

SUP

PROJECT ID:
WITH: N/A

8777-00-70

COUNTY:

SAWYER

NOVEMBER 2024

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 (Includes Erosion Control Plan)
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 = 72

PROJECT LOCATION



DESIGN DESIGNATION

A.A.D.T. (2025)	=	620
A.A.D.T. (2045)	=	670
D.H.V.	=	N/A
D.D.	=	50/50
T.	=	8%
DESIGN SPEED	=	55 MPH
ESALS	=	59,000

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	
OVERHEAD	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

COUDERAY TO CTH B

CHIPPEWA FLOWAGE BRIDGE B-57-0049

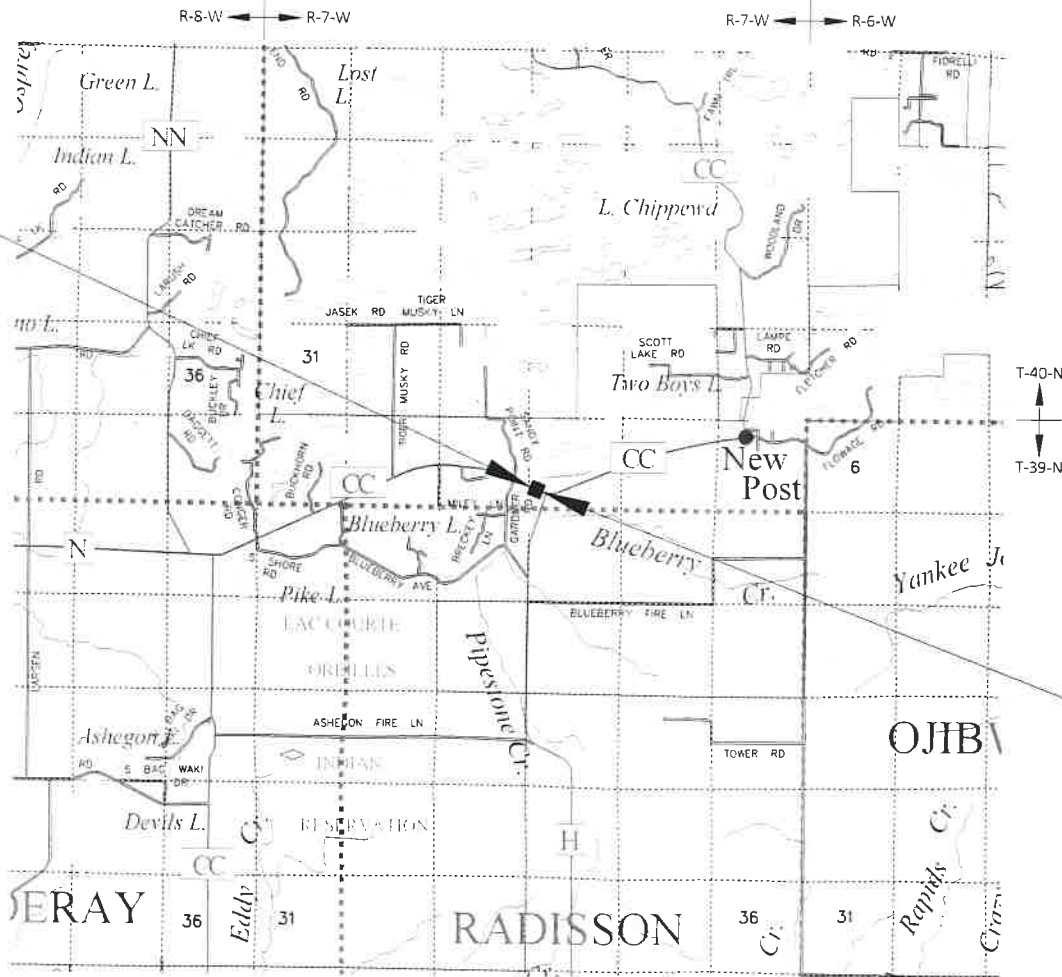
CTH CC

SAWYER COUNTY

STATE PROJECT NUMBER

8777-00-70

BEGIN PROJECT
STA 9+20.00
Y= 391562.210
X= 681243.377



END PROJECT
STA 10+86.00

LAYOUT

SCALE 0 2 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.031 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), SAWYER COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT

8777-00-70

FEDERAL PROJECT

PROJECT

WISC 2025048

CONTRACT

1

ACCEPTED FOR

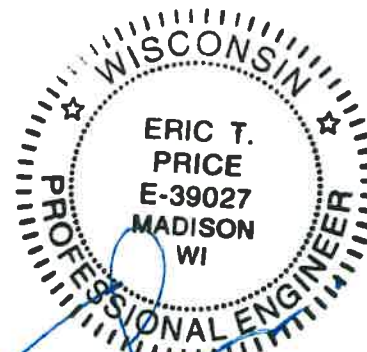
SAWYER COUNTY

Date: 7/30/24
(Signature and Title of Official)

ORIGINAL PLANS PREPARED BY

CORRE
ENGINEERING

MADISON | EAU CLAIRE | WAUKESHA | APPLETON | TOMAH | WAUSAU



July 30, 2024

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	CORRE, INC.
Designer	CORRE, INC.
Project Manager	PAULA GHODOM, PE
Regional Examiner	TOU YANG, PE
Regional Supervisor	TOU YANG, PE

APPROVED FOR THE DEPARTMENT

DATE: 7/31/2024
(Signature)

E

GENERAL NOTES

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

RIGHT OF WAY LINES SHOWN ON THE CROSS SECTIONS ARE APPROXIMATE.

CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.

ASPHALTIC SURFACE WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN.

3-INCH ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH 1.25-INCH UPPER LIFT AND 1.75-INCH LOWER LIFT.

CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY OPERATIONS OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.

DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE TOPSOILED (SALVAGED), FERTILIZED, SEEDED, AND EROSION MAT AS DIRECTED BY THE ENGINEER.

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

D.O.T. BRIDGE BENCHMARK MONUMENT TO BE FURNISHED BY THE STATE AND PLACED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

UTILITY CONTACTS

COMMUNICATIONS

BEVCOMM
RANDY MONNIER
3767 N 4TH ST
WEYERHAEUSER, WI 54895
PHONE: (715) 353-2434
EMAIL: RMONNIER@BEVCOMM.COM

ELECTRICITY

JUMP RIVER ELECTRIC COOPERATIVE
KRAIG GAY
1102 W 9TH ST N
LADYSMITH, WI 54848
PHONE: (715) 532-5524
PHONE (MOBILE): (715) 634-4575
EMAIL: KGAY@JREC.COM

DIGGERSHOTLINE

Dial 811 or (800)242-8511

www.DiggersHotline.com

CONSULTANT CONTACT

CORRE, INC.
1802 WARDEN STREET
EAU CLAIRE, WI 54703

ATTN: MR. ERIC PRICE, P.E.
TELEPHONE: (608) 826-6146
E-MAIL: EPRICE@CORREINC.COM

DNR LIAISON

DEPARTMENT OF NATURAL RESOURCES
DNR NORTHERN REGION HEADQUARTERS
810 W MAPLE STREET
SPOONER, WI 54801

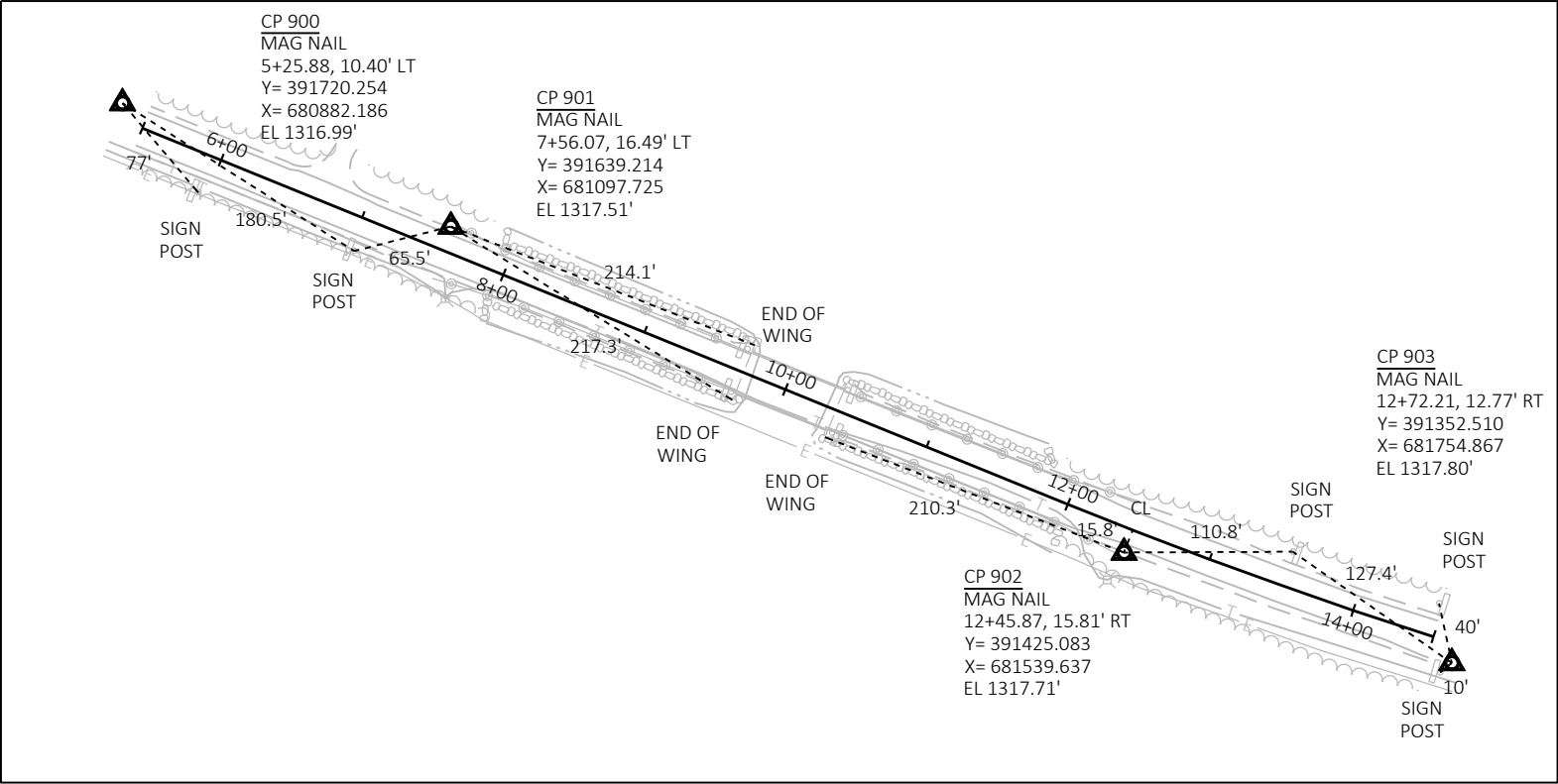
ATTN: MS. SHAWN HASELEU
TELEPHONE: (715) 635-4228
E-MAIL: SHAWN.HASELEU@WISCONSIN.GOV

COUNTY CONTACT

SAWYER COUNTY HIGHWAY COMMISSIONER
JOHN PINNOW
14688 W COUNTY ROAD B
HAYWARD, WI 54843

ATTN: MR. GARY GEDART
TELEPHONE: (715) 492-7180
E-MAIL: JOHN.PINNOW@SAWYERCOUNTYGOV.ORG

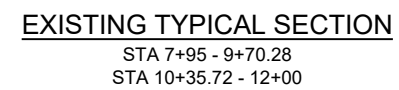
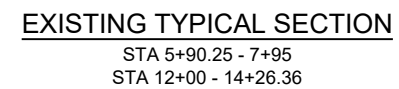
CONTROL POINT TIES

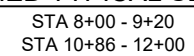
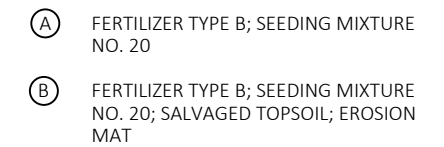


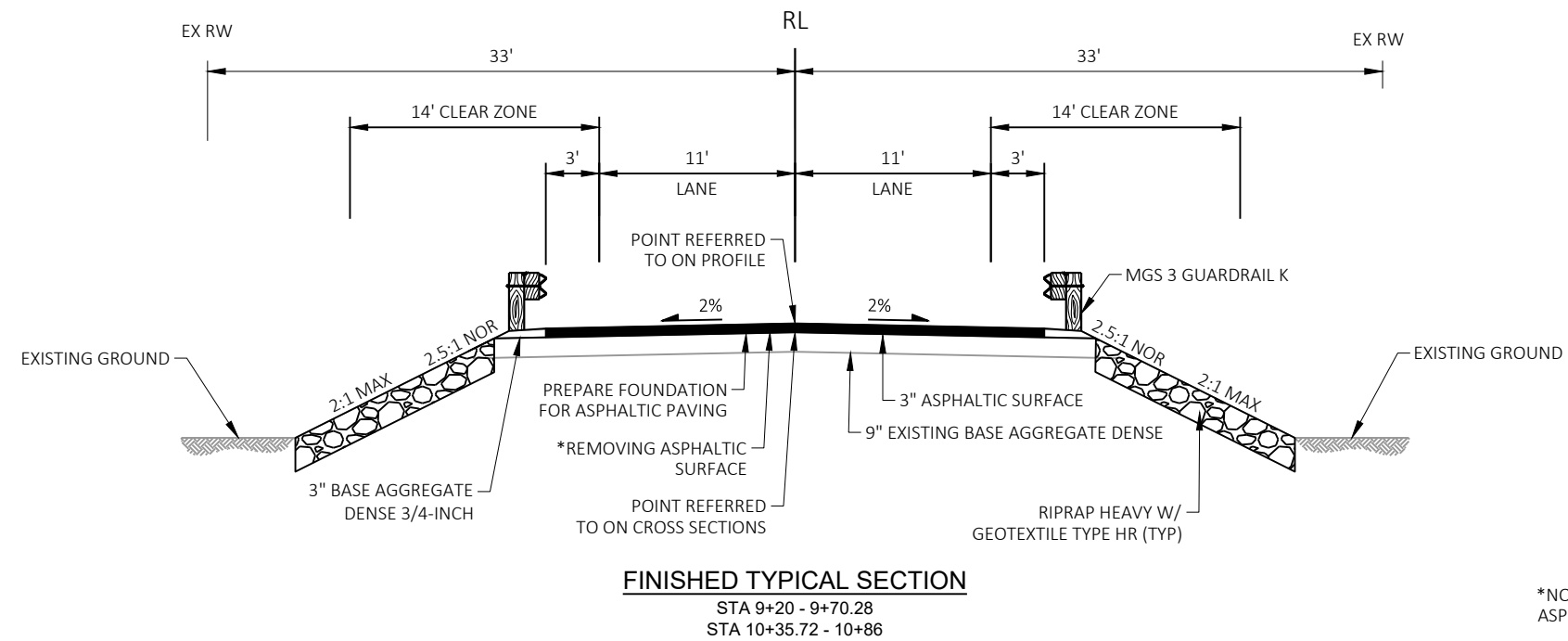
RUNOFF COEFFICIENT TABLE

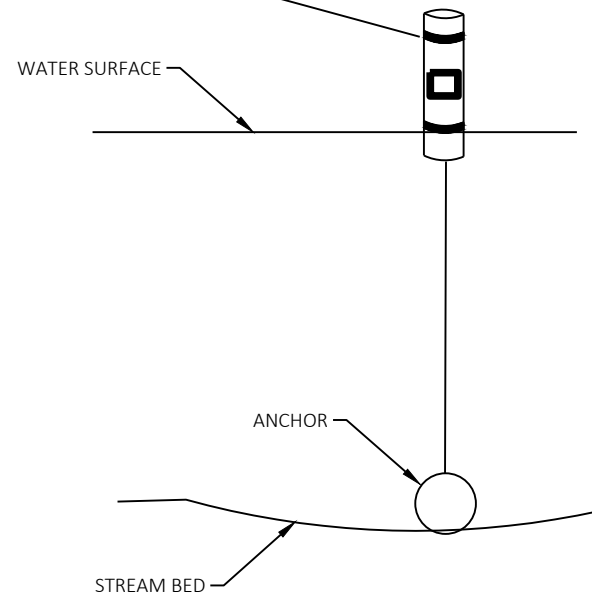
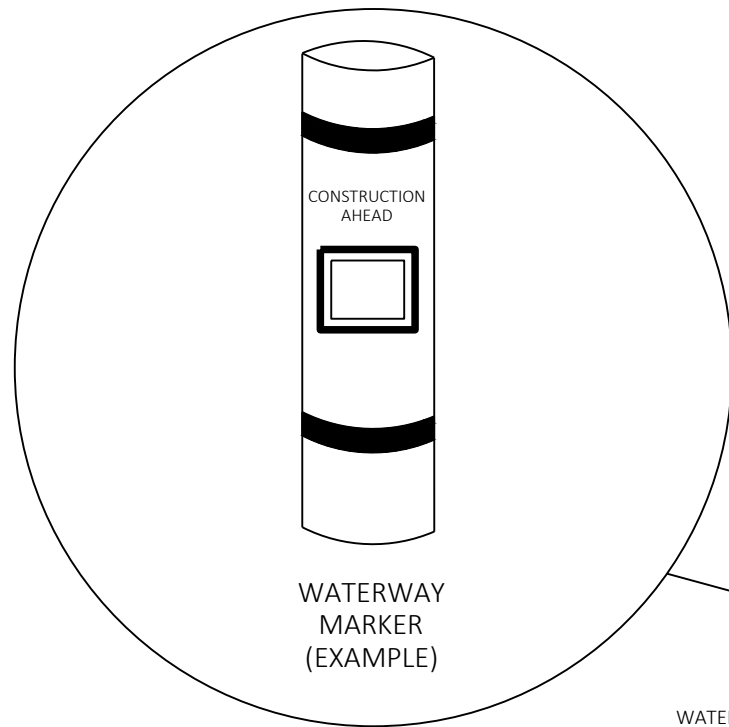
LAND USE:	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS:	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIPTURF:	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPETURF:			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT:	.70 - .95											
CONCRETE:	.80 - .95											
BRICK:	.70 - .80											
DRIVES, WALKS:	.75 - .85											
ROOFS:	.75 - .95											
GRAVEL ROADS, SHOULDERS:	.40 - .60											

TOTAL PROJECT AREA = 1.3 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.42 ACRES

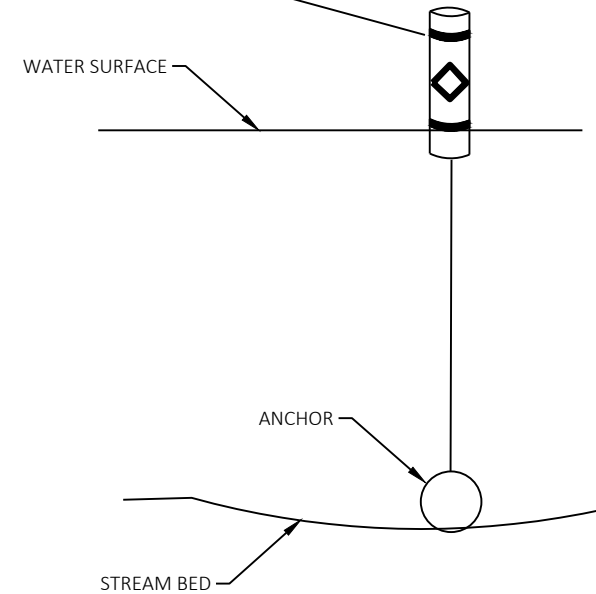
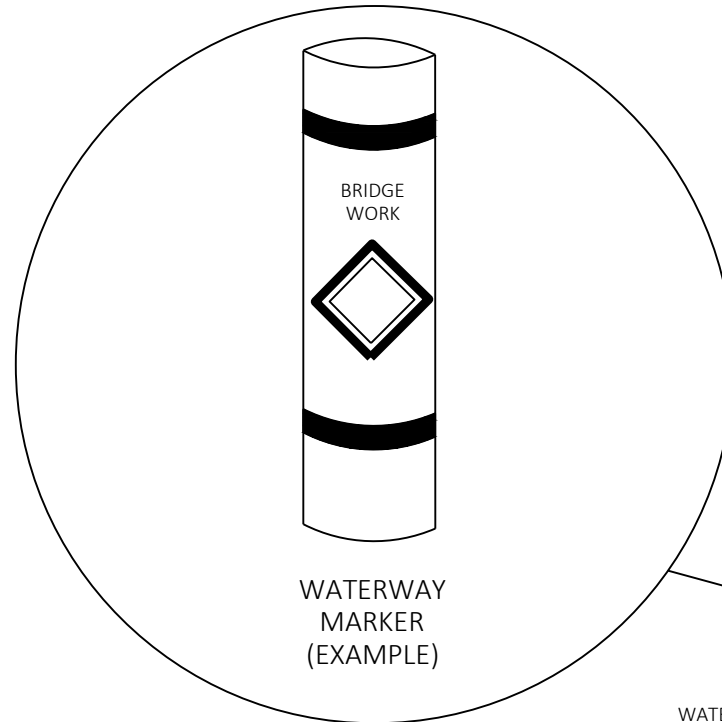








CONSTRUCTION AHEAD MARKER
(TO BE PLACED 200 FEET FROM BRIDGE
UPSTREAM AND DOWNSTREAM)

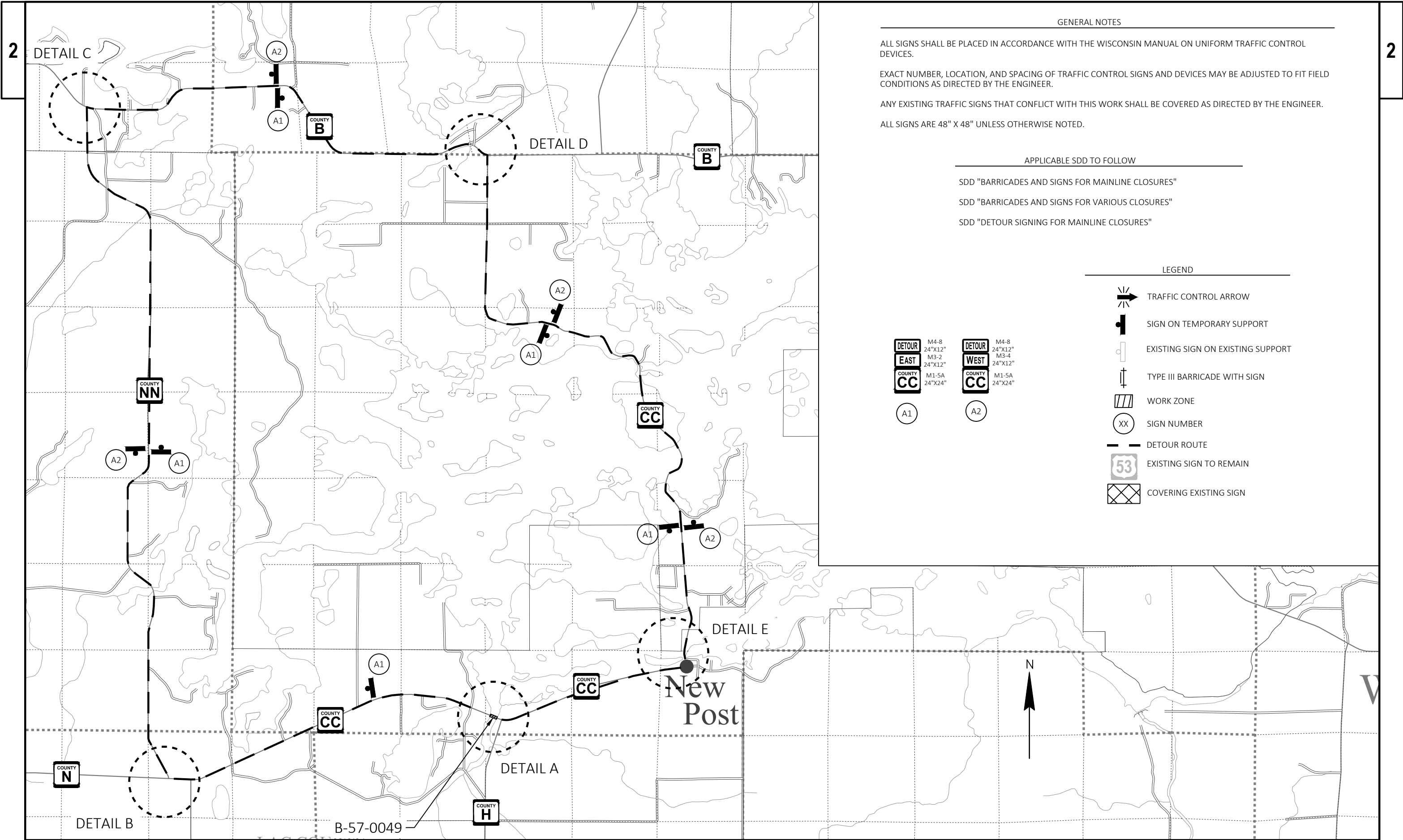


BRIDGE WORK MARKER
(TO BE PLACED 100 FEET FROM BRIDGE
UPSTREAM AND DOWNSTREAM)

NOTES:

1. INSTALL PRIOR TO CONSTRUCTION
2. REMOVE AFTER ALL IN-STREAM WORK IS COMPLETED AND ALL IN-WATER OBSTRUCTIONS SUCH AS COFFERDAMS OR CAUSEWAYS ARE COMPLETELY REMOVED.

WATERWAY MARKER PLACEMENT DETAIL
USE AS DIRECTED BY COAST GUARD OR DNR PERMIT



GENERAL NOTES

ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE WISCONSIN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

EXACT NUMBER, LOCATION, AND SPACING OF TRAFFIC CONTROL SIGNS AND DEVICES MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

ANY EXISTING TRAFFIC SIGNS THAT CONFLICT WITH THIS WORK SHALL BE COVERED AS DIRECTED BY THE ENGINEER.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

APPLICABLE SDD TO FOLLOW

SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES"

SDD "BARRICADES AND SIGNS FOR VARIOUS CLOSURES"

SDD "DETOUR SIGNING FOR MAINLINE CLOSURES"

LEGEND

- TRAFFIC CONTROL ARROW
- SIGN ON TEMPORARY SUPPORT
- EXISTING SIGN ON EXISTING SUPPORT
- TYPE III BARRICADE WITH SIGN
- WORK ZONE
- SIGN NUMBER
- DETOUR ROUTE
- EXISTING SIGN TO REMAIN
- COVERING EXISTING SIGN

DETOUR

EAST

COUNTY CC

A1

DETOUR

WEST

COUNTY CC

A2

M4-8

24"X12"

M3-2

24"X12"

M1-5A

24"X24"

M4-8

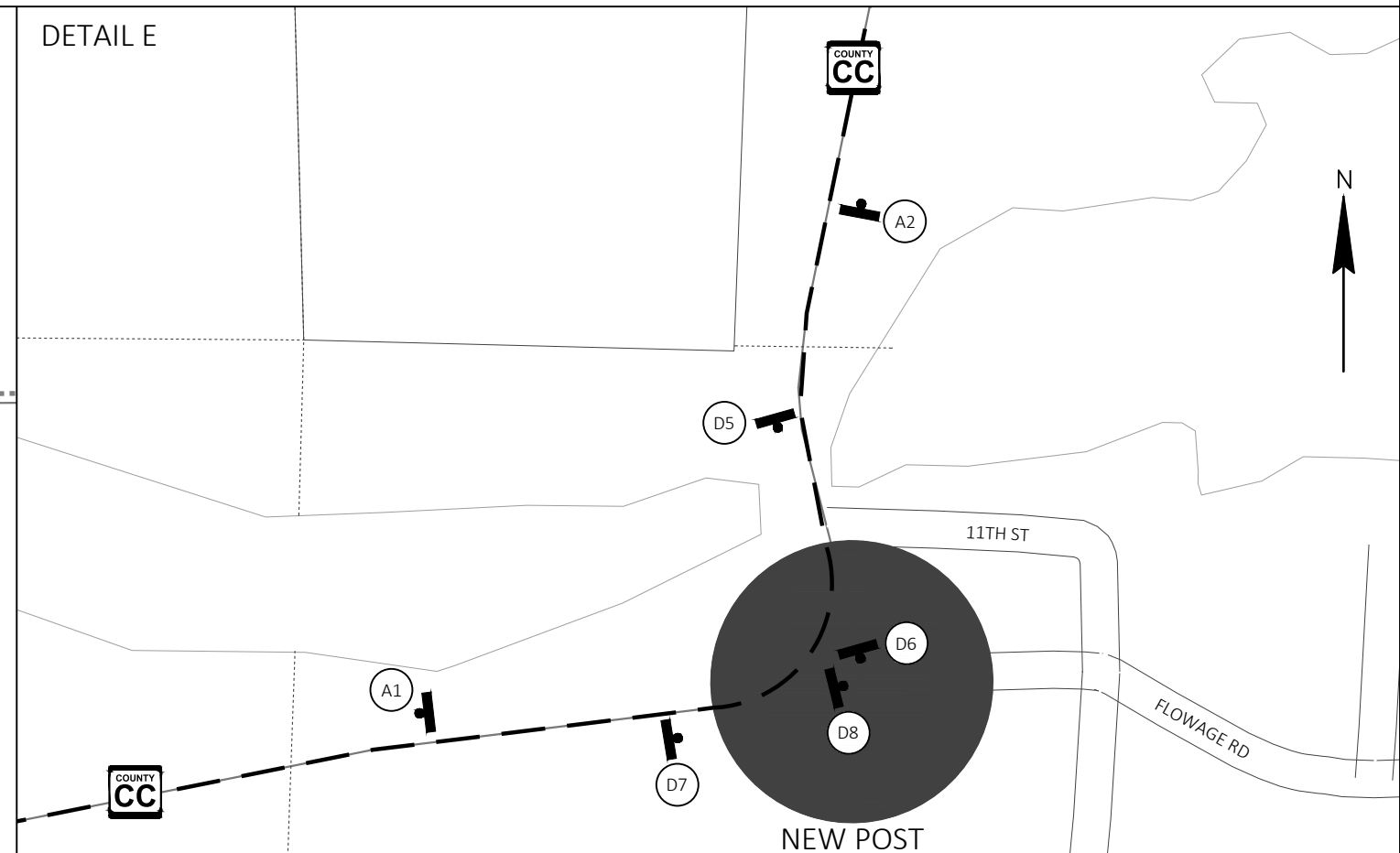
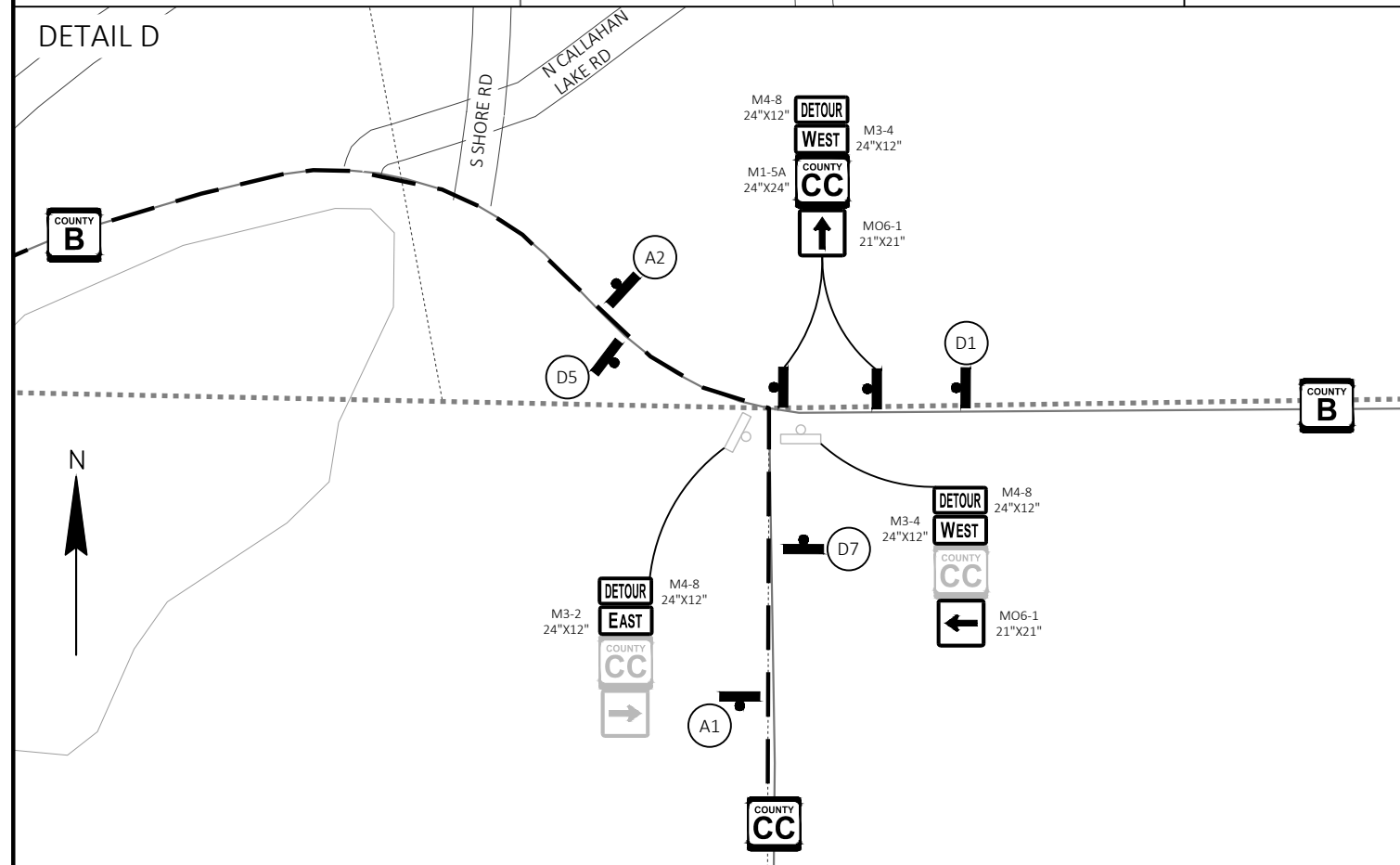
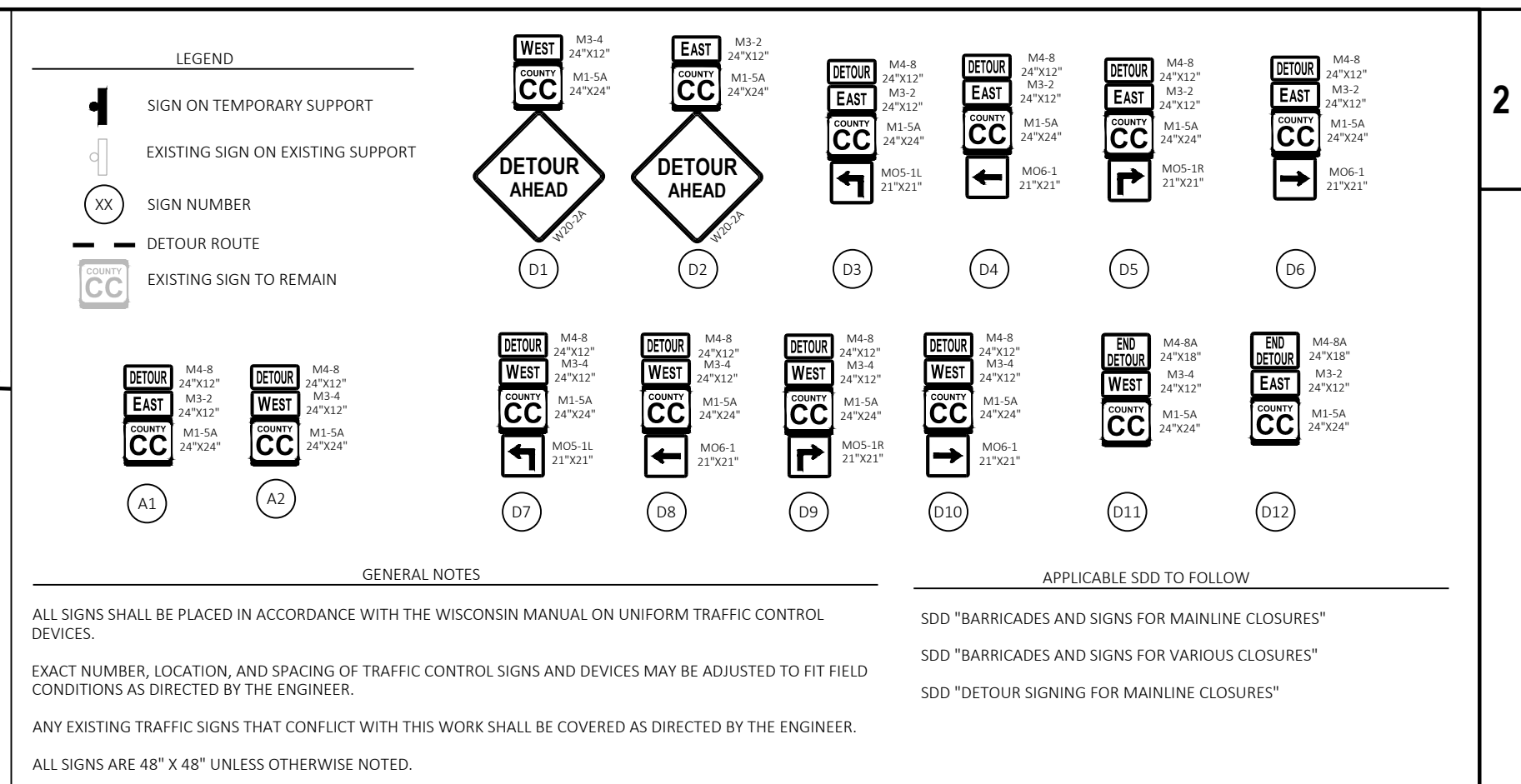
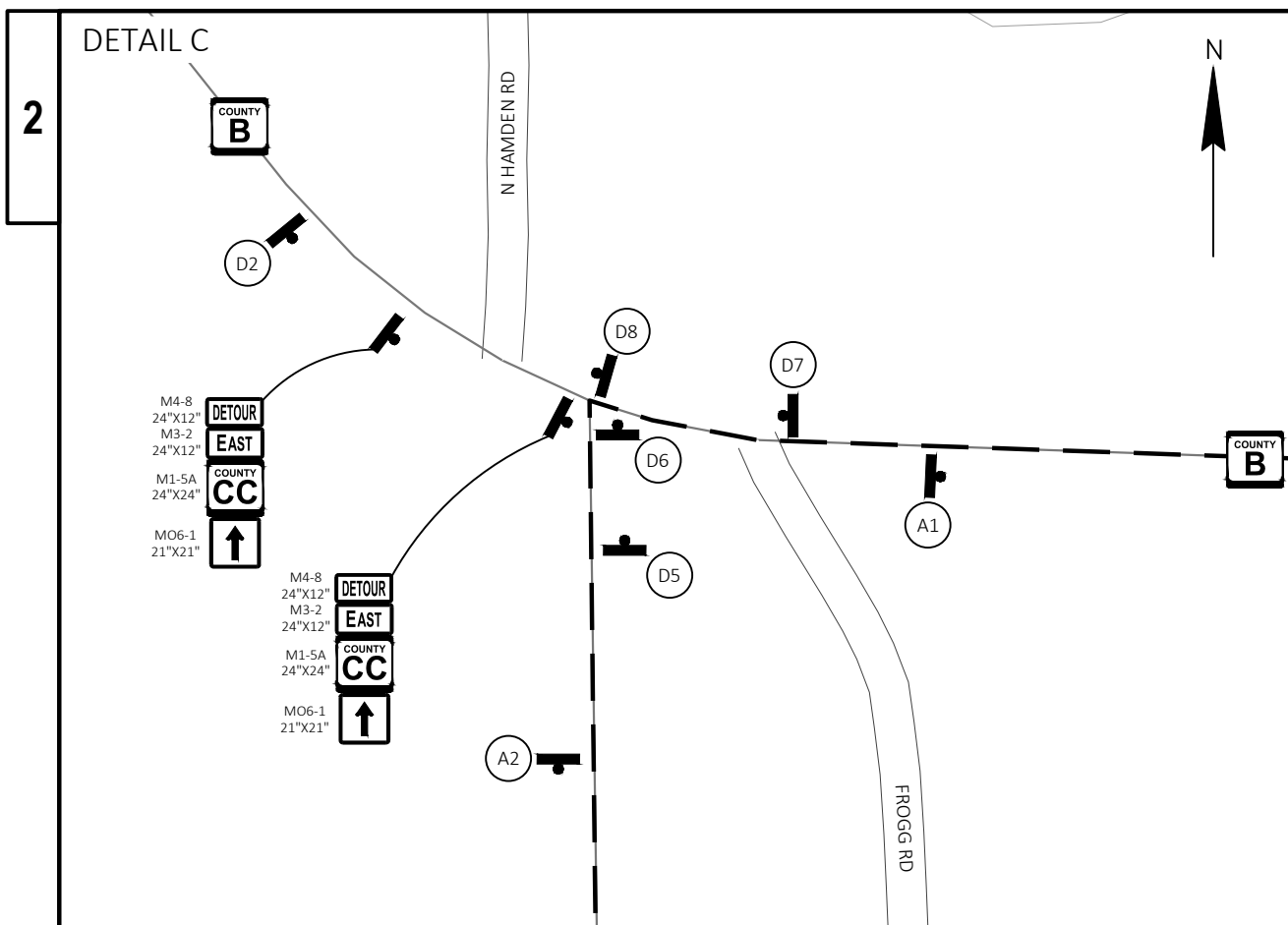
24"X12"

M3-4

24"X12"

M1-5A

24"X24"



Estimate Of Quantities

8777-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	4.000	4.000
0004	201.0205	Grubbing	STA	4.000	4.000
0006	203.0270	Removing Structure Over Waterway Debris Capture (structure) 01. B-57-49	EACH	1.000	1.000
0008	204.0110	Removing Asphaltic Surface	SY	289.000	289.000
0010	204.0165	Removing Guardrail	LF	851.000	851.000
0012	205.0100	Excavation Common	CY	707.000	707.000
0014	206.1001	Excavation for Structures Bridges (structure) 01. B-57-49	EACH	1.000	1.000
0016	208.0100	Borrow	CY	205.000	205.000
0018	210.1500	Backfill Structure Type A	TON	70.000	70.000
0020	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 8777-00-70	EACH	1.000	1.000
0022	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	14.000	14.000
0024	213.0100	Finishing Roadway (project) 01. 8777-00-70	EACH	1.000	1.000
0026	305.0110	Base Aggregate Dense 3/4-Inch	TON	135.000	135.000
0028	455.0605	Tack Coat	GAL	60.000	60.000
0030	465.0105	Asphaltic Surface	TON	140.000	140.000
0032	502.0100	Concrete Masonry Bridges	CY	116.000	116.000
0034	502.3200	Protective Surface Treatment	SY	260.000	260.000
0036	502.3215	Protective Surface Treatment Reseal	SY	10.000	10.000
0038	502.4204	Adhesive Anchors No. 4 Bar	EACH	16.000	16.000
0040	502.4205	Adhesive Anchors No. 5 Bar	EACH	98.000	98.000
0042	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	21,280.000	21,280.000
0044	513.4061	Railing Tubular Type M	LF	137.000	137.000
0046	516.0500	Rubberized Membrane Waterproofing	SY	14.000	14.000
0048	517.3001.S	Structure Overcoating Cleaning and Priming (structure) 01. B-57-49	EACH	1.000	1.000
0050	517.4001.S	Containment and Collection of Waste Materials (structure) 01. B-57-49	EACH	1.000	1.000
0052	517.6001.S	Portable Decontamination Facility	EACH	1.000	1.000
0054	606.0300	Riprap Heavy	CY	705.000	705.000
0056	614.2300	MGS Guardrail 3	LF	187.500	187.500
0058	614.2330	MGS Guardrail 3 K	LF	587.500	587.500
0060	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0062	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0064	618.0100	Maintenance and Repair of Haul Roads (project) 01. 8777-00-70	EACH	1.000	1.000
0066	619.1000	Mobilization	EACH	1.000	1.000
0068	625.0500	Salvaged Topsoil	SY	325.000	325.000
0070	628.1504	Silt Fence	LF	815.000	815.000
0072	628.1520	Silt Fence Maintenance	LF	815.000	815.000
0074	628.2008	Erosion Mat Urban Class I Type B	SY	325.000	325.000
0076	628.6005	Turbidity Barriers	SY	450.000	450.000
0078	629.0210	Fertilizer Type B	CWT	0.320	0.320
0080	630.0120	Seeding Mixture No. 20	LB	15.000	15.000
0082	630.0500	Seed Water	MGAL	10.000	10.000
0084	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0086	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0088	638.2102	Moving Signs Type II	EACH	1.000	1.000
0090	638.2602	Removing Signs Type II	EACH	4.000	4.000
0092	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0094	638.4000	Moving Small Sign Supports	EACH	1.000	1.000
0096	642.5001	Field Office Type B	EACH	1.000	1.000
0098	643.0420	Traffic Control Barricades Type III	DAY	870.000	870.000

Estimate Of Quantities

8777-00-70

Line	Item	Item Description	Unit	Total	Qty
0100	643.0705	Traffic Control Warning Lights Type A	DAY	1,276.000	1,276.000
0102	643.0900	Traffic Control Signs	DAY	10,498.000	10,498.000
0104	643.0920	Traffic Control Covering Signs Type II	EACH	5.000	5.000
0106	643.5000	Traffic Control	EACH	1.000	1.000
0108	645.0120	Geotextile Type HR	SY	1,020.000	1,020.000
0110	646.1020	Marking Line Epoxy 4-Inch	LF	2,004.000	2,004.000
0112	650.6501	Construction Staking Structure Layout (structure) 01. B-57-49	EACH	1.000	1.000
0114	650.8000	Construction Staking Resurfacing Reference	LF	836.000	836.000
0116	650.9911	Construction Staking Supplemental Control (project) 01. 8777-00-70	EACH	1.000	1.000
0118	650.9920	Construction Staking Slope Stakes	LF	896.000	896.000
0120	690.0150	Sawing Asphalt	LF	1,207.000	1,207.000
0122	715.0502	Incentive Strength Concrete Structures	DOL	696.000	696.000
0124	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 10+03	EACH	1.000	1.000
0126	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0128	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000

3

STATION	TO	STATION	LOCATION	STA	STA
6+00	-	8+00	WEST APPROACH	3	3
11+50	-	12+50	EAST APPROACH	1	1
TOTAL 0010				4	4

STATION	TO	STATION	LOCATION	SY
9+20	-	9+73	WEST APPROACH	138
10+33	-	10+86	EAST APPROACH	151
TOTAL 0010				289

STATION	TO	STATION	LOCATION	LF
7+57	-	9+72	WEST APPROACH	428
10+33	-	12+48	EAST APPROACH	423
TOTAL 0010				851

3

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL (3)	AVAILABLE MATERIAL (4)	UNEXPANDED FILL	EXPANDED FILL (5)	MASS ORDINATE +/- (6)	208.0100 BORROW
			CUT (2)	EBS EXCAVATION				FACTOR 1.25		
DIVISION 1 – CTH CC	5+50 TO 14+46	CTH CC	707		707	0	164	205	-205	205
DIVISION 1 SUBTOTAL			707	0	707	0	164	205	-205	
GRAND TOTAL			707	0	707	0	164	205	-205	205
TOTAL COMMON EXC			707							

NOTES:

(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) SALVAGED/UNUSABLE PAVEMENT MATERIAL

(4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL

(5) EXPANDED FILL FACTOR = 1.25

(6) 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.

