 OF 4



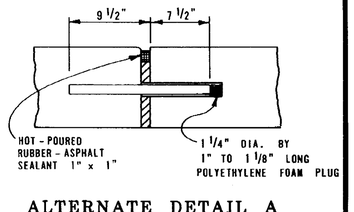
CONTRACTION JOINT Cr

EXPANSION JOINT Er

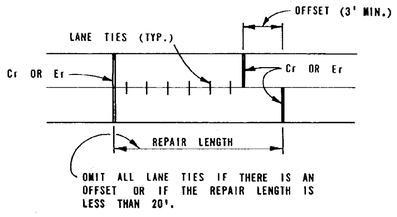


NOTE: THE HOLE SPACING MAY BE ADJUSTED 1" HORIZONTALLY, RAISED 1/2", OR LOWERED 1" FROM THE ABOVE LOCATIONS TO AVOID DRILLING INTO THE REINFORCEMENT.

DOWEL BAR SPACING FOR REPAIRS

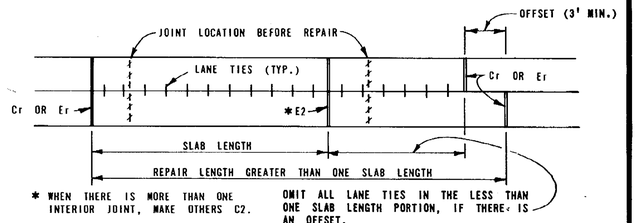


ALTERNATE DETAIL A



OMIT ALL LANE TIES IF THERE IS AN OFFSET OR IF THE REPAIR LENGTH IS LESS THAN 20'.

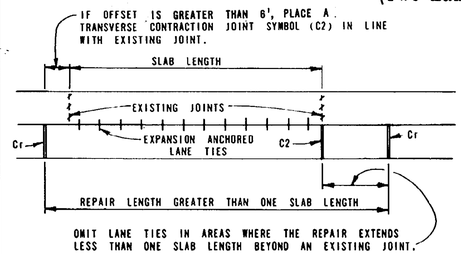
Repair Length Less Than One Slab Length (Two-Lane Repairs)



* WHEN THERE IS MORE THAN ONE INTERIOR JOINT, MAKE OTHERS C2.

OMIT ALL LANE TIES IN THE LESS THAN ONE SLAB LENGTH PORTION, IF THERE IS AN OFFSET.

Repair Length Greater Than One Slab Length (Two-Lane Repairs)



OMIT LANE TIES IN AREAS WHERE THE REPAIR EXTENDS LESS THAN ONE SLAB LENGTH BEYOND AN EXISTING JOINT.

Repair Length Greater Than One Slab Length (One-Lane Repairs)

LANE TIES FOR DOWELED REPAIRS

NOTES:

LONGITUDINAL LANE TIES, WHEN REQUIRED, SHALL BE SPACED IN ACCORDANCE WITH STANDARD PLAN II-41 SERIES, EXCEPT THE FIRST LANE TIE ADJACENT TO A TRANSVERSE JOINT SHALL BE INSTALLED AT A DISTANCE OF 1'-8".

EXPANSION CAPS SHALL BE FABRICATED FROM A MINIMUM 28 GAGE SHEET STEEL AND SHALL BE SIZED SO AS TO PROVIDE A SLIP FIT ON THE SHOP PAINTED DOWEL BAR. THE EXPANSION CAP SHALL CONTAIN A SINGLE LONGITUDINAL TIGHTLY ROLLED "S" SEAM, WITH A SUITABLE STOP TO MAINTAIN THE END OF THE CAP A MINIMUM DISTANCE OF 1" FROM THE END OF THE DOWEL DURING CONCRETE PLACEMENT AND TO PROVIDE A MINIMAL EXPANSION RESISTANCE FOR SUBSEQUENT MOVEMENT OF THE BAR IN THE CAP. THE EXPANSION CAP SHALL BE COMPLETELY CLOSED AT THE END BY CRIMPING AND SHALL BE OF A UNIFORM DIAMETER FOR A MINIMUM LENGTH OF 4". A SAMPLE OF EACH DESIGN OF EXPANSION CAP SHALL BE SUBMITTED TO THE ENGINEER OF TESTING AND RESEARCH ALONG WITH A SHOP DRAWING FOR APPROVAL PRIOR TO USE. CAPS MADE OF OTHER MATERIALS AND/OR DESIGNS, IF TESTED AND APPROVED BY THE ENGINEER, MAY BE USED AT THE OPTION OF THE CONTRACTOR.

A BOND-BREAKING COAT OF LIQUID ASPHALT (MDOT RC-250) IS REQUIRED ON THE PORTION OF THE DOWEL BAR EXTENDING INTO THE NEW CONCRETE WHEN EXPANSION CAPS ARE USED.

SEE STANDARD PLAN II-39 SERIES FOR TRANSVERSE PAVEMENT JOINTS SYMBOLS (C2) AND (E2).

DOWELED CAST-IN-PLACE REPAIR JOINTS

DETAIL 3A

PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR	
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN	CONCRETE PAVEMENT REPAIR	
DRAWN BY: H.A.W.	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ		
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	BY: DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL / 6-30-89 PLAN DATE / II-44G	SHEET 2 OF 4

CONTROL SECTION 63174 JOB NO. 28992A SHEET NO. 10

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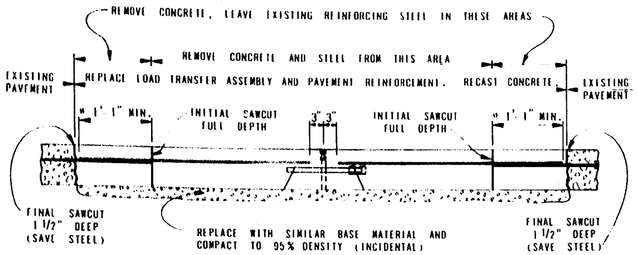
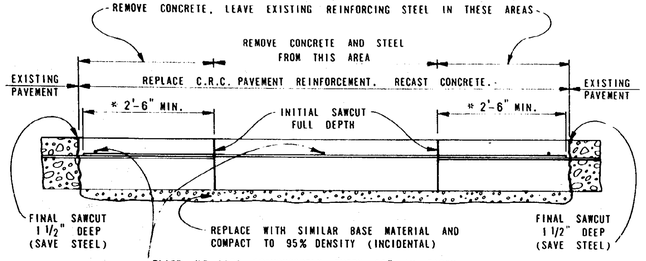


* NOTE

IF EXISTING REINFORCEMENT LAPS ARE ENCOUNTERED IN THIS AREA, FINAL SAW CUT MUST BE MOVED BACK TO PROVIDE MINIMUM 1'-1" LAP OF PAVEMENT REINFORCEMENT.

TRANSVERSE JOINT REPAIR USING LOAD TRANSFER ASSEMBLY

DETAILS (CONTRACTION JOINT) 4 (EXPANSION JOINT) (SHOWN DASHED) 4A

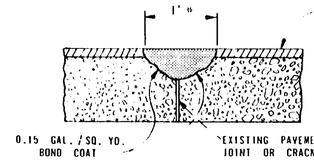


* NOTE:

IF EXISTING REINFORCEMENT LAPS ARE ENCOUNTERED IN THIS AREA, FINAL SAW CUT MUST BE MOVED BACK TO PROVIDE MINIMUM 2'-6" LAP OF PAVEMENT REINFORCEMENT.

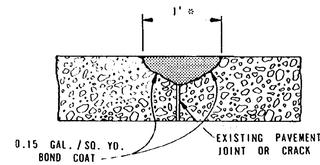
REPAIRING CONTINUOUSLY REINFORCED CONCRETE

DETAIL 5



1. STRIP OFF EXISTING CAP AND REMOVE LOOSE DETERIORATED CONCRETE.
2. REPLACE BITUMINOUS CAP AND LOOSE DETERIORATED CONCRETE WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 IN LAYERS NOT TO EXCEED 4" IN DEPTH AND COMPACT WITH A MACHINE VIBRATOR OR APPROVED ROLLER. THE COMPACTED BITUMINOUS MIXTURE SHALL BE FLUSH WITH EXISTING BITUMINOUS CAP.

* FOR QUANTITY ESTIMATE PURPOSES ONLY

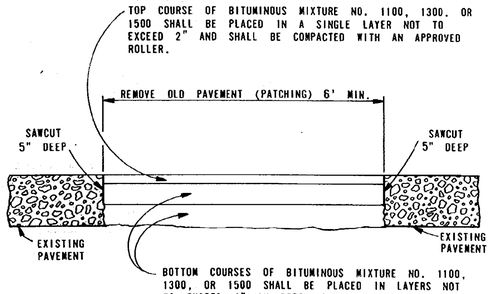


1. WHERE NO BITUMINOUS CAP EXISTS, REMOVE LOOSE DETERIORATED CONCRETE.
2. REPLACE LOOSE DETERIORATED CONCRETE WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 IN LAYERS NOT TO EXCEED 4" IN DEPTH AND COMPACT WITH A MACHINE VIBRATOR OR APPROVED ROLLER. THE COMPACTED BITUMINOUS MIXTURE SHALL BE FLUSH WITH EXISTING CONCRETE PAVEMENT.

* FOR QUANTITY ESTIMATE PURPOSES ONLY

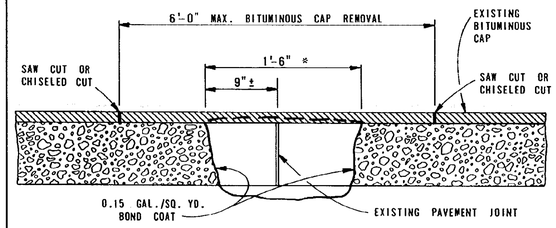
TRANSVERSE OR LONGITUDINAL JOINT OR CRACK REPAIR

DETAIL 7



REPAIRING WITH BITUMINOUS MATERIAL

DETAIL 6



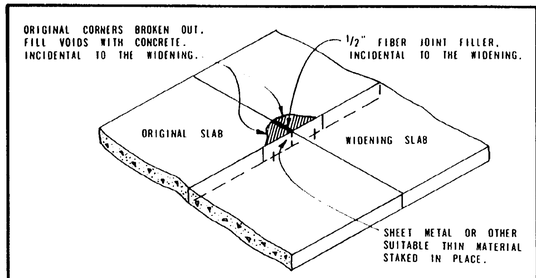
1. STRIP OFF EXISTING BITUMINOUS CAP AND BREAK OUT EXISTING CONCRETE PAVEMENT.
2. REPLACE BROKEN-OUT AREA WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 IN LAYERS NOT TO EXCEED 4" IN DEPTH AND COMPACT WITH A MACHINE VIBRATOR OR APPROVED ROLLER.
3. REPLACE BITUMINOUS CAP WITH BITUMINOUS MIXTURE NO. 1100, 1300, OR 1500 AND COMPACT WITH APPROVED ROLLER. THE COMPACTED BITUMINOUS MIXTURE SHALL BE FLUSH WITH ADJACENT PAVEMENT SURFACE.

* FOR QUANTITY ESTIMATE PURPOSES ONLY

TRANSVERSE JOINT REPAIR

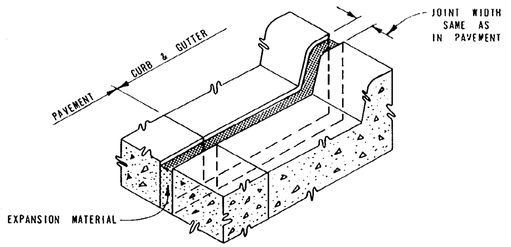
DETAIL 8

PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR	
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN	CONCRETE PAVEMENT REPAIR	
DRAWN BY: H.A.W.	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ		
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	BY: DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL / 6-30-89 PLAN DATE / II-44G	SHEET 3 OF 4



JOINT PATCH ADJACENT TO WIDENING SLAB

DETAIL 9



CURB, GUTTER AND CURB FACE SHALL BE SAWED AS DEEP AS THE EXISTING PAVEMENT THICKNESS. THE REMAINING CONCRETE SHALL BE CHIPPED OUT AND EXPANSION MATERIAL OF SUFFICENT THICKNESS SHALL BE PLACED IN SAWED JOINT TO FILL THE GAP AS DIRECTED BY THE ENGINEER.

EXPANSION JOINT Esc

DETAIL 11

NOTES APPLYING TO STANDARD PLAN II-44G:

CONCRETE PAVEMENT REPAIRS OR PRESSURE RELIEF JOINT DETAILS WILL BE AS CALLED FOR ON PLANS OR IN LOG OF PROJECT.

IF EXISTING PAVEMENT HAS AN ASPHALT SURFACE, THE SAW CUTS SHALL EXTEND THRU THE UNDERLYING PORTLAND CEMENT CONCRETE.

WHEN CONCRETE PAVEMENT REPAIRS ARE TO BE RESURFACED, REINFORCEMENT WILL BE OMITTED. IF THE REPAIR IS LONGER THAN 20', TRANSVERSE PLANE OF WEAKNESS JOINTS, SYMBOL (U), SHALL BE PLACED IN LINE WITH EXISTING TRANSVERSE JOINTS, WORKING CRACKS, OR AT 20-FOOT MAX., 6-FOOT MIN. INTERVALS. FOR SYMBOL (U) JOINTS, SEE STANDARD PLAN II-39 SERIES.

WHEN REPAIRING PAVEMENTS WITH CAST-IN-PLACE REPAIR JOINTS (DETAILS 3 & 3A), THE JOINT TYPES SELECTED SHOULD PROVIDE FOR NO MORE EXPANSION SPACE THAN 4" IN 900' FOR PAVEMENTS WITH 99' JOINT SPACING, OR 2" IN 900' FOR PAVEMENTS WITH 72' JOINT SPACING AND NEOPRENE SEALS.

WHEN THERE ARE NO REPAIR LOCATIONS WITHIN A 900' LENGTH, NO EXPANSION SPACE WILL BE PROVIDED.

EQUAL EXPANSION SPACE SHOULD BE PROVIDED IN ADJACENT LANES. NO EXPANSION SPACE SHALL BE PROVIDED IN REPAIRS WHICH DO NOT EXTEND ACROSS ALL LANES.

TRANSVERSE CONTRACTION JOINTS TYPE "C" AND C1 JOINT GROOVES (DETAIL 3 & 3A) SHALL BE SANDBLASTED FOLLOWED BY A FINAL CLEANING WITH OIL-FREE COMPRESSED AIR PRIOR TO SEALING WITH HOT-POURED RUBBER-ASPHALT JOINT SEALER. A BOND BREAKER (ALSO SHOWN IN DETAILS (3 & 3A) SHALL CONSIST OF A PRESSURE-SENSITIVE SILICONE-BACKED TAPE OR AN EQUIVALENT APPROVED BY THE ENGINEER.

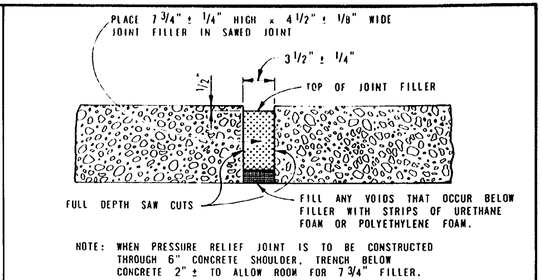
THE PAVEMENT REINFORCEMENT SHALL BE PLACED 3" BELOW FINISHED SURFACE IN UNDOWELED REPAIRS OR AS SHOWN IN DETAIL 3A FOR DOWELED REPAIRS.

WHEN UNDOWELED REPAIRS ARE MADE IN JOINTED PAVEMENT, STANDARD PAVEMENT REINFORCEMENT SHALL BE USED TO REINFORCE CONCRETE REPAIRS 10' OR LONGER.

FOR ALL REPAIRS, EXPANSION SPACE SHOULD BE DISTRIBUTED THROUGHOUT THE SECTION RATHER THAN INSTALLING IT ALL AT ONE LOCATION. TO ALLOW FOR DISTRIBUTION OF PAVEMENT EXPANSION, REPAIRS MAY HAVE A CONTRACTION JOINT ON ONE END AND AN EXPANSION JOINT ON THE OTHER END. THE TYPE "A" JOINT SHOULD NOT BE USED IN REPAIRS OF NEOPRENE SEALED PAVEMENTS.

WHEN TRANSVERSE EXPANSION JOINTS ARE PLACED ADJACENT TO CONCRETE CURB AND GUTTER AND WHERE REMOVAL OF CURB AND GUTTER IS NOT NECESSARY AS DETERMINED BY THE ENGINEER, AN EQUIVALENT WIDTH OF EXPANSION JOINT Esc SHALL BE EXTENDED THRU THE CURB AND GUTTER.

TRANSVERSE JOINTS (DETAIL 4 AND 4A) SHALL BE SEALED IN ACCORDANCE WITH STANDARD PLAN II-39 SERIES.

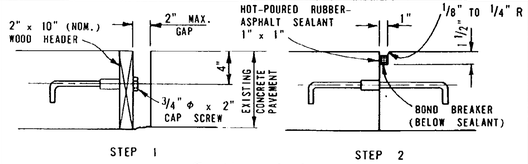


NOTE: WHEN PRESSURE RELIEF JOINT IS TO BE CONSTRUCTED THROUGH 6" CONCRETE SHOULDER, TRENCH BELOW CONCRETE 2" ± TO ALLOW ROOM FOR 7 3/4" FILLER.

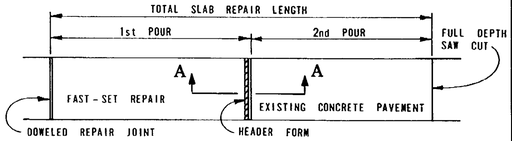
PRESSURE RELIEF JOINT

(THIS DETAIL ALSO APPLIES TO BITUMINOUS SURFACED PAVEMENTS REQUIRING PRESSURE RELIEF JOINTS)

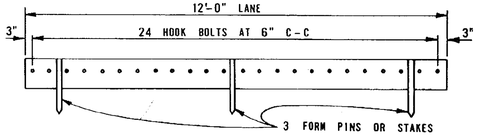
DETAIL 10



Section A-A



Plan View of Repair



Spacing Layout for Hook Bolts

NOTE: REFER TO STANDARD PLAN II-39 SERIES FOR HOOK BOLT DETAIL.

OVERNIGHT CONSTRUCTION JOINT IN FAST-SET REPAIR

DETAIL 12

NOTES: (CONTINUED)

SAWED OVERCUTS OCCURING IN ADJACENT SLAB, GUTTER, OR SHOULDER, WHICH WILL REMAIN IN PLACE, SHALL BE SEALED.

THE MONTH AND YEAR OF CASTING AND STATION NUMBER (IF REMOVED) SHALL BE STENCILLED ON EACH CONCRETE REPAIR.

PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR	
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN	CONCRETE PAVEMENT REPAIR	
DRAWN BY: H.A.W.	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ		
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	BY: DEPUTY DIRECTOR - HIGHWAYS	F.H.W.A. APPROVAL / 6-30-89 PLAN DATE / II-44G	SHEET 4 OF 4

CONTROL SECTION 63174 JOB NO. 28992A SHEET NO. //

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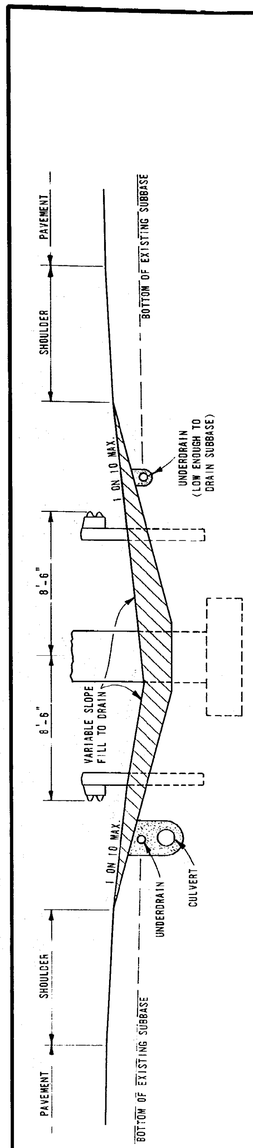
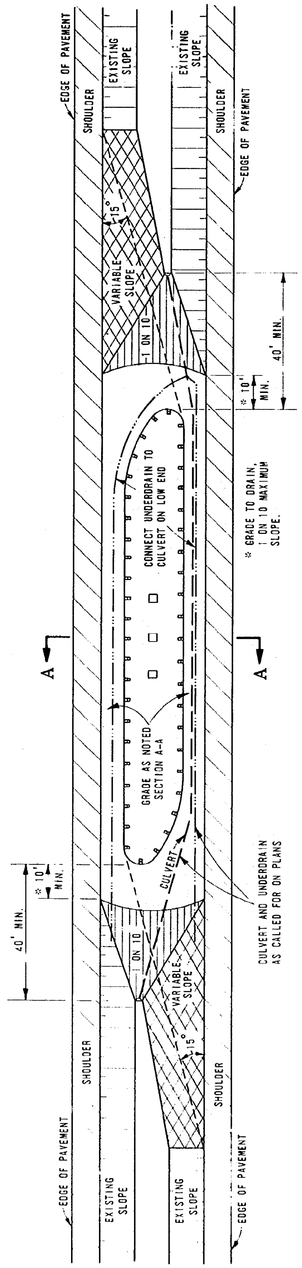
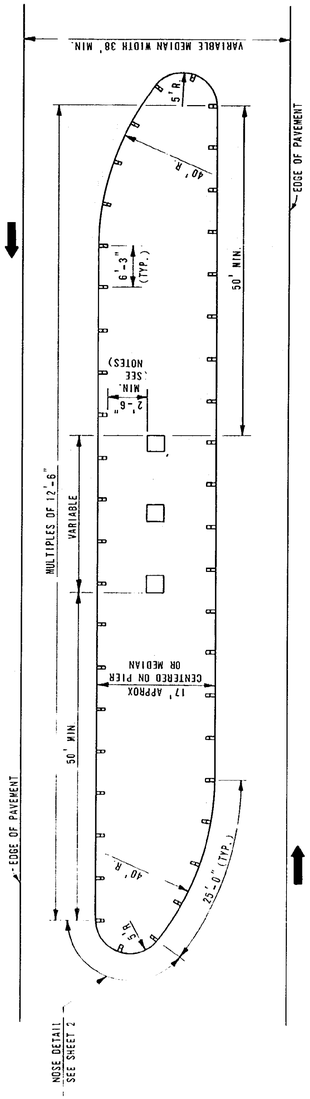


SECTION A-A



SLOPES AT PIERS



TYPICAL LAYOUT AT PIERS AND SIGN SUPPORTS

PREPARED BY DESIGN DIVISION

DRAWN BY D F M

CHECKED BY C.A.L.

ENGINEER OF CONSTRUCTION | ENGINEER - ROAD DESIGN

ENGINEER OF MAINTENANCE | ENGINEER OF DESIGN

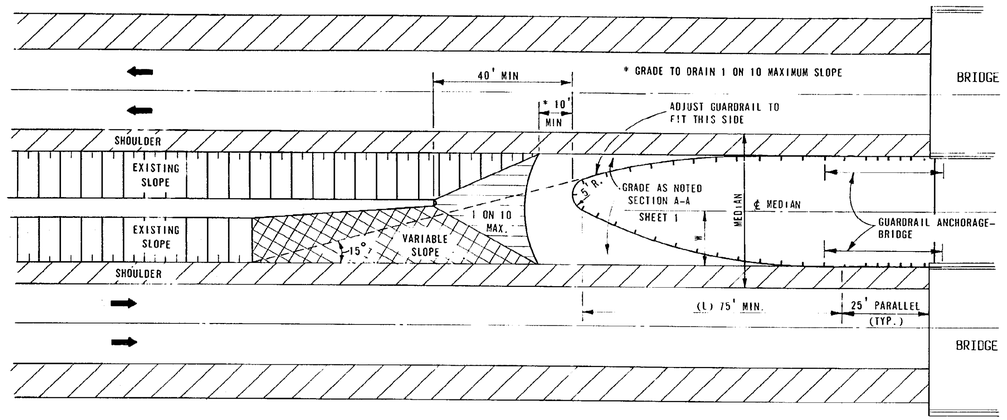
ENGINEER OF MATERIALS & TECHNOLOGY | DEPARTMENT DIRECTOR JAMES P. PITZ

ENGINEER OF TRAFFIC AND SAFETY | BY: DEPUTY DIRECTOR - HIGHWAYS

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

GUARDRAIL BULLNOSE

F H W A APPROVAL | 12-8-88 PLAN DATE | III-56B | SHEET 1 OF 2



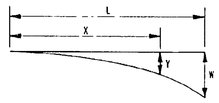
GUARDRAIL AT TWIN BRIDGE APPROACH

(FOR MEDIANS 46' OR LESS IN WIDTH)

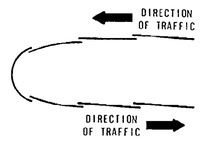
X = INTERMEDIATE DISTANCES Y = INTERMEDIATE OFFSETS
L = TOTAL LENGTH OF FLARE W = WIDTH OF FINAL OFFSET

OFFSETS BASED ON FORMULA

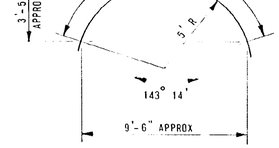
$Y = W\frac{X^2}{L^2}$



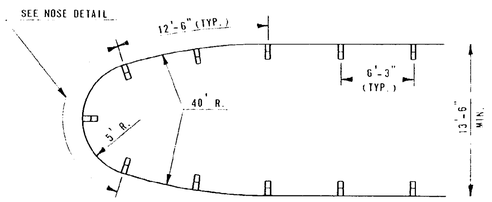
OFFSET FORMULA



DETAIL OF RAIL LAP



NOSE DETAIL



ALTERNATE INSTALLATION

FOR USE WHERE NARROW MEDIAN PROHIBITS USE OF CONVENTIONAL TREATMENT

NOTES:

ALL POSTS AND BLOCKS, BEAM AND BACK UP ELEMENTS AND FITTINGS, INCLUDING BOLTS, NUTS AND WASHERS, SHALL CONFORM TO THE DIMENSIONS AND SPECIFICATIONS SHOWN ON CURRENT STANDARD PLAN III-60 AND III-67 SERIES, WHERE APPLICABLE, EXCEPT AS SHOWN ON THIS STANDARD PLAN.

ONLY BEAM GUARDRAIL TYPE B SHALL BE USED FOR GUARDRAIL BULLNOSE INSTALLATIONS, EXCEPT IN "GUARDRAIL ANCHORAGE - BRIDGE, DETAIL ___".

WOOD POSTS WILL BE REQUIRED WHENEVER THE GUARDRAIL RADIUS IS 50' OR LESS, AND FOR ALL OF THE POSTS IN THE "GUARDRAIL AT TWIN BRIDGE APPROACH" EXCEPT THOSE IN THE GUARDRAIL ANCHORAGE - BRIDGE.

REMOVE CURB FROM 150' IN ADVANCE AND ALONG TOTAL LENGTH OF THE GUARDRAIL INSTALLATION UNLESS ONE FOOT OR LESS FROM FACE OF CURB TO FACE OF RAIL.

ADEQUATE DRAINAGE MUST BE PROVIDED WHEN EXISTING MEDIANS OR DITCHED AREAS ARE FILLED.

ANY PART OF THE GUARDRAIL SYSTEM SHOULD BE NO CLOSER THAN 2'-6" TO THE BRIDGE PIER COLUMNS. IF THIS MINIMUM IS IMPOSSIBLE TO OBTAIN, STIFFEN THE RAIL SYSTEM AS DIRECTED BY THE ENGINEER, SO ITS THEORETICAL DEFLECTION WILL NOT EXCEED THE AVAILABLE CLEARANCE. IF ADDITIONAL GUIDANCE IS NEEDED, CONTACT THE ROAD STANDARDS UNIT OF THE DESIGN DIVISION.

PREPARED BY DESIGN DIVISION

DRAWN BY D F M

CHECKED BY C.A.L.

ENGINEER OF CONSTRUCTION | ENGINEER - ROAD DESIGN

ENGINEER OF MAINTENANCE | ENGINEER OF DESIGN

ENGINEER OF MATERIALS & TECHNOLOGY | DEPARTMENT DIRECTOR JAMES P. PITZ

ENGINEER OF TRAFFIC AND SAFETY | BY: DEPUTY DIRECTOR - HIGHWAYS

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

GUARDRAIL BULLNOSE

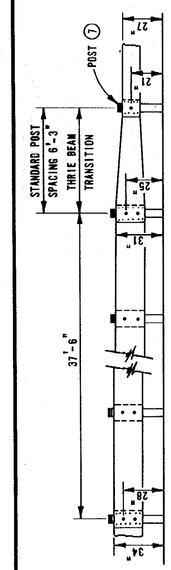
F.H.W.A. APPROVAL | 12-8-88 PLAN DATE | III-56B | SHEET 2 OF 2

CONTROL SECTION 63174 | JOB NO 28992A | SHEET NO. 12

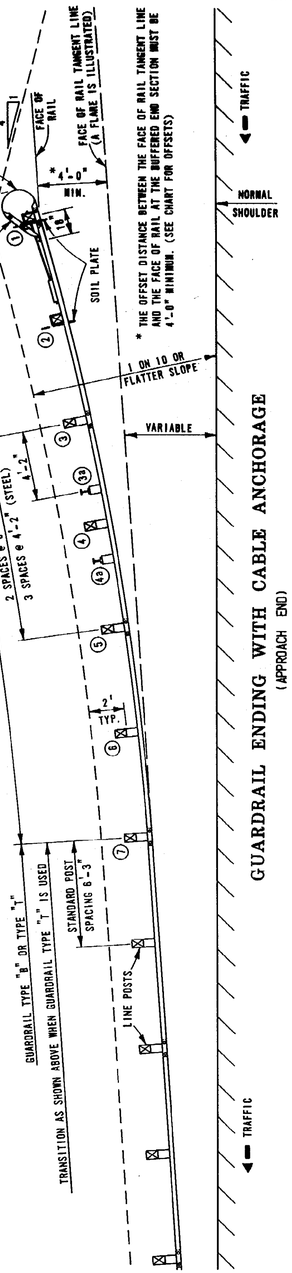
CONTROL SECTION 63174 JOB NO. 28992A SHEET NO. 13

POST NO.	OFFSET DISTANCE FROM FACE OF RAIL TO FACE OF RAIL TANGENT
1	4'-0"
2	2'-0"
3	1'-6"
3a	1'-3"
4	1'-0"
4a	0'-9"
5	0'-5"
6	0'-1"
7	———

NOTE:
ONLY WOOD BREAK-AWAY POSTS WILL BE ALLOWED FOR POSTS ① AND ②. WOOD OR STEEL POSTS MAY BE USED FOR POSTS ③ THRU ⑦. WHEN STEEL POSTS ARE USED, OMIT POST ④. WHEN WOOD POSTS ARE USED, OMIT POSTS ③a AND ④a. INTERMIXING OF STEEL AND WOOD POSTS FOR POSTS ③ THRU ⑦ WILL NOT BE ALLOWED.
OMIT "OFFSET BLOCKS" FROM POSTS ① AND ② APPROACH END AND LAST POST ON DEPARTING END OF ONE-WAY ROADWAYS.
OMIT "BACK-UP ELEMENT" ON POST ②.
OMIT "POST BOLT WASHERS" EXCEPT AT POST ① (SEE BUFFERED END SECTION-SHEET 2 OF 4).



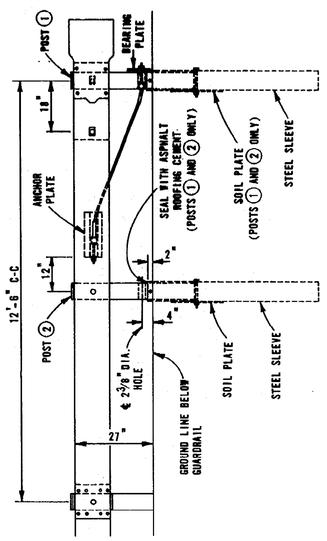
HEIGHT TRANSITION FROM GUARDRAIL TYPE "T" TO GUARDRAIL TYPE "B"



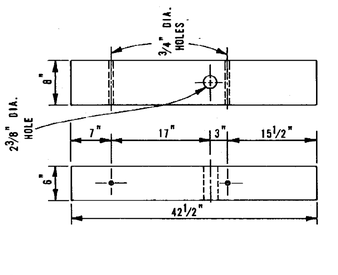
* THE OFFSET DISTANCE BETWEEN THE FACE OF RAIL TANGENT LINE AND THE FACE OF RAIL AT THE BUFFERED END SECTION MUST BE 4'-0" MINIMUM. (SEE CHART FOR OFFSETS)

GUARDRAIL ENDING WITH CABLE ANCHORAGE
(APPROACH END)

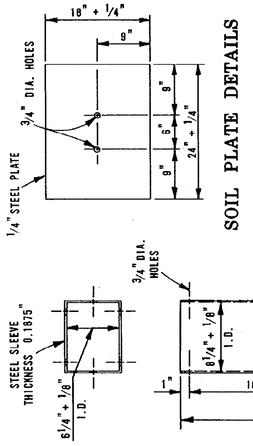
NOTE:
END POSTS ① AND ② SHOULD BE SELECTED TO FIT LOOSELY IN THE STEEL SLEEVE. SPACE AROUND THE POST SHOULD NOT EXCEED 1/4" IN ANY DIRECTION.



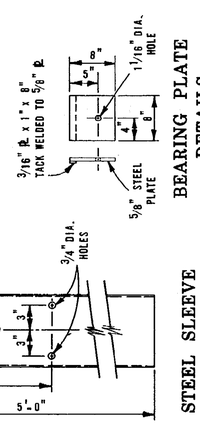
ANCHORAGE DETAIL



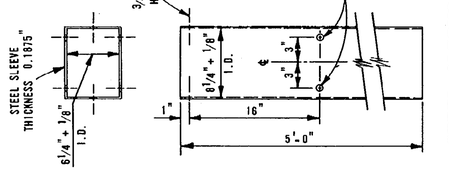
WOOD BREAKAWAY POST



SOIL PLATE DETAILS



BEARING PLATE DETAILS



STEEL SLEEVE DETAILS

PREPARED BY DESIGN DIVISION

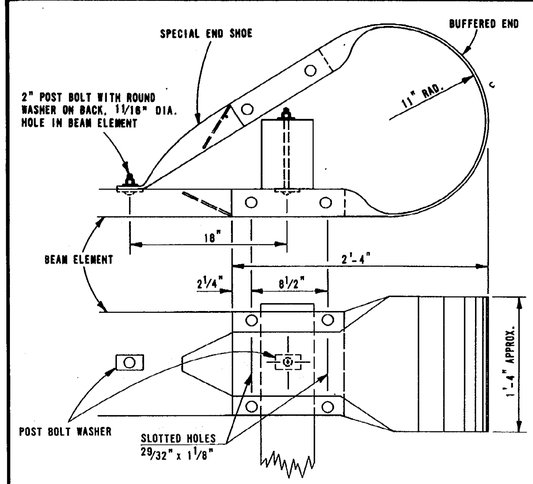
DRAWN BY: D.F.W.
CHECKED BY: C.A.L.

ENGINEER OF CONSTRUCTION	ENGINEER – ROAD DESIGN
ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN
ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ
ENGINEER OF TRAFFIC AND SAFETY	BY: DEPUTY DIRECTOR – HIGHWAYS

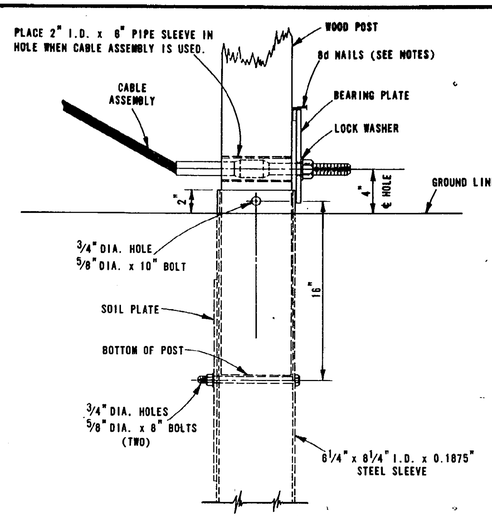
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

GUARDRAIL ENDINGS WITH CABLE ANCHORAGE

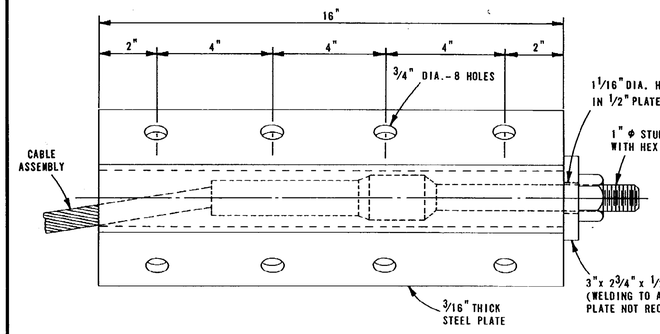
F.H.W.A. APPROVAL DATE	6-1-90 PLAN DATE	III-58K	SHEET 1 OF 4

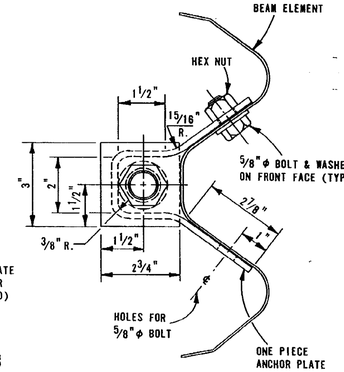


BUFFERED END SECTION
(ASSEMBLED)

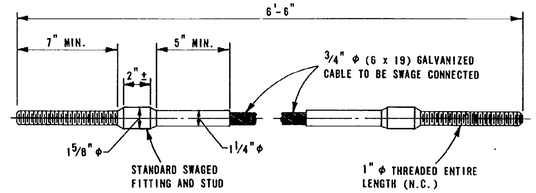


ANCHORAGE POST DETAILS





ANCHOR PLATE DETAILS



CABLE ASSEMBLY

NOTES:

ALL POSTS AND BLOCKS, BEAM AND BACK UP ELEMENTS AND FITTINGS, INCLUDING BOLTS, NUTS AND WASHERS, SHALL CONFORM TO THE DIMENSIONS AND SPECIFICATIONS SHOWN ON CURRENT STANDARD PLAN III-60 SERIES WHERE APPLICABLE, EXCEPT AS SHOWN ON THIS STANDARD.

STEEL SLEEVE WELDS SHALL BE MADE FULL LENGTH.

BUFFERED END SECTION SHALL BE MADE OF 12 GAGE (0.109") MINIMUM THICKNESS SHEET STEEL.

ALL 1 ON 10 SLOPES SHALL BE GRADED TO CLASS A SLOPE TOLERANCES.

FOR DETAILS OF GUARDRAIL PLACEMENT SEE STANDARD PLAN III-59 SERIES.

DIAPHRAGMS WILL BE ALLOWED IN THE BUFFERED END.

AFTER THE CABLE ASSEMBLY HAS BEEN TIGHTENED, THE THREADS OUTSIDE THE NUTS SHALL BE BURRED SLIGHTLY SO THE NUTS WILL NOT LOOSEN.

TWO 8d GALVANIZED NAILS SHALL BE DRIVEN INTO THE WOOD POST AT THE TOP OF THE BEARING PLATE TO KEEP THE BEARING PLATE FROM ROTATING.

WHEN ADDITIONAL POST BOLT SLOTS ARE REQUIRED, THEY SHALL BE DRILLED OR PUNCHED AND REGALVANIZED. BURNING WILL NOT BE ALLOWED.

PREPARED BY DESIGN DIVISION

DRAWN BY: D.F.W.
CHECKED BY: C.A.L.

ENGINEER OF CONSTRUCTION	ENGINEER – ROAD DESIGN
ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN
ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ
ENGINEER OF TRAFFIC AND SAFETY	BY: DEPUTY DIRECTOR – HIGHWAYS

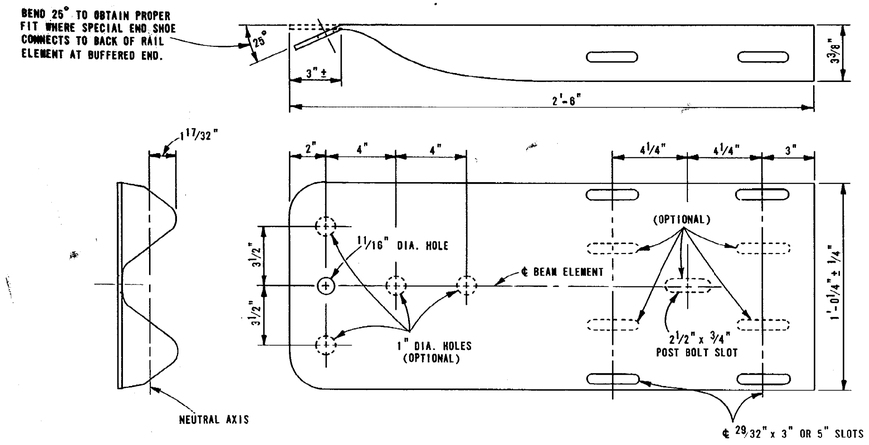
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

GUARDRAIL ENDINGS WITH CABLE ANCHORAGE

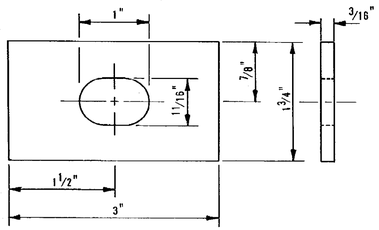
F.H.W.A. APPROVAL DATE	6-1-90 PLAN DATE	III-58K	SHEET 2 OF 4

CONTROL SECTION 63174 JOB NO. 28992A SHEET NO. 13

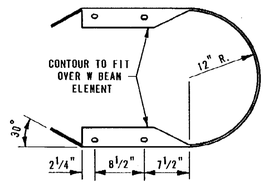
CONTROL SECTION 63174 JOB NO. 28992A SHEET NO. 13

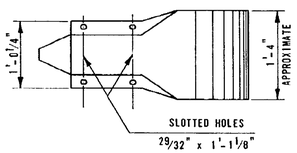


SPECIAL END SHOE
(FOR BUFFERED END)



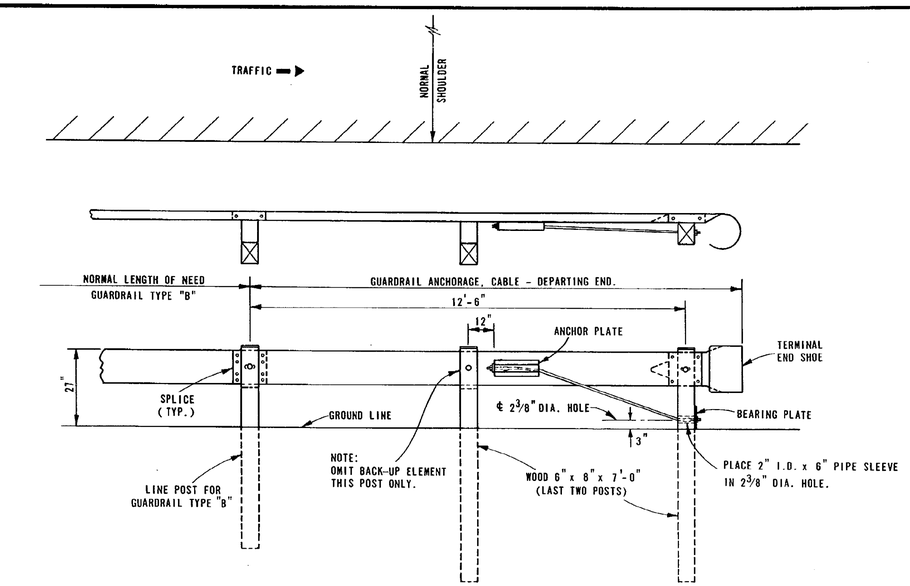
POST BOLT WASHER



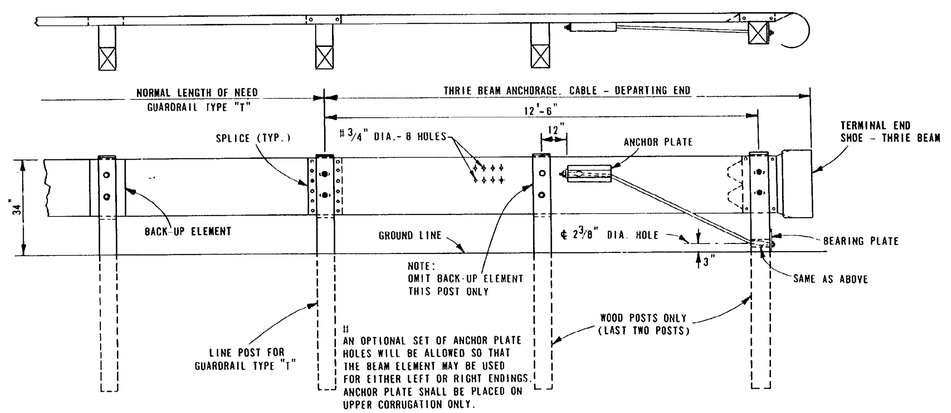


BUFFERED END
(FOR W BEAM ELEMENT)

PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	J. H. Williams ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR GUARDRAIL ENDINGS WITH CABLE ANCHORAGE	
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN		
	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ		
DRAWN BY: D.F.M.		BY:	F.H.W.A. APPROVAL DATE	6-1-90 PLAN DATE
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	DEPUTY DIRECTOR - HIGHWAYS		III-58K
				SHEET 3 OF 4



GUARDRAIL ANCHORAGE, CABLE - DEPARTING END
(ONE-WAY ROADWAYS ONLY)

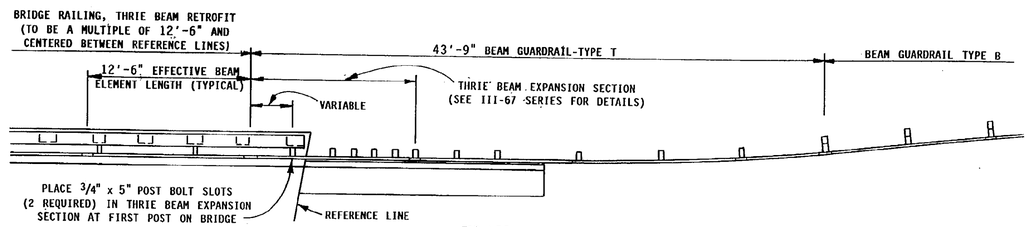


THRIE BEAM ANCHORAGE, CABLE - DEPARTING END
(ONE-WAY ROADWAYS ONLY)

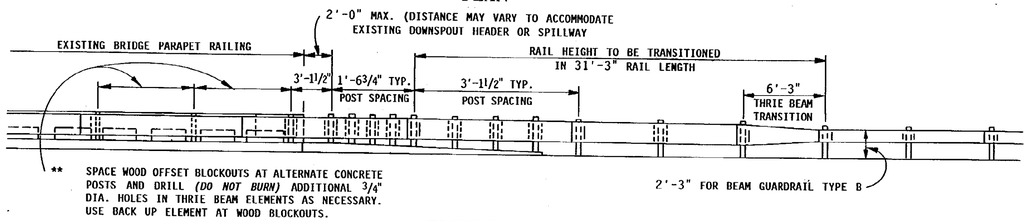
PREPARED BY DESIGN DIVISION	ENGINEER OF CONSTRUCTION	J. H. Williams ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS STANDARD PLAN FOR GUARDRAIL ENDINGS WITH CABLE ANCHORAGE	
	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN		
	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ		
DRAWN BY: D.F.M.		BY:	F.H.W.A. APPROVAL DATE	6-1-90 PLAN DATE
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	DEPUTY DIRECTOR - HIGHWAYS		III-58K
				SHEET 4 OF 4

CONTROL SECTION 63174 JOB NO. 28992A SHEET NO. 14

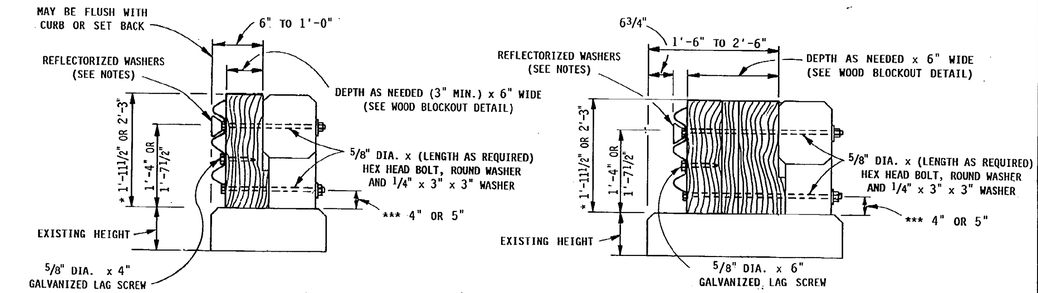
63174 - 28992A SH. NO. 15



PLAN



ELEVATION



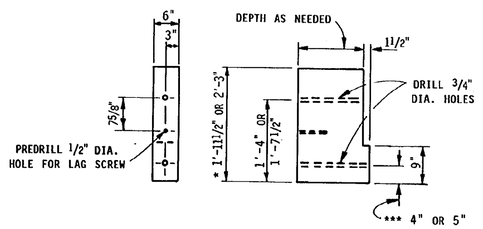
SECTIONS THRU PARAPET RAILING

NOTE: A 32" MINIMUM HEIGHT FROM TOP OF THE THRIE BEAM TO BRIDGE DECK AT THE BOTTOM OF BRUSH BLOCK IS REQUIRED.

* EXISTING RAILING MAY BE EITHER OF TWO HEIGHTS.

** A 2" OFFSET FROM THE CENTERLINE OF THE CONCRETE RAILING POST FOR THE WOOD BLOCKOUT AND THE DRILLING OF THE 3/4" DIA. HOLE IN THE CONCRETE RAILING POST IS REQUIRED TO CLEAR EXISTING REINFORCEMENT.

*** 4" WHEN OVERALL HEIGHT 2'-3", 5" WHEN OVERALL HEIGHT 1'-11 1/2"



WOOD BLOCKOUT DETAIL

NOTES:

THIS SPECIAL DETAIL IS INTENDED FOR USE IN UPGRADING OF EXISTING OPEN-PARAPET TYPE BRIDGE RAILINGS AND APPROACH GUARDRAIL. FOR NEW CONSTRUCTION AND FOR DETAILS OF GUARDRAIL HARDWARE, SEE STANDARD PLANS.

BRIDGE RAILING, THRIE BEAM RETROFIT WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT. THIS PRICE INCLUDES PAYMENT IN FULL FOR ALL WORK AND MATERIAL REQUIRED TO PLACE THE RAILING TO THE LIMITS SHOWN. ALL WORK AND MATERIAL REQUIRED TO ATTACH APPROACH GUARDRAIL ELEMENT TO BRIDGE RAILING END POST IS INCLUDED IN THE BID ITEM "BRIDGE RAILING, THRIE BEAM RETROFIT". REFLECTORIZED WASHERS WILL BE PAID FOR SEPARATELY.

ADDITIONAL GUARDRAIL POSTS, HARDWARE, THRIE BEAM ELEMENTS, TRANSITIONS ELEMENTS AND ALL OTHER WORK AND MATERIALS REQUIRED TO CONSTRUCT APPROACH GUARDRAIL AS DETAILED, IS INCLUDED IN THE BID ITEM "BEAM GUARDRAIL-TYPE T".

ALL POSTS, OFFSET BLOCKS, THRIE BEAM, TRANSITIONS, BACK-UP ELEMENTS AND FITTINGS (INCLUDING NUTS, BOLTS, AND WASHERS) SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT STANDARD SPECIFICATIONS AND TO THE DIMENSIONS SHOWN ON THE CURRENT STANDARD PLAN III-60 SERIES, WHERE APPLICABLE, EXCEPT AS SHOWN ON THIS PLAN.

THRIE BEAM ELEMENTS USED FOR GUARDRAIL-BRIDGE (THRIE BEAM) SHALL BE FORMED FROM SHEETS HAVING A NOMINAL THICKNESS OF NOT LESS THAN 0.138" (10 GAGE).

REFLECTORIZED WASHERS ARE TO BE PLACED ON UPPER POST BOLT AND SPACED AT EVERY THIRD OFFSET BLOCKOUT.

BEAM ELEMENTS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC.

WHEN PRESENT, REMOVE EXISTING ALUMINUM POSTS AND TUBE FROM TOP OF OPEN-PARAPET RAILING.

STANDARD SPLICE BOLTS SHALL BE USED WHEN SPLICING THRIE BEAM ELEMENT TO THRIE BEAM EXPANSION SECTION. NUTS SHALL BE INSTALLED FINGERTIGHT AND SHALL FULLY ENGAGE BOLTS WITH A MINIMUM OF ONE BOLT THREAD EXTENDING BEYOND THE NUTS. THE FIRST THREAD ON THE OUTSIDE OF THE NUTS SHALL BE UPSET WITH A CENTER PUNCH OR A COLD CHISEL TO PREVENT LOOSENING.

ENGINEER-BRIDGE DESIGN	ENGINEER-ROAD DESIGN	ENGINEER OF DESIGN
PREPARED BY DESIGN DIVISION	ENGINEER OF MAINTENANCE	ENGINEER OF CONSTRUCTION
DRAWN BY: M.A.A.M.	ENGINEER OF MATERIALS & TECHNOLOGY	DEPARTMENT DIRECTOR JAMES P. PITZ
CHECKED BY: C.A.L.	ENGINEER OF TRAFFIC AND SAFETY	BY: DEPUTY DIRECTOR-HIGHWAYS

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS STANDARD PLAN FOR

BRIDGE RAILING, THRIE BEAM RETROFIT
(OPEN PARAPET TYPE BRIDGE RAILING)

F.H.W.A. APPROVAL	10-23-80 PLAN DATE	X-23A	SHEET 1 OF 1

CONTROL SECTION 63174 JOB NO. 28992A SHEET NO. 15

CONTROL SECTION 63174 | JOB NO. 28992A | SH. NO. 16

028992A ROAD TOTAL

SUMMARY OF QUANTITIES

JOB NUMBER 28992A
CONTROL SECTION 63174

ITEM DESCRIPTION	ITEM CODE	UNIT	PROJECT TOTAL	JOB SUBTOTAL	SHEET 005	SHEET 006	SHEET 007	SHEET 008	SHEET 009
REMOVING BEAM GUARD RAIL	2070009	LFT	225	225					225
EMBANKMENT (LW)	2080020	CYD	50	50					50
HAY OR STRAW BALES	2130003	EACH	40	40	40				
CLEANING EXISTING PAVEMENT	4000003	LSUM	1	1	1				
CHIPPING CONCRETE PAVEMENT FOR JOINTS	4000010	SYD	3668	3668		665	110	430	2463
LONGITUDINAL JOINT REPAIR	4000012	LFT	2000	2000	2000				
HAND PATCHING	4000015	TON	100	100	100				
JOINT AND CRACK CLEANOUT	4000017	LFT	1248	1248	1248				
REPAIRING PAVEMENT JOINTS AND CRACKS. DETAIL 7	4000020	LFT	1000	1000	1000				
BITUMINOUS MIXTURE NO.1500L. 20AAA	4000100	TON	400	400	400				
BIT. MIX. NO.1500L. 20AAA-RUBBER	4007001	TON	22695	22695		4427	6206	5997	6065
BIT. MIX. NO.1500T. 20AAA-RUBBER	4007003	TON	21904	21904		4167	5841	5644	6252
COLD-MILLING CONCRETE SURACE	4007005	SYD	9224	9224		2934	5134		1156
CONCRETE PATCH GRINDING	4527001	SYD	3199	3199	3199				
DRAINAGE STRUCTURE COVERS	5140042	LBS	15450	15450	15450				
ADJUSTING DRAINAGE STRUCTURE COVERS	5140045	EACH	333	333		64	92	105	72
RECONSTRUCTING DRAINAGE STRUCTURES	5140047	EACH	30	30	30				
GALVANIZED BEAM GUARD RAIL. TYPE B	6130002	LFT	100	100					100
RECONSTRUCTED BEAM GUARD RAIL. TYPE C	6130012	LFT	1455	1455					1455
GALVANIZED CURVED BEAM GUARD RAIL. TYPE B	6130019	LFT	63	63					63
GALVANIZED BEAM GUARD RAIL. TYPE T	6130060	LFT	176	176					176
GUARD RAIL ANCHORAGE. CABLE	6130066	EACH	3	3					3
SALVAGING BEAM GUARD RAIL	6130073	LFT	1543	1543					1543
GUARD RAIL POST FURNISHED AND INSTALLED. 6'	6130076	EACH	8	8	8				
REFLECTORIZED WASHERS	6130080	EACH	56	56					56
BRIDGE RAILING. THRIE BEAM RETROFIT	6137001	LFT	1040	1040					1040
MOBILIZATION	6230001	LSUM	1	1	1				
REMOVAL OF SIGN. TYPE II	6260151	EACH	1	1	1				
LIGHTED ARROW. TYPE A. FURNISHED	6310011	EACH	6	6	6				
LIGHTED ARROW. TYPE A. OPERATED	6310012	EACH	6	6	6				
BARRICADE. TYPE II. LIGHTED. FURNISHED	6310026	EACH	565	565	565				
BARRICADE. TYPE II. LIGHTED. OPERATED	6310027	EACH	325	325	325				
BARRICADE. TYPE III. LIGHTED. FURNISHED	6310036	EACH	6	6	6				
BARRICADE. TYPE III. LIGHTED. OPERATED	6310037	EACH	6	6	6				
MINOR TRAFFIC DEVICES	6310054	LSUM	1	1	1				
FLAG CONTROL	6310055	LSUM	1	1	1				
SIGN. TYPE A TEMPORARY	6310056	SFT	20	20	20				
SIGN. TYPE B TEMPORARY	6310057	SFT	1200	1200	1200				
TEMPORARY PAVEMENT MARKING. TYPE R. 4" WHITE	6310085	LFT	44550	44550	44550				
TEMPORARY PAVEMENT MARKING. TYPE R. 4" YELLOW	6310086	LFT	5800	5800	5800				
TEMPORARY PAVEMENT MARKING. TYPE NR. (TAPE). 4" WHITE	6310087	LFT	89100	89100	89100				
TEMPORARY PAVEMENT MARKING TYPE NR. (TAPE). 4" YELLOW	6310088	LFT	11600	11600	11600				
THERMOPLASTIC PAVEMENT MARKING 4" WHITE	6310210	LFT	137240	137240	137240				
THERMOPLASTIC PAVEMENT MARKING 4" YELLOW	6310211	LFT	57800	57800	57800				
THERMOPLASTIC PAVEMENT MARKING 6" CROSSWALK LINE	6310213	LFT	2300	2300	2300				
THERMOPLASTIC PAVEMENT MARKING. 12" CROSSWALK LINE	6310214	LFT	19815	19815	19815				
LIGHTING FOR NIGHT PAVING	6317001	LSUM	1	1	1				
CEREAL RYE SEEDING	6530008	LBS	6	6	6				
SLOPE RESTORATION	6530036	SYD	500	500	500				
STRAW MULCH BLANKET	6530038	SYD	500	500	500				
ON THE JOB TRAINING	6920002	HRS	750	750	750				

QUANTITY SHEET

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/09/90	63174	28992A	PALMER	16

MICROFILM CONTENT SHEET

BATCH 07-06F

OUT TO MICROFILM 6/29/2007

Control Section	Structure	Job Number	Sheet Number	Let Date	Region	Total Sheets	Plan Set	Box
63174		28992	(ONE ROLL)	3/13/1991	METRO	16		7
			AS LET					
	BIT OVERLAY							

MICROFILM CONTENT SHEET

BATCH 07-8F

OUT TO MICROFILM 8/24/2007

Control Section	Structure	Job Number	Sheet Number	Let Date	Region	Total Sheets	Plan Set	Box
63174		32616	(ONE ROLL)	9/9/1992	METRO	3		3
			AS LET					
	LANDSCAPING							

ROUTE	JOB NUMBER	FEDERAL NUMBER	SHEET NO.	TOTAL SHEETS
I-75	32616A	NP 1270	1	3

MICHIGAN
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED

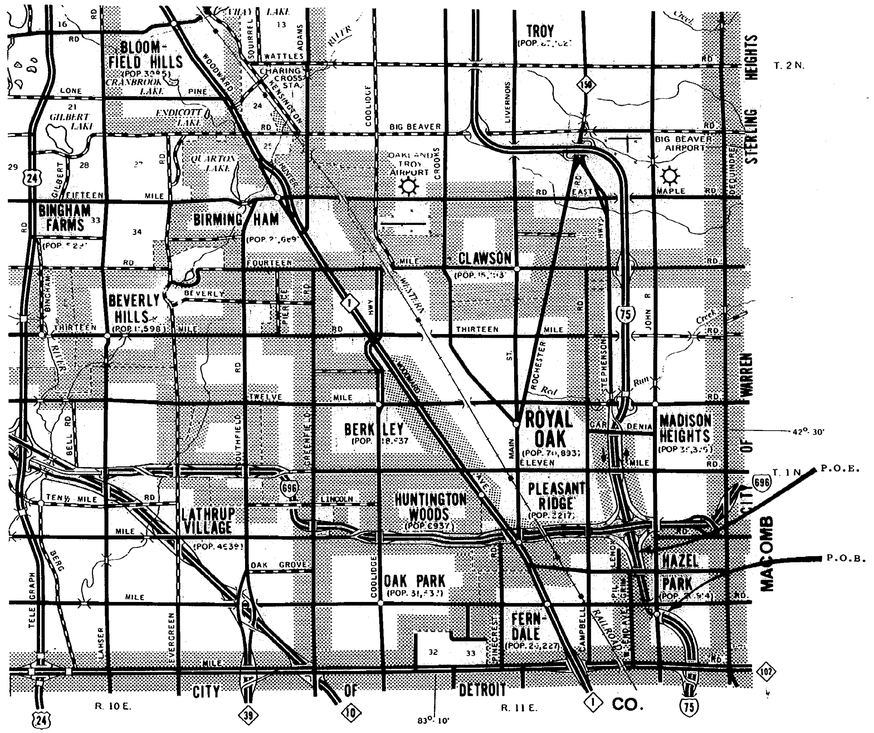
MICHIGAN PROJECT I-75-2(409)59
CONTROL SECTION IR 63174
JOB NUMBER 32616A

I-75
OAKLAND CO.
CITY OF HAZEL PARK

THE IMPROVEMENT COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 1990 STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS

A.D.T.....
D.H.V.....
COMM. % .....
DESIGN SPEED.....

INDEX SHEET NO'S.



TITLE SHEET LEGEND

EXISTING CONDITION

	PAVED	BITUMINOUS	GRAVEL	UNIMPROVED OR CITY STREET	RELOCATION
PROPOSED PROJECT					
PAVED					
BITUMINOUS					
GRAVEL					
UNIMPROVED OR CITY STREET					
SECTION LINE					
TOWNSHIP LINE					
COUNTY LINE					
CITY OR VILLAGE LIMITS					
RAILROADS					

CONTRACT FOR LANDSCAPE DEVELOPMENT

APPROVALS

RECOMMENDED FOR APPROVAL — C. J. Arnold, ENGINEER OF DESIGN — 7-9-92 DATE

RECOMMENDED FOR APPROVAL — For John J. Kwiatkowski, ENGINEER OF TRAFFIC & SAFETY — 7/7/92 DATE

RECOMMENDED FOR APPROVAL — For Robert L. Sommers, ENGINEER OF CONSTRUCTION — 7/6/92 DATE

MICHIGAN DEPARTMENT OF TRANSPORTATION
PATRICK M. NOWAK, DIRECTOR

APPROVED BY — For Gary D. Taylor, DEPUTY DIRECTOR - HIGHWAYS — 7-9-92 DATE

PLANS PREPARED BY
MULLER
DESIGN UNIT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

IR 63174	JOB NUMBER	PROJECT NUMBER	ITEM NUMBER	SHEET NO.
	32616A	M 79-2(409)59	NP 1270	1

AS LET PLANS

IR 63174--32616A

CONTROL SECTION - JOB NUMBER

SEPT-91

SH. NO.

JOB NO.

CONTROL SECTION

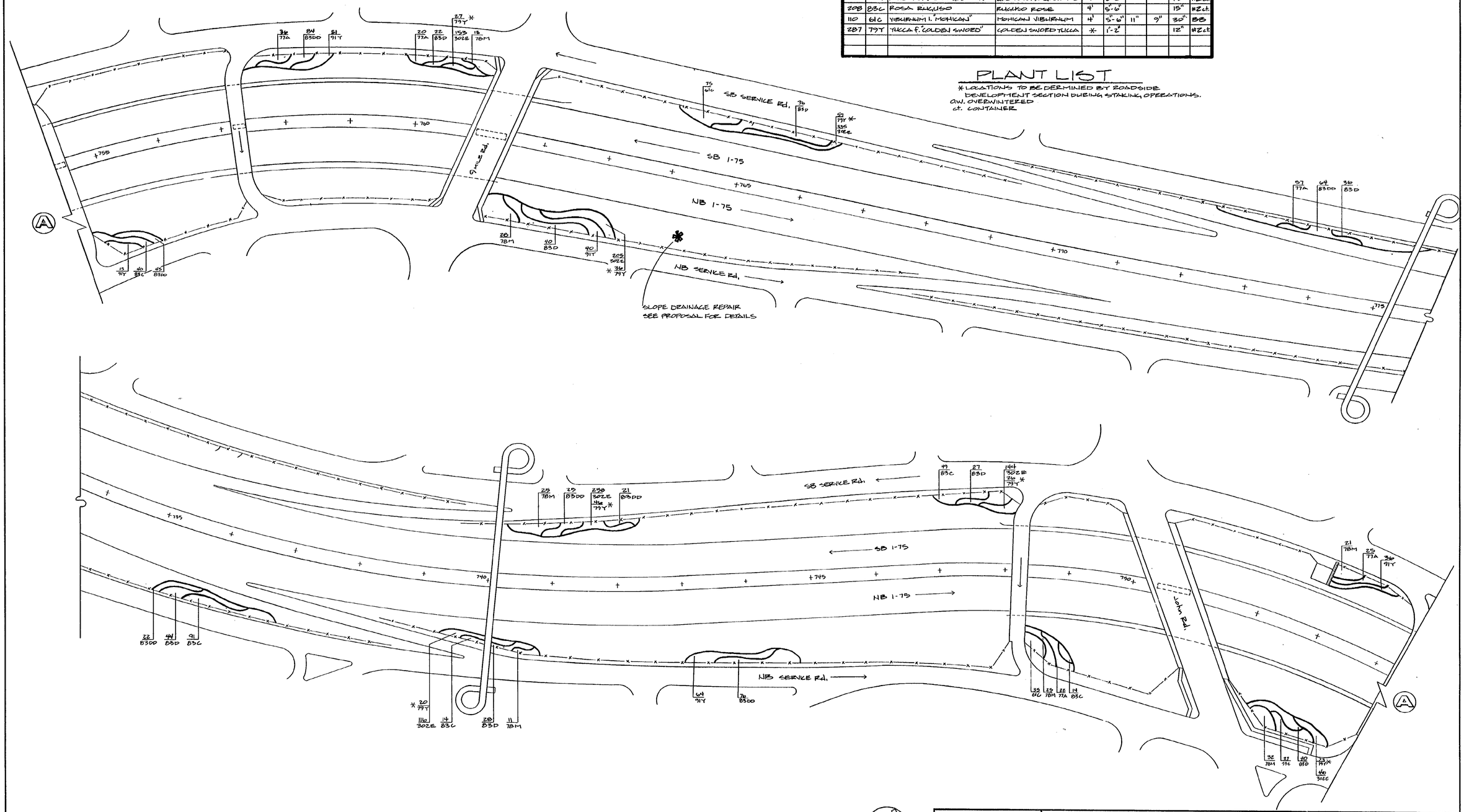
QTY.	KEY	BOTANICAL NAME	COMMON NAME	SPACING O.C.	MULCH DEPTH	BALL DIA.	BALL DEPTH	SIZE	ROOT
1021	302E	EUPHORBIA CYPARISSIA	CYPRESS SPURGE	18"	1-2"			4"pot	O.W.
204	91Y	JUNIPERUS "PLUMOSA EMERALD"	"EMERALD JUNIPER	4'	3'-4"	10"	8"	18"	BB
159	77A	LIGUSTRUM O. "REGELIANUM"	REGEL PRIVET	4'	3'-6"	10"	8"	24"	BB
155	78M	MYRICA PENNSYLVANICA	NORTHERN BAYBERRY	5'	5'-6"	11"	9"	30"	BB
27	93C	PINUS MUGO	MUGO PINE	5'	5'-6"	12"	9"	24"	BB
273	83D	RHUS AROMATICA	FRAGRANT SUMAC	5'	5'-6"			18"	#2 ct.
337	83DD	RHUS AROMATICA "GRO-LOW"	GRO-LOW FRAG. SUMAC	4'	5'-6"			15"	#2 ct.
208	83C	ROSA RUGUSO	RUGUSO ROSE	4'	5'-6"			15"	#2 ct.
110	61C	VIBURNUM I. "MOHICAN"	MOHICAN VIBURNUM	4'	5'-6"	11"	9"	30"	BB
287	79Y	TAXUS F. "GOLDEN SWORD"	GOLDEN SWORD TAXUS	*	1'-2"			12"	#2 ct.

PLANT LIST

* LOCATIONS TO BE DERMINED BY ROADSIDE DEVELOPMENT SECTION DURING STAKING OPERATIONS.
O.W. OVERWINTERED
ct. CONTAINER

				FINAL R.O.W.
AUTH.	DATE	NO.	REVISION	

DRAWN	J. Bakner	DATE
DESIGNED BY	J. Bakner	START
DESIGN UNIT	R. Muller	COMP.



NORTH

MICHIGAN DEPARTMENT OF TRANSPORTATION DES. 01

I-75 & NINE MILE LANDSCAPING

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. 2	
					R. O. W.	CONST.
7/1/92	1"=65'-0"	IR 63174	32616 A	MULLER		

032616A ROAD TOTAL

SUMMARY OF QUANTITIES

CONTROL SECTION 63174 | JOB NO. 32616A | SH. NO.

JOB NUMBER 32616A
CONTROL SECTION 63174

ITEM DESCRIPTION	ITEM CODE	UNIT	PROJECT TOTAL	JOB SUBTOTAL	SHEET 001
AGGREGATE BASE UNDER CONCRETE (4" IN PLACE)	3010021	SYD	10	10	10
CONCRETE SHOULDERS - NONREINFORCED	4500253	SYD	10	10	10
REMOVING PAVEMENT (REPAIR)	4520002	SYD	10	10	10
SEWER TAP, 4"	5130620	EACH	1	1	1
UNDERDRAIN OUTLET, 4"	6020136	LFT	175	175	175
CONCRETE CURB AND GUTTER, DETAIL B2	6090018	LFT	6	6	6
LIGHTED ARROW, TYPE A - FURNISHED	6310011	EACH	2	2	2
LIGHTED ARROW, TYPE A - OPERATED	6310012	EACH	2	2	2
BARRICADE, TYPE II, LIGHTED - FURNISHED	6310026	EACH	150	150	150
BARRICADE, TYPE II, LIGHTED - OPERATED	6310027	EACH	75	75	75
SIGN, TYPE B TEMPORARY	6310057	SFT	64	64	64
JUNIPERUS HORIZONTALIS PLUMOSA 'YOUNGSTOWN' 18"	6500496	EACH	204	204	204
LIQUSTRUM OBTUSIFOLIUM REGALIANUM 18"	6500526	EACH	159	159	159
MYRICA PENNSYLVANICA 24"	6500621	EACH	155	155	155
PINUS MUGHO 24"	6500682	EACH	27	27	27
RHUS AROMATICA 18"	6500776	EACH	273	273	273
RHUS AROMATICA GRO-LOW 18"	6500780	EACH	337	337	337
EUPHORBIA CYPARISSIA OVERWINTERED CYPRESS SPURGE MATURE PLANT 6"POT	6507000	EACH	1621	1621	1621
ROSA RUGOSA 15"	6507002	EACH	208	208	208
VIBURNUM LANTANA MOHICAN 24"	6507004	EACH	110	110	110
YUCCA FILAMETOSA GOLDEN SWORD 12"	6507006	EACH	287	287	287
SITE PREPARATION (MAX. $35,900)	6507008	LSUM	1	1	1
WATERING AND CULTIVATING 1ST SEASON (MINIMUM $15,250)	6507010	LSUM	1	1	1
WATERING AND CULTIVATING 2ND SEASON (MINIMUM $14,350)	6507012	LSUM	1	1	1
TRUCK MOUNTED ATTENUATOR FURNISHED	6507030	EACH	2	2	2
TRUCK MOUNTED ATTENUATOR, OPERATED	6507031	EACH	2	2	2
TOPSOIL SURFACE, 5"	6530016	SYD	90	90	90
SLOPE RESTORATION	6537001	SQYD	90	90	90
EXPLORATORY TRENCHING	6537002	LFT	50	50	50
BANK UNDERDRAIN, 4"-MODIFIED	6537003	LFT	40	40	40

QUANTITY SHEET

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
5/20/92	63174	32616A		3

MICROFILM CONTENT SHEET

BATCH 07-8F **OUT TO MICROFILM 8/24/2007**

Control Section	Structure	Job Number	Sheet Number	Let Date	Region	Total Sheets	Plan Set	Box
63174		32616	(ONE ROLL)	9/9/1992	METRO	3		3
			AS LET					
	LANDSCAPING							

CONTROL SECTION S04 OF 63103, P01, S02, S30, S31 OF 63174 | JOB NO. 48404A | SH. NO. 1

MICHIGAN
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED BRIDGE REHABILITATION

MICHIGAN PROJECT **BHI 0063(169)**

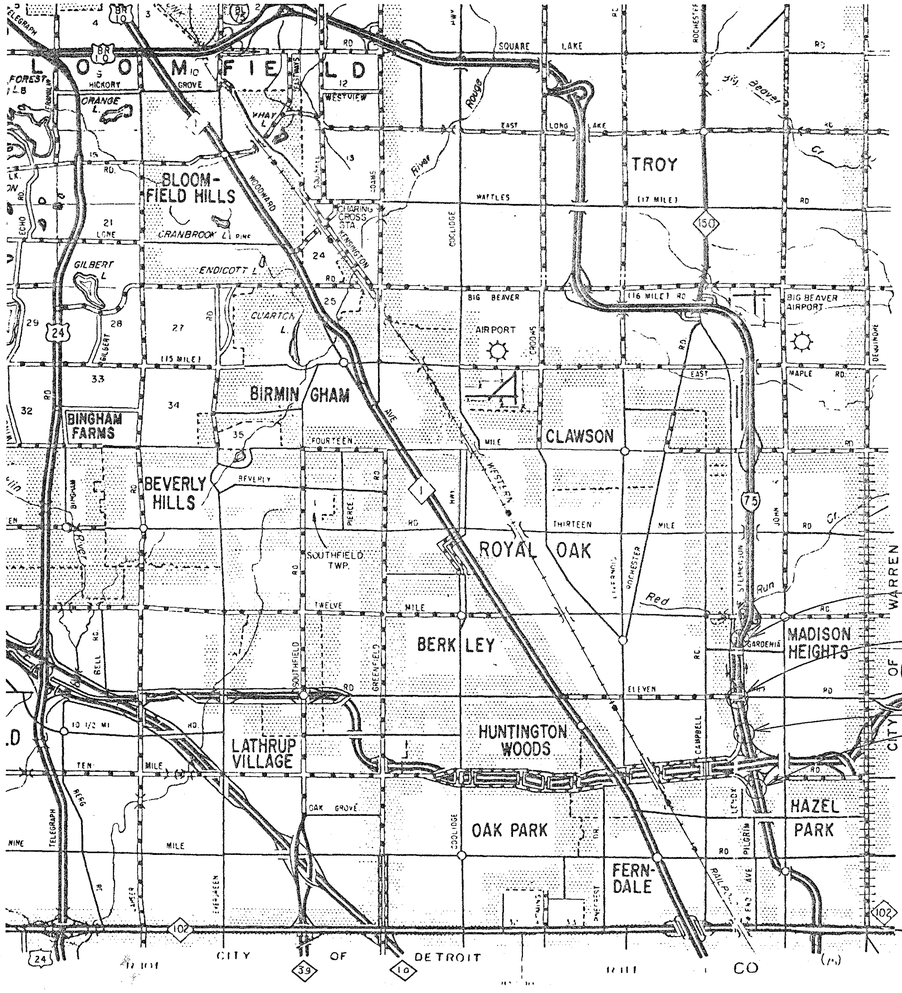
CONTROL SECTION **BHI** 63174

JOB NUMBER 48404A

I-75

CITIES OF HAZEL PARK, MADISON HEIGHTS, & ROYAL OAK

OAKLAND COUNTY



STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

B-25-A BRIDGE RAILING, AESTHETIC PARAPET TUBE

B-32-A FENCING FOR PEDESTRIAN STRUCTURE, EXISTING OPEN PARAPET

B-103-B MOLDING, BEVEL, LIGHT STANDARD ANCHOR BOLT ASSEMBLY, AND NAME PLATE DETAILS

TITLE SHEET LEGEND

PROPOSED PROJECT

EXISTING ROADS
- PAVED
- BITUMINOUS
- GRAVEL
- UNIMPROVED OR CITY STREET

SECTION LINE

TOWNSHIP LINE

COUNTY LINE

CITY OR VILLAGE LIMITS

RAILROADS

GENERAL NOTES

THE RECONSTRUCTION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS18 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH AND 1/300 OF CANTILEVER ARM. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS DESIGN.

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION 1996 EDITION.

THE STATIONING AS SHOWN ON THESE PLANS FOR THE INTERSECTION OF THE CENTERLINE OF BRIDGE AND ROADWAY CENTERLINE IS BELIEVED TO BE CORRECT. IT SHALL, HOWEVER, BE CHECKED AT THE TIME OF STARTING CONSTRUCTION, AND IF THE STATIONING SHOWN ON THE PLANS IS INCORRECT, IT SHALL BE REPORTED TO THE DESIGN OFFICE IN LANSING, AND THE STRUCTURE SHALL BE STAKED OUT USING THE ACTUAL INTERSECTION OF THE CENTERLINE OF BRIDGE AND ROADWAY CENTERLINE AS THE CONTROL POINT.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:

CONCRETE: GRADE S2	f'c =	21 MPa
CONCRETE: GRADE D	f'c =	28 MPa
STEEL REINFORCEMENT	fy =	400 MPa
STRUCTURAL STEEL: AASHTO M270 Grade 250	fy =	250 MPa
STRUCTURAL STEEL: AASHTO M270 Grade 345	fy =	345 MPa
STRUCTURAL STEEL PINS: ASTM A276 UNS DESIGNATION S20161 OR S21800	fy =	345 MPa

PROPOSED PLAN SHEET DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN. ELEVATIONS, COORDINATES AND CURVE ALIGNMENT DATA ARE IN METERS. STATIONS ARE IN KILOMETERS + METERS. EXISTING PLAN SHEET DIMENSIONS ARE IN CUSTOMARY U.S. UNITS.

THE REGULATED WASTE ACTIVITY IDENTIFICATION NUMBERS FOR THIS PROJECT ARE AS FOLLOWS:

CONTROL SECTION	NUMBER
S04 OF 63103	MIR000039164
S02 OF 63174	MIR000039156
S30 OF 63174	MIR000039180
S31 OF 63174	MIR000039198
P01 OF 63174	MIR000039206

2020 ESTIMATED TRAFFIC DISTRIBUTION

194500 AVERAGE DAILY TRAFFIC
8% COMMERCIAL

CONTRACT FOR: DECK REPLACEMENT, OVERLAY, SUSPENDER REPLACEMENT, STEEL REPAIR, SUBSTRUCTURE REPAIR, PAINTING, AND APPROACH WORK

APPROVALS

RECOMMENDED FOR APPROVAL — PROJECT MANAGER — 10-18-99 DATE

RECOMMENDED FOR APPROVAL — RESIDENT ENGINEER — 10-7-99 DATE

MICHIGAN
DEPARTMENT OF TRANSPORTATION
JAMES R. DESANA - DIRECTOR

APPROVED BY — DEPUTY DIRECTOR - HIGHWAYS — 11/3/99 DATE

MDOT Michigan Department of Transportation — M-DOT METRIC

MDOT DESIGN COORDINATOR
MAHDAVI
DESIGN UNIT

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	ITEM	SHEET NO.
S04 OF 63103, P01, S02, S03, S15, S30, S31 OF 63174	48404A	BHI0063(169)	RR2232	1

DRAWN BY: CASLER DATE: 11-19-98
CHECKED BY: DATE:
CORRECTED BY: CASLER DATE: 10-6-99
FILE NAME: S0263174.ti

S04 OF 63103, P01, S02, S30, S31 OF 63174-48404A

CONTROL SECTION — JOB NUMBER

s0263174.ti

CONTROL SECTION P01, S02, S30 & S31 OF 63174 | JOB NO. 48404A | SH. NO. 1A

REVISIONS			
NO.	DESCRIPTION	DATE	BY

PLAN INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A	PLAN INDEX SHEET
1B-7B	APPROACH ROAD DETAILS
1C-7C	SPECIAL DETAILS
1D-31D	TEMPORARY AND PERMANET TRAFFIC SIGNAL DETAILS
1E-10E	ELECTRICAL DETAILS

S02 OF 63174	
SHEET NO.	DESCRIPTION
2-3	GENERAL PLAN OF STRUCTURE
4	EXISTING GENERAL PLAN OF SITE - FOR INFORMATION ONLY
5	EXISTING GENERAL PLAN OF STRUCTURE- REMOVAL PORTIONS
6-20	EXISTING DETAILS-FOR INFORMATION ONLY
21	EXPANSION JOINT DETAILS
22-25	SUPERSTRUCTURE DETAILS
26-27	FENCING DETAILS
28	SLAB AND SCREED DETAILS
29	STEEL REINFORCEMENT DETAILS

S04 OF 63103	
SHEET NO.	DESCRIPTION
2	EXISTING GENERAL PLAN OF SITE-FOR INFORMATION ONLY
3	EXISTING GENERAL PLAN OF STRUCTURE-FOR INFORMATION ONLY
4-17	EXISTING DETAILS-FOR INFORMATION ONLY
18-19	ABUTMENT A REPAIR DETAILS
20	SUSPENDER REPLACEMENT DETAILS
21	EXPANSION JOINT DETAILS
22-23	DECK OVERLAY DETAILS
24	FENCING DETAILS

P01 OF 63174	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF STRUCTURE
3	EXISTING GENERAL PLAN OF SITE - FOR INFORMATION ONLY
4	EXISTING GENERAL PLAN OF STRUCTURE AND REMOVAL PORTIONS
5-14	EXISTING DETAILS-FOR INFORMATION ONLY
15-16	SUPERSTRUCTURE DETAILS

S30 OF 63174	
SHEET NO.	DESCRIPTION
2-3	GENERAL PLAN OF STRUCTURE
4	EXISTING GENERAL PLAN OF SITE - FOR INFORMATION ONLY
5	EXISTING GENERAL PLAN OF STRUCTURE- REMOVAL PORTIONS
6-12	EXISTING DETAILS-FOR INFORMATION ONLY
13	SUSPENDER REPLACEMENT DETAILS
14	EXPANSION JOINT DETAILS
15-18	SUPERSTRUCTURE DETAILS
19-20	FENCING DETAILS
21	SLAB AND SCREED DETAILS
22	STEEL REINFORCEMENT DETAILS

S31 OF 63174	
SHEET NO.	DESCRIPTION
2-3	GENERAL PLAN OF STRUCTURE
4	EXISTING GENERAL PLAN OF SITE- FOR INFORMATION ONLY
5	EXISTING GENERAL PLAN OF STRUCTURE- REMOVAL PORTIONS
6-10	EXISTING DETAILS-FOR INFORMATION ONLY
12	SUSPENDER REPLACEMENT DETAILS
13	EXPANSION JOINT DETAILS
14-16	SUPERSTRUCTURE DETAILS
17-18	FENCING DETAILS
19	SLAB AND SCREED DETAILS
20	STEEL REINFORCEMENT DETAILS

DATE: 9-23-99 CORRECTED BY:CASLER

DATE: 9-20-99 CHECKED BY:

DRAWN BY: INDER

FILE NAME: s30631741.dx

MDOT Michigan Department of Transportation

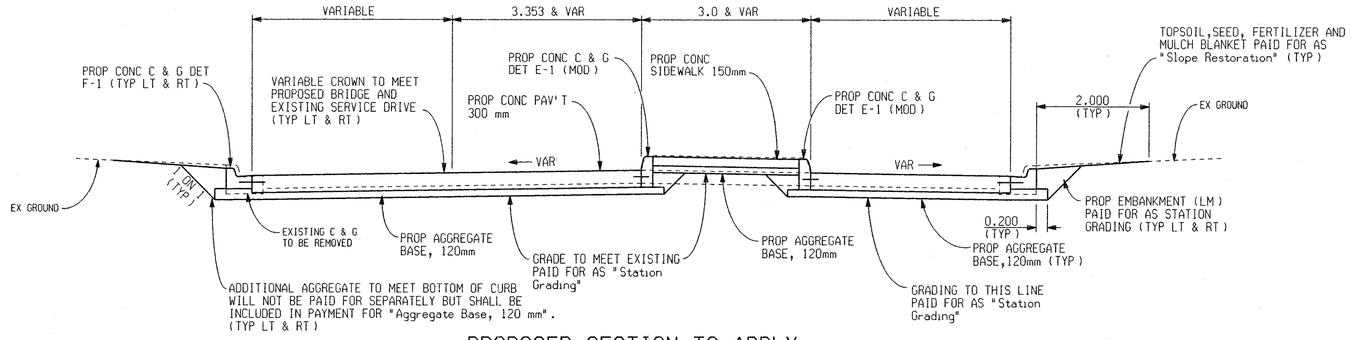
PLAN INDEX

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S04 OF 63103 & P01, S02, S30 & S31 OF 63174	48404A	MAHDAVI	1A OF

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

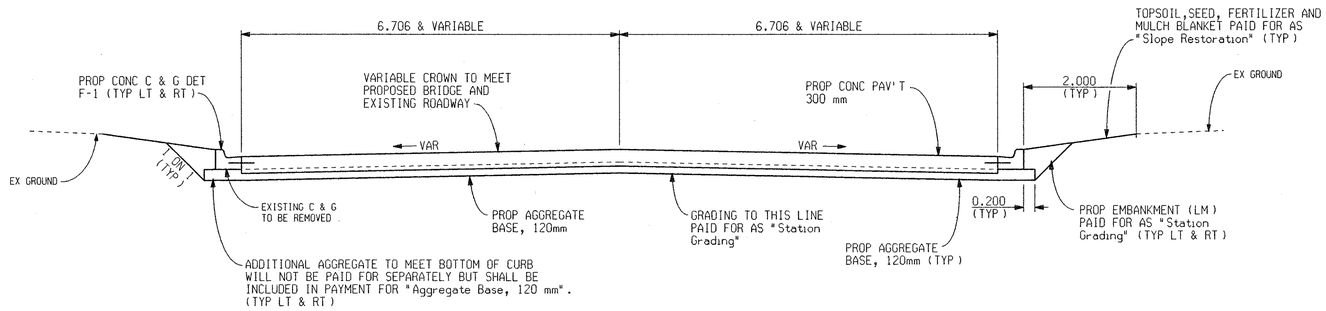
CONTROL SECTION 36174,63103 | JOB NO. 48404A | SH. NO. 1B

EXISTING BY: TJM DATE: 04-28-99
PROPOSED BY: TJM DATE: 10-11-99
LAST CORRECTION BY: DATE:



PROPOSED SECTION TO APPLY:

S04 OF 63174
STA 0+310.684 TO STA 0+324.487
STA 0+388.194 TO STA 0+397.119



PROPOSED SECTION TO APPLY:

S31 OF 63174
STA 0+416+468 TO STA 0+431.119
STA 0+483.077 TO STA 0+498.286
S30 OF 63174
STA 0+572.432 TO STA 0+587.883
STA 0+637.055 TO STA 0+651.350
S02 OF 63174
STA 3+547.041 TO STA 3+595.761
STA 3+653.496 TO STA 3+701.944

MDOT Michigan Department of Transportation

TYPICAL CROSS SECTIONS

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	
10/11/99	1:50	63174,63103	48404	RICK		1B

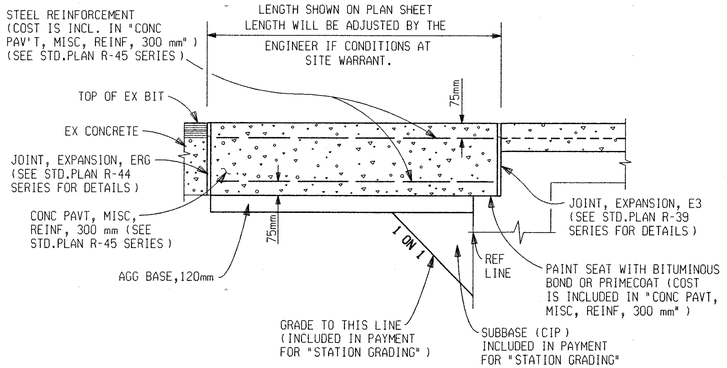
FILE NAME: 48404TYP.DGN

CONTROL SECTION 63174,63103 | JOB NO. 48404A | SH. NO. 2B

DATE: 10-11-99
DATE:
DATE:

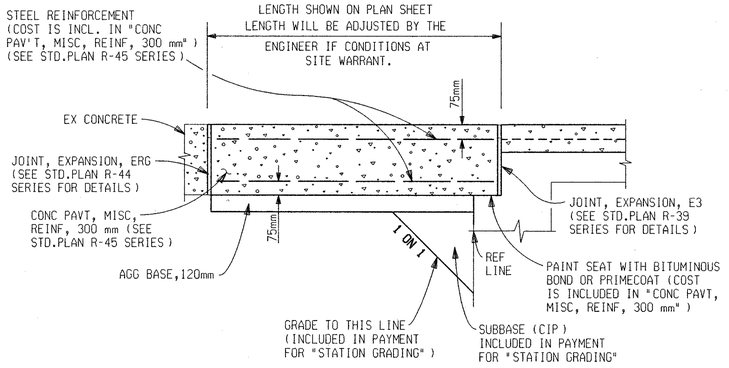
EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: TJM

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



CONCRETE APPROACH DETAIL-EXISTING COMPOSITE SECTION

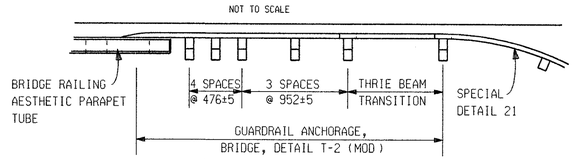
NOT TO SCALE



CONCRETE APPROACH DETAIL-EXISTING CONCRETE SECTION

NOT TO SCALE

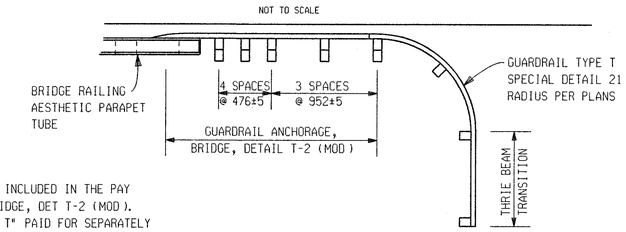
NOT TO SCALE



PROPOSED GUARDRAIL ANCHORAGE, BRIDGE, DETAIL T-2 (MOD) (TYP)

DETAIL 1

NOT TO SCALE

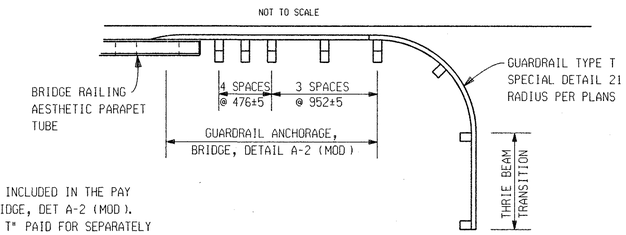


NOTE:
THRIE BEAM TRANSITION IS INCLUDED IN THE PAY ITEM "GUARDRAIL ANCH, BRIDGE, DET T-2 (MOD). "GUARDRAIL, CURVED, TYPE T" PAID FOR SEPARATELY

PROPOSED GUARDRAIL ANCHORAGE, BRIDGE, DETAIL T-2 (MOD) (TYP)

DETAIL 2

NOT TO SCALE



NOTE:
THRIE BEAM TRANSITION IS INCLUDED IN THE PAY ITEM "GUARDRAIL ANCH, BRIDGE, DET A-2 (MOD). "GUARDRAIL, CURVED, TYPE T" PAID FOR SEPARATELY

PROPOSED GUARDRAIL ANCHORAGE, BRIDGE, DETAIL A-2 (MOD) (TYP)

DETAIL 3

MISC DETAILS

MDOT Michigan Department of Transportation

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
10/11/99	1:300	63174,63103	48404A	RICK		2B

FILE NAME: 48404det.dgn

ENGINEERING REPORT NO	ENVIRON IMPACT STMT	
METHOD OF SURVEY		YEAR
SURVEY ORDER	SURVEY CHIEF	YEAR
AERIAL SURVEY NO		YEAR
HORIZ DATUM	VERT DATUM	
ROAD DESIGN INITIATED 1999	COMPLETED 1999	
PRELIMINARY PLANS BY RICK	FINAL PLANS BY RICK	
FIELD INSPECTION (GI) BY TIM BARRY		DATE 6-22-99
PLANS-IN-HAND BY (FHWA)	AND (MDOT)	DATE

GENERAL PLAN NOTES

UNDERGROUND UTILITIES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

MDOT'S FREEWAY LIGHTING SYSTEM, THE SCANDI SYSTEM AND OTHER MISCELLANEOUS ELECTRICAL SYSTEMS ARE NOT A PART OF MISS DIG.

CONTRACTORS WORKING OUTSTATE SHOULD CONTACT THE MAINTENANCE REPRESENTATIVE AT THE MDOT DISTRICT OFFICE TO HAVE LIGHTING SYSTEMS STAKED.

GRADES FOR INTERSECTIONS

ALL INTERSECTIONS ARE TO BE CONSIDERED AS COMPLETE UNITS AND THEIR GRADES DETERMINED BEFORE CONSTRUCTION IS STARTED.

OLD PLANS

THE FOLLOWING OLD PLANS WERE REFERRED TO IN THE DESIGN OF THIS PROJECT.

S31 OF 63174B
S02 OF 63174D
S30 OF 63174B
S04 OF 63103A
I-75-2 (75) 62
I-696-8 (24) 224
S03 OF 631741
I-75-2 (137) 62
P01 OF 63174C
I-75-2 (78)-71
S15 OF 63174F
I-75-2 (92) 62

IN ADDITION, OTHER OLD PLANS THAT PREDATE THIS PROJECT MAY BE AVAILABLE. THESE PLANS MAY BE REVIEWED IN THE LANSING DESIGN OFFICE DURING NORMAL WORKING HOURS.

STATIONING

STATIONING ON THIS PROJECT WAS TAKEN FROM OLD PLANS AND PAVEMENT STENCILED STATIONING AND IS NOT NECESSARILY CORRECT.

SIGNS

ANY MDOT SIGNS REQUIRING RELOCATION DUE TO CONSTRUCTION OPERATIONS SHALL BE SALVAGED AND RESET BY THE CONTRACTOR AT LOCATIONS DESIGNATED BY THE ENGINEER. THIS WORK WILL BE CONSIDERED INCLUDED IN PAYMENT FOR OTHER CONTRACT ITEMS.

PAVEMENT REMOVAL QUANTITIES

PAVEMENT REMOVAL AS SHOWN ON THE PLANS SHALL BE AT THE DISCRETION OF THE ENGINEER. IF IN HIS/HER JUDGEMENT, AREAS OF PAVEMENT MAY BE LEFT IN PLACE, OR ADDITIONAL AREAS ADDED TO PROVIDE THE PROPER CROSS-SECTION AND BASE, CHANGES CAN BE MADE IN THE QUANTITIES.

MILLING PAVEMENT

PRIOR TO MILLING THE PAVEMENT, THE CONTRACTOR SHALL HAVE AN APPROVED MIX DESIGN AND AN ADEQUATE SUPPLY OF MATERIAL TO INSURE THAT THE FIRST LIFT OF THE SPECIFIED BITUMINOUS MIXTURE CAN BE PLACED ON ALL MILLED SURFACES

MITS

CALL MITS (313-256-9800) FOR LOCATION OF FIBER OPTIC LINES. IN CASE OF AN EMERGENCY CALL (313) 256-9800 EXT 310

GAS MAINS

A 4" STEEL GAS MAIN IS IN THE VICINITY OF THE LINCOLN AVE. STRUCTURE (S30 OF 63174). CONTRACTOR SHALL TAKE CAUTION DURING OPERATIONS NOT TO DISTURB THE GAS MAIN.

A 4" H.P. AND A 6" M.P. STEEL GAS MAIN ARE IN THE VICINITY OF THE ELEVEN MILE STRUCTURE (S31 OF 63174). CONTRACTOR SHALL TAKE CAUTION DURING OPERATIONS NOT TO DISTURB THE GAS MAINS.

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED ON OUR SURVEYS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO IT'S ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

NAME OF OWNER	KIND OF UTILITY
DEVEK BLOUNT AMERITECH PONTIAC/SOUTHFEILD ENGINEERING OFFICE 54 N MILL ST BOX 33 PH# (248) 456-0841 PONTIAC, MI 48342	PHONE
COMCAST CABLEVISION OF PONTIAC, WATERFOR ATTN: JIM CHURCH 1300 CRESENT LAKE RD WATERFORD, MI 48327	CTV
STEVE PLAWINSKI CONSUMERS ENERGY COMPANY 1030 HEATHERSTONE RD PONTIAC, MI 48342 PH# (248) 858-4448	GAS
MEDIA ONE ATT STEVE S RUDZINSKI 35155 INDUSTRIAL ROAD LIVONIA, MI 48150	PHONE/CTV
MS. CINDY NORLIN PRINCIPAL AREA LEADER - PROJECT MANAGEMENT DETROIT EDISON COMPANY 2000 SECOND AVENUE, 410 SB DETROIT, MI 48226	ELECTRICAL
SUN PIPE LINE COMPANY MR. ROBERT RYAN, SUPERINTENDENT 7155 INKSTER ROAD TAYLOR, MI 48180	
TCI CABLEVISION 720 N. BATES ST. SAGINAW, MI 48602-4868	CTV
TCI CABLE OF OAKLAND COUNTY ATT: DAVID EADES 4500 DELEMERE ROYAL OAK, MI 48073	CTV
UNITED CABLE TVC OF MID MICHIGAN 1070 TOWBRIDGE RD E LANSING, MI 48823	CTV
MITS 1050 SIXTH ST. DETROIT, MI 48226	

NOTES APPLYING TO STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

DRAINAGE STRUCTURES	R-1-B
SIDEWALK RAMP DETAILS	R-28-B
DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALKS	R-29-B
CONCRETE CURB AND CONCRETE CURB AND GUTTER	R-30-C
TRANSVERSE PAVEMENT JOINTS	R-39-D
LONGITUDINAL PAVEMENT JOINTS	R-41-C *
LOCATION OF TRANSVERSE JOINTS IN CONCRETE PAVEMENT	R-43-B
CONCRETE PAVEMENT REPAIR	R-44-B
CONVENTIONAL PAVEMENT REINFORCEMENT	R-45-C
GUARDRAIL AT STRUCTURES AND EMBANKMENTS	R-59-C
GUARDRAIL TYPES A, B, BD, T & TD	R-60-E *
GUARDRAIL DEPARTING TERMINAL TYPES B & T	R-66-C *
GUARDRAIL ANCHORAGE, BRIDGE, DETAILS	R-67-D
SODDING AND SEEDING	R-100-B
LIGHTED ARROWS AND BARRICADES	R-125-A

* SPECIAL DETAILS

MISCELLANEOUS ESTIMATES CONT.

THE FOLLOWING ITEMS OF WORK ARE ESTIMATED FOR THE ENTIRE PROJECT FOR MAINTAINING TRAFFIC AS DETERMINED BY THE ENGINEER.

50 m	Post, Steel, 4.5 kg
12 ea	Band, Sign
20 m2	Sign, Type IA
7.2 m2	Sign, Type IIA
3 m2	Sign, Type IIIA
7.2 m2	Sign, Type IB
7.2 m2	Sign, Type IIB
4 m2	Sign, Type IIIB
5 ea	Bridge Sign Connection, Bolt Replacement
2 ea	Sign, Type I, Rem
10 ea	Sign, Type II, Rem
23 ea	Sign, Type III, Rem
5 ea	Sign, Type I, Salv
4 ea	Sign, Type III, Salv
10 ea	Bridge Sign Connection, Type A, Rem
1 ea	Bridge Sign Connection, Type E, Rem
1 ea	Bridge Sign Connection, Type F, Rem
192 m	Pavt Mrkg, Overlay Cold Plastic, 600 mm, Stop Bar
440 m	Pavt Mrkg, Overlay Cold Plastic, 150 mm, Crosswalk
18 ea	Pavt Mrkg, Overlay Cold Plastic, Only
8 ea	Pavt Mrkg, Overlay Cold Plastic, Rt Turn Arrow Symb
14 ea	Pavt Mrkg, Overlay Cold Plastic, Lt Turn Arrow Symb
310 m	Pavt Mrkg, Overlay Cold Plastic, Pattern Tape, 100 mm, White
370 m	Pavt Mrkg, Overlay Cold Plastic, Pattern Tape, 100 mm, Yellow
475 m	Pavt Mrkg, Optional Material, 100 mm, White
450 m	Pavt Mrkg, Optional Material, 100 mm, Yellow

MISCELLANEOUS ESTIMATES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

1 ea	Bridge Sign Connection, Steel, Type E	(15 degree)
1 ea	Bridge Sign Connection, Steel, Type F	(15 degree)
5 ea	Bridge Sign Connection, Steel, Type A	(0 degree)
2 ea	Bridge Sign Connection, Steel, Type A	(10 degree)
2 ea	Bridge Sign Connection, Steel, Type A	(15 degree)
1 ea	Bridge Sign Connection, Steel, Type A	(30 degree)
175 m2	Sign, Type B Temp, Prismatic, Special	

MISCELLANEOUS ESTIMATES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

ROYAL OAK 43%	MADISON HTS. 6%	MDOT 51%		
0.43	0.06	0.51	LS	Project Cleanup
645	90	765	hr	On the Job Training
0.43	0.06	0.51	LS	Contractor Staking for Bridges
24	3	28	hr	Staking Plan Errors and Extras, One Person
9	1	12	hr	Staking Plan Errors and Extras, Two Person
14	2	17	hr	Staking Plan Errors and Extras, Three Person
641	89	761	m3	Conc Quality Assurance
2397	335	2843	dlr	Conc Quality Initiative
6	1	8	m	Fence, Plastic, Temp
21	3	24	ea	Sand Module Impact Attenuator (Temp)
10	1	13	ea	Sand Module Impact Attenuator (Replace)
15	2	19	ea	Sand Module Impact Attenuator (Relocate)

MISCELLANEOUS ESTIMATES CONT.

THE FOLLOWING ITEMS OF WORK ARE ESTIMATED FOR THE ENTIRE PROJECT FOR MAINTAINING TRAFFIC AS DETERMINED BY THE ENGINEER.

ROYAL OAK 43%	MADISON HTS. 6%	MDOT 51%		
15	2	18	ea	Barricade, Type III, Lighted, Oper
4	1	5	ea	Truck Mtd Attenuator, Furn
4	1	5	ea	Truck Mtd Attenuator, Oper
215	30	255	m	Conc Barrier, Temp, Furn
215	30	255	m	Conc Barrier, Temp, Oper
95	13	114	m	Conc Barrier, Temp, Relocated
11	1	13	ea	Conc Barrier Reflector Replacement
3	0	4	ea	High Intensity Light, Type B, Furn
3	0	4	ea	High Intensity Light, Type B, Oper
0.43	0.06	0.51	LS	Minor Traf Devices
0.43	0.06	0.51	LS	Flag Control
2	0	3	m2	Sign, Type A Temp, Prismatic Retrflec Sheeting
129	18	153	m2	Sign, Type B Temp, Prismatic Retrflec Sheeting
4	1	5	ea	Sign Cover
2	0	2	ea	Sign, Portable, Changeable, Furn
2	0	2	ea	Sign, Portable, Changeable, Oper
387	54	459	m	Pavt Mrkg, Type R, 100 mm, White, Temp
1505	210	1785	m	Pavt Mrkg, Type R, 100 mm, Yellow, Temp
150	20	179	m	Pavt Mrkg, Longit, 125 mm or Less Width, Rem
43	6	51	m	Pavt Mrkg, Longit, 126 mm to 250 mm Width, Rem
291	41	345	m	Removing Curing Compound, for Longit Mrkg
58	8	69	m2	Removing Curing Compound, for Spec Mrkg
64	9	77	m2	Removing Spec Mrkg
6	1	7	ea	Lighted Arrow, Type C, Furn
6	1	7	ea	Lighted Arrow, Type C, Oper
0.43	0.06	0.51	ea	Lighted Arrow, Type C, Standby
602	84	714	ea	Plastic Drum with High Intensity Sheeting, Lighted, Furn
537	75	638	ea	Plastic Drum with High Intensity Sheeting, Lighted, Oper
15	2	18	ea	Barricade, Type III, Lighted, Furn

MICHIGAN DEPARTMENT OF TRANSPORTATION

NOTE SHEET

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
10/19/99	63174	48404	RICK		3B

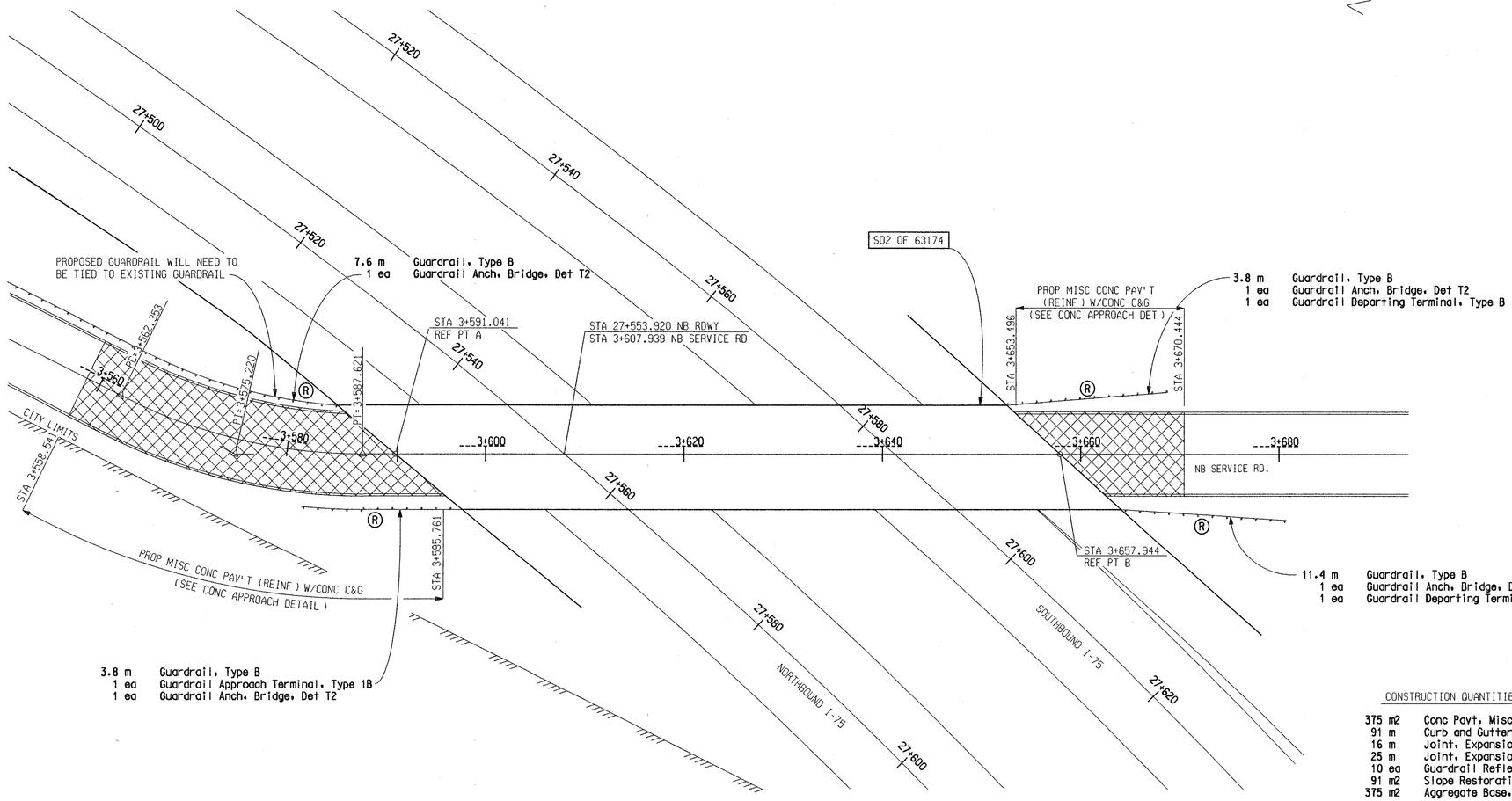
CONTROL SECTION 63174 | JOB NO. 48404 | SH. NO. 3B

DATE: 10-11-99

LAST CORRECTION BY: TJM
FILE NAME: 48404note.dgn
12

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION 14
T1N ,R11E
ROYAL OAK TWP



LEGEND

REMOVING PAVEMENT ▨

REMOVING ····· Ⓡ

CONSTRUCTION QUANTITIES THIS SHEET

375 m2	Conc Pavt, Misc, Reinf, 300 mm
91 m	Curb and Gutter, Conc, Det F1
16 m	Joint, Expansion, Erg
25 m	Joint, Expansion, E3
10 ea	Guardrail Reflector
91 m2	Slope Restoration
375 m2	Aggregate Base, 120 mm

REMOVAL QUANTITIES THIS SHEET

66 m	Guardrail, Rem
375 m2	Pavt, Rem
91 m	Station Grading

NOTE:
ALL QUANTITIES ON THIS SHEET
ARE ROYAL OAK PARTICIPATION

REMOVAL/CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

SO2 OF 63174 NB SERVICE RD OVER I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.	
					R.O.W.	
10/11/99	1:250	63174	48404	RICK		4B

CONTROL SECTION 63174 | JOB NO. 48404 | SH. NO. 4B

EXISTING BY: ZAMORAB DATE: 05-04-99
PROPOSED BY: DATE:
LAST CORRECTION BY: TJM DATE: 10-11-99

FILE NAME: 48404s02.dgn

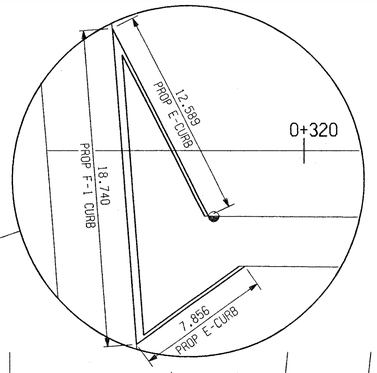
			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION
T1N ,R11E
HAZEL PARK
OAKLAND COUNTY

N

FOR LOCATION OF FIBER
OPTIC LINE PLEASE CALL MDOT
INTELLIGENT VEHICLE HIGHWAY SYSTEM
AT (313) 256-9800

CAUTION - CRITICAL
UNDERGROUND UTILITY



34.2 m Guardrail, Type B
1 ea Guardrail Approach Terminal, Type 1B
19 m Guardrail, Curved, Type T(17.8m R)
1 ea Guardrail Anch, Bridge, Det A2 (MOD)(SEE DET 3)

POB STA 0+304.800 BRIDGE ℄
POT STA 16+900.224 SERVICE RD

POT STA 0+353.452 BRIDGE ℄
POC STA 24+578.764 I-75 ℄

S04 OF 63103

PROP MISC CONC PAV'T
(REINF) W/CONC C&G
(SEE CONC APPROACH DET)

REF PT B
STA 0+390.028

0+388.194

0+397.119

SERVICE RD

ADJ-L

GRADE TO DRAIN TO
EXISTING STRUCTURES

REF PT A
STA 0+324.496

0+320 0+340 0+360 0+380

24+580 24+560

3"ø FIBER CONDUIT

POE STA 0+399.333 BRIDGE=
STA 16+663.973 SERVICE RD

38 m Guardrail, Type B
1 ea Guardrail Departing Terminal, Type B
3.8 m Guardrail, Curved, Type T(12.7m R)
1 ea Guardrail Anch, Bridge, Det A2 (MOD)(SEE DET 3)

SHEVLIN AVE

68.4 m Guardrail, Type B
1 ea Guardrail Approach Terminal, Type 1B
7.6 m Guardrail, Curved, Type T(2.8m R)
1 ea Guardrail Anch, Bridge, Det A2 (MOD)(SEE DET 3)

SOUTHBOUND I-75

NORTHBOUND I-75

24+540

24+520

0+310.684

0+324.487

PROP MISC CONC PAV'T
(REINF) W/CONC C&G
(SEE CONC APPROACH DET)

1 ea Guardrail Departing Terminal, Type B
22.8 m Guardrail, Curved, Type T (12m R)
1 ea Guardrail Anch, Bridge, Det A2 (MOD)(SEE DET 3)

CAUTION - CRITICAL
UNDERGROUND UTILITY

SHEVLIN AVE

CONSTRUCTION QUANTITIES THIS SHEET

406 m2	Conc Pavt, Misc, Reinf, 300 mm
78 m	Curb and Gutter, Conc, Det F1
104 m	Joint, Expansion, Erg
48 m	Joint, Expansion, E3
102 m2	Sidewalk, Conc, 150 mm
12 ea	Guardrail Reflector
5 ea	Dr Structure Cover, Adj, Case 1
78 m2	Slope Restoration
508 m2	Aggregate Base, 120 mm
69 m	Curb, Conc, Det E1
1135 kg	Dr Structure Cover L

REMOVAL QUANTITIES THIS SHEET

179 m	Guardrail, Rem
508 m2	Pavt, Rem
78 m	Station Grading

LEGEND

REMOVING PAVEMENT
REMOVING SIDEWALK

REMOVAL/CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

S04 OF 63103 SHELVIN AVE OVER I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO.
10/11/99	1:250	63103	48404	RICK		5B

DATE:
DATE:
DATE: 10-11-99

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: RICK'S UNIT

SHT. NO. 5B
JOB NO. 48404
CONTRACT SECTION 63174

FILE NAME: 48404s04.dgn
1 2 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

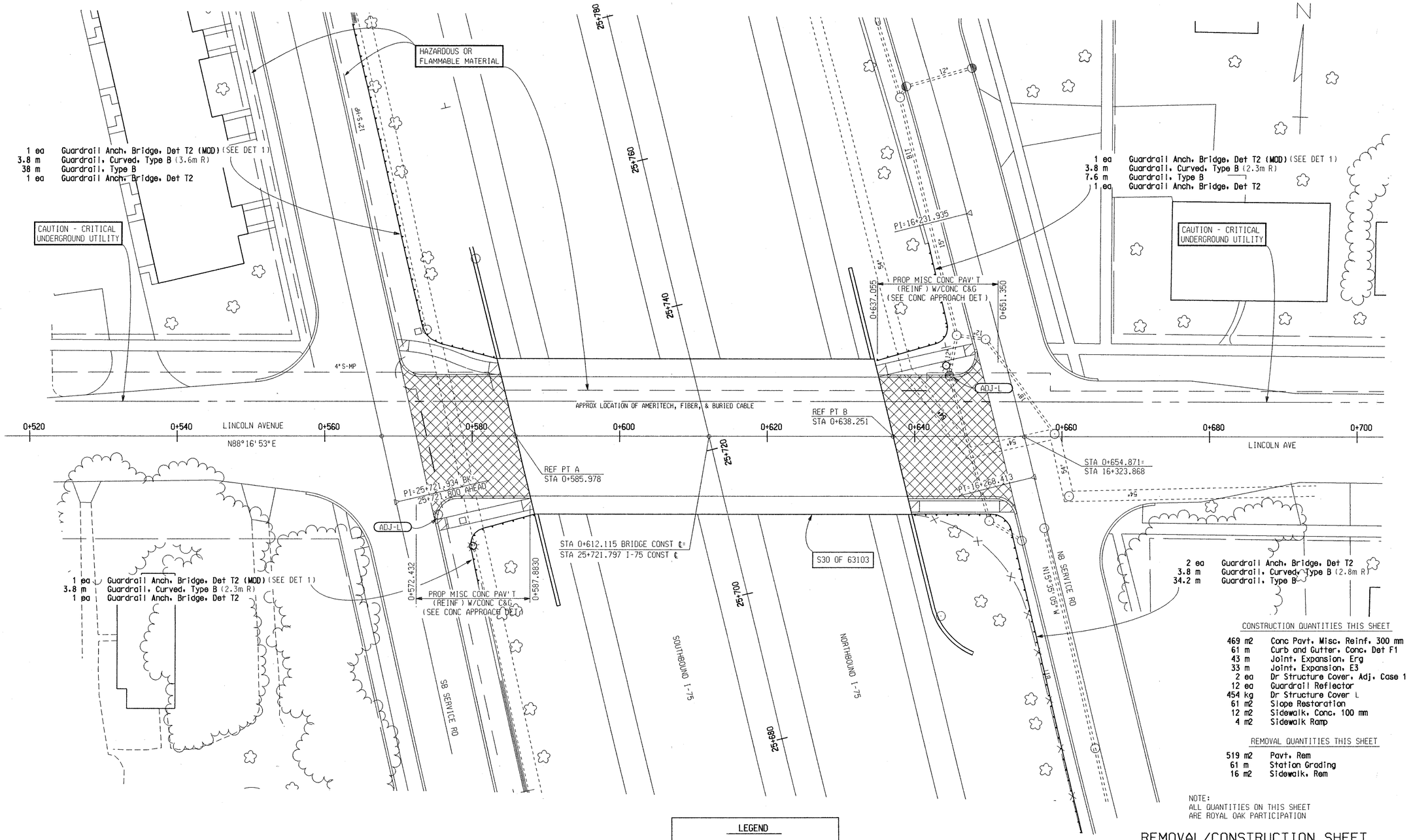
CONTROL SECTION 63174 | JOB NO. 48404 | SH. NO. 6B

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: RICK' UNIT

DATE:
DATE:
DATE: 10-11-99

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION 23
T1N ,R11E
OAKLAND COUNTY
CITY OF ROYAL OAK



LEGEND

REMOVING PAVEMENT

REMOVING SIDEWALK

CONSTRUCTION QUANTITIES THIS SHEET

469 m2	Conc Pavt, Misc, Reinf, 300 mm
61 m	Curb and Gutter, Conc, Det F1
43 m	Joint, Expansion, Erg
33 m	Joint, Expansion, E3
2 ea	Dr Structure Cover, Adj, Case 1
12 ea	Guardrail Reflector
454 kg	Dr Structure Cover L
61 m2	Slope Restoration
12 m2	Sidewalk, Conc, 100 mm
4 m2	Sidewalk Ramp

REMOVAL QUANTITIES THIS SHEET

519 m2	Pavt, Rem
61 m	Station Grading
16 m2	Sidewalk, Rem

NOTE:
ALL QUANTITIES ON THIS SHEET
ARE ROYAL OAK PARTICIPATION

REMOVAL/CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

S30 OF 63174 LINCOLN AVE OVER 1-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
10/11/99	1:250	63174	48404	RICK		6B

FILE NAME: 48404s30.dgn

CONTROL SECTION 63174 | JOB NO. 48404 | SH. NO. 7B

DATE:
DATE:
DATE: 10-11-99

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: TJM

SECTION 14
T1N ,R11E
ROYAL OAK
OAKLAND COUNTY

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

N

REMOVAL QUANTITIES THIS SHEET

30 m	Guardrail, Rem
398 m2	Pavt, Rem
40 m2	Sidewalk, Rem
28 m	Station Grading

1 ea Guardrail Anch, Bridge, Det T2 (MOD)
(SEE DET 2) TIE TO EXISTING GUARDRAIL
3.8 m Guardrail, Curved, Type T (2.2m R)

1 ea Guardrail Anch, Bridge, Det T2 (MOD)
(SEE DET 2) TIE TO EXISTING GUARDRAIL
3.8 m Guardrail, Type B
3.8 m Guardrail, Curved, Type T (2.9m R)

1 ea Guardrail Anch, Bridge, Det T2 (MOD)
(SEE DET 2)
7.6 m Guardrail, Type B
3.8 m Guardrail, Curved, Type T (2.8m R)

1 ea Guardrail Anch, Bridge, Det T2 (MOD)
(SEE DET 2) TIE TO EXISTING GUARDRAIL
7.6 m Guardrail, Type B
3.8 m Guardrail, Curved, Type T (2.1m R)

LEGEND

REMOVING PAVEMENT
REMOVING BITUMINOUS
REMOVING SIDEWALK

CONSTRUCTION QUANTITIES THIS SHEET

340 m2	Conc Pavt, Misc, Reinf, 300 mm
42 m	Curb and Gutter, Conc, Det F1
65 m	Joint, Expansion, Erg
41 m	Joint, Expansion, E3
35 m2	Sidewalk, Conc, 100 mm
4 ea	Guardrail Reflector
15 m2	Sidewalk Ramp
28 m2	Slope Restoration
340 m2	Aggregate Base, 120 mm

NOTE:
ALL QUANTITIES ON THIS SHEET
ARE ROYAL OAK PARTICIPATION

REMOVAL/CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

S31 OF 63174 11 MILE RD OVER I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO.
10/11/99	1:250	63174	48404	RICK		7B

FILE NAME= 48404s31.dgn
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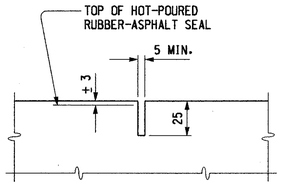
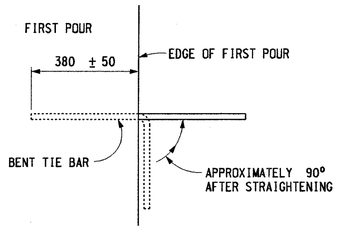
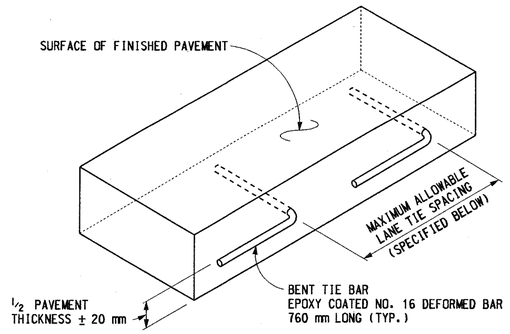
CONTROL SECTION 63174 | JOB NO. 48404A | SHEET NO.

SYMBOL (B)



SAWED JOINT SEALED WITH HOT - POURED RUBBER - ASPHALT

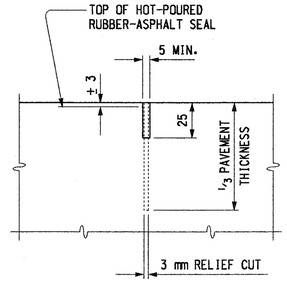




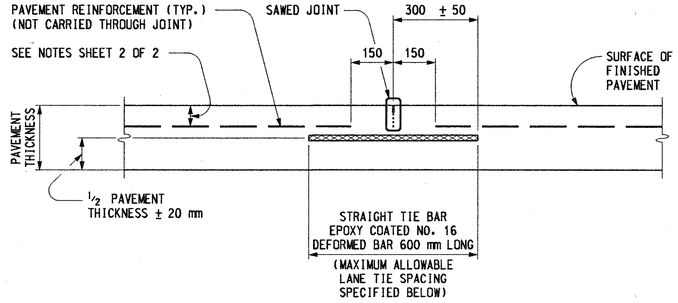
LONGITUDINAL BULKHEAD JOINT

ALL SYMBOL (B) JOINTS SHALL BE SAWED AND SEALED EXCEPT JOINTS WITHOUT LANE TIES AND JOINTS ADJACENT TO VERTICAL FACES WHICH WOULD PROHIBIT SAWING.

SYMBOL (D)



SAWED JOINT SEALED WITH HOT - POURED RUBBER - ASPHALT



LONGITUDINAL LANE TIE JOINT

SYMBOL (D) TIE BARS SHALL BE PLACED AT THE PROPER SPACING LONGITUDINALLY, AND TRANSVERSELY AT 90° WITH THE JOINT.

MAXIMUM ALLOWABLE LANE TIE SPACING, SYMBOLS (B) AND (D) (mm)		* TOTAL DISTANCE OF TIED JOINT FROM NEAREST FREE EDGE
(B) GRADE 300	(D) GRADE 400	
860	1090	3.6 m OR LESS
585	790	3.6 m + THROUGH 5.1 m
430	585	5.1 m + THROUGH 7.2 m
355	530	7.2 m + THROUGH 8.4 m
355	405	8.4 m + THROUGH 10.8 m
330	330	10.8 m OR GREATER

* INCLUDES ANY TIED COMBINATION OF LANE WIDTH, VALLEY GUTTER, CURB & GUTTER, OR SHOULDER

MAXIMUM ALLOWABLE LANE TIE SPACING

MDOT Michigan Department of Transportation

PREPARED BY DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

ENGINEER OF CONSTRUCTION & TECHNOLOGY

ENGINEER OF MAINTENANCE

ENGINEER OF TRAFFIC AND SAFETY

ENGINEER - ROAD DESIGN

ENGINEER OF DESIGN

DEPARTMENT DIRECTOR
James R. DeSana

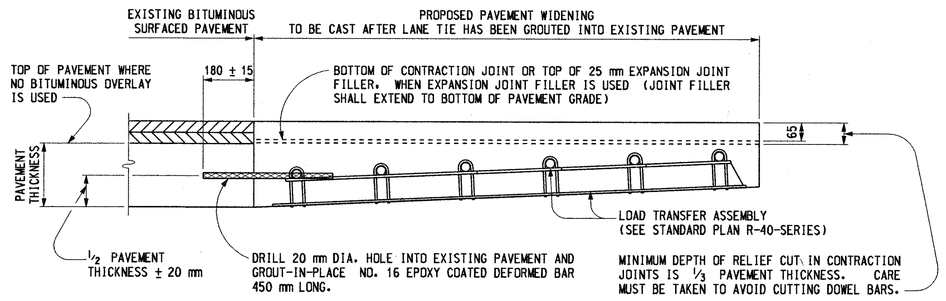
BY:
CHIEF ENGINEER/DEPUTY DIRECTOR
BUREAU OF HIGHWAY TECHNICAL SERVICES

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

LONGITUDINAL PAVEMENT JOINTS

F.H.W.A. APPROVAL	8-17-99 PLAN DATE	R-41-C	SHEET 1 OF 2

SYMBOL (L2)



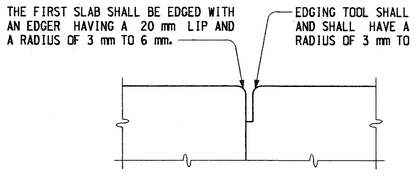
NOTE: SYMBOL (L2) JOINT USED FOR WIDENING CONCRETE PAVEMENTS WITHOUT BITUMINOUS OVERLAYS SHALL BE SAWED AND SEALED ACCORDING TO THE SYMBOL (B) JOINT.

THE LONGITUDINAL JOINT USED FOR WIDENING EXISTING CONCRETE BASE COURSE OR CONCRETE PAVEMENT HAVING A BITUMINOUS SURFACE SHALL HAVE EPOXY ANCHORED LANE TIES PLACED AS SPECIFIED.

TAPERED PAVEMENT THICKNESS OVER THE DISTANCE OF PAVEMENT WIDENING OR IN ONE LANE WIDTH WHEN WIDENING IS FOR TWO OR MORE LANES.

LONGITUDINAL BULKHEAD JOINT

FOR WIDENING EXISTING CONCRETE PAVEMENT OR CONCRETE BASE COURSE (USING EPOXY ANCHORED LANE TIES)



METHOD OF EDGING

NOTES:

LANE TIE BARS SHALL BE DEFORMED.

THE INSTALLATION OF LANE TIE BARS AND THE SAWING OF LONGITUDINAL JOINTS WILL NOT BE REQUIRED FOR TEMPORARY CONCRETE PAVEMENT UNLESS SPECIFIED ON PLANS OR IN THE PROPOSAL. THE EDGING OF TEMPORARY CONCRETE PAVEMENT WILL NOT BE REQUIRED.

FOR JOINT LAYOUT DETAILS, SEE STANDARD PLAN R-42-SERIES.

SAWING PROCEDURES AND RELATED OPERATIONS ARE DESCRIBED IN THE CURRENT STANDARD SPECIFICATIONS.

NO SAWED OR SEALED JOINT SHALL BE CONSTRUCTED BETWEEN THE PAVEMENT AND CURB OR PAVEMENT AND CURB AND GUTTER, WHERE THESE ITEMS ARE CAST INTEGRALLY.

ALL STRAIGHT TIE BARS SHALL BE EPOXY COATED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR EPOXY COATED STEEL REINFORCEMENT FOR STRUCTURES.

WHEN DEFORMED BARS ARE GROUTED INTO AN EXISTING PAVEMENT, THE GROUT SHALL BE SELECTED FROM THE PREQUALIFIED MATERIALS LISTED IN THE DEPARTMENT'S "MATERIALS SAMPLING GUIDE" FOR DEFORMED BARS.

IN ORDER TO AVOID CONFLICT WITH THE LOAD TRANSFER ASSEMBLY, THE PLACEMENT OF THE END LANE TIE ADJACENT TO ANY TRANSVERSE JOINT SHALL BE AS FOLLOWS:

1. WHEN MAXIMUM ALLOWABLE LANE TIE SPACING EXCEEDS 1000 mm, PLACE FIRST AND LAST LANE TIE HALF THE MAXIMUM ALLOWABLE LANE TIE SPACING FROM JOINT.
2. WHEN MAXIMUM ALLOWABLE LANE TIE SPACING IS LESS THAN 1000 mm, PLACE FIRST AND LAST LANE TIE A MINIMUM OF 500 mm FROM JOINT.

IT MAY BE NECESSARY TO ADJUST THE LAST THREE LANE TIE SPACINGS TO ENSURE UNIFORM LOADING RESISTANCE ALONG THE LONGITUDINAL JOINT.

FOR THE USE AND PLACEMENT OF STEEL REINFORCEMENT, SEE STANDARD PLAN R-45-SERIES.

ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

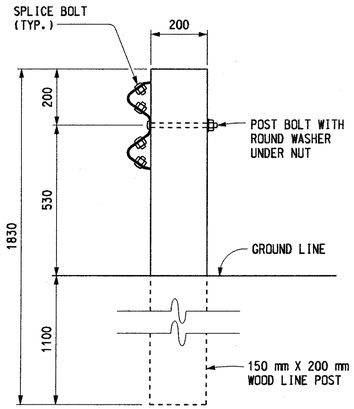
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

LONGITUDINAL PAVEMENT JOINTS

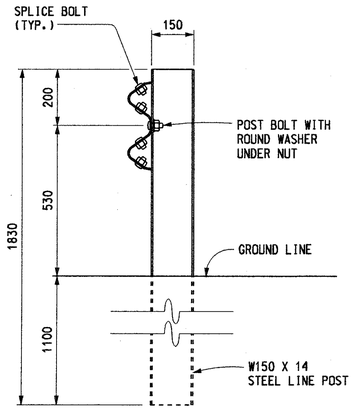
F.H.W.A. APPROVAL	8-17-99 PLAN DATE	R-41-C	SHEET 2 OF 2

CONTROL SECTION 63174 | JOB NO. 48404A | SHEET NO. 1C

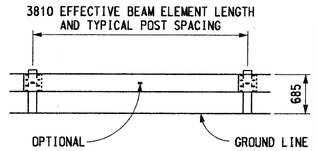
CONTROL SECTION 63174 | JOB NO. 48404A | SHEET NO. 2C



WOOD POST

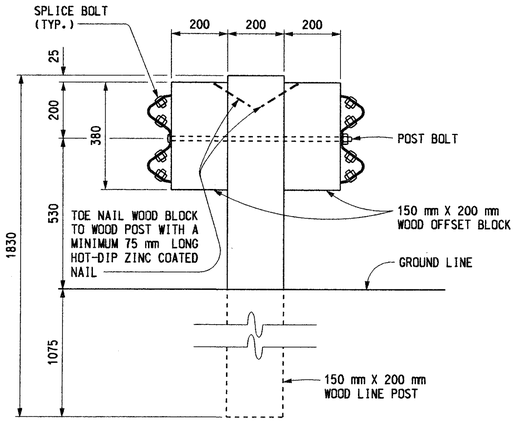


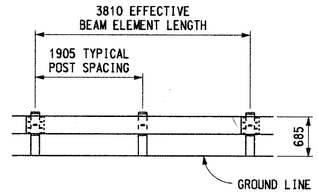
STEEL POST



ELEVATION SHOWING POST SPACING

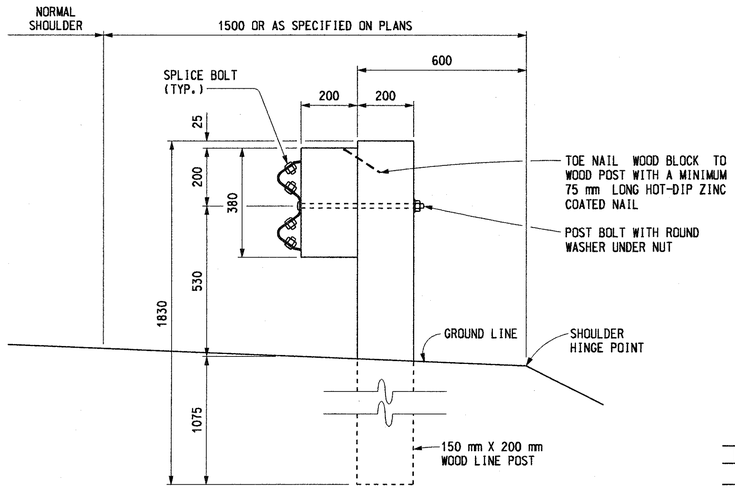
GUARDRAIL, TYPE A

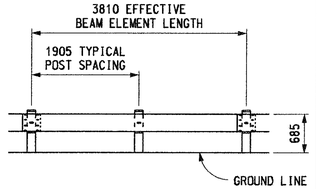




ELEVATION SHOWING POST SPACING

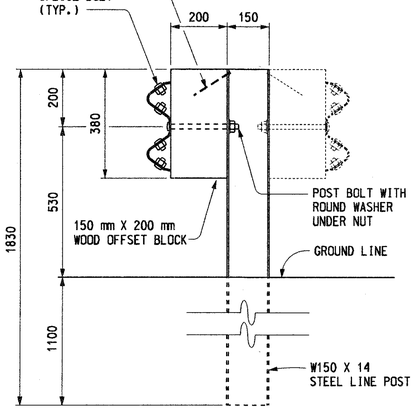
GUARDRAIL, TYPE BD
(WOOD POST)

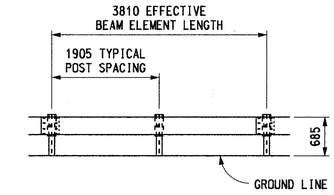




ELEVATION SHOWING POST SPACING

GUARDRAIL, TYPE B
(WOOD POST)





ELEVATION SHOWING POST SPACING

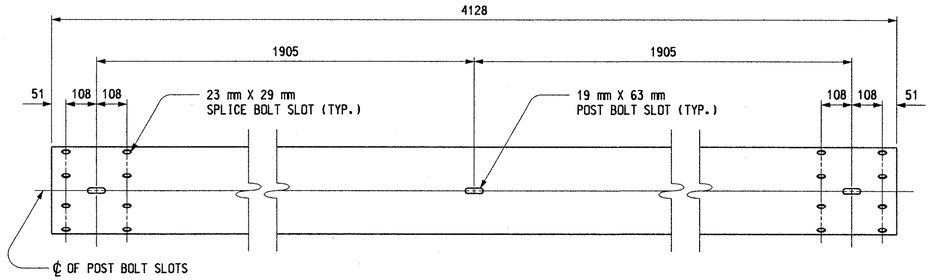
GUARDRAIL, TYPE B (OR BD)
(STEEL POST)

MDOT Michigan Department of Transportation	ENGINEER OF CONSTRUCTION & TECHNOLOGY	ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR GUARDRAIL, TYPES A, B, BD, T, & TD
PREPARED BY DESIGN DIVISION	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN DEPARTMENT DIRECTOR James R. DeSana	
DRAWN BY: B.L.T. CHECKED BY: W.K.P.	ENGINEER OF TRAFFIC AND SAFETY	BY: CHIEF ENGINEER/DEPUTY DIRECTOR BUREAU OF HIGHWAY TECHNICAL SERVICES	F.H.W.A. APPROVAL: — / 4-16-99 PLAN DATE / R-60-E / SHEET 1 OF 10

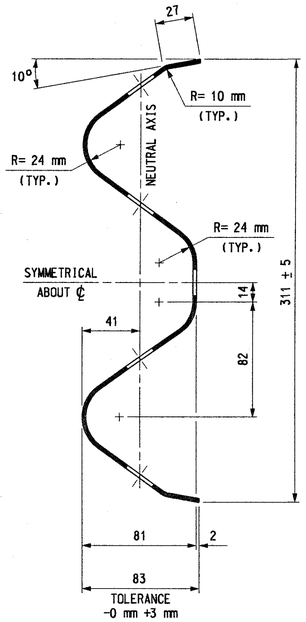
			MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR GUARDRAIL, TYPES A, B, BD, T, & TD
			F.H.W.A. APPROVAL: — / 4-16-99 PLAN DATE / R-60-E / SHEET 2 OF 10

CONTROL SECTION 63174 | JOB NO. 48404A | SHEET NO. 2C

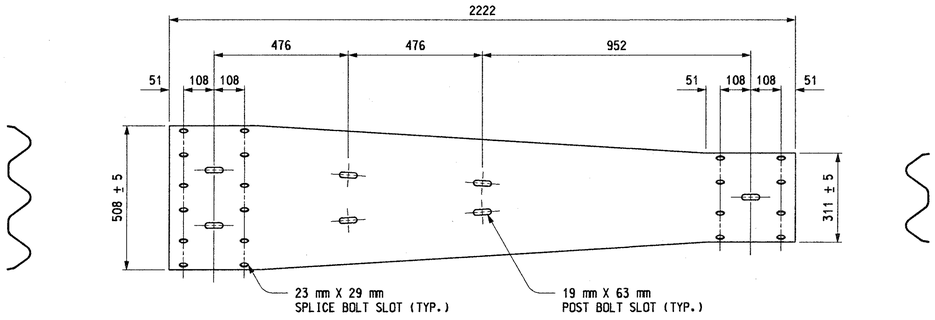
CONTROL SECTION 63174 | JOB NO. 48404A | SHEET NO. 3C



FRONT ELEVATION OF BEAM ELEMENT



SECTION THROUGH BEAM ELEMENT
(FOR GUARDRAIL, TYPE A, TYPE B, AND TYPE BD)

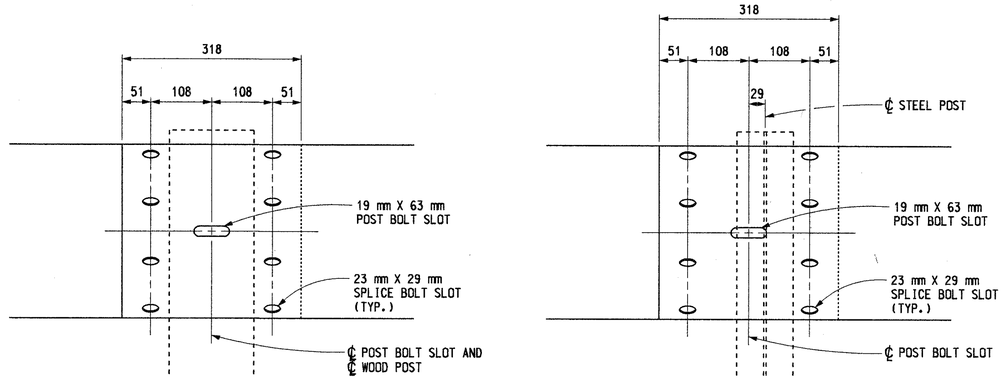


THRIE BEAM TRANSITION

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

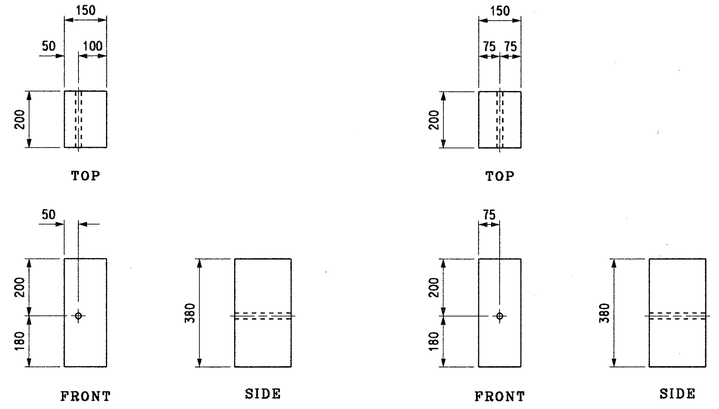
F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 3 OF 10



WOOD POST

STEEL POST

BEAM ELEMENT SPLICE DETAILS



FOR USE ON STEEL POSTS
(SEE NOTES ON SHEET 10 OF 10)

FOR USE ON WOOD POSTS
(SEE NOTES ON SHEET 10 OF 10)

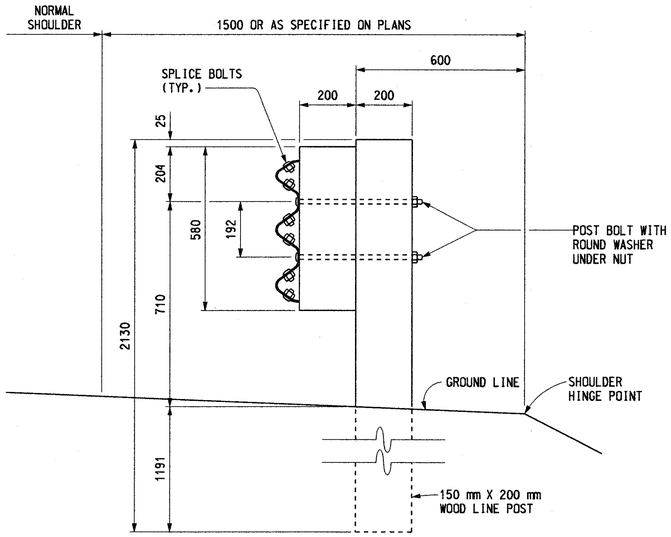
WOOD OFFSET BLOCKS FOR GUARDRAIL, TYPE B AND TYPE BD

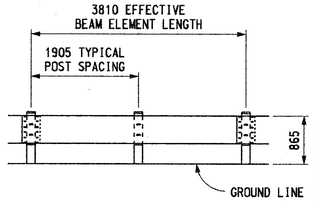
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 4 OF 10

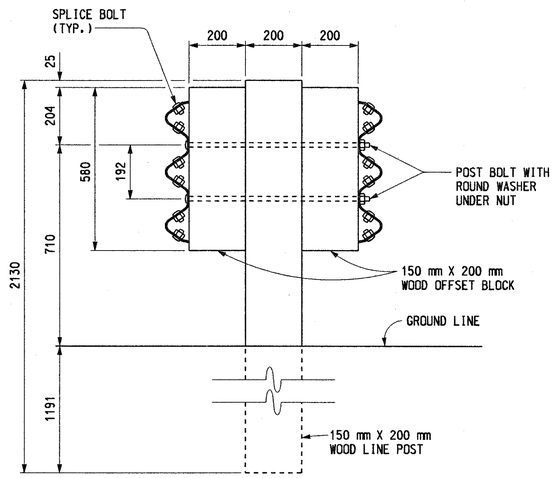
CONTROL SECTION 63174 | JOB NO. 48404A | SHEET NO. 3C

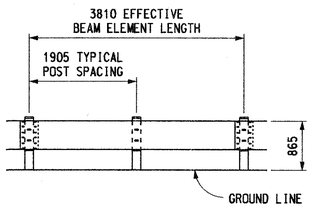




ELEVATION SHOWING POST SPACING

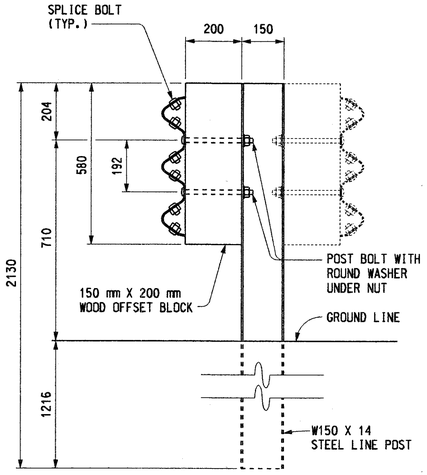
GUARDRAIL, TYPE T
(WOOD POST)

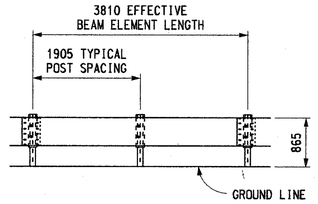




ELEVATION SHOWING POST SPACING

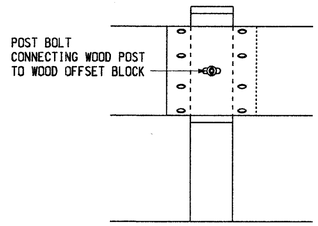
GUARDRAIL, TYPE TD
(WOOD POST)



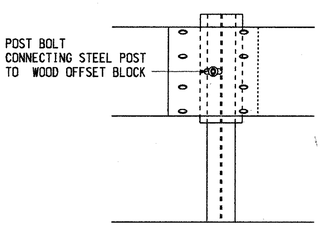


ELEVATION SHOWING POST SPACING

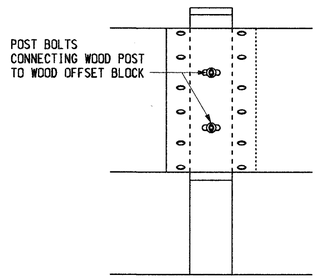
GUARDRAIL, TYPE T (OR TD)
(STEEL POST)



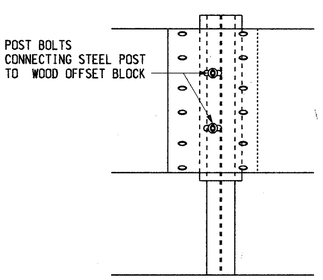
GUARDRAIL, TYPE B
WOOD POST



GUARDRAIL, TYPE B
STEEL POST

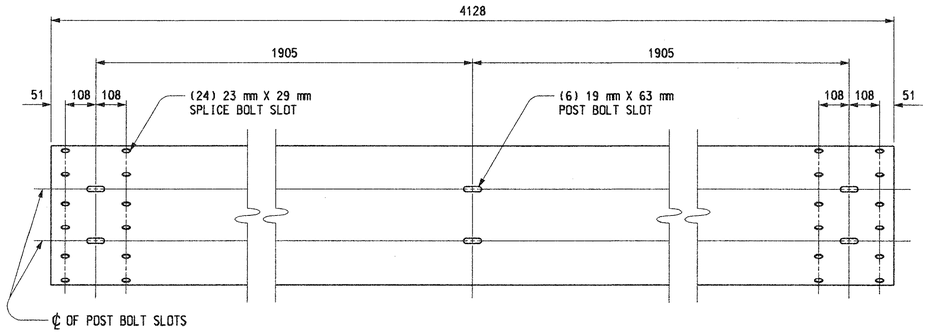


GUARDRAIL, TYPE T
WOOD POST

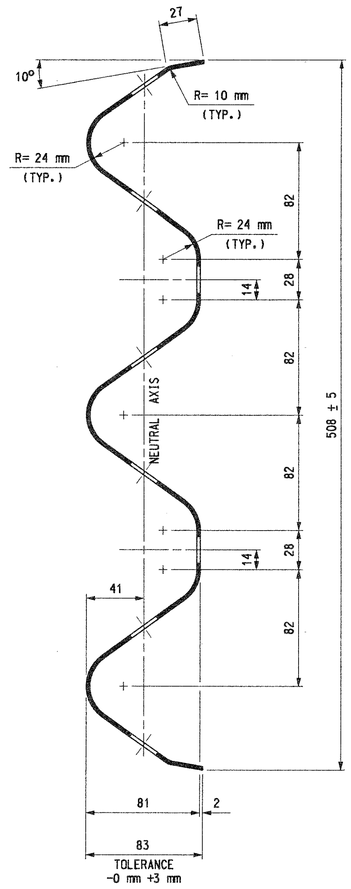


GUARDRAIL, TYPE T
STEEL POST

BLOCK AND POST CONNECTION DETAILS



FRONT ELEVATION OF THRIE BEAM ELEMENT

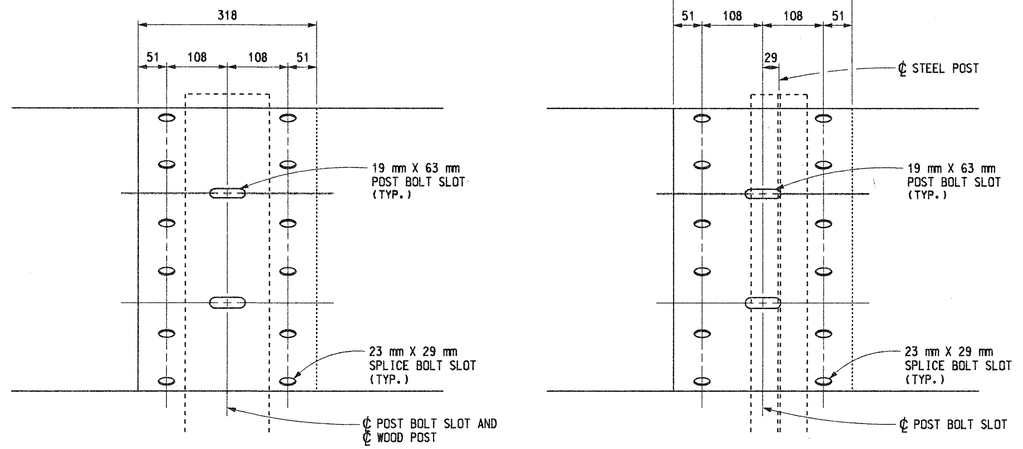


SECTION THROUGH THRIE BEAM ELEMENT
(FOR GUARDRAIL, TYPE T AND TYPE TD)

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

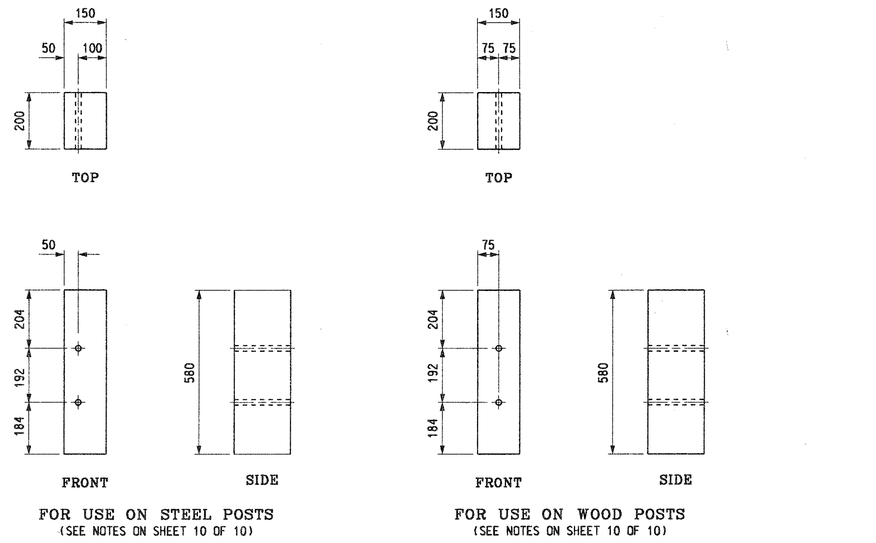
F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 7 OF 10



WOOD POST

STEEL POST

THRIE BEAM ELEMENT SPLICE DETAILS



FOR USE ON STEEL POSTS
(SEE NOTES ON SHEET 10 OF 10)

FOR USE ON WOOD POSTS
(SEE NOTES ON SHEET 10 OF 10)

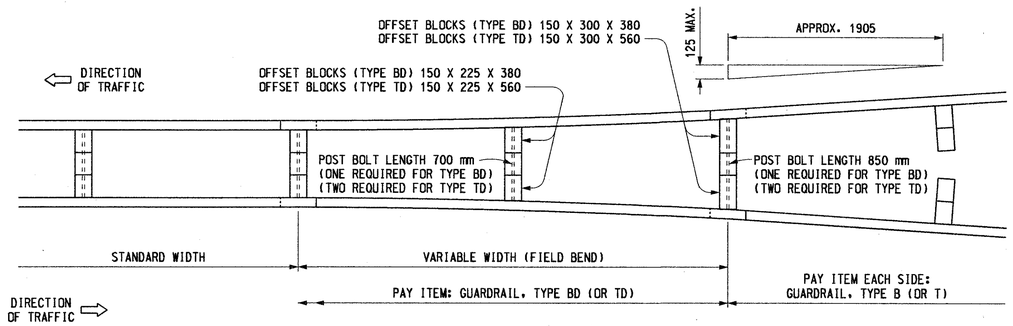
WOOD OFFSET BLOCKS FOR GUARDRAIL, TYPE T AND TYPE TD

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 8 OF 10

CONTROL SECTION 63174 | JOB NO. 48404A | SHEET NO. 6C



DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE B (OR TYPE T) TO GUARDRAIL, TYPE BD (OR TYPE TD)

POST BOLTS, SPLICE BOLTS AND WASHERS AT BEAM ELEMENT SPLICE POSTS AND AT INTERMEDIATE POSTS

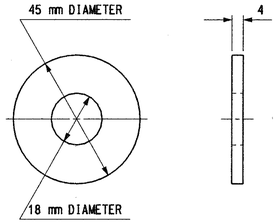
GUARDRAIL TYPE	POST	OFFSET BLOCK	POST BOLTS NO. REQ'D	POST BOLTS LENGTH (mm)	SPLICE BOLTS (32 mm LONG) (NO. REQ'D)		WASHERS (ROUND) (NO. REQ'D)
A	WOOD	N/A	1	240	8	NOT NEEDED AT INTERMEDIATE POSTS	1
	STEEL	N/A	1	50			1
B	WOOD	WOOD	1	460	8		1
	STEEL	WOOD	1	240			1
BD	WOOD	WOOD	1	*675	16		———
	STEEL	WOOD	2	240			2
T	WOOD	WOOD	2	460	12		2
	STEEL	WOOD	2	240			2
TD	WOOD	WOOD	2	*675	24		———
	STEEL	WOOD	4	240			4

THRIE BEAM TRANSITIONS REQUIRE 20 SPLICE BOLTS EACH (12 ON TYPE T END AND 8 ON TYPE B END).

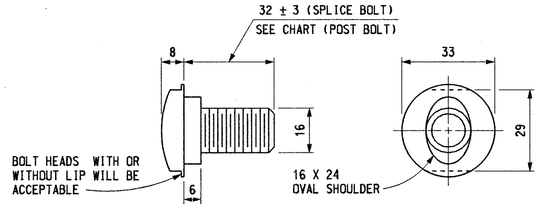
* EXCEPT AS SPECIFIED ON DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE B (OR TYPE T) TO GUARDRAIL, TYPE BD (OR TYPE TD). POST BOLTS SHALL NOT EXTEND MORE THAN 15 mm BEYOND NUT.

MINIMUM POST BOLT THREAD LENGTH

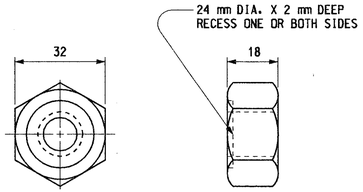
BOLT LENGTH (mm)	MINIMUM THREAD LENGTH (mm)
240	45
460	65
675	75



ROUND WASHER



SPLICE BOLT AND POST BOLT

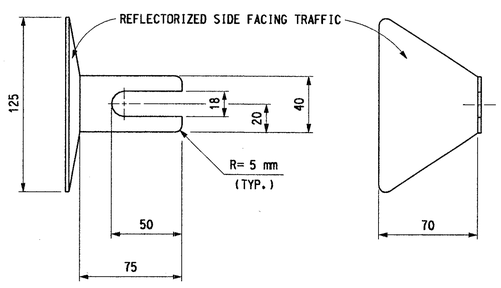


NUT

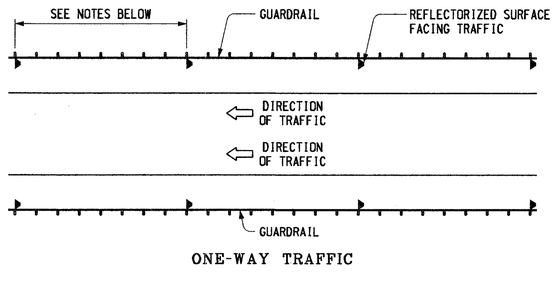
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

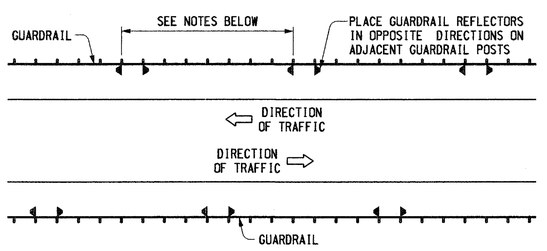
F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 9 OF 10



GUARDRAIL REFLECTOR



ONE-WAY TRAFFIC

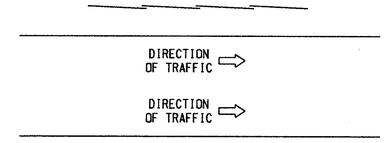


TWO-WAY TRAFFIC

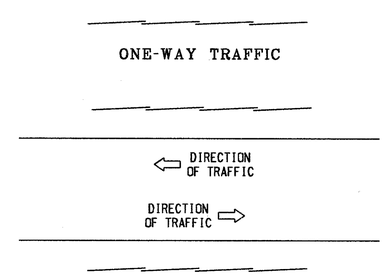
PLACEMENT OF GUARDRAIL REFLECTORS

NOTES GOVERNING THE USE OF GUARDRAIL REFLECTORS

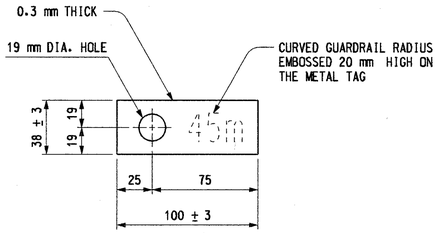
1. DO NOT USE GUARDRAIL REFLECTORS WHERE THE ROADWAY IS LIGHTED.
2. GUARDRAIL REFLECTORS ARE TO BE SPACED AT THE FOLLOWING INTERVALS:
   a) 15.24 m ON TANGENT SECTIONS AND CURVES WITH RADIUS OF 350.0 m OR MORE.
   b) 7.62 m ON CURVES WITH RADIUS LESS THAN 350.0 m.
3. FOR GUARDRAIL REFLECTOR PLACEMENT ON APPROACH TERMINALS, SEE THE APPROPRIATE GUARDRAIL APPROACH TERMINAL STANDARD PLAN.
4. A GUARDRAIL REFLECTOR IS TO BE PLACED ON THE SECOND POST FROM THE GUARDRAIL DEPARTING TERMINAL.
5. ON GUARDRAIL, TYPE T AND TYPE TD GUARDRAIL REFLECTORS ARE TO BE PLACED ON THE UPPER POST BOLT.
6. GUARDRAIL REFLECTORS SHALL MATCH COLOR OF EDGE LINE.



ONE-WAY TRAFFIC



TWO-WAY TRAFFIC
DIRECTION OF RAIL LAP



METAL TAG
FOR CURVED GUARDRAIL WITH RADIUS OF 45.0 m OR LESS

NOTES:

DETAILS SPECIFIED ON THIS STANDARD ARE ACCORDING TO THE JOINT AASHTO - ARBA TECHNICAL BULLETIN NO. 268. "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE".

BEAM ELEMENTS SHALL BE SHOP BENT TO PLAN RADIUS FOR CURVE RADII 45.0 m OR LESS. A TAG IDENTIFYING THE CURVATURE OF THE SHOP BENT SECTION WILL BE REQUIRED FOR EACH CURVED ELEMENT.

POST BOLT SLOTS AT 1.905 m INTERVALS WILL BE ALLOWED IN BEAM ELEMENTS USED TO CONSTRUCT GUARDRAIL, TYPE A.

SEE STANDARD PLAN R-61-SERIES FOR GUARDRAIL APPROACH TERMINALS, STANDARD PLAN R-66-SERIES FOR GUARDRAIL DEPARTING TERMINALS AND STANDARD PLAN R-67-SERIES FOR GUARDRAIL ANCHORAGE, BRIDGE.

BEAM ELEMENTS SHALL BE FORMED FROM SHEETS HAVING A NOMINAL THICKNESS OF NOT LESS THAN 2.5 mm.

WHEN THE PLANS SPECIFY GUARDRAIL IS TO BE PLACED ON THE SHOULDER HINGE POINT, RATHER THAN AS SPECIFIED ON THIS PLAN, 2440 mm POSTS SHALL BE PROVIDED. WITH THE ADDITIONAL LENGTH EMBEDDED FOR ADDED STABILITY. (NOT NECESSARY WHEN THE SLOPE IS REASONABLY LEVEL BEYOND THE SHOULDER HINGE POINT, AS DETERMINED BY THE ENGINEER.)

WOOD POSTS WITH 10 mm BEVELS AT THE TOP MAY BE USED IN LIEU OF WOOD POSTS WITHOUT BEVELS SPECIFIED. THE LENGTH, WIDTH AND DEPTH OF THE POST SHALL BE AS SPECIFIED ON THIS STANDARD AND THE POST BOLT HOLES SHALL BE LOCATED TO ENSURE PROPER RAIL HEIGHT.

WOOD OFFSET BLOCKS WITH 10 mm BEVELS AT THE TOP AND BOTTOM OR A 20 mm BEVELED TOP MAY BE USED IN LIEU OF WOOD BLOCKS WITHOUT BEVELS SPECIFIED. THE LENGTH (FRONT AND BACK FACE), WIDTH AND DEPTH OF THE BLOCK SHALL BE AS SPECIFIED ON THIS STANDARD AND THE POST BOLT HOLES SHALL BE LOCATED TO ENSURE PROPER RAIL HEIGHT AND COMPATIBILITY WITH POST HOLES.

ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

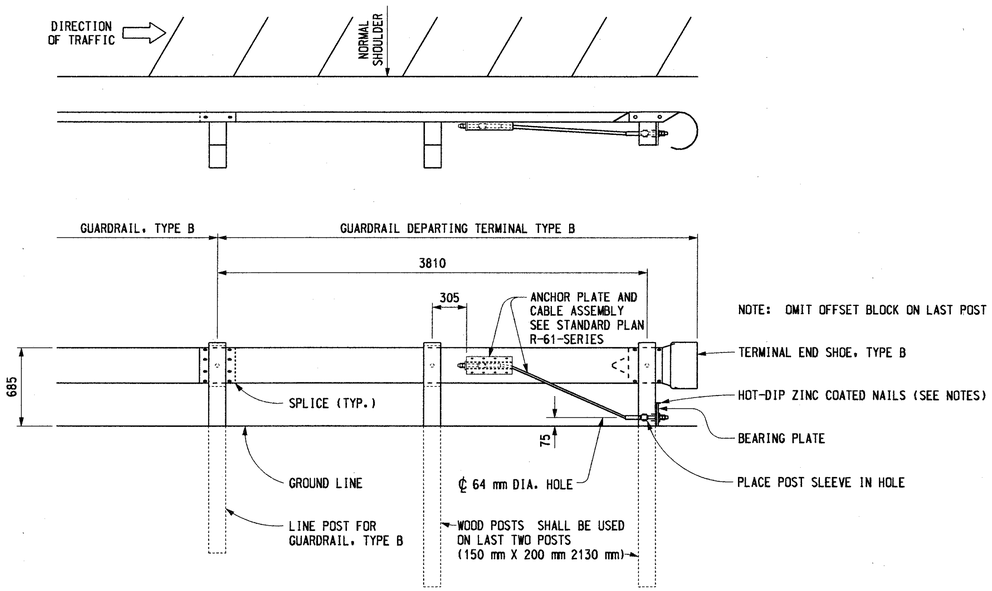
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

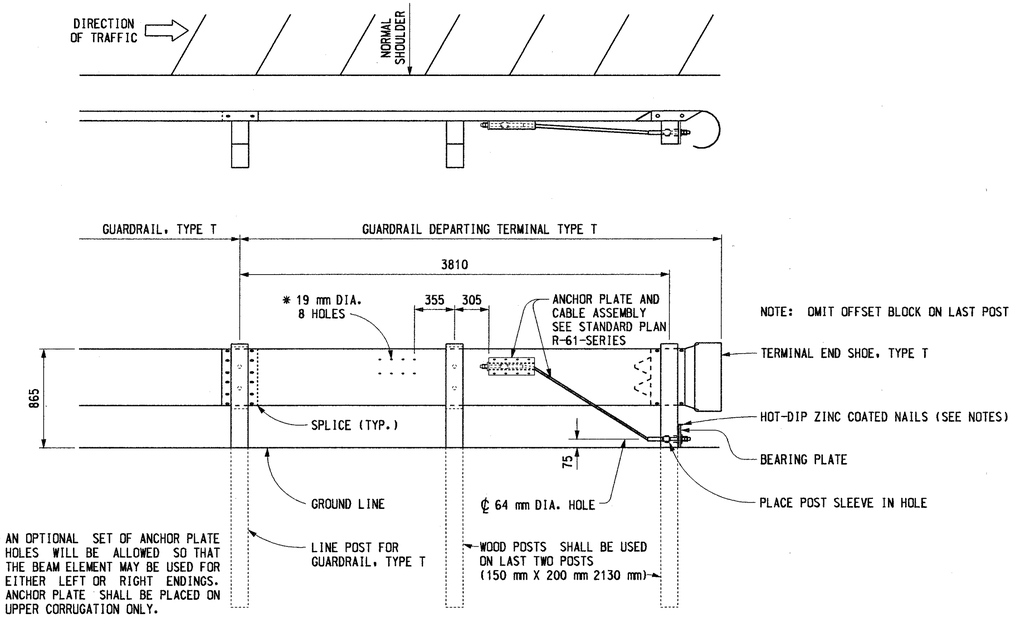
F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 10 OF 10

CONTROL SECTION 63174 | JOB NO. 48404A | SHEET NO. 6C

CONTROL SECTION	JOB NO.	SHEET NO.
63174	48404A	7C

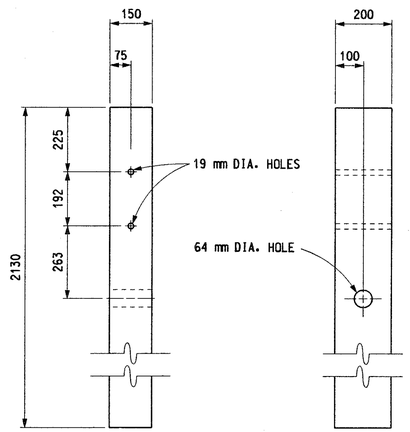


GUARDRAIL DEPARTING TERMINAL TYPE B



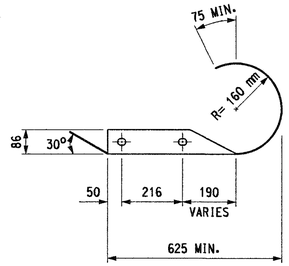
GUARDRAIL DEPARTING TERMINAL TYPE T

MDOT Michigan Department of Transportation	ENGINEER OF CONSTRUCTION & TECHNOLOGY	ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR GUARDRAIL DEPARTING TERMINAL TYPES B & T		
PREPARED BY DESIGN DIVISION	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN DEPARTMENT DIRECTOR James R. DeSana			
DRAWN BY: B.L.T.		BY:			
CHECKED BY: W.K.P.	ENGINEER OF TRAFFIC AND SAFETY	CHIEF ENGINEER/DEPUTY DIRECTOR BUREAU OF HIGHWAY TECHNICAL SERVICES	F.H.W.A. APPROVAL	7-15-99 PLAN DATE	R-66-C SHEET 1 OF 2

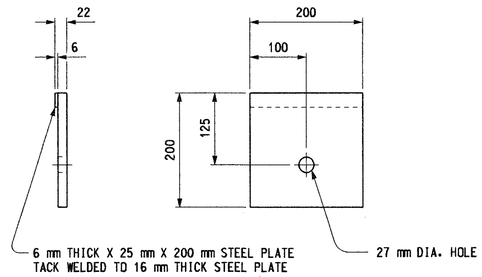


WOOD POST DETAIL

(FOR LAST POST, GUARDRAIL DEPARTING TERMINAL TYPE T)

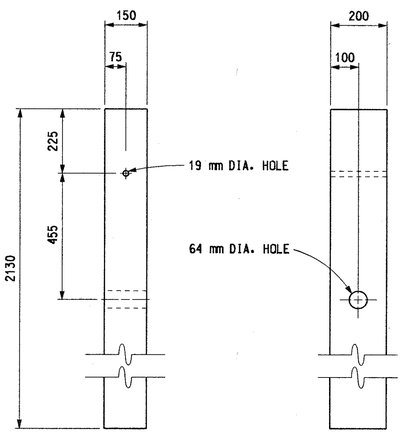


TERMINAL END SHOE, TYPE T



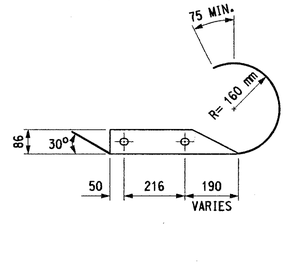
BEARING PLATE

POST SLEEVE



WOOD POST DETAIL

(FOR LAST POST, GUARDRAIL DEPARTING TERMINAL TYPE B)



TERMINAL END SHOE, TYPE B

NOTES:

ALL POSTS, OFFSET BLOCKS, BEAM ELEMENTS, AND HARDWARE (INCLUDING BOLTS, NUTS, AND WASHERS) SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATIONS AND TO THE CURRENT STANDARD PLAN R-60-SERIES, WHERE APPLICABLE, EXCEPT AS SPECIFIED ON THIS STANDARD.

ALL 1:10 SLOPES SHALL BE GRADED TO CLASS A SLOPE TOLERANCES.

FOR DETAILS OF GUARDRAIL PLACEMENT, SEE STANDARD PLAN R-59-SERIES.

AFTER THE CABLE ASSEMBLY HAS BEEN TIGHTENED, A SECOND NUT SHALL BE INSTALLED ON EACH END OF THE CABLE SO THAT THE CABLE WILL NOT LOOSEN.

TWO HOT-DIP ZINC COATED NAILS SHALL BE DRIVEN INTO THE WOOD POST AT THE TOP OF THE BEARING PLATE TO KEEP THE BEARING PLATE FROM ROTATING.

ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR GUARDRAIL DEPARTING TERMINAL TYPES B & T			
F.H.W.A. APPROVAL	7-15-99 PLAN DATE	R-66-C	SHEET 2 OF 2

CONTROL SECTION	JOB NO.	SHEET NO.
63174	48404A	7C

CS 63174 JN 48404A SH NO ID

LEGEND SHEET

UNDERGROUND

- EXISTING MANHOLE (M.H. 1234)
- EXISTING HANDHOLE
- EXISTING DUCT RUN
- ABANDON EXISTING DUCT RUN
- BUILD ENCASED CONDUIT (E.C.) OR DIRECT BURIAL CONDUIT (D.B.) (4-100 mm E.C. SHOWN)
- BUILD NEW MANHOLE (2-WAY) (M.H. 5678)
- BUILD NEW MANHOLE (3-WAY) (M.H. 9012)
- BUILD NEW MANHOLE (4-WAY) (M.H. 3456)
- BUILD NEW MANHOLE (CORNER) (M.H. 7890)
- BUILD HANDHOLE (ROUND OR SQUARE AS INDICATED ON THE PLANS).
- BUILD POLYMER CONCRETE HANDHOLE
- BUILD TYPE "D" HANDHOLE
- EXISTING DIRECT BURIAL OR PARKWAY CABLE
- ABANDON DIRECT BURIAL OR PARKWAY CABLE
- INSTALL DIRECT BURIAL CABLE (NO. & SIZE AS INDICATED)
- INSTALL DIRECT BURIAL CONDUIT (1-75 mm SHOWN)
- EXISTING U.G.-FED ST. LTG. UNIT
- REMOVE U.G.-FED ST. LTG. UNIT & FDN. (EXCEPT AS OTHERWISE INDICATED)
- INSTALL COMB. T.S. & ST. LTG. STD. 1.8 m CLAMP-ON BRACKET ARM WITH 915 mm RISE ON NEW FDN. INSTALL 400W. TYPE LUMINAIRE.

OVERHEAD

- EXISTING WOOD POLE (M.B.T. POLE SHOWN)
- REMOVE WOOD POLE (D.E. CO. POLE SHOWN)
- REPLACE WOOD POLE (HEIGHT & CLASS AS INDICATED)
- INSTALL WOOD POLE (HEIGHT & CLASS AS INDICATED) (USE SALVAGED POLE WHERE INDICATED)
- EXISTING OVERHEAD ST. LTG. UNIT
- REMOVE OVERHEAD ST. LTG. UNIT
- INSTALL OVERHEAD ST. LTG. UNIT
- EXISTING OVERHEAD LINE
- REMOVE OVERHEAD LINE
- INSTALL OVERHEAD LINE
- INSTALL & LATER REMOVE OVERHEAD LINE
- INSTALL GUY & ANCHOR (12.7 mm GUY SHOWN)
- REMOVE GUY & ANCHOR ROD
- INSTALL POLE GUY (12.7 mm GUY SHOWN)
- INSTALL ARM GUY (9.5 mm GUY SHOWN)
- REMOVE GUY (TYPE AS SHOWN)
- IN. MATERIAL TO BE INSTALLED
- RM MATERIAL TO BE REMOVED
- MSS MAKE WOOD POLE SELF-SUPPORTING IN CONCRETE
- C.P. CABLE POLE

TRAFFIC SIGNAL

- INSTALL 3-SECTION TRAFFIC SIGNAL (1-WAY SHOWN)
- INSTALL 3-SECTION TRAFFIC SIGNAL WITH SALVAGED HEADS (2-WAY SHOWN)
- REMOVE 3-SECTION TRAFFIC SIGNAL (3-WAY SHOWN)
- EXISTING 3-SECTION TRAFFIC SIGNAL (4-WAY SHOWN)
- INSTALL 3-SECTION, 300 mm TRAFFIC SIGNAL (1-WAY SHOWN)
- INSTALL 2-WAY ILLUMINATED CASE SIGN
- INSTALL 2-WAY ILLUMINATED CASE SIGN (SALVAGED)
- REMOVE 2-WAY ILLUMINATED CASE SIGN
- EXISTING 2-WAY ILLUMINATED CASE SIGN
- INSTALL 4-WAY ILLUMINATED CASE SIGN
- INSTALL 4-WAY ILLUMINATED CASE SIGN (SALVAGED)
- REMOVE 4-WAY ILLUMINATED CASE SIGN
- EXISTING 4-WAY ILLUMINATED CASE SIGN
- INSTALL 2-SECTION, 300 mm PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (2-WAY SHOWN)
- INSTALL 2-SECTION PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL WITH SALVAGED HEAD (2-WAY SHOWN)
- REMOVE 2-SECTION PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (1-WAY SHOWN)
- EXISTING 2-SECTION PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (1-WAY SHOWN)
- INSTALL TRAFFIC SIGNAL CONTROLLER (NEW OR SALVAGED AS INDICATED) ON NEW FDN. (EXCEPT AS OTHERWISE INDICATED)
- INSTALL TRUSS TYPE MAST ARM STD. & MAST ARM ON NEW FOUNDATION (EXCEPT AS OTHERWISE INDICATED)
- INSTALL 2.4 m TRAFFIC SIGNAL PEDESTAL ON NEW FOUNDATION (EXCEPT AS OTHERWISE INDICATED)
- INSTALL STEEL STRAIN POLE ON NEW FOUNDATION (POLE HEIGHT AS INDICATED ON PLANS)
- EXISTING TRAFFIC SIGNAL CONTROLLER
- EXISTING MAST ARM STANDARD
- EXISTING PEDESTAL
- EXISTING STEEL STRAIN POLE
- INSTALL OVERHEAD PLASTIC JACKETED CABLE
- EXISTING OVERHEAD PLASTIC JACKETED CABLE
- REMOVE OVERHEAD PLASTIC JACKETED CABLE

SH. 1 OF 2

FILENAME: 0:-DGN-TSE-STDE-METRIC-LEGSHT.TME

MICHIGAN DEPARTMENT OF TRANSPORTATION

LEGEND SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LEGEND SHEET

TRAFFIC SIGNAL

- INSTALL JUNCTION BOX
- INSTALL SALVAGED JUNCTION BOX
- REMOVE JUNCTION BOX
- EXISTING JUNCTION BOX
- BACK-OUT LAMPS & HOOD SIGNALS (INCIDENTAL TO INSTALLATION OF T.S. ON THIS CONTRACT)
- REMOVE HOOD & INSTALL LAMPS (INCIDENTAL TO INSTALLATION OF T.S. ON THIS CONTRACT)
- POCH POLE CONTACT HEIGHT OF T.S. SPAN WIRE
- L.C.H. LOW CONTACT HEIGHT OF SPAN WIRE T.S. TO SPAN WIRE
- INSTALL WARNING SIGN (TYPE AS INDICATED ON PLANS).
- INSTALL LOOP DETECTOR & CABINET (EXCEPT AS OTHERWISE INDICATED).

DIAGRAMS

(U.G.-FED ST. LTG. STD. SYMBOLS SAME AS UNDERGROUND LEGEND OF THIS SHEET)

- M.H. 1234 — PROPOSED MANHOLE
- M.H. 5678 — EXISTING MANHOLE
- H.H. — PROPOSED HANDHOLE
- H.H. — EXISTING HANDHOLE
- M.H. 9012 — PROPOSED MANHOLE IN SAME LOCATION AS EX. HOLE
- INSTALL U.G. CABLE (NO. & SIZE AS INDICATED)
- EXISTING U.G. CABLE
- U.G. CABLE TO BE ABANDONED
- U.G. CABLE TO BE REMOVED
- DISCONNECT, INSULATE & CAP CABLE END
- SPLICE STRAIGHT THRU
- SPLICES

GENERAL

- PROPERTY (ROW) LINE
- FACE OF CURB & BACK OF CURB
- FUTURE PAVEMENT
- S — SEWER LINE, MANHOLE & CATCH BASIN
- E — POWER CO. U.G. LINE & MANHOLE
- T — TELEPHONE TEL. CO. U.G. LINE & M.H.
- W — WATERMAIN & GATEWELL (OTHER UTILITIES SIMILAR)

PLAN INDEX

SH. 2 OF 2

MICHIGAN DEPARTMENT OF TRANSPORTATION

LEGEND SHEET

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GENERAL INFORMATION SHEET

GENERAL NOTES

1. CALL MISS DIG (800)(482-7171) OR (313)(647-7344) 3 WORKING DAYS PRIOR TO ANY EXCAVATION FOR THE LOCATION OF UNDERGROUND UTILITIES.
2. WHERE ABANDONING OF U.G. CABLES IS CALLED FOR ON PLANS OR DIAGRAMS, CONTRACTOR SHALL CUT & REMOVE CABLES WITHIN MANHOLES & HANDHOLES.
3. WHERE INSTALLATION OF NEW MANHOLES OVER EXISTING CONDUITS (TO ACCOMMODATE NEW & EXISTING CONDUITS) IS CALLED FOR ON PLANS, CONTRACTOR SHALL CAREFULLY & SO AS NOT TO DAMAGE EXIST. CABLES, REMOVE THE EXISTING CONDUITS & ENCASEMENT WITHIN MANHOLES. EXIST. CABLES SHALL BE EXTENDED & PROPERLY TRAINED, RACKED & SUPPORTED.
4. ALL EXISTING STREET LIGHTING, TRAFFIC SIGNAL, PRIMARY, TRANSMISSION ETC. CIRCUITS SHALL ALWAYS BE MAINTAINED IN AN OPERATIONAL CONDITION (EXCEPT WHERE OTHERWISE NOTED).
5. ALL CONDUITS NOT TERMINATING IN STRUCTURES SUCH AS MANHOLES, HANDHOLES OR FOUNDATIONS SHALL EXTEND 600 mm BEYOND PAVEMENT LIMIT (EXCEPT AS OTHERWISE INDICATED). ALL UNOCCUPIED CONDUITS SHALL BE PLUGGED.
6. ALL TREE TRIMMING REQUIRED TO CLEAR NEW OR SALVAGED ST. LTG. & TRAFFIC SIGNAL STD.'S AND O.H. ST. LTG. & TRAFFIC SIGNAL UNITS SHALL BE INCLUDED TO THE PAY-ITEM & NO EXTRA PAYMENT SHALL BE MADE.
7. EXISTING O.H. & T.S. FACILITIES ARE NOT NECESSARILY SHOWN ON PLANS.
8. ALL OVERHEAD WIRES & UNDERGROUND CABLES SHALL CONSIST OF COPPER CONDUCTORS AS PER SPECIFICATIONS.
9. NEW CONDUITS BROKEN INTO EXISTING MANHOLES OR HANDHOLES SHALL NOT INTERFERE WITH RACKING AND/OR TRAINING OF CABLES.
10. ALL NEW ANCHOR GUYS SHALL BE INSTALLED ON A 1:1 RATIO OR AS NEARLY AS POSSIBLE (EXCEPT WHERE OTHERWISE NOTED). (STRUT GUYS ARE EXCEPTED).
11. ALL WIRES & CABLES SHALL BE TAGGED IN A PERMANENT MANNER INDICATING THE SOURCE & USE OF EACH. THIS SHALL BE DONE IN ALL MANHOLES, HANDHOLES & CABINETS WHERE THESE CABLES OR WIRES ENTER, EXIT, ARE SPLICED AND ARE TERMINATED.
12. INSTALL WOOD POLES SO AS NOT TO INTERFERE WITH TRAFFIC OR FUTURE CONSTRUCTION STAGES.
13. ALL SALVAGED WOOD POLES SHALL BE POLES PREVIOUSLY INSTALLED NEW ON THIS CONTRACT.
14. ALL TRAFFIC STREET SIGNS SUCH AS "NO PARKING", "NO STANDING" ETC. SHALL BE TRANSFERRED FROM OLD STD. OR POLE TO NEW STD. OR POLE AT SAME LOCATION OR IN CLOSE PROXIMITY BY DEPT. OF TRANSPORTATION.
15. ALL TRAFFIC SIGNALS SHALL BE MOUNTED WITH NEW STANDARD TRAFFIC SIGNAL BRACKETS & FITTINGS.
16. ALL TRAFFIC SIGNAL ITEMS, AS CALLED FOR ON PLANS, SHALL HAVE INCLUDED IN THE TRAFFIC SIGNAL ITEM ALL CABLES FROM THE CONTROLLER TO THE TRAFFIC SIGNALS & FOUNDATIONS AS INDICATED.
17. WHEN ENTERING PROPOSED CONDUIT INTO EXISTING MANHOLES & HANDHOLES, EXERCISE CAUTION NOT TO DISTURB EXISTING CABLES.
18. ALL SALVAGED TRAFFIC SIGNALS SHALL BE TRAFFIC SIGNALS PREVIOUSLY INSTALLED NEW ON THIS CONTRACT. (EXCEPT AS OTHERWISE INDICATED).
19. FOR TRAFFIC SIGNAL SPAN WIRE USE EXTRA HIGH STRENGTH GRADE AS PER SPECIFICATIONS.
20. CROSSARMS SHALL BE REMOVED AFTER ALL CONTACTS ARE REMOVED. (INCLUDED IN THE REMOVAL OF OVERHEAD LINES).

LAST CORRECTION DATE:
FILENAME:

MICHIGAN DEPARTMENT OF TRANSPORTATION

GENERAL INFORMATION SHEET

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GENERAL INFORMATION SHEET

GENERAL NOTES

21. SEAL END OF CABLE WHERE COILING OF CABLE IS CALLED FOR ON PLANS. (CONTRACTOR SHALL RECEIVE PAYMENT FOR COILED-UP CABLES).
22. CONTRACTOR SHALL DELIVER WHERE REQUIRED TO THE ROAD COMMISSION OF OAKLAND COUNTY T.S. CONTROLLER FOR TIMING. CONTRACTOR SHALL PICK-UP CONTROLLER FROM R.C.O.C. WHEN READY FOR INSTALLATION.
23. PROPOSED T.S. SHALL BE PUT INTO OPERATION AT TIME OF REMOVAL OF EXISTING T.S. FACILITIES, CONTRACTOR SHALL NOTIFY R.C.O.C. IF UNABLE TO MAINTAIN T.S. IN AN OPERABLE CONDITION AT ALL TIMES.
24. A MINIMUM CLEARANCE OF 1050 mm HORIZONTAL & 300 mm VERTICAL MUST BE MAINTAINED BETWEEN PROPOSED FACILITIES & EXISTING U.G. WATER FACILITIES.
25. CONTACT LOCAL TELEPHONE COMPANY AND R.C.O.C. FOR INSTALLATION OF LOCAL TELEPHONE COMPANY SERVICE (INTERCONNECT).
26. UTILITY CO. SERVICE INSTALLATION FEES, METERED SERVICE CHARGES AND OTHER CHARGES AS DETAILED ON THE PLANS (FOR LENGTH OF CONTRACT) ARE TO BE ORDERED & PAID BY THE CONTRACTOR. (INCLUDED IN THE INSTALLATION OF T.S. ON THIS CONTRACT).
27. CONTACT MR. JOHN HORNING (R.C.O.C.) (248-858-7250) 2 WORKING DAYS PRIOR TO INSTALLATION AND INSPECTION OF TRAFFIC SIGNALS.
28. ALL MATERIAL REMOVED ON THE CONTRACT SHALL BECOME THE PROPERTY OF M.D.O.T., STORED ON SITE AND PICKED-UP BY R.C.O.C.
29. BAGGING OF TEMP. OR FINAL T.S. REQUIRED BY THE ENGINEER SHALL BE INCLUDED IN THE INSTALLATION OF T.S. ON THIS CONTRACT.
30. ALL O.H. TRAFFIC SIGNAL CABLE SHALL BE SUPPORTED BY 6.35 mm E.H.S. SPAN WIRE AS PER SPECIFICATIONS (INCLUDED IN THE INSTALLATION OF T.S. ON THIS CONTRACT.)
31. SEE DETAILS FOR TYPICAL PEDESTRIAN T.S. WIRING ON POLES; (M.D.O.T. STEEL POLES, WOOD POLES OR STEEL POLES OWNED BY OTHERS). ALL STEEL POLES SHALL BE ASSUMED TO BE OWNED BY MDOT UNLESS OTHERWISE NOTED ON PLANS.
32. ALL TRAFFIC SIGNAL INSTALLATIONS WITH SOLID STATE CONTROLLERS SHALL BE GROUNDED AT EACH SPAN CONTACT POLE. THE GROUNDING SHALL HAVE A MEASURED RESISTANCE NO GREATER THAN 10 OHMS WHEN INSTALLED.
33. CONCRETE PAVEMENT REPAIRS SHALL BE CONSTRUCTED IN ACCORDANCE WITH M.D.O.T. STANDARD PLAN R-44 SERIES, UP-1 & "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SEC. 603.
34. ALL CONDUIT BENDS SHALL HAVE MINIMUM RADII IN ACCORDANCE WITH THE CURRENT N.E.C.
35. ALL TRAFFIC SIGNAL FITTINGS (SCREWS, NUTS, BOLTS, PINNACLES, ETC.) SHALL BE GREASED WITH A NON-OXIDE TYPE GREASE.
36. INSTALL STEEL POLE HANDHOLE, AS DESCRIBED ON DETAIL SHEET, IN ALL EXIST. STEEL POLES AS DIRECTED BY ENGINEER. (INCLUDED IN THE INSTALLATION OF T.S. ON THIS CONTRACT.)
37. FOR ELECTRICAL SERVICE INSPECTION CONTACT THE MICHIGAN DEPARTMENT OF LABOR.
38. NO CHANGES FROM PLANS IN LOCATION OF SUPPORTING STRUCTURES, SIGNAL HEAD PLACEMENT OR TRAFFIC SIGNAL EQUIPMENT WILL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION, TRAFFIC AND SAFETY DIVISION, TRAFFIC SIGNALS UNIT IN LANSING, MI. ; PHONE: 1-517-373-2323.
39. INSTALLATION OF ENCASED CONDUIT CALLED FOR ON PLANS SHALL BE CONCRETE ENCASED UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
40. STEMMING OF SIGNAL HEADS TO MAINTAIN EQUAL UNDERCLEARANCE FOR EACH SPAN WIRE MOUNTED SIGNAL HEAD (AT ALL INTERSECTIONS IN THIS CONTRACT) IS INCLUDED IN THIS CONTRACT.

MICHIGAN DEPARTMENT OF TRANSPORTATION

GENERAL INFORMATION SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	2 of 31	2D

CS 63174 JN 48404A SH 3D

GENERAL INFORMATION SHEET

GENERAL NOTES

41. ALL PEDESTRIAN TRAFFIC SIGNAL HEADS SHALL BE 300 mm SYMBOLIC INDICATIONS CONSTRUCTED OF POLYCARBONATE MATERIAL UNLESS OTHERWISE INDICATED.

42. ALL JACKED-BORED, OPEN CUT OR DIRECT BURIAL CONDUIT CALLED FOR ON PLANS IS THE PREFERRED METHOD OF INSTALLATION. IF THE METHOD OF CONDUIT INSTALLATION IS IMPOSSIBLE TO CONSTRUCT OR IF THE CONTRACTOR PREFERS TO USE ANY OTHER METHOD, THE CHANGE OF METHOD MAY BE MADE UPON APPROVAL BY THE PROJECT ENGINEER.

THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING OR ANTICIPATING HIS NEED OR DESIRE TO INSTALL THE CONDUIT BY ANY OTHER METHOD AND INCLUDE THE COST IN HIS CONTRACT BID.

NO EXTRA PAYMENT WILL BE ALLOWED FOR ANY CHANGE IN THE METHOD OF CONDUIT INSTALLATION.

SH. 3 OF 3

MICHIGAN DEPARTMENT OF TRANSPORTATION

GENERAL INFORMATION SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

SH. OF

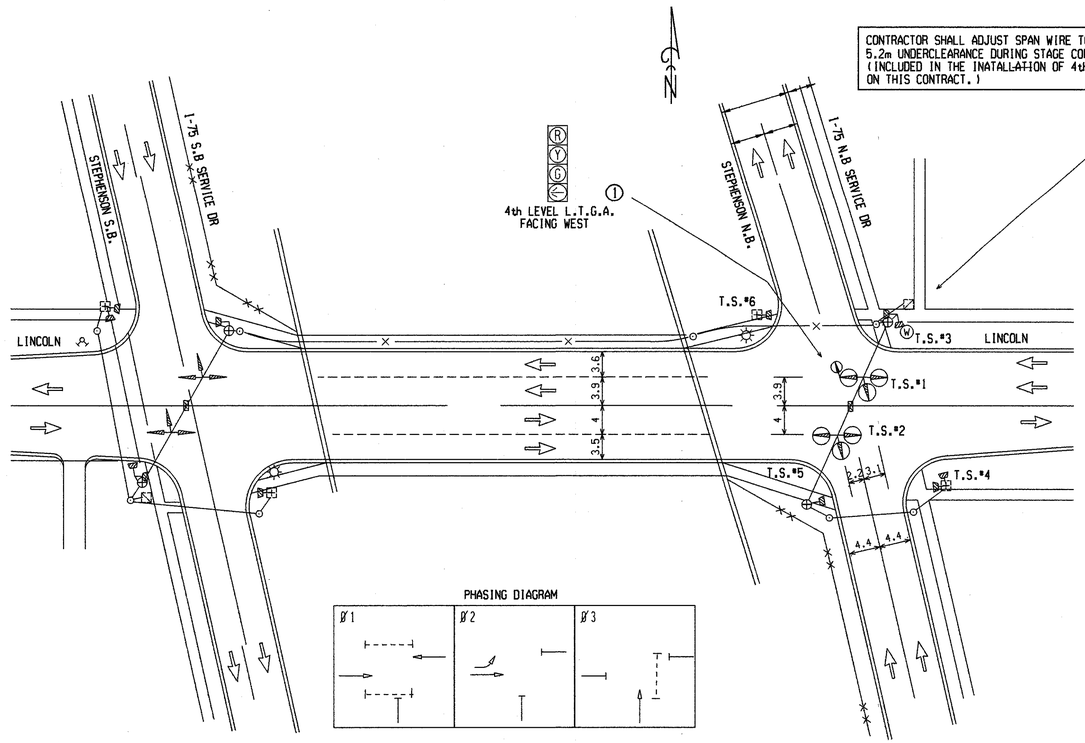
MICHIGAN DEPARTMENT OF TRANSPORTATION

GENERAL INFORMATION SHEET

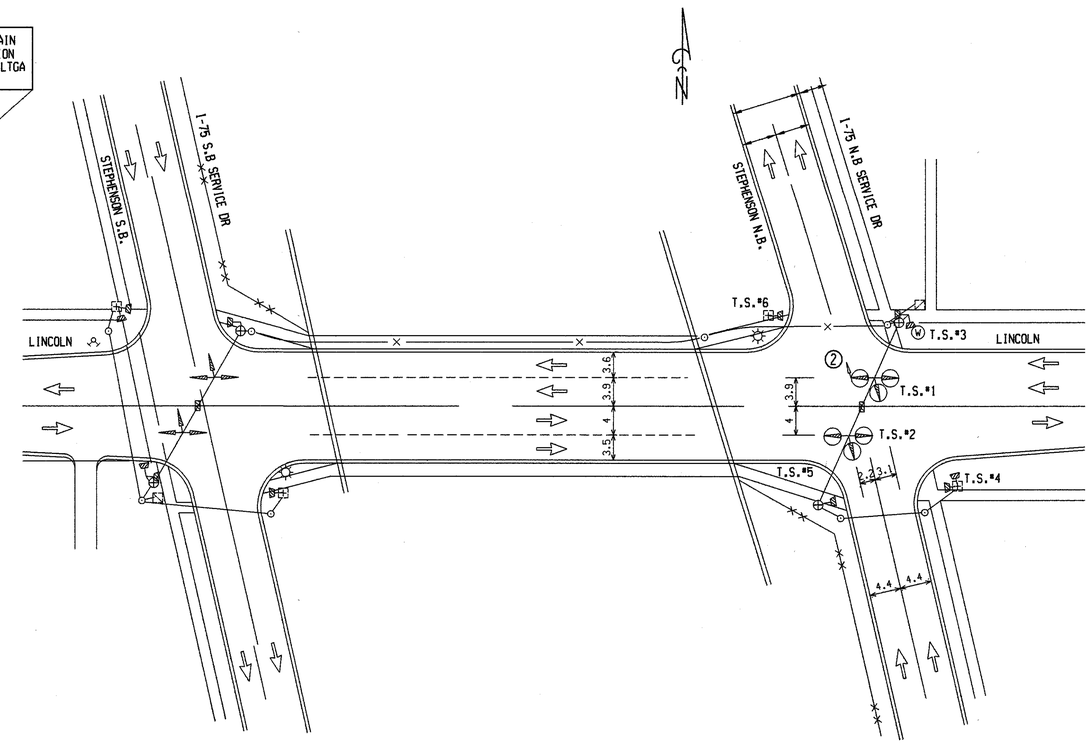
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	3 of 31	3D

CS 63174 JN 48404A SH 4D

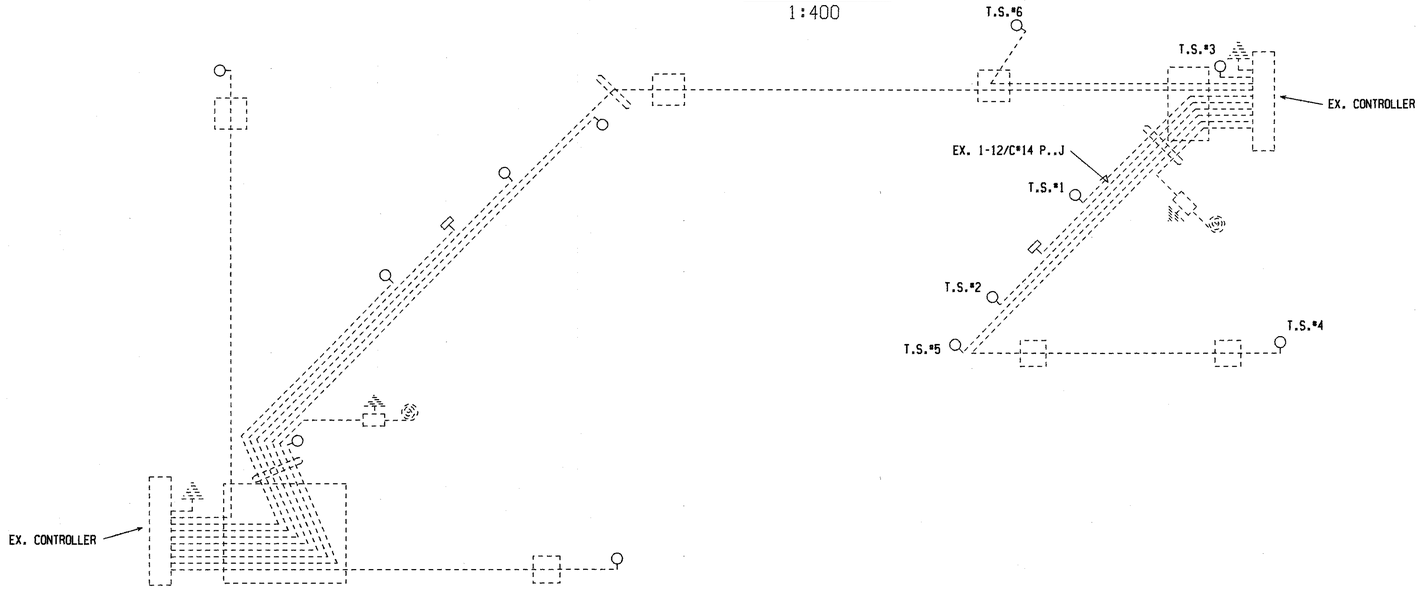
CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 4D



STAGE PLAN
1:400



STAGE REMOVAL
1:400



WIRING DIAGRAM
NOT TO SCALE

LIST OF MATERIAL			
NO.	ITEM	QUANTITIES	ITEM CODE
(1)	TS, 4th Level, LTGA	1 Each	8200250
(2)	TS, 4th Level Arrow , Rem	1 Each	8200066

All dimensions are in meters unless otherwise noted.

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	FEDERAL NUMBERS ITEM
63174	48404A		

MDOT Michigan Department of Transportation

AUTH. NO.
CONT. SEC. 63174
ENGR/TECH F. HUNT
SHEET 04 OF 31
DRAWN FH
DATE 9-11-99
SCALE 1:400
PLAN 63174-01-023

I-75 NB. SERVICE DR AT LINCOLN (10½MI)
CITY OF ROYAL OAK
OAKLAND COUNTY

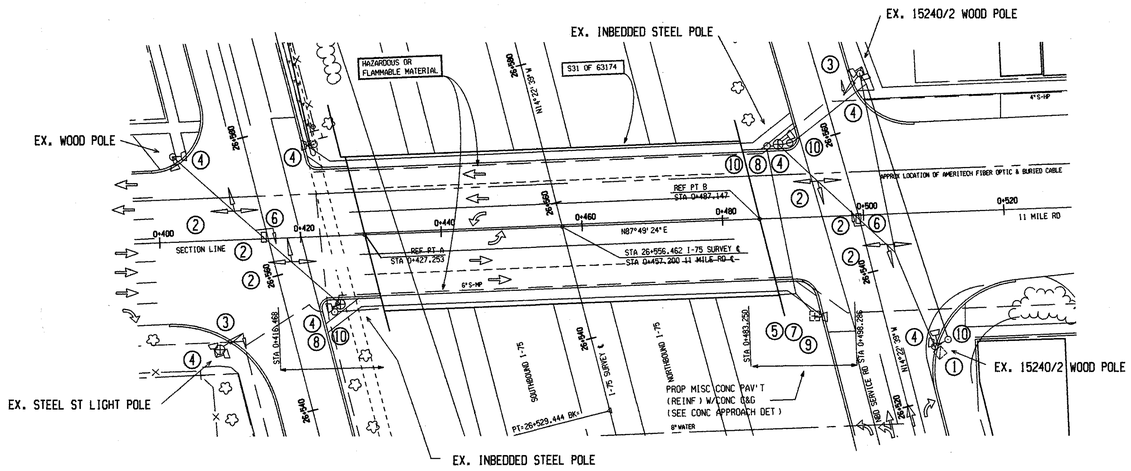
CONST SHEET NO. 4D

CYCLIC WATTS
STEADY WATTS

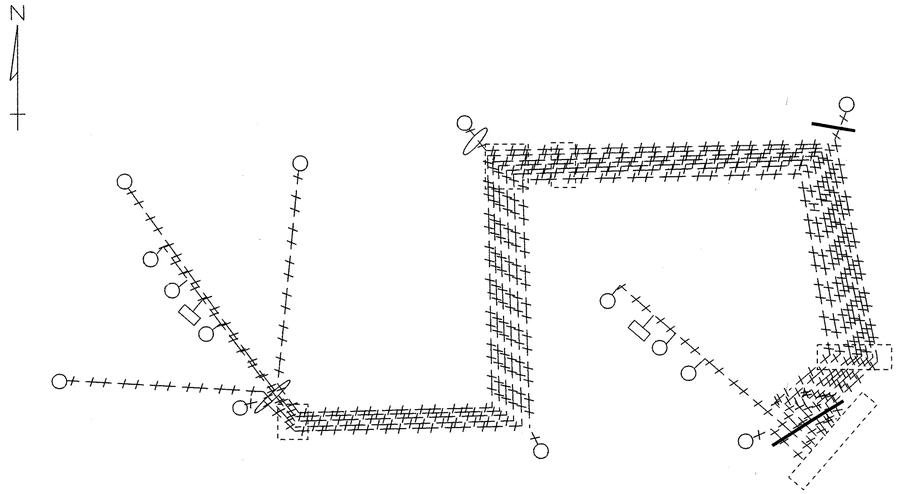
c:\data\fred\ms50-63174023.tme FWH Sep. 11, 1999 FWH

CS 63174 JN 48404A SH NO 5D

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 5D



REMOVAL DIAGRAM
NOT TO SCALE



REMOVAL WIRING DIAGRAM
NOT TO SCALE

CONTACT: BOB JONES (D.E.CO.)
248-594-7132 FOR REMOVAL OF 2 SPAN WIRES.

LIST OF MATERIAL

NO.	ITEM	QUANTITIES	ITEM CODE
(1)	Controller and Cabinet, Rem	1 Each	8200017
(2)	TS, Span Wire Mtd , Rem	6 Each	8200071
(3)	TS, Bracket Arm Mtd, Rem	2 Each	8200065
(4)	TS, Pedestrian, Bracket Arm Mtd , Rem	7 Each	8200069
(5)	TS, Pedestrian, Pedestal Mtd, Rem	1 Each	8200070
(6)	Case Sign, Rem	2 Each	8200014
(7)	Pedestal , Rem	1 Each	8200039
(8)	Steel Pole , Rem	2 Each	8200053
(9)	Fdn, Rem	1 Each	8200022
(10)	Hh, Rem	4 Each	8190344

All dimensions are in meters unless otherwise noted.

CYCLIC WATTS
STEADY WATTS

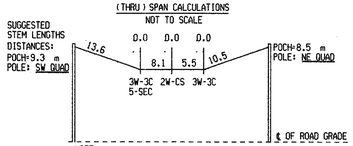
CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS: PROJECT	FEDERAL NUMBERS: ITEM	MDOT Michigan Department of Transportation	AUTH. NO.	DRAWN FH	I-75 N.B. SERVICE DRS AT 11 MILE RD CITY OF ROYAL OAK OAKLAND COUNTY	CONST SHEET NO.
63174	48404A				CONT. SEC. 63174	DATE 9-12-99		5D
					ENGR/TECH F. HUNT	SCALE 1:400		
					SHEET 05 OF 31	PLAN 63174-01-014		

c:-data-fred-ms50-63174014.tme FWH Sep. 12, 1999 FWH

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 6D

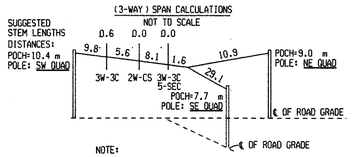
CS 63174 JN 48404A SH 6D

(THRU) SPAN CALCULATIONS
NOT TO SCALE



NOTE:
POCH (POLE CONTACT HEIGHT) IS SHOWN ABOVE ℄ GRADE, FIELD ADJUSTMENTS ARE TO BE MADE FOR ANY DIFFERENCE IN GRADE AT POLE VS. ROAD GRADE.
POCH IS CALCULATED AT 454 kgs TENSION.

(3-WAY) SPAN CALCULATIONS
NOT TO SCALE



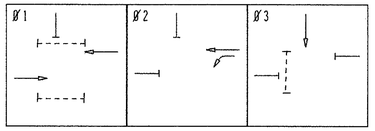
NOTE:
FIELD ADJUSTMENTS ARE TO BE MADE FOR ANY DIFFERENCE IN GRADE AT POLE VS. ROAD GRADE.
POCH IS CALCULATED AT 454 kgs TENSION.

CONTACT: MDOT METRO REGION OFFICE SOILS ENGINEER (248-569-3993) FOR INSPECTION OF DRILLED SHAFT PRIOR TO INSTALLATION OF STEEL POLE FOUNDATION.

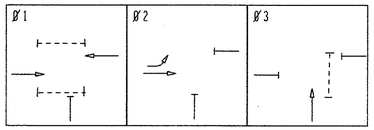
CONTACT: BOB JONES (D.E.CO.) 248-594-7132 FOR INSTALLATION OF 1 SPAN WIRE AND SECONDARY SERVICE AT 2 LOCATIONS. ESTIMATED COST TO CONTRACTOR $2,000.00.

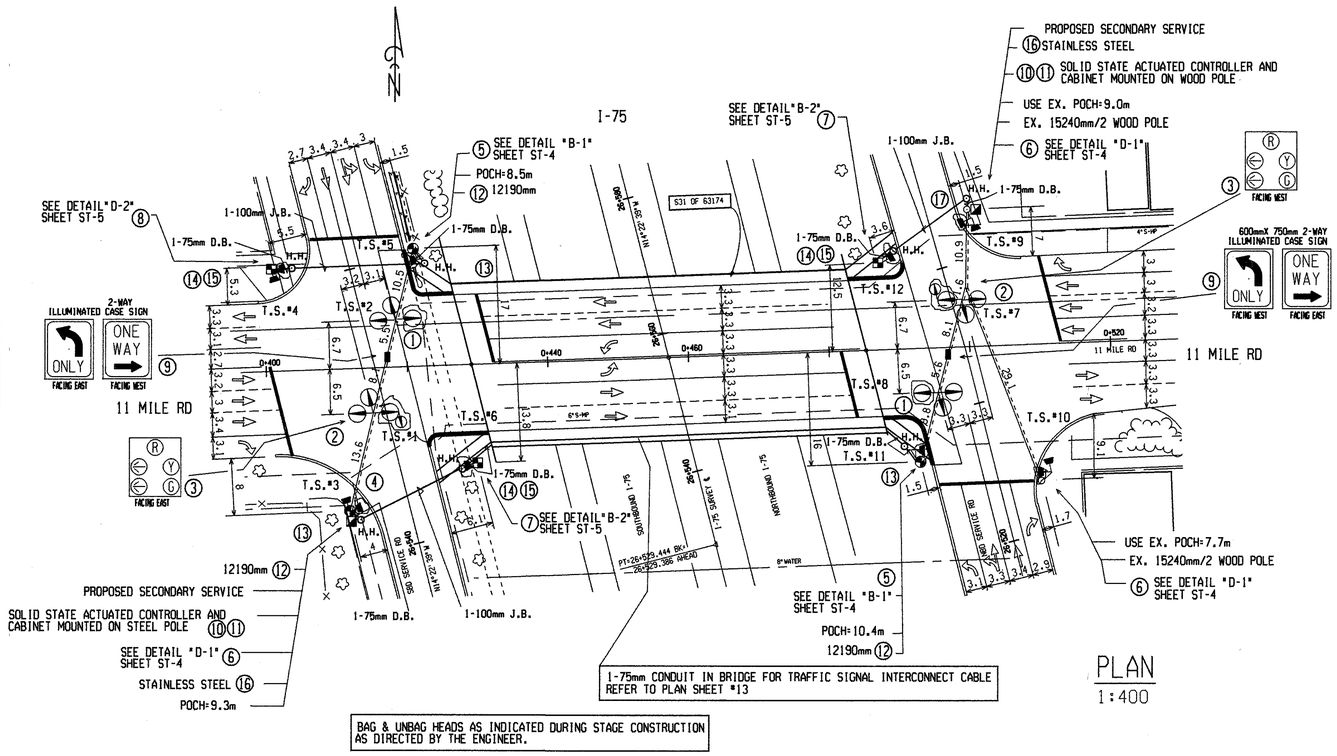
FOR ELECTRICAL SERVICE INSPECTION CONTACT THE MICHIGAN DEPARTMENT OF LABOR AT 517-241-9320
COST TO CONTRACTOR WILL BE $40.00.

S.B. PHASING DIAGRAM



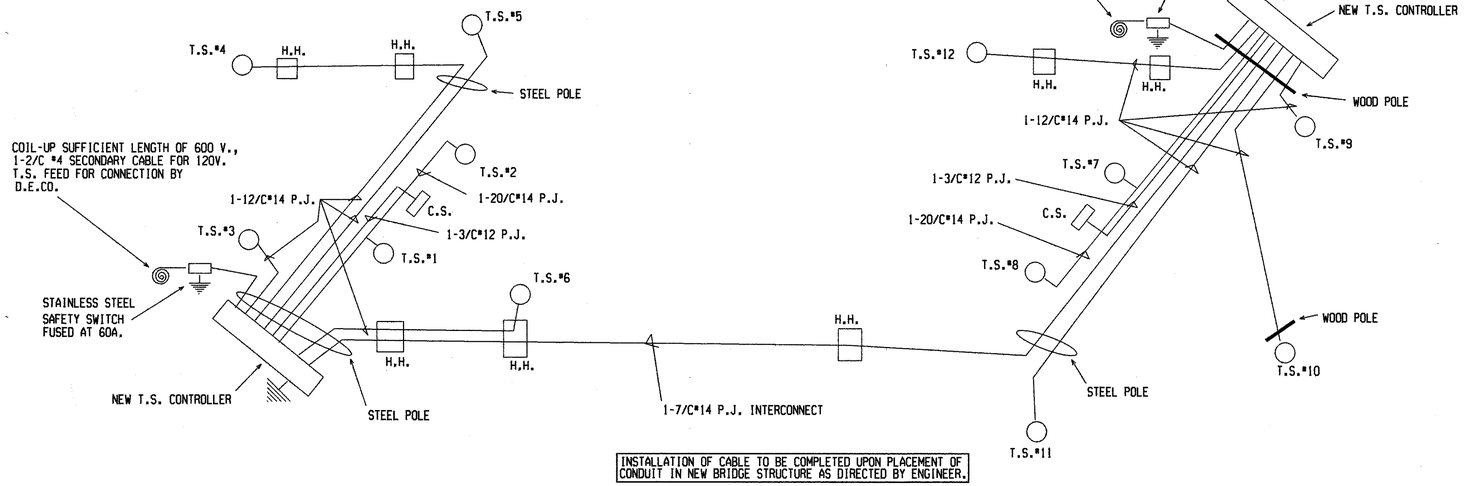
N.B. PHASING DIAGRAM





PLAN
1:400

BAG & UNBAG HEADS AS INDICATED DURING STAGE CONSTRUCTION AS DIRECTED BY THE ENGINEER.



INSTALLATION OF CABLE TO BE COMPLETED UPON PLACEMENT OF CONDUIT IN NEW BRIDGE STRUCTURE AS DIRECTED BY ENGINEER.

WIRING DIAGRAM
NOT TO SCALE

LIST OF MATERIAL

NO.	ITEM	QUANTITIES	ITEM CODE
(1)	TS, 3 Way Span Wire Mtd	2 Each	8200243
(2)	TS, 2 Way Span Wire Mtd	2 Each	8200230
(3)	TS, One Way Span Wire Mtd, Five Sect	2 Each	8200222
(4)	Span Wire	1 Each	8200201
(5)	TS, Pedestrian, 1 Way Bracket Arm Mtd	2 Each	8200258
(6)	TS, Pedestrian, 2 Way Bracket Arm Mtd	3 Each	8200260
(7)	TS, Pedestrian, 1 Way Pedestal Mtd	2 Each	8200266
(8)	TS, Pedestrian, 2 Way Pedestal Mtd	1 Each	8200268
(9)	Case Sign, Two Way, 600 mm by 750 mm	2 Each	8200302
(10)	Controller and Cabinet, Solid State Actuated	2 Each	8200334
(11)	Controller and Cabinet, Solid State Actuated, Delivered	2 Each	8200330
(12)	Strain Pole, Steel, Anchor Base , 12190 mm	3 Each	8200417
(13)	Strain Pole Fdn, Uncased	12m	8200420
(14)	Pedestal, Alum	3 Each	8200428
(15)	Pedestal, Fdn	3 Each	8200430
(16)	Safety Switch	2 Each	8200458
(17)	Wood Pole, Fit Up, TS Cable Pole	1 Each	8190942
◯	Hh, Round	7 Each	8190347
◯	Conduit, DB, 1, 75 mm	20m	8190064
◯	Conduit, Jacked Bored	30m	8190100
◯	P.J. Cable, 600V, 1, 7/C*14, Intercn	125m	8190403

All dimensions are in meters unless otherwise noted.

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	FEDERAL NUMBERS ITEM
63174	48404A		

MDOT Michigan Department of Transportation

AUTH. NO.		DRAWN	FH
CONT. SEC.	63174	DATE	9-12-99
ENGR/TECH	F. HUNT	SCALE	1:400
SHEET	06 OF 31	PLAN	63174-01-014

I-75 SERVICE DRS AT
11 MILE RD
CITY OF ROYAL OAK
OAKLAND COUNTY

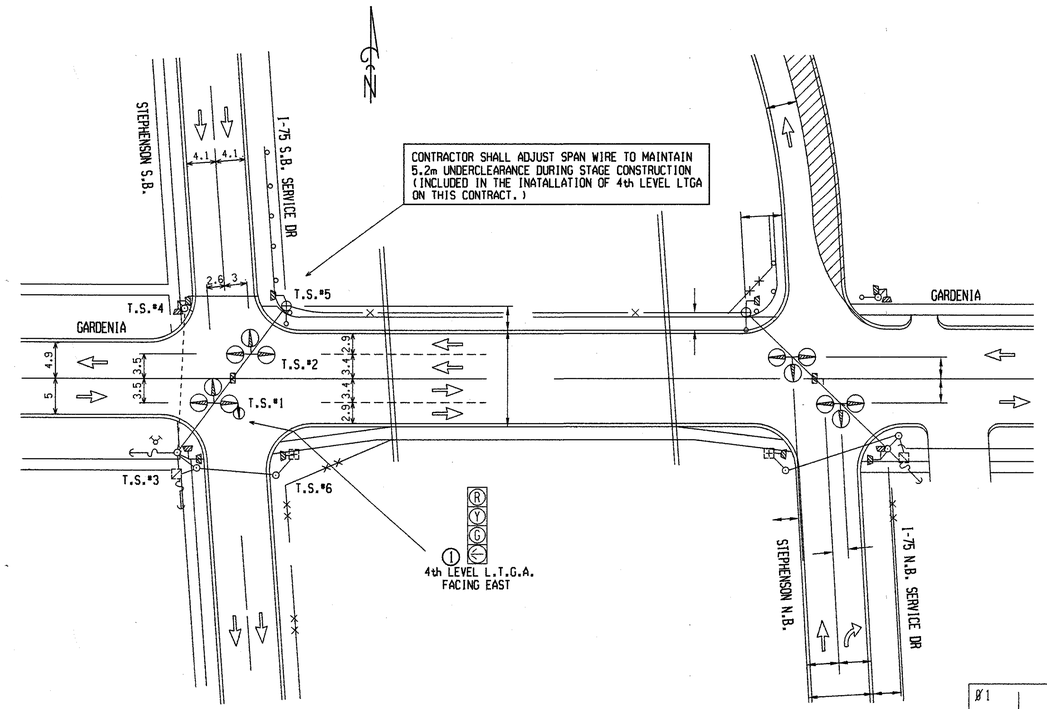
CONST SHEET NO. 6D

CYCLIC WATTS
STEADY WATTS

ci-data-fred-ms50-63174014.tme FWH Sep. 12, 1999 FWH

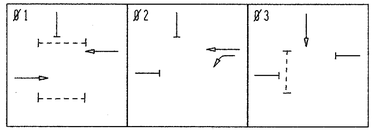
CS 63174 JN 48404A SH NO 7D

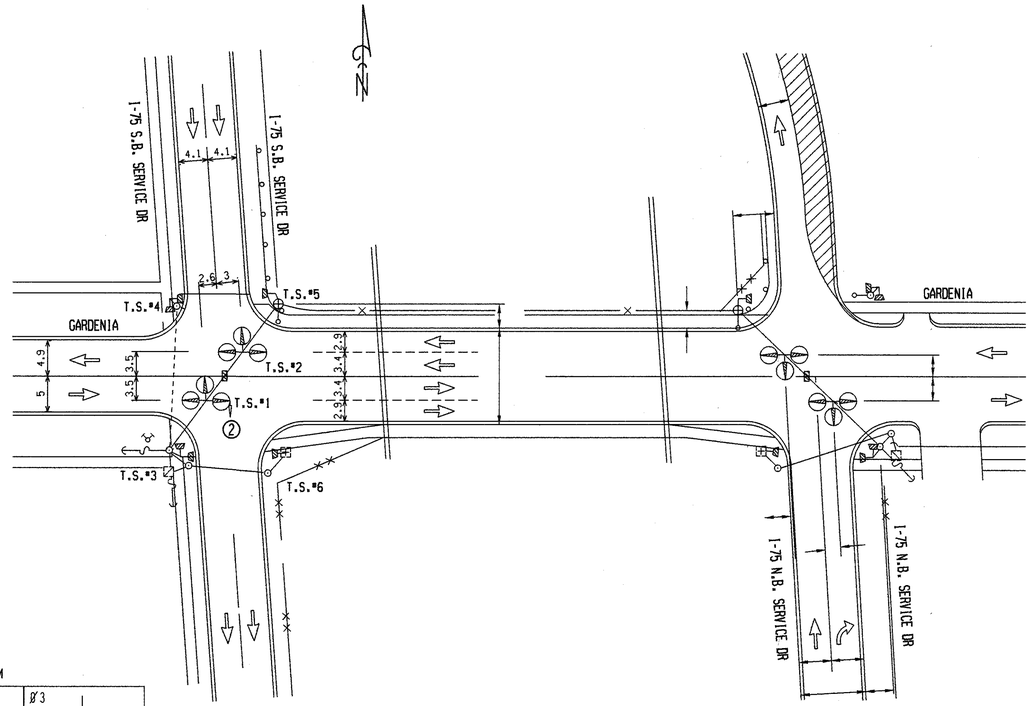
CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO.



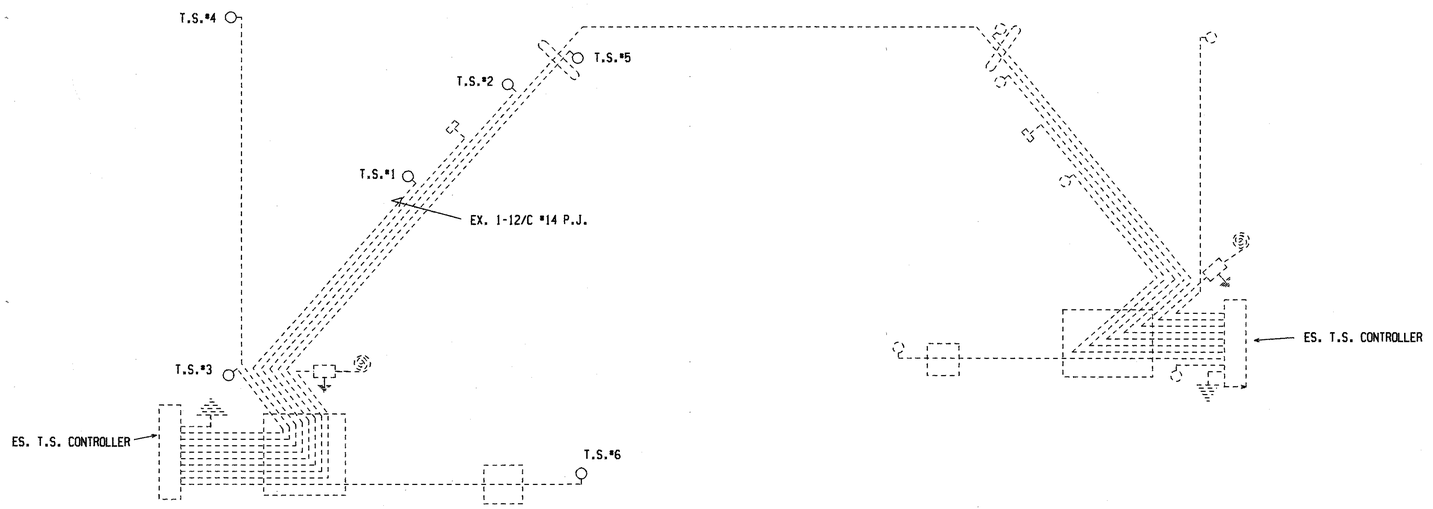
STAGE PLAN
1:400

PHASING DIAGRAM





STAGE REMOVAL
1:400



WIRING DIAGRAM
NOT TO SCALE

LIST OF MATERIAL			
NO.	ITEM	QUANTITIES	ITEM CODE
(1)	TS, 4th Level, LTGA	1 Each	8200250
(2)	TS, 4th Level Arrow , Rem	1 Each	8200066

All dimensions are in meters unless otherwise noted.

CYCLIC WATTS
STEADY WATTS

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS	
		PROJECT	ITEM
63174	48404A		

MDOT Michigan Department of Transportation

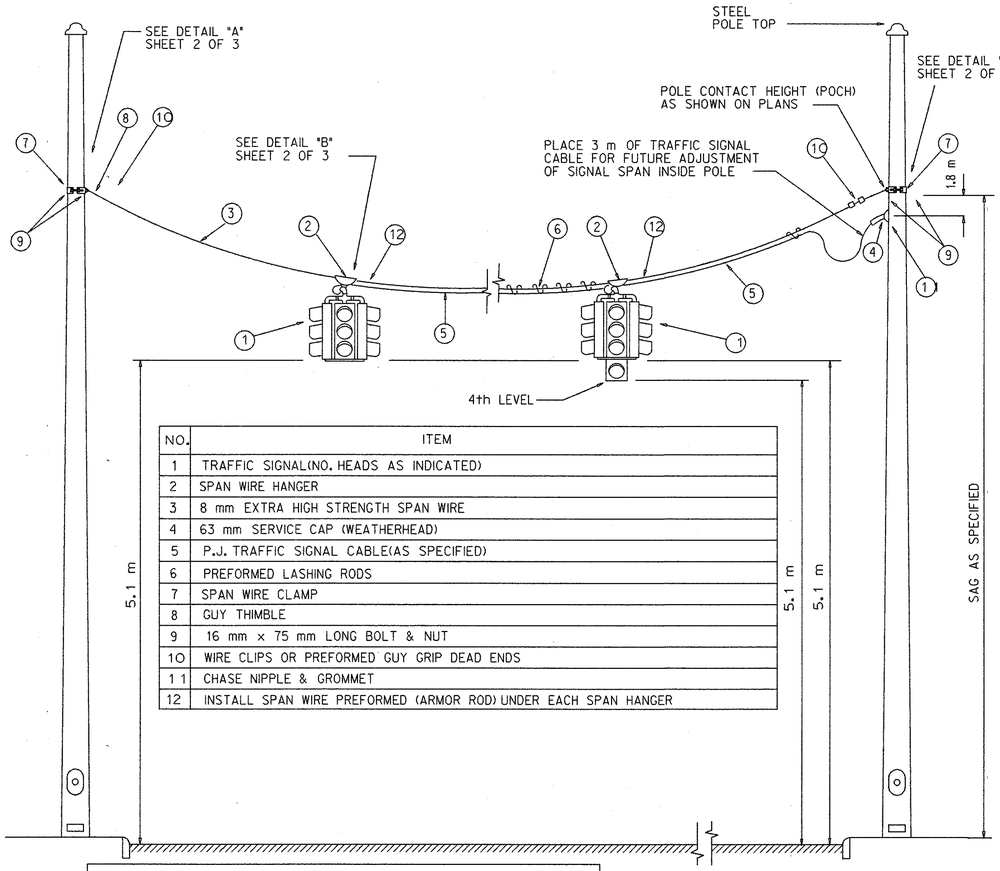
AUTH. NO.
CONT. SEC. 63174
ENGR/TECH F. HUNT
SHEET 7 OF 31
DRAWN FH
DATE 0-11-99
SCALE 1:400
PLAN 63174-01-010

I-75 SB SERVICE DR AT GARDENIA (11½MI)
CITY OF ROYAL OAK
OAKLAND COUNTY

CONST SHEET NO. 7D

c:-data-fred-ms50-63174010.tme Sep. 11, 1999 FWH

CS 63174 JN 48404A SH NO 8D



NO.	ITEM
1	TRAFFIC SIGNAL(NO. HEADS AS INDICATED)
2	SPAN WIRE HANGER
3	8 mm EXTRA HIGH STRENGTH SPAN WIRE
4	63 mm SERVICE CAP (WEATHERHEAD)
5	P.J. TRAFFIC SIGNAL CABLE(AS SPECIFIED)
6	PREFORMED LASHING RODS
7	SPAN WIRE CLAMP
8	GUY THIMBLE
9	16 mm x 75 mm LONG BOLT & NUT
10	WIRE CLIPS OR PREFORMED GUY GRIP DEAD ENDS
11	CHASE NIPPLE & GROMMET
12	INSTALL SPAN WIRE PREFORMED (ARMOR ROD) UNDER EACH SPAN HANGER

NOTE:
USE NUMBER & TYPE OF T.S. AS CALLED FOR ON PLAN

DETAIL : INSTALLATION OF SPAN WIRE T.S. ON STEEL POLES

NOTE:
INSTALL 19 mm x 3 m COPPER CLAD GROUND ROD(S) AS REQUIRED TO PROVIDE LESS THAN 10 OHM RESISTANCE TO GROUND. INSTALL #6 MIN. COPPER GROUND WIRES FROM GROUND ROD(S) TO SPAN WIRE AT EACH SUPPORTING POLE USING NON-SOLDER TYPE CONNECTIONS FOR SPAN WIRE GROUNDING.

NOTE: DETAILS NOT TO SCALE (N.T.S.)

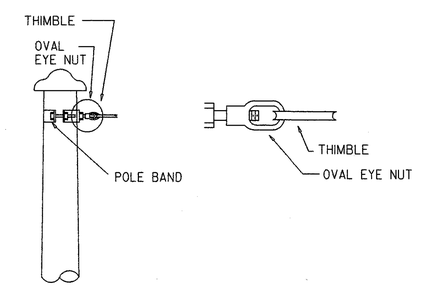
SH. 1 OF 3

OC-1

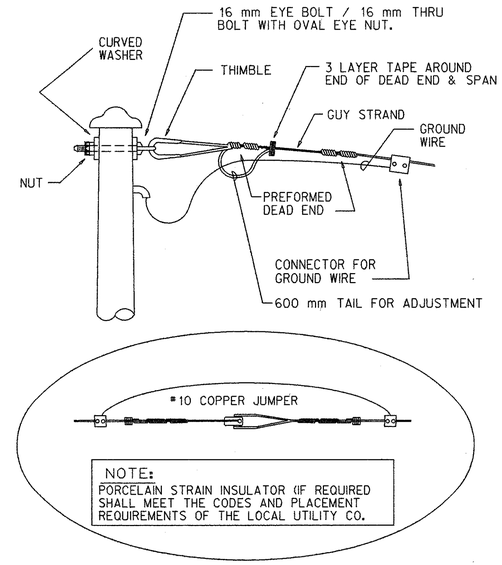
SPAN WIRE T.S. ON STEEL POLES

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

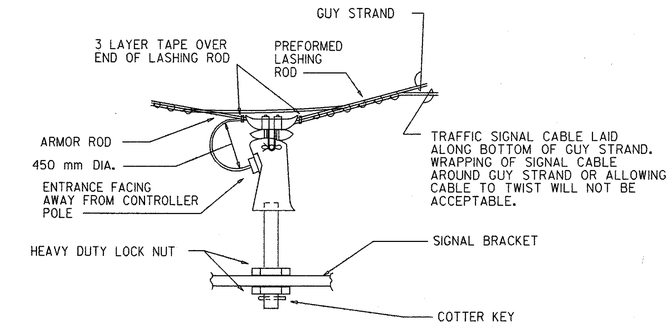
LAST CORRECTION DATE: 12/27/95
FILENAME: OC1.DGN



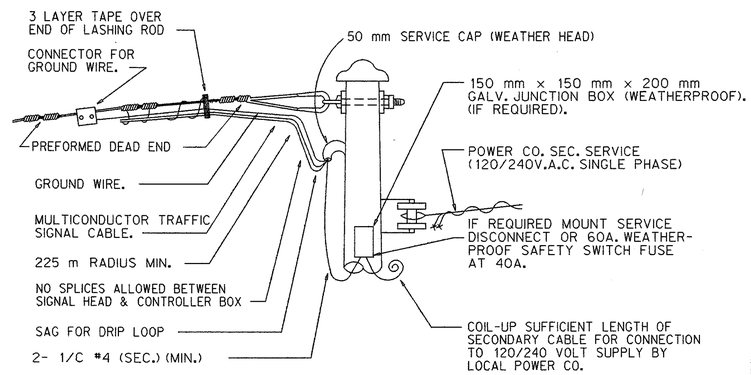
DETAIL A POLE BAND



DETAIL A (ALTERNATE) EYE BOLT



DETAIL B HANGER ATTACHMENT



DETAIL C CABLING

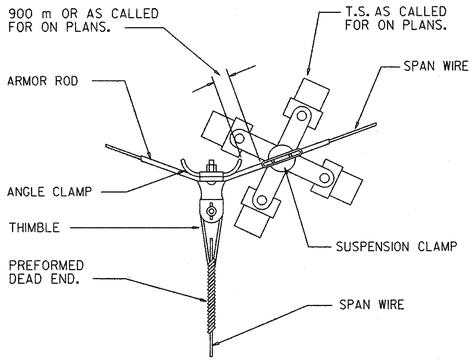
SH. 2 OF 3

OC-1

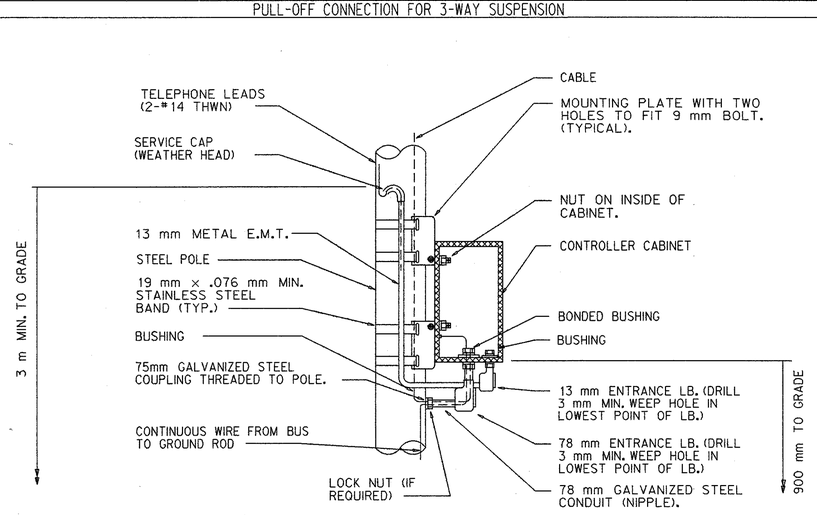
SPAN WIRE T.S. ON STEEL POLES

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	8 of 31	8D

CS 63174 JN 48404A SH NO 9D



DETAIL : PULL-OFF CONNECTION FOR 3-WAY SUSPENSION



DETAIL : CONTROLLER MOUNTING

SH. 3 OF 3

OC-1

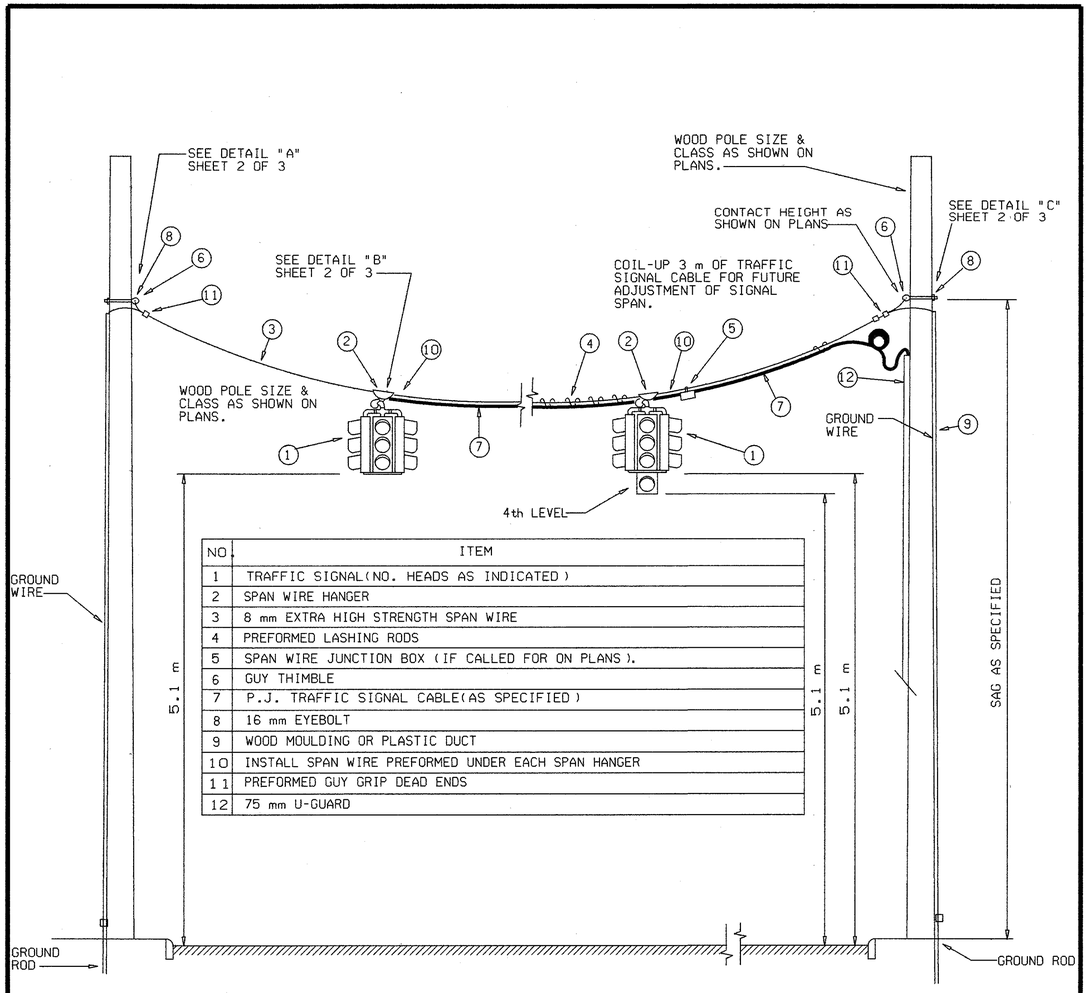
SPAN WIRE T.S. ON STEEL POLES

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	9 of 31	9D

CS 63174 JN 48404A SH No 10D



NO.	ITEM
1	TRAFFIC SIGNAL(NO. HEADS AS INDICATED)
2	SPAN WIRE HANGER
3	8 mm EXTRA HIGH STRENGTH SPAN WIRE
4	PREFORMED LASHING RODS
5	SPAN WIRE JUNCTION BOX (IF CALLED FOR ON PLANS).
6	GUY THIMBLE
7	P.J. TRAFFIC SIGNAL CABLE(AS SPECIFIED)
8	16 mm EYEBOLT
9	WOOD MOULDING OR PLASTIC DUCT
10	INSTALL SPAN WIRE PREFORMED UNDER EACH SPAN HANGER
11	PREFORMED GUY GRIP DEAD ENDS
12	75 mm U-GUARD

DETAIL : INSTALLATION OF SPAN WIRE T.S. ON WOOD POLES

NOTE:

INSTALL 19 mm x 3 m COPPER CLAD GROUND ROD(S) AS REQUIRED TO PROVIDE LESS THAN 10 OHM RESISTANCE TO GROUND. INSTALL #6 MIN. COPPER GROUND WIRES FROM GROUND ROD(S) TO SPAN WIRE AT EACH SUPPORTING POLE USING NON-SOLDER TYPE CONNECTIONS FOR SPAN WIRE GROUNDING.

NOTE: DETAILS NOT TO SCALE (N.T.S.)

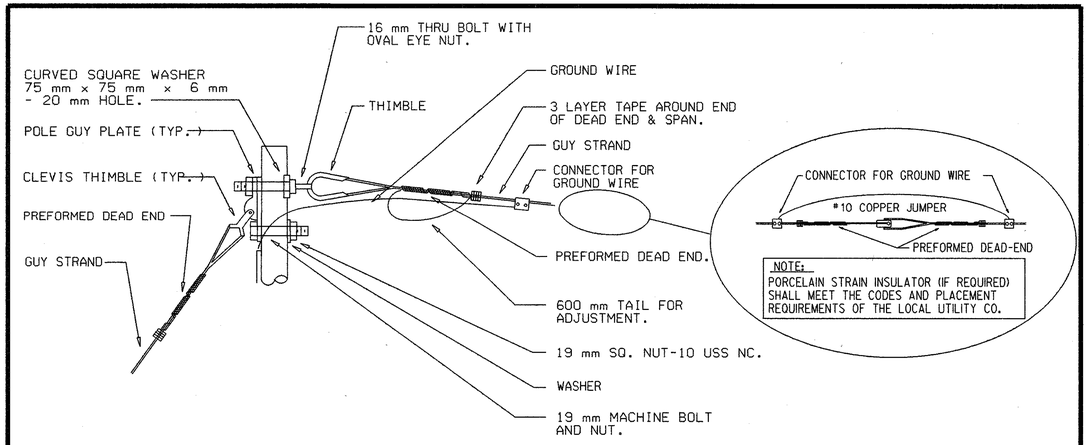
SH. 1 OF 3

OC-1A

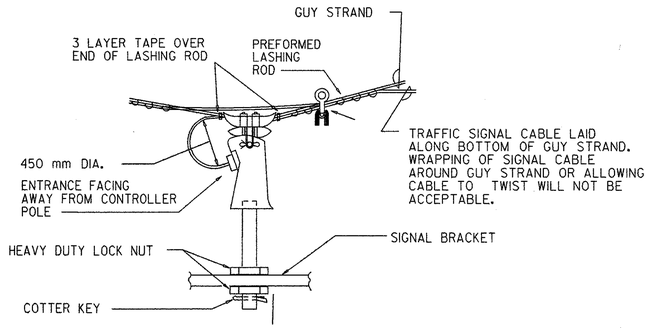
LAST CORRECTION DATE:12/27/95
FILENAME: OC1AJDN

SPAN WIRE T.S. ON WOOD POLES

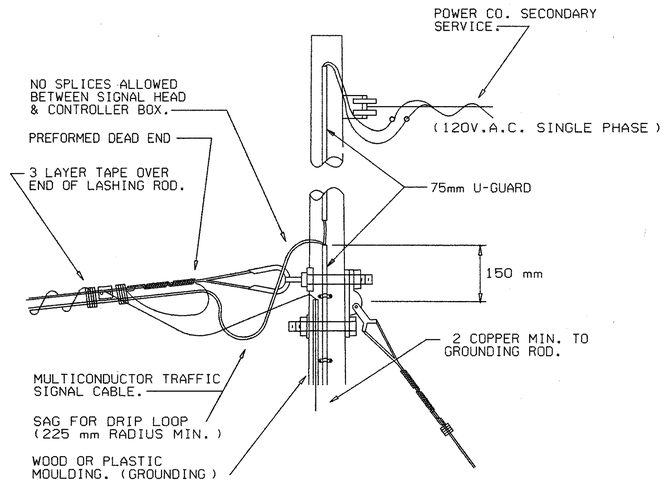
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.



DETAIL A POLE PLATE AND HARDWARE



DETAIL B HANGER ATTACHMENT



DETAIL C CABLING

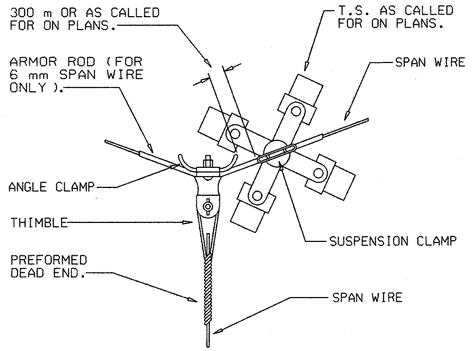
SH. 2 OF 3

OC-1A

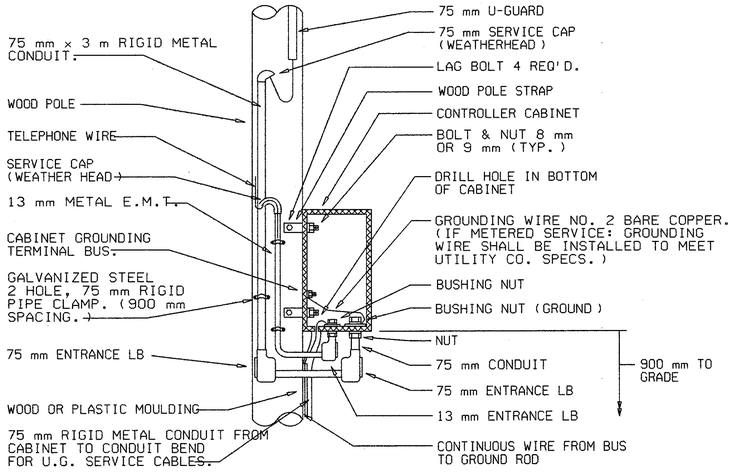
SPAN WIRE T.S. ON WOOD POLES

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	10 of 31	10 D

CS 63174 JN 48404A SH NO 11D



DETAIL : PULL-OFF CONNECTION FOR 3-WAY SUSPENSION



DETAIL : CONTROLLER MOUNTING

SH. 3 OF 3

OC-1A

SPAN WIRE T.S. ON WOOD POLES

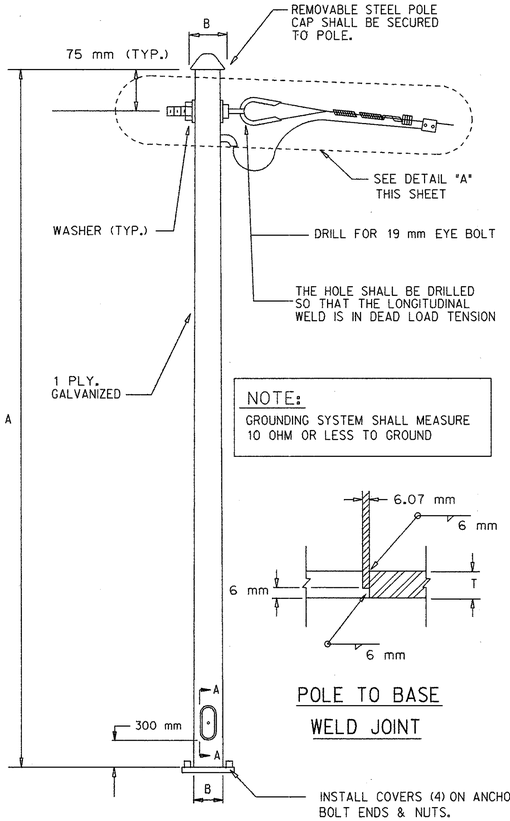
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	11 of 31	11D

SH NO 12 D

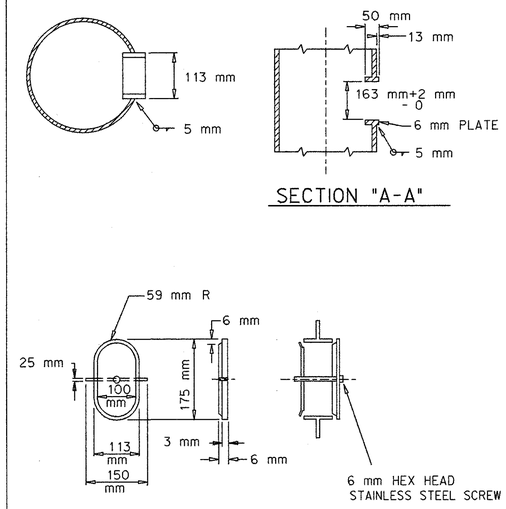
CS 63174 JN 48404A



ANCHOR BASE STEEL STRAIN POLE

N.T.S.

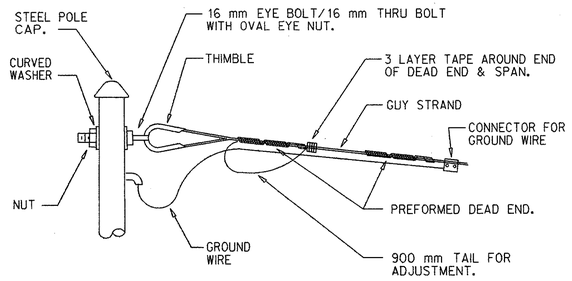
POLE TO BASE
WELD JOINT



SECTION "A-A"

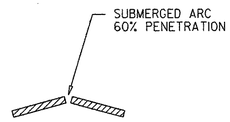
DETAIL : HAND HOLE

TYPICAL CROSS SECTION
(POLYGON OPTIONAL)



DETAIL "A"

N.T.S.



LONGITUDINAL
WELD JOINT

SH. 1 OF 5

ST-2

MDOT Michigan Department of Transportation	ANCHOR BASE STEEL STRAIN POLE AND FOUNDATION					
	DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE:12/22/95
FILENAME:ST2.DGN

POLE REQUIREMENTS

LENGTH	A	9 m	9 m (ALTERNATE)	10.8 m	12 m
GAUGE		#3-1 PLY (MIN.)	#3-1 PLY (MIN.)	#0-1 PLY (MIN.)	#0-1 PLY (MIN.)
POLE DIA. AT TOP AT BOTTOM	B B'	200 mm MIN+13 mm 325 mm+13 mm	194 mm MIN+6 mm 294 mm+6 mm	200 mm MIN+13 mm 325 mm+13 mm	212.5 mm MIN+13 mm 350 mm+13 mm
MAX. DEFLECTION LOAD 450 mm FROM TOP FOR UNGUYED POLE		1678 kg	1678 kg	1678 kg	1678 kg
DEFLECTION 450 mm FROM TOP		NOT GREATER THAN 10 mm/45 kg	NOT GREATER THAN 10 mm/45 kg	NOT GREATER THAN 10 mm/45 kg	NOT GREATER THAN 10 mm/45 kg
FULL LENGTH TAPER		+.05 mm 4 mm -.00 mm	+.05 mm 4 mm -.00 mm	+.05 mm 4 mm -.00 mm	+.05 mm 4 mm -.00 mm
ANCHOR BOLT CORD	C	319 mm	284 mm	319 mm	319 mm
BASE PLATE	D	450 mm	400 mm	450 mm	450 mm
BASE PLATE THICKNESS	T	50 mm	50 mm	50 mm	50 mm
ANCHOR BOLT CIRCLE	BC	450 mm	400 mm	450 mm	450 mm
ANCHOR BASE BOLT HOLE DIA.		50 mm	50 mm	50 mm	56 mm
ANCHOR BOLT DIA.	d	44 mm	44 mm	44 mm	50 mm
ANCHOR BOLT LENGTH (INCLUDES 150 mm "L" BEND)		3000 mm	3000 mm	2000 mm	3000 mm
POLE BAND (SPAN CLAMP)	188 mm	-------	POCH 8.7 m-0 mm- 8.7 m-150 mm	-------	-------
	213 mm	POCH 7.5 m-150 mm- 8.7 m-150 mm	POCH 6.3 m-150 mm- 8.4 m-150 mm	POCH 9.6 m-150 mm- 10.5 m-150 mm	POCH 10.8 m-0 mm- 11.7 m-150 mm
	238 mm	POCH 6 m-0 mm- 7.5 m-0 mm	-------	POCH 7.5 m-0 mm- 9.6 m-0 mm	POCH 8.7 m-0 mm- 10.5 m-150 mm

NOTES:

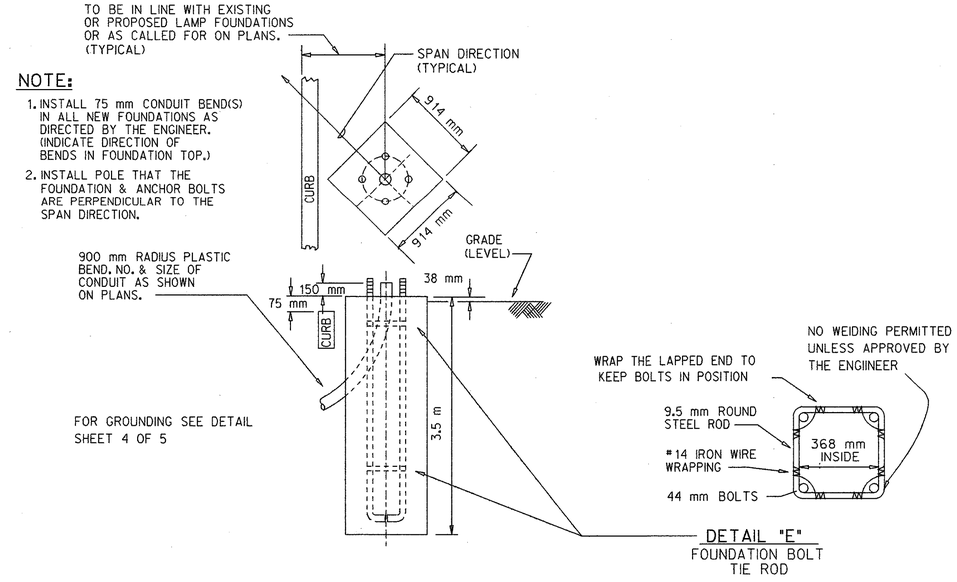
1. ACCEPTABLE MILL TOLERANCES TO APPLY TO ALL NOMINAL DIMENSIONS.
2. HANDHOLE SHALL BE PROVIDED & BE PERPENDICULAR TO EYE BOLT HOLE.
3. MATERIAL ( ) GALVANIZED FINISH.
   - A. SHAFT STEEL SHALL BE ASTM A572, Fy = 344.7 MPa.
   - B. BASE PLATE ASTM A36.
   - C. ALL GALVANIZING SHALL MEET ASTM A123.
   - D. ANCHOR BOLTS SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS FOR TRAFFIC SIGNAL STRAIN POLE.
4. WELDING
   - A. WELDING SHALL CONFORM TO AWS D1.1
   - B. ULTRASONIC INSPECTION FOR ALL 100% WELDS AND VISUAL AND/OR MAGNETIC PARTICLE FOR ALL OTHERS.
5. TOLERANCES OVERALL HEIGHT +_1%.
   - A. SWEEP AND CHAMBER 3 mm PER METER.
   - B. TWIST 10 °MAX. OVERALL.
6. DESIGN CONFORMING TO CURRENT AASHTO
   - A. SPECIFICATIONS FOR DESIGN OF STRUCTURAL SUPPORTS FOR TRAFFIC SIGNALS ASSUMING A SAG OF 10% OF SPAN WITH MAXIMUM OF 5 SIGNALS WITH PLASTIC HEADS NOT TETHERED.

SH. 2 OF 5

ST-2

MDOT Michigan Department of Transportation	ANCHOR BASE STEEL STRAIN POLE AND FOUNDATION					
	DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
	9-21-99		63174	48404A	12 of 31	12 D

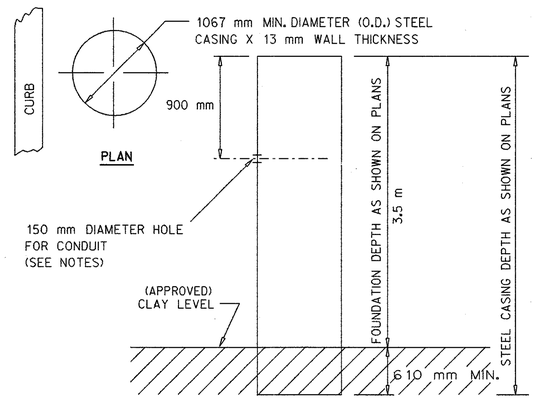
CS 63174 JN 484044 SH NO 13D

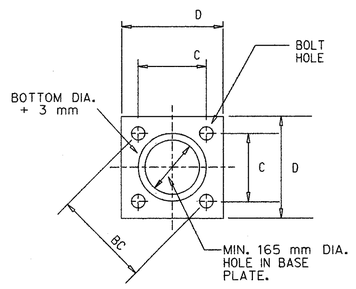


NOTE:

1. INSTALL 75 mm CONDUIT BEND(S) IN ALL NEW FOUNDATIONS AS DIRECTED BY THE ENGINEER. (INDICATE DIRECTION OF BENDS IN FOUNDATION TOP.)
2. INSTALL POLE THAT THE FOUNDATION & ANCHOR BOLTS ARE PERPENDICULAR TO THE SPAN DIRECTION.

DETAIL : ANCHOR BASE STEEL STRAIN POLE FOUNDATION





NOTES:

1. CUT 150 mm DIAMETER HOLE IN STEEL CASING AT 900 mm FROM TOP OF FOUNDATION FOR CONDUIT.
2. TRENCH FOR PLACEMENT OF CONDUIT AFTER CASING IS IN PLACE AND BEFORE DEWATERING.
3. SEE SPECIAL PROVISION FOR CONSTRUCTION OF DRILLED SHAFT FOUNDATIONS (TRAFFIC SIGNAL STRAIN POLES) AND LIGHT TOWERS.
4. ALL DRILLED SHAFT FOUNDATIONS CASED OR UNCASED, SHALL HAVE A MINIMUM DIAMETER OF 1050 mm (OR LARGER AS DIRECTED BY THE ENGINEER).

DETAIL : DRILLED SHAFT FOUNDATION FOR STRAIN POLE (CASED AND UNCASED)

DETAIL : BASE PLATE

SH. 3 OF 5

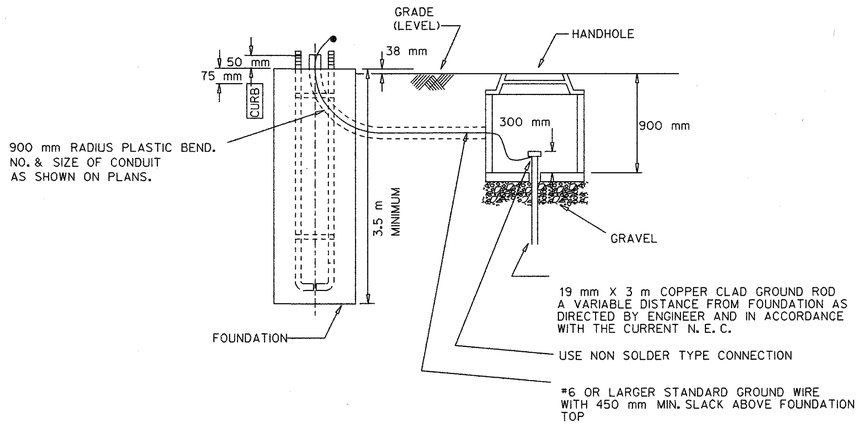
ST-2

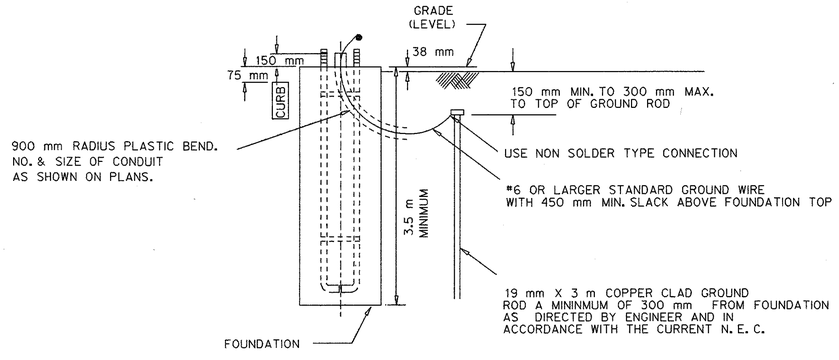
LAST CORRECTION DATE:
FILENAME:

MDOT Michigan Department of Transportation

ANCHOR BASE STEEL STRAIN POLE AND FOUNDATION

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.





NOTE: ALL GROUNDS SHALL PROVIDE LESS THAN 10 OHM RESISTANCE TO GROUND

DETAIL : ANCHOR BASE STEEL STRAIN POLE GROUNDING

SH. 4 OF 5

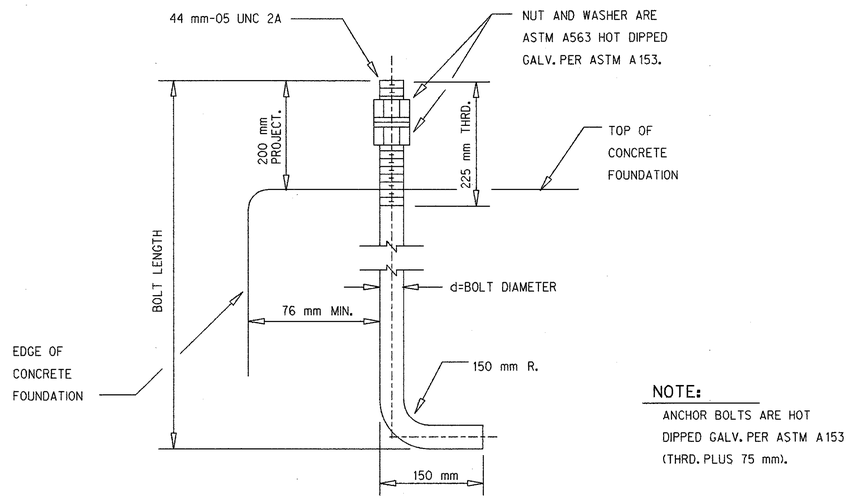
ST-2

MDOT Michigan Department of Transportation

ANCHOR BASE STEEL STRAIN POLE AND FOUNDATION

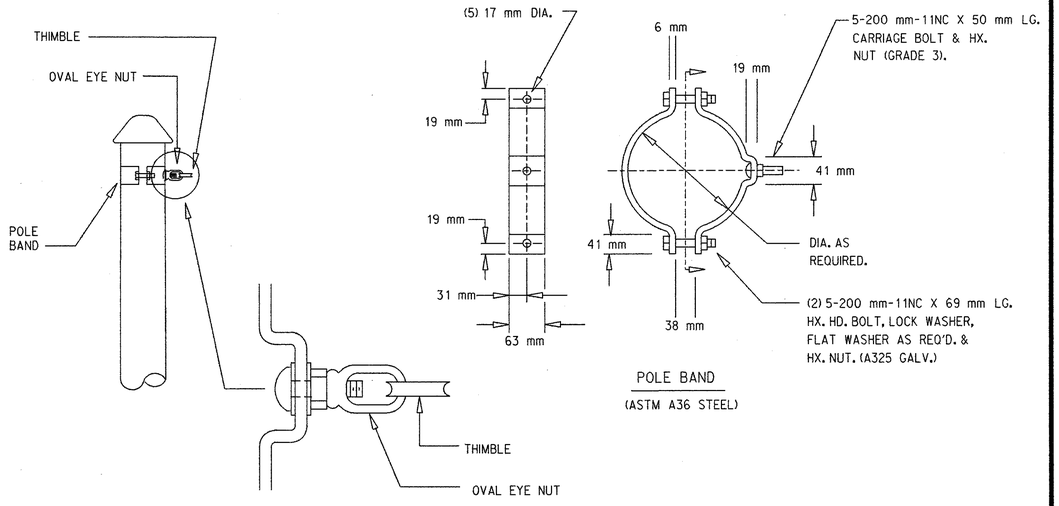
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	13 of 31	13D

CS 63174 JN 48404A SH No 14D



NOTE:
ANCHOR BOLTS ARE HOT DIPPED GALV. PER ASTM A153 (THRD. PLUS 75 mm).

DETAIL : ANCHOR BASE STEEL STRAIN POLE FOUNDATION



POLE BAND
(ASTM A36 STEEL)

DETAIL A (ALTERNATE) POLE BAND

SH. 5 OF 5

ST-2

LAST CORRECTION DATE:
FILENAME:

MDOT Michigan Department of Transportation

ANCHOR BASE STEEL STRAIN POLE AND FOUNDATION

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

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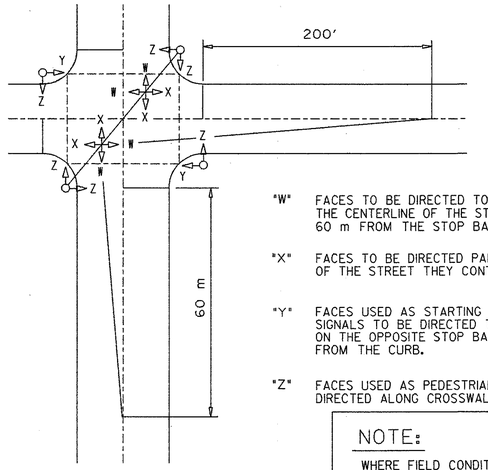
MDOT Michigan Department of Transportation

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	14 of 31	14D

CS 63174 JN 484044 SH NO 15D



"W" FACES TO BE DIRECTED TO INTERSECT A POINT ON THE CENTERLINE OF THE STREET THEY CONTROL 60 m FROM THE STOP BAR.

"X" FACES TO BE DIRECTED PARALLEL TO THE CENTERLINE OF THE STREET THEY CONTROL.

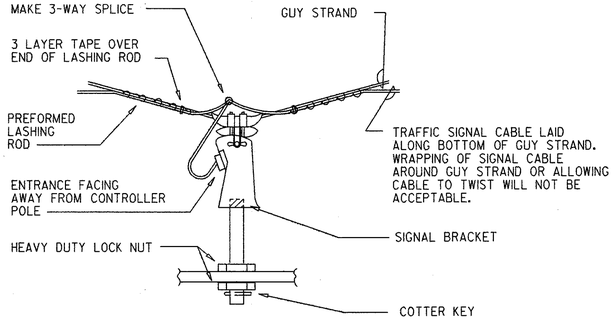
"Y" FACES USED AS STARTING SIGNALS WITH NEAR SIDE SIGNALS TO BE DIRECTED TO INTERSECT A POINT ON THE OPPOSITE STOP BAR APPROXIMATELY 1.2 m. FROM THE CURB.

"Z" FACES USED AS PEDESTRIAN SIGNALS TO BE DIRECTED ALONG CROSSWALKS.

NOTE:

WHERE FIELD CONDITIONS REQUIRE DEVIATION FROM THESE STANDARDS, ENGINEER WILL FURNISH SPECIFIC DIRECTIONAL SETTING FOR SIGNALS AT TIME OF INSTALLATION.

DETAIL : STANDARD FOR DIRECTIONAL SETTINGS OF TRAFFIC SIGNALS (N.T.S.)



DETAIL : O.H. T.S. CABLE SPLICE

SH. 1 OF 1

OC-3

DIRECTIONAL SETTINGS/CABLE SPLICE

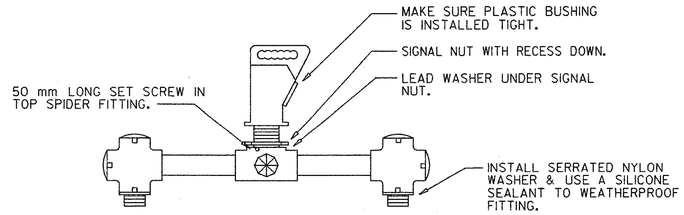
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	15 of 31	15D

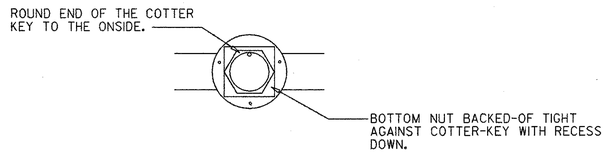
LAST CORRECTION DATE: 12/27/95
FILENAME: OC3.DGN

CS 63174 JN 48404A SH NO 16D

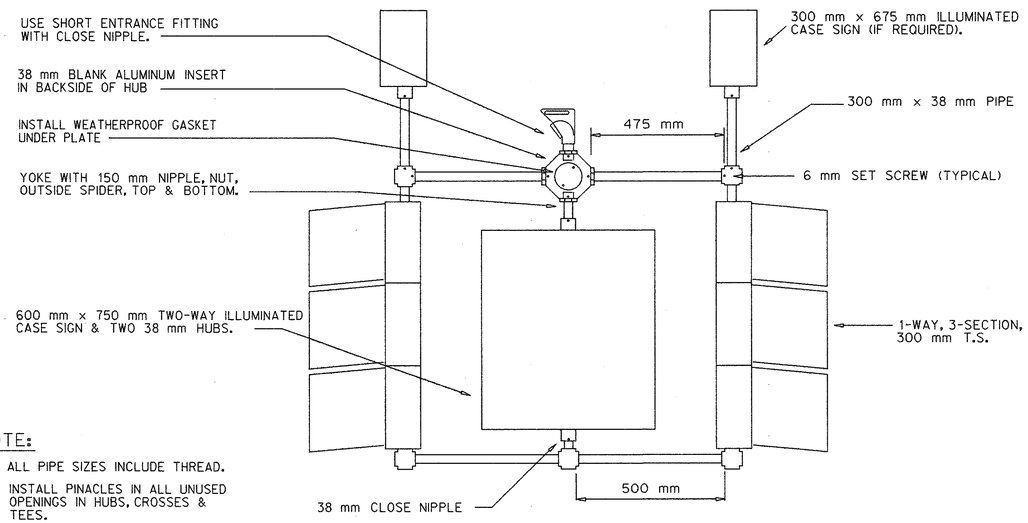


(2-WAY T.S. SHOWN 3-WAY & 4-WAY SIMILAR)

DETAIL : SPAN WIRE MOUNTED T.S. BRACKET ASSEMBLY (N.T.S.)



DETAIL : HUB WITH BOTTOM PLATE OFF (N.T.S.)



NOTE:

1. ALL PIPE SIZES INCLUDE THREAD.
2. INSTALL PINACLES IN ALL UNUSED OPENINGS IN HUBS, CROSSES & TEES.
3. 2-WAY CASE SIGN LEGEND TO BE AS SHOWN ON PLANS.

DETAIL : 2-WAY T.S./CASE SIGN COMBINATION ABOVE HUB

SH. 1 OF 1

OC-3A

TRAFFIC SIGNAL BRACKET ASSEMBLY/CASE SIGN COMBINATION

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE:12/27/95
FILENAME:OC3A.DGN

SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	16 of 31	16D

C.S. 63174 JN 484044 SH NO 17D

		VEHICLE	PEDESTRIAN	PUSHBUTTON
	COLOR	20/C	12/C	7/C
1	WHITE	COMMON (CASE SIGN)	COMMON	COMMON
2	BLACK	CASE SIGN	CASE SIGN	DW 2
3	RED	A O/RED	A O/RED	DW 1
4	GREEN	A Ø-GREEN	A Ø-GREEN	W 1
5	ORANGE	A Ø-AMBER	A Ø-AMBER	W 3
6	BLUE	L.T.G.A.	L.T.G.A.	W 2
7	WHITE W/BLACK TRACER	C Ø-AMBER	C Ø-AMBER	DW 3
8	GREEN W/BLACK TRACER	B Ø-GREEN	B Ø-GREEN	
9	ORANGE W/BLACK TRACER	B Ø-AMBER	B Ø-AMBER	
10	RED W/BLACK TRACER	B O/RED	B O/RED	
11	BLUE W/BLACK TRACER	C Ø-GREEN	C Ø-GREEN	
12	BLACK W/WHITE TRACER	C O/RED	C O/RED	
13	GREEN W/WHITE TRACER	D Ø-GREEN		
14	ORANGE W/RED TRACER	D Ø-AMBER		
15	RED W/WHITE TRACER	D O/RED		
16	BLACK W/RED TRACER	SPARE		
17	BLUE W/WHITE TRACER	SPARE		
18	BLUE W/RED TRACER	300 mm COMMON		
19	WHITE W/RED TRACER	300 mm COMMON		
20	RED W/GREEN TRACER	SPARE		

#10/2-CONDUCTOR AND #12/2 CONDUCTOR-COLORS 1 & 2
#12/3-CONDUCTOR-COLORS 1 THROUGH 3
#14/7-CONDUCTOR-COLORS 1 THROUGH 7
#14/12-CONDUCTOR-COLORS 1 THROUGH 12
#14/20-CONDUCTOR-COLORS 1 THROUGH 20

SH. 1 OF 1

OC-3B

LAST CORRECTION DATE: 12/27/95
FILENAME: OC3B.DGN

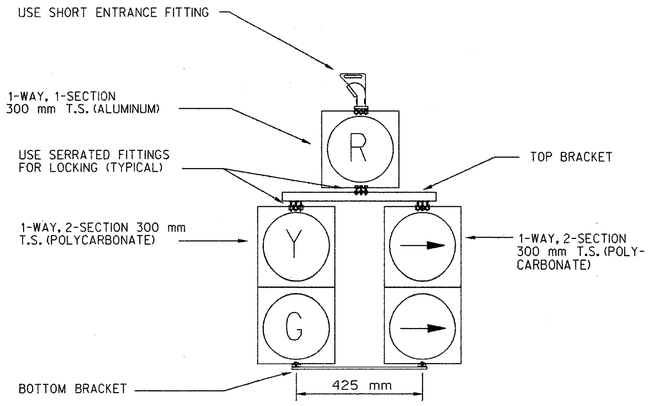
COLOR CODE FOR WIRING CONNECTIUNG SIGNAL LAMPS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

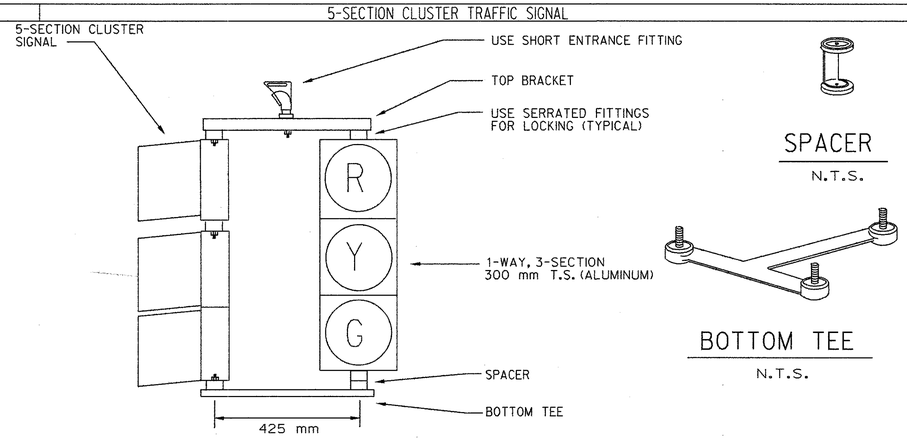
SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	17 of 31	17D

C.S. 63174 JN 48404A S# NO 18D



DETAIL : 5-SECTION CLUSTER TRAFFIC SIGNAL



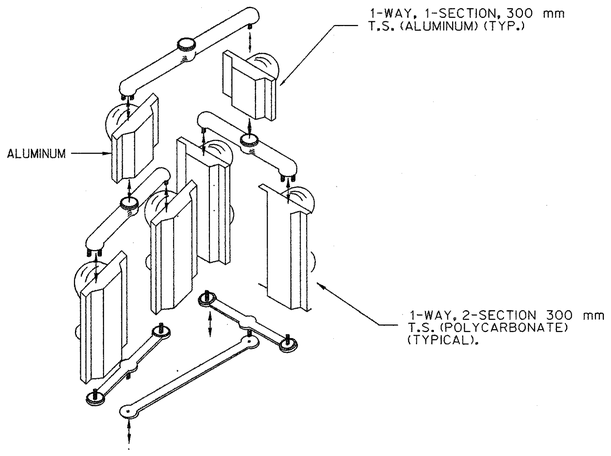
SPACER

N.T.S.

BOTTOM TEE

N.T.S.

DETAIL : COMBINATION CLUSTER TRAFFIC SIGNAL



DETAIL : TWIN CLUSTER TRAFFIC SIGNAL

SH. 1 OF 1

ST-3D

MDOT Michigan Department of Transportation

T.S. SPECIAL BRACKETS 5-SECTION HEADS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE:12/22/95
FILENAME:ST3D.DGN

SH. OF

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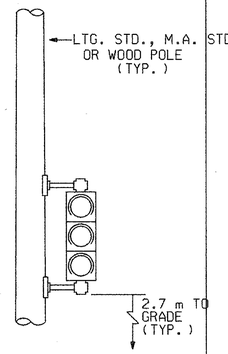
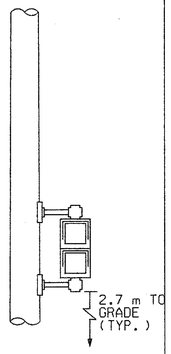
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	18 of 31	18D

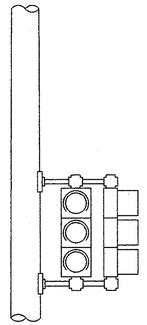
C.S. 63174 JN 48404A SH. No 19D



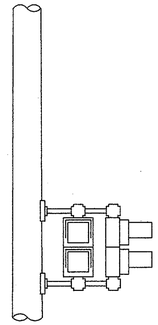
DETAIL "A-1"



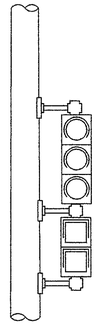
DETAIL "B-1"



DETAIL "C-1"



DETAIL "D-1"



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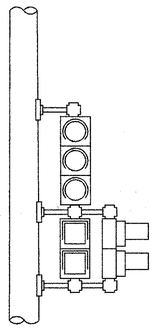

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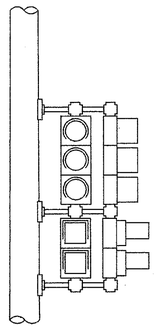
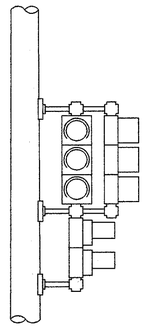


DETAIL "G-1"



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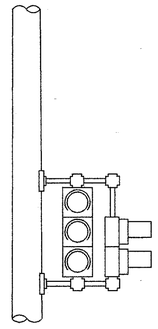
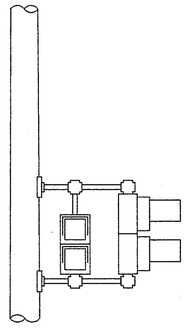
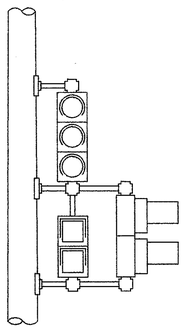


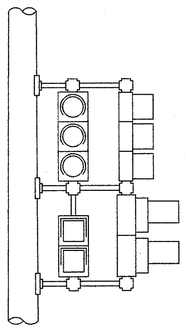
DETAIL "J-1"



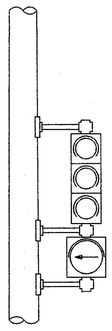
DETAIL "K-1"



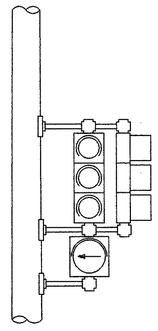
DETAIL "L-1"



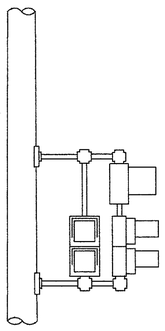
DETAIL "M-1"



DETAIL "N-1"



DETAIL "O-1"



DETAIL "R-1"

SH. 1 OF 2

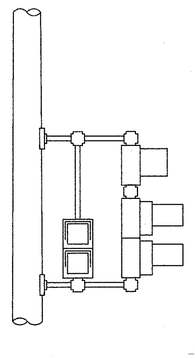
ST-4

LAST CORRECTION DATE:12/22/95
FILENAME:ST4.DGN

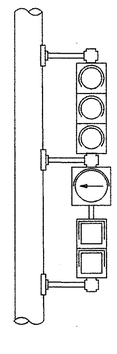
MDOT Michigan Department of Transportation

TYPICAL POLE MOUNTED - T.S./PEDESTRIAN COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.



DETAIL "T-1"



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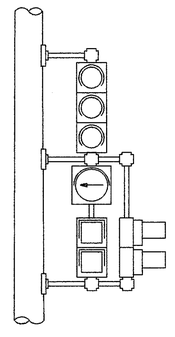
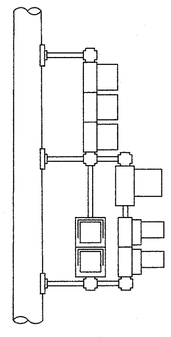
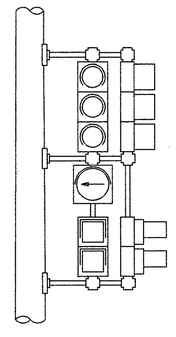


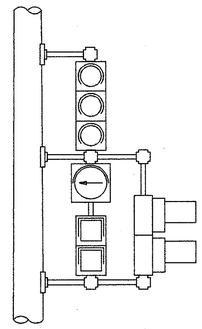
DETAIL "V-1"



DETAIL "W-1"



DETAIL "X-1"



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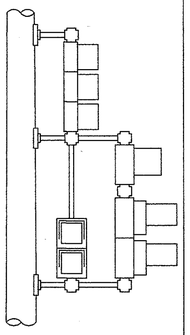
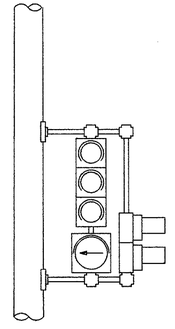


DETAIL "Z-1"



DETAIL "AA-1"

NOTE:

1. THE RELATIVE POSITION OF 2-WAY T.S. & PEDESTRIAN BRACKET ARM SIGNALS WITHIN THE BRACKET ASSEMBLY SHALL BE REVERSED (I.E. THE SIGNAL NEAREST THE POLE GOES TO THE OUTSIDE OF THE BRACKET ASSEMBLY & THE OUTSIDE SIGNAL GOES INBOARD OR NEAREST TO POLE) ACCORDING TO THE PLAN VIEW TO PROVIDE CLEAR VEHICULAR AND PEDESTRIAN VIEWING.

