

NEL
PROJECT ID: 6468-02-71
WITH: N/A

COUNTY: WINNEBAGO

MAY 2016

ORDER OF SHEETS

Section No. 1	Title
Section No. 2	Typical Sections and Details
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right of Way Plat
Section No. 5	Plan and Profile
Section No. 6	Standard Detail Drawings
Section No. 7	Sign Plates
Section No. 8	Structure Plans
Section No. 9	Computer Earthwork Data
Section No. 9	Cross Sections

TOTAL SHEETS = 84



DESIGN DESIGNATION

A.A.D.T. (2013)	=	1,450
A.A.D.T. (2033)	=	1,700
D.H.V. (2033)	=	200
D.D.	=	62/38
T.	=	3.3%
DESIGN SPEED	=	45 MPH
ESALS	=	124,100

CONVENTIONAL SYMBOLS

PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

ROCK	
LABEL	
E	
FO	
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SS	
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STANDARD ABBREVIATIONS

ASPH.	ASPHALT	N.T.S.	NOT TO SCALE
BM(*)	BENCHMARK	O.C.	ON CENTER
C&G	CURB AND GUTTER	PE	PRIVATE ENTRANCE
CABC	CRUSHED AGGREGATE BASE COURSE	P.L.	PERMANENT LIMITED EASEMENT
CE	COMMERCIAL ENTRANCE	P.L.E.	PROPERTY LINE
☒	CENTERLINE	PROP.	PROPOSED
CL	CLASS	R	RADIUS
CONC.	CONCRETE	℞	REFERENCE LINE
CMCP	CORRUGATED METAL CULVERT PIPE	RCCP	REINFORCED CONCRETE CULVERT PIPE
CP(*)	CONTROL POINT	REQ'D	REQUIRED
CP	CULVERT PIPE	RHF	RIGHT HAND FORWARD
C.Y.	CUBIC YARDS	RT	RIGHT
D/W	DRIVEWAY	R/W	RIGHT OF WAY
E.O.R.	END OF RADIUS	SB	SOUTHBOUND
EB	EASTBOUND	SBRL	SOUTHBOUND REFERENCE LINE
EL.	ELEVATION	SE	SUPERELEVATION
EX.	EXISTING	SF	SQUARE FOOT
EXC.	EXCAVATION	SQ. FT.	SQUARE FOOT
FE	FIELD ENTRANCE	SY	SQUARE YARD
F.L.	FLOWLINE	(TYP.)	TYPICAL
HERCP	HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE	T.L.E.	TEMPORARY LIMITED EASEMENT
HYD.	HYDRANT	VAR.	VARIES
LF	LINEAL FOOT	WB	WESTBOUND
LT	LEFT	W/L	WETLAND
MH	MANHOLE		
MIN.	MINIMUM		
N/A	NOT AVAILABLE		
NB	NORTHBOUND		
NBRL	NORTHBOUND REFERENCE LINE		
NOR.	NORMAL		

GENERAL NOTES

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATION, AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

EXISTING CONDITIONS AND TOPOGRAPHIC FEATURES, INCLUDING UTILITIES, HAVE BEEN LOCATED DURING A FIELD SURVEY. THE FIELD SURVEY WAS CONDUCTED BY GRAEF DATED SEPTEMBER-OCTOBER OF 2012. ALL UNDERGROUND UTILITIES ARE SHOWN TO A REASONABLE DEGREE OF ACCURACY. FURTHERMORE, THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED.

THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND ALL UTILITIES IN THE VICINITY OF THE PROJECT TO LOCATE THEIR FACILITIES AT LEAST THREE WORKING DAYS PRIOR TO BEGINNING WORK.

FILL AS SHOWN ON THE PLAN SHEETS PERTAINS TO EMBANKMENT CONSTRUCTED FROM COMMON EXCAVATION. THE FACTOR USED FOR EXPANDING THE FILLS TO COMPUTE THE VOLUME OF MATERIAL REQUIRED IS 1.25.

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT PRIOR APPROVAL OF THE ENGINEER.

THE EXACT LOCATION AND WIDTH OF PRIVATE DRIVEWAYS, AND COMMERCIAL DRIVEWAYS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DRIVEWAYS SHALL BE REPLACED IN KIND. BASE AGGREGATE DENSE WILL BE USED UNDER ALL DRIVEWAYS.

ACCESS TO DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.

THE EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

UTILITY CONTACTS

AT&T WISCONSIN
ATTN: JOE KASSAB
221 WEST WASHINGTON STREET
APPLETON, WI. 54911
PHONE: 920-735-3206
EMAIL: jk57zk@att.com

TIME WARNER
ATTN: VINCE ALBIN
3520 DESTINATION DRIVE
APPLETON, WI. 54915
PHONE: 920-831-9249
EMAIL: vince.albin@twcable.com

WE ENERGIES - ELECTRIC
ATTN: DAN SANDE
333 W EVERETT STREET
ROOM A299
MILWAUKEE, WI. 53203-2998
PHONE: 414-221-4578
FAX: 414-221-2336
EMAIL: dan.sande@we-energies.com

CITY OF NEENAH
DEPARTMENT OF PUBLIC WORKS - UTILITIES
(SANITARY SEWER)
ATTN: DIRECTOR GERRY KAISER P.E.
211 WALNUT STREET
P.O. BOX 426
NEENAH, WI. 54957-0429
PHONE: 920-886-6240
EMAIL: gkaiser@ci.neenah.wi.us

CITY OF NEENAH
NEENAH WATER UTILITY
ATTN: KENT TAYLOR
211 WALNUT STREET
P.O. BOX 426
NEENAH, WI. 54957-0429
PHONE: 920-886-6180
EMAIL: ktaylor@ci.neenah.wi.us

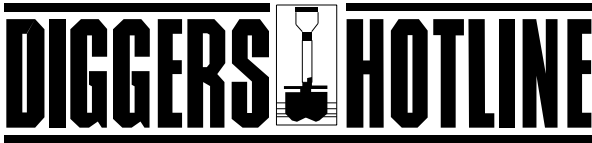
OTHER CONTACTS

DNR LIAISON
ATTN: JAY SCHIEFELBEIN
DNR NORTHEAST REGIONAL HQ
2984 SHAWANO AVENUE
GREEN BAY, WI. 54313
PHONE: 920-662-5130

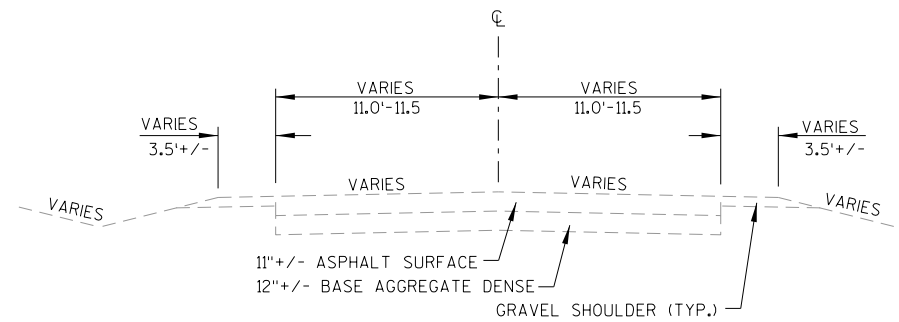
WINNEBAGO COUNTY
HIGHWAY DEPARTMENT
ATTN: ERNIE WINTERS
901 WEST COUNTY ROAD Y
OSHKOSH, WI. 54901
PHONE: 920-232-1700

WINNEBAGO COUNTY SURVEYOR
ATTN: JERRY BOUGIE
WINNEBAGO COUNTY COURT HOUSE
448 ALGOMA BLVD.
OSHKOSH, WI. 54903-2808
PHONE: 920-236-4839

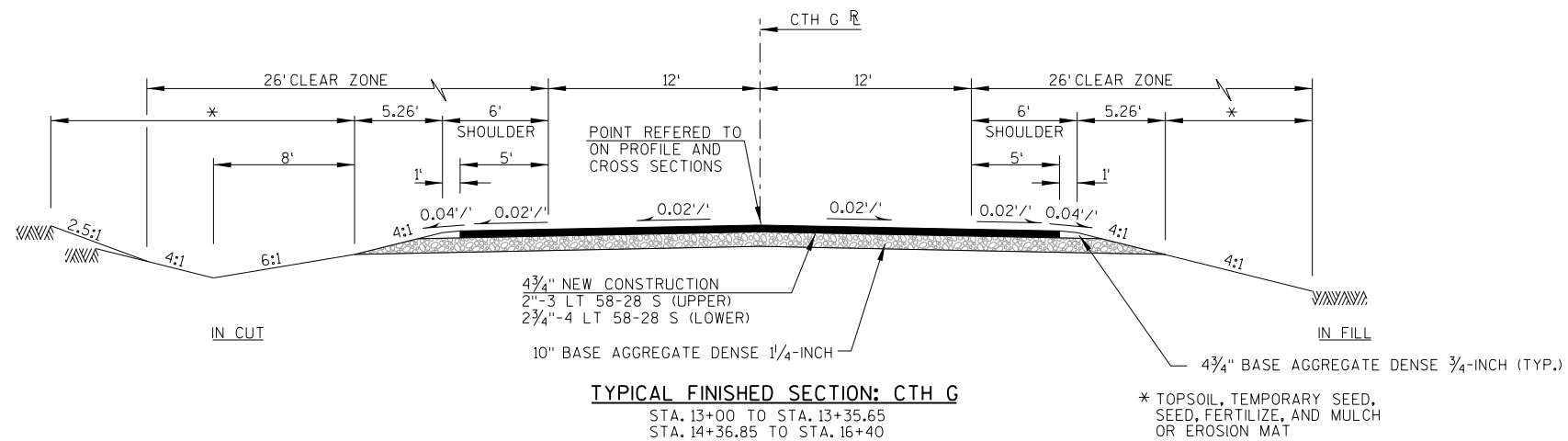
GRAEF PROJECT MANAGER
ATTN: DAN HERZBERG
1150 SPRINGHURST DRIVE
SUITE 201
GREEN BAY, WI. 54304-5947
PHONE: 920-592-9440
FAX: 920-592-9445
EMAIL: dan.herzberg@graeaf-usa.com



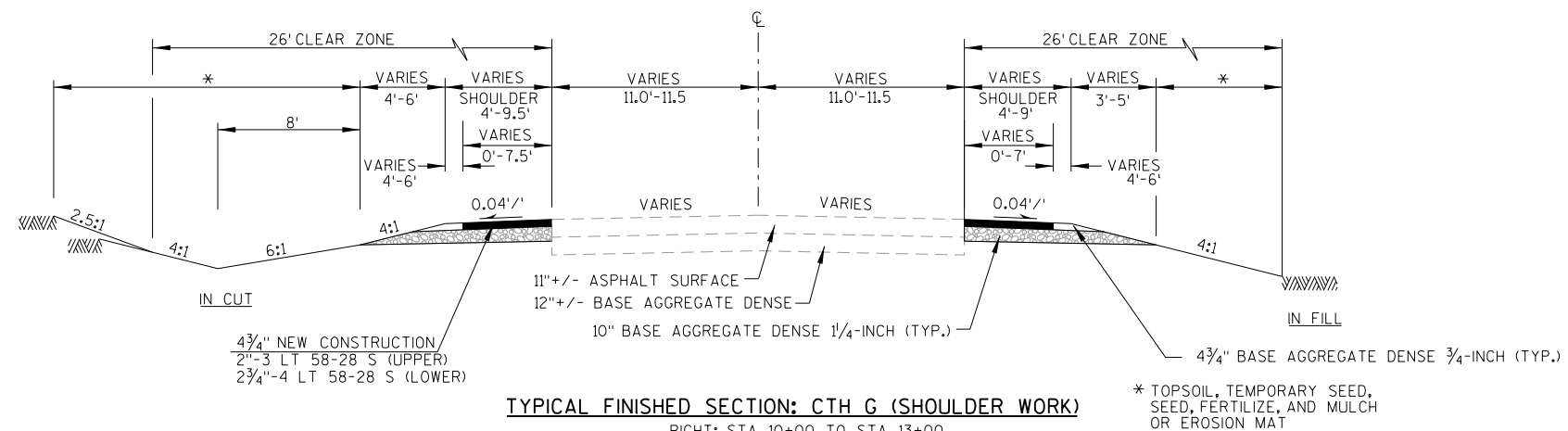
Call 811 3 Work Days Before You Dig
or Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com



TYPICAL EXISTING SECTION: CTH G

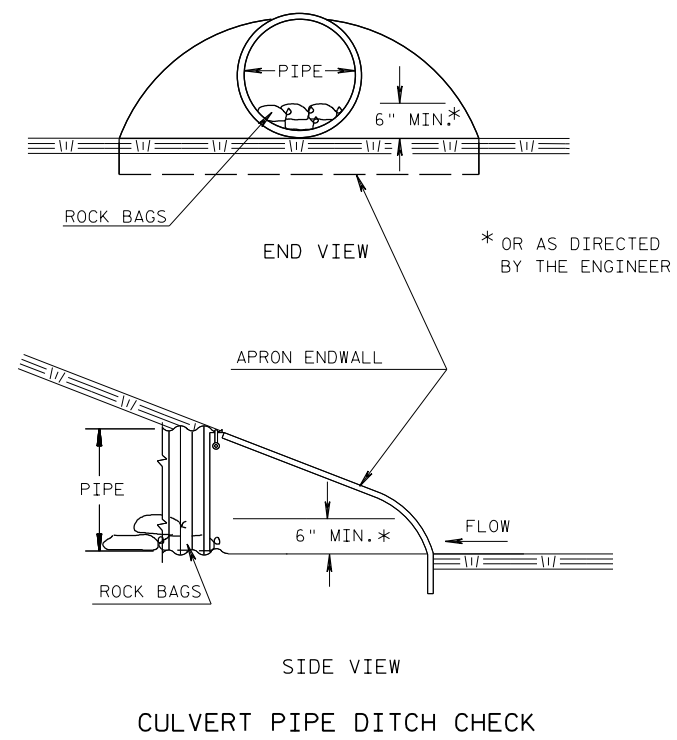


TYPICAL FINISHED SECTION: CTH G

STA. 13+00 TO STA. 13+35.65
STA. 14+36.85 TO STA. 16+40

TYPICAL FINISHED SECTION: CTH G (SHOULDER WORK)

RIGHT: STA. 10+00 TO STA. 13+00
STA. 16+40 TO STA. 17+15
LEFT: STA. 11+05 TO STA. 13+00
STA. 16+40 TO STA. 17+50



PAVING LEGEND

4 3/4" HMA PAVEMENT
2" 3 LT 58-28 S (UPPER)
2 3/4" 4 LT 58-28 S (LOWER)

3" ASPHALTIC SURFACE DRIVEWAYS
AND FIELD ENTRANCES OVER 6"
BASE AGGREGATE DENSE 3/4-INCH

CONCRETE PAVEMENT APPROACH
SLAB

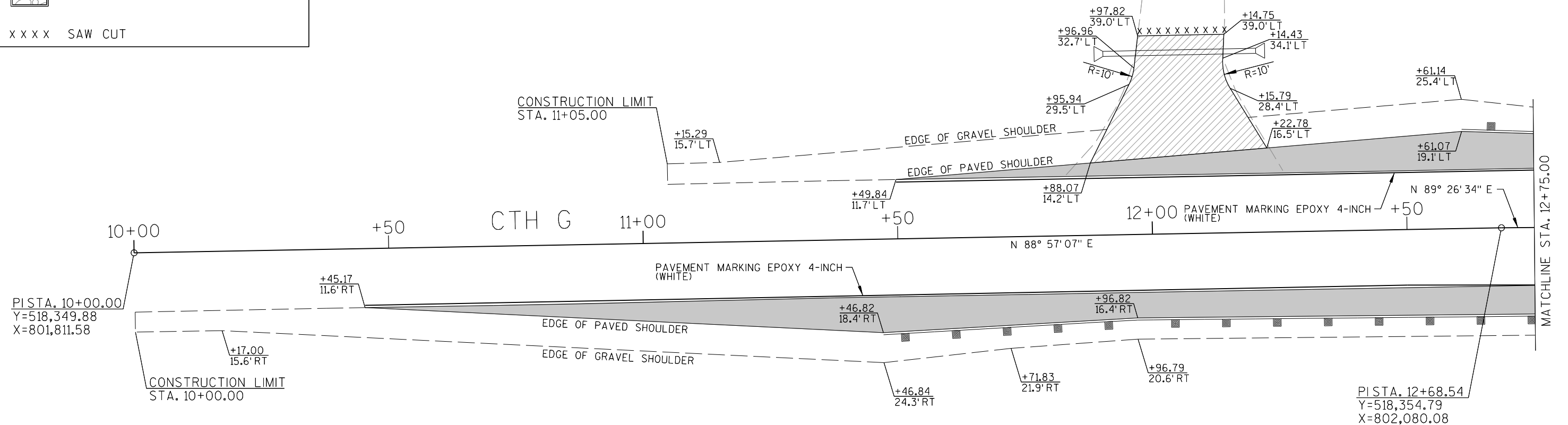
CONCRETE PAVEMENT 7-INCH

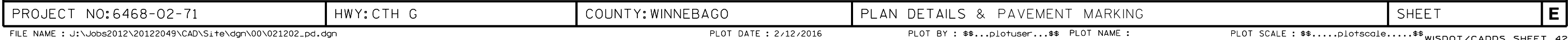
CONCRETE SURFACE DRAINS

X X X X SAW CUT



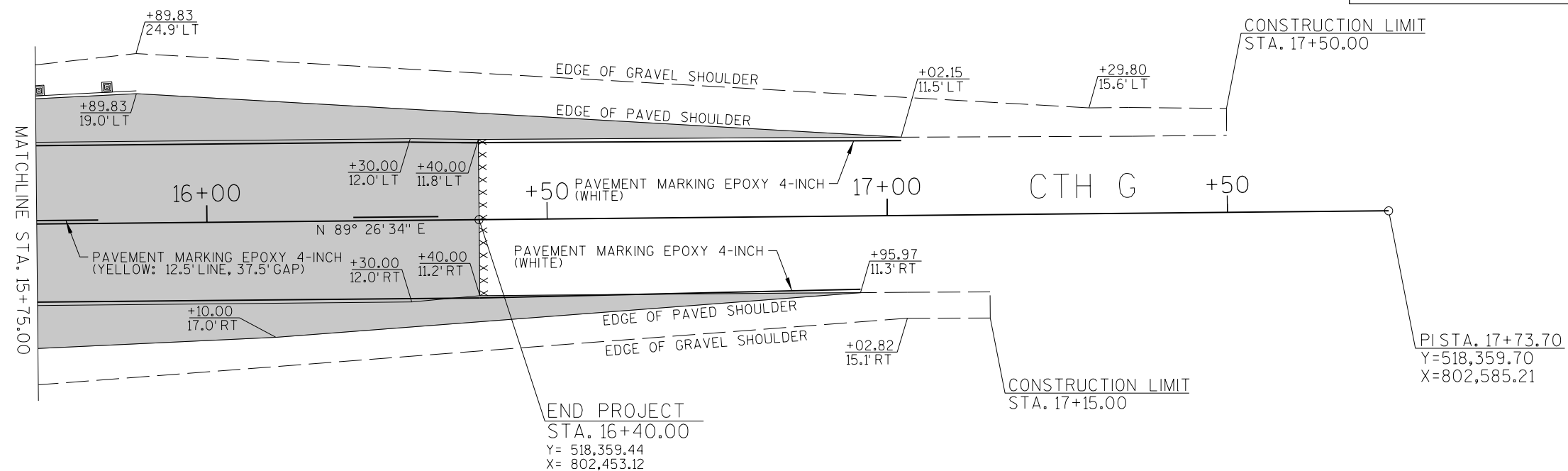
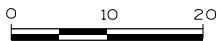
SCALE, FEET 0 10 20

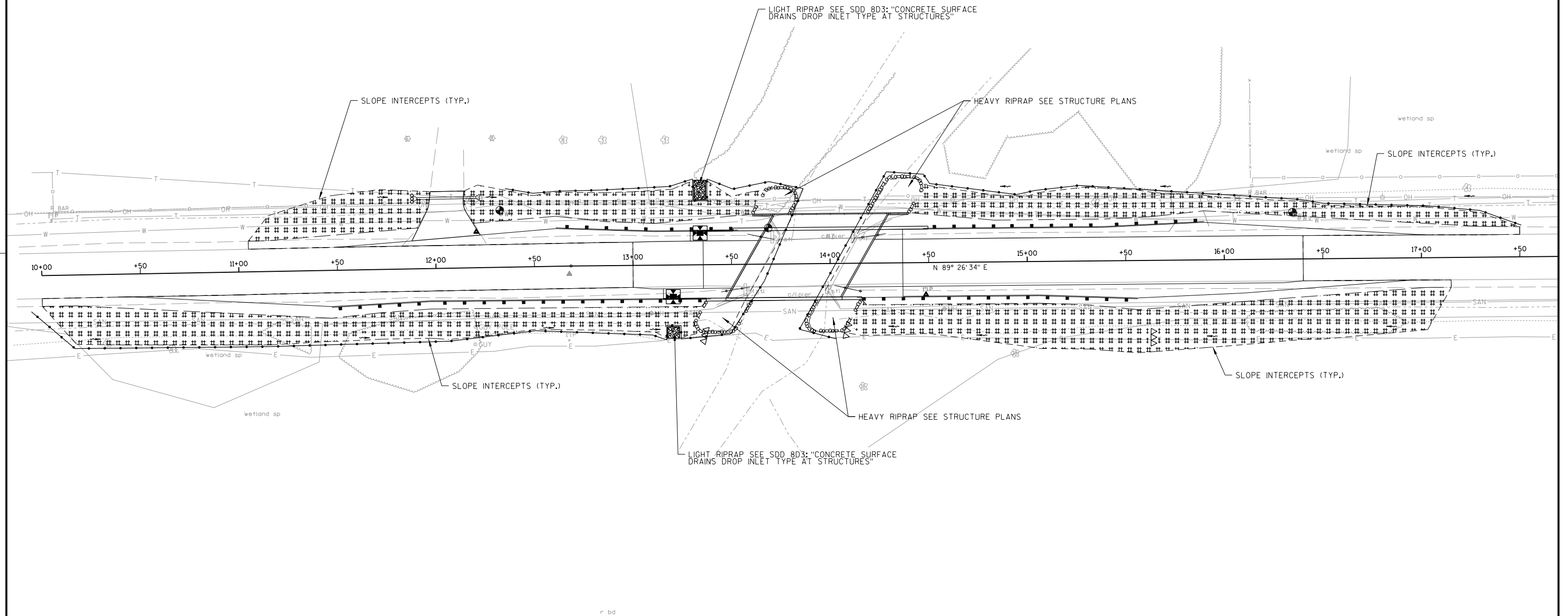
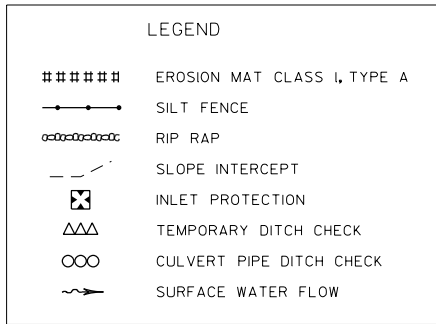






SCALE, FEET





DATE 29MAR16		E S T I M A T E O F Q U A N T I T I E S			
LINE					6468-02-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0205	Grubbing	STA	1.000	1.000
0020	203.0100	Removing Small Pipe Culverts	EACH	2.000	2.000
0030	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (Station) 01. 13+86.00	LS	1.000	1.000
0040	204.0165	Removing Guardrail	LF	60.000	60.000
0050	205.0100	Excavation Common	CY	511.000	511.000
0060	206.1000	Excavation for Structures Bridges (structure) 01. B-70-0319	LS	1.000	1.000
0070	208.0100	Borrow	CY	490.000	490.000
0080	210.0100	Backfill Structure	CY	226.000	226.000
0090	213.0100	Finishing Roadway (project) 01. 6468-02-71	EACH	1.000	1.000
0100	305.0110	Base Aggregate Dense 3/4-Inch	TON	205.000	205.000
0110	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,247.000	1,247.000
0120	415.0070	Concrete Pavement 7-Inch	SY	23.000	23.000
0130	415.0410	Concrete Pavement Approach Slab	SY	112.000	112.000
0140	416.1010	Concrete Surface Drains	CY	8.000	8.000
0150	455.0605	Tack Coat	GAL	28.000	28.000
0160	460.2000	Incentive Density HMA Pavement	DOL	210.000	210.000
0170	460.5223	HMA Pavement 3 LT 58-28 S	TON	132.000	132.000
0180	460.5224	HMA Pavement 4 LT 58-28 S	TON	182.000	182.000
0190	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	10.000	10.000
0200	502.0100	Concrete Masonry Bridges	CY	248.000	248.000
0210	502.3200	Protective Surface Treatment	SY	262.000	262.000
0220	502.3210	Pigmented Surface Sealer	SY	81.000	81.000
0230	505.0400	Bar Steel Reinforcement HS Structures	LB	11,270.000	11,270.000
0240	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	35,040.000	35,040.000
0250	516.0500	Rubberized Membrane Waterproofing	SY	26.000	26.000
0260	521.0124	Culvert Pipe Corrugated Steel 24-Inch	LF	30.000	30.000
0270	521.1012	Apron Endwalls for Culvert Pipe Steel 12-Inch	EACH	2.000	2.000
0280	521.1024	Apron Endwalls for Culvert Pipe Steel 24-Inch	EACH	2.000	2.000
0290	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	700.000	700.000
0300	550.2146	Piling CIP Concrete 14 X 0.375-Inch	LF	605.000	605.000
0310	606.0100	Riprap Light	CY	3.500	3.500
0320	606.0300	Riprap Heavy	CY	190.000	190.000
0330	611.0654	Inlet Covers Type V	EACH	2.000	2.000
0340	611.3220	Inlets 2x2-FT	EACH	2.000	2.000
0350	612.0212	Pipe Underdrain Unperforated 12-Inch	LF	23.500	23.500
0360	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	162.000	162.000
0370	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0380	614.2300	MGS Guardrail 3	LF	200.000	200.000
0390	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0400	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0410	616.0204	Fence Chain Link 4-FT	LF	79.000	79.000
0420	619.1000	Mobilization	EACH	1.000	1.000
0430	624.0100	Water	MGAL	14.000	14.000
0440	625.0500	Salvaged Topsoil	SY	2,432.000	2,432.000
0450	628.1504	Silt Fence	LF	1,330.000	1,330.000
0460	628.1520	Silt Fence Maintenance	LF	1,330.000	1,330.000

DATE 29MAR16		E S T I M A T E O F Q U A N T I T I E S			
LINE					6468-02-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTI TY
0470	628.1905	Mobilizations Erosion Control	EACH	6.000	6.000
0480	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0490	628.2002	Erosion Mat Class I Type A	SY	1,164.000	1,164.000
0500	628.7015	Inlet Protection Type C	EACH	2.000	2.000
0510	628.7504	Temporary Ditch Checks	LF	82.500	82.500
0520	628.7555	Culvert Pipe Checks	EACH	5.000	5.000
0530	629.0210	Fertilizer Type B	CWT	15.300	15.300
0540	630.0130	Seeding Mixture No. 30	LB	43.800	43.800
0550	630.0200	Seeding Temporary	LB	65.700	65.700
0560	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0570	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0580	638.2602	Removing Signs Type II	EACH	4.000	4.000
0590	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0600	642.5001	Field Office Type B	EACH	1.000	1.000
0610	643.0100	Traffic Control (project) 01. 6468-02-71	EACH	1.000	1.000
0620	643.0420	Traffic Control Barricades Type III	DAY	1,332.000	1,332.000
0630	643.0705	Traffic Control Warning Lights Type A	DAY	2,072.000	2,072.000
0640	643.0900	Traffic Control Signs	DAY	1,036.000	1,036.000
0650	645.0120	Geotextile Fabric Type HR	SY	395.000	395.000
0660	645.0130	Geotextile Fabric Type R	SY	10.500	10.500
0670	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,288.000	1,288.000
0680	650.4000	Construction Staking Storm Sewer	EACH	4.000	4.000
0690	650.4500	Construction Staking Subgrade	LF	806.000	806.000
0700	650.5000	Construction Staking Base	LF	762.000	762.000
0710	650.6500	Construction Staking Structure Layout (structure) 01. B-70-0319	LS	1.000	1.000
0720	650.7000	Construction Staking Concrete Pavement	LF	57.000	57.000
0730	650.9910	Construction Staking Supplemental Control (project) 01. 6468-02-71	LS	1.000	1.000
0740	650.9920	Construction Staking Slope Stakes	LF	690.000	690.000
0750	690.0150	Sawing Asphalt	LF	63.000	63.000
0760	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0770	715.0502	Incentive Strength Concrete Structures	DOL	1,488.000	1,488.000

3

NOTE: ALL ITEMS ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED.

GRUBBING

			201.0205
STATION	TO	STATION	STA
11+20	-	12+20	1
PROJECT TOTALS			1

REMOVING SMALL PIPE CULVERTS

203.0100

STATION	LOCATION	EACH	NOTES
12+00	LT	1	24" CMCP
15+80	LT	1	24" CMCP
PROJECT TOTALS		2	

REMOVING GUARDRAIL

204.0165

STATION	LOCATION	LF
13+45 - 13+60	RT	15
13+57 - 13+72	LT	15
14+02 - 14+17	RT	15
14+14 - 14+29	LT	15
PROJECT TOTAL		60

3

EARTHWORK

Division	From/To Station	Location	Common Excavation (1)	(item # 205.0100)	Salvaged/ Unusable Pavement Material (4)	Available Material (5)	Unexpanded Fill	Expanded Fill (13)	Mass Ordinate +/- (14)	Waste	Borrow (item #208.0100)	Comment:
			Cut (2)	EBS Excavation (3)				Factor 1.25				
1	10+00 to 13+61	CTH G	218	0	0	218	368	460	-241	0	241	
	14+16 to 17+50	CTH G	293	0	0	293	433	542	-249	0	249	
Division 1 Subtotal			511	0	0	511	801	1002	-490		490	
Grand Total			511	0	0	511	801	1002	-490	0	490	
Total Common Exc				511								

- 1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
- 2) Salvaged/Unsuable Pavement Material is included in Cut.
- 3) EBS Excavation to be backfilled with Select Borrow material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well.
- 4) Salvaged/Unusable Pavement Material
- 5) Available Material = Cut - Salvaged/Unusuable Pavement Material
- 13) Expanded Fill. Factor = 1.25
- 14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

NOTE: ALL ITEMS ON THIS
SHEET ARE CATEGORY 0010
UNLESS OTHERWISE NOTED.

BASE AGGREGATE DENSE AND WATER

STATION TO STATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH	624.0100 WATER
	TON	TON	MGAL
10+00 - 13+61	113	441	6
14+16 - 17+50	92	806	8
PROJECT TOTALS	205	1,247	14

CONCRETE SUMMARY

STATION TO STATION	LOCATION	415.0070 CONCRETE PAVEMENT 7-INCH	415.0410 CONCRETE PAVEMENT APPROACH SLAB	416.1010 CONCRETE SURFACE DRAINS
		SY	SY	CY
13+15 - 13+50	RT	---	---	4
13+29 - 13+67	LT	---	---	4
13+36 - 13+64	LT & RT	---	56	---
14+06 - 14+37	RT	16	---	---
14+09 - 14+37	LT & RT	---	56	---
14+23 - 14+37	LT	7	---	---
PROJECT TOTALS		23	112	8

ASPHALT SUMMARY

STATION TO STATION	LOCATION	455.0605 TACK COAT	460.5223 HMA PAVEMENT 3 LT 58-28 S	460.5224 HMA PAVEMENT 4 LT 58-28 S
		GAL	TON	TON
10+46 - 13+36	CTH G	8	38	53
14+37 - 17+02	CTH G	20	94	129
PROJECT TOTALS		28	132	182

ASPHALTIC SURFACE DRIVEWAYS AND FIELD
ENTRANCES

STATION	LOCATION	465.0120 TON
11+88 - 12+23	LT	10
PROJECT TOTAL		10

CULVERT PIPE SUMMARY

STATION TO STATION	LOCATION	ELEVATION		521.0124 CULVERT PIPE CORRUGATED STEEL 24-INCH	521.1024 APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH
		INLET	OUTLET	LF	EACH
11+91 - 12+21	LT	742.17	742.05	30	2
PROJECT TOTALS				30	2

SURFACE DRAIN SUMMARY

STATION	LOCATION	521.1012 APPRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH	611.0654 INLET COVERS TYPE V	611.3220 INLETS 2x2-FT	612.0212 PIPE UNDERDRAIN UNPERFORATED 12-INCH
		EACH	EACH	EACH	LF
13+20	RT	1	1	1	11
13+34	LT	1	1	1	12.5
PROJECT TOTALS		2	2	2	23.5

PROJECT NO: 6468-02-71

HWY: CTH G

COUNTY: WINNEBAGO

MISCELLANEOUS QUANTITIES

SHEET

E

NOTE: ALL ITEMS ON THIS
SHEET ARE CATEGORY 0010
UNLESS OTHERWISE NOTED.

RIPRAP

		606.0100
		LIGHT
STATION TO STATION	LOCATION	CY
13+17 - 13+23	RT	1.3
13+31 - 13+37	LT	2.2
PROJECT TOTALS		3.5

GUARDRAIL SUMMARY

		614.2300	614.2500	614.2610
		MGS	MGS	MGS
		GUARDRAIL	THRIE	GUARDRAIL
		3	BEAM	TERMINAL
			TRANSITION	EAT
STATION TO STATION	LOCATION	LF	LF	EACH
11+47	18.8' RT	---	---	1
12+00 - 13+39	16.8' RT - 17.4' RT	100	39.4	---
12+61	19.5' LT	---	---	1
13+14 - 13+53	17.4' LT	---	39.4	---
14+13 - 15+03	17.4' RT	50	39.4	---
14+47 - 15+37	17.4' LT	50	39.4	---
15+56	19.4' RT	---	---	1
15+90	19.4' LT	---	---	1
PROJECT TOTALS		200	157.6	4

LANDSCAPING SUMMARY

		625.0500	629.0210	630.0130	630.0200
		SALVAGED	FERTILIZER	SEEDING	SEEDING
		TOPSOIL	TYPE B	MIXTURE	TEMPORARY
				NO. 30	
STATION	LOCATION	SY	CWT	LB	LB
10+00 - 13+34	RT	520	3.3	9.4	14.0
11+05 - 11+98	LT	173	1.1	3.1	4.7
12+15 - 13+66	LT	237	1.5	4.3	6.4
14+09 - 17+15	RT	676	4.3	12.2	18.3
14+41 - 17+50	LT	339	2.1	6.1	9.1
SUBTOTALS		1946	12.3	35.0	52.5
UNDISTRIBUTED AMOUNT		486	3.1	8.8	13.1
PROJECT TOTAL		2,432	15.3	43.8	65.7

NOTES:
TYPE B FERTILIZER @ 7LBS/1000SF
SEED NO 30 @ 2LBS/1000SF
TEMP SEED @ 3LBS/1000SF

SILT FENCE

		628.1504	628.1520
			MAINTENANCE
STATION TO STATION	LOCATION	LF	LF
10+00 - 13+49	RT	375	375
12+36 - 13+87	LT	175	175
13+49 - 13+87	LT & RT	80	80
13+84 - 14+29	LT & RT	110	110
14+29 - 17+51	LT	325	325
SUBTOTALS		1065	1065
UNDISTRIBUTED AMOUNT		265	265
PROJECT TOTALS		1,330	1,330

MOBILIZATIONS EROSION CONTROL

		628.1905	628.1910
			EMERGENCY
STATION	LOCATION	EACH	EACH
10+00 - 17+50	CTH G	5	3
SUBTOTALS		5	3
UNDISTRIBUTED AMOUNT		1	1
PROJECT TOTALS		6	4

PROJECT NO: 6468-02-71

HWY: CTH G

COUNTY: WINNEBAGO

MISCELLANEOUS QUANTITIES

SHEET

E

NOTE: ALL ITEMS ON THIS
SHEET ARE CATEGORY 0010
UNLESS OTHERWISE NOTED.

EROSION MAT CLASS I TYPE A

STATION	LOCATION	628.2002 SY
10+00 - 13+34	RT	520
11+05 - 11+98	LT	173
12+15 - 13+66	LT	237
14+09 - 17+15	RT	676
14+41 - 17+50	LT	339
SUBTOTALS		931
UNDISTRIBUTED AMOUNT		233
PROJECT TOTALS		1,164

INLET PROTECTION

STATION	LOCATION	628.7015 TYPE C EACH
13+20	16' RT	1
13+34	16' LT	1
PROJECT TOTALS		2

TEMPORARY DITCH CHECKS

STATION	LOCATION	628.7504 LF
13+37	RT	27.5
14+07	RT	27.5
15+62	RT	27.5
PROJECT TOTAL		82.5

CULVERT PIPE CHECKS

STATION	LOCATION	628.7555 EACH
11+89	LT	5
PROJECT TOTAL		5

ERECTION AND REMOVAL OF TYPE II SIGNS AND SUPPORTS

SIGN NO.	LOCATION	DIRECTION OF TRAVEL	SIGN CODE	637.2230 SIGNS TYPE II REFLECTIVE F		634.0612 POSTS WOOD 4x6x12	638.2602 REMOVING SIGNS TYPE II	638.3000 REMOVING SMALL SIGN SUPPORTS
				W X H	S.F.	EACH	EACH	EACH
1	CTH G	EB	W5-52R	1 X 3	3.00	1	1	1
2	CTH G	EB	W5-52L	1 X 3	3.00	1	1	1
3	CTH G	WB	W5-52L	1 X 3	3.00	1	1	1
4	CTH G	WB	W5-52R	1 X 3	3.00	1	1	1
PROJECT TOTALS					12.00	4	4	4

FIELD OFFICE TYPE B

PROJECT	642.5001 EACH
6468-02-71	1
PROJECT TOTAL	1

PROJECT NO: 6468-02-71

HWY: CTH G

COUNTY: WINNEBAGO

MISCELLANEOUS QUANTITIES

SHEET

E

NOTE: ALL ITEMS ON THIS
SHEET ARE CATEGORY 0010
UNLESS OTHERWISE NOTED.

TRAFFIC CONTROL SUMMARY

LOCATION	SERVICE DAYS	643.0420 BARRICADES TYPE III		643.0705 WARNING LIGHTS TYPE A		643.0900 TRAFFIC CONTROL SIGNS	
		NO.	DAYS	NO.	DAYS	NO.	DAYS
WEST OF BRIDGE	74	9	666	14	1,036	7	518
EAST OF BRIDGE	74	9	666	14	1,036	7	518
PROJECT TOTALS		18	1,332	28	2,072	14	1,036

GEOTEXTILE FABRIC TYPE R

STATION TO STATION	LOCATION	645.0130 SY
13+17 - 13+23	RT	4
13+31 - 13+37	LT	6.5
PROJECT TOTALS		10.5

PAVEMENT MARKING 4-INCH

STATION TO STATION	LOCATION	646.0106 EPOXY	
		YELLOW DASHED LF	WHITE SOLID LF
10+45 - 16+96	RT	---	651
11+50 - 17+02	LT	---	552
13+00 - 16+40	CENTER LINE	85	---
SUBTOTALS		85	1,203
PROJECT TOTALS		1,288	

SAWING PAVEMENT SUMMARY

STATION TO STATION	LOCATION	690.0150 SAWING ASPHALT LF
11+98 - 12+15	LT DRIVEWAY	17
13+00	LT & RT WEST PROJECT LIMITS	23
16+40	LT & RT EAST PROJECT LIMITS	23
PROJECT TOTALS		63

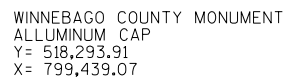
CONSTRUCTION STAKING SUMMARY

STATION TO STATION	LOCATION	650.4000 STORM SEWER SYSTEM *		650.4500 SUBGRADE	650.5000 BASE	650.6500.01 STRUCTURE LAYOUT (B-70-0319)	650.7000 CONCRETE PAVEMENT	650.9910 SUPPLEMENTAL CONTROL	650.9920 SLOPE STAKES
		EACH	LF	LF	LF	LS	LF	LS	LF
10+00 - 17+50	CTH G	4	806	762	762	1	57	1	690
PROJECT TOTALS		4	806	762	762	1	57	1	690

* SEE STORM SEWER QUANTITIES FOR STATION AND OFFSETS

4

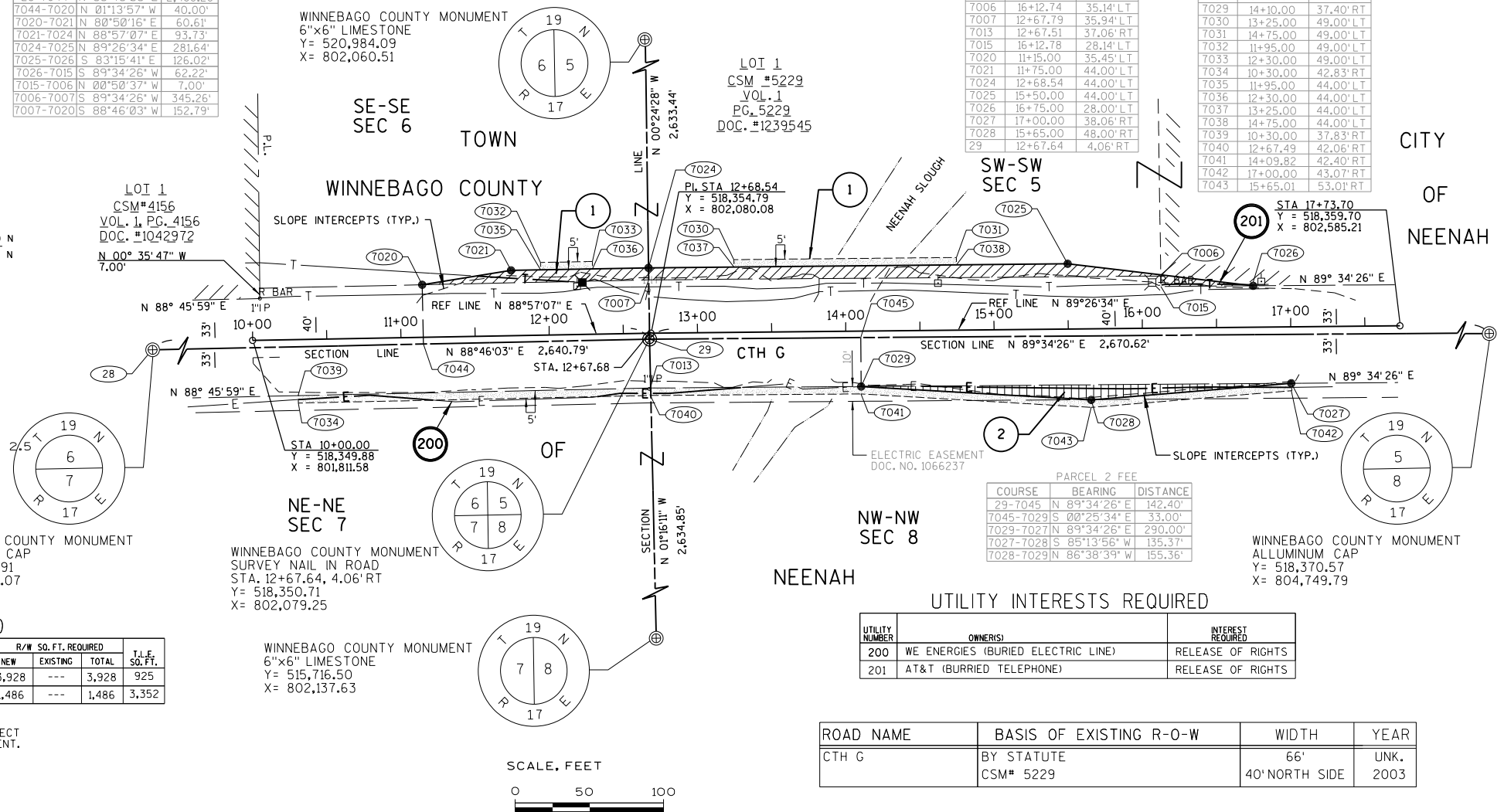
A **TEMPORARY LIMITED EASEMENT** (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM NECESSARY OR DESIRABLE. ALL TLES EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.



PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W SQ. FT. REQUIRED			T.I.E. SQ. FT.
			NEW	EXISTING	TOTAL	
1	JOHN F. BERGSTROM	FEE & TLE	3,928	---	3,928	925
2	GLENN J. ARMSTRONG	FEE & TLE	1,486	---	1,486	3,352

PARCEL 1 FEE	
BEARING	DISTANCE
N 88°46'03" E	2,488.28'
N 01°13'57" W	40.00'
N 80°50'16" E	60.61'
N 88°57'07" E	93.73'
N 89°26'34" E	281.64'
S 83°15'41" E	126.02'
S 89°34'26" W	62.22'
N 00°50'37" W	7.00'
S 89°34'26" W	345.26'
S 88°46'03" W	152.79'

2. THE LANDS OR INTERESTS OR RIGHTS IN LANDS AS SHOWN ON THIS PLAT ARE REQUIRED BY THE COUNTY FOR THE ABOVE PROJECT AND SHALL BE ACQUIRED IN THE NAME OF WINNEBAGO COUNTY WISCONSIN, PURSUANT TO THE PROVISIONS OF SECTION 83.08, WISCONSIN STATUTES.




































UTILITY NUMBER	OWNER(S)	INTEREST REQUIRED
200	WE ENERGIES (BURIED ELECTRIC LINE)	RELEASE OF RIGHTS
201	AT&T (BURIED TELEPHONE)	RELEASE OF RIGHTS

ROAD NAME	BASIS OF EXISTING R-O-W	WIDTH	YEAR
CTH G	BY STATUTE CSM# 5229	66' 40' NORTH SIDE	UNK. 2003

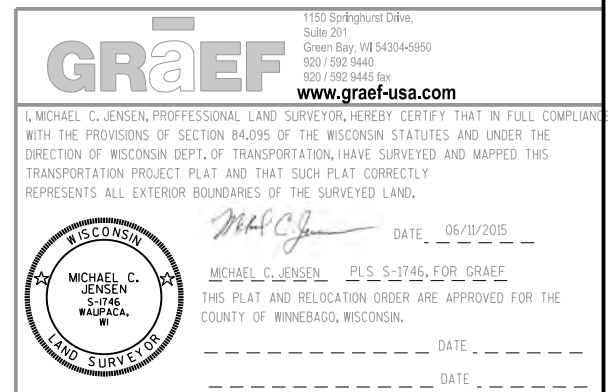
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CONVENTIONAL SYMBOLS

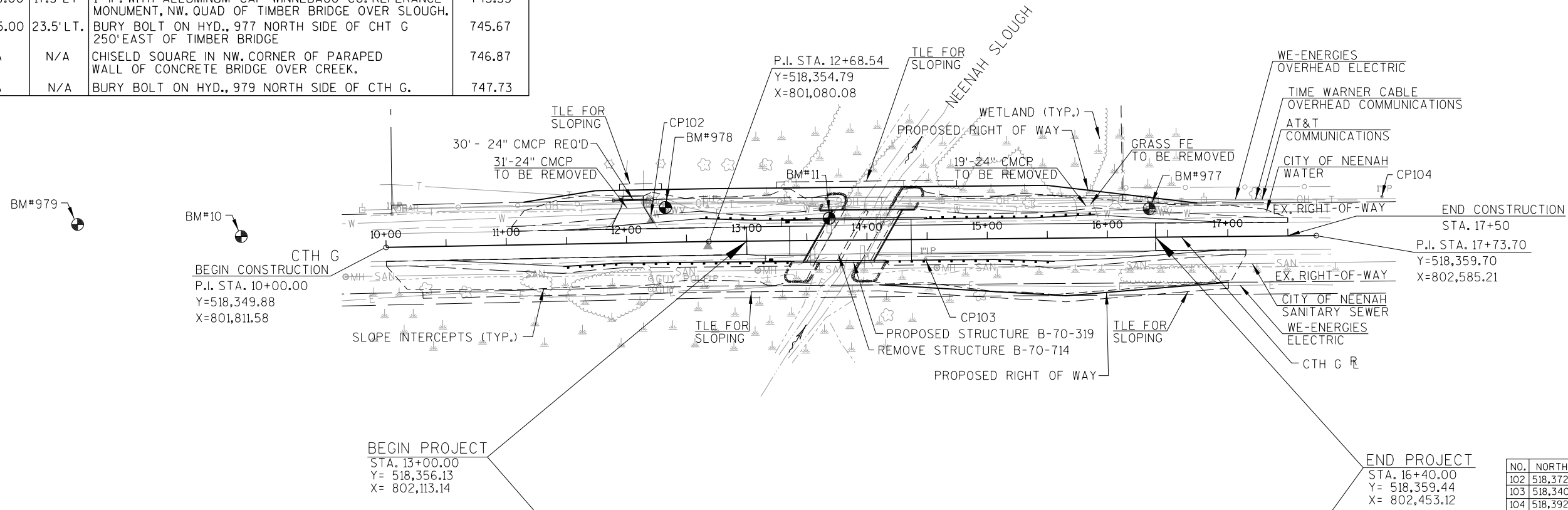
	PROPOSED R/W LINE	
(1" UNLESS NOTED)	EXISTING H.E. LINE	
o (SET)	PROPERTY LINE	
Δ (SET)	LOT & TIE LINES	
ISIGN	SLOPE INTERCEPTS	
	CORPORATE LIMITS	
	NO ACCESS	
	(BY PREVIOUS ACQUISITION/CONTROL)	
	NO ACCESS	
	(BY ACQUISITION)	
	NO ACCESS	
	(BY STATUTORY AUTHORITY)	
	SECTION LINE	
	QUARTER LINE	
	SIXTEENTH LINE	
	EXISTING CENTERLINE	
	PROPOSED REFERENCE LINE	
	PARALLEL OFFSET	

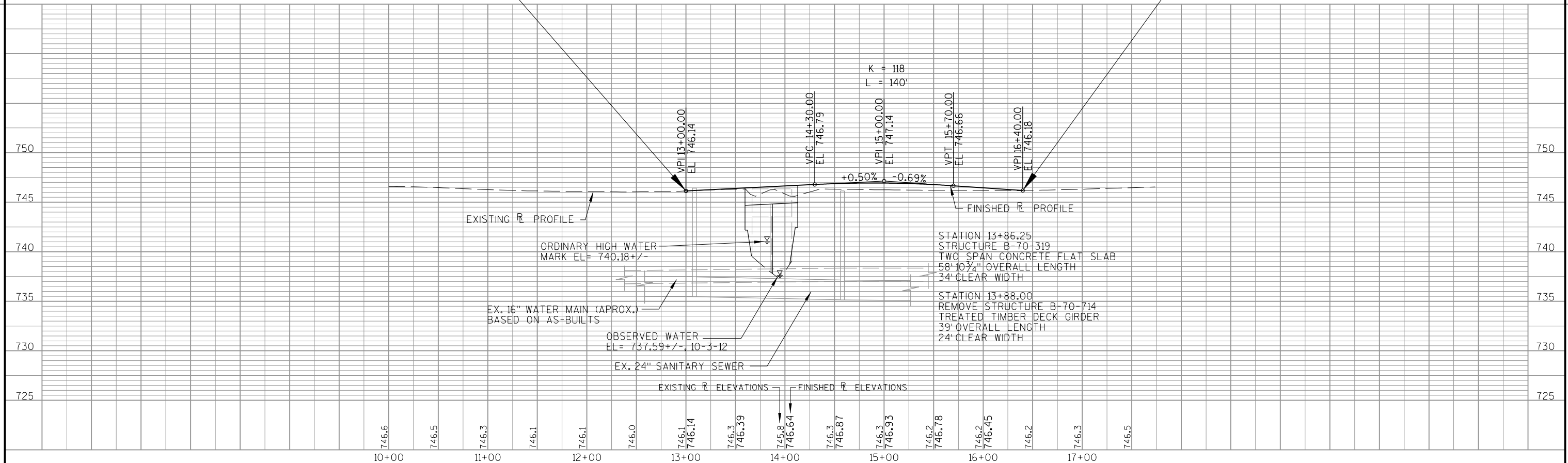
CONVENTIONAL UTILITY SYMBOLS	
WATER	— W —
GAS	— G —
TELEPHONE	— T —
OVERHEAD	— OH —
TRANSMISSION LINES	— E —
ELECTRIC	— TV —
CABLE TELEVISION	— FO —
FIBER OPTIC	— SAN —
SANITARY SEWER	— SS —
STORM SEWER	NON
	COMPENSABLE COMPENSABLE
POWER POLE	⬇
TELEPHONE POLE	⊗
TELEPHONE PEDESTAL	⊗
ELECTRIC TOWER	⊗



BENCH MARK TABLE				
BM#	STATION	OFFSET	DESCRIPTION	ELEVATION
978	12+32.89	29' LT.	BURY BOLT ON HYD., 978 NORTH SIDE OF CTH G.	745.59
11	13+69.00	17.5' LT	1" IP. WITH ALLUMINUM CAP WINNEBAGO CO. REFERENCE MONUMENT, NW. QUAD OF TIMBER BRIDGE OVER SLOUGH.	745.33
977	16+35.00	23.5' LT.	BURY BOLT ON HYD., 977 NORTH SIDE OF CTH G 250' EAST OF TIMBER BRIDGE	745.67
10	N/A	N/A	CHISEL SQUARE IN NW. CORNER OF PARAPED WALL OF CONCRETE BRIDGE OVER CREEK.	746.87
979	N/A	N/A	BURY BOLT ON HYD., 979 NORTH SIDE OF CTH G.	747.73



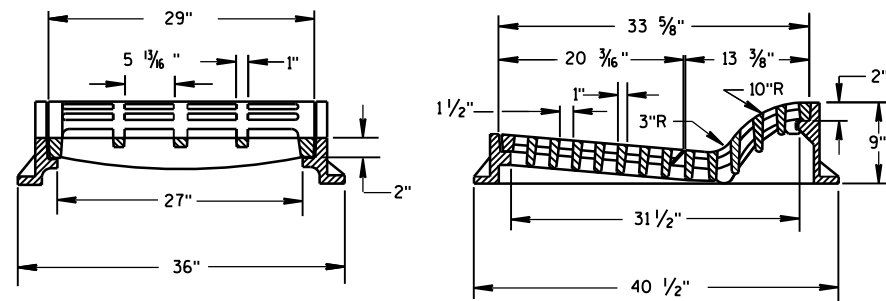
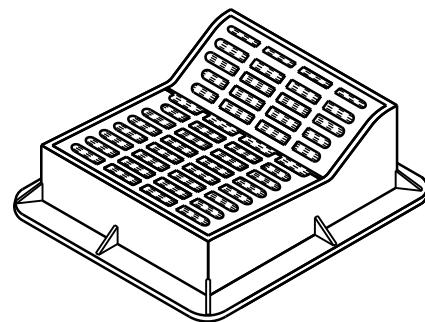
CONTROL POINTS			
NO.	NORTHING	EASTING	TYPE
102	518,372.18	802,032.06	MAGNAIL
103	518,340.26	802,260.15	1-INCH IRON PIPE WITH CAP
104	518,392.09	802,639.70	1-INCH IRON PIPE WITH CAP



PROJECT NO: 6468-02-71	HWY: CTH G	COUNTY: WINNEBAGO	PLAN AND PROFILE	SHEET	E
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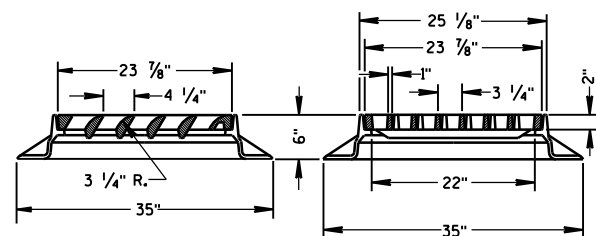
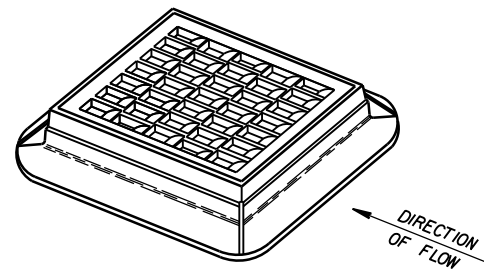
Standard Detail Drawing List

08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08C07-01	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D03-06	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
13A03-06	CONCRETE PAVEMENT SHOULDERS
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES

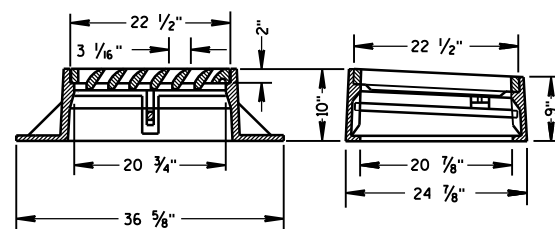
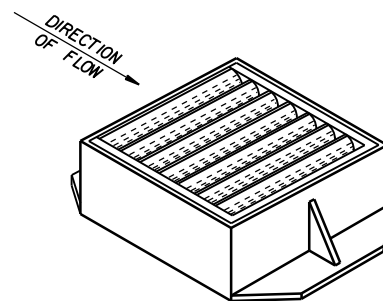


TYPE "F"

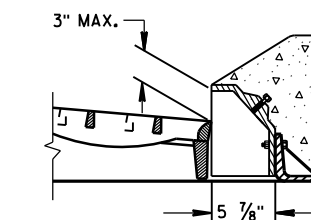
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



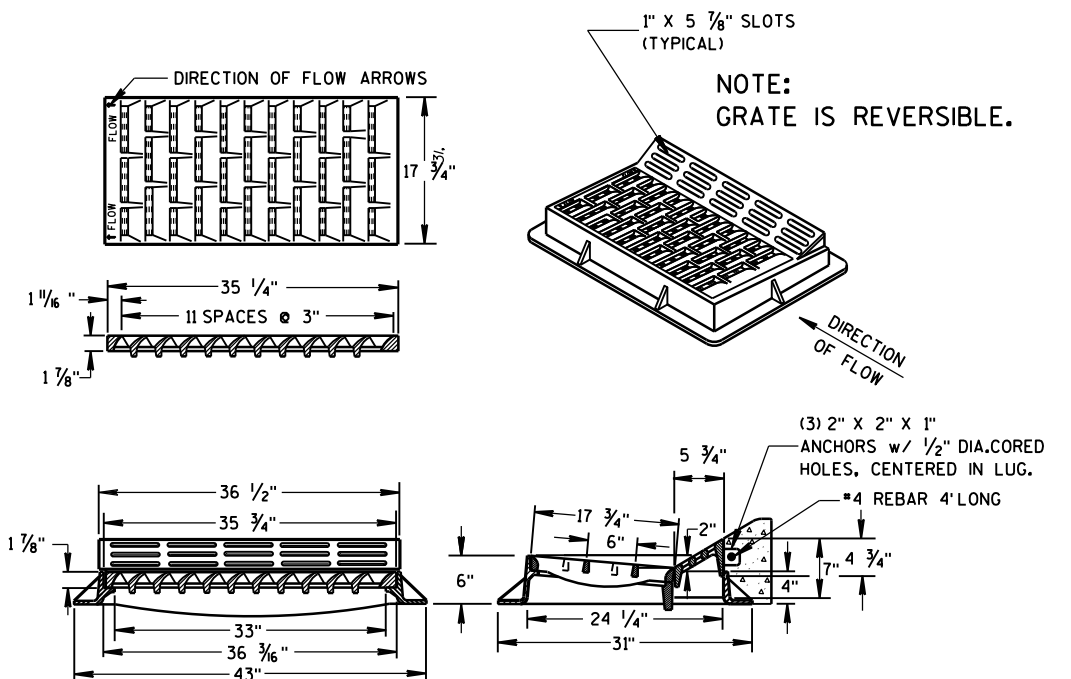
TYPE "S"



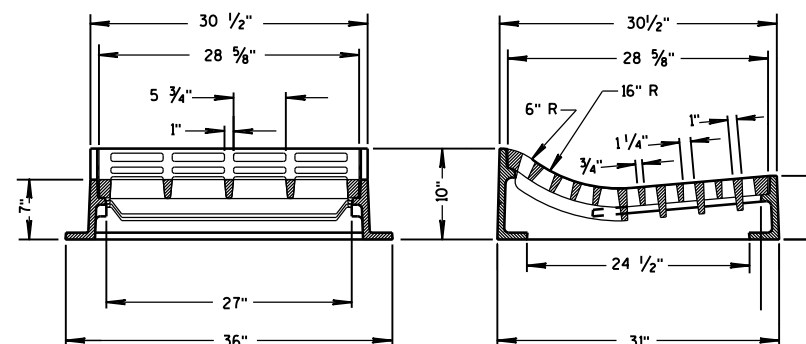
TYPE "V"

ALTERNATIVE CURB BOX
FOR TYPE "HM" COVERUSE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLENOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

GENERAL NOTES

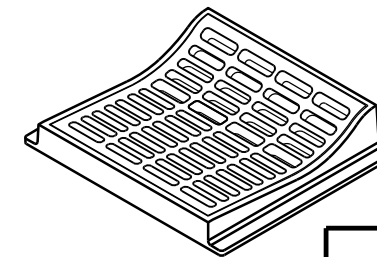
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING
SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND
THE APPLICABLE SPECIAL PROVISIONS.DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED
TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION
FOR EQUIVALENT CAPACITY AND STRENGTH.