(7) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

211.0101.01 PREPARE FOUNDATION FOR ASPHALTIC PAVING (PROJECT) 01. 8777-00-70)		STATION	TO	STATION	LOCATION	STA
LOCATION	EACH	5+90	-	9+20	CTH CC RT	4
		6+45	-	9+20	CTH CC LT	3
		10+86	-	13+06	CTH CC RT	3
PROJECT	1	10+86	-	14+26	CTH CC LT	4
TOTAL 0010	1				TOTAL 0010	14

				305.0110
				BASE
				AGGREGATE
				DENSE 3/4-INCH
STATION	TO	STATION	LOCATION	TON
5+50	-	9+73	WEST APPROACH RT	40
6+81	-	9+73	WEST APPROACH LT	25
10+33	-	13+51	EAST APPROACH RT	30
10+33	-	14+46	EAST APPROACH LT	40
			TOTAL 0010	135

STATION	TO	STATION	LOCATION	TACK COAT GAL	SURFACE TON
5+90	-	9+73	WEST APPROACH	30	70
10+33	-	14+26	EAST APPROACH	30	70
TOTAL 0010				60	140

PROJECT NO: 8777-00-70	HWY: CTH CC	COUNTY: SAWYER	MISCELLANEOUS QUANTITIES	SHEET	E
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3

3

606.0300						645.0120		614.2300				614.2330		614.2500		614.2610		628.1504				628.1520			
						GEOTEXTILE TYPE								MGS THRIE								SILT FENCE			
RIPRAP HEAVY						HR		MGS GUARDRAIL				MGS GUARDRAIL		BEAM		MGS GUARDRAIL		SILT FENCE				MAINTENANCE			
STATION	TO	STATION	LOCATION	CY	SY	STATION	TO	STATION	LOCATION	3	3 K	TRANSITION	TERMINAL EAT	STATION	TO	STATION	LOCATION	LF	LF	STATION	TO	STATION	LOCATION	LF	LF
8+00	-	9+73	WEST APPROACH	360	540																				
10+33	-	12+00	EAST APPROACH	305	460	6+30	-	9+73	WEST APPROACH RT	87.5	162.5	39.4	1	5+90	-	9+73	WEST APPROACH LT	110						110	
			UNDISTRIBUTED	40	10	7+30	-	9+73	WEST APPROACH LT	--	150	39.4	1	5+50	-	9+73	WEST APPROACH RT	258						258	
						10+33	-	13+76	EAST APPROACH LT	100	150	39.4	1	10+33	-	14+26	EAST APPROACH RT	163						163	
						10+33	-	12+76	EAST APPROACH RT	--	125	39.4	1	10+33	-	14+46	EAST APPROACH LT	284						284	
TOTAL 0010						TOTAL 0010				187.5	587.5	157.6	4	TOTAL 0010				815						815	

CONTROL POINTS						
POINT	STATION	OFFSET	Y	X	ELEV	DESC
CP 901	7+56.07	16.49 LT	391639.214	681097.725	1317.51	MAG NAIL
CP 902	12+45.87	15.81 RT	391425.083	681539.637	1317.71	MAG NAIL

CLEARING & GRUBBING STA 7+00 TO 8+00 LT

REMOVING GUARDRAIL
7+57 TO 9+72 LT

MGS GUARDRAIL EAT STA 7+30.26 - 7+83.39 LT
MGS GUARDRAIL 3 K 7+83.39 - 9+33.38 LT
MGS THRIE BEAM TRANSITION 9+33.38 - 9+72.78 LT

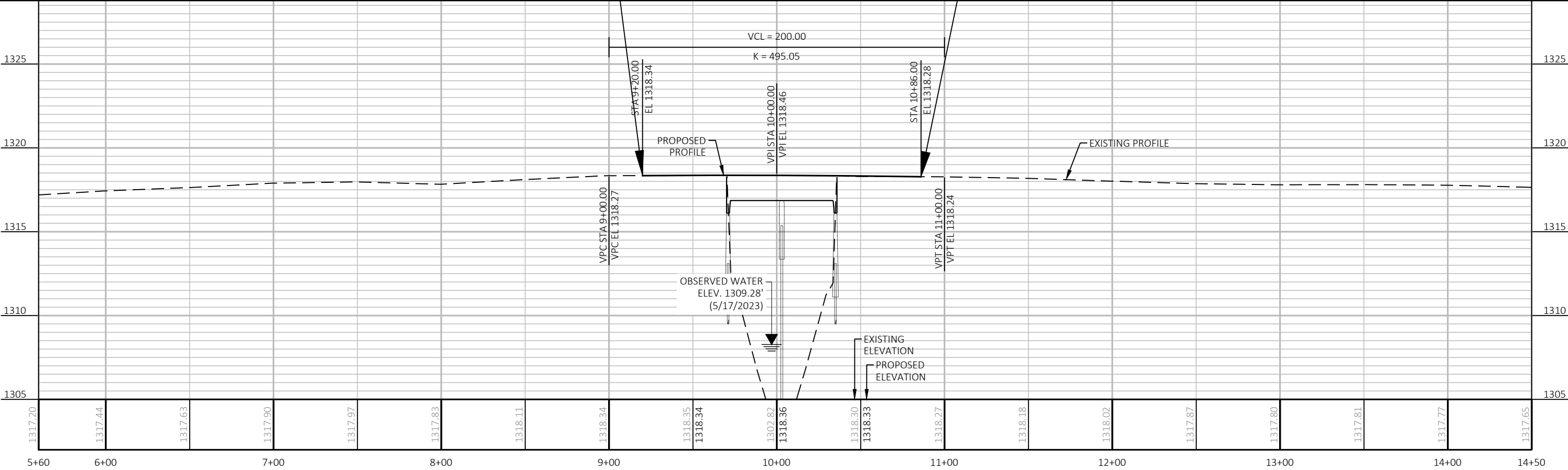
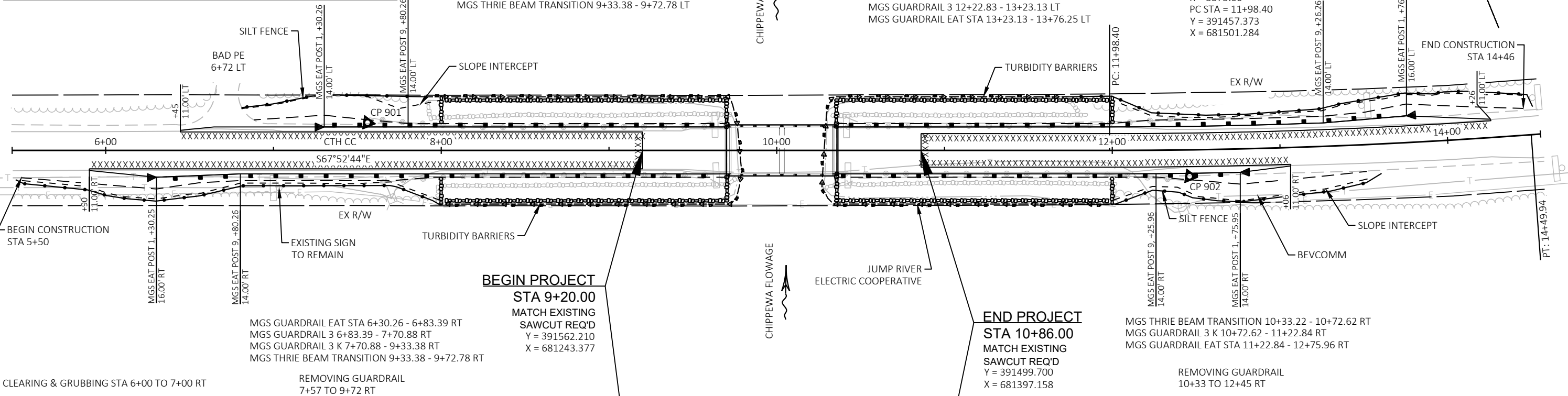
CLEARING & GRUBBING STA 11+50 TO 12+50 LT

REMOVING GUARDRAIL
10+33 TO 12+48 LT

MGS THRIE BEAM TRANSITION 10+33.22 - 10+72.62 LT
MGS GUARDRAIL 3 K 10+72.62 - 12+22.83 LT
MGS GUARDRAIL 3 12+22.83 - 13+23.13 LT
MGS GUARDRAIL EAT STA 13+23.13 - 13+76.25 LT

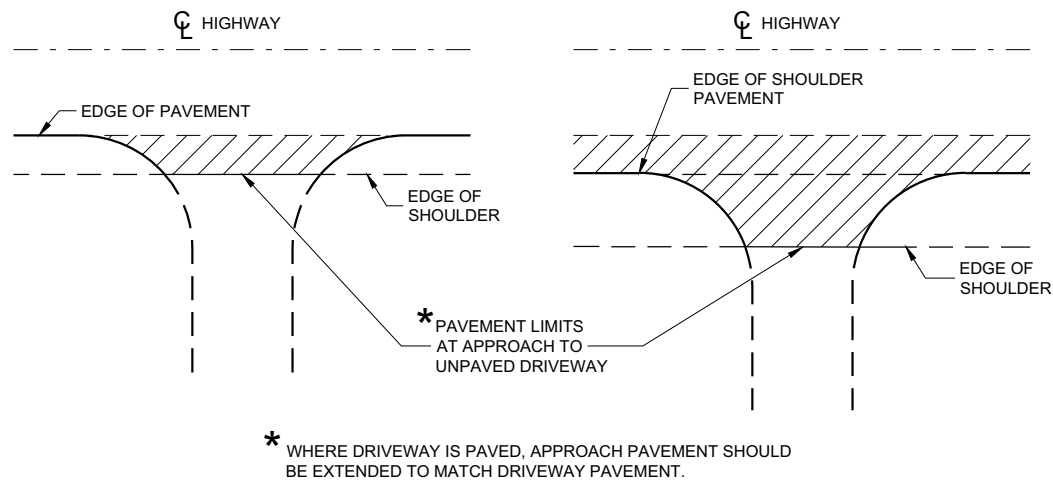
PI STA = 13+24.23
Y = 391409.991
X = 681617.849
DELTA = 4°16'13" LT
D = 1°41'52"
T = 125.83'
L = 251.54'
R = 3375.00'
PC STA = 11+98.40
Y = 391457.373
X = 681501.284

PT STA = 14+49.94
Y = 391371.420
X = 681737.618
DB = S67°52'44"E
DA = S72°08'57"E



Standard Detail Drawing List

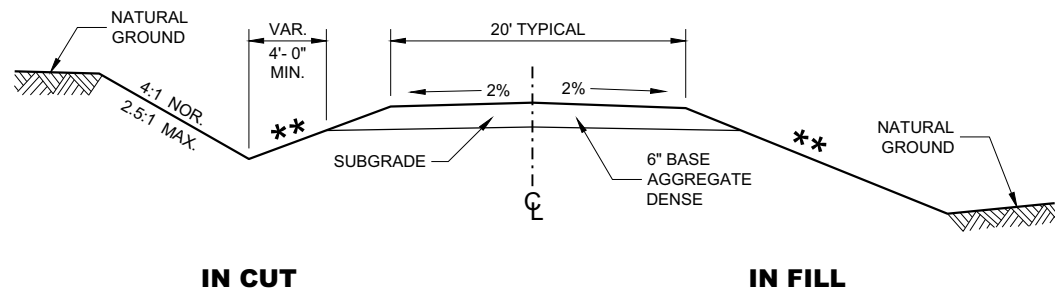
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES



PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

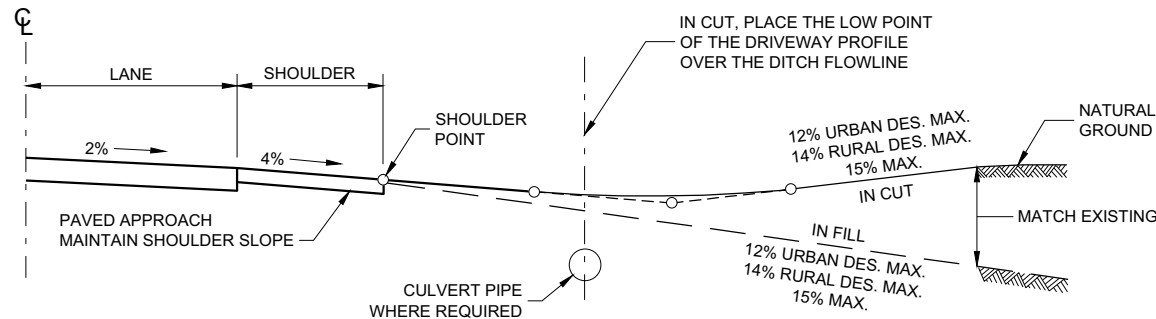
**RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB AND GUTTER OR SIDEWALK)**



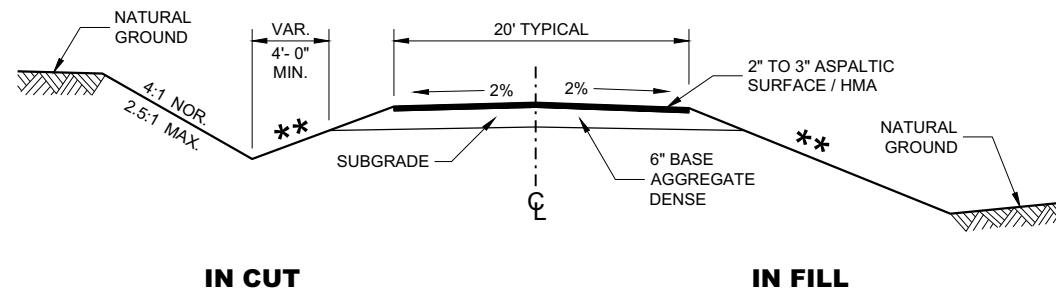
**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
AGGREGATE SURFACE**

****** SLOPE CAN VARY WITH SPEED. SEE 11-45-30.6.2

POSTED SPEED MPH	MAX. SLOPE
<35	4:1
≥ 35 TO < 60	6:1
≥60	10:1



TYPICAL DRIVEWAY PROFILES



**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
ASPHALTIC SURFACE**

**DRIVEWAYS WITHOUT
CURB AND GUTTER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

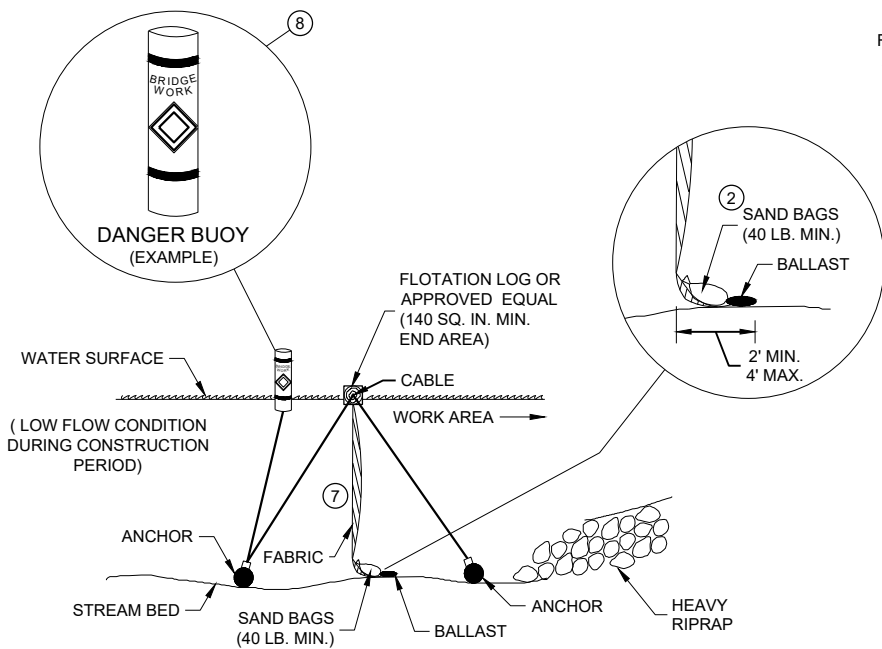
APPROVED
December 2017
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



- 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 1½" X 1½" 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.

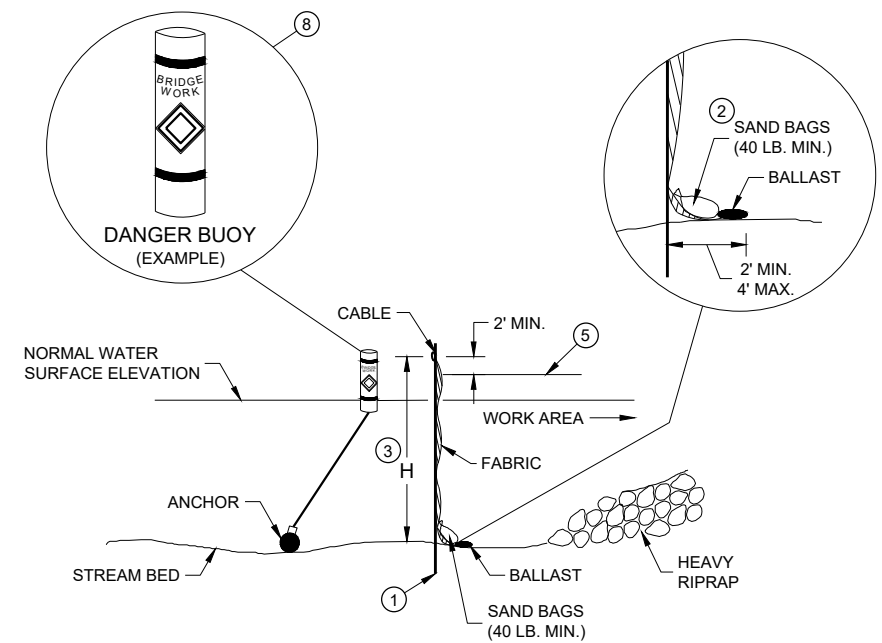


SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/s/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER



SECTION B - B

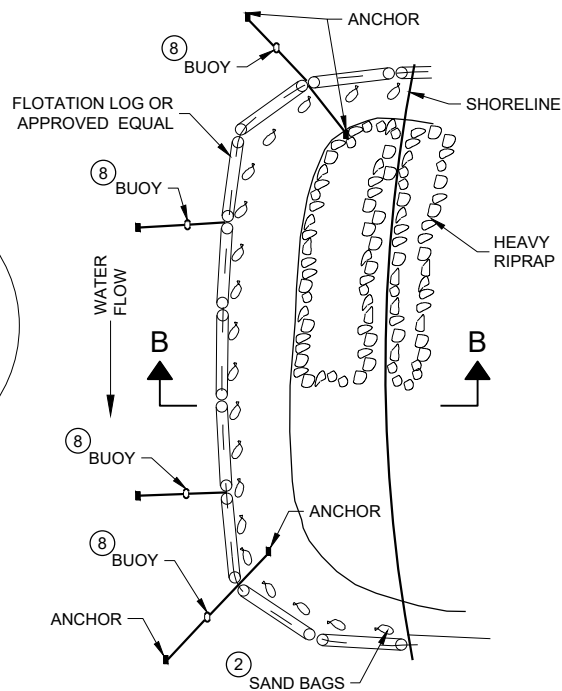
TURBIDITY BARRIER - FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



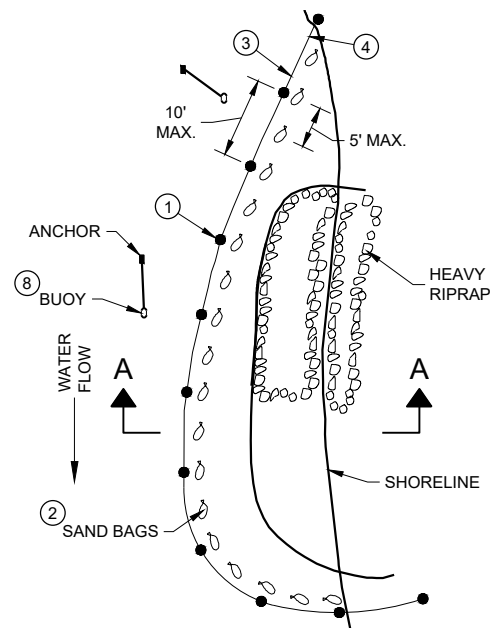
SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS



PLAN VIEW



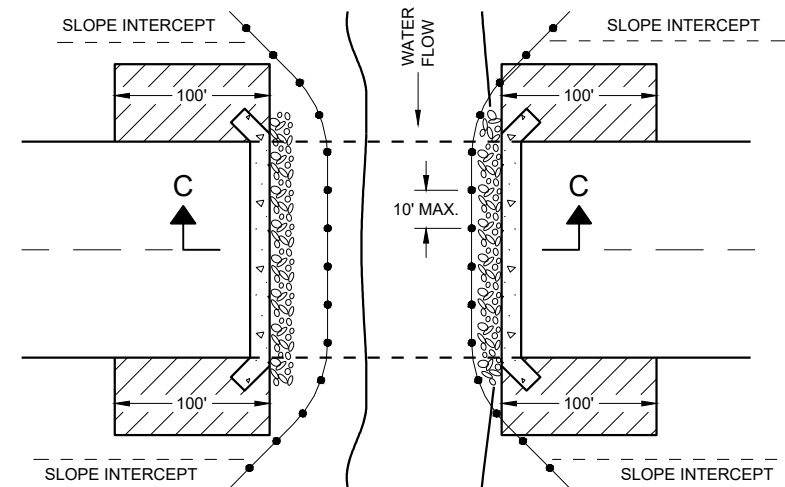
PLAN VIEW

GENERAL NOTES

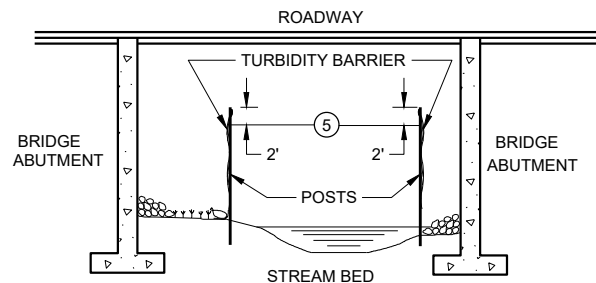
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- 1 DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- 2 SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- 3 WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- 4 IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- 5 ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- 6 FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- 7 ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- 8 USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



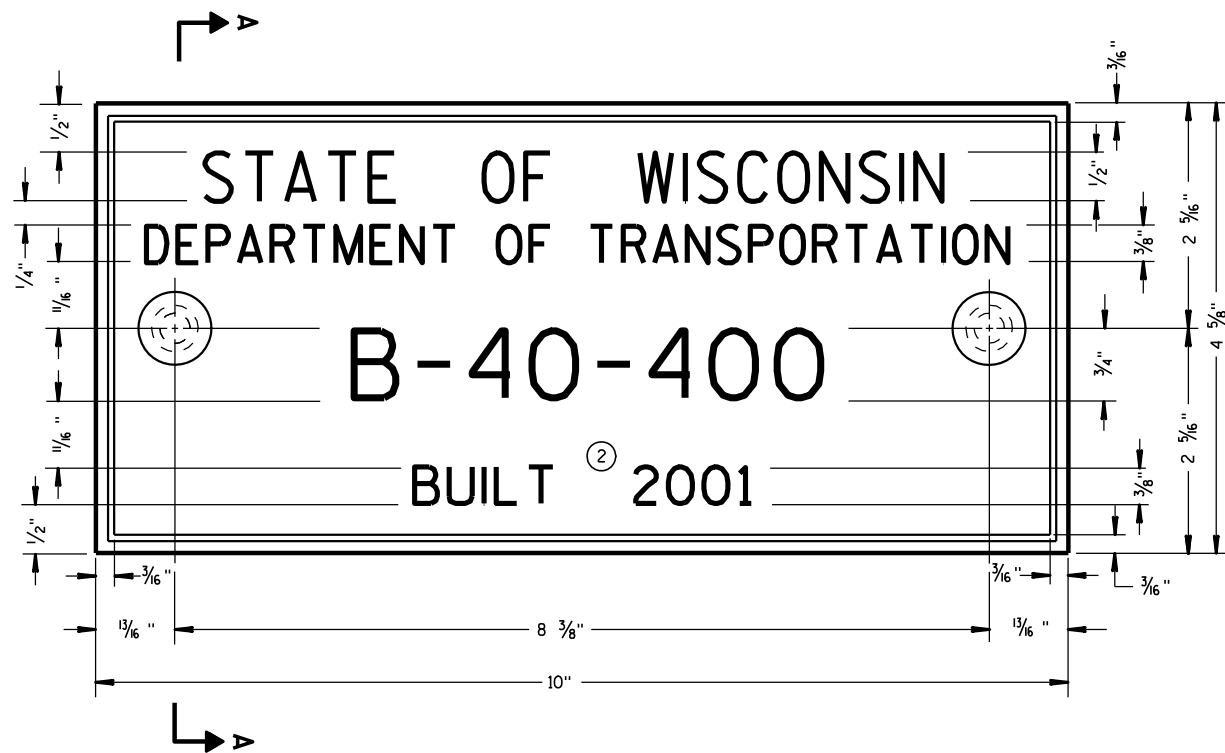
SECTION C - C

TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES

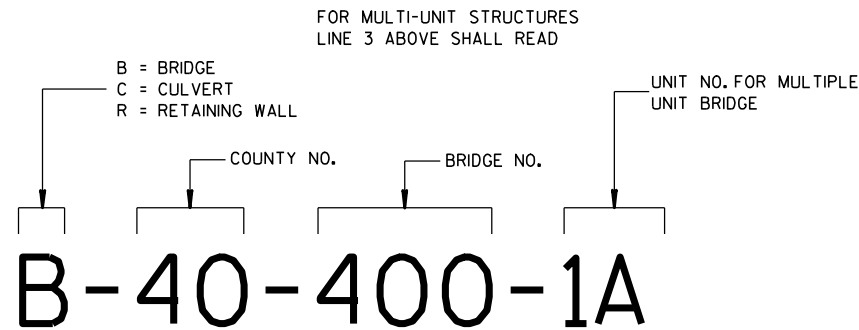
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/4/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT
ENGINEER
FHWA



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



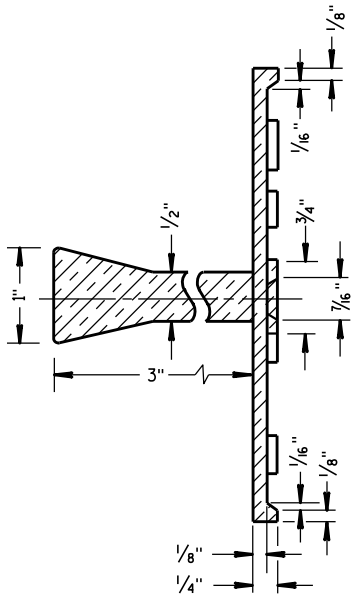
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

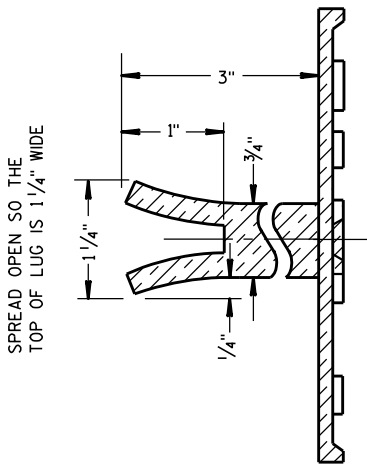
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.

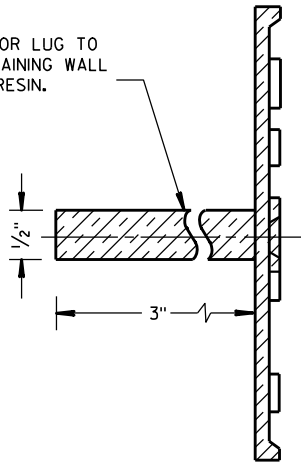


SECTION A-A



ALTERNATE LUG

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



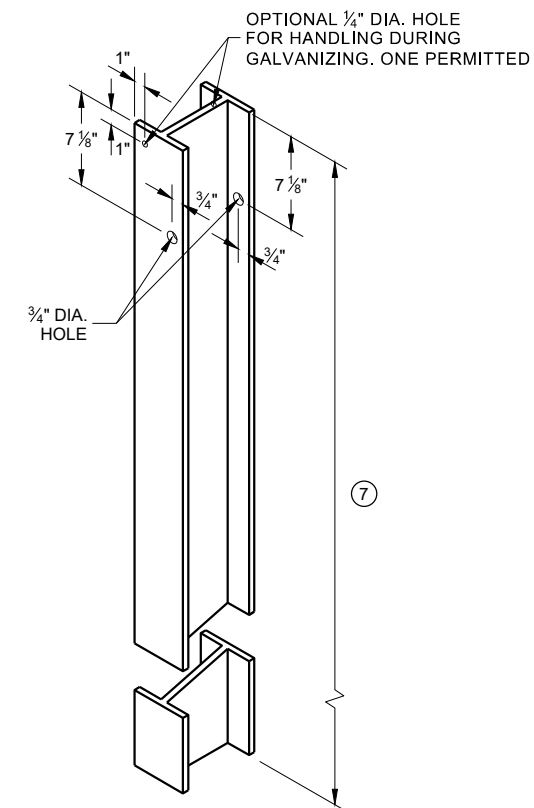
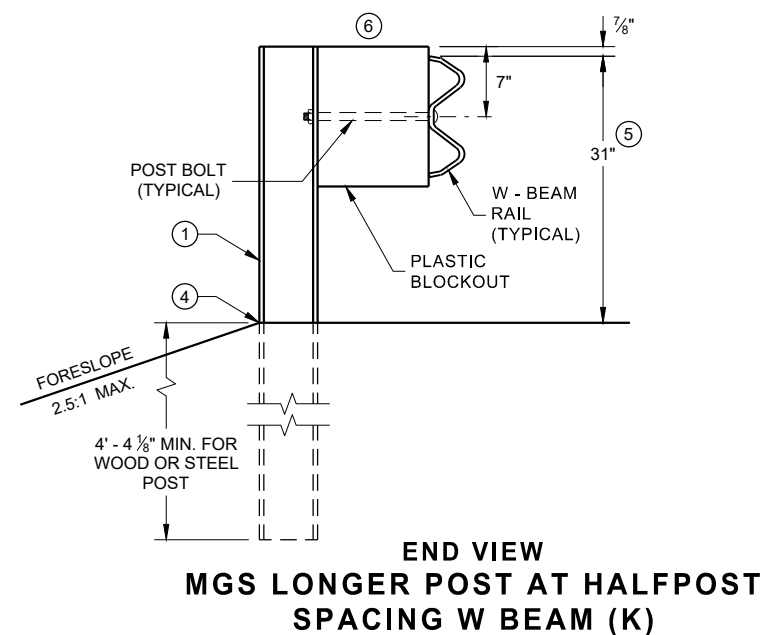
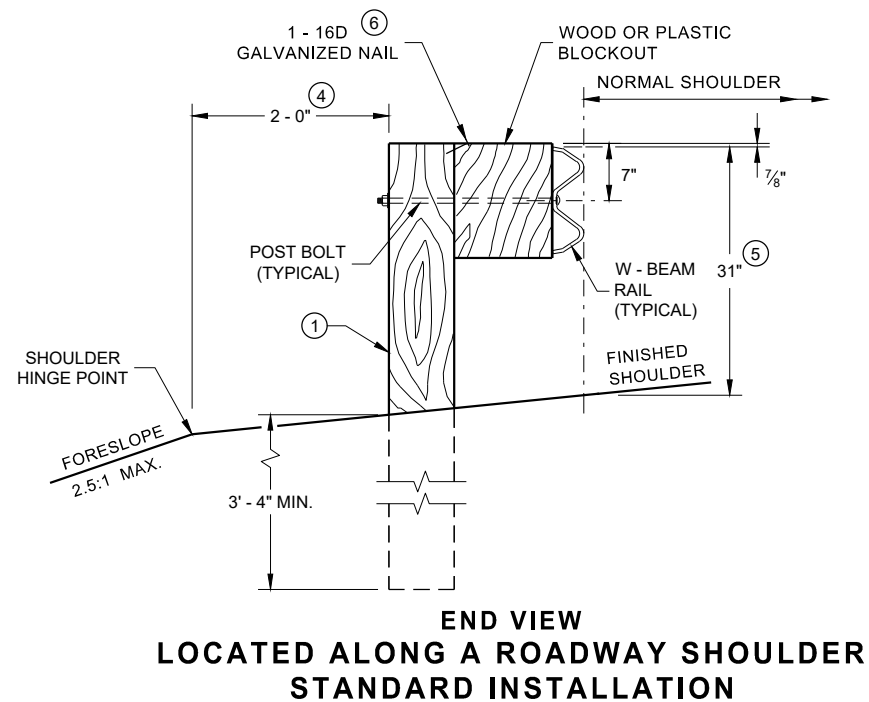
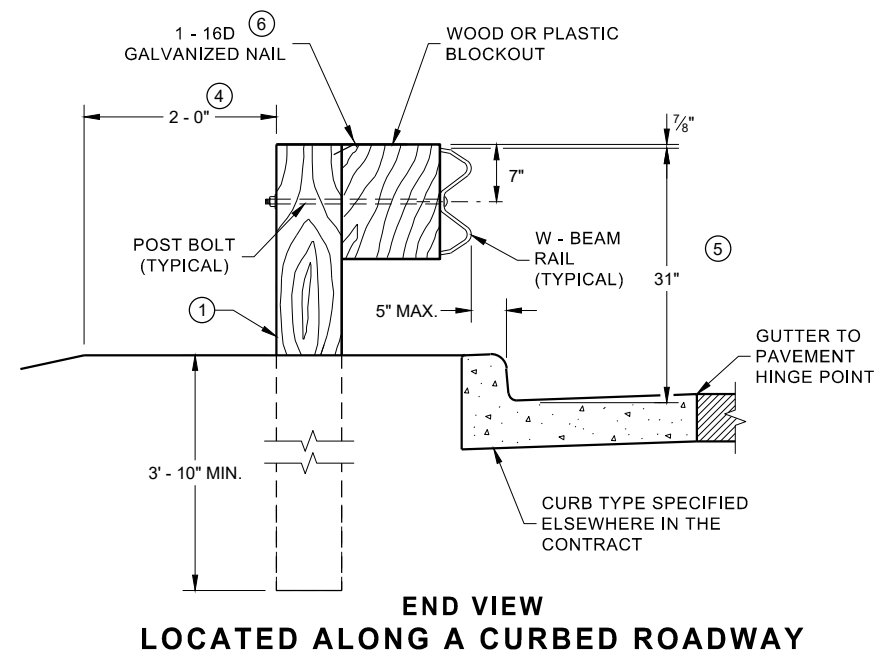
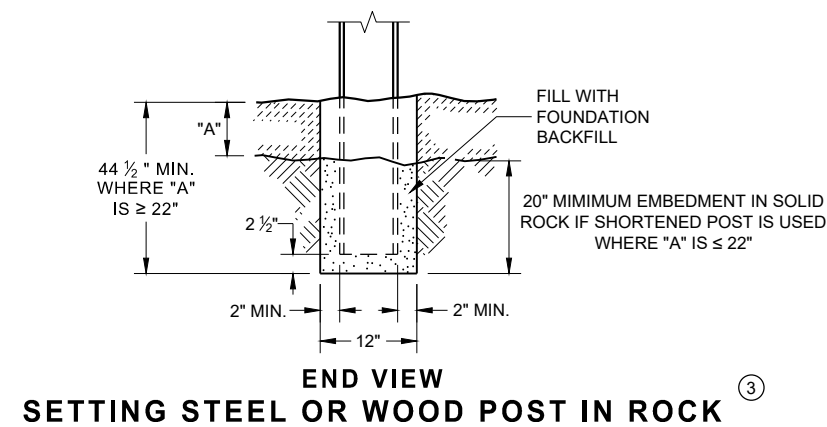
ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE
(STRUCTURES)

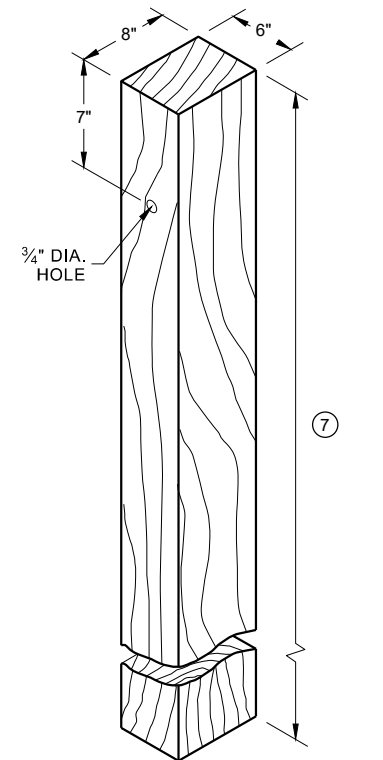
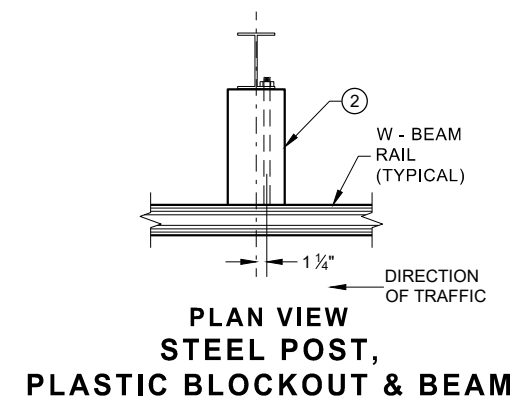
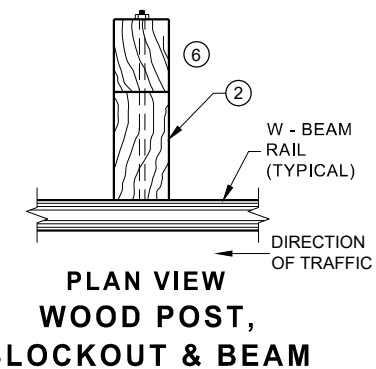
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/26/10
DATE
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA

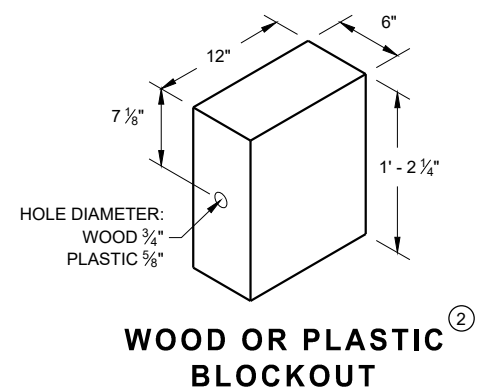
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST 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.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".

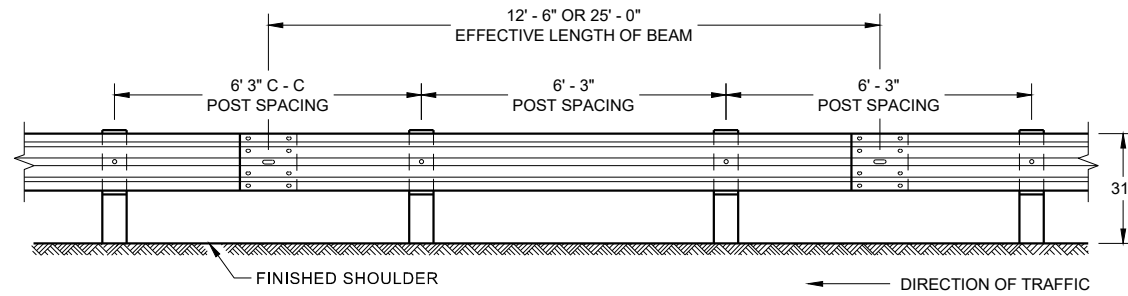


**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**

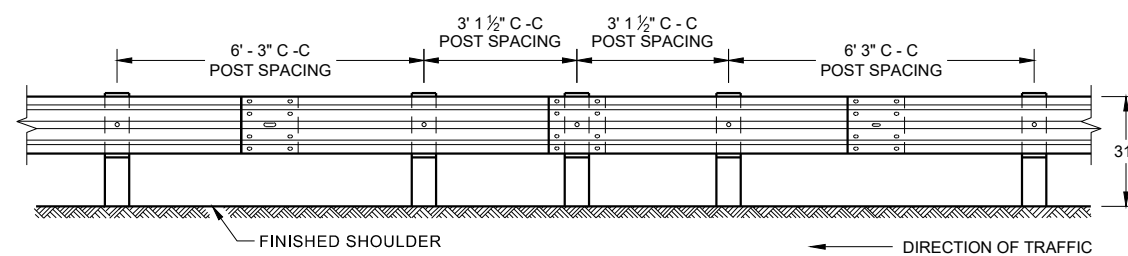


WOOD POST (6" X 8") NOMINAL ⁽¹⁾

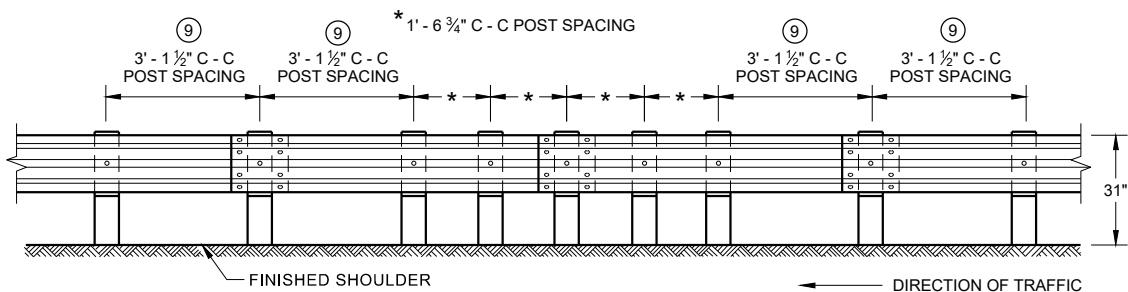




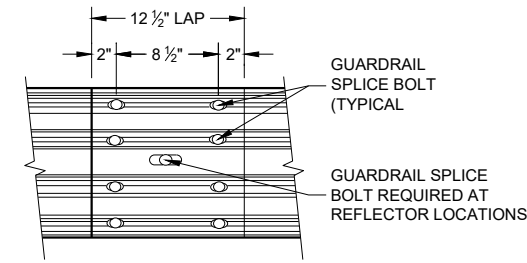
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



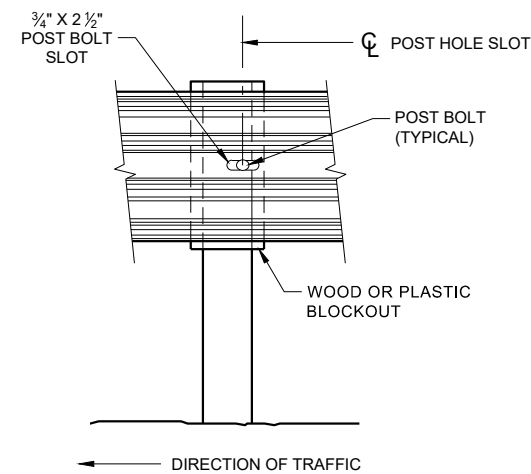
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



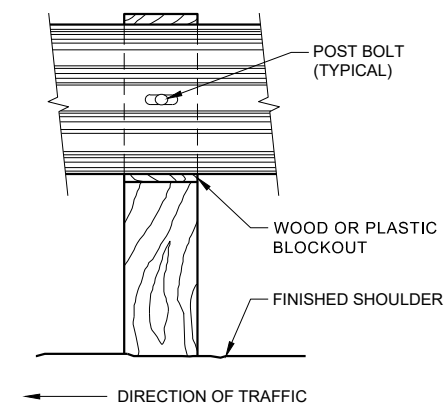
**FRONT VIEW
QUARTER POST SPACING (QS)**



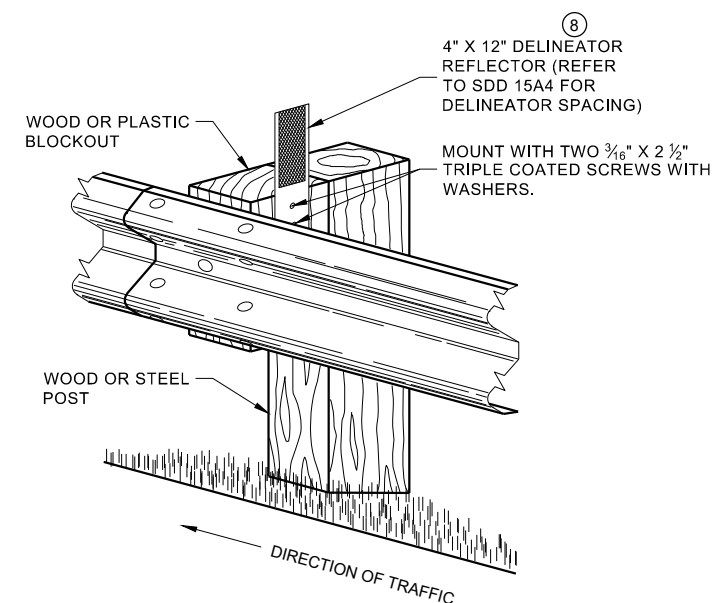
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



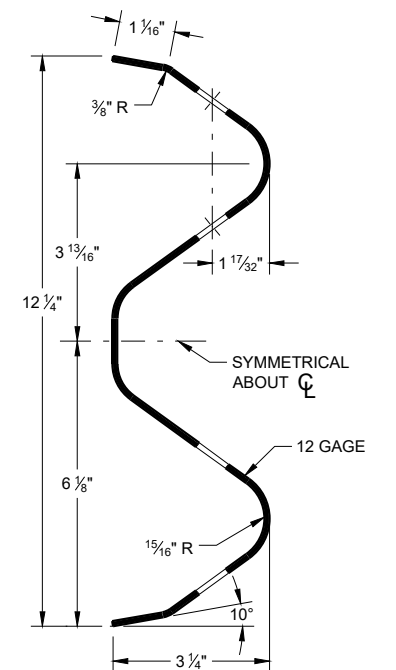
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

