

MAD
PROJECT ID: 3804-00-75
WITH: 3814-00-70

COUNTY: DODGE

December 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 Incl. Erosion Control Plans
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 = 42

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

TOWN OF LOWELL, WELL ROAD

SHAW CREEK BRIDGE, B-14-0226

LOC STR
DODGE

STATE PROJECT NUMBER
3804-00-75

STATE PROJECT

FEDERAL PROJECT

3804-00-75

WISC 2025092

1

3814-00-70

WISC 2025093

ACCEPTED FOR

TOWN

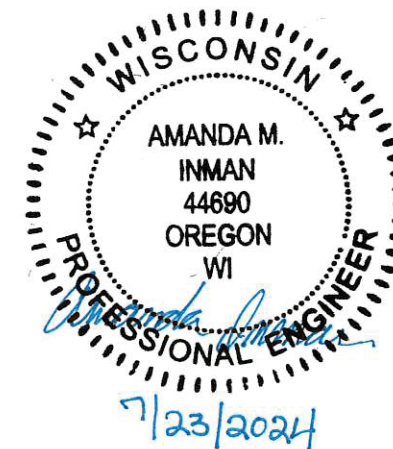
LOWELL

DATE: 7/17/24

John H. Schmitt
(CHAIRMAN)

ORIGINAL PLANS PREPARED BY

AYRES



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor: AYRES ASSOCIATES INC.
Designer: AYRES ASSOCIATES INC.
Project Manager: ZACH PEARSON
Regional Examiner: KYLE HEMP
Regional Supervisor: KYLE HEMP

APPROVED FOR THE DEPARTMENT
DATE: 08/01/2024 ZACHARY PEARSON
(Signature)

E

DESIGN DESIGNATION

A.A.D.T.	2025	=	< 100
A.A.D.T.	2045	=	< 100
D.H.V.		=	
D.D.		=	
T.		=	3.5%
DESIGN SPEED		=	30 MPH
ESALS		=	

CONVENTIONAL SYMBOLS

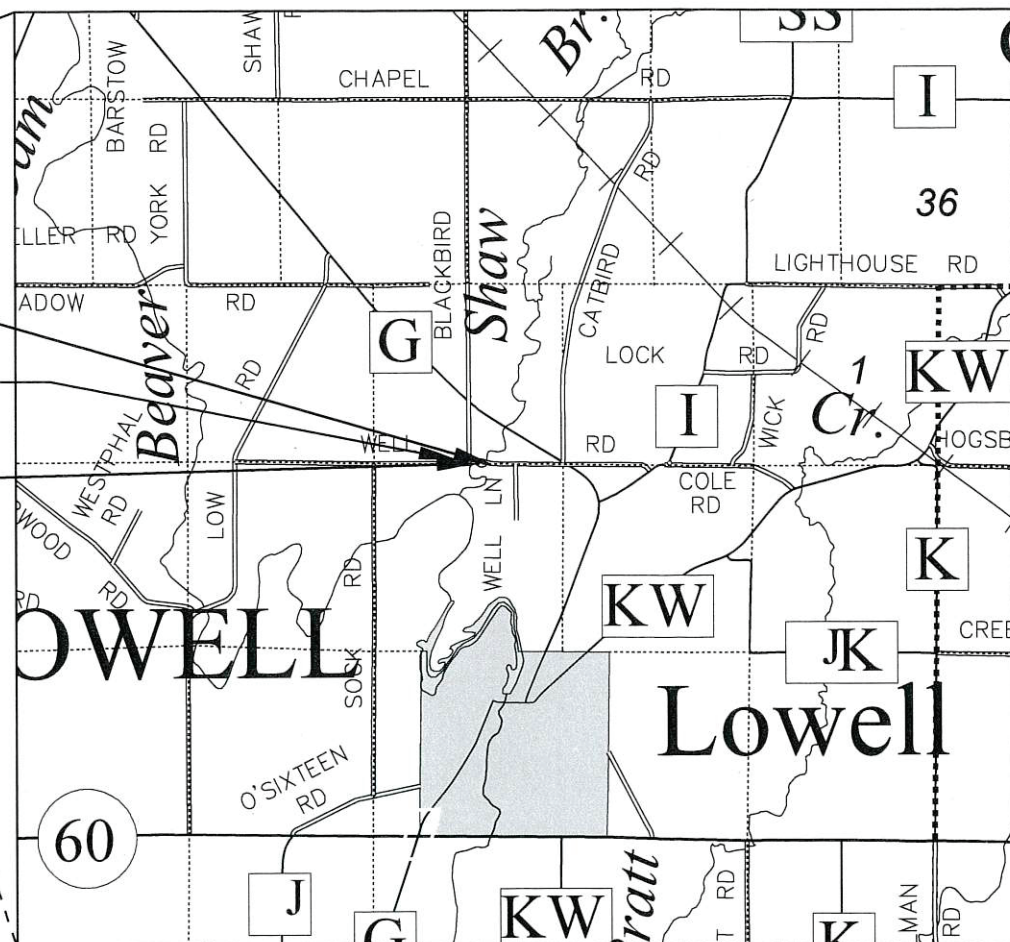
PLAN	
CORPORATE LIMITS	////
PROPERTY LINE	---
LOT LINE	- - -
LIMITED HIGHWAY EASEMENT	- - -
EXISTING RIGHT OF WAY	- - -
PROPOSED OR NEW R/W LINE	- - -
SLOPE INTERCEPT	- - -
REFERENCE LINE	300' ES
EXISTING CULVERT	- - -
PROPOSED CULVERT (Box or Pipe)	- - -
COMBUSTIBLE FLUIDS	CAUTION
MARSH AREA	~ ~ ~
WOODED OR SHRUB AREA	~ ~ ~

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

BEGIN PROJECT 3804-00-75
STA. 9+25.00'
Y = 687,765.236
X = 852,108.479

END PROJECT 3804-00-75
STA. 10+75.00'
Y = 687,769.901
X = 852,258.477

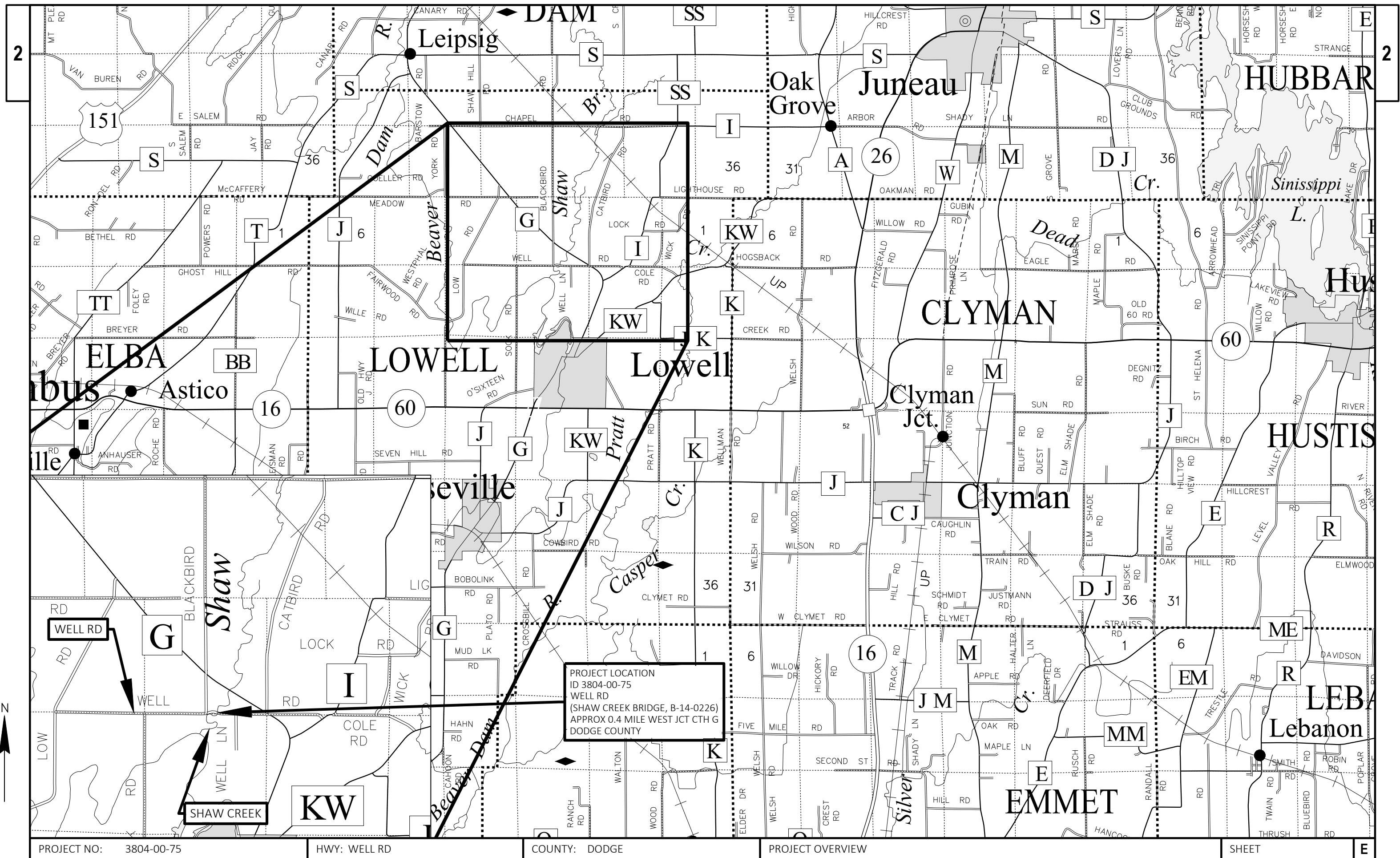
REPLACE BRIDGE
STRUCTURE
(B-14-0226)



LAYOUT
SCALE 0 1 MI
TOTAL NET LENGTH OF CENTERLINE = 0.028 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN
COORDINATE REFERENCE SYSTEM (WISCRS), DODGE 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.



GENERAL NOTES

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

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.

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT IS TO MEET AN EXISTING PAVED SURFACE.

EXACT TRAFFIC CONTROL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS DESIGNATED FOR REMOVAL BY THE ENGINEER.

PROTECT FROM DAMAGE AND COMPLETE SHOULDER WORK AROUND ANY EXISTING SIGNS OR MAILBOXES THAT ARE TO REMAIN IN PLACE.

RESTORATION OF EXPOSED SLOPES AND DITCHES SHALL TAKE PLACE WITHIN 7 CALENDAR DAYS AFTER FINISHED GRADING IS COMPLETE.

WETLANDS ARE PRESENT IN THE PROJECT AREA. DO NOT DISTURB WETLANDS OUTSIDE THE PROPOSED SLOPE INTERCEPTS.

IF AN EXISTING SIGN IS TO BE REMOVED AND REPLACED WITH A NEW SIGN, DO NOT REMOVE THE EXISTING SIGN PRIOR TO INSTALLATION OF THE NEW SIGN.