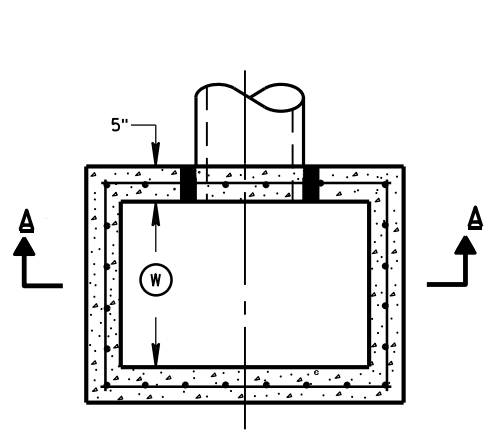
TYPE "HM"

USE WITH TYPES A & D CONCRETE
CURB & GUTTER, 36 INCH.NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE

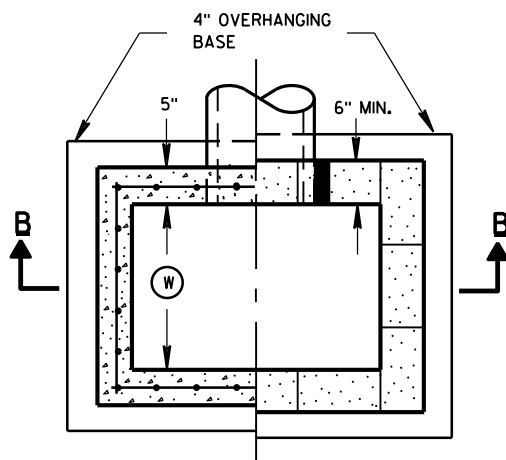
TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.

INLET COVERS
TYPE F, HM, HM-S, S, T, V,
HM-GJ, & HM-GJ-SSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIONAPPROVED
11/27/2013
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

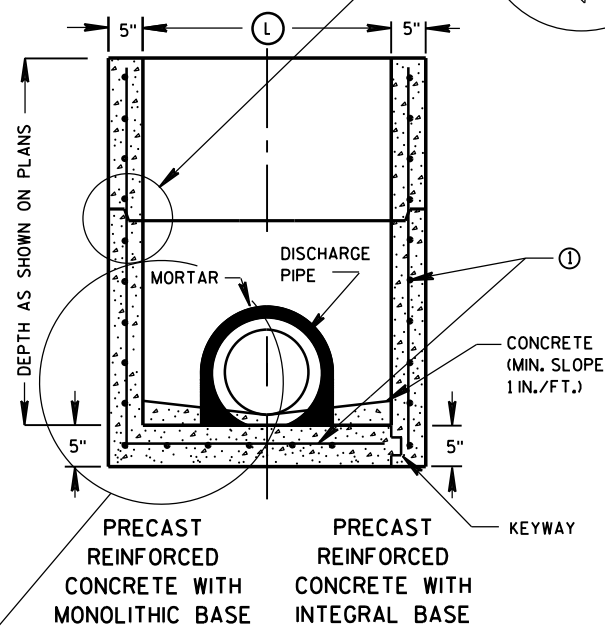


PLAN VIEW

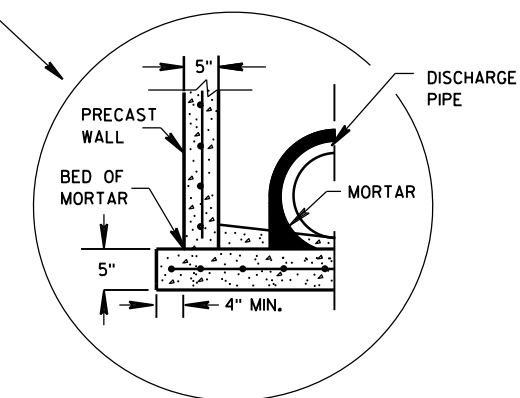


PLAN VIEW

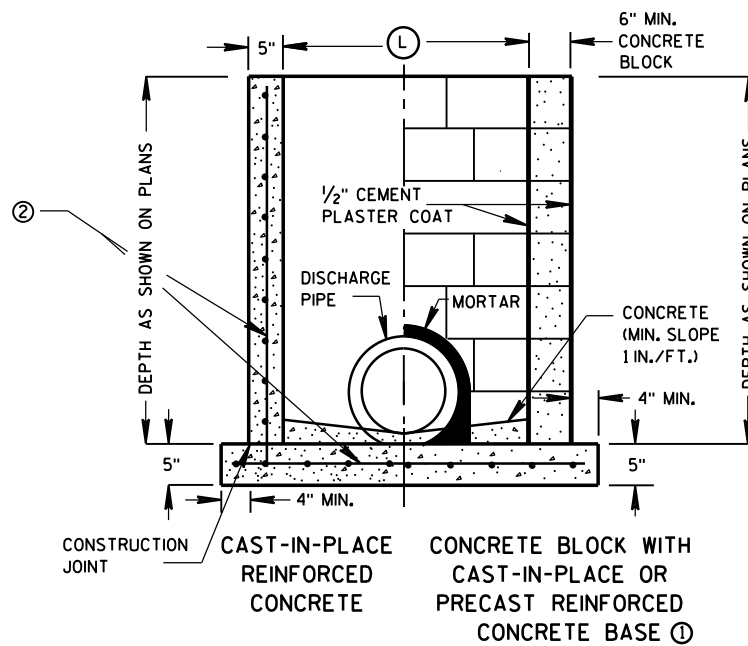
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



SECTION A-A



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION



SECTION B-B

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

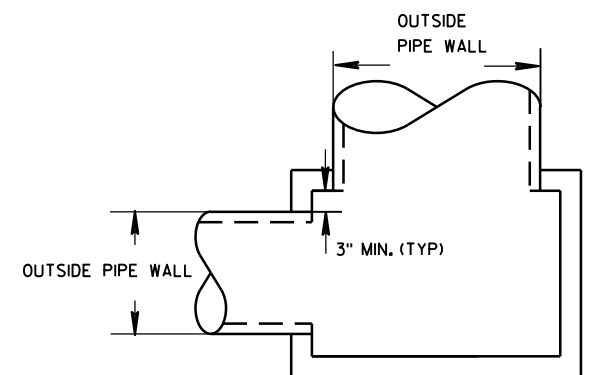
- FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE		INLET COVER TYPE	ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH ① (FT)	LENGTH ② (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24

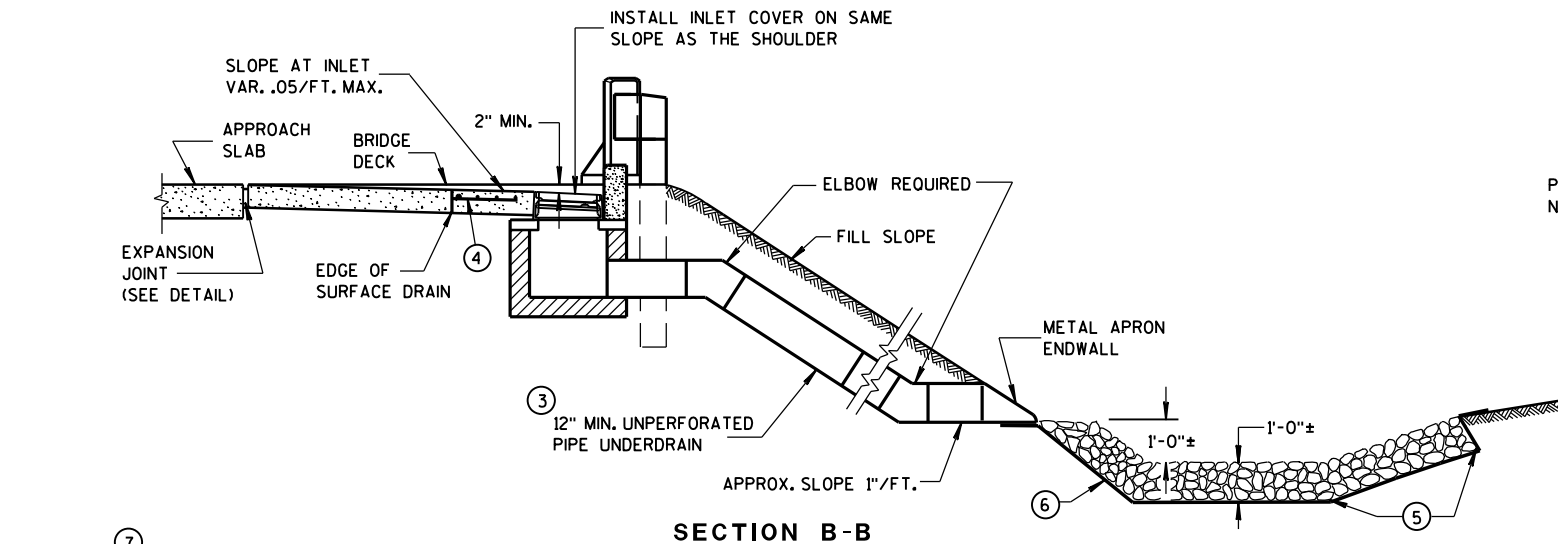


DETAIL "A"

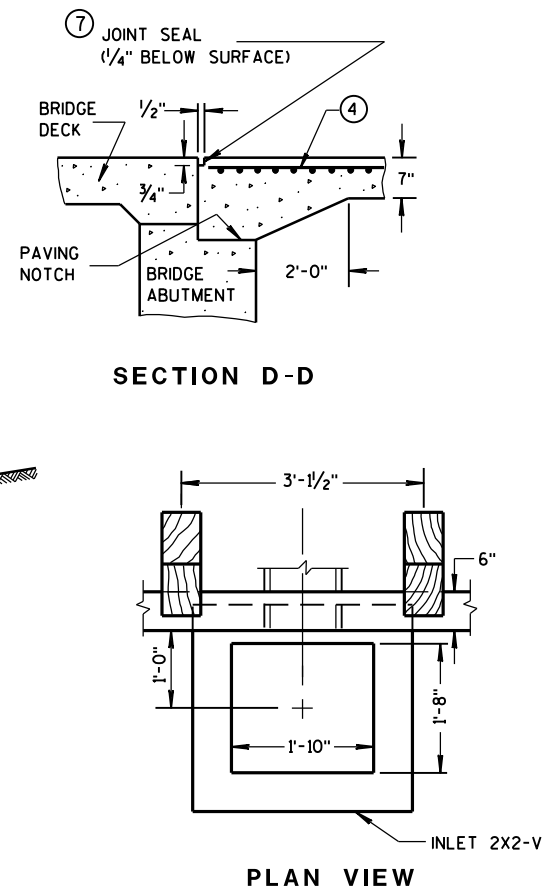
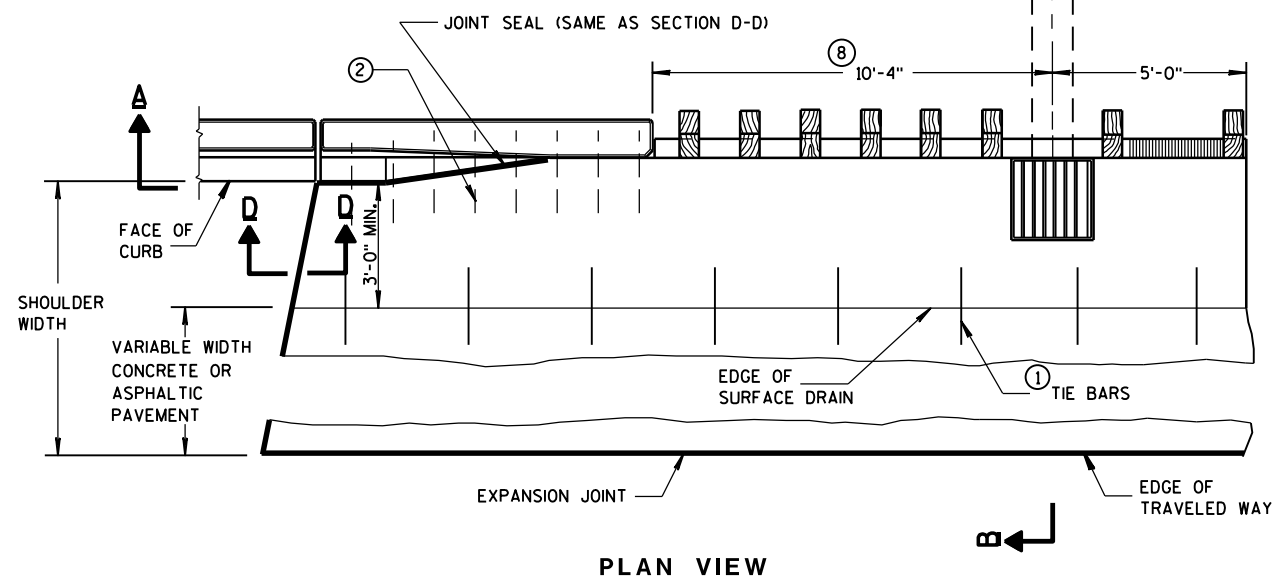
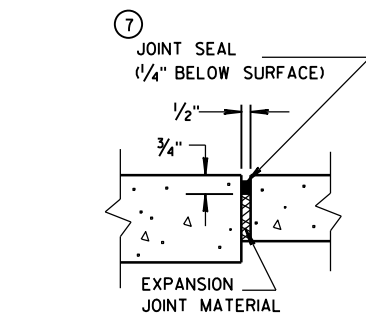
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA ENGINEER



EXPANSION JOINT DETAIL

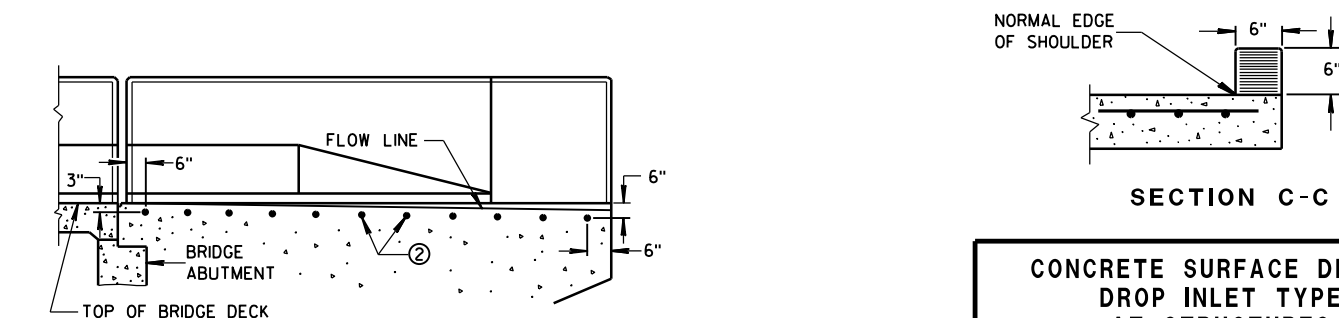
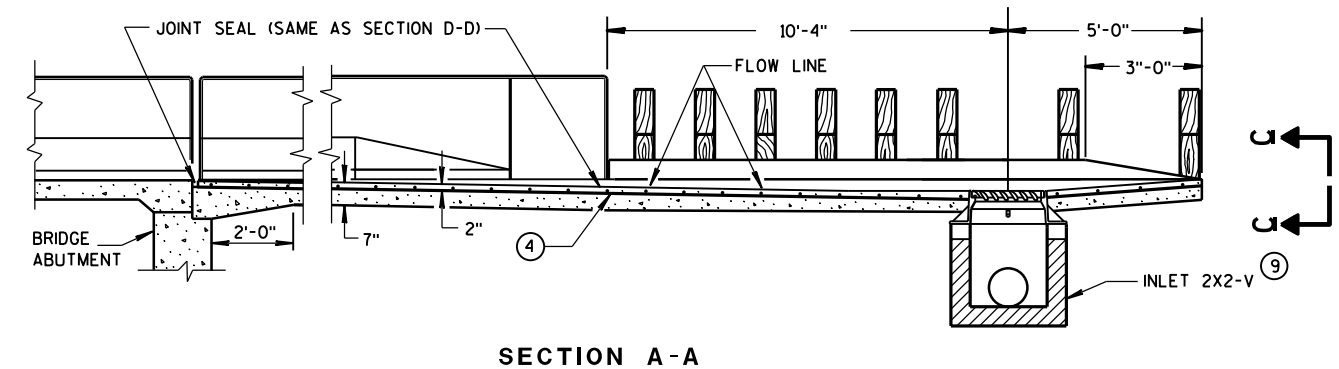


GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.
- ② NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ THE PIPE UNDERDRAIN MAY BE ANY ONE OF THE SIX MATERIALS LISTED IN THE STANDARD SPECIFICATIONS SECTION 612.2 EXCEPT DRAIN TILE.
- ④ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑤ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑥ GEOTEXTILE FABRIC, TYPE 'R'
- ⑦ HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.
- ⑧ THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1 1/2".
- ⑨ SEE CURRENT STANDARD DETAIL DRAWINGS 8A5 AND 8C7 FOR DETAILS.

LOCATION OF
TIE BARS IN WINGWALL

CONCRETE SURFACE DRAINS
DROP INLET TYPE
AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

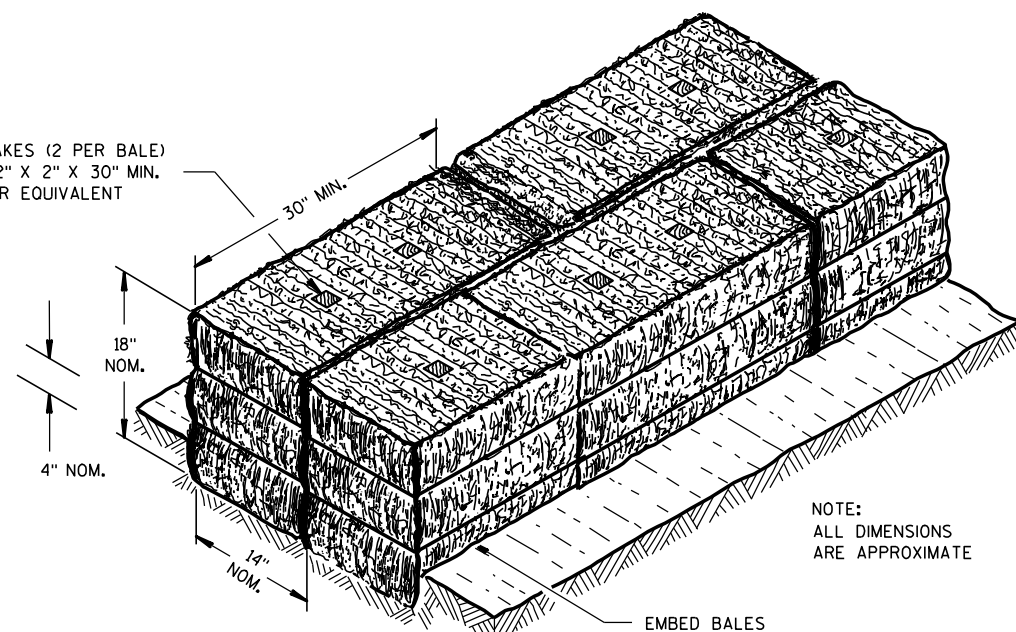
9/4/08

DATE

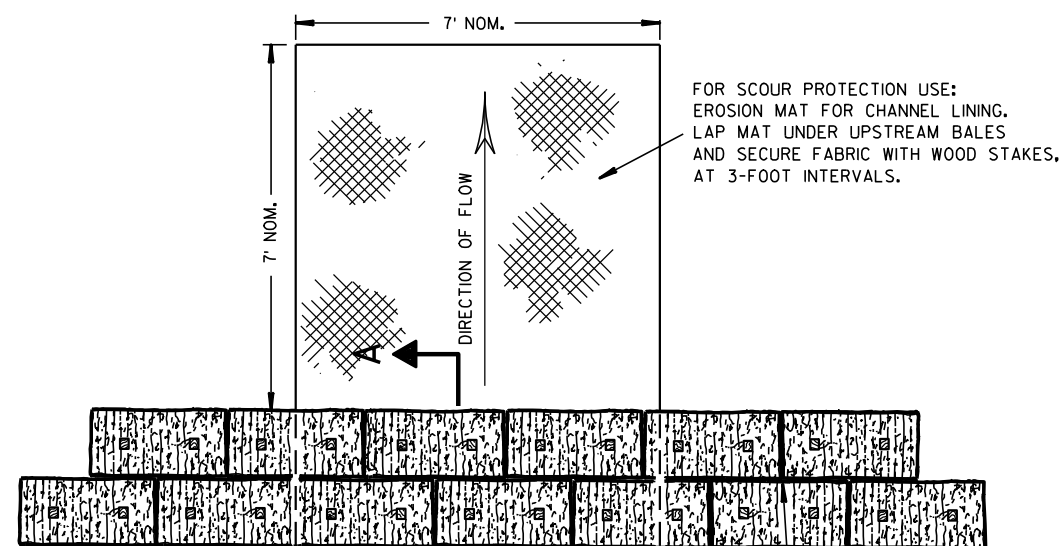
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

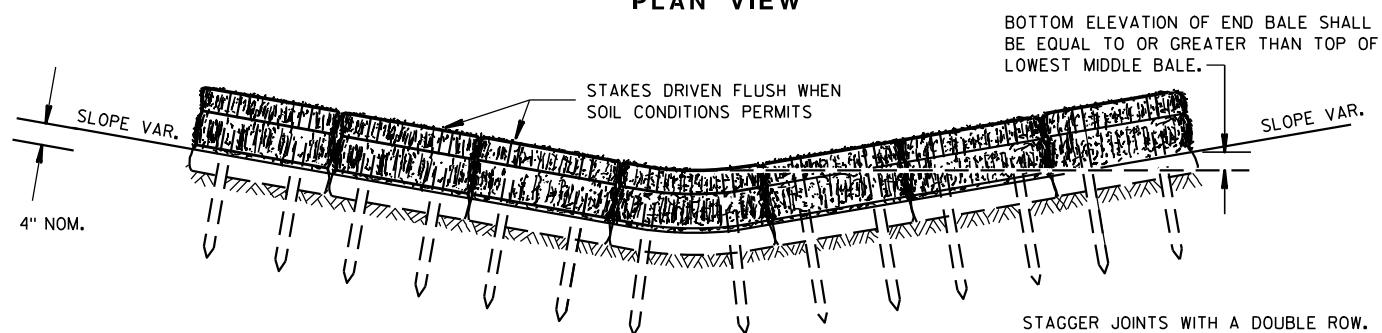
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



SECTION A-A



PLAN VIEW



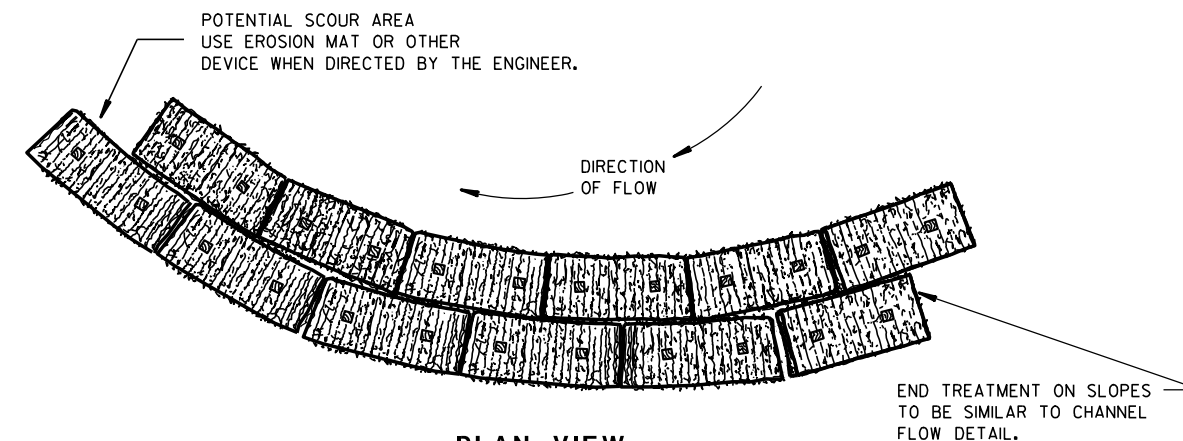
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

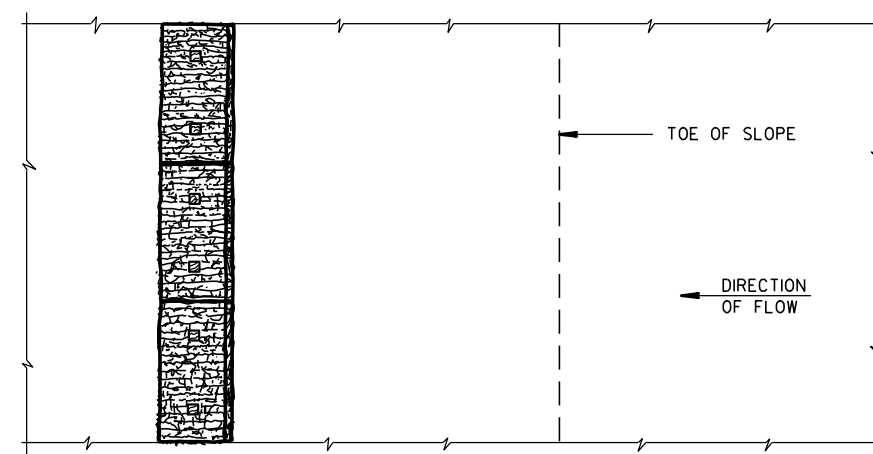
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

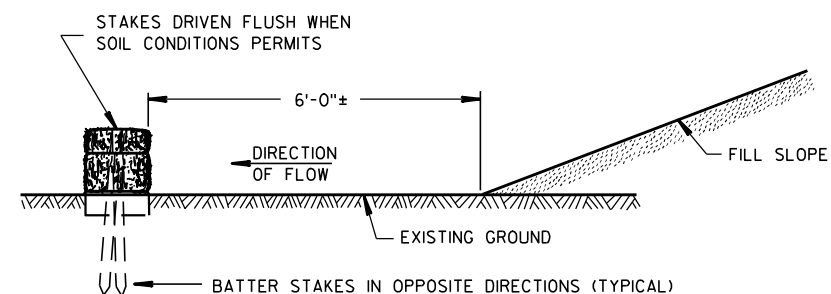


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

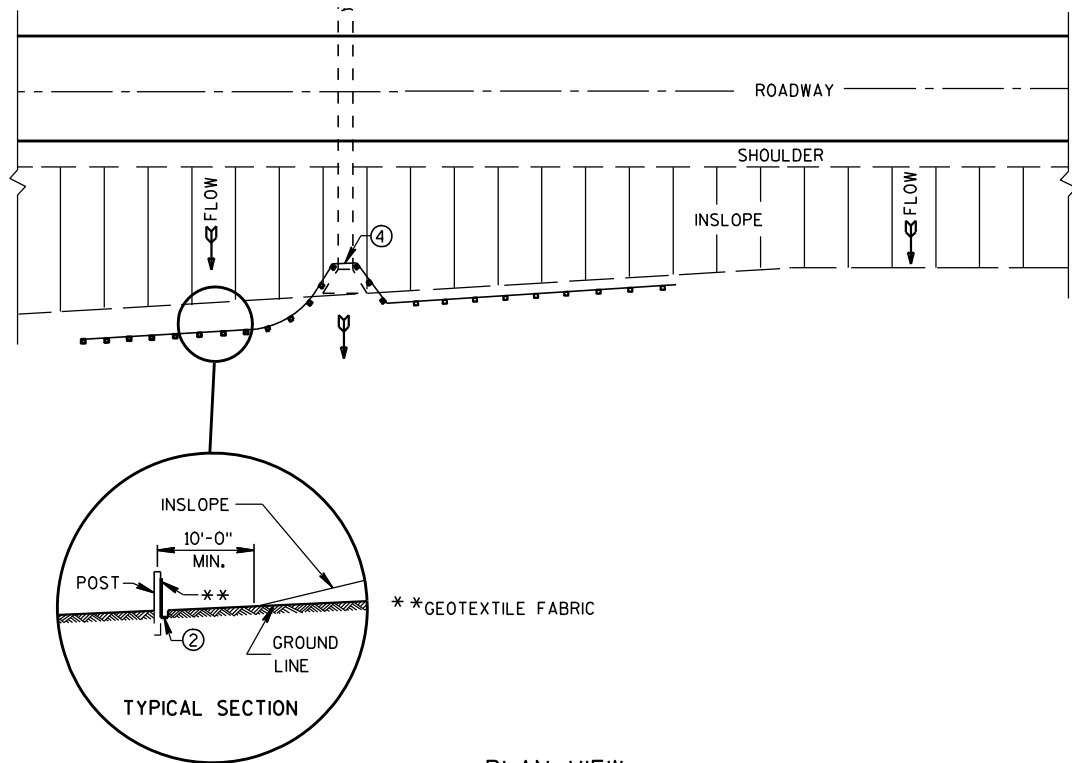
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

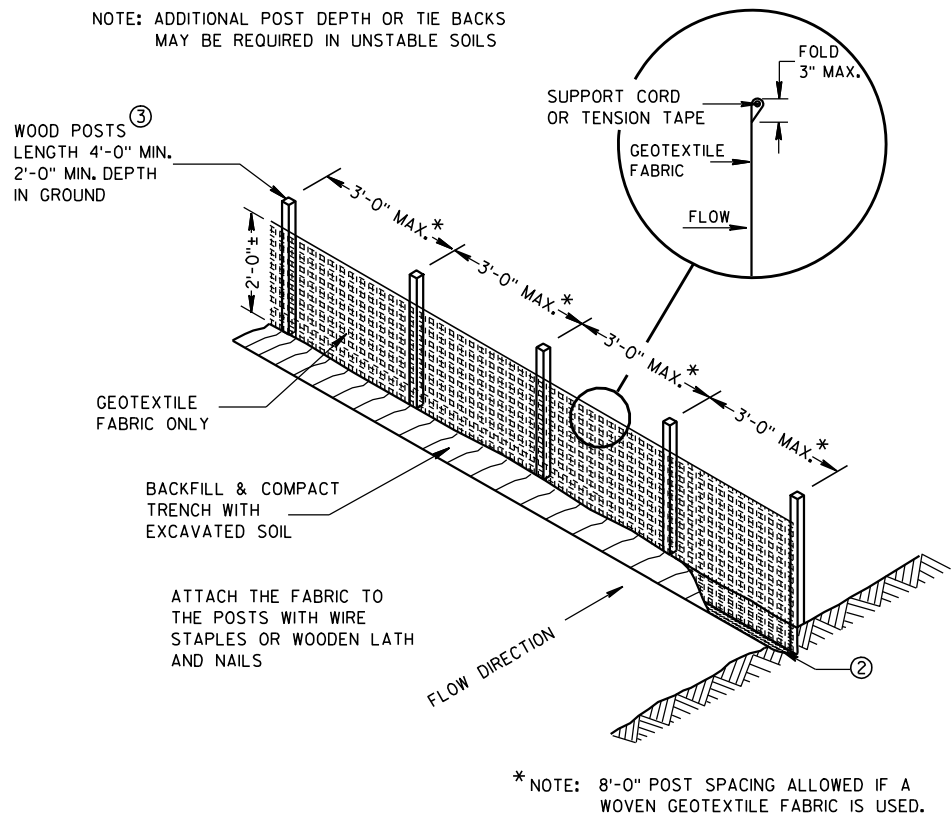
6/04/02
DATE

FHWA

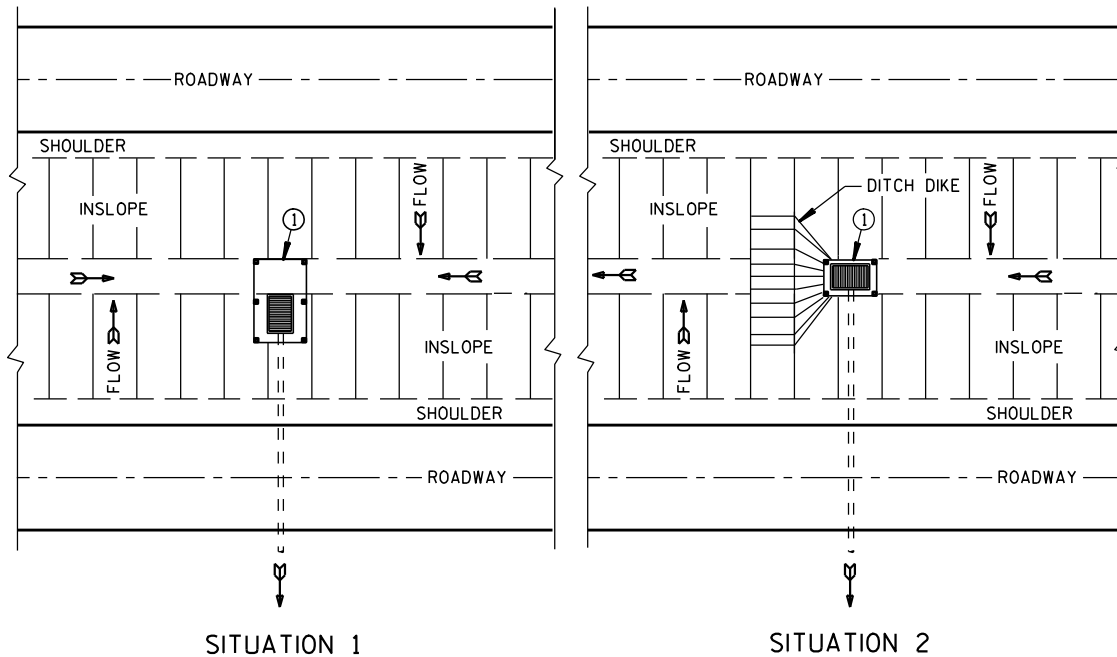
/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



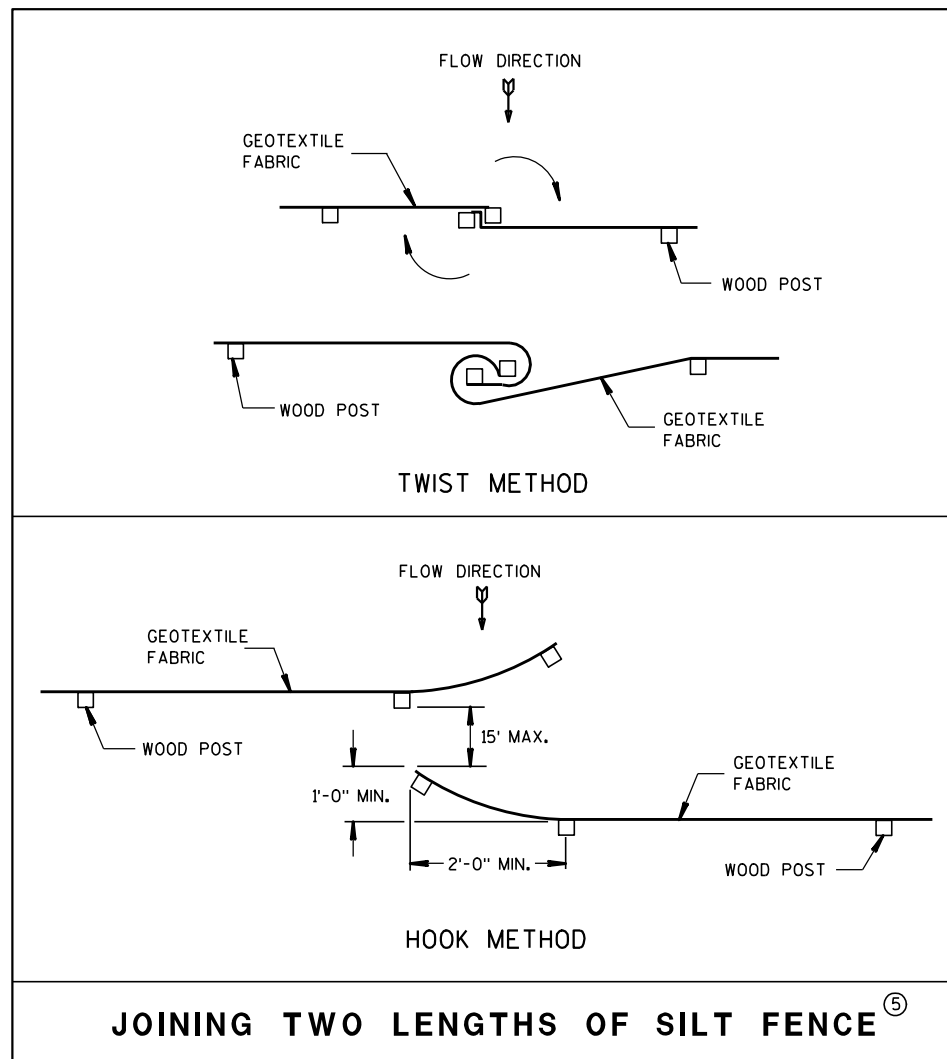
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

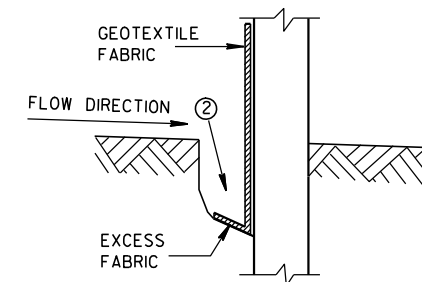


JOINING TWO LENGTHS OF SILT FENCE

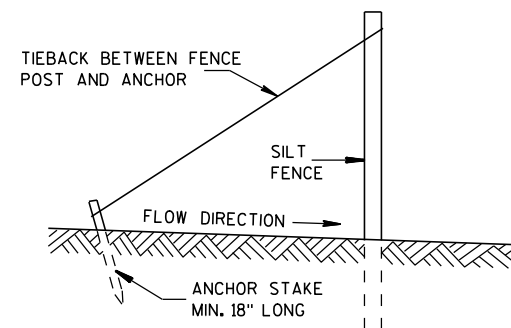
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Canestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



INLET PROTECTION, TYPE A

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

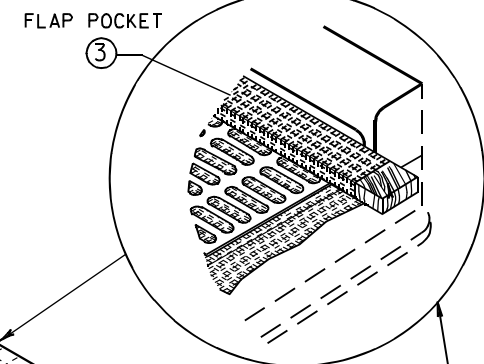
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)



USE REBAR OR STEEL ROD FOR REMOVAL OR
FOR INLETS WITH CAST CURB BOX USE WOOD 2" X 4", EXTEND 10" BEYOND GRATE WIDTH ON BOTH SIDES, LENGTH VARIES. SECURE TO GRATE WITH WIRE OR PLASTIC TIES

MINIMUM DOUBLE STITCHED SEAMS ALL AROUND SIDE PIECES AND ON FLAP POCKETS.

WOOD 2" X 4" EXTENDS 8" BEYOND GRATE WIDTH ON BOTH SIDES, LENGTH VARIES. SECURE TO GRATE WITH WIRE OR PLASTIC TIES

4" X 6" OVAL HOLE SHALL BE HEAT CUT INTO ALL FOUR SIDE PANELS.

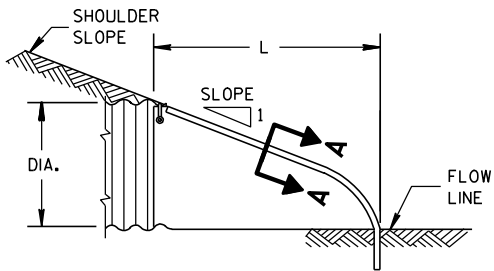
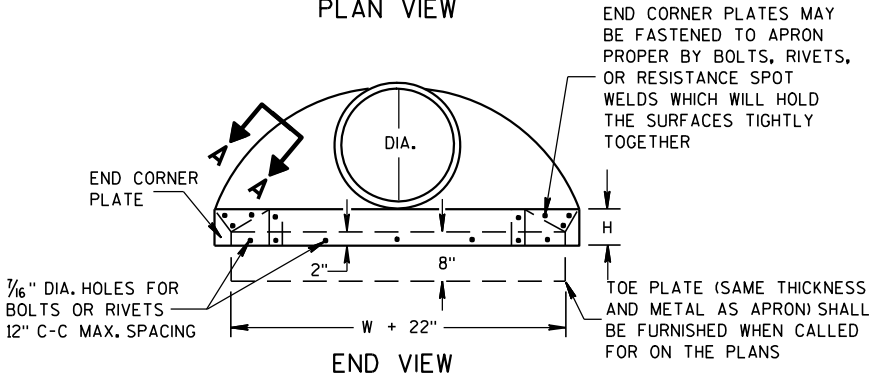
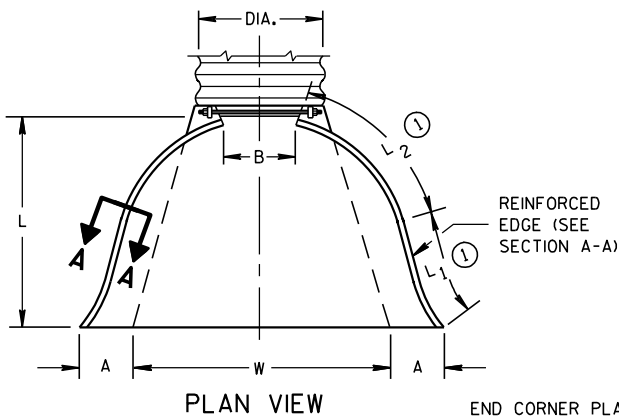
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Cannestra
DATE
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)						APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L ₁ ①	L ₂ ①			W (±2")
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

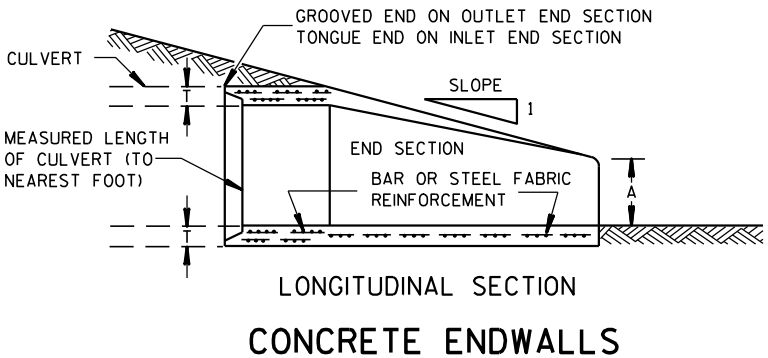
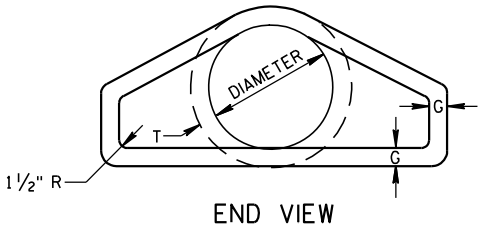
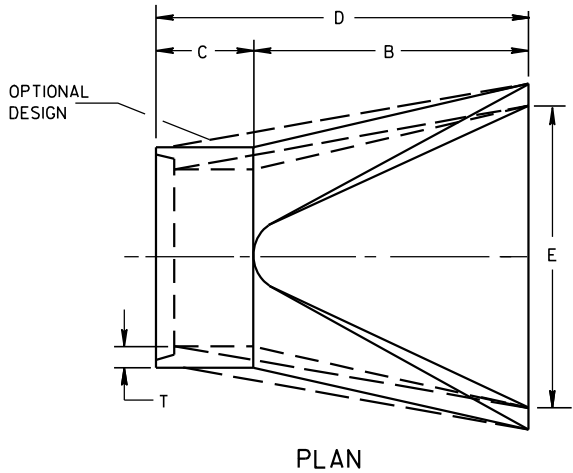
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



METAL ENDWALLS

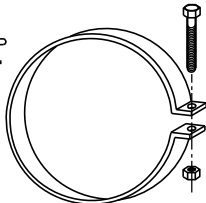
REINFORCED CONCRETE APRON ENDWALLS								
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE
	T	A	B	C	D	E	G	
12	2	4	24	48 ¹ / ₈	72 ¹ / ₈	24	2	3 to 1
15	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	3 to 1
18	2 ¹ / ₂	9	27	46	73	36	2 ¹ / ₂	3 to 1
21	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	3 to 1
24	3	9 ¹ / ₂	43 ¹ / ₂	30	73 ¹ / ₂	48	3	3 to 1
27	3 ¹ / ₄	10 ¹ / ₂	49 ¹ / ₂	24	73 ¹ / ₂	54	3 ¹ / ₄	3 to 1
30	3 ¹ / ₂	12	54	19 ³ / ₄	73 ¹ / ₂	60	3 ¹ / ₂	3 to 1
36	4	15	63	34 ³ / ₄	97 ³ / ₄	72	4	3 to 1
42	4 ¹ / ₂	21	63	35	98	78	4 ¹ / ₂	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 ¹ / ₂	27	65	33 ¹ / ₄ -35	98 ¹ / ₄ -100	90	5 ¹ / ₂	2 ¹ / ₂ to 1
60	6	30-35	60	39	99	96	5	2 to 1
66	6 ¹ / ₂	24-30	72-78	21-27	99	102	5 ¹ / ₂	2 to 1
72	7	24-36	78	21	99	108	6	2 to 1
78	7 ¹ / ₂	24-36	78	21	99	114	6 ¹ / ₂	2 to 1
84	8	36	90 ¹ / ₂	21	111 ¹ / ₂	120	6 ¹ / ₂	1 ¹ / ₂ to 1
90	8 ¹ / ₂	41	87 ¹ / ₂	24	111 ¹ / ₂	132	6 ¹ / ₂	1 ¹ / ₂ to 1

* MINIMUM
** MAXIMUM

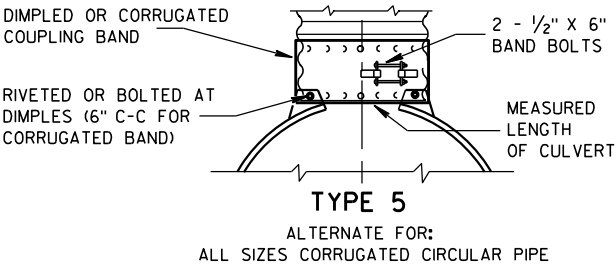
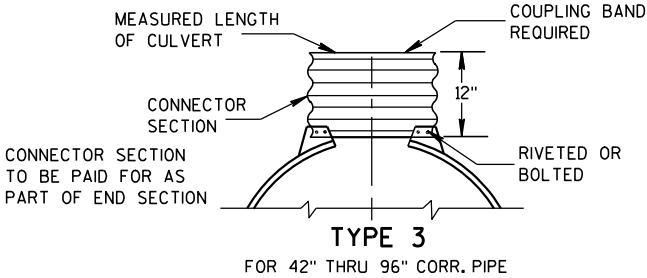
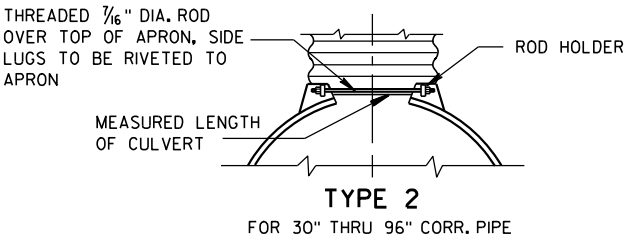
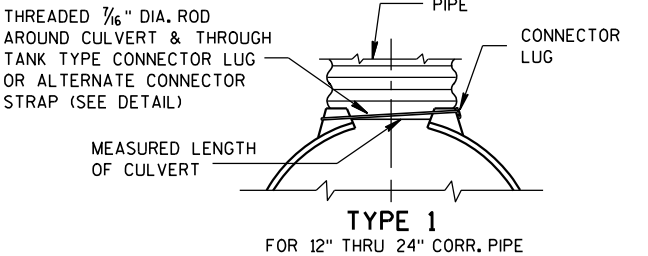


CONCRETE ENDWALLS

1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



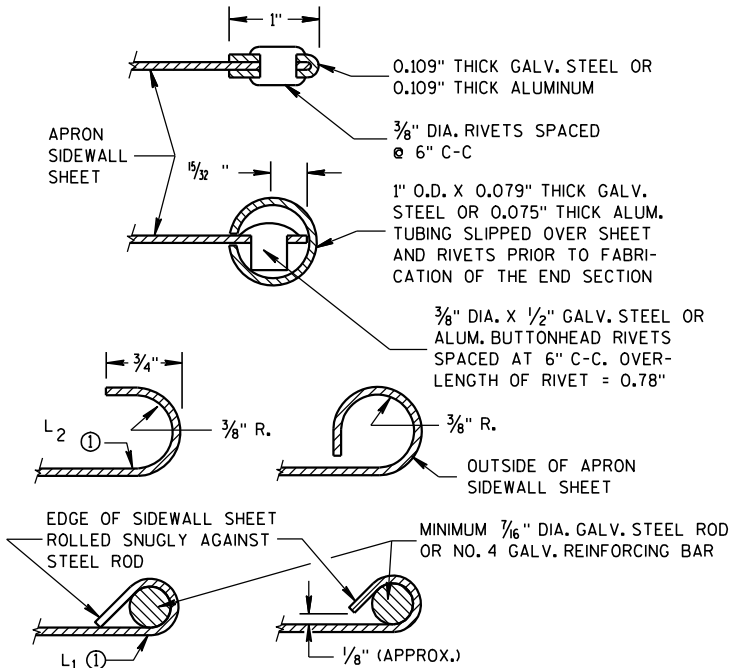
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

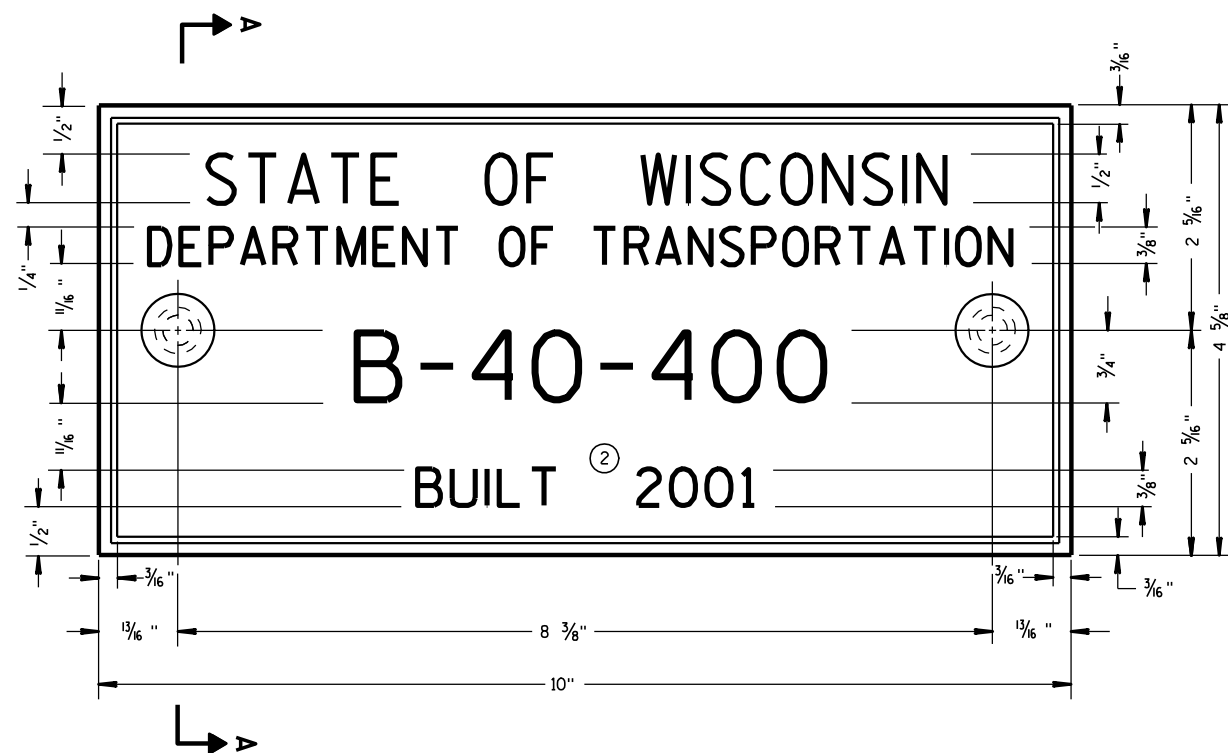
GENERAL NOTES

- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.
- ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.
- LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.
- WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.
- ① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

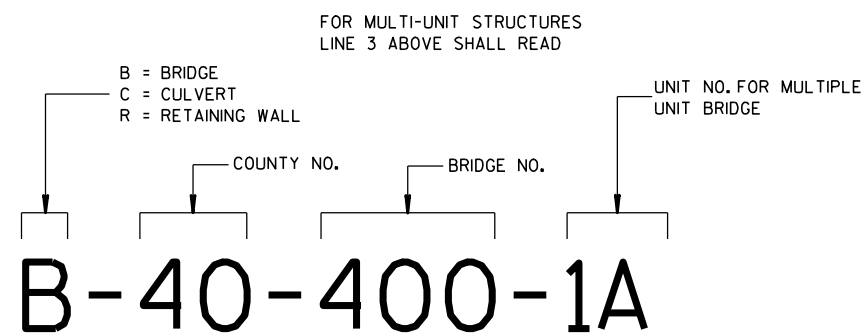
APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94
DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



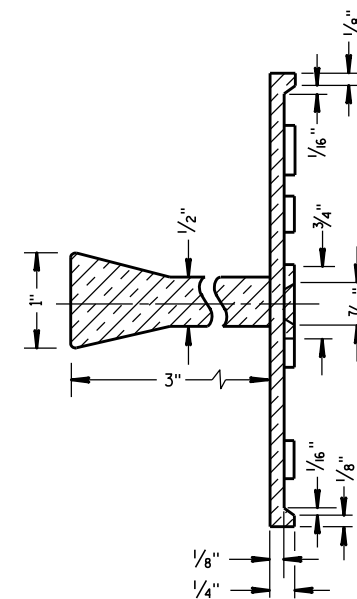
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

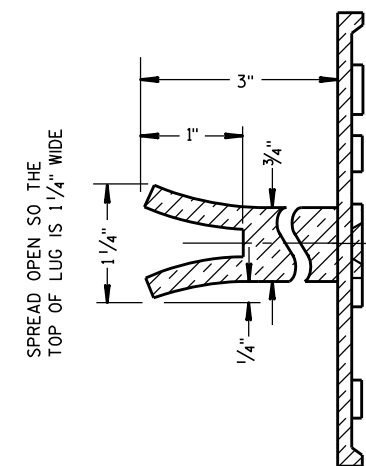
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