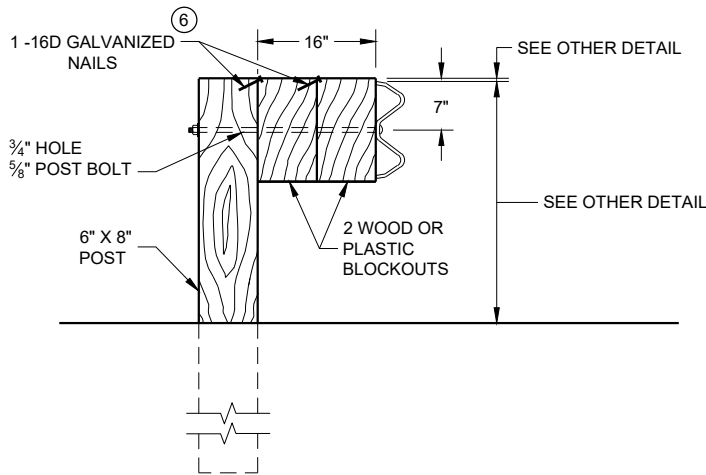
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

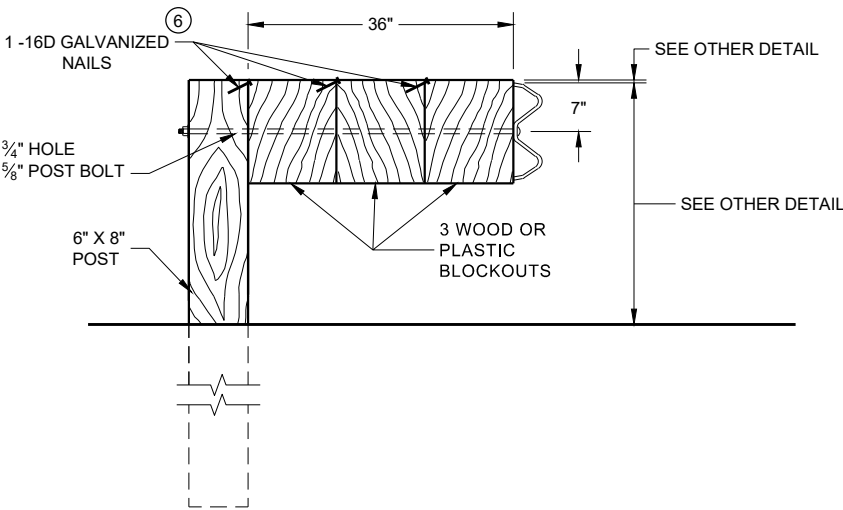
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

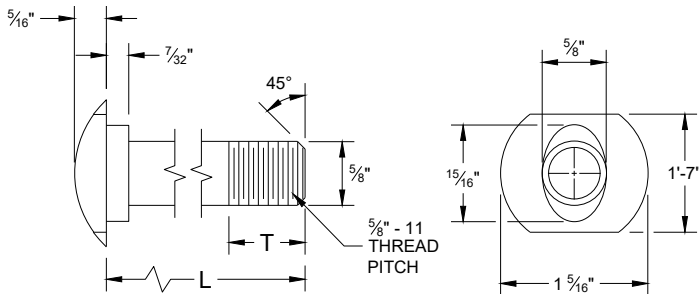
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

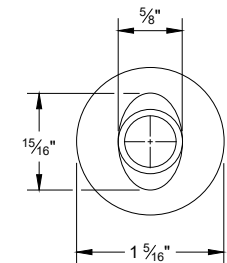
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

NOTE:
1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

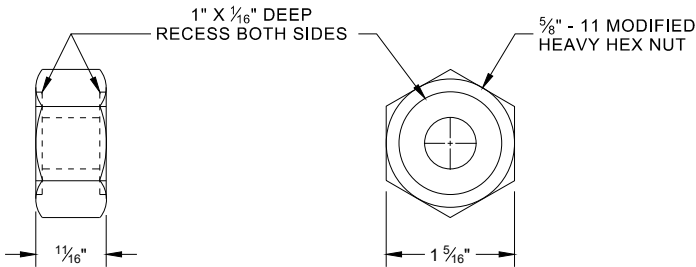


POST BOLT TABLE

L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"

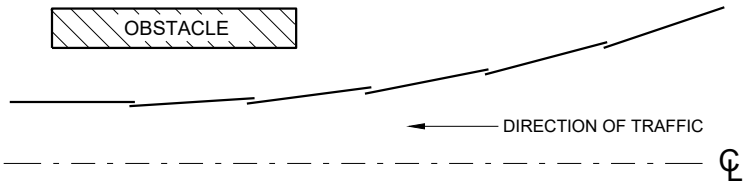


ALTERNATE BOLT HEAD

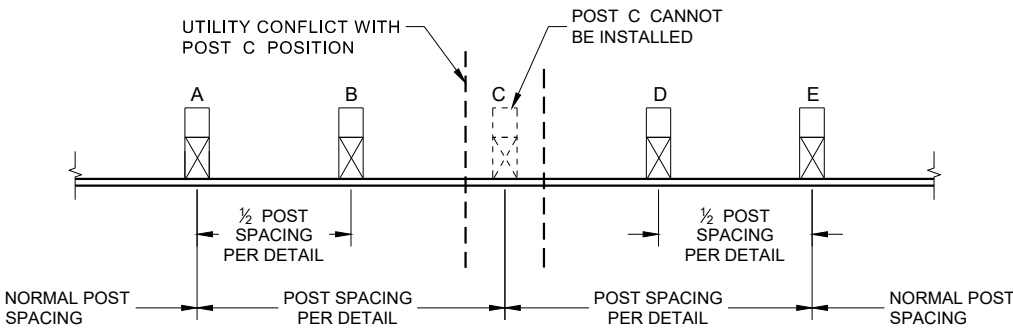


POST BOLT, SPLICE BOLT AND RECESS NUT

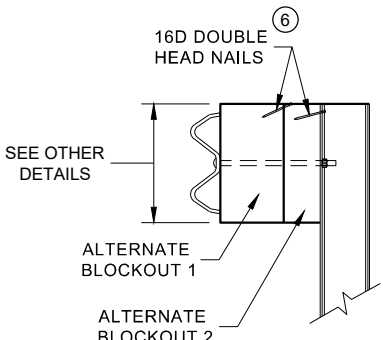
6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



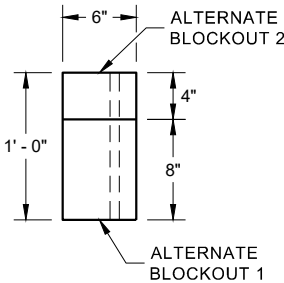
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

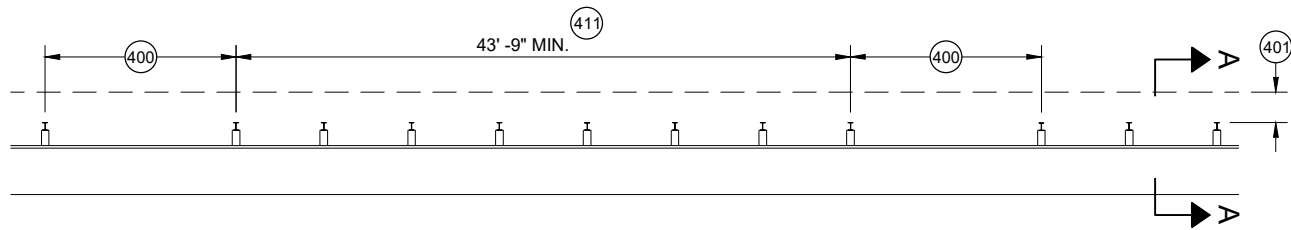


PLAN VIEW

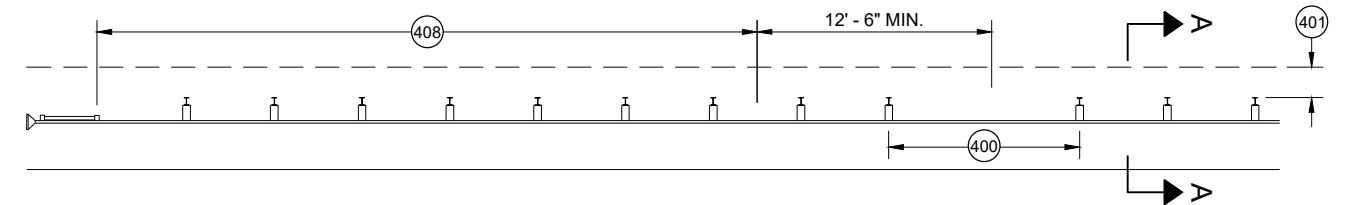
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

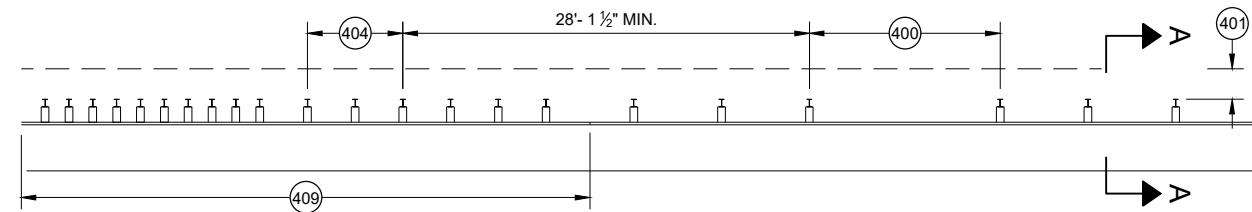
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



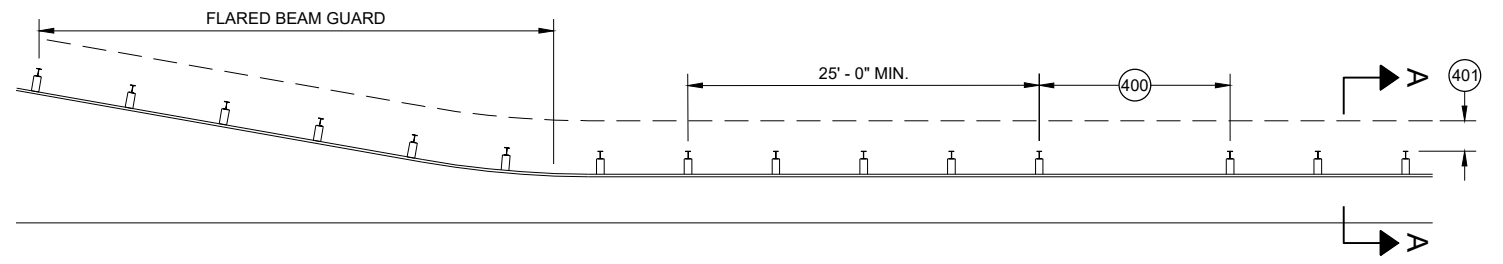
MISSING POST IN MGS GUARDRAIL



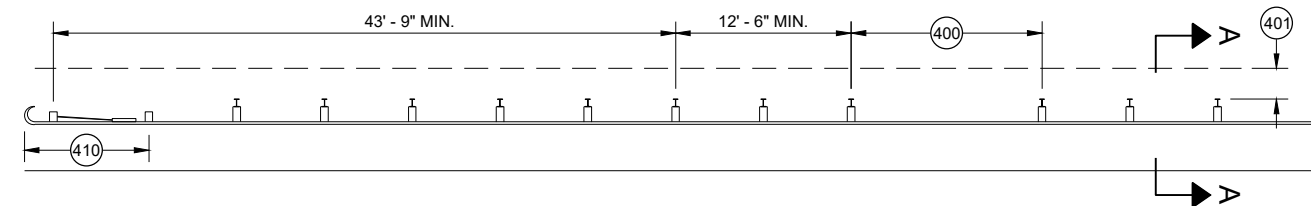
MISSING POST IN MGS GUARDRAIL NEAR EAT



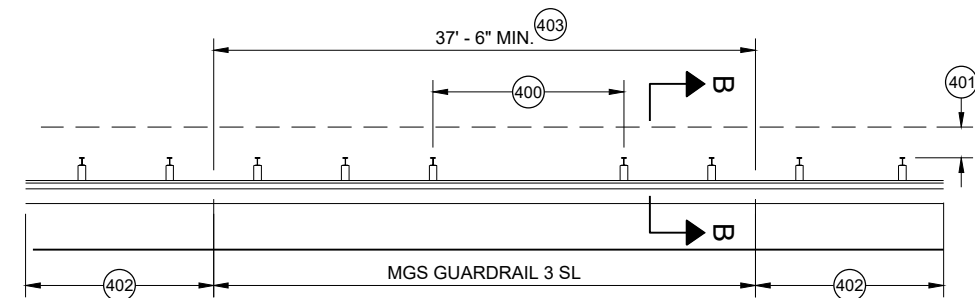
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

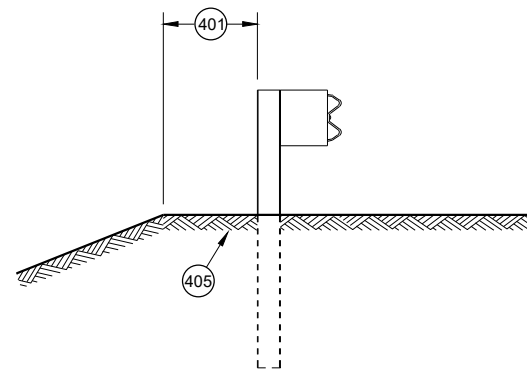


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

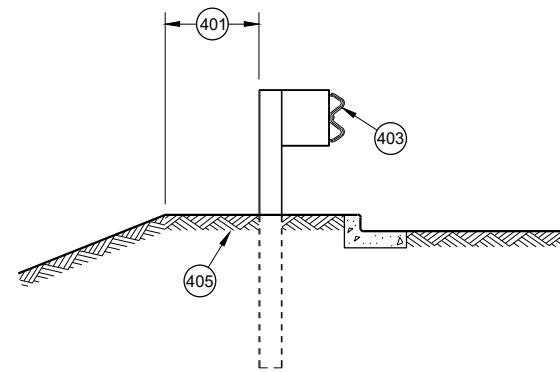


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (400) MAX SPAN 12' - 6"
- (401) 2' MIN.
- (402) MGS GUARDRAIL 3
- (403) NESTING BEAM GUARD
- (404) ASYMMETRIC TRANSITION
- (405) SOIL WELL DRAINED AND COMPACTED
- (406) SEE OTHER DRAWINGS IN THIS SDD
- (407) SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- (408) SEE SDD 14B44
- (409) SEE SDD 14B45
- (410) SEE SDD 14B47
- (411) MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



SECTION A - A



SECTION B - B

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

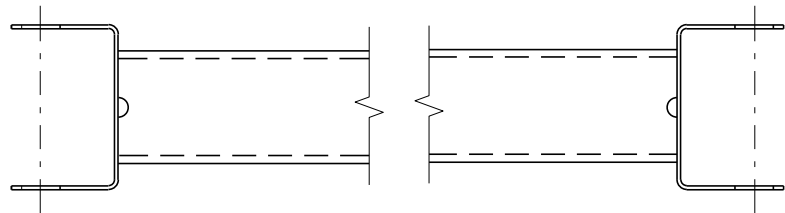
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
- (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
- (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

THE CENTER OF THE UPPER 3 1/2" 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. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

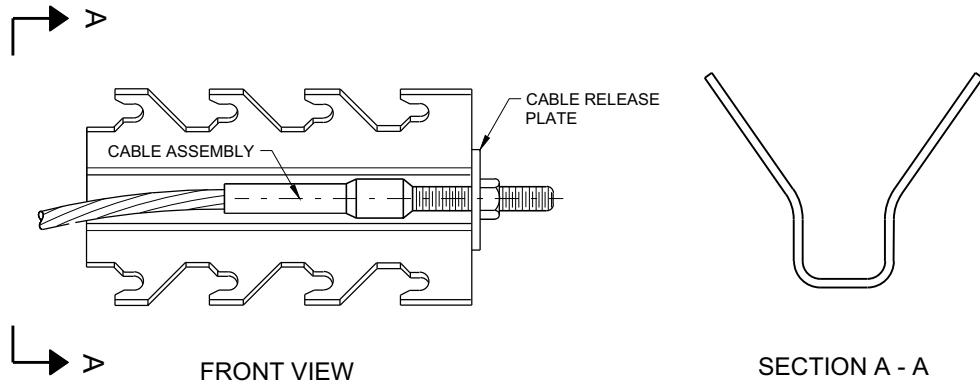


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

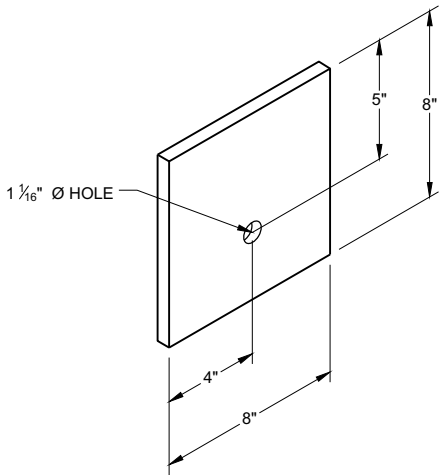


GENERIC GROUND STRUT⁹ ^E

BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
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	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



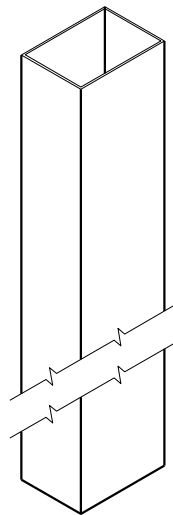
GENERIC ANCHOR CABLE BOX⁹ ^E



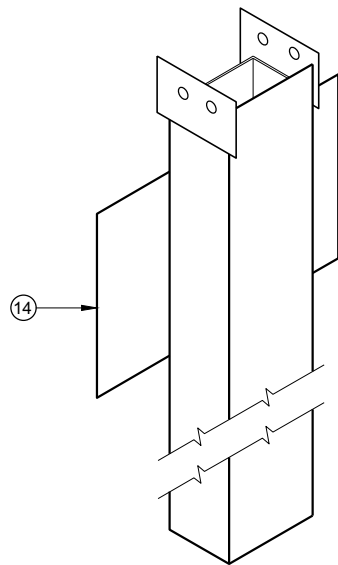
BEARING PLATE⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

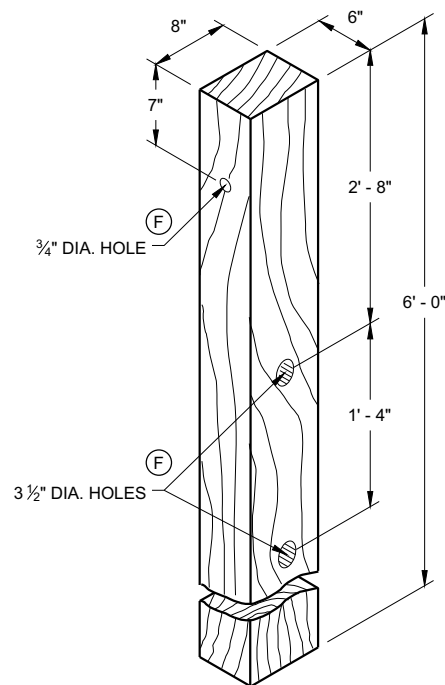
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



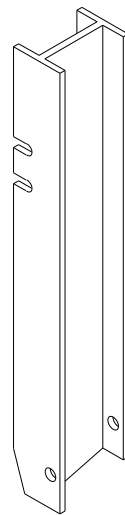
UPPER POST NO. 1^{(1) (E)}



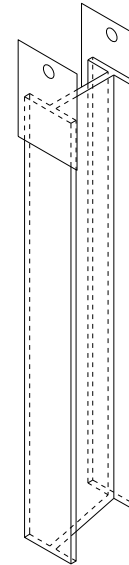
LOWER POST NO. 1^{(2) (E)}



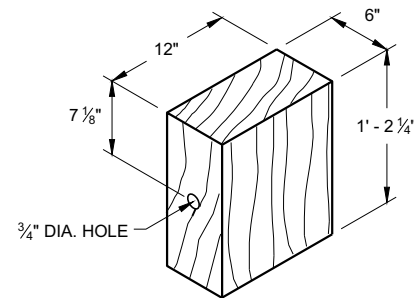
WOOD CRT POST^{(3) (E)}
POSTS NUMBER 3-9



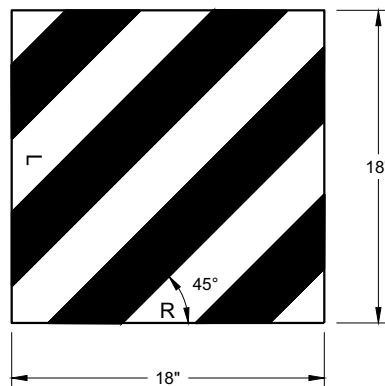
UPPER POST NO. 2^{(15) (E)}



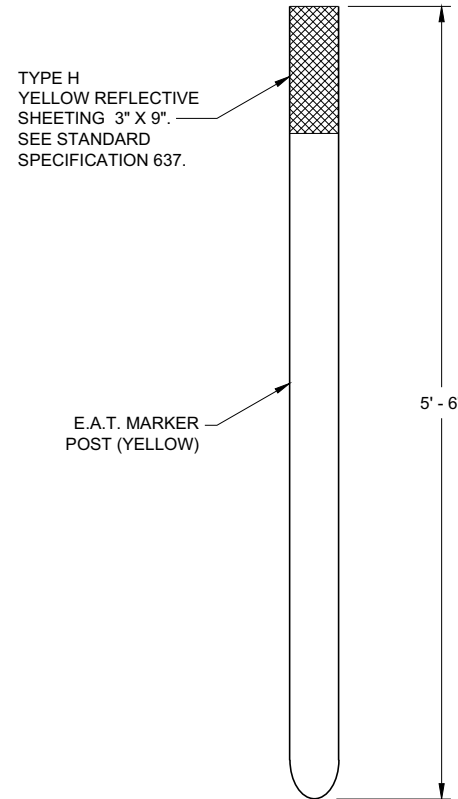
LOWER POST NO. 2^{(16) (E)}



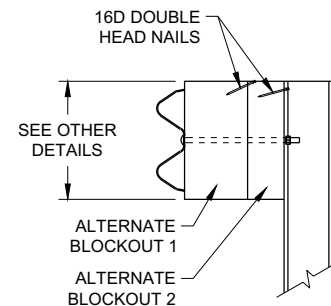
WOOD BLOCKOUT⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



REFLECTIVE SHEETING DETAIL^(E)

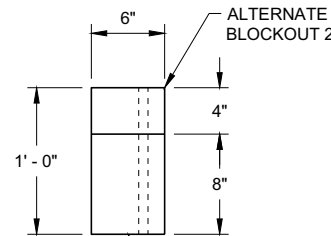


E.A.T. MARKER POST⁽¹³⁾



SIDE VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

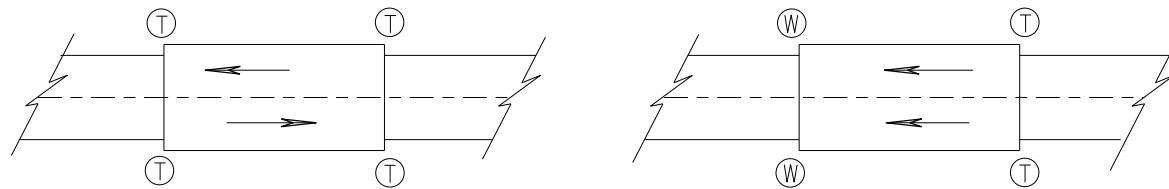


TOP VIEW

**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

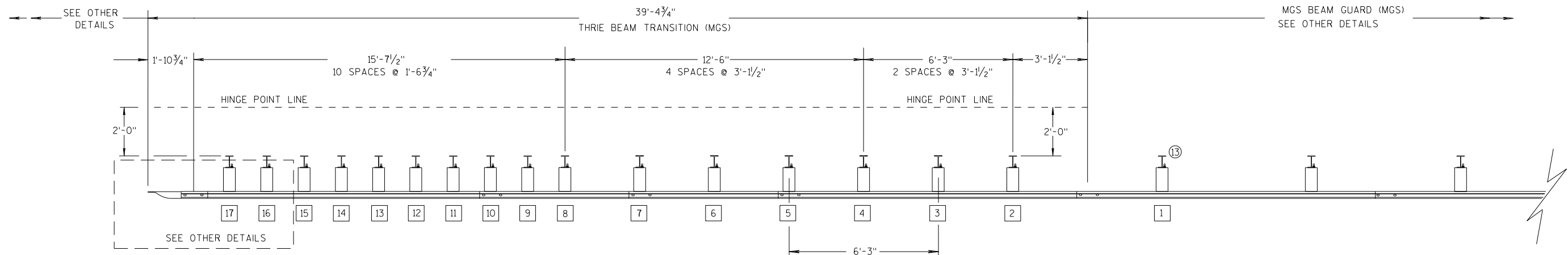
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

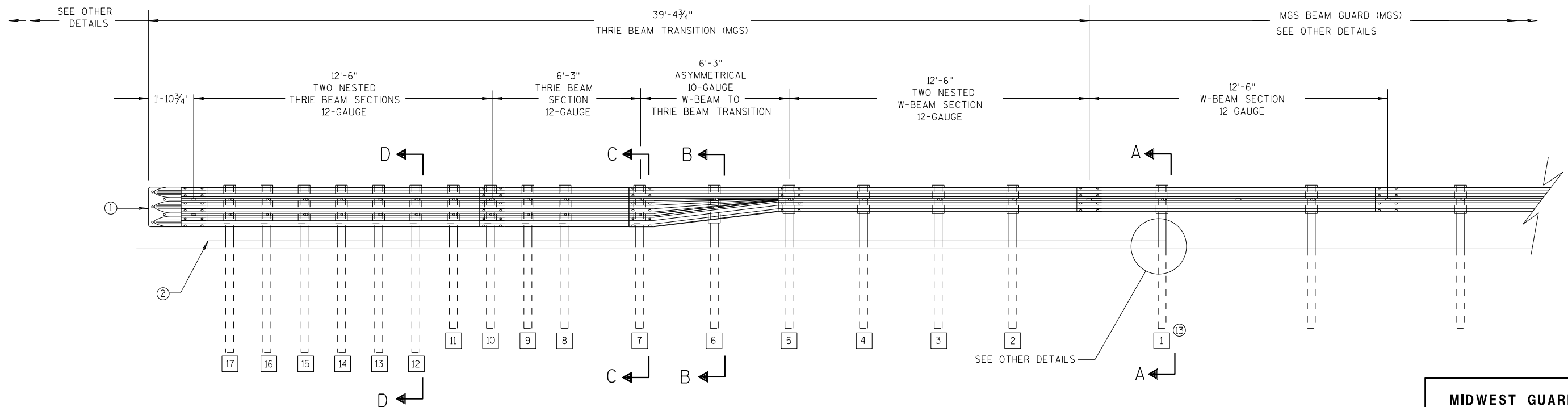
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

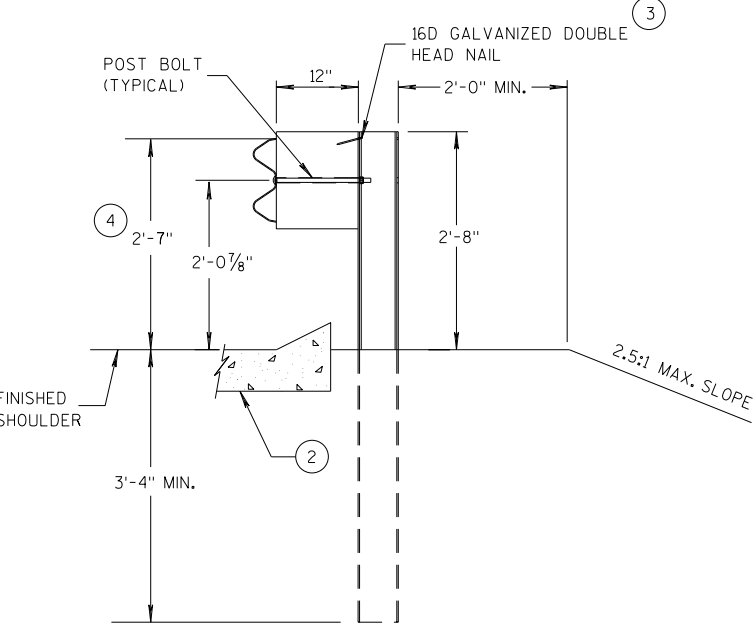
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

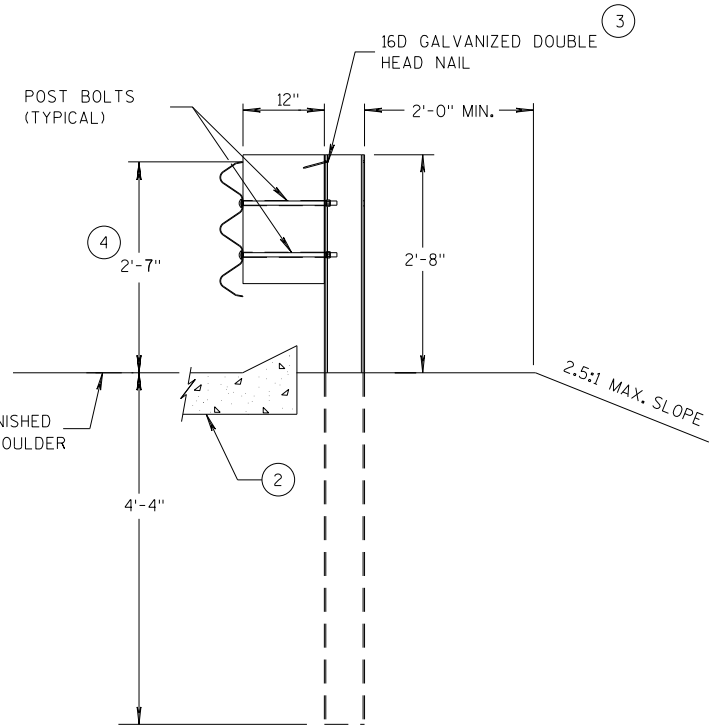
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

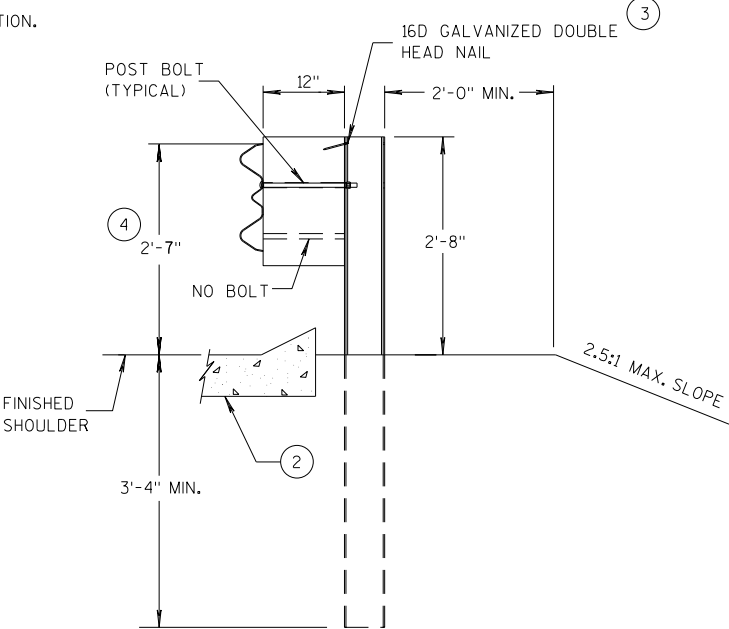
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.
- 13 STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



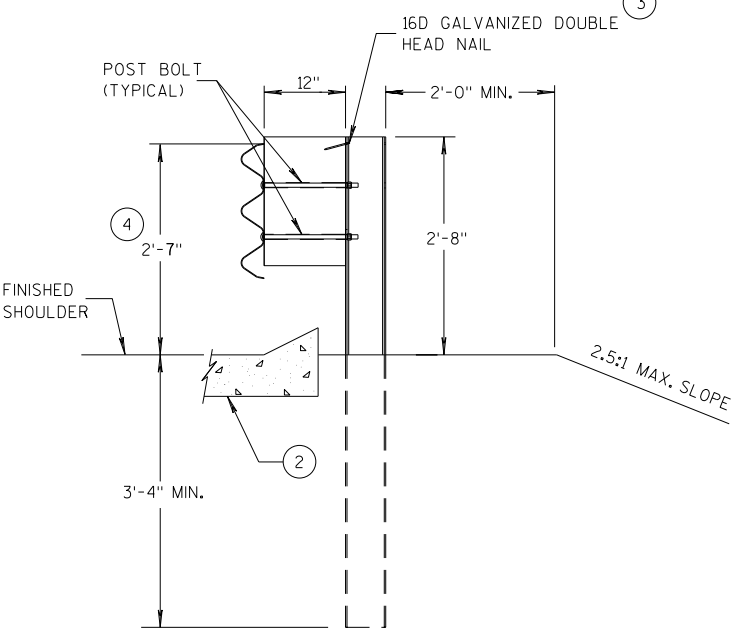
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

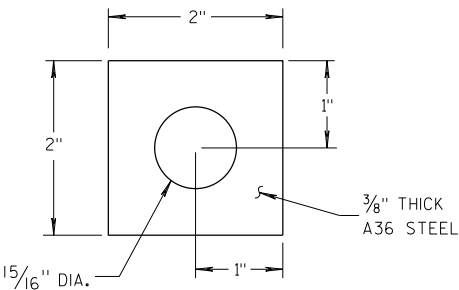
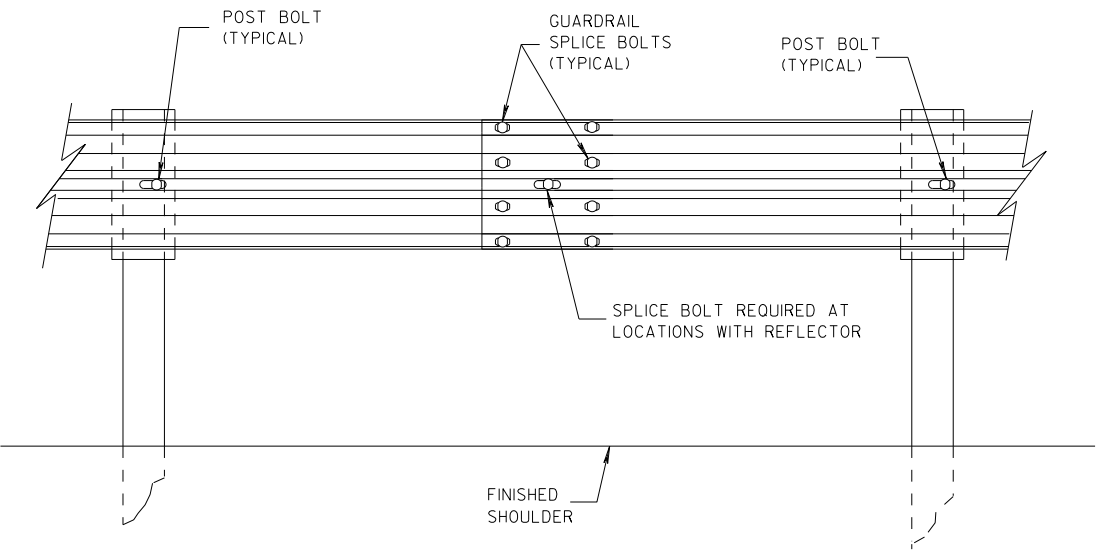
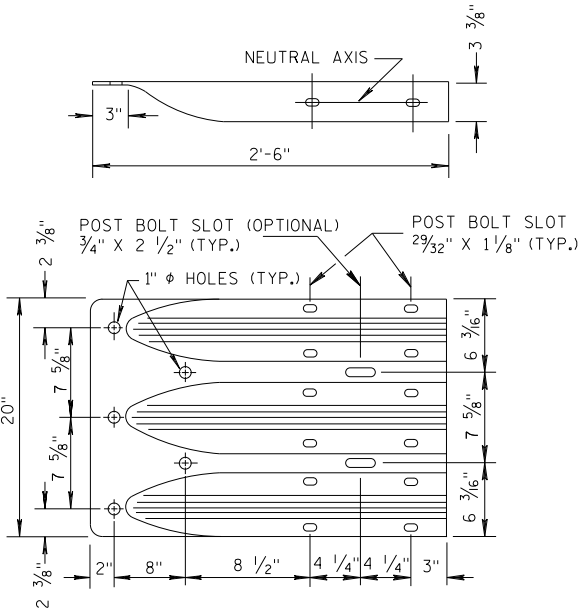


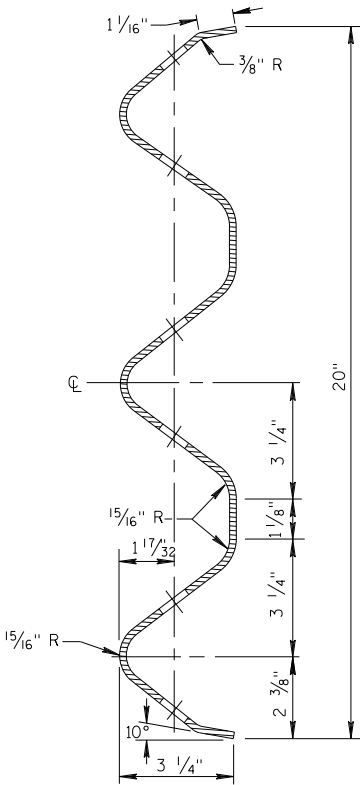
PLATE WASHER DETAIL



SPLICE DETAIL



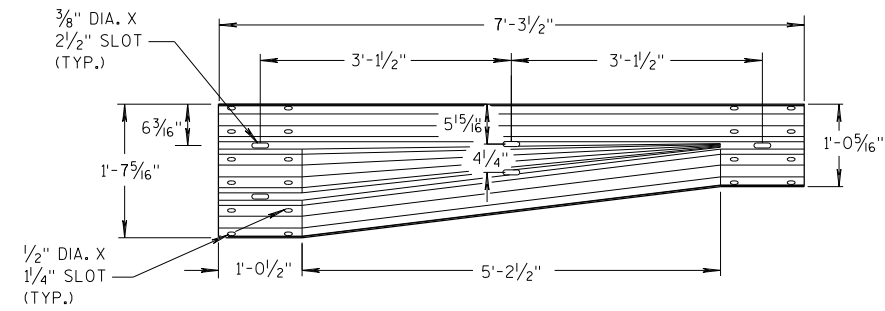
THRIE BEAM
TERMINAL CONNECTOR



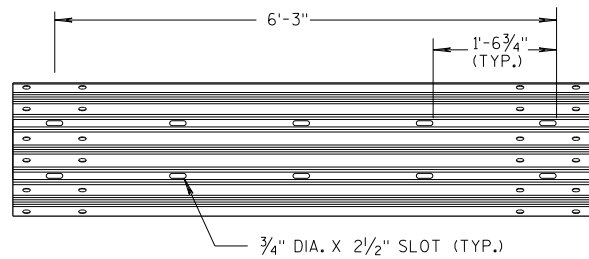
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

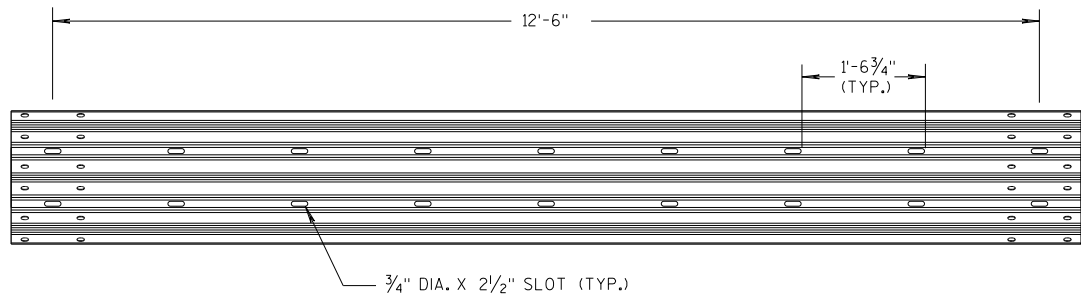
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



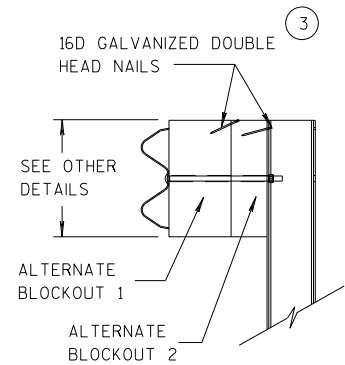
W-BEAM TO THRIE BEAM TRANSITION SECTION



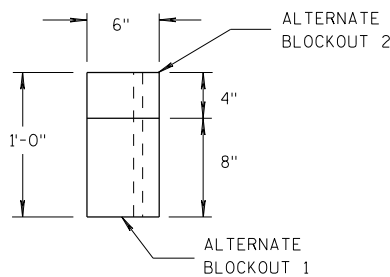
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

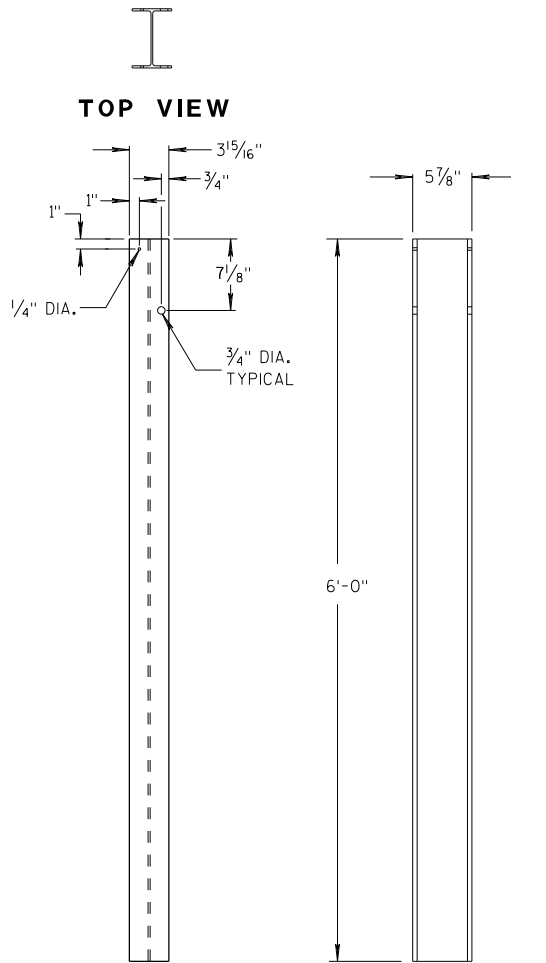


SIDE VIEW



TOP VIEW

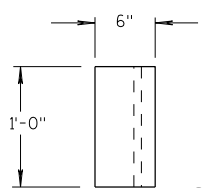
ALTERNATE WOOD BLOCKOUT DETAIL



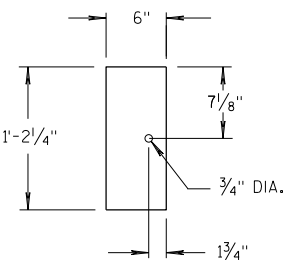
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

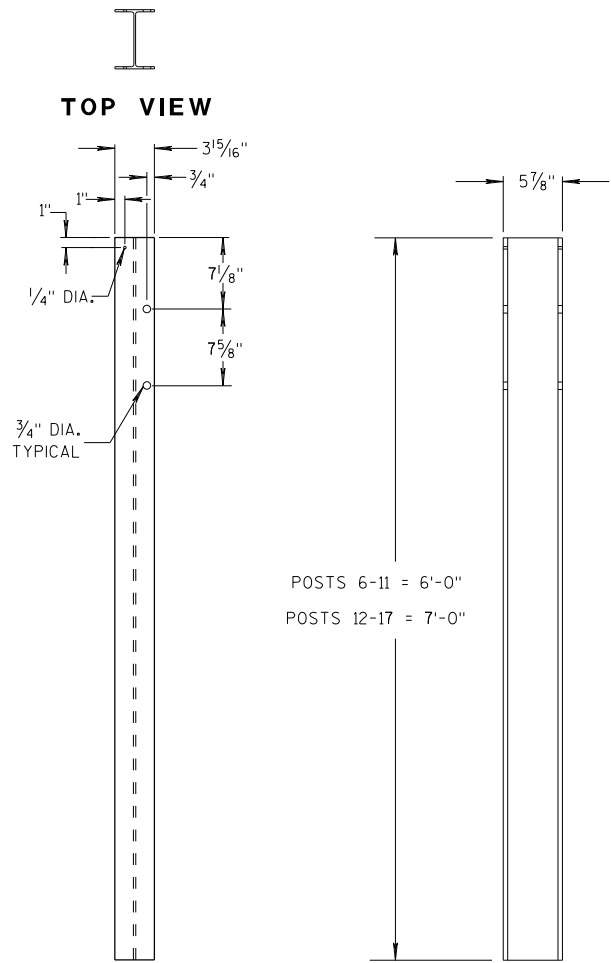


TOP VIEW



FRONT VIEW

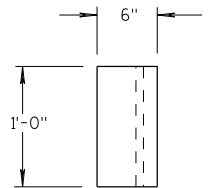
BLOCKOUT POSTS 1-5



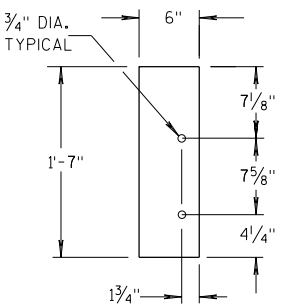
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



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.