THE LOCATIONS OF EROSION CONTROL ITEMS SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

PROJECT CONTACTS

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WISCONSIN DEPARTMENT OF NATURAL RESOURCES
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DESIGNER
AMANDA INMAN, PE
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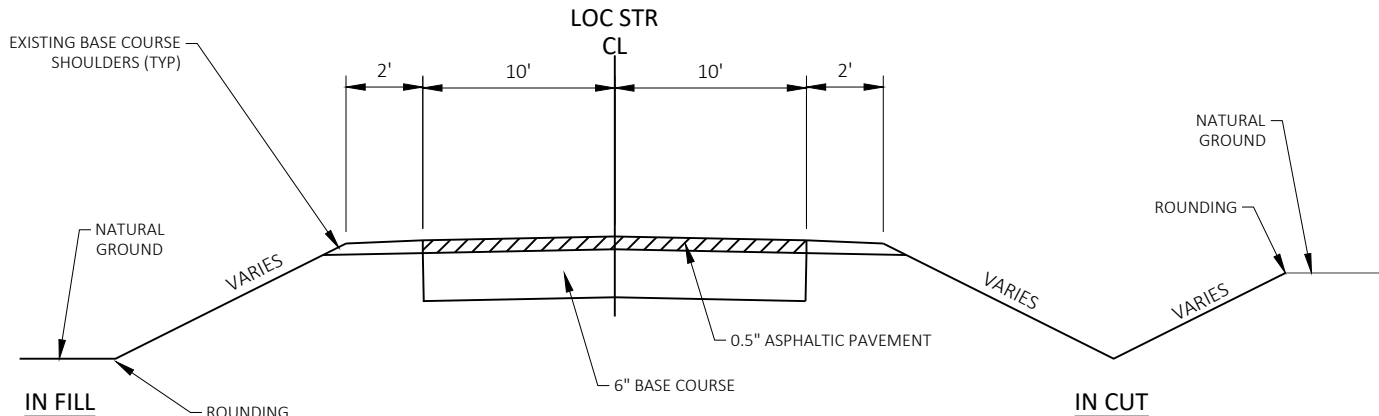
** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS



Dial 811 or (800) 242-8511
www.DiggersHotline.com

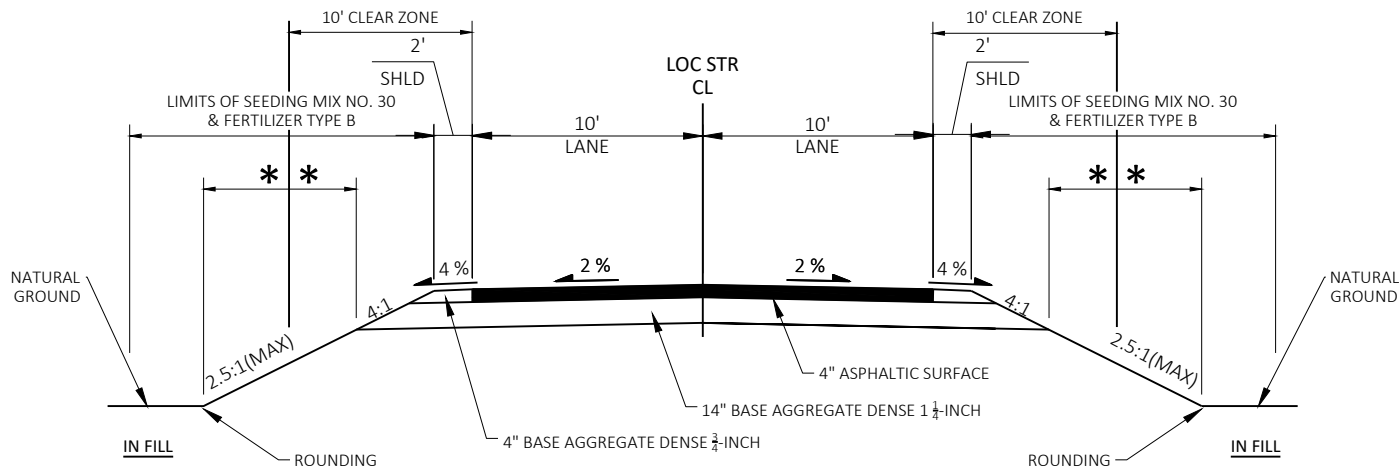
ABBREVIATIONS

A.D.T.	AVERAGE DAILY TRAFFIC
ATMS	ARTERIAL TRAFFIC MANAGEMENT SYSTEM
BM	BENCHMARK
BOC	BACK OF CURB
BTWN	BETWEEN
C&G	CURB AND GUTTER
C.E.	COMMERCIAL ENTRANCE
CONST	CONSTRUCTION
CP	CONTROL POINT
CTR.	CENTER
D.D.	DIRECTIONAL DISTRIBUTION
D.H.V.	DESIGN HOURLY VOLUME
DMS	DYNAMIC MESSAGE SIGN
EB	EASTBOUND
EXIST	EXISTING
GALV.	GALVANIZED
HMA	HOT MIX ASPHALT
H.S.	HIGH STRENGTH
ITS	INTELLIGENT TRAFFIC SYSTEM
MAX	MAXIMUM
MIN	MINIMUM
NB	NORTHBOUND
NOR	NORMAL
PC	POINT OF CURVATURE
PCC	POINT OF COMMON CURVATURE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVT	PAVEMENT
R/L	REFERENCE LINE
REQ'D	REQUIRED
SB	SOUTHBOUND
SYM	SYMMETRICAL
T.	PERCENT TRUCKS
TCC	TRAFFIC CONDITION CAMERA
TYP	TYPICAL
VAR	VARIABLE
WB	WESTBOUND
Wt.	WEIGHT
X-WALK	CROSS WALK



TYPICAL EXISTING SECTION

STA. 9+25 - STA. 9+80
STA. 10+20 - STA. 10+75

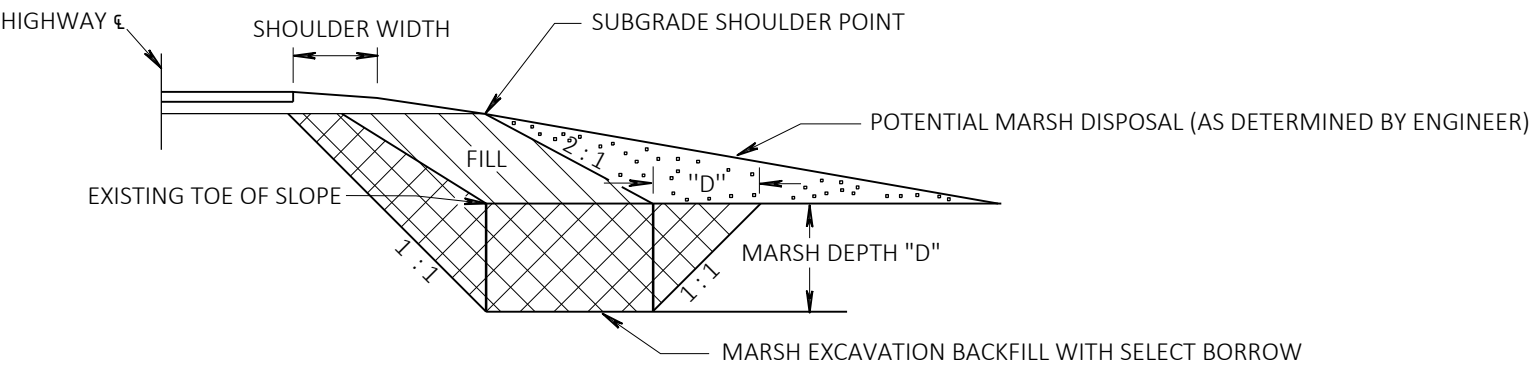


FINISHED TYPICAL SECTION*

STA. 9+25 - STA. 9+80
STA. 10+20 - STA. 10+75

* PAVEMENT TO WIDEN FROM PROJECT LIMITS TO MATCH 24' BRIDGE CLEAR WIDTH

** LIMITS OF SALVAGED TOPSOIL AND EROSION MAT URBAN CLASS I TYPE B



TYPICAL MARSH EXCAVATION

WEST OF SHAW CREEK, D = 2'
EAST OF SHAW CREEK, D = 4'

A	HYDROLOGIC SOIL GROUP											
	B C									D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	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 STRIP- TURF	.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 SLOPE: TURF			.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 = 0.18 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.27 ACRES

RUNOFF COEFFICIENT TABLE

Estimate Of Quantities By Plan Sets

3804-00-75					
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	203.0250	Removing Structure Over Waterway Remove Debris (structure) 01. P-14-0038	EACH	1.000	1.000
0016	205.0100	Excavation Common	CY	157.000	157.000
0018	205.0400	Excavation Marsh	CY	142.000	142.000
0020	206.1001	Excavation for Structures Bridges (structure) 01. B-14-0226	EACH	1.000	1.000
0026	208.0100	Borrow	CY	19.000	19.000
0028	208.1100	Select Borrow	CY	213.000	213.000
0030	210.1500	Backfill Structure Type A	TON	190.000	190.000
0032	213.0100	Finishing Roadway (project) 01. 3804-00-75	EACH	1.000	1.000
0036	305.0110	Base Aggregate Dense 3/4-Inch	TON	20.000	20.000
0038	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	270.000	270.000
0042	455.0605	Tack Coat	GAL	18.000	18.000
0044	465.0105	Asphaltic Surface	TON	59.000	59.000
0046	502.0100	Concrete Masonry Bridges	CY	135.000	135.000
0048	502.3200	Protective Surface Treatment	SY	175.000	175.000
0050	505.0400	Bar Steel Reinforcement HS Structures	LB	3,060.000	3,060.000
0052	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	16,600.000	16,600.000
0054	513.4061	Railing Tubular Type M	LF	130.000	130.000
0056	516.0500	Rubberized Membrane Waterproofing	SY	16.000	16.000
0060	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	180.000	180.000
0062	606.0300	Riprap Heavy	CY	160.000	160.000
0064	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	140.000	140.000
0076	618.0100	Maintenance and Repair of Haul Roads (project) 01. 3804-00-75	EACH	1.000	1.000
0080	619.1000	Mobilization	EACH	0.500	0.500
0082	623.0200	Dust Control Surface Treatment	SY	310.000	310.000
0084	624.0100	Water	MGAL	4.000	4.000
0086	625.0500	Salvaged Topsoil	SY	188.000	188.000
0088	628.1504	Silt Fence	LF	315.000	315.000
0090	628.1520	Silt Fence Maintenance	LF	630.000	630.000
0092	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0094	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0096	628.2008	Erosion Mat Urban Class I Type B	SY	207.000	207.000
0098	628.6005	Turbidity Barriers	SY	139.000	139.000
0100	629.0210	Fertilizer Type B	CWT	1.000	1.000
0102	630.0130	Seeding Mixture No. 30	LB	9.000	9.000
0104	630.0200	Seeding Temporary	LB	12.000	12.000
0106	630.0500	Seed Water	MGAL	7.900	7.900
0108	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0110	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0112	638.2602	Removing Signs Type II	EACH	4.000	4.000
0114	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0116	642.5001	Field Office Type B	EACH	0.500	0.500
0118	643.0420	Traffic Control Barricades Type III	DAY	1,980.000	1,980.000
0120	643.0705	Traffic Control Warning Lights Type A	DAY	3,080.000	3,080.000
0122	643.0900	Traffic Control Signs	DAY	1,540.000	1,540.000
0124	643.5000	Traffic Control	EACH	0.500	0.500
0126	645.0111	Geotextile Type DF Schedule A	SY	60.000	60.000
0128	645.0120	Geotextile Type HR	SY	296.000	296.000

Estimate Of Quantities By Plan Sets

3804-00-75					
Line	Item	Item Description	Unit	Total	Qty
0130	650.4500	Construction Staking Subgrade	LF	108.000	108.000
0132	650.5000	Construction Staking Base	LF	108.000	108.000
0134	650.6501	Construction Staking Structure Layout (structure) 01. B-14-0226	EACH	1.000	1.000
0138	650.9911	Construction Staking Supplemental Control (project) 01. 3804-00-75	EACH	1.000	1.000
0142	650.9920	Construction Staking Slope Stakes	LF	108.000	108.000
0144	690.0150	Sawing Asphalt	LF	40.000	40.000
0146	715.0502	Incentive Strength Concrete Structures	DOL	810.000	810.000
0150	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0152	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000

CLEARING & GRUBBING

CATEGORY	STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
0010	9+00	-	11+00	LT	2	2
0010	9+00	-	11+00	RT	2	2
TOTAL 0010					4	4

BASE AGGREGATE

CATEGORY	STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL	REMARKS
0010	9+25	-	9+79	MAINLINE	10	140	2	WEST APPROACH
0010	10+21	-	10+75	MAINLINE	10	130	2	EAST APPROACH
TOTAL 0010					20	270	4	

PROJECT-WIDE ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	213.0100.01 FINISHING ROADWAY (PROJECT) (01. 3804-00-75) EACH	619.1000 MOBILIZATION EACH	623.0200 DUST CONTROL SURFACE TREATMENT SY	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	642.5001 FIELD OFFICE TYPE B EACH	ASP.1T0A ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR HRS	ASP.1T0G ON-THE-JOB TRAINING GRADUATE AT \$5.00/HR HRS
0010	9+25	-	10+75	WELL ROAD	1	0.5	310	4	4	0.5	1,200.0	600.0
TOTAL 0010					1	0.5	310	4	4	0.5	1,200.0	600.0

WELL ROAD EARTHWORK SUMMARY

From/To Station	Location	Common Excavation (1) (Item 205.0100)		Marsh Ex (Item 205.0400) (4)	Unexpanded Fill	Expanded Fill (2)	Select Borrow (Item 208.1100) Marsh Ex Backfill	Mass Ordinate +/- (3)	Waste	Borrow (Item 208.0100)	Comment:
		Cut	Unusable			Factor 1.30	Factor 1.50				
9+25 to 10+00	WELL ROAD	78	2	38	64	83	57	-7	-	7	
10+00 to 10+75	WELL ROAD	75	2	104	65	85	156	-12	-	12	
TOTAL		157		142	129	168	213	-19	-	19	

- 1) Common Excavation is the Cut. Unusable excavation is existing pavement. Item number 205.0100.
2) Expanded Fill. Factor = 1.30; Expanded Fill = Unexpanded Fill * Fill Factor
3) The Mass Ordinate + or - Qty calculated for the side of the waterway. Plus quantity indicates an excess of material on the side of the waterway.
4) Marsh Excavation assumed to be wasted and backfilled with Select Borrow.
5) All quantities shown in CY.