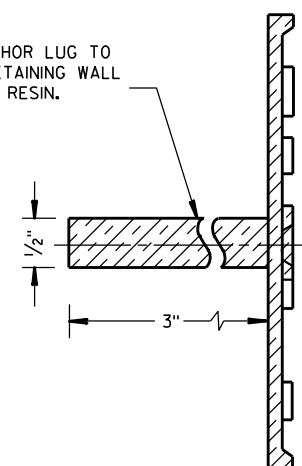


SECTION A-A



ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

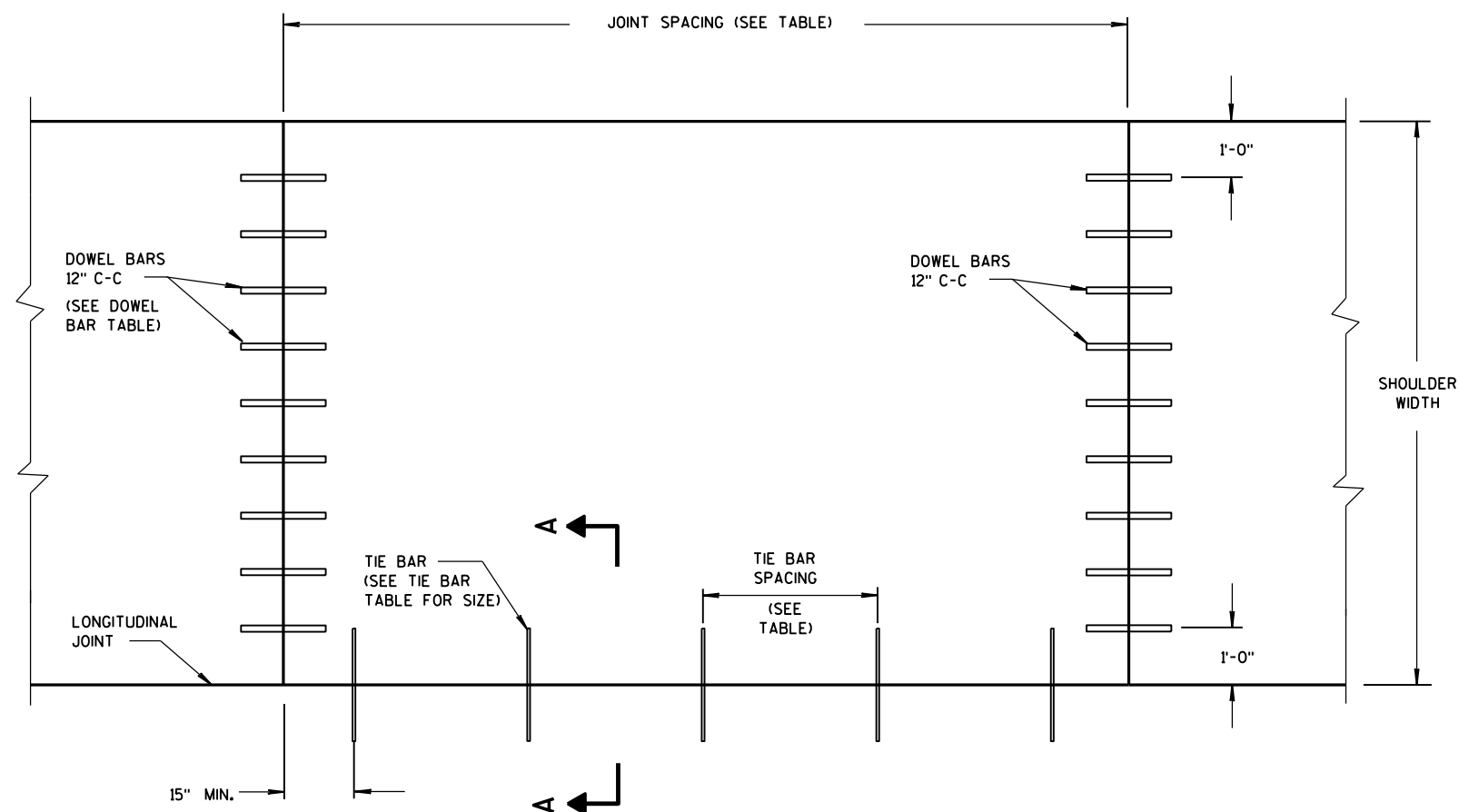
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10
DATE

FHWA

/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



PLAN VIEW
CONCRETE PAVEMENT SHOULDER

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g., AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

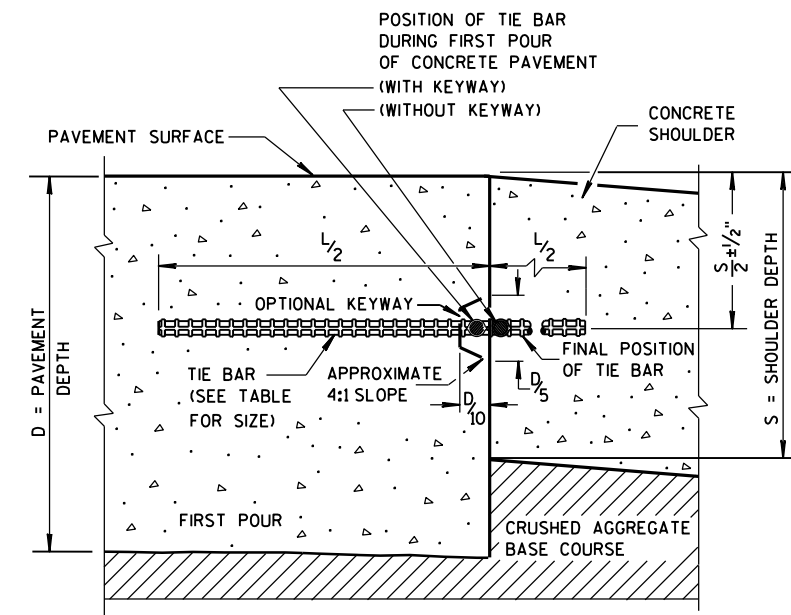
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE
AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER***	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

*** FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FOR THE AVERAGE THICKNESS OF THE CROSS SECTION.

CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

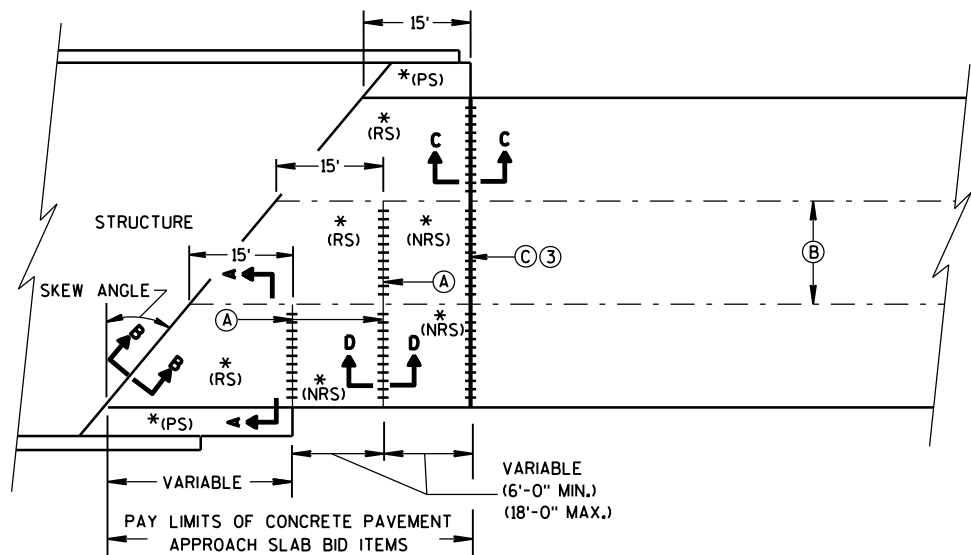
June, 2015

DATE

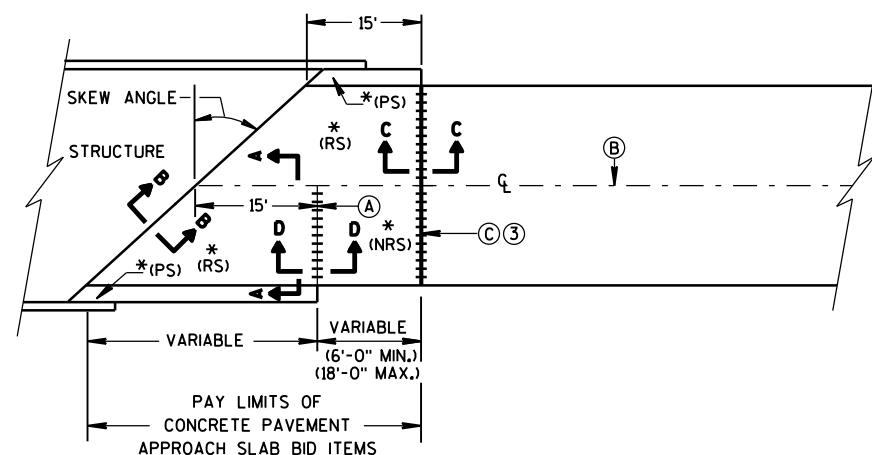
FHWA

/S/ Peter Kemp, P.E.

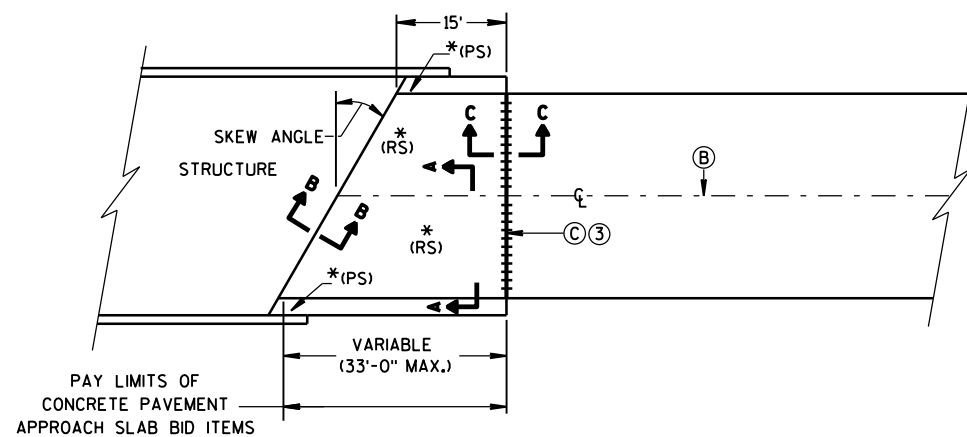
PAVEMENT SUPERVISOR



**SKewed APPROACH
(PAVEMENT MORE THAN 2 LANES)**



**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**

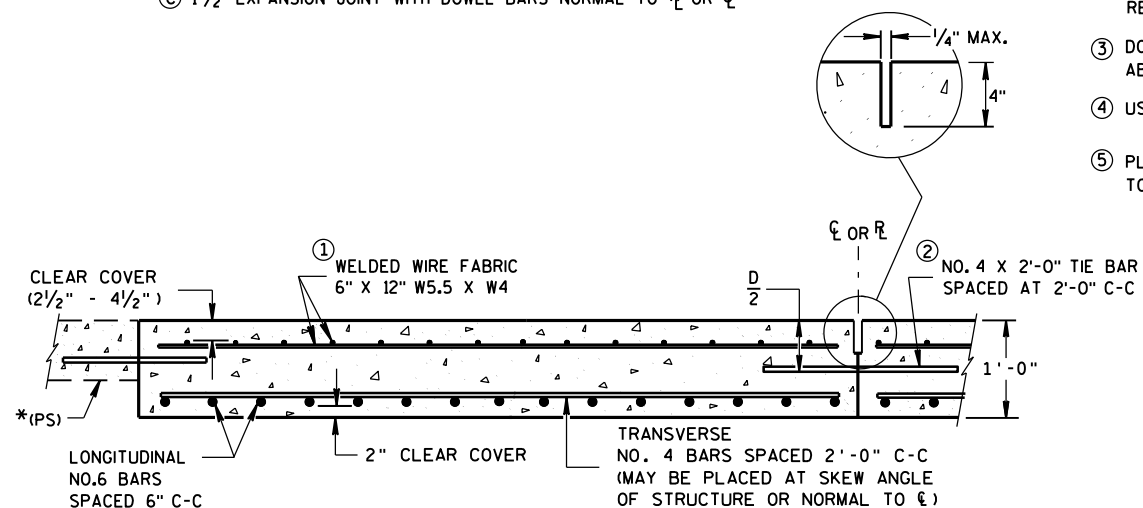


**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')
APPROACH SLAB AND ADJACENT PAVEMENT**

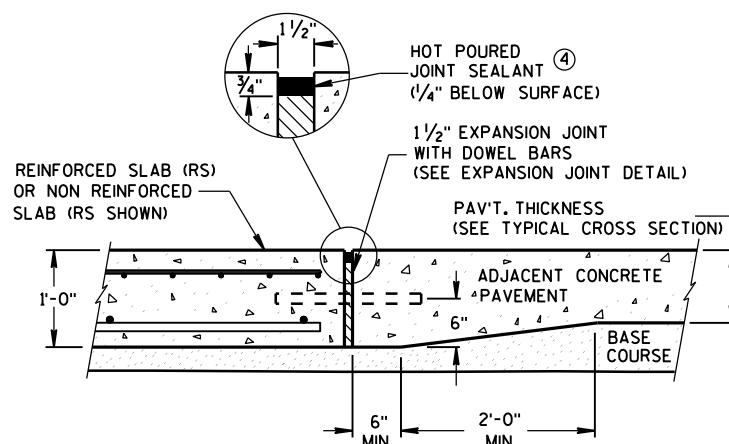
* (RS) = REINFORCED CONCRETE SLAB
* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
* (NRS) = NON-REINFORCED CONCRETE SLAB

*** STANDARD DOWEL BAR DIAMETER
(SEE SDD 13C11, & SDD 13C13)

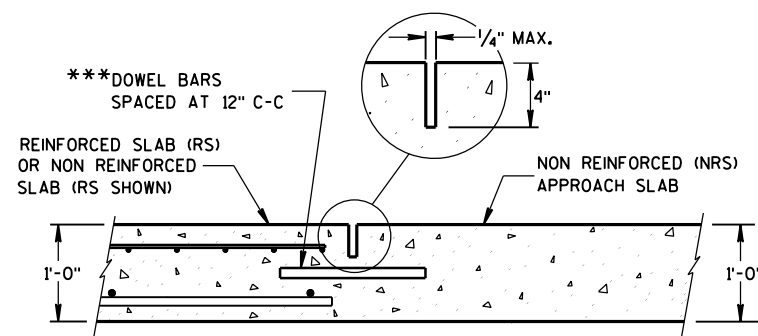
- (A) STANDARD CONTRACTION JOINT NORMAL TO ℓ OR ℓ_c
(B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
(C) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℓ OR ℓ_c



**SECTION A-A
REINFORCEMENT POSITIONING DETAIL**



**SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**



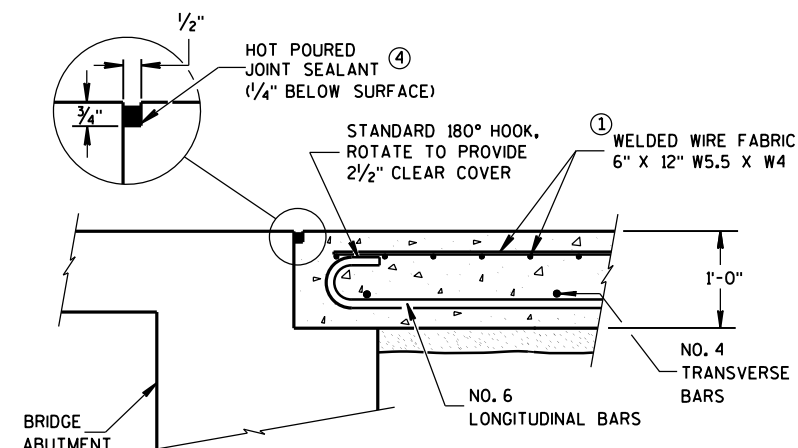
**SECTION D-D
CONTRACTION JOINT**

GENERAL NOTES

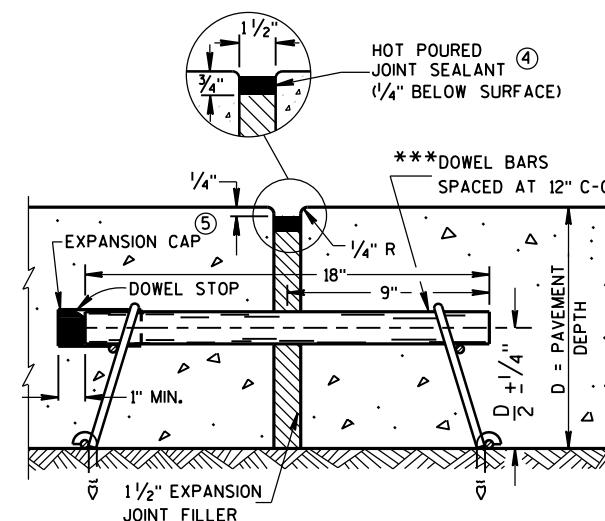
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.
- PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.



**SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT**



EXPANSION JOINT DETAIL

**CONCRETE PAVEMENT
APPROACH SLAB**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

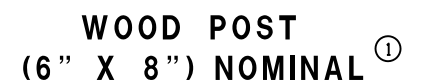
APPROVED
June, 2015 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR
FHWA

S.D.D. 14 B 42-3a

- S.D.D. 14 B 42-3a**

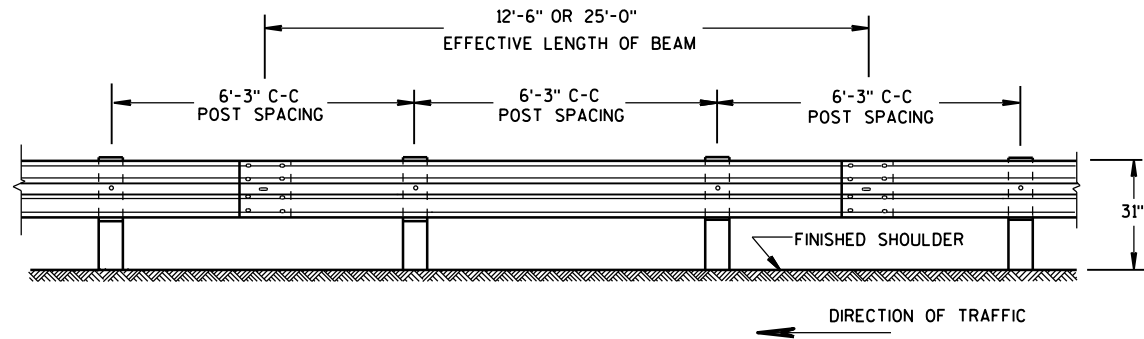


MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



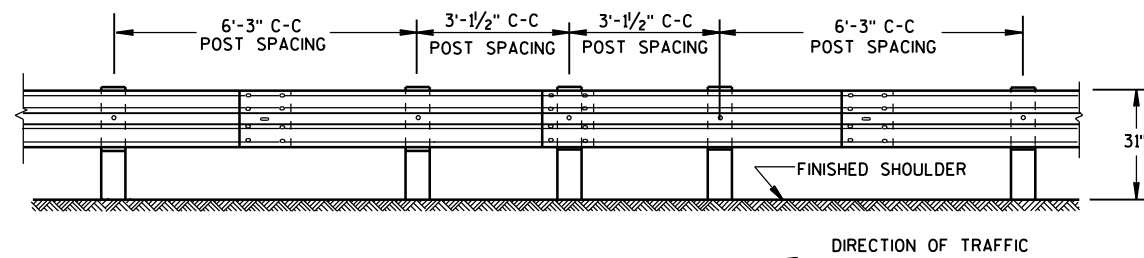
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



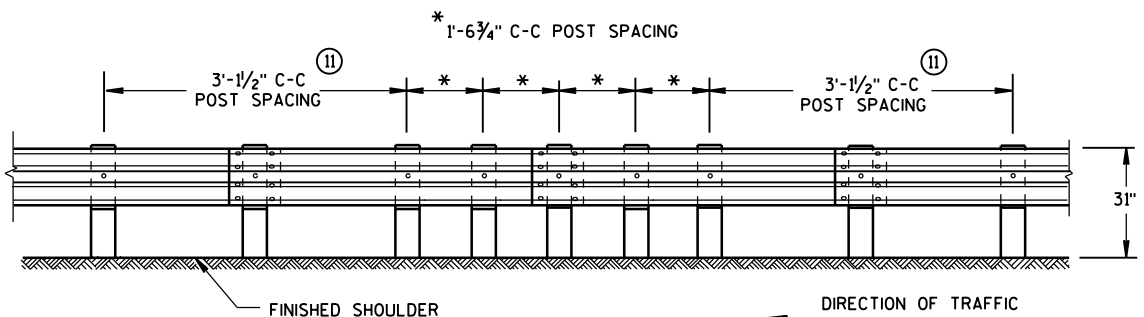
FRONT VIEW

POST SPACING STANDARD INSTALLATION



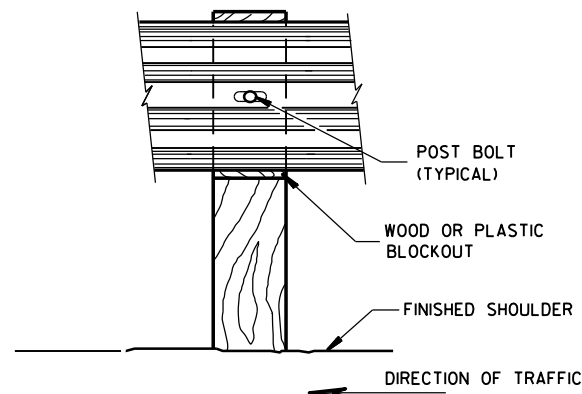
FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

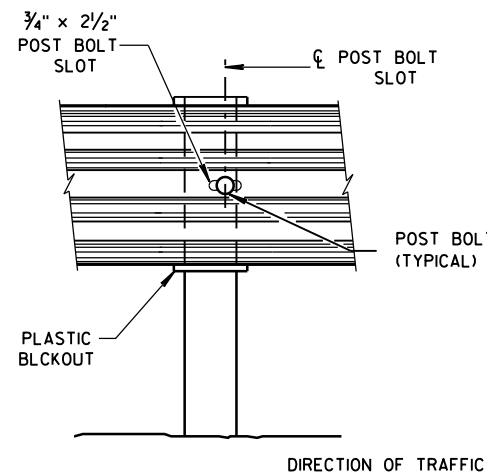


FRONT VIEW

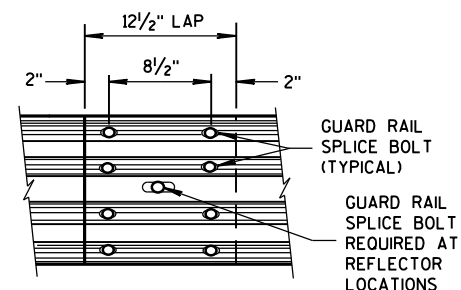
QUARTER POST SPACING (QS)



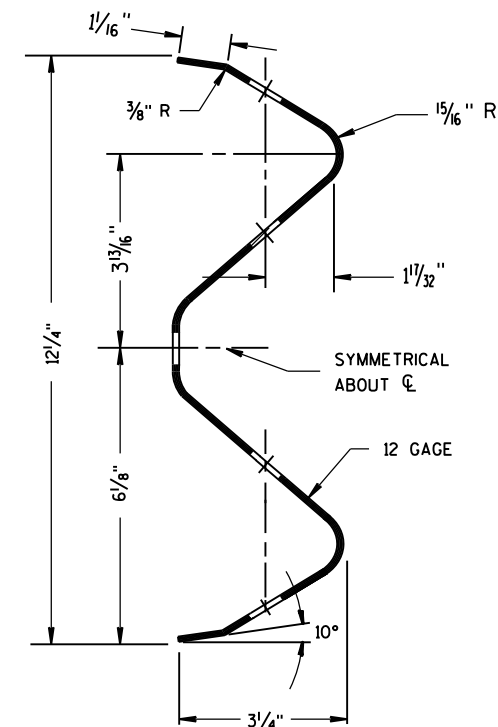
FRONT VIEW AT WOOD POST



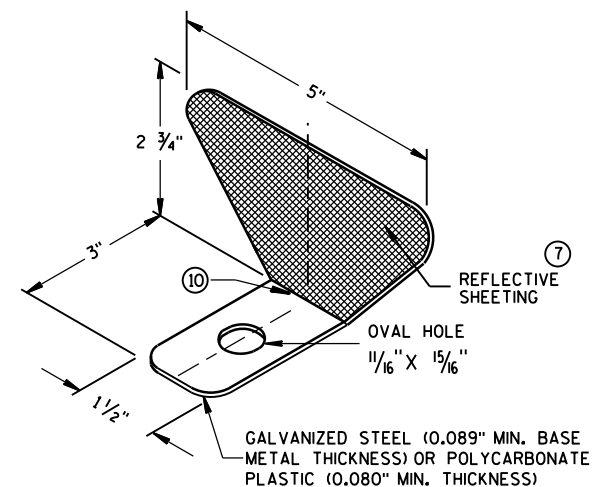
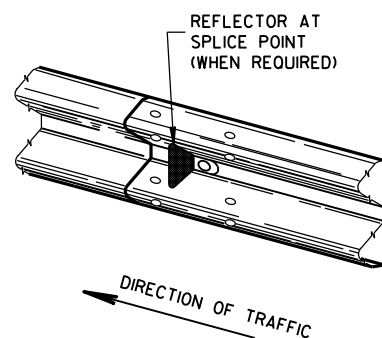
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

GENERAL NOTES

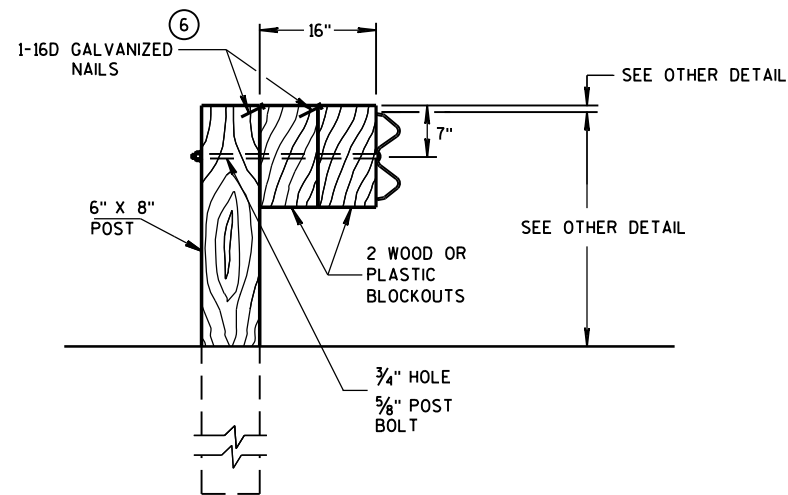
- ⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
 - ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
 - ⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
 - ⑩ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
 - ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND $\frac{5}{8}$ " DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ⑨	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ⑩	3
	> 200'	100' C-C	2	

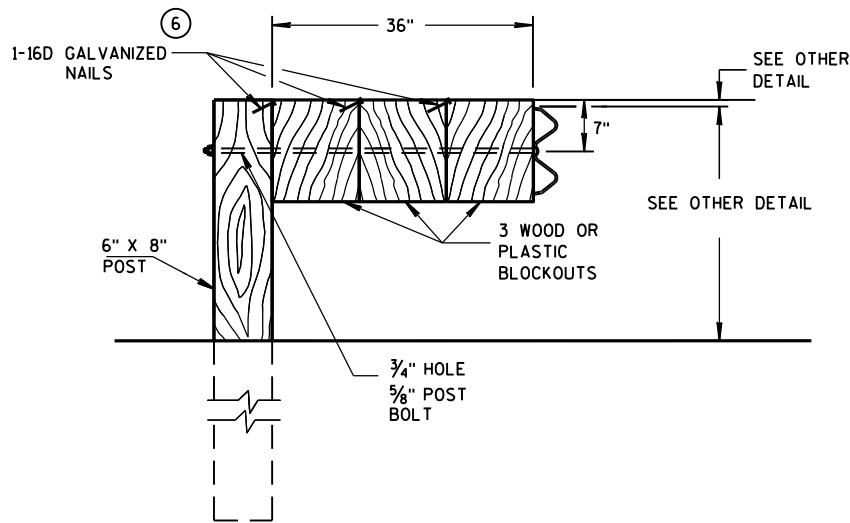
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

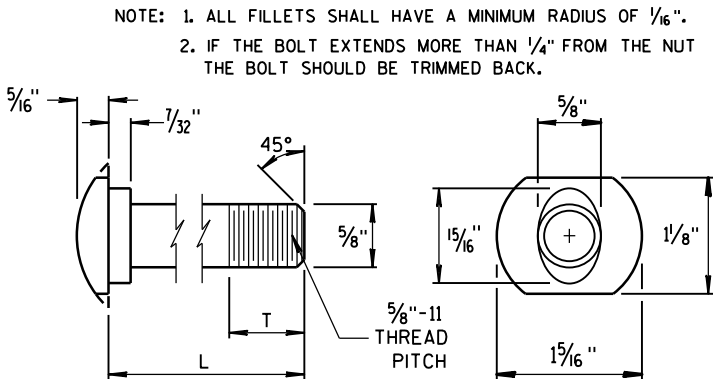
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



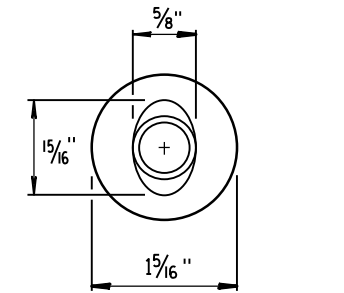
DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

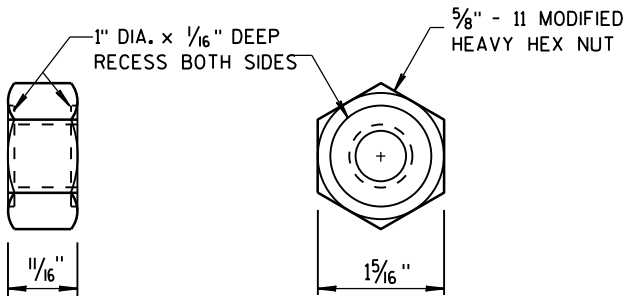
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



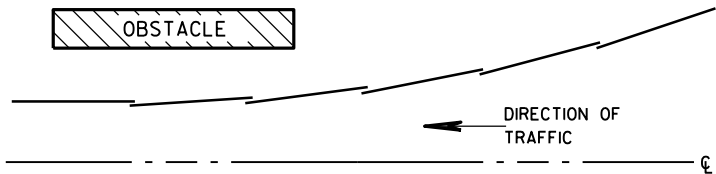
POST BOLT TABLE



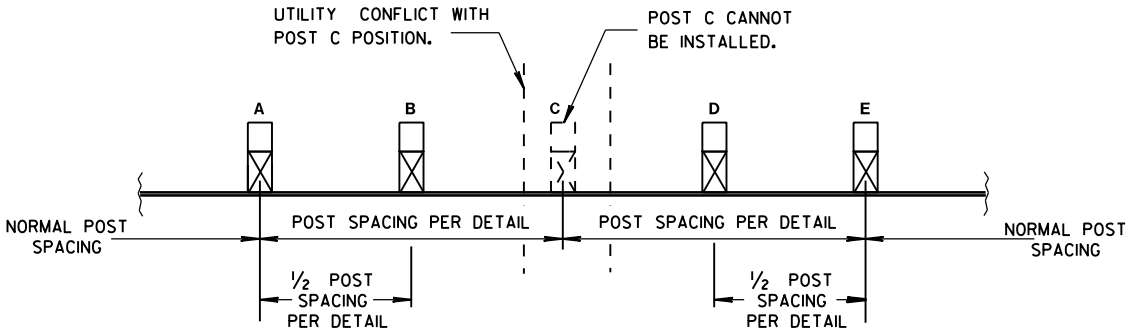
ALTERNATE BOLT HEAD



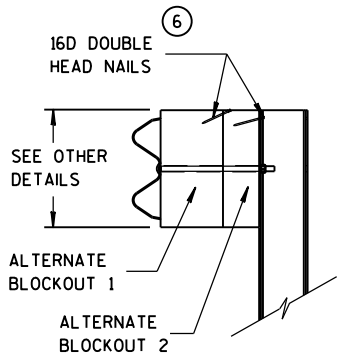
POST BOLT
AND RECESS NUT



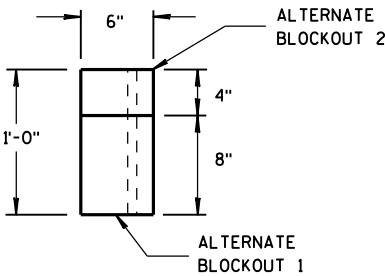
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.
- (G) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.
- (I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

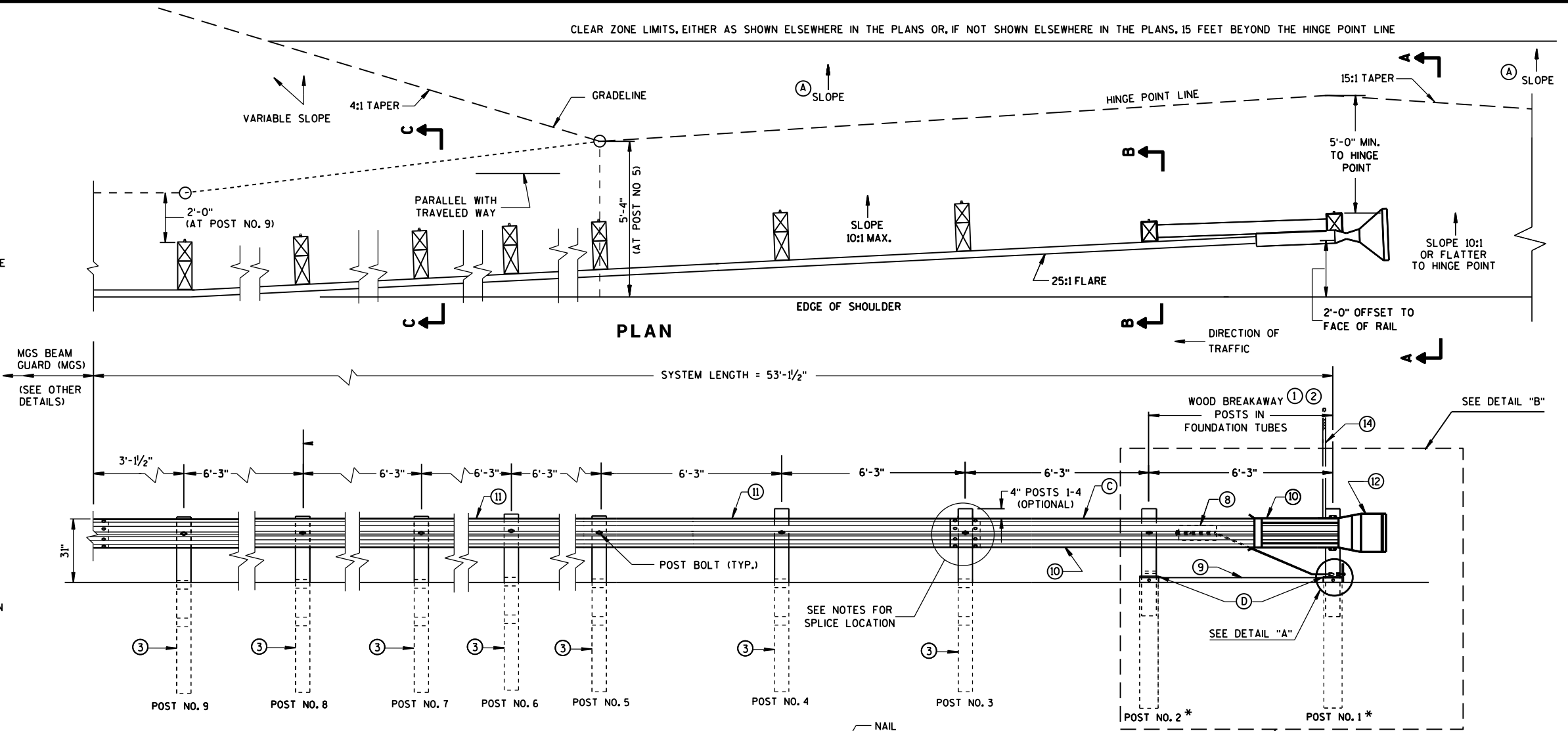
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

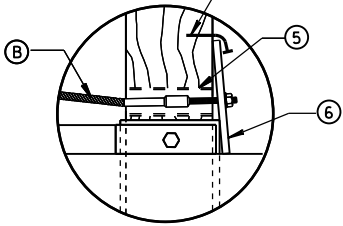
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

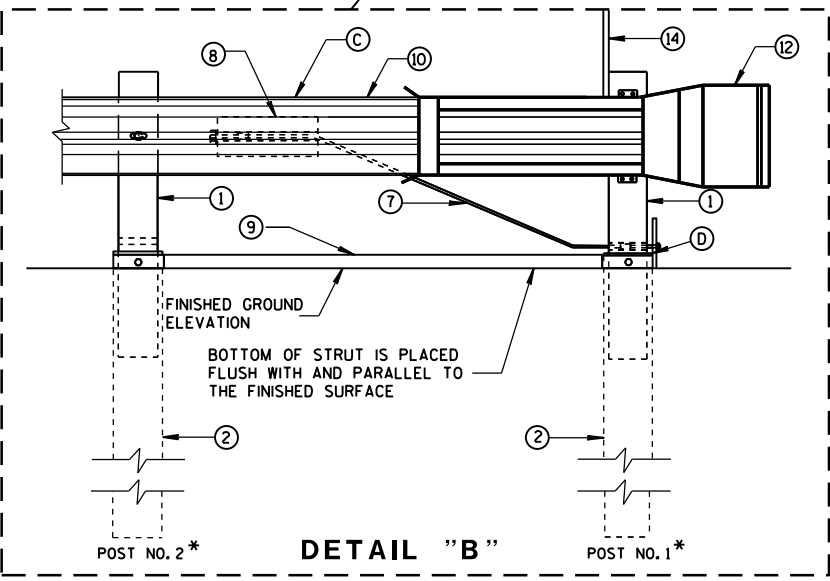
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



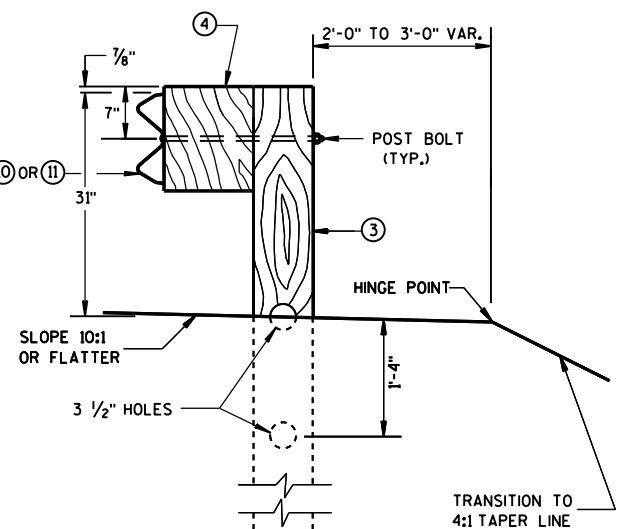
ELEVATION



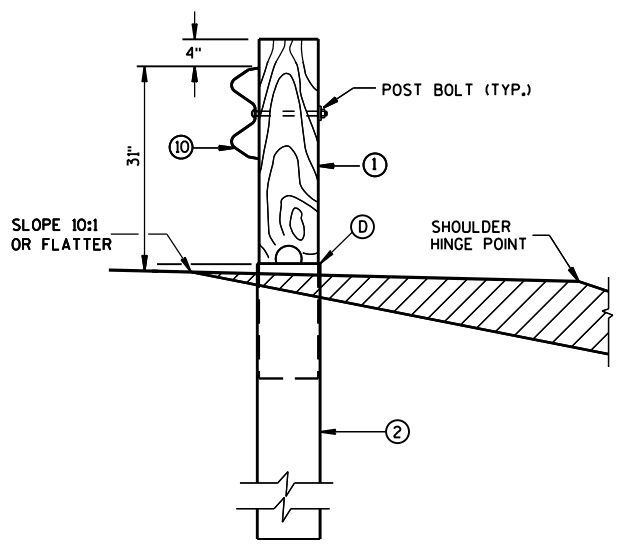
DETAIL "A"



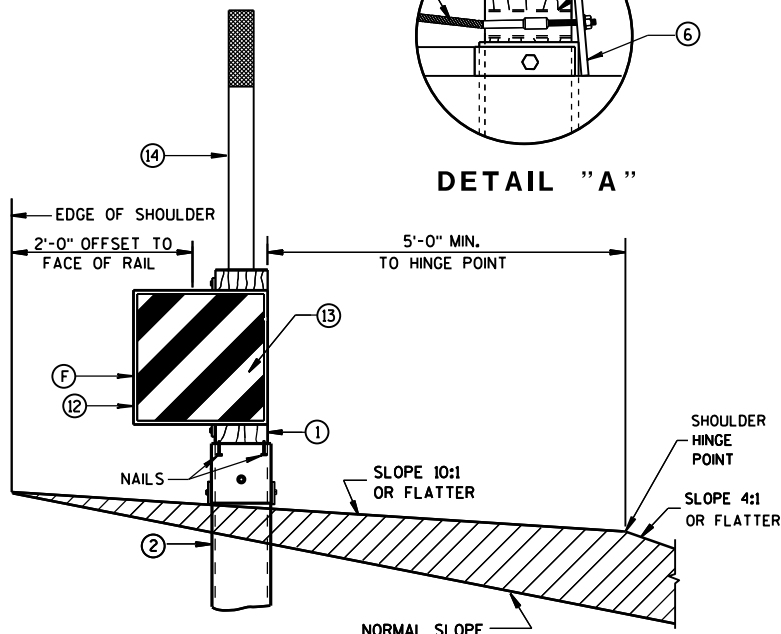
DETAIL "B"



SECTION C-C
TYPICAL AT POST NOS. 3-9



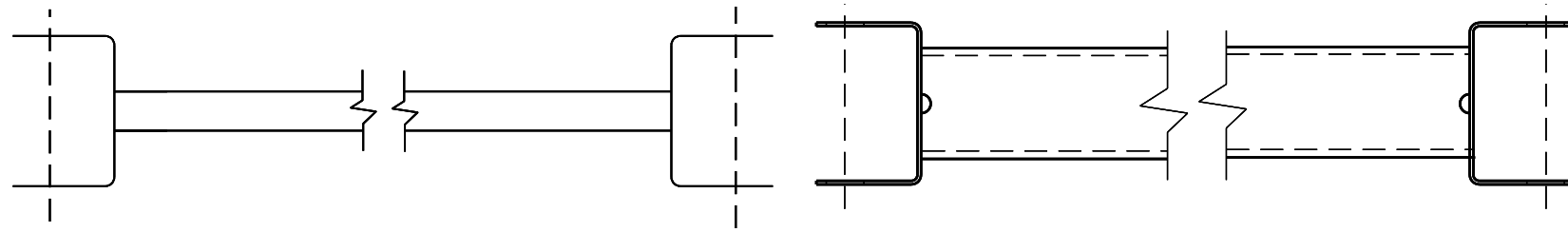
SECTION B-B
TYPICAL AT POST NO. 2*



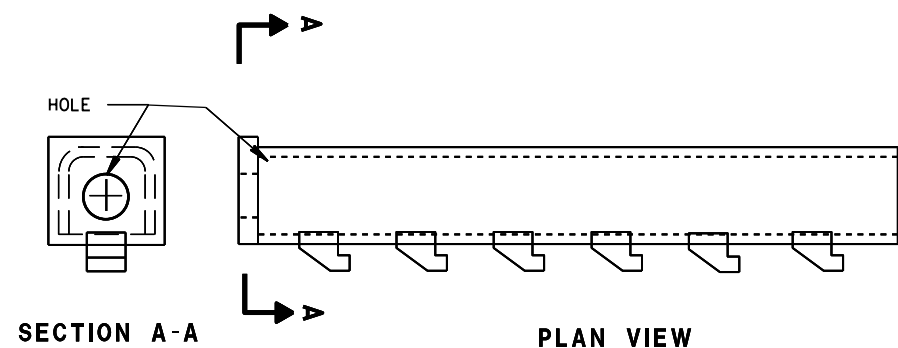
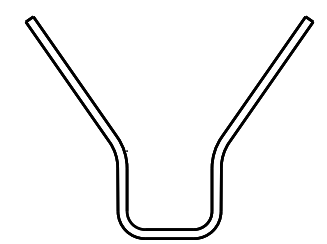
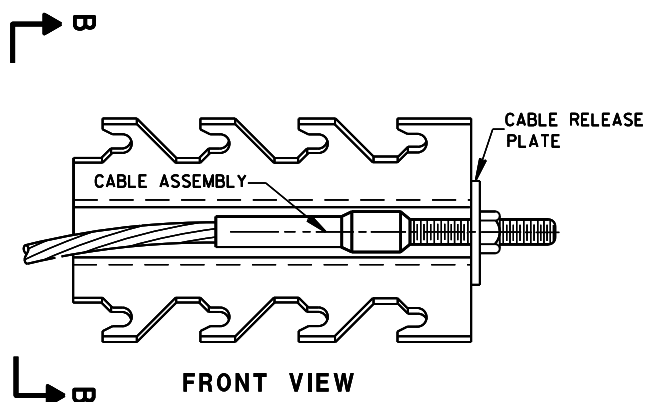
SECTION A-A
TYPICAL AT POST NO. 1*

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



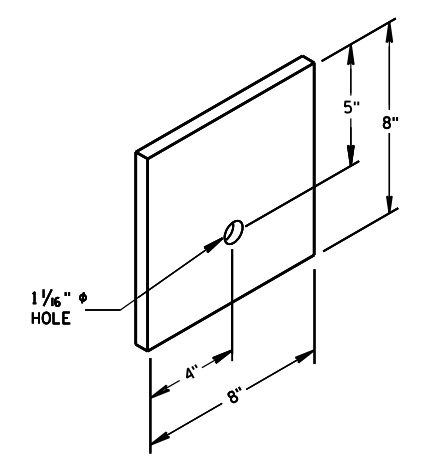
9 H
GENERIC GROUND STRUT



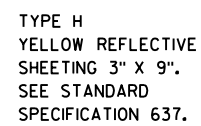
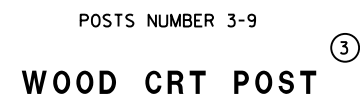
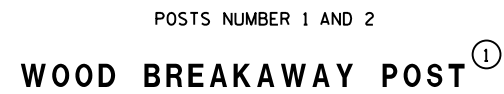
8 H
GENERIC ANCHOR CABLE BOX

BILL OF MATERIALS

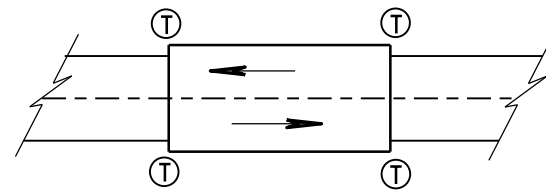
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	END SECTION EAT
⑬	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
⑭	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



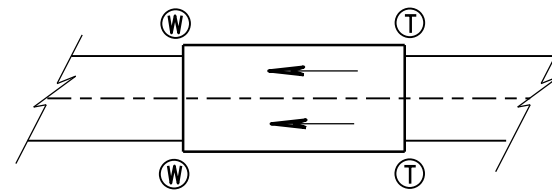
⑥
BEARING PLATE



MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2014	<i>/S/ Jerry H. Zogg</i>
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

GENERAL NOTES

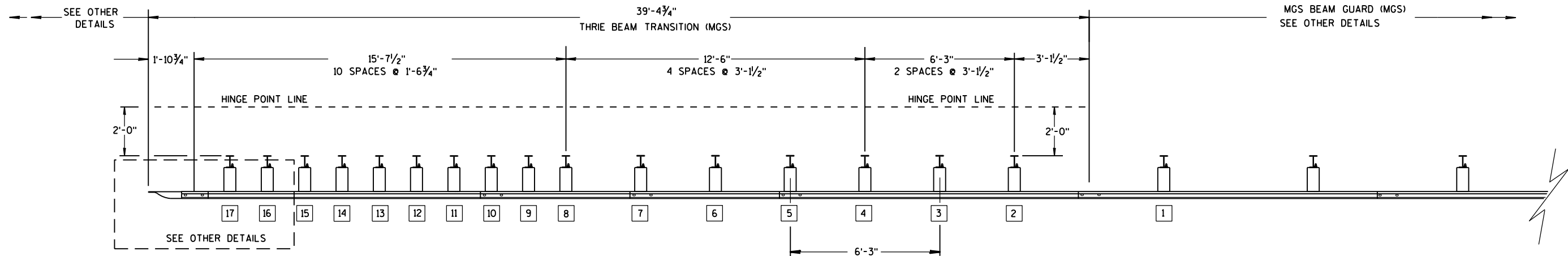
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

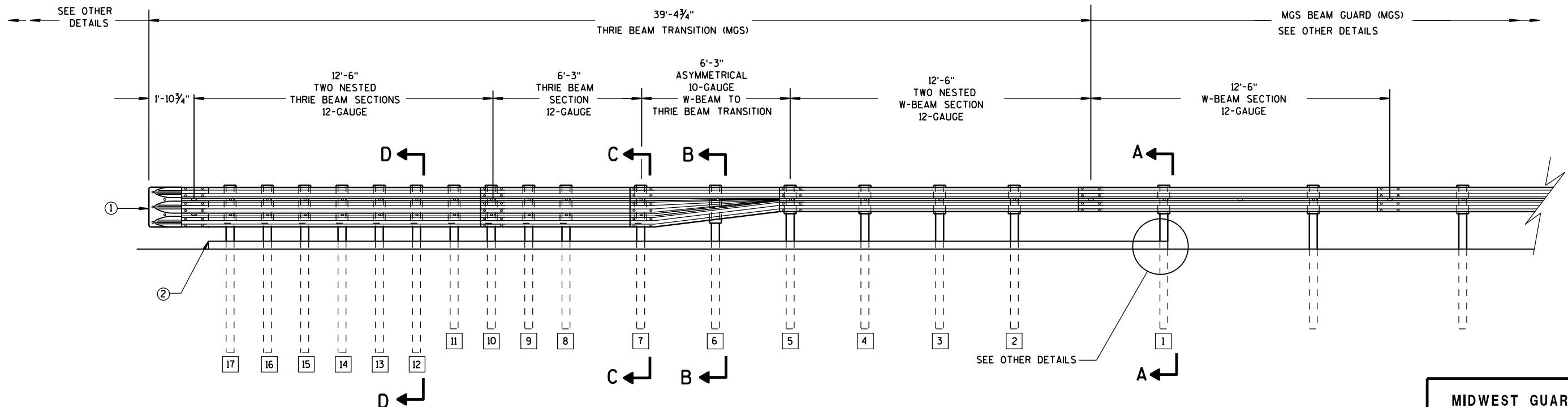
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.