2. PIPE ASSEMBLY SHALL BE OF SUCH LENGTH AND HEIGHT AS TO ACCOMMODATE TRAFFIC SIGNALS AND PEDESTRIAN SIGNALS FOR PROPER MAINTENANCE AND CLEAR VEHICULAR AND PEDESTRIAN VIEWING.

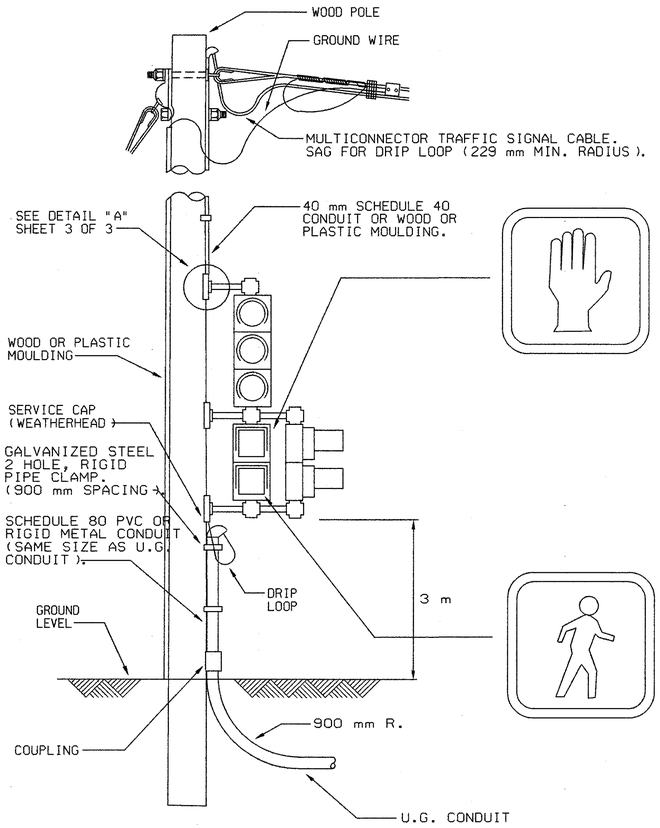
SH. 2 OF 2

ST-4

MDOT Michigan Department of Transportation

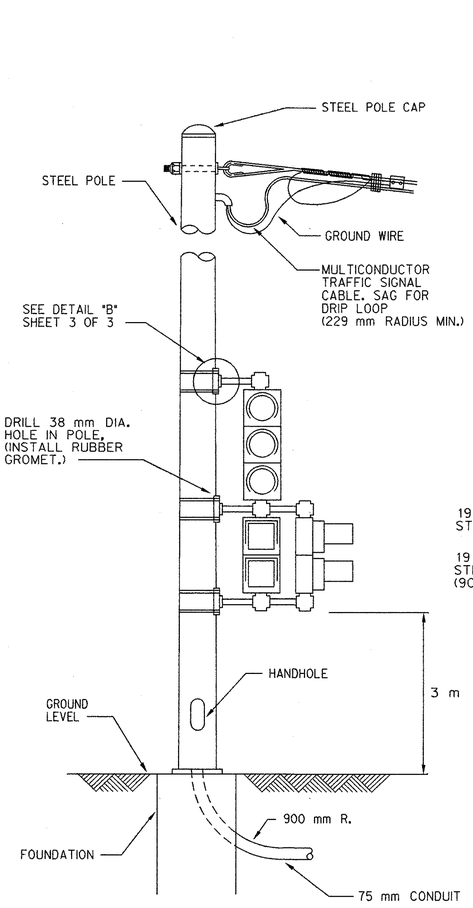
TYPICAL POLE MOUNTED - T.S./PEDESTRIAN COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	19 of 31	19D



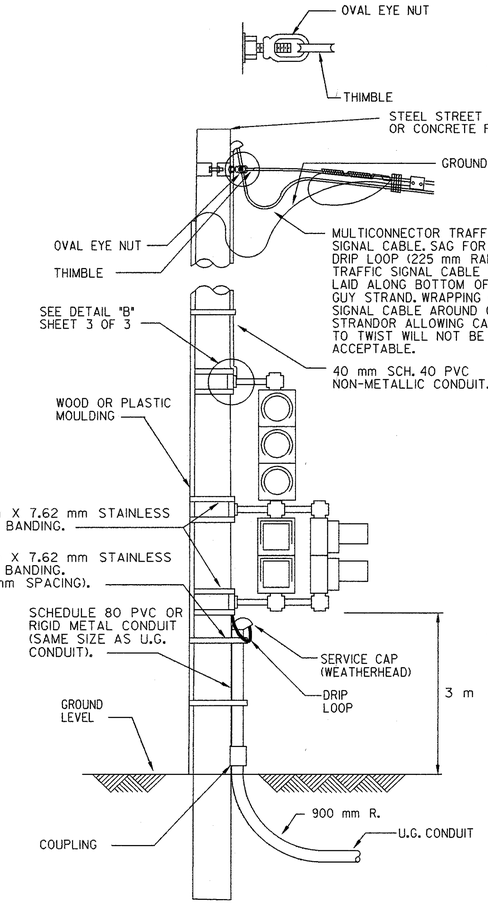
WOOD POLE

N.T.S.



STEEL POLE

N.T.S.



STEEL STREET LIGHT POLE
OR CONCRETE POLE

N.T.S.

LAST CORRECTION DATE:12/27/95
FILENAME: OC4A.DGN

SH. 1 OF 3
OC-4A

TYPICAL POLE MOUNTED - T.S./PEDESTRIAN COMBINATIONS

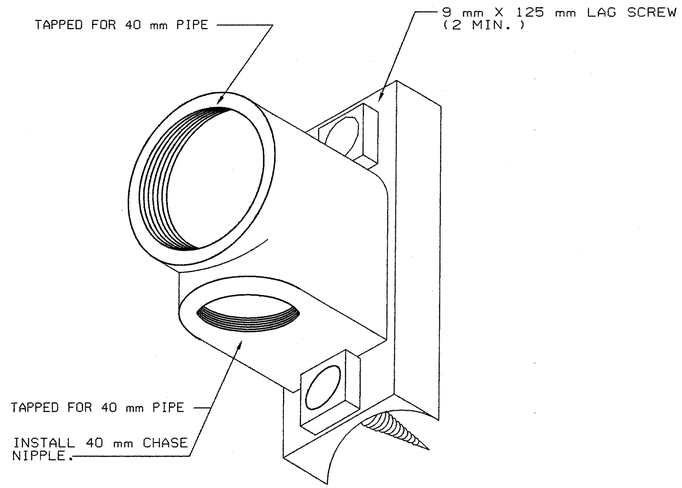
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

SH. 2 OF 3
OC-4A

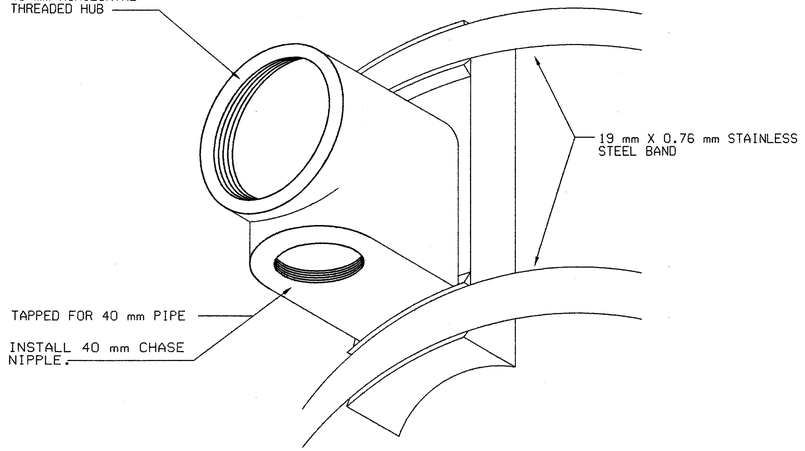
TYPICAL POLE MOUNTED - T.S./PEDESTRIAN COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	20 of 31	20D

C.S. 63174 JN 48404A SH. 21D



DETAIL A | HUB MOUNTING DETAIL FOR WOOD POLE



DETAIL B | HUB MOUNTING DETAIL FOR STEEL OR CONCRETE POLE

SH. 3 OF 3

OC-4A

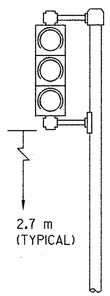
TYPICAL POLE MOUNTED - T.S./PEDESTRIAN COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

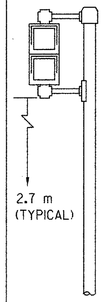
SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	21 of 31	21D

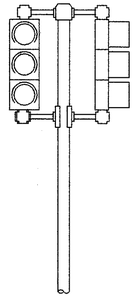
C.S. 63174 JN 48404A 沙: 22D



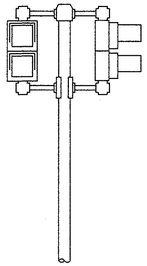
DETAIL "A-2"



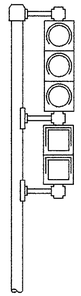
DETAIL "B-2"



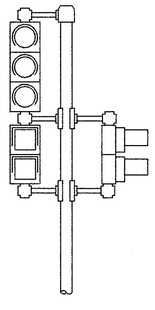
DETAIL "C-2"



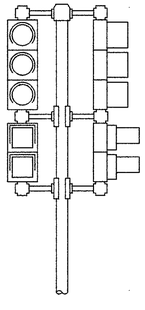
DETAIL "D-2"



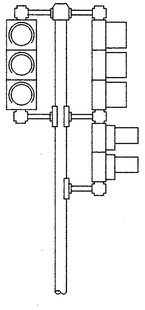
DETAIL "E-2"



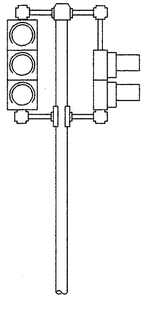
DETAIL "F-2"



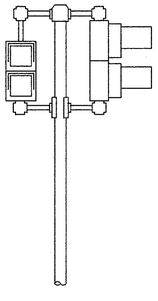
DETAIL "G-2"



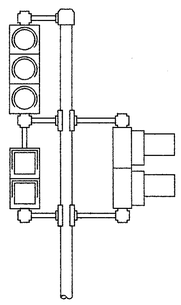
DETAIL "H-2"



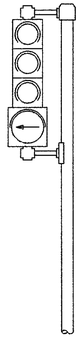
DETAIL "J-2"



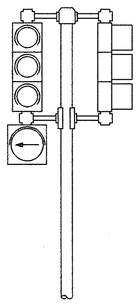
DETAIL "K-2"



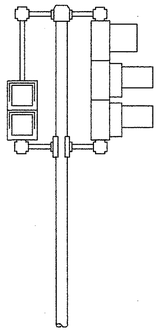
DETAIL "L-2"



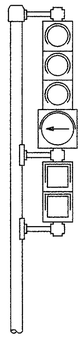
DETAIL "M-2"



DETAIL "N-2"



DETAIL "S-2"



DETAIL "T-2"

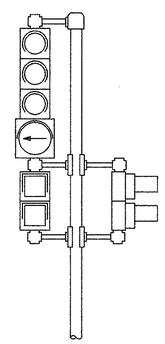
SH. 1 OF 2

ST-5

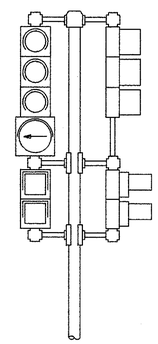
TYPICAL PEDESTAL MOUNTED-T.S. SIGNAL/PEDESTRIAN COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

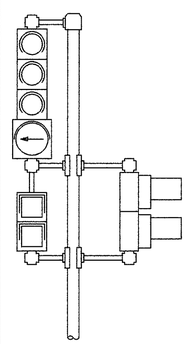
LAST CORRECTION DATE: 2/22/95
FILENAME: ST5.DGN



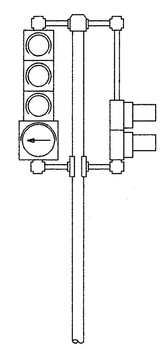
DETAIL "U-2"



DETAIL "V-2"



DETAIL "W-2"



DETAIL "X-2"

NOTE:

PIPE ASSEMBLY SHALL BE SUCH LENGTH AND HEIGHT AS TO ACCOMMODATE TRAFFIC SIGNALS AND PEDESTRIAN SIGNALS FOR PROPER MAINTENANCE AND CLEAR VEHICULAR AND PEDESTRIAN VIEWING.

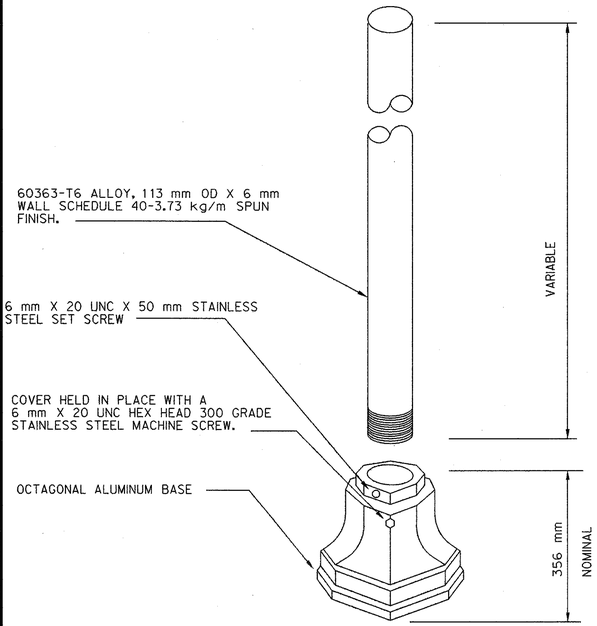
SH. 2 OF 2

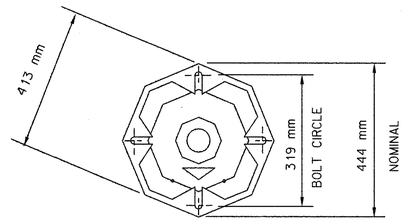
ST-5

TYPICAL PEDESTAL MOUNTED-T.S. SIGNAL/PEDESTRIAN COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	22 of 31	22D

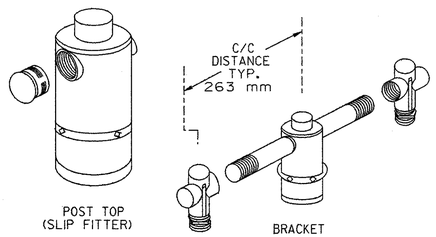
C.S. 63174 JN 48404A Sht. No. 23D



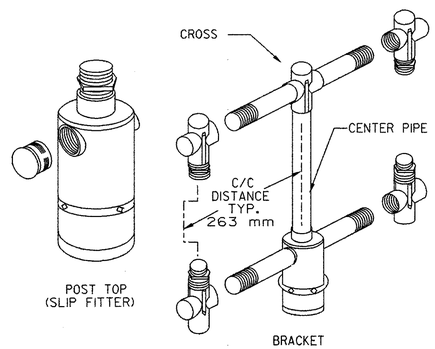


BOTTOM PLAN

DETAIL : PEDESTAL



MOUNTING HARDWARE



MOUNTING HARDWARE (ALTERNATE)

DETAIL : MOUNTING HARDWARE

SH. 1 OF 2

ST-5A

MDOT Michigan Department of Transportation	TYPICAL PEDESTAL/FOUNDATION & BRACKETING DETAILS					
	DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

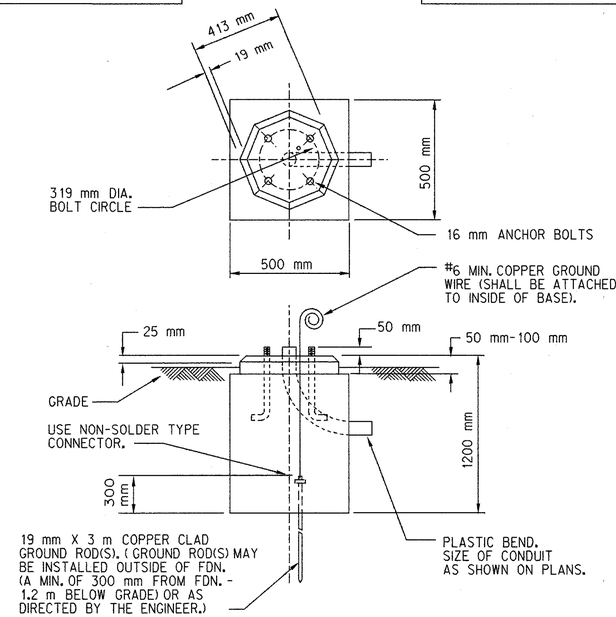
LAST CORRECTION DATE:12/22/95
FILENAME:ST5A.DGN

NOTE:

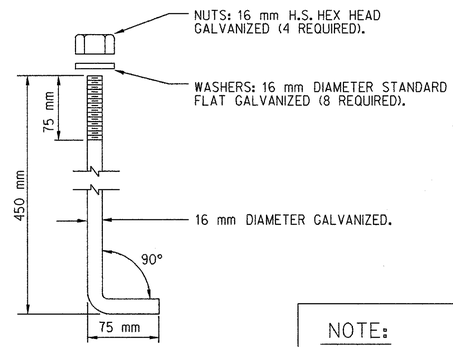
GROUNDING SYSTEM SHALL MEASURE 10 OHM OR LESS TO GROUND.

NOTE:

ALTERNATE FOUNDATION MAY BE CONSTRUCTED 600 mm ROUND - 1200 mm DEEP.



DETAIL : PEDESTAL FOUNDATION



NOTE:

ANCHOR BOLTS ARE TO BE 307 STEEL (4-REQUIRED)

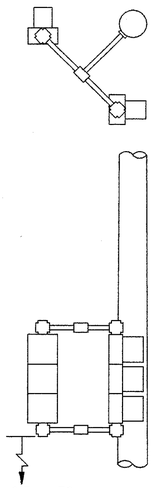
DETAIL : ANCHOR BOLT

SH. 2 OF 2

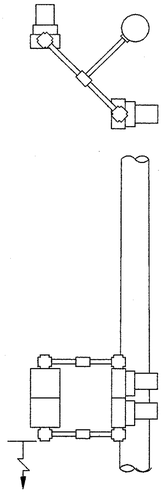
ST-5A

MDOT Michigan Department of Transportation	TYPICAL PEDESTAL/FOUNDATION & BRACKETING DETAILS					
	DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
	9-21-99		63174	48404A	23 of 31	23D

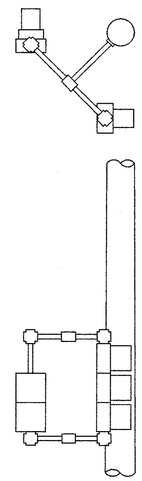
C.S. 63174 JN 48404A SH No 24D



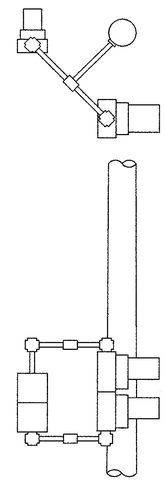
DETAIL "A-3"



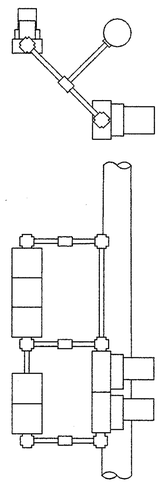
DETAIL "B-3"



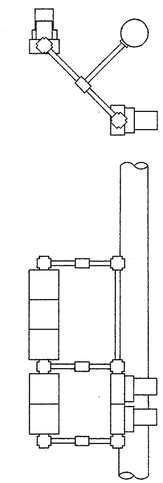
DETAIL "C-3"



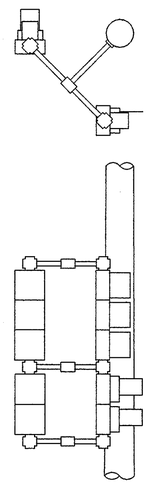
DETAIL "D-3"



DETAIL "E-3"



DETAIL "F-3"



DETAIL "G-3"

NOTE:

PIPE ASSEMBLY SHALL BE OF SUCH LENGTH AND HEIGHT AS TO ACCOMMODATE TRAFFIC SIGNALS AND PEDESTRIAN SIGNALS FOR PROPER MAINTENANCE AND CLEAR VEHICULAR AND PEDESTRIAN VIEWING.

SH. 1 OF 1

ST-6

MDOT Michigan Department of Transportation

TYPICAL POLE MOUNTED (BACK BRACKET) COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

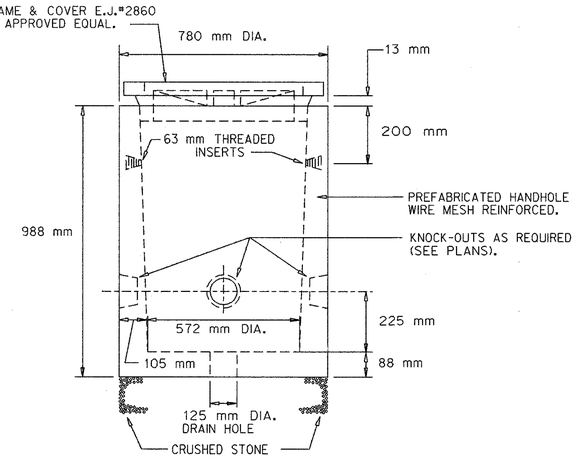
LAST CORRECTION DATE:12/22/95
FILENAME:ST6.DGN

SH. OF

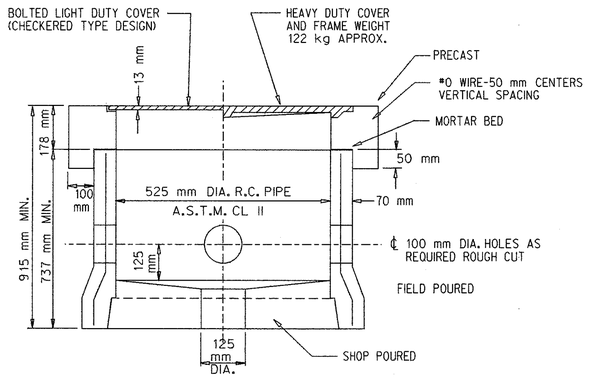
MDOT Michigan Department of Transportation

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	24 of 31	24D

C.S. 63174 JN 48404A SH NO 25D

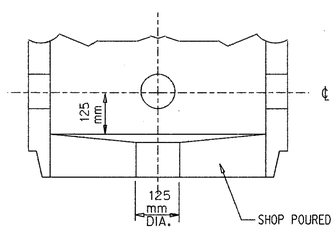


DETAIL : PRECAST ROUND HANDHOLE WITH FLOOR

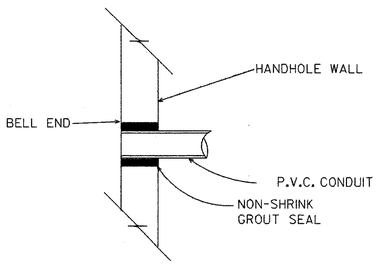


NOTE:
(USING RC PIPE)

DETAIL (ALTERNATE): PRECAST CONCRETE HANDHOLE



USE THE OPPOSITE
END OF PIPE
(ALL OTHER DIMENSIONS SAME)
N.T.S.



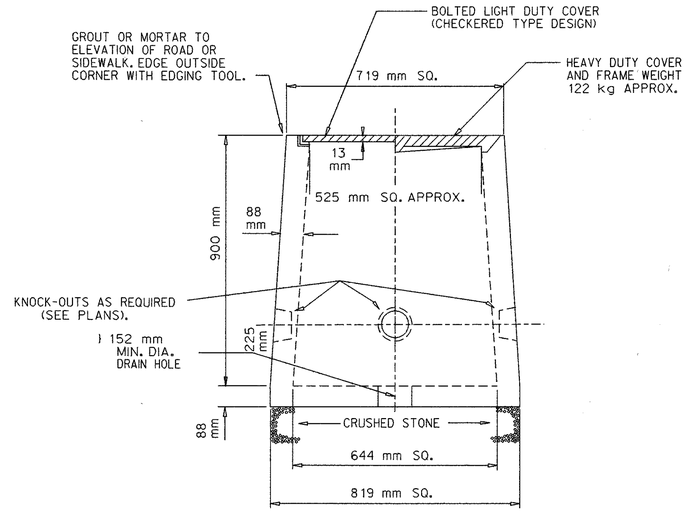
TYPICAL CONDUIT ENTRANCE
AT HANDHOLE
N.T.S.

SH. 1 OF 3
ST-21

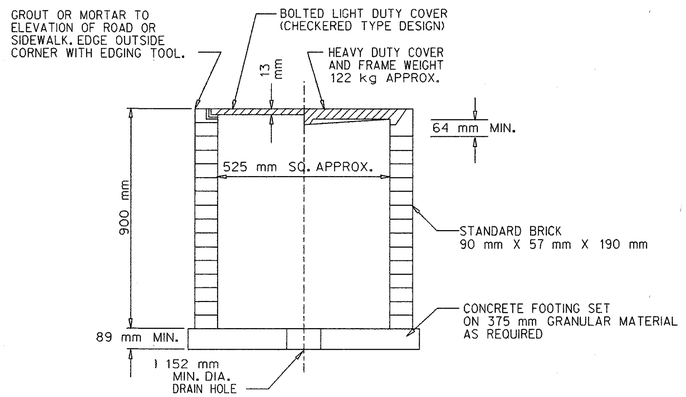
HANDHOLE - PRECAST, BRICK, POLYMER CONCRETE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

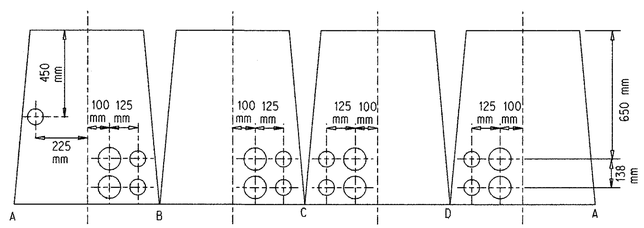
LAST CORRECTION DATE:12/22/95
FILENAME:ST21.DGN



DETAIL : PRECAST SQUARE HANDHOLE WITH FLOOR



DETAIL : BRICK HANDHOLE



NOTES:

ENTRANCE HOLES AS REQUIRED FOR CONDUIT.

CONDUIT ARRANGEMENT MAY BE MODIFIED.

ADDITIONAL OPENINGS SHALL BE PROVIDED AS REQUIRED, SEE PLANS.

PLUG ALL UNUSED ENTRANCE HOLES AND SEAL AROUND HOLES ENTERED.

DETAIL : INTERIOR WALL ELEVATIONS-LIGHT AND HEAVY DUTY COVER TYPES

SH. 2 OF 3
ST-21

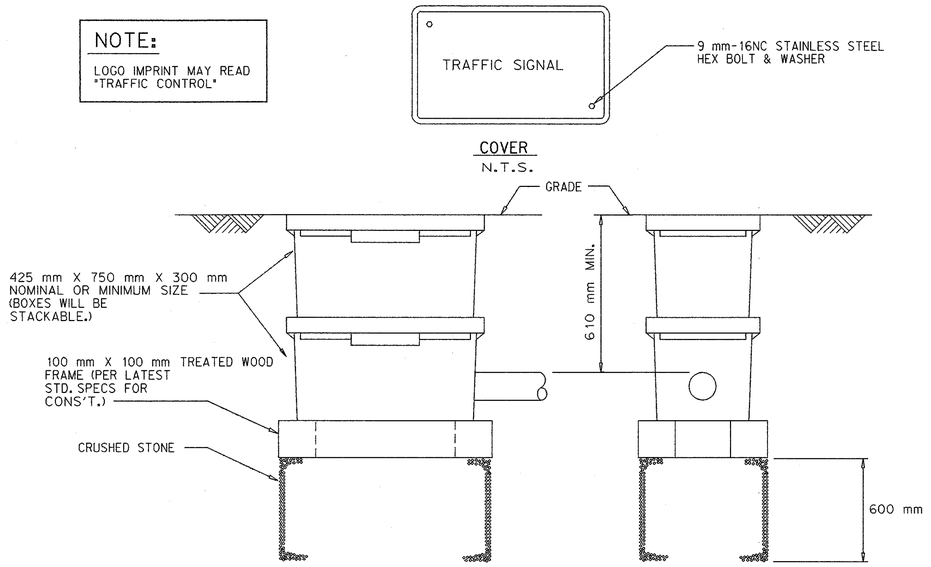
HANDHOLE - PRECAST, BRICK, POLYMER CONCRETE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	25 of 31	25D

C.S. 63174 JN 484044 SH No 26D

NOTE:

LOGO IMPRINT MAY READ "TRAFFIC CONTROL"



DETAIL : POLYMER CONCRETE HANDHOLE

NOTES:

THE MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT M.D.O.T. STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY CONSTRUCT THE HANDHOLE STRUCTURE OF BRICK, CEMENT, CONCRETE, MASONARY, OR OF PRECAST REINFORCED CONCRETE.

ALL CONCRETE MASONARY SHALL BE GRADE 30M.

THE INNER SURFACE OF THE HANDHOLE SHALL BE SMOOTH.

HEAVY DUTY COVERS SHALL BE CASTINGS WHICH MEET THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR GRAY IRON CASTINGS ASTM DESIGNATION A48 AND SHALL HAVE A MINIMUM STRENGTH AS PROVIDED FOR CLASS NO. 30 GRAY IRON CASTINGS.

ALL CASTINGS SHALL BE CLEANED BY SAND BLASTING.

THE SEATING FACE OF THE COVER AND THE SEAT FOR THE SAME ON THE FRAME IF REQUIRED, SHALL BE GROUND OR MACHINED SO THAT THE COVER SHALL HAVE AN EVEN BEARING ON ITS SEAT TO PREVENT ROCKING OR TILTING.

THE CASTINGS SHALL BE FREE OF POURING FAULTS, BLOW HOLES, CRACKS, AND OTHER IMPERFECTIONS. THEY SHALL BE SOUND, TRUE TO FORM AND THICKNESS, CLEAN AND NEATLY FINISHED AND SHALL BE COATED WITH TAR PITCH VARNISH.

LIGHT DUTY COVER SHALL BE BOLTED TO FRAME WITH NOT LESS THAN 2 COUNTERSUNK HEX HEAD BRONZE BOLTS.

PRECAST HANDHOLE WITH HEAVY DUTY COVER SHALL BE SET ON A CONCRETE SLAB SIMILIAR TO DETAIL FOR BRICK HANDHOLE.

THE HEAVY DUTY COVER & FRAME SHALL BE EAST JORDAN IRON WORKS #8206 NEENAH FOUNDRY, #R-6662-HP FOR SQUARE COVER OR EAST JORDAN IRON WORKS #2860 TYPE 'A', NEENAH FOUNDRY #R-6052 D FOR CIRCULAR COVER OR AN APPROVED EQUAL.

HANDHOLE SHALL BE EQUIPPED WITH CABLE RACK AND HOOKS TO TRAIN CABLE.

NOTES : PERTAIN TO PRECAST, BRICK HANDHOLES

SH. 3 OF 3

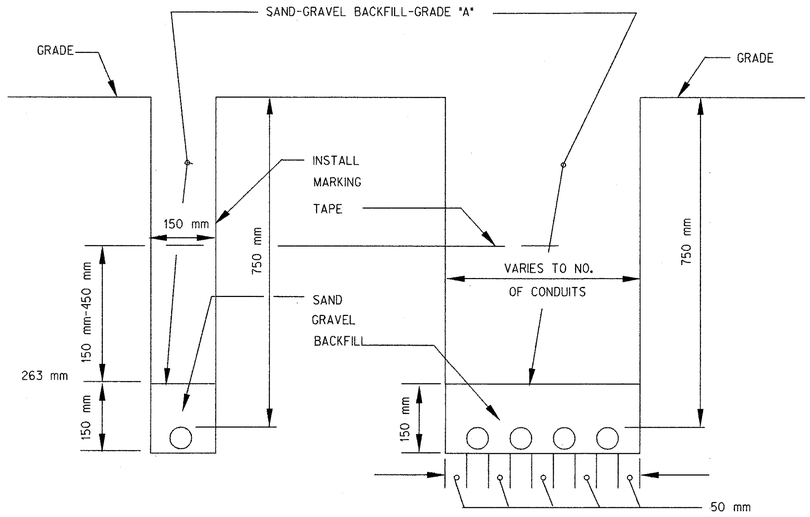
ST-21

HANDHOLE - PRECAST, BRICK, POLYMER CONCRETE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	26 of 31	26D



DIRECT BURIAL CONDUIT(S)/CABLE(S)

N.T.S.

LAST CORRECTION DATE:12/22/95
FILENAME:ST22A.DGN

SH. 1 OF 1

ST-22A

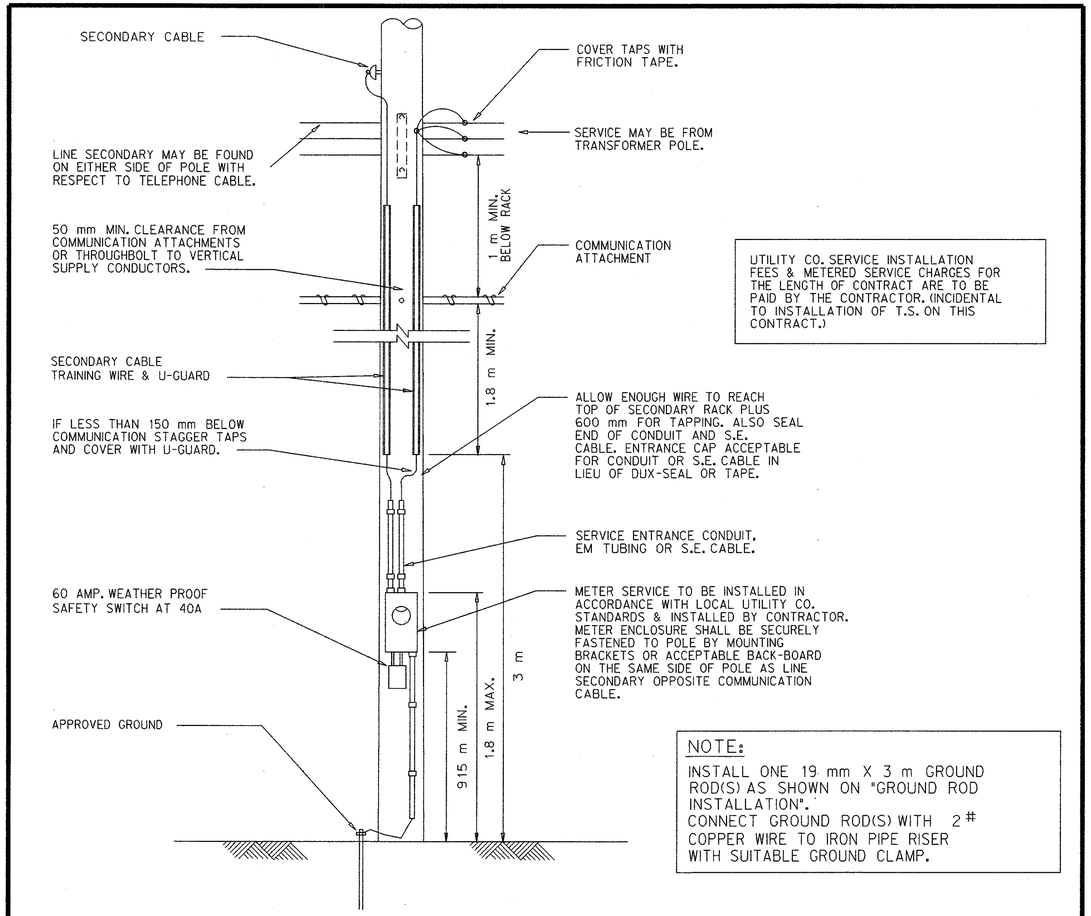
DIRECT BURIAL CONDUIT

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	27 of 31	27D

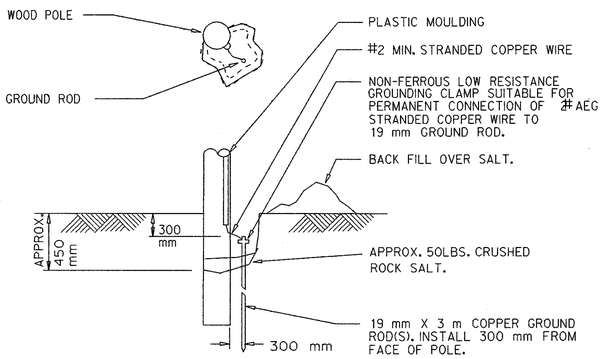
C.S. 63174 JN 48404A SH No 28D



UTILITY CO. SERVICE INSTALLATION FEES & METERED SERVICE CHARGES FOR THE LENGTH OF CONTRACT ARE TO BE PAID BY THE CONTRACTOR. (INCIDENTAL TO INSTALLATION OF T.S. ON THIS CONTRACT.)

NOTE:
INSTALL ONE 19 mm X 3 m GROUND ROD(S) AS SHOWN ON "GROUND ROD INSTALLATION".
CONNECT GROUND ROD(S) WITH 2# COPPER WIRE TO IRON PIPE RISER WITH SUITABLE GROUND CLAMP.

DETAIL : SERVICE POLE



DETAIL : GROUND ROD INSTALLATION

SH. 1 OF 4

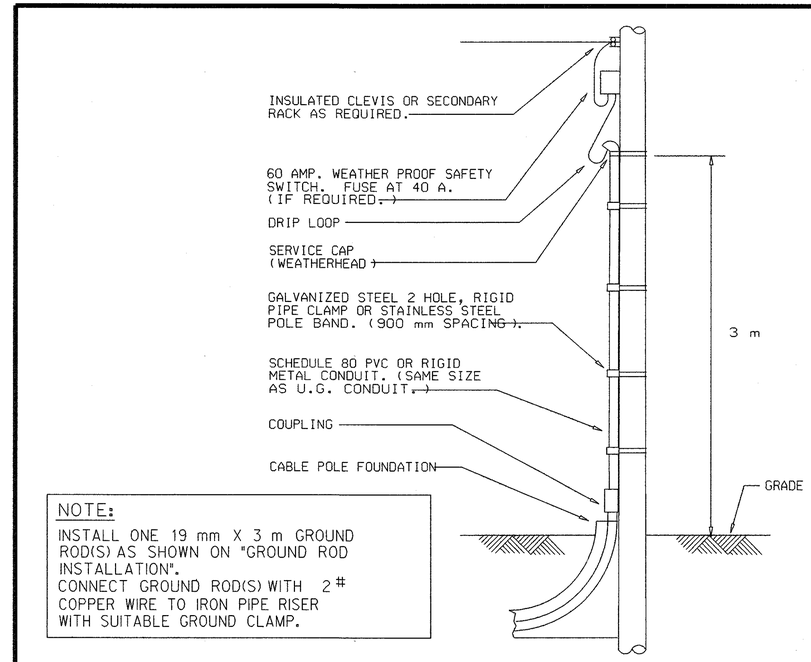
OC-24

MICHIGAN DEPARTMENT OF TRANSPORTATION

TEMPORARY SERVICE POLE

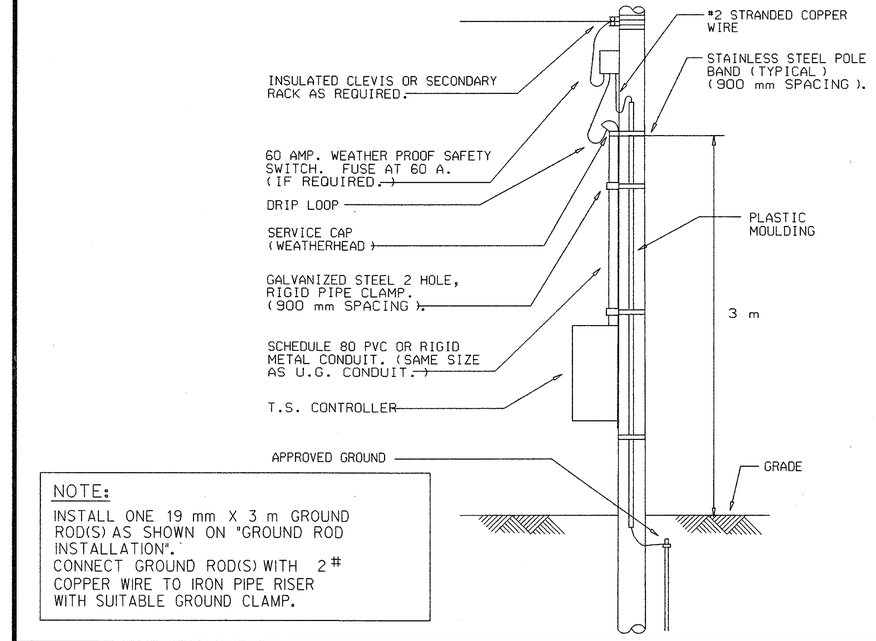
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE: 12/21/95
FILENAME: OC24.DGN



NOTE:
INSTALL ONE 19 mm X 3 m GROUND ROD(S) AS SHOWN ON "GROUND ROD INSTALLATION".
CONNECT GROUND ROD(S) WITH 2# COPPER WIRE TO IRON PIPE RISER WITH SUITABLE GROUND CLAMP.

DETAIL : TYPICAL INTERCONNECT, SECONDARY & TRAFFIC SIGNAL CABLE POLE (N.T.S.)



NOTE:
INSTALL ONE 19 mm X 3 m GROUND ROD(S) AS SHOWN ON "GROUND ROD INSTALLATION".
CONNECT GROUND ROD(S) WITH 2# COPPER WIRE TO IRON PIPE RISER WITH SUITABLE GROUND CLAMP.

DETAIL : TYPICAL SERVICE POLE DETAIL

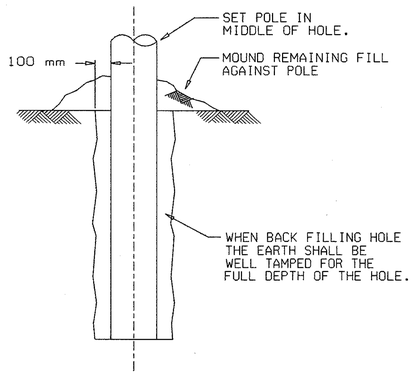
SH. 2 OF 4

OC-24

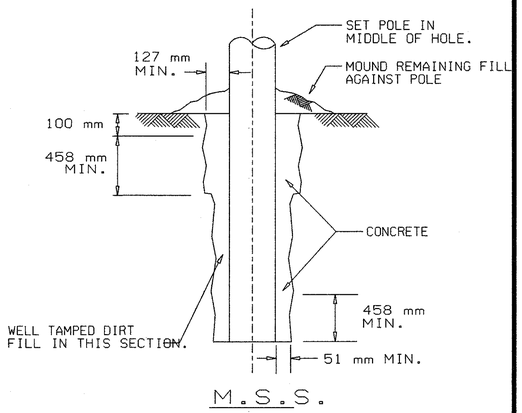
TEMPORARY SERVICE POLE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	28 of 31	28D

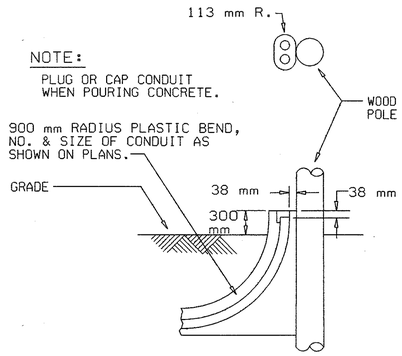
C.S. 63174 JN 48404A SH No 29D



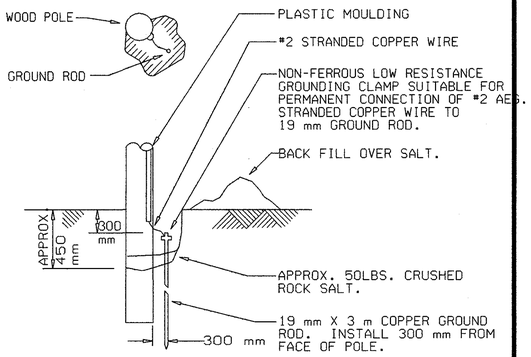
DETAIL : WOOD POLE INSTALLATION (N.T.S.)



DETAIL : SELF-SUPPORTING WOOD POLE IN CONCRETE (N.T.S.)



DETAIL : INSTALLATION OF CONDUIT AT CABLE POLE (N.T.S.)



DETAIL : GROUND ROD INSTALLATION (N.T.S.)

POLE HEIGHT	SETTING DEPTH
9.1 m	1.8 m
10.7 m	1.8 m
12.2 m	1.8 m
13.7 m	2.0 m
15.2 m	2.1 m
16.8 m	2.3 m
18.3 m	2.4 m

NOTE:

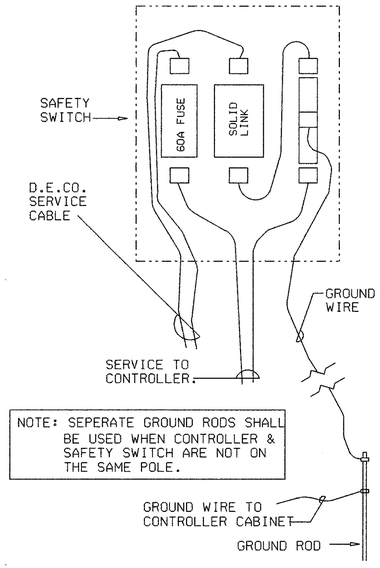
FOR ALL CABLE POLES, INSTALL ONE 19 mm X 3 m GROUND ROD AS SHOWN ON "GROUND ROD INSTALLATION". CONNECT GROUND ROD WITH #2 COPPER WIRE TO IRON PIPE RISER WITH SUITABLE GROUND CLAMP.

SH. 3 OF 4

OC-24

TEMPORARY SERVICE POLE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.



DETAIL : 60 AMP. SAFETY SWITCH (N.T.S.)

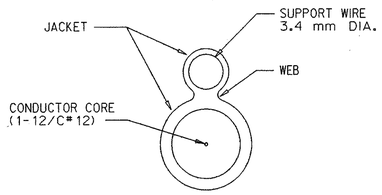
SH. 4 OF 4

OC-24

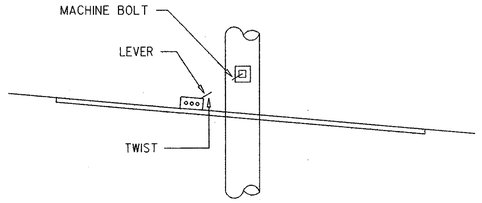
TEMPORARY SERVICE POLE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	29 of 31	29D

C.S. 63174 JN 48404A SH No 30D



DETAIL "A" | I.M. CABLE SECTION

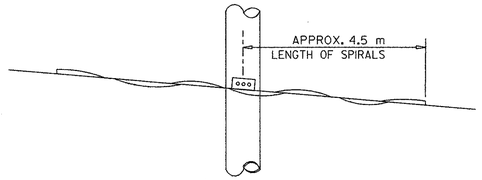


STEP 1 - SUPPORT AND POSITION INTEGRAL MESSENGER WIRE WITH CABLE PLACING BLOCKS.

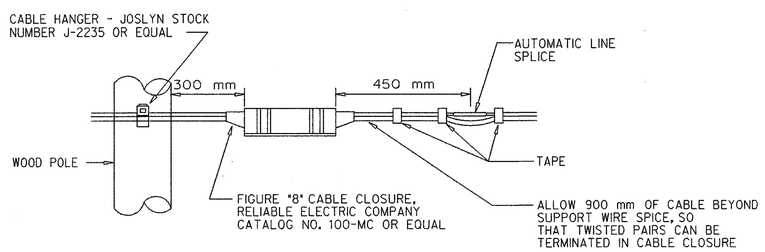
STEP 2 - FASTEN AND SUPPORT CLAMP TO THE SUPPORT MESSENGER AT THE POLE. TIGHTEN THE CARRIAGE BOLTS TO THE MANUFACTURER'S SPECIFICATIONS.

STEP 3 - USING A LEVER ON THE CLAMP, SPIRAL WIRE IN THE OPPOSITE DIRECTION FROM WHICH THE PREVIOUS ADJACENT SPIRALING OPERATION WAS PERFORMED. IF THE ADJACENT SPANS ARE UNEQUAL, USE THE SHORTER SPAN FOR DETERMINING THE NUMBER OF SPIRALS.

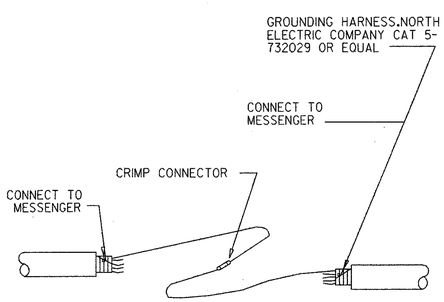
STEP 4 - PLACE THE CLAMP ON THE MACHINE BOLT AND TIGHTEN NUTS TO THE MANUFACTURER'S SPECIFICATIONS.



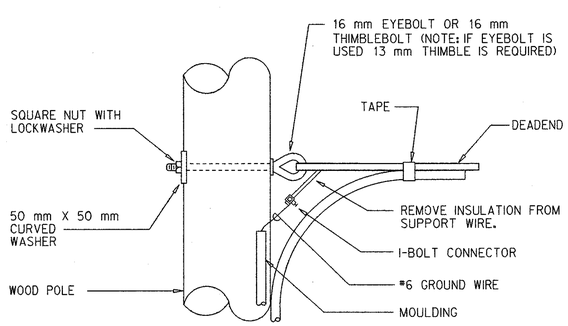
DETAIL "B" | I.M. CABLE SPIRALS



DETAIL "C" | AERIAL SPLICE



DETAIL "D" | CABLE CLOSURE



DETAIL "E" | DEAD-END POLE

SH. 1 OF 3

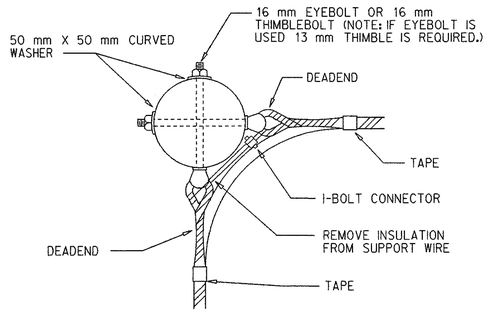
ST-26

LAST CORRECTION DATE:12/22/95
FILENAME:ST26.DGN

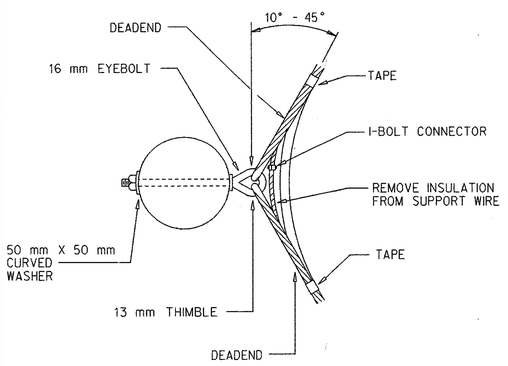
MDOT Michigan Department of Transportation

INSTALLATION OF INTEGRAL MESSENGER CABLE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.



DETAIL "F" | 90 DEG. CORNER POLE



DETAIL "G" | 10 DEG. - 45 DEG. ANGLE POLE

DETAIL "H" | TANGENT POLE (WOOD POLE)

DETAIL "I" | TANGENT POLE (STEEL OR CONCRETE POLE)

NOTE FOR DETAILS "E", "F", "G":

INDIVIDUAL CONNECTORS TO BE TAPED WITH 3 LAYERS OF APPROVED PLASTIC TAPE & OVERALL ONE LAYER OF HALF LAP APPROVED PLASTIC TAPE

SH. 2 OF 3

ST-26

MDOT Michigan Department of Transportation

INSTALLATION OF INTEGRAL MESSENGER CABLE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	30 of 31	30D

C.S. 63174 JN 48404A Sht No 31D

DESCRIPTION:

INTEGRAL MESSENGER WIRE CONSISTS OF A SUPPORT WIRE AND A CONDUCTOR CORE LAID PARALLEL AND COVERED WITH A SINGLE EXTRUSION OF BLACK, LOW DENSITY POLYETHYLENE. THE SINGLE EXTRUSION PROVIDES A JACKET OVER THE SUPPORT WIRE AND CORE, AND FORMS A WEB JOINING THE TWO. SEE DETAIL "A" THIS SHEET. THE SUPPORT WIRE IS 3.4 mm IN DIAMETER, GRADE 190 STEEL, CLASS A GALVANIZED, EXTRA HIGH STRENGTH STEEL HAVING A RATED BREAKING STRENGTH OF 1216 kg.

INSTALLATION:

EVERY EFFORT SHALL BE MADE TO LIMIT THE LENGTH OF SPANS TO A MAXIMUM OF 76.2 m. INTEGRAL MESSENGER WIRE IS PRONE TO LOW FREQUENCY WIND VIBRATION COMMONLY REFERRED TO AS "DANCING" WHILE "DANCING" MAY NOT BE SO VIOLENT IN LOW WIND AREAS AS TO ATTRACT ATTENTION, PROLONGED LOW AMPLITUDE VIBRATION WILL EVENTUALLY CAUSE OPEN CIRCUITS AND/OR SUPPORT WIRE FAILURE. THEREFORE, REA RECOMMENDS THAT ALL INTEGRAL MESSENGER DISTRIBUTION WIRE BE SPIRALLED APPROXIMATELY ONE SPIRAL FOR EACH 5 m OF SPAN.

SPIRALLING OF THE WIRE SHOULD BE DONE FROM EVERY OTHER POLE BY APPLYING THE SPIRALLING TORQUE TO THE SUPPORT CLAMP AFTER THE TWO OUTSIDE BOLTS HAVE BEEN PROPERLY TIGHTENED, THUS KEEPING THE SPIRALLING TORQUE ON THE SUPPORT WIRE AND NOT ON THE CORE. AS SPIRALLING OPERATIONS PROCEED ALONG A LEAD, SPIRALLING AT ALTERNATE POLES SHOULD BE IN OPPOSITE DIRECTIONS, THEREBY REDUCING THE TORSION OTHERWISE IMPOSED ON THOSE CLAMPS WHICH ARE AT THE INTERMEDIATE POLES THE PROCEDURE TO BE FOLLOWED IN SPIRALLING DISTRIBUTION WIRE IS SHOWN IN DETAIL "B" OF THIS SHEET.

IF CLAMPS ARE NOT ADEQUATELY TIGHTENED THE TORSION DEVELOPED IN SPIRALLING WILL CAUSE THE SUPPORT WIRE TO TURN IN THE CLAMP RESULTING IN THE MIGRATION OF THE SPIRALS FROM THE SPANS TOWARD THE POLE. "DANCING" OF THE WIRE AND DAMAGE TO IT AT THE POLES WILL BE THE FINAL RESULTS OF INADEQUATE CLAMPING. THE PROPER TYPE OF SUPPORT CLAMPS MUST BE USED ON ALL CORNERS AS SHOWN IN DETAILS THIS SHEET.

WHEN PULLING THE WIRE UP TO CORRECT SAG, A SUITABLE WIRE GRIP SHOULD BE USED DIRECTLY ON THE INSULATED SUPPORT WIRE. THE GRIP SHOULD BE OF SUCH DESIGN AS TO GIVE PROPER HOLDING POWER AND YET NOT DAMAGE THE SUPPORT WIRE JACKET. THE CRESCENT TOOL COMPANY #800 OR AN EQUIVALENT GRIP IS SUGGESTED. A STANDARD LINE WIRE GRIP SHOULD NOT BE USED BECAUSE IT WILL DAMAGE THE INSULATION. IF THE INSULATION IS DAMAGED IN ANY WAY, IT MUST BE REPAIRED WITH SEALING COMPOUND OR BY CUTTING OUT THE DAMAGED PORTION. AT DEADENDS IT IS NECESSARY TO REMOVE THE SUPPORT WIRE COVERING BEFORE APPLYING THE DEADEND GRIPS. IT MUST BE DONE CAREFULLY TO AVOID DAMAGING THE SUPPORT WIRE OR CORE THE ELECTRICAL CONTINUITY OF THE SUPPORT WIRE MUST BE MAINTAINED THROUGHOUT THE LEAD.

SH. 3 OF 3

ST-26

MDOT Michigan Department of Transportation

INSTALLATION OF INTEGRAL MESSENGER CABLE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE:
FILENAME:

SH. OF

MDOT Michigan Department of Transportation

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	31 of 31	31D

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO.

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: CLARK/BENSON

DATE:
DATE:
DATE: 10/18/99

UNDERGROUND

- EXISTING MANHOLE
- MANHOLE (2-WAY)
- MANHOLE (3-WAY)
- MANHOLE (4-WAY)
- EXISTING HANDHOLE
- HANDHOLE
- EXISTING CONDUIT (- mm SHOWN)
- ABANDON EXISTING CONDUIT
- ENCASED CONDUIT (- mm SHOWN)
- GALVANIZED STEEL CONDUIT (- mm SHOWN)
- GALVANIZED STEEL CONDUIT, JACKING-BORING (1- 75 mm SHOWN)
- DIRECT BURIAL CABLE (NO. & SIZE AS INDICATED)
- EXISTING DIRECT BURIAL CABLE
- ABANDON CABLE
- BUILD mm SEWER
- DIRECT BURIAL CONDUIT (1- 75mm SHOWN)
- CONCRETE FOUNDATION FOR PAD MOUNT TRANSFORMER
- CONCRETE FOUNDATION FOR FIRE OR POLICE CALL BOX
- EXISTING UG. FED. ST. LTG. UNIT
- REMOVE UG. FED. ST. LTG. UNIT
- UG. FED, 250W, TYPE II HIGH PRESSURE SODIUM ST. LTG. UNIT WITH mm BRACKET ARM ON NEW FOUNDATION WITH mm MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- UG. FED, 400W, TYPE III HIGH PRESSURE SODIUM ST. LTG. UNIT WITH mm BRACKET ARM ON NEW FOUNDATION WITH mm MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- UG. FED, 250W, TYPE II HIGH PRESSURE SODIUM ST. LTG. UNIT WITH mm BRACKET ARM ON BRIDGE OR RETAINING WALL WITH mm MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- UG. FED, 400W, TYPE III HIGH PRESSURE SODIUM ST. LTG. UNIT WITH DBL. BRACKET ARM (mm) ON MEDIAN WALL WITH mm MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- T- TOWER LIGHTING UNIT WITH 8-1000W METAL HALIDE LUMINAIRES, TYPE V, 30500mm MOUNTING HEIGHT.
- EXISTING UG. FED. ST. LTG. UNIT WITH INTERSTATE LUMINAIRE.
- EXISTING TOWER LIGHTING UNIT
- TOWER LIGHTING UNIT WITH 4-1000W METAL HALIDE LUMINAIRES, TYPE V, 24384mm MOUNTING HEIGHT
- EXISTING U.G. FED ST. LTG. UNIT. 400WATT HIGH PRESSURE SODIUM LUMINAIRE, 13710mm MOUNTING HEIGHT, NO ARM.

OVERHEAD

- EXISTING WOOD POLE
- WOOD POLE (HEIGHT & CLASS AS INDICATED)
- O.H.-FED. 400W, TYPE II, HIGH PRESSURE SODIUM ST. LTG. UNIT WITH mm BRACKET ARM ON WOOD POLE AND mm MOUNTING HEIGHT.
- EXISTING O.H. FED. ST. LTG. UNIT WITH WOOD POLE
- EXISTING O.H. LINE (-# SHOWN)
- OVERHEAD LINE (-# SHOWN)
- REMOVE O.H. LINE
- 400W TYPE I HIGH PRESSURE SODIUM ST. LTG. UNIT ON SPAN WIRE AND MINIMUM mm MOUNTING HEIGHT.

GENERAL

- RIGHT OF WAY LINE
- LIMITED ACCESS RIGHT OF WAY LINE
- PROPOSED PAVEMENT JOINT LINE

P.L.D. INDICATES THE PUBLIC LIGHTING DEPARTMENT

D.E. CO. INDICATES THE DETROIT EDISON COMPANY

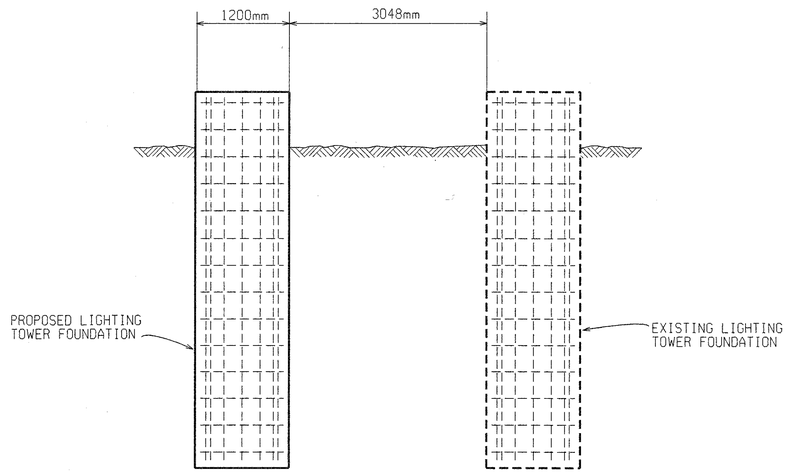
C.P. CO. INDICATES THE CONSUMER POWER COMPANY

PUBLIC UTITILIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THE PLANS REPRESENT THE INFORMATION AVALABLE TO US. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY IN CASE UTILITIES HAVE BEEN CONSTRUCTED OR REMOVED SINCE THEN.

TYPE OF UTILITY	OWNER
GAS	
TELEPHONE	
WATER	
ELECTRIC	

FOR THE PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF 48 HOURS PRIOR TO EXCAVATING IN THE VICINITY OF THE UTILITIES LINES. ALL MISS DIG PARTICIPATING MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.



LOCATION OF PROPOSED LIGHTING TOWER FOUNDATION

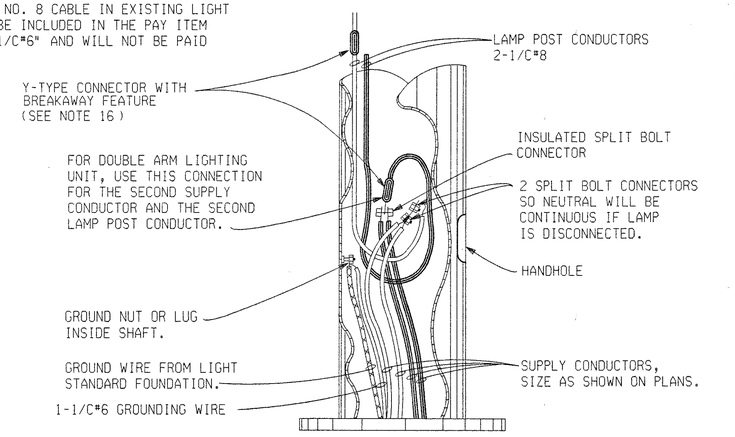
NOTES

1. NOTIFY THE SYSTEM OPERATING ENGINEER, DETROIT EDISON CO. AND DAVID JOHNS (PH # 248-483-5125), MDOT MAINTENANCE,72 HOURS PROIR TO WORKING ON LIGHTING CIRCUITS.
2. ELECTRICAL SERVICE SHALL BE 240/480 VOLT, 1Ø, 3 WIRE.
3. ALL CONDUIT CROSSING PAVEMENT SHALL EXTEND 1220 mm BEYOND CURB, EDGE OF PAVEMENT, OR PAVED SHOULDER AND SHALL HAVE 762mm MINIMUM COVER.
4. SMOOTH SURFACE CONDUIT ONLY IS ALLOWED ON THIS JOB.
5. THE 152mm EDGE DRAIN REQUIRED TO REPLACE DAMAGED EDGE DRAIN DUE TO LIGHTING CONSTRUCTION SHALL BE INCLUDED IN THE PROJECT AND WILL NOT BE PAID FOR SEPARATELY.
6. ALL CABLE SHALL BE INSTALLED IN CONTINUOUS UNCUT LENGTH BETWEEN HANDHOLES OR LIGHT STANDARDS.
7. THE EXISTING FREEWAY LIGHTING SYSTEM SHALL BE IN OPERATION DURING CONSTRUCTION. ANY DAMAGES TO THE SYSTEM CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S OWN EXPENSE WITHIN A REASONABLE TIME AS DIRECTED BY THE ENGINEER.
8. LUMINAIRES FOR TOWER LIGHTING SHALL BE PROVIDED WITH 240 VOLT BALLASTS FOR METAL HALIDE.
9. ALL TOWERS SHALL BE MADE BY THE SAME MANUFACTURER.
10. THE POLES FOR THE 30500 mm TOWER LIGHTING UNITS MAY BE ONE SECTION OR NOT MORE THAN 4 SECTIONS.
11. JACKING PITS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER.
12. WHERE THERE IS TOWER LIGHTING OR LIGHTING IN THE SHOULDER, THE RESTORATION OF THE AREAS INVOLVED SHALL BE INCLUDED IN THE PAY ITEM "CONDUIT, SCHEDULE 40, 75mm".
13. TREES AND SHRUBS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPLACED (IN KIND) AT THE CONTRACTORS EXPENSE, AS DIRECTED BY THE ENGINEER.
14. LOCATION OF MITS UNDERGROUND AS SHOWN ON THE PLANS IS ONLY APPROXIMATE. CONTRACTOR WILL NEED TO LOCATE EXACT LOCATION OF MITS UNDERGROUND TO AVOID CONFLICT WITH PROPOSED UNDERGROUND TO TOWER LIGHTING.
15. DIRECTIONAL BORE IS AN OPTIONAL ALTERNATIVE AS APPROVED BY THE ENGINEER. WHERE UTILIZED, DIRECTIONAL BORE SHALL BE PAID FOR AS "CONDUIT JACKED IN PLACE".
16. BREAKAWAY CONNECTOR SHALL BE LITTLE FUSE LEBASS, BUSSMAN TYPE HEP WITH INSULATING BOOTS, HOMAC MFG. CO. FLOOD SEAL DYU OR APPROVED EQUAL.
17. CONTRACTOR SHALL INSTALL NEW NO. 8 CABLE IN EXISTING LIGHT STANDARDS AND PAYMENT SHALL BE INCLUDED IN THE PAY ITEM "DB CABLE IN CONDUIT, 600V, 1/C#6" AND WILL NOT BE PAID FOR SEPARATELY.

ENTIRE PROJECT

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLANS.

LOCATING UNDERGROUND CABLE 500m



TYPICAL MULTIPLE STREET LIGHTING CONNECTION

NOT TO SCALE

FILE NAME: 48404note.dgn
1 2 3 4 5 6 7

MDOT Michigan Department of Transportation

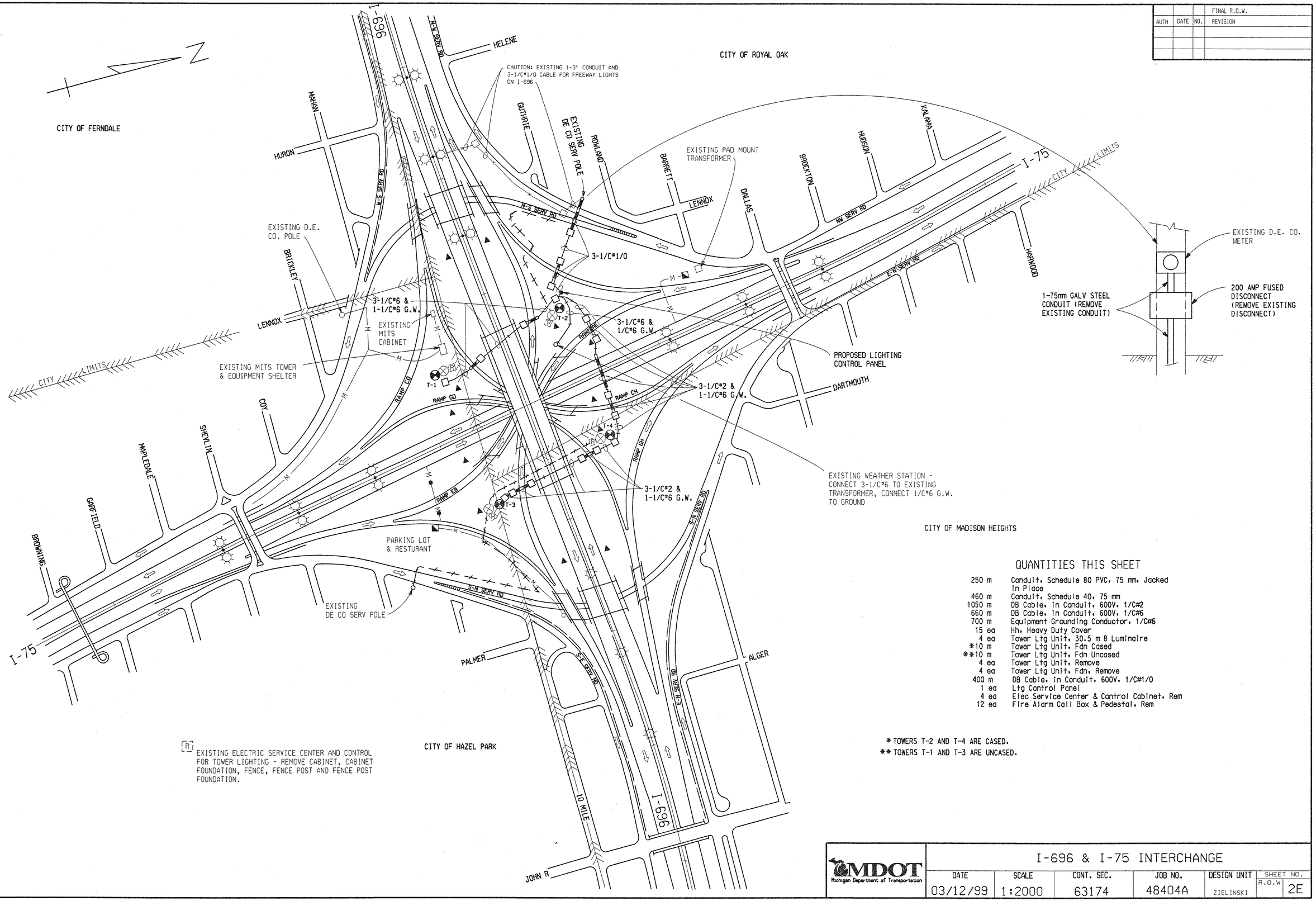
NOTES AND LEGEND

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
06/02/99	NONE	63174	48404A	ZIELINSKI		1E

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 2E

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: CLARK/BENSON DATE: 10/08/99
DATE:
DATE:

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



[R] EXISTING ELECTRIC SERVICE CENTER AND CONTROL FOR TOWER LIGHTING - REMOVE CABINET, CABINET FOUNDATION, FENCE, FENCE POST AND FENCE POST FOUNDATION.

QUANTITIES THIS SHEET

250 m	Conduit, Schedule 80 PVC, 75 mm, Jacked in Place
460 m	Conduit, Schedule 40, 75 mm
1050 m	DB Cable, in Conduit, 600V, 1/C#2
660 m	DB Cable, in Conduit, 600V, 1/C#6
700 m	Equipment Grounding Conductor, 1/C#6
15 ea	Hh, Heavy Duty Cover
4 ea	Tower Ltg Unit, 30.5 m 8 Luminaire
*10 m	Tower Ltg Unit, Fdn Cased
**10 m	Tower Ltg Unit, Fdn Uncased
4 ea	Tower Ltg Unit, Remove
4 ea	Tower Ltg Unit, Fdn, Remove
400 m	DB Cable, in Conduit, 600V, 1/C#1/0
1 ea	Ltg Control Panel
4 ea	Elec Service Center & Control Cabinet, Rem
12 ea	Fire Alarm Call Box & Pedestal, Rem

* TOWERS T-2 AND T-4 ARE CASED.
** TOWERS T-1 AND T-3 ARE UNCASED.

MDOT Michigan Department of Transportation

I-696 & I-75 INTERCHANGE

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
03/12/99	1:2000	63174	48404A	ZIELINSKI	R.O.W. 2E

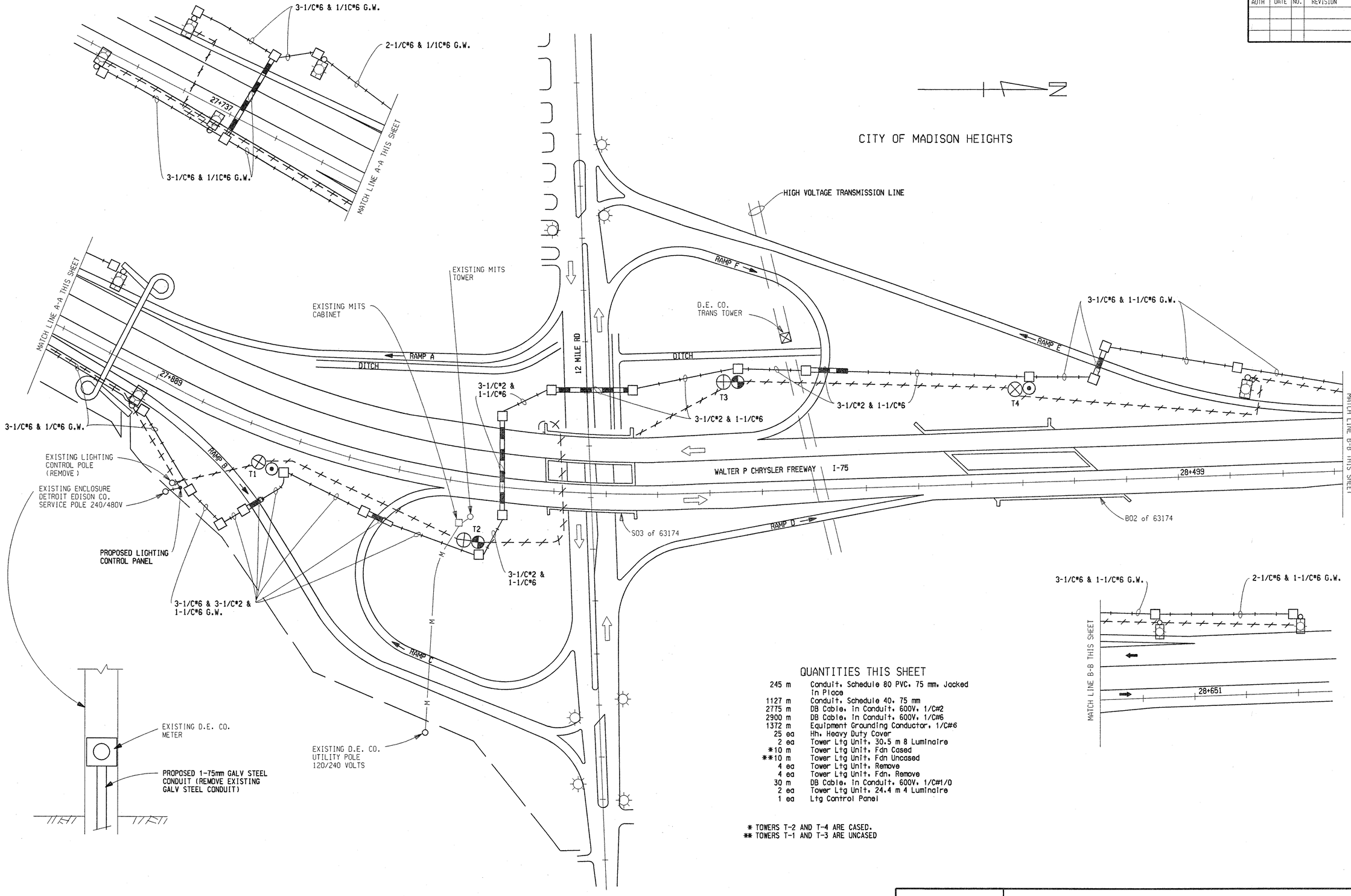
FILE NAME: 48404696.dgn

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 3E

DATE:
DATE:
DATE: 10/08/99

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: CLARK/BENSON

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



QUANTITIES THIS SHEET

245 m	Conduit, Schedule 80 PVC, 75 mm, Jacked in Place
1127 m	Conduit, Schedule 40, 75 mm
2775 m	DB Cable, in Conduit, 600V, 1/C#2
2900 m	DB Cable, in Conduit, 600V, 1/C#6
1372 m	Equipment Grounding Conductor, 1/C#6
25 ea	Hh, Heavy Duty Cover
2 ea	Tower Ltg Unit, 30.5 m 8 Luminaire
*10 m	Tower Ltg Unit, Fdn Cased
**10 m	Tower Ltg Unit, Fdn Uncased
4 ea	Tower Ltg Unit, Remove
4 ea	Tower Ltg Unit, Fdn, Remove
30 m	DB Cable, in Conduit, 600V, 1/C#1/0
2 ea	Tower Ltg Unit, 24.4 m 4 Luminaire
1 ea	Ltg Control Panel

* TOWERS T-2 AND T-4 ARE CASED.
** TOWERS T-1 AND T-3 ARE UNCASED

MDOT Michigan Department of Transportation

I-75 @ 12 MILE RD

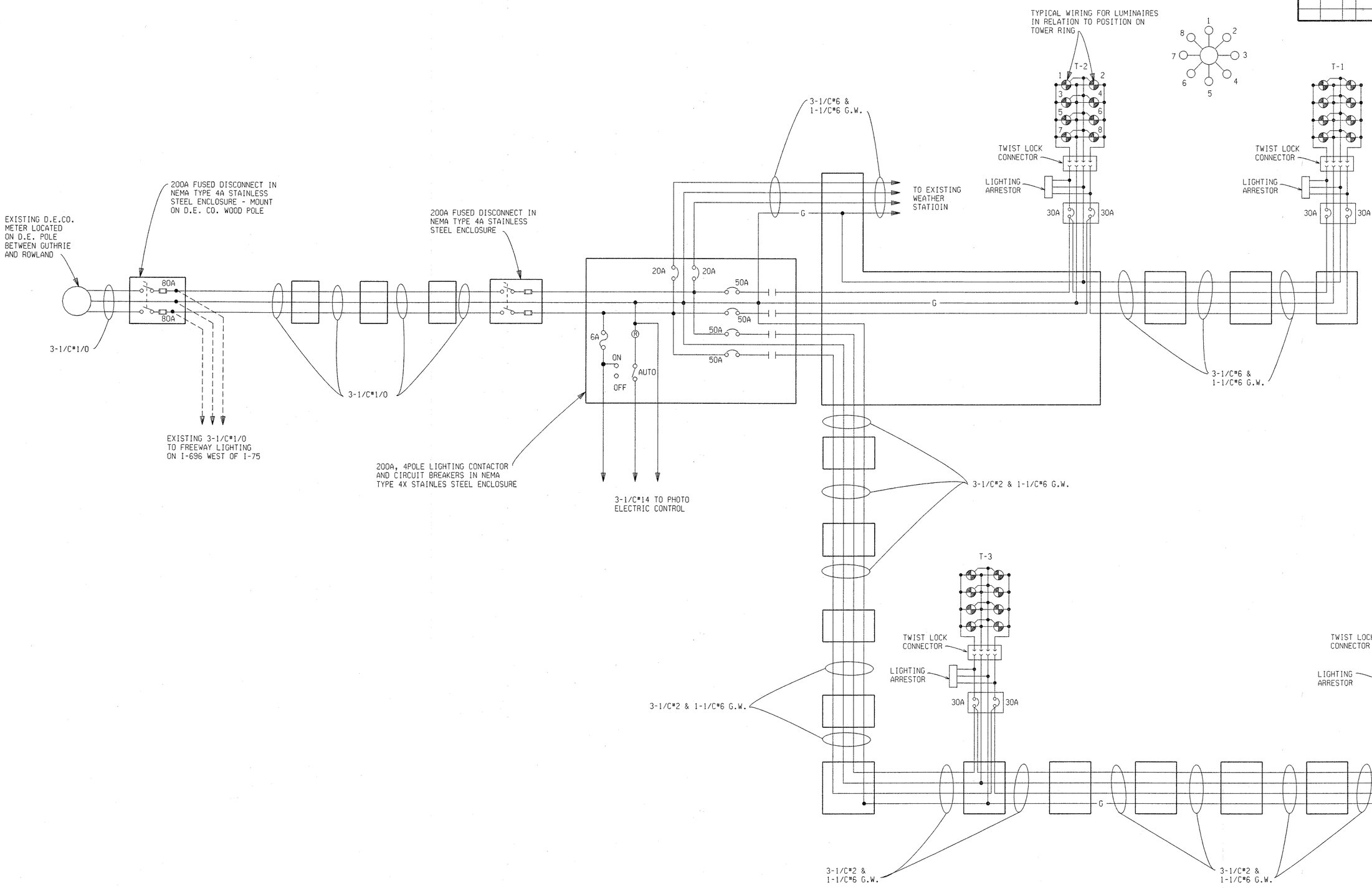
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.	
04/06/99	1:1000	63174	48404A	ZIELINSKI	R.O.W	3E

FILE NAME: 4840412mi.dgn

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 4E

EXISTING BY: HARTENBURG DATE: SEPT. 99
PROPOSED BY: BENSON DATE:
LAST CORRECTION BY: BENSON DATE: 10/11/99

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



MDOT Michigan Department of Transportation

WIRING DIAGRAM - I-696 & I-75 INTERCHANGE

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
09/01/99	NONE	63174	48404 A	ZIELINSKI		4E

FILE NAME: 48404wd1.dgn
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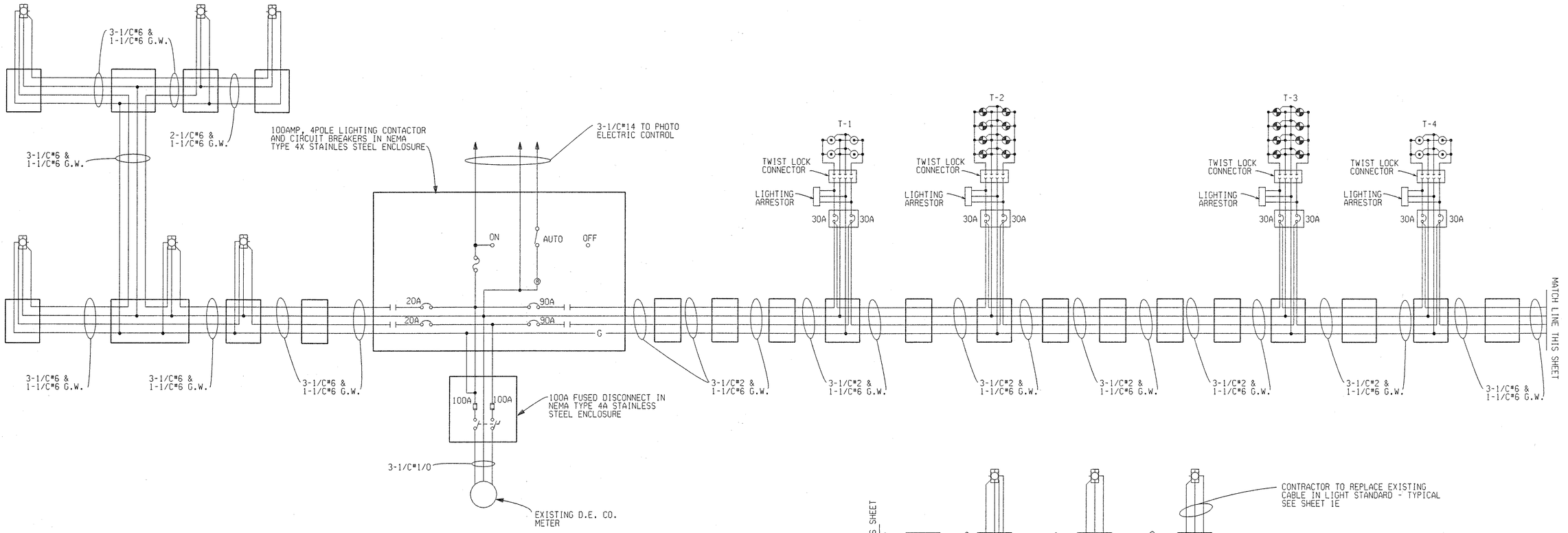
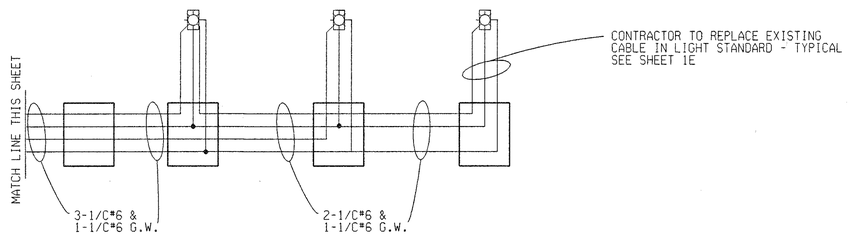
CONTROL SECTION	JOB NO.	SH. NO.
63174	48404 A	5E

EXISTING BY: HARTENBURG DATE: SEPT. 99
PROPOSED BY: BENSON DATE: 09/01/99
LAST CORRECTION BY: BENSON DATE: 10/11/99

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.





MDOT Michigan Department of Transportation

WIRING DIAGRAM - I-75 & 12 MILE RD

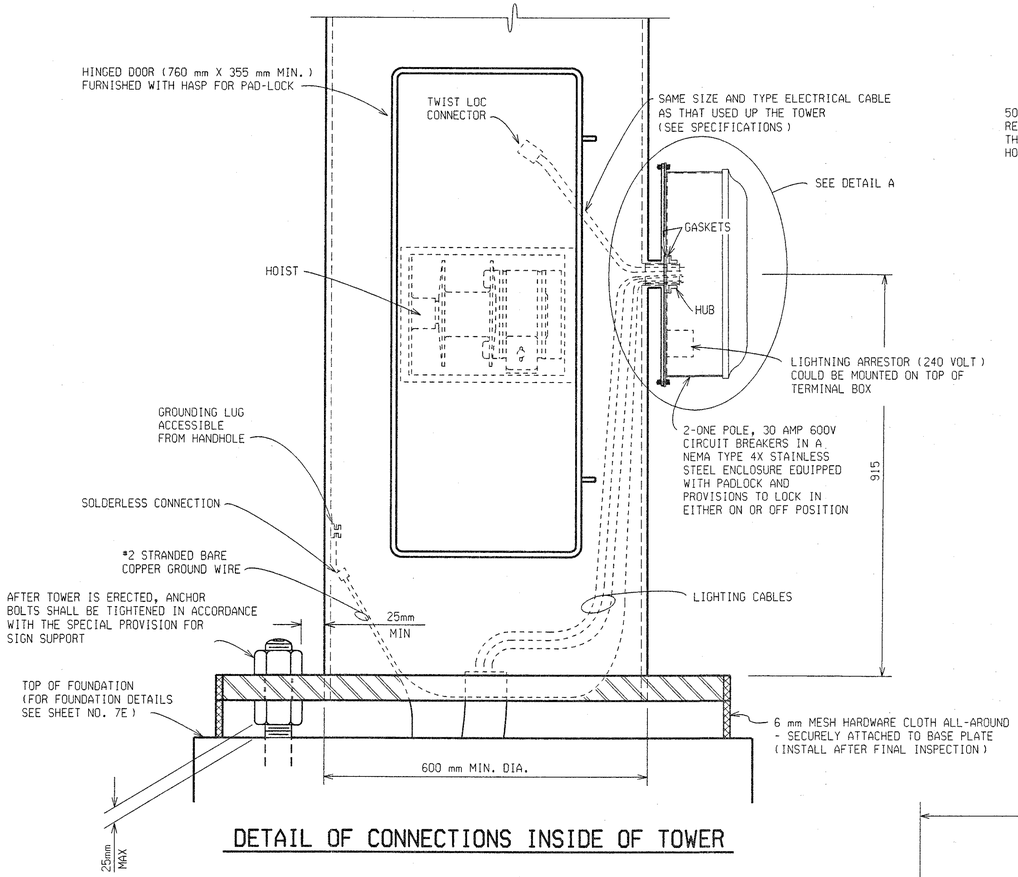
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
09/01/99	NONE	63174	48404 A	ZIELINSKI		5E

FILE NAME: 48404wd2.dgn

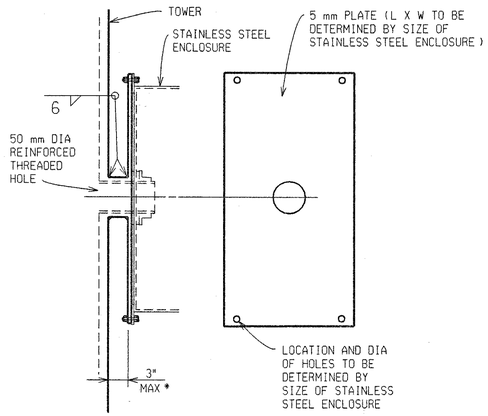
CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 6E

EXISTING BY: HARTENBURG DATE: JULY 99
PROPOSED BY: DATE:
LAST CORRECTION BY: BENSON/CLARK DATE: 10/11/99

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



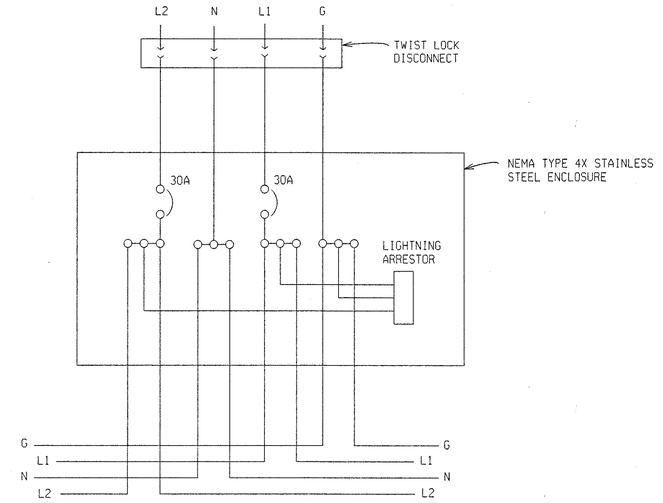
DETAIL OF CONNECTIONS INSIDE OF TOWER



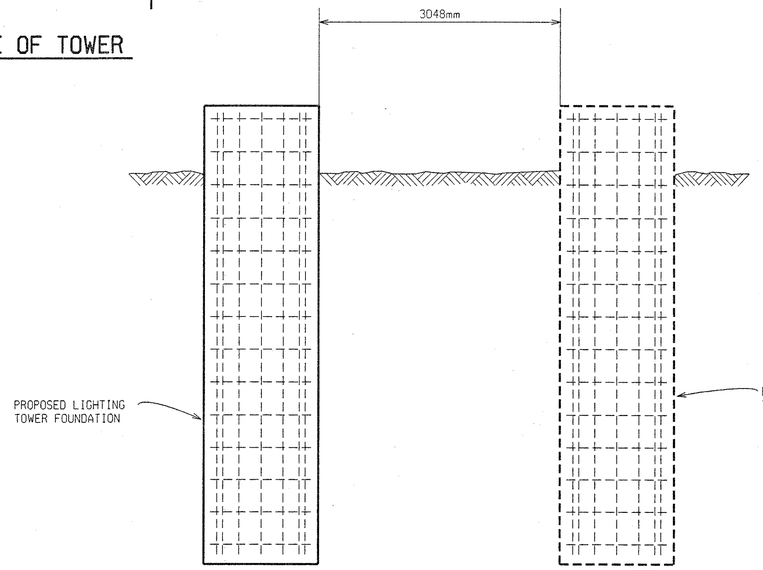
DETAIL A

* DISTANCE SHALL ONLY BE LARGE ENOUGH TO ALLOW ACCESS FOR WELDING.

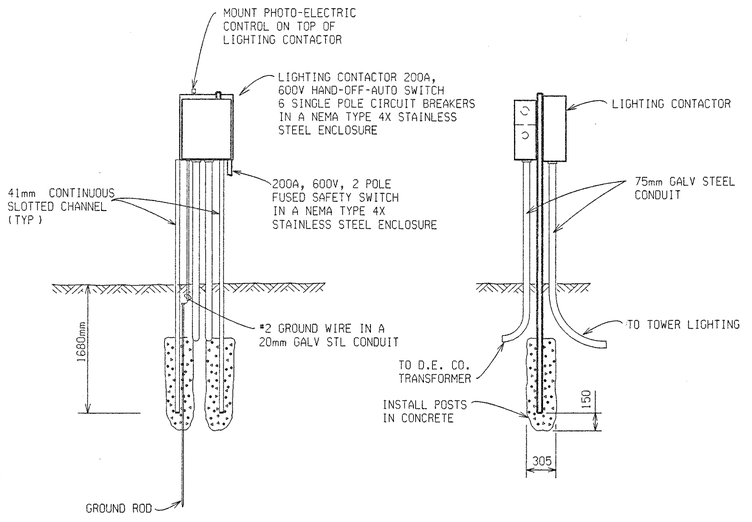
INSTALL 50 mm THREADED PIPE, INTERIOR AND EXTERIOR GASKETS, ENCLOSURE AND TIGHTEN WITH HUB.



WIRING DIAGRAM IN TOWER



LOCATION OF PROPOSED LIGHTING TOWER FOUNDATION



LIGHTING CONTROL PANEL

FILE NAME: 48404towerlgt.dgn
1 2 3 4 5

MDOT Michigan Department of Transportation

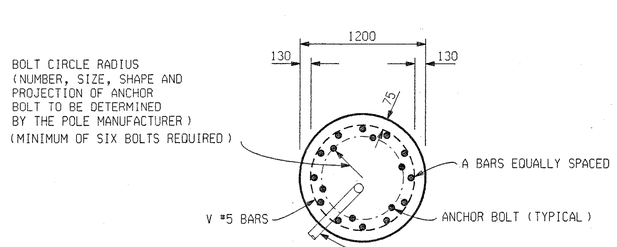
TOWER LIGHTING DETAILS

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
07/21/99	NONE	63174	48404	ZIELINSKI	R.O.W 6E

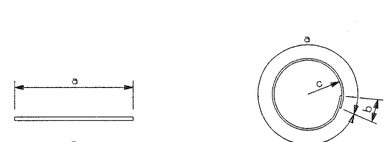
			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

EXISTING BY: HARTENBURG DATE: 07/21/99
PROPOSED BY: DATE:
LAST CORRECTION BY: BENSON/CLARK DATE: 10/08/99

SECTION 631/4 NO. 48404A NO. 7E

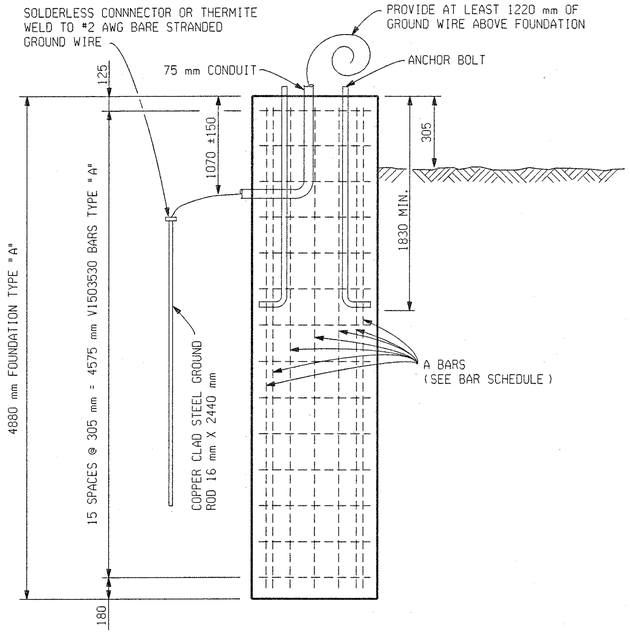


PLAN OF CYLINDRICAL FOOTING



FOUNDATION TYPE "A"

STEEL REINFORCEMENT BAR SCHEDULE										
A3604725	4725						36	4725	12	448.0
V1603530	2980	550	475				16	3530	16	88.0
FOUNDATION TYPE "A" TOTAL WT. 536 kg.										



SECTION THRU FOOTING

QUANTITIES			
	ITEM	UNIT	AMOUNT
FOUNDATION TYPE "A"	CONCRETE GRADE S2	m^3	5.50

NOTES:

ALL DIMENSIONS ARE IN MILLIMETERS.

ALL CONCRETE TO BE GRADE S2

THE GRADES AND WORKING STRESSES OF THE STRUCTURAL MATERIALS USED IN THESE FOUNDATIONS ARE AS FOLLOWS:

STEEL REINFORCEMENT fy = 400 MPa
CONCRETE GRADE S2 f'c = 21 MPa

THESE LIGHT STANDARD FOUNDATIONS ARE TO BE POURED AGAINST UNDISTURBED SOIL IN AS MUCH AS POSSIBLE.

ALL EXCESS EXCAVATED MATERIAL SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. THIS REMOVAL SHALL BE PART OF THE ITEM "LIGHT TOWER FOUNDATION" OF THE TYPE SPECIFIED AND WILL NOT BE PAID FOR SEPARATELY.

MDOT Michigan Department of Transportation

TOWER LIGHTING FOUNDATION AND BAR DETAIL

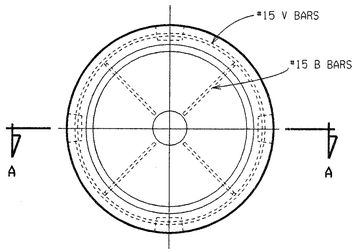
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
07/21/9	NONE	63174	48404A	ZIELINSKI		7E

FILE NAME: 48404tldn.dgn
12 8

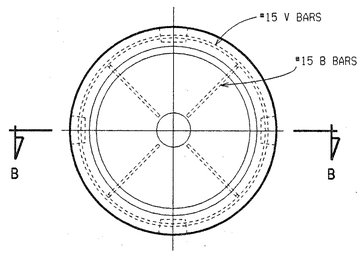
SECTION 631/4 | NO. 48404A | NO. 8E

DATE: JULY 99
DATE:
DATE: 10/08/99

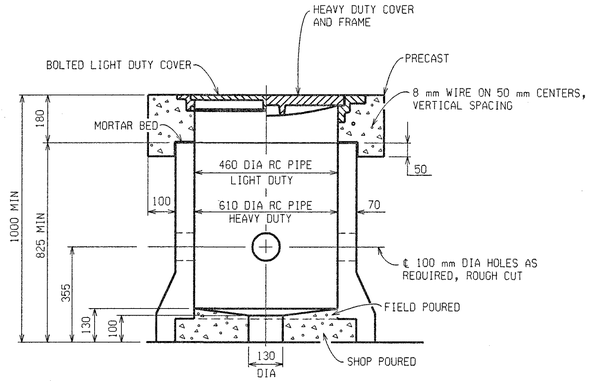
EXISTING BY: HARTENBURG
PROPOSED BY:
LAST CORRECTION BY: BENSON/CLARK



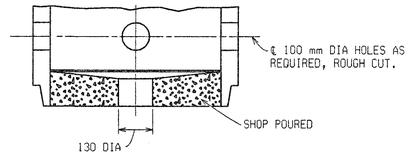
PLAN VIEW



PLAN VIEW



ALTERNATE PRECAST CONCRETE HANDHOLE
USING REINFORCED CONCRETE PIPE



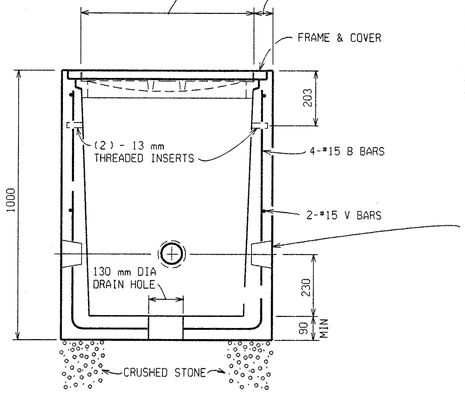
ALTERNATE PRECAST CONCRETE HANDHOLE
USE OF OPPOSITE END OF R.C. PIPE
(ALL OTHER DIMENSIONS SAME)

OPENING
460 FOR LIGHT DUTY COVER
610 FOR HEAVY DUTY COVER

FRAME
FRAME & COVER
SEE MATERIAL NOTES

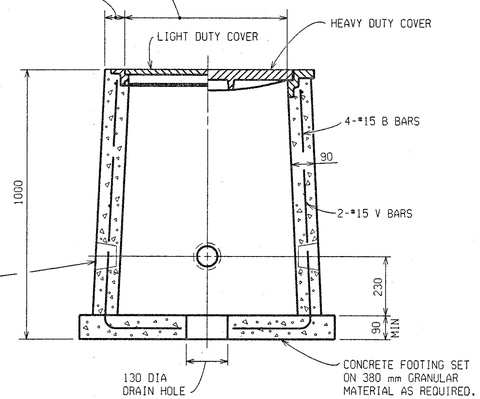
WALL THICKNESS
MIN WALL THICKNESS FOR LIGHT DUTY COVER - 70, FOR HEAVY DUTY COVER - 90. SHOULD THE WALL BE TAPERED, A 7.5 mm/100 mm SLOPE SHALL BE USED.

STEEL REINFORCEMENT
REINFORCEMENT SHALL BE #15 BARS AS SHOWN OR AN EQUIVALENT AREA OF STEEL USING WELDED WIRE MESH.

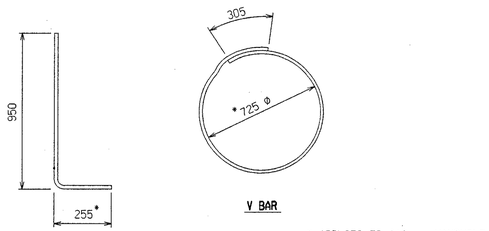


SECTION A-A PRECAST CONCRETE HANDHOLE

ENTRANCE HOLES AS REQUIRED FOR 75 mm & 100 mm CONDUIT. ADDITIONAL OPENINGS SHALL BE PROVIDED AS REQUIRED. HOLES MAY BE DRILLED IN THE FIELD.



SECTION B-B PRECAST CONCRETE HANDHOLE

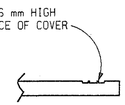


B BAR

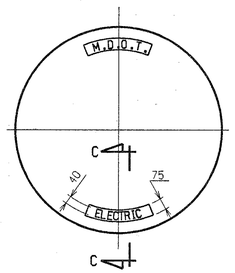
V BAR

* APPLIES TO 610 mm HANDHOLE

ALL LETTERING TO BE 6 mm HIGH AND FLUSH WITH SURFACE OF COVER



SECTION C-C



TOP VIEW

GENERAL NOTES:

ALL DIMENSIONS ARE IN MILLIMETERS.

THE MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT M.D.O.T. STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY CONSTRUCT THE HANDHOLE STRUCTURE OF CONCRETE MASONRY, OR OF PRECAST REINFORCED CONCRETE.

THE INNER SURFACE OF THE HANDHOLE SHALL BE SMOOTH.

ALL CASTINGS SHALL BE CLEANED BY SAND BLASTING.

THE SEATING FACE OF THE COVER AND THE SEAT FOR THE COVER ON THE FRAME IF REQUIRED, SHALL BE GROUND OR MACHINED SO THAT THE COVER SHALL HAVE AN EVEN BEARING ON ITS SEAT TO PREVENT ROCKING OR TILTING.

THE CASTINGS SHALL BE FREE OF POURING FAULTS, BLOW HOLES, CRACKS, AND OTHER IMPERFECTIONS. THEY SHALL BE SOUND, TRUE TO FORM AND THICKNESS, CLEAN AND NEATLY FINISHED AND SHALL BE COATED WITH COAL TAR PITCH VARNISH.

HANDHOLE SHALL BE EQUIPPED WITH CABLE RACK AND HOOKS TO TRAIN CABLE.

LIGHT DUTY COVER SHALL BE BOLTED TO FRAME WITH NOT LESS THAN 2 COUNTERSUNK HEX HEAD BRONZE BOLTS.

PRECAST HANDHOLE WITH HEAVY DUTY COVER SHALL BE SET ON A CONCRETE SLAB .

MATERIAL NOTES:

HEAVY DUTY COVERS SHALL BE CASTINGS WHICH MEET THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR GRAY IRON CASTINGS ASTM DESIGNATION A48 AND SHALL HAVE A MINIMUM STRENGTH AS PROVIDED FOR CLASS NO. 30B GRAY IRON CASTINGS.

ALL CONCRETE MASONRY SHALL BE GRADE 30M.

THE HEAVY DUTY COVER & FRAME SHALL BE EAST JORDAN IRON WORKS #2860 TYPE "A" OR NEENAH FOUNDRY #R-6052 D FOR CIRCULAR COVER OR AN APPROVED EQUAL.

LIGHT DUTY COVER AND FRAME SHALL BE EAST JORDAN IRON WORKS #2982A-18 OR NEENAH FOUNDRY #R-6012 D FOR CIRCULAR COVER OR AN APPROVED EQUAL.

6900242-3

MDOT Michigan Department of Transportation

ELECTRIC HANDHOLE DETAILS

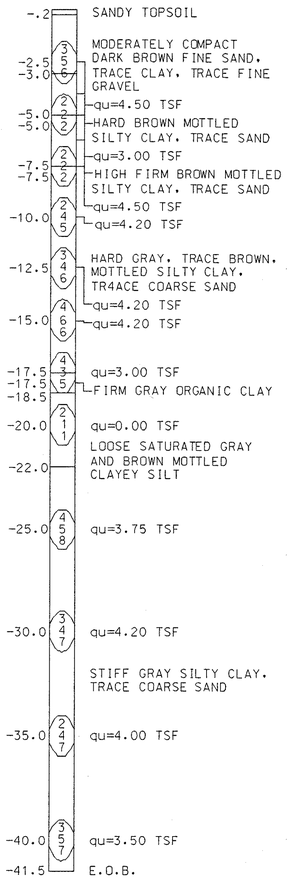
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.	
07/21/99	NONE	63174	48404A	ZIELINSKI	R.O.W	8E

FILE NAME: 48404th.dgn
1 2 4

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 9E

TESTHOLE NO. 01

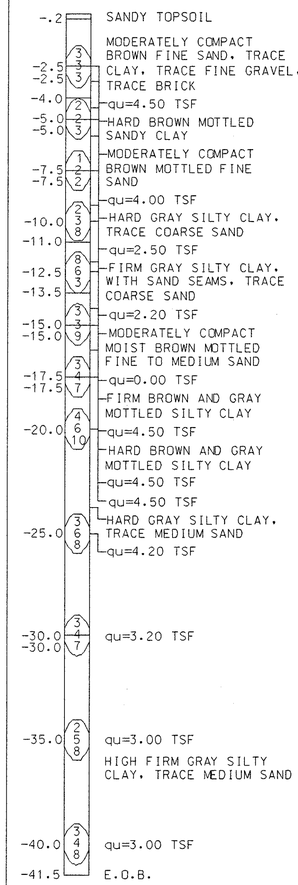
Sta. SEE PLANS N.W. QUADRANT
I-75 & 696 INTERCHANGE
T1N R11E SEC. 23. OAKLAND CO.
Date Drilled 08-17-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
DRY HOLE

TESTHOLE NO. 02

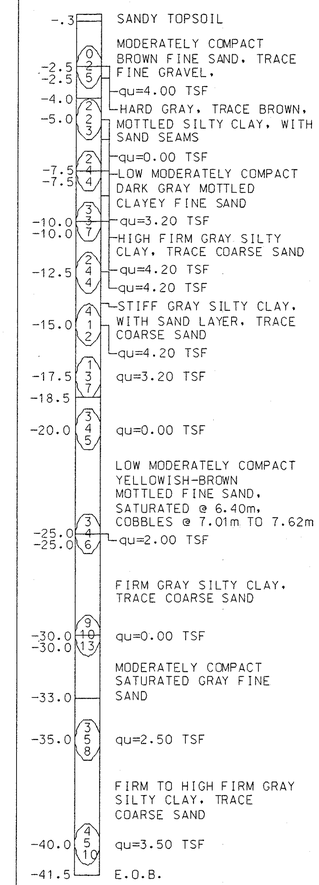
Sta. SEE PLANS N.W. QUADRANT
I-75 & 696 INTERCHANGE
T1N R11E SEC. 23. OAKLAND CO.
Date Drilled 08-18-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
DRY HOLE

TESTHOLE NO. 03

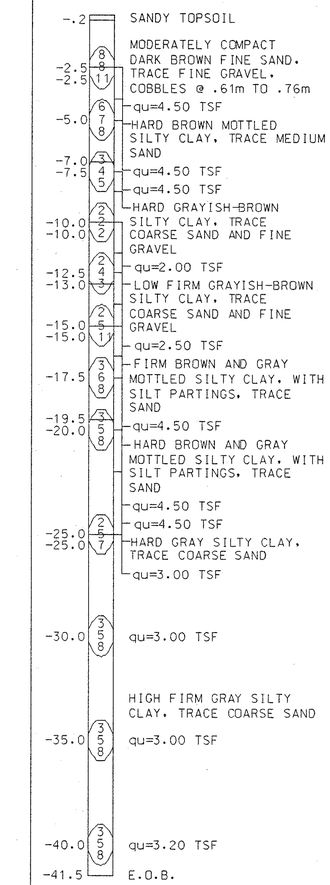
Sta. SEE PLANS N.W. QUADRANT
I-75 & 696 INTERCHANGE
T1N R11E SEC. 26. OAKLAND CO.
Date Drilled 08-18-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
WATER LEVEL @ 6.86m
WATER LEVEL @ 6.71m (AFTER 20 MIN.)

TESTHOLE NO. 04

Sta. SEE PLANS N.W. QUADRANT
I-75 & 696 INTERCHANGE
T1N R11E SEC. 23. OAKLAND CO.
Date Drilled 08-19-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
DRY HOLE

NOTES:

(0 0 0) 1st 0.15 m, 2nd 0.15 m, 3rd 0.15 m

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 51 mm O.D. (38 mm I.D.) SPLIT SPOON SAMPLER 3 SUCCESSIVE 0.15 m INCREMENTS USING A 63.5 kg HAMMER FALLING 0.76 m.

CONSISTENCY WAS DETERMINED BY INSPECTION OF SAMPLES AND SUBSTANTIATED BY SOILS RESISTANCE TO DRILLING TOOLS.

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

SOIL BORING DATA

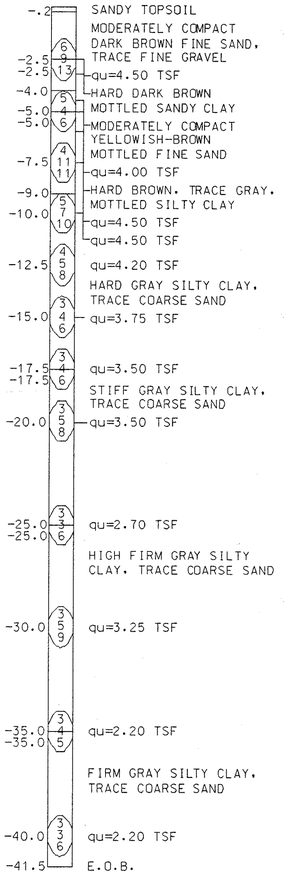
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
09-09-99	63174	48404A	ZIELINSKI	9E

DATE: 10-08-99 | CORRECTED BY: CLARK | DATE: | CHECKED BY: | DATE: | DRAWN BY: | FILE NAME: 48404bor2.dgn

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 10E

TESTHOLE NO. 03

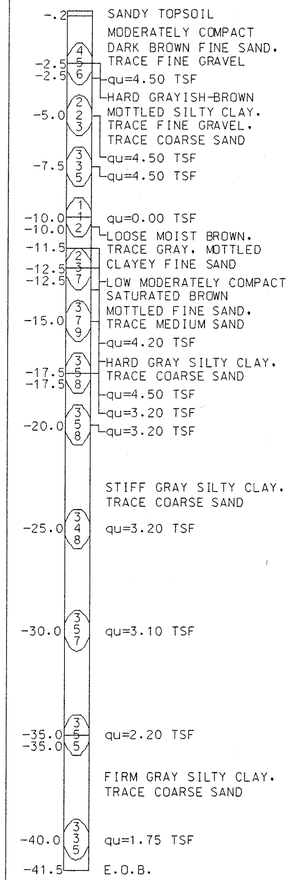
Sta. SEE PLANS
I-75 & 12 MILE RD. INTERCHANGE
TIN R11E SEC. 11. OAKLAND CO.
Date Drilled 08-11-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
TEST HOLE DRY

TESTHOLE NO. 04

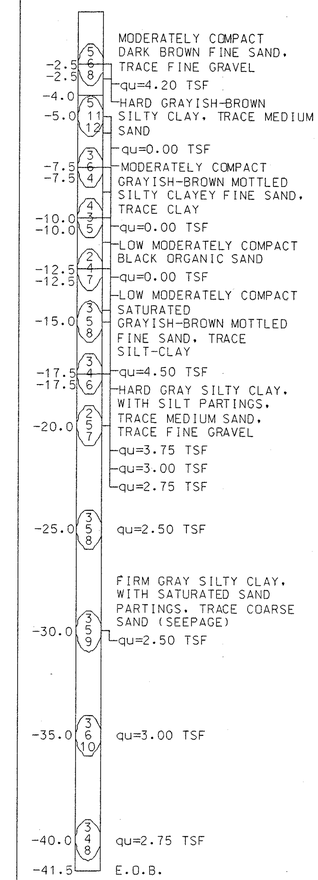
Sta. SEE PLANS
I-75 & 12 MILE RD. INTERCHANGE
TIN R11E SEC. 11. OAKLAND CO.
Date Drilled 08-12-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
WATER LEVEL @ 6.54m
WATER LEVEL @ 5.30m (AFTER 90 MIN.)

TESTHOLE NO. 01

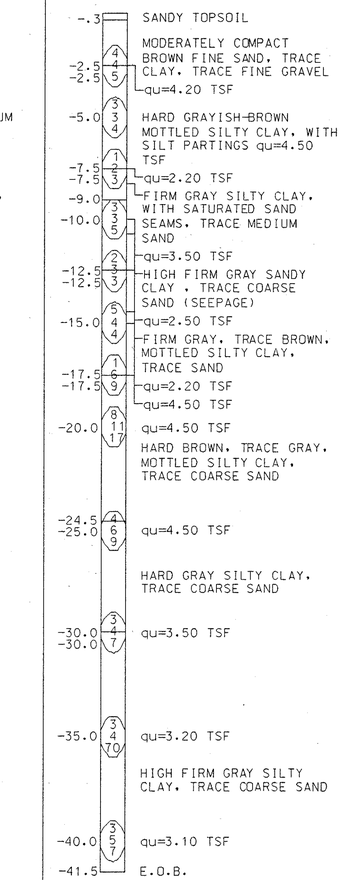
Sta. SEE PLANS
I-75 & 12 MILE RD. INTERCHANGE
TIN R11E SEC. 14. OAKLAND CO.
Date Drilled 08-16-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
WATER LEVEL @ 9.66m
WATER LEVEL @ 8.41m (AFTER 30 MIN.)

TESTHOLE NO. 02

Sta. SEE PLANS
I-75 & 12 MILE RD. INTERCHANGE
TIN R11E SEC. 14. OAKLAND CO.
Date Drilled 08-17-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
DRY HOLE (AFTER 25 MIN.)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

(0 / 0 / 0) 1st 0.15 m, 2nd 0.15 m, 3rd 0.15 m

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 51 mm O.D. (38 mm I.D.) SPLIT SPOON SAMPLER 3 SUCCESSIVE 0.15 m INCREMENTS USING A 63.5 kg HAMMER FALLING 0.76 m.

CONSISTENCY WAS DETERMINED BY INSPECTION OF SAMPLES AND SUBSTANTIATED BY SOILS RESISTANCE TO DRILLING TOOLS.

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

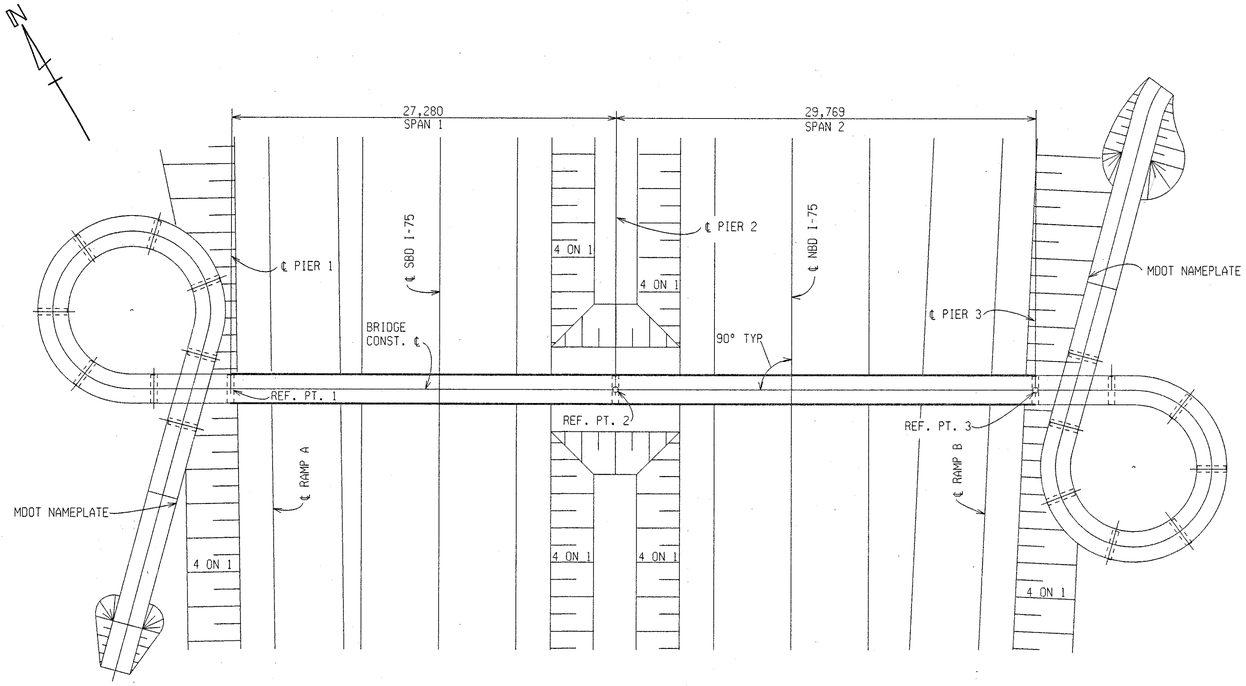
SOIL BORING DATA

MDOT Michigan Department of Transportation

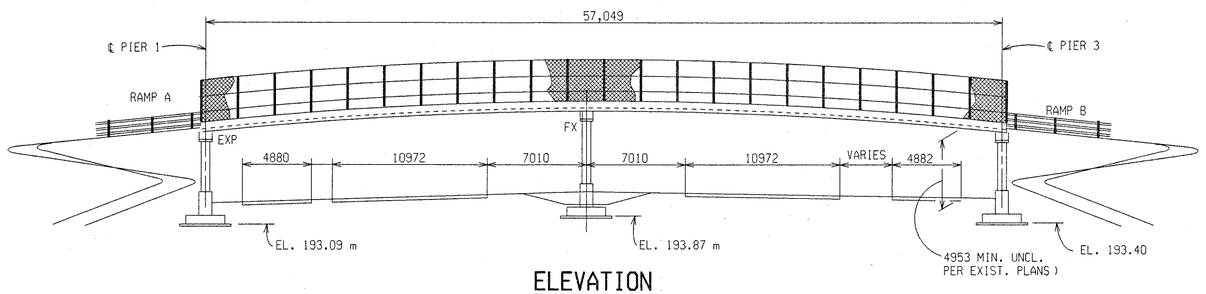
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
09-09-99	63174	48404A	ZIELINSKI	10E

DATE: 10-08-99 | CORRECTED BY: CLARK | DRAWN BY: | CHECKED BY: | DATE: | FILE NAME: 48404bor.dgn

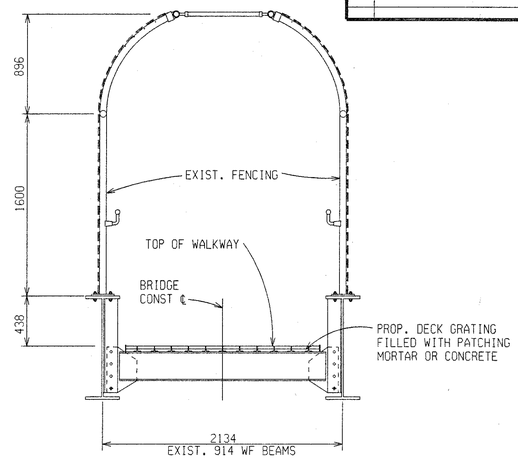
CONTROL SECTION P01 OF 63174 | JOB NO. 48404A | SH. NO. 2



PLAN



ELEVATION



DECK SECTION

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, PAINTING, STRUCTURAL STEEL REPAIR AND RETROFIT AND MAINTAINING TRAFFIC.

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARDS SPECIFICATIONS FOR HIGHWAY BRIDGES. THE LOAD FACTOR METHOD WAS USED FOR THIS DESIGN.

FALSE DECKING SHALL INCLUDE THE AREA FROM PIER 1 TO PIER 3 AND BETWEEN THE BEAM WEBS.

I-75 TRAFFIC IS TO BE MAINTAINED BY PART WIDTH CONSTRUCTION. THE BRIDGE SHALL BE CLOSED TO PEDESTRIAN TRAFFIC DURING CONSTRUCTION.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE OF THE MAINTENANCE DIVISION IN LANSING.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE COATED IS 366 SQUARE METERS. THE PAINTING AREAS ARE FOR ALL STRUCTURAL STEEL MEMBERS INCLUDING THE DOWNSPOUTS AT PIERS 1 AND 3, ALL FENCE POSTS AND HORIZONTAL FENCE RAILS, THE TOP OF BEAMS AND BEAM ENDS.

PENETRATING WATER REPELLENT TREATMENT SHALL BE APPLIED TO THE TOP OF PIERS 1 & 3.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BEARING PLATES TO CONCRETE CONTACT SURFACES AFTER CUTTING AWAY ANY PROTRUDING PORTION OF LEAD PLATE.

THIS BRIDGE IS COATED WITH LEAD BASED PAINT.

THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL MATCH COLOR NUMBER 1, LIGHT GRAY OF FEDERAL STANDARD NUMBER 595a.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES. (INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4 (P01)".

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

MISCELLANEOUS QUANTITIES

1 ea	Elec Grounding System
123 m2	False Decking
1 LS	Structures, Rehabilitation, Rem Portions (P01)
1 LS	Steel Structure, Cleaning, Type 4 (P01)
1 LS	Steel Structure, Coating, Type 4 (P01)
5 m2	Water Repellent Treatment

APPROVED Steven P. Beck 10/19/99
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

I-75 UNDER 12 MILE WALKOVER

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
9-21-99	P01 OF 63174	48404A	MAHDAVI	2 OF 16

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAWN BY: SHAFFER DATE: 2-19-99 CHECKED BY: MICKUKI DATE: 10-18-99 CORRECTED BY: R. PRATT

FILE NAME: p0163174.st

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

BENCH MARKS

B.M. No. 71 - Elev. 638.34 M.S.H.D. Tag in root of 24" Elm 167' Rt. Sta. 912+60 N.B. Rdwy.

B.M. No. 73 - Elev. 638.77 M.S.H.D. Tag in base of 20" Oak 248' Lt. of Sta. 903+87 N.B. Rdwy.

UTILITIES

None

CURVE DATA — RAMP "A"

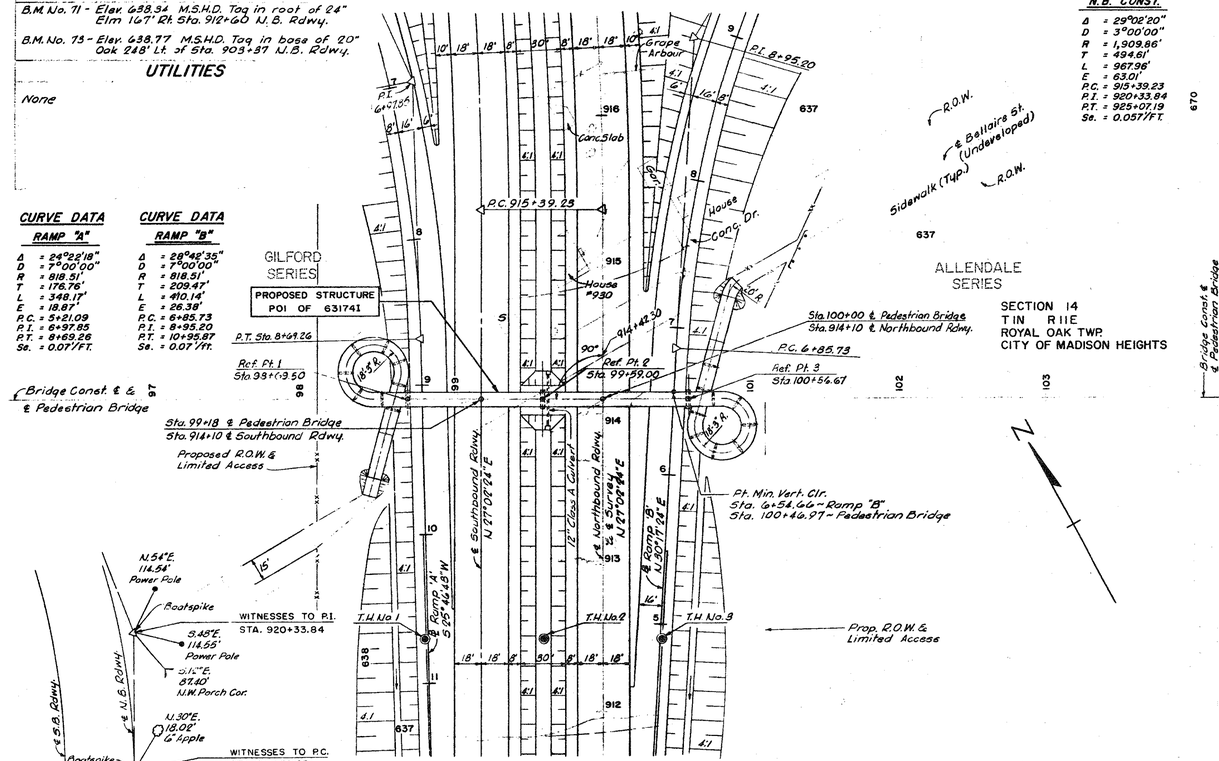
Δ	= 24°22'18"
D	= 7°00'00"
R	= 818.31'
T	= 176.76'
L	= 348.17'
E	= 18.97'
P.C.	= 5+81.09
P.I.	= 6+97.85
P.T.	= 9+69.26
Se.	= 0.07'/FT.

CURVE DATA — RAMP "B"

Δ	= 28°42'35"
D	= 7°00'00"
R	= 818.31'
T	= 209.47'
L	= 410.14'
E	= 26.38'
P.C.	= 6+85.73
P.I.	= 8+95.20
P.T.	= 10+95.87
Se.	= 0.07'/FT.

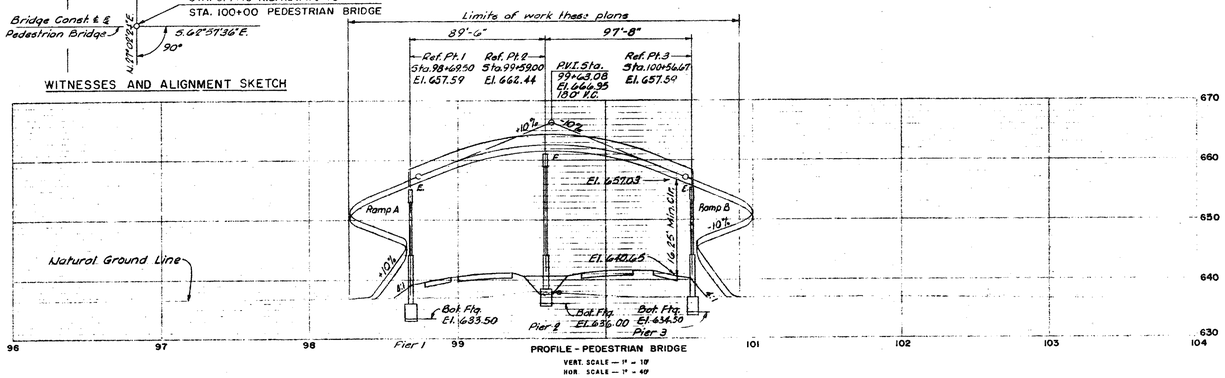
CURVE DATA — N.B. CONST.

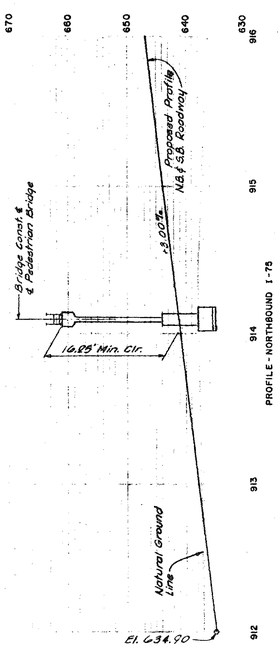
Δ	= 29°02'20"
D	= 3°00'00"
R	= 1,909.86'
T	= 494.61'
L	= 967.98'
E	= 63.01'
P.C.	= 915+39.23
P.I.	= 920+33.84
P.T.	= 925+07.19
Se.	= 0.057'/FT.



SITUATION PLAN

SCALE : 1" = 40'





T.H. NO. 1

160' RT. OF ℄ STA. 98+80 BOT. FTG. PIER 1 ELEV. 633.50

636.44		Loose fine to Med. yellow Gr. mottled sand.
634.94	1	Mod. Comp. med. to coarse grey sand Lenses of fine yellow sand.
632.94	2	Firm yellow grey mottled clay - Sandy & Pebbly.
631.94	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	Stiff sandy pebbly Grey Clay, Tr. of silt.
	11	
	12	
	13	
	14	
	15	
	16	
612.44	17	Firm sandy Grey clay - Pebbly - Silty.
608.44	18	

End of Boring

Water at 3.2'
Cave in at 3.1'

T.H. NO. 2

160' RT. OF ℄ STA. 99+60 BOT. FTG. PIER 2 ELEV. 636.00

637.34		Dark Sandy Loam Top Soil roots.
634.34	1	Mod. Comp. mod. to coarse Brn & Yellow mottled Sand - Tr. of organic matter.
633.34	2	
631.84	3	Firm Yellow & Grey mottled Clay - Sandy.
	4	
	5	
	6	
	7	
	8	
	9	
	10	Stiff Sandy Pebbly Grey Clay - Trace of Silt.
	11	
	12	
	13	
617.84	14	Stiff Sandy Pebbly Grey Clay - Silty - Lenses of Comp. Med. to Coarse grey sand.
615.34	15	Comp. Med. to coarse grey sand - Tr. of Gravel & Pebble.
610.84	16	Gravel - Silty - occ. Lenses of Firm gray clay.
	17	
	18	
605.34	19	Firm sandy gray clay Pebbly & Silty.

End of Boring

Water at 3.5'
Cave in at 3.8'

T.H. NO. 3

160' RT. OF ℄ STA. 100+40 BOT. FTG. PIER 3 ELEV. 634.50

637.44		Sandy Loam - Top Soil - Roots.
634.44	1	Med. Comp Mud & Sand - Tr. of organic matter.
633.94	2	Mod. Comp. Med. to Coarse Yellow Sand.
	3	Mod. Comp. fine to very fine Silty Yellow Grey Sand - Layers of firm Grey Clay.
630.44	4	
628.44	5	Stiff Sandy Silty Grey Clay.
	6	Stiff Sandy Pebbly Grey Clay, Silty.
624.44	7	
	8	Stiff Sandy Gray Clay - Silty - Trace of Pebble.
	9	
	10	
	11	Failed @ 20'
	12	Failed @ 22'
618.44	13	Failed @ 24'
	14	
	15	Firm Sandy Grey Clay - Pebbly - Trace of Silt.
	16	
	17	
602.94	18	Comp. Med. to coarse silty Grey Sand.
599.44	19	

End of Boring

Water table at 9.3'

LOG OF BORINGS

SCALE : 3/16" = 1'-0"

NOTES:

Consistency determined by inspection of samples and substantiated by soils resistance to casing and jet rod (All T.H.s).
Penetration samples taken with O.D. 1⅜", I.D. 1⅜" Sampler Driven 12" with 140# hammer with a free fall of 30".
Method of Sampling - Undisturbed.
No water table as water used in Boring Operations does not recede into the clay soils below first 3' to 4' of Sand (All T.H.s).

GENERAL NOTES:

Fences, and utilities are to be moved by others.
Buildings are to be removed by others.
Datum refers to U.S.G.S. Datum.
The work covered by these plans includes construction of the proposed bridge, ramps, sidewalks and fill under sidewalks.
All work not listed above is included in the Road Plans.

CONTROL SECTION 63174I

MICHIGAN STATE HIGHWAY DEPARTMENT

PEDESTRIAN BRIDGE CROSSING I-75 SOUTH OF 12 MILE ROAD IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF SITE

TECON ENGINEERS, INC.

SURVEY BY	J.D.C. M.B.A.	1-9-62
DRAWN BY	C.D.B.	1-9-62
TRACED	136 - 312	
CHECKED		
RECOMMENDED FOR APPROVAL	J. L. Murray COORDINATING ENGINEER	6-5-62
APPROVED	ENGINEER OF DESIGN — CONSULTANTS	

POI OF 63174I

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

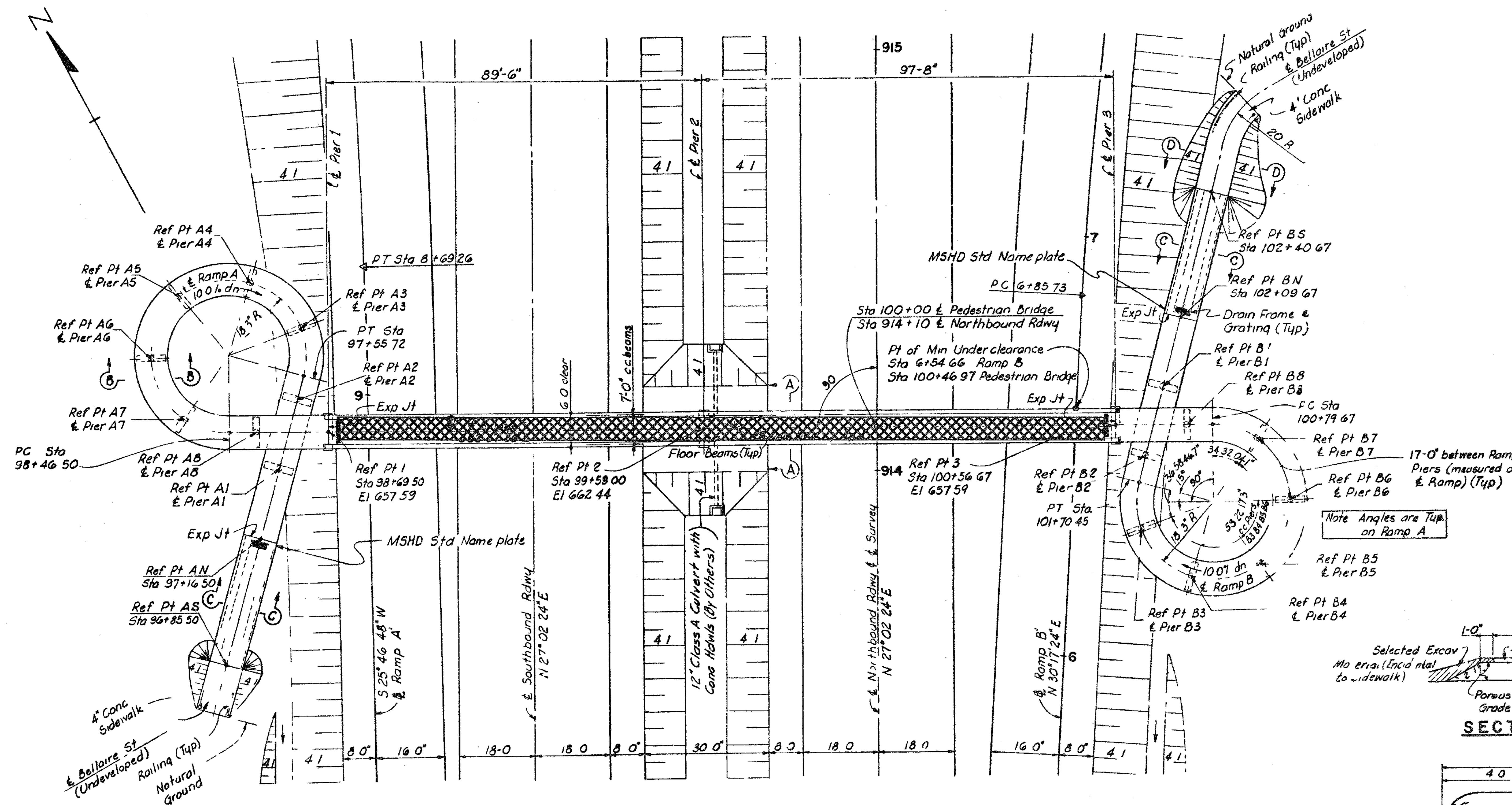
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	3 OF 16

DATE: CORRECTED BY:
DATE: CHECKED BY:
DRAWN BY: inder
FILE NAME: p0163174sn

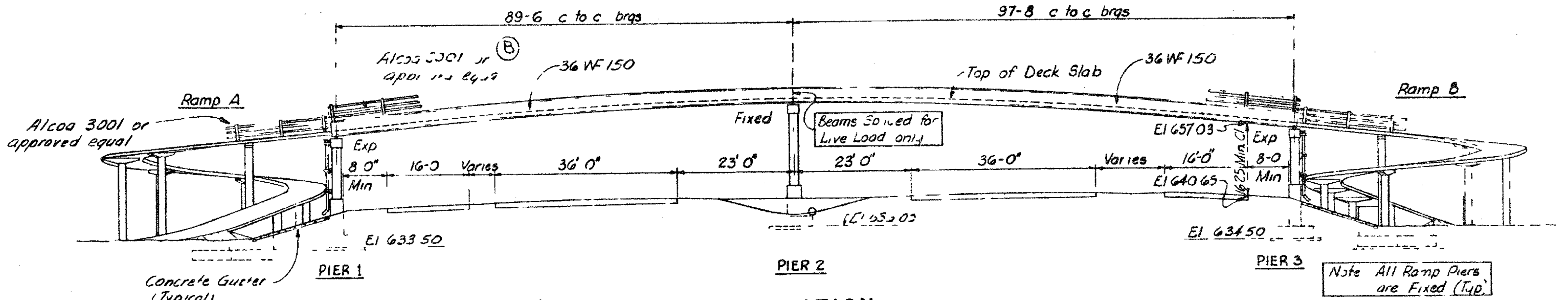
CONTROL SECTION P01 OF 63174 | JOB NO. 48404A | SH. NO. 4

NO.	DESCRIPTION	DATE	BY

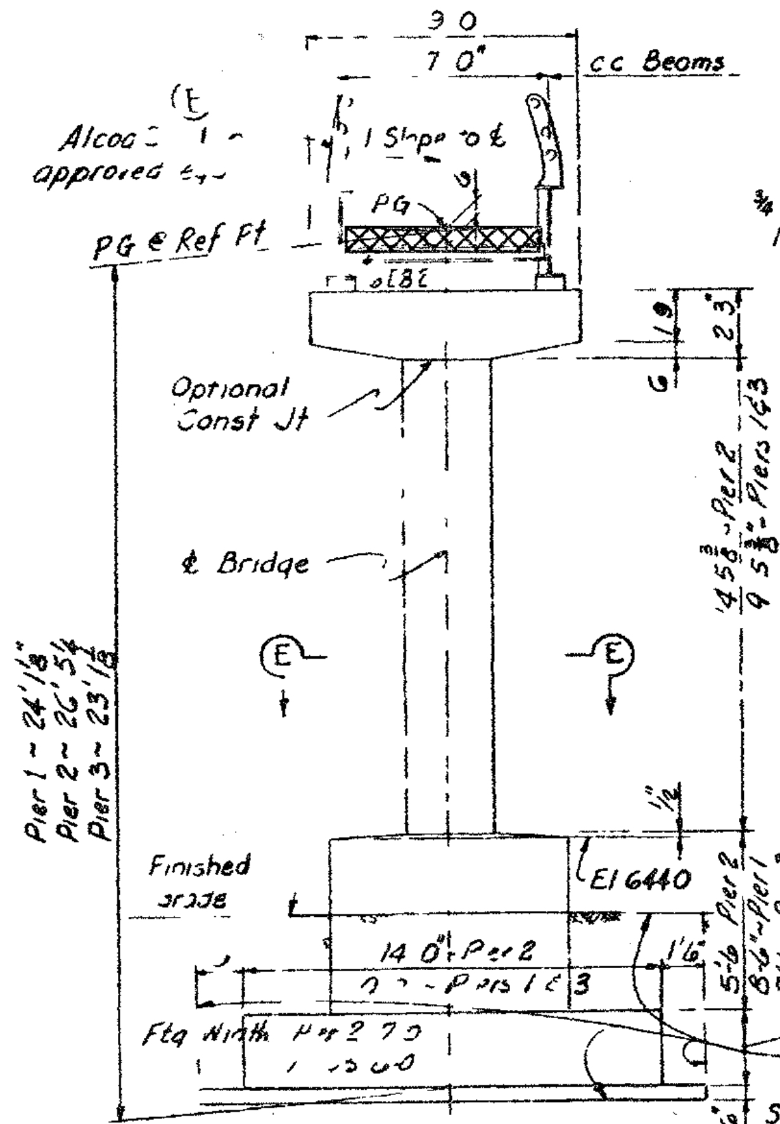
REVISIONS



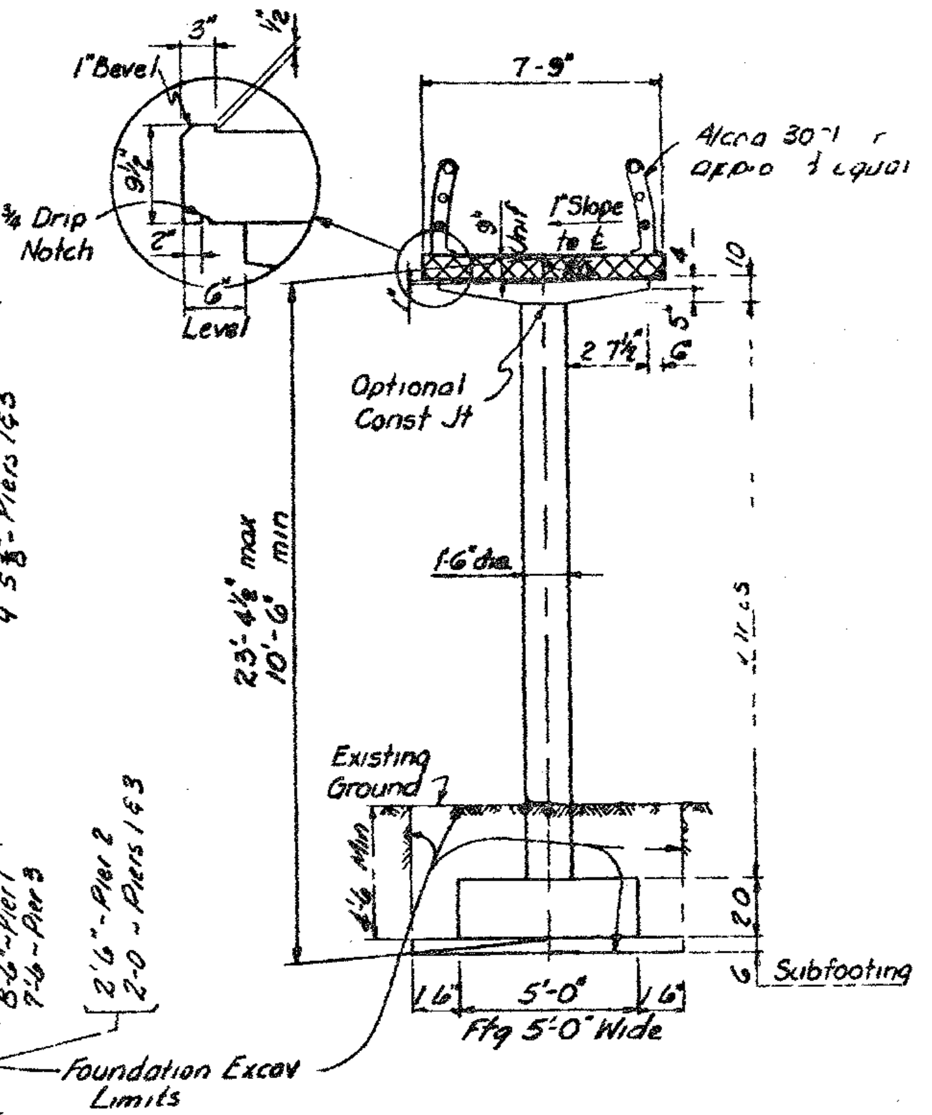
PLAN
Scale 1/16" = 1'-0"



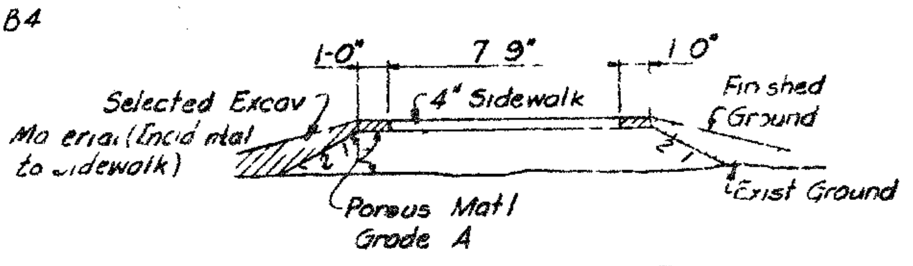
ELEVATION
Scale 1/16" = 1' 0"



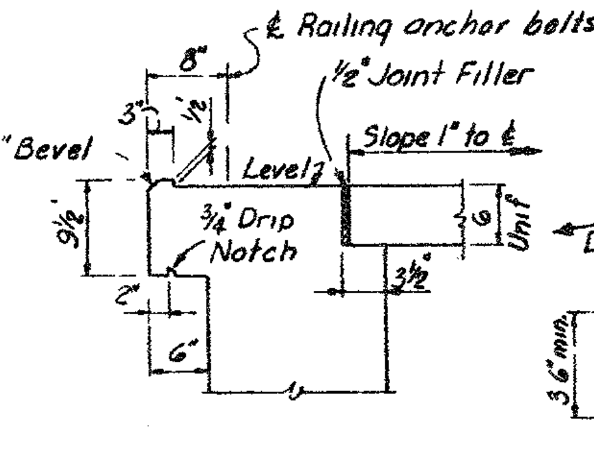
SECTION A-A
Scale 3/16" = 1'-0"



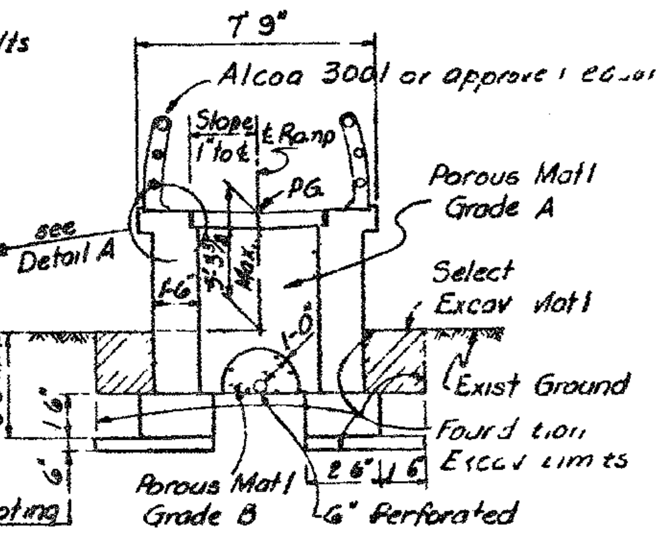
SECTION B-B
Scale 3/16" = 1'-0"



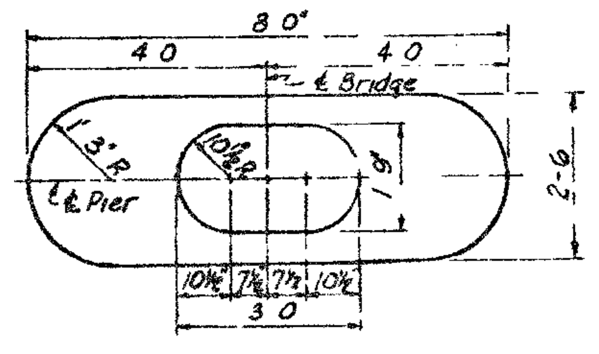
SECTION D-D
No Scale



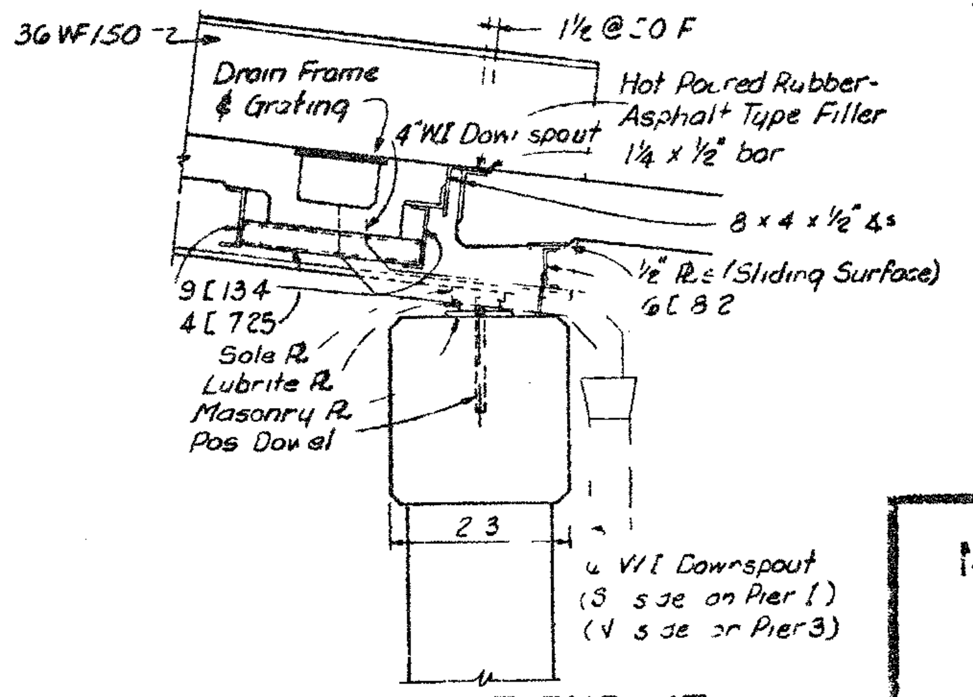
DETAIL A
Scale 3/4" = 1' 0"



SECTION C-C
Scale 3/16" = 1-0"



SECTION E-E
Scale 3/8" = 1' 0"



SECTION AT EXP JT AT PIER #1 & #3
Scale ½" = 1' 0"

GENERAL NOTES

DESIGN SPECIFICATIONS
MSHD Specifications for the Design of Highway Bridges" 1958 Edition
Live Load Deflections not more than 1/1000 of Span Length

LIVE LOADING
Main Steel Beams - 60 lbs per sq ft of deck area
Steel Floor Beams - 85 lbs per sq ft of deck area
Conc Slab on Steel Spans - 85 lbs per sq ft of deck area
Conc Slab - Ramp A & B - 85 lbs per sq ft of deck area

CONCRETE
Grade A (6A) in Footings & Sub Footings
Grade A (6AA) above footings

B Changed railing on main spans from 3001 to 3003 ... AFB

CONTROL SECTION 63174I

MICHIGAN STATE HIGHWAY DEPAR...
PEDESTRIAN BRIDGE CROSSING I-75 SOUTH OF 12 MILE ROAD
IN THE CITY OF MADISON HEIGHTS
GENERAL PLAN OF STRUCTURE
TECON ENGINEERS, INC
J. V. Murray 6-15-62
COORDINATING ENGINEER
ENGINEER OF DESIGN — CONSULTANTS
CDB 2-29-61
139 312
P01 OF 63174I

NOTE:
THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 44073A

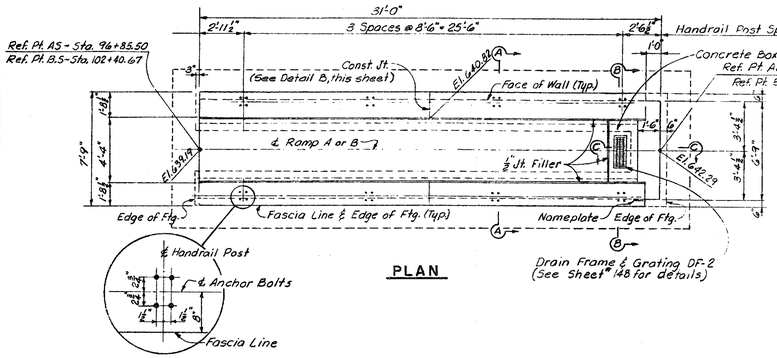
▨ DENOTES REMOVAL PORTIONS

MDOT
Michigan Department of Transportation

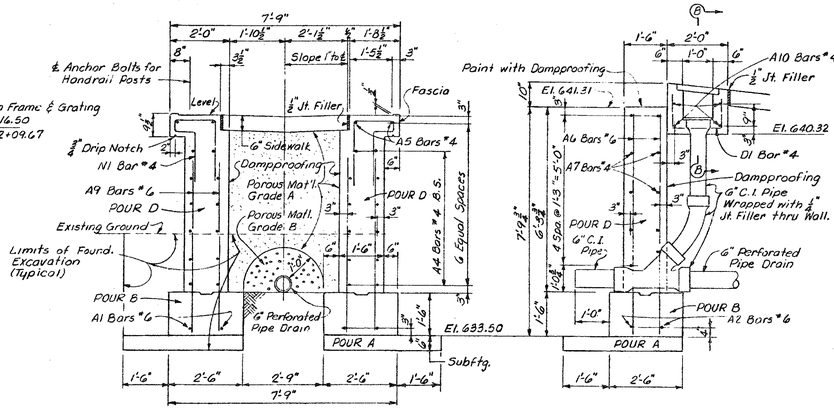
REMOVAL PORTIONS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	4 OF 16

FILE NAME: p0163174sn
DRAWN BY: inder
DATE:
CHECKED BY:
DATE:
CORRECTED BY:
DATE:



PLAN

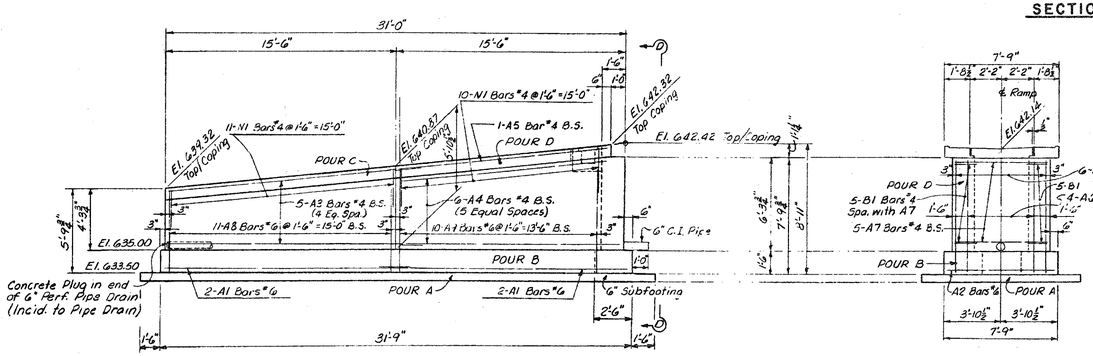


SECTION A-A

SECTION C-C

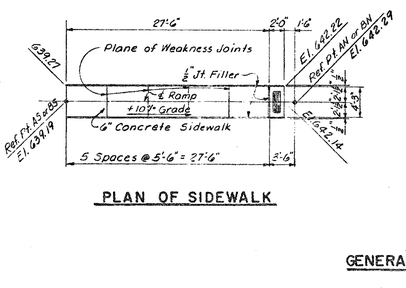
CONCRETE QUANTITIES - CU. YDS.				
	RAMP A		RAMP B	
POUR	GR. A(6A)	GR. A(6AA)	GR. A(6A)	GR. A(6AA)
A	5.0		5.0	
B	9.2		9.2	
C		9.1		9.1
D		12.8		12.8
E		0.4		0.4
F	1.2		1.8	
Totals	17.4	22.3	18.0	22.3

MISCELLANEOUS QUANTITIES			
ITEM	UNIT	QUANTITY	
		RAMP A	RAMP B
Foundation Excavation	Cu. Yds.	65	50
½" Joint Filler	Sq. Ft.	38	40
Porous Material Gr. A	Cu. Yds.	20	25
Porous Material Gr. B	Cu. Yds.	4	4
Dampproofing	Sq. Ft.	335	335
4" Conc. Sidewalk	Sq. Ft.	85	161
6" Conc. Sidewalk	Sq. Ft.	117	117
½" Joint Filler	Sq. Ft.	100	100
6" C.I. Pipe	Lin. Ft.	11	11
6" Perforated Pipe	Lin. Ft.	31	31

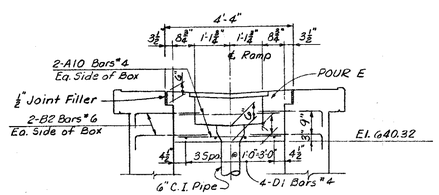


TYPICAL WALL ELEVATION

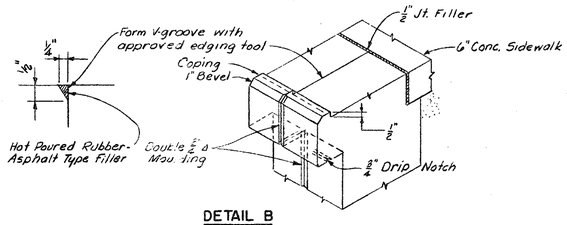
ELEVATION D-D



PLAN OF SIDEWALK



SECTION B-B



DETAIL B

GENERAL NOTES

N.S. denotes near side.
F.S. denotes far side.
B.S. denotes both sides.
For Bevel & Molding details see Standard Sheet R11.
For location of name plates see General Plan of Structure.
Top of end wall (at Ref. Pt. AN or BN) shall be finished to a true plane at the elevation shown and shall not vary more than ⅛" under a ten foot straight edge.

Work this sheet with sheets 142, 149 & 150

MICHIGAN STATE HIGHWAY DEPARTMENT

RAMP APPROACH DETAILS

TECON ENGINEERS, INC.

JDE 5-7-62
RFC
M.A.C 4-25-62
141 3/12

P01 OF 63174I

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MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	5 OF 16

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY:
DATE: CHECKED BY:
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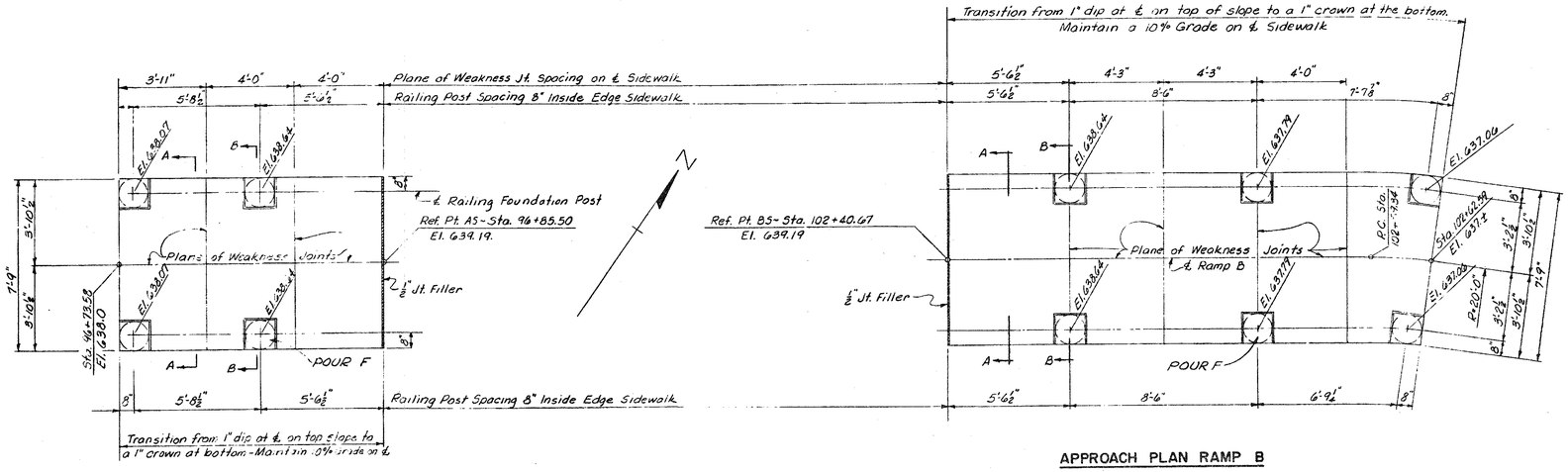
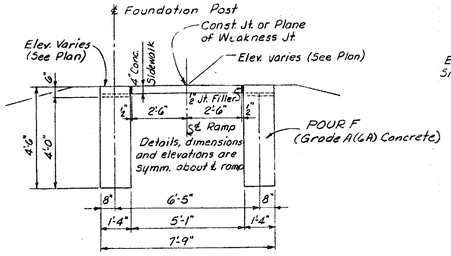
FILE NAME: p0163174sn

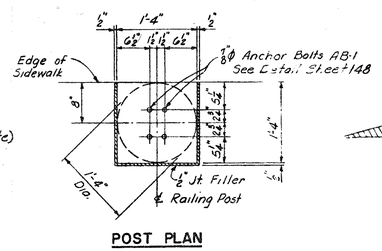


APPROACH PLAN RAMP A

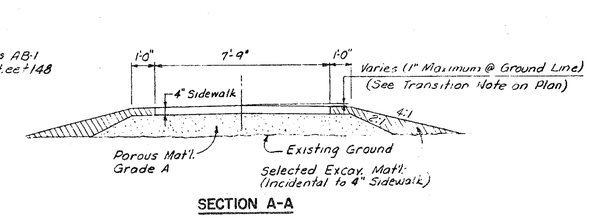
APPROACH PLAN RAMP B



SECTION B-B



POST PLAN



SECTION A-A

Work this sheet with sheets 141 & 149

MICHIGAN STATE HIGHWAY DEPARTMENT

RAMP APPROACH DETAILS

TECON ENGINEERS, INC.

JOC 5-7-62
RFC
MAC 4-26-62
142 - 312

P01 OF 63174 I

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NO.	DESCRIPTION	DATE	BY

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FILE NAME: p0163174sn

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NO.	DESCRIPTION	DATE	BY

End of Deck Slab Ramp A or B
1" ℄ Pier 1 or 3
Hot-Poured Rubber-Asphalt Type Filler (See Sheet for Quantity)
1½" open @ 50° F.
36 WF 150
14" x ½" Bar
8" x 4" x ½" L
1½" x ½" Straps
6" x ½" - 12
Sliding Bearing

SECTION B-B

PIER TABLE						
Pier No.	Col. Ht. "h"	Col. Vert. Bars	No. Reqd. Ea. Pier	Col. Tie Bars	No. Reqd. Ea. Pier
A1 or B1	8'-0"	B101	8	T101	8
A2 or B2	9'-9"	B102	8	T101	10
A3 or B3	11'-6"	B103	8	T101	11
A4 or B4	13'-3"	B104	8	T101	13
A5 or B5	15'-0"	B105	8	T101	15
A6 or B6	16'-6"	B106	8	T101	16
A7 or B7	18'-3"	B107	8	T101	18
A8 or B8	20'-0"	B108	8	T101	20

17 Spaces @ 8'-6" = 144'-6" (Spaced along ℄ Anchor Bolt holes)
℄ Pier A6 or B6
See Detail 1 This Sheet
℄ Pier A7 or B7
℄ Ramp A or B
11 Spaces @ 7'-11" = 87'-1" (Spaced along ℄ Anchor Bolt holes)
℄ Pier A5 or B5
Const. Joint with 4"C.W.S. - T.B. L.F.
℄ Pier A4 or B4
2'-3" Rad.
7'-0" Typical ℄ Roadway
A
A
PLAN
P.C. - Sta. 98+46.50 - Ramp A
Sta. 100+79.67 - Ramp B
75°
℄ Pier A8 or B8
5'-11½" 3 Spa. @ 8'-6" = 25'-6"
Warp deck slab to match tops of Ramp Approaches
Ref. Pt. AN - Sta. 97+16.50
Ref. Pt. BN - Sta. 102+09.67
℄ Ramp A or B
1" Jt. Filler and Hot Poured Filler
5'-11½"
8'-6"
℄ Pier A1 or B1
2 Spa. @ 8'-6" = 17'-0"
2 Spa. @ 8'-6" = 17'-0"
Const. Joint with 4"C.W.S. - T.B. L.F.
N.T. Sta. 97+55.12 - Ramp A
Sta. 101+20.45 - Ramp B
5'-0" (Typ.)
℄ Pier A3 or B3
7'-9⅞"
℄ Pier A2 or B2
B
B
Ref. Pt. 1 - Sta. 98+69.50
Ref. Pt. 3 - Sta. 100+26.67
℄ Pier 1 or 3
See Detail 2 Sh. No. 144
℄ Bridge

T101 Bar #3
1'-6"
1'-0"
3"
B Bars #7

SECTION D-D

Top of Pad Parallel to ramp Slab in this direction
Top of Pad level in this direction
Fascia
4" Curb
1" Bevel
9⅝"
9"
℄ Anchor Bolts AB-1 (for details see Sh. 148)
1½"
1½"
6"

DETAIL 1

14 Spa. @ 6" = 7'-0" - Typ. Spa. on ℄ Ramp for F101 Bars #6
3'-6"
3'-6"
1'-6"
3"
28½"
3"
±10"
H101-H103 Bars #4
Superstr.
Substr.
1½" Fillet
3-J101 Bars #4
1-H103 Bar #4
1-H102 Bar #4
℄ Pier
D
D
8-B Bars #7 Ea. Column (See table this sheet)
5'-0"
B-G101 Bar #7 Ea. Column
A117 Bars #6
1'-6" (Typ.)
3"
5-A117 Bars #6 @ 1'-1½" = 4'-6"
3"

SECTION C-C

7'-9"
3'-10½"
3'-10½"
℄ Ramp A or B
1'-0"
1'-0"
9"
C
J101 Bars #4
1" ℄ ℄ Pier only
5"
4" (Typ.)
1-H1101 Bar #4
Optional Const. Jt.
2'-7½"
1'-6"
2'-7½"
6'-9"
Symm. about ℄
B Bars #7
Backfill with Excavated Mat'l.
h (See Table this sheet)
Existing Ground
Foundation Excavation Limits
T101 Bars #3 @ 1'-0" Spa. (See table this sheet for Number ea. Pier)
5'-0"
6"
1'-6" (Typ.)
A117 Bars #6
2'-0"
6"
C
3"
5-A117 Bars #6 @ 1'-1½" = 4'-6"
3"
Subfooting

SECTION A-A

9⅛"
Step Conc. to Seat on Ramp End Wall

SECTION H-H

Edge with approved edging tool
4"C.W.S. (See Detail Sh. 149)
2"
3" Keyway Const. Jt.

7'-9"
8"
3" Proj.
℄ Ramp Anchor Bolts Level
℄ Ramp
Slope 1" to ft
9" Unif. Conc. Slab
1" Bevel
1" ℄ Pier Varies along ℄ Ramp
Inner Fascia
6"
3'-10⅛"
3'-10⅛"
2" - ¾" Drip Notch
Outer Fascia
*Optional Const. Joint

TYPICAL DECK SECTION

*If a Const. Jt. is not used here, the pour shall be stopped at top of column for not less than 20 min. or more than 30 min. before deck Pours L, M, or N are begun.

153'-0" on ℄ Ramp
NOTE: Elevations, Distances and Grades shown are along ℄ Ramp
Pour N (Deck Slab & 4 Pier Caps)
El. 652.69
El. 650.99
Optional Const. Jt (Typ.)
℄ Pier A6 or B6
1'-6" Dia. (Typ.)
℄ Pier A7 or B7
El. 652.69
El. 654.39
6'-0"
17'-0"
17'-0"
℄ Pier A8 or B8
5 Pour K
El. 652.69
El. 654.39
℄ Pier 1 or 3 On ℄ Ramp A or B
End of Deck
1" Jt. Filler
3.5% ℄ Ramp
Hot-Poured Rubber Asphalt type Filler 1" deep
1" Jt. Filler
Face of Wall
Ref. Pt. A1N or B1N El. 642.29
Pour L (Deck Slab & 1 Pier Cap)
El. 642.99
Const. Jt
El. 642.49
El. 644.19
El. 645.39
El. 646.37
Pour M (Deck Slab & 3 Pier Caps)
El. 648.09
Const. Jt
El. 647.59
El. 649.29
El. 650.29
+10.0%
17'-0"
17'-0"
17'-0"
17'-0"
17'-0"
5'-2⅝"
11'-6"
13'-3"
15'-0"
16'-6"
18'-3"
20'-0"
8'-6"
℄ Pier A1 or B1
℄ Pier A2 or B2
℄ Pier A3 or B3
℄ Pier A4 or B4
℄ Pier A5 or B5
5 Pour C
5 Pour D
5 Pour E
5 Pour F
5 Pour G
5 Pour H
5 Pour J
El. 632.49
El. 632.44
El. 632.39
El. 632.34
El. 632.29
El. 632.49
El. 632.44
Pour A (8 Subfootings)
Pour B (8 Footings)
Subftg.
5'-0"
1'-6" (Typ.)

DEVELOPED ELEVATION

Work this sheet with sheets 144, 149 & 150

MICHIGAN STATE HIGHWAY DEPARTMENT
RAMP PIER & DECK DETAILS
TECON ENGINEERS, INC.
DESIGNED JDC
DRAWN FDM
CHECKED 5-7-99

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MDOT Michigan Department of Transportation

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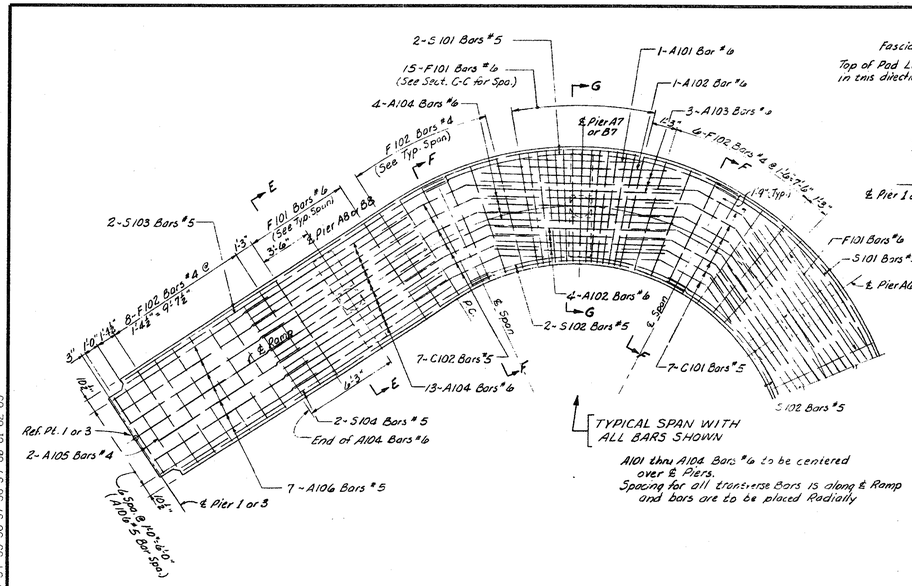
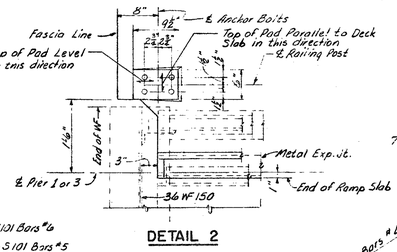
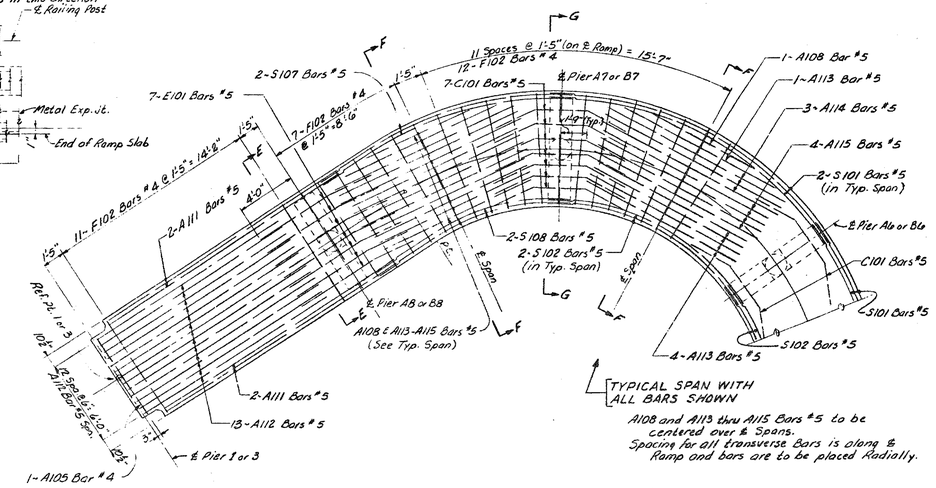
FILE NAME: p063174sn

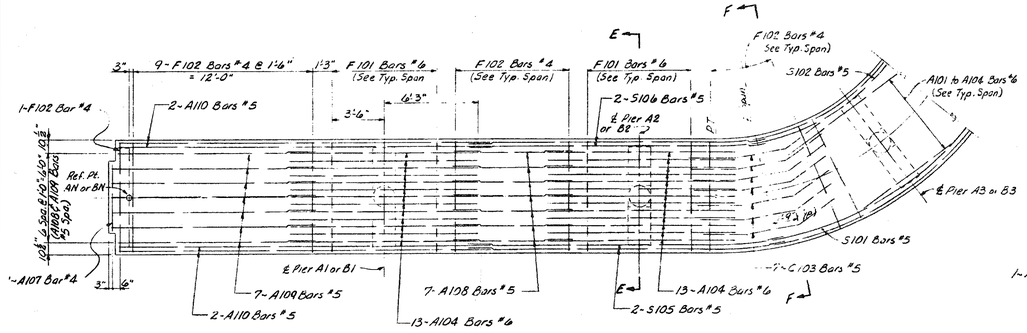
REVISIONS			
NO.	DESCRIPTION	DATE	BY



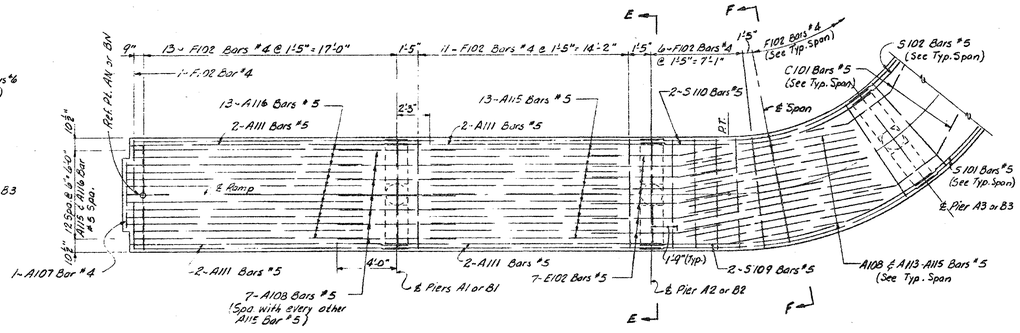


DETAIL 2

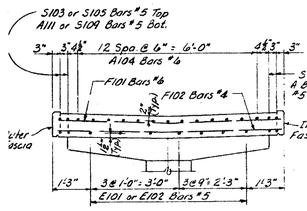




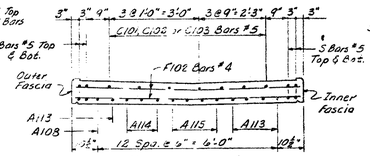
PLAN
DETAILS OF TOP REINF.



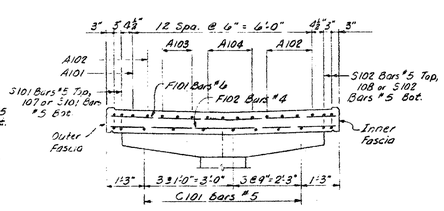
PLAN
DETAILS OF BOTTOM REINF.



SECTION F-F



SECTION G-G



CONCRETE (CU. YDS)		
POUR	Gr. A(CA)	Gr. A(CA-A)
A	9.5	
B	14.9	
C		0.5
D		0.6
E		0.8
F		0.9
G		1.0
H		1.1
J		1.2
K		1.3
L		6.0
M		11.8
N		17.0
TOTALS	24.4	42.4

* Concrete Quantities shown are for Ramp A, Ramp E Spans

Foundation Excav.	2100 C.Y.
1" Joint Filler	1110 Sq. Ft.
H-PRA Type Rail	183 Lin. Ft.
8" Copper Water Stop	1110 Lbs.

Work this sheet with sheets 143, 149 & 150

MICHIGAN STATE HIGHWAY DEPARTMENT

RAMP PIER & DECK DETAILS

TECON ENGINEERS, INC.

DESIGNED	JDE	5-7-62
DETAILED	FDH	
TRACED	M.A.C.	4-28-62
CHECKED	144	312

POI OF 63174 I

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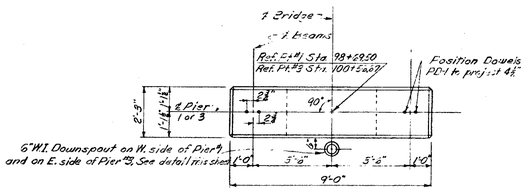
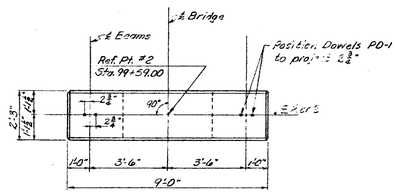
CONTROL SECTION P01 OF 63174 JOB NO. 48404A SH. NO. 9

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

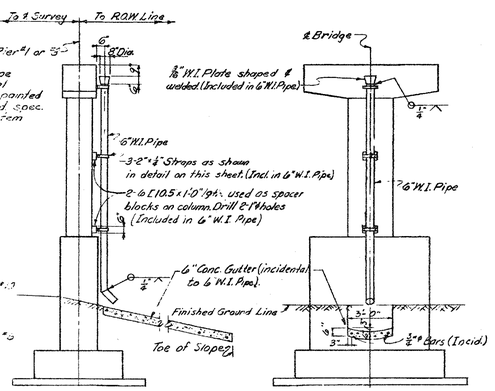


CAP PLAN PIER 1 & 3

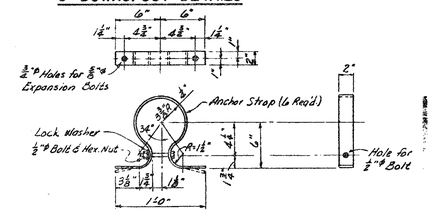


CAP PLAN PIER 2

NOTE: 4" dia. W.I. Pipe and all items optional thereto shall be shop painted in accordance with Std. Spec. 5.02.03 (Includes as item Field Painting.



6" DOWNSPOUT DETAILS



ANCHOR STRAP DETAILS

GENERAL NOTES

Top of Pier Shall be finished to a true plane at elevation shown and shall not vary more than ¼" under a 10' straight edge or more than ½" under any bearing.

If the contractor elects to pour columns and beam monolithically, the concrete pour in the column shall be stopped at the bottom of the beam for not less than 20 minutes, and not more than 30 minutes before completing the pour.

The design is based on a maximum foundation pressure of 4750 #/ft² and a maximum average foundation pressure of 2450 #/ft².

CONCRETE QUANTITIES - CU. YDS.

POUR	LOCATION	GRADE	PIER 1	PIER 2	PIER 3	TOTAL	TOTAL EA. GRADE
A	Sub Footing	A(6A)	2.2	3.2	2.2	7.6	6d A(6A)
B	Footing	"	4.5	9.2	4.5	18.2	= 25.8
C	Pedestal	A(6A)	6.0	3.8	5.2	15.0	
D	Column	"	2.5	3.8	2.5	8.8	6d A(6A)
E	Pier Beam	"	1.6	1.6	1.6	4.8	= 28.6

MISCELLANEOUS QUANTITIES

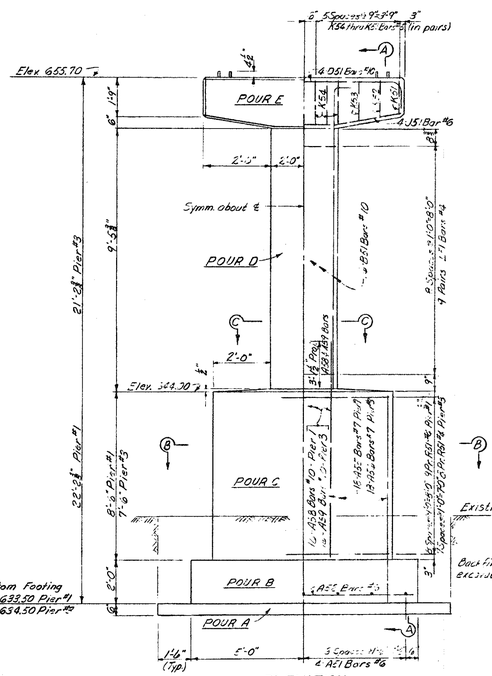
ITEM	UNIT	PIER 1	PIER 2	PIER 3	TOTAL
Foundation Excavation	Cu. Yds.	17.0	13.0	17.0	47.0
6" Wrought Iron Pipe	Lin. Ft.	15.0	—	15.0	30.0

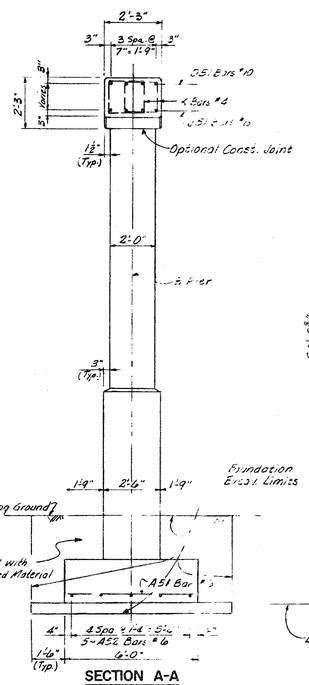
Work this sheet with sheet 180.

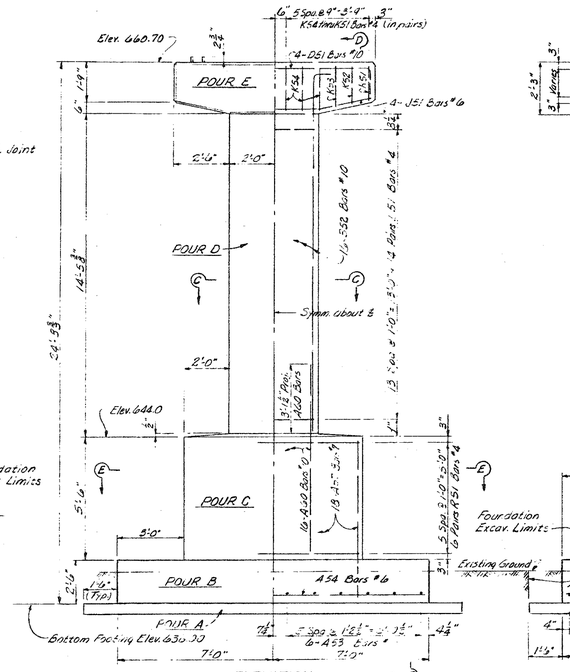
MICHIGAN STATE HIGHWAY DEPARTMENT

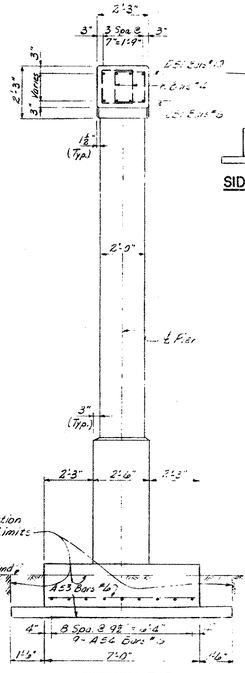
BRIDGE PIER DETAILS

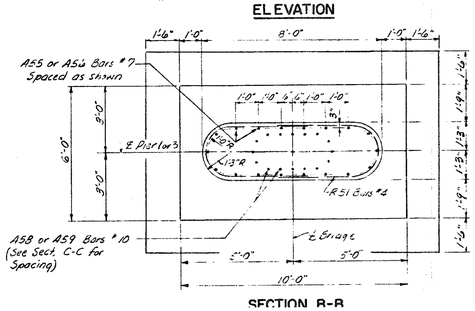
TECON ENGINEERS, INC.

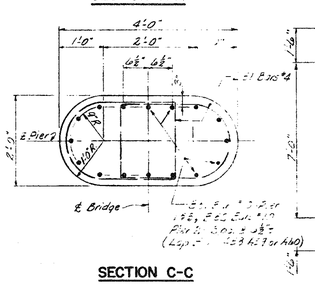


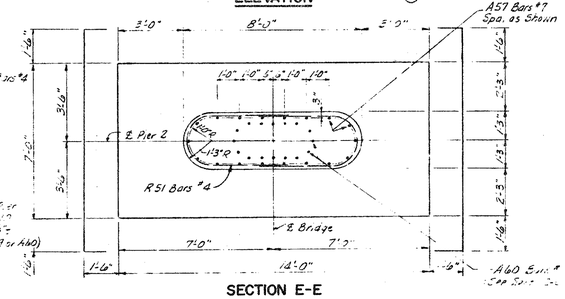












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02-05-99	P01 OF 63174	48404A	MADHAVI	9 OF 16

REVISIONS			
NO.	DESCRIPTION	DATE	BY

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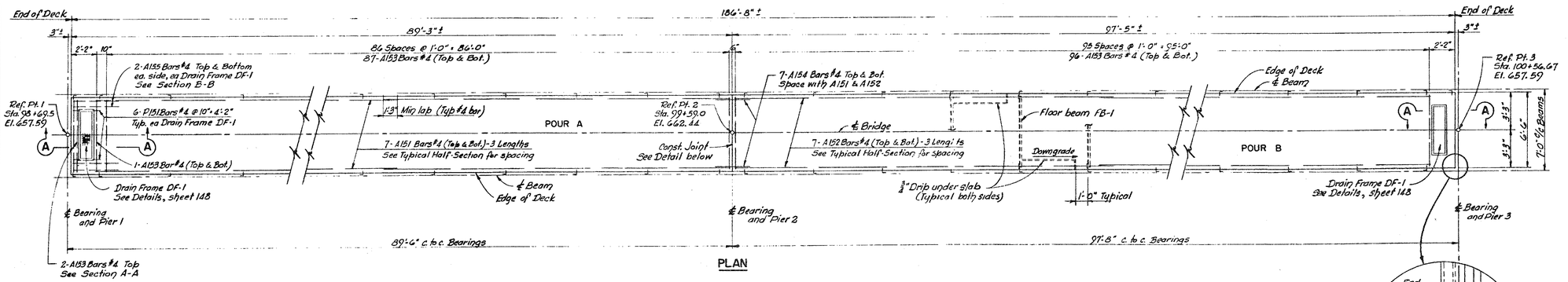
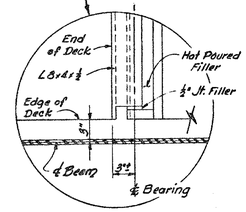
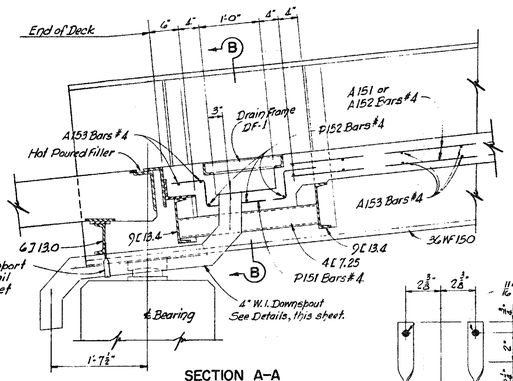
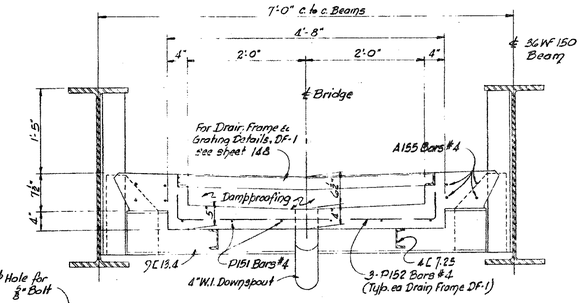


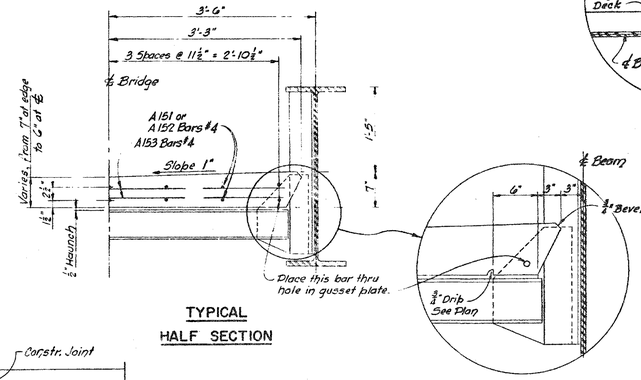




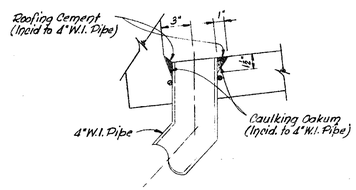
SECTION A-A



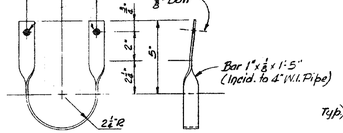
SECTION B-B



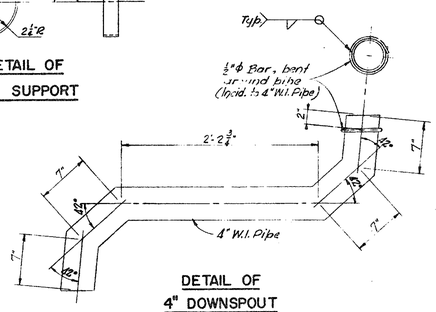
TYPICAL HALF SECTION



DETAIL OF DOWNSPOUT JOINT

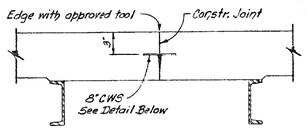


DETAIL OF PIPE SUPPORT

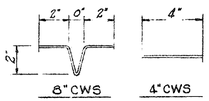


DETAIL OF 4" DOWNSPOUT

4" W.I. downspout to be field painted See sht. 149



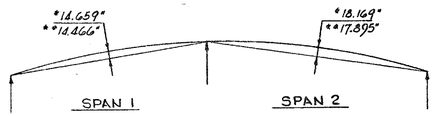
DETAIL OF CONSTRUCTION JOINT



DETAIL OF COPPER WATERSTOP

CONCRETE GRADE (AA)	
POUR	CU. YDS.
A	11.5
B	12.3

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMT.
4" Wrought Iron Pipe	Ft.	11
Dampproofing	Sq. Ft.	15
Copper	Lbs.	6
H.P.R.A.T. Filler	Lin. Ft.	15



* Estimated Camber with structural steel in place.
** Estimated Camber with formwork & reinforcing steel in place.

Work this sheet with sheets 149 & 150

MICHIGAN STATE HIGHWAY DEPARTMENT

BRIDGE DECK DETAILS

TECON ENGINEERS, INC.

JDC 5-7-62
MAC

FDN 146 312

P01 OF 63174 I

REVISIONS			
NO.	DESCRIPTION	DATE	BY

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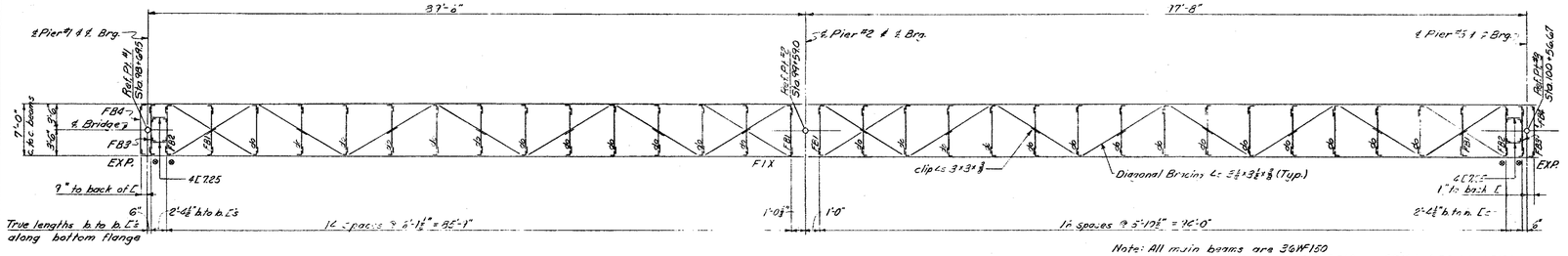
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	10 OF 16

DRAWN BY: under | DATE: | CHECKED BY: | DATE: | CORRECTED BY: | DATE:

FILE NAME: p0163174sn



ERECTION PLAN

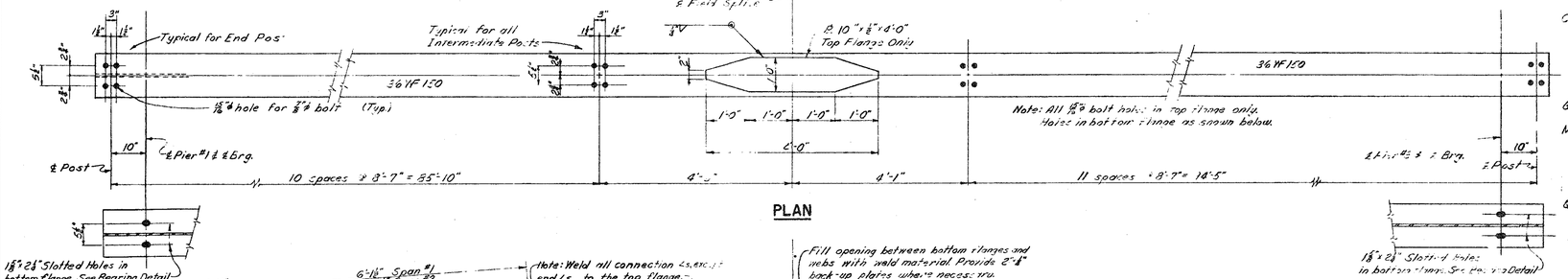
Note: All main beams are 36WF150
Floor beams FB-1 are 6L8.2, FB-2&3 are 9C13.4 & FB-4 is 5C9.0.
Floor beam connections to Gussets marked ● to be field bolted.
Bolt holes except 12's to ship.
All dimensions are horizontal, unless otherwise noted.

STRUCTURAL STEEL NOTES

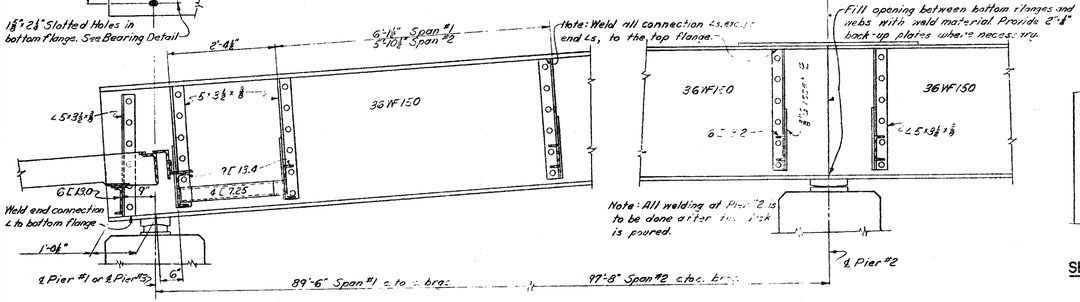
FABRICATION: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction-1960 Edition.
DESIGN: Michigan State Highway Department's Specifications for Design of Highway Bridges-1958 Edition. Live Load for main steel beams - 60 #/ft² and for floor beams - 85 #/ft².
SHOP CONNECTIONS: All shop connections to be welded or riveted as shown on the plans.
FIELD CONNECTIONS: Field connections shall be bolted with high strength bolts except the sole plates, splices and diagonal bracing shall be welded. Where high strength bolts are used for field connections, contact surfaces shall be thoroughly cleaned immediately prior to assembly of the joint.
RIVETS OR HIGH STRENGTH BOLTS: ⅞"ø
OPEN HOLES: Open holes for rivets or high strength bolts shall be ⅞"ø unless otherwise noted.
SHOP PAINT: In addition to the shop paint provisions of the Standard Specifications, the finished surfaces of the sole plates and masonry plates shall be coated in accordance with the requirements for machine finished surfaces. The top surfaces of all floor beams and surfaces to be field welded shall receive one coat of boiled linseed oil only. Metal expansion joints shall be painted as noted on the plans.
CAMBER: The WF beams shall be cambered 1'-3½" in Span 1 and cambered 1'-7⅞" in Span 2 as shown on the Camber Diagram, this sheet. The camber is to be measured with the beam lying on its side. The allowable tolerance is ±¼". Where necessary, heat is to be applied to assure permanency of camber and camber within the required tolerances.
GALVANIZING: Floor Drain Frames shall be galvanized in accordance with current A.S.T.M. Specification Designation A123.
MATERIALS: The main beams and splices shall conform to the requirements for weldable steel (A.S.T.M.-A373). All other steel shall be A.S.T.M.-A7. Self lubricating plates shall be "Lubrite" or equal. Where wrought iron materials are called for on the plans, corrosion resistant, low-alloy steels such as "Corten," "Mayari-R," "Yoloy" and "Hi-steel" may be substituted.
QUANTITIES: The quantity "Structural Steel-Furnishing & Fabricating" includes:

A7 Steel	9920 # (Includes drains & Exp. devices)
A 373 Steel	57055
Lubrite Pl's (or equal)	1,125
Total	67,100 # Structural Steel-Furnish. & Fab.
Total	67,100 # Structural Steel-Erection

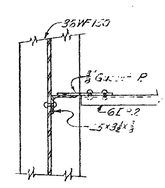
Field Painting - Lump Sum



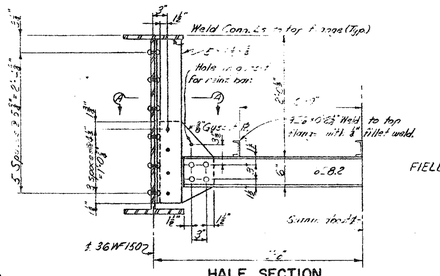
PLAN



BEAM DETAILS



SECTION A-A

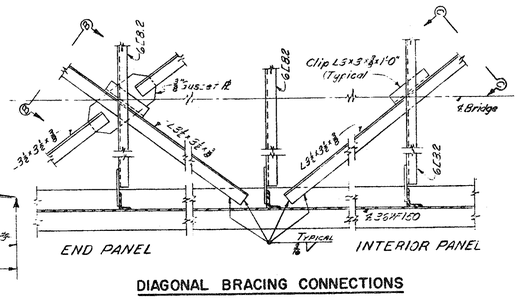


HALF SECTION FLOOR BEAM FB-1

FIELD PAINTING: Includes painting of 4" and 6" W.I. pipe. See shts 145 & 146

MISCELLANEOUS MATERIAL

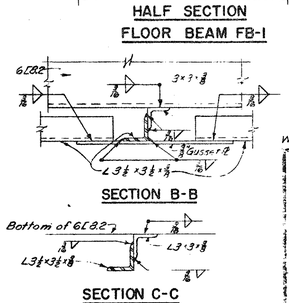
Mark	No. Req'd	Description
B1	92	⅞ø x 3" long Bolt H.H.H.N. & Lock Washer - all Galv.
AB-1	168	⅞ø "J" Bolts 18" Rec. Nuts & 2-Lock washers - all Galv.
PC-1	12	1⅛ø Plain Rod x 1'-8" long.



CAMBER DIAGRAM

* Measured with the beam lying on its side.

DIAGONAL BRACING CONNECTIONS



SECTION B-B

SECTION C-C

Work this sheet with sheet 148.

MICHIGAN STATE HIGHWAY DEPARTMENT
STRUCTURAL STEEL DETAILS
TECON ENGINEERS, INC.
JDC 5-7-62
HMH
M.A.C. 4-24-62
SHEET 147 OF 312
P01 OF 63174 I

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02-05-99	P01 OF 63174	48404A	MADHAVI	11 OF 16

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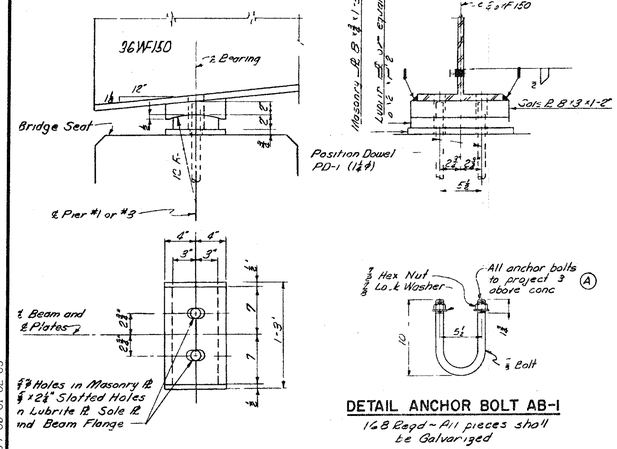
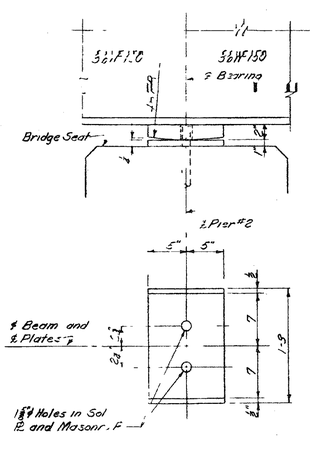
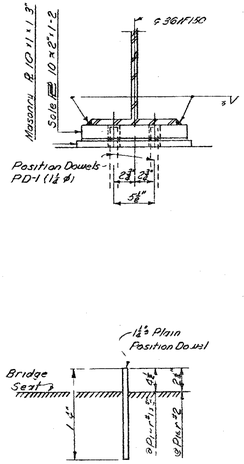


PIER 1 & 3 BEARING DETAILS

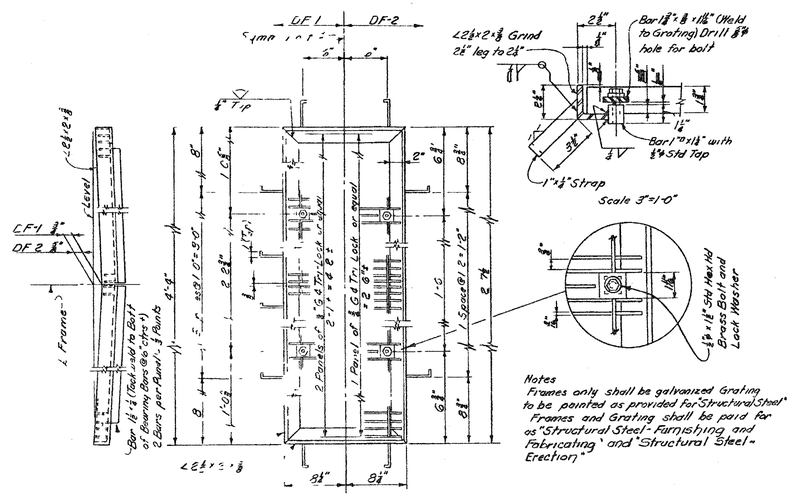
DETAIL ANCHOR BOLT AB-1
16 Reqd - All pieces shall be Galvanized



PIER 2 BEARING DETAILS

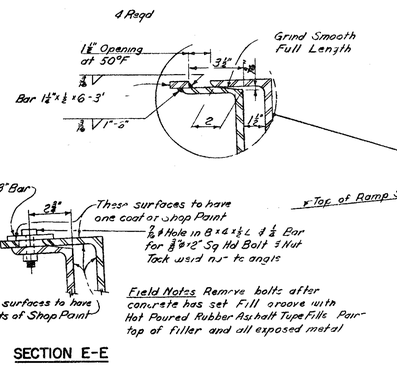


DETAIL
POSITION DOWEL PD-1
12 Reqd

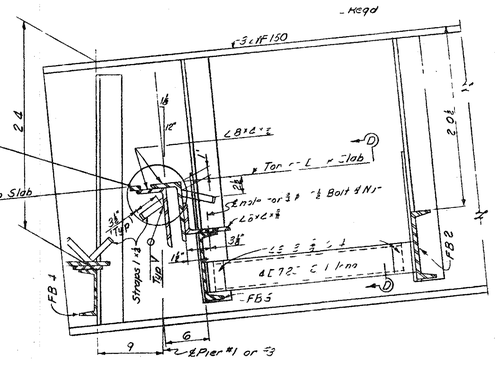


DRAIN FRAME & GRATING DETAILS

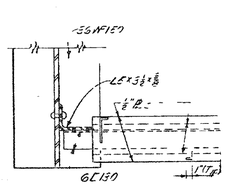
4 Reqd



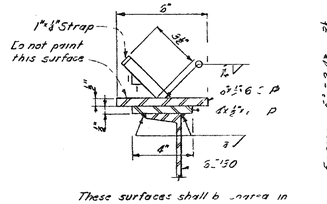
SECTION E-E



DETAILS AT EXPANSION JOINTS

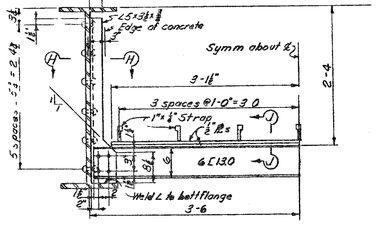


SECTION H H

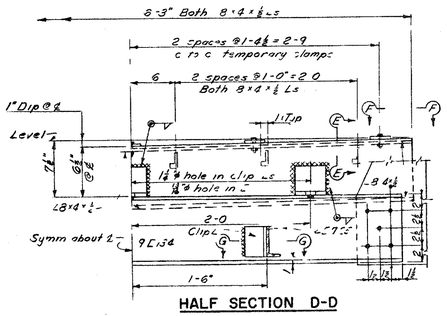


These surfaces shall be prepared in accordance with the requirements for machine finished surfaces. Surfaces shall not be painted with

SECTION J-J

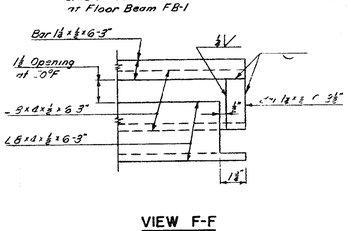


HALF SECTION
FLOOR BEAM FB-4

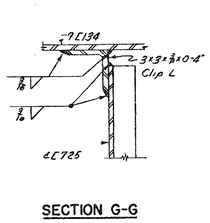


HALF SECTION D-D

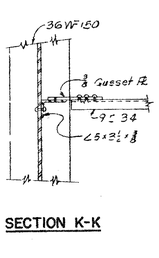
Note
Section D-D shows details at Floor Beams FB-3. Floor Beams FB-2 are similar except for Exp Joint connections and the clips on opposite side of 9L134. For details not shown see Section at Floor Beam FB-1



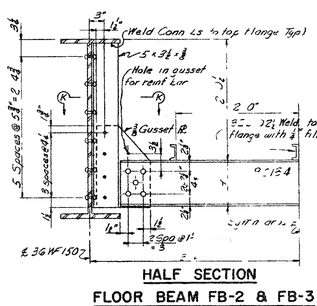
VIEW F-F



SECTION G-G



SECTION K-K



HALF SECTION
FLOOR BEAM FB-2 & FB-3

Work this sheet with sheet 147

MICHIGAN STATE HIGHWAY DEPARTMENT
STRUCTURAL STEEL DETAILS

TECON ENGINEERS, INC

JDC 5-7-62
HMW
MAC 4-20-62
146 312

A Revised anchor bolt projection & 30-62 JC

P01 OF 63174 I

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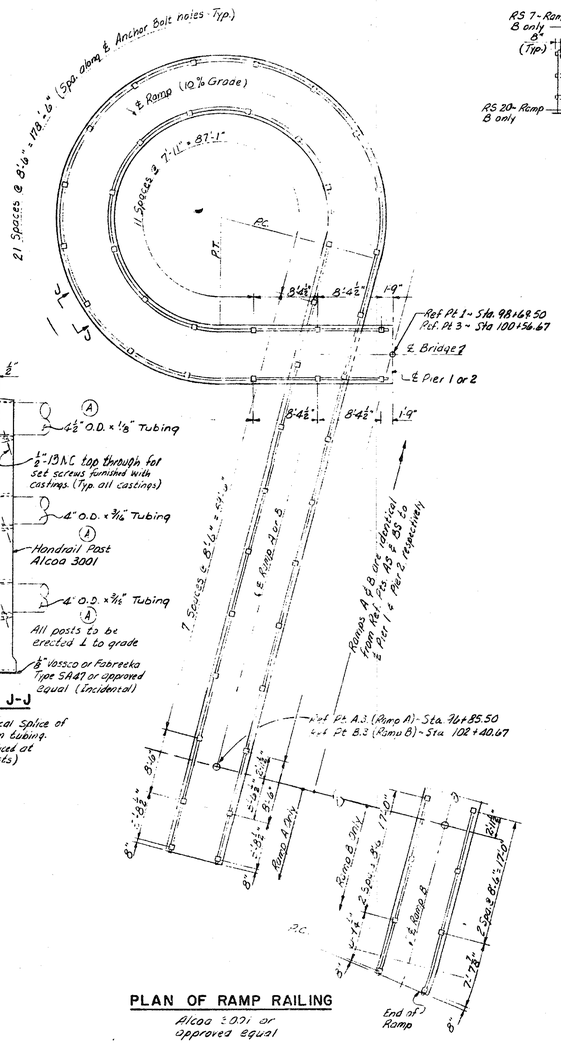
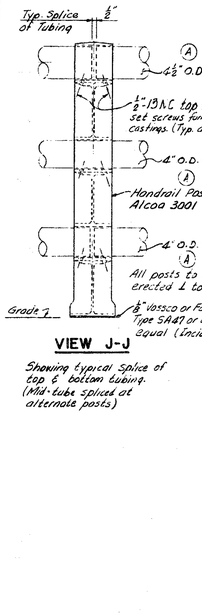
FILE NAME: p063174sn

CONTROL SECTION P01 OF 63174 | JOB NO. 48404A | SH. NO. 13



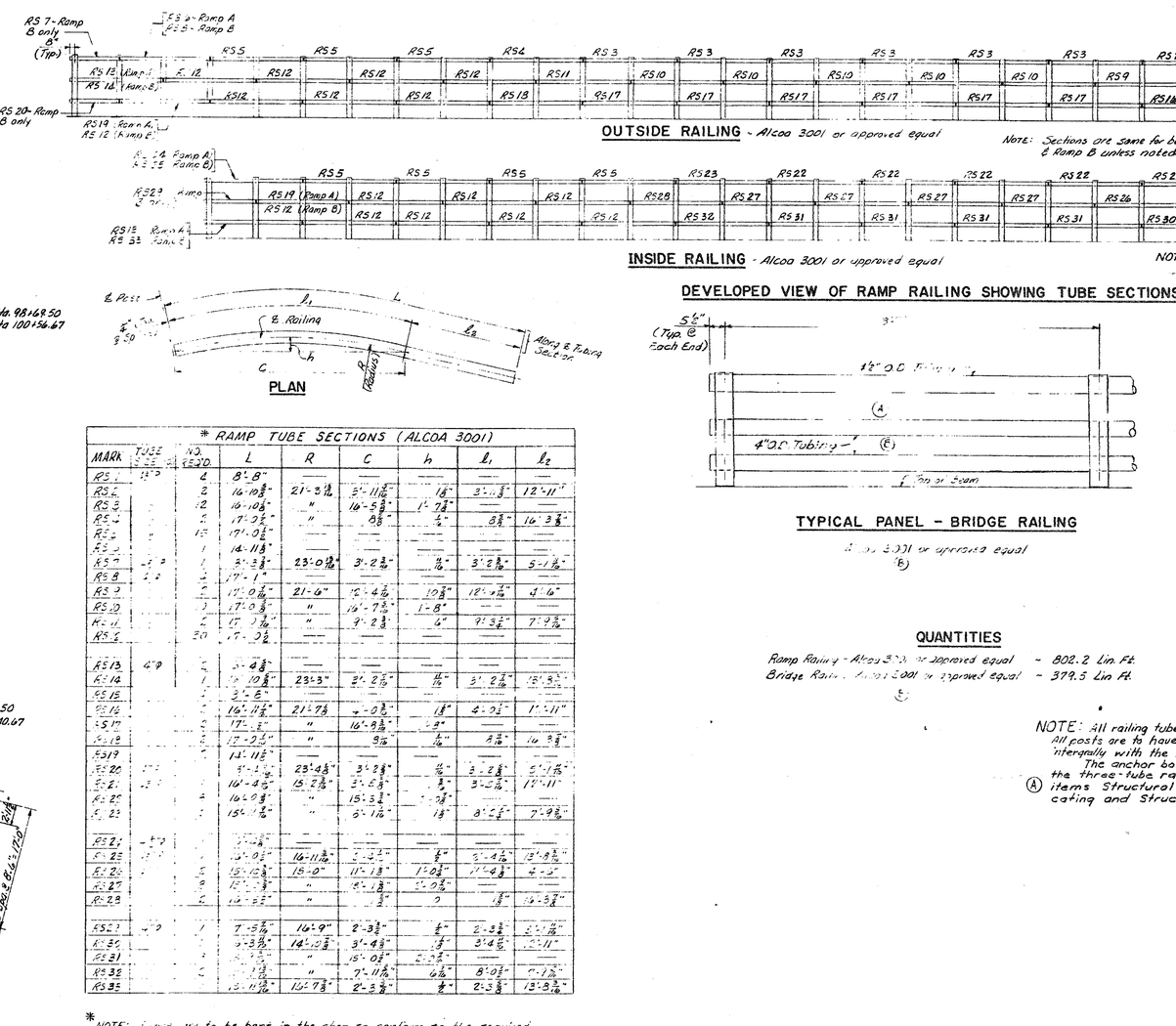
PLAN OF RAMP RAILING

Alcoa 3001 or approved equal



VIEW J-J

Showing typical Splice of top & bottom tubing. (Mid-tube splices at alternate posts)



OUTSIDE RAILING - Alcoa 3001 or approved equal

Note: Sections are same for both Ramp A & Ramp B unless noted

INSIDE RAILING - Alcoa 3001 or approved equal

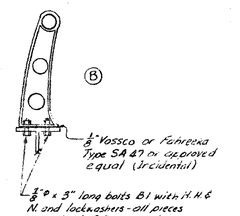
PLAN

DEVELOPED VIEW OF RAMP RAILING SHOWING TUBE SECTIONS

TYPICAL PANEL - BRIDGE RAILING

Alcoa 3001 or approved equal

(B)



QUANTITIES

Ramp Railing - Alcoa 3001 or approved equal - 802.2 Lin. Ft.
Bridge Railing - Alcoa 3001 or approved equal - 379.5 Lin Ft.

(E)

NOTE: All railing tube shall be spliced within posts. All posts are to have approved test coupon cast integrally with the base.
The anchor bolts for both the two-tube and the three-tube railing are included in the bid items Structural Steel-Furnishing and Fabricating and Structural Steel-Erection.

(A)

* RAMP TUBE SECTIONS (ALCOA 3001)

MARK	TUBE SIZE	NO. REQ'D.	L	R	C	h	ℓ_1	ℓ_2
RS 1	4"Ø	2	8'-8"					
RS 2	"	2	16'-10⅜"	21'-3 11/16"	3'-11⅝"	18"	3'-1⅜"	12'-11"
RS 3	"	12	16'-10⅜"	"	16'-5⅝"	1'-7⅜"		
RS 4	"	1	17'-0½"	"	0⅜"	2"	8½"	16'-3⅜"
RS 5	"	12	17'-0½"					
RS 6	"	1	16'-11⅜"					
RS 7	4"Ø & 3"Ø	1	3'-3⅜"	23'-0 13/16"	3'-2⅜"	11/16"	3'-2⅜"	5'-1⅛"
RS 8	"	1	17'-1"					
RS 9	"	1	17'-0 11/16"	21'-6"	15'-4 7/16"	10⅜"	18'-7/16"	4'-6"
RS 10	"	1	17'-0⅜"	"	16'-7⅛"	1'-8"		
RS 11	"	1	17'-0 11/16"	"	9'-2⅜"	4"	9'-3⅜"	7'-9 9/16"
RS 12		30	17'-0½"					
RS 13	4"Ø	1	5'-4⅜"					
RS 14	"	1	10'-10⅜"	23'-3"	3'-2⅜"	11/16"	3'-2 13/16"	13'-8⅝"
RS 15	"	1	5'-5"					
RS 16	"	1	16'-11⅜"	21'-7⅛"	+0-0⅜"	1⅛"	4'-0½"	1'-11"
RS 17	"	9	17'-2"	"	16'-8⅜"	2"		
RS 18	"	1	17'-0½"	"	9⅛"	1/16"	8 11/16"	16'-3⅜"
RS 19		1	13'-11⅜"					
RS 20	4"Ø	1	3'-1⅜"	23'-4⅝"	3'-2⅜"	11/16"	3'-2⅜"	5'-1 11/16"
RS 21	4"Ø & 3"Ø	1	16'-4½"	15'-2⅛"	2'-5⅜"	⅜"	3'-2⅜"	13'-11"
RS 22	"	4	16'-0⅜"	"	15'-5⅛"	1'-0⅜"		
RS 23	"	1	15'-11⅞"	"	6'-11⅛"	1⅜"	8'-0⅝"	7'-9⅜"
RS 24		1	3'-1⅜"					
RS 25	4"Ø & 3"Ø	1	13'-0⅝"	16'-11⅜"	2'-3½"	⅝"	2'-4 11/16"	13'-8⅝"
RS 26	"	1	15'-10⅜"	16'-0"	11'-1⅜"	1'-0⅜"	11'-4⅜"	4'-3"
RS 27	"	9	17'-1⅜"	"	16'-1⅜"	2'-0⅜"		
RS 28	"	2	16'-11⅜"	"	3⅝"	0	1⅜"	16'-3⅜"
RS 29	4"Ø	1	7'-5⅜"	16'-9"	2'-3½"	⅝"	2'-3½"	5'-1 11/16"
RS 30	"	1	13'-3⅜"	14'-10⅜"	3'-4⅜"	1⅜"	3'-4 11/16"	9'-1 11/16"
RS 31	"	1	17'-1⅜"	"	15'-0⅛"	2'-3⅜"		
RS 32	"	2	17'-1⅜"	"	7'-11⅜"	6/16"	8'-0½"	7'-1 15/16"
RS 33	"	1	13'-11⅜"	15'-7⅞"	2'-2⅜"	⅜"	2'-3⅜"	13'-8 3/16"

* NOTE: Tubes are to be bent in the shop to conform to the required radius for the curved portions of the ramp.

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MICHIGAN STATE HIGHWAY DEPARTMENT

HANDRAIL DETAILS

TECON ENGINEERS, INC.

SIGNED BY:	JDE	5-7-62
DRAWN BY:	FDV	
TRACED BY:		
CHECKED BY:	MHC	5-3-62
QUANTITIES:	149 sh 312	

A Added Tube Thickness 7-30-62 R.E.
6 Changed from 2001 to 3001 tube railing on Bridge 5-24-63 A.F.B.

P01 OF 63174 I

FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

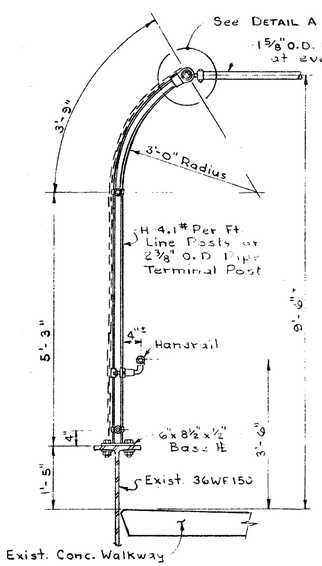
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	13 OF 16

NO.	REVISIONS DESCRIPTION	DATE	BY

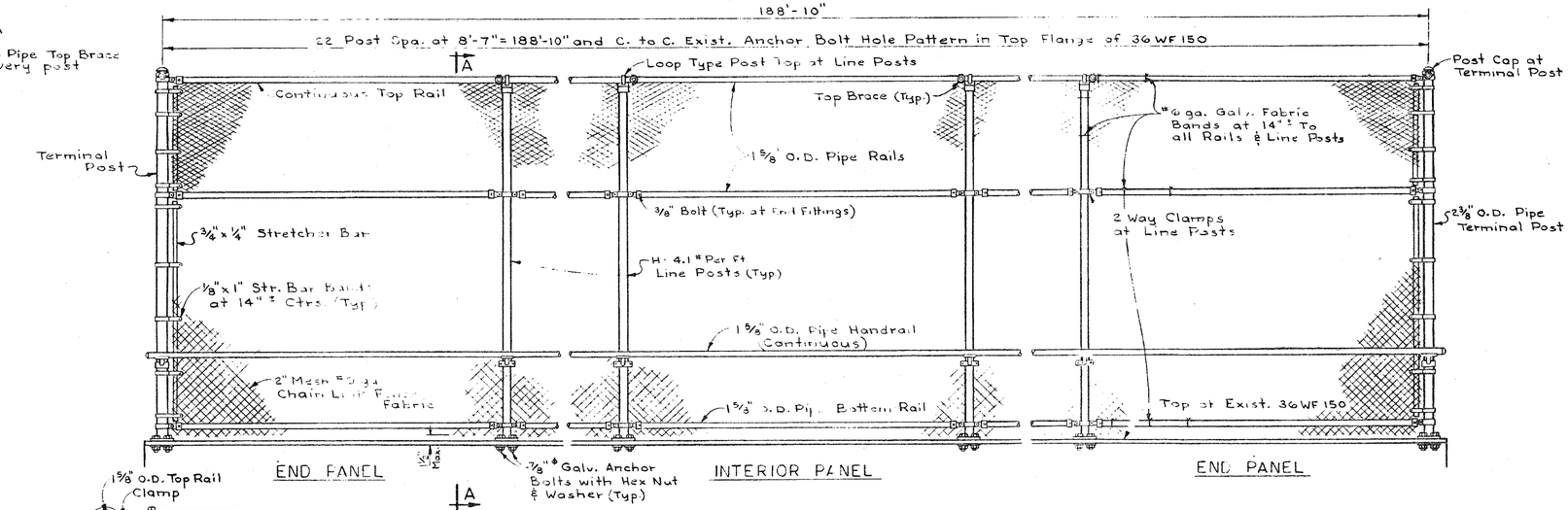
DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DRAWN BY: under | DATE: | FILE NAME: p0163174sn

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

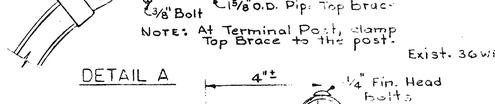
REVISIONS			
NO.	DESCRIPTION	DATE	BY



SECTION A-A

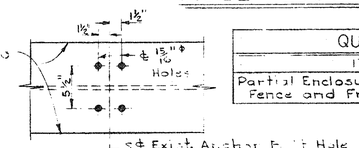


INSIDE ELEVATION



NOTE: At Terminal Post, clamp Top Brace to the post.

DETAIL A



EXISTING ANCHOR BOLT HOLES

QUANTITIES		
ITEM	UNIT	AMT.
Partial Enclosure Chain Link Fence and Framing	Lin.Ft.	377.7

NOTES

The Chain Link Fence Enclosure shall conform to the M.D.S.H. Standard Specifications except as shown on these plans.

2 3/8" O.D. pipe shall be 2.375" outside diameter steel pipe or tubing weighing 3.68 lbs. per ft., galvanized. 1 5/8" O.D. pipe shall be 1.660" outside diameter steel pipe or tubing weighing 2.27 lbs. per ft., galvanized. The H-posts shall be 2 1/4"x2" H Beam weighing 4.1 lbs. per ft., galvanized. The Chain Link Fence Fabric shall be #9 gage - 2" Mesh Aluminum or Zinc coated steel wire.

All tubing and H-posts shall be furnished with suitable connections and its minimum weight shall be within 5% of that specified.

The post base plates, anchor bolts, hand rail supports, end caps and other fittings are incidental to the Chain Link fence enclosure.

All components are to be galvanized after fabrication. Bolts, nuts and washers to be galvanized in accordance with A.S.T.M. designation A-153.

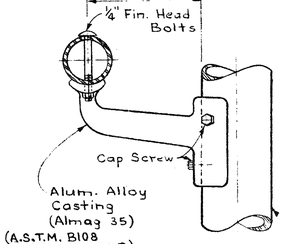
The enclosure posts are to be placed vertically.

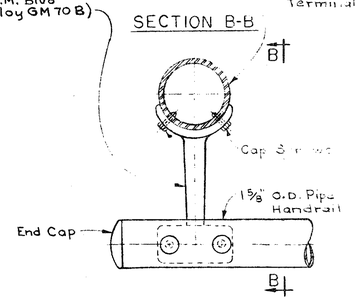
All fabric for chain link fence shall be furnished with knuckling at both selvages.

Steel in anchor bolts may be A.S.T.M. A-307.

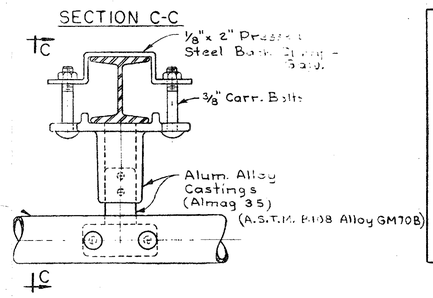
Touch up the top flange of the existing WF beams, in the vicinity of the post base plates, with a commercial grade aluminum paint. (Incidental)

Peen all 3/8" bolts.



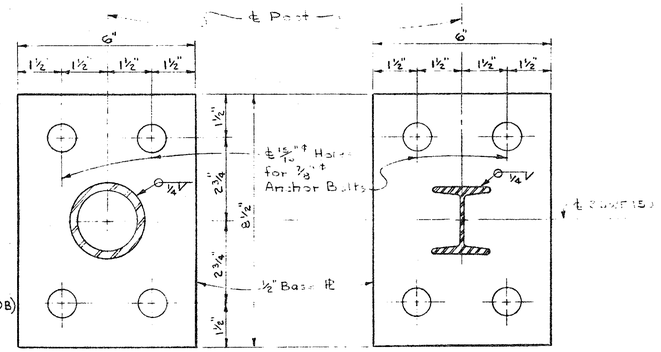


AT TERMINAL POST



AT LINE POST

HANDRAIL DETAILS



TERMINAL POST LINE POST

POST BASE DETAILS

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SCREENING DETAILS ACCEPTANCED

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD DES.	Rieger	2-26-70
DRAWN BY	W. L.	2-13-70
TRACED BY		
CHECKED BY	JDB	2-16-70
SHEET	4 OF	4

P01 of 63174 C

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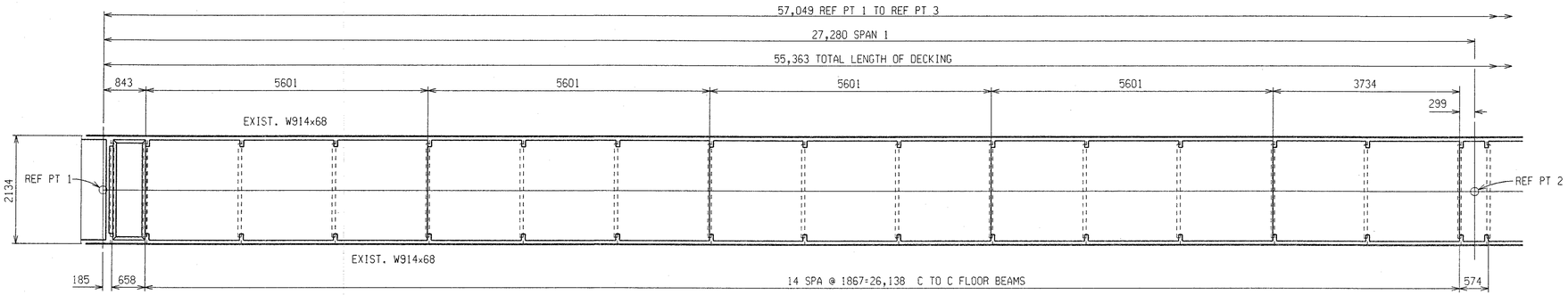
MDOT Michigan Department of Transportation

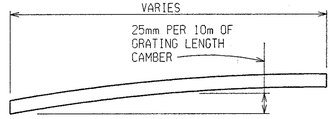
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	14 OF 16

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: under FILE NAME: p0163174sn

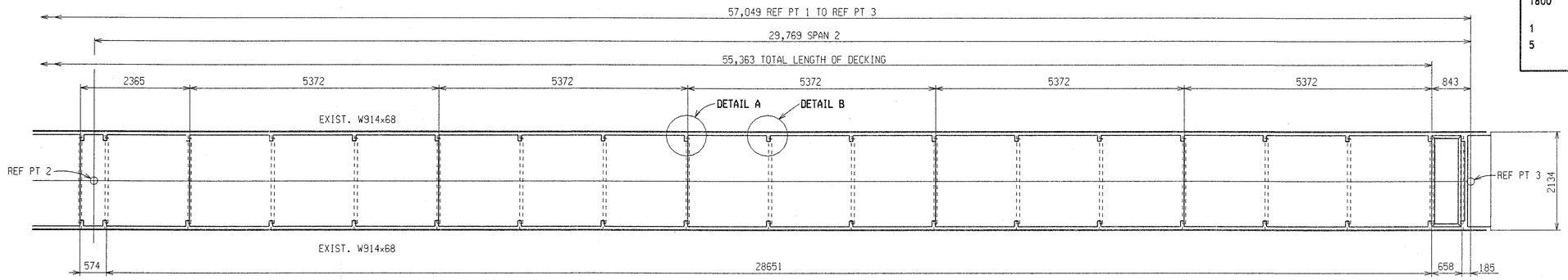
CONTROL SECTION P01 OF 63174 JOB NO. 48404A SH. NO. 15

REVISIONS			
NO.	DESCRIPTION	DATE	BY





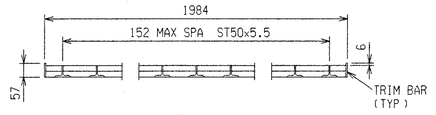
TYPICAL ELEVATION OF DECK GRATING SECTION



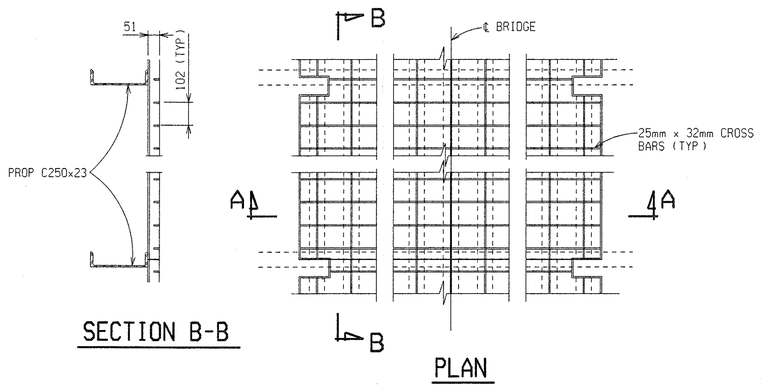
PLAN OF DECK

MISCELLANEOUS QUANTITIES

122	m2	Deck Grating, Furnishing
122	m2	Deck grating, Erecting
7	m3	Patching Mortar or Conc
1800	kg	Structural Steel, Retrofit, Furn, Fab, and Erect
1	LS	Field Repair of Damaged Coating (P01)
5	m	Expansion Joint Device



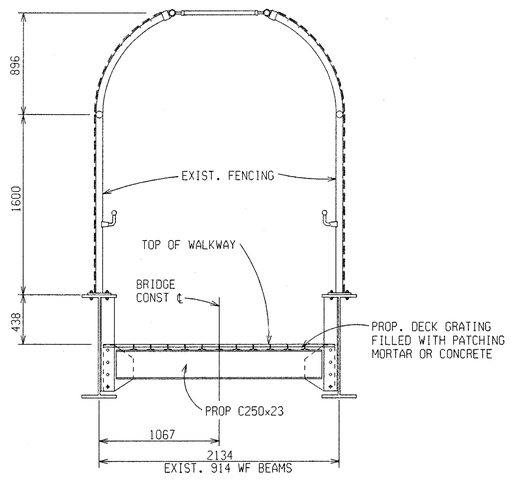
SECTION A-A



SECTION B-B

PLAN

PROP DECK GRATING DETAILS



DECK SECTION

NOTES:

THE PROPOSED DECK SHALL BE MORTAR FILLED STEEL GRATINGS AS DETAILED ON THESE PLANS.

DECK GRATING AND ALL APPURTANCES ARE TO BE HOT-DIPPED GALVANIZED AS PER STANDARD SPECIFICATIONS, SECTION 707.03C.

DECK GRATING IS TO BE FILLED WITH PATCHING MORTAR OR CONCRETE FLUSH WITH THE TOP OF GRATING SECTION AND CROSS BARS.

DIMENSIONS ASSOCIATED WITH EXISTING STRUCTURAL STEEL ARE FROM THE EXISTING DETAIL SHEETS. THE CONTRACTOR SHALL VERIFY THESE DIMENSIONS ON THE ACTUAL STRUCTURE PRIOR TO FABRICATING ANY PROPOSED STRUCTURAL ELEMENTS.

DECK GRATING AND ALL APPURTANCES SHALL BE CONSTRUCTED FROM ASTM A36 STEEL, SHALL BE AS MANUFACTURED BY IKG GREULICH, LB FOSTER, UNITED INTERLOCK, OR APPROVED EQUAL, AND SHALL BE ABLE TO SPAN A MINIMUM OF 2134mm, WITHSTANDING A LIVE LOAD OF 488 Kg/m2 WITH A MAXIMUM ALLOWABLE DEFLECTION OF 1/800.

EXPANSION JOINT SHALL BE PROVIDED AT PIERS 1 AND 3 AND SHALL BE DESIGED FOR THE SPECIFIC DECK GRATING SYSTEM USED, AS APPROVED BY THE ENGINEER. NO OPENING SHALL BE ALLOWED AND A SMOOTH RIDING SURFACE SHALL BE MAINTAINED. PAID FOR AS "EXPANSION JOINT DEVICE".

THE EXPANSION JOINT DEVICE SHALL PROVIDE A MIMIMUN TOTAL TRAVEL OF 32mm.

ALL EXISTING EXPOSED REINFORCEMENT SHALL BE EMBEDDED INTO THE NEW CONCRETE, AS DIRECTED BY THE ENGINEER.

BLAST CLEAN AND PRIME FAYING SURFACES PRIOR TO ERECTING DIAPHRAGMS AND BENT PLATES. THIS WORK IS INCLUDED IN THE PAY ITEMS FOR CLEANING AND COATING EXISTING STRUCTURAL STEEL.

DATE: 10-18-99 CORRECTED BY: R. PRATT

DATE: DRAWN BY: R.K.OLIN DATE: 9/99 CHECKED BY:

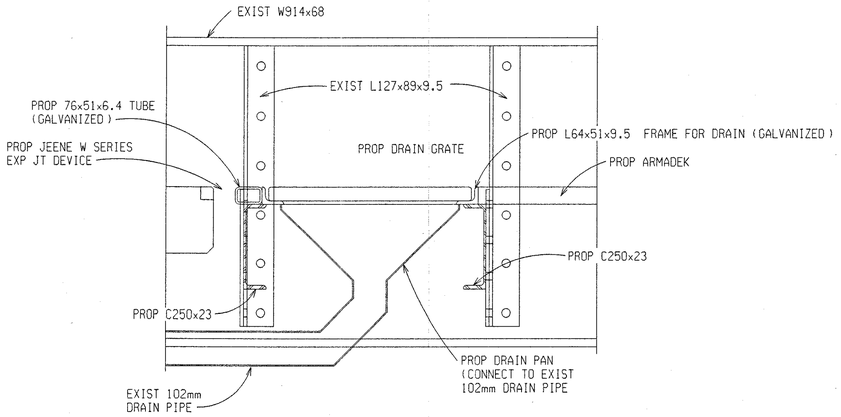
FILE NAME: p0163174.dk

MDOT Michigan Department of Transportation

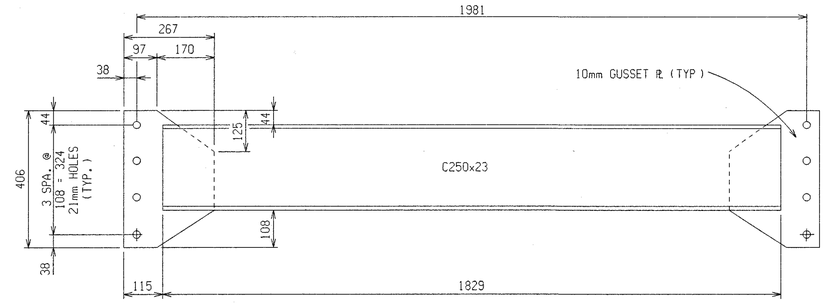
SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
9-21-99	P01 OF 63174	48404A	MAHDAVI	15 OF 16

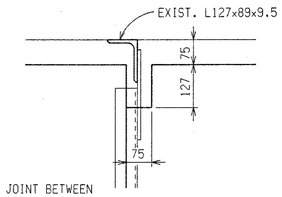
CONTROL SECTION P01 OF 63174 JOB NO. 48404A SH. NO. 16



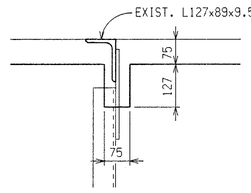
SECTION AT DRAIN



FLOOR BEAM DETAILS



DETAIL A



DETAIL B

NOTES:

DRAIN CASTINGS SHALL BE GRAY IRON CASTINGS IN ACCORDANCE WITH ASTM A48, CLASS 35B.

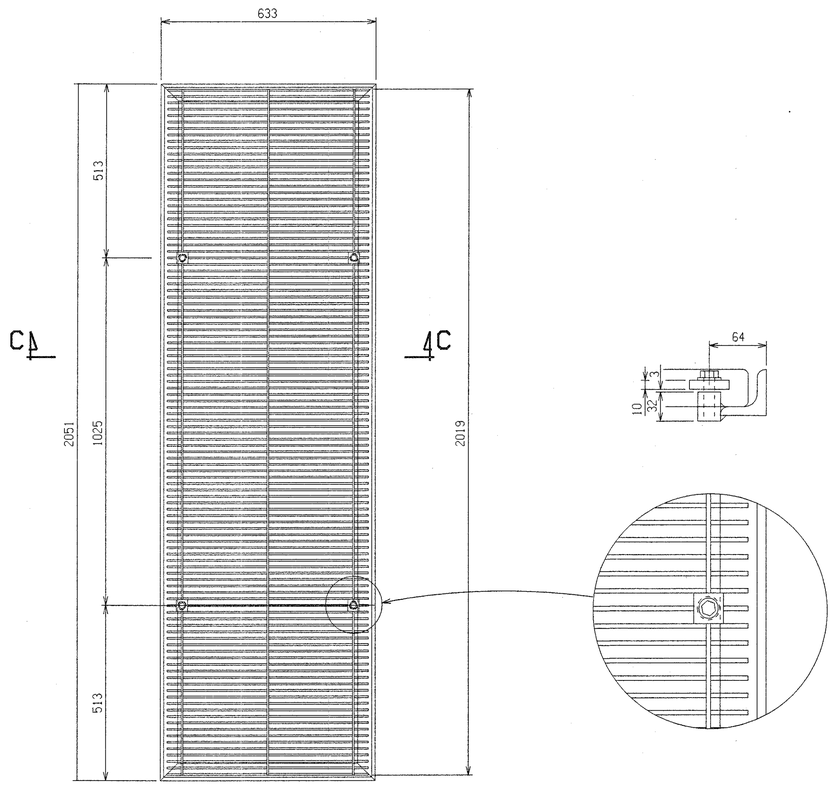
STEEL FOR BRACKETS AND CONNECTION FRAME SHALL BE ASTM A36, GALVANIZED.

FASTENERS SHALL MEET THE REQUIREMENTS OF ASTM A307, GALVANIZED.

WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844, GALVANIZED

GALVANIZING SHALL BE BY THE HOT DIP PROCESS IN ACCORDANCE WITH SECTION 7.07 OF THE 1996 STANDARD SPECIFICATIONS. ALL FABRICATION SHALL BE COMPLETED BEFORE GALVANIZING.

ALL WORK FOR DRAIN CASTINGS SHALL BE INCLUDED IN THE PAY ITEM "STRUCTURAL STEEL, RETROFIT FURN, FAB AND ERECT".



DRAIN DETAILS

SECTION C-C

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: 10-18-99 CORRECTED BY: R. PRATT

DATE: 9/99 CHECKED BY:

DRAWN BY: R.K.OLIN

FILE NAME: p0163174.dgk

MDOT Michigan Department of Transportation

SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
9-21-99	P01 OF 63174	48404A	MAHDAVI	16 OF 16

CONTROL SECTION S04 OF 63103 | JOB NO. 48404A | SH. NO. 2

REVISIONS			
NO.	DESCRIPTION	DATE	BY

WITNESSES TO TRANSIT PTS.

Sta 801+00 HCP #34
N 30°W 195.3' Light Pole
N 22°E 216.4' Light Pole
S 27°W 109.5' Light Pole

Sta 805+00 HCP #35
N 51°W 117.9' Light Pole
N 71°E 106.2' Light Pole
N 06°E 93.3' 25"x4" Conc.

Sta 809+00 HCP #36
S 57°W 93.3' Light Pole
S 04°W 52.9' P. Pole
S 63°E 120.8' Light Pole

Curve Data
Const. & I-75
Δ = 08°-14'-32" Rt.
D = 00°-15'-25"
R = 22,298.90'
T = 1606.66'
L = 3207.78
E = 57.81
PC = 782+20.01
PI = 798+26.67
PT = 814+27.79

Curve Data
Service Rd. W-S
Δ = 46°-08'-43" Rt.
D = 6°00'-00"
R = 954.93'
T = 406.77'
L = 769.09
E = 83.03'
PC = 546+75.90
PI = 550+82.17
PT = 554+44.99

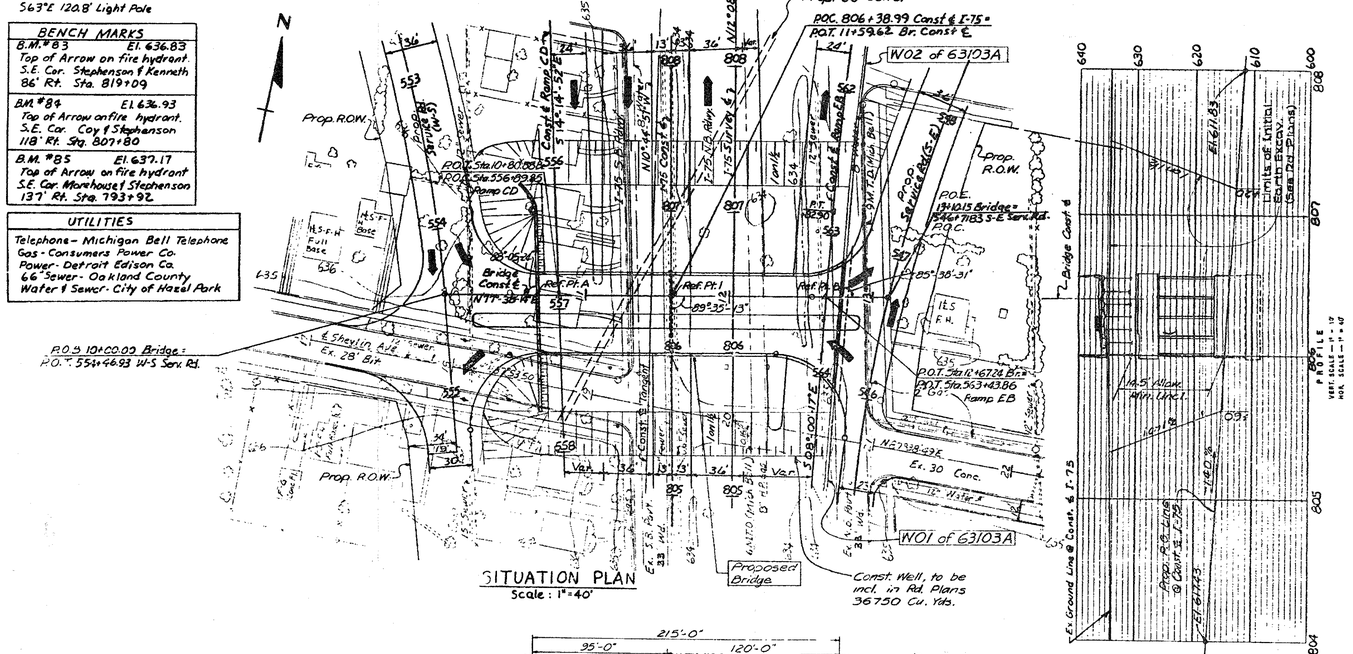
Curve Data
Service Rd. S-E
Δ = 46°-07'-08" Rt.
D = 6°00'-00"
R = 954.93'
T = 393.45'
L = 796.43'
E = 77.88
PC = 544+27.57
PI = 548+21.02
PT = 551+74.00

Curve Data.
Ramp CD
Δ = 01°-43'-31" Lt.
D = 00°15'-25"
R = 22,298.90
T = 343.32'
L = 686.59'
E = 2.64'
PC = 556+80.09
PI = 560+23.41
PT = 562+66.68

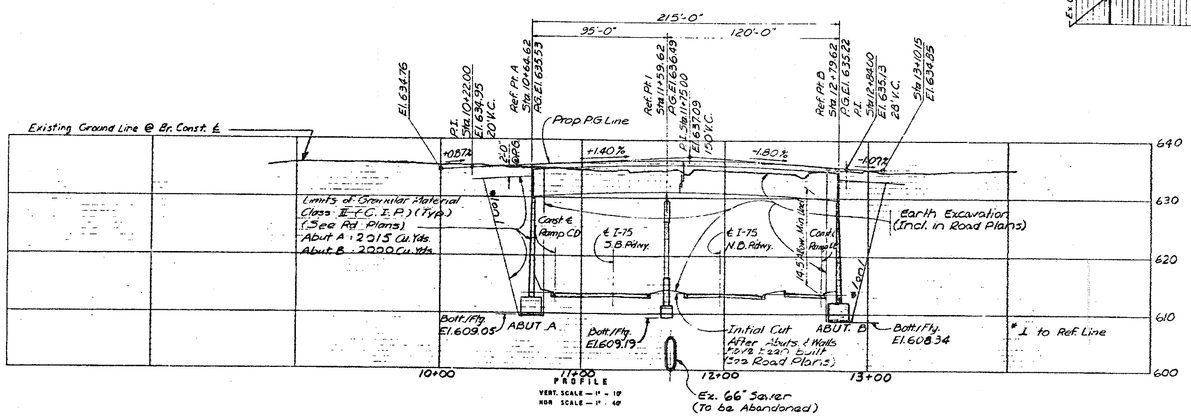
Curve Data.
Ramp EB
Δ = 03°-07'-57" LE
D = 03°-45'-00"
R = 1527.89'
T = 108.62'
L = 216.87'
E = 5.86'
PC = 560+66.03
PI = 561+74.65
PT = 562+82.90

BENCH MARKS	
B.M. #83	El. 636.83
Top of Arrow on fire hydrant. S.E. Cor. Stephenson & Kenneth 86' Rt. Sta. 819+09	
B.M. #84	El. 636.93
Top of Arrow on fire hydrant. S.E. Cor. Coy & Stephenson 118' Rt. Sta. 807+80	
B.M. #85	El. 637.17
Top of Arrow on fire hydrant S.E. Cor. Morehouse & Stephenson 137' Rt. Sta. 793+92	

UTILITIES
Telephone - Michigan Bell Telephone
Gas - Consumers Power Co.
Power - Detroit Edison Co.
66" Sewer - Oakland County
Water & Sewer - City of Hazel Park

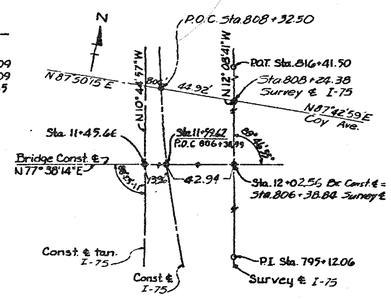


SITUATION PLAN
Scale : 1"=40'



WITNESSES TO ALIGNMENT

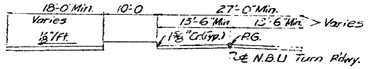
P.I. Sta. 828+48.07
P.K. Nail
N 55°E 74.78' N.W. Cor. Bldg.° 1409
N 77°E 63.10' S.W. Cor. Bldg.° 1409
S 60°E 85.04' S.W. Cor. Bldg.° 1415
P.O.T. Sta. 816+41.50
P.K. Nail
N 2°W 67.08' N. of C. - G.P.
N 54°E 87.57' N. of C. - G.P.
S 63°E 89.22' N. of C. - G.P.
P.I. Sta. 795+12.06
Boat Spike N.E. Corner
N 76°W 59.25' Bldg.° 24207
S 53°W 56.58' N. of C. - L.P.
S 18°W 113.25' N. of C. - Tw. 12" Elm.



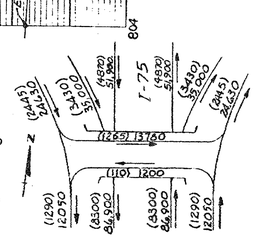
ALIGNMENT DIAGRAM

Construction Sequence

Construct Abut. A.
Remove Old N.B. Pavement.
Construct Abut. B.
Construct Ret. Wall W01 & W02 of 63103A.
Complete Construction of Bridge.



APPROACH SECTION
(Looking West)
Scale : 3/32" = 1'-0"



1990 ESTIMATED TRAFFIC DISTRIBUTION

00000 - 1990 Average Daily Traffic
(0000) - 1990 Design Hour Volume

NOTES:

This bridge is part of an interchange and all area shown is within M.D.S.H. R.O.W.

The work to be done on these plans includes construction of the proposed bridge, placing slope protection to the limits shown and fitting abutments and wingwalls to the x-Concrete to the limits noted. [illegible] ... [illegible] ... which are a part of this contract.

The contractor shall locate all active underground utilities prior to starting work, and shall conduct his operations in such a manner as to insure that those utilities not requiring relocation will not be disturbed.

Removal of buildings is not a part of this contract.

Shevlin Ave. traffic is to be detoured over the Exist Streets.

The Detroit Edison Co. power lines in the vicinity of the proposed structure will be relocated or removed.

PREVISIONS			
NO	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

SHEVLIN DOUBLE U TURN OVER I-75 IN THE CITY OF HAZEL PARK

GENERAL PLAN OF SITE

SQUAD CHIEF	[illegible]
SHAPE BY	SGC
TRACED BY	CA
CHECKED BY	WJ
SHEET	2 OF 22

APPROVED Laurence O. Chick 6-5-69 ASST. SUPERVISOR-DESIGN
APPROVED C. Traka 6.5.69 SUPERVISOR-DESIGN

S04 of 63103A

NOTE:
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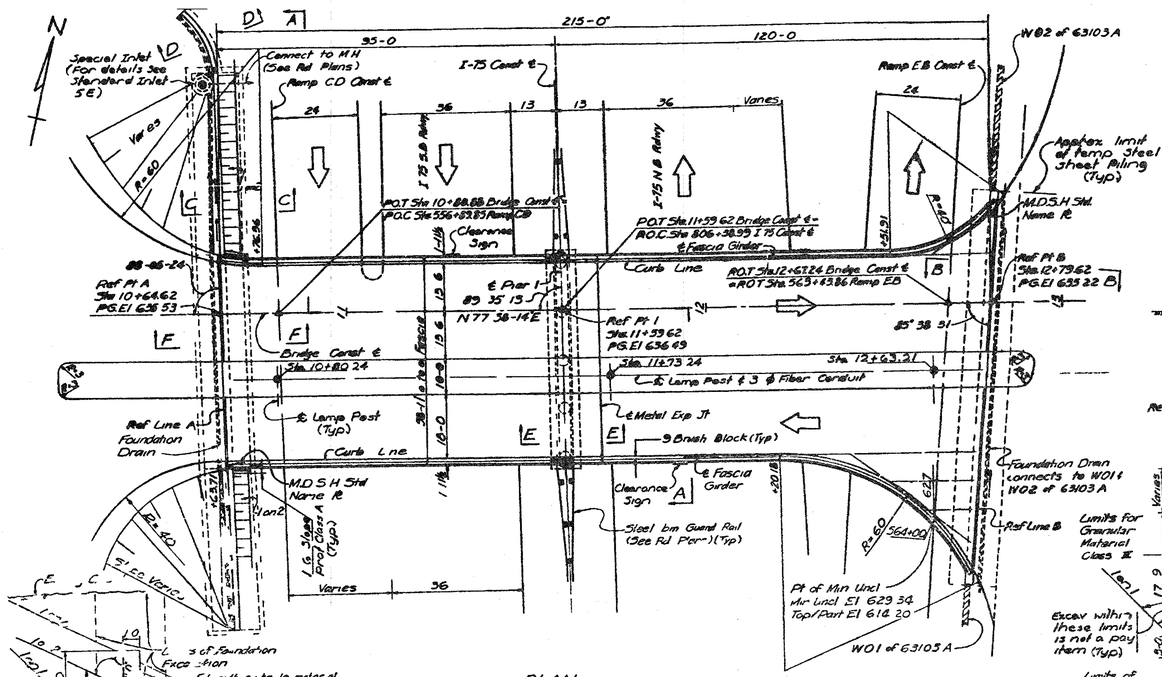
FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	2 OF 24

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 02-10-99 | DRAWN BY: INDER | FILE NAME: s0463103sn.

REVISIONS			
NO.	DESCRIPTION	DATE	BY



MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Slope Protection Class A	Sq Yds.	31
Slope Protection Heavy	Ln Ft	73
Temporary Steel Sheet Piling	Sq Ft	990
Foundation Drain	Ln Ft	296
Precast Inlet	Each	1
Grade X Concrete	Cu Yds	7

NOTES:

This design of the structure is based on the M.D.S.H. Specifications for the Design of Highway Bridges, 1958 edition and current AASHO Standard Specifications for Highway Bridges (HS20) loading. Live load plus impact deflection equals 1/1000 of span length and 1/300 of cantilever arm.

The top of roadway slab and tops of curbs are parallel to the vertical curve and tangents except as modified by super-elevation transition.

The lateral pay limits of temporary steel sheet piling are as required & determined by the Engineer.

The contractor shall be responsible for providing adequate protection of bottoms and sides of the footing excavations against damage by personnel equipment and water.

The abandoned 66" sewer shall be filled with grade X concrete between sta 805+85 and sta 806+70.

For details of Slope Protect on see Standard Sheet SP2

Where backfilling against faces of walls that will be exposed, the concrete will be protected by 6 mil polyethylene film or other suitable material included in undesignated Excavation.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

I 696 EB SERVICE RD @ I 75 SERVICE RD U TURNS OVER I 75 IN HAZEL PARK

GENERAL PLAN OF STRUCTURE

DESIGNED	F. SHEIKH 4-4-69
DETAILED	CHUANG 11-1-68
CHECKED	
QUANTITIES	
SCALE	1" = 1'-0" 1 2 6T
	1" = 4' - 0"

APPROVED Lawrence O Clark 6-2-69 SUPERVISOR - DESIGN

APPROVED J. C. Tinkey 6-5-69 SUPERVISOR - DESIGN

S04 of 63103A

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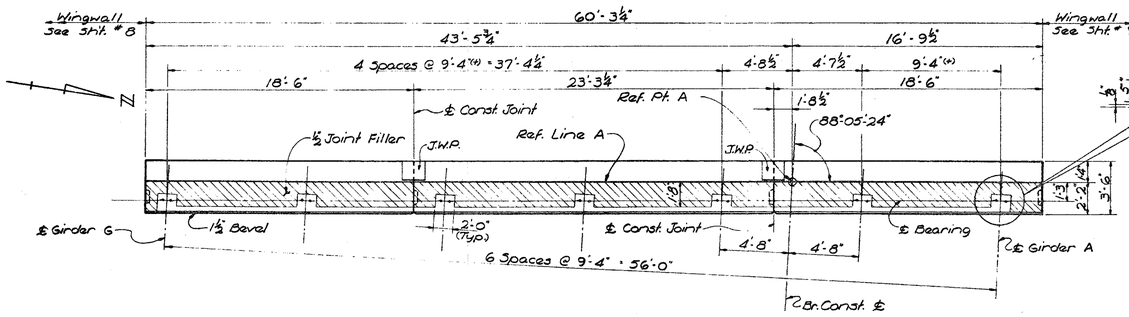
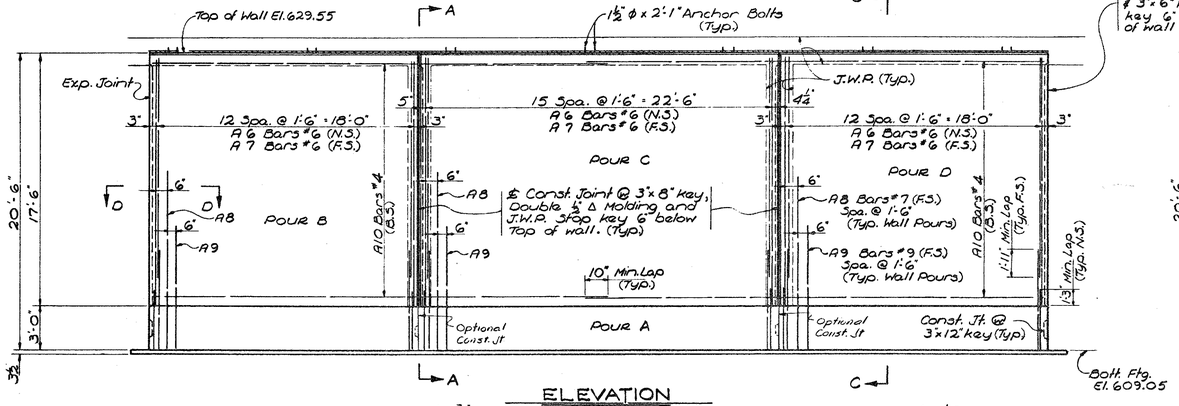
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	3 OF 24

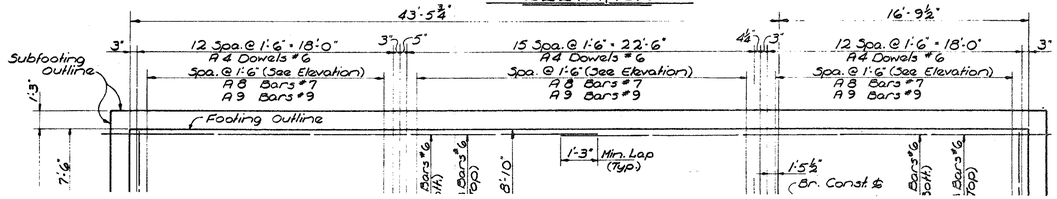
REVISIONS			
NO.	DESCRIPTION	DATE	BY

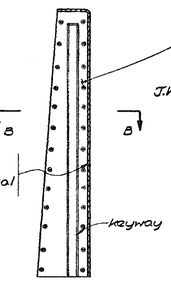


PLAN

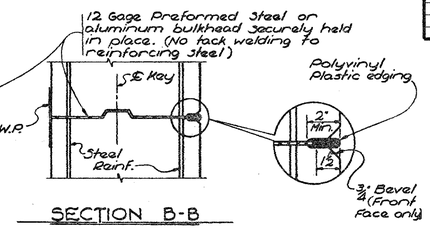


ELEVATION





SECTION A-A



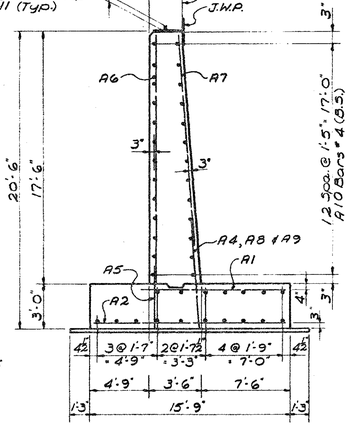
SECTION B-B

NOTES:

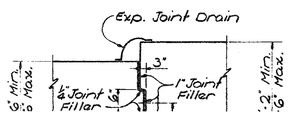
The metal bulkhead may be used as alternate construction joint at contractors expense.

Care is to be used in casting conc. around bulkhead to prevent dislocation or misalignment of the bulkhead.

Cut holes in metal bulkhead for reinforcing steel.



SECTION C-C



CONCRETE QUANTITIES				
	Grade A (GA) Cu. Yds.		Grade A (GAA) Cu. Yds.	
Pour	Abut. "A"	Abut. "B"	Abut. "A"	Abut. "B"
A	105.5	72.3		
B		123.1	33.9	
C			42.7	37.5
D			33.9	37.3
E				37.3
F				48.0
G				46.4
SUBTOTAL	105.5	195.4	110.5	206.5
TOTAL	300.9 Cu. Yds.		317.0 Cu. Yds.	

MISCELLANEOUS QUANTITIES				
Item	Unit	Abut. A	Abut. B	Total
¼" Joint Filler	Sq. Ft.	23	34	57
½" Joint Filler	Sq. Ft.	89	175	264
1" Joint Filler	Sq. Ft.	121	174	295
Joint Waterproofing	Sq. Ft.	141	245	386
Expansion Joint Drain	each	2	3	5
Clear Prof. Coating for Subst. C	Sq. Yds.	121	226	347
Concrete Subfooting	Cu. Yds.	12.3		12.3
Unclassified Excavation	Cu. Yds.	1080	1970	3050
Low Tem. Protection: Substructure Concrete	Cu. Yds.		401.9	401.9

NOTES:

J.W.P. denotes joint waterproofing.
N.S. denotes near side.
F.S. denotes far side.
B.S. denotes both sides
For bevel and molding details, see standard sheet R11 or R12.
Anchor bolts shall be accurately set to a template.
Maximum average foundation pressure D.L. only equals 3050 pounds per sq. ft.
Maximum foundation pressure D.L. and L.L. equals /

...T A DETAIL...

...04 : 6 ...

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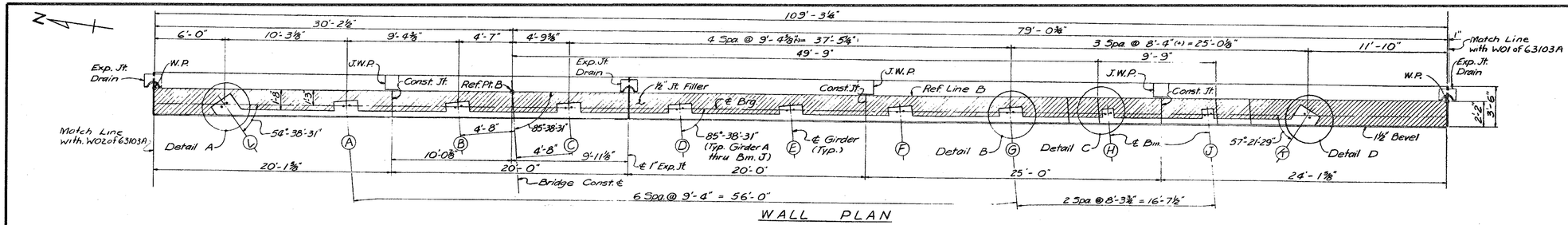
MDOT Michigan Department of Transportation

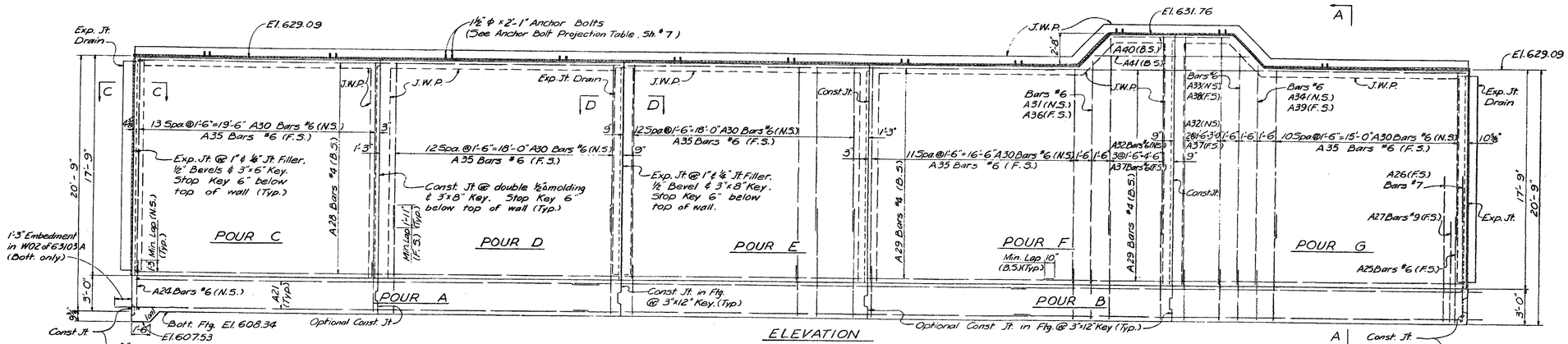
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	4 OF 24

FILE NAME: s04631038n. DRAWN BY: INDER DATE: 02-10-99 CHECKED BY: DATE: CORRECTED BY: DATE:

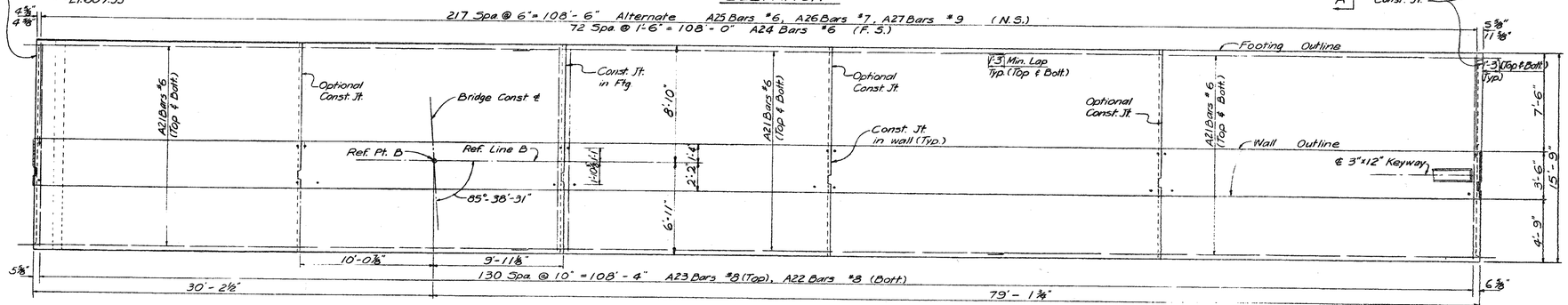
REVISIONS			
NO.	DESCRIPTION	DATE	BY



WALL PLAN



ELEVATION



FOOTING PLAN

Work this sheet with sheets # 5 & 7

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENT B DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD LEADER	Fisher	6-4-69
DRAWN BY	CHUANG	3-17-69
TRACED BY		
CHECKED BY	Pokrzywa &	6-16-69
SHEET 6 OF 22		

S04 of 63103A

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MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	5 OF 24

DATE: | CORRECTED BY: | DATE: | DRAWN BY: INDER | DATE: 02-10-99 | CHECKED BY: | DATE:

FILE NAME: s0463103sn.

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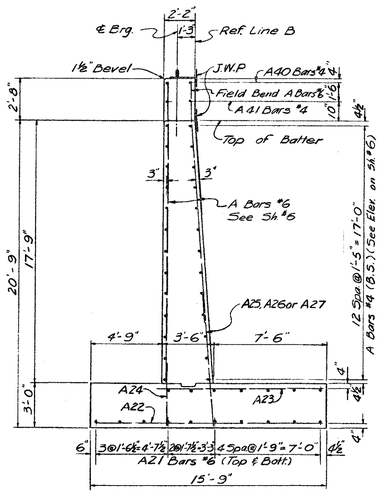
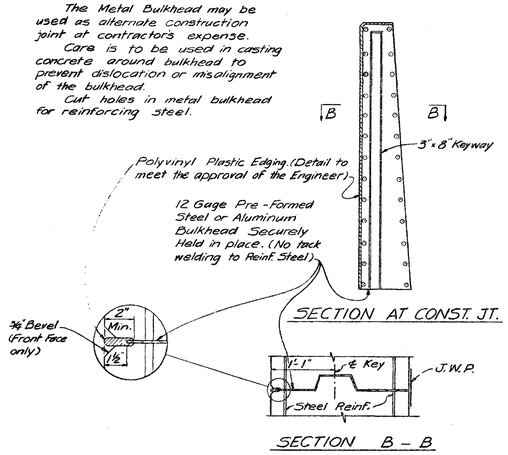


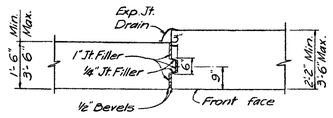
SECTION A - A

NOTES:
The Metal Bulkhead may be used as alternate construction joint at contractor's expense.
Care is to be used in casting concrete around bulkhead to prevent dislocation or misalignment of the bulkhead.
Cut holes in metal bulkhead for reinforcing steel.

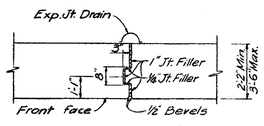


SECTION B - B

CONST. JT. DETAILS

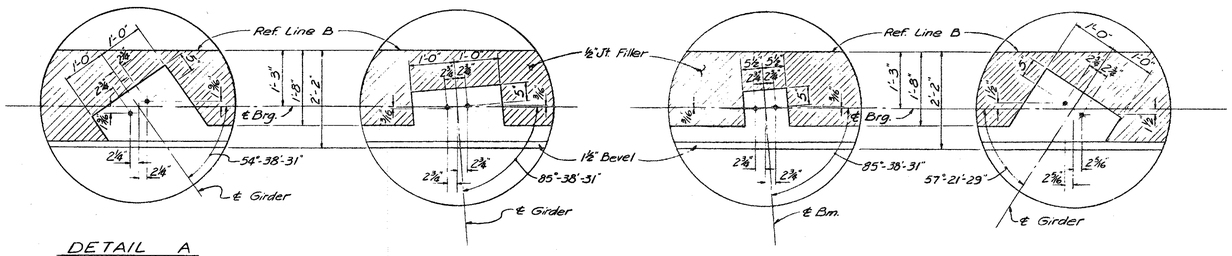


SECTION C - C



SECTION D - D

ANCHOR BOLT PROJECTION TABLE	
Beam	Abut. B
L	7⅛"
A	8⅜"
B	10"
C	10⅛"
D	9⅛"
E	9⅛"
F	8⅛"
G	7⅛"
H	7"
J	6⅛"
K	5⅜"



DETAIL A DETAIL B DETAIL C DETAIL D

NOTES:
Steel Sheet Piling left in place & Temporary Steel sheet piling shall be of the continuous interlock type, either new or used, in good condition, weighing not less than 22 pounds per square foot of wall, and shall be furnished with suitable connecting and corner pieces. Ladle analysis and mill reports are not required for steel used in sheet piling.
Steel sheet piling left in place shall be driven to its final penetration before adjacent concrete is poured. If it is necessary to lower the top of sheeting after the concrete has been poured, the excess shall be removed by cutting.
For Expansion Joint Drain Details, see sheet #8.
For general notes, concrete quantities & miscellaneous quantities, see sh. #3.
Footing concrete quantities are computed on the basis of an outline 3¼" outside of the footing outline, back of the Abutment B, where the concrete is poured against steel sheet piling left in place. No additional allowance will be made in concrete or excavation quantities regardless of the steel sheet piling used.

Work this sheet with sh. #5 & 6

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENT B DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SIGNED BY	Fisher 4-6-99
DRAWN BY	CHUANG 3-19-99
TRACED BY	
CHECKED BY	Beltyan 4-6-99
SHEET	OF 22

S04 of 63103A

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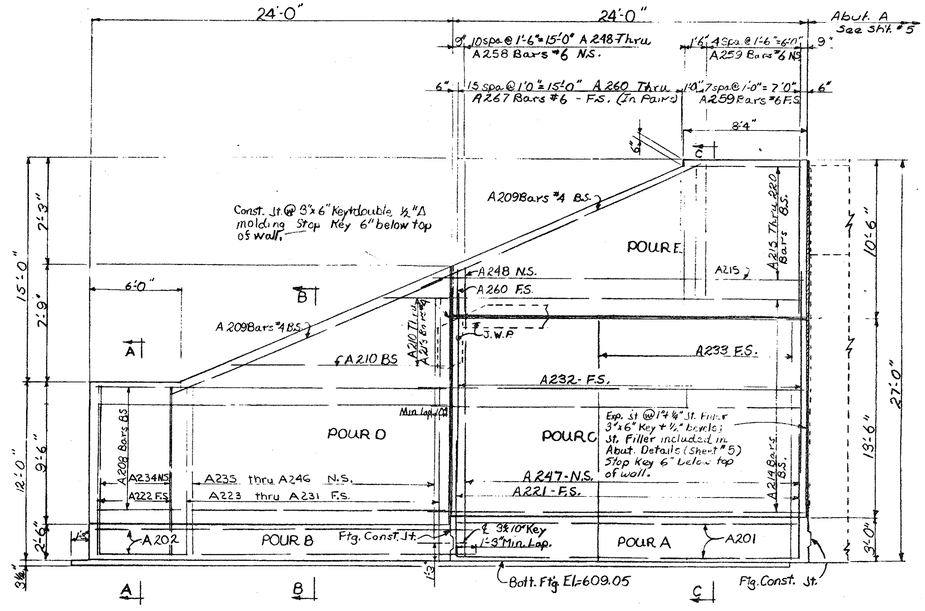
MDOT Michigan Department of Transportation

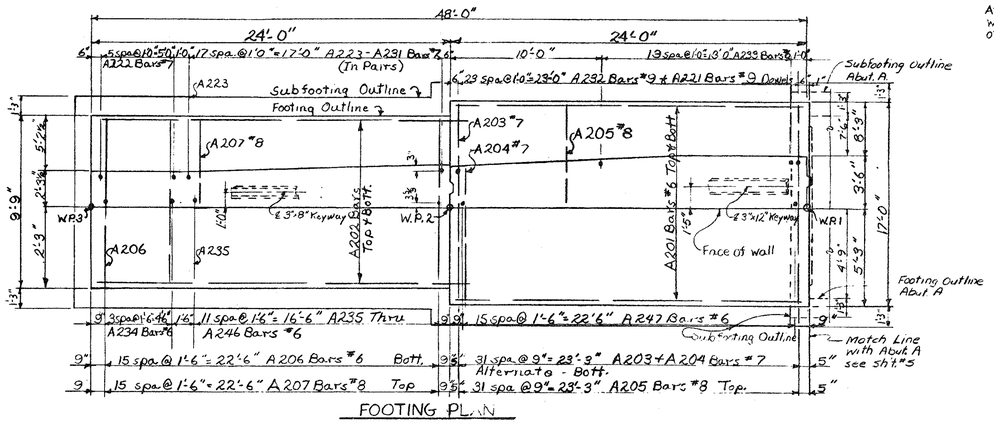
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	6 OF 24

FILE NAME: s0463103sn. DRAWN BY: INDER DATE: 02-10-99 CHECKED BY: DATE: CORRECTED BY: DATE:

REVISIONS			
NO.	DESCRIPTION	DATE	BY



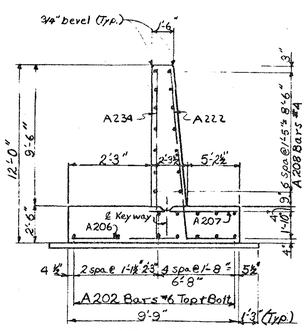
ELEVATION



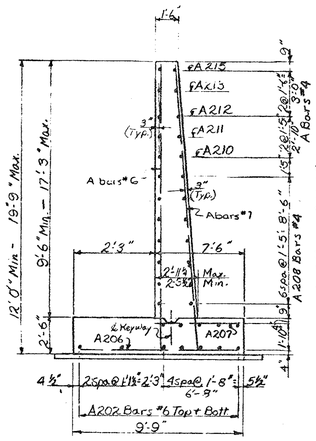
FOOTING PLAN

CONCRETE QUANTITIES		
Pour	Gr. AC(6A)	Gr. AC(6AA)
A	45.5	
B	21.7	
C		33.0
D		22.8
E		13.5
Total	67.2 Cu. Yds.	69.3 Cu. Yds.

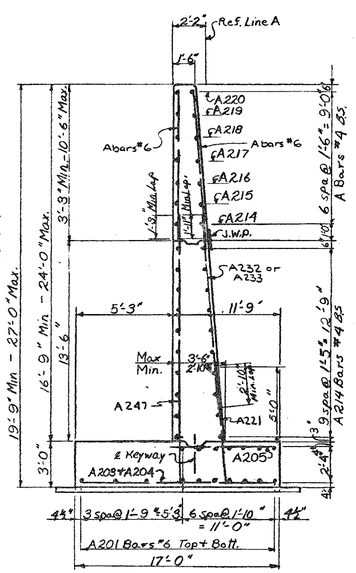
MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Joint Waterproofing	Sq. Ft.	57
Unclassified Exc.	Cu. Yd.	760
Concrete Subfooting	Cu. Yd.	80



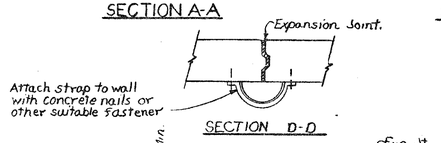
SECTION A-A



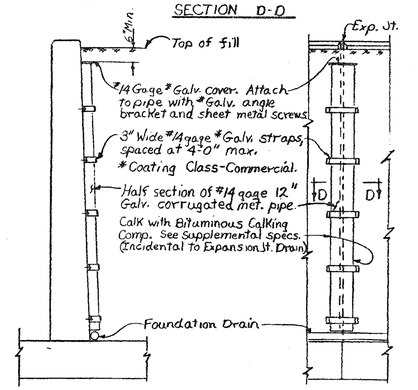
SECTION B-B



SECTION C-C



SECTION D-D



WALL SECTION

WALL ELEVATION

NOTES:

For bevel and molding details see standard sheet R11 or R12.
B.S. denotes both sides.
F.S. denotes far side.
N.S. denotes near side.
W.P. denotes working point.
J.W.P. denotes joint waterproofing.
For expansion joint details (See sheet #5)
A metal bulkhead may be used as an alternate construction joint at the contractors expense, for details. (See sheet #5)
Maximum average foundation pressure D.L. only = 2570 lbs/sq. ft.
Wingwall shall not be poured until superstructure is completed to tops of sidewalks.