ASPHALT

CATEGORY	STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON	REMARKS
0010	9+25	-	9+79	MAINLINE	9	30	WEST APPROACH
0010	10+21	-	10+75	MAINLINE	9	29	EAST APPROACH
TOTAL 0010					18	59	

NOTES:

- * TACK COAT APPLICATION RATE = 0.07 GAL/SY
** ASSUMED ASPHALT AT 112 LBS/SY/IN

MAINTENANCE AND REPAIR OF HAUL ROADS

CATEGORY	LOCATION	618.0100.01 MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) (01. 3804-00-75) EACH	REMARKS
0030	PROJECT-WIDE	1	
TOTAL 0030		1	

RIPRAP

CATEGORY	STATION	TO	STATION	LOCATION	606.0300 RIPRAP HEAVY CY	645.0120 GEOTEXTILE TYPE HR SY	REMARKS
0010	10+31	-	10+50	LT	33	49	
TOTAL 0010					33	49	

* ALSO IN STRUCTURE QUANTITIES

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

EROSION CONTROL AND FINISHING ITEMS

					625.0500	628.1504	628.1520	628.2008	628.6005	629.0210	630.0130	630.0200	630.0500	
					SALVAGED			EROSION MAT						
					TOPSOIL	SILT FENCE	SILT FENCE	URBAN CLASS I	TURBIDITY	FERTILIZER	SEEDING	SEEDING	SEED WATER	
CATEGORY	STATION	TO	STATION	LOCATION	SY	LF	LF	TYPE B	SY	CWT	MIXTURE NO. 30	TEMPORARY	MGAL	REMARKS
0010	9+25	-	10+00	LT	56	56	112	56		0.1	2	3	1.7	Turbidity barrier wraps around LT and RT
0010	9+25	-	10+00	RT	53	69	138	53	70	0.1	2	2	1.7	
0010	10+00	-	10+75	LT	34	59	118	34		0.1	1	2	1.1	
0010	10+00	-	10+75	RT	45	66	132	45	72	0.1	2	2	1.5	Turbidity barrier wraps around LT and RT
0010	UNDISTRIBUTED				-	65	130	19		0.6	2	3	1.9	
TOTAL 0010					188	315	630	207	142	1.0	9	12	7.9	

SIGNS

		634.0614	637.2230	638.2602	638.3000	REMARKS
		POSTS WOOD	SIGNS TYPE II	REMOVING	REMOVING	
		4X6-INCH X 14-FT	REFLECTIVE F	SIGNS TYPE II	SMALL SIGN	
CATEGORY	STATION	LOCATION	EACH	SF	EACH	EACH
0010		W OF BRIDGE	1	3	1	1
0010		W OF BRIDGE	1	3	1	1
0010		E OF BRIDGE	1	3	1	1
0010		E OF BRIDGE	1	3	1	1
TOTAL 0010			4	12	4	4

STAKING

					650.4500	650.5000	650.6501.01	650.9911.01	650.9920
					CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	
					STAKING	STAKING	STAKING	STAKING	
					SUBGRADE	STAKING BASE	STRUCTURE	SUPPLEMENTAL	
CATEGORY	STATION	TO	STATION	LOCATION	LF	LF	LAYOUT	CONTROL	CONSTRUCTION
							(STRUCTURE)	(PROJECT) (01.	STAKING SLOPE
							(01. B-14-0226)	3804-00-75)	STAKES
							EACH	EACH	LF
0010	9+25	-	10+75	MAINLINE	108	108	-	1	108
TOTAL 0010					108	108	0	1	108
0020	9+79	-	10+21	B-14-0226	-	-	1	-	-
TOTAL 0020					0	0	1	0	0
PROJECT TOTAL					108	108	1	1	108

TRAFFIC CONTROL

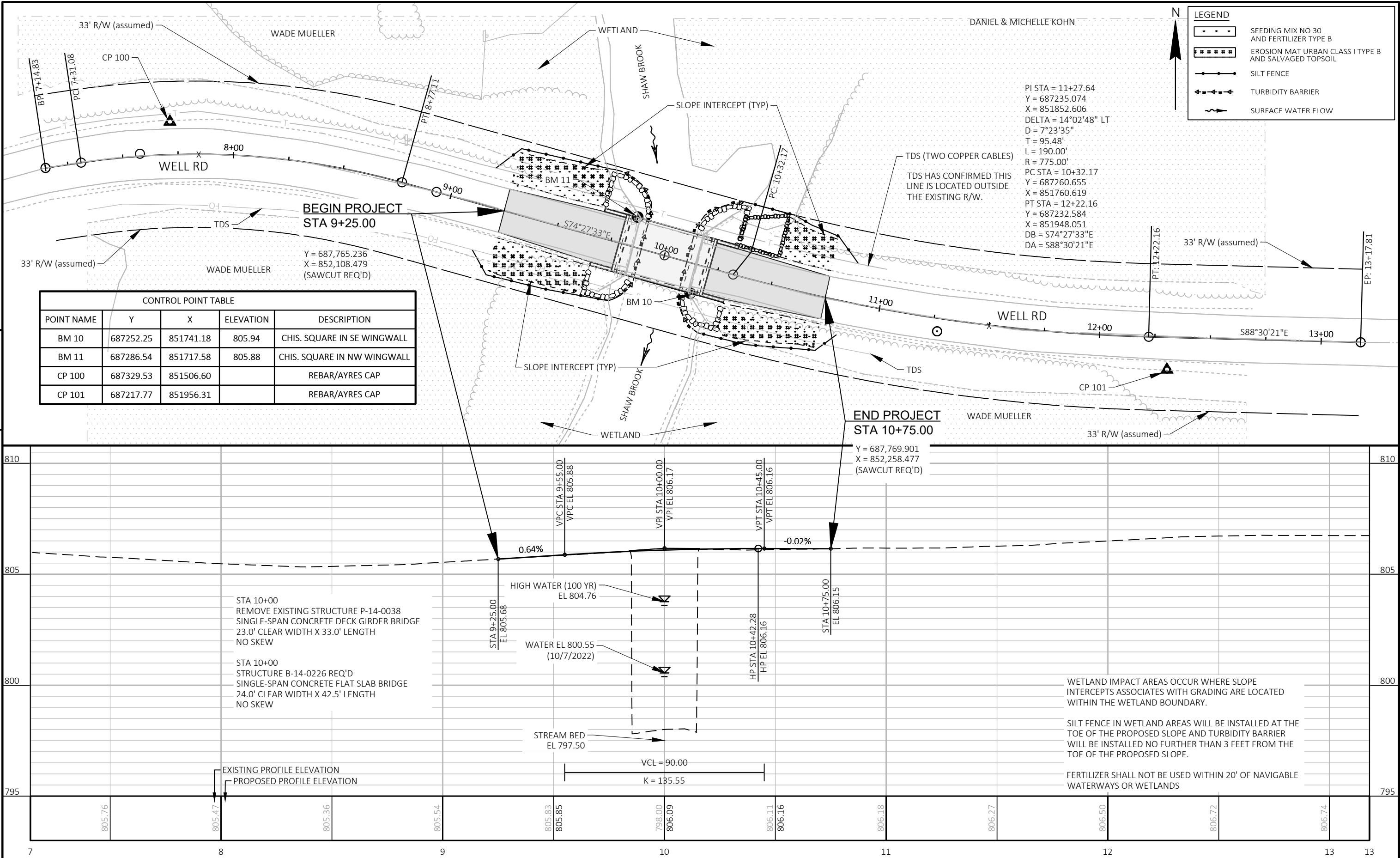
				643.0420	643.0705	643.0900	643.5000	REMARKS
				TRAFFIC	TRAFFIC	TRAFFIC	TRAFFIC	
				CONTROL	CONTROL	CONTROL	CONTROL	
				BARRICADES	WARNING	SIGNS	CONTROL	
				TYPE III	LIGHTS TYPE A		EACH	
CATEGORY	LOCATION	DURATION	NO.	DAY	NO.	DAY	NO.	
		DAYS						
0010	PER SDD 15C2	110	18	1,980	28	3,080	14	1,540
0010	WELL ROAD		--	--	--	--	--	0.5
TOTAL 0010				1,980		3,080		1,540

ASSUMED SIGNS NEEDED FROM 6/16/2025 THROUGH 10/3/2025. ADJACENT INTERSECTIONS ARE BLACKBIRD RD & CTH G.

SAWING ASPHALT

						690.0150	REMARKS
						SAWING	
						ASPHALT	
CATEGORY	STATION	TO	STATION	LOCATION	LF		
0010	9+25	-	10+75	MAINLINE	40		
TOTAL 0010					40		

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

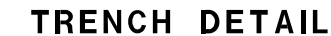


Standard Detail Drawing List

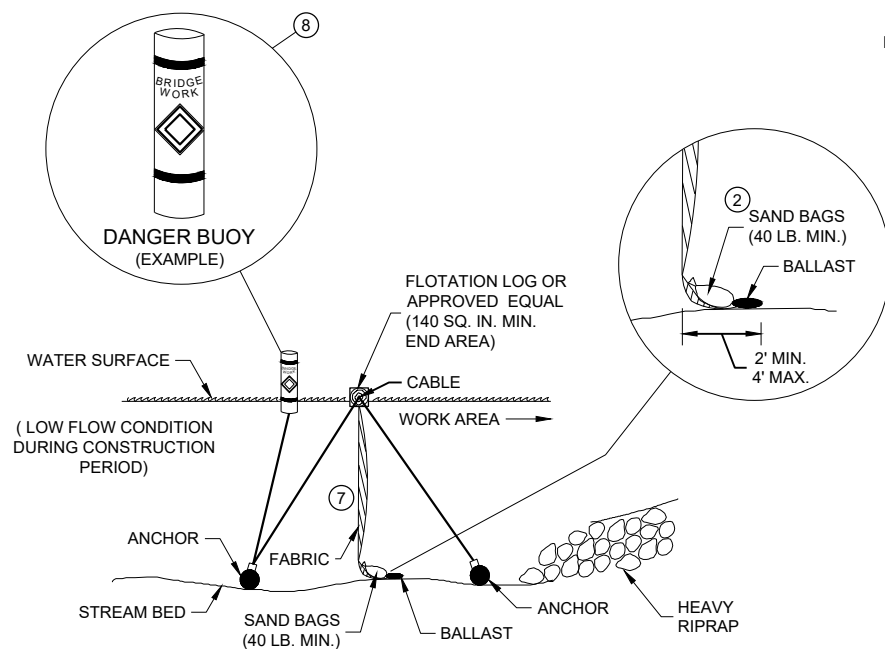
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
13C19-03	HMA LONGITUDINAL JOINTS
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES



- 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.