PLAN VIEW



ELEVATION VIEW

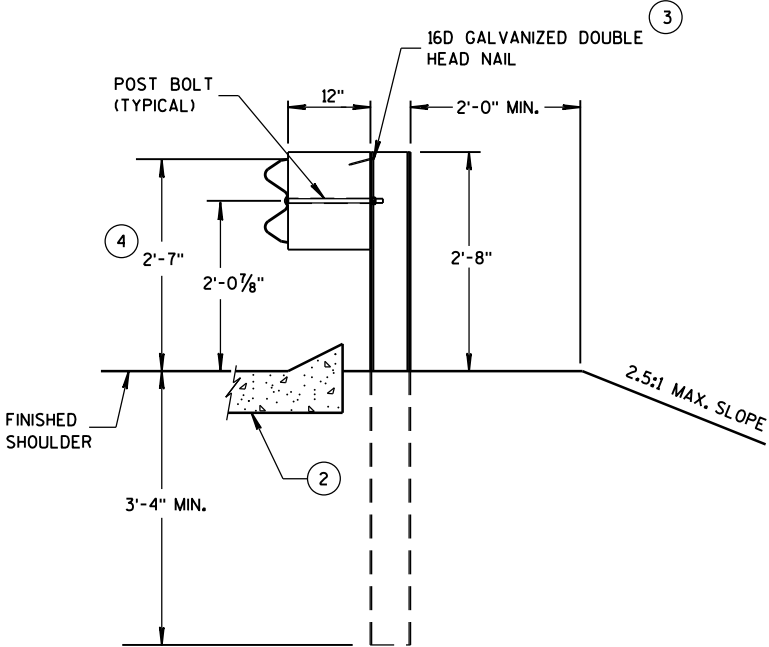
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

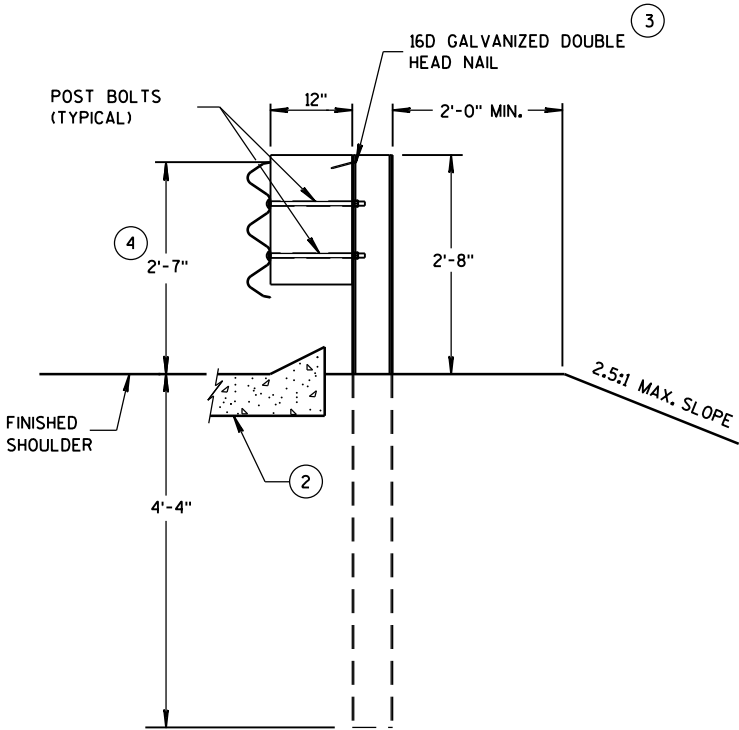
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

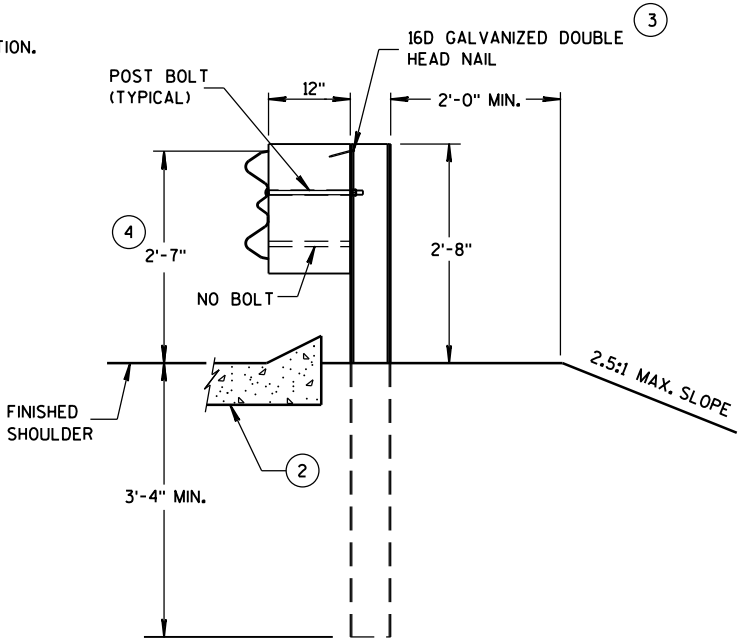
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



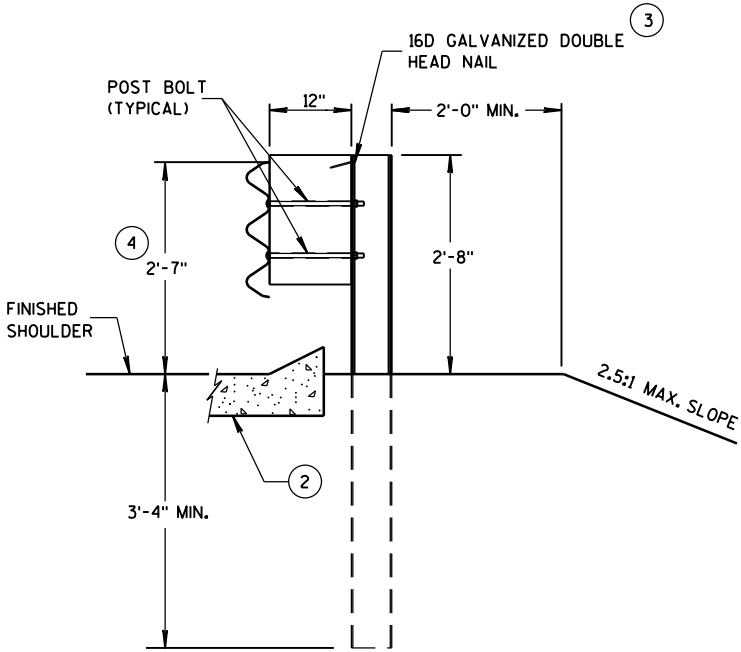
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

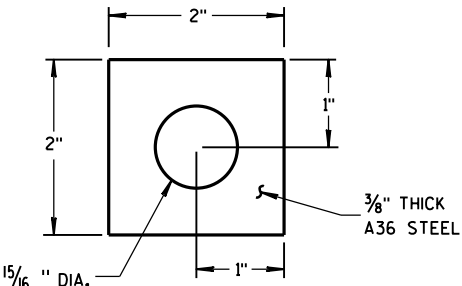
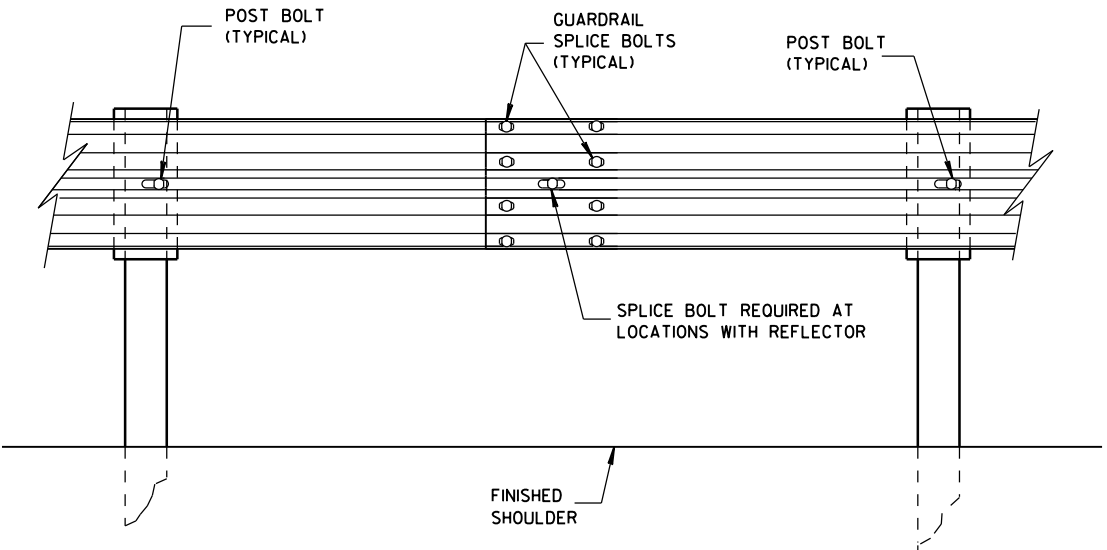
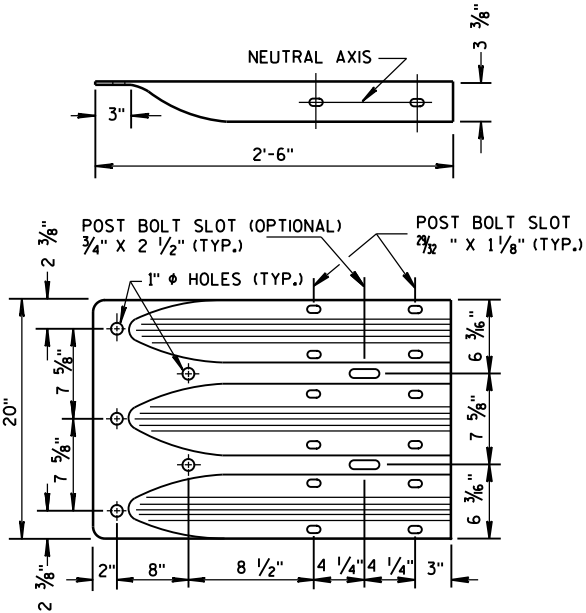


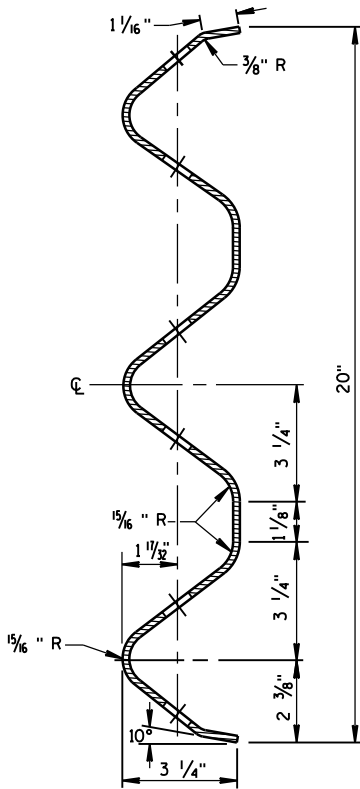
PLATE WASHER DETAIL



SPLICE DETAIL



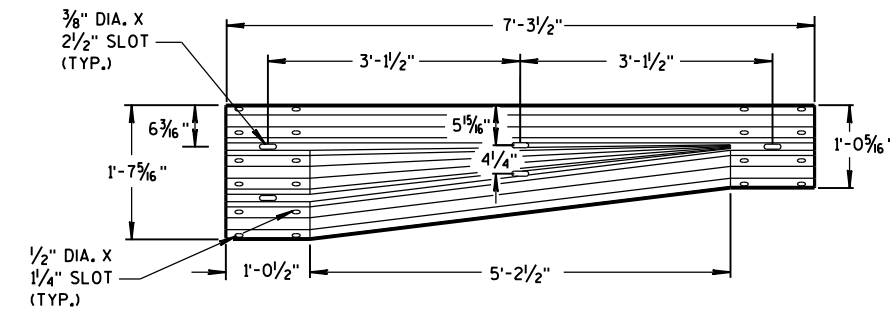
THRIE BEAM
TERMINAL CONNECTOR



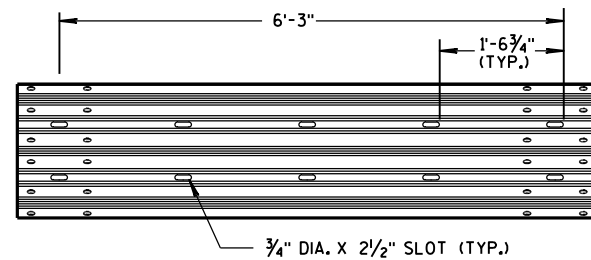
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

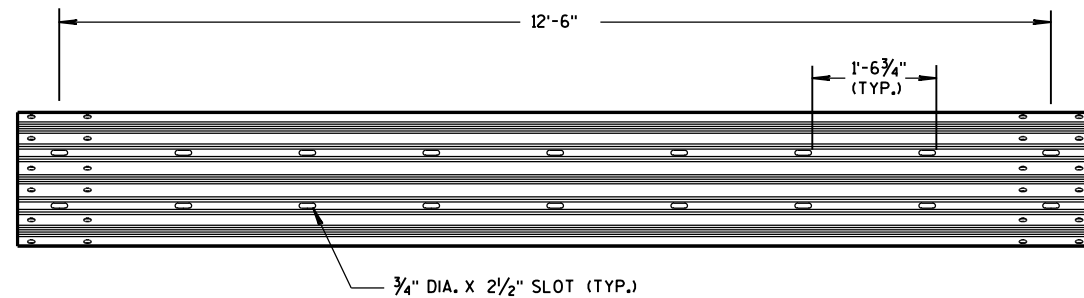
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



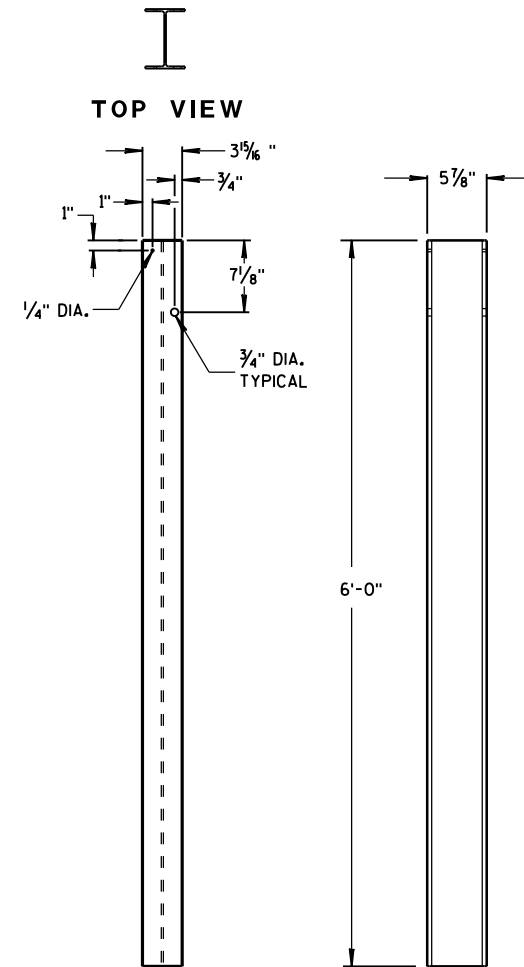
W-BEAM TO THRIE BEAM TRANSITION SECTION



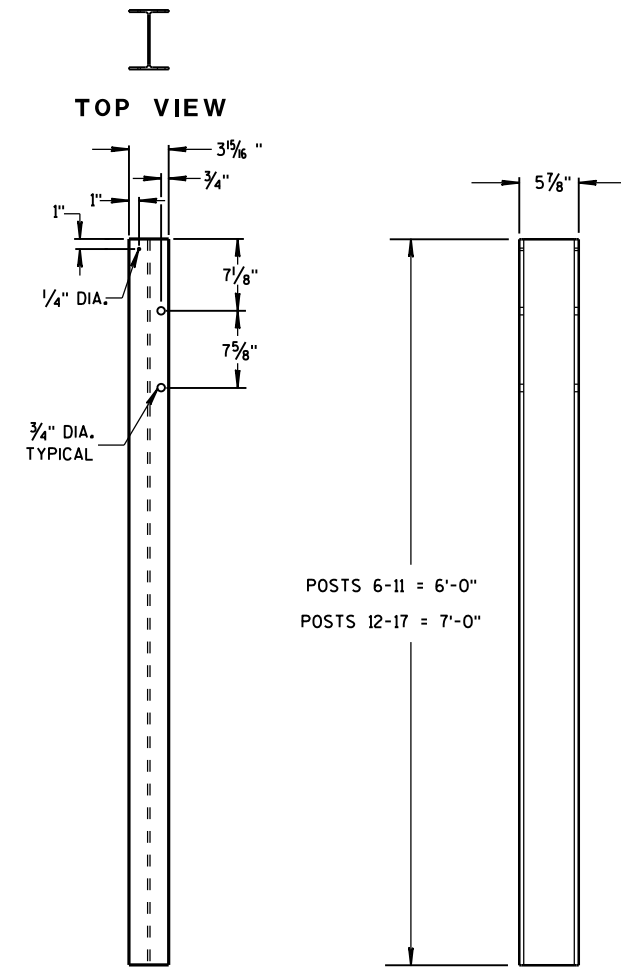
6'-3" THRIE BEAM SECTION



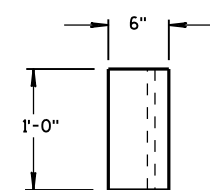
12'-6" THRIE BEAM SECTION



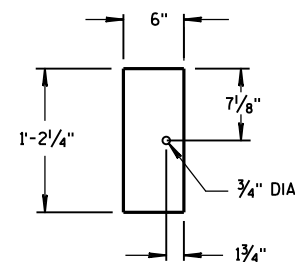
FRONT VIEW SIDE VIEW
STEEL POSTS 1-5



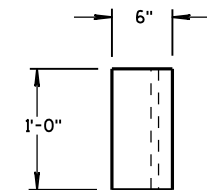
FRONT VIEW SIDE VIEW
STEEL POSTS 6-17



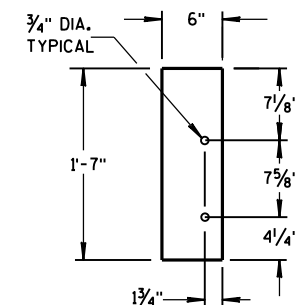
TOP VIEW



FRONT VIEW
BLOCKOUT
POSTS 1-5



TOP VIEW



FRONT VIEW
BLOCKOUT
POSTS 6-17

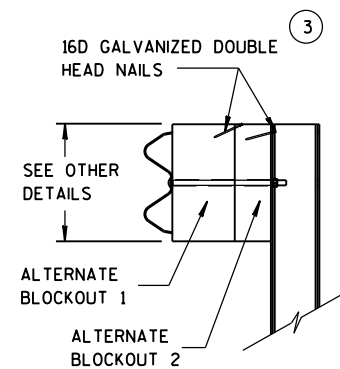
GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

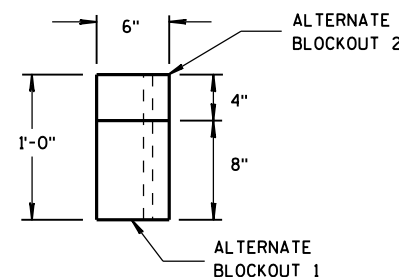
BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.



SIDE VIEW

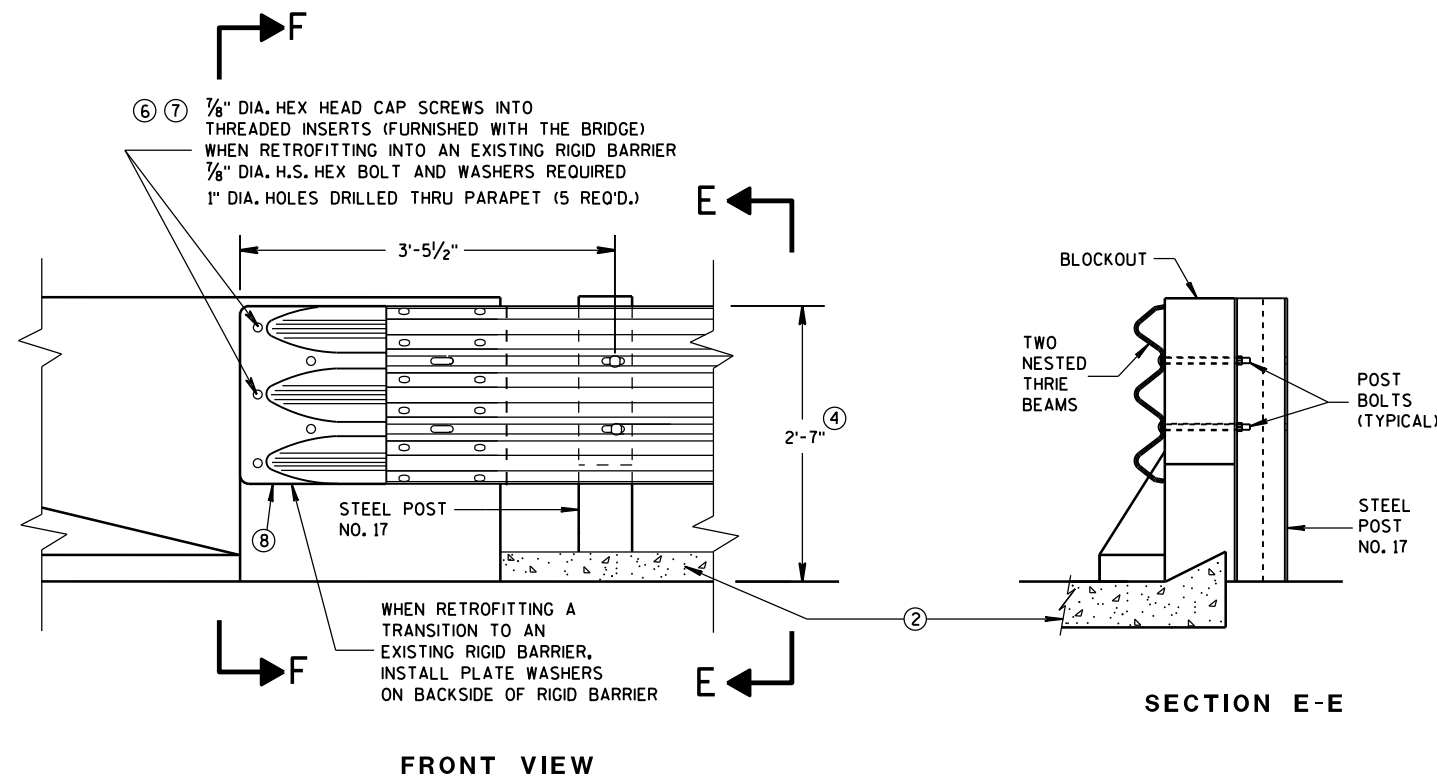


TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

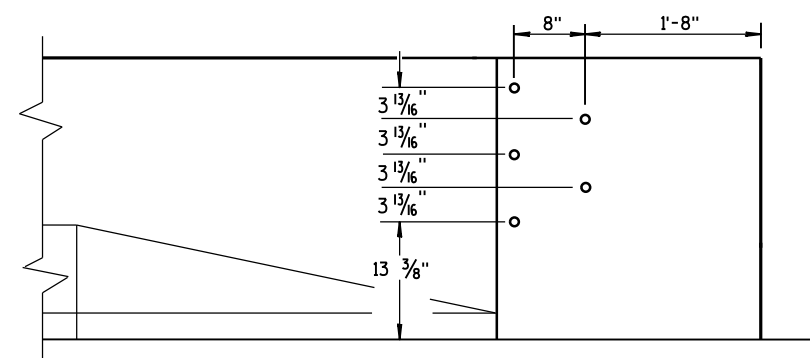
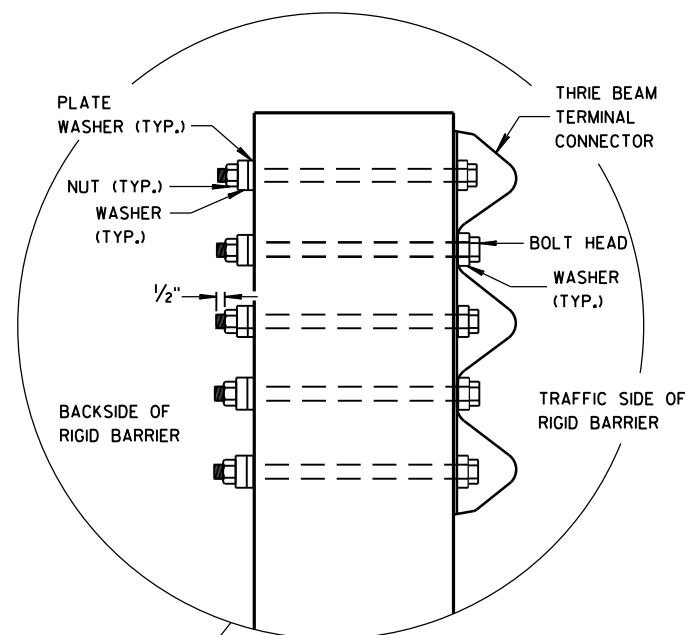
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.

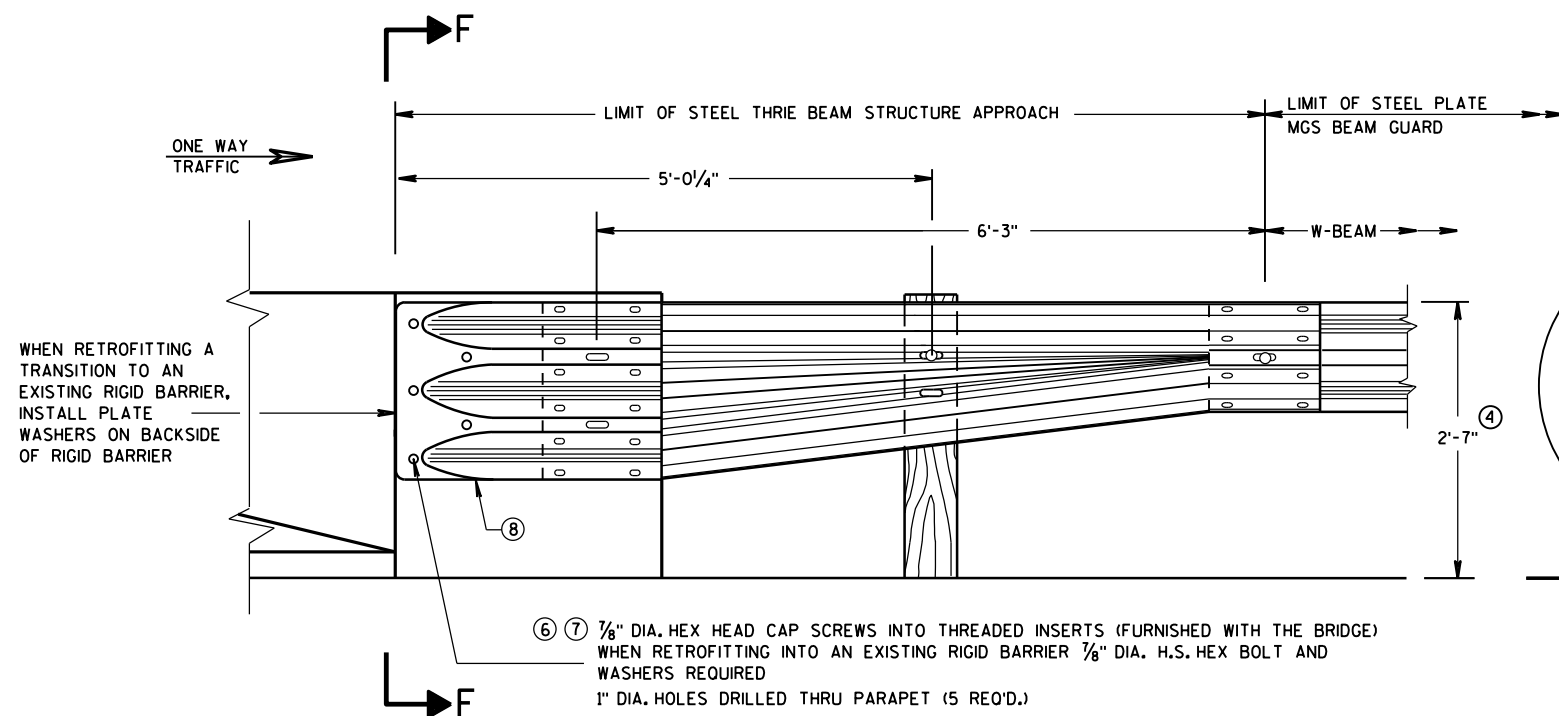
⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".



DRILL HOLE LOCATION



W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2015

DATE

FHWA

/S/ Jerry H. Zogg

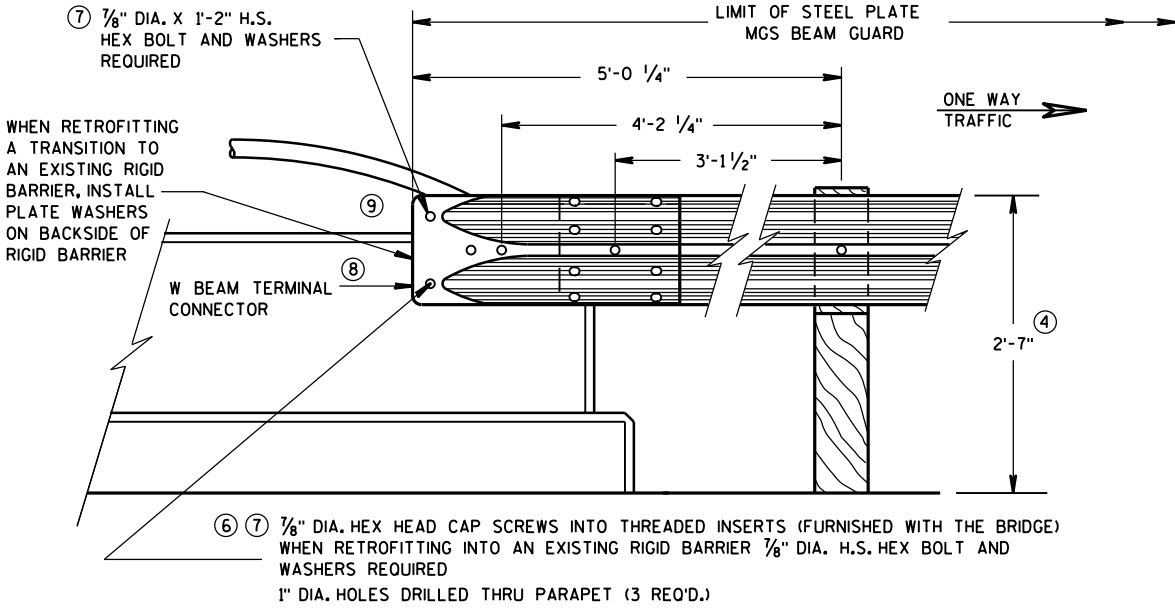
ROADWAY STANDARDS DEVELOPMENT

ENGINEER

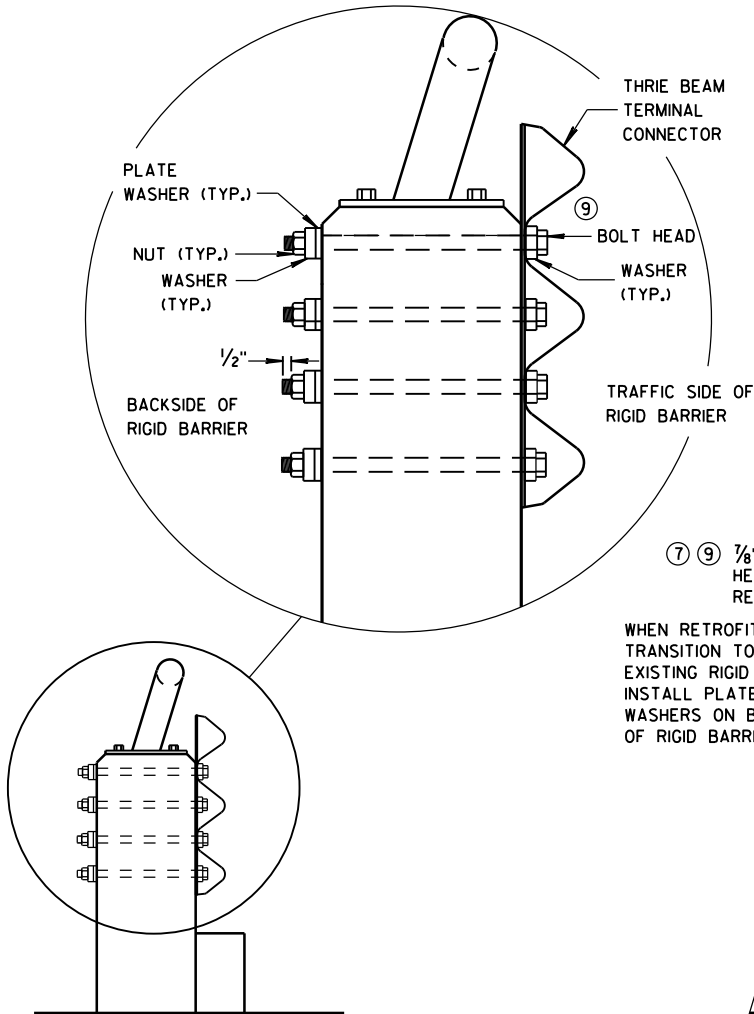
GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

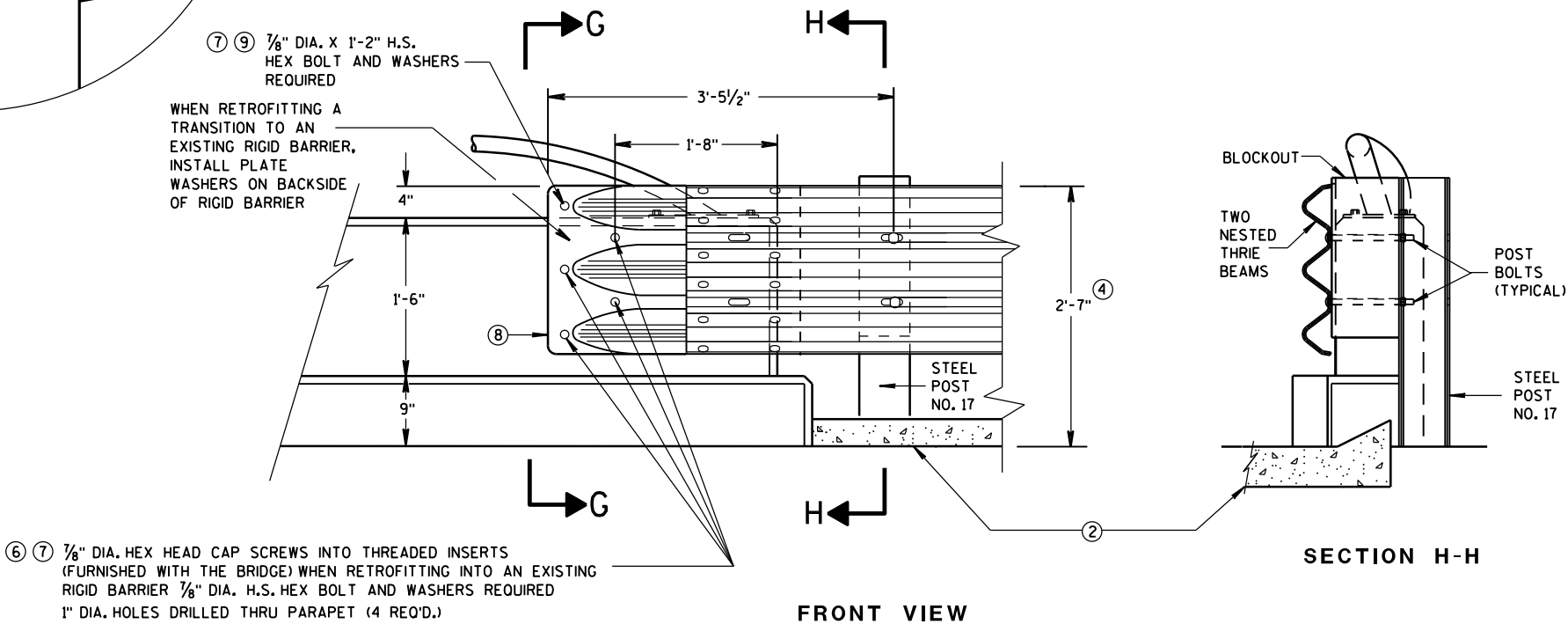
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
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- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 $\frac{1}{2}"$.
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.



FRONT VIEW
W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION G-G



FRONT VIEW

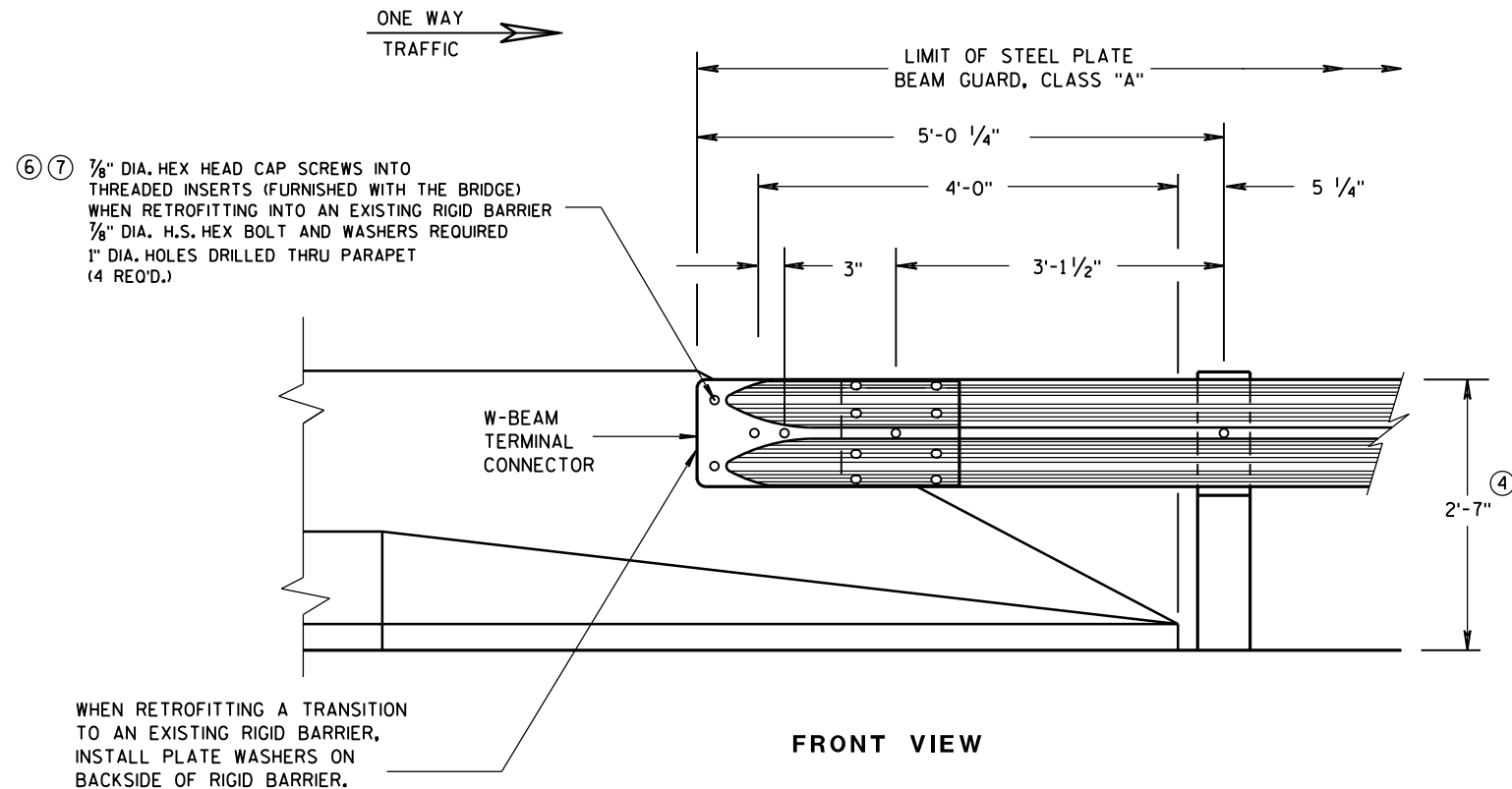
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

SECTION H-H

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

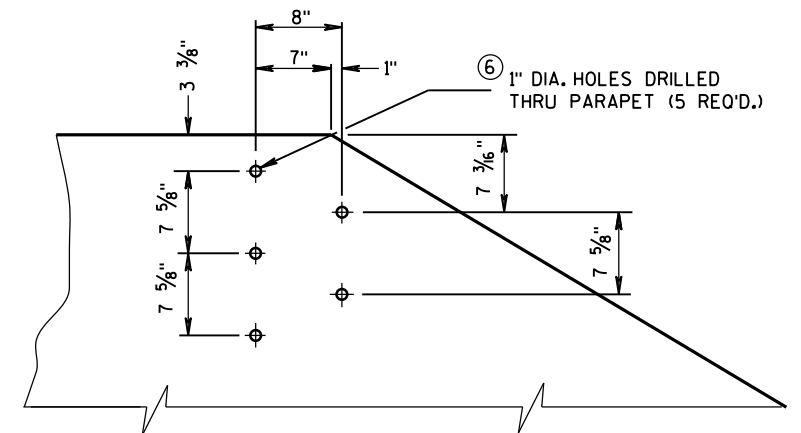
STATE OF WISCONSIN
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June, 2015
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

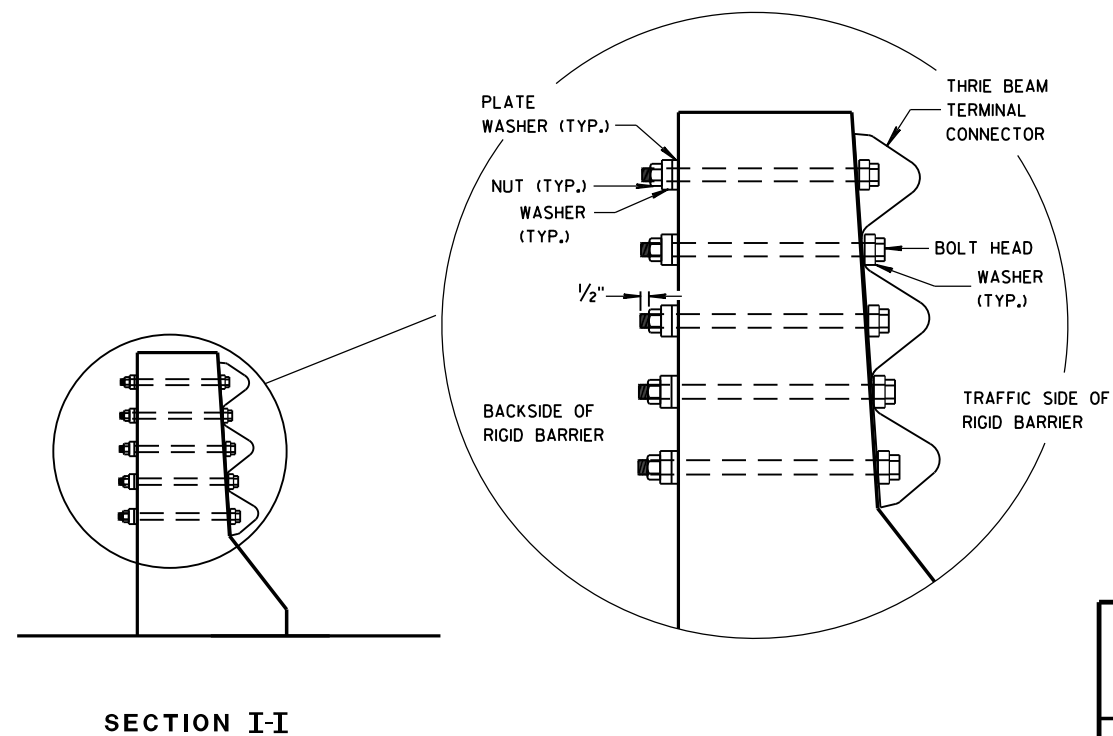
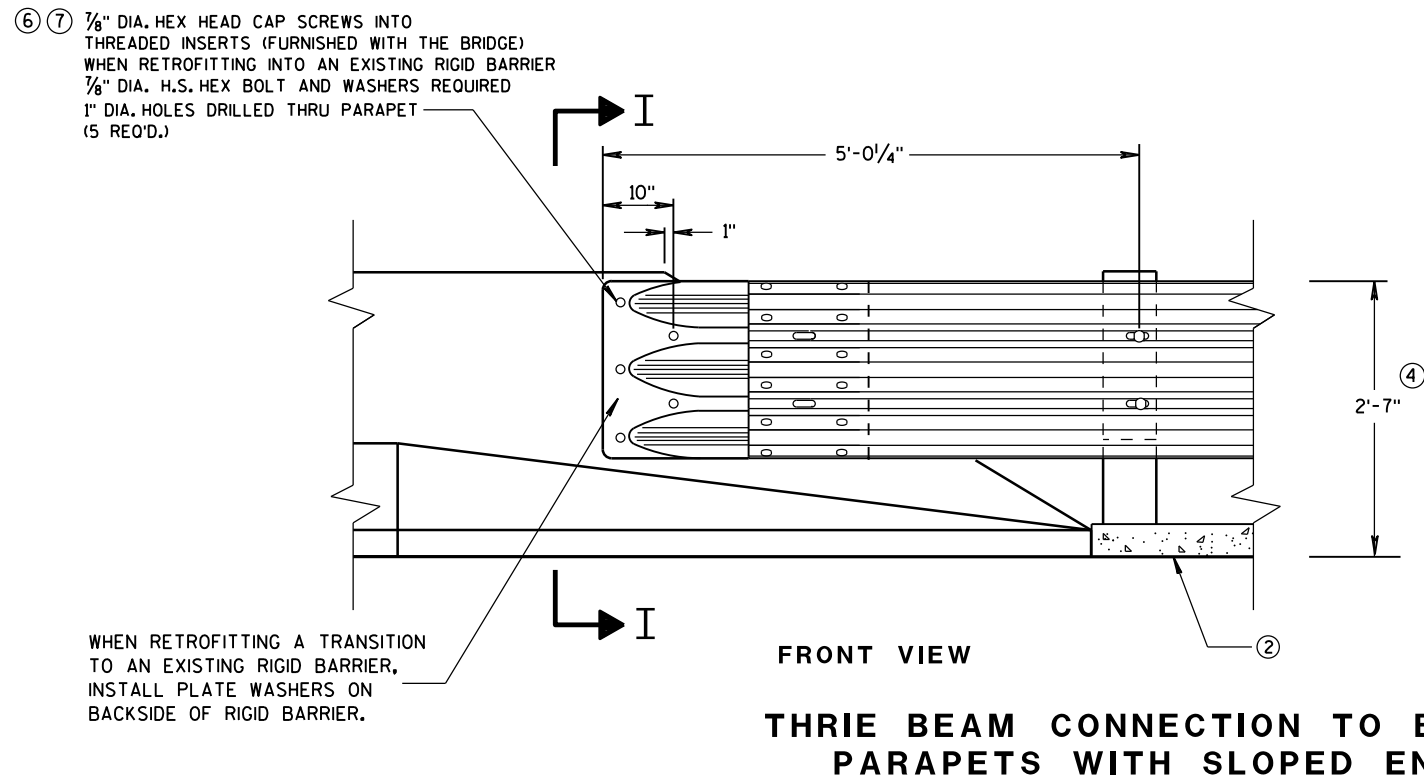


GENERAL NOTES

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION

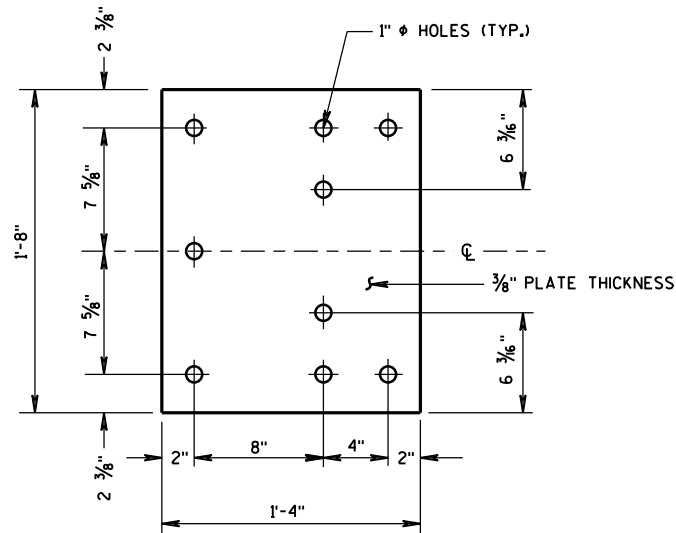


MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

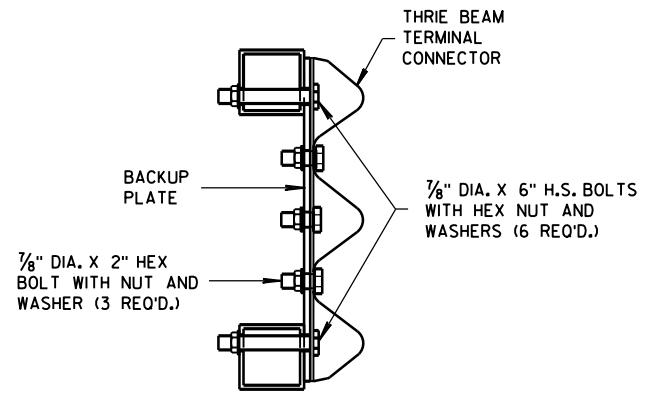
STATE OF WISCONSIN
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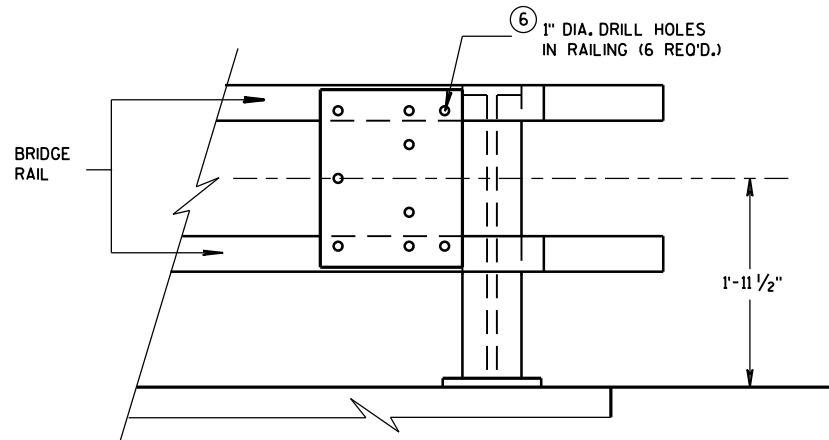
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



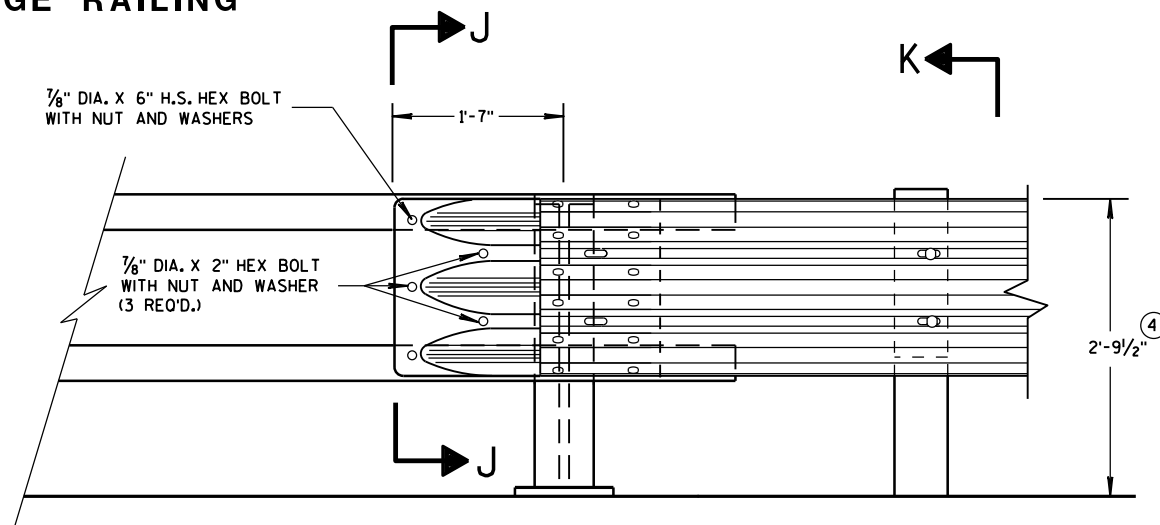
BACK-UP PLATE DETAIL



SECTION J-J

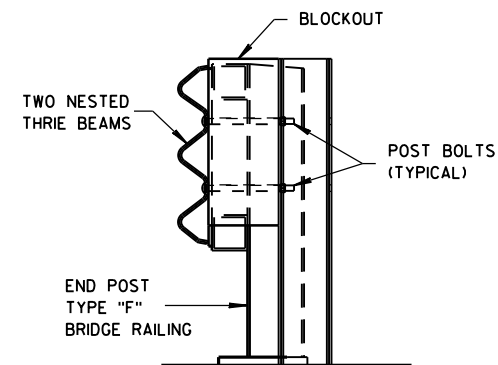


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

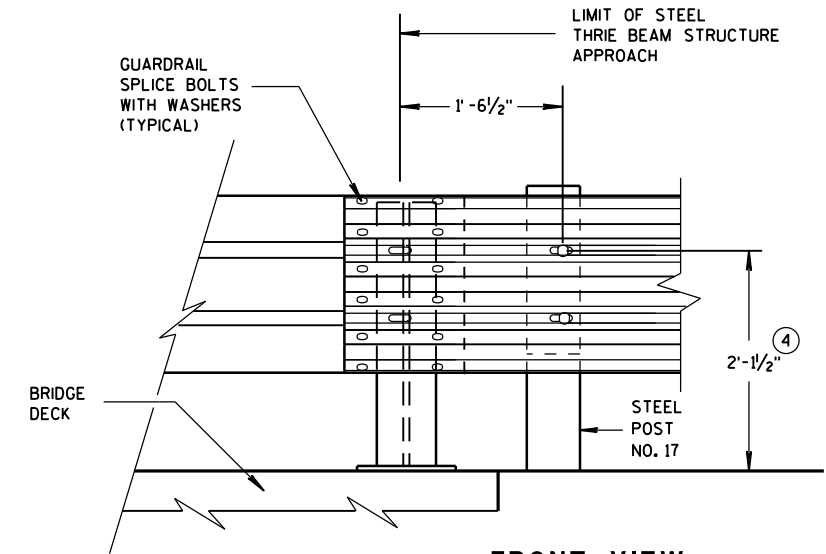
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

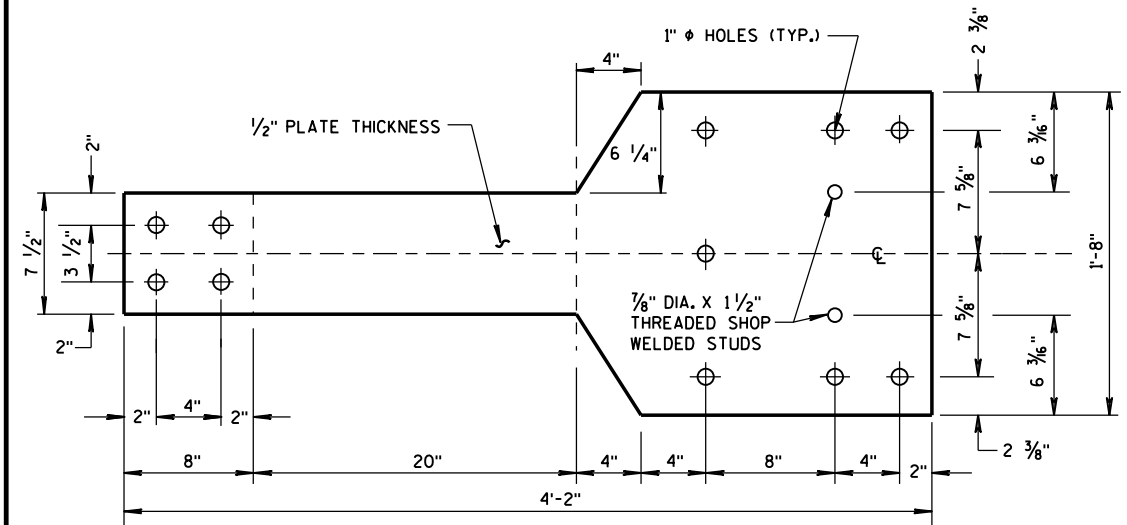
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

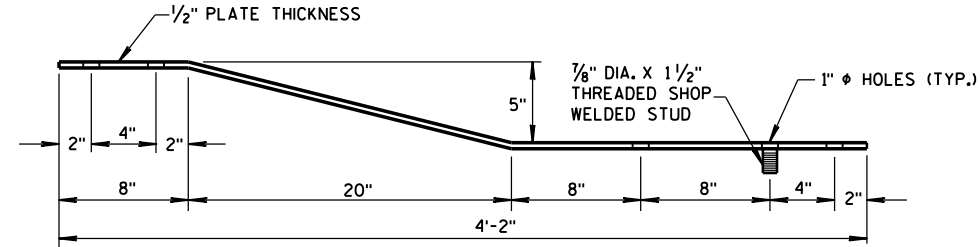
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June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA ENGINEER

GENERAL NOTES

④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.