Work this sheet with sheet #5.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENT A
WINGWALL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD DES	Fisher 4-4-69
DRAWN BY	Hicks 4-29-69
TRACED BY	
CHECKED BY	Redmond 5-27-69
SHEET	8 OF 22

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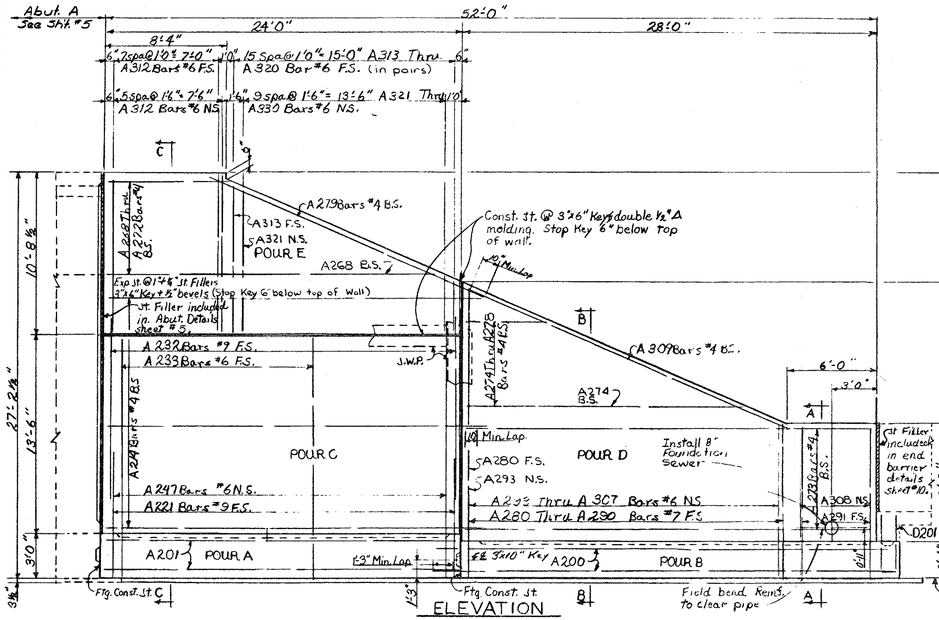
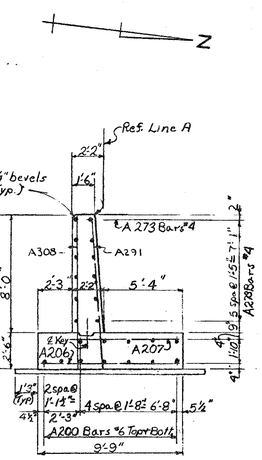
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	7 OF 24

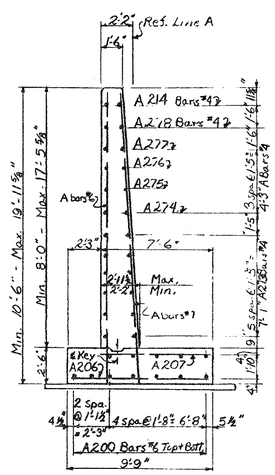
REVISIONS			
NO.	DESCRIPTION	DATE	BY

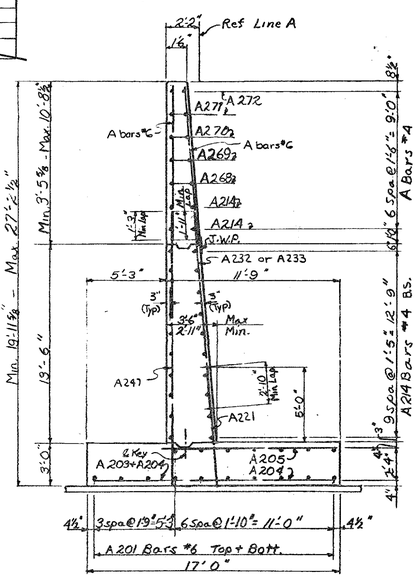


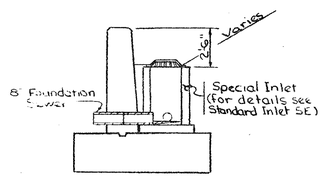
CONCRETE QUANTITIES		
Pour	Gr. A(6A)	Gr. A(6AA)
A	45.5	
B	26.6	
C		33.2
D		25.2
E		13.8
Total	72.1 Cu. Yds.	72.2 Cu. Yds.

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Joint Waterproofing	Sq. Ft.	57
Concrete Subfooting	Cu. Yd.	8.8
8" Foundation sewer	lin. ft.	4.0
Unclassified Exc	Cu. Yd	850
Special Inlet	Each	1









SECTION AT INLET

NOTES:
For notes see sheet #8
For expansion joint drain details see sheet #8

Work this sheet with sheets No. 5 & 10

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
ABUTMENT A
WINGWALL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD BOSS	Fisher 4-4-68
DRAWN BY	Hicks 4-30-68
TRACED BY	
CHECKED BY	Redmond 5-21-68
SHEET	9 OF 22

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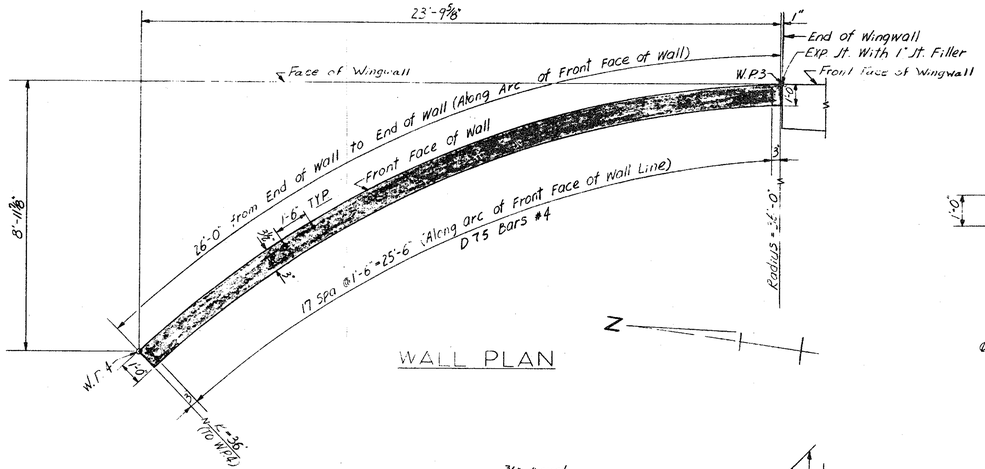
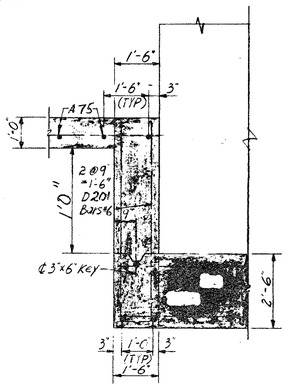
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	8 OF 24

CONTROL SECTION S04 OF 63103 | JOB NO. 48404A | SH. NO. 9

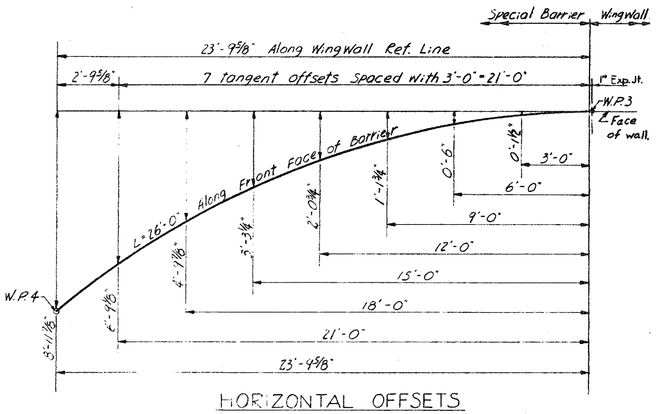
REVISIONS			
NO.	DESCRIPTION	DATE	BY



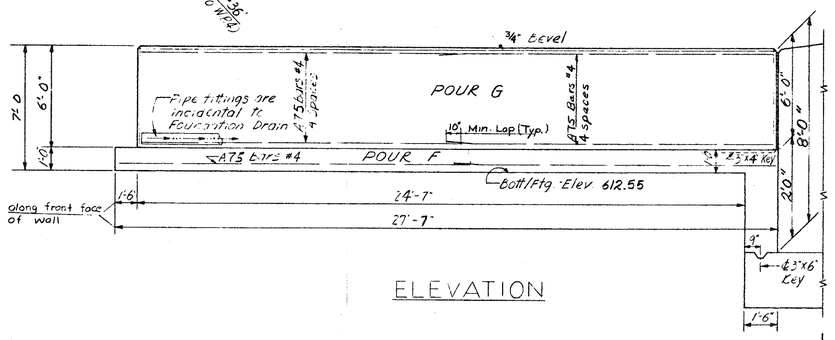
WALL PLAN



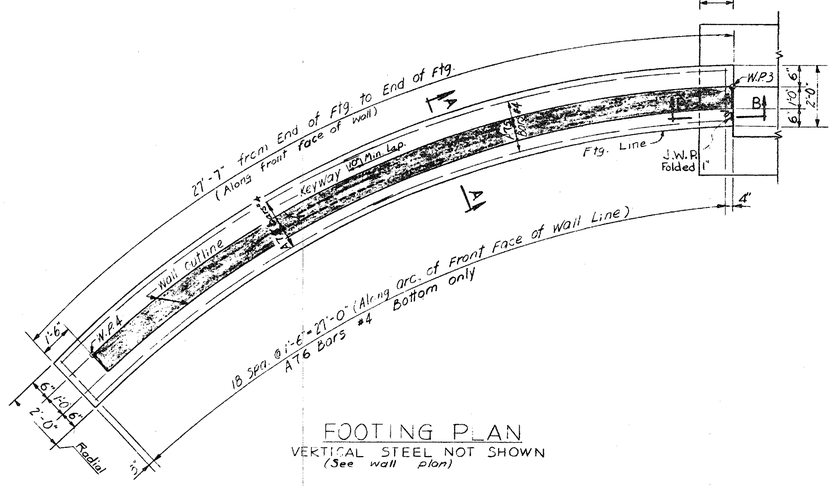
SECTION B-B



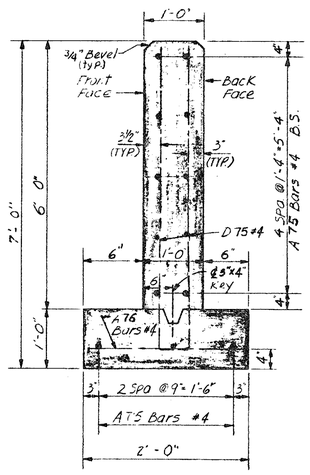
HORIZONTAL OFFSETS



ELEVATION



FOOTING PLAN
VERTICAL STEEL NOT SHOWN
(See wall plan)



SECTION A-A

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
1" Joint Filler	Sq. Ft.	6
Joint Waterproofing	Sq. Ft.	9
Unclassified Exc.	Cu. Yds.	120

CONC QUANTITIES CU YDS		
	GRADE	
POUR	A(6.2)	A(6AA)
F	2.2	
G		5.8

NOTES:

B.S. denotes Both Sides.
W.P. denotes Working Point.
For bevel & molding, See Std Sheet R11+R12.
J.W.P. denotes Joint Waterproofing.

Work this sheet with sheet # 9.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

WALL ENDING DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	Fisher	6-4-69
DRAWN BY	C. Dubose	3-17-69
TRACED BY		
CHECKED BY	Sakgandi	5-9-69
SHEET 10 OF 22		

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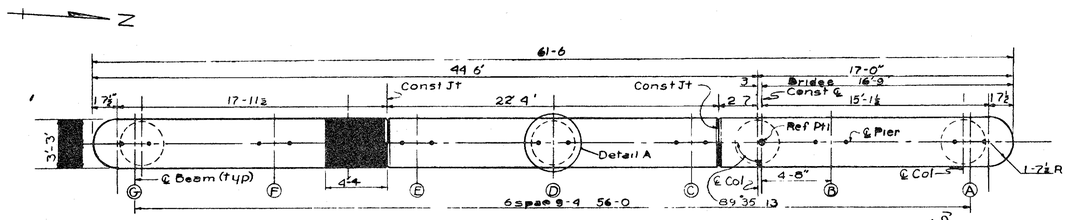
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	9 OF 24

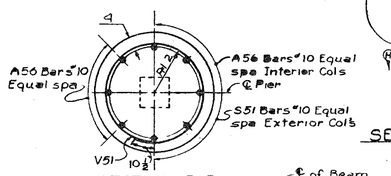
DRAWN BY: INDER | CHECKED BY: | CORRECTED BY: | DATE: 02-10-99 | DATE: | DATE:

FILE NAME: s046303sn.

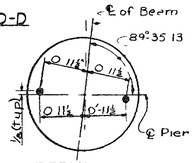
REVISIONS			
NO.	DESCRIPTION	DATE	BY

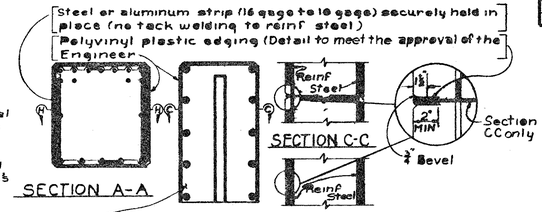


PLAN OF CAP



SECTION D-D



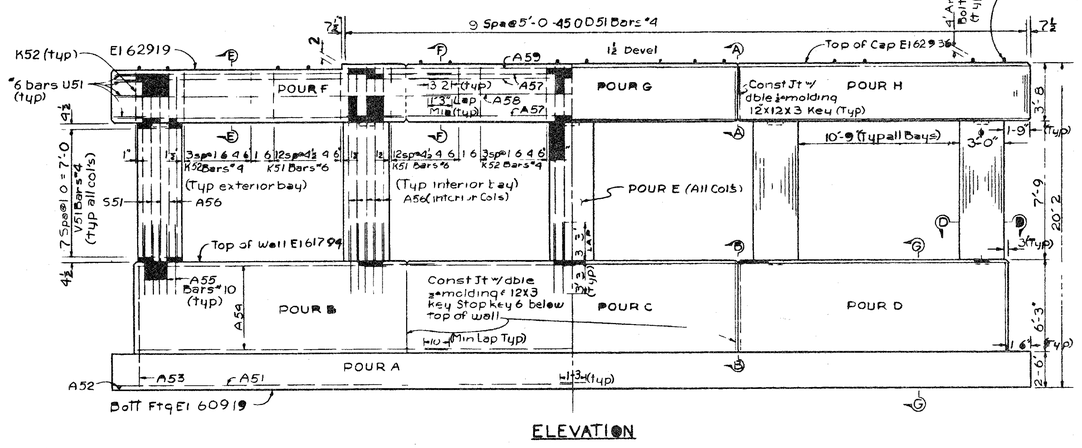


NOTE

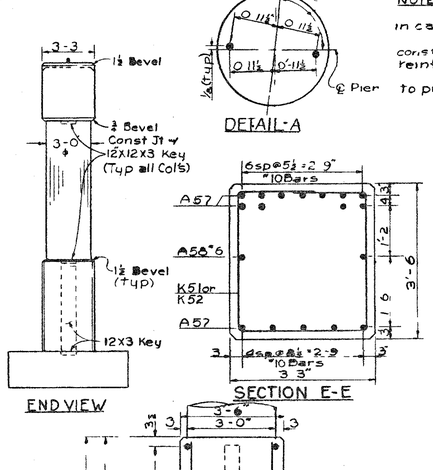
T2 gage preformed Alum or steel bulkhead securely held in place (No tack welding to reinf steel)

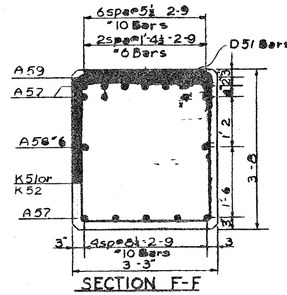
Partial metal bulkhead may be used as alternate const jt in cap at contractor's expense Notch metal strip around reinf steel The metal bulkhead in base wall may be used as alternate const jt at contractor's expense Cut holes in metal bulkhead for reinf steel

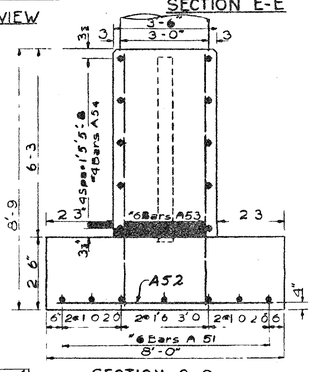
Care is to be used in casting concrete around bulkhead to prevent misalignment or dislocation of the bulkhead

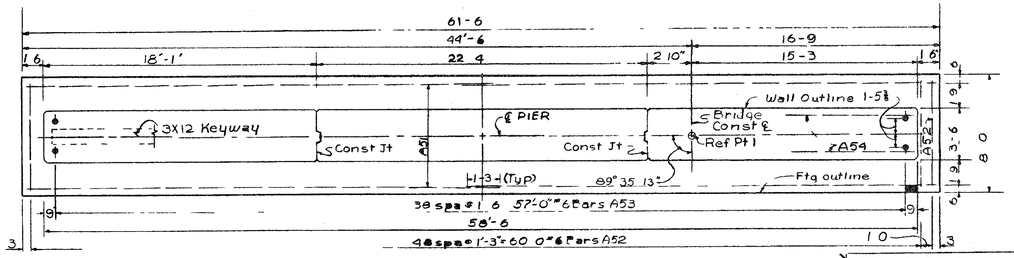


ELEVATION









PLAN OF FOOTING

NOTES-

For bevel & molding details, see standard sheet R11 of R12

Anchor bolts shall be accurately set to a template

Adjust the spacing of the reinforcing steel as required to permit placing of anchor bolts

Maximum average foundation pressure DL only = 3800 #/sq ft Maximum foundation pressure DL & LL = 5950 #/sq ft

All exposed surfaces above the top of footing of the pier shall be given an application of Clear Protective Coating for Substructure Concrete (See Supplemental Specifications)

Anchorage for guard rail is to be provided in pier basewall For details see Rd Plans

MISCELLANEOUS QUANTITIES

ITEM	
Unclassified Excavation	
Clear Protective Coating for Substructure Concrete	237

CONCRETE QUANTITIES

Pour	Grade A (6A)	Grade A (6AA)
A	456 cu yds	
B		196 cu yds
C		181
D		196
E		101
F		82
G		90
H		85
Total	456 cu yds	890 cu yds

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

PIER DETAILS

REVISIONS	
DESCRIPTION	

SHEET 11 OF 22

S04 of 63103A

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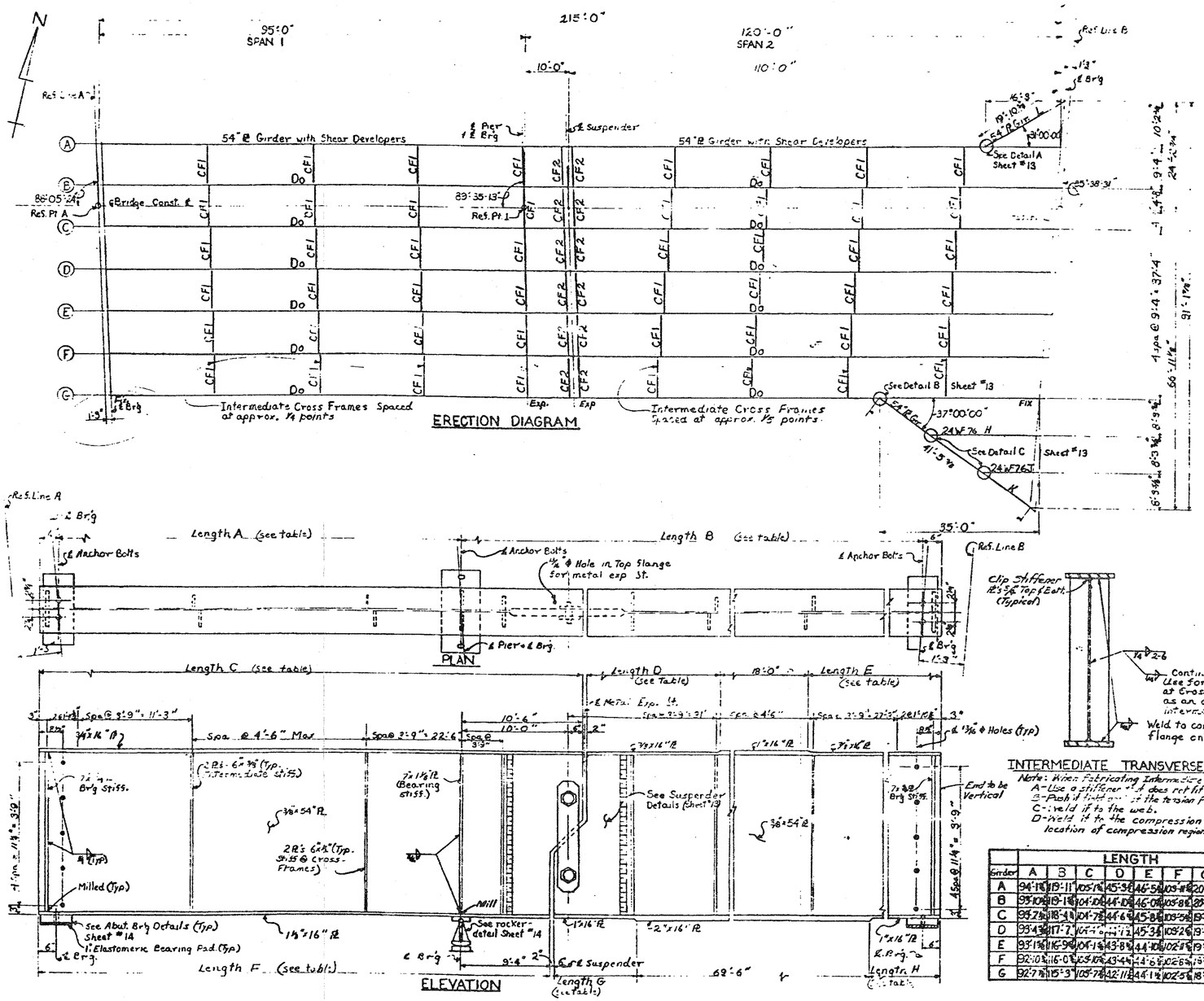
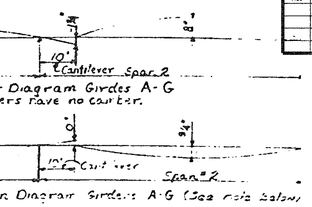
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	10 OF 24

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 02-10-99 | DRAWN BY: INDER | FILE NAME: s04631103sn.





MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Structural Steel - Furn. & Fab.	lbs.	374,000
Structural Steel - Erection	lbs.	374,000
Elastomeric Bearing Pad	Sq. ft.	28.1

NOTES:

Design: Michigan Department of State Highways Specifications for Design of Highway Bridges - 1953 edition and current AASHO Standard Specifications for Highway Bridges (HS 20-44) loading.

Fabrication: Michigan Department of State Highways Standard Specifications for Road and Bridge Construction - 1963 edition.

Shop connections shall be welded as shown on plans.

Field connections shall be bolted with ¾" ⌀ high strength bolts.

The top and bottom edges of the web plates are to be cut simultaneously, to a parabolic camber to minimize distortion.

The girders are to be cambered as shown on the camber diagram. The camber is to be produced by controlling the heat on its side. Heating is to be used, if necessary, to achieve camber permanency within the tolerance specified in AWS Specifications. The dead load deflection of the girders alone is as shown on the deflection diagram.

Steel in splice bolts may be ASTM A-307.

A shop splice will be permitted in flange plates over 60 feet in length. This splice must be located at a minimum distance of 10 feet from the center of the plate.

Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ¼" and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plates.

Magnetic particle inspection of welds is required and shall consist of 100% inspection of not less than one fabricated section selected at random for each ten sections or fractions thereof.

Anchor Bolts (including nuts and washers) shall be galvanized in accordance with ASTM Designation A153.

All steel material used for bearings, with exception of part welded to girders, shall be galvanized in accordance with ASTM Designation A123. Galvanizing shall be applied after fabrication of bearing. Mill scale and foreign material shall be removed prior to galvanizing.

Bronze for washers shall be ASTM B100, Alloy No. 510 or No. 635.

All steel shall be unpainted ASTM A588 except as noted.

The quantity Structural Steel includes

A-588 Steel	—	373,802
Bronze	—	149
Lead	—	49
Total	—	374,000

The web plate may be spliced at the option of the fabricator.

INTERMEDIATE TRANSVERSE STIFFENERS

Note: When fabricating Intermediate Stiffeners
A-Use a stiffener that does not fit too tightly
B-Push it tight against the tension flange (not the compression flange)
C-Weld it to the web.
D-Weld it to the compression flange. For location of compression region see Sheet #13.

Girder	LENGTH A	B	C	D	E	F	G	H
A	94'-1⅜"	19'-11"	105'-1⅜"	45'-9⅜"	46'-5⅜"	105'-8⅜"	20'-8⅛"	20'-8⅛"
B	95'-10⅜"	19'-1⅜"	104'-10⅜"	44'-10⅜"	46'-0⅜"	105'-8⅜"	20'-5⅜"	20'-5⅜"
C	95'-7⅜"	18'-1⅜"	104'-7⅜"	44'-6⅜"	45'-8⅜"	105'-5⅜"	19'-11⅜"	19'-11⅜"
D	95'-4⅜"	17'-7⅜"	104'-4⅜"	44'-2⅜"	45'-3⅜"	105'-2⅜"	19'-6⅜"	19'-6⅜"
E	95'-1⅜"	16'-9⅜"	104'-1⅜"	43'-8⅜"	44'-10⅜"	104'-10⅜"	19'-1⅜"	19'-1⅜"
F	92'-10⅜"	16'-0⅜"	103'-10⅜"	43'-4⅜"	44'-6⅜"	102'-6⅜"	18'-3⅜"	18'-9⅜"
G	92'-7⅜"	15'-3⅜"	103'-7⅜"	42'-11⅜"	44'-1⅜"	102'-5⅜"	18'-4⅛"	18'-4⅛"

Work this sheet with sheets No. 13 & 19

MICHIGAN DEPARTMENT OF STATE HIGHWAY

STRUCTURAL STEEL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DRAWN BY: J. Fisher & A. Hicks
TRACED BY:
CHECKED BY: R. Lee
SHEET 12 OF 22

S04 of 63103

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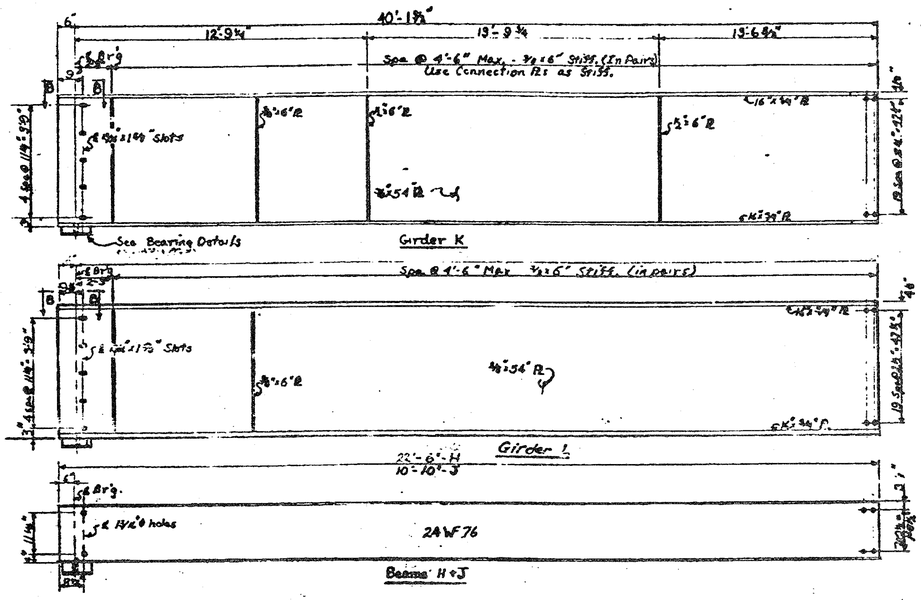
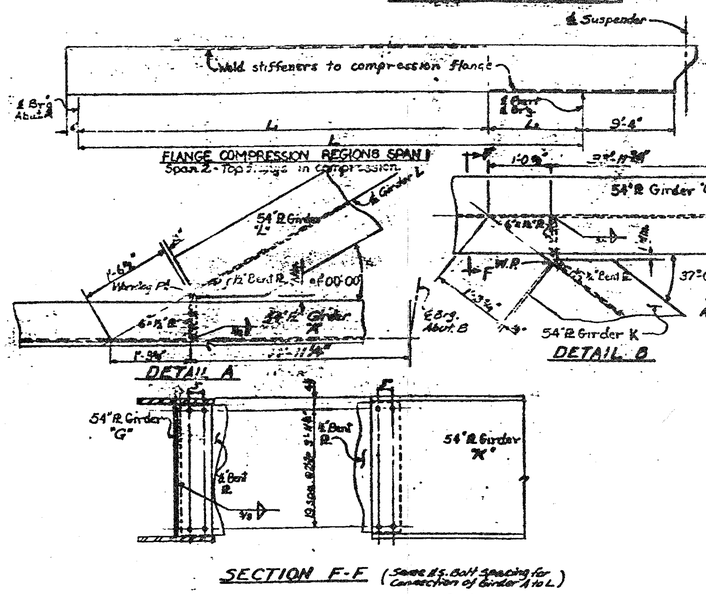
10-18-99	S04 OF 63103	48404A	MAHDAVI	11 OF 24

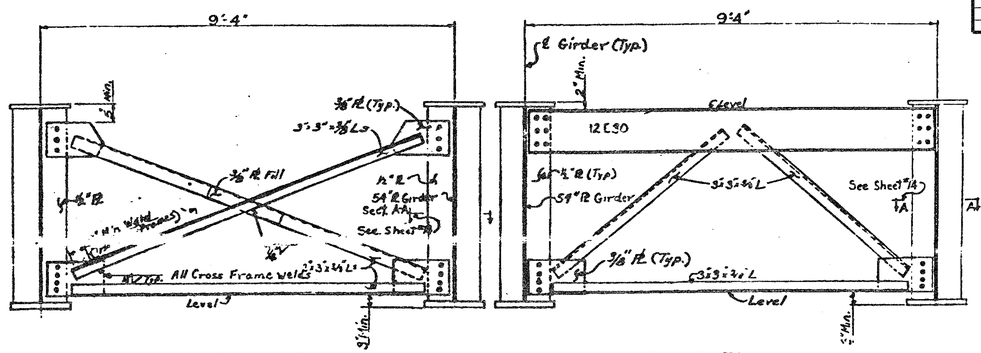
REVISIONS			
NO.	DESCRIPTION	DATE	BY



GIRDER & BEAM ELEVATIONS

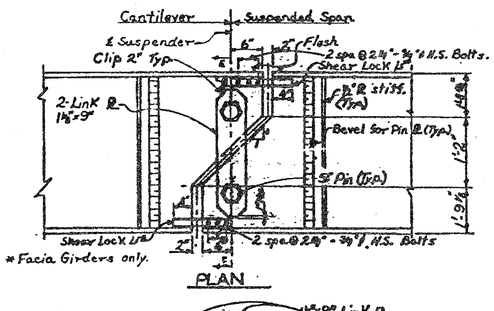
Girder	L_1	L_2	L
A	84'-9"	9'-1⅜"	94'-1⅜"
B	84'-6"	9'-1½"	93'-10½"
C	84'-3"	9'-1⅝"	93'-7⅝"
D	84'-0"	9'-1¾"	93'-4¾"
E	83'-10"	9'-1⅞"	93'-1⅞"
F	83'-7"	9'-2"	92'-10"
G	83'-4"	9'-2⅛"	92'-7⅛"



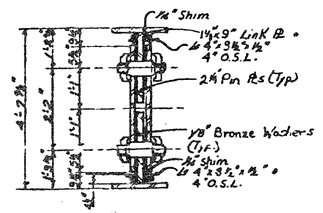


CROSS FRAME CF1

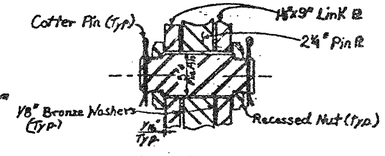
CROSS FRAME CF2



PLAN

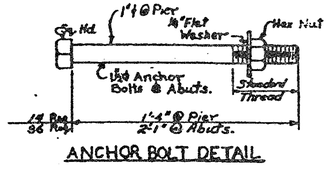


SECTION E-E



SECTION THRU HANGER PIN

SUSPENDER DETAILS



ANCHOR BOLT DETAIL

Work this sheet with sheets No. 12+14.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN DATA	Fisher 6-4-46
DRAWN BY	C. Marks 9-2-46
TRACED BY	
CHECKED BY	Sorensen 10-4-46
SHEET 13 OF 24	

S04 of 63103A

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10-18-99	S04 OF 63103	48404A	MAHDAVI	12 OF 24

DRAWN BY: INGER | CHECKED BY: | CORRECTED BY: | DATE: 02-10-99 | DATE: | DATE:

FILE NAME: s0463103sn.

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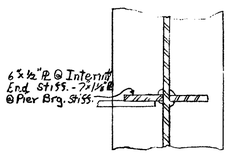
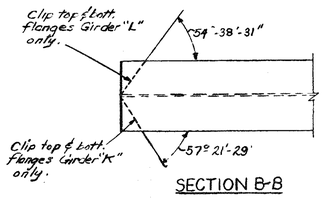
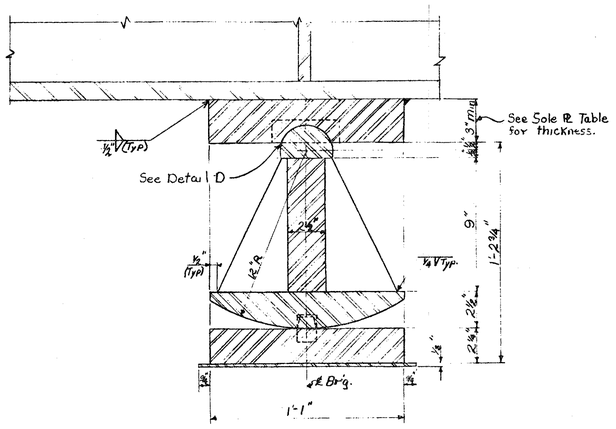
NO.	DESCRIPTION	DATE	BY



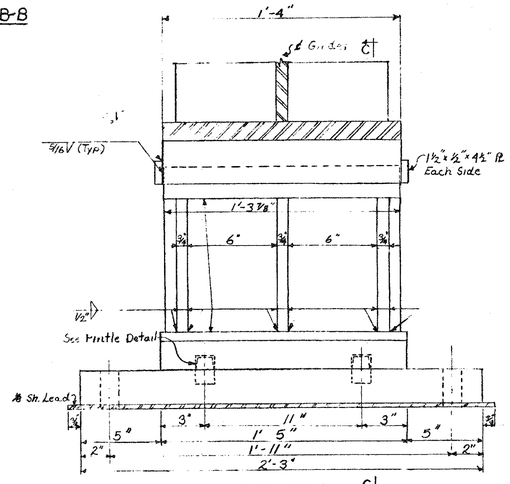
SECTION A-A



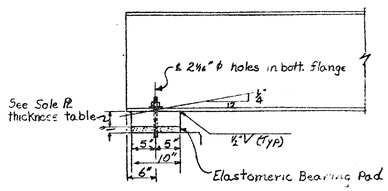
SECTION B-B



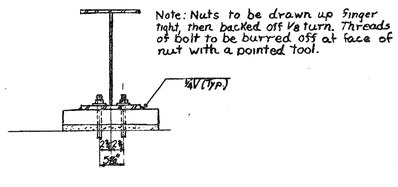
SECTION C-C



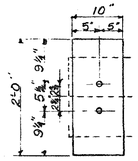
END VIEW ℄



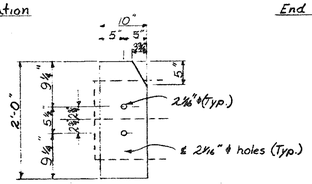
Elevation



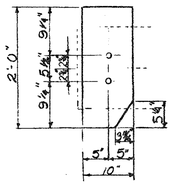
End View



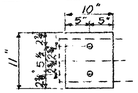
Plan Girders A-G



Plan Girder K



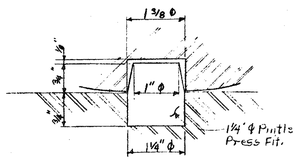
Plan Girder L



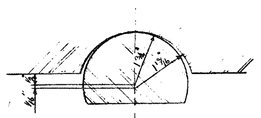
Plan Beams H & J

BEARING DETAILS ABUT. A & B

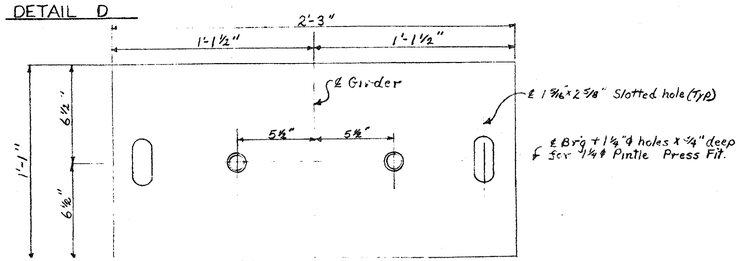
BEARING DETAILS - PIER



PINTLE DETAIL



DETAIL D



SOLE PLATE THICKNESS TABLE						
Girder	Abut. A		Pier		Abut. B	
	Thickness	Bevel	Thickness	Bevel	Thickness	Bevel
A	3½"	- 1/4 %	3¼"	0 %	4½"	+ 1/4 %
B	4⅜"	- 1/4 %	4¼"	0 %	5⅜"	+ 1/4 %
C	4¾"	- 1/4 %	4¼"	0 %	6"	+ 1/4 %
D	3½"	- 1/4 %	3¼"	0 %	5"	+ 1/4 %
E	3⅜"	- 1/4 %	3¼"	0 %	5"	+ 1/4 %
F	2½"	- 1/4 %	4"	0 %	4"	+ 1/4 %
G	1½"	- 1/4 %	3"	0 %	3"	+ 1/4 %

Work this sheet with sheets No. 12 & 13.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL DETAILS

SQUAD LEADER	Fischer 4-4-99
DRAWN BY	T. Hankel 3-14-99

SC 4 of 63103A

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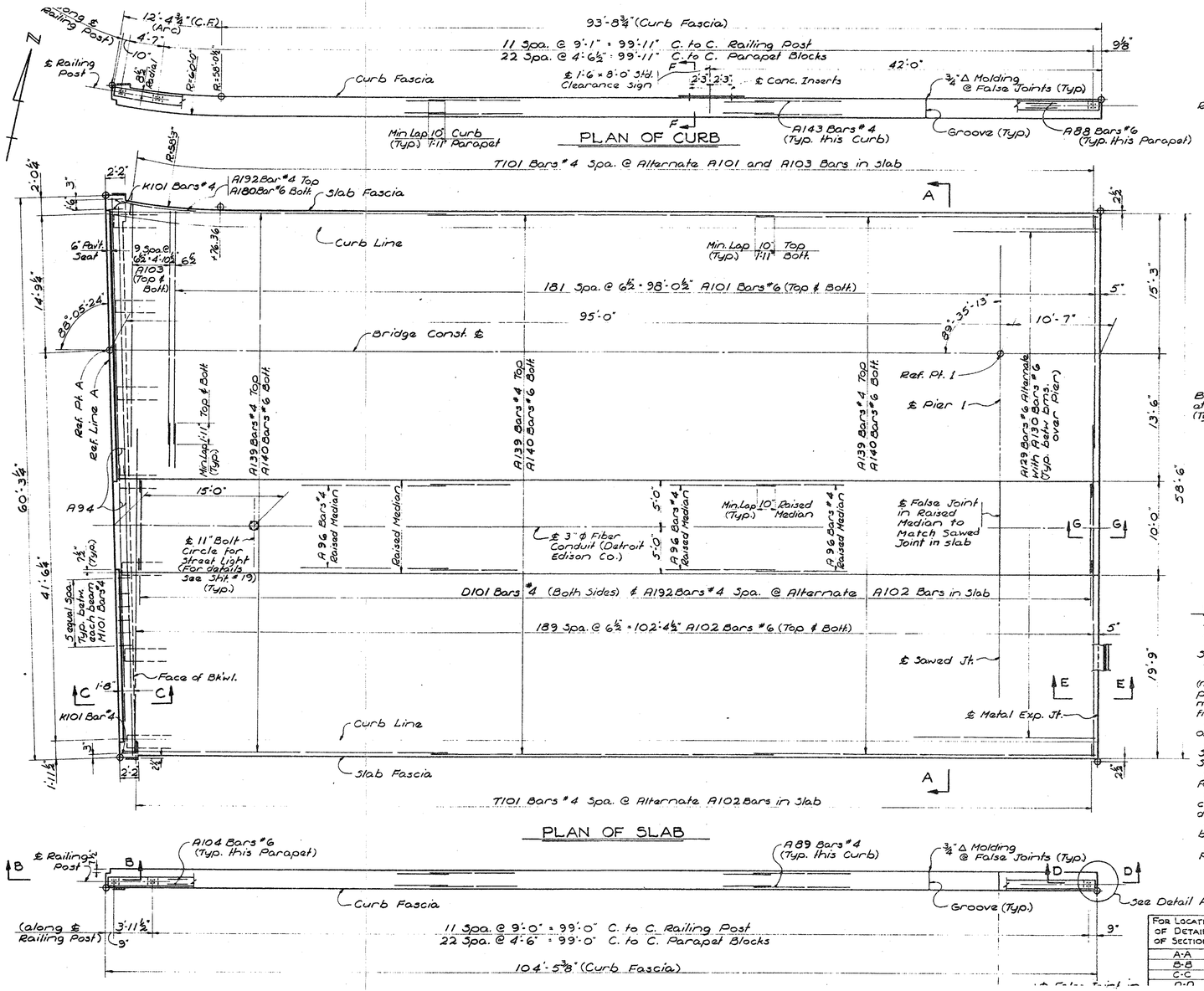
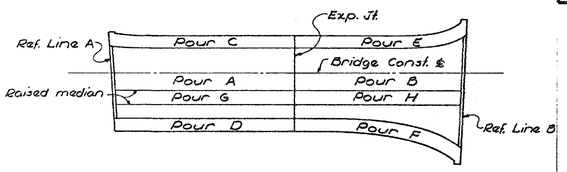
DATE: CORRECTED BY: DATE: DRAWN BY: INDER DATE: 02-10-99 CHECKED BY: FILE NAME: s0463103sn.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

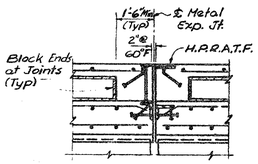


PLAN OF SLAB



POUR DIAGRAM

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
Bridge Railing - Parapet Type	Lin. Ft.	440.6
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	59
Water Reducing-Retarding Admixture	Gals.	61
Structural Tile 6"x12"x12"	Each	1254
Protective Treatment for Bridge Decks	Sq. Ft.	13250



SECTION G-G

CONCRETE QUANT.	
Pour	Grade A(6AR)(C) Yds.
A	175.9
B	209.8
C	6.4
D	6.3
E	7.0
F	7.1
G	22.9
H	23.6
Bkwl. 'A'	18.4
Bkwl. 'B'	32.4
Total	500.8 Cu. Yds.

NOTES:

J.W.P. denotes Joint Waterproofing.
H.P.R.A.T.F. denotes Hot-Poured Rubber Asphalt Type Filler.
For details of bevels, moldings and bridge railing, see Standard Sheet R11 or R12.
Edge or Groove denote edging or grooving with an approved tool.
The contractor is to provide a sawed joint ½" deep by ⅛" wide (min) in the top of slab over and parallel to the centerline of pier. The joint is to be sawed before casting of curbs and raised median and is to be filled with hot-poured rubber asphalt type filler (incidental).
Bridge railing is to be either aluminum or steel tubular railing on concrete parapet. See railing Standard R11 or R12.
Protective treatment for bridge decks is to be applied to all superstructure concrete surfaces between fascia lines. (See Supplemental Specifications)
For name plate mounting details see Standard Sheet R11 or R12. For location of name plate see sheet # 4.
Curb and raised median pours shall not be cast until slab concrete has attained at least 30% of its design strength as determined by section 5.01.05 of the standard Specifications.
False joints in curbs & raised medians shall be placed midway between parapet blocks at approx. every fourth panel.
Alphabetical designation of pours is not to be construed as a pour sequence.

Work this sheet with sheet # 18 & 19

FOR LOCATION OF DETAILS OF SECTIONS	SEE SHEET
A-A	19
B-B	19
C-C	19
D-D	19

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

HORAN BOSS | FISHER | 4-4-69

S04 of 63103A

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

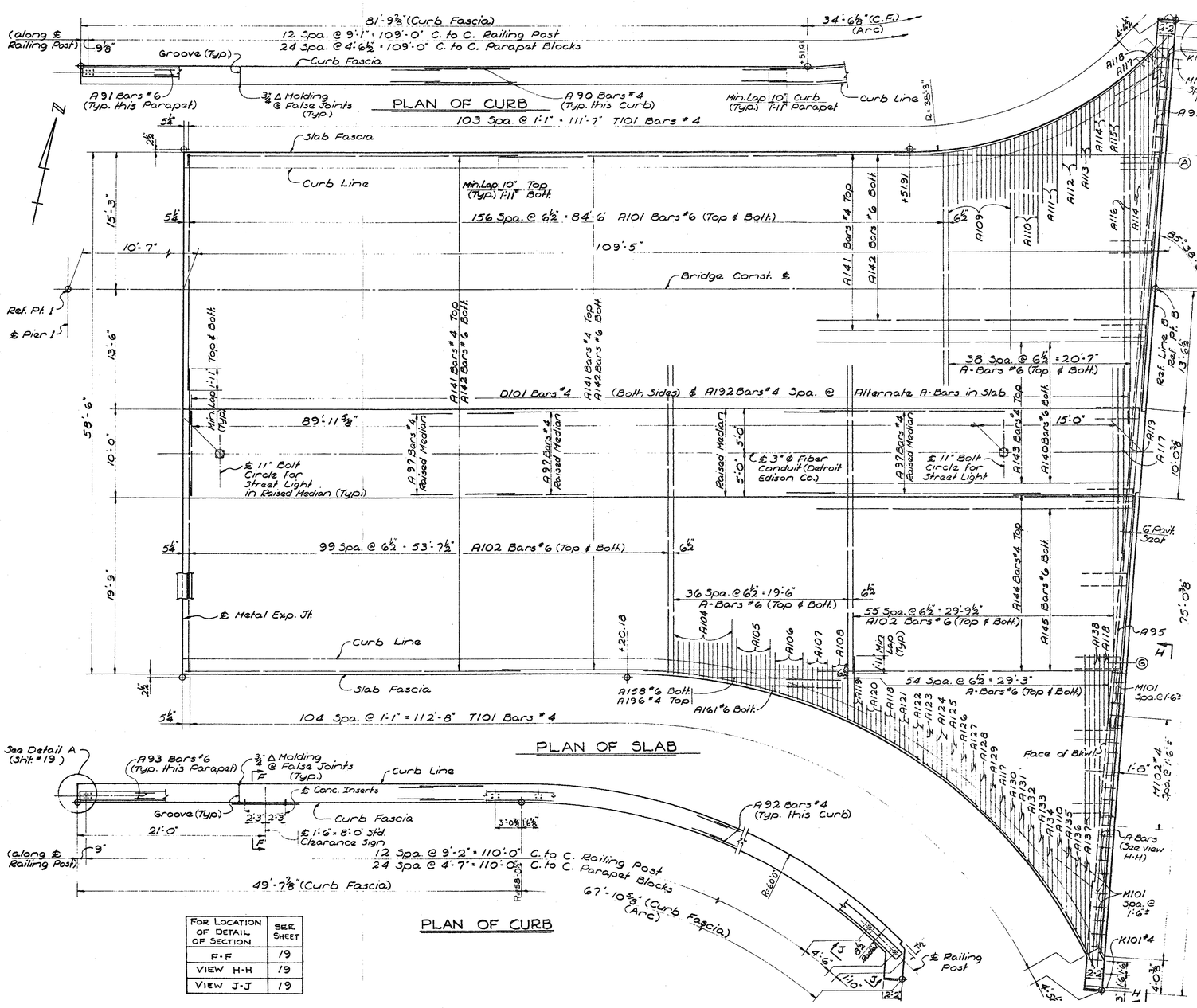
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	14 OF 24

DATE: CORRECTED BY:
DATE: 02-10-99 CHECKED BY:
DRAWN BY: INDER
FILE NAME: s04631O3sn.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

PLAN OF CURB


81'-9⅞" (Curb Fascia)
(along ℄ Railing Post)
12 Spa. @ 9'-1" = 109'-0" C. to C. Railing Post
24 Spa. @ 4'-6½" = 109'-0" C. to C. Parapet Blocks
Groove (Typ.)
Curb Fascia
34'-6⅞" (C.F.) (Arc)
A91 Bars #6 (Typ. this Parapet)
¾" Δ Molding @ False Joints (Typ.)
A90 Bars #4 (Typ. this Curb)
Min. Lap 10" Curb (Typ.) T-11" Parapet
Curb Line
R=38'-3"
103 Spa. @ 1'-1" = 111'-7" T101 Bars #4
Slab Fascia
Min. Lap 10" Top (Typ.) T-11" Bolt
156 Spa. @ 6½" = 84'-6" A101 Bars #6 (Top & Bolt)
A141 Bars #4 Top
A142 Bars #6 Bolt
+5.19
109'-5"
Bridge Const. ℄
Ref. Pt. 1 & Pier 1
A141 Bars #4 Top A142 Bars #6 Bolt
D101 Bars #4 (Both Sides) & A132 Bars #4 Spa. @ Alternate A-Bars in Slab
38 Spa. @ 6½" = 20'-7" A-Bars #6 (Top & Bolt)
Ref. Line B
Ref. Pt. B
89'-11⅝"
℄ 11" Bolt Circle for Street Light in Raised Median (Typ.)
A97 Bars #4 Raised Median
Raised Median
℄ 3" ϕ Fiber Conduit (Detroit Edison Co.)
A143 Bars #4 Top
A140 Bars #6 Bolt
15'-0"
99 Spa. @ 6½" = 53'-7½" A102 Bars #6 (Top & Bolt)
℄ Metal Exp. Jt.
36 Spa. @ 6½" = 19'-6" A-Bars #6 (Top & Bolt)
55 Spa. @ 6½" = 29'-9½" A102 Bars #6 (Top & Bolt)
A144 Bars #4 Top
A145 Bars #6 Bolt
6" Pavt. Seat
A158 #6 Bolt
A196 #4 Top
A161 #6 Bolt
104 Spa. @ 1'-1" = 112'-8" T101 Bars #4
54 Spa. @ 6½" = 29'-3" A-Bars #6 (Top & Bolt)
Face of Blkwl.
A-Bars (See View H-H)
M101 3 Spa. @ 1'-6"
K101 #4
A95
M102 #4 Spa. @ 1'-6"
Match Line with W02of63103A
5 Equal Spa. M101 Bars #4
26'-10⅝"
109'-3¼"
75'-0⅜"
A118
A117
A119
A120
A121
A122
A123
A124
A125
A126
A127
A128
A129
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A107
A106
A105
A104
A103
A102
A101
A100
A99
A98
A97
A96
A95
H
G
A
6½"
5½"
2½"
15'-3"
10'-7"
13'-6"
10'-0"
58'-6"
19'-9"
Ref. Pt. 1 & Pier 1
Top & Bolt
Min. Lap 1'-1"
Typ.
5'-0"
5'-0"
10'-0⅜"
13'-6⅝"
20'-1⅝"
R=38'-3"
3'-3"
4'-6"
4'-0⅜"
5'-3"
4'-5"
2'-2"
3'-2"
3'-3"
1'-3"
1'-6"
1'-10"
1'-11"
1'-7"
1'-8"
1'-9"
1'-10"
1'-11"
2'-0"
2'-1"
2'-2"
2'-3"
3'-0"
3'-1"
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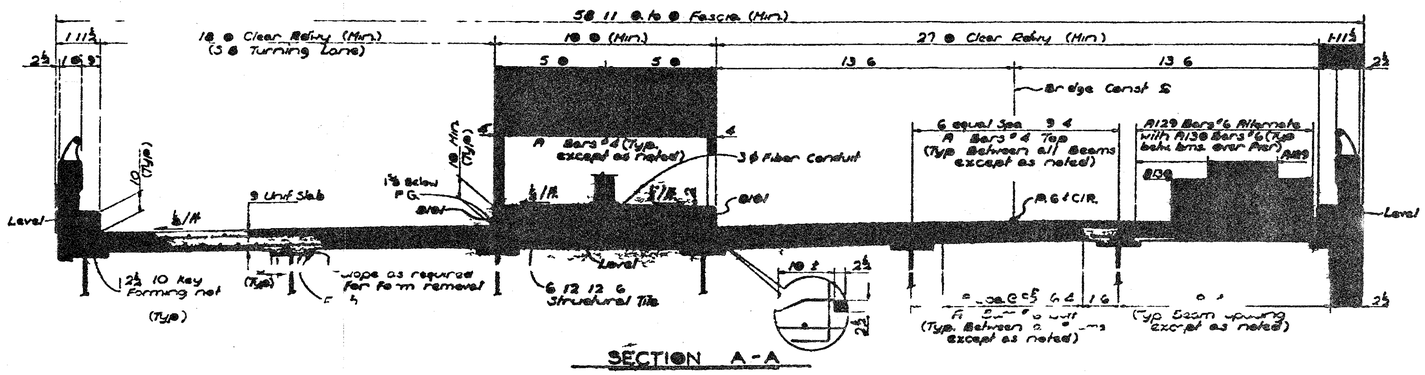
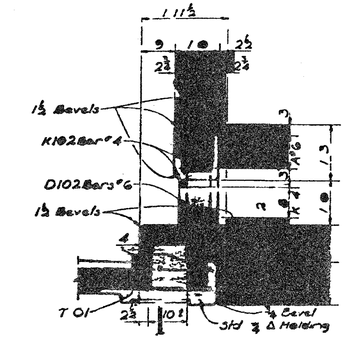
5'-7"
5'-8"
5'-9"
5'-10"
5'-11"

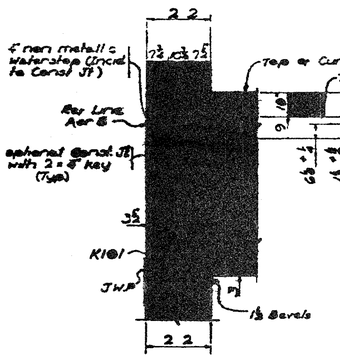
REVISIONS			
NO.	DESCRIPTION	DATE	BY



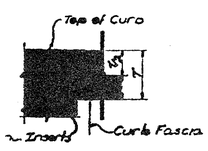
SECTION A-A



TYP SECTION THRU CURB



SECTION B-B

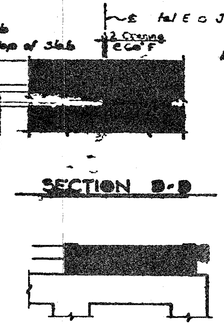


SECTION F-F

Inserts are to be ¾ Truscon Threaded inserts or approved equal and are to be provided with a suitable lifting plug

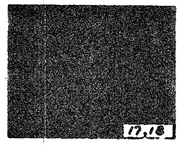
Furnishing and placing concrete Inserts is incidental to Superstructure Conc

Clearance signs and mounting brackets are to be furnished and installed by others

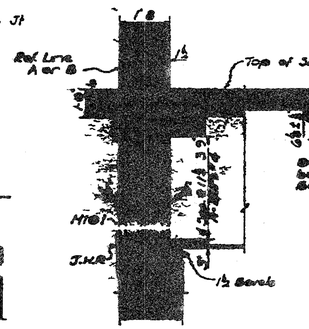


SECTION D-D

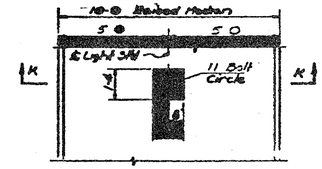
VIEW J J
(3 ℄ Quad only)



Note:
Post Foundation (Bolt circle) will be furnished by the Detroit Edison Co. and installed by the contractor

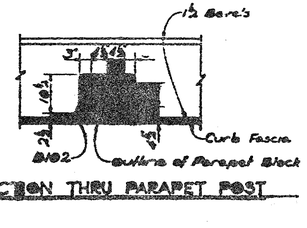


SECTION E-E

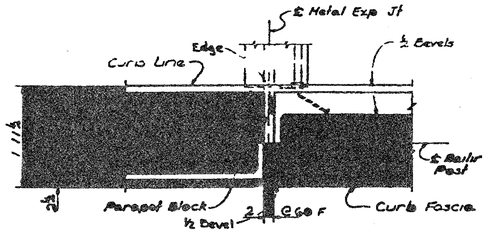


PLAN
(Archer Bolt Assembly Shown for Bal Ed. Co.)

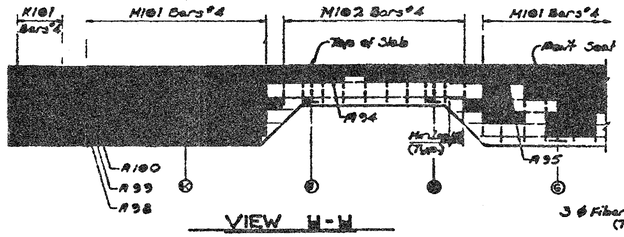
SECTION K K



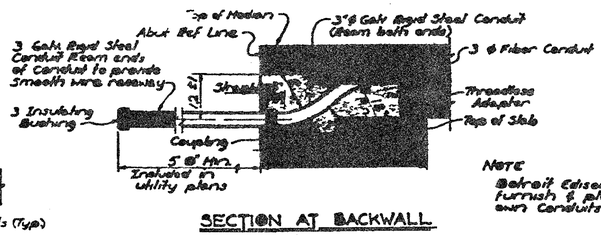
SECTION THRU PARAPET POST



DETAIL A

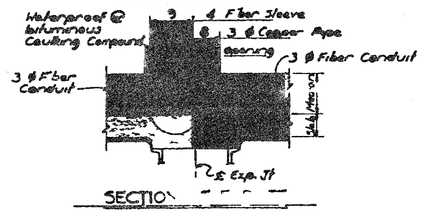


VIEW H-H

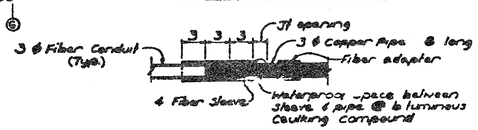


SECTION AT BACKWALL

NOTE
Detroit Edison Co. will furnish & place their own Conduits



SECTION



EXP JT DETAIL

Work this sheet with Sheet # 17 & 18

MICHIGAN DEPARTMENT OF STATE HIGHWAY

SUPERSTRUCTURE DETAILS

FISHER

S04 of 63103

NOTE:
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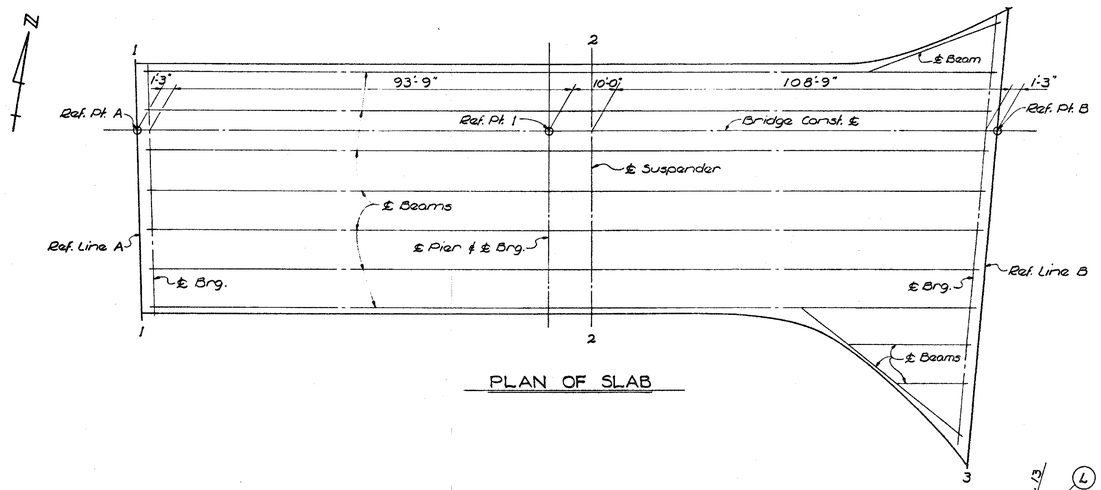
FOR INFORMATION ONLY

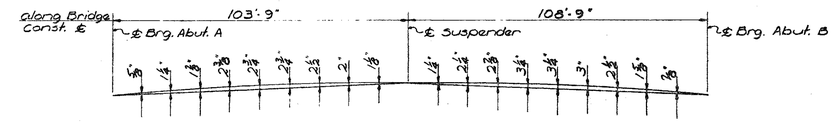
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	16 OF 24

DATE:
CORRECTED BY:
DATE:
CHECKED BY:
DATE: 02-10-99
DRAWN BY: INDER
FILE NAME: s04631033sn.

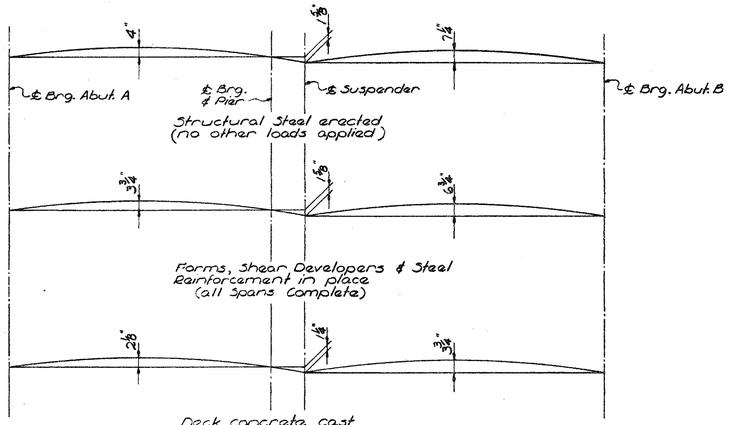


PLAN OF SLAB



TOP OF SLAB OFFSET

Includes vertical curve ordinate and allowance for deflection due to Sdlwk. and Railing.



CAMBER ORDINATES

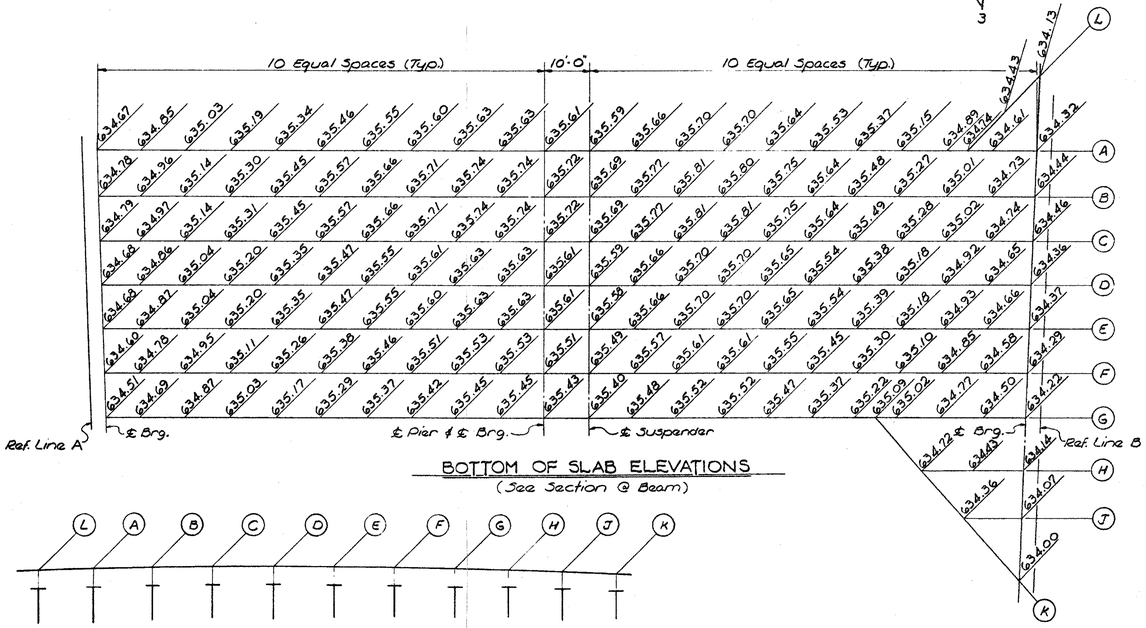
NOTES:

Screed elevations are based on the condition that no slab concrete has been cast and that formwork, steel reinforcement and shear developers are in place.

Bottom of slab elevations are based on the condition that all structural steel has been erected, but no other loads applied. These elevations include allowances for deflections due to forms, steel reinforcement, shear developers in place, deck concrete and railing.

Screeds affected by loads in other spans are to be set to the elevations shown before casting any concrete. Concrete in the suspended span is to be cast before the concrete in the anchor span.

Longitudinal strike-off finishing machine is to be used in placing deck concrete and the flared quadrants shall be hand screeded.



BOTTOM OF SLAB ELEVATIONS

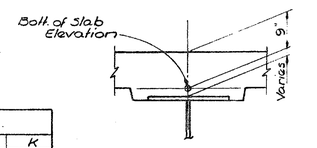
(See Section @ Beam)

SCREED TEMPLATE

(Looking East)

SCREED TEMPLATE ELEVATION

LINE	L	A	B	C	D	E	F	G	H	J	K
1-1		635.40	635.51	635.52	635.41	635.42	635.33	635.24			
2-2		636.33	636.44	636.44	636.33	636.33	636.24	636.15			
3-3	634.84	635.05	635.17	635.19	635.09	635.10	635.02	634.94	634.87	634.80	634.72



TYP. SECTION AT EACH BEAM

Work this sheet with sheet # 17, 18 & 19

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	FISHER	6-4-69
DRAWN BY	STROUSE	6-17-69
TRACED BY		
CHECKED BY	Zaloggis	6-18-69
SHEET	20 OF 22	

S04 of 63103 A

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FOR INFORMATION ONLY

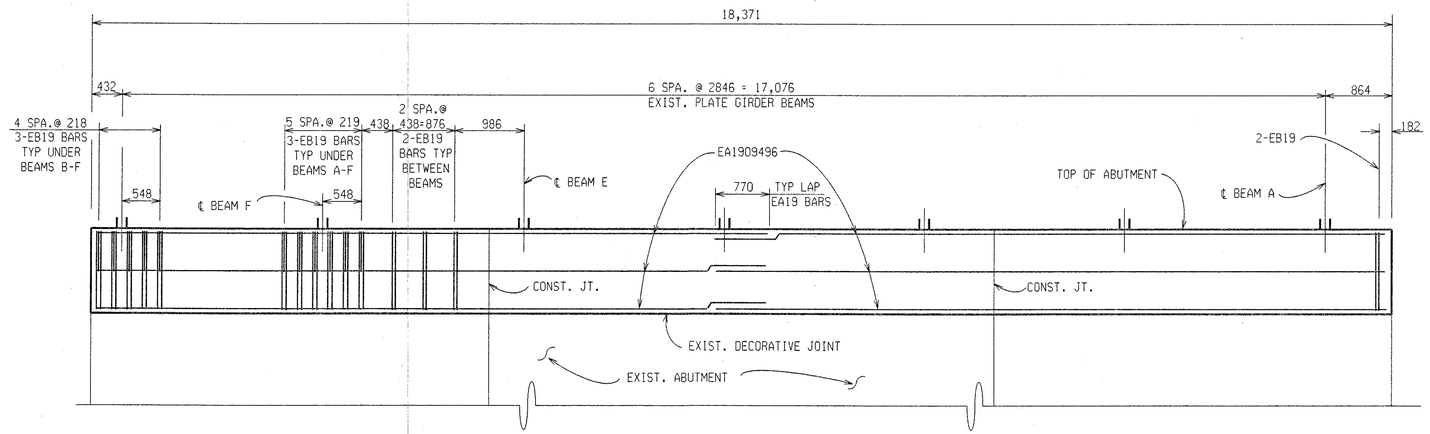
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	17 OF 24

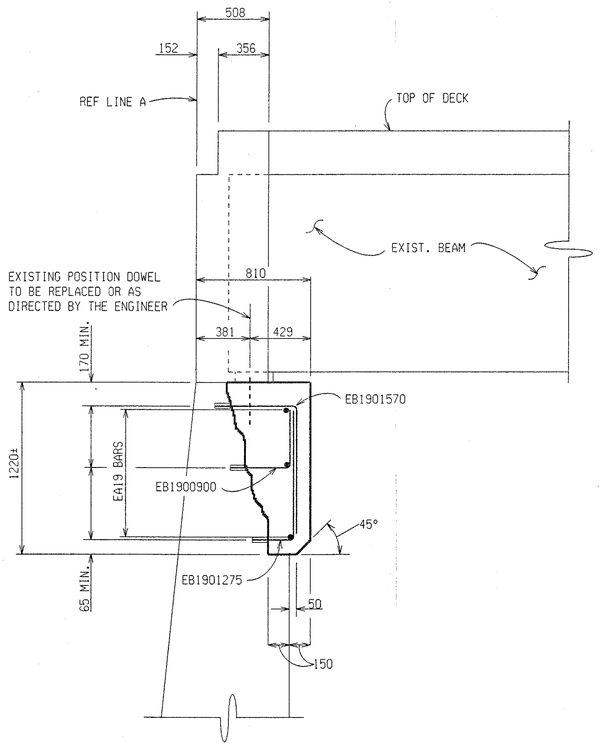
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 02-10-99 DRAWN BY: INDER FILE NAME: s0463103sn.

CONTROL SECTION S04 OF 63103 JOB NO. 48404A SH. NO. 18



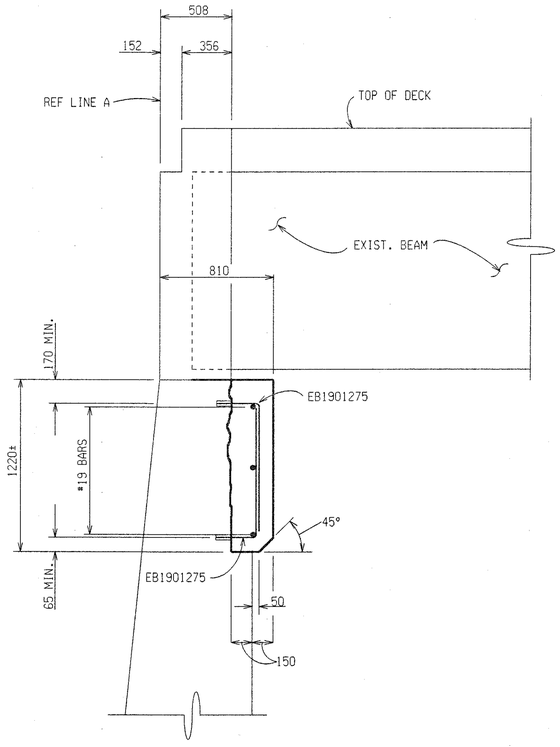
ABUTMENT A ELEVATION



SECTION THRU ABUTMENT

PROPOSED REPAIRS UNDER BEAMS

SALVAGE ALL REINFORCEMENT EXCEPT LONGITUDINAL



SECTION THRU ABUTMENT

PROPOSED REPAIRS BETWEEN BEAMS

MISCELLANEOUS QUANTITIES

7 ea	Support, Column, Temp
565 kg	Reinforcement, Steel, Epoxy Coated
156 ea	Adhesive Anchoring of Horizontal Bar, 19
5 m3	Hand Chipping, Other Than Deck
8 m3	Patching Conc, LM
26 m2	Patch, Forming
105 m2	Water Repellent Treatment

NOTES:

EXISTING TEMPORARY SUPPORTS LOCATED UNDER THE BEAMS AT ABUTMENT A SHALL BE REMOVED AND REPLACED WITH THE NEW TEMPORARY SUPPORTS DESIGNED FOR THE ABUTMENT REPAIR WORK. PLACE PROPOSED TEMPORARY SUPPORTS PRIOR TO REMOVAL OF ANY OF THE EXISTING SUPPORTS.

EXISTING TEMPORARY SUPPORTS SHALL BE STOCK PILED ON THE JOB SITE AND DELIVERED TO AUBURN HILLS MAINTENANCE FACILITY AS DIRECTED BY THE ENGINEER (INCLUDED IN PAYMENT FOR TEMPORARY SUPPORTS.)

REMOVAL OF THE EXISTING TEMPORARY SUPPORTS SHALL BE INCLUDED IN THE PAY ITEM "SUPPORT, COLUMN, TEMP".

ALTERNATE DESIGNS FOR THE TEMPORARY SUPPORT SHALL BE BASED ON LOADS AS FOLLOWS:

800 kN VERTICAL GIRDER LOAD
120 kPa ALLOWABLE SOIL PRESSURE

FORMS FOR LARGE PATCHES SHALL BE INSTALLED IN 600 mm TO 1200 mm HIGH SECTIONS WITH THE TOP OF FORM NO MORE THAN 1200 mm ABOVE THE LEVEL OF CONCRETE AS THE POUR PROGRESSES.

TEMPORARY SUPPORTS SHALL NOT REMAIN LOADED FOR A PERIOD GREATER THAN FOUR WEEKS.

WATER REPELLENT TREATMENT SHALL BE APPLIED TO THE ENTIRE REPAIRED AND EXPOSED EXISTING SURFACES OF ABUTMENT A.

ALL CONCRETE ANCHORS SHALL BE INSTALLED ACCORDING TO MANUFACTURERS RECOMMENDATIONS

SYSTEMS FOR ANCHORING HORIZONTAL OR VERTICAL REINFORCEMENT IN EXISTING CONCRETE SHALL BE CHOSEN FROM THE QUALIFIED PRODUCTS LIST IN THE CURRENT MDOT MATERIALS SAMPLING GUIDE.

TEMPORARY CONCRETE BARRIER SHALL BE USED TO PROTECT THE TEMPORARY SUPPORT AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR WILL BE FURNISHED WITH PLANS OF THE EXISTING STRUCTURE IF REQUESTED.

WELDING ON EXISTING BEAMS WILL NOT BE PERMITTED (EXCEPT AS NOTED).

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: 10-19-99 CORRECTED BY: R. PRATT/ INDER

DATE: 3-15-99 CHECKED BY:

DRAWN BY: SHAFFER

FILE NAME: S0463103.ABR

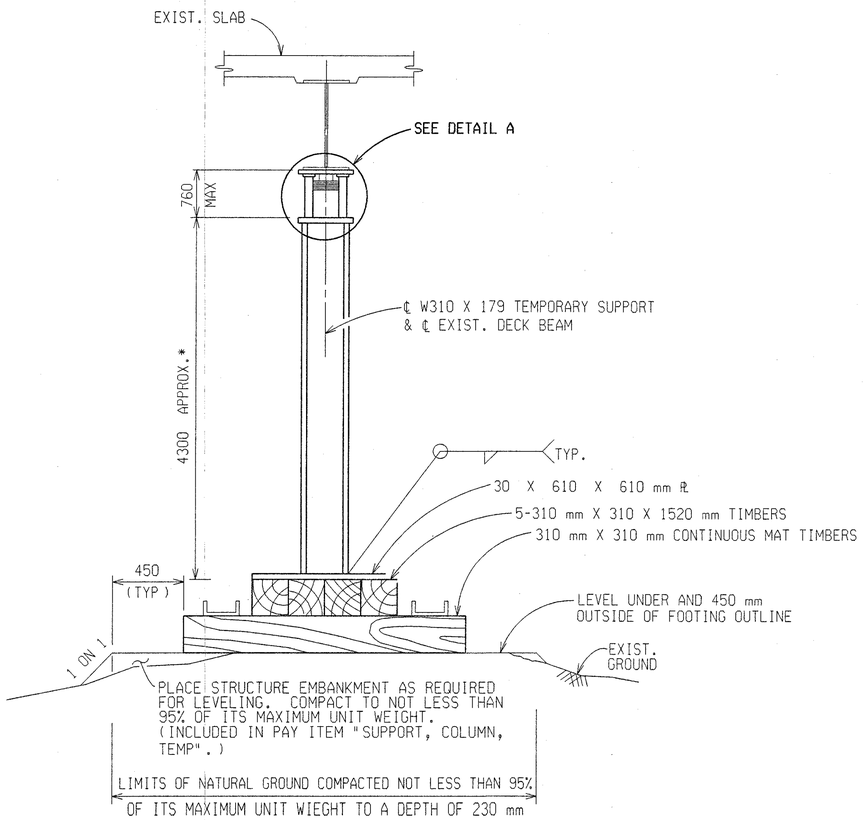
MDOT Michigan Department of Transportation

ABUTMENT A REPAIR DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	18 OF 24

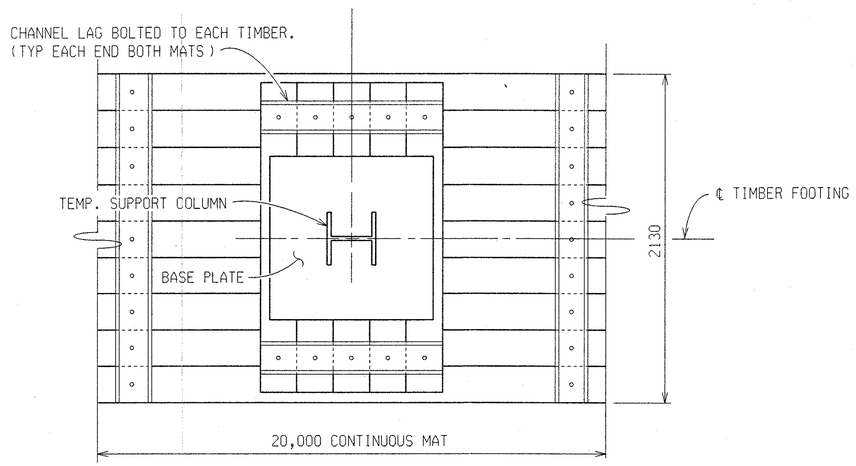
CONTROL SECTION S04 OF 63103 | JOB NO. 48404A | SH. NO. 19

REVISIONS			
NO.	DESCRIPTION	DATE	BY

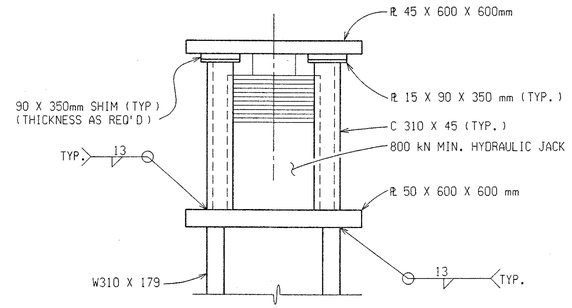


TIMBER FOOTING ON NATURAL GROUND

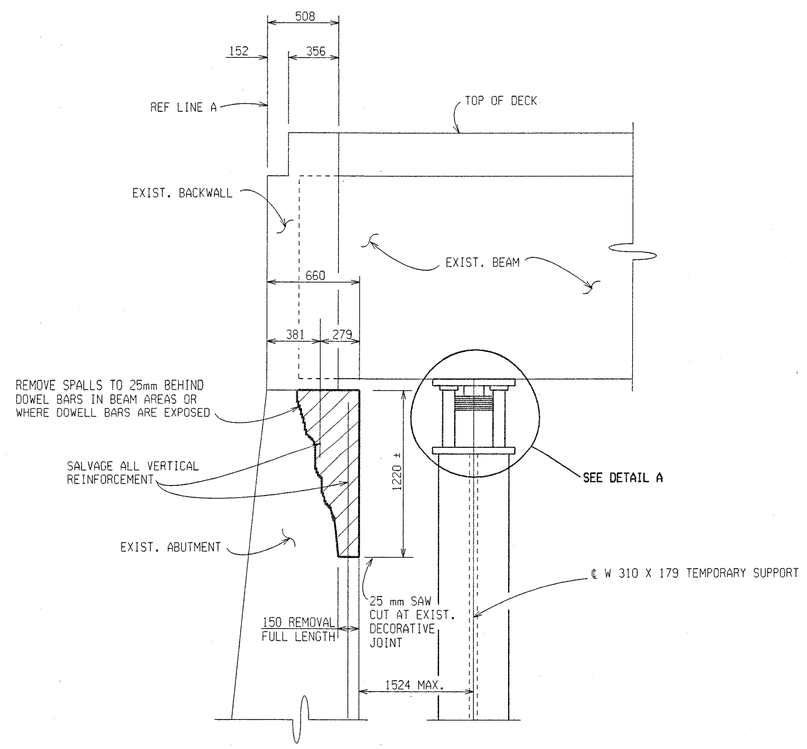
* EXACT HEIGHT TO BE DETERMINED BY CONTRACTOR. HEIGHT NOT TO EXCEED .



TIMBER FOOTING PLAN



DETAIL A



SECTION THRU ABUTMENT

SHOWING REMOVAL

ABUTMENT A REPAIR DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	19 OF 24

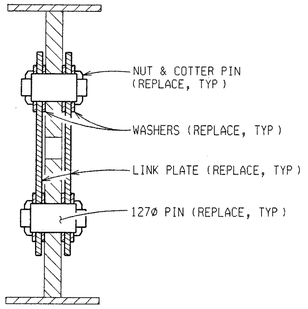
MDOT Michigan Department of Transportation

DATE: CORRECTED BY: R. PRATT / INDER DATE: 10-18-99

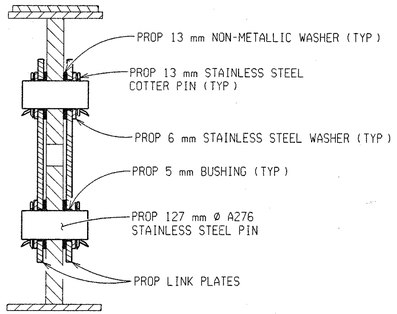
DRAWN BY: SHAFFER DATE: 3-15-99 CHECKED BY:

FILE NAME: S046103.ABR

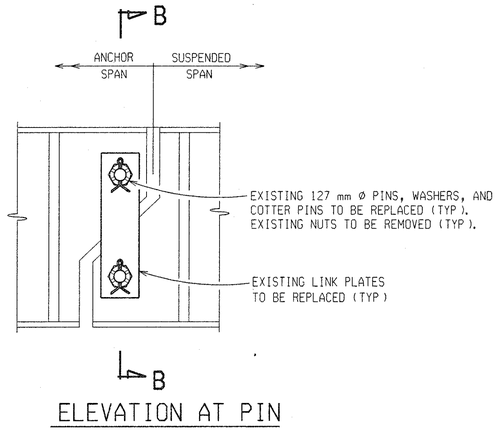
CONTROL SECTION S04 OF 63103 JOB NO. 48404D SH. NO. 20



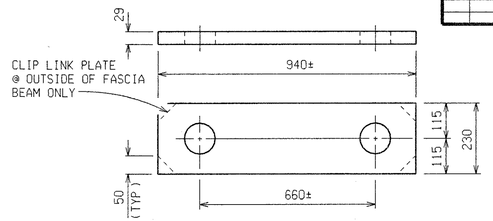
SECTION B-B
(EXISTING)



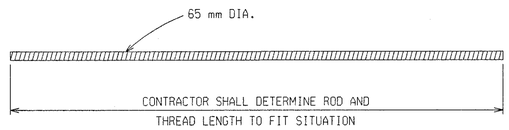
SECTION B-B
(PROPOSED)



ELEVATION AT PIN



LINK PLATE
(14 REQ'D.)

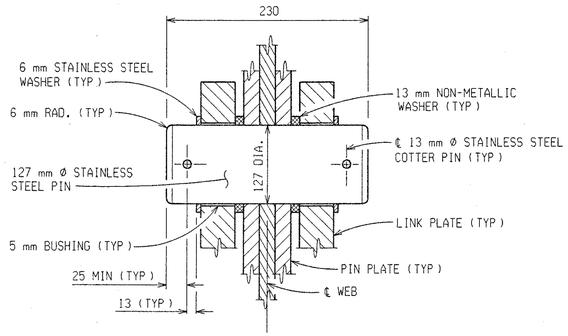


SUSPENDER ROD DETAIL

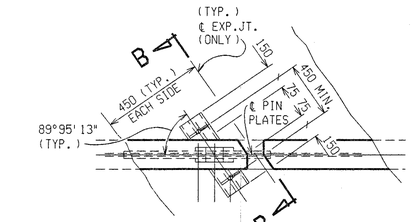
4 REQUIRED PER ASSEMBLY W/7 HEAVY HEX NUTS
& 4 HARDENED WASHER PER ROD

MISCELLANEOUS QUANTITIES

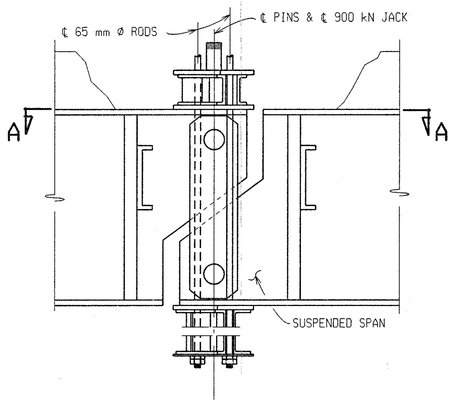
7 ea	Support, Suspension, Temp
28 ea	Bushing
1000 kg	Structural Steel, Furn and Fab, Pin and Hanger
7 ea	Hanger Assembly, Rem and Erect
7 ea	Hanger Assembly, Field Measurement
1 LS	Field Repr of Damaged Coating (S04)
1 LS	Steel Structure, Cleaning, Type 4 (S04)
1 LS	Steel Structure, Coating, Type 4 (S04)



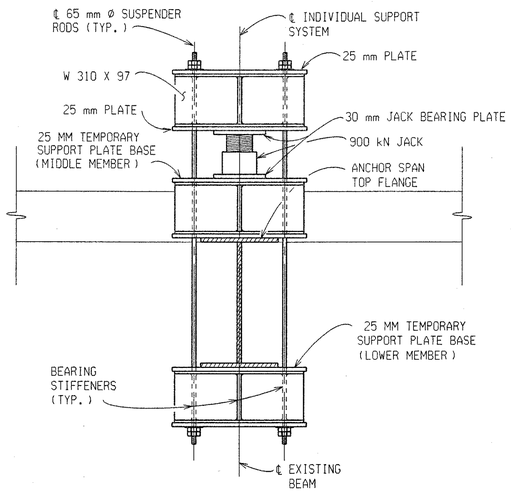
PROPOSED
PIN DETAIL
(14 REQ'D.)



SECTION A-A

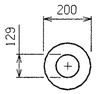


TEMPORARY SUPPORT



DECK SECTION A-A
(TYPICAL ALL BEAMS)

13 mm NON-
METALLIC WASHER
(INCIDENTAL TO STRUCTURAL STEEL)
(28 REQ'D.)



6 mm STAINLESS
STEEL WASHER
(28 REQ'D.)

NOTES:

THE AREA BEHIND AND AROUND THE HANGER ASSEMBLY SHALL BE COATED PRIOR TO INSTALLING THE NEW LINK PLATES AND PINS. PROPOSED LINK PLATES SHALL BE SHOP COATED.

THE PROTECTION OF WORK AND ENVIRONMENT DURING BLAST CLEANING OF WEBS BEHIND AND AROUND HANGER ASSEMBLIES SHALL BE ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. (INCLUDED IN THE BID ITEM "HANGER ASSEMBLY, REMOVE AND ERECT".)

THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS OF THE EXISTING HANGER ASSEMBLIES INDICATED ON THE PLANS PRIOR TO THE PREPARATION OF LINK PLATE AND PIN SHOP DRAWINGS.

WELDING ON EXISTING GIRDERS WILL NOT BE PERMITTED.

THE CONTRACTOR WILL BE FURNISHED WITH PLANS OF THE EXISTING STRUCTURE IF REQUESTED.

ALTERNATE DESIGNS OF THE TEMPORARY SUPPORT SHALL BE BASED ON LOADS AS FOLLOWS:

900 kN VERTICAL GIRDER LOAD.

THIS BRIDGE IS COATED WITH LEAD BASED PAINT.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE OF THE MAINTENANCE DIVISION IN LANSING.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE COATED IS 2090 SQUARE METERS.

THE SIGNS OVER I-75, NB AND SB, SHALL BE REMOVED FOR CLEANING AND COATING OF THE FASCIA BEAMS. SIGNS SHALL BE REINSTALLED USING NEW CONNECTION HARDWARE ACCORDING TO SUBSECTION 919.02 OF THE STANDARD SPECIFICATIONS. (INCLUDED IN THE BID ITEMS FOR CLEANING AND COATING EXISTING STEEL STRUCTURES.)

THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL MATCH COLOR NUMBER 15488 LIGHT BLUE OF FEDERAL STANDARD NUMBER 595a.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES. (INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4",(S04)).

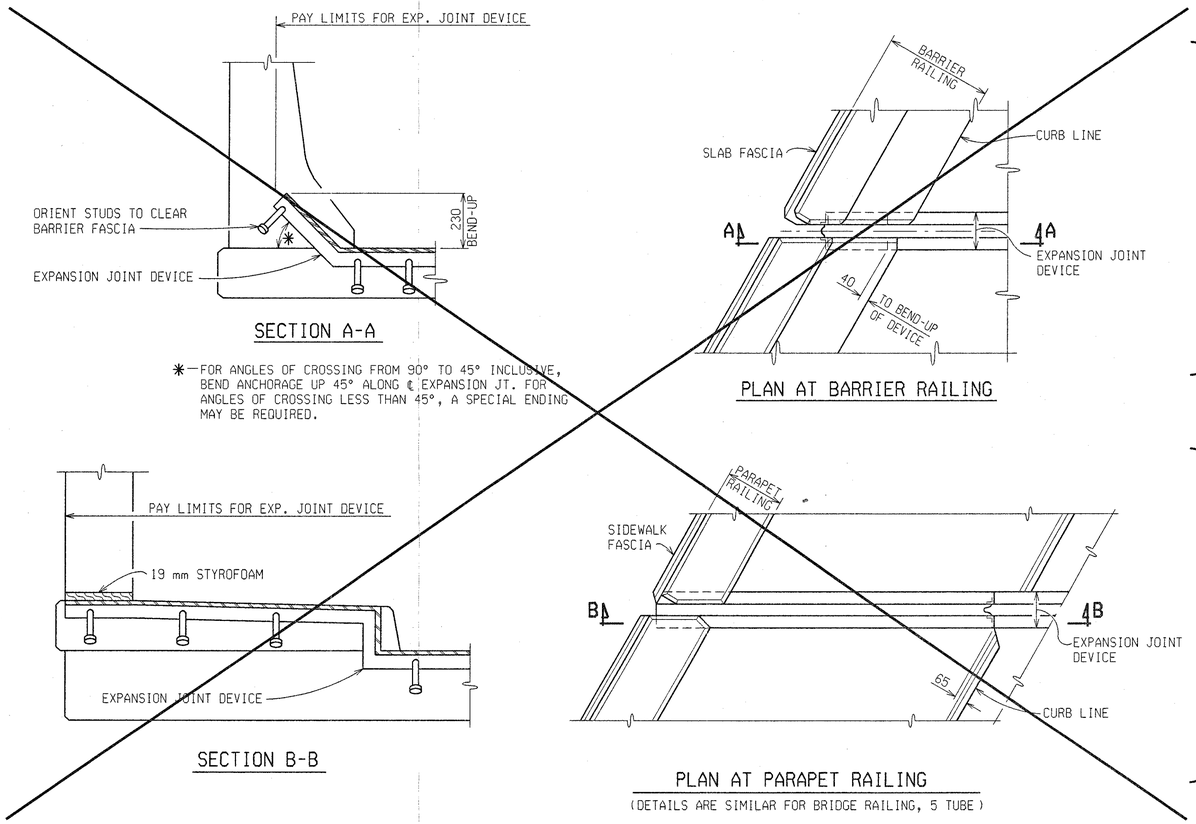
REVISIONS			
NO.	DESCRIPTION	DATE	BY

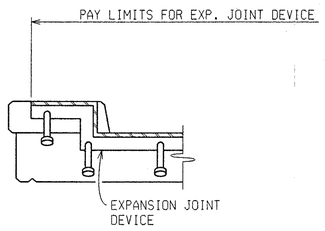
DATE: 9-20-99
CORRECTED BY: SHAFFER
DRAWN BY: SHAFFER
DATE:
CHECKED BY:
FILE NAME: S04631O3.PR

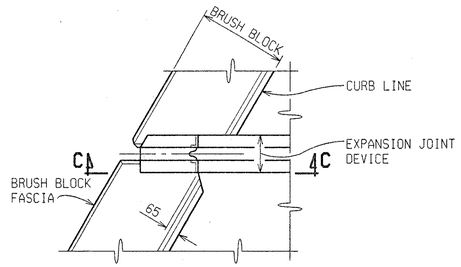
SUSPENDER REPLACEMENT DETAILS

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404D	MAHDAVI	20 OF 24







STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S04	90°	PIER 1	35	18 m

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	18

MICHIGAN DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT DETAILS

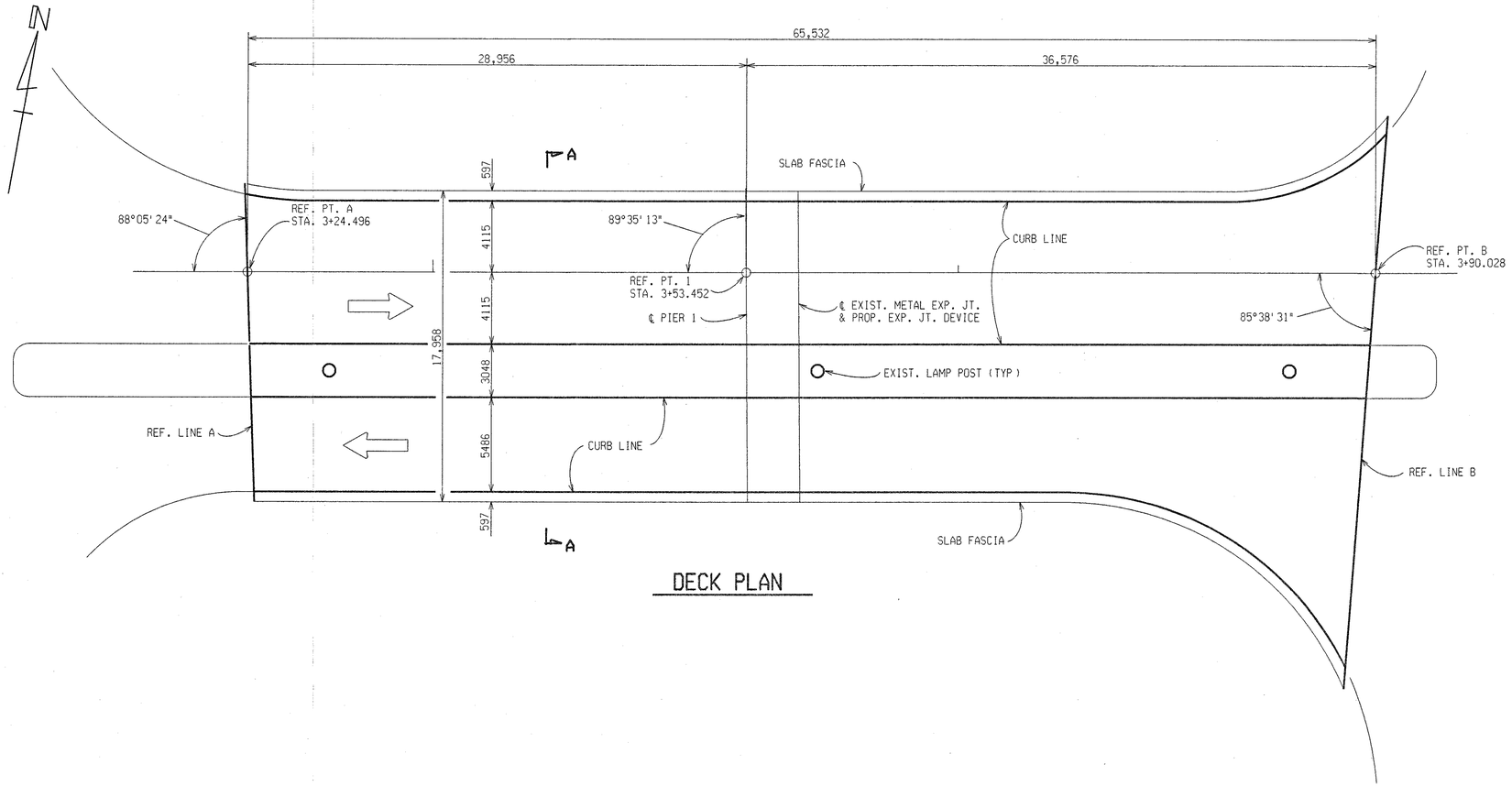
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404D	MAHDAVI	21 OF 24

EJ3T (11-17-97)

DATE: 5-10-99 | CORRECTED BY: SHAFFER | DATE: 07-16-96 | CHECKED BY: VZ/SPB | DATE: | DRAWN BY: STANDARDS | FILE NAME: S04631O3.JT

CONTROL SECTION S04 OF 63103 | JOB NO. 48404A | SH. NO. 22

REVISIONS			
NO.	DESCRIPTION	DATE	BY



DECK PLAN

LENGTH

EA BAR

EPOXY COATED
BAR SIZE
BAR LENGTH(mm)
EA1913000
BAR SHAPE

BAR LEGEND

EPOXY COATED STEEL REINFORCEMENT

BAR	NO. REQ'D	TOTAL MASS
EA1910670	14	334
EA1907920	14	248
* OVERRUN	500	
GRAND TOTAL = 1082		

* STEEL REINFORCEMENT NEEDED TO REPLACE WEAKENED REINFORCEMENT FOUND DURING DECK PREPARATION.

MISCELLANEOUS QUANTITIES

30 m2	Bit Patch, Rem
960 m2	Scarifying
960 m2	Bridge Deck Surface Construction
18 m	Deck Joint, Rem
1082 kg	Reinforcement, Steel, Epoxy Coated
40 m3	Conc, Bridge Deck Overlay
5 m3	Conc, Grade D
1176 m2	False Decking
960 m2	Hydrodemolition, First Pass
40 m2	Hydrodemolition, Second Pass

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES JOINT REPLACEMENT, PIN AND HANGER REPLACEMENT, PAINTING, ABUTMENT REPAIR, RESURFACING THE EXISTING BRIDGE DECK AND MAINTAINING TRAFFIC. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE PART OF THIS CONTRACT.

I-75 TRAFFIC IS TO BE MAINTAINED BY PART WIDTH CONSTRUCTION. SHELVIN U-TURN TRAFFIC IS TO BE DETOURED OVER EXISTING ROADS.

THE VOLUME OF CONCRETE, BRIDGE DECK OVERLAY IS BASED ON THE OVERLAY AND AN ESTIMATED QUANTITY TO REPLACE UNSOUND CONCRETE AS DETERMINED BY THE ENGINEER.

EXPANSION JOINT REPLACEMENT SHALL EXTEND ACROSS BRUSHBLOCKS.

THE CONTRACTOR WILL BE FURNISHED WITH EXISTING PLANS IF REQUESTED

THE CONTRACTOR SHALL REMOVE AND REPLACE ONLY THAT PORTION OF THE BRUSH BLOCK THAT IS NECESSARY FOR INSTALLATION OF THE DECK JOINT.

THE ITEM "JOINT, REMOVE" INCLUDES HAND CHIPPING WITHIN LIMITS REQUIRED FOR REMOVAL.

BEFORE OVERLAYING, SOUND CONCRETE TO DETERMINE WHETHER 450 mm REMOVAL AT EITHER SIDE OF TRANSVERSE JOINTS WILL BE ADEQUATE. INCREASE THE REMOVAL LIMITS IF NECESSARY.

WHERE STRUCTURAL STEEL IS EXPOSED DURING THE REMOVAL OF UNSOUND DECK CONCRETE, IT SHALL BE CLEANED AND COATED. CLEANING SHALL BE BY BLASTING OR POWER TOOLS. THE PROTECTION OF WORK AND ENVIRONMENT DURING CLEANING WILL BE PAID FOR AS EXTRA WORK.

THE ACTUAL QUANTITY OF "CONCRETE,BRIDGE DECK OVERLAY" PLACED ON THE DECK WAS CUBIC METERS. (THIS INFORMATION IS TO BE FILLED IN BY THE ENGINEER WHEN SUBMITTING "AS CONSTRUCTED" PLANS.)

SILICA FUME MODIFIED CONCRETE OR LATEX MODIFIED CONCRETE MAY BE SELECTED FOR THE BRIDGE DECK OVERLAY CONCRETE, SEE SPECIAL PROVISION.

FALSE DECKING SHALL INCLUDE THE AREA FROM FACE TO FACE OF ABUTMENTS AND BETWEEN SLAB FASCIAS.

DATE: 9-20-99 CORRECTED BY: SHAFFER
DATE: 2-25-99 CHECKED BY: MIKUCKI
DRAWN BY: SHAFFER
FILE NAME: S0463103.DV

DECK OVERLAY DETAILS

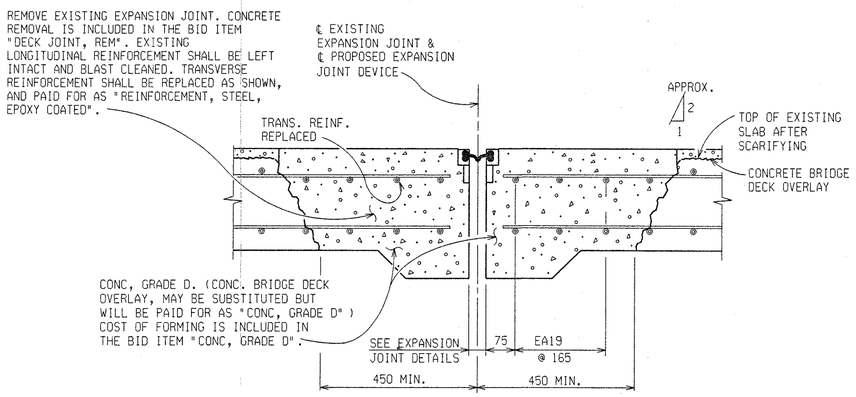
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	22 OF 24

ACTIVE SCALE=

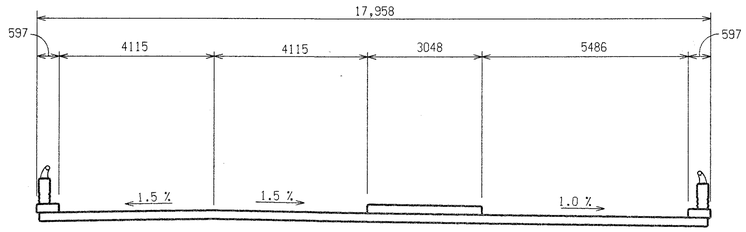
CONTROL SECTION S04 OF 63103 | JOB NO. 48404A | SH. NO. 23

REVISIONS			
NO.	DESCRIPTION	DATE	BY

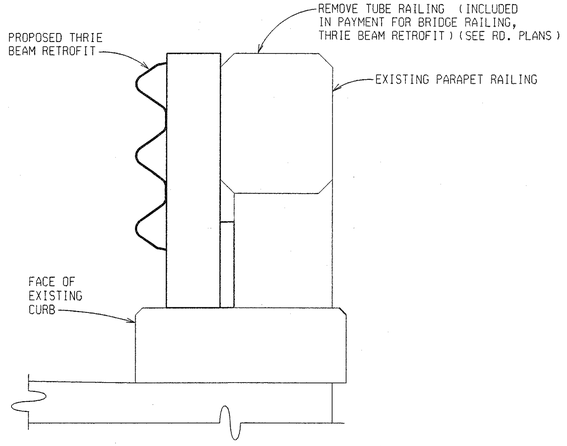


SECTION AT PROPOSED EXPANSION JOINT DEVICE

BEFORE FORMING, SOUND CONCRETE TO SEE IF ADDITIONAL REMOVAL WILL BE REQUIRED.

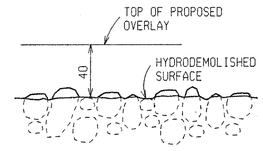


SECTION A-A



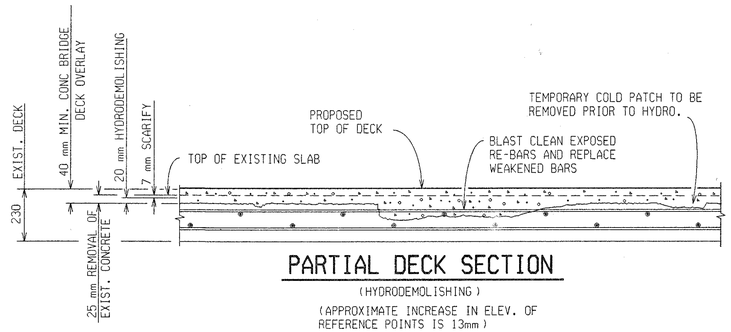
SECTION THRU PARAPET RAILING THRIE BEAM RETROFIT

(SEE ROAD PLANS AND STANDARD PLAN B-23 FOR THRIE BEAM RETROFIT DETAILS AND QUANTITIES)



OVERLAY LIMITS SKETCH

(HYDRODEMOLISHING)



PARTIAL DECK SECTION

(HYDRODEMOLISHING)

(APPROXIMATE INCREASE IN ELEV. OF REFERENCE POINTS IS 13mm)

DECK OVERLAY DETAILS

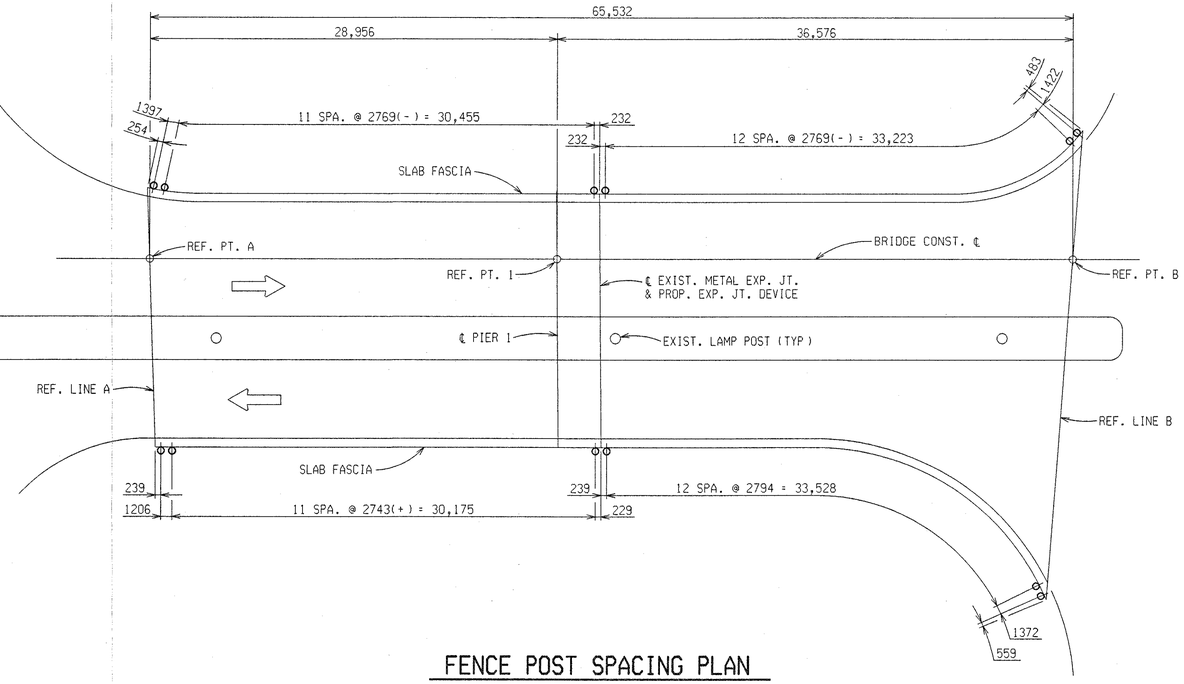
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	23 OF 24

DATE: 9-20-99 CORRECTED BY: SHAFFER
DATE: 2-25-99 CHECKED BY: MIKUCKI
DRAWN BY: SHAFFER
FILE NAME: S0463103.OV

CONTROL SECTION S04 OF 63103 | JOB NO. 48404A | SH. NO. 24

REVISIONS			
NO.	DESCRIPTION	DATE	BY



FENCE POST SPACING PLAN

THE EXISTING BRIDGE RAILING ON THIS STRUCTURE IS OPEN PARAPET TYPE.

MISCELLANEOUS QUANTITIES

322	m2	Fencing, Structures
1	ea	Elec Grounding System

NOTES:

ANY BRUSH OR OTHER VEGETATION WHICH MAY INTERFERE WITH THE INSTALLATION OF THE PROPOSED PEDESTRIAN FENCING SHALL BE REMOVED AS DIRECTED BY THE ENGINEER AND IS INCLUDED IN THE BID ITEM "FENCING, STRUCTURES".

SIGNING MOUNTED ON BRIDGE FASCIAS SHALL BE LEFT IN PLACE DURING INSTALLATION OF PEDESTRIAN FENCING UNLESS OTHERWISE DIRECTED BY THE ENGINEER. FENCE POST SPACING MAY BE ADJUSTED (3050 MAX.) WITH THE APPROVAL OF THE ENGINEER TO FACILITATE INSTALLATION AND IS INCLUDED IN THE BID ITEM "FENCING, STRUCTURES".

THE CONTRACTOR WILL BE FURNISHED WITH PLANS OF THE EXISTING STRUCTURE IF REQUESTED.

THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS BEFORE FABRICATING FENCE DETAILS.

A STRAIGHT FENCE AS SHOWN IN THE STANDARD PLAN B-32A SHALL BE USED ON THIS STRUCTURE.

GROUNDING CABLES AND TOPS OF GROUNDING RODS SHALL BE PLACED 300 mm MINIMUM BELOW FINISHED GROUND.

CHAIN LINK FENCE FABRIC SHALL BE 50mm MESH.

DATE: CORRECTED BY:

DATE: 9-22-99 CHECKED BY:

DRAWN BY: R. PRATT

FILE NAME: s0463103.fe

FENCING DEATILS

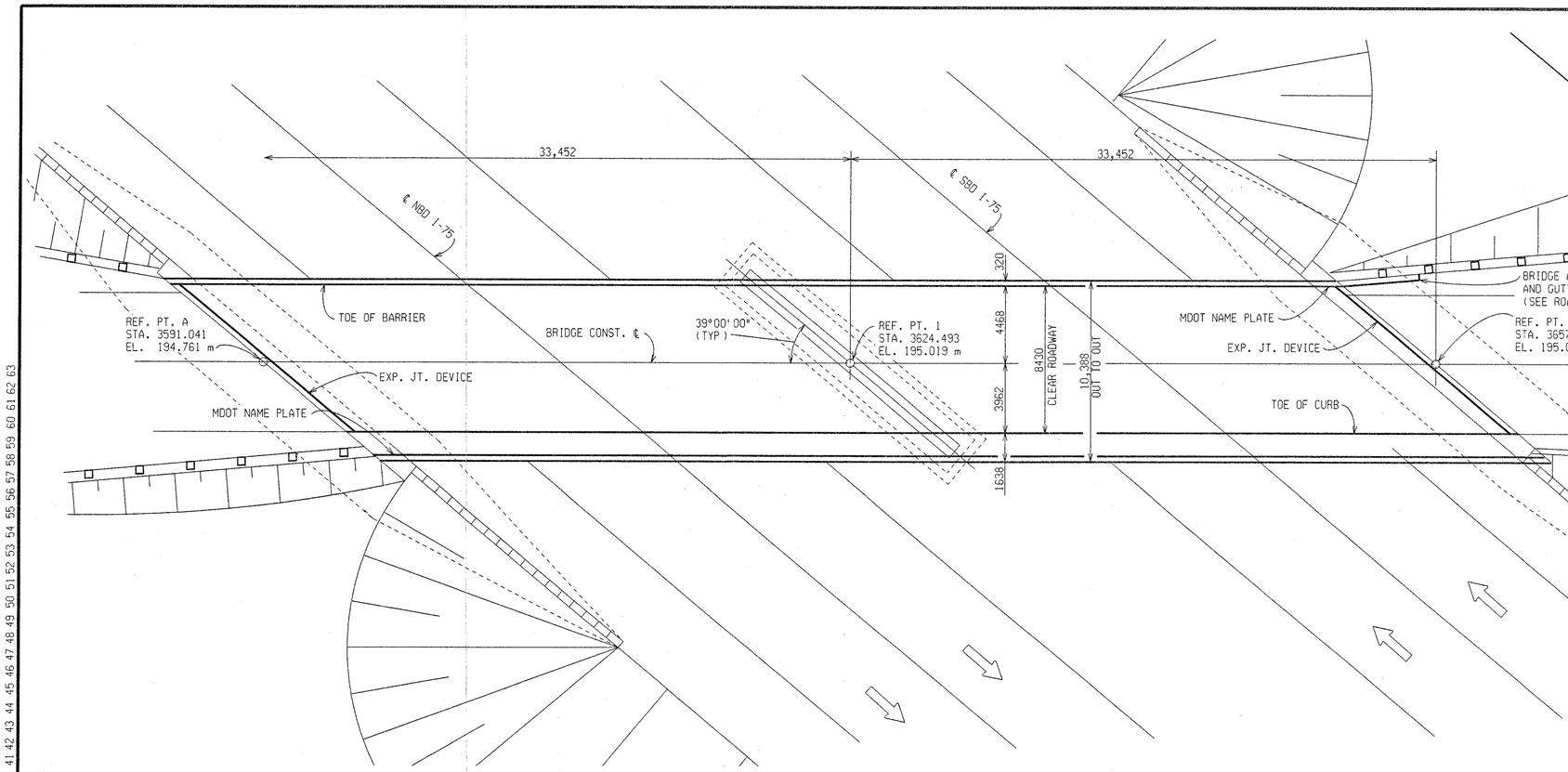
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	24 OF 24

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S02 OF 63174 | JOB NO. 48404 | SH. NO. 2

REVISIONS			
NO.	DESCRIPTION	DATE	BY



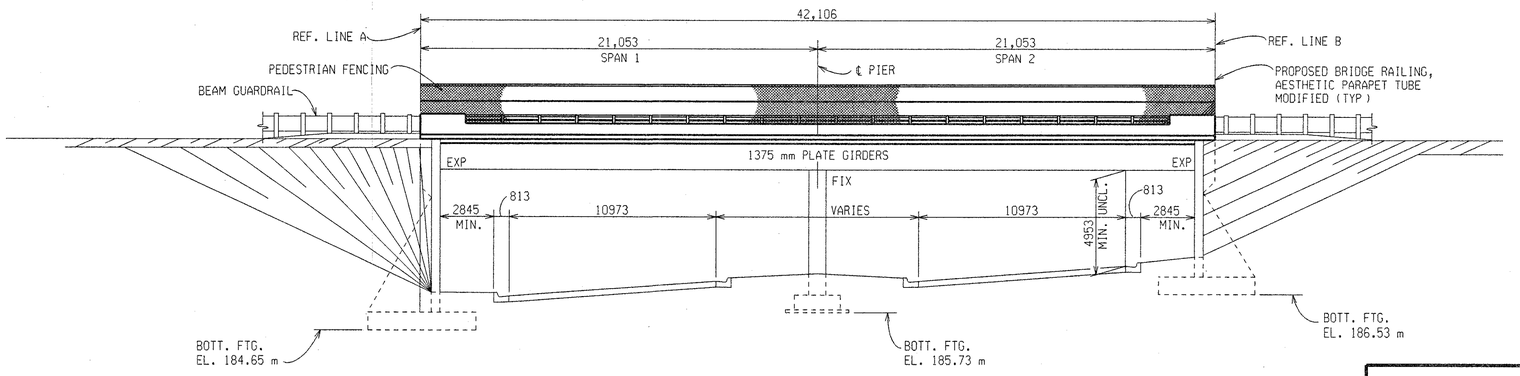
MISCELLANEOUS QUANTITIES

1 LS	Structures, Rehabilitation, Rem Portions (S02)
* 5 m3	Hand Chipping, Other Than Deck
* 5 m3	Patching Conc, LM
*50 m2	Patch, Forming
685 m2	False Decking
412 m2	Water Repellent Treatment

* TO BE USED FOR ABUTMENT REPAIRS A DIRECTED BY THE ENGINEER

PLAN

THE LIMITS OF FALSE DECKING ARE BETWEEN THE FACES OF THE ABUTMENTS AND SLAB FASCIAS.



ELEVATION

SHOWN 1 TO SUBSTRUCTURE UNITS

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, ABUTMENT REPAIR, PEDESTRIAN FENCING, AND MAINTAINING TRAFFIC. ALL OTHER WORK IS COVERED BY ROAD PLANS THAT ARE PART OF THIS CONTRACT.

THE REHABILITATION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS18 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH. THE WORKING STRESS METHOD WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR H20 LOADING.

N.B. SERVICE ROAD TRAFFIC IS TO BE DETOURED. I-75 TRAFFIC IS TO BE MAINTAINED BY PART-WIDTH CONSTRUCTION.

THE EXISTING TUBE RAILINGS SHALL BE SALVAGED AND STOCKPILED ON THE JOB SITE AS DIRECTED BY THE ENGINEER. INCLUDED IN THE PAY ITEM "STRUCTURES, REHABILITATION, REMOVE PORTIONS (S02)."

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

PENETRATING WATER REPELLENT TREATMENT SHALL BE APPLIED TO THE TOP OF ABUTMENTS AND FRONT FACE OF THE INDEPENDENT BACKWALL.

APPROVED Steven P. Beck 10/19/99
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

I-75 UNDER NB SERVICE RD.

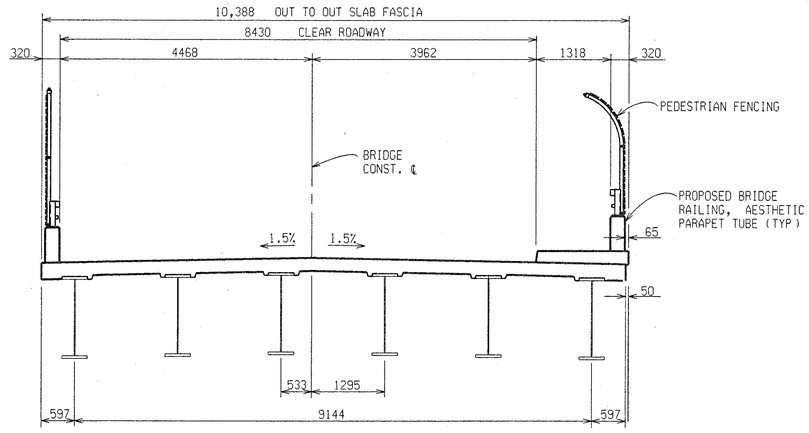
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404	MAHDAVI	2 OF 29

DATE: 10-13-99 | CORRECTED BY: SHAFFER | DATE: | DRAWN BY: SHAFFER | DATE: 2-8-99 | CHECKED BY: MIKUCKI | FILE NAME: S02631741.ST1

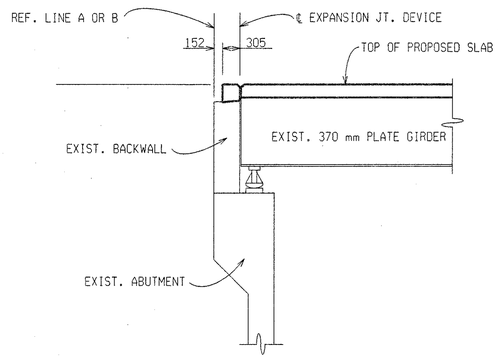
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S02 OF 63174 | JOB NO. 48404 | SH. NO. 3

REVISIONS			
NO.	DESCRIPTION	DATE	BY



TYPICAL DECK SECTION



SECTION THRU ABUTMENT

APPROVED _____ DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

I-75 UNDER NB SERVICE RD.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
7-23-99	S02 OF 63174	48404	MAHDAVI	3 OF 29

DATE: 7-23-99 CORRECTED BY: SHAFFER

DATE: 2-8-99 CHECKED BY: MIKUCKI

DRAWN BY: SHAFFER

FILE NAME: S0263174.ST1

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

BENCH MARKS

B.M. #76 El 637.52 M.S.H.D. B.M. Tag in base of 12" elm 178' Lt. of 80+80 N.B. Rdwy.

B.M. #73 El. 638.77 M.S.H.D. B.M. Tag in base of 20" oak 248' Lt. of 903+37 N.B. Rdwy.

UTILITIES

City of Royal Oak Combined Sewer 30" pipe crosses ℄ approx. at Sta. 900+10.

City of Royal Oak Combined Sewer 12"-15" pipe 120' Rt. of ℄ N.B. between Forest and Gardenia Ave.

Detroit Edison Co. Power Line 12 Wires, crosses ℄ 33' South of ℄ of Gardenia Ave.

Detroit Edison Co. Power Line 3 Wires, crosses ℄ 36' North of ℄ of Gardenia Ave.

Mich. Bell Telephone Co. 1 Telephone Cable crosses ℄ 36' North of ℄ of Gardenia Ave.

Detroit Edison Co. Power Line, N. & S. along East edge of Stephenson R.O.W.

CURVE DATA

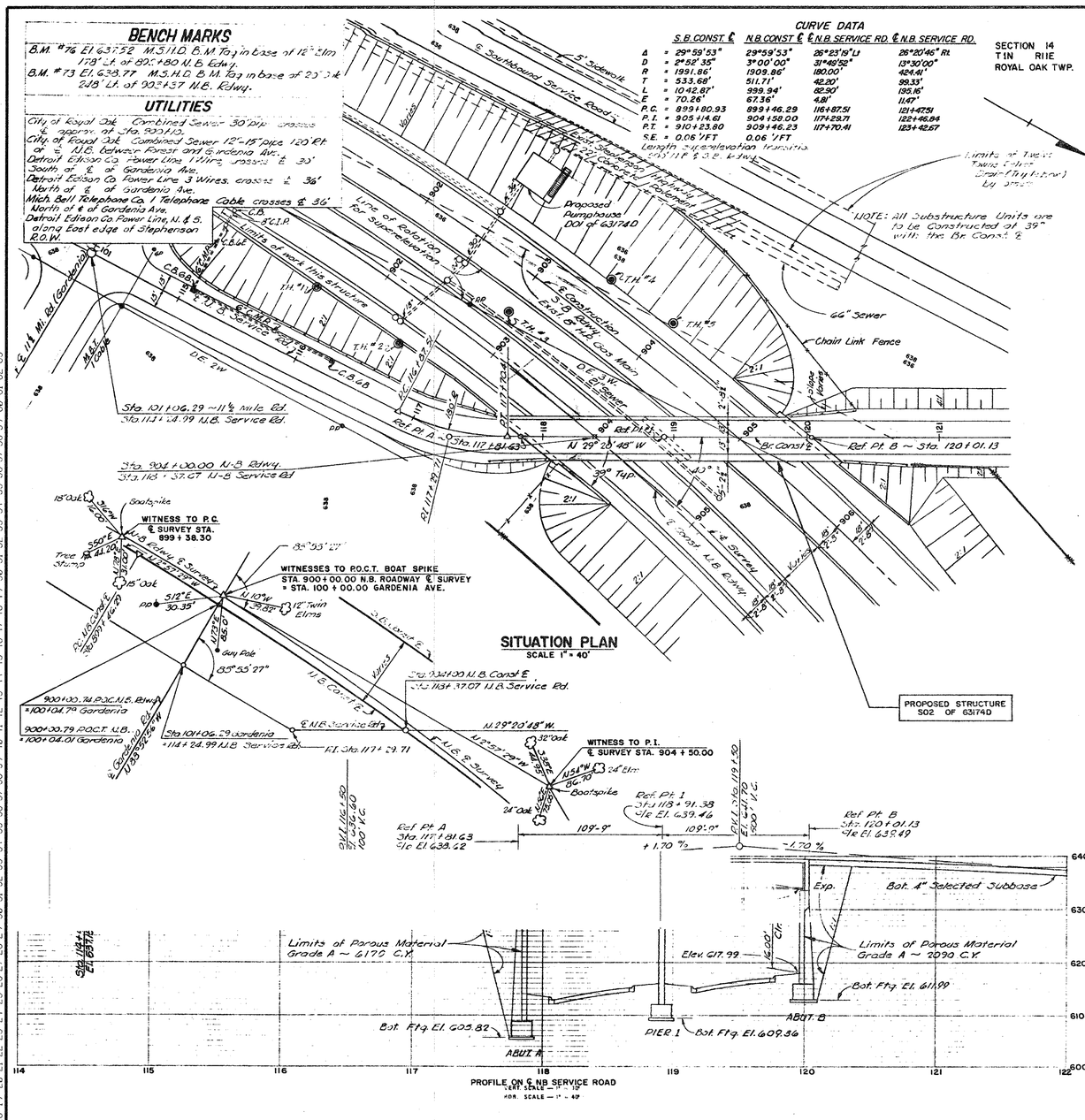
	S.B. CONST. ℄	N.B. CONST ℄	℄ N.B. SERVICE RD.	℄ N.B. SERVICE RD.
Δ	= 29°59'53"	29°59'53"	26°23'19" Lt	26°20'46" Rt
D	= 2°52' 35"	3°00'00"	31°46'52"	13°30'00"
R	= 1991.86'	1909.86'	180.00'	424.41'
T	= 533.68'	511.71'	42.20'	99.33'
L	= 1042.87'	999.94'	82.90'	193.16'
E	= 70.26'	67.36'	4.81'	11.47'
P.C.	= 899+80.93	899+46.29	1164+87.51	1214+47.51
P.I.	= 905+14.61	904+58.00	1174+29.71	1224+46.84
P.T.	= 910+23.80	909+46.23	1174+70.41	1234+42.67
S.E.	= 0.06 "/FT	0.06 "/FT		

Length of superelevation transitions 235' Lt & Rt. of Sta.

SECTION 14
T1N R11E
ROYAL OAK TWP.

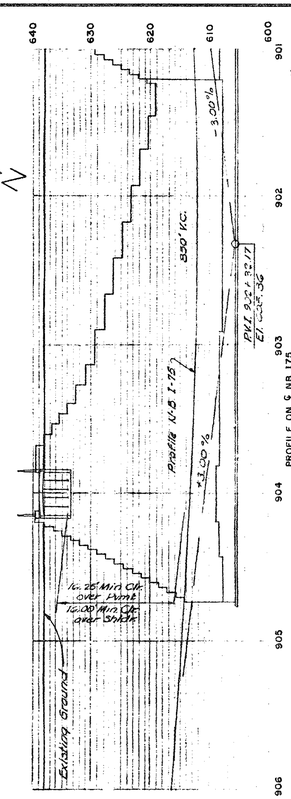
(Limits of Twin Cities Township Limit Line)

NOTE: All substructure units are to be constructed of 39" with the Br Const ℄

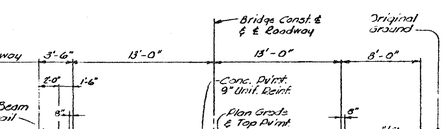


SITUATION PLAN
SCALE 1" = 40'

PROFILE ON ℄ NB SERVICE ROAD
VERT. SCALE — 1" = 10'
HOR. SCALE — 1" = 40'

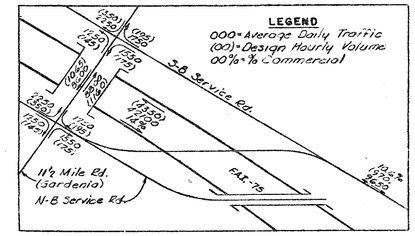


PROFILE ON ℄ NB 175
VERT. SCALE — 1" = 10'
HOR. SCALE — 1" = 40'

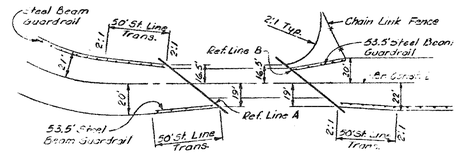


HALF SECTION AT STRUCTURE

HALF SECTION ON APPROACH



1978 ESTIMATED TRAFFIC DISTRIBUTION



APPROACH GRADING PLAN

GENERAL NOTES

Fences & utilities are to be removed by others.
Buildings are to be removed by others.
Datum Refers to U.S.C.& G.S. Datum
See Sketch above for Detours.
The contractor shall locate underground utilities prior to starting work and shall conduct his operations in such a manner as to insure that they will not be disturbed.
The work covered by these plans includes construction of the processed type E pit run granular material to the limits shown.
All work not listed above is included in the Proposal Items.

NO.	DESCRIPTION	DATE	BY
A	Relocated Structure	9-13-62	Tecon

CONTROL SECTION 63174D

MICHIGAN STATE HIGHWAY DEPARTMENT

NORTHBOUND SERVICE ROAD OVER I75 IN THE CITY OF ROYAL OAK

GENERAL PLAN AND SITE

TECON ENGINEERS, INC.

DRAWN G.V.O. DATE 8-31-62
CHECKED R.A.D. 9-1-62
APPROVED COORDINATING ENGINEER 119 312
APPROVED ENGINEER OF DESIGN-CONSULTANTS S02 OF 63174D

NOTE:
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FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

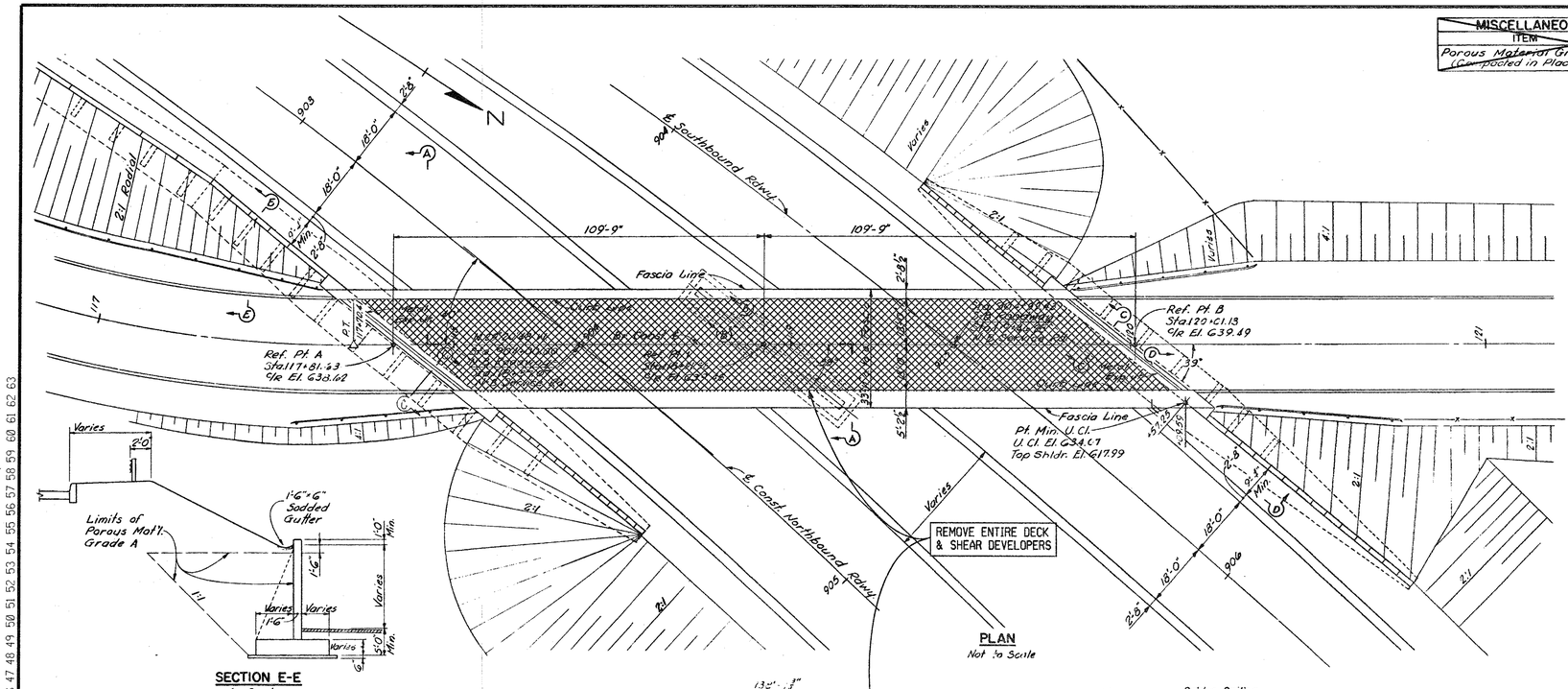
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404A	MADHAVI	4 OF 29

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: inder FILE NAME: s0263174.sn.

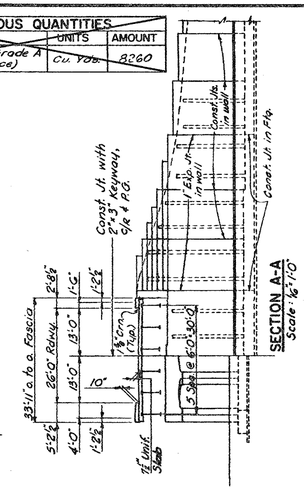
CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 5

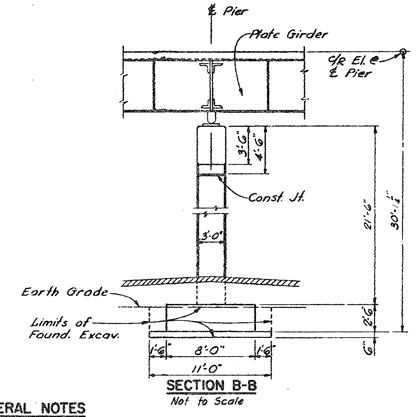
MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
Porous Material Grade A (Compacted in Place)	Cu Yds.	2260

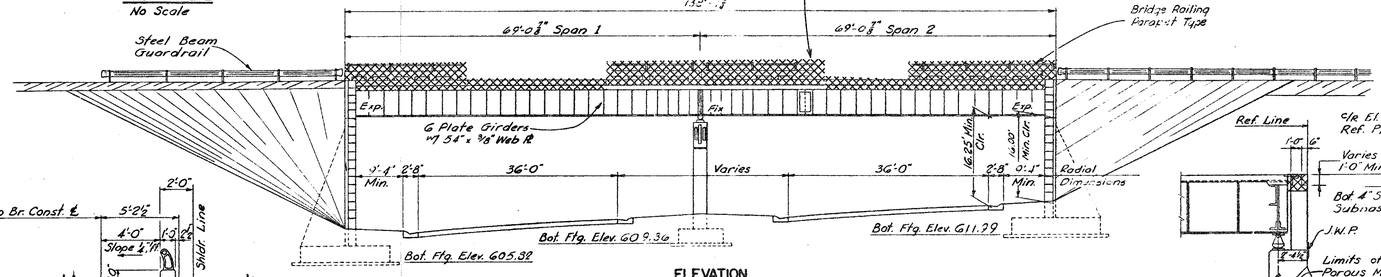
REVISIONS			
NO.	DESCRIPTION	DATE	BY



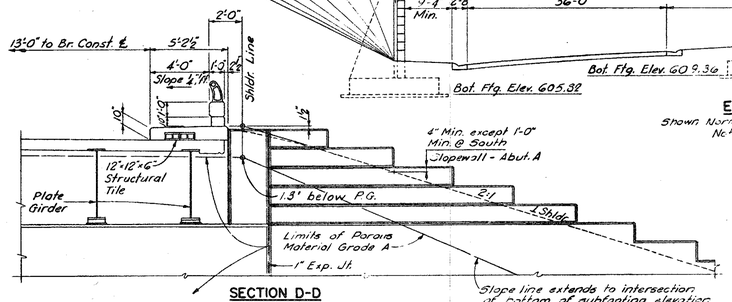
SECTION E-E
No Scale



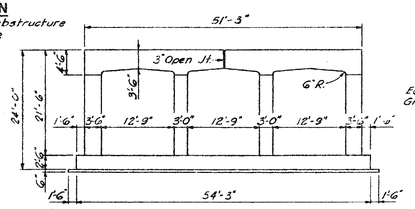




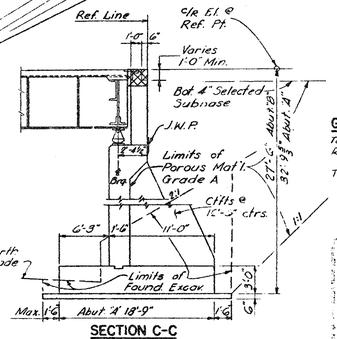
ELEVATION
Shown Normal to Substructure
Not to Scale



SECTION D-D



PIER ELEVATION
Not to Scale



GENERAL NOTES

Top of roadway slab and tops of curbs are parallel to the vertical curve. Retaining wall and integral catch basin are a part of this contract.

The design of this structure is based on the M.S.H.D. Standard Specifications for the Design of Highway Bridges -1958 Edition H20-44 Loading. Live Load plus impact deflection = 1/800 of Span Length.

NO.	DESCRIPTION	DATE
A	Structure Relocated	9-10-62 Tecon

CONTROL SECTION 63174D

MICHIGAN STATE HIGHWAY DEPARTMENT

NORTHBOUND SERVICE ROAD OVER I-75 IN CITY OF ROYAL OAK

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

J.W. Murray 6-5-62
COORDINATING ENGINEER

ENGINEER OF DESIGN — CONSULTANTS

GTC JDC 5-2-61
GTC 101 312

S02 OF 63174D

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 48404A

▨ DENOTES REMOVAL PORTIONS

□ PROPOSED WORK

REMOVAL PORTIONS

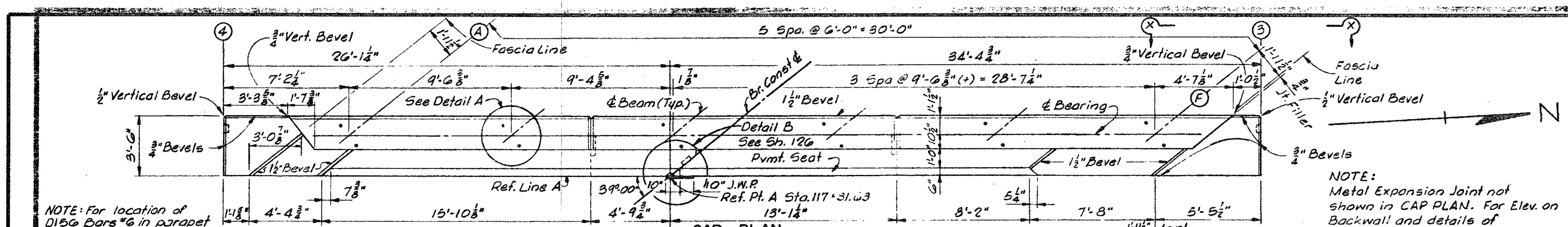
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404A	MADHAVI	5 OF 29

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: | DRAWN BY: under | FILE NAME: s0263174.sn.

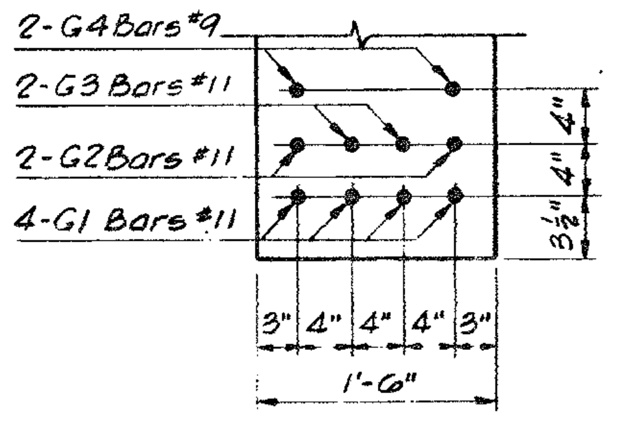
CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 6

REVISIONS			
NO.	DESCRIPTION	DATE	BY

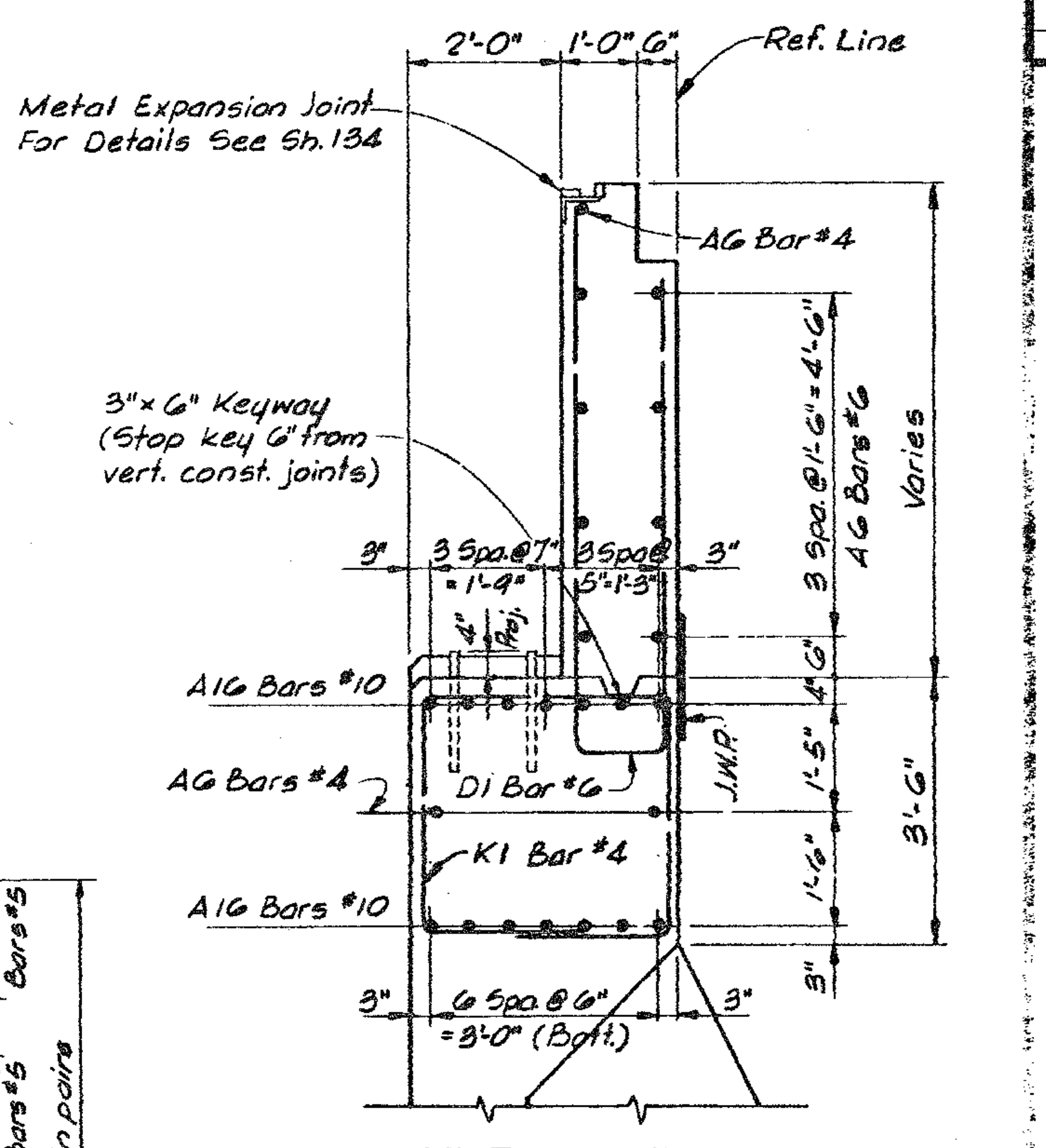


NOTE:
Metal Expansion Joint not shown in CAP PLAN. For Elev. on Backwall and details of Metal Joint see Sheet 134.

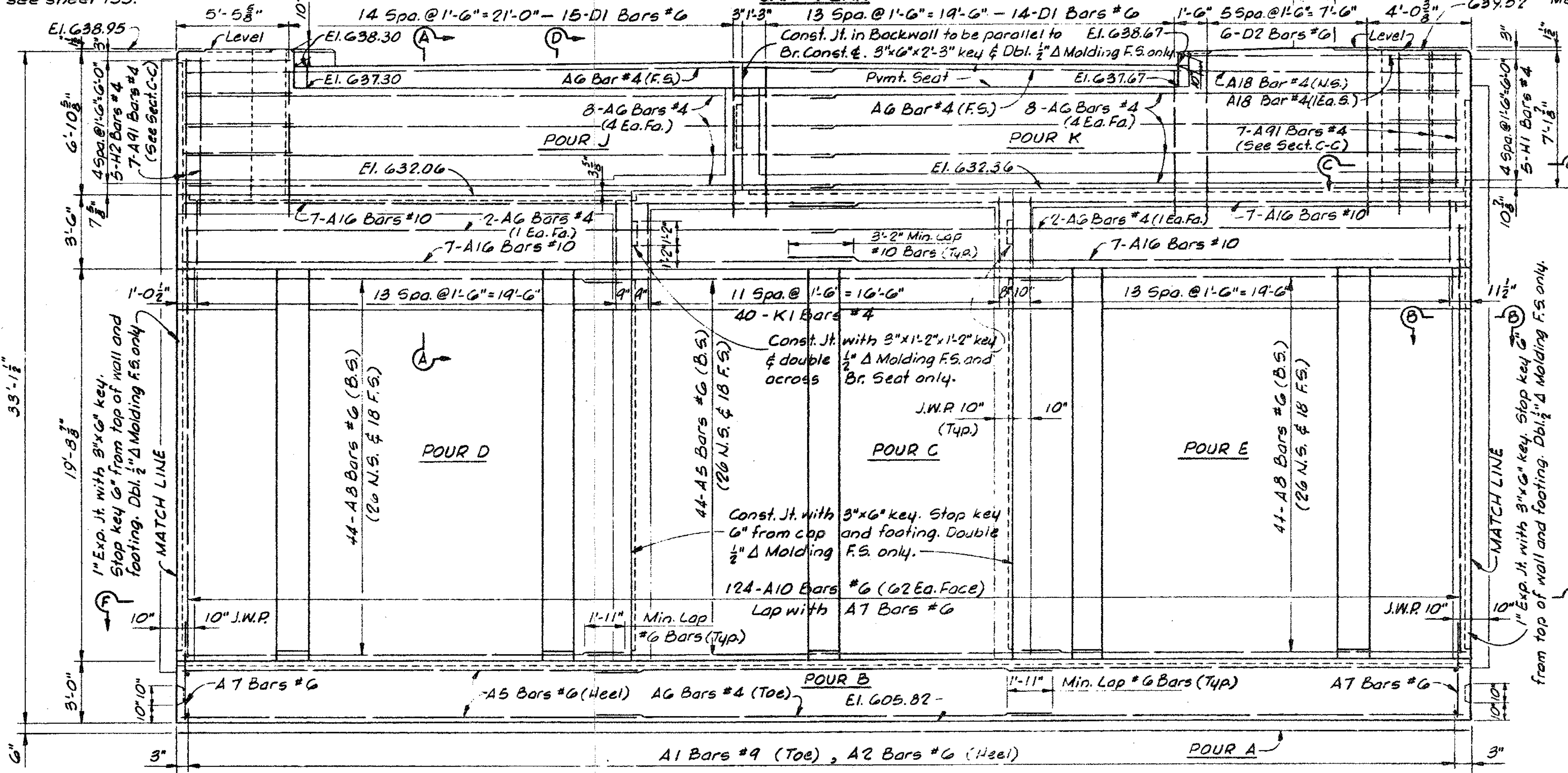
CAP PLAN



DETAIL C



SECTION A-A



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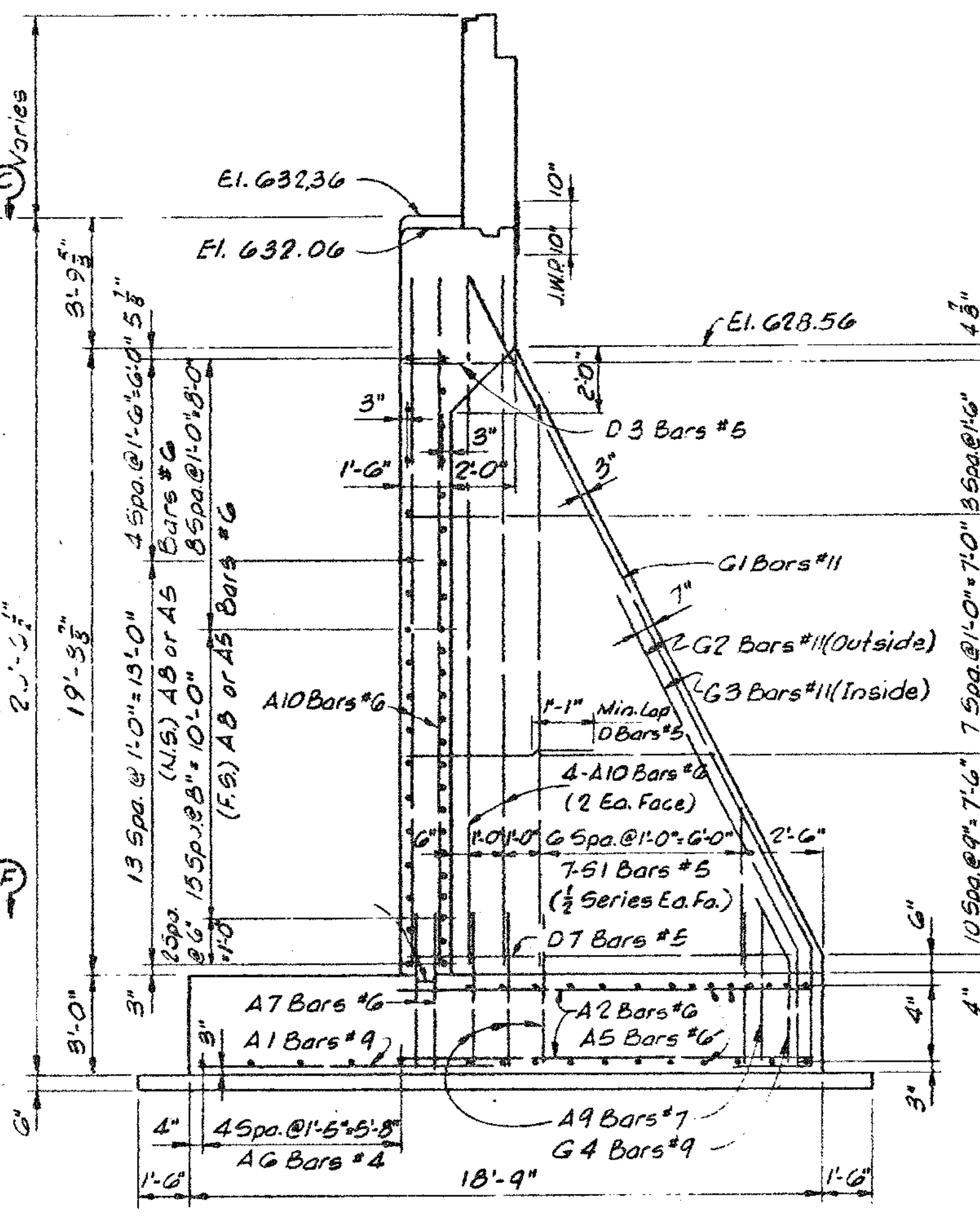
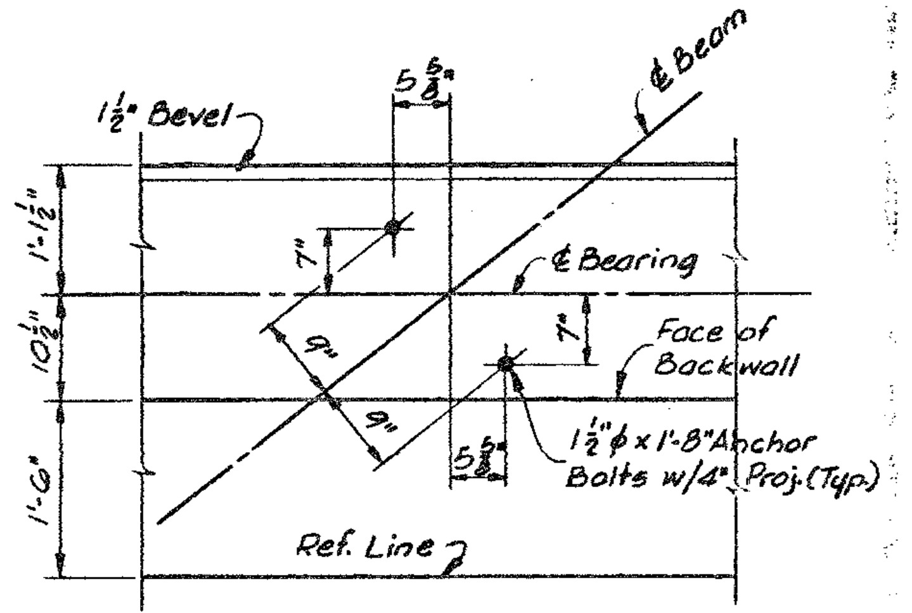
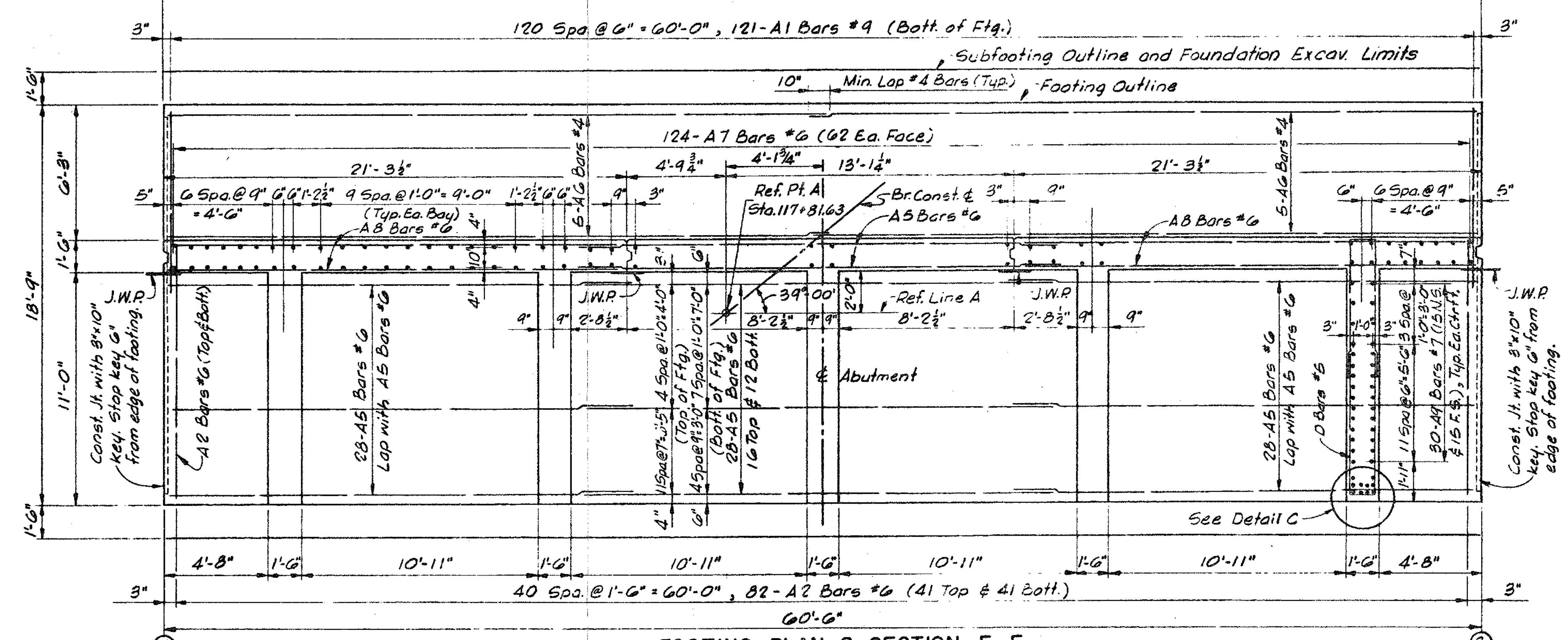


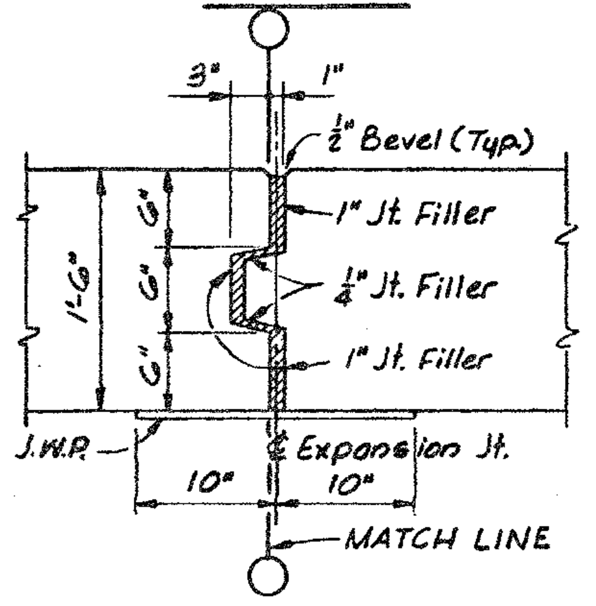
SECTION D-D



DETAIL A



FOOTING PLAN & SECTION F-F



SECTION B-B

Work this sheet with sheets 123 thru 128, 134 & 137

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

JDC 3-29-62
AEB 3-9-62
WHC 3-21-62
123 312

S02 OF 63174D

NOTE:
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MDOT
Michigan Department of Transportation

FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404A	MADHAVI	6 OF 29

DATE:
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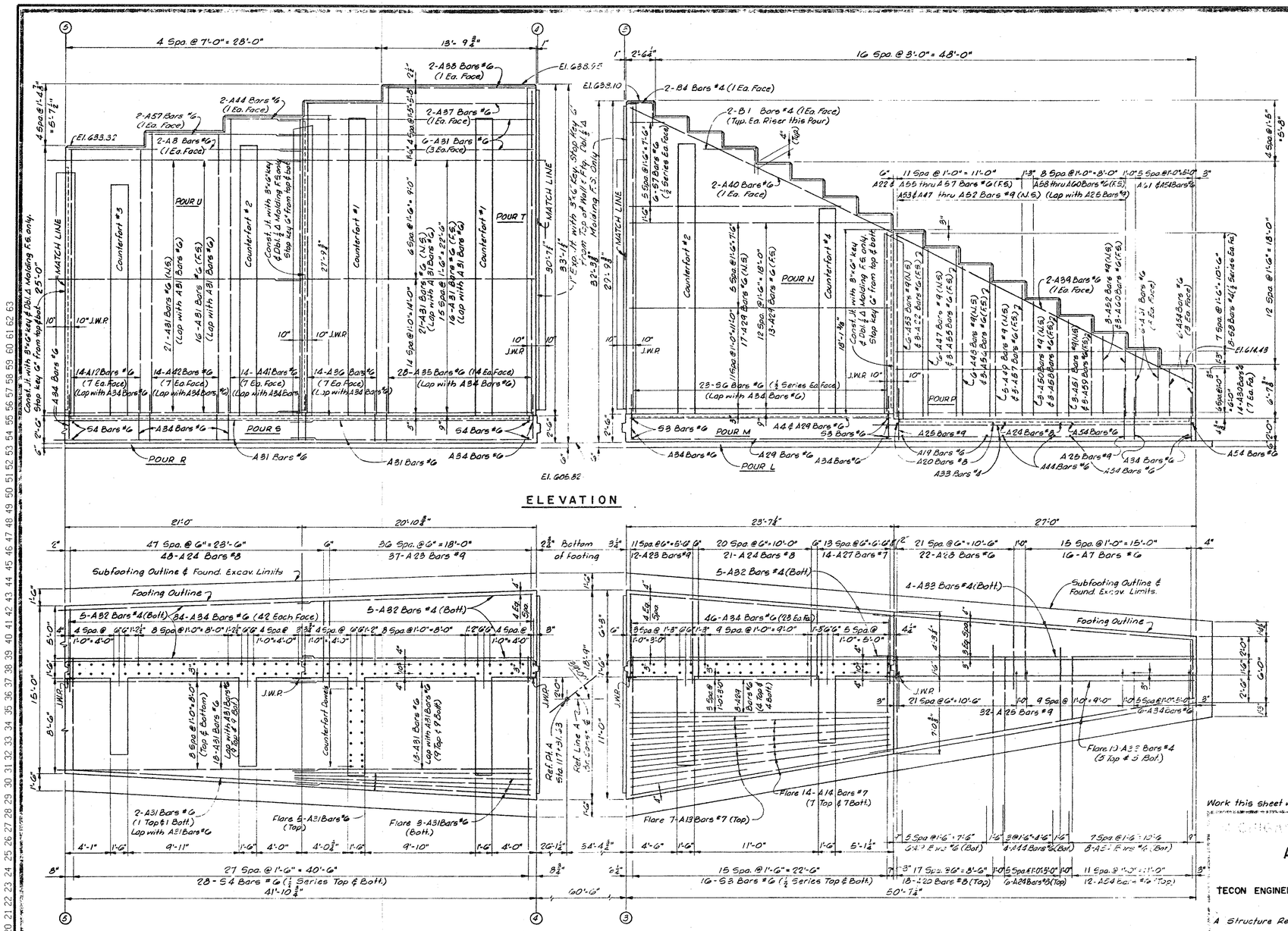
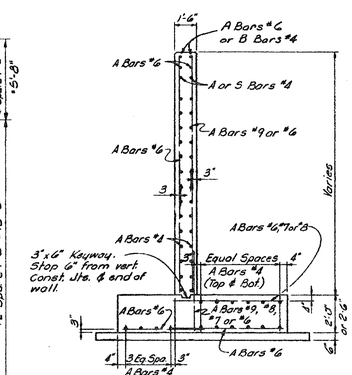
FILE NAME: s0263174.sn.

CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 7





TYPICAL SECTION
CANTILEVER WALL

FOOTING PLAN

NOTE: See Sheet #128 for Typical Counterforted Wall Section.

Work this sheet with sheets 123 thru 128, 134 & 137

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

JDC 3-29-62
AED 3-16-62
LWC 3-24-62
124 312

S02 OF 63174D

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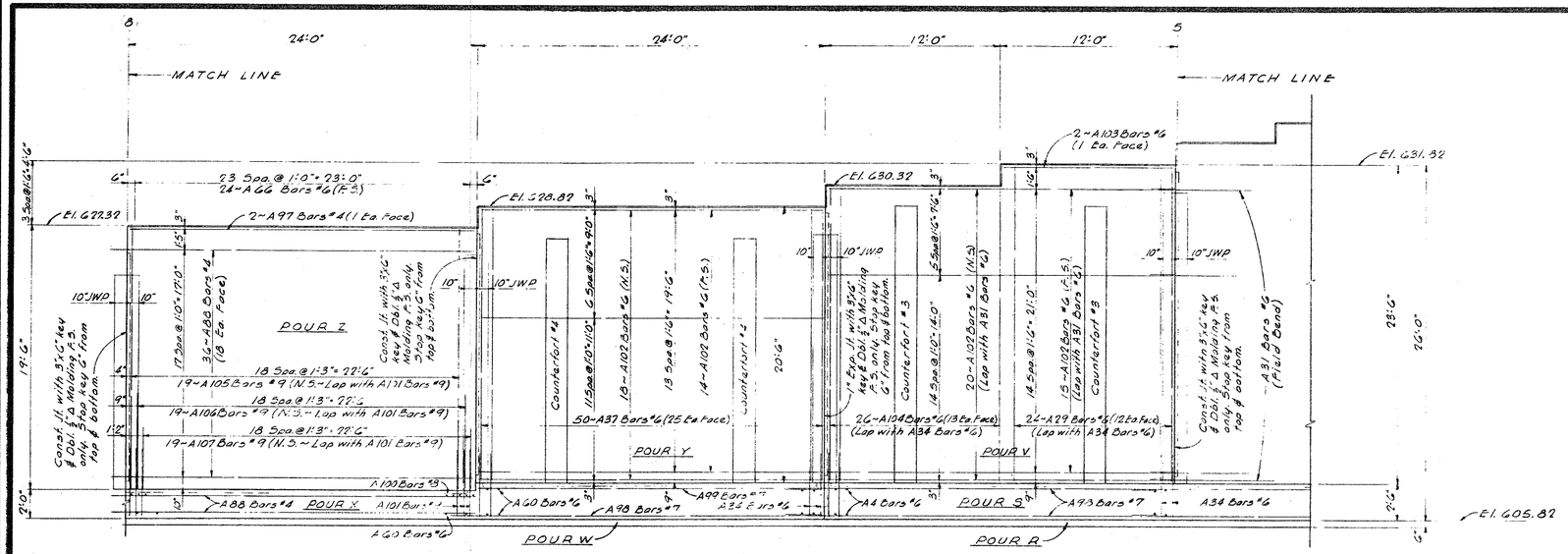
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	7 OF 29

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY: DATE:
DATE: 10/99 CHECKED BY:
DRAWN BY: R.K.OLIN
FILE NAME: s0263714.sni

CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 8



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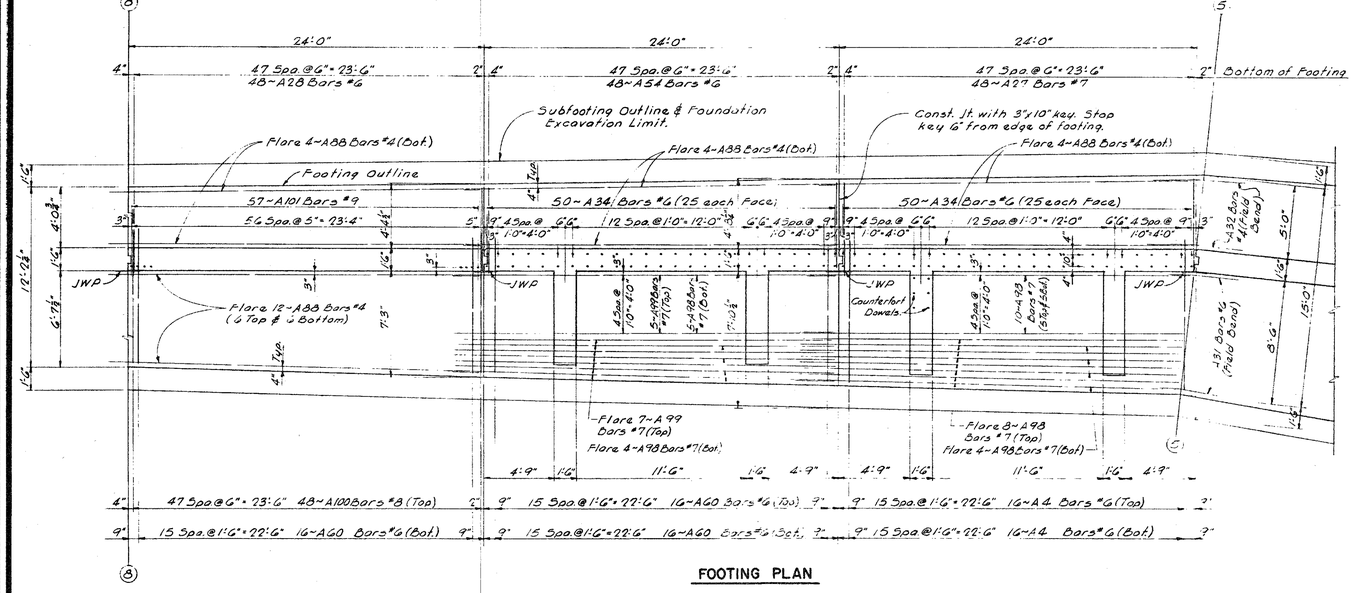

FOOTING PLAN

Note: See Sheet #124 for Typical Cantilever Wall Sections. See Sheet #128 for Typical Counterforted Wall Section.

Work this sheet with sheets 123 thru 128, 134 & 137

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-1967 Tecon

JDC 9-567
RLN 6-30-62
HMW 9-5-68
125A 312

S02 OF 63174D

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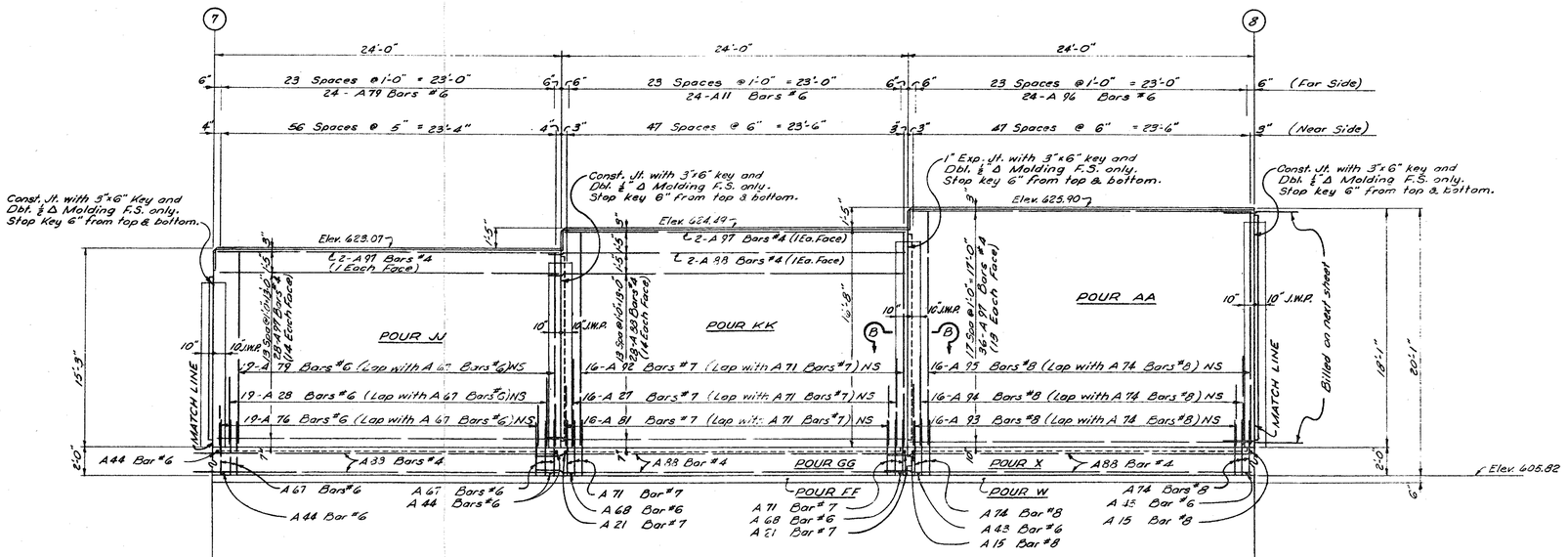
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	8 OF 29

REVISIONS

NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY:
DATE: 10/99 CHECKED BY:
DRAWN BY: R.K.OLIN
FILE NAME: s0263174.sn1

REVISIONS			
NO.	DESCRIPTION	DATE	BY



Note : See Sheet #124 for Typical Cantilever Wall Section.

Work this sheet with sheets 123 thru 128, 134, 137

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

JDC 9-5-62
CEV 9-5-62
HMW 9-5-62
125B 312

S02 OF 63174 D

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10-13-99	S02 OF 63174	48404A	MADHAVI	9 OF 29

MDOT Michigan Department of Transportation

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FILE NAME: s0263174.srn

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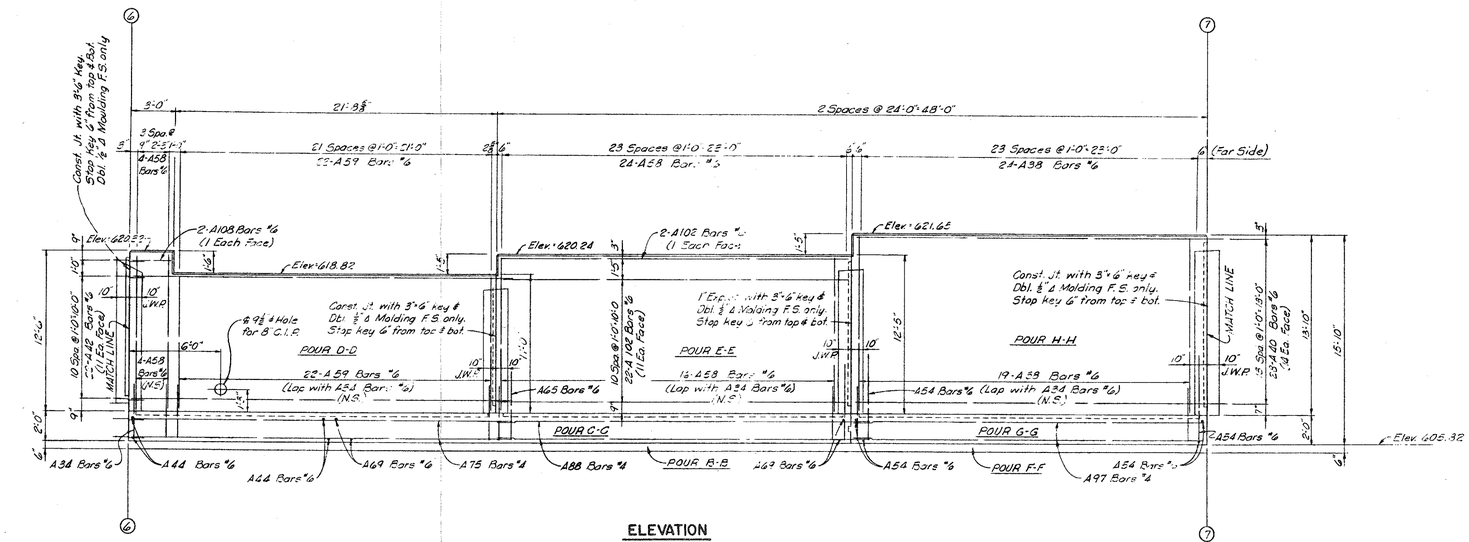
NO.	DESCRIPTION	DATE	BY



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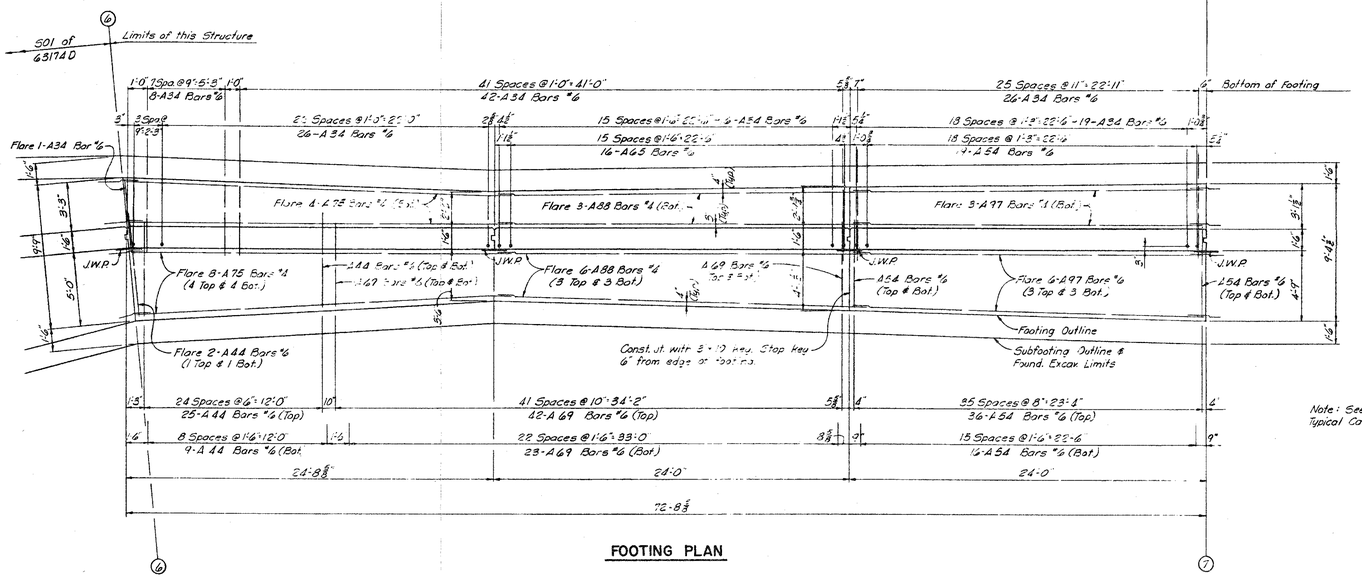

FOOTING PLAN

Note: See Sheet "124" for Typical Cantilever wall section.

Work this sheet with sheets 123 thru 128, 134 & 137

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-1042 Tecon

JDC 9-562
DRS 8-3042
HMW 9-562
TESC 312

S02 OF 63174 D

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FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404A	MADHAVI	10 OF 29

MDOT Michigan Department of Transportation

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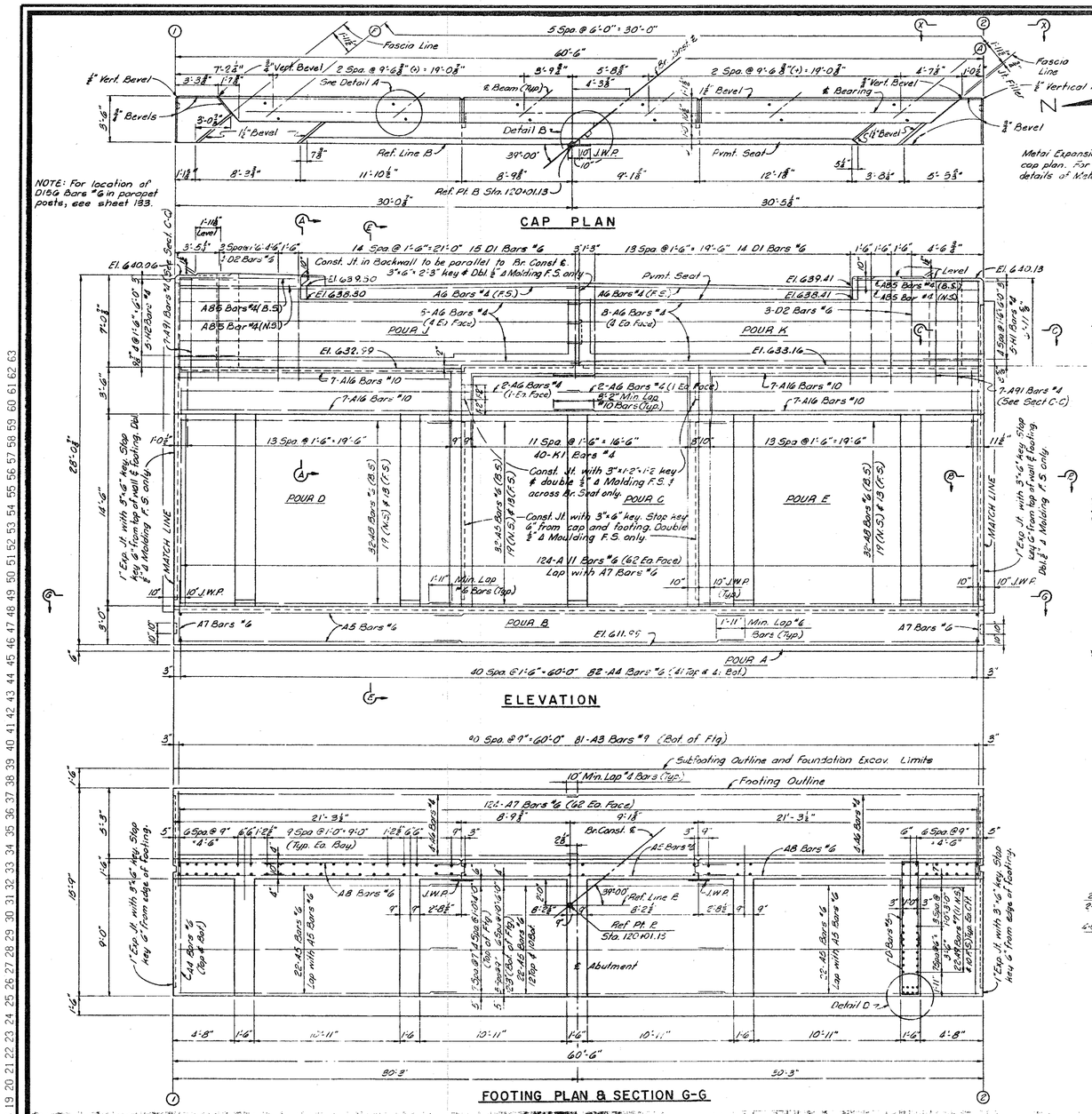
CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 11

REVISIONS			
NO.	DESCRIPTION	DATE	BY



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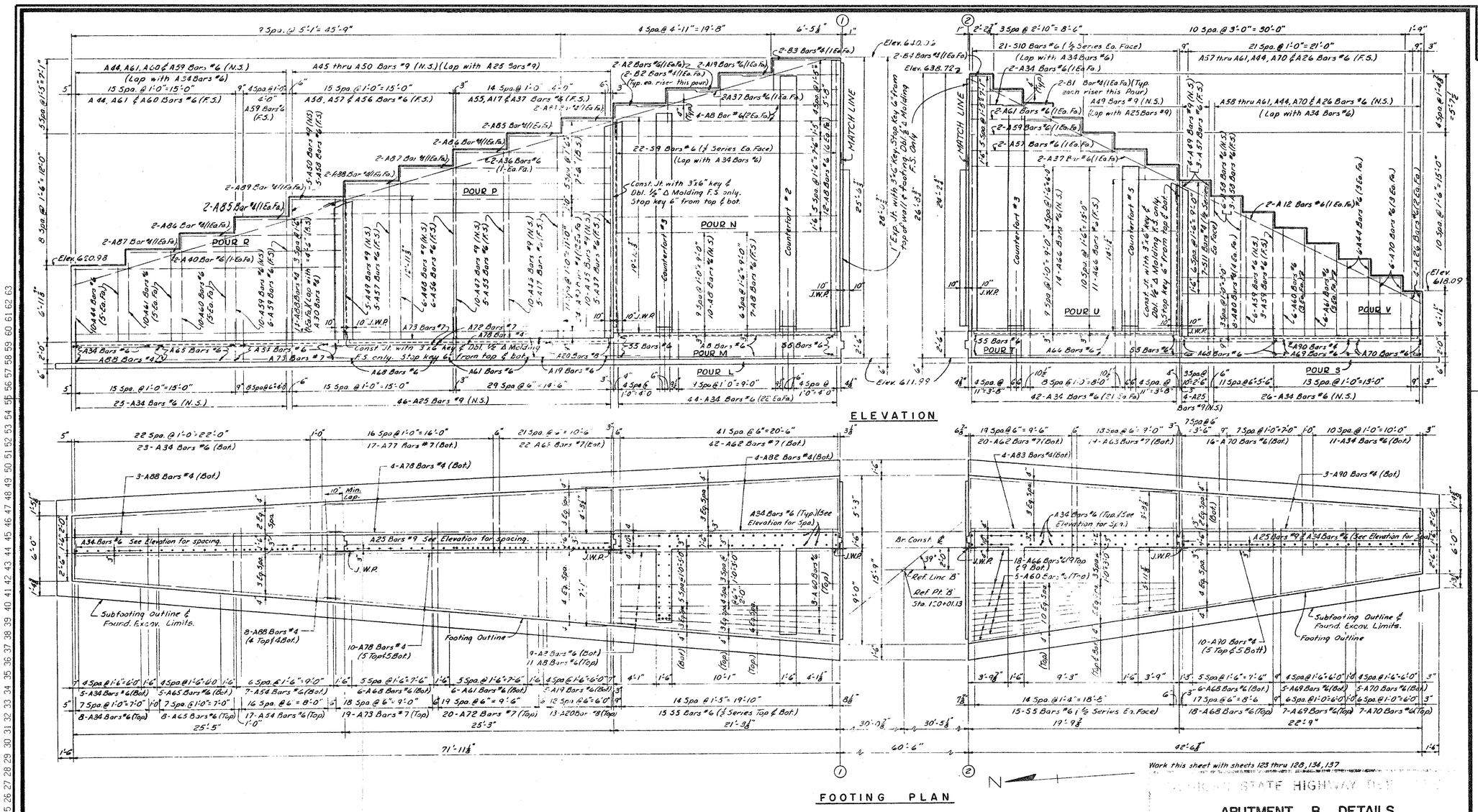
FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	11 OF 29

DATE: DATE: CORRECTED BY:
DRAWN BY: R.K.OLIN DATE: 10/99 CHECKED BY:
FILE NAME: s0263174.sn1

REVISIONS			
NO.	DESCRIPTION	DATE	BY



NOTE:
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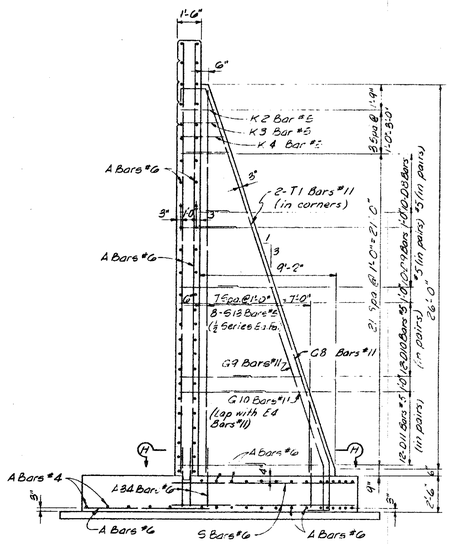
FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

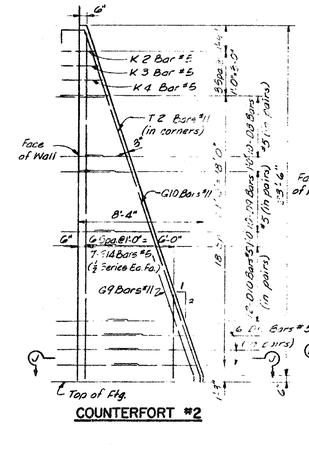
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	12 OF 29

DRAWN BY: R.K.OLIN DATE: 10/99 CHECKED BY: CORRECTED BY: DATE:

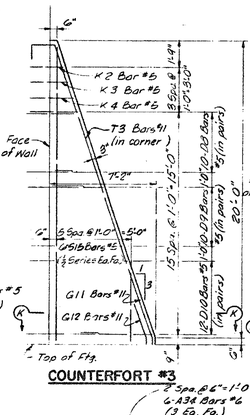
FILE NAME: s02631174.sn1



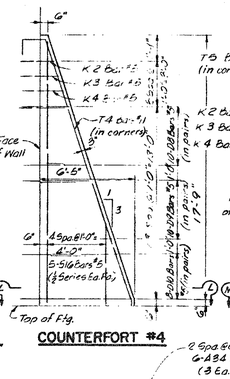
TYPICAL COUNTERFORT SECTION & COUNTERFORT #1



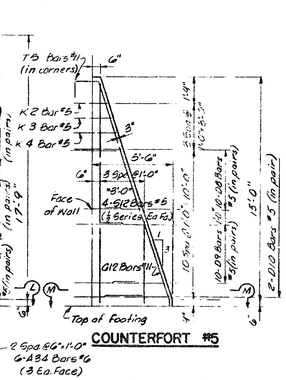
COUNTERFORT #2



COUNTERFORT #3



COUNTERFORT #4



COUNTERFORT #5

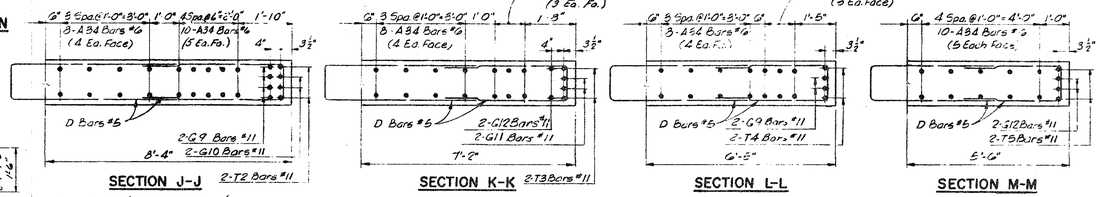
MISCELLANEOUS QUANTITIES

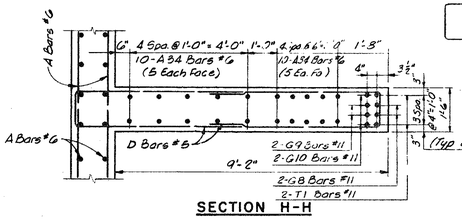
ITEM	UNIT	ABUT A	ABUT B	TOTAL
½" Joint Filler	Sq. Ft.	34	16	50
¾" Joint Filler	Sq. Ft.	2	2	4
1" Joint Filler	Sq. Ft.	164	73	237
Jt. Waterpr. Tg	Sq. Ft	620	327	947
Unclass. Excav.	Cu. Yds.	1323	684	2007

CONCRETE QUANTITIES

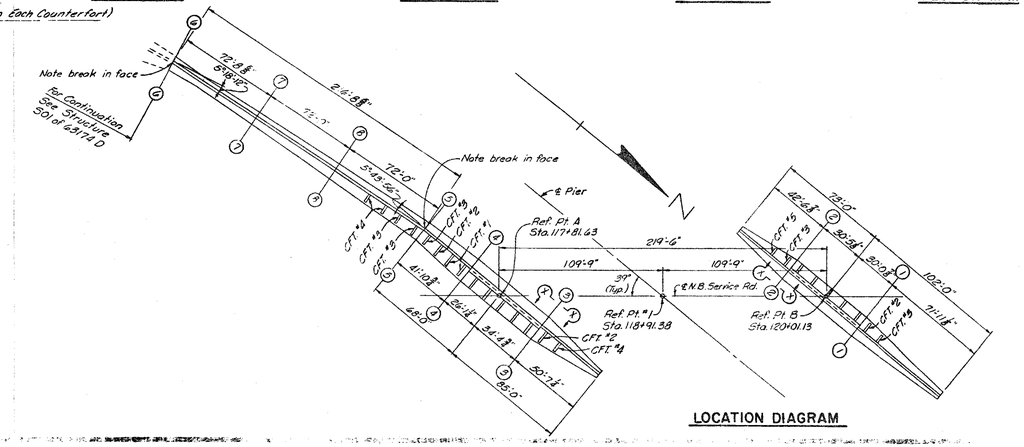
POUR	ABUTMENT A		ABUTMENT B	
	A(6A)	A(6AA)	A(6A)	A(6AA)
A	24.4		21.0	
B	126.0		106.1	
C		36.9		28.3
D		48.9		37.4
E		49.7		37.4
F		Not	Used	
G		Not	Used	
H		Not	Used	
J		11.5		13.2
K		13.0		11.5
L	14.6		18.7	
M	53.2		63.7	
N		41.7		38.9
P		18.9		24.4
R	23.7			14.1
S	100.1		11.2	
T		49.3	39.5	
U		41.1		28.8
V		39.2		12.1
W	20.8			
X	73.5			
Y		34.5		
Z		24.0		
A-A		24.1		
B-B	10.2			
C-C	29.9			
D-D		15.3		
E-E		16.5		
F-F	17.1			
G-G	52.5			
H-H		18.4		
J-J		20.3		
K-K		22.2		
Total	546.0	527.5	260.0	245.5

Pours need not be made in alphabetical order, except pours H-H, J-J & K-K are to be made last.

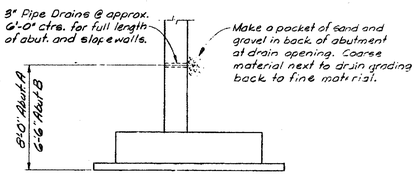




SECTION H-H



LOCATION DIAGRAM



WALL DRAIN DETAIL
(Incidental to substructure concrete)

NOTES:

J.W.P. denotes joint waterproofing.
N.S. denotes nearside.
F.S. denotes farside.
B.S. denotes batnsides.
For Bevel and Molding Details, see Standard Sheet R11.
For location of Name Plates, see Sheet 107 and Standard Sheet R11; for mounting Details, see Standard Sheet R11.
Anchor bolts shall be set accurately to a template.
The Project Engineer shall adjust the spacing of the reinforcing steel to permit placing of anchor bolts.
Field bend steel reinforcing to clear drain holes.
The top of abutment shall be finished to a true plane at the elevation shown and shall not vary more than ⅛" under a ten foot straight edge nor more than 1/16" under any bearing.
This design is based on a maximum foundation pressure of 5350 pounds per square foot and a maximum average foundation pressure of 3100 pounds per square foot.

Work this sheet with sheets 123 thru 128, 134 and 137

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS

TECON ENGINEERS, INC.

A	Structure Relocated	9-10-62 Tecon

JDC 3-24-62
AEB 3-22-62
W.H.C. 3-24-62
128 312

S02 OF 63174 D

REVISIONS			
NO.	DESCRIPTION	DATE	BY

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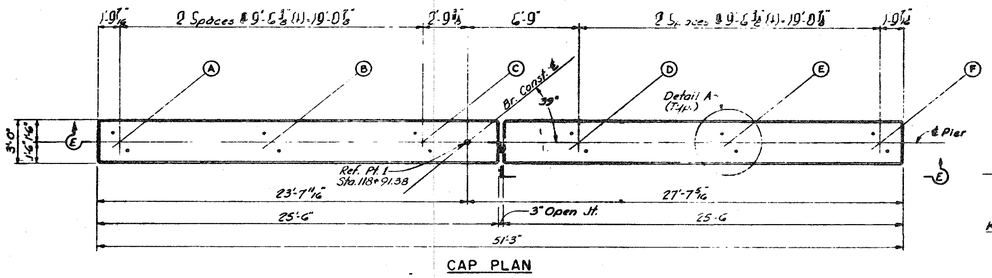
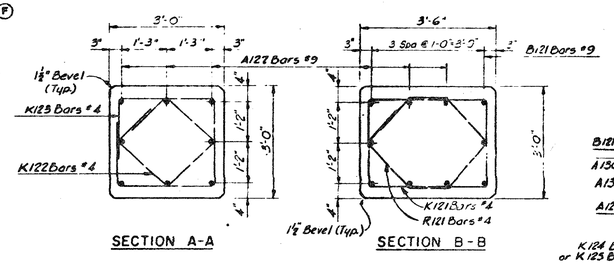
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-14-99	S02 OF 63174	48404A	MADHAVI	13 OF 29

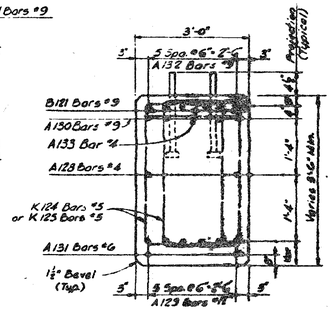


CAP PLAN

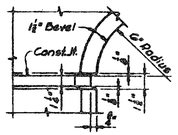


SECTION A-A

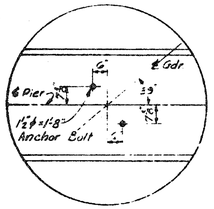
SECTION B-B



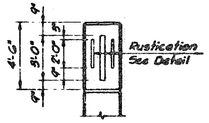
SECTION C-C



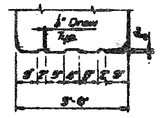
DETAIL B



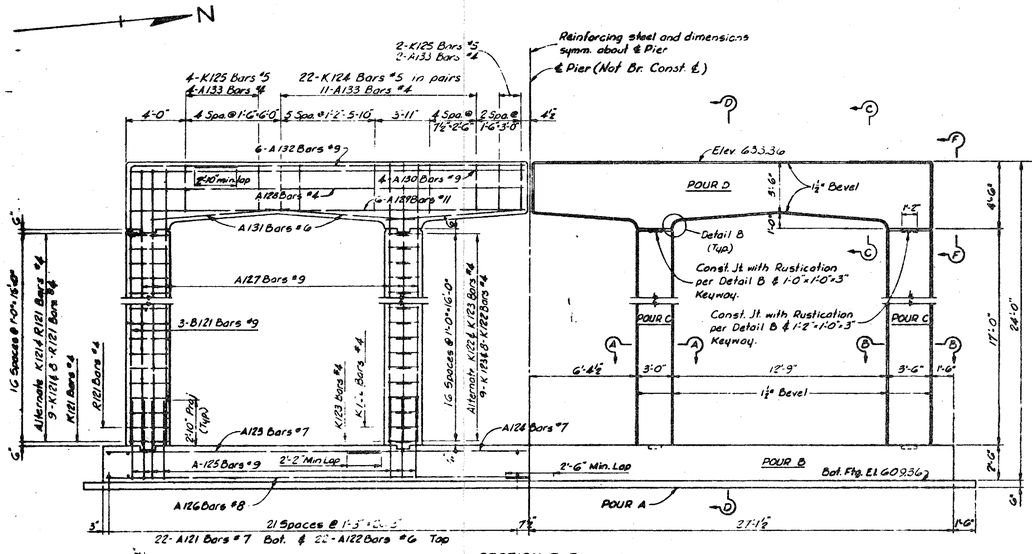
DETAIL A



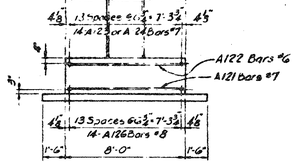
ELEVATION F-F



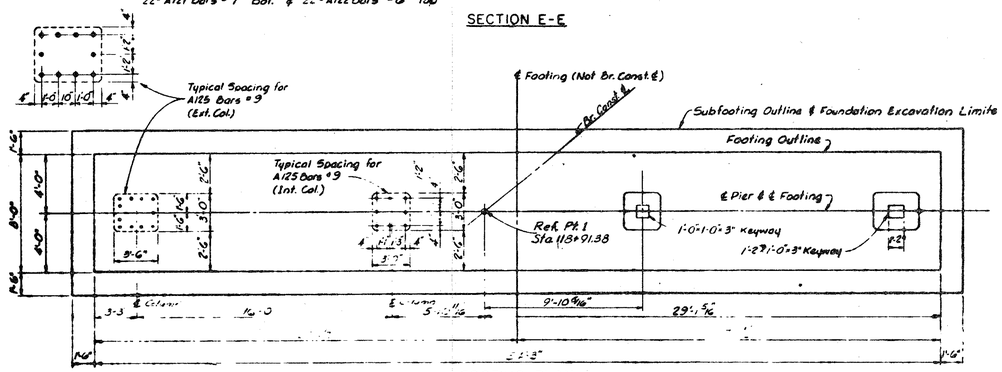
RUSTICATION DETAIL



SECTION E-E



SECTION D-D



FOOTING PLAN

CONCRETE QUANTITIES - CU. YDS.

POUR	LOCATION	GR. A (BA)	GR. A (BA)
A	Subfooting	11.8	
B	Footing	40.3	
C	Column		24.6
D	Cap		22.6

MISCELLANEOUS QUANTITIES

ITEM	UNITS	AMOUNT
Class F-1 Excav	Cu. Yds	63

NOTES

- For Bevel and Molding Details, see Standard Sheet R 11.
- Anchor bolts shall be set accurately to a template.
- The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of the anchor bolts.
- The top of pier shall be finished to a true plane at the elevations shown and shall not vary more than ⅛" under a ten foot straight edge, nor more than 1/16" under any bearing.
- This design is based on a maximum foundation pressure of 4050 #/ft² and a maximum average foundation pressure of 3850 #/ft².

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER DETAILS

TECON ENGINEERS, INC.

REVISIONS

	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-99	Tecon

	JDC	3-24-42
		3-3-42
		4-17-42
		4-24-42

S 02 OF 63174 D

REVISIONS

NO.	DESCRIPTION	DATE	BY

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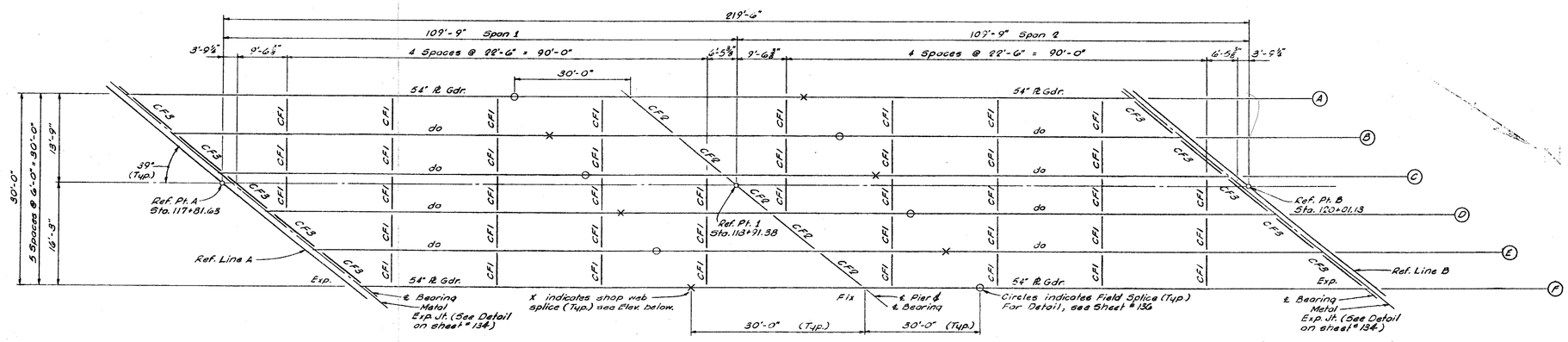
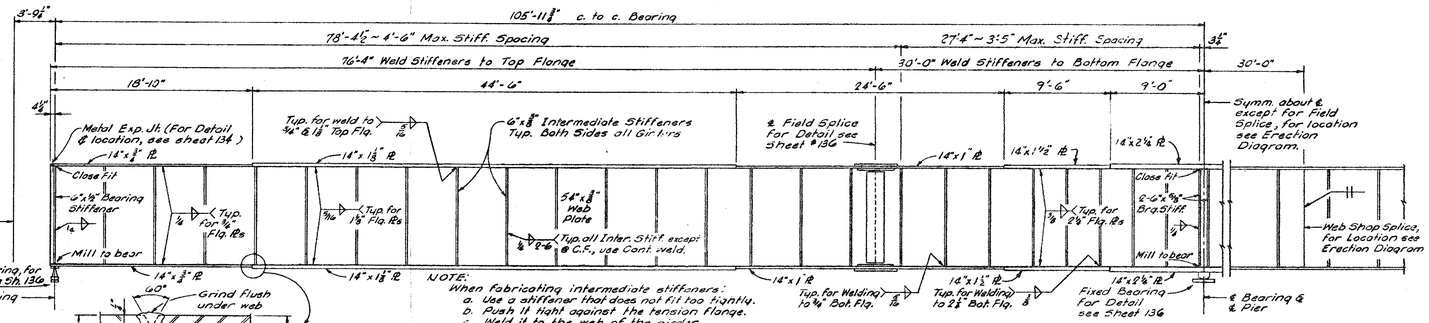
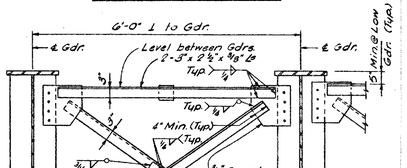


ERECTION DIAGRAM



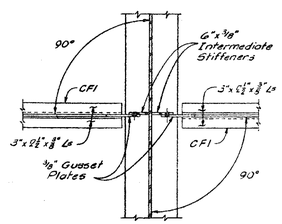
ELEVATION

NOTE:
When fabricating intermediate stiffeners:
a. Use a stiffener that does not fit too tightly.
b. Push it tight against the tension flange.
c. Weld it to the web of the girder.
d. Weld it to the compression flange.

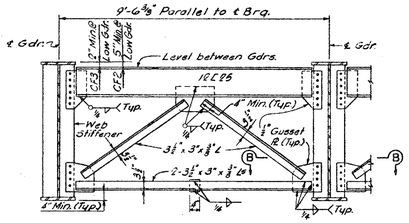


Typical for all Flange Splices

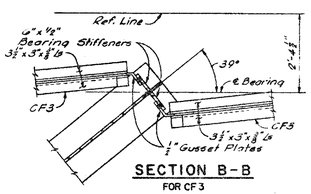
CROSS FRAME CF-1



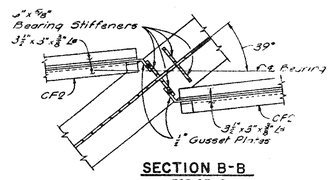
SECTION A-A



CROSS FRAME CF-2 & CF3



SECTION B-B
FOR CF3



SECTION B-B
FOR CF-2

STRUCTURAL STEEL NOTES:

Fabrication: Michigan State Highway Department's Standard Specifications for Road & Bridge Construction - 1960 Edition.
Design: Michigan State Highway Department's Specifications for Design of Highway Bridges - 1958 Edition. H20-44 Loading. Allowable Live Load + Impact Deflection = Span ÷ 800.
Shop Connections: All shop connections shall be welded or riveted as shown on the plans.
Field Connections: Field connections, unless otherwise noted, shall be bolted with high-strength bolts. Contact surfaces shall be thoroughly cleaned immediately prior to assembly of joints.
High-Strength Bolts: ¾" ⊘.
Open Holes: Open holes for high-strength bolts shall be 13/16" ⊘.
Shop Paint: In addition to the shop paint provisions of the Standard Specifications the top surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces.
Metal floor joints shall not be painted in shop except as noted on the plans.
Camber: The girders shall be cambered as shown on the plans.
Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ½" and welded, with a continuous weld, for the full perimeter. Welds shall be ground flush with faces of plate.
All web plates, flange plates and stiffeners shall conform to the requirements for welding A.S.T.M. A-373. All other steel shall be A-7.
~~The quantity "Structural Steel - Furnishing and Fabricating"~~ includes:

A-7 Steel	34900 (Includes Wt. Metal Exp. Jt.)
A-373 Steel	233,300
Lead Plates	200
Total	268,400 Structural Steel - Furnishing & Fabricating
Total	268,400 Structural Steel - Erection
Field Painting:	Lump Sum

~~Camber and other dimensional tolerances are to be in accordance with American welding Society Specifications.~~

Work this sheet with sheets 134 & 136

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

TECON ENGINEERS, INC.

DESIGNED BY:	JDE M.D.A.	5-29-62
DETAILED BY:		
CHECKED BY:	RAD 135 - 312	3-10-62

A Structure Relocated 4-10-62 Tecon

S02 OF 63174D

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY:
DATE: CHECKED BY:
DATE: 10/99 DRAWN BY: R.K.OLIN
FILE NAME: s0263174.sn1

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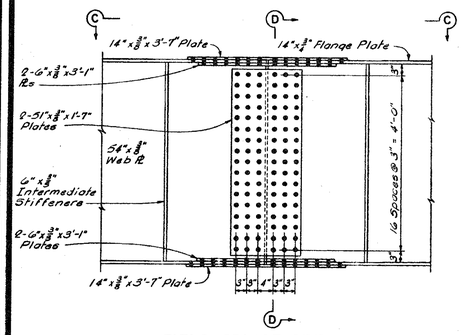
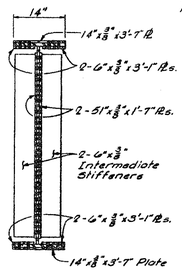


FIELD SPLICE DETAIL



SECTION D-D

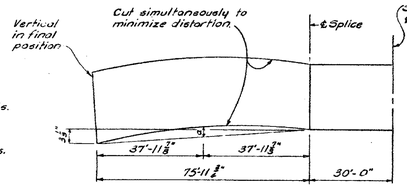
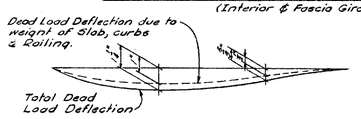


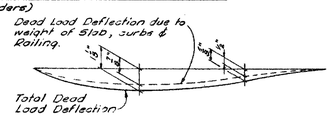
TABLE OF THEORETICAL CAMBER (INCHES)		
CONSTRUCTION STAGE	BEAM POSITION	
	FLAT	UPRIGHT
After cutting web and assembling	1⅝"	
After welding flanges & Stiffeners*	1¾"	1½"

Cut Web plates to parabolic camber indicated by diagram.
a = Total camber required at mid-span of stage indicated.
* At this stage camber should be corrected within ± 1/32" x 4/10 Pt. tolerance by heating in the shop.

CAMBER & BLOCKING DIAGRAM FOR FABRICATION OF SPLICES
(Interior & Fascia Girders)



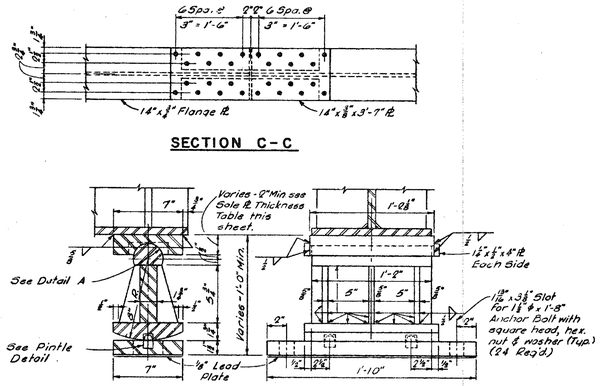
INTERIOR GIRDERS



FASCIA GIRDERS

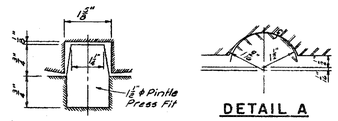
DEFLECTION DIAGRAMS

SOLE PLATE THICKNESS TABLE			
BEAM LINE	ABUT. A	PIER 1	ABUT. B
A	2"	2"	2"
B	3⅞"	3¼"	2½"
C	2"	4⅜"	3"
D	2⅞"	4½"	2⅜"
E	3"	4"	3¼"
F	3"	3⅜"	2"



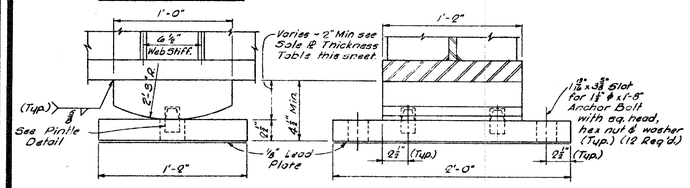
SECTION C-C

EXPANSION BEARING DETAIL - ABUT. A & B

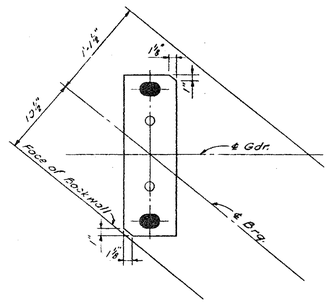


PINTLE DETAIL

DETAIL A



FIXED BEARING DETAIL — PIER 1



DETAIL OF ABUTMENT BEARING PLATE SHOWING CLIP

Work this sheet with sheets 134 & 135

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

JPC 5-29-62
M.B.A.
RAD 3-10-62
136 316

S02 OF 63174D

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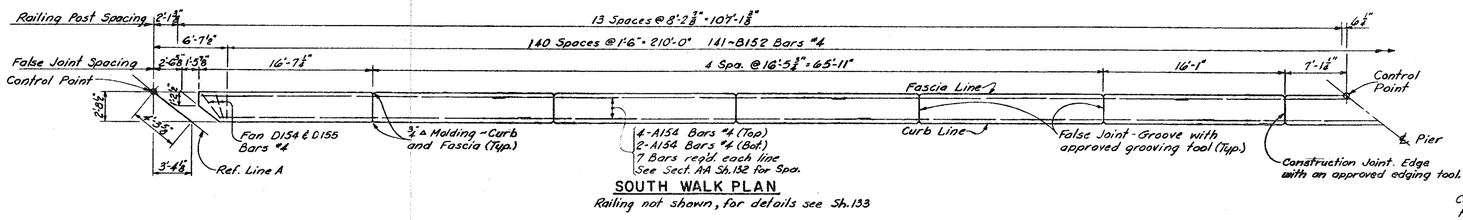
DATE: DATE: DATE: 10/99

CORRECTED BY: CHECKED BY:

DRAWN BY: R.K.OLIN

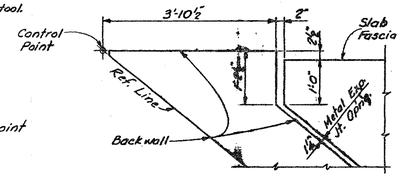
FILE NAME: s02163174.sn1

REVISIONS			
NO.	DESCRIPTION	DATE	BY

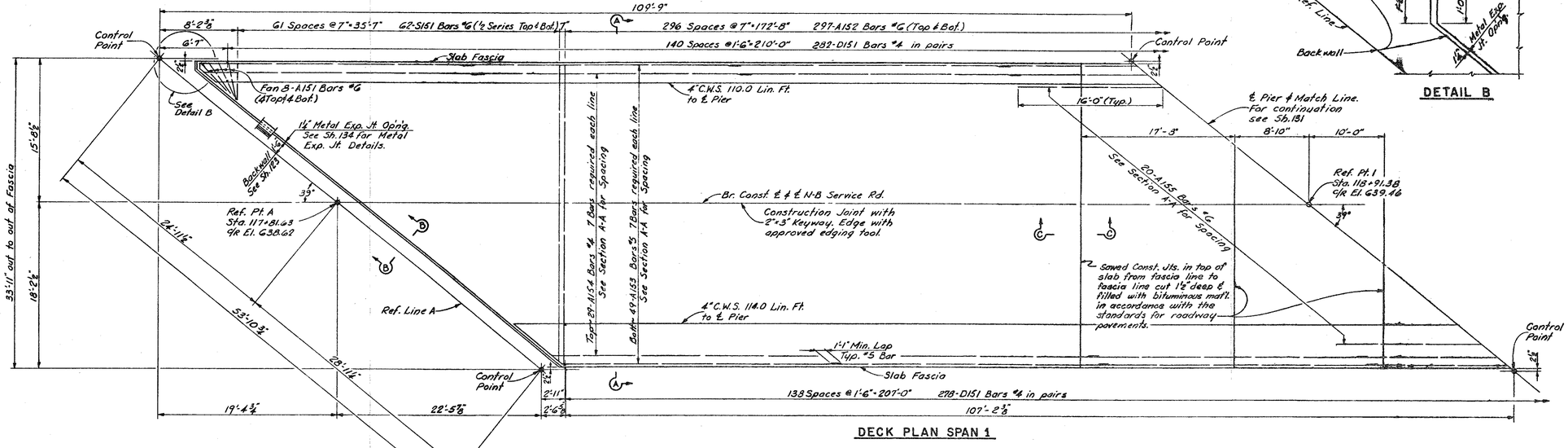


SOUTH WALK PLAN

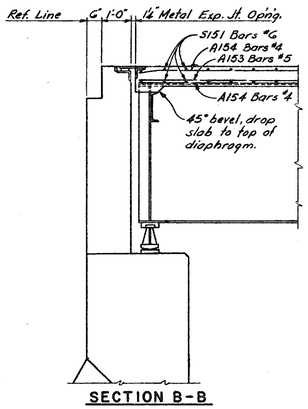
Railing not shown, for details see Sh. 133



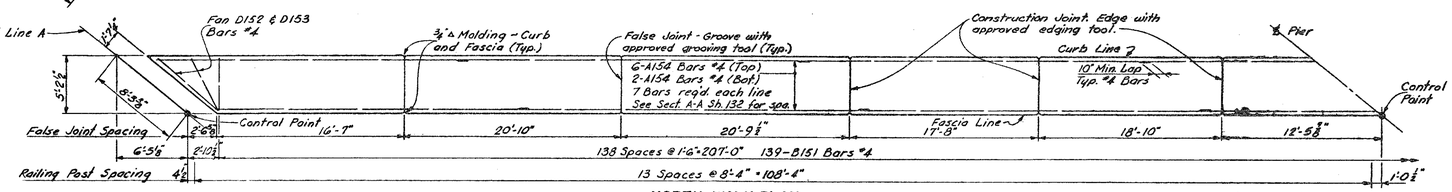
DETAIL B



DECK PLAN SPAN 1



SECTION B-B



NORTH WALK PLAN

Railing not shown, for details see Sh. 133

Work this sheet with sheets 131, 132 & 133

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	JDC	5-29-62
DRAWN BY	JDC	8-5-62
TRACED BY		
CHECKED BY	RAD	8-9-62
SHEET 130 OF 312		

S02 OF 63174D

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DRAWN BY: R.K.OLIN DATE: 10/99
FILE NAME: s0263174.sn1

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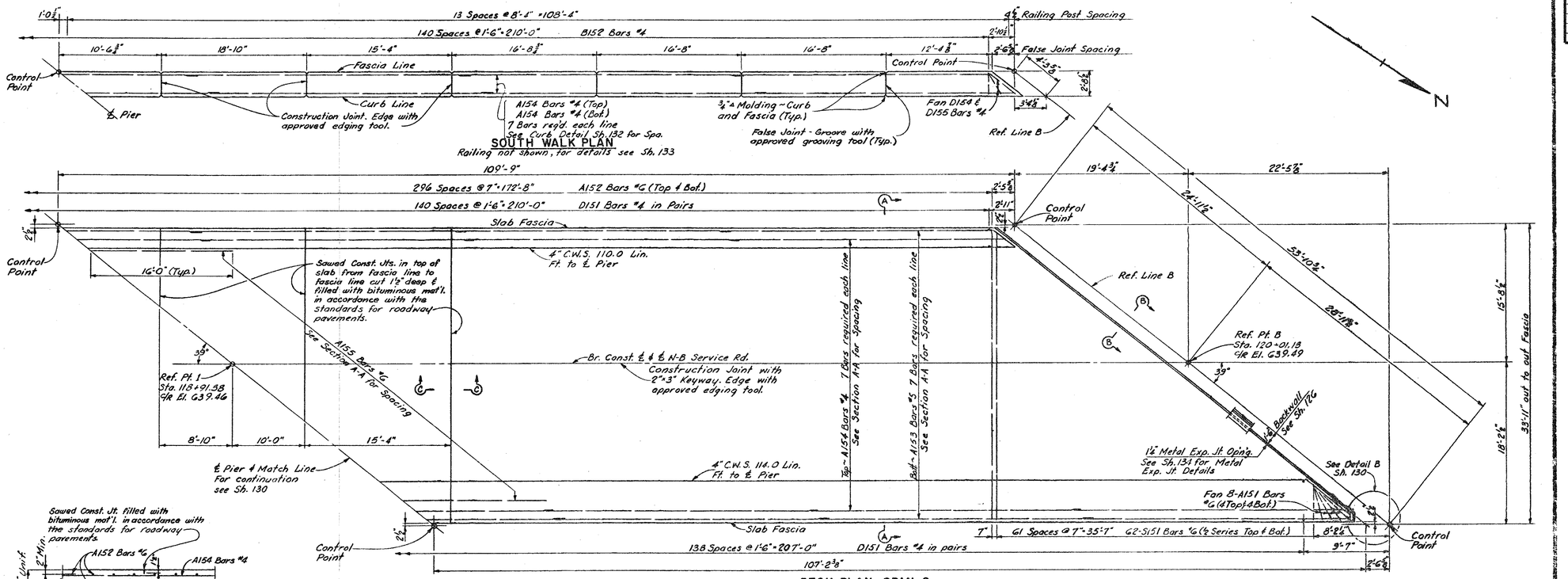
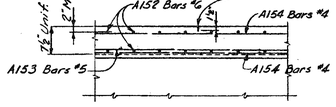
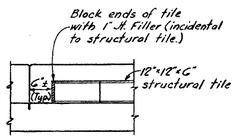
NO.	DESCRIPTION	DATE	BY



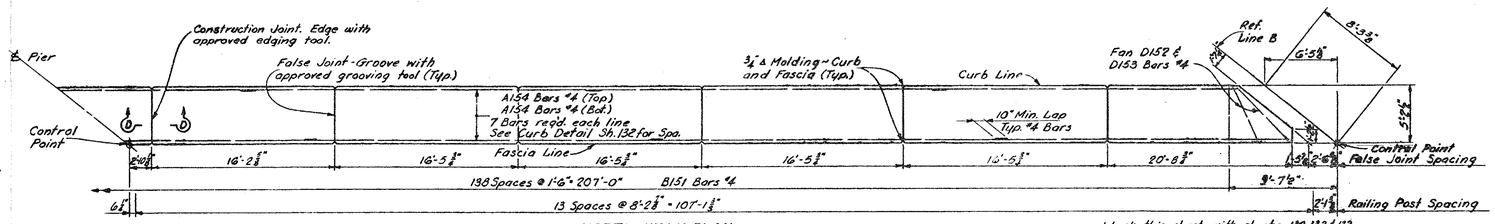


SECTION C-C

Note: Sawed joint and filler are incidental to superstructure concrete.



SECTION D-D



NORTH WALK PLAN

Railing not shown, for details see Sh. 133

Work this sheet with sheets 130, 132 & 133

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-97	Tecon

SQUAD W/S	JPC	3-27-97
DRAWN BY	JDC	7-6-97
TRACED BY		
CHECKED BY	RAD	3-9-98
SHEET	131 OF 312	

S02 OF 63174D

MICROFILMED

NOTE:
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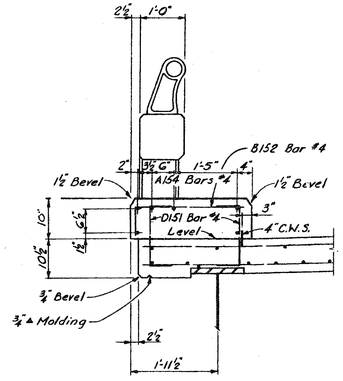
FOR INFORMATION ONLY

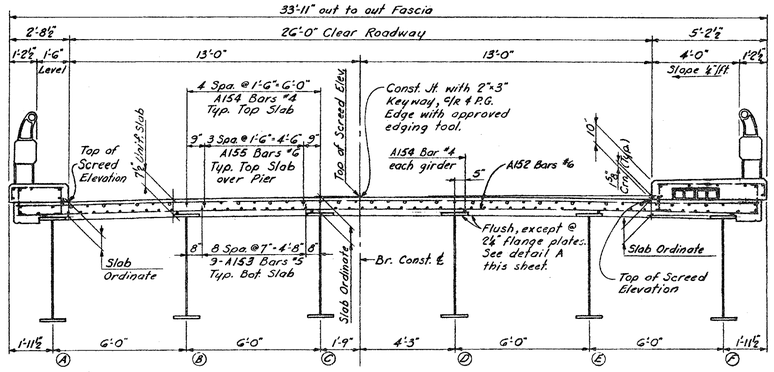
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	18 OF 29

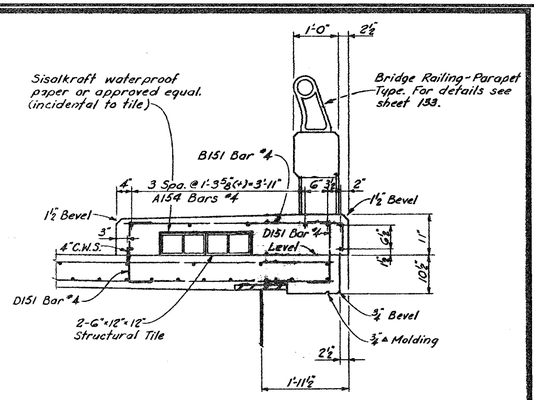
DATE: DATE: CORRECTED BY:
DRAWN BY: R.K.OLIN DATE: 10/99 CHECKED BY:
FILE NAME: s0263174.sn1



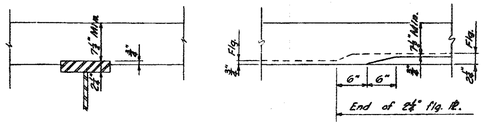
CURB DETAIL



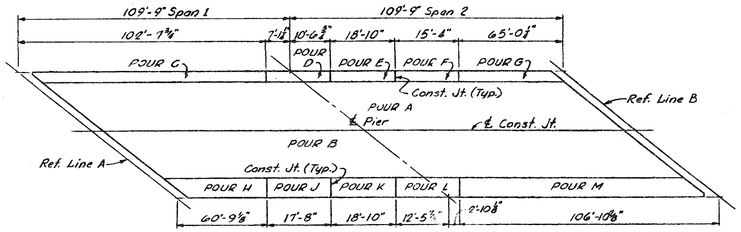
SECTION A-A



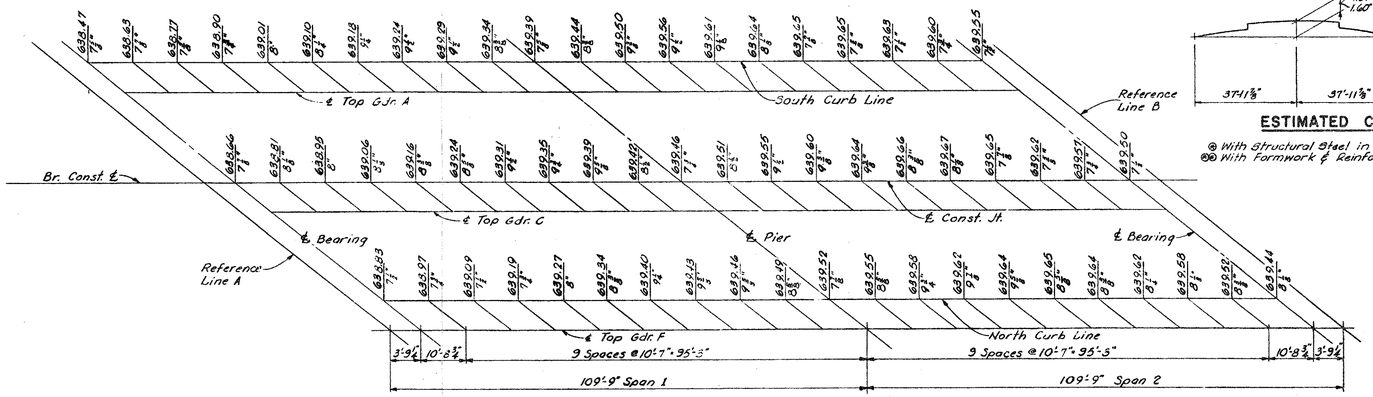
CURB DETAIL



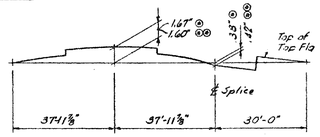
DETAIL A



POUR DIAGRAM



TOP OF SCREED ELEVATIONS AND SLAB ORDINATES



ESTIMATED CAMBER

⊕ With Structural Steel in place.
⊕⊕ With Formwork & Reinforcing Steel in place.

CONCRETE QUANTITIES GRADE A (6AA)-CU. YDS.													
POUR	A	B	C	D	E	F	G	H	J	K	L	M	Total
AMOUNT	94.1	109.2	8.1	1.5	1.6	1.2	5.4	8.5	2.3	2.5	2.1	10.3	250.0

Concrete Pours need not be placed in alphabetical order.

MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
12"x12"x6" Structural Tile	Ea.	414
Copper	Lbs.	149
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	106
Bridge Railing-Parapet Type	Lin. Ft.	435.2

NOTES

For Railing Details, See Sheet No. 133.
C.W.S. indicates copper waterstop.
For Bevel and Molding Details, See Std. Sheet R11.
Edge and Groove denote Edging or Grooving with an approved tool.

Elevations shown are for top of screed before pouring any concrete and are based on a minimum slab thickness of 7½". After screeds are set, if check indicates that less than the minimum thickness will be obtained, adjust screeds and expansion dams accordingly. The slab ordinates shown provide for dead load deflection, crown, girder camber, and are to be measured from the top of the girder indicated (or a line parallel to the reference lines) to the top of the screed. Screeds affected by loads in other spans are to be set to the elevations shown and checked for minimum slab thickness before pouring any concrete.

Work this Sheet with Sheets 130, 131, 133

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS		
DESCRIPTION	DATE	BY
A Structure Relocated	9-10-68	Tecon

DESIGN BY	JDC	2-28-62
DRAWN BY	JDC	2-6-62
TRACED BY		
CHECKED BY	RAD	3-9-68
SHEET	132 OF 312	

S02 OF 63174D

REVISIONS			
NO.	DESCRIPTION	DATE	BY

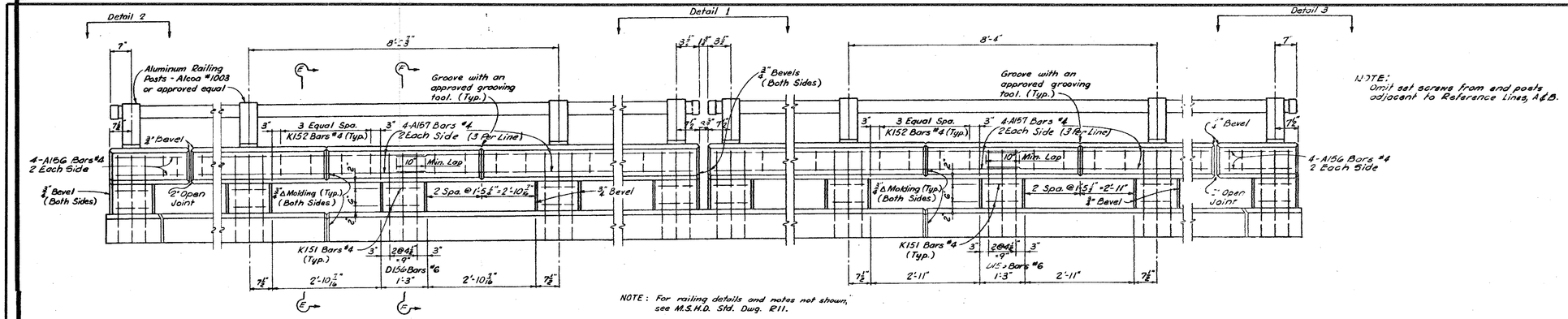
NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

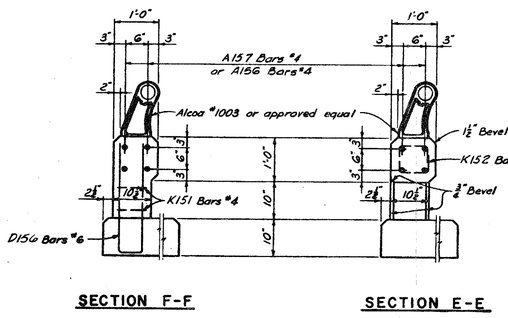
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	19 OF 29

FILE NAME: s02631174.sn1 DRAWN BY: R.K.OLIN DATE: 10/99 CHECKED BY: CORRECTED BY: DATE:

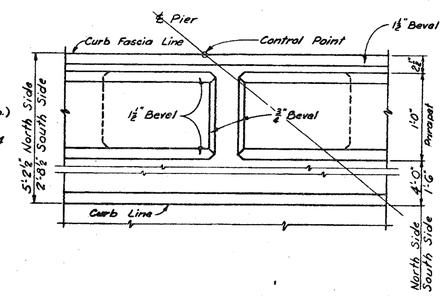


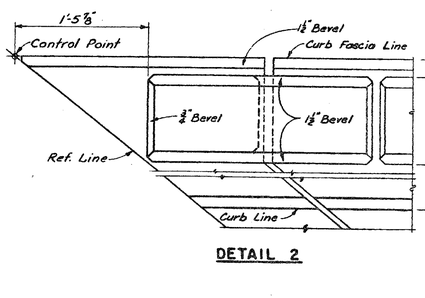
INSIDE ELEVATION - BRIDGE RAILING - PARAPET TYPE



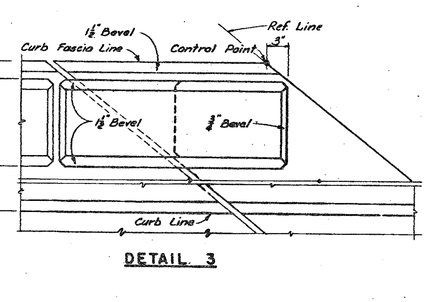
SECTION F-F

SECTION E-E



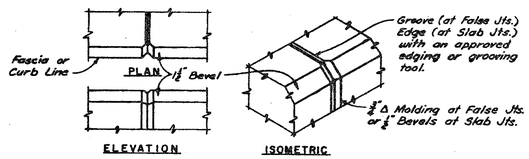


DETAIL 2



DETAIL 3

COPPER WATERSTOP DETAILS



MOLDING DETAILS

Work this sheet with sheets 130, 131 & 132

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-68	Tecon

DESIGNED BY	JDC	4-28-67
DETAILED BY	JDC	4-28-67
TRACED BY		
CHECKED BY	RAD	5-8-67
QUANT. 139 to 318		

S02 OF 63174D

RECOMMENDED FOR APPROVAL

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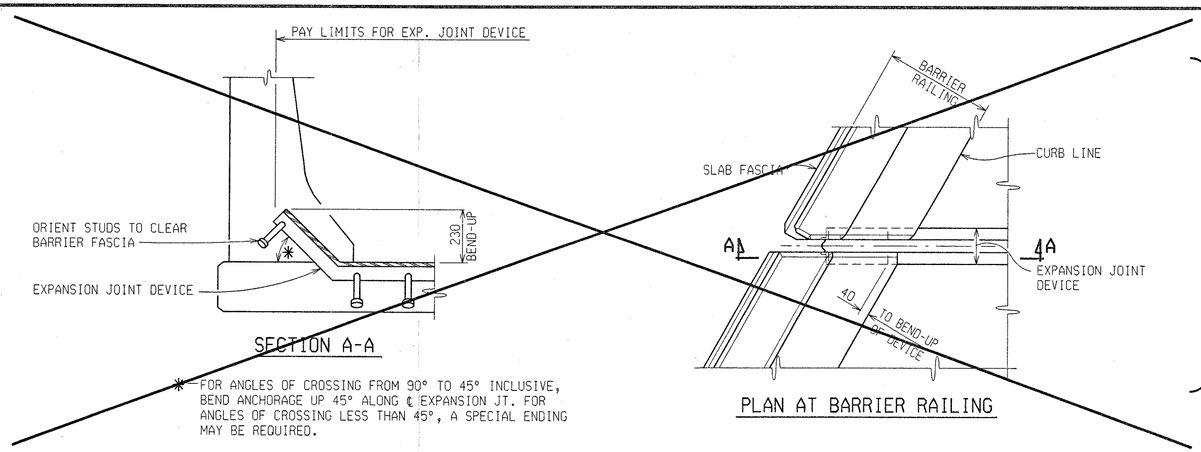
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-14-99	S02 OF 63174	48404A	MADHAVI	20 OF 29

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: inder FILE NAME: s02c3174.sn.

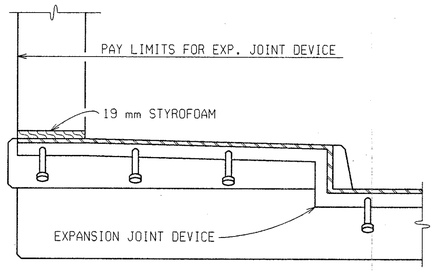


SECTION A-A

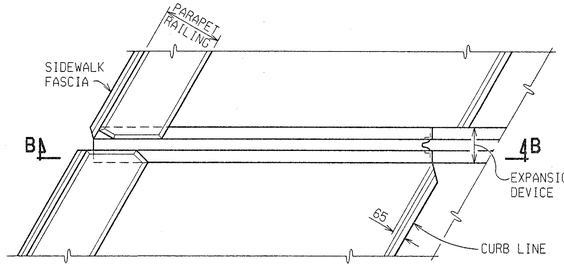
* FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG ℄ EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.

PLAN AT BARRIER RAILING

BARRIER TREATMENT



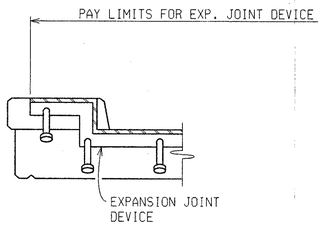
SECTION B-B



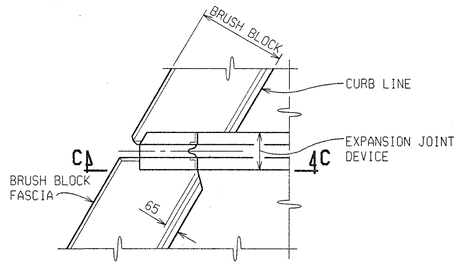
PLAN AT PARAPET RAILING

(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT



SECTION C-C



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S02	40°	ABUT A	25 mm	16.2 m
S02	40°	ABUT B	25 mm	16.2 m

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	33

MICHIGAN DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT DETAILS

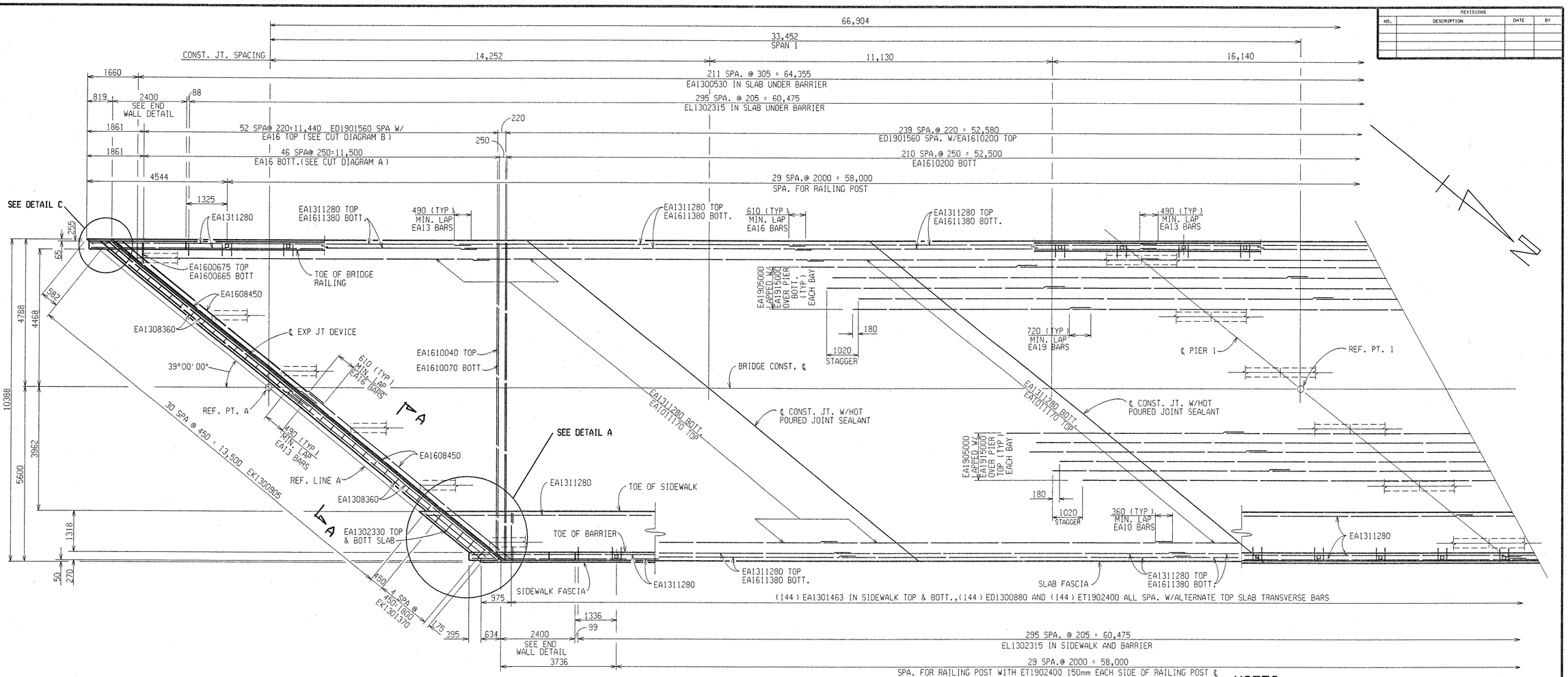
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404E	MAHDAVI	21 OF 29

EJ3T (11-17-97)

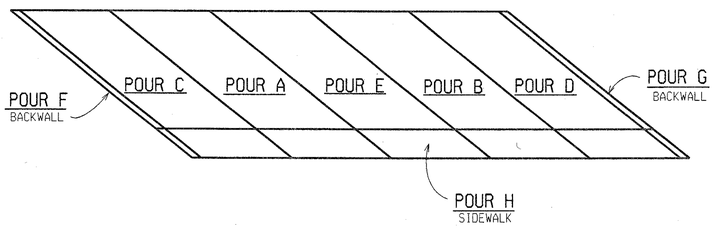
FILE NAME: S0263174.EJ DRAWN BY: STANDARDS CHECKED BY: VZ/SPB DATE: DATE: 07-16-96 CORRECTED BY:SHAFFER DATE: 5-11-99

CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 22

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN OF SLAB



POUR DIAGRAM

DECK POURS

SUPERSTRUCTURE CONCRETE NIGHT CASTING QUANTITIES	
POUR	CUBIC METERS
A	28.1
B	28.1
C	33.9
D	33.9
E	41.0
TOTAL CONC:	165 CUBIC METERS

SIDEWALK AND BARRIERS

SUPERSTRUCTURE CONCRETE QUANTITIES	
POUR	CUBIC METERS
F	3
G	3
H	20
TOTAL CONC:	26 CUBIC METERS

MISCELLANEOUS QUANTITIES

1 LS	Shear Developers (S02)
1 LS	Superstructure Conc, Form, Finish, and Cure, Night Casting (S02)
134 m	Bridge Railing, Aesthetic Parapet Tube, Modified
1 LS	Bridge Lighting, Furnish and Remove (S02)
165 m3	Bridge Lighting, Operate and Maintain
140 m2	Top Flanges and Beam Ends, Clean and Prime
85 m2	Joint Waterproofing
1 LS	Superstructure Conc, Form, Finish, and Cure (S02)
320 m2	Conc Surface Sealer

NOTES:

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL AND NAME PLATE MOUNTING DETAILS, SEE STANDARD B-25 SERIES. FOR DETAILS OF NAME PLATES, MOLDINGS AND BEVELS, SEE STANDARD PLAN B-103-SERIES.

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET.

PERMANENT METAL STAY-IN-PLACE DECK FORMS ARE OPTIONAL.

HPJS DENOTES HOT-POURED JOINT SEALANT.

THE CONTRACTOR IS TO PROVIDE A SAWED JOINT 12 mm DEEP BY 3 mm WIDE (MINIMUM) IN THE TOP OF SLAB AT TRANSVERSE CONSTRUCTION JOINTS. THE JOINT IS TO BE SAWED BEFORE CASTING OF BARRIERS OR SIDEWALKS AND IS TO BE FILLED WITH HOT-POURED JOINT SEALANT OR COLD-APPLIED JOINT SEALANT, SINGLE COMPONENT TYPE IN ACCORDANCE WITH STANDARD SPECIFICATION SUBSECTION 9.14.04. INCLUDED IN THE BID ITEM "SUPERSTRUCTURE CONC.,FORM, FINISH AND CURE (NIGHT CASTING)(S02)

NO PORTION OF THE DECK FORMWORK SHALL ENCROACH ON THE EXISTING UNDERCLEARANCE.

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03 J OF THE STANDARD SPECIFICATIONS.

DECK POURS ARE TO BE MADE IN THE FOLLOWING SEQUENCE A, B, C, D, AND E.

DECK REPLACEMENT DETAILS

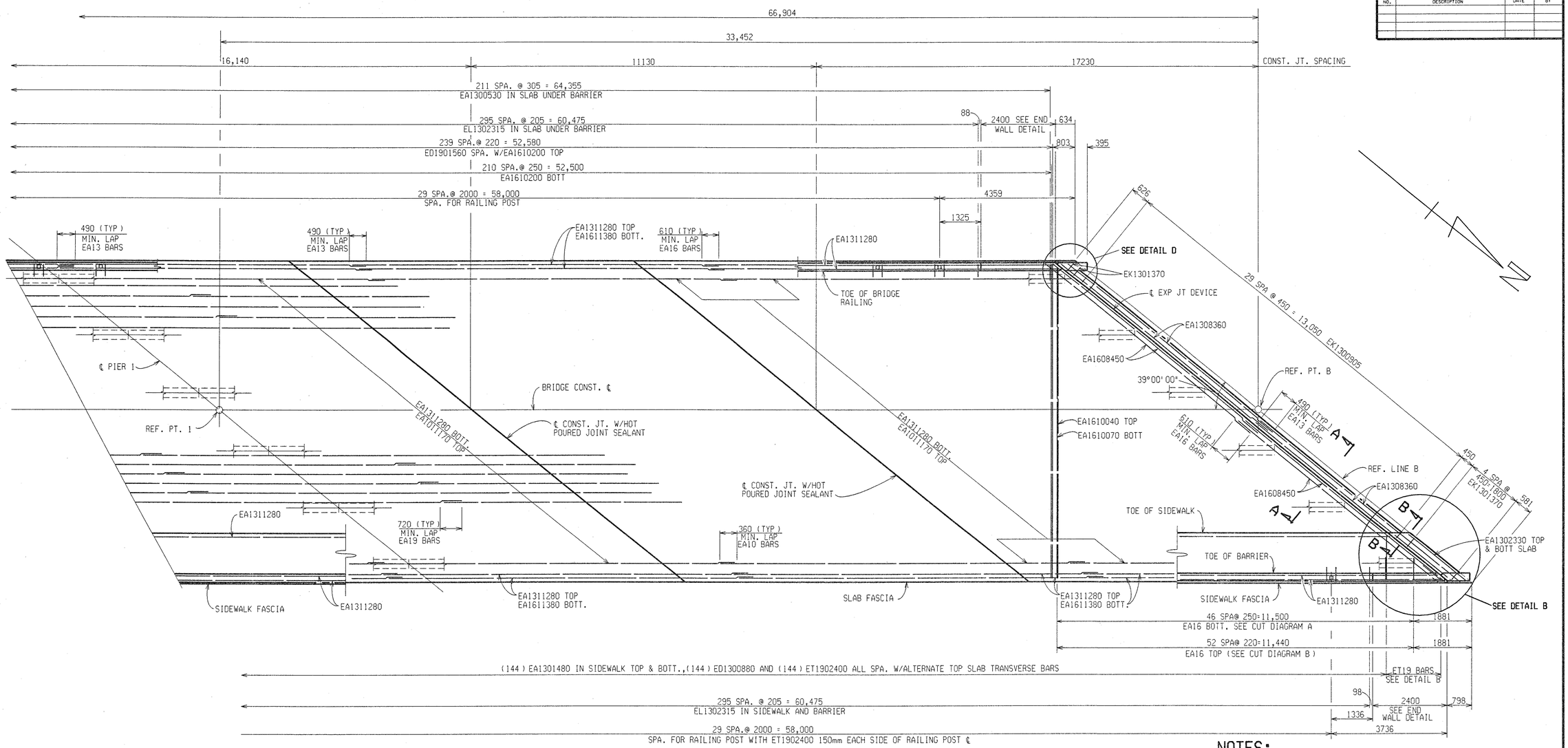
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404A	MAHDAVI	22 OF 29

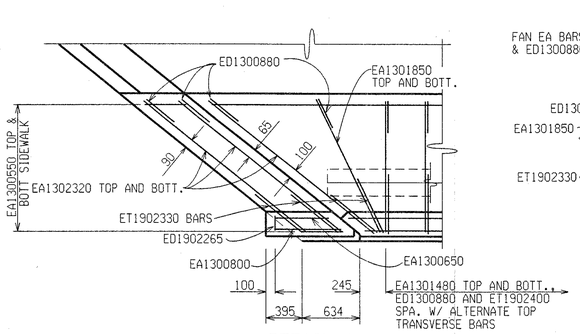
DATE: 10-13-99 CORRECTED BY:SHAFFER
DATE: 8-24-99 CHECKED BY:
DRAWN BY: SHAFFER
FILE NAME: S0263174.DK

CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 23

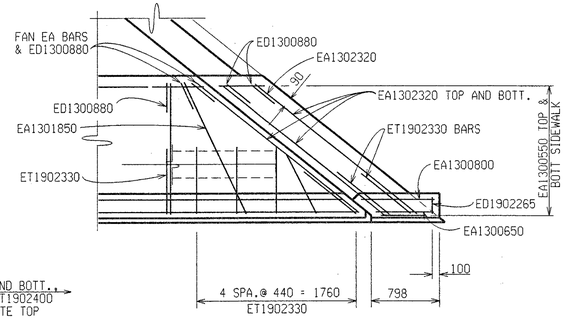
REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN OF SLAB



DETAIL A



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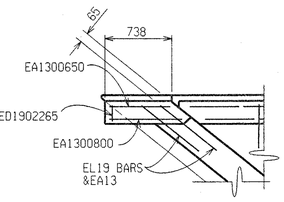
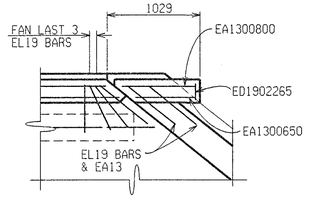


DETAIL C



DETAIL D

NOTES:

BRIDGE RAILING, AESTHETIC PARAPET TUBE, MODIFIED SHALL BE IN ACCORDANCE WITH THE STANDARD PLAN B-25 EXCEPT FOR THE ADDITION OF FRACTURED FIN RUSTIFICATION ON THE BACK SIDE OF THE RAILING AS DETAILED ON THE PLANS.

THE ENTIRE CONCRETESURFACES OF THE BRIDGE RAILING, ASTHETIC PARAPET TUBE, MODIFIED SHALL BE COATED WITH CONCRETE SURFACE SEALER (SEE SPECIAL PROVISIONS).

WHERE CAST-IN-ANCHORAGE IS USED FOR EXPANSION JOINT DEVICES, IT IS RECOMMENDED THAT THE PLACING OF DECK CONCRETE PROGRESS TOWARD THE JOINT SO THAT THE EFFECTS OF DEAD LOAD DEFLECTION WILL OCCUR BEFORE CONCRETE IS PLACED AT THE ANCHORAGE.

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03 J OF THE STANDARD SPECIFICATIONS.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

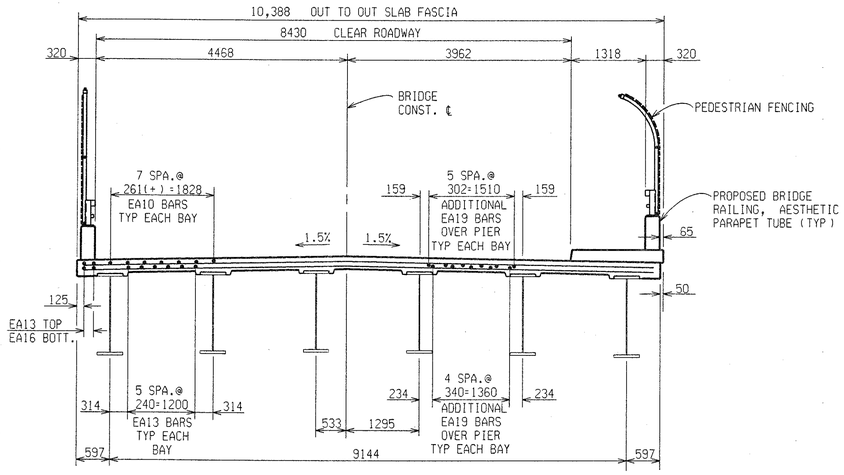
DECK REPLACEMENT DETAILS

MDOT Michigan Department of Transportation

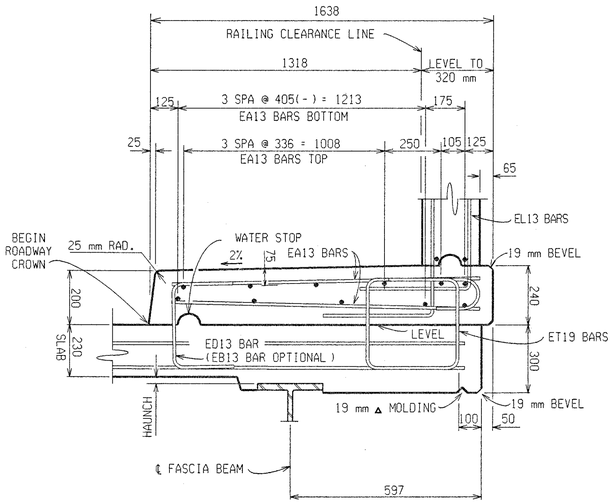
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-12-99	S02 OF 63174	48404A	MAHDAVI	23 OF 29

DATE: 10-12-99 CORRECTED BY: SHAFFER
DATE: 8-24-99 CHECKED BY:
DRAWN BY: SHAFFER
FILE NAME: 63174

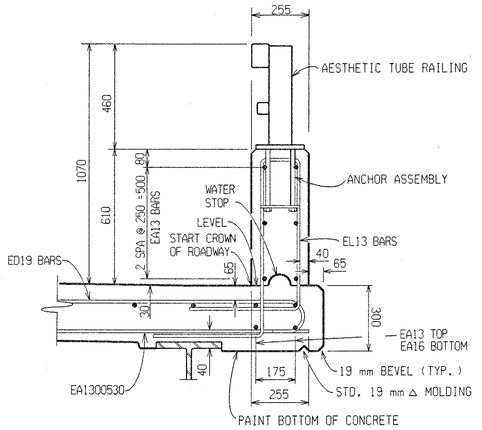
CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 24



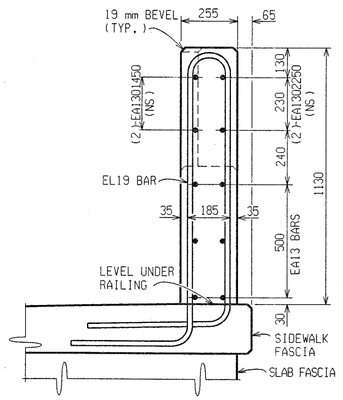
TYPICAL DECK SECTION



SIDEWALK SECTION

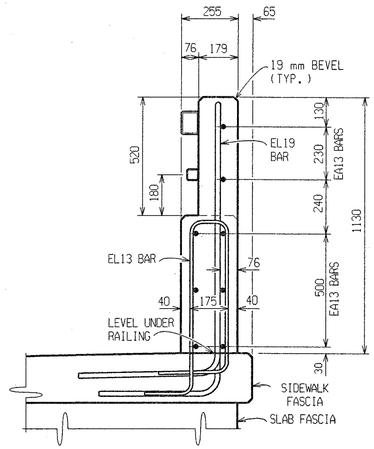


SECTION THRU RAILING



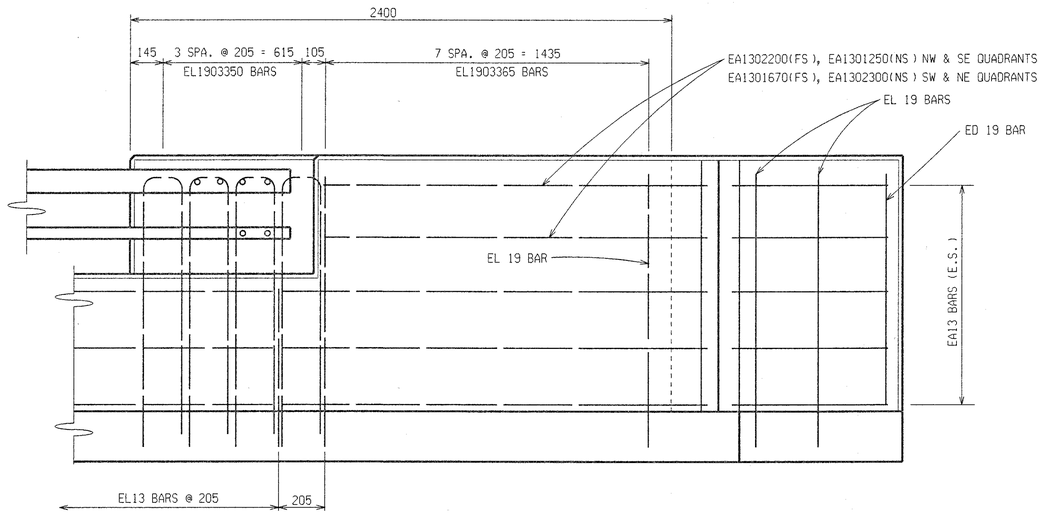
SECTION AT END WALL

(FULL CONCRETE AREA)



SECTION AT END WALL

(TUBE CONNECTION AREA)



END WALL DETAIL

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: 10-8-99 | CORRECTED BY: SHAFFER | DRAWN BY: SHAFFER | DATE: 8-24-99 | CHECKED BY: | FILE NAME: S02631174.DGK

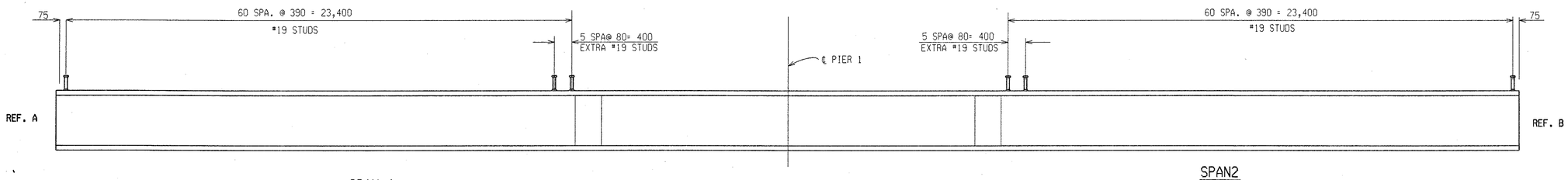
MDOT Michigan Department of Transportation

DECK REPLACEMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-8-99	S02 OF 63174	48404A	MAHDAVI	24 OF 29

CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 25

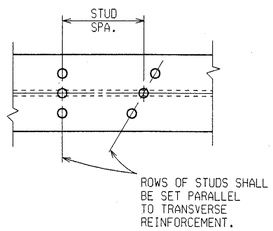
REVISIONS			
NO.	DESCRIPTION	DATE	BY



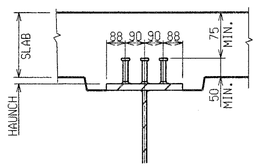
SPAN 1

SPAN2

SHEAR DEVELOPER DETAIL



PLAN



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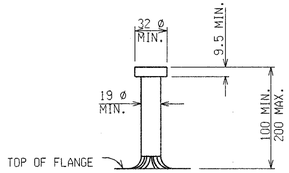
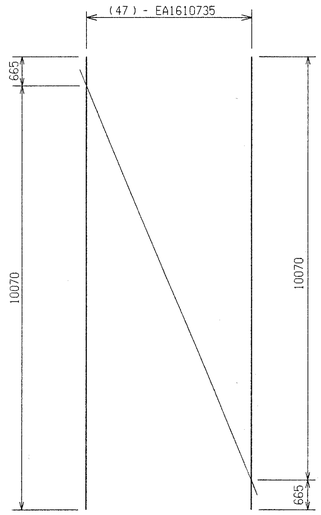
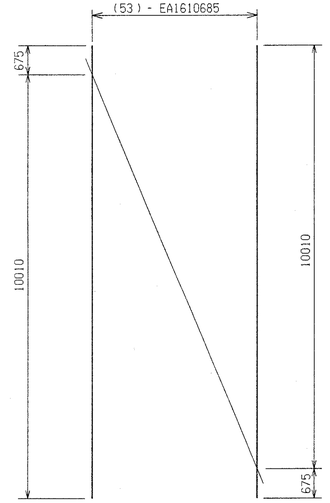


STUD DETAIL



CUT DIAGRAM A

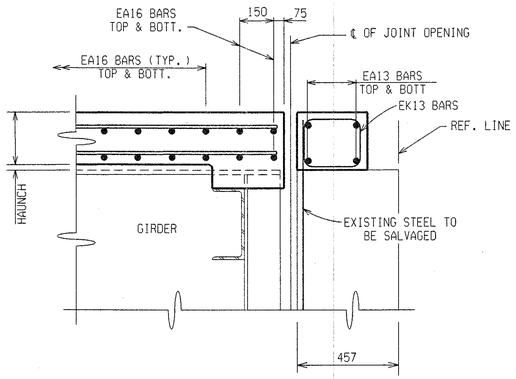
FOR BOTTOM BARS



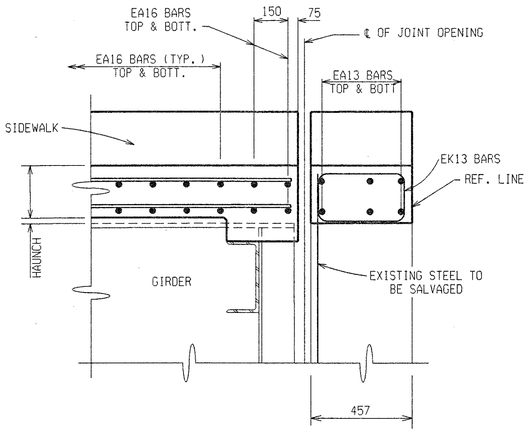
CUT DIAGRAM B

FOR TOP BARS

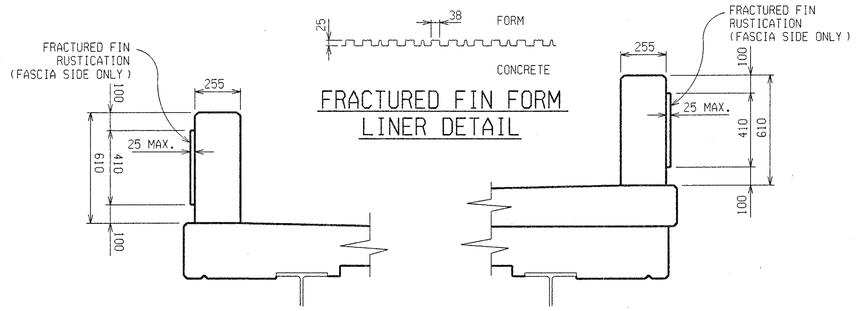
STUD SHEAR DEVELOPER DETAILS



SECTION A-A



SECTION B-B



TYPICAL RAILING SECTION SHOWING RUSTICATION

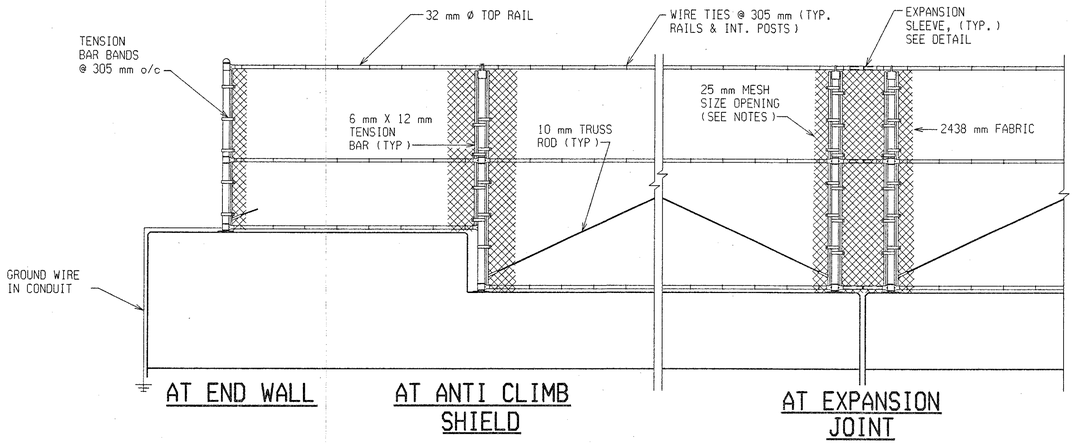
DECK REPLACEMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-11-99	S02 OF 63174	48404A	MAHDAVI	25 OF 19

DATE: 10-11-99 CORRECTED BY:SHAFFER
DATE: 8-24-99 CHECKED BY:
DRAWN BY: SHAFFER
FILE NAME: S0263174.DGK

CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 26

REVISIONS			
NO.	DESCRIPTION	DATE	BY



MISCELLANEOUS QUANTITIES

327 m2	Fencing, Structures
1 ea	Elec Grounding System

NOTES:

ALL FENCE POSTS SHALL BE 64 NOMINAL, (73 O.D.) PIPE AND ANTI-CLIMB SHIELD PIPE FRAMES SHALL BE 32 NOMINAL, (42 O.D.) PIPE, IN CONFORMANCE WITH ASTM F669, CLASS 1C.

HORIZONTAL RAILS SHALL BE 32 NOMINAL (42 O.D.) PIPE IN CONFORMANCE WITH ASTM F669, CLASS 1C OR ASTM F1083.

ALL FENCE COMPONENTS, UNLESS OTHERWISE INDICATED, SHALL BE GALVANIZED IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

ALL POSTS, ANTI-CLIMB SHIELDS OR OTHER COMPONENTS TO BE FABRICATED SHALL BE FURNISHED "BLACK" AND THEN GALVANIZED AFTER FABRICATION.

DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

FENCE FABRIC SHALL BE #9 GAGE MESH AND BE GALVANIZED OR ALUMINUM COATED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION. MESH SIZE OPENING SHALL BE 25 mm.

GALVANIZED 10 mm Ø TRUSS RODS SHALL EXTEND DIAGONALLY FROM THE TOP CONNECTION CLIP AT EACH TENSION BAR TO THE ADJACENT POST, EXCEPT ACROSS EXPANSION JOINTS AND AT LIGHT STANDARDS WITH A CURVED FENCE DETAIL, WHEN THERE ARE TWO OR MORE CONTINUOUS PANELS OF FABRIC.

ALL POSTS SHALL BE INSTALLED PLUMB AND MAY BE SHIMMED WITH NON-METALLIC SHIMS, APPROVED BY THE ENGINEER. COSTS FOR SHIMMING SHALL BE INCLUDED IN THE PAY ITEM "FENCING, STRUCTURES".

BOTTOM STRAP ON THE VERTICAL POST SHALL BE CONNECTED WITH RAIL ENDS (BRACE BANDS) RATHER THAN A TWO WAY CLAMP TO ALLOW A MINIMUM OF 7 mm OFFSET.

FIELD WELDING SHALL BE ALLOWED ONLY FOR THE HANDRAIL SPLICES AND FOR ATTACHMENT OF THE HANDRAIL TO THE POST. ALL FIELD WELDS SHALL BE GROUND SMOOTH PRIOR TO COATING WITH ZINC-RICH PAINT OR SPRAYED ZINC IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS.

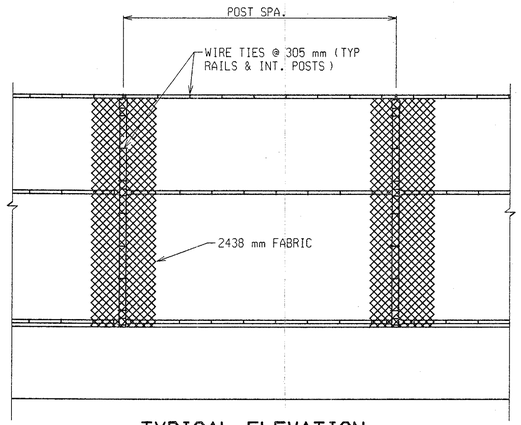
THE GROUND WIRE SHALL BE PLACED IN A NON-METALLIC CONDUIT, FROM THE END POST CONNECTION TO THE GROUND ROD CONNECTION. THE CONDUIT SHALL BE SECURED TO THE STRUCTURE USING EITHER EXPANSION BOLTS OR ADHESIVE ANCHORED BOLTS WITH GALVANIZED METAL STRIPS, AS APPROVED BY THE ENGINEER.

IN THE EVENT THAT INSTALLATION OF A GROUND ROD IS IMPRACTICAL, THE GROUND WIRE SHALL BE CONNECTED TO THE NEAREST LIGHT STANDARD, USING A MECHANICAL CLIP, ONLY AFTER OBTAINING PERMISSION FROM THE LOCAL PUBLIC LIGHTING AUTHORITY.

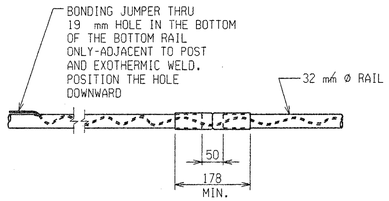
EXPANSION JOINT SLEEVES, FOR HORIZONTAL RAILS, SHALL BE THE MANUFACTURER'S STANDARD OVERSIZED SLEEVES, CRIMPED IN THE MIDDLE.

ALL DIMENSIONS ARE IN MILLIMETERS.

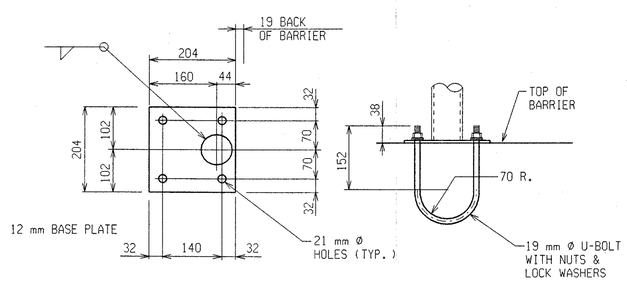
GROUNDING CABLES AND TOPS OF GROUNDING RODS SHALL BE PLACED 300 mm MINIMUM BELOW FINISHED GROUND.



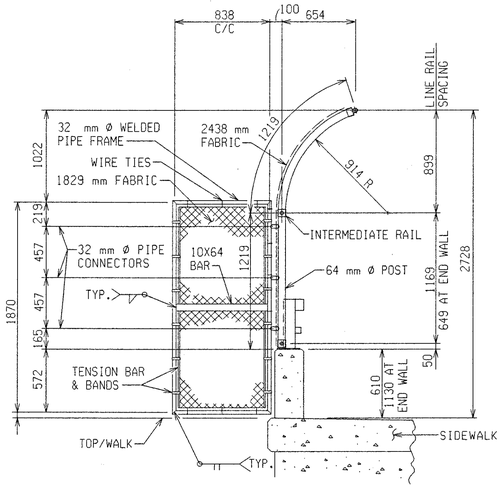
TYPICAL ELEVATION



EXPANSION SLEEVE DETAIL



BASE PLATE DETAILS



TYPICAL SECTION
(SHOWING ANTI-CLIMB SHIELD)

FENCING DETAILS

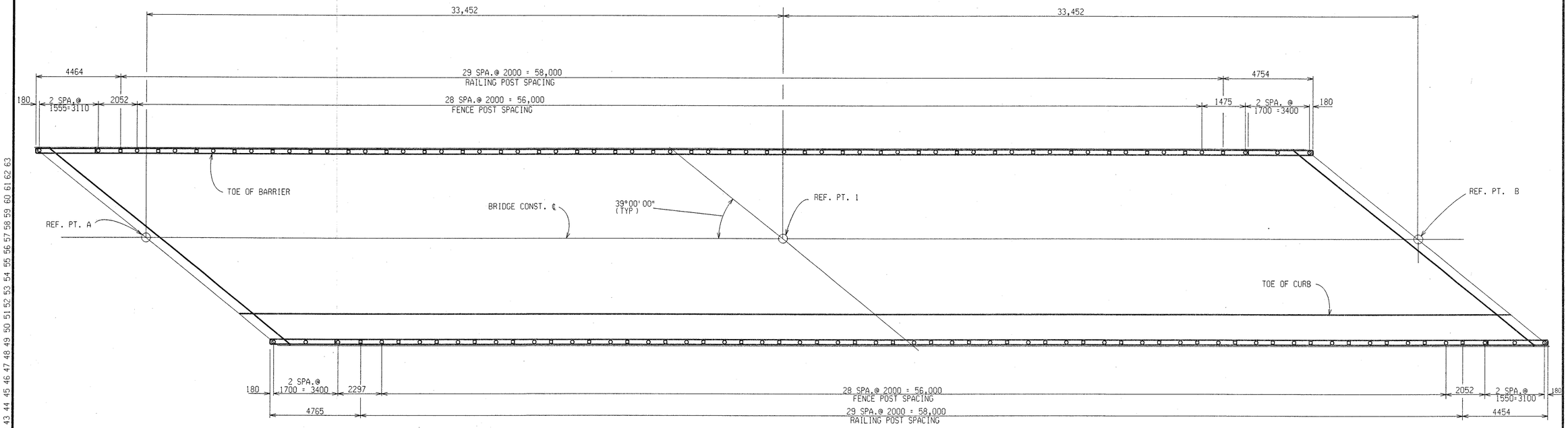
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-12-99	S02 OF 63174	48404A	MAHDAVI	26 OF 29

MDOT Michigan Department of Transportation

DATE: 10-12-99 CORRECTED BY: SHAFFER
DATE: 9-23-99 CHECKED BY:
DRAWN BY: SHAFFER
FILE NAME: S0263174.FE

CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 27

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN VIEW

DATE: 10-12-99 CORRECTED BY:

DATE: 9-22-99 CHECKED BY:

DRAWN BY: SHAFFER

FILE NAME: S02G3174.FE

MDOT Michigan Department of Transportation

FENCING DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-12-99	S02 OF 63174	48404A	MAHDAVI	27 OF 29

CONTROL SECTION S02 OF 63174 JOB NO. 48404D SH. NO. 28

REVISIONS			
NO.	DESCRIPTION	DATE	BY

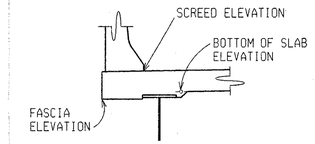
BOTTOM OF SLAB ELEVATIONS

REF.A — SPAN 1 — REF.1 — SPAN 2 — REF.B

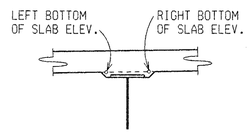
		0	1	2	3	4	5	6	7	8	9	10	11	12	0	1	2	3	4	5	6	7	8	9	10	11	12
A	FASCIA	194.350	194.393	194.433	194.470	194.501	194.529	194.551	194.570	194.585	194.598	194.609	194.620	194.632	194.632	194.648	194.664	194.680	194.695	194.708	194.717	194.722	194.723	194.719	194.710	194.697	194.682
	RIGHT	194.424	194.467	194.506	194.543	194.575	194.602	194.625	194.643	194.658	194.671	194.682	194.693	194.706	194.706	194.721	194.737	194.754	194.769	194.781	194.790	194.795	194.796	194.792	194.783	194.771	194.755
B	LEFT	194.471	194.513	194.552	194.587	194.617	194.643	194.664	194.682	194.695	194.707	194.716	194.726	194.737	194.737	194.751	194.766	194.781	194.795	194.806	194.814	194.818	194.817	194.811	194.801	194.787	194.771
	RIGHT	194.478	194.520	194.559	194.594	194.624	194.650	194.671	194.688	194.702	194.713	194.723	194.733	194.744	194.744	194.758	194.773	194.788	194.802	194.813	194.821	194.824	194.823	194.818	194.808	194.794	194.778
C	LEFT	194.525	194.565	194.603	194.636	194.665	194.690	194.710	194.726	194.738	194.748	194.756	194.765	194.775	194.775	194.787	194.801	194.814	194.827	194.837	194.843	194.845	194.843	194.836	194.825	194.810	194.792
	RIGHT	194.532	194.572	194.609	194.643	194.672	194.697	194.717	194.732	194.745	194.755	194.763	194.772	194.781	194.781	194.794	194.808	194.821	194.834	194.844	194.850	194.852	194.850	194.843	194.832	194.817	194.799
D	LEFT	194.545	194.584	194.620	194.653	194.680	194.703	194.722	194.737	194.748	194.756	194.763	194.770	194.779	194.779	194.790	194.802	194.815	194.826	194.834	194.839	194.840	194.836	194.828	194.816	194.799	194.780
	RIGHT	194.539	194.578	194.613	194.646	194.673	194.697	194.715	194.730	194.741	194.749	194.757	194.764	194.772	194.772	194.783	194.795	194.808	194.819	194.827	194.832	194.833	194.830	194.822	194.809	194.792	194.773
E	LEFT	194.542	194.579	194.614	194.645	194.671	194.693	194.710	194.723	194.733	194.740	194.746	194.752	194.759	194.759	194.769	194.780	194.791	194.800	194.808	194.811	194.811	194.806	194.796	194.782	194.764	194.744
	RIGHT	194.535	194.573	194.607	194.638	194.664	194.686	194.704	194.717	194.726	194.734	194.739	194.745	194.752	194.752	194.762	194.773	194.784	194.794	194.801	194.805	194.804	194.799	194.790	194.775	194.758	194.737
F	LEFT	194.549	194.585	194.618	194.648	194.673	194.693	194.709	194.721	194.729	194.735	194.739	194.744	194.749	194.749	194.758	194.767	194.777	194.785	194.791	194.794	194.792	194.785	194.775	194.759	194.740	194.718
	FASCIA	194.481	194.517	194.551	194.580	194.605	194.625	194.641	194.653	194.662	194.667	194.672	194.676	194.682	194.682	194.690	194.700	194.710	194.718	194.724	194.726	194.724	194.718	194.707	194.692	194.672	194.650

SCREED ELEVATIONS

LEFT	194.642	194.683	194.722	194.758	194.789	194.816	194.839	194.859	194.875	194.889	194.901	194.913	194.926	194.926	194.941	194.957	194.973	194.987	194.999	195.008	195.012	195.013	195.010	195.003	194.992	194.979
RIGHT	194.766	194.802	194.834	194.864	194.889	194.910	194.926	194.940	194.950	194.957	194.963	194.969	194.976	194.976	194.985	194.994	195.004	195.012	195.017	195.020	195.018	195.013	195.004	194.990	194.973	194.953



TYPICAL FASCIA SECTION



TYPICAL INTERIOR SECTION

(LOOKING UP STATION)

BULKHEAD ELEVATIONS

	ABUT.A					ABUT.B
A	194.649	194.823	194.895	194.978	195.017	194.982
B	194.703	194.871	194.938	195.012	195.046	195.004
C	194.757	194.918	194.979	195.046	195.074	195.025
D	194.771	194.925	194.981	195.039	195.062	195.006
E	194.767	194.915	194.965	195.015	195.032	194.970
F	194.777	194.918	194.963	195.005	195.017	194.947

SECTIONS FOR BOTTOM OF SLAB AND/OR SCREED ELEVATIONS ARE GIVEN ALONG BEAM CENTERLINES FROM CENTERLINE OF BEARING OR PIN & HANGER TO CENTERLINE OF BEARING OR PIN & HANGER AS APPLICABLE AT EQUAL SPACINGS.