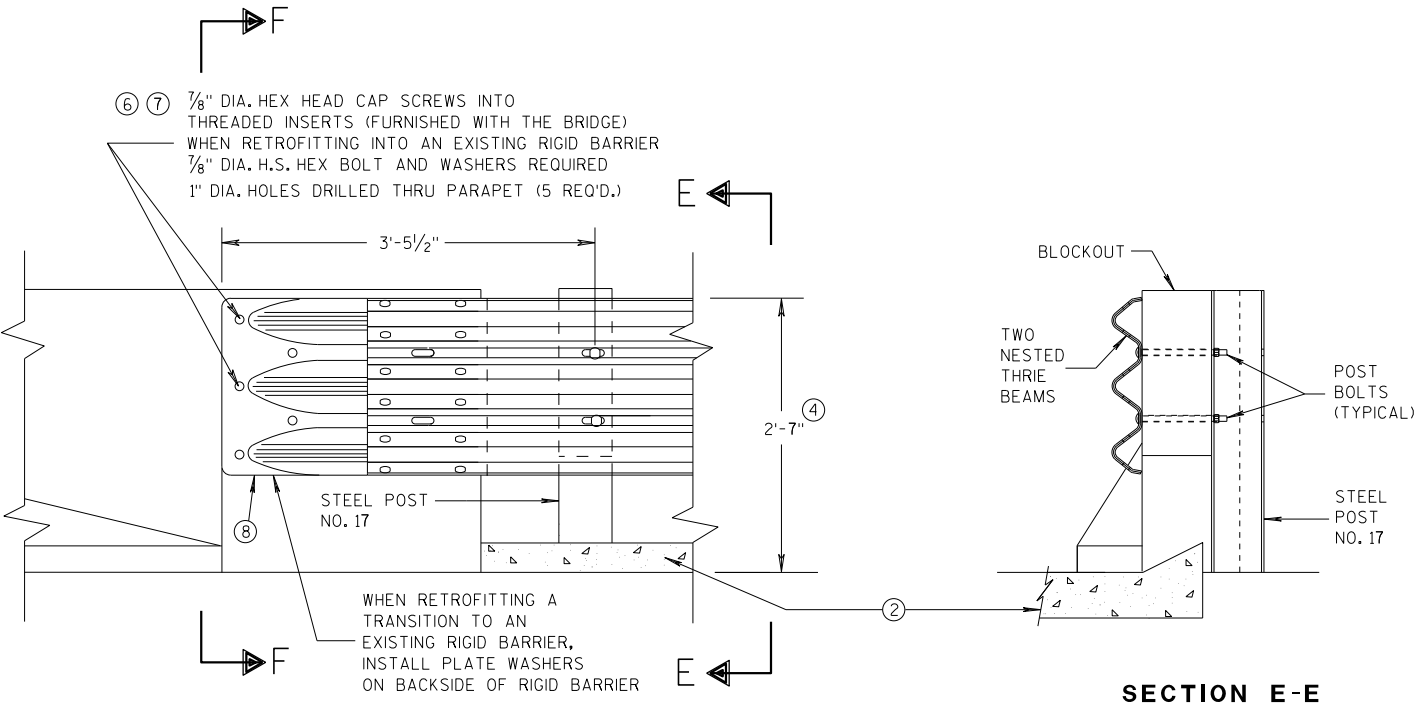
3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

13 STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

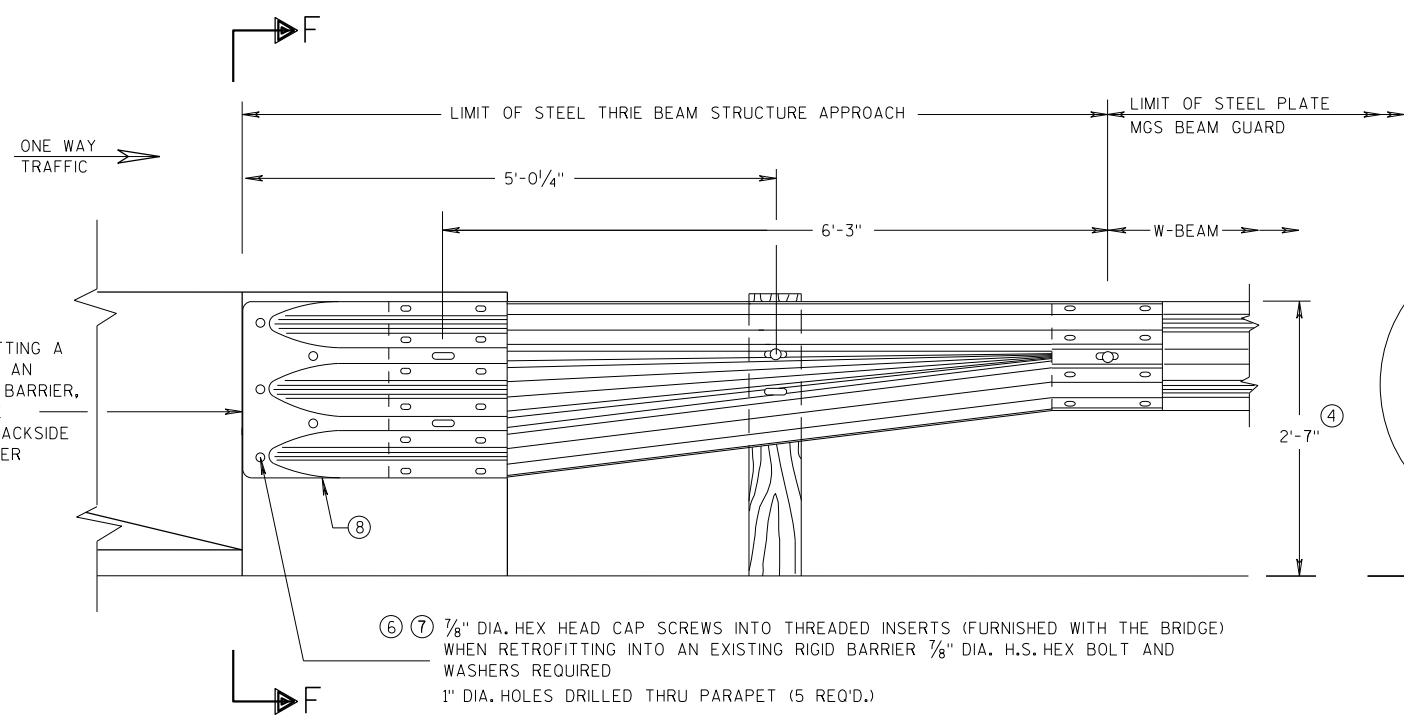
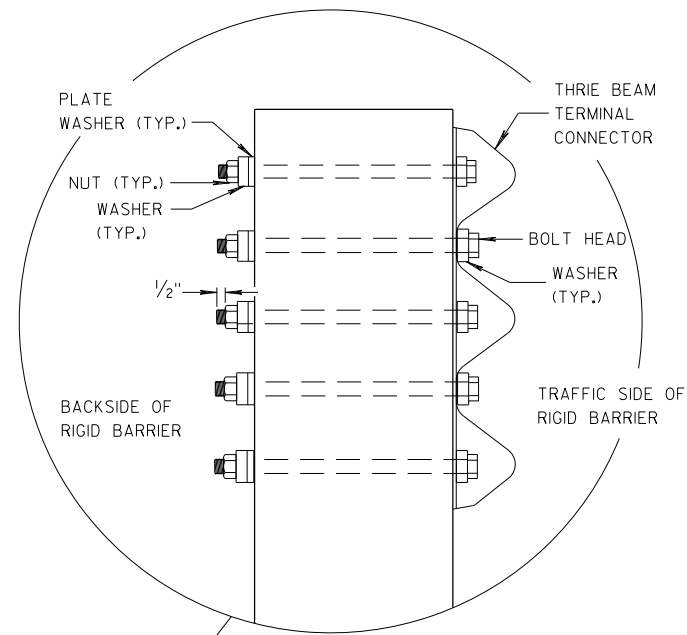
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

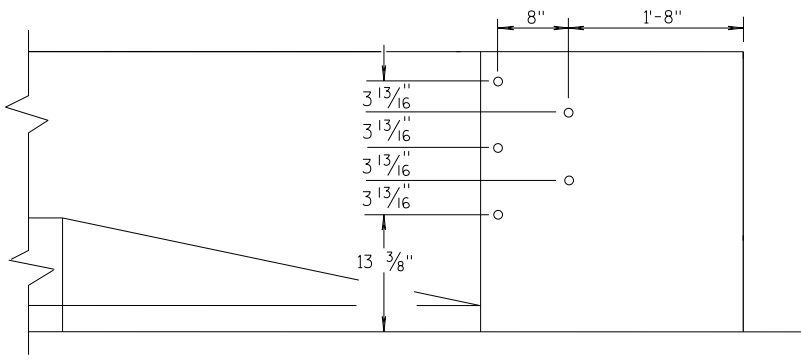


GENERAL NOTES

- 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.
- 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 5/32" 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".



SECTION F-F

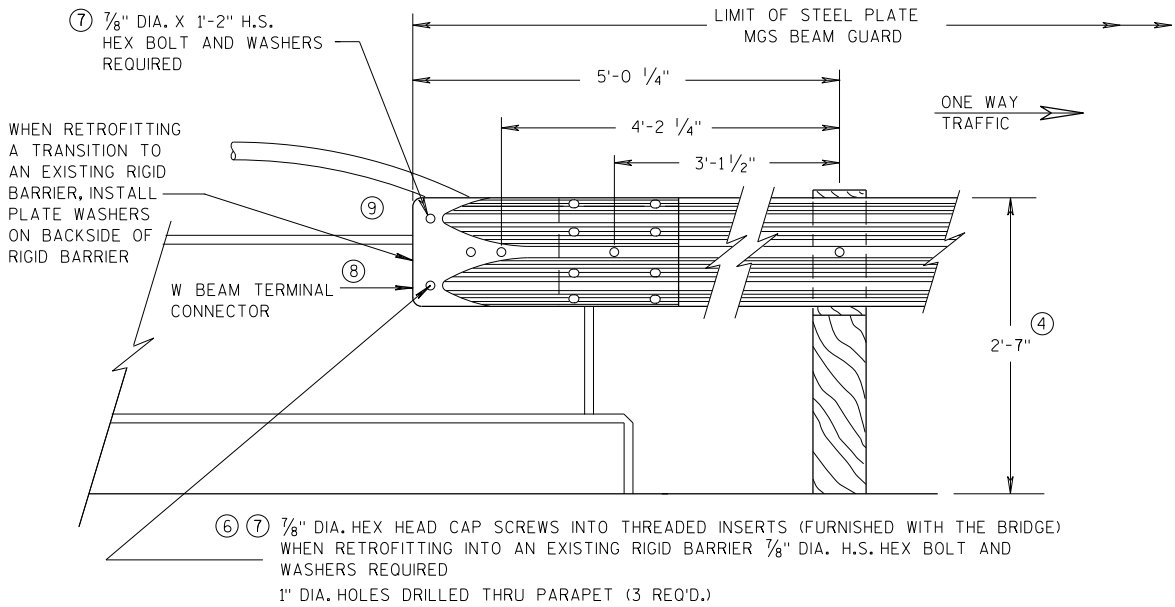


MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

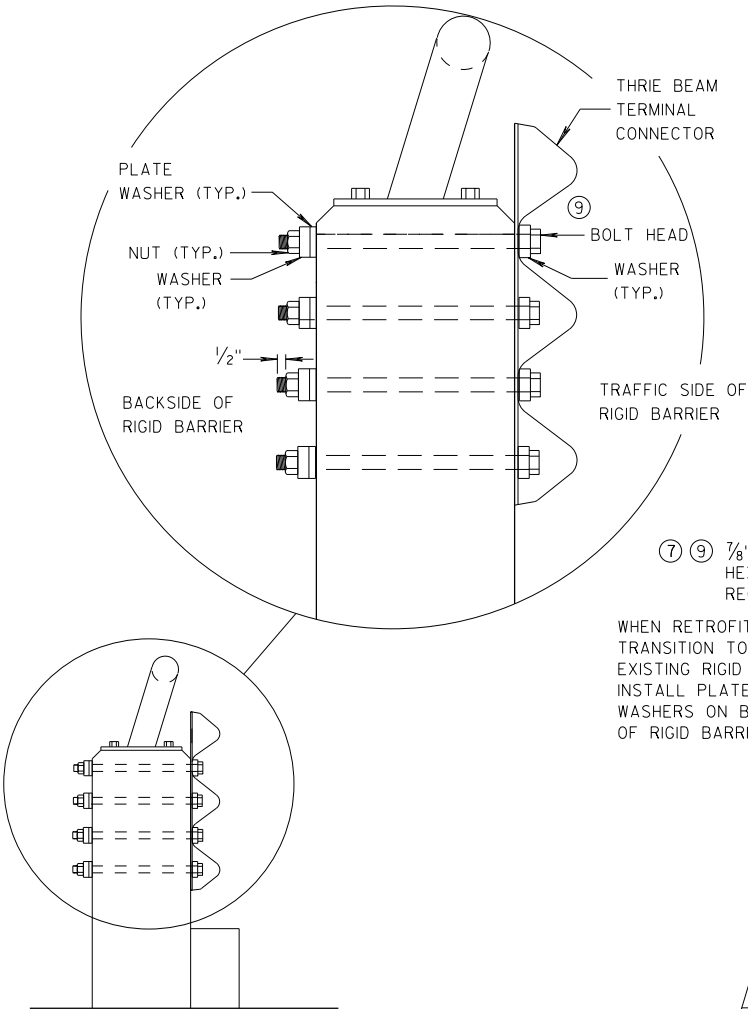
GENERAL NOTES

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

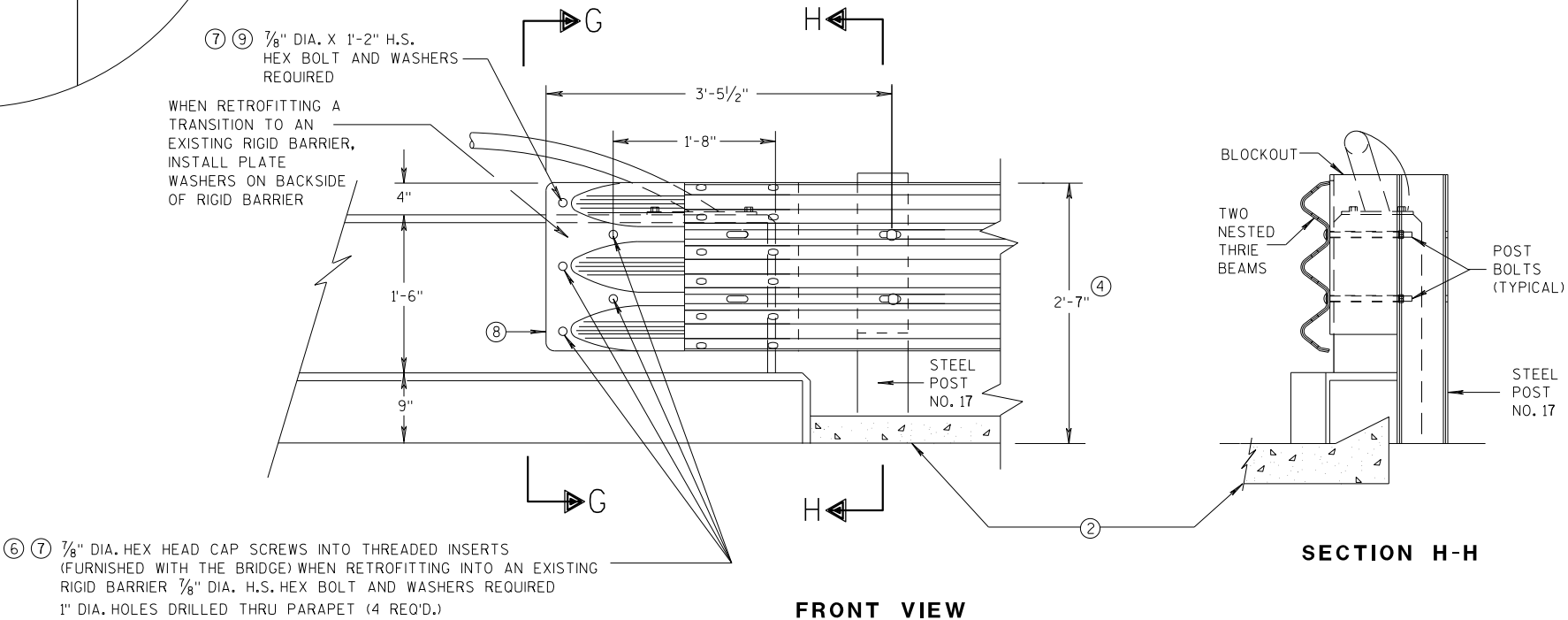
- ②
- OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④
- TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑥
- DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦
- BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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 5/32" 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".
- 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

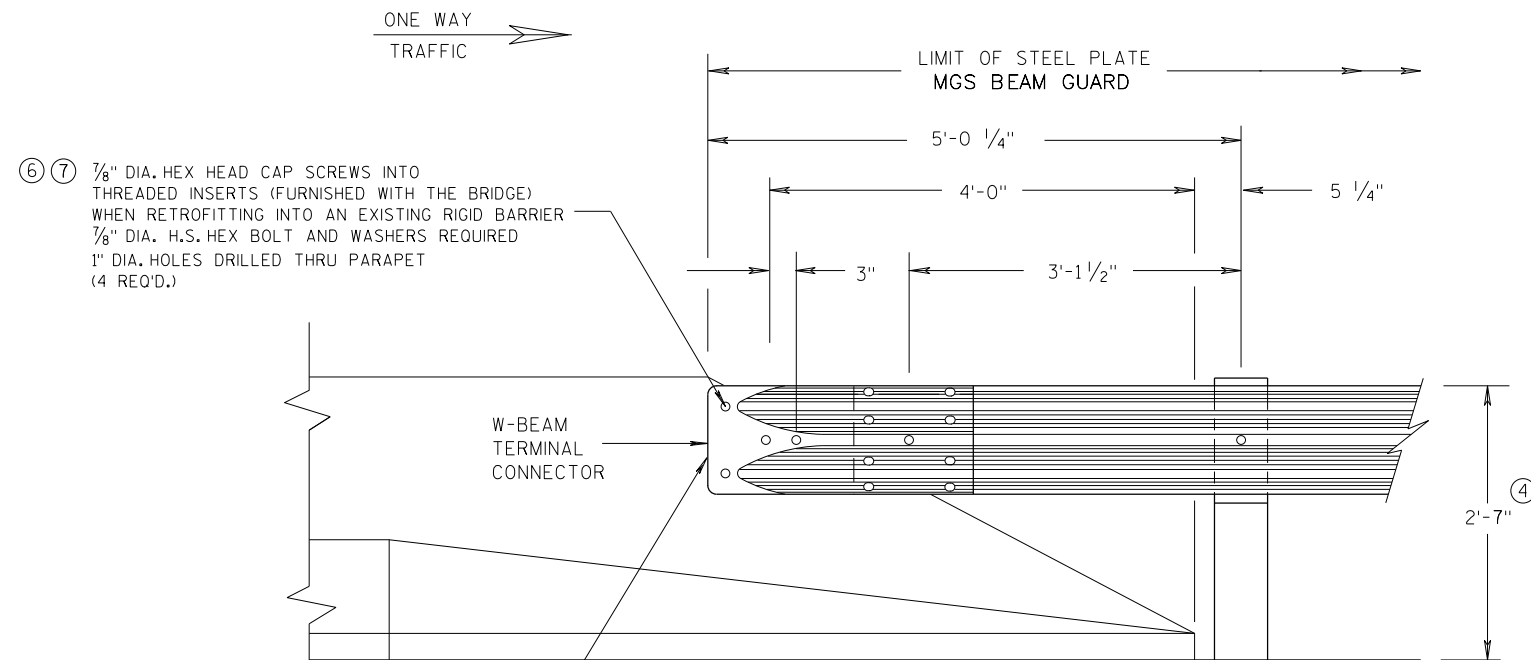
SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

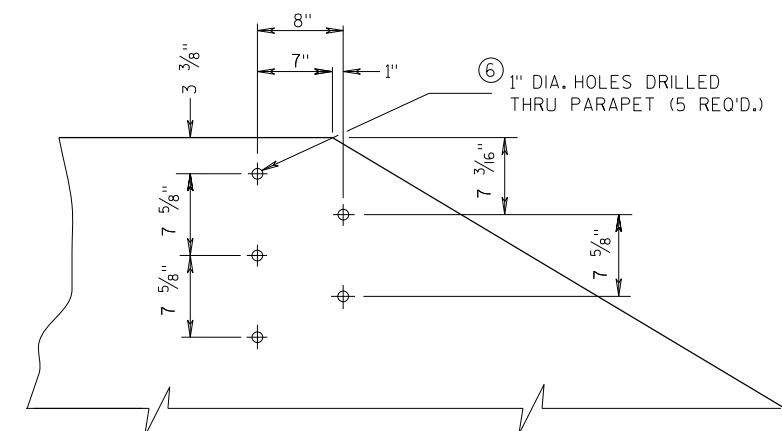
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018
DATE
FHWA
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

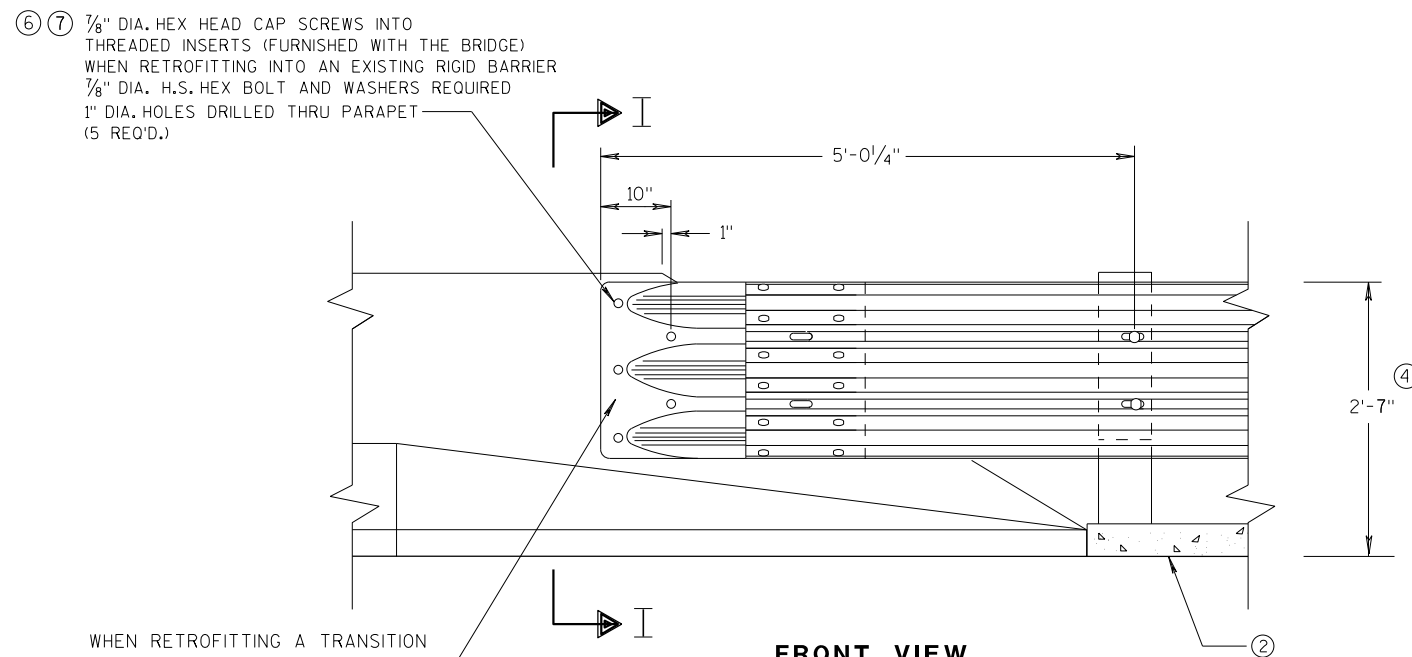


FRONT VIEW

**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)**

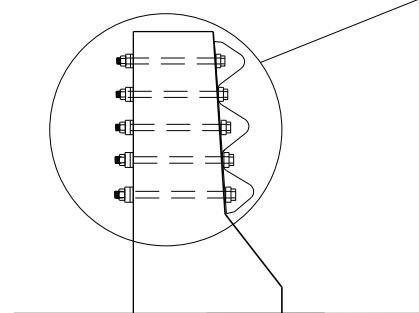


**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**

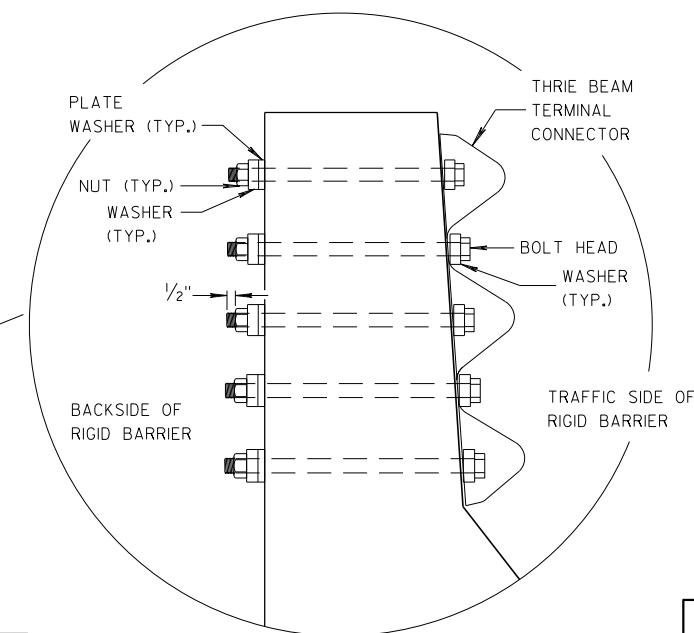


FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



SECTION I-I

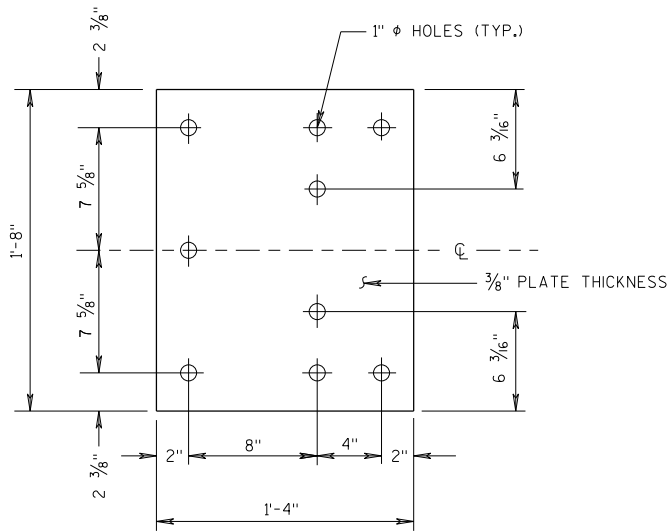
**GENERAL NOTES**

- 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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

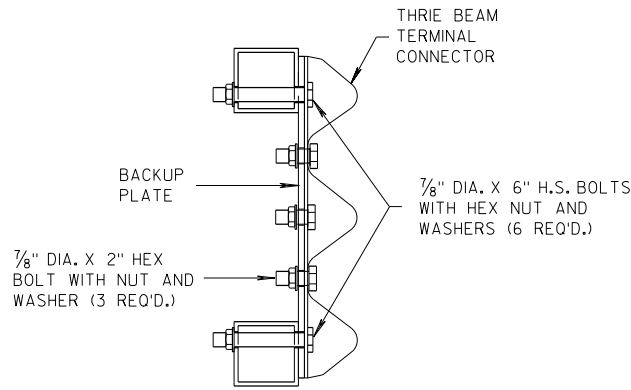
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

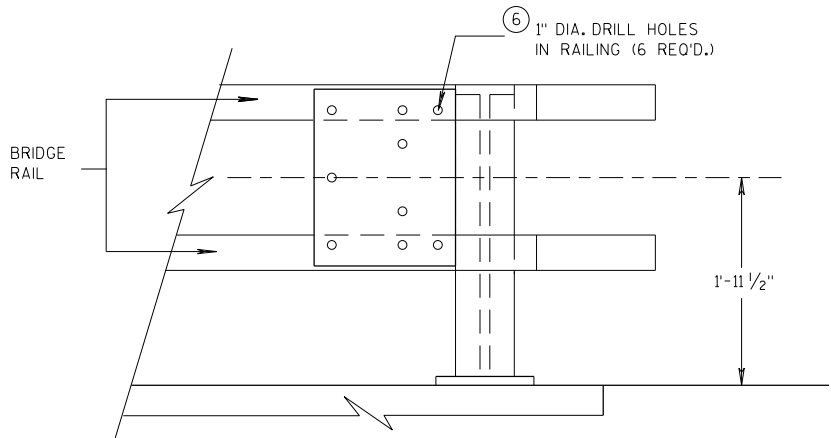
APPROVED	/S/ Rodney Taylor
DATE	ROADWAY STANDARDS DEVELOPMENT
FHWA	UNIT SUPERVISOR



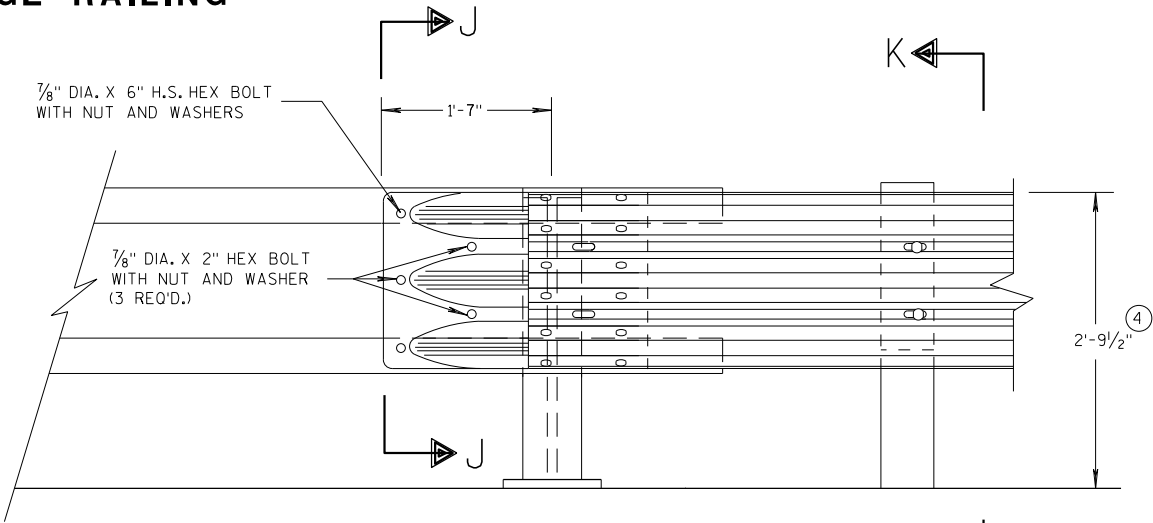
BACK-UP PLATE DETAIL



SECTION J-J

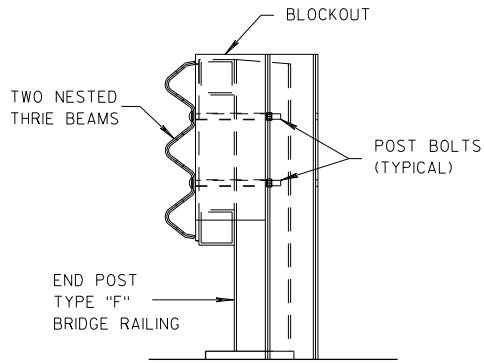


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

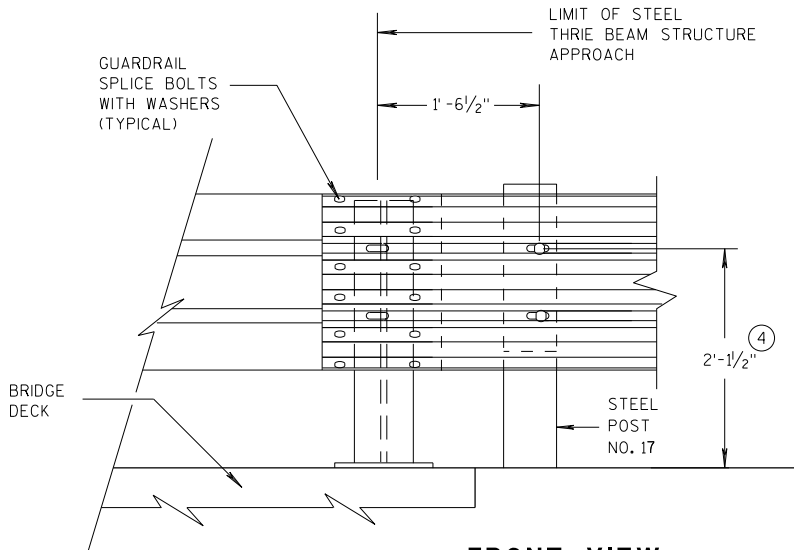
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



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.



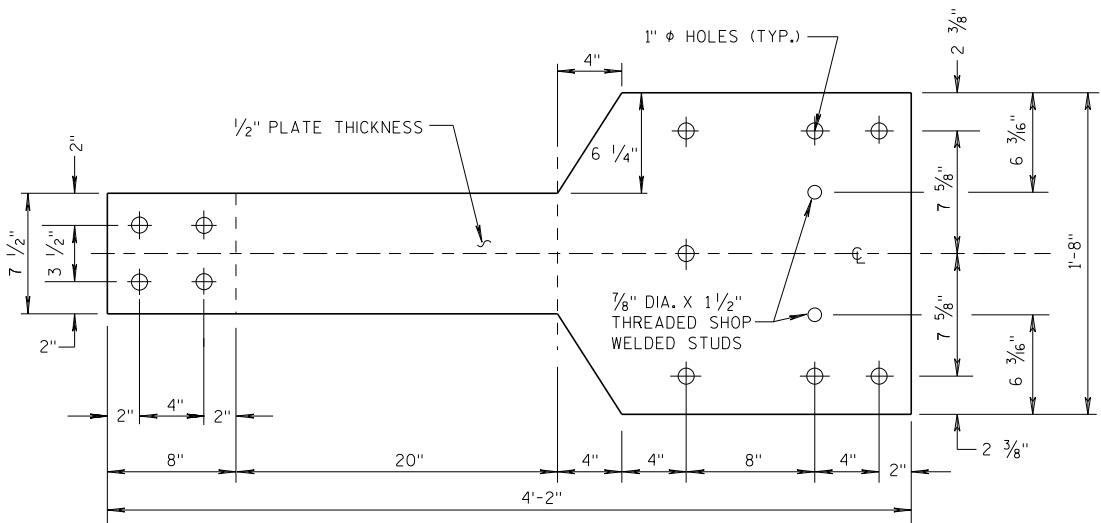
FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

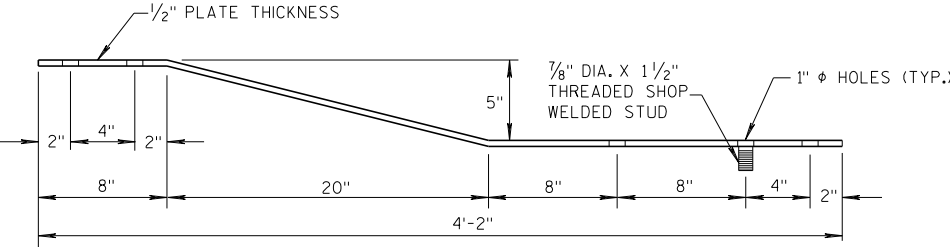
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018	/S/ Rodney Taylor
DATE	ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

GENERAL NOTES

④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

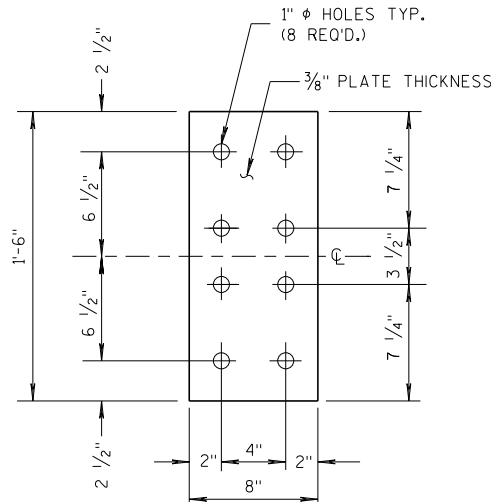


FRONT VIEW



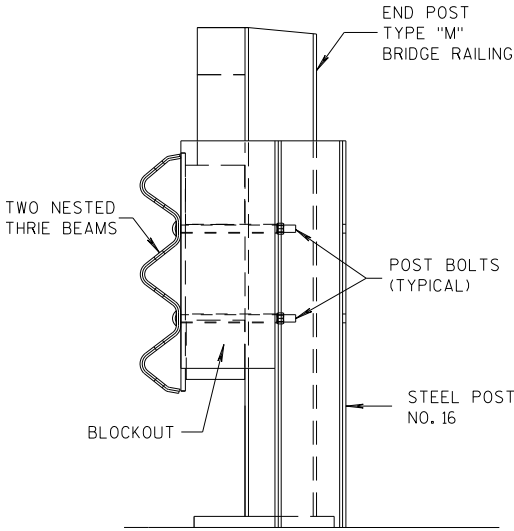
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

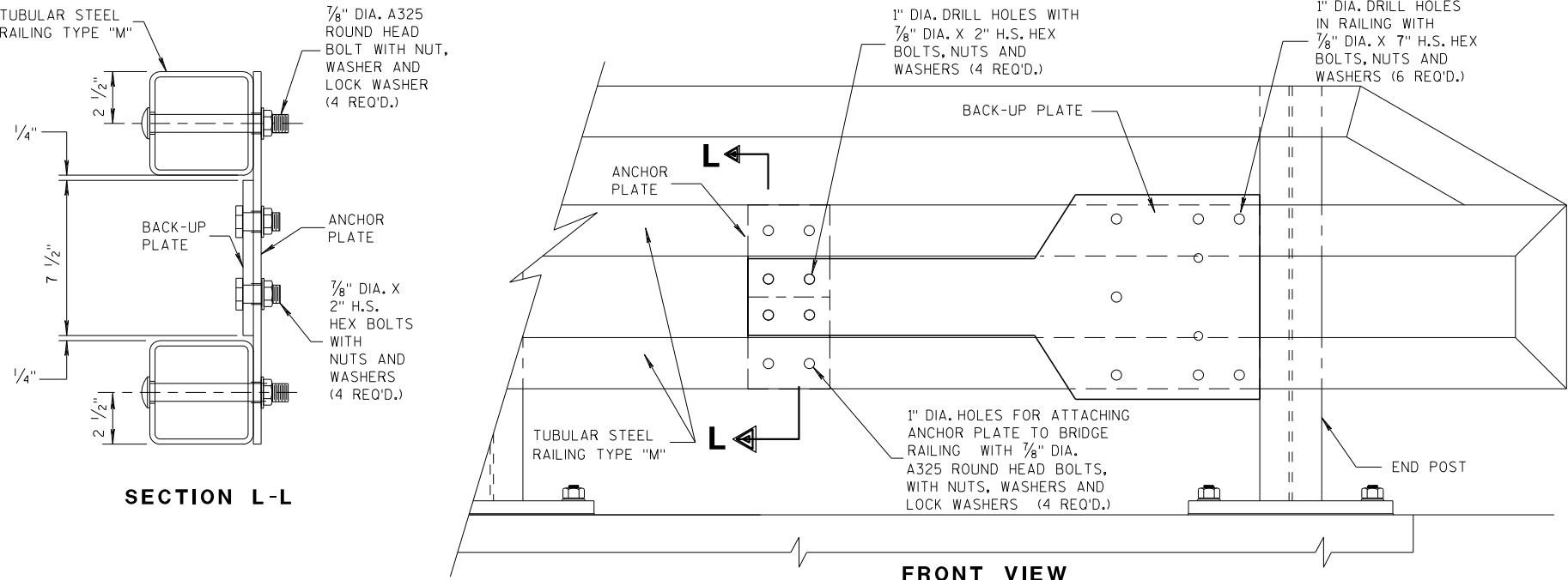


FRONT VIEW

ANCHOR PLATE DETAIL, TYPE "M"



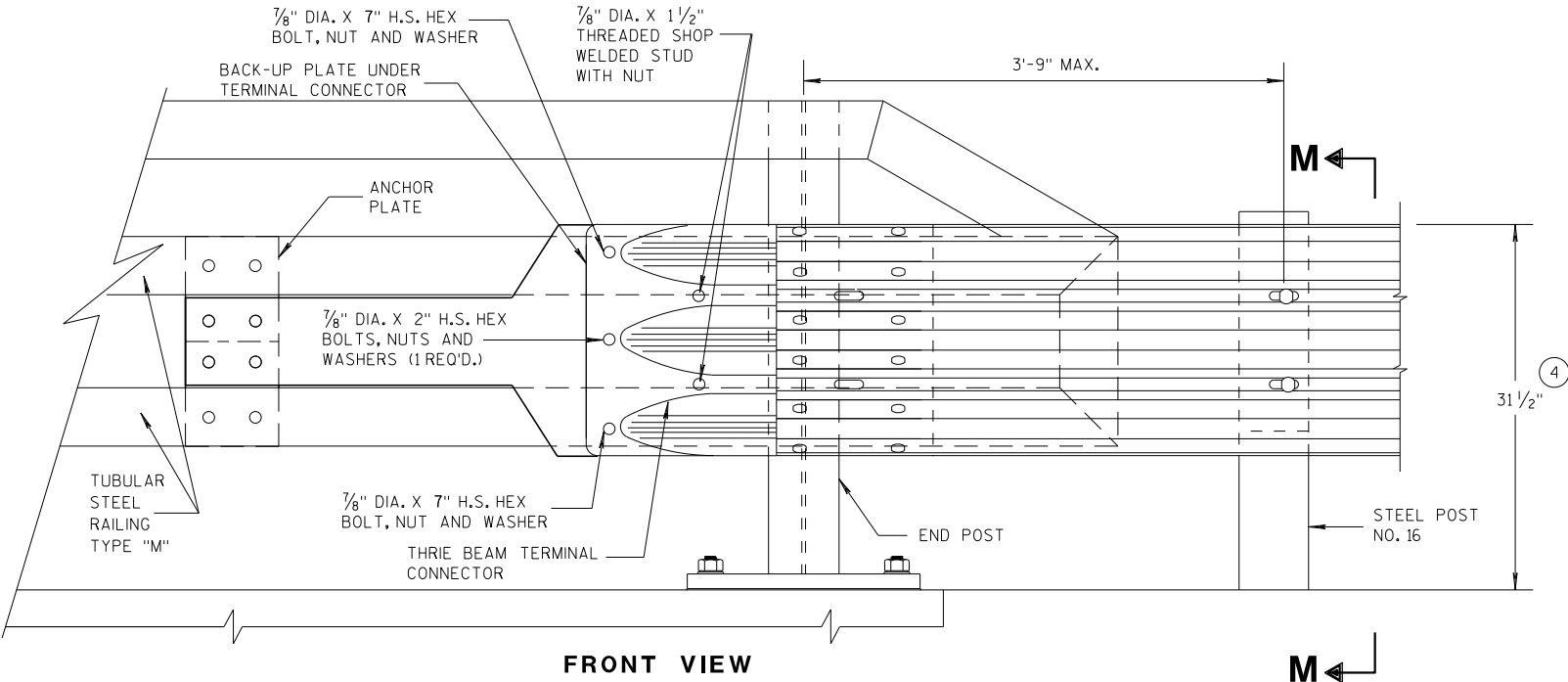
SECTION M-M



SECTION L-L

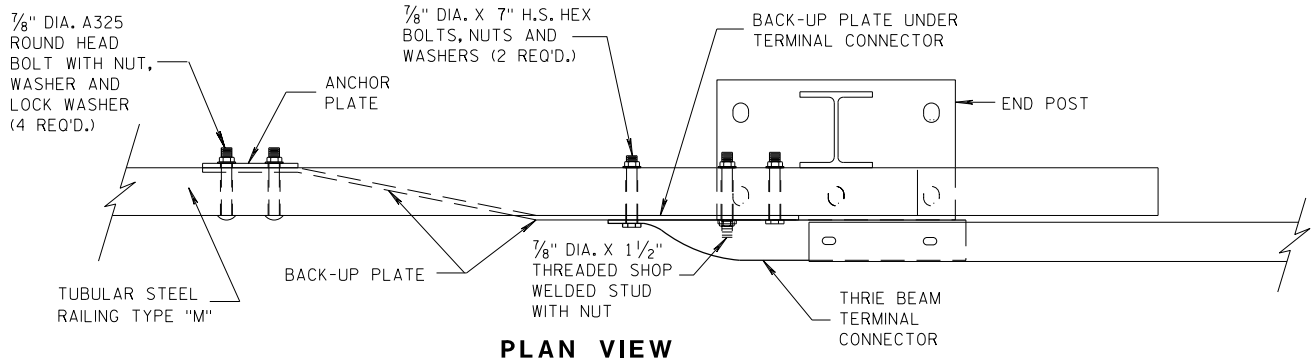
FRONT VIEW

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



FRONT VIEW

M



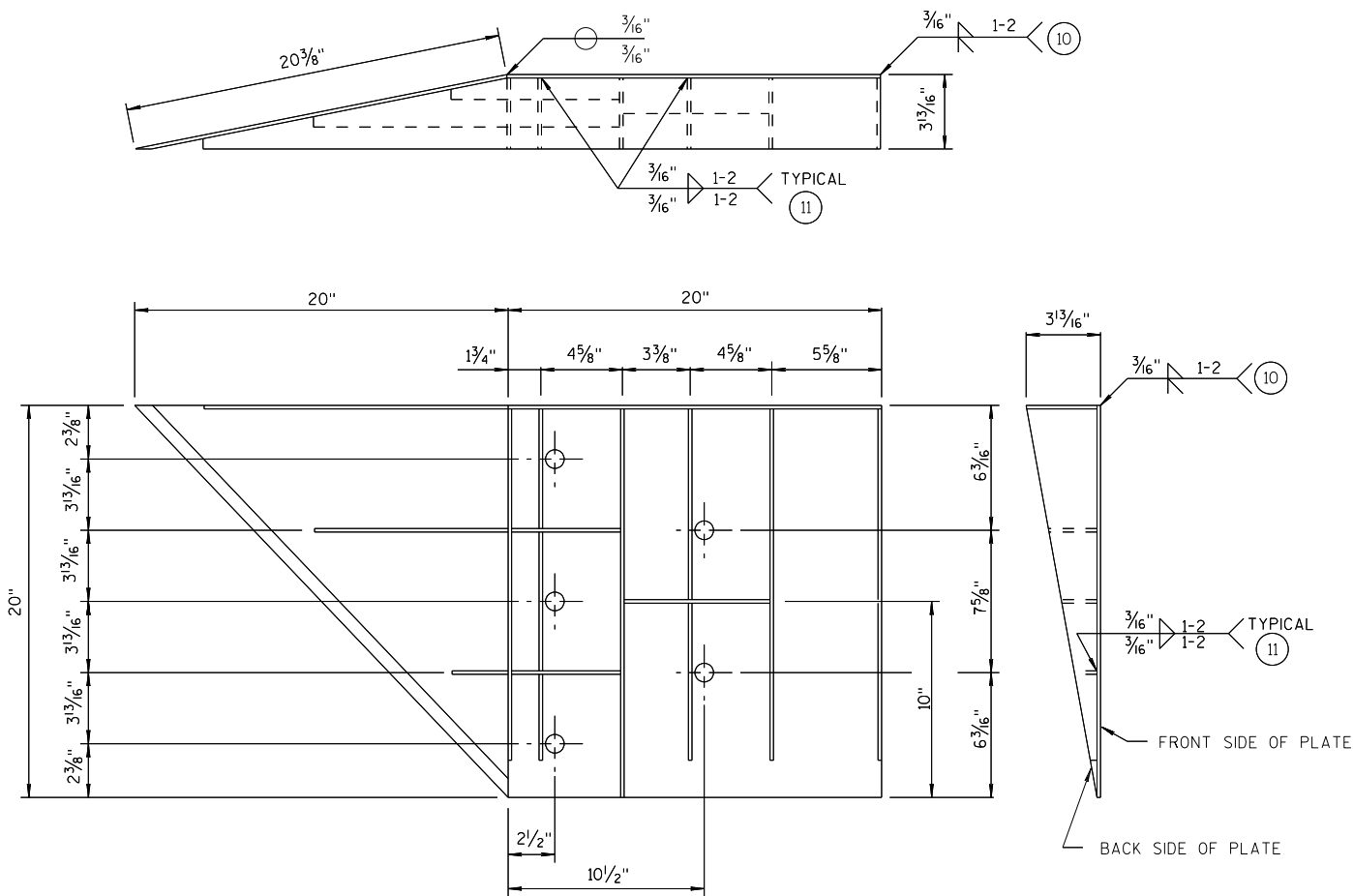
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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07/2018
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