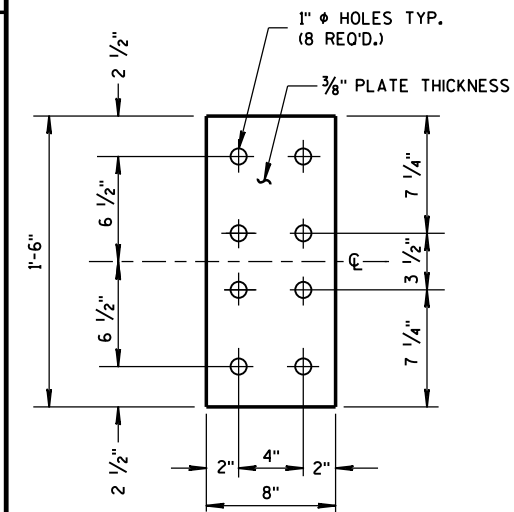


FRONT VIEW



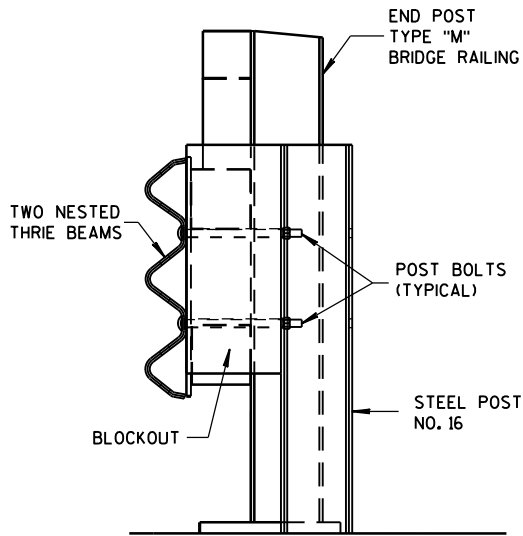
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

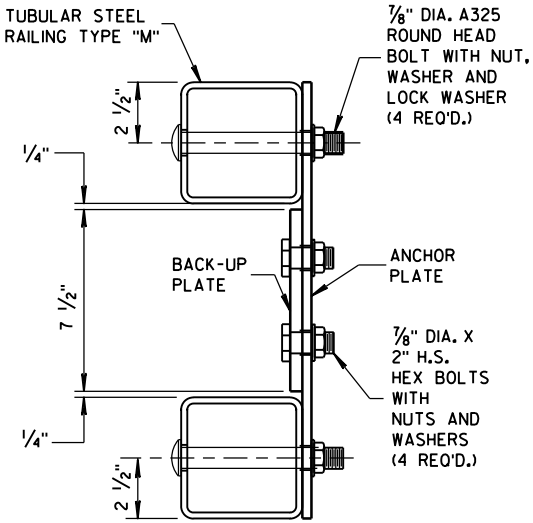


FRONT VIEW

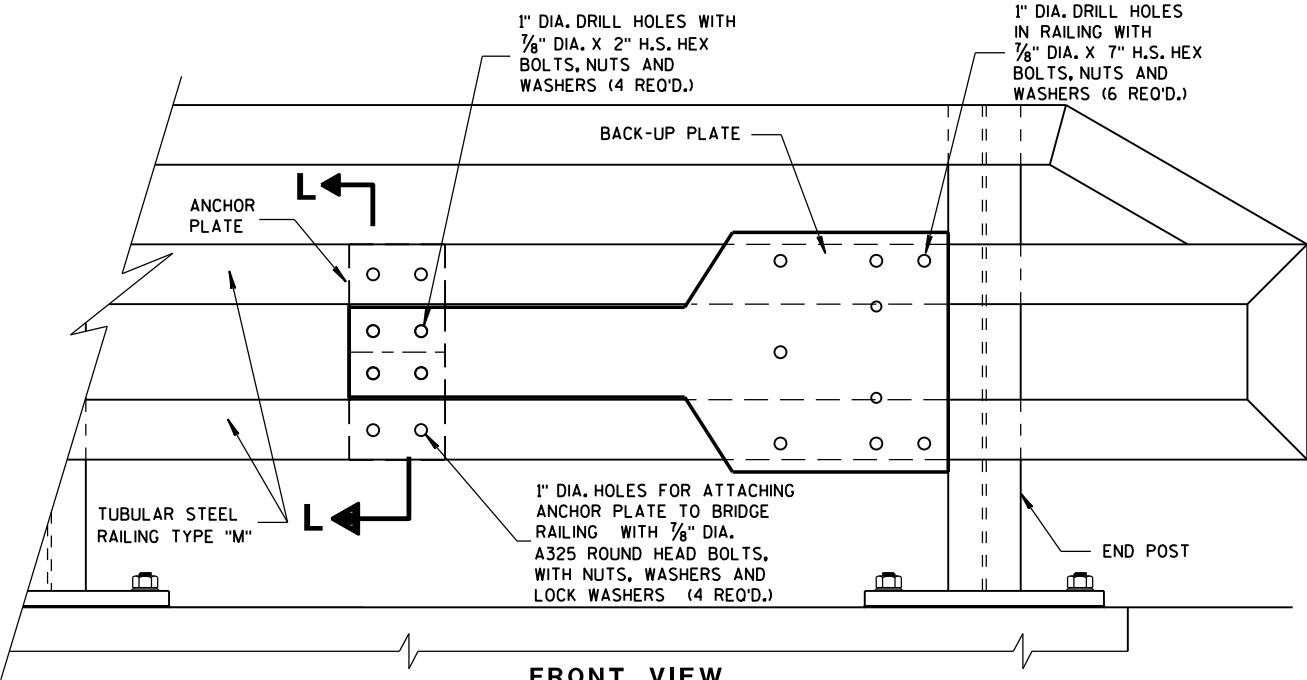
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

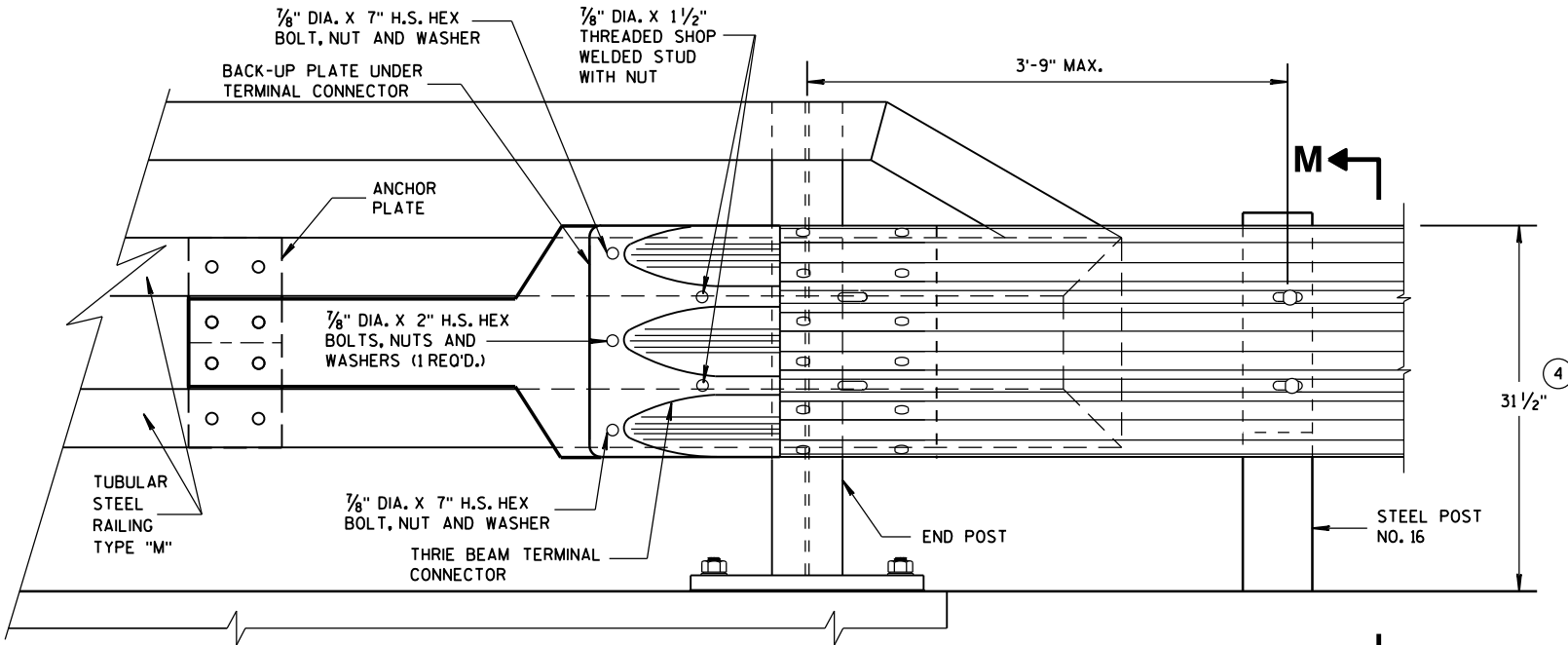


SECTION L-L

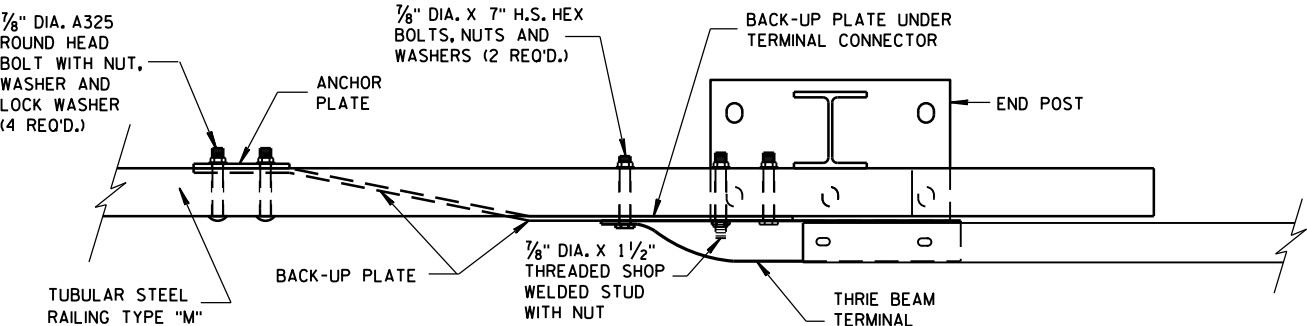


FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW



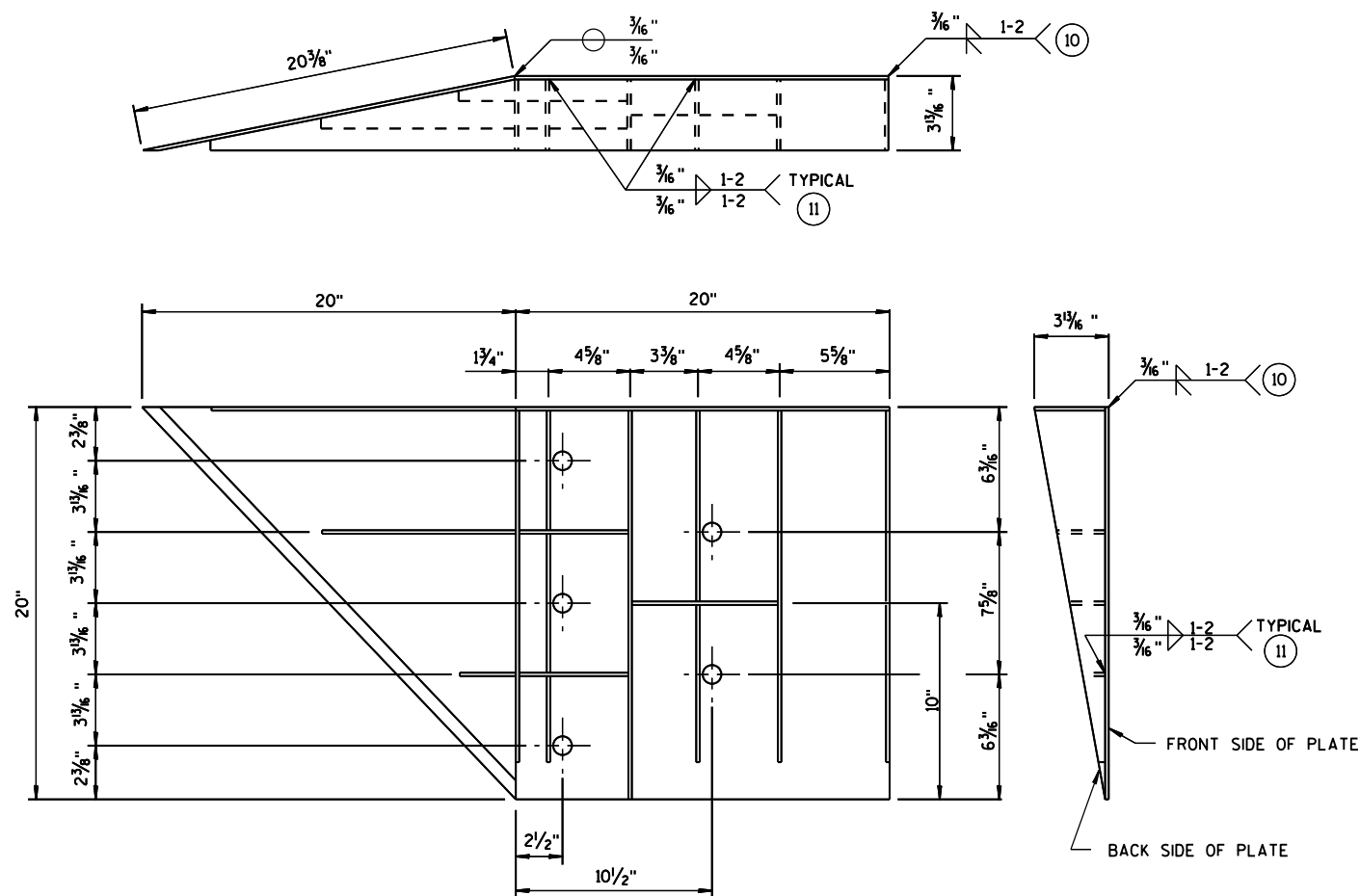
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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June, 2015
DATE
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ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

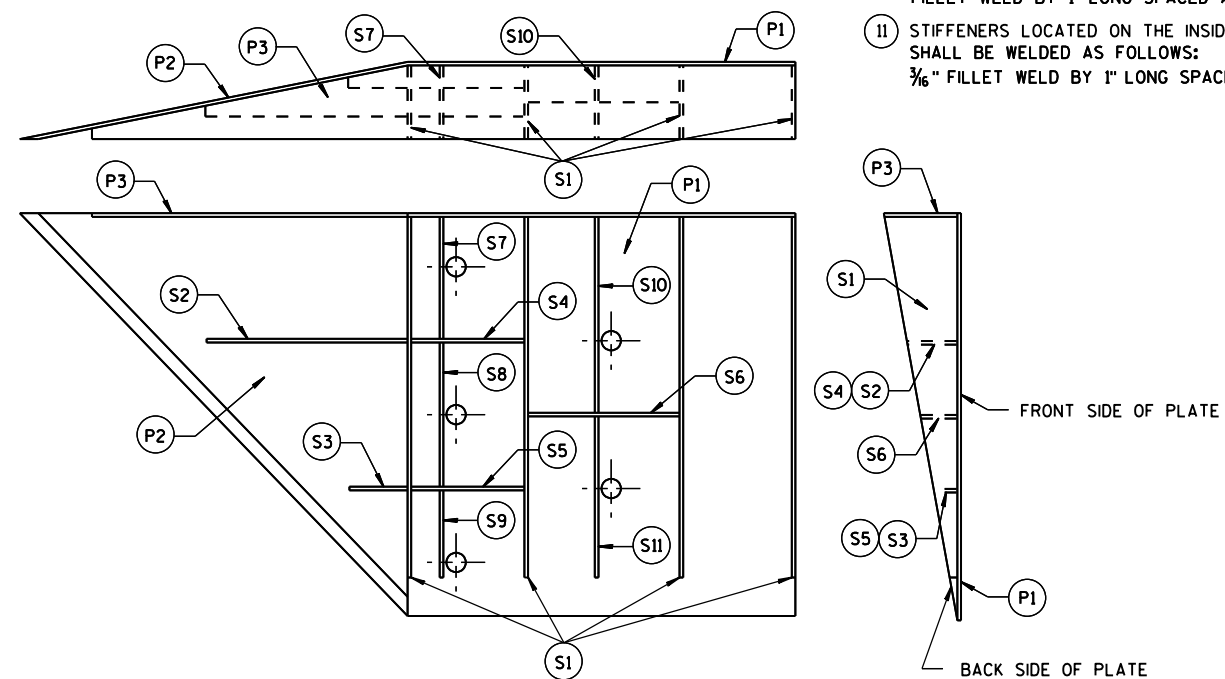


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE $\frac{3}{16}$ " THICK.

ALL STIFFENERS ARE $\frac{1}{4}$ " THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- ⑩ STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND $\frac{3}{16}$ " FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- ⑪ STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
 $\frac{3}{16}$ " FILLET WELD BY 1" LONG SPACED AT 2".

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	$\frac{3}{16}$ "
P2	1		20" x 20" x $28\frac{7}{16}$ "	$\frac{3}{16}$ "
P3	1		39" x $3\frac{5}{8}$ " x 20" x $19\frac{5}{16}$ "	$\frac{3}{16}$ "
S1	4		$18\frac{7}{16}$ " x $3\frac{5}{8}$ " x $18\frac{3}{4}$ "	$\frac{1}{4}$ "
S2	1		$10\frac{1}{4}$ " x $2\frac{1}{16}$ " x $10\frac{3}{8}$ " x $\frac{1}{2}$ "	$\frac{1}{4}$ "
S3	1		3" x $1\frac{1}{16}$ " x $3\frac{1}{8}$ " x $\frac{1}{2}$ "	$\frac{1}{4}$ "
S4	1		$6\frac{1}{8}$ " x $2\frac{1}{16}$ "	$\frac{1}{4}$ "
S5	1		$6\frac{1}{8}$ " x $1\frac{1}{16}$ "	$\frac{1}{4}$ "
S6	1		$7\frac{3}{4}$ " x $1\frac{3}{4}$ "	$\frac{1}{4}$ "
S7	1		$2\frac{9}{16}$ " x 6" x $3\frac{3}{8}$ " x $5\frac{1}{8}$ "	$\frac{1}{4}$ "
S8	1		$1\frac{1}{32}$ " x $7\frac{1}{2}$ " x $2\frac{1}{2}$ " x $7\frac{3}{8}$ "	$\frac{1}{4}$ "
S9	1		$6\frac{1}{16}$ " x $6\frac{3}{16}$ " x $1\frac{1}{32}$ "	$\frac{1}{4}$ "
S10	1		$1\frac{1}{8}$ " x $9\frac{7}{8}$ " x $3\frac{3}{8}$ " x $9\frac{1}{16}$ "	$\frac{1}{4}$ "
S11	1		$8\frac{1}{2}$ " x $8\frac{3}{4}$ " x $1\frac{1}{16}$ "	$\frac{1}{4}$ "

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THREE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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June, 2015

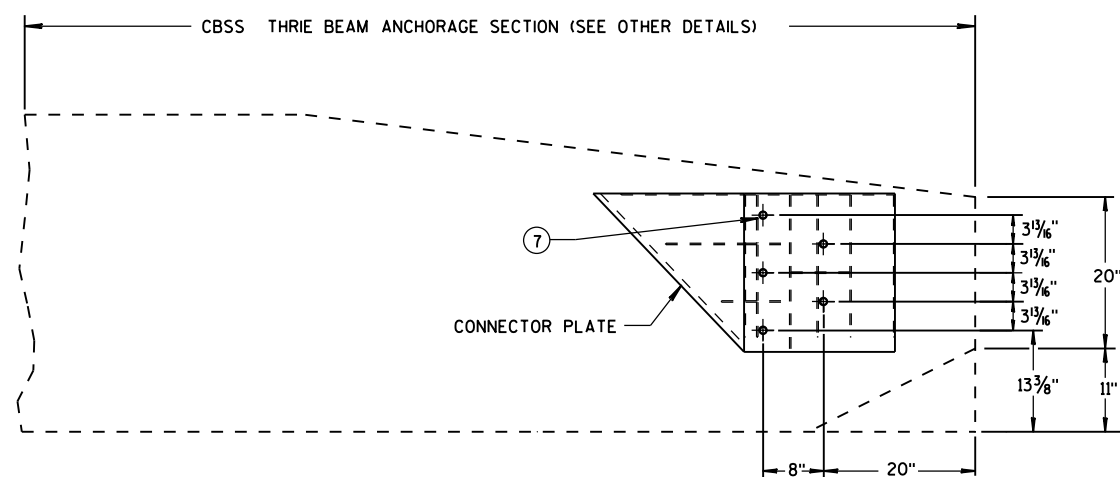
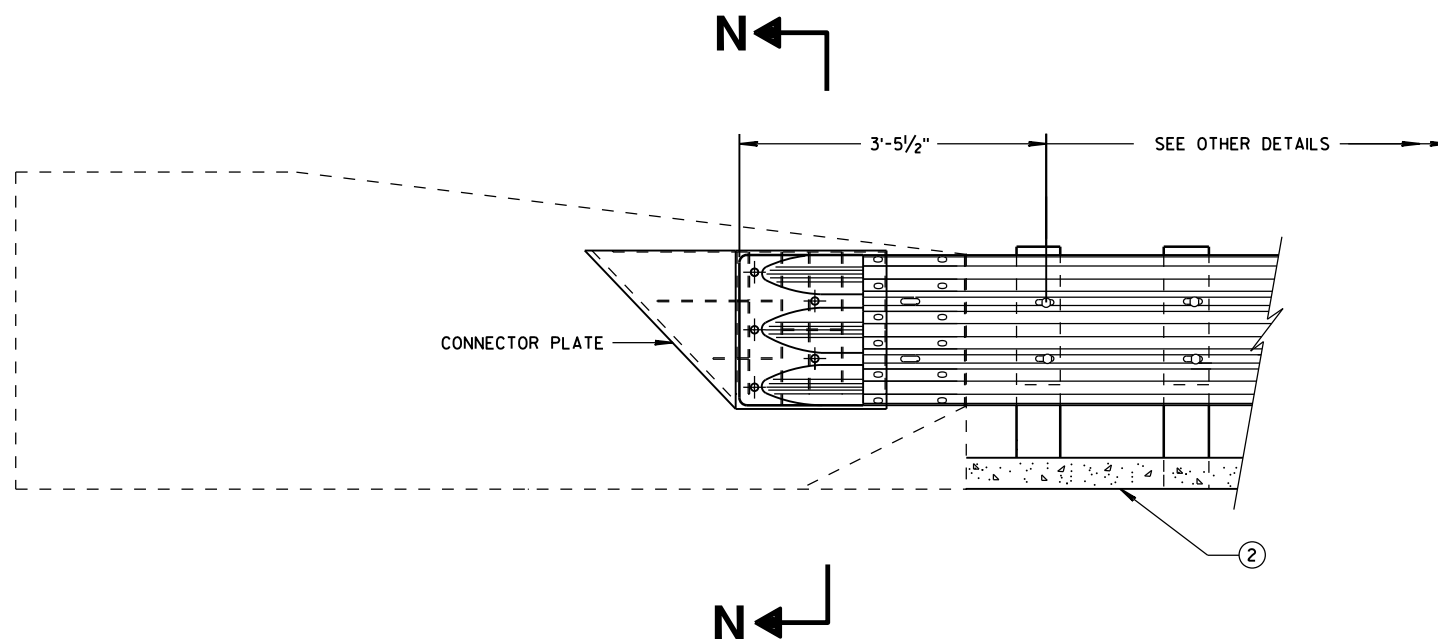
DATE

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/S/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT
ENGINEER

THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



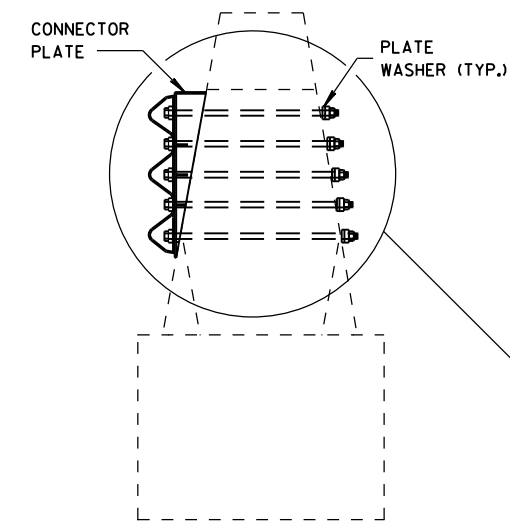
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

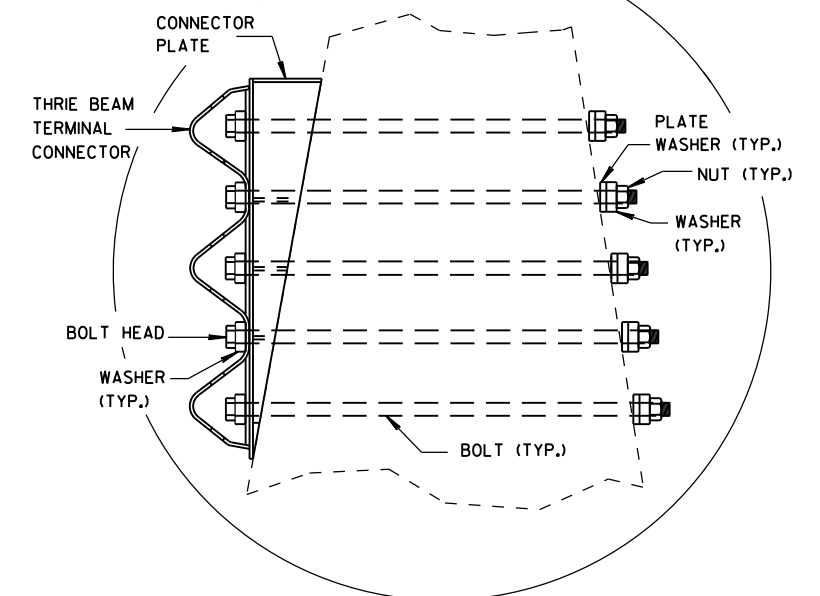
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2015
DATE

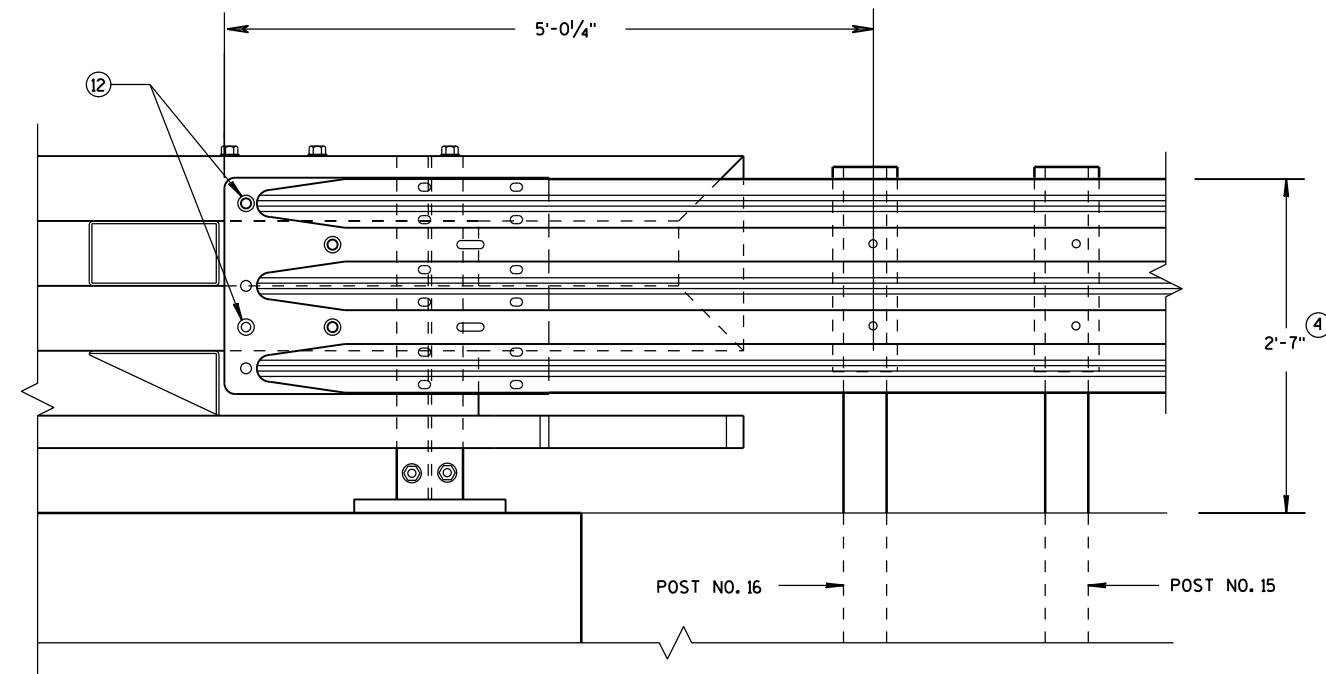
FHWA

/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

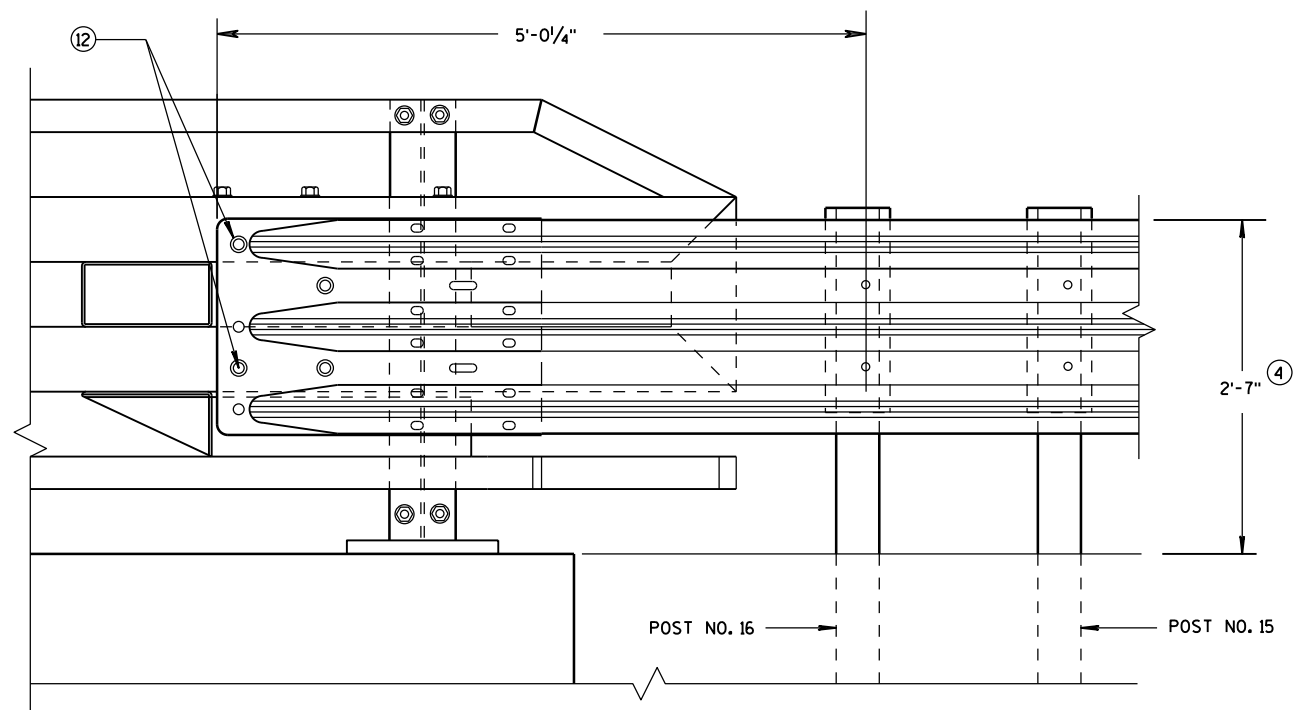
④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.

⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.



ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

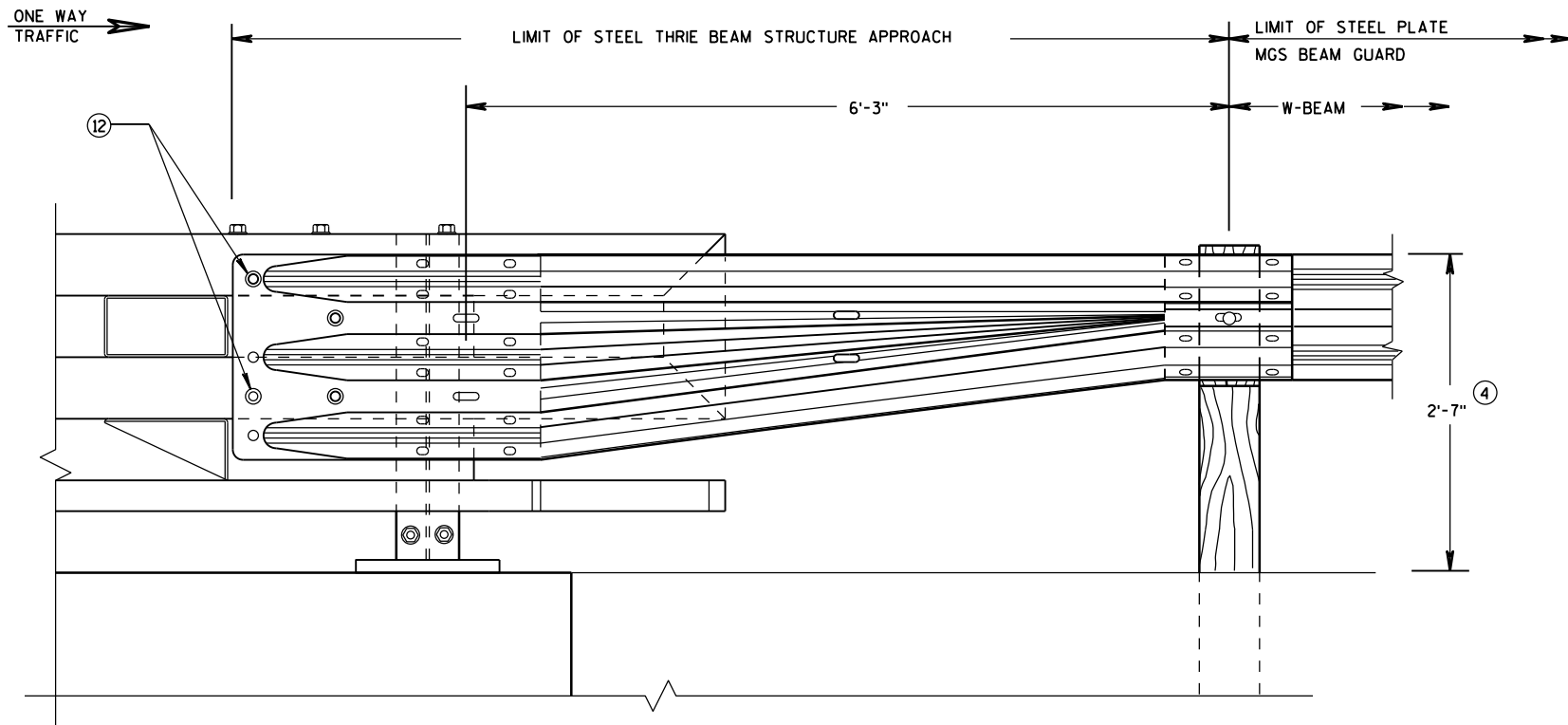
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

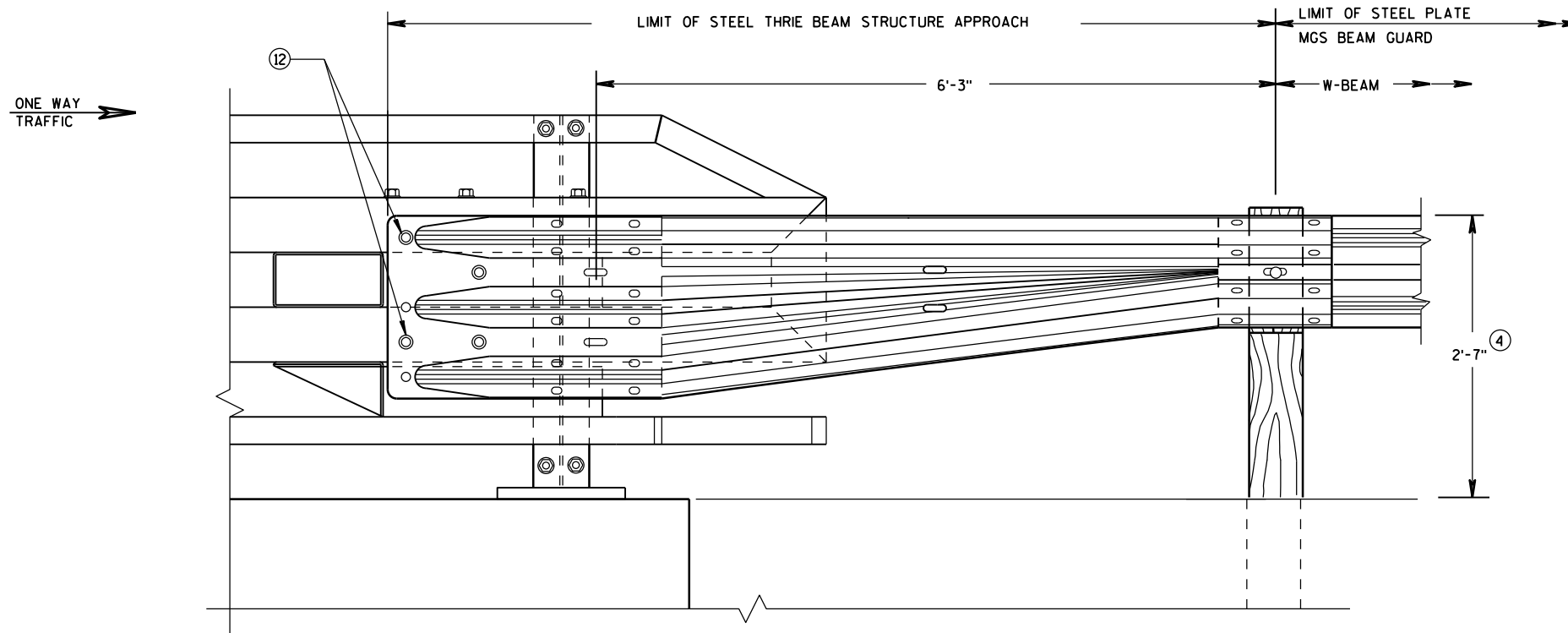


FRONT VIEW

**W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY3"**
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.



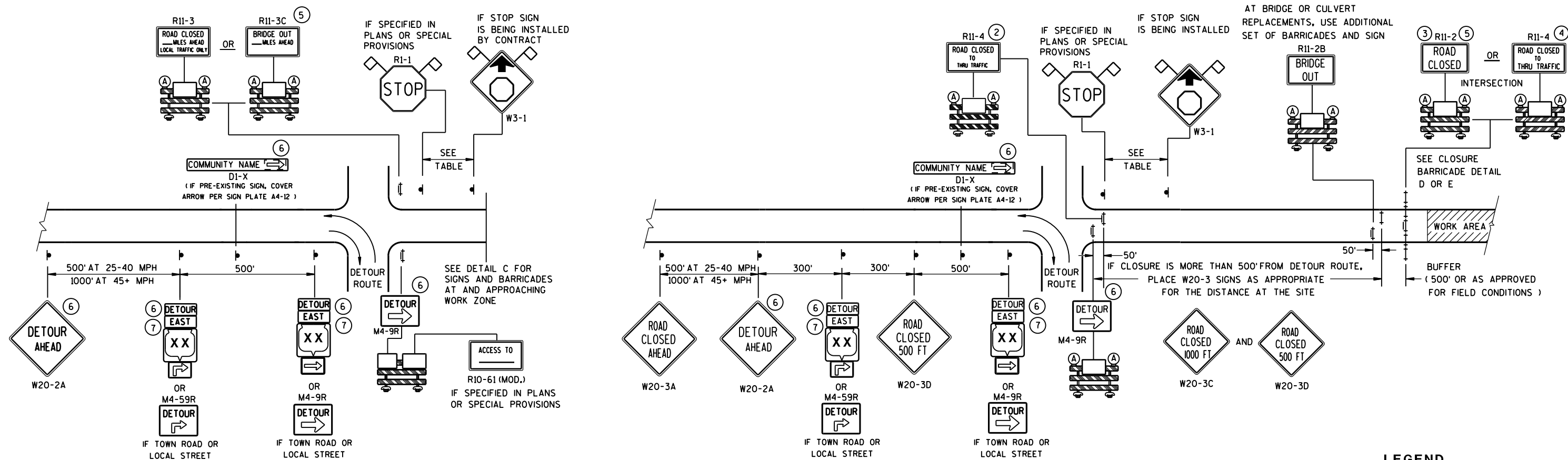
FRONT VIEW

**W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY4"**
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

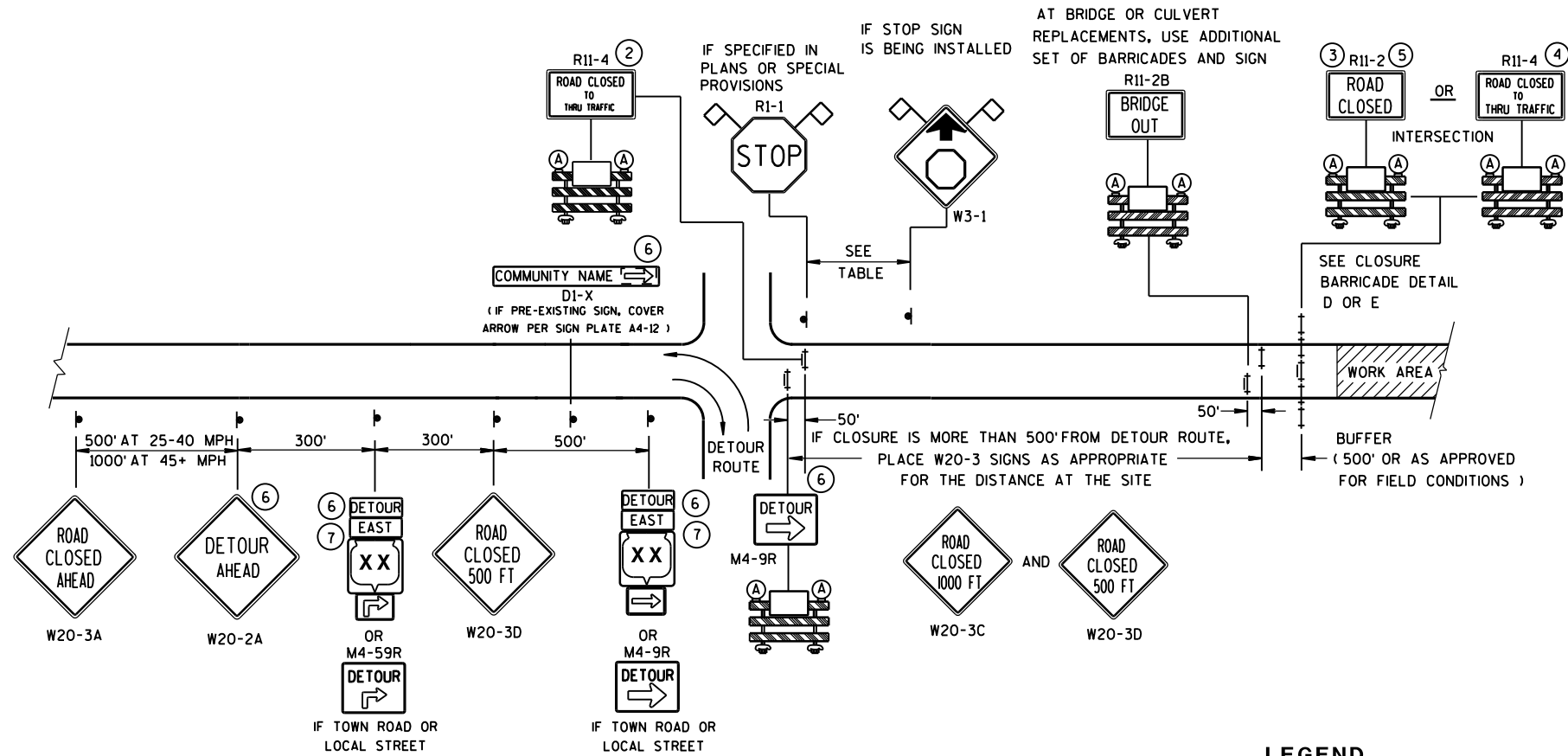
APPROVED June, 2015	/S/ Jerry H. Zogg
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

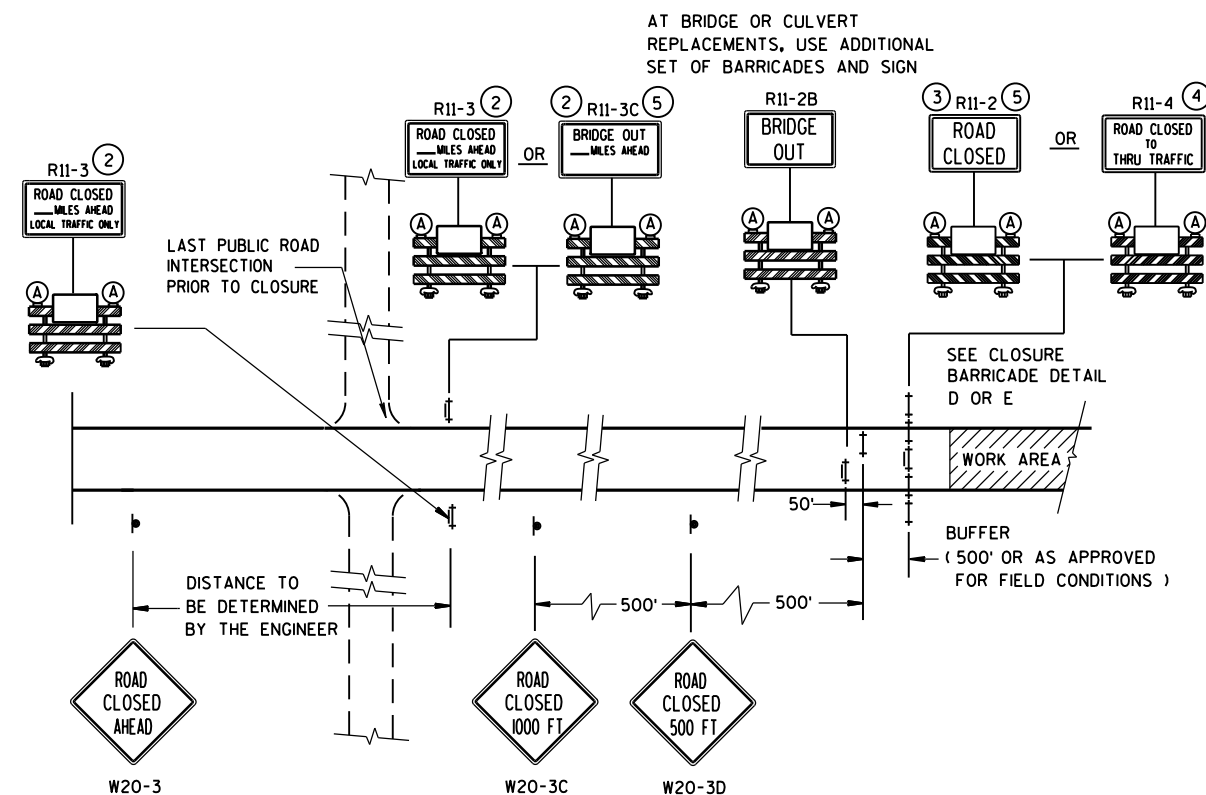
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B













MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



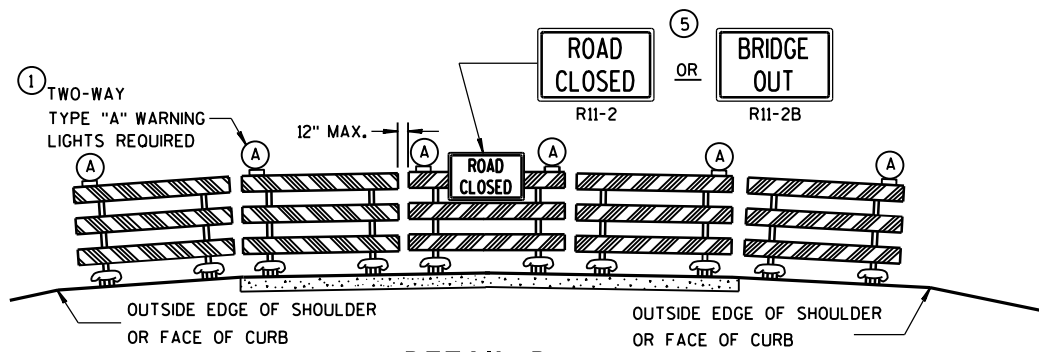
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

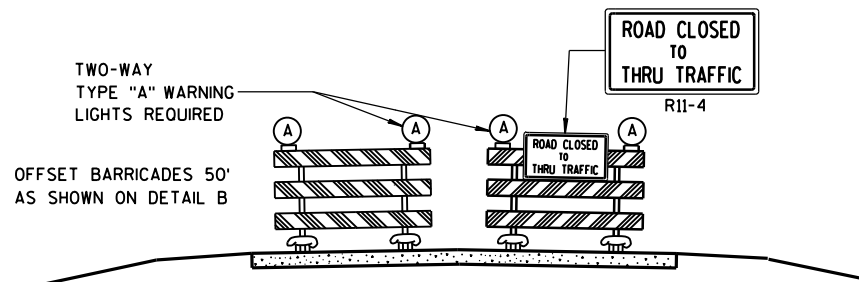
- ## LEGEND
-  SIGN ON PERMANENT SUPPORT
-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  WORK AREA
-  M4-8
M3-X
-  OR  OR 
M1-4 M1-5A M1-6
-  OR 
M05-1 M06-1
-  FLAGS, 16" X 16" MIN., (ORANGE)

SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES (1) THROUGH (7)

<p>BARRICADES AND SIGNS FOR MAINLINE CLOSURES</p>	
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>	
<p><u>Sept. 2015</u></p> <p><u>DATE</u></p>	<p><u>/S/ Peter Amakobe Atepe</u></p> <p>STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER</p>
<p>FHWA</p>	



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

R11-2 SHALL BE 48" X 30".

R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".

M4-9 SHALL BE 30" X 24".

M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)

M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)

M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)

D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

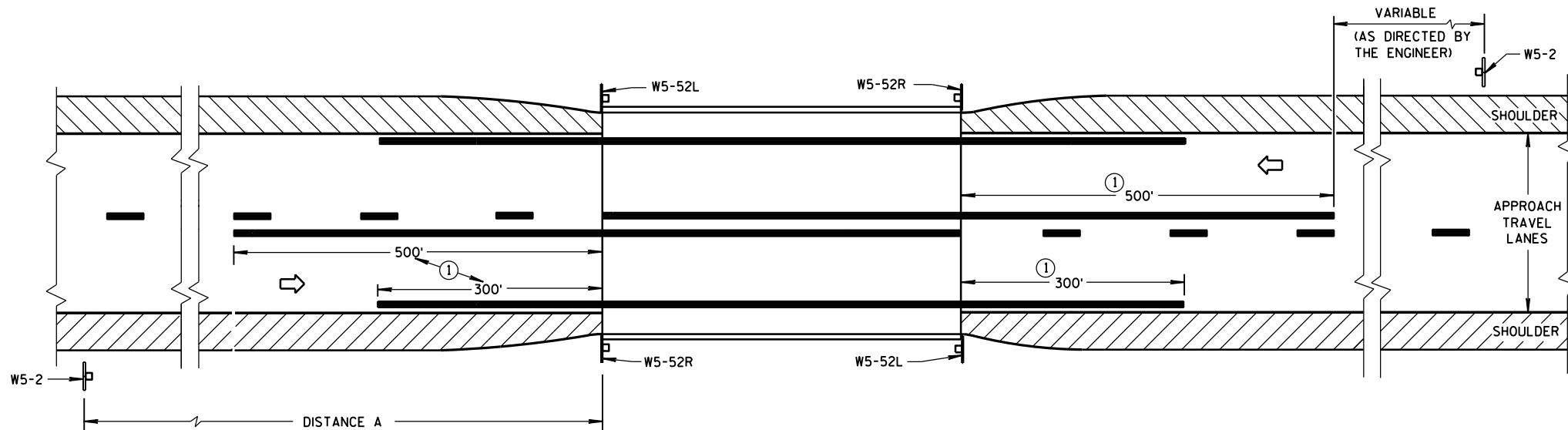
R1-1 SHALL BE 36" X 36".

- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).
- 2 THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.
- 3 FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.
- 4 FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.
- 5 FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.
- 6 INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- 7 "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 /S/ Peter Amokobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER



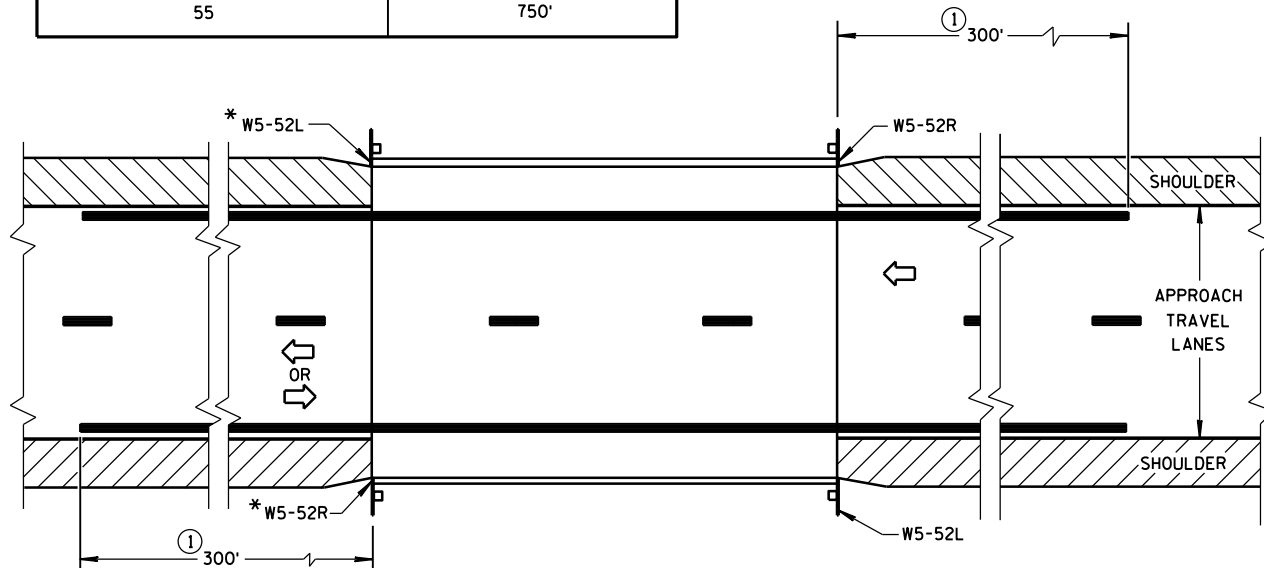
SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

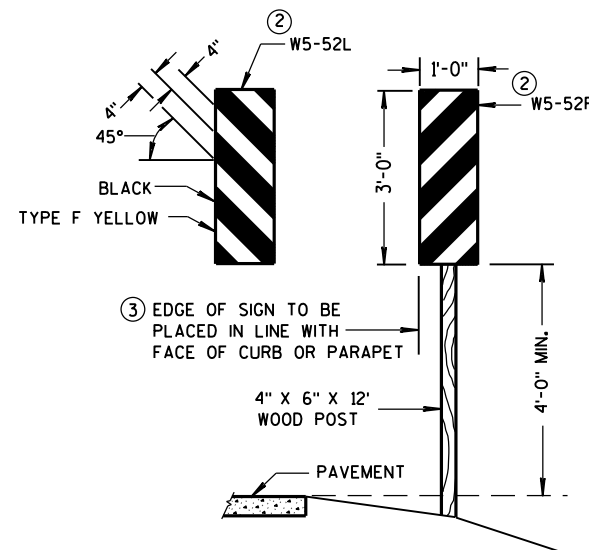


*OMIT ON ONE-WAY TRAVELLED WAYS

SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.



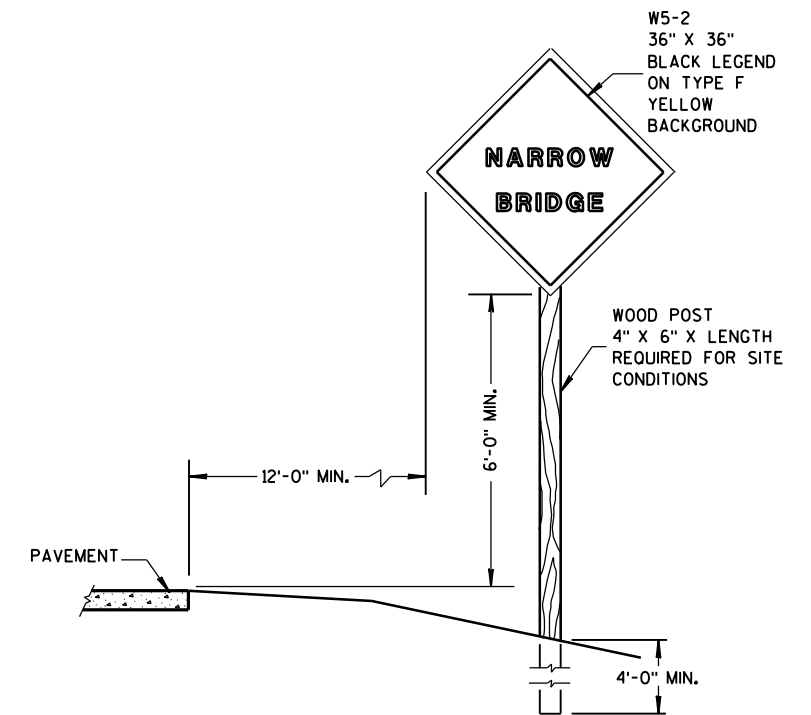
OBJECT MARKER PLACEMENT

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

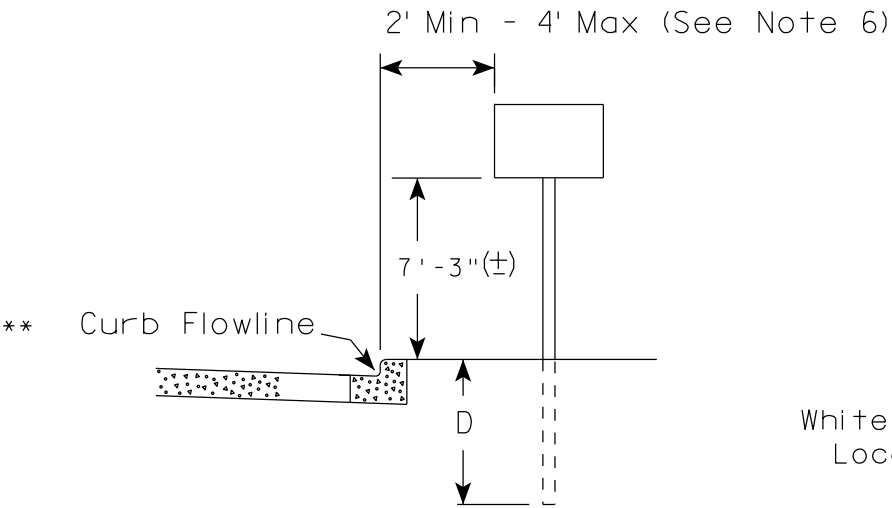
APPROVED

3-2014
DATE

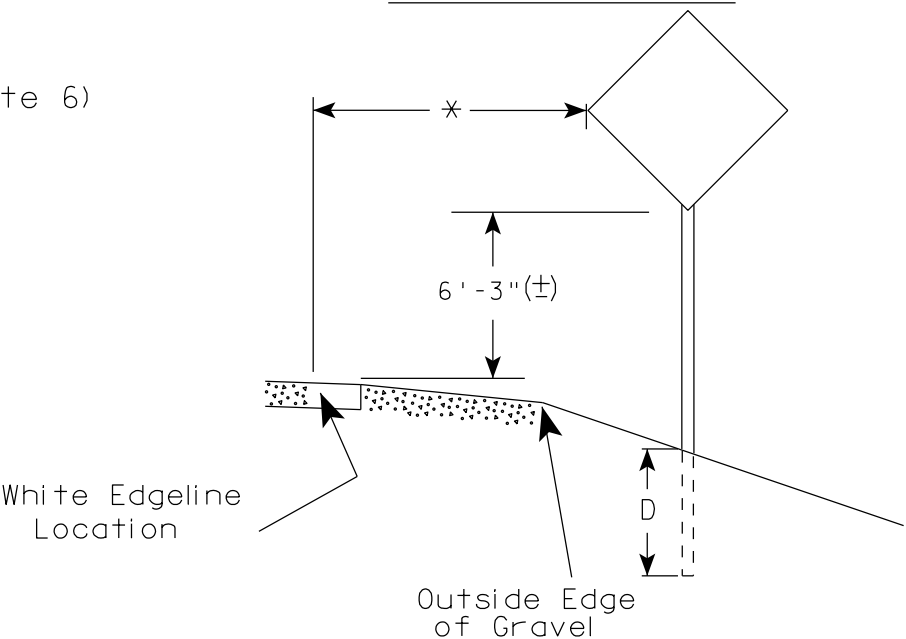
FHWA

/S/ Travis Fettes
STATE TRAFFIC ENGINEER OF DESIGN

URBAN AREA



RURAL AREA (See Note 2)



- GENERAL NOTES
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
 2. If signs are mounted on barrier wall, see A4-10 sign plate.
 3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
 4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
 5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. The (±) tolerance for mounting height is 3 inches.
 8. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
 9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

×× The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

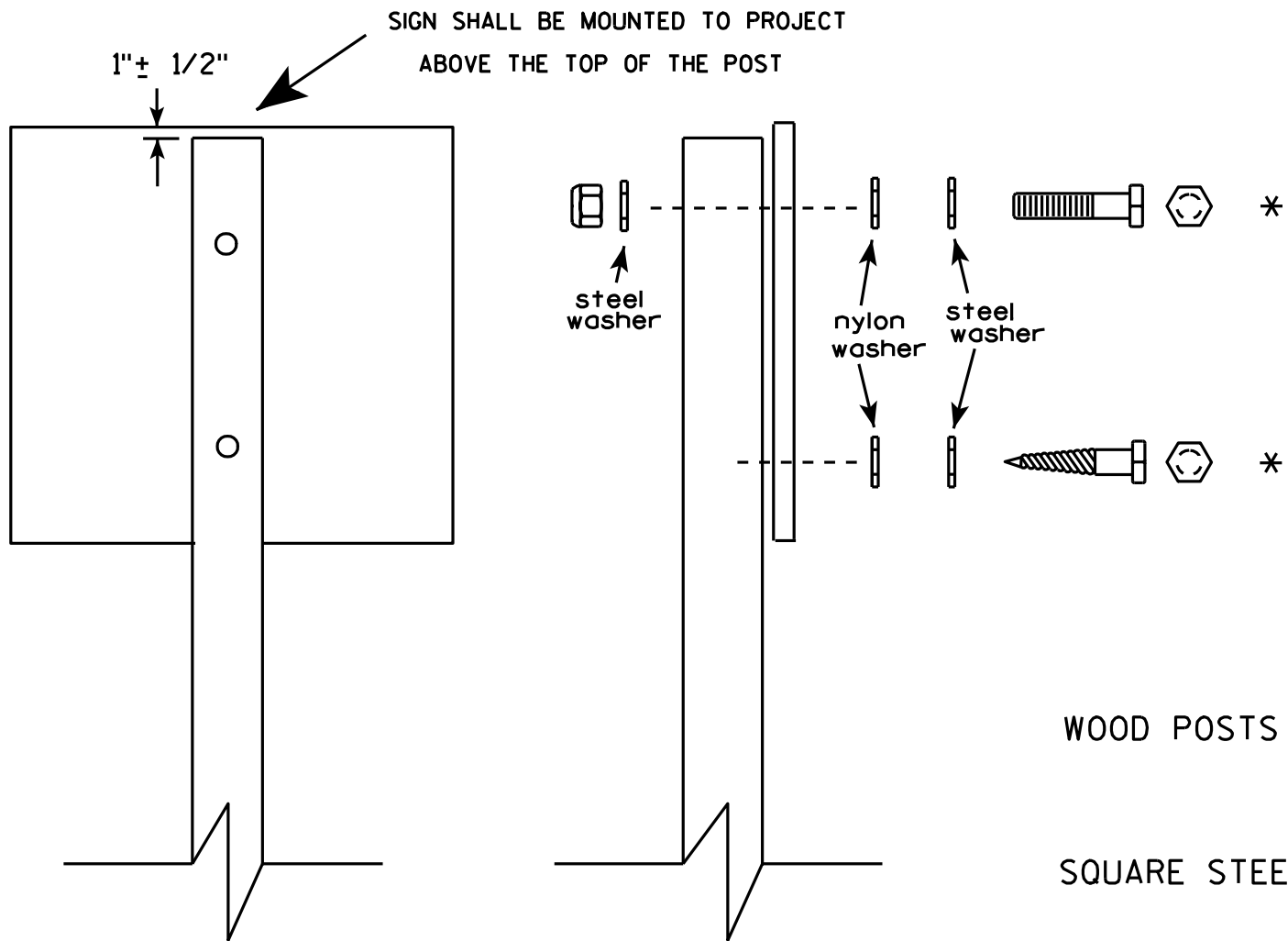
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20

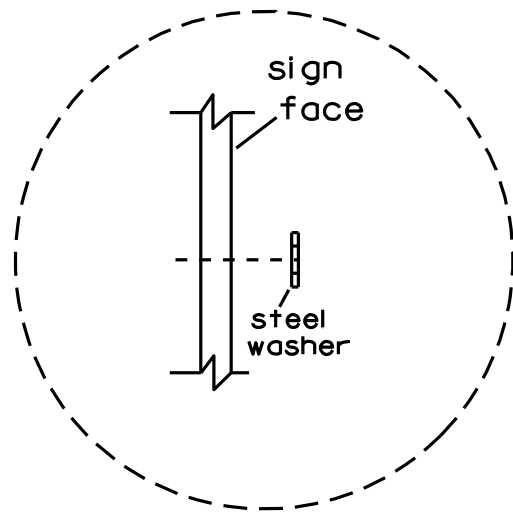


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" X 3"
- MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
- RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
- 1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.