MDOT Michigan Department of Transportation

SLAB AND SCREED DATA

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
9-22-1999	S02 OF 63174	48404D	MAHDAVI	28 OF 29

DATE: CORRECTED BY:

DATE: CHECKED BY:

FILE NAME: s0263174.ss DRAWN BY:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

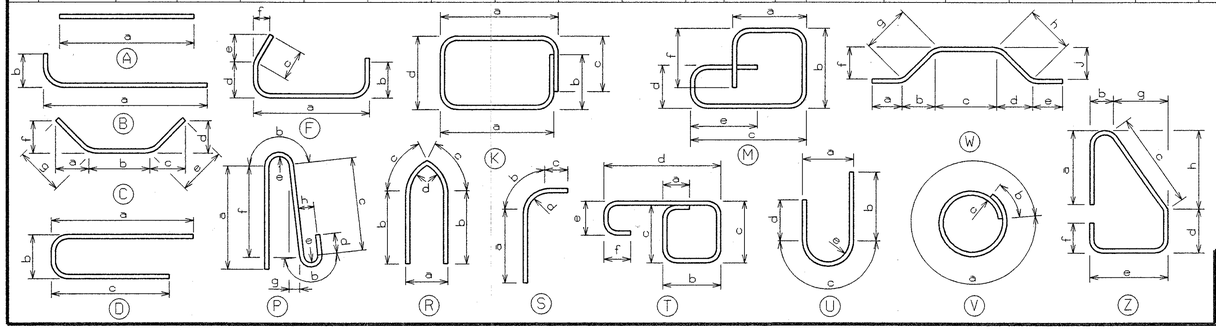
CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 29

SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1011170	11170									216	1351
EA1311280	11280									24	269
EA1311280	11280									180	2018
EA1611380	11380									24	424
EA1905000	5000									55	615
EA1915000	15000									55	1844
EA1610200	10200									451	7140
EA1610685	10685									53	879
EA1610735	10735									47	783
EA1300530	530									216	114
EA1608450	8450									16	210
EA1308360	8360									16	133
EA1302330	2330									4	9
EA1311280	11280									138	1547
EA1301480	1480									288	424
EA1301850	1850									4	7
EA1302320	2320									12	28
EA1300550	550									22	12
EA1302200	2200									4	9
EA1301250	1250									4	5
EA1302300	2300									4	9
EA1301670	1670									4	7
EA1300800	800									20	16
EA1300650	650									20	13
ED1901560	1260	150	150							297	1036
ED1300880	270	340	270							155	136
ED1902185	1000	185	1000							4	20
EK1301370	175	340	340	340						12	16
EK1300905	175	185	185	185						61	55
EL1302315	660	175	760	360	360	175				592	1362
EL1903350	1180	170	1280	360	360		170			16	120
EL1903365	1180	185	1280	360	360	185				40	301
ET1902400	310	410	380	510	160	200				154	826

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.



EPOXY COATED
BAR SIZE
BAR LENGTH (mm)
EA2013000
BAR SHAPE

BAR LEGEND

MISCELLANEOUS QUANTITIES

0	kg	REINFORCEMENT, STEEL
21738	kg	REINFORCEMENT, STEEL, EPOXY COATED

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

REVISIONS NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

STEEL REINFORCEMENT DETAILS

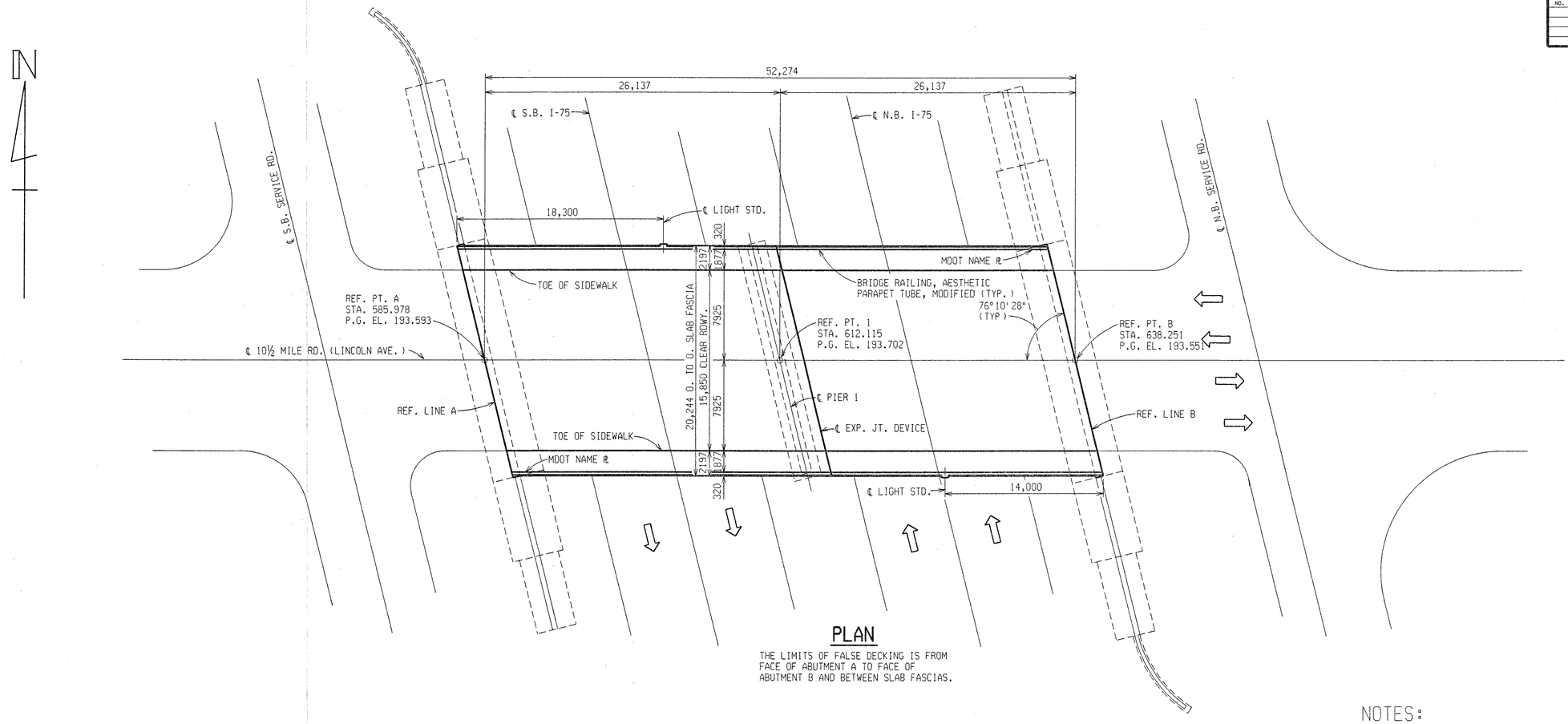
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	29 OF 29

DRAWN BY: R.K.OLIN | CHECKED BY: | DATE: 10/99 | CORRECTED BY: | DATE:

FILE NAME: s0263174.rs

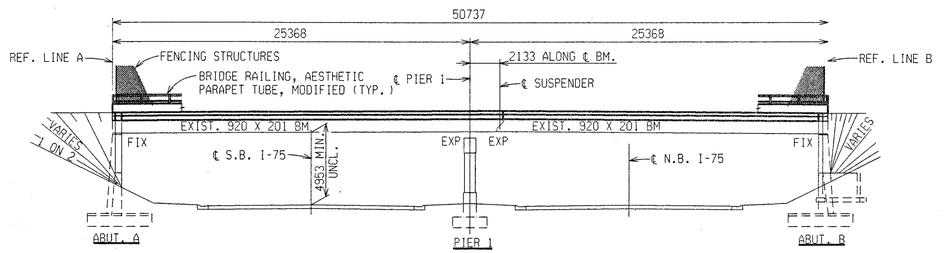
CONTROL SECTION S30 OF 63174 | JOB NO. 48404A | SH. NO. 2

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN

THE LIMITS OF FALSE DECKING IS FROM FACE OF ABUTMENT A TO FACE OF ABUTMENT B AND BETWEEN SLAB FASCIAS.



ELEVATION

SHOWN ⊥ TO I-75

MISCELLANEOUS QUANTITIES

1031 m2	False Decking
1 LS	Structures, Rehabilitation, Rem Portions (S30)

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, PEDESTRIAN SCREENING, PIN AND HANGER REPLACEMENT, PAINTING OF THE EXISTING STRUCTURAL STEEL, AND MAINTAINING TRAFFIC. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE A PART OF THIS CONTRACT.

THE REHABILITATION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS18 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH AND 1/375 OF CANTILEVER ARM. THE LOAD FACTOR) METHOD WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR MS18 LOADING.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

THE CONTRACTOR SHALL NOTIFY DETROIT EDISON FOR DEACTIVATION OF STREET LIGHTS AND TRAFFIC SIGNAL CIRCUITS PRIOR TO DECK REMOVAL AND FOR REINSTALLATION OF THE STREET LIGHTING AND SIGNALS FOLLOWING COMPLETION OF BRIDGE DECK CONSTRUCTION.

ALL WORK FOR TEMPORARY SUPPORT AND PROTECTION OF THE AMERITECH DUCTS AND THE CONSUMER ENERGY GAS MAIN SHALL BE INCLUDED IN THE PAY ITEM "STRUCTURES, REHABILITATION, REMOVE PORTIONS (S30)"

LINCOLN AVE. TRAFFIC IS TO BE DETOURED OVER OTHER EXISTING ROADS.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

THE EXISTING GAS MAIN AND AMERITECH DUCTS WILL REQUIRE TEMPORARY SUPPORTS PRIOR TO REMOVAL OF THE DECK.

APPROVED Steven P. Beck 10/19/99
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

I-75 UNDER 10.5 MI., LINCOLN AVE. IN ROYAL OAK

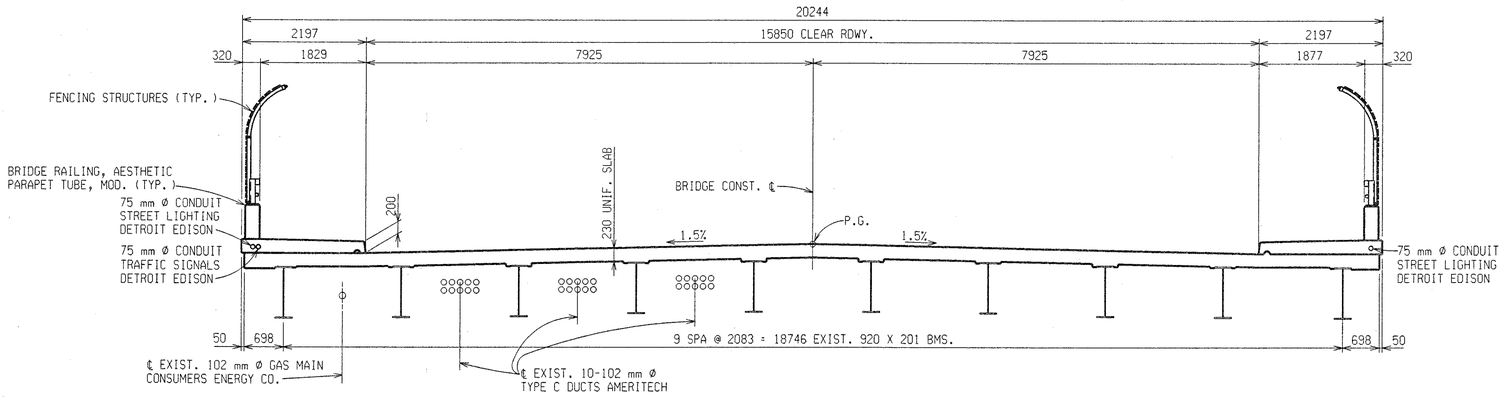
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	2 OF 22

DATE: 10-13-99 CORRECTED BY: CASLER
DATE: 1-15-99 CHECKED BY:
DRAWN BY: CASLER
FILE NAME: s30631174.st

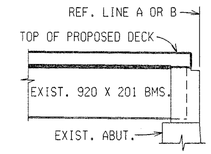
CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 3

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

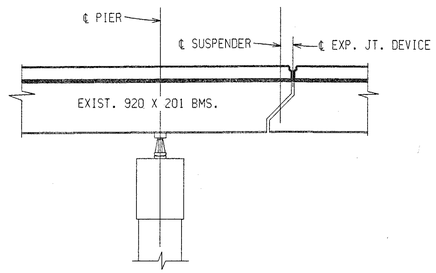
REVISIONS			
NO.	DESCRIPTION	DATE	BY



TYPICAL DECK SECTION



SECTION AT ABUTMENT



SECTION AT PIER

APPROVED Steven K. Beck 10/19/99
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

I-75 UNDER 10.5 MI., LINCOLN AVE. IN ROYAL OAK

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	3 OF 22

DATE: 7-24-99 CORRECTED BY: SHAFFER

DATE: DRAWN BY: CASLER DATE: 1-25-99 CHECKED BY:

FILE NAME: s30631741.st

Bench Marks

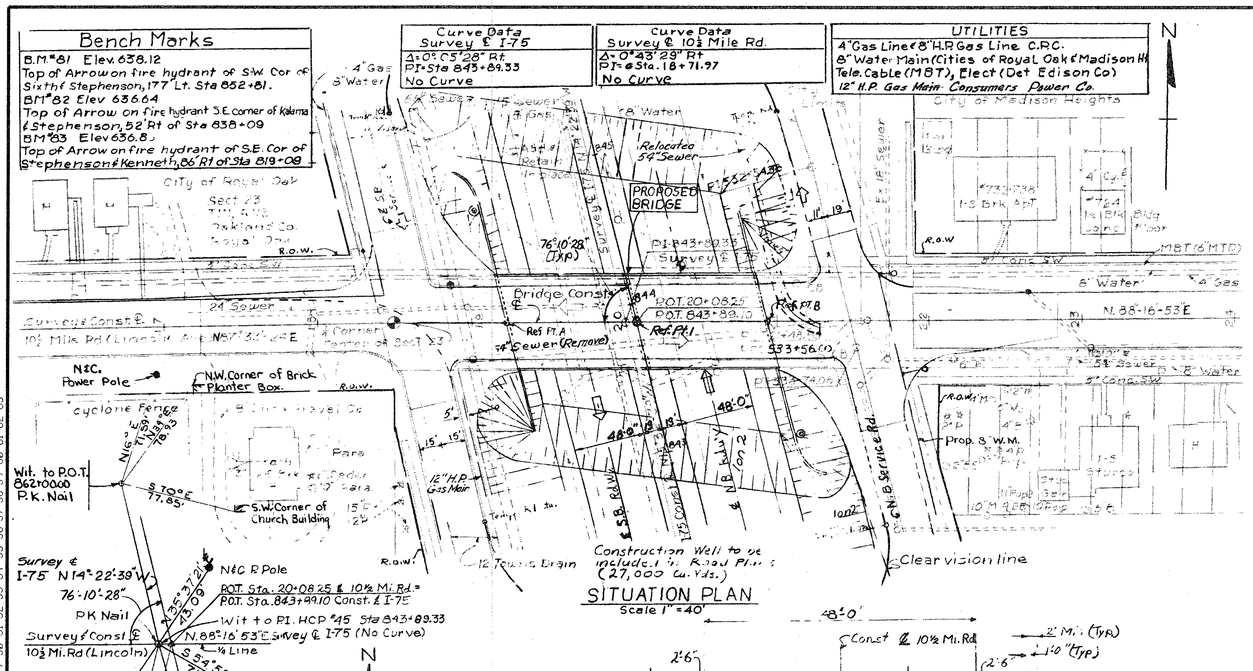
B.M."81 Elev. 638.12
Top of Arrow on fire hydrant of S.W. Cor of Sixth & Stephenson, 177' Lt. Sta 852+81.
BM"82 Elev 636.64
Top of Arrow on fire hydrant S.E. corner of Kalama & Stephenson, 52' Rt of Sta 838+09
BM"83 Elev 636.8
Top of Arrow on fire hydrant of S.E. Cor of Stephenson & Kenneth, 86' Rt of 3+ 819+09

Curve Data Survey ℄ I-75
Δ=0°05'28" Rt.
PI=Sta 845+89.33
No Curve

Curve Data Survey ℄ 10½ Mile Rd.
Δ=0°43'29" Rt
PI=℄ Sta. 18+71.97
No Curve

UTILITIES

4" Gas Line & 8" H.P. Gas Line. C.R.C.
8" Water Main (Cities of Royal Oak & Madison Hts.)
Tele. Cable (M.B.T.), Elect (Det. Edison Co.)
12" H.P. Gas Main Consumers Power Co.

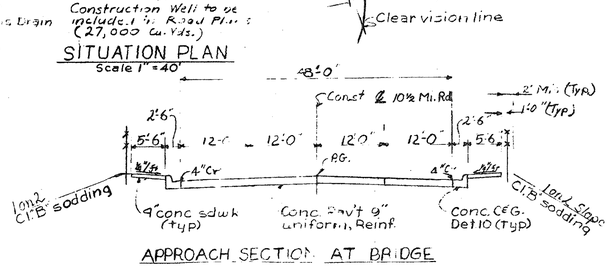


ALIGNMENT & WITNESS SKETCH

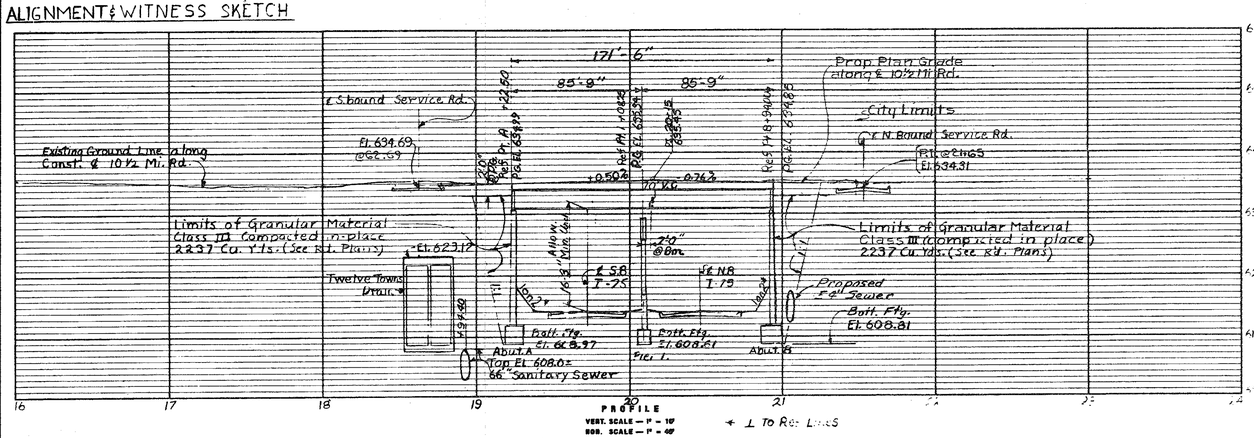
SITUATION PLAN
Scale 1" = 40'

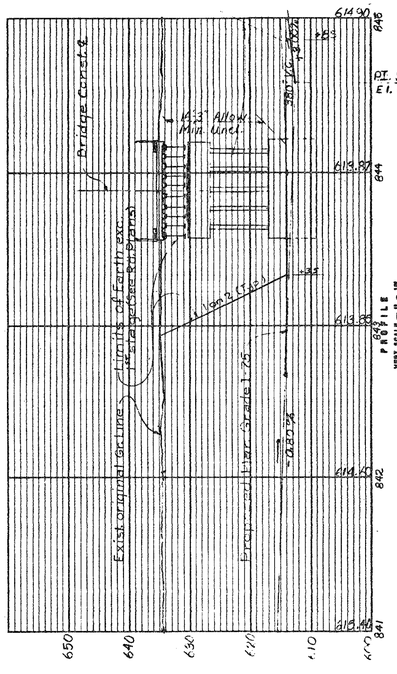
Construction Well to be included in Road Plans (27,000 cu. Yds.)

Clear vision line



APPROACH SECTION AT BRIDGE





Construction Sequence

Construct E.N. & E.S. Service Rd.
Construct Temporary Run Around.
Excavate & Construct Bridge.

NOTES:

Traffic maintained for:
I-75 on new & existing Service Roads
10½ Mi. Rd. by two one-way temp. run-arounds will be used to maintain traffic on Lincoln, one to the north and one to the South. They will be placed so that all slope walls can be built during one stage.

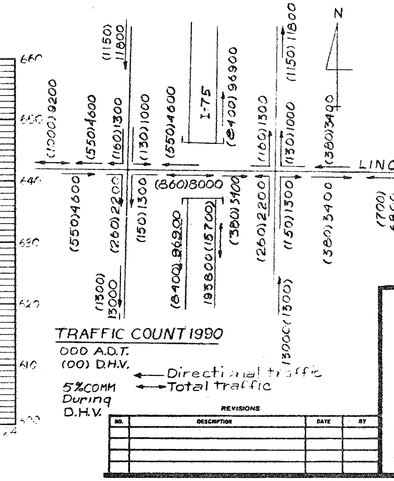
Grading of construction well only in the vicinity of the structure to be done prior to starting work on the structure.

The work covered by these plans includes construction of the proposed bridge, placing foundation drains including the special inlets and placing slope protection to the limits shown.

Utilities requiring moving are to be moved by their respective owners.

Removal of fences and buildings is not a part of this contract.

The contractor shall locate all active underground utilities prior to starting work & shall conduct the operation in such a manner as to insure that those utilities not requiring relocation will not be disturbed.



REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

10½ MILE ROAD (LINCOLN AVE.) OVER I-75 – CITY OF ROYAL OAK

GENERAL PLAN OF SITE

ROAD DES.	FISHER	1-6-69
DESIGN BY	HARTMAN	9-19-68
TRACED BY		
CHECKED BY	R. MARSH	9-26-68
	SHEET 2 OF 20	

APPROVED: Lawrence O. Christ 6-5-69 ASST. SUPERVISOR – DESIGN
APPROVED: C. Tinker 6-6-69 SUPERVISOR – DESIGN

S 30 of 63174B

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

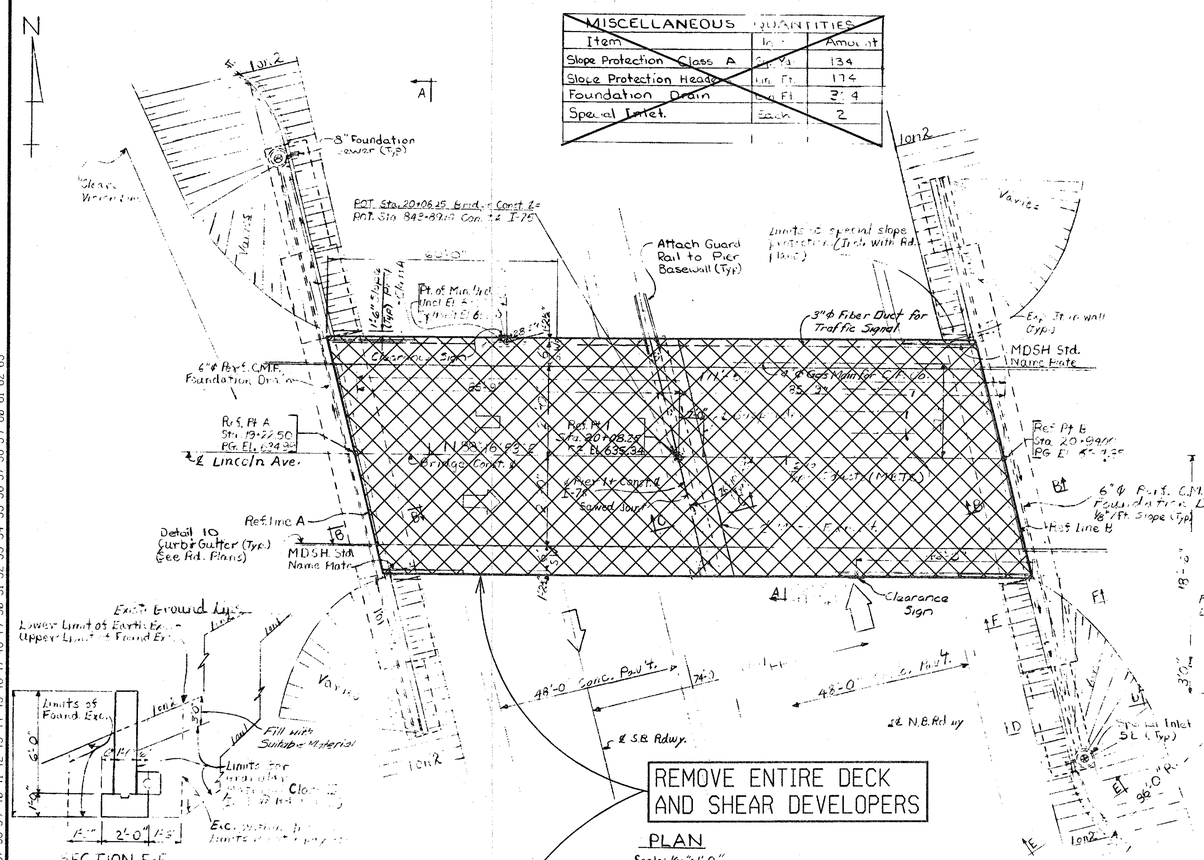
MDOT Michigan Department of Transportation

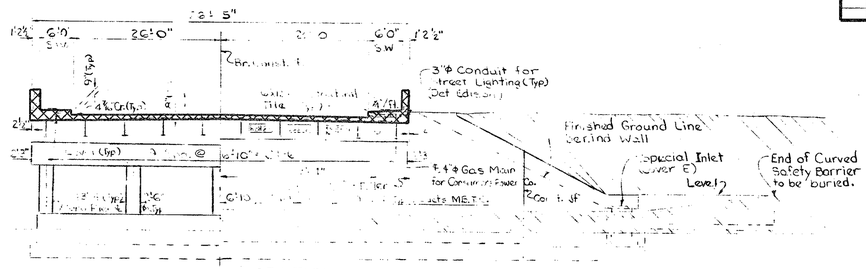
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	4 OF 22

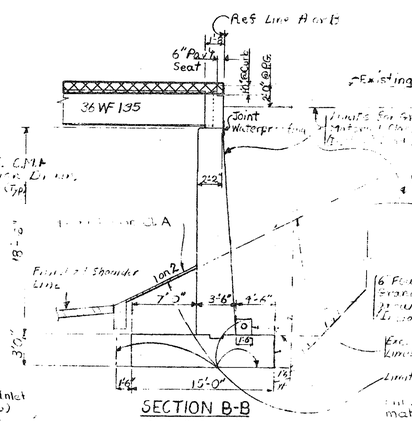
CORRECTED BY: DATE:
DRAWN BY: under DATE: 01-12-99
CHECKED BY: DATE:
FILE NAME: s3063174.sn

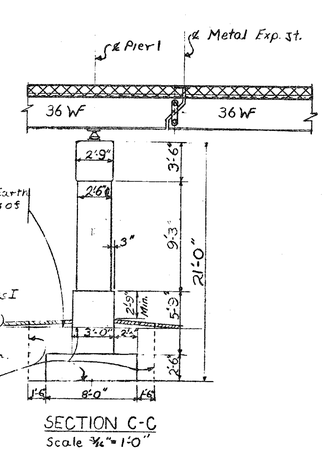
REVISIONS			
NO.	DESCRIPTION	DATE	BY

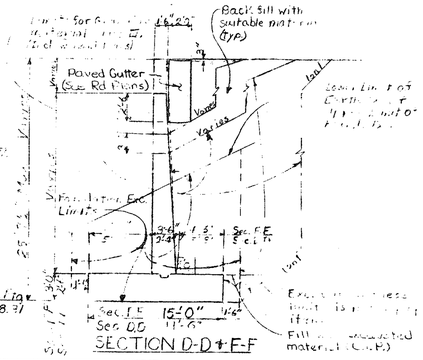
MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Slope Protection Class A	Sq. Yd.	134
Slope Protection Headw.	Lin. Ft.	174
Foundation Drain	Lin. Ft.	374
Special Inlet	Each	2











NOTES:

The design of this structure is based on the AASHTO Specifications for the Design of Highway Bridges, 1958 edition and current AASHO Standard Specifications for Highway Bridges - H20-44 loading. Live load plus impact deflection = 1/300 of the span length and = 1/240 of cantilever arm.

The top of roadway slab and tops of sidewalks are parallel to the vertical curve and tangents.

For details of Slope Protection, see Standard sheet SP2.

10½ MILE ROAD (LINCOLN AVE.) OVER I-75-CITY OF ROYAL OAK

Finish 1-2-69 Hicks

Taylor 5-7-69

Lawrence O. Click 5-5-69
ASS'T SUPERVISOR - DESIGN

J. C. Trekas 6-5-69
SUPERVISOR - DESIGN

S30 of 63174 B

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 48404A

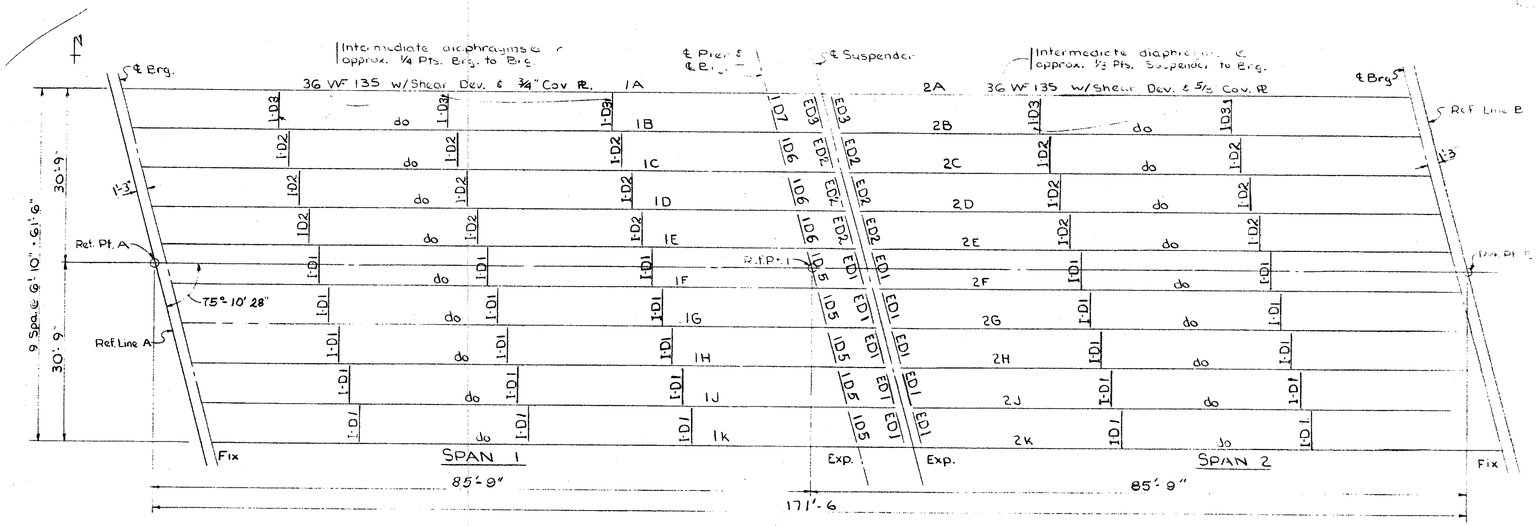
▨ DENOTES REMOVAL PORTIONS

▭ PROPOSED WORK

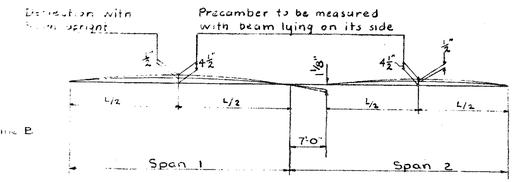
MDOT Michigan Department of Transportation

REMOVAL PORTIONS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	5 OF 22



ERECTION DIAGRAM



CAMBER DIAGRAM

MISCELLANEOUS QUANTITIES		
Item	Unit	Total
Structural Steel-Furnish & Fabric.	lbs.	295,500
Structural Steel-Erection	lbs.	295,500
Elastomeric Bearing Pads	Sq. Ft	20

NOTES:

Design: Michigan Department of State Highways Specifications for Design of Highway Bridges - 1958 edition and current AASHO Standard Specifications for Highway Bridges. (H 20 Loading).

Fabrication: Michigan Department of State Highways Standard Specifications for Road and Bridge Construction 1967 edition.

Shop connections shall be welded as shown on the plans.

Field connections shall be bolted with ¾" high-strength bolts, except as noted.

The beams are to be cambered as shown in the camber diagram. This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ±¼". Heating is to be used if necessary, to assure camber permanency within the above tolerance. The dead load deflection of the beams alone is calculated to be ½" in spans 1 & 2.

Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ¼" and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plate.

Magnetic particle inspection of welds is required and shall consist of 100% inspection of not less than one fabricated section selected at random for each ten sections or fabrications thereof.

Anchor Bolts (including nuts and washers) shall be galvanized in accordance with ASTM Designation A 153.

All steel material used for bearings, with exception of portion welded to beams, shall be galvanized in accordance with ASTM Designation A123. Galvanizing shall be applied after fabrication of bearing. Mill scale and foreign material shall be removed prior to galvanizing.

Bronze for washers shall be ASTM B100, Alloy No. 510 or No. 635.

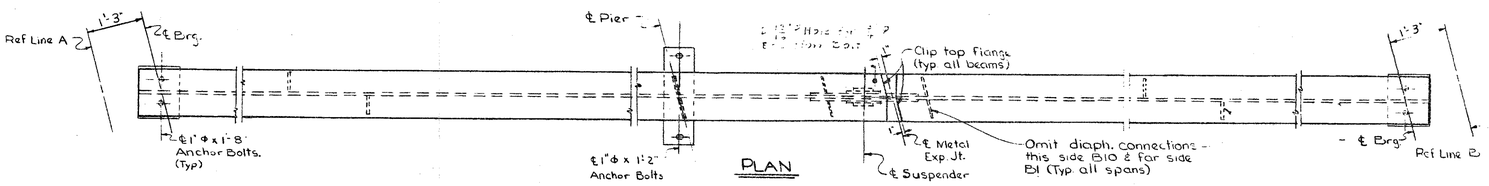
The quantity Structural Steel includes:

A588 Steel	295,321 #
Bronze	55 #
Lead	124 #
Total	295,500 #

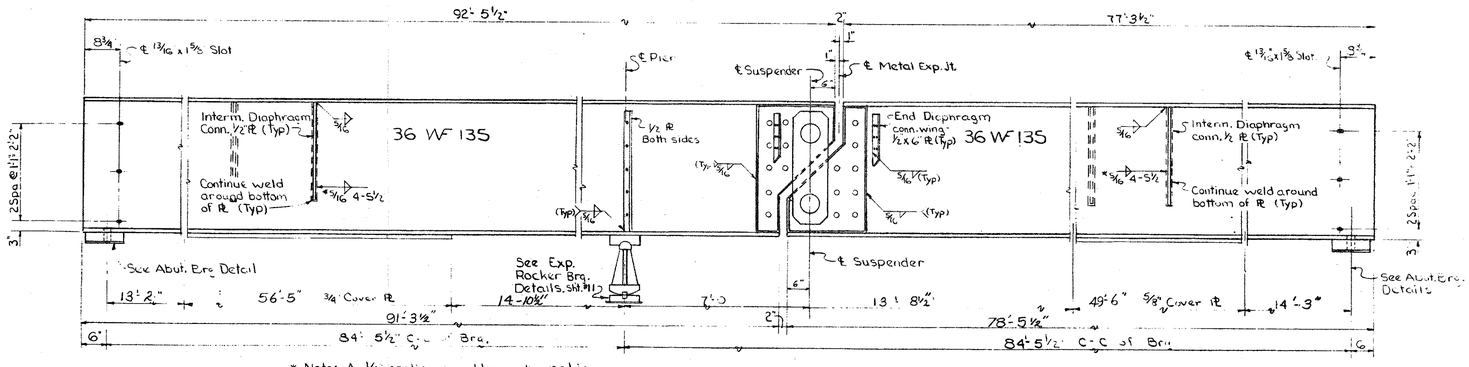
All steel shall be unpainted A.S.T.M. A588.

For Details see sheet No. 11

Work this sheet with sheet No. 11



PLAN



* Note: A ¼ continous weld may be used in all cases instead of the 5/16" intermittent weld at the fabricator's option.

ELEVATION

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD DESIGN	Fisher	4-4-69
DRAWN BY	R. MARSH	3/10/69
TRACED BY		
CHECKED BY	T. Taylor	3-26-69
SHEET 10 OF 20		

S30 of 63174 B

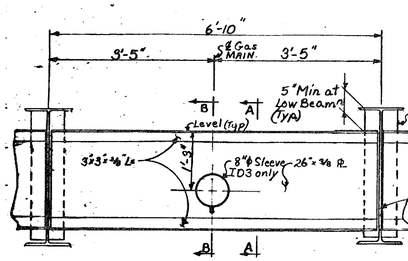
REVISIONS			
NO.	DESCRIPTION	DATE	BY

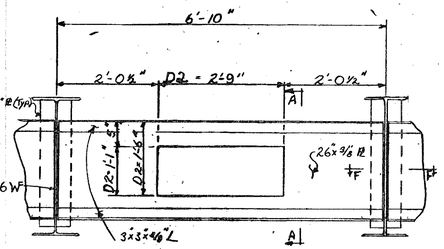
FOR INFORMATION ONLY

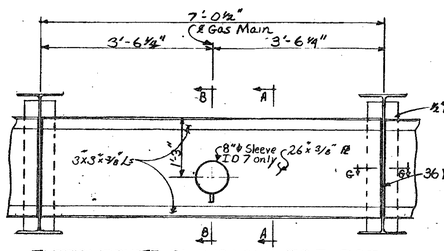
MDOT Michigan Department of Transportation

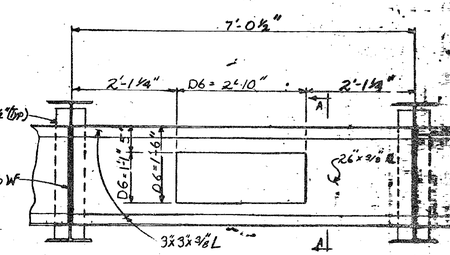
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	6 OF 22

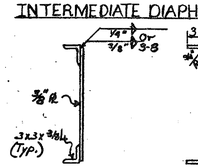
CORRECTED BY: DATE:
CHECKED BY: DATE: 01-12-99
DRAWN BY: under
FILE NAME: s30f3174.sn

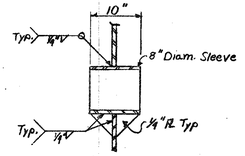


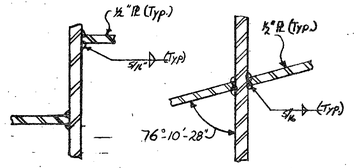


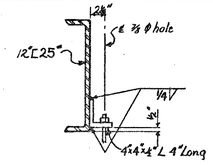


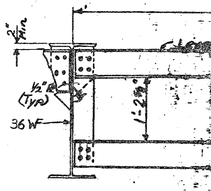


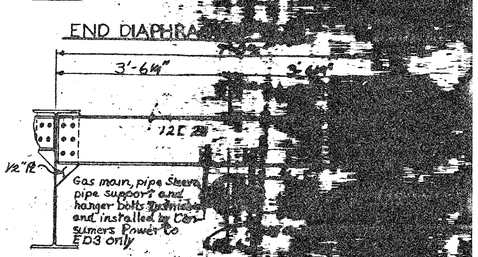


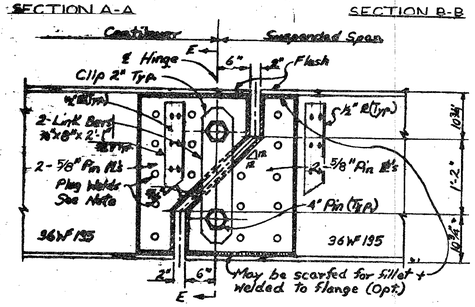


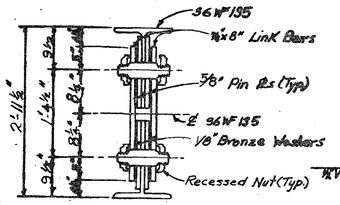


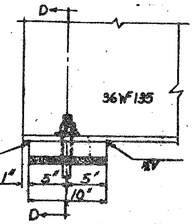


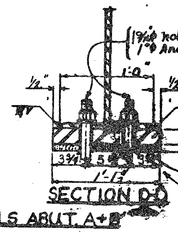


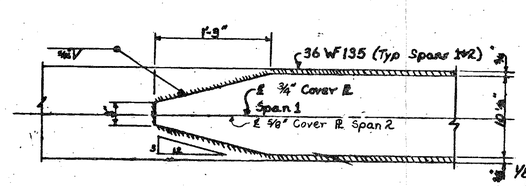












NO.	DESCRIPTION	DATE	BY

REVISIONS

SOLE PLATE THICKNESS TABLE			
Beam	Abut. A	Pier	Abut. B
A	1½"	3"	3½"
B	3¼"	4¾"	5"
C	2"	3¼"	3¼"
D	3½"	4¾"	4¼"
E	4½"	5¾"	5"
F	4¾"	5¾"	4¾"
G	4"	4¾"	3½"
H	2¾"	3½"	2¼"
J	4¼"	5"	3¼"
K	3"	3½"	1½"

Gas main, pipe Sleeve, pipe support and hanger bolts furnished and installed by Consumers Power Co ED3 only

Note:
Size and spacing of plug welds shall be according to the A.W.S. Current specifications.

SUSPENDER DETAILS

SECTION E-E

SECTION D-D

BEARING DETAILS ABUT. A + B

Note: Nuts to be drawn up finger tight, then backed off ⅛ turn. Threads of bolt to be burred off at face of nut with a pointed tool.

COVER PLATE DETAIL

SECTION THRU HANGER PIN

SECTION C-C

ANCHOR BOLT DETAIL

PINTLE DETAIL

DETAIL A

MASONRY PLATE

Work this sheet with sheet No. 10

MICHIGAN DEPARTMENT OF

STRUCTURAL - DET

REVISIONS

NO.	DESCRIPTION	DATE	BY

S30 of 63174 B

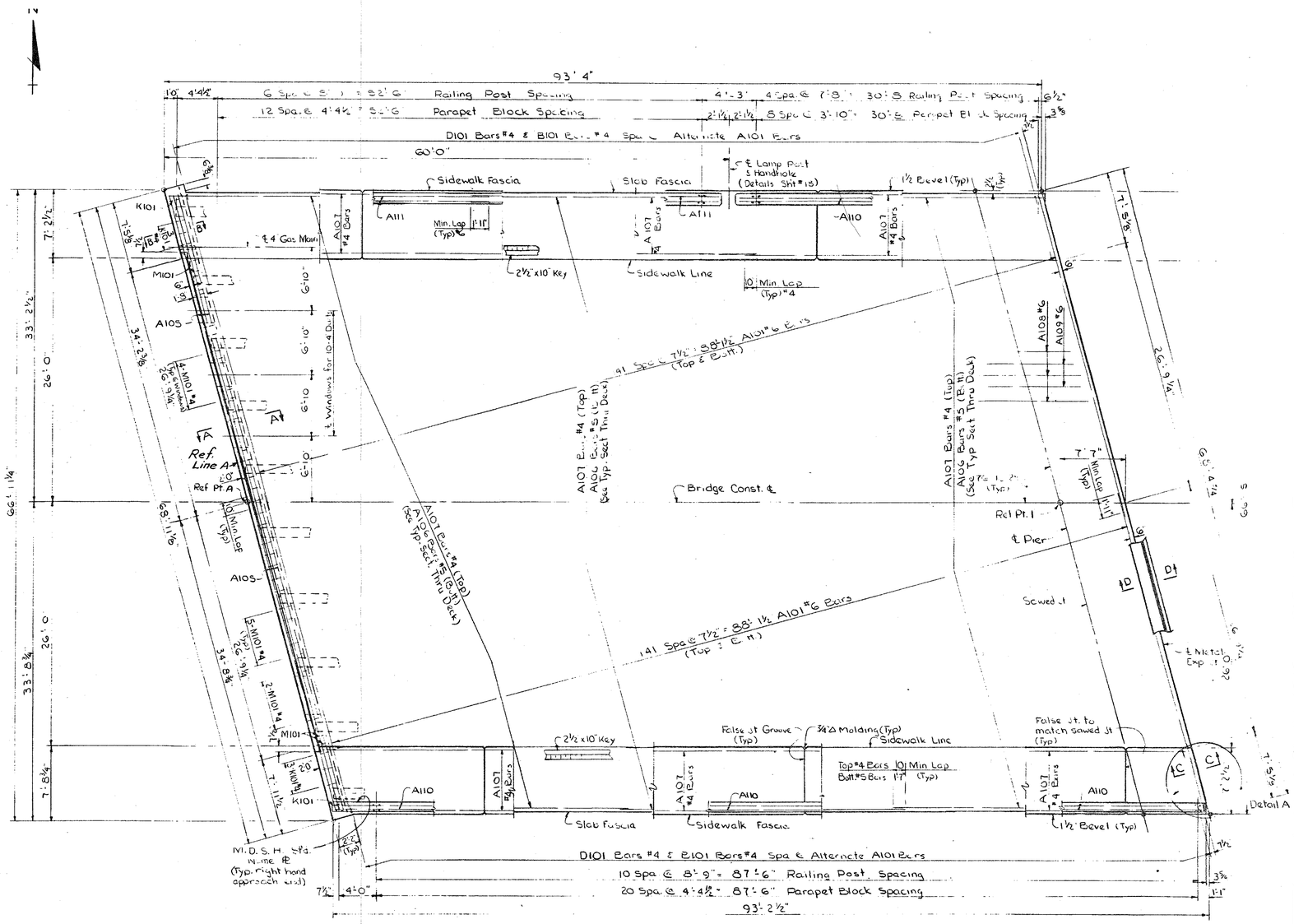
NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	7 OF 22

FILE NAME: s3073174.sn
DRAWN BY: inder
DATE: 01-12-99
CHECKED BY:
DATE:
CORRECTED BY:
DATE:



PLAN OF SLAB SPAN 1

For Details of Section	See Sheet
A-A	16
B-B	16
C-C	16
D-D	16
Detail A	16

NOTES:

J.W.P. denotes Joint Waterproofing.
H.P.R.A.T.F. denotes Hot-Poured Rubber Asphalt Type Filler. For details of bevels, moldings and Bridge Railing, see Standard Sheet R11 or R12.
Edge or groove denote edging or grooving with an approved tool.
Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by Section 5.01.05 of the Standard Specifications.
The District Utility Engineer is to be notified five days in advance of the time of installation of the ducts in the sidewalk.
The contractor is to provide a sawed joint ½" deep by ⅛" wide (min) in the top of slab over and parallel to the centerline of the pier. The joint is to be sawed before casting of sidewalks and is to be filled with Hot-Poured Rubber Asphalt Type Filler (Incidental).
Bridge Railing is to be either aluminum or Steel Tubular railing on concrete parapet. See Railing Standard R11 or R12.
Protective Treatment for Bridge Decks is to be applied to all superstructure concrete surfaces between fascia lines. (See Supplemental Specifications).
False joints in sidewalks shall be placed midway between concrete posts at approx. every forth panel.
Screeds affected by loads in other spans are to be set to the elevations shown before casting any concrete. Concrete in the suspended span is to be cast before the concrete in the anchor span.
For name plate mounting details see standard sheet R11 or R12. For location of name plate see this sheet.

work this sheet with sheets No. 15, 16 & 17

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REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Fisher	4-4-69
DRAWN BY	R.MARSH	3/13/69
TRACED BY		
CHECKED BY	T. Taylor	3-20-69
SHEET 14 OF 20		

S30 of 63174 B

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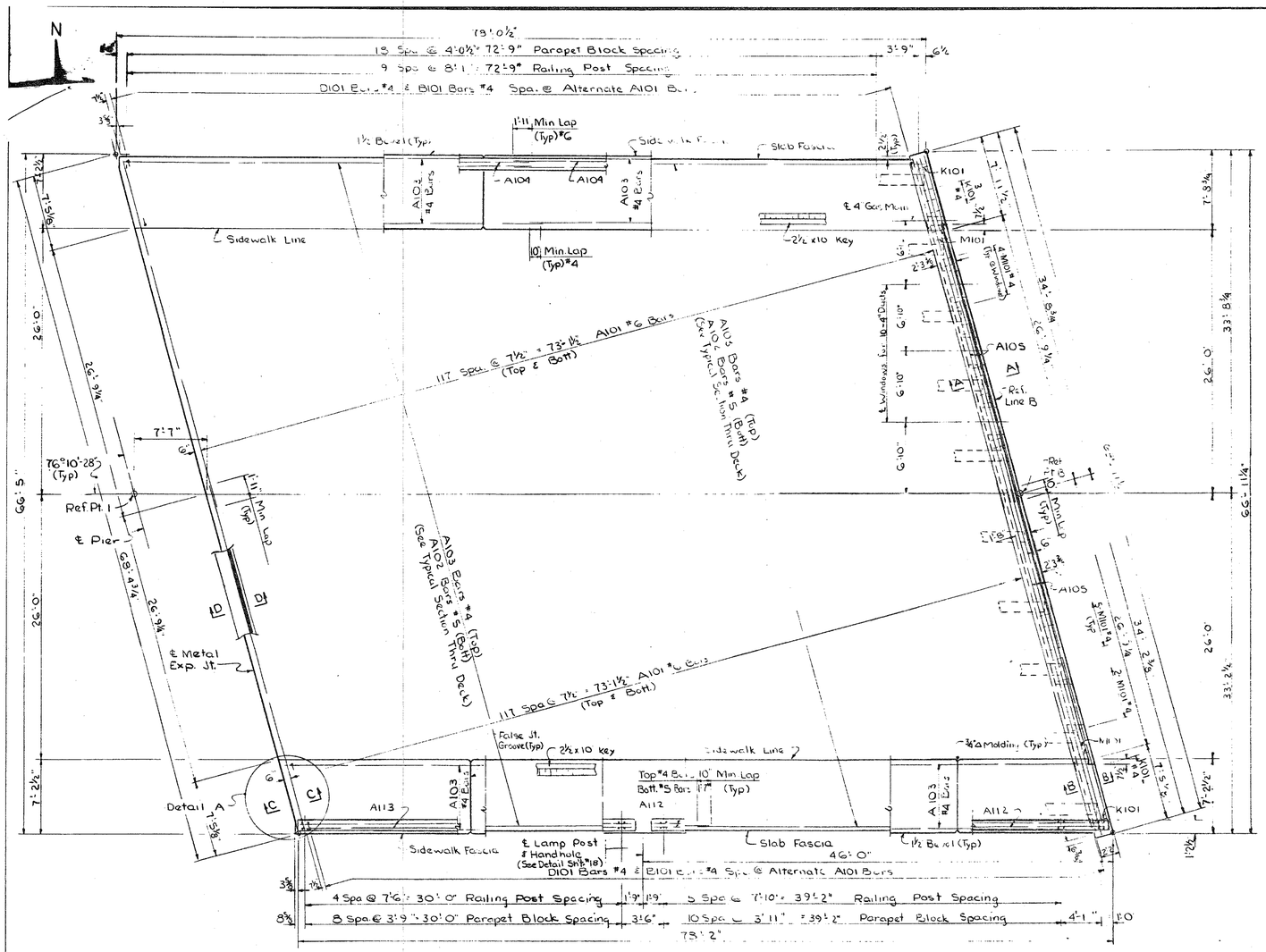
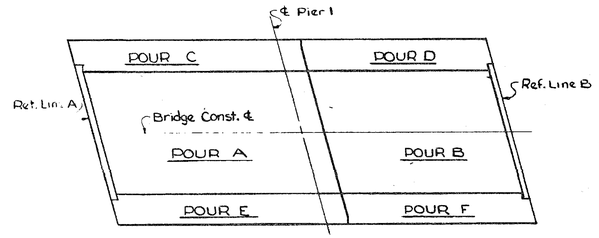
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	8 OF 22

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 01-12-99 | DRAWN BY: under | FILE NAME: s30f3174.sn



PLAN OF SLAB SPAN 2



POUR DIAGRAM

Alphabetical designation of pours is not to be construed as a pour sequence.

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Hot-Poured Rubber Asphalt Type Filler	Lin. Ft.	66
Water Reducing Retarding Admixture	Gals.	42
Bridge Railing Parapet Type	Lin. Ft.	342.1
Structural Tube 6 x 12" x 12"	Each	1510
Protective Treatment for Bridge Decks	Sq. Yd.	11,300
Fiber Conduit	Lin. Ft.	192

CONCRETE QUANTITIES		
	Pour	Grade A (GAA) Cu. Yds.
CURB SLAB	A	159.0
	B	134.2
	C	13.0
	D	12.6
	E	11.5
	F	14.3
Backwall - Abut. A		14.4
Backwall - Abut. B		14.1
Total		369.8 Cu. Yds.

For Details of Section	See Sheet
A-A	16
B-B	16
C-C	16
D-D	16
Detail A	16

Work this sheet with sheets No. 14, 16 & 17

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD BOSS	Fisher	6-4-65
DRAWN BY	R. MARSH	3/13/6
TRACED BY		
CHECKED BY	T. Taylor	4-4-6
SHEET	15 OF 20	

S30 of 63174 B

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FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	9 OF 22

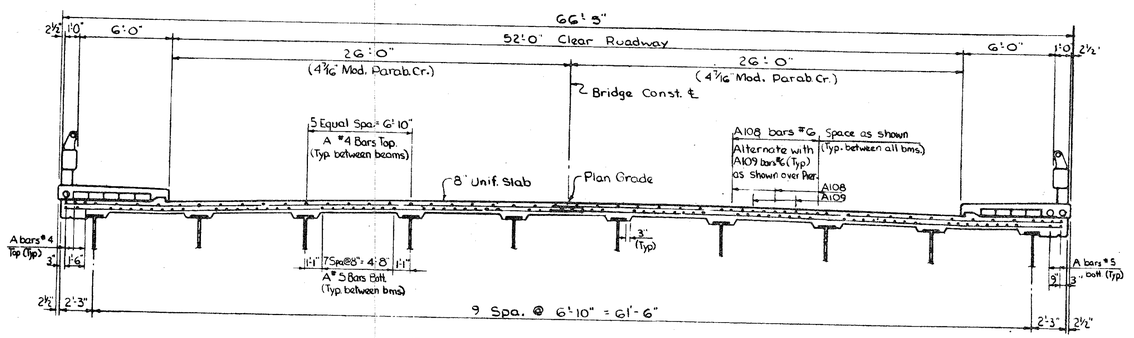
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DRAWN BY: under | CHECKED BY: | CORRECTED BY: | DATE: 01-12-99 | DATE:

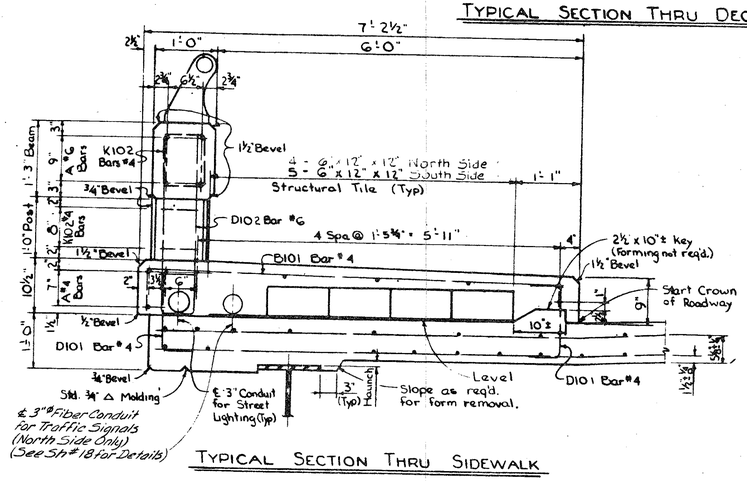
FILE NAME: s30173174.sn

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

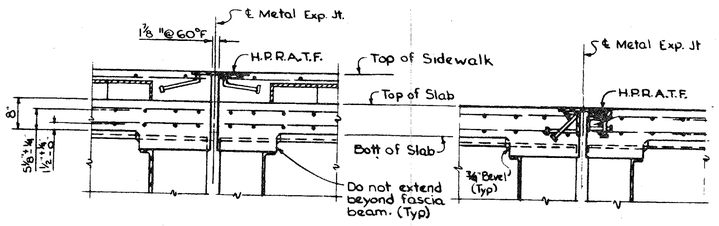
REVISIONS			
NO.	DESCRIPTION	DATE	BY



TYPICAL SECTION THRU DECK

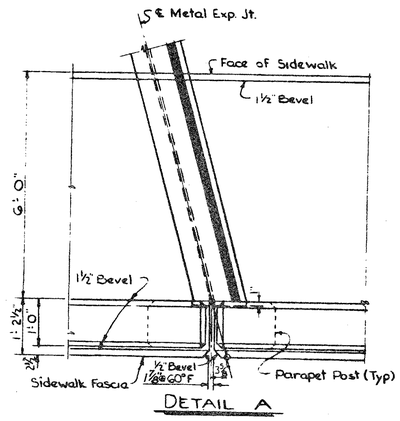


TYPICAL SECTION THRU SIDEWALK

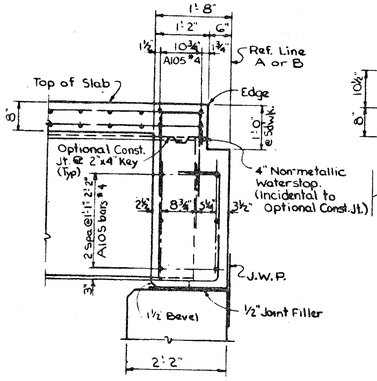


SECTION C-C

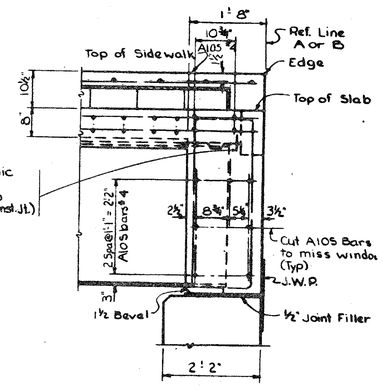
SECTION D-D



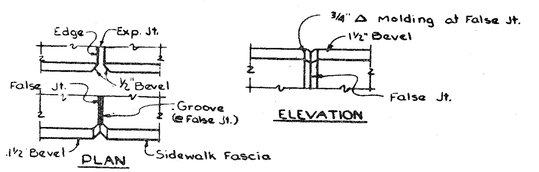
DETAIL A



SECTION A-A

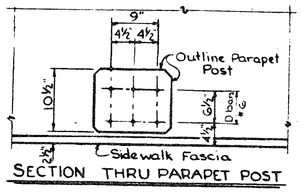


SECTION B-B



MOLDING DETAILS

For Location of Sections	See Sheet
A-A	14 & 15
B-B	14 & 15
C-C	14 & 15
D-D	14 & 15
Detail A	14 & 15



SECTION THRU PARAPET POST

Work this sheet with sheets No. 14, 15 & 17

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	Fisher	6-4-69
DRAWN BY	R.MARSH	1-29-99
TRACED BY		
CHECKED BY	Taylor	3-18-69
SHEET	16 OF 20	

S30 of 63174B

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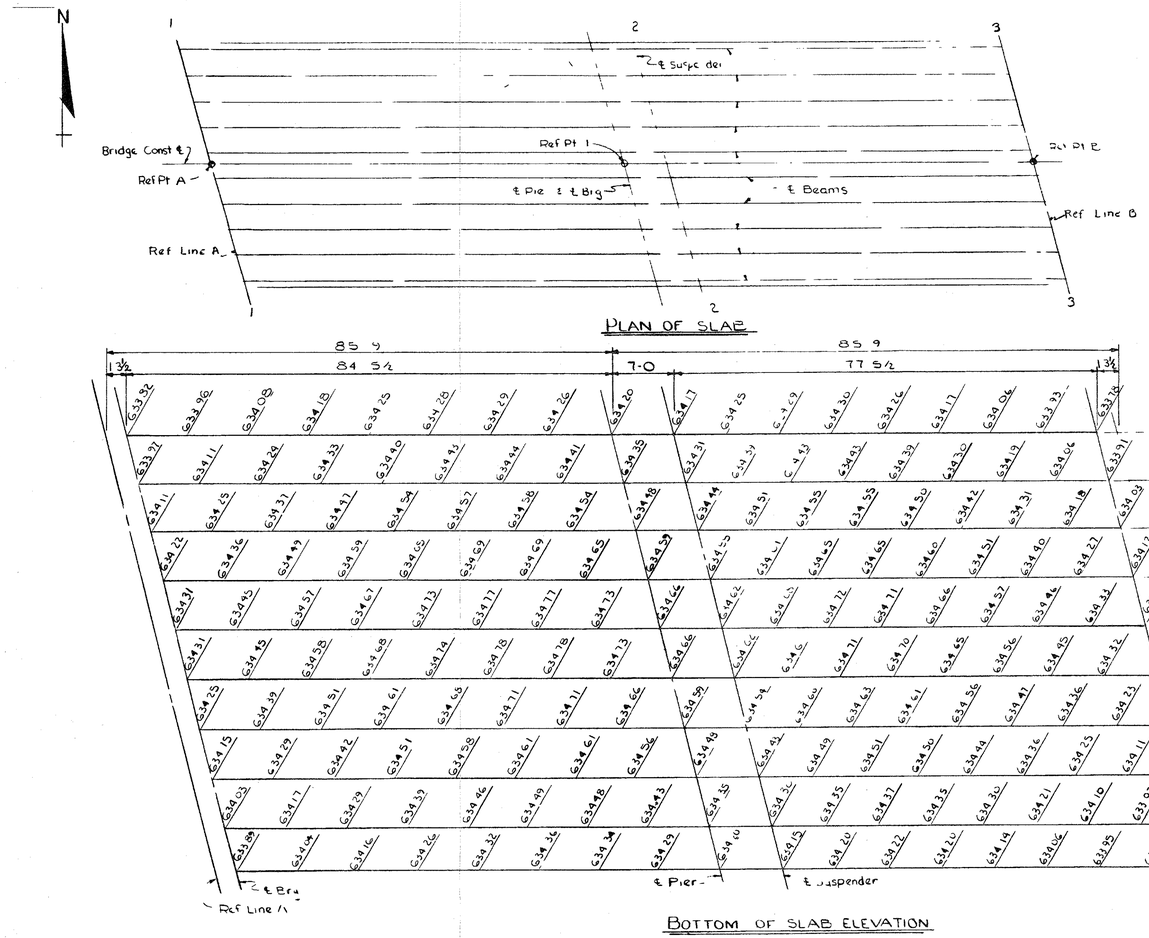
FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

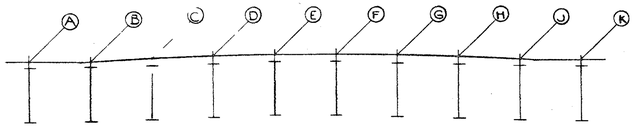
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	10 OF 22

CORRECTED BY: DATE:
DRAWN BY: under DATE: 01-12-99
CHECKED BY: DATE:
FILE NAME: s30173174.sn



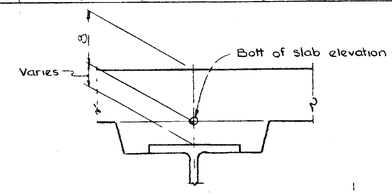
PLAN OF SLAB

BOTTOM OF SLAB ELEVATION



SCREED TEMPLATE

SCREED TEMPLATE ELEVATION										
Line	A	B	C	D	E	F	G	H	J	K
1-1	634.58	634.63	634.77	634.88	634.97	634.97	634.91	634.81	634.69	634.65
2-2	634.94	634.98	635.11	635.21	635.29	635.28	635.21	635.10	634.96	634.92
3-3	634.54	634.57	634.69	634.78	634.84	634.83	634.74	634.62	634.48	634.42

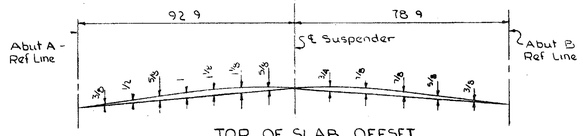


TYP SECTION AT EACH BEAM

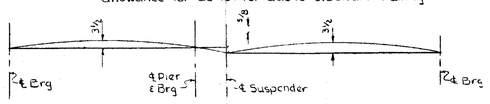
NOTES

Screed elevations are based on the condition that no slab concrete has been cast and that formwork, steel reinforcement and shear developers are in place

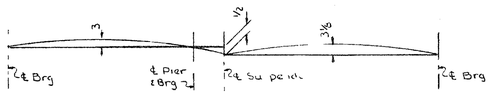
Bottom of slab elevations are based on the condition that all structural steel has been erected, but no other loads applied These elevations include allowances for deflections due to forms, steel reinforcement, shear developers in place, deck concrete and railing



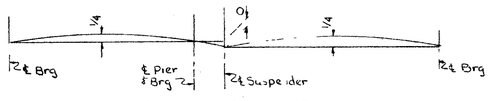
TOP OF SLAB OFFSET
includes vertical curve ordinate and allowance for deflection due to sidewalk & railing



CAMBER ORDINATES
Structural steel erected
(No other loads applied)



CAMBER ORDINATE
Form shear developers & steel reinforcement in place (All spans complete)



CAMBER ORDINATE
(Deck concrete cast utilities not placed)
(All spans complete)

Work this sheet with sheets No 14, 15 & 16

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MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

REVISIONS			
NO	DESCRIPTION	DATE	BY

DESIGN BASIS	Fisher	6 4 69
DRAWN BY	R MARSH	3/21/69
TRACED BY		
CHECKED BY	T Taylor	3/28/69
SHEET 17 OF 20		

S30 of 63174 B

REVISIONS			
NO.	DESCRIPTION	DATE	BY

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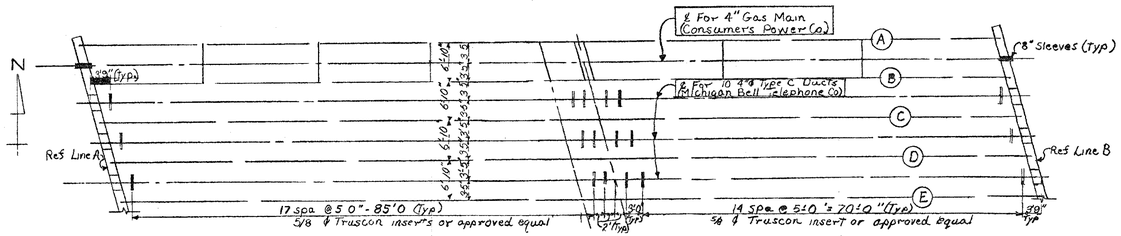
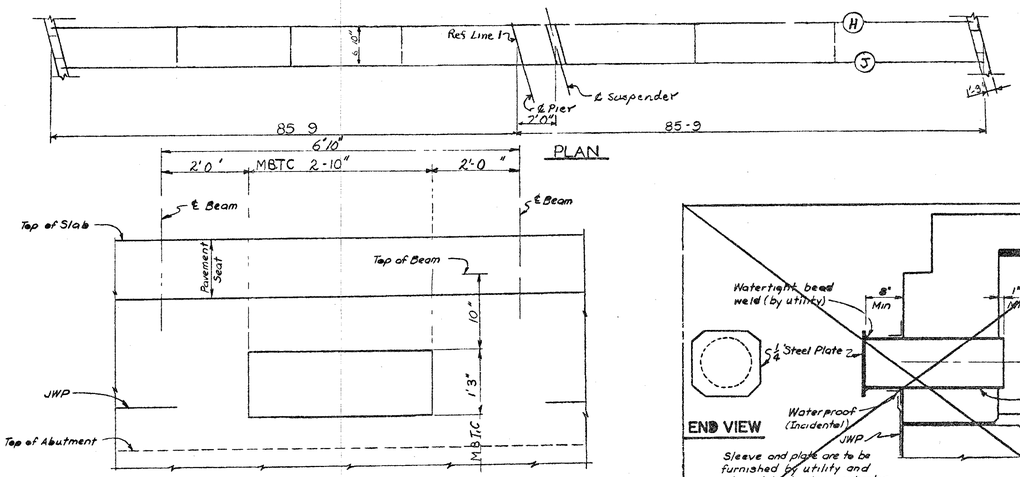
MDOT Michigan Department of Transportation

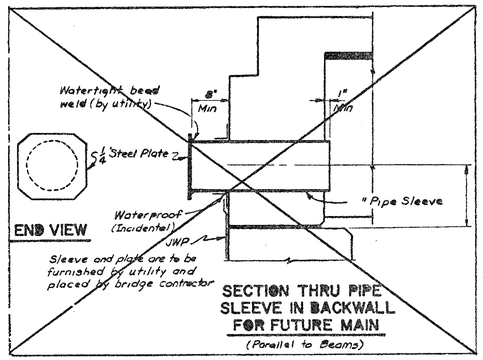
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	11 OF 22

FILE NAME: s3063174.sn
DRAWN BY: inder
CORRECTED BY:
CHECKED BY:
DATE:
DATE: 01-12-99
DATE:

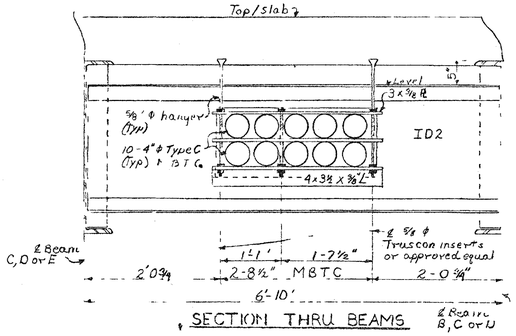




ELEVATION OF BACKWALL WINDOW
(℄ 90° to Beam Lines)



SECTION THRU PIPE SLEEVE IN BACKWALL FOR FUTURE MAIN
(Parallel to Beams)



SECTION THRU BEAMS

MISCELLANEOUS QUANTITIES	
UTILITY	ITEM
Mich Bell Tel Co	5/8" ϕ Core Inserts
~~Consumer Power Co~~	8" ϕ Pipe Sleeve - Placed

NOTES.

Furnishing and installing telephone conduits including all incidental work necessary for installation, are not a part of this contract. Installation of ducts shall be in accordance with the manufacturer's and telephone company's recommendations.

Installation of inserts, pipe sleeves and forming of windows through backwalls and diaphragms is included in this contract. All other work shown is not a part of this contract.

Furnishing and installing Gas Main including all incidental work necessary for installation are not a part of this contract.

Adjust the spacing of concrete inserts to clear intermediate and end diaphragms

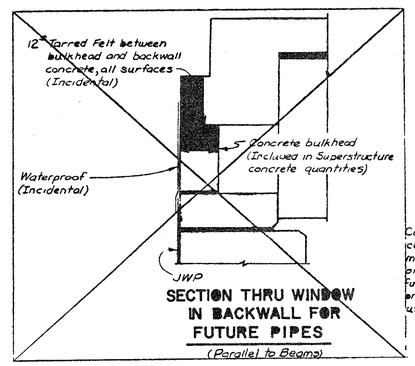
The item JWP (Joint Waterproofing) is a pay item and is included as such elsewhere in these plans

Waterproof denotes waterproofing with four moppings of asphaltic roofing cement containing not more than 25% by weight of short fiber asbestos

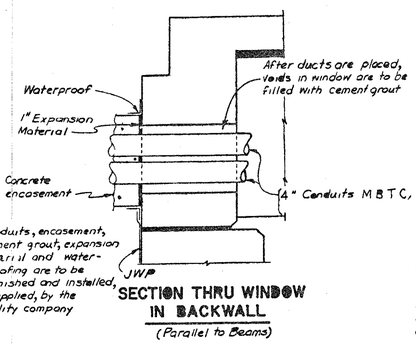
The contractor shall advise the District Utility Engineer as soon as the structure is ready for installation of conduits or main in bridge

Items shown to be galvanized are to be galvanized steel (ASTM A 153)

Work this sheet with sheets No 4 11

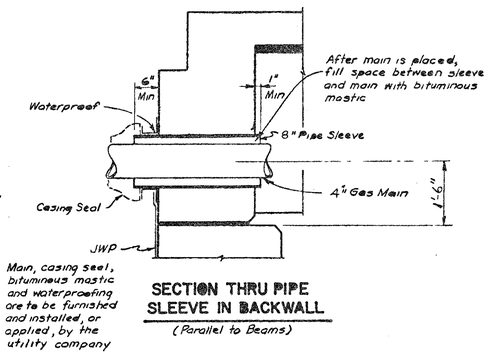


SECTION THRU WINDOW IN BACKWALL FOR FUTURE PIPES
(Parallel to Beams)



Conduits, encasement, cement grout, expansion material and waterproofing are to be furnished and installed, or applied, by the utility company

SECTION THRU WINDOW IN BACKWALL
(Parallel to Beams)



Main, casing seal, bituminous mastic and waterproofing are to be furnished and installed, or applied, by the utility company

SECTION THRU PIPE SLEEVE IN BACKWALL
(Parallel to Beams)

MICHIGAN STATE HIGHWAY DEPARTMENT

UTILITY DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

TRACED BY: Fisher/6 4 '99
CHECKED BY: T Hirk 2-25-63
SHEET: 19 OF 2

S30 of 63174B

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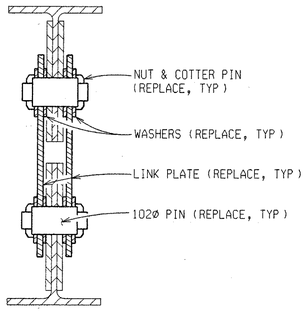
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 01-12-99 | DRAWN BY: inder | FILE NAME: s30f3174.sn

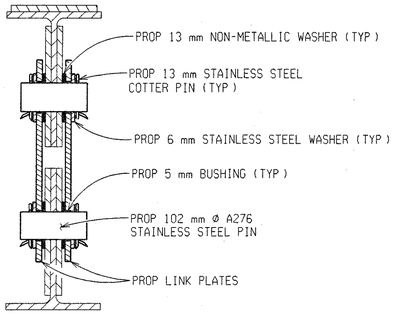
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

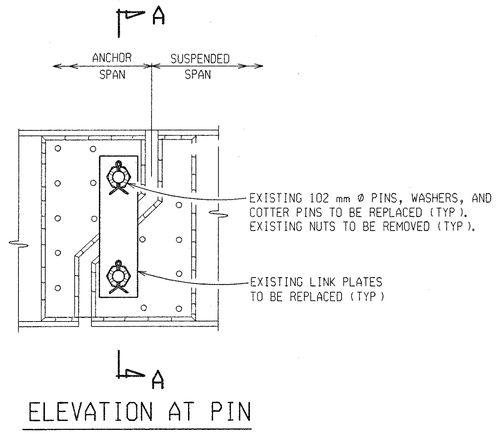
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	12 OF 22



SECTION A-A
(EXISTING)



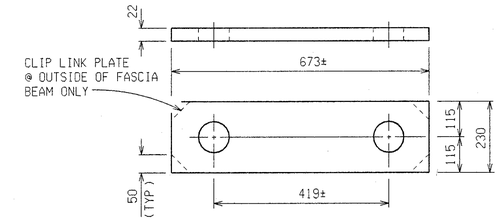
SECTION A-A
(PROPOSED)



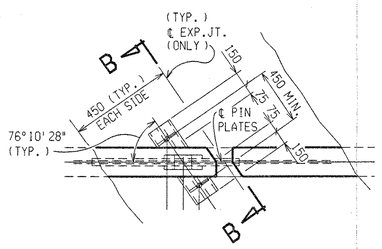
ELEVATION AT PIN

6 mm STAINLESS STEEL WASHER
(40 REQ'D.)

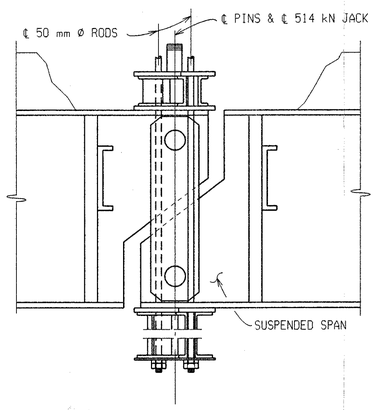
13 mm NON-METALLIC WASHER
(INCIDENTAL TO STRUCTURAL STEEL)
(40 REQ'D.)



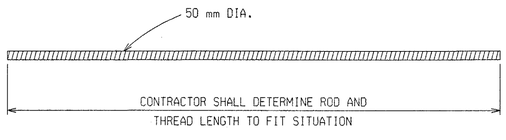
LINK PLATE
(20 REQ'D.)



PLAN OF TEMPORARY SUPPORT

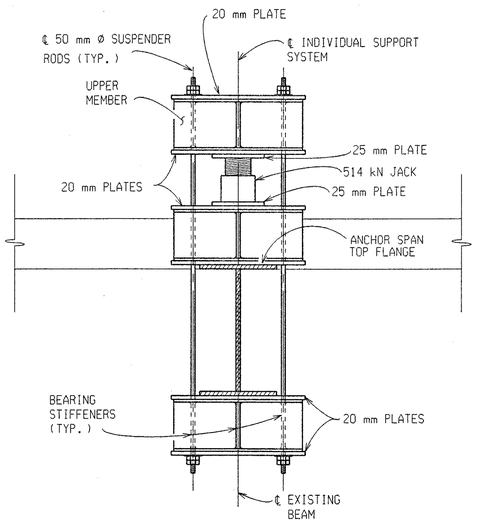


TEMPORARY SUPPORT

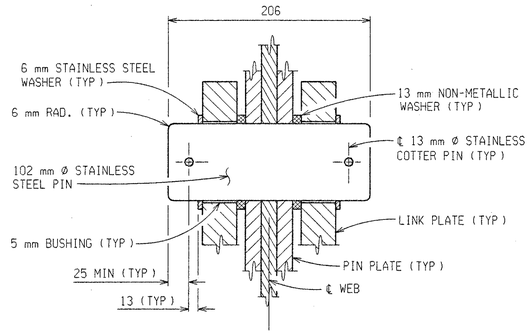


SUSPENDER ROD DETAIL

4 REQUIRED PER ASSEMBLY W/7 HEAVY HEX NUTS
& 4 HARDENED WASHER PER ROD



DECK SECTION B-B
(TYPICAL ALL BEAMS)



PROPOSED
PIN DETAIL
(20 REQ'D.)

MISCELLANEOUS QUANTITIES

10 ea	Support, Suspension, Temp
40 ea	Bushing
610 kg	Structural Steel, Furn and Fab, Pin and Hanger
10 ea	Hanger Assembly, Rem and Erect
10 ea	Hanger Assembly, Field Measurement
1 LS	Field Repr of Damaged Coating (S30)
1 LS	Steel Structure, Cleaning, Type 4 (S30)
1 LS	Steel Structure, Coating, Type 4 (S30)
16 m	Beam Plate, Seal Perimeter
*208 m	Protective Shield, Utility Pipe

* PAY ITEM IS FOR PROTECTIVE SHIELD OF THE AMERITECH DUCTS AND THE CONSUMER ENERGY GAS MAIN.

NOTES:

THE AREA BEHIND AND AROUND THE HANGER ASSEMBLY SHALL BE PAINTED PRIOR TO INSTALLING THE NEW LINK PLATES AND PINS. PROPOSED LINK PLATES SHALL BE SHOP PAINTED.

THE PROTECTION OF WORK AND ENVIRONMENT DURING BLAST CLEANING OF WEBS BEHIND AND AROUND HANGER ASSEMBLIES SHALL BE ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. (INCLUDED IN THE BID ITEM "HANGER ASSEMBLY, REMOVE AND ERECT".)

THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS OF THE EXISTING HANGER ASSEMBLIES INDICATED ON THE PLANS PRIOR TO THE PREPARATION OF LINK PLATE AND PIN SHOP DRAWINGS.

WELDING ON EXISTING BEAMS WILL NOT BE PERMITTED.

THE CONTRACTOR WILL BE FURNISHED WITH PLANS OF THE EXISTING STRUCTURE IF REQUESTED.

ALTERNATE DESIGNS OF THE TEMPORARY SUPPORT SHALL BE BASED ON LOADS AS FOLLOWS:

514 kN VERTICAL GIRDER LOAD.

THIS BRIDGE IS COATED WITH LEAD BASED PAINT.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE COLOR FOR THE URETHANE PROTECTIVE COAT SHALL MATCH COLOR NUMBER 16440 (LIGHT GRAY) OF FEDERAL STANDARD NUMBER 595A.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE OF THE MAINTENANCE DIVISION IN LANSING.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE PAINTED IS 1600 SQUARE METERS.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BEARING PLATES TO CONCRETE CONTACT SURFACES OVER PIER 2 AFTER CUTTING AWAY ANY PROTRUDING PORTION OF LEAD PLATE.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES. (INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4 (S30)".)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

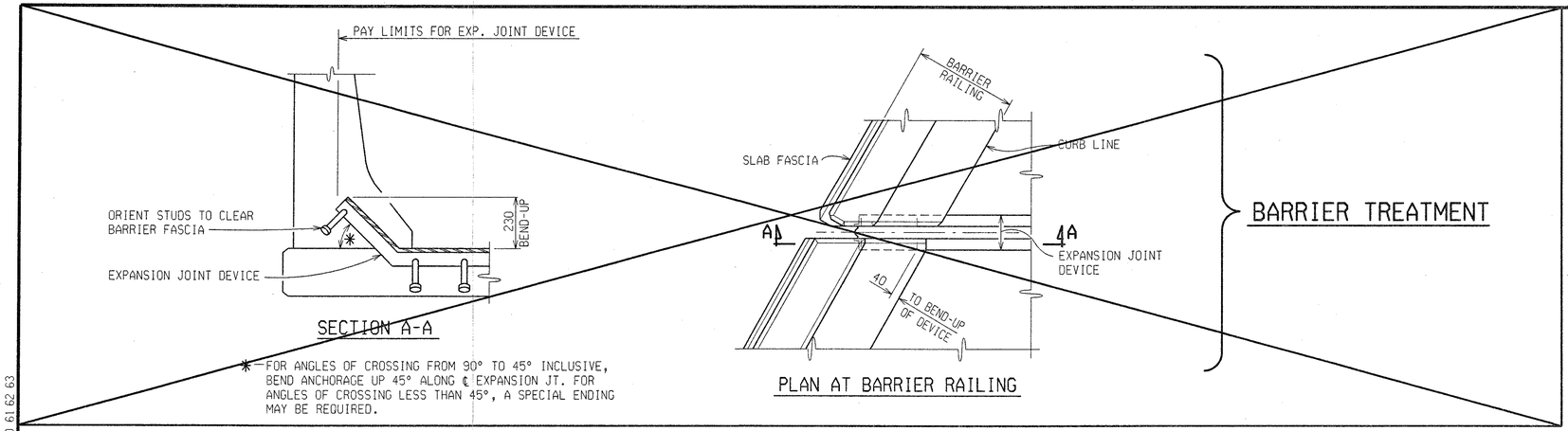
DATE: 9-21-99
CORRECTED BY: CASLER
DATE:
DATE: 4-30-99
CHECKED BY:
DRAWN BY: CASLER
FILE NAME: s30631741.pr

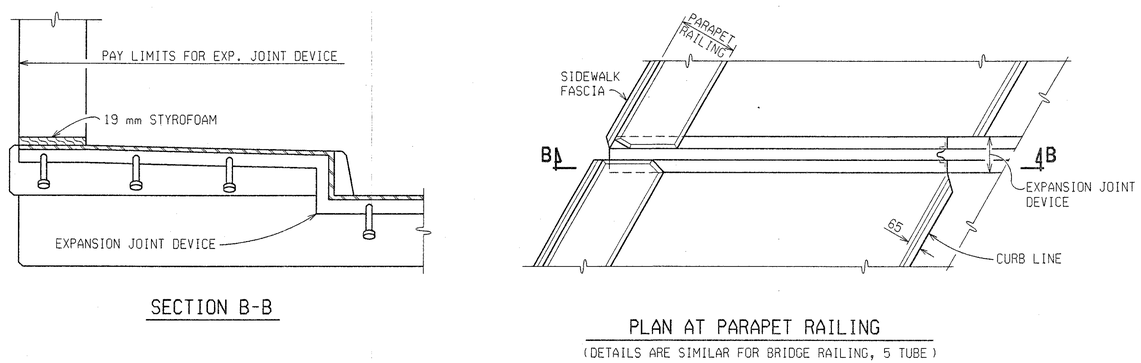
MDOT Michigan Department of Transportation

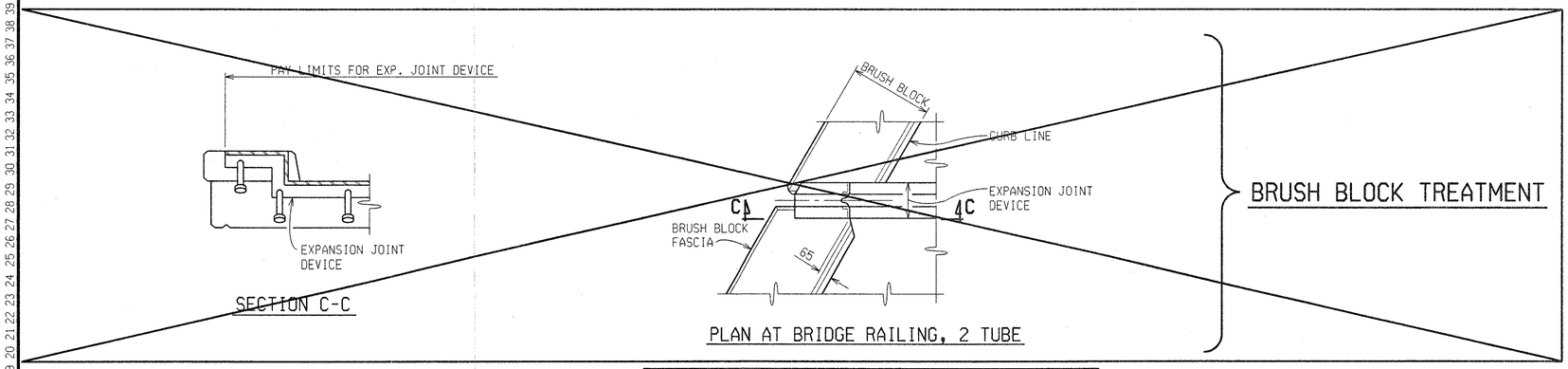
SUSPENDER REPLACEMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	13 OF 22

CONTROL SECTION S30 OF 63174 | JOB NO. 48404A | SH. NO. 14







STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S30	80	PIER 1	51 mm	21.2 m

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	22

DATE: | DRAWN BY: CASLER | DATE: 07-16-96 CORRECTED BY: | DATE: 5-11-99 CHECKED BY: VZ/SPB | FILE NAME: s30631174.ej

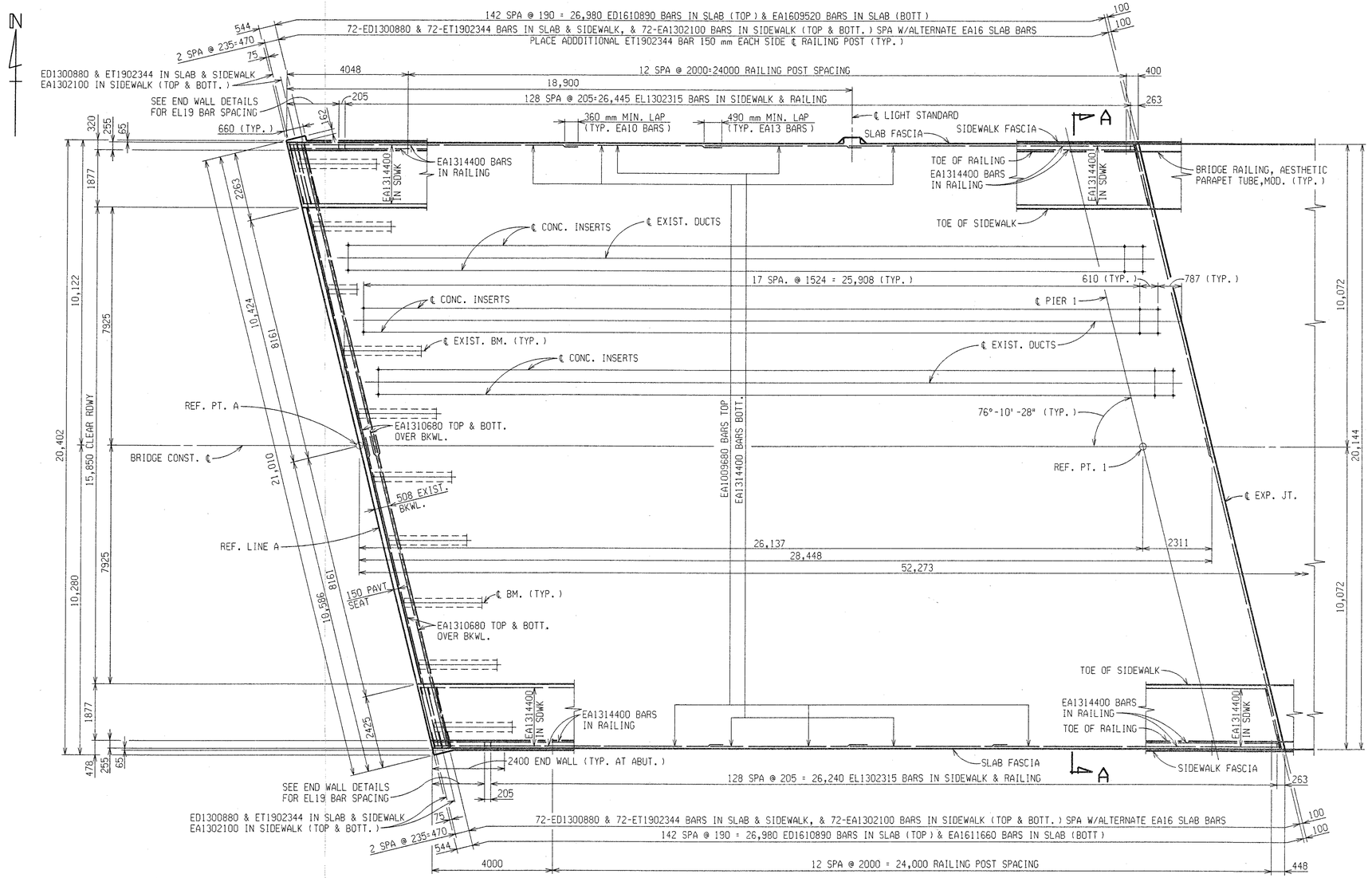
MICHIGAN DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	14 OF 22

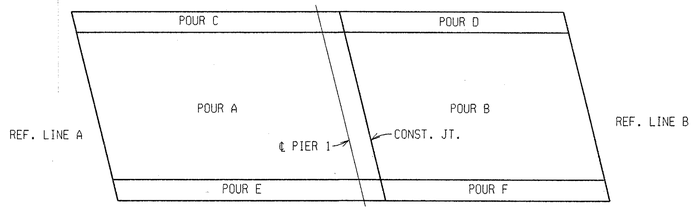
EJ3T (11-17-97)

CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 15



PLAN-SPAN 1

ADJUST REINFORCEMENT TO PERMIT PLACEMENT OF RAILING & FENCE POST ANCHORAGES & LIGHT STANDARDS.



POUR DIAGRAM

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SUPERSTRUCTURE CONCRETE NIGHT CASTING QUANTITIES

POUR	CUBIC METERS
A	147.5
B	118.5
TOTAL CONC:	266 CUBIC METERS

SUPERSTRUCTURE CONCRETE QUANTITIES

POUR	CUBIC METERS
C	13.7
D	11.3
E	13.7
F	11.3
TOTAL CONC:	50 CUBIC METERS

MISCELLANEOUS QUANTITIES

105 m	Bridge Railing, Aesthetic Parapet Tube, Modified
30 m2	Joint Waterproofing
152 m2	Top Flanges and Beam Ends, Clean and Prime
50 m3	Superstructure Conc
1 LS	Superstructure Conc, Form, Finish, and Cure (S30)
266 m3	Superstructure Conc, Night Casting
1 LS	Superstructure Conc, Form, Finish, and Cure, Night Casting (S30)
1 LS	Shear Developers (S30)
1 LS	Bridge Lighting, Furnish and Remove (S30)
266 m3	Bridge Lighting, Operate and Maintain
157 m	Conduit, 75 mm
270 m2	Conc Surface Sealer
210 ea	Conc Insert, Placed

NOTES:

N.S. DENOTES NEAR SIDE.

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL AND NAME PLATE MOUNTING DETAILS, SEE STANDARD PLAN B-25-SERIES. FOR DETAILS OF NAME PLATES, MOLDINGS AND BEVELS, SEE STANDARD PLAN B-103-SERIES.

BRIDGE RAILING, AESTHETIC PARAPET TUBE, MODIFIED SHALL BE IN ACCORDANCE WITH THE STANDARD PLAN B-25 EXCEPT FOR THE ADDITION OF FRACTURE FIN RUSTIFICATION ON THE BACK SIDE OF THE RAILING AS DETAILED ON THE PLANS.

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET .

FOR DETAILS OF LIGHT STANDARD ANCHOR BOLT ASSEMBLIES, SEE STANDARD PLAN B-103-SERIES.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

ALPHABETICAL DESIGNATION OF DECK POURS IS NOT TO BE CONSTRUED AS A POUR SEQUENCE.

NO PORTION OF THE DECK FORMWORK SHALL ENCROACH ON THE EXISTING UNDERCLEARANCE.

THE UTILITY COMPANY SHALL BE NOTIFIED ONE WEEK IN ADVANCE OF THE TIME OF INSTALLATION OF THE DUCTS IN THE SIDEWALK.

WHERE CAST-IN-ANCHORAGE IS USED FOR EXPANSION JOINT DEVICES, IT IS RECOMMENDED THAT THE PLACING OF DECK CONCRETE PROGRESS TOWARD THE JOINT SO THAT THE EFFECTS OF DEAD LOAD DEFLECTION WILL OCCUR BEFORE CONCRETE IS PLACED AT THE ANCHORAGE.

THE LIGHT STANDARD ANCHOR BOLT ASSEMBLIES ARE INCLUDED IN THE PAYMENT FOR "BRIDGE RAILING, AESTHETIC PARAPET TUBE, MODIFIED".

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03 J OF THE STANDARD SPECIFICATIONS.

METAL STAY IN PLACE FORMS ARE OPTIONAL.

IF STAY IN PLACE METAL FORMS ARE TO BE USED, THE CONTRACTOR MAY OMIT THE STYROFOAM FROM THE CORRUGATIONS AND FILL THE FORMS FULL DEPTH. THE EXTRA CONCRETE REQUIRED TO FILL THE CORRUGATIONS WILL NOT BE PAID FOR.

ALL CONCRETE SURFACES OF THE BRIDGE RAILING, THE DECK FASCIAS, AND THE OUTSIDE BOTTOM OF DECK TO FASCIA BEAMS SHALL BE COATED WITH CONCRETE SURFACE SEALER (SEE SPECIAL PROVISION.

CONCRETE INSERTS SHALL BE FURNISHED BY AMERITECH AND INSTALLED BY THE CONTRACTOR. ALL MATERIAL NECESSARY FOR REINSTALLATION OF THE DUCTS SHALL BE PROVIDED BY THE UTILITY COMPANY.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE INSERTS PRIOR TO INSTALLING THE INSERTS IN THE DECK (SEE SHEET * 12 FOR INFORMATION).

DATE: CORRECTED BY:

DATE: 9-3-99 CHECKED BY:

DRAWN BY: CASLER

FILE NAME: s3063174.dk

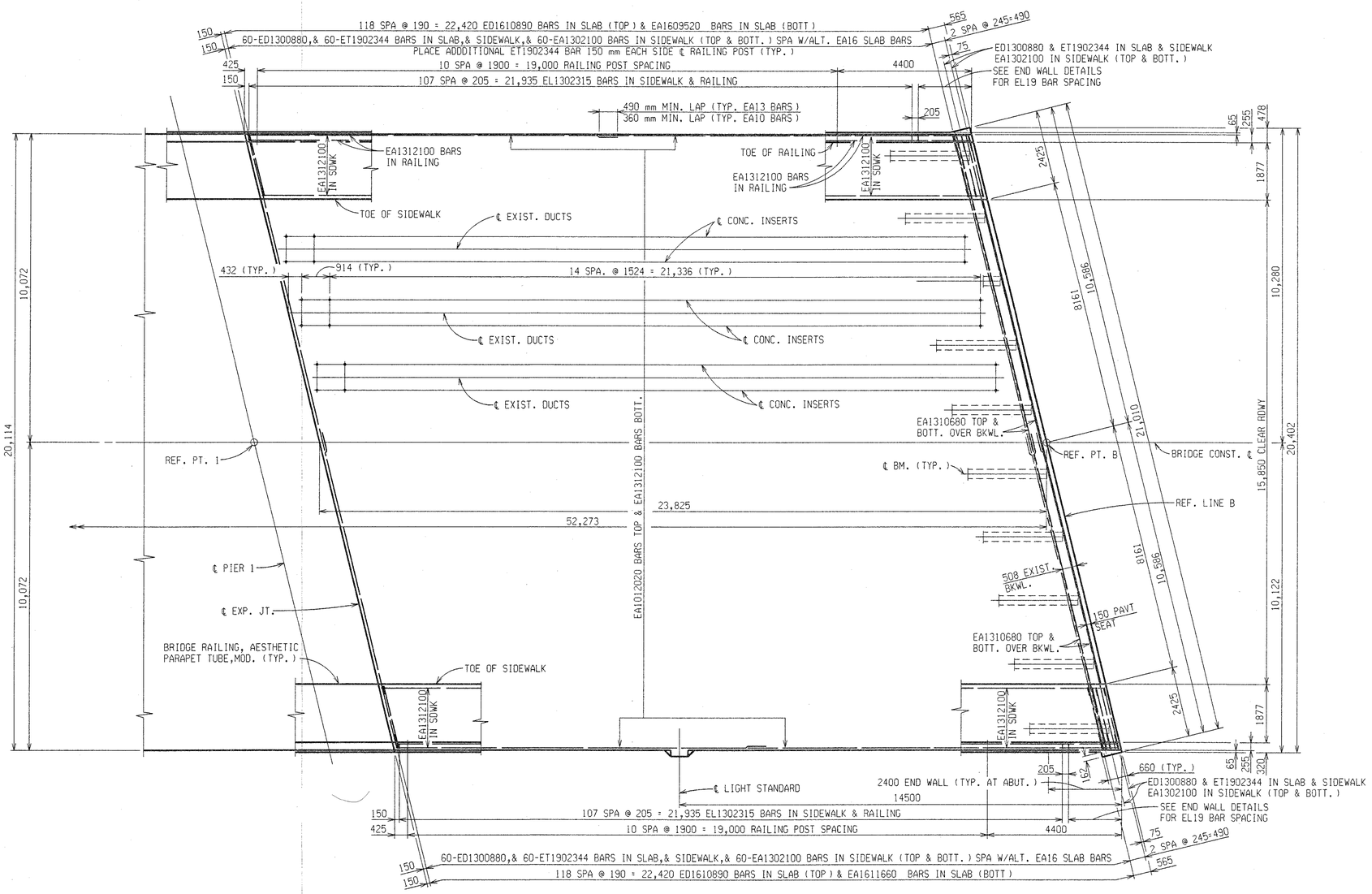
MDOT Michigan Department of Transportation

SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	15 OF 22

CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 16

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN-SPAN 2

ADJUST REINFORCEMENT TO PERMIT PLACEMENT OF RAILING & FENCE POST ANCHORAGES & LIGHT STANDARDS.

DATE: DATE: CORRECTED BY:
DRAWN BY: CASLER DATE: CHECKED BY:
FILE NAME: s30G3174.dk

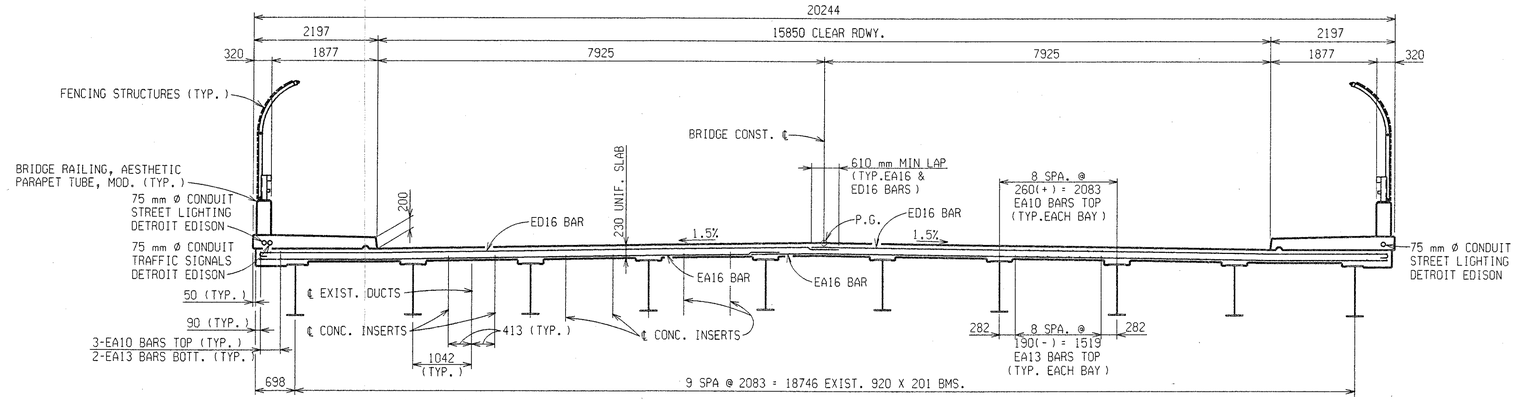
MDOT Michigan Department of Transportation

SUPERSTRUCTURE DETAILS

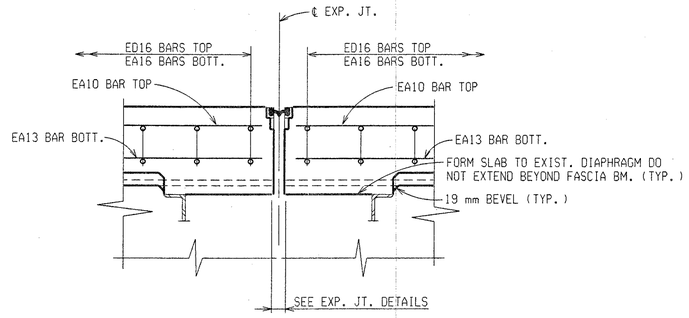
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	16 OF 22

CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 17

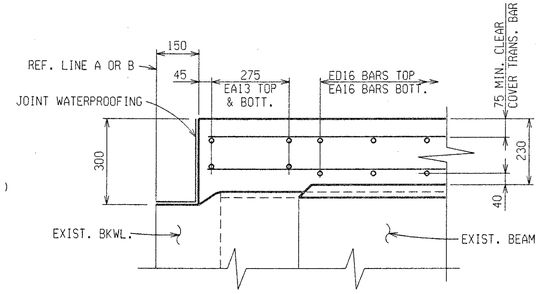
REVISIONS			
NO.	DESCRIPTION	DATE	BY



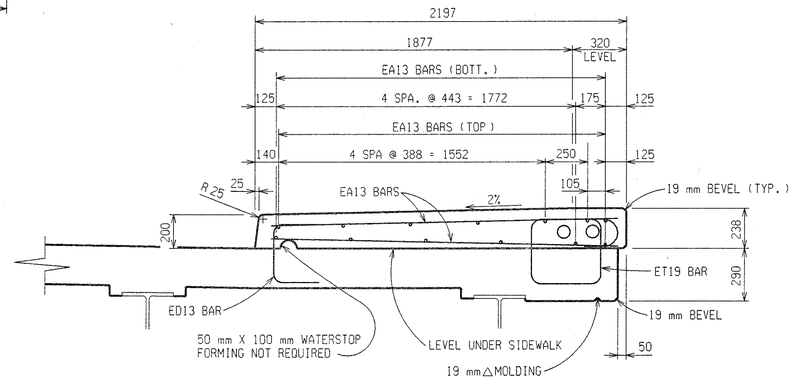
SECTION A-A



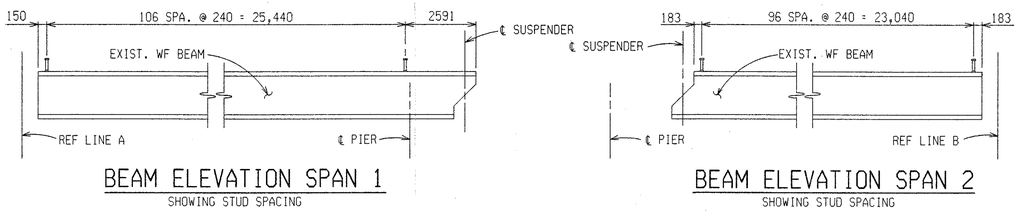
SECTION THRU EXPANSION JOINT



SECTION THRU BACKWALL

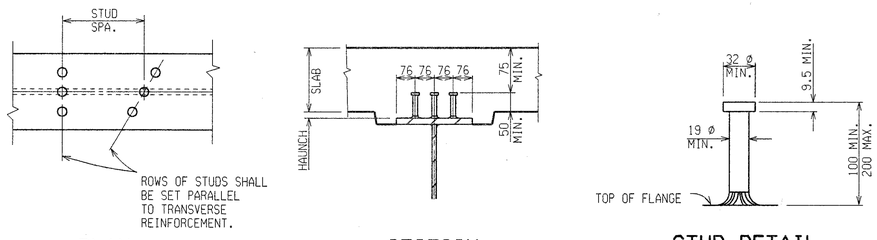


SECTION THRU SIDEWALK



BEAM ELEVATION SPAN 1
SHOWING STUD SPACING

BEAM ELEVATION SPAN 2
SHOWING STUD SPACING



PLAN

SECTION

STUD DETAIL

STUD SHEAR DEVELOPER DETAILS

SUPERSTRUCTURE DETAILS

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	17 OF 22

DATE: CORRECTED BY:

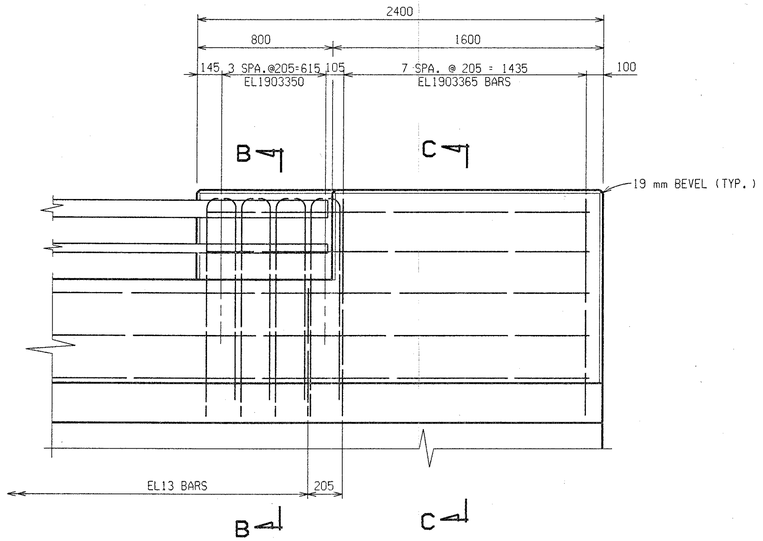
DATE: 9-3-99 CHECKED BY:

DRAWN BY: CASLER

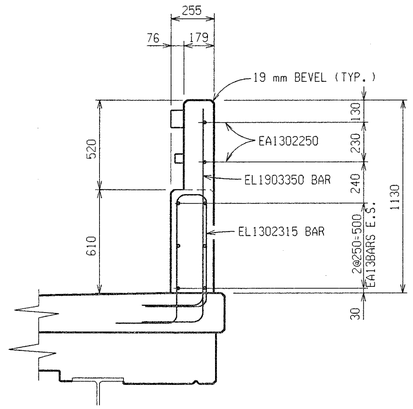
FILE NAME: s30063174.dk

CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 18

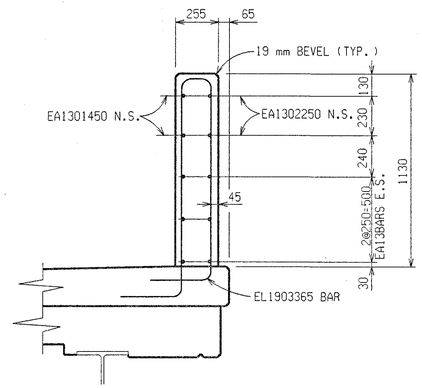
REVISIONS			
NO.	DESCRIPTION	DATE	BY



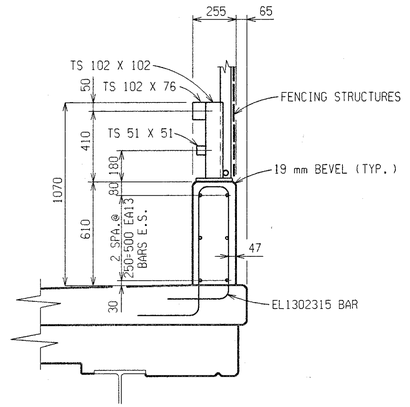
END WALL ELEVATION



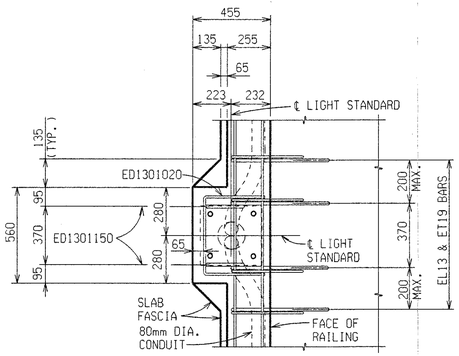
SECTION B-B



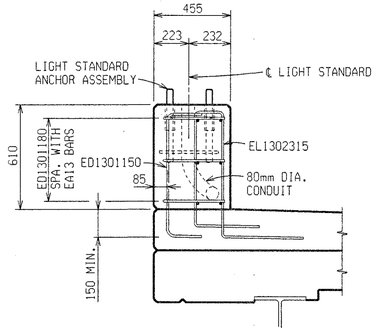
SECTION C-C



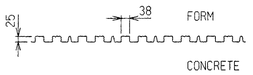
SECTION THRU AESTHETIC RAILING



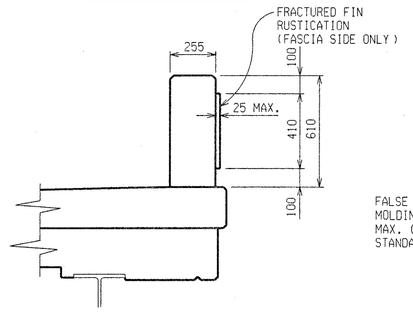
PLAN OF RAILING AT LIGHT STANDARD



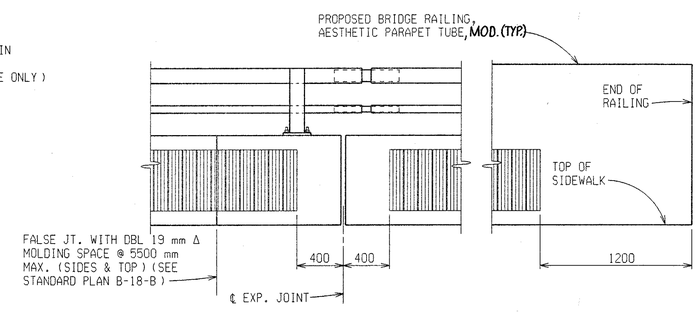
SECTION THRU RAILING AT LIGHT STANDARD



FRACTURED FIN FORM LINER DETAIL



TYPICAL RAILING SECTION SHOWING RUSTICATION



RAILING ELEVATION
LATERAL LIMITS OF RUSTICATION

SUPERSTRUCTURE DETAILS

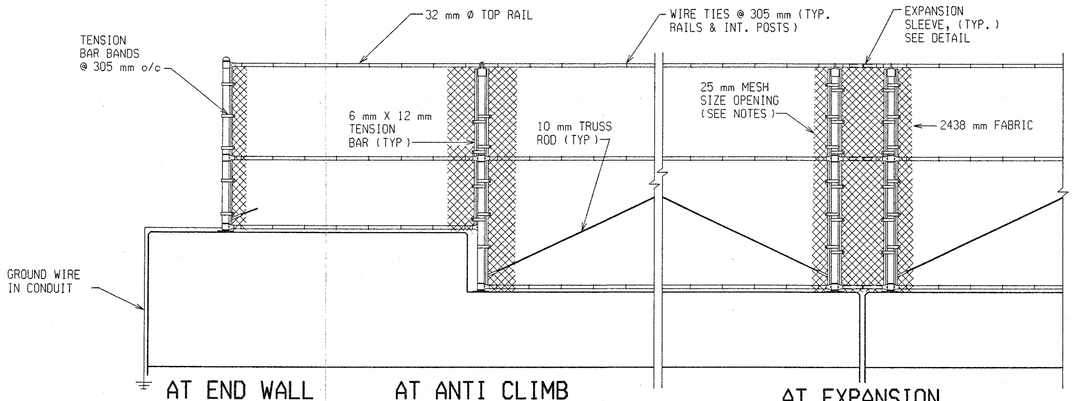
MDOT Michigan Department of Transportation

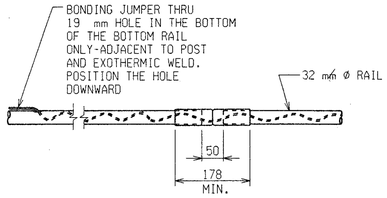
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	18 OF 22

DRAWN BY: CASLER DATE: 9-3-99 CHECKED BY: CORRECTED BY: DATE: DATE:

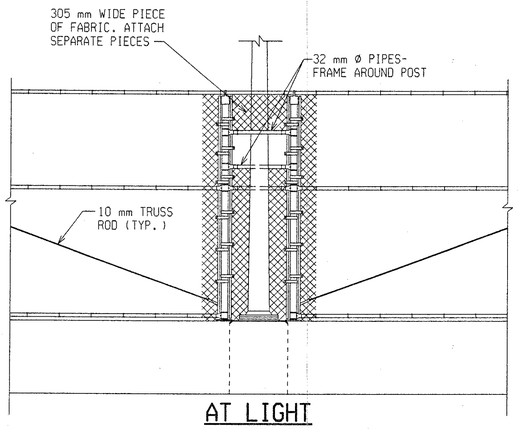
FILE NAME: s30f63174.dk

CONTROL SECTION S30 OF 63174 | JOB NO. 48404A | SH. NO. 19

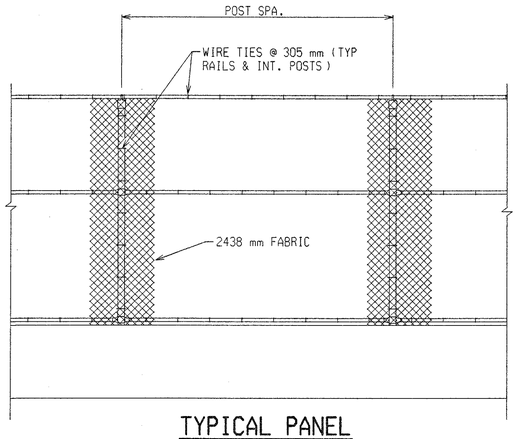




EXPANSION SLEEVE DETAIL

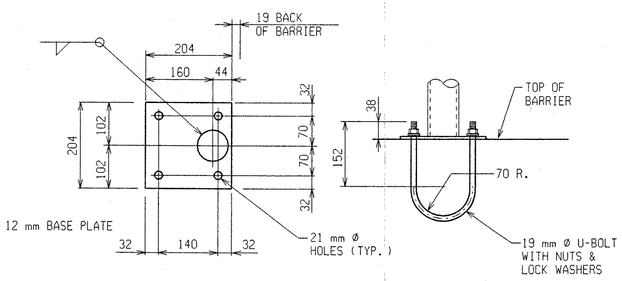


AT LIGHT STANDARD

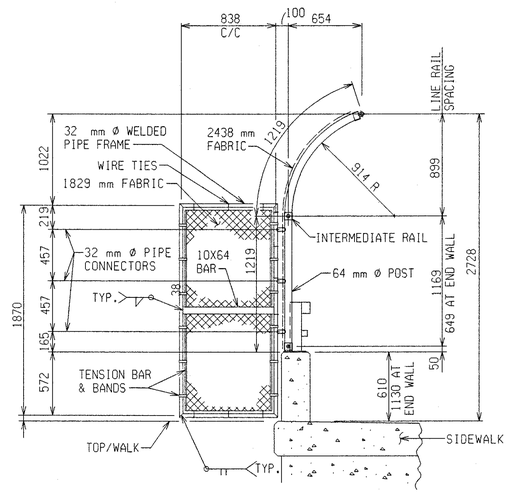


TYPICAL PANEL

TYPICAL ELEVATIONS



BASE PLATE DETAILS



TYPICAL SECTION
(SHOWING ANTI-CLIMB SHIELD)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MISCELLANEOUS QUANTITIES

265 m2	Fencing, Structures
1 ea	Elec Grounding System

NOTES:

ALL FENCE POSTS SHALL BE 64 NOMINAL, (73 O.D.) PIPE AND ANTI-CLIMB SHIELD PIPE FRAMES SHALL BE 32 NOMINAL, (42 O.D.) PIPE, IN CONFORMANCE WITH ASTM F669, CLASS 1C.

HORIZONTAL RAILS SHALL BE 32 NOMINAL (42 O.D.) PIPE IN CONFORMANCE WITH ASTM F669, CLASS 1C OR ASTM F1083.

ALL FENCE COMPONENTS, UNLESS OTHERWISE INDICATED, SHALL BE GALVANIZED IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

ALL POSTS, ANTI-CLIMB SHIELDS OR OTHER COMPONENTS TO BE FABRICATED SHALL BE FURNISHED "BLACK" AND THEN GALVANIZED AFTER FABRICATION.

DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

FENCE FABRIC SHALL BE #9 GAGE MESH AND BE GALVANIZED OR ALUMINUM COATED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION. MESH SIZE OPENING SHALL BE 25 mm.

GALVANIZED 10 mm Ø TRUSS RODS SHALL EXTEND DIAGONALLY FROM THE TOP CONNECTION CLIP AT EACH TENSION BAR TO THE ADJACENT POST, EXCEPT ACROSS EXPANSION JOINTS AND AT LIGHT STANDARDS WITH A CURVED FENCE DETAIL, WHEN THERE ARE TWO OR MORE CONTINUOUS PANELS OF FABRIC.

ALL POSTS SHALL BE INSTALLED PLUMB AND MAY BE SHIMMED WITH NON-METALLIC SHIMS, APPROVED BY THE ENGINEER. COSTS FOR SHIMMING SHALL BE INCLUDED IN THE PAY ITEM "FENCING, STRUCTURES".

BOTTOM STRAP ON THE VERTICAL POST SHALL BE CONNECTED WITH RAIL ENDS (BRACE BANDS) RATHER THAN A TWO WAY CLAMP TO ALLOW A MINIMUM OF 7 mm OFFSET.

FIELD WELDING SHALL BE ALLOWED ONLY FOR THE HANDRAIL SPLICES AND FOR ATTACHMENT OF THE HANDRAIL TO THE POST. ALL FIELD WELDS SHALL BE GROUND SMOOTH PRIOR TO COATING WITH ZINC-RICH PAINT OR SPRAYED ZINC IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS.

THE GROUND WIRE SHALL BE PLACED IN A NON-METALLIC CONDUIT, FROM THE END POST CONNECTION TO THE GROUND ROD CONNECTION. THE CONDUIT SHALL BE SECURED TO THE STRUCTURE USING EITHER EXPANSION BOLTS OR ADHESIVE ANCHORED BOLTS WITH GALVANIZED METAL STRIPS, AS APPROVED BY THE ENGINEER.

IN THE EVENT THAT INSTALLATION OF A GROUND ROD IS IMPRACTICAL, THE GROUND WIRE SHALL BE CONNECTED TO THE NEAREST LIGHT STANDARD, USING A MECHANICAL CLIP, ONLY AFTER OBTAINING PERMISSION FROM THE LOCAL PUBLIC LIGHTING AUTHORITY.

EXPANSION JOINT SLEEVES, FOR HORIZONTAL RAILS, SHALL BE THE MANUFACTURER'S STANDARD OVERSIZED SLEEVES, CRIMPED IN THE MIDDLE.

ALL DIMENSIONS ARE IN MILLIMETERS.

FENCE FABRIC SHALL BE CONTINUOS AT LIGHT POLE, BUT MAY BE CUT AND SPLICED. REINFORCE OPENING IN THE FABRIC AT POSTS WITH #6 GAUGE WIRE.

GROUNDING CABLES AND TOPS OF GROUNDING RODS SHALL BE PLACED 300 mm MINIMUM BELOW FINISHED GROUND.

FENCING DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	19 OF 22

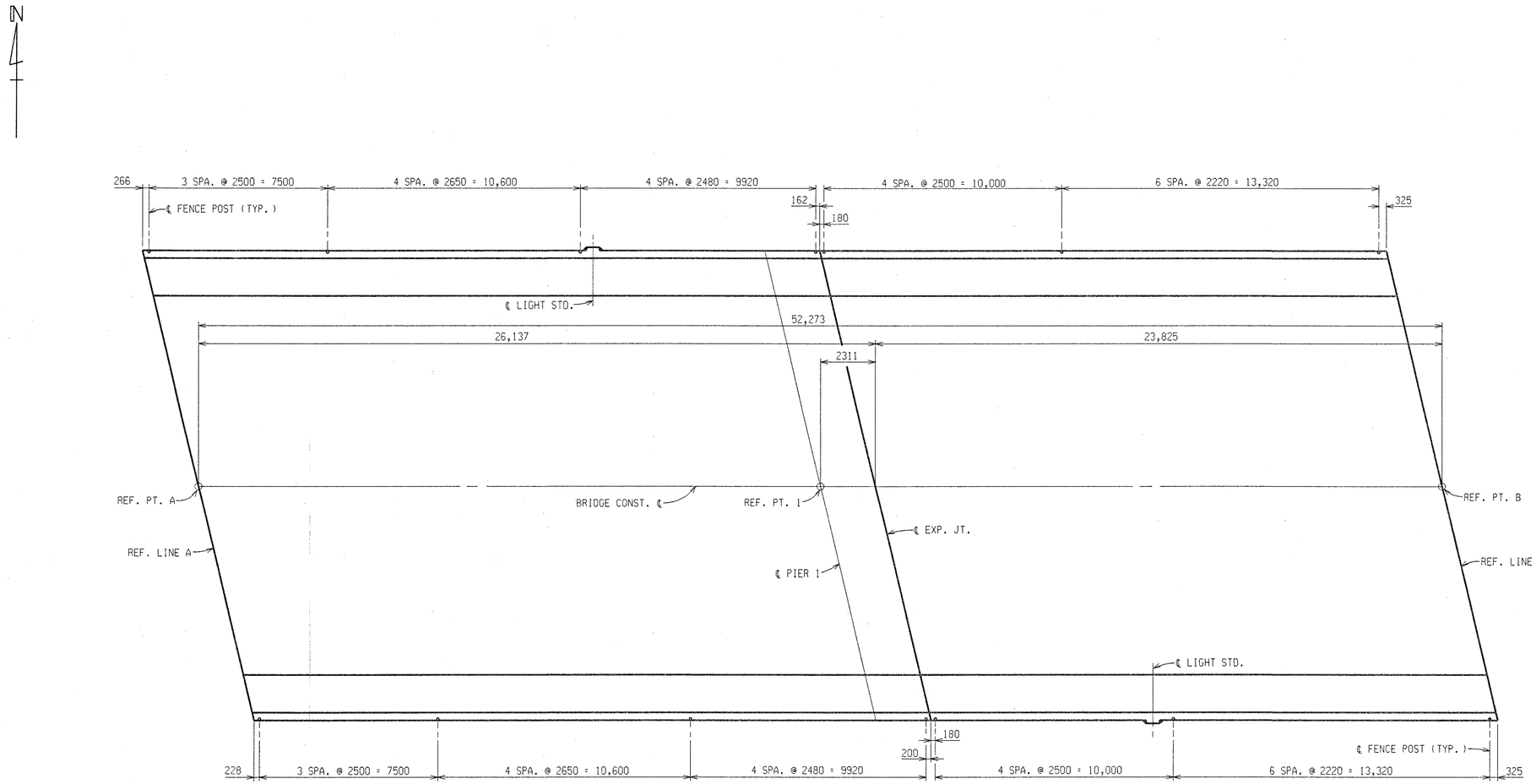
MDOT Michigan Department of Transportation

DATE: 9-20-99 | CORRECTED BY: CASLER | DRAWN BY: CASLER | DATE: 8-10-99 | CHECKED BY: | FILE NAME: s30G3174.fe

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S30 OF 63174 | JOB NO. 484104A | SH. NO. 20

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN
(SHOWING FENCE POST SPACING)

DATE: CORRECTED BY:

DATE: 9-7-99 CHECKED BY:

DRAWN BY: CASLER

FILE NAME: s0063174.fe

FENCING DETAILS

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	20 OF 22

REVISIONS			
NO.	DESCRIPTION	DATE	BY

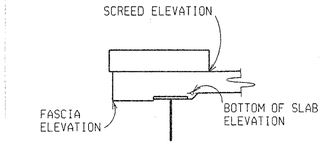
BOTTOM OF SLAB ELEVATIONS

REF.A — SPAN 1 — REF.1 — SPAN 2 — REF.B

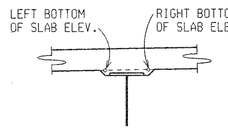
		0	1	2	3	4	5	6	7	℄BRG 8	℄P&H 0	1	2	3	4	5	6	7	8
A	FASCIA	193.172	193.218	193.259	193.292	193.314	193.324	193.323	193.311	193.289	193.291	193.312	193.324	193.324	193.311	193.284	193.249	193.207	193.161
	RIGHT	193.236	193.282	193.323	193.355	193.377	193.387	193.387	193.375	193.352	193.354	193.375	193.387	193.387	193.374	193.347	193.312	193.270	193.224
B	LEFT	193.244	193.290	193.331	193.364	193.386	193.396	193.395	193.383	193.359	193.360	193.380	193.391	193.390	193.376	193.349	193.314	193.272	193.226
	RIGHT	193.251	193.297	193.338	193.371	193.392	193.403	193.402	193.389	193.366	193.367	193.387	193.398	193.397	193.383	193.356	193.321	193.279	193.233
C	LEFT	193.278	193.324	193.365	193.398	193.419	193.430	193.429	193.415	193.391	193.391	193.410	193.420	193.419	193.404	193.377	193.341	193.299	193.253
	RIGHT	193.285	193.331	193.372	193.405	193.426	193.436	193.436	193.422	193.398	193.398	193.417	193.427	193.426	193.410	193.384	193.348	193.306	193.260
D	LEFT	193.312	193.358	193.399	193.432	193.453	193.463	193.462	193.448	193.422	193.422	193.440	193.449	193.447	193.431	193.404	193.369	193.327	193.281
	RIGHT	193.319	193.365	193.406	193.438	193.460	193.470	193.469	193.455	193.429	193.428	193.447	193.456	193.454	193.438	193.411	193.376	193.334	193.287
E	LEFT	193.346	193.392	193.433	193.465	193.487	193.497	193.496	193.480	193.454	193.452	193.470	193.478	193.475	193.458	193.431	193.396	193.354	193.308
	RIGHT	193.353	193.399	193.440	193.472	193.494	193.504	193.503	193.487	193.461	193.459	193.477	193.485	193.482	193.465	193.438	193.403	193.361	193.315
F	LEFT	193.355	193.401	193.442	193.475	193.496	193.507	193.505	193.488	193.461	193.458	193.475	193.483	193.478	193.461	193.434	193.399	193.357	193.311
	RIGHT	193.348	193.394	193.435	193.468	193.490	193.500	193.498	193.481	193.454	193.452	193.468	193.476	193.471	193.454	193.428	193.392	193.350	193.304
G	LEFT	193.326	193.372	193.414	193.446	193.468	193.478	193.475	193.458	193.429	193.426	193.442	193.449	193.444	193.426	193.399	193.364	193.322	193.276
	RIGHT	193.320	193.366	193.407	193.439	193.461	193.471	193.468	193.451	193.422	193.419	193.435	193.442	193.437	193.419	193.392	193.357	193.315	193.269
H	LEFT	193.298	193.344	193.385	193.417	193.439	193.449	193.446	193.427	193.398	193.394	193.409	193.415	193.409	193.391	193.364	193.329	193.287	193.241
	RIGHT	193.291	193.337	193.378	193.411	193.432	193.442	193.439	193.420	193.391	193.387	193.402	193.408	193.402	193.384	193.357	193.322	193.280	193.234
J	LEFT	193.269	193.315	193.356	193.389	193.410	193.421	193.416	193.396	193.366	193.361	193.375	193.380	193.373	193.356	193.329	193.294	193.252	193.205
	RIGHT	193.262	193.308	193.349	193.382	193.404	193.414	193.409	193.390	193.359	193.355	193.369	193.374	193.367	193.349	193.322	193.287	193.245	193.199
K	LEFT	193.259	193.305	193.346	193.378	193.400	193.410	193.404	193.384	193.352	193.347	193.360	193.364	193.357	193.339	193.312	193.277	193.235	193.189
	FASCIA	193.194	193.240	193.281	193.314	193.335	193.345	193.340	193.319	193.288	193.283	193.296	193.300	193.293	193.275	193.248	193.213	193.171	193.125

SCREED ELEVATIONS

LEFT	193.467	193.509	193.547	193.577	193.598	193.609	193.610	193.602	193.583	193.584	193.601	193.609	193.607	193.592	193.566	193.533	193.494	193.451
CENTER	193.596	193.638	193.675	193.705	193.726	193.737	193.738	193.725	193.703	193.701	193.715	193.720	193.714	193.697	193.670	193.637	193.598	193.555
RIGHT	193.487	193.529	193.566	193.596	193.617	193.628	193.625	193.609	193.583	193.578	193.588	193.590	193.581	193.563	193.537	193.503	193.464	193.421



TYPICAL FASCIA SECTION



TYPICAL INTERIOR SECTION

(LOOKING UP STATION)

BULKHEAD ELEVATIONS

	ABUT.A	℄ JT.	ABUT.B
A	193.465	193.584	193.453
B	193.477	193.593	193.458
C	193.511	193.624	193.486
D	193.545	193.655	193.513
E	193.578	193.686	193.540
F	193.581	193.685	193.536
G	193.552	193.653	193.501
H	193.524	193.621	193.466
J	193.495	193.589	193.431
K	193.488	193.578	193.418

NOTES:

SCREED ELEVATIONS ARE BASED ON THE CONDITION THAT NO SLAB CONCRETE HAS BEEN CAST AND THAT FORMWORK, SHEAR DEVELOPERS AND STEEL REINFORCEMENT ARE IN PLACE.

BOTTOM OF SLAB ELEVATIONS (ARE AT RIGHT ANGLES TO THE BEAM CENTERLINE AND ARE BASED ON THE CONDITION THAT THE BEAMS AND DIAPHRAMS ARE COMPLETELY ERECTED WITH NO OTHER LOADS APPLIED. NO TEMPORARY SUPPORTS ARE ALLOWED AT THIS TIME. THESE ELEVATIONS INCLUDE ALLOWANCE FOR VERTICAL CURVE AND DEFLECTION DUE TO FORMS, STEEL REINFORCEMENT, CONCRETE SLAB, SIDEWALKS, RAILING, AND UTILITIES.

SECTIONS FOR BOTTOM OF SLAB AND/OR SCREED ELEVATIONS ARE GIVEN ALONG BEAM CENTERLINES FROM CENTERLINE OF BEARING OR PIN & HANGER TO CENTERLINE OF BEARING OR PIN & HANGER AS APPLICABLE AT EQUAL SPACINGS.

MDOT Michigan Department of Transportation

SLAB AND SCREED DATA

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	21 OF 22

DATE: 10-13-99 CORRECTED BY:CASLER

DRAWN BY: DATE: CHECKED BY:

FILE NAME: s30631174.ss

CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 22

SUPERSTRUCTURE SPAN 1

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1009680	9680									237	1285
EA1314400	14400									246	3521
EA1310680	10680									8	85
EA1609520	9520									143	2113
EA1611660	11660									143	2588
EA1302100	2100									296	618
EA1302250	2250									4	9
EA1301450	1450									4	6
ED1610890	10660	97	133							286	4834
ED1300880	270	340	270							148	129
ED1301150	225	700	225							2	2
ED1301020	305	410	305							3	3
EL1302315	760	175	660	360	360	162				258	594
EL1903365	1280	185	1180	360	360	172				16	120
EL1903350	1180	170	1280	360	360		170			8	60
ET1902344	310	410	378	510	158	200				200	1048

SUPERSTRUCTURE SPAN 2

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1012020	12020									237	1595
EA1312100	12100									246	2959
EA1310680	10680									8	85
EA1609520	9520									119	1758
EA1611660	11660									119	2153
EA1302100	2100									248	518
EA1302250	2250									4	9
EA1301450	1450									4	6
ED1610890	10660	97	133							238	4023
ED1300880	270	340	270							124	108
ED1301150	225	700	225							2	2
ED1301020	305	410	305							3	3
EL1302315	760	175	660	360	360	162				216	497
EL1903365	1280	185	1180	360	360	172				16	120
EL1903350	1180	170	1280	360	360		170			8	60
ET1902344	310	410	378	510	158	200				168	880

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.

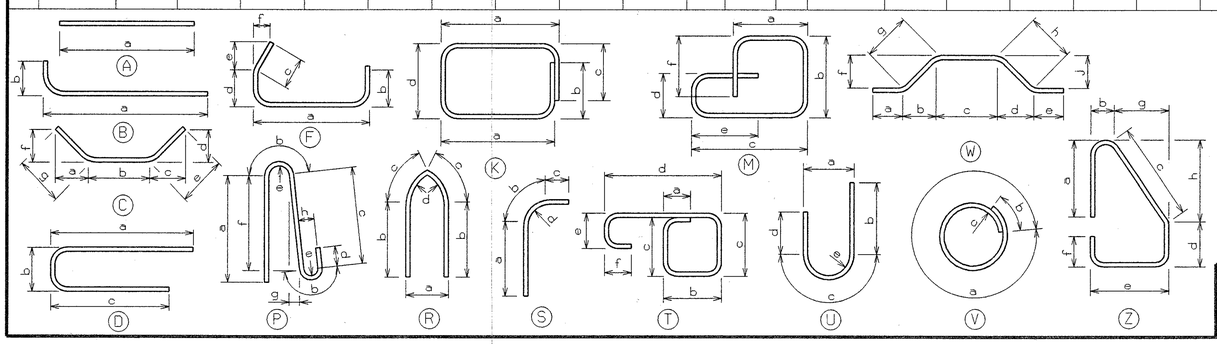
DATE: 10-13-99

DATE: 10-12-99 CORRECTED BY: inder

DATE: 9-27-99 CHECKED BY: WM

DRAWN BY: inder

FILE NAME: s30631741.rs



EPOXY COATED
BAR SIZE
BAR LENGTH (mm)
EA2013000
BAR SHAPE

BAR LEGEND

MISCELLANEOUS QUANTITIES

0	kg	REINFORCEMENT, STEEL
31791	kg	REINFORCEMENT, STEEL, EPOXY COATED

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

REVISIONS NO.	DESCRIPTION	DATE	BY

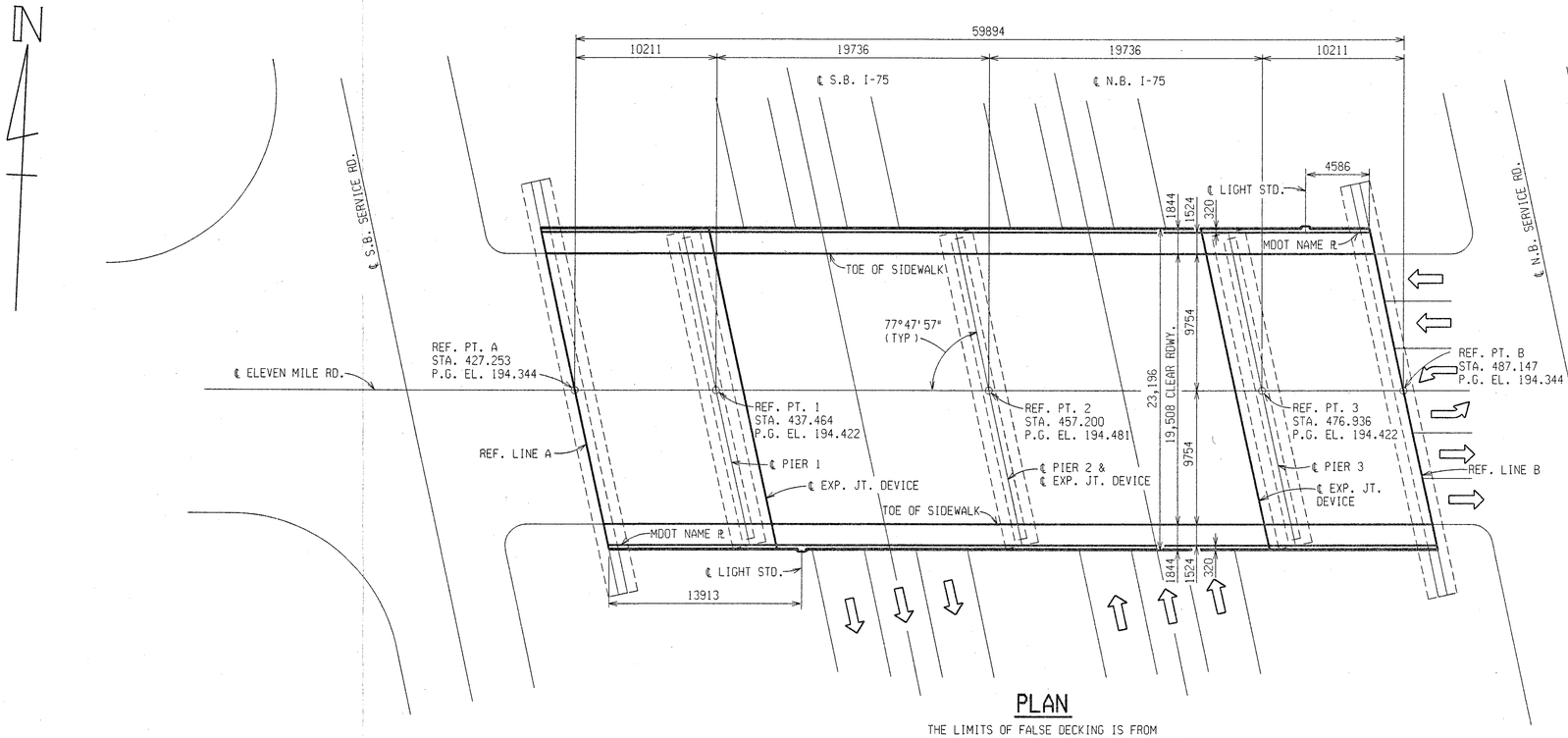
MDOT Michigan Department of Transportation

STEEL REINFORCEMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	22 OF 22

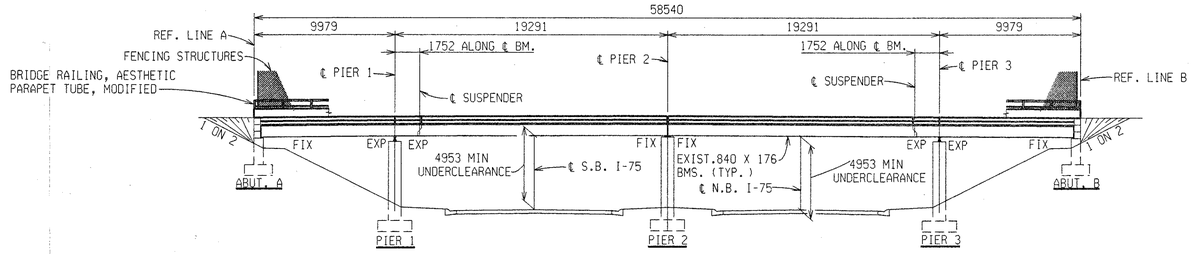
CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 2

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN

THE LIMITS OF FALSE DECKING IS FROM INSIDE FACE OF PIER 1 TO INSIDE FACE OF PIER 3 AND BETWEEN SLAB FASCIAS.



ELEVATION

SHOWN ⊥ TO I-75

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, PEDESTRIAN SCREENING, PIN AND HANGER REPLACEMENT, PAINTING OF THE EXISTING STRUCTURAL STEEL, AND MAINTAINING TRAFFIC. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE A PART OF THIS CONTRACT.

THE REHABILITATION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS18 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH AND 1/375 OF CANTILEVER ARM. THE LOAD FACTOR) METHOD WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR MS18 LOADING.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

THE CONTRACTOR SHALL NOTIFY DETROIT EDISON FOR DEACTIVATION OF STREET LIGHTS AND TRAFFIC SIGNAL CIRCUITS PRIOR TO DECK REMOVAL AND FOR REINSTALLATION OF THE STREET LIGHTING AND SIGNALS FOLLOWING COMPLETION OF BRIDGE DECK CONSTRUCTION.

ALL WORK FOR TEMPORARY SUPPORT AND PROTECTION OF THE AMERITECH DUCTS AND THE CONSUMER ENERGY GAS MAIN SHALL BE INCLUDED IN THE PAY ITEM "STRUCTURES, REHABILITATION, REMOVE PORTIONS (S31)"

ELEVEN MILE ROAD TRAFFIC IS TO BE DETOURED OVER OTHER EXISTING ROADS.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

THE EXISTING GAS MAIN AND AMERITECH DUCTS WILL REQUIRE TEMPORARY SUPPORTS PRIOR TO REMOVAL OF THE DECK.

MISCELLANEOUS QUANTITIES

863 m2	False Decking
1 LS	Structures, Rehabilitation, Rem Portions (S31)

APPROVED Steven P. Bush 10/19/99
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

I-75 UNDER ELEVEN MI. IN ROYAL OAK

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	2 OF 20

DATE: 9-20-99 CORRECTED BY: CASLER
DATE: 2-5-99 CHECKED BY:
DRAWN BY: CASLER
FILE NAME: s3163174.st

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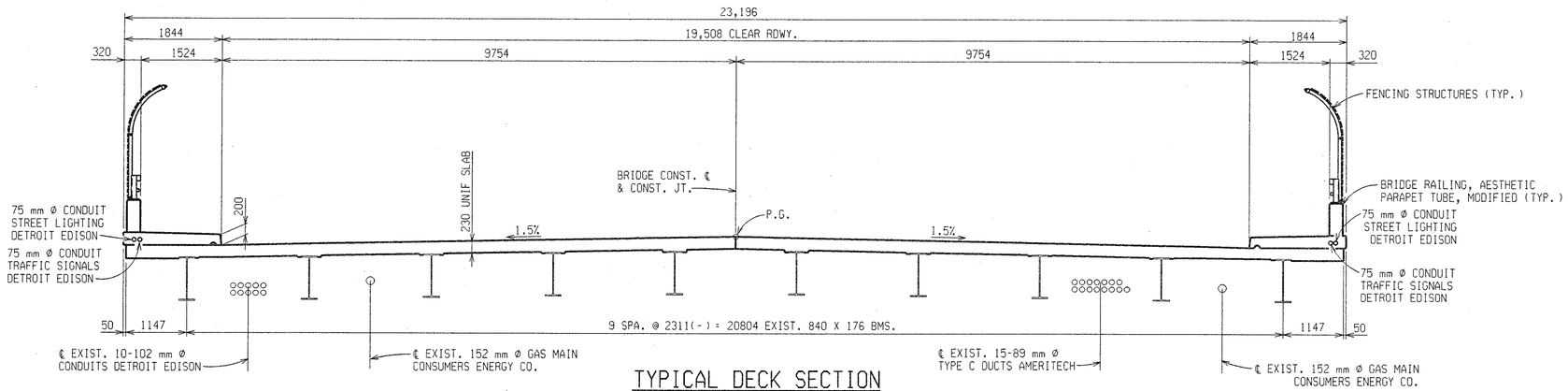
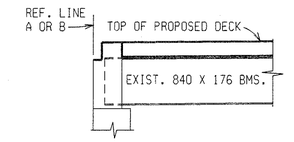
CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 3

REVISIONS			
NO.	DESCRIPTION	DATE	BY



TYPICAL DECK SECTION



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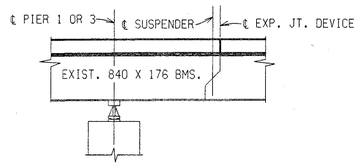
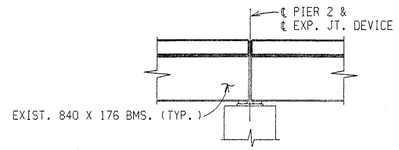


SECTION AT PIER 1 & 3



SECTION AT PIER 2

APPROVED Steven P. Beck 10/19/99
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

I-75 UNDER ELEVEN MI., IN ROYAL OAK

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	3 OF 20

DATE: 9-20-99 CORRECTED BY:CASLER
DATE: 4-1-99
DATE: 3-29-99 CHECKED BY: MIKUCKI
DRAWN BY: CASLER
FILE NAME: s3163174.st

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 4

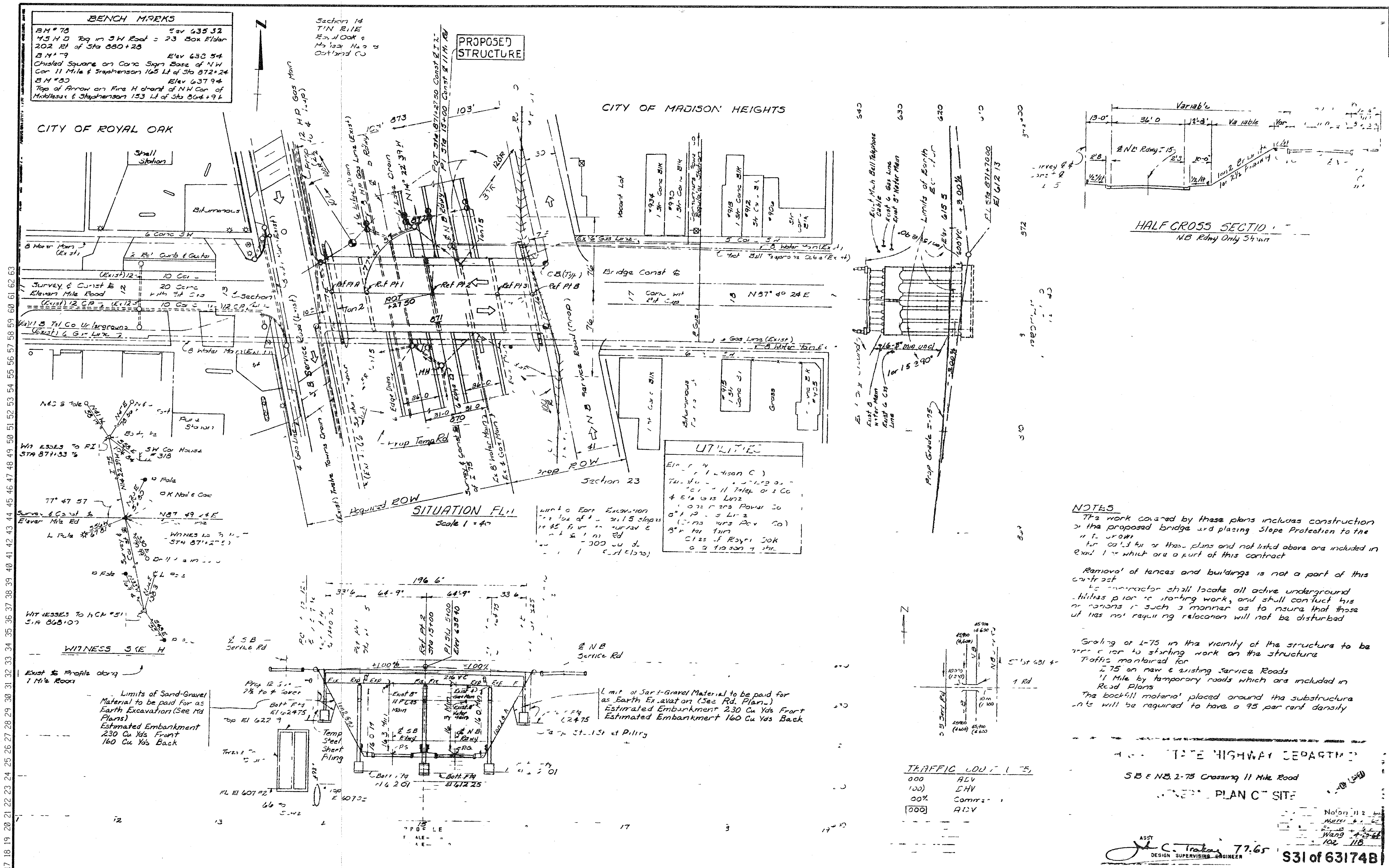
REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARKS

BM # 78 Elev 635 32
MSHD Tag in SW Root of 23 Box Elder
202 Rt of Sta 880+28

BM # 79 Elev 633 54
Chisled Square on Conc Sign Base of NW Cor 11 Mile & Stephenson 165 Lt of Sta 872+24

BM # 80 Elev 637 94
Top of Arrow on Fire Hydrant of NW Cor of Middlesex & Stephenson 153 Lt of Sta 864+9[illegible]



UTILITIES

Electricity
[illegible] Edison Co
[illegible] Bell Telephone Co
4 Elec Gas Line
[illegible] Power Co
[illegible] Line
(Consumers Power Co)
8" Water Main
City of Royal Oak
[illegible]

Limits of Earth Excavation
[illegible] 1 5 slopes
[illegible] 45 from [illegible]
[illegible] 300 cu yds
[illegible]

TRAFFIC COUNT ([illegible])

000	ADV
100)	DHV
00%	Commercial
000	ADV

NOTES

The work covered by these plans includes construction of the proposed bridge and placing Slope Protection to the [illegible] shown.

[illegible] called for on these plans and not listed above are included in Road Plans which are a part of this contract.

Removal of fences and buildings is not a part of this contract.

The contractor shall locate all active underground utilities prior to starting work, and shall conduct his operations in such a manner as to insure that those utilities not requiring relocation will not be disturbed.

Grading of I-75 in the vicinity of the structure to be [illegible] prior to starting work on the structure.

Traffic maintained for
- I 75 on new & existing Service Roads
- 11 Mile by temporary roads which are included in Road Plans

The backfill material placed around the substructure units will be required to have a 95 per cent density.

[illegible] STATE HIGHWAY DEPARTMENT

SB & NB I-75 Crossing 11 Mile Road

GENERAL PLAN OF SITE

Nolan 11 2 64
Warren 6 [illegible] 64
Wang 4-23-64
102 118

ASST
J C. Trakas 7.7.65
DESIGN SUPERVISING ENGINEER

S31 of 63174B

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT
Michigan Department of Transportation

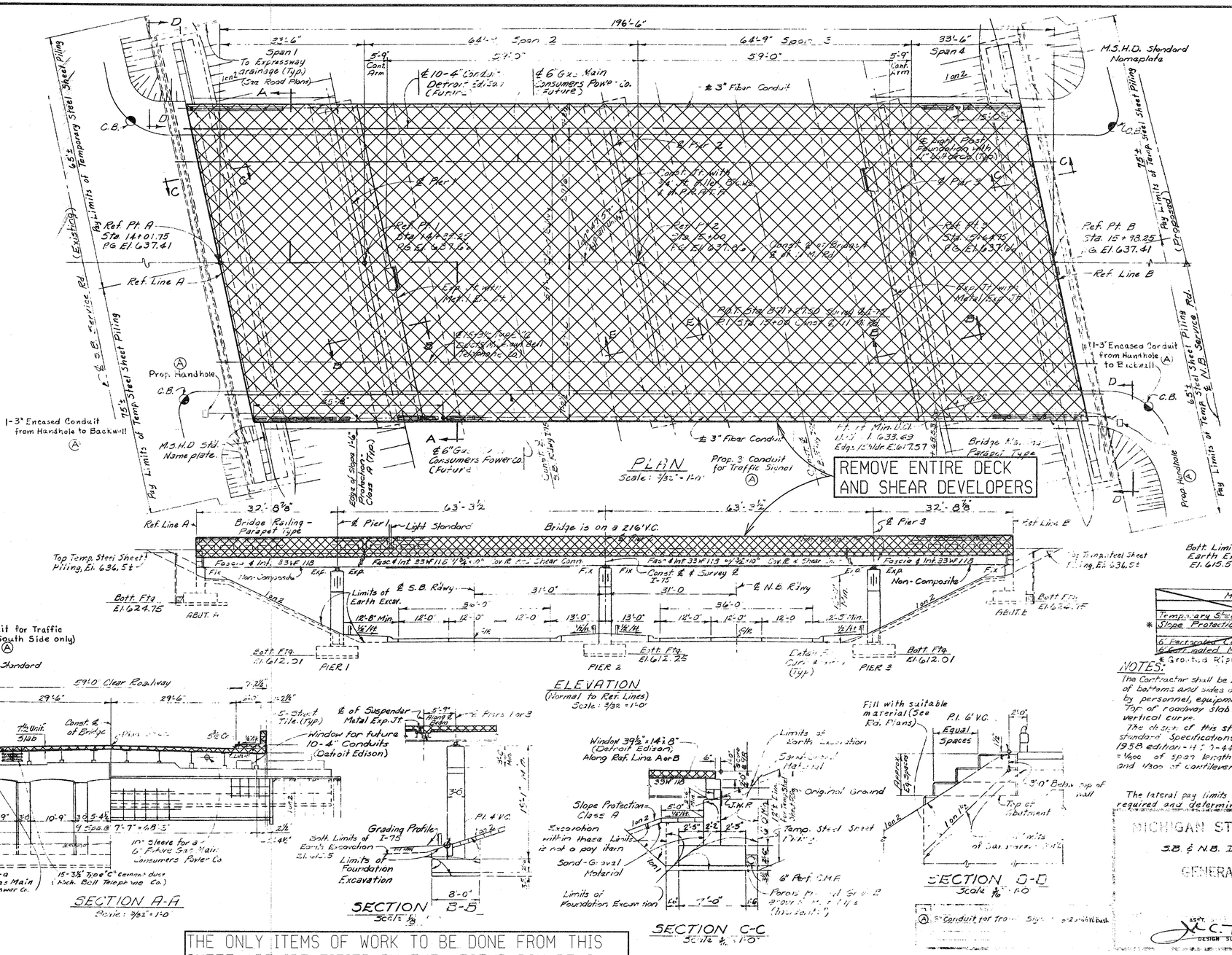
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	4 OF 20

DATE:
CORRECTED BY:
DATE:
CHECKED BY:
DATE: 01-13-99
DRAWN BY: INDER
FILE NAME: s3163174.sn

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 5

REVISIONS			
NO.	DESCRIPTION	DATE	BY



MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Temporary Steel Sheet Piling	Sq. Ft.	3400
* Slope Protection - Class A	Sq. Yds.	618
6" Perforated Corrugated Metal Pipe	Lin. Ft.	200
6" Corrugated Metal Pipe	Lin. Ft.	210

* Grouted Riprap shall not be used on this project

NOTES:

The Contractor shall be responsible for providing adequate protection of bottoms and sides of the footing excavation against damage by personnel, equipment and water.

Top of roadway slab and tops of sidewalks are parallel to the vertical curve.

The design of this structure is based on the the M.S.H.D. Standard Specifications for the Design of Highway Bridges - 1958 edition - with H-44 Loading. Live load plus impact deflection = 1/800 of span length of suspended span units, anchor span and 1/300 of cantilever arm.

The lateral pay limits of temporary steel sheet piling are as required and determined by the Engineer.

MICHIGAN STATE HIGHWAY DEPARTMENT

S.B. & N.B. I-75 crossing 11 Mile Rd.

GENERAL PLAN OF STRUCTURE

Designed by	Warren	9-16-62
Detailed by	W.V.	4-20-65
Checked by	104	118

ASST. ENGINEER OF BRIDGES — C. Trakas 7.7.65 — DESIGN SUPERVISING ENGINEER

S31 of 63174B

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 48404A

DENOTES REMOVAL PORTIONS

PROPOSED WORK

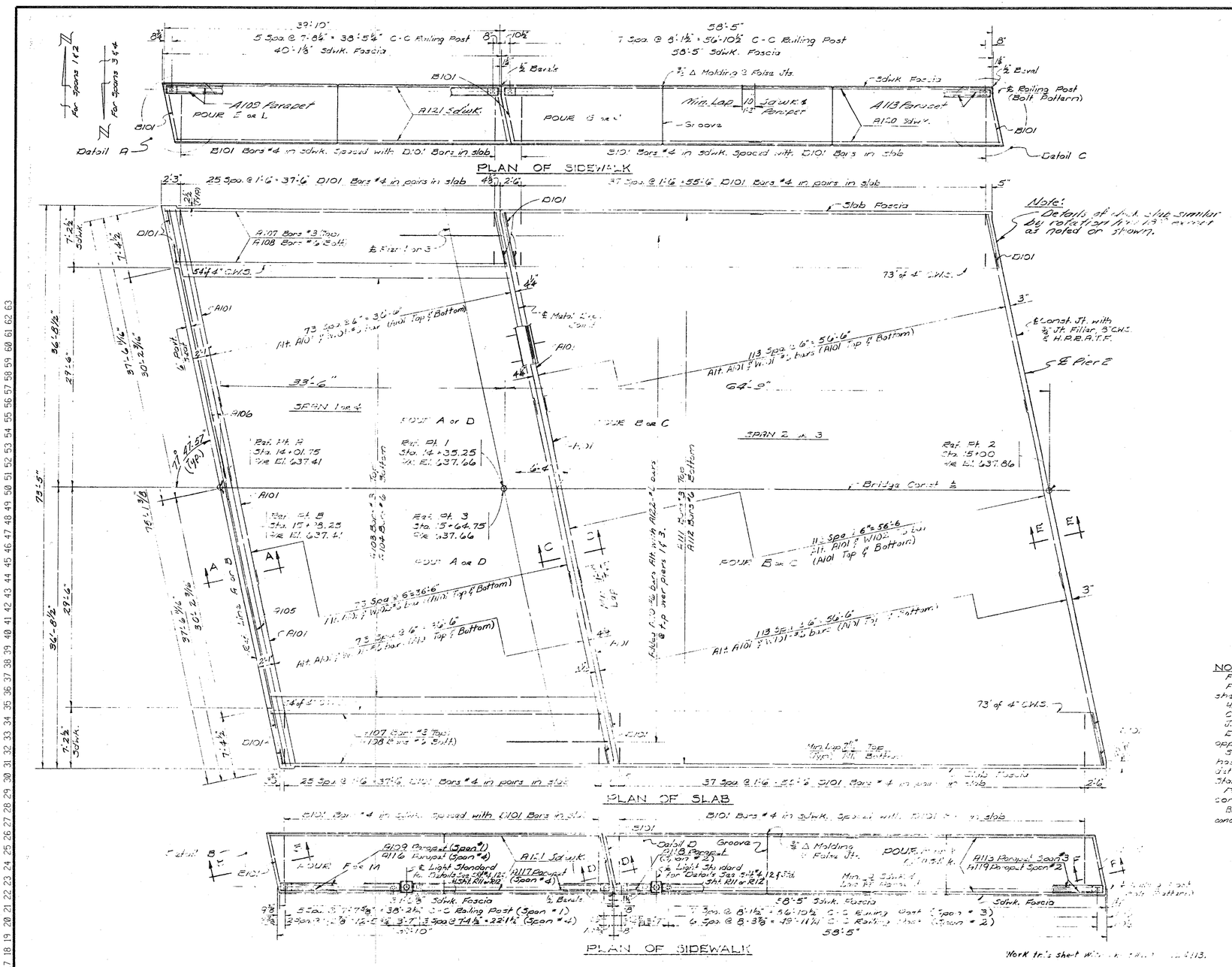
REMOVAL PORTIONS

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	5 OF 20

DATE: 5-11-99 | CORRECTED BY: CASLER | DATE: | CHECKED BY: | DATE: 01-13-99 | DRAWN BY: INDER | FILE NAME: s31631174.sn

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 6



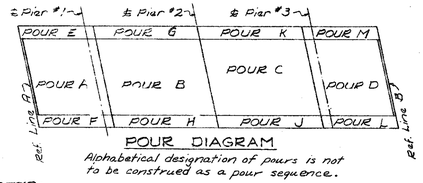
CONCRETE QUANTITIES - SUPERSTR.

FOUR GRADE A (6AA)

		Cu. Yds.
SLAB	A	87.5
	B	110.0
	C	110.0
	D	87.5
	E	6.5
	F	6.5
SD WK.	G	9.5
	H	9.5
	J	9.5
	K	9.5
	L	6.5
	M	6.5
TOTAL	Cu. Yds.	459.0

MISCELLANEOUS QUANTITIES - SUPERSTR.

ITEM	UNIT	AMOUNT
¾" Joint Filler	Sq. Ft.	65
Joint Waterproofing	Sq. Ft.	32
Copper	Lbs.	220
Bridge Railing - Parapet Type	Lin. Ft.	390.3
Water-Reducing Retarding Admixture	Gal.	57
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	235
~~Structural Tile 4"x12"x12'~~	Each	1860



POUR DIAGRAM

Alphabetical designation of pours is not to be construed as a pour sequence.

NOTES:

For Railing Details, See Standard Sheet No. R11 or R12
For Bevel and Molding Details, see standard sheet No. R11 or R12
H.P.R.B.A.T.F. indicates Hot-Poured Rubber-Asphalt Type Filler.
C.W.S. indicates copper waterstop.
J.W.P. indicates joint waterproofing.
Edge and Groove denote Edging or Grooving with an approved tool.
Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by the table in section 5.01.03 of the Standard Specifications.
Poke joints in sdwk. shall be placed midway between concrete blocks @ approx. every 6th panel.
Bridge Railing is to be either aluminum or steel tubular railing on concrete parapet. See Std. Sh. A11 or R12

SUPERSTRUCTURE DETAILS

Noted 11-25-64
Structural 12-5-63
11/21/63 4-20-64
109 113

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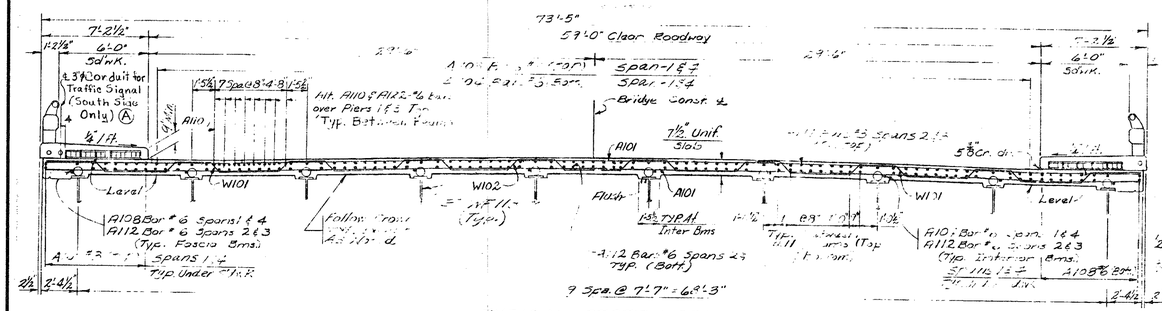
MDOT Michigan Department of Transportation

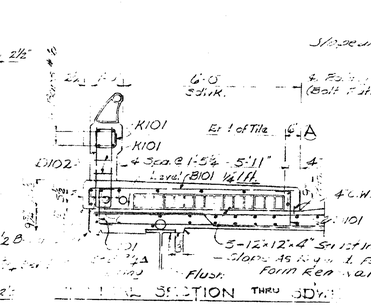
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	6 OF 20

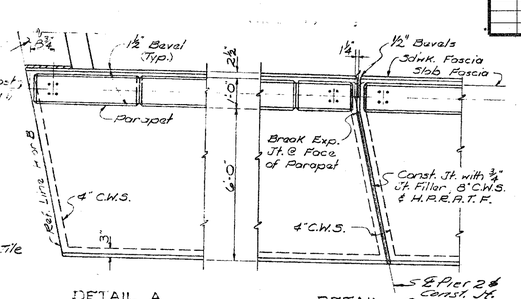
REVISIONS			
NO.	DESCRIPTION	DATE	BY

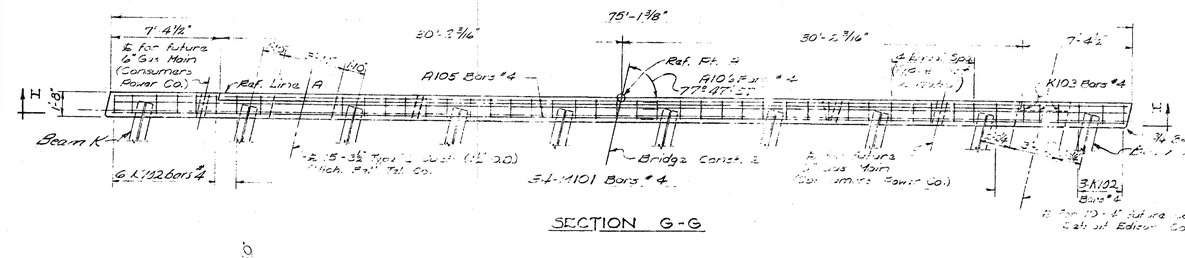
DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 01-13-99 | DRAWN BY: INDER | FILE NAME: s3163174.sn

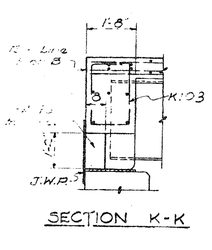
REVISIONS			
NO.	DESCRIPTION	DATE	BY

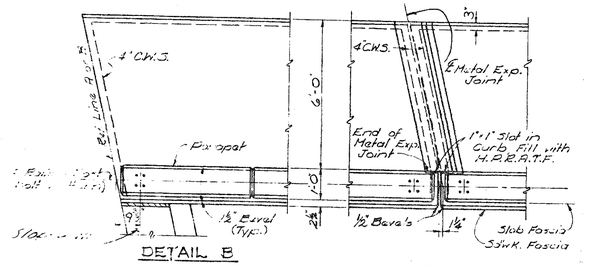


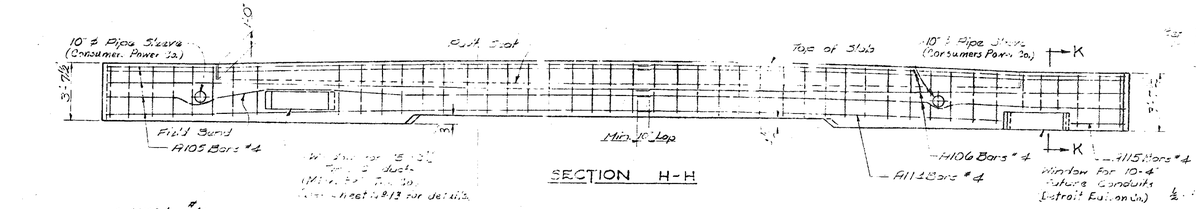


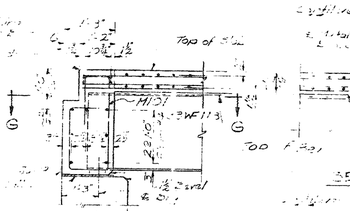


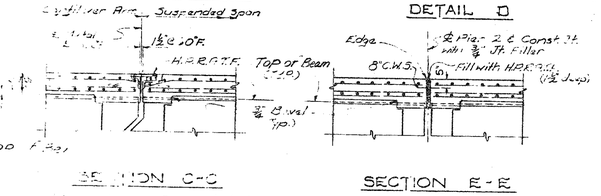


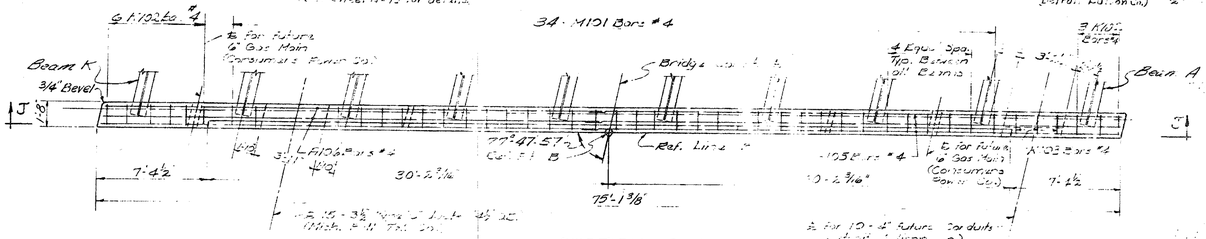


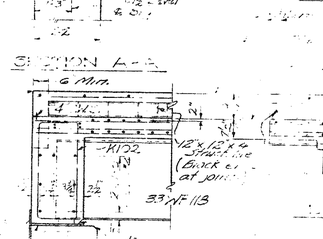


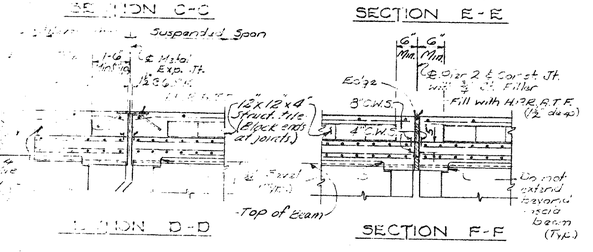


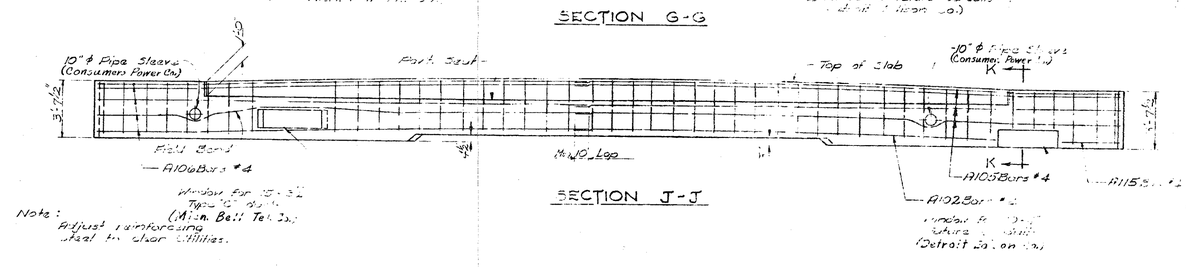


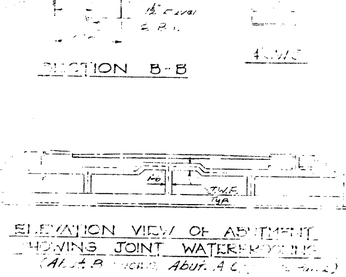


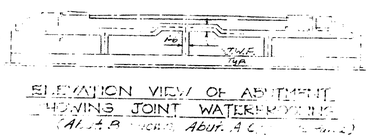












This Sheet with Sheet No. 109, 111, 112 and 113.

SUPERSTRUCTURE DETAILS

Note: 11-3-65 Shroure 12-3-63

11 A 73 4-20-64
110 118

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Ⓐ 3 Conduit for Traffic Signal 526-60 W.Bush

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MDOT Michigan Department of Transportation

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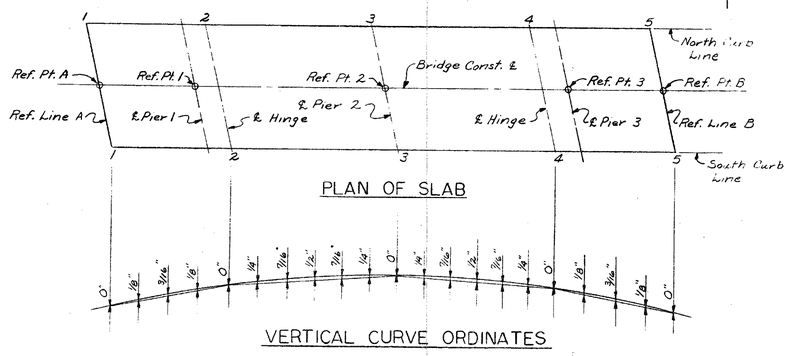
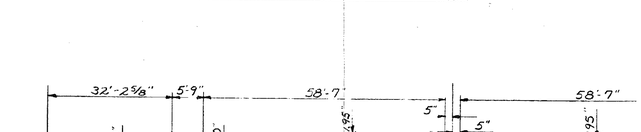
10-13-99	S31 OF 63174.	48404A	MAHDAVI	7 OF 20

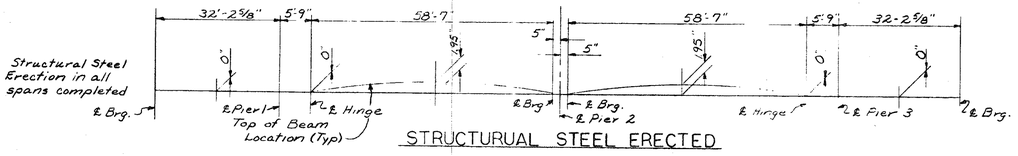
CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 8



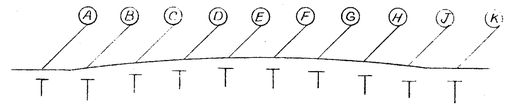
PLAN OF SLAB



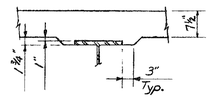
VERTICAL CURVE ORDINATES



STRUCTURUAL STEEL ERECTED



SCREED TEMPLATE



TYPICAL HAUNCH SECTION

SCREED TEMPLATE ELEVATIONS

Line	Sta. ℄ Const.	Brn. A	Brn. B	Brn. C	Brn. D	Brn. E	Brn. F	Brn. G	Brn. H	Brn. J	Brn. K
1-1	14+01.75	636.89	636.98	637.14	637.28	637.38	637.40	637.33	637.22	637.08	637.03
2-2	14+41.00	637.21	637.28	637.44	637.58	637.67	637.68	637.60	637.49	637.35	637.29
3-3	15+00.00	637.41	637.48	637.63	637.75	637.84	637.84	637.75	637.63	637.48	637.41
4-4	15+59.00	637.29	637.35	637.49	637.60	637.68	637.67	637.58	637.44	637.28	637.21
5-5	15+98.25	637.03	637.08	637.22	637.33	637.40	637.38	637.28	637.14	636.98	636.89

THEORETICAL TOP OF BEAM ELEVATION

Beam	℄ Brg. Abut. A	℄ Pier 1	℄ Hinge	℄ Brg. Pier 2	℄ Brg. Pier 2	℄ Hinge	℄ Pier 3	℄ Brg. Abut. B
A	636.20	636.46	636.50	636.70	636.70	636.58	636.55	636.33
B	636.20	636.46	636.50	636.70	636.70	636.58	636.55	636.33
C	636.44	636.69	636.73	636.91	636.91	636.77	636.74	636.51
D	636.58	636.83	636.86	637.04	637.04	636.89	636.86	636.62
E	636.68	636.93	636.96	637.13	637.13	636.97	636.94	636.70
F	636.70	636.94	636.97	637.13	637.13	636.96	636.93	636.68
G	636.62	636.86	636.89	637.04	637.04	636.86	636.83	636.58
H	636.51	636.74	636.77	636.91	636.91	636.73	636.69	636.44
J	636.33	636.55	636.58	636.70	636.70	636.50	636.46	636.20
K	636.33	636.55	636.58	636.70	636.70	636.50	636.46	636.20

NOTES:

Screed template elevations are based on the condiction that no slab concrete has been poured and with formwork, steel reinforcement and shear developers in place.

Screeds which will be affected by loads in other spans are to be set to the elevations shown before casting any concrete.

Concete in the suspended spans is to be cast before the concrete in the anchor spans.

Haunch dimensions as shown are based on the theoretical elevation of the tops of beams with beams only fully erected. If actural tops of beams differ from theoretical tops of beams adjust haunch depths accordingly.

Longitudinal strike-off finishing machine is to be used in placing deck concrete.

Work this sheet with sheets #109, 110, 113, 114 & 117

SUPERSTRUCTURE DETAILS

Nolan 1-3-66
J. Bullen 12-29-65
Wang 12-29-65
111 118

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ANCHOR BOLTS

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DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	8 OF 20

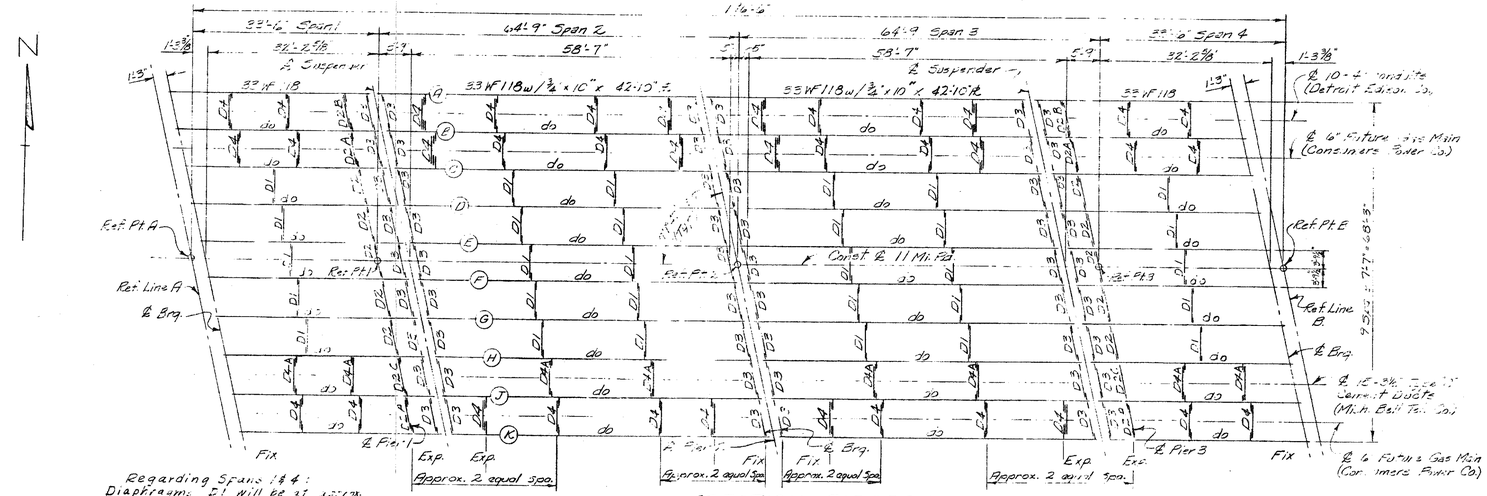
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DRAWN BY: INGER | CHECKED BY: | CORRECTED BY: | DATE: | DATE: 01-13-99

FILE NAME: s:\63174.sn

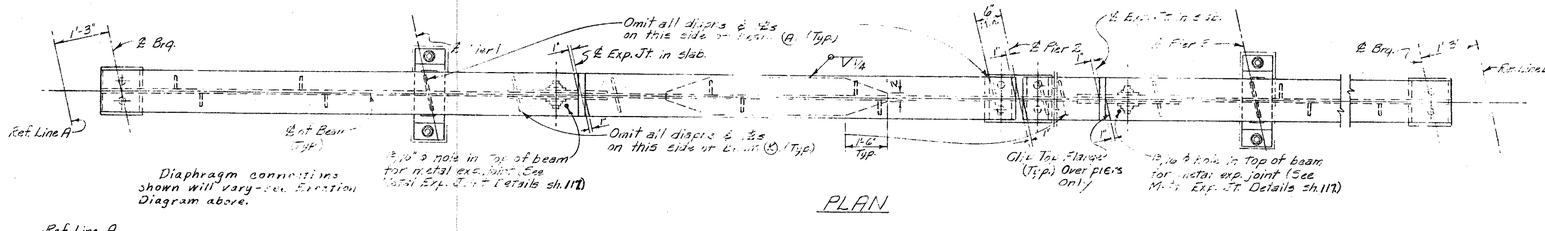
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

REVISIONS			
NO.	DESCRIPTION	DATE	BY

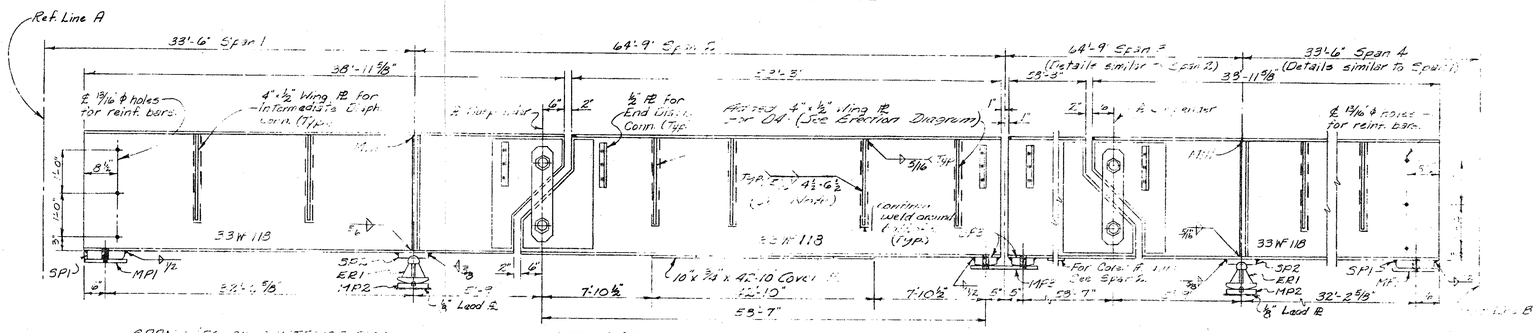


Regarding Spans 1 & 4:
Diaphragms D1 will be at approx. midpoints. Diaphragms D2 & D3 will be at approx. third points.

ERECTION DIAGRAM



PLAN



SPAN 1 (FASCIA & INTERIOR BMS) SPAN 2 (FASCIA & INTERIOR BMS) SPAN 3 (FASCIA & INTERIOR BMS) SPAN 4 (FASCIA & INTERIOR BMS)

Note: Regarding the intermediate Diaphragm Connection, a continuous weld may be used at the fabricators option.

ELEVATION

STRUCTURAL STEEL NOTES

Fabrication: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction - 1963 Edition

Design: Michigan State Highway Department's Specifications for the Design of Highway Bridges - 1953 Edition (H20-44 Loading)

Shop Connections: All shop connections shall be welded as shown on plans.

Field Connections shall be bolted with ¾ø A325 high strength bolts.

Open Holes: Open holes for high-strength bolts shall be 13/16" ø unless otherwise noted.

Shop Paint: In addition to the shop paint provisions of the Standard Specifications the top surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces.

Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ¼" and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plate.

Camber: The beams in spans 1 & 4 are to have 0 inches of camber and the beams in spans 2 and 3 are to have a camber of 1⅞" (max. ordinate). Allowable camber tolerance is +½, -¼. Heating is to be used, if necessary, to assure camber permanency within the above tolerance. The dead load deflection of the beams alone is calculated to be 0" for spans 1 & 4 and 3/16" for spans 2 & 3.

Steel in anchor bolts may be ASTM A-307

Field Paint for Structural Steel is to be Gray-Blue. (See Supplemental Specifications)

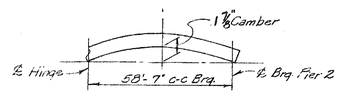
Utility Provisions: See sheet #103 for utility provisions (Consumers Power Co., Detroit Edison Co., Mich. Bell Telephone Co.).

All beams and cover plates shall conform to the requirements for Welding (A.S.T.M. A36-62T).

The quantity "Structural Steel-Furnishing and Fabricating" includes:

A36	= 327,600 #
Lead	= 300 #
Bronze	= 100 #
Total	= 328,000 #

Structural Steel - Furnishing & Fabricating	328000#
Structural Steel - Erection	328000#
Field Painting	Lump Sum
Bear Developere	Lump Sum



CAMBER DIAGRAM SPANS 2 & 3

Note: This camber is to be measured with the beam lying on its side.

Work on this sheet with sheet nos. 112, 113, 115, 116 and 117.

STRUCTURAL STEEL DETAILS

Nolan 11-23-65
Nuren 11-14-65
Wang 4-20-64
114 118

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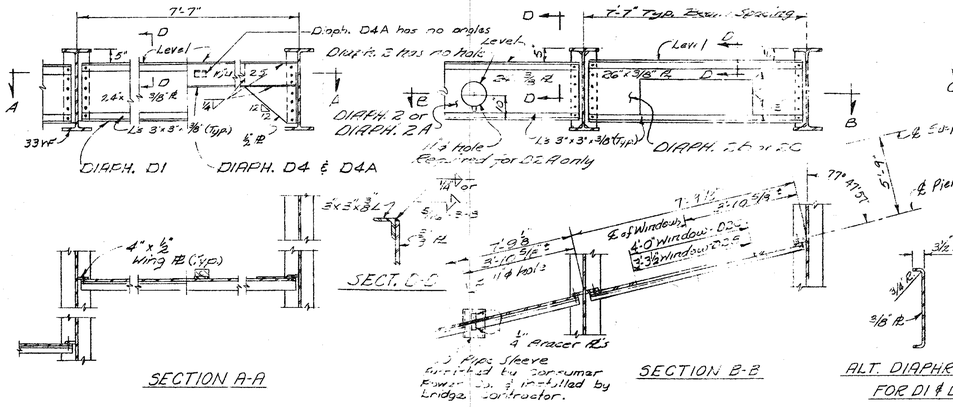
10-13-99	S31 OF 63174.	48404A	MAHDAVI	9 OF 20

DRAWN BY: INDER | CHECKED BY: | CORRECTED BY: | DATE: 01-13-99 | DATE: | DATE:

FILE NAME: s316317 4.sn

CONTROL SECTION S31 OF 63174 JOB NO. 48404A SH. NO. 10

REVISIONS			
NO.	DESCRIPTION	DATE	BY

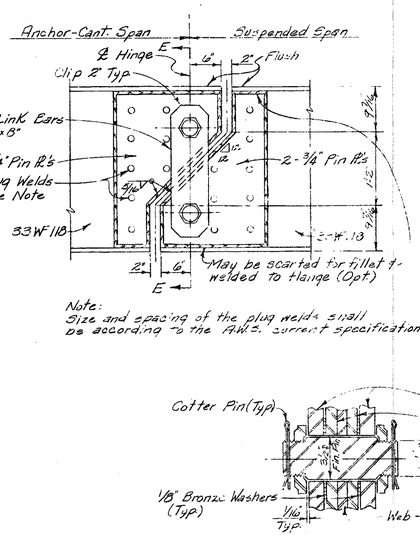


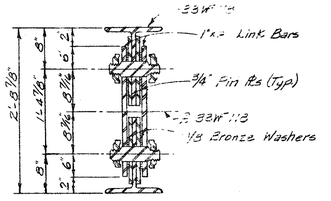
INTERM. DIAPHRAGM D1, D4 & D4A DETAILS

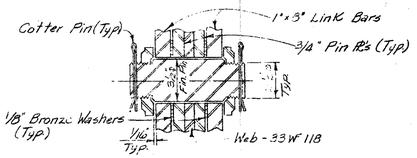
INTERM. DIAPHRAGM D2, D2A, D2B & D2C DETAILS @ Piers #1 & #3

END DIAPHRAGM D3 DETAILS @ Hinge ℄ Pier #2

SOLE PLATE THICKNESS TABLE							
	BEAM	TYPE	t		BEAM	TYPE	t
Abutment A	A	SP1	2"	Pier 2 - Span 3	A	SP3	2"
	B	"	2"		B	"	2"
	C	"	4 3/4"		C	"	4 1/2"
	D	"	2"		D	"	2"
	E	"	3 1/4"		E	"	3"
	F	"	3 1/2"		F	"	3"
	G	"	2 1/2"		G	"	2"
	H	"	4"		H	"	4 1/2"
	J	"	2"		J	"	2"
	K	"	2"		K	"	2"
Pier 1	A	SP2	2 1/2"	Pier 3	A	SP2	3 1/2"
	B	"	2 1/2"		B	"	3 1/2"
	C	"	5 1/4"		C	"	5 3/4"
	D	"	2 1/2"		D	"	2 3/4"
	E	"	3 1/2"		E	"	3 3/4"
	F	"	3 3/4"		F	"	3 1/2"
	G	"	2 3/4"		G	"	2 1/2"
	H	"	5 3/4"		H	"	5 1/4"
	J	"	3 1/2"		J	"	2 1/2"
	K	"	3 1/2"		K	"	2 1/2"
Pier 2 - Span 2	A	SP3	2"	Abutment B	A	SP1	2"
	B	"	2"		B	"	2"
	C	"	4 1/2"		C	"	4"
	D	"	2"		D	"	2 1/2"
	E	"	3"		E	"	3 1/4"
	F	"	3"		F	"	3 1/2"
	G	"	2"		G	"	2"
	H	"	4 1/2"		H	"	4 3/4"
	J	"	2"		J	"	2"
	K	"	2"		K	"	2"

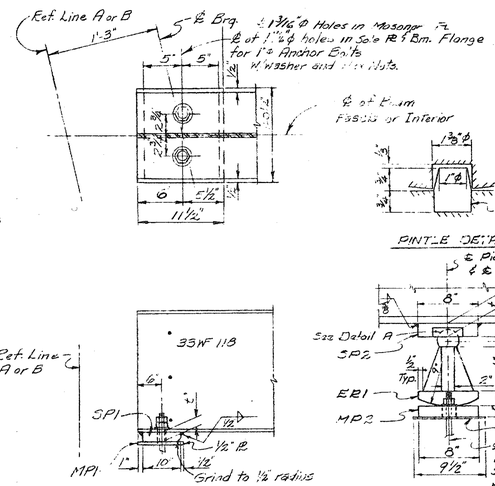


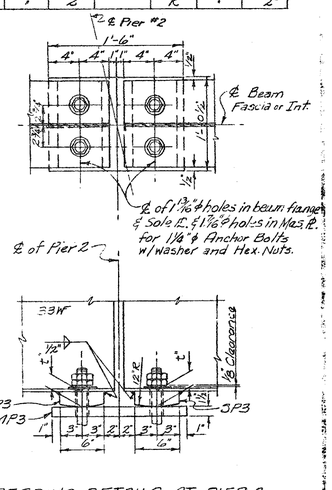


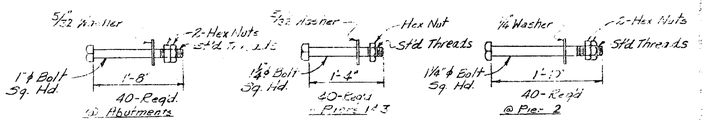


SUSPENDER DETAILS
FASCIA & INTERIOR BEAMS

Note:
See Utility Details Sheet #113 for provisions for Utilities. (Consumers Power Co. & Detroit Edison Co.)







Work this sheet with sheet nos. 112, 113, 114, 116 and 117.

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

Noted: Warren 11-19-63
Wang 4-20-64
115 118

S31 of 63174B

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

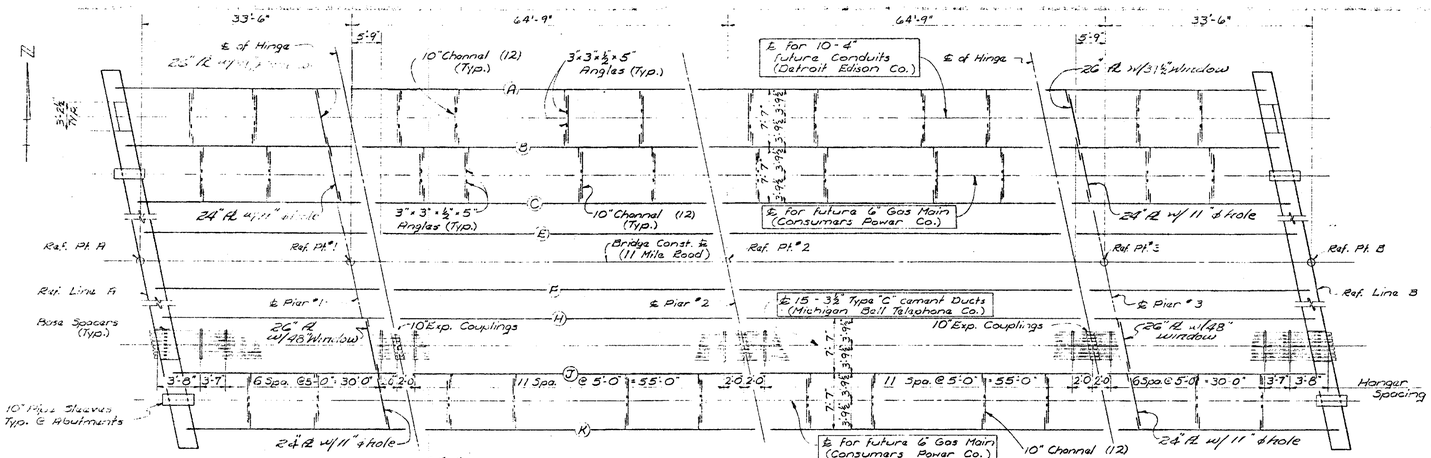
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	10 OF 20

CMDOT Michigan Department of Transportation

DATE: CORRECTED BY:
DATE: 01-13-99 CHECKED BY:
DRAWN BY: INDER
FILE NAME: s3163174.sn

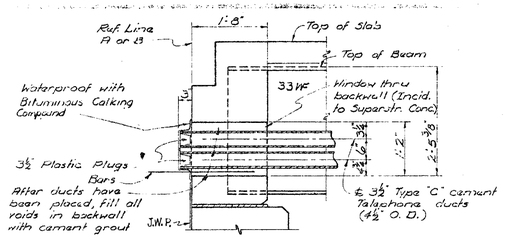
CONTROL SECTION S31 OF 63174 JOB NO. 48404A SH. NO. 11

REVISIONS			
NO.	DESCRIPTION	DATE	BY

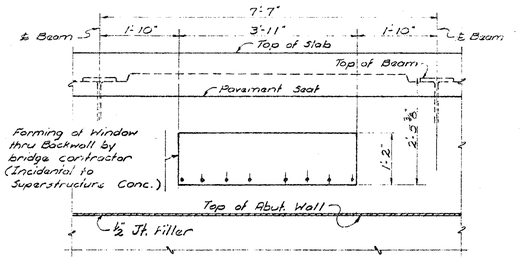


Note:
Only those disciplines having Public Utilities are shown.

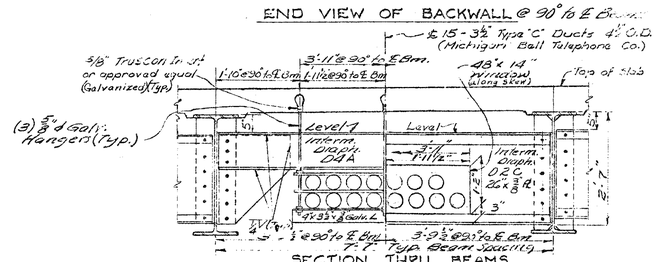
PLAN OF UTILITIES
(Michigan Bell Telephone Co.)
(Consumers Power Co.)
(Detroit Edison Co.)



SECTION THRU BACKWALL

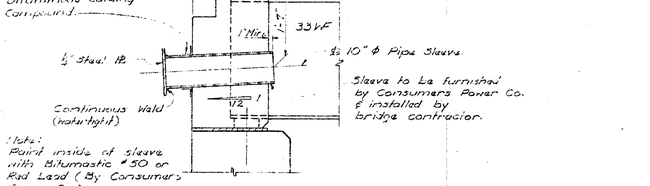


END VIEW OF BACKWALL @ 90° to ℄ Brgs.



SECTION THRU BEAMS
(FOR TELEPHONE DUCTS)

MICH. BELL TEL. CO.



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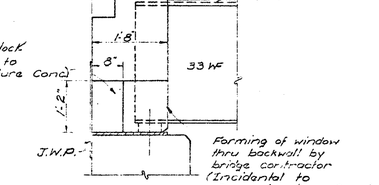
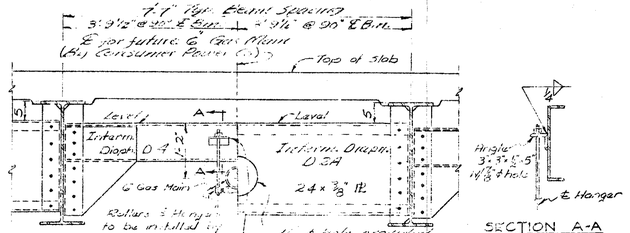


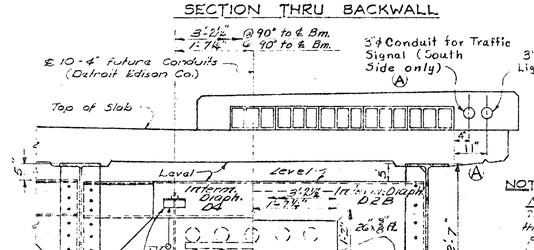
SECTION THRU BACKWALL



SECTION THRU BEAMS

CONSUMERS POWER CO.
(FOR FUTURE 6" GAS LINE)

For Quantities chargeable to Consumers Power Co. See Table)



SECTION THRU BEAMS

DETROIT EDISON CO.
(FOR FUTURE 10-4" ELEC. CONDUITS)
(For Quantities chargeable to Detroit Edison Co. See Table.)

NOTES:

MICHIGAN BELL TELEPHONE CO.
The inserts in the deck slab are included in this contract.
Forming of window in backwalls is incidental to superstructure concrete.
Furnishing & installing of telephone conduit is not a part of this Contract, and the installation of the ducts shall be in accordance with the manufacturers & telephone company's recommendations.

DETROIT EDISON CO.
Angles for supporting the future hanger arrangement are included in this contract. (Structural Steel)
Forming of window in backwalls is incidental to superstructure concrete.
All other work shown is not a part of this contract.

CONSUMERS POWER CO.
Angles for supporting the future hanger arrangement are included in this contract. (Structural Steel)
All other work shown is not a part of this contract.

UTILITY QUANTITIES

CHARGE TO	ITEM	UNIT	AMOUNT
Mich. Bell Tel. Co.	5/8" ϕ Concrete Inserts	Each	150
	10" ϕ Pipe Sleeves - Placed	Each	2
Consumers Power	* Structural Steel - Furnishing & Fabricating	Lbs.	190
	* Structural Steel - Erection	Lbs.	190
Detroit Edison Co.	* Structural Steel - Furnishing & Fabricating	Lbs.	100
	* Structural Steel - Erection	Lbs.	100

* Included in Structural Steel Quantities Sht. 114

The Contractor shall advise the District Utility Engineer as soon as the structure is ready for installation of conduits or mains in bridge.

Work on this sheet will affect pay items 109(1), 109(2), 111, 114, & 115

MICHIGAN STATE HIGHWAY DEPARTMENT

UTILITY DETAILS

Noted: [illegible]
Structure 3-4-64
Work 4-20-64
113 116

S31 of 63174B

Ⓐ 3" conduit for Traffic Signal 5-26-66 W.Bak

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

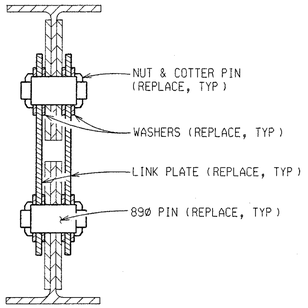
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	11 OF 20

DRAWN BY: INDER CHECKED BY: DATE: 01-13-99 CORRECTED BY: DATE:

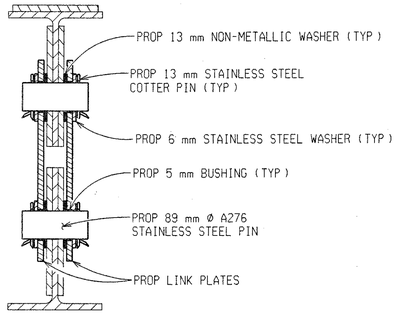
FILE NAME: s3163174.sn

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
9 50 51 52 53 54 55 56 57 58 59 60 61 62 63

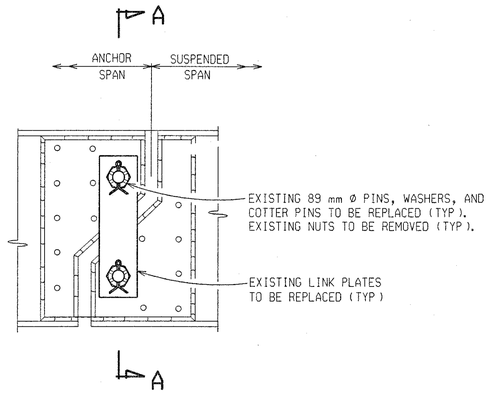
REVISIONS			
NO.	DESCRIPTION	DATE	BY



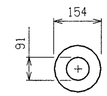
SECTION A-A
(EXISTING)



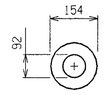
SECTION A-A
(PROPOSED)



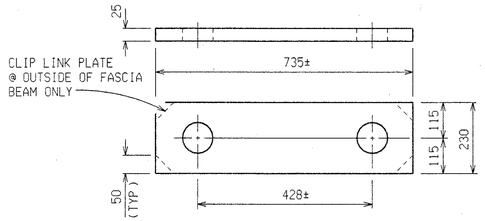
ELEVATION AT PIN



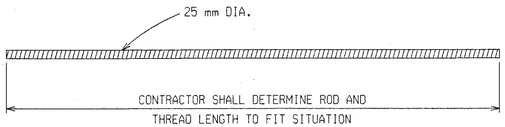
6 mm STAINLESS STEEL WASHER
(80 REQ'D.)



13 mm NON-METALLIC WASHER
(INCIDENTAL TO STRUCTURAL STEEL)
(80 REQ'D.)

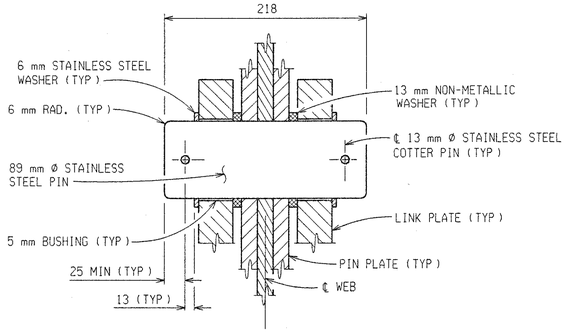


LINK PLATE
(40 REQ'D.)

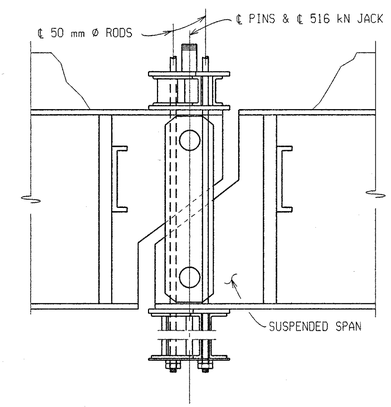


SUSPENDER ROD DETAIL

4 REQUIRED PER ASSEMBLY W/7 HEAVY HEX NUTS
& 4 HARDENED WASHER PER ROD

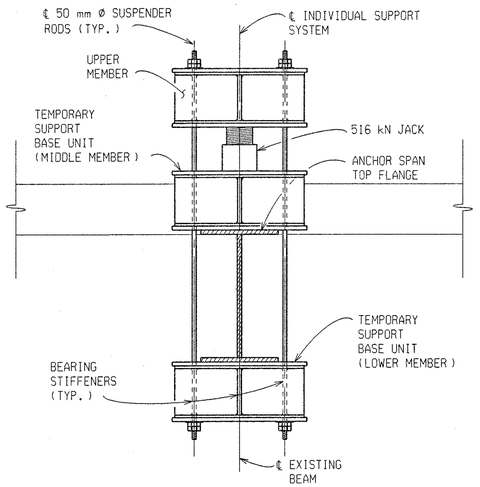


PROPOSED
PIN DETAIL
(40 REQ'D.)



PLAN OF TEMPORARY SUPPORT

TEMPORARY SUPPORT



DECK SECTION B-B
(TYPICAL ALL BEAMS)

MISCELLANEOUS QUANTITIES

20 ea	Support, Suspension, Temp
80 ea	Bushing
1715 kg	Structural Steel, Furn and Fab, Pin and Hanger
20 ea	Hanger Assembly, Rem and Erect
20 ea	Hanger Assembly, Field Measurement
1 LS	Field Repr of Damaged Coating (S31)
1 LS	Steel Structure, Cleaning, Type 4 (S31)
1 LS	Steel Structure, Coating, Type 4 (S31)
20 m2	Water Repellent Treatment
16 m	Beam Plate, Seal Perimeter
* 239 m	Protective Shield, Utility Pipe

* PAY ITEM IS FOR PROTECTIVE SHIELD OF THE AMERITECH DUCTS, DETROIT EDISON DUCTS, AND THE CONSUMER ENERGY GAS MAIN.

NOTES:

ALL STRUCTURAL STEEL SHALL BE FIELD PAINTED. THE AREA BEHIND AND AROUND THE HANGER ASSEMBLY SHALL BE PAINTED PRIOR TO INSTALLING THE NEW LINK PLATES AND PINS. PROPOSED LINK PLATES SHALL BE SHOP PAINTED.

WELDING ON EXISTING BEAMS WILL NOT BE PERMITTED.

THE PROTECTION OF WORK AND ENVIRONMENT DURING BLAST CLEANING OF WEBS BEHIND AND AROUND HANGER ASSEMBLIES SHALL BE ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. (INCLUDED IN THE BID ITEM "HANGER ASSEMBLY, REMOVE AND ERECT".)

THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS OF THE EXISTING HANGER ASSEMBLIES INDICATED ON THE PLANS PRIOR TO THE PREPARATION OF LINK PLATE AND PIN SHOP DRAWINGS.

THE CONTRACTOR WILL BE FURNISHED WITH PLANS OF THE EXISTING STRUCTURE IF REQUESTED.

ALTERNATE DESIGNS OF THE TEMPORARY SUPPORT SHALL BE BASED ON LOADS AS FOLLOWS:

516 kN VERTICAL GIRDER LOAD.

THIS BRIDGE IS COATED WITH LEAD BASED PAINT.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE COLOR FOR THE URETHANE PROTECTIVE COAT SHALL MATCH COLOR NUMBER 16440 (LIGHT GRAY) OF FEDERAL STANDARD NUMBER 595A.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE OF THE MAINTENANCE DIVISION IN LANSING.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE PAINTED IS 1700 SQUARE METERS.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BEARING PLATE TO CONCRETE CONTACT SURFACES AFTER CUTTING AWAY ANY PROTRUDING PORTION OF THE LEAD PLATE AT PIER 2 ONLY.

THE TOP OF PIER 2 SHALL BE GIVEN AN APPLICATION OF PENETRATING WATER REPELLENT TREATMENT.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES. (INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4 (S31)".)

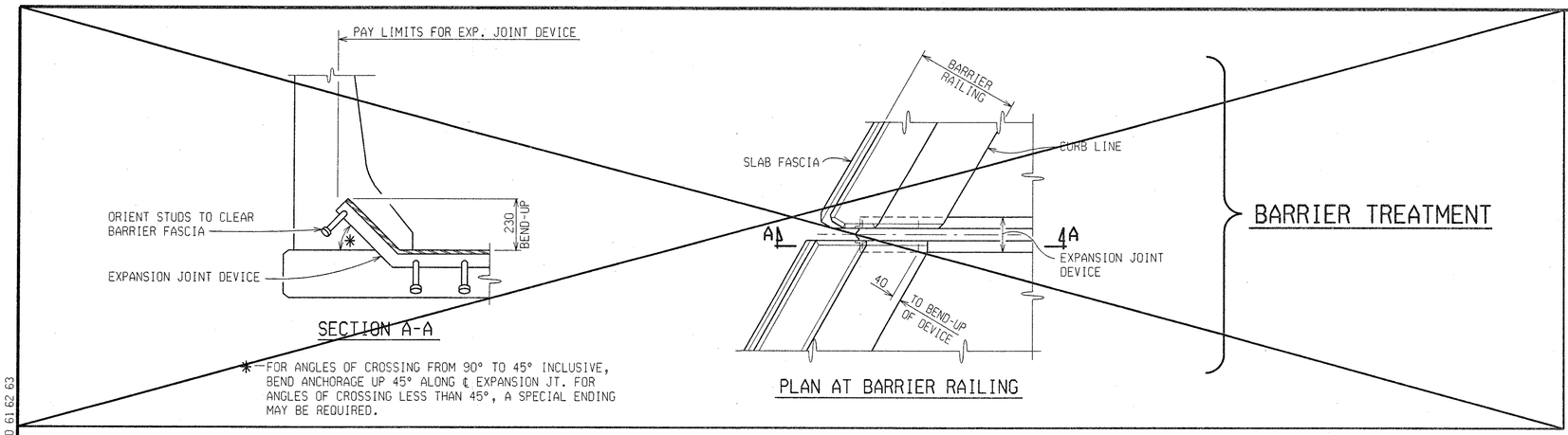
DATE: 7-26-99 CORRECTED BY: CASLER
DATE: DRAWN BY: CASLER DATE: 4-30-99 CHECKED BY:
FILE NAME: s3163174.pr

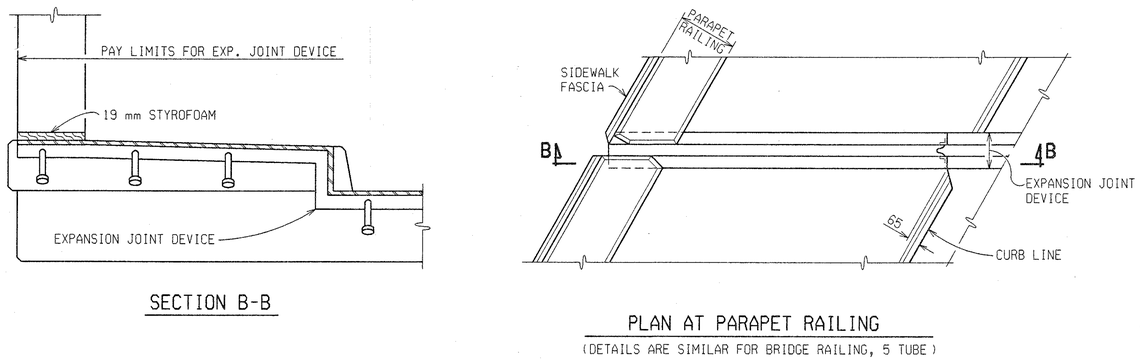
SUSPENDER REPLACEMENT DETAILS

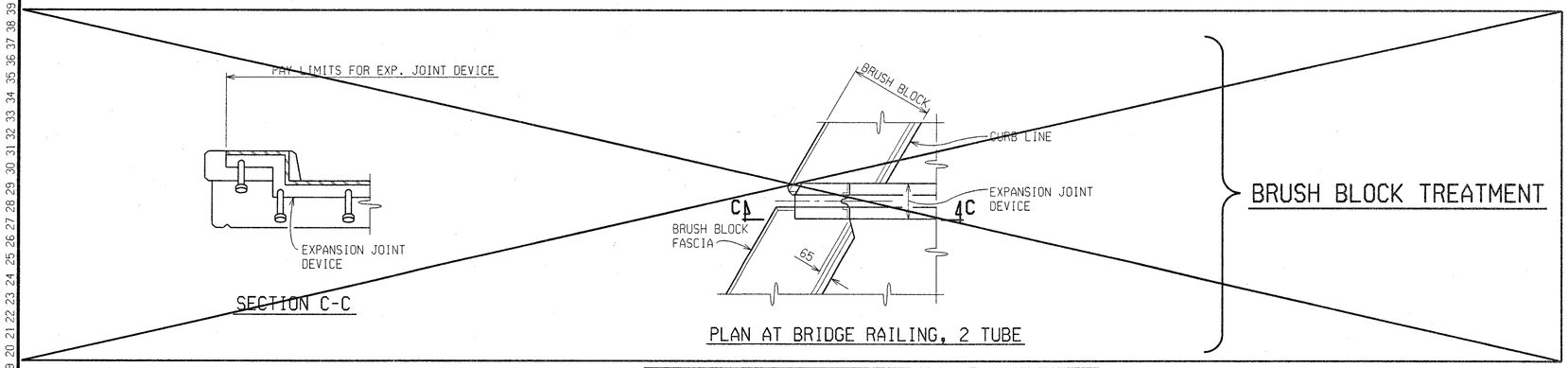
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	12 OF 20

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 13







STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S31	80	PIER 1	28 mm	23.3 m
S31	80	PIER 2	15 mm	23.3 m
S31	80	PIER 3	28 mm	23.4 m

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	70

DATE: DATE: 07-16-96 CORRECTED BY: DATE: 4-30-99 CHECKED BY: VZ/SPB DRAWN BY: CASLER FILE NAME: s3163174.ej

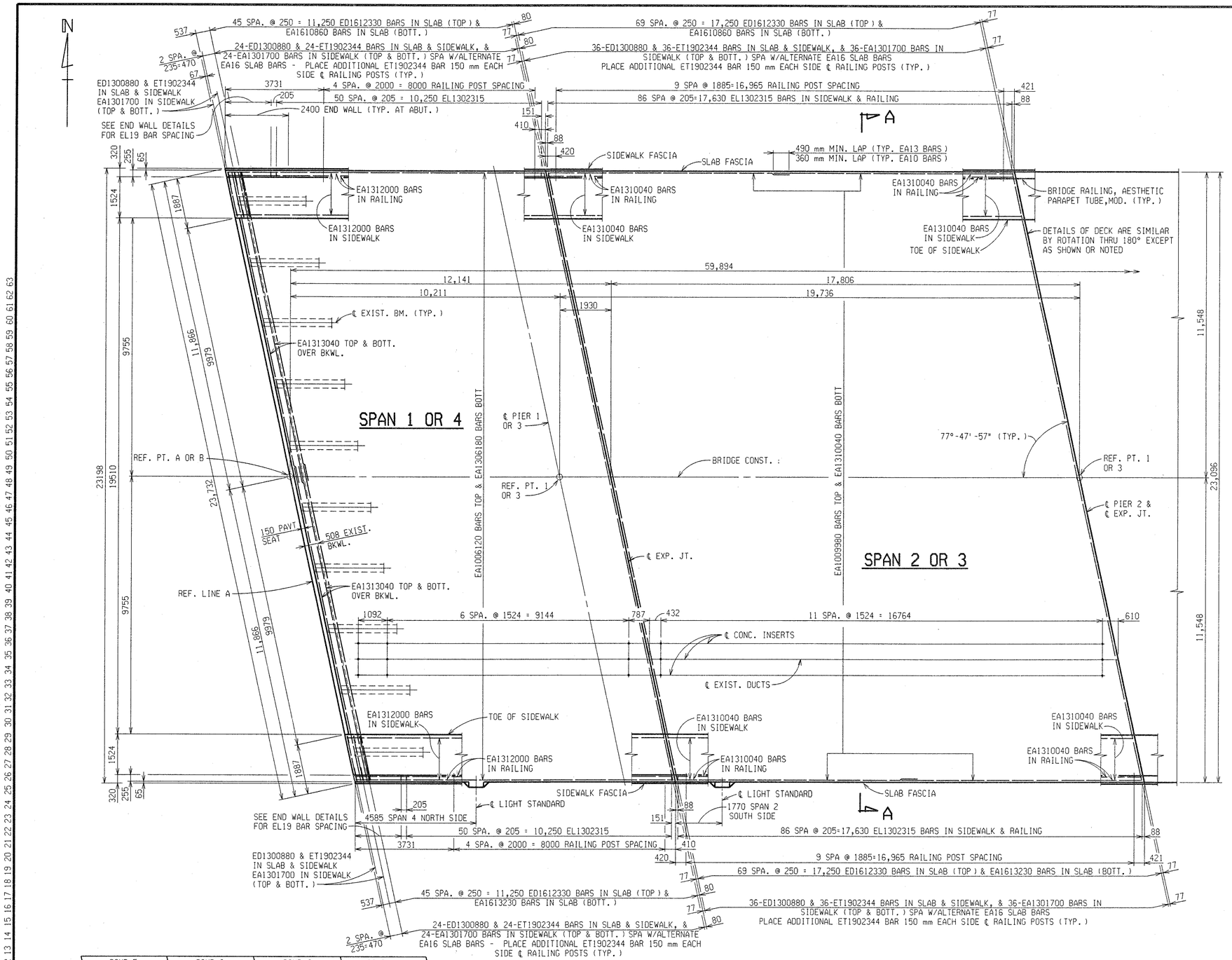
MICHIGAN DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	13 OF 20

EJ3T (11-17-97)

CONTROL SECTION S31 OF 63174 JOB NO. 48404A SH. NO. 14



POUR E	POUR G	POUR J	POUR L
POUR A	POUR B	POUR C	POUR D
POUR F	POUR H	POUR K	POUR M

POUR DIAGRAM

PLAN

ADJUST REINFORCEMENT TO PERMIT PLACEMEMT OF RAILING & FENCE POST ANCHORAGES & LIGHT STANDARDS.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SUPERSTRUCTURE CONCRETE NIGHT CASTING QUANTITIES

POUR	CUBIC METERS
A	65
B	105
C	105
D	65
TOTAL CONC: 340	CUBIC METERS

SUPERSTRUCTURE CONCRETE QUANTITIES

POUR	CUBIC METERS
E	5
F	5
G	7
H	7
J	7
K	7
L	5
M	5
TOTAL CONC:	48 CUBIC METERS

MISCELLANEOUS QUANTITIES

120 m	Bridge Railing, Aesthetic Parapet Tube, Modified
22 m2	Joint Waterproofing
194 m2	Top Flanges and Beam Ends, Clean and Prime
50 m3	Superstructure Conc
1 LS	Superstructure Conc, Form, Finish, and Cure (S31)
340 m3	Superstructure Conc, Night Casting
1 LS	Superstructure Conc, Form, Finish, and Cure, Night Casting (S31)
1 LS	Shear Developers (S31)
1 LS	Bridge Lighting, Furnish and Remove (S31)
340 m3	Bridge Lighting, Operate and Maintain
240 m	Conduit, 75 mm
338 m2	Conc Surface Sealer
120 ea	Conc Insert, Placed

NOTES:

N.S. DENOTES NEAR SIDE.

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL AND NAME PLATE MOUNTING DETAILS, SEE STANDARD PLAN B-25-SERIES. FOR DETAILS OF NAME PLATES, MOLDINGS AND BEVELS, SEE STANDARD PLAN B-103-SERIES.

BRIDGE RAILING, AESTHETIC PARAPET TUBE, MODIFIED SHALL BE IN ACCORDANCE WITH THE STANDARD PLAN B-25 EXCEPT FOR THE ADDITION OF FRACTURE FIN RUSTIFICATION ON THE BACK SIDE OF THE RAILING AS DETAILED ON THE PLANS.

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET .

FOR DETAILS OF LIGHT STANDARD ANCHOR BOLT ASSEMBLIES, SEE STANDARD PLAN B-103-SERIES.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

ALPHABETICAL DESIGNATION OF DECK POURS IS NOT TO BE CONSTRUED AS A POUR SEQUENCE.

NO PORTION OF THE DECK FORMWORK SHALL ENCROACH ON THE EXISTING UNDERCLEARANCE.

THE UTILITY COMPANY SHALL BE NOTIFIED ONE WEEK IN ADVANCE OF THE TIME OF INSTALLATION OF THE DUCTS IN THE SIDEWALK.

WHERE CAST-IN-ANCHORAGE IS USED FOR EXPANSION JOINT DEVICES, IT IS RECOMMENDED THAT THE PLACING OF DECK CONCRETE PROGRESS TOWARD THE JOINT SO THAT THE EFFECTS OF DEAD LOAD DEFLECTION WILL OCCUR BEFORE CONCRETE IS PLACED AT THE ANCHORAGE.

THE LIGHT STANDARD ANCHOR BOLT ASSEMBLIES ARE INCLUDED IN THE PAYMENT FOR "BRIDGE RAILING, AESTHETIC PARAPET TUBE, MODIFIED".

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03 J OF THE STANDARD SPECIFICATIONS.

METAL STAY IN PLACE FORMS ARE OPTIONAL.

IF STAY IN PLACE METAL FORMS ARE TO BE USED, THE CONTRACTOR MAY OMIT THE STYROFOAM FROM THE CORRUGATIONS AND FILL THE FORMS FULL DEPTH. THE EXTRA CONCRETE REQUIRED TO FILL THE CORRUGATIONS WILL NOT BE PAID FOR.

ALL CONCRETE SURFACES OF THE BRIDGE RAILING, THE DECK FASCIAS, AND THE OUTSIDE BOTTOM OF DECK TO FASCIA BEAMS SHALL BE COATED WITH CONCRETE SURFACE SEALER (SEE SPECIAL PROVISION.

CONCRETE INSERTS SHALL BE FURNISHED BY AMERITECH AND INSTALLED BY THE CONTRACTOR. ALL MATERIAL NECESSARY FOR REINSTALLATION OF THE DUCTS SHALL BE PROVIDED BY THE UTILITY COMPANY.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE INSERTS PRIOR TO INSTALLING THE INSERTS IN THE DECK (SEE SHEET * 11 FOR INFORMATION).

DATE: CORRECTED BY:

DATE: 9-16-99 CHECKED BY:

DRAWN BY: CASLER

FILE NAME: s3163174.dk

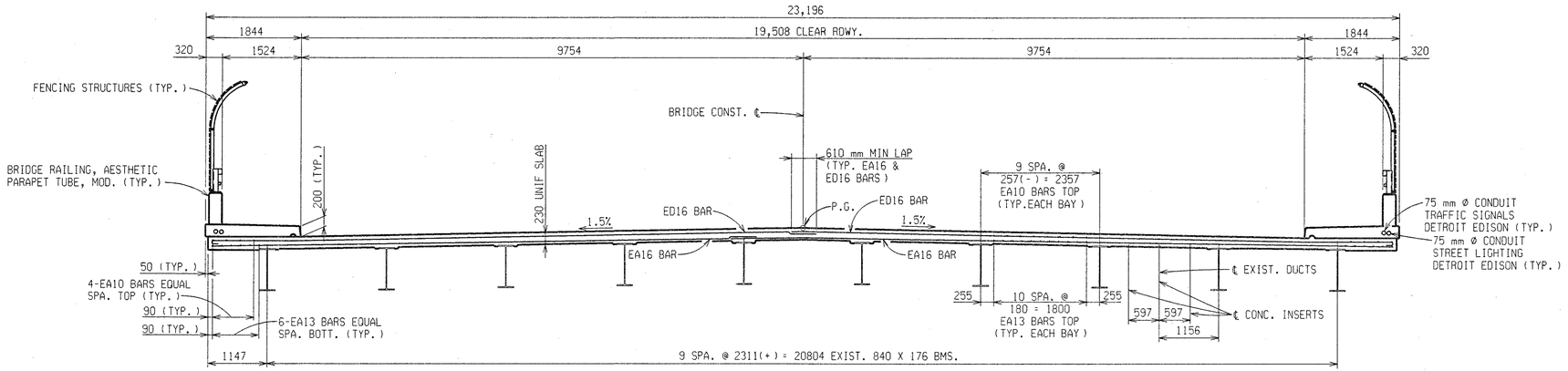
MDOT Michigan Department of Transportation

SUPERSTRUCTURE DETAILS

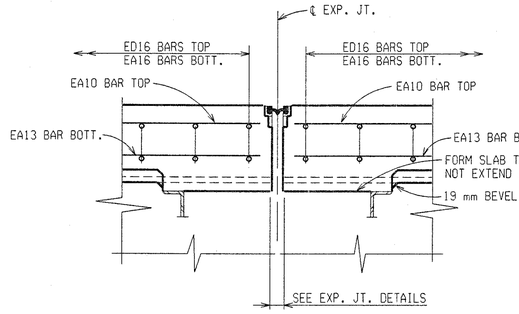
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	14 OF 20

CONTROL SECTION S31 OF 63174 JOB NO. 48404A SH. NO. 15

REVISIONS			
NO.	DESCRIPTION	DATE	BY



SECTION A-A



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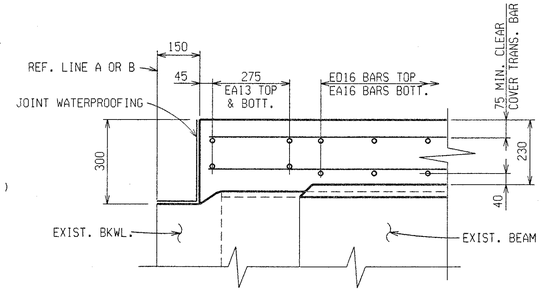
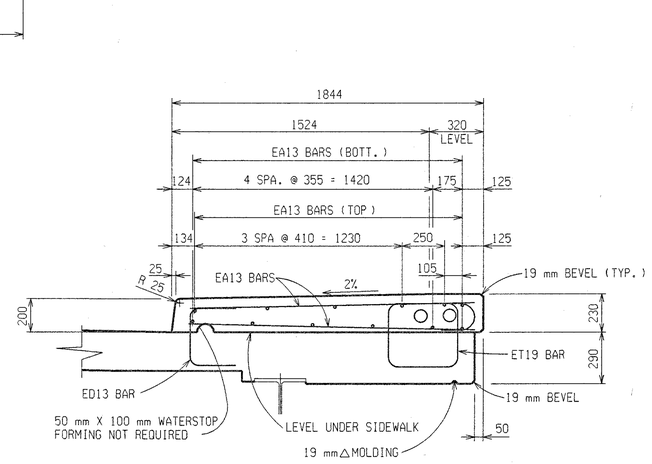
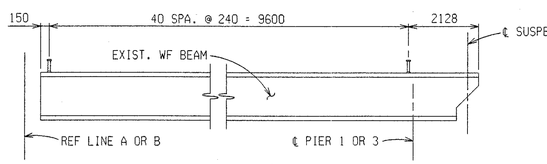


SECTION THRU BACKWALL

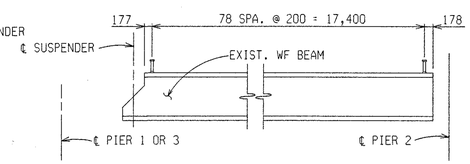


SECTION THRU SIDEWALK



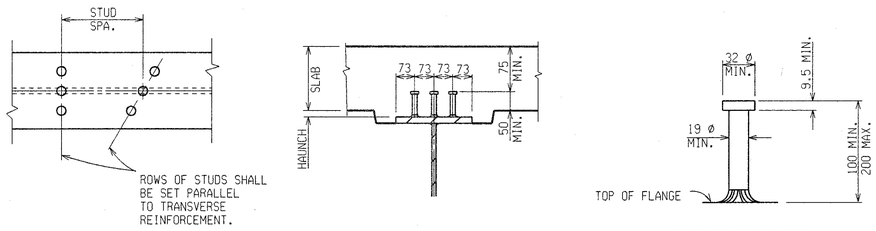
BEAM ELEVATION SPAN 1 OR 3

SHOWING STUD SPACING



BEAM ELEVATION SPAN 2 OR 4

SHOWING STUD SPACING



PLAN

SECTION

STUD DETAIL

STUD SHEAR DEVELOPER DETAILS

MDOT Michigan Department of Transportation

SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	15 OF 20

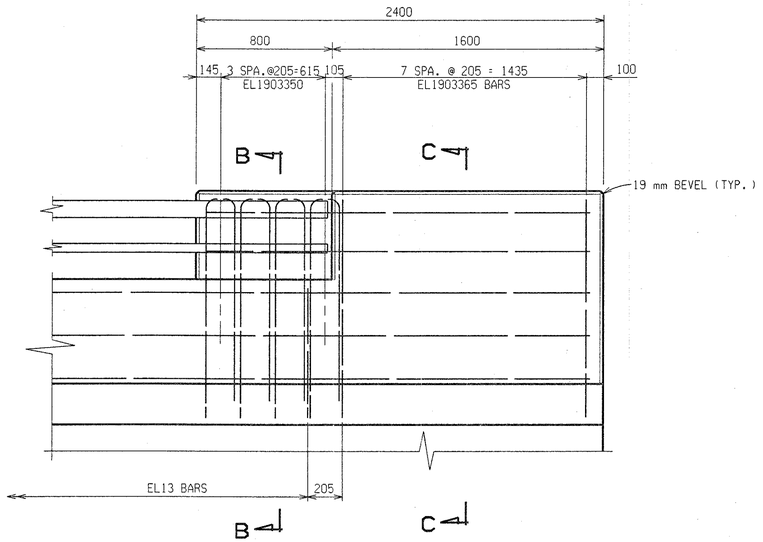
DATE: CORRECTED BY:

DATE: 9-17-99 CHECKED BY:

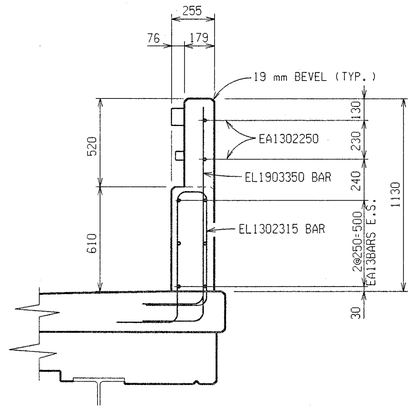
DRAWN BY: CASLER

FILE NAME: s3163174.dk

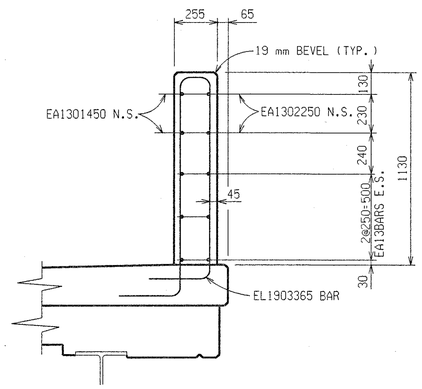
CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 16



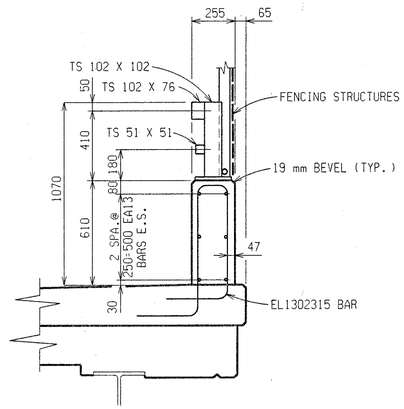
END WALL ELEVATION



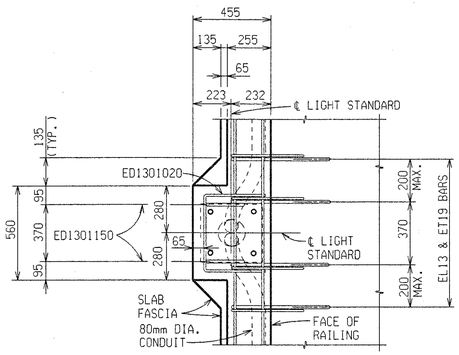
SECTION B-B



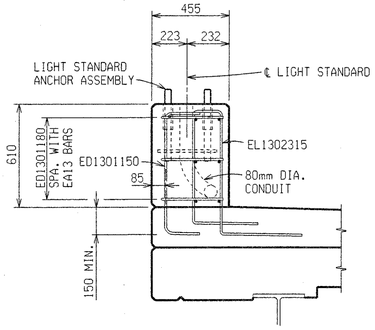
SECTION C-C



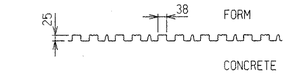
SECTION THRU AESTHETIC RAILING



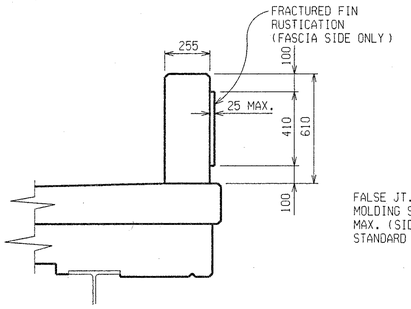
PLAN OF RAILING AT LIGHT STANDARD



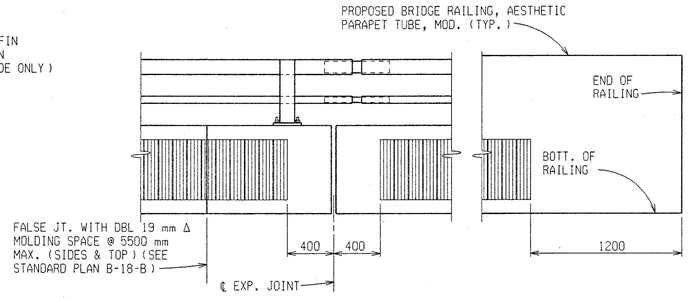
SECTION THRU RAILING AT LIGHT STANDARD



FRACTURED FIN FORM LINER DETAIL



TYPICAL RAILING SECTION SHOWING RUSTICATION



RAILING ELEVATION
LATERAL LIMITS OF RUSTICATION

REVISIONS			
NO.	DESCRIPTION	DATE	BY

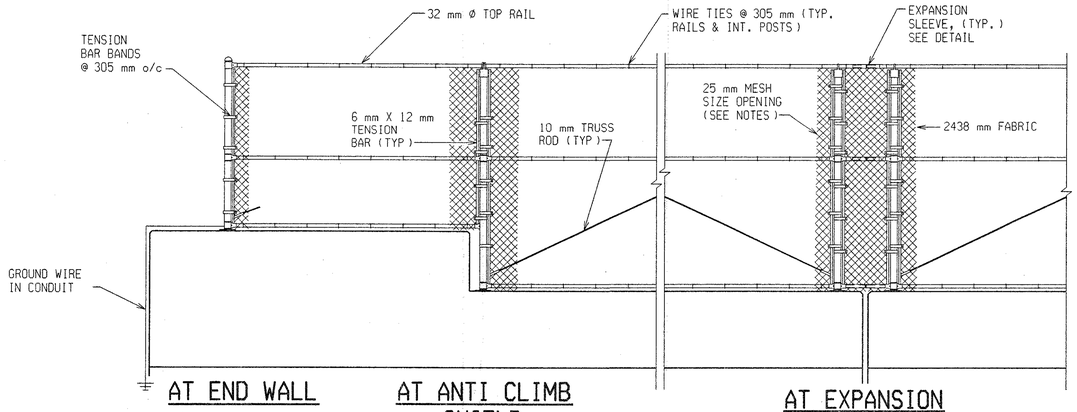
DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 9-16-99 | DRAWN BY: CASLER | FILE NAME: s3163174.dgk

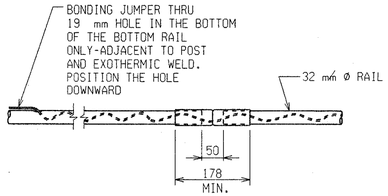
MDOT Michigan Department of Transportation

SUPERSTRUCTURE DETAILS

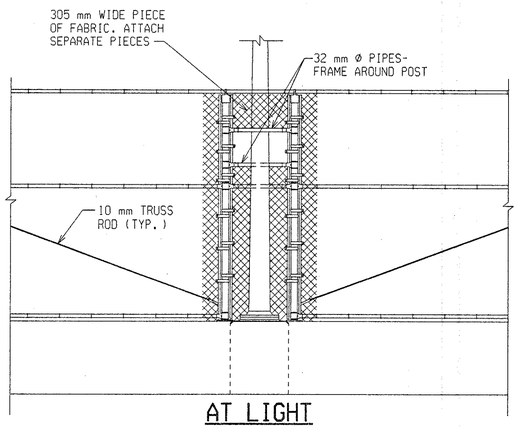
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	16 OF 20

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 17

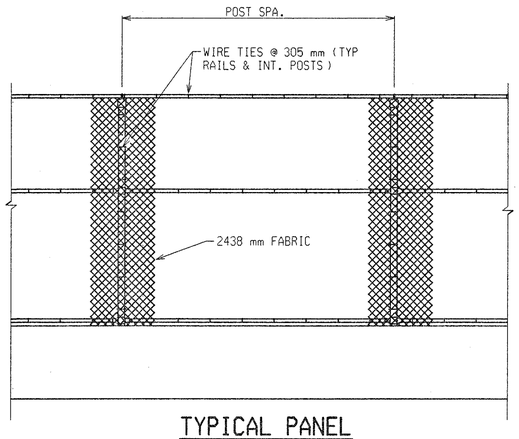




EXPANSION SLEEVE DETAIL

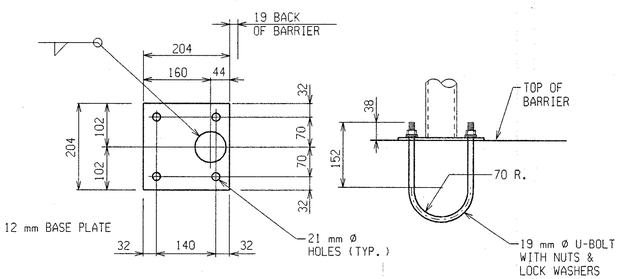


AT LIGHT STANDARD

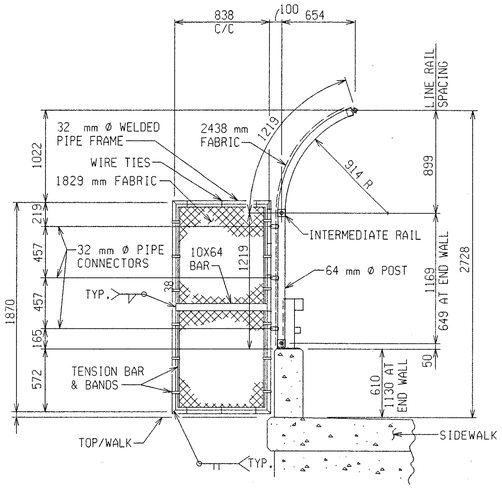


TYPICAL PANEL

TYPICAL ELEVATIONS



BASE PLATE DETAILS



TYPICAL SECTION
(SHOWING ANTI-CLIMB SHIELD)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MISCELLANEOUS QUANTITIES

292 m2	Fencing, Structures
1 ea	Elec Grounding System

NOTES:

ALL FENCE POSTS SHALL BE 64 NOMINAL, (73 O.D.) PIPE AND ANTI-CLIMB SHIELD PIPE FRAMES SHALL BE 32 NOMINAL, (42 O.D.) PIPE, IN CONFORMANCE WITH ASTM F669, CLASS 1C.

HORIZONTAL RAILS SHALL BE 32 NOMINAL (42 O.D.) PIPE IN CONFORMANCE WITH ASTM F669, CLASS 1C OR ASTM F1083.

ALL FENCE COMPONENTS, UNLESS OTHERWISE INDICATED, SHALL BE GALVANIZED IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

ALL POSTS, ANTI-CLIMB SHIELDS OR OTHER COMPONENTS TO BE FABRICATED SHALL BE FURNISHED "BLACK" AND THEN GALVANIZED AFTER FABRICATION.

DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

FENCE FABRIC SHALL BE #9 GAGE MESH AND BE GALVANIZED OR ALUMINUM COATED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION. MESH SIZE OPENING SHALL BE 25 mm.

GALVANIZED 10 mm Ø TRUSS RODS SHALL EXTEND DIAGONALLY FROM THE TOP CONNECTION CLIP AT EACH TENSION BAR TO THE ADJACENT POST, EXCEPT ACROSS EXPANSION JOINTS AND AT LIGHT STANDARDS WITH A CURVED FENCE DETAIL, WHEN THERE ARE TWO OR MORE CONTINUOUS PANELS OF FABRIC.

ALL POSTS SHALL BE INSTALLED PLUMB AND MAY BE SHIMMED WITH NON-METALLIC SHIMS, APPROVED BY THE ENGINEER. COSTS FOR SHIMMING SHALL BE INCLUDED IN THE PAY ITEM "FENCING, STRUCTURES".

BOTTOM STRAP ON THE VERTICAL POST SHALL BE CONNECTED WITH RAIL ENDS (BRACE BANDS) RATHER THAN A TWO WAY CLAMP TO ALLOW A MINIMUM OF 7 mm OFFSET.

FIELD WELDING SHALL BE ALLOWED ONLY FOR THE HANDRAIL SPLICES AND FOR ATTACHMENT OF THE HANDRAIL TO THE POST. ALL FIELD WELDS SHALL BE GROUND SMOOTH PRIOR TO COATING WITH ZINC-RICH PAINT OR SPRAYED ZINC IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS.

THE GROUND WIRE SHALL BE PLACED IN A NON-METALLIC CONDUIT, FROM THE END POST CONNECTION TO THE GROUND ROD CONNECTION. THE CONDUIT SHALL BE SECURED TO THE STRUCTURE USING EITHER EXPANSION BOLTS OR ADHESIVE ANCHORED BOLTS WITH GALVANIZED METAL STRIPS, AS APPROVED BY THE ENGINEER.

IN THE EVENT THAT INSTALLATION OF A GROUND ROD IS IMPRACTICAL, THE GROUND WIRE SHALL BE CONNECTED TO THE NEAREST LIGHT STANDARD, USING A MECHANICAL CLIP, ONLY AFTER OBTAINING PERMISSION FROM THE LOCAL PUBLIC LIGHTING AUTHORITY.

EXPANSION JOINT SLEEVES, FOR HORIZONTAL RAILS, SHALL BE THE MANUFACTURER'S STANDARD OVERSIZED SLEEVES, CRIMPED IN THE MIDDLE.

ALL DIMENSIONS ARE IN MILLIMETERS.

FENCE FABRIC SHALL BE CONTINUOS AT LIGHT POLE, BUT MAY BE CUT AND SPLICED. REINFORCE OPENING IN THE FABRIC AT POSTS WITH #6 GAUGE WIRE.

GROUNDING CABLES AND TOPS OF GROUNDING RODS SHALL BE PLACED 300 mm MINIMUM BELOW FINISHED GROUND.

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 9-17-99 | DRAWN BY: CASLER | FILE NAME: s30G3174.fe

FENCING DETAILS

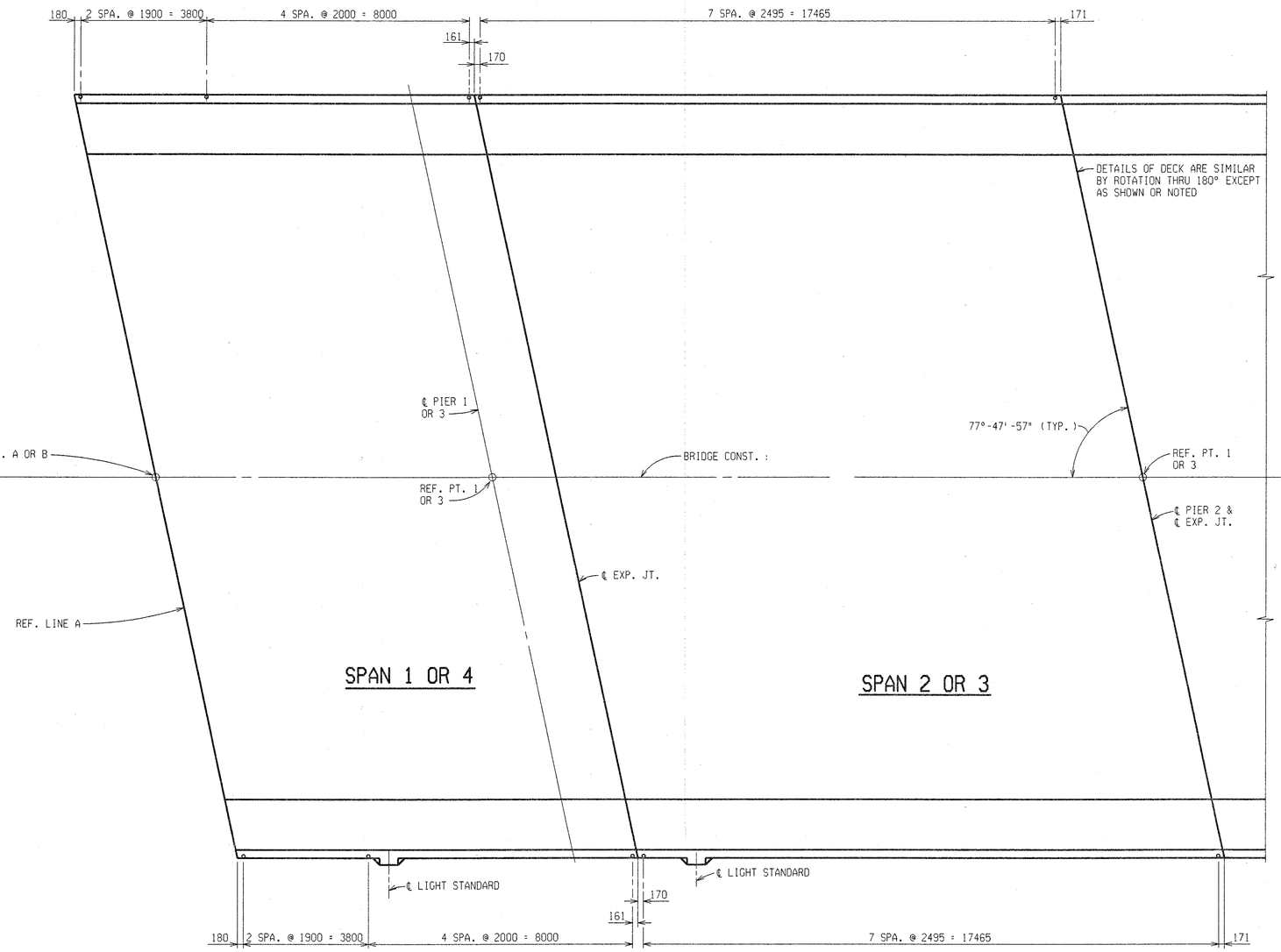
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	17 OF 20

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 18

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN
(SHOWING FENCE POST SPACING)

DATE:
CORRECTED BY:
DATE:
CHECKED BY:
DATE: 9-17-99
DRAWN BY: CASLER
FILE NAME: s31631 74.fe

FENCING DETAILS

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	18 OF 20

CONTROL SECTION S31 OF 63174 JOB NO. 48404A SH. NO. 19

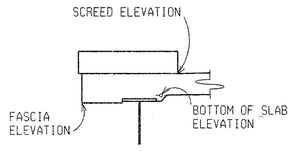
REVISIONS			
NO.	DESCRIPTION	DATE	BY

BOTTOM OF SLAB ELEVATIONS

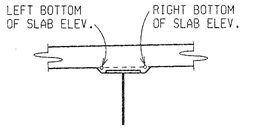
		REF.A	SPAN 1				℄ BRG	REF.1	℄ P&H	SPAN 2					℄ BRG	REF.2	℄ BRG	SPAN 3					℄ P&H	REF.3	℄ BRG	SPAN 4				REF.B
		0	1	2	3	4		0		1	2	3	4	5	6	0		1	2	3	4	5	6	0		1	2	3	4	
A	FASCIA	193.887	193.912	193.933	193.951	193.966		193.986		194.017	194.042	194.057	194.062	194.057	194.046	194.046		194.061	194.070	194.069	194.058	194.038	194.010	193.993		193.982	193.967	193.949	193.927	
	RIGHT	193.951	193.976	193.997	194.015	194.030		194.043		194.075	194.100	194.115	194.120	194.115	194.104	194.104		194.119	194.128	194.127	194.116	194.095	194.068	194.057		194.045	194.031	194.013	193.991	
B	LEFT	193.977	194.002	194.023	194.040	194.055		194.068		194.099	194.123	194.138	194.142	194.137	194.125	194.126		194.141	194.149	194.147	194.136	194.115	194.087	194.076		194.064	194.049	194.030	194.009	
	RIGHT	193.984	194.008	194.029	194.047	194.061		194.075		194.106	194.130	194.145	194.149	194.144	194.132	194.132		194.147	194.155	194.154	194.143	194.122	194.094	194.082		194.071	194.056	194.037	194.015	
C	LEFT	194.017	194.041	194.061	194.079	194.092		194.106		194.136	194.160	194.174	194.178	194.173	194.160	194.160		194.175	194.183	194.181	194.169	194.148	194.119	194.108		194.096	194.080	194.061	194.039	
	RIGHT	194.023	194.047	194.068	194.085	194.099		194.112		194.143	194.167	194.181	194.185	194.179	194.167	194.167		194.182	194.189	194.188	194.176	194.154	194.126	194.114		194.102	194.087	194.068	194.046	
D	LEFT	194.056	194.080	194.100	194.117	194.130		194.143		194.173	194.197	194.210	194.214	194.208	194.195	194.195		194.209	194.217	194.214	194.202	194.180	194.151	194.139		194.127	194.111	194.092	194.069	
	RIGHT	194.062	194.086	194.107	194.123	194.137		194.150		194.180	194.203	194.217	194.221	194.215	194.202	194.202		194.216	194.223	194.221	194.209	194.187	194.158	194.146		194.134	194.118	194.099	194.076	
E	LEFT	194.095	194.118	194.139	194.155	194.168		194.181		194.210	194.233	194.247	194.250	194.243	194.230	194.230		194.244	194.250	194.248	194.235	194.213	194.183	194.171		194.158	194.142	194.123	194.100	
	RIGHT	194.102	194.125	194.145	194.162	194.175		194.187		194.217	194.240	194.253	194.256	194.250	194.237	194.237		194.250	194.257	194.255	194.242	194.219	194.190	194.178		194.165	194.149	194.129	194.106	
F	LEFT	194.106	194.129	194.149	194.165	194.178		194.190		194.219	194.242	194.255	194.257	194.250	194.237	194.237		194.250	194.256	194.253	194.240	194.217	194.187	194.175		194.162	194.145	194.125	194.102	
	RIGHT	194.100	194.123	194.142	194.158	194.171		194.183		194.213	194.235	194.248	194.250	194.244	194.230	194.230		194.243	194.250	194.247	194.233	194.210	194.181	194.168		194.155	194.139	194.118	194.095	
G	LEFT	194.076	194.099	194.118	194.134	194.146		194.158		194.187	194.209	194.221	194.223	194.216	194.202	194.202		194.215	194.221	194.217	194.203	194.180	194.150	194.137		194.123	194.107	194.086	194.062	
	RIGHT	194.069	194.092	194.111	194.127	194.139		194.151		194.180	194.202	194.214	194.217	194.209	194.195	194.195		194.208	194.214	194.210	194.197	194.173	194.143	194.130		194.117	194.100	194.080	194.056	
H	LEFT	194.046	194.068	194.087	194.102	194.114		194.126		194.154	194.176	194.188	194.189	194.182	194.167	194.167		194.179	194.185	194.181	194.167	194.143	194.112	194.099		194.085	194.068	194.047	194.023	
	RIGHT	194.039	194.061	194.080	194.096	194.108		194.119		194.148	194.169	194.181	194.183	194.175	194.160	194.160		194.173	194.178	194.174	194.160	194.136	194.106	194.092		194.079	194.061	194.041	194.017	
J	LEFT	194.015	194.037	194.056	194.071	194.082		194.094		194.122	194.143	194.154	194.155	194.147	194.132	194.132		194.144	194.149	194.145	194.130	194.106	194.075	194.061		194.047	194.029	194.008	193.984	
	RIGHT	194.009	194.030	194.049	194.064	194.076		194.087		194.115	194.136	194.147	194.149	194.141	194.126	194.125		194.137	194.142	194.138	194.123	194.099	194.068	194.055		194.040	194.023	194.002	193.977	
K	LEFT	193.991	194.013	194.031	194.045	194.057		194.068		194.095	194.116	194.127	194.128	194.119	194.104	194.104		194.115	194.120	194.115	194.100	194.075	194.043	194.030		194.015	193.997	193.976	193.951	
	FASCIA	193.927	193.949	193.967	193.982	193.993		194.010		194.038	194.058	194.069	194.070	194.061	194.046	194.046		194.057	194.062	194.057	194.042	194.017	193.986	193.966		193.951	193.933	193.912	193.887	

SCREED ELEVATIONS

LEFT	194.182	194.206	194.228	194.246	194.260	194.274	194.303	194.326	194.341	194.346	194.343	194.334	194.334	194.347	194.354	194.352	194.342	194.323	194.297	194.286	194.274	194.259	194.241	194.220
CENTER	194.348	194.371	194.391	194.407	194.420	194.433	194.460	194.481	194.494	194.497	194.492	194.481	194.481	194.492	194.497	194.494	194.481	194.460	194.433	194.420	194.407	194.391	194.371	194.348
RIGHT	194.220	194.241	194.259	194.274	194.286	194.297	194.323	194.342	194.352	194.354	194.347	194.334	194.334	194.343	194.346	194.341	194.326	194.303	194.274	194.260	194.246	194.228	194.206	194.182



TYPICAL FASCIA SECTION



TYPICAL INTERIOR SECTION

(LOOKING UP STATION)

BULKHEAD ELEVATIONS

	ABUT.A	℄ JT.	PIER 2	℄ JT.	ABUT.B
A	194.179	194.272	194.334	194.297	194.220
B	194.209	194.300	194.359	194.319	194.241
C	194.249	194.338	194.394	194.351	194.271
D	194.288	194.375	194.429	194.384	194.302
E	194.327	194.413	194.463	194.416	194.332
F	194.332	194.416	194.463	194.413	194.327
G	194.302	194.384	194.429	194.375	194.288
H	194.271	194.351	194.394	194.338	194.249
J	194.241	194.319	194.359	194.300	194.209
K	194.220	194.297	194.334	194.272	194.179

NOTES:

SCREED ELEVATIONS ARE BASED ON THE CONDITION THAT NO SLAB CONCRETE HAS BEEN CAST AND THAT FORMWORK, SHEAR DEVELOPERS, AND STEEL REINFORCEMENT ARE IN PLACE.

BOTTOM OF SLAB ELEVATIONS ARE AT RIGHT ANGLES TO THE BEAM CENTERLINE AND ARE BASED ON THE CONDITION THAT THE BEAMS AND DIAPHRAMS ARE COMPLETELY ERECTED WITH NO OTHER LOADS APPLIED. NO TEMPORARY SUPPORTS ARE ALLOWED AT THIS TIME. THESE ELEVATIONS INCLUDE ALLOWANCE FOR VERTICAL CURVE AND DEFLECTION DUE TO FORMS, STEEL REINFORCEMENT, CONCRETE SLAB, SIDEWALKS, RAILING AND UTILITIES.

SECTIONS FOR BOTTOM OF SLAB AND/OR SCREED ELEVATIONS ARE GIVEN ALONG BEAM CENTERLINES FROM CENTERLINE OF BEARING OR PIN & HANGER TO CENTERLINE OF BEARING OR PIN & HANGER AS APPLICABLE AT EQUAL SPACINGS.

MDOT Michigan Department of Transportation

SLAB AND SCREED DATA

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	19 OF 20

DATE: CORRECTED BY:

DATE: CHECKED BY:

DRAWN BY:

FILE NAME: s31631174.ss

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 20

SUPERSTRUCTURE SPAN 1

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1006120	6120									180	617
EA1306180	6180									222	1364
EA1312000	12000									48	573
EA1312040	12040									8	96
EA1610860	10860									46	775
EA1613230	13230									46	945
EA1301700	1700									104	176
EA1302250	2250									4	9
EA1301450	1450									4	6
ED1612330	12100	97	133							92	1761
ED1300880	270	340	270							52	45
EL1302315	760	175	660	360	360	162				102	235
EL1903365	1280	185	1180	360	360	172				16	120
EL1903350	1180	170	1280	360	360		170			8	60
ET1902344	310	410	378	510	158	200				72	377

SUPERSTRUCTURE SPAN 2

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1009980	9980									180	1006
EA1310040	10040									270	2695
EA1610860	10860									70	1180
EA1613230	13230									70	1437
EA1301700	1700									144	243
ED1612330	12100	97	133							140	2679
ED1300880	270	340	270							72	63
ED1301150	255	700	255							2	2
ED1301020	305	410	305							3	3
EL1302315	760	175	660	360	360	162				174	400
ET1902344	310	410	378	510	158	200				112	587

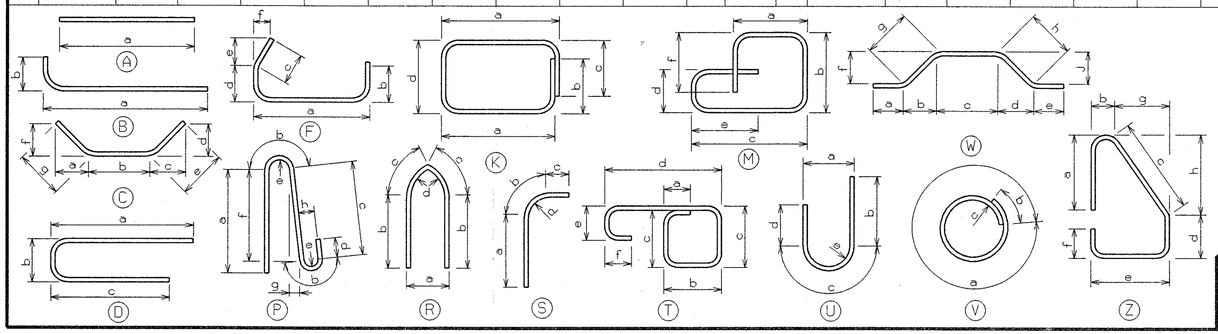
SUPERSTRUCTURE SPAN 3

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1009980	9980									180	1006
EA1310040	10040									270	2695
EA1610860	10860									70	1180
EA1613230	13230									70	1437
EA1301700	1700									144	243
ED1612330	12100	97	133							140	2679
ED1300880	270	340	270							72	63
EL1302315	760	175	660	360	360	162				174	400
ET1902344	310	410	378	510	158	200				112	587

SUPERSTRUCTURE SPAN 4

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1006120	6120									180	617
EA1306180	6180									222	1364
EA1312000	12000									48	573
EA1312040	12040									8	96
EA1610860	10860									46	775
EA1613230	13230									46	945
EA1301700	1700									104	176
EA1302250	2250									4	9
EA1301450	1450									4	6
ED1301150	255	700	255							2	2
ED1612330	12100	97	133							92	1761
ED1300880	270	340	270							52	45
ED1301020	305	410	305							3	3
EL1302315	760	175	660	360	360	162				102	235
EL1903365	1280	185	1180	360	360	172				16	120
EL1903350	1180	170	1280	360	360		170			8	60
ET1902344	310	410	378	510	158	200				72	377

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.



EPOXY COATED
BAR SIZE
BAR LENGTH (mm)
EA2013000
BAR SHAPE

BAR LEGEND

MISCELLANEOUS QUANTITIES

0	kg	REINFORCEMENT, STEEL
34908	kg	REINFORCEMENT, STEEL, EPOXY COATED

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

STEEL REINFORCEMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	20 OF 20

DRAWN BY: INDER | DATE: 10-11-99 | CHECKED BY: | DATE: | CORRECTED BY: | DATE:

FILE NAME: s3163174.rs

MICROFILM CONTENT SHEET

BATCH # 08-3G

OUT TO MICROFILM 3/21/2008

Control Section	Structure	Job Number	Sheet Number	Let Date	Region	Total Sheets	Plan Set	Box
MAIN JOB 63174		48647		3/2/2001	METRO	210		1
SEE ME FILES	B02 49595 S03 49595 S04 49595	SEE 63174 48647 SEE 63174 48647 SEE 63174 48647						
63174-53697		SEE 63174 48647						
	63174-48647, 53697, 49595 MILLING AND RESURFACING, SHOULDER UPGRADES, MEDIAN GUARDRAIL, INSTALLATION, AND GUARDRAIL REPLACEMENT/ UPGRADES BRIDGE APPROACHES. 63174-49595-B02, S03, S04 DECK REPLACEMENT, OVERLAY, PAINTING, CONCRETE BEAM REPAIR, SUBSTRUCTURE REPAIR, THRIE BEAM RETROFIT AND APPROACH WORK.							

CONTROL SECTION 63174 | JOB NO. 53697, 49595 & 48647 | SH. NO.

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: RICK'S TEAM

DATE:
DATE:
DATE: 12-07-00

PART 1
ROAD PLANS

	SHEET NUMBERS
TITLE	1
TYPICAL CROSS SECTIONS	2-7
NOTE SHEET	8
STANDARD SYMBOLS	9
PLAN	10-39
MAINTAINING TRAFFIC/CONSTRUCTION STAGING	40-75
LOG OF BORINGS	76-77
MITSC LOOP DETAILS	78-79
SPECIAL DETAILS	80-86

PART 2
BRIDGE PLANS

MICHIGAN
DEPARTMENT OF TRANSPORTATION

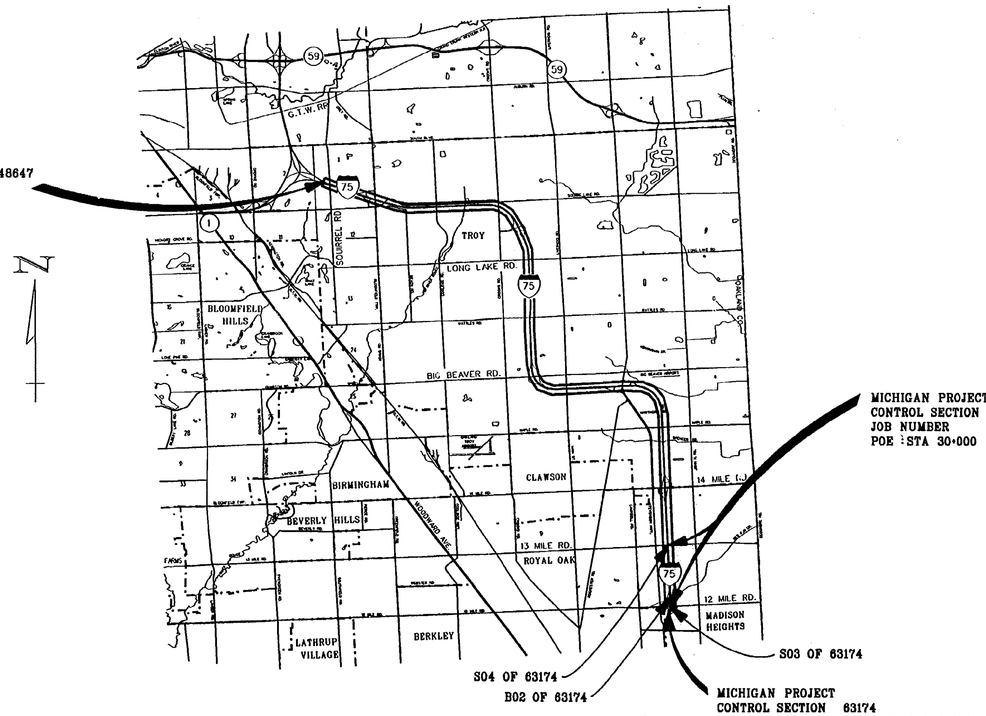
PLANS OF PROPOSED

MICHIGAN PROJECT — IM 0163(018), BHI 0163(017) & IMG 0163(016)
CONTROL SECTION 63174
JOB NUMBER 53697, 49595 & 48647

OAKLAND COUNTY
MADISON HEIGHTS, TROY, AUBURN HILLS &
BLOOMFIELD TOWNSHIP

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 1996 STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS.

	YEAR 2000	YEAR 2001
A.D.T.	167,600	204,000
D.H.V.	13,400	16,300
COMM. %	7%	8%
DESIGN SPEED	120km/h	



MICHIGAN PROJECT
CONTROL SECTION 63174
JOB NUMBER 53697 & 48647
POE : STA 22+620

MICHIGAN PROJECT
CONTROL SECTION 63174
JOB NUMBER 49595
POE : STA 30+000

S03 OF 63174

S04 OF 63174
B02 OF 63174

MICHIGAN PROJECT
CONTROL SECTION 63174
JOB NUMBER 53697,48647 & 49595
POB : STA 26+030

TITLE SHEET LEGEND

- PROPOSED PROJECT
- EXISTING ROADS
  - PAVED
  - BITUMINOUS
  - GRAVEL
  - UNIMPROVED OR CITY STREET
- SECTION LINE
- TOWNSHIP LINE
- COUNTY LINE
- CITY OR VILLAGE LIMITS
- RAILROADS

CONTRACT FOR: MILLING AND RESURFACING, SHOULDER UPGRADES, MEDIAN GUARDRAIL INSTALLATION, AND GUARDRAIL REPLACEMENT/UPGRADES BRIDGE APPROACHES

APPROVALS

RECOMMENDED FOR APPROVAL — PROJECT MANAGER — DATE 1/10/01

RECOMMENDED FOR APPROVAL — RESIDENT ENGINEER — DATE 1-10-01

MICHIGAN
DEPARTMENT OF TRANSPORTATION
GREGORY J. ROSINE - DIRECTOR

APPROVED BY — DEPUTY DIRECTOR / HIGHWAYS — DATE 1/22/2001

MDOT — M-DOT METRIC

MDOT DESIGN COORDINATOR
RICK
DESIGN UNIT

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	FEDERAL NUMBERS ITEM	SHEET NO.
63174	49595 48647 53697		PE 2435 RW 1572 CN 1622	1

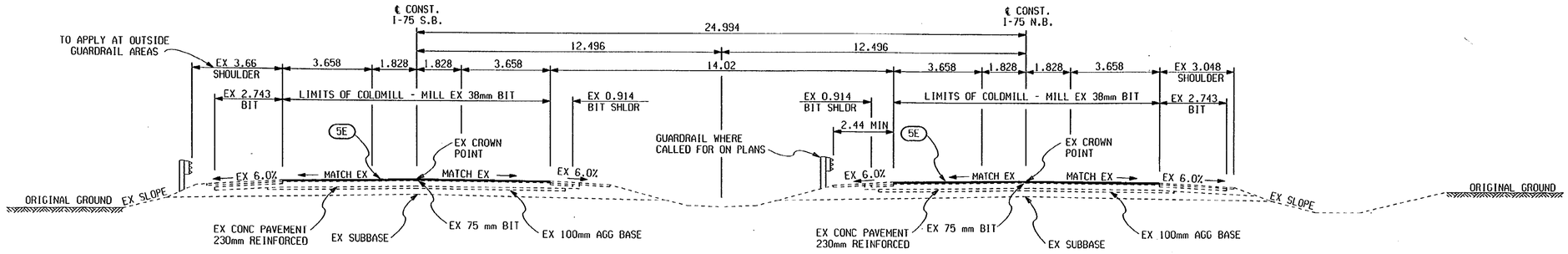
CONTROL SECTION — JOB NUMBER
63174 -- 53697, 49595 & 48647

AS LET PLANS

CONTROL SECTION 63174 | JOB NO. 53697 | SH. NO. 2

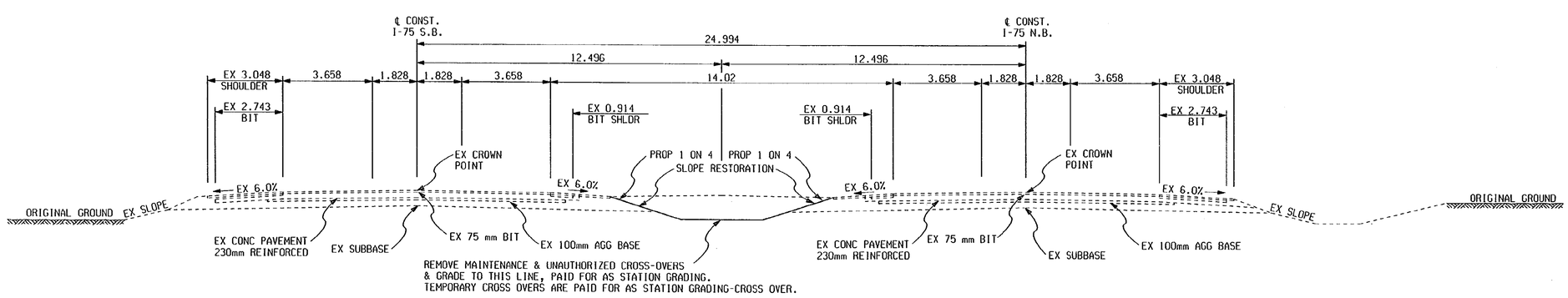
EXISTING BY: RICK'S TEAM DATE: 10/27/00
PROPOSED BY: RICK'S TEAM DATE: 11/21/00
LAST CORRECTION BY: RICK'S TEAM DATE: 01-11-01

AUTH	DATE	NO.	FINAL R.O.W. REVISION



NORMAL SECTION

TO APPLY: STA 28+502 TO STA 29+800



NORMAL SECTION

TO APPLY: AT MAINTENANCE & TEMPORY CROSS-OVERS
NORTH OF RED RUN

BITUMINOUS APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE PER M^2	PERFORMANCE GRADE	REMARKS
5E	BITUMINOUS MIXTURE, 5E30	90 kg	70-22	
4C	HAND PATCHING		58-22	
	* BITUMINOUS BOND COAT	0-0.45 L		

*FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

TYPICAL CROSS SECTIONS

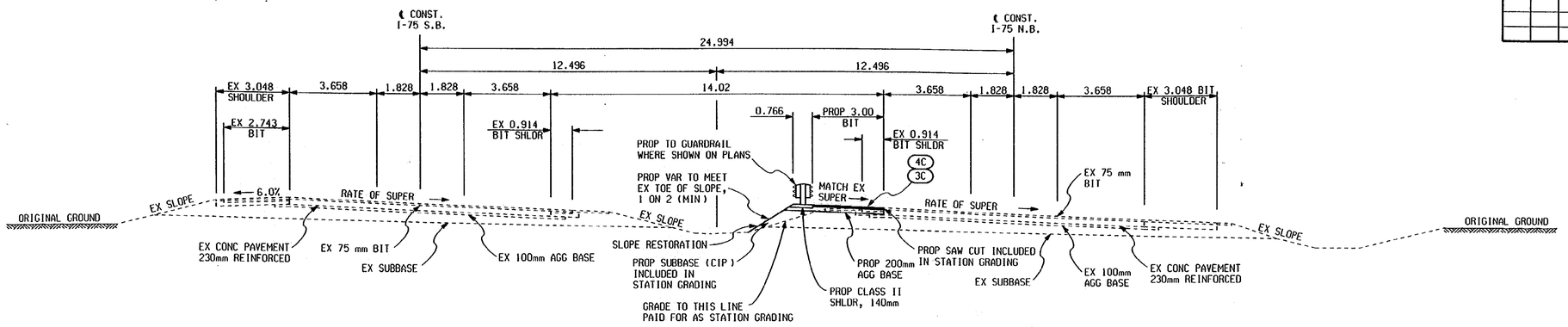
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	
01/11/01	1:100	63174	53697	RICK		2

FILE NAME: 53697gp.dgn
1 2 3

CONTROL SECTION 63174 | JOB NO. 48647 | SH. NO. 3

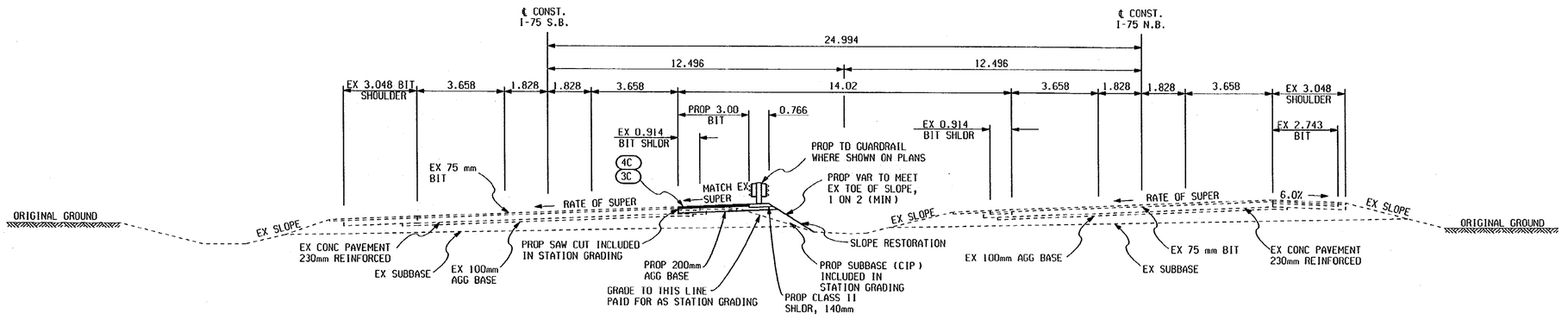
EXISTING BY: DATE:
PROPOSED BY: DATE:
LAST CORRECTION BY: RICK'S TEAM DATE: 01-11-01

AUTH	DATE	NO.	FINAL R.O.W. REVISION



SUPERELEVATED SECTION

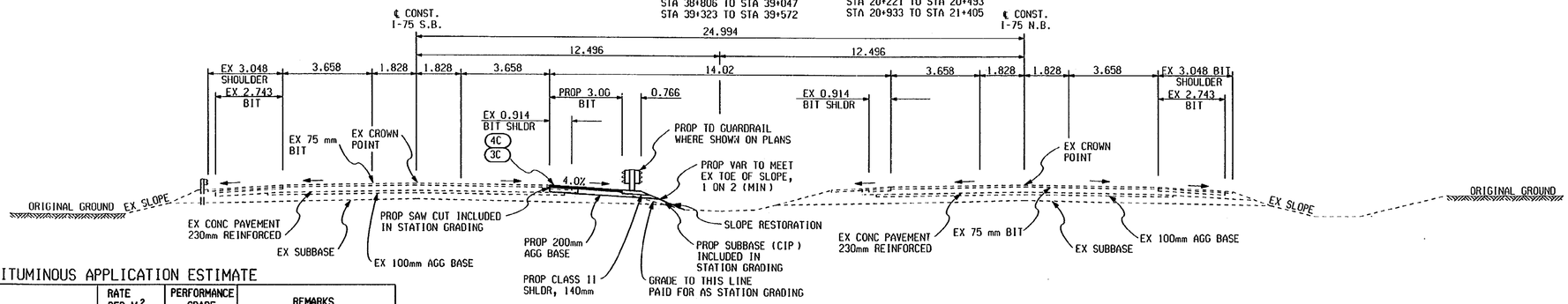
TO APPLY: STA 36+793 TO STA 37+708



SUPERELEVATED SECTION

TO APPLY: STA 33+533 TO STA 34+752
STA 38+806 TO STA 39+047
STA 39+323 TO STA 39+572

STA 40+914 TO STA 41+258
STA 17+232 TO STA 18+257
STA 20+221 TO STA 20+493
STA 20+933 TO STA 21+405



EX NORMAL SECTION

TO APPLY: STA 28+502 TO STA 33+533
STA 34+752 TO STA 36+793
STA 37+708 TO STA 38+806
STA 39+047 TO STA 39+323
STA 39+572 TO STA 40+914
STA 41+258 TO STA 17+232
STA 18+257 TO STA 20+221
STA 20+493 TO STA 20+933
STA 21+405 TO STA 26+620

BITUMINOUS APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE PER M²	PERFORMANCE GRADE	REMARKS
4C	BITUMINOUS MIXTURE, 4C	140 kg	64-22	TOP COURSE
3C	BITUMINOUS MIXTURE, 3C	180 kg	64-22	LEVELING COURSE & BASE
	* BITUMINOUS BOND COAT	0-0.45 L		

*FOR INFORMATION ONLY

NOTE: GUARDRAIL APPLIES TO JN 48647.
SHOULDER IMPROVEMENTS APPLY TO JN 53697.

MDOT Michigan Department of Transportation

TYPICAL CROSS SECTIONS

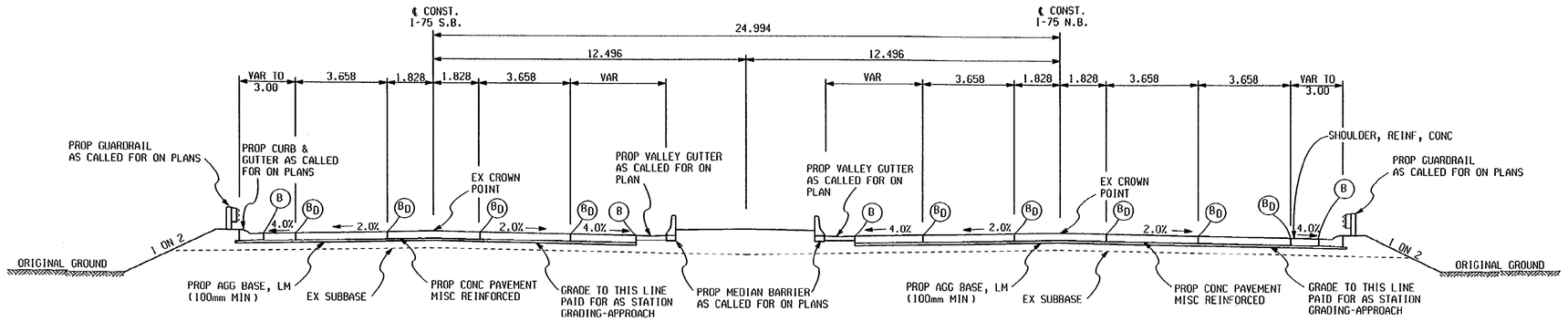
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.
12/18/00	1:100	63174	48647/53697	RICK	3

FILE NAME: 48647sgp.dgn
L 2 3

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 4

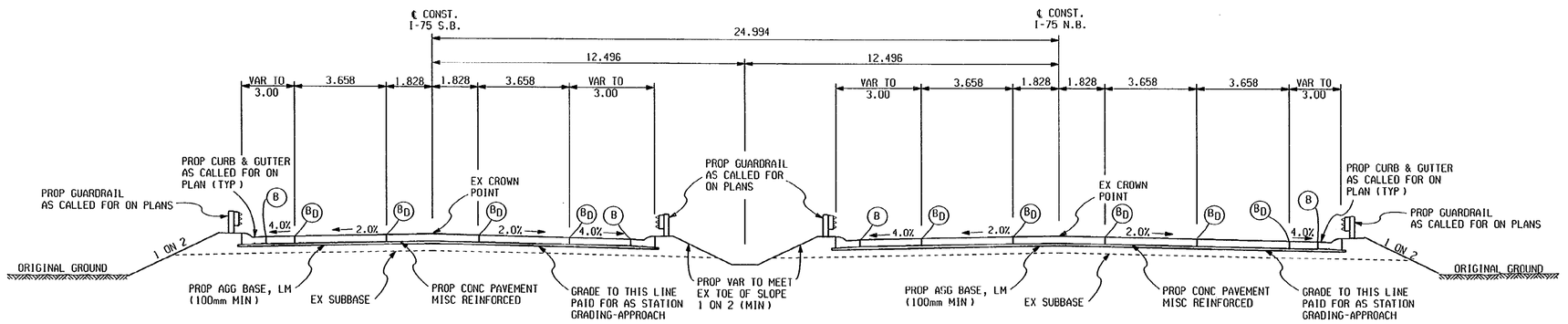
EXISTING BY: RICK'S TEAM DATE: 10/31/00
PROPOSED BY: RICK'S TEAM DATE: 12-07-00
LAST CORRECTION BY: RICK'S TEAM DATE: 01-11-01

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



FINISHED APPROACH SECTION

TO APPLY: B02 OF 63174 @ RED RUN DRAIN (SOUTH APPROACH)
STA 28+180.914 TO STA 28+381.637



FINISHED APPROACH SECTION

TO APPLY: B02 OF 63174 @ RED RUN DRAIN (NORTH APPROACH)
STA 28+457.652 TO STA 28+502.0

B - LONGITUDINAL BULKHEAD JOINT, SEALED ACCORDING TO STANDARD PLAN R-41 SERIES, SYMBOL (B)

BD - OPTIONAL B OR D JOINT.