GENERAL NOTES

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 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 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:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

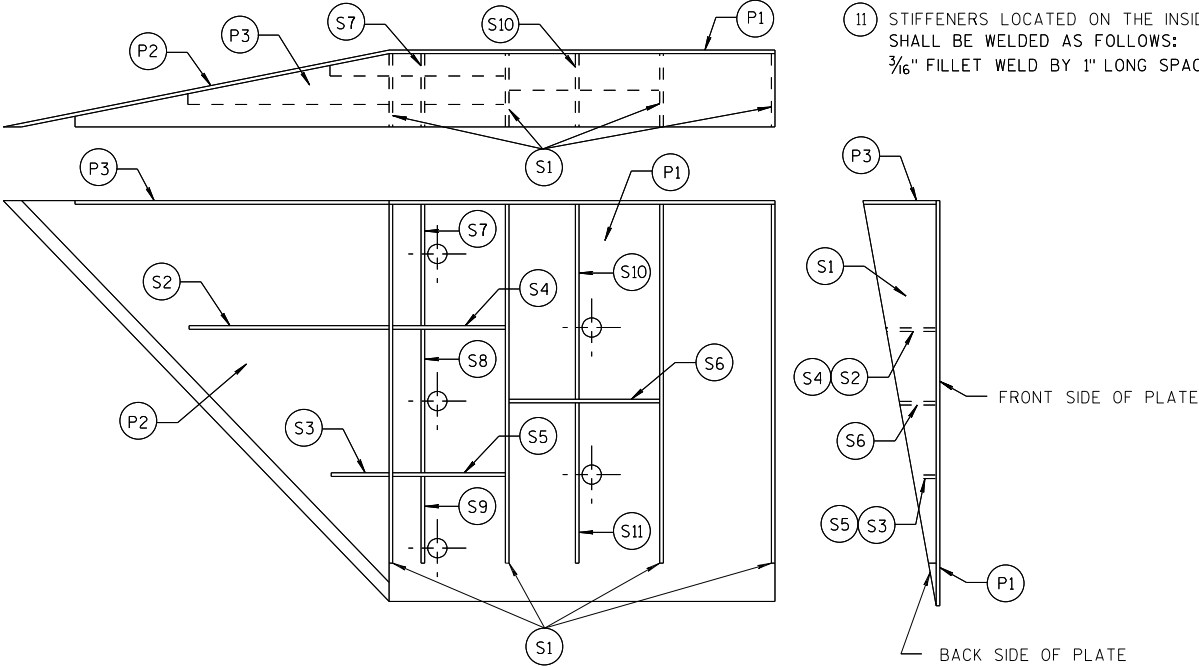
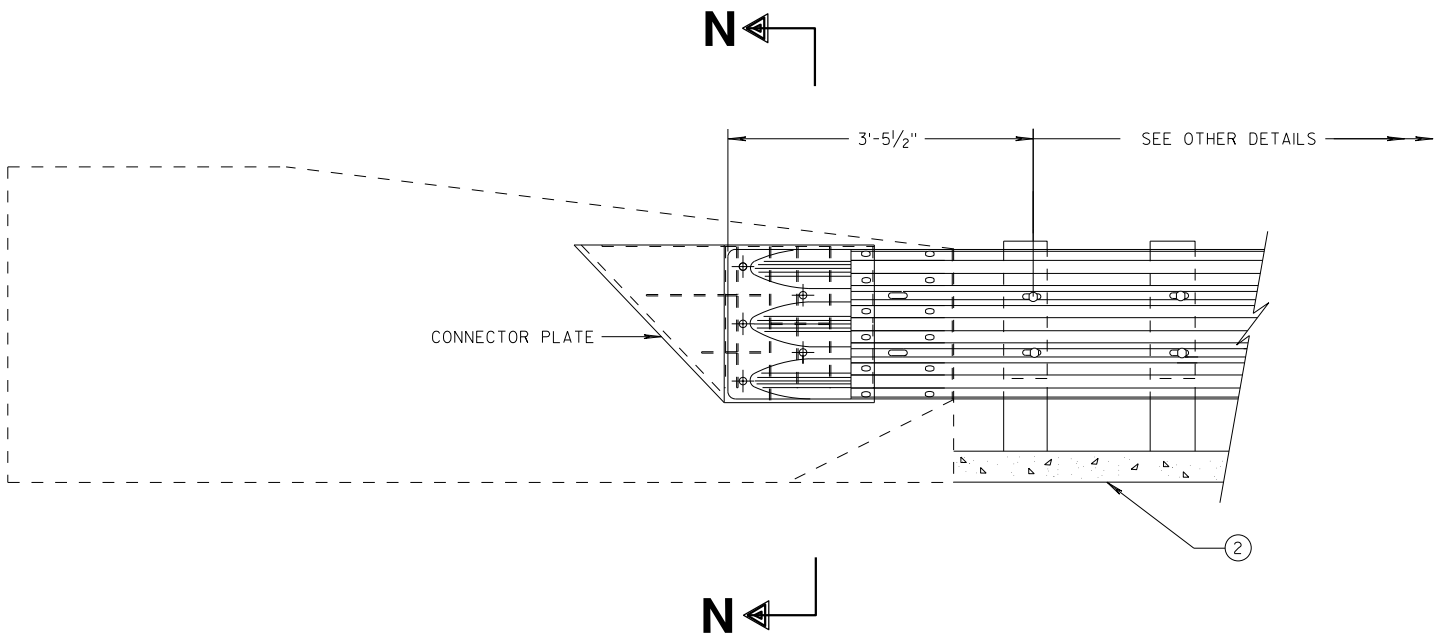


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

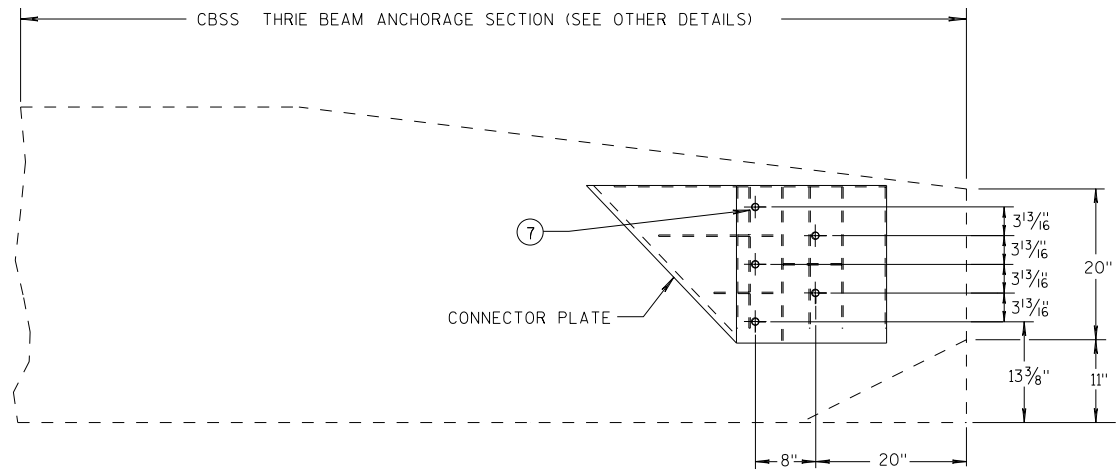
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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DATE
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ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



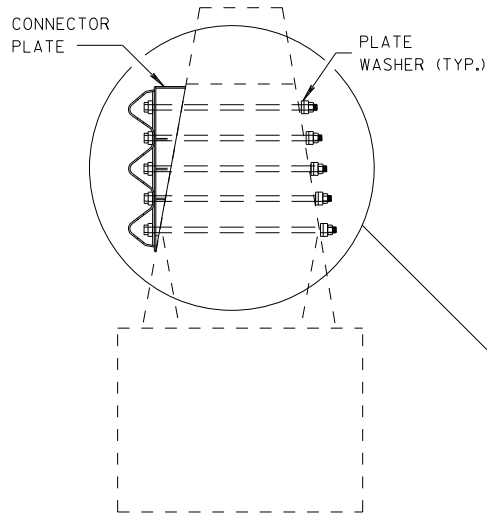
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

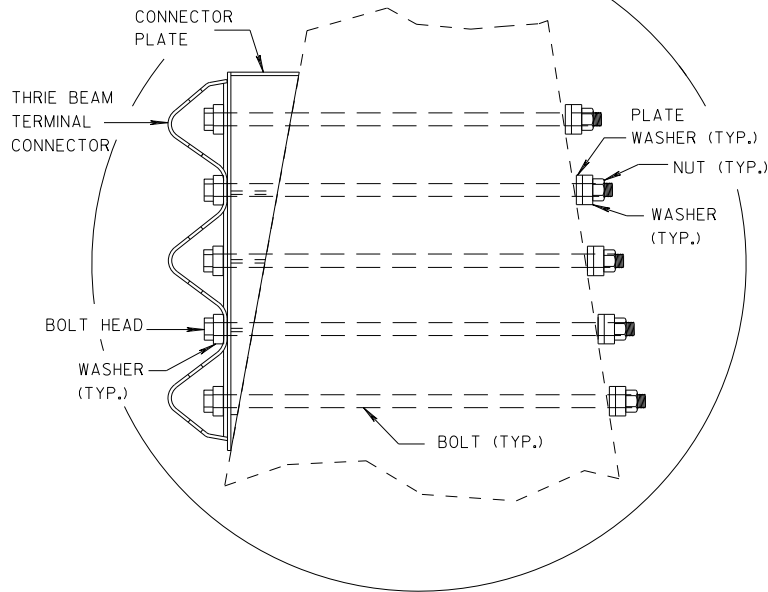
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



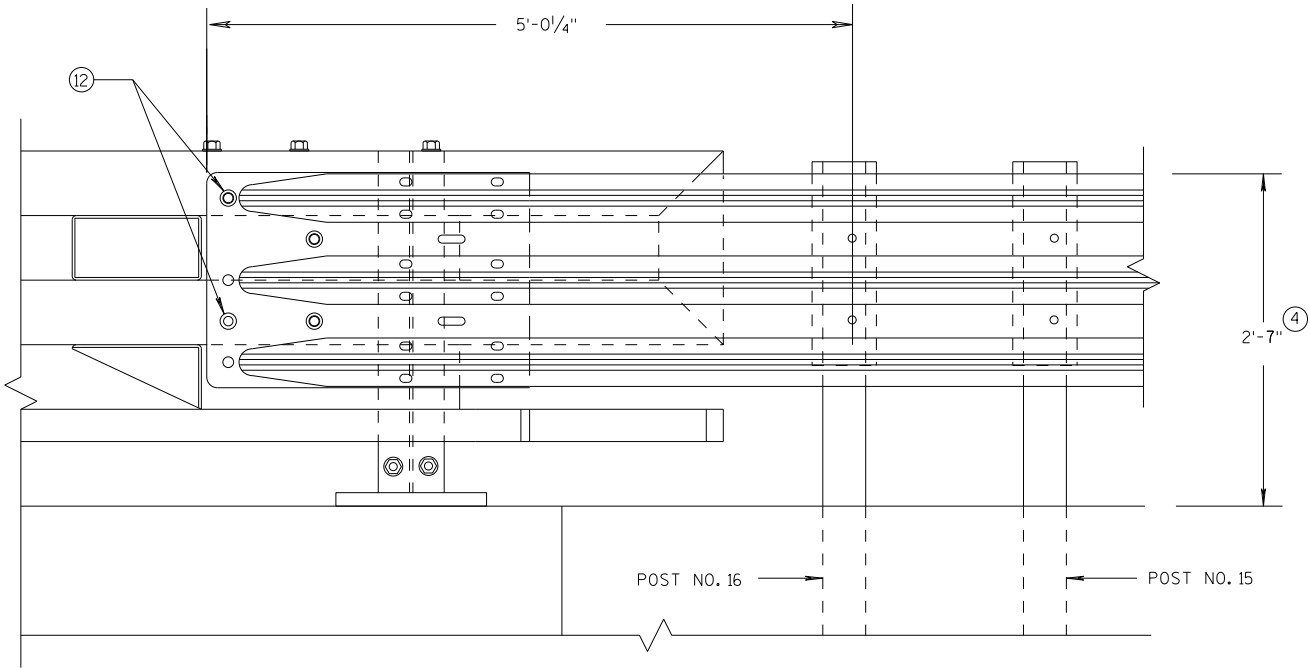
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

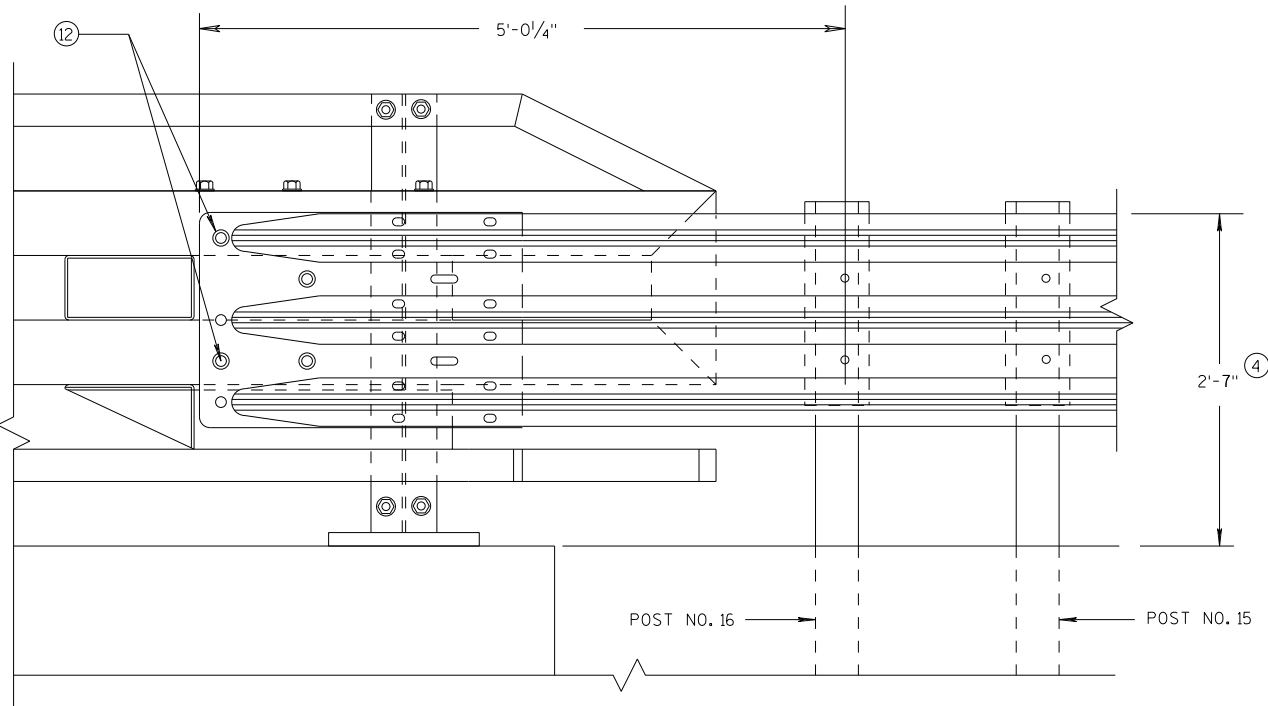
APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

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

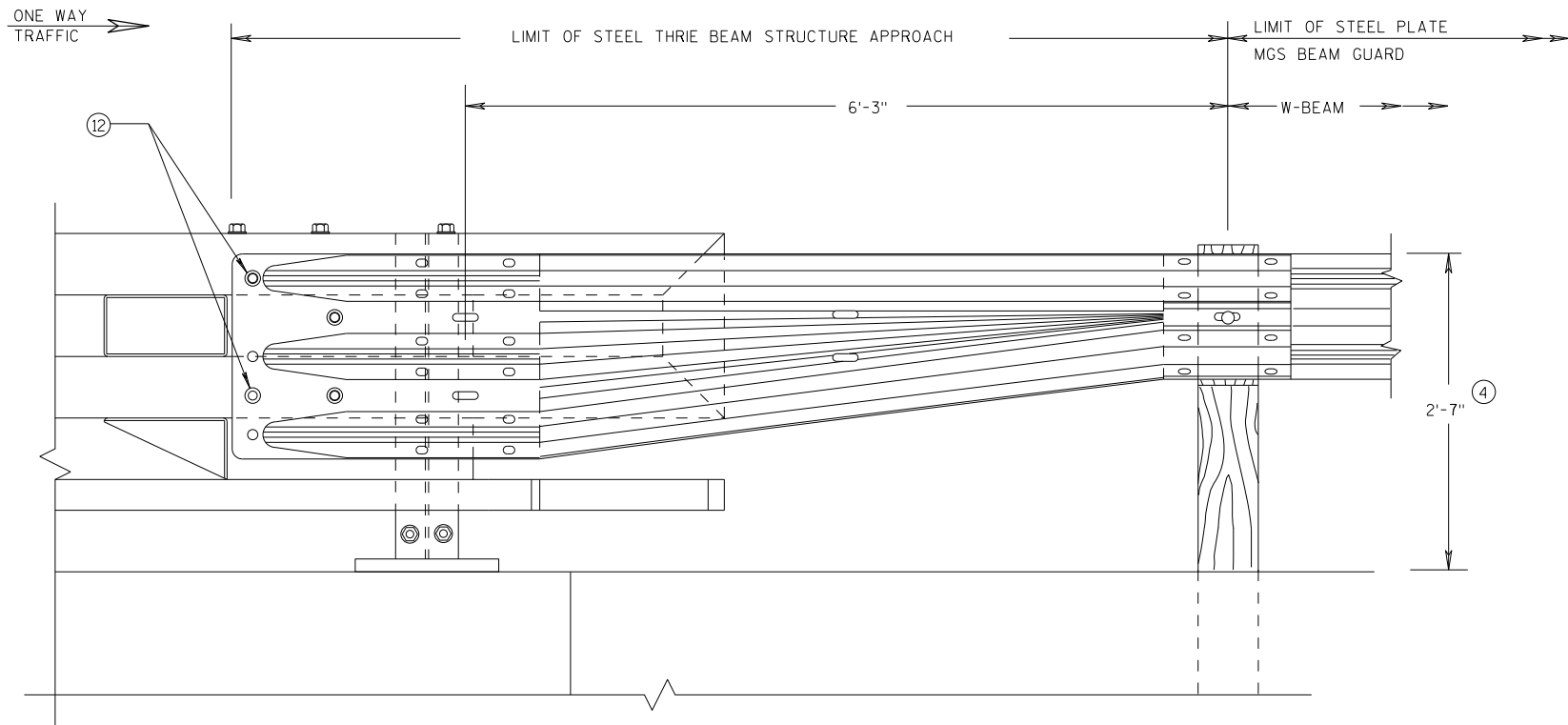


ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



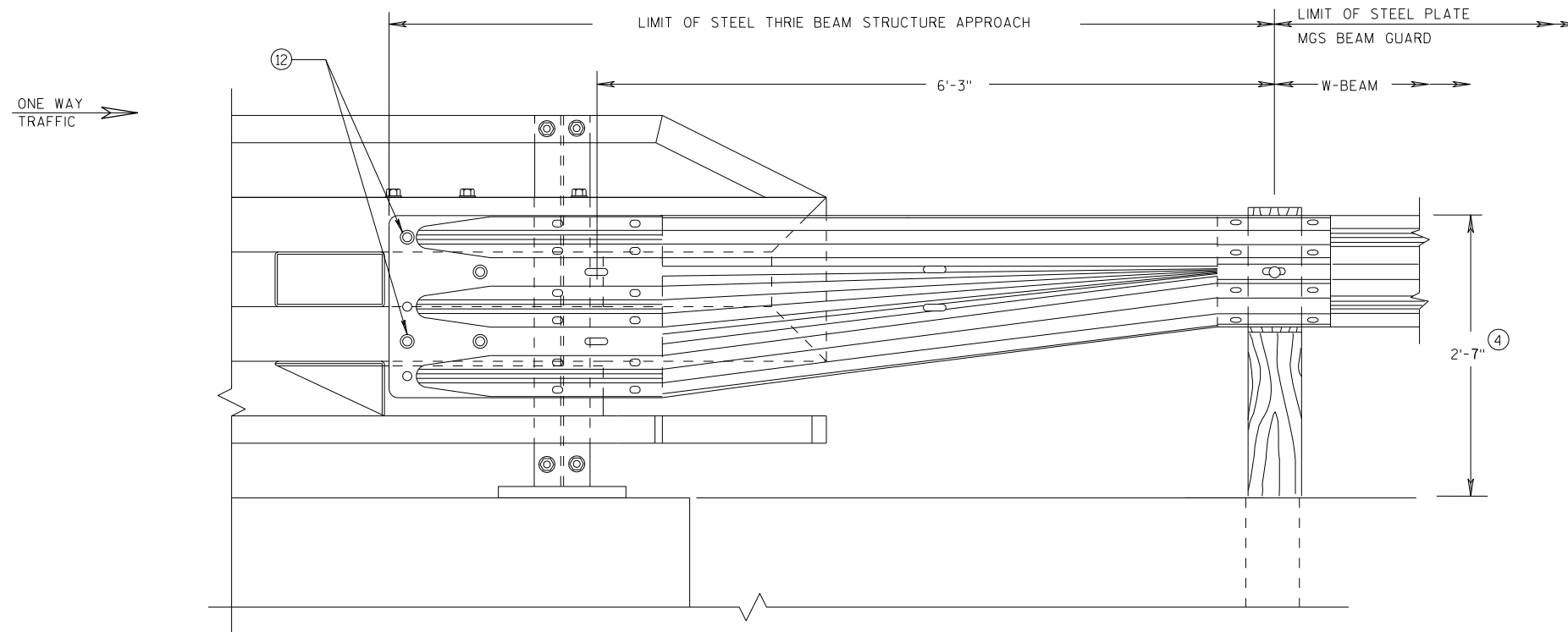
GENERAL NOTES

(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 "NY3" (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



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

7/2018

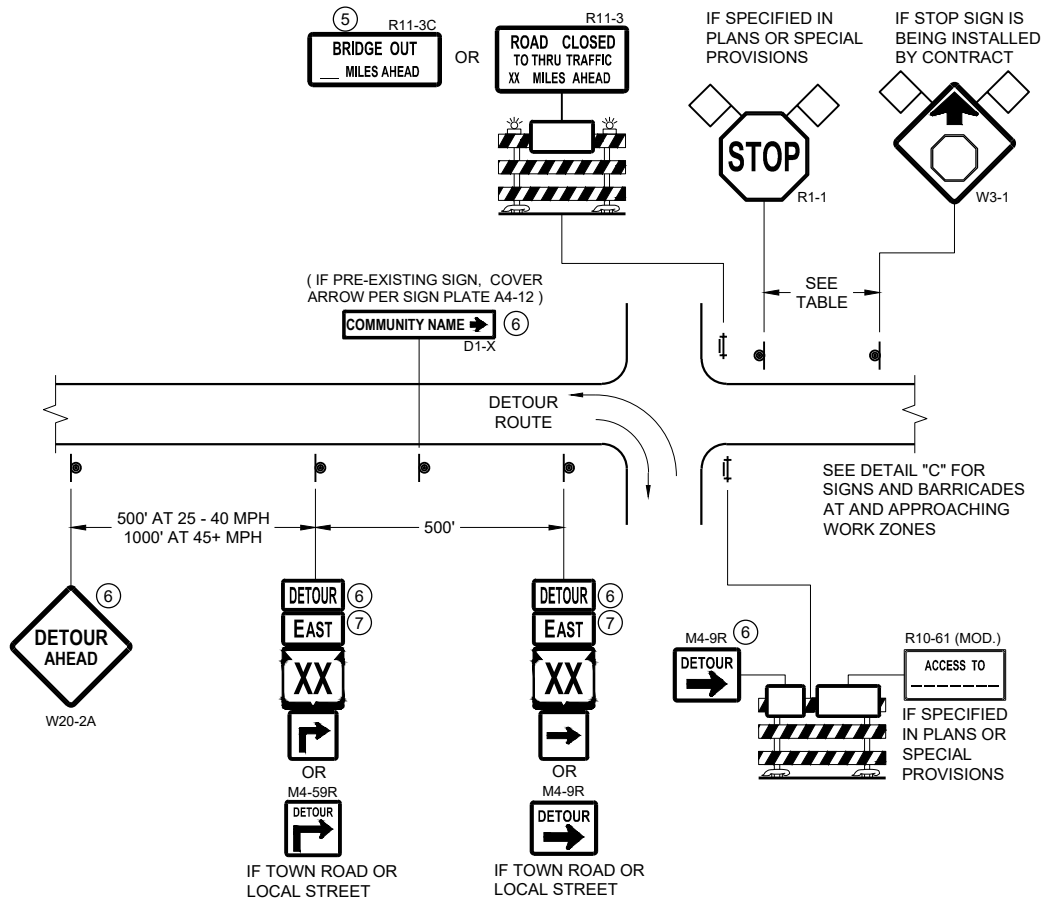
DATE

FHWA

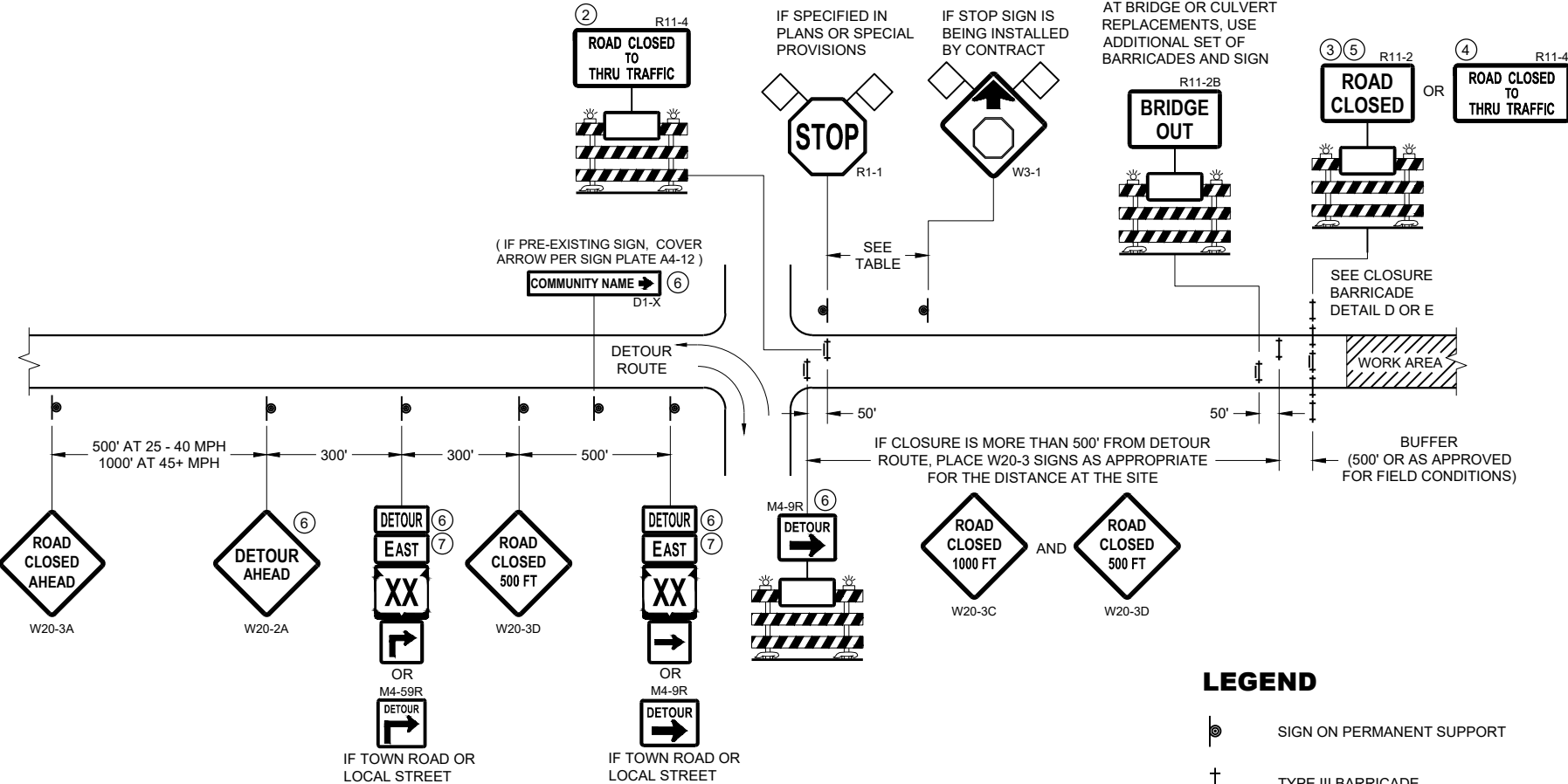
/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT

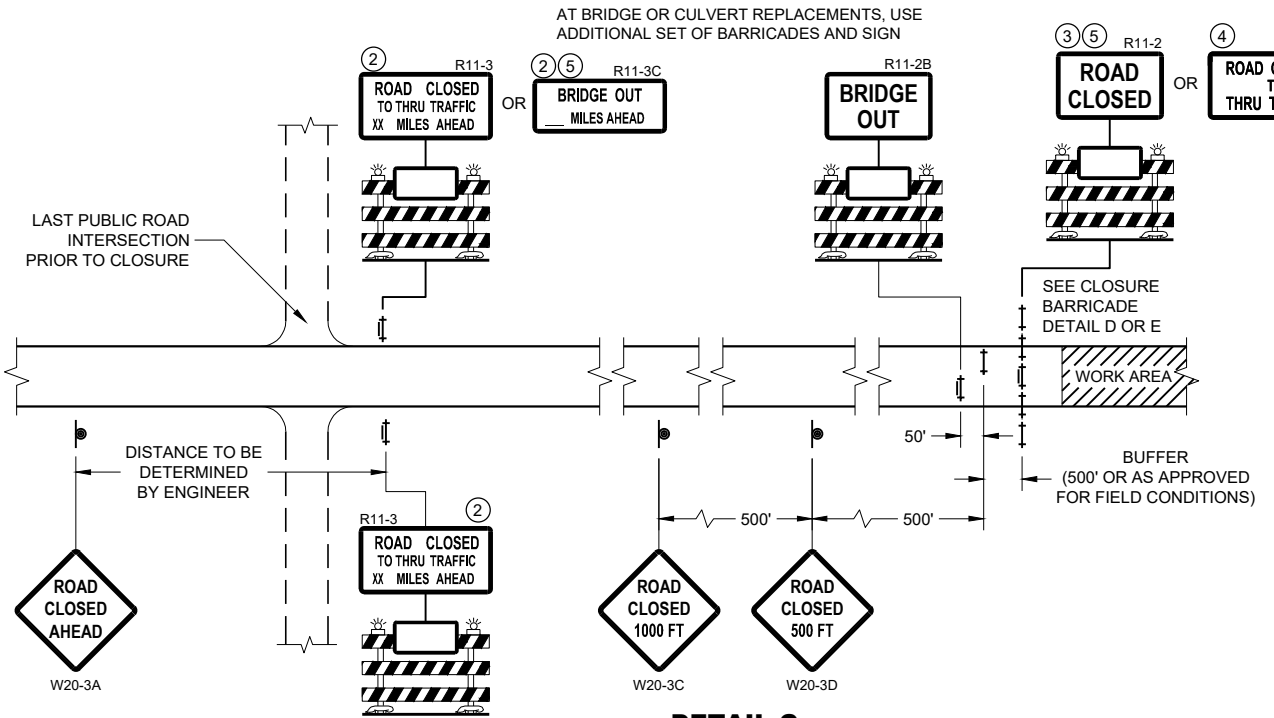
UNIT SUPERVISOR



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ 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

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

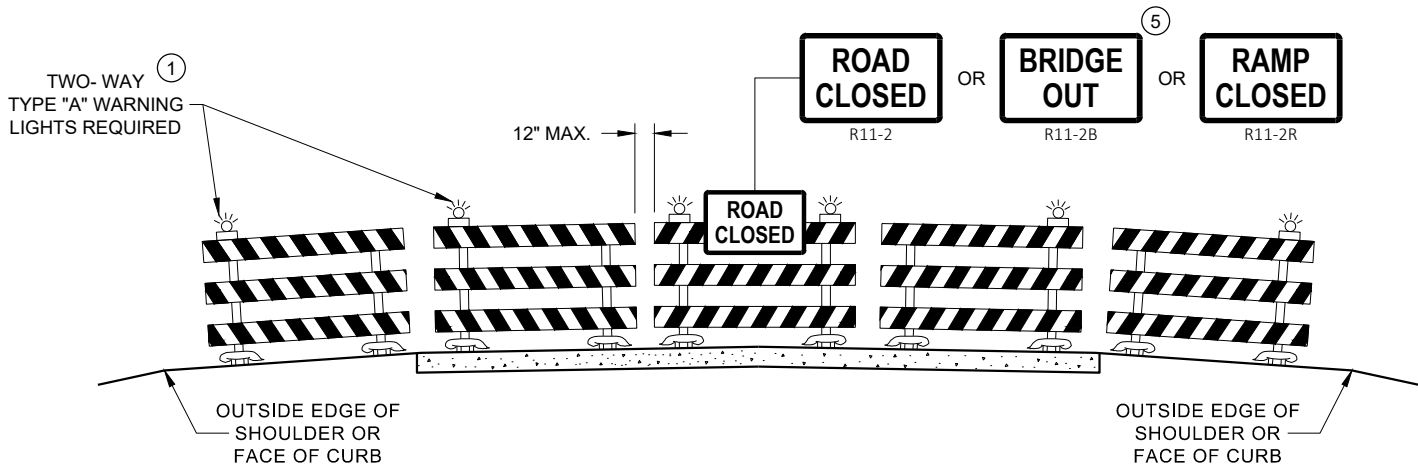
LEGEND

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

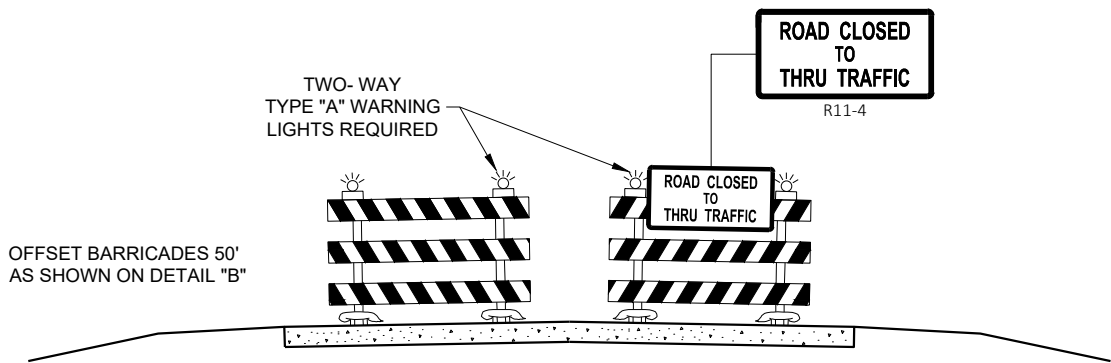
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



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 THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL 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 SHALL, 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" (36" X 18" 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)
- MO5 - 1 AND MO6 - 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"

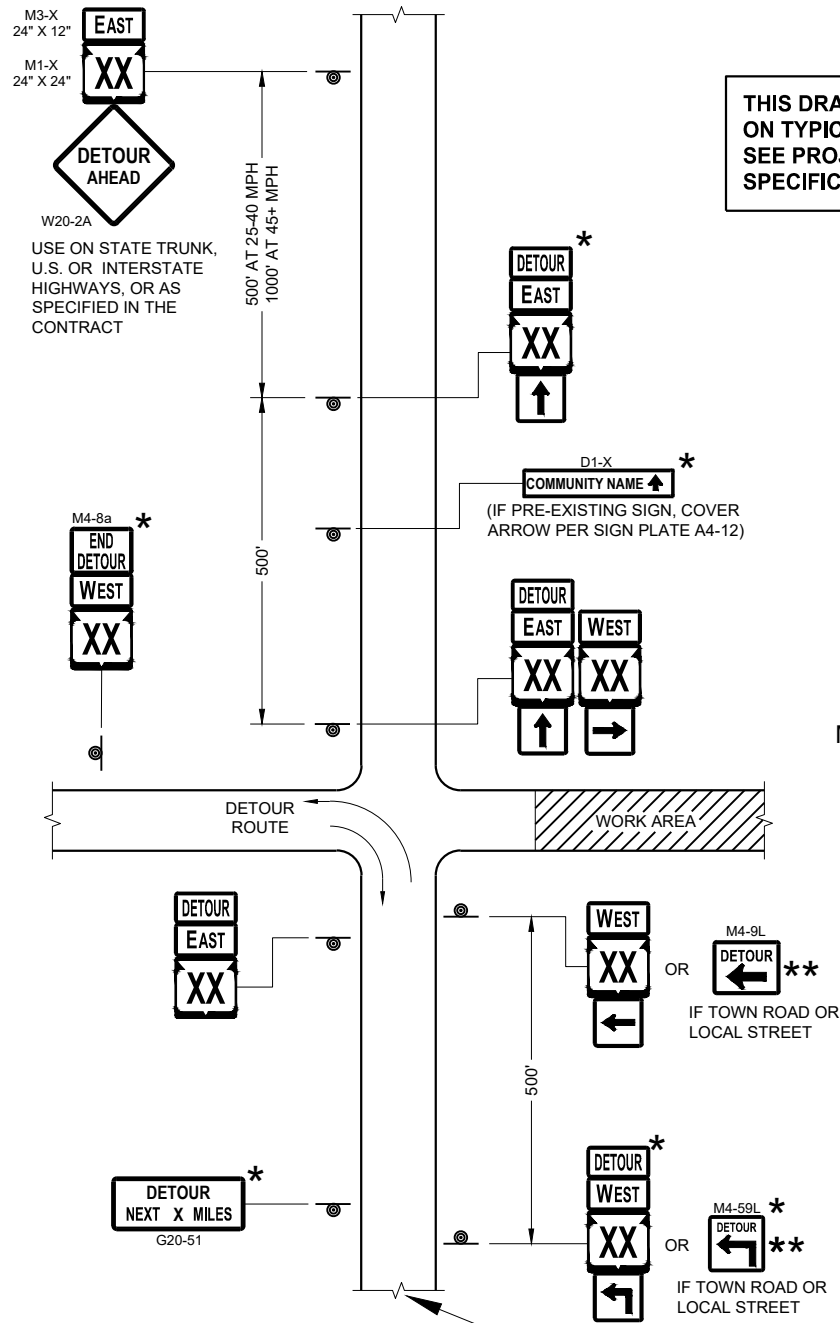
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN 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 ROAD 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
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

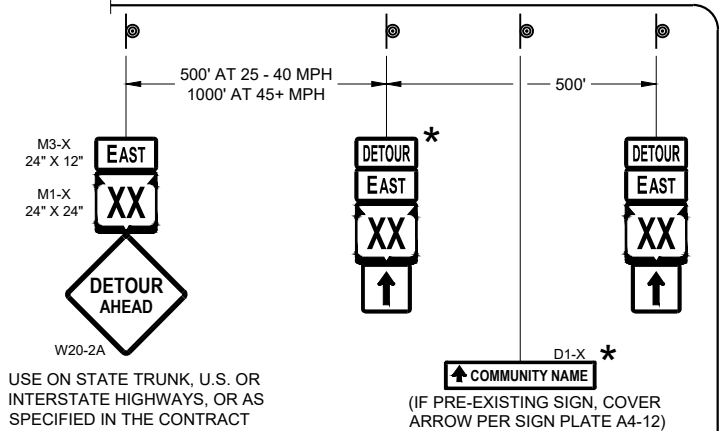
FHWA



SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

THIS DRAWING PROVIDES GENERAL GUIDANCE
ON TYPICAL DETOUR SIGN LAYOUT AND SPACING.
SEE PROJECT DETOUR SIGNING SHEETS FOR
SPECIFIC DETAILS FOR EACH PROJECT.

MATCH POINT



DETAIL F
DETOUR SIGNING

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR EAST M4 - 8
- DETOUR WEST M3 - X
- DETOUR AHEAD M1 - 4 OR M1 - 6 OR M1 - 5A
- DETOUR NEXT X MILES M05 - 1 OR M06 - 1 OR M06 - 1

GENERAL NOTES

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

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. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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.