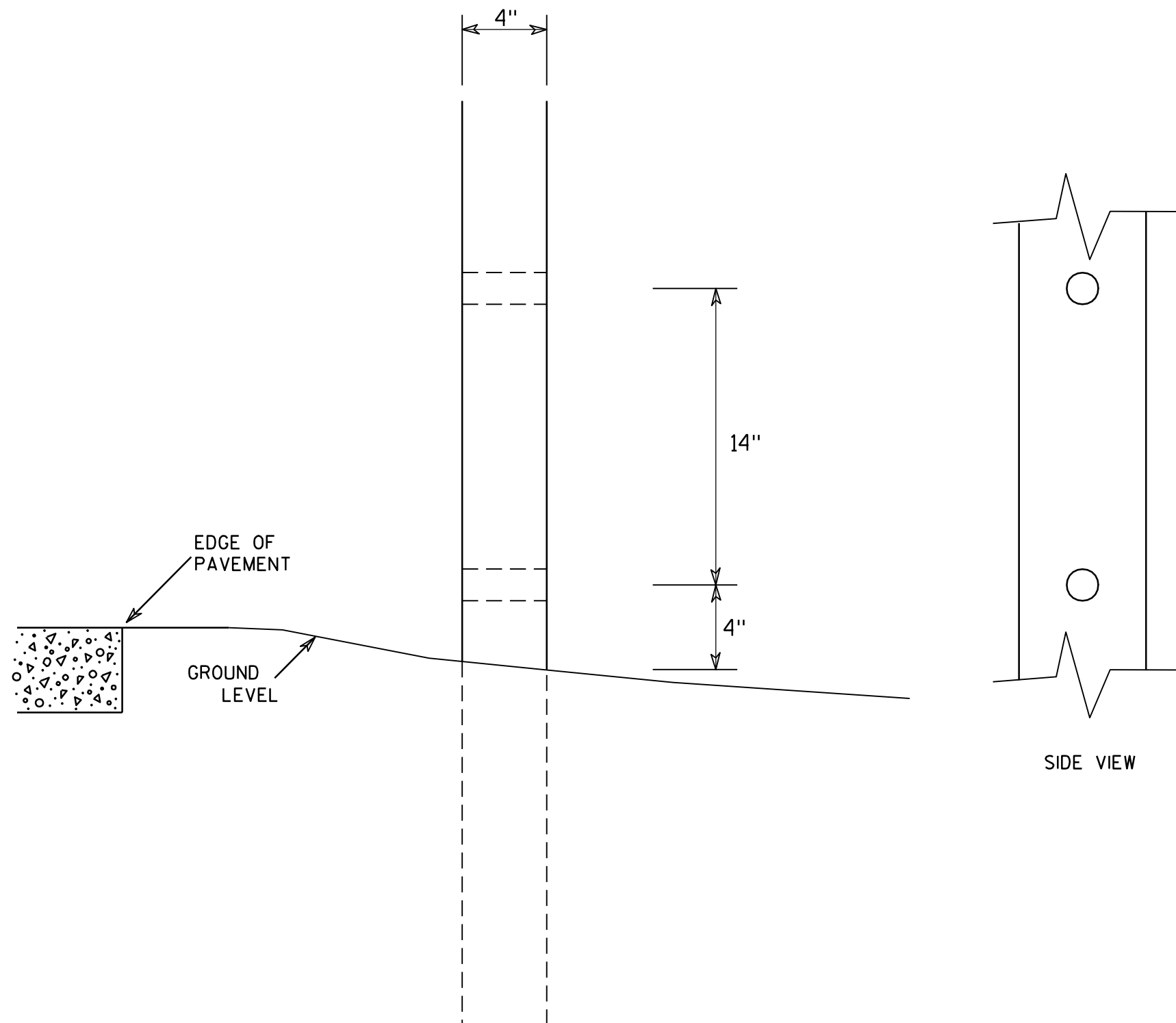


Washer Placement when Sign Has Other Than Type H or Type F Face

* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7

7



GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

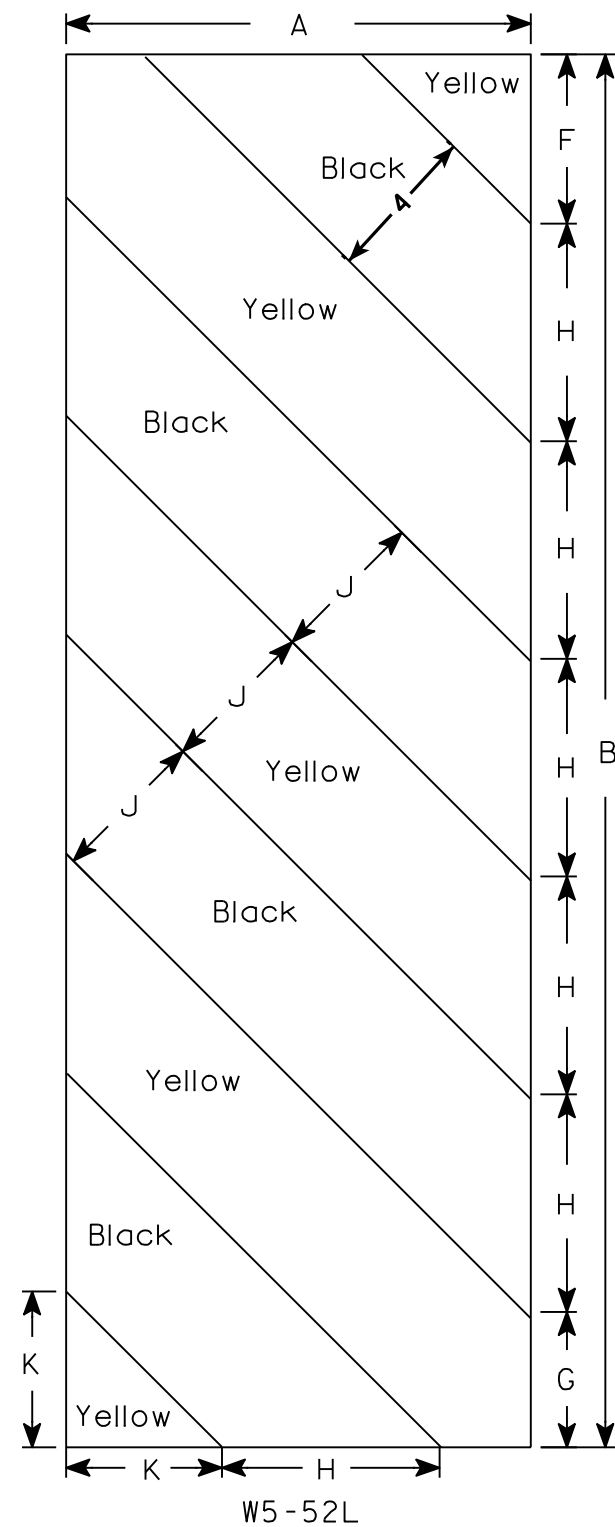
PROJECT NO:

HWY:

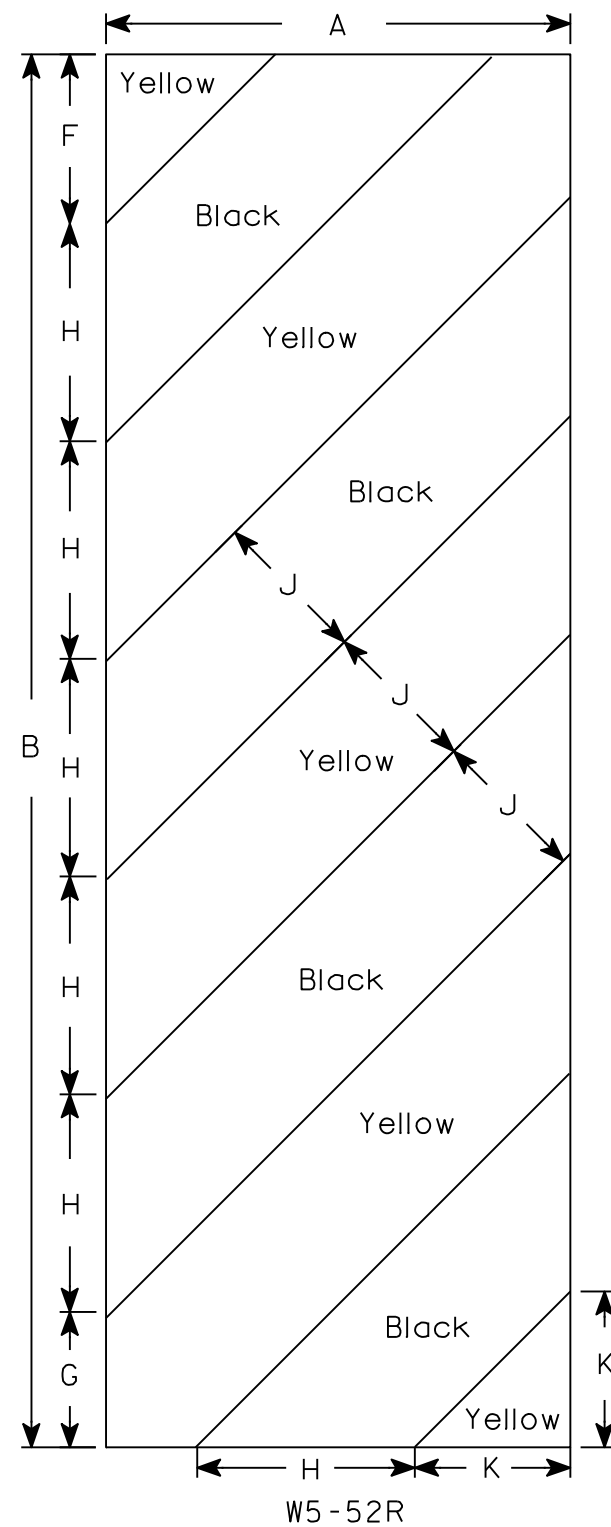
COUNTY:

SHEET NO:

E



W5-52L



W5-52R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Alternate colors of stripes as shown.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 ³ / ₈	3 ¹ / ₂	5 ⁵ / ₈	45°	4	4																3.0
2M	12	36				4 ³ / ₈	3 ¹ / ₂	5 ⁵ / ₈	45°	4	4																3.0
3	18	54				6	5 ¹ / ₂	8 ¹ / ₂	45°	6	6 ⁵ / ₆																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

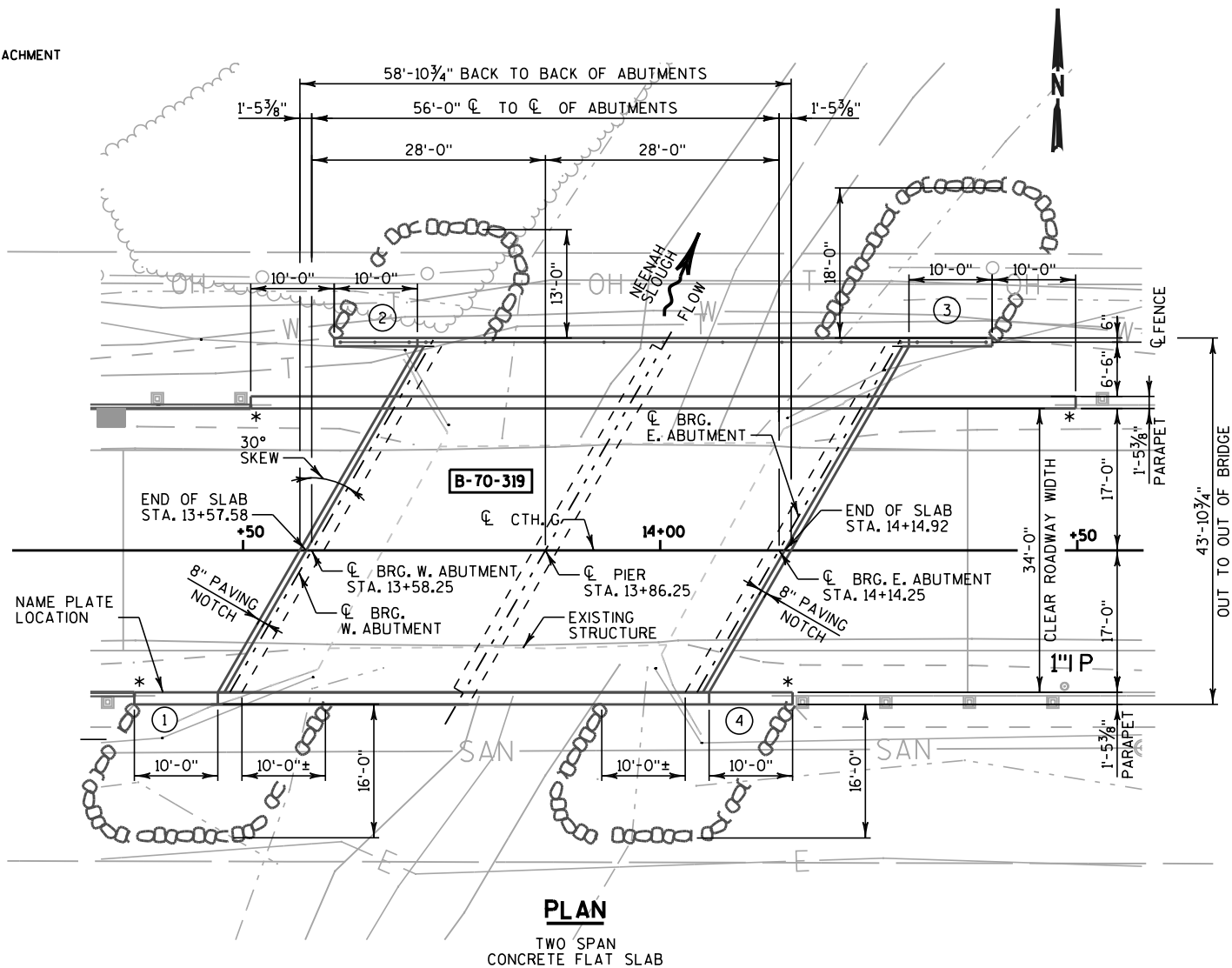
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

(X) INDICATES WING WALL

* - PROVIDE FOR THRIE BEAMGUARD RAIL ATTACHMENT

**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

THE STREAM BED IN FRONT OF THE ABUTMENT SHALL BE COVERED WITH RIPRAP AS SHOWN ON THIS SHEET AND IN THE ABUTMENT DETAILS.

AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

THE QUANTITY FOR BACKFILL STRUCTURE, BID ITEM 210.0100, IS CALCULATED BASED ON THE APPLICABLE FIGURES 12.6-1 AND 12.6-2 IN THE WISCONSIN DEPARTMENT OF TRANSPORTATION BRIDGE MANUAL.

THE EXISTING STRUCTURE, B-70-714, IS A TWO SPAN TIMBER STRUCTURE WITH AN OVERALL WIDTH OF 25'-0" FEET AND AN OVERALL LENGTH OF 39'-0". EXISTING STRUCTURE TO BE REMOVED WITH CONSTRUCTION OF B-70-319.

DESIGN DATALIVE LOAD:

DESIGN RATING: HL-93
 INVENTORY RATING: L06
 OPERATING RATING: L38
 WISCONSIN STANDARD PERMIT VEHICLE LOAD = 210 KIPS

STRUCTURE IS DESIGNED FOR A 1/2" SACRIFICIAL WEARING SURFACE, PLACED AT INITIAL CONSTRUCTION INTEGRAL WITH THE SLAB. THE DESIGN PROVIDES FOR ADDITIONAL LOADS DUE TO A FUTURE WEARING SURFACE = 20 PSF.

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY
 SLAB f'c = 4,000 psi
 ALL OTHER f'c = 3,500 psi

BAR STEEL REINFORCEMENT,
 HIGH STRENGTH, GRADE 60 fy = 60,000 psi

TRAFFIC DATA

CTH. G
 ADT = 1,400 (2012)
 ADT = 1,700 (2033)
 RDS = 45 MPH

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10x42 PILING WITH A REQUIRED DRIVING RESISTANCE OF 100 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 50'-0" LONG AT ABUTMENTS.

PILE BENT TO BE SUPPORTED ON 14" CIP PILING WITH A REQUIRED DRIVING RESISTANCE OF 110 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 55'-0" LONG AT PILE BENTS.

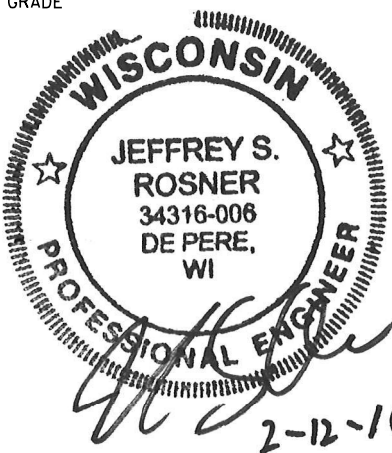
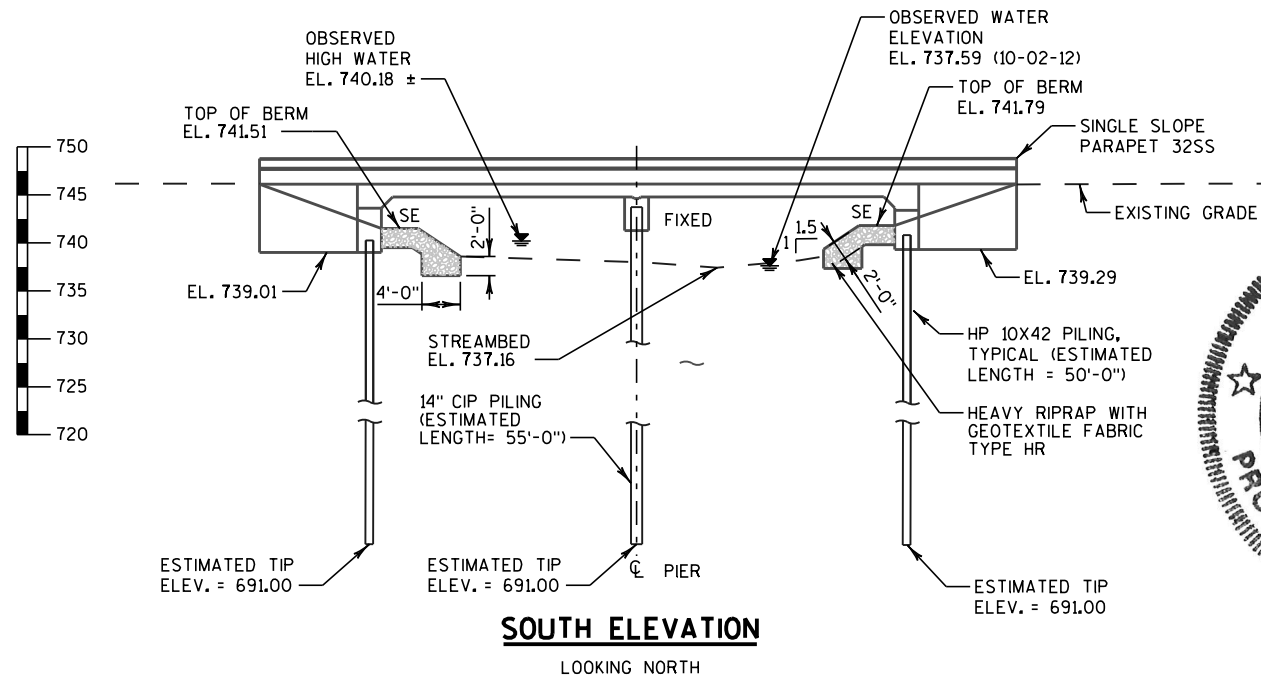
* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA

Q_{max} 2600 CFS
 V_{max} 6.39 FPS
 HW_{max} EL. 746.98
 WATERWAY AREA 235 SF
 DRAINAGE AREA 12.5 SQ MILES
 SCOUR CODE 5
 OVERTOPPING FREQUENCY 75 YEAR
 OVERTOPPING ELEVATION 746.14
 OVERTOPPING DISCHARGE 2000 CFS
 Q_s 390 CFS
 HW_s 743.13
 REGULATORY HW 746.57
 REGULATORY Q 1500 CFS

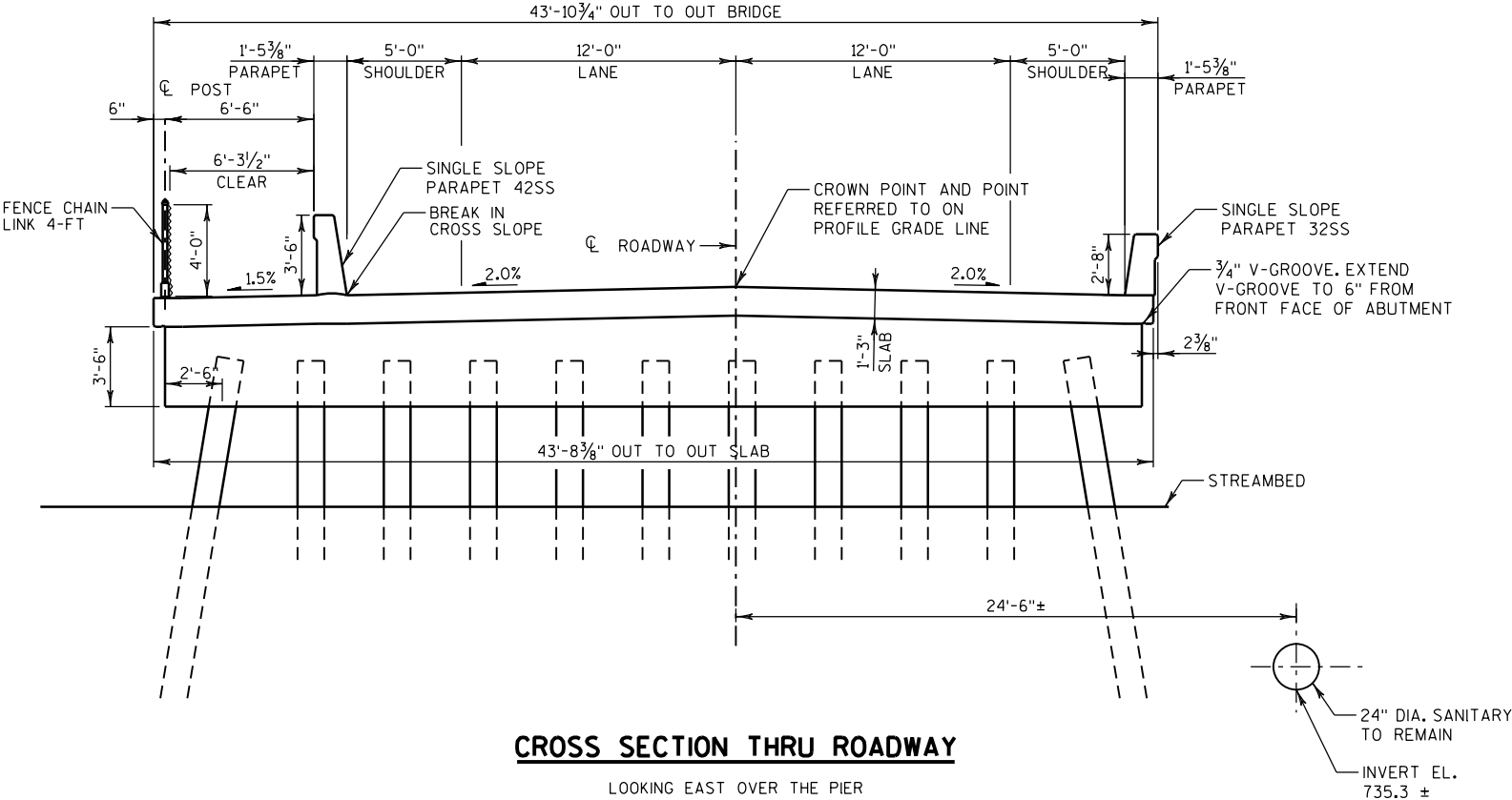
LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WINGWALLS 1 & 2 DETAILS
6. EAST ABUTMENT
7. WINGWALLS 3 & 4 DETAILS
8. PILE BENT
9. SUPERSTRUCTURE PLAN
10. SUPERSTRUCTURE BILL OF BARS AND DETAILS
11. CHAIN LINK FENCE DETAILS
12. SINGLE SLOPE PARAPET 32SS
13. SINGLE SLOPE PARAPET 42SS - WEST END
14. SINGLE SLOPE PARAPET 42SS - EAST END
15. SINGLE SLOPE PARAPET 42SS - BILL OF BARS

**STRUCTURE DESIGN CONTACTS**

BUREAU OF STRUCTURES:
 WILLIAM DREHER, P.E. (608) 266-8489
 CONSULTANT:
 JEFFREY S. ROSNER, P.E. (920) 592-9440

NO.	DATE	REVISION	BY
PLANS PREPARED BY: GRAEF 1150 Springhurst Drive, Suite 201 Green Bay, WI 54304 920-592-9440 920-592-9445 fax www.graef-usa.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION ACCEPTED <i>William C. Dreher</i> SDR 02/15/16 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-70-319			
CTH. G OVER NEENAH SLOUGH			
COUNTY	WINNEBAGO	TOWN/CITY/VILLAGE	NEENAH
DESIGN SPEC. AASHTO LRFD DESIGN SPEC.			
DESIGNED BY	JSR	DESIGN CK'D.	SAC
DRAWN BY	AMZ	PLANS CK'D.	JSR
GENERAL PLAN			SHEET 1 OF 15

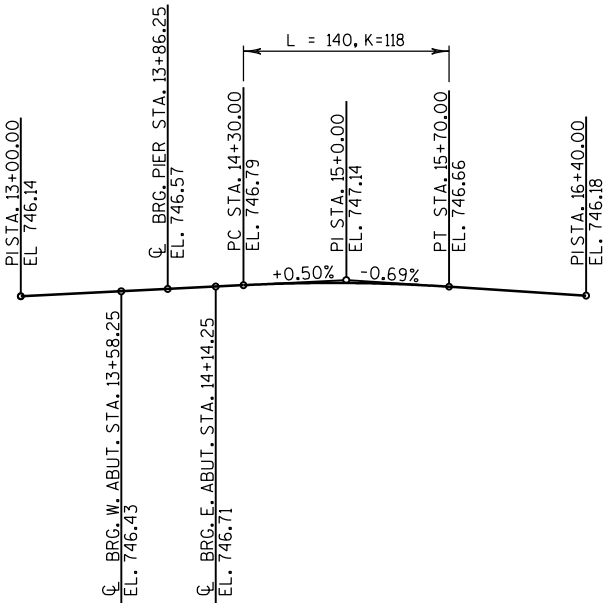


BENCH MARKS

NO.	STATION	OFFSET	DESCRIPTION	ELEV. (NAVD 88)
978	12+32.89	29.00' LT.	BURY BOLT ON HYD., 978 NORTH SIDE OF CTH. G	754.59
11	13+69.00	17.50' LT.	1" IP. WITH ALUMINUM CAP WINNEBAGO CO. REFERENCE MONUMENT, NW. QUAD OF TIMBER BRIDGE OVER SLOUGH	745.33
977	16+35.00	23.50' LT.	BURY BOLT ON HYD., 977 NORTH SIDE OF CTH. G 250' EAST OF TIMBER BRIDGE	745.67
10	N/A	N/A	CHISELED SQUARE IN NW CORNER OF PARAPET WALL OF CONCRETE BRIDGE OVER CREEK	746.87
979	N/A	N/A	BURY BOLT ON HYD., 979 NORTH SIDE OF CTH. G	747.73

ESTIMATED QUANTITIES

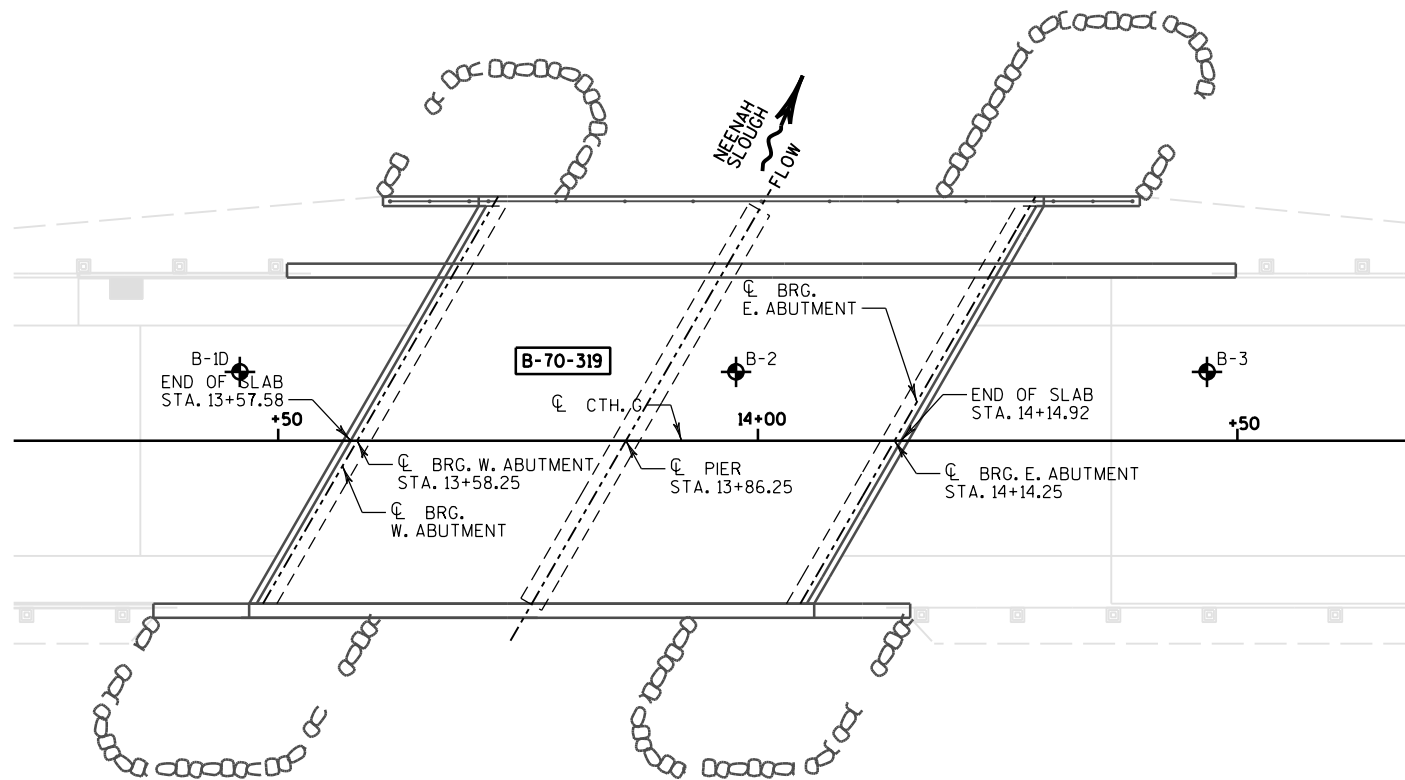
ITEM NO.	BID ITEMS	UNIT	W ABUT	E ABUT	PIER	SUPER	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 13+86.00	LS	--	--	--	--	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGE B-70-319	LS	--	--	--	--	1
210.0100	BACKFILL STRUCTURE	CY	113	113	--	--	226
502.0100	CONCRETE MASONRY BRIDGES	CY	44	46	19	139	248
502.3200	PROTECTIVE SURFACE TREATMENT	SY	--	--	--	262	262
502.3210	PIGMENTED SURFACE SEALER	SY	--	--	--	81	81
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	3010	3170	5090	--	11,270
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2060	2230	100	30,650	35,040
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	13	13	--	--	26
550.1100	PILING STEEL HP 10-INCH X 42 LB.	LF	350	350	--	--	700
550.2146	PILING CIP CONCRETE 14 X .375-INCH	LF	--	--	605	--	605
606.0300	RIPRAP HEAVY	CY	91	99	--	--	190
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	81	81	--	--	162
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2	2	--	--	4
616.0204	FENCE CHAIN LINK 4-FT	LF	--	--	--	79	79
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	190	205	--	--	395
	NON-BID ITEMS						
	PREFORMED JOINT FILLER						3/4"



PROFILE CTH. G

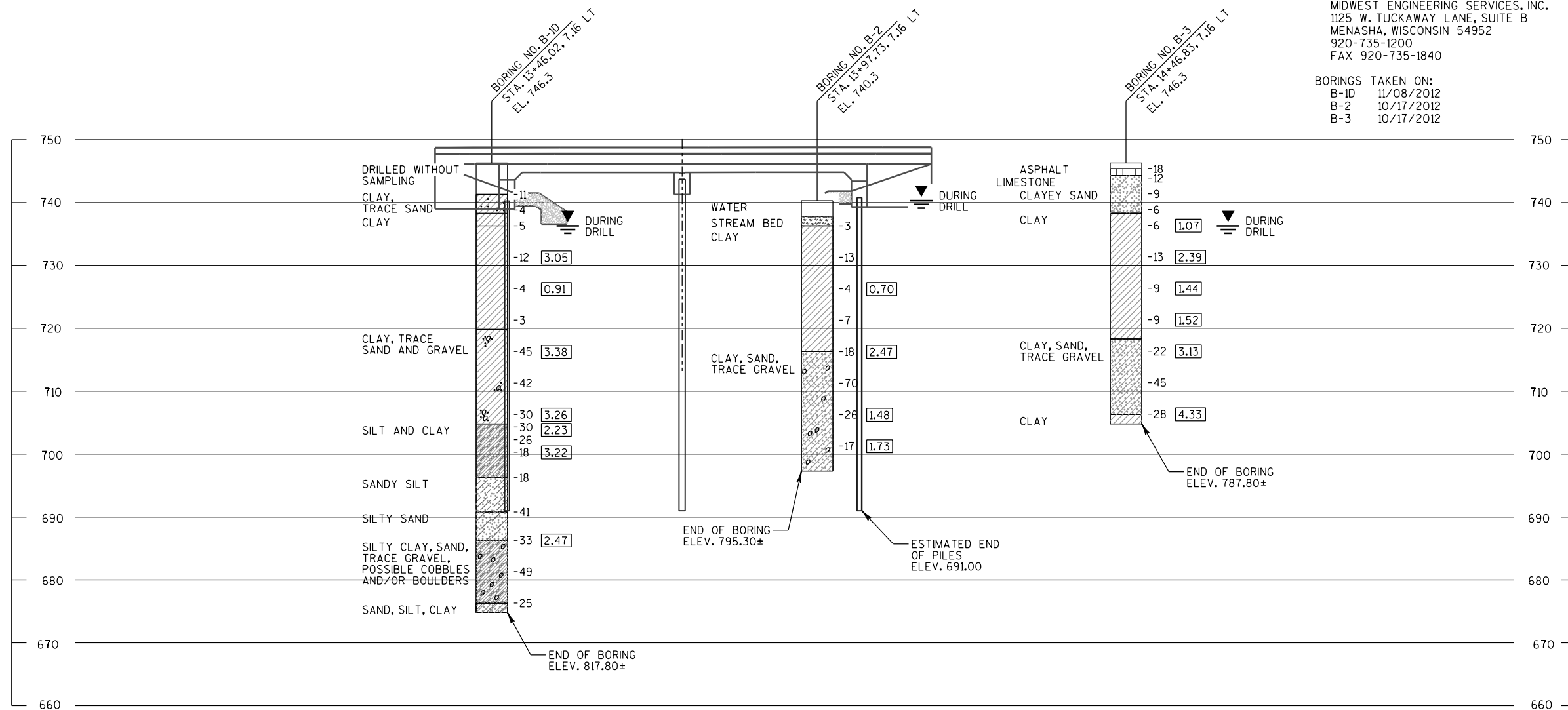
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
DRAWN BY		AMZ	PLANS CK'D. JSR
CROSS SECTION & QUANTITIES			SHEET 2 OF 15

FILE =
SCALE =



BORINGS TAKEN BY:
MIDWEST ENGINEERING SERVICES, INC.
1125 W. TUCKAWAY LANE, SUITE B
MENASHA, WISCONSIN 54952
920-735-1200
FAX 920-735-1840

BORINGS TAKEN ON:
B-1D 11/08/2012
B-2 10/17/2012
B-3 10/17/2012



STATE PROJECT NUMBER

6468-02-71

ABBREVIATIONS

F— FINE M— MEDIUM C— COARSE
WS— WEATHERED SO— SOUND

MATERIAL SYMBOLS

TOPSOIL SILT SANDSTONE
SAND PEAT LIMESTONE
GRAVEL CLAY IGNEOUS ROCK

LEGEND OF PROBING

PROBING NO.
STA.
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6
95/6=95 BLOWS FOR 6"
PENETRATION
PROBING TAKEN WITH
A 350# WT.
FALLING 18" ON A 2"
O.D. POINT.

LEGEND OF BORING

BORING NO.
STA.
ELEV.
UNCONFINED STRENGTH 7.7
BLOWS PER FT. USING 140# WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION
SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO
LIMESTONE

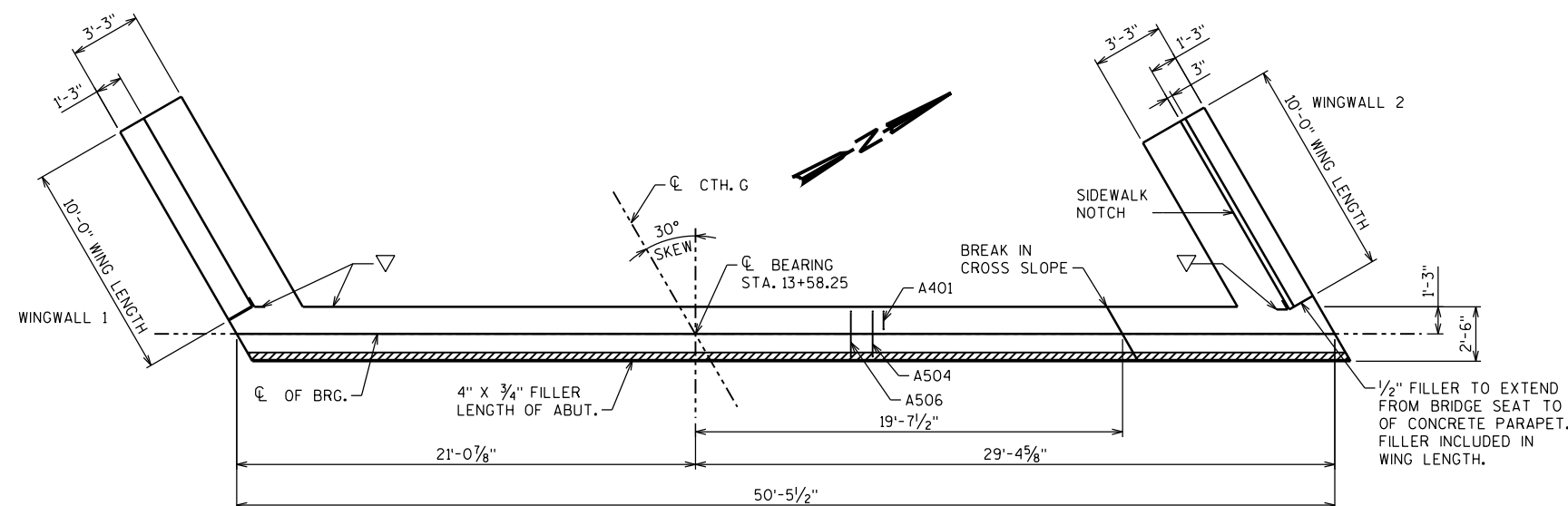
UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CAGED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

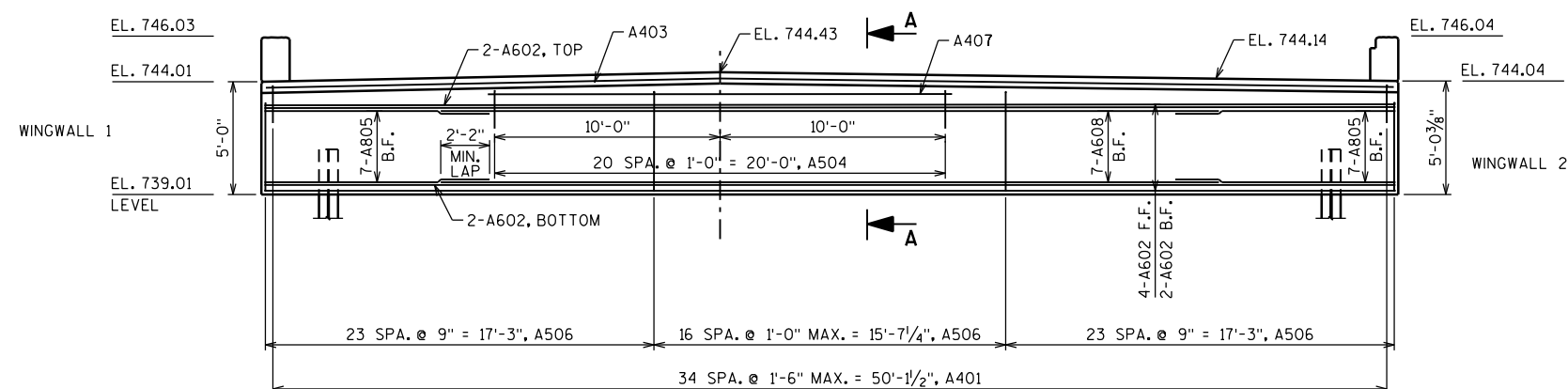
TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
DRAWN BY		AMZ	PLANS CKD. JSR
SUBSURFACE EXPLORATION		SHEET 3 OF 15	

FILE= SCALE =

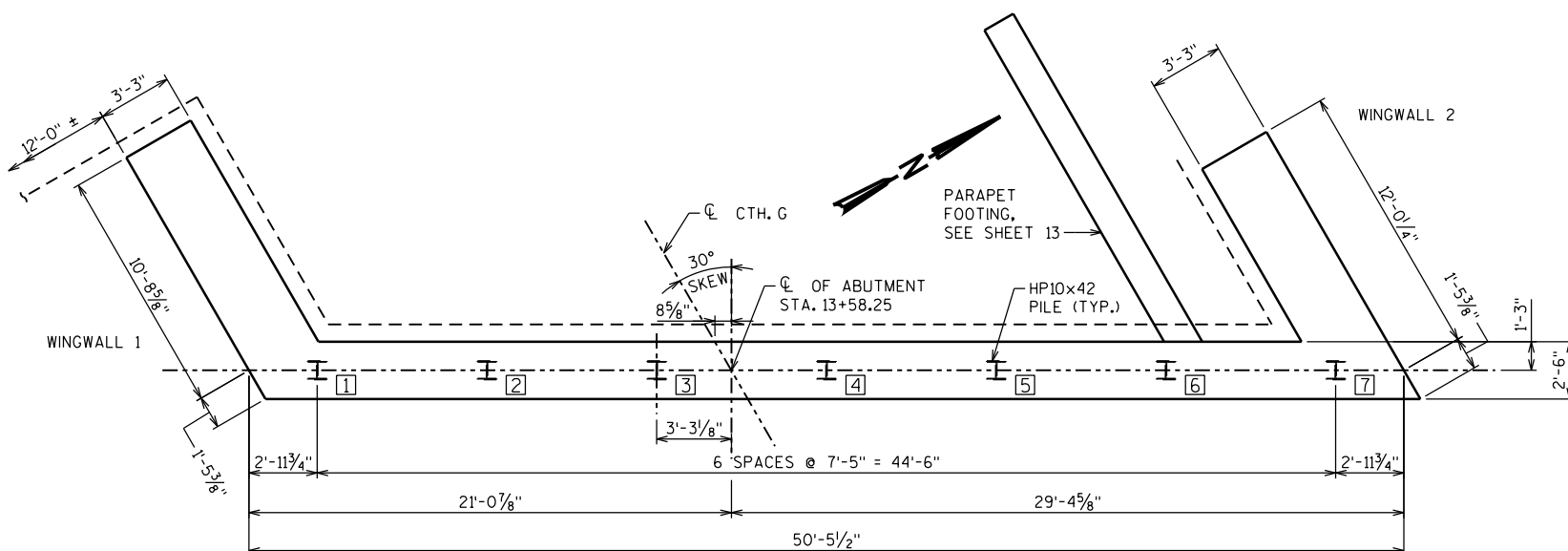


PLAN

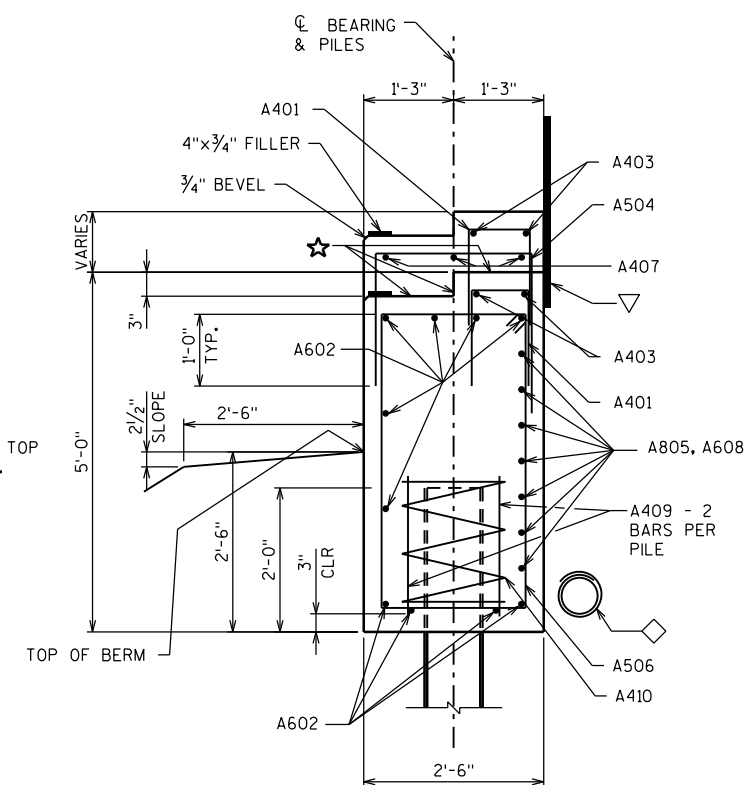
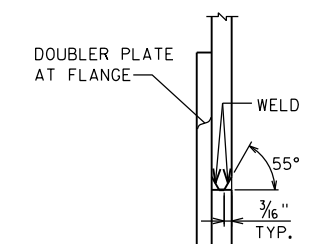


ELEVATION

(LOOKING WEST)
ELEVATION IS SHOWN AT FRONT FACE OF ABUTMENT.
PILES NOT SHOWN FOR CLARITY.

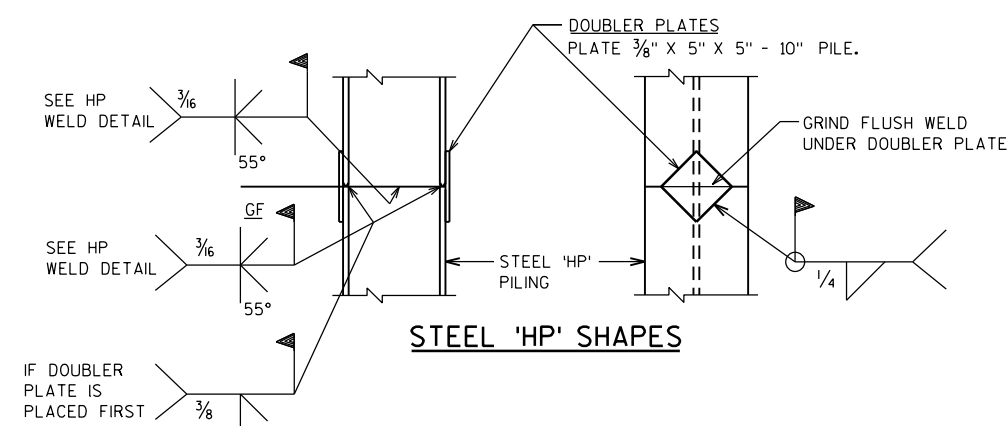


PILE PLAN

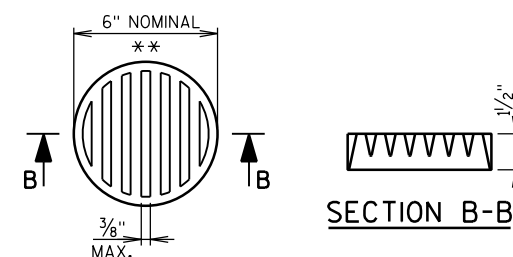
SECTION A-A
THROUGH WEST ABUTMENT

HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR



STEEL 'HP' SHAPES



RODENT SHIELD DETAIL

** DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

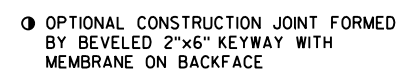
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH SHEET METAL SCREWS.

ABUTMENT NOTES

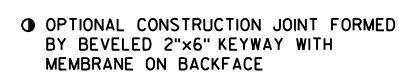
ABUTMENT TO BE SUPPORTED ON HP10x42 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 50'-0" LONG.

SEE THIS SHEET FOR PILE SPLICE DETAILS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
DRAWN BY		AMZ	PLANS CK'D. JSR
WEST ABUTMENT		SHEET 4 OF 15	

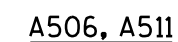


WING 1 SECTION

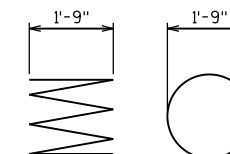


WING 2 SECTION

THE FIRST DIGIT OF A THREE DIGIT BAR MARK INDICATES BAR SIZE.
ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.



BAR	"A"	"B"
A401	11"	1'-6"
A504	2'-2"	1'-6"
A512	11"	4'-0"
A513	11"	3'-6"
A414	8"	1'-8"



A410

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
		DRAWN BY	AMZ
		PLANS CK'D.	JSF
WINGWALLS 1 & 2 DETAILS			SHEET 5 OF 1



PILE PLAN



▽ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

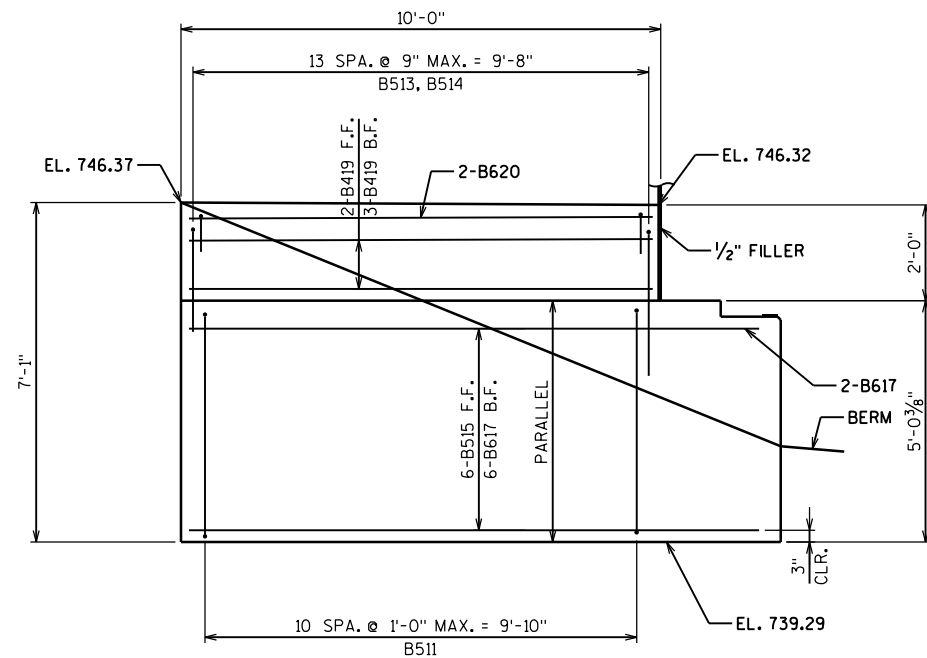
◇ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

☒ = PILE NUMBER

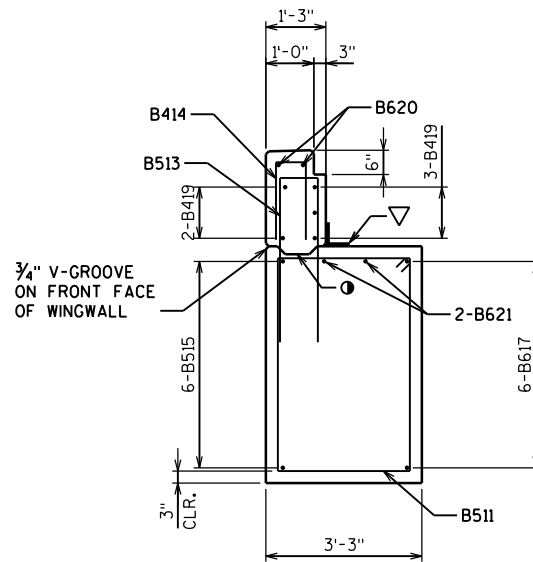
☆ STEEL TROWEL TOP SURFACE OF ABUTMENT, PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03"

ABUTMENT TO BE SUPPORTED ON HP10x42 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 50'-0" LONG.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
		DRAWN BY	AMZ
		PLANS C'KD.	JS
EAST ABUTMENT		SHEET 6 OF	

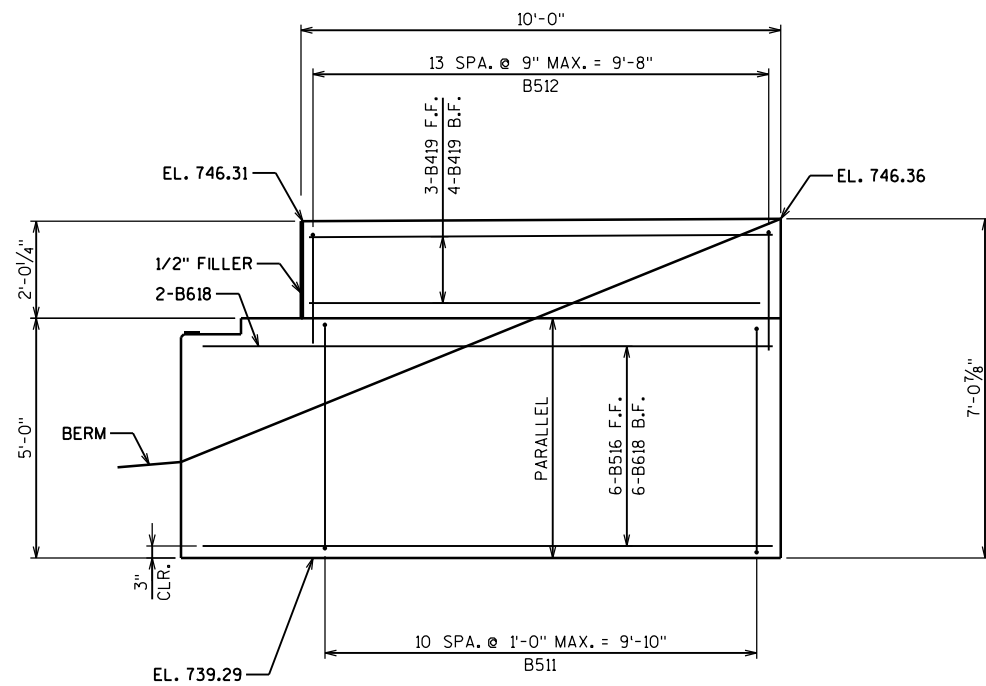


WINGWALL 3 ELEVATION

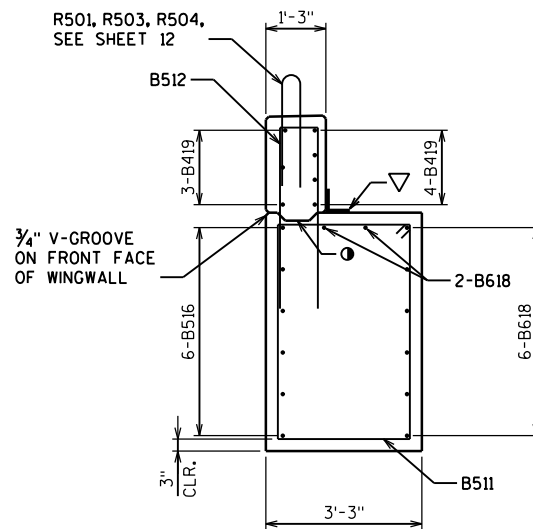


OPTIONAL CONSTRUCTION JOINT FORMED BY BEVELED 2"x6" KEYWAY WITH MEMBRANE ON BACKFACE

WING 3 SECTION



WINGWALL 4 ELEVATION



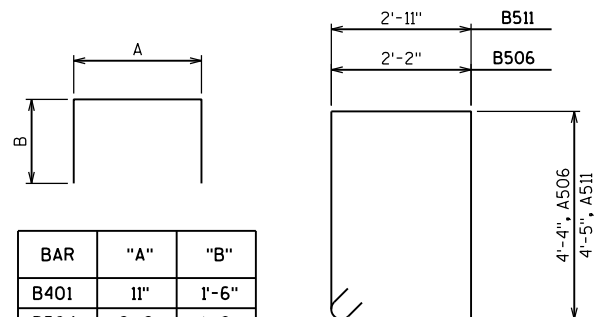
OPTIONAL CONSTRUCTION JOINT FORMED BY BEVELED 2"x6" KEYWAY WITH MEMBRANE ON BACKFACE

WING 4 SECTION

EAST ABUTMENT - BILL OF BARS

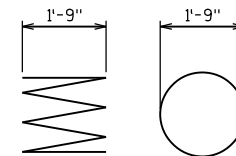
MARK	COATED	NO. REQ'D	LENGTH	BAR SERIES	BENT	COATED TOTAL WEIGHT = 1160 LBS PLAIN TOTAL WEIGHT = 2840 LBS	
						LOCATION	
B401		35	3'-9"		X	ABUT. STIRRUP TOP	
B602		10	50'-1"			ABUT. HORIZ.	
B403		2	50'-1"			ABUT. HORIZ. TOP	
B504		21	4'-11"		X	ABUT. STIRRUP TOP	
B805		14	10'-0"			ABUT. HORIZ. BF	
B506		63	13'-8"		X	ABUT. STIRRUP	
B407		3	20'-0"			ABUT. HORIZ. TOP	
B608		7	34'-5"			ABUT. HORIZ. BF	
B409		14	2'-3"			ABUT. VERT. AT PILES	
B410		7	28'-0"		X	ABUT. AT PILES	
B511	X	22	15'-4"		X	WING STIRRUP	
B512	X	14	8'-8"		X	WING 4 VERT.	
B513	X	14	7'-4"		X	WING 3 VERT.	
B414	X	14	3'-10"		X	WING 3 VERT.	
B515	X	6	11'-10"			WING 3 HORIZ. FF	
B516	X	6	13'-3"			WING 4 HORIZ. FF	
B617	X	8	13'-3"			WING 3 HORIZ. BF	
B618	X	8	11'-5"			WING 4 HORIZ. BF	
B419	X	12	9'-8"			WING HORIZ.	
B620	X	2	9'-8"			WING 3 HORIZ. TOP	
B621	X	2	12'-6"			WING 3 HORIZ.	