MDOT Michigan Department of Transportation

BRIDGE APPROACH TYPICAL SECTIONS

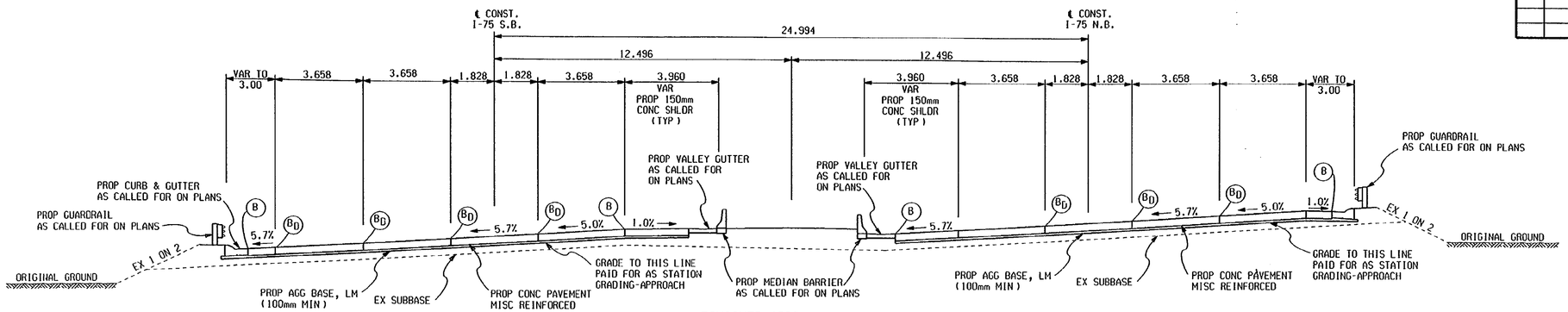
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
12/15/00	1:100	63174	49595	RICK	R.O.W 4

FILE NAME: 49595sup.dgn
1 2 3

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 5

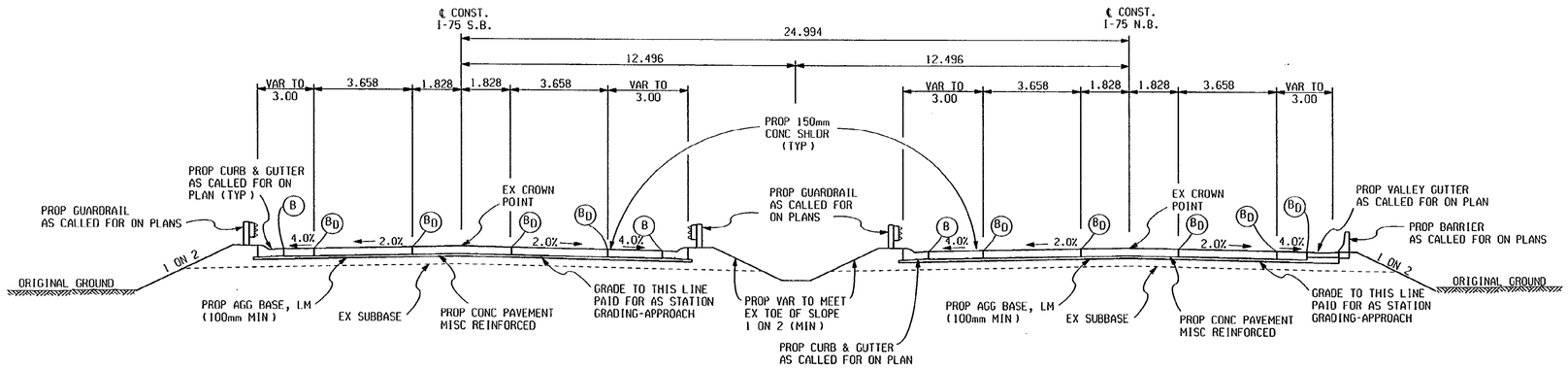
EXISTING BY: RICK'S TEAM DATE: 10/31/00
PROPOSED BY: RICK'S TEAM DATE: 01-08-01
LAST CORRECTION BY: RICK'S TEAM DATE: 01-11-01

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



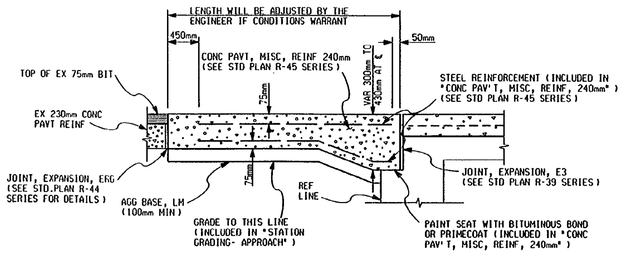
FINISHED APPROACH SECTION

TO APPLY: S03 OF 63174 @ 12 MILE RD
STA 28+030 TO STA 28+129.245



FINISHED APPROACH SECTION

TO APPLY: S04 OF 63174 @ 13 MILE RD.
STA 29+799.4 TO STA 29+908.5



CONCRETE APPROACH DETAIL

NOT TO SCALE

B - LONGITUDINAL BULKHEAD JOINT, SEALED ACCORDING TO STANDARD PLAN R-41 SERIES, SYMBOL (B)

BD - OPTIONAL B OR D JOINT.

MDOT Michigan Department of Transportation

BRIDGE APPROACH TYPICAL SECTIONS

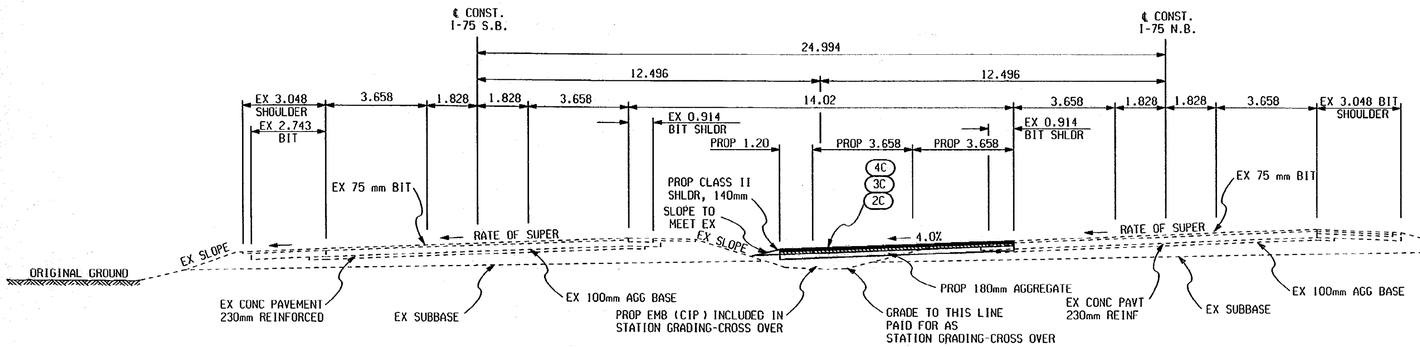
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/11/01	1:100	63174	49595	RICK	R.O.W. 5

FILE NAME: 49595sup.dgn
1 2 3

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 6

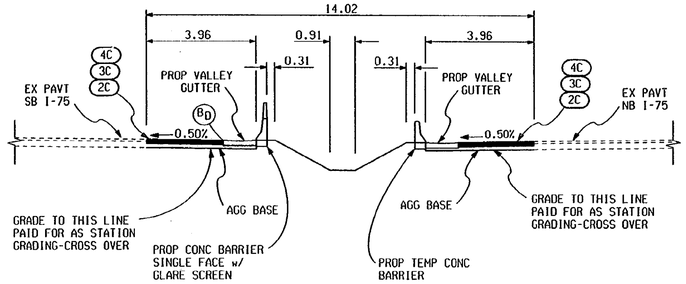
EXISTING BY: RICK'S TEAM DATE: 11/03/00
PROPOSED BY: RICK'S TEAM DATE: 01-08-01
LAST CORRECTION BY: RICK'S TEAM DATE: 01-11-01

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



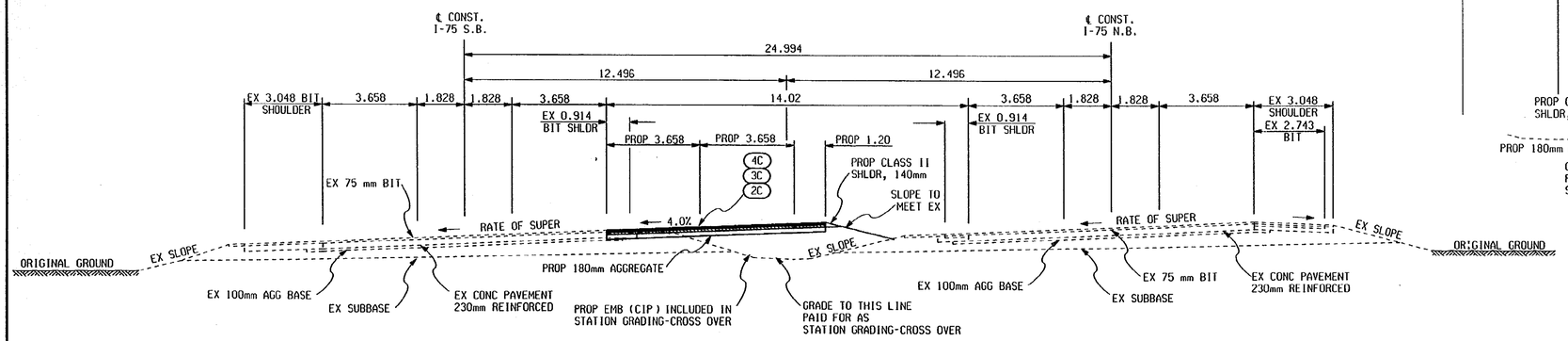
TEMPORARY CROSS OVER SECTION

TO APPLY: SOUTH OF 12 MILE RD.
STA 10+175 TO STA 10+351.067



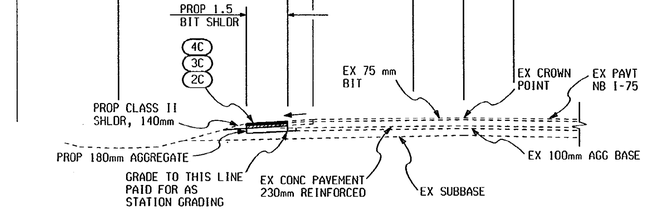
PROP MEDIAN TREATMENT DETAIL

STA 27+860 TO STA 28+381.637
NOT TO SCALE



TEMPORARY CROSS OVER SECTION

TO APPLY: SOUTH OF 12 MILE RD.
STA 10+000 TO STA 10+175



IMPROVED MEDIAN SHOULDER SECTION

TO APPLY: REDRUN TO 13 MILE
STA 28+457.652 TO STA 30+100

BITUMINOUS APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE PER M²	PERFORMANCE GRADE	REMARKS	
4C	BITUMINOUS MIXTURE, 4C	90 kg	64-22	TOP COURSE, CROSS OVER	PAID FOR AS BIT APPROACH
3C	BITUMINOUS MIXTURE, 3C	120 kg	64-22	LEVEL COURSE, CROSS OVER	PAID FOR AS BIT APPROACH
2C	BITUMINOUS MIXTURE, 2C	240 kg	64-22	BASE COURSE, CROSS OVER	PAID FOR AS BIT APPROACH
	* BITUMINOUS BOND COAT	0-0.45 L			

*FOR INFORMATION ONLY

FILE NAME: 49595typ.dgn
1 2 3

MDOT Michigan Department of Transportation

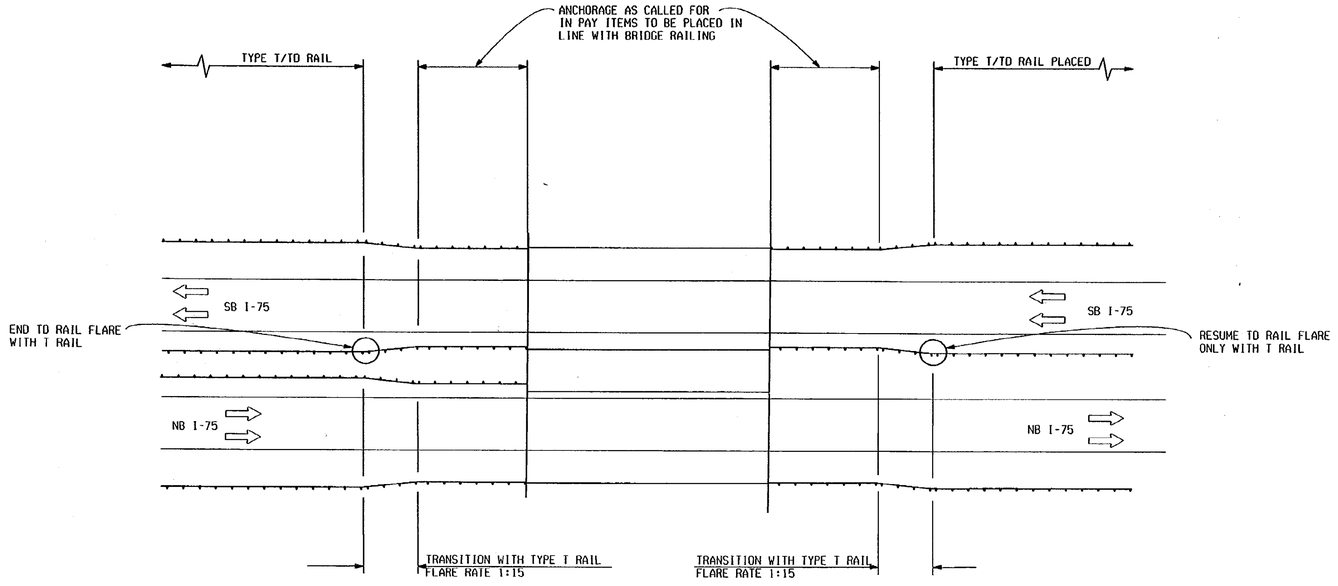
TYPICAL CROSS SECTIONS

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/11/01	1:100	63174	49595	RICK	R.O.W 6

CONTROL SECTION	JOB NO.	SH. NO.
63174	53697	7

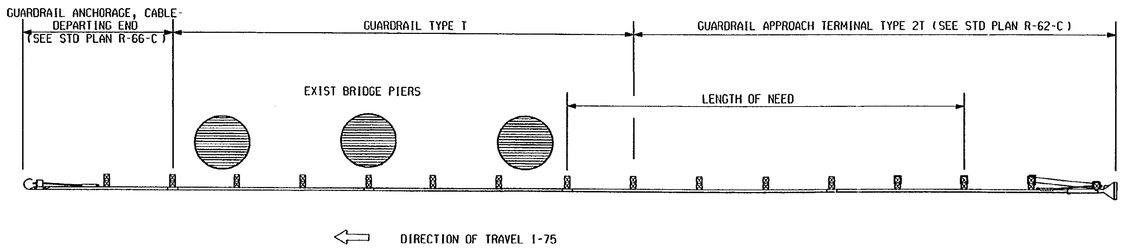
EXISTING BY: RICK'S TEAM DATE: 01-10-01
PROPOSED BY: DATE:
LAST CORRECTION BY: RICK'S TEAM DATE: 01-10-01

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



TO APPLY AT ALL STRUCTURES CARRYING I-75 OVER CROSS ROADS

NOT TO SCALE



TO APPLY AT ALL STRUCTURES CARRYING I-75 UNDER CROSS ROADS

NOT TO SCALE

MDOT Michigan Department of Transportation	GUARDRAIL DETAILS					
	DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
	01/10/01	1:NONE	63174	53697	RICK	R.O.W 7

FILE NAME: 53697detail.dgn
1 2 3 4 11 26

CONTROL SECTION 63174 | JOB NO. 53697,49595 & 48647 | SH. NO. 8

ENGINEERING REPORT NO	ENVIRON IMPACT STMT	
METHOD OF SURVEY		YEAR
SURVEY ORDER	SURVEY CHIEF	YEAR
AERIAL SURVEY NO		YEAR
HORIZ DATUM	VERT DATUM	
ROAD DESIGN INITIATED 1999	COMPLETED 2000	
PRELIMINARY PLANS BY RICK	FINAL PLANS BY RICK & SCHUSTER	
FIELD INSPECTION (CI) BY TIM BARRY		DATE 11-01-00
PLANS-IN-HAND BY (FHWA)	AND (MDOT)	DATE

GENERAL PLAN NOTES

UNDERGROUND UTILITIES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

MDOT'S FREEWAY LIGHTING SYSTEM, THE SCANDI SYSTEM AND OTHER MISCELLANEOUS ELECTRICAL SYSTEMS ARE NOT A PART OF MISS DIG.

CONTRACTORS WORKING OUTSTATE SHOULD CONTACT THE MAINTENANCE REPRESENTATIVE AT THE MDOT DISTRICT OFFICE TO HAVE LIGHTING SYSTEMS STAKED.

GRADES FOR INTERSECTIONS

ALL INTERSECTIONS ARE TO BE CONSIDERED AS COMPLETE UNITS AND THEIR GRADES DETERMINED BEFORE CONSTRUCTION IS STARTED.

OLD PLANS

THE FOLLOWING OLD PLANS WERE REFERRED TO IN THE DESIGN OF THIS PROJECT.

63174.C2
63174.C4
63174.C14
63174.C8
63174.C3

IN ADDITION, OTHER OLD PLANS THAT PREDATE THIS PROJECT MAY BE AVAILABLE. THESE PLANS MAY BE REVIEWED IN THE LANSING DESIGN OFFICE DURING NORMAL WORKING HOURS.

STATIONING

STATIONING ON THIS PROJECT WAS CONVERTED FROM OLD PLANS AND IS NOT NECESSARILY CORRECT.

SIGNS

ANY MDOT SIGNS REQUIRING RELOCATION DUE TO CONSTRUCTION OPERATIONS SHALL BE SALVAGED AND RESET BY THE CONTRACTOR AT LOCATIONS DESIGNATED BY THE ENGINEER. THIS WORK WILL BE CONSIDERED INCLUDED IN PAYMENT FOR OTHER CONTRACT ITEMS.

PAVEMENT REMOVAL QUANTITIES

PAVEMENT REMOVAL AS SHOWN ON THE PLANS SHALL BE AT THE DISCRETION OF THE ENGINEER. IF IN HIS/HER JUDGEMENT, AREAS OF PAVEMENT MAY BE LEFT IN PLACE, OR ADDITIONAL AREAS ADDED TO PROVIDE THE PROPER CROSS-SECTION AND BASE, CHANGES CAN BE MADE IN THE QUANTITIES.

MILLING PAVEMENT

PRIOR TO MILLING THE PAVEMENT, THE CONTRACTOR SHALL HAVE AN APPROVED MIX DESIGN AND AN ADEQUATE SUPPLY OF MATERIAL TO INSURE THAT THE FIRST LIFT OF THE SPECIFIED BITUMINOUS MIXTURE CAN BE PLACED ON ALL MILLED SURFACES

MITS

CALL MITS (313-256-9800) FOR LOCATION OF FIBER OPTIC LINES. IN CASE OF AN EMERGENCY CALL (313) 256-9800 EXT 310

GUARDRAIL POSTS

ALL GUARDRAIL POSTS EXCEPT APPROACH AND DEPARTING TERMINALS SHALL BE 2440mm IN LENGTH.

SHOULDER CORRUGATIONS

FOR JOB NUMBER 53697 THE SHOULDER CORRUGATIONS SHALL BE ROLLED IN AT THE TIME OF PAVING AND WILL NOT BE PAID FOR SEPARATELY.
FOR JOB NUMBER 49595 THE SHOULDER CORRUGATIONS SHALL BE GROUND IN AND PAID FOR SEPARATELY.

REMOVAL OF CROSSOVERS

EXISTING CROSSOVERS SHALL BE REMOVED UNLESS OTHERWISE NOTED ON THE PLANS. PAYMENT SHALL BE INCLUDED IN THE QUANTITY FOR STATION GRADING.

DETROIT EDISON — ELECTRIC

OVERHEAD & UNDERGROUND DISTRIBUTION:
DENNIS DOHERTY
ROYAL OAK SERVICE CENTER
3425 STARR RD
ROYAL OAK, MI 48067
PHONE: (248) 594-710

SYSTEM UNDERGROUND-AREA LEADER:
DEBORAH SCHWOCHOW
520 SERVICE BUILDING
2000 SECOND AVENUE
DETROIT, MI 48226-1279
PHONE: (313) 235-6502

OUTDOOR LIGHTING GROUP:
LARRY LACEY
108 WESTERN WAYNE SERVICE CENTER
8001 HAGGERTY RD
BELLEVILLE, MI 48111
PHONE: (734) 397-4185

SYSTEM UNDERGROUND-TECHNICIAN:
GARY GORDON
520 SERVICE BUILDING
2000 SECOND AVENUE
DETROIT, MI 48226
PHONE: (313) 235-6507

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED ON OUR SURVEYS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO IT'S ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

NAME OF OWNER	KIND OF UTILITY
AMERITECH ATTN: MICHAEL KRAUSE PONTIAC/SOUTHFIELD ENGINEERING OFFICE 54 N. MILL ST BOX 33 PONTIAC, MICHIGAN 48342 PHONE: (248) 456-0841	PHONE
COMCAST CABLEVISION OF PONTIAC, WATERFORD ATTN: JIM CHURCH 1300 CRESENT LAKE RD WATERFORD, MI 48327 PHONE: (248) 674-0500	CABLE TV
MEDIA ONE ATTN: STEVE S RUDZINSKI NETWORK DESIGN SUPERVISOR 35155 INDUSTRIAL ROAD LIVONIA, MI 48150 PHONE: (724) 420-4790	PHONE & CABLE TV
AT&T CABLE SERVICES ATTN: LARRY VALE, MANAGER 4500 DELEMERE BOULEVARD ROYAL OAK, MICHIGAN 48073 PHONE: (248) 549-8288 FAX: (248) 549-6289	CABLE TV
AT&T (TELEPHONE ONLY) ATTN: TOM WHITECOTTON 866 ROCK CREEK RD PLANO, ILLINOIS 60545 PHONE: (630) 522-4676	TELEPHONE
COMCAST CABLEVISION OF PONTIAC, WATERFORD ATTN: JIM CHURCH 1300 CRESENT LAKE ROAD WATERFORD, MI 48327 PHONE: (810) 674-0500	CABLE TV
CHARTER COMMUNICATIONS CO. ATTN: KELLY DYKSTRA 1035 SPALDING AVE, S.E. GRAND RAPIDS, MI 49546 PHONE: (616) 975-7482	TELEPHONE
McLEOD USA TELCOMMUNICATIONS ATTN: PAUL LABRIE 444 W. BRISTOL RD. FLINT, MI 48507 PHONE: (810) 249-4568	TELEPHONE
CONSUMERS ENERGY COMPANY ATTN: JOSEPHINE J. VANEPPS REAL ESTATE & RIGHT OF WAY DEPARTMENT 1945 WEST PARNALL ROAD, ROOM P21-400 JACKSON, MI 49201 PHONE: (517) 788-1678	GAS
CONSUMERS ENERGY CO. ATTN: JEFF GEORGE 1030 FEATHERSTONE ROAD PONTIAC, MI 48151-6684 PHONE: (248) 858-4448	
DETROIT WATER & SEWERAGE DEPARTMENT ATTN: ARNOLD SMEDES SUBURBAN DESIGN SECTION 735 RANDOLPH STREET, ROOM 1307 DETROIT, MI 48226 PHONE: (313) 224-4771	WATER & SAN SEWER
OAKLAND COUNTY ROAD COMMISSION ATTN: GERALD HOLMBERG 31001 LAHSER ROAD BIRMINGHAM, MI 48010 PHONE: (248) 645-2000	
OAKLAND COUNTY DRAIN COMMISSION ATTN: GLENN R. APPEL ASSISTANT CHIEF ENGINEER BUILDING 95 WEST ONE PUBLIC WORKS DRIVE WATERFORD, MI 48328-1907 PHONE: (248) 858-0958	COUNTY DRAINS, WATER & SAN SEWER
OAKLAND COUNTY PUBLIC WORKS ATTN: GEORGE W. KUHN ONE PUBLIC WORKS DRIVE WATERFORD, MI 48328 PHONE: (248) 858-0958	
CITY OF ROYAL OAK PUBLIC WORKS ATTN: THOMAS TRICE 211 WILLIAMS STREET P.O. BOX 64 ROYAL OAK, MI 48068-0064	WATER & SAN SEWER
CITY OF MADISON HEIGHTS ATTN: JON R. AUSTIN, MANAGER 300 W. THIRTEEN MILE ROAD MADISON HEIGHTS, MI 48071-1899 PHONE: (248) 588-1200	WATER & SAN SEWER

PUBLIC UTILITIES (CONT)

NAME OF OWNER	KIND OF UTILITY
CHARTER TOWNSHIP OF BLOOMFIELD ATTN: FRED KARZAN, SUPERVISOR 4200 TELEGRAPH RD P.O. BOX 489 BLOOMFIELD HILLS, MI 48303-0489 PHONE: (248) 433-7700	
CITY OF MADISON HEIGHTS ATTN: JON R. AUSTIN, MANAGER 300 WEST THIRTEEN MILE RD MADISON HEIGHTS, MI 48071-1899 PHONE: (248) 588-1200	
CITY OF TROY ATTN: JAMES C BACON JR., MANAGER 500 WEST BIG BEAVER RD TROY, MI 48084-5285 PHONE: (248) 524-3300	
CITY OF AUBURN HILLS ATTN: MR. WILLIAM R. ROSS, MANAGER 1827 NORTH SQUIRREL RD AUBURN HILLS, MI 48320 PHONE: (248) 370-9400	
MITS CENTER ATTN: TOM MULLIN 1050 SIXTH STREET DETROIT, MICHIGAN 48226 PHONE: (313) 256-9800 EXT 312 CELL: (248) 867-7899	ELECTRIC
SUN PIPE LINE COMPANY ATTN: BRIAN AUGUST OPERATIONS ENGINEERING/ONE CALL DEPT TEN PENN CENTER - 26 TH FLOOR 1801 MARKET STREET PHILADELPHIA, PA 19103-1699	OIL

NOTES APPLYING TO STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

COVER DX	R-9X-B
BRIDGE APPROACH CURB & GUTTER (USING EX. CATCH BASIN)	R-27-C
CONCRETE CURB AND CONCRETE CURB AND GUTTER	R-30-C
APPROACH CURB & GUTTER, DOWNSPOUTS (FOR BRIDGE APPROACH CURB AND GUTTER)	R-32-C
TRANSVERSE PAVEMENT JOINTS (REINFORCED CONCRETE PAVEMENT)	R-39-E
LONGITUDINAL PAVEMENT JOINTS	R-41-C
LOCATION OF TRANSVERSE JOINTS IN CONCRETE PAVEMENT	R-43-B
CONCRETE PAVEMENT REPAIR	R-44-B
CONVENTIONAL PAVEMENT REINFORCEMENT	R-45-C
TEMPORARY CONCRETE BARRIER	R-52-C
CONCRETE BARRIER, SINGLE FACE	R-54-C
GUARDRAIL AT STRUCTURES AND EMBANKMENTS	R-59-C
GUARDRAIL TYPES A, B, BD, T & TD	R-60-E
GUARDRAIL APPROACH TERMINAL TYPES 2B & 2T	R-62-C
GUARDRAIL APPROACH TERMINAL TYPES 3	R-63-A (SPEC. DET)
GUARDRAIL DEPARTING TERMINAL TYPES B & T	R-66-C
GUARDRAIL ANCHORAGE, BRIDGE, DETAILS	R-67-D
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	R-96-B (SPEC. DET)
SODDING AND SEEDING	R-100-B
LIGHTED ARROWS AND BARRICADES	R-125-A
PLACEMENT OF TEMPORARY CONCRETE BARRIER	R-126-B

MAINTAINING TRAFFIC ITEMS CON'T

53697 NON PART	53697 MADISON HEIGHTS PART	53697 TROY PART	49595 NON PART	49595 MADISON HEIGHTS PART		
				12	ea	Relocate Sand Barrel Impact Attenuator
				2500	m	Glare Screen, Temp
				100	m	Glare Screen, Replace
		1	2		ea	Reconstruct Guardrail Approach Terminal, Type 3
			16	16	ea	Replace Prism Retriflec Lens, Crystal, Monodir (on RPMs)

QUALITY CONTROL ITEMS

6262	12524	59488		dlr	Bit Quality Initiative
1789	3578	16997	4688	t	Bit Quality Assurance Testing
			5065	m3	Conc Quality Assurance
			7632	dlr	Conc Quality Initiative

MISCELLANEOUS ESTIMATES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

JOB 53697 100% PART	JOB 53697 NON PART	JOB 53697 MADISON HEIGHTS PART	JOB 53697 TROY PART	JOB 49595 NON PART	JOB 49595 MADISON HEIGHTS PART		
	0.02	0.05	0.21		0.72	LS	Project Cleanup
	0.02	0.05	0.21		0.72	LS	Contractor Staking
	3	6	28		95	hr	Staking Plan Errors and Extras, One Person
	1	3	11		38	hr	Staking Plan Errors and Extras, Two Person
	2	3	17		57	hr	Staking Plan Errors and Extras, Three Person
		1569				m	Pavt Joint and Crack Repr, Det 7
		235				t	Hand Patching
		500				ea	Removing Raised Pavt Mrkg
		650				m	Joint Repr, Longitudinal
					200	m	Guardrail, Type T
	3	7	30		20	m	Sewer, Cl 1, 300 mm, Tr Det B
	1	1	8		6	ea	Culv End Sect, 300 mm
		1	2		2	ea	Dr Structure, 1200 mm dia
	33	66	315		276	kg	Dr Structure Cover (SG)
					15	m	Erosion Control, Check Dam, Temp
					5	ea	Erosion Control, Sediment Trap
					7	ea	Inlet Sediment Pit
					1000	m	Erosion Control, Silt Fence
					50	m	Trenching, Exploratory
				4		ea	Sewer Tap, 300 mm
7918						m	Ditch Cleanout
23754						m2	Slope Restoration
				6		ea	Detector Loop
				1		ea	HH, Type D
	0.08	0.16	0.76			LS	Lighting for Night Work and Night Paving

MAINTAINING TRAFFIC ITEMS

THE FOLLOWING ITEMS OF WORK ARE ESTIMATED FOR THE ENTIRE PROJECT FOR MAINTAINING TRAFFIC AS DETERMINED BY THE ENGINEER.

	1	1	6		20	ea	Barricade, Type III, Lighted, Furn
	1	1	6		20	ea	Barricade, Type III, Lighted, Oper
	1	1	6		4	ea	Truck Mounted Attenuator, Furnished
	1	1	6		4	ea	Truck Mounted Attenuator, Operated
					3700	m	Conc Barrier, Temp, Furn
					3700	m	Conc Barrier, Temp, Oper
					400	m	Conc Barrier, Temp, Relocated
					2140	m	Conc Barrier, Temp, Adjusted
					1	ea	Conc Barrier Reflector Replacement
					6	ea	High Intensity Light, Type B, Furn
					6	ea	High Intensity Light, Type B, Oper
					8	ea	Sign Cover
					20230	m	Pavt Mrkg, Type R, 100 mm, White, Temp
					15950	m	Pavt Mrkg, Type R, 100 mm, Yellow, Temp
					3400	m	Pavt Mrkg, Longit, 125 mm or Less Width, Rem
					500	ea	Raised Pavt Marker, Retriflec, Crystal, Monodirectional
	20	40	190		900	ea	Plastic Drum with High Intensity Sheeting, Lighted, Furn
	20	40	190		900	ea	Plastic Drum with High Intensity Sheeting, Lighted, Oper
	0.02	0.05	0.21		0.72	LS	Worksite Traffic Supervisor
				8100		m	Pavt Mrkg, Thermopl, 100 mm, White
				5400		m	Pavt Mrkg, Thermopl, 100 mm, Yellow
				120		m	Pavt Mrkg, Thermopl, 200 mm, White
				400		m	Pavt Mrkg, Thermopl, 300 mm, White
				3500		m	Removing Curing Compound, for Longit Mrkg
				2		ea	Lighted Arrow, Type C, Furn
				2		ea	Lighted Arrow, Type C, Oper
						1 LS	Minor Traf Devices
				2		ea	Sign, Portable, Changeable, Furn
				2		ea	Sign, Portable, Changeable, Oper
					222	m2	Sign, Type B Temp, Prismatic Retriflec Sheeting
					20	ea	Cone Barrier Reflector Replacement
					32	m2	Sign, Type B Temporary, Prismatic, Special
					24	ea	Sand Module Impact Attenuator (Temporary)
					12	ea	Sand Module Impact Attenuator (Replacement)
					12	ea	Relocate Sand Barrel Impact Attenuator
	6	12	57			m2	Sign, Type IIB
					4	m2	Sign, Type A, Temp

MDOT Michigan Department of Transportation

NOTE SHEET

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
01/22/00	63174	53697,49595 & 48647	RICK		8

LAST CORRECTION BY: RICK'S TEAM DATE: 01-22-01
FILE NAME: 49595note.dgn
1 2

CONTROL SECTION 63174 | JOB NO. 53697 | SH. NO. 9

DATE:
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

FILE NAME: 53697leg.dgn

WATER & DRAINAGE SYMBOLS

- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING MANHOLE
- PROPOSED MANHOLE
- EXISTING CULVERT END SECTION
- PROPOSED CULVERT END SECTION
- EXISTING HEADWALL
- PROPOSED HEADWALL
- WATER SHUTOFF (Service Valve)
- GATE VALVE
- GATEWELL
- WATER METER
- WATER MANHOLE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- (ADJ-HYD) ADJUST FIRE HYDRANT
- (ADJ) ADJUST DRAINAGE STRUCTURE
- (ADJ-K) ADJUST DRAINAGE STRUCTURE W/COVER
- (ADJ-B/O) ADJUST DRAINAGE STRUCTURE BY OTHERS
- (REC) RECONSTRUCT DRAINAGE STRUCTURE
- (REC-K) RECONSTRUCT DRAINAGE STRUCTURE W/COVER
- (REL-B/O) RELOCATE - BY OTHERS
- (SR-1) SIDEWALK RAMP TYPE
- CHECK DAM (PROFILES)
- DIKE (PROFILES)
- W.T. m — WATER TABLE (PROFILES)
- GUARD POST
- (W) WATER WELL

REAL ESTATE SYMBOLS

- PROPERTY OWNERSHIP ARROW
- CONTIGUOUS PROPERTY SYMBOL
- 123456 PARCEL NUMBER BOX
- PARCEL LINES

UTILITIES SYMBOLS

- POWER POLE
- TELEPHONE POLE
- GUY POLE
- LIGHT POLE
- POWER LIGHT POLE
- TELEPHONE MANHOLE
- POWER TOWER
- GAS VALVE
- WALK/NO-WALK
- DEADMAN FOR GUYWIRE
- R R — RAILROAD SIGNAL
- (E) ELECTRICAL MANHOLE
- [E] ELECTRICAL HANDHOLE
- TELEPHONE PEDESTAL/RISER

MISCELLANEOUS SYMBOLS

- RIPRAP
- SIGN
- STUMP
- SWAMP
- DECIDUOUS TREE
- EVERGREEN TREE
- MAIL BOX
- QUARTER CORNER
- SECTION CORNER
- HALF QUARTER SECTION
- T.H. — TEST HOLE NO.
- (123) BEAM G. R. RUN NUMBER (EXISTING)
- (123) BEAM G. R. RUN NUMBER (PROPOSED)

HAZARDOUS OR FLAMMABLE MATERIAL — USED WITH UNDERGROUND GAS & ELECTRICAL LINES

CAUTION - CRITICAL UNDERGROUND UTILITY — USED WITH FIBER OPTICS LINES

PROP 900 mm — PROPOSED CULVERT/SEWER

EX 300 mm CMP — EXISTING CULVERT/SEWER

UTILITY PATTERNS

- ELEC — ELECTRICAL LINE
- 600 mm GAS — GAS LINE
- 300 mm OIL — OIL LINE
- TELE — TELEPHONE LINE
- 900 mm WM — WATER LINE
- CTV — CABLE TV
- FO — FIBER OPTICS
- POWER TRANSMISSION LINE

R.O.W. PATTERNS

- EX. LIMITED ACCESS R.O.W.
- EXISTING R.O.W.
- PROP LIMITED ACCESS R.O.W.
- PROP FREE ACCESS R.O.W.
- SECTION LINE

TOPO PATTERNS

- HEDGE LINE
- TREE LINE
- EXISTING FENCE
- PROPOSED FENCE
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- DRAINAGE CRS/EDGE OF WATER
- WETLANDS AREA
- ABANDON ANY UTILITY
- CITY LIMITS
- RAILROAD
- SOUND ABATEMENT WALL
- CONCRETE MEDIAN BARRIER
- SLOPE STAKE LINE

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

DRIVE/APPROACH LEGEND

- CONCRETE
- BITUMINOUS
- AGGREGATE

REMOVAL LEGEND

- REMOVING BITUMINOUS
- REMOVING SIDEWALK
- REMOVING PAVEMENT
- COLD-MILLING
- BITUMINOUS BASE CRUSHING AND SHAPING
- REMOVING CURB & GUTTER
- REMOVING (R)
- ABANDONING (A)
- SAVE (S)
- BULKHEAD (B)
- CLEARING (C)

SPECIAL LEGEND THIS PROJECT

MDOT Michigan Department of Transportation

LEGEND SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
11/01/00	NONE	63174	53697	RICK		9

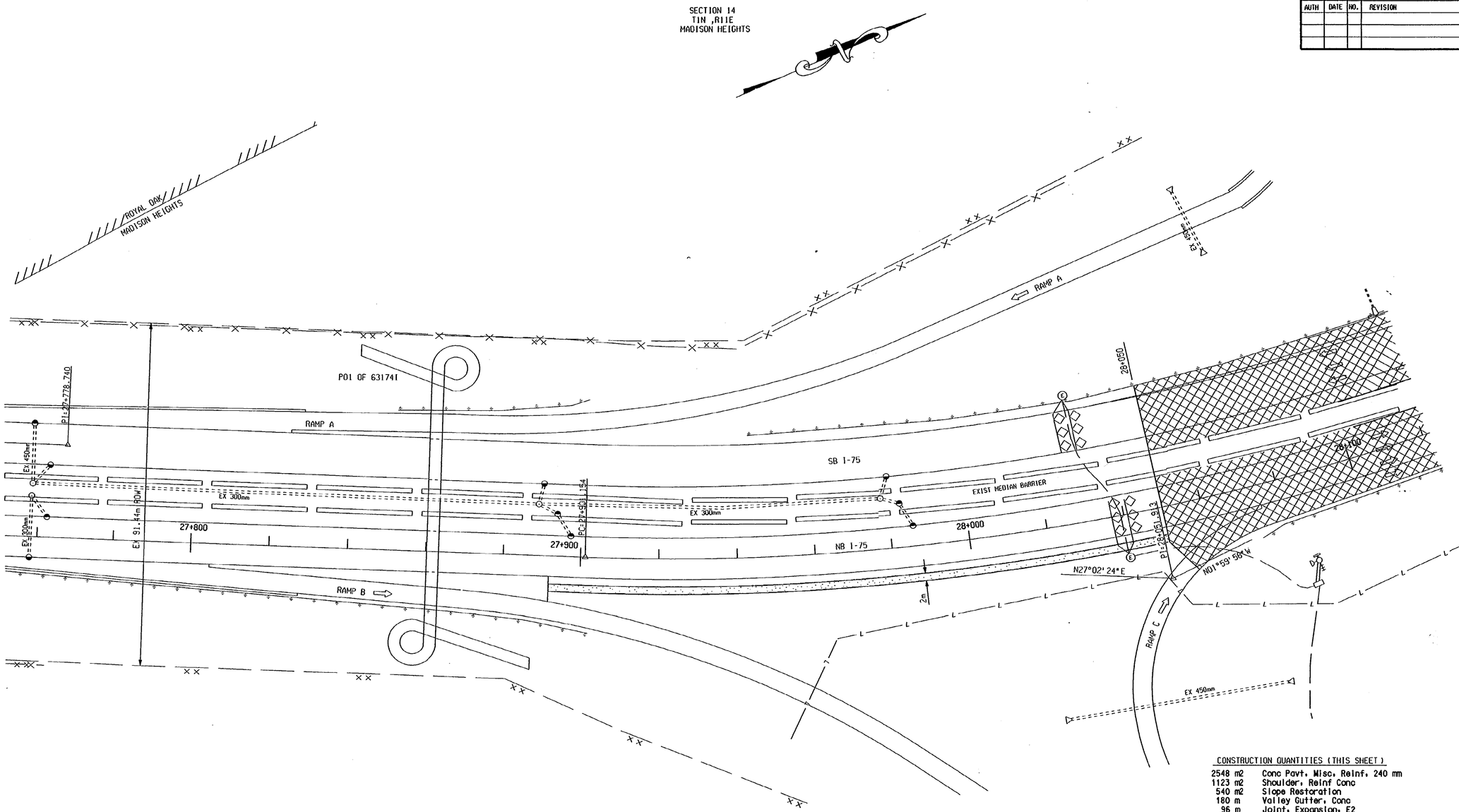
CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 10

DATE: 11/20/00
DATE:
DATE: 12-18-00

EXISTING BY: RICK'S TEAM
PROPOSED BY:
LAST CORRECTION BY: RICK'S TEAM

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION 14
T1N ,R11E
MADISON HEIGHTS



QUANTITIES - TEMP SHOULDER WIDENING

75 m3	Aggregate Base, LM
171 t	Bit Approach

REMOVAL QUANTITIES (THIS SHEET)

3670 m2	Pavt, Rem
180 m	Station Grading - Bridge Approach

CONSTRUCTION QUANTITIES (THIS SHEET)

2548 m2	Conc Pavt, Misc, Reinf, 240 mm
1123 m2	Shoulder, Reinf Conc
540 m2	Slope Restoration
180 m	Valley Gutter, Conc
96 m	Joint, Expansion, E2
22 m	Joint, Expansion, E4
205 m	Joint, Contraction, C2
59 m	Joint, Contraction, C4
30 m	Joint, Contraction, Crg
540 m	Joint, External Longit Edge of Pavt
3760 m3	Aggregate Base, LM
360 m	Shoulder Corr, Ground or Cut, Conc

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

BRIDGE APPROACH S03 OF 63174

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
01/10/01	1:500	63174	49595	RICK		10

FILE NAME: 49595\1277.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 28 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 11

DATE: 10/23/00
DATE: 12-18-00
EXISTING BY:
PROPOSED BY: RICK'S TEAM
LAST CORRECTION BY: RICK'S TEAM

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION 14
T1N ,R11E
MADISON HEIGHTS

12 MILE ROAD

NB I-75
CURVE DATA
Δ=29°02'20"LT
R=582.125
T=150.757
L=295.034
PC =27+901.154
PI =28+051.911
PT =28+196.188

SECTION 11
T1N ,R11E
MADISON HEIGHTS

RED RUN DRAIN

N89°11'35"E

N87°47'45"E

N87°47'45"E

N3°48'05"W

N3°00'00"E

GUARDRAIL QUANTITIES
1 ea Guardrail Anch, Bridge, Det A1
1 ea Guardrail Approach Terminal, Type 2T
160 m Guardrail, Type T
11 ea Guardrail Reflector

GUARDRAIL QUANTITIES
1 ea Guardrail Anch, Bridge, Det T1
1 ea Guardrail Departing Terminal, Type T
57 m Guardrail, Type T
4 ea Guardrail Reflector

GUARDRAIL QUANTITIES
1 ea Guardrail Approach Terminal, Type 2T
1 ea Guardrail Anch, Bridge, Det T1
72 m Guardrail, Type T
5 ea Guardrail Reflector

REF PT A
STA 28+126.133

EXIST 160.9m BEAM GUARDRAIL (R)

REF PT B
STA 28+180.137

EXIST 45.7m TYPE C BEAM GUARDRAIL (R)

RAMP F

REF PT A
STA 28+356.644

B02 OF 63174

PROP 44m MISC CONC
PAV'T (REINF) TYP

+477

REF PT B
STA 28+432.659

EXIST 46.9m TYPE C BEAM GUARDRAIL (R)

EXIST MEDIAN BARRIER

PT=28+196.188

SB I-75

EXIST & PROP MEDIAN BARRIER

EXIST TYPE C BEAM GUARDRAIL (R)

28+200

NB I-75
N01°59'56"W

28+300

28+400

28+500

+502

EXIST 133.5m TYPE C BEAM GUARDRAIL (R)

EXIST BARRIER

RAMP D

REF PT C
STA 28+129.245

REF PT D
STA 28+180.914

S03 OF 63174

EXIST 72.5m TYPE C BEAM GUARDRAIL (R)

REF PT C
STA 28+381.637

REF PT D
STA 28+457.652

RED RUN DRAIN

EXIST 53.3m BEAM GUARDRAIL (R)

12 MILE RD

GUARDRAIL QUANTITIES
1 ea Guardrail Anch, Bridge, Det A1
122 m Guardrail, Type T
8 ea Guardrail Reflector
1 ea Guardrail Departing Terminal, Type T

GUARDRAIL QUANTITIES
1 ea Guardrail Approach Terminal, Type 2T
1 ea Guardrail Anch, Bridge, Det T1
141 m Guardrail, Type T
10 ea Guardrail Reflector

GUARDRAIL QUANTITIES
1 ea Guardrail Anch, Bridge, Det T1
1 ea Guardrail Approach Terminal, Type 2T
38 m Guardrail, Type T
3 ea Guardrail Reflector

CONSTRUCTION QUANTITIES THIS SHEET

6321 m2	Conc Pavt, Misc, Reinf, 240 mm
9900 m3	Aggregate Base, LM
2 ea	Dr Structure, 1200 mm dia
644 kg	Dr Structure Cover (2V)
1444 m2	Slope Restoration
481 m	Valley Gutter, Conc
2754 m2	Shoulder, Reinf Conc
963 m	Shoulder Corr, Ground or Cut, Bit
205 m	Joint, Expansion, E2
147 m	Joint, Expansion, E3
52 m	Joint, Expansion, E4
549 m	Joint, Contraction, C2
139 m	Joint, Contraction, C4
33 m	Joint, Contraction, Crg
1356 m	Joint, External Longit Edge of Pavt
388 m	Conc Barrier, Single Face, Type B
1926 m	Shoulder Corr, Ground or Cut, Conc

REMOVAL QUANTITIES THIS SHEET

9075 m2	Pavt, Rem
963 m	Station Grading - Bridge Approach
563 m	Guardrail, Rem
2 ea	Dr Structure, Rem
388 m	Barrier Wall, Rem

RED RUN DRAIN
REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

BRIDGE APPROACH S03 & B02 OF 63174

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
12/08/00	1:500	63174	49595	RICK	R.O.W. 11

12 MILE ROAD

FILE NAME: 49595l2red.dgn
1 2 7 8 9 11 12 13 14 15 16 17 18 19 21 22 23 24 25 26 27 28 29 30 31 32 33

CONTRO. SECTION 63174 | JOB NO. 49595 | SH. NO. 12

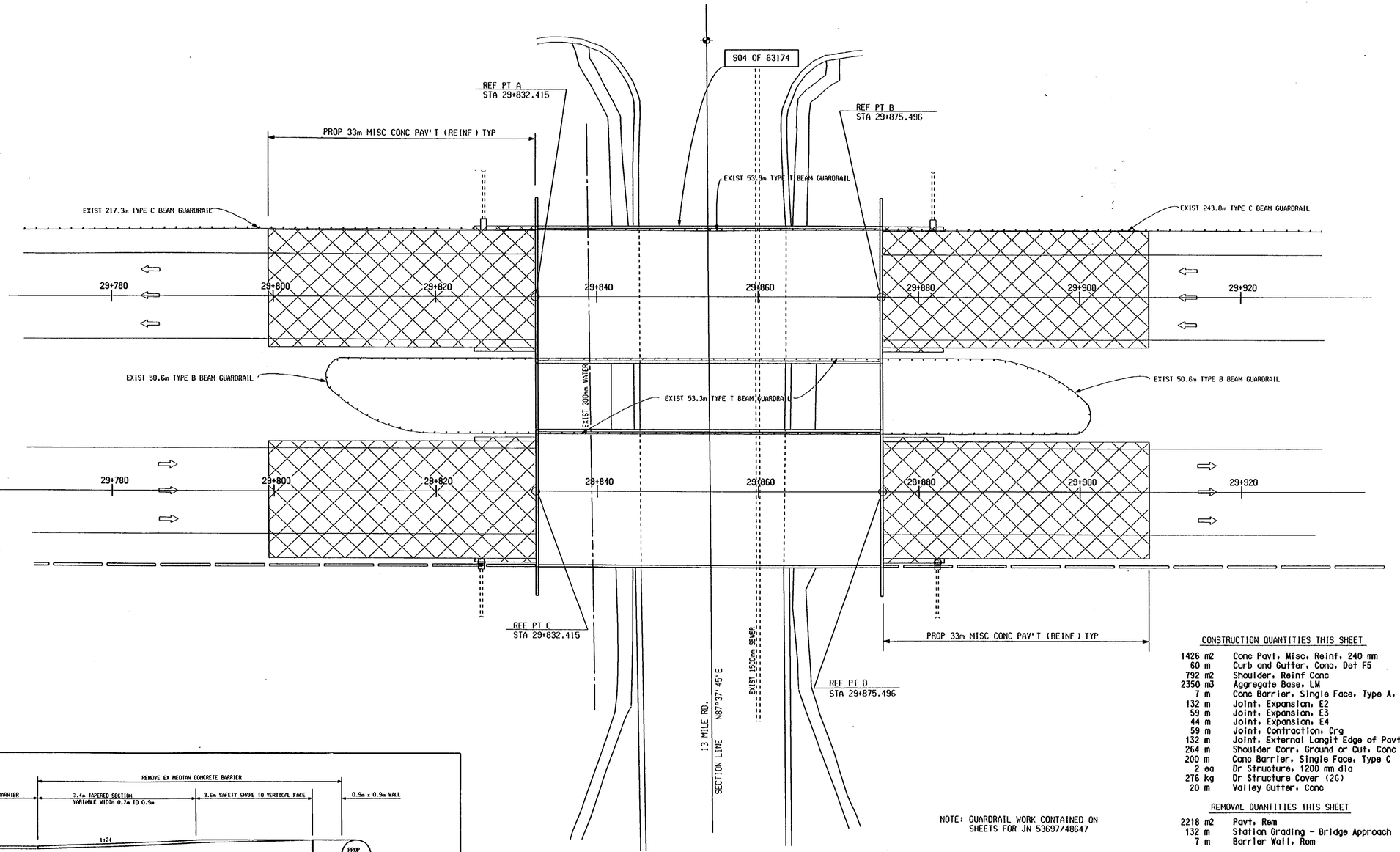
EXISTING BY: ZAMORAB DATE: 04/10/00
PROPOSED BY: DATE:
LAST CORRECTION BY: RICK'S TEAM DATE: 01-08-01

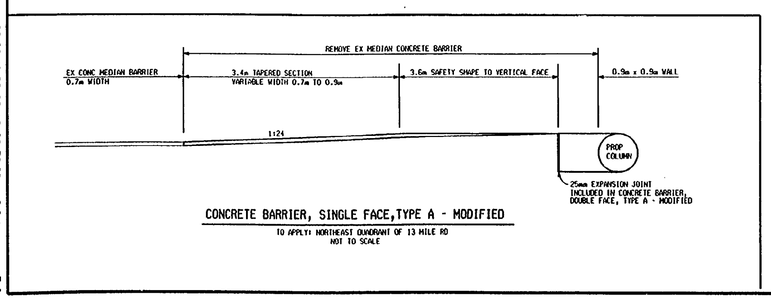
			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION 11
T1N ,R11E
MADISON HEIGHTS

13 MILE RD

SECTION 2
T1N ,R11E
MADISON HEIGHTS





CONCRETE BARRIER, SINGLE FACE,TYPE A - MODIFIED

TO APPLY: NORTHEAST QUADRANT OF 13 MILE RD
NOT TO SCALE

NOTE: GUARDRAIL WORK CONTAINED ON SHEETS FOR JN 53697/48647

CONSTRUCTION QUANTITIES THIS SHEET

1426 m2	Conc Pavt, Misc, Reinf, 240 mm
60 m	Curb and Gutter, Conc, Det F5
792 m2	Shoulder, Reinf Conc
2350 m3	Aggregate Base, LM
7 m	Conc Barrier, Single Face, Type A, Mod
132 m	Joint, Expansion, E2
59 m	Joint, Expansion, E3
44 m	Joint, Expansion, E4
59 m	Joint, Contraction, Crg
132 m	Joint, External Longit Edge of Pavt
264 m	Shoulder Corr, Ground or Cut, Conc
200 m	Conc Barrier, Single Face, Type C
2 ea	Dr Structure, 1200 mm dia
276 kg	Dr Structure Cover (2G)
20 m	Valley Gutter, Conc

REMOVAL QUANTITIES THIS SHEET

2218 m2	Pavt, Rem
132 m	Station Grading - Bridge Approach
7 m	Barrier Wall, Rem

REMOVAL & CONSTRUCTION SHEET

13 MILE RD

MDOT Michigan Department of Transportation

BRIDGE APPROACH S04 OF 63174

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
01/08/01	1:250	63174	49595	RICK		12

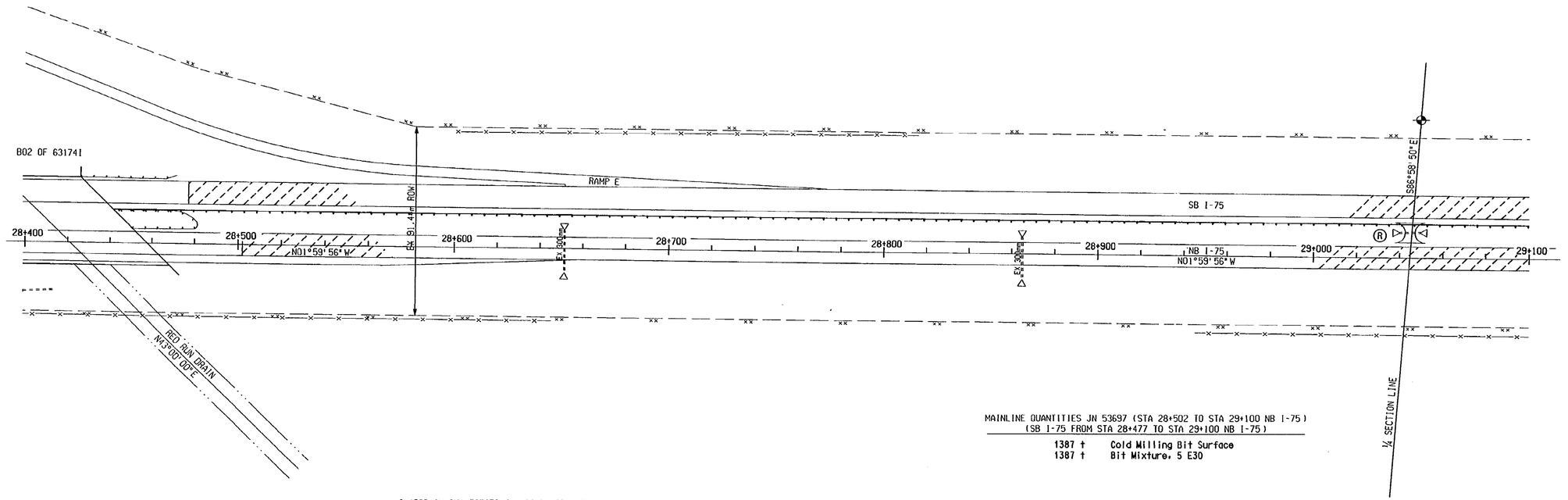
FILE NAME: 4959513m.dgn
1 2 7 8 9 11 12 13 14 15 16 17 18 19 2: 22 23 24 25 26 27 28 29 30 31 32 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 13

EXISTING BY: RICK'S TEAM DATE: 10/19/00
PROPOSED BY: RICK'S TEAM DATE: 10/30/00
LAST CORRECTION BY: RICK'S TEAM DATE: 12-18-00

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

SECTION 11
T1N ,R11E
MADISON HEIGHTS



MAINLINE QUANTITIES JN 53697 (STA 28+502 TO STA 29+100 NB I-75)
(SB I-75 FROM STA 28+477 TO STA 29+100 NB I-75)

1387 t	Cold Milling Bit Surface
1387 t	Bit Mixture, 5 E30

GUARDRAIL QUANTITIES JN 48647 (STA 28+502 TO STA 29+100 NB I-75)
(SB I-75 FROM STA 28+477 TO STA 29+100 NB I-75)

651.51 m	Guardrail, Type TD
86 ea	Guardrail Reflector
1 ea	Guardrail Anch, Bridge, Det T1

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 28+502 TO STA 29+100 NB I-75)
(SB I-75 FROM STA 28+477 TO STA 29+100 NB I-75)

304 t	Bit Mixture, 4C
391 t	Bit Mixture, 3C
2766 m2	Aggregate Base, 200 mm
659 m	Station Grading
2437 m2	Slope Restoration
685 m2	Shoulder, Cl II, 140 mm

BRIDGE APPROACH WORK @ 12 MILE AND RED RUN DRAIN
SHOWN ON JOB # 49595 SHEET# 11

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 28+400 TO STA 29+100 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
12/18/00	1:1000	63174	48647 53697	RICK	R.O.W 13

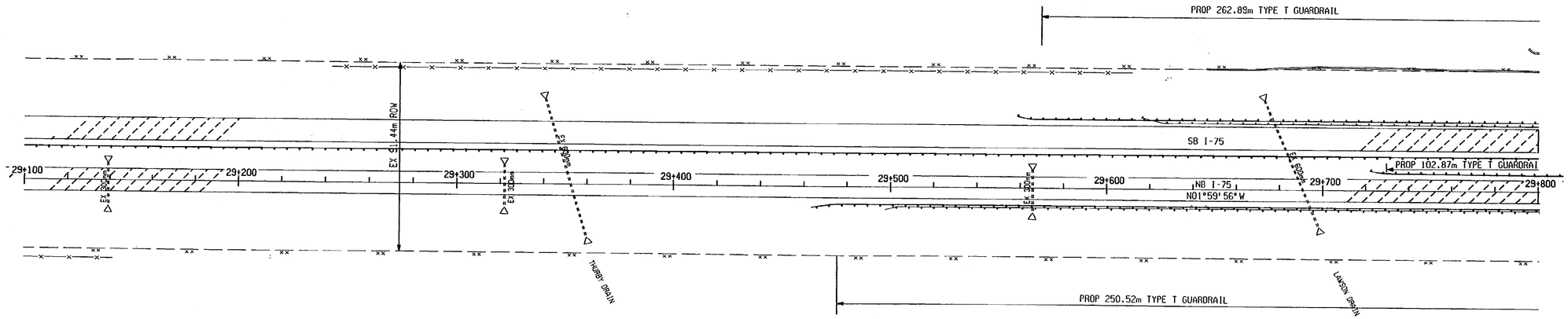
FILE NAME: 5369728400.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 14

EXISTING BY: RICK'S TEAM DATE: 10/19/00
PROPOSED BY: RICK'S TEAM DATE: 11/10/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/15/00

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION 11
T1N ,R11E
MADISON HEIGHTS



MAINLINE QUANTITIES JN 53697 (STA 29+100 POB TO STA 29+800)

1590 t	Cold Milling Bit Surface
1590 t	Bit Mixture, 5 E30

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 29+100 POB TO STA 29+800)

323 t	Bit Mixture, 4C
416 t	Bit Mixture, 3C
2940 m2	Aggregate Base, 200 mm
700 m	Station Grading
2590 m2	Slope Restoration
728 m2	Shoulder, Cl II, 140 mm

GUARDRAIL QUANTITIES JN 48647 (STA 29+100 POB TO STA 29+800)

701.04 m	Guardrail, Type TD
92 ea	Guardrail Reflector

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 29+100 TO STA 29+800 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/15/00	1:1000	63174	48647 53697	RICK	R.O.W 14

FILE NAME: 53697291OO.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 15

EXISTING BY: RICK'S TEAM DATE: 10/19/00
PROPOSED BY: RICK'S TEAM DATE: 10/27/00
LAST CORRECTION BY: RICK'S TEAM DATE: 12-18-00

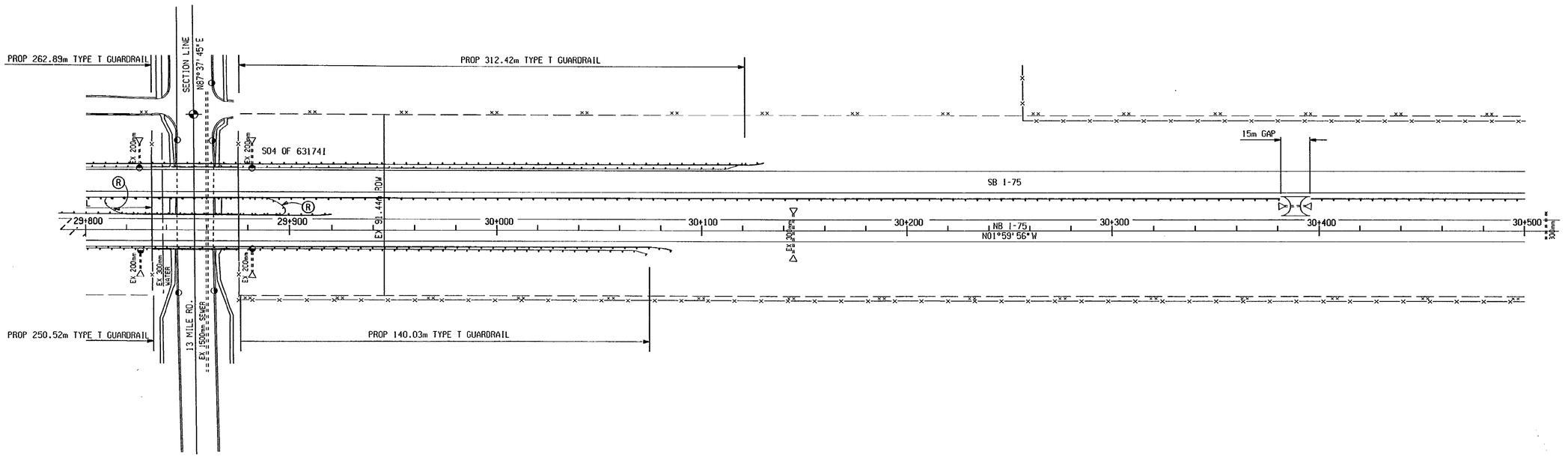
			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

13 MILE RD

SECTION 2
T1N ,R11E
MADISON HEIGHTS

GUARDRAIL QUANTITIES AT STRUCT/EMBANK JN 48647
SB OUTSIDE

575.31 m	Guardrail, Type T
2 ea	Guardrail Anch, Bridge, Det T1
1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
39 ea	Guardrail Reflector



GUARDRAIL QUANTITIES AT STRUCT/EMBANK JN 48647
NB OUTSIDE

391.26 m	Guardrail, Type T
2 ea	Guardrail Anch, Bridge, Det T1
1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
40 ea	Guardrail Reflector

GUARDRAIL QUANTITIES AT STRUCT/EMBANK JN 48647
NB INSIDE

102.87 m	Guardrail, Type T
2 ea	Guardrail Anch, Bridge, Det T1
1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
7 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (STA 29+800 POB TO STA 30+500)

628.91 m	Guardrail, Type TD
80 ea	Guardrail Reflector
2 ea	Guardrail Anch, Bridge, Det T1
1287 m	Guardrail, Rem
2 ea	Guardrail Approach Terminal, Type 3

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 29+800 POB TO STA 30+500)

304 t	Bit Mixture, 4C
390 t	Bit Mixture, 3C
2761 m2	Aggregate Base, 200 mm
657 m	Station Grading
2432 m2	Slope Restoration
684 m2	Shoulder, Cl II, 140 mm

BRIDGE APPROACH WORK @ 13 MILE
SHOWN ON JOB # 49595.

13 MILE RD

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 29+800 TO STA 30+500 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/12/01	1:1000	63174	48647 53697	RICK	R.O.W 15

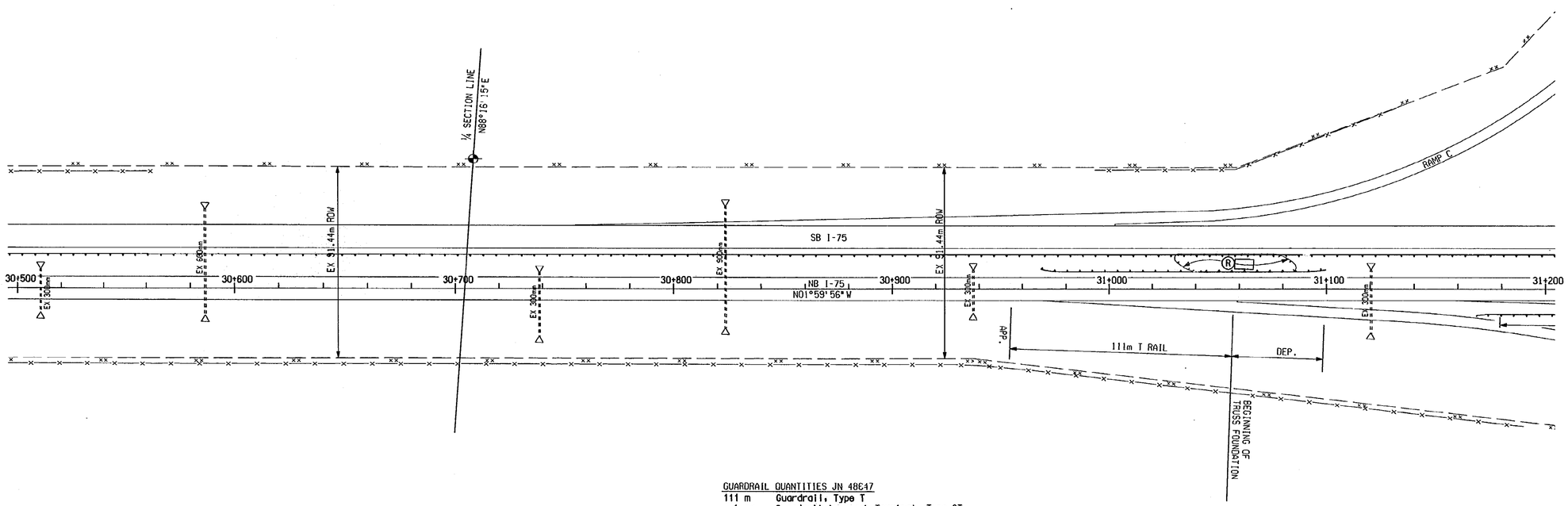
FILE NAME: 536929800.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 16

EXISTING BY: RICK'S TEAM DATE: 10/19/00
PROPOSED BY: RICK'S TEAM DATE: 10/27/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/15/00

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

SECTION 2
T1N ,R1E
MADISON HEIGHTS



GUARDRAIL QUANTITIES JN 48647

111 m	Guardrail, Type T
1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
8 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (STA 30+500 TO STA 31+200)

701 m	Guardrail, Type TD
92 ea	Guardrail Reflector
100 m	Guardrail, Rem

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 30+500 TO STA 31+200)

294 t	Bit Mixture, 4C
378 t	Bit Mixture, 3C
2660 m2	Aggregate Base, 200 mm
700 m	Station Grading
5113 m2	Slope Restoration

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 30+500 TO STA 31+200 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/15/00	1:1000	63174	48647 53697	RICK	R.O.W 16

FILE NAME: 53697S0500.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 53697 | SH. NO. 17

EXISTING BY: RICK'S TEAM DATE: 10/19/00
PROPOSED BY: RICK'S TEAM DATE: 11/07/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/16/00

AUTH	DATE	NO.	FINAL R.O.W. REVISION

14 MILE RD

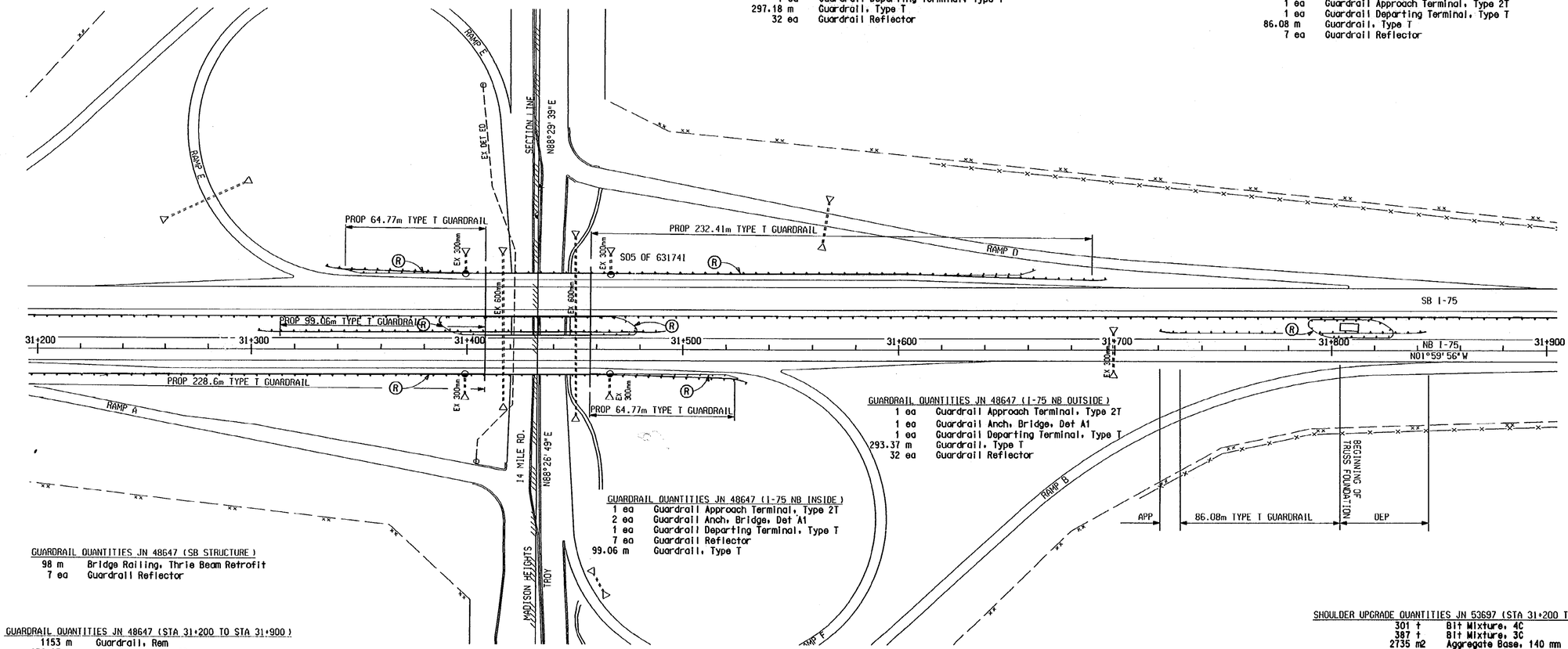
SECTION 2
T1N ,R11E
MADISON HEIGHTS

SECTION 35
T1N ,R11E
TROY

GUARDRAIL QUANTITIES JN 48647 (NB STRUCTURE)
98 m Bridge Railing, Thrie Beam Retrofit
7 ea Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 SB OUTSIDE)
1 ea Guardrail Approach Terminal, Type 2T
2 ea Guardrail Anch, Bridge, Det A1
1 ea Guardrail Departing Terminal, Type T
297.18 m Guardrail, Type T
32 ea Guardrail Reflector

GUARDRAIL QUANTITIES JN 53697 (I-75 NB INSIDE @ TRUSS)
1 ea Guardrail Approach Terminal, Type 2T
1 ea Guardrail Departing Terminal, Type T
86.08 m Guardrail, Type T
7 ea Guardrail Reflector



GUARDRAIL QUANTITIES JN 48647 (NB STRUCTURE)
1 ea Guardrail Approach Terminal, Type 2T
1 ea Guardrail Anch, Bridge, Det A1
1 ea Guardrail Departing Terminal, Type T
293.37 m Guardrail, Type T
32 ea Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (NB INSIDE)
1 ea Guardrail Approach Terminal, Type 2T
2 ea Guardrail Anch, Bridge, Det A1
1 ea Guardrail Departing Terminal, Type T
7 ea Guardrail Reflector
99.06 m Guardrail, Type T

GUARDRAIL QUANTITIES JN 48647 (SB STRUCTURE)
98 m Bridge Railing, Thrie Beam Retrofit
7 ea Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (STA 31+200 TO STA 31+900)
1153 m Guardrail, Rem
636.27 m Guardrail, Type TD
84 ea Guardrail Reflector
2 ea Guardrail Anch, Bridge, Det A1

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 31+200 TO STA 31+900)
301 t Bit Mixture, 4C
387 t Bit Mixture, 3C
2735 m2 Aggregate Base, 140 mm
651 m Station Grading
2409 m2 Slope Restoration
677 m2 Shoulder, Cl II, 140 mm

REMOVAL & CONSTRUCTION SHHET

MDOT Michigan Department of Transportation

STA 31+200 TO STA 31+900 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W
11/16/00	1:1000	63174	53697	RICK	17

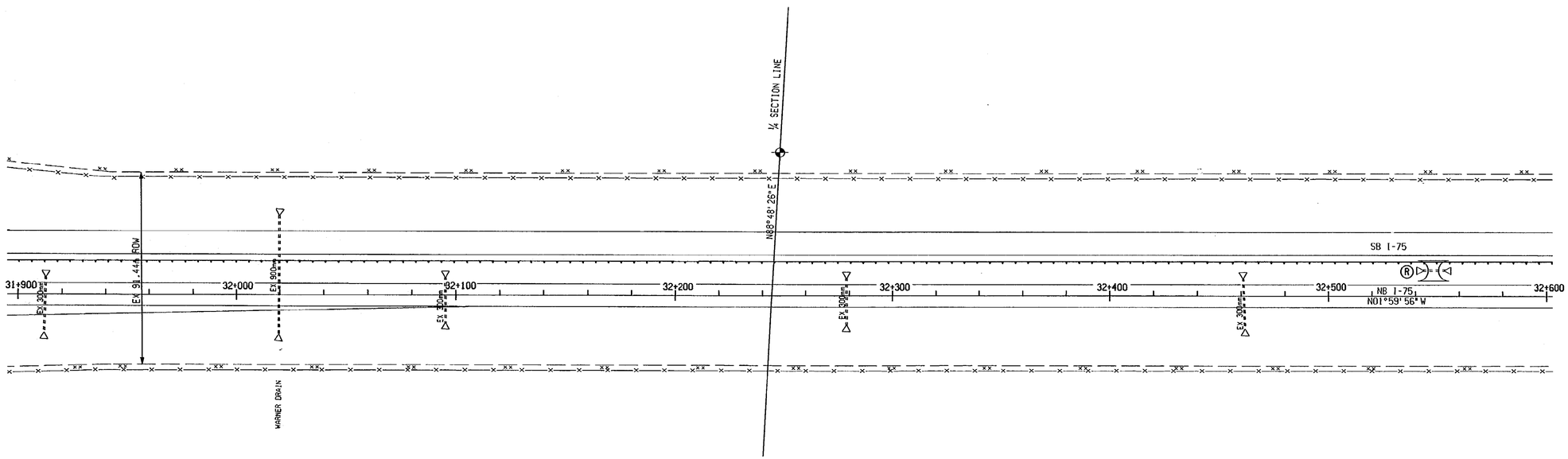
FILE NAME: 53697I200.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION	JOB NO.	SH. NO.
63174	48647 & 53697	18

EXISTING BY: RICK'S TEAM DATE: 10/20/00
PROPOSED BY: RICK'S TEAM DATE: 11/11/00
LAST CORRECTION BY: DATE:

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

SECTION 35
T1N ,R11E
TROY



GUARDRAIL QUANTITIES JN 48697 (STA 31+900 TO STA 36+600)

701.04 m	Guardrail, Type TD
92 ea	Guardrail Reflector

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 31+900 TO STA 32+600)

323 t	Bit Mixture, 4C
416 t	Bit Mixture, 3C
2940 m2	Aggregate Base, 200 mm
700 m	Station Grading
2590 m2	Slope Restoration
728 m2	Shoulder, Cl II, 140 mm

FILE NAME: 53697319OO.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 28 30 31 33

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 31+900 TO STA 32+600 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/11/00	1:1000	63174	48647 53697	RICK	R.O.W 18

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 19

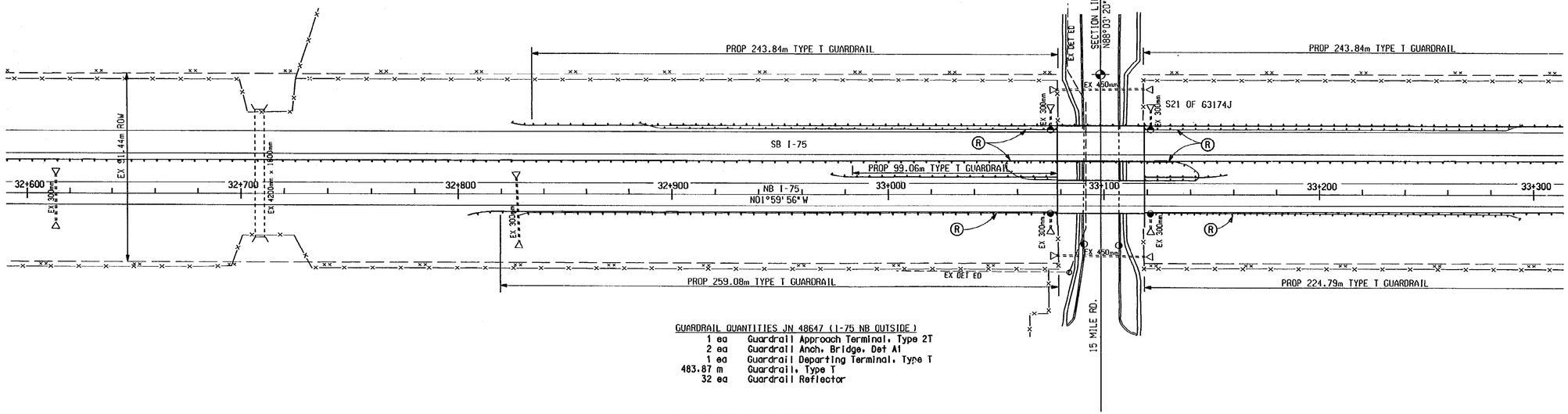
EXISTING BY: RICK'S TEAM DATE: 10/26/00
PROPOSED BY: RICK'S TEAM DATE: 11/01/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/11/00

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

15 MILE RD

SECTION 35
T1N ,R11E
TROY

SECTION 26
T1N ,R11E
TROY



GUARDRAIL QUANTITIES JN 48647 (I-75 SB OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
2 ea	Guardrail Anch, Bridge, Det A1
1 ea	Guardrail Departing Terminal, Type T
487.68 m	Guardrail, Type T
32 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 NB OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
2 ea	Guardrail Anch, Bridge, Det A1
1 ea	Guardrail Departing Terminal, Type T
483.87 m	Guardrail, Type T
32 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 NB INSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
2 ea	Guardrail Anch, Bridge, Det A1
1 ea	Guardrail Departing Terminal, Type T
99.06 m	Guardrail, Type T
7 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (STA 32+600 TO STA 33+300)

1061 m	Guardrail, Rem
685.80 m	Guardrail, Type TD
2 ea	Guardrail Anch, Bridge, Det A1
90 ea	Guardrail Reflector
161 m	Bridge Railing, Thrie Beam Retrofit

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 32+600 TO STA 33+300)

305 t	Bit Mixture, 4C
392 t	Bit Mixture, 3C
2771 m2	Aggregate Base, 200 mm
660 m	Station Grading
2441 m2	Slope Restoration
686 m2	Shoulder, Cl II, 140 mm

15 MILE RD

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 32+600 TO STA 33+300 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	
11/11/00	1:100	63174	48647 53697	RICK		19

FILE NAME: 5389732600.dgn
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

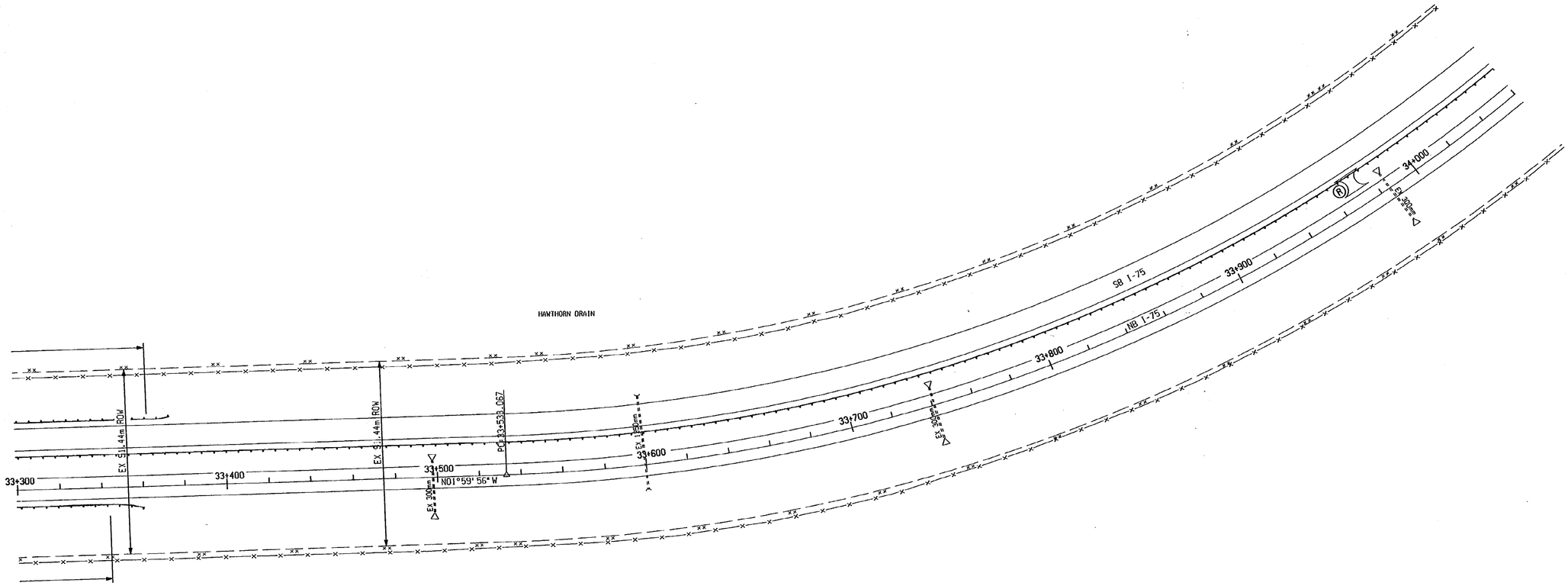
CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 20

EXISTING BY: RICK'S TEAM DATE: 10/20/00
PROPOSED BY: RICK'S TEAM DATE: 11/11/00
LAST CORRECTION BY: DATE:

				FINAL R.O.W.
AUTH	DATE	NO.	REVISION	

I-75 NB CONST ℄
CURVE DATA
Δ=90°00'06" LT
R=776.167
T=776.189
L=1219.223
PC =33+533.067
PI =34+309.257
PT =34+752.290

SECTION 26
T1N ,R11E
TROY



GUARDRAIL QUANTITIES JN 48647 (STA 32+600 TO STA 34+060)

762 m	Guardrail, Type TD
100 ea	Guardrail Reflector

CONSTRUCTION QUANTITIES JN 53697 (STA 32+600 TO STA 34+060)

351 t	Bit Mixture, 4C
451 t	Bit Mixture, 3C
3192 m2	Aggregate Base, 200 mm
720 m	Station Grading
2812 m2	Slope Restoration
790 m2	Shoulder, Cl II, 140 mm

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 33+300 TO STA 34+060 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W
11/11/00	1:1000	63174	48647 53697	RICK	20

FILE NAME: 53697330O.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

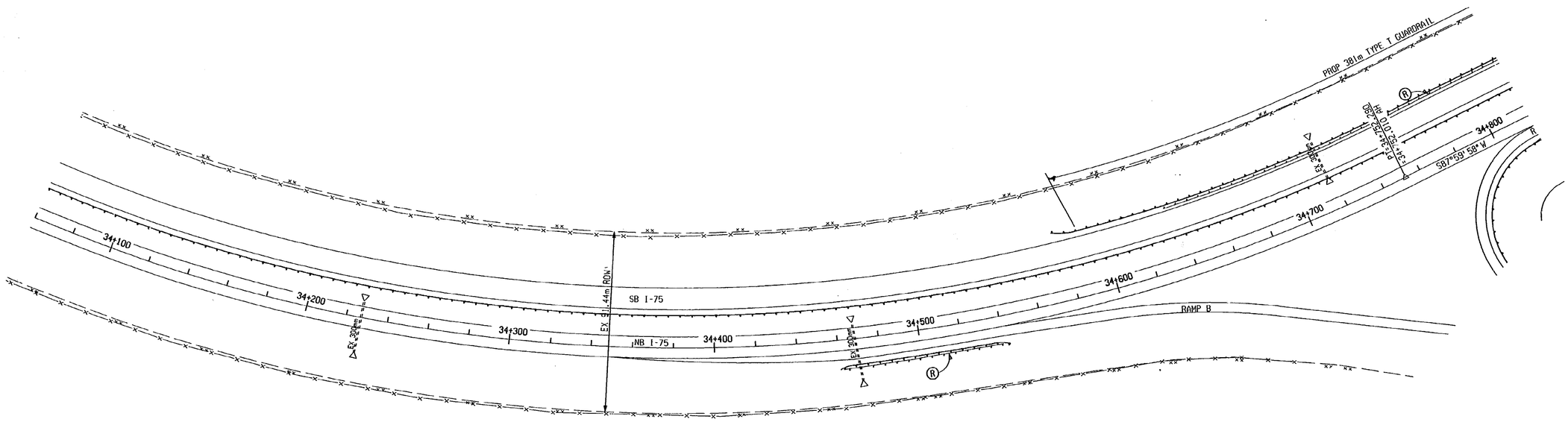
CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 21

EXISTING BY: RICK'S TEAM DATE: 10/20/00
PROPOSED BY: RICK'S TEAM DATE: 11/11/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/17/00

AUTH	DATE	NO.	FINAL R.O.W. REVISION

I-75 NB CONST ℄
CURVE DATA
Δ=90°00'06" LT
R=776.167
T=776.189
L=1219.223
PC =33+533.067
PI =34+309.257
PT =34+752.290

SECTION 26
T1N ,R11E
TROY



GUARDRAIL QUANTITIES JN 48647 (STA 34+060 TO STA 34+820)

762 m	Guardrail, Type TD
100 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 NB OUTSIDE)

79 m	Guardrail, Rem
1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
72.39 m	Guardrail, Type T
5 ea	Guardrail Reflector

CONSTRUCTION QUANTITIES JN 53697 (STA 340+060 TO STA 34+820)

351 t	Bit Mixture, 4C
451 t	Bit Mixture, 3C
3192 m2	Aggregate Base, 200 mm
760 m	Station Grading
2812 m2	Slope Restoration
790 m2	Shoulder, Cl II, 140 mm

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 34+060 TO STA 34+820 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	
11/17/00	1:1000	63174	53697	RICK		21

FILE NAME: 536734060.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 22

EXISTING BY: RICK'S TEAM DATE: 10/20/00
PROPOSED BY: RICK'S TEAM DATE: 11/11/00
LAST CORRECTION BY: DATE: 01/09/01

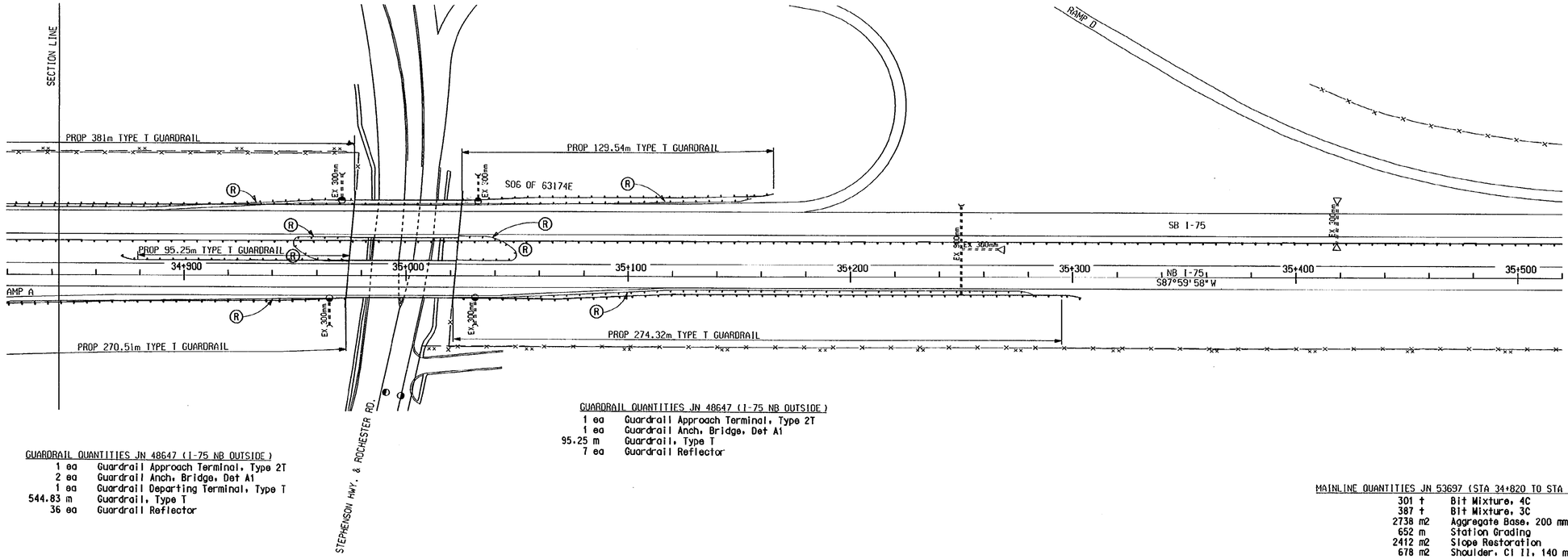
STEPHENSON HWY & ROCHESTER RD

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION 27
T1N ,R11E
TROY

GUARDRAIL QUANTITIES JN 48647 (SB STRUCTURE)
96 m Bridge Railing, Thrie Beam Retrofit
7 ea Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 SB OUTSIDE)
1 ea Guardrail Approach Terminal, Type 2T
1 ea Guardrail Departing Terminal, Type T
2 ea Guardrail Anch, Bridge, Det A1
510.54 m Guardrail, Type T
48 ea Guardrail Reflector



GUARDRAIL QUANTITIES JN 48647 (I-75 NB OUTSIDE)
1 ea Guardrail Approach Terminal, Type 2T
2 ea Guardrail Anch, Bridge, Det A1
1 ea Guardrail Departing Terminal, Type T
544.83 m Guardrail, Type T
36 ea Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 NB OUTSIDE)
1 ea Guardrail Approach Terminal, Type 2T
1 ea Guardrail Anch, Bridge, Det A1
95.25 m Guardrail, Type T
7 ea Guardrail Reflector

MAINLINE QUANTITIES JN 53697 (STA 34+820 TO STA 35+520)
301 t Bit Mixture, 4C
387 t Bit Mixture, 3C
2738 m2 Aggregate Base, 200 mm
652 m Station Grading
2412 m2 Slope Restoration
678 m2 Shoulder, Cl II, 140 mm

GUARDRAIL QUANTITIES JN 48647 (NB STRUCTURE)
96 m Bridge Railing, Thrie Beam Retrofit
7 ea Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (STA 34+820 TO STA 35+520)
640.08 m Guardrail, Type TD
84 ea Guardrail Reflector
2 ea Guardrail Anch, Bridge, Det A1
1384 m Guardrail, Rem

STEPHENSON HWY & ROCHESTER RD

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

34+820 TO STA 35+520 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
01/09/01	1:1000	63174	53697	RICK		22

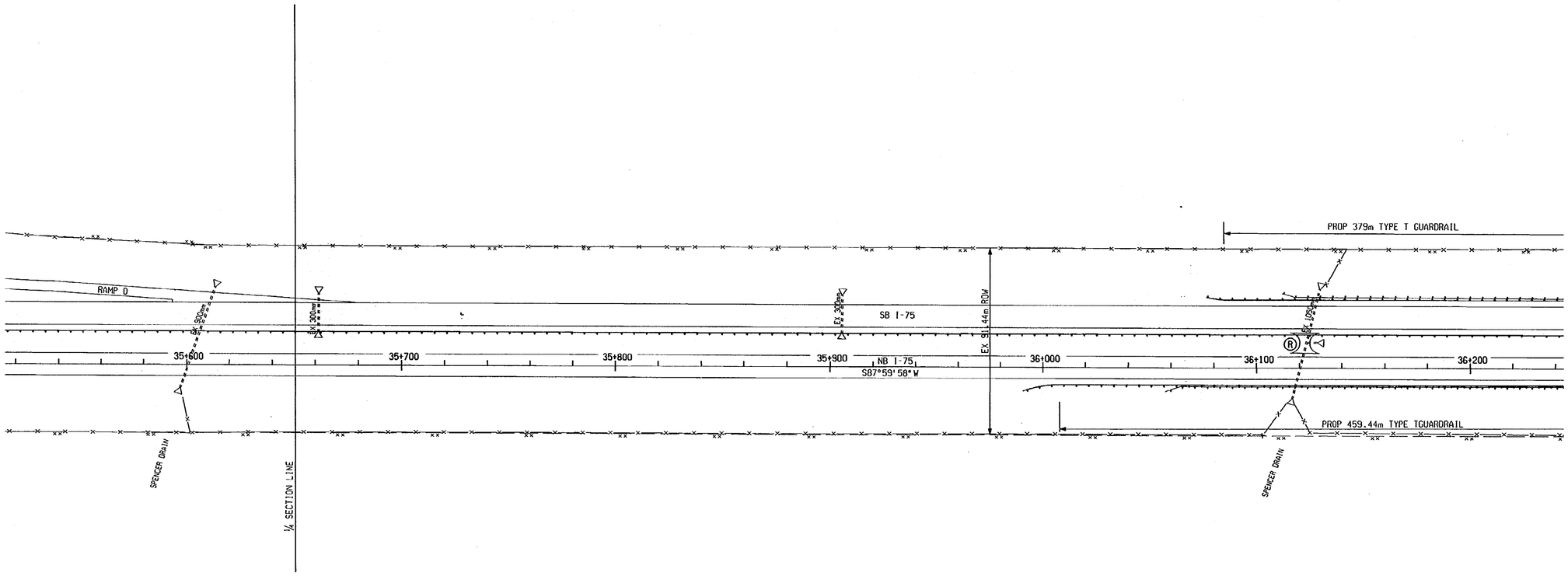
FILE NAME: 536974820.dgn
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 28 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 23

EXISTING BY: RICK'S TEAM DATE: 10/21/00
PROPOSED BY: RICK'S TEAM DATE: 11/13/00
LAST CORRECTION BY: DATE:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION 27
T1N ,R1E
TROY



GUARDRAIL QUANTITIES JN 48647 (STA 35+520 TO STA 36+240)

702.09 m	Guardrail, Type TD
95 ea	Guardrail Reflector

CONSTRUCTION QUANTITIES JN 53697 (STA 35+520 TO STA 36+240)

333 t	Bit Mixture, 4C
428 t	Bit Mixture, 3C
3024 m2	Aggregate Base, 200 mm
720 m	Station Grading
2664 m2	Slope Restoration
749 m2	Shoulder, Cl II, 140 mm

FILE NAME: 5369735520.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

REMOVAL & CONSTRUCTION SHEET

MDOT Muskegon Department of Transportation

STA 35+520 TO STA 36+240 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/13/00	1:1000	63174	48647 53697	RICK	R.O.W. 23

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 24

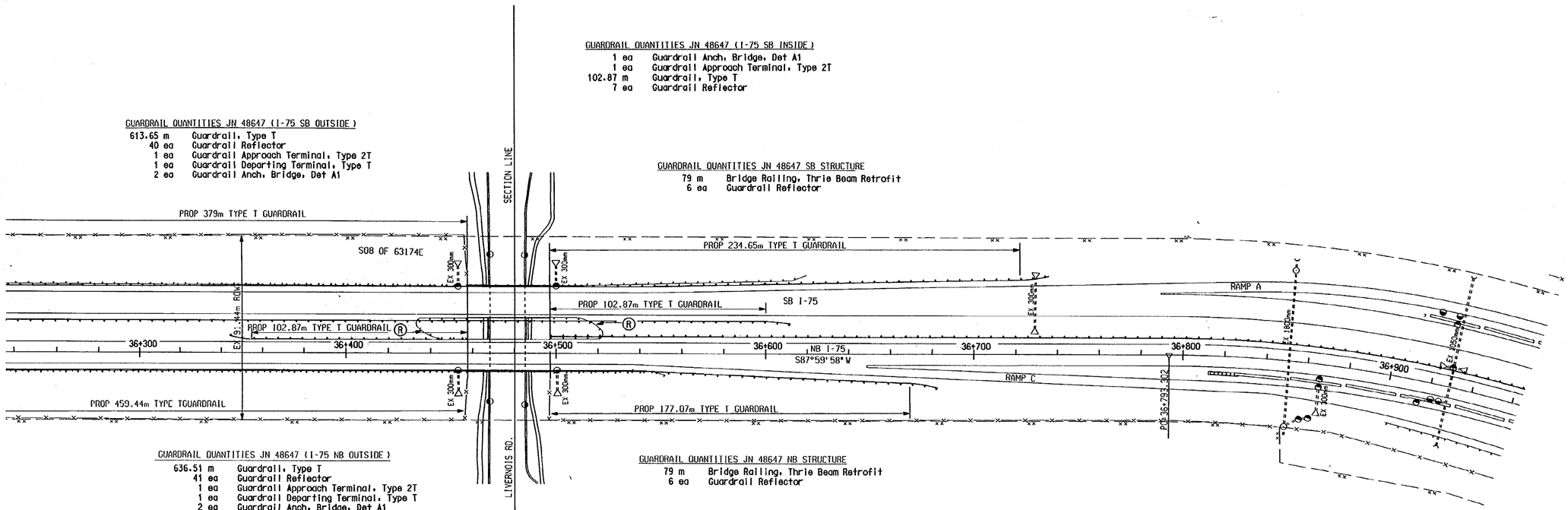
EXISTING BY: RICK'S TEAM DATE: 10/21/00
PROPOSED BY: RICK'S TEAM DATE: 11/07/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/16/00

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

LIVERNOIS RD

SECTION 27
T1N ,R11E
TROY

SECTION 28
T1N ,R11E
TROY



GUARDRAIL QUANTITIES JN 48647 (I-75 SB OUTSIDE)

613.65 m	Guardrail, Type T
40 ea	Guardrail Reflector
1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
2 ea	Guardrail Anch, Bridge, Det A1

GUARDRAIL QUANTITIES JN 48647 (I-75 SB INSIDE)

1 ea	Guardrail Anch, Bridge, Det A1
1 ea	Guardrail Approach Terminal, Type 2T
102.87 m	Guardrail, Type T
7 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 SB STRUCTURE

79 m	Bridge Railing, Thrie Beam Retrofit
6 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 NB OUTSIDE)

636.51 m	Guardrail, Type T
41 ea	Guardrail Reflector
1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
2 ea	Guardrail Anch, Bridge, Det A1

GUARDRAIL QUANTITIES JN 48647 NB STRUCTURE

79 m	Bridge Railing, Thrie Beam Retrofit
6 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 NB INSIDE)

102.87 m	Guardrail, Type T
7 ea	Guardrail Reflector
1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Anch, Bridge, Det A1

GUARDRAIL QUANTITIES JN 48647 (STA 36+240 TO STA 36+960) SB MEDIAN

666.75 m	Guardrail, Type TD
88 ea	Guardrail Reflector
2 ea	Guardrail Anch, Bridge, Det A1
1338 m	Guardrail, Rem

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 36+240 TO STA 36+960)

314 t	Bit Mixture, 4C
404 t	Bit Mixture, 3C
2858 m2	Aggregate Base, 200 mm
681 m	Station Grading
2518 m2	Slope Restoration
708 m2	Shoulder, Cl II, 140 mm

REMOVAL & CONSTRUCTION SHEET

LIVERNOIS RD

MDOT Michigan Department of Transportation

STA 36+240 TO STA 36+960 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/16/00	1:1000	63174	48647 53697	RICK	R.O.W. 24

FILE NAME: 536936240.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 25

EXISTING BY: RICK'S TEAM DATE: 10/21/00
PROPOSED BY: RICK'S TEAM DATE: 11/06/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/27/00

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

I-75 NB CONST ℄
CURVE DATA
△=90°00'34" RT
R=582.125
T=582.221
L=914.496
PC =36+793.302
PI =37+375.523
PT =37+707.798

BIG BEAVER RD

SECTION 28
T1N ,R11E
TROY

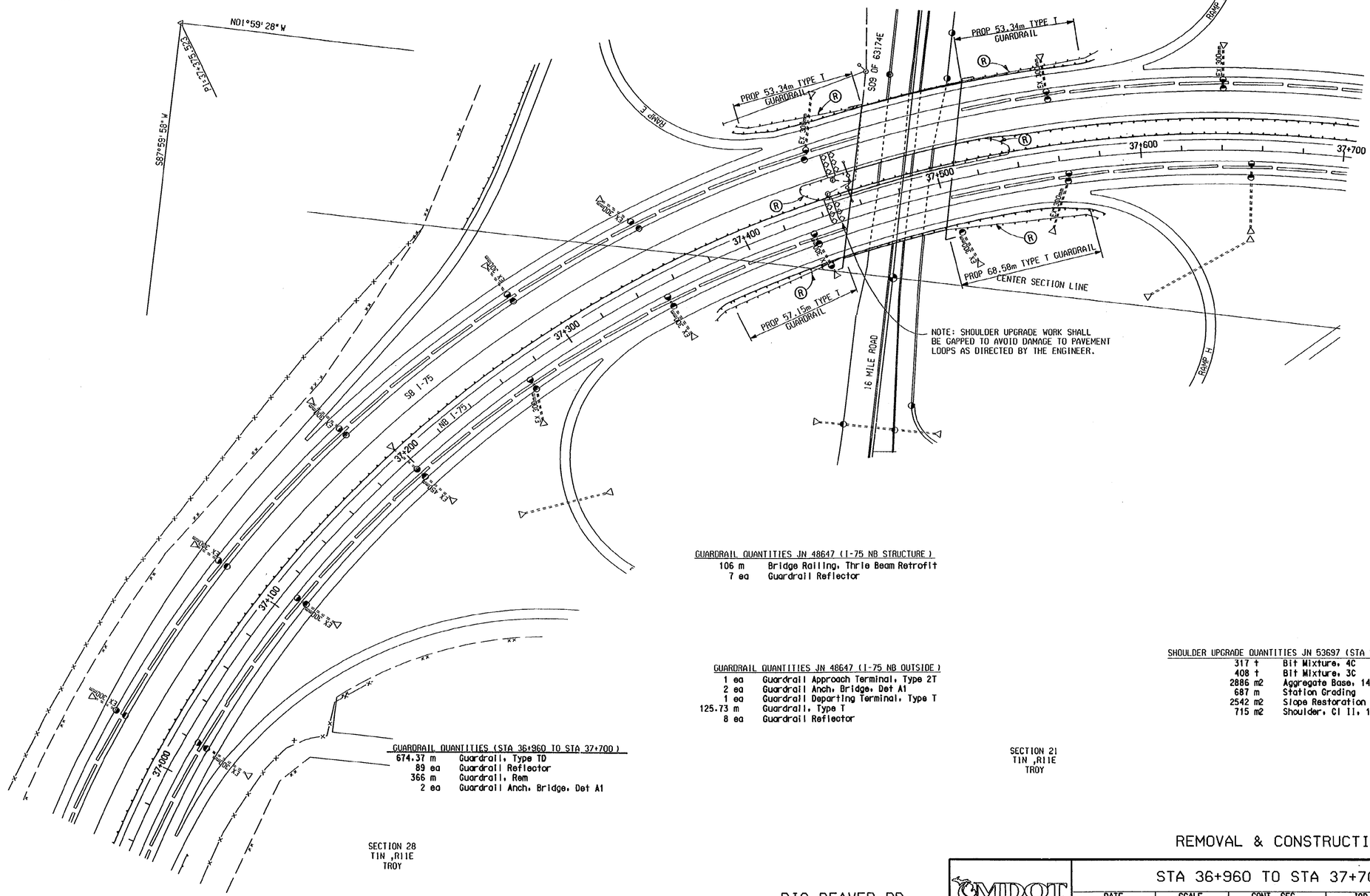
N01°59'28"W
S87°59'58"W
B1+37.275.524

GUARDRAIL QUANTITIES JN 48647 (I-75 SB OUTSIDE)
1 ea Guardrail Approach Terminal, Type 2T
1 ea Guardrail Departing Terminal, Type T
2 ea Guardrail Anch, Bridge, Det A1
106.68 m Guardrail, Type T
7 ea Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 SB STRUCTURE)
53 m Bridge Railing, Thrie Beam Retrofit
4 ea Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 SB INSIDE)
1 ea Guardrail Approach Terminal, Type 2T
2 ea Guardrail Anch, Bridge, Det A1
194.31 m Guardrail, Type T
7 ea Guardrail Reflector
1 ea Guardrail Departing Terminal, Type T

SECTION 21
T1N ,R11E
TROY



GUARDRAIL QUANTITIES JN 48647 (I-75 NB STRUCTURE)
106 m Bridge Railing, Thrie Beam Retrofit
7 ea Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 NB OUTSIDE)
1 ea Guardrail Approach Terminal, Type 2T
2 ea Guardrail Anch, Bridge, Det A1
1 ea Guardrail Departing Terminal, Type T
125.73 m Guardrail, Type T
8 ea Guardrail Reflector

GUARDRAIL QUANTITIES (STA 36+960 TO STA 37+700)
674.37 m Guardrail, Type TD
89 ea Guardrail Reflector
366 m Guardrail, Rem
2 ea Guardrail Anch, Bridge, Det A1

SECTION 28
T1N ,R11E
TROY

SECTION 21
T1N ,R11E
TROY

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 36+960 TO STA 37+700)
317 t Bit Mixture, 4C
408 t Bit Mixture, 3C
2886 m2 Aggregate Base, 140 mm
687 m Station Grading
2542 m2 Slope Restoration
715 m2 Shoulder, Cl II, 140 mm

BIG BEAVER RD

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 36+960 TO STA 37+700 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/27/00	1:1000	63174	48647 53697	RICK	R.O.W. 25

FILE NAME: 53697369360.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

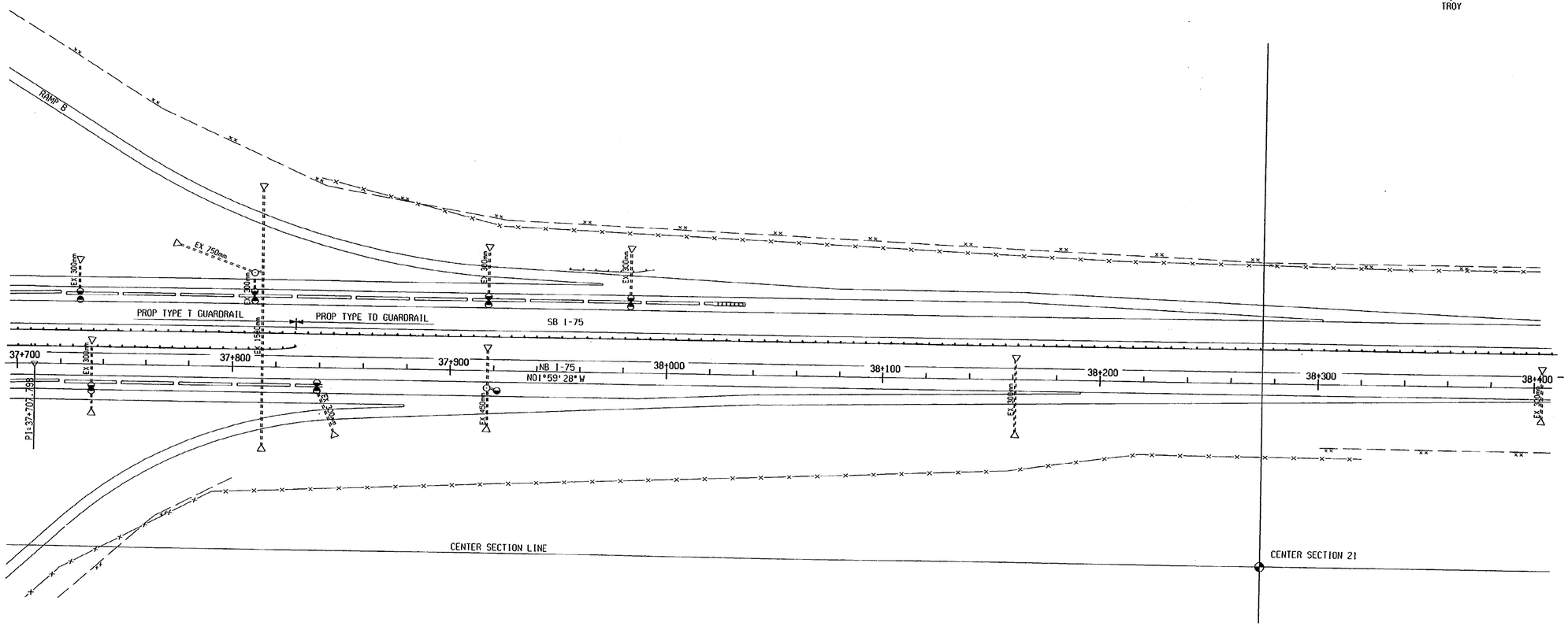
CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 26

EXISTING BY: RICK'S TEAM DATE: 10/21/00
PROPOSED BY: RICK'S TEAM DATE: 11/08/00
LAST CORRECTION BY: DATE:

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

SECTION 21
T1N ,R11E
TROY

SECTION 21
T1N ,R11E
TROY



GUARDRAIL QUANTITIES JN 48647 (STA 37+700 TO STA 39+400)

701.04 m	Guardrail, Type TD
92 ea	Guardrail Reflector
1 ea	Guardrail Departing Terminal, Type T
120 m	Guardrail, Type T

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 37+700 TO STA 38+400)

323 t	Bit Mixture, 4C
416 t	Bit Mixture, 3C
2940 m2	Aggregate Base, 200 mm
700 m	Station Grading
2590 m2	Slope Restoration
728 m2	Shoulder, Cl II, 140 mm

SECTION 21
T1N ,R11E
TROY

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 37+700 TO STA 38+400 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/11/00	1:1000	63174	48647 53697	RICK	R.O.W. 26

FILE NAME: 5369737700.dgn
910 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 28 30 31 33 1

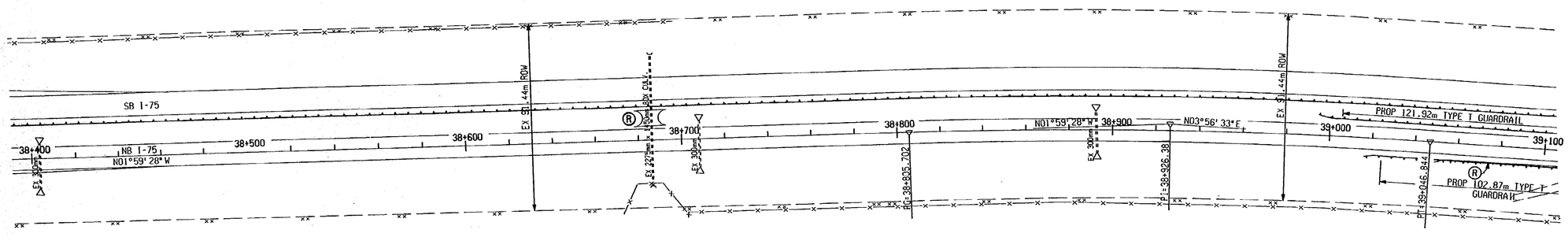
CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 27

EXISTING BY: RICK'S TEAM DATE: 10/23/00
PROPOSED BY: RICK'S TEAM DATE: 11/13/00
LAST CORRECTION BY: DATE:

SECTION 21
T1N ,R1E
TROY

I-75 NB CONST ℄
CURVE DATA
Δ=05°56'01" RT
R=2328.501
T=120.679
L=241.142
PC =38+805.702
PI =38+926.381
PT =39+046.844

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



GUARDRAIL QUANTITIES JN 48647 (STA 38+400 TO STA 39+100)

701.04 m	Guardrail, Type TD
92 ea	Guardrail Reflector

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 38+400 TO STA 39+100)

323 t	Bit Mixture, 4C
416 t	Bit Mixture, 3C
2940 m2	Aggregate Base, 200 mm
700 m	Station Grading
2590 m2	Slope Restoration
728 m2	Shoulder, Cl II, 140 mm

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 38+400 TO STA 39+100 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	
11/13/00	1:1000	63174	48647 53697	RICK		27

FILE NAME: 53697S400.dgn
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 28

EXISTING BY: RICK'S TEAM DATE: 10/24/00
PROPOSED BY: RICK'S TEAM DATE: 11/13/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/27/00

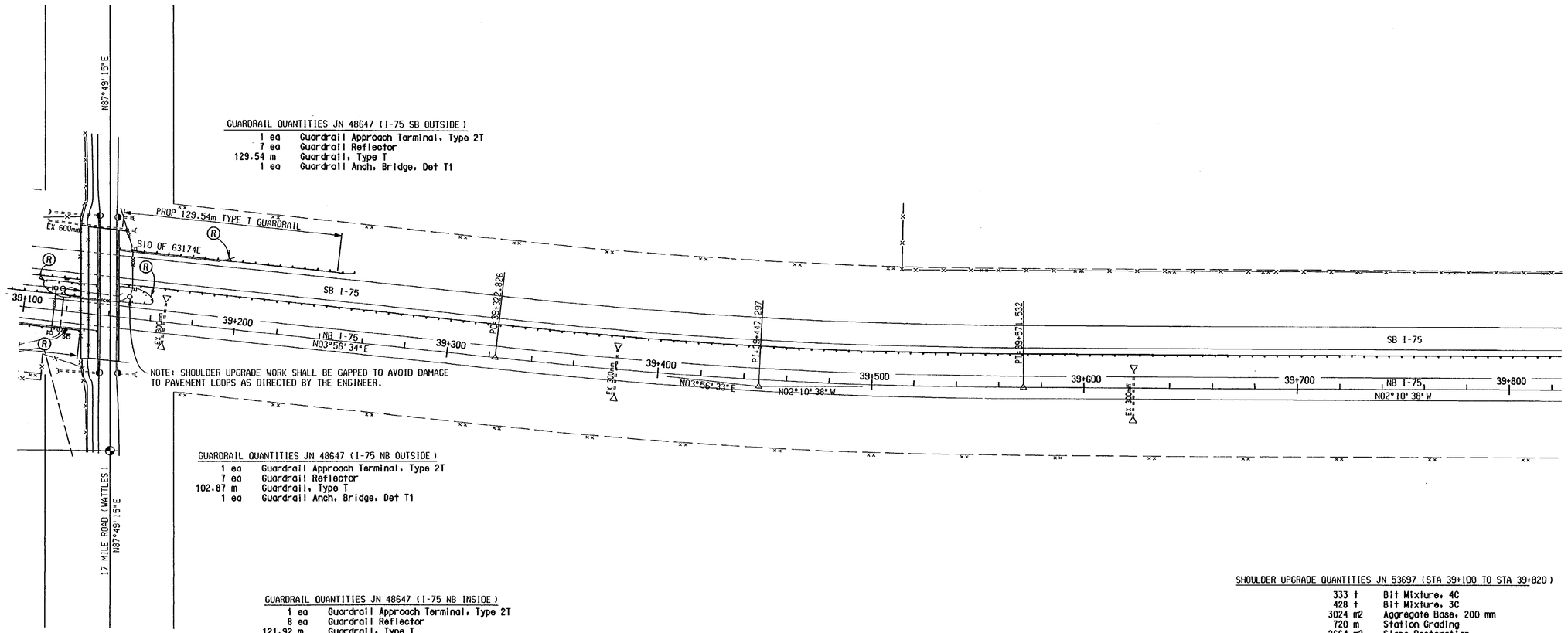
17 MILE RD (WATTLES)

I-75 NB CONST ℄
CURVE DATA
△=06°07'11" LT
R=2328.501
T=124.471
L=248.706
PC =39+322.826
PI =39+447.297
PT =39+571.532

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION 21
T1N ,R1E
TROY

SECTION 21
T1N ,R1E
TROY



GUARDRAIL QUANTITIES JN 48647 (I-75 SB OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
7 ea	Guardrail Reflector
129.54 m	Guardrail, Type T
1 ea	Guardrail Anch, Bridge, Det T1

GUARDRAIL QUANTITIES JN 48647 (I-75 NB OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
7 ea	Guardrail Reflector
102.87 m	Guardrail, Type T
1 ea	Guardrail Anch, Bridge, Det T1

GUARDRAIL QUANTITIES JN 48647 (I-75 NB INSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
8 ea	Guardrail Reflector
121.92 m	Guardrail, Type T
1 ea	Guardrail Anch, Bridge, Det T1

GUARDRAIL QUANTITIES JN 48647 (STA 39+100 TO STA 39+820)

720.09 m	Guardrail, Type TD
95 ea	Guardrail Reflector
220 m	Guardrail, Rem

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 39+100 TO STA 39+820)

333 t	Bit Mixture, 4C
428 t	Bit Mixture, 3C
3024 m2	Aggregate Base, 200 mm
720 m	Station Grading
2664 m2	Slope Restoration
749 m2	Shoulder, Cl II, 140 mm

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 39+100 TO STA 39+820 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
11/27/00	1:1000	63174	48647 53697	RICK		28

FILE NAME: 5369739100.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

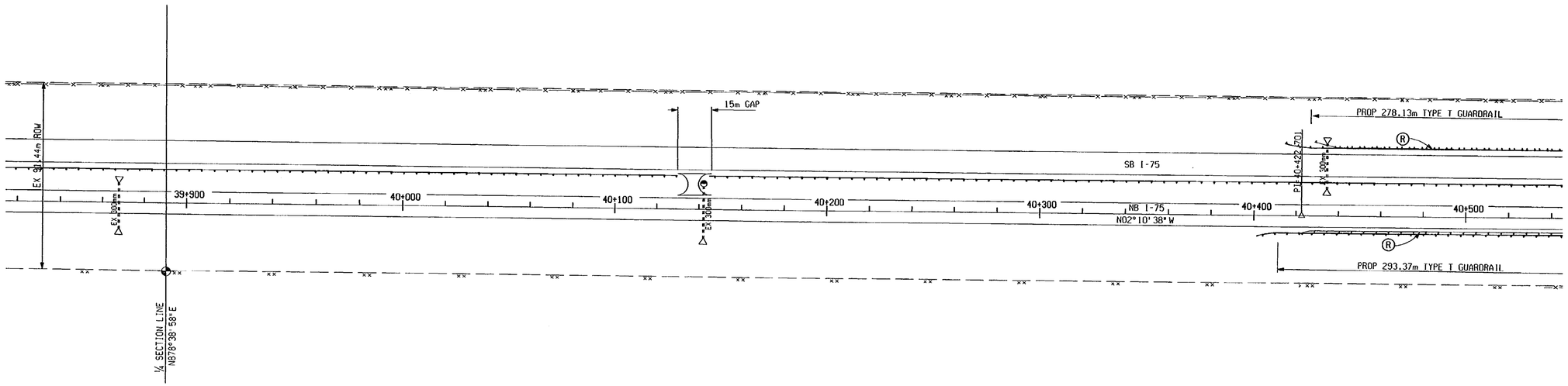
17 MILE RD (WATTLES)

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 29

EXISTING BY: RICK'S TEAM DATE: 10/24/00
PROPOSED BY: RICK'S TEAM DATE: 11/17/00
LAST CORRECTION BY: DATE:

			FINAL R.O.V.
AUTH	DATE	NO.	REVISION

SECTION 21
T1N , R1E
TROY



GUARDRAIL QUANTITIES JN 48647 (STA 39+820 TO STA 40+540)

704.85 m	Guardrail, Type TD
97 ea	Guardrail Reflector
2 ea	Guardrail Approach Terminal, Type 3

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 39+820 TO STA 40+540)

333 t	Bit Mixture, 4C
428 t	Bit Mixture, 3C
3024 m2	Aggregate Base, 200 mm
720 m	Station Grading
2664 m2	Slope Restoration
749 m2	Shoulder, Cl II, 140 mm

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 39+820 TO STA 40+540 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/17/00	1:1000	63174	48647 53697	RICK	R.O.W 29

FILE NAME: 5369739820.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 30

EXISTING BY: RICK'S TEAM DATE: 10/24/00
PROPOSED BY: RICK'S TEAM DATE: 11/13/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/28/00

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

EAST LONG LAKE RD

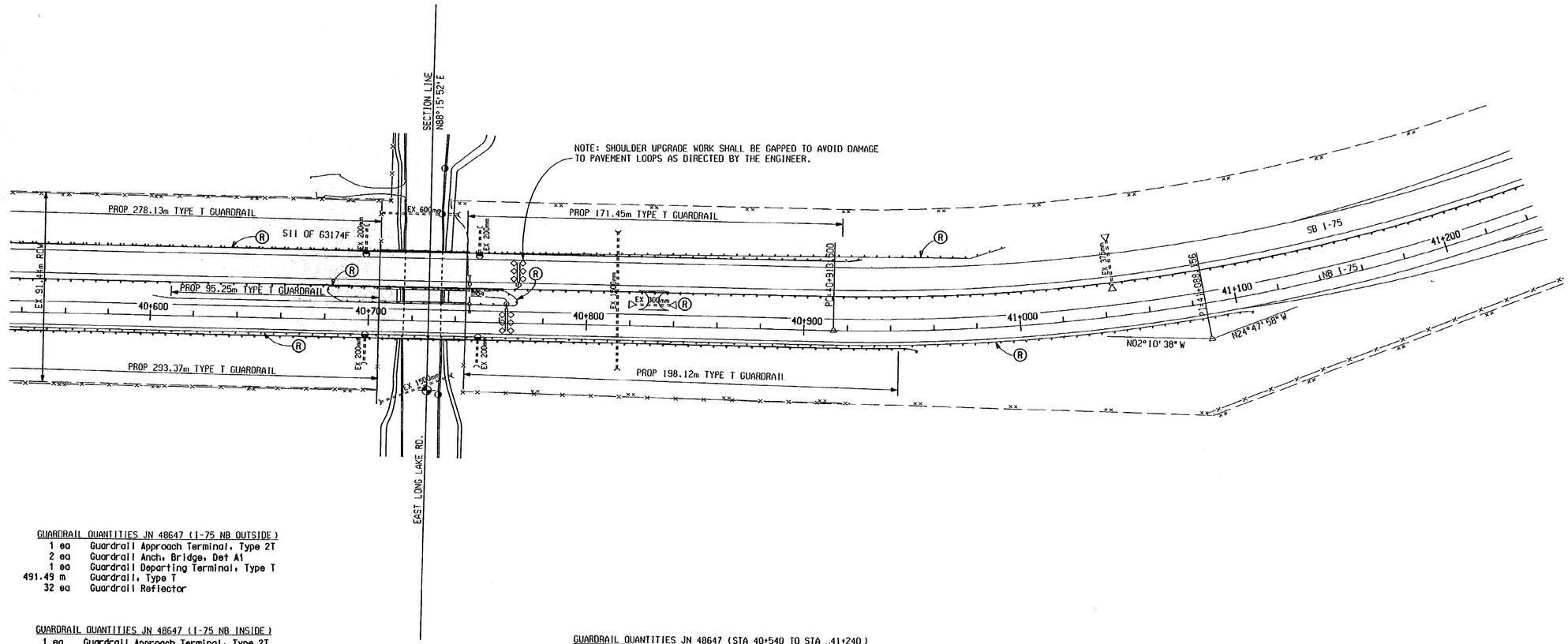
I-75 NB CONST ℄
CURVE DATA
△=22°37'20" LT
R=873.188
T=174.656
L=344.763
PC =40+913.500
PI =41+088.156
PT =41+258.262
AH=16+642.790

SECTION 21
T1N ,R11E
TROY

SECTION 9
T1N ,R11E
TROY

GUARDRAIL QUANTITIES JN 48647 (I-75 SB OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
2 ea	Guardrail Anch, Bridge, Det A1
1 ea	Guardrail Departing Terminal, Type T
449.58 m	Guardrail, Type T
30 ea	Guardrail Reflector



GUARDRAIL QUANTITIES JN 48647 (I-75 NB OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
2 ea	Guardrail Anch, Bridge, Det A1
1 ea	Guardrail Departing Terminal, Type T
491.49 m	Guardrail, Type T
32 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (I-75 NB INSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Anch, Bridge, Det A1
95.25 m	Guardrail, Type T
7 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (STA 40+540 TO STA 41+240)

647.70 m	Guardrail, Type TD
85 ea	Guardrail Reflector
1047 m	Guardrail, Rem
2 ea	Guardrail Anch, Bridge, Det A1

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 40+540 TO STA 41+240)

305 t	Bit Mixture, 4C
392 t	Bit Mixture, 3C
2772 m2	Aggregate Base, 200 mm
660 m	Station Grading
2442 m2	Slope Restoration
687 m2	Shoulder, Cl II, 140 mm

CONSTRUCTION SHEET

EAST LONG LAKE RD

MDOT Michigan Department of Transportation

STA 40+540 TO STA 41+240 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/28/00	1:1000	63174	53697	RICK	R.O.W. 30

FILE NAME: 53697405401.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 31

EXISTING BY: RICK'S TEAM DATE: 10/24/00
PROPOSED BY: RICK'S TEAM DATE: 11/06/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/29/00

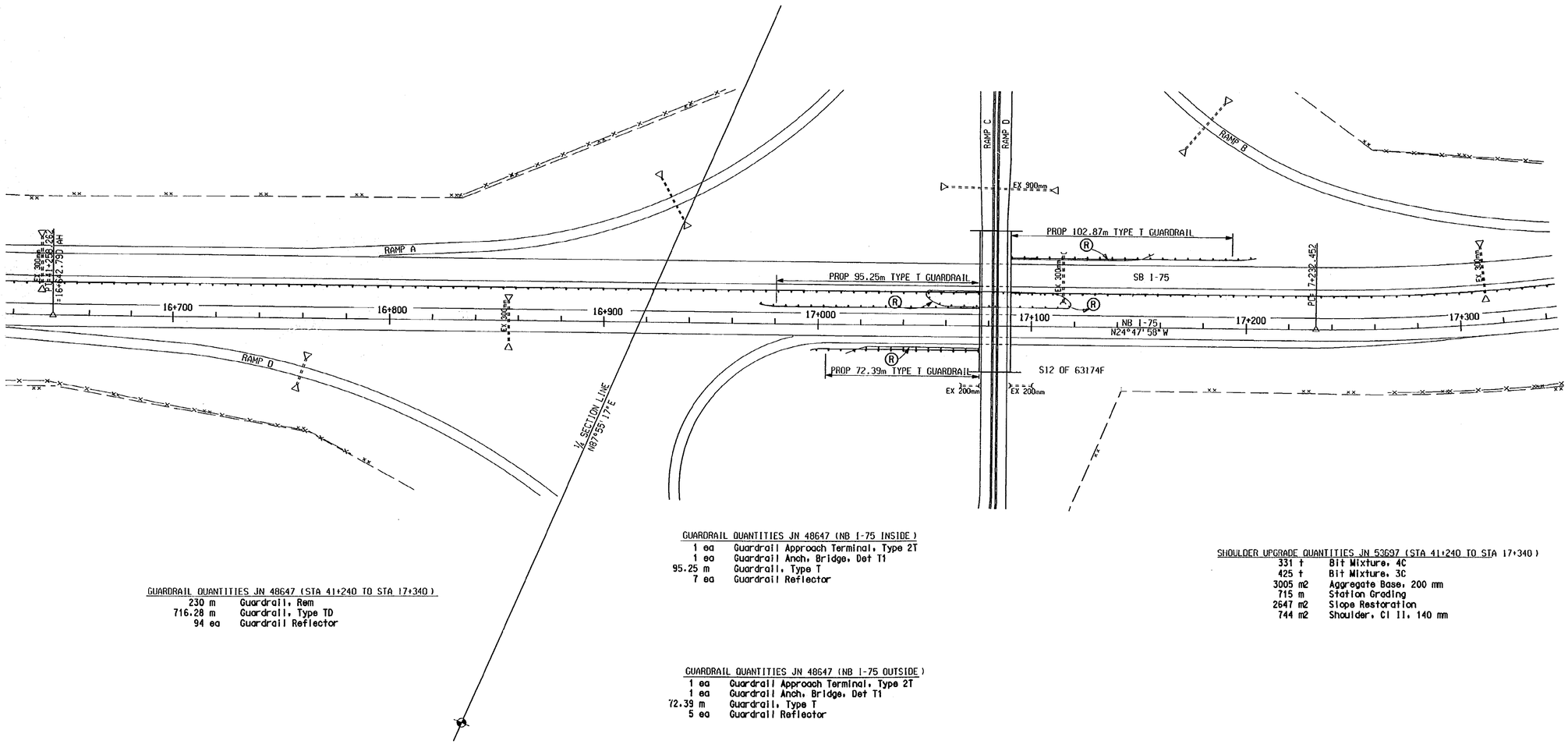
SECTION 9
T1N , R11E
TROY

CROOKS RD CONNECTOR

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

GUARDRAIL QUANTITIES JN 48647 (SB I-75 OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Anch, Bridge, Det T1
102.87 m	Guardrail, Type T
7 ea	Guardrail Reflector



GUARDRAIL QUANTITIES JN 48647 (STA 41+240 TO STA 17+340)

230 m	Guardrail, Rem
716.28 m	Guardrail, Type TD
94 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (NB I-75 INSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Anch, Bridge, Det T1
95.25 m	Guardrail, Type T
7 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (NB I-75 OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Anch, Bridge, Det T1
72.39 m	Guardrail, Type T
5 ea	Guardrail Reflector

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 41+240 TO STA 17+340)

331 t	Bit Mixture, 4C
425 t	Bit Mixture, 3C
3005 m2	Aggregate Base, 200 mm
715 m	Station Grading
2647 m2	Slope Restoration
744 m2	Shoulder, Cl II, 140 mm

REMOVAL & CONSTRUCTION SHEET

CROOKS RD CONNECTOR

MDOT Muskegon Department of Transportation

STA 41+240 TO STA 17+340 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/29/00	1:1000	63174	48647 53697	RICK	R.O.W. 31

FILE NAME: 53697241240.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 32

EXISTING BY: RICK'S TEAM DATE: 10/25/00
PROPOSED BY: RICK'S TEAM DATE: 11/06/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/29/00

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

CROOKS ROAD

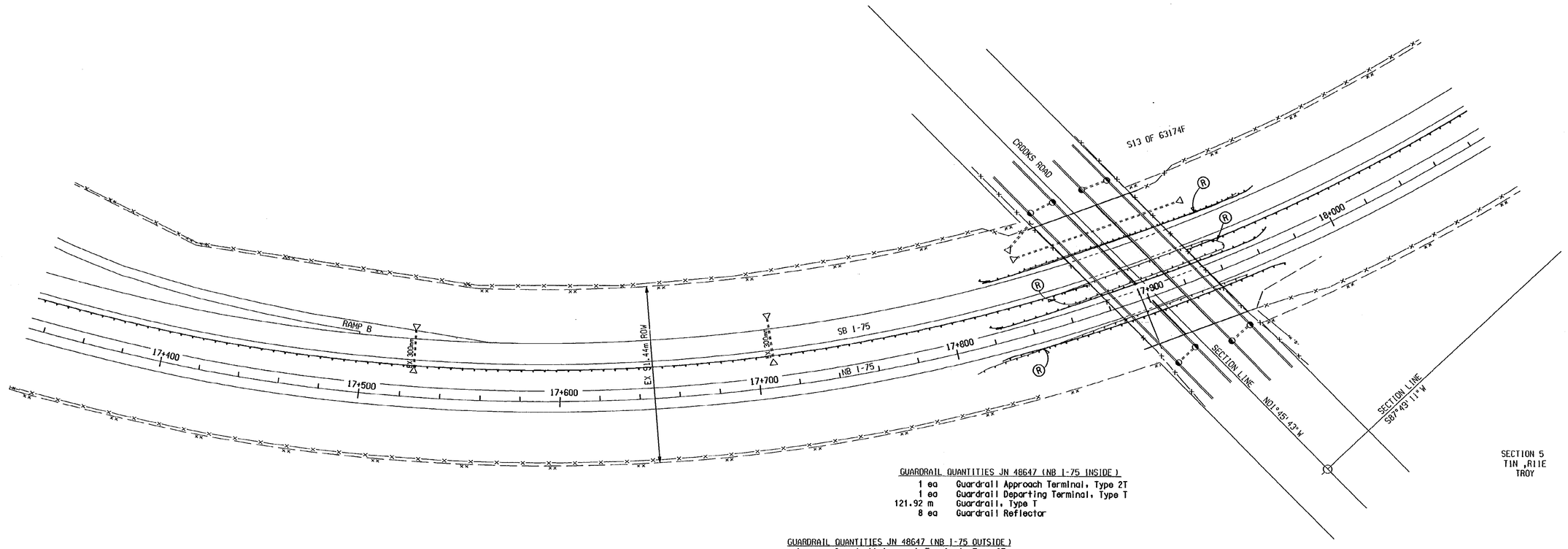
I-75 NB CONST ℄
CURVE DATA
Δ=67°14'30" LT
R=873.188
T=580.602
L=1024.763
PC =17+232.452
PI =17+813.054
PT =18+257.215

SECTION 9
T1N ,R11E
TROY

SECTION 5
T1N ,R11E
TROY

GUARDRAIL QUANTITIES JN 48647 (SB I-75 OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
121.92 m	Guardrail, Type T
8 ea	Guardrail Reflector

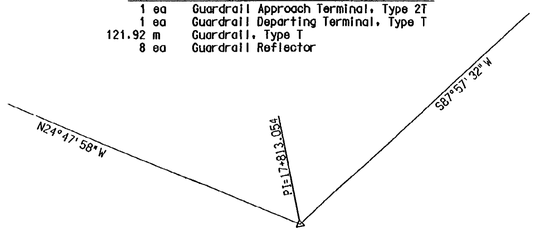


GUARDRAIL QUANTITIES JN 48647 (NB I-75 INSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
121.92 m	Guardrail, Type T
8 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (NB I-75 OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
121.92 m	Guardrail, Type T
8 ea	Guardrail Reflector



SHOULDER UPGRADE QUANTITIES JN 53697 (STA 17+340 TO STA 18+580)

342 t	Bit Mixture, 4C
440 t	Bit Mixture, 3C
3108 m2	Aggregate Base, 200 mm
2738 m2	Slope Restoration
740 m	Station Grading
770 m2	Shoulder, Cl II, 140 mm

GUARDRAIL QUANTITIES JN 48647 (STA 17+340 TO STA 18+080)

742.95 m	Guardrail, Type TD
98 ea	Guardrail Reflector
380 m	Guardrail, Rem

SECTION 9
T1N ,R11E
TROY

SECTION 5
T1N ,R11E
TROY

CROOKS ROAD

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 17+340 TO STA 18+080 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/29/00	1:1000	63174	48647 53697	RICK	R.O.W. 32

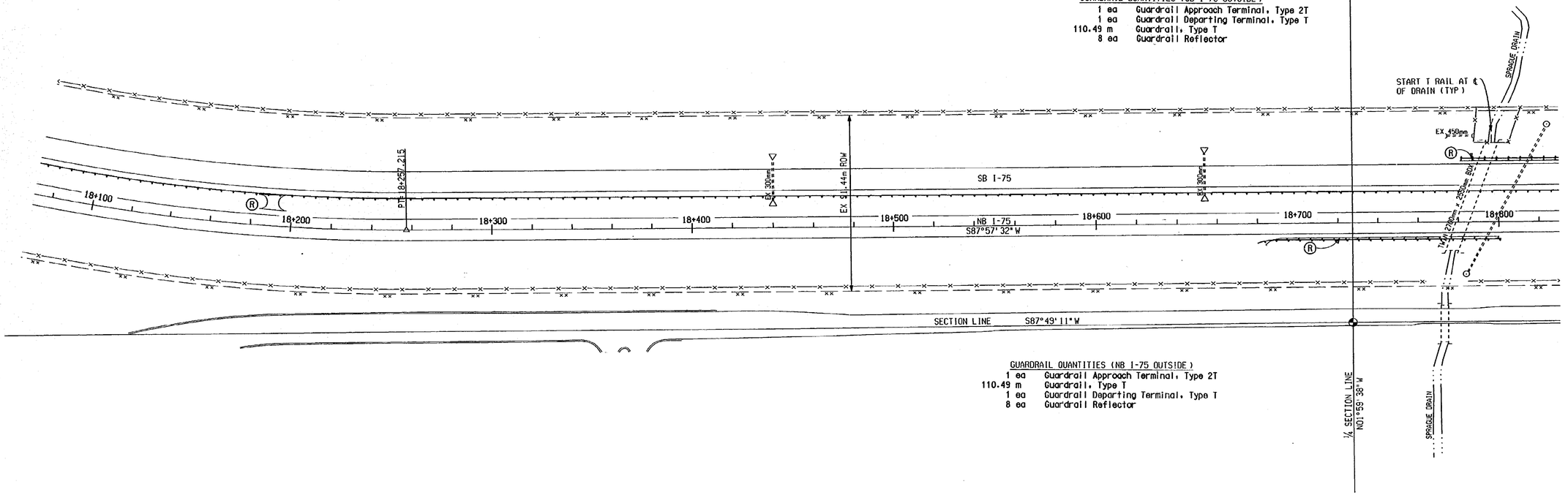
FILE NAME: 53697l7340.dgn
9:10 11:12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTRO. SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 33

EXISTING BY: RICK'S TEAM DATE: 10/25/00
PROPOSED BY: RICK'S TEAM DATE: 11/04/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/16/00

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION 5
T1N ,R11E
TROY



GUARDRAIL QUANTITIES (SB I-75 OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
110.49 m	Guardrail, Type T
8 ea	Guardrail Reflector

GUARDRAIL QUANTITIES (NB I-75 OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
110.49 m	Guardrail, Type T
1 ea	Guardrail Departing Terminal, Type T
8 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (STA 18+080 TO STA 18+820)

742.95 m	Guardrail, Type TD
98 ea	Guardrail Reflector
262 m	Guardrail, Rem

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 18+080 TO STA 18+820)

342 t	Bit Mixture, 4C
440 t	Bit Mixture, 3C
3108 m2	Aggregate Base, 200 mm
740 m	Station Grading
2738 m2	Slope Restoration
770 m2	Shoulder, Cl II, 140 mm

FILE NAME: 53697180B0.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 28 30 31 33

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 18+080 TO STA 18+820 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.	
					R.O.W.	
11/16/00	1:1000	63174	48647 53697	RICK		33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 34

EXISTING BY: RICK'S TEAM DATE: 10/26/00
PROPOSED BY: RICK'S TEAM DATE: 11/02/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/17/00

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

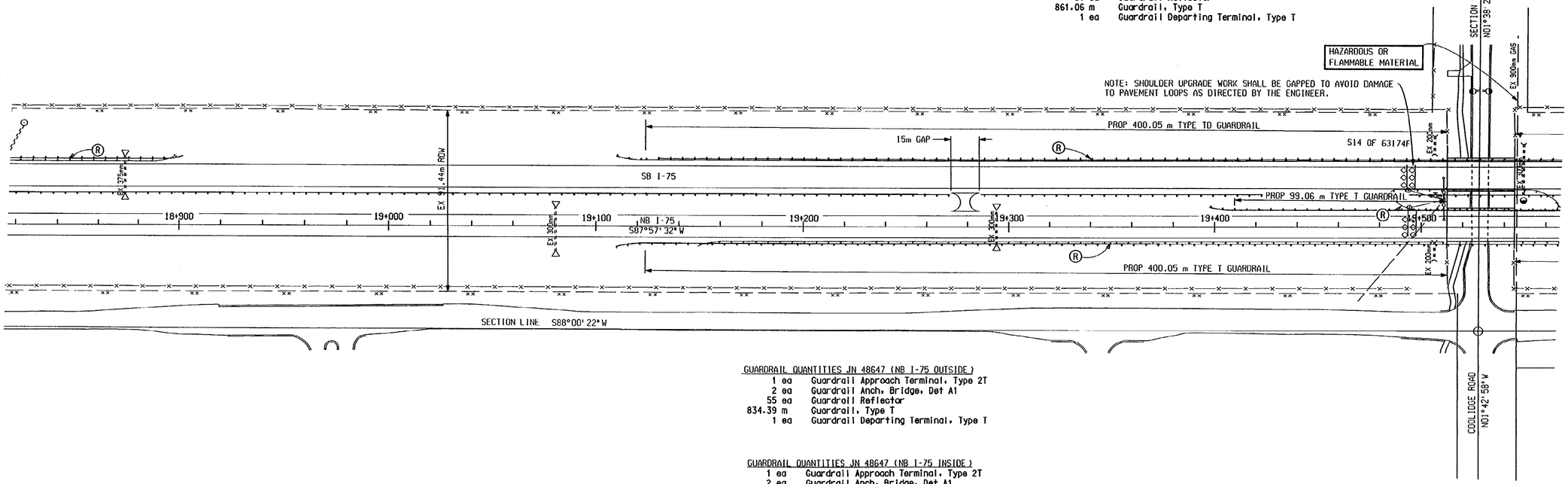
COOLIDGE RD

SECTION 5
T1N ,R11E
TROY

SECTION 6
T1N ,R11E
TROY

GUARDRAIL QUANTITIES JN 48647 (SB I-75 OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
2 ea	Guardrail Anch, Bridge, Det A1
57 ea	Guardrail Reflector
861.06 m	Guardrail, Type T
1 ea	Guardrail Departing Terminal, Type T



GUARDRAIL QUANTITIES JN 48647 (NB I-75 OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
2 ea	Guardrail Anch, Bridge, Det A1
55 ea	Guardrail Reflector
834.39 m	Guardrail, Type T
1 ea	Guardrail Departing Terminal, Type T

GUARDRAIL QUANTITIES JN 48647 (NB I-75 INSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
2 ea	Guardrail Anch, Bridge, Det A1
7 ea	Guardrail Reflector
99.06 m	Guardrail, Type T
1 ea	Guardrail Departing Terminal, Type T

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 18+820 TO STA 19+520)

327 t	Bit Mixture, 4C
420 t	Bit Mixture, 3C
2972 m2	Aggregate Base, 200 mm
708 m	Station Grading
2618 m2	Slope Restoration
736 m2	Shoulder, Cl II, 140 mm

GUARDRAIL QUANTITIES JN 48647 (STA 18+820 TO STA 19+520)

1852 m	Guardrail, Rem
678.18 m	Guardrail, Type TD
86 ea	Guardrail Reflector
2 ea	Guardrail Anch, Bridge, Det A1
2 ea	Guardrail Approach Terminal, Type 3

COOLIDGE RD

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 18+820 TO STA 19+560 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.	
01/11/01	1:1000	63174	48647 53697	RICK	R.O.W	34

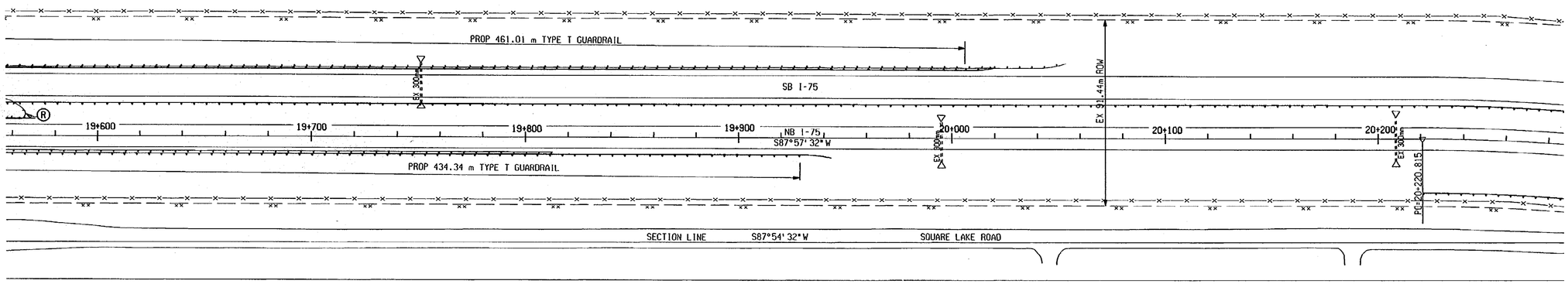
FILE NAME: 5369718820.dgn
1 2 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 28 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 35

EXISTING BY: RICK'S TEAM DATE: 10/26/00
PROPOSED BY: RICK'S TEAM DATE: 11/04/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/17/00

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

SECTION 6
T1N ,R11E
TROY



GUARDRAIL QUANTITIES JN 48647 (STA 19+560 TO STA 20+280)

720.09 m	Guardrail, Type TD
95 ea	Guardrail Reflector

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 19+560 TO STA 20+280)

333 t	Bit Mixture, 4C
428 t	Bit Mixture, 3C
3024 m2	Aggregate Base, 200 mm
720 m	Station Grading
2664 m2	Slope Restoration
749 m2	Shoulder, Cl II, 140 mm

REMOVAL & CONSTRUCTION SHEET

MDOT Muskegon Department of Transportation

STA 19+560 TO STA 20+280 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	
11/17/00	1:1000	63174	48647 53697	RICK		35

FILE NAME: 53697195E0.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

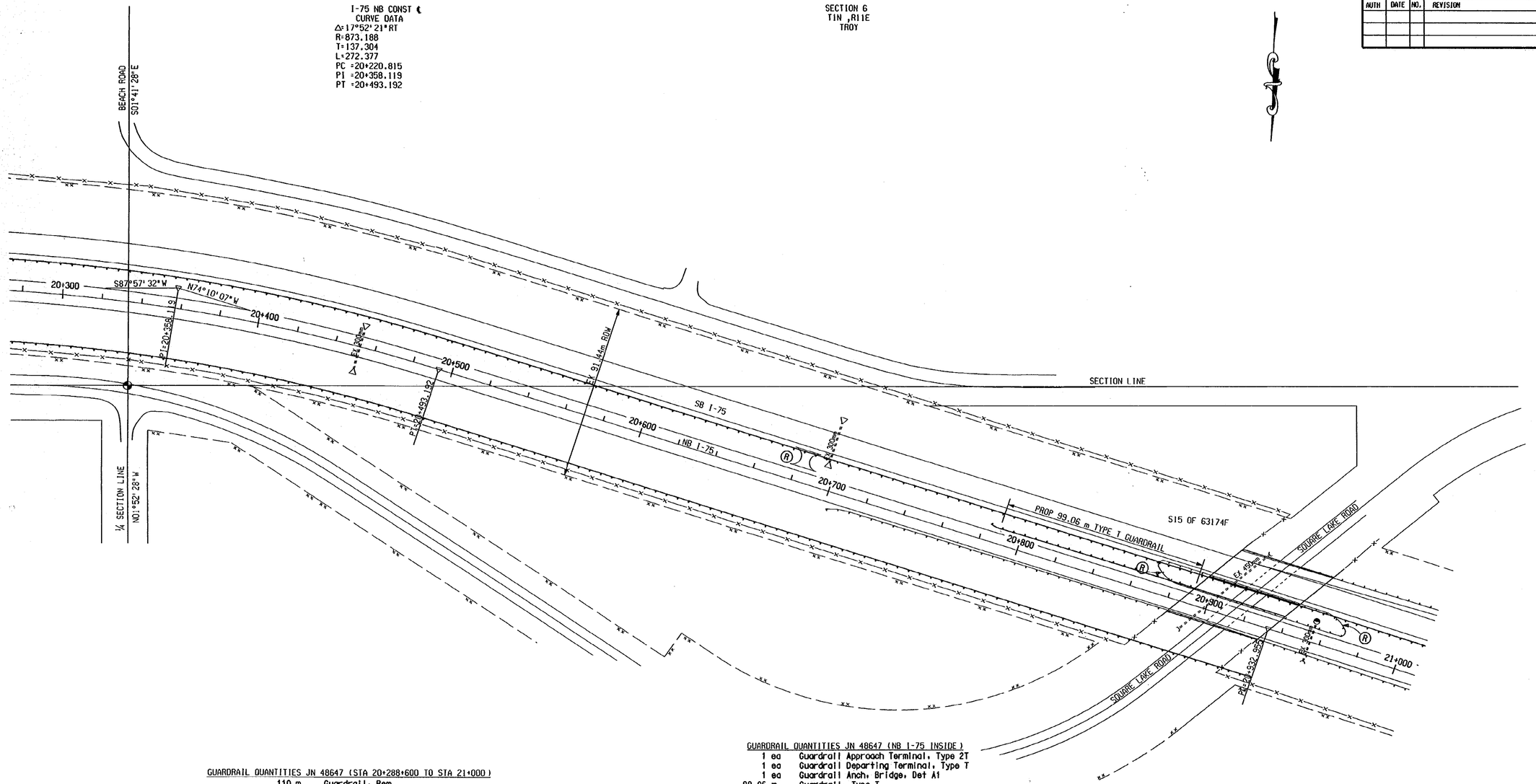
CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 36

EXISTING BY: RICK'S TEAM DATE: 10/27/00
PROPOSED BY: RICK'S TEAM DATE: 11/02/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/29/00

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

I-75 NB CONST ℄
CURVE DATA
Δ=17°52'21"RT
R=873.188
T=137.304
L=272.377
PC =20+220.815
PI =20+358.119
PT =20+493.192

SECTION 6
T1N ,R11E
TROY



GUARDRAIL QUANTITIES JN 48647 (STA 20+288+600 TO STA 21+000)

110 m	Guardrail, Rem
659.13 m	Guardrail, Type TD
87 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (NB I-75 INSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
1 ea	Guardrail Anch, Bridge, Det A1
99.06 m	Guardrail, Type T
7 ea	Guardrail Reflector

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 20+288+600 TO STA 21+000)

310 t	Bit Mixture, 4C
399 t	Bit Mixture, 3C
2822 m2	Aggregate Base, 200 mm
672 m	Station Grading
2486 m2	Slope Restoration
699 m2	Shoulder, Cl II, 140 mm

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 20+280 TO STA 21+000 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
11/29/00	1:1000	63174	48647 53697	RICK		36

FILE NAME: 5363720280.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 37

DATE: 10/27/00
DATE: 11/09/00
DATE: 11/29/00

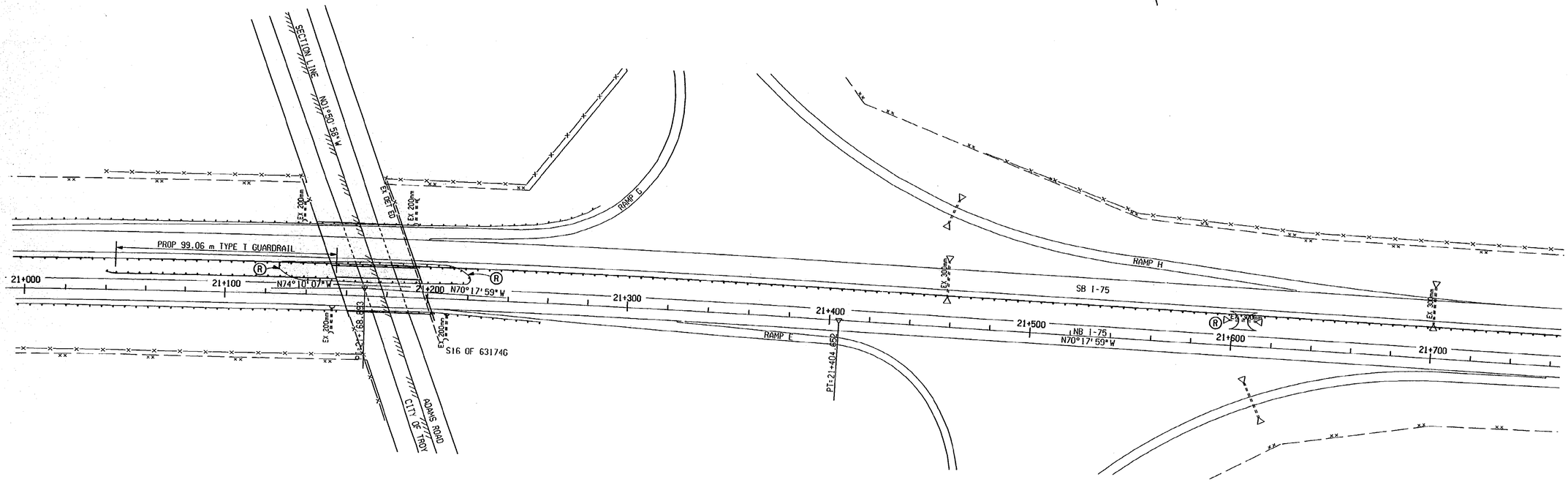
EXISTING BY: RICK'S TEAM
PROPOSED BY: RICK'S TEAM
LAST CORRECTION BY: RICK'S TEAM

ADAMS RD

SECTION 1
T2N ,R10E
BLOOMFIELD TWP

I-75 NB CONST ℄
CURVE DATA
Δ=03°52'08" RT
R=6985.501
T=235.938
L=471.696
PC =20+932.955
PI =21+168.893
PT =21+404.652

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



GUARDRAIL QUANTITIES JN 48647 (STA 21+000 TO STA 21+760)

110 m	Guardrail, Rem
704.85 m	Guardrail, Type TD
93 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (NB I-75 INSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Anch, Bridge, Det A1
99.06 m	Guardrail, Type T
7 ea	Guardrail Reflector

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 21+000 TO STA 21+760)

332 t	Bit Mixture, 4C
426 t	Bit Mixture, 3C
3015 m2	Aggregate Base, 200 mm
718 m	Station Grading
2656 m2	Slope Restoration
746 m2	Shoulder, Cl II, 140 mm

ADAMS RD

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 21+000 TO STA 21+760 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/29/00	1:1000	63174	48647 53697	RICK	R.O.W. 37

FILE NAME: 536972\000.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SH. NO. 38

EXISTING BY: RICK'S TEAM DATE: 10/26/00
PROPOSED BY: RICK'S TEAM DATE: 11/09/00
LAST CORRECTION BY: RICK'S TEAM DATE: 11/30/00

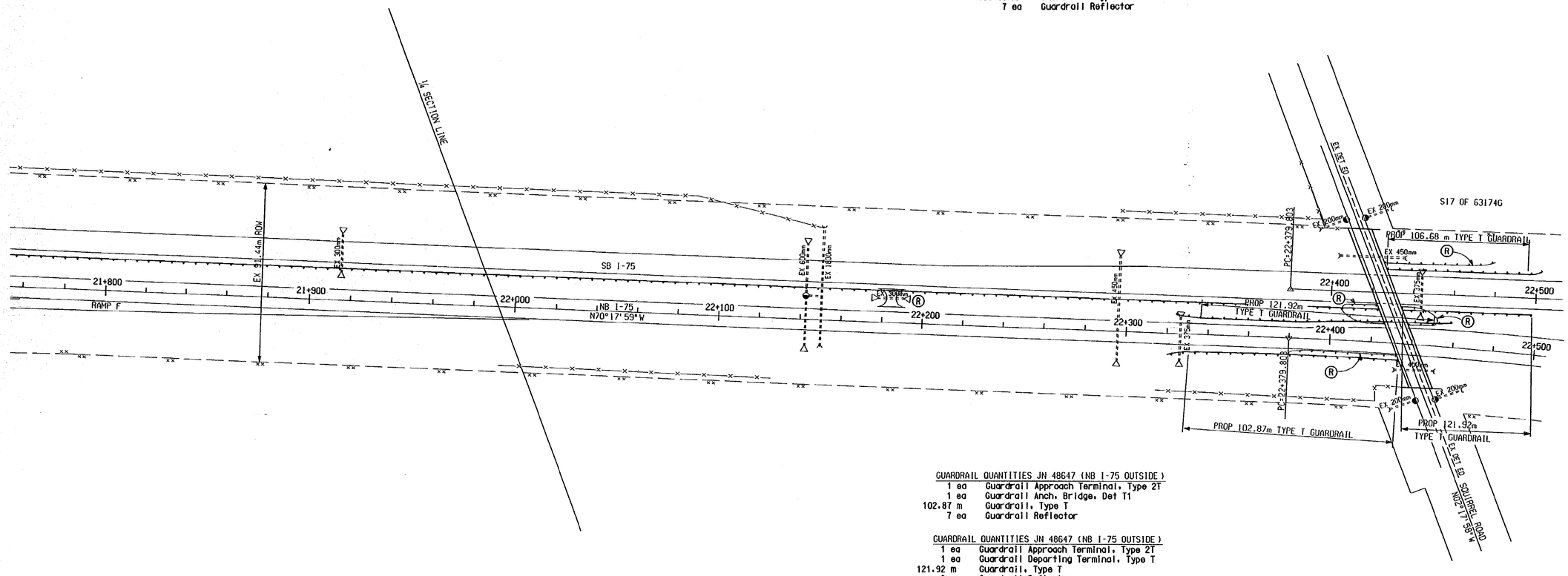
AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

SECTION 1
T2N ,R10E
BLOOMFIELD TWP

SQUIRREL RD

GUARDRAIL QUANTITIES JN 48647 (SB I-75 OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Anch, Bridge, Det T1
106.68 m	Guardrail, Type T
7 ea	Guardrail Reflector



GUARDRAIL QUANTITIES JN 48647 (NB I-75 OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Anch, Bridge, Det T1
102.87 m	Guardrail, Type T
7 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (NB I-75 OUTSIDE)

1 ea	Guardrail Approach Terminal, Type 2T
1 ea	Guardrail Departing Terminal, Type T
121.92 m	Guardrail, Type T
8 ea	Guardrail Reflector

GUARDRAIL QUANTITIES JN 48647 (STA 21+760 TO STA 22+500)

126 m	Guardrail, Rem
742.95 m	Guardrail, Type TD
98 ea	Guardrail Reflector

SHOULDER UPGRADE QUANTITIES JN 53697 (STA 21+760 TO STA 22+500)

342 t	Bit Mixture, 4C
440 t	Bit Mixture, 3C
3108 m2	Aggregate Base, 200 mm
740 m	Station Grading
2738 m2	Slope Restoration
770 m2	Shoulder, Cl II, 140 mm

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 21+760 TO STA 22+500 NB I-75

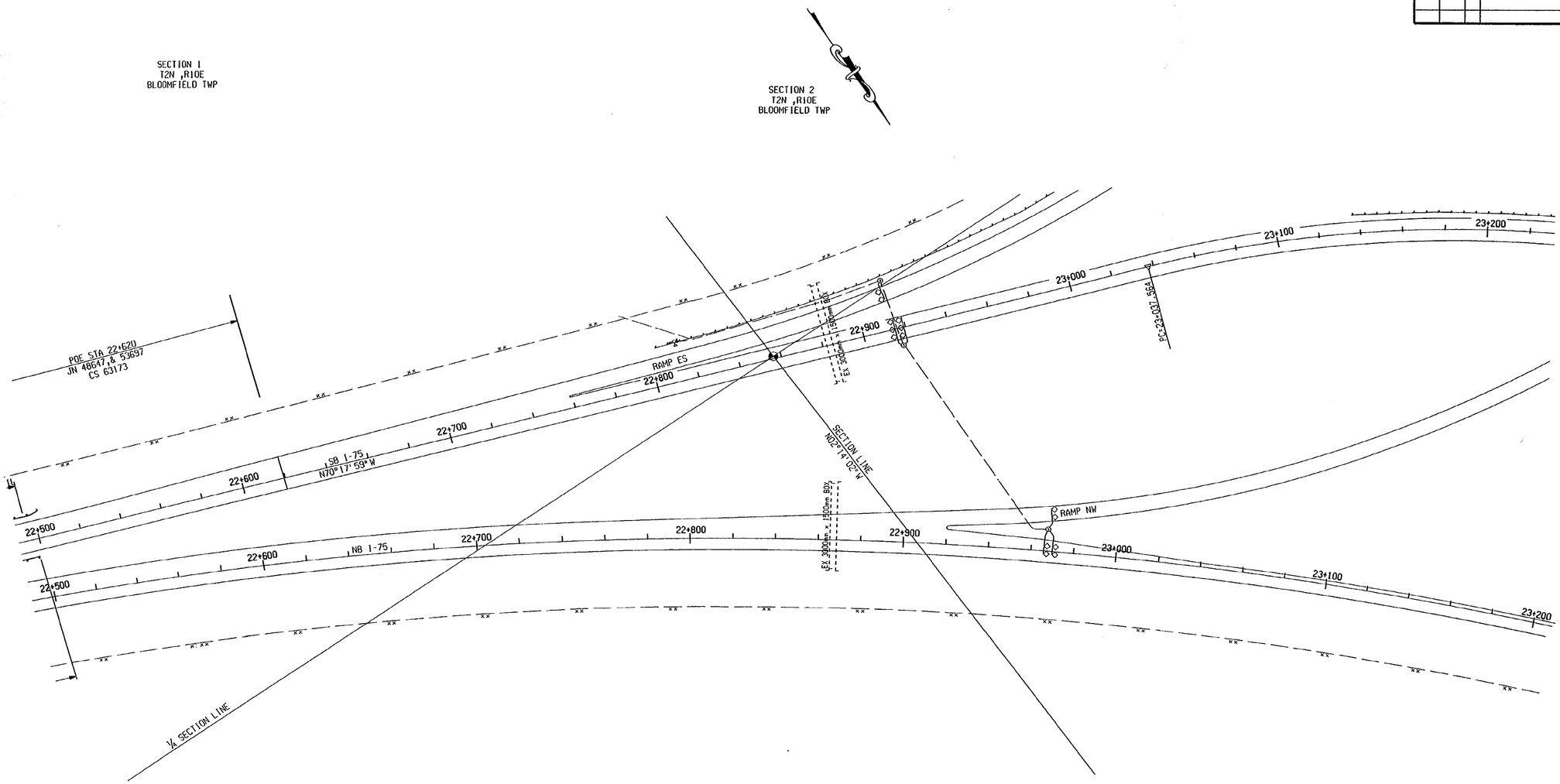
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
11/30/00	1:1000	63174	48647 53697	RICK	R.O.W. 38

FILE NAME: 536972176O.dgn
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 28 29 30 31 33

CONTROL SECTION 63174 | JOB NO. 48647 & 53697 | SHT. NO. 39

EXISTING BY: RICK'S TEAM DATE: 10/28/00
PROPOSED BY: RICK'S TEAM DATE: 11/03/00
LAST CORRECTION BY: RICK'S TEAM DATE: 12-18-00

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



SHOULDER UPGRADE QUANTITIES JN 53697 (STA 22+500 TO STA 23+200)

55 t	Bit Mixture, 4C
71 t	Bit Mixture, 3C
504 m2	Aggregate Base, 200 mm
125 m	Station Grading
444 m2	Slope Restoration

REMOVAL & CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

STA 22+500 TO STA 22+620 (POE) I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.
12/18/00	1:1000	63174	48647 53697	RICK	39

FILE NAME: 53697225D0.dgn
1 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 28 30 31 33

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 40

DATE:
DATE:
DATE: 01-11-01

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: RICK'S TEAM

CROSS-OVER ℄
CURVE DATA
Δ=22°04'07"LT
R=550.000
T=107.251
L=211.844
PC =10+138.572
PI =10+245.823
PI =10+350.415

SECTION 14
T1N ,R11E
MADISON HEIGHTS

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

12 MILE RD

SECTION LINE
N88°11'35"E

EX 600mm

EX 450mm

RAMP A

RAMP B

RAMP C

SB I-75

NB I-75

POI OF 631741

EX 300mm

EX 450mm

TEMP CROSS OVER

ADJ

10+000

10+100

10+200

10+300

27+900

28+000

28+100

22+800

PI=27+901.84
NB I-75 CONST ℄

PI=10+138.57
CROSS OVER

PI=10+350.41
CROSS OVER

PI=28+245.82
NB I-75 CONST ℄

PI=10+354.08
NB I-75 CONST ℄

PI=10+354.08
CROSSOVER

N29°13'40"E

N07°09'33"W

N27°02'24"E

N01°59'56"W

EX & PROP MEDIAN BARRIER

MEDIAN RECONTRUCTION QUANTITIES

8 ea	Dr Structure Cover, Adj, Case 1
1584 kg	Dr Structure Cover (GDX, 2B)
715 t	Bit Approach
1590 m2	Aggregate Base, 180 mm
528 m	Conc Barrier, Single Face, Type A
528 m	Valley Gutter, Conc

CROSS OVER REMOVAL &
CONTRUCTION QUANTITIES

2 ea	Sewer Tap, 300 mm
30 m	Sewer, Cl 2, 300 mm, Tr Det B
200 m2	Shoulder, Cl 11, 140 mm
1663 m2	Aggregate Base, 180 mm
964 t	Bit Approach
350 m	Station Grading - Crossover
528 m	Barrier Wall, Rem
8 ea	Dr Structure Cover, Adj, Case 1
1584 kg	Dr Structure Cover (GDX, 2B)
2609 m2	Pavt, Rem

NOTE:
CONTRACTOR TO PROVIDE RESIDENT ENGINEER WITH VERTICAL ALIGNMENT 3 WEEKS IN ADVANCE OF PROPOSED CONTRUCTION OF CROSSOVER.

12 MILE RD
MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

SOUTH CROSS-OVER I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/11/01	1:500	63174	49595	RICK	R.O.W 40

FILE NAME: 49595xov.dgn
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 30 31 32 35 36

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 41

DATE: 10/23/00
DATE: 01-11-01

EXISTING BY:
PROPOSED BY: RICK'S TEAM
LAST CORRECTION BY: RICK'S TEAM

SECTION 14
T1N ,R11E
MADISON HEIGHTS

12 MILE ROAD

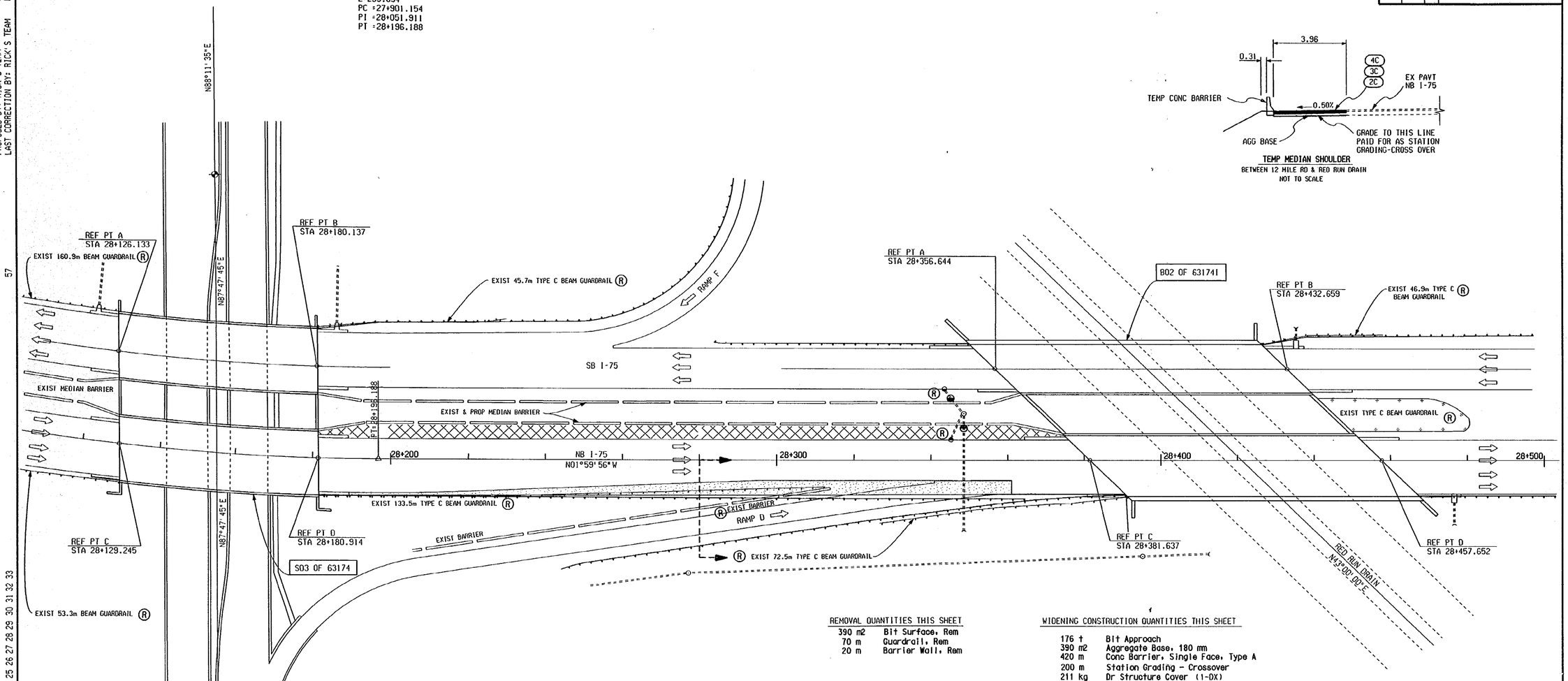
NB I-75
CURVE DATA
Δ=29°02'20"LT
R=582.125
T=150.757
L=295.034
PC =27+901.154
PI =28+051.911
PT =28+196.188

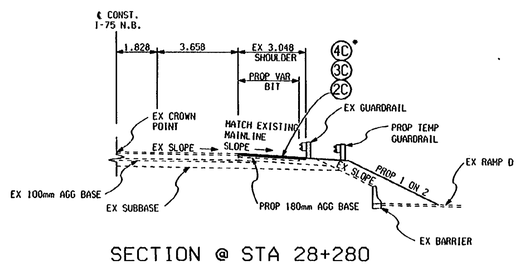
SECTION 11
T1N ,R11E
MADISON HEIGHTS

RED RUN DRAIN

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

TEMP MEDIAN SHOULDER
BETWEEN 12 MILE RD & RED RUN DRAIN
NOT TO SCALE





SECTION @ STA 28+280

* NOTE: IN THIS LOCATION IT IS ACCEPTABLE TO SUBSTITUTE THE 5E BITUMINOUS MIXTURE FOR THE 4C BITUMINOUS MIXTURE IN ORDER TO ACCOMMODATE FEATHERING.

REMOVAL QUANTITIES THIS SHEET

390 m2	Bit Surface, Rem
70 m	Guardrail, Rem
20 m	Barrier Wall, Rem

WIDENING CONSTRUCTION QUANTITIES THIS SHEET

176 t	Bit Approach
390 m2	Aggregate Base, 180 mm
420 m	Conc Barrier, Single Face, Type A
200 m	Station Grading - Crossover
211 kg	Dr Structure Cover (1-DX)
1 ea	Dr Structure, 1200 mm dia

SHOULDER CONSTRUCTION QUANTITIES THIS SHEET

792 m2	Pavt, Rem
357 t	Bit Approach
792 m2	Aggregate Base, 180 mm

RED RUN DRAIN

12 MILE ROAD

MDOT Michigan Department of Transportation

I-75 TEMPORARY WIDENING

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO.
01/11/01	1:500	63174	49595	RICK		41

FILE NAME: 495951zsq.dgn
1 2 3 7 8 9 11 12 13 14 15 16 17 18 19 21 22 23 24 25 26 27 28 29 30 31 32 33

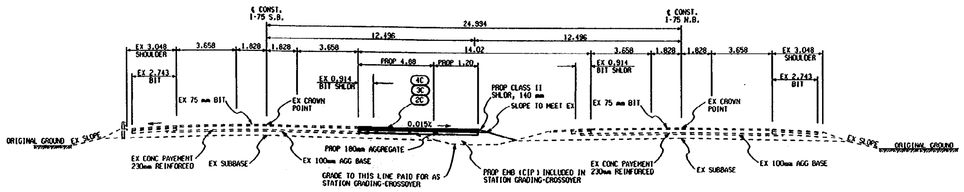
57

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 42

EXISTING BY:
PROPOSED BY: RICK'S TEAM DATE: 10/23/00
LAST CORRECTION BY: RICK'S TEAM DATE: 01-11-01

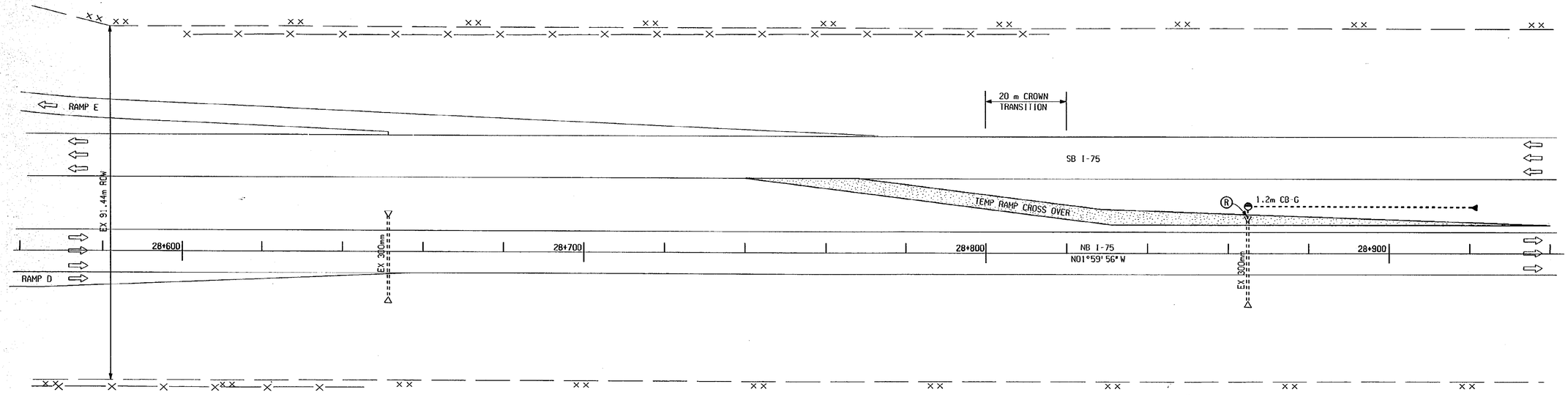
			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

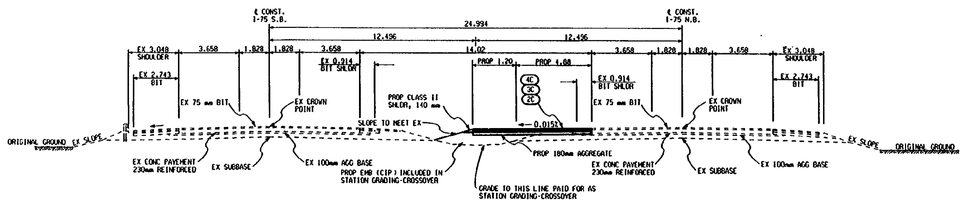
SECTION 11
T1N ,R11E
MADISON HEIGHTS



TEMPORARY CROSSOVER SECTION

STA 28+740 TO STA 28+800





TEMPORARY CROSSOVER SECTION

STA 28+800 TO STA 28+940

SHOULDER WIDENING FROM RED RUN TO 13 MILE RD

1109 t	Bit Approach
2465 m2	Aggregate Base, 180 mm
493 m2	Shoulder, Cl II, 140 mm

CONSTRUCTION QUANTITIES THIS SHEET

339 t	Bit Approach
225 m	Station Grading - Crossover
121 m2	Shoulder, Cl II, 140 mm
917 m2	Aggregate Base, 180 mm
2 ea	Culv End, Rem
1 ea	Dr Structure, 1200 mm dia
138 kg	Dr Structure Cover (1C)
62 m	Sewer, Cl 2, 300 mm, Tr Det A
65 m	Sewer, Rem
2 ea	Culv End Sect, 300 mm
1 ea	Dr Structure, Rem

STAGING SHEET

MDOT Michigan Department of Transportation

12 MILE RD RAMP CROSS OVER

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W
01/11/01	1:500	63174	49595	RICK	42

FILE NAME: 49595mpxo.dgn
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 43

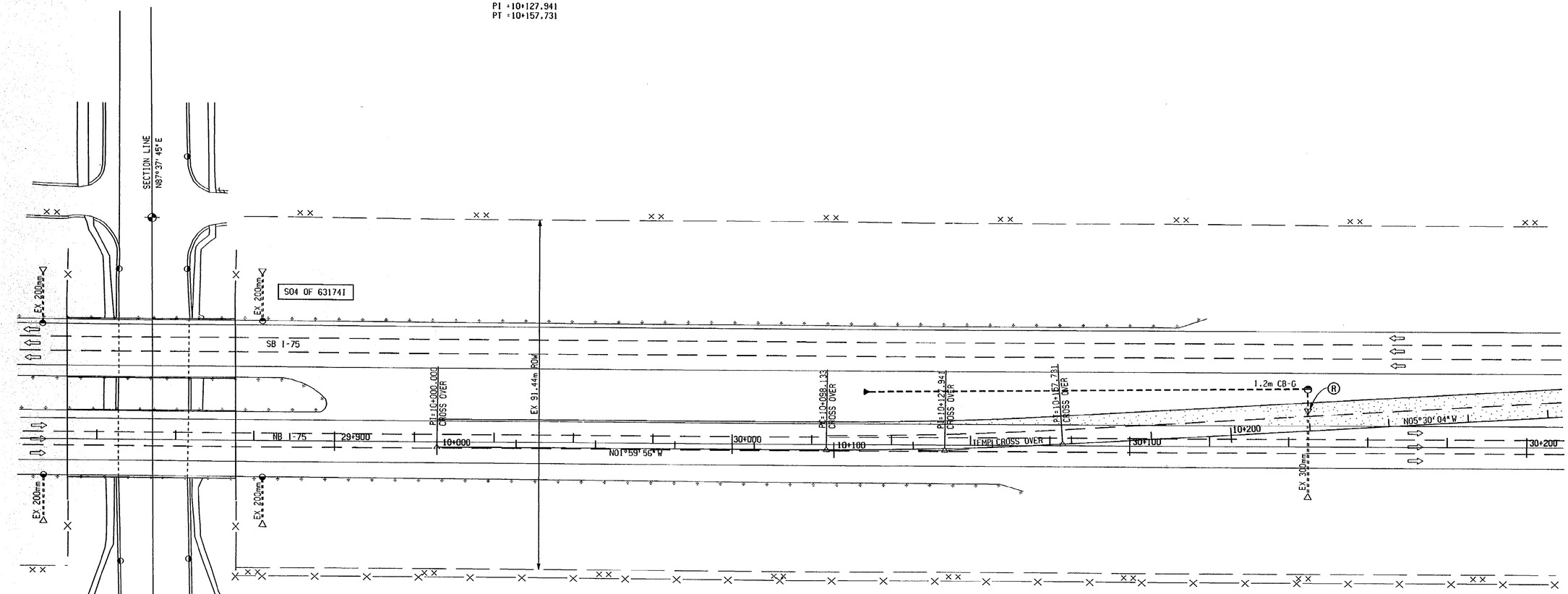
DATE:
DATE:
DATE: 01-11-01

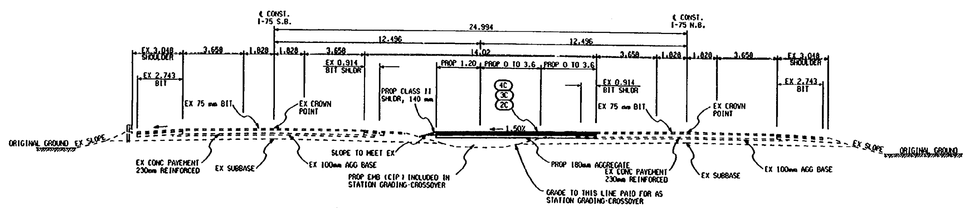
EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: RICK'S TEAM

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

CROSS OVER
CURVE DATA
Δ=03°30' 08" LT
R=975.000
T=29.808
L=59.597
PC =10+098.133
PI =10+127.941
PT =10+157.731

SECTION 2
TIN ,R11E
MADISON HEIGHTS





TEMPORARY CROSSOVER SECTION

STA 10+100 TO STA 10+280

CONSTRUCTION QUANTITIES

576 m	Station Grading - Crossover
326 m2	Shoulder, Cl II, 140 mm
1883 m2	Aggregate Base, 180 mm
857 t	Bit Approach
120 m	Culv, Cl 2, 300 mm
2 ea	Culv End, Rem
1 ea	Dr Structure, 1200 mm dia
138 kg	Dr Structure Cover (1-G)
2 ea	Culv End Sect, 300 mm
1 ea	Dr Structure, Rem
120 m	Sewer, Rem

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

NORTH CROSS-OVER I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/11/01	1:500	63174	49595	RICK	R.O.W 43

FILE NAME: 49595nxxi.dgn
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 26 27 28 30 31 35 36

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 44

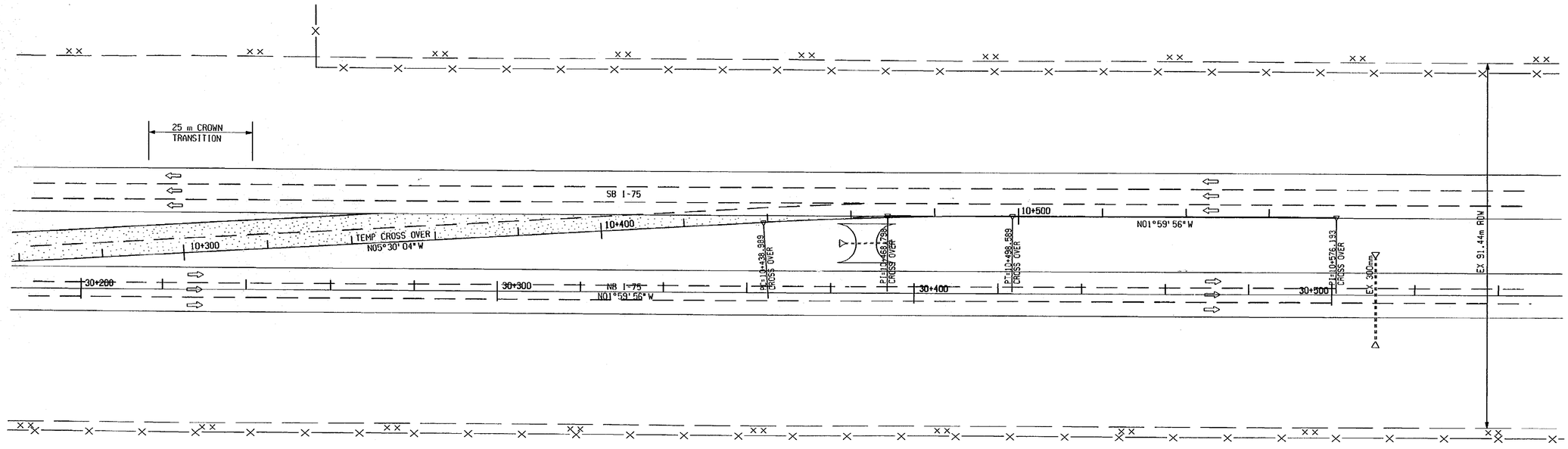
DATE:
DATE:
DATE: 01-11-01

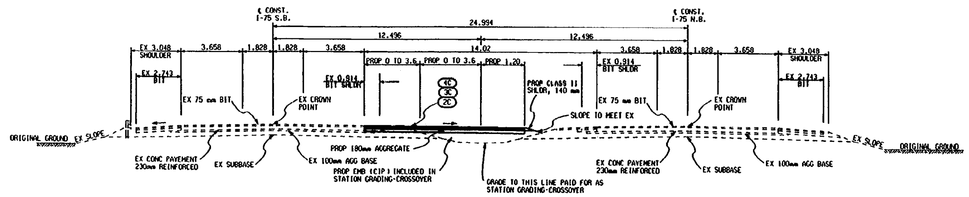
EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: RICK'S TEAM

SECTION 2
TIN ,RIIE
MADISON HEIGHTS

CROSS OVER ℄
CURVE DATA
Δ=03°30'09"RT
R=975.000
T=29.809
L=59.600
PC =10+438.989
PI =10+468.798
PT =10+498.589

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION





TEMPORARY CROSSOVER SECTION

STA 10+280 TO STA 10+460

NOTE: CONSTRUCTION QUANTITIES ARE SHOWN ON PREVIOUS SHEET.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

NORTH CROSS - OVER I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/11/01	1:500	63174	49595	RICK	R.O.W 44.

FILE NAME: 49595nxov2.dgn
1 2 3 4 9 10 11 12 13 14 15 16 17 18 19 21 22 24 25 27 28 30 31 35 36

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 45

DATE:
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

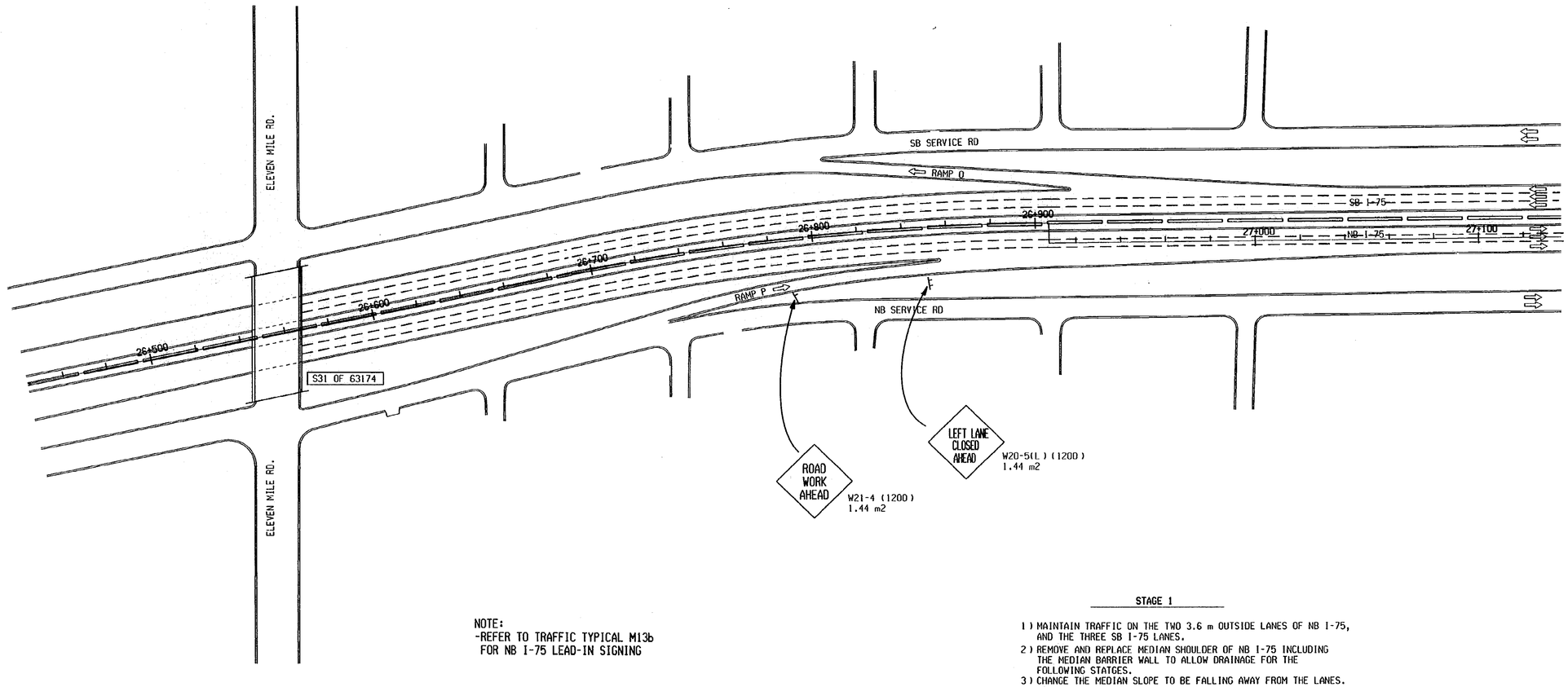
39 40

FILE NAME: 49595maintl.dgn

1

ELEVEN MILE

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



NOTE:
-REFER TO TRAFFIC TYPICAL M13b
FOR NB I-75 LEAD-IN SIGNING

STAGE 1

1) MAINTAIN TRAFFIC ON THE TWO 3.6 m OUTSIDE LANES OF NB I-75, AND THE THREE SB I-75 LANES.
2) REMOVE AND REPLACE MEDIAN SHOULDER OF NB I-75 INCLUDING THE MEDIAN BARRIER WALL TO ALLOW DRAINAGE FOR THE FOLLOWING STATGES.
3) CHANGE THE MEDIAN SLOPE TO BE FALLING AWAY FROM THE LANES.
4) PLACE TEMPORARY CONCRETE BARRIER WALL AND GUARDRAIL CONNECTIONS FOR STAGE II

11 MILE RD

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 26+500 TO STA 27+120 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/05/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W 15

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 46

DATE:
DATE:
DATE:

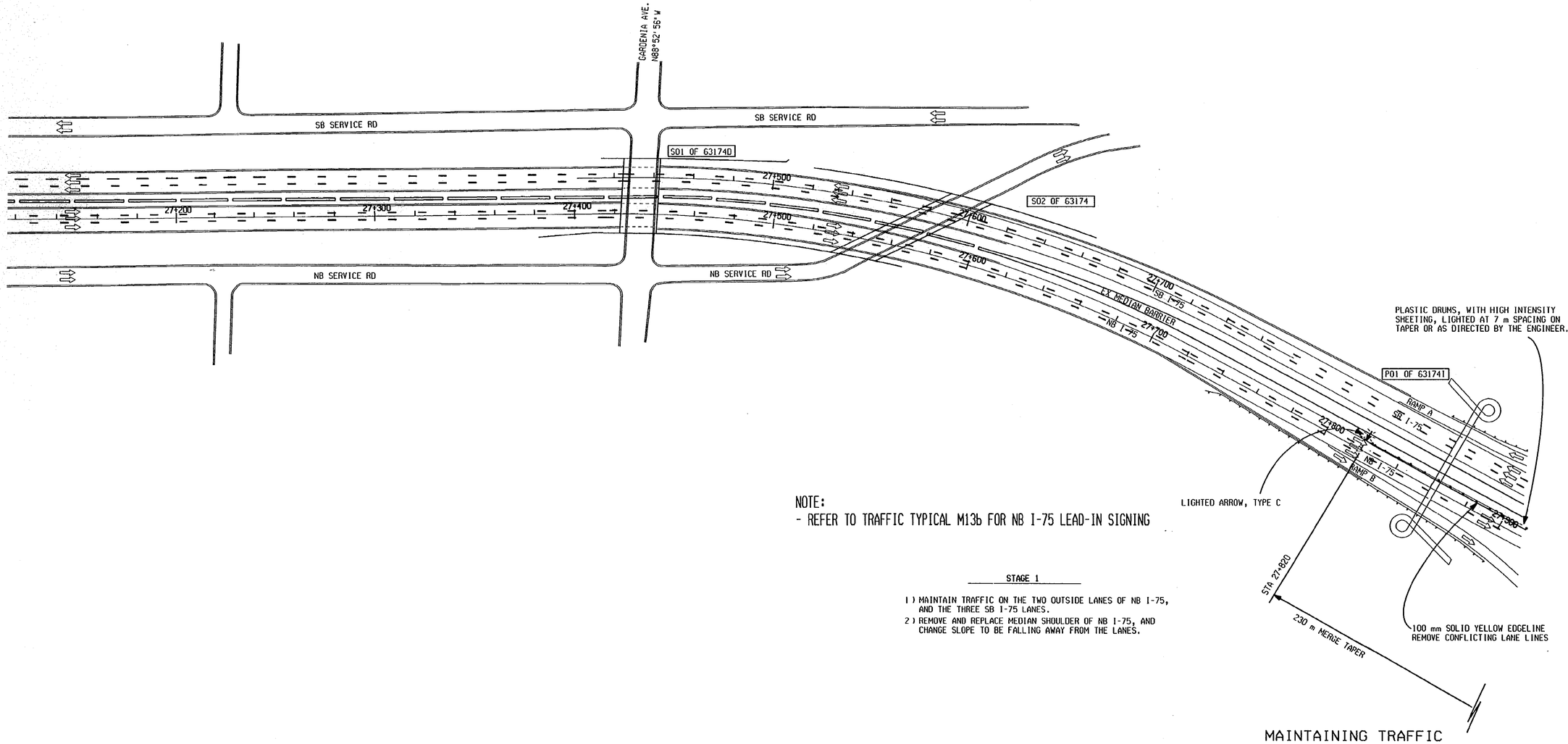
EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

39 40

FILE NAME: 49595xover2.dgn

GARDENIA AVE

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



NOTE:
- REFER TO TRAFFIC TYPICAL M13b FOR NB I-75 LEAD-IN SIGNING

STAGE 1

1) MAINTAIN TRAFFIC ON THE TWO OUTSIDE LANES OF NB I-75, AND THE THREE SB I-75 LANES.
2) REMOVE AND REPLACE MEDIAN SHOULDER OF NB I-75, AND CHANGE SLOPE TO BE FALLING AWAY FROM THE LANES.

MAINTAINING TRAFFIC

GARDENIA AVE

MDOT Michigan Department of Transportation

STA 27+120 TO STA 27+900 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.
01/05/01	1:1000	63174	49595	OTSC TRAFFIC	46

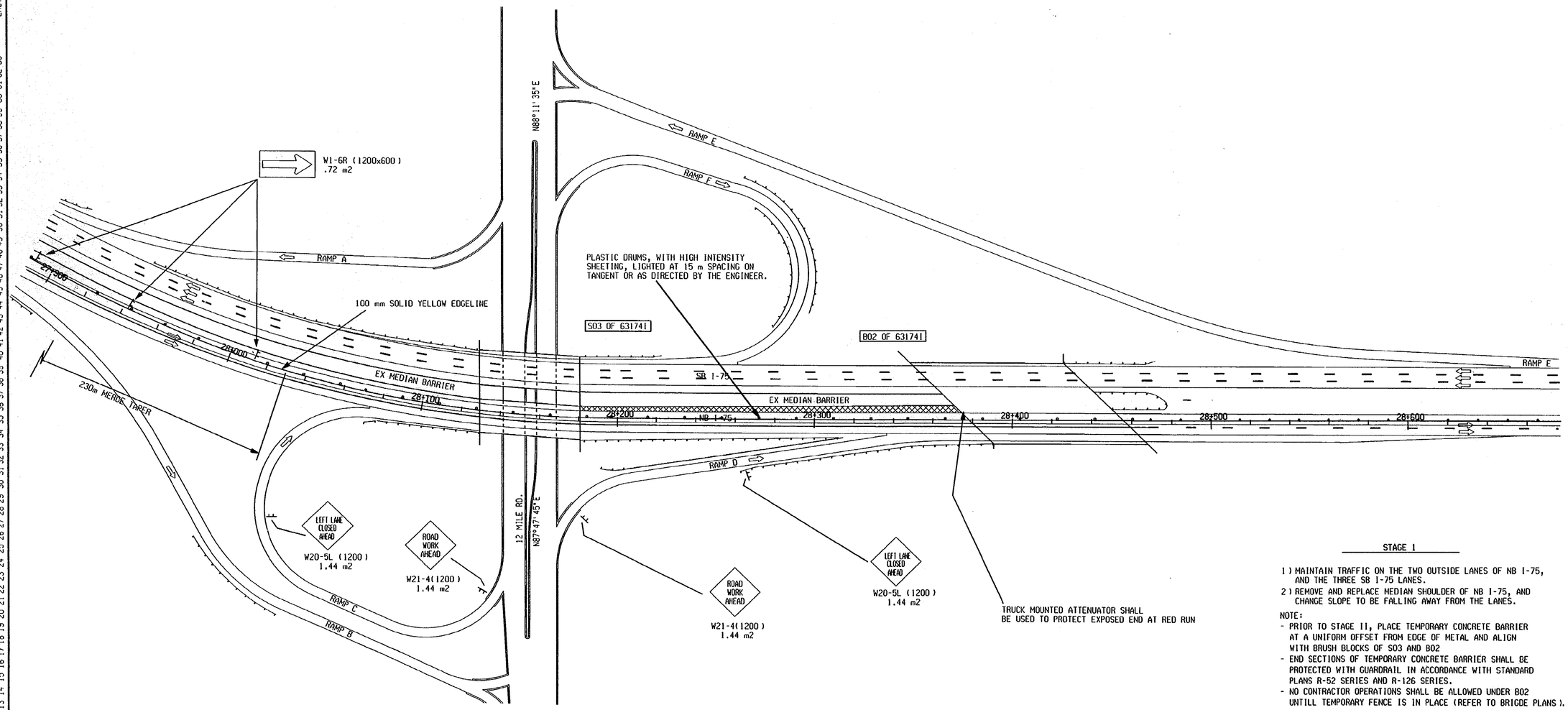
CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 47

DATE: 11-04-00
DATE:
DATE:

EXISTING BY: RICK'S TEAM
PROPOSED BY:
LAST CORRECTION BY:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

12 MILE RD



STAGE 1

1) MAINTAIN TRAFFIC ON THE TWO OUTSIDE LANES OF NB I-75, AND THE THREE SB I-75 LANES.
2) REMOVE AND REPLACE MEDIAN SHOULDER OF NB I-75, AND CHANGE SLOPE TO BE FALLING AWAY FROM THE LANES.

NOTE:
- PRIOR TO STAGE II, PLACE TEMPORARY CONCRETE BARRIER AT A UNIFORM OFFSET FROM EDGE OF METAL AND ALIGN WITH BRUSH BLOCKS OF S03 AND B02
- END SECTIONS OF TEMPORARY CONCRETE BARRIER SHALL BE PROTECTED WITH GUARDRAIL IN ACCORDANCE WITH STANDARD PLANS R-52 SERIES AND R-126 SERIES.
- NO CONTRACTOR OPERATIONS SHALL BE ALLOWED UNDER B02 UNTILL TEMPORARY FENCE IS IN PLACE (REFER TO BRIGDE PLANS).

MAINTAINING TRAFFIC

12 MILE RD

MDOT Michigan Department of Transportation

STA 27+900 TO STA 28+660 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.	
01/05/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W	47

FILE NAME: 49595maint3.dgn

CONTROL SECTION	JOB NO.	SHT.
63174	49595	48

EXISTING BY: BAGHAG-TEAM
PROPOSED BY:
LAST CORRECTION BY:

DATE= 10-FEB-2000
DATE:
DATE:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

STAGE 1

1) MAINTAIN TRAFFIC ON THE TWO OUTSIDE LANES OF NB I-75, AND THE THREE SB I-75 LANES.
2) REMOVE AND REPLACE MEDIAN SHOULDER OF NB I-75, AND CHANGE SLOPE TO BE FALLING AWAY FROM THE LANES.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 28+660 TO STA 29+380 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W 48

FILE NAME= 49595maint4.dgn

CONTROL SECTION 63174 | JOB NO. 49595 | SH. 49

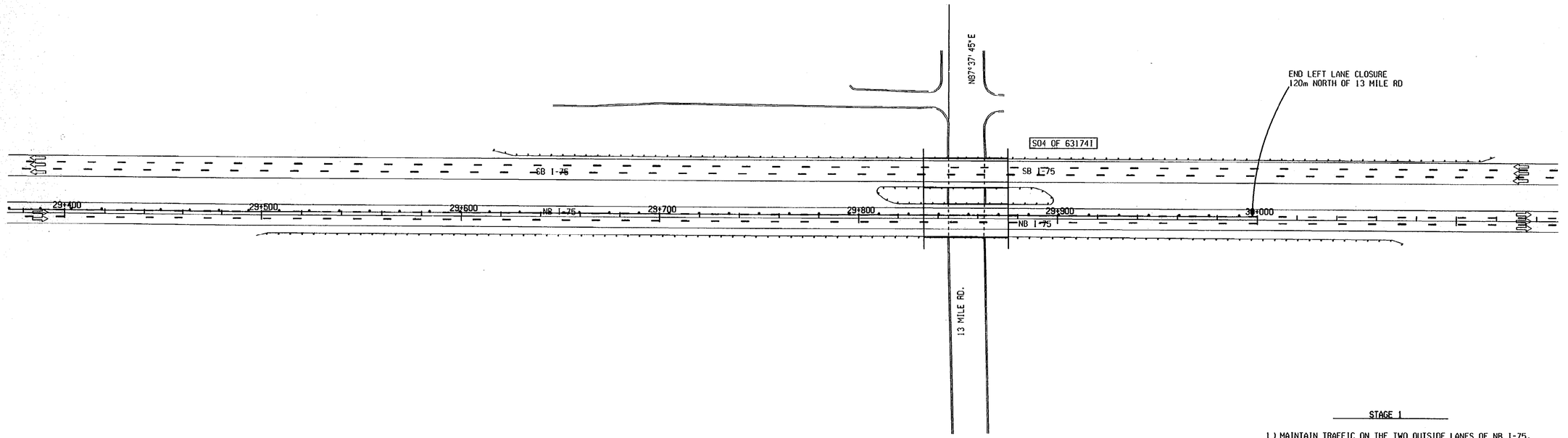
DATE= 10/29/2001
DATE:
DATE:

EXISTING BY: R&K/K&S TEAM
PROPOSED BY:
LAST CORRECTION BY:

FILE NAME: 49595maint5.dgn

13 MILE RD

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



STAGE 1

1) MAINTAIN TRAFFIC ON THE TWO OUTSIDE LANES OF NB I-75, AND THE THREE SB I-75 LANES.
2) REMOVE AND REPLACE MEDIAN SHOULDER OF NB I-75, AND CHANGE SLOPE TO BE FALLING AWAY FROM THE LANES.

13 MILE RD

MAINTAINING TRAFFIC

STA 29+380 TO STA 30+140 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W. 49

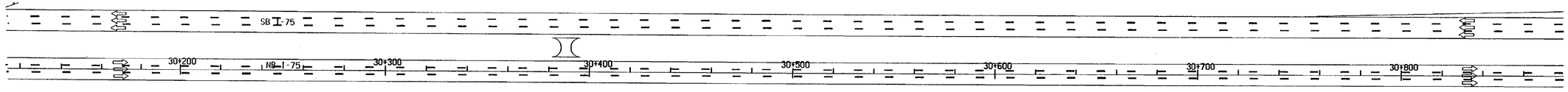
CONTROL SECTION 63174 | JOB NO. 49595 | SHT. NO. 50

DATE:
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

N68°16'15"E



STAGE 1

1) MAINTAIN TRAFFIC ON THE TWO OUTSIDE LANES OF NB I-75, AND THE THREE SB I-75 LANES.
2) REMOVE AND REPLACE MEDIAN SHOULDER OF NB I-75, AND CHANGE SLOPE TO BE FALLING AWAY FROM THE LANES.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 30+140 TO STA 30+860 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	50

FILE NAME: 49595maint6.dgn

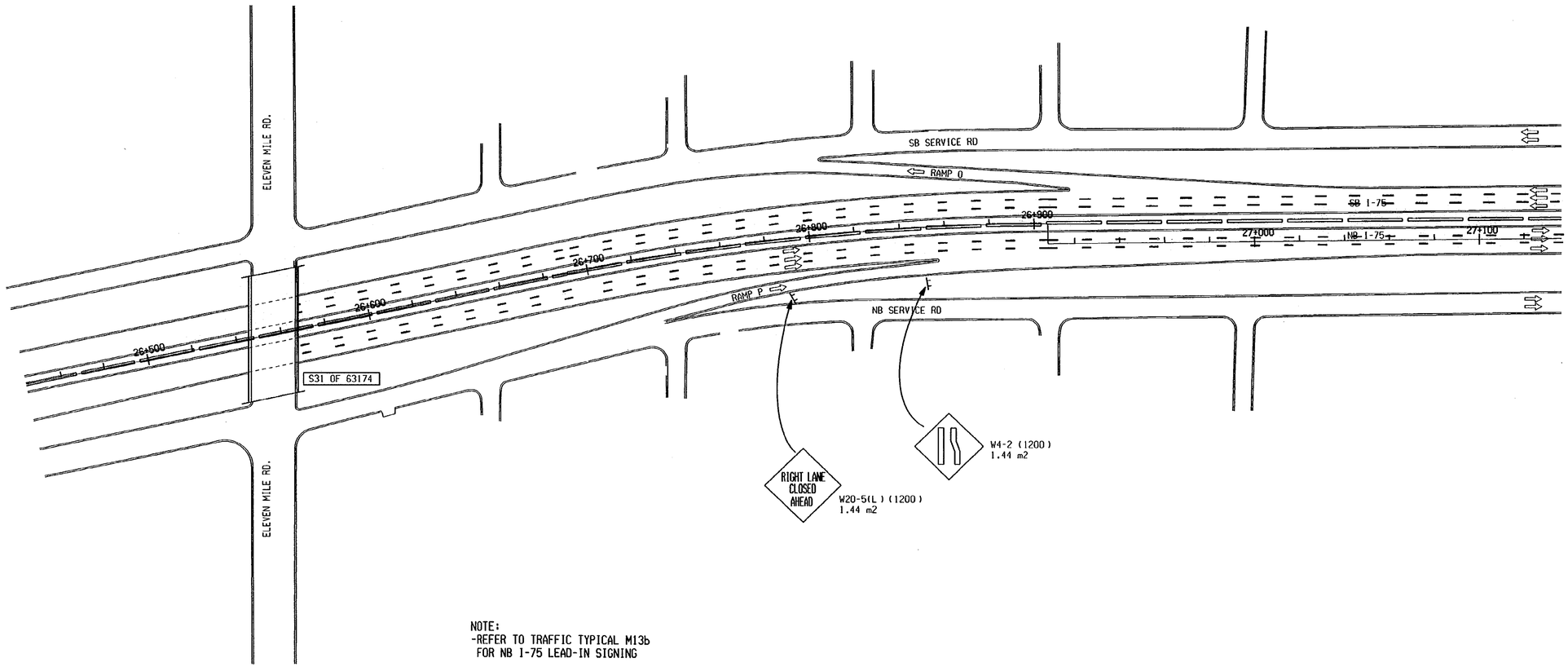
39 40

1

CONTRACT SECTION 63174 | JOB NO. 49595 | SHT NO. 51

ELEVEN MILE

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



NOTE:
-REFER TO TRAFFIC TYPICAL M13b FOR NB I-75 LEAD-IN SIGNING

STAGE 2

1) MAINTAIN TRAFFIC ON THE INSIDE SHOULDER OF NB I-75, AND THE THREE SB I-75 LANES.
2) CONSTRUCT OUTSIDE HALF OF NB I-75.

11 MILE RD

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 26+500 TO STA 27+120 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.	
01/05/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W.	51

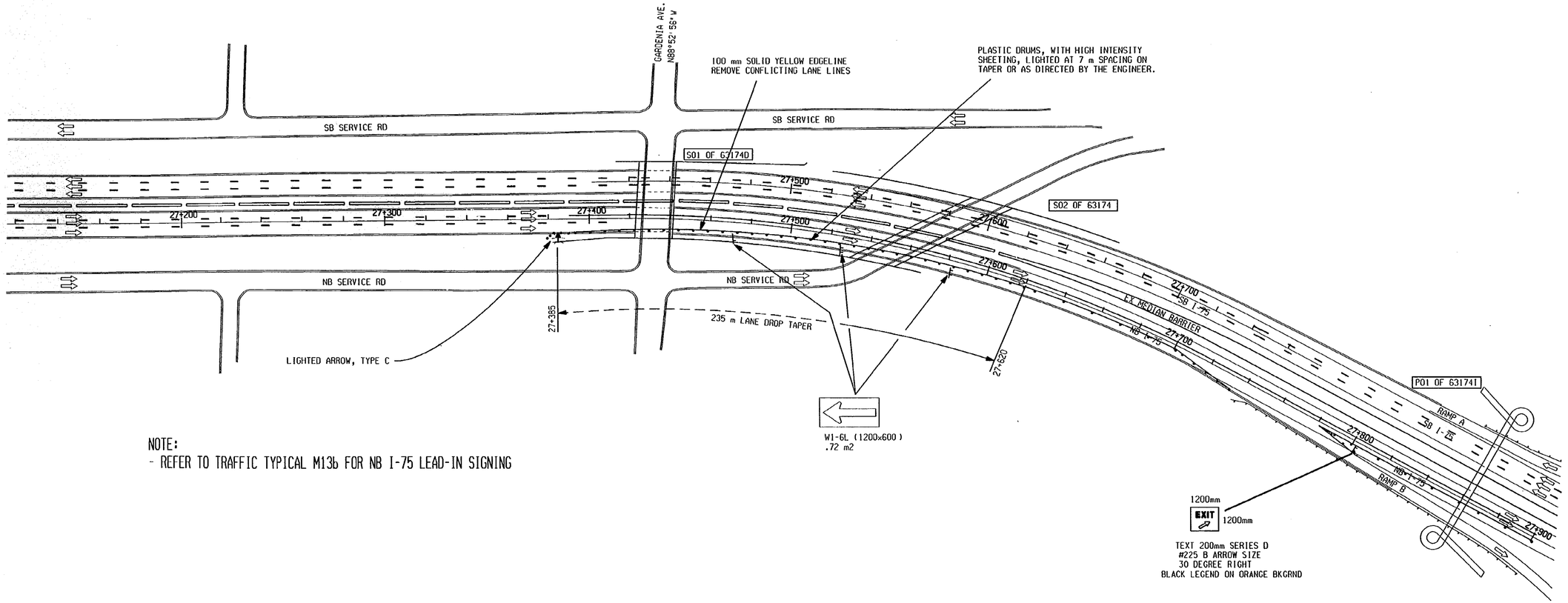
42 43

FILE NAME: 49595maint1.dgn

CONTROL SECTION 63174 | JOB NO. 49595 | SHT. NO. 52

GARDENIA AVE

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



NOTE:
- REFER TO TRAFFIC TYPICAL M13b FOR NB I-75 LEAD-IN SIGNING

STAGE 2

1) MAINTAIN TRAFFIC ON THE INSIDE SHOULDER OF NB I-75, AND THE THREE SB I-75 LANES.
2) CONSTRUCT OUTSIDE HALF OF NB I-75.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 27+120 TO STA 27+900 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/05/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W. 52

GARDENIA AVE

42 43

FILE NAME: 49595xover2.dgn
1

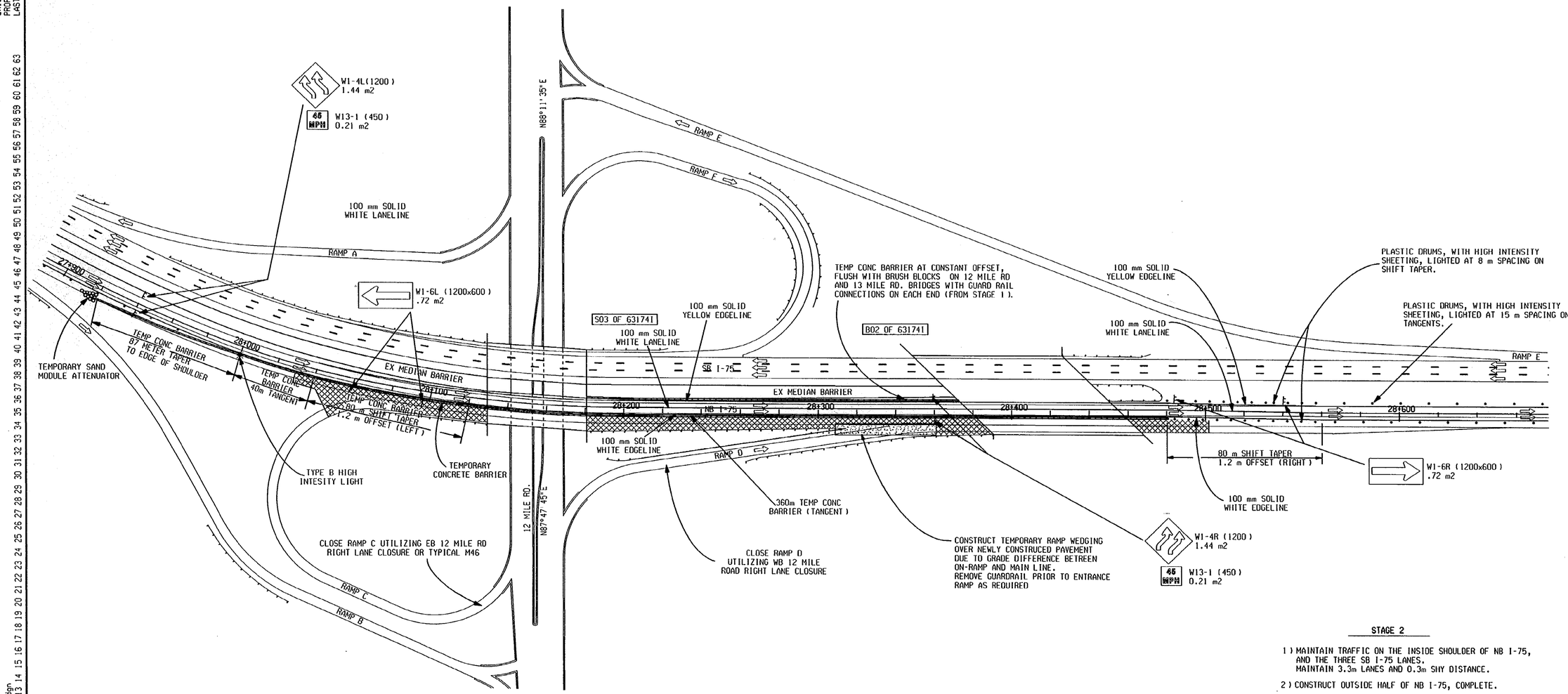
CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 53

DATE: 11-04-00
DATE:
DATE:

EXISTING BY: RICK'S TEAM
PROPOSED BY:
LAST CORRECTION BY:

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

12 MILE RD



12 MILE RD

STAGE 2

1) MAINTAIN TRAFFIC ON THE INSIDE SHOULDER OF NB I-75, AND THE THREE SB I-75 LANES, MAINTAIN 3.3m LANES AND 0.3m SHY DISTANCE.

2) CONSTRUCT OUTSIDE HALF OF NB I-75, COMPLETE.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 27+900 TO STA 28+660 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/05/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W. 53

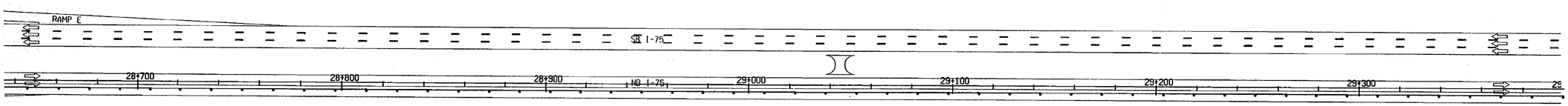
FILE NAME: 49595maint3.dgn

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 54

DRAWN= JDV-EBA-AWD
DATE:
DATE:

EXISTING BY: BAGHDAD TEAM
PROPOSED BY:
LAST CORRECTION BY:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



STAGE 2

1) MAINTAIN TRAFFIC ON THE INSIDE SHOULDER OF NB I-75, AND THE THREE SB I-75 LANES.
2) CONSTRUCT OUTSIDE HALF OF NB I-75.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 28+660 TO STA 29+380 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W 54

FILE NAME: 49595main14.dgn

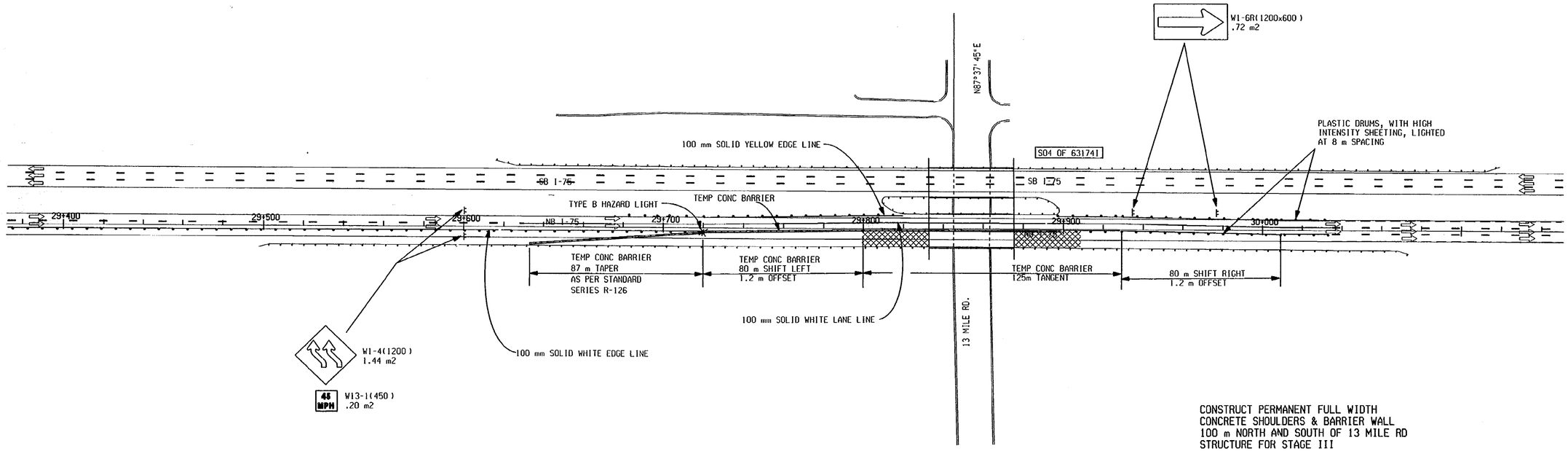
CONTROL SECTION	JOB NO.	SH. NO.
63174	49595	55

EXISTING BY: BAUMGAS-TEAM
PROPOSED BY:
LAST CORRECTION BY:

DRAWN: MD-FEB-MM
DATE:
DATE:

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

13 MILE RD



CONSTRUCT PERMANENT FULL WIDTH
CONCRETE SHOULDERS & BARRIER WALL
100 m NORTH AND SOUTH OF 13 MILE RD
STRUCTURE FOR STAGE III

STAGE 2

1) MAINTAIN TRAFFIC ON THE INSIDE SHOULDER OF NB I-75, AND THE THREE SB I-75 LANES.
- MAINTAIN 3.3m LANES AND 0.3 m SHY DISTANCE

2) CONSTRUCT OUTSIDE HALF OF NB I-75.

MAINTAINING TRAFFIC

13 MILE RD

MDOT Michigan Department of Transportation

STA 29+380 TO STA 30+140 NB I-75

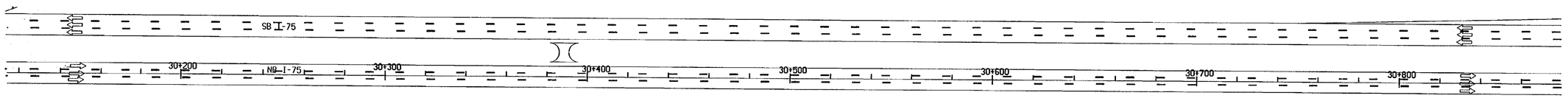
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W 55

FILE NAME: 49595maint5.dgn

CONTROL SECTION 63174 | JOB NO. 49595 | SH. 56

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

N88°16'15"E



STAGE 2

1) MAINTAIN TRAFFIC ON THE INSIDE SHOULDER OF NB I-75, AND THE THREE SB I-75 LANES.
2) CONSTRUCT OUTSIDE HALF OF NB I-75.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 30+140 TO STA 30+860 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC		56

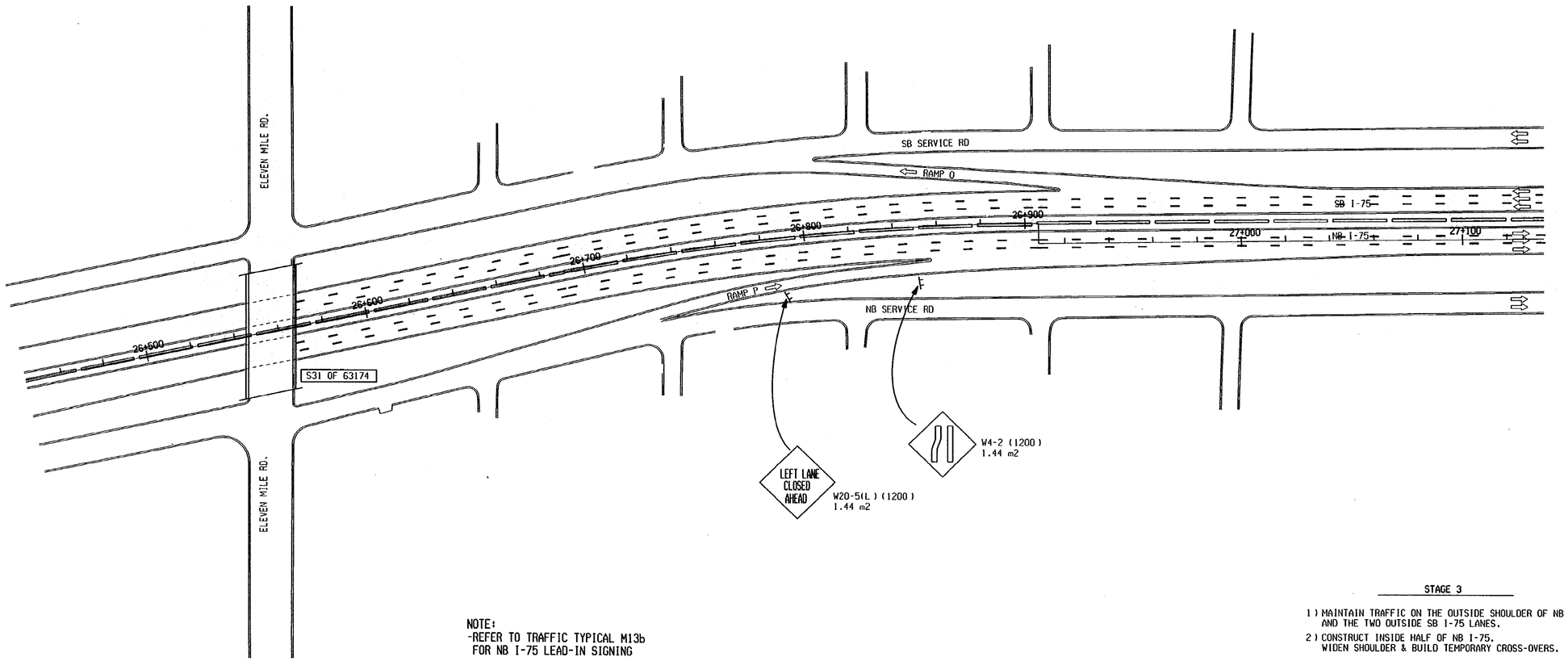
42 43

FILE NAME: 49595main6.dgn
1

CONTRACT SECTION 63174 | JOB NO. 49595 | SHT. NO. 57

ELEVEN MILE

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



NOTE:
-REFER TO TRAFFIC TYPICAL M13b FOR NB I-75 LEAD-IN SIGNING

STAGE 3

1) MAINTAIN TRAFFIC ON THE OUTSIDE SHOULDER OF NB I-75, AND THE TWO OUTSIDE SB I-75 LANES.
2) CONSTRUCT INSIDE HALF OF NB I-75. WIDEN SHOULDER & BUILD TEMPORARY CROSS-OVERS.

11 MILE RD

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 26+500 TO STA 27+120 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/05/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W. 57

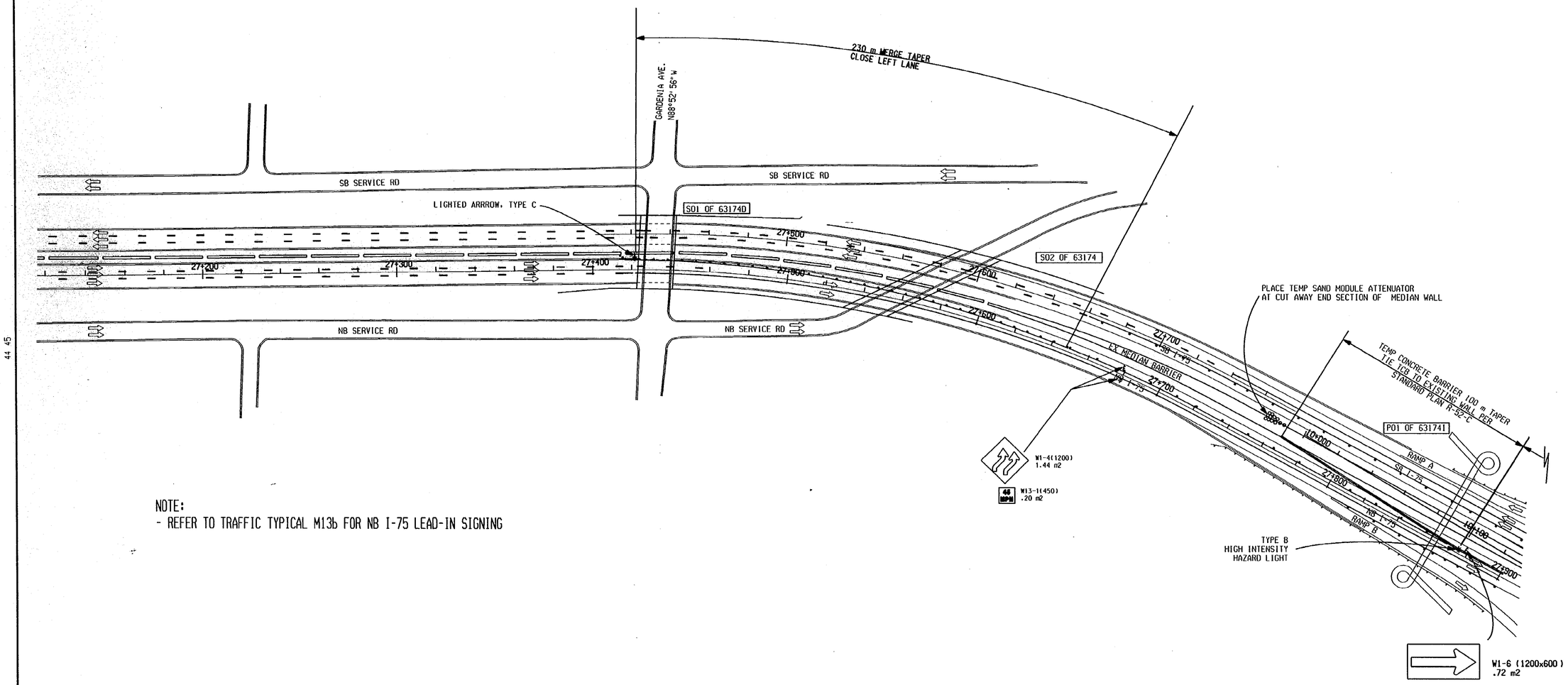
FILE NAME: 49595maintl.dgn

44 45

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 58

GARDENIA AVE

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



NOTE:
- REFER TO TRAFFIC TYPICAL M13b FOR NB I-75 LEAD-IN SIGNING

STAGE 3

1) MAINTAIN TRAFFIC ON THE OUTSIDE SHOULDER OF NB I-75, AND THE TWO OUTSIDE SB I-75 LANES.
2) CONSTRUCT INSIDE HALF OF NB I-75. WIDEN SHOULDER & BUILD TEMPORARY CROSS-OVERS.

MAINTAINING TRAFFIC

GARDENIA AVE

MDOT Michigan Department of Transportation

STA 27+120 TO STA 27+900 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	
01/05/01	1:1000	63174	49595	OTSC TRAFFIC		58

FILE NAME: 49595xover2.dgn

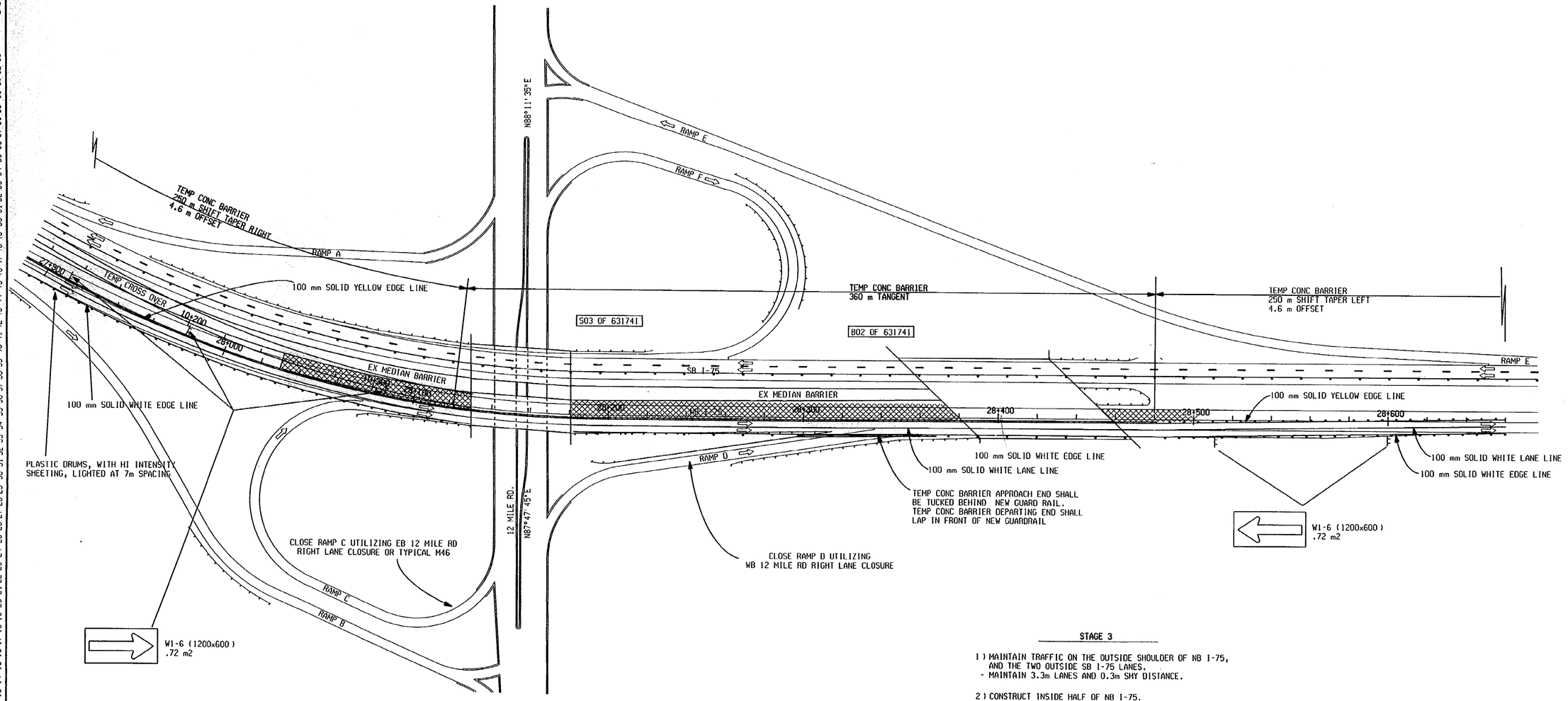
CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 59

DATE: 11-04-00
DATE:
DATE:

EXISTING BY: RICK'S TEAM
PROPOSED BY:
LAST CORRECTION BY:

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

12 MILE RD



STAGE 3

1) MAINTAIN TRAFFIC ON THE OUTSIDE SHOULDER OF NB I-75, AND THE TWO OUTSIDE SB I-75 LANES.
 - MAINTAIN 3.3m LANES AND 0.3m SHY DISTANCE.

2) CONSTRUCT INSIDE HALF OF NB I-75.
 WIDEN SHOULDER & BUILD TEMPORARY CROSS-OVERS.

MAINTAINING TRAFFIC

12 MILE RD

MDOT Michigan Department of Transportation

STA 27+900 TO STA 28+660 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
01/05/01	1:1000	63174	49595	OTSC TRAFFIC		59

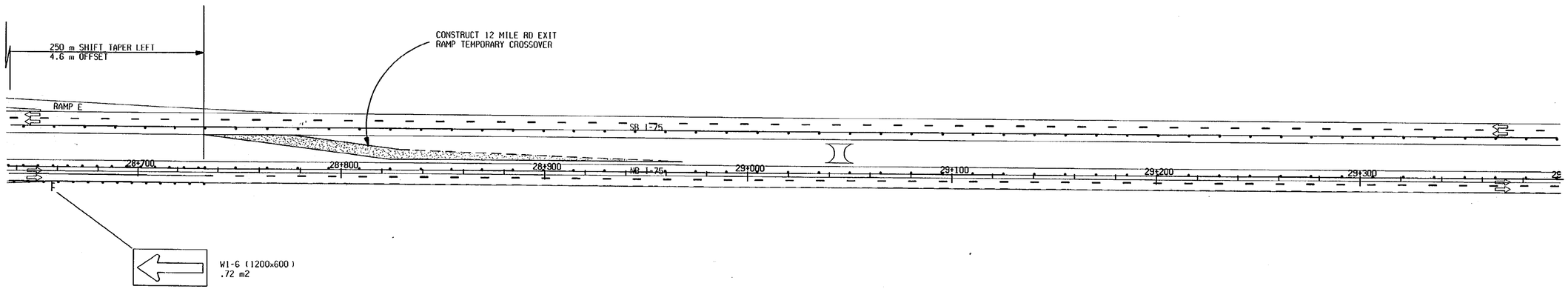
FILE NAME: 49595maint3.dgn

CONTROL SECTION 63174 | JOB NO. 49595 | SH. 60

DRAWN= MDOT-CBA-AUTO
DATE:
DATE:

EXISTING BY: BRIDGE-TEAM
PROPOSED BY:
LAST CORRECTION BY:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



STAGE 3

1) MAINTAIN TRAFFIC ON THE OUTSIDE SHOULDER OF NB I-75, AND THE TWO OUTSIDE SB I-75 LANES.
2) CONSTRUCT INSIDE HALF OF NB I-75. WIDEN SHOULDER & BUILD TEMPORARY CROSS-OVERS.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 28+660 TO STA 29+380 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	60

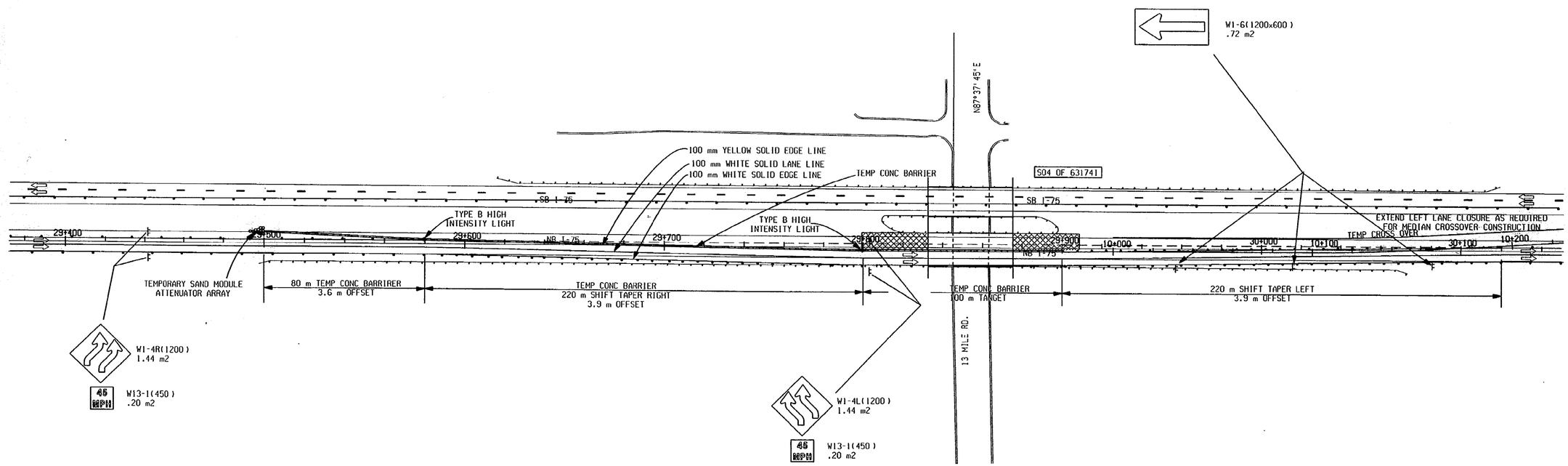
FILE NAME: 49595maint4.dgn

CONTROL SECTION	JOB NO.	SH.
63174	49595	61

EXISTING BY: BACKGROUND TEAM DATE: 10-APR-00
PROPOSED BY: DATE:
LAST CORRECTION BY: DATE:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

13 MILE RD



STAGE 3

1) MAINTAIN TRAFFIC ON THE OUTSIDE SHOULDER OF NB I-75, AND THE TWO OUTSIDE SB I-75 LANES.
2) CONSTRUCT INSIDE HALF OF NB I-75, WIDEN SHOULDER & BUILD TEMPORARY CROSS-OVERS.

MAINTAINING TRAFFIC

13 MILE RD

MDOT Michigan Department of Transportation

STA 29+380 TO STA 30+140 NB I-75

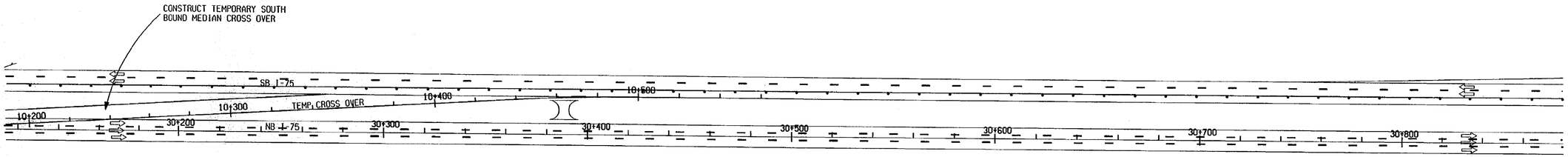
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W. 61

FILE NAME: 49595man5.dgn

CONTROL SECTION	JOB NO.	SH.
63174	49595	62

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

N88°18'15"E



STAGE 3

1) MAINTAIN TRAFFIC ON THE OUTSIDE SHOULDER OF NB I-75, AND THE TWO OUTSIDE SB I-75 LANES.
2) CONSTRUCT INSIDE HALF OF NB I-75. WIDEN SHOULDER & BUILD TEMPORARY CROSS-OVERS.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 30+140 TO STA 30+860 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	
01/06/01	1:1000	63174	49595	OTSC TRAFFIC		62

FILE NAME: 49595maint6.dgn

44 45

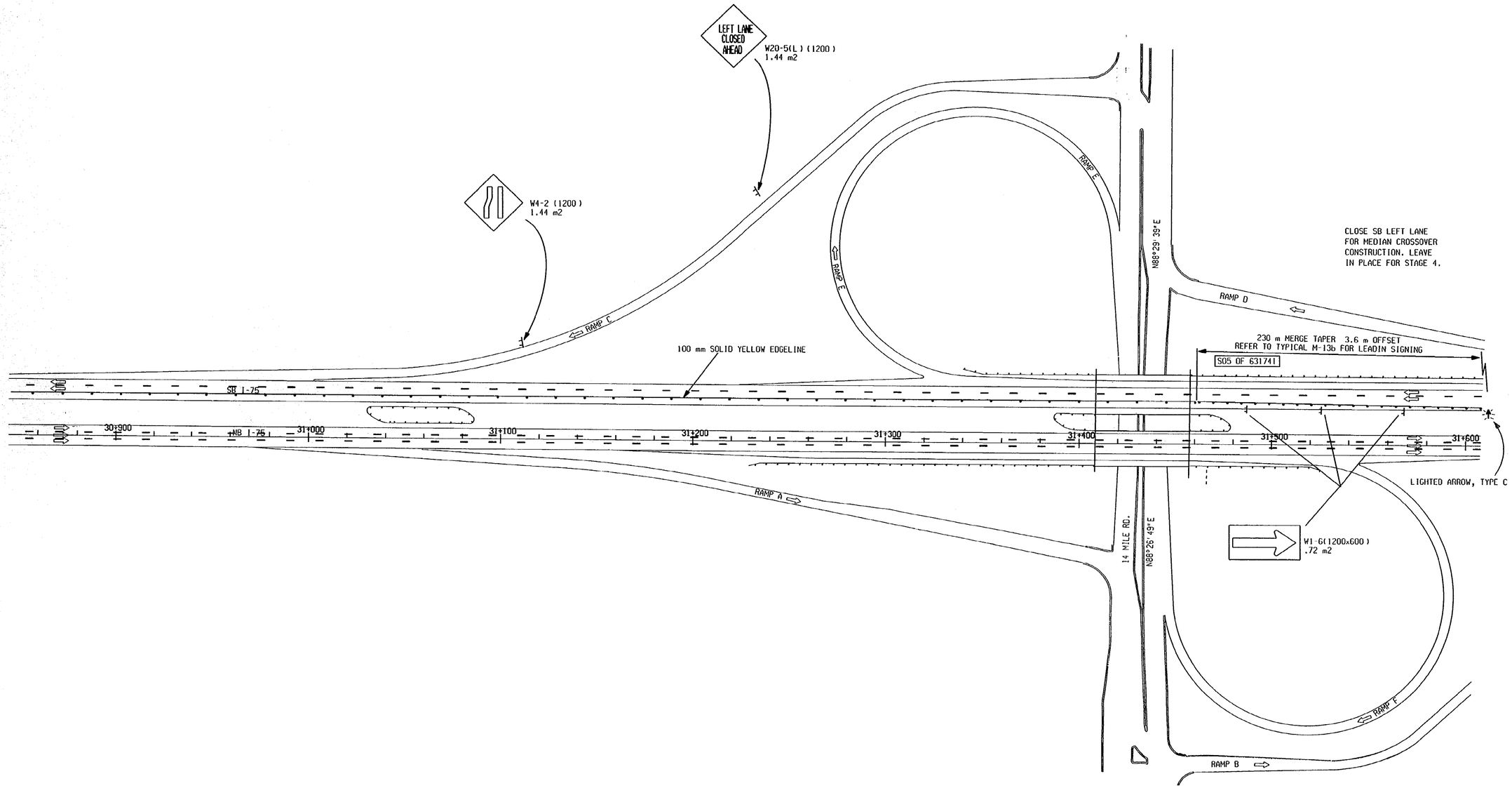
CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 63

44 45

FILE NAME: 49595maint7.dgn

14 MILE RD

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



14 MILE RD

MAINTAINING TRAFFIC

STAGE 3

1) MAINTAIN TRAFFIC ON THE OUTSIDE SHOULDER OF NB I-75, AND THE TWO OUTSIDE SB I-75 LANES.
2) CONSTRUCT INSIDE HALF OF I-75. WIDEN SHOULDER & BUILD TEMPORARY CROSS-OVERS.

MDOT Michigan Department of Transportation

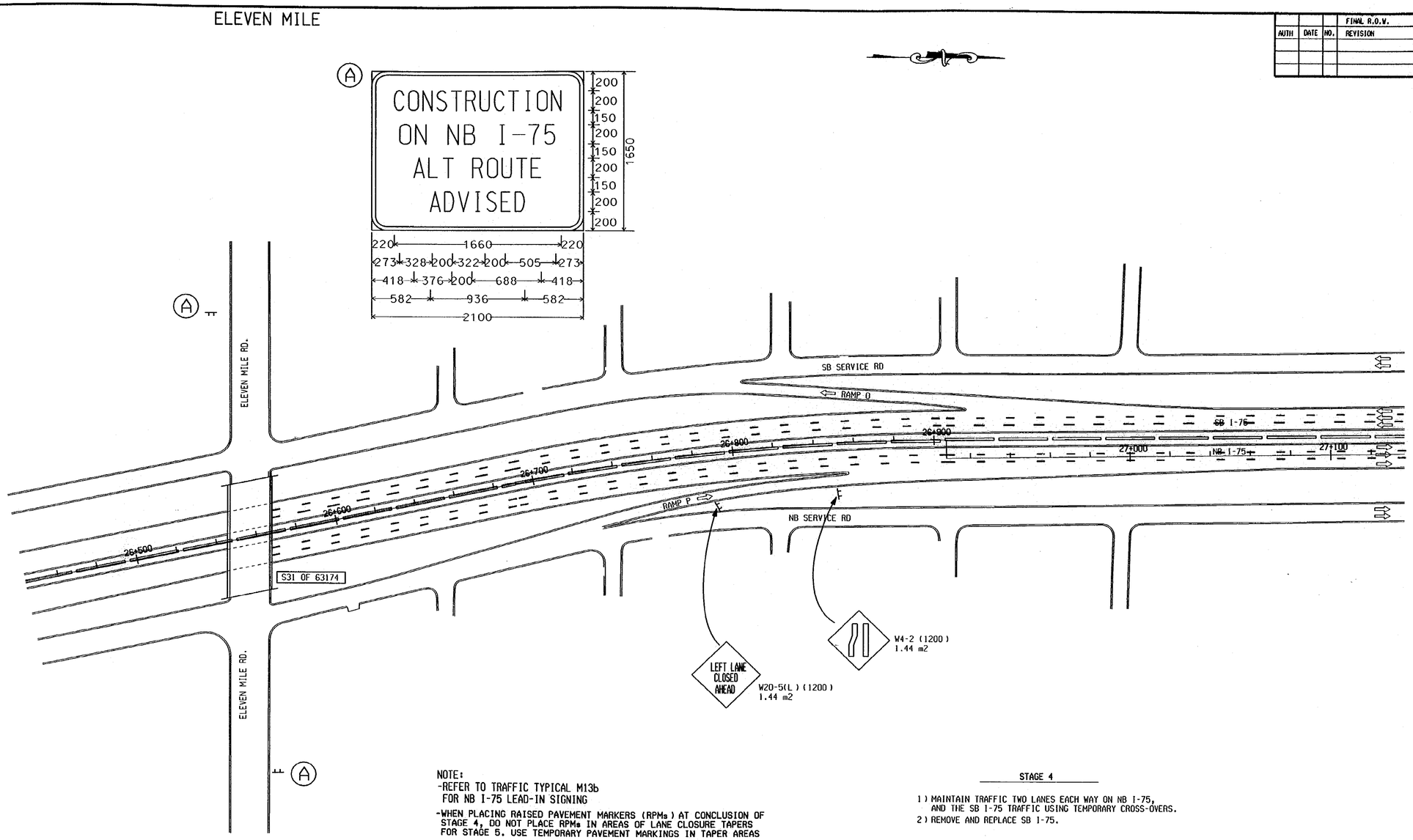
STA 30+860 TO STA 31+600 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W 63

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 64

ELEVEN MILE

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



NOTE:
-REFER TO TRAFFIC TYPICAL M13b FOR NB I-75 LEAD-IN SIGNING

-WHEN PLACING RAISED PAVEMENT MARKERS (RPMs) AT CONCLUSION OF STAGE 4, DO NOT PLACE RPMs IN AREAS OF LANE CLOSURE TAPERS FOR STAGE 5. USE TEMPORARY PAVEMENT MARKINGS IN TAPER AREAS

STAGE 4

1) MAINTAIN TRAFFIC TWO LANES EACH WAY ON NB I-75, AND THE SB I-75 TRAFFIC USING TEMPORARY CROSS-OVERS.
2) REMOVE AND REPLACE SB I-75.

11 MILE RD

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 26+500 TO STA 27+120 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	
01/05/01	1:1000	63174	49595	OTSC TRAFFIC		64

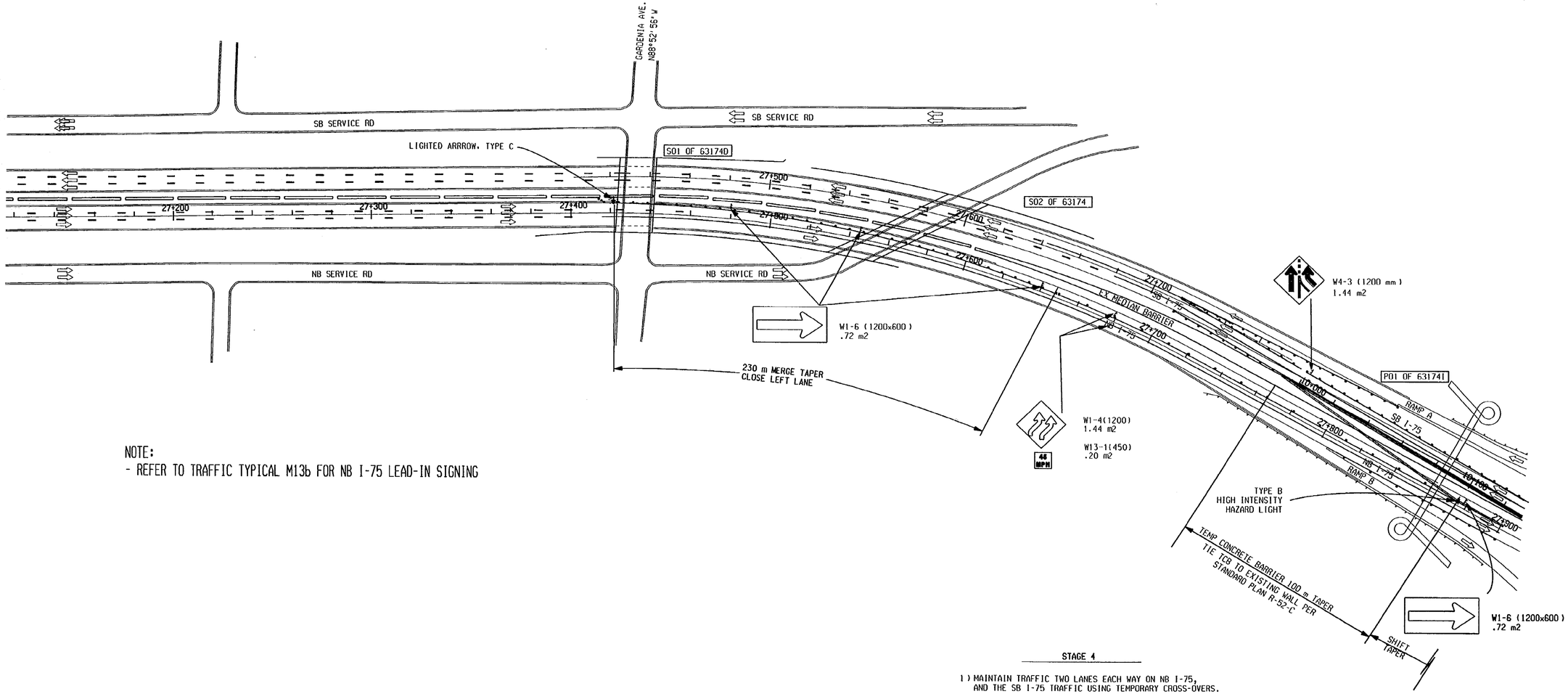
FILE NAME: 49595maintl.dgn

46 47

CONTROL SECTION	JOB NO.	SH. NO.
63174	49595	65

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

GARDENIA AVE



NOTE:
- REFER TO TRAFFIC TYPICAL M13b FOR NB I-75 LEAD-IN SIGNING

STAGE 4

1) MAINTAIN TRAFFIC TWO LANES EACH WAY ON NB I-75, AND THE SB I-75 TRAFFIC USING TEMPORARY CROSS-OVERS.
2) REMOVE AND REPLACE SB I-75.

MAINTAINING TRAFFIC

GARDENIA AVE

MDOT Michigan Department of Transportation	STA 27+120 TO STA 27+900 NB I-75					
	DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W /
	01/05/01	1:1000	63174	49595	OTSC TRAFFIC	65

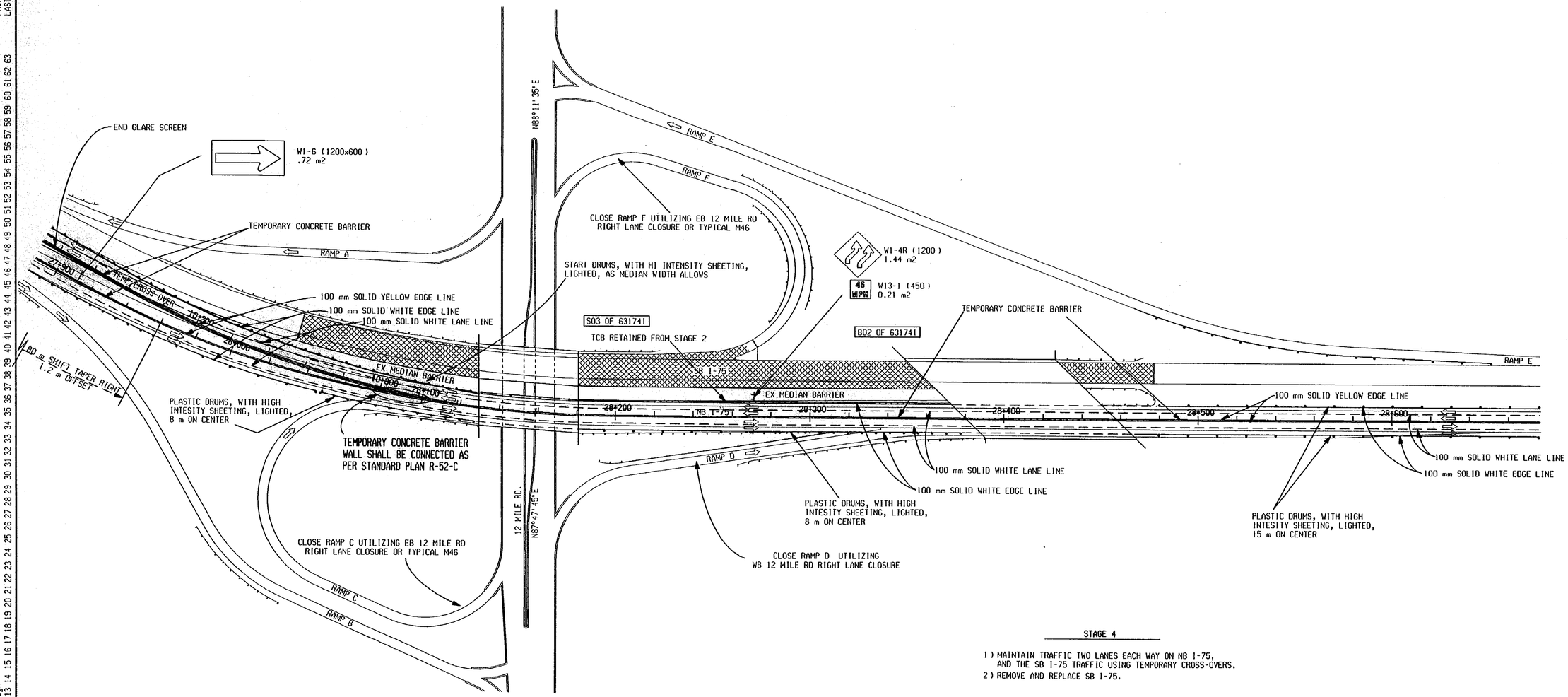
FILE NAME: 49595xover2.dgn

CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 66

EXISTING BY: RICK'S TEAM DATE: 11-04-00
PROPOSED BY: DATE:
LAST CORRECTION BY: DATE:

AUTH	DATE	NO.	FINAL R.O.V. REVISION

12 MILE RD



STAGE 1

1) MAINTAIN TRAFFIC TWO LANES EACH WAY ON NB I-75, AND THE SB I-75 TRAFFIC USING TEMPORARY CROSS-OVERS.
2) REMOVE AND REPLACE SB I-75.

MAINTAINING TRAFFIC

12 MILE RD

MDOT Michigan Department of Transportation

STA 27+900 TO STA 28+660 NB I-75

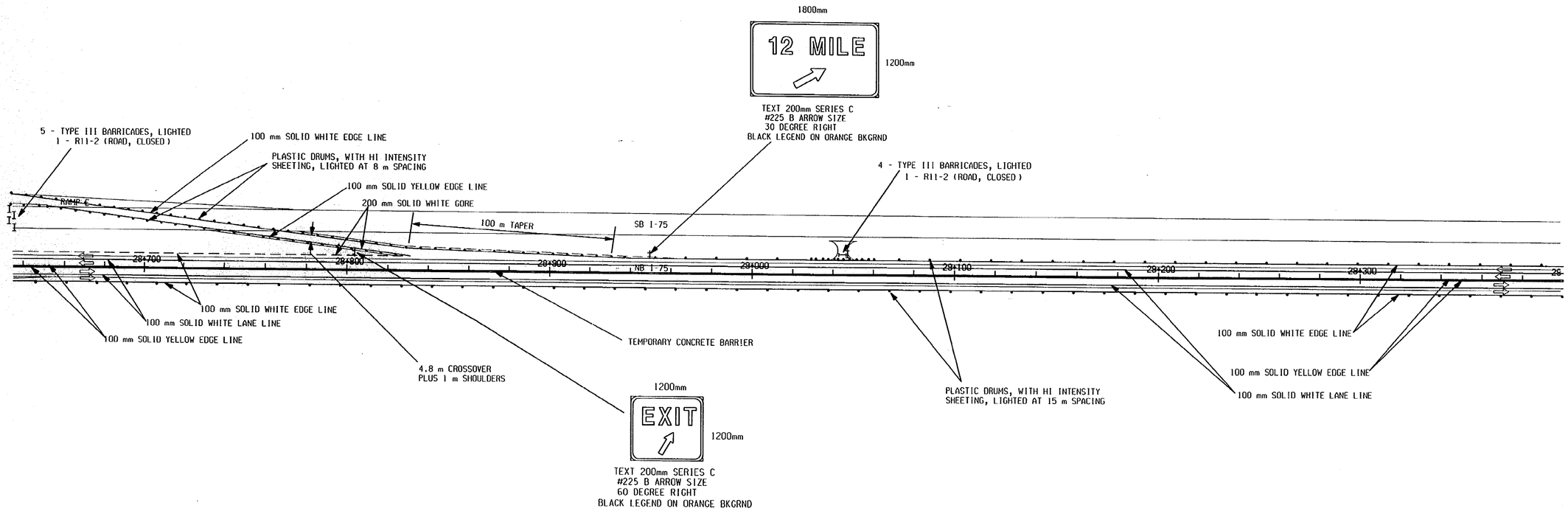
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	
01/05/01	1:1000	63174	49595	OTSC TRAFFIC		66

FILE NAME: 49595maint3.dgn

CONTROL SECTION 63174 | JOB NO. 49595 | SH. 67

EXISTING BY: BACKGEN TEAM DATE:
PROPOSED BY: DATE:
LAST CORRECTION BY: DATE:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



STAGE 4

STA + TO STA +

1) MAINTAIN TRAFFIC TWO LANES EACH WAY ON NB I-75, AND THE SB I-75 TRAFFIC USING TEMPORARY CROSS-OVERS.
2) REMOVE AND REPLACE SB I-75.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 28+660 TO STA 29+380 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W 67

FILE NAME= 49595maint4.dgn

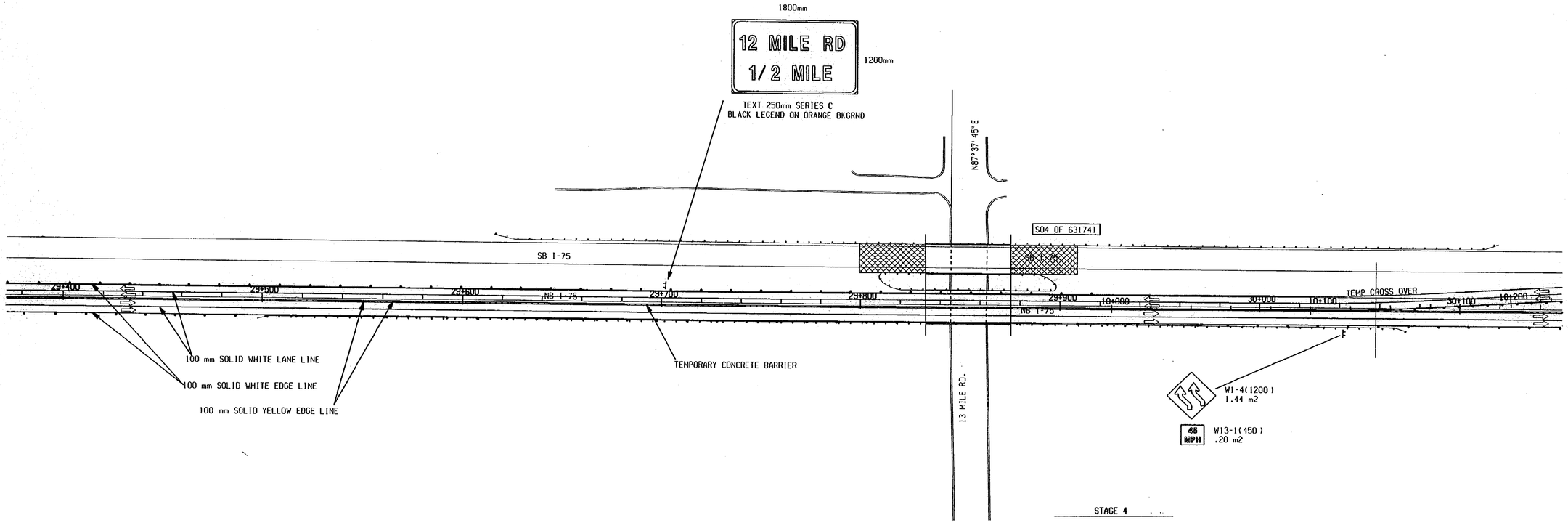
CONTROL SECTION 63174 | JOB NO. 49595 | SH. 68

EXISTING BY: BASKASH TEAM
PROPOSED BY:
LAST CORRECTION BY:

NAME= BD-28-000
DATE:
DATE:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

13 MILE RD



STAGE 4

1) MAINTAIN TRAFFIC TWO LANES EACH WAY ON NB I-75, AND THE SB I-75 TRAFFIC USING TEMPORARY CROSS-OVERS.
2) REMOVE AND REPLACE SB I-75.

13 MILE RD

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

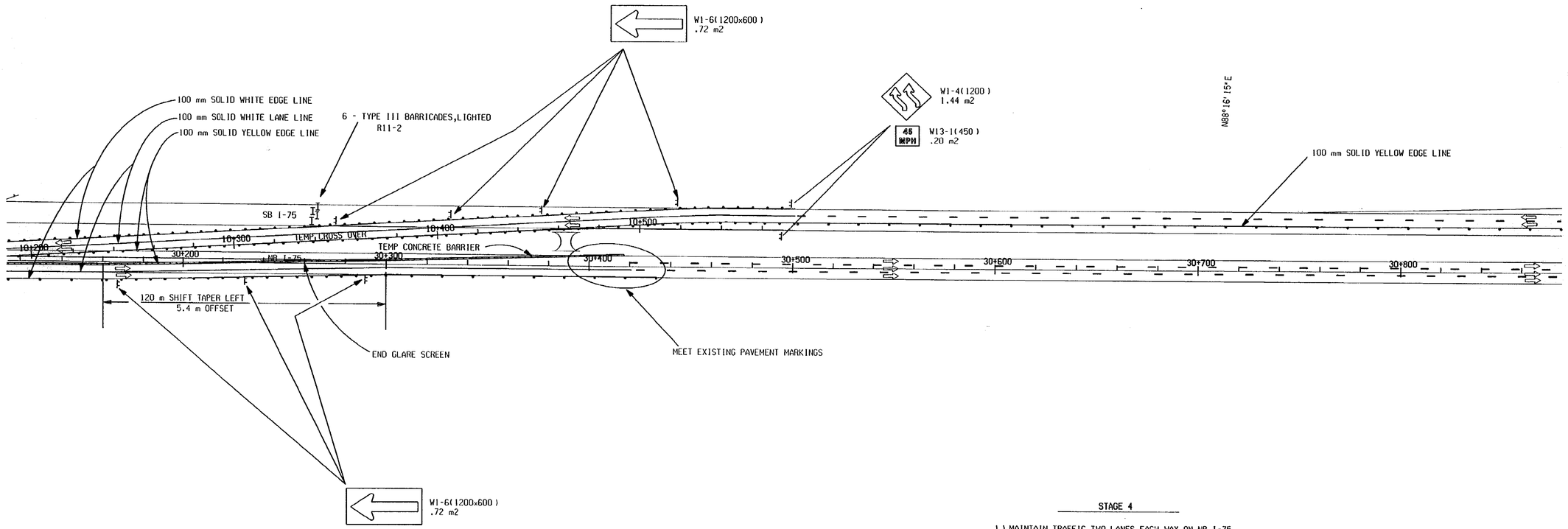
STA 29+380 TO STA 30+140 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W. 68

FILE NAME: 49595maint5.dgn

CONTROL SECTION 63174 | JOB NO. 49595 | SHT. 69

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION



STAGE 4

1) MAINTAIN TRAFFIC TWO LANES EACH WAY ON NB I-75, AND THE SB I-75 TRAFFIC USING TEMPORARY CROSS-OVERS.
2) REMOVE AND REPLACE SB I-75.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 30+140 TO STA 30+860 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W. 69

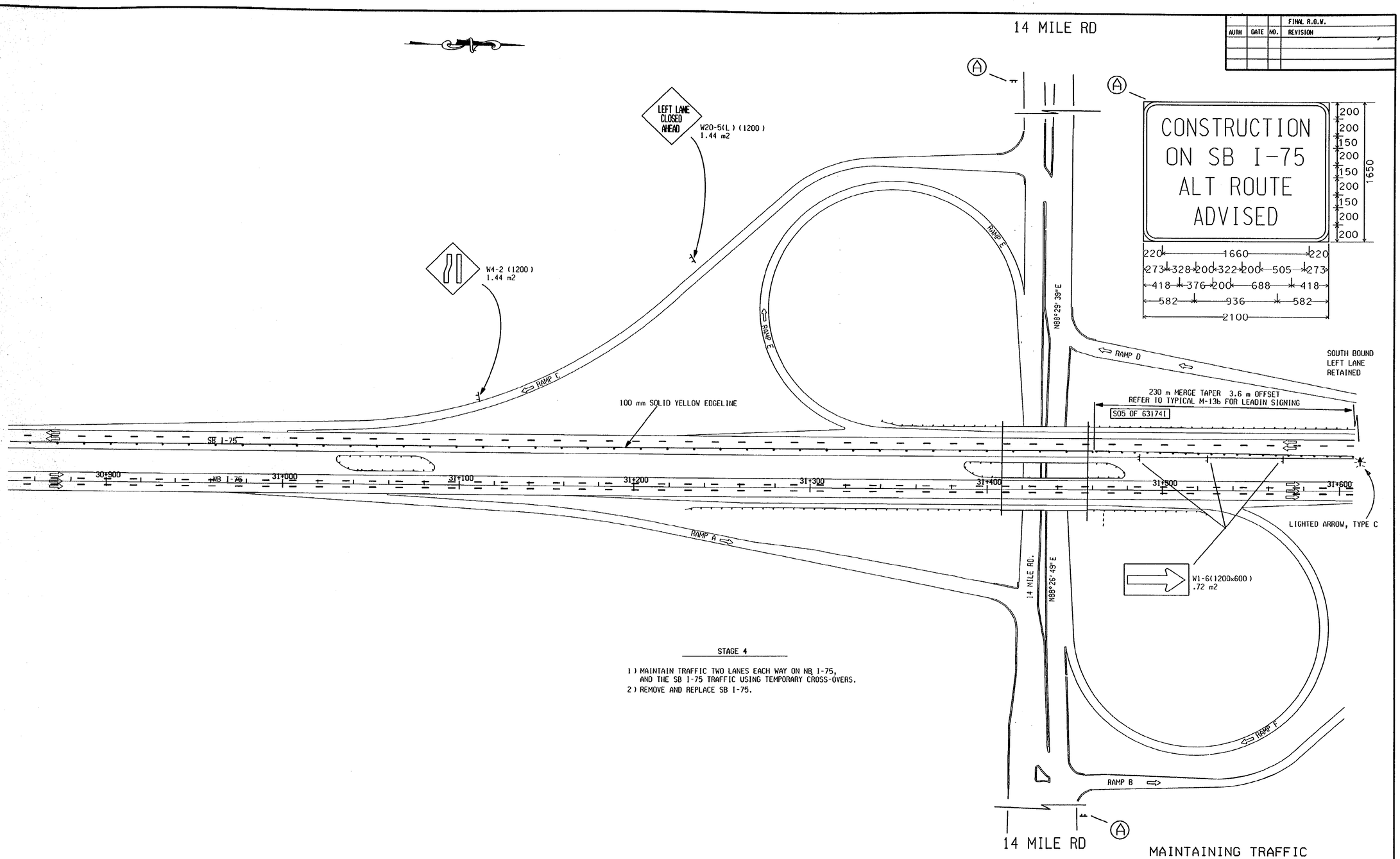
46 47

FILE NAME: 49595maint6.dgn

CONTRACT SECTION 63174 | JOB NO. 49595 | SH. 70

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

14 MILE RD



STAGE 4

1) MAINTAIN TRAFFIC TWO LANES EACH WAY ON NB I-75, AND THE SB I-75 TRAFFIC USING TEMPORARY CROSS-OVERS.
2) REMOVE AND REPLACE SB I-75.

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

STA 30+860 TO STA 31+600 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/06/01	1:1000	63174	49595	OTSC TRAFFIC	R.O.W. 70

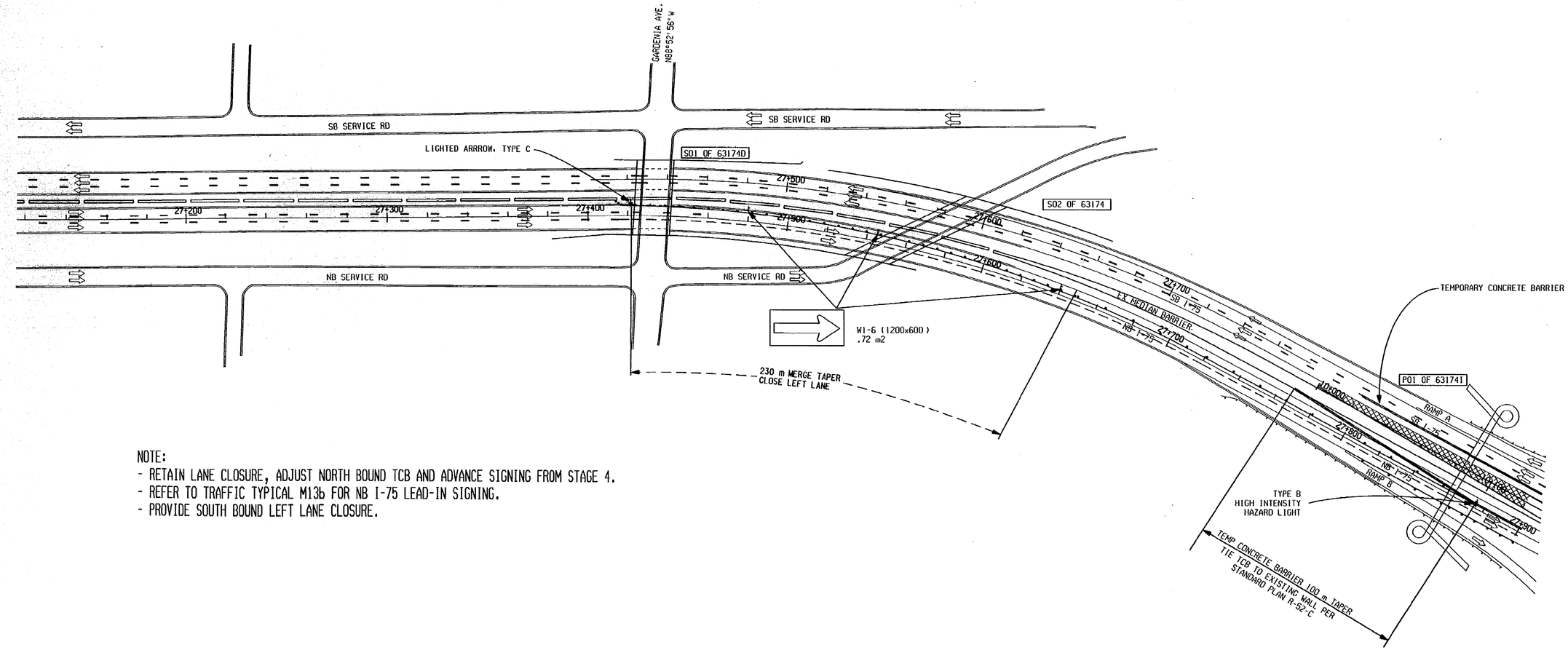
FILE NAME: 49595maint7.dgn

46 47

CONTROL SECTION 63174 | JOB NO. 49595 | SHT NO. 71

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

GARDENIA AVE



NOTE:
- RETAIN LANE CLOSURE, ADJUST NORTH BOUND TCB AND ADVANCE SIGNING FROM STAGE 4.
- REFER TO TRAFFIC TYPICAL M13b FOR NB I-75 LEAD-IN SIGNING.
- PROVIDE SOUTH BOUND LEFT LANE CLOSURE.

STAGE 5

1) MAINTAIN TRAFFIC ON THE TWO OUTSIDE LANES OF NB I-75 & SB I-75.
2) REMOVE TEMPORARY CROSS-OVERS AND REBUILD MEDIAN BARRIER.

MAINTAINING TRAFFIC

GARDENIA AVE

MDOT Michigan Department of Transportation

STA 27+120 TO STA 27+900 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
01/05/01	1:1000	63174	49595	OTSC TRAFFIC		71

47 48 49

FILE NAME: 49595xover2.dgn
1

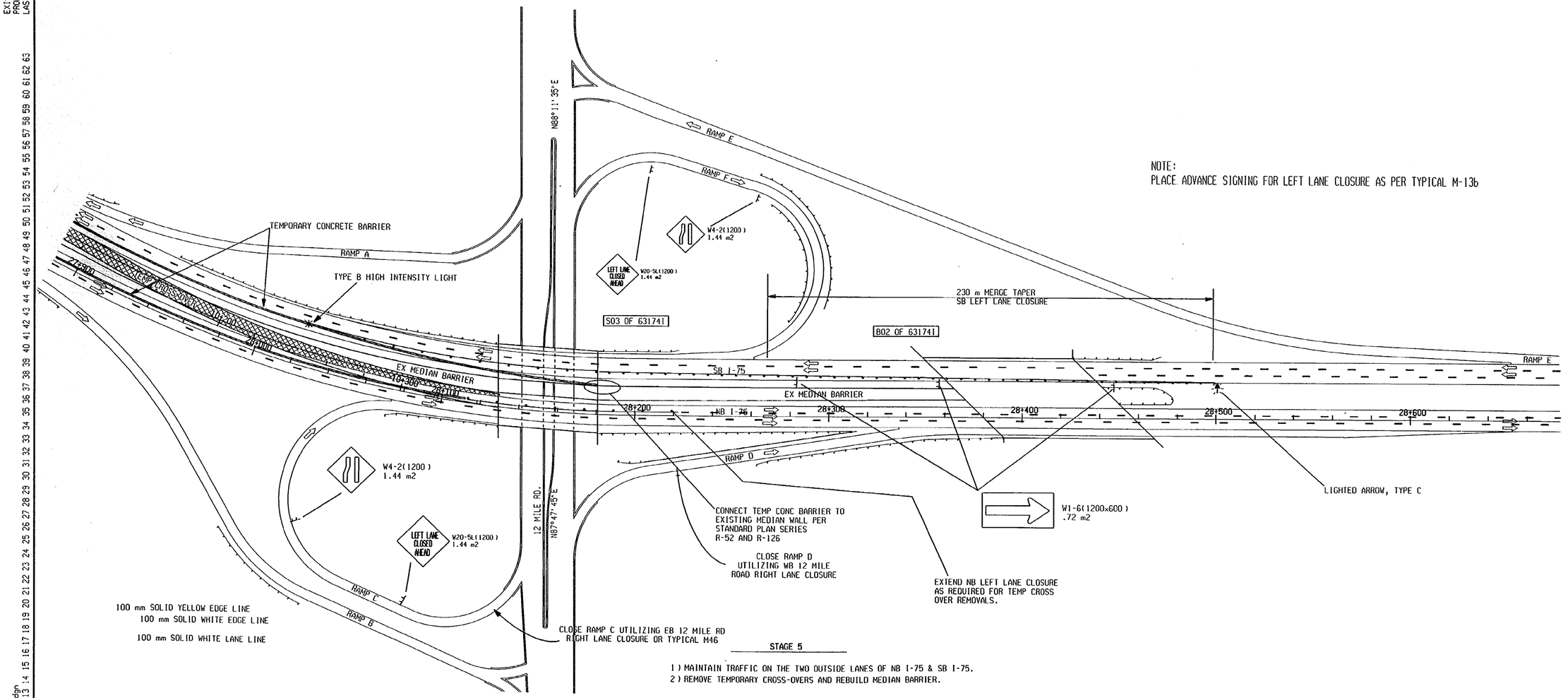
CONTROL SECTION 63174 | JOB NO. 49595 | SH. NO. 72

DATE: 11-04-00
DATE:
DATE:

EXISTING BY: RICK'S TEAM
PROPOSED BY:
LAST CORRECTION BY:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

12 MILE RD



NOTE:
PLACE ADVANCE SIGNING FOR LEFT LANE CLOSURE AS PER TYPICAL M-13b

STAGE 5

1) MAINTAIN TRAFFIC ON THE TWO OUTSIDE LANES OF NB I-75 & SB I-75.
2) REMOVE TEMPORARY CROSS-OVERS AND REBUILD MEDIAN BARRIER.

STAGE 6

1) REMOVE TEMPORARY RAMP D WEDGING UNDER OUTSIDE LANE CLOSURE.