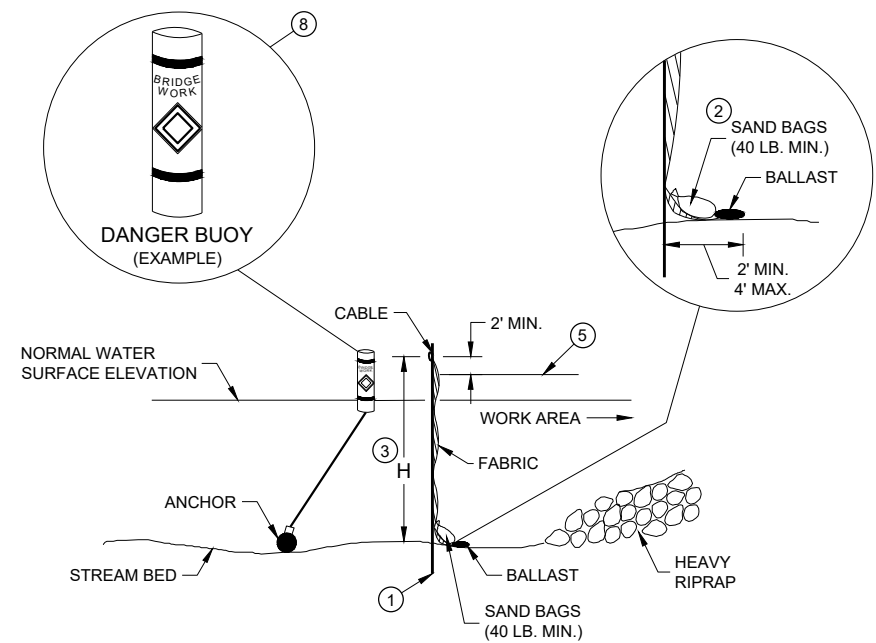


<div>SILT FENCE</div>	
<div>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</div>	
<div>APPROVED</div> <div>4-29-05</div> <div>DATE</div>	<div>/S/ Beth Cannestra</div> <div>CHIEF ROADWAY DEVELOPMENT ENGINEER</div>



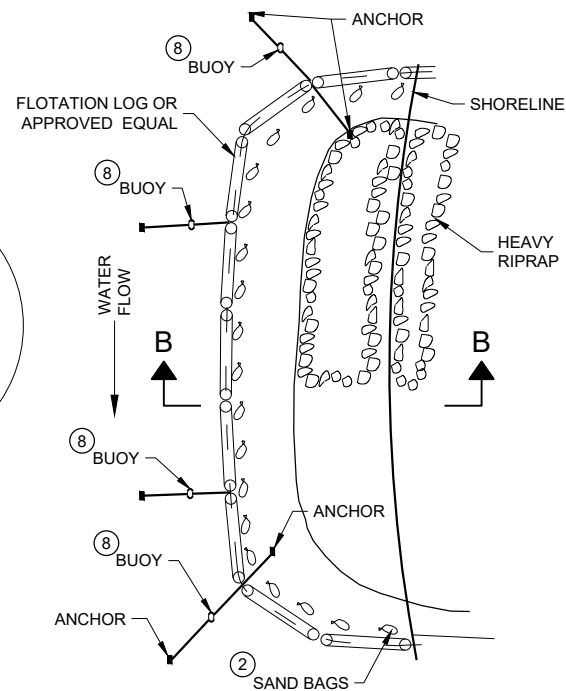
SECTION B - B

TURBIDITY BARRIER - FLOAT ALTERNATIVE CAUTION - SEE NOTE 6

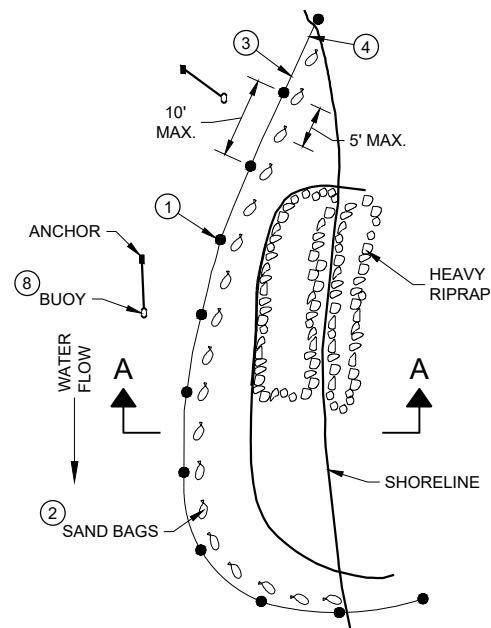


SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW



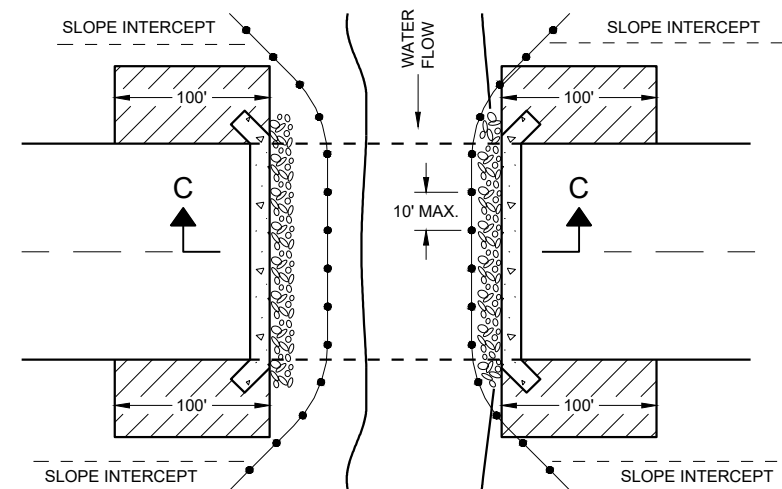
PLAN VIEW

GENERAL NOTES

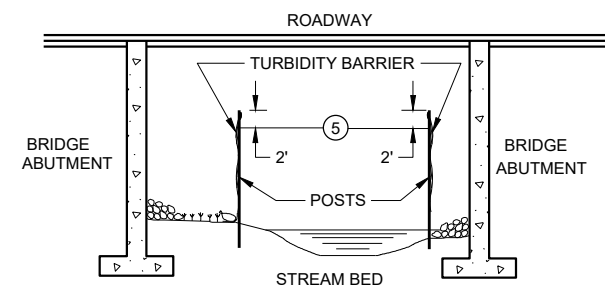
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

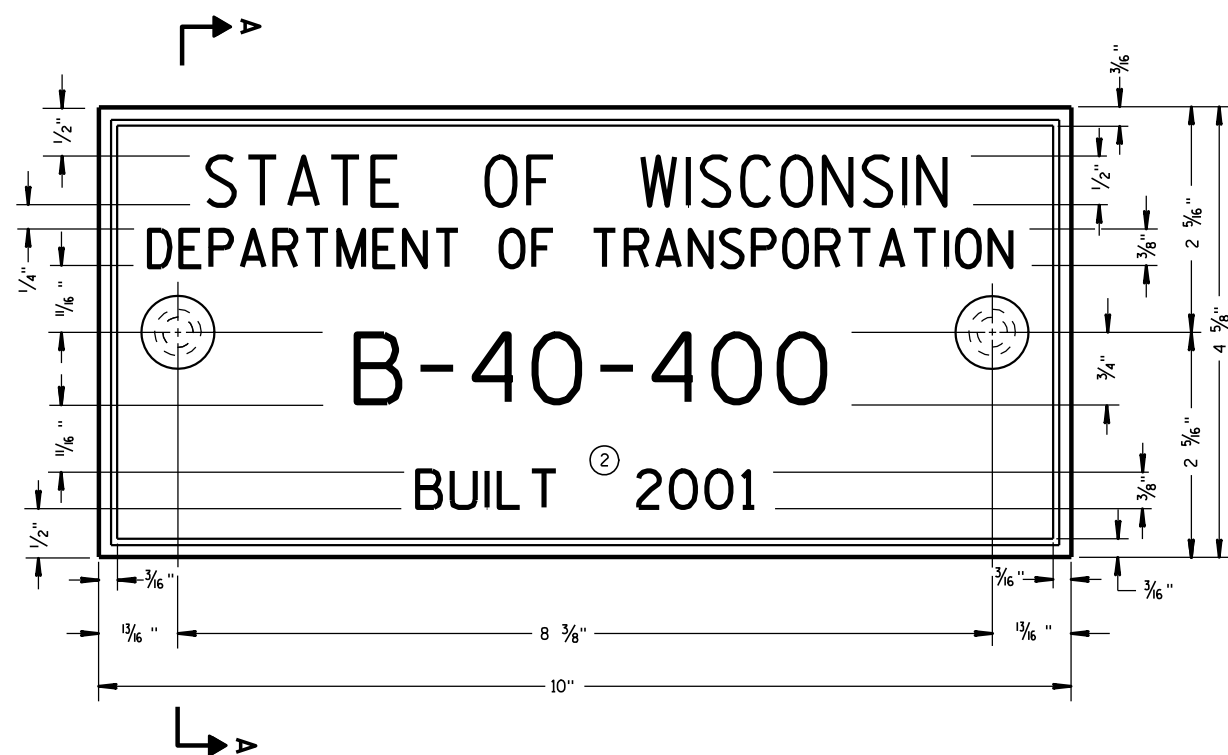
DATE

FHWA

/S/ Beth Cannestra

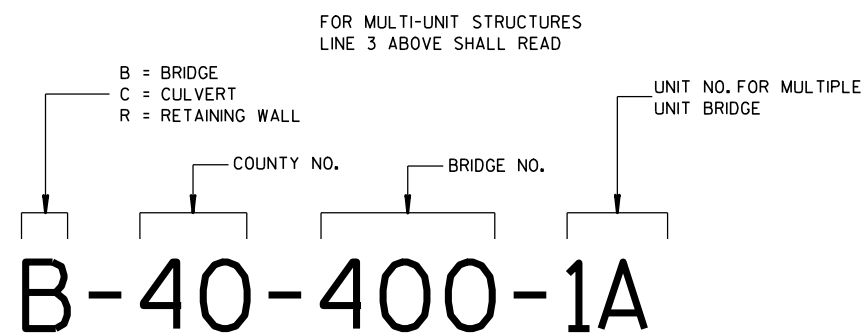
CHIEF ROADWAY DEVELOPMENT

ENGINEER



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



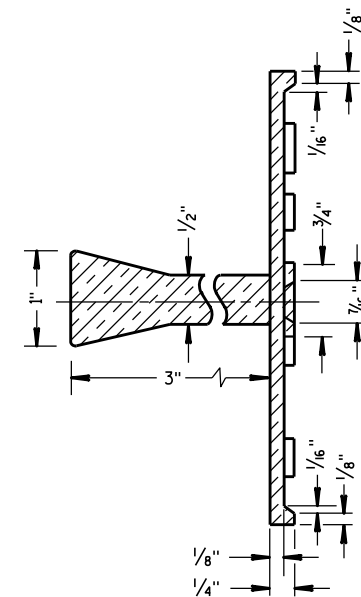
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

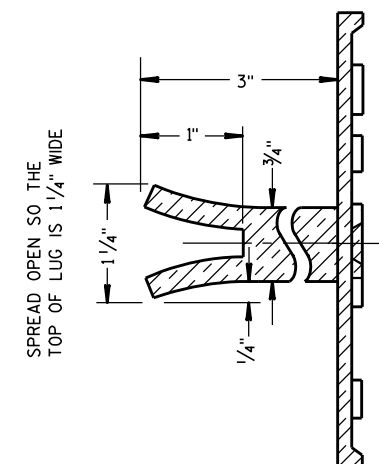
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

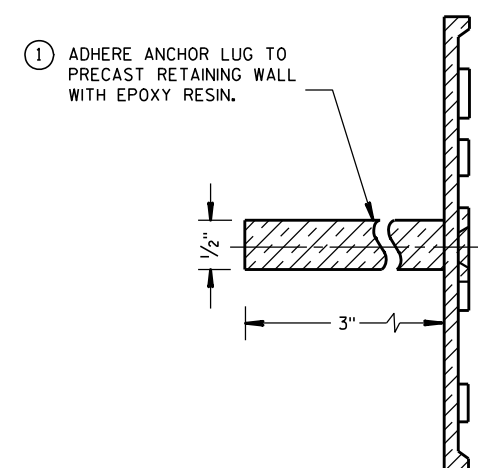
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE
(STRUCTURES)