THE FIRST DIGIT OF A THREE DIGIT BAR MARK INDICATES BAR SIZE.
ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.



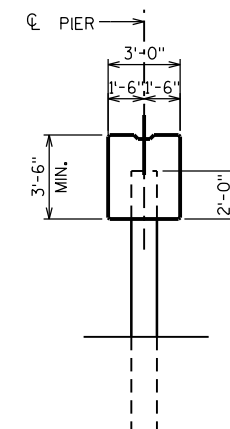
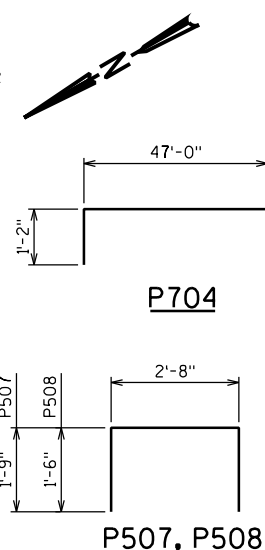
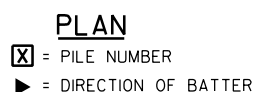
B506, B511

BAR	"A"	"B"
B401	11"	1'-6"
B504	2'-2"	1'-6"
B512	11"	4'-0"
B513	11"	3'-6"
B414	8"	1'-8"

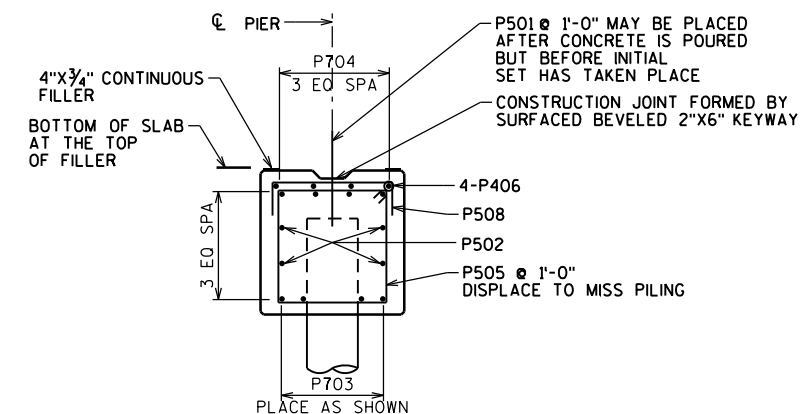


B410

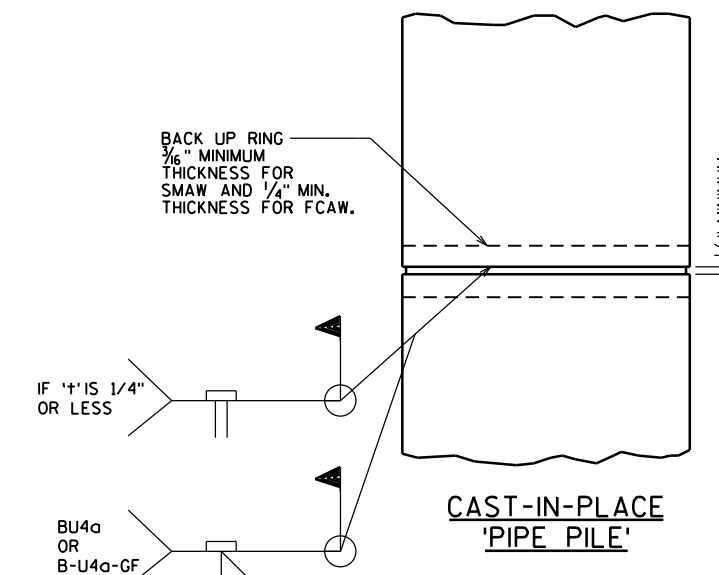
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
DRAWN BY		AMZ	PLANS CK'D. JSR
WINGWALLS 3 & 4 DETAILS		SHEET 7 OF 15	



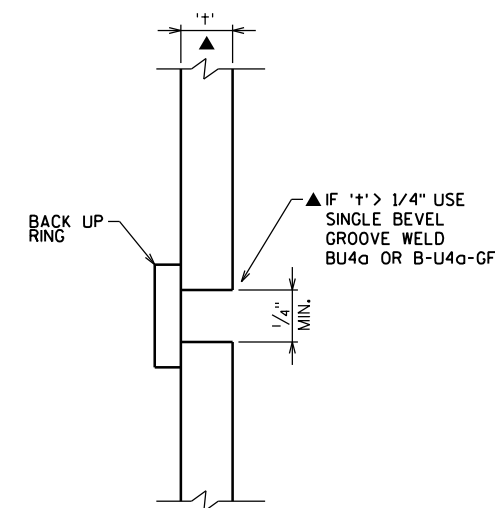
END VIEW



SECTION A-A
THRU PILE BENT



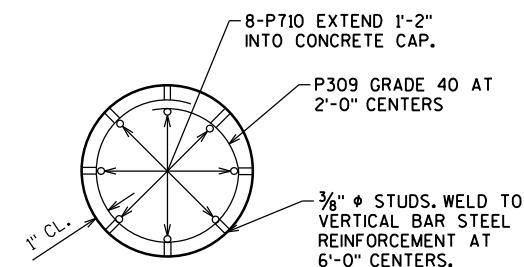
CAST-IN-PLACE 'PIPE PILE'



C.I.P. PILE WELD DETAIL

THE FIRST DIGIT OF A THREE DIGIT BAR MARK INDICATES BAR SIZE.
ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.

PIER TO BE SUPPORTED ON 14" DIA. CIP PILING
WITH A REQUIRED DRIVING RESISTANCE OF 110 TONS
PER PILE AS DETERMINED BY THE MODIFIED GATES
DYNAMIC EQUATION. ESTIMATED 55'-0" LONG.



SECTION THRU CONCRETE
CAST-IN-PLACE PILING
USED WHEN PILES ARE EXPOSED

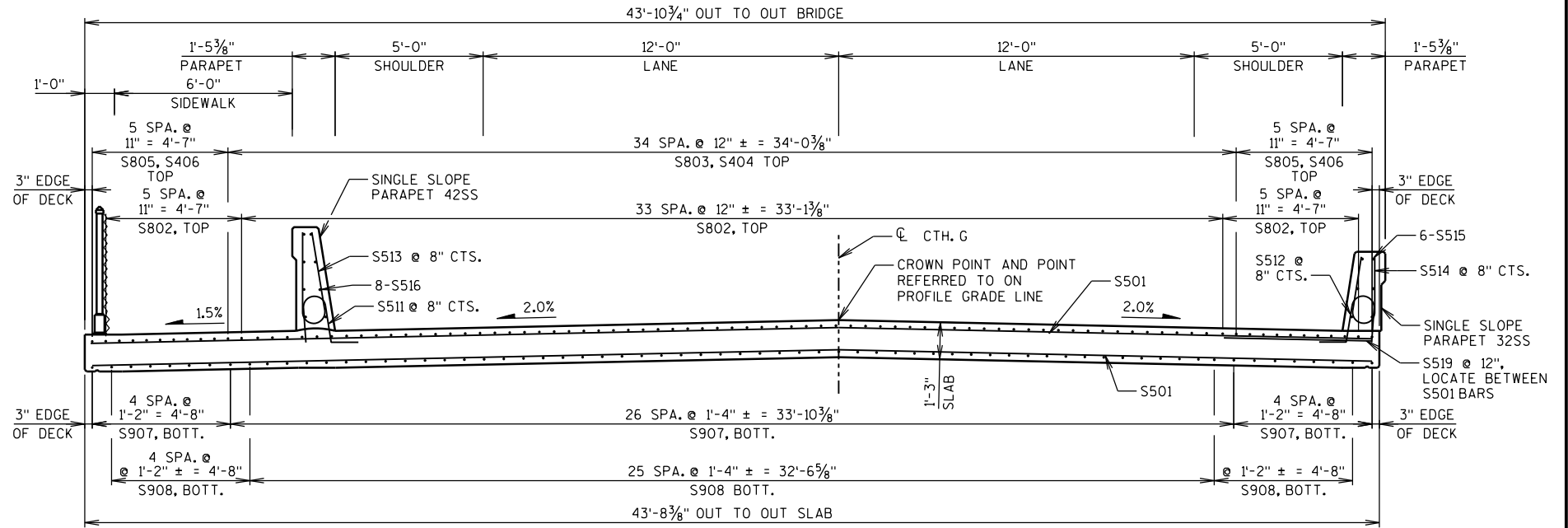
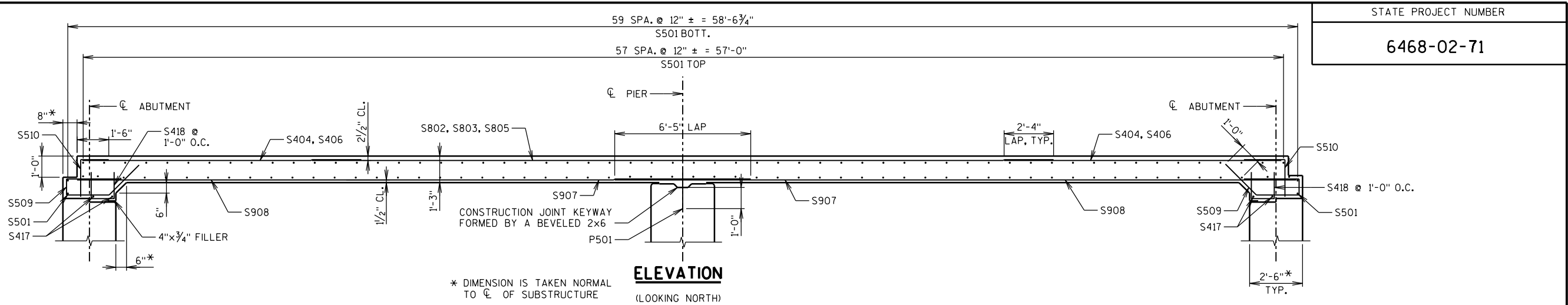
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
		DRAWN BY	AMZ
		PLANS CK'D.	JSF
PILE BENT		SHEET 8 OF 1	



* DIMENSION IS TAKEN NORMAL
TO \mathbb{C} OF SUBSTRUCTURE

CAMBER SPAN AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP.
CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
DRAWN BY		AMZ	PLANS CK'D. JSR
SUPERSTRUCTURE PLAN		SHEET 9 OF 15	



SUPERSTRUCTURE - BILL OF BARS						COATED TOTAL WEIGHT = 30650 LBS
MARK	COATED	NO. REQ'D	LENGTH	BAR SERIES	BENT	LOCATION
S501	X	122	50'-1"			SLAB TRANS.
S802	X	44	14'-6"			SLAB LONG. TOP AT PIER
S803	X	33	35'-4"			SLAB LONG. TOP AT PIER, INTERIOR
S404	X	66	13'-4"			SLAB LONG. TOP SPANS, INTERIOR
S805	X	12	40'-0"			SLAB LONG. TOP AT PIER, EXTERIOR
S406	X	24	11'-0"			SLAB LONG. TOP SPANS, EXTERIOR
S907	X	70	32'-6"			SLAB LONG. BOT.
S908	X	68	23'-3"			SLAB LONG. BOT.
S509	X	88	7'-4"		X	SLAB ENDS
S510	X	88	3'-2"		X	SLAB ENDS
S511	X	86	4'-5"		X	42SS PARAPET - VERT.
S512	X	89	4'-5"		X	32SS PARAPET - VERT.
S513	X	86	6'-8"		X	42SS PARAPET - VERT.
S514	X	89	5'-0"		X	32SS PARAPET - VERT.
S515	X	6	58'-5"			32SS PARAPET - HORIZONTAL
S516	X	8	56'-11"			42SS PARAPET - HORIZONTAL
S417	X	4	50'-1"			SLAB TRANS. ENDS
S418	X	88	3'-5"		X	SLAB VERT. ENDS
S519	X	57	5'-0"			SLAB TRANS. EDGE UNDER PARAPET

THE FIRST DIGIT OF A THREE DIGIT BAR MARK INDICATES BAR SIZE.
ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.

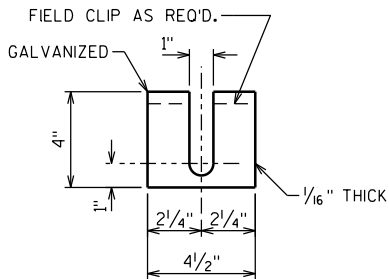
TOP OF SLAB ELEVATIONS																					
LOCATION	CL W. ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CL PIER	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CL E. ABUT.
EDGE OF SIDEWALK	746.04	745.66	746.07	746.08	746.09	746.11	746.12	746.14	746.15	746.16	746.18	746.19	746.21	746.22	746.23	746.25	746.26	746.28	746.29	746.30	746.32
BREAK AT PARAPET	746.14	745.77	746.17	746.18	746.20	746.21	746.22	746.24	746.25	746.27	746.28	746.29	746.31	746.32	746.34	746.35	746.36	746.38	746.39	746.41	746.42
CROWN	746.43	746.06	746.46	746.47	746.49	746.50	746.52	746.53	746.54	746.56	746.57	746.59	746.60	746.61	746.63	746.64	746.66	746.67	746.68	746.70	746.71
SOUTH GUTTER LINE	746.04	745.67	746.07	746.08	746.10	746.11	746.13	746.14	746.15	746.17	746.18	746.20	746.21	746.22	746.24	746.25	746.27	746.28	746.29	746.31	746.32
CAMBER (in.)	0.0	0.1	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.0

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
DRAWN BY		AMZ	PLANS CK'D. JSR
SUPERSTRUCTURE BILL OF BARS AND DETAILS		SHEET 10 OF 15	

FILE =
SCALE =

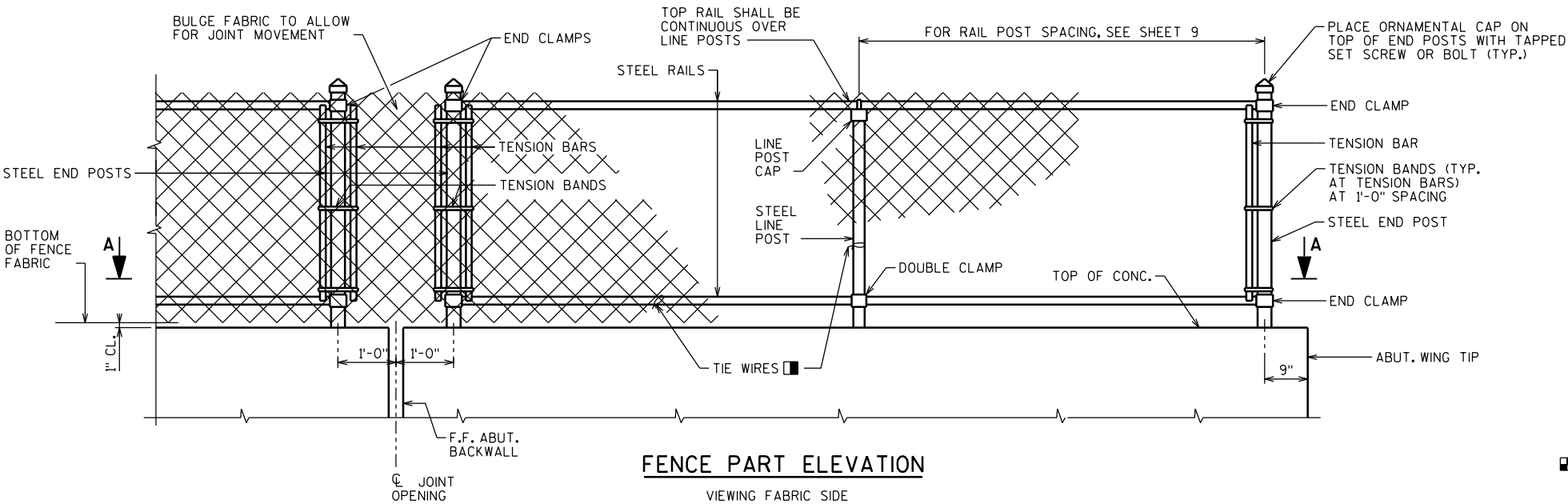
FENCE MEMBER
SIZE & WEIGHT

STEEL FENCE MEMBER	OUTSIDE DIAMETER (INCHES)	WEIGHT (LB/FT)
RAILS	1.660	2.27
END POST	2.875	5.80
OVERHANG POST	2.875	5.80
LINE POST	2.375	3.65
POST SLEEVE	4.000	9.12



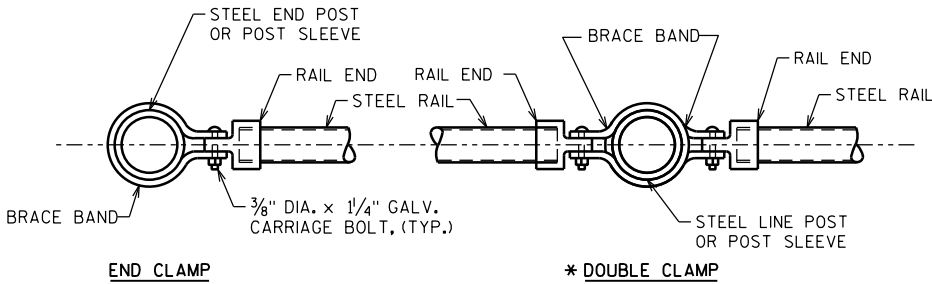
POST SHIM DETAILS

SHIMS REQUIRED ONLY WHEN END POSTS AND LINE POSTS ARE WELDED TO BASE PLATES. PROVIDE 4 SHIMS PER POST. USE WHERE REQUIRED FOR ALIGNMENT.



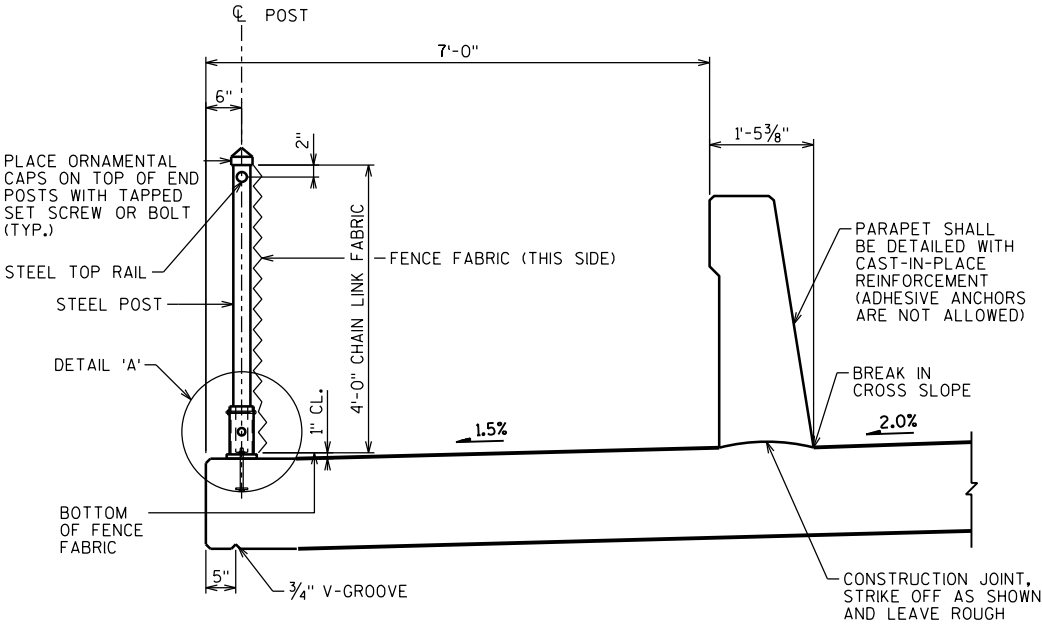
FENCE PART ELEVATION

VIEWING FABRIC SIDE

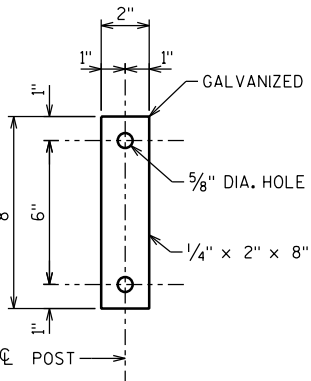


SECTION A-A

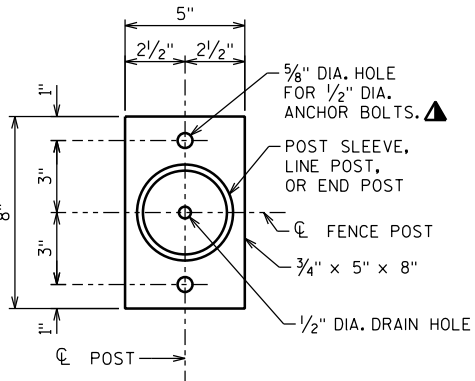
NOTE: PLACE ALL BOLT HEADS ON SIDE OF FENCE ADJACENT TO PEDESTRIANS



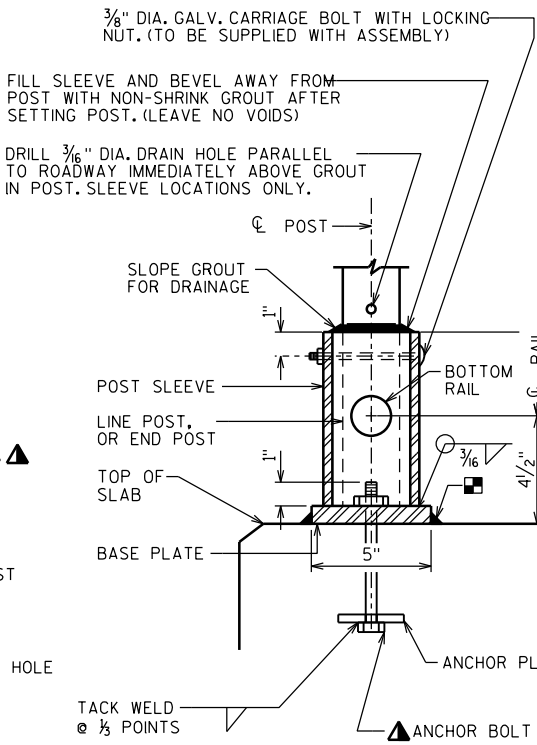
SECTION THRU FENCE



ANCHOR PLATE



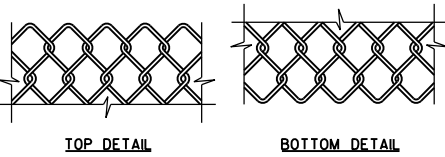
BASE PLATE



DETAIL 'A'

UNIT SHALL BE GALVANIZED AFTER FABRICATION

NOTE: IN LIEU OF USING THE POST SLEEVE, THE FENCE POST MAY BE WELDED TO THE BASE PLATE.



FENCE FABRIC

FENCE FABRIC WOVEN OF 9-GAGE WIRE IN 2" DIAMOND PATTERN MESH WITH BOTH THE TOP AND BOTTOM SELVAGES KNUCKLED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
DRAWN BY		AMZ	PLANS CK'D. JSR
CHAIN LINK FENCE DETAILS		SHEET 11 OF 15	

STATE PROJECT NUMBER

6468-02-71

GENERAL NOTES

POSTS ARE TO BE SET VERTICAL.

ALL FENCE COMPONENTS SHALL BE GALVANIZED STEEL, EXCEPT THE FENCE FABRIC WHICH MAY BE ALUMINUM-COATED STEEL OR GALVANIZED STEEL.

FABRIC SHALL CONFORM TO ASTM A491 OR A392, CLASS 2. STEEL RAILS, POSTS AND POST SLEEVES SHALL CONFORM TO ASTM F1083, STANDARD WEIGHT PIPE (SCHEDULE 40). FITTINGS SHALL CONFORM TO ASTM F626.

THE BID ITEM SHALL BE "FENCE CHAIN LINK 4 FT", LF.

COMPLETE ANY REQUIRED WELDING OF COMPONENTS BEFORE GALVANIZING.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

BASE PLATES, ANCHOR PLATES AND SHIMS SHALL BE ASTM A709, GRADE 36.

ALL POST SPACINGS ARE MEASURED HORIZONTALLY ALONG THE C/L OF THE POST.

CAULK AROUND PERIMETER OF BASE PLATE AND FILL PORTION OF SLOTTED HOLE AROUND ANCHOR BOLT IN SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALTERNATE TO DOUBLE CLAMP: USE LINE RAIL CLAMP (BOULEVARD) OR 180° BRACE BAND, WHICH MAY BE USED WHEN THE POSTS ARE EITHER BOLTED TO THE POST SLEEVES OR DIRECTLY WELDED TO THE BASE PLATE.

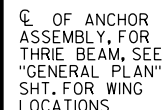
1/2" DIA. X 6 7/8" LONG GALVANIZED HEX BOLT WITH NUT & WASHER, TYPE "S", 1/2" DIA. CONCRETE MASONRY ANCHORS MAY BE SUBSTITUTED FOR 1/2" DIA. BOLTS. ANCHOR PLATE NOT REQUIRED WHEN TYPE "S" ANCHORS ARE USED. SEE ☆

MASONRY ANCHOR, TYPE "S", 1/2-INCH. EMBED 6" IN CONCRETE. ANCHOR, WASHER AND NUT SHALL BE GALVANIZED.

ATTACH FABRIC TO RAILS, AND TO POSTS WITHOUT TENSION BANDS, WITH TIE WIRES (ROUND, 9-GAGE) SPACED AT 1'-0".

MINIMUM LENGTH OF TOP RAIL BETWEEN SPLICES SHALL BE 20'-0". LOCATE SPLICES NEAR 1/4 POINT OF POST SPACING.

CUT BOTTOM OF POST PLUMB IN BOTH DIRECTIONS.

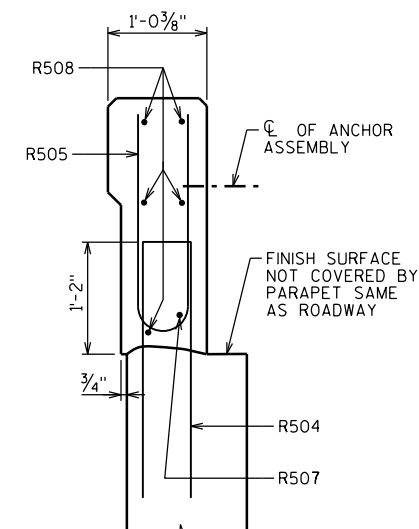


INSIDE ELEVATION

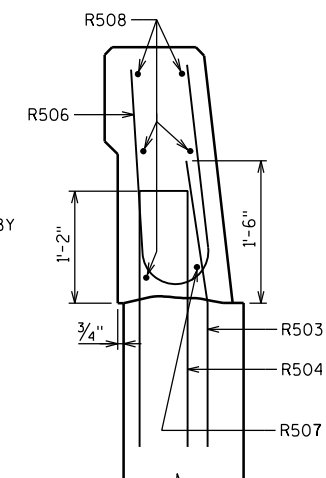


- AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

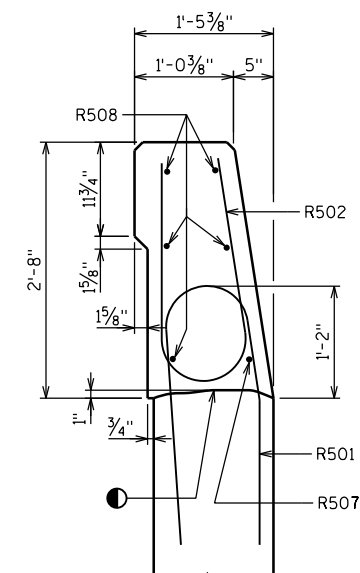
— BENCH MARK CAP (WHEN SUPPLIED) 



SECTION A

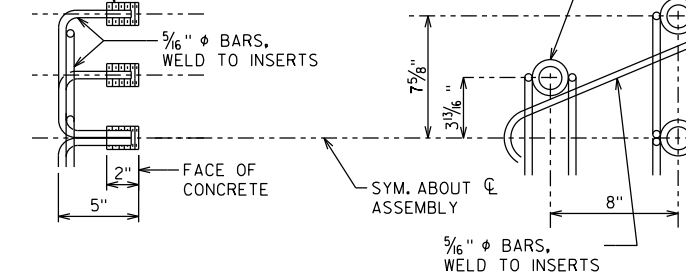


SECTION B



SECTION C

— THREADED INSERTS FOR $\frac{7}{8}$ " ϕ X 2" LONG GALVANIZED HEX HEAD CAP SCREWS. CAP SCREWS TO BE THREADED A MIN. OF $\frac{1}{8}$ " AND SHALL BE SUPPLIED INCLUDING WASHERS, WITH ASSEMBLY. INSERTS TO BE THREADED A MINIMUM OF $1\frac{3}{4}$ ". —



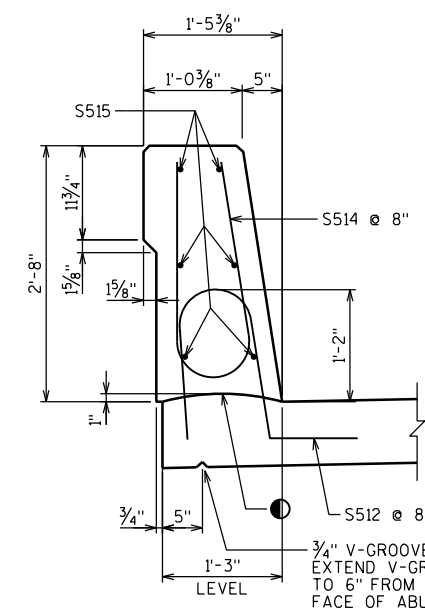
DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED
IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY BID ITEM SHALL BE "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

LEGEND

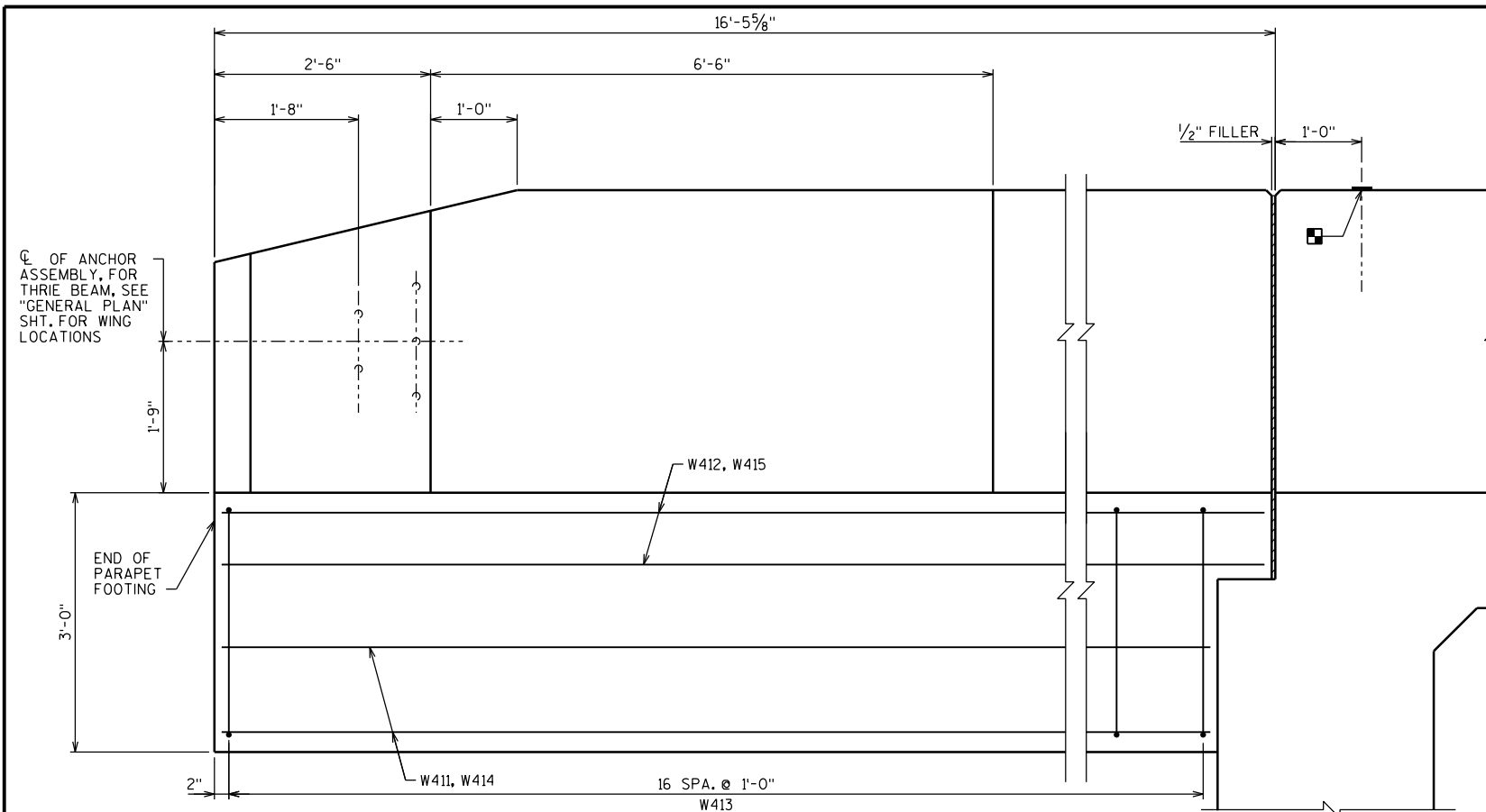
- ☐ CONST. JOINT - STRIKE OFF AS SHOWN.
☒ R503 BARS MAY BE PLACED AFTER CONCRETE IS
 POURED BUT BEFORE INITIAL SET HAS TAKEN
 PLACE. USE CARE TO PLACE R503 BARS
 CORRECTLY ALONG TRANSITION OF PARAPET.
☐ R501 AND R504 BARS TO BE TIED TO WING STEEL
 BEFORE WING IS POURED.



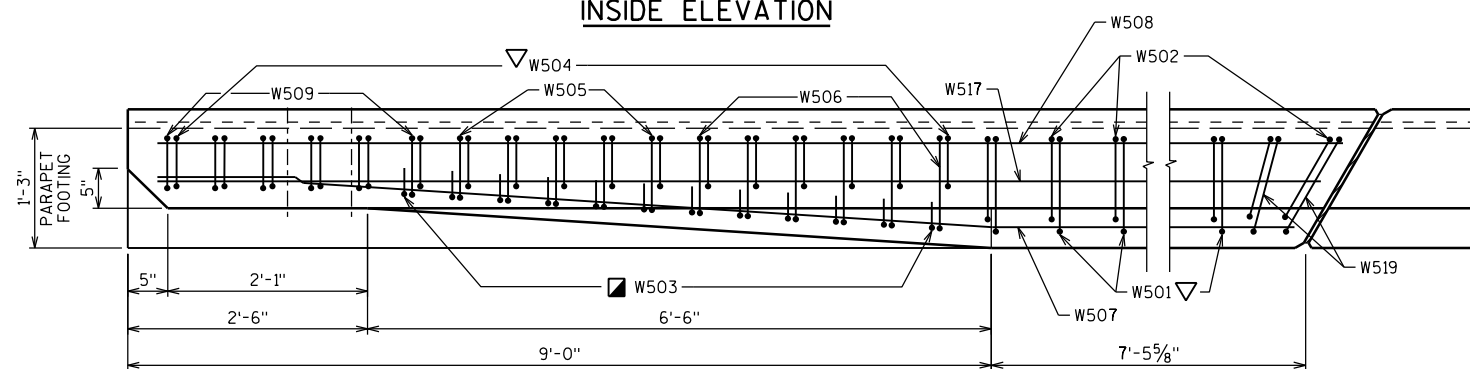
SECTION THRU PARAPET ON BRIDGE

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION					
STRUCTURE B-70-319					
DRAWN BY			AMZ	PLANS CK'D.	JSR
SINGLE SLOPE PARAPET 32SS			SHEET 12 OF 15		

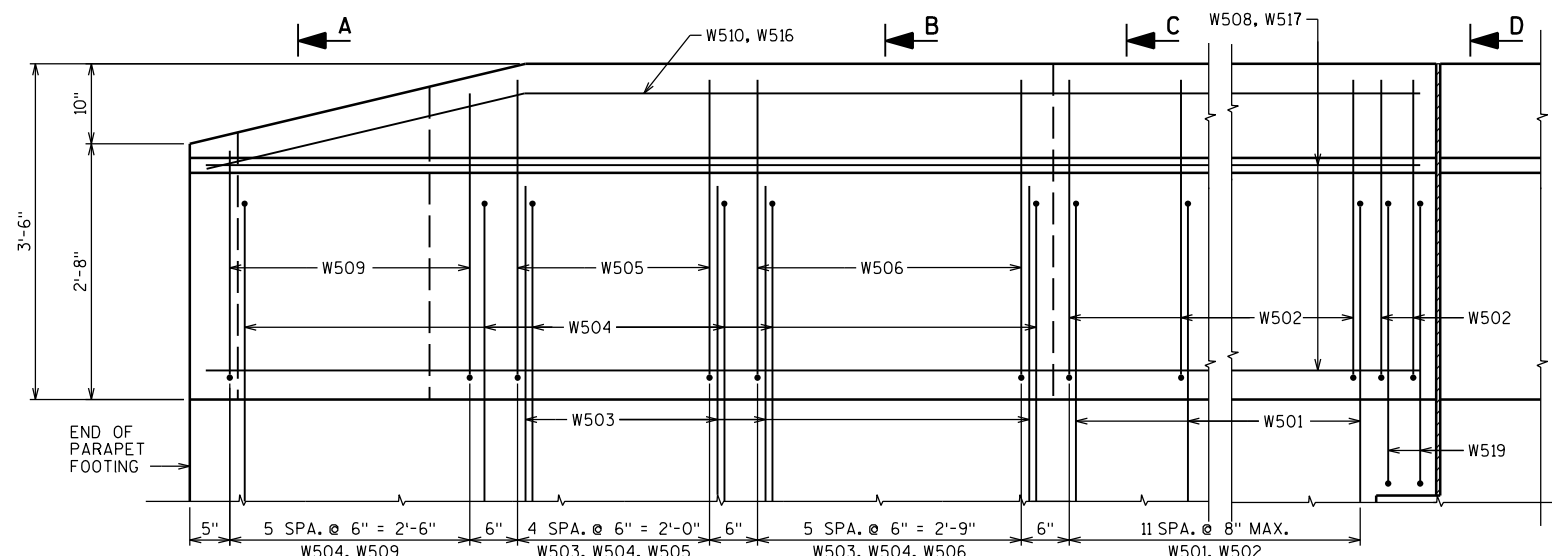
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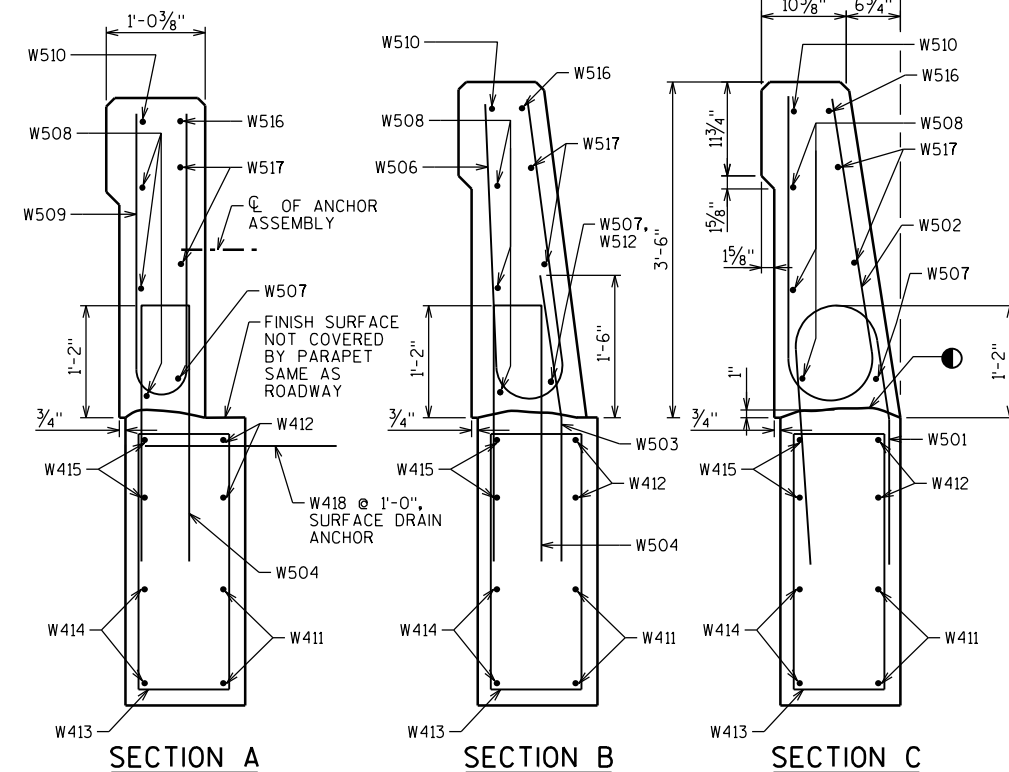
INSIDE ELEVATION



PLAN



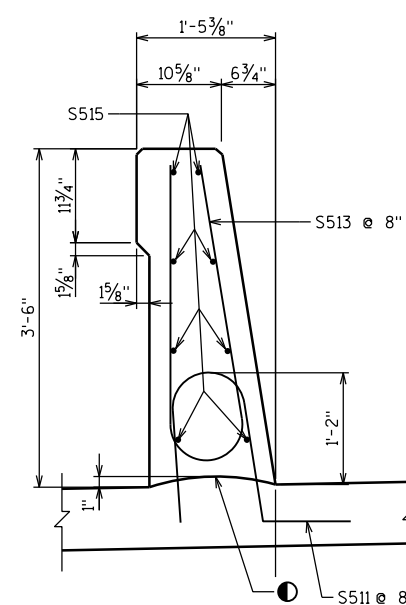
OUTSIDE ELEVATION



SECTION A

SECTION B

SECTION C

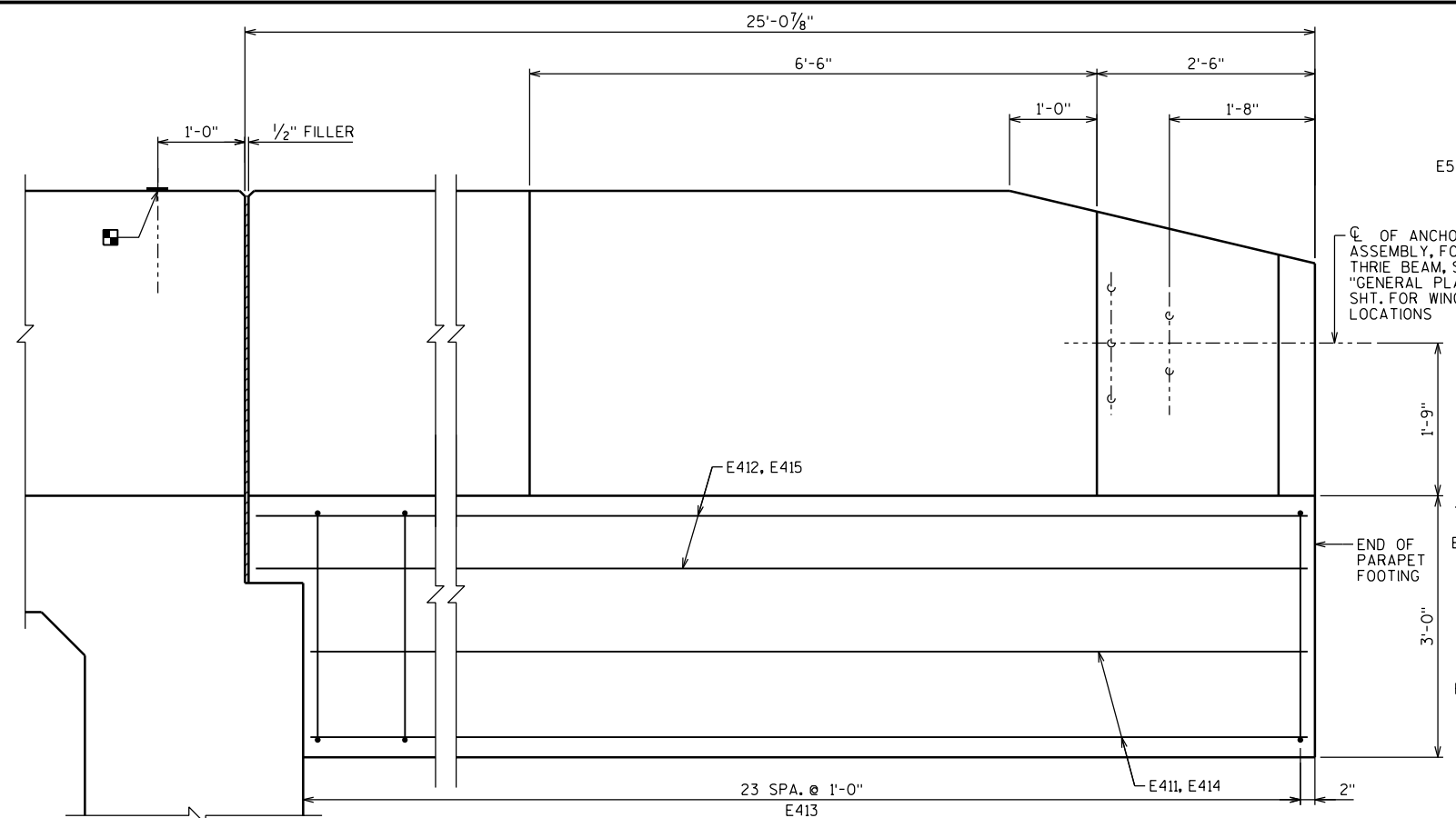


SECTION D

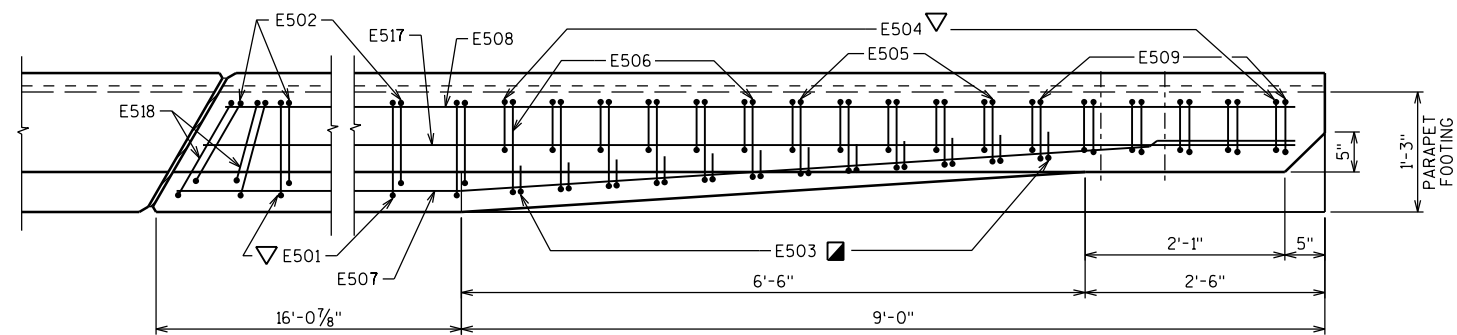
LEGEND

- CONST. JOINT - STRIKE OFF AS SHOWN.
- W503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE W503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- ▽ W501 AND W504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

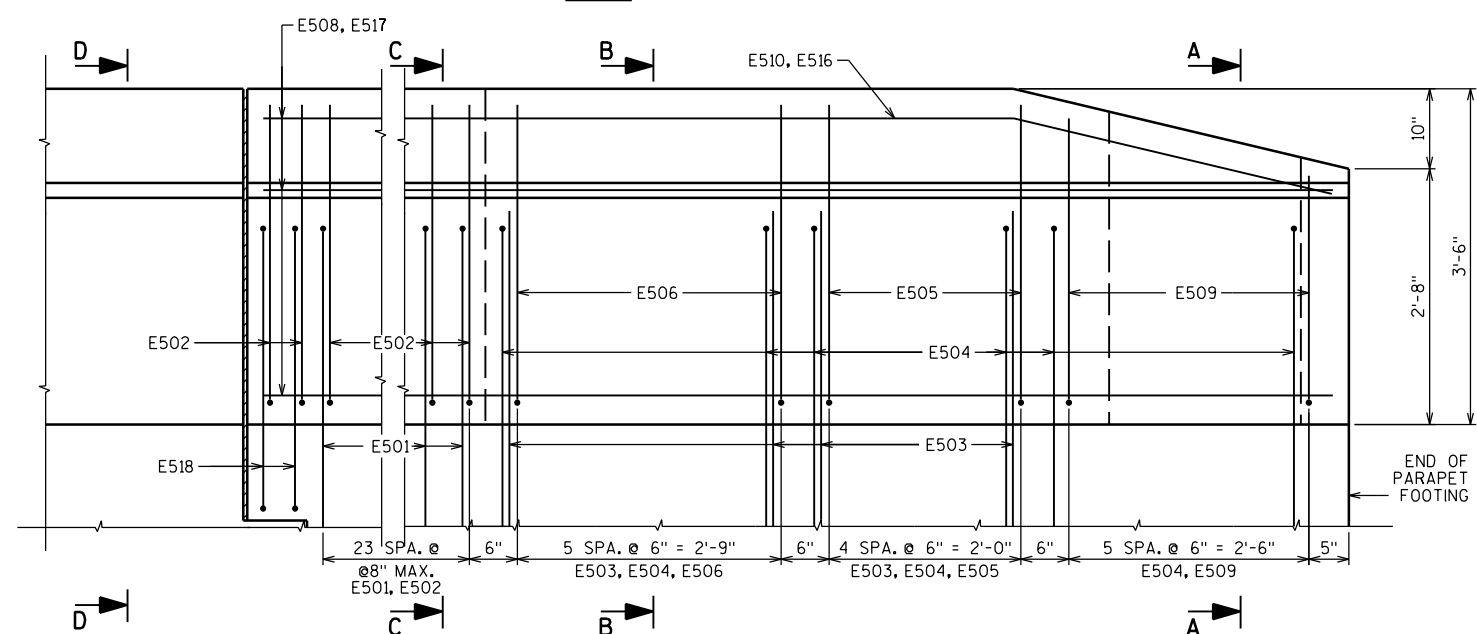
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
DRAWN BY		AMZ	PLANS CK'D. JSR
SINGLE SLOPE PARAPET 42SS - WEST END		SHEET 13 OF 15	



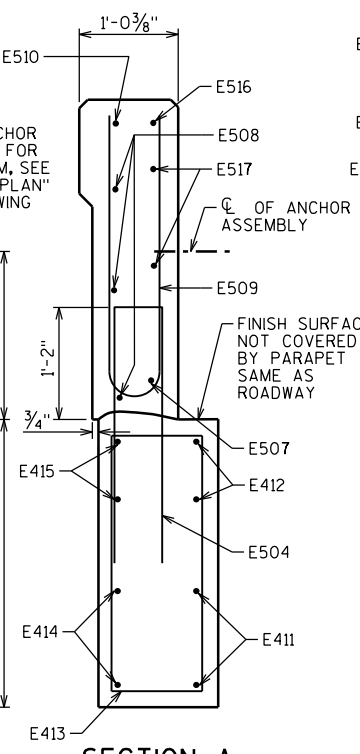
INSIDE ELEVATION



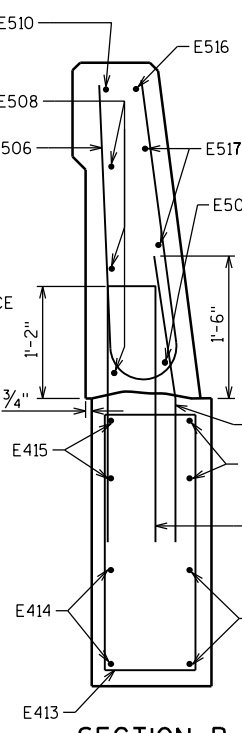
PLAN



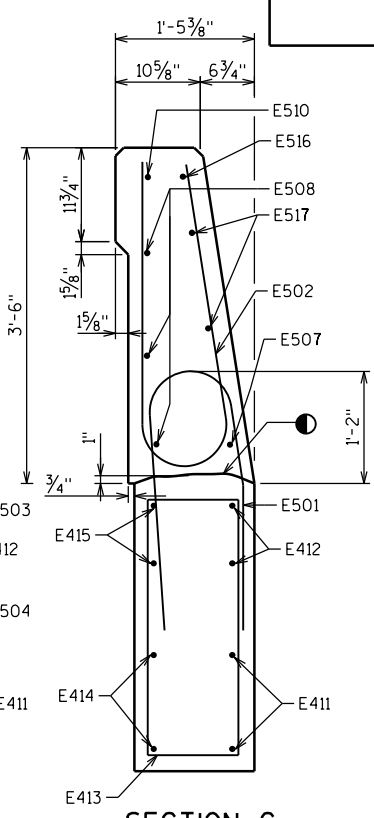
OUTSIDE ELEVATION



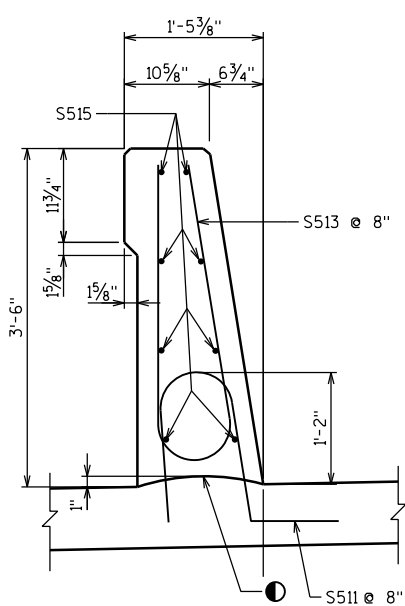
SECTION A



SECTION B



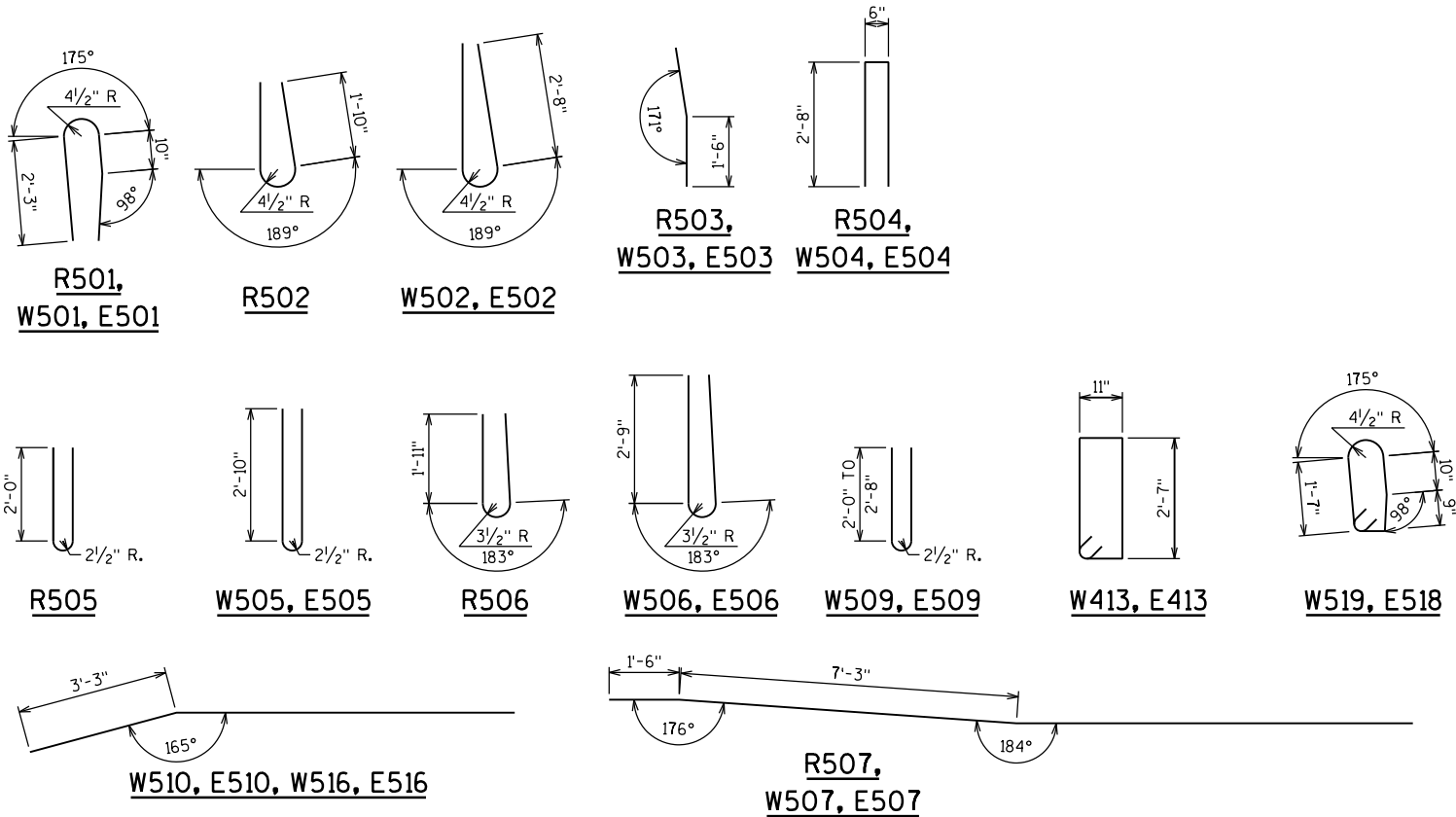
SECTION C



SECTION D

- LEGEND**
- CONST. JOINT - STRIKE OFF AS SHOWN.
 - E503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE E503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
 - ▽ E501 AND E504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
DRAWN BY		AMZ	PLANS CK'D. JSR
SINGLE SLOPE PARAPET 42SS - EAST END		SHEET 14 OF 15	



32 SS PARAPET - BILL OF BARS						COATED TOTAL WEIGHT = 670 LBS
MARK	COATED	NO. REQ'D	LENGTH	BAR SERIES	BENT	LOCATION
R501	X	4	5'-10"		X	PARAPET VERT. AT WINGS
R502	X	4	5'-0"		X	PARAPET VERT. AT WINGS
R503	X	24	3'-0"		X	PARAPET VERT. AT WINGS
R504	X	34	5'-7"		X	PARAPET VERT. AT WINGS
R505	X	34	4'-9"		X	PARAPET VERT. AT WINGS
R506	X	12	4'-10"		X	PARAPET VERT. AT WINGS
R507	X	2	9'-6"		X	PARAPET HORIZ. AT WINGS
R508	X	10	9'-6"			PARAPET HORIZ. AT WINGS

THE NUMBER OF BARS REQUIRED IS THE TOTAL NUMBER FOR BOTH ENDS.
HALF THE NUMBER OF BARS IS FOR EACH END.