MAINTAINING TRAFFIC

12 MILE RD

MDOT Michigan Department of Transportation

STA 27+900 TO STA 28+660 NB I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
01/05/01	1:1000	63174	49595	OTSC TRAFFIC		72

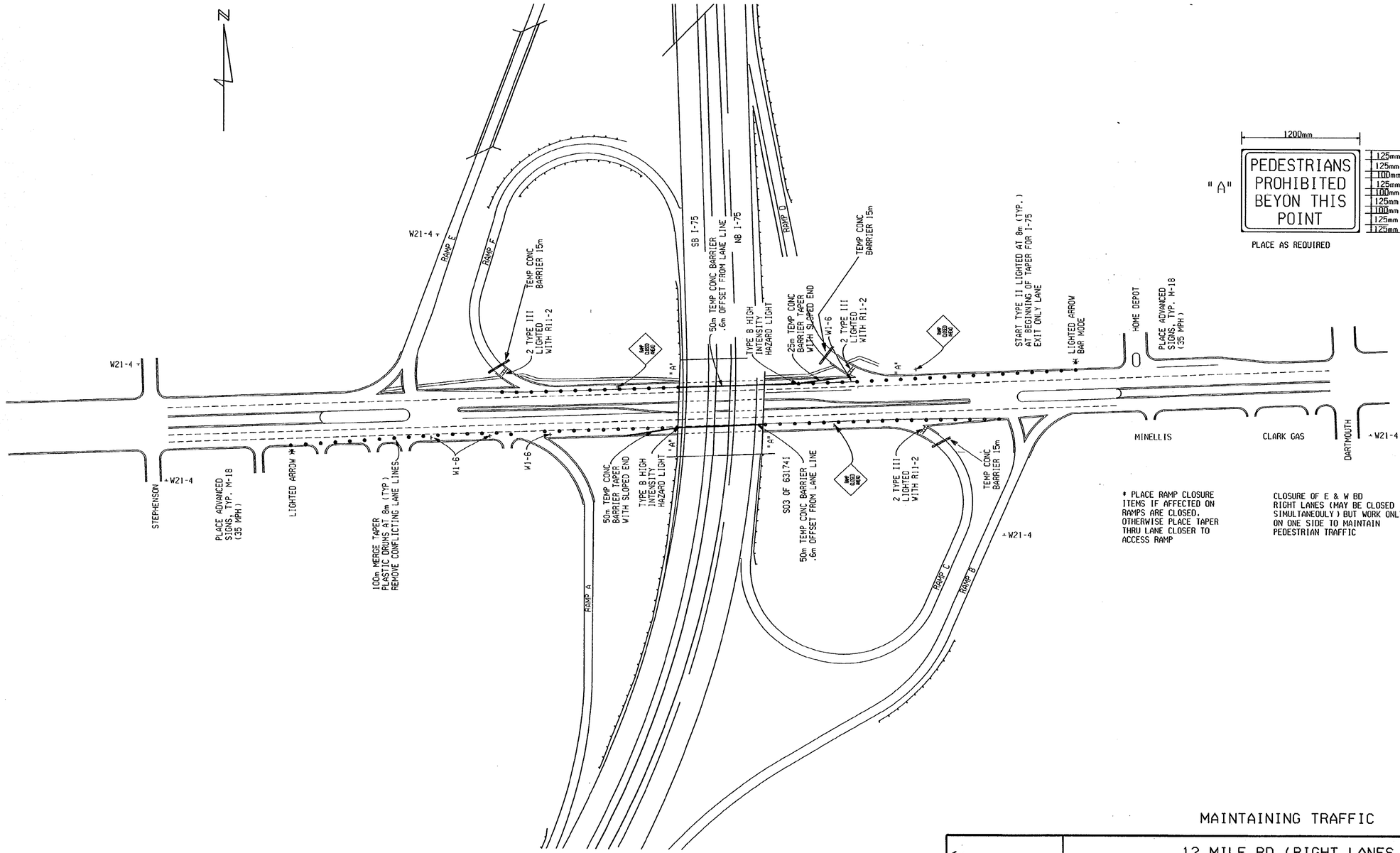
FILE NAME: 49595main3.dgn

CONTROL SECTION N/A | JOB NO. 49595 | SH. NO. 73

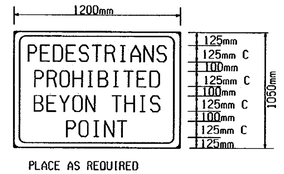
DATE:
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



"A"



PLACE AS REQUIRED

* PLACE RAMP CLOSURE ITEMS IF AFFECTED ON RAMPS ARE CLOSED. OTHERWISE PLACE TAPER THRU LANE CLOSER TO ACCESS RAMP

CLOSURE OF E & W BD RIGHT LANES (MAY BE CLOSED SIMULTANEOULY) BUT WORK ONLY ON ONE SIDE TO MAINTAIN PEDESTRIAN TRAFFIC

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

12 MILE RD (RIGHT LANES)

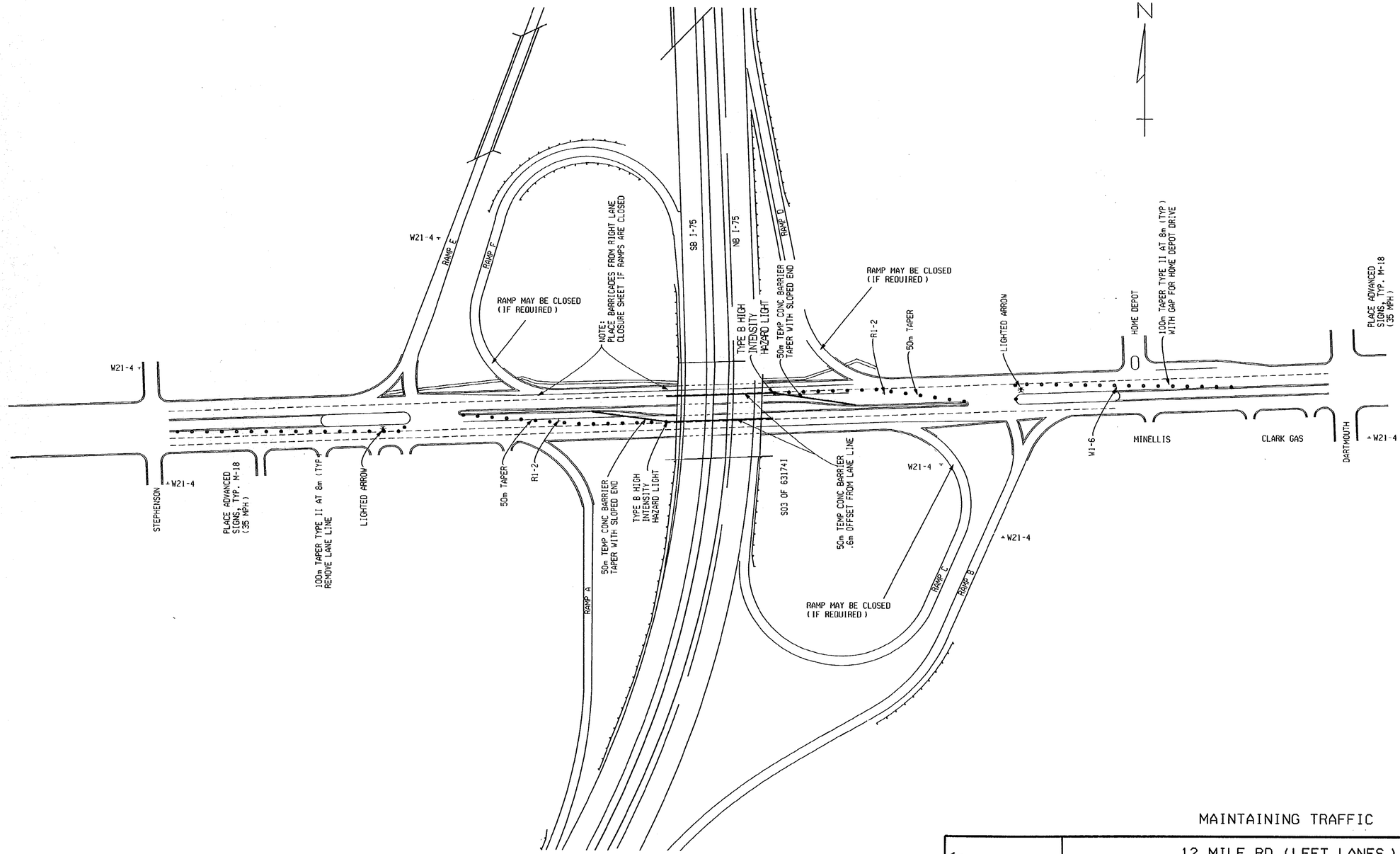
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/04/01	1:NONE	N/A	49595	OTSC TRAFFIC	R.O.W. 73

FILE NAME: 1 11 14 36

CONTROL SECTION N/A | JOB NO. 49595 | SH. NO. 74

EXISTING BY: DATE:
PROPOSED BY: DATE:
LAST CORRECTION BY: DATE:

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

12 MILE RD (LEFT LANES)					
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
01/04/01	1:NONE	N/A	49595	OTSC TRAFFIC	R.O.W. 74

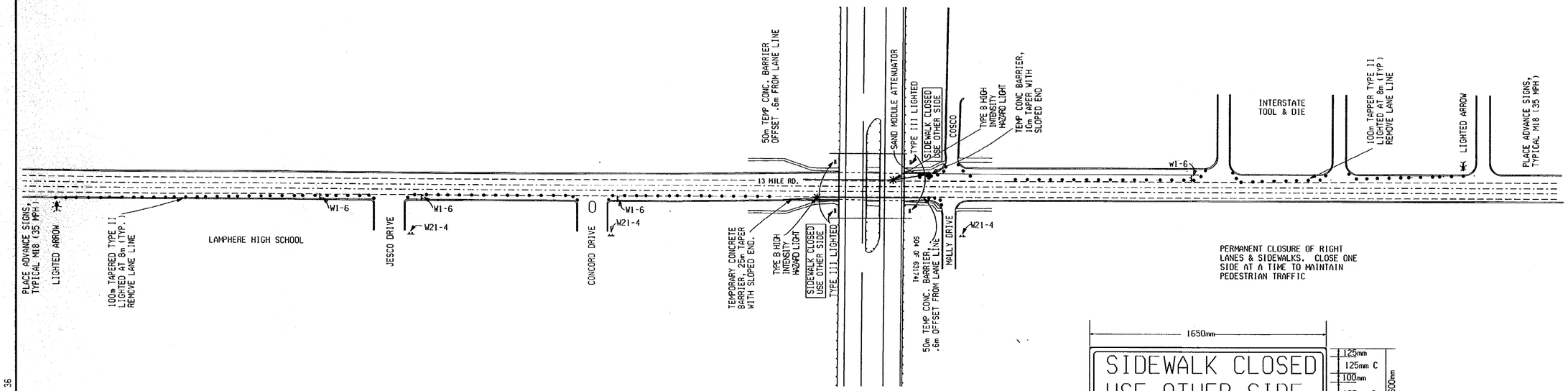
FILE NAME: 1 8 11 14 36

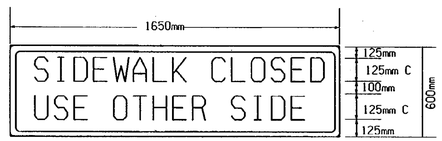
CONTROL SECTION N/A | JOB NO. 49595 | SH. NO. 75

DATE:
DATE:
DATE:

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY:

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION





NOTE:
THE CONTRACTOR SHALL COORDINATE WORK ACTIVITIES WITH THE CITY OF MADISON HEIGHTS' PAVEMENT MANAGEMENT CONTRACT

MAINTAINING TRAFFIC

MDOT Michigan Department of Transportation

13 MILE RD

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	
01/04/01	1:NONE	N/A	49595	OTSC TRAFFIC		75

FILE NAME: 1 11 14 36

CONTROL SECTION 63174 | JOB NO. 53697 | SH. NO. 76

DATE: DATE: DATE: 12-8-00

EXISTING BY: PROPOSED BY: LAST CORRECTION BY: BLOCK K

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.

TEST HOLE NO. Core #52

STATION 27+970 MEDIAN DITCH
N. B. I-75 MEDIAN
T1N R11E SEC 14 OAKLAND CO.
DATE DRILLED 10-13-00

.0	SANDY TOPSOIL
-.091	MODERATELY COMPACT FINE TO MEDIUM SAND AND CLAY MIX, TRACE FINE GRAVEL
-.762	FIRM BROWN AND GRAY MOTTLED SILTY SANDY CLAY,TRACE ORGANICS
-.884	FIRM TO HIGH FIRM GRAY, TRACE BROWN, SILTY SANDY CLAY
-1.189	HIGH FIRM TO STIFF GRAY SILTY SANDY CLAY, TRACE FINE GRAVEL
-1.524	E.O.B.

TEST HOLE NO. Core #53

STATION 30+310 MEDIAN DITCH
N. B. I-75 MEDIAN
T1N R11E SEC 11 OAKLAND CO.
DATE DRILLED 10-13-00

.0	MOIST SANDY WASH
-.244	HIGH FIRM BROWN, TRACE GRAY, MOTTLED SILTY CLAY, TRACE SAND
-.792	HIGH FIRM GRAY AND BROWN MOTTLED SILTY CLAY, TRACE SAND
-1.006	FIRM GRAY TO BLACK ORGANIC CLAY, WITH ROOT HAIRS
-1.219	LOW FIRM TO FIRM BLUISH-GRAY, TRACE BROWN, SILTY CLAY
-1.524	E.O.B.

TEST HOLE NO. Core #54

STATION 28+820 2.30m Lt. OF Lt. E.O.M.
N. B. I-75 MEDIAN SHOULDER
T1N R11E SEC 14 OAKLAND CO.
DATE DRILLED 10-16-00

.0	BITUMINOUS, NATURAL AGGREGATE
-.034	CONCRETE, SLAG AGGREGATE, NO STEEL MESH (102mm CORE)
-.213	AGGREGATE BASE
-.396	MODERATELY COMPACT MOIST DARK BROWN MOTTLED FINE TO MEDIUM SAND, TRACE FINE GRAVEL, TRACE CLAY (SATURATED AT .73m)
-.823	FIRM GRAY SILTY CLAY, TRACE FINE GRAVEL
-1.036	HIGH FIRM TO STIFF GRAY SILTY CLAY, TRACE FINE GRAVEL
-1.524	E.O.C.

TEST HOLE NO. Core #55

STATION 30+250 1.30m Lt. OF Lt. E.O.M.
N. B. I-75 MEDIAN SHOULDER
T1N R11E SEC 2 OAKLAND CO.
DATE DRILLED 10-16-00

.0	BITUMINOUS, NATURAL AGGREGATE
-.098	MODERATELY COMPACT MOIST DARK BROWN MOTTLED FINE TO MEDIUM SAND, WITH FINE GRAVEL
-.244	MODERATELY COMPACT MOIST BROWN FINE TO MEDIUM SAND, TRACE COARSE SAND, TRACE FINE GRAVEL (SATURATED AT CLAY CONTACT POINT)
-.732	FIRM BROWN MOTTLED SILTY CLAY, TRACE MEDIUM SAND
-1.219	REFUSAL (ROCK)

TEST HOLE NO. Core #56

STATION 30+380 1.40m Rt. OF Rt. E.O.M.
S. B. I-75 MEDIAN SHOULDER
T1N R11E SEC 2 OAKLAND CO.
DATE DRILLED 10-16-00

.0	BITUMINOUS, NATURAL AGGREGATE
-.085	MODERATELY COMPACT MOIST DARK BROWN MOTTLED FINE TO MEDIUM SAND, WITH FINE GRAVEL
-.213	MODERATELY COMPACT MOIST BROWN FINE TO MEDIUM SAND, TRACE FINE GRAVEL, (SATURATED AT CLAY CONTACT POINT)
-.640	FIRM GRAYISH-BROWN SILTY CLAY, TRACE MEDIUM SAND
-.914	HIGH FIRM TO STIFF BROWN MOTTLED SILTY CLAY, TRACE MEDIUM SAND, TRACE FINE GRAVEL
-1.097	STIFF GRAYISH-BROWN MOTTLED SILTY CLAY, TRACE MEDIUM SAND, TRACE FINE GRAVEL
-1.524	E.O.C.

(0) (0) (0) 1st 0.152m 2nd 0.152m 3rd 0.152m

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 0.051m O.D. X 0.038m I.D. SPLIT SPOON SAMPLER 3 SUCCESSIVE 0.152m INCREMENTS USING A 63.503kg HAMMER FALLING 0.762m.
CONSISTENCY DETERMINED BY INSPECTION OF SAMPLES AND BY SOIL RESISTANCE TO PENETRATION BY JET ROD AND CASING OR AUGER.

WATER LEVELS MAY BE INFLUENCED BY RESIDUAL BORING WATER

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT THE SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

MDOT Michigan Department of Transportation

SOIL BORING DATA

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
10/23/00	NONE	63174	53697	RICK		76

FILE NAME: 75xover1r.dgn
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CONTROL SECTION 63174 | JOB NO. 53697 | SH. NO. 77

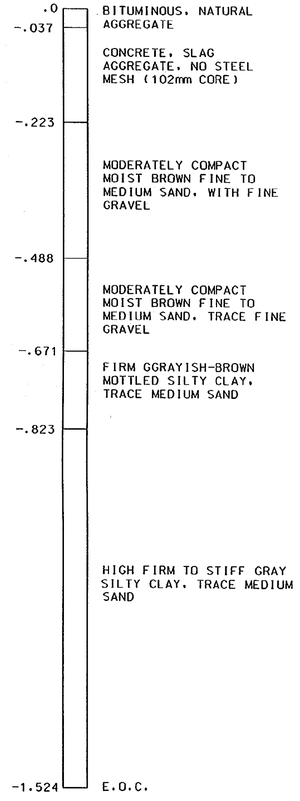
EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: BLOCK K

DATE:
DATE:
DATE: 12-8-00

			FINAL R.O.W.
AUTH	DATE	NO.	REVISION

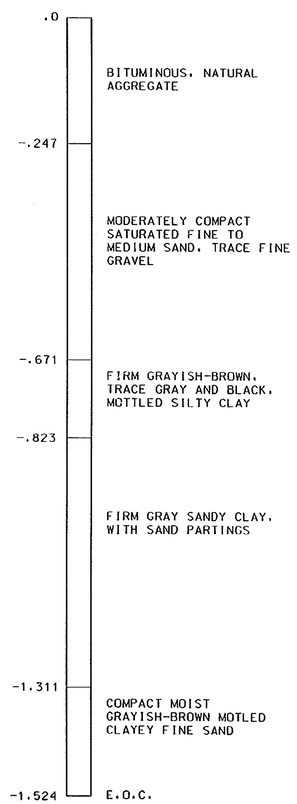
TEST HOLE NO. Core #57

STATION 27+920 2.20m Rt. OF Rt. E.O.M.
S. B. I-75 MEDIAN SHOULDER
T1N R11E SEC 14 OAKLAND CO.
DATE DRILLED 10-16-00



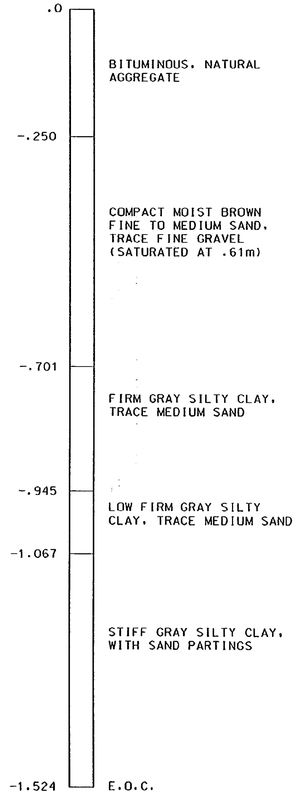
TEST HOLE NO. Core #58

STATION 28+800 1.90m Rt. OF Rt. E.O.M.
N. B. I-75 SLOWLANE SHOULDER
T1N R11E SEC 11 OAKLAND CO.
DATE DRILLED 10-16-00



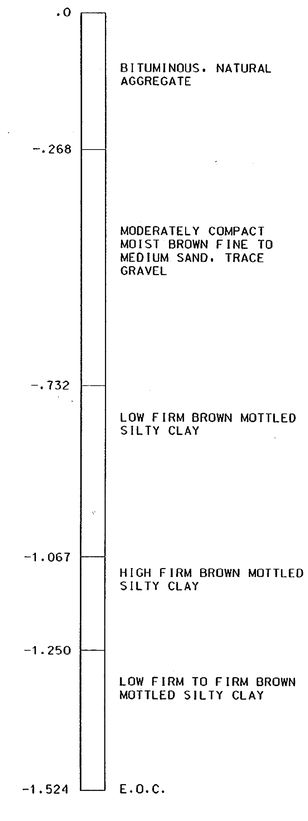
TEST HOLE NO. Core #59

STATION 29+340 1.60m Rt. OF Rt. E.O.M.
N. B. I-75 SLOWLANE SHOULDER
T1N R11E SEC 11 OAKLAND CO.
DATE DRILLED 10-16-00



TEST HOLE NO. Core #60

STATION 30+045 1.60m Rt. OF Rt. E.O.M.
N. B. I-75 SLOWLANE SHOULDER
T1N R11E SEC 11 OAKLAND CO.
DATE DRILLED 10-16-00



NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 0.051m O.D. X 0.038m I.D. SPLIT SPOON SAMPLER 3 SUCCESSIVE 0.152m INCREMENTS USING A 63.503kg HAMMER FALLING 0.762m.
CONSISTENCY DETERMINED BY INSPECTION OF SAMPLES AND BY SOIL RESISTANCE TO PENETRATION BY JET ROD AND CASING OR AUGER.

(0 / 0 / 0) 1st 0.152m, 2nd 0.152m, 3rd 0.152m

WATER LEVELS MAY BE INFLUENCED BY RESIDUAL BORING WATER

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT THE SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

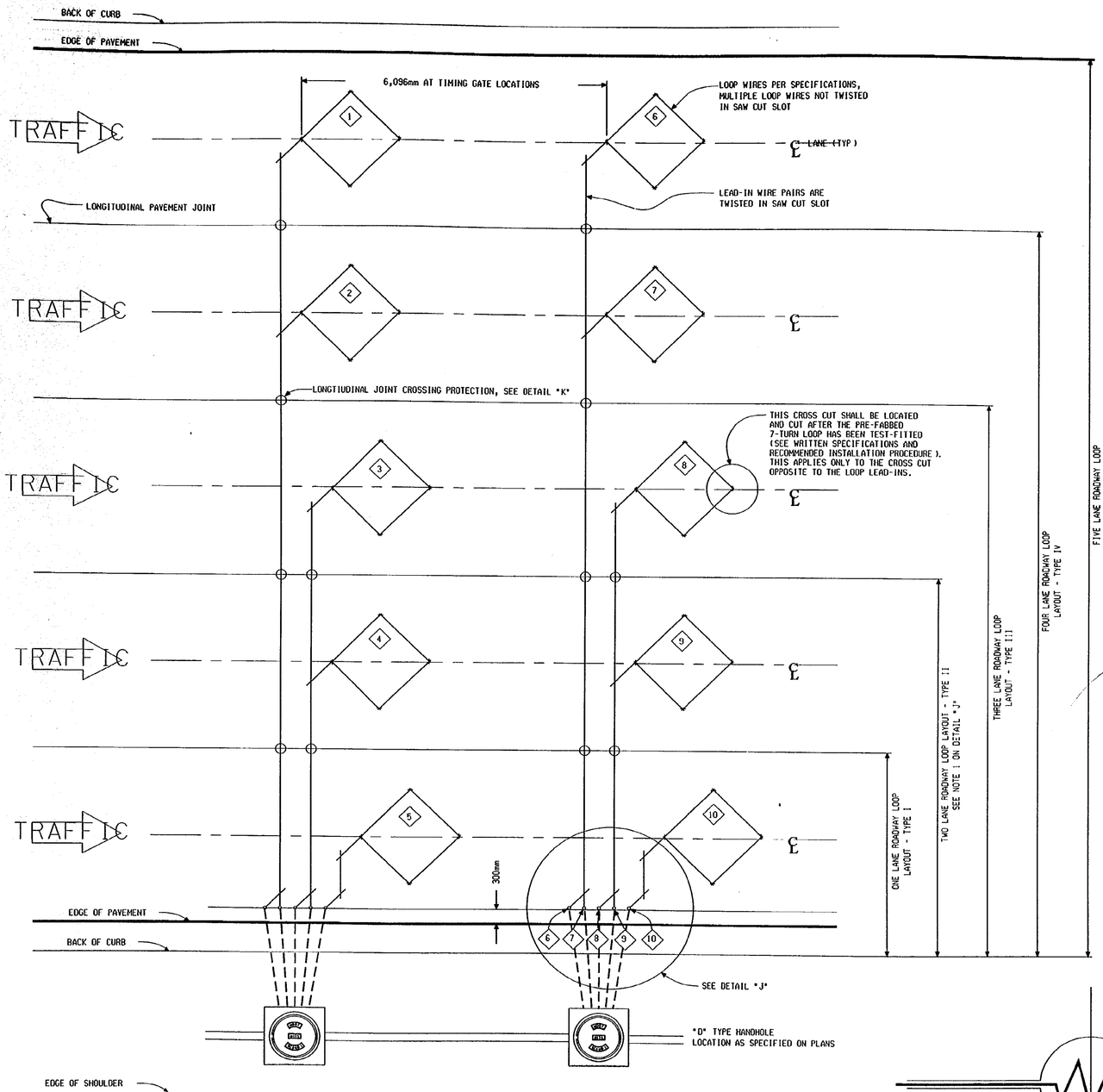
MDOT Michigan Department of Transportation

SOIL BORING DATA

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.	
10/23/00	NONE	63174	53697	RICK	R.O.W	77

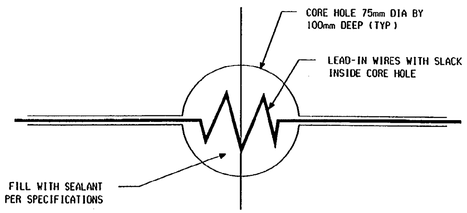
FILE NAME: 75over2r.dgn
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION 63174 | JOB NO. 49595A, 53697A, 48647A | SH. NO. 78

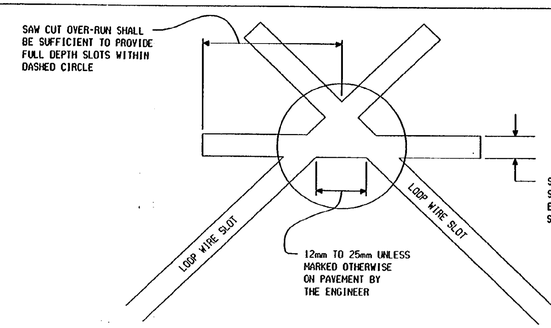


ONE, TWO, THREE, FOUR & FIVE LANE ROADWAY LOOPS
SAW-CUTTING DETAIL

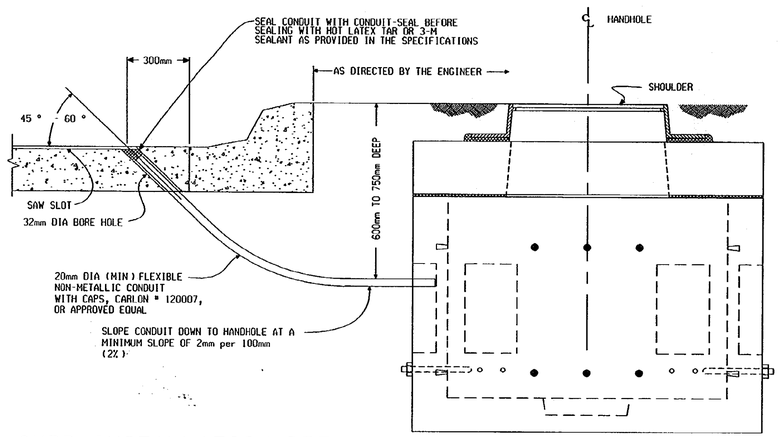
NOTE:
LOOPS WILL BE LAID OUT IN THE FIELD BY MDOT PERSONNEL. NOTIFY PROJECT ENGINEER THREE WORK DAYS IN ADVANCE OF ANY SAW CUTTING.



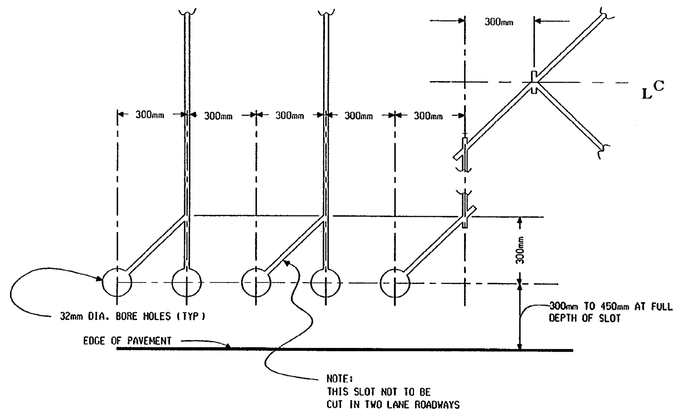
DETAIL "K"
LONGITUDINAL JOINT CROSSING PROTECTION



DIAGONAL CORNER CUT DETAIL
OTHER SLOT JOINTS SIMILAR



UNDER CURB INSTALLATION DETAIL



DETAIL "J"
TERMINATION OF LEAD-IN SLOTS

FINAL R.O.W.			
AUTH	DATE	NO	REVISION

MITSC -

Michigan Department of Transportation

LOOP INSTALLATION DETAILS

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
17 Aug 2000	NONE	63174	49595A, 53697A, 48647A	MULLIN	CONST. 78

FILE NAME: LoopMain-metric.dwg

CONTROL SECTION 82025 JOB NO. 49595A, 53697A, 48647A SH. NO. 79

LEGEND

- CABINET TYPE 4
- RAMP METER TRAFFIC SIGNAL FOUNDATION
- HANDHOLE TYPE D
- HANDHOLE TYPE III
- VEHICLE DETECTOR, LOOP OR MICRO-LOOP
- EXISTING SCANDI / MITS HANDHOLE TYPE D OR TYPE III
- REPLACE EXISTING DIRECT BURIAL CONDUIT (SIZE AND SCHEDULE AS NOTED ON PLANS)
- INSTALL NEW CONDUIT (SIZE AND SCHEDULE AS NOTED ON PLANS)
- EXISTING CONDUIT TO REMAIN
- RAMP VEHICLE DETECTOR, LOOP OR MICRO-LOOP AS NOTED ON PLANS
- CCTV — CCTV INSTALLATION -- COMPLETE
- CABINET IDENTIFICATION
  - NUMBER OF CABINET
  - R. F. TRANSMISSION CABLE NUMBER

GENERAL NOTES

1. CONTRACTOR TO NOTIFY MDOT/MITSC MR. THOMAS MULLIN OR MS. VEENA JASUJA, (313) 256-9800 EXT. 310 IN CASE OF DAMAGE TO CABLES OF MITS / SCANDI NETWORK.
2. CONTRACTOR TO CALL "MISS DIG" 72 HRS. PRIOR TO ANY EXCAVATION FOR THE LOCATION OF NON-MDOT UNDERGROUND UTILITIES.
3. THE REPLACEMENT OF ANY CABLE CONDUIT, OR BOTH, SHALL INCLUDE REMOVAL OF THE REPLACED CABLE, CONDUIT, OR BOTH, AT NO ADDITIONAL COST.
4. CONTRACTOR SHALL NOTIFY SYSTEM OPERATING DIVISION OF THE P.L.D. 48 HRS. IN ADVANCE OF ANY WORK INVOLVING P.L.D. FACILITIES.
5. ALL EXISTING P.L.D. FACILITIES SHALL ALWAYS BE MANTAINED IN AN OPERATIONAL CONDITION.
6. ALL UNOCCUPIED CONDUITS SHALL BE STRUNG AND PLUGGED. ALL ABANDONED CONDUIT SHALL BE PLUGGED AS DIRECTED BY ENGINEER.
7. EXISTING UTILITIES ARE NOT NECESSARILY SHOWN ON PLANS. LOCATIONS OF UTILITIES SHOWN ARE NOT GUARANTEED TO BE ACCURATE.
8. NEW CONDUITS BROKEN INTO EXSTING MANHOLES OR HANDHOLES SHALL NOT INTERFERE WITH RACKING AND/OR SHAPE OF RF CABLES. DO NOT DISTURB OR DAMAGE EXISTING CABLES.
9. ALL CABLES SHALL BE TAGGED IN MANHOLES AND HANDHOLES.
10. SEAL END OF CABLES WATERTIGHT WHERE COILING-UP OF CABLES IS CALLED FOR ON PLANS. (CONTRACTOR SHALL RECEIVE PAYMENT FOR COILED-UP CABLES)
11. A MINIMUM CLEARANCE OF 1067mm HORIZONTAL AND 305mm VERTICAL MUST BE MAINTAINED BETWEEN PROPOSED AND EXISTING WATER AND SEWER FACILITIES.
12. CONDUIT EXPANSION JOINTS SHALL BE INSTALLED ON ALL NEW CONDUITS THAT ARE CROSSING EXISTING EXPANSION JOINTS IN STRUCTURE.
13. CONNECTING EXISTING CONDUITS TO PROPOSED CONDUITS TO BE INCLUDED IN INSTALLATION OF THE FREEWAY MITSC (SCANDI) PROJECT.
14. SPLICING OF NEW CABLE TO EXISTING CABLES SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS FOR THOSE CABLES.
15. WHEN DRILLING AND ENTERING PROPOSED CONDUITS INTO EXISTING HANDHOLES, EXERCISE GREAT CAUTION SO AS NOT TO DISTURB EXISTING CABLES.
16. THE COST OF THE REMOVAL SHALL INCLUDE BACKFILLING OF THE HOLE AS DIRECTED BY THE ENGINEER.
17. A COUPLING SHALL BE PLACED ON THE ENDS OF ALL CONDUIT TERMINATIONS AND PLUGGED WITH A SUITABLE REMOVABLE PLUG. A POLYPROPELENE PULL ROPE SHALL BE INSTALLED IN ALL CONDUITS PULLING CABLE AT A LATER TIME. PULL ROPE SHALL BE INCLUDED IN THE PAY ITEM FOR CONDUIT.
18. ALL DIRECT BURIAL CONDUIT SHALL HAVE A 762mm MINIMUM COVER, UNLESS OTHERWISE NOTED.
19. ALL CONDUIT CROSSING PAVEMENT SHALL BE SCH 80 FOR 1219mm BEYOND THE CURB, EDGE OF PAVEMENT, OR PAVED SHOULDER, AND SHALL HAVE 762mm MINIMUM COVER.
20. SMOOTH SURFACE CONDUIT ONLY IS ALLOWED ON THIS JOB.
21. 100mm SCH 80 PVC CONDUIT SLEEVES THROUGH BRIDGE ABUTMENTS FOR THE 75mm CONDUIT ARE INCLUDED IN THE BRIDGE ABUTMENTS.
22. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE IN ACCORDANCE WITH SECTION 8.07.15 OF MDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND THE SPECIAL PROVISIONS FOR "SIGN SUPPORTS AND LIGHT STANDARD ANCHOR BOLTS", OR "7.6 METER STRAIN POLE", OR "13 METER STRAIN POLE", AS APPLICABLE.
23. CALL MISS DIG BEFORE DIGGING TO LOCATE NON-MDOT OWNED UTILITIES.
24. THE MDOT TRAFFIC MONITORING SYSTEM IS NOT PART OF MISS DIG. CALL 248 483-5125 TO HAVE THE MDOT SYSTEM LOCATED BEFORE DIGGING. IF NO ANSWER, CALL 313 256-9800 EXT 310.

WIRING DIAGRAMS

Allocation of Coaxial Cables

1. ① NORTH BOUND CHRYSLER
   ② SOUTH BOUND CHRYSLER
   ③ WEST BOUND FISHER
   ④ EAST BOUND FISHER
2. ⑤ WEST BOUND FORD — ALL 19mm COAXIAL CABLE
   ⑥ EAST BOUND FORD
   ⑦ NORTH BOUND LODGE
   ⑧ SOUTH BOUND LODGE
   Ⓨ FLEXIBLE COAXIAL CABINET LEAD-IN CABLE
   Ⓩ 13mm COAXIAL CABLE

Allocation of Other Cables

- Ⓛ LOOP WIRES OR MAGNETOMETERS
- Ⓜ 25 PR. MULTICONDUCTOR SIGNAL & AUDIO CABLE, AWG 19.
- Ⓝ SHIELDED PAIR COMMUNICATIONS CABLE
- Ⓟ SECONDARY POWER CABLE
- Ⓡ RAMP METERING
- EXISTING CABLES IN EXISTING CONDUIT
- Ⓖ GROUND WIRE

FINAL R.O.W.			
AUTH	DATE	NO.	REVISION

FILE NAME: C:*Acad*Fisher*Fisher II*Standard Dwgs*MISCDETO-metric.dwg

NOTE:

TRAFFIC SIGNAL PRODUCTS, FASTENERS, CONDUIT AND ELECTRICAL WIRING ARE DIMENSIONED IN METRIC UNITS WHERE POSSIBLE. SPECIFIC FASTENERS, ANCHOR BOLTS AND WIRE SIZES ARE STILL GIVEN IN ENGLISH UNITS.

SI — All Dimensions are in Millimeters Unless Noted Otherwise

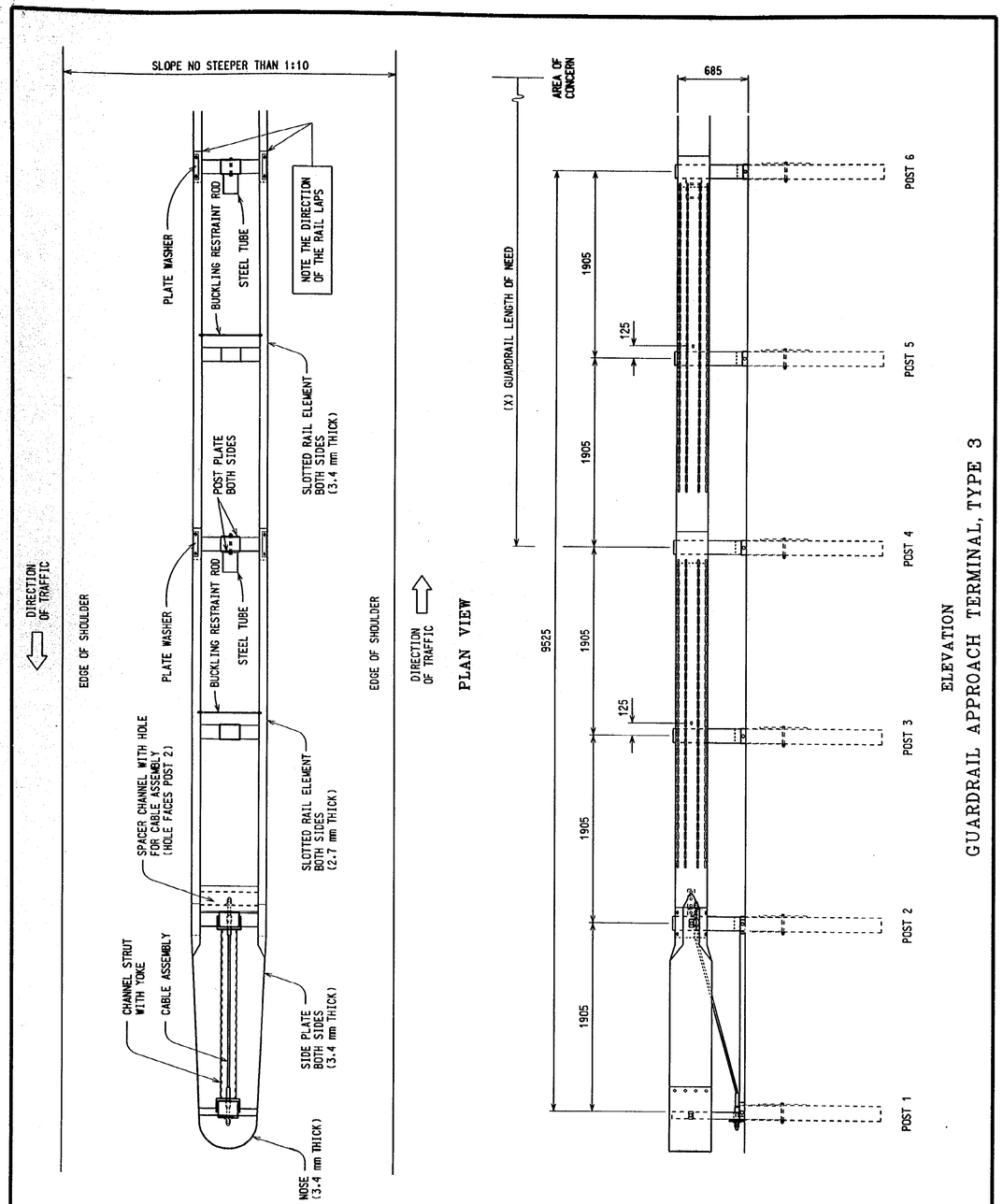
MDOT Michigan Department of Transportation

SCANDI SHEET — MITSC –

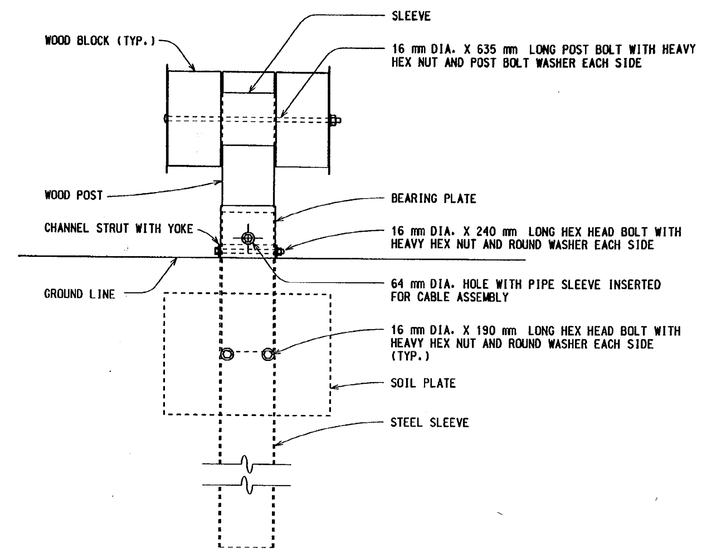
General Notes and Legend

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO.
17 Aug 2000	None	82025	49595A, 53697A, 48647A	MULLIN		79

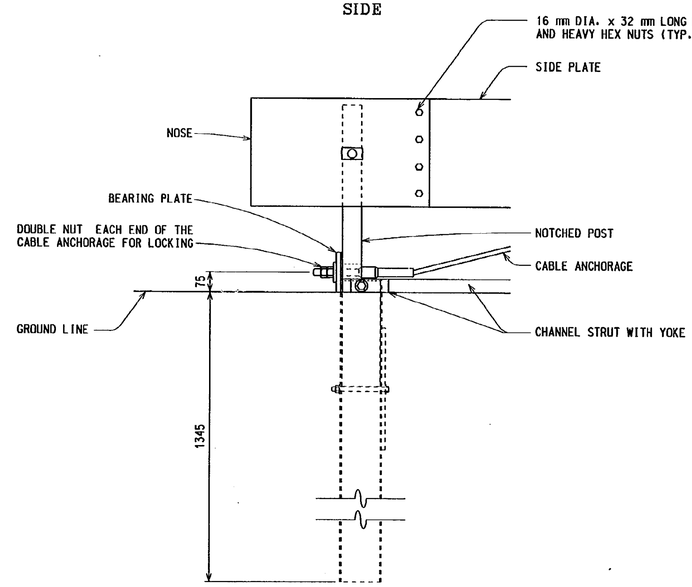
CONTROL SECTION	JOB NO.	SHEET NO.
63174	48647	80



MDOT Michigan Department of Transportation	ENGINEER OF CONSTRUCTION & TECHNOLOGY	ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR GUARDRAIL APPROACH TERMINAL, TYPE 3
PREPARED BY DESIGN DIVISION	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN DEPARTMENT DIRECTOR James R. DeSana	
DRAWN BY: B.L.T. CHECKED BY: W.K.P.	ENGINEER OF TRAFFIC AND SAFETY	BY: CHIEF ENGINEER/DEPUTY DIRECTOR BUREAU OF HIGHWAY TECHNICAL SERVICES	F.H.W.A. APPROVAL · 7-13-98 PLAN DATE · R-63-A · SHEET 1 OF 6



SIDE



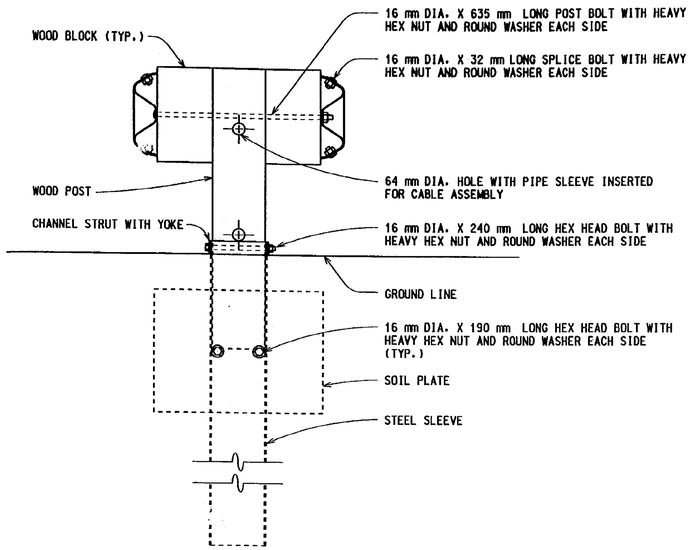
ELEVATION

POST 1 DETAILS

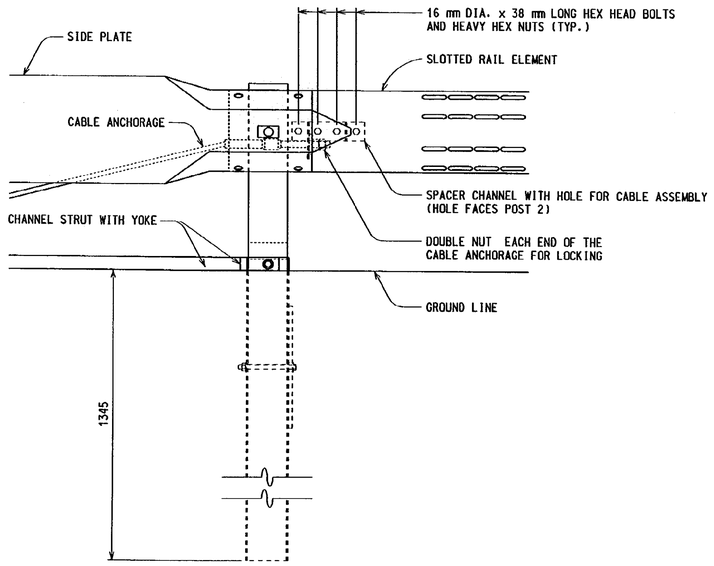
			MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR GUARDRAIL APPROACH TERMINAL, TYPE 3
			F.H.W.A. APPROVAL · 7-13-98 PLAN DATE · R-63-A · SHEET 2 OF 6

CONTROL SECTION	JOB NO.	SHEET NO.
63174	48647	80

CONTROL SECTION 63174 | JOB NO. 48647 | SHEET NO. 81



SIDE



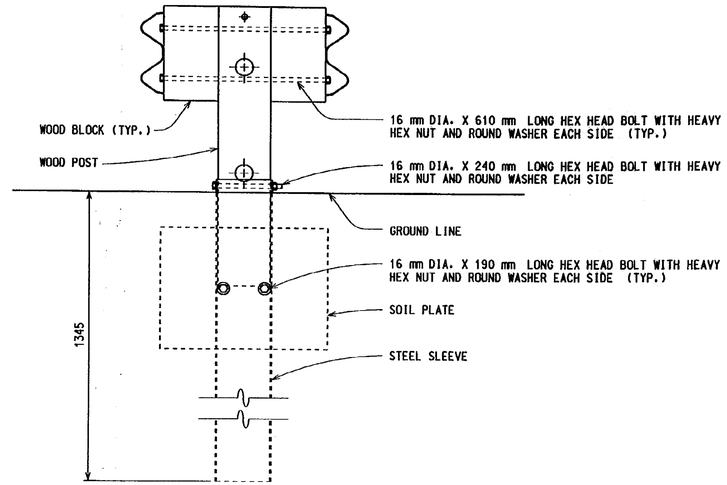
ELEVATION

POST 2 DETAILS

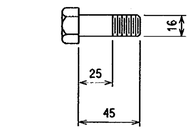
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL APPROACH TERMINAL, TYPE 3

F.H.W.A. APPROVAL	7-13-98 PLAN DATE	R-63-A	SHEET 3 OF 6

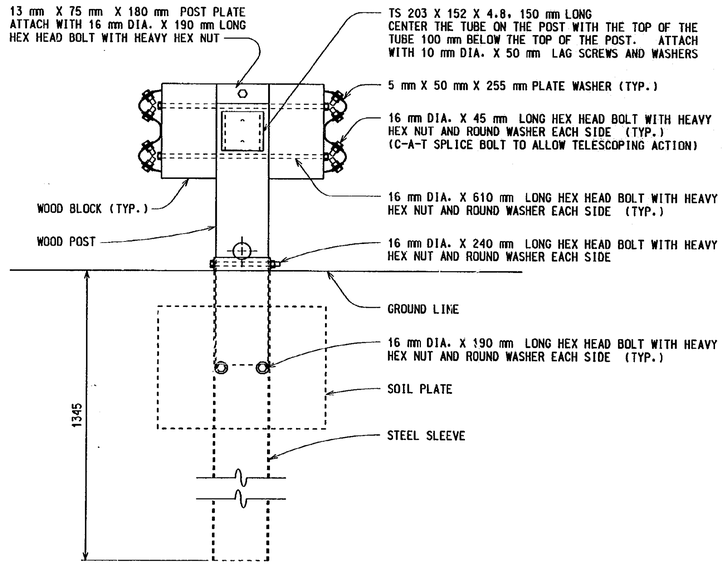


POST 3 AND 5 DETAIL



C-A-T SPLICE BOLT

C-A-T SPLICE BOLTS REQUIRED TO ALLOW TELESCOPING ACTION



POST 4 DETAIL

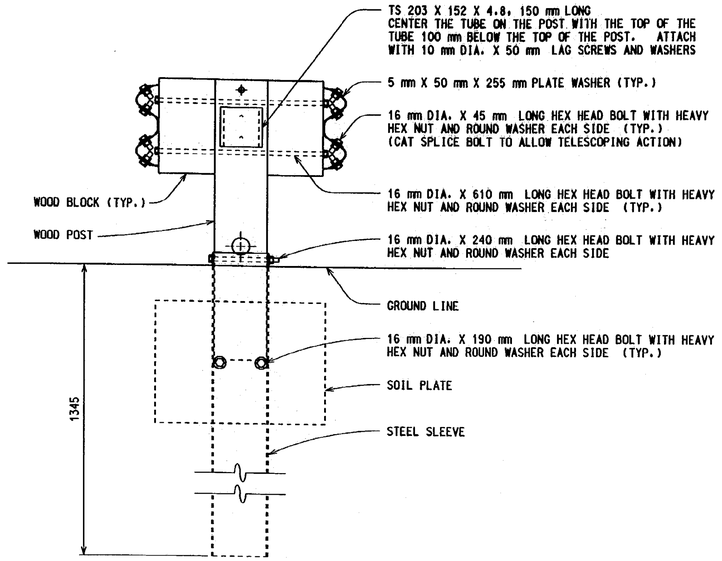
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL APPROACH TERMINAL, TYPE 3

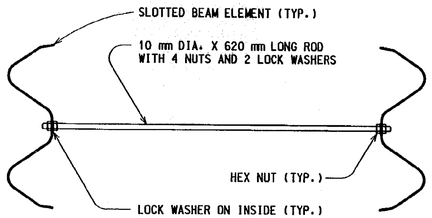
F.H.W.A. APPROVAL	7-13-98 PLAN DATE	R-63-A	SHEET 4 OF 6

CONTROL SECTION 63174 | JOB NO. 48647 | SHEET NO. 81

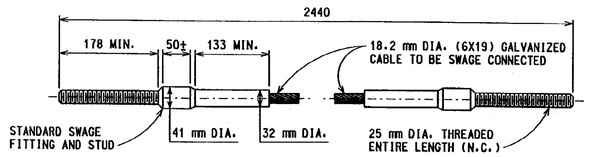
CONTROL SECTION 63174 | JOB NO. 48647 | SHEET NO. 82



POST 6 DETAIL



BUCKLING RESTRAINT ROD DETAIL



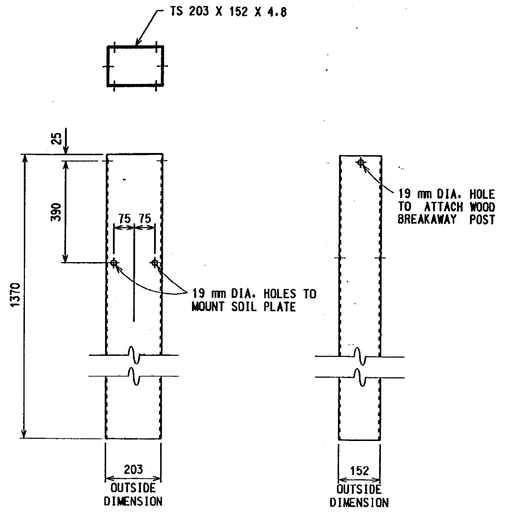
CABLE ASSEMBLY

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

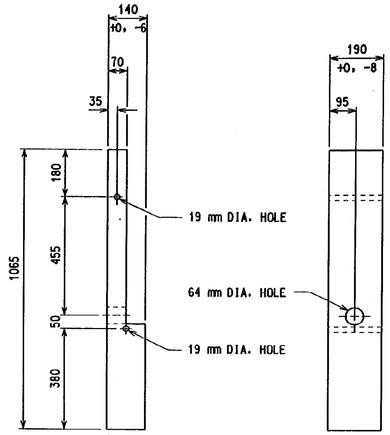
GUARDRAIL APPROACH TERMINAL, TYPE 3

F.H.W.A. APPROVAL	7-13-98 PLAN DATE	R-63-A	SHEET 5 OF 6

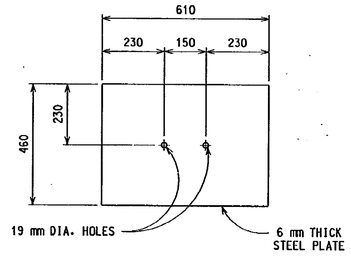
CONTROL SECTION	JOB NO.	SHEET NO.



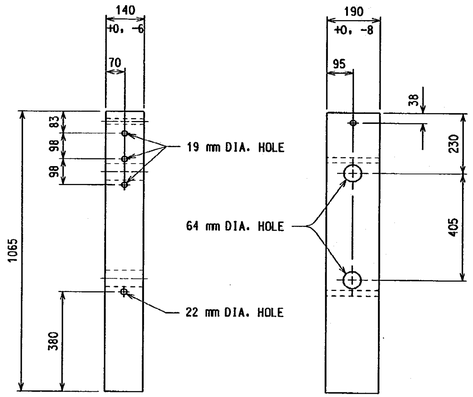
STEEL SLEEVE



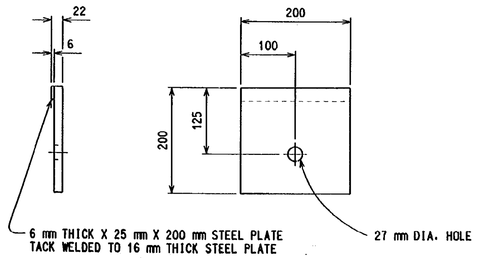
WOOD BREAKAWAY POST
(POST 1)



SOIL PLATE



WOOD BREAKAWAY POST
(POST 2 - 6)



BEARING PLATE

NOTES:

ALL POSTS, OFFSET BLOCKS, BEAM AND BACK-UP ELEMENTS, AND HARDWARE (INCLUDING BOLTS, NUTS, AND WASHERS) SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATIONS AND TO THE CURRENT STANDARD PLAN R-60-SERIES, WHERE APPLICABLE, EXCEPT AS SPECIFIED ON THIS STANDARD.

ALL 1:10 SLOPES SHALL BE GRADED TO CLASS A SLOPE TOLERANCES.

FOR DETAILS OF GUARDRAIL PLACEMENT, SEE STANDARD PLAN R-59-SERIES.

AFTER THE CABLE ASSEMBLY HAS BEEN TIGHTENED, A SECOND NUT SHALL BE INSTALLED SO THAT THE CABLE WILL NOT LOOSEN.

HARDWARE BETWEEN POST 1 AND POST 6 ARE PROPRIETARY ITEMS OF THE C-A-T AND MUST BE PURCHASED FROM AN AUTHORIZED DISTRIBUTER.

ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL APPROACH TERMINAL, TYPE 3

F.H.W.A. APPROVAL	7-13-98 PLAN DATE	R-63-A	SHEET 6 OF 6

CONTROL SECTION 63174	JOB NO. 48647	SHEET NO. 82

CONTROL SECTION 63174 | JOB NO. 53697, 49595, 48647 | SHEET NO. 83

APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

(COMPREHENSIVE DETAILS ARE LOCATED IN SECTION 7 OF THE SOIL EROSION AND SEDIMENTATION CONTROL MANUAL)

A = SLOPES
B = STREAMS AND WATERWAYS
C = SURFACE DRAINAGEWAYS
D = ENCLOSED DRAINAGE (INLET & OUTFALL CONTROL)
E = LARGE FLAT SURFACE AREAS
F = BORROW AND STOCKPILE AREAS
G = MDEQ PERMIT MAY BE REQUIRED

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
1	DELETED SELECTIVE GRADING AND SHAPING	DELETED Refer instead to VEGETATED BUFFER STRIPS (KEY 6)							
2	 GRUBBING OMITTED	Retains existing root mat which assists in stabilizing slopes. Assists in the revegetation process by providing sprout growth. Reduces sheet flow velocities preventing rilling and gullying. Discourages off-road vehicle use.	•				•		
3	 PERMANENT/TEMPORARY SEEDING	Inexpensive but effective erosion control measure to stabilize flat areas and mild slopes. Permits runoff to infiltrate soil reducing runoff volumes. Proper preparation on the seed bed, fertilizing, mulching and watering is critical to its success.	•		•		•	•	
4	DELETED SELECTIVE GRADING AND SHAPING	DELETED Refer instead to VEGETATED BUFFER STRIPS (KEY 6)							
5	 SODDING	Provides immediate vegetative cover such as at spillways and ditch bottoms. Proper preparation of the topsoil, placement of the sod, and watering is critical to its success.	•				•	•	
6	 VEGETATED BUFFER STRIPS	Reduces sheet flow velocities preventing rilling and gullying. Assists in the collection of sediments by filtering runoff. Assists in the establishment of a permanent vegetative cover.	•				•		

MDOT Michigan Department of Transportation

PREPARED BY DESIGN DIVISION
DRAWN BY: B.L.T./J.R.
CHECKED BY: W.K.P.

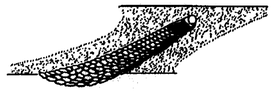
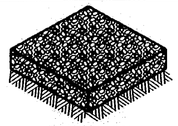
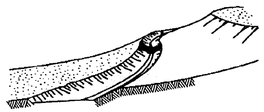
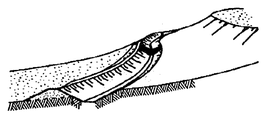
ENGINEER OF CONSTRUCTION & TECHNOLOGY
ENGINEER OF MAINTENANCE
ENGINEER OF TRAFFIC AND SAFETY

ENGINEER - ROAD DESIGN
ENGINEER OF DESIGN
DEPARTMENT DIRECTOR
James R. DeSana
BY:
CHIEF ENGINEER/DEPUTY DIRECTOR
BUREAU OF HIGHWAY TECHNICAL SERVICES

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

SOIL EROSION & SEDIMENTATION CONTROL MEASURES

F.H.W.A. APPROVAL | 4-28-2000 PLAN DATE | R-96-B | SHEET 1 OF 8

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
7	 RIPRAP	Used where vegetation cannot be established. Very effective in containing high velocity flows. Dissipates water energy at discharge points. Should be placed over a Geotextile Filter Fabric.	•	•	•	•			•
8	 AGGREGATE COVER	Can be used in any area where a stable condition is needed for construction operations, equipment storage or in heavy traffic areas. Reduces potential soil erosion and fugitive dust by stabilizing raw areas.	•				•	•	
9	 BENCHES	Reduces sheet flow velocities preventing rilling and gullying. Assists in the collection and filtering of sediments. Provides access for stabilizing slopes.	•					•	
10	 DIVERSION DIKE	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gullying. Collects and diverts runoff to properly stabilized drainage ways. Works well with DIVERSION DITCH (KEY 11)	•				•	•	
11	 DIVERSION DITCH	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gullying. Works well with DIVERSION DIKE (KEY 10)	•				•	•	
12	 DIVERSION DITCH AND DIKE	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gullying.	•				•	•	
13	 GRAVEL FILTER BERMS	Useful in filtering flow prior to its reentry into a lake, stream or wetland. Works well with SEDIMENTATION TRAP (KEY 20) and TEMPORARY BYPASS CHANNEL (KEY 35). Not to be used in lieu of a CHECK DAM (KEY 37) in a ditch.	•		•		•		
14	DELETED BRUSH FILTERS	DELETED Ineffective erosion control device. Refer instead to GRAVEL FILTER BERMS (KEY 13)							

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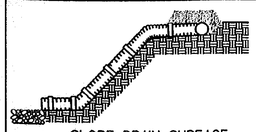
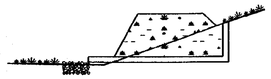
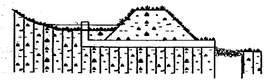
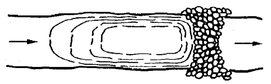
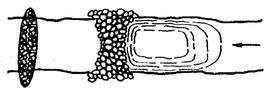
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
15	 SLOPE DRAIN SURFACE	Excellent device for carrying water down slopes without creating an erosive condition. Generally used in conjunction with DIVERSION DIKE (KEY 10), DIVERSION DITCH (KEY 11) and DIVERSION DITCH AND DIKE (KEY 12) to direct flow to a stable discharge area or SEDIMENT TRAP (KEY 20).	•		•				
16	 SLOPE DRAIN SUBSURFACE	Effective way to allow water to drop in elevation very rapidly without causing an erosive condition. May be left in place as a permanent erosion control device. Must have a stable outlet which is generally constructed of plain riprap.	•		•				
17	 PIPE DROP	Effective way to allow water to drop in elevation very rapidly without causing an erosive condition. Also works as a sediment collector device. May be left in place as a permanent erosion control device.	•		•				
18	DELETED PIPE SPILLWAY	DELETED Can create excessive water velocities. Refer instead to SLOPE DRAIN SURFACE (KEY 15) SLOPE DRAIN SUBSURFACE (KEY 16) PIPE DROP (KEY 17)							
19	 ENERGY DISSIPATORS	A device to prevent the erosive force of water from eroding soils. Used at outlets of culverts, drainage pipes or other conduits to reduce the velocity of the water. Prevents structure scouring and undermining.	•	•	•	•			
20	 SEDIMENT TRAP	Used to intercept concentrated flows and prevent sediments from being transported off site or into a watercourse or wetland. The size of a Sediment Trap is $5m^3$ or less. Works well when used with CHECK DAM (KEY 37).	•		•	•			
21	 SEDIMENT BASIN	A Sediment Basin is used to trap sediments from an upstream construction site. Requires periodic inspections, repairs, and maintenance. Where practical, sediments should be contained on site. A Sediment Basin should be the last choice of sediment control. The size of a Sediment Basin is greater than $5m^3$.		•					•
22	DELETED SOD INLET FILTER	DELETED Refer instead to DROP INLET SEDIMENT TRAP (KEY 31) INLET PROTECTION FABRIC DROP (KEY 39A) INLET PROTECTION GEOTEXTILE AND STONE (KEY 39B)							

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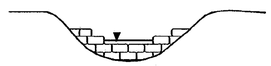
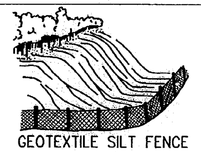
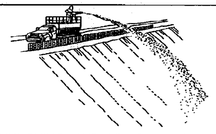
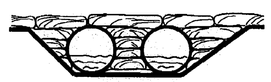
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
23	DELETED BALE FILTERS	DELETED Refer instead to GRAVEL FILTER BERMS (KEY 13) CHECK DAMS (KEY 37)							
24	 SAND AND STONE BAGS	Sand and stone bags are a useful tool in the prevention of erosion. Can be used to divert water around a construction site by creating a DIVERSION DIKE (KEY 10). Works well for creating a CONSTRUCTION DAM (KEY 36) and temporary culvert end fill.	•	•	•	•	•	•	•
25	DELETED EROSION CONTROL FENCE	DELETED Refer instead to SAND FENCE AND DUNE STABILIZATION (KEY 45)							
26	 GEOTEXTILE SILT FENCE	A permeable barrier erected below disturbed areas to capture sediments from sheet flow. Can be used to divert small volumes of water to stable outlets. Ineffective as a filter and should never be placed across streams or ditches where flow is concentrated.	•				•	•	
27	 PLASTIC SHEETS	Plastic Sheets can be used to create a liner in temporary channels. Can also be used to create a temporary cover to prevent erosion on stockpiled materials.	•	•	•			•	
28	 MULCHING AND MULCH ANCHORING	Anchored mulch provides erosion protection against rain and wind. Mulch must be used on seeded areas to promote water retention and growth. Should be inspected after every rainstorm and repaired as necessary until vegetation is well established.	•		•		•	•	
29	 TEMPORARY STREAM CROSSING WITH CULVERTS	Provides a stable access across a watercourse for construction equipment. Must be sufficient in size to pass anticipated stream flows. Must provide adequate top width to prevent sloughing at culvert ends.		•	•				•
30	DELETED CULVERT SEDIMENT TRAP	DELETED Refer instead to SAND AND STONE BAGS (KEY 24) SEDIMENT BASIN (KEY 21)							

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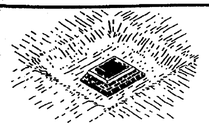
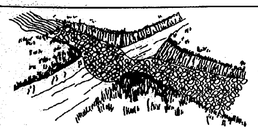
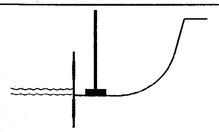
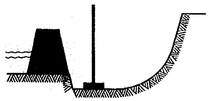
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
31	 DROP INLET SEDIMENT TRAP	A Drop Inlet Sediment Trap is a temporary device that can be used in areas where medium flows are anticipated. Effective in trapping small quantities of sediments prior to water entering the drainage system. Can be used in areas of low to medium flows.			•		•		
32	 RIPRAPPED FORD	Used to minimize erosion in areas where a stream will be crossed a minimum number of times by vehicles or equipment. Geotextile Filter Fabric must first be placed on the stream bottom before riprap is placed. For frequent crosssings of a watercourse use a TEMPORARY STREAM CROSSING WITH CULVERTS (KEY 29) or TEMPORARY STREAM CROSSING WITH BRIDGE (KEY 40).		•					•
33	 STREAM BED PROTECTION	Placing Stream Bed Protection is an effective method of stabilizing high quality streams and rivers, which have been disturbed through construction activities, or is in a raw or eroding condition as a result of construction activities.		•					•
34	 STEEL SHEET PILING COFFERDAM	Used to create a dry construction site and protect the stream from raw erodible areas. Must be pumped dry or dewatered according to DEWATERING (KEY 55).		•					•
35	 TEMPORARY BYPASS CHANNEL	Utilized when a dry construction area is needed. Isolates and protects stream flows from raw erodible areas minimizing erosion and subsequent siltation. Can incorporate a large SEDIMENT BASIN (KEY 21) and multiple GRAVEL FILTER BERMS (KEY 13) to remove sediments from water.		•					•
36	 CONSTRUCTION DAM	Used to create a dry or slack water area for construction. Protects the stream from raw erodible areas. Can be created out of any non-erodible materials such as SAND AND STONE BAGS (KEY 24), a gravel dike with clay core or plastic liner, steel plates or plywood.		•					•
37	 CHECK DAM	Can be constructed across ditches or any area of concentrated flow. Protects vegetation in early stages of growth. A Check Dam is intended to reduce water velocities and capture sediment. A Check Dam is not a filtering device.	•		•			•	
38	DELETED WEIR	DELETED Refer instead to SEDIMENT TRAP (KEY 20) SEDIMENT BASIN (KEY 21) SAND AND STONE BAGS (KEY 24)							

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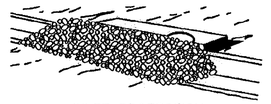
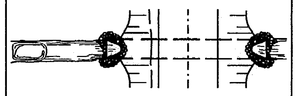
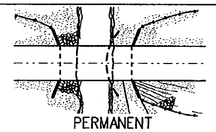
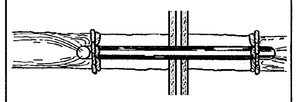
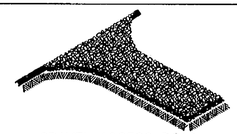
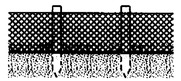
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
39A	 INLET PROTECTION FABRIC DROP	Provides settling and filtering of silt ladened water prior to its entry into the drainage system. Consists of Inlet Protection Fabric Drop or Inlet Protection Geotextile and Stone. Allows for early use of drainage systems prior to project completion.			•		•		
39B	 INLET PROTECTION GEOTEXTILE AND STONE								
40	 TEMPORARY STREAM CROSSING WITH BRIDGE	Provides a stable access across a watercourse for construction equipment. Minimizes risk of erosion during installation. Native vegetation can be protected. Stabilization of raw areas after removal is minimized.		•					•
41	 PERMANENT STREAM CROSSING WITH CULVERT	A typical detail depicting proper construction and stabilization techniques to be used in the installation of a permanent culvert. Properly installed and stabilized, a culvert provides an excellent crossing on small watercourses.		•					•
42	 PERMANENT STREAM CROSSING WITH BRIDGE	A typical detail depicting proper construction and stabilization techniques to be used in the construction of a permanent bridge. This is a preferred permanent stream crossing method since it maintains normal stream widths, has minimal impact on stream flows, maintains a natural stream bottom and minimizes erosion risks during construction.		•					•
43	 STREAM CROSSING PIPELINE	A method of crossing a watercourse with pipelines and cables which minimizes erosion and subsequent siltation. Allows for a dry work area.		•					•
44	 GRAVEL ACCESS ROAD	Provides a stable access to roadways minimizing fugitive dust and tracking of materials onto public streets and highways.					•	•	
45	 SAND FENCE AND DUNE STABILIZATION	A Sand Fence traps blowing sand by reducing wind velocities. Can be used to prevent sand from blowing onto roads. Must be maintained until sand source is stabilized.	•				•	•	

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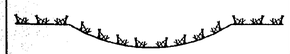
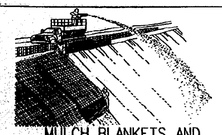
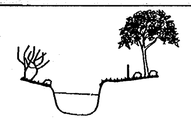
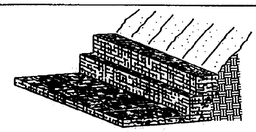
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
46	 SLOPE ROUGHENING AND SCARIFICATION	A simple and economical way to reduce soil erosion by wind and water. Can be accomplished by harrowing with a disk, back blading, or tracking with a dozer perpendicular to the slope.	•				•	•	
47	 VEGETATED CHANNELS	A Vegetated Channel is constructed in stable low areas to conform with the natural drainage system. High Velocity Mulch Blankets and seed are used. Must be designed and constructed without sharp bends or steep grades.			•				
48	 MULCH BLANKETS AND HIGH VELOCITY MULCH BLANKETS	Mulch blankets provide an immediate and effective cover over raw erodible slopes affording excellent protection against rain and wind erosion. High velocity mulch blankets work well for stabilizing the bottom of ditches in waterways.	•		•		•	•	
49	 VEGETATIVE BUFFER AT WATERCOURSE	This practice is used to maintain a vegetative buffer adjacent to a watercourse. When utilized with GEOTEXTILE SILT FENCE (KEY 26) it will prevent siltation from leaving the construction site.	•	•	•		•	•	
50	 STREAM RECONSTRUCTION	A detail depicting the proper procedures for STREAM RECONSTRUCTION. Maintains same width, depth, and flow velocity as the natural stream. Stabilize stream bed with STREAM BED PROTECTION (KEY 33). Revegetate banks with RIPRAP (KEY 7), PERMANENT/TEMPORARY SEEDING (KEY 3), MULCH BLANKETS AND HIGH VELOCITY MULCH BLANKETS (KEY 48) and woody plants to shade the stream.		•					•
51	 STREAM BANK STABILIZATION	Used to restore disturbed stream banks. Stream banks should be stabilized using plain or heavy RIPRAP (KEY 7) over Geotextile Filter Fabric. Riprap must be well toed in at the bottom of slope and extend 1 meter vertically above the ordinary highwater mark or to the top of the bank.		•					•
52	 GABION WALLS	Works well on steep banks or to protect areas from severe erosion. Allows for the use of very steep slopes in confined construction areas. Withstands high water velocity.	•	•					•
53	 TREES, SHRUBS, VINES AND GROUNDCOVER	Trees, shrubs, vines and groundcover can provide low maintenance long term erosion protection. These plants may be particularly useful where site aesthetics are important along the roadside slopes.	•				•		

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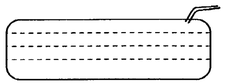
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
54	 DUST CONTROL	Dust control can be accomplished by watering, applying calcium chloride, and SLOPE ROUGHENING AND SCARIFICATION (KEY 46). The disturbed areas should be kept to a minimum. PERMANENT/TEMPORARY SEEDING (KEY 3) should be applied as soon as possible.	•				•	•	
55	 DEWATERING	It may be necessary to dewater from behind a cofferdam or construction dam to create a dry work site. Discharged water must be pumped to a SEDIMENTATION BASIN (KEY 21) with GRAVEL FILTER BERMS (KEY 13) or through a Filter Bag to allow adequate settling and filtering prior to entering any stream or wetland.		•					•

NOTES:

THIS STANDARD PLAN WILL SERVE AS A KEY IN THE SELECTION OF THE APPROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL DETAILS. THIS PLAN ALSO PROVIDES THE KEY TO THE NUMBERED EROSION CONTROL ITEMS SPECIFIED ON THE CONSTRUCTION PLANS.

REFER TO THE MDOT SOIL EROSION AND SEDIMENTATION CONTROL MANUAL, SECTION 7, FOR SPECIFIC DETAILS, CONTRACT ITEMS (PAY ITEMS) AND PAY UNITS. ACTUAL CONSTRUCTION MAY BE VARIED TO REFLECT MATERIALS USED AND SPECIFIC SITE PROBLEMS, SUBJECT TO THE APPROVAL OF THE ENGINEER.

COLLECTED SILT AND SEDIMENT SHALL BE REMOVED PERIODICALLY TO MAINTAIN THE EFFECTIVENESS OF THE SEDIMENT BASIN.

TEMPORARY EROSION AND POLLUTION CONTROL PROVISIONS SHALL BE COORDINATED WITH THE PERMANENT CONTROL FEATURES TO ASSURE EFFECTIVE CONTROL OF WATER POLLUTION DURING CONSTRUCTION OF THE PROJECT.

IN PLANNING SEDIMENT TRAPS AND SEDIMENTATION BASINS, THE WATERWAY AREA MUST BE INCREASED SO AS TO EFFECTIVELY REDUCE THE STREAM VELOCITY.

AGGREGATES PLACED IN STREAMS SHOULD CONTAIN A MINIMUM OF FINES.

ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AT THE COMPLETION OF CONSTRUCTION UNLESS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE. CARE SHALL BE TAKEN DURING REMOVAL TO MINIMIZE SILTATION IN NEARBY DRAINAGE COURSES.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

SOIL EROSION & SEDIMENTATION CONTROL MEASURES

F.H.W.A. APPROVAL	4-28-2000 PLAN DATE	R-96-B	SHEET 8 OF 8

CONTROL SECTION B02,S03,& S04 OF 63174 | JOB NO. 49595A | SHT. NO. 1

MICHIGAN
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED BRIDGE RECONSTRUCTION

MICHIGAN PROJECT **BHI 0163 (017)**

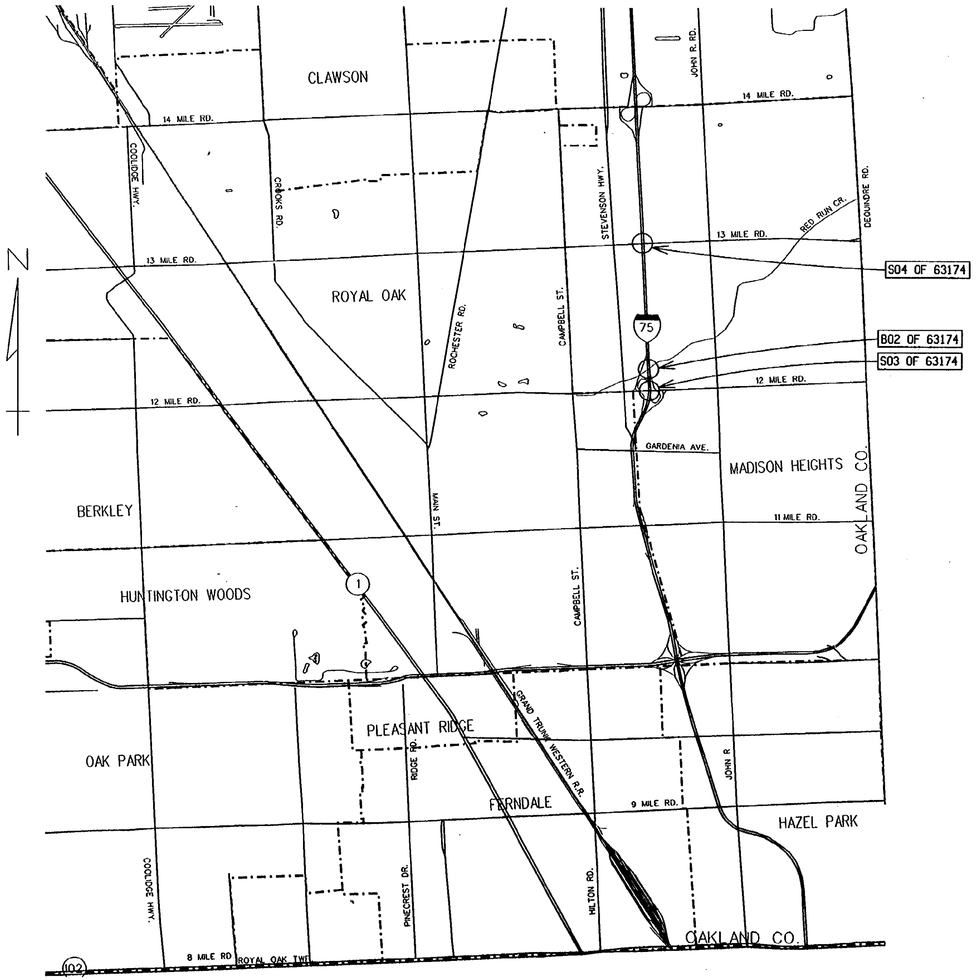
CONTROL SECTION 63174

JOB NUMBER 49595A

I-75

CITIES OF MADISON HEIGHTS AND ROYAL OAK

OAKLAND COUNTY



STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

B-17-B	BRIDGE BARRIER RAILING, TYPE 4
B-23-B	BRIDGE RAILING, THRIE BEAM RETROFIT
B-103-B	MOLDING, BEVAL, LIGHT STANDARD ANCHOR BOLT ASSEMBLY AND NAME PLATE DETAILS

TITLE SHEET LEGEND

- PROPOSED PROJECT
- EXISTING ROADS
  - PAVED
  - BITUMINOUS
  - GRAVEL
  - UNIMPROVED OR CITY STREET
- SECTION LINE
- TOWNSHIP LINE
- COUNTY LINE
- CITY OR VILLAGE LIMITS
- RAILROADS

GENERAL NOTES

THE RECONSTRUCTION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS23 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE ALLOWABLE STRESS METHOD OF DESIGN WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR MS18 AND ALTERNATE MILITARY LOADING.

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION 1996 EDITION.

THE STATIONING AS SHOWN ON THESE PLANS FOR THE INTERSECTION OF THE CENTERLINE OF BRIDGE AND ROADWAY CENTERLINE IS BELIEVED TO BE CORRECT. IT SHALL, HOWEVER, BE CHECKED AT THE TIME OF STARTING CONSTRUCTION, AND IF THE STATIONING SHOWN ON THE PLANS IS INCORRECT, IT SHALL BE REPORTED TO THE DESIGN OFFICE IN LANSING, AND THE STRUCTURE SHALL BE STAKED OUT USING THE ACTUAL INTERSECTION OF THE CENTERLINE OF BRIDGE AND ROADWAY CENTERLINE AS THE CONTROL POINT.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:

CONCRETE: GRADE S2	f'c =	21 MPa
CONCRETE: GRADE D	f'c =	28 MPa
STEEL REINFORCEMENT	fy =	400 MPa
STRUCTURAL STEEL: AASHTO M270 Grade 250	fy =	250 MPa

PROPOSED PLAN SHEET DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN. ELEVATIONS, COORDINATES AND CURVE ALIGNMENT DATA ARE IN METERS. STATIONS ARE IN KILOMETERS + METERS. EXISTING PLAN SHEET DIMENSIONS ARE IN CUSTOMARY U. S. UNITS.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH 13 mm TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

THE REGULATED WASTE ACTIVITY IDENTIFICATION NUMBERS FOR THIS PROJECT ARE AS FOLLOWS:

CONTROL SECTION	NUMBER
B02-63174	MIR000041798

1999 TRAFFIC DISTRIBUTION

8% COMMERCIAL

175,120 TOTAL TRAFFIC

DRAWN BY: CASLER DATE: 1-24-00
CHECKED BY: WRM DATE:
CORRECTED BY:CASLER/ INDER DATE: 12-7-00
FILE:b0263174.tb

CONTRACT FOR: DECK REPLACEMENT, OVERLAY, PAINTING, CONCRETE BEAM REPAIR, SUBSTRUCTURE REPAIR, THRIE BEAM RETROFIT AND APPROACH WORK

APPROVALS

RECOMMENDED FOR APPROVAL Ali Mahdavi — PROJECT MANAGER — 1-10-01 DATE

RECOMMENDED FOR APPROVAL Mark Stuck — RESIDENT ENGINEER — 1-10-01 DATE

MICHIGAN
DEPARTMENT OF TRANSPORTATION
GREGORY J. ROSINE - DIRECTOR

APPROVED BY Gary D. Taylor — DEPUTY DIRECTOR/HIGHWAYS — 1/22/2001 DATE

MDOT Michigan Department of Transportation | M-DOT METRIC

MDOT DESIGN COORDINATOR
MAHDAVI
DESIGN UNIT

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	ITEM	SHEET NO.
B02,S03 & S04 OF 63174	49595A	BHI 0163(017)	RR2739	1

CONTROL SECTION — JOB NUMBER
B02, S03, & S04 OF 63174-49595A
FILE: b0263174.tb

CONTROL SECTION B02, S03 & S04 OF 63174 JOB NO. 49595A SH. NO. 1A

REVISIONS			
NO.	DESCRIPTION	DATE	BY

PLAN INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A	PLAN INDEX SHEET
1B-1Z	EXISTING DETAILS-FOR INFORMATION ONLY B02 OF 63174 (NB & SB)
1AA-1AH	EXISTING DETAILS-FOR INFORMATION ONLY S04 OF 63174 (NB & SB)
1AI-1AZ	EXISTING DETAILS-FOR INFORMATION ONLY S03 OF 63174 (NB & SB)

B02 OF 63174 N.B.	
SHEET NO.	DESCRIPTION
2	EXISTING GENERAL PLAN OF SITE-FOR INFORMATION ONLY
3-4	GENERAL PLAN OF STRUCTURE
5	CONSTRUCTION STAGING DETAILS
6-7	EXISTING GENERAL PLAN OF STRUCTURE-REMOVAL PORTIONS
8	EXPANSION JOINT DETAILS
9-14	DECK REPLACEMENT DETAILS
15	SLAB AND SCREED DETAILS
16	STEEL REINFORCEMENT DETAILS

B02 OF 63174 S.B.	
SHEET NO.	DESCRIPTION
2	EXISTING GENERAL PLAN OF SITE-FOR INFORMATION ONLY
3-4	GENERAL PLAN OF STRUCTURE
5-6	EXISTING GENERAL PLAN OF STRUCTURE-REMOVAL PORTIONS
7	EXPANSION JOINT DETAILS
8-13	DECK REPLACEMENT DETAILS
14	SLAB AND SCREED DETAILS
15	STEEL REINFORCEMENT DETAILS

S04 OF 63174 N.B.	
SHEET NO.	DESCRIPTION
2	EXISTING GENERAL PLAN OF SITE-FOR INFORMATION ONLY
3-4	GENERAL PLAN OF STRUCTURE
5	CONSTRUCTION STAGING DETAILS
6	EXISTING GENERAL PLAN OF STRUCTURE-REMOVAL PORTIONS
7-8	BEAM REPAIR DETAILS
9	TEMPORARY SUPPORT DETAILS
10	EXPANSION JOINT DETAILS
11-14	DECK REPLACEMENT DETAILS
15	SLAB AND SCREED DETAILS
16	STEEL REINFORCEMENT DETAILS

S04 OF 63174 S.B.	
SHEET NO.	DESCRIPTION
2	EXISTING GENERAL PLAN OF SITE-FOR INFORMATION ONLY
3-4	GENERAL PLAN OF STRUCTURE
5	EXISTING GENERAL PLAN OF STRUCTURE-REMOVAL PORTIONS
6-7	BEAM REPAIR DETAILS
8	TEMPORARY SUPPORT DETAILS
9	EXPANSION JOINT DETAILS
10-13	DECK REPLACEMENT DETAILS
14	SLAB AND SCREED DETAILS
15	STEEL REINFORCEMENT DETAILS

S03 OF 63174 N.B.	
SHEET NO.	DESCRIPTION
2	EXISTING GENERAL PLAN OF SITE-FOR INFORMATION ONLY
3	EXISTING GENERAL PLAN OF STRUCTURE-FOR INFORMATION ONLY
4	PIER REPAIR DETAILS
5	TEMPORY SUPPORT DETAILS
6	EXPANSION JOINT DETAILS
7-8	DECK RESURFACING DETAILS

S03 OF 63174 S.B.	
SHEET NO.	DESCRIPTION
2	EXISTING GENERAL PLAN OF SITE-FOR INFORMATION ONLY
3	EXISTING GENERAL PLAN OF STRUCTURE-FOR INFORMATION ONLY
4-5	BEAM REPAIR DETAILS
6	TEMPORY SUPPORT DETAILS
7	EXPANSION JOINT DETAILS
8-9	DECK RESURFACING DETAILS

DATE:
CORRECTED BY:
DATE:
CHECKED BY:
DATE: 12-7-00
DRAWN BY: CASLER
FILE NAME: b0263174.dx

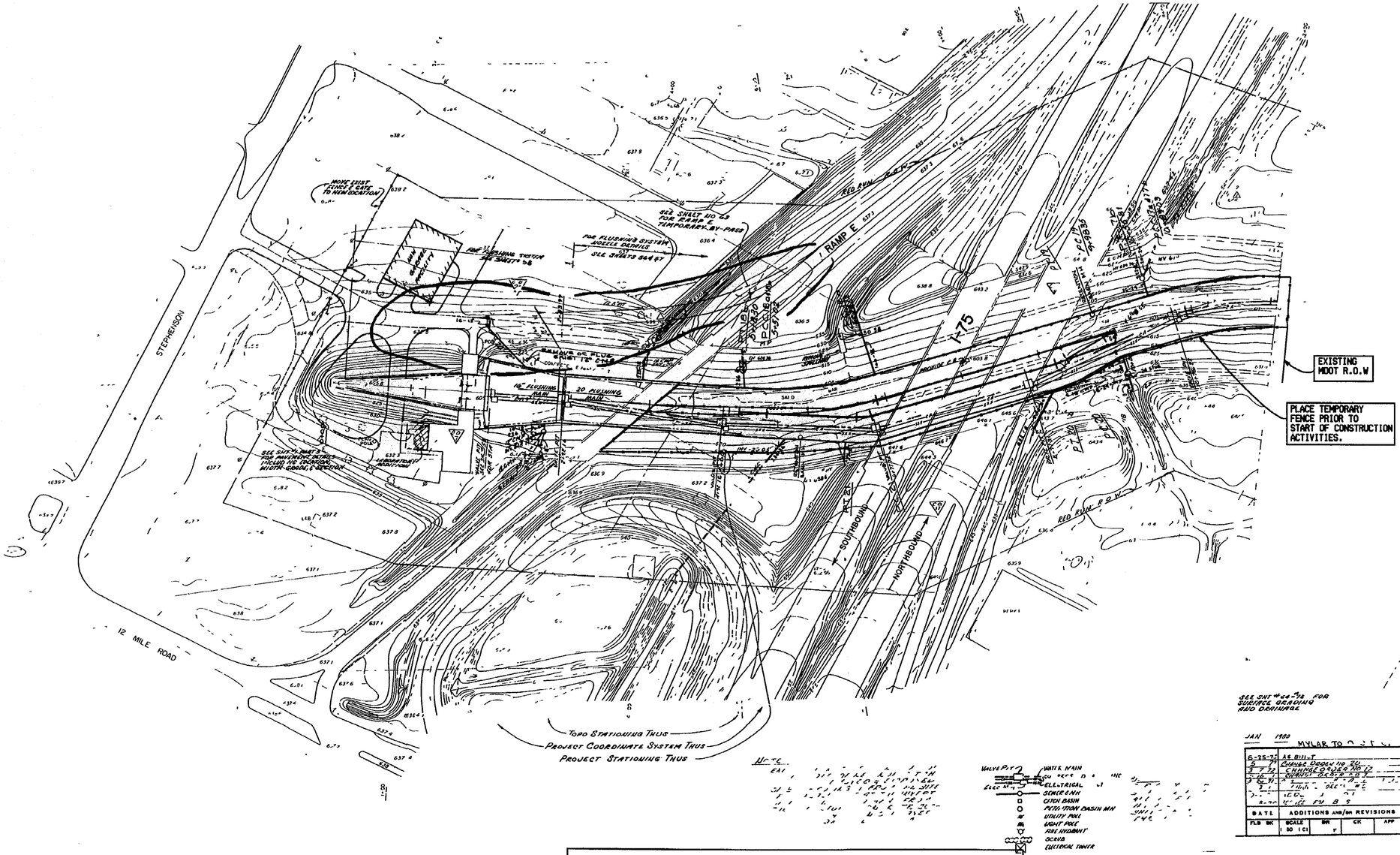
MDOT Michigan Department of Transportation

PLAN INDEX

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-09-01	B02, S03 & S04 OF 63174	49595A	MAHDAVI	1A OF

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1B

REVISIONS			
NO.	DESCRIPTION	DATE	BY



THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 49595A

DENOTES REMOVAL PORTIONS

PROPOSED WORK

PART I
RETENTION BASIN
PLAN & EXISTING TOPOGRAPHY

DATE	ADDITIONS AND/OR REVISIONS	BY	CK	APP
6-25-70	AS BUILT			
5-7-70	CHANGE CROSS-OVER NO 12			
3-16-70	CHANGE RAMP E NO 12			
2-24-70	4" TOPSOIL - SEED & MULCH			
2-20-70	10" CL A FOUNDATION			

JAN 1970 MYLAR TO

POLLUTION CONTROL FACILITIES PROJECT
SOUTHEASTERN OAKLAND COUNTY SEWAGE DISPOSAL SYSTEM
DANIEL W BARRY
OAKLAND COUNTY DRAIN COMMISSIONER

FLD BK	SCALE	BR	CK	APP
	1" = 50'			

JOB NO. 69070
DATE 6-23-70
SHEET No 1
OF

RUSSELL, ROTH & CLARK, INC
CONSULTING ENGINEERS
3751 TELEGRAPH ROAD
BLOOMFIELD HILLS MICH 48013

TEMPORARY FENCE DETAILS

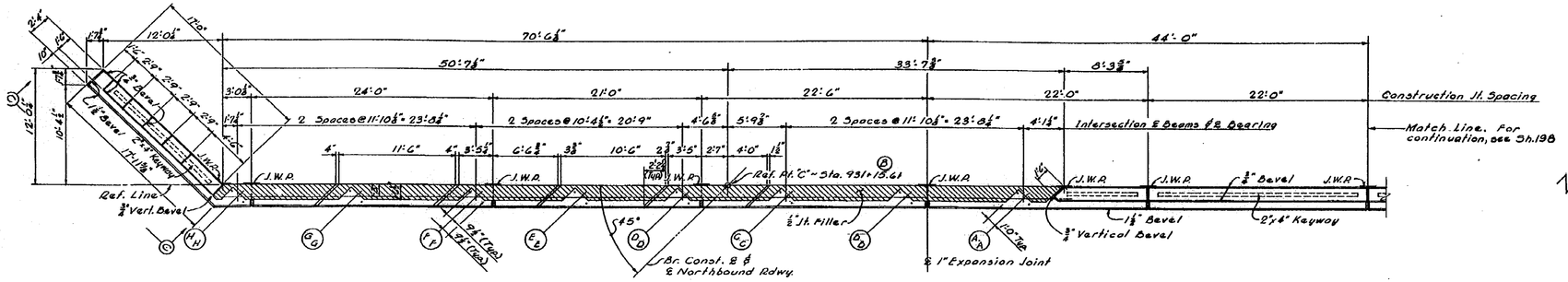
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-09-01	B02 OF 63174	49595A	MAHDAVI	1B OF

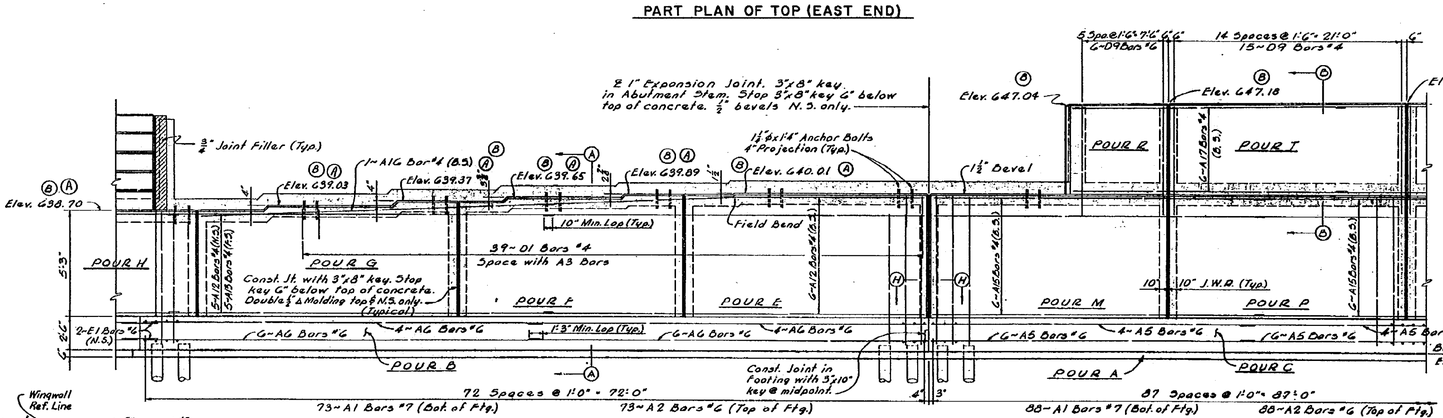
DATE: 01-08-01 CORRECTED BY: INDER
DATE: 01-09-01
DRAWN BY: INDER
DATE: 02-11-00 CHECKED BY: AM
FILE NAME: b02631748n

CONTROL SECTION B02 OF 63174 | JOB NO. 49595A | SH. NO. 1C

REVISIONS			
NO.	DESCRIPTION	DATE	BY

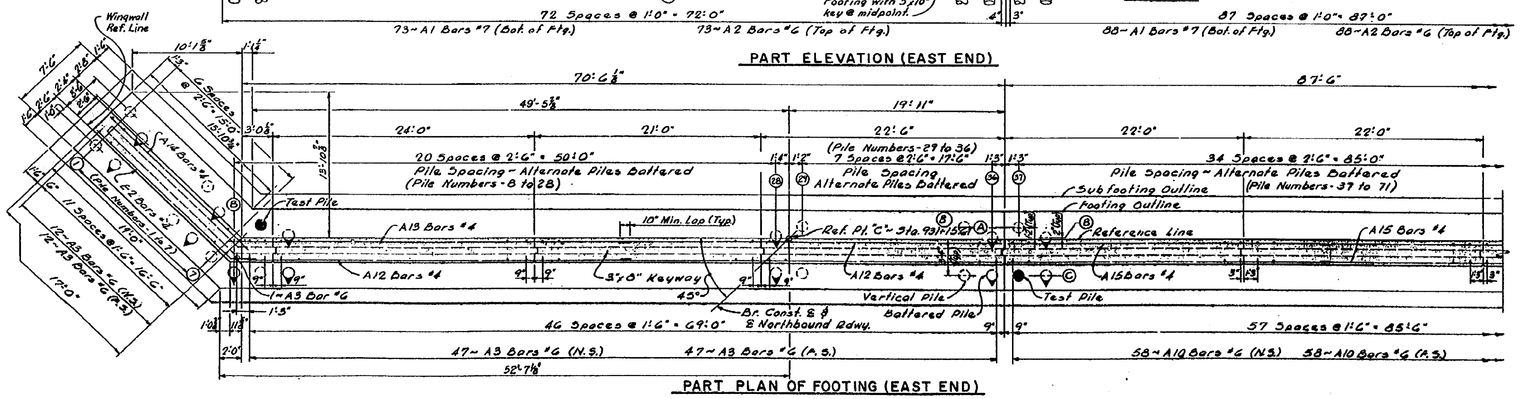


PART PLAN OF TOP (EAST END)



PART ELEVATION (EAST END)

ELEVATION C – C



PART PLAN OF FOOTING (EAST END)

Work this sheet with sheets 198, 201 & 220

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
B	Relocated abut. & rev. elevs.	11-6-63	R.E.
A	Corrected Dim. & Ftg. Elev.	9-4-63	JMC

SQUARED BY:	JMC	5-24-63
DRAWN BY:	KLN	5-27-63
TRACED BY:		
CHECKED BY:	CDB	5-29-63

SHEET 197 OF 316

B02 OF 631741

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1C OF

DATE: CORRECTED BY: INDER

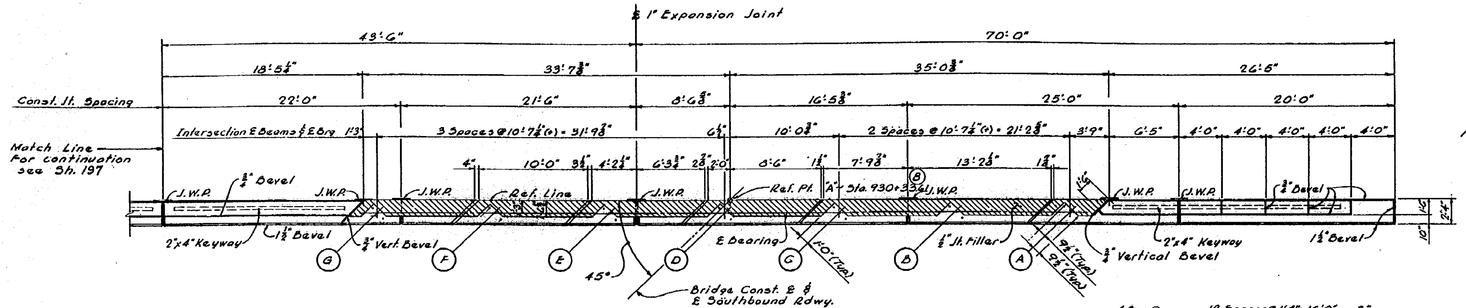
DATE: 02-11-00 CHECKED BY:

DRAWN BY: INDER

FILE NAME: b0263174sn

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1D

REVISIONS			
NO.	DESCRIPTION	DATE	BY



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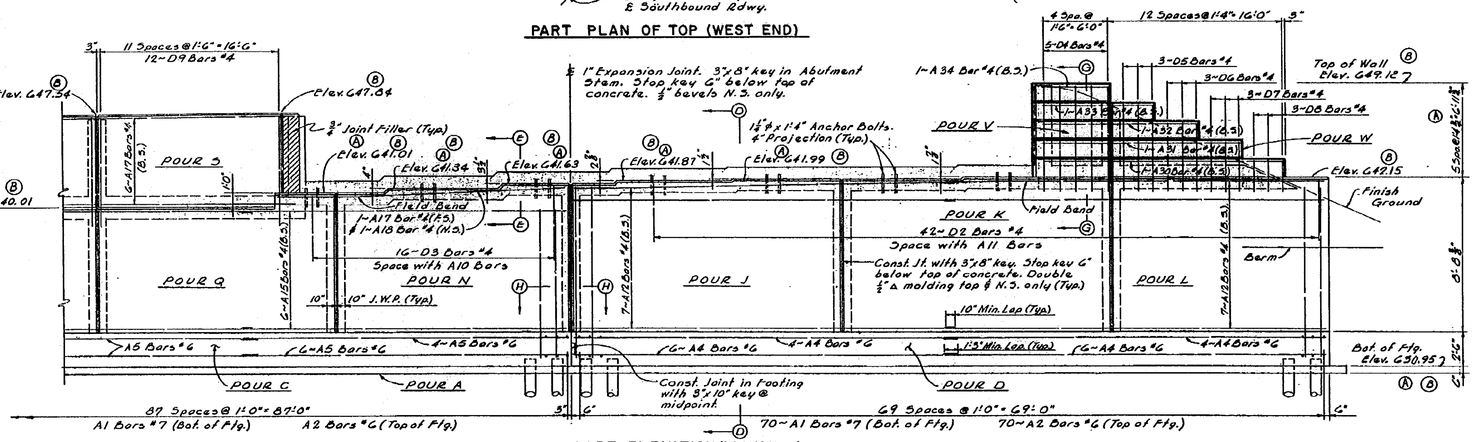

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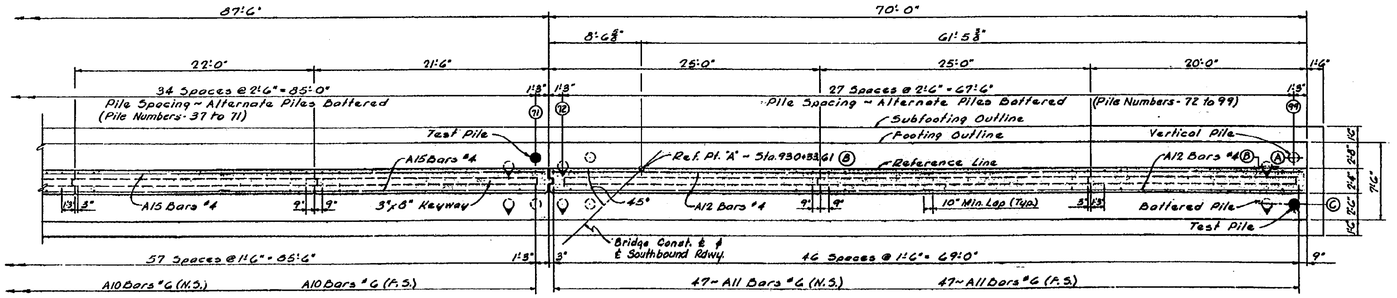

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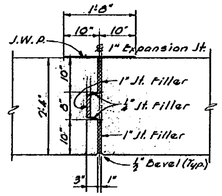
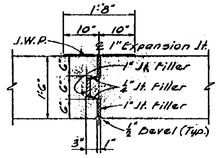


SECTION H-H



SECTION J-J

Work this sheet with sheets 19Z, 20I & 22O

MICHIGAN STATE HIGHWAY DEPA

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO	DESCRIPTION	DATE	BY
B	Reloc. abut. 1 rdwy. elevs.	11-6-88	R.S.
A	Corrected Dim. & Pile Elev.	9-6-88	AHB

B02 C

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT Michigan Department of Transportation

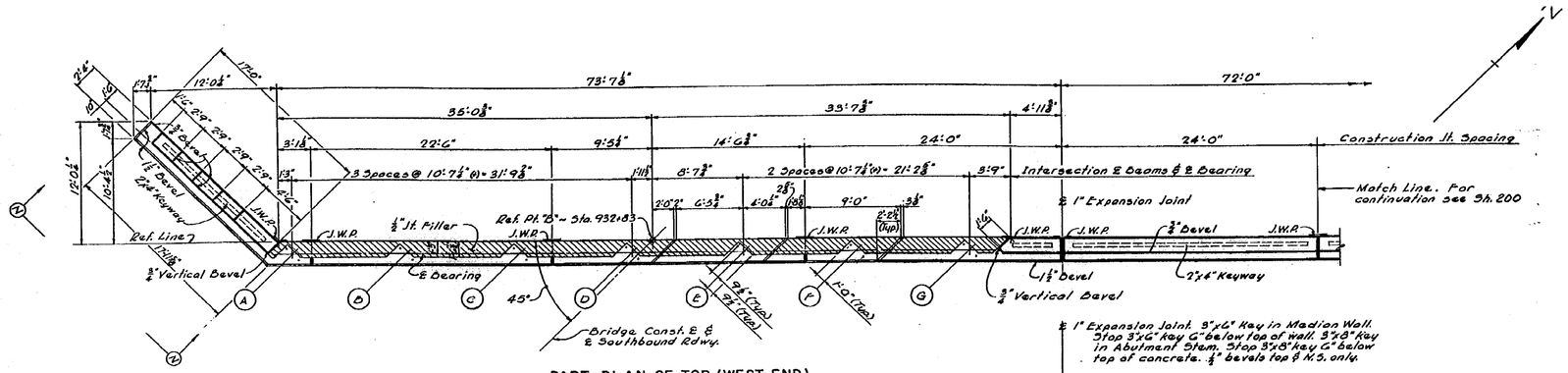
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1D OF

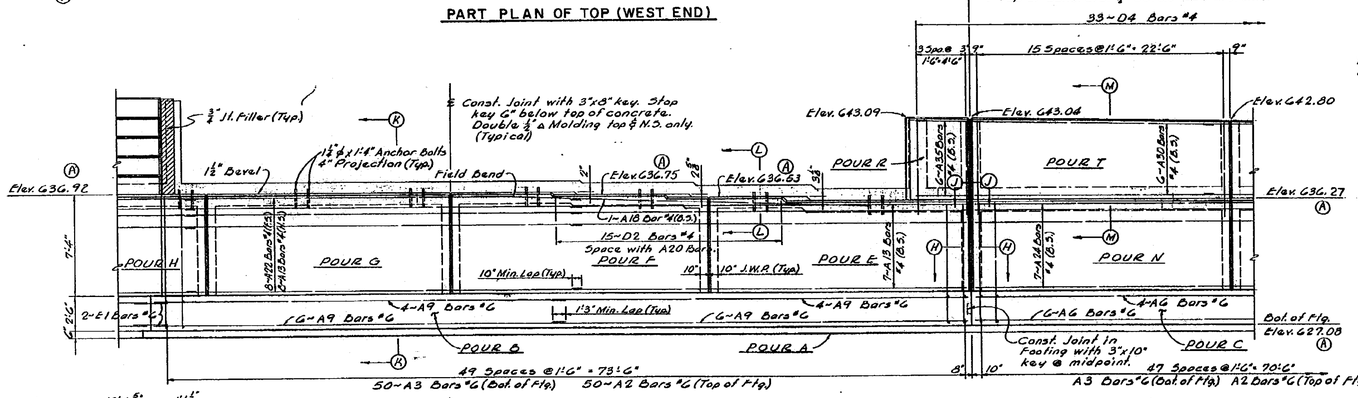
DATE: DRAWN BY: INDER DATE: 02-11-00 CORRECTED BY: CHECKED BY: FILE NAME: b0263174sn

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. No. 1E

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PART PLAN OF TOP (WEST END)



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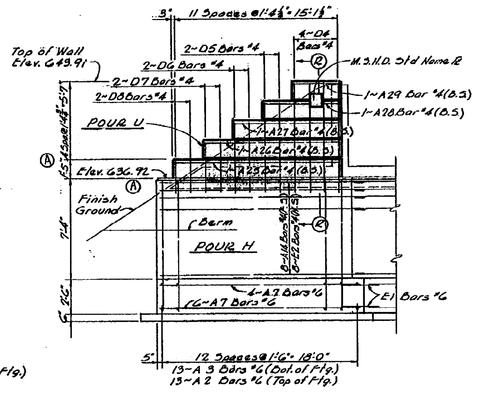
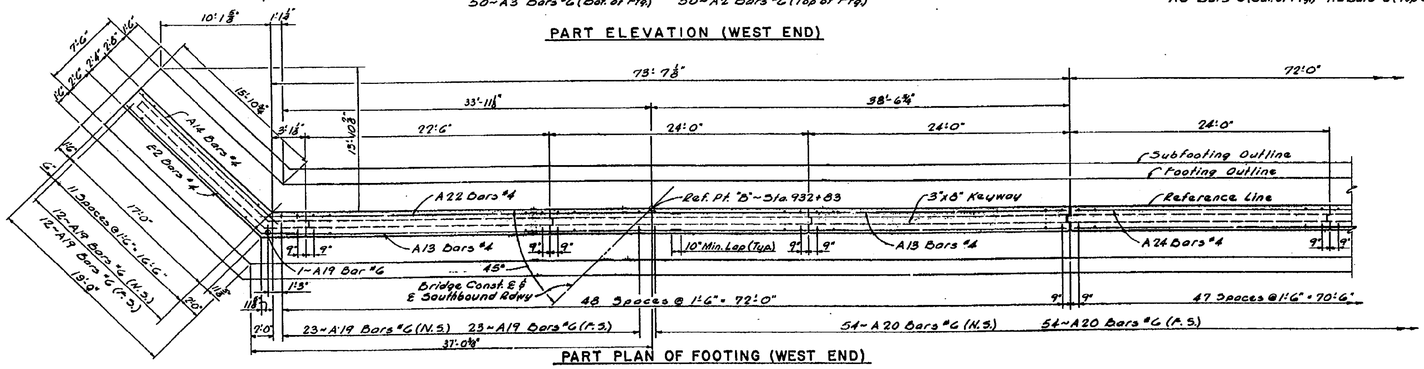


ELEVATION N-N



PART PLAN OF FOOTING (WEST END)

This design is based on a maximum foundation pressure of 3650 pounds per square foot and a maximum average foundation pressure of 2500 pounds per square foot.

For additional notes see sheet 201

Work this sheet with sheets 198, 200, 201 & 220

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT B DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
A	Corrected Dim. & Ftg. Elev.	9-4-62	A.F.B.

BRIDGE DESIGN	JDC	5-26-61
DRAWN BY	A.F.B.	5-14-62
TRACED BY		
CHECKED BY	GDB	5-14-62
SHEET	199 OF 312	

B02 OF 63174

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1E OF

DATE: CORRECTED BY: DATE: 02-11-00 CHECKED BY:

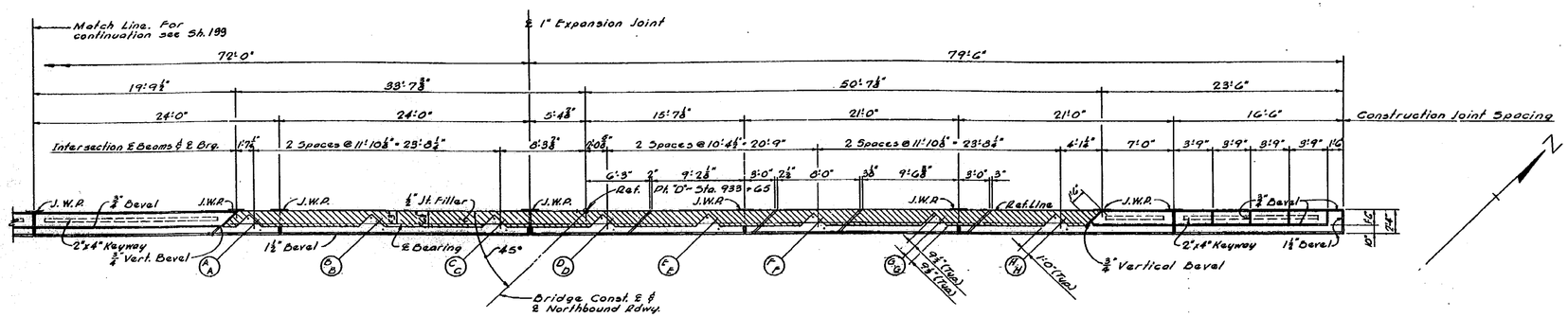
DRAWN BY: INGER

FILE NAME: b0263174sn

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1F

REVISIONS			
NO.	DESCRIPTION	DATE	BY



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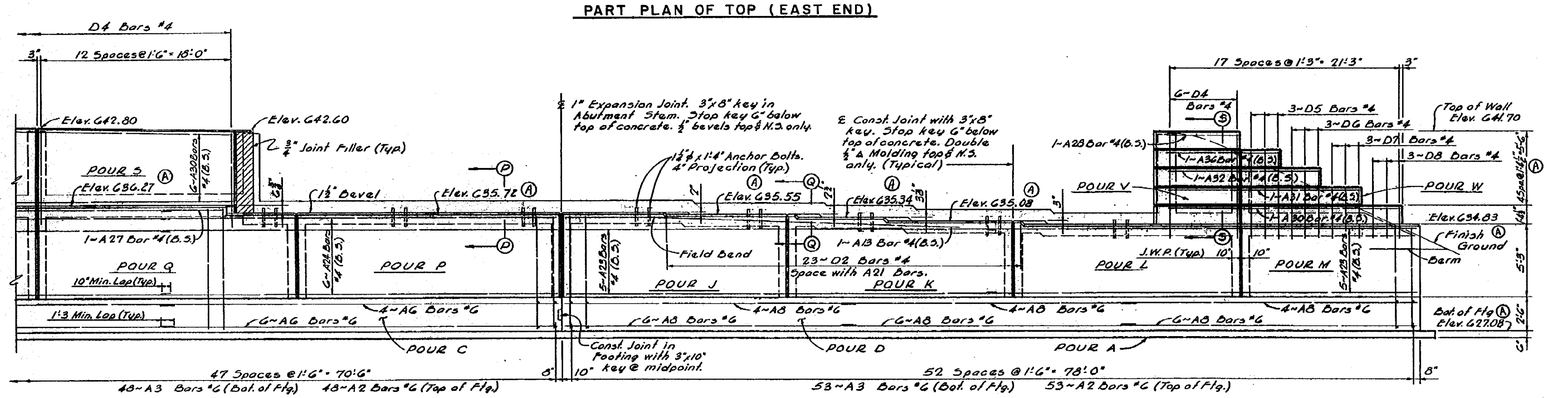
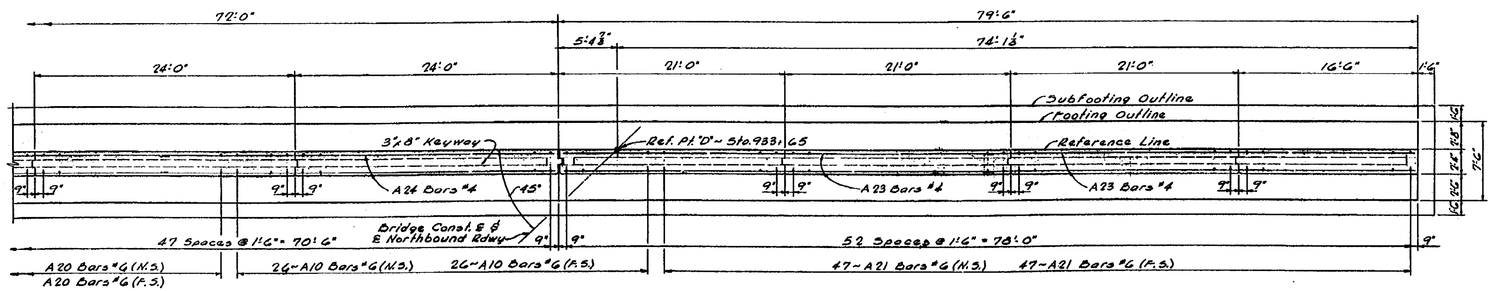


PART ELEVATION (EAST END)



PART PLAN OF FOOTING (EAST END)

This design is based on a maximum foundation pressure of 3650 pounds per square foot and a maximum average foundation pressure of 2300 pounds per square foot.

For additional notes see sheet 201

Work this sheet with sheets 198, 199, 201 & 220

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT B DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
A	Corrected Dim. & Flg. Elev.	9-26-01	PB

DESIGNED BY	JDC	3-16-00
DRAWN BY	M.H.M.	3-16-00
TRACED BY		
CHECKED BY	dsk	3-16-00
SHEET	220 OF 315	

B02 OF 631741

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

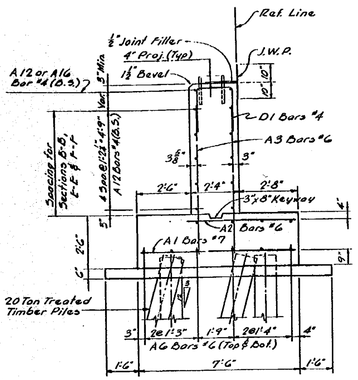
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1F OF

DATE: CORRECTED BY: DATE: 02-11-00 CHECKED BY: DRAWN BY: INDER FILE NAME: b0263174sn

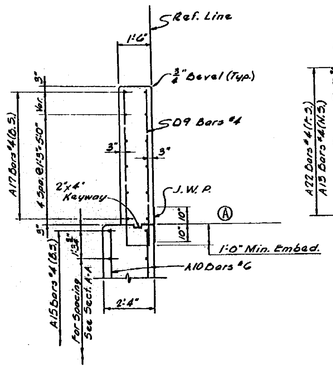
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1G

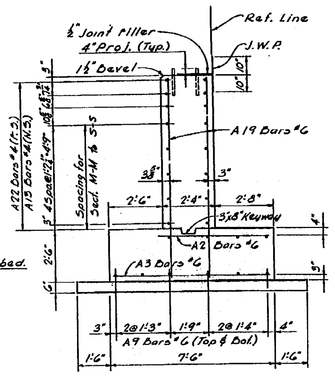
REVISIONS			
NO.	DESCRIPTION	DATE	BY



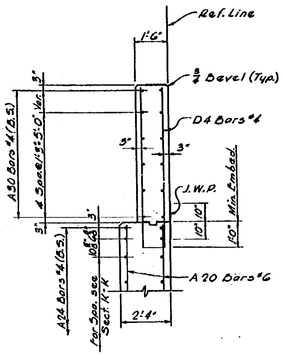
SECTION A-A



SECTION B-B



SECTION K-K

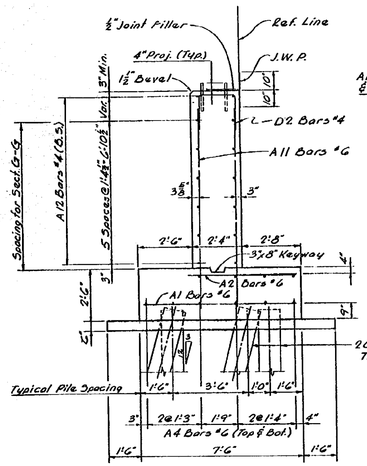


SECTION M-M

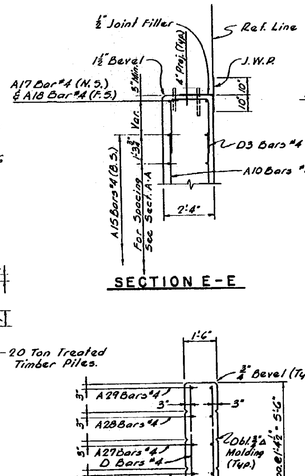
TREATED TIMBER PILES									
LOCATION	TYPE OF PILE	NUMBER OF PILES	ESTIMATED LENGTH EACH PILE DRIVEN	ESTIMATED LENGTH EACH PILE CUT-OFF	ESTIMATED LENGTH EACH PILE FURNISHED	TOTAL LENGTH (FT) DRIVEN	TOTAL LENGTH (FT) FURNISHED	CUT-OFFS	CUT-OFF ELEVATION
ABUT. A	VERTICAL	95	40	2	42	3800	3990	95	631.45
	BATTERED	97	40	2	42	3880	4074	97	
	TEST	4	40	10	50	160	200	4	
TOTAL		196				7840	8264	196	

MISCELLANEOUS QUANTITIES				
ITEM	UNIT	ABUT. A	ABUT. B	TOTAL
½" Joint Filler	Sq. Ft.	5	6	11
¾" Joint Filler	Sq. Ft.	235	235	470
1" Joint Filler	Sq. Ft.	80	50	130
1" Joint Waterproofing	Sq. Ft.	35	40	75
Joint Waterproofing	Sq. Ft.	370	555	1125
Unclassified Excavation	Cu. Yds.	—	520	520
Treated Timber Test Piles	Each	4	—	4

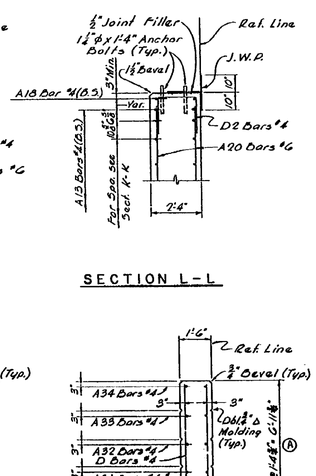
CONCRETE QUANTITIES-CU. YDS.				
POUR	ABUT. A		ABUT. B	
	A (6A)	A (6AA)	A (6A)	A (6AA)
A	43.4		42.9	
B	61.5		63.6	
C	50.8		50.0	
D	43.6		55.2	
E		12.7		14.0
F		11.2		14.9
G		11.5		14.3
H		9.5		13.3
J		10.1		11.0
K		10.6		10.2
L		13.8		9.6
M		12.5		9.5
N		14.6		13.9
P		12.5		12.7
Q		12.9		13.6
R		3.6		2.1
S		7.5		6.7
T		8.8		8.8
U		3.8		3.9
V		3.1		2.9
W		2.8		2.3
Total	219.3	170.7	216.7	162.8



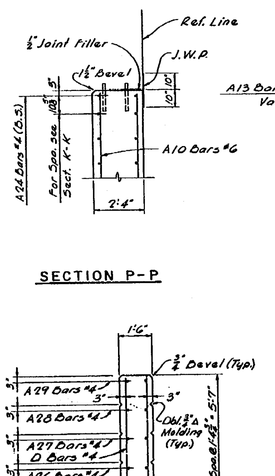
SECTION D-D



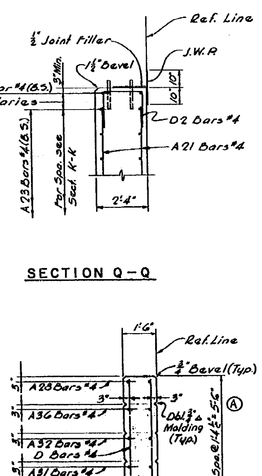
SECTION E-E



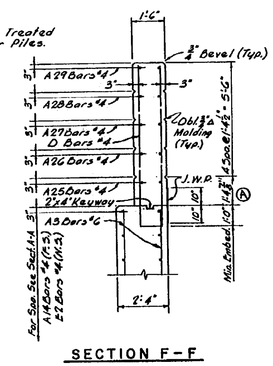
SECTION L-L



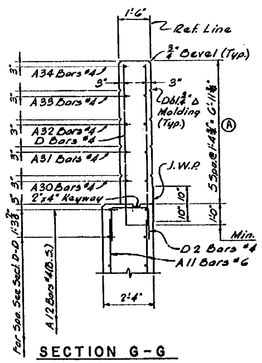
SECTION P-P



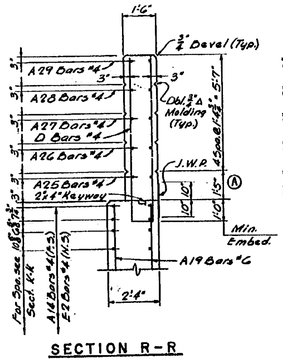
SECTION Q-Q



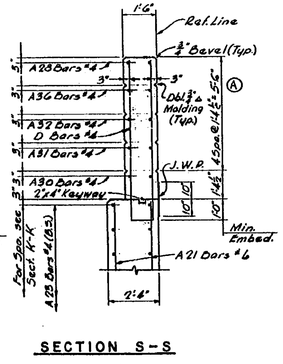
SECTION F-F



SECTION G-G



SECTION R-R



SECTION S-S

NOTES:

J.W.P. denotes joint waterproofing.
N.3. denotes near side.
F.3. denotes far side.
B.3. denotes both sides.
For Bevel and Molding Details, see Standard Sheet R11.
For location of Name Plates, see General Plan of Structure Sheets for mounting details, see Standard Sheet R11.
Median walls and slope walls are to be cast after superstructure is complete to top of curbs.
Anchor Bolts shall be set accurately to a template.
The top of abutments shall be finished to a true plane of the elevations shown and shall not vary more than ¾" under a ten foot straight edge nor more than ½" under any bearing.
All piles shall be driven to a minimum bearing capacity of 20 Tons.

Work this sheet with sheets 197, 198, 199, 200 & 220

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	Corrected Elev. & Pile Elev.	9-4-62	WRB

SURVEYED BY:	V.D.C.	3-22-62
LAYOUT BY:	A.L.M.	3-14-62
CHECKED BY:	G.D.S.	3-16-62
APPROVED BY:		3/6

B02 OF 63174I

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

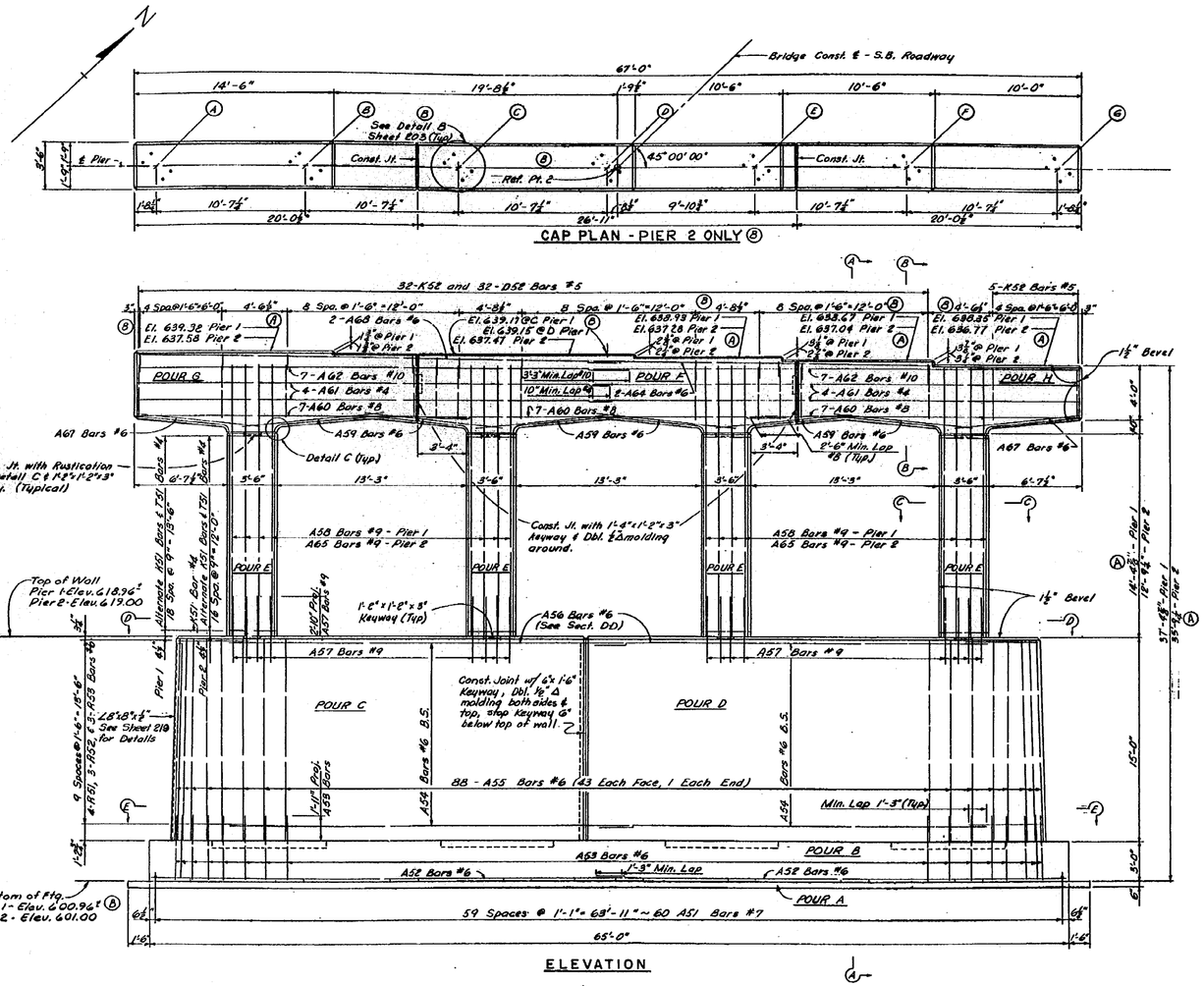
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1G OF

DATE: CORRECTED BY: INDER DATE: 02-11-00 CHECKED BY: DRAWN BY: INDER FILE NAME: b0263174sn

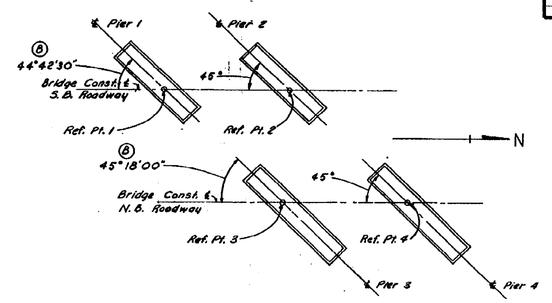
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1H

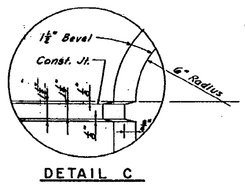


CAP PLAN - PIER 2 ONLY Ⓑ

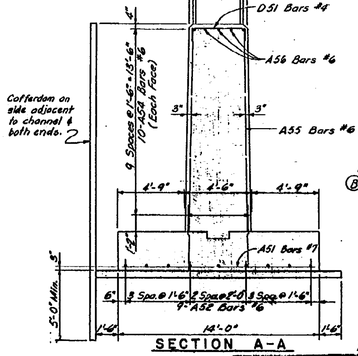
ELEVATION



LOCATION SKETCH



DETAIL C



SECTION A-A

Notes:
Ⓑ For details of struts, see sh. 191.
For cap plan of pier 1, see sh. 202A

Work this Sheet with Sheets 203, 204, 218 & 220

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER DETAILS

PIER NO. 1 & 2

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
B	Reloc. pier 1 Ftgs. & Twls.	11-1-99	R.A.
A	Corr. Top of Cap Elev.	9-10-99	R.A.

DESIGNED BY	JDC		5-26-99
DRAWN BY	Chris Thorp		
TRACED BY			
CHECKED BY	BDR		5-27-99
QUANT. CHK.	202		5/26

B02 OF 63174 I

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1H OF

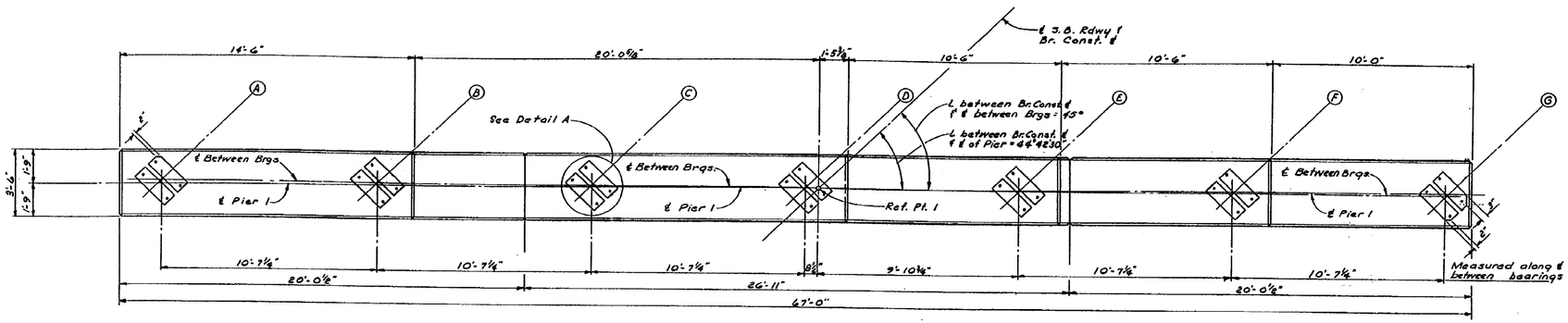
DATE: CORRECTED BY: INDER
DATE: 02-11-00 CHECKED BY:
DRAWN BY: INDER
FILE NAME: b0263174sh

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

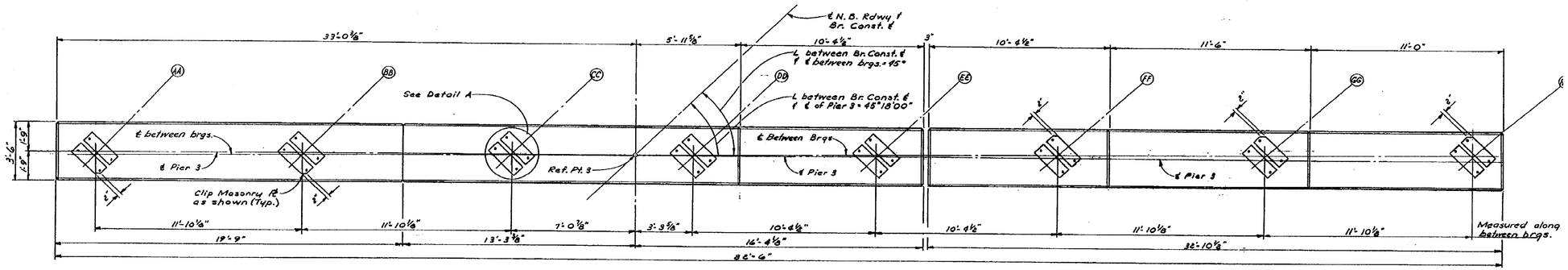
CONT. SEC. B02 OF 63174 JOB NO. 49595A SH. NO. 1J

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

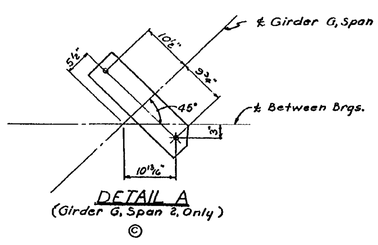
REVISIONS			
NO.	DESCRIPTION	DATE	BY



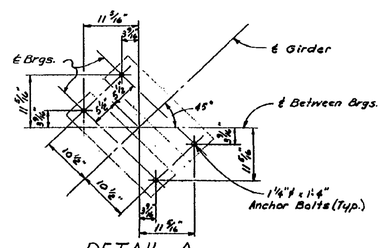
PLAN OF CAP - PIER 1



PLAN OF CAP - PIER 3



DETAIL A
(Girder G, Span 2 Only)



DETAIL A
(Typical except at Girder G, Span 2)

NOTE: Existing anchor bolts shall be cut off and new anchor bolts placed.

MICHIGAN STATE HIGHWAY DEPARTMENT

PIERS 1 & 3 CAP DETAILS

REVISIONS			
NO	DESCRIPTION	DATE	BY
C	Det. A for Gird. C added	11-63	R.C.F.
B	This sheet added to contract drawings.	1-16-63	R.C.

SIGNED BY: R.C. 1-16-63
DRAWN BY: R.C. 1-16-63
TRACED BY:
CHECKED BY:
SHT. 20RA of 312
B02 OF 631741

NOTE:
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MDOT Michigan Department of Transportation

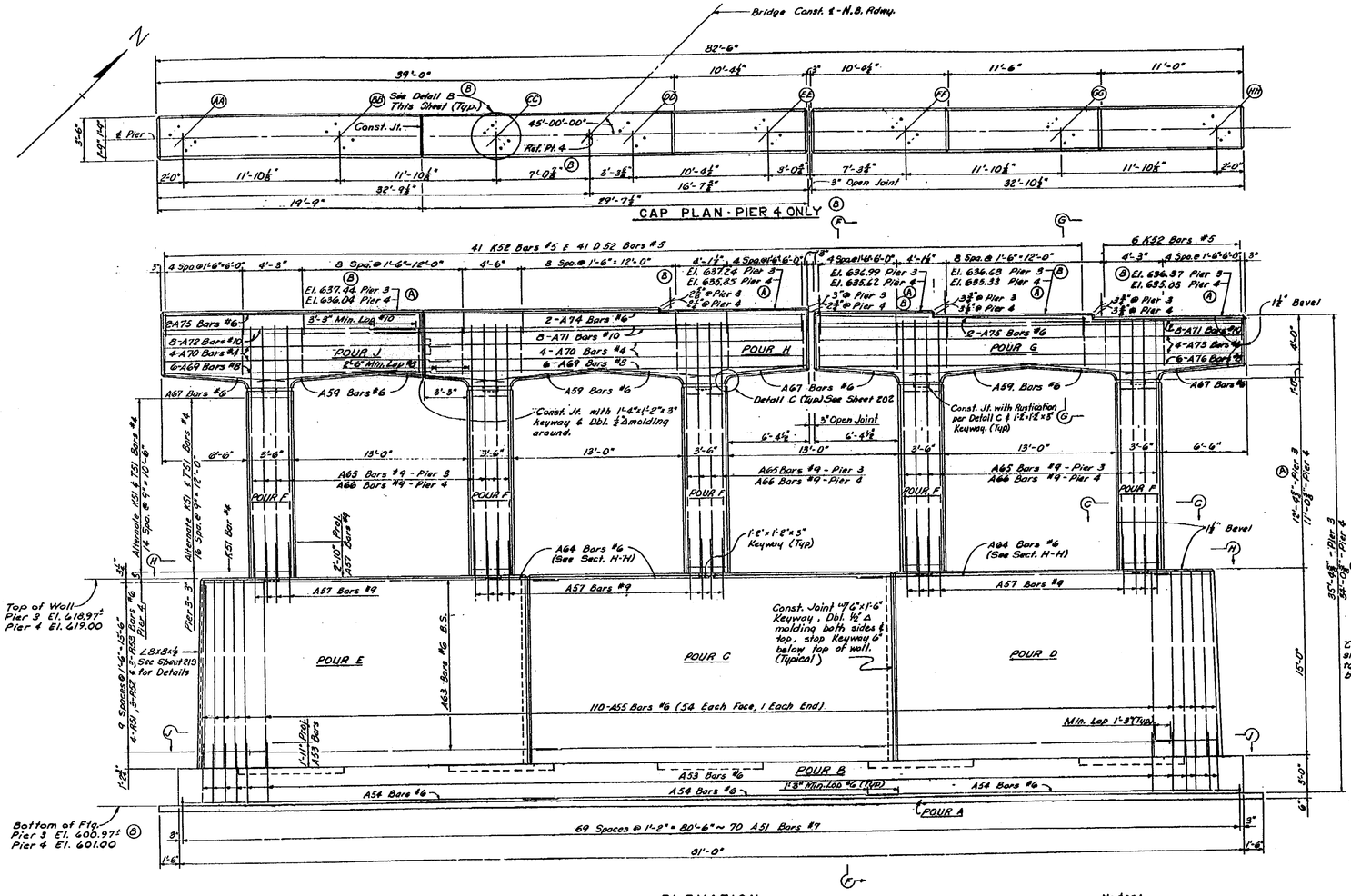
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1J OF

DRAWN BY: INDER DATE:
CORRECTED BY: DATE:
CHECKED BY: DATE: 02-11-00
FILE NAME: b02631741sh

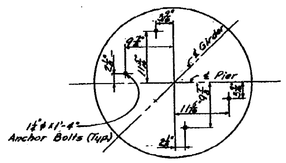
CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1K

REVISIONS			
NO.	DESCRIPTION	DATE	BY

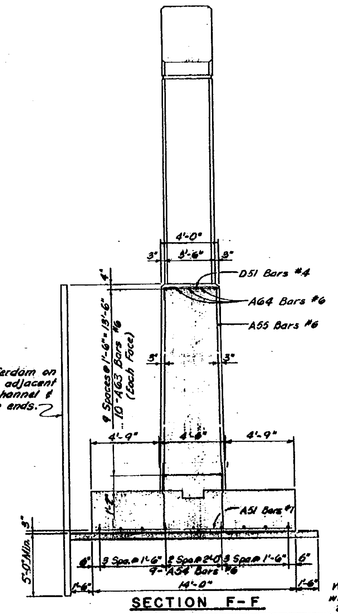


ELEVATION

Notes:
Ⓑ For details of struts, see sh. 191
For cap plan of pier 3, see sh. 208A



DETAIL B
PIER NO. 2 & 4



SECTION F-F

Work this Sheet with Sheets 202, 204, 219 & 220

Notes:
Ⓑ For details of struts, see sh. 191
For cap plan of pier 3, see sh. 208A

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER DETAILS

PIER NO. 3 & 4

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
B	Relog. pier 3 trav. elevs.	1-14-63	R.E.
A	Corrected Con. Plan of Cap Elev.	1-4-63	R.E.

DESIGN DATA: DRAWN BY: CHECKED BY: SHEET 203 of 312

DATE: 12-26-62 DATE: 1-26-63

B02 OF 63174

NOTE:
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FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1K OF

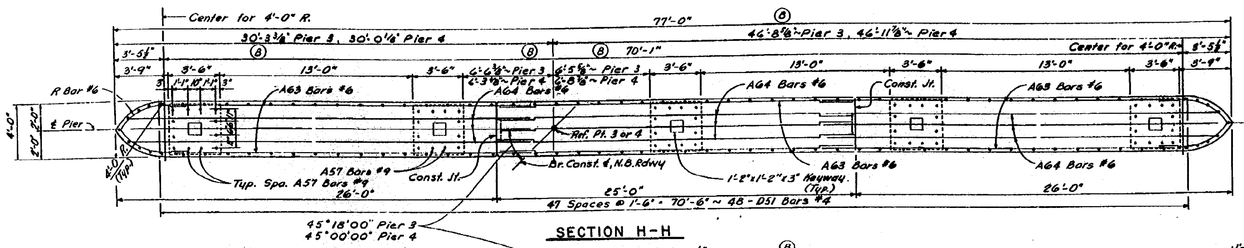
DATE: 02-11-00 CHECKED BY: INDER

DRAWN BY: INDER

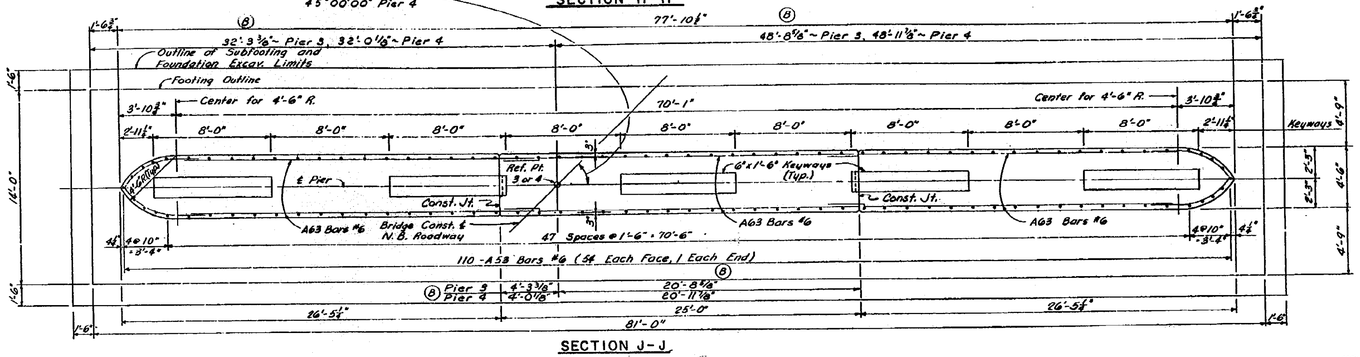
FILE NAME: b026317 4sn

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

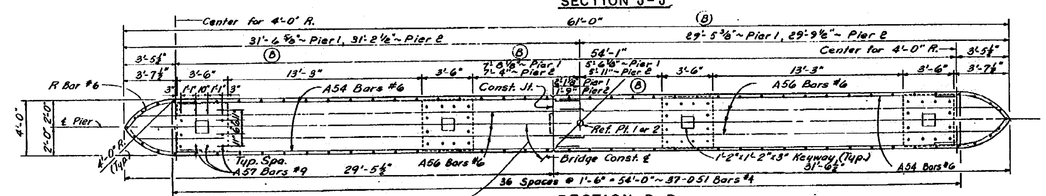
CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1L



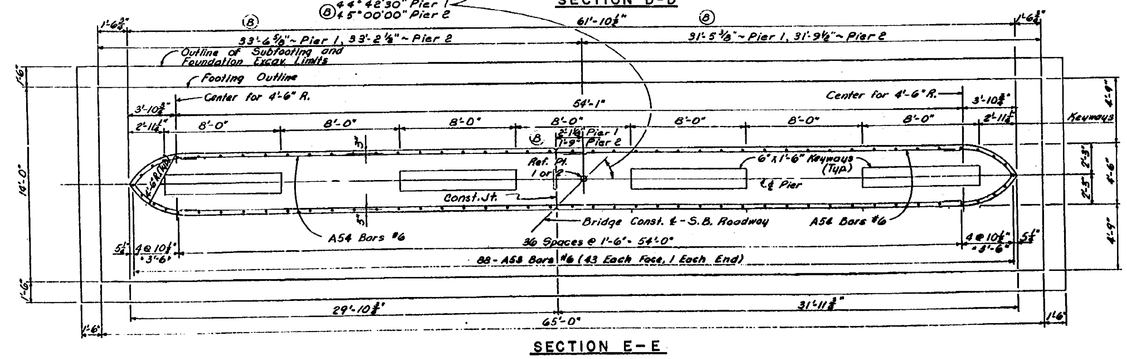
SECTION H-H



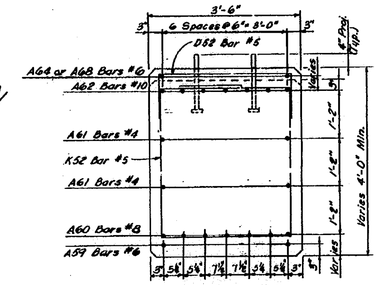
SECTION J-J



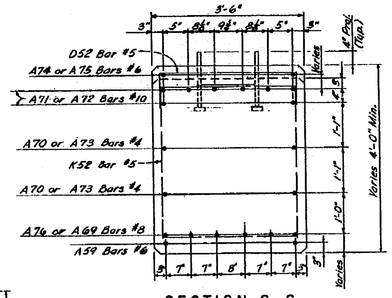
SECTION D-D



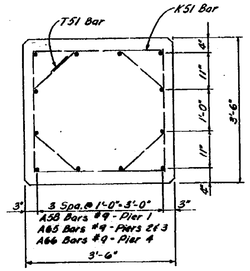
SECTION E-E



SECTION B-B
PIERS 1 & 2



SECTION G-G
PIERS 3 & 4



SECTION C-C
ALL PIERS

CONCRETE QUANTITIES - CU. YDS.									
	GRADE A(6A)				GRADE A(6AA)				
POUR	A	B	C	D	E	F	G	H	
Pier 1	21.4	101.2	67.6	72.5	26.2	17.9	19.6	11.7	
Pier 2	21.4	104.2	67.6	72.5	28.3	19.8	18.4	11.7	
	GRADE A(6A)				GRADE A(6AA)				
POUR	A	B	C	D	E	F	G	H	J
Pier 3	26.4	116.1	59.0	69.4	59.4	28.2	20.0	20.9	14.0
Pier 4	26.4	116.1	59.0	69.4	59.4	25.8	20.0	20.5	13.6
Totals	1186.0						248.0		

MISCELLANEOUS QUANTITIES					
ITEM	UNITS	PIER 1	PIER 2	PIER 3	PIER 4	TOTAL
Unclassified Excavation	Cu. Yds.	410	410	500	500	1820
Cofferdams	Lump Sum					

NOTES:

For Bevel and Molding Details, see Standard Sheet R11.
Anchor Bolts shall be set accurately to a template. The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of Anchor Bolts.
The top of pier shall be finished to a true plane at the elevation shown and shall not vary more than ⅛" under a ten foot straight edge nor more than ¼" under any bearing.
This design is based on a maximum foundation pressure of 3250 #/ft.² at Piers 1 & 2, 3100 #/ft.² at Piers 3 & 4, and a maximum average foundation pressure of 3000 #/ft.² at Piers 1 & 2 & 2900 #/ft.² at Piers 3 & 4.
(B) For details of struts at Piers, see sheet 19L.

Work this Sheet with Sheets 20L, 20S & 22D

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER DETAILS
ALL PIERS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY
(B)	Relocated piers 1 & 3	1-14-63	R.E.

JDC 3-26-62
Don Herre
CDK 3-26-62
BOK 3-12-63

B02 OF 63174

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MDOT Michigan Department of Transportation

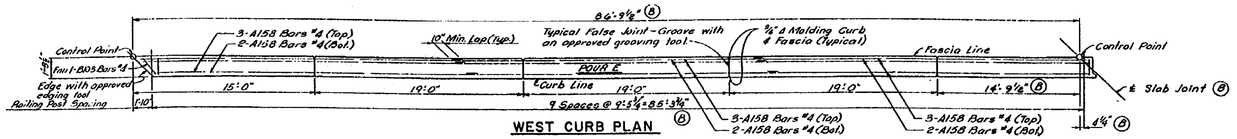
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1L OF

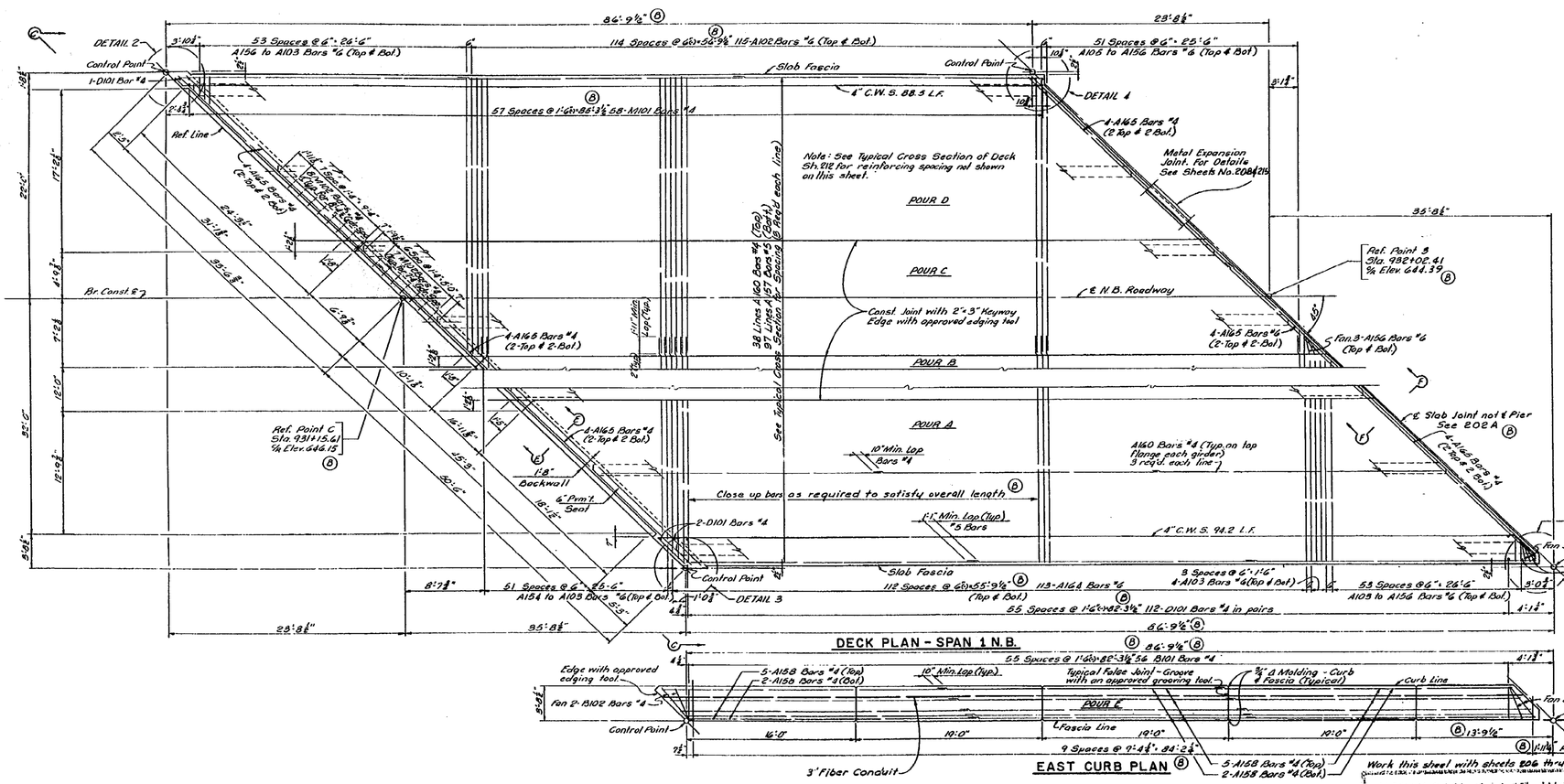
DATE: CORRECTED BY: INDER
DATE: 02-11-00 CHECKED BY:
DRAWN BY: INDER
FILE NAME: b02631745n

CONTROL SECTION 802 OF 63174 JOB NO. 49595A SH. NO. 1M

REVISIONS			
NO.	DESCRIPTION	DATE	BY



WEST CURB PLAN



MICHIGAN STATE HIGHWAY

SUPERSTRUCTURE DETAILS

NORTHBOUND ROADWAY - SPAN 1

TECON ENGINEERS, INC.

JDC 3-16-66
D.A.S. 3-15-66
FDH 3-23-66
RDS 3-1-66

8 Reloc. ref. pts C 13 and changed span lengths 1-1663 R.E.

802 OF 63174 I

NOTE:
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FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

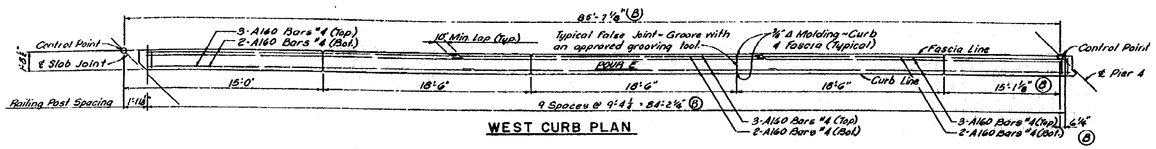
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1M OF

DRAWN BY: INGER CHECKED BY: DATE: 02-11-00 CORRECTED BY: INGER DATE:

FILE NAME: b02631174sh

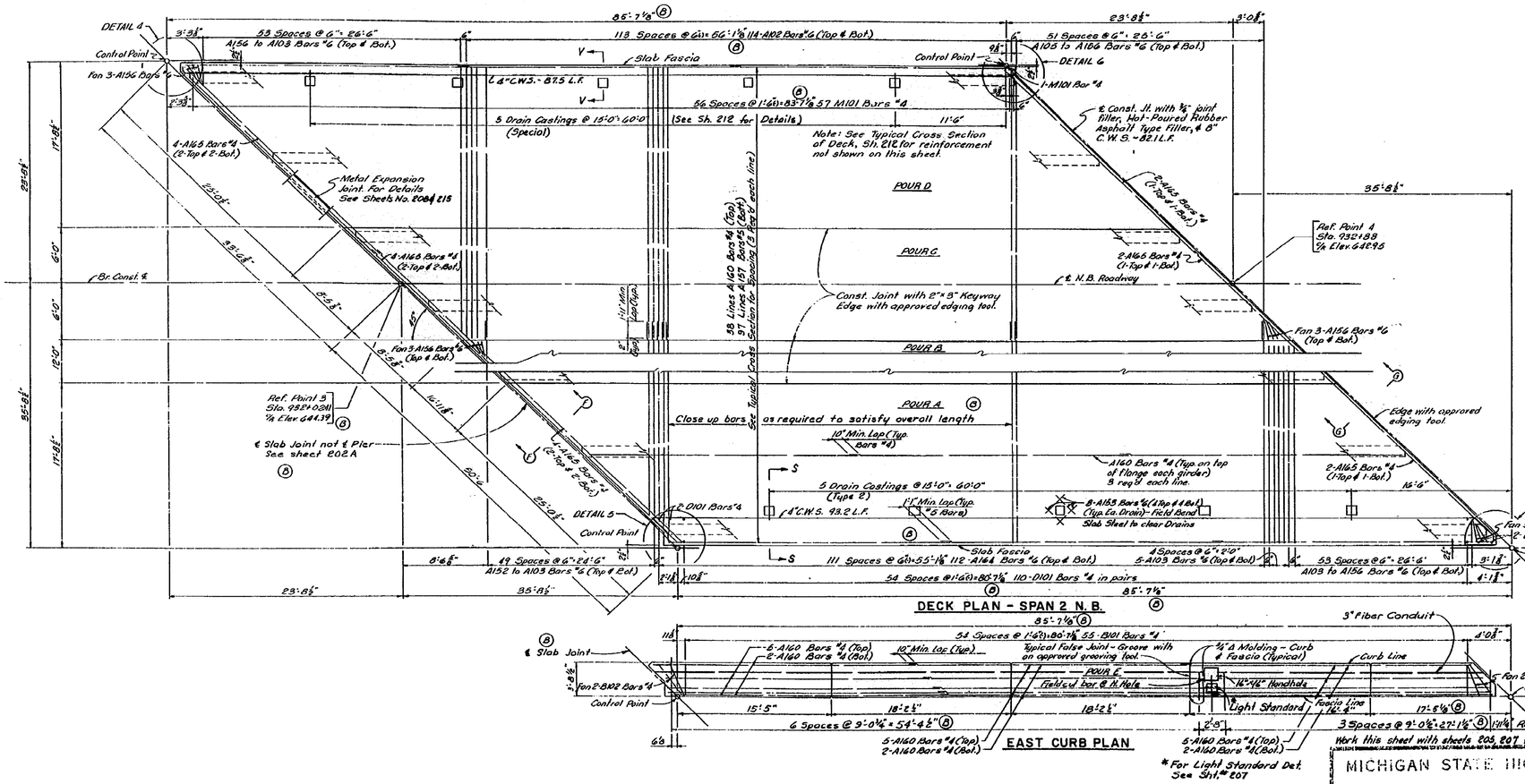
CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1N

REVISIONS			
NO.	DESCRIPTION	DATE	BY



WEST CURB PLAN

N



DECK PLAN - SPAN 2 N. B.

EAST CURB PLAN

Work this sheet with sheets 206, 207 thru 215 & 220.

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

NORTHBOUND ROADWAY - SPAN 2

TECON ENGINEERS, INC.

JDV 3-26-64
D.R.S. 3-15-64

FDH 5-25-62
206 212

8 Relocated ref. pt. 5 and changed span length. F.H.G.3 R.E.

B02 OF 631741

NOTE:
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FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	IN OF

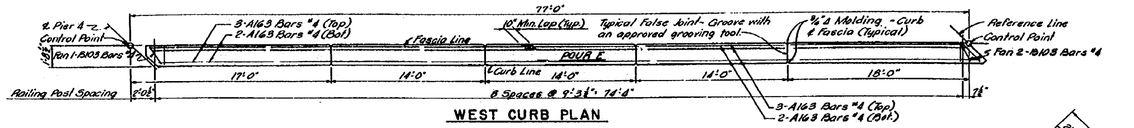
DRAWN BY: INDER DATE: 02-11-00 CHECKED BY: DATE: CORRECTED BY: INDER DATE:

FILE NAME: b02631741sn

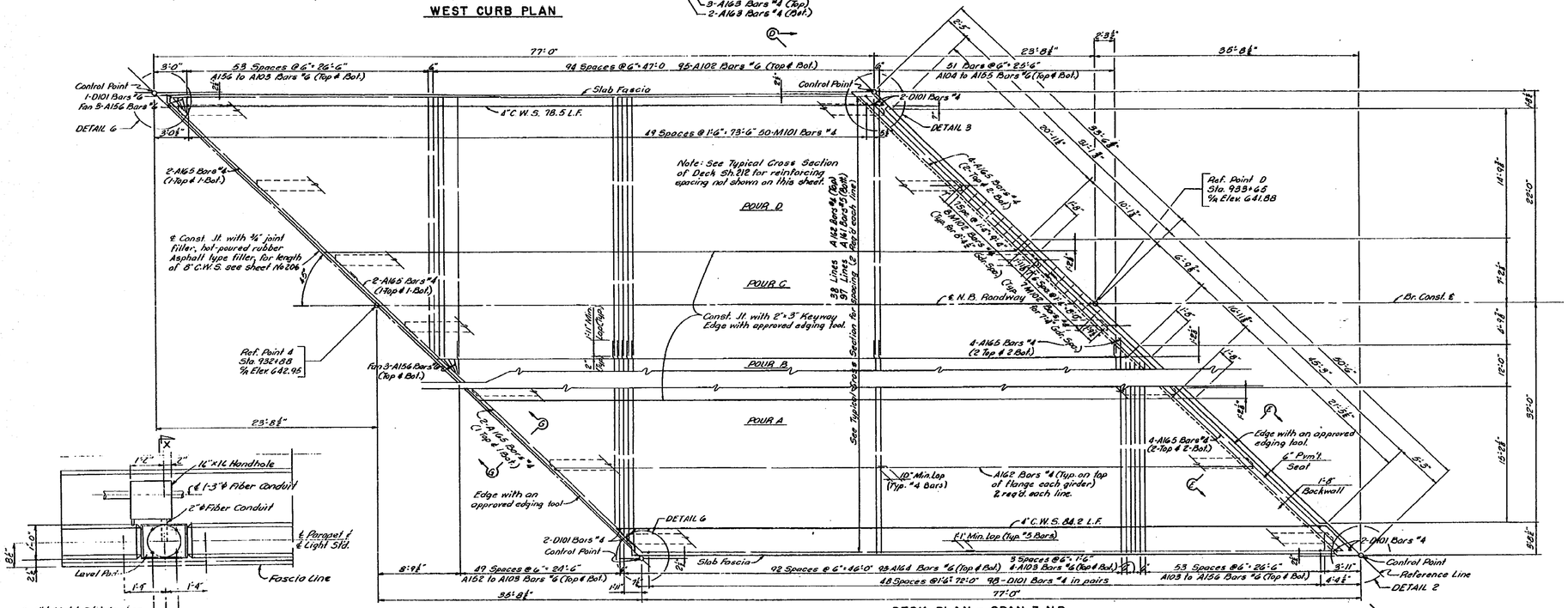
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1P

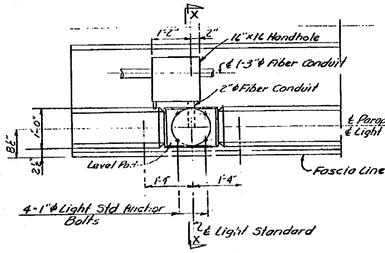
REVISIONS			
NO.	DESCRIPTION	DATE	BY



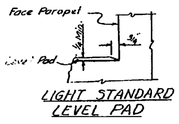
WEST CURB PLAN



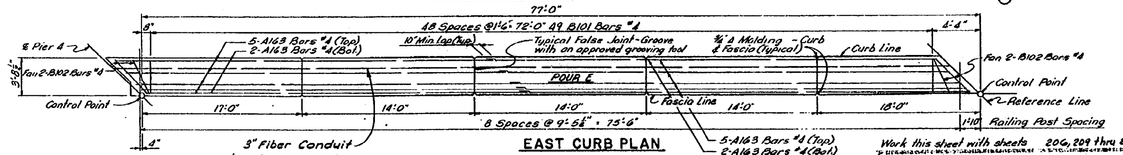
DECK PLAN – SPAN 3 N.B.



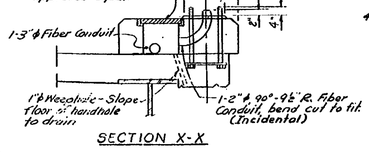
DETAILS AT LIGHT STANDARDS



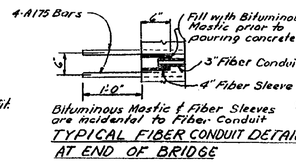
LIGHT STANDARD LEVEL PAD



EAST CURB PLAN

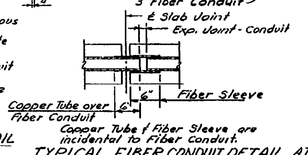


SECTION X-X



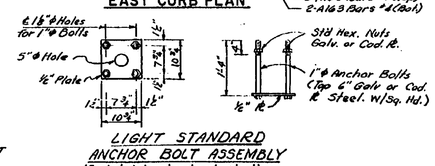
Bituminous Mastic & Fiber Sleeves are incidental to Fiber Conduit

TYPICAL FIBER CONDUIT DETAIL AT END OF BRIDGE



Copper Tube & Fiber Sleeve are incidental to Fiber Conduit.

TYPICAL FIBER CONDUIT DETAIL AT BRIDGE SLAB JOINT



LIGHT STANDARD ANCHOR BOLT ASSEMBLY
(Included in structural steel)

Work this sheet with sheets 206, 209 thru 214 & 220

MICHIGAN STATE HIGHWAY DEPT.

SUPERSTRUCTURE DETAILS

NORTHBOUND ROADWAY – SPAN 3

TECON ENGINEERS, INC.

	JDC	3-26-64
	D.R.S.	3-15-64
	FDN	3-13-64
	207	3/2

B02 OF 63174 I

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FOR INFORMATION ONLY

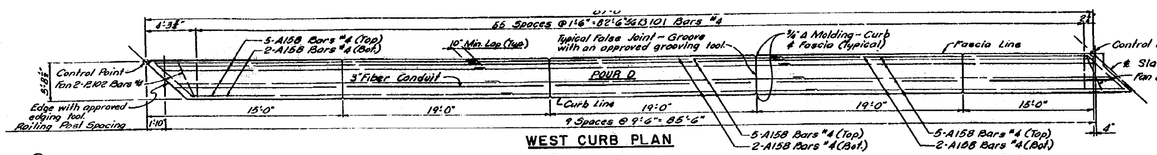
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1P OF

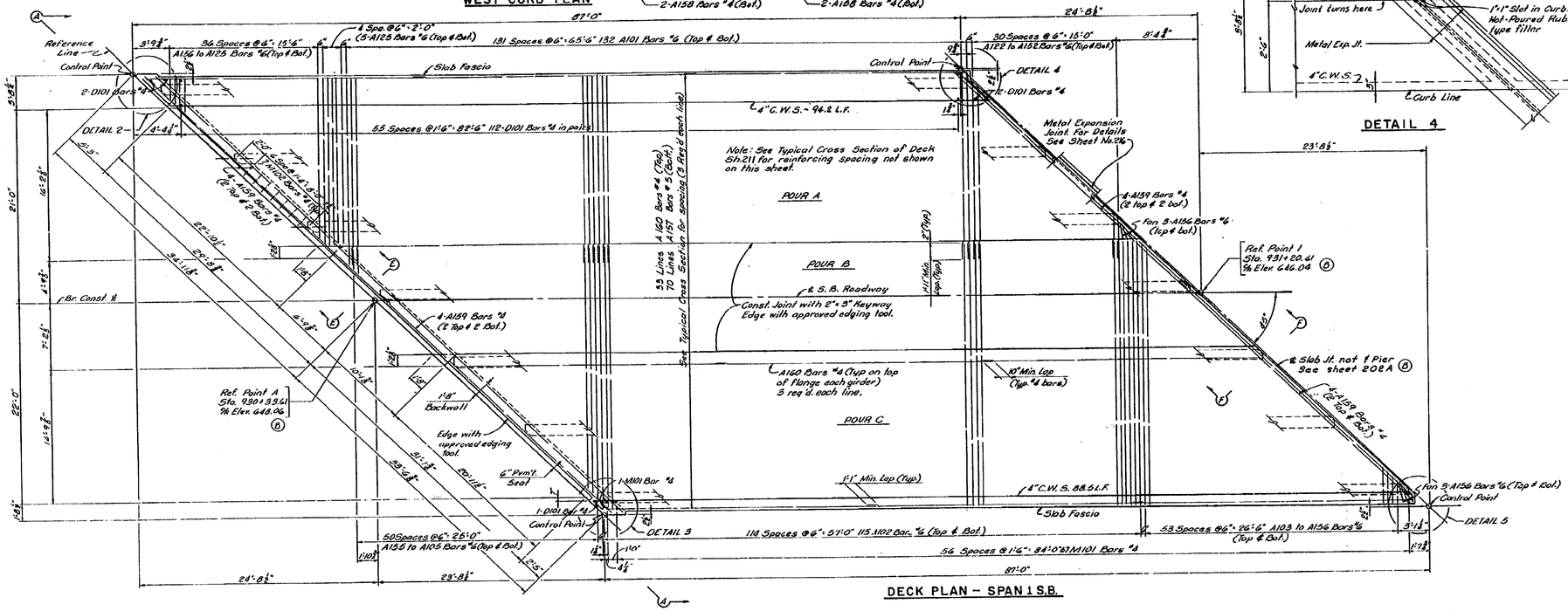
DATE: CORRECTED BY: INDER
DATE: 02-11-00 CHECKED BY:
DRAWN BY: INDER
FILE NAME: b02631174sh

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 10

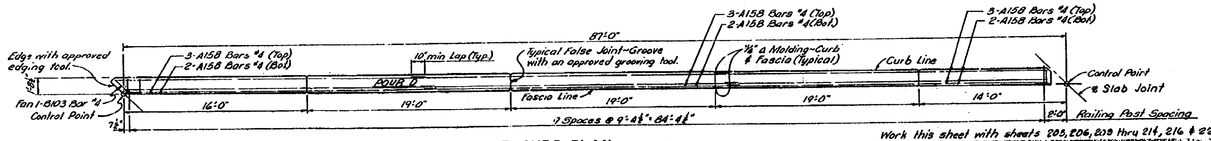
REVISIONS			
NO.	DESCRIPTION	DATE	BY



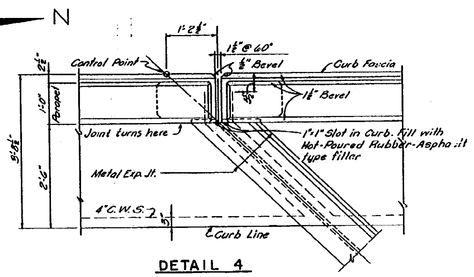
WEST CURB PLAN



DECK PLAN – SPAN 1 S.B.



EAST CURB PLAN



DETAIL 4

Work this sheet with sheets 205, 206, 209 thru 214, 216 & 220

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

SOUTHBOUND ROADWAY – SPAN 1

TECON ENGINEERS, INC.

SECTIONS			
NO.	DESCRIPTION	DATE	BY
8	Relocated ref. pts A & I.	1-16-63	R.E.

JOB D.R.S. 3-26-62 3-15-62
FDN 208 & 312. 3-23-62
B02 OF 63174I

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FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

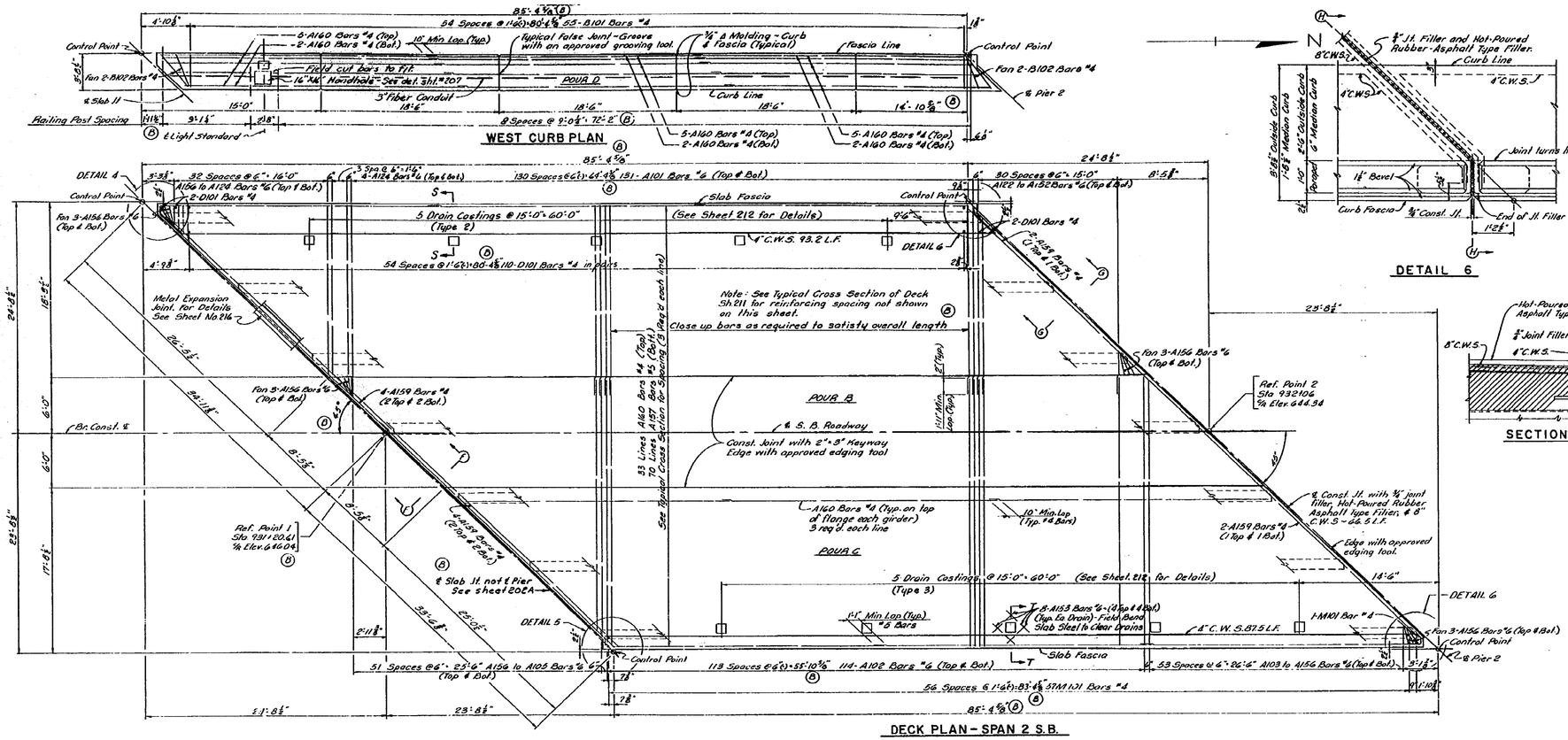
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	10 OF

DATE: CORRECTED BY: INDER
DATE: 02-11-00 CHECKED BY:
DRAWN BY: INDER
FILE NAME: b02631745sn

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 | JOB NO. 49595A | SH. NO.

REVISIONS			
NO.	DESCRIPTION	DATE	BY



MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

SOUTHBOUND ROADWAY – SPAN 2

TECON ENGINEERS, INC.

JDC 3-26-63
D.R.S. 3-15-63

FDH 3-23-63
209 312

B02 OF 63174I

℄ Reloc. ref. pt. 1 to ℄ span length = 14.43 ℄ ℄

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MDOT Michigan Department of Transportation

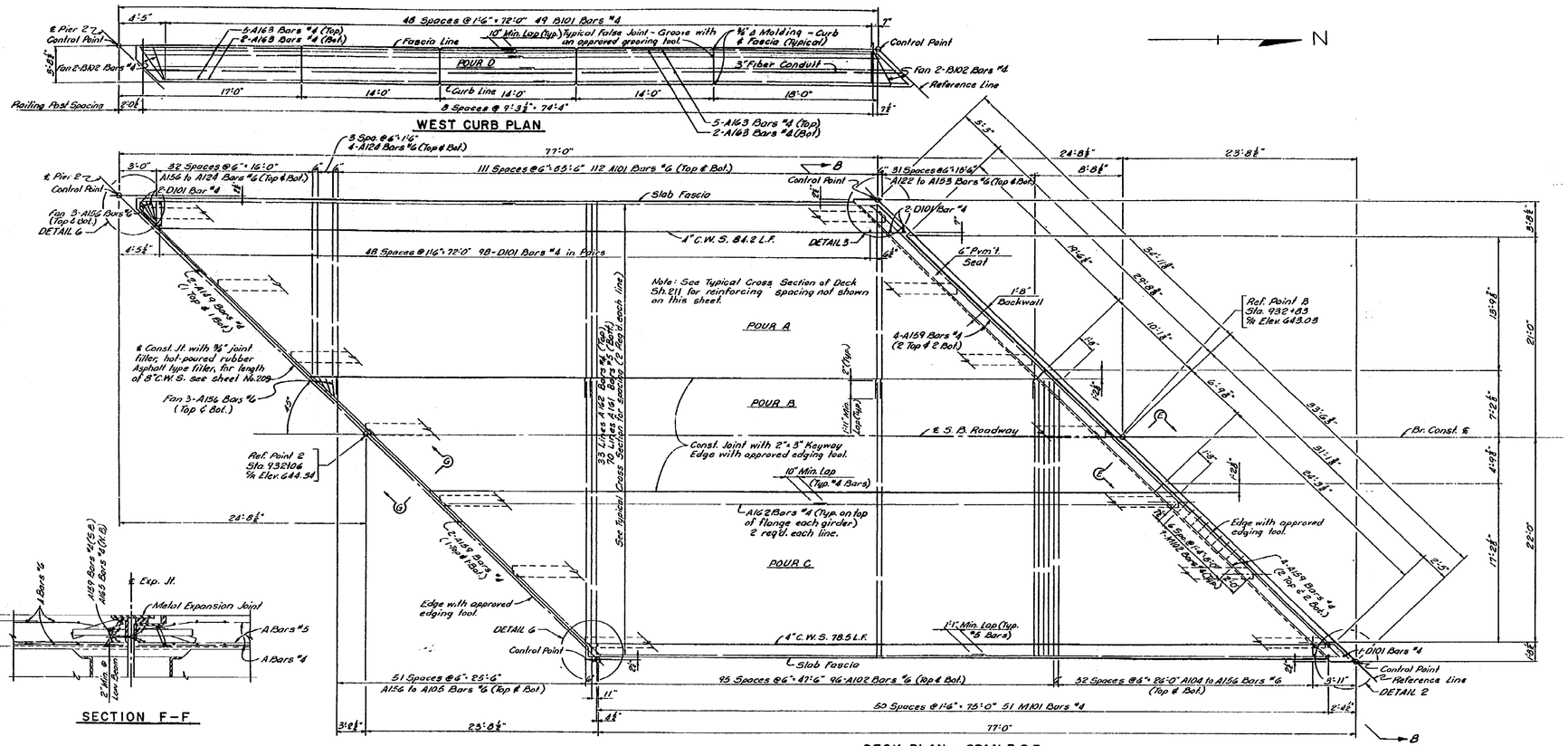
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1R OF

DRAWN BY: INDER | CORRECTED BY: INDER | CHECKED BY: | DATE: | DATE: 02-11-00 | DATE:

FILE NAME: 60263174sn

CONTROL SECTION B02 OF 63174 | JOB NO. 49595A | SH. NO. 1S

REVISIONS			
NO.	DESCRIPTION	DATE	BY



Work this sheet with sheets 205 thru 208, 211 thru 214, 216 & 220

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

SOUTHBOUND ROADWAY - SPAN 3

TECON ENGINEERS, INC.

Des. D.G.S. Jobs 3-26-62 3-15-62
Ch. FDH 3-23-62
Rev. 210 - 212

B02 OF 63174I

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FOR INFORMATION ONLY

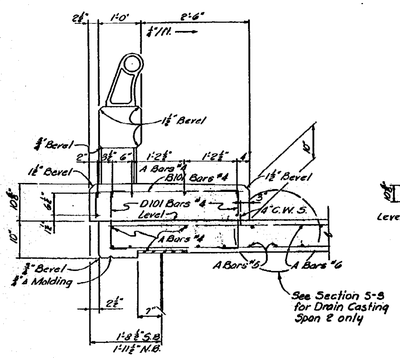
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1S OF

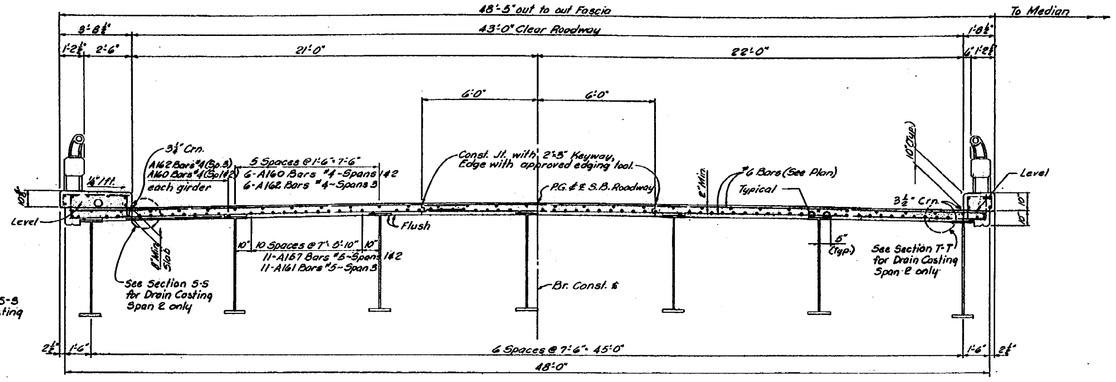
DATE: CORRECTED BY: INDER
DATE: 02-11-00 CHECKED BY:
DRAWN BY: INDER
FILE NAME: b0263174sn

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1T

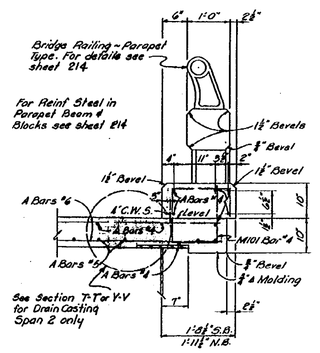
REVISIONS			
NO.	DESCRIPTION	DATE	BY



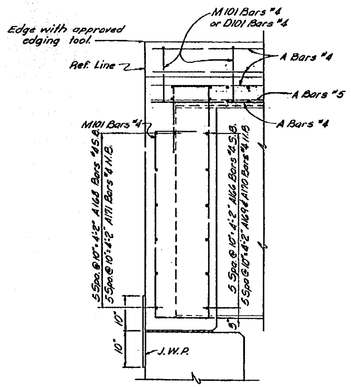
SECTION THRU 2'-6" CURB



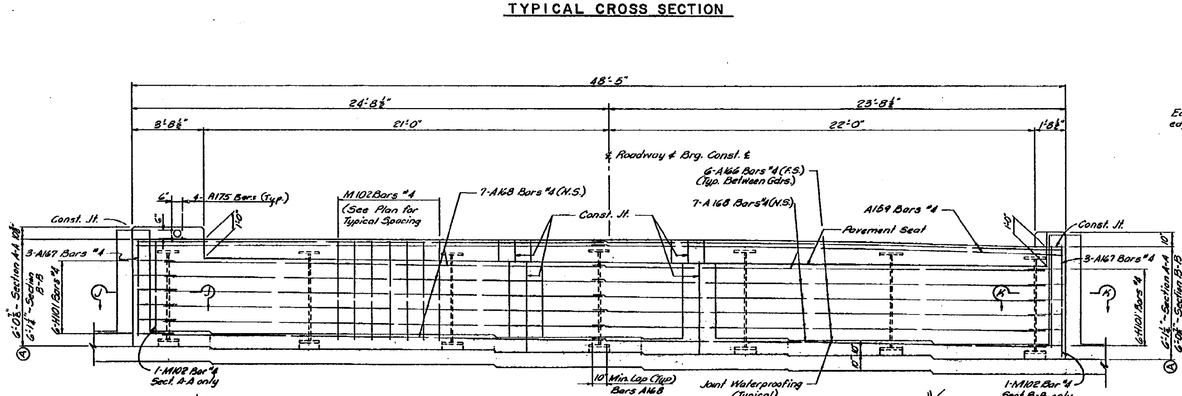
SOUTHBOUND ROADWAY
TYPICAL CROSS SECTION



SECTION THRU 6" CURB

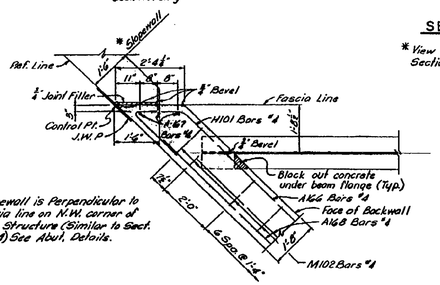


SECTION THRU BACKWALL AT FASCIA BEAM



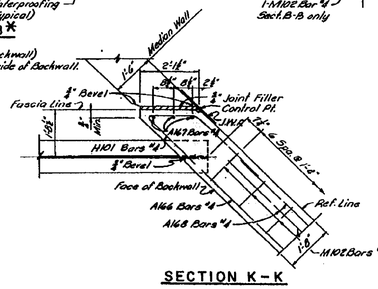
SECTION A-A & SECTION B-B*

* View shown for section A-A (from approach side of Backwall)
Section B-B is similar except taken from Structure side of Backwall.

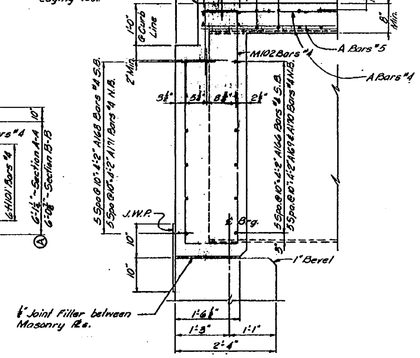


* Slopewall is Perpendicular to fascia line on N.W. corner of S.B. Structure (Similar to Sect. M-M) See Abut. Details.

SECTION J-J



SECTION K-K



SECTION E-E

Work this sheet with sheets 205 thru 210, 212 thru 214 & 220

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
A	Corrected dim.	7-1-63	AFB

BOARD REST	Jr.	3-24-64	
DRAWN BY	G.R.S.	3-10-64	
TRACED BY			
CHECKED BY	F.P.H.	3-25-64	
SHEET 211 OF 318			

B02 OF 63174 I

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MDOT Michigan Department of Transportation

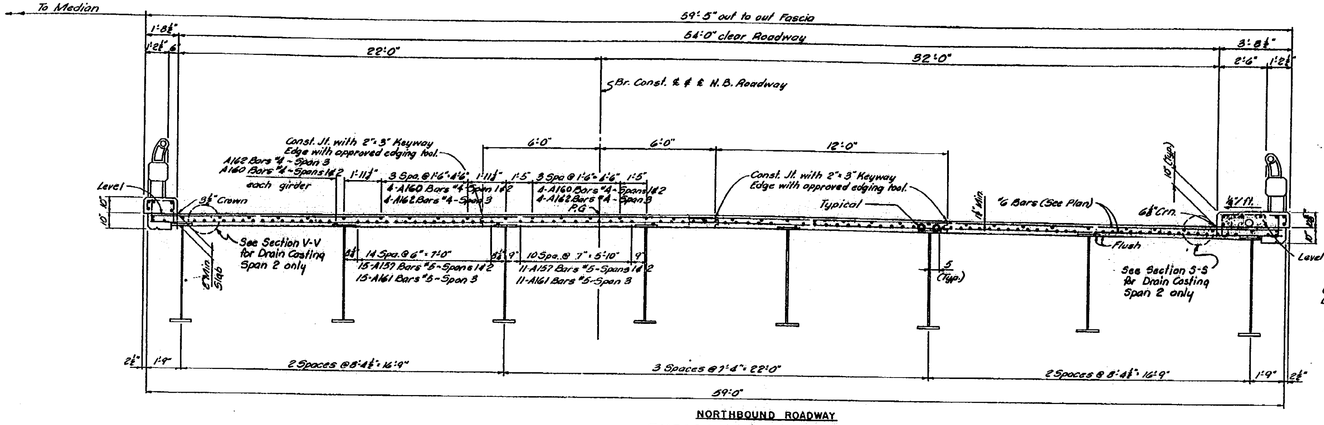
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1T OF

DATE: CORRECTED BY: INDER
DATE: 02-11-00 CHECKED BY:
DRAWN BY: INDER
FILE NAME: b0263174sn

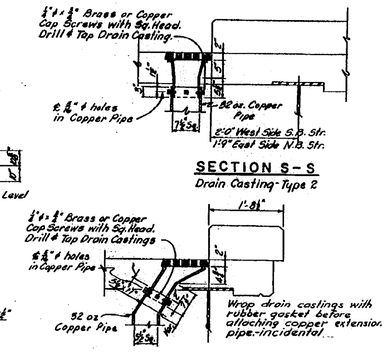
CONTROL SECTION B02 OF 63174 | JOB NO. 49595A | SH. NO. 1U

REVISIONS			
NO.	DESCRIPTION	DATE	BY



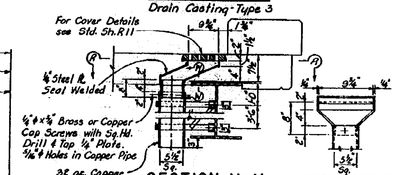
NORTHBOUND ROADWAY

TYPICAL CROSS SECTION



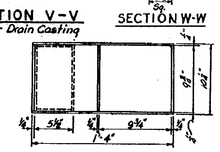
SECTION S-S
Drain Casting-Type 2

SECTION T-T
Drain Casting-Type 3

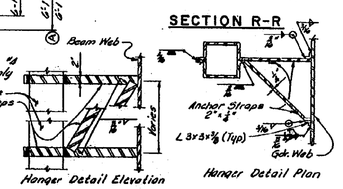


SECTION V-V
Special-Drain Casting

SECTION W-W

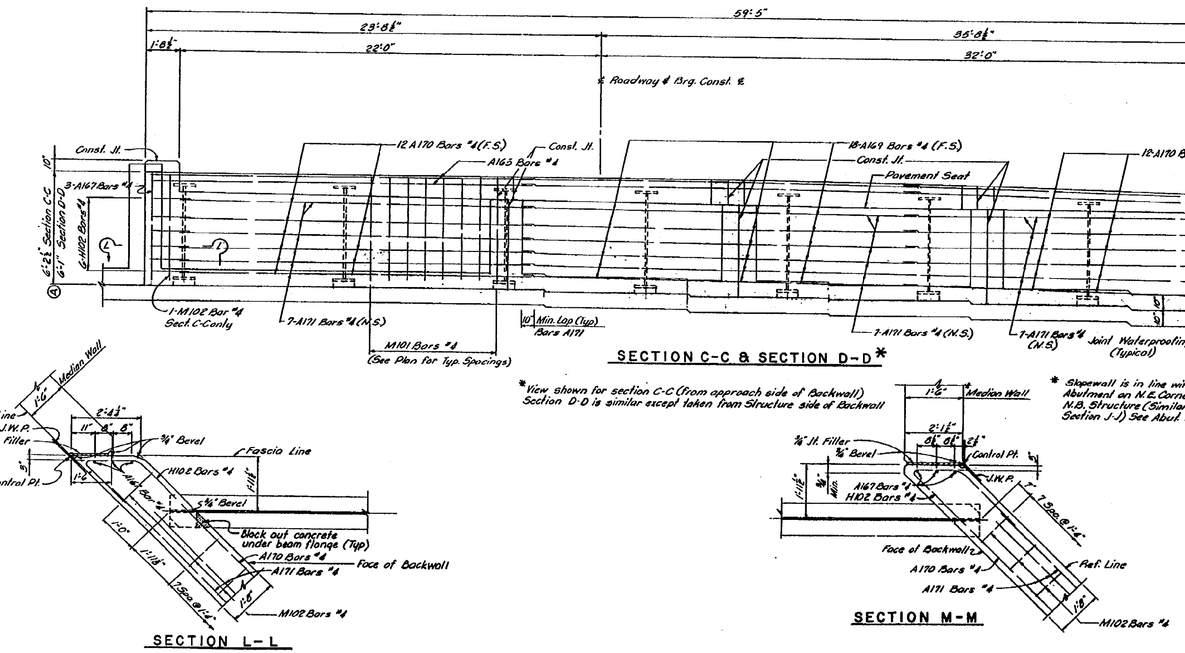


SECTION R-R



DRAIN OUTLET ASSEMBLY

Work this sheet with sheets 205 thru 211, 213, 214 & 220



SECTION C-C & SECTION D-D*

*View shown for section C-C (from approach side of Backwall) Section D-D is similar except taken from Structure side of Backwall

SECTION L-L

SECTION M-M

* Skewwall is in line with Abutment on N.E. Corner at N.B. Structure (Similar to Section J-J) See Abut. Details.

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MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
A	Corrected dim.	9-V-63	AFB

DESIGNED BY	JPC	3-26-62
DRAWN BY	D.R.S.	3-15-62
TRACED BY		
CHECKED BY	FON	3-23-62
SHEET	21C thru 21E	

B02 OF 63174 I

FOR INFORMATION ONLY

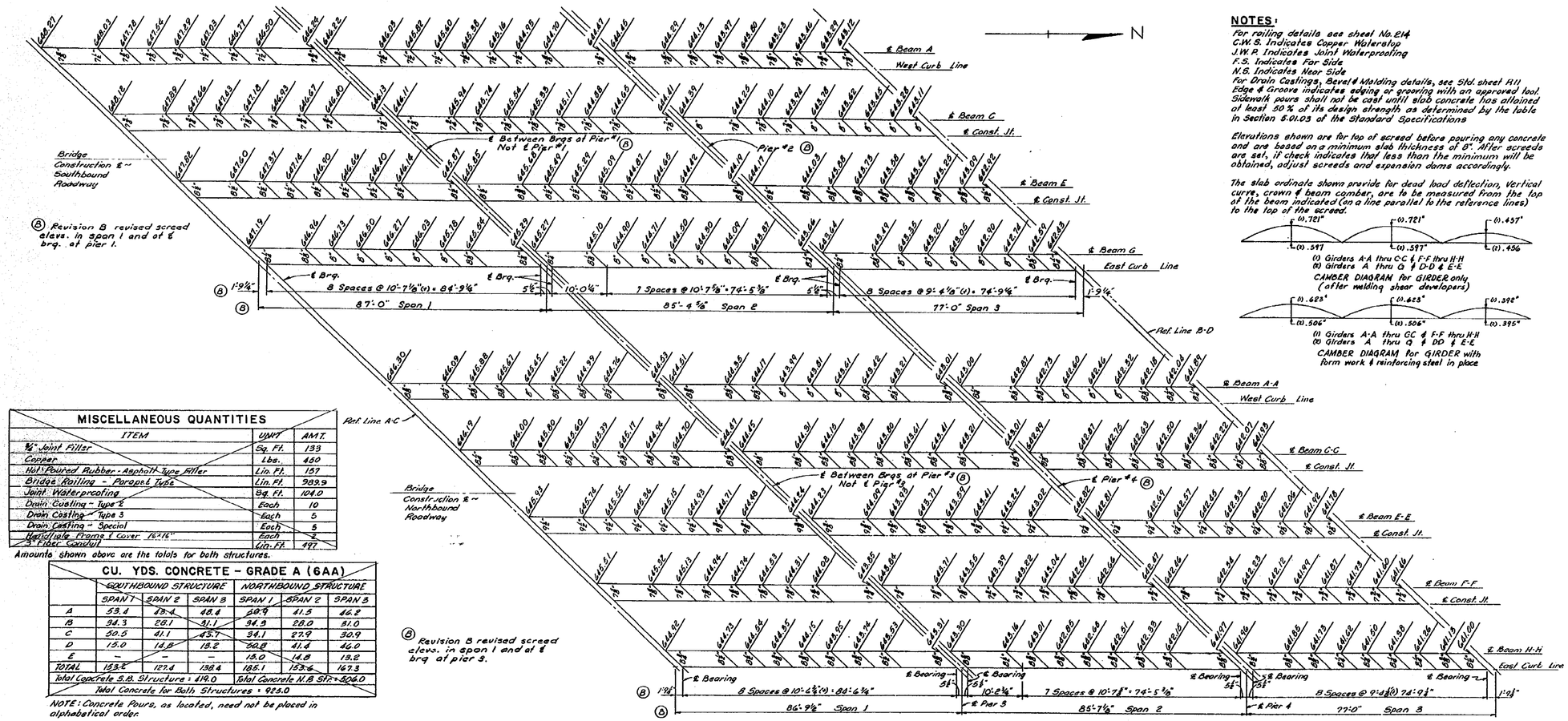
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1U OF

DATE: CORRECTED BY: UNDER
DATE: 02-11-00 CHECKED BY:
DRAWN BY: INDER
FILE NAME: b0263174sn

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1V

REVISIONS			
NO.	DESCRIPTION	DATE	BY



TOP OF SCREED ELEVATIONS AND SLAB ORDINATES

NOTES:

For railing details see sheet No. 214
C.W.S. Indicates Copper Waterstop
J.W.P. Indicates Joint Waterproofing
F.S. Indicates Far Side
N.S. Indicates Near Side
For Drain Castings, Bevel ℄ Molding details, see Std. sheet R11
Edge ℄ Groove indicates edging or grooving with an approved tool.
Sidewalk pours shall not be cast until slab concrete has attained at least 50 % of its design strength as determined by the table in Section 5.01.03 of the Standard Specifications

Elevations shown are for top of screed before pouring any concrete and are based on a minimum slab thickness of 8". After screeds are set, if check indicates that less than the minimum will be obtained, adjust screeds and expansion dams accordingly.

The slab ordinate shown provide for dead load deflection, vertical curve, crown ℄ beam camber, are to be measured from the top of the beam indicated (on a line parallel to the reference lines) to the top of the screed.

(1) Girders A-A thru CC ℄ F-F thru H-H
(2) Girders A thru G ℄ D-D ℄ E-E
CAMBER DIAGRAM for GIRDER only (after welding shear developers)

(1) Girders A-A thru CC ℄ F-F thru H-H
(2) Girders A thru G ℄ DD ℄ E-E
CAMBER DIAGRAM for GIRDER with form work ℄ reinforcing steel in place

MISCELLANEOUS QUANTITIES

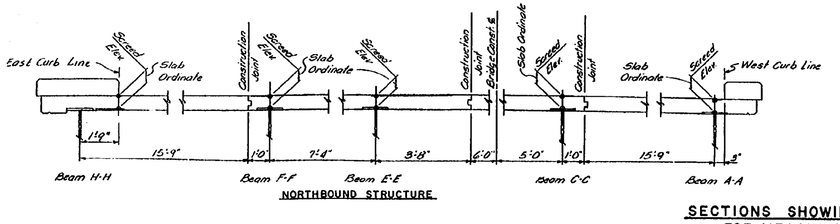
ITEM	UNIT	AMT.
1/2" Joint Filler	Sq. Ft.	139
Copper	Lbs.	450
Hot Poured Rubber - Asphalt Type Filler	Lin. Ft.	132
Bridge Railing - Parapet Type	Lin. Ft.	909.9
Joint Waterproofing	Sq. Ft.	104.0
Dwlh Coating - Type 3	Each	10
Drain Coating - Type 3	Each	5
Drain Casting - Special	Each	5
Manhole Frame ℄ Cover: 162.16"	Each	2
3" Fiber Conduit	Lin. Ft.	497

Amounts shown above are the totals for both structures.

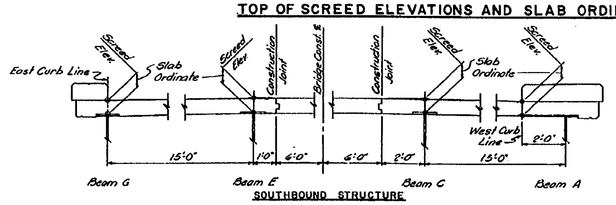
CU. YDS. CONCRETE - GRADE A (6AA)

	SOUTHBOUND STRUCTURE			NORTHBOUND STRUCTURE		
	SPAN 1	SPAN 2	SPAN 3	SPAN 1	SPAN 2	SPAN 3
A	53.4	43.4	48.4	50.9	41.5	46.2
B	34.3	28.1	31.1	34.9	28.0	31.0
C	50.5	41.1	45.7	34.1	27.9	30.9
D	15.0	14.8	15.2	50.8	41.4	46.0
E	–	–	–	15.0	14.8	15.2
TOTAL	153.2	127.4	138.4	185.1	153.6	147.3
Total Concrete S.B. Structure = 419.0				Total Concrete N.B Str. = 506.0		
Total Concrete for Both Structures = 925.0						

NOTE: Concrete Pours, as located, need not be placed in alphabetical order.



NORTHBOUND STRUCTURE



SOUTHBOUND STRUCTURE

SECTIONS SHOWING TYPICAL METHOD FOR MEASURING SLAB ORDINATE

Work this sheet with sheets 205 thru 212, 214 & 215

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

DESIGNED	J.C.C.	5-26-67
DETAILED	D.H.S.	8-15-68
CHECKED	F.D.H.	8-23-67
QUANTITIES	218 - 3/2	

B Rev. span lengths (screed elevs) 1-16-68 R.E.

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MDOT Michigan Department of Transportation

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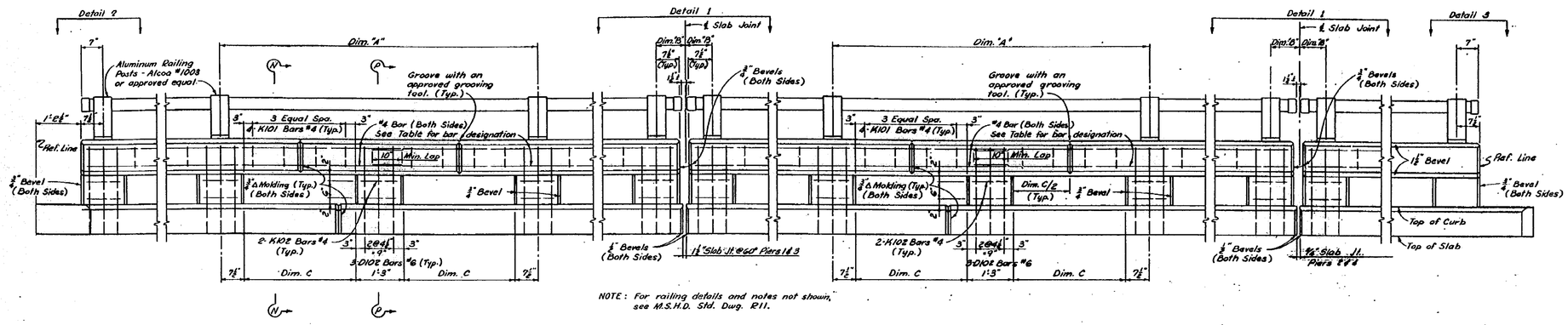
02-14-00	B02 OF 63174	49595A	MAHDAVI	1V OF

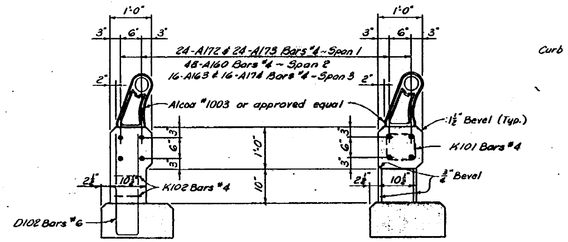
DRAWN BY: INDER DATE:
CORRECTED BY: INDER DATE:
CHECKED BY: DATE: 02-11-00
FILE NAME: b02631741sh

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

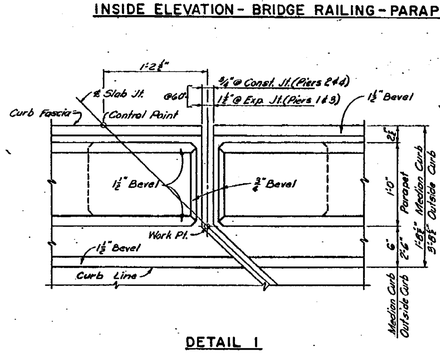
REVISIONS			
NO.	DESCRIPTION	DATE	BY



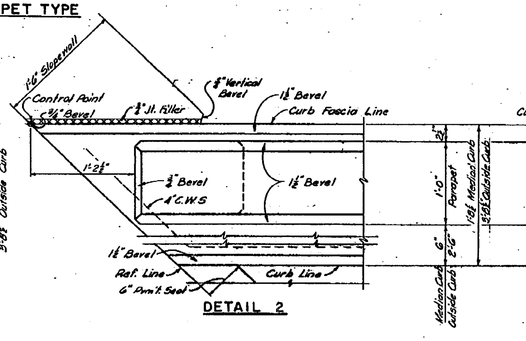
INSIDE ELEVATION - BRIDGE RAILING - PARAPET TYPE



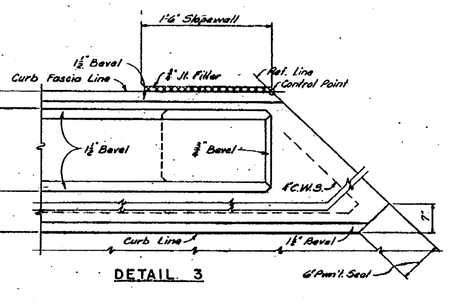
SECTION P-P SECTION N-N



DETAIL 1



DETAIL 2

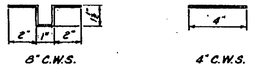


DETAIL 3

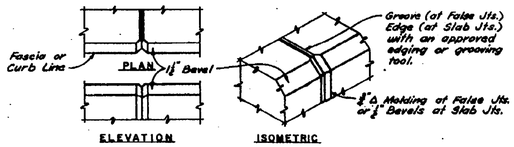
Span	S-B STRUCTURE EAST FASCIA Dim. A	Dim. B	Dim. C	Longit. Steel	S-B STRUCTURE WEST FASCIA Dim. A	Dim. B	Dim. C	Longit. Steel	N-B STRUCTURE EAST FASCIA Dim. A	Dim. B	Dim. C	Longit. Steel	N-B STRUCTURE WEST FASCIA Dim. A	Dim. B	Dim. C	Longit. Steel
1	9'-4 1/2"	9 1/2"	3'-2 1/2"	A172	9'-4"	10 1/2"	3'-6"	A173	9'-4 1/2"	9 1/2"	3'-2 1/2"	A172	9'-3 1/2"	10 1/2"	3'-3 1/2"	A173
2	9'-4"	8 1/2"	3'-2"	A160	9'-0"	8"	3'-3"	⊠	9'-0"	8"	3'-3"	⊠⊠	9'-0"	8"	3'-3"	A160
3	9'-2 1/2"	10 1/2"	3'-2 1/2"	A163	9'-3 1/2"	10"	3'-4 1/2"	A174	9'-2 1/2"	10 1/2"	3'-2 1/2"	A163	9'-2 1/2"	10"	3'-4 1/2"	A174

⊠⊠ Use A165 in long section, A174 in short section
⊠ Use A174 in long section, A169 in short section
* 9" Pier 1, 8 3/16" Pier 2
** 8 1/8" Pier 3, 8 1/4" Pier 4
*** 8 1/16" Pier 3, 8 1/4" Pier 4
⊠ 6 5/16" Pier 1, 6" Pier 2

TABLE OF PARAPET POST DIMENSIONS AND REINFORCEMENT



COPPER WATERSTOP DETAILS



MOLDING DETAILS

Work this sheet with sheets 205 thru 213

MICHIGAN STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS NO.	DESCRIPTION	DATE	BY
1	Corr. Dim. B	5-1-98	TEB
2	Revised railing spacing	1-14-99	T.E.B.

DESIGNED BY	T.P.L.	3-20-98
DRAWN BY	A.E.S.	3-12-98
TRACED BY		
CHECKED BY	P.D.V.	3-23-98
QUANTITIES BY	D.M.A. on 3/16	

B02 OF 63174

NOTE:
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FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1W OF

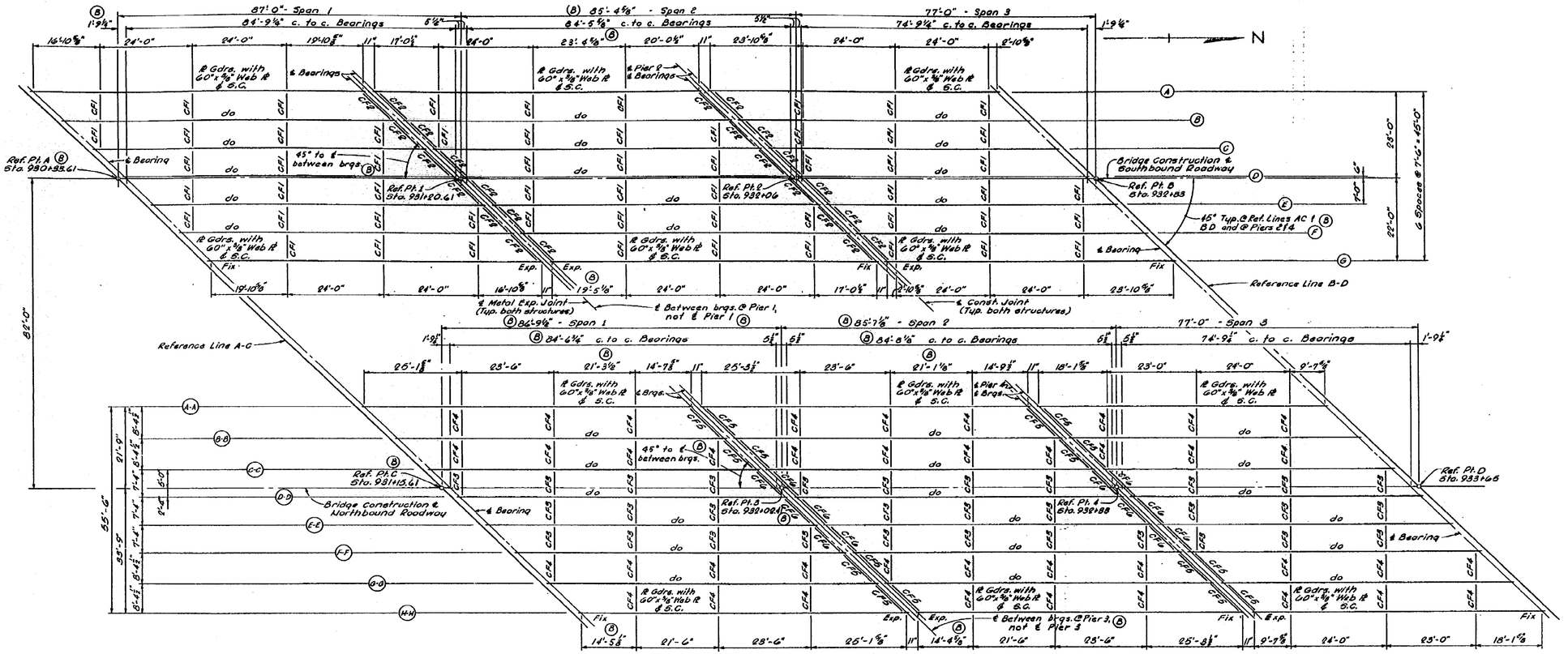
DRAWN BY: INDER DATE: CORRECTED BY: INDER DATE: 02-11-00 CHECKED BY:

FILE NAME: b0263174sn

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1X

REVISIONS			
NO.	DESCRIPTION	DATE	BY



ERECTION DIAGRAM

Note: For relationship of ℄ between bearings at Piers 1 & 3 and ℄ of Piers 1 & 3, see sheet 602A.

STRUCTURAL STEEL NOTES:

Fabrication: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction - 1960 Edition.
Design: Michigan State Highway Department's Specifications for Design of Highway Bridges - 1953 Edition. H20-S16-44 Loading & alternate military loading. Allowable live load plus impact deflection = Span ÷ 1000.
Shop Connections: All shop connections shall be welded or riveted as shown on the plans.
Field Connections: Field connections, unless otherwise noted, shall be bolted with high-strength bolts. Contact surfaces shall be thoroughly cleaned immediately prior to assembly of joints. High-Strength Bolts - ¾" ϕ.
Open Holes: Open holes for high-strength bolts shall be 1⅛" ϕ unless otherwise noted.
Shop Paint: In addition to the shop paint provisions of the Standard Specifications the top surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces. Top surfaces of all girders shall receive one coat of boiled linseed oil only. Metal floor joints shall not be painted in shop except as noted on the plans.
Camber: The girders shall be cambered as shown on the plans.
Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1¼" in thickness. Edges must be beveled ⅜" and welded, with a continuous weld, for the full perimeter. Welds shall be ground flush with faces of plate.

All Web Plates, Flange Plates and stiffeners shall conform to the requirements for welding (A.S.T.M. A-373). All other steel shall be A-7.
The quantity "Structural Steel - Furnishing and Fabricating" includes:
- 108,800# A-7 Steel (Includes W.H. Metal Exp. Jt. & Light standard anchor bolt assembly)
- 699,250# A-373 Steel (For details of light standard anchor bolt assembly see sht. # 607)
- 850# Lead Plates

Total 905900 # Structural Steel - Furnishing & Fabricating
Total 905900 # Structural Steel - Erection
Field Painting - Lump Sum Spiral Shear Developers - 12517#
Camber and other dimensional tolerances are to be in accordance with American welding Society Specifications.
The Contractor may substitute studs for the spiral shear developers shown on the drawings if he submits details of the proposed substitution and obtains approval of the M.S.H.D. Design Office prior to making the substitution.

Work this sheet with sheets 215, 216, 218 & 219

MICHIGAN STATE HIGHWAY DEPARTMENT
STRUCTURAL STEEL DETAILS
TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
6	Rev. span lengths span 2 to 3 S.S. 1 spaces 1'6 N.S.	1-16-68	K.K.

TRACED BY:	JDC	3-24-67
DESIGN BY:	M.G.A.	
CHECKED BY:		
CHECKED BY:	GDS	12-27-67
APP. 219		1-8-68

B02 OF 631741

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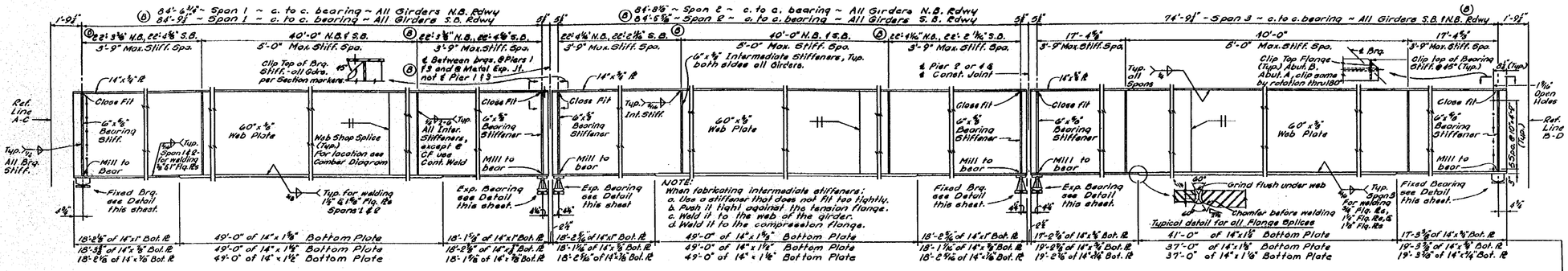
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1X OF

DRAWN BY: INGER DATE: CORRECTED BY: DATE: DATE: 02-11-00 CHECKED BY:

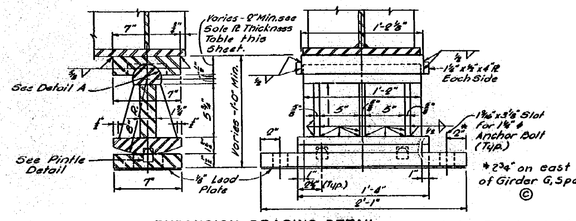
FILE NAME: b0263174sn

REVISIONS			
NO.	DESCRIPTION	DATE	BY



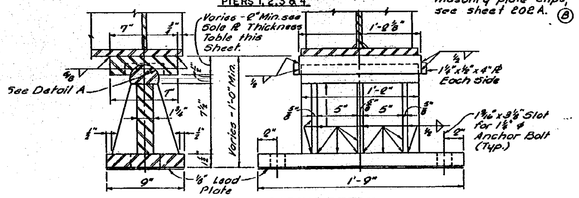
TYPICAL ELEVATION — ALL GIRDERS

Ⓑ Top row dimensions for Beams A-A thru GG & f-f thru H-H
Middle row dimensions for Beams A thru G
Bottom row dimensions for Beams D-D & E-E

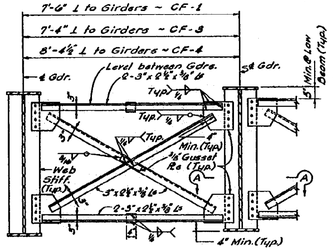


EXPANSION BEARING DETAIL
PIERS 1, 2, 3 & 4

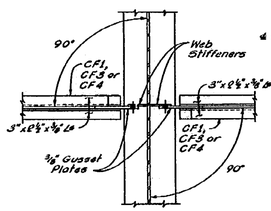
Note: For details of masonry plate clips, see sheet 202A. Ⓑ



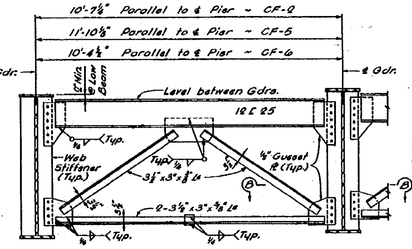
FIXED BEARING DETAIL
PIERS 2 & 4



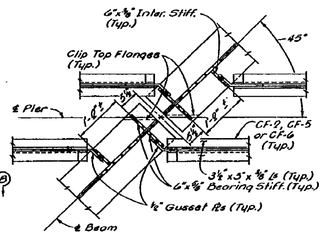
CROSS FRAME
CF-1, 3 & 4



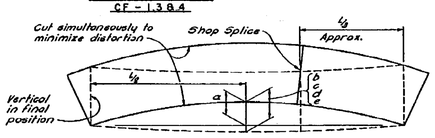
SECTION A-A



CROSS FRAME
CF-2, 5 & 6



SECTION B-B



CAMBER DIAGRAM

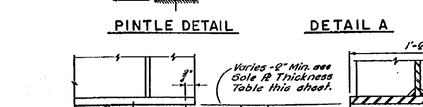
Cut web plates to parabolic camber indicated by diagram.
a. = Total camber required at mid-span at stage indicated.
b. = 1.593"~ Girders A thru G, D-D & E-E ~ Span 1 & 2.
c. = 1.113"~ Girders A thru G, D-D & E-E ~ Span 3.
d. = 1.465"~ Girders A-A thru C-C & F-F thru H-H ~ Spans 1 & 2.
e. = 1.167"~ Girders A-A thru C-C & F-F thru H-H ~ Span 3.
b thru e = Total deflection in ℄ Girder when bridge is completed.

TABLE OF THEORETICAL CAMBER

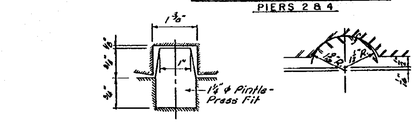
CONSTRUCTION STAGE	GIRDER	GIRDER POSITION SPANS 1 & 2 FLAT	SPANS 1 & 2 UPRIGHT	SPAN 3 FLAT	SPAN 3 UPRIGHT	GIRDER	GIRDER POSITION SPANS 1 & 2 FLAT	SPANS 1 & 2 UPRIGHT	SPAN 3 FLAT	SPAN 3 UPRIGHT
After cutting web and assembling	A thru C-C & F-F thru H-H	1.198"		.875"		A-A thru C-C & F-F thru H-H	1.050"		.675"	
After welding flanges & stiffeners *	G & E-E	1.125"	.847"	.875"	.706"		1.050"	.931"	.675"	.707"
After welding shear connectors	D-D & E-E	.597"		.456"				.721"		.459"

* At this stage camber should be corrected within ±1/32" x 1/8" tolerance by heating in the shop.

Ⓐ NOTE: The fabricator has elected to use full length cover plates and will supply the additional metal at no increase in cost. Cover plates as shown here are as designed. Elevations of substructure and thickness of sole plates have been adjusted to allow for the full length cover plates.



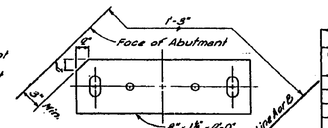
FIXED BEARING DETAIL
ABUT. A & B



PINTLE DETAIL

DETAIL A

NOTE: Anchor Bolts to be 1¼" ø x 1'-4" long with hex nut and washer. 180 required.



DETAIL OF ABUT. BEARING PLATE SHOWING CLIP

SOLE PLATE THICKNESS TABLE

GRD. NO.	ABUT. A	PIER 1 SPAN 1	PIER 1 SPAN 2	PIER 2 SPAN 2	PIER 2 SPAN 3	ABUT. B
A	2"	3"	2⅝"	2⅜"	2⅛"	3"
B	2⅛"	2⅝"	2"	2⅛"	2⅜"	2⅝"
C	2"	2⅝"	2⅛"	3"	2⅝"	2"
D	2"	1'-2⅛"	2⅜"	2½"	2⅛"	2"
E	2"	2⅛"	2⅝"	2⅛"	2½"	2"
F	2"	2⅜"	2½"	2⅜"	2½"	2"
G	2"	2⅛"	2⅜"	2"	2⅜"	2"

Ⓑ Ⓐ

SOLE PLATE THICKNESS TABLE

GRD. NO.	ABUT. A	PIER 3 SPAN 1	PIER 3 SPAN 2	PIER 4 SPAN 2	PIER 4 SPAN 3	ABUT. B
A-A	3½"	4½"	4"	2⅝"	3½"	2⅝"
B-B	3"	4¼"	4"	3½"	3½"	2⅜"
C-C	2"	3⅝"	3½"	3"	3½"	2⅜"
D-D	2"	2⅝"	2⅝"	2"	2⅜"	2"
E-E	2"	2⅝"	2½"	2"	2⅛"	2"
F-F	2"	2⅝"	2"	2"	2⅛"	2⅛"
G-G	2"	2⅝"	2"	2"	2⅝"	2⅝"
H-H	2"	2⅝"	2"	2"	2⅝"	2⅝"

Ⓐ Ⓑ

Work this sheet with sheets 217 & 219

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
A	Rev. anch. bolt dim.	2/8/00	RCE
B	Revised span lengths spans 1 & 3 & rev. sole plates	2-14-00	RCE

Quantities of Sole & Cov. PL. 2-14-00 JCB

DES.	JPC 3-82-61
DET.	N.P.A.
CK.	EDB 7-27-62
QUAN.	218 & 219

B02 OF 63174I

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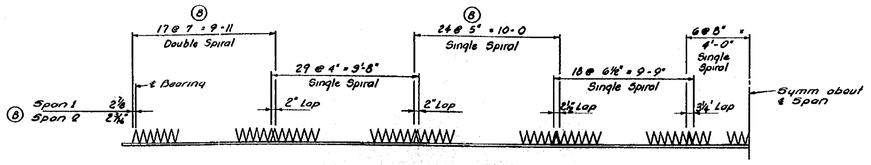
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	1Y OF

DRAWN BY: INDER CORRECTED BY: INDER CHECKED BY: DATE: 02-11-00 DATE: DATE:

FILE NAME: b0263174sm

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 1Z

REVISIONS			
NO.	DESCRIPTION	DATE	BY

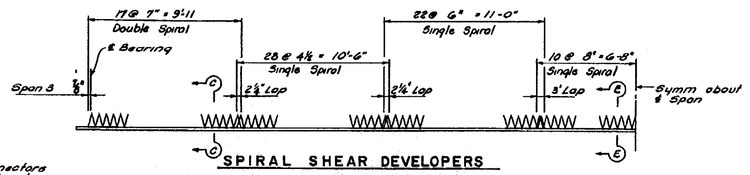


SPIRAL SHEAR DEVELOPERS

SPANS 1 & 2 N-B, GIRDERS A-A THRU C-C & F-F THRU H-H

⅝" ϕ Spiral - 4½" mean ϕ

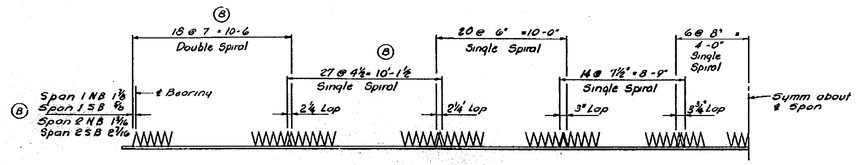
NOTE Stop shear connectors short of Top Flg clip & Metal Exp Jt Conn



SPIRAL SHEAR DEVELOPERS

SPAN 3 N-B & S-B, GIRDERS A THRU G & A-A THRU H-H

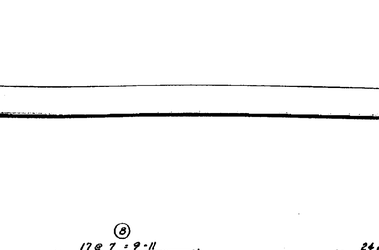
⅝" ϕ Spiral - 4½" mean ϕ



SPIRAL SHEAR DEVELOPERS

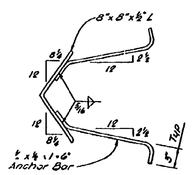
SPANS 1 & 2 N-B & S-B, GIRDERS A THRU G, D-D & E-E

⅝" ϕ Spiral - 4½" mean ϕ

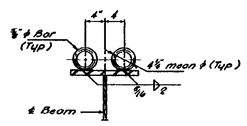


PIER NOSING DETAIL

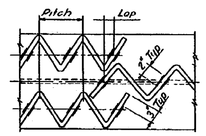
NOTE Painting of Pier nosings is included in item Field Painting



SECTION D-D

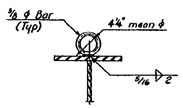


SECTION C-C



PART PLAN

SINGLE DOUBLE SPIRAL SHEAR DEVELOPER



SECTION E-E

Work this sheet with sheets B02, B03, E17 & E18

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

TECON ENGINEERS, INC

JDC 3 24 52
NBA
ADB 2 17 3/12 8 27-02

B. Revised spirals spans 1 & 2 1/4 63 P.E.

B02 OF 631741

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MDOT Michigan Department of Transportation

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02-14-00	B02 OF 63174	49595A	MAHDAVI	1Z OF

DATE: CORRECTED BY: INDER

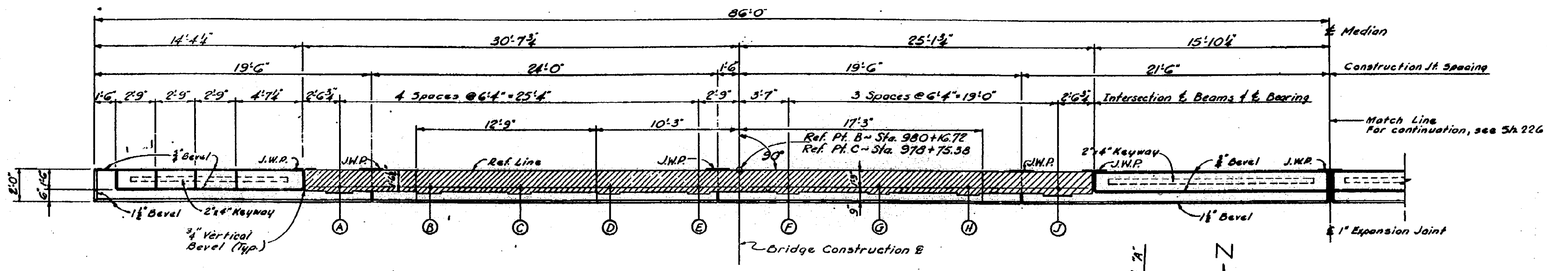
DATE: 02-11-00 CHECKED BY:

DRAWN BY: INDER

FILE NAME: b0263174sh

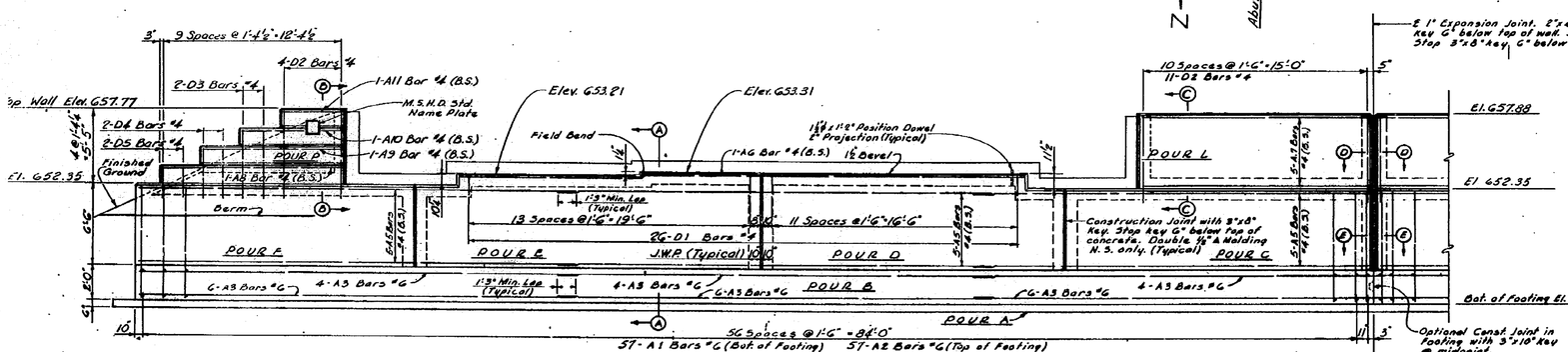
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 1AA

REVISIONS			
NO.	DESCRIPTION	DATE	BY

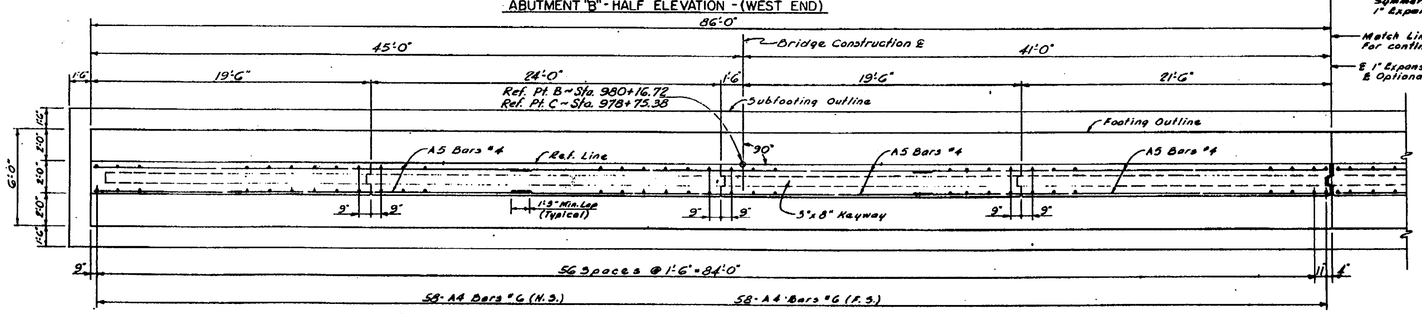


CONCRETE QUANTITIES				
POUR	ABUT. A		ABUT. B	
	A(GA)	A(GAA)	A(GA)	A(GAA)
A	29.2		29.2	
B	76.3		76.8	
C		10.4		10.4
D		11.4		11.4
E		12.9		12.9
F		9.4		9.4
G		10.4		10.4
H		11.4		11.4
J		12.9		12.9
K		9.4		9.4
L		4.8		4.8
M		4.8		4.8
N		2.6		2.6
P		2.6		2.6
Total	105.5	103.0	105.5	103.0

ABUTMENT "A" - HALF PLAN OF TOP (EAST END)
ABUTMENT "B" - HALF PLAN OF TOP (WEST END)



ABUTMENT "A" - HALF ELEVATION - (EAST END)
ABUTMENT "B" - HALF ELEVATION - (WEST END)



ABUTMENT "A" HALF PLAN OF FOOTING (EAST END)
ABUTMENT "B" - HALF PLAN OF FOOTING (WEST END)

MISCELLANEOUS QUANTITIES				
ITEM	UNIT	ABUT. A	ABUT. B	TOTAL
¼ Joint Filler	Sq. Ft.	5	5	10
½ Joint Filler	Sq. Ft.	172	172	344
¾ Joint Filler	Sq. Ft.	31	31	62
1" Joint Filler	Sq. Ft.	21	21	42
Jt. Waterproofing	Sq. Ft.	386	386	772

36-1½"ø x 1'-2" position dowels (incidental) to substructure concrete.

NOTES

J.W.P. denotes joint waterproofing.
N.S. denotes near side.
F.S. denotes far side.
B.S. denotes both sides.
For Bevel and Molding Details, see Std. Sheet R11.
For location of Name Plates, see General Plan of Structure Sheet; for mounting details, see Std. Sheet R11.
Parapet walls and slopewalls are to be cast after superstructure is complete to top of curbs.
Position Dowels shall be set accurately to a template.
Furnishing and setting of Position Dowels is incidental to substructure concrete.
The Top Concrete shall be finished to a true plane at the elevation shown and shall not vary more than ⅛" under a ten foot straight edge.
This design is based on a maximum foundation pressure of 3650 pounds per square foot and a maximum average foundation pressure of 2950 pounds per square foot.

Work this sheet with sheet 226

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	GTC	2-26-01
DRAWN BY	JDC	2-5-01
TRACED BY		
CHECKED BY	GTC	2-19-01

SHEET 225 OF 312

S04 OF 63174 I

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MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

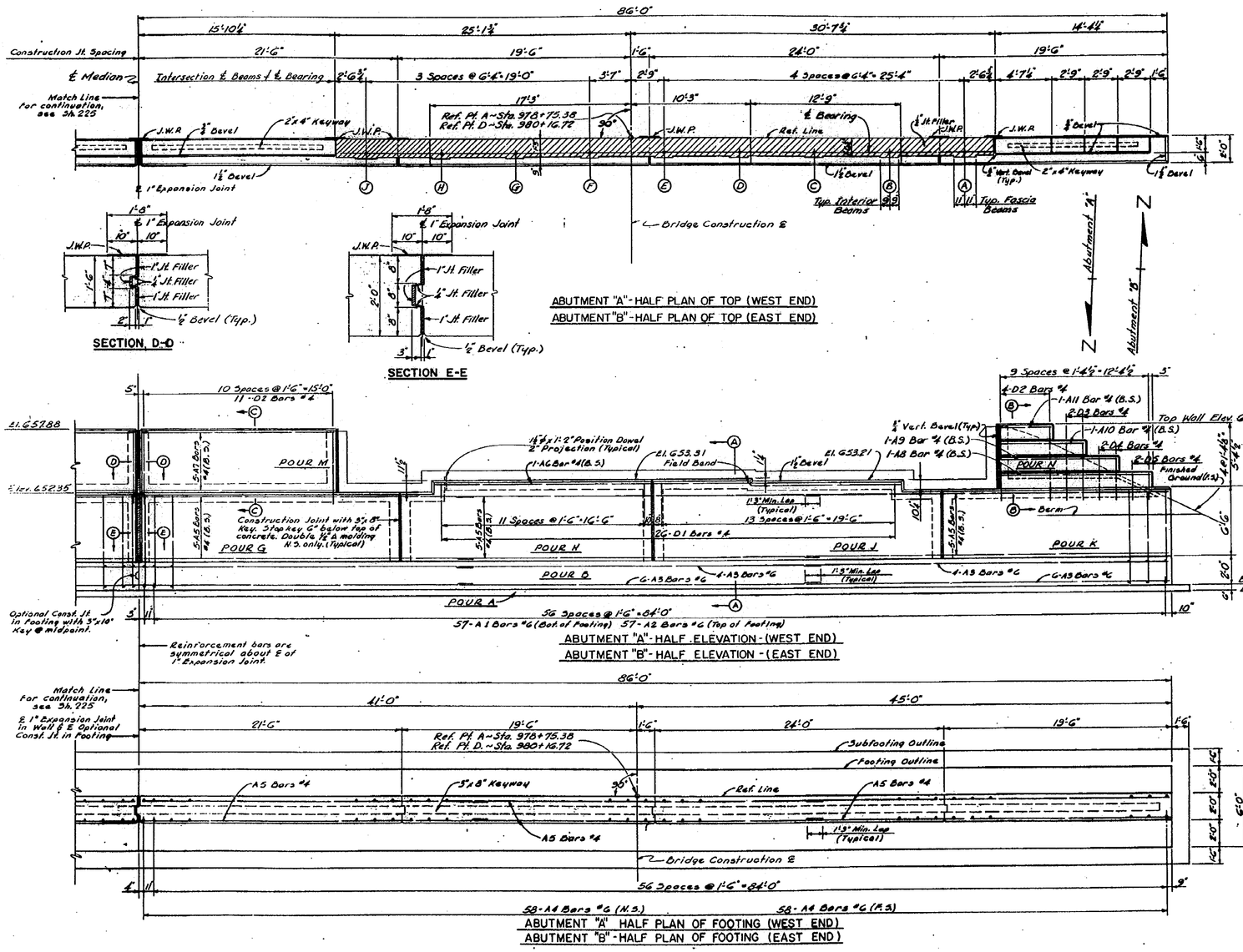
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
04-12-00	S04 OF 63174	49595A	MAHDAVI	1AA OF

DATE: CORRECTED BY:
DATE: 04-12-00 CHECKED BY:
DRAWN BY: INDER
FILE NAME: s0462174sn.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 1AB

REVISIONS			
NO.	DESCRIPTION	DATE	BY



MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	A.F.C.	2-2-61
DRAWN BY	J.D.C.	2-9-61
TRACED BY		
CHECKED BY	C.T.C.	2-9-61

SHEET 226 OF 312

S04 OF 63174 I

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FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
04-12-00	S04 OF 63174	49595A	MAHDAVI	1AB OF

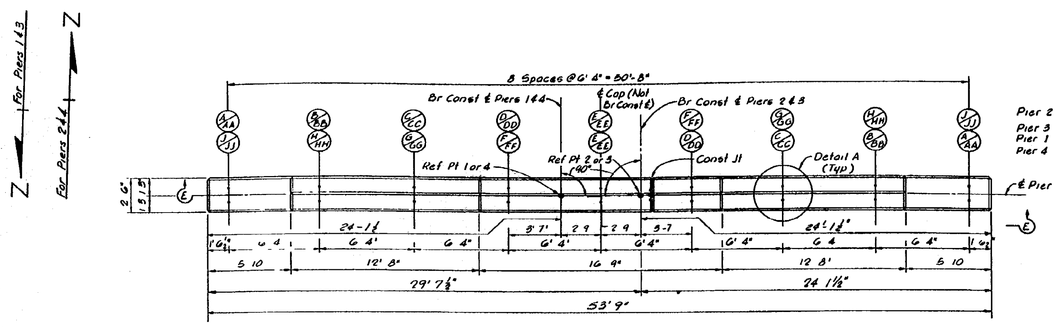
DRAWN BY: INDER DATE: 04-12-00 CHECKED BY: DATE: CORRECTED BY: DATE:

FILE NAME: s0462174sn.

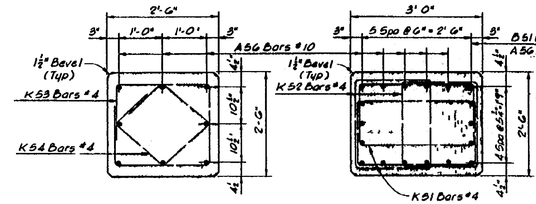
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 1AC

REVISIONS			
NO.	DESCRIPTION	DATE	BY

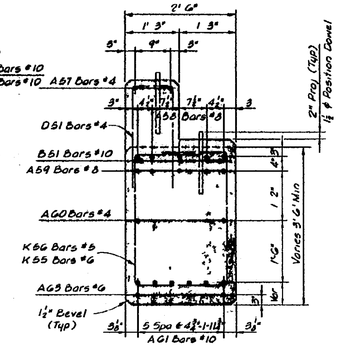


CAP PLAN

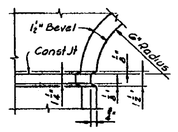


SECTION A-A

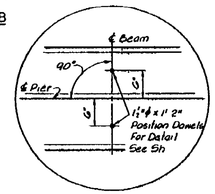
SECTION B-B



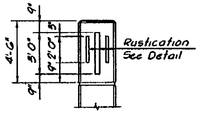
SECTION C-C



DETAIL B

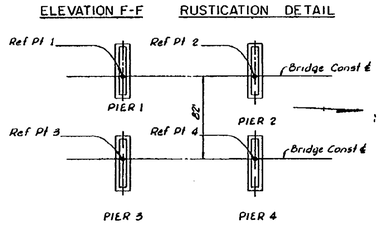


DETAIL A

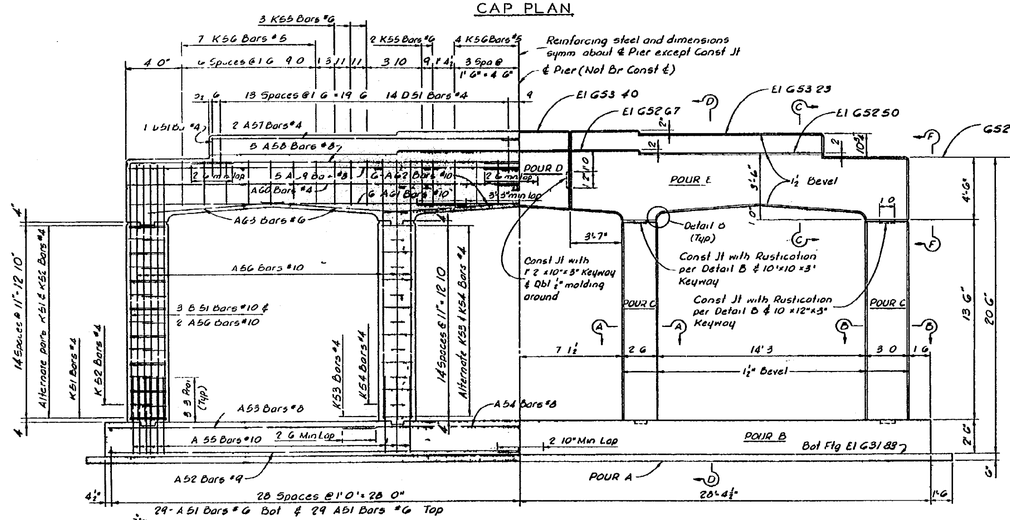


ELEVATION F-F

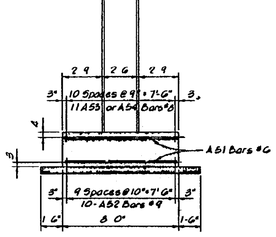
RUSTICATION DETAIL



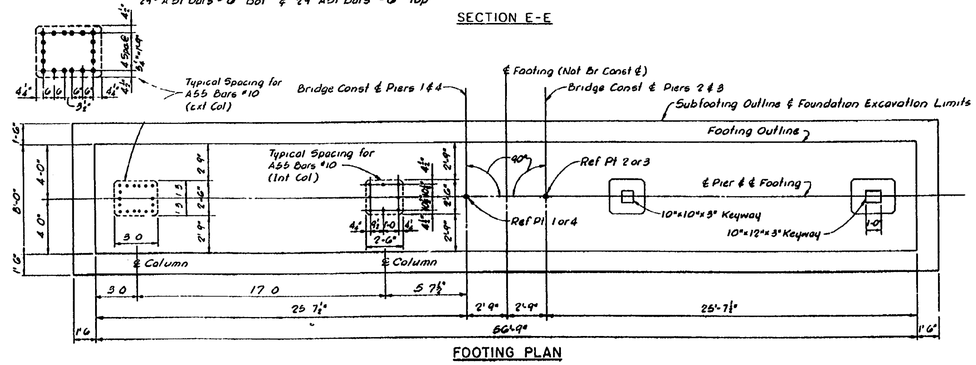
LOCATION DIAGRAM



SECTION E-E



SECTION D-D



FOOTING PLAN

CONCRETE QUANTITIES - CUBIC YARDS

POUR	LOCATION	PIER 1		PIER 2		PIER 3		PIER 4	
		GR A(6A)	GR A(6AA)	GR A(6A)	GR A(6AA)	GR A(6A)	GR A(6AA)	GR A(6A)	GR A(6AA)
A	Subfooting	180		130	-	180	-	180	
B	Footing	420		420		420		420	
C	Columns		139		139		139		139
D	Cap*		125		125		125		125
E	Cap*		96		96		96		96
TOTALS		640	360	640	360	640	360	540	360

MISCELLANEOUS QUANTITIES

ITEM	UNITS	PIER 1	PIER 2	PIER 3	PIER 4
Foundation Excavation	Cu Yds	140	140	140	140

For Bevel and Molding Details, see Standard Sheet R11

Position Dowels shall be set accurately to a template. Furnishing and setting of position dowels is incidental to substructure concrete.

The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of the position dowels.

The top of pier shall be finished to a true plane at the elevations shown and shall not vary more than ¼" under a ten foot straight edge.

This design is based on a maximum foundation pressure of 3950 #/ft² and a maximum average foundation pressure of 3350 #/ft².

MICHIGAN STATE HIGHWAY DEPARTMENT

PIERS NO. 1, 2, 3 & 4 DETAILS

TECON ENGINEERS, INC

REVISIONS			
NO.	DESCRIPTION	DATE	BY

S04 OF 63174 I.

NOTE:
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MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
04-12-00	S04 OF 63174	49595A	MAHDAVI	1AC OF

DATE: CORRECTED BY:

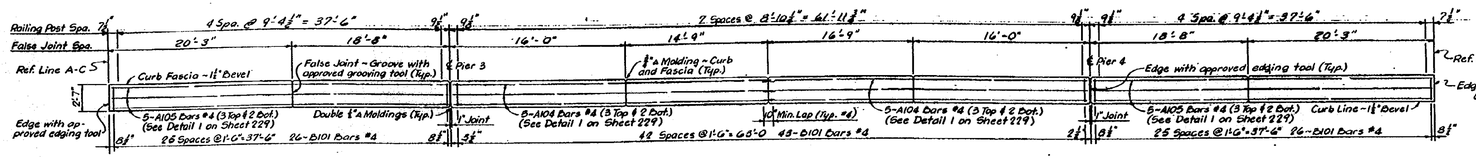
DATE: 04-12-00 CHECKED BY:

DRAWN BY: INDER

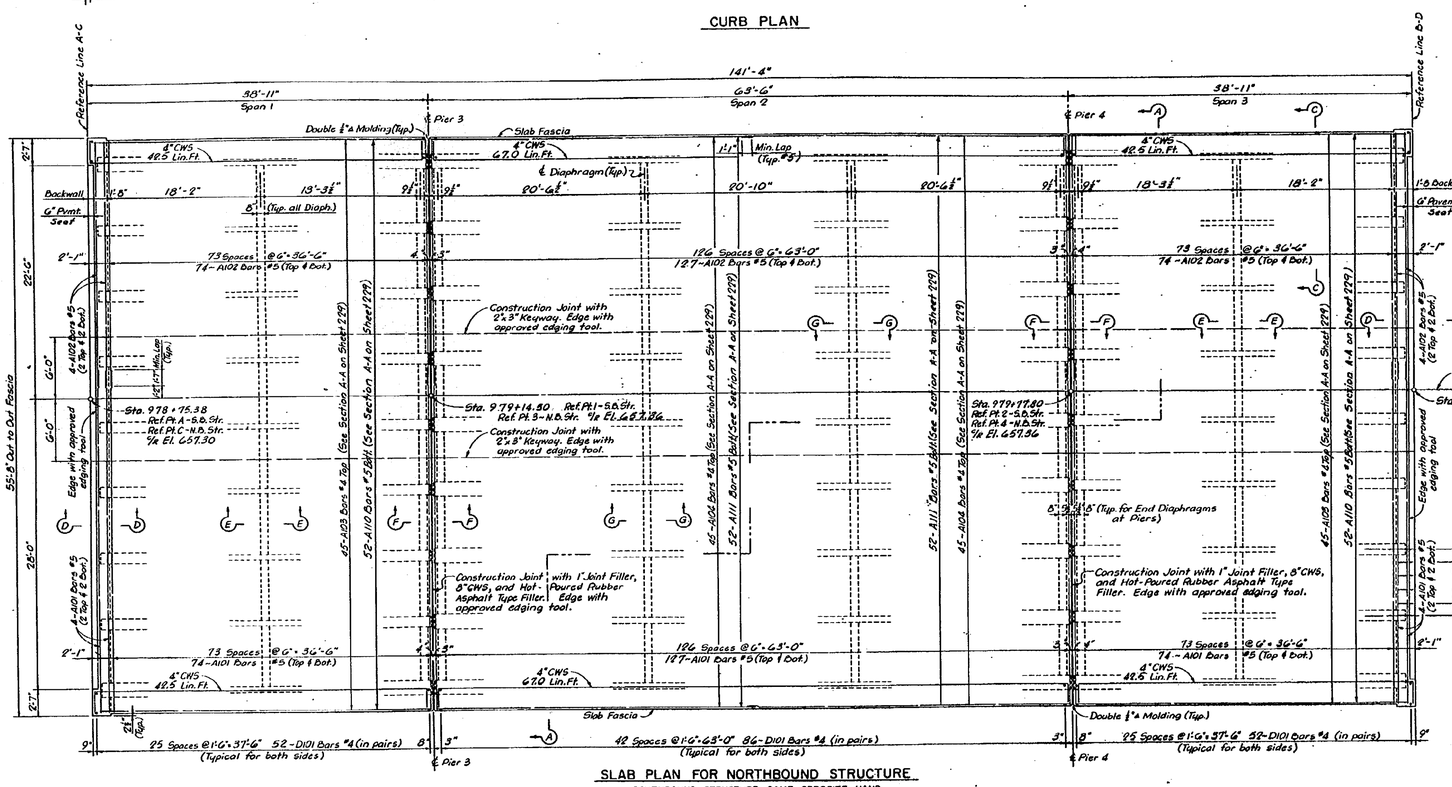
FILE NAME: s0462174sn.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

REVISIONS			
NO.	DESCRIPTION	DATE	BY

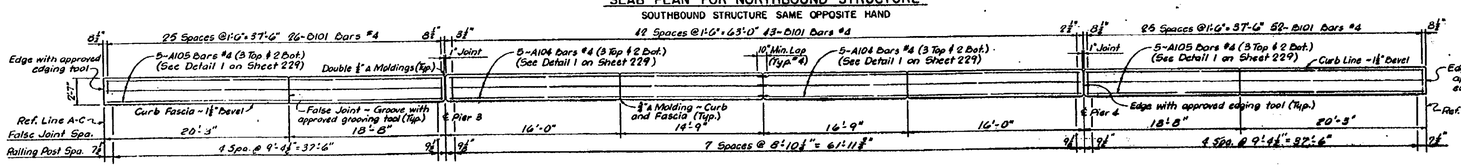


CURB PLAN

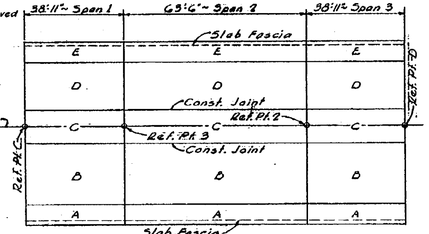


SLAB PLAN FOR NORTHBOUND STRUCTURE

SOUTHBOUND STRUCTURE SAME OPPOSITE HAND



CURB PLAN



POUR DIAGRAM

N.B. Structure shown, S.B. Structure similar by rotation.

CU. YDS. CONCRETE - GR. A(6AA)			
POUR	SPAN 1	SPAN 2	SPAN 3
A	3.1	5.1	3.1
B	29.9	42.5	29.9
C	14.2	20.7	14.2
D	23.4	33.0	23.4
E	3.1	5.1	3.1
Diaph's	4.6	10.0	4.6
Total	78.3	116.4	78.3
Total Concrete - N.B. Structure			273.0
Total Concrete - S.B. Structure			273.0

Concrete pours need not be placed in alphabetical order.

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMT.
1" Joint Filler	Sq. Ft.	193
Hot-Poured Rubber Asphalt Type Filler	Lin. Ft.	290
Copper	Lbs.	346
Bridge Railing - Parapet Type	Lin. Ft.	565.4

Amounts shown above are the totals for both structures.

GENERAL NOTES

For Railing Details, see Sheet 251.
CWS denotes Copper Waterstop.
JWP denotes Joint Waterproofing.
For Bevel and Molding Details, see Sheet R11.
Edge and Groove denote Edging or Grooving with an approved tool.
Curb pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by the table in Section 501.03 of the Standard Specifications.

Work this sheet with sheets 229, 230, 231 & 232

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BRIDGE DESIGN	GTC	
DRAWN BY	JPB	11-01-01
TRACED BY		
CHECKED BY	GTC	2-26-01
SHEET 228 OF 318		

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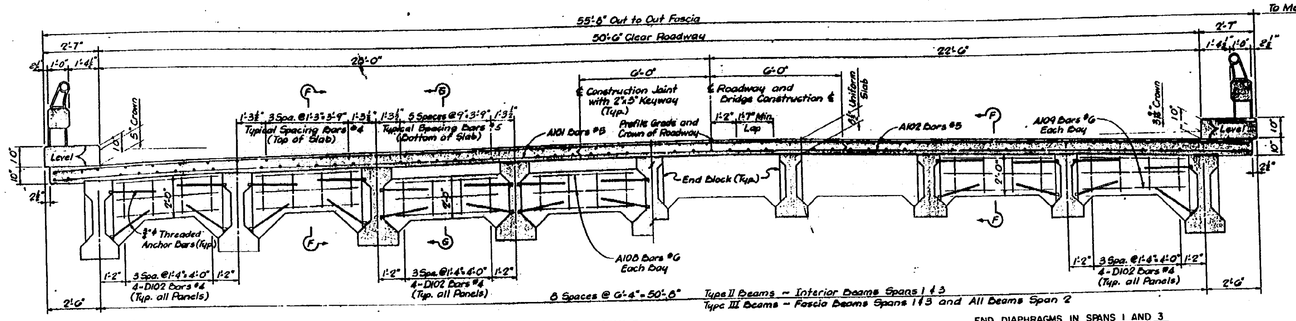
MDOT Michigan Department of Transportation

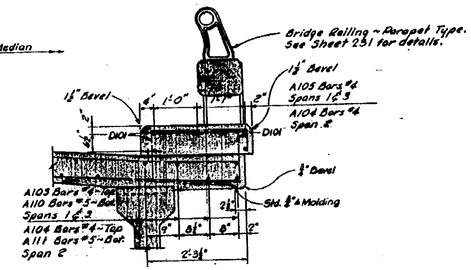
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
04-12-00	S04 OF 63174	49595A	MAHDAVI	1AD OF

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 1AE

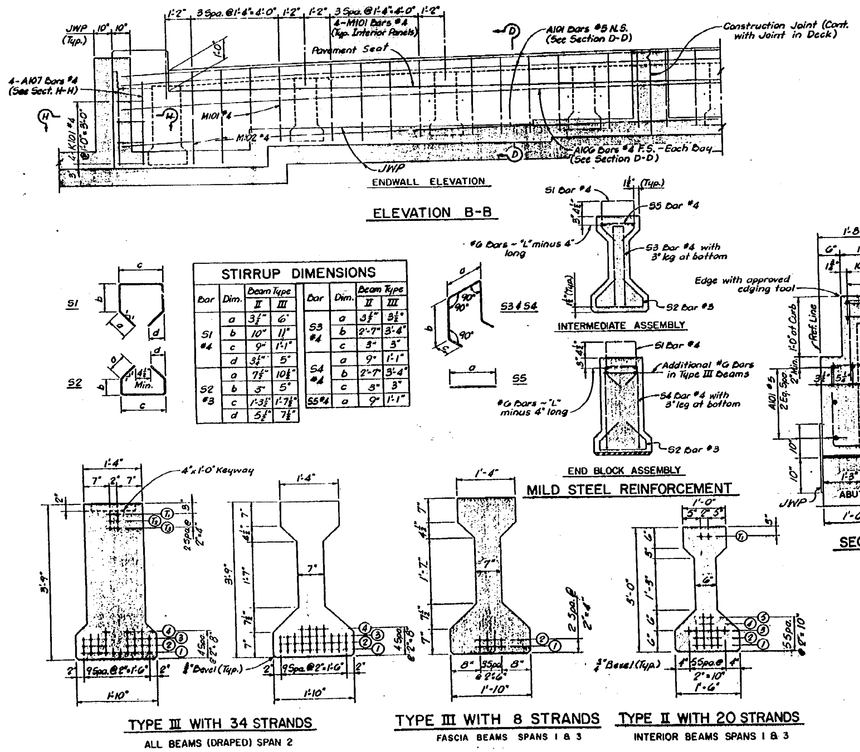
REVISIONS			
NO.	DESCRIPTION	DATE	BY

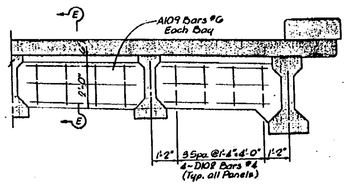


SECTION A-A



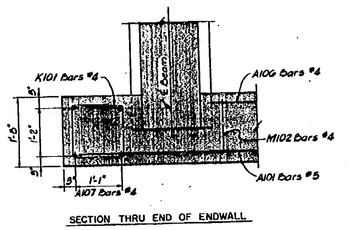
DETAIL 1





INTERMEDIATE DIAPHRAGMS IN SPANS 1 AND 3

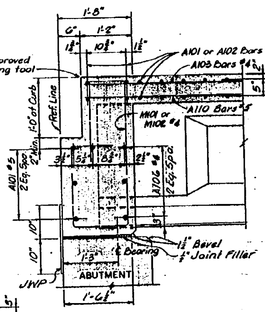
SECTION C-C



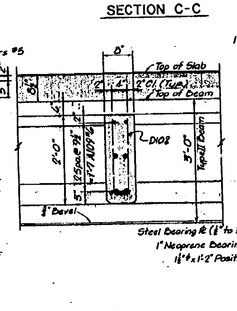
SECTION THRU END OF ENDWALL

SECTION H-H

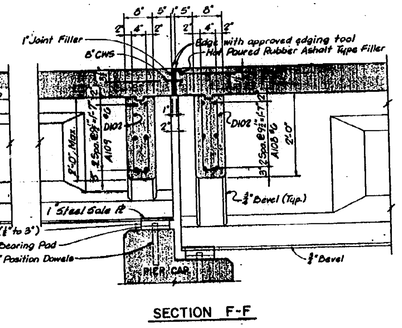
STIRRUP DIMENSIONS							
Bar	Dim.	Beam Type II	Beam Type III	Bar	Dim.	Beam Type II	Beam Type III
S1 #4	a	3'-5"	6'	S3 #4	a	3'-5"	3'-5"
	b	10"	11"		b	2'-7"	3'-8"
	c	9"	1'-1"		c	3"	3"
	d	3'-5"	5'	S4 #4	a	9"	1'-1"
S2 #3	a	7'-5"	10'-5"		b	2'-7"	3'-4"
	b	3"	5"		c	3"	3"
	c	1'-3'-5"	1'-7'-5"	S5 #4	a	9"	1'-1"
	d	5'-5"	7'-5"				



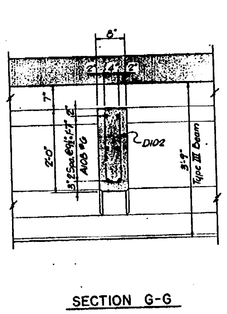
SECTION D-D



SECTION E-E



SECTION F-F



SECTION G-G

STRAND TABLE												
NUMBER OF 7/16" ϕ - 7 WIRE STRANDS PER ROW												
Type Beam	No. of Strands	Row Number 1	2	3	4	5	6	T1	T2	T3	T4	T5	T6
II	20	4	4	4	2	2	-	2	-	-	-	-	-
III	8	4	4	-	-	-	-	-	-	-	-	-	-
III (Draped)	34 Ctr.	10	10	10	4	-	-	-	-	-	-	-	-
	34 End	10	6	6	2	-	-	2	2	2	-	-	-

Work this sheet with sheets 228, 230, 231, & 232

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BRIDGE ENGR.	GTC	
DRAWN BY	JPD	1-10-01
TRACED BY		
CHECKED BY	GTC	2-22-01
SHEET 229 OF 232		

S04 OF 63174 I

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MDOT Michigan Department of Transportation

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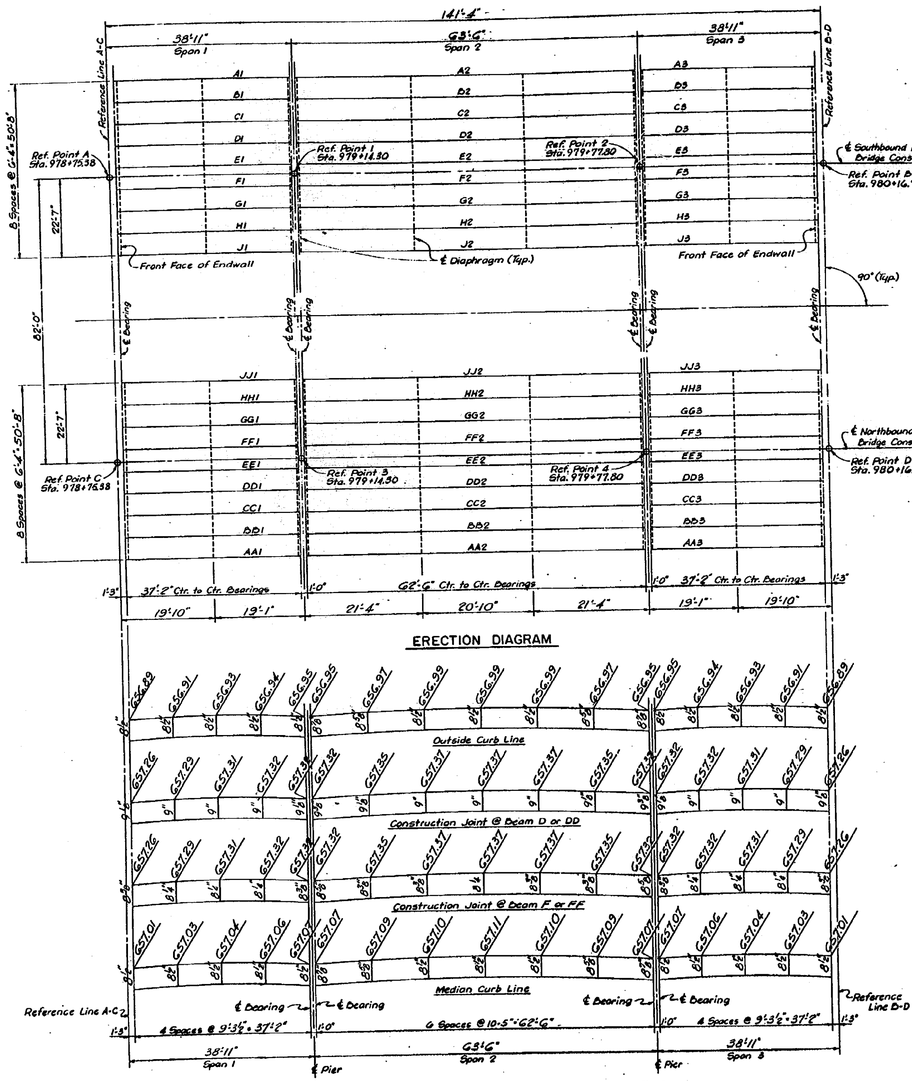
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
04-12-00	S04 OF 63174	49595A	MAHDAVI	1AE OF

DATE: DATE: CORRECTED BY: DRAWN BY: INDER DATE: 04-12-00 CHECKED BY: FILE NAME: s0462174sn.

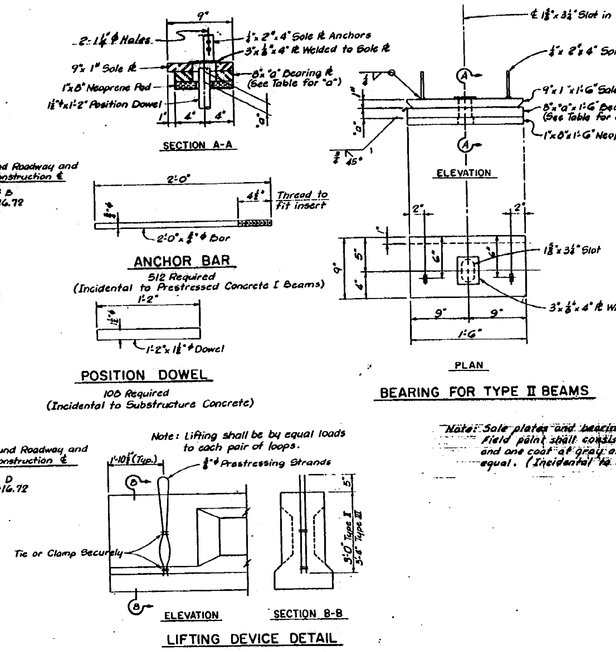
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

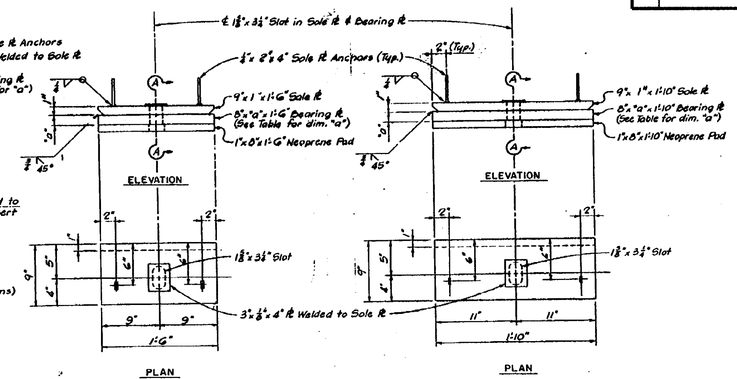
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 1AF

REVISIONS			
NO.	DESCRIPTION	DATE	BY



ERECTION DIAGRAM





Note: Sole plates and bearing plates require no shop paint. Field paint shall consist of one coat of Rustoleum Primer and one coat of gray or aluminum Rustoleum or approved equal. (Incidental to erection of beams.)

LIFTING DEVICE DETAIL

BEAM TABLE

Span	Position of Beams	Number of Beams Required	Depth of Beams	Length of Beam End to End	Number of ½" ϕ Strands	Initial Prestressing Force per Strand (pounds)	Total Initial Prestressing Force in Beam (pounds)	Approx. Weight of each Beam (pounds)
1	Interior	14	3'-0"	38'-0"	20	19,075	381500	75100
1	Fascia	4	3'-9"	38'-0"	8	*18,500	148000	93900
2	All	18	3'-9"	65'-6"	34	19,075	648550	98600
3	Interior	14	3'-0"	38'-0"	20	19,075	381500	75100
3	Fascia	4	3'-9"	38'-0"	8	*18,500	148000	93900

*Reduce Initial Prestressing Force so that stress after losses equals 150000 psi.

BEARING PLATE THICKNESS TABLE ("a")

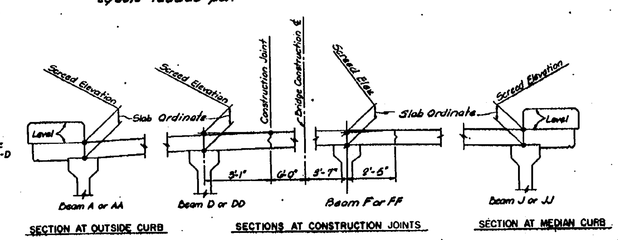
Beam	Span 1 Abuts. A	Span 1 Piers 1&3	Span 2 Piers 1&3	Span 2 Piers 2&4	Span 3 Piers 2&4	Span 3 Abuts. D
A or AA	¾"	1"	½"	½"	1"	¾"
B or BB	¾"	½"	0	0	½"	¾"
C or CC	2⅝"	1⅞"	1⅜"	1⅜"	1⅞"	2⅝"
D or DD	2⅞"	1"	½"	½"	1"	2⅞"
E or EE	2⅞"	1¾"	1¼"	1¼"	1¾"	2⅞"
F or FF	2⅞"	1¾"	1¼"	1¼"	1¾"	2⅞"
G or GG	2"	2⅜"	2⅜"	2⅜"	2⅜"	2"
H or HH	¾"	1¾"	1¼"	1¼"	1¾"	¾"
J or JJ	2⅝"	2⅜"	2"	2"	2⅜"	2⅝"

Elevations shown are for top of screed before pouring any concrete and are based on a minimum slab thickness of 8½". After screeds are set, if check indicates that less than the minimum thickness will be obtained, adjust the screeds accordingly.
The slab ordinates shown provide for dead load deflection, vertical curve, and crown, and are to be measured from the top of the beam indicated to the top of the screed (on a line parallel to the reference lines).

Work this sheet with sheets 228, 229, 231, & 232

TOP OF SCREED ELEVATIONS AND SLAB ORDINATES

* Screed Elevations and Finished Top of Slab Elevations Same at ℄ Bearing. Elevations Typical Northbound and Southbound Structures except as noted.



SECTIONS SHOWING TYPICAL METHOD FOR MEASURING SLAB ORDINATE

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN BY	GTC	1-5-00
DRAWN BY	JPD	
TRACED BY		
CHECKED BY	GTC	2-24-00
SHEET 230 OF 612		

S04 OF 63174

NOTE:
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MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

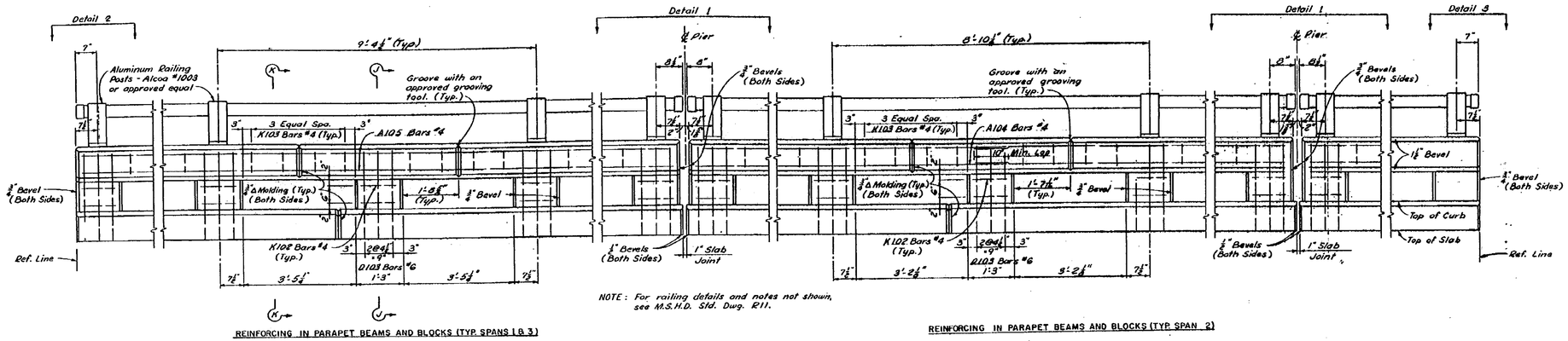
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
04-12-00	S04 OF 63174	49595A	MAHDAVI	1AF OF

DATE: CORRECTED BY:
DATE: 04-12-00 CHECKED BY:
DRAWN BY: INDER
FILE NAME: s0462174sn.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 1AG

REVISIONS			
NO.	DESCRIPTION	DATE	BY

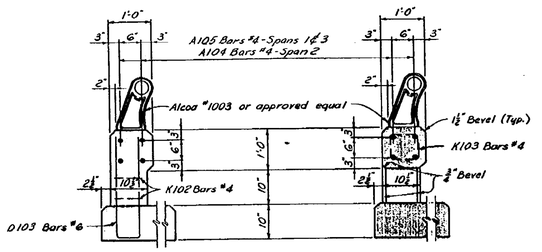


REINFORCING IN PARAPET BEAMS AND BLOCKS (TYP. SPANS 1 & 3)

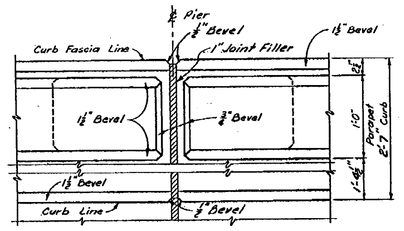
NOTE: For railing details and notes not shown, see M.S.H.D. Std. Dwg. R11.

REINFORCING IN PARAPET BEAMS AND BLOCKS (TYP. SPAN 2)

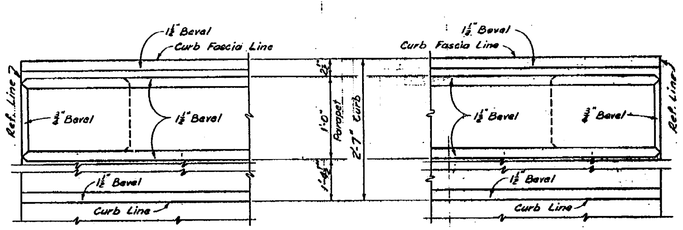
INSIDE ELEVATION - BRIDGE RAILING - PARAPET TYPE



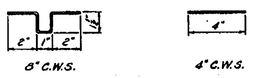
SECTION J-J SECTION K-K



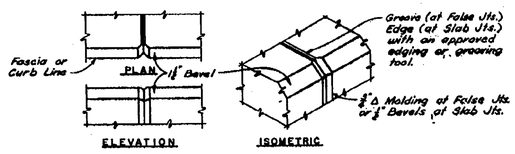
DETAIL 1



DETAIL 2 DETAIL 3



COPPER WATERSTOP DETAILS



MOLDING DETAILS

Work this sheet with sheets 228 thru 230 & 232

MICHIGAN STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN DATA	JGC	C-JCG
DRAWING BY	E.D.H.	E-RDH
TRACING BY		
CHECKED BY	MMH	M-MCG
SHEET 231 of 232		

S04 of 63174

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FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
04-12-00	S04 OF 63174	49595A	MAHDAVI	1AG OF

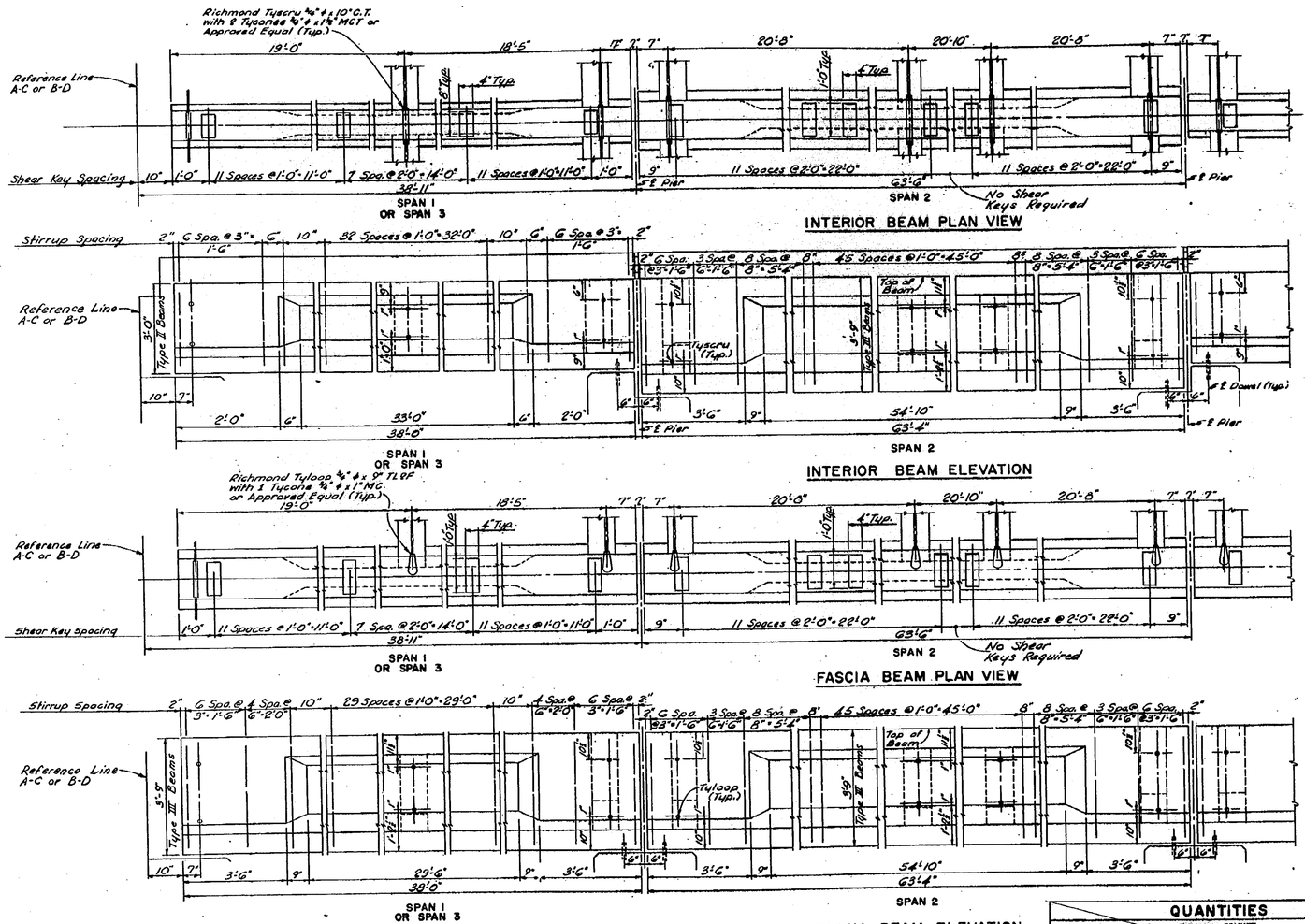
DRAWN BY: INDER DATE: 04-12-00 CHECKED BY: DATE: CORRECTED BY: DATE:

FILE NAME: s04621.14sn.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 1AH

REVISIONS			
NO.	DESCRIPTION	DATE	BY

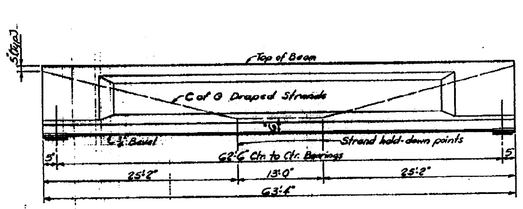


INTERIOR BEAM PLAN VIEW

INTERIOR BEAM ELEVATION

FASCIA BEAM PLAN VIEW

FASCIA BEAM ELEVATION



ELEVATION OF SPAN 2 BEAMS WITH DRAPED STRANDS

NOTE: Shop plans shall include a diagram of casting bed layout. Where the "pull-down" method is used, the jacking force for draped strands, together with appropriate computations shall also be submitted by the fabricator. The value of "E" used in calculating strand elongation shall be as recommended by the strand manufacturer.
Strands shall be placed symmetrically about the centerline of beam.
An allowance of .0008L shall be made for shortening of the beams due to shrinkage and elastic change.
Where called for inserts shall be Richmond Type CT Inserts TLOF Insert, Superior ¾" ϕ Coil Ties or Coil with flared loop or equal.

NOTES

Fabrication: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction-1960 Edition.
Design: Michigan State Highway Department's Specifications for Design of Highway Bridges-1958 Edition. H20-S16-44 and alternate military loading.
Furnishing anchor bars is incidental to Prestressed Concrete I Beams-Furnished.
Installation of anchor bars is incidental to Superstructure Concrete.
Furnishing and installation of sole plates, bearing plates, lifting devices and other connected fixtures are incidental to Prestressed Concrete I Beams. (See supplemental specs.)
The estimated beam camber ½" for Spans 1 & 3, and ¾" for Span 2. A check should be made of the actual camber when beam is in erected position, and if different than estimated, adjustments to screeds are to be made to provide for required slab thickness.
For materials, construction, care and handling procedure, see supplemental specs.
Lifting devices different than as shown on the plans may be used provided they are approved by the M.S.H.D.
Minor cracks in the end sections of the beams may be permitted subject to inspection by M.S.H.D.
Beams with honeycomb or concrete not consistent as to affect the strength or resistance to deterioration will be accepted.
For additional notes see sheet nos. 229 & 230

QUANTITIES

ITEM	UNIT	AMOUNT
36" Prestressed Concrete I Beams, Erected	Lin. Ft.	1064.0
36" Prestressed Concrete I Beams, Furnished	Lin. Ft.	1064.0
45" Prestressed Concrete I Beams, Erected	Lin. Ft.	1464.0
45" Prestressed Concrete I Beams, Furnished	Lin. Ft.	1464.0
"Neoprene Bearing Pads"	Sq. Ft.	192

Work this sheet with sheets 228 thru 231

MICHIGAN STATE HIGHWAY DEPARTMENT

BEAM LAYOUT

TECON ENGINEERS, INC.

DESIGNED BY	JDC	2-26-60
DRAWN BY	JDC	2-26-60
TRACED BY		
CHECKED BY	GTC	2-26-60

SHEET 232 OF 316

S04 OF 63174 I

NOTE:
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FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
04-12-00	S04 OF 63174	49595A	MAHDAVI	1AH OF

DRAWN BY: INDER DATE: 04-12-00 CHECKED BY: DATE: CORRECTED BY: DATE:

FILE NAME: s0463174sn.