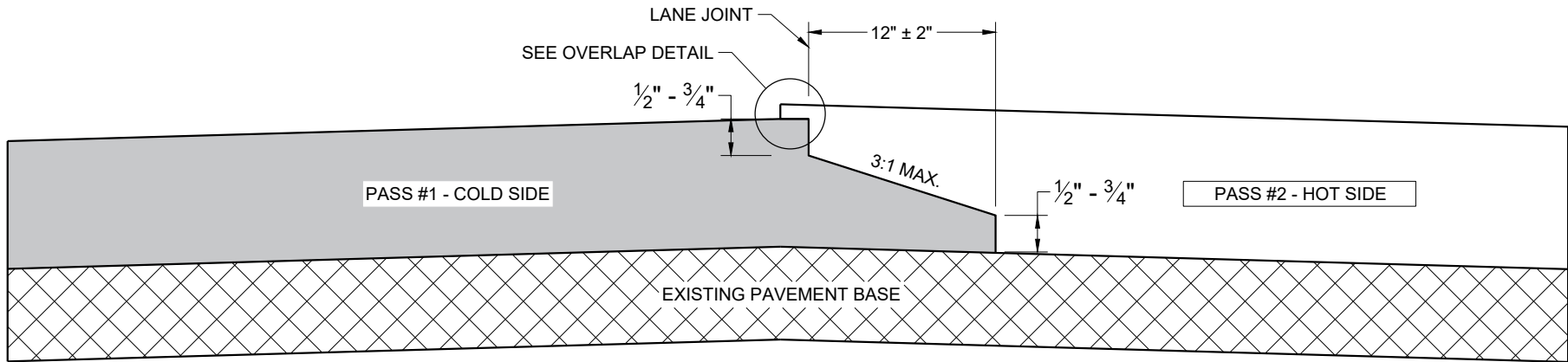
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

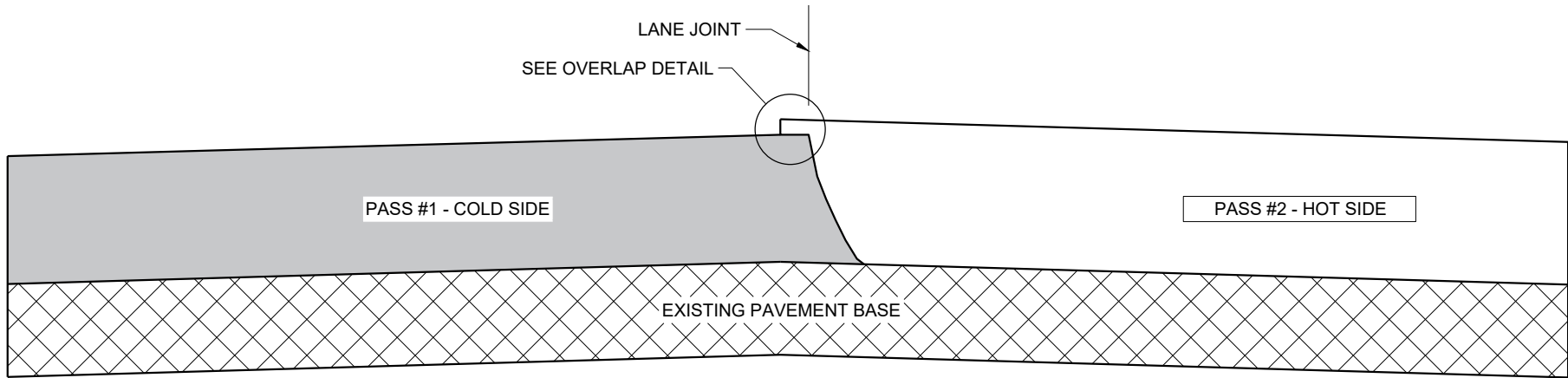
3/26/10
DATE

FHWA

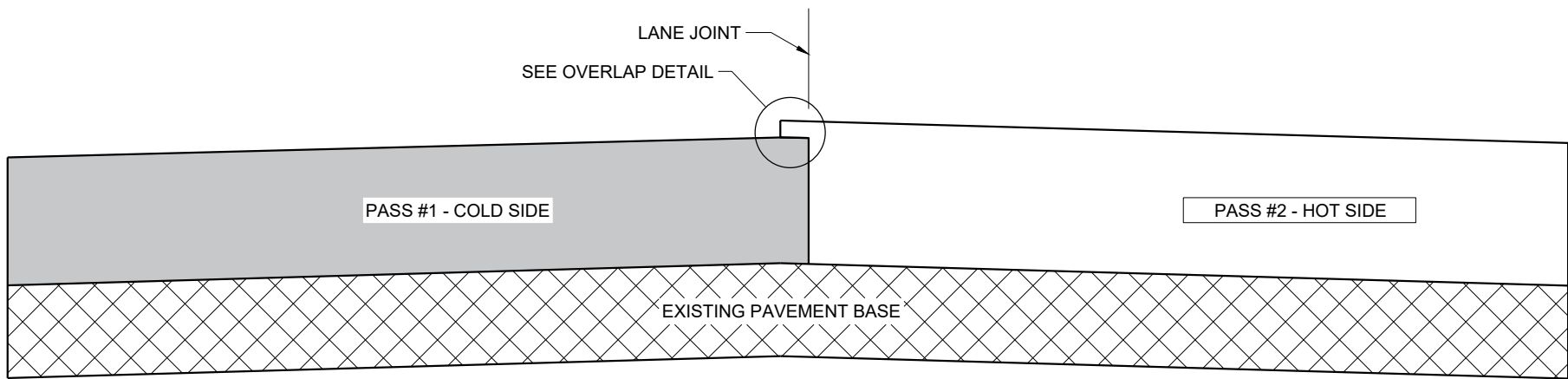
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)**

GENERAL NOTES

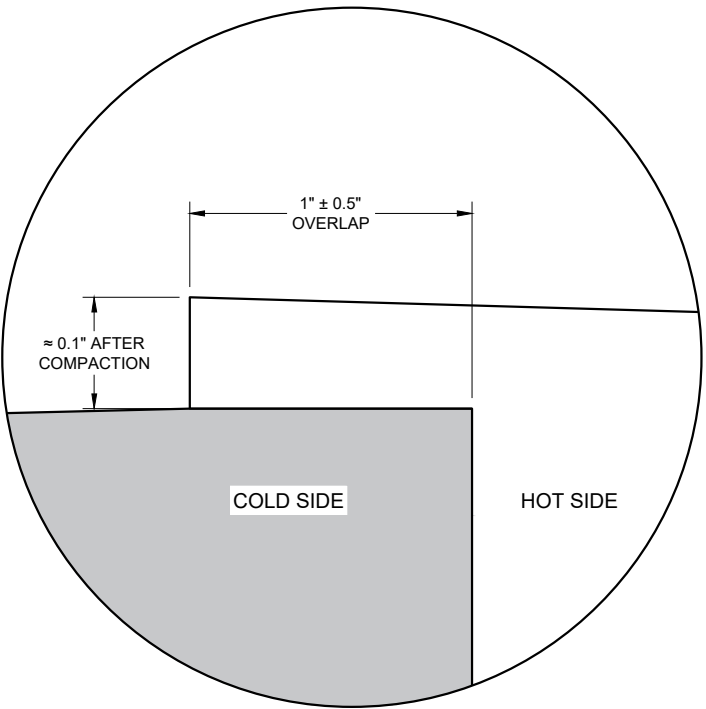
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY $0.1"$ AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO $2"$ FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.

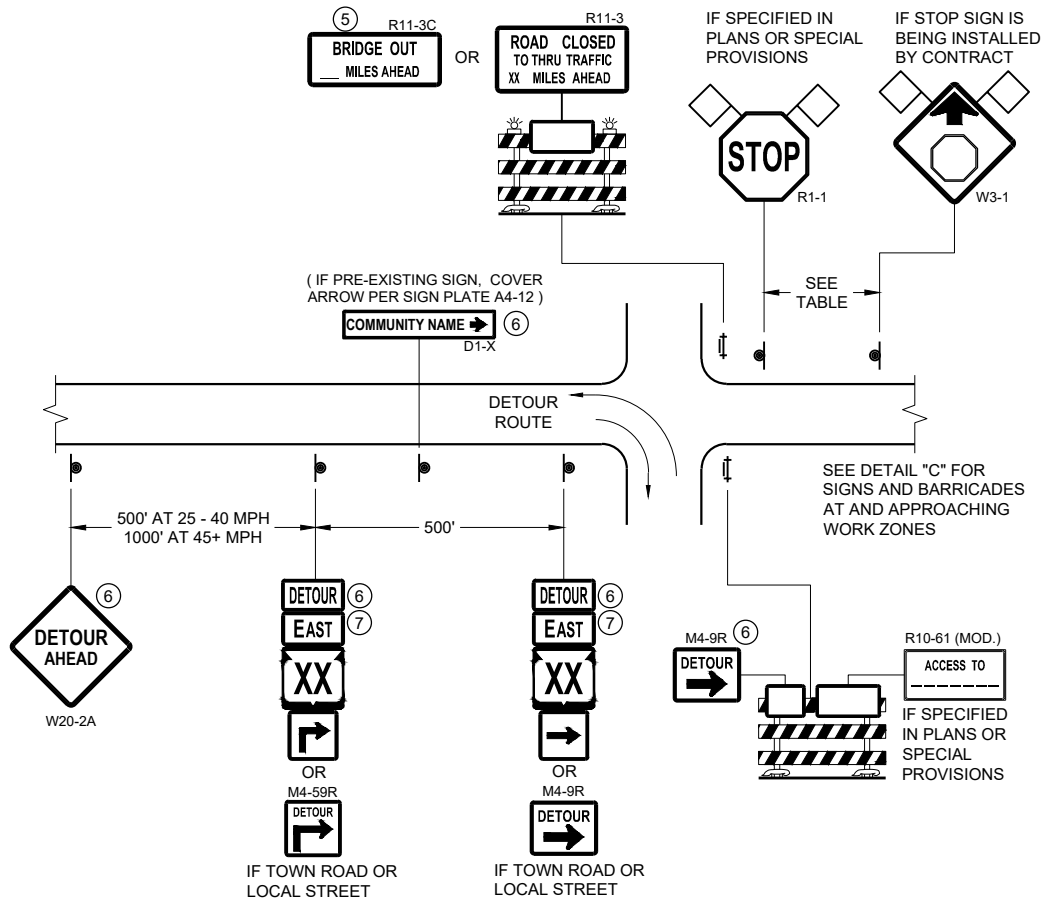


OVERLAP DETAIL (TYPICAL)

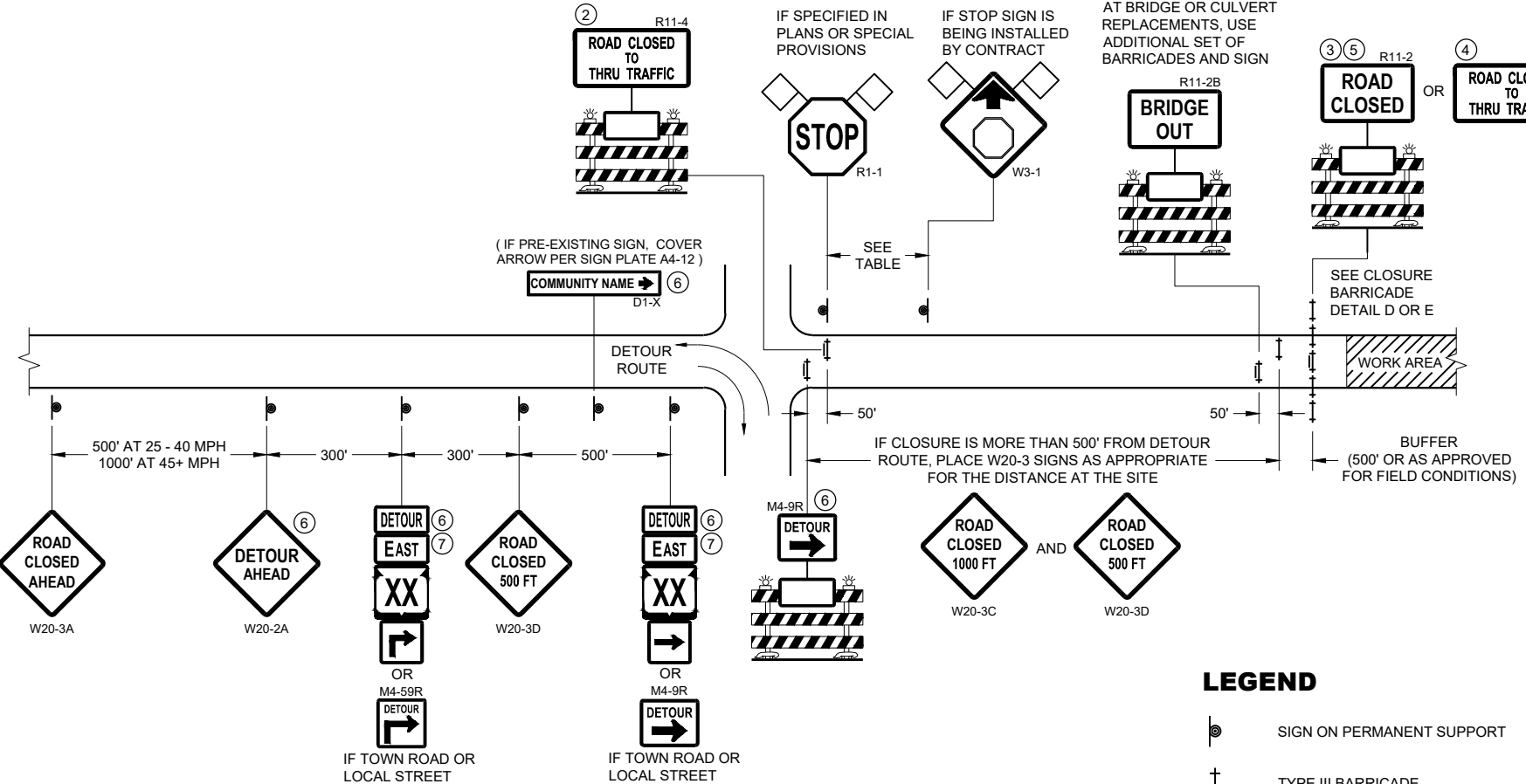
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER
FHWA