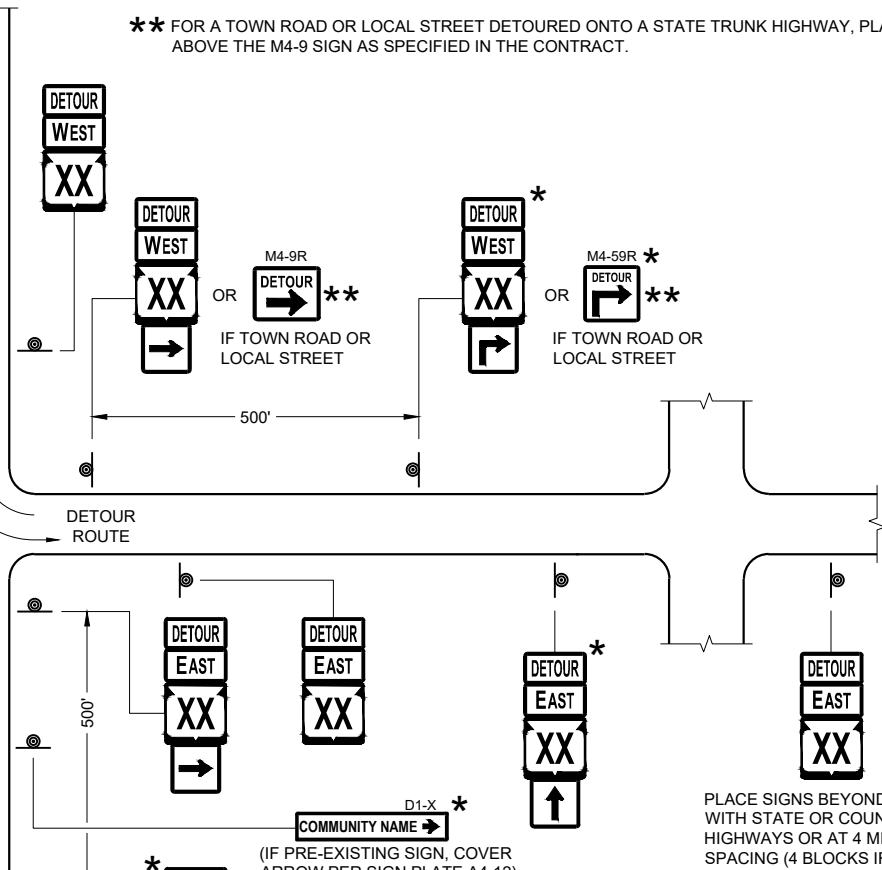
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

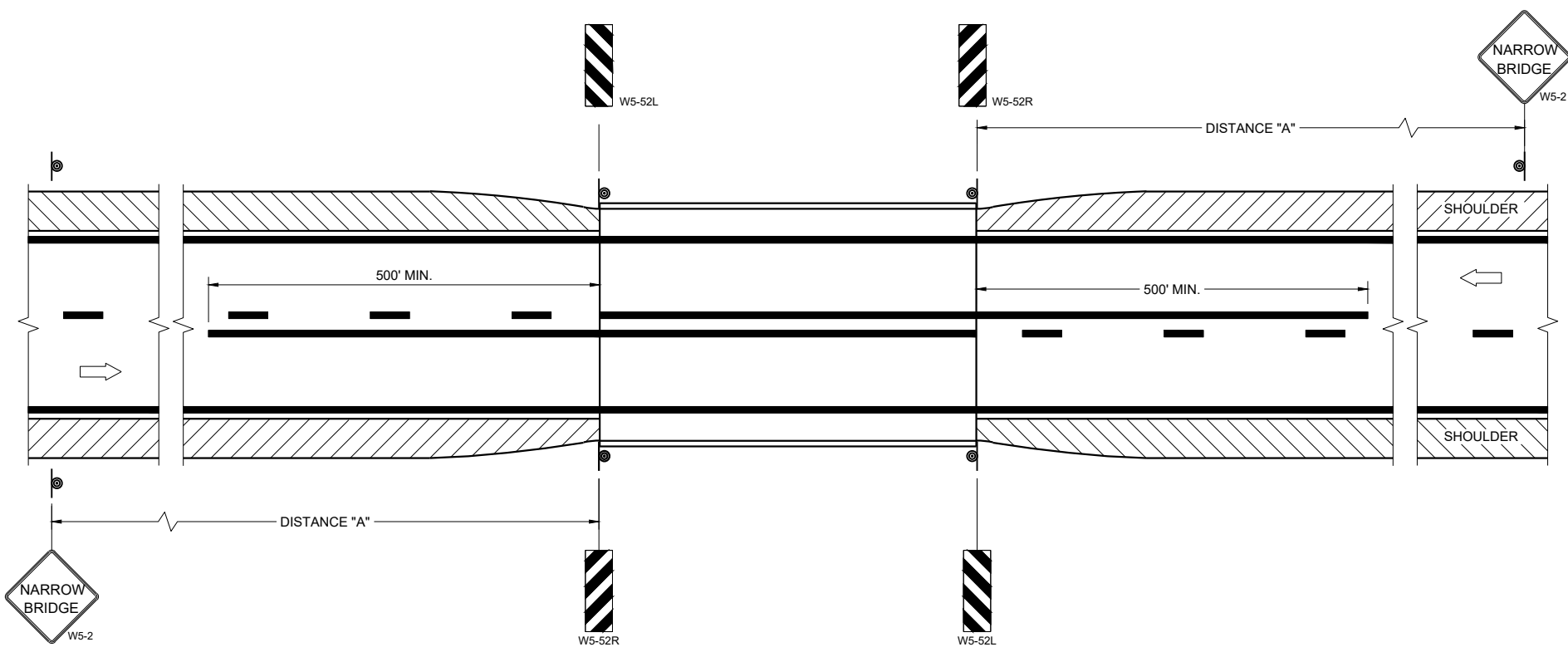
SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" 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)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

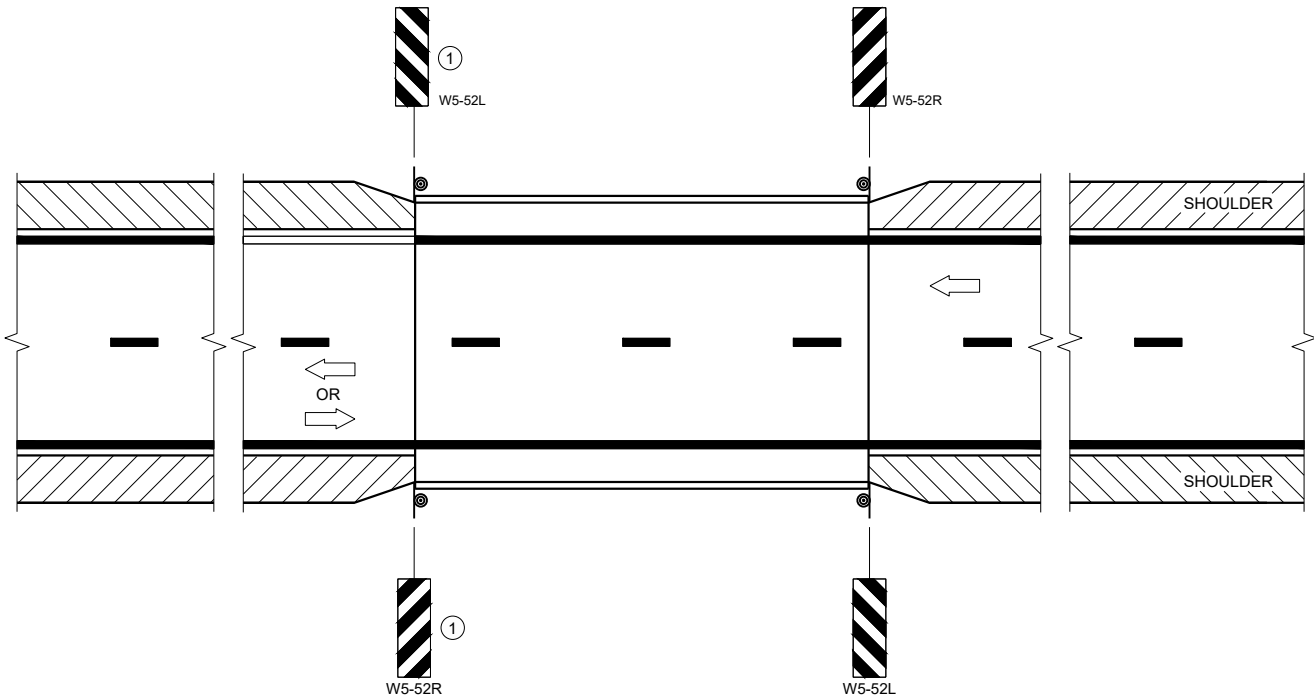
- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



DETOUR SIGNING FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



SITUATION 1
WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



SITUATION 2
WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET

GENERAL NOTES

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

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

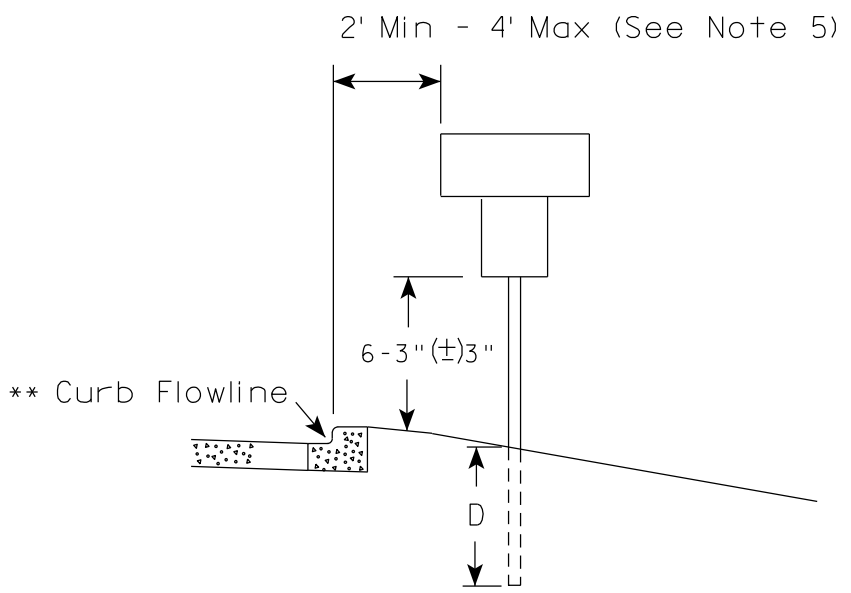
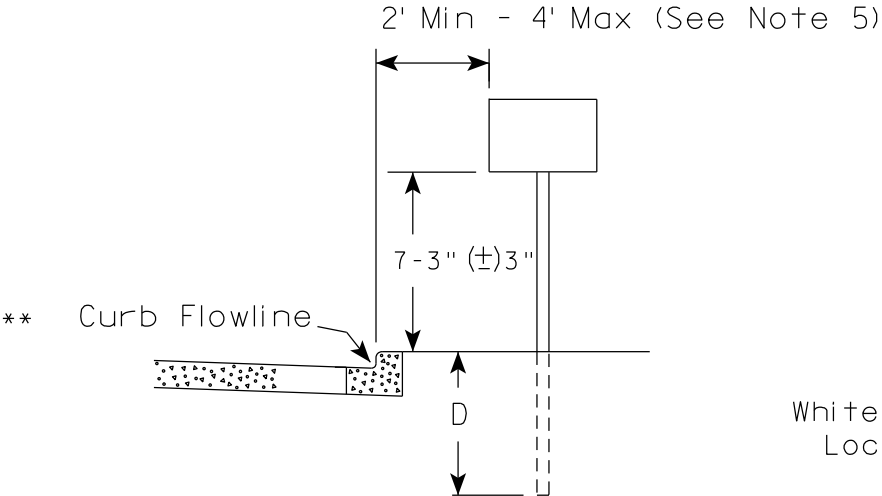
POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

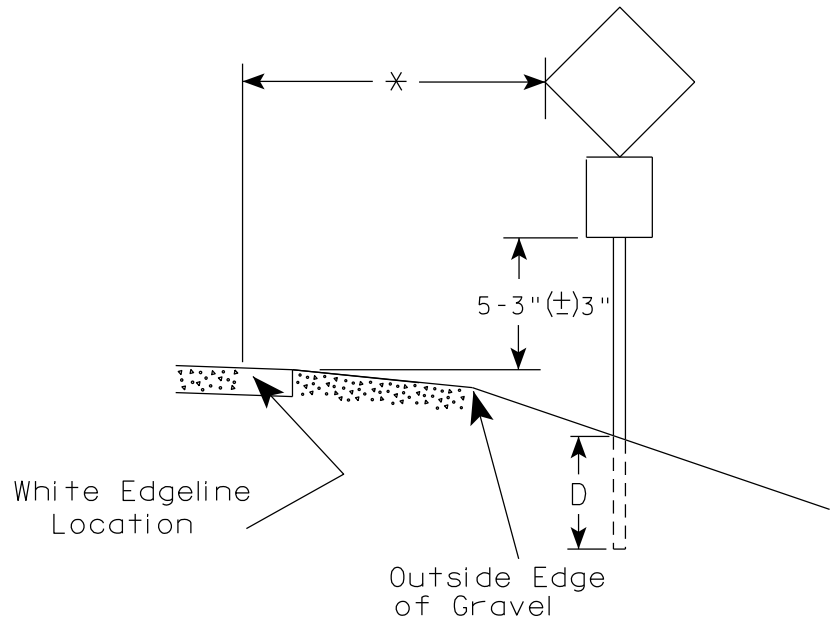
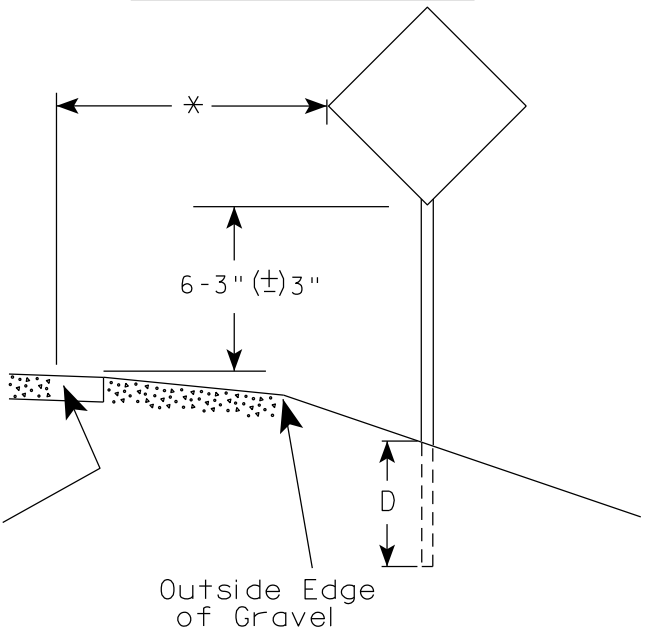
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer
FHWA

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

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 or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 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" (±) 3".
3. For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the Engineer.

* * 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.

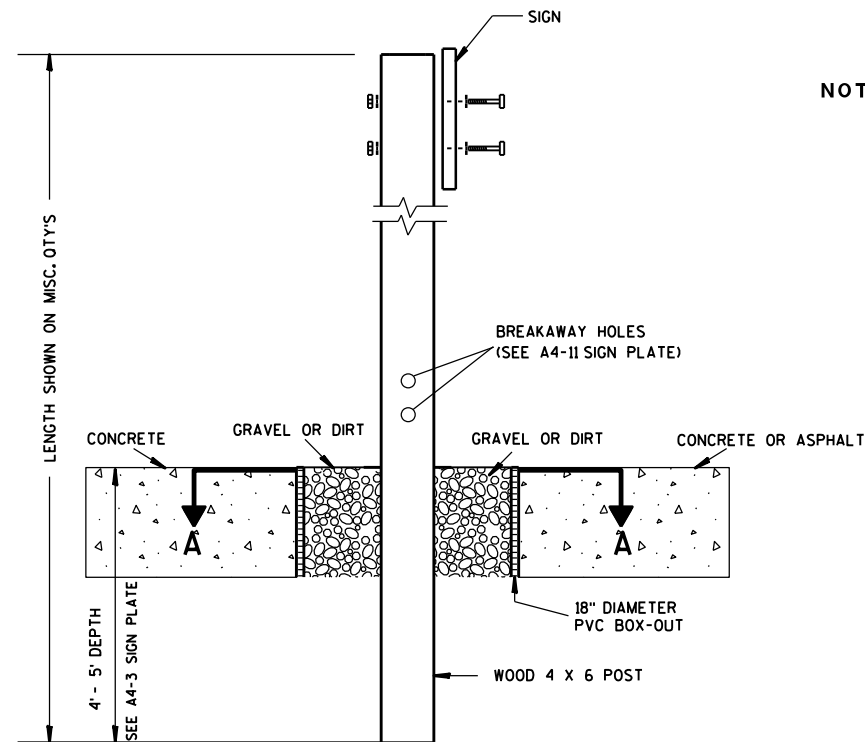
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

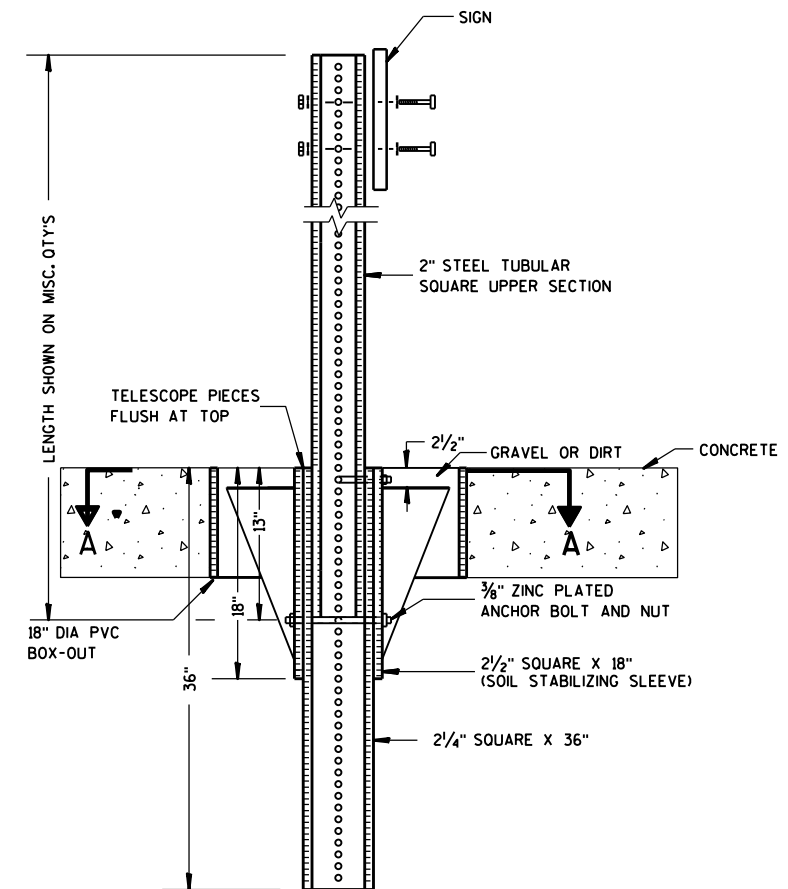
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

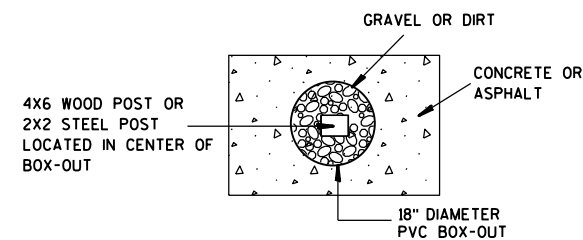
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

PROJECT NO:

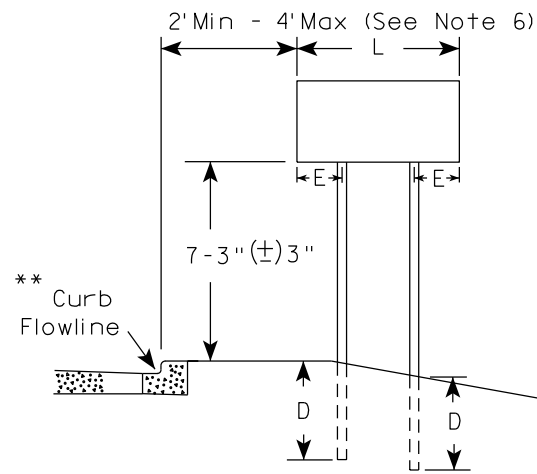
HWY:

COUNTY:

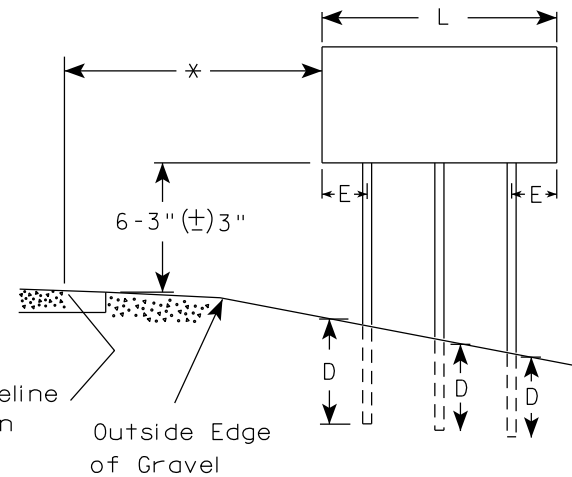
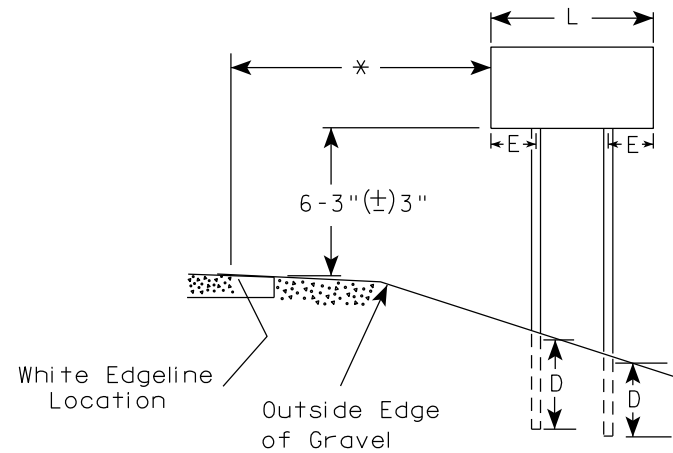
SHEET NO:

E

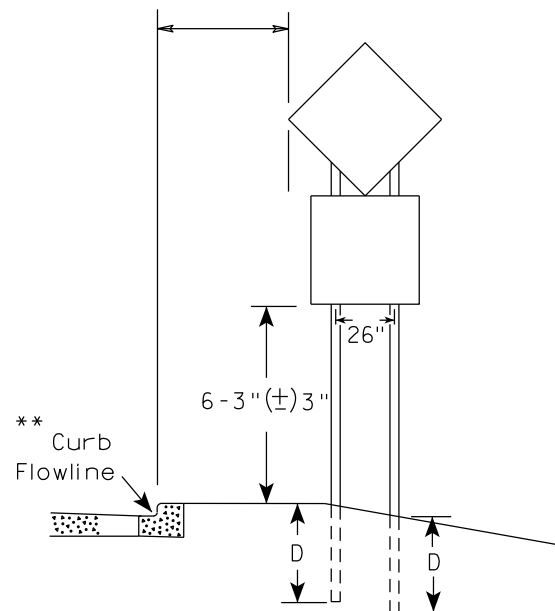
URBAN AREA



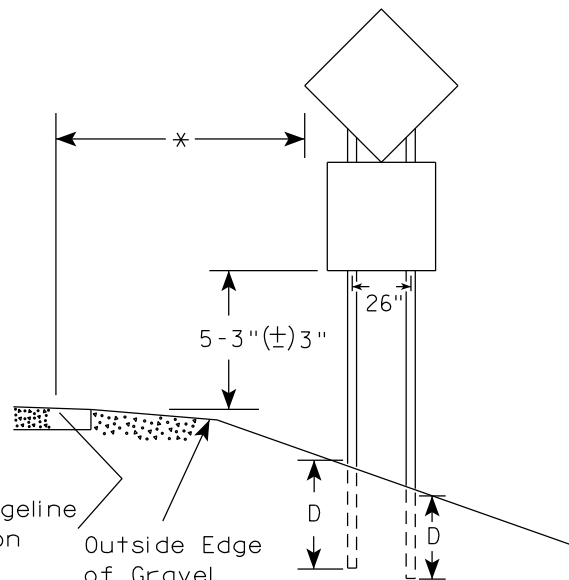
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

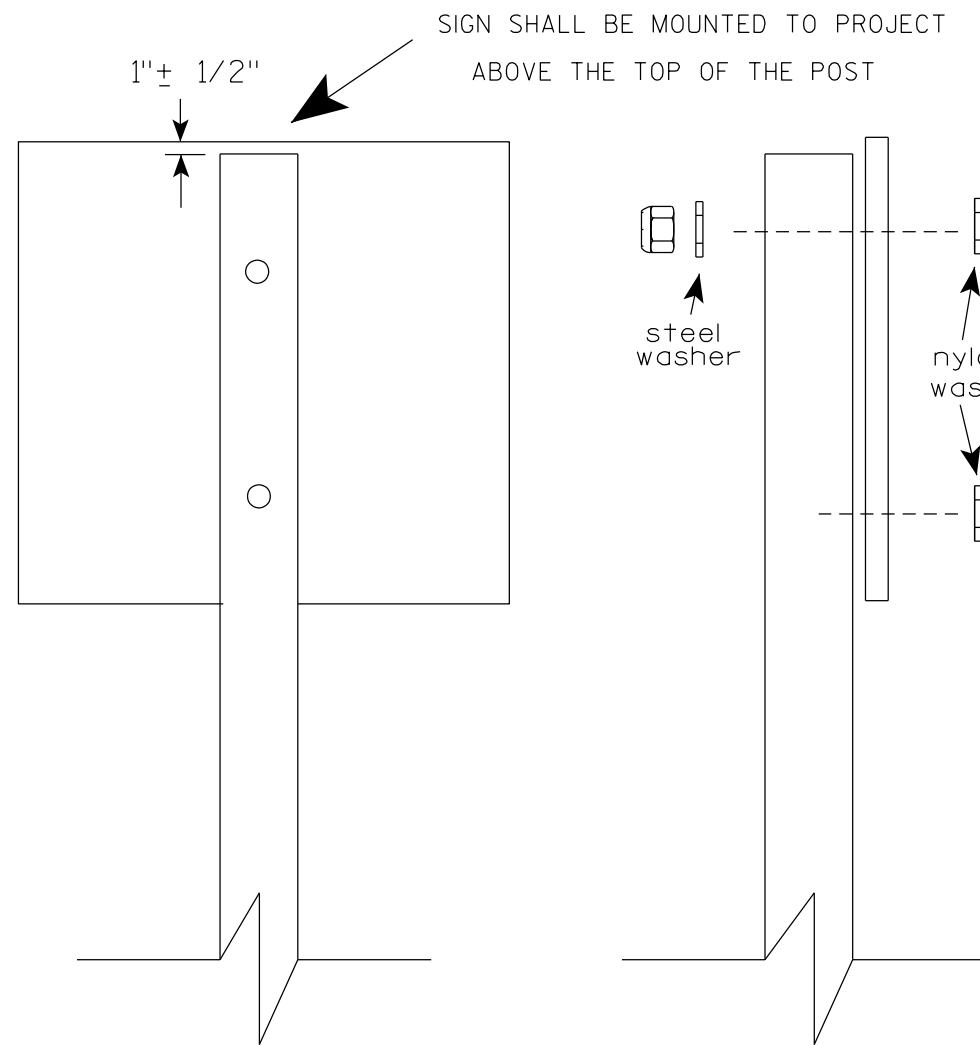
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



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

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

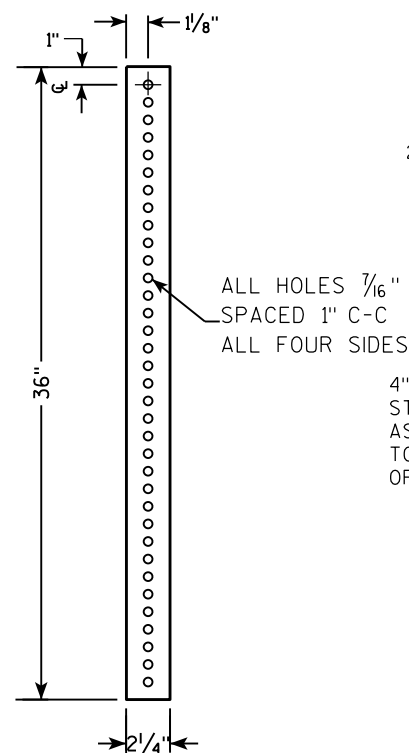
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (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 $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

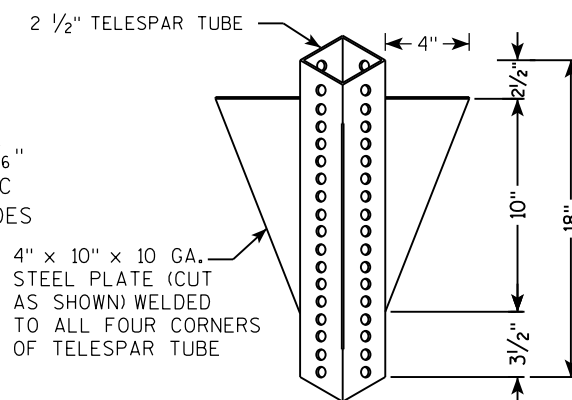
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require 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 4/1/2020	PLATE NO. A4-8.9

**2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**



**2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH**



TECHNICAL DRAWING OF A SIGN POST ASSEMBLY.

Side View Labels:

- SIGN
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
- 2" STEEL TUBULAR SQUARE UPPER SECTION
- ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES
- $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
- 2 1/2" GRAVEL OR DIRT
- $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
- 2 1/4" SQUARE X 36"

Cross Section Labels:

- TELESCOPE PIECES FLUSH AT TOP
- 13"
- 18"
- 36"
- 18" DIA SCHEDULE 40 PVC BOX-OUT

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY.

Side View Dimensions:

- Overall height: LENGTH SHOWN ON MISC. QTYS
- Top section: 2" STEEL TUBULAR SQUARE UPPER SECTION
- Telescope pieces: TELESCOPE PIECES FLUSH AT TOP
- Anchor bolt and nut: 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT
- Anchor bolt and nut: 3/8" ZINC PLATED ANCHOR BOLT AND NUT
- Soil stabilizing sleeve: 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
- Post section: 2 1/4" SQUARE X 36"

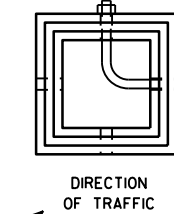
Top View Dimensions:

- Overall width: 36"
- Inner section width: 18"
- Inner section depth: 12"
- Anchor bolt and nut: 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT
- Anchor bolt and nut: 3/8" ZINC PLATED ANCHOR BOLT AND NUT

Sign Assembly Details:

- SIGN
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
- ALL HOLES 7/16" SPACED 1" C-C
- ALL FOUR SIDES

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



SECTION A-A

Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthae R Rauch

for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

PROJECT NO:

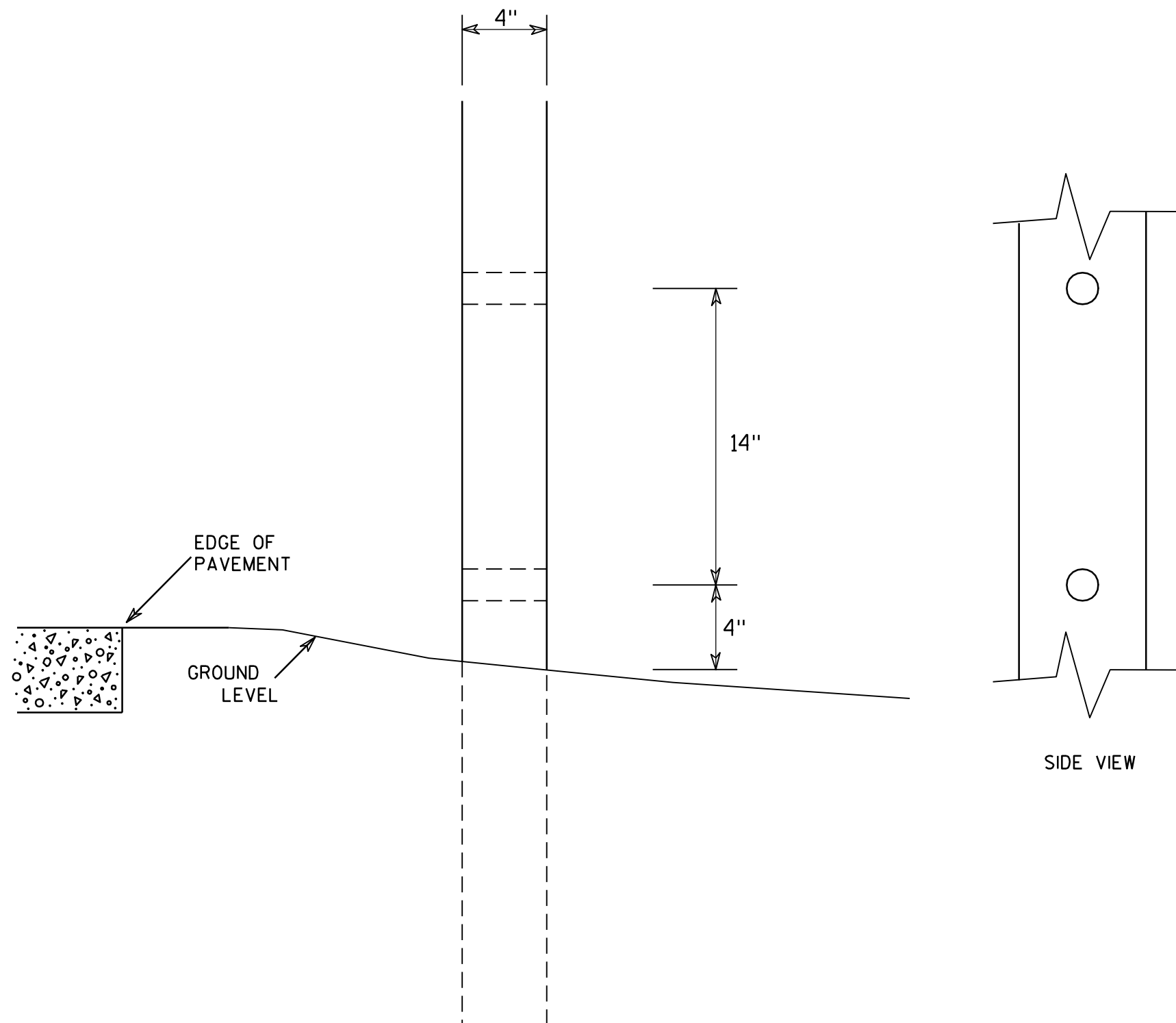
HWY:

COUNTY:

SHEET NO:

T

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:

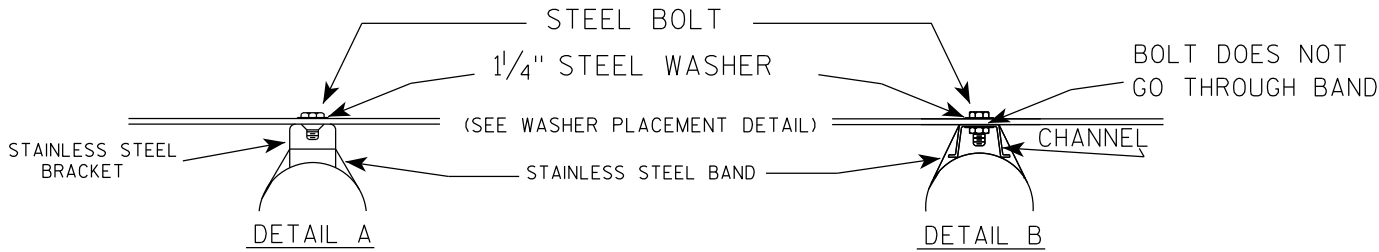
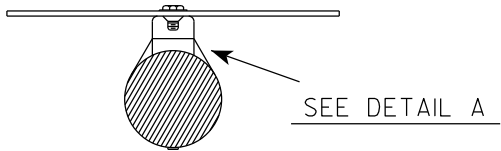
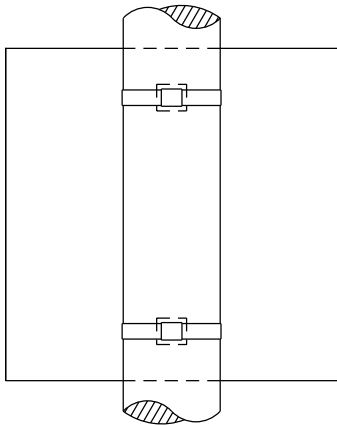
COUNTY:

SHEET NO:

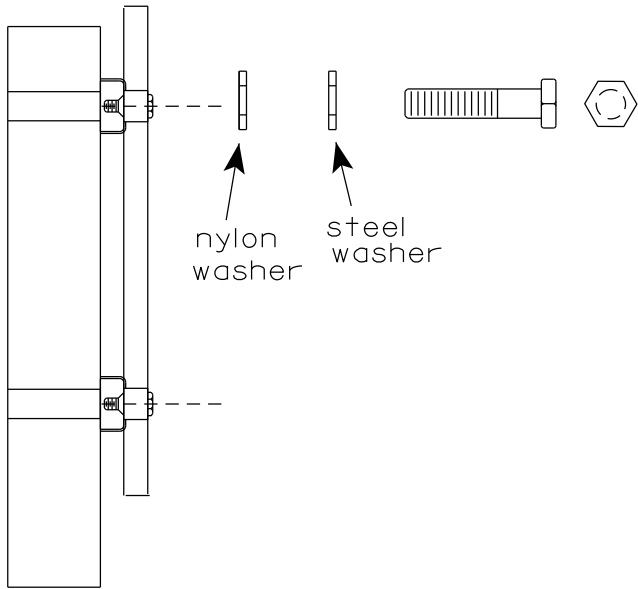
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

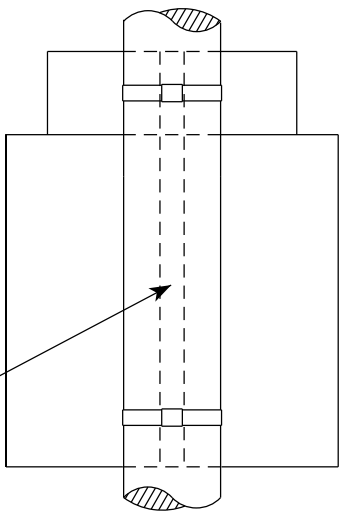


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



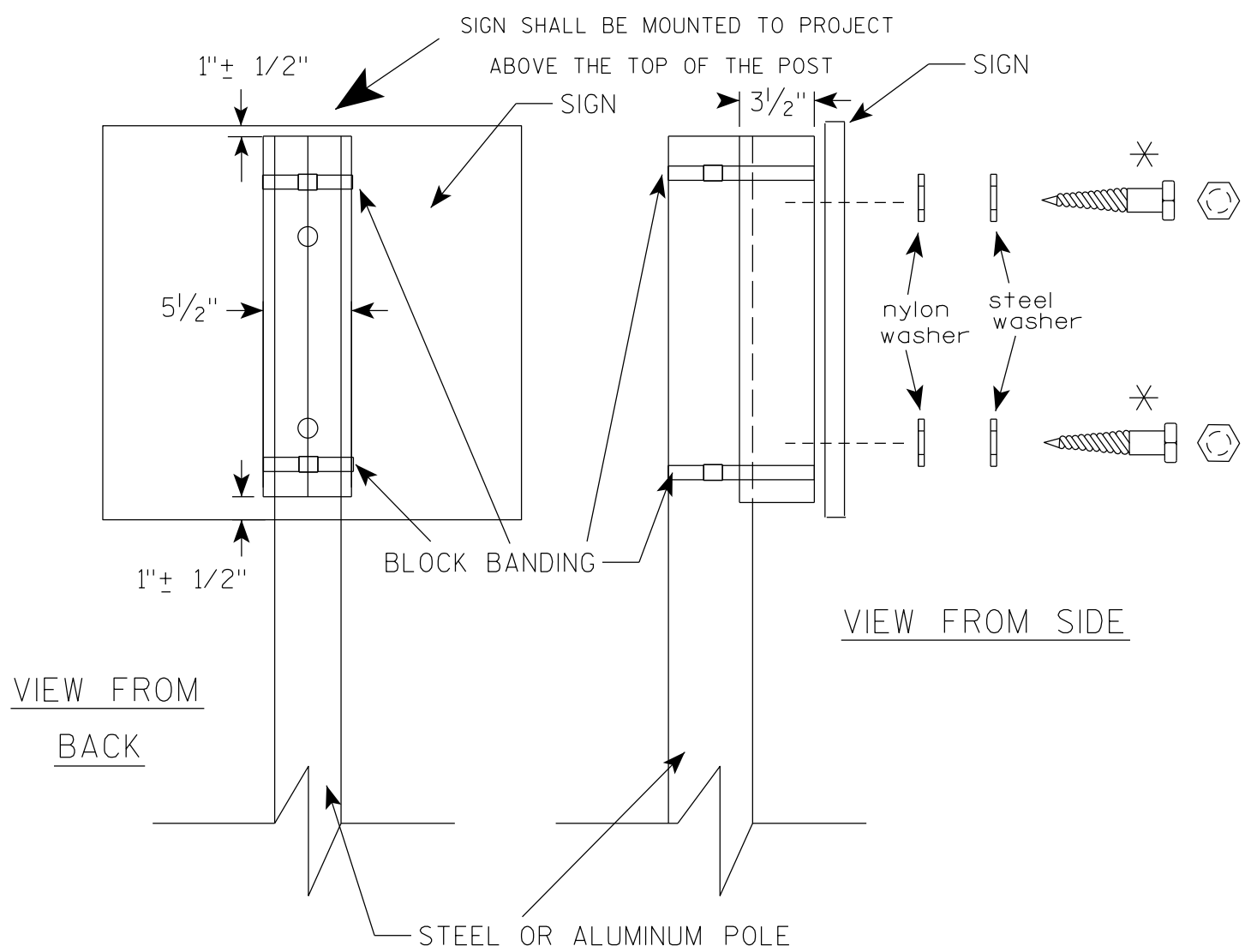
SEE DETAIL B

STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

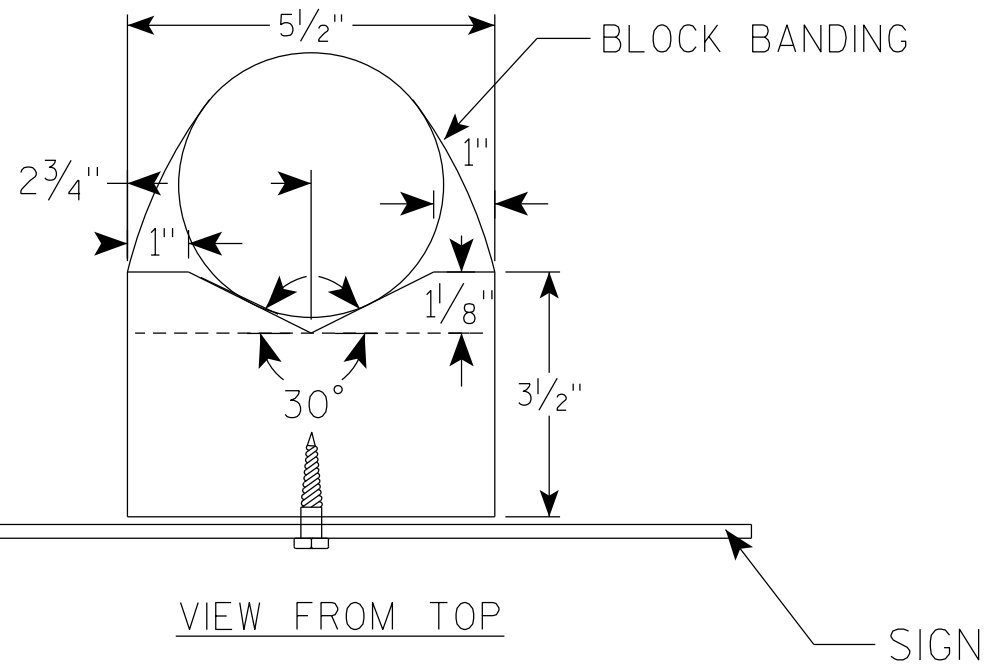
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/10/19 PLATE NO. A5-9.4



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

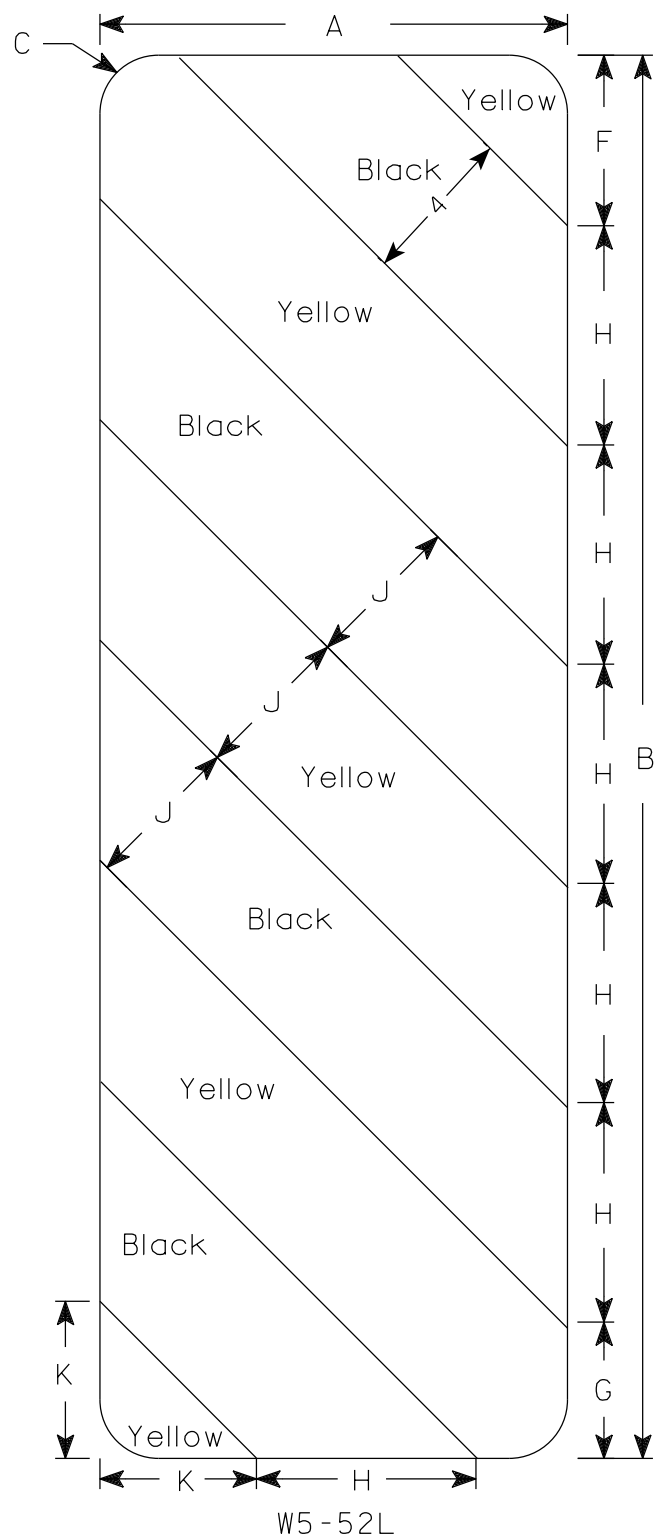
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/19/2022 PLATE NO. A5-10.3

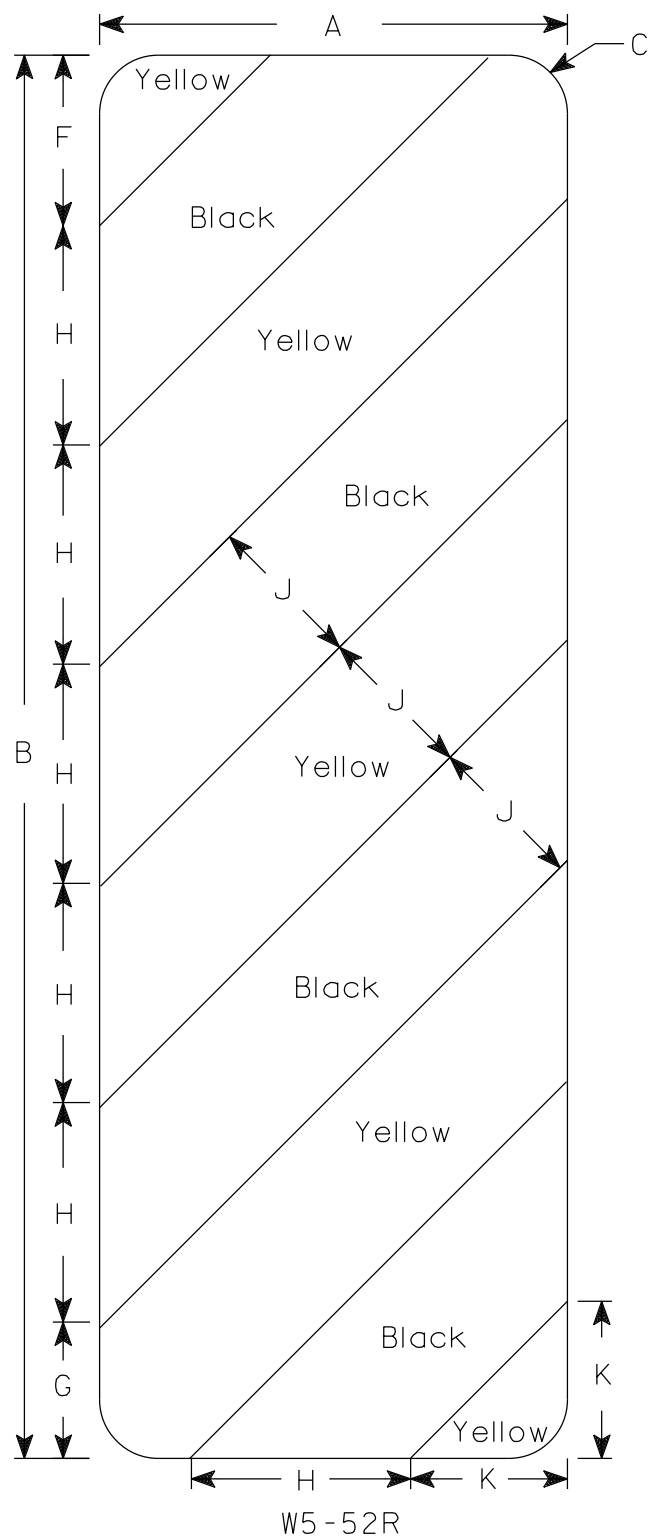
PROJECT NO:

SHEET NO:

E



W5-52L



W5-52R

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Yellow
 - Message - Black
- 3. Alternate colors of stripes as shown.