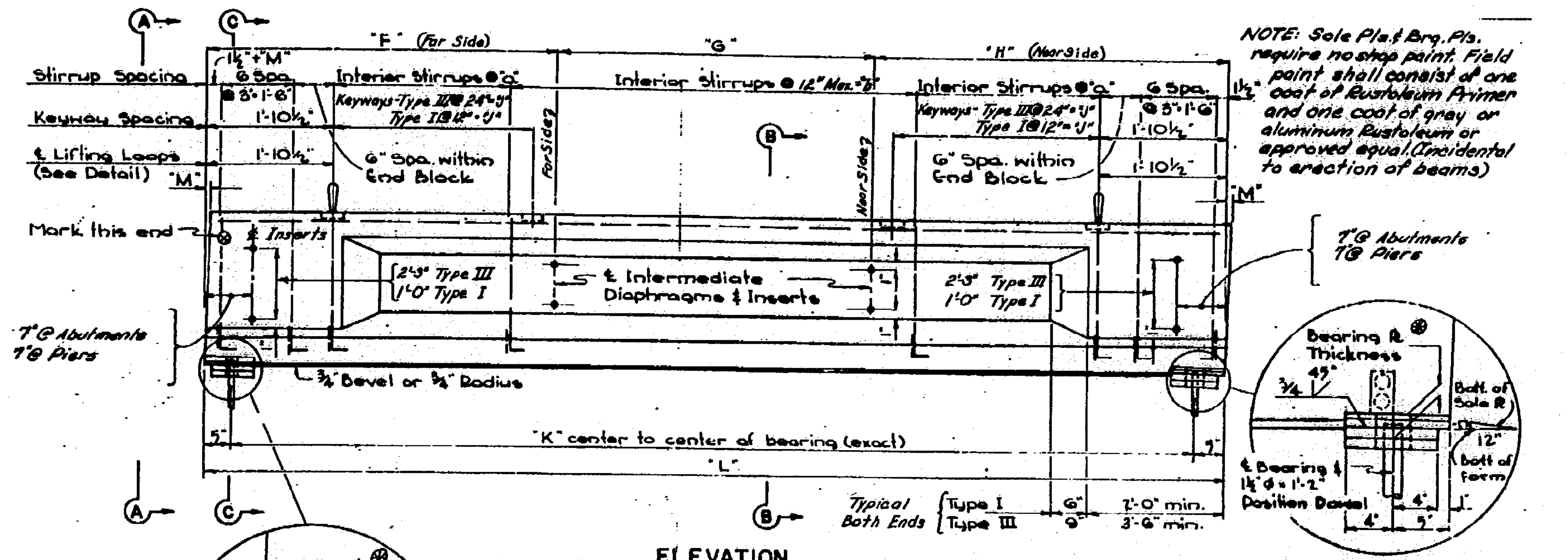
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 1AI

BEAM DIMENSIONS

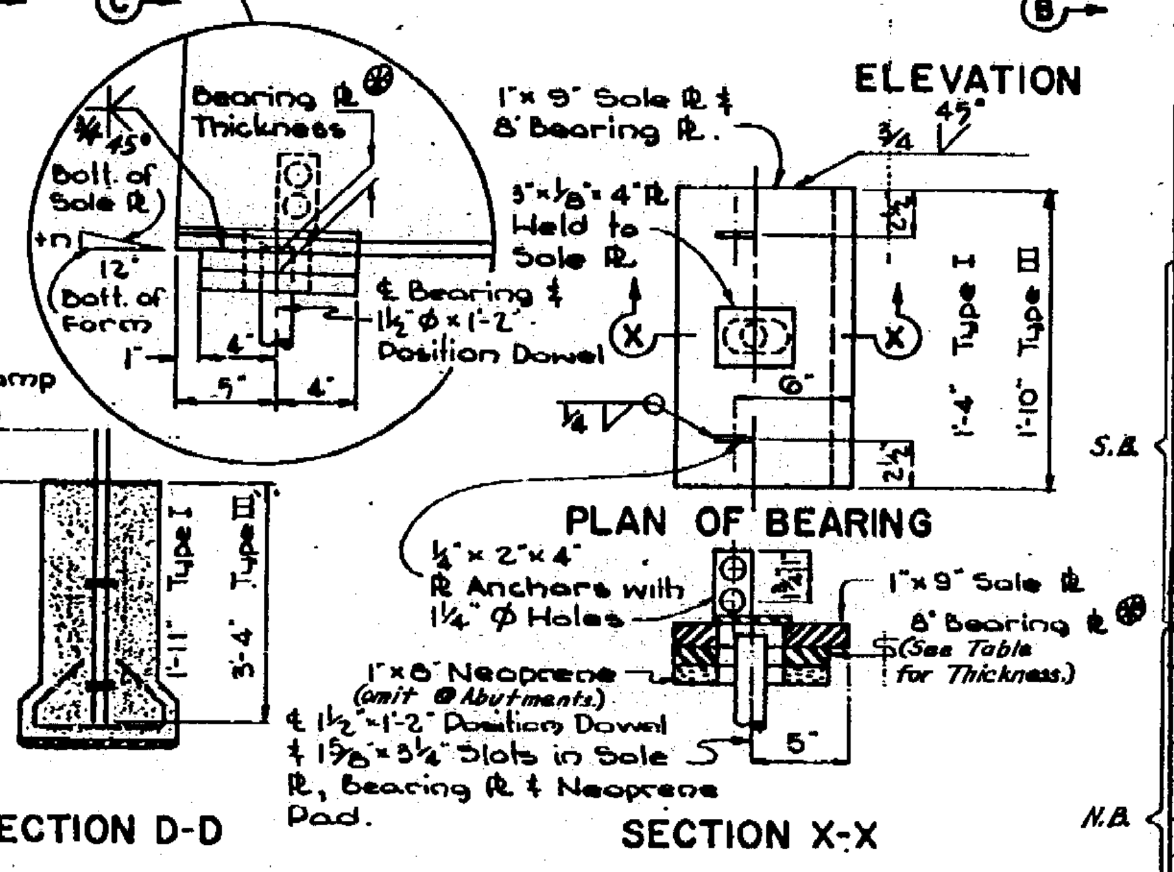
MARK	TYPE	NO. REQ'D.	F	G	H	J	K	L	a	b	M	APPROX. WEIGHT EACH
1S1	III	1	*	0	15'-4⅞"	10'-0"	30'-7⅞"	31'-5⅞"	0	25'-2⅛"	0	20,050
1S10	III	1	15'-5"	0	*	10'-0"	30'-7⅞"	31'-5⅞"	0	25'-2⅛"	0	20,050
1S2 thru 1S9	I	8	15'-5"	7½"	15'-4⅞"	10'-0"	30'-7⅞"	31'-5⅞"	6"	17'-2⅛"	0	9,450
1N1	III	1	*	0	15'-5"	10'-0"	30'-7⅛"	31'-5⅛"	0	25'-2⅛"	0	20,050
1N10	III	1	15'-5"	0	*	10'-0"	30'-7⅛"	31'-5⅛"	0	25'-2⅛"	0	20,050
1N2 thru 1N9	I	8	15'-5"	7½"	15'-5"	10'-0"	30'-7⅛"	31'-5⅛"	6"	17'-2⅛"	0	9,450
2S1	III	1	*	0	25'-10⅝"	18'-0"	51'-6¾"	52'-4¾"	10"	29'-5¾"	0	32,250
2S10	III	1	25'-10⅝"	0	*	18'-0"	51'-6¾"	52'-4¾"	10"	29'-5¾"	0	32,250
2S2 thru 2S9	III	8	25'-10⅝"	7½"	25'-10⅝"	18'-0"	51'-6¾"	52'-4¾"	10"	29'-5¾"	0	32,250
2N1	III	1	*	0	25'-10⅜"	18'-0"	51'-6½"	52'-4½"	10"	29'-5½"	0	32,250
2N10	III	1	25'-10⅜"	0	*	18'-0"	51'-6½"	52'-4½"	10"	29'-5½"	0	32,250
2N2 thru 2N9	III	8	25'-10⅜"	7½"	25'-10⅜"	18'-0"	51'-6½"	52'-4½"	10"	29'-5½"	0	32,250
3S1	III	1	*	0	25'-11½"	18'-0"	51'-4½"	52'-2½"	10"	29'-3½"	0	32,150
3S10	III	1	25'-11½"	0	*	18'-0"	51'-4½"	52'-2½"	10"	29'-3½"	0	32,150
3S2 thru 3S9	III	8	25'-11½"	3½"	25'-11½"	18'-0"	51'-4½"	52'-2½"	10"	29'-3½"	0	32,150
3N1	III	1	*	0	25'-11⅜"	18'-0"	51'-4½"	52'-2½"	10"	29'-3½"	0	32,150
3N10	III	1	25'-11⅜"	0	*	18'-0"	51'-4½"	52'-2½"	10"	29'-3½"	0	32,150
3N2 thru 3N9	III	8	25'-11⅜"	3⅞"	25'-11⅜"	18'-0"	51'-4½"	52'-2½"	10"	29'-3½"	0	32,150
4S1	III	1	*	0	15'-6⅛"	10'-0"	30'-5⅞"	31'-3⅞"	0	25'-0⅞"	0	20,000
4S10	III	1	15'-6¼"	0	*	10'-0"	30'-5⅞"	31'-3⅞"	0	25'-0⅞"	0	20,000
4S2 thru 4S9	I	8	15'-6¼"	3½"	15'-6⅛"	10'-0"	30'-5⅞"	31'-3⅞"	6"	17'-0⅞"	0	9,400
4N1	III	1	*	0	15'-6"	10'-0"	30'-5⅞"	31'-3⅞"	0	25'-0⅞"	0	20,000
4N10	III	1	15'-6"	0	*	10'-0"	30'-5⅞"	31'-3⅞"	0	25'-0⅞"	0	20,000
4N2 thru 4N9	I	8	15'-6"	3⅞"	15'-6"	10'-0"	30'-5⅞"	31'-3⅞"	6"	17'-0⅞"	0	9,400

*-No Inserts this side.



NOTE: Sole Pls. & Brg. Pls. require no shop paint. Field paint shall consist of one coat of Rustoleum Primer and one coat of gray or aluminum Rustoleum or approved equal. (Incidental to erection of beams)

ELEVATION



PLAN OF BEARING

SECTION X-X

BEARING PLATE THICKNESS AND SLOPE TABLE

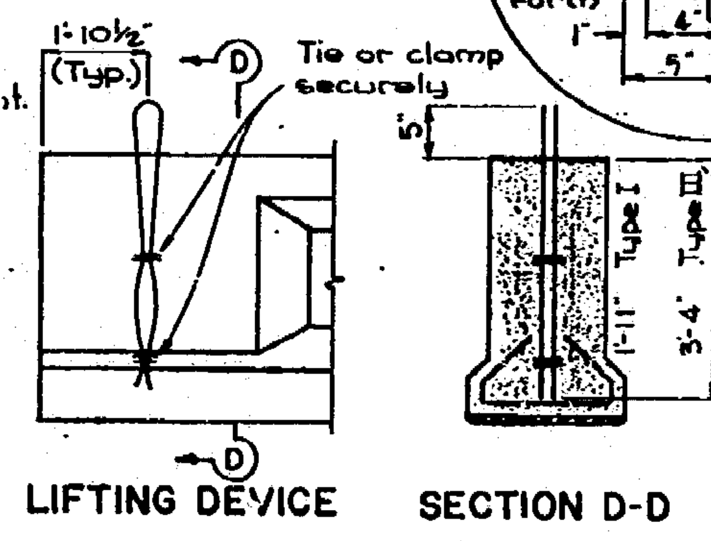
	BEAM LINE	SPAN 1				SPAN 2				SPAN 3				SPAN 4			
		ABUT. A		PIER 1		PIER 1		PIER 2		PIER 2		PIER 3		PIER 3		ABUT. B	
		℞ Th.	"n"	"n"	℞ Th.	℞ Th.	"n"	"n"	℞ Th.	℞ Th.	"n"	"n"	℞ Th.	℞ Th.	"n"	"n"	℞ Th.
S.B.	S1	½"	0	0	½"	½"	0	0	0	0	0	0	⅝"	½"	0	0	½"
	S2	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	S3	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	S4	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	S5	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	S6	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	S7	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	S8	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	S9	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	S10	½"	0	0	0	0	0	0	0	0	0	0	½"	½"	0	0	½"
N.B.	N1	½"	0	0	½"	⅝"	0	0	0	0	0	0	⅝"	½"	0	0	½"
	N2	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	N3	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	N4	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	N5	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	N6	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	N7	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	N8	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	N9	½"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	½"
	N10	½"	0	0	0	0	0	0	0	0	0	0	⅝"	½"	0	0	½"

Note: Lifting shall be by equal loads to each pair of loops.

Other types of lifting devices may be used subject to approval by the Michigan State Highway Department.

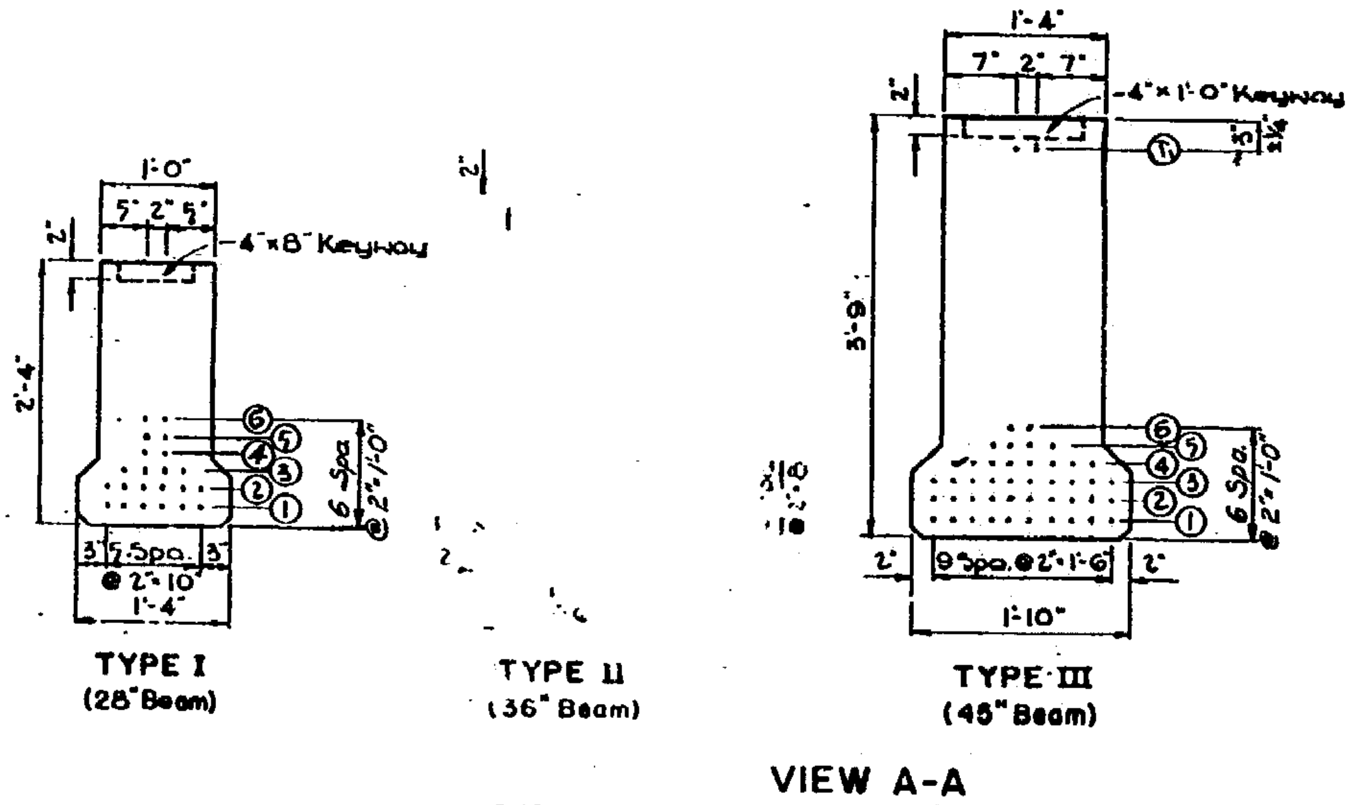
PRESTRESSING STRAND LIFT DEVICE CAPACITY

STRAND SIZE	NO. OF STRANDS	ALLOWABLE WT. OF BEAM
⅜"	2	20 Tons
7/16"	2	27 Tons
⅜"	3	30 Tons
7/16"	3	40.5 Tons



LIFTING DEVICE

SECTION D-D

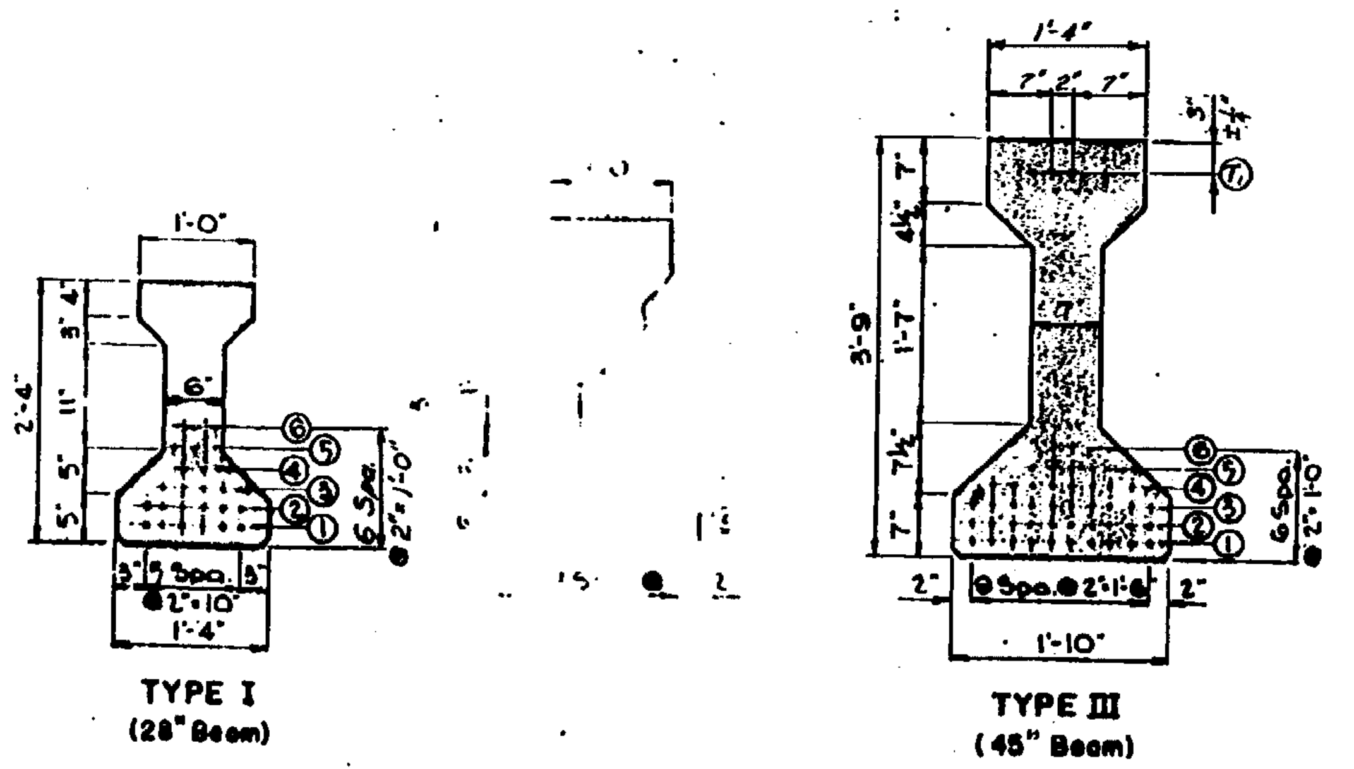


TYPE I (28" Beam)

TYPE II (36" Beam)

TYPE III (45" Beam)

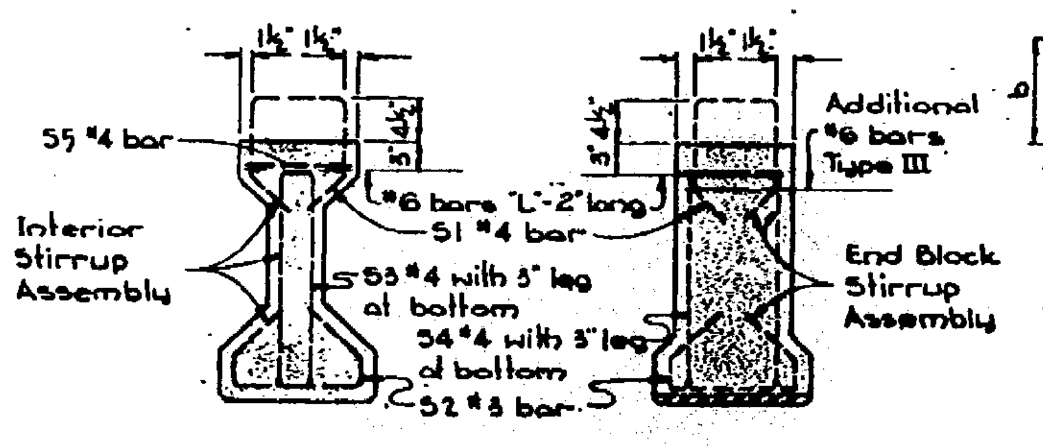
VIEW A-A
SHOWING STRAND ARRANGEMENT AT END FACE



TYPE I (28" Beam)

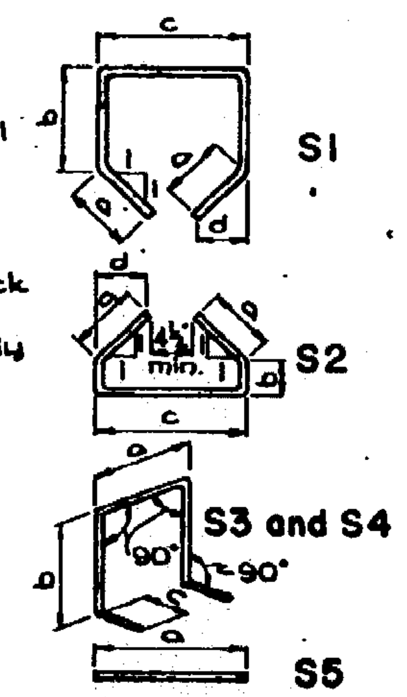
TYPE III (45" Beam)

SECTION B-B
SHOWING STRAND ARRANGEMENT AT MIDSPAN



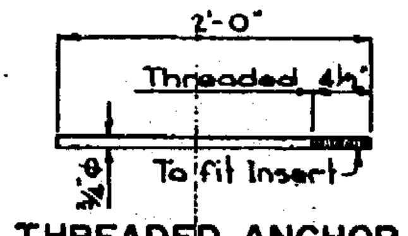
SECTION B-B SECTION C-C

TYPICAL SECTIONS SHOWING MILD STEEL REINFORCEMENT



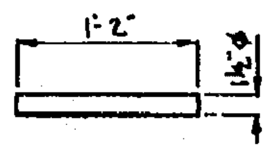
STIRRUP DIMENSIONS

BAR	DIM.	BEAM TYPE I	BEAM TYPE II	BEAM TYPE III
S1 #4	a	3½"	3½"	6"
	b	8"	10"	11"
	c	9"	9"	1'-1"
	d	3¼"	3¼"	5"
S2 #3	a	4½"	7½"	10½"
	b	3"	3"	5"
	c	11½"	1'-3½"	1'-7½"
	d	3¼"	5½"	7½"
S3 #4	a	3½"	3½"	3½"
	b	1'-11"	2'-7"	3'-4"
	c	3"	3"	3"
S4 #4	a	9"	9"	1'-1"
	b	1'-11"	2'-7"	3'-4"
	c	3"	3"	3"
S5 #4	a	9"	9"	1'-1"



THREADED ANCHOR BAR DETAIL

(864) Required
Incidental to Prestressed Concrete I beams



POSITION DOWEL DETAIL

(160) Required
Incidental to Substructure Concrete

NUMBER OF 7/16 ø -7 WIRE STRANDS IN INDICATED ROW

	Type	MIDSPAN (Section B-B) BOTTOM ①	②	③	④	⑤	⑥	TOP Ⓣ	END (View A-A) BOTTOM ①	②	③	④	⑤	⑥	TOP Ⓣ	END TOP ①	②	③	④	⑤	⑥	Total No.	Initial Prestress Force/Strand (Lbs.)
1S2 thru 1S9, 1N2 thru 1N9, 4S2 thru 4S1, & 4N2 thru 4N9	I	4	4	4		2	2		4	4	4		2	2		No Draped Strands Used on this Structure						16	19050
1S1, 1S10, 1N1, 1N10, 4S1, 4S10, 4N1, & 4N10	III	8	2						8	2												10	18620
2S1 thru 2S10, 2N1 thru 2N10, 3S1 thru 3S10, & 3N1 thru 3N10	III	6	6	8	4			2	6	6	8	4			2							26	19060

NOTE: Shop plans shall include a diagram of casting bed layout. Strands shall be placed symmetrically about the centerline of beam.

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

Work this Sheet with Sheet 172

MICHIGAN STATE HIGHWAY DEPARTMENT

PRESTRESSED CONCRETE I BEAM DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN CODE	JDC	3-28-62
DRAWN BY	C.W.R.	1-8-62
TRACED BY		
CHECKED BY	WHC	2-23-62
SHEET	173 OF 312	

S03 OF 63174 I

REVISIONS			
NO.	DESCRIPTION	DATE	BY

FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
12-07-00	S03 OF 63174	49595A	MADHAVI	1AI OF

DATE: 12-07-00 CORRECTED BY: INDER

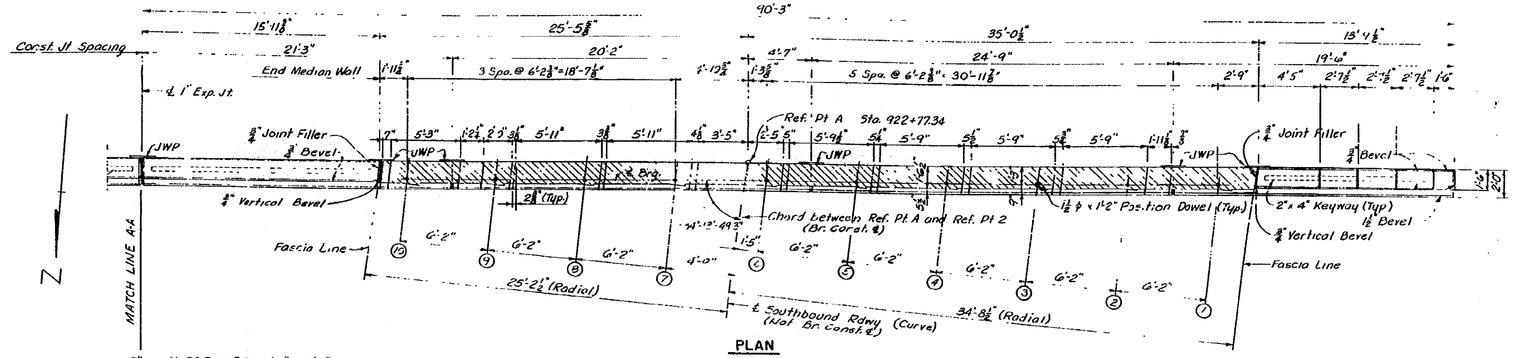
DATE: 12-07-00 CHECKED BY: AM.

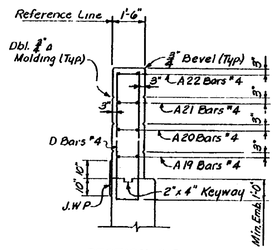
DATE: DRAWN BY: inder

FILE NAME: s03631 74sn.nb

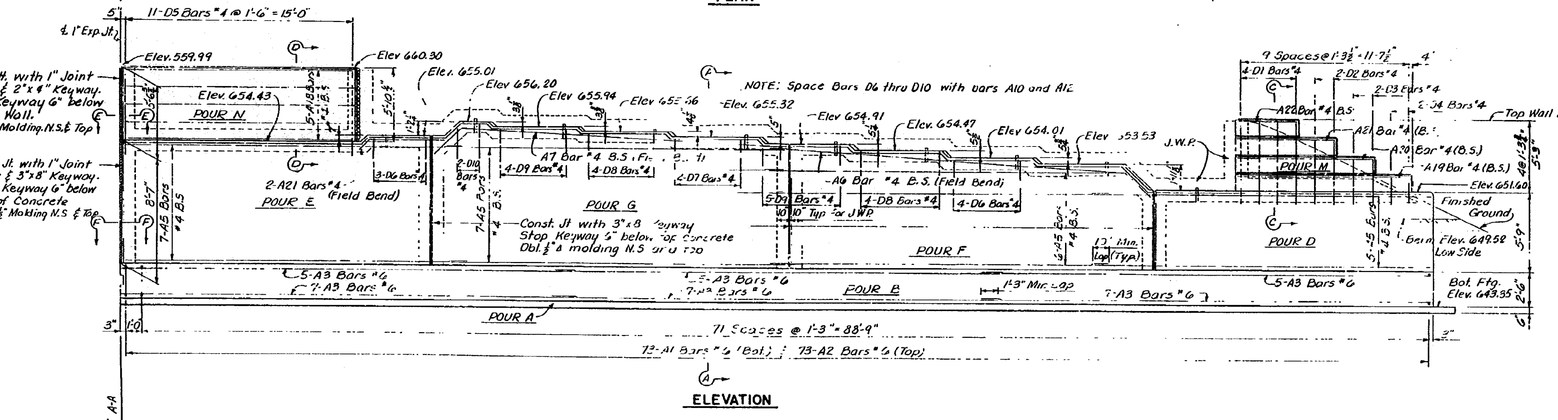
CONTROL SECTION S03 OF 63174 | JOB NO. 49595A | SH. 1AJ

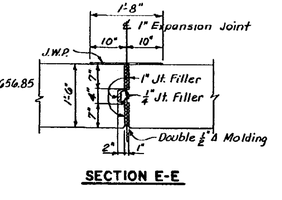
REVISIONS			
NO.	DESCRIPTION	DATE	BY



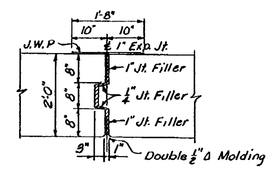


SECTION C-C

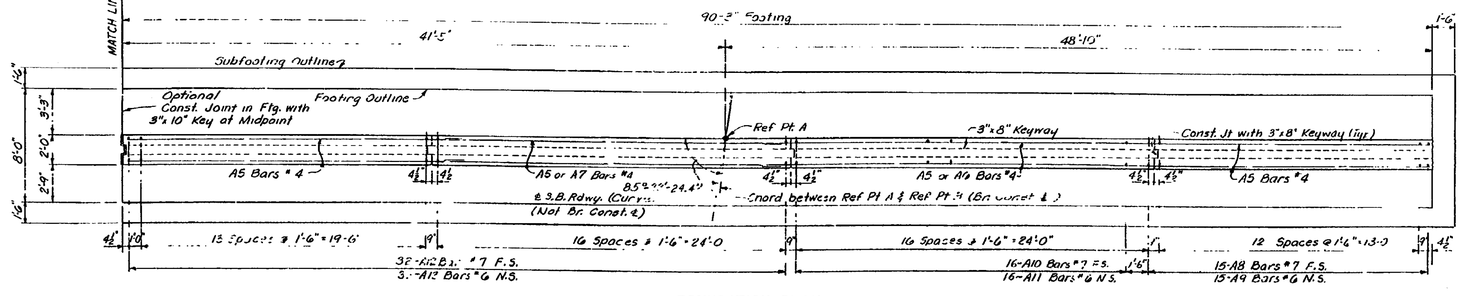




SECTION E-E



SECTION F-F



Work this sheet with sheets #155 & 157 thru 160

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

JDC RFC 3-28-62
WHC 156 3-3-62 312

S03 OF 63174 I

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MDOT Michigan Department of Transportation

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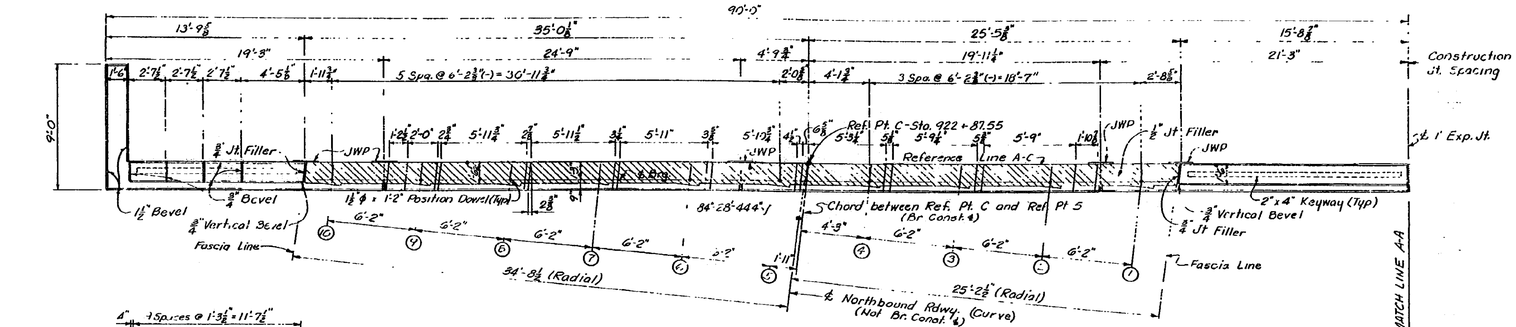
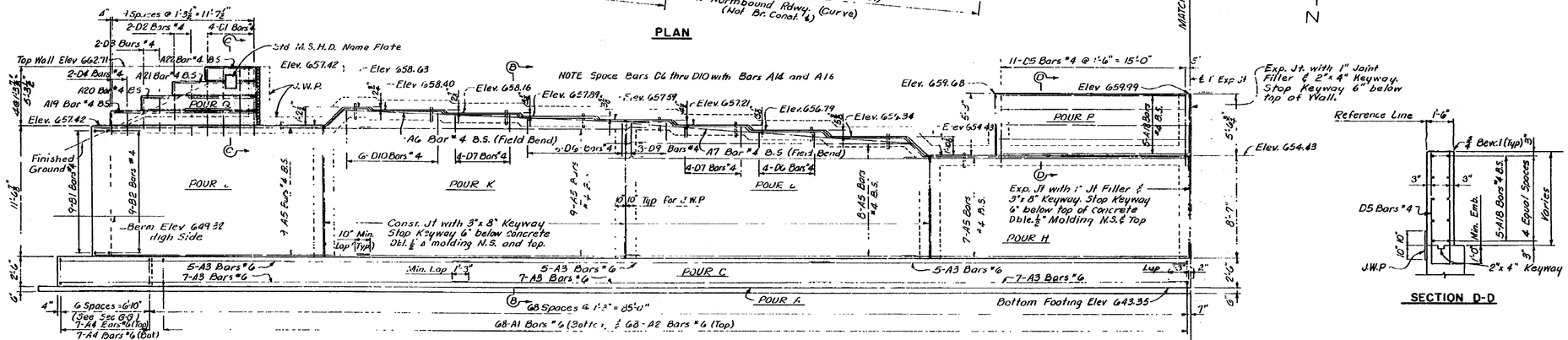
CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 1AK

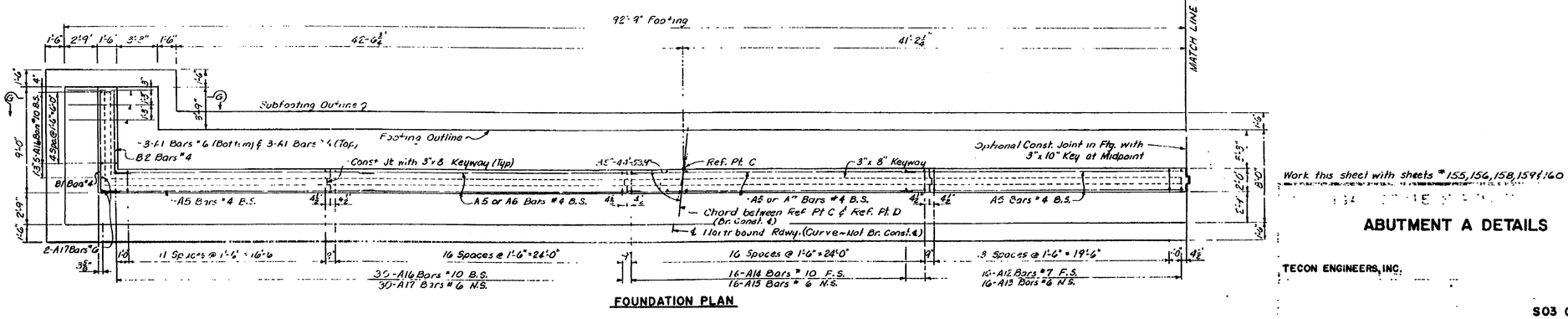
REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN



ELEVATION



FOUNDATION PLAN

Work this sheet with sheets "155, 156, 158, 159 & 160

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

RFC 3-28-67
WJC 137 3-3-67 3/16

S03 OF 63174 I

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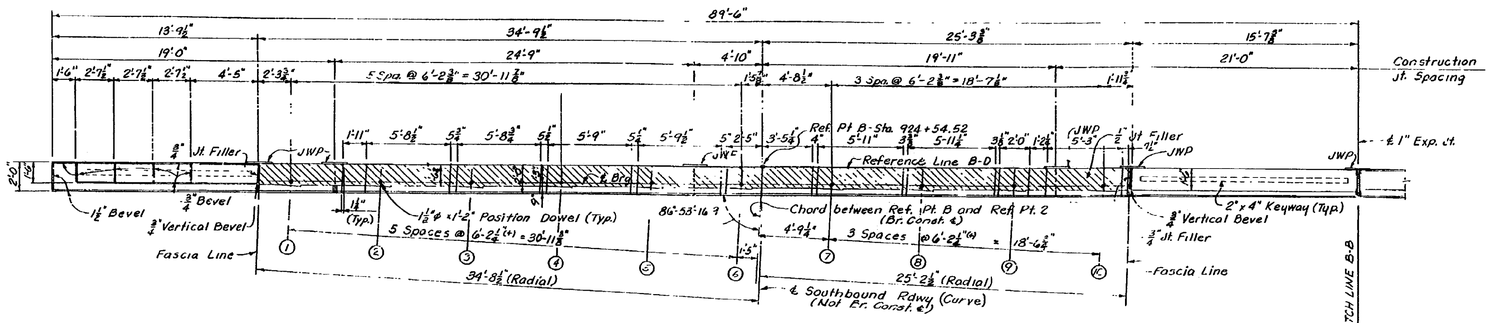
DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: inder FILE NAME: s0363174sn.nb

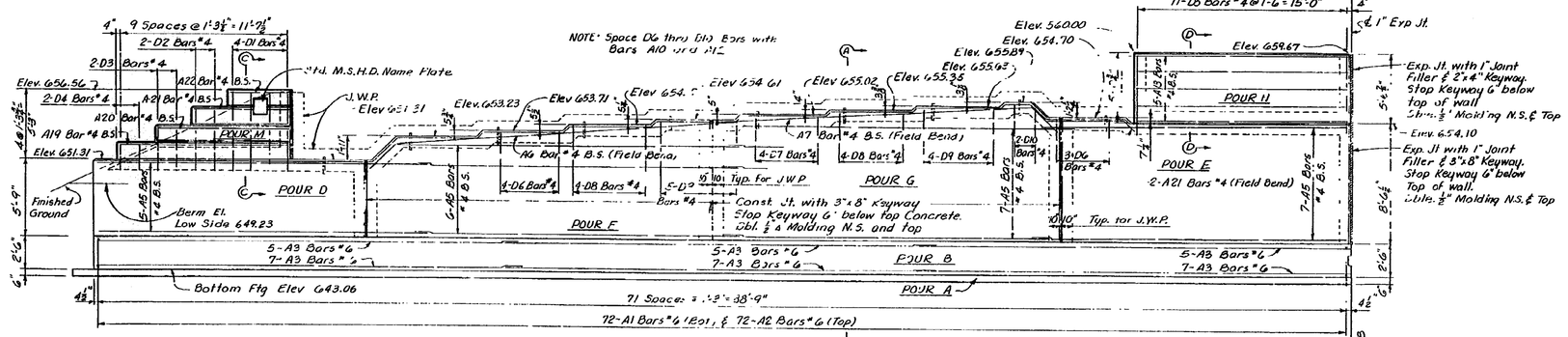
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH.: 1AL NO.: 1AL

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN



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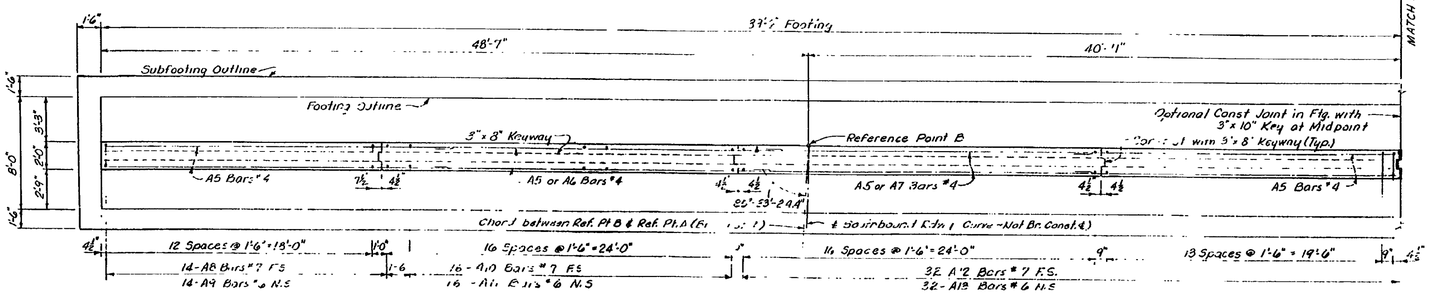

FOUNDATION PLAN

Work this sheet with Sheets #155,156,157,159&160

ABUTMENT B DETAILS

TECON ENGINEERS, INC.

VPC RFC 3-28-62

WHC 128 3-3-62

S03 OF 63174 I

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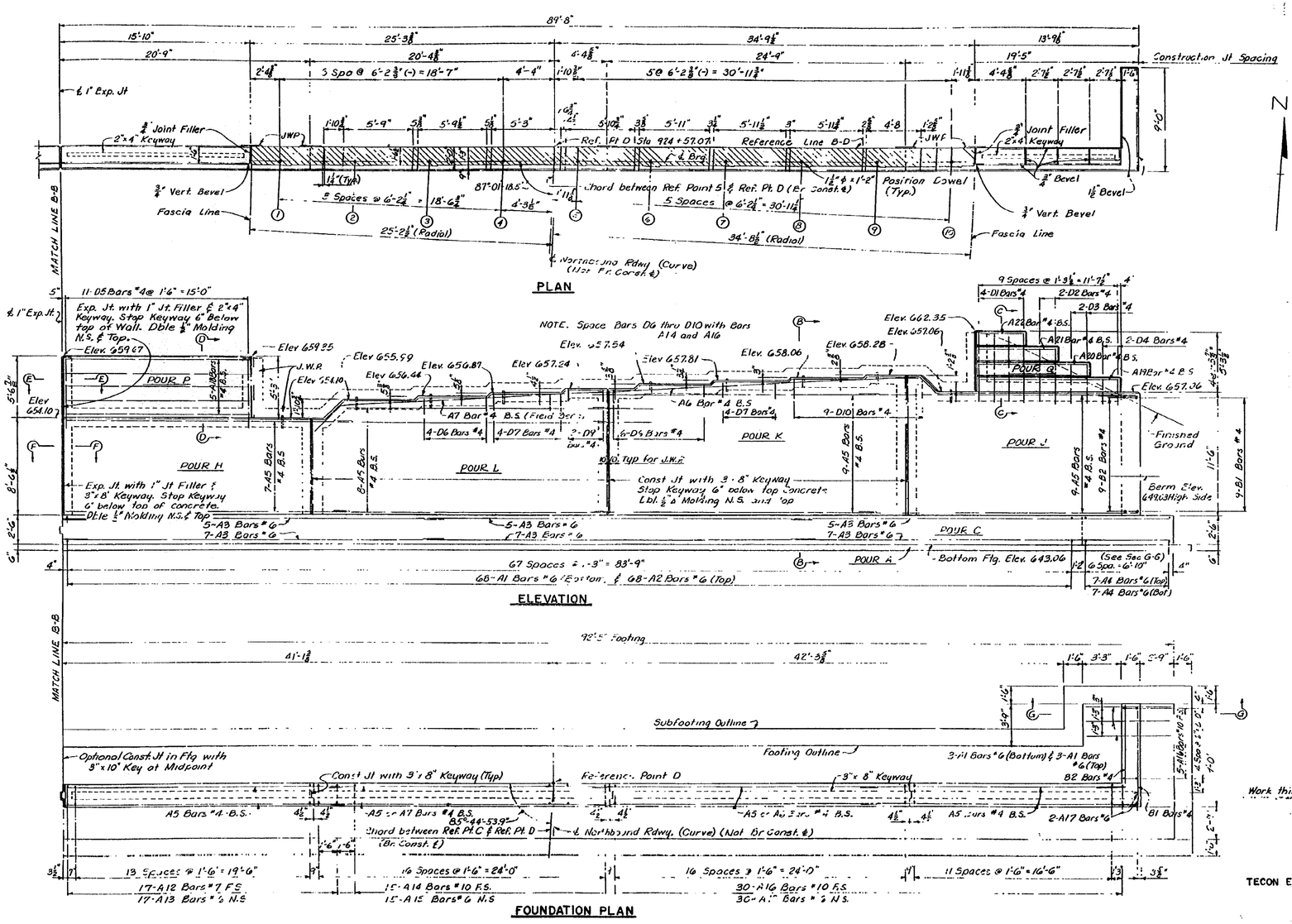
FILE NAME: s063174sn.nb

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 1AM

REVISIONS			
NO.	DESCRIPTION	DATE	BY



Work this sheet with Sheets #155 thru 158 & #160

ABUTMENT B DETAILS

TECON ENGINEERS, INC.

JOE RFC 3-22-67
WHC ISH 3-3-62
312

S03 OF 63174

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MICHIGAN DEPARTMENT OF TRANSPORTATION

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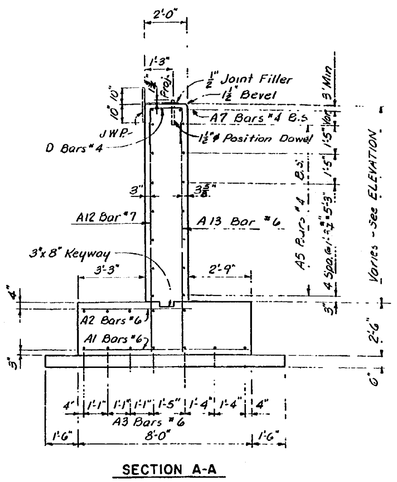
	S03 OF 63174	49595A	MADHAVI	1AM OF

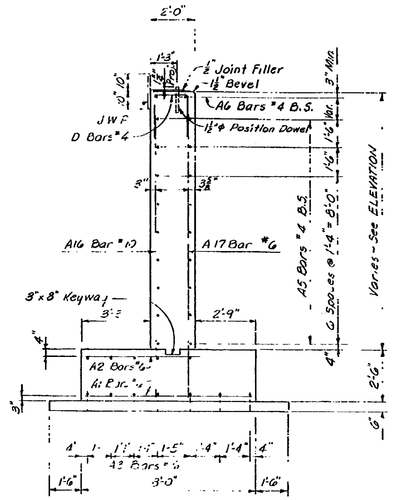
DATE: DATE: CORRECTED BY: DATE: CHECKED BY: DRAWN BY: under FILE NAME: s063174sn.rb

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

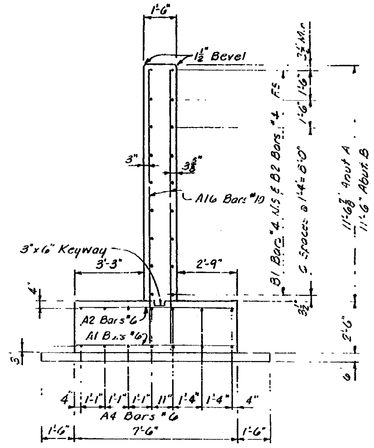
CONTROL SECTION S03 OF 63174 | JOB NO. 49595A | SH: 1AN NO.



SECTION A-A



SECTION B-B



SECTION G-G

CONCRETE QUATITIES - CU. YDS.				
POUR	ABUTMENT A		ABUTMENT B	
	Grade A-6A	Grade A-4M	Grade A-6A	Grade A-4M
A	38.6		38.4	
B	67.0		66.4	
C	71.4		71.2	
D		8.3		8.1
E		15.0		14.9
F		13.7		13.5
G		17.9		17.8
H		13.5		13.1
J		21.1		21.3
K		22.6		22.6
L		19.9		19.7
M		2.4		2.4
N		5.0		5.0
P		4.7		4.7
Q		2.4		2.4
Total	177.0	146.5	176.0	145.5

MISCELLANEOUS QUANTITIES			
Item	Abut. A	Abut. B	Total
Jt. Waterproofing	430	430	860
1" Joint Filler	26	26	52
¾" Joint Filler	33	33	66
½" Joint Filler	100	100	200
¼" Joint Filler	4	4	8

GENERAL NOTES

J.W.P. denotes joint waterproofing.
N.S. denotes near side.
F.S. denotes far side.
B.S. denotes both sides.
For Bevel and molding details see Standard Sheet R11.
For location of name plates see General Plan of Structure; for mounting details see standard sheet R11.
Parapet Walls & Slopewalls are to be cast after superstructure is complete to top of sidewalks.
Position Dowels shall be set accurately to a template.
Furnishing and setting Position Dowels is incidental to substructure concrete.
The Project Engineer shall adjust the spacing of reinforcing steel as required to permit placing of Position Dowels.
The top of abutment shall be finished to a true plane at the elevation shown and shall not vary more than ¼" under a ten foot straight edge.
This design is based on a maximum foundation pressure of 3810 pounds per square foot and a maximum average foundation pressure of 3360 pounds per square foot.

Work this sheet with sheets #154 thru 159

ABUTMENT DETAILS

TECON ENGINEERS, INC.

JOC RFC 3-28-64
WHC 160 3/12 3-2-64

S03 OF 63174

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MDOT Michigan Department of Transportation

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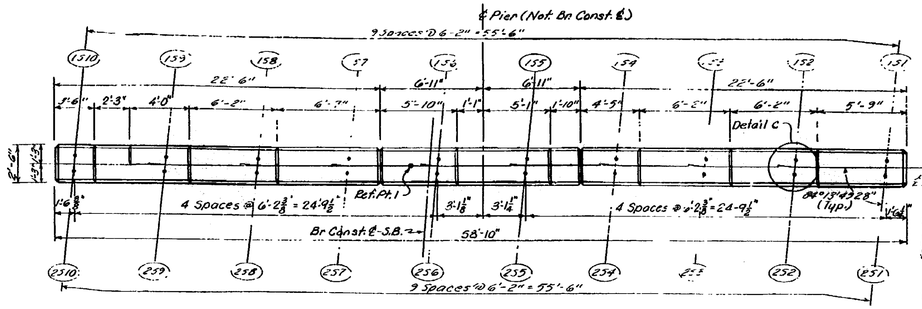
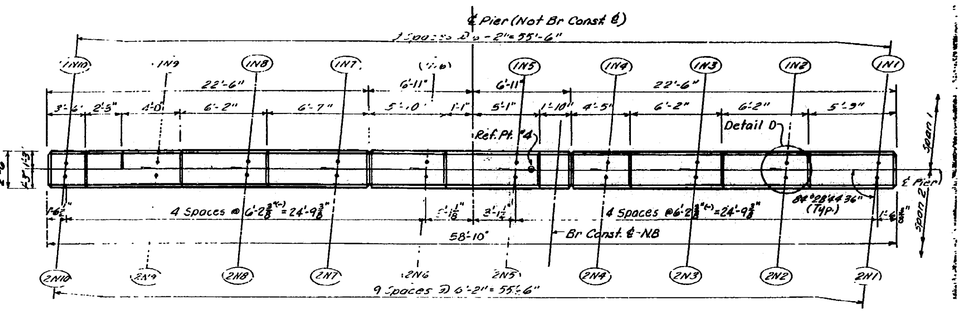
FILE NAME: s063174sn.nb

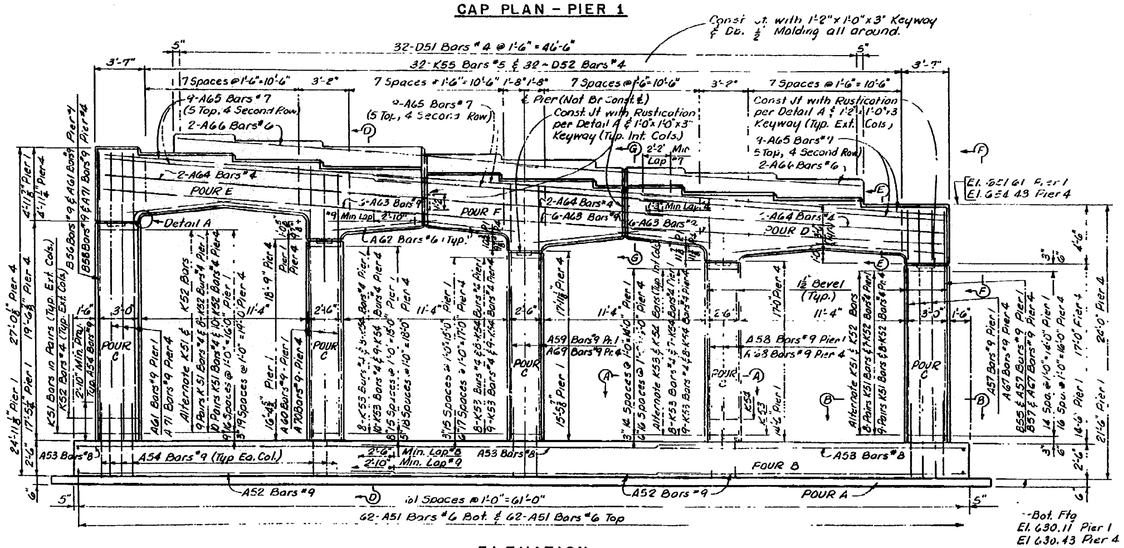
CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 1A0

REVISIONS			
NO.	DESCRIPTION	DATE	BY

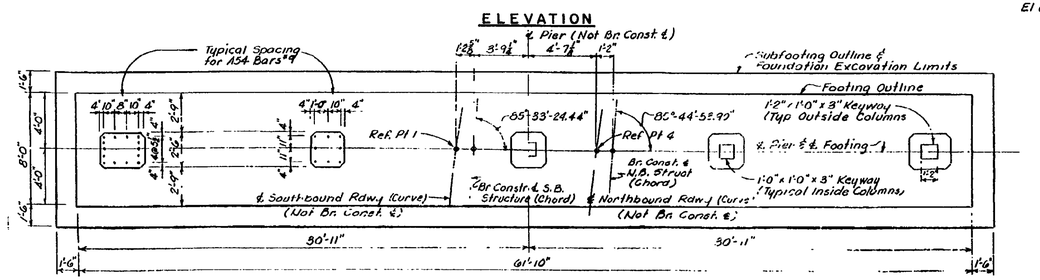




CAP PLAN – PIER 1

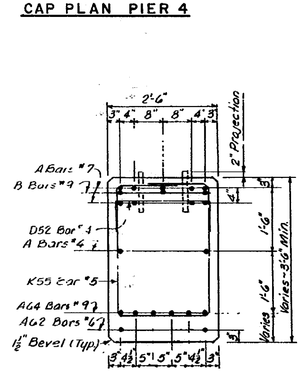


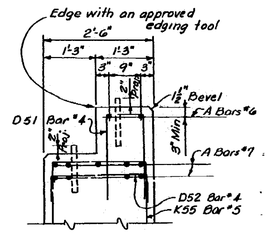
ELEVATION



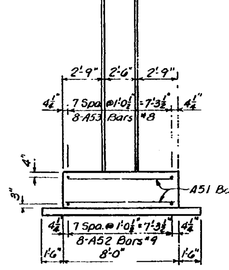
FOOTING PLAN

CAP PLAN PIER 4

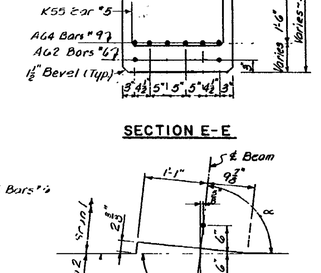


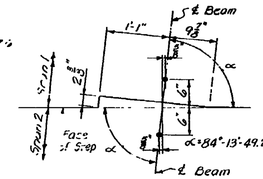


SECTION G-G

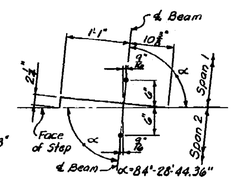


SECTION D-D





DETAIL C



DETAIL D

TABLE OF ELEVATIONS & RISERS

PIER 1						PIER 4					
Beam	Elev.	Riser	Beam	Elev.	Riser	Beam	Elev.	Riser	Beam	Elev.	Riser
151	651.61		251	651.61	6¾"	IN1	654.43		2N1	654.43	5¾"
		1'-11⅝"						1'-11"			
152	653.56	5¾"	252	652.12	5⅞"	IN2	654.35	5⅞"	2N2	654.91	5⅞"
153	654.04	5½"	253	652.60	5½"	IN3	656.80	5"	2N3	655.36	5⅛"
154	654.50	5¼"	254	653.06	5¼"	IN4	657.22	4⅞"	2N4	655.79	4⅝"
155	654.94	4⅞"	255	653.50	5"	IN5	657.61	3⅞"	2N5	656.19	3⅝"
156	655.35	4⅝"	256	653.92	4⅝"	IN6	657.91	3¼"	2N6	656.48	3⅜"
157	655.69	3⅝"	257	654.26	3½"	IN7	658.18	3"	2N7	656.75	3"
158	655.98	3⅜"	258	654.55	3⅛"	IN8	658.43	2⅝"	2N8	657.00	2⅝"
159	656.24		259	654.81		IN9	658.65		2N9	657.23	
		1'-2⅝"			2⅜"			1'-2½"			2⅜"
1510	655.04		2510	655.04		IN10	657.44		2N10	657.44	

Work this sheet with Sheets 155, 162 & 163

PIER DETAILS

NO. 1 & 4

TECON ENGINEERS, INC.

JDC 3-28-62
RFC
WKC 3-6-62
DLE

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MDOT Michigan Department of Transportation

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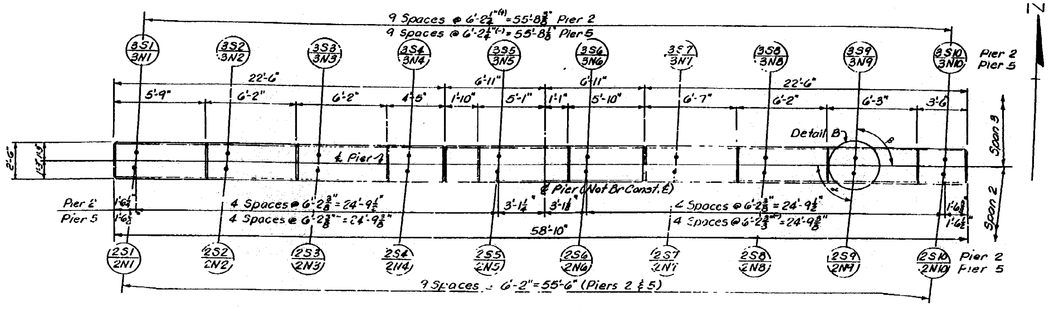
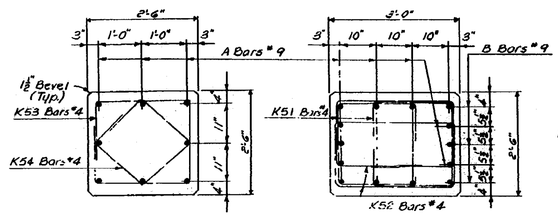
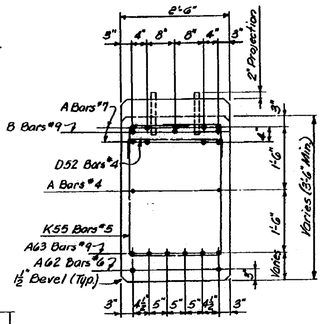
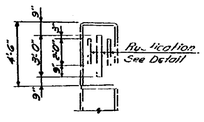
CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 1AP

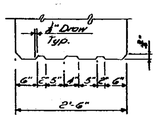
REVISIONS			
NO.	DESCRIPTION	DATE	BY

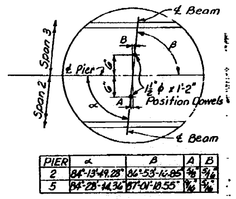




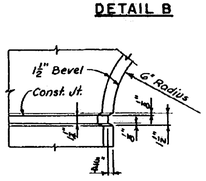


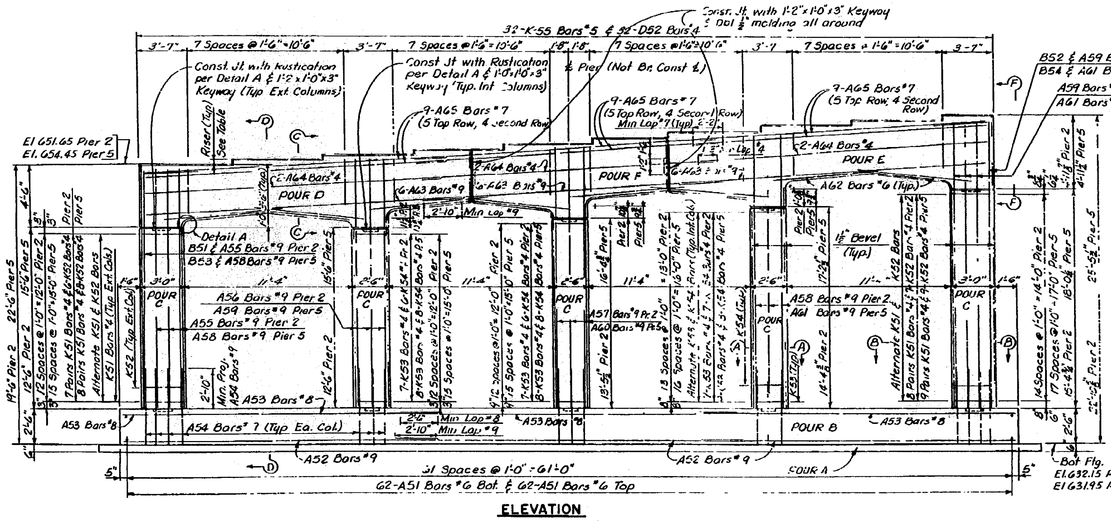


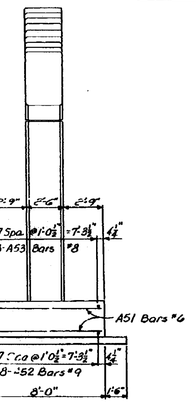




PIER	℄	B	A	B
2	84°-13'-49.28"	96°-53'-41.85"	5/8"	5/8"
5	84°-28'-44.34"	97°-01'-13.55"	5/8"	5/8"







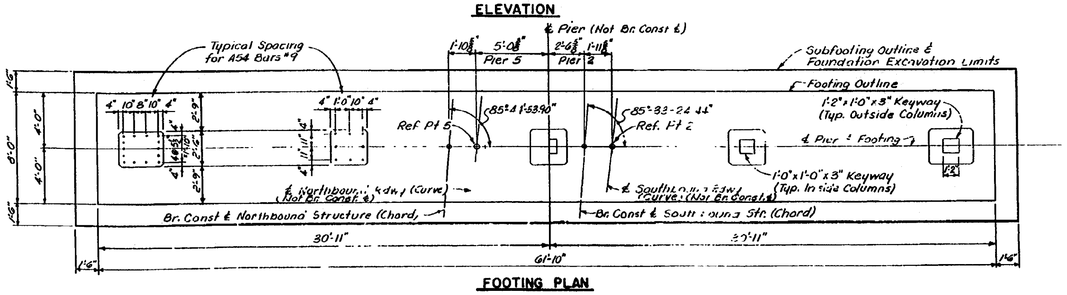


TABLE OF ELEVATIONS & RISERS

PIER 2			PIER 5		
Beam	Elev.	Riser	Beam	Elev.	Riser
2S1	651.65		2N1	654.45	
		5⅜"			5⅜"
2S2	652.14		2N2	654.90	
		5⅜"			5⅜"
2S3	652.61		2N3	655.35	
		5⅜"			5⅜"
2S4	653.07		2N4	655.78	
		5⅜"			4½"
2S5	653.51		2N5	656.16	
		4⅜"			3⅜"
2S6	653.92		2N6	656.46	
		4⅜"			3½"
2S7	654.26		2N7	656.73	
		3½"			2⅜"
2S8	654.55		2N8	656.97	
		3"			2¾"
2S9	654.80		2N9	657.20	
		2½"			2½"
2S10	655.04		2N10	657.41	

CONCRETE QUANTITIES — CUBIC YARDS

POUR	LOCATION	PIER 1 (SUB. & SUPER.)	PIER 2 (SUB. & SUPER.)	PIER 3 (SUB. & SUPER.)	PIER 4 (SUB. & SUPER.)	PIER 5 (SUB. & SUPER.)	PIER 6 (SUB. & SUPER.)
A	Subfooting	13.2	13.2	15.2	13.2	13.2	13.2
B	Footing	45.8	45.8	45.8	45.8	45.8	45.8
C	Columns	18.5	17.1	18.8	28.6	20.7	21.5
D	Cap	10.2	9.1	10.2	10.2	9.1	10.2
E	Cap	10.2	9.1	10.2	10.0	8.9	10.0
F	Cap	6.7	5.8	6.7	6.6	5.7	6.6
TOTAL		53.0 / 44.6	49.0 / 41.1	53.0 / 45.8	59.0 / 49.8	53.0 / 44.4	59.0 / 48.1

MISCELLANEOUS QUANTITIES

ITEM	UNITS	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5	PIER 6
Incloss. Excav.	Cu. Yds.	130	78	104	121	82	100

Work this sheet with sheets "155, 161 & 163

NOTES

Pier footing dowel details, see Standard Sheet C11. Pier column dowels shall be set accurately to a plane template to ensure proper concrete cover. The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of the position dowels.

The top of pier shall be finished to true plane at the elevations shown and shall not vary more than ¼" under a ten foot straight edge.

The [illegible] based on a maximum foundation [illegible] of 3.5 tons per square foot and a maximum [illegible] foundation pressure of 3150 pounds per square foot.

PIER DETAILS
NO. 2 & 5

TECON ENGINEERS, INC.

WDC EGI & REC 5-28-62

WNC 166 3-6-62 312

S03 OF 631741

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MDOT Michigan Department of Transportation

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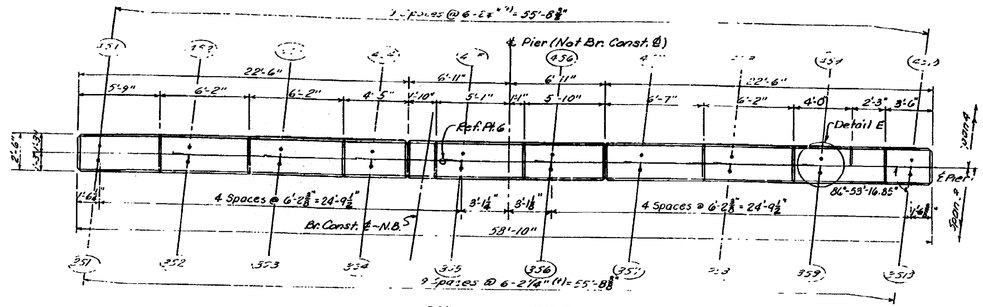
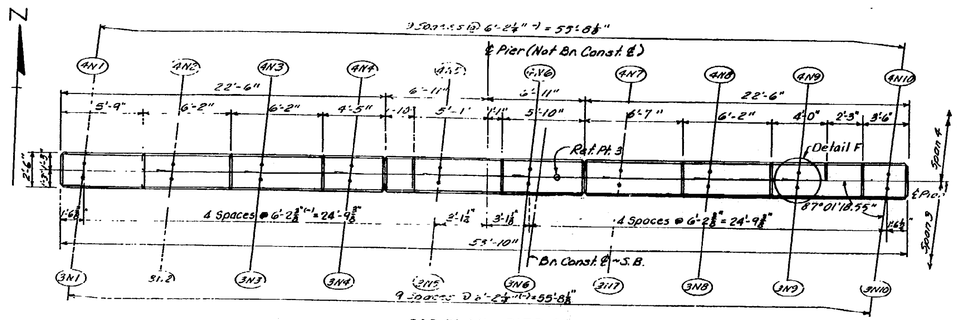
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

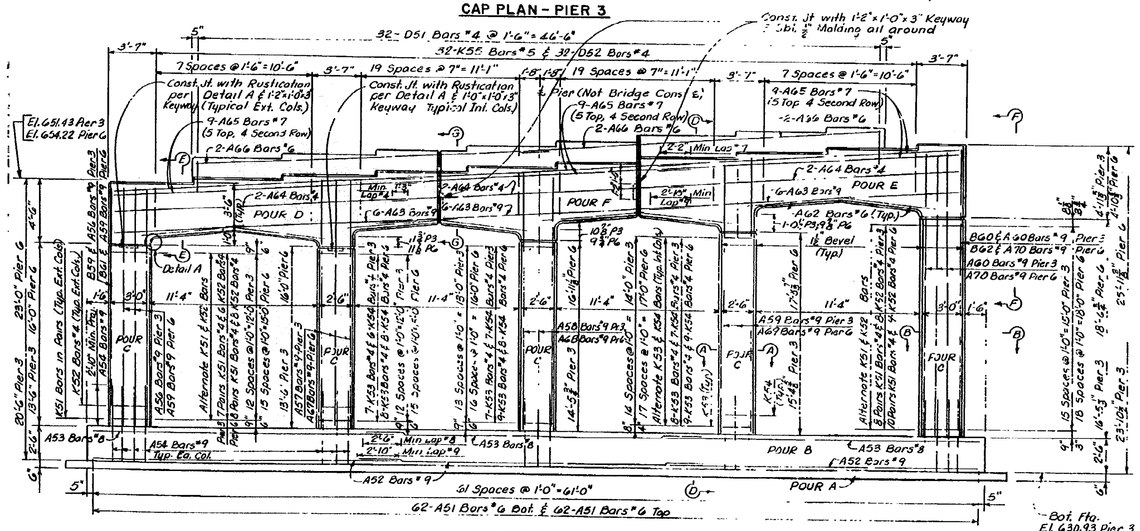
CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 1AQ



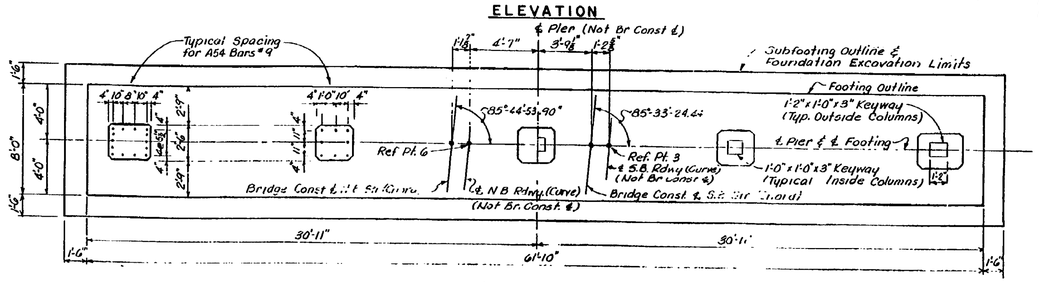
CAP PLAN – PIER 3



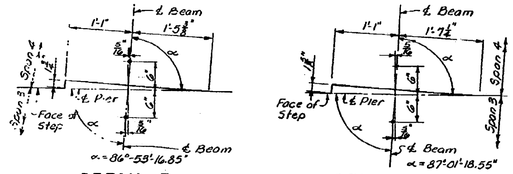
CAP PLAN – PIER 6



ELEVATION

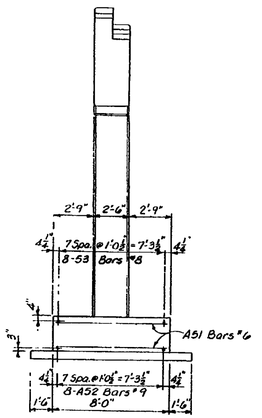


FOOTING PLAN



DETAIL E

DETAIL F



SECTION D-D

TABLE OF ELEVATIONS & RISERS

Point	PIER 3 Elev.	Riser	Beam	Elev.	Riser	PIER 6 Beam	Elev.	Riser	Beam	Elev.	Riser
351	651.43		451	651.43		3N1	654.22	5¾"	4N1	654.22	1'-10⅜"
352	651.93	6"	452	653.30	5⅜"	3N2	654.70	5¾"	4N2	656.13	5⅜"
353	652.41	5⅛"	453	653.84	5½"	3N3	655.15	5⅜"	4N3	656.58	5⅜"
354	652.87	5⅛"	454	654.30	5¼"	3N4	655.58	5¼"	4N4	657.01	4½"
355	653.31	5"	455	654.74	5"	3N5	655.96	3¾"	4N5	657.39	3¾"
356	653.73	4⅛"	456	655.16	4⅛"	3N6	656.27	3¼"	4N6	657.69	3¼"
357	654.07	3⅜"	457	655.50	3⅜"	3N7	656.54	2⅞"	4N7	657.96	2⅞"
358	654.36	2⅞"	458	655.78	3⅛"	3N8	656.78	2¾"	4N8	658.20	2¾"
359	654.62	2⅝"	459	656.04	2⅝"	3N9	657.01	1⅞"	4N9	658.43	1'-2⅜"
3510	654.80	2⅛"	4510	654.80	1'-2⅜"	3N10	657.17		4N10	657.17	

Work this sheet with sheets "155, 161 & 162

PIER DETAILS

NO. 3 & 6

TECON ENGINEERS, INC.

JDC 3-1867
RFC
WHC 3-6-62

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NO.	DESCRIPTION	DATE	BY

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CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 1AR

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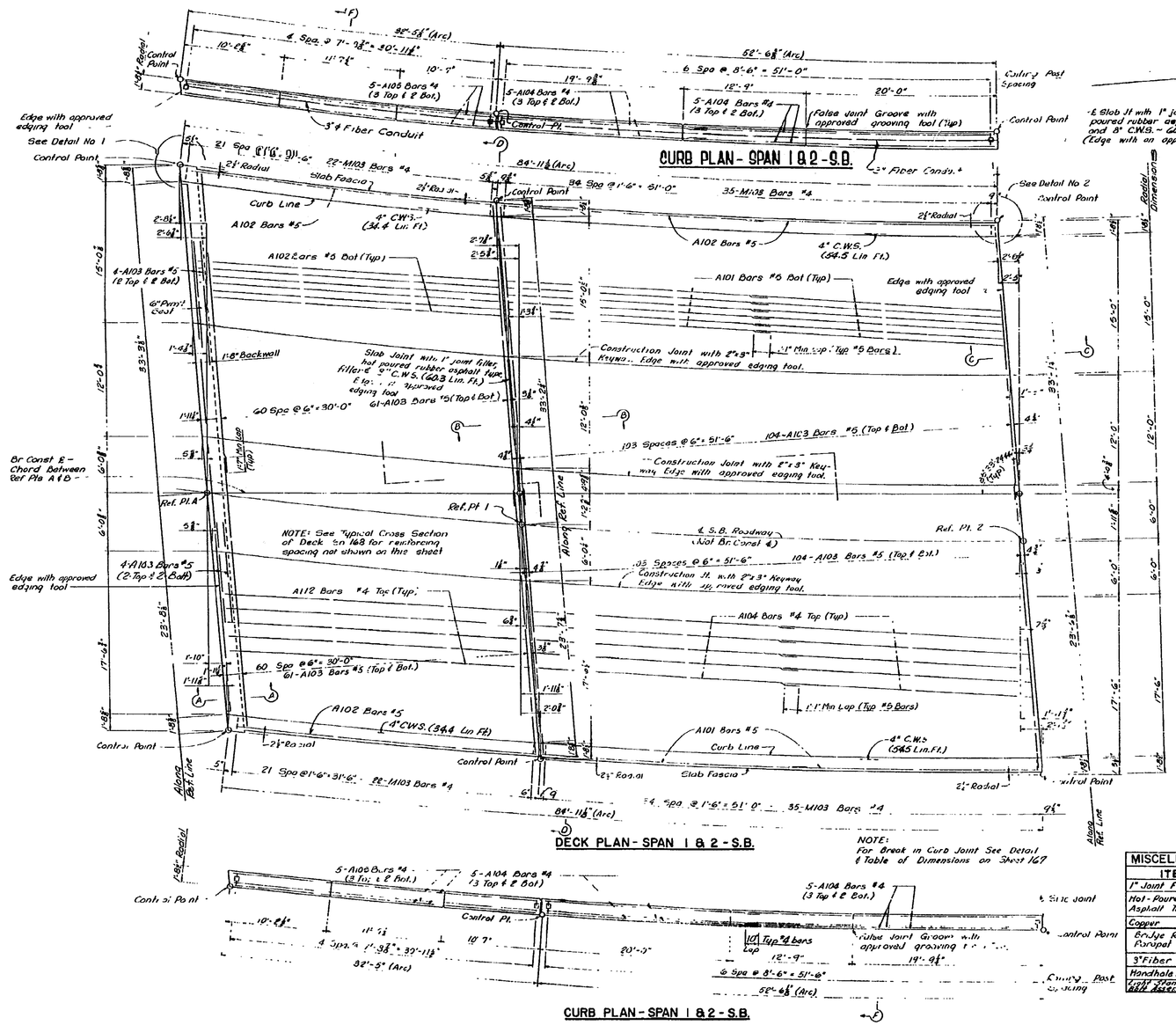
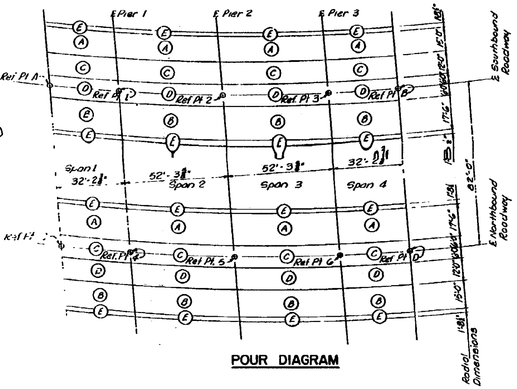
NO.	DESCRIPTION	DATE	BY





POUR DIAGRAM

CU. YDS. CONCRETE GRADE A (6AA)								
POUR	S. B. STRUCTURE				N. B. STRUCTURE			
	SPAN 1	SPAN 2	SPAN 3	SPAN 4	SPAN 1	SPAN 2	SPAN 3	SPAN 4
A	13.9	24.7	24.6	14.8	17.1	28.2	28.1	16.9
B	16.6	27.4	27.3	16.4	14.8	23.7	23.6	14.2
C	10.6	17.6	17.6	10.5	10.5	17.4	17.4	10.4
D	10.5	17.4	17.4	10.4	10.4	17.2	17.2	10.3
E	3.4	5.5	5.5	3.4	3.4	5.5	5.5	3.4
Depth	4.2	7.7	7.8	4.2	4.2	7.7	7.8	4.2
Total	52.2	100.3	100.2	59.7	59.9	99.7	99.6	59.4
Total Concrete S.B. Structure 320.4					Total Concrete N.B. Structure 318.5			
Total Concrete for both Structures = 639.0								

NOTE: Concrete Pours, as located, need not be placed in alphabetical order.

GENERAL NOTES

Unless indicated, expansion joints shall be Waterstop.
Unless otherwise noted, Waterproofing
For Bridge Railing Details not shown, see MSHD Std Dwg. RII.
Edges of concrete shall be edging or grooving with an approved tool
Bridge walk, parapet, and curb shall not be cast until slab concrete has attained 75% of the design strength as determined by the table
Section 604.03.F of the Standard Specifications
Wingwalls shall be laid out parallel or perpendicular to Bridge Construction ℄ (chord between Points A and B on Southbound Structure and between Points C and D on the Northbound Structure), except as noted or shown. Place transverse slab reinforcing parallel to ℄ Piers and Abutments, and longitudinal slab reinforcing parallel to ℄ Bear. except as noted.
For Railing Details See Sheet 171

MISCELLANEOUS QUANTITIES				
ITEM	UNIT	S. B.	N. B.	AMT.
1" Joint Filler	Sq. Ft	106	106	212
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	185	185	370
Copper	"	238	238	476
Bridge Railing - Parapet Type	Lin. Ft.	325	290	615.4
3" Fiber Conduit	L.F.	167	178	345
Handhole Frame (Cover)	Each	1	1	2
Light Standard Anchor Bolt Assembly	Each	1	1	2

Work this Sheet with Sheets 165 thru 171

SUPERSTRUCTURE DETAILS
SOUTHBOUND - SPANS 1 & 2

TECON ENGINEERS, INC.

VHC 3-28-62
P&L
WHC 2-28-62
Rec. 3/12

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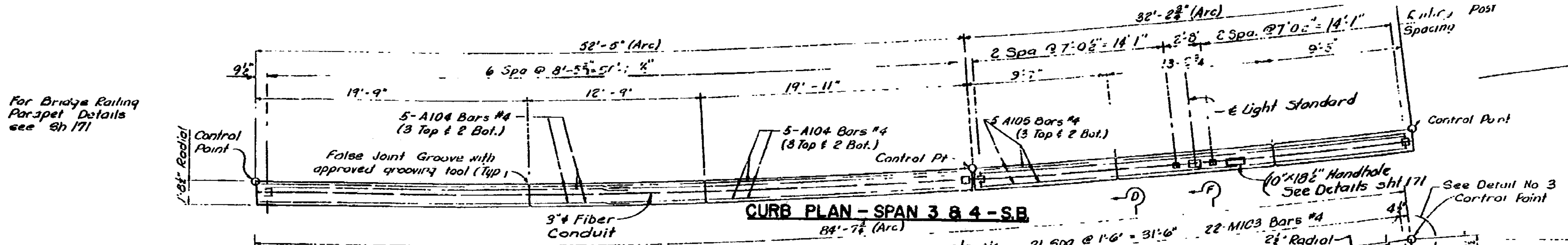
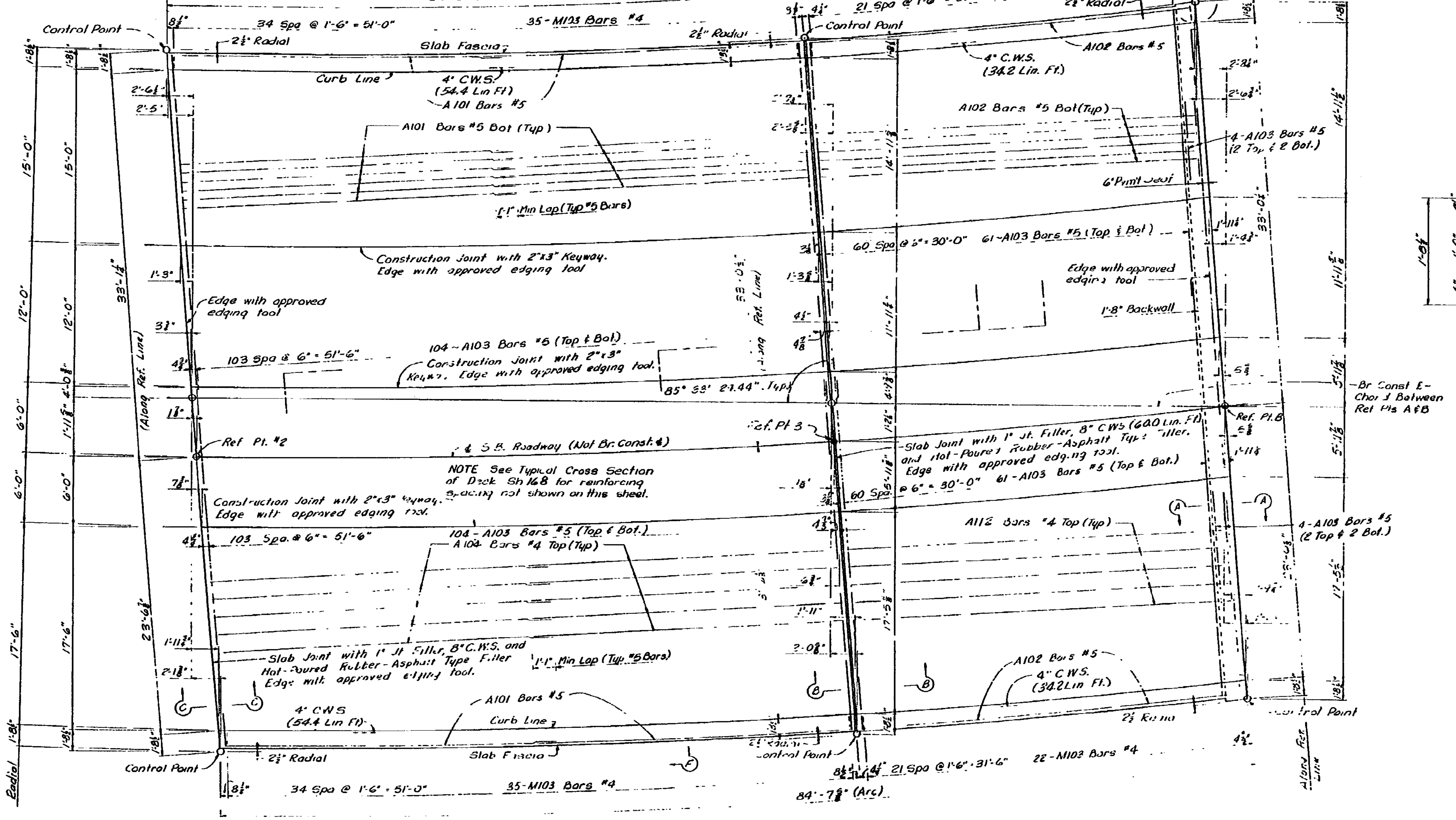
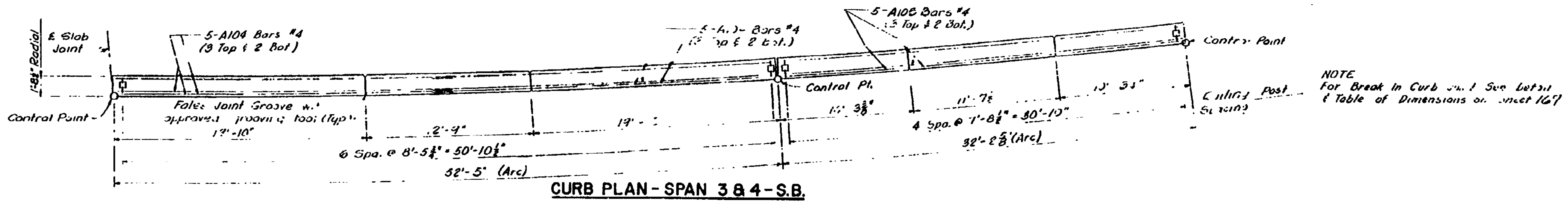
For Bridge Railing Parapet Details see Sh 171



CURB PLAN - SPAN 3 & 4 - S.B.

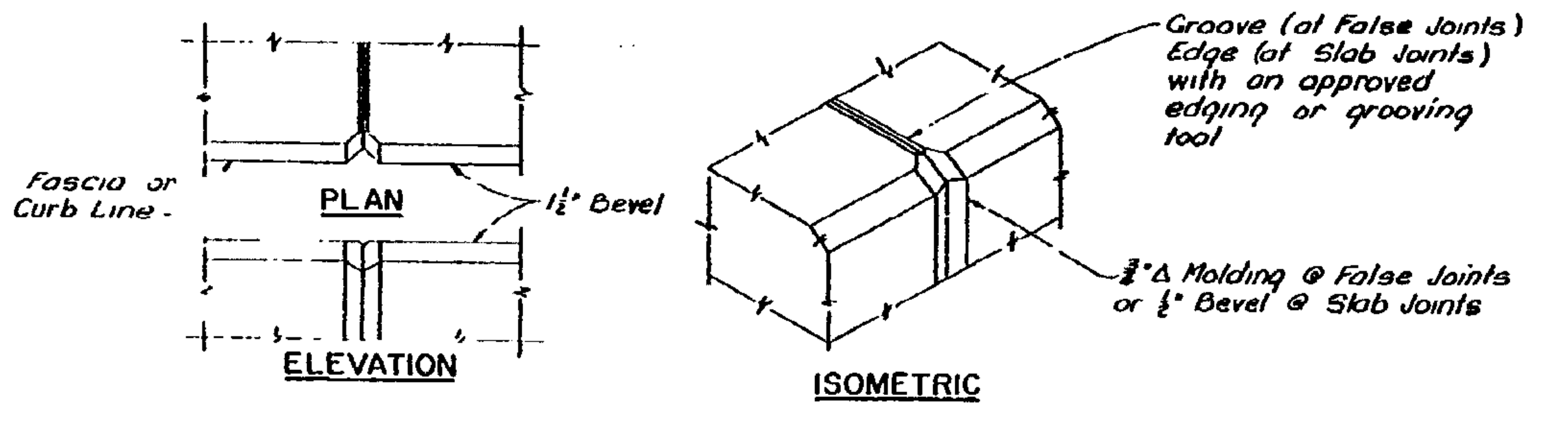


DECK PLAN-SPAN 3 & 4 - S.B.

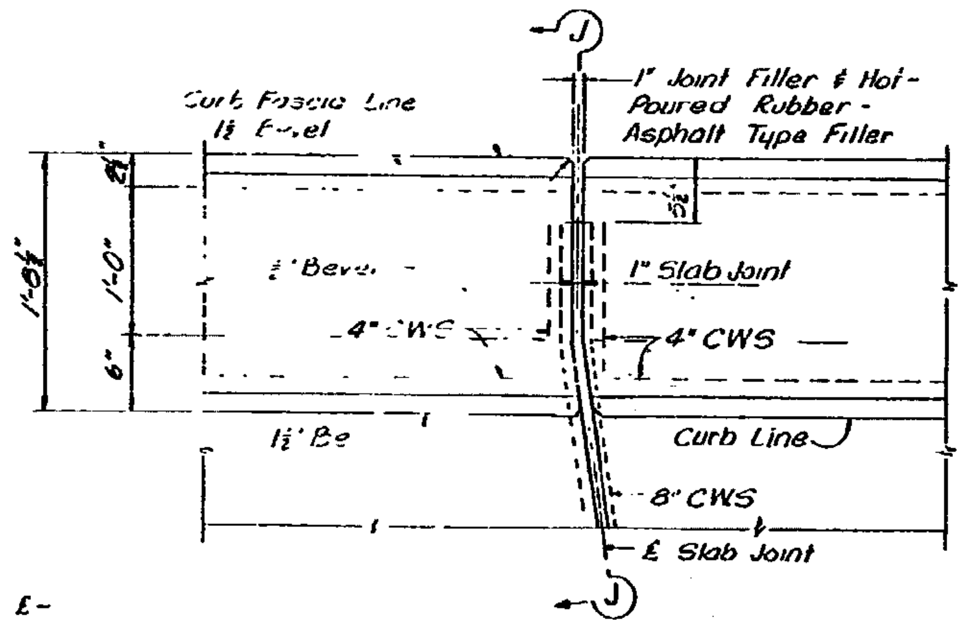


CURB PLAN-SPAN 3 & 4-S.B.

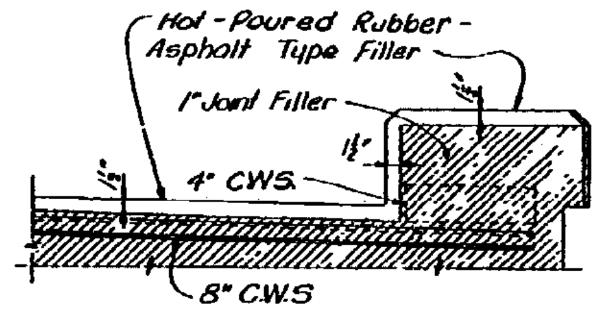
NOTE
For Break In Curb and ℄ See Detail & Table of Dimensions on Sheet 167



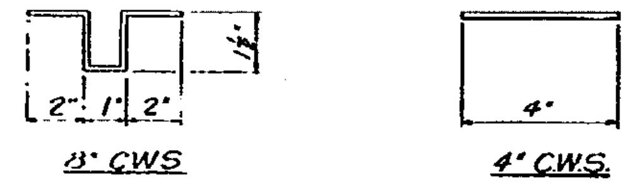
MOLDING DETAILS



DETAIL NO. 2



SECTION J-J



COPPER WATERSTOP DETAILS

Work this Sheet with Sheets 164 and 166 thru 171

SUPERSTRUCTURE DETAILS
SOUTHBOUND - SPANS 3 & 4

TECON ENGINEERS, INC

JTC 5-28-62
FEL
WHC 3-1-62
165 3/2

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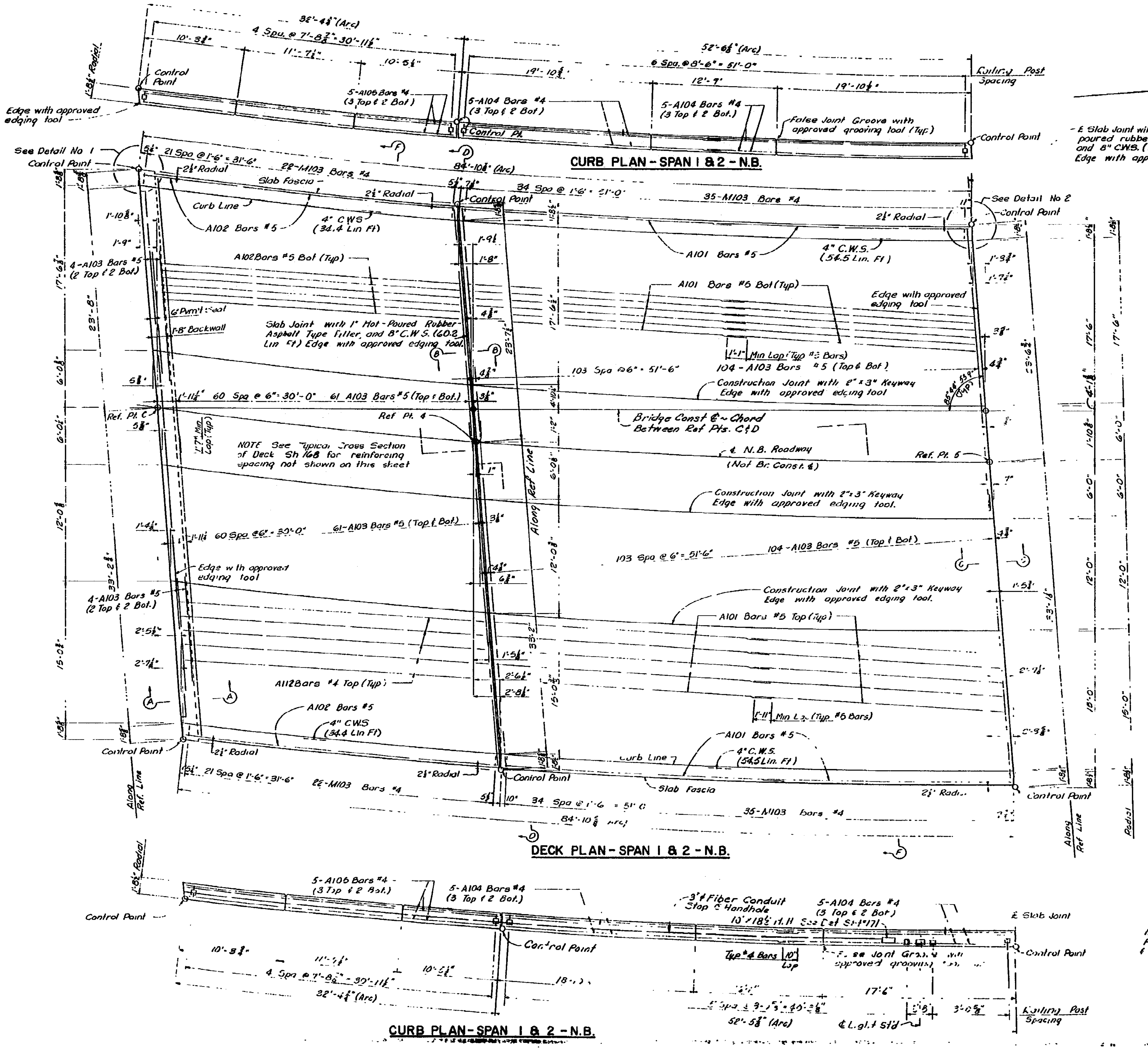
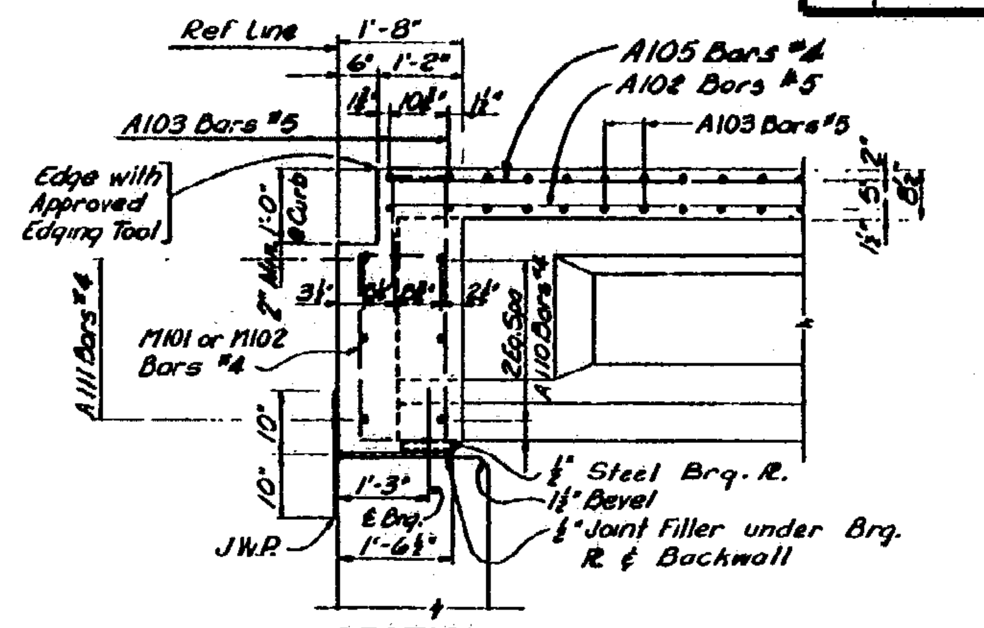
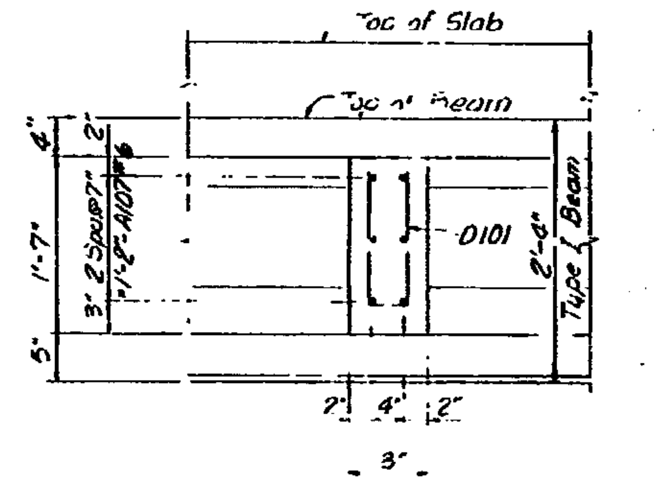
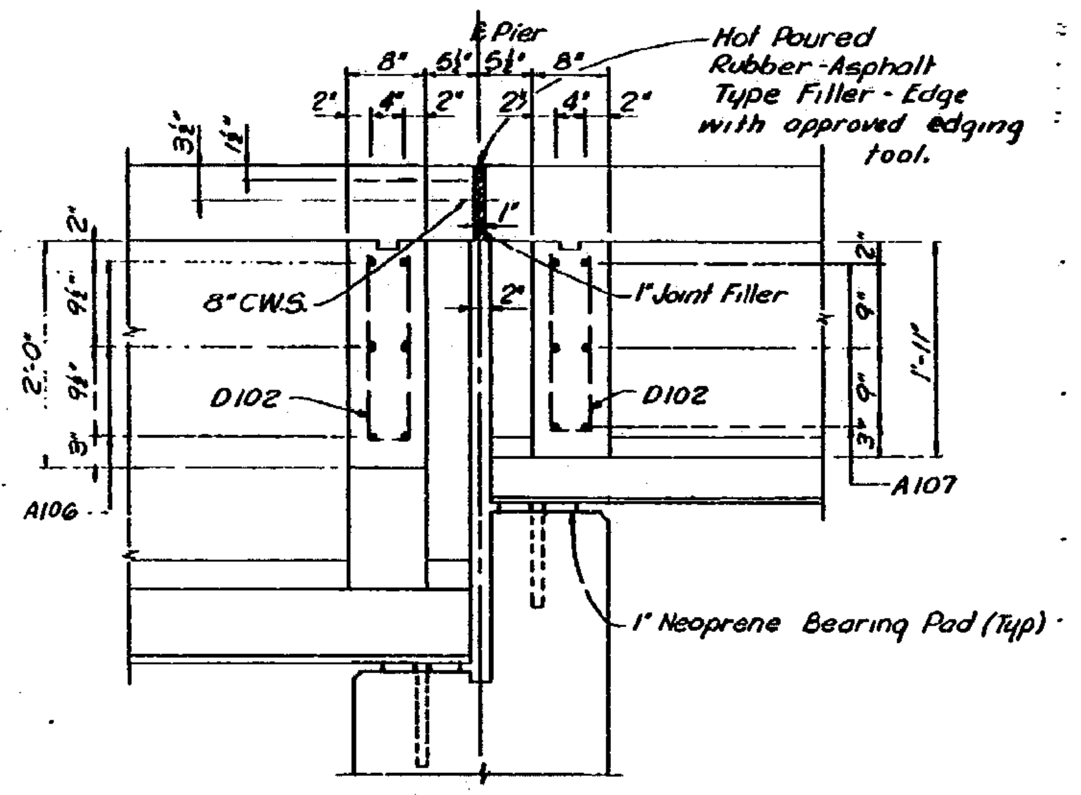




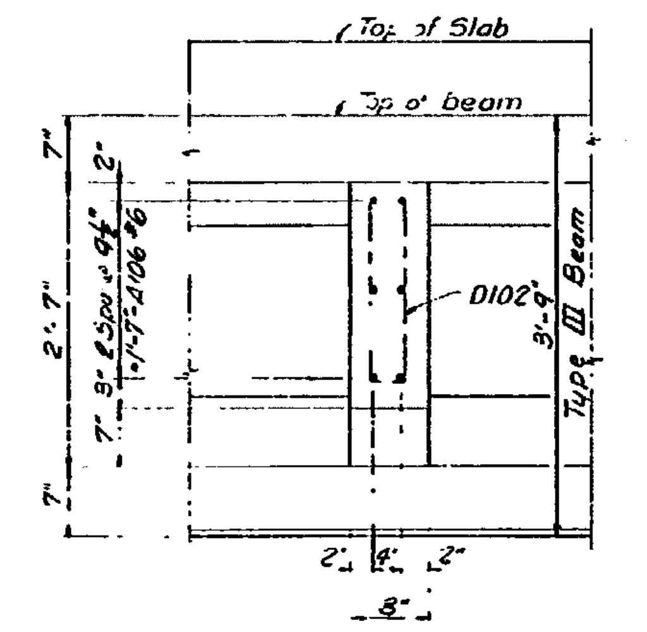
SECTION A-A



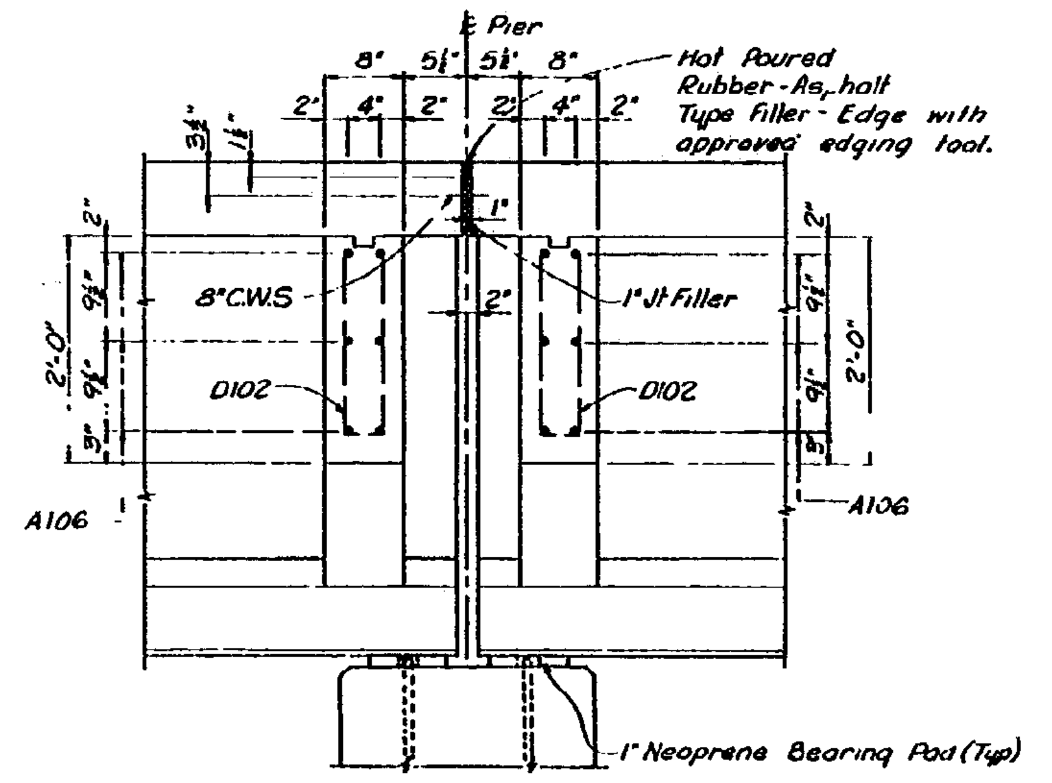
TYPICAL INTERIOR DIAPHRAGMS SPAN 1 & 4



SECTION B-B



TYPICAL INTERIOR DIAPHRAGMS SPAN 2 & 3



SECTION C-C

Work this Sheet with Sheets 164, 166 and 167 thru 171

NOTE:
For Break in Curb ... see Detail & Table of Dimensions on sheet 167

SUPERSTRUCTURE DETAILS

NORTHBOUND - SPANS 1 & 2

TECON ENGINEERS, INC.

JDC 3-28-62
PEL

WHC 3-2-62
166 3/2

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Michigan Department of Transportation

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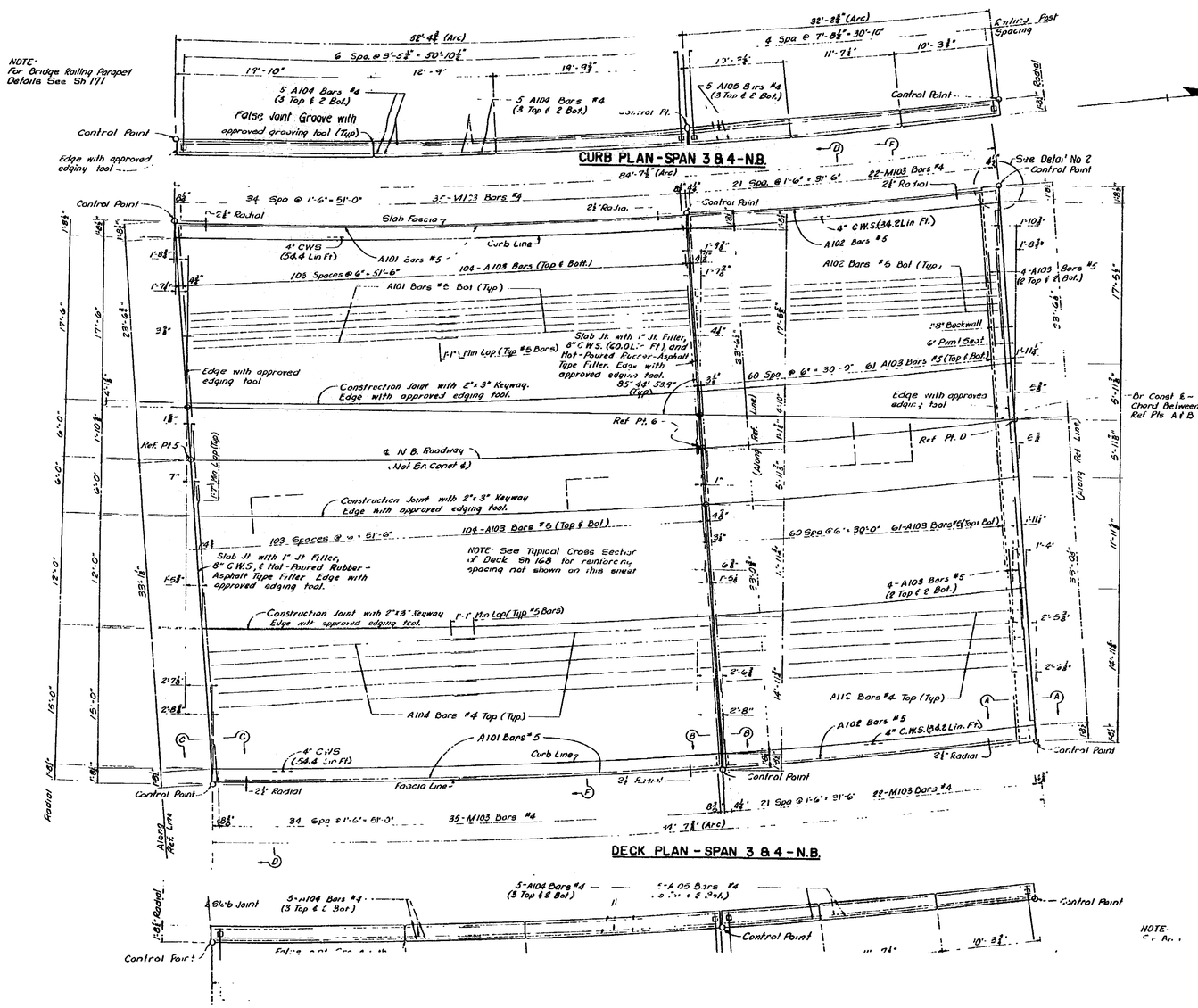

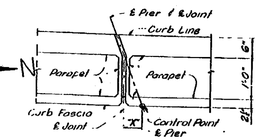

EXPANSION JOINT DETAILS AT PARAPET

DIMENSION "X"

	SB STR	NB STR
Pier 1-4	1⅛"	1⅜"
Pier 2-5	1⅛"	1⅜"
Pier 3-6	⅜"	⅜"

Dimension "X" is measured along the Curb Fascia

Work this Sheet with Sheets 164 thru 166 and 168 thru 171

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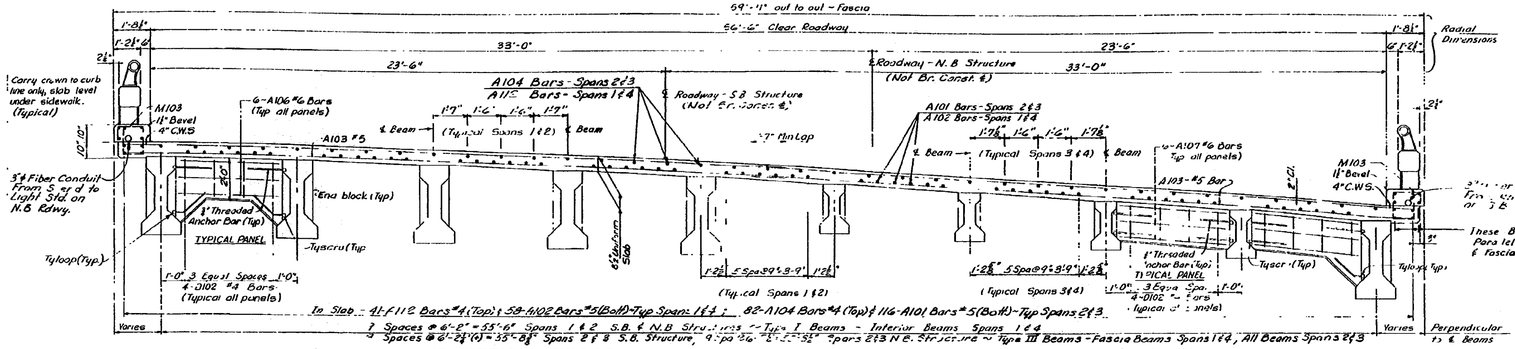
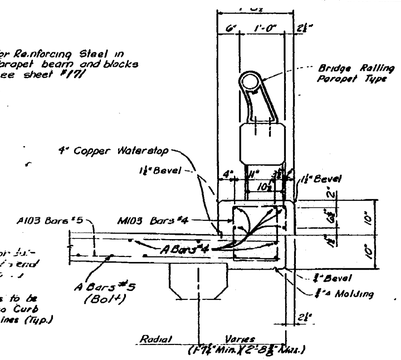


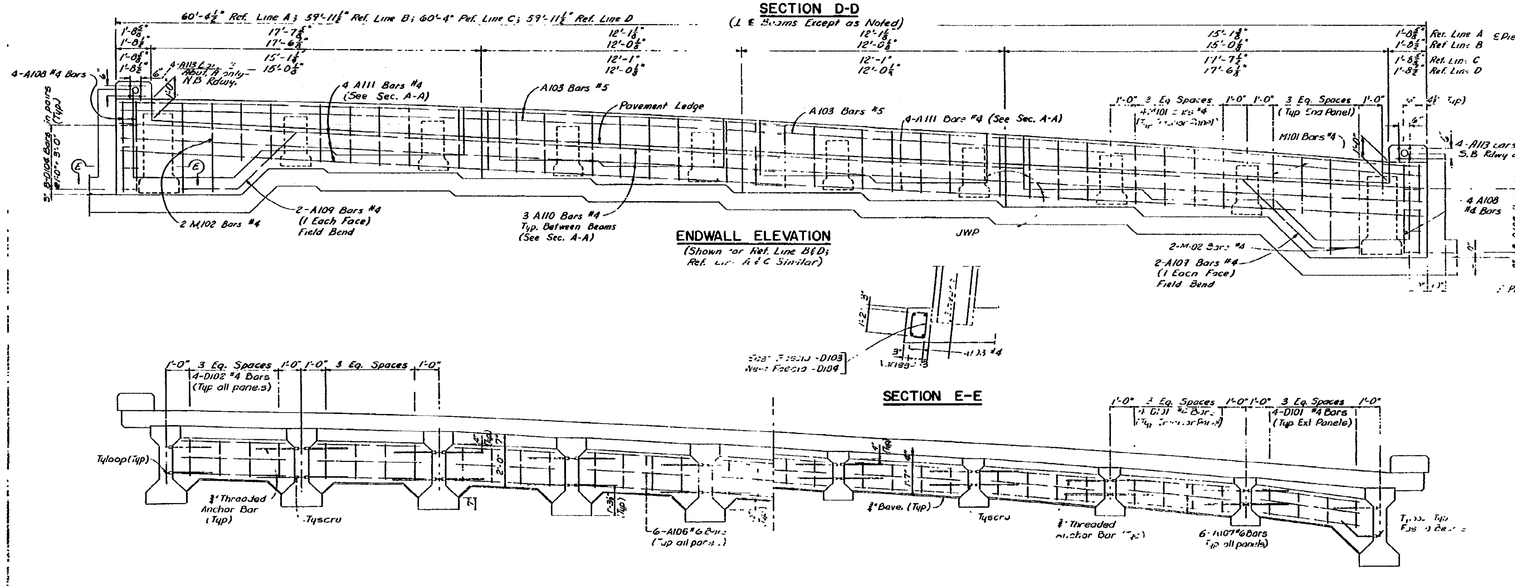
END DIAPHRAGMS - SPAN 2 & 3

END DIAPHRAGMS - SPAN 1 & 4

Note For Reinforcing Steel in Parapet beam and blocks see sheet #171



TYPICAL CURB SECTION



ENDWALL ELEVATION
(Shown for Ref. Line B&D; Ref. Line A & C Similar)

SECTION D-D
(1 ℄ Beams Except as Noted)

PART PLAN OF DIAPHRAGMS AT PIERS 1 & 3

PART PLAN OF DIAPHRAGMS AT PIER 2

SECTION E-E

SECTION F-F
(1 to ℄ Beams)

INTERMEDIATE DIAPHRAGMS - SPAN 2 & 3

INTERMEDIATE DIAPHRAGMS - SPAN 1 & 4

Work this Sheet with Sheet 164 thru 167 and 169 thru 171

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

JDC 5-18-62
PEC
WHC 7-28-62
168 312

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

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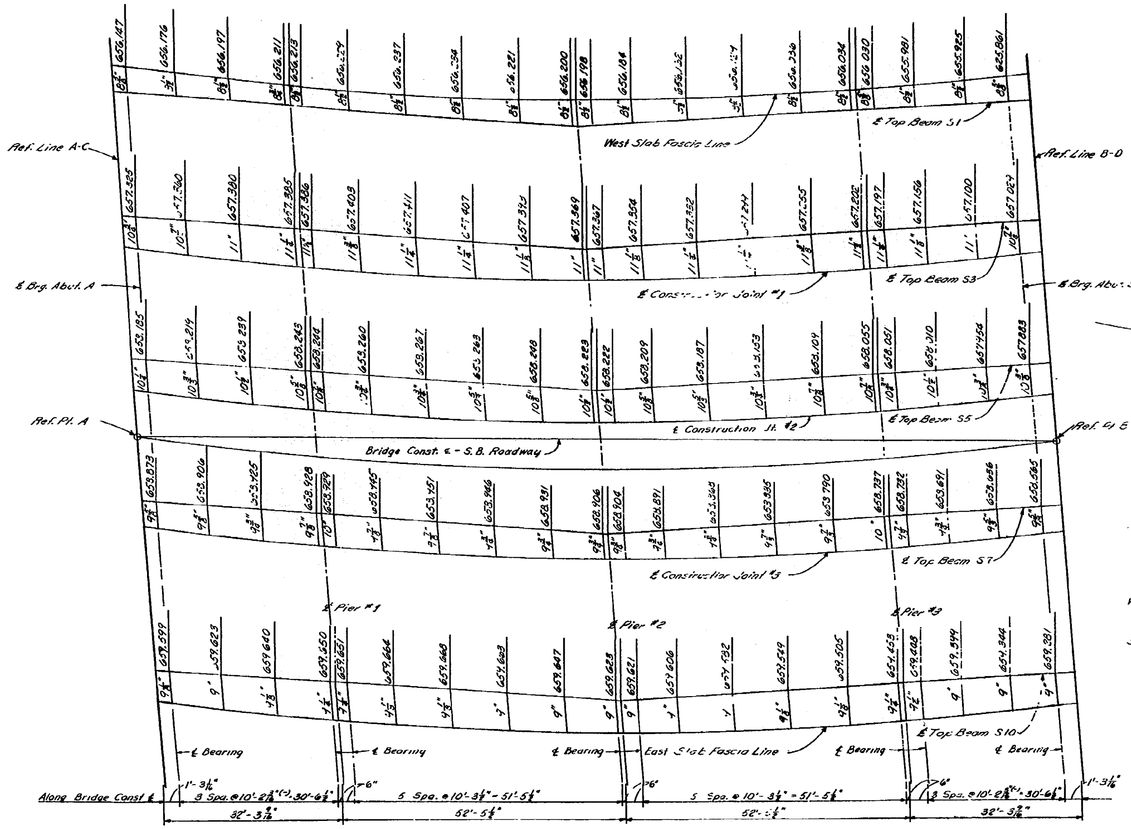
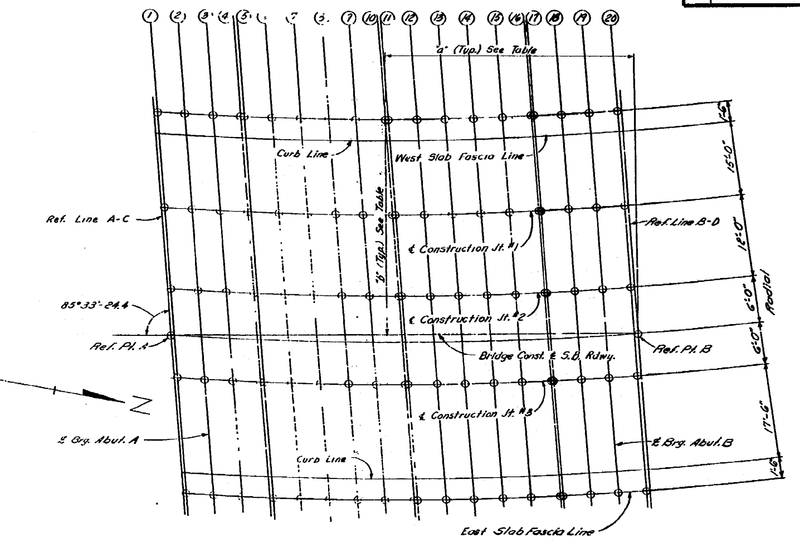
NO.	DESCRIPTION	DATE	BY

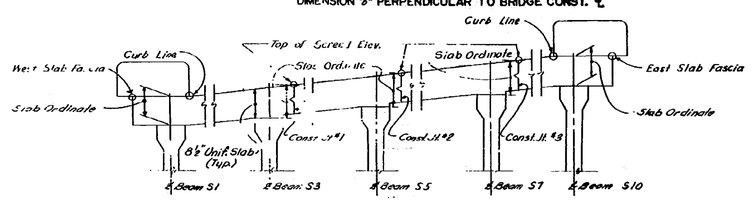


SCREED ELEVATION AND SLAB ORDINATE DIAGRAM



SLAB LAYOUT DIAGRAM

NOTE: DIMENSION 'a' PARALLEL TO BRIDGE CONST. ℄
DIMENSION 'b' PERPENDICULAR TO BRIDGE CONST. ℄



SHOWING HOW SLAB ORDINATES AND SCREED ELEVATIONS ARE TAKEN

TABLE OF ORDINATES FOR SLAB LAYOUT DIAGRAM

Screed Lines	Line A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Line B
W. Slab Fascia 'a'		170'-11⅞"	160'-3⅞"	150'-6⅝"	140'-3⅝"	131'-3⅝"	120'-11⅝"	111'-3⅝"	103'-4⅝"	94'-0⅞"	87'-9⅝"	78'-6⅝"	70'-5⅝"	66'-2⅝"	55'-11⅝"	47'-7⅞"	39'-4⅝"	30'-1⅝"	22'-10⅝"	14'-7⅝"	6'-4⅝"	
'b'		56'-7⅛"	34'-7⅛"	35'-8⅛"	33'-4⅛"	33'-9⅛"	33' 1"	32'-1⅛"	32'-1⅛"	32'-7"	32'-6⅛"	32'-6⅛"	32'-6⅛"	32'-7⅛"	32'-7"	32'-7"	32'-6⅛"	32'-6⅛"	32'-6⅛"	32'-6⅛"	32'-6⅛"	
℄ Const. Jt. #1 'a'		164'-7⅛"	159'-5⅛"	149'-2⅜"	139'-0⅛"	129'-3⅛"	120'-3½"	111'-0⅛"	102'-11⅛"	93'-9⅛"	86'-6"	77'-3"	68'-0"	63'-7⅛"	54'-4⅛"	45'-1⅜"	35'-10⅛"	26'-7⅛"	17'-4⅛"	8'-1⅛"		
'b'		13'-0⅜"	17'-6⅜"	17'-2⅝"	16'-10⅝"	16'-8⅛"	16'-6⅝"	16'-4"	16'-2"	16'-0⅝"	16'-0⅜"	16'-0⅜"	16'-0⅜"	16'-1⅛"	16'-3⅜"	16'-3⅜"	16'-3⅜"	16'-3⅜"	17'-1⅛"	17'-5⅜"	17'-10⅜"	
℄ Const. Jt. #2 'a'		160'-8⅜"	155'-6"	145'-3⅛"	135'-1"	124'-1"	116'-4⅜"	106'-11⅝"	97'-10⅜"	88'-8⅛"	84'-6⅝"	75'-4⅛"	66'-1⅝"	61'-11⅝"	52'-9⅜"	43'-6⅝"	34'-4"	25'-1⅜"	15'-10⅝"	6'-7⅝"		
'b'		5'-11⅞"	5'-0⅜"	5'-1⅞"	4'-9⅝"	4'-9⅝"	4'-6⅝"	4'-3⅜"	4'-1⅝"	4'-0⅜"	4'-0⅜"	4'-0⅜"	4'-1⅛"	4'-3⅜"	4'-6"	4'-9⅝"	5'-0⅜"	5'-2⅞"	5'-5⅜"	5'-7⅞"	5'-11⅛"	
℄ Const. Jt. #3 'a'		167'-9⅜"	157'-6⅝"	147'-3⅝"	137'-1⅜"	126'-1⅜"	120'-10⅜"	111'-6⅝"	102'-5⅜"	93'-1⅛"	84'-7⅞"	75'-4⅝"	66'-1⅜"	61'-11⅜"	52'-9⅛"	43'-5⅝"	34'-2⅝"	25'-0⅛"	15'-9⅝"	6'-7⅛"		
'b'		6'-1"	6'-6"	6'-10⅜"	7'-0⅝"	7'-3"	7'-6"	7'-8⅜"	7'-10⅛"	7'-11⅝"	7'-11⅝"	7'-11⅝"	7'-11⅝"	7'-10"	7'-8⅜"	7'-5⅝"	7'-3⅝"	7'-0⅝"	6'-10⅛"	6'-8⅜"	6'-6⅜"	
E. Slab Fascia 'a'		166'-3⅝"	156'-1"	145'-10⅛"	135'-8⅛"	124'-8⅜"	118'-0⅛"	108'-9"	99'-6⅝"	89'-5⅛"	82'-1⅛"	72'-11⅛"	64'-7"	59'-3⅝"	49'-1⅜"	39'-10⅛"	29'-7⅛"	19'-4⅛"	9'-1⅝"	0'-10⅜"		
'b'		25'-2"	25'-7⅛"	25'-1⅛"	26'-3⅛"	26'-3⅝"	26'-5⅝"	26'-8⅛"	26'-10⅛"	25'-11⅛"	26'-1⅛"	26'-1⅛"	25'-11⅛"	26'-3⅛"	26'-6"	26'-5⅜"	26'-5⅜"	26'-4⅛"	25'-9⅛"	25'-3⅜"	25'-0"	

Work this Sheet with Sheets 166 thru 168, 170 & 171

SUPERSTRUCTURE DETAILS
S. B. STRUCTURE

JDL 3-28-62
E.G.A.
RFC 3-10-62
169 312

S03 OF 63174I

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MDOT Michigan Department of Transportation

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	S03 OF 63174	49595A	MADHAVI	1AW OF

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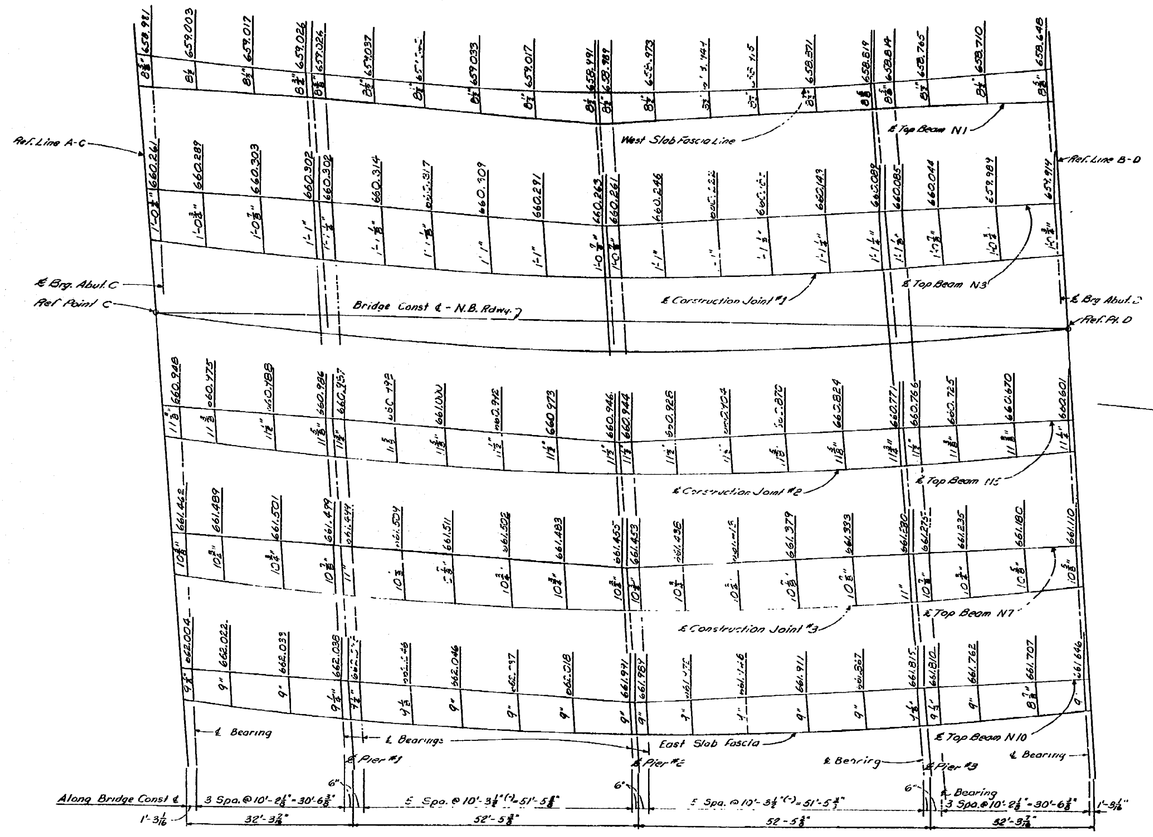
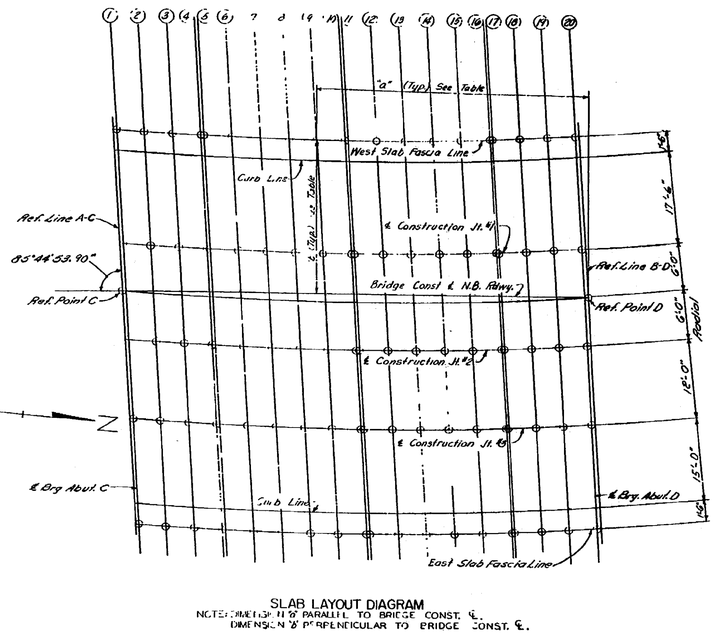
FILE NAME: s03631174sn.nb

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

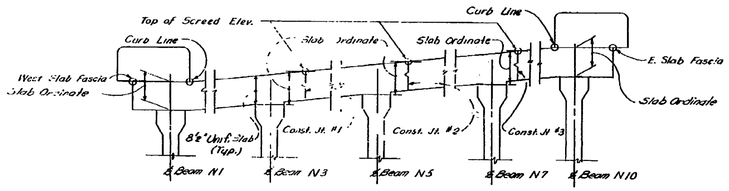
CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 1AX



SCREED ELEVATION AND SLAB ORDINATE DIAGRAM



SLAB LAYOUT DIAGRAM
NOTE: DIMENSION 'A' PARALLEL TO BRIDGE CONST. ℄.
DIMENSION 'B' PERPENDICULAR TO BRIDGE CONST. ℄.



SHOWING HOW SLAB ORDINATES AND SCREED ELEVATIONS ARE TAKEN

TABLE OF ORDINATES FOR SLAB LAYOUT DIAGRAM

Screed Lines	Line C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Line D
W. Slab Fascia "a"		110'-0⅜"	159'-10⅜"	149'-7½"	139'-5⅛"	129'-2⅞"	119'-0⅝"	108'-10⅜"	98'-8⅛"	88'-5⅞"	78'-3⅝"	68'-1⅜"	57'-11⅛"	47'-8⅞"	37'-6⅝"	27'-4⅜"	17'-2⅛"	6'-11⅞"	3'-9⅝"	3'-1⅜"	3'-1⅜"	
"b"		25'-0⅜"	24'-7⅜"	24'-2⅝"	23'-10"	23'-5⅜"	23'-0⅝"	22'-8"	22'-3⅜"	21'-10⅝"	21'-5⅞"	21'-1⅛"	20'-8⅜"	20'-3⅝"	19'-10⅞"	19'-6⅛"	19'-1⅜"	18'-8⅝"	18'-3⅞"	17'-11⅛"	17'-10⅜"	17'-10⅜"
℄ Const. Jt. #1 "a"		105'-7⅜"	155'-5⅜"	145'-2⅝"	134'-10"	124'-7⅜"	114'-4⅝"	104'-2"	93'-11⅜"	83'-8⅝"	73'-5⅞"	63'-3⅛"	53'-0⅜"	42'-9⅝"	32'-6⅞"	22'-4⅛"	12'-1⅜"	1'-10⅝"	1'-3⅞"	1'-3⅞"	1'-3⅞"	
"b"		6'-2⅛"	5'-6⅝"	5'-2⅞"	4'-11⅜"	4'-10"	4'-7"	4'-6⅝"	4'-2⅞"	4'-1⅝"	4'-1⅛"	4'-1⅛"	4'-1⅛"	4'-1⅛"	4'-1⅛"	4'-1⅛"	4'-1⅛"	4'-1⅛"	4'-1⅛"	5'-1⅜"	5'-6⅜"	5'-11⅝"
℄ Const. Jt. #2 "a"		167'-0⅜"	157'-0⅜"	147'-0⅜"	137'-1"	126'-11⅝"	116'-10⅝"	106'-9⅝"	96'-8⅝"	86'-7⅝"	76'-6⅝"	66'-5⅝"	56'-4⅝"	46'-3⅝"	36'-2⅝"	26'-1⅝"	16'-0⅝"	5'-11⅝"	1'-3⅞"	1'-3⅞"	1'-3⅞"	
"b"		6'-1"	6'-6"	6'-10⅜"	7'-2"	7'-5⅞"	7'-9⅝"	7'-11⅝"	8'-1⅜"	8'-3⅛"	8'-4⅞"	8'-6⅝"	8'-8⅜"	8'-10⅛"	8'-11⅞"	9'-1⅝"	9'-3⅜"	9'-5⅛"	9'-6⅞"	9'-8⅝"	9'-10⅜"	9'-10⅜"
℄ Const. Jt. #3 "a"		166'-10⅜"	156'-7⅜"	146'-5⅜"	136'-3"	126'-0⅝"	115'-11⅝"	105'-9⅝"	95'-8⅝"	85'-6⅝"	75'-5⅝"	65'-3⅝"	55'-2⅝"	45'-0⅝"	34'-11⅝"	24'-9⅝"	14'-8⅝"	4'-6⅝"	1'-3⅞"	1'-3⅞"	1'-3⅞"	
"b"		19'-1⅛"	18'-6⅝"	18'-10⅝"	19'-2½"	19'-5⅞"	19'-5⅞"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"	19'-7⅜"
E. Slab Fascia "a"		165'-7⅜"	155'-5⅜"	145'-2⅝"	134'-10⅛"	124'-7⅜"	114'-4⅝"	104'-2"	93'-11⅜"	83'-8⅝"	73'-5⅞"	63'-3⅛"	53'-0⅜"	42'-9⅝"	32'-6⅞"	22'-4⅛"	12'-1⅜"	1'-10⅝"	1'-3⅞"	1'-3⅞"	1'-3⅞"	
"b"		34'-0⅜"	33'-1⅛"	32'-1⅝"	31'-2⅜"	30'-3⅛"	29'-3⅞"	28'-4⅝"	27'-5⅜"	26'-6⅛"	25'-6⅞"	24'-7⅝"	23'-8⅜"	22'-9⅛"	21'-9⅞"	20'-10⅝"	19'-11⅜"	19'-0⅛"	18'-0⅞"	17'-1⅝"	16'-2⅜"	16'-2⅜"

GENERAL NOTES

Sidewalk cross slope and the cast unit slab concrete has obtained at least 3000 psi its design strength as determined by the tests in Section 5.01.25 of the Standard Specifications.

Elevations shown are for top of screed before pouring the concrete. They are based on a minimum slab thickness of 9½ inches. If check indicates that less than the minimum thickness will be obtained, adjust screed accordingly.

The slab ordinates shown provide for dead load deflection, vertical curve, crown, beam camber & superelevation and are to be measured from the top of the beam, unless stated on a line parallel to the reference lines at the top of the screed.

Work this Sheet with Sheets 164 thru 169, and 191

SUPERSTRUCTURE DETAILS
N. B. STRUCTURE

JDC 3-26-64
Z.S. 9
RFC 3-10-64
170 3/12

S03 OF 63174

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REVISIONS			
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MDOT Michigan Department of Transportation

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	S03 OF 63174	49595A	MADHAVI	1AX OF

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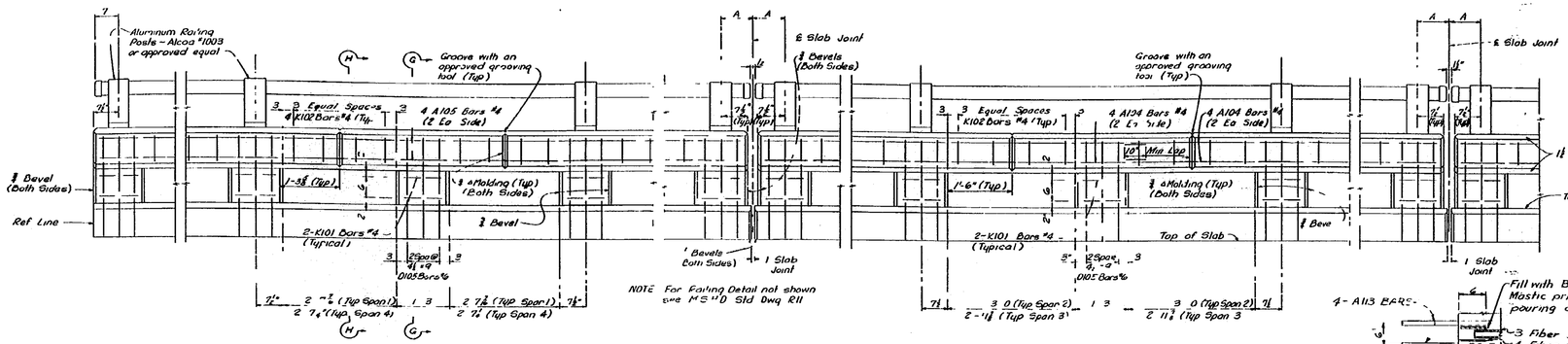
FILE NAME: s0363174sn.nb

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 1AY

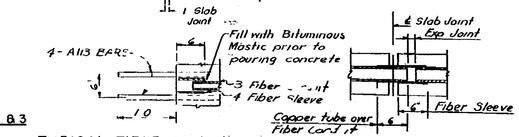


REINFORCING STEEL IN PARAPET BEAMS & BLOCKS - SPAN 1 & 4

REINFORCING STEEL IN PARAPET BEAMS & BLOCKS - SPAN 2 & 3

NOTE Longitudinal bars thru Parapet shown here are typical except as follows
For Span 4 SB in the west railing use 4 A114 Bars (2 Ea Side) in each of the two sections of parapet
For Span 2 NB in East railing use 8 A115 Bars (4 Ea Side with 10 lap) for the long section and 4 A116 Bars (2 Ea Side) for the short section

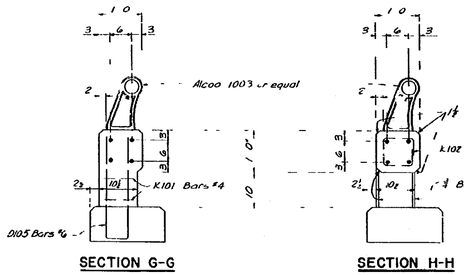
ELEVATION - BRIDGE RAILING - PARAPET TYPE



TYPICAL FIBER DUCT DETAIL AT END OF BRIDGE

Copper tube, fiber sleeve & bituminous mastic incidental to fiber duct

TYPICAL FIBER DUCT DETAIL AT BRIDGE SLAB JOINT



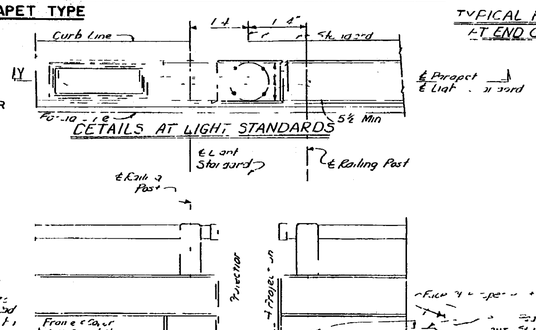
SECTION G-G

SECTION H-H

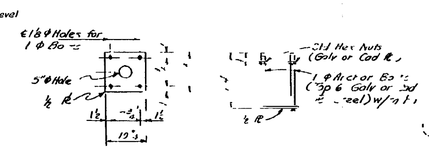
* RAILING DIMENSION "A"

SPAN	SOUTHBOUND STR. WEST CURB	SOUTHBOUND STR. EAST CURB	NORTHBOUND STR. WEST CURB	NORTHBOUND STR. EAST CURB
1	9⅞"	8⅜"	9½"	8⅝"
2	9"	9⅜"	8⅝"	9"
3	1'-½"	9⅜"	8⅞"	9⅜"
4	9"	9½"	8⅜"	9½"

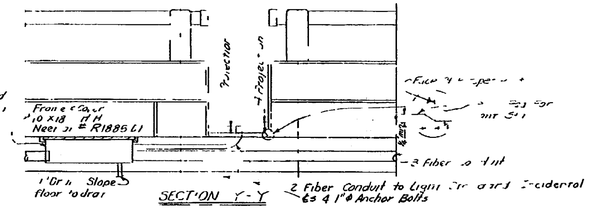
*Along curb fascia Line



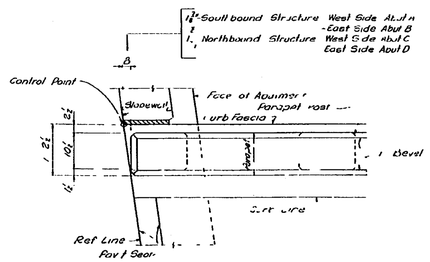
DETAILS AT LIGHT STANDARDS



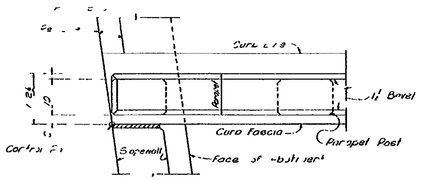
LIGHT STANDARD ANCHOR BOLT ASSEMBLY



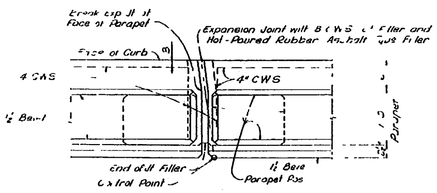
SECTION Y-Y



DETAIL NO 1



DETAIL NO 3



DETAIL NO 2
(Typ @ Piers)

Work this Sheet with Sheets 164 thru 170

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC

JOC PEL 5-18-62
WHC 197 2-27-62 SHE
S03 OF 63174 1

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	S03 OF 63174	49595A	MADHAVI	1AY OF

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CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 1AZ

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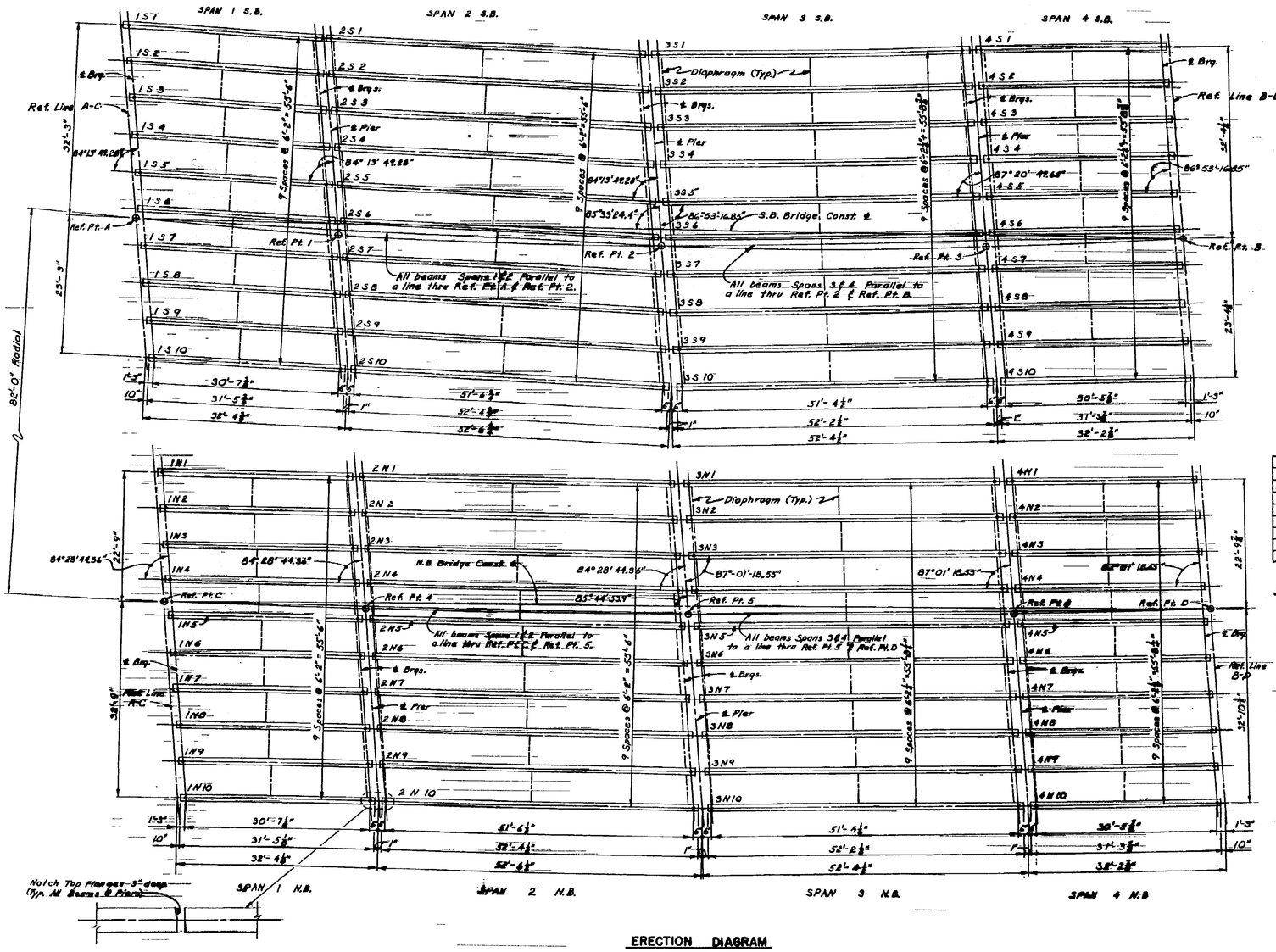

ERECTION DIAGRAM

QUANTITIES		
ITEM	UNIT	AMT.
28" Prestressed Concrete I Beam	Lin. Ft.	4806.2
28" Prestressed Concrete I Beam - Curved	Lin. Ft.	1098.6
45" Prestressed Concrete I Beams - Straight	Lin. Ft.	2346.7
45" Prestressed Concrete I Beams - Curved	Lin. Ft.	1342.9
1" Neoprene Brg Pads (8"x11-1/4")	Sq. Ft.	89
1" Neoprene Brg Pads (8"x [illegible])	Sq. Ft.	[illegible]
Inserts - TLZF (or equal)	Each	864

NOTES:

The design of this structure is based on the Michigan State Highway Department's Specifications for the Design of Highway Bridges, 1996 Edition and Supplements thereto, for (H-20-S16-44 Loading and L.L. Distribution Spacing).

For materials, construction, care and handling procedures, see Supplemental Specifications.

Installation of anchor bars in Substructure & Superstructure Concrete. Furnishing and installation of all [illegible] Bearing plates, Lifting devices, and other connected appurtenances incidental to Prestressed Concrete I Beam, Cost Superstructure Concrete.

Minor cracks in the end diaphragms of the beams may be permitted subject to inspection by the Michigan State Highway Department.

Beams with honeycomb or sand collect as to affect the strength or resistance to deterioration will be rejected.

An allowance of 0.005 L shall be made for shortening of the beams due to shrinkage and elastic change.

Where called for, inserts shall be Differential Type TLZF Insert, Superior [illegible] Coil Thread and with thread lug, or equal.

Work this Sheet with Sheet 2 of 2

MICHIGAN STATE HIGHWAY DEPARTMENT

PRESTRESSED CONCRETE I BEAM DETAILS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESIGN OF	DATE	NO.

DESIGNED BY: [illegible] CHECKED BY: [illegible]
DRAWN BY: [illegible] CHECKED BY: [illegible]
TRACED BY: [illegible] DATE: [illegible]
SHEET 1 OF 2 SHEETS
S03 OF 63174

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MDOT Michigan Department of Transportation

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 2

BENCH MARKS

B.M. #69 El. 637.34 M.S.H.D. B.M. Tag in Root of 15" Elm 158' Rt. of Sta. 924+06 N.B. Rdwy.

B.M. #68 El. 638.31 M.S.H.D. B.M. Tag in Root of 24" Elm 214' left of Sta. 937+43 N.B. Rdwy.

UTILITIES

Detroit Edison, High Voltage Line crossing ℄ at Sta. 929+60

WATER DATA

H.W. Elev. 619.00
Max. Flow 4600 c.f.s.
Average Velocity = 5'/sec.
(Varies 6' to 1.8')
Date - April 25, 1956
Area Below H.W. Elev. (new channel) = 850 ft.²

SECTION 11
T.1N R.11E
ROYAL OAK TWP.

PROPOSED STRUCTURE B02 OF 631741

Proposed R.O.W.

6' Conc. Spillway

℄ 120 K.V. Transmission Line

Bridge Approach Curb & Gutter E-4-A-154C Detail 2 Typ. South End of Structure

RED RUN DRAIN

Limits of Plain Riprap

T.H. No. 3

T.H. No. 1

44°42'30"

Ref. Pt. A Sta. 930+39.61

Ref. Pt. 1 Sta. 931+90.61

Inlet 5E

T.H. No. 4

45°18'00"

N11°59'56"W

18" Class B Culvert (C.M.P.)

Ref. Pt. C Sta. 931+15.61

Ref. Pt. 3 Sta. 932+02.41

Retaining Wall 7

Drain

T.H. No. 2

Ramp D

Std. Headwall E-4-90 Detail 2, 6 S.Y. Plain Riprap

30" Cl. III Sewer (Conc.)

WITNESSES TO P.T. STA. 925+07.19

WITNESSES TO P.O.T. STA. 946+75.79

Witnesses to P.T. Sta 930+20.12 No Witnesses

Witnesses to P.O.T. Sta 934+35.41 No Witnesses

Boat Spike

Boat Spike N11°59'56"W

Br. Const. ℄ S.B. Rdwy.

℄ Survey & Br. Const. ℄ N.B. Rdwy.

6" Dead Elm

8" Elm

14" Oak

20" Fruit Tree

36" Elm

30" Cl. A Culvert (CMP) Downspout

Ref. Pt. 2 Sta. 932+06

T.H. No. 7

T.H. No. 5

T.H. No. 6

T.H. No. 8

Ref. Pt. B Sta. 932+85

Bridge Approach Curb & Gutter E-4-A-154C, Detail 1

Bridge Const. ℄ Southbound Rdwy.

Br. Appr. Curb & Gutter E-4-A-154C, Detail 3

8" Cl. A Culvert (C.M.P.)

45° Typ. except at piers 1 & 3

Ref. Pt. D Sta. 933+45

Bridge Const. ℄ Northbound Rdwy.

Br. Appr. Curb & Gutter E-4-A-154C, Detail 3

℄ Survey N 11°59'56" W 798.45

Drain Outlets Both Sides (Typ.)

Ref. Pt. 4 Sta. 932+98

Concrete Spillway Header E-4-A-144 (Typ.)

Limits of Plain Riprap

RUN

℄ Channel Change

8" Cl. A Culvert (C.M.P.) Downspout

Std. Headwall E-4-90 Detail 2, 6 S.Y. Plain Riprap

Proposed R.O.W.

DRAIN

SITUATION PLAN

SCALE: 1" = 40'

WITNESSES AND ALIGNMENT SKETCH

-2.90%

Ref. Pt. C Sta. 931+15.61 ℄ El. 640.15

87°-0" S.B. 86°-9½" N.B.

Ref. Pt. B Sta. 932+02.41 ℄ El. 644.39

85°-4½" S.B. 85°-7½" N.B.

Ref. Pt. 4 Sta. 932+98 ℄ El. 642.90

77°-0" S.B. 77°-0" N.B.

Ref. Pt. D Sta. 933+45 ℄ El. 641.88

249.4½

R Varies with Loc. & Not R.S.C. (Typ.)

Limits Porous Material Grade 'A' 6900 Cu. Yds. behind Abut.

12" Class B Culvert (C.M.P.)

Bot. Flg. El. 634.15

20 Ton Treated Timber Piles

Abut. A

Limits Porous Material Grade 'A' 640 Cu. Yds. Front of Abut.

April 25, 1956 High Water Elev. (610.00)

Limits Porous Material Grade 'A' 2640 C.Y. behind Abut.

Bot. Flg. El. 627.08

Abut. B

Limits Porous Material Grade 'A' 640 Cu. Yds. Front of Abut.

Plain Riprap (Typ.)

Cofferdam

The material under Abutment 'A' on this project will be taken from the Roadway cut or borrow pit in accordance with the Supplemental Specs.

4' Backfill (Typ.)

Normal Water El. 601.50

Lower Limits of Channel Excavation and Upper Limits of Foundation Excavation for Piers 2 & 4

Natural Ground Line and Upper Limits of Foundation Excavation for Piers 1 & 3.

Piers 1 & 3

Bot. Flg. El. 601.00

Bot. Flg. El. 601.00

PROFILE ℄ N.B. RDWY.

VERT. SCALE — 1" = 10'
HOR. SCALE — 1" = 40'

LOCATION SKETCH

℄ Exist. Stephenson Hwy.

RED RUN DRAIN

Proposed Bit. Pvmt. (By Others)

N 88°-1'-35"E

S 18°-39'-25"W

44°-30'-40"

PROPOSED STRUCTURE B02 OF 631741

Sta. 931+49.89 12 Mile Rd. Defl. Lt. 0°-28'-50"

PROPOSED STRUCTURE B03 OF 631741

PROPOSED STRUCTURE B02 OF 631741

℄ Ramp 'E'

℄ Channel Change

℄ S.B. Rdwy.

℄ N.B. Rdwy.

15'

DRAIN

Prop. R.O.W.

℄ 12 Mile Rd.

M.S.H.D. B.M. Tag #69 at El. 637.34, in Root of 15" Elm 158' Rt. of Sta. 924+06, N.B. Rdwy.

1978 ESTIMATED TRAFFIC DISTRIBUTION

RED RUN

Ramp 'E' (17.5)

(41.0) 40950

F.A.I. -75 14%

37250 (3250)

3000 (340)

40250 (4160)

DRAIN

LEGEND:
000 = Average Daily Volume
(00) = Design Hour Volume
00% = Commercial

SECTION A-A

No Scale

Bridge Const. ℄ & N.B. Rdwy. 52'-0" Bridge Const. ℄ & S.B. Rdwy.

12'-0" 12'-0" 18'-0" 18'-0" 6'-0" 6'-0" 18'-0" 18'-0" 7'-1"

Class AA Shoulder

Conc. Pvmt. 9" Unif. Reinf.

Agg. & Bituminous Appr. Mixture

Steel Beam Guardrail

Conc. Pvmt. 9" Unif. Reinf.

2¼" Grn. RG. 2¼" Grn. 3/4"/ft. 4:1 6.02"/ft. Subbase 4" Selected Subbase 1.92' below Plan Grade

Br. Appr. Curb & Gutter

4" Selected Subbase

Porous Mat'l. Gr. A

GENERAL NOTES:

Fences, and utilities are to be moved by others.
Datum refers to U.S.G.S. Datum.
Place riprap, El. 606.00 to El. 620.00.
All Piers shall be constructed and backfilled prior to construction of the abutments.
The work covered by these plans includes channel excavation, construction of the proposed bridge, placing porous material, and placing riprap to the limits shown.
All work not listed above is included in the Road Plans.

APPROACH GRADING PLAN

50' 9'-9" 9'-9" 50' 50' 100' 1035' S.B.G.R. ℄ S.B. Inbound Rdwy. 203.5' S.B.G.R. 150' 50' 9'-9" (Ref. Line 'A') 203.5' S.B.G.R. 150' 100' ℄ Northbound Rdwy. Ramp 'D' Ref. Line 'B' 53.5' Steel Beam Guardrail Steel Beam Guardrail

CONTROL SECTION 631741

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 OVER RED RUN DRAIN IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF SITE

TECON ENGINEERS, INC.

APPROVED J. V. Dunaway COORDINATING ENGINEER 6-5-62

APPROVED ENGINEER OF DESIGN — CONSULTANTS

REVISIONS			
NO.	DESCRIPTION	DATE	BY
B	Relocated Piers 1, 3 & Abut. A, added struts & thrust block.	1-16-63	P.E.
A	Corrected Pr. Elevations.	9-7-62	A.P.H.

DRAWN BY	G.T.C.	
CHECKED BY	M.B.A.	1-11-61
TRACED BY	G.T.C.	1-16-61
SHEET NO.	193 to 315	

B02 OF 63174I

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

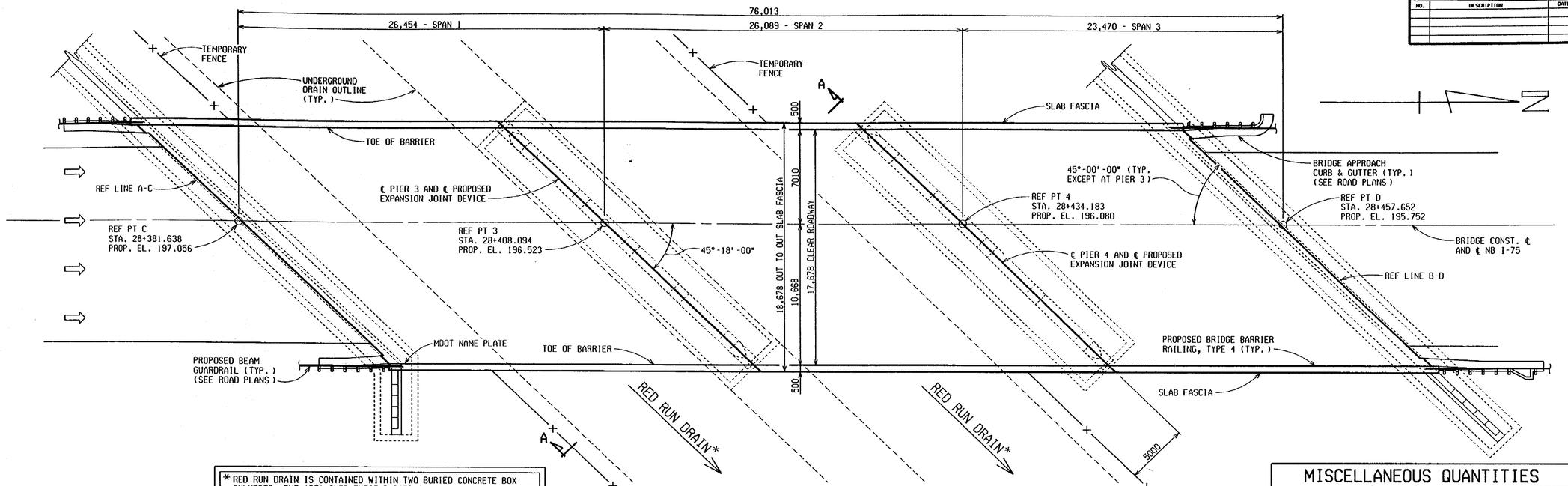
NORTH BOUND

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-14-00	B02 OF 63174	49595A	MAHDAVI	2 OF 16

DATE: 02-11-00 CHECKED BY:
DATE: CORRECTED BY: INDER
DRAWN BY: INDER
FILE NAME: b0263174sn

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 3

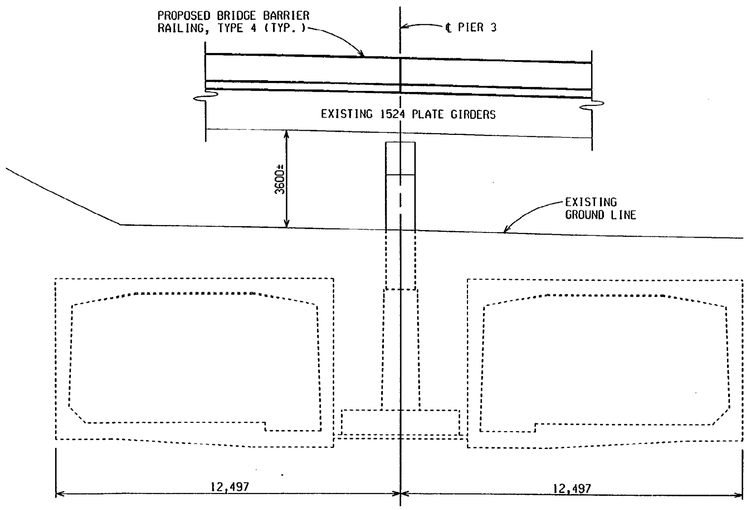
REVISIONS			
NO.	DESCRIPTION	DATE	BY



* RED RUN DRAIN IS CONTAINED WITHIN TWO BURIED CONCRETE BOX CULVERTS. THE AREA OVER THESE BURIED CULVERTS SHALL BE FENCED PRIOR TO STARTING CONSTRUCTION TO PREVENT ENCROACHMENT OF HEAVY CONSTRUCTION EQUIPMENT.

PLAN - NB

THE LIMITS OF FALSE DECKING IS FROM FACE OF ABUT. A TO FACE OF ABUT. B AND BETWEEN SLAB FASCIAS.



SECTION A-A

MISCELLANEOUS QUANTITIES

1 LS	Structures, Rem Portions (B02-NB)
1180 m2	False Decking
217 m2	Top Flanges and Beam Ends, Clean and Prime
1 LS	Penetrating Water Repellent Treatment (B02-NB)
1 LS	Substructure Horizontal Surface Sealer (B02-NB)
1 LS	Steel Structures, Cleaning, Type 4 (B02-NB)
1 LS	Steel Structures, Coating, Type 4 (B02-NB)
180 m	Beam Plate, Seal Perimeter
3 m3	Hand Chipping, Other Than Deck
3 m3	Patching Conc, LM
30 m2	Patch, Forming
*150 m	Fence, Temporary

* SEE SHEET 18 FOR LOCATION.

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, WIDENING, SUBSTRUCTURE REPAIR, PAINTING OF THE EXISTING STRUCTURAL STEEL, MAINTAINING TRAFFIC AND APPROACH WORK.

THE REHABILITATION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS23 , LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE ALLOWABLE STRESS METHOD WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR MS18 LOADING.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

NB I-75 TRAFFIC IS TO BE MAINTAINED OVER THE BRIDGE BY PART-WIDTH CONSTRUCTION.

THE TOP HORIZONTAL SURFACES OF ALL PIER CAPS SHALL BE COATED WITH SUBSTRUCTURE HORIZONTAL SURFACE SEALER. THE ESTIMATED AREA IS 54m2.

PENETRATING WATER REPELLENT TREATMENT SHALL BE APPLIED TO ALL SURFACES OF PIERS EXCEPT TOPS OF PIERS. THE ESTIMATED AREA FOR PENETRATING WATER REPELLENT APPLICATION IS 325m2.

FORMS FOR LARGE PATCHES SHALL BE INSTALLED IN 600mm TO 1200mm HIGH SECTIONS WITH THE TOP OF FORM NO MORE THAN 1200mm ABOVE THE LEVEL OF CONCRETE AS THE POUR PROGRESSES.

FALSE DECKING SHALL INCLUDE THE AREA OF SPANS 1, 2 AND 3. THE ESTIMATED AREA IS 1180 SQUARE METERS DURING REMOVAL AND PROPOSED CONSTRUCTION.

THIS BRIDGE IS COATED WITH LEAD BASED PAINT.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE OF THE MAINTENANCE DIVISION IN LANSING.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE COATED IS 2880 SQUARE METERS.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BEARING PLATES TO CONCRETE CONTACT SURFACES AFTER CUTTING AWAY ANY PROTRUDING PORTION OF LEAD PLATE.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BOLTED END DIAPHRAGM CONNECTION PLATES AND ANGLES.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF ALL BEAM ENDS WHERE ENCASED IN THE BACKWALLS.

THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL BE LIGHT GRAY, FEDERAL STANDARD 595B COLOR NUMBER 16440.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES AND ON SIGNS ATTACHED TO THE STRUCTURE. INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4" (B02-NB)".

APPROVED Steven P. Beck 1/10/01
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

NB I-75 OVER RED RUN DRAIN IN MADISON HIEGHTS.

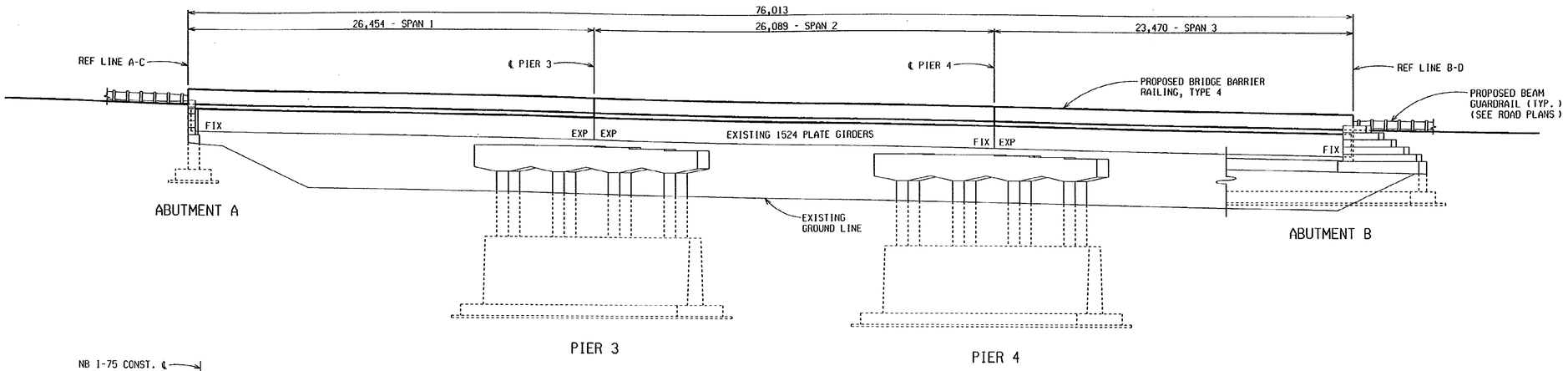
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	3 OF 16

DRAWN BY: R. PRATT DATE: 1-9-01 CHECKED BY: MIKUCKI DATE: 4-6-00 CORRECTED BY: R. PRATT DATE:

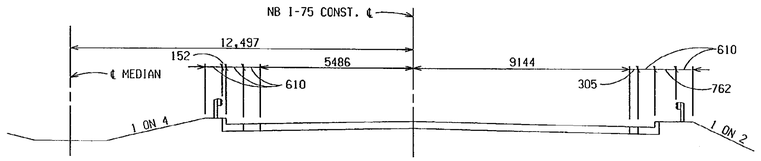
FILE NAME: b0263174n.st

CONTROL SECTION B02 OF 63174 | JOB NO. 49595A | SH. NO. 4

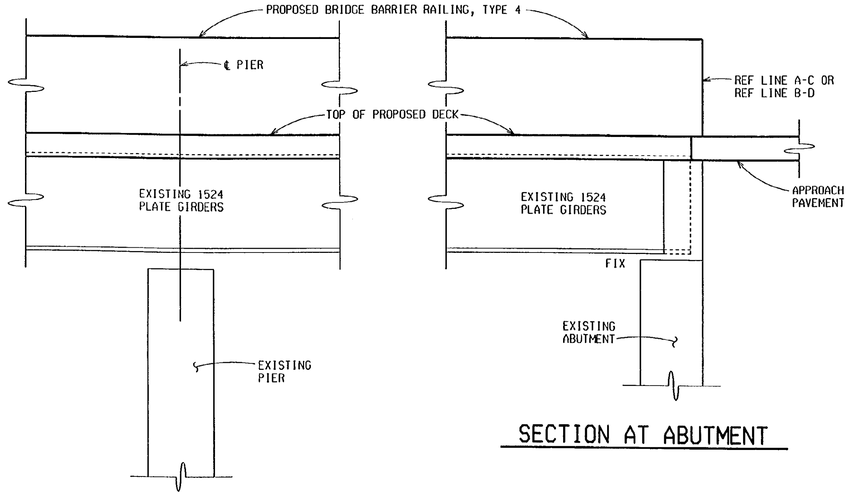
REVISIONS			
NO.	DESCRIPTION	DATE	BY



ELEVATION - NB
(SHOWN NORMAL TO BRIDGE CONST. ℄)

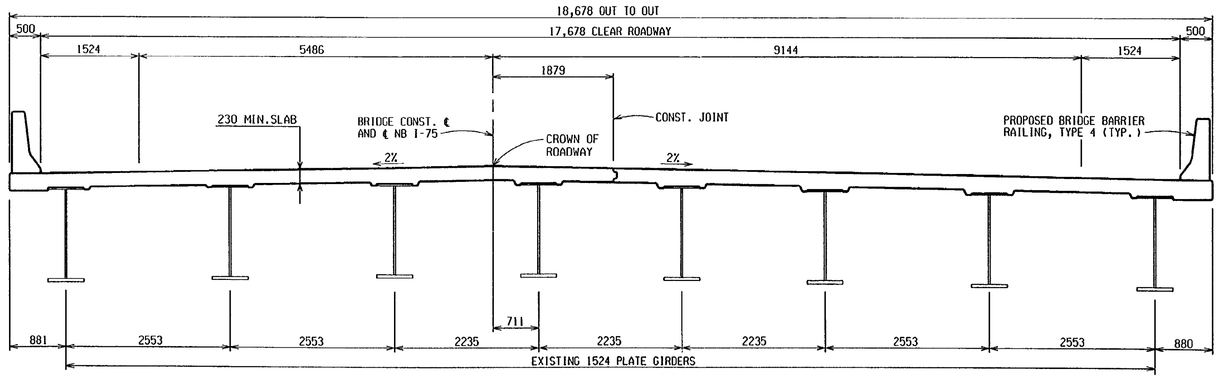


TYPICAL APPROACH SECTION
(LOOKING NORTH)



SECTION AT ABUTMENT

SECTION AT PIER



TYPICAL DECK SECTION - NB
(LOOKING NORTH)

APPROVED Steven P. Bird 1/10/01
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

NB I-75 OVER RED RUN DRAIN IN MADISON HIEGHTS.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	4 OF 16

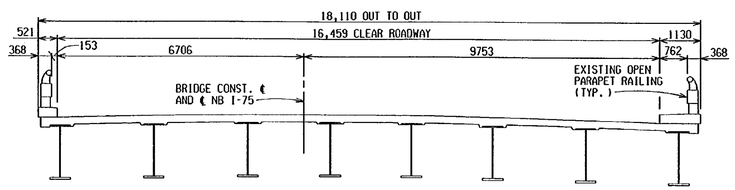
DRAWN BY: R. PRATT | DATE: 4-6-00 | CHECKED BY: MIKUCKI | DATE: 12-5-00 | CORRECTED BY: R. PRATT

FILE NAME: b0263174n.st

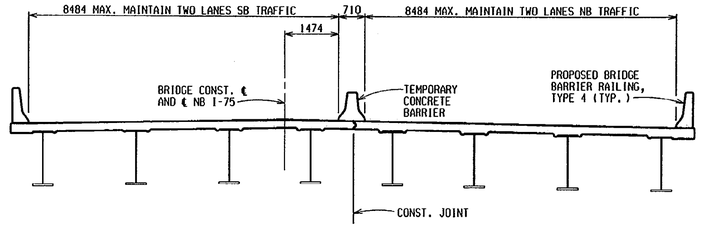
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 | JOB NO. 49595A | SH. NO. 5

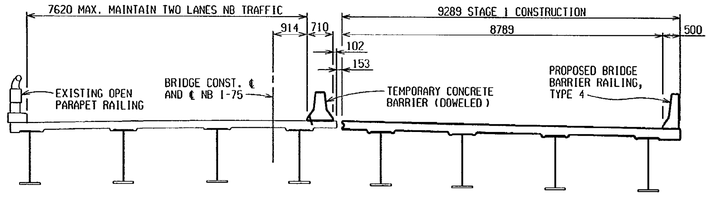
REVISIONS			
NO.	DESCRIPTION	DATE	BY



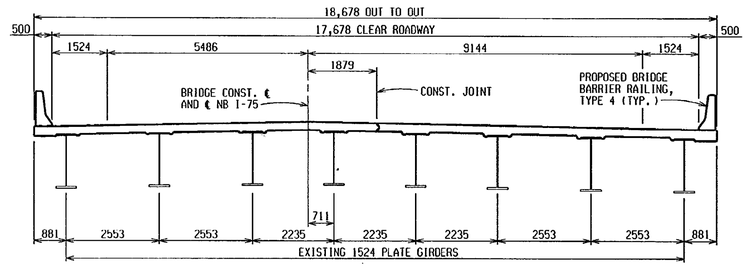
EXISTING DECK SECTION - NB
(LOOKING NORTH)



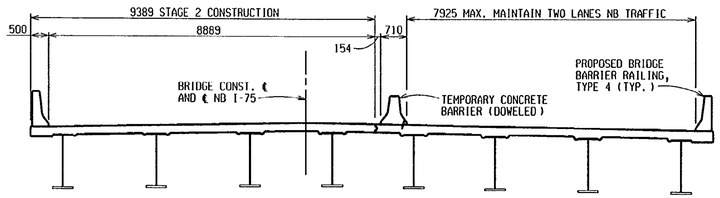
STAGE III
(LOOKING NORTH)



STAGE I
(LOOKING NORTH)



PROPOSED DECK SECTION - NB
(LOOKING NORTH)



STAGE II
(LOOKING NORTH)

NOTES:

PLACEMENT OF TEMPORARY BARRIER SHALL BE ACCORDING TO STANDARD PLAN R-126 SERIES OR AS APPROVED BY THE ENGINEER. (INCLUDED IN THE PAY ITEM "CONCRETE BARRIER, TEMPORARY, FURNISHED")

THE TEMPORARY CONCRETE BARRIER SHALL BE ANCHORED TO THE DECK. FOR ANCHORAGE, DRILL HOLES IN THE LOWER SLOPING PORTION OF EACH BARRIER SECTION NEAR THE ENDS, ON THE TRAFFIC SIDE OF THE BARRIER AND CONTINUING INTO THE CONCRETE BELOW, THAT WILL ALLOW FOR 25mm STEEL DOWELS OR PEGS TO BE INSERTED. THESE DOWELS SHOULD BE EXTENDED 100mm INTO THE BARRIER, BUT NOT PROTRUDE ABOVE THE BARRIER SURFACE. AFTER REMOVAL OF THE TEMPORARY BARRIER AND STEEL DOWELS OR PEGS FROM THE NEW DECK, THE HOLES IN THE DECK SHALL BE FILLED WITH PATCHING MORTAR OR CONCRETE. THIS WORK SHALL BE INCLUDED IN THE BID ITEM "CONCRETE BARRIER, TEMP, FURN".

MDOT Michigan Department of Transportation

CONSTRUCTION STAGING DETAILS

NB I-75 OVER RED RUN DRAIN IN MADISON HEIGHTS.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	5 OF 16

DATE: 1-9-01 | CORRECTED BY: R. PRATT | DATE: 4-7-00 | CHECKED BY: | DRAWN BY: R. PRATT | FILE NAME: b0263174.cs

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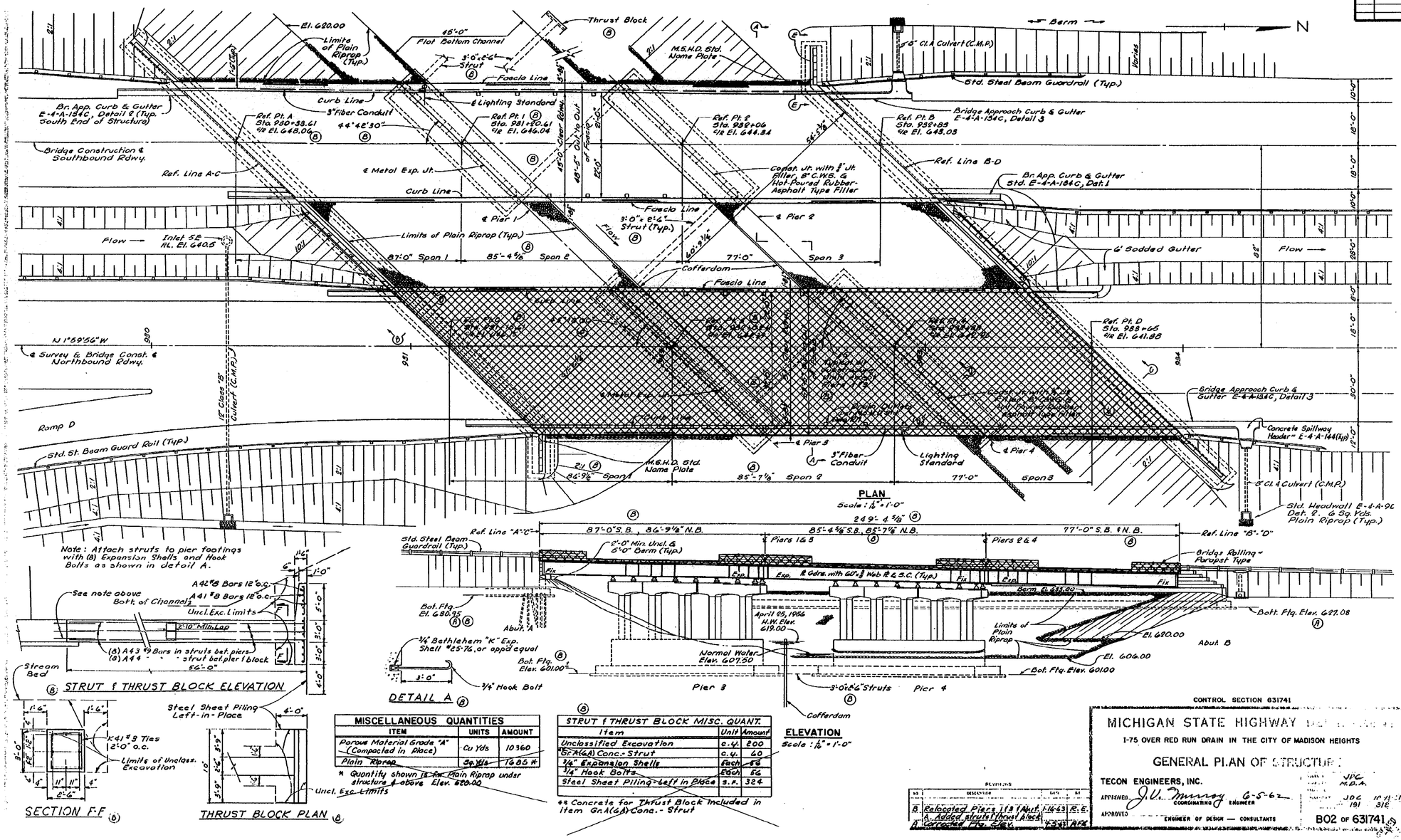
CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 6

REVISIONS			
NO.	DESCRIPTION	DATE	BY



MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
Porous Material Grade "A" (Compacted in Place)	Cu Yds	10360
Plain Riprap	Sq Yds	1685 *

* Quantity shown is for Plain Riprap under structure & above Elev. 620.00

STRUT & THRUST BLOCK MISC. QUANT.		
Item	Unit	Amount
Unclassified Excavation	c.y.	200
Gr. A(6A) Conc. - Strut	c.y.	40
3/4" Expansion Shells	Each	56
3/4" Hook Bolts	Each	56
Steel Sheet Piling - Left in Place	s.f.	324

4% Concrete for Thrust Block included in item Gr. A(6A) Conc. - Strut

CONTROL SECTION 631741

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 OVER RED RUN DRAIN IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

APPROVED J.U. Murray 6-5-62 COORDINATING ENGINEER

APPROVED ENGINEER OF DESIGN — CONSULTANTS

JDC 191 10-11-61 M.D.H.D. JDC 191 3/62

B02 OF 631741

NO.	DESCRIPTION	DATE	BY
B	Relocated Piers 1 & 3 Abut. 1 & 4, Added Length Thrust Block	1-16-63	R.E.
A	Corrected Pier Elev.	12-5-61	RFK

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 49595A

DENOTES REMOVAL PORTIONS

PROPOSED WORK

MDOT Michigan Department of Transportation

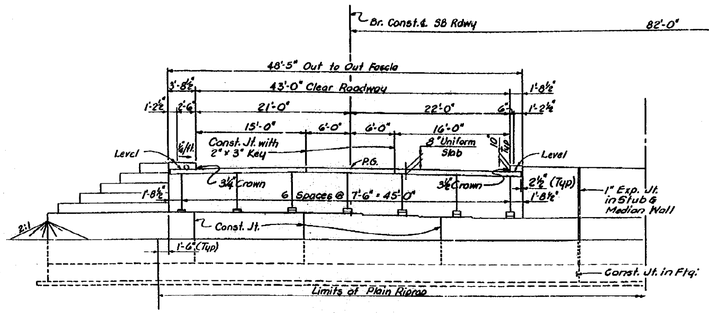
REMOVAL PORTIONS - NB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	6 OF 16

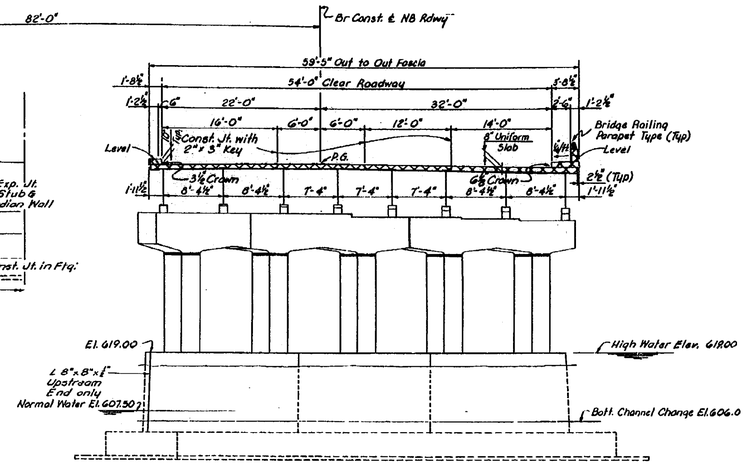
DRAWN BY: INGER CHECKED BY: DATE: 02-11-00 CORRECTED BY: INGER DATE:

FILE NAME: b02631741sn

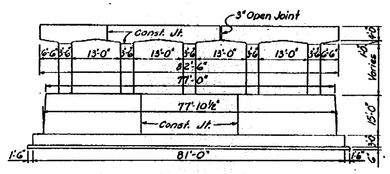
CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH: 7 NO:



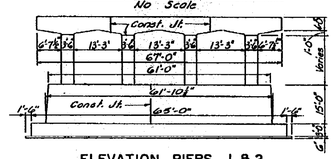
SECTION A-A
Scale: 3/16" = 1'-0"



SECTION A-A
Scale: 1/8" = 1'-0".

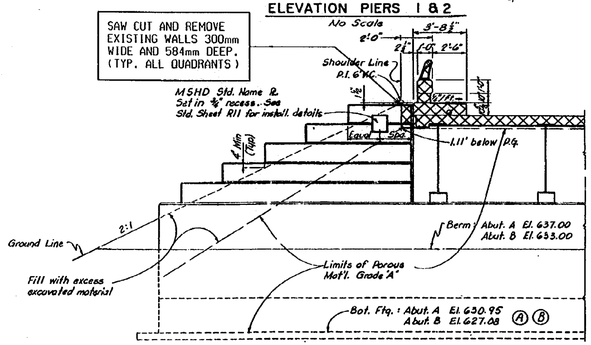


ELEVATION PIERS 3 & 4
No Scale



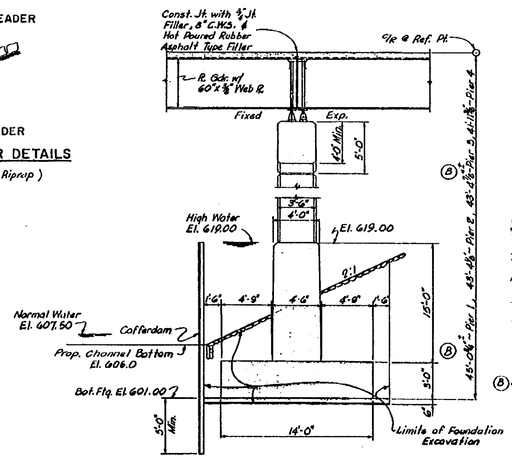
ELEVATION PIERS 1 & 2
No Scale

SAW CUT AND REMOVE EXISTING WALLS 300mm WIDE AND 584mm DEEP. (TYP. ALL QUADRANTS)

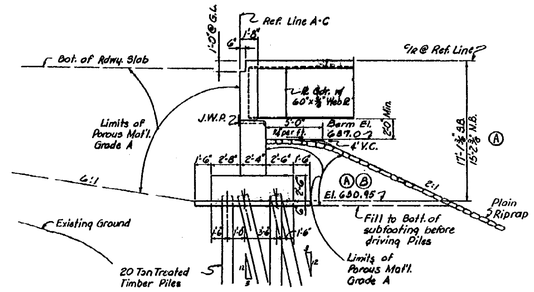


SECTION E-E
Scale: 1/4" = 1'-0"

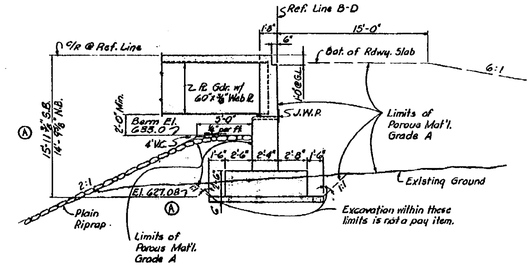
RIP RAP HEADER DETAILS
(Incidental to Plain Riprap)



SECTION D-D
Scale: 3/16" = 1'-0"



SECTION B-B
Scale: 3/16" = 1'-0"



SECTION C-C
Scale: 3/16" = 1'-0"

GENERAL NOTES

The waterway area supplied below high water elevation 619.00 is 850 square feet.
Top of roadway slab and tops of curbs are parallel to the vertical curve.
Proposed pavements, curb and gutter, guard rail, drainage structures, earth fill, and sand sub-base on the expressway and ramp are not a part of this Contract.
The design of this structure is based on the M.S.H.D. Standard Specifications for the Design of Highway Bridges - 1968 Edition - H20-S16-44 and alternate military loading. Live load plus impact deflection = 1/1000 of span length.
Ⓑ For strut details, see sh. 191.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

REVISIONS			
NO.	DESCRIPTION	DATE	BY
B	Revised Plq. Elevs. of Abut. A	11-16-65	R.E.
A	Corrected Dim. 1'-0" to 6'-0"	9-21-65	R.E.

CONTROL SECTION 631741

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 OVER RED RUN DRAIN IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

APPROVED J.V. Murray COORDINATING ENGINEER 6-5-62

APPROVED ENGINEER OF DESIGN — CONSULTANTS

DESIGNED	JDZ	10-16-61
DETAILED	GDA	
TRACED	JDZ	10-13-61
CHECKED	Unit 192 : 812	

B02 OF 631741

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 49595A

▩ DENOTES REMOVAL PORTIONS

▭ PROPOSED WORK

REMOVAL PORTIONS - NB STRUCTURE

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	7 OF 16

DATE: CORRECTED BY: INDER

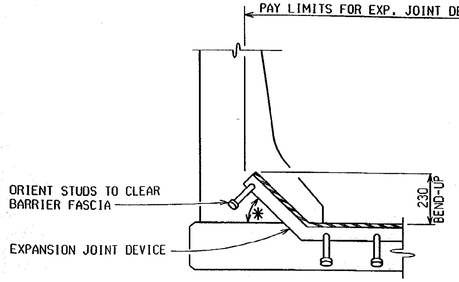
DATE: 02-11-00 CHECKED BY:

DRAWN BY: INDER

FILE NAME: b02631744sn

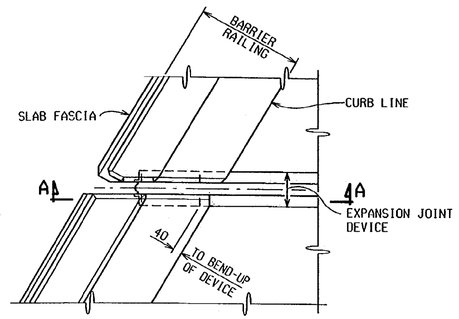
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 8



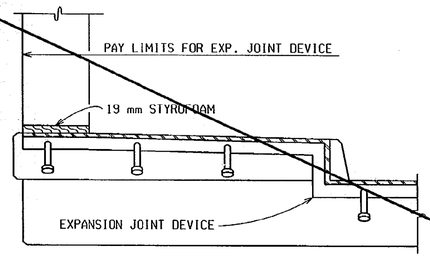
SECTION A-A

*—FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG ℄ EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.

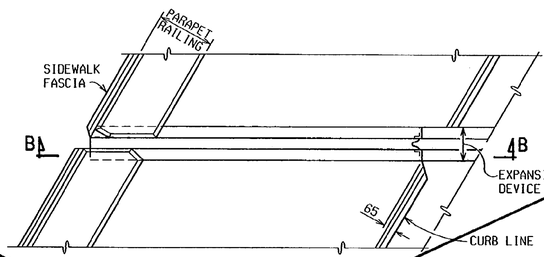


PLAN AT BARRIER RAILING

BARRIER TREATMENT

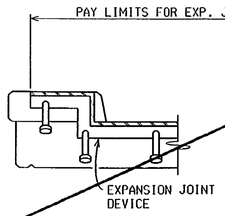


SECTION B-B

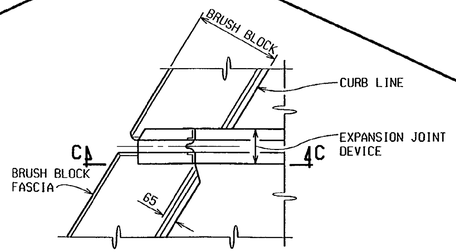


PLAN AT PARAPET RAILING
(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT



SECTION C-C



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
B02	40	PIER 3	55mm	26.5
B02	40	PIER 4	25mm	26.5

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	53

DATE: 12-6-00 CORRECTED BY: R. PRATT DATE: 07-16-96 CHECKED BY: VZ/SPB DATE: DRAWN BY: FILE NAME: b0263174n.e

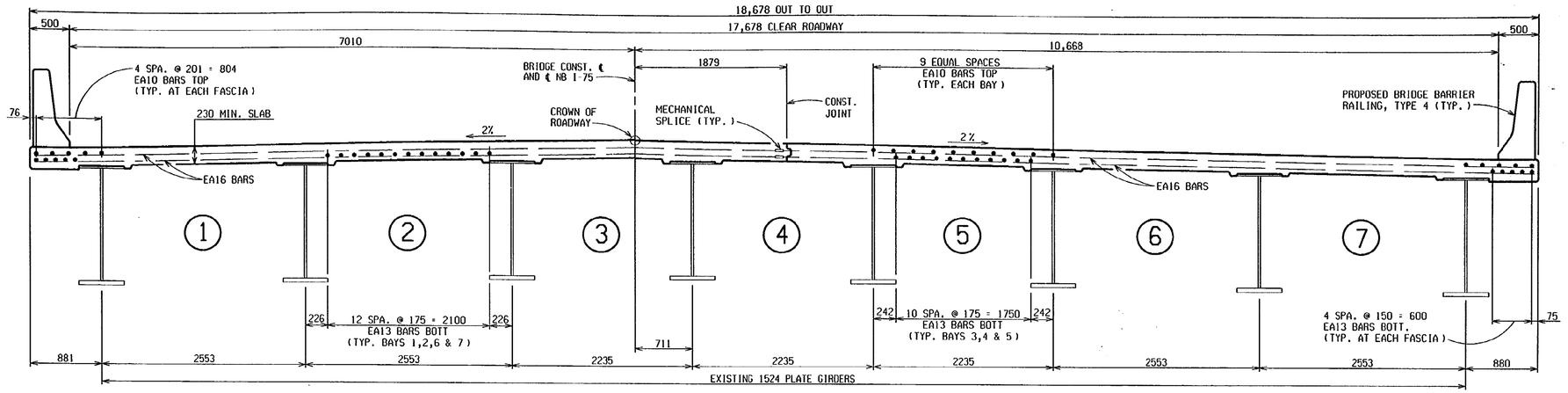
EXPANSION JOINT DETAILS - NB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	8 OF 16

EJ3T (11-17-97)

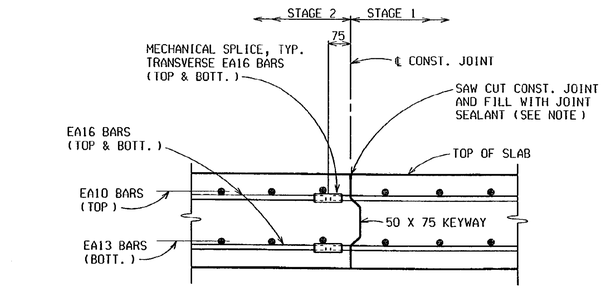
CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 9

REVISIONS			
NO.	DESCRIPTION	DATE	BY



TYPICAL DECK SECTION - NB

(LOOKING NORTH)



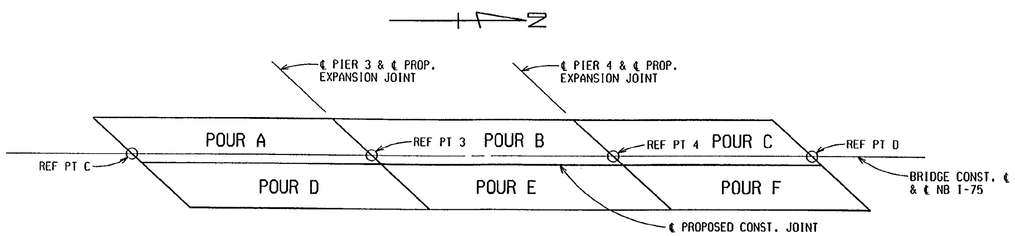
LONGITUDINAL CONSTRUCTION JOINT IN SLAB

MISCELLANEOUS QUANTITIES

152	m	Bridge Barrier Railing, Type 4
23	m2	Joint Waterproofing
341	m3	Bridge Ltg, Oper and Maintain
1	LS	Bridge Ltg, Furn and Rem (B02-NB)
1	LS	Superstructure Conc, Form, Finish and Cure, Night Casting (B02-NB)
1	LS	Shear Developers (B02-NB)
800	ea	Reinforcement, Mechanical Splices

SUPERSTRUCTURE CONCRETE QUANTITIES NIGHT CASTING

POUR	AMT (m3)
A	58.8
B	58.5
C	52.3
D	59.5
E	59.2
F	52.7
TOTAL CONC.:	341 m3



POUR DIAGRAM

NOTES:

HPJS DENOTES HOT-POURED JOINT SEALANT.

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

ALPHABETICAL DESIGNATION OF POURS IS NOT TO BE CONSTRUED AS A POUR SEQUENCE.

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL, NAME PLATE MOUNTING, MOLDING AND BEVEL DETAILS, SEE STANDARD SHEET B-17 AND B-103. BARRIER RAILING IS TO BE BRIDGE BARRIER RAILING, TYPE 4.

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03J OF THE STANDARD SPECIFICATIONS.

WHERE CAST-IN-ANCHORAGE IS USED FOR EXPANSION JOINT DEVICES, IT IS RECOMMENDED THAT THE PLACING OF DECK CONCRETE PROGRESS TOWARD THE JOINT SO THAT THE EFFECTS OF DEAD LOAD DEFLECTION WILL OCCUR BEFORE CONCRETE IS PLACED AT THE ANCHORAGE.

THE CONTRACTOR MAY USE METAL STAY IN PLACE FORMS. IF USED, ELIMINATING THE POLYSTYRENE AND FILLING THE CORRUGATIONS WITH CONCRETE IS PROHIBITED.

JWP DENOTES JOINT WATERPROOFING.

THE CONTRACTOR IS TO PROVIDE A SAWED JOINT 12mm DEEP BY 3mm WIDE (MINIMUM) IN THE TOP OF SLAB AT LONGITUDINAL CONSTRUCTION JOINT. THE JOINT IS TO BE SAWED BEFORE CASTING OF BARRIERS AND IS TO BE FILLED WITH HOT-POURED JOINT SEALANT OR COLD-APPLIED JOINT SEALANT, SINGLE COMPONENT TYPE IN ACCORDANCE WITH STANDARD SPECIFICATION SUBSECTION 9.14.04.

SHEAR DEVELOPERS SHALL BE 19mm DIAMETER STUDS.

IF EXISTING SHEAR DEVELOPERS DO NOT INTERFERE WITH PROPOSED SHEAR DEVELOPERS AND REINFORCEMENT, THEY MAY BE CLEANED AND LEFT IN PLACE INSTEAD OF REMOVED. THE CONTRACTOR SHALL INSTALL ALL PROPOSED SHEAR DEVELOPERS REGARDLESS OF WHETHER OR NOT THE EXISTING SHEAR DEVELOPERS REMAIN.

DECK REPLACEMENT DETAILS - NB STRUCTURE

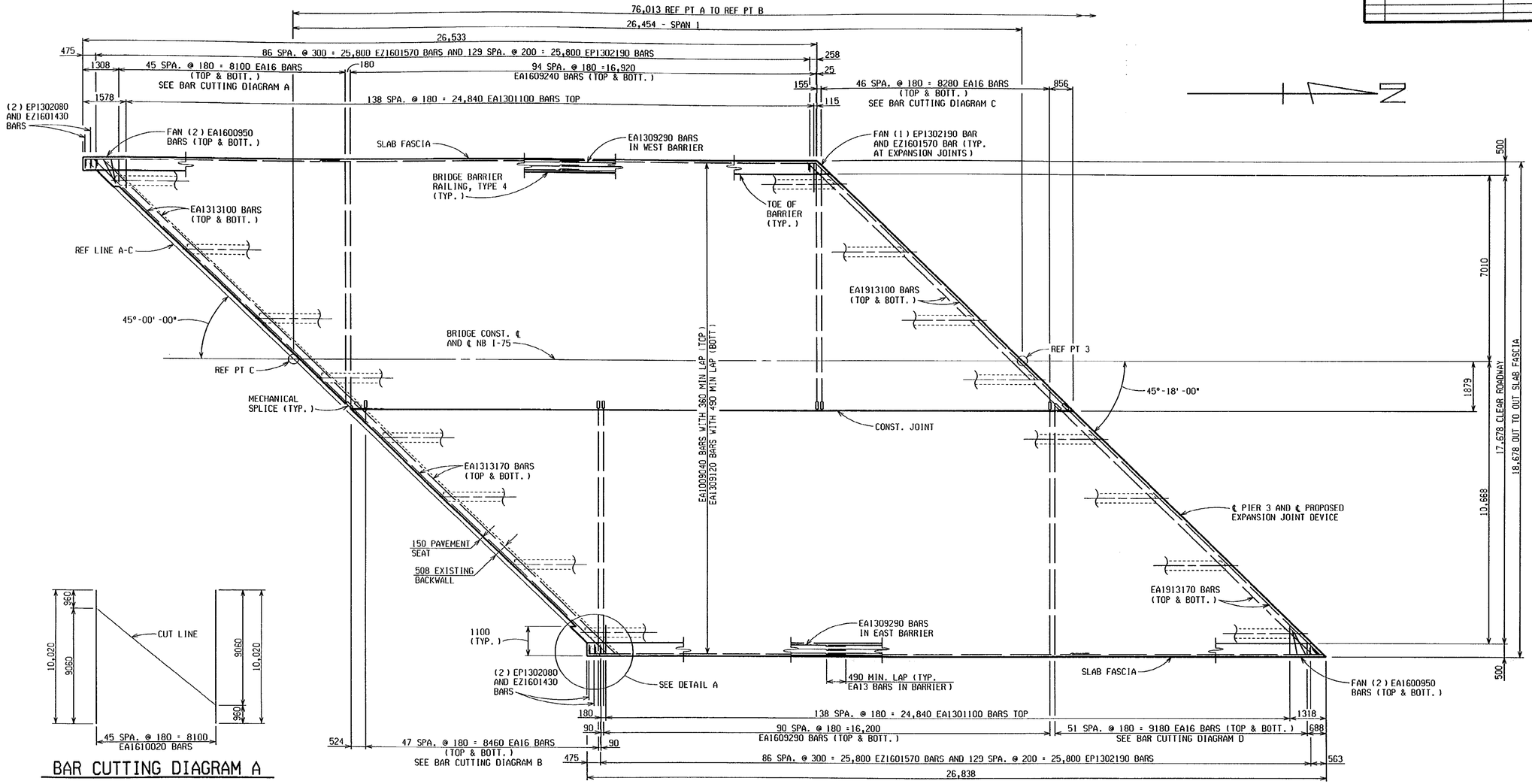
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	9 OF 16

DATE: 12-20-00 CORRECTED BY: R. PRATT
DATE: 8-1-00 CHECKED BY: MIKUCKI
DRAWN BY: R. PRATT
FILE NAME: b0263174n.dk

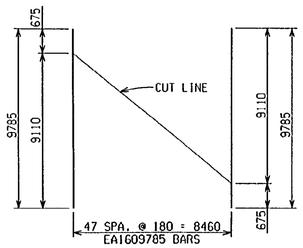
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SHT. NO. 10

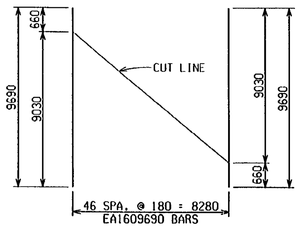


DECK PLAN - SPAN 1

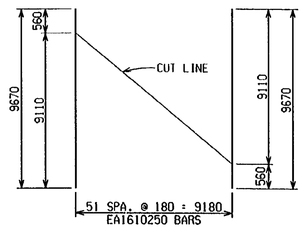
BAR CUTTING DIAGRAM A



BAR CUTTING DIAGRAM B



BAR CUTTING DIAGRAM C



BAR CUTTING DIAGRAM D

NOTE:

REINFORCEMENT IS TO BE SHOP CUT AS SHOWN. THE EPOXY COATING SHALL BE REPAIRED ACCORDING TO THE STANDARD SPECIFICATIONS.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

DECK REPLACEMENT DETAILS - NB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	10 OF 16

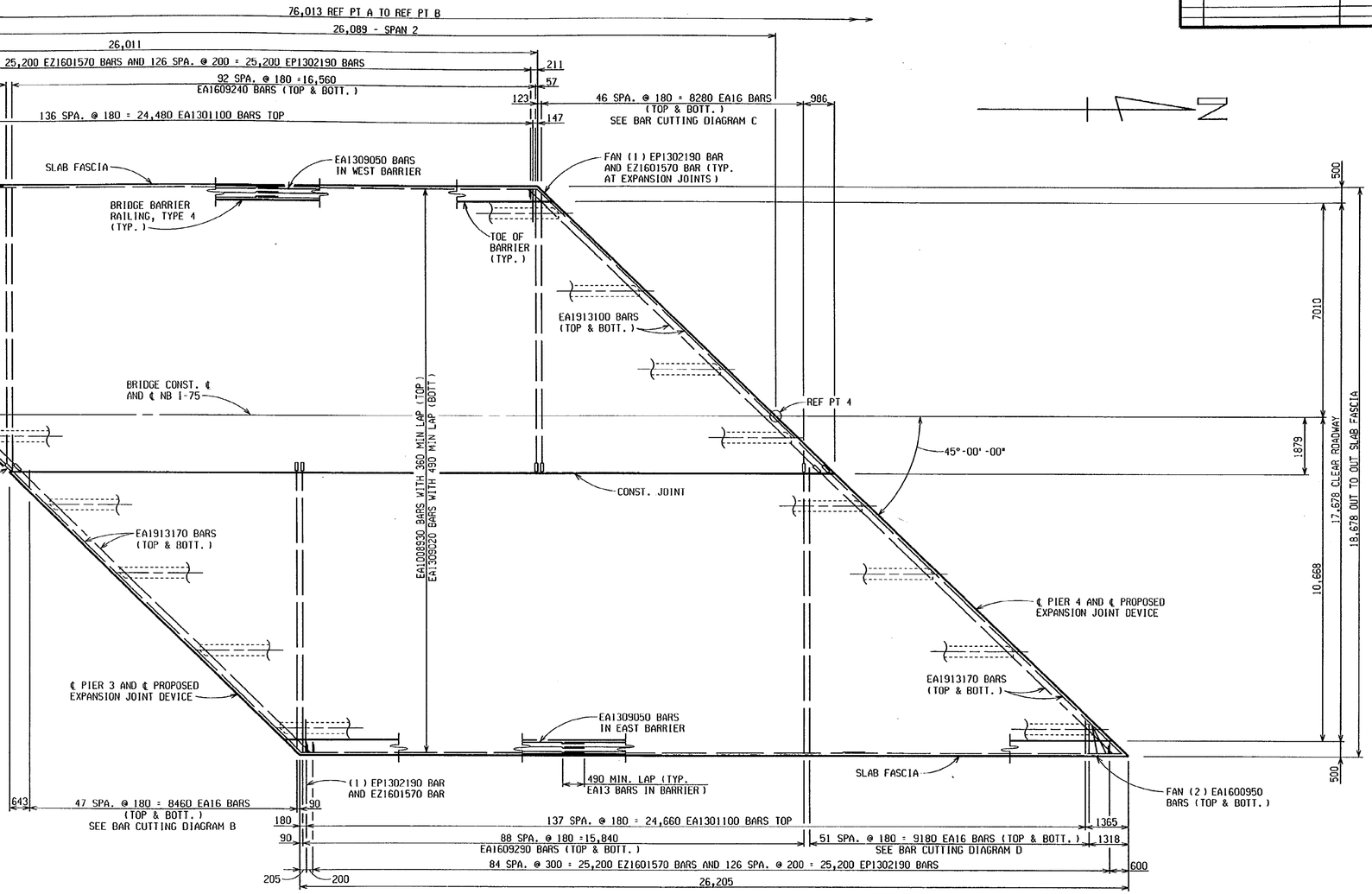
DRAWN BY: R. PRATT DATE: 8-1-00 CHECKED BY: MIKUCKI DATE: CORRECTED BY: R. PRATT DATE: 1-3-01

FILE NAME: b026317dn.dk

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 11

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

REVISIONS			
NO.	DESCRIPTION	DATE	BY



DECK PLAN - SPAN 2

DECK REPLACEMENT DETAILS - NB STRUCTURE

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	11 OF 16

DRAWN BY: R. PRATT DATE: 1-3-01
CHECKED BY: MIKUCKI DATE: 8-1-00
CORRECTED BY: R. PRATT DATE:
FILE NAME: b0263174n.dk

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SHT. NO. 12

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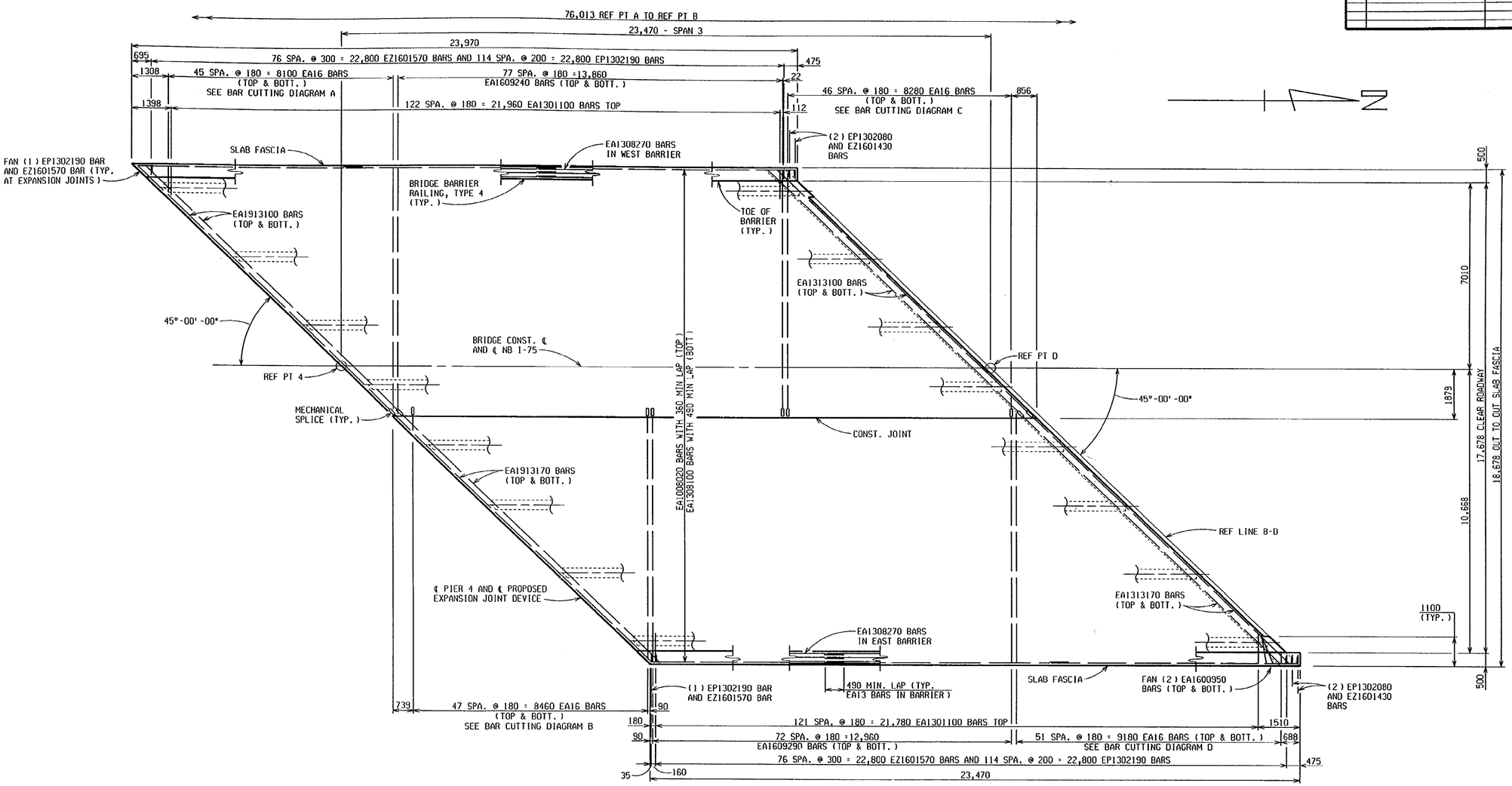
REVISIONS			
NO.	DESCRIPTION	DATE	BY



DECK PLAN - SPAN 3

DATE: 1-3-01 CORRECTED BY: R. PRATT DATE: 8-1-00 CHECKED BY: MIKUCKI DRAWN BY: R. PRATT FILE NAME: b0263174n.dk

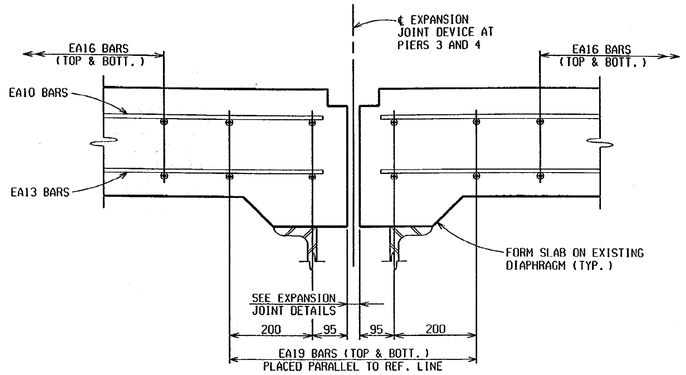
DECK REPLACEMENT DETAILS - NB STRUCTURE

MDOT Michigan Department of Transportation

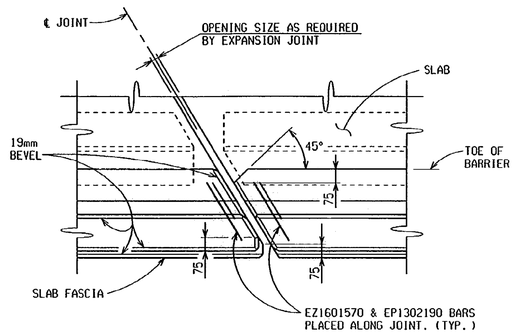
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	12 OF 16

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SHT. NO. 13

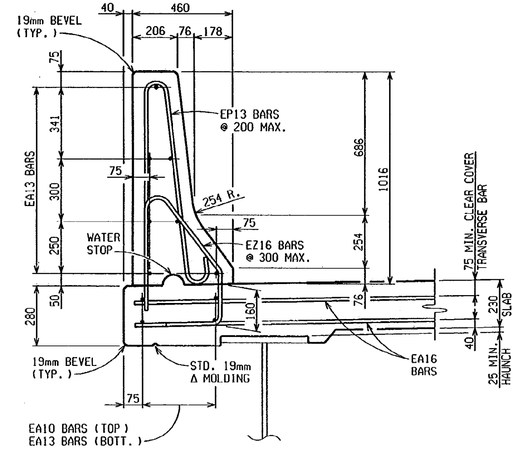
REVISIONS			
NO.	DESCRIPTION	DATE	BY



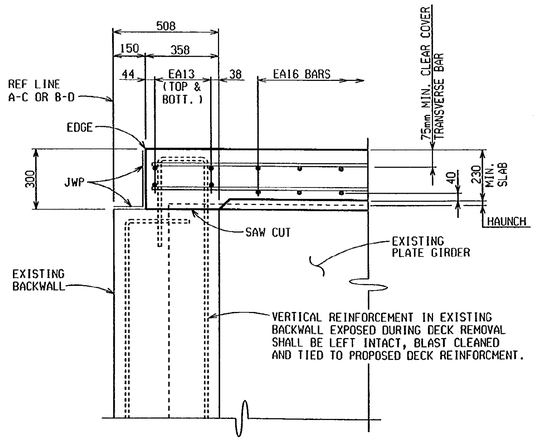
TYPICAL SECTION THRU EXPANSION JOINT



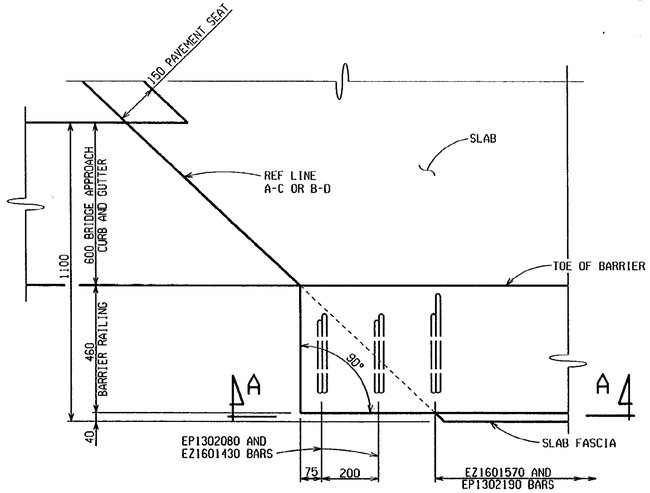
PLAN OF BARRIER



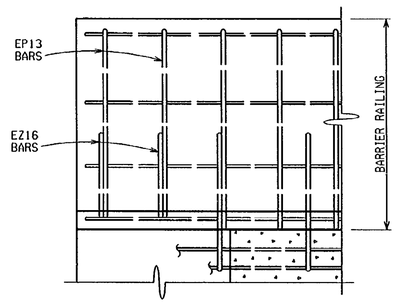
TYPICAL SECTION THRU BARRIER



TYPICAL SECTION THRU BACKWALL



DETAIL A
(TYP. ALL 4 QUADRANTS)



SECTION A-A

DRAWN BY: R. PRATT	CHECKED BY: MIKUCKI	CORRECTED BY: R. PRATT	DATE: 12-14-00	
FILE NAME: b0263174n.dk	DATE: 8-1-00		DATE:	

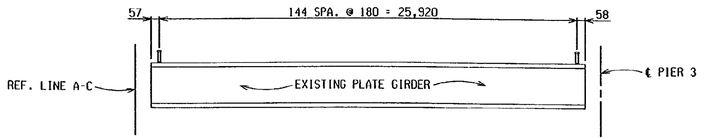
MDOT Michigan Department of Transportation

DECK REPLACEMENT DETAILS - NB STRUCTURE

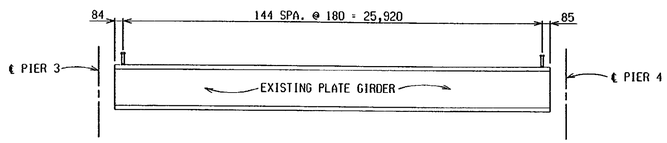
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	13 OF 16

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 14

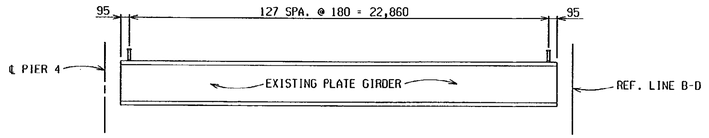
REVISIONS			
NO.	DESCRIPTION	DATE	BY



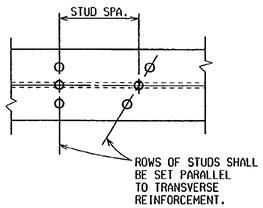
SPAN 1 PLATE GIRDER ELEVATION
SHOWING STUD SPACING



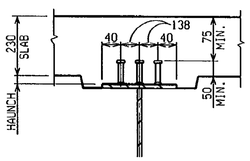
SPAN 2 PLATE GIRDER ELEVATION
SHOWING STUD SPACING



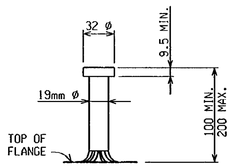
SPAN 3 PLATE GIRDER ELEVATION
SHOWING STUD SPACING



PLAN



SECTION THRU 1524 PLATE GIRDER
ALL SPANS



STUD DETAIL

STUD SHEAR DEVELOPER DETAILS

MDOT Michigan Department of Transportation

DECK REPLACEMENT DETAILS - NB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	14 OF 16

DATE:
CORRECTED BY:
DATE:
DRAWN BY: R. PRATT
DATE: 12-7-00
CHECKED BY: MIKUCKI
FILE NAME: b0263174n.dk

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

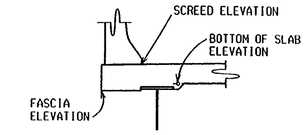
CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 15

BOTTOM OF SLAB ELEVATIONS

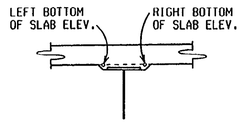
		REF.A									REF.1									REF.2									REF.B
		SPAN 1									SPAN 2									SPAN 3									
		0	1	2	3	4	5	6	7	8	0	1	2	3	4	5	6	7	8	0	1	2	3	4	5	6	7	8
A	FASCIA	196.766	196.707	196.646	196.583	196.518	196.448	196.376	196.302	196.227	196.218	196.169	196.119	196.067	196.012	195.953	195.891	195.827	195.763	195.757	195.719	195.680	195.641	195.600	195.557	195.512	195.466	195.420
	RIGHT	196.834	196.774	196.713	196.650	196.585	196.516	196.443	196.369	196.294	196.285	196.236	196.186	196.134	196.079	196.020	195.959	195.895	195.830	195.824	195.786	195.748	195.708	195.667	195.624	195.579	195.534	195.488
B	LEFT	196.818	196.759	196.699	196.638	196.573	196.505	196.434	196.360	196.286	196.278	196.229	196.180	196.129	196.075	196.017	195.956	195.893	195.829	195.824	195.786	195.749	195.710	195.670	195.628	195.584	195.539	195.494
	RIGHT	196.828	196.769	196.710	196.648	196.583	196.515	196.444	196.370	196.296	196.288	196.240	196.190	196.139	196.085	196.027	195.966	195.903	195.839	195.834	195.797	195.759	195.720	195.680	195.638	195.594	195.549	195.504
C	LEFT	196.813	196.755	196.696	196.636	196.572	196.505	196.435	196.362	196.289	196.281	196.233	196.185	196.135	196.081	196.025	195.965	195.902	195.839	195.834	195.798	195.761	195.723	195.683	195.642	195.599	195.555	195.511
	RIGHT	196.823	196.765	196.707	196.646	196.582	196.515	196.445	196.372	196.299	196.291	196.244	196.195	196.145	196.092	196.035	195.975	195.913	195.850	195.844	195.808	195.771	195.733	195.694	195.652	195.609	195.565	195.521
D	LEFT	196.794	196.737	196.679	196.620	196.557	196.491	196.422	196.350	196.278	196.270	196.223	196.176	196.127	196.074	196.018	195.959	195.898	195.836	195.830	195.795	195.759	195.722	195.683	195.643	195.600	195.557	195.514
	RIGHT	196.784	196.727	196.669	196.610	196.547	196.481	196.411	196.340	196.268	196.260	196.213	196.166	196.116	196.064	196.008	195.949	195.888	195.826	195.820	195.785	195.749	195.712	195.673	195.632	195.590	195.547	195.504
E	LEFT	196.694	196.638	196.581	196.523	196.461	196.396	196.327	196.257	196.186	196.178	196.132	196.086	196.037	195.985	195.930	195.872	195.812	195.751	195.745	195.711	195.676	195.639	195.601	195.562	195.521	195.478	195.435
	RIGHT	196.683	196.628	196.571	196.512	196.451	196.385	196.317	196.247	196.176	196.168	196.122	196.076	196.027	195.975	195.920	195.862	195.802	195.740	195.735	195.700	195.665	195.629	195.591	195.552	195.510	195.468	195.425
F	LEFT	196.594	196.539	196.484	196.426	196.365	196.301	196.234	196.164	196.094	196.086	196.042	195.996	195.948	195.898	195.843	195.786	195.727	195.666	195.661	195.627	195.593	195.558	195.521	195.482	195.441	195.400	195.358
	RIGHT	196.584	196.529	196.474	196.416	196.355	196.291	196.224	196.154	196.084	196.076	196.031	195.986	195.938	195.887	195.833	195.776	195.716	195.656	195.651	195.617	195.583	195.547	195.510	195.472	195.431	195.390	195.348
G	LEFT	196.495	196.441	196.387	196.330	196.270	196.207	196.141	196.073	196.003	195.996	195.952	195.907	195.860	195.810	195.757	195.701	195.642	195.583	195.578	195.544	195.511	195.477	195.440	195.402	195.363	195.322	195.281
	RIGHT	196.485	196.431	196.377	196.320	196.260	196.197	196.131	196.062	195.993	195.986	195.942	195.897	195.850	195.800	195.747	195.690	195.632	195.573	195.568	195.534	195.501	195.466	195.430	195.392	195.353	195.312	195.271
H	LEFT	196.397	196.344	196.291	196.235	196.176	196.114	196.049	195.981	195.913	195.906	195.863	195.819	195.773	195.724	195.671	195.616	195.558	195.500	195.495	195.462	195.430	195.396	195.361	195.324	195.285	195.245	195.205
	FASCIA	196.330	196.277	196.224	196.168	196.109	196.047	195.982	195.914	195.846	195.838	195.795	195.752	195.706	195.657	195.604	195.549	195.491	195.433	195.428	195.395	195.363	195.329	195.294	195.257	195.218	195.178	195.138

SCREED ELEVATIONS

LEFT	197.059	196.998	196.935	196.872	196.805	196.736	196.665	196.592	196.518	196.510	196.459	196.407	196.354	196.298	196.240	196.179	196.116	196.053	196.048	196.008	195.969	195.929	195.887	195.844	195.800	195.755	195.710
CENTER	196.966	196.908	196.850	196.790	196.727	196.662	196.594	196.525	196.455	196.447	196.399	196.351	196.300	196.248	196.193	196.135	196.076	196.016	196.011	195.975	195.938	195.901	195.863	195.823	195.782	195.740	195.698
RIGHT	196.607	196.552	196.497	196.441	196.382	196.320	196.256	196.190	196.124	196.116	196.072	196.027	195.980	195.930	195.879	195.824	195.768	195.712	195.707	195.673	195.640	195.606	195.570	195.534	195.496	195.457	195.418



TYPICAL FASCIA SECTION



TYPICAL INTERIOR SECTION

(LOOKING UP STATION)

BULKHEAD ELEVATIONS

	ABUT.A			ABUT.B
A	197.061	196.515	196.052	195.711
B	197.056	196.517	196.062	195.727
C	197.051	196.520	196.072	195.744
D	197.021	196.499	196.058	195.737
E	196.921	196.407	195.973	195.659
F	196.822	196.315	195.889	195.581
G	196.723	196.224	195.805	195.504
H	196.625	196.134	195.722	195.428

SCREED ELEVATIONS ARE BASED ON THE CONDITION THAT NO SLAB CONCRETE HAS BEEN CAST AND THAT FORMWORK AND STEEL REINFORCEMENT ARE IN PLACE AND THE TEMPORARY SUPPORTS ARE BROUGHT TO A SNUG FIT UNDER EACH BEAM.

THE TRANSVERSE FINISHING SHALL BE PARALLEL TO REFERENCE LINES.

SECTIONS FOR BOTTOM OF SLAB AND/OR SCREED ELEVATIONS ARE GIVEN ALONG BEAM CENTERLINES FROM CENTERLINE OF BEARING OR PIN & HANGER TO CENTERLINE OF BEARING OR PIN & HANGER AS APPLICABLE AT EQUAL SPACINGS.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DATE: 12-6-00 CORRECTED BY: R. PRATT

DATE: CHECKED BY: MIKUCKI

DRAWN BY:

FILE NAME: b0263174n.ss

SLAB AND SCREED DATA - NB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	15 OF 16

MDOT Michigan Department of Transportation

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SHT. NO. 16

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.

DECK - SPAN 1 - STAGE 1

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1600950	950									4	6
EA1913170	13170									4	118
EA1313170	13170									4	52
EA1309290	9290									21	194
EA1009040	9040									117	592
EA1309120	9120									129	1169
EA1609785	9785									48	729
EA1609290	9290									182	2624
EA1610250	10250									52	827
EA1301100	1100									139	152
EP1302190	910	170	865	75	40	860	95	80		131	285
EP1302080	850	170	805	85	40	800	90	80		2	4
EZ1601570	520	95	440	255	260		260	355		88	214
EZ1601430	310	95	345	85	290	305	195	285		2	4

DECK - SPAN 2 - STAGE 1

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1600950	950									4	6
EA1913170	13170									8	235
EA1309050	9050									21	189
EA1008930	8930									117	585
EA1309020	9020									129	1157
EA1609785	9785									48	729
EA1609290	9290									178	2566
EA1610250	10250									52	827
EA1301100	1100									138	151
EP1302190	910	170	865	75	40	860	95	80		130	283
EZ1601570	520	95	440	255	260		260	355		88	214

DECK - SPAN 3 - STAGE 1

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1600950	950									4	6
EA1913170	13170									4	118
EA1313170	13170									4	52
EA1308270	8270									21	173
EA1008020	8020									117	525
EA1308100	8100									129	1039
EA1609785	9785									48	729
EA1609290	9290									146	2105
EA1610250	10250									52	827
EA1301100	1100									122	133
EP1302190	910	170	865	75	40	860	95	80		117	255
EP1302080	850	170	805	85	40	800	90	80		2	4
EZ1601570	520	95	440	255	260		260	355		79	192
EZ1601430	310	95	345	85	290	305	195	285		2	4

DECK - SPAN 1 - STAGE 2

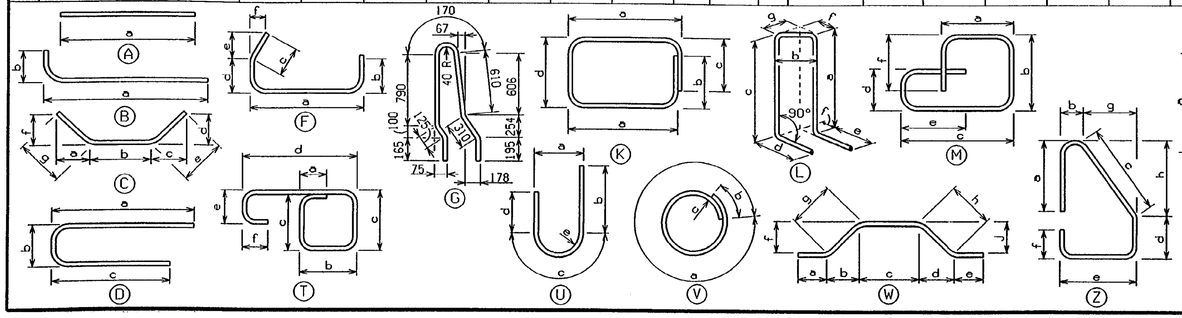
BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1600950	950									4	6
EA1913100	13100									4	117
EA1313100	13100									4	52
EA1309280	9290									21	194
EA1009040	9040									123	623
EA1309120	9120									132	1197
EA1610020	10020									46	715
EA1609240	9240									190	2725
EA1609690	9690									47	707
EA1301100	1100									139	152
EP1302190	910	170	865	75	40	860	95	80		131	285
EP1302080	850	170	805	85	40	800	90	80		2	4
EZ1601570	520	95	440	255	260		260	355		88	214
EZ1601430	310	95	345	85	290	305	195	285		2	4

DECK - SPAN 2 - STAGE 2

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1600950	950									4	6
EA1913100	13100									8	234
EA1309050	9050									21	189
EA1008930	8930									123	615
EA1309020	9020									132	1183
EA1610020	10020									46	715
EA1609240	9240									186	2667
EA1609690	9690									47	707
EA1301100	1100									137	150
EP1302190	910	170	865	75	40	860	95	80		129	281
EZ1601570	520	95	440	255	260		260	355		87	212

DECK - SPAN 3 - STAGE 2

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1600950	950									4	6
EA1913100	13100									4	117
EA1313100	13100									4	52
EA1308270	8270									21	173
EA1008020	8020									123	552
EA1308100	8100									132	1063
EA1610020	10020									46	715
EA1609240	9240									156	2237
EA1609690	9690									47	707
EA1301100	1100									123	134
EP1302190	910	170	865	75	40	860	95	80		116	253
EP1302080	850	170	805	85	40	800	90	80		2	4
EZ1601570	520	95	440	255	260		260	355		78	190
EZ1601430	310	95	345	85	290	305	195	285		2	4



EPOXY COATED
BAR SIZE
BAR LENGTH (mm)
EA2013000
BAR SHAPE

BAR LEGEND

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

MISCELLANEOUS QUANTITIES

40235 kg	REINFORCEMENT, STEEL, EPOXY COATED

REVISIONS NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

STEEL REINFORCEMENT DETAILS - NB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	16 OF 16

DRAWN BY: R. PRATT DATE: 1-5-01 CHECKED BY: MIKUCKI DATE: CORRECTED BY: DATE:

FILE NAME: b02631174n.rs

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 2

BENCH MARKS

B.M. #69 El. 637.34 M.S.H.D. B.M. Tag in Root of 15" Elm 158' Rt. of Sta. 924+06 N.B. Rdwy.

B.M. #68 El. 628.31 M.S.H.D. B.M. Tag in Root of 24" Elm 2' W. left of Sta. 939+43 N.B. Rdwy.

UTILITIES

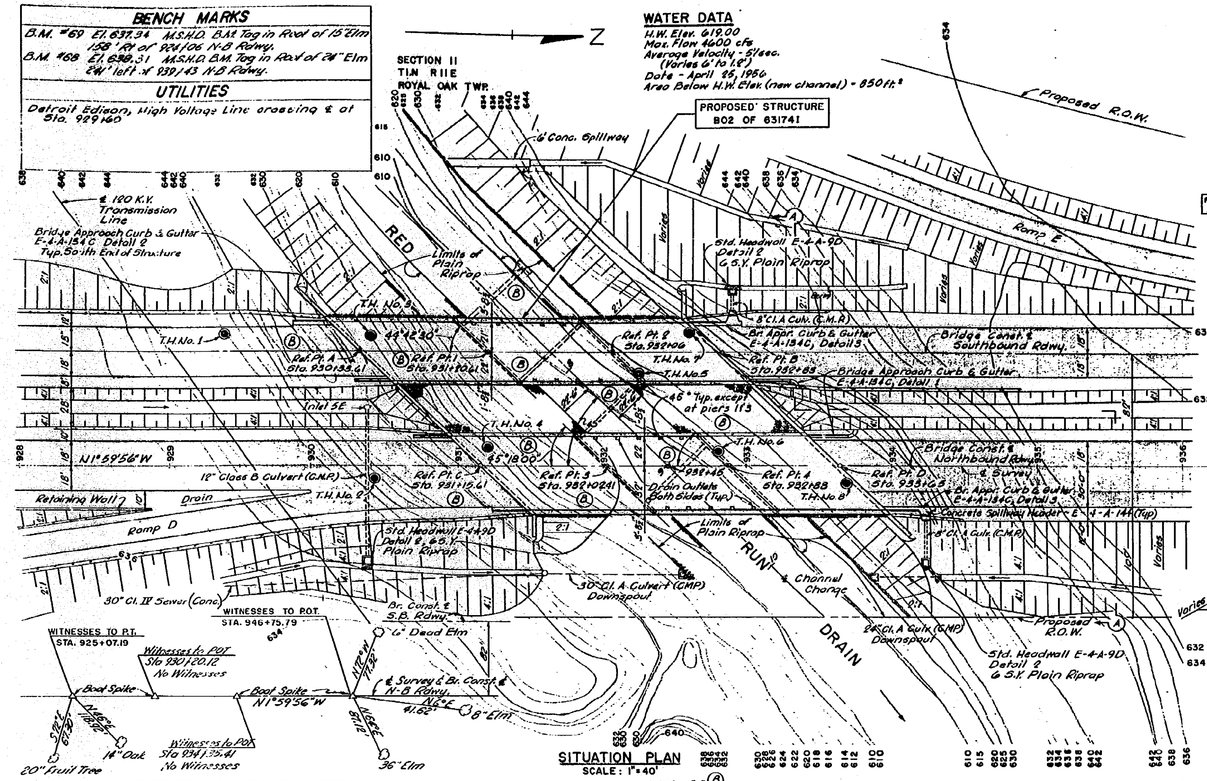
Detroit Edison, High Voltage Line crossing ℄ at Sta. 929+60

WATER DATA

H.W. Elev. 618.00
Max. Flow 4600 c.f.s.
Average Velocity - 5'/sec.
(Varies 0' to 1.8')
Date - April 25, 1956
Area Below H.W. Elev. (new channel) = 850 ft.²

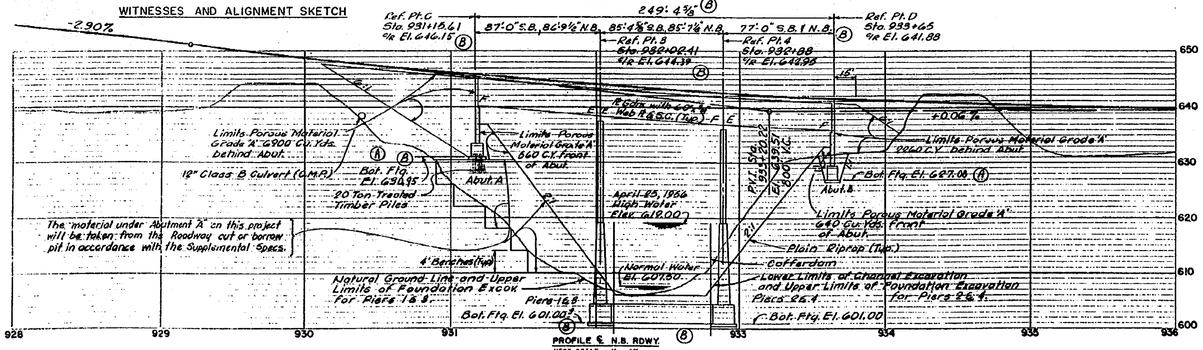
PROPOSED STRUCTURE B02 OF 631741

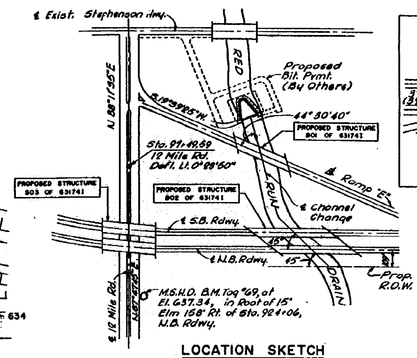
SECTION 11 T1N R11E ROYAL OAK TWP.



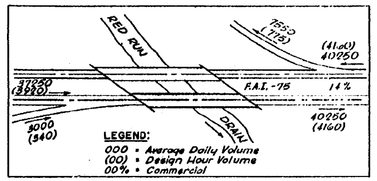
SITUATION PLAN
SCALE: 1" = 40'

WITNESSES AND ALIGNMENT SKETCH

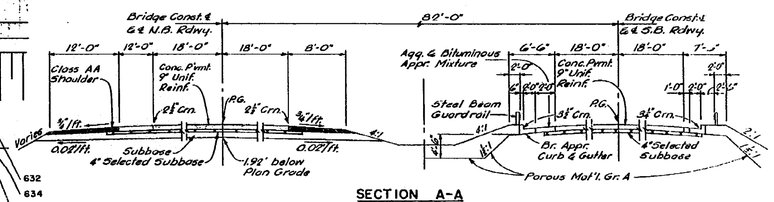




LOCATION SKETCH



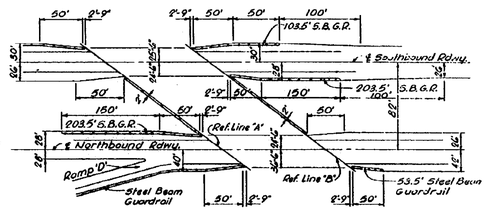
1978 ESTIMATED TRAFFIC DISTRIBUTION



SECTION A-A
No Scale

GENERAL NOTES:

Fences, and utilities are to be moved by others.
Datum refers to U.S.G.S. Datum.
Place riprap, El. 604.00 to El. 620.00.
All Piers shall be constructed and backfilled prior to construction of the abutments.
The work covered by these plans includes channel excavation, construction of the proposed bridge, placing porous material, and placing riprap to the limits shown.
All work not listed above is included in the Road Plans.



APPROACH GRADING PLAN

CONTROL SECTION 631741

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 OVER RED RUN DRAIN IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF SITE

TECON ENGINEERS, INC.

APPROVED J. V. Murray COORDINATING ENGINEER 6-5-62

APPROVED ENGINEER OF DESIGN - CONSULTANTS

SOILS BY	G.T.C.	
DRAWN BY	M.D.A.	1-16-62
TRACED BY		
CHECKED BY	G.T.C.	1-16-62
SCALE	1" = 30'	

B02 OF 631741

RECEIVED

REVISIONS			
NO.	DESCRIPTION	DATE	BY
B	Relocated Piers 1, 3 & Abut. A, added struts & thrust block	1-16-62	R.E.
A	Corrected Pile Elevations.	9-4-62	R.E.D.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY: INDER
DATE: DRAWN BY: INDER
DATE: 02-11-00 CHECKED BY:
FILE NAME: b0263174sn

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT Michigan Department of Transportation

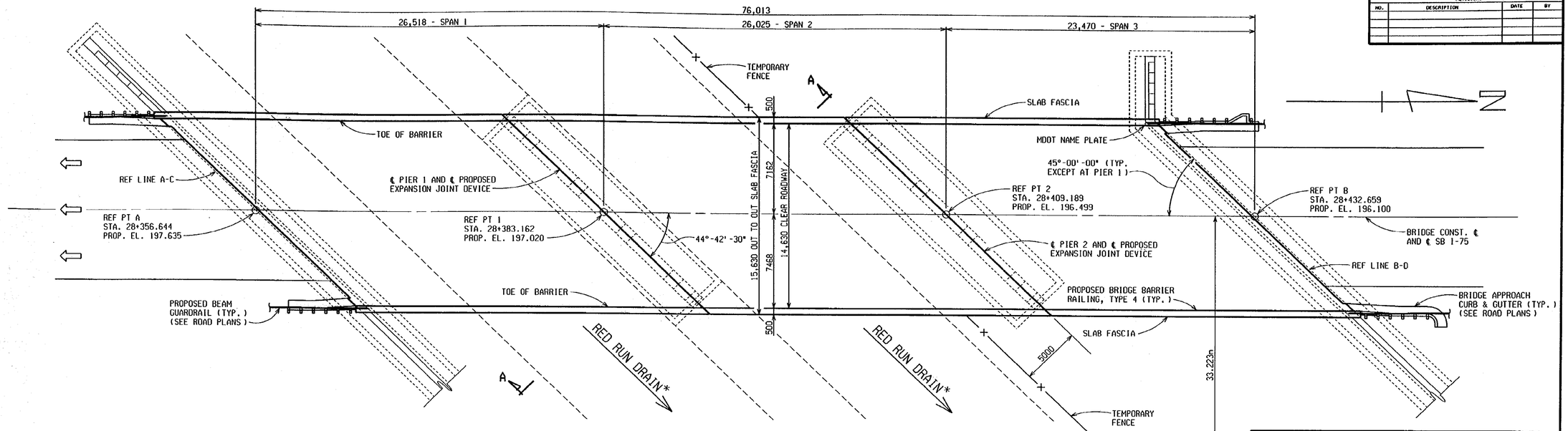
FOR INFORMATION ONLY

SOUTH BOUND

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	2 OF 15

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 3

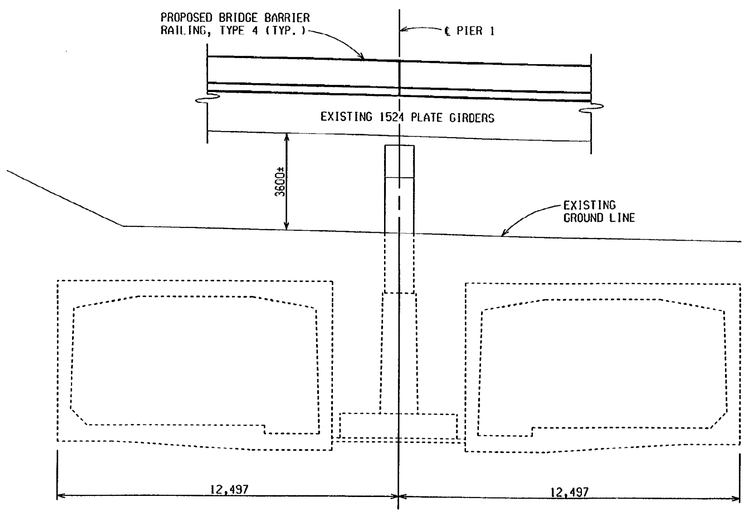
REVISIONS			
NO.	DESCRIPTION	DATE	BY



* RED RUN DRAIN IS CONTAINED WITHIN TWO BURIED CONCRETE BOX CULVERTS. THE AREA OVER THESE BURIED CULVERTS SHALL BE FENCED PRIOR TO STARTING CONSTRUCTION TO PREVENT ENCROACHMENT OF HEAVY CONSTRUCTION EQUIPMENT.

PLAN - SB

THE LIMITS OF FALSE DECKING IS FROM FACE OF ABUT. A TO FACE OF ABUT. B AND BETWEEN SLAB FASCIAS.



SECTION A-A

MISCELLANEOUS QUANTITIES

1	LS	Structures, Rem Portions (B02-SB)
1180	m2	False Decking
190	m2	Top Flanges and Beam Ends, Clean and Prime
1	LS	Penetrating Water Repellent Treatment (B02-SB)
1	LS	Substructure Horizontal Surface Sealer (B02-SB)
1	LS	Steel Structures, Cleaning, Type 4 (B02-SB)
1	LS	Steel Structures, Coating, Type 4 (B02-SB)
160	m	Beam Plate, Seal Perimeter
3	m3	Hand Chipping, Other Than Deck
3	m3	Patching Conc, LW
30	m2	Patch, Forming
*150	m	Fence, Temporary

*SEE SHEET 18 FOR LOCATION.

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, WIDENING, SUBSTRUCTURE REPAIR, PAINTING OF THE EXISTING STRUCTURAL STEEL, MAINTAINING TRAFFIC AND APPROACH WORK.

THE REHABILITATION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS23 . LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE ALLOWABLE STRESS METHOD WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR MS18 LOADING.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

SB I-75 TRAFFIC IS TO BE DETOURED OVER THE NB BRIDGE.

THE TOP HORIZONTAL SURFACES OF ALL PIER CAPS SHALL BE COATED WITH SUBSTRUCTURE HORIZONTAL SURFACE SEALER. THE ESTIMATED AREA IS 44m2.

PENETRATING WATER REPELLENT TREATMENT SHALL BE APPLIED TO ALL SURFACES OF PIERS EXCEPT TOPS OF PIERS. THE ESTIMATED AREA FOR PENETRATING WATER REPELLENT APPLICATION IS 264m2.

FORMS FOR LARGE PATCHES SHALL BE INSTALLED IN 600mm TO 1200mm HIGH SECTIONS WITH THE TOP OF FORM NO MORE THAN 1200mm ABOVE THE LEVEL OF CONCRETE AS THE POUR PROGRESSES.

FALSE DECKING SHALL INCLUDE THE AREA OF SPANS 1, 2 AND 3. THE ESTIMATED AREA IS 1180 SQUARE METERS DURING REMOVAL AND PROPOSED CONSTRUCTION.

THIS BRIDGE IS COATED WITH LEAD BASED PAINT.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE OF THE MAINTENANCE DIVISION IN LANSING.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE COATED IS 2520 SQUARE METERS.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BEARING PLATES TO CONCRETE CONTACT SURFACES AFTER CUTTING AWAY ANY PROTRUDING PORTION OF LEAD PLATE.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BOLTED END DIAPHRAGM CONNECTION PLATES AND ANGLES.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF ALL BEAM ENDS WHERE ENCASED IN THE BACKWALLS.

THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL BE LIGHT GRAY, FEDERAL STANDARD 595B COLOR NUMBER 16440.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES AND ON SIGNS ATTACHED TO THE STRUCTURE. INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4 (B02-SB)".

APPROVED Steven P. Beck 1/8/01
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

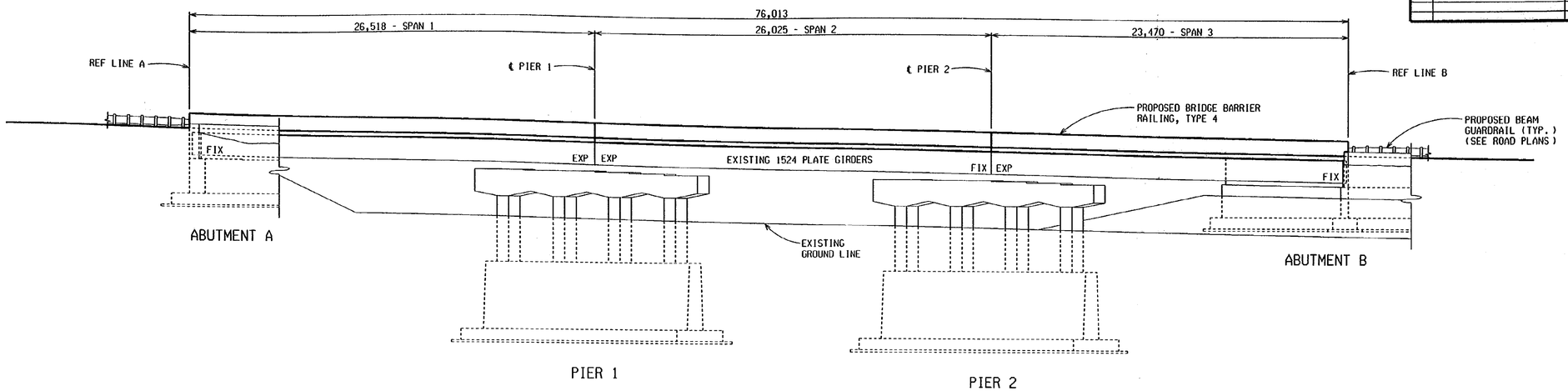
SB I-75 OVER RED RUN DRAIN IN MADISON HEIGHTS.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	3 OF 15

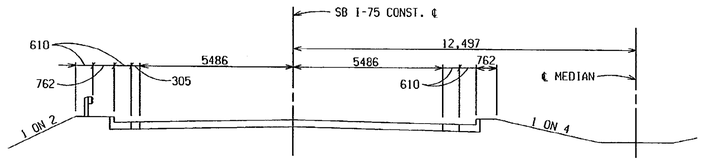
DATE: 12-7-00 CORRECTED BY: R. PRATT
DATE: 4-4-00 CHECKED BY: MIKUCKI
DRAWN BY: R. PRATT
FILE NAME: b0263174s.st

CONTROL SECTION B02 OF 63174 JOB NO. 49595A BRI NO. 4

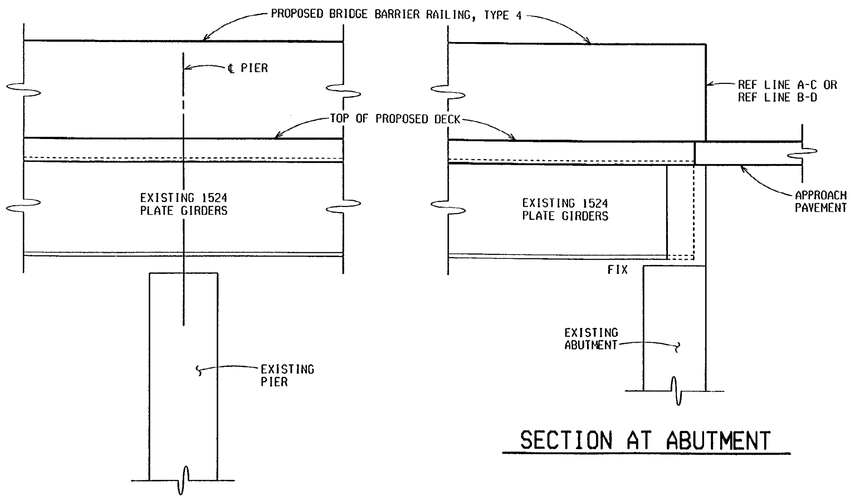
REVISIONS			
NO.	DESCRIPTION	DATE	BY



ELEVATION - SB
(SHOWN NORMAL TO BRIDGE CONST. ℄)

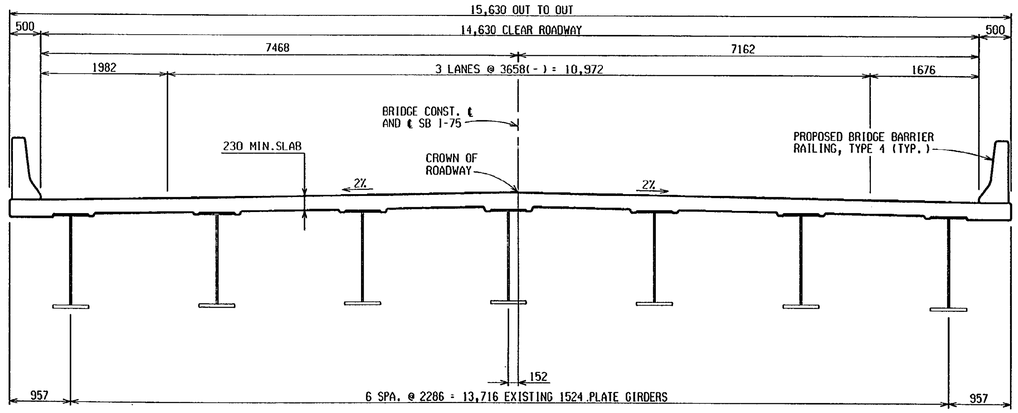


TYPICAL APPROACH SECTION
(LOOKING NORTH)



SECTION AT ABUTMENT

SECTION AT PIER



TYPICAL DECK SECTION - SB
(LOOKING NORTH)

APPROVED Steven P. Bell 1/08/01
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

SB I-75 OVER RED RUN DRAIN IN MADISON HEIGHTS.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	4 OF 15

DRAWN BY: R. PRATT DATE: 12-6-00
CHECKED BY: MIKUCKI DATE: 4-4-00
CORRECTED BY: R. PRATT DATE:
FILE NAME: b0263174s.st

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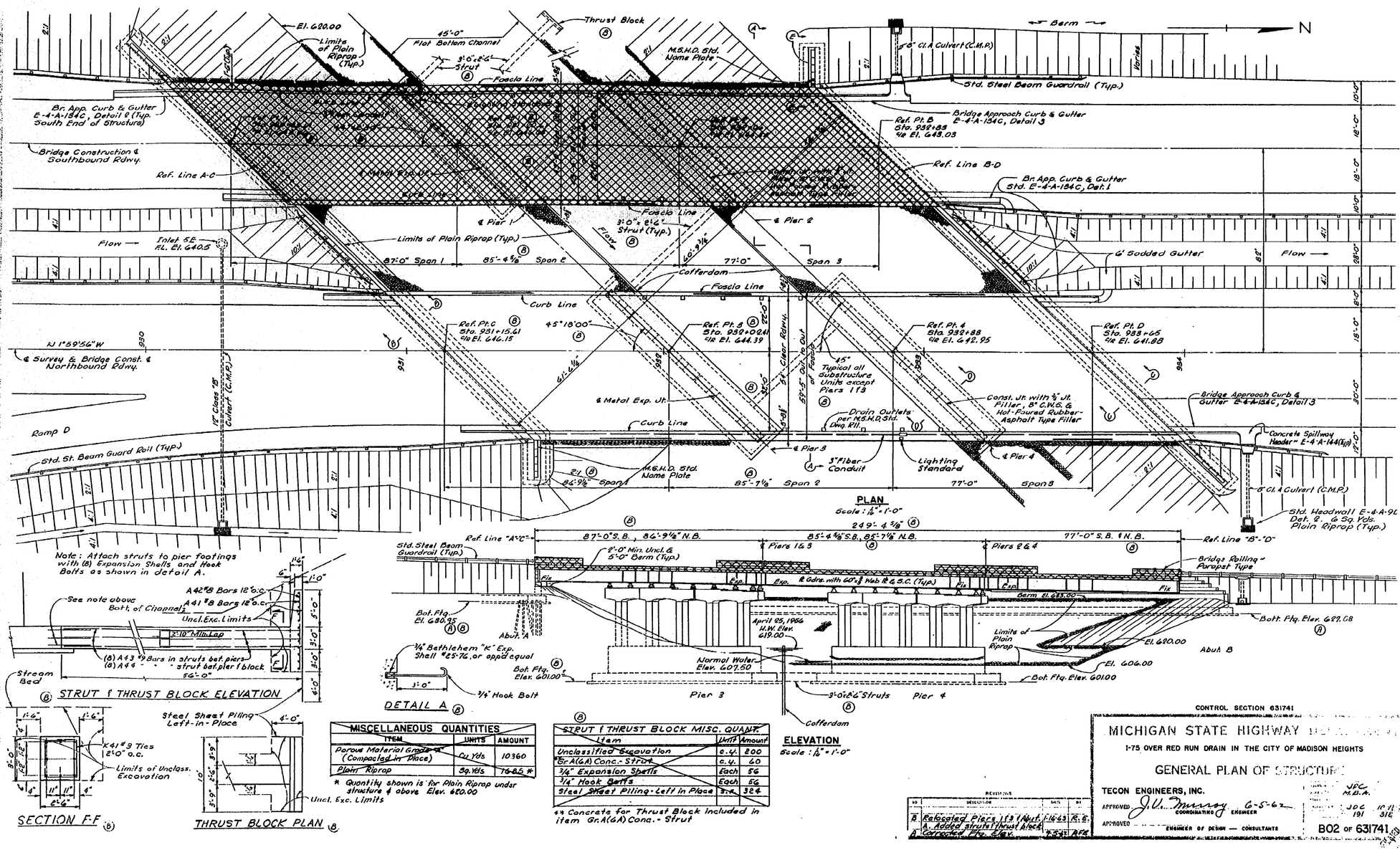
CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 5

REVISIONS			
NO.	DESCRIPTION	DATE	BY



MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
Porous Material Grade "A" (Compacted in Place)	Cu Yds	10360
Plain Riprap	Sq. Yds	1685 *

* Quantity shown is for Plain Riprap under structure & above Elev. 620.00

STRUT & THRUST BLOCK MISC. QUANT.		
Item	Unit	Amount
Unclassified Excavation	c.y.	200
Gr. A(GA) Conc. - Strut	c.y.	60
3/4" Expansion Shells	Each	56
3/4" Hook Bolts	Each	56
Steel Sheet Piling - Left in Place	s.f.	324

** Concrete for Thrust Block included in item Gr. A(GA) Conc. - Strut

REVISIONS			
NO.	DESCRIPTION	DATE	BY
B	Relocated Piers 1 & 3 (Nut. 1146)	5-5-00	R.S.
A	Added struts & thrust block		
	Corrected Ftg. Elev.	4-24-00	AFK

CONTROL SECTION 631741

MICHIGAN STATE HIGHWAY [illegible]

I-75 OVER RED RUN DRAIN IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

APPROVED J.U. Murray 6-5-62 COORDINATING ENGINEER

APPROVED ENGINEER OF DESIGN — CONSULTANTS

JDC M.D.A. JDC 191 10/11/[illegible] 31E

B02 OF 631741

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 49595A

DENOTES REMOVAL PORTIONS

PROPOSED WORK

REMOVAL PORTIONS - SB STRUCTURE

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
12-13-00	B02 OF 63174	49595A	MAHDAVI	5 OF 15

DATE: 12-13-00 CORRECTED BY: SHAFFER DATE: 02-11-00 CHECKED BY: DRAWN BY: INDER FILE NAME: b02631744en

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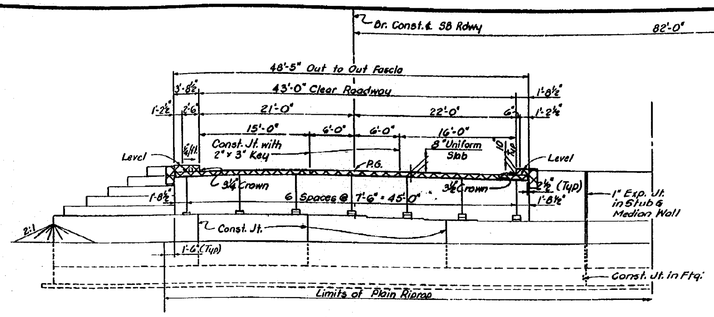
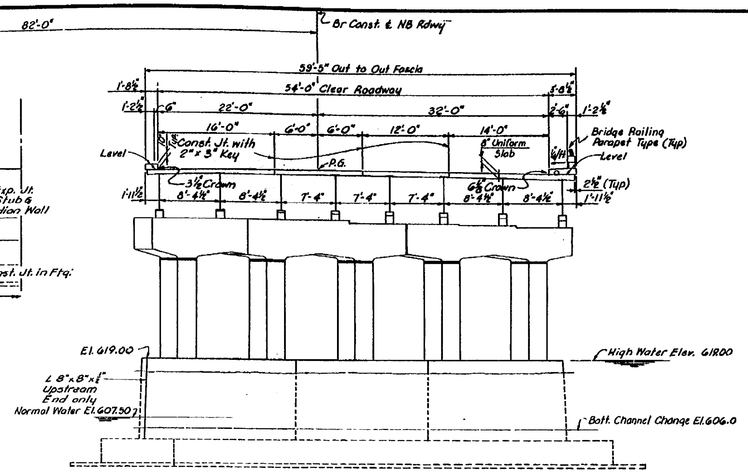
CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 6



SECTION A-A
Scale: 1/8" = 1'-0"



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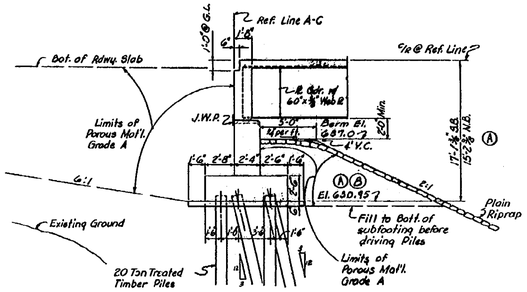
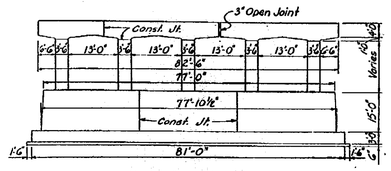
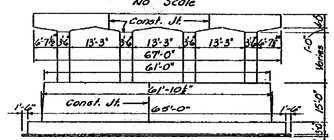


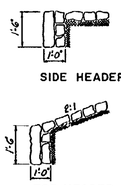
SECTION B-B
Scale: 3/16" = 1'-0"



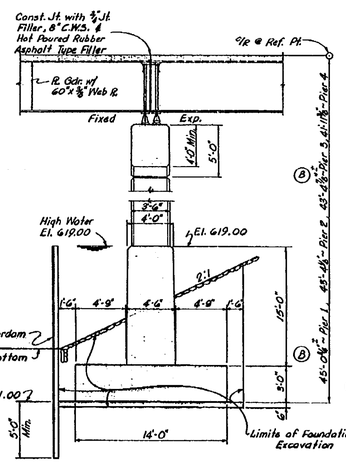
ELEVATION PIERS 3 & 4
No Scale



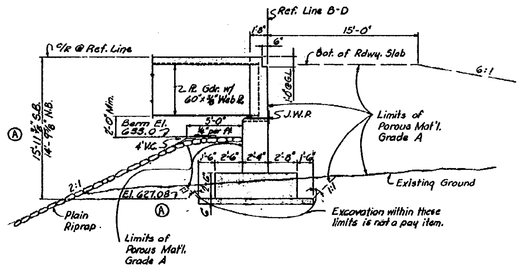
ELEVATION PIERS 1 & 2
No Scale



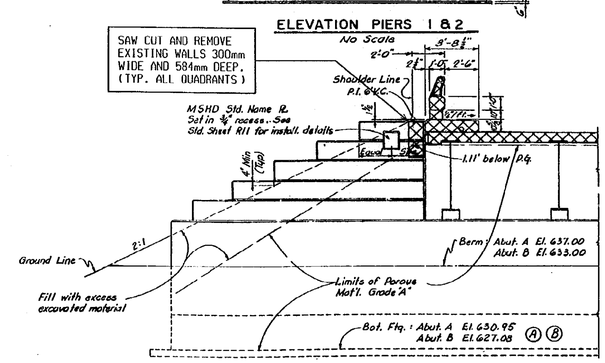
RIP RAP HEADER DETAILS
(Incidental to Plain Riprap)



SECTION D-D
Scale: 3/16" = 1'-0"



SECTION C-C
Scale: 3/16" = 1'-0"



SECTION E-E
Scale: 1/4" = 1'-0"

GENERAL NOTES

The waterway area supplied below high water elevation 619.00 is 850 square feet.
Top of roadway slab and tops of curbs are parallel to the vertical curve.
Proposed pavements, curb and gutter, guard rail, drainage structures, earth fill, and sand sub-base on the expressway and ramp are not a part of this Contract.
The design of this structure is based on the M.S.H.D. Standard Specifications for the Design of Highway Bridges - 1958 Edition - H20-S16-44 and alternate military loading. Live load plus impact deflection = 1/1000 of span length.
(B) for strut details, see sh. 191.

CONTROL SECTION 631741

MICHIGAN STATE HIGHWAY DEPARTMENT

I 75 OVER RED RUN DRAIN IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

APPROVED J.V. Murray COORDINATING ENGINEER 6-5-67

APPROVED ENGINEER OF DESIGN — CONSULTANTS

NO.	DESCRIPTION	DATE	BY
B	Revised Ftg. Elevs. of Abut. A	1-16-68	R.E.
A	Corrected Dim. & Ftg. Elevs.	9-8-67	JPE

DESIGNED	JPE	10-16-67
DETAILED	JPE	10-13-67
TRACED	JPE	10-13-67
CHECKED	JPE	10-13-67

B02 OF 631741

REVISIONS			
NO.	DESCRIPTION	DATE	BY

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 49595A

DENOTES REMOVAL PORTIONS

PROPOSED WORK

REMOVAL PORTIONS - SB STRUCTURE

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	6 OF 15

DATE: CORRECTED BY: INDER

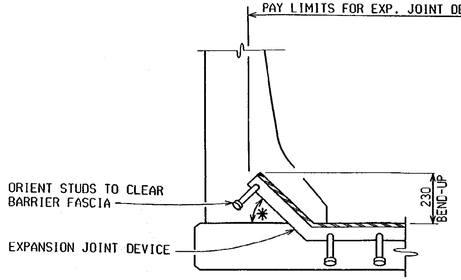
DATE: 02-11-00 CHECKED BY:

DRAWN BY: INDER

FILE NAME: b0263174sn

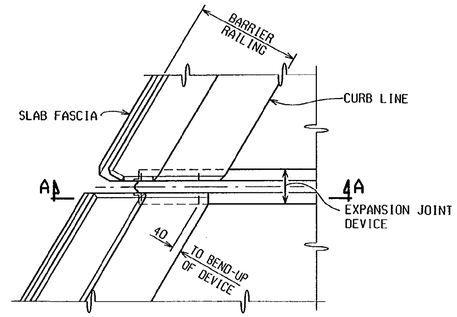
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 7



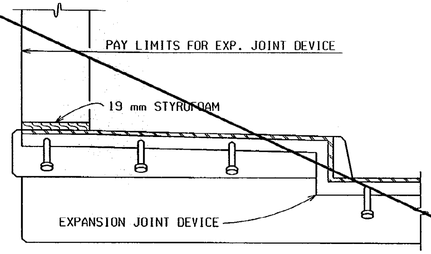
SECTION A-A

*—FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG ℄ EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.

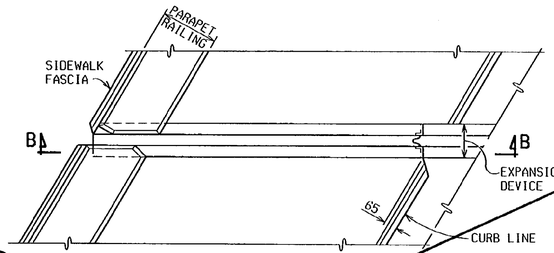


PLAN AT BARRIER RAILING

BARRIER TREATMENT

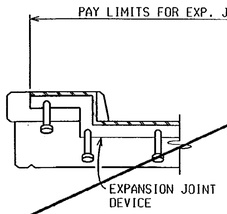


SECTION B-B

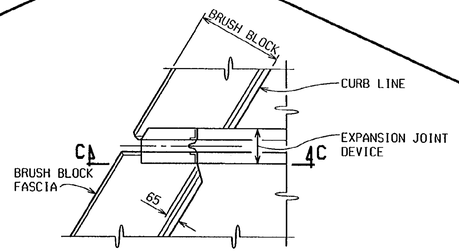


PLAN AT PARAPET RAILING
(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT



SECTION C-C



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
B02	40	PIER 1	55mm	22.5
B02	40	PIER 2	25mm	22.5

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	45

DATE: 12-7-00
CORRECTED BY: R. PRATT
DATE: 07-16-96
CHECKED BY: VZ/SPB
DATE:
DRAWN BY:
FILE NAME: b02631745.ej

MICHIGAN DEPARTMENT OF TRANSPORTATION

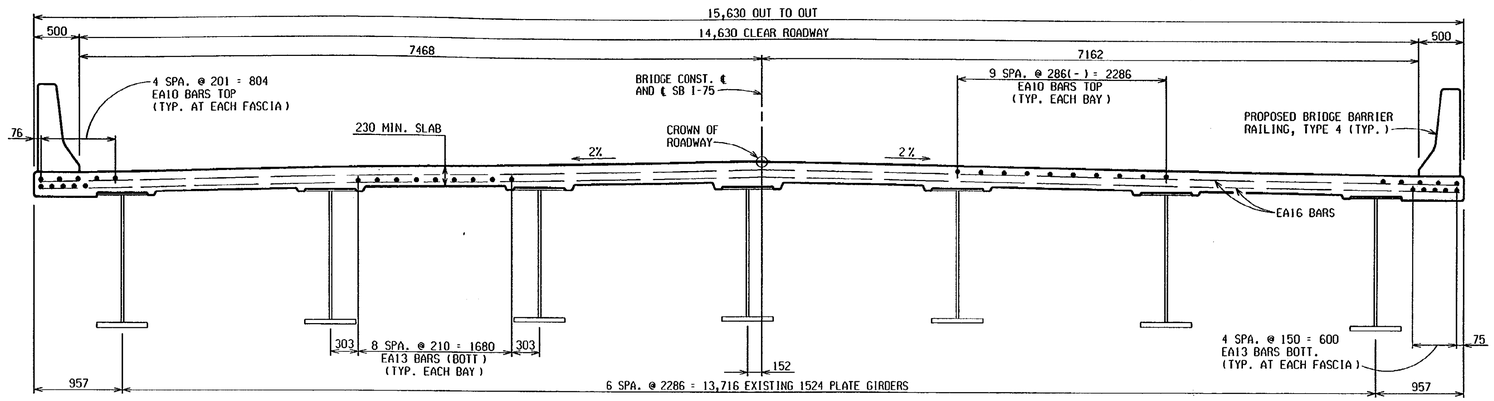
EXPANSION JOINT DETAILS - SB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	7 OF 15

EJ3T (11-17-97)

CONTROL SECTION B02 OF 63174 | JOB NO. 49595A | SH. NO. 8

REVISIONS			
NO.	DESCRIPTION	DATE	BY



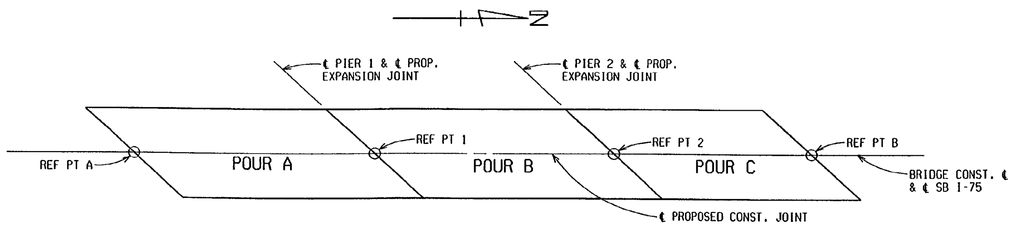
TYPICAL DECK SECTION - SB

(LOOKING NORTH)

SUPERSTRUCTURE CONCRETE QUANTITIES NIGHT CASTING	
POUR	AMT (m3)
A	100
B	100
C	90
TOTAL CONC.:	290 m3

MISCELLANEOUS QUANTITIES

152	m	Bridge Barrier Railing, Type 4
20	m2	Joint Waterproofing
290	m3	Bridge Ltg, Oper and Maintain
1	LS	Bridge Ltg, Furn and Rem (B02-SB)
1	LS	Superstructure Conc, Form, Finish and Cure, Night Casting (B02-SB)
1	LS	Shear Developers (B02-SB)



POUR DIAGRAM

NOTES:

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

ALPHABETICAL DESIGNATION OF POURS IS NOT TO BE CONSTRUED AS A POUR SEQUENCE.

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL, NAME PLATE MOUNTING, MOLDING AND BEVEL DETAILS, SEE STANDARD SHEET B-17 AND B-103. BARRIER RAILING IS TO BE BRIDGE BARRIER RAILING, TYPE 4.

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03J OF THE STANDARD SPECIFICATIONS.

WHERE CAST-IN-ANCHORAGE IS USED FOR EXPANSION JOINT DEVICES, IT IS RECOMMENDED THAT THE PLACING OF DECK CONCRETE PROGRESS TOWARD THE JOINT SO THAT THE EFFECTS OF DEAD LOAD DEFLECTION WILL OCCUR BEFORE CONCRETE IS PLACED AT THE ANCHORAGE.

JWP DENOTES JOINT WATERPROOFING.

SHEAR DEVELOPERS SHALL BE 19mm DIAMETER STUDS.

IF EXISTING SHEAR DEVELOPERS DO NOT INTERFERE WITH PROPOSED SHEAR DEVELOPERS AND REINFORCEMENT, THEY MAY BE CLEANED AND LEFT IN PLACE INSTEAD OF REMOVED. THE CONTRACTOR SHALL INSTALL ALL PROPOSED SHEAR DEVELOPERS REGARDLESS OF WHETHER OR NOT THE EXISTING SHEAR DEVELOPERS REMAIN.

THE CONTRACTOR MAY USE METAL STAY IN PLACE FORMS. IF USED, ELIMINATING THE POLYSTYRENE AND FILLING THE CORRUGATIONS WITH CONCRETE IS PROHIBITED.