42 SS PARAPET WEST END - BILL OF BARS						COATED TOTAL WEIGHT = 580 LBS PLAIN TOTAL WEIGHT = 170 LBS
MARK	COATED	NO. REQ'D	LENGTH	BAR SERIES	BENT	LOCATION
W501	X	12	5'-10"		X	PARAPET VERT.
W502	X	14	6'-8"		X	PARAPET VERT.
W503	X	11	3'-0"		X	PARAPET VERT.
W504	X	17	5'-7"		X	PARAPET VERT.
W505	X	5	6'-5"		X	PARAPET VERT.
W506	X	6	6'-6"		X	PARAPET VERT.
W507	X	1	16'-0"		X	PARAPET HORIZ.
W508	X	3	16'-9"			PARAPET HORIZ.
W509	X	6	5'-5"	X	X	PARAPET VERT.
W510	X	1	16'-10"		X	PARAPET HORIZ.
W411		2	15'-4"			PARAPET FOOTING HORIZ.
W412		2	16'-1"			PARAPET FOOTING HORIZ.
W413		17	7'-8"		X	PARAPET FOOTING STIRRUP
W414		2	16'-0"			PARAPET FOOTING HORIZ.
W415		2	16'-9"			PARAPET FOOTING HORIZ.
W516	X	1	16'-3"		X	PARAPET HORIZ.
W517	X	2	16'-2"			PARPAET HORIZ.
W418	X	16	2'-0"			SURFACE DRAIN ANCHORS
W519	X	2	5'-11"		X	PARAPET VERT. PAVING NOTCH

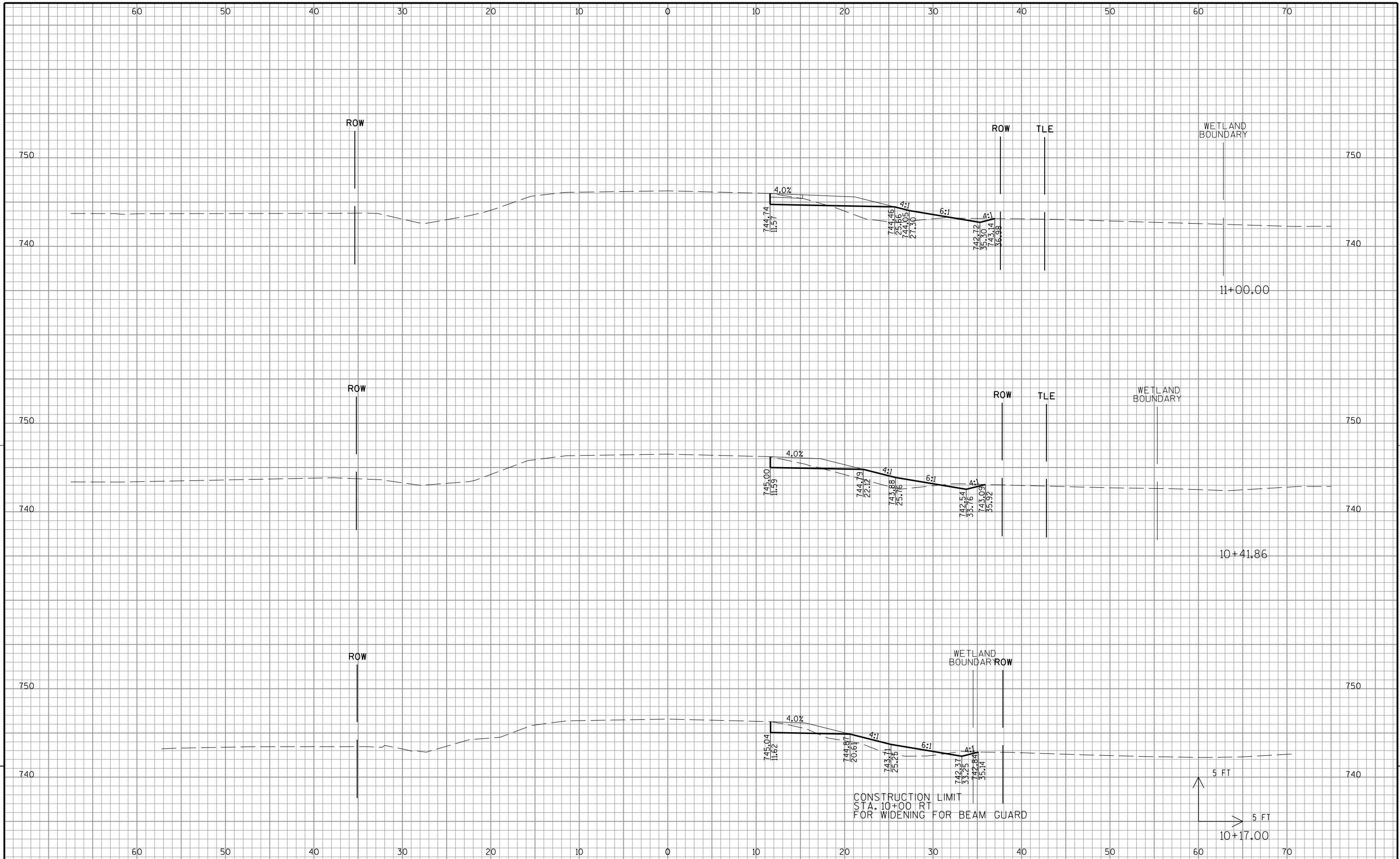
42 SS PARAPET EAST END - BILL OF BARS						COATED TOTAL WEIGHT = 730 LBS PLAIN TOTAL WEIGHT = 330 LBS
MARK	COATED	NO. REQ'D	LENGTH	BAR SERIES	BENT	LOCATION
E501	X	24	5'-10"		X	PARAPET VERT.
E502	X	26	6'-8"		X	PARAPET VERT.
E503	X	11	3'-0"		X	PARAPET VERT.
E504	X	17	5'-7"		X	PARAPET VERT.
E505	X	5	6'-5"		X	PARAPET VERT.
E506	X	6	6'-6"		X	PARAPET VERT.
E507	X	1	24'-6"		X	PARAPET HORIZ.
E508	X	3	24'-1"			PARAPET HORIZ.
E509	X	6	5'-5"	X	X	PARAPET VERT. AT END
E510	X	2	24'-2"		X	PARAPET HORIZ.
E411		2	23'-10"			PARAPET FOOTING HORIZ.
E412		2	24'-7"			PARAPET FOOTING HORIZ.
E413		24	7'-8"		X	PARAPET FOOTING STIRRUP
E414		2	23'-1"			PARAPET FOOTING HORIZ.
E415		2	24'-1"			PARAPET FOOTING HORIZ.
E516		1	24'-3"		X	PARAPET HORIZ.
E517		2	24'-2"			PARAPET HORIZ.
E518	X	2	5'-11"		X	PARAPET VERT. PAVING NOTCH

THE FIRST DIGIT OF A THREE DIGIT BAR MARK INDICATES BAR SIZE.
ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-70-319			
DRAWN BY AMZ		PLANS CK'D. JSR	
SINGLE SLOPE PARAPET - BILL OF BARS		SHEET 15 OF 15	

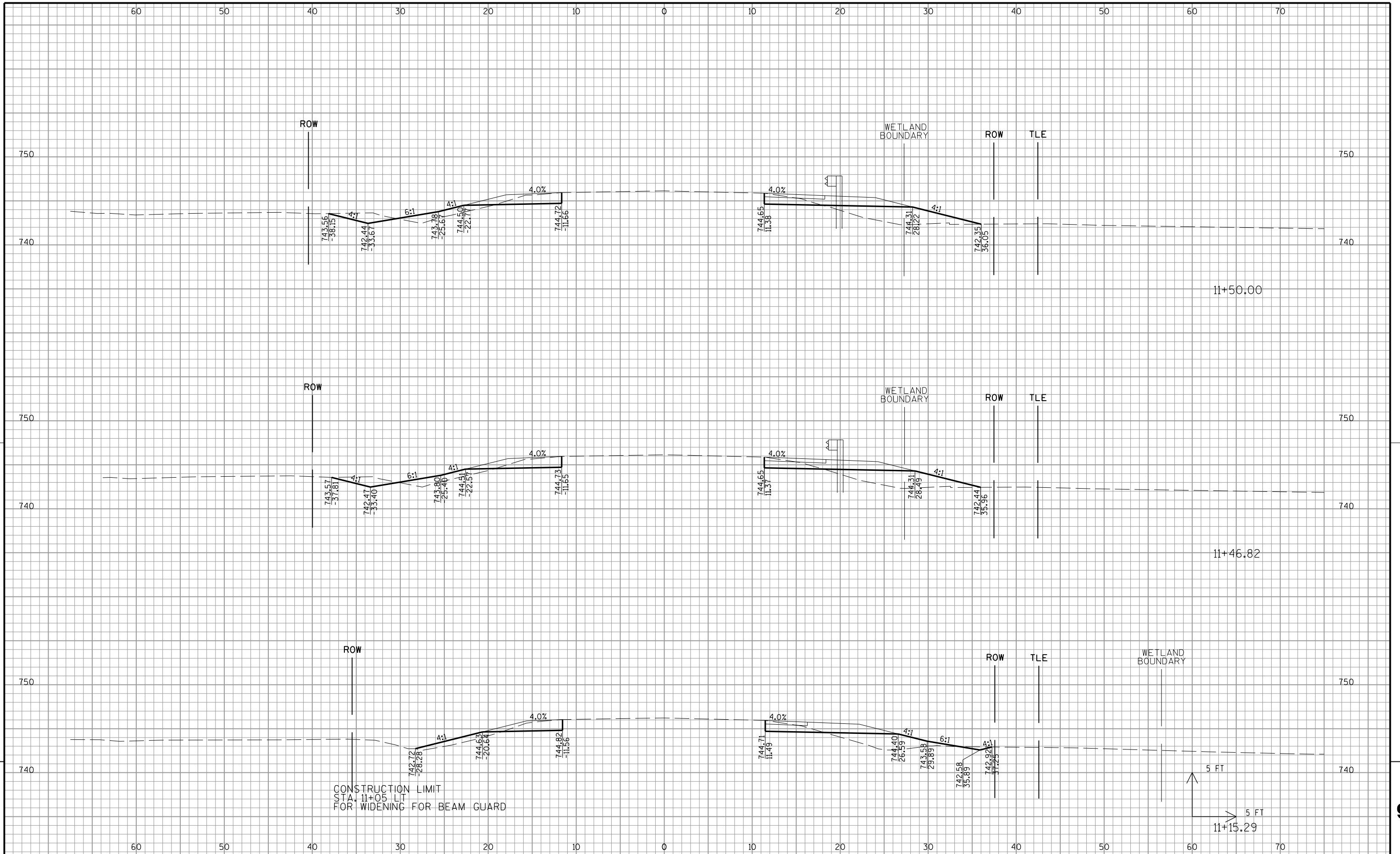
CTH G																		
STATION	Distance	Area					Incremental Volume (Unadjusted)					Cumulative Vol (CY)						Mass Ordinate
		Cut	Salvaged/Unusable Pavement Material	Fill	Marsh Exc	EBS	Salvaged/Unusable					Cut 1.00	Fill 1.25	Expanded Backfill 1.50	Expanded Marsh in Fill 0.60	Reduced Marsh In Fill 0.80	Reduced EBS	
							Note 1	Note 2	Note 3	Exc	EBS							
10+00.00		4.91	0.00	10.75	0.00	0.00												
10+17.00	17.0	4.91	0.00	10.75	0.00	0.00	3.1	0	6.8	0	0	3.1	8.5	0		0	0	-5.4
10+41.86	24.9	5.41	0.00	10.46	0.00	0.00	4.8	0	9.8	0	0	7.8	20.7	0		0	0	-12.8
11+00.00	58.1	5.67	0.00	13.48	0.00	0.00	11.9	0	25.8	0	0	19.8	52.9	0		0	0	-33.1
11+15.29	15.3	11.12	0.00	18.91	0.00	0.00	4.8	0	9.2	0	0	24.5	64.3	0		0	0	-39.8
11+46.82	31.5	15.51	0.00	26.67	0.00	0.00	15.5	0	26.6	0	0	40.1	97.6	0		0	0	-57.5
11+50.00	3.2	15.72	0.00	26.95	0.00	0.00	1.8	0	3.2	0	0	41.9	101.6	0		0	0	-59.6
11+71.82	21.8	18.40	0.00	27.99	0.00	0.00	13.8	0	22.2	0	0	55.7	129.3	0		0	0	-73.6
11+96.82	25.0	18.97	0.00	21.76	0.00	0.00	17.3	0	23.0	0	0	73.0	158.1	0		0	0	-85.1
12+00.00	3.2	21.77	0.00	22.57	0.00	0.00	2.4	0	2.6	0	0	75.4	161.4	0		0	0	-86.0
12+05.86	5.9	21.62	0.00	23.89	0.00	0.00	4.7	0	5.0	0	0	80.1	167.7	0		0	0	-87.6
12+21.82	16.0	24.40	0.00	31.01	0.00	0.00	13.6	0	16.2	0	0	93.7	188.0	0		0	0	-94.2
12+50.00	28.2	10.12	0.00	35.78	0.00	0.00	18.0	0	34.9	0	0	111.7	231.5	0		0	0	-119.8
12+61.02	11.0	9.75	0.00	40.91	0.00	0.00	4.1	0	15.7	0	0	115.8	251.1	0		0	0	-135.3
12+85.90	24.9	9.32	0.00	42.64	0.00	0.00	8.8	0	38.5	0	0	124.6	299.2	0		0	0	-174.6
13+00.00	14.1	37.43	0.00	43.89	0.00	0.00	12.2	0	22.6	0	0	136.8	327.4	0		0	0	-190.7
13+10.90	10.9	43.03	0.00	43.51	0.00	0.00	16.2	0	17.6	0	0	153.0	349.5	0		0	0	-196.5
13+20.26	9.4	40.72	0.00	58.19	0.00	0.00	14.5	0	17.6	0	0	167.5	371.5	0		0	0	-204.0
13+34.19	13.9	44.79	0.00	62.17	0.00	0.00	22.1	0	31.0	0	0	189.6	410.3	0		0	0	-220.8
13+36.99	2.8	35.08	0.00	70.59	0.00	0.00	4.1	0	6.9	0	0	193.7	418.9	0		0	0	-225.2
13+50.00	13.0	32.11	0.00	22.88	0.00	0.00	16.2	0	22.5	0	0	209.9	447.1	0		0	0	-237.2
13+60.92	10.9	10.00	0.00	27.27	0.00	0.00	8.5	0	10.1	0	0	218.4	459.8	0		0	0	-241.3
Nennah Slough																		
14+15.88		11.59	0.00	30.72	0.00	0.00												
14+39.81	23.9	22.15	0.00	89.60	0.00	0.00	15.0	0	53.3	0	0	15.0	66.6	0		0	0	-293.0
14+50.00	10.2	24.11	0.00	57.63	0.00	0.00	8.7	0	27.8	0	0	23.7	101.4	0		0	0	-319.0
14+83.45	33.5	17.61	0.00	62.29	0.00	0.00	25.8	0	74.3	0	0	49.5	194.2	0		0	0	-386.0
15+00.00	16.6	18.77	0.00	58.21	0.00	0.00	11.1	0	36.9	0	0	60.7	240.4	0		0	0	-421.1
15+05.90	5.9	19.61	0.00	61.19	0.00	0.00	4.2	0	13.0	0	0	64.9	256.7	0		0	0	-433.2
15+30.90	25.0	22.86	0.00	60.86	0.00	0.00	19.7	0	56.5	0	0	84.5	327.3	0		0	0	-484.1
15+39.83	8.9	24.05	0.00	57.20	0.00	0.00	7.8	0	19.5	0	0	92.3	351.7	0		0	0	-500.8
15+50.00	10.2	26.05	0.00	55.81	0.00	0.00	9.4	0	21.3	0	0	101.7	378.3	0		0	0	-518.0
15+55.90	5.9	27.26	0.00	54.91	0.00	0.00	5.8	0	12.1	0	0	107.5	393.5	0		0	0	-527.3
15+64.83	8.9	29.89	0.00	50.41	0.00	0.00	9.5	0	17.4	0	0	117.0	415.2	0		0	0	-539.6
15+89.83	25.0	38.88	0.00	26.32	0.00	0.00	31.8	0	35.5	0	0	148.8	459.6	0		0	0	-552.1
16+00.00	10.2	41.01	0.00	23.67	0.00	0.00	15.0	0	9.4	0	0	163.9	471.4	0		0	0	-548.9
16+40.00	40.0	46.65	0.00	16.21	0.00	0.00	64.9	0	29.5	0	0	228.8	508.3	0		0	0	-520.9
16+50.00	10.0	19.10	0.00	13.10	0.00	0.00	12.2	0	5.4	0	0	241.0	515.1	0		0	0	-515.5
17+02.84	52.8	17.56	0.00	5.27	0.00	0.00	35.9	0	18.0	0	0	276.9	537.6	0		0	0	-502.1
17+29.80	27.0	5.79	0.00	0.50	0.00	0.00	11.7	0	2.9	0	0	288.5	541.2	0		0	0	-494.0
17+50.00	20.2	5.79	0.00	0.50	0.00	0.00	4.3	0	0.4	0	0	292.9	541.7	0		0	0	-490.1
							511.3	0	801.1	0	0							

Notes:	
1 - Cut	Pavement material
2 - Salvaged/Unusable Pavement Material	This does not show up in cross sections
3 - Fill	Exc volume
4 - Expanded Marsh Backfill	Will be backfilled with Cut or Borrow
5 - Reduced Marsh in Fill	used in Fill
6 - Reduced EBS in Fill	used in Fill
7 - Mass Ordinate	Cut or Borrow: ((Cut) - ((Fill - Expanded



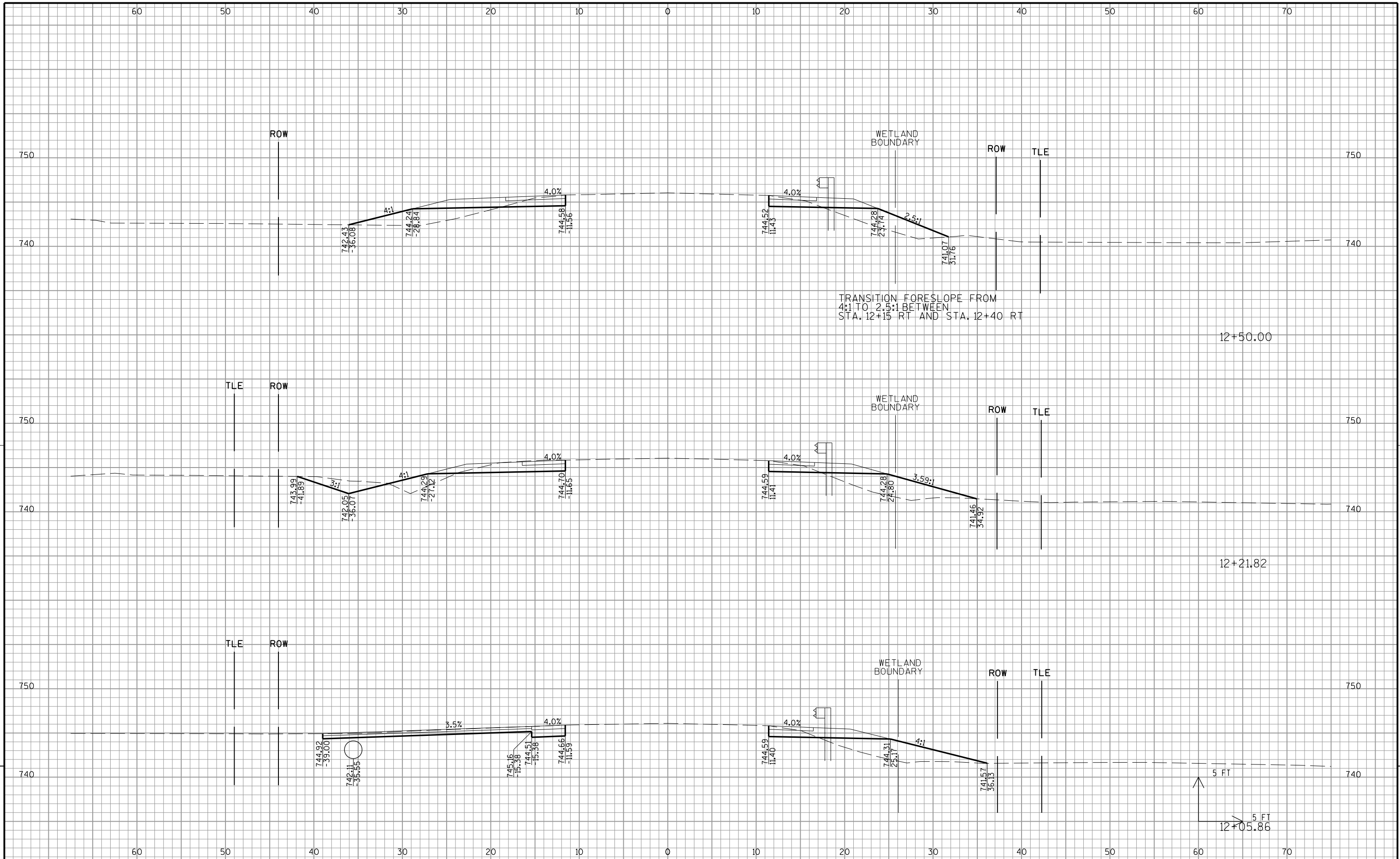
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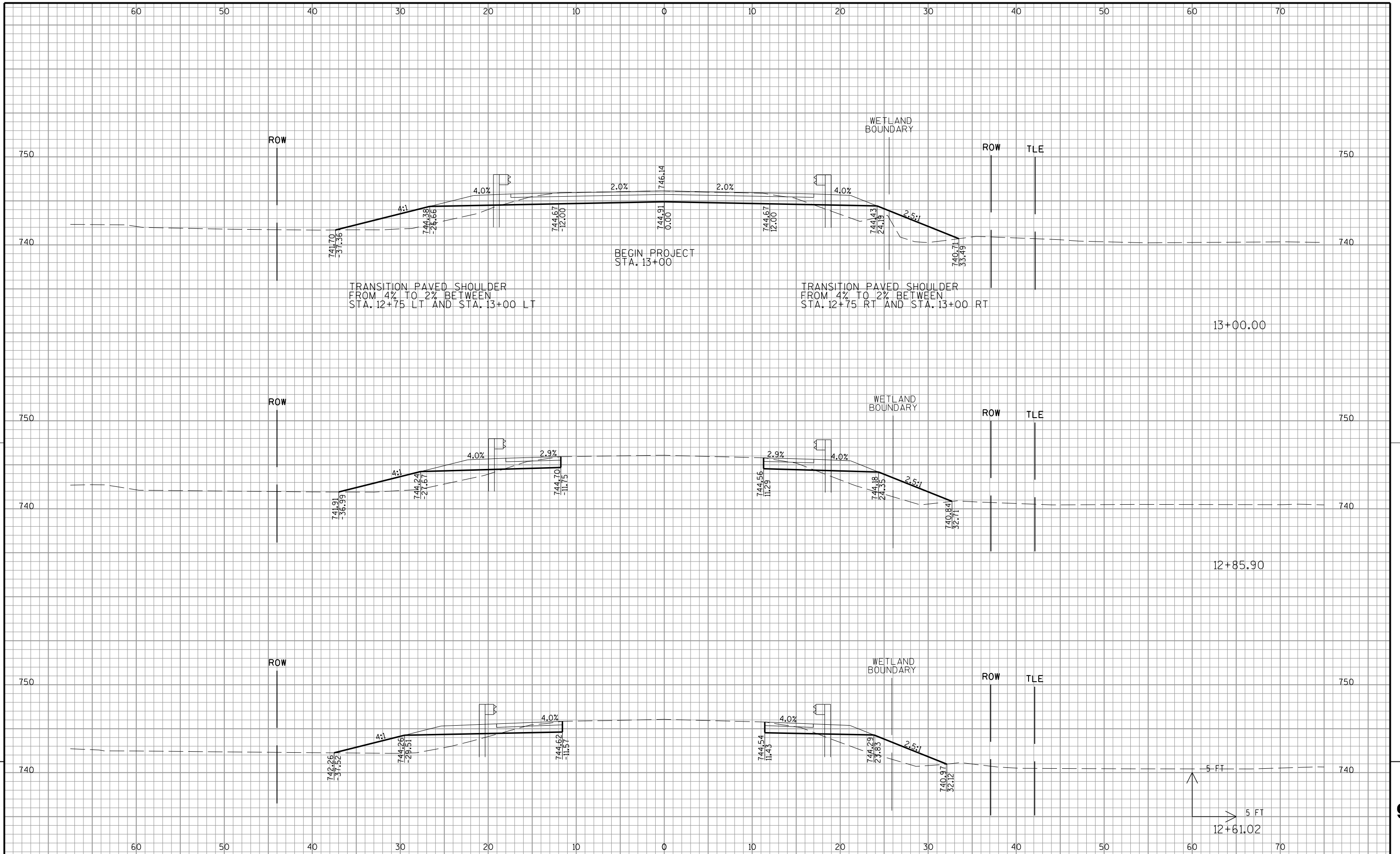
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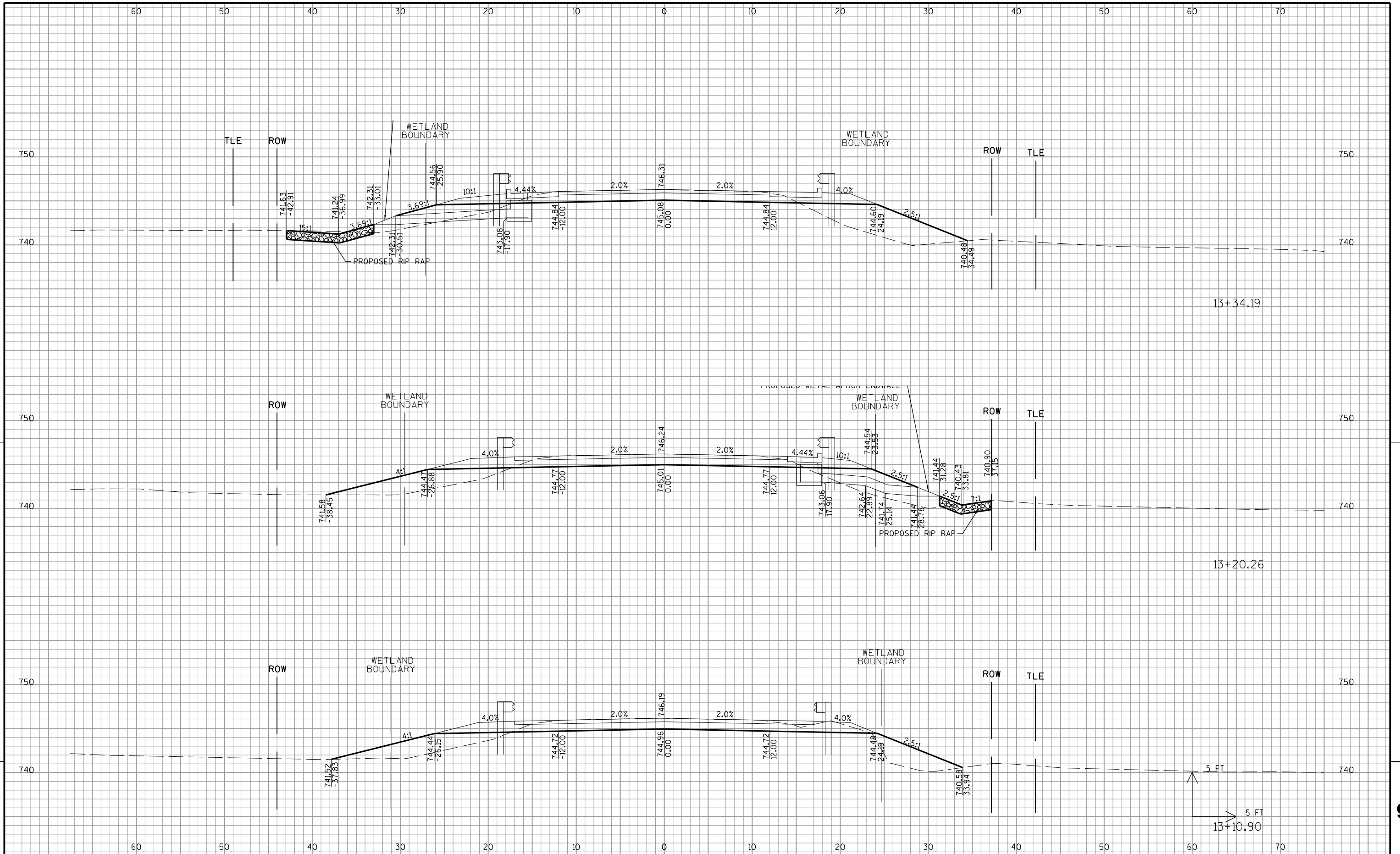
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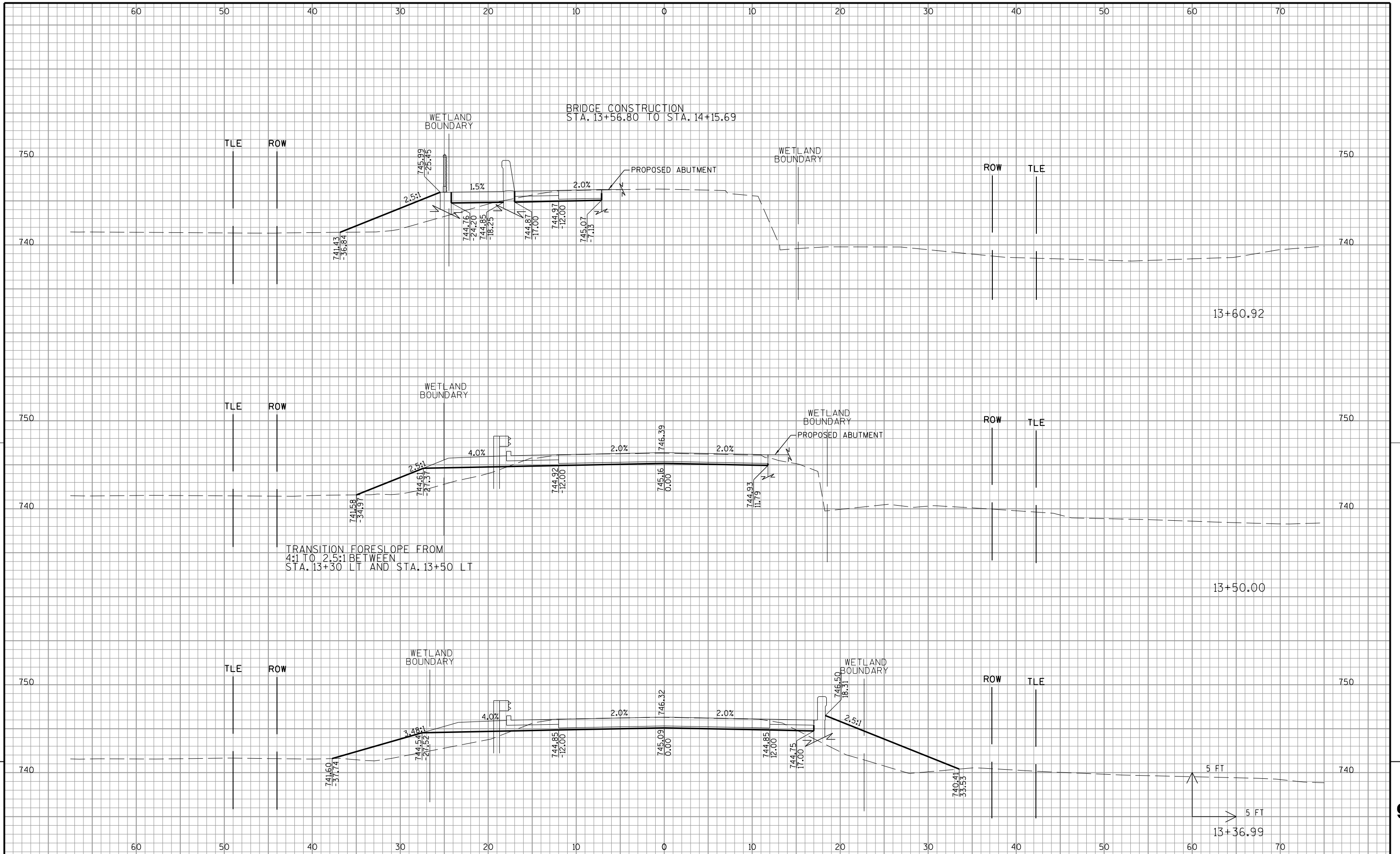


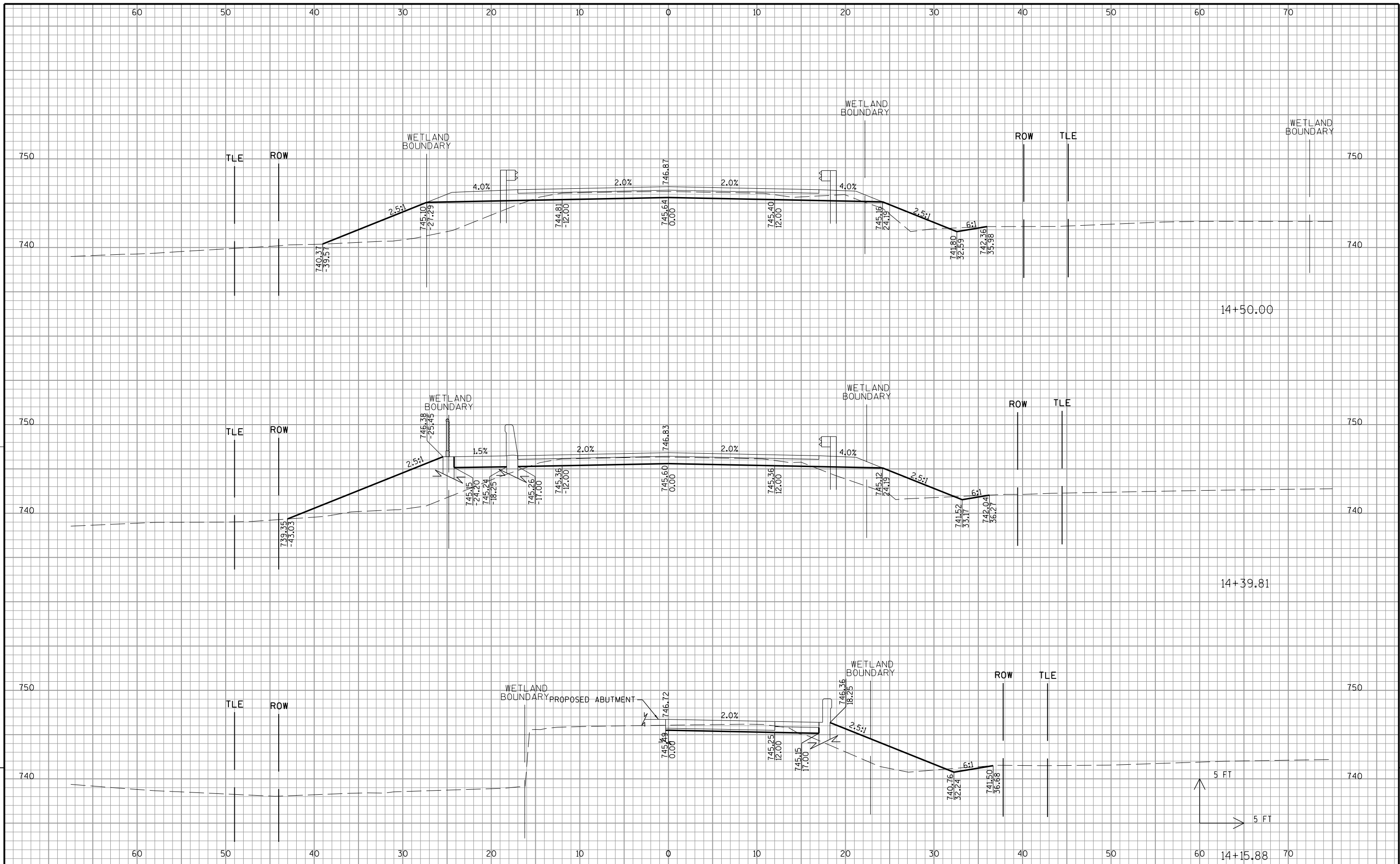
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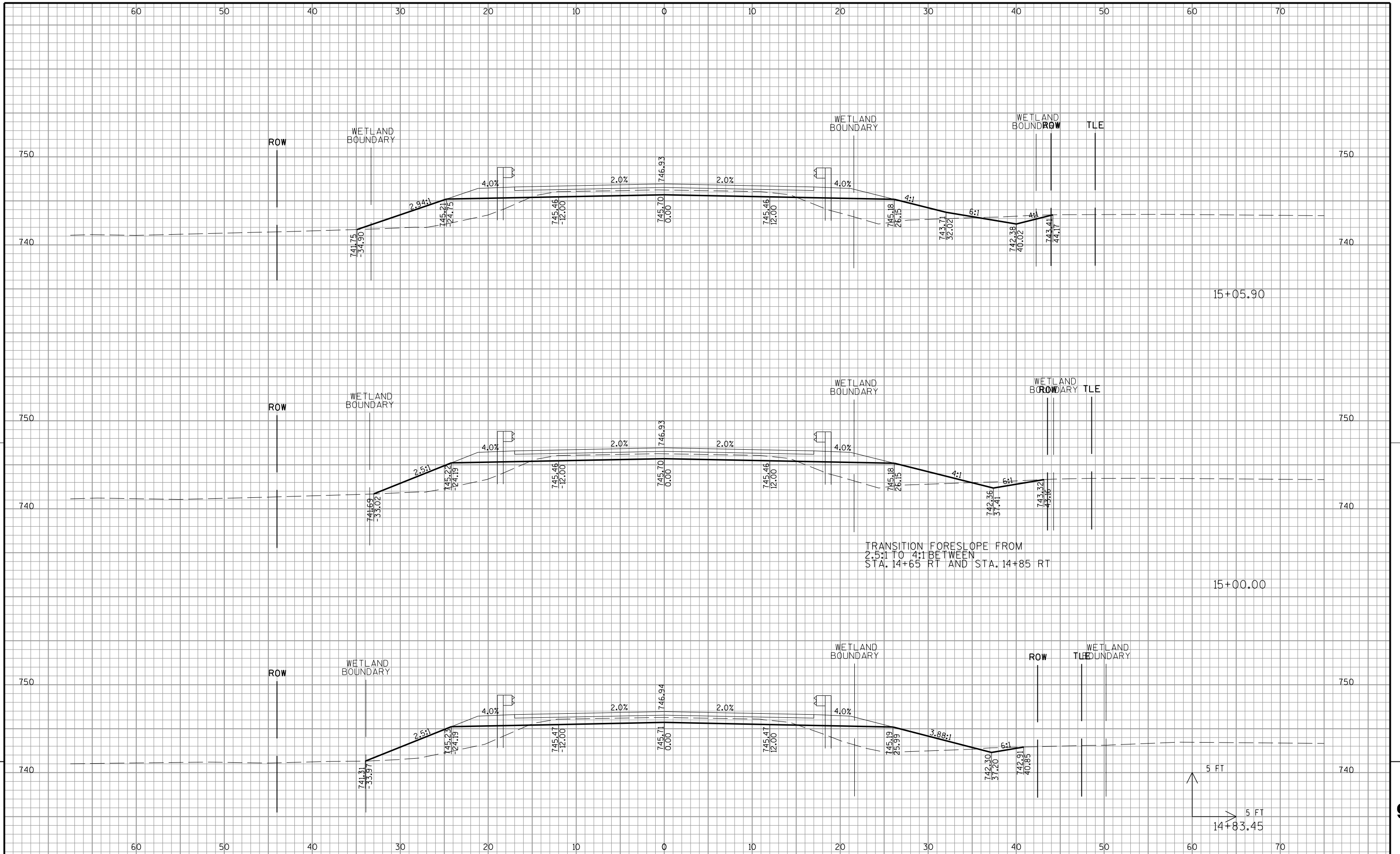






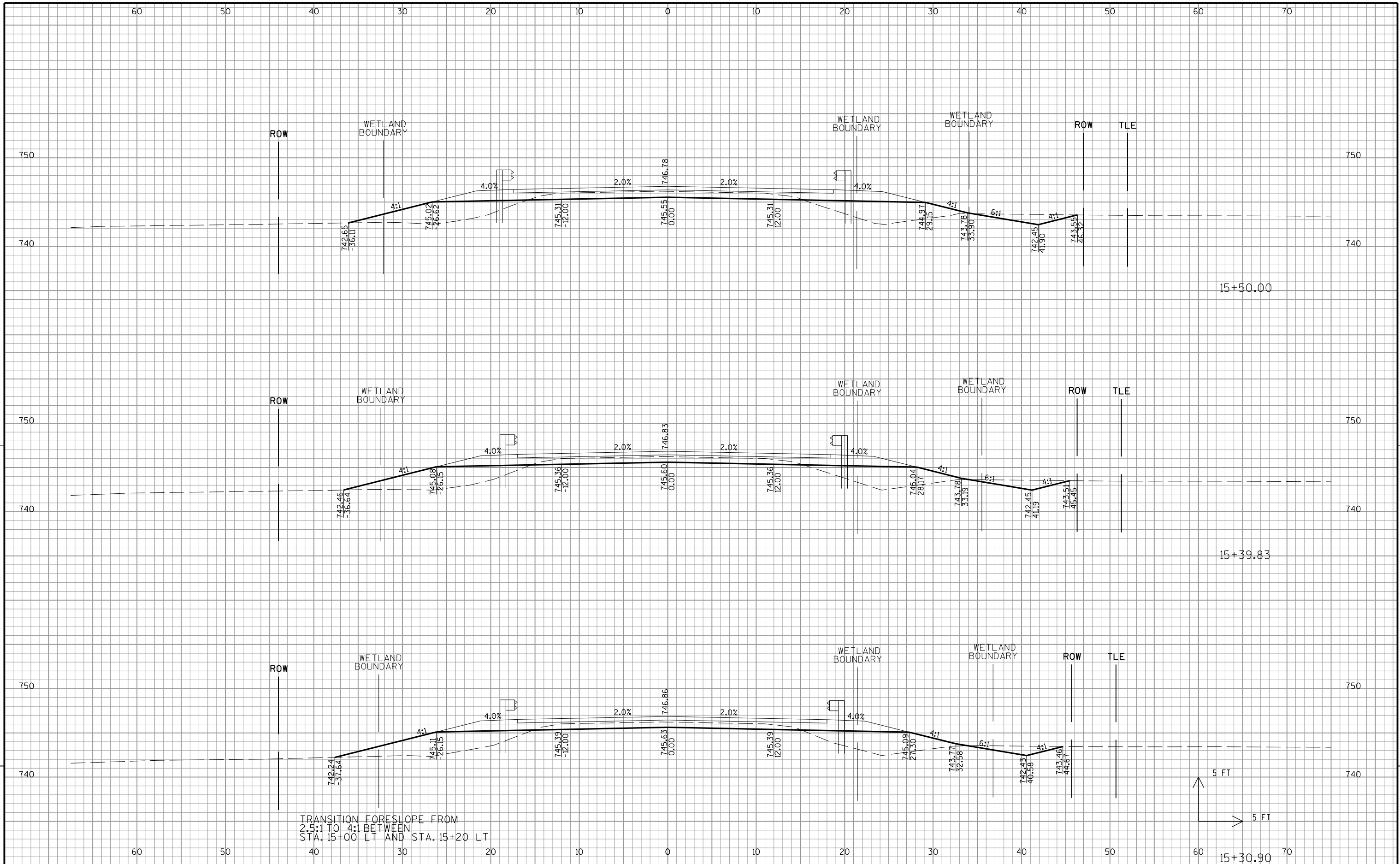
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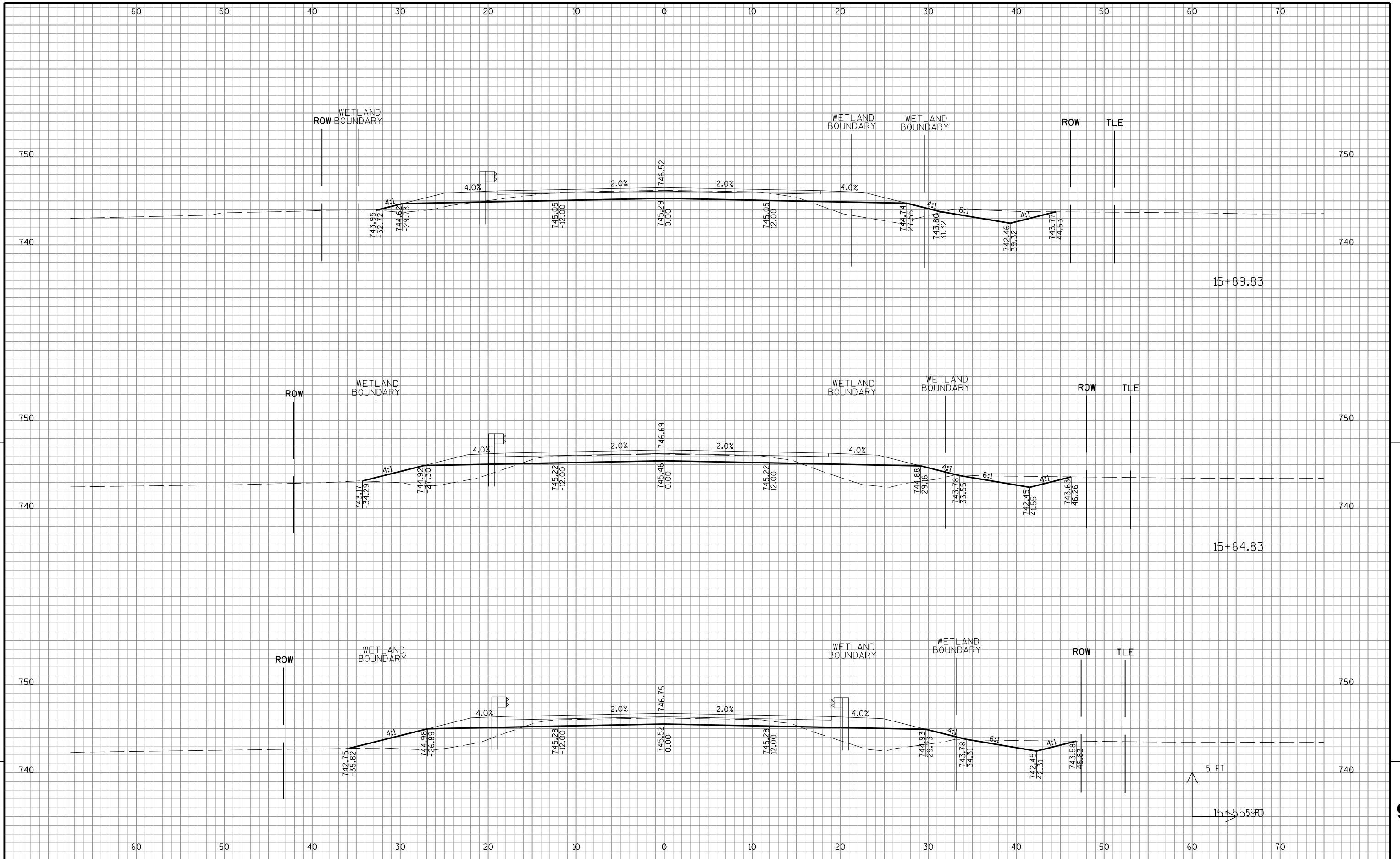
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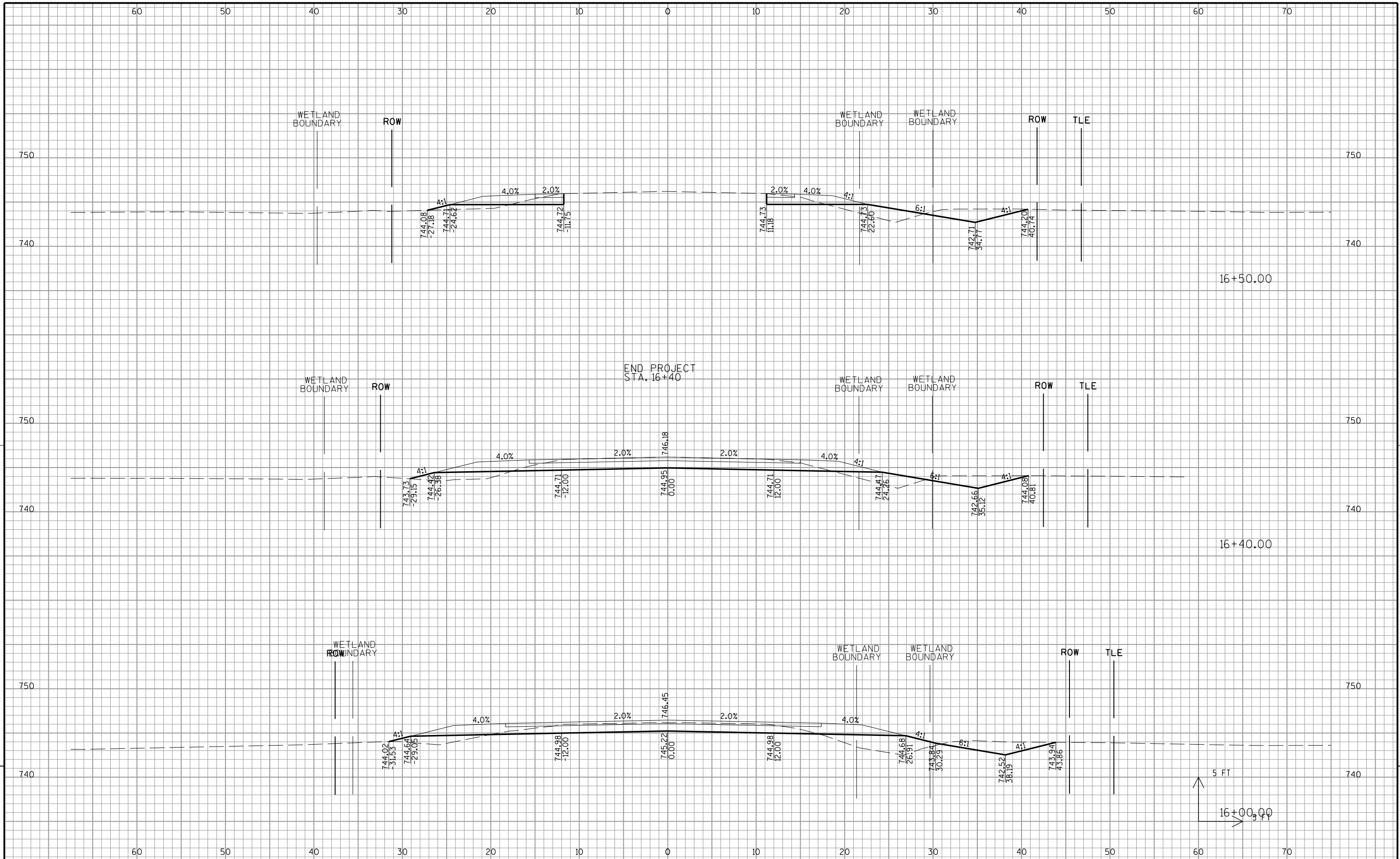
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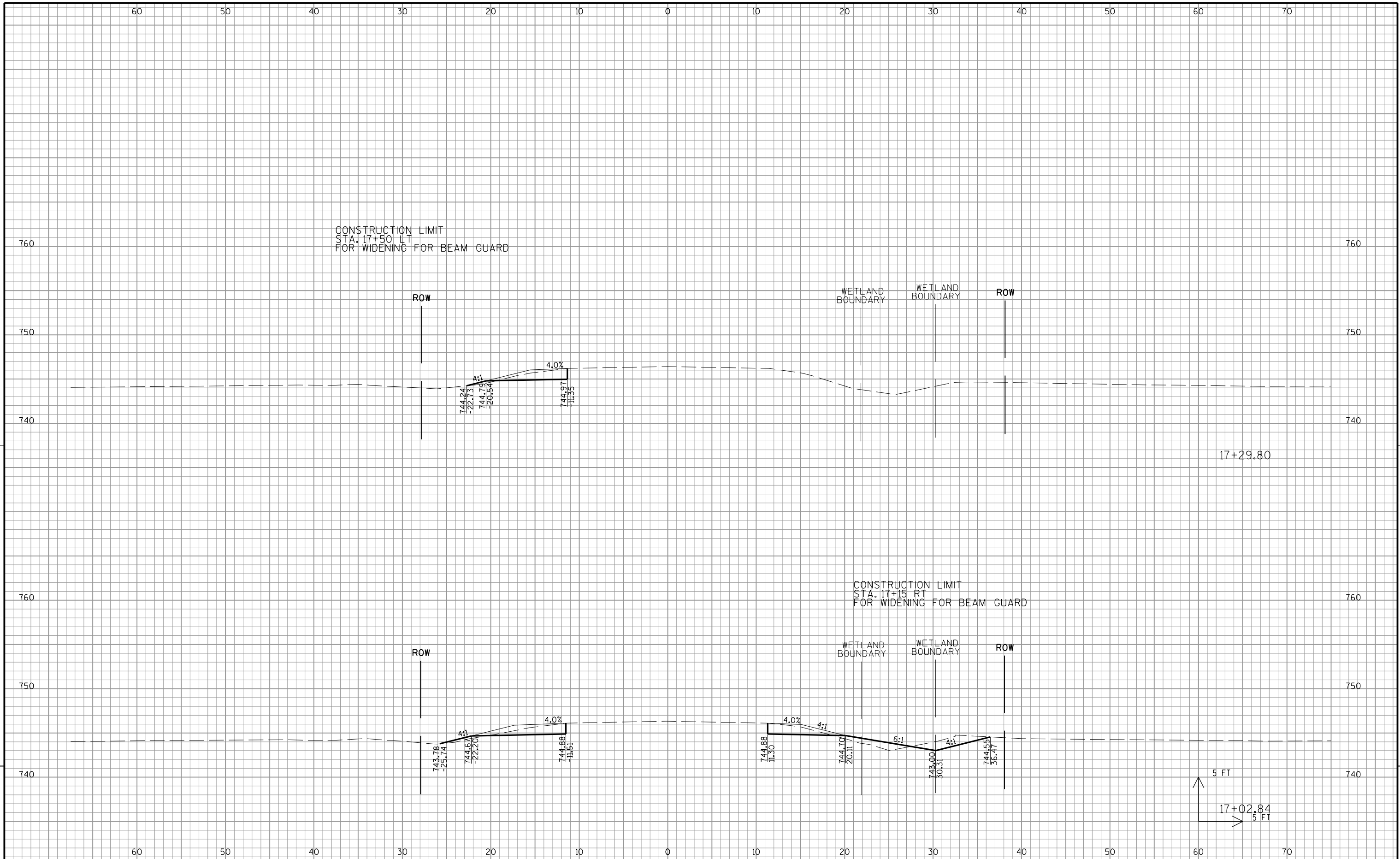
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Notes



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