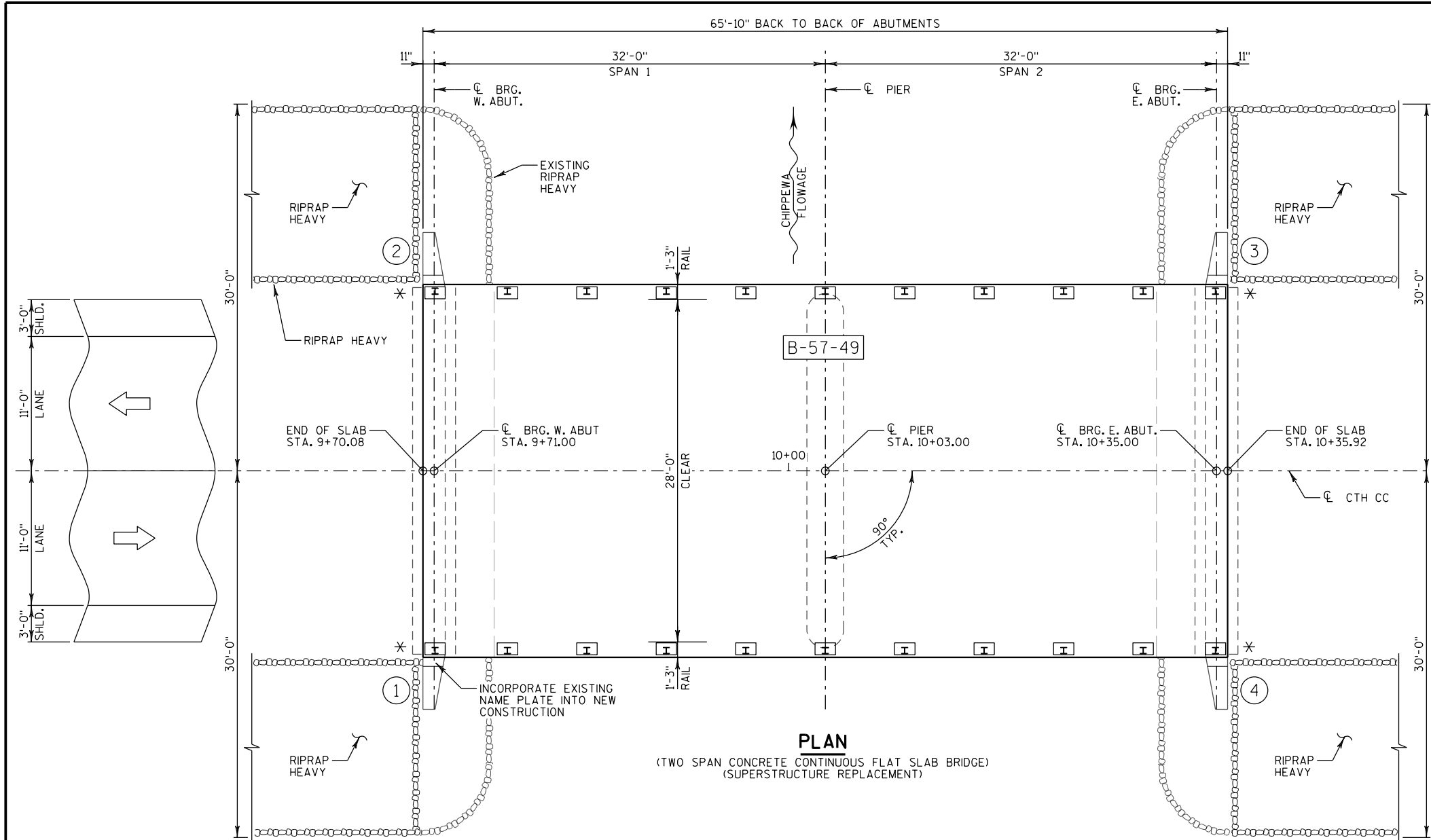
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 5/16																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/4/2024 PLATE NO. W5-52.10



DESIGN DATA

LIVE LOAD:

DESIGN LOADING _____ HL-93
INVENTORY RATING _____ 1.07
OPERATING RATING _____ 1.39
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____ 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

MATERIAL PROPERTIES

CONCRETE MASONRY: _____
SUPERSTRUCTURE _____ $f'_c = 4,000$ PSI
ALL OTHER _____ $f'_c = 3,500$ PSI

HIGH STRENGTH BAR STEEL REINFORCEMENT: _____
GRADE 60 _____ $f_y = 60,000$ PSI

LEGEND

- (X) INDICATES WING NUMBER.
* MGS THRIE BEAM ATTACHMENT.

SCOPE OF WORK B-57-49

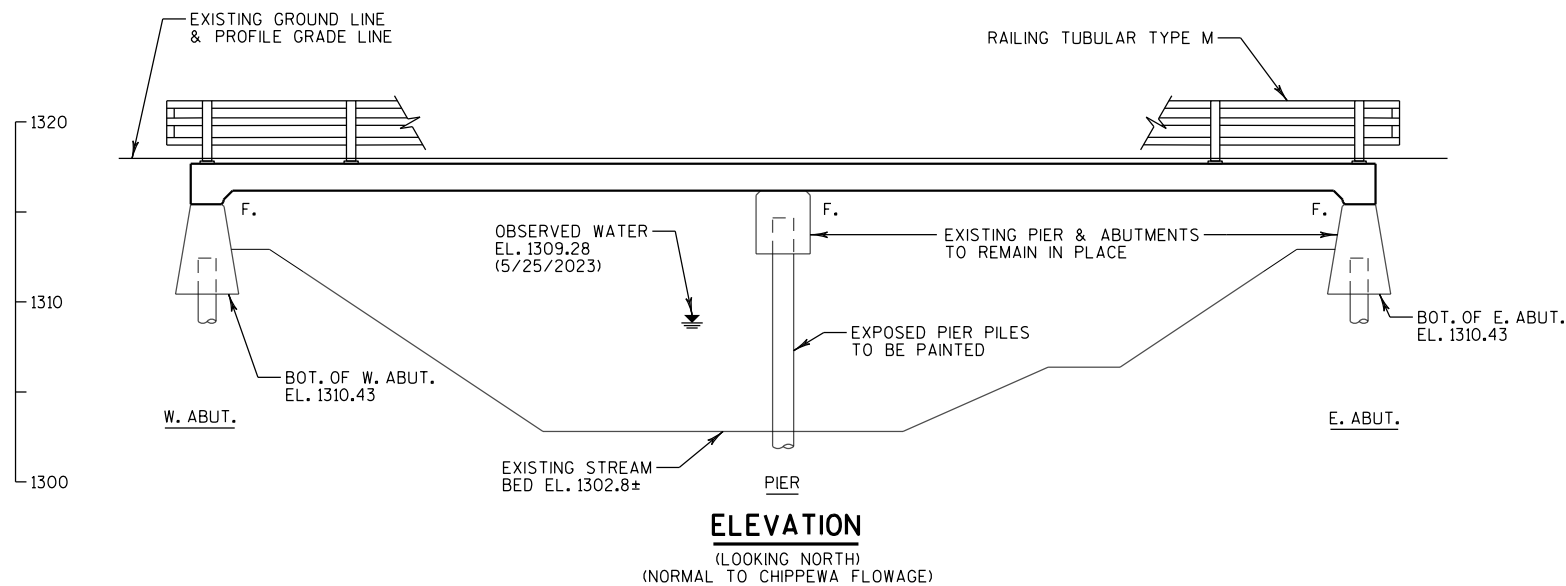
- REMOVE AND REPLACE ENTIRE SUPERSTRUCTURE.
- CONCRETE SURFACE REPAIR AT LOCATIONS DESIGNATED BY THE ENGINEER.

TRAFFIC DATA

ADT (2025) = 610
ADT (2045) = 670
DESIGN SPEED = 55 MPH

LIST OF DRAWINGS

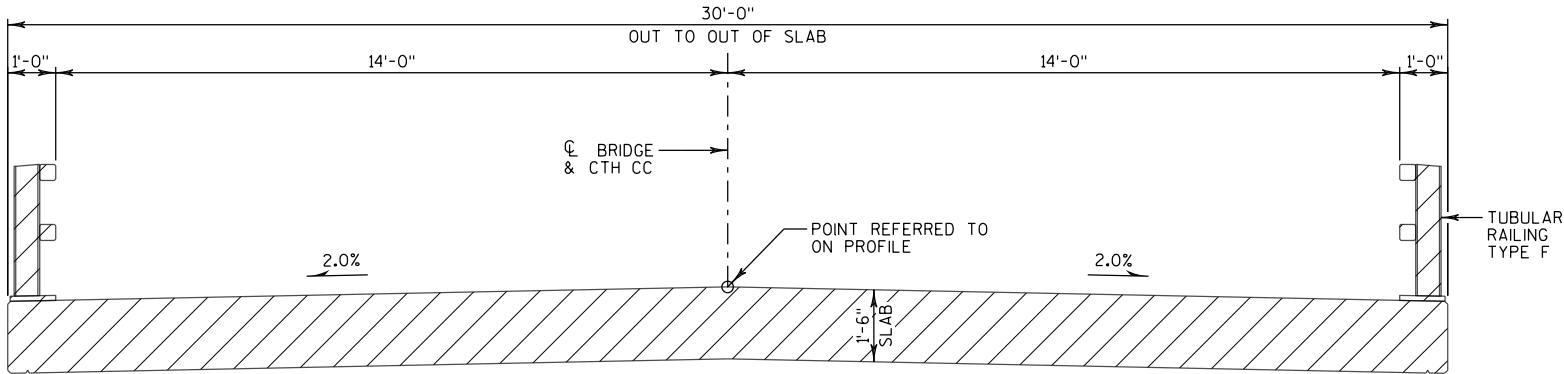
- GENERAL PLAN
- CROSS SECTION & QUANTITIES
- MISCELLANEOUS DETAILS
- ABUTMENTS
- SUPERSTRUCTURE DETAILS-1
- SUPERSTRUCTURE DETAILS-2
- SUPERSTRUCTURE DETAILS-3
- TUBULAR STEEL RAILING TYPE M



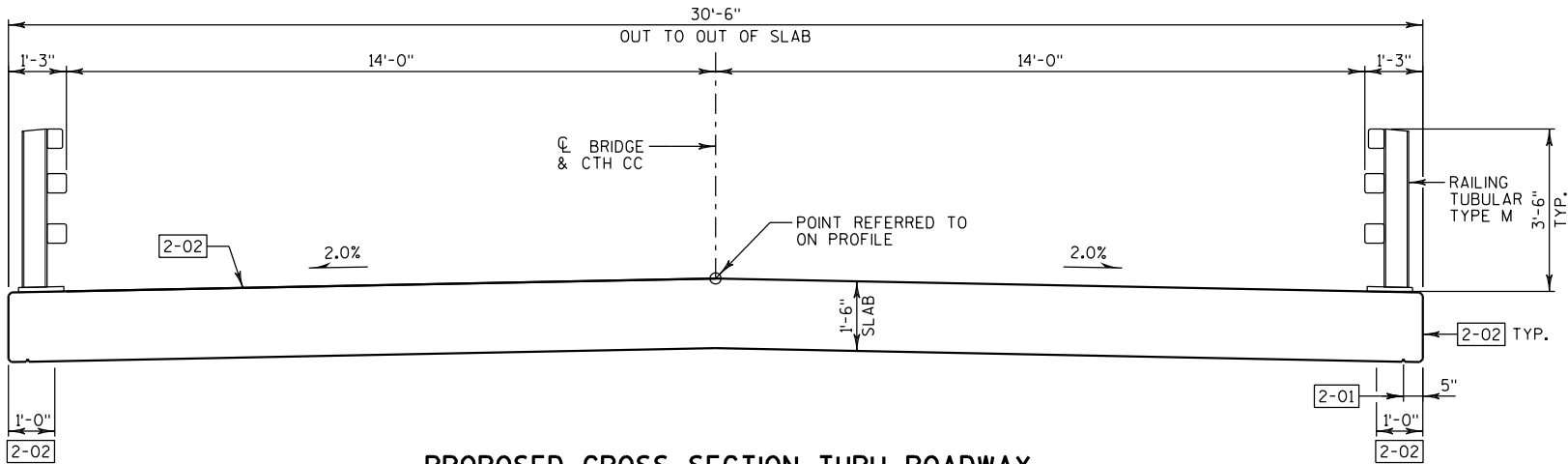
BUREAU OF STRUCTURES CONTACT:
AARON BONK, P.E. (608) 261-0261

CONSULTANT CONTACT:
ERIC PRICE, P.E. (608) 826-6146

NO.	DATE	REVISION	BY
CORRE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	SDR	08/22/24	DATE
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-57-49			
CTH CC OVER CHIPPEWA FLOWAGE			
COUNTY	SAWYER	TOWN/CITY/VILLAGE	HUNTER
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	SMS	DESIGN CK'D.	SAE
DRAWN BY	TKB	PLANS CK'D.	ETP
GENERAL PLAN			SHEET 1 OF 8



EXISTING CROSS SECTION
(LOOKING EAST)



PROPOSED CROSS SECTION THRU ROADWAY
(LOOKING EAST)

LEGEND

- 2-01 3/4" V-GROOVE, TERMINATE 6" FROM FRONT FACE OF ABUTMENTS.
- 2-02 COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE WISDOT STANDARD SPECIFICATIONS.

GENERAL NOTES:

DRAWINGS SHALL NOT BE SCALED.

THE EXISTING STRUCTURE, B-57-49, TO BE REHABILITATED, IS A TWO SPAN CONTINUOUS CONCRETE 'FLAT SLAB BRIDGE, 65'-10" LONG WITH A 28'-0" CLEAR WIDTH BETWEEN RAILINGS.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

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

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

BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-57-49" SHALL BE THE EXISTING GROUNDLINE.

AT THE BACK FACE 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 TYPE A.

ABBREVIATIONS:

- ABUT. - ABUTMENT
- BTWN. - BETWEEN
- B.F. - BACK FACE
- BOT. - BOTTOM
- BRG. - BEARING
- CL. - CLEAR
- CONST. - CONSTRUCTION
- DIA. - DIAMETER
- E.F. - EACH FACE
- EXIST. - EXISTING
- F.F. - FRONT FACE
- HORIZ. - HORIZONTAL
- JT. - JOINT
- LONG. - LONGITUDINAL
- PPT. - PARAPET
- PROJ. - PROJECTION
- S.E. - SEMI-EXPANSION
- SPA. - SPACED
- STD. - STANDARD
- SYMM. - SYMMETRICAL
- T&B - TOP AND BOTTOM
- TRANS. - TRANSVERSE
- TYP. - TYPICAL
- VERT. - VERTICAL
- U.N.O. - UNLESS NOTED OTHERWISE

THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE SLAB AS SHOWN ON THIS SHEET, PROTECTIVE SURFACE TREATMENT RESEAL TO BE APPLIED TO THE END 1'-0" OF THE ABUTMENT FRONT FACES, THE TOP OF THE WINGS AND THE EXTERIOR EXPOSED FACE OF THE WINGS.

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

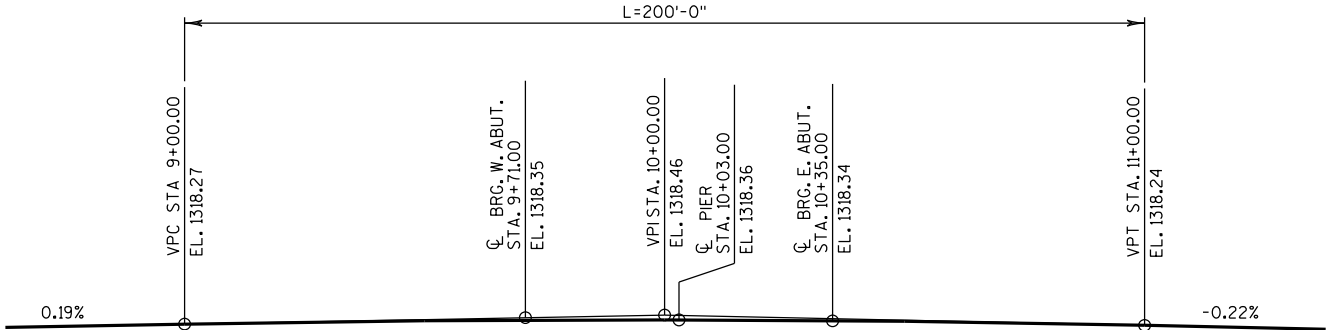
ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAW CUT.

CLEAN AND PAINT ALL EXPOSED PILES AT THE PIER, THE COLOR OF THE TOPCOAT SHALL BE AMS STANDARD COLOR NO. 25240 (BLUE).

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEM	UNIT	WEST ABUTMENT	PIER	EAST ABUTMENT	SUPER.	TOTALS
203.0270	REMOVING STRUCTURE OVER WATERWAY DEBRIS CAPTURE B-57-49	EACH	-	-	-	-	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-57-49	EACH	-	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	35	-	35	-	70
502.0100	CONCRETE MASONRY BRIDGES	CY	0.3	-	0.3	115.0	116
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	-	260	260
502.3215	PROTECTIVE SURFACE TREATMENT RESEAL	SY	5	-	5	-	10
502.4204	ADHESIVE ANCHORS NO. 4 BAR	EACH	8	-	8	-	16
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	34	-	34	30	98
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	95	-	95	21,090	21,280
513.4061	RAILING TUBULAR TYPE M	LF	-	-	-	137	137
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	7	-	7	-	14
517.3001.S	STRUCTURE OVERCOATING CLEANING AND PRIMING B-57-49	EACH	-	-	-	-	1
517.4001.S	CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-57-49	EACH	-	-	-	-	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	-	-	-	-	1
	NON-BID ITEMS						
	FILLER	SIZE	-	-	-	-	1/2" & 3/4"

ALL ITEMS ARE CATEGORY 0020

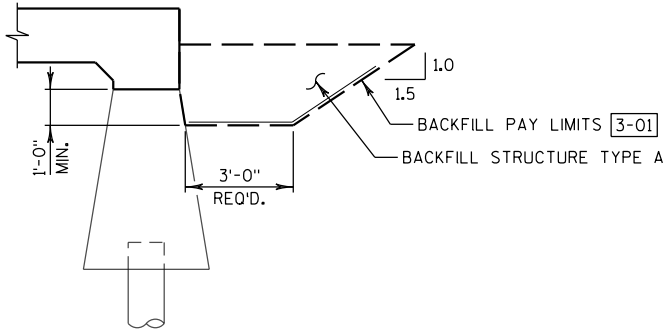


PROFILE
CTH CC

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-49			
DRAWN BY TKB		PLANS CK'D. ETP	
CROSS SECTION & QUANTITIES		SHEET 2 OF 8	

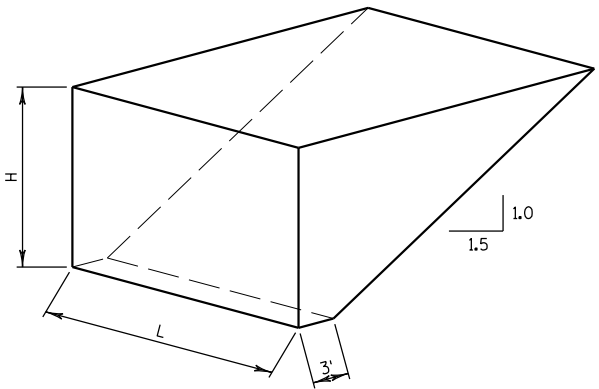
LEGEND

3-01 BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION OF STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.



STRUCTURE BACKFILL LIMITS

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS FOR 3 FEET.



ABUTMENT BACKFILL PAY LIMIT DIAGRAM

L = OUT TO OUT OF ABUTMENT (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)$
 $V_{CY} = V_{CF} (EF) / 27$
 $V_{TON} = V_{CY} (2.0)$

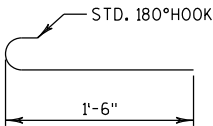
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-49			
DRAWN BY		TKB	PLANS CK'D. ETP
MISCELLANEOUS DETAILS			SHEET 3 OF 8

BILL OF BARS - ABUTMENTS

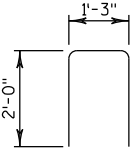
DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
COATED BARS					TOTAL WEIGHT = 190 LBS
A501	60	2'-1"			ABUTMENT - ANCHOR VERT.
A502	8	2'-1"			WING - ANCHOR VERT.
A403	16	2'-0"	X		WING - ANCHOR HORIZ.
A504	4	5'-1"	X		WING - TIE VERT.

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



A403



A504

LEGEND



INDICATES WING NUMBER.

4-01

EXISTING 1/2" FILLER INCLUDED IN REMOVAL LENGTH.

4-02

1/2" FILLER (INCLUDED IN LENGTH). SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).

4-03

18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.

4-04

3/4"x4" PREFORMED JOINT FILLER TO EXTEND BETWEEN EDGES OF SLAB.

4-05

CUT EXISTING REINFORCING FLUSH WITH SEAT AND GRIND SMOOTH.

4-06

A501 ADHESIVE ANCHOR NO. 5 BAR. EMBED 1'-0 1/2" INTO CONCRETE. INCORPORATE EXISTING DOWEL BARS INTO NEW CONSTRUCTION AND SPACE A501'S BETWEEN EXISTING DOWELS BARS.

4-07

A502 ADHESIVE ANCHOR NO. 5 BAR. EMBED 1'-0 1/2" INTO CONCRETE.

4-08

A403 ADHESIVE ANCHOR NO. 4 BAR. EMBED 10" INTO CONCRETE. TURN HOOK AS NECESSARY TO FIT.

4-09

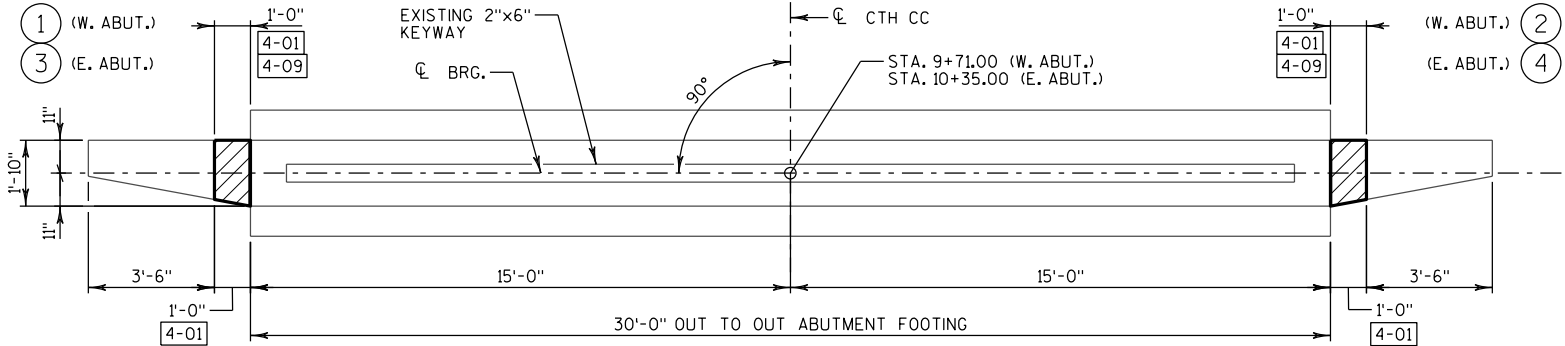
AREA TO BE REMOVED DOWN TO BRIDGE SEAT.

4-10

PRESERVE AND INCORPORATE EXISTING REINFORCEMENT INTO NEW WORK. CUT TO MAINTAIN 2" CLEAR FROM EDGE OF NEW WORK.

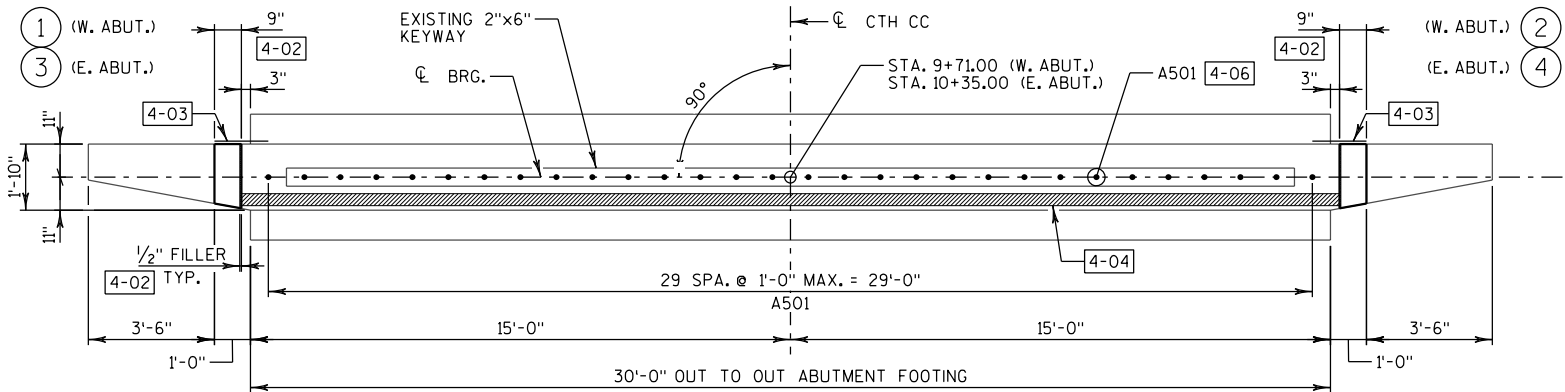
4-11

PULL UP TO 2" CLEAR.



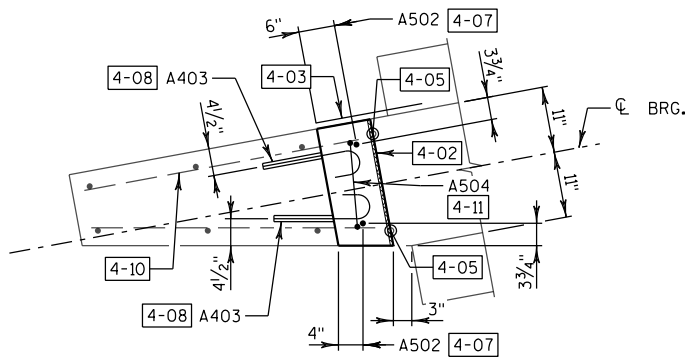
PLAN

(REMOVAL)



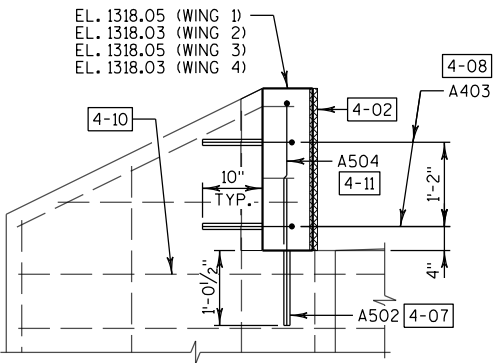
PLAN

(RECONSTRUCT)



PLAN - WING

WING 1 SHOWN. OTHER WINGS SIMILAR.



ELEVATION - WING

WING 1 SHOWN. OTHER WINGS SIMILAR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-49			
DRAWN BY TKB		PLANS CK'D. ETP	
ABUTMENTS			SHEET 4 OF 8

BILL OF BARS - SUPERSTRUCTURE

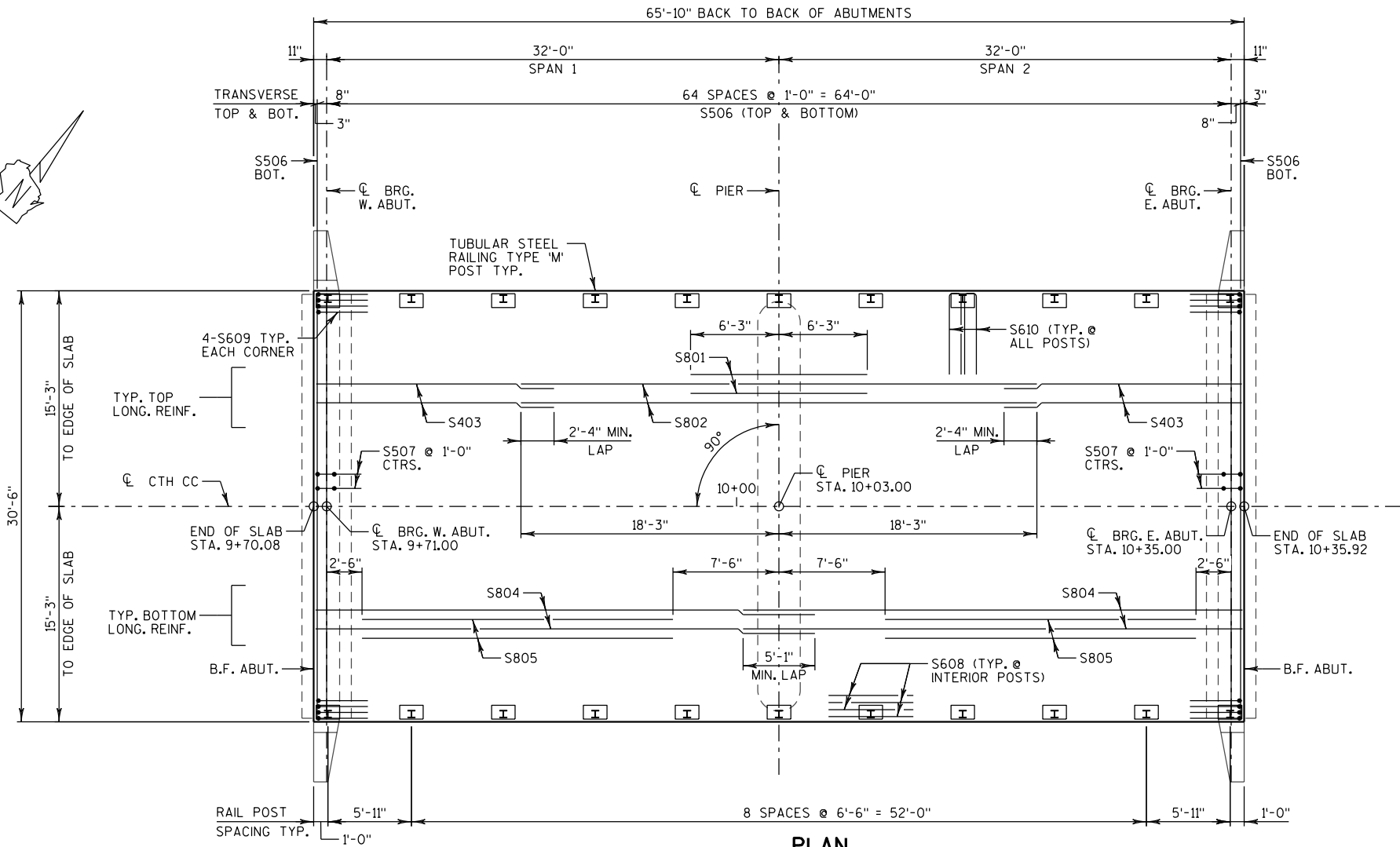
DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
COATED BARS					TOTAL WEIGHT = 21,090 LBS
S801	32	12'-6"			SLAB - TOP LONGIT.
S802	35	36'-6"			SLAB - TOP LONGIT.
S403	70	16'-10"			SLAB - TOP LONGIT.
S804	62	35'-4"			SLAB - BTM LONGIT.
S805	60	22'-0"			SLAB - BTM LONGIT.
S506	138	30'-2"			SLAB - BTM. & TOP TRANS.
S507	62	5'-1"	X		SLAB - ABUT. DIAPHRAGMS VERT.
S608	72	6'-0"			SLAB - TOP - AT INT. RAIL POSTS LONGIT.
S609	16	4'-8"	X		SLAB - TOP - AT END RAIL POSTS LONGIT.
S610	44	11'-4"	X		SLAB - TOP - AT RAIL POSTS TRANS.
S511	30	2'-0"			DOWELS @ PIER VERT.
S512	62	3'-3"	X		SLAB - ABUT. DIAPHRAGMS VERT.

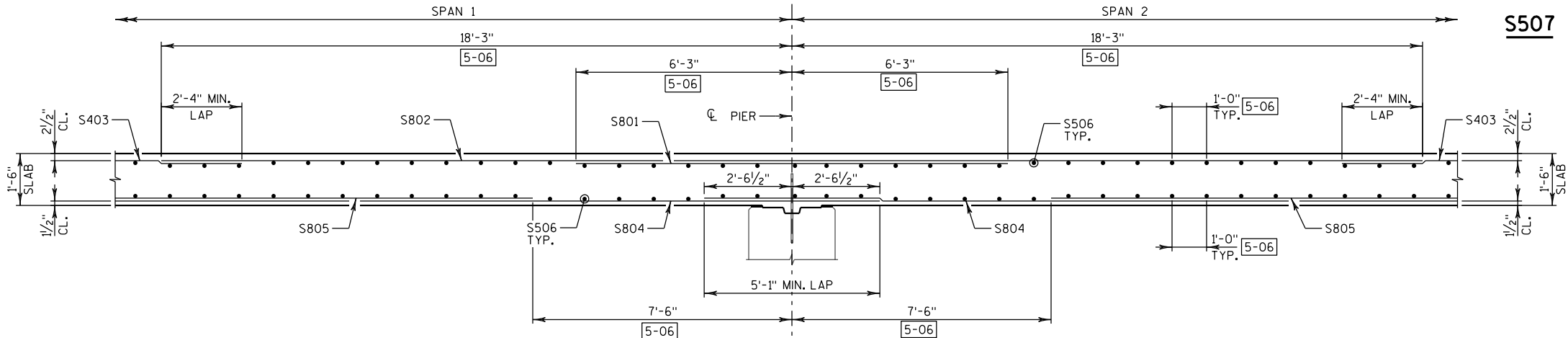
THE FIRST DIGIT OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

LEGEND

5-XX SEE "SUPERSTRUCTRE DETAILS-1" SHEET FOR CALLOUTS AND NOTES.

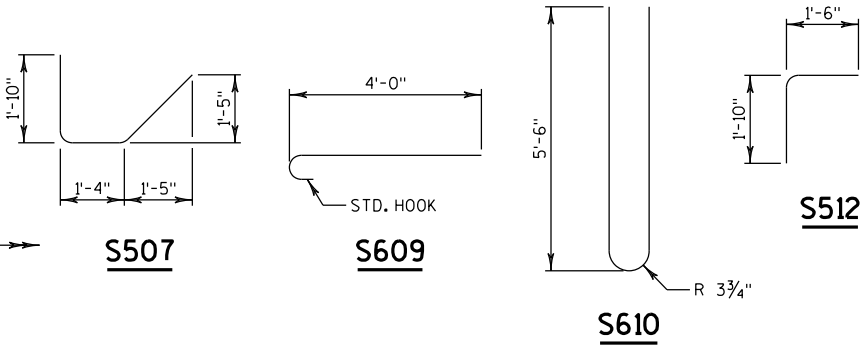


PLAN



PARTIAL LONGITUDINAL SECTION AT PIER

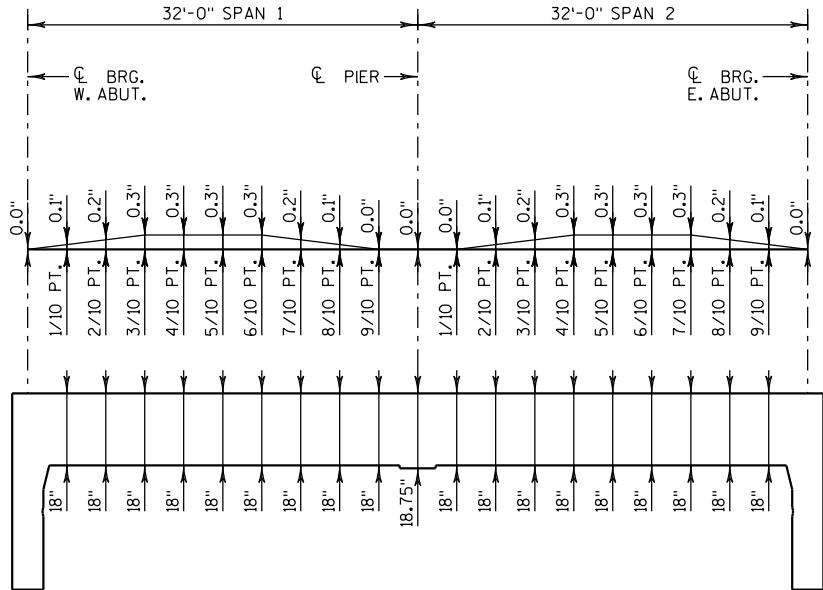
(DIMENSIONS ARE PERPENDICULAR TO C PIER U.N.O.)



NO.	DATE	REVISION	BY
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STRUCTURE B-57-49			
DRAWN BY TKB		PLANS CK'D. ETP	
SUPERSTRUCTURE DETAILS-2		SHEET 6 OF 8	

TOP OF SLAB ELEVATIONS

LOCATION	ABUT.	1.1 PT	1.2 PT	1.3 PT	1.4 PT	1.5 PT	1.6 PT	1.7 PT	1.8 PT	1.9 PT	PIER	2.1 PT	2.2 PT	2.3 PT	2.4 PT	2.5 PT	2.6 PT	2.7 PT	2.8 PT	2.9 PT	E. ABUT.
NORTH EDGE OF SLAB	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.04	1318.04	1318.04	1318.04	1318.03
REFERENCE LINE	1318.35	1318.35	1318.36	1318.36	1318.36	1318.36	1318.36	1318.36	1318.36	1318.36	1318.36	1318.36	1318.36	1318.35	1318.35	1318.35	1318.35	1318.35	1318.34	1318.34	1318.34
SOUTH EDGE OF SLAB	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.05	1318.04	1318.04	1318.04	1318.04	1318.03



CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS.
CAMBER SPANS AS SHOWN TO PROVIDE FOR DEADLOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR CENTERLINE FOLLOW THIS PROCEDURE:

TOP OF SLAB ELEVATION AT FINAL GRADE
MINUS (-) SLAB THICKNESS
PLUS (+) CAMBER
PLUS (+) FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
EQUALS= TOP OF SLAB FALSEWORK ELEVATION.

SURVEY TOP OF SLAB ELEVATIONS

LOCATION	W. ABUT.	5/10 PT	PIER	5/10 PT	E. ABUT.
NORTH EDGE OF SLAB					
CROWN					
SOUTH EDGE OF SLAB					

STATE PROJECT NUMBER

8777-00-70

CAMBER NOTES:

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE CL OF ABUTMENTS, THE CL OF PIERS AND AT 5/10 POINTS, TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN POINT. RECORD THE ELEVATIONS IN THE "SURVEY TOP OF SLAB ELEVATIONS" TABLE FOR THE "AS BUILT" PLANS.

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

NO.	DATE	REVISION	BY
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STRUCTURE B-57-49			
DRAWN BY		TKB	PLANS CK'D. ETP
SUPERSTRUCTURE DETAILS-3			SHEET 7 OF 8

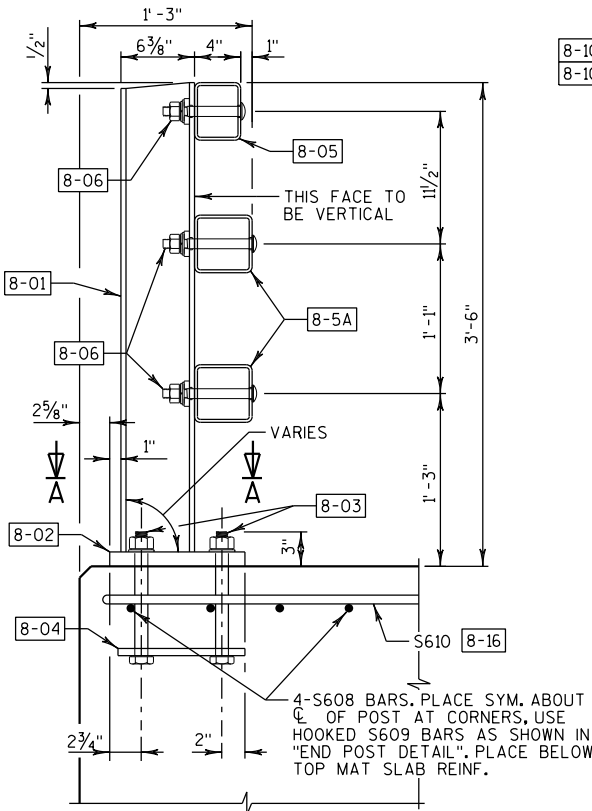
LEGEND

- [8-01] W6x25 WITH 1/8"x1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT 8-06. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- [8-02] PLATE 1/4"x11 3/4"x1'-8" WITH 1 1/8" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS 8-03. WELD TO 8-01 AS SHOWN.
- [8-03] ASTM A449 - 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE 8-02. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
- [8-04] 5/8"x11"x1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 1/8" DIA. HOLES FOR ANCHOR BOLTS 8-03.
- [8-05] TS 5x4x0.25 STRUCTURAL TUBING. ATTACH TO 8-01 WITH 8-06.
- [8-5A] TS 5x5x0.25 STRUCTURAL TUBING. ATTACH TO 8-01 WITH 8-06.
- [8-06] 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/8"x1 5/8"x1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- [8-07] 1/2" THK. BACK-UP PLATE WITH 2 - 7/8"x1/2" THREADED SHOP WELDED STUDS (8-12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES 8-5A.
- [8-08] 1" DIA. HOLES IN PLATE 8-07 & TUBES 8-5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE 8-07.
- [8-09] SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- [8-10] 3/8"x3 5/8"x2'-4" PLATE. 2 PER RAIL. USED IN 8-05 & 8-5A.
- [8-10A] 3/8"x2 5/8"x2'-4" PLATE USED IN 8-05, 3/8"x3 5/8"x2'-4" PLATE USED IN 8-5A. 2 PER RAIL.
- [8-11] 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/8" x 1 1/4" LONGIT. SLOTTED HOLES IN PLATE 8-10A AT FIELD JOINTS AND 1 5/8" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE 8-10A. PROVIDE 1 5/8" DIA. ROUND HOLES IN TUBES 8-05 AND 8-5A.
- [8-12] 7/8" DIA. x 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- [8-13] 3/8"x8"x1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES 8-5A.
- [8-14] 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- [8-15] 1" DIA. HOLES IN TUBES 8-5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.
- [8-16] TIE BELOW TOP MAT OF STEEL. [8-17] 1/4" TO 3/4".

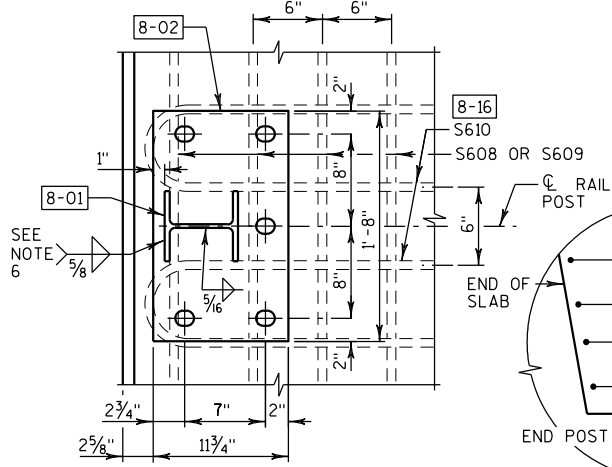
* ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.

NOTES

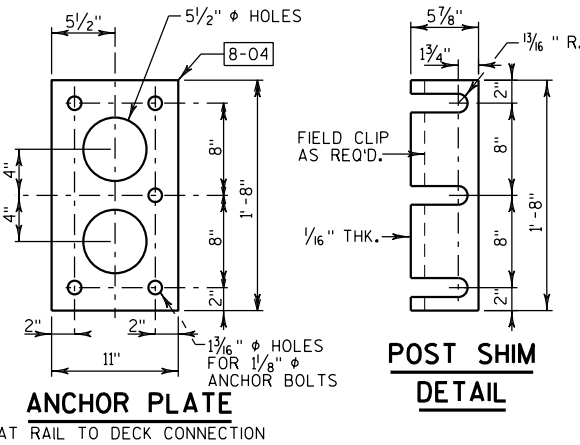
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE 8-02 AND CAULK AROUND PERIMETER OF PLATE 8-02 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. 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.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.