MDOT Michigan Department of Transportation

DECK REPLACEMENT DETAILS - SB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	8 OF 15

DATE: 12-18-00 | CORRECTED BY: R. PRATT | DATE: 6-22-00 | CHECKED BY: MIKUCKI | DRAWN BY: R. PRATT | FILE NAME: b02631745.dk

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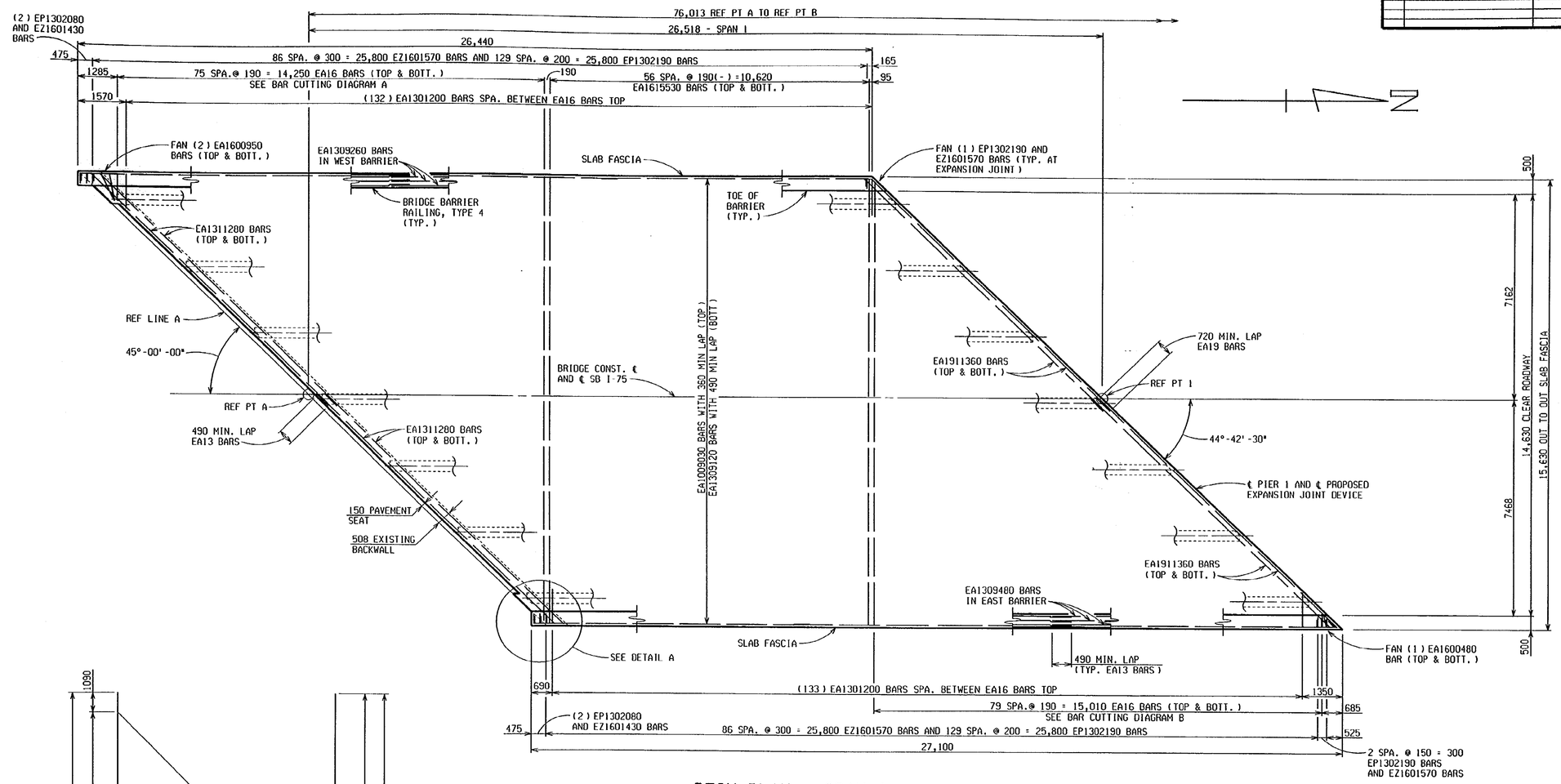
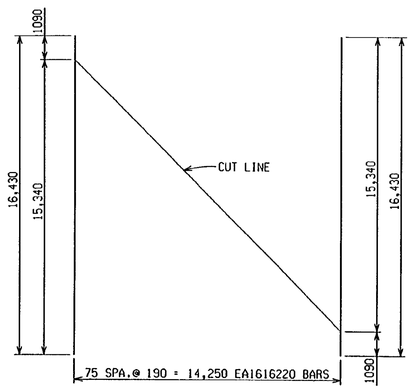
CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 9

REVISIONS			
NO.	DESCRIPTION	DATE	BY



DECK PLAN - SPAN 1



BAR CUTTING DIAGRAM A

DECK REPLACEMENT DETAILS - SB STRUCTURE

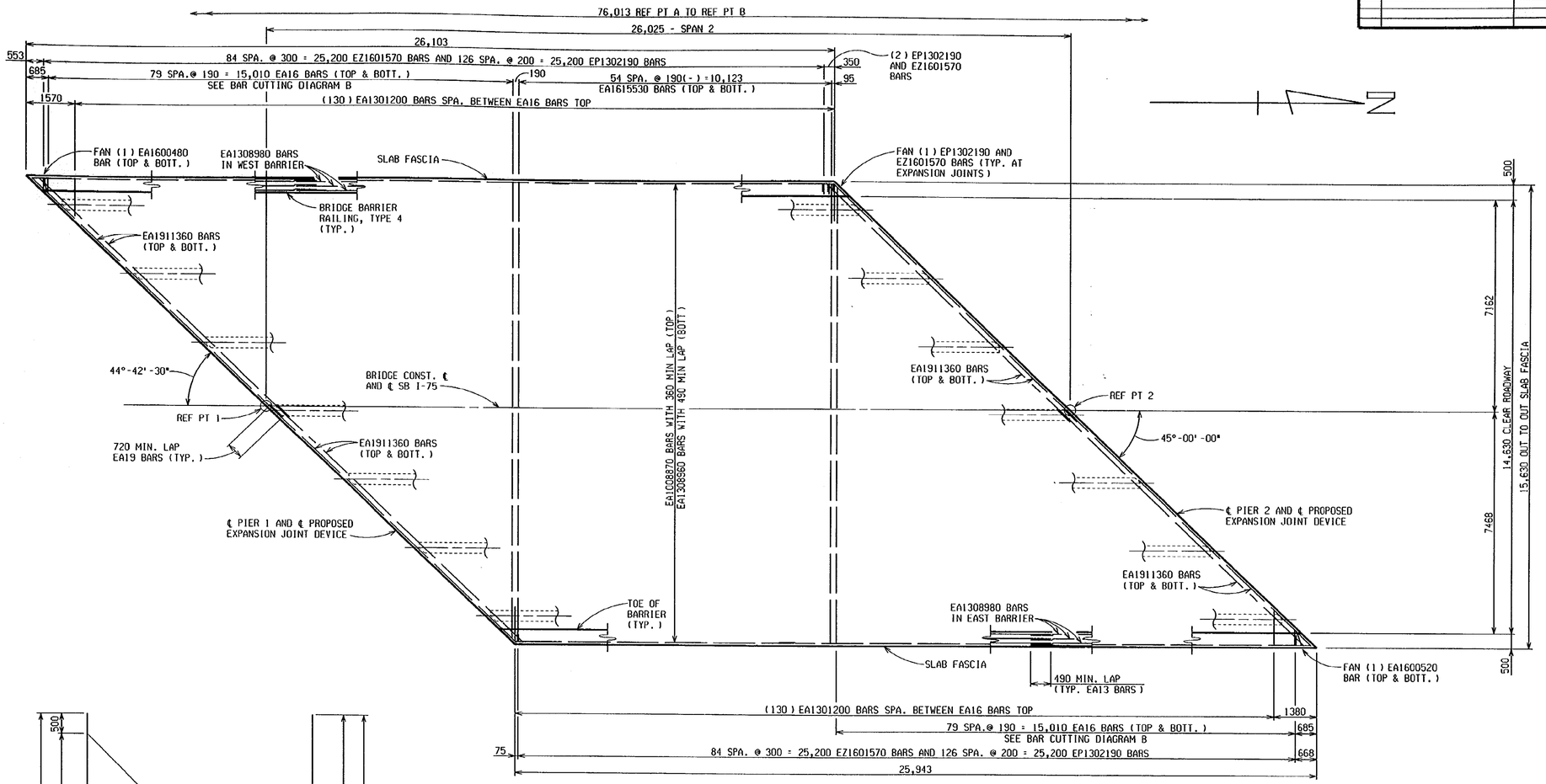
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	9 OF 15

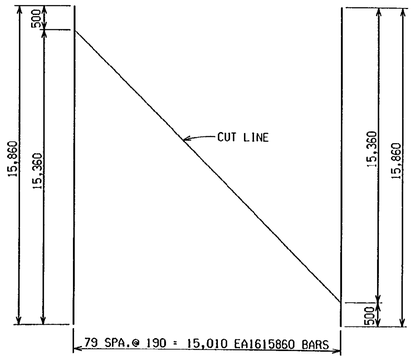
DRAWN BY: R. PRATT DATE: 12-18-00
CORRECTED BY: R. PRATT DATE: 6-22-00
CHECKED BY: MYKUCKI
FILE NAME: b0263174s.dk

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 10

REVISIONS			
NO.	DESCRIPTION	DATE	BY



DECK PLAN - SPAN 2



BAR CUTTING DIAGRAM B

DECK REPLACEMENT DETAILS - SB STRUCTURE

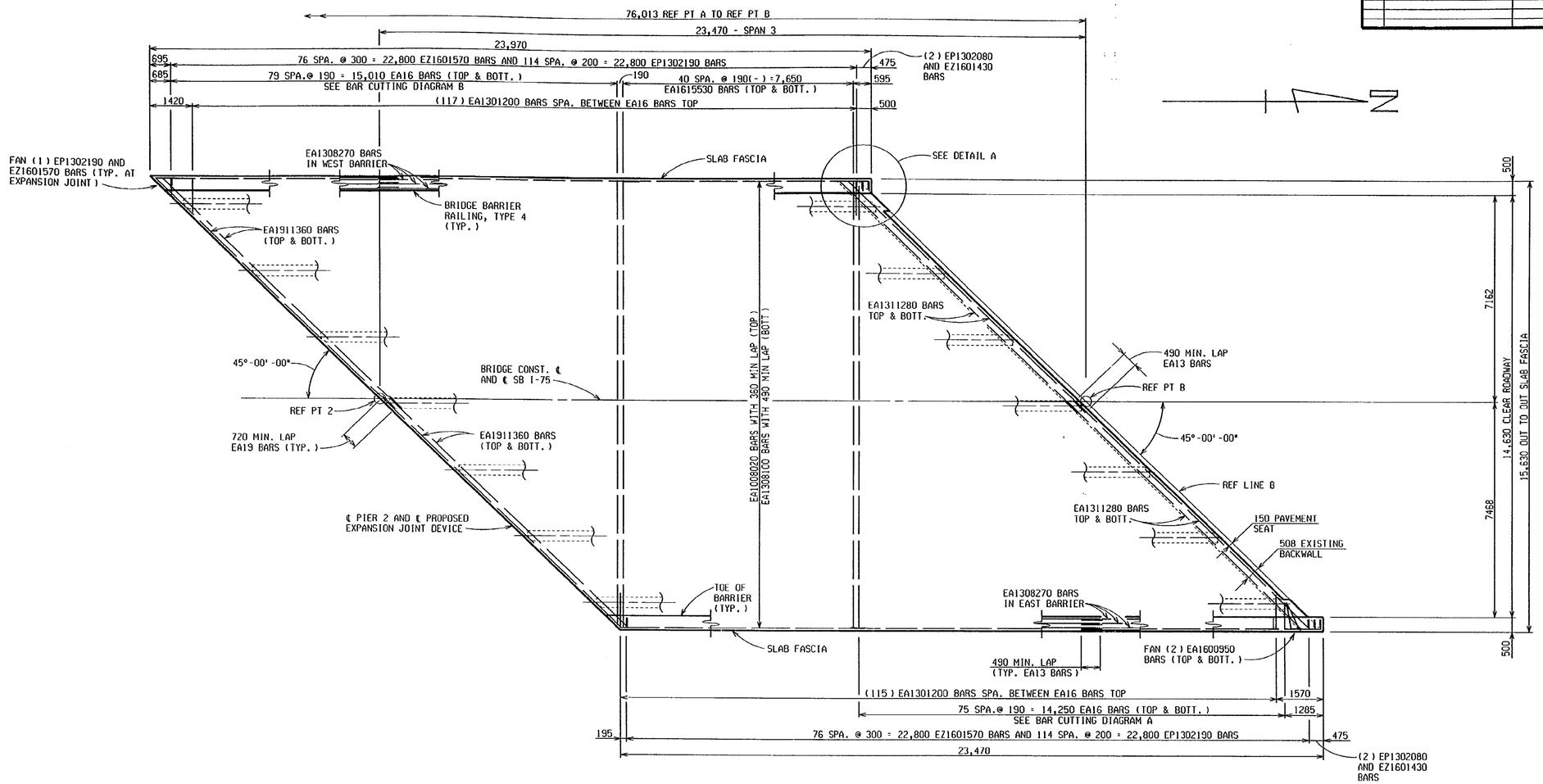
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	10 OF 15

DRAWN BY: R. PRATT DATE: 1-3-01
CHECKED BY: MIKLUCKI DATE: 6-22-00
CORRECTED BY: R. PRATT DATE:
FILE NAME: b0263174s.dk

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 11

REVISIONS			
NO.	DESCRIPTION	DATE	BY



DECK PLAN - SPAN 3

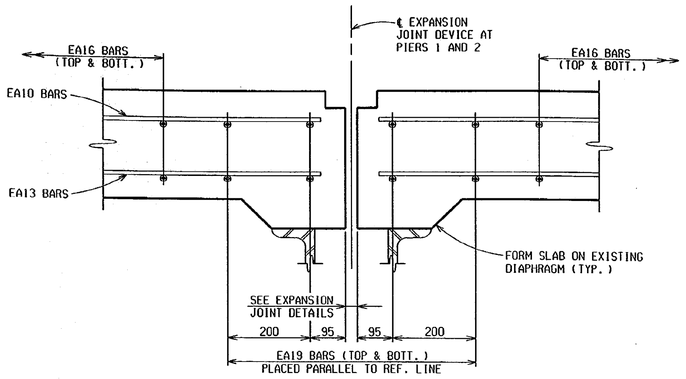
DECK REPLACEMENT DETAILS - SB STRUCTURE

MDOT Michigan Department of Transportation

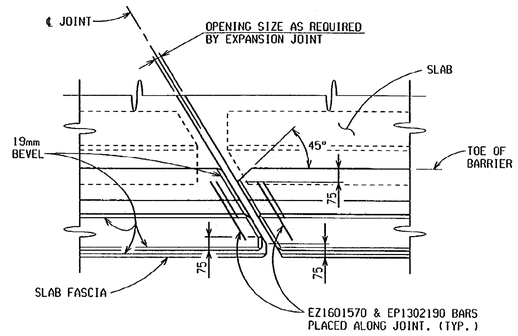
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	11 OF 15

DATE: 12-18-00 CORRECTED BY: R.PRATT
DATE: 6-22-00 CHECKED BY: MIKUCKI
DRAWN BY: R. PRATT
FILE NAME: b02631744.dgk

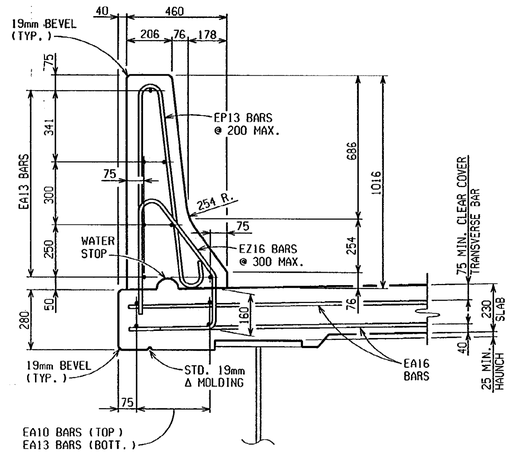
CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 12



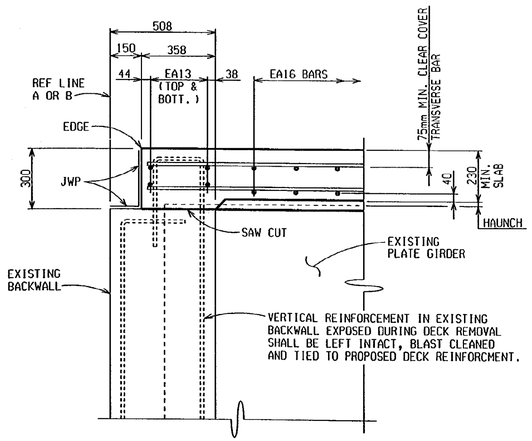
TYPICAL SECTION THRU EXPANSION JOINT



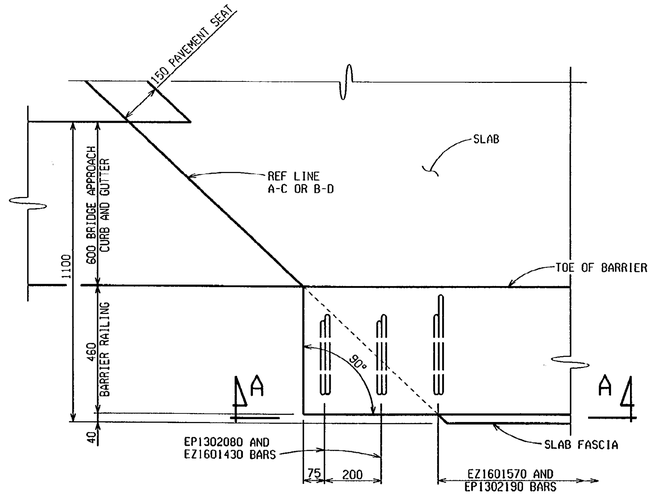
PLAN OF BARRIER



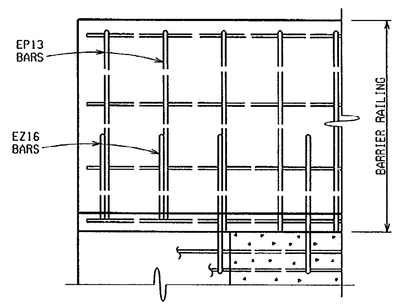
TYPICAL SECTION THRU BARRIER



TYPICAL SECTION THRU BACKWALL



DETAIL A
(TYP. ALL 4 QUADRANTS)



SECTION A-A

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: 12-14-00
CORRECTED BY: R. PRATT
DATE:
DRAWN BY: R. PRATT
DATE: 6-22-00
CHECKED BY: MIKUCKI
FILE NAME: b02631744.dk

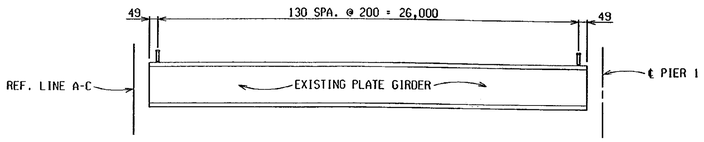
DECK REPLACEMENT DETAILS - SB STRUCTURE

MDOT Michigan Department of Transportation

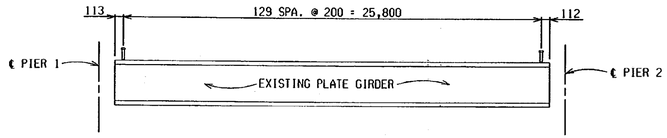
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	12 OF 15

CONTROL SECTION B02 OF 63174 | JOB NO. 49595A | SH. NO. 13

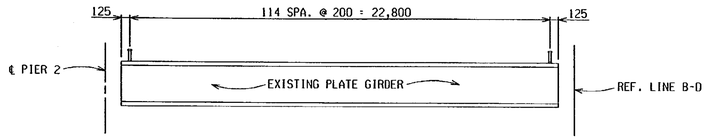
REVISIONS			
NO.	DESCRIPTION	DATE	BY



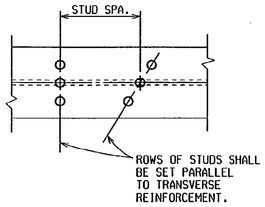
SPAN 1 PLATE GIRDER ELEVATION
SHOWING STUD SPACING



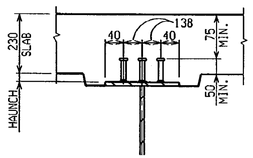
SPAN 2 PLATE GIRDER ELEVATION
SHOWING STUD SPACING



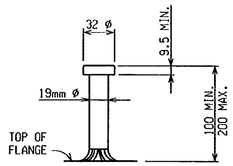
SPAN 3 PLATE GIRDER ELEVATION
SHOWING STUD SPACING



PLAN



SECTION THRU 1524 PLATE GIRDER
ALL SPANS



STUD DETAIL

STUD SHEAR DEVELOPER DETAILS

MDOT Michigan Department of Transportation

DECK REPLACEMENT DETAILS - SB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	13 OF 15

DRAWN BY: R. PRATT | DATE: | CORRECTED BY: | DATE: | CHECKED BY: MIKUCKI | DATE: 12-7-00

FILE NAME: b02631745.dgk

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 14

REVISIONS			
NO.	DESCRIPTION	DATE	BY

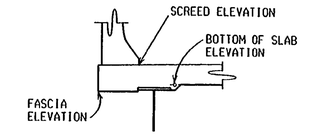
BOTTOM OF SLAB ELEVATIONS

REF.A — SPAN 1 — REF.1 — SPAN 2 — REF.2 — SPAN 3 — REF.B

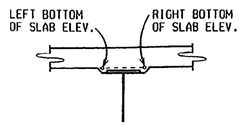
		0	1	2	3	4	5	6	7	8	0	1	2	3	4	5	6	7	8	0	1	2	3	4	5	6	7	8
A	FASCIA	197.357	197.287	197.217	197.144	197.068	196.989	196.907	196.823	196.738	196.728	196.669	196.609	196.546	196.481	196.413	196.341	196.268	196.194	196.187	196.140	196.093	196.044	195.994	195.943	195.889	195.835	195.780
	RIGHT	197.424	197.354	197.284	197.211	197.135	197.056	196.974	196.890	196.805	196.795	196.736	196.676	196.613	196.548	196.480	196.408	196.335	196.261	196.254	196.207	196.160	196.111	196.061	196.010	195.956	195.902	195.847
B	LEFT	197.401	197.332	197.263	197.191	197.116	197.038	196.957	196.874	196.790	196.780	196.721	196.662	196.601	196.536	196.469	196.398	196.326	196.252	196.246	196.200	196.153	196.106	196.056	196.005	195.953	195.899	195.845
	RIGHT	197.412	197.343	197.273	197.201	197.126	197.048	196.967	196.884	196.800	196.790	196.731	196.672	196.611	196.546	196.479	196.408	196.336	196.263	196.256	196.210	196.163	196.116	196.067	196.016	195.963	195.909	195.856
C	LEFT	197.390	197.322	197.253	197.182	197.108	197.031	196.950	196.868	196.785	196.775	196.718	196.659	196.599	196.535	196.469	196.399	196.327	196.255	196.249	196.203	196.157	196.111	196.062	196.012	195.960	195.907	195.854
	RIGHT	197.400	197.332	197.263	197.192	197.118	197.041	196.961	196.878	196.795	196.786	196.728	196.669	196.609	196.545	196.479	196.409	196.337	196.265	196.259	196.213	196.168	196.121	196.072	196.022	195.970	195.918	195.865
D	LEFT	197.378	197.311	197.243	197.173	197.100	197.024	196.945	196.863	196.781	196.771	196.715	196.657	196.597	196.535	196.469	196.400	196.330	196.258	196.252	196.207	196.162	196.116	196.069	196.019	195.968	195.916	195.864
	RIGHT	197.384	197.317	197.249	197.179	197.106	197.030	196.951	196.869	196.787	196.778	196.721	196.663	196.604	196.541	196.475	196.407	196.336	196.264	196.258	196.213	196.168	196.122	196.075	196.025	195.974	195.922	195.870
E	LEFT	197.293	197.226	197.159	197.090	197.018	196.943	196.864	196.784	196.702	196.693	196.637	196.580	196.522	196.460	196.395	196.327	196.257	196.187	196.181	196.137	196.093	196.047	196.001	195.952	195.902	195.850	195.799
	RIGHT	197.283	197.216	197.149	197.080	197.008	196.932	196.854	196,773	196.692	196.683	196.627	196.570	196.511	196.450	196.385	196.317	196.247	196.177	196.170	196.126	196.082	196.037	195.990	195.942	195.892	195.840	195.789
F	LEFT	197.191	197.126	197.060	196.992	196.920	196.846	196.768	196.689	196.608	196.599	196.544	196.488	196.430	196.369	196.305	196.239	196.169	196.100	196.094	196.051	196.007	195.963	195.917	195.869	195.820	195.769	195.718
	RIGHT	197.181	197.116	197.050	196.981	196.910	196.836	196.758	196.678	196.598	196.589	196.534	196.478	196.420	196.359	196.295	196.228	196.159	196.090	196.083	196.040	195.997	195.953	195.907	195.859	195.809	195.759	195.708
G	LEFT	197.091	197.026	196.961	196.894	196.823	196.749	196.673	196.594	196.515	196.505	196.451	196.396	196.339	196.280	196.216	196.150	196.082	196.014	196.007	195.965	195.923	195.879	195.834	195.787	195.738	195.688	195.638
	FASCIA	197.024	196.959	196.894	196.827	196.756	196.683	196.606	196.527	196.448	196.438	196.384	196.329	196.272	196.213	196.149	196.083	196.015	195.947	195.940	195.898	195.856	195.812	195.767	195.720	195.671	195.621	195.572

SCREED ELEVATIONS

LEFT	197.652	197.580	197.507	197.434	197.357	197.279	197.197	197.114	197.031	197.021	196.960	196.898	196.835	196.769	196.701	196.630	196.558	196.485	196.479	196.430	196.382	196.333	196.283	196.231	196.178	196.124	196.071
RIGHT	197.295	197.229	197.163	197.095	197.024	196.951	196.875	196.798	196.721	196.712	196.656	196.600	196.542	196.482	196.419	196.355	196.288	196.221	196.215	196.172	196.129	196.085	196.039	195.993	195.945	195.896	195.848



TYPICAL FASCIA SECTION



TYPICAL INTERIOR SECTION

(LOOKING UP STATION)

BULKHEAD ELEVATIONS

	ABUT.A			ABUT.B
A	197.652	197.025	196.482	196.070
B	197.640	197.020	196.484	196.078
C	197.628	197.015	196.487	196.087
D	197.617	197.011	196.490	196.097
E	197.521	196.923	196.409	196.022
F	197.419	196.828	196.322	195.941
G	197.319	196.735	196.235	195.862

SCREED ELEVATIONS ARE BASED ON THE CONDITION THAT NO SLAB CONCRETE HAS BEEN CAST AND THAT FORMWORK AND STEEL REINFORCEMENT ARE IN PLACE AND THE TEMPORARY SUPPORTS ARE BROUGHT TO A SNUG FIT UNDER EACH BEAM

THE TRANSVERSE FINISHING SHALL BE PARALLEL TO REFERENCE LINES.

SECTIONS FOR BOTTOM OF SLAB AND/OR SCREED ELEVATIONS ARE GIVEN ALONG BEAM CENTERLINES FROM CENTERLINE OF BEARING OR PIN & HANGER TO CENTERLINE OF BEARING OR PIN & HANGER AS APPLICABLE AT EQUAL SPACINGS.

MDOT Michigan Department of Transportation

SLAB AND SCREED DATA - SB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	14 OF 15

DRAWN BY: DATE: CHECKED BY: MIKUCKI DATE: CORRECTED BY: DATE:

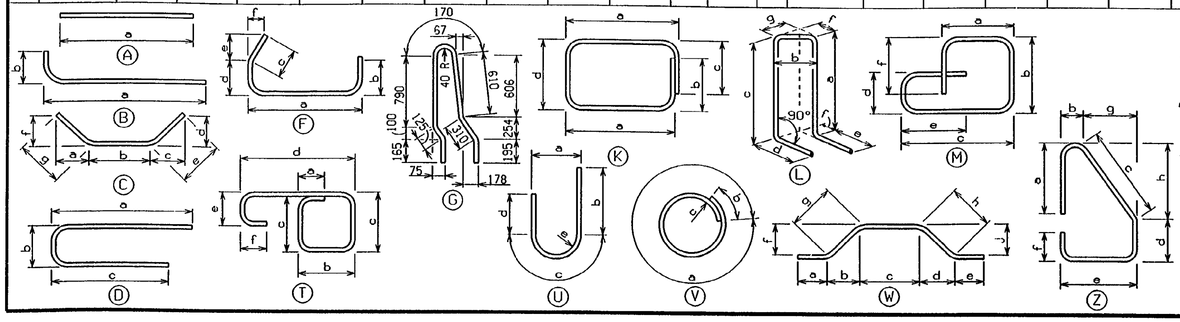
FILE NAME: b02631745.ss

CONTROL SECTION B02 OF 63174 JOB NO. 49595A SH. NO. 15

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.

	BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
DECK - SPAN 1	EA1600480	480									2	1
	EA1600950	950									4	6
	EA1911360	11360									8	203
	EA1311280	11280									8	90
	EA1309480	9480									21	198
	EA1309260	9260									21	193
	EA1009030	9030									210	1062
	EA1309120	9120									192	1741
	EA1616430	16430									76	1938
	EA1615860	15860									80	1969
	EA1615530	15530									114	2748
	EA1301200	1200									265	316
	EP1302190	910	170	865	75	40	860	95	80		264	575
	EP1302080	850	170	805	85	40	800	90	80		4	8
	EZ1601570	520	95	440	255	260		260	355		178	434
	EZ1601430	310	95	345	85	290	305	195	285		4	9
DECK - SPAN 2	EA1600480	480									2	1
	EA1600520	520									2	2
	EA1911360	11360									16	406
	EA1308980	8980									42	375
	EA1008870	8870									210	1043
	EA1308960	8960									192	1710
	EA1615860	15860									160	3938
	EA1615530	15530									110	2651
	EA1301200	1200									260	310
	EP1302190	910	170	865	75	40	860	95	80		260	566
	EZ1601570	520	95	440	255	260		260	355		176	429
DECK - SPAN 3	EA1600950	950									4	6
	EA1911360	11360									8	203
	EA1311280	11280									8	90
	EA1308270	8270									42	345
	EA1008020	8020									210	943
	EA1308100	8100									192	1546
	EA1616430	16430									76	1938
	EA1615860	15860									80	1969
	EA1615530	15530									82	1976
	EA1301200	1200									232	277
	EP1302190	910	170	865	75	40	860	95	80		232	505
	EP1302080	850	170	805	85	40	800	90	80		4	8
	EZ1601570	520	95	440	255	260		260	355		156	380
	EZ1601430	310	95	345	85	290	305	195	285		4	9



EPOXY COATED
BAR SIZE
BAR LENGTH (mm)
EA2013000
BAR SHAPE

BAR LEGEND

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

MISCELLANEOUS QUANTITIES

33117 kg	REINFORCEMENT, STEEL, EPOXY COATED

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

STEEL REINFORCEMENT DETAILS - SB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	B02 OF 63174	49595A	MAHDAVI	15 OF 15

DRAWN BY: R. PRATT DATE: 1-4-01 CHECKED BY: MIKUCKI DATE: CORRECTED BY:

FILE NAME: b02631745.rs

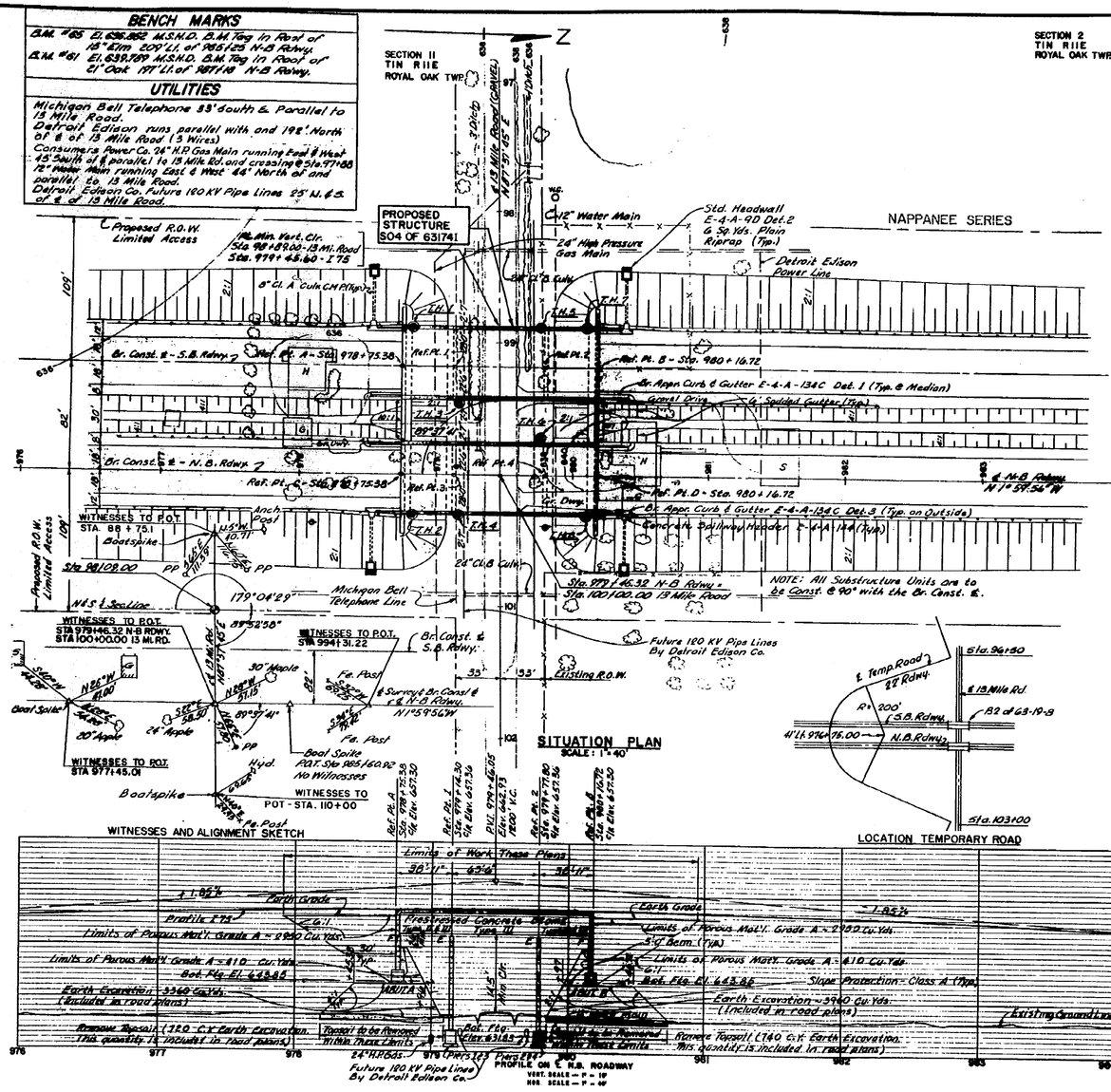
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. 2

BENCH MARKS

B.M. #85 El. 636.852 M.S.N.D. B.M. Tag in Root of 18" Elm 209' Lt. of 985+25 N-B Rdwy.
B.M. #81 El. 639.789 M.S.N.D. B.M. Tag in Root of 21" Oak 197' Lt. of 987+18 N-B Rdwy.

UTILITIES

Michigan Bell Telephone 33' South & Parallel to 13 Mile Road.
Detroit Edison runs parallel with and 198' North of & of 13 Mile Road (3 Wires)
Consumers Power Co. 24" H.P. Gas Main running East & West 42' South of & parallel to 13 Mile Rd. and crossing @ Sta. 97+88
12" Header Main running East & West 66' North of and parallel to 13 Mile Road.
Detroit Edison Co. Future 120 KV Pipe Lines 25' N. & S. of & of 13 Mile Road.



REVISIONS			
NO.	DESCRIPTION	DATE	BY

GENERAL NOTES

Fences and utilities are to be moved by others.
Buildings are to be removed by others.
Traffic is to be maintained over the temporary road.
Top soil or unsuitable material under abutments shall be removed and backfilled with suitable granular material.
Piers 1, 2, 3 & 4 shall be constructed and backfilled prior to placing the abutment fills.
The work covered by these plans includes construction of the proposed bridge, placing porous material and placing slope protection Class A to the limits shown.
Datum refers to U.S.G.S. datum.

CONTROL SECTION 63174 I

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 OVER 13 MILE ROAD IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF SITE

TECON ENGINEERS, INC.

APPROVED _____ ENGINEER OF DESIGN — CONSULTANTS

APPROVED _____ ENGINEER OF DESIGN — CONSULTANTS

SHEET DATE	GTC 3-1-60
MAP BY	EOH 10-20-60
TRACED BY	
CHECKED BY	GTC 11-1-60
SHEET 231 OF 318	

S04 OF 63174 I

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY - NB STRUCTURE

MDOT Michigan Department of Transportation

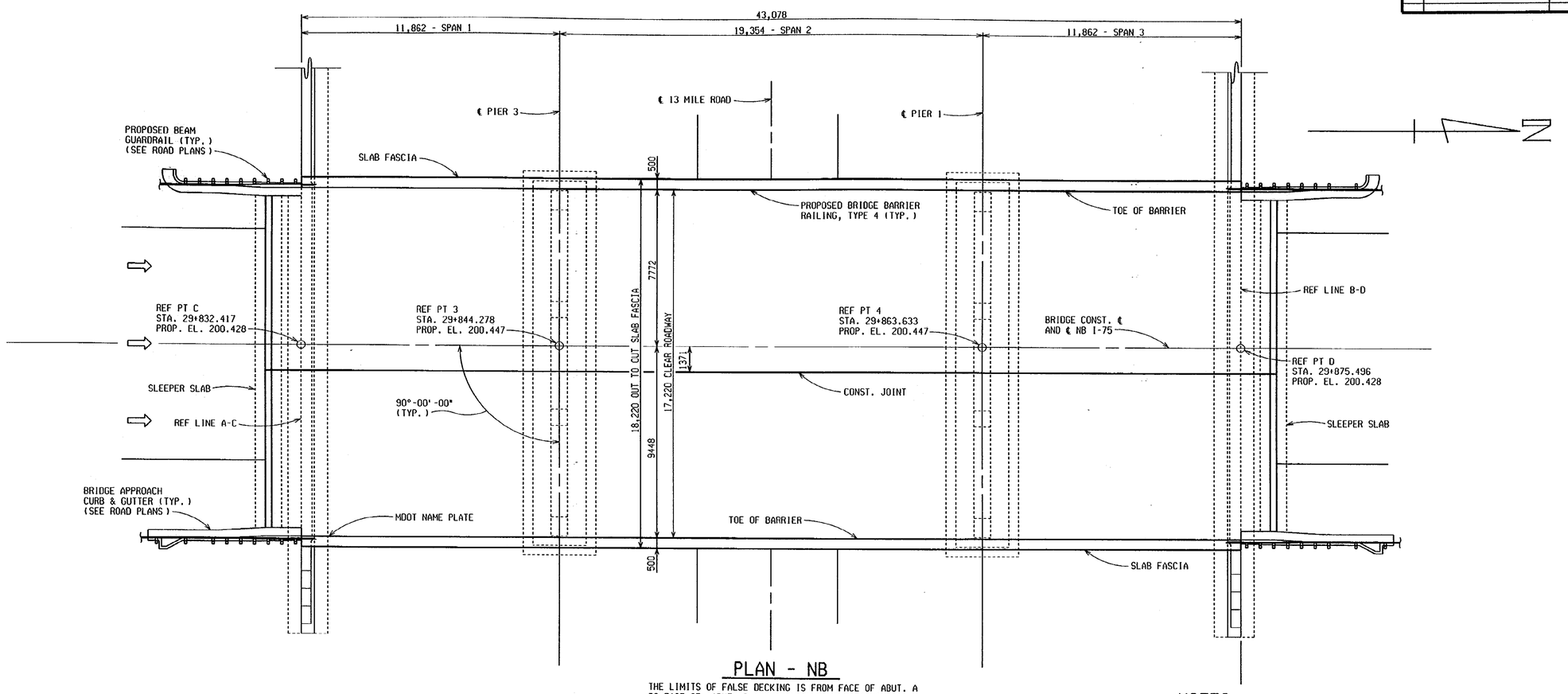
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	2 OF 16

DRAWN BY: INDER DATE: 04-12-00 CHECKED BY: DATE: CORRECTED BY: DATE:

FILE NAME: s042174sn.

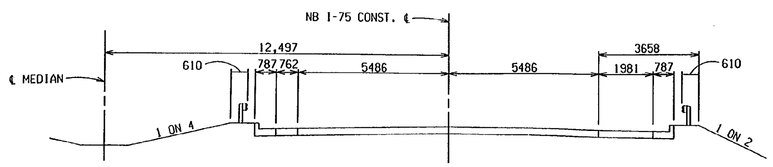
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 3

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN - NB

THE LIMITS OF FALSE DECKING IS FROM FACE OF ABUT. A TO FACE OF ABUT. B AND BETWEEN SLAB FASCIAS.



TYPICAL APPROACH SECTION

(LOOKING NORTH)

MISCELLANEOUS QUANTITIES

1 LS	Structures, Rem Portions (S04-NB)
734 m2	False Decking
1 LS	Penetrating Water Repellent Treatment (S04-NB)

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, WIDENING, SUBSTRUCTURE REPAIR, CONCRETE BEAM END REPAIR, AND MAINTAINING TRAFFIC. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE A PART OF THIS CONTRACT.

THE REHABILITATION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS23 . LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE ALLOWABLE STRESS METHOD WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR MS18 LOADING.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

NB I-75 TRAFFIC IS TO BE MAINTAINED OVER THE BRIDGE BY PART WIDTH CONSTRUCTION.

PENETRATING WATER REPELLANT TREATMENT SHALL BE APPLIED TO ENTIRE SURFACE OF PIERS. ESTIMATED AREA IS 272 SQUARE METERS. (SEE SPECIAL PROVISION).

APPROVED Steven P. Beck 1/1/01
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

NB I-75 OVER 13 MILE ROAD IN MADISON HEIGHTS.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	3 OF 16

DATE: 12-20-00 CORRECTED BY: R. PRATT
DATE: 4-12-00 CHECKED BY: MIKUCKI
DRAWN BY: R. PRATT
FILE NAME: s04631?4n.st

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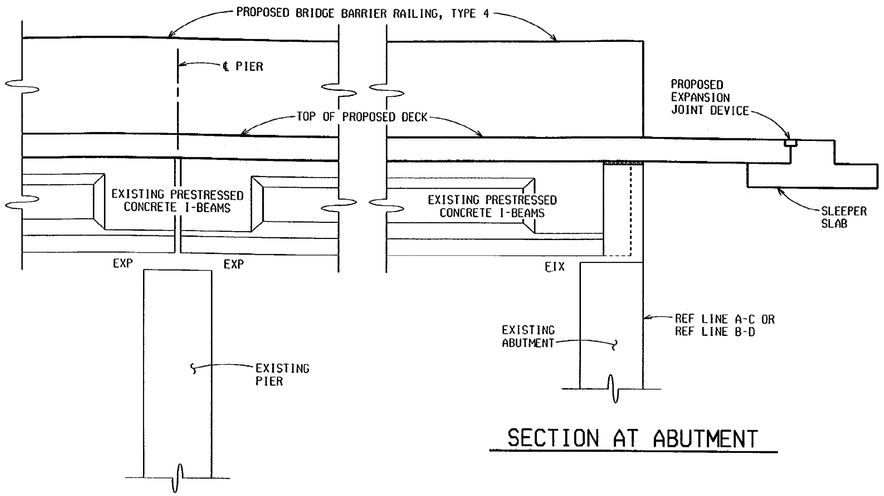
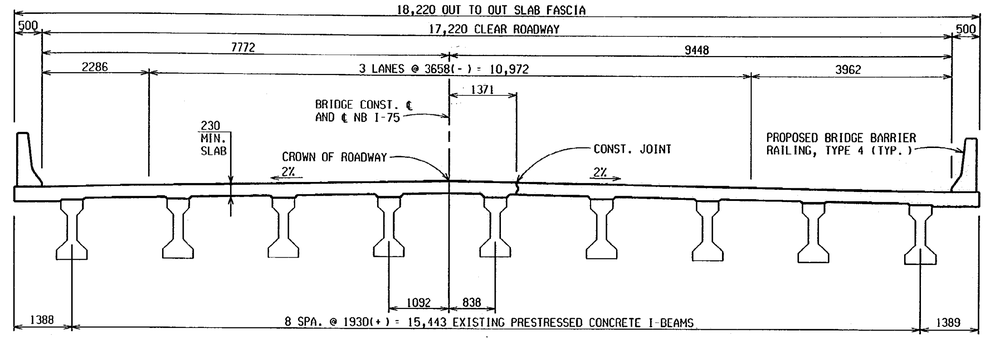
CONTROL SECTION S04 OF 63174 | JOB NO. 49595A | SH. NO. 4

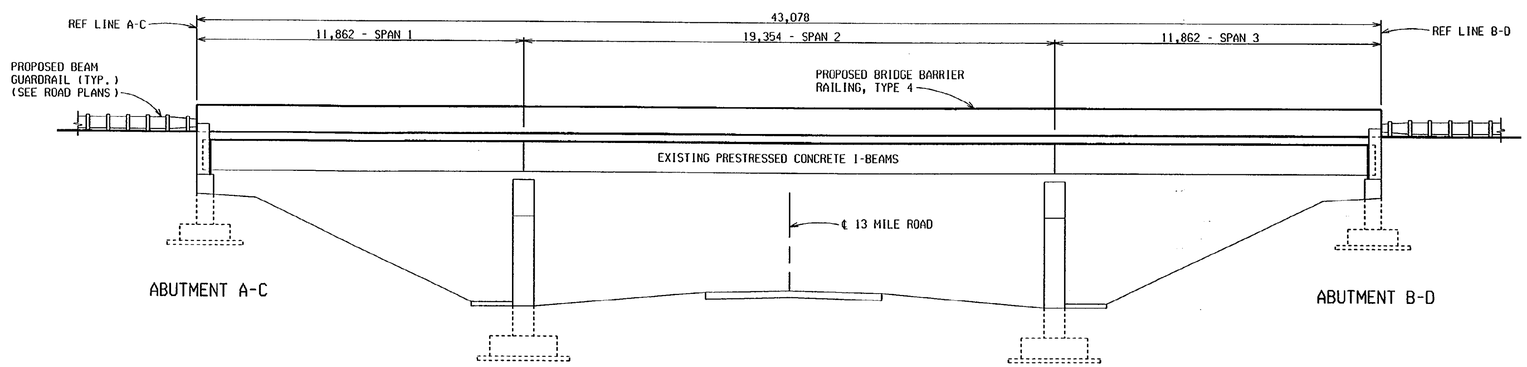


SECTION AT ABUTMENT

SECTION AT PIER



PROPOSED DECK SECTION - NB
(LOOKING NORTH)



ELEVATION - NB

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: 11-6-00 CORRECTED BY: R. PRATT
DATE: 4-12-00 CHECKED BY:
DRAWN BY: R. PRATT
FILE NAME: s046317An.st

APPROVED Steven P. Beck 1/11/01
DESIGN SUPERVISING ENGINEER

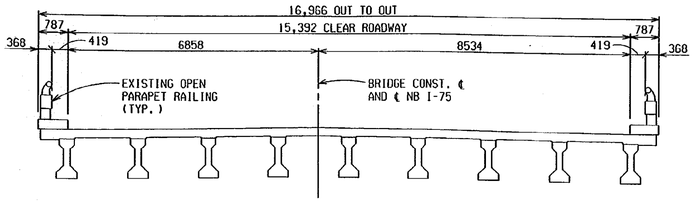
MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

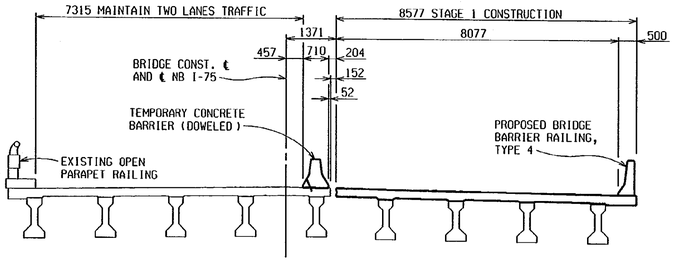
NB I-75 OVER 13 MILE ROAD IN MADISON HEIGHTS.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	4 OF 16

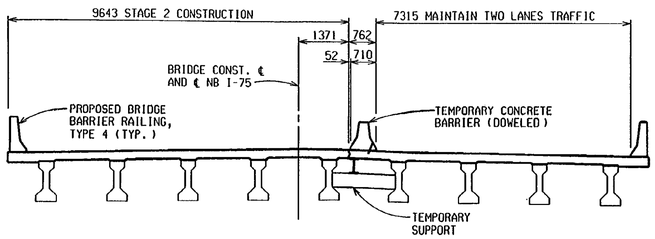
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO.



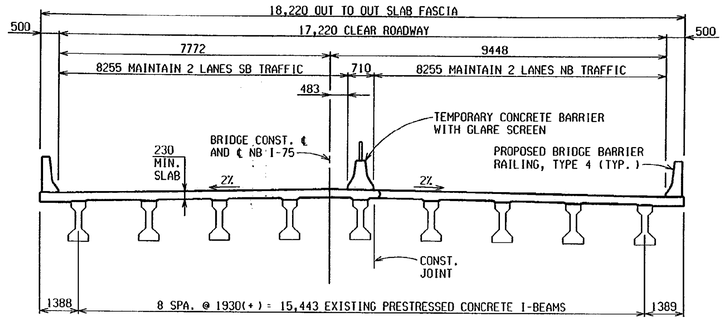
EXISTING DECK SECTION - NB BRIDGE
(LOOKING NORTH)



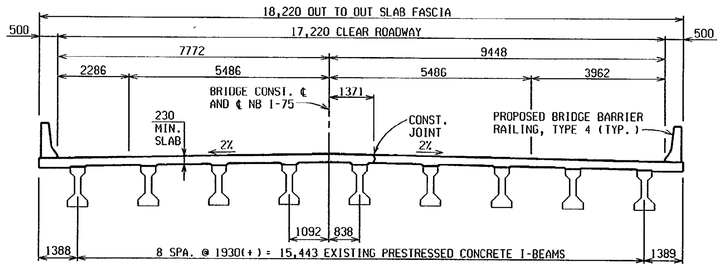
STAGE I - NB BRIDGE
(LOOKING NORTH)



STAGE II - NB BRIDGE
(LOOKING NORTH)



MAINTAINING TRAFFIC OVER NB BRIDGE DURING CONSTRUCTION OF SB BRIDGE
(LOOKING NORTH)



PROPOSED DECK SECTION - NB BRIDGE
(LOOKING NORTH)

NOTES:

CONSTRUCTION STAGING FOR THE NORTHBOUND STRUCTURE IS SHOWN. THE SOUTHBOUND TRAFFIC WILL BE MAINTAINED OVER THE COMPLETED NORTHBOUND BRIDGE USING CROSSOVERS.

TEMPORARY SUPPORT DETAILS FOR THE DECK OVERHANG IN STAGE II CONSTRUCTION MUST BE SUBMITTED BY THE CONTRACTOR FOR REVIEW AND APPROVAL BY THE ENGINEER. THE SPACING BETWEEN SUCCESSIVE SUPPORTS SHALL NOT EXCEED 2000mm. THE PAYMENT FOR THE TEMPORARY SUPPORTS IS INCLUDED IN THE PAY ITEM *SUPERSTRUCTURE CONCRETE, FORM, FINISH AND CURE, NIGHT CASTING* (S04-NB)

PLACEMENT OF TEMPORARY BARRIER SHALL BE ACCORDING TO STANDARD PLAN R-126 SERIES OR AS APPROVED BY THE ENGINEER. (INCLUDED IN THE PAY ITEM *CONCRETE BARRIER, TEMPORARY, FURNISHED*)

THE TEMPORARY CONCRETE BARRIER SHALL BE ANCHORED TO THE DECK. FOR ANCHORAGE, DRILL HOLES IN THE LOWER SLOPING PORTION OF EACH BARRIER SECTION NEAR THE ENDS, ON THE TRAFFIC SIDE OF THE BARRIER AND CONTINUING INTO THE CONCRETE BELOW, THAT WILL ALLOW FOR 25mm STEEL DOWELS OR PEGS TO BE INSERTED. THESE DOWELS SHOULD BE EXTENDED 100mm INTO THE BARRIER, BUT NOT PROTRUDE ABOVE THE BARRIER SURFACE. AFTER REMOVAL OF THE TEMPORARY BARRIER AND STEEL DOWELS OR PEGS FROM THE NEW DECK, THE HOLES IN THE DECK SHALL BE FILLED WITH PATCHING MORTAR OR CONCRETE. THIS WORK SHALL BE INCLUDED IN THE BID ITEM *CONCRETE BARRIER, TEMP, FURN*.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

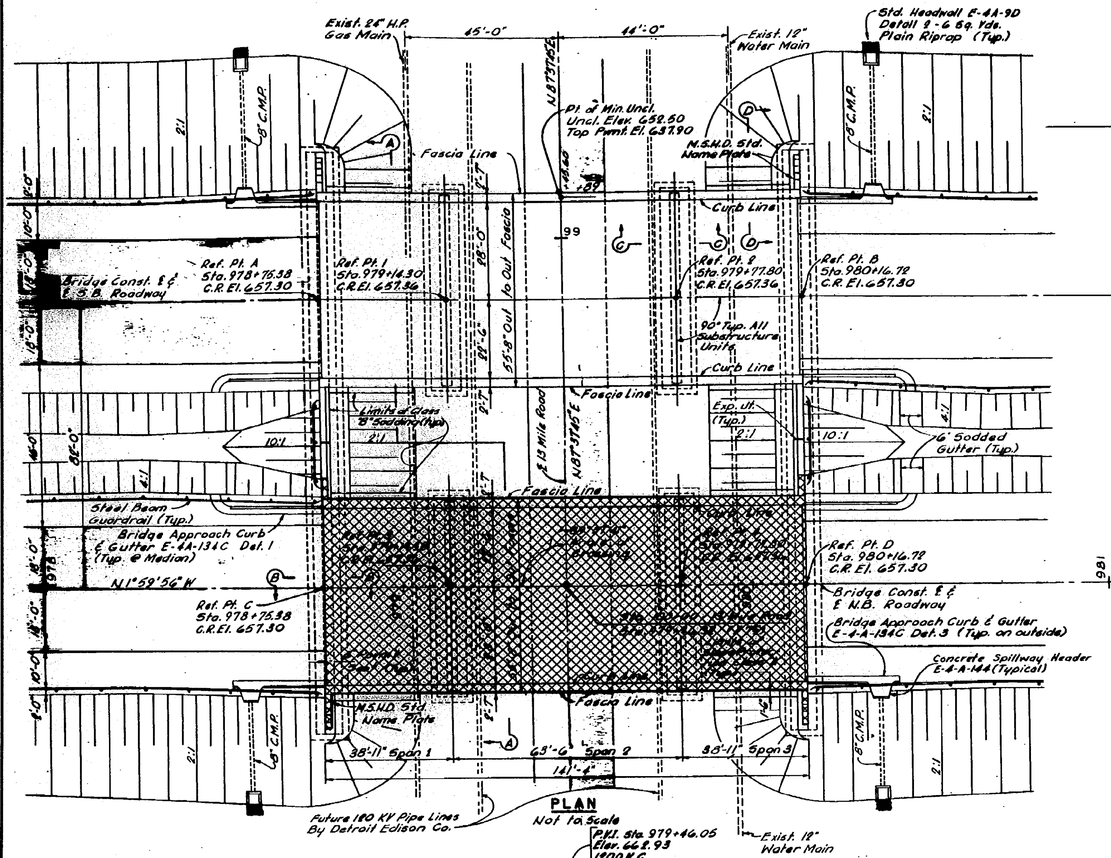
DATE: 11-30-00
CORRECTED BY: R. PRATT
DATE: 4-11-00
CHECKED BY: MIKUCKI
DRAWN BY: R. PRATT
FILE NAME: s04631744.cs

CONSTRUCTION STAGING DETAILS

MDOT Michigan Department of Transportation

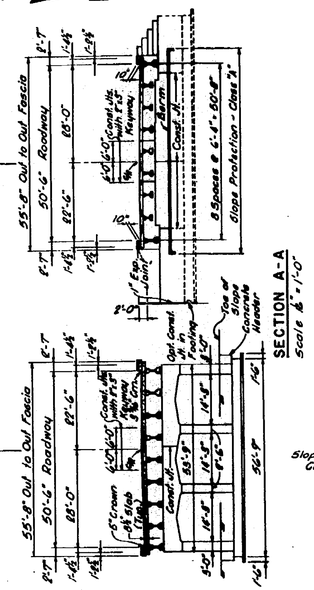
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	5 OF 16

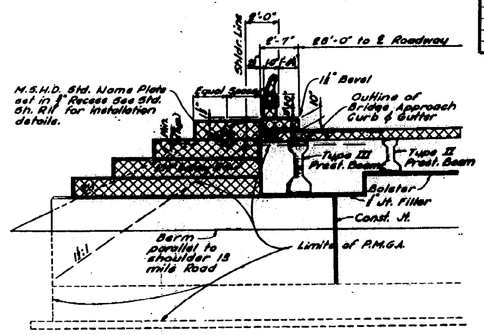
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 6

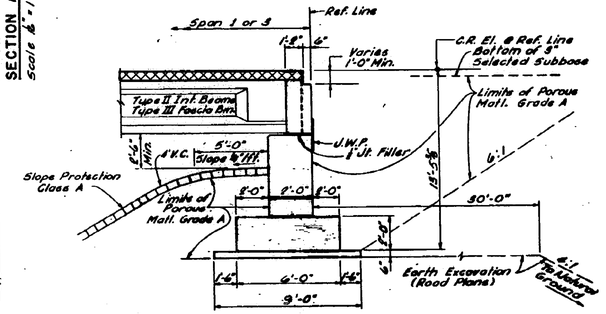


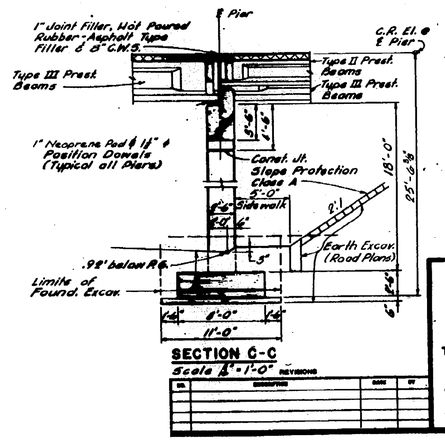
MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
* Slope Protection Class A	Sq. Yds.	886
Porous Material Grade A (Compacted In Place)	Cu. Yds.	1210

* Grouted Riprap shall not be used on this Project.









GENERAL NOTES:

Top of roadway slab and tops of curbs are parallel to the vertical curve.
The design of this Structure is based on the Standard Specifications for the Design of Highway Bridges - 1988 Edition. H20-S16-44 and alternate military loading. Live Load plus Impact deflection = 1/1000 of span length.

CONTROL SECTION 63174

MICHIGAN STATE HIGHWAY DEPARTMENT

175 OVER 13 MILE ROAD IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

APPROVED J. H. Murray 6-5-62

APPROVED ENGINEER OF BRIDGE CONSTRUCTION

S04 OF 63174 I

REVISIONS			
NO.	DESCRIPTION	DATE	BY

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 49595A

DENOTES REMOVAL PORTIONS

PROPOSED WORK

MDOT Michigan Department of Transportation

REMOVAL PORTIONS - NB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	6 OF 16

DATE: 10-26-00 CORRECTED BY: R. PRATT

DATE: 04-12-00 CHECKED BY:

DRAWN BY: INDER

FILE NAME: s0462174sn.

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 7

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

REVISIONS			
NO.	DESCRIPTION	DATE	BY

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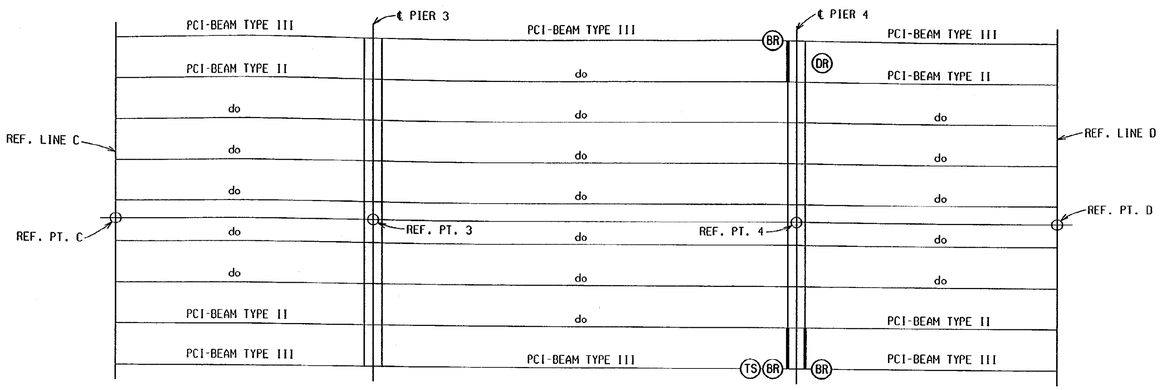


PLAN

BEAM END REPAIR

(BR) DENOTES BEAM END REPAIR

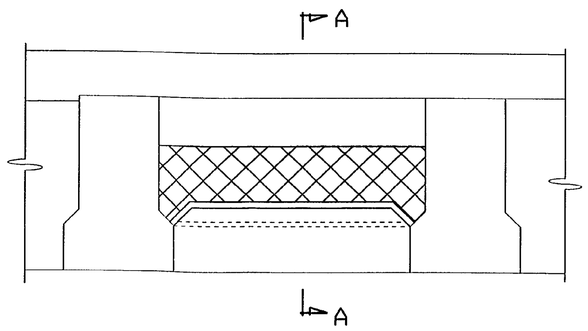
(DR) DENOTES DIAPHRAGM REPAIR

(TS) DENOTES TEMPORARY SUPPORT

MISCELLANEOUS QUANTITIES

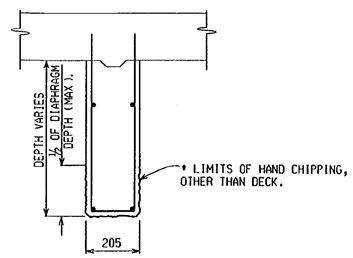
5 m2	Patch, Forming
3 ea	Removal, Beam End Repair *
1 m3	Hand Chipping, Other Than Deck
220 kg	Reinforcement, Steel, Epoxy Coated
2 m3	Patching Conc, LM ***
14 m2	Forming, Beam End Repair *
1 LS	Concrete Surface Sealer **

*REFER TO SPECIAL PROVISION FOR PRESTRESSED CONCRETE BEAM END REPAIR.
**REFER TO SPECIAL PROVISION FOR CONCRETE SURFACE SEALERS.
***REFER TO SPECIAL PROVISION FOR STRUCTURAL REPAIR WITH LATEX MODIFIED CONCRETE.



LIMITS OF HAND CHIPPING, OTHER THAN DECK.

END DIAPHRAGM



* LIMITS OF HAND CHIPPING SHALL BE FIELD VERIFIED AND AS DIRECTED BY THE ENGINEER.

SECTION A-A

NOTES:

IF THE CONTRACTOR ELECTS TO REPAIR MORE THAN ONE BEAM END AT A TIME, WORK SHALL NOT BE DONE ON THE SAME END OF ANY ADJACENT BEAM OR AT THE OPPOSITE END OF THE BEAM BEING REPAIRED.

ES DENOTES EACH SIDE.

ADHESIVE ANCHOR EB13 BARS INTO 38mm ø HOLES IN BEAM WEB.

DRILLING OF HOLES SHALL NOT BE PERMITED, EXCEPT AS NOTED.

THE LIMITS OF THE CONCRETE SEALER SHALL INCLUDE THE OUTSIDE FACE FOR THE FULL LENGTH OF THE FASCIA BEAMS AND ALL SURFACES OF ALL BEAM ENDS NOT BEING REPAIRED FOR A LENGTH NOT LESS THAN TWICE THE BEAM DEPTH. REFER TO SPECIAL PROVISION FOR CONCRETE SURFACE SEALERS FOR PRODUCT INFORMATION AND SURFACE PREPERATION. THE ESTIMATED QUANTITY IS 230 m2.

WHERE A DIAPHRAGM IS REMOVED IN A BAY FROM THE SIDE OF A BEAM THAT IS NOT BEING REPAIRED, THE EXISTING INSERT HOLES SHALL BE FILLED WITH CAULK AND THE PROPOSED DIAPHRAGM REINFORCEMENT SHALL BE EPOXY ANCHORED TO THE BEAM IN THE NEW LOCATION. INCLUDED IN THE BID ITEM "Removal, Beam End Repair".

MDOT Michigan Department of Transportation

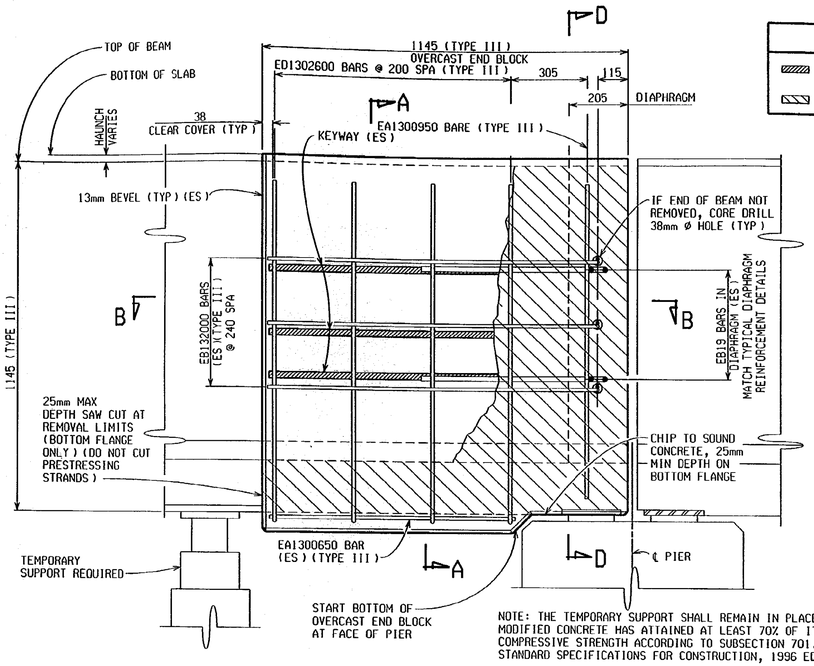
BEAM REPAIR DETAILS

NORTH BOUND

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	7 OF 16

DRAWN BY: R.K.OLIN DATE: 12/2000 CHECKED BY: WM DATE: 12-20-00 CORRECTED BY: R.K.OLIN DATE:

FILE NAME: s04631174n.br

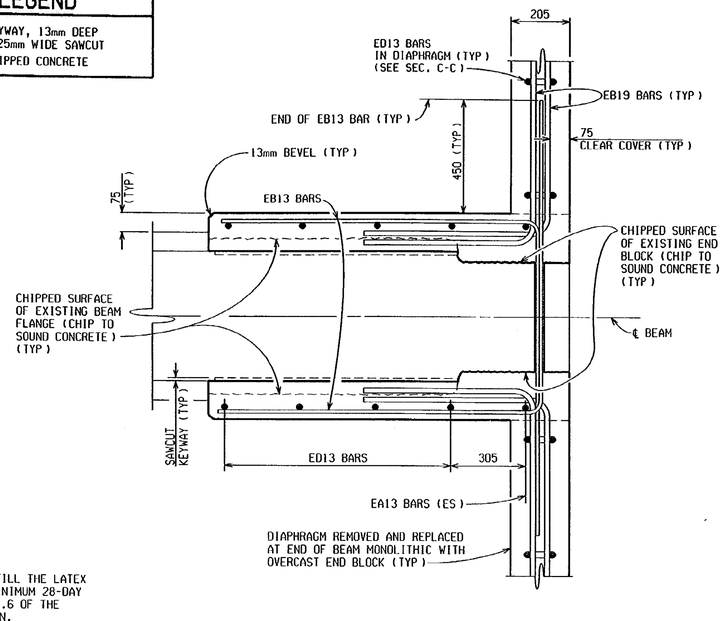


NOTE: THE TEMPORARY SUPPORT SHALL REMAIN IN PLACE UNTILL THE LATEX MODIFIED CONCRETE HAS ATTAINED AT LEAST 70% OF ITS MINIMUM 28-DAY COMPRESSIVE STRENGTH ACCORDING TO SUBSECTION 701.03.F.6 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, 1996 EDITION.

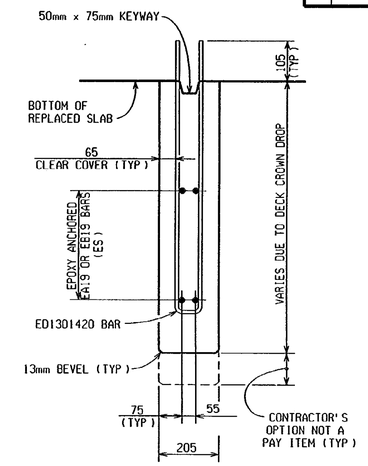
BEAM END ELEVATION

LEGEND

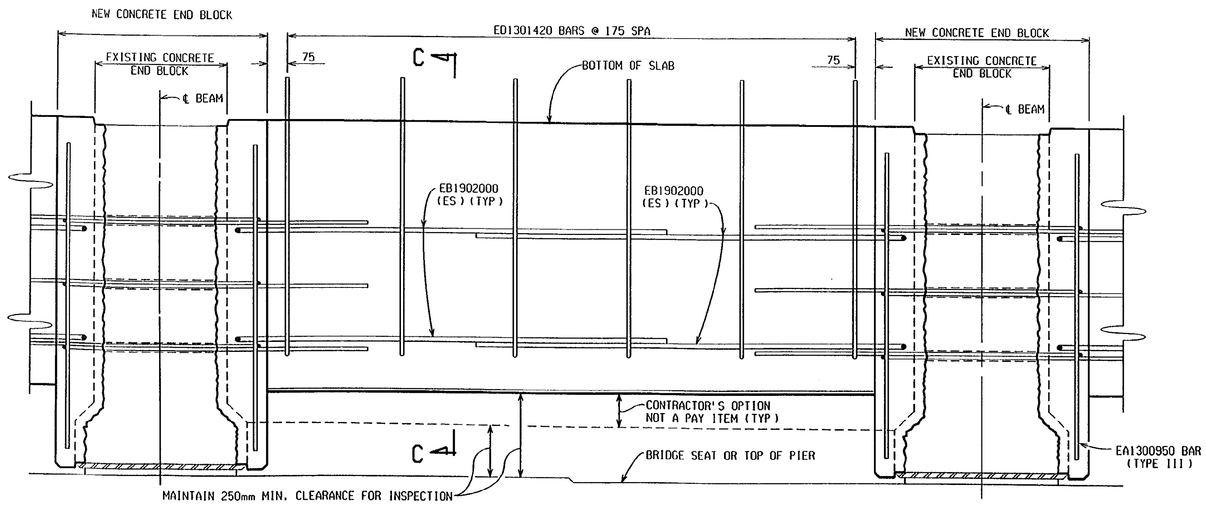
- KEYWAY, 13mm DEEP × 25mm WIDE SAWCUT
- CHIPPED CONCRETE



SECTION B-B



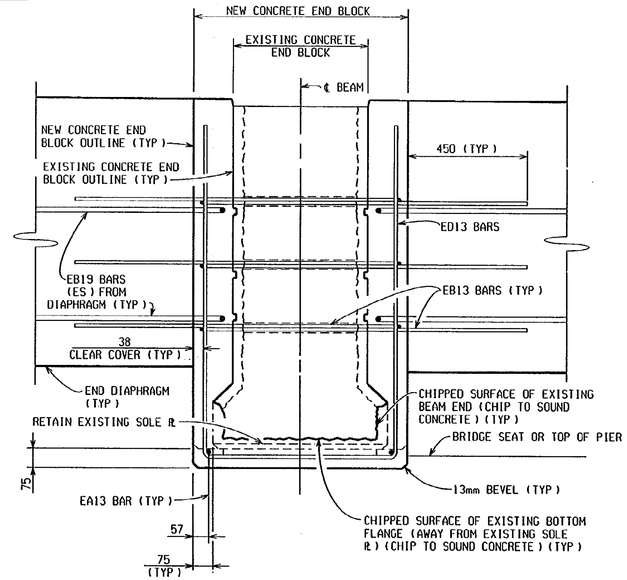
SECTION C-C



NOTE: REPLACE DECK OVER BEAM END REPAIR AREA.

SECTION D-D (DIAPHRAGM ELEVATION)

(SHOWING STEEL REINFORCEMENT)



SECTION A-A

(ED13 BARS IN DIAPHRAGMS NOT SHOWN)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BEAM REPAIR DETAILS

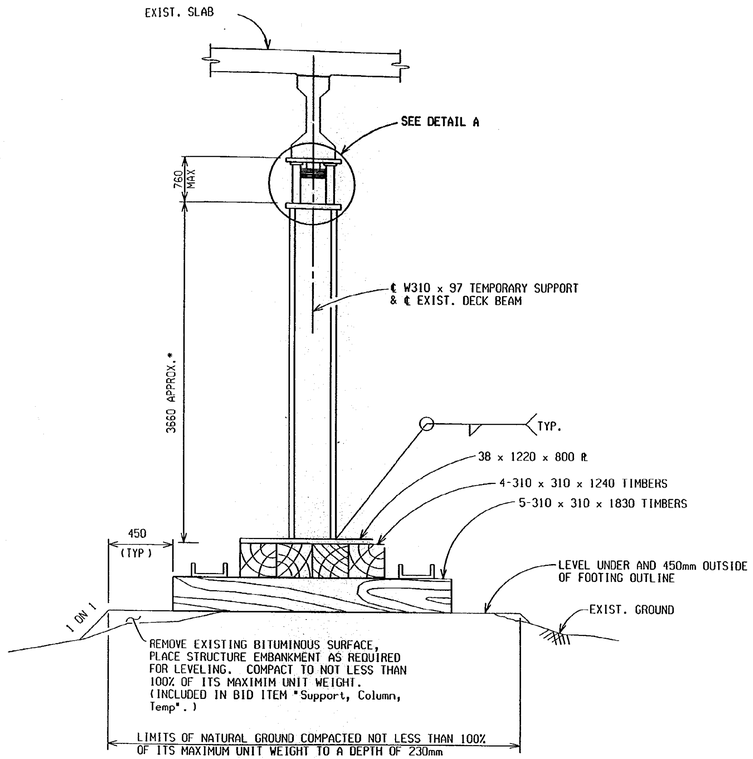
NORTH BOUND

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	8 OF 16

MDOT Michigan Department of Transportation

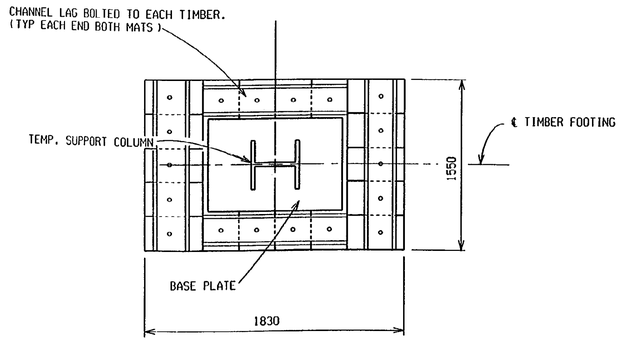
DATE: 12-13-00 CORRECTED BY: SHAFFER
DATE: 12/2000 CHECKED BY:
DRAWN BY: R.K.OLIN
FILE NAME: s0463174n.br

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 9

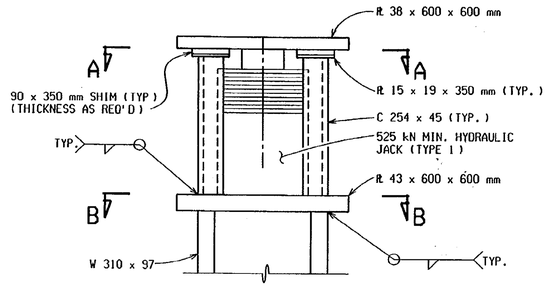


TIMBER FOOTING ON NATURAL GROUND

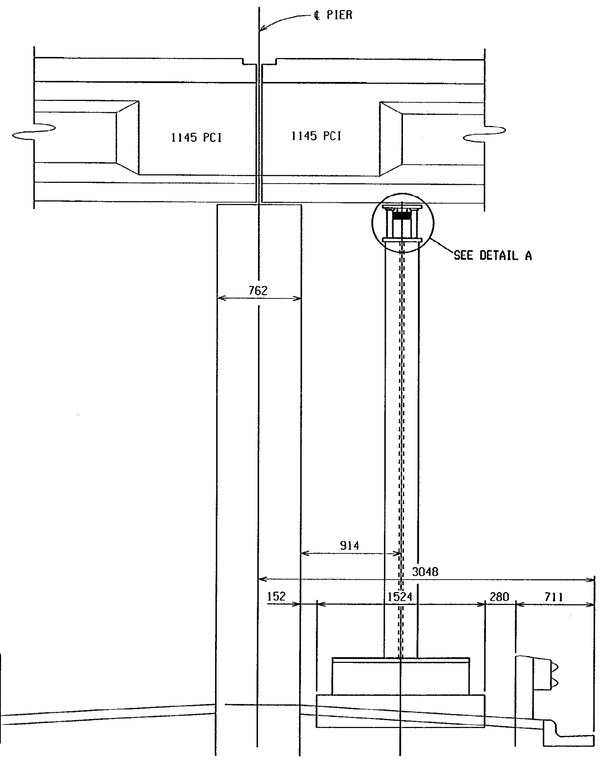
* EXACT HEIGHT TO BE DETERMINED BY CONTRACTOR. HEIGHT NOT TO EXCEED 4270mm.



TIMBER FOOTING PLAN

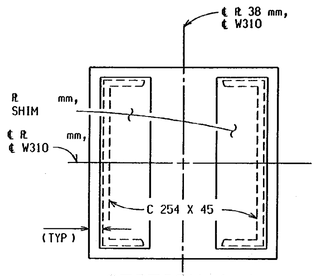


DETAIL A

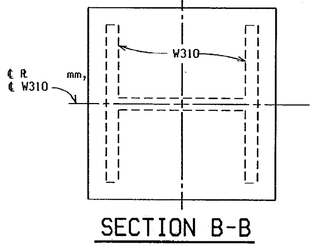


TEMPORARY SUPPORT AT PIER

REVISIONS			
NO.	DESCRIPTION	DATE	BY



SECTION A-A



SECTION B-B

DATE:
CORRECTED BY: R.K.OLIN
DATE:
DRAWN BY: R.K.OLIN
DATE: 12/2000
CHECKED BY:
FILE NAME: s046317 4n.br

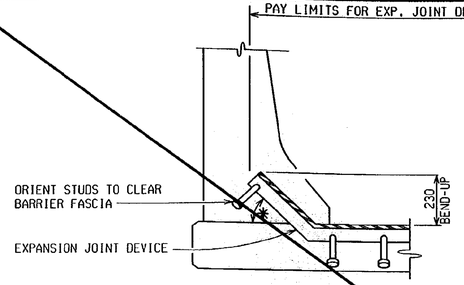
MDOT Michigan Department of Transportation

TEMPORARY SUPPORT DETAILS

NORTH BOUND

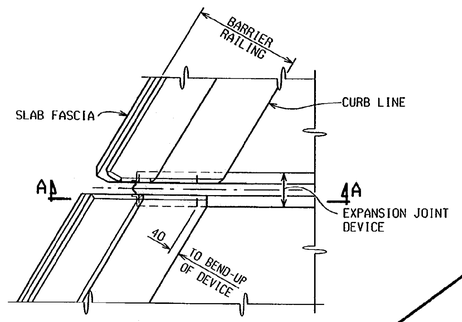
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	9 OF 16

CONTROL SECTION S04 OF 63174 | JOB NO. 49595A | SH. NO. 10



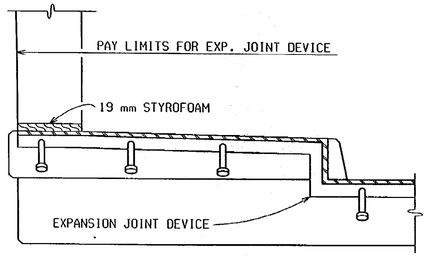
SECTION A-A

*—FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG ℄ EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.

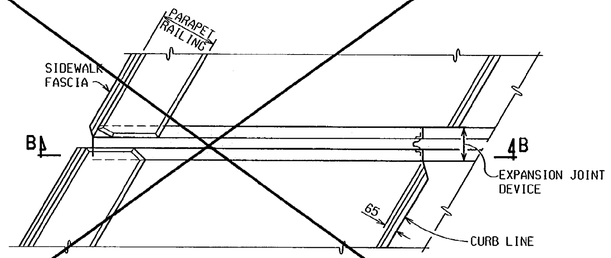


PLAN AT BARRIER RAILING

BARRIER TREATMENT

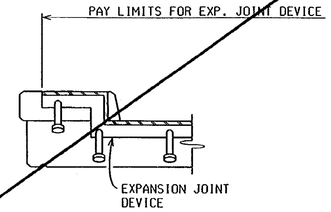


SECTION B-B

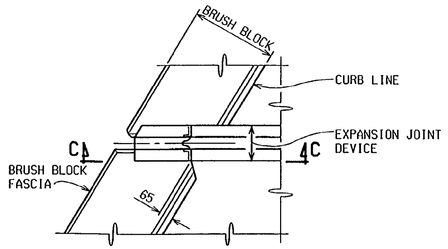


PLAN AT PARAPET RAILING
(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT

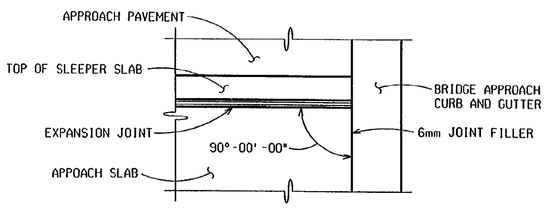


SECTION C-C



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT



PLAN AT SLEEPER SLAB

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S04	90	SLEEPER SLAB	25mm	16
S04	90		25mm	16

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	32

DATE: 12-8-00 CORRECTED BY: R. PRATT
DATE: 07-16-96 CHECKED BY: VZ/SPB
DATE: DRAWN BY:
FILE NAME: s0463174n.ej

EXPANSION JOINT DETAILS - NB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	10 OF 16

EJ3T (11-17-97)

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 11

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

REVISIONS			
NO.	DESCRIPTION	DATE	BY

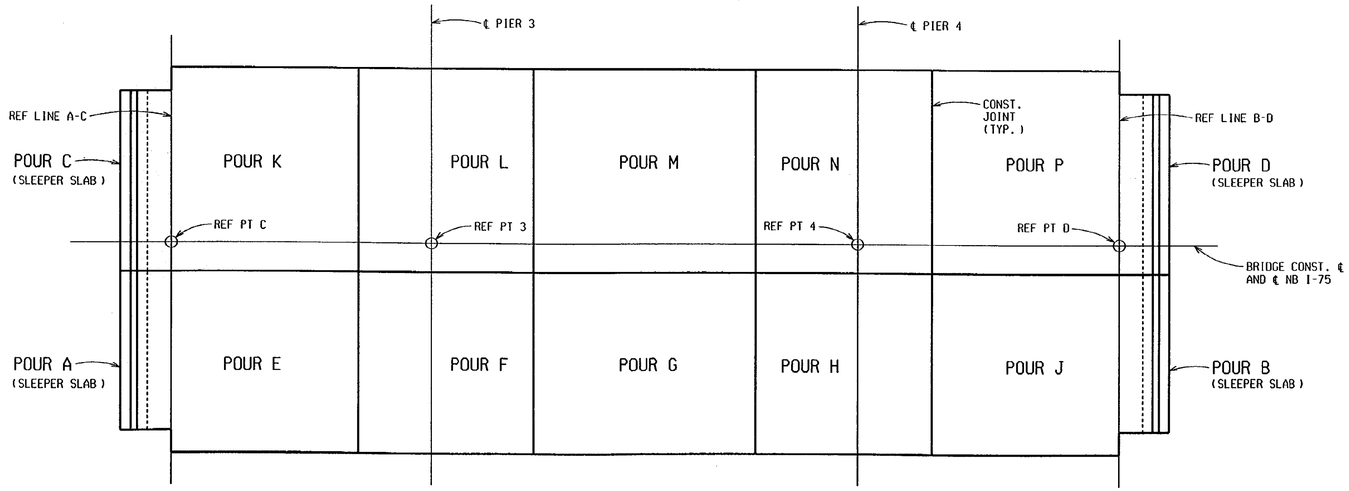
SUPERSTRUCTURE CONCRETE QUANTITIES	
POUR	AMT (m3)
A	2.8
B	2.8
C	3.2
D	3.2
TOTAL CONC.:	12 m3

SUPERSTRUCTURE CONCRETE QUANTITIES NIGHT CASTING	
POUR	AMT (m3)
E	19.4
F	15.8
G	20.0
H	15.8
J	19.4
K	21.8
L	17.7
M	22.6
N	17.7
P	21.8
TOTAL CONC.:	192 m3

MISCELLANEOUS QUANTITIES

86	m	Bridge Barrier Railing, Type 4
192	m3	Bridge Ltg, Oper and Maintain
1	LS	Bridge Ltg, Furn and Rem (S04-NB)
1	LS	Superstructure Conc, Form, Finish and Cure, Night Casting (S04-NB)
50	m	Underdrain, Fdn, 100mm
2	ea	Underdrain, Outlet Ending, 100mm
1	LS	Superstructure Conc, Form, Finish and Cure (S04-NB)
* 2	m3	Hand Chipping, Other Than Deck
*20	m2	Patch, Forming
* 2	m3	Patching Conc, LM

*SUBSTRUCTURE REPAIR AS DIRECTED BY YHE ENGINEER.



POUR DIAGRAM

NOTES:

ES DENOTES EACH SIDE.

FS DENOTES FAR SIDE.

NS DENOTES NEAR SIDE.

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL, NAME PLATE MOUNTING, MOLDING AND BEVEL DETAILS, SEE STANDARD SHEET B-17 AND B-103. BARRIER RAILING IS TO BE BRIDGE BARRIER RAILING, TYPE 4.

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03J OF THE STANDARD SPECIFICATIONS.

NO PORTION OF THE DECK FORMWORK SHALL ENCROACH ON THE EXISTING UNDERCLEARANCE.

WHERE CAST-IN-ANCHORAGE IS USED FOR EXPANSION JOINT DEVICES, IT IS RECOMMENDED THAT THE PLACING OF DECK CONCRETE PROGRESS TOWARD THE JOINT SO THAT THE EFFECTS OF DEAD LOAD DEFLECTION WILL OCCUR BEFORE CONCRETE IS PLACED AT THE ANCHORAGE.

THE CONTRACTOR MAY USE METAL STAY IN PLACE FORMS. IF USED, ELIMINATING THE POLYSTYRENE AND FILLING THE CORRUGATIONS WITH CONCRETE IS PROHIBITED.

THE CONTRACTOR IS TO PROVIDE A SAWED JOINT 12mm DEEP BY 3mm WIDE (MINIMUM) IN THE TOP OF SLAB AT LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS. THE JOINT IS TO BE SAWED BEFORE CASTING OF BARRIERS AND IS TO BE FILLED WITH HOT-POURED JOINT SEALANT OR COLD-APPLIED JOINT SEALANT, SINGLE COMPONENT TYPE IN ACCORDANCE WITH STANDARD SPECIFICATION SUBSECTION 9.14.04. (INCLUDED IN THE BID ITEM "SUPERSTRUCTURE CONC, FORM, FINISH AND CURE, NIGHT CASTING (S04-NB".

ALPHABETICAL DESIGNATION OF DECK POURS IS NOT A POUR SEQUENCE. CAST DECK POURS OVER PIERS AFTER OTHER DECK POURS HAVE BEEN CAST.

THE CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORTS FOR THE DECK FASCIA OVERHANG FORMS TO ACHIEVE ZERO DEFLECTIONS IN THE DECK. THE CONTRACTOR SHALL SUBMIT THE DESIGN AND DETAILS FOR THE TEMPORARY SUPPORTS TO THE ENGINEER FOR REVIEW AND APPROVAL, 15 WORKING DAYS PRIOR TO START OF THE DECK POURS. INCLUDED IN THE BID ITEM "SUPERSTRUCTURE CONC, FORM, FINISH AND CURE, NIGHT CASTING (S04-NB)".

DATE: 12-7-00 CORRECTED BY: R. PRATT DATE: 9-1-00 CHECKED BY: MIKUCKI DRAWN BY: R. PRATT FILE NAME: s0463174n.dk

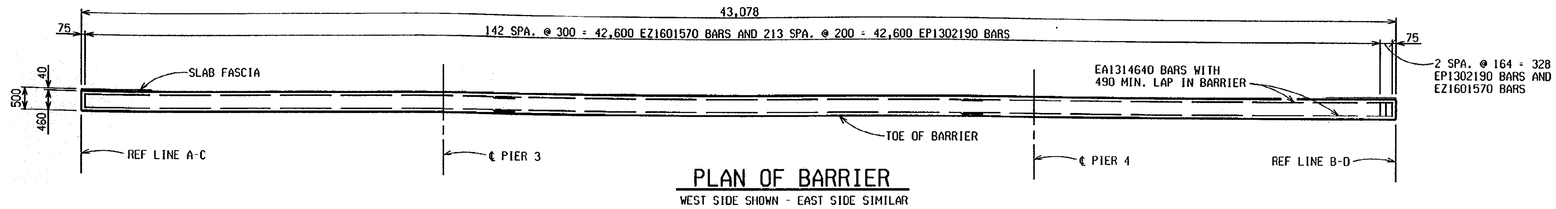
DECK REPLACEMENT DETAILS - NB STRUCTURE

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	11 OF 16

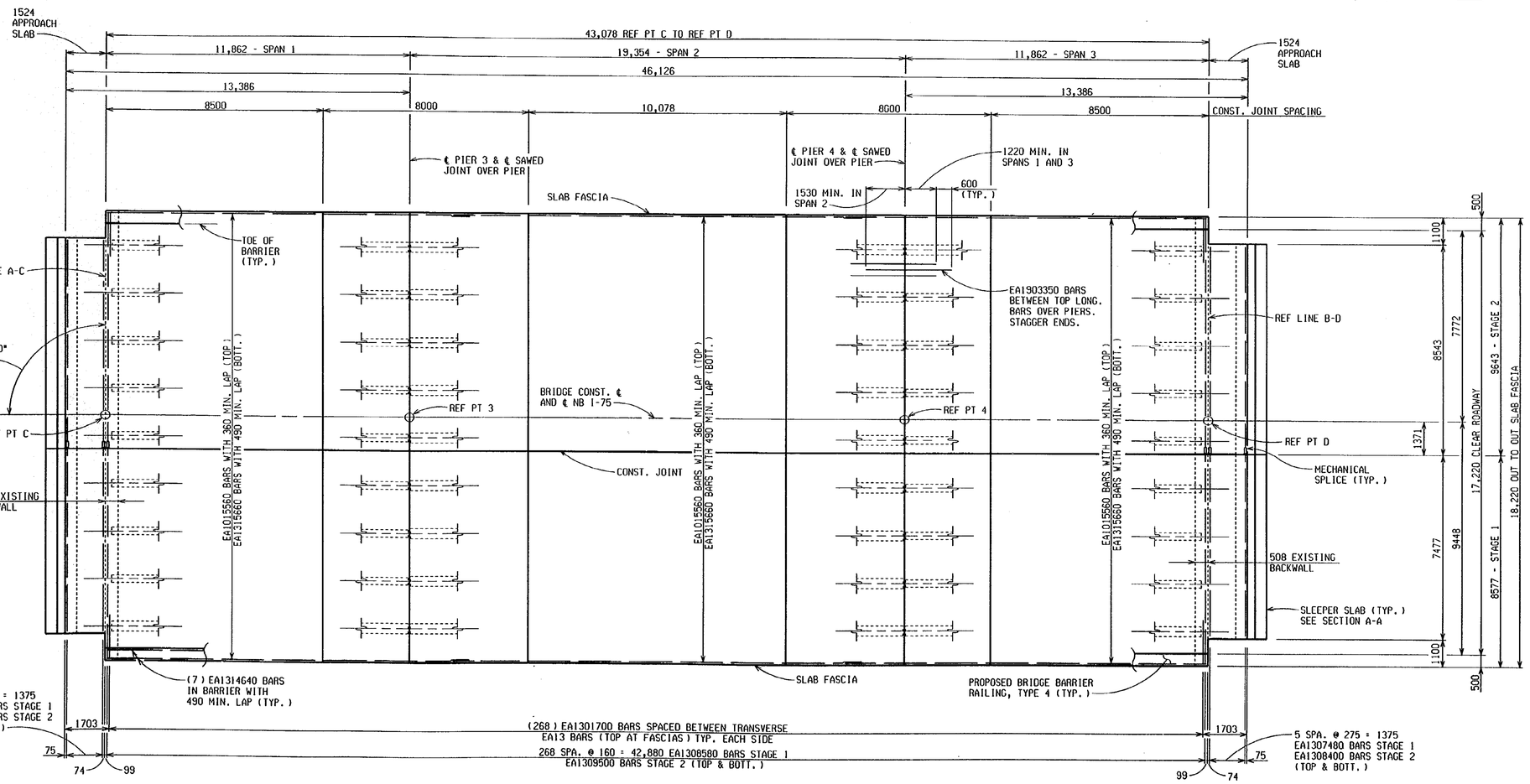
CONTROL SECTION S04 OF 63174 | JOB NO. 49595A | SH. NO. 12

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN OF BARRIER

WEST SIDE SHOWN - EAST SIDE SIMILAR



DECK PLAN

DECK REPLACEMENT DETAILS - NB STRUCTURE

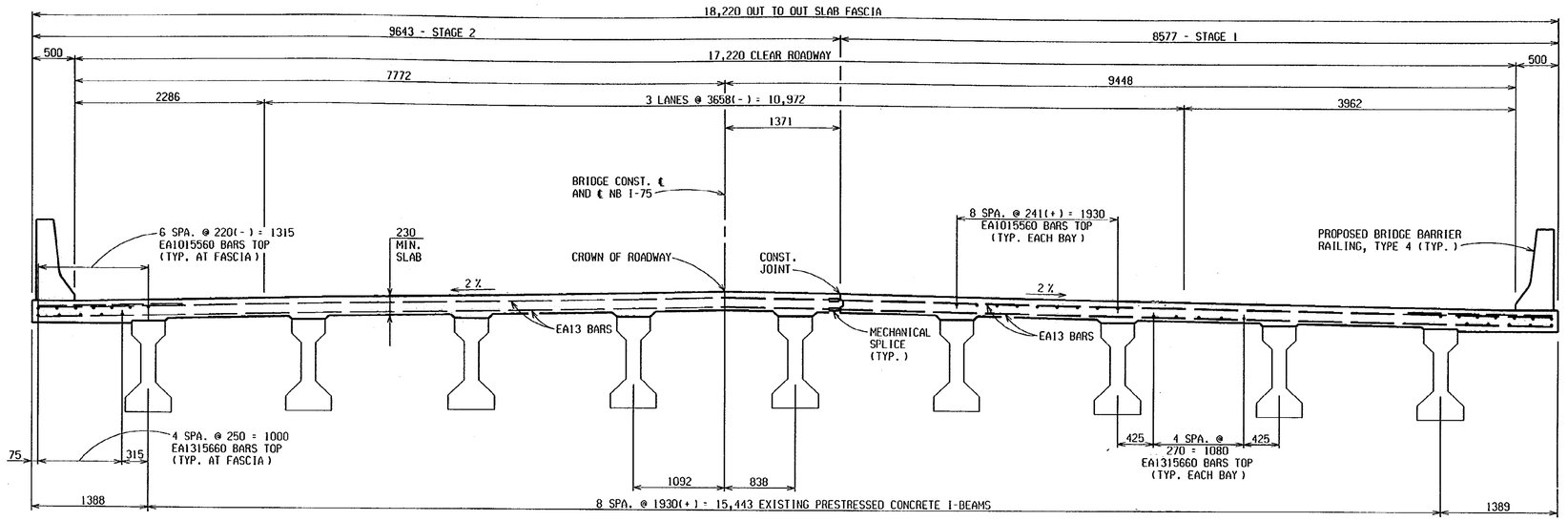
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	12 OF 16

DATE: 11-30-00 | CORRECTED BY: R. PRATT | DATE: | CHECKED BY: MIKUCKI | DRAWN BY: R. PRATT | FILE NAME: s04631174n.dgk

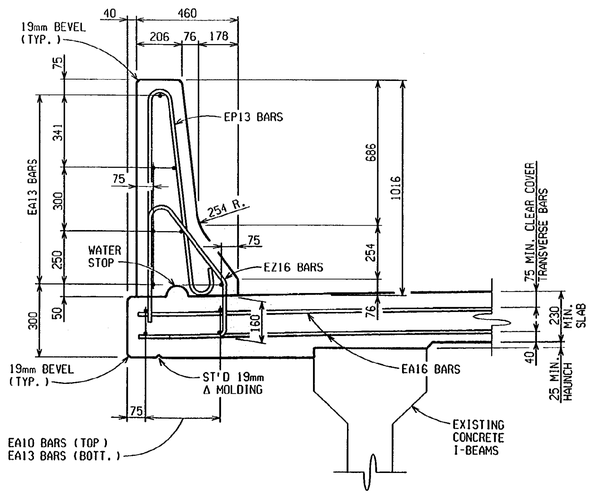
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SHT. NO. 13

REVISIONS			
NO.	DESCRIPTION	DATE	BY

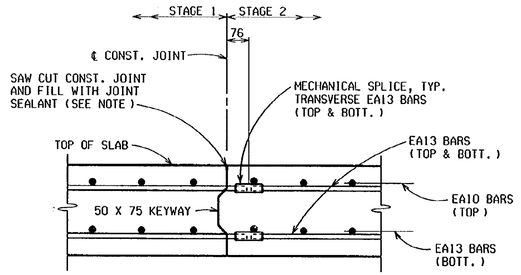


PROPOSED DECK SECTION - NB

(LOOKING NORTH)



TYPICAL BARRIER SECTION



LONGITUDINAL CONSTRUCTION JOINT IN SLAB

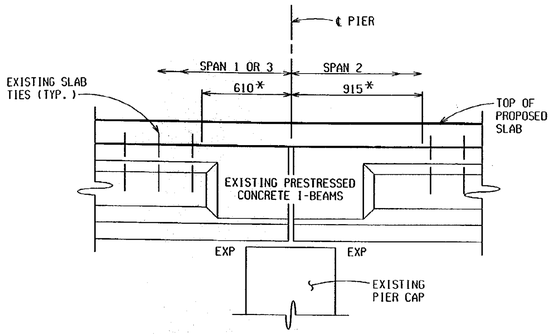
DECK REPLACEMENT DETAILS - NB STRUCTURE

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	13 OF 16

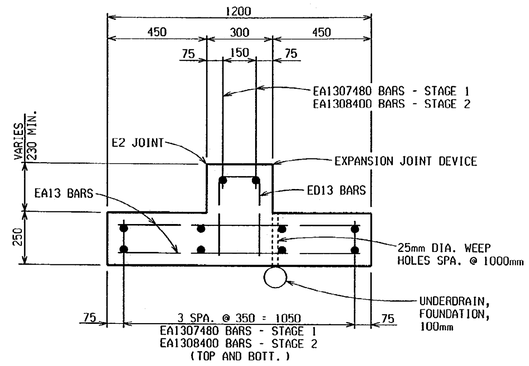
DATE: 10-24-00 CORRECTED BY: R. PRATT
DATE: 9-1-00 CHECKED BY: MIKUCKI
DRAWN BY: R. PRATT
FILE NAME: s04631174n.dk

CONTRACT SECTION S04 OF 63174 JOB No. 49595A SHEET No.: 14

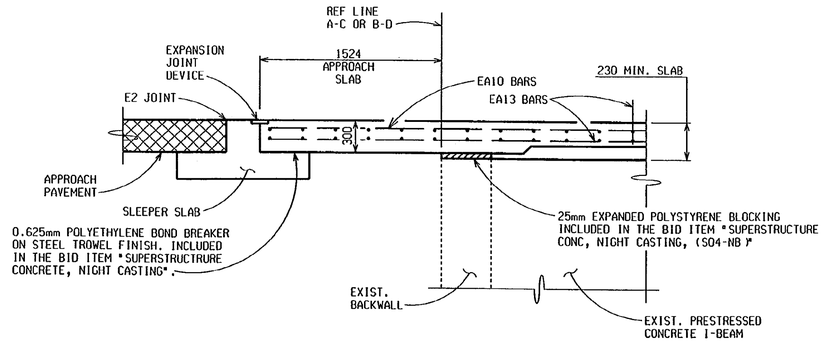


SECTION THRU LINK SLAB AT PIER

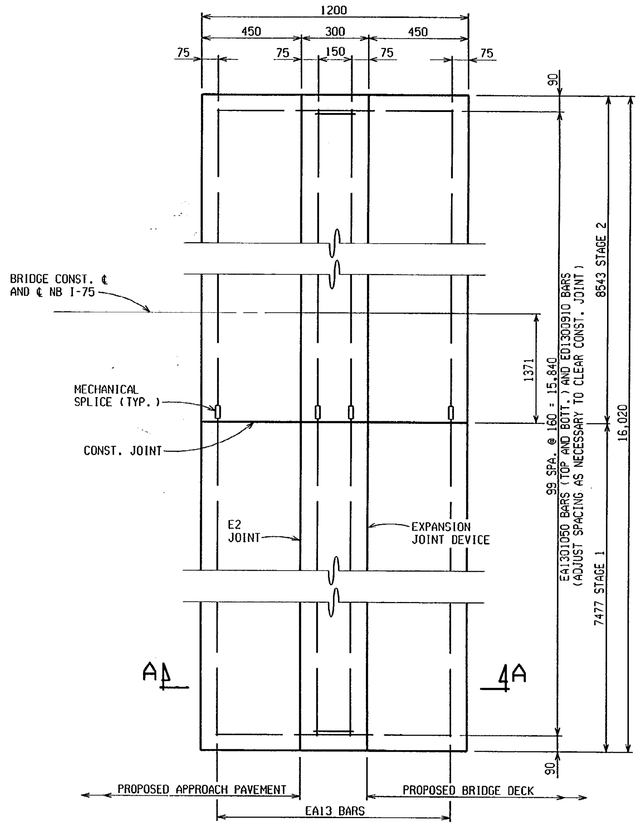
*LIMITS FOR REMOVAL OF EXISTING SLAB TIES AND FOR DEBONDING BETWEEN EXISTING BEAMS AND PROPOSED DECK. DEBOND BY PLACING 2 LAYERS OF 6 MIL PLASTIC SHEET SECURED TO THE TOP OF BEAMS PRIOR TO POURING THE DECK. PAYMENT FOR SLAB TIE REMOVAL AND DEBONDING IS INCLUDED IN THE BID ITEM "SUPERSTRUCTURE CONC, FORM, FINISH AND CURE, NIGHT CASTING (S04-NB)".



SECTION A-A



TYPICAL SECTION AT BRIDGE APPROACH



PLAN OF SLEEPER SLAB

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: 11-30-00 CORRECTED BY: R. PRATT
DATE: 9-1-00 CHECKED BY: MIKUCKI
DRAWN BY: R. PRATT
FILE NAME: s0463174n.dk

MDOT Michigan Department of Transportation

DECK REPLACEMENT DETAILS - NB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	14 OF 16

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 15

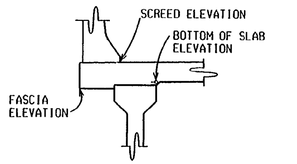
REVISIONS			
NO.	DESCRIPTION	DATE	BY

BOTTOM OF SLAB ELEVATIONS

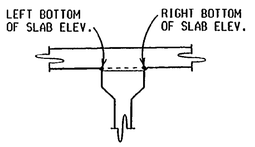
	REF.A	SPAN 1				REF.1	SPAN 2						REF.2	SPAN 3				REF.B
		0	1	2	3	4	0	1	2	3	4	5	6	0	1	2	3	4
A	FASCIA	199.993	200.001	200.007	200.010	200.011	200.012	200.026	200.036	200.040	200.036	200.026	200.012	200.011	200.010	200.007	200.001	199.993
	RIGHT	200.065	200.073	200.079	200.082	200.083	200.084	200.098	200.109	200.112	200.109	200.098	200.084	200.083	200.082	200.079	200.073	200.065
B	LEFT	200.096	200.103	200.109	200.112	200.114	200.114	200.127	200.136	200.139	200.136	200.127	200.114	200.114	200.112	200.109	200.103	200.096
	RIGHT	200.104	200.112	200.117	200.120	200.122	200.122	200.135	200.144	200.147	200.144	200.135	200.122	200.122	200.120	200.117	200.112	200.104
C	LEFT	200.135	200.142	200.148	200.151	200.152	200.153	200.166	200.175	200.178	200.175	200.166	200.153	200.152	200.151	200.148	200.142	200.135
	RIGHT	200.143	200.150	200.156	200.159	200.160	200.161	200.174	200.183	200.186	200.183	200.174	200.161	200.160	200.159	200.156	200.150	200.143
D	LEFT	200.173	200.181	200.186	200.190	200.191	200.191	200.204	200.213	200.216	200.213	200.204	200.191	200.191	200.190	200.186	200.181	200.173
	RIGHT	200.181	200.189	200.194	200.198	200.199	200.199	200.212	200.221	200.224	200.221	200.212	200.199	200.199	200.198	200.194	200.189	200.181
E	LEFT	200.186	200.194	200.199	200.203	200.204	200.204	200.217	200.226	200.229	200.226	200.217	200.204	200.204	200.203	200.199	200.194	200.186
	RIGHT	200.178	200.186	200.191	200.195	200.196	200.196	200.209	200.218	200.221	200.218	200.209	200.196	200.196	200.195	200.191	200.186	200.178
F	LEFT	200.148	200.155	200.161	200.164	200.166	200.166	200.179	200.188	200.191	200.188	200.179	200.166	200.166	200.164	200.161	200.155	200.148
	RIGHT	200.140	200.147	200.153	200.156	200.157	200.158	200.171	200.180	200.183	200.180	200.171	200.158	200.157	200.156	200.153	200.147	200.140
G	LEFT	200.109	200.117	200.122	200.126	200.127	200.127	200.140	200.149	200.152	200.149	200.140	200.127	200.127	200.126	200.122	200.117	200.109
	RIGHT	200.101	200.109	200.114	200.117	200.119	200.119	200.132	200.141	200.144	200.141	200.132	200.119	200.119	200.117	200.114	200.109	200.101
H	LEFT	200.071	200.078	200.084	200.087	200.088	200.089	200.102	200.110	200.114	200.110	200.102	200.089	200.088	200.087	200.084	200.078	200.071
	RIGHT	200.062	200.070	200.075	200.079	200.080	200.081	200.093	200.102	200.106	200.102	200.093	200.081	200.080	200.079	200.075	200.070	200.062
J	LEFT	200.032	200.039	200.045	200.048	200.050	200.050	200.065	200.075	200.079	200.075	200.065	200.050	200.050	200.048	200.045	200.039	200.032
	FASCIA	199.960	199.967	199.973	199.976	199.978	199.978	199.993	200.003	200.007	200.003	199.993	199.978	199.978	199.976	199.973	199.967	199.960

SCREED ELEVATIONS

	LEFT	200.274	200.281	200.286	200.290	200.291	200.292	200.305	200.315	200.318	200.315	200.305	200.292	200.291	200.290	200.286	200.281	200.274
	RIGHT	200.240	200.247	200.253	200.256	200.258	200.258	200.272	200.281	200.285	200.281	200.272	200.258	200.258	200.256	200.253	200.247	200.240



TYPICAL FASCIA SECTION



TYPICAL INTERIOR SECTION

(LOOKING UP STATION)

BULKHEAD ELEVATIONS

	ABUT.A			ABUT.B
A	200.291	200.309	200.309	200.291
B	200.330	200.348	200.348	200.330
C	200.368	200.387	200.387	200.368
D	200.407	200.425	200.425	200.407
E	200.412	200.430	200.430	200.412
F	200.373	200.392	200.392	200.373
G	200.335	200.353	200.353	200.335
H	200.296	200.314	200.314	200.296
J	200.258	200.276	200.276	200.258

SCREEDS AFFECTED BY LOADS IN OTHER SPANS ARE TO BE SET TO THE ELEVATIONS SHOWN BEFORE CASTING ANY CONCRETE.

SCREED ELEVATIONS ARE BASED ON THE CONDITION THAT NO SLAB CONCRETE HAS BEEN CAST AND THAT FORMWORK AND STEEL REINFORCEMENT ARE IN PLACE (AND THE TEMPORARY SUPPORTS ARE BROUGHT TO A SNUG FIT UNDER EACH BEAM).

SECTIONS FOR BOTTOM OF SLAB AND/OR SCREED ELEVATIONS ARE GIVEN ALONG BEAM CENTERLINES FROM CENTERLINE OF BEARING OR PIN & HANGER TO CENTERLINE OF BEARING OR PIN & HANGER AS APPLICABLE AT EQUAL SPACINGS.

MDOT Michigan Department of Transportation

SLAB AND SCREED DATA - NB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	15 OF 16

DATE: 12-4-00 CORRECTED BY: R. PRATT

DATE: CHECKED BY: MIKUCKI

DRAWN BY:

FILE NAME: s063174n.ss

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 16

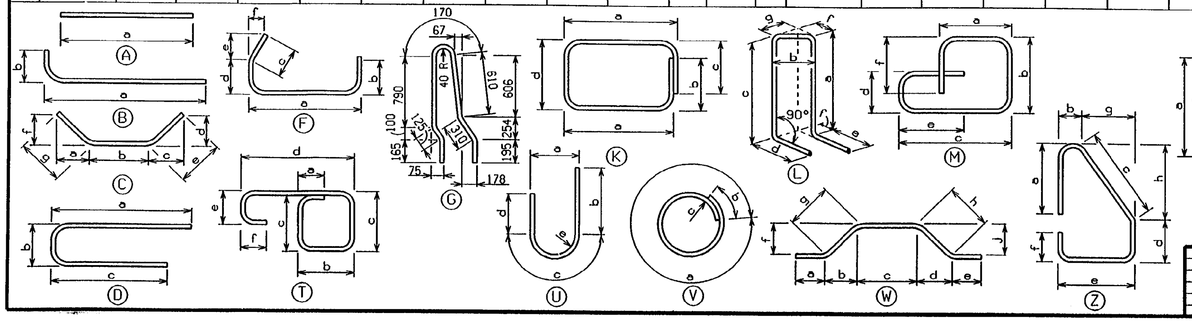
BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.

SUPERSTRUCTURE - STAGE 1

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1314640	14640									21	306
EA1307480	7480									44	327
EA1015560	15560									120	1046
EA1315660	15660									72	1121
EA1308580	8580									538	4588
EA1301700	1700									268	453
EA1903350	3350									70	524
EA1301050	1050									188	196
ED1300910	360	190	360							94	85
EP1302190	910	170	865	75	40	860	95	80		216	470
EZ1601570	520	95	440	255	260		260	355		145	353

SUPERSTRUCTURE - STAGE 2

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1314640	14640									21	306
EA1308400	8400									44	367
EA1015560	15560									138	1202
EA1315660	15660									78	1214
EA1309500	9500									538	5080
EA1301700	1700									268	453
EA1903350	3350									80	599
EA1301050	1050									212	221
ED1300910	360	190	360							106	96
EP1302190	910	170	865	75	40	860	95	80		216	470
EZ1601570	520	95	440	255	260		260	355		145	353



EPOXY COATED
BAR SIZE
BAR LENGTH (mm)
EA2013000
BAR SHAPE

BAR LEGEND

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

MISCELLANEOUS QUANTITIES

19830 kg	REINFORCEMENT, STEEL, EPOXY COATED

REVISIONS NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

STEEL REINFORCEMENT DETAILS - NB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	16 OF 16

DRAWN BY: R. PRATT DATE: 12-26-00 CHECKED BY: MIKUCKI DATE: CORRECTED BY:

FILE NAME: s04631?4n.rs

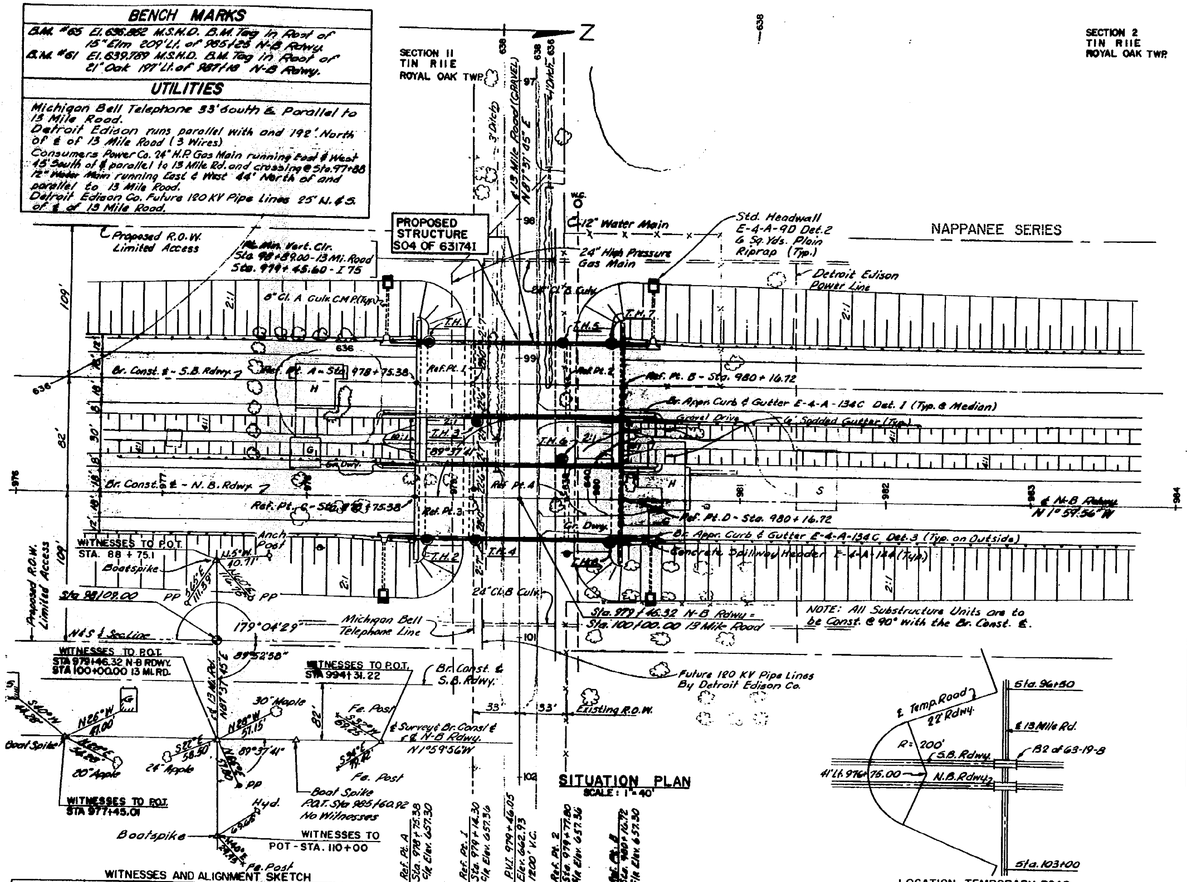
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 2

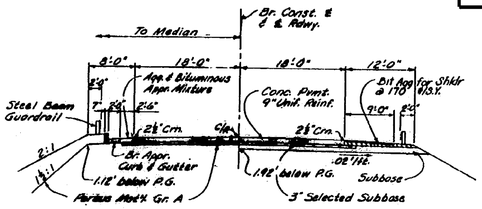
BENCH MARKS

B.M. #65 El. 635.862 M.S.H.D. B.M. Tag in Root of 15" Elm 209'Lt. of 985+25 N-B Rdwy.
B.M. #61 El. 639.789 M.S.H.D. B.M. Tag in Root of 21" Oak 199' Lt. of 987+18 N-B Rdwy.

UTILITIES

Michigan Bell Telephone 33'douth & Parallel to 13 Mile Road.
Detroit Edison runs parallel with and 198' North of & of 13 Mile Road (3 Wires)
Consumers Power Co. 24" H.P. Gas Main running East & West 43' South of & parallel to 13 Mile Rd. and crossing @ Sta. 977+85
12" Water Main running East & West 44' North of and parallel to 13 Mile Road.
Detroit Edison Co. Future 120 KV Pipe Lines 25' N. & S. of & of 13 Mile Road.

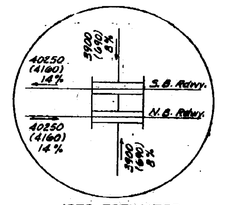




HALF SECTION AT STRUCTURE

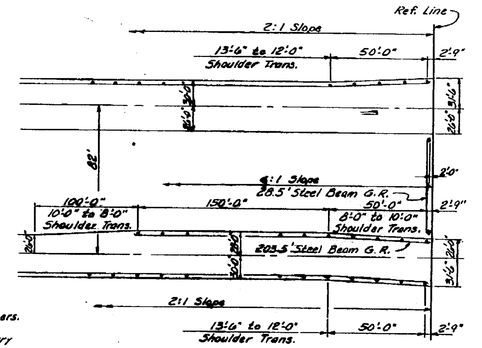
HALF SECTION ON APPROACH

Scale: 1" = 10'



1978 ESTIMATED TRAFFIC DISTRIBUTION

LEGEND
000 = Average Daily Traffic
(00) = Design Hourly Volume
00% = % Commercial



HALF APPROACH GRADING PLAN

No Scale

CONTROL SECTION 63174 I

GENERAL NOTES

Fences and utilities are to be moved by others.
Buildings are to be removed by others.
Traffic is to be maintained over the temporary road.
The soil or unsuitable material under abutments shall be removed and backfilled with suitable granular material.
Plans 1, 2, 3, & 4 shall be constructed and backfilled prior to placing the abutment fills.
The work covered by these plans includes construction of the proposed bridge, placing porous material and placing slope protection Class A to the limits shown.
Datum refers to U.S.G.S. datum.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 OVER 13 MILE ROAD IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF SITE

TECON ENGINEERS, INC.

APPROVED: J. U. Bhargava 6-5-62
CONSULTING ENGINEER

APPROVED: ENGINEER OF DESIGN — CONSULTANTS

1960 Bridges	GTC	3-1-60
DRAWN BY	FRH	10-20-60
TRACED BY		
CHECKED BY	GTC	11-1-60
SHEET 221 OF 312		

S04 OF 63174 I

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY - SB STRUCTURE

MDOT Michigan Department of Transportation

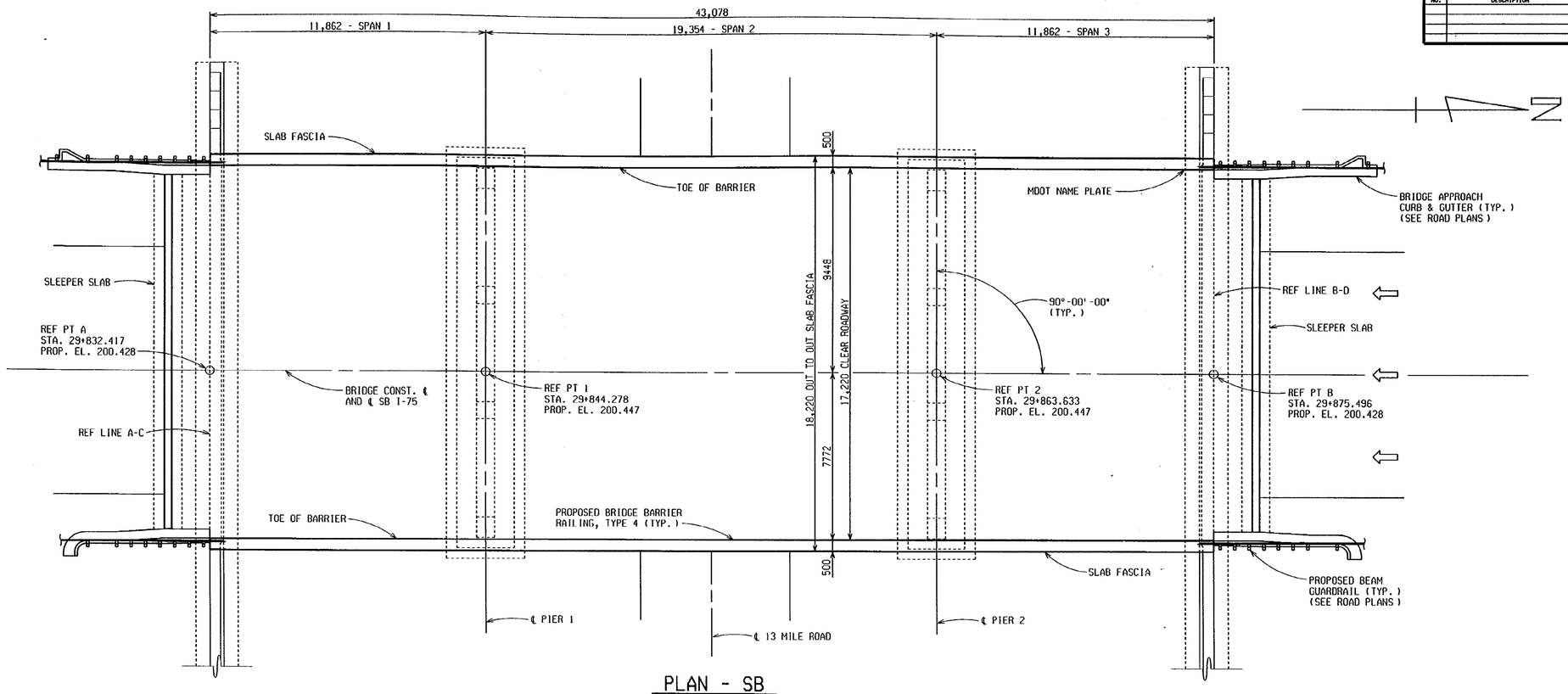
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	2 OF 15

DRAWN BY: INGER DATE: 04-12-00 CHECKED BY: DATE: CORRECTED BY: DATE:

FILE NAME: s0462174sn.

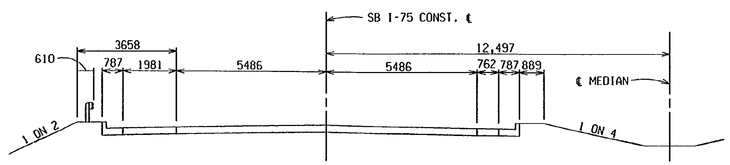
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 3

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN - SB

THE LIMITS OF FALSE DECKING IS FROM FACE OF ABUT. A TO FACE OF ABUT. B AND BETWEEN SLAB FASCIAS.



TYPICAL APPROACH SECTION

(LOOKING NORTH)

MISCELLANEOUS QUANTITIES

1 LS	Structures, Rem Portions (S04-SB)
734 m2	False Decking
1 LS	Penetrating Water Repellent Treatment (S04-SB)

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, WIDENING, SUBSTRUCTURE REPAIR, CONCRETE BEAM END REPAIR, AND MAINTAINING TRAFFIC. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE A PART OF THIS CONTRACT.

THE REHABILITATION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS23 . LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE ALLOWABLE STRESS METHOD WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR MS18 LOADING.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

SB I-75 TRAFFIC IS TO BE DETOURED OVER THE NB BRIDGE.

PENETRATING WATER REPELLANT TREATMENT SHALL BE APPLIED TO ALL OTHER SURFACES EXCEPT FOR THE TOP OF PIERS. ESTIMATED AREA IS 272 SQUARE METERS (SEE SPECIAL PROVISION).

APPROVED Steven P. Beck 1/11/01
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

SB I-75 OVER 13 MILE ROAD IN MADISON HEIGHTS.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	3 OF 15

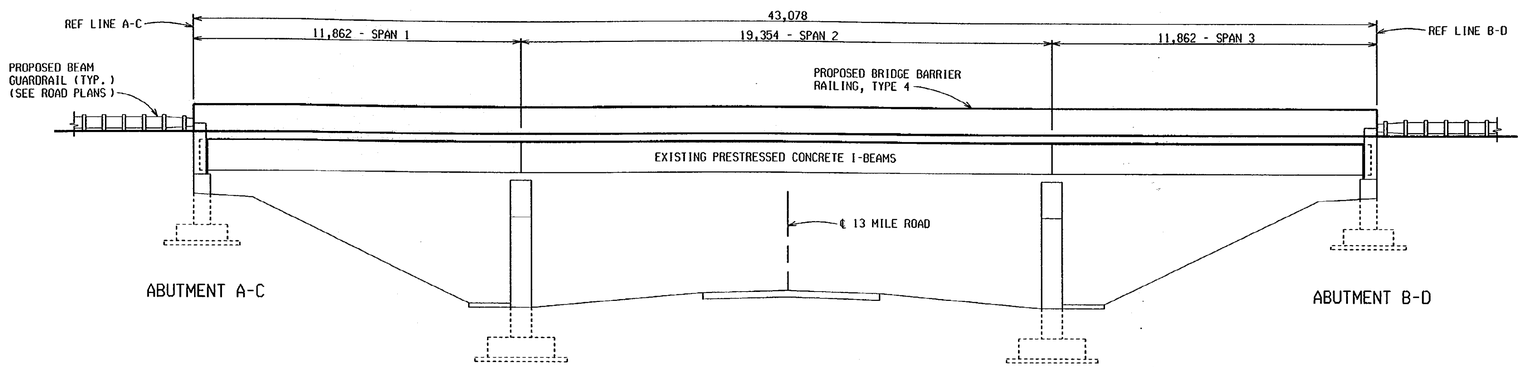
DRAWN BY: R. PRATT DATE: 4-11-00 CHECKED BY: MIKUCKI DATE: 12-13-00 CORRECTED BY: SHAFFER

FILE NAME: s0463174s.st

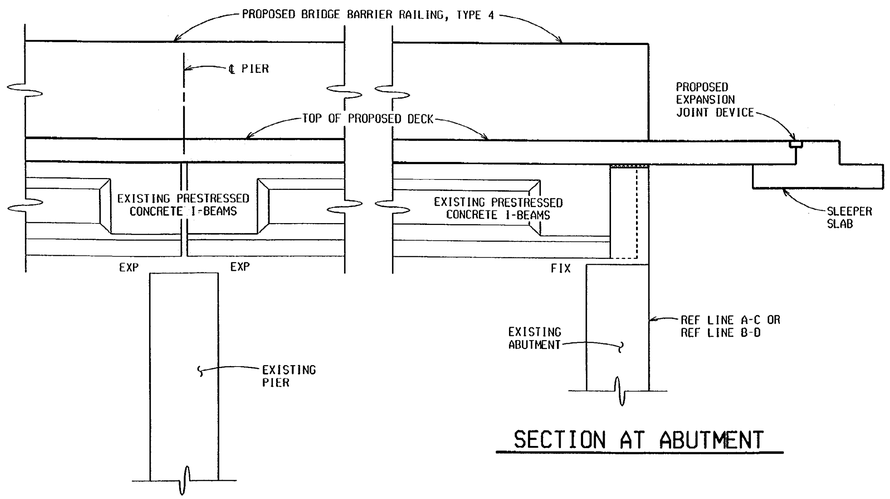
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 4

REVISIONS			
NO.	DESCRIPTION	DATE	BY

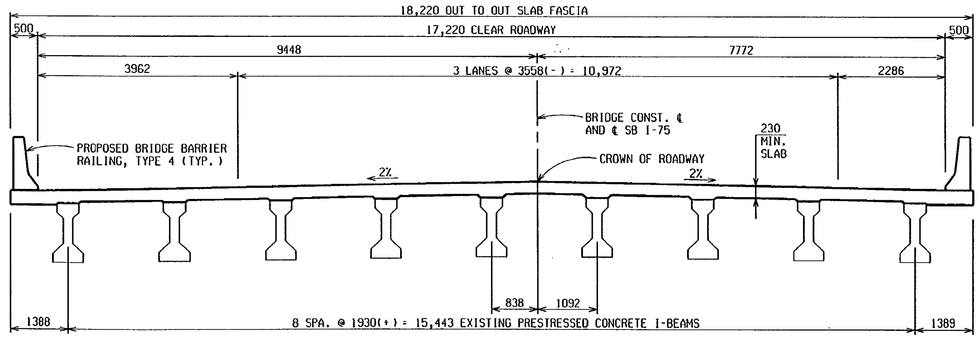


ELEVATION - SB



SECTION AT PIER

SECTION AT ABUTMENT



PROPOSED DECK SECTION - SB

(LOOKING NORTH)

APPROVED Steven P. Beck 1/11/01
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

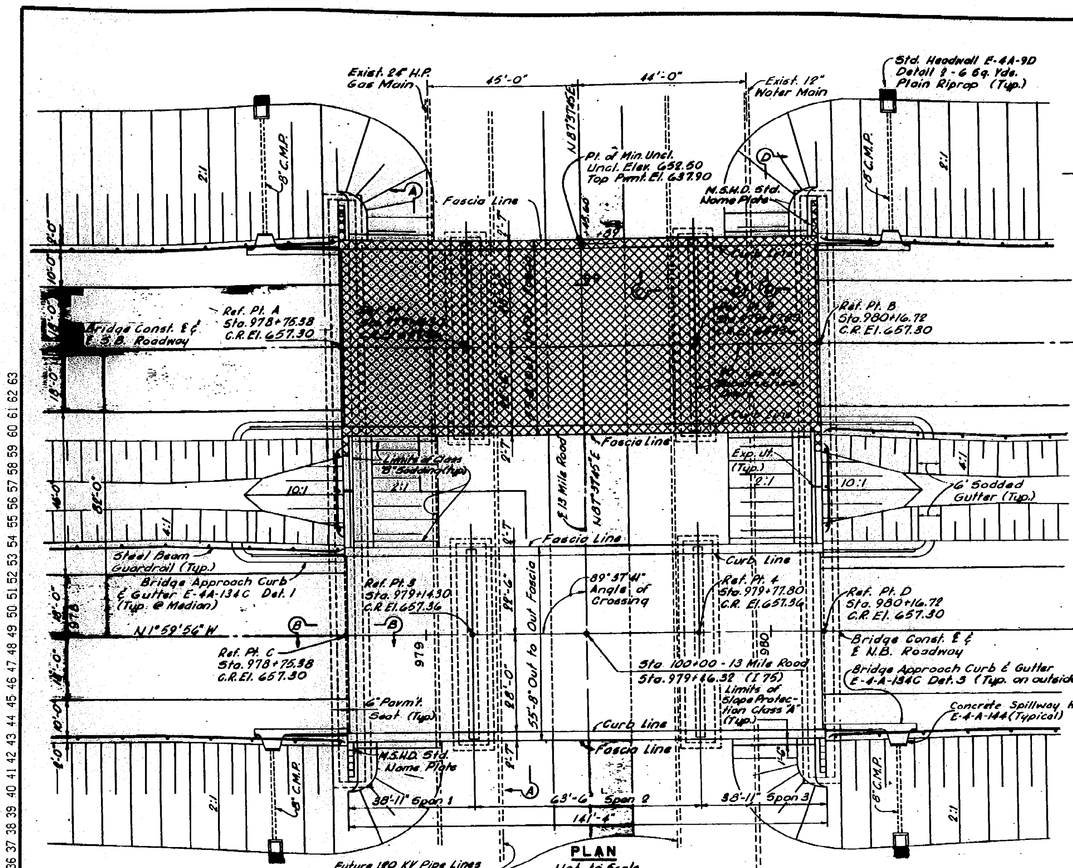
GENERAL PLAN OF STRUCTURE

SB I-75 OVER 13 MILE ROAD IN MADISON HEIGHTS.

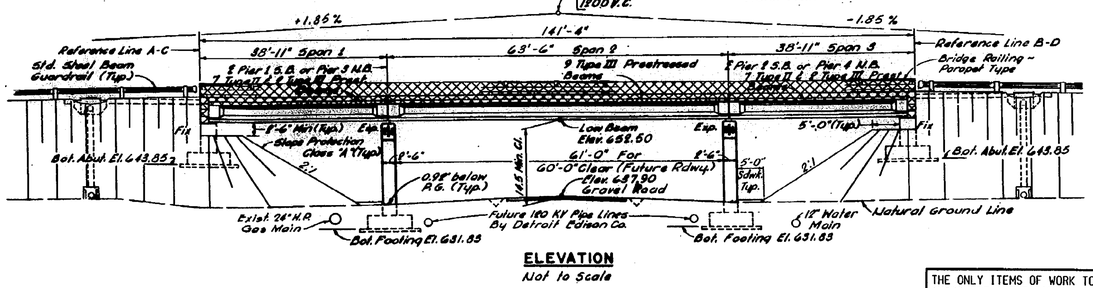
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	4 OF 15

DATE: 11-28-00 CORRECTED BY: R. PRATT
DATE: 4-11-00 CHECKED BY: MIKUCKI
DRAWN BY: R. PRATT
FILE NAME: s0463174s.st

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 5



PLAN
Not to Scale

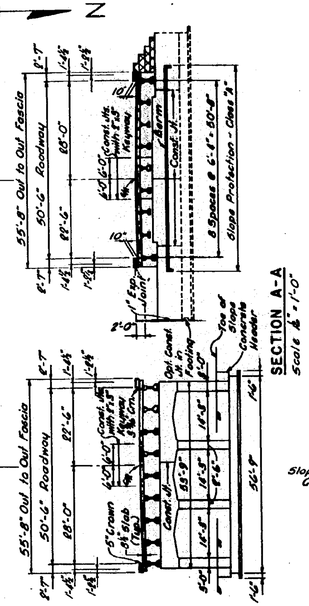


ELEVATION
Not to Scale

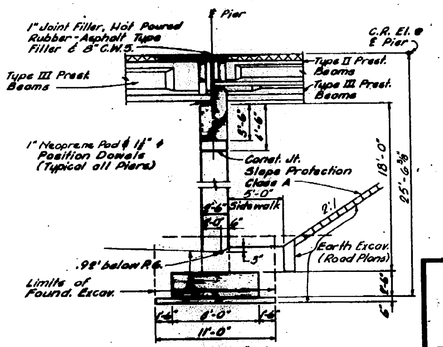
MISCELLANEOUS QUANTITIES

ITEM	UNIT	AMOUNT
* Slope Protection Class A	Sq. Yds.	886
Porous Material Grade A (Compacted in Place)	Cu. Yds.	2720

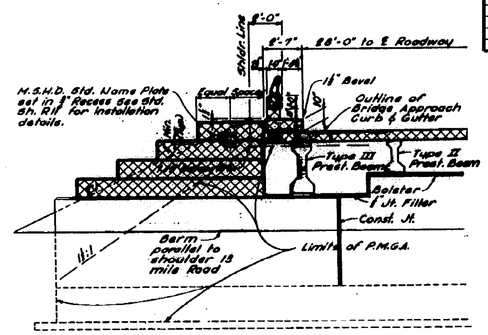
* Grouted Riprap shall not be used on this Project.



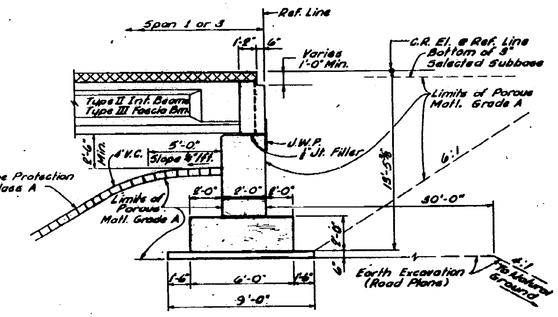
SECTION A-A
Scale 1/4" = 1'-0"



SECTION C-C
Scale 1/4" = 1'-0"



SECTION D-D
Scale 1/4" = 1'-0"



SECTION B-B
Scale 1/4" = 1'-0"

GENERAL NOTES:

Top of roadway slab and tops of curbs are parallel to the vertical curve.

The design of this structure is based on the Standard Specifications for the Design of Highway Bridges - 1998 Edition. H20-S16-44 and alternate military loading. Live Load plus Impact deflection = 1/1000 of span length.

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 49595A
DENOTES REMOVAL PORTIONS
PROPOSED WORK

CONTROL SECTION 63174

MICHIGAN STATE HIGHWAY DEPARTMENT

I75 OVER 13 MILE ROAD IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

APPROVED J. W. Murray 6-5-62
ENGINEER OF BRIDGES - DESIGN

APPROVED
ENGINEER OF BRIDGES - CONSTRUCTION

S04 OF 63174

REVISIONS

NO.	DESCRIPTION	DATE	BY

REMOVAL PORTIONS - SB STRUCTURE

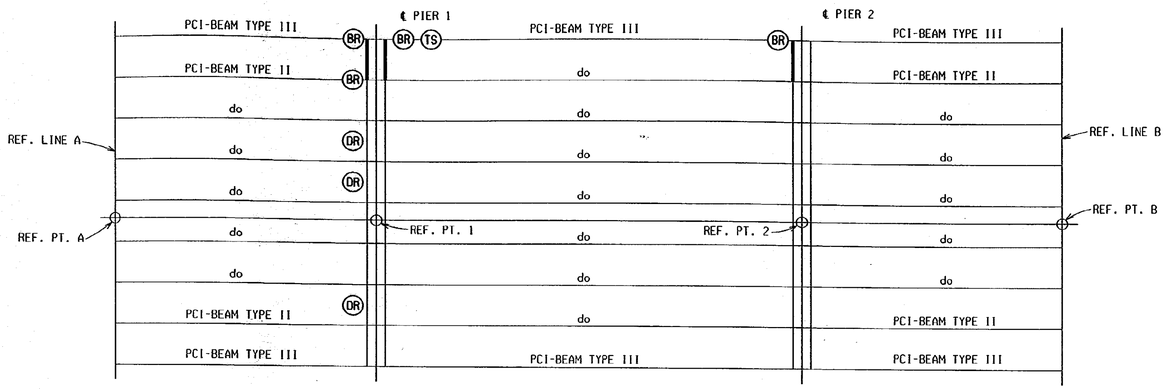
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	5 OF 15

DATE: CORRECTED BY: R. PRATT
DATE: 04-12-00 CHECKED BY: MIKUCKI
DRAWN BY: INDER
FILE NAME: s0463174sn.

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 6

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN

BEAM END REPAIR

(BR) DENOTES BEAM END REPAIR

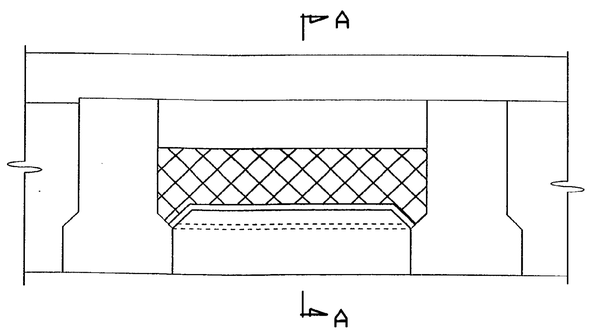
(DR) DENOTES DIAPHRAGM REPAIR

(TS) DENOTES TEMPORARY SUPPORT

MISCELLANEOUS QUANTITIES

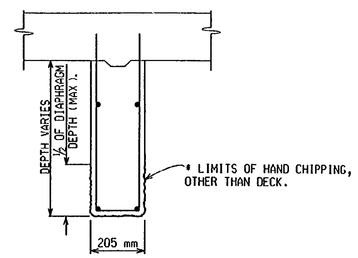
5 m2	Patch, Forming
4 ea	Removal, Beam End Repair *
1 m3	Hand Chipping, Other Than Deck
350 kg	Reinforcement, Steel, Epoxy Coated
3 m3	Patching Conc, LM ***
12 m2	Forming, Beam End Repair *
1 LS	Concrete Surface Sealer **

*REFER TO SPECIAL PROVISION FOR PRESRTESSED CONCRETE BEAM END REPAIR.
**REFER TO SPECIAL PROVISION FOR CONCRETE SURFACE SEALERS.
***REFER TO SPECIAL PROVISION FOR STRUCTURAL REPAIR WITH LATEX MODIFIED CONCRETE.



LIMITS OF HAND CHIPPING, OTHER THAN DECK.

END DIAPHRAGM



* LIMITS OF HAND CHIPPING SHALL BE FIELD VERIFIED AND AS DIRECTED BY THE ENGINEER.

SECTION A-A

NOTES:

IF THE CONTRACTOR ELECTS TO REPAIR MORE THAN ONE BEAM END AT A TIME, WORK SHALL NOT BE DONE ON THE SAME END OF ANY ADJACENT BEAM OR AT THE OPPOSITE END OF THE BEAM BEING REPAIRED.

ES DENOTES EACH SIDE.

ADHESIVE ANCHOR EB13 BARS INTO 38mm ø HOLES IN BEAM WEB.

DRILLING OF HOLES SHALL NOT BE PERMITED, EXCEPT AS NOTED.

THE LIMITS OF THE CONCRETE SEALER SHALL INCLUDE THE OUTSIDE FACE FOR THE FULL LENGTH OF THE FASCIA BEAMS AND ALL SURFACES OF ALL BEAM ENDS NOT BEING REPAIRED FOR A LENGTH NOT LESS THAN TWICE THE BEAM DEPTH. REFER TO SPECIAL PROVISION FOR CONCRETE SURFACE SEALERS FOR PRODUCT INFORMATION AND SURFACE PREPERATION. THE ESTIMATED QUANTITY IS 230m2.

WHERE A DIAPHRAGM IS REMOVED IN A BAY FROM THE SIDE OF A BEAM THAT IS NOT BEING REPAIRED, THE EXISTING INSERT HOLES SHALL BE FILLED WITH CAULK AND THE PROPOSED DIAPHRAGM REINFORCEMENT SHALL BE EPOXY ANCHORED TO THE BEAM IN THE NEW LOCATION. INCLUDED IN THE BID ITEM "Removal, Beam End Repair".

MDOT Michigan Department of Transportation

BEAM REPAIR DETAILS

SOUTH BOUND

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	6 OF 15

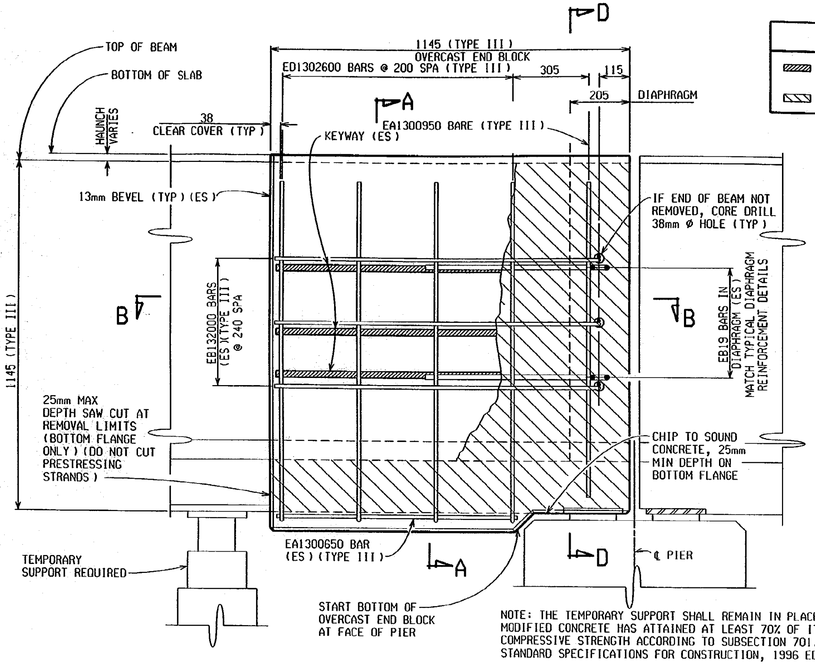
DATE: 12-20-00 CORRECTED BY: R.K.OLIN

DATE: 12/2000 CHECKED BY: WM

DRAWN BY: R.K.OLIN

FILE NAME: s04631745.br

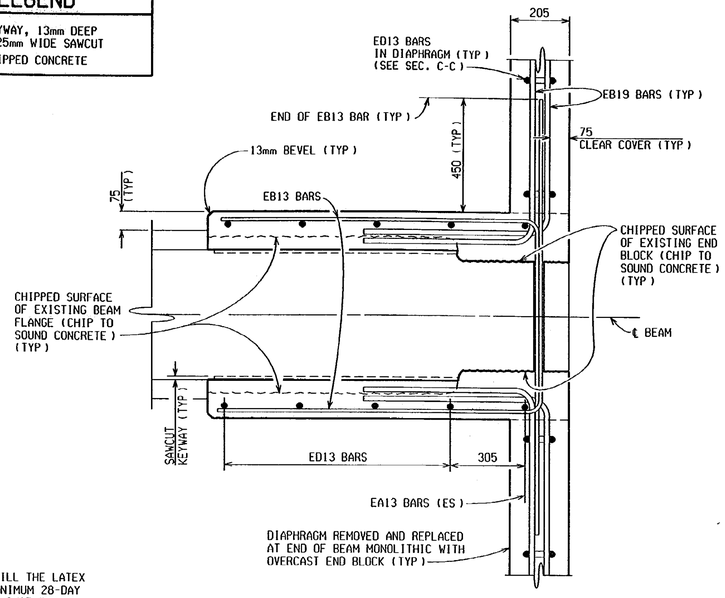
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 7



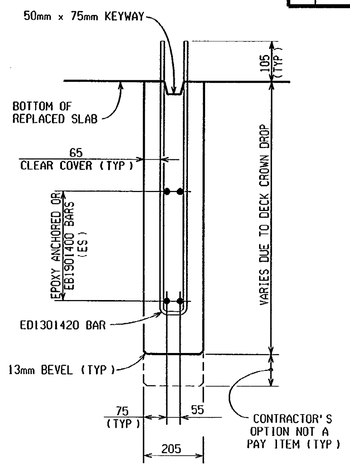
BEAM END ELEVATION

NOTE: THE TEMPORARY SUPPORT SHALL REMAIN IN PLACE UNTILL THE LATEX MODIFIED CONCRETE HAS ATTAINED AT LEAST 70% OF ITS MINIMUM 28-DAY COMPRESSIVE STRENGTH ACCORDING TO SUBSECTION 701.03.F.6 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, 1996 EDITION.

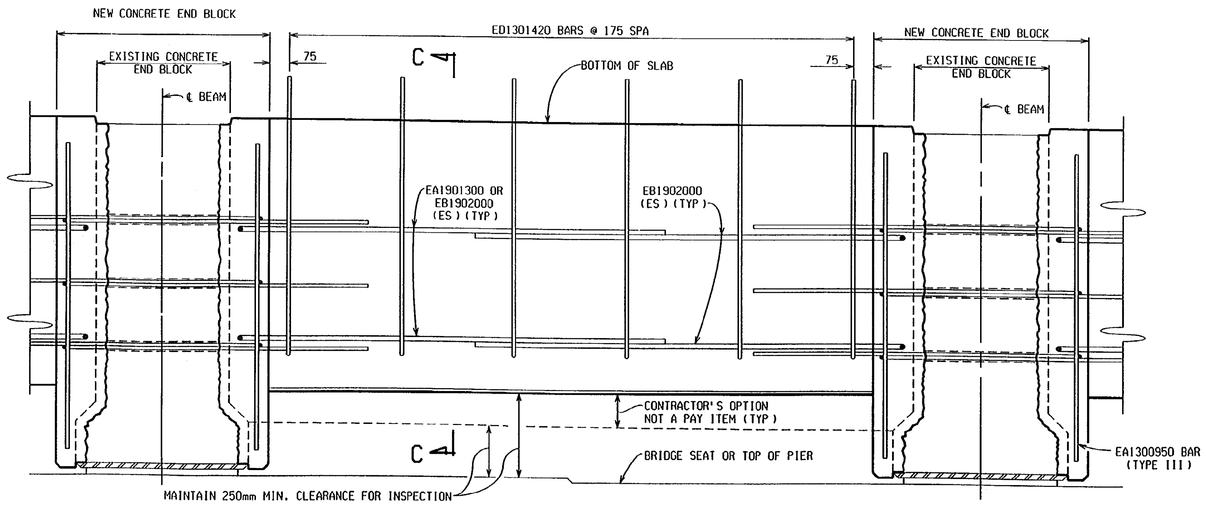
LEGEND
KEYWAY, 13mm DEEP × 25mm WIDE SAWCUT
CHIPPED CONCRETE



SECTION B-B



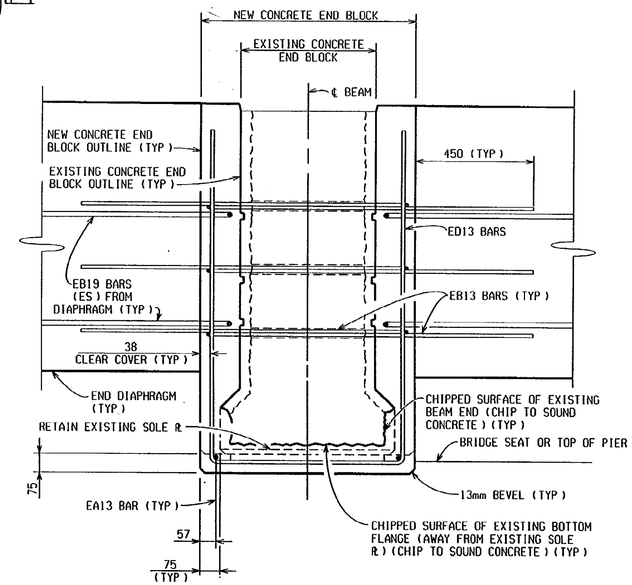
SECTION C-C



SECTION D-D (DIAPHRAGM ELEVATION)

(SHOWING STEEL REINFORCEMENT)

NOTE: REPLACE DECK OVER BEAM END REPAIR AREA.



SECTION A-A

(ED13 BARS IN DIAPHRAGMS NOT SHOWN)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY: R.K.OLIN

DRAWN BY: R.K.OLIN DATE: 12/2000 CHECKED BY:

FILE NAME: s0463174s.b

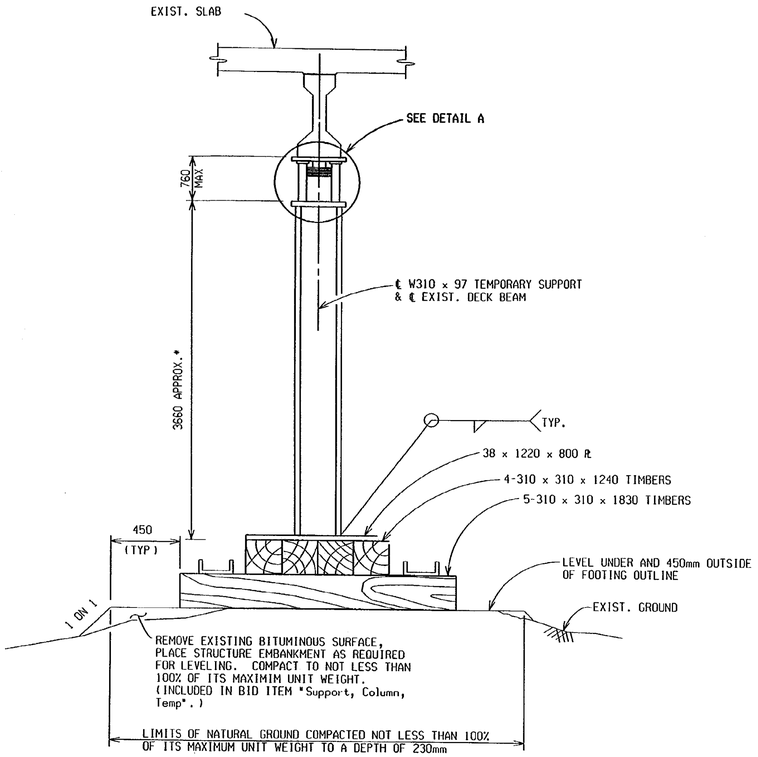
BEAM REPAIR DETAILS

SOUTH BOUND

MDOT Michigan Department of Transportation

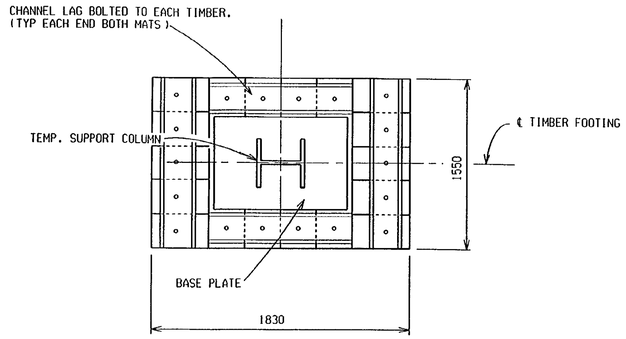
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	7 OF 15

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 8

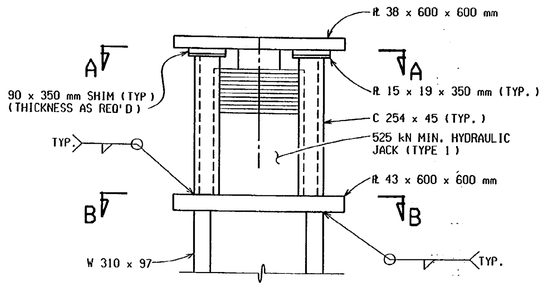


TIMBER FOOTING ON NATURAL GROUND

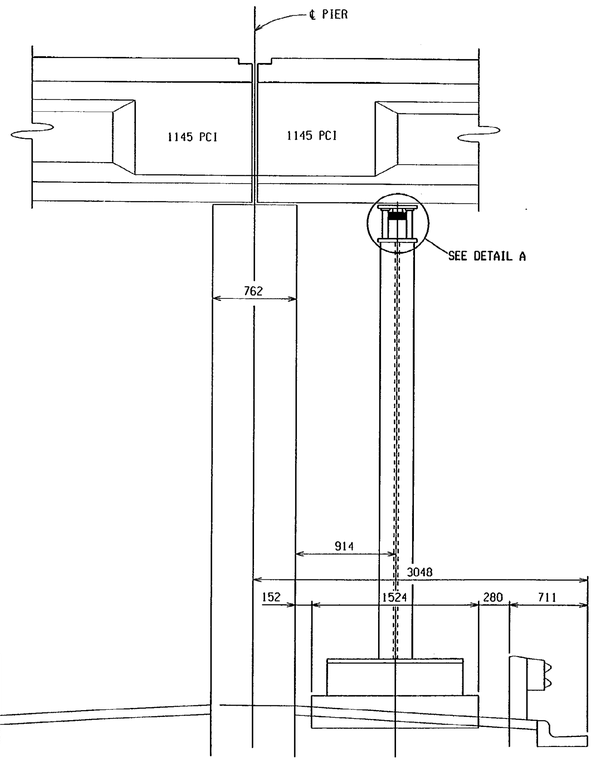
* EXACT HEIGHT TO BE DETERMINED BY CONTRACTOR. HEIGHT NOT TO EXCEED 4270mm.



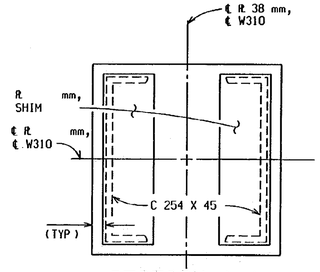
TIMBER FOOTING PLAN



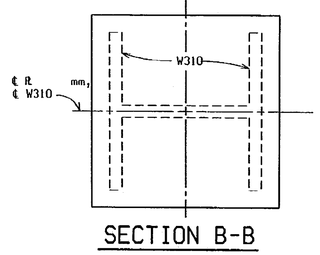
DETAIL A



TEMPORARY SUPPORT AT PIER



SECTION A-A



SECTION B-B

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY: R.K.OLIN

DATE: 12/2000 CHECKED BY:

DRAWN BY: R.K.OLIN

FILE NAME: s04631745s.br

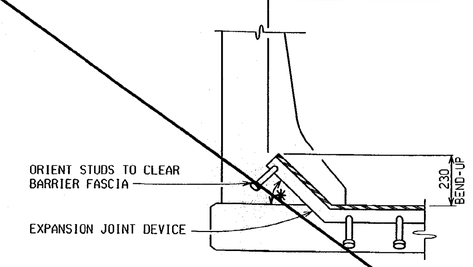
MDOT Michigan Department of Transportation

TEMPORARY SUPPORT DETAILS

SOUTH BOUND

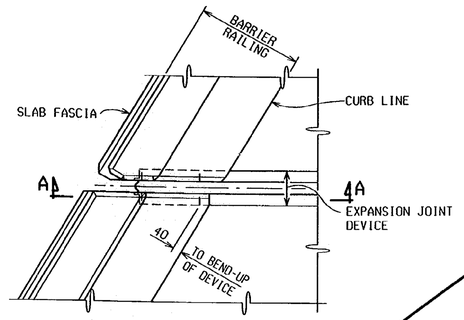
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	8 OF 15

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 9



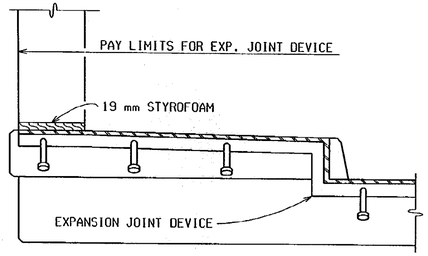
SECTION A-A

✳—FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG ℄ EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.

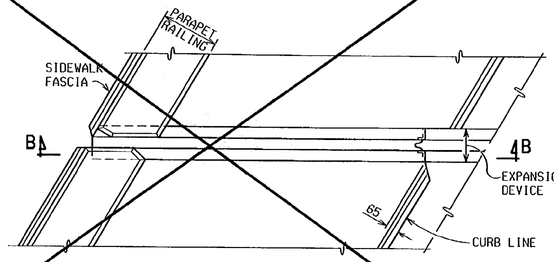


PLAN AT BARRIER RAILING

BARRIER TREATMENT



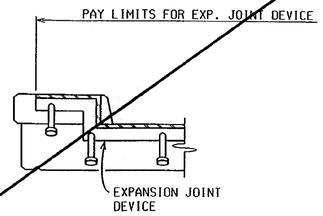
SECTION B-B



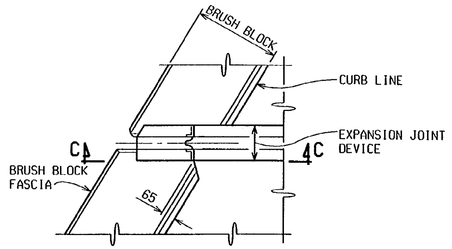
PLAN AT PARAPET RAILING

(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT

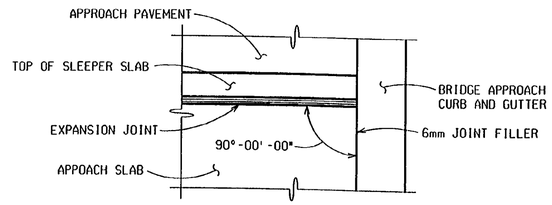


SECTION C-C



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT



PLAN AT SLEEPER SLAB

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S04	90	SLEEPER SLAB	25mm	16
S04	90		25mm	16

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	32

EXPANSION JOINT DETAILS - SB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	9 OF 15

EJ3T (11-17-97)

DATE: 12-8-00 CORRECTED BY: R. PRATT DATE: 07-16-96 CHECKED BY: VZ/SPB DATE: DRAWN BY: FILE NAME: s04631745.ej

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 10

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: 12-4-00 CORRECTED BY: R. PRATT

DATE: 11-28-00 CHECKED BY: MIKUCKI

DRAWN BY: R. PRATT

FILE NAME: s063174s.dk

SUPERSTRUCTURE CONCRETE QUANTITIES

POUR	AMT (m3)
A	6
B	6
TOTAL CONC.:	12 m3

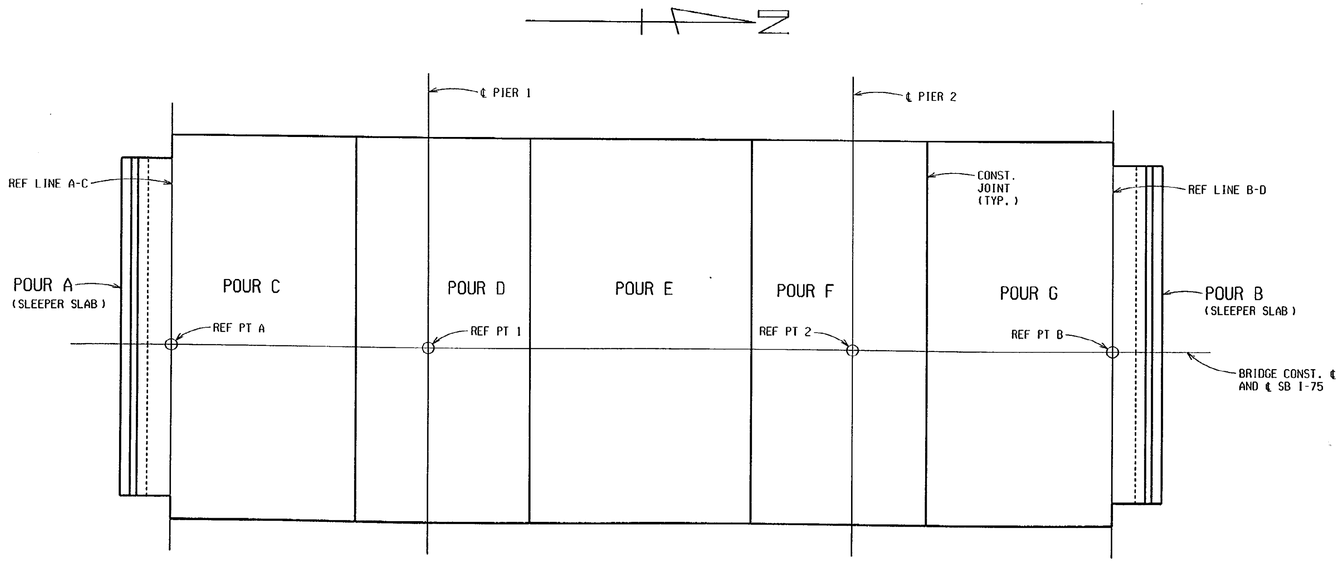
SUPERSTRUCTURE CONCRETE QUANTITIES NIGHT CASTING

POUR	AMT (m3)
C	56
D	34
E	43
F	34
G	56
TOTAL CONC.:	223 m3

MISCELLANEOUS QUANTITIES

86	m	Bridge Barrier Railing, Type 4
223	m3	Bridge Ltg, Oper and Maintain
1	LS	Bridge Ltg, Furn and Rem (S04-SB)
1	LS	Superstructure Conc, Form, Finish and Cure, Night Casting (S04-NB)
50	m	Underdrain, Fdn, 100mm
2	ea	Underdrain, Outlet Ending, 100mm
1	LS	Superstructure Conc, Form, Finish and Cure (S04-SB)
* 2	m3	Hand Chipping, Other Than Deck
*20	m2	Patch, Forming
* 2	m3	Patching Conc, LM

*SUBSTRUCTURE REPAIR AS DIRECTED BY THE ENGINEER.



POUR DIAGRAM

NOTES:

ES DENOTES EACH SIDE.

FS DENOTES FAR SIDE.

NS DENOTES NEAR SIDE.

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL, NAME PLATE MOUNTING, MOLDING AND BEVEL DETAILS, SEE STANDARD SHEET B-17 AND B-103. BARRIER RAILING IS TO BE BRIDGE BARRIER RAILING, TYPE 4.

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03J OF THE STANDARD SPECIFICATIONS.

NO PORTION OF THE DECK FORMWORK SHALL ENCROACH ON THE EXISTING UNDERCLEARANCE.

THE CONTRACTOR MAY USE METAL STAY IN PLACE FORMS. IF USED, ELIMINATING THE POLYSTYRENE AND FILLING THE CORRUGATIONS WITH CONCRETE IS PROHIBITED.

THE CONTRACTOR IS TO PROVIDE A SAWED JOINT 12mm DEEP BY 3mm WIDE (MINIMUM) IN THE TOP OF SLAB AT TRANSVERSE CONSTRUCTION JOINTS. THE JOINT IS TO BE SAWED BEFORE CASTING OF BARRIERS AND IS TO BE FILLED WITH HOT-POURED JOINT SEALANT OR COLD-APPLIED JOINT SEALANT, SINGLE COMPONENT TYPE IN ACCORDANCE WITH STANDARD SPECIFICATION SUBSECTION 9.14.04. (INCLUDED IN THE BID ITEM "SUPERSTRUCTURE CONC, FORM, FINISH AND CURE, NIGHT CASTING (S04-SB)".

ALPHABETICAL DESIGNATION OF DECK POURS IS NOT A POUR SEQUENCE. CAST DECK POURS OVER PIERS AFTER OTHER DECK POURS HAVE BEEN CAST.

THE CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORTS FOR THE DECK FASCIA OVERHANG FORMS TO ACHIEVE ZERO DEFLECTIONS IN THE DECK. THE CONTRACTOR SHALL SUBMIT THE DESIGN AND DETAILS FOR THE TEMPORARY SUPPORTS TO THE ENGINEER FOR REVIEW AND APPROVAL, 15 WORKING DAYS PRIOR TO START OF THE DECK POURS. INCLUDED IN THE BID ITEM "SUPERSTRUCTURE CONC, FORM, FINISH AND CURE, NIGHT CASTING (S04-SB)".

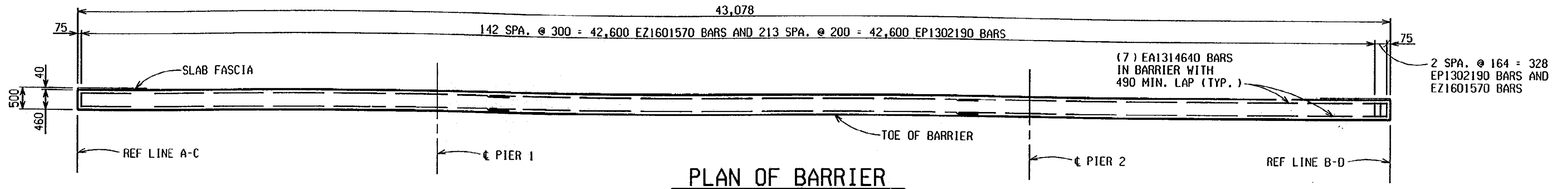
MDOT Michigan Department of Transportation

DECK REPLACEMENT DETAILS - SB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	10 OF 15

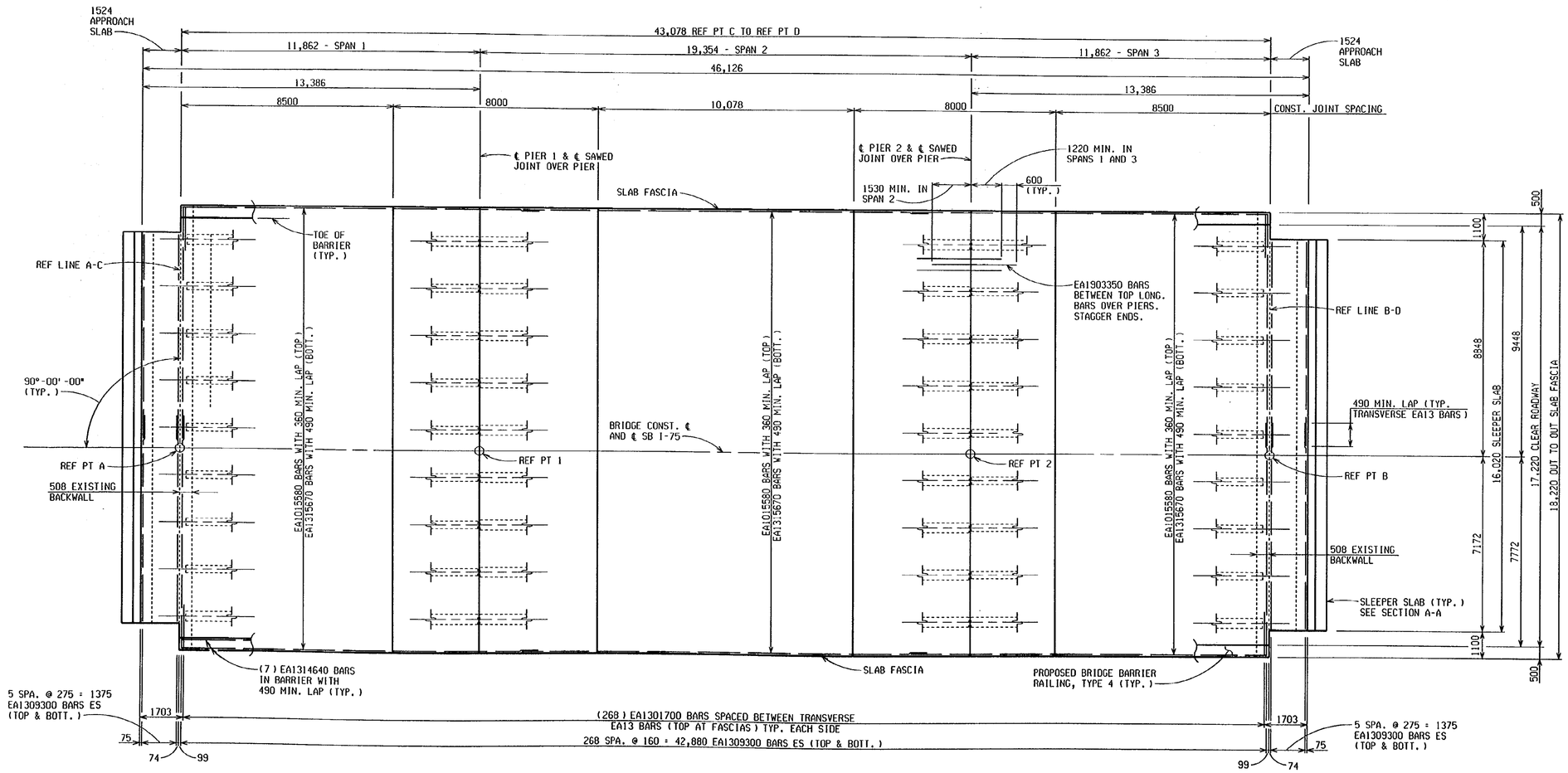
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 11

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN OF BARRIER

WEST SIDE SHOWN - EAST SIDE SIMILAR



DECK PLAN

DECK REPLACEMENT DETAILS - SB STRUCTURE

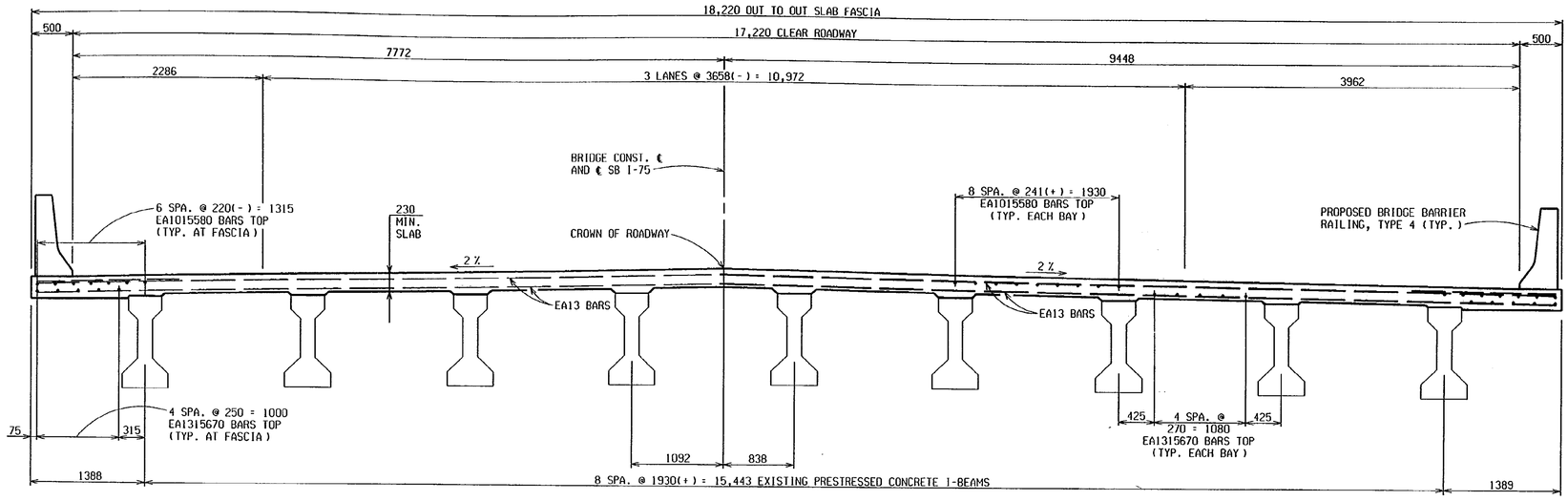
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	11 OF 15

MDOT Michigan Department of Transportation

DATE: 12-4-00 CORRECTED BY: R. PRATT
DATE: 11-28-00 CHECKED BY: M.KUCKI
DRAWN BY: R. PRATT
FILE NAME: s0463174s.dk

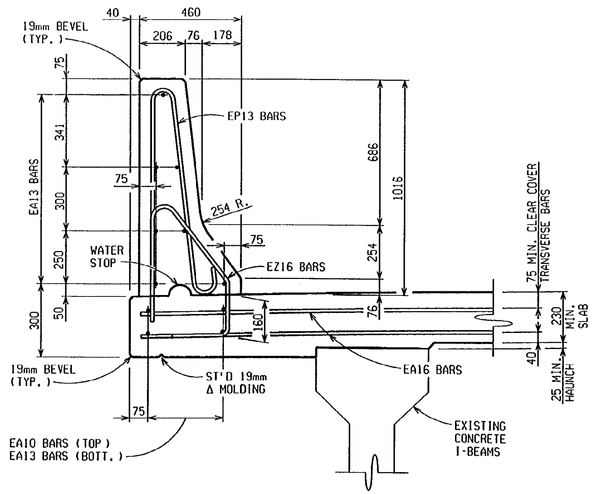
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 12

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PROPOSED DECK SECTION - SB

(LOOKING SOUTH)



TYPICAL BARRIER SECTION

DECK REPLACEMENT DETAILS - SB STRUCTURE

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	12 OF 15

DATE: 12-4-00 CORRECTED BY: R. PRATT

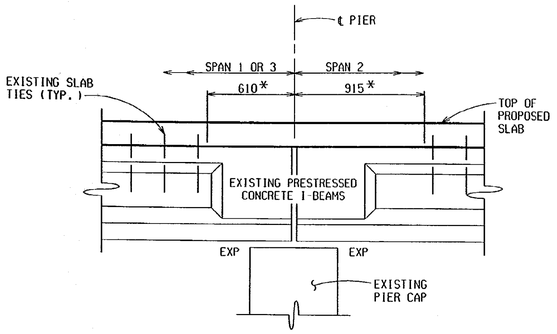
DATE: 11-28-00 CHECKED BY:

DRAWN BY: R. PRATT

FILE NAME: s04631744s.dk

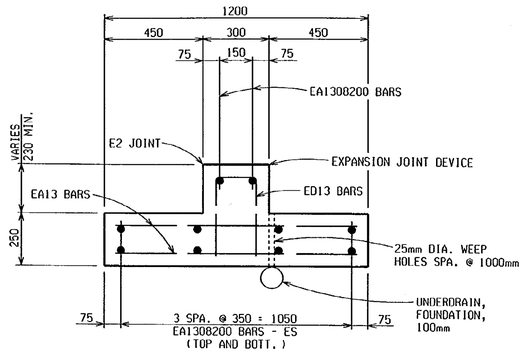
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 13

REVISIONS			
NO.	DESCRIPTION	DATE	BY

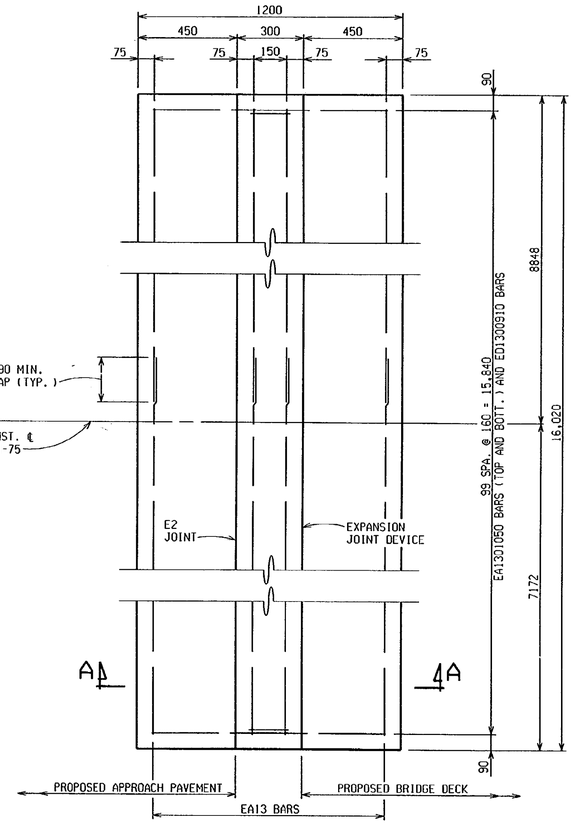


SECTION THRU SLAB AT PIER

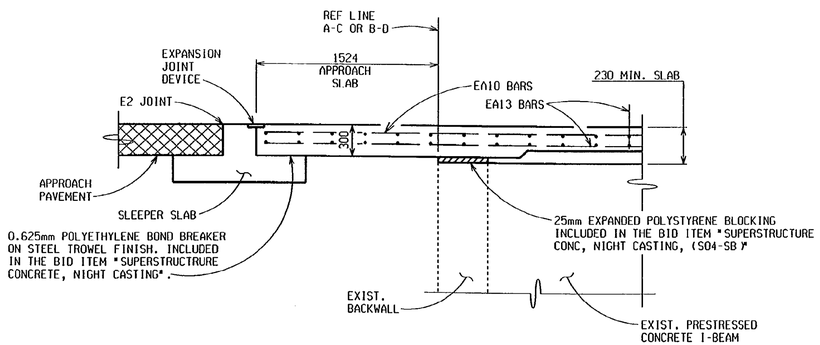
* LIMITS FOR REMOVAL OF EXISTING SLAB TIES AND FOR DEBONDING BETWEEN EXISTING BEAMS AND PROPOSED DECK. DEBOND BY PLACING 2 LAYERS OF 6 MIL PLASTIC SHEET SECURED TO THE TOP OF BEAMS PRIOR TO POURING THE DECK. PAYMENT FOR SLAB TIE REMOVAL AND DEBONDING IS INCLUDED IN THE BID ITEM "SUOERSTRUCTURE CONC, FORM, FINISH AND CURE, NIGHT CASTING (S04-SB)".



SECTION A-A



PLAN OF SLEEPER SLAB



TYPICAL SECTION AT BRIDGE APPROACH

DECK REPLACEMENT DETAILS - SB STRUCTURE

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	13 OF 15

DRAWN BY: R. PRATT DATE: 11-28-00 CHECKED BY: MIKUCKI DATE: 12-4-00 CORRECTED BY: R. PRATT

FILE NAME: s04631174s.dk

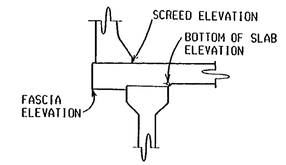
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 14

BOTTOM OF SLAB ELEVATIONS

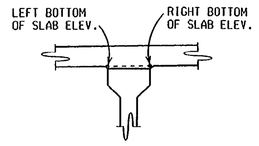
		REF.A	SPAN 1				REF.1	SPAN 2						REF.2	SPAN 3				REF.B
		0	1	2	3	4	0	1	2	3	4	5	6	0	1	2	3	4
A	FASCIA	199.960	199.967	199.973	199.976	199.978	199.978	199.993	200.003	200.007	200.003	199.993	199.978	199.978	199.976	199.973	199.967	199.960
	RIGHT	200.032	200.039	200.045	200.048	200.050	200.050	200.065	200.075	200.079	200.075	200.065	200.050	200.050	200.048	200.045	200.039	200.032
B	LEFT	200.062	200.070	200.075	200.079	200.080	200.081	200.093	200.102	200.106	200.102	200.093	200.081	200.080	200.079	200.075	200.070	200.062
	RIGHT	200.071	200.078	200.084	200.087	200.088	200.089	200.102	200.110	200.114	200.110	200.102	200.089	200.088	200.087	200.084	200.078	200.071
C	LEFT	200.101	200.109	200.114	200.117	200.119	200.119	200.132	200.141	200.144	200.141	200.132	200.119	200.119	200.117	200.114	200.109	200.101
	RIGHT	200.109	200.117	200.122	200.126	200.127	200.127	200.140	200.149	200.152	200.149	200.140	200.127	200.127	200.126	200.122	200.117	200.109
D	LEFT	200.140	200.147	200.153	200.156	200.157	200.158	200.171	200.180	200.183	200.180	200.171	200.158	200.157	200.156	200.153	200.147	200.140
	RIGHT	200.148	200.155	200.161	200.164	200.166	200.166	200.179	200.188	200.191	200.188	200.179	200.166	200.166	200.164	200.161	200.155	200.148
E	LEFT	200.178	200.186	200.191	200.195	200.196	200.196	200.209	200.218	200.221	200.218	200.209	200.196	200.196	200.195	200.191	200.186	200.178
	RIGHT	200.186	200.194	200.199	200.203	200.204	200.204	200.217	200.226	200.229	200.226	200.217	200.204	200.204	200.203	200.199	200.194	200.186
F	LEFT	200.181	200.189	200.194	200.198	200.199	200.199	200.212	200.221	200.224	200.221	200.212	200.199	200.199	200.198	200.194	200.189	200.181
	RIGHT	200.173	200.181	200.186	200.190	200.191	200.191	200.204	200.213	200.216	200.213	200.204	200.191	200.191	200.190	200.186	200.181	200.173
G	LEFT	200.143	200.150	200.156	200.159	200.160	200.161	200.174	200.183	200.186	200.183	200.174	200.161	200.160	200.159	200.156	200.150	200.143
	RIGHT	200.135	200.142	200.148	200.151	200.152	200.153	200.166	200.175	200.178	200.175	200.166	200.153	200.152	200.151	200.148	200.142	200.135
H	LEFT	200.104	200.112	200.117	200.120	200.122	200.122	200.135	200.144	200.147	200.144	200.135	200.122	200.122	200.120	200.117	200.112	200.104
	RIGHT	200.096	200.103	200.109	200.112	200.114	200.114	200.127	200.136	200.139	200.136	200.127	200.114	200.114	200.112	200.109	200.103	200.096
J	LEFT	200.065	200.073	200.079	200.082	200.083	200.084	200.098	200.109	200.112	200.109	200.098	200.084	200.083	200.082	200.079	200.073	200.065
	FASCIA	199.993	200.001	200.007	200.010	200.011	200.012	200.026	200.036	200.040	200.036	200.026	200.012	200.011	200.010	200.007	200.001	199.993

SCREED ELEVATIONS

	LEFT	200.240	200.247	200.253	200.256	200.258	200.258	200.272	200.281	200.285	200.281	200.272	200.258	200.258	200.256	200.253	200.247	200.240
	RIGHT	200.274	200.281	200.286	200.290	200.291	200.292	200.305	200.315	200.318	200.315	200.305	200.292	200.291	200.290	200.286	200.281	200.274



TYPICAL FASCIA SECTION



TYPICAL INTERIOR SECTION

(LOOKING UP STATION)

BULKHEAD ELEVATIONS

	ABUT.A			ABUT.B
A	200.258	200.276	200.276	200.258
B	200.296	200.314	200.314	200.296
C	200.335	200.353	200.353	200.335
D	200.373	200.392	200.392	200.373
E	200.412	200.430	200.430	200.412
F	200.407	200.425	200.425	200.407
G	200.368	200.387	200.387	200.368
H	200.330	200.348	200.348	200.330
J	200.291	200.309	200.309	200.291

SCREEDS AFFECTED BY LOADS IN OTHER SPANS ARE TO BE SET TO THE ELEVATIONS SHOWN BEFORE CASTING ANY CONCRETE.

SCREED ELEVATIONS ARE BASED ON THE CONDITION THAT NO SLAB CONCRETE HAS BEEN CAST AND THAT FORMWORK AND STEEL REINFORCEMENT ARE IN PLACE (AND THE TEMPORARY SUPPORTS ARE BROUGHT TO A SNUG FIT UNDER EACH BEAM).

SECTIONS FOR BOTTOM OF SLAB AND/OR SCREED ELEVATIONS ARE GIVEN ALONG BEAM CENTERLINES FROM CENTERLINE OF BEARING OR PIN & HANGER TO CENTERLINE OF BEARING OR PIN & HANGER AS APPLICABLE AT EQUAL SPACINGS.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: 12-4-00 CORRECTED BY: R. PRATT

DATE: CHECKED BY: MIKUCKI

DRAWN BY:

FILE NAME: s0463174s.ss

MDOT Michigan Department of Transportation

SLAB AND SCREED DATA - SB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	14 OF 15

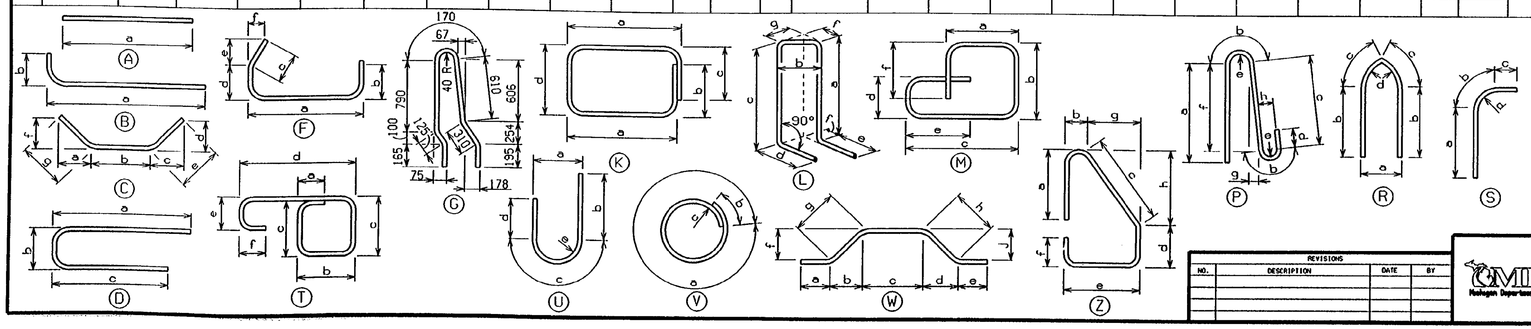
CONTROL SECTION S04 OF 63174 JOB NO. 49595A SH. NO. 15

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.

SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1314640	14640									42	611
EA1308200	8200									64	522
EA1309300	9300									1076	9947
EA1301700	1700									536	906
EA1015580	15580									258	2251
EA1315670	15670									150	2336
EA1903350	3350									152	1138
EA1301050	1050									400	417
ED1300910	360	190	360							200	181
EP1302190	910	170	865	75	40	860	95	80		432	940
EZ1601570	520	95	440	255	260		260	355		290	707



EPOXY COATED
BAR SIZE
BAR LENGTH (mm)
EA2013000
BAR SHAPE

BAR LEGEND REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

MISCELLANEOUS QUANTITIES

19956 kg	REINFORCEMENT, STEEL, EPOXY COATED

REVISIONS NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

STEEL REINFORCEMENT DETAILS - SB STRUCTURE

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
1-9-01	S04 OF 63174	49595A	MAHDAVI	15 OF 15

DRAWN BY: R. PRATT DATE: 12-28-00 CHECKED BY: MIKUCKI DATE: CORRECTED BY:

FILE NAME: s063174s.rs

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 2

BENCH MARKS

B.M. #71 El. 838.34 M.S.H.D. B.M. Tag in Root of 24" Elm 167' Rt. of 912+60 N-B Rdwy.

B.M. #69 El. 837.54 M.S.H.D. B.M. Tag in Root of 15" Elm 138' Rt. of 924+06 N-B Rdwy.

UTILITIES

Michigan Bell Telephone 80' North & Parallel to 12 Mile Road

Detroit Edison 96' Sou., 28' Nor., and 48' Nor. All Lines parallel to 12 Mile Road.

Detroit Water Board 12" Water Main 45' North & parallel to 12 Mile Road.

City of Madison Heights 32"x48" Sewer 15' South & parallel to 12 Mile Road. F.L. El. 607.50 @ N.B. Rdwy.

Consumers Power Co.- 6" Steel Medium Pressure Gas Line, 16' North of & 12 Mile Rd.

SECTION 14
T1N R11E
ROYAL OAK TWP.

SECTION 11
T1N R11E
ROYAL OAK TWP.

Curve Data	
Δ	29°02'20"
D	3°20'00"
R	1909.86
T	494.61
L	967.96
L	63.01
PC:	915+39.28
PI:	920+33.84
PT:	925+07.19
Se	0.067ft

Location of Existing Detroit Edison Co Conduit

Concrete Spillway Header E-4-A-134 (Typ. on Outside S.B. Rdwy only)

Br. Appr. Curb & Gutter E-4-A-134C Detail 3 (Typ. on Outside S.B. Rdwy only)

8" C.M.P. (Typ.)

RAMP F

℄ S.B. Rdwy. (Not Br. Const. ℄)

℄ N.B. Rdwy. (Not Br. Const. ℄)

RAMP C

Ref. Pt. A Sta. 922+77.54

Ref. Pt. B Sta. 924+54.52

Br. Appr. Curb & Gutter E-4-A-134C-Det. 1 (Typ. @ Median-N.B. Rdwy. Only)

Ref. Pt. C Sta. 922+87.55

Br. Appr. Curb & Gutter E-4-A-134C-Det. 2 (Typ. unless Noted)

Ref. Pt. G Sta. 924+67.09

Tan. to ℄ N.B. Rdwy. @ Sta. 923+72.45

N 2°02'-32" E

N 1°59'56" W

85°46'29" (Δ)

All substructure units are to be constructed parallel to the ℄ 12 Mile Road.

WITNESSES TO N 1/4 COR. SEC. 14
STA. 971+49.59
14" Elm
Lamp Pole
24" Oak
Bootspike
89°47'41"
N 0°12'E
291.00' TP
N 1°59'56" W
97.40'
P.K. Nail
℄ 12 Mile Rd.
N 87°47'41" E
1145.55'

WITNESSES TO P.O.T.
STA 923+72.58 N-B RDWY.
STA 100+00.00 12 MI. RD.
℄ S.B. Lane ℄
Sta. 923+72.45 N.B. Rdwy.
Sta. 99+35.84-12 Mile Rd.

WITNESSES TO P.T.
STA 925+07.19
Boat Spike
℄ Survey ℄ S-N-B Rdwy.
14" Oak
20" Fruit Tree

Location of Proposed Detroit Edison Co Conduit (9 4" Ducts). Installation to be completed prior to Bridge Const.

Consumers Power Co 6" Steel M.P.

Limits of Work these Plans

SITUATION PLAN
SCALE: 1"=40'

WITNESSES TO P.I.
STA 920+33.84
P.K. Nail

WITNESSES TO P.O.T.
STA. 110+00.00

WITNESSES AND ALIGNMENT SKETCH

Ref. Pt. C Sta. 922+87.55 El. 660.00

Ref. Pt. 1 Sta. 923+77.85 12'± El. 660.25

P.I. Sta. 924+20.22 R=1909.86' V.C. El. 660.61

Ref. Pt. 5 Sta. 924+78.45 12'± El. 660.61

Ref. Pt. G Sta. 924+67.09 12'± El. 660.55

Ref. Pt. D Sta. 924+57.77 12'± El. 660.77

Limits of Porous Material (Grade A= 690 C.Y. (Typ.) (Compacted in Place) 12.00'±

Bot. 4" Selected Subbase

Profile I 75

Fill under abutment, including topsoil removal & backfilling 4670 C.Y. Earth Excavation (Included in Road Plans)

Ont. Flg. El. 645.39

Abut. A

Elev. 657.80

Bot. Flg. El. 631.43

Remove Topsoil

PIER #1

Bot. Flg. El. 630.43

Type I 4 III

Type II

Type III

10" Prestressed Concrete I Beams

Elev. 651.76

Abut. B

Bot. Flg. El. 645.96

50' Berm (Typ.)

Limits of Porous Material Grade A= 690 C.Y. (Typ.) (Compacted in Place)

Slope Protection Class A (Typ.)

Fill under abutment, including Topsoil removal & backfilling 4670 C.Y. Earth Excavation (Included in Road Plans)

Ground Line

Dimensions ℄ 12 Mile Rd.

2.90%

PROFILE
VERT. SCALE — 1" = 10'
HOR. SCALE — 1" = 40'

Elev. 637.54

Existing Profile 12 Mile Road

100' PROFILE 12 MILE ROAD
VERT. SCALE — 1"=10'
HOR. SCALE — 1"=40'

Proposed Profile 12 Mile Road

Elev. 636.99

To Median

℄ Rdwy. (Not Br. Const. ℄)

8'-0" | 18'-0" | 18'-0" | 12'-0" | 10'-0"

2'-0" | 7.20' | 3'-6"

Agg. & Bituminous Appr. Mixture

Conc. Pvmt. 9" Unif. Reinf.

Agg. Base Crs. Full Depth 20"

Steel Beam Guardrail

6% Crn. | ℄/R | 6% Crn. | 5% Crn.

2:1 | 1½:1

Br. Appr. Curb & Gutter

1.2% below P.G.

.02" / ft.

Subbase

4" Selected Subbase

Porous Mat'l. Gr. A

HALF SECTION AT STRUCTURE

HALF SECTION ON APPROACH

STEPHENSON HWY.

M-139

I-75

502 of 63174D

502 of 63174D

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LEGEND
(550)- Average Daily Traffic
(00)- Design Hourly Volume
00%- % Commercial

1978 ESTIMATED TRAFFIC DISTRIBUTION

2:1 Slope | Ref. Line

10'-0" to 5'-6" Shoulder Trans. | 50'-0" | 2'-9"

℄ SB Rdwy. 2 (Not Br. Const. ℄)

28.5' Steel Beam G.R.

2'-0"

4:1 Slope

100'-0" | 150'-0" | 50'-0"

10'-0" to 8'-0" Shoulder Trans. | 8'-0" to 10'-0" Shoulder Trans. | 2'-9"

℄ NB Rdwy. 2 (Not Br. Const. ℄)

203.5' Steel Beam G.R.

10'-6" to 5'-6" | 50'-0" | 2'-9"

2:1 Slope

HALF APPROACH GRADING PLAN

GENERAL NOTES

Fences and utilities are to be moved by others.

Buildings are to be removed by others.

Datum refers to U.S.G.S. datum.

Traffic is to be maintained over the temporary road, until half the structure is complete.

This bridge is part of an interchange and all the area shown is within M.S.H.D. R.O.W.

Piers #1, 3, & 4 shall be constructed and backfilled prior to construction of the abutment fills.

The work covered by these plans includes construction of the proposed bridge, placing porous material and placing slope protection class A to the limits shown.

All work not listed above is included in the road plans.

Hampden Road to be closed at edge of interchange R.O.W.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

CONTROL SECTION 63174I

MICHIGAN STATE HIGHWAY DEPARTMENT

I 75 OVER 12 MILE ROAD IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF SITE

TECON ENGINEERS, INC.

APPROVED: J. L. Murray (COORDINATING ENGINEER) 6-5-62

APPROVED: (ENGINEER OF DESIGN — CONSULTANT)

S03 OF 63174 I

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

NORTH BOUND

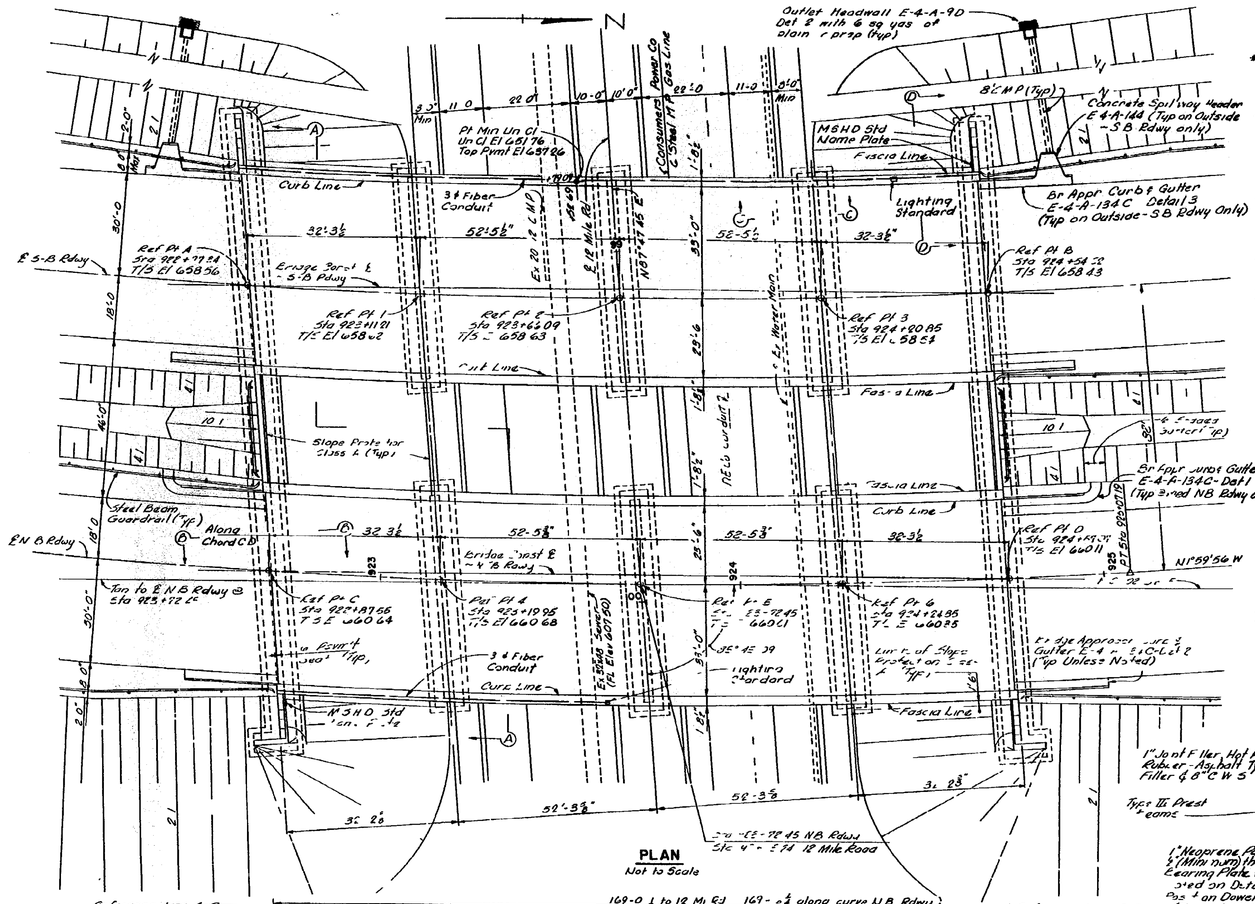
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01	S03 OF 63174	49595A	MADHAVI	2 OF 8

DATE: 01-10-01 CORRECTED BY: inder DATE: DRAWN BY: inder DATE: CHECKED BY:

FILE NAME: s0363174sn.nb

CONTROL SECTION S03 OF 63174 | JOB NO. 49595A | SH. NO. 3

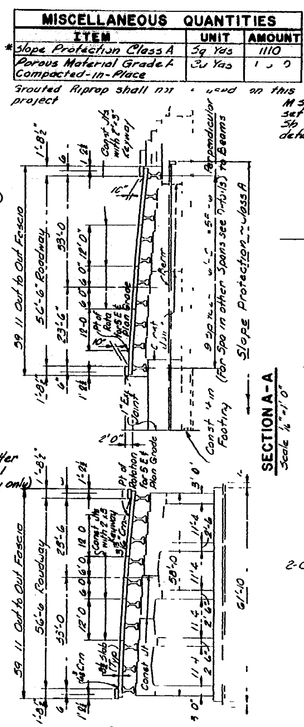
REVISIONS			
NO.	DESCRIPTION	DATE	BY

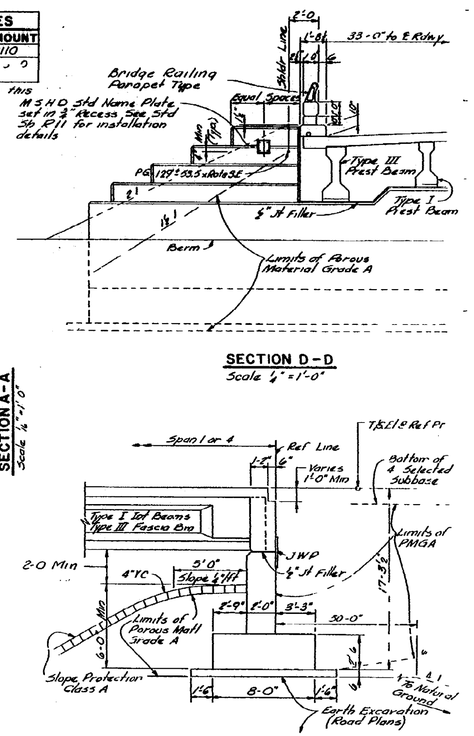


MISCELLANEOUS QUANTITIES

ITEM	UNIT	AMOUNT
*Slope Protection Class A	Sq Yds	1110
Porous Material Grade A	Cu Yds	1 0 0
Compacted-in-Place		

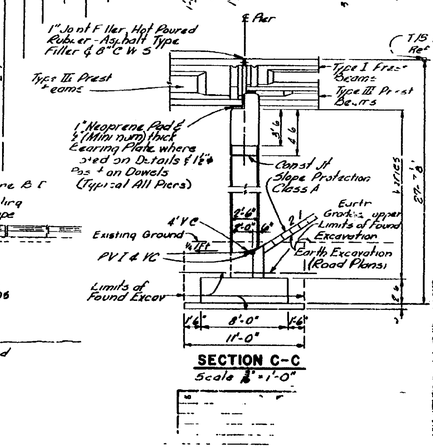
*Grouted Riprap shall not be used on this project





SECTION D-D
Scale 1/4"=1'-0"

SECTION B-B
Scale 1/4"=1'-0"



SECTION C-C
Scale 1/4"=1'-0"

NOTES

Top of roadway slab and tops of curbs are parallel to the vertical curve, except as modified by superelevation transition

This structure is on a horizontal curve The fascia lines, curb lines and longitudinal deck construction joints are parallel to the curve

Proposed pavements, curb and gutter, guard rail, drainage structures, earth fill, and sand sub-base on the expressway and ramp are not a part of this Contract

The design of this structure is based on MSHD Standard Specifications for the Design of Highway Bridges-1958 Edition-(H20-S16-44 and alternate military loading)

Live load plus impact deflection = 1/1000 of span length

CONTROL SECTION 631741

I 75 OVER 12 MILE ROAD IN THE CITY OF MADISON HEIGHTS

TECON ENGINEERS, INC

J V. Murray 6-5-62
COORDINATING ENGINEER

ENGINEER OF DESIGN — CONSULTANTS

PLT 5 1
CV 153 312.1

S03 OF 63174 I

NOTE:
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MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

NORTH BOUND

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01	S03 OF 63174	49595A	MADHAVI	3 OF 8

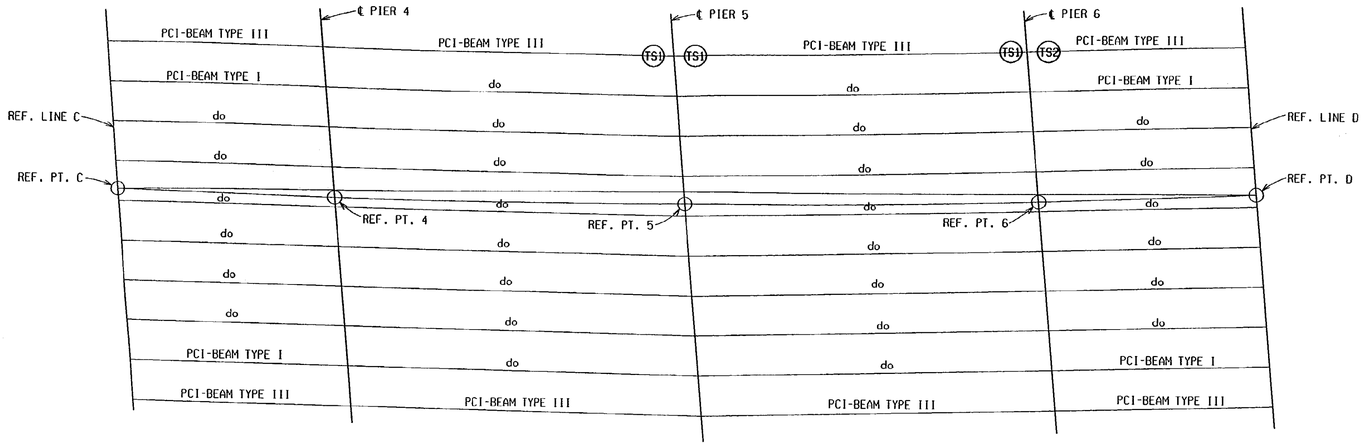
DATE: CORRECTED BY:
DATE: CHECKED BY:
DATE: DRAWN BY: inder
FILE NAME: s03631745n.nb

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 4

N

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN

(TS1) DENOTES TEMPORARY SUPPORT TYPE 1

(TS2) DENOTES TEMPORARY SUPPORT TYPE 2

MISCELLANEOUS QUANTITIES

4	ea	Support, Column, Temp
*50	m2	Patch, Forming
*5	m3	Hand Chipping, Other Than Deck
*5	m3	Patching Conc, LM
1	LS	Penetrating Water Repellent Treatment (S03-NB)
1	LS	Substructure Horizontal Surface Sealer (S03-NB)
58	m2	Slope Paving, Conc
25	m	Slope Paving Header

* SUBSTRUCTURE REPAIR AS DIRECTED BY THE ENGINEER.

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES RESURFACING THE EXISTING BRIDGE DECK, EXPANSION JOINT REPLACEMENT, SUBSTRUCTURE REPAIR, AND MAINTAINING TRAFFIC. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE A PART OF THIS CONTRACT.

THE TOP OF HORIZONTAL SURFACES OF ALL PIER CAPS SHALL BE COATED WITH SUBSTRUCTURE HORIZONTAL SURFACE SEALER. THE ESTIMATED AREA IS 41 m2.

PENETRATING WATER REPELLENT TREATMENT SHALL BE APPLIED TO ALL SURFACES OF PIERS EXCEPT TOPS OF PIERS. THE ESTIMATED AREA FOR PENETRATING WATER REPELLENT APPLICATION IS 390 m2.

FORMS FOR LARGE PATCHES SHALL BE INSTALLED IN 600 mm TO 1200 mm HIGH SECTIONS WITH THE TOP OF FORM NO MORE THAN 1200 mm ABOVE THE LEVEL OF CONCRETE AS THE POUR PROGRESSES.

MDOT Michigan Department of Transportation

PIER REPAIR DETAILS

NORTH BOUND

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01	S03 OF 63174	49595A	MAHDAVI	4 OF 8

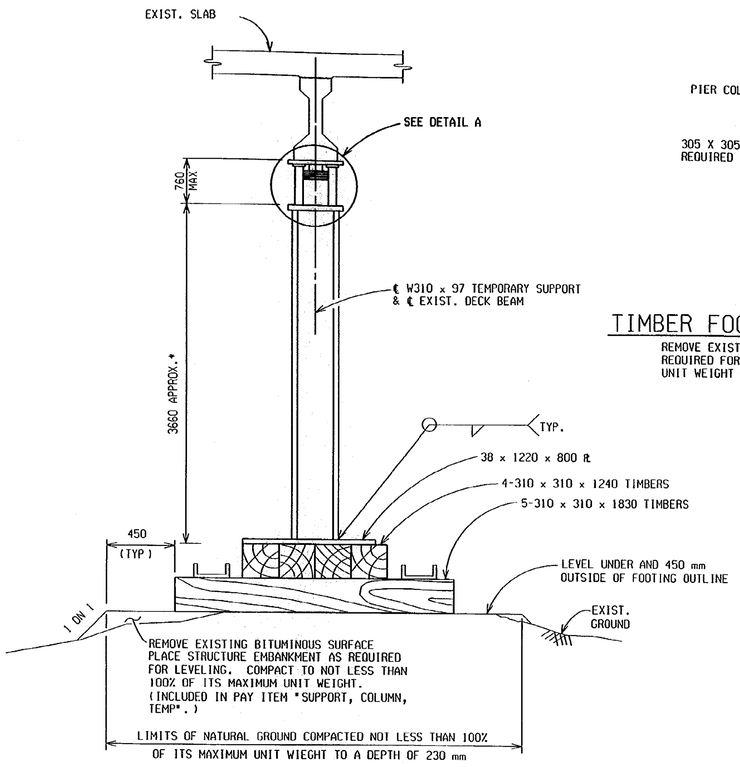
DATE: 01-10-01 CORRECTED BY:INDER

DATE: 11/2000 CHECKED BY: WN

DRAWN BY: R.K.OLIN

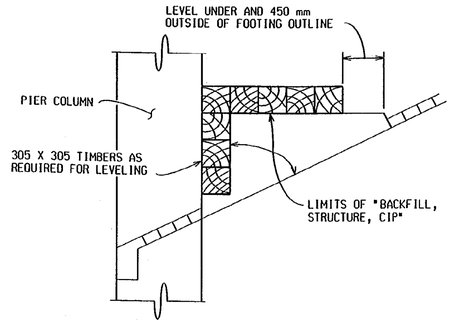
FILE NAME: s03631174n.pl

CONTROL SECTION S03 OF 63174 | JOB NO. 49595A | SH. NO. 5



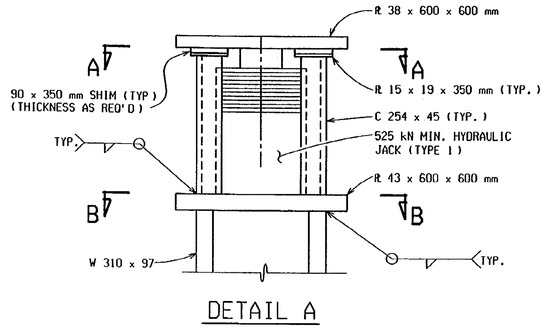
TIMBER FOOTING ON NATURAL GROUND-TS 1

* EXACT HEIGHT TO BE DETERMINED BY CONTRACTOR. HEIGHT NOT TO EXCEED 4270mm.

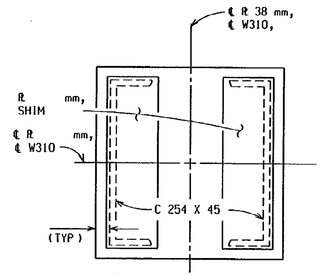


TIMBER FOOTING ON SLOPE PAVING-TS 2

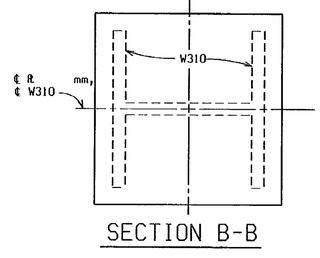
REMOVE EXISTING SLOPE PAVING, PLACE STRUCTURE EMBANKMENT AS REQUIRED FOR LEVEING COMPACT TO NOT LESS THAN 100% OF ITS MAX. UNIT WEIGHT (INCLUDED IN THE PAY ITEM *SUPPORT, COLUM, TEMP*).



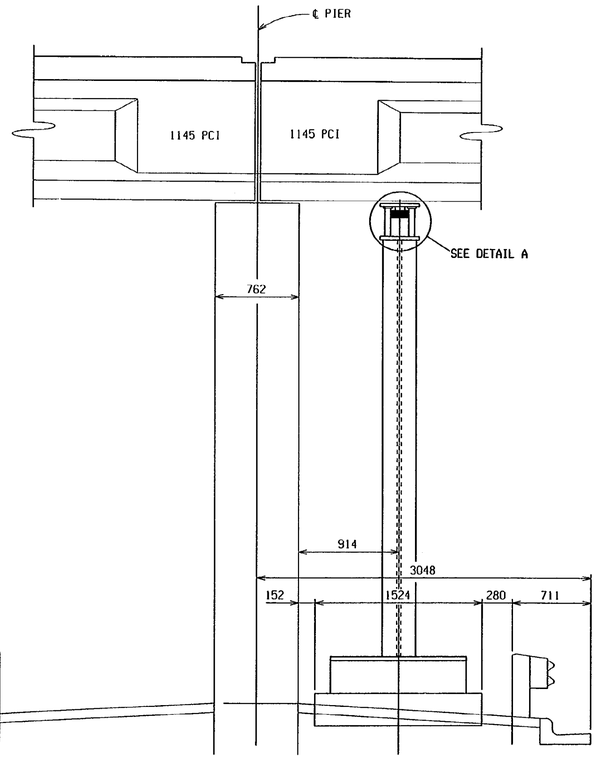
DETAIL A



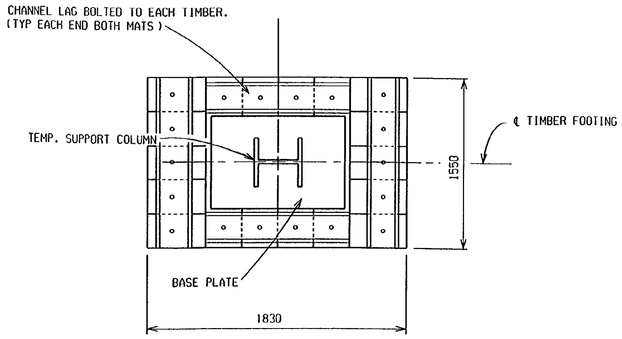
SECTION A-A



SECTION B-B



TEMPORARY SUPPORT AT PIER-TS 1



TIMBER FOOTING PLAN

NOTES:

THE CONTRACTOR SHALL PROVIDE A TEMPORARY SUPPORT AT EACH POINT SHOWN ON THE PLANS.

TEMPORARY SUPPORTS SHALL SUPPORT THE BEAMS AT THEIR ELEVATION PRIOR TO POURING CONCRETE. EACH SUPPORT SHALL BE DESIGNED TO SUSTAIN A VERTICAL LOAD OF 525 kN. THE SOIL PRESSURE UNDER THE FOOT OR SILL OF EACH SUPPORT SHALL NOT EXCEED 144 kPa.

ALL TEMPORARY SUPPORTS SHALL MEET THE APPROVAL OF THE ENGINEER.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

TEMPORARY SUPPORT DETAILS

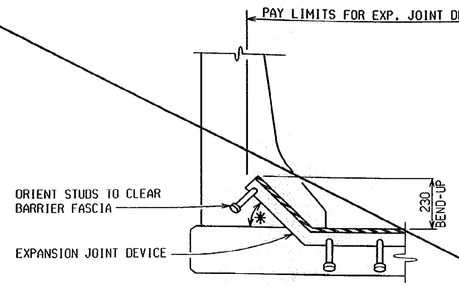
NORTH BOUND

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01	S03 OF 63174	49595A	MAHDAVI	5 OF 8

DRAWN BY: R.K.OLIN | CHECKED BY: WM | CORRECTED BY: INDER | DATE: 01-10-01 | DATE: 11/2000 | DATE: 01-10-01

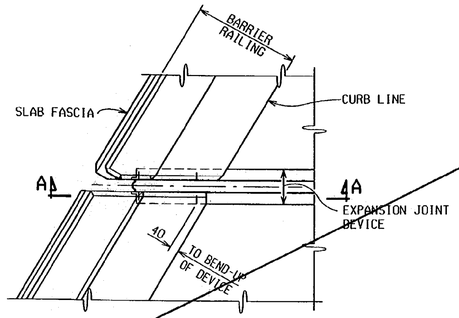
FILE NAME: s0363174n.pi

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 6



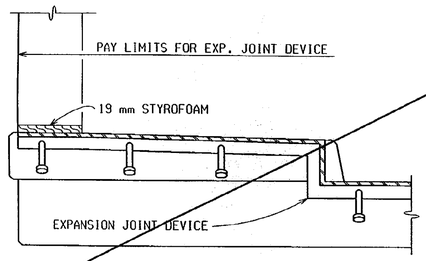
SECTION A-A

*—FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG ℄ EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.

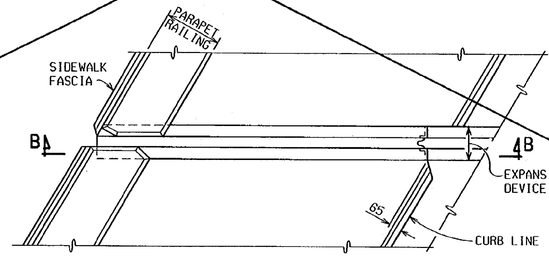


PLAN AT BARRIER RAILING

BARRIER TREATMENT

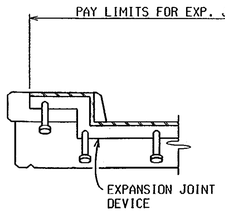


SECTION B-B

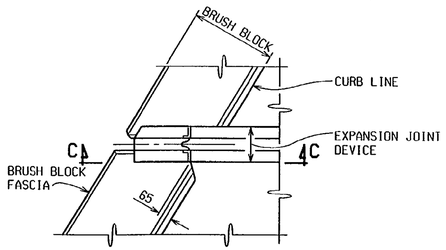


PLAN AT PARAPET RAILING
(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT



SECTION C-C



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S03 NB	90°	PIER 4	14 mm	18.4 m
S03 NB	90°	PIER 5	14 mm	18.3 m
S03 NB	90°	PIER 6	14 mm	18.3 m

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	55

DATE: 01-10-01 CORRECTED BY: INDER DATE: 4-2-99 CHECKED BY: WM DRAWN BY: INDER FILE NAME: s0363174n.ej

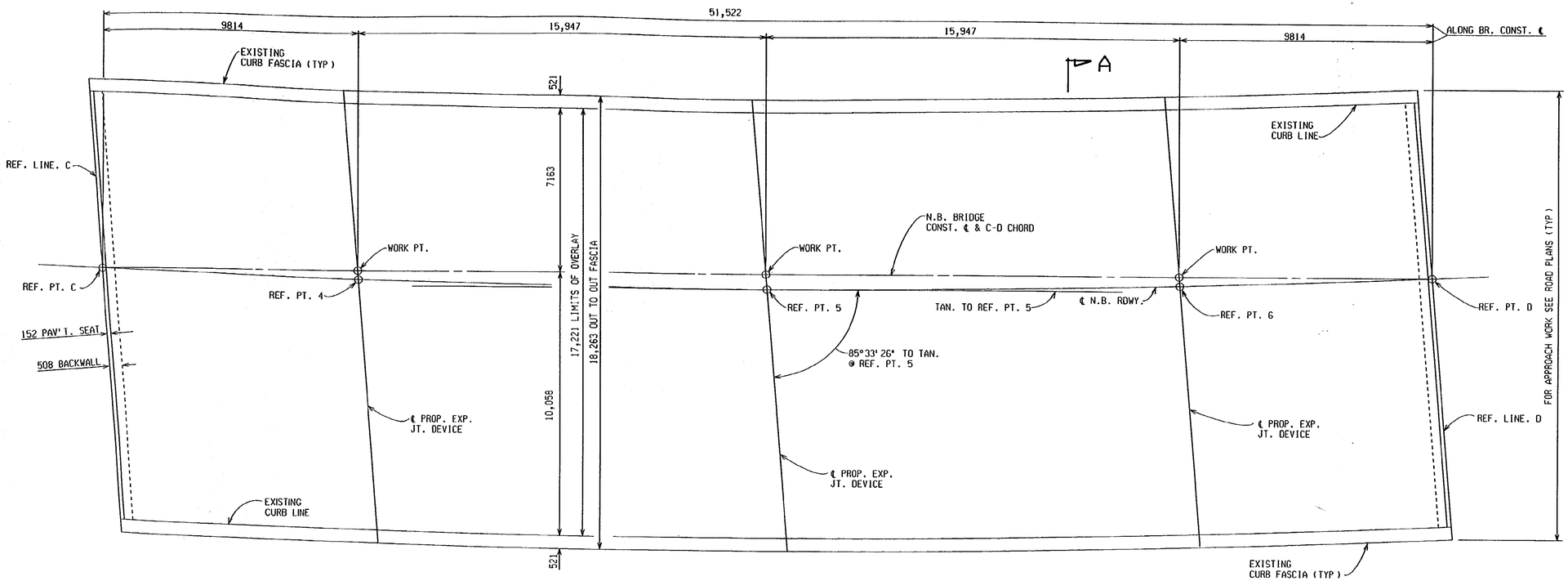
MICHIGAN DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT DETAILS N.B.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01	S03 OF 63174	49595A	MAHDAVI	6 OF 8

EJ3T (11-17-97)

CONTROL SECTION S03 OF 63174 | JOB NO. 49595A | SH. NO. 7



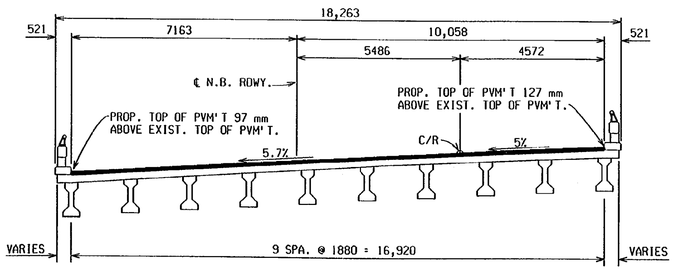
PLAN OF DECK (NORTH BOUND)

LIMITS OF FALSE DECKING ARE OUT TO OUT OF SLAB FASCIA AND PIER 4 TO PIER 6

MISCELLANEOUS QUANTITIES

20 m2	Bit Patch, Rem
890 m2	Scarifying
890 m2	Hydrodemolition, First Pass
36 m2	Hydrodemolition, Second Pass
890 m2	Bridge Deck Surface Construction
940 m2	False Decking
55 m	Deck Joint, Rem
13 m3	Conc, Grade D,
38 m3	Conc, Bridge Deck Overlay
10 m2	Hand Chipping, Deep

THE ACTUAL QUANTITY OF "CONCRETE BRIDGE DECK OVERLAY" PLACED ON THE DECK WAS _____ CUBIC METERS. (THIS INFORMATION IS TO BE FILLED IN BY THE ENGINEER WHEN SUBMITTING "AS CONSTRUCTED" PLANS.)



SECTION A-A

NOTES:

WHERE STRUCTURAL STEEL IS EXPOSED DURING JOINT REMOVAL, IT SHALL BE CLEANED AND COATED. CLEANING, COATING AND PROTECTION OF WORK AND ENVIRONMENT ARE INCLUDED IN THE BID ITEM "DECK JOINT, REM".

THE ITEM "DECK JOINT, REM" INCLUDES HAND CHIPPING WITHIN LIMITS REQUIRED FOR REMOVAL.

I-75 NB TRAFFIC IS TO BE MAINTAINED BY PART-WIDTH CONSTRUCTION.

WHERE STRUCTURAL STEEL IS EXPOSED DURING THE REMOVAL OF UNSOUND DECK CONCRETE, IT SHALL BE CLEANED AND COATED. CLEANING SHALL BE BY BLASTING OR POWER TOOLS. THE PROTECTION OF WORK AND ENVIRONMENT DURING CLEANING WILL BE PAID FOR AS EXTRA WORK.

THE CONTRACTOR SHALL REMOVE AND REPLACE ONLY THAT PORTION OF THE CURB THAT IS NECESSARY FOR INSTALLATION OF THE DECK JOINT. PAYMENT FOR THIS WORK IS INCLUDED IN THAT FOR EXPANSION JOINT DEVICE.

APPROXIMATE INCREASE OF THE ℄ ELEVATION IS 20 mm.

THE VOLUME OF CONCRETE BRIDGE DECK OVERLAY IS BASED ON THE OVERLAY AND AN ESTIMATED QUANTITY TO REPLACE UNSOUND CONCRETE AND TO MAKE GRADE ADJUSTMENTS AS DETERMINED BY THE ENGINEER.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

BEFORE OVERLAYING, SOUND CONCRETE TO DETERMINE WHETHER 450 mm REMOVAL AT EITHER SIDE OF TRANSVERSE JOINTS WILL BE ADEQUATE. INCREASE THE REMOVAL LIMITS IF NECESSARY.

SILICA FUME MODIFIED CONCRETE OR LATEX MODIFIED CONCRETE MAY BE SELECTED FOR THE BRIDGE DECK OVERLAY CONCRETE, SEE SPECIAL PROVISION.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: 01-10-01 CORRECTED BY: INDER

DATE: 03-10-99 CHECKED BY: WM

DRAWN BY: INDER

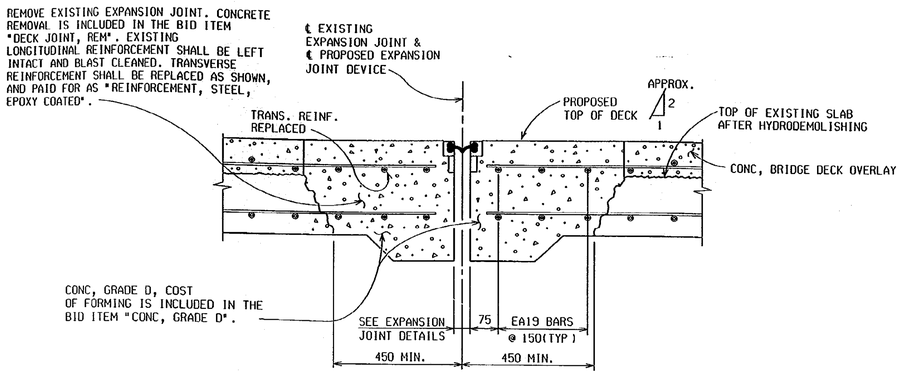
FILE NAME: s0363174n.ov

MDOT Michigan Department of Transportation

DECK RESURFACING DETAILS N.B.

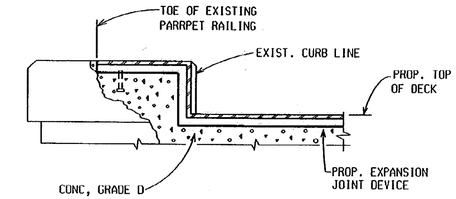
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01	S03 OF 63174	49595A	MAHDAVI	7 OF 8

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 8

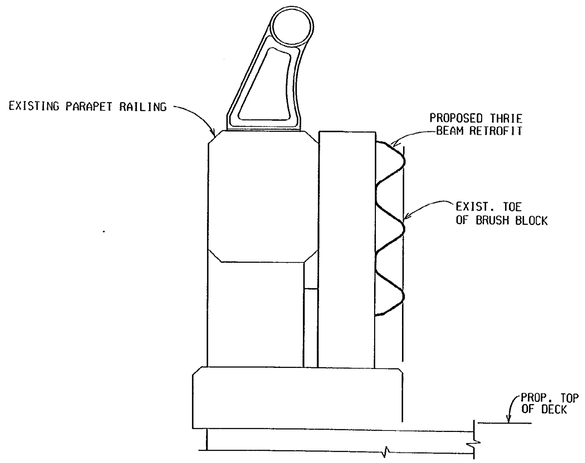


SECTION AT PROPOSED EXPANSION JOINT DEVICE

BEFORE FORMING, SOUND CONCRETE TO SEE IF ADDITIONAL REMOVAL WILL BE REQUIRED.

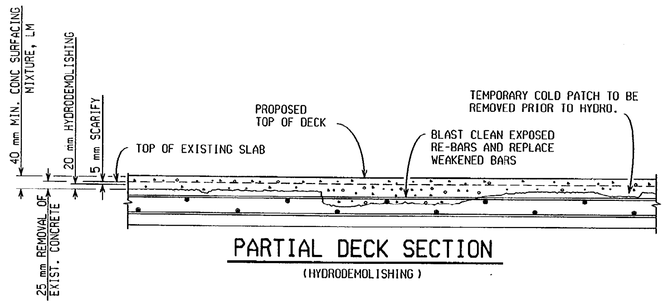


SECTION THRU CURB AT PROP. EXPANSION JOINT



SECTION THRU EXIST. BARRIER AT PROP. EXPANSION JOINT DEVICE W/ PROP. THRIE BEAM RETROFIT

(SEE ROAD PLANS AND STANDARD PLAN B-23 FOR THRIE BEAM RETROFIT DETAILS AND QUANTITIES)



PARTIAL DECK SECTION

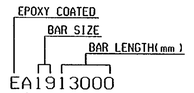
(HYDRODEMOLISHING)

EA BAR

EPOXY COATED STEEL REINFORCEMENT

BAR	NO. REQ'D	TOTAL MASS
EA1910590	36	852
EA1908610	36	693
* OVERRUN		155
GRAND TOTAL = 1700		

* STEEL REINFORCEMENT NEEDED TO REPLACE WEAKENED REINFORCEMENT FOUND DURING DECK PREPARATION.



BAR LEGEND

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: 01-10-01
DATE: 01-10-01 CORRECTED BY: INDER
DATE: 03-09-99 CHECKED BY: WM
DRAWN BY: INDER
FILE NAME: s036317 4n.ov

DECK RESURFACING DETAILS N. B.

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01	S03 OF 63174	49595A	MAHDAVI	8 OF 8

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 2

BENCH MARKS

B.M. #71 El. 838.34 M.S.H.D. B.M. Tag in Root of 24" Elm 167 Ft. of R.R. Mile Post #6 & 12 Rdwy.

B.M. #69 El. 837.24 M.S.H.D. B.M. Tag in Root of 15" Elm 158 Ft. of 924+06 N.B. Rdwy.

UTILITIES

Michigan Bell Telephone 80' North & Parallel to 12 Mile Road
Detroit Edison 86' Sou, 28' Nor, and 48' Non. All Lines parallel to 12 Mile Road.
Detroit Water Board 12" Water Main 45' North & parallel to 12 Mile Road.
City of Madison Heights 36"x48" Sewer 15' South & parallel to 12 Mile Road. F.L. El. 607.50 @ N.B. Rdwy.
Consumers Power Co. - 6" Steel Medium Pressure Gas Line, 16' North of & 12 Mile Rd.

SECTION 14
T1N R11E
ROYAL OAK TWP.

SECTION 11
T1N R11E
ROYAL OAK TWP.

Δ	Curve Data
D	29°02'00"
R	1909.86
T	496.61
L	967.96
E	63.01
Ac:	915'+39.23
Pi:	920+33.84
Rt:	925+29.19
Sc	1.05°TH

Location of Existing Detroit Edison Co Conduit
Concrete Spillway Header E-4-A-184 (Typ. on Outside S.B. Rdwy only)
Br. Appr. Curb & Gutter E-4-A-134C Detail 3 (Typ. on Outside S.B. Rdwy only)
8'C.M.P. (Typ.)
RAMP F
RAMP C
Ref. Pt. A Sta. 922+77.34
Ref. Pt. B Sta. 924+54.52
Br. Appr. Curb & Gutter E-4-A-134C-Det. 1 (Typ. @ Median-N.B. Rdwy Only)
Ref. Pt. C Sta. 922+87.55
Br. Appr. Curb & Gutter E-4-A-134C-Det. 2 (Typ. unless Noted)
Ref. Pt. C Sta. 924+51.09
Sta. 923+72.45 N.B. Rdwy. = Sta. 99+95.24-12 Mile Rd.
Location of Proposed Detroit Edison Co Conduit (9.4" Ducts). Installation to be completed prior to Bridge Const.
Consumers Power Co 6" Steel M.P.
All substructure units are to be constructed parallel to the & 12 Mile Road.
N1°59'56"W
Tan. to & N.B. Rdwy. @ Sta. 923+72.45 N2°02.3o E
(Not Br. Const. #)
(Not Br. Const. #)
(Not Br. Const. #)
12 Mile Road
Elev. G37.54
Elev. G36.99
Proposed Profile 12 Mile Road
100 PROFILE 12 MILE ROAD HOR. SCALE 1"=40' VER. SCALE 1"=10'

WITNESSES TO N 1/4 COR. SEC. 14
STA. 97+49.59
Lamp Pole
14" Elm
WITNESSES TO R.O.C.T.
STA 923+72.58 N-B RDWY.
STA 100+00.00 12 MI. RD.
WITNESSES TO P.T.
STA 925+07.19
Boot Spike
Survey Tack
WITNESSES TO P.I.
STA 920+33.84
WITNESSES TO P.O.T
STA. 110+00.00
P.K. Nail
Bootspike
96" Oak
14" Oak
20" Fruit Tree
Limits of Work these Plans

SITUATION PLAN
SCALE: 1"=40'

WITNESSES AND ALIGNMENT SKETCH

PROFILE
VERT. SCALE — 1" = 10'
HOR. SCALE — 1" = 40'

Limits of Porous Material Grade A-1 690 C.Y. (Typ.) (Compacted in Place)
+3.00%
Bot. & Selected Subbase
Profile T.15
Fill under abutment, including topsoil removal & backfilling 4,670 C.Y. Earth Excavation (Included in Road Plans)
Abut. A
Abut. B
Pier #4
Pier #5
Remove Topsoil
Bot. Ftg. El. 631.45
Bot. Ftg. El. 626.66
Bot. Ftg. El. 630.43
Ground Line
Dimensions & 12 Mile Rd.
-2.90%
Type I & III
10" Prestressed Concrete I Beams
Type III
Type III
5'0" Berm (Typ.)
Limits of Porous Material Grade A-1 690 C.Y. (Typ.)
Bot. Ftg. (Compacted in Place) El. 644.86
Slope Protection Class A (Typ.)
Fill under abutment, including Topsoil removal & backfilling 4,670 C.Y. Earth Excavation (Included in Road Plans)
Ref. Pt. A Sta. 922+77.34 El. 640.65
Ref. Pt. B Sta. 924+54.52 El. 640.35
Ref. Pt. C Sta. 922+87.55 El. 640.61
Ref. Pt. D Sta. 924+51.09 El. 640.17
Ref. Pt. E Sta. 923+72.45 El. 640.66
Ref. Pt. G Sta. 924+24.85 El. 640.35
Ref. Pt. H Sta. 924+51.17 El. 640.17

GENERAL NOTES

Fences and utilities are to be moved by others.
Buildings are to be removed by others.
Datum refers to U.S.G.S. datum.
Traffic is to be maintained over the temporary road, until half the structure is complete.
This bridge is part of an interchange and all the area shown is within M.S.H.D. R.O.W.
Piers #1, 3, 4 & 6 shall be constructed and backfilled prior to construction of the aputment fills.
The work covered by these plans includes construction of the proposed bridge, placing porous material and placing slope protection class A to the limits shown.
All work not listed above is included in the road plans.
Hampden Road to be closed at edge of interchange R.O.W.

REVISIONS

NO.	DESCRIPTION	DATE	BY

To Median
& Rdwy. (Not Br Const. #)
8'-0" 18'-0" 18'-0" 12'-0" 10'-0"
2'-0"
Agg. & Bituminous Appr. Mixture
Conc. Pvmt. 9" Unif. Reinf.
Agg. Base Crs. Full Depth
3'-6"
2'-0"
Steel Beam Guardrail
8½" Crn.
8½" Crn.
5½" Crn.
Br. Appr. Curb & Gutter
1.12' below P.G.
1.92' below P.G.
.02" /ft.
Porous Mat'l. Gr A
4" Selected Subbase
Subbase

HALF SECTION AT STRUCTURE

HALF SECTION ON APPROACH

STEPHENSON HWY.
M-150
BOI of 63174D
BO2 of 63174D
FAI-75
303 of 63174D
(340) 4000
(6300) (5700)
(1550) 1450
(14851) (14800)
(2330) 2330
(1450) 1450
(1450) 1450
(300) (300)
(5500) (4400)
(8700) (6300)
(13300) (14500)
(16200) (18400)

LEGEND
(400)- Average Daily Traffic
(100)- Design Hourly Volume
00%- % Commercial

1978 ESTIMATED TRAFFIC DISTRIBUTION

2:1 Slope
Ref. Line
10'-0" to 5'-6" Shoulder Trans.
50'-0"
2'-9"
& SB Rdwy. (Not Br. Const. #)
28.5' Steel Beam G.R.
4:1 Slope
100'-0"
150'-0"
10'-0" To 8'-0" Shoulder Trans.
8'-0" to 10'-0" Shoulder Trans.
& NB. Rdwy. (Not Br. Const. #)
203.5' Steel Beam G.R.
10'-6" to 5'-6" Shoulder Trans.

HALF APPROACH GRADING PLAN

CONTROL SECTION 63174I

MICHIGAN STATE HIGHWAY DEPARTMENT

I 75 OVER 12 MILE ROAD IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF SITE

TECON ENGINEERS, INC.

APPROVED: J. U. Murray — COORDINATING ENGINEER — 6-5-62

APPROVED: ENGINEER OF DESIGN — CONSULTANTS

S03 OF 63174I

REVISIONS

NO.	DESCRIPTION	DATE	BY

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

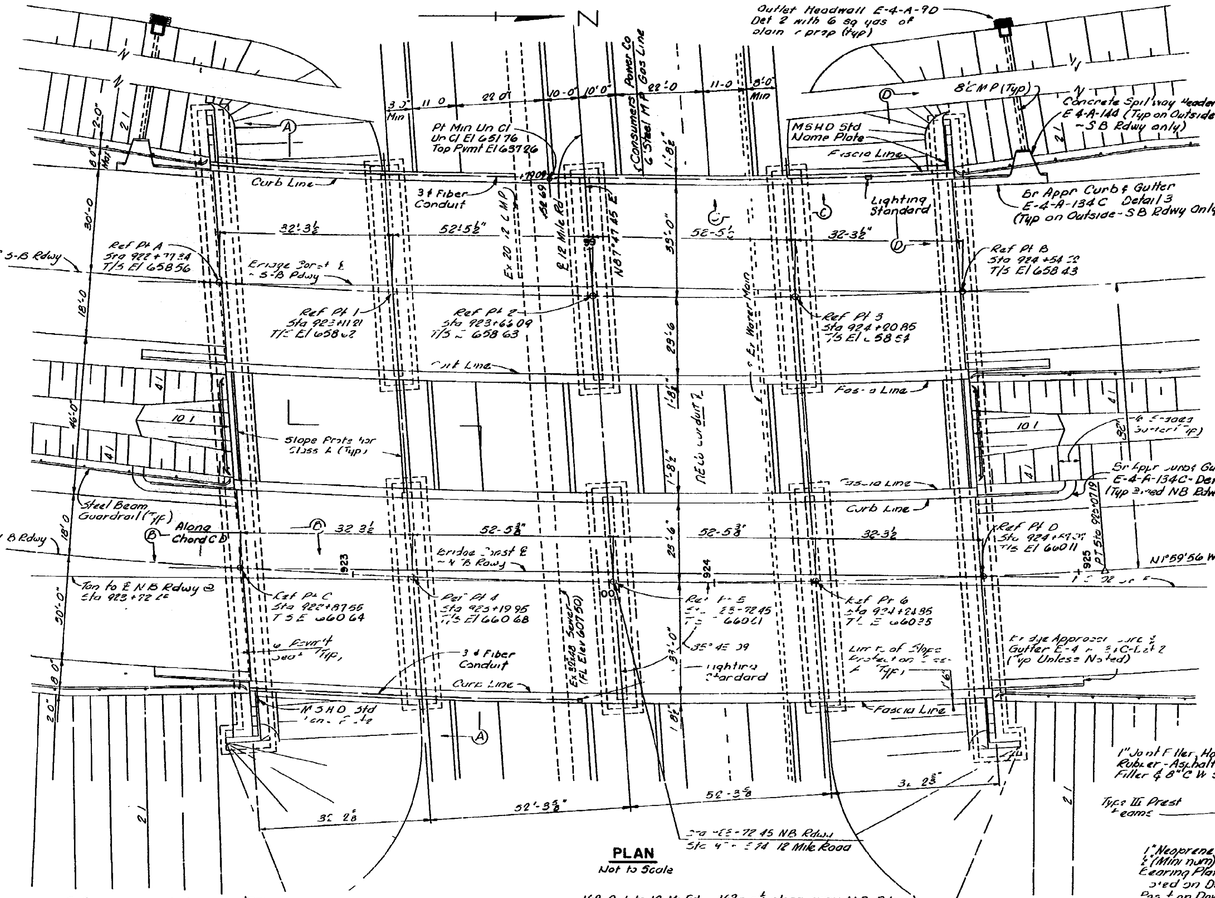
SOUTH BOUND

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01-	S03 OF 63174	49595A	MADHAVI	2 OF 9

DATE: 01-10-01 CORRECTED BY: INDER DATE: DRAWN BY: inder DATE: CHECKED BY: FILE NAME: s03631745n.nb

CONTROL SECTION S03 OF 63174 | JOB NO. 49595A | SH. NO. 3

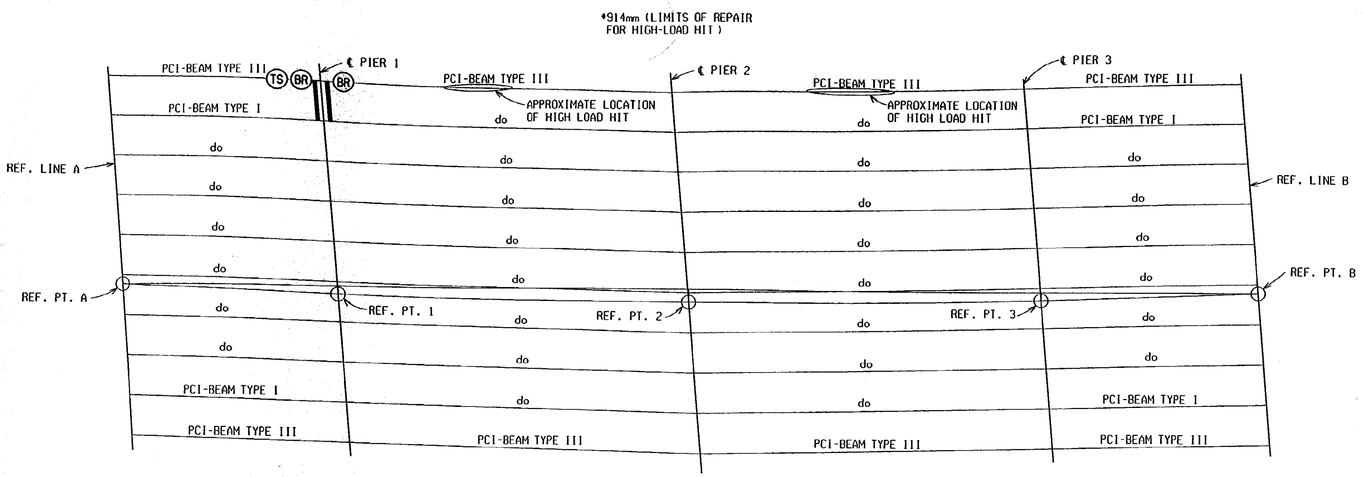
REVISIONS			
NO.	DESCRIPTION	DATE	BY


Outlet Headwall E-4-A-90 Det 2 with 6 sq yds of plain riprap (typ)
Consumers Power Co & Steel Hill Gas Line
8'-0" MP (Typ)
Concrete Spillway Header E-4-A-144 (Typ on Outside SB Rdwy only)
Pt Min Un Cl El 651.76
Top Pvmt El 659.96
M S H D Std Name Plate
Fascia Line
Lighting Standard
Br Appr Curb & Gutter E-4-A-134 C Detail 3 (Typ on Outside SB Rdwy Only)
Curb Line
3 ϕ Fiber Conduit
Ref Pt A Sta 922+77.84 T/S El 658.56
Ref Pt B Sta 924+54.20 T/S El 658.43
Ref Pt 1 Sta 923+11.81 T/S El 658.42
Ref Pt 2 Sta 923+66.09 T/S El 658.63
Ref Pt 3 Sta 924+20.85 T/S El 658.84
Ref Pt D Sta 924+49.35 T/S El 660.11
Ref Pt 4 Sta 925+19.85 T/S El 660.68
Ref Pt 5 Sta 925+78.45 T/S El 660.61
Ref Pt 6 Sta 924+28.95 T/S El 660.35
Slope Protection Class A (Typ)
Steel Beam Guardrail (Typ) Along Chord CD
Tan to E N B Rdwy @ Sta 925+72.12
Cat Pt C Sta 925+19.86 T/S El 660.64
Bridge Post E-4 B Rdwy
Bridge Post E-4 A Rdwy
Br Appr Curb & Gutter E-4-A-134C Detail 1 (Typ at wed NB Rdwy only)
Lighting Standard
Br Appr Approach Slab & Gutter E-4-A-51C, L, L2 (Typ Unless Noted)
Limits of Slope Protection (Typ)
M S H D Std Name Plate
Fascia Line
N 1°59'56" W
E N B Rdwy
E S B Rdwy
Exist 42" Water Main
Exist 12" Water Main
Exist 8" Sanitary Sewer (Invert Elev 609.50)
Exist 6" Gas Main
Exist 12" Storm Sewer
Exist 24" Storm Sewer
Exist 30" Storm Sewer
Exist 36" Storm Sewer
Exist 48" Storm Sewer
Exist 60" Storm Sewer
Exist 72" Storm Sewer
Exist 84" Storm Sewer
Exist 96" Storm Sewer
Exist 108" Storm Sewer
Exist 120" Storm Sewer
Exist 132" Storm Sewer
Exist 144" Storm Sewer
Exist

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 4

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN

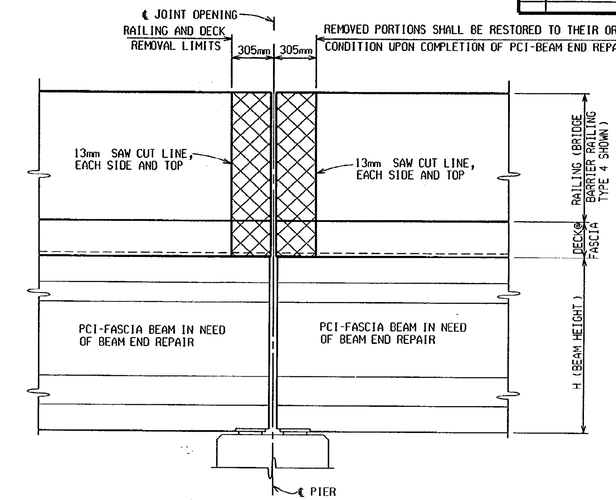
BEAM END REPAIR

(BR) DENOTES BEAM END REPAIR

(DR) DENOTES DIAPHRAGM REPAIR

(TS) DENOTES TEMPORARY SUPPORT

+ LIMITS OF HIGH-LOAD HIT REPAIR SHALL BE FIELD VERFIED AND REPAIRED AS DIRECTED BY THE ENGINEER.



ELEVATION OF FASCIA SHOWING SLAB AND RAILING REMOVAL LIMITS

(BRIDGE BARRIER RAILING, TYPE 4 IS SHOWN. SITUATION USING OTHER RAILING TYPES, INCLUDING RAILINGS ON BRUSH BLOCKS OR SIDEWALKS , IS SIMILAR)

▨ DENOTES REMOVAL LIMITS REQUIRED FOR PROPER PLACEMENT OF CONCRETE DURING EXTERIOR PORTION OF FASCIA BEAM REPAIR.

PORTION OF RAILING, BRUSH BLOCK IF REQUIRED, AND SLAB SHALL BE REMOVED AS SHOWN, ONLY IF EXTERIOR SIDE OF FASCIA BEAM WILL RECIEVE PCI-BEAM END REPAIR. INCLUDED IN THE BID ITEM *Structure, Rehabilitation, Rem Portions (S03, SB)*.

DURING REMOVAL, CARE SHALL BE TAKEN TO AVOID DAMAGING THE EXISTING STEEL REINFORCEMENT IN THE RAILING, BRUSH BLOCK IF REQUIRED, AND PORTION OF SLAB. ONCE THE PCI-FASCIA BEAM REPAIR IS COMPLETED, THE EXPOSED STEEL REINFORCEMENT SHALL BE CLEANED, STRAIGHTENED AND RECAST INTO PROPOSED CONCRETE, NOT PAID FOR SEPARATELY BUT INCLUDED IN THE BID ITEM *Conctete, Grade D*.

COST OF FORMING FOR THE PORTION OF BRIDGE RAILING AND BRUSH BLOCK SHALL BE INCLUDED IN THE BID ITEM *Conc, Grade D*.

STEEL RAILING POSTS, TUBES AND ATTACHMENT HARDWARE REQUIRING REMOVAL, SHALL BE SALVAGED AND REINSTALLED, NOT PAID FOR SEPARATELY BUT INCLUDED IN THE BID ITEM *Concrete, Grade D*.

REMOVAL AND REPLACEMENT LIMITS MAY BE INCREASED AT THE CONTRACTORS EXPENSE.

MISCELLANEOUS QUANTITIES

6 m2	Patch, Forming
2 ea	Removal,Beam End Repair *
1 m3	Hand Chipping, Other Than Deck
132 kg	Reinforcement, Steel, Epoxy Coated
3 m3	Patching Concrete, LM ***
1 m3	Conc, Grade D
6 m2	Forming, Beam End Repair*
1 LS	Concrete Surface Sealer * **
1 LS	Structures, Rehabilitation, Rem Portions (S03, SB)
2 m3	Hand Chipping, Special +
1 ea	Strand Splicing +
58 m2	Slope Paving, Conc
25 m	Slope Paving Header

* REFER TO SPECIAL PROVISION FOR PRESTRESSED CONCRETE BEAM END REPAIR.
** REFER TO SPECIAL PROVISION FOR CONCRETE SURFACE SEALERS.
*** REFER TO SPECIAL PROVISION FOR STRUCTURAL REPAIR WITH LATEX MODIFIED CONCRETE.
+ FOR REPAIR OF HIGH LOAD HIT ON THE FASCIA BEAMS (SEE SPECIAL PROVISION FOR *Prestressed Concrete Beam Repair*).

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES RESURFACING THE EXISTING BRIDGE DECK, THRIE BEAM RETROFIT, EXPANSION JOINT REPLACEMENT, CONCRETE BEAM END REPAIR, SUBSTRUCTURE REPAIR AND MAINTAINING TRAFFIC. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE A PART OF THIS CONTRACT.

IF THE CONTRACTOR ELECTS TO REPAIR MORE THAN ONE BEAM END AT A TIME, WORK SHALL NOT BE DONE ON THE SAME END OF ANY ADJACENT BEAM OR AT THE OPPOSITE END OF THE BEAM BEING REPAIRED.

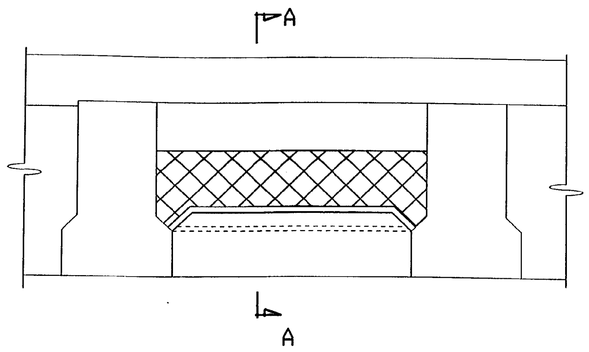
ES DENOTES EACH SIDE.

ADHESIVE ANCHOR EB13 BARS INTO 38 mm Ø HOLES IN BEAM WEB.

DRILLING OF HOLES SHALL NOT BE PERMITTED, EXCEPT AS NOTED.

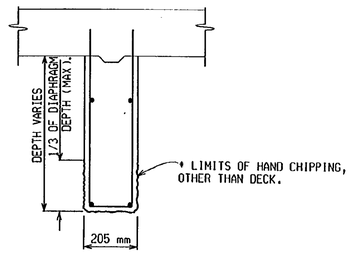
THE LIMITS OF THE CONCRETE SEALER SHALL INCLUDE THE OUTSIDE FACE FOR THE FULL LENGTH OF THE FASCIA BEAMS AND ALL SURFACES OF ALL BEAM ENDS NOT BEING REPAIRED FOR A LENGTH NOT LESS THAN TWICE THE BEAM DEPTH. REFER TO SPECIAL PROVISION FOR CONCRETE SURFACE SEALERS FOR PRODUCT INFORMATION AND SURFACE PREPARATION. THE ESTIMATED QUANTITY IS 310m2.

WHERE A DIAPHRAGM IS REMOVED IN A BAY FROM THE SIDE OF A BEAM THAT IS NOT BEING REPAIRED, THE EXISTING INSERT HOLES SHALL BE FILLED WITH CAULK AND THE PROPOSED DIAPHRAGM REINFORCEMENT SHALL BE EPOXY ANCHORED TO THE BEAM IN THE NEW LOCATION. INCLUDED IN THE PAY ITEM *Removal, Beam End Repair*.



▨ LIMITS OF HAND CHIPPING, OTHER THAN DECK.

END DIAPHRAGM



+ LIMITS OF HAND CHIPPING AND LOCATION SHALL BE FIELD VERIFIED AND AS DIRECTED BY THE ENGINEER.

SECTION A-A

MDOT Michigan Department of Transportation

BEAM REPAIR DETAILS

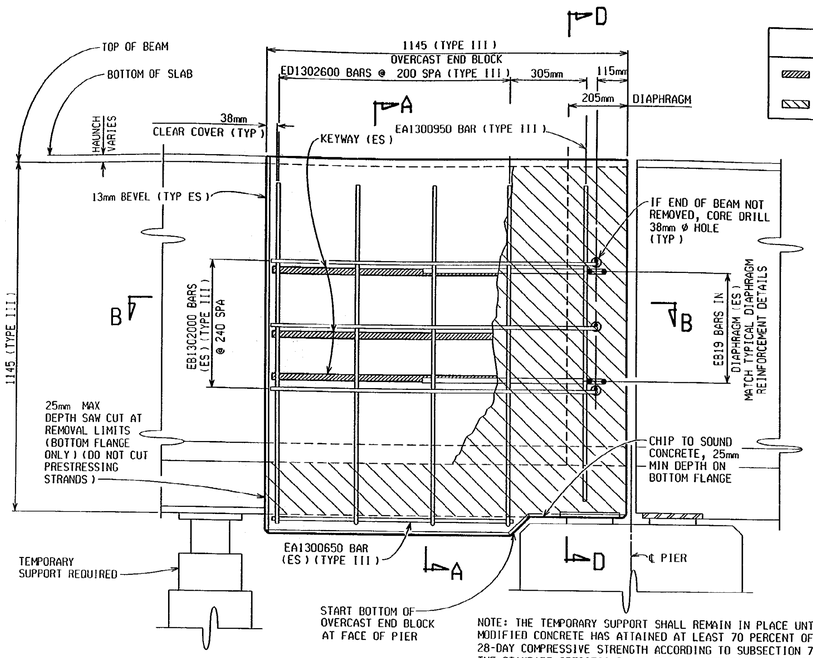
SOUTH BOUND

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01	S03 OF 63174	49595A	MAHDAVI	4 OF 9

DRAWN BY: R.K.OLIN DATE: 01-10-01 CORRECTED BY: INDER DATE: 11/2000 CHECKED BY: WM

FILE NAME: s03631744.br

CONTROL SECTION S03 OF 63174 | JOB NO. 49595A | SH. NO. 5



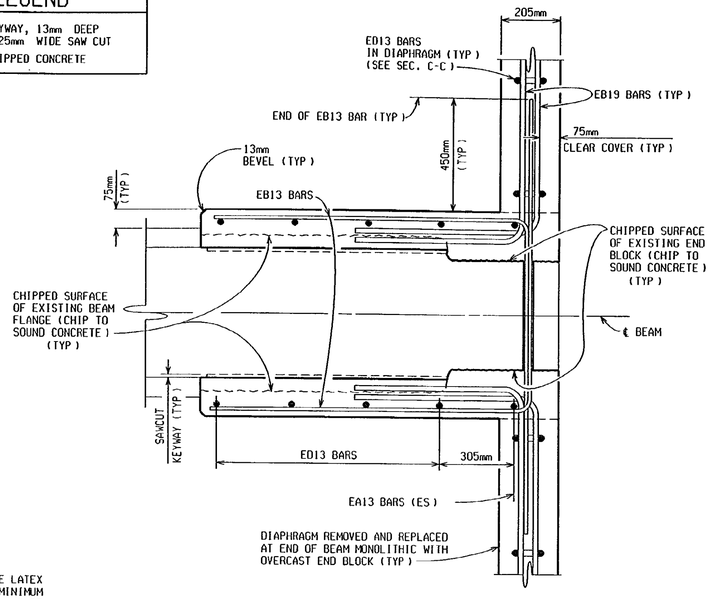
NOTE: THE TEMPORARY SUPPORT SHALL REMAIN IN PLACE UNTIL THE LATEX MODIFIED CONCRETE HAS ATTAINED AT LEAST 70 PERCENT OF ITS MINIMUM 28-DAY COMPRESSIVE STRENGTH ACCORDING TO SUBSECTION 701.03.F.6 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, 1996 EDITION.

BEAM END ELEVATION

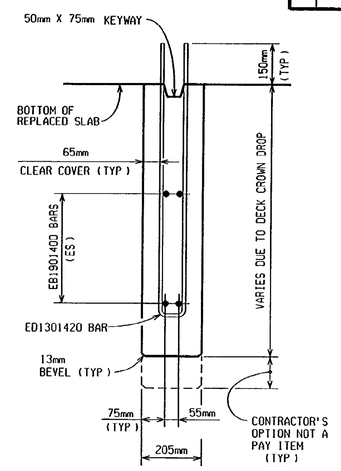
(SITUATION AT PIER IS SHOWN. SITUATION AT ABUTMENT WITH INDEPENDENT BACKWALL IS SIMILAR).

LEGEND

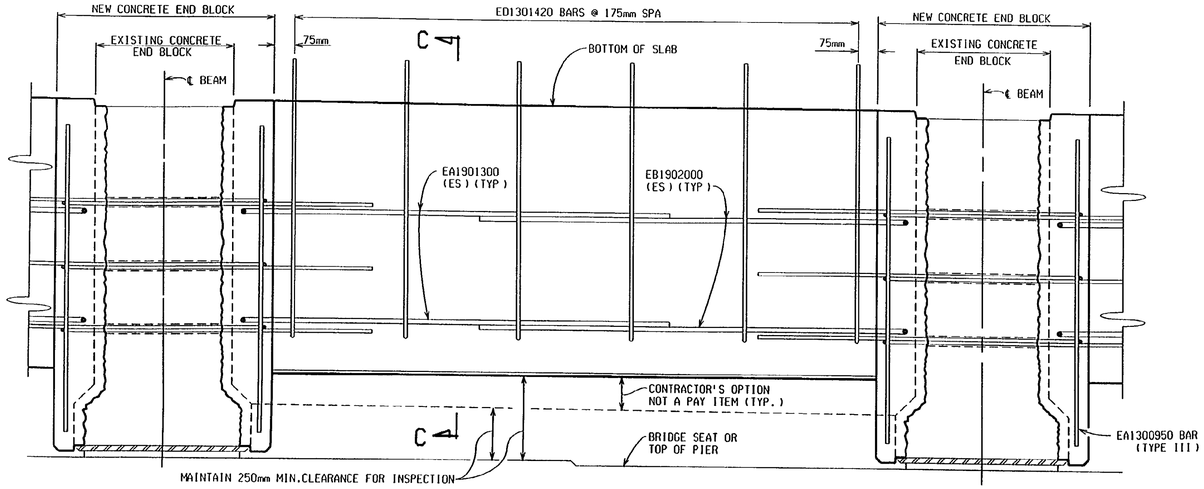
- KEYWAY, 13mm DEEP X 25mm WIDE SAW CUT
- CHIPPED CONCRETE



SECTION B-B



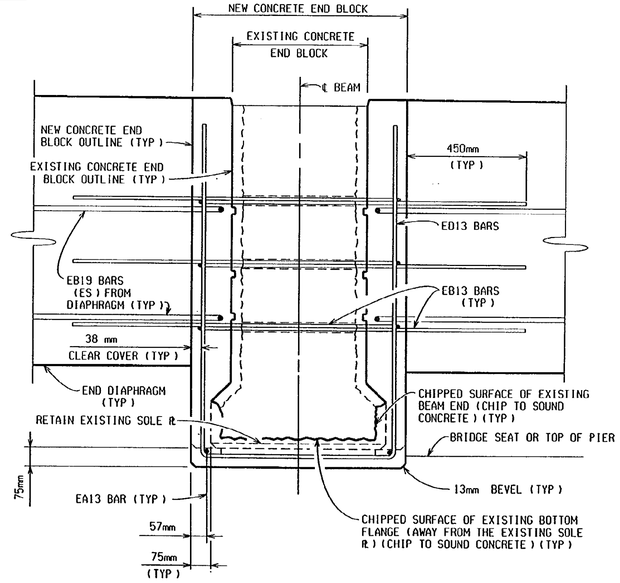
SECTION C-C



SECTION D-D (DIAPHRAGM ELEVATION)

(SHOWING STEEL REINFORCEMENT)

NOTE: REPLACE DECK OVER BEAM END REPAIR AREA.



SECTION A-A

(ED13 BARS IN DIAPHRAGMS NOT SHOWN)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

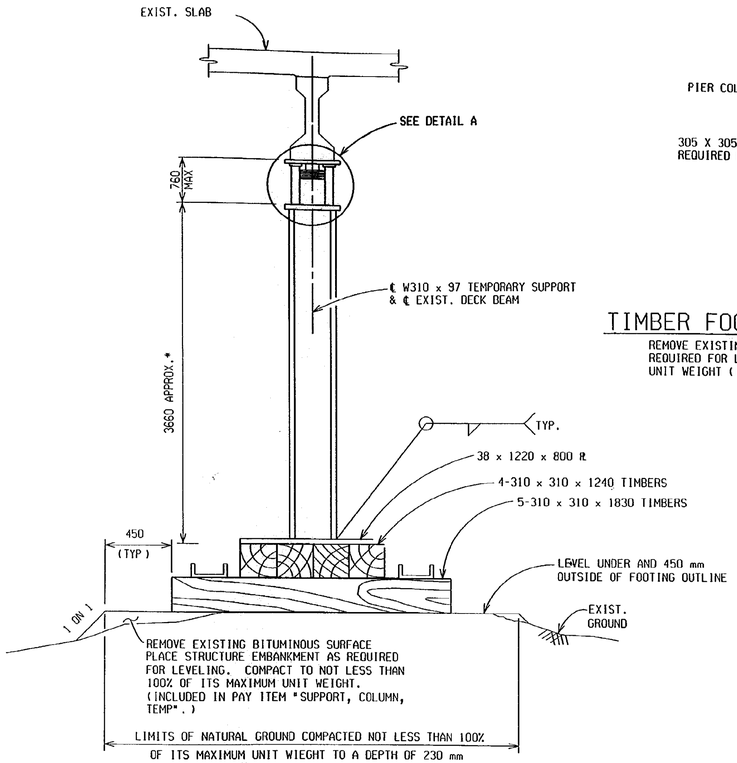
BEAM REPAIR DETAILS

SOUTH BOUND

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01	S03 OF 63174	49595A	MAHDAVI	5 OF 9

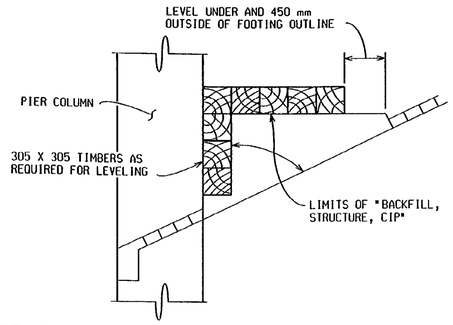
DATE: 12-1-00 CORRECTED BY: R.K.OLIN
DATE: 11/2000 CHECKED BY: WM
DRAWN BY: R.K.OLIN
FILE NAME: s0363174s.br

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 6



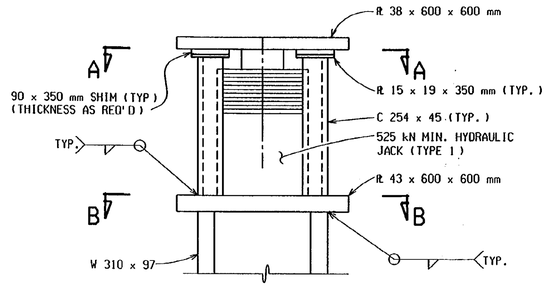
TIMBER FOOTING ON NATURAL GROUND-TS 1

* EXACT HEIGHT TO BE DETERMINED BY CONTRACTOR. HEIGHT NOT TO EXCEED 4270mm.

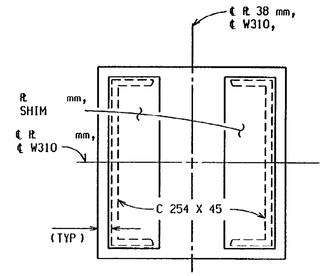


TIMBER FOOTING ON SLOPE PAVING-TS 2

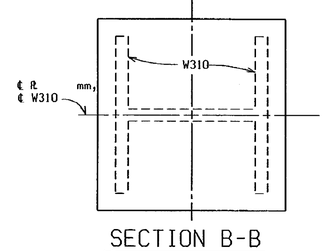
REMOVE EXISTING SLOPE PAVING, PLACE STRUCTURE EMBANKMENT AS REQUIRED FOR LEVELING COMPACT TO NOT LESS THAN 100% OF ITS MAX. UNIT WEIGHT (INCLUDED IN THE PAY ITM "SUPPORT, COLUM, TEM").



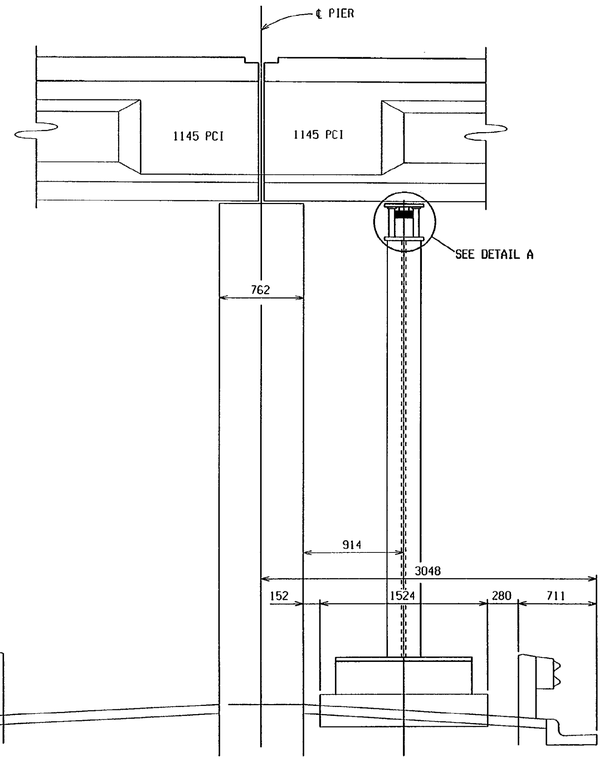
DETAIL A



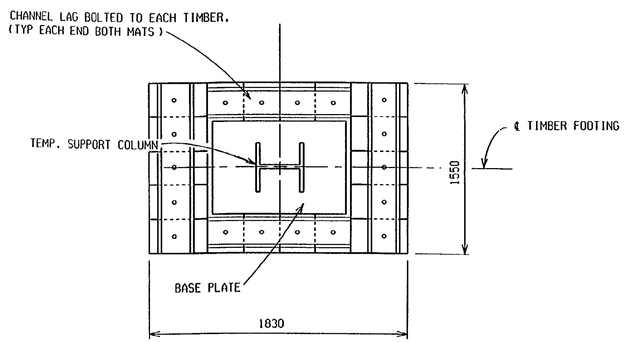
SECTION A-A



SECTION B-B



TEMPORARY SUPPORT AT PIER-TS 1



TIMBER FOOTING PLAN

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: 01-10-01 CORRECTED BY: CINDER

DATE: 11/2000 CHECKED BY: WM

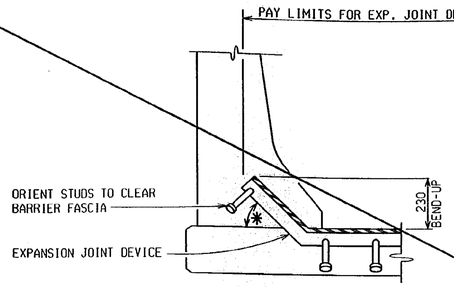
DRAWN BY: R.K.OLIN

FILE NAME: s0363174s.br

MDOT Michigan Department of Transportation

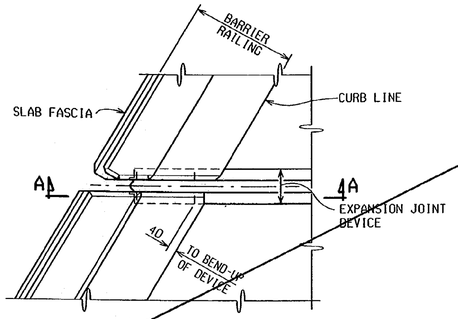
TEMPORARY SUPPORT DETAILS				
SOUTH BOUND				
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01	S03 OF 63174	49595A	MAHDAVI	6 OF 9

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 7



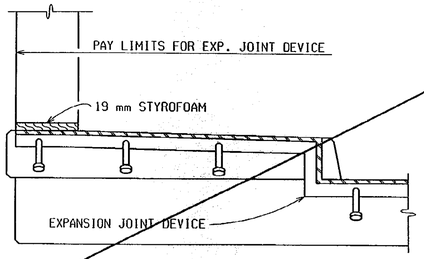
SECTION A-A

*—FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG ℄ EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.

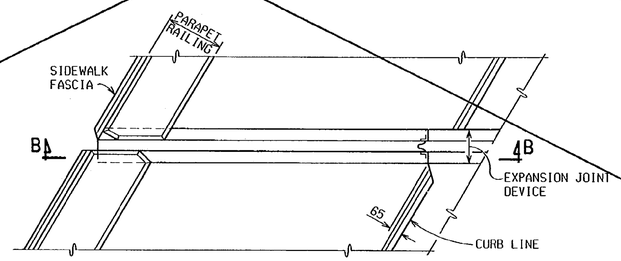


PLAN AT BARRIER RAILING

BARRIER TREATMENT

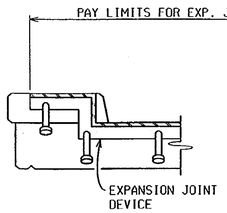


SECTION B-B

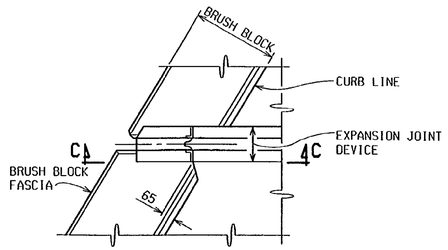


PLAN AT PARAPET RAILING
(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT



SECTION C-C



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S03 SB	90°	PIER 1	14 mm	18.4 m
S03 SB	90°	PIER 2	14 mm	18.3 m
S03 SB	90°	PIER 3	14 mm	18.3 m

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	55

DATE: 12-1-00 CORRECTED BY: R.K.OLIN
DATE: DATE: 4-2-99 CHECKED BY: WM
DRAWN BY: INDER

EXPANSION JOINT DETAILS S.B.

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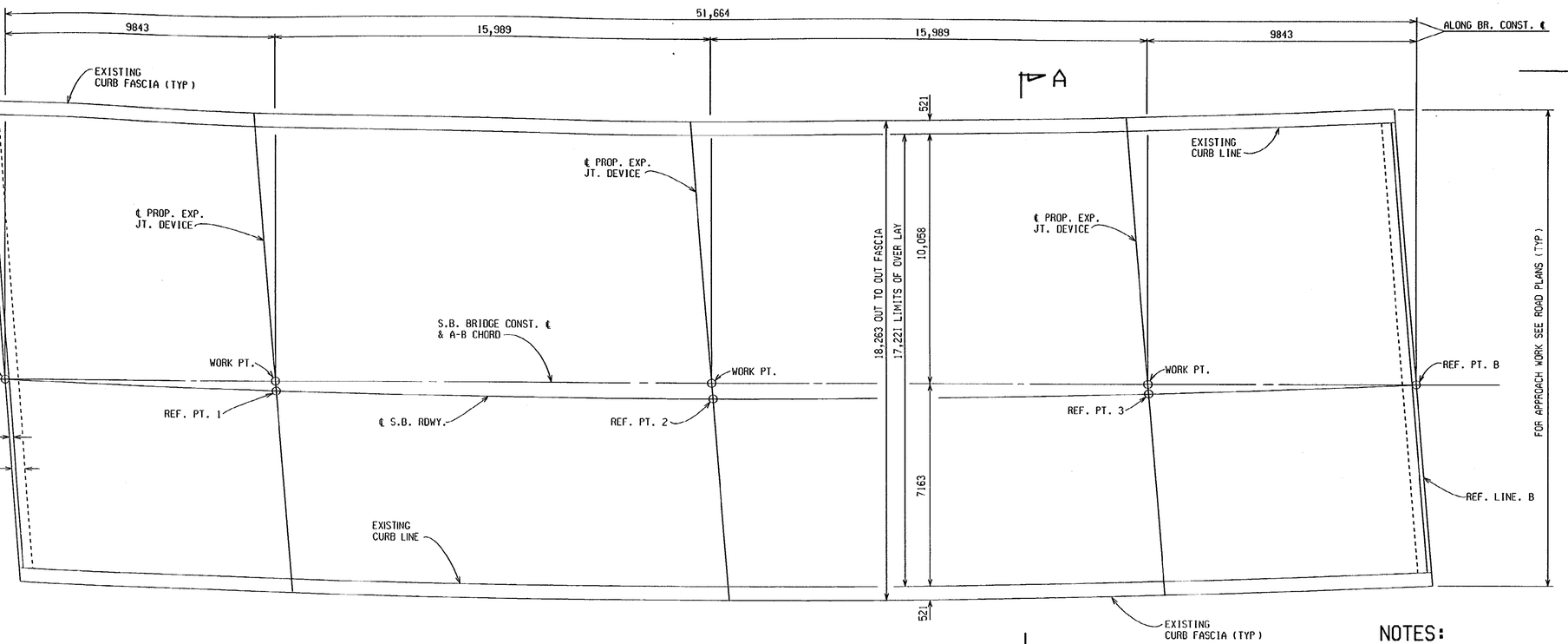
01-10-01	S03 OF 63174	49595A	MAHDAVI	7 OF 9

EJ3T (11-17-97)

FILE NAME: s0363174s.ej

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 8

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN OF DECK (SOUTH BOUND)

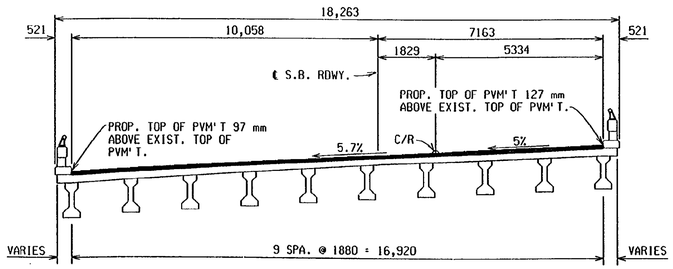
LIMITS OF FALSE DECKING ARE OUT TO OUT OF SLAB FASCIA AND PIER 1 TO PIER 3

MISCELLANEOUS QUANTITIES

20 m2	Bit Patch, Rem
890 m2	Scarifying
890 m2	Hydrodemolition, First Pass
36 m2	Hydrodemolition, Second Pass
890 m2	Bridge Deck Surface Construction
940 m2	False Decking
55 m	Deck Joint, Rem
13 m3	Conc, Grade D,
* 50 m2	Patch, Forming
* 5 m3	Hand Chipping, Other Than Deck
* 5 m3	Patching Conc, LM, Mixture
10 m2	Hand Chipping, Deep
38 m3	Conc, Bridge Deck Overlay
1 LS	Penetrating Water Repellent Treatment (S03-SB)
1 LS	Substructure Horizontal Surface Sealer (S03-SB)
36 ea	Reinforcement, Mechanical Splice

THE ACTUAL QUANTITY OF *CONCRETE BRIDGE DECK OVERLAY* PLACED ON THE DECK WAS _____ CUBIC METERS. (THIS INFORMATION IS TO BE FILLED IN BY THE ENGINEER WHEN SUBMITTING *AS CONSTRUCTED* PLANS.)

*SUBSTRUCTURE REPAIR AS DIRECTED BY THE ENGINEER.



SECTION A-A

NOTES:

WHERE STRUCTURAL STEEL IS EXPOSED DURING JOINT REMOVAL, IT SHALL BE CLEANED AND COATED. CLEANING, COATING AND PROTECTION OF WORK AND ENVIRONMENT ARE INCLUDED IN THE BID ITEM *DECK JOINT, REM*.

THE ITEM *DECK JOINT, REM* INCLUDES HAND CHIPPING WITHIN LIMITS REQUIRED FOR REMOVAL.

I-75 SB TRAFFIC IS TO BE MAINTAINED BY PART-WIDTH CONSTRUCTION.

APPROX, INCREASE OF THE ℄ ELEVATION IS 20 mm.

WHERE STRUCTURAL STEEL IS EXPOSED DURING THE REMOVAL OF UNSOUND DECK CONCRETE, IT SHALL BE CLEANED AND COATED. CLEANING SHALL BE BY BLASTING OR POWER TOOLS. THE PROTECTION OF WORK AND ENVIRONMENT DURING CLEANING WILL BE PAID FOR AS EXTRA WORK.

THE CONTRACTOR SHALL REMOVE AND REPLACE ONLY THAT PORTION OF THE CURB THAT IS NECESSARY FOR INSTALLATION OF THE DECK JOINT. PAYMENT FOR THIS WORK IS INCLUDED IN THAT FOR EXPANSION JOINT DEVICE.

THE VOLUME OF CONCRETE BRIDGE DECK OVERLAY IS BASED ON THE OVERLAY AND AN ESTIMATED QUANTITY TO REPLACE UNSOUND CONCRETE AND TO MAKE GRADE ADJUSTMENTS AS DETERMINED BY THE ENGINEER.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

BEFORE OVERLAYING, SOUND CONCRETE TO DETERMINE WHETHER 450 mm REMOVAL AT EITHER SIDE OF TRANSVERSE JOINTS WILL BE ADEQUATE. INCREASE THE REMOVAL LIMITS IF NECESSARY.

SILICA FUME MODIFIED CONCRETE OR LATEX MODIFIED CONCRETE MAY BE SELECTED FOR THE BRIDGE DECK OVERLAY CONCRETE, SEE SPECIAL PROVISION.

THE TOP HORIZONTAL SURFACES OF ALL PIER CAPS SHALL BE COATED WITH SUBSTRUCTURE HORIZONTAL SURFACE SEALER. THE ESTIMATED AREA IS 41 m2.

PENETRATING WATER REPELLENT TREATMENT SHALL BE APPLIED TO ALL SURFACES OF PIERS EXCEPT TOPS OF PIERS. THE ESTIMATED AREA FOR PENETRATING WATER REPELLENT APPLICATION IS 390 m2.

DECK RESURFACING DETAILS S.B.

MDOT Michigan Department of Transportation

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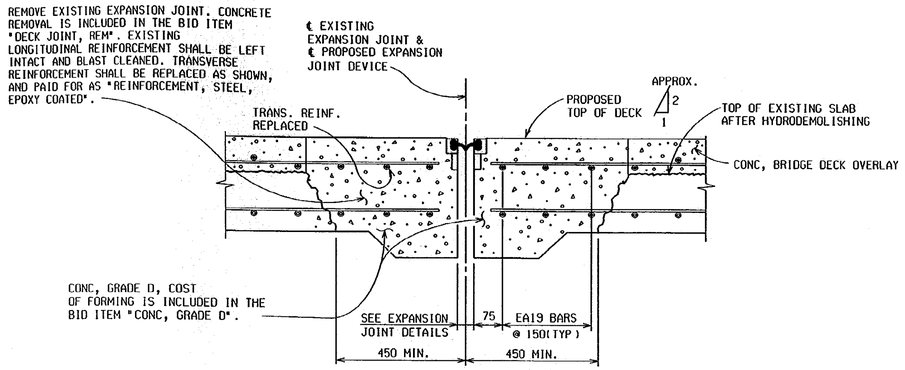
01-10-01	S03 OF 63174	49595A	MAHDAVI	8 OF 9

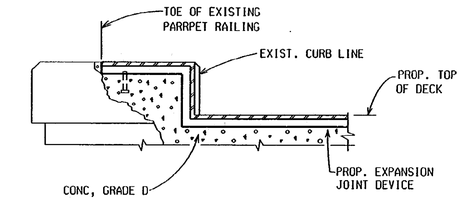
DATE: 01-10-01 CORRECTED BY: INDER
DATE: 3-10-99 CHECKED BY: WM
DRAWN BY: inder
FILE NAME: s036417 4s.ov

CONTROL SECTION S03 OF 63174 JOB NO. 49595A SH. NO. 9



SECTION AT PROPOSED EXPANSION JOINT DEVICE

BEFORE FORMING, SOUND CONCRETE TO SEE IF ADDITIONAL REMOVAL WILL BE REQUIRED.

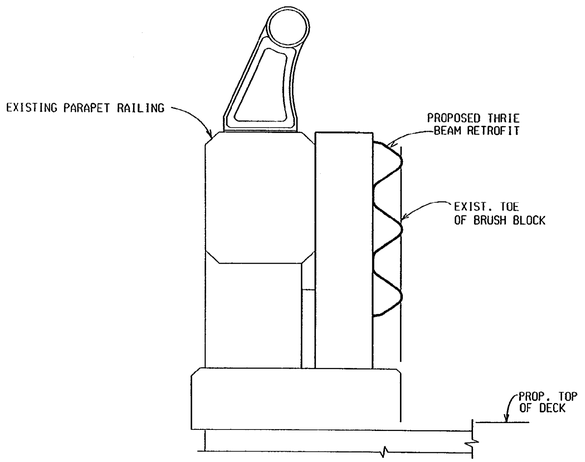


SECTION THRU CURB AT PROP. EXPANSION JOINT

REVISIONS			
NO.	DESCRIPTION	DATE	BY

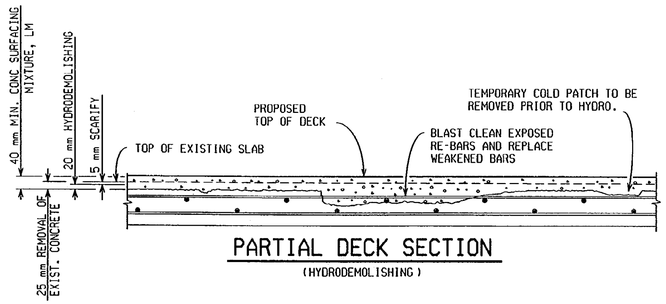
DATE: 01-10-01

DATE: 01-10-01 CORRECTED BY: INDER



SECTION THRU EXIST. BARRIER AT PROP. EXPANSION JOINT DEVICE W/ PROP. THRIE BEAM RETROFIT

(SEE ROAD PLANS AND STANDARD PLAN B-23 FOR THRIE BEAM RETROFIT DETAILS AND QUANTITIES)



PARTIAL DECK SECTION

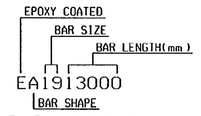
(HYDRODEMOLISHING)

EA BAR

EPOXY COATED STEEL REINFORCEMENT

BAR	NO. REQ'D	TOTAL MASS
EA1910590	36	852
EA1908610	36	693
* OVERRUN		155
GRAND TOTAL = 1700		

* STEEL REINFORCEMENT NEEDED TO REPLACE WEAKENED REINFORCEMENT FOUND DURING DECK PREPARATION.



BAR LEGEND

DRAWN BY: INDER CHECKED BY: WM DATE: 03-05-99

FILE NAME: s0363174s.ov

MDOT Michigan Department of Transportation

DECK RESURFACING DETAILS S.B.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
01-10-01	S03 OF 63174	49595A	MAHDAVI	9 OF 9