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



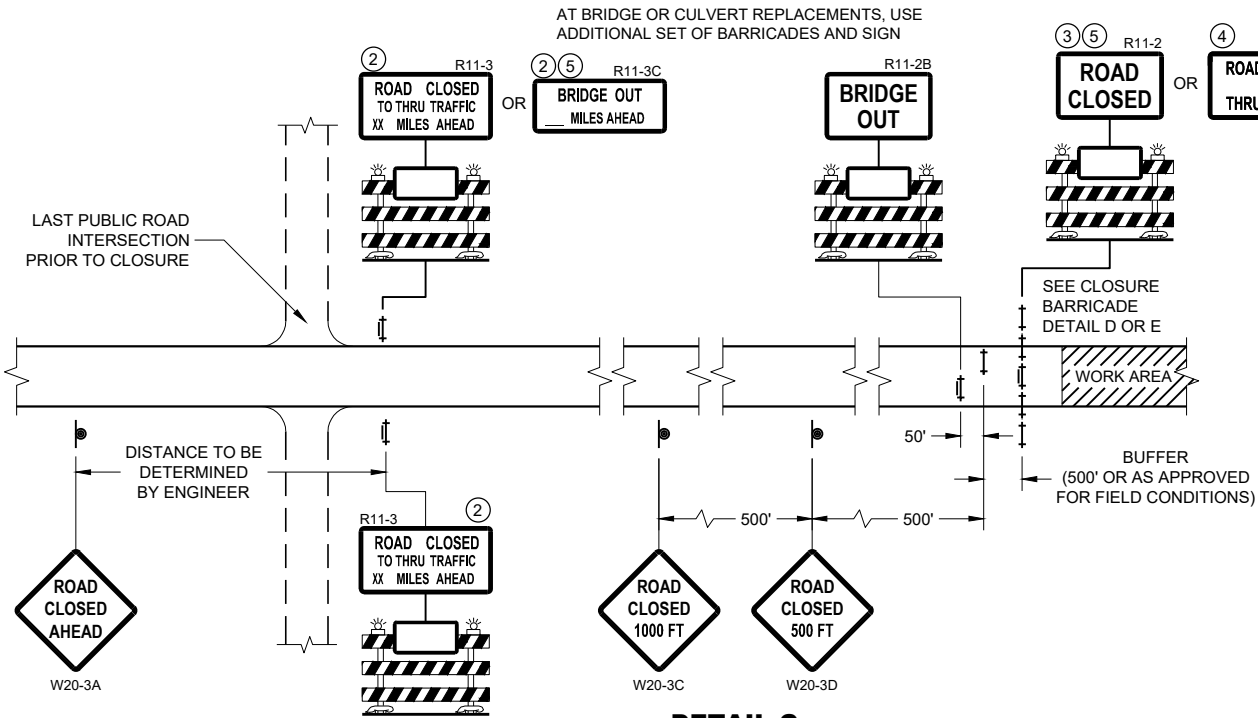
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

- 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

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

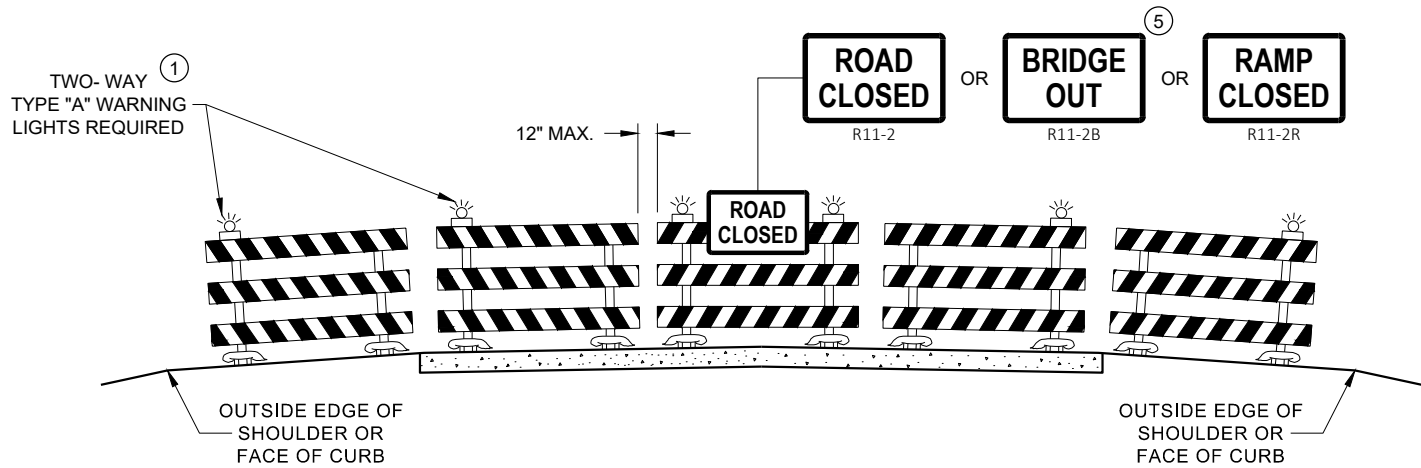


DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

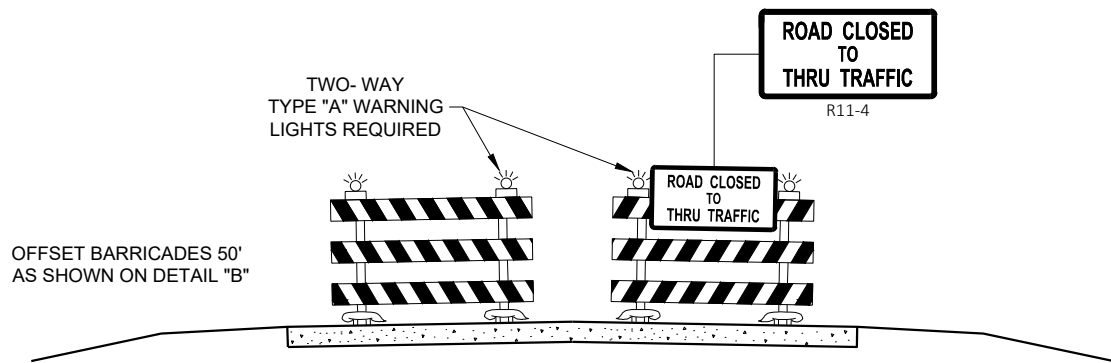
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

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"

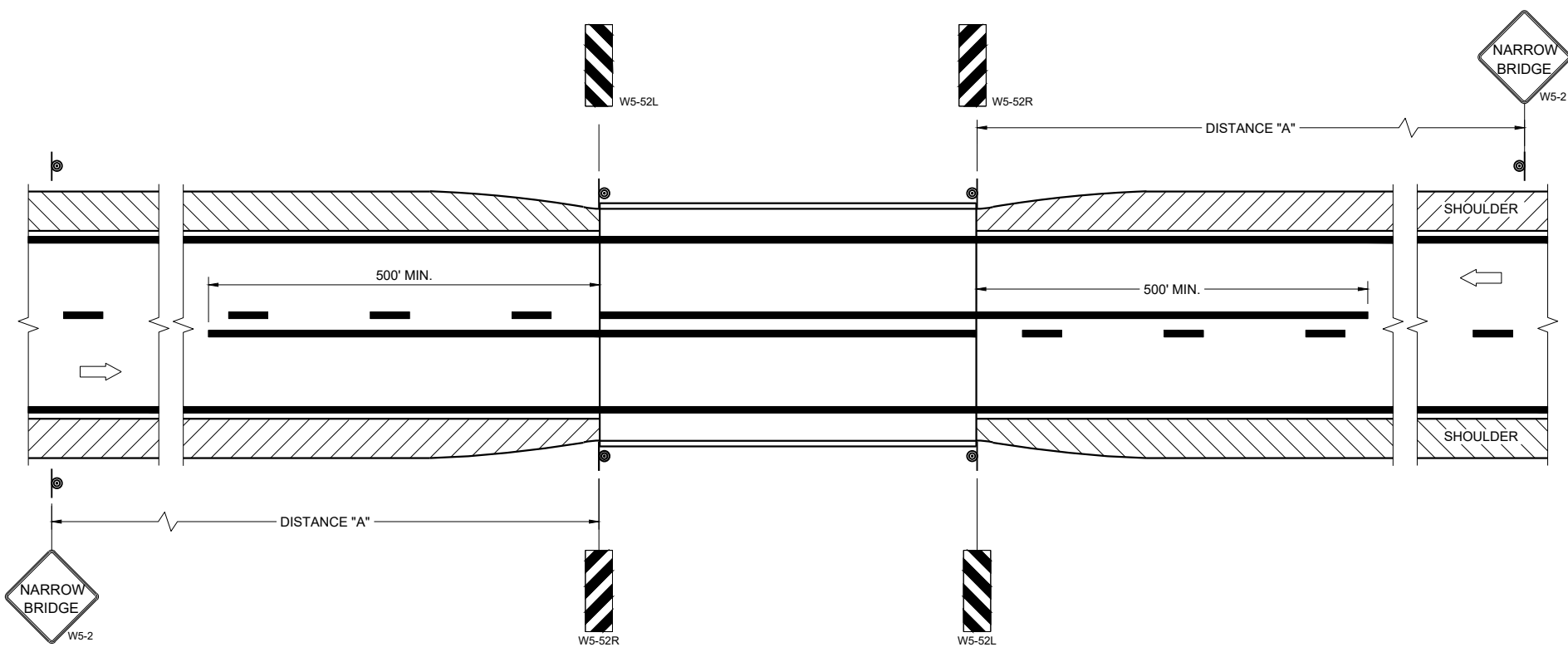
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS 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

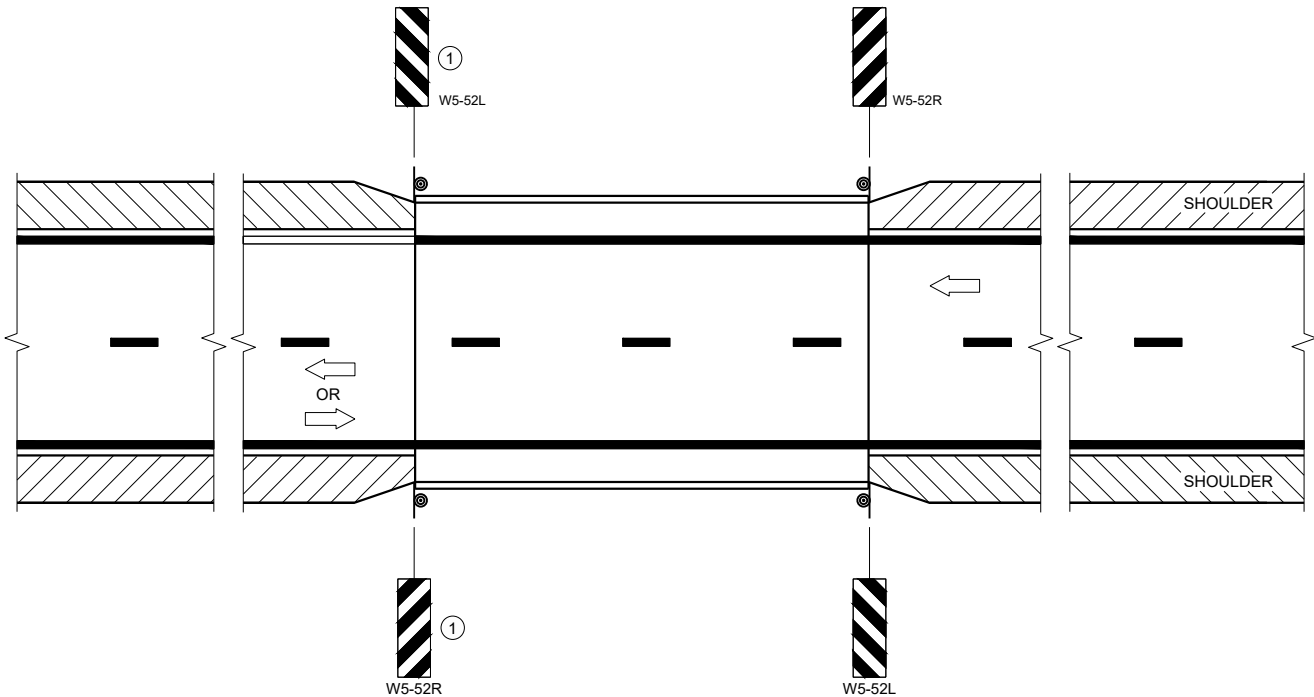
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



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

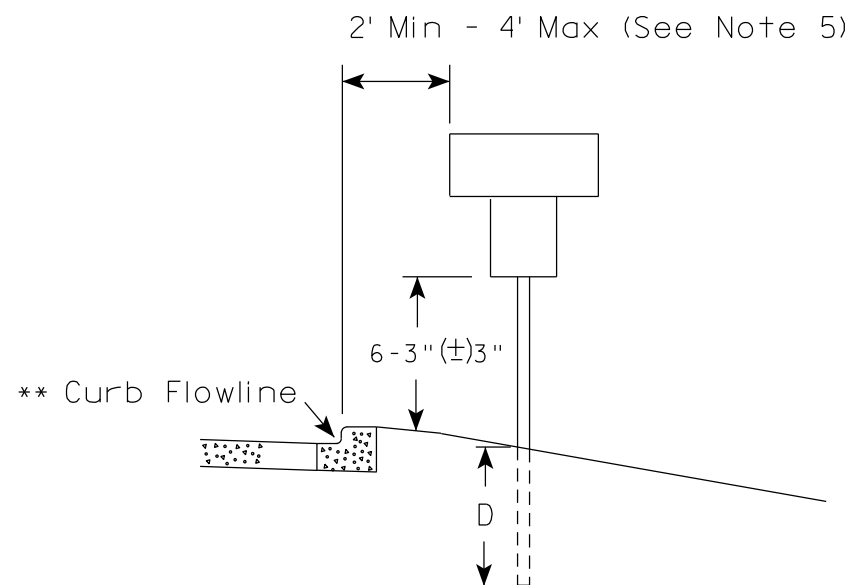
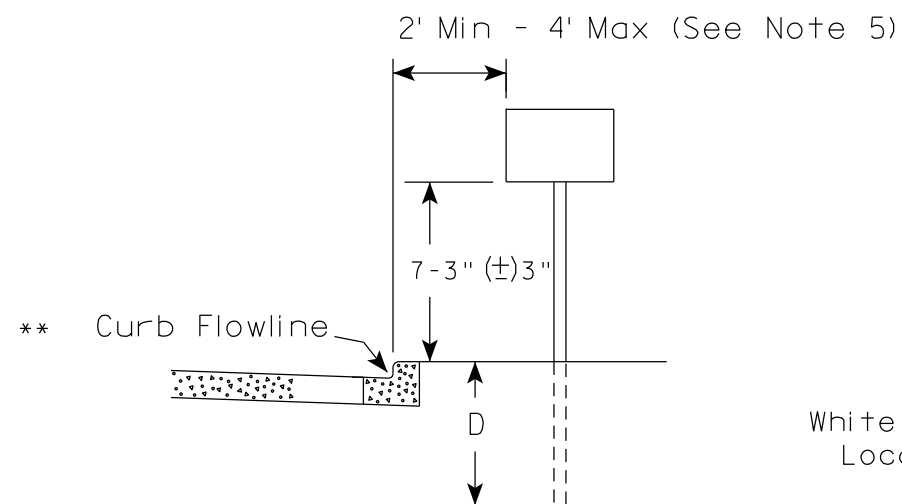
POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

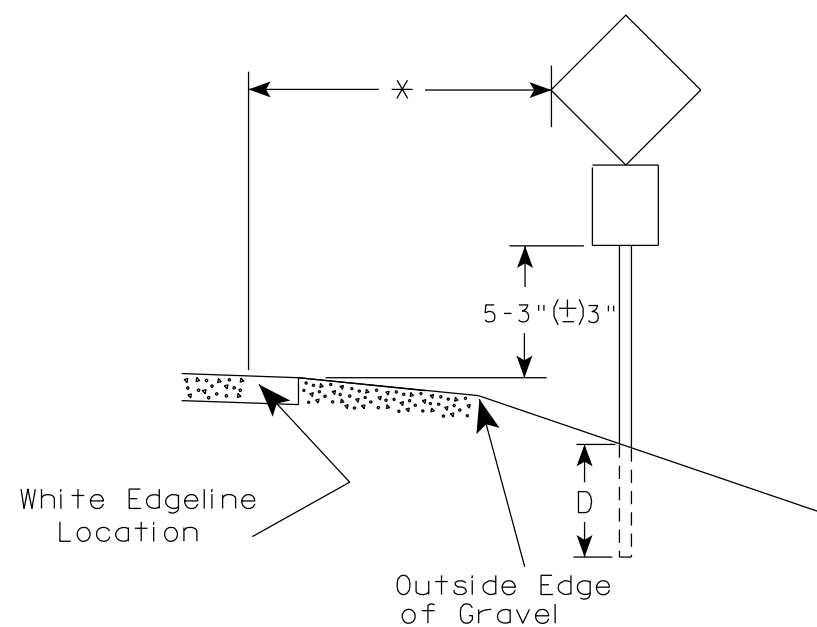
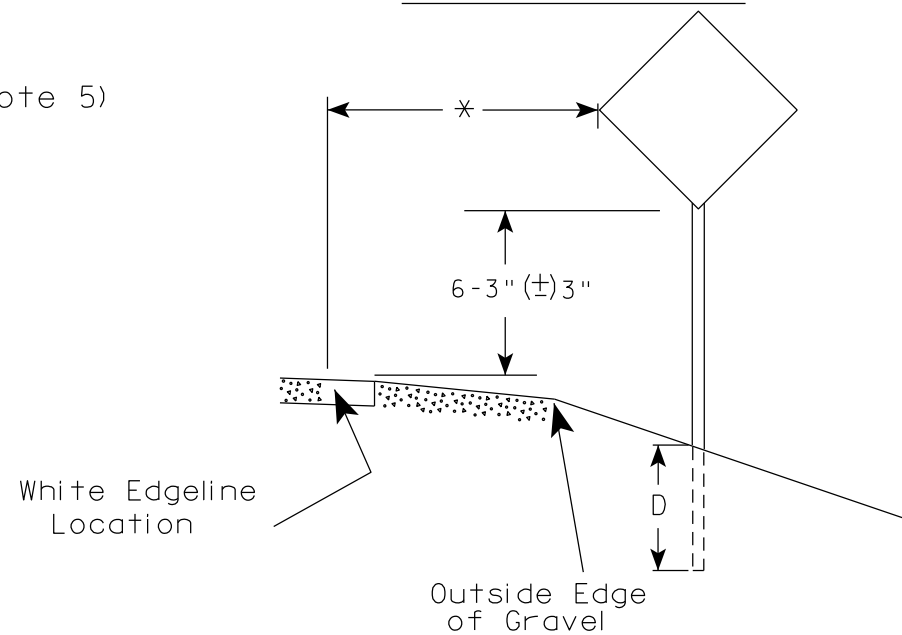
APPROVED
May 2023 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer
FHWA

URBAN AREA



* * 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.

RURAL AREA (See Note 2)



* 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.

GENERAL NOTES

- Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
- 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".
- For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
- Minimum mounting height for signs mounted on traffic signal poles is 5'-3" (±) 3".
- Offset distance shall be consistent with existing signs or consistent throughout length of project.
- Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the Engineer.

POST EMBEDMENT DEPTH

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

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

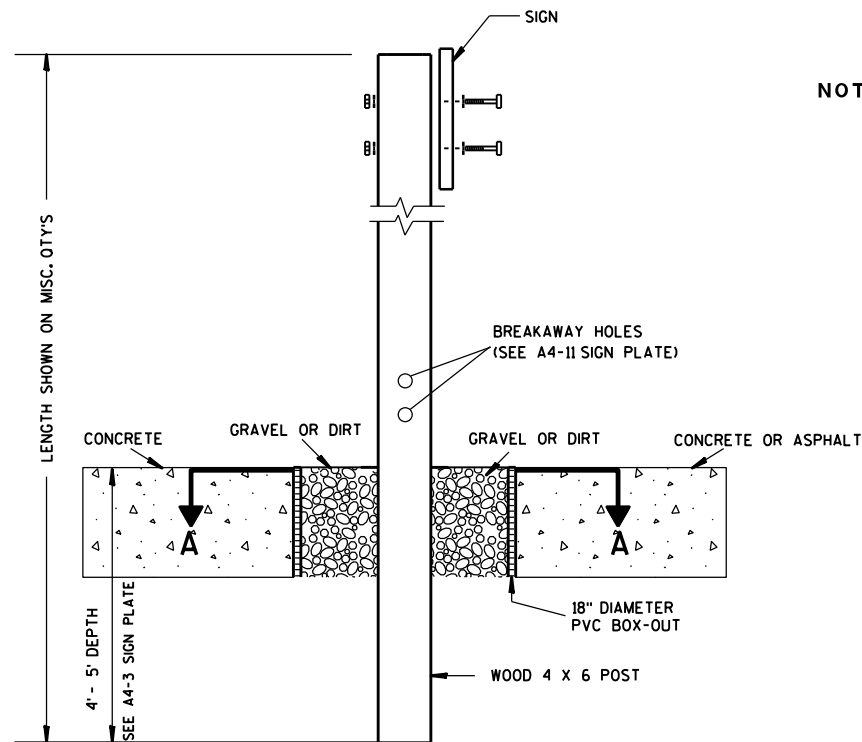
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

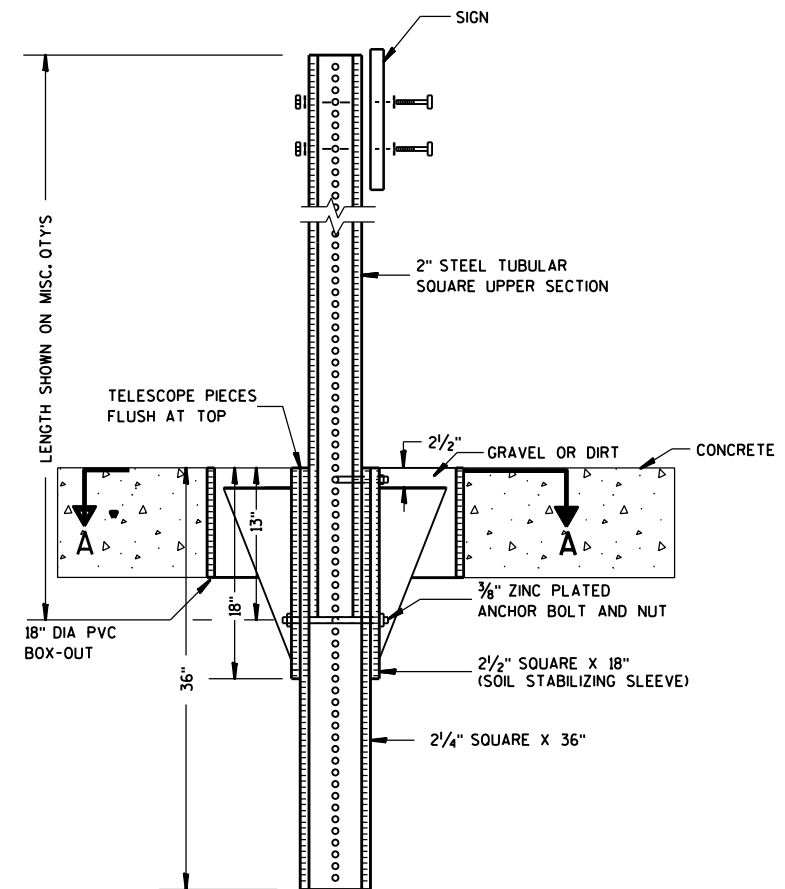
E



ELEVATION VIEW

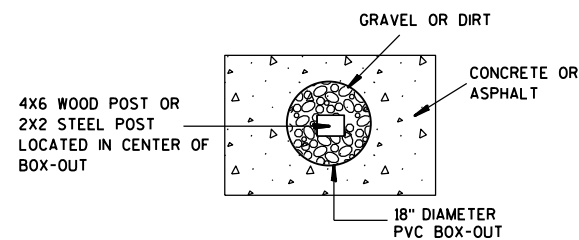
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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

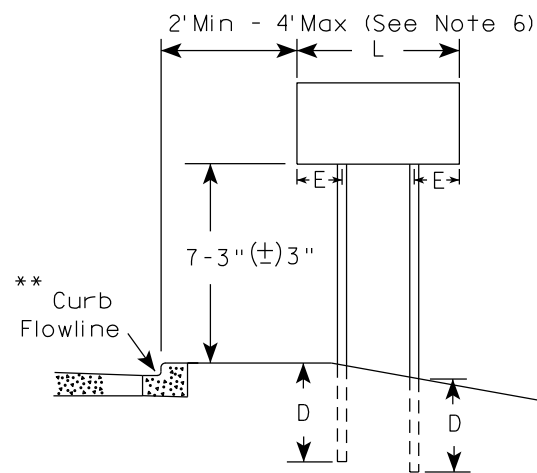
SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

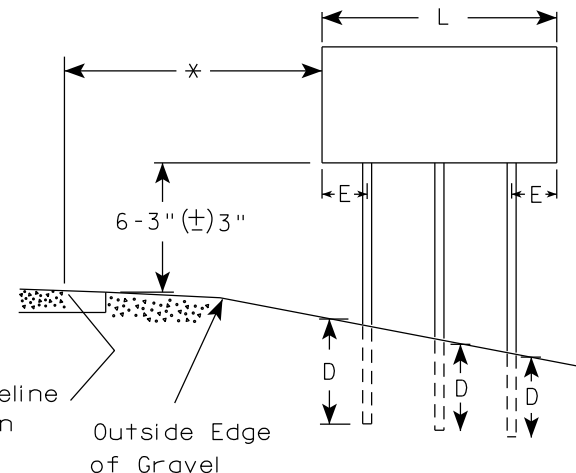
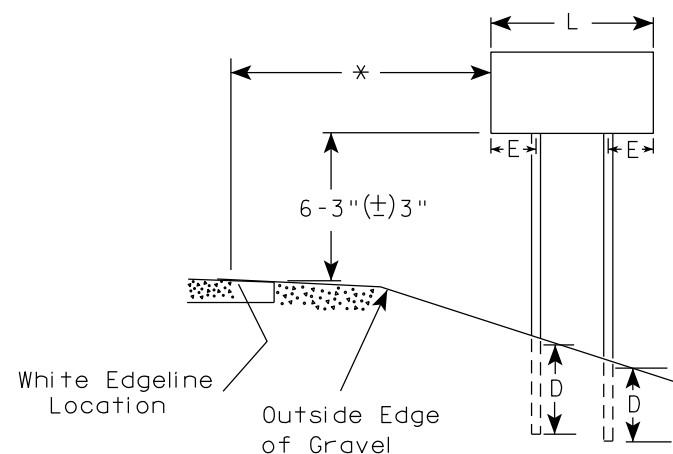
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

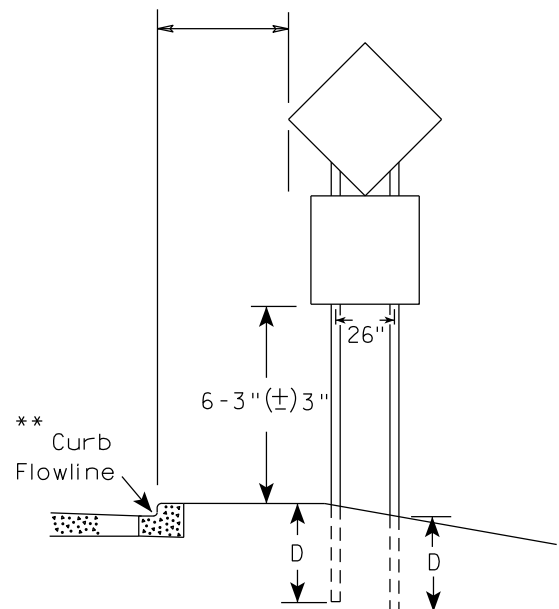
URBAN AREA



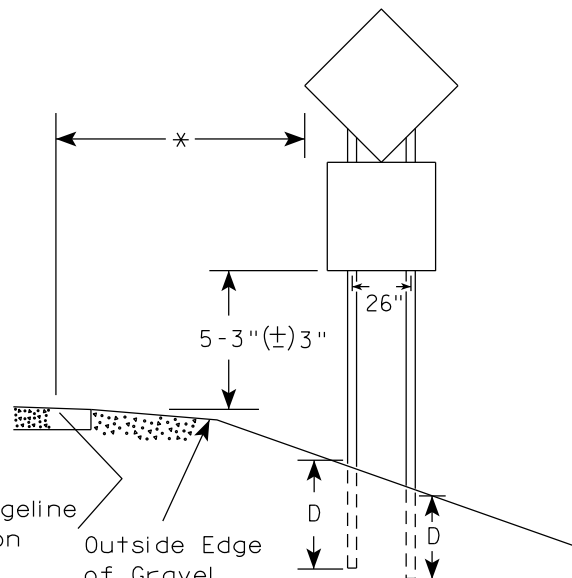
RURAL AREA (See Note 3)



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

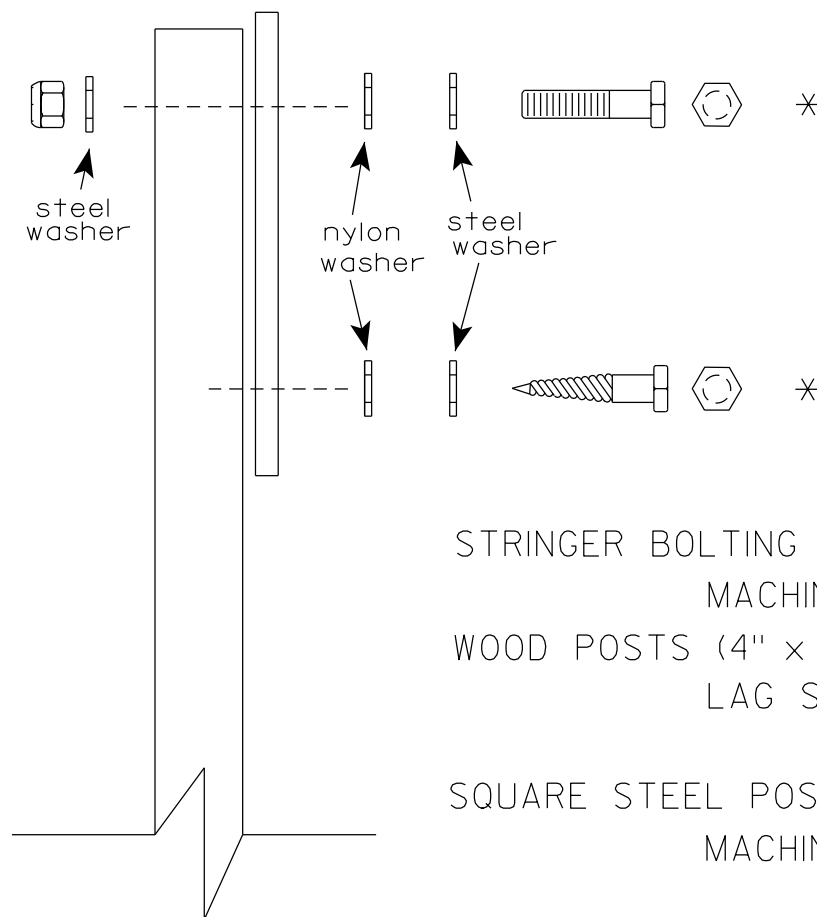
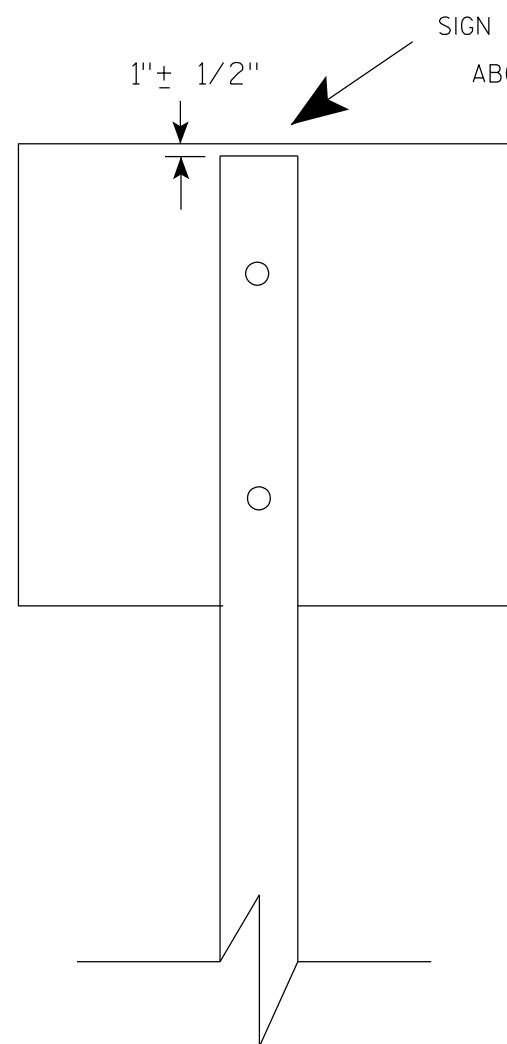
GENERAL NOTES

- For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
- See tables below for required number of posts.
- For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
- The (±) tolerance for mounting height is 3 inches.
- J-Assemblies are considered to be one sign for mounting height.
- Offset distance shall be consistent with existing signs or consistent throughout length of project.
- Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the engineer.
- The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), 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".

* 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.

** 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.

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.



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

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

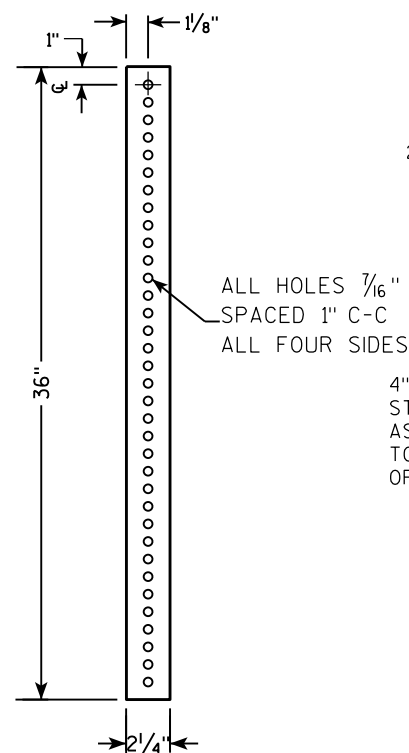
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- 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