SECTION THRU RAILING ON DECK

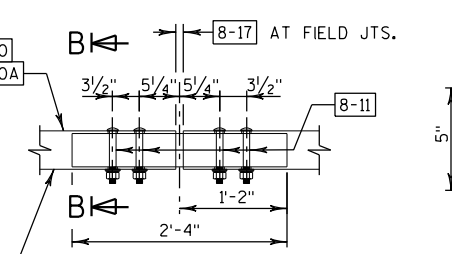


SECTION A-A

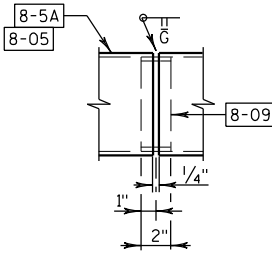


ANCHOR PLATE

AT RAIL TO DECK CONNECTION

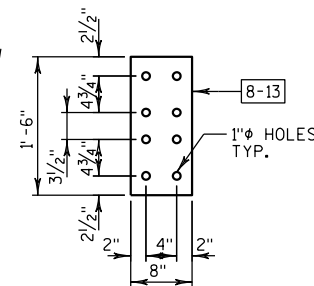


FIELD ERECTION JOINT DETAIL



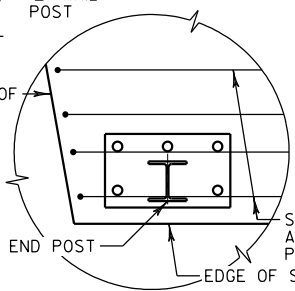
SHOP RAIL SPLICE DETAIL

LOCATION MUST BE SHOWN ON SHOP DRAWINGS



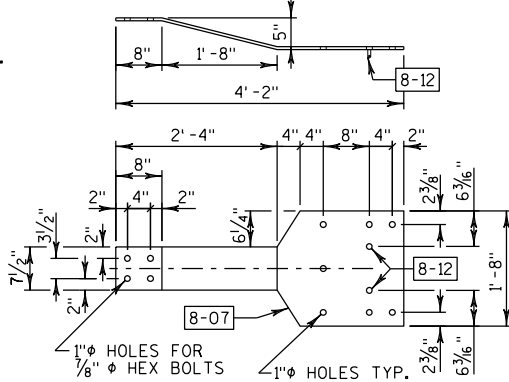
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT



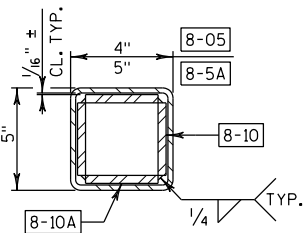
END POST DETAIL

REINFORCEMENT AT CORNERS

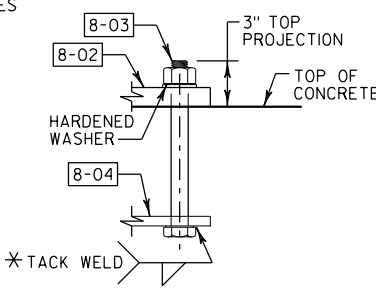


BACK-UP PLATE DETAIL

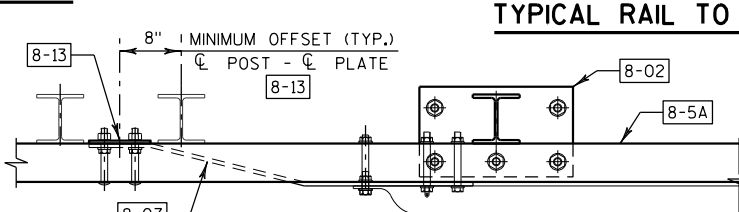
AT BEAM GUARD ATTACHMENT



SECTION B-B

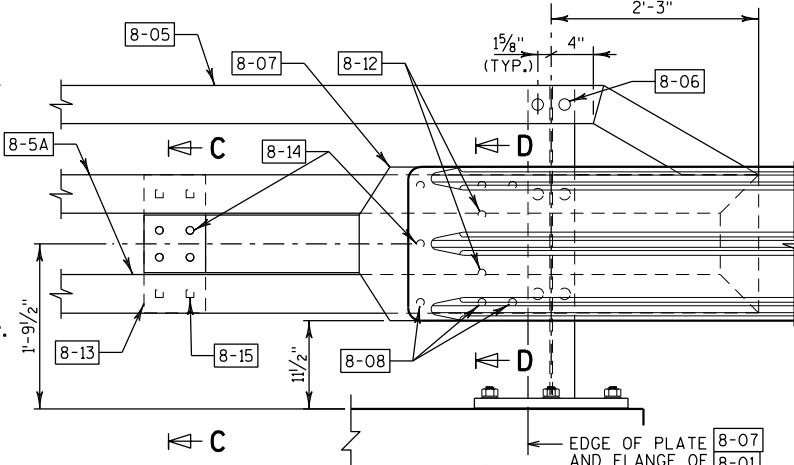


ANCHOR BOLTS



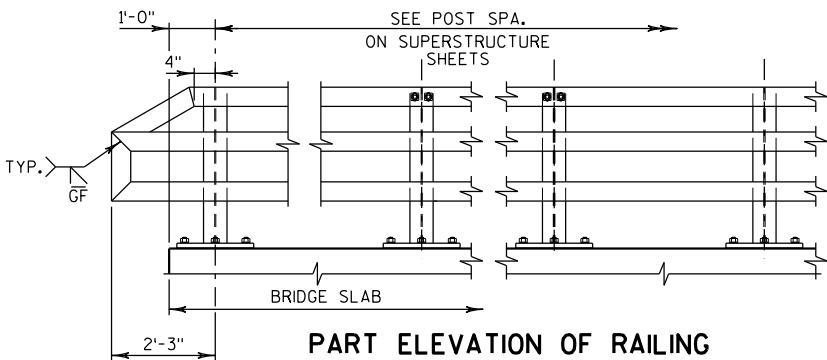
TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT

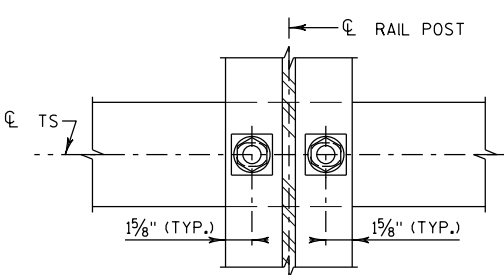


DETAIL AT END POST

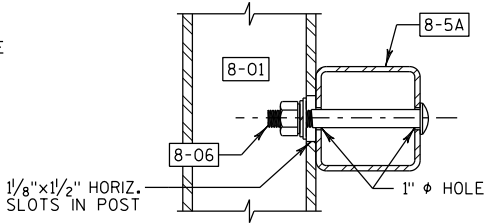
THRIE BEAM RAIL ATTACHMENT



PART ELEVATION OF RAILING



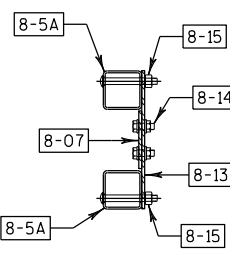
SECTION THRU POST WEB



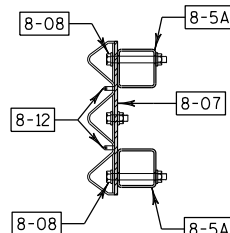
SECTION THRU RAIL

NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



SECTION C-C



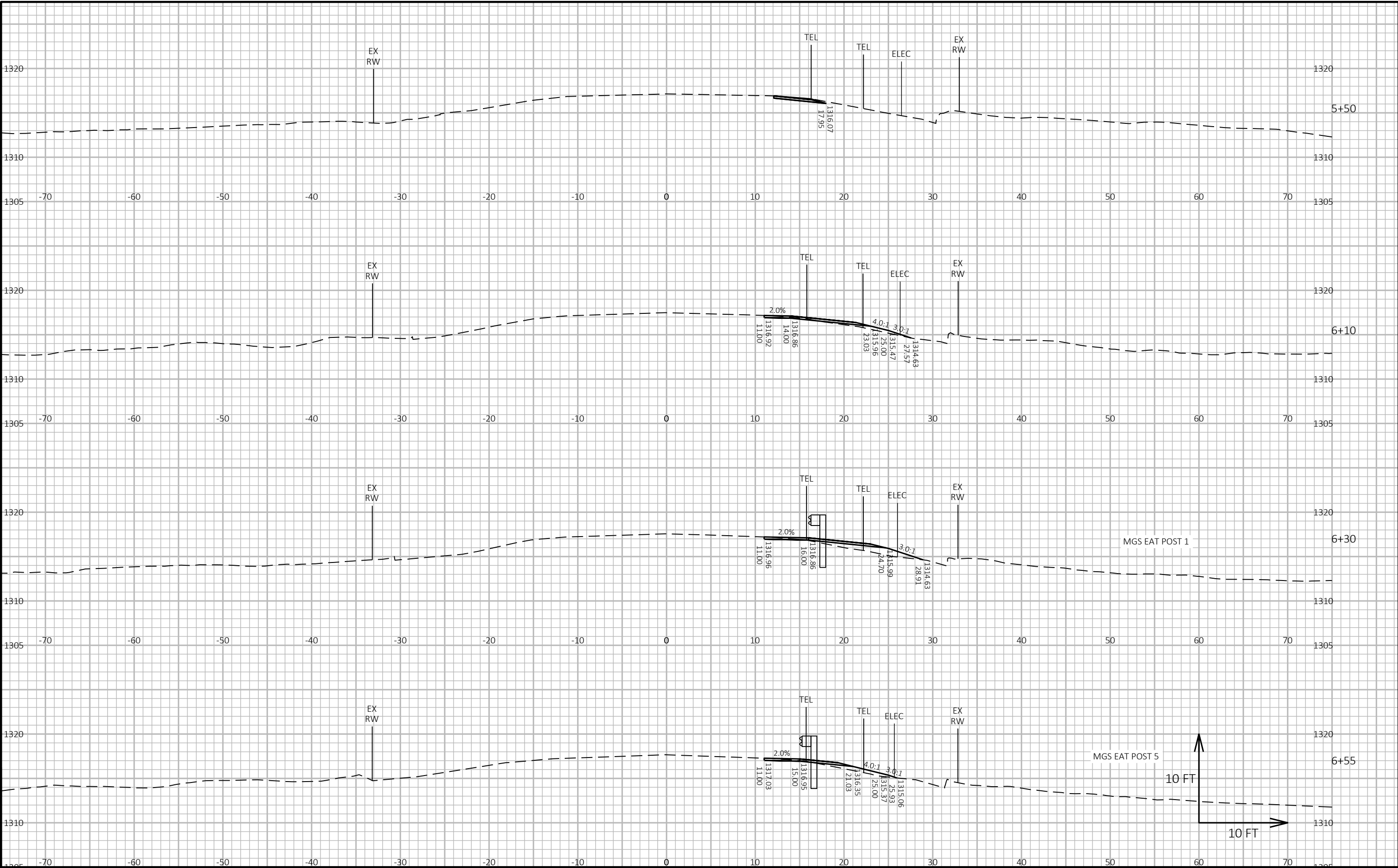
SECTION D-D

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-49			
DRAWN BY TKB		PLANS CK'D. EP	
TUBULAR STEEL RAILING TYPE M			SHEET 8 OF 8

DIVISION 1 -- CTH CC

STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3	NOTE 1	1.25	NOTE 4
5+50.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
6+10.25	60.25	0.48	0.48	1.90	1	1	2	1	3	-3
6+30.25	20.01	0.18	0.18	5.72	0	0	3	1	6	-6
6+55.25	25.00	0.16	0.16	2.62	0	0	4	1	11	-11
6+80.26	25.00	0.35	0.35	0.16	0	0	1	1	13	-13
7+00.00	19.74	0.42	0.42	3.87	0	0	1	1	14	-14
7+30.26	30.26	0.77	0.77	14.16	1	1	10	2	26	-26
7+55.25	25.00	1.21	1.21	12.02	1	1	12	3	41	-41
7+80.26	25.00	1.34	1.34	0.00	1	1	6	4	49	-49
8+00.00	19.74	52.62	52.62	0.22	20	20	0	24	49	-49
8+50.00	50.00	53.22	53.22	2.80	98	98	3	122	53	-53
9+00.00	50.00	54.51	54.51	4.19	100	100	6	222	60	-60
9+20.00	20.00	54.06	54.06	3.29	40	40	3	262	64	-64
9+70.00	50.00	54.06	54.06	3.69	100	100	6	362	71	-71
10+40.00	0.00	54.29	54.29	2.00	0	0	0	362	71	-71
10+80.00	40.00	53.46	53.46	8.09	80	80	7	442	80	-80
11+00.00	20.00	53.72	53.72	10.27	40	40	7	482	89	-89
11+50.00	50.00	53.36	53.36	10.87	99	99	20	581	114	-114
12+00.00	50.00	53.50	53.50	5.22	99	99	15	680	133	-133
12+25.95	25.95	0.66	0.66	2.84	26	26	4	706	138	-138
12+50.96	25.01	0.65	0.65	6.67	1	1	4	707	143	-143
12+75.96	25.00	0.00	0.00	13.41	0	0	9	707	154	-154
13+00.00	24.04	0.09	0.09	8.79	0	0	10	707	166	-166
13+26.25	26.25	0.03	0.03	4.45	0	0	6	707	174	-174
13+51.25	24.99	0.00	0.00	4.74	0	0	4	707	179	-179
13+76.26	25.01	0.00	0.00	10.46	0	0	7	707	188	-188
13+96.26	20.00	0.00	0.00	6.72	0	0	6	707	195	-195
14+46.00	49.74	0.00	0.00	1.70	0	0	8	707	205	-205

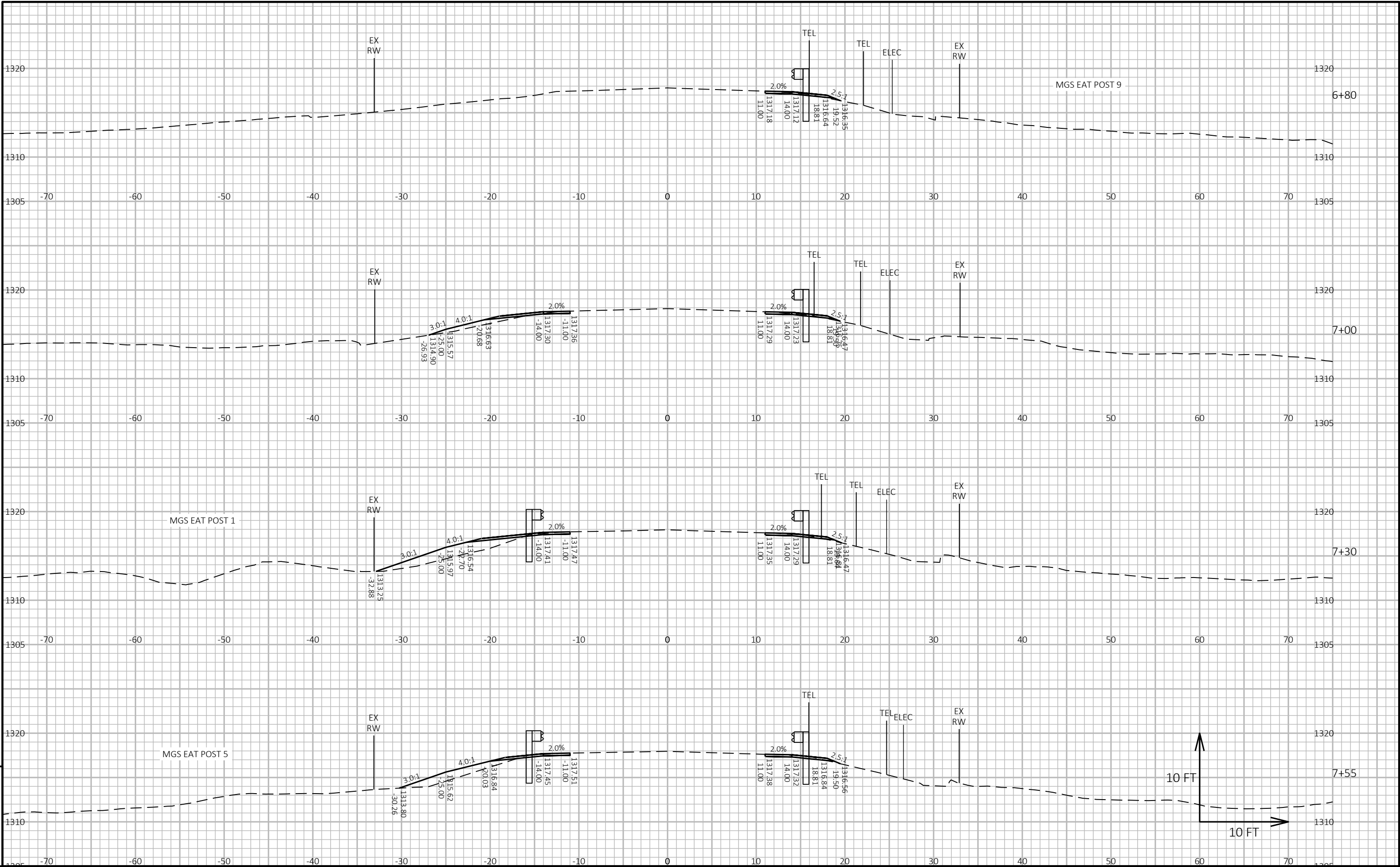
Notes:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - MASS ORDINATE	(CUT - SALVAGED PAVT) - (FILL * FILL FACTOR)



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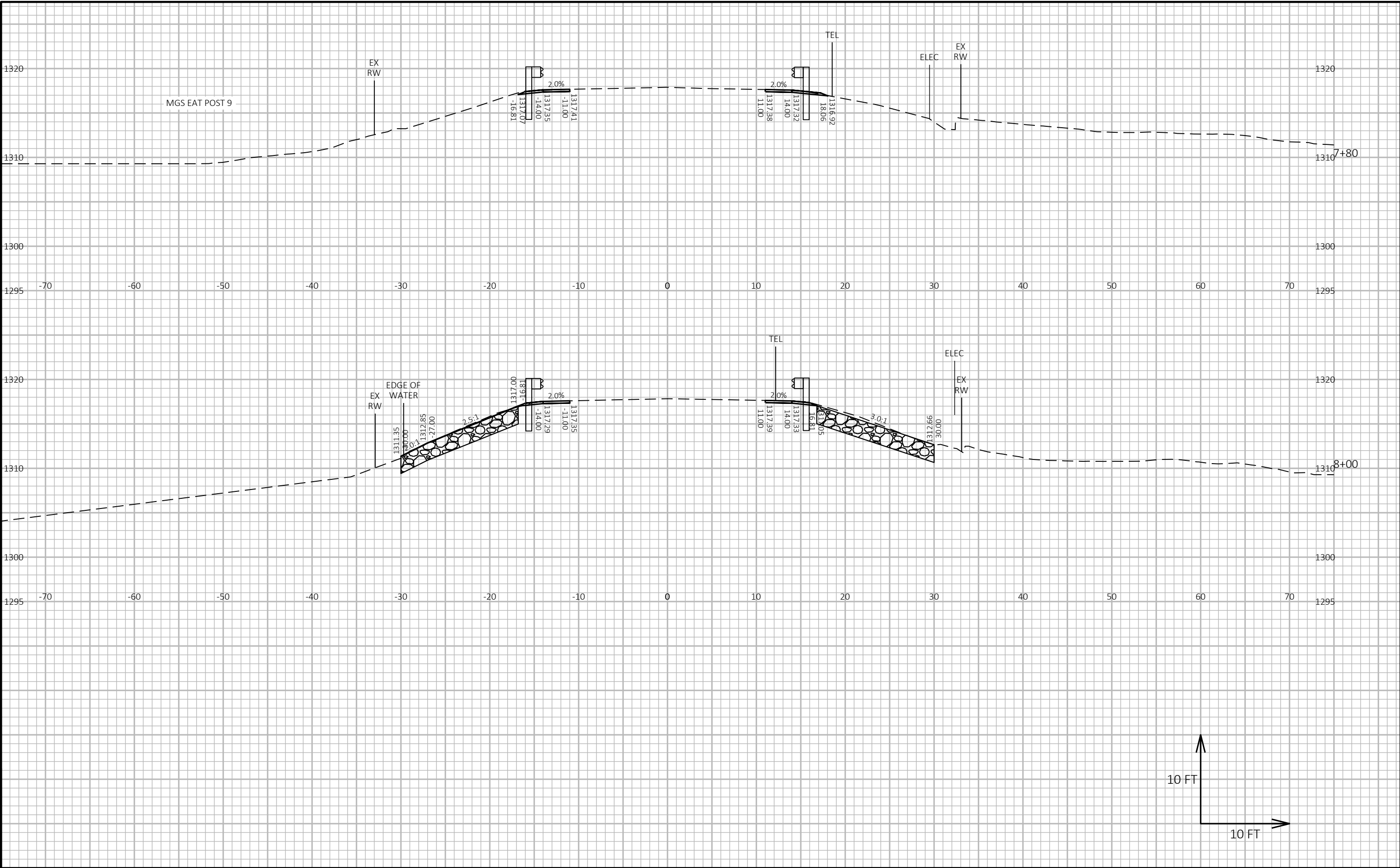
PROJECT NO: 8777-00-70	HWY: CTH CC	COUNTY: SAWYER	CROSS SECTIONS: CTH CC	SHEET E
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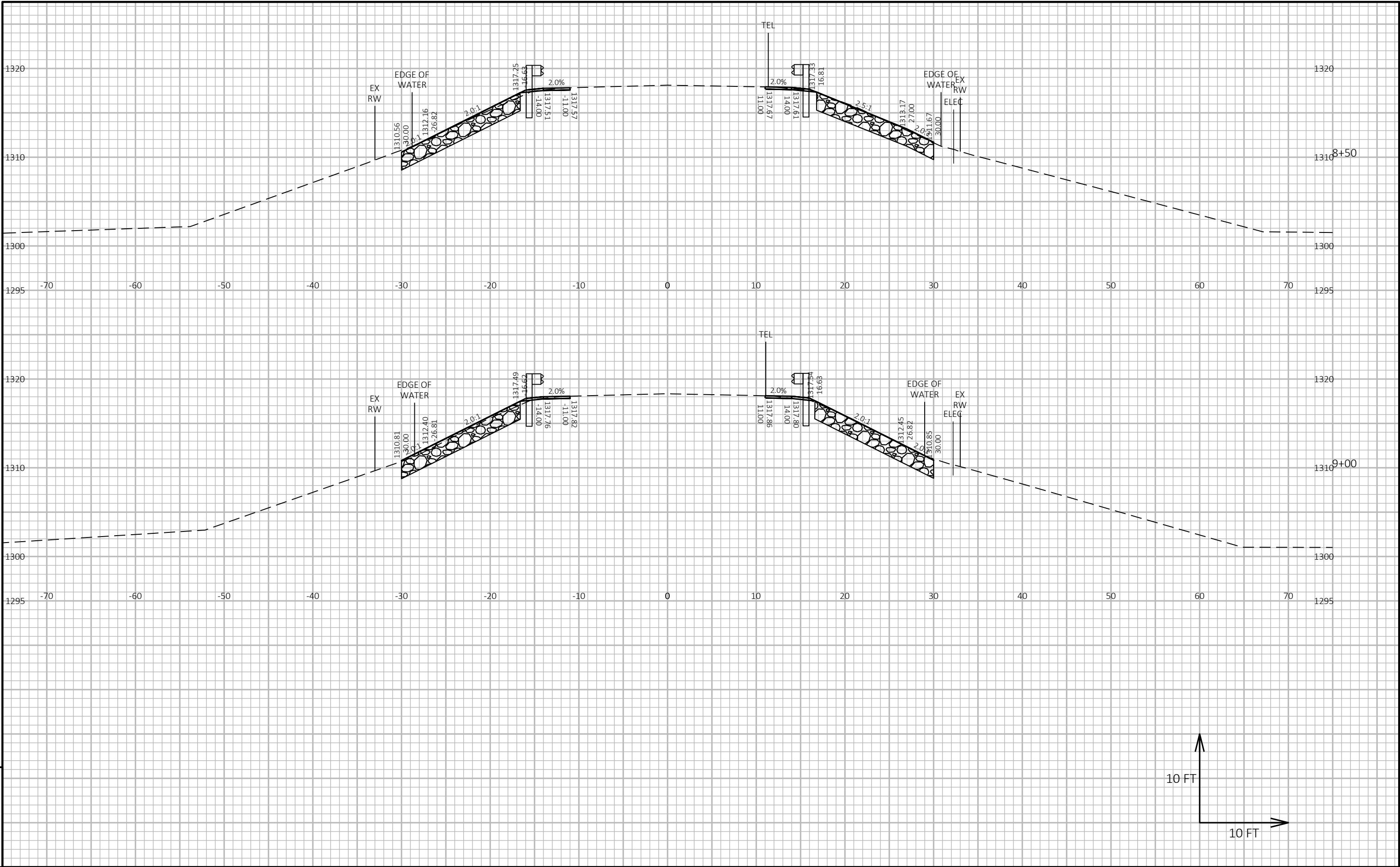
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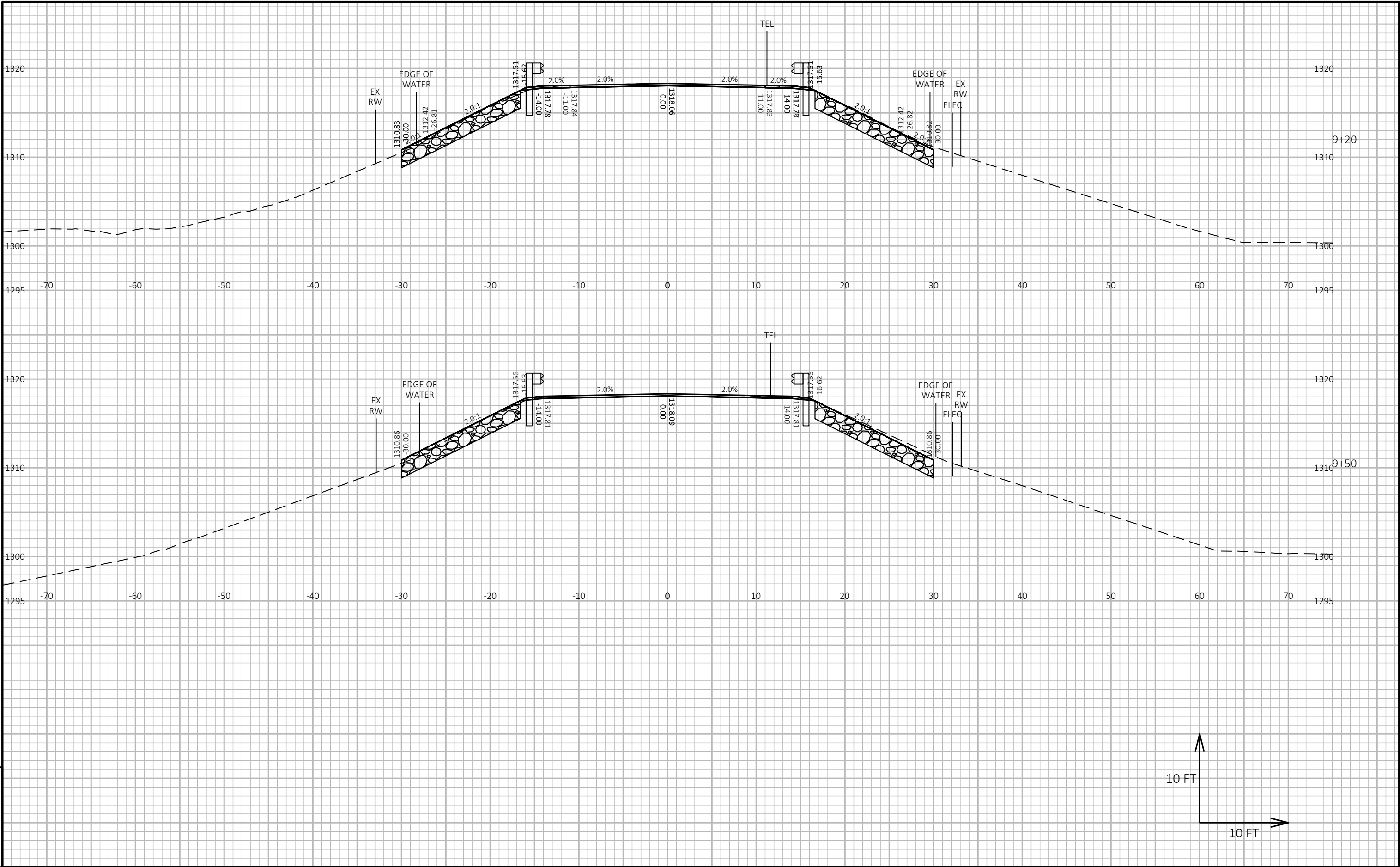
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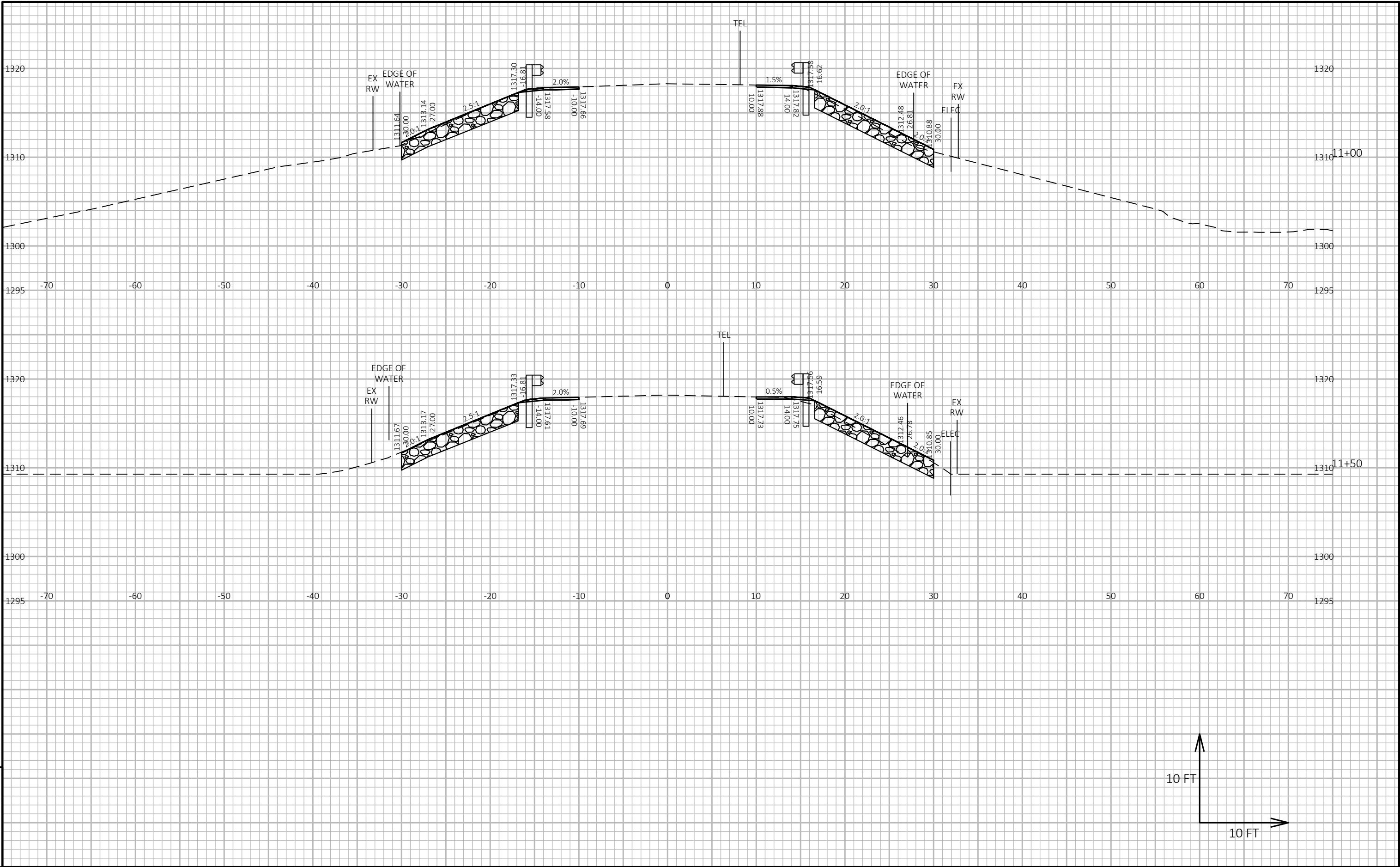
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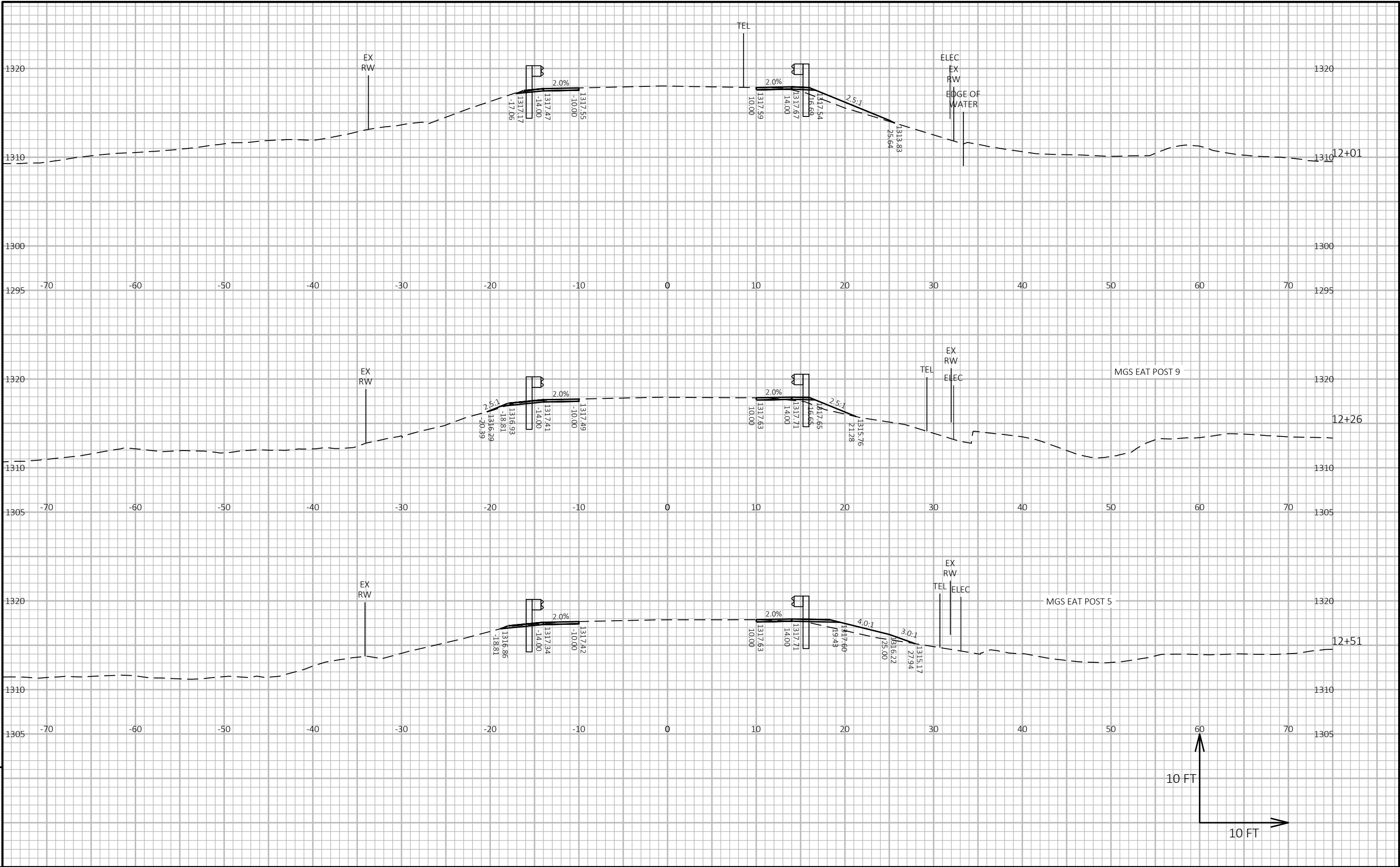
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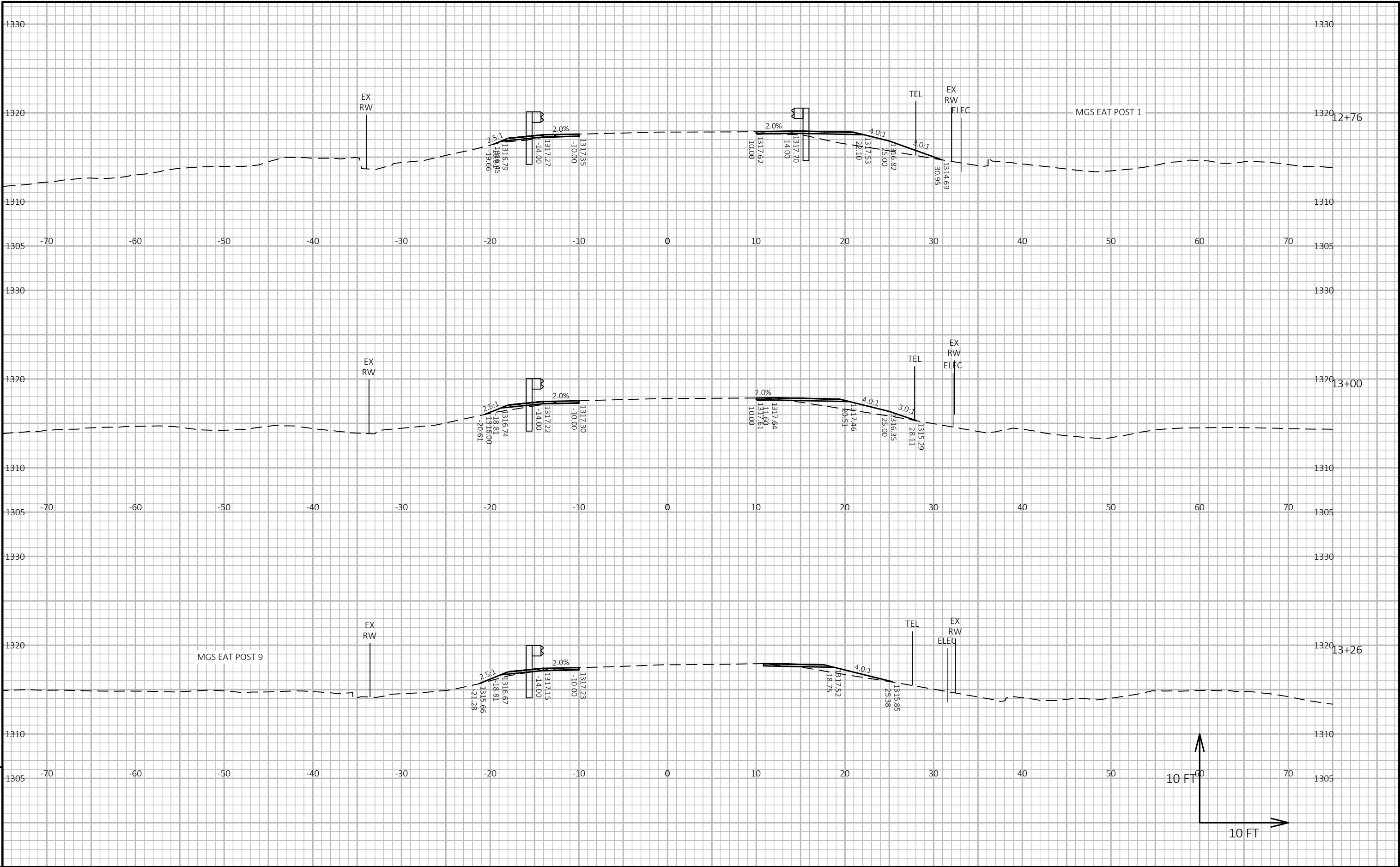


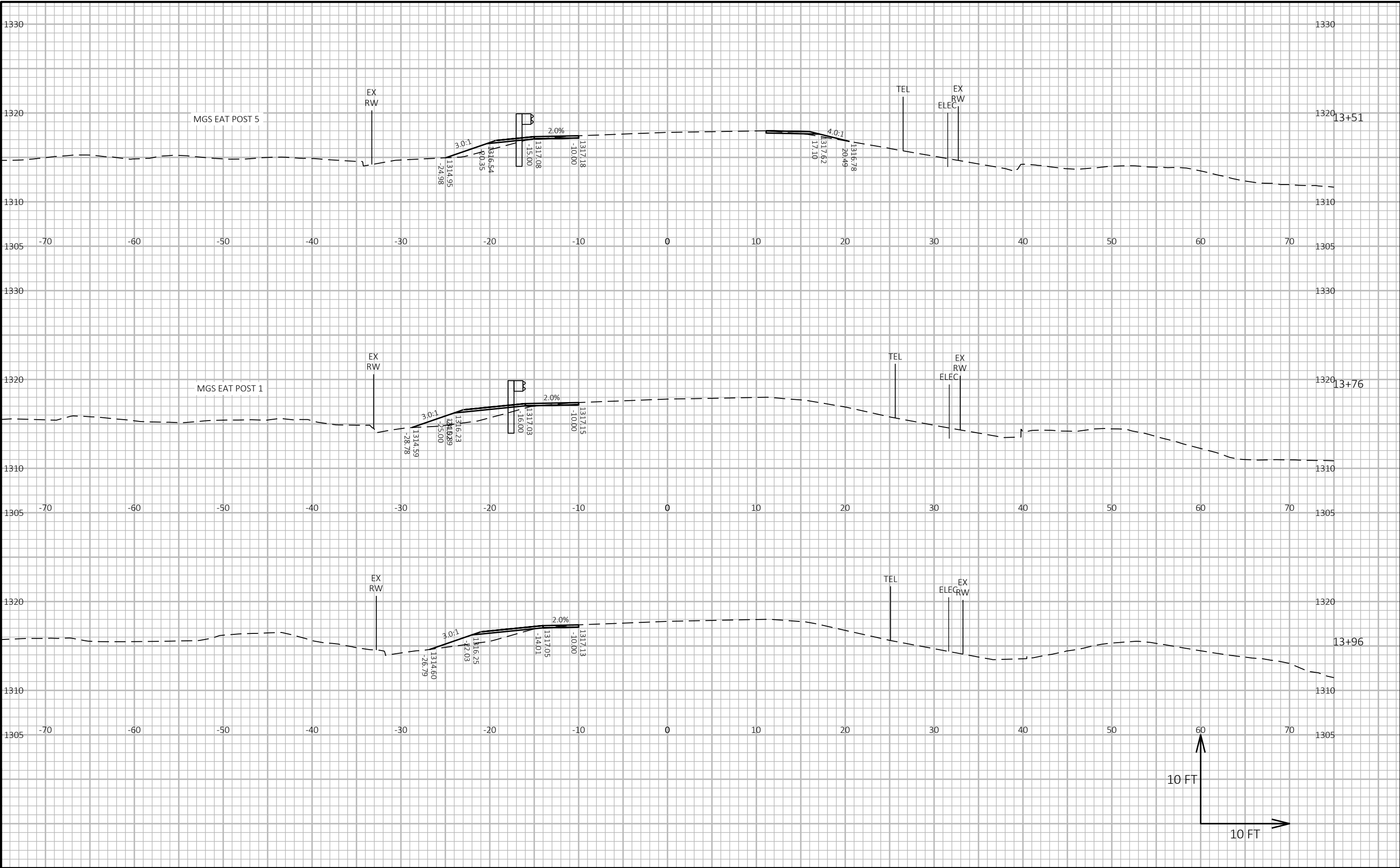


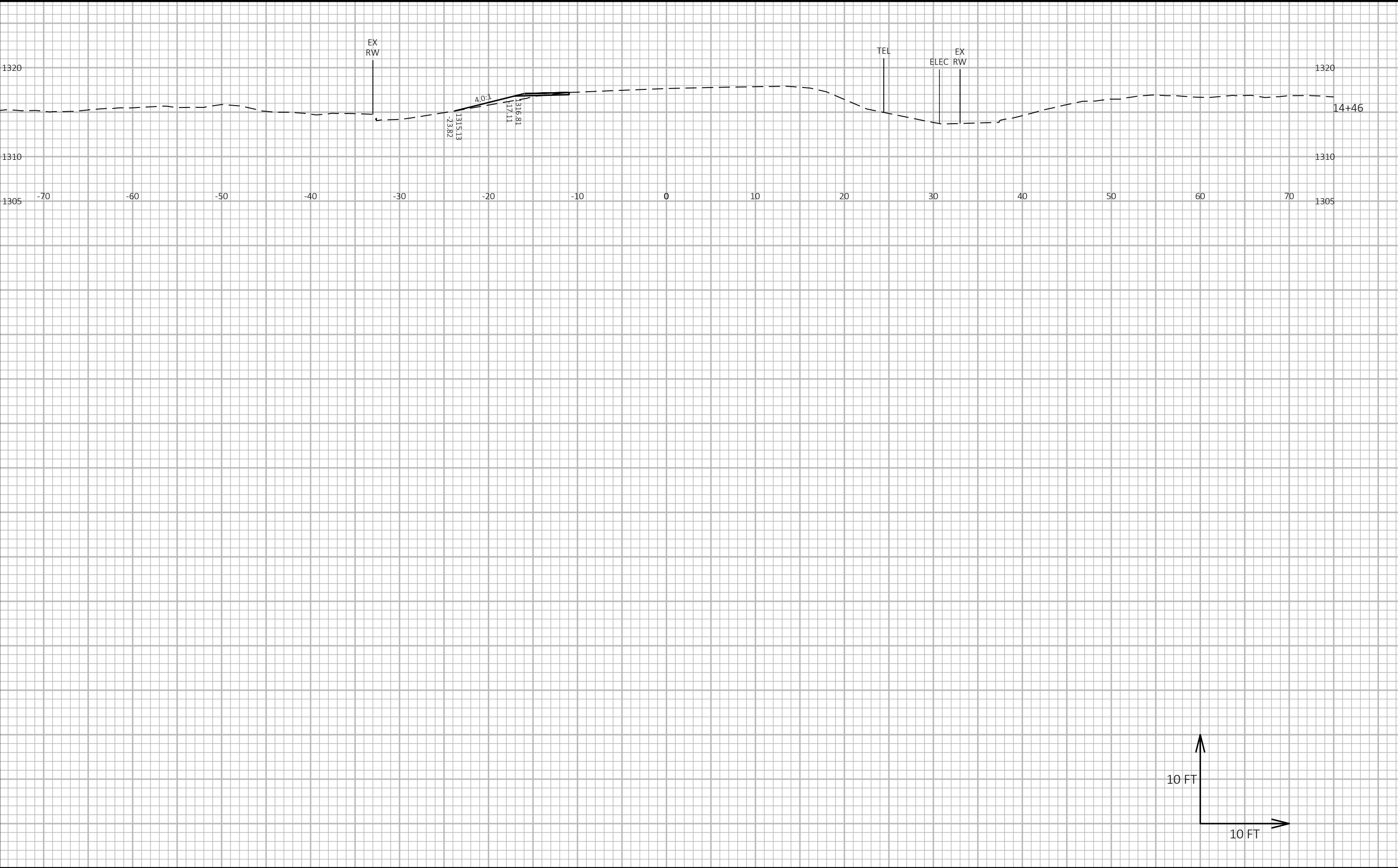
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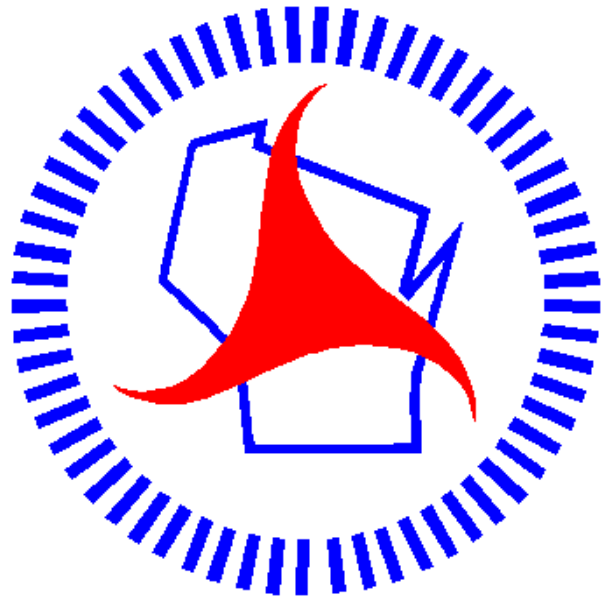




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PROJECT NO: 8777-00-70	HWY: CTH CC	COUNTY: SAWYER	CROSS SECTIONS: CTH CC	SHEET E
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Wisconsin Department of Transportation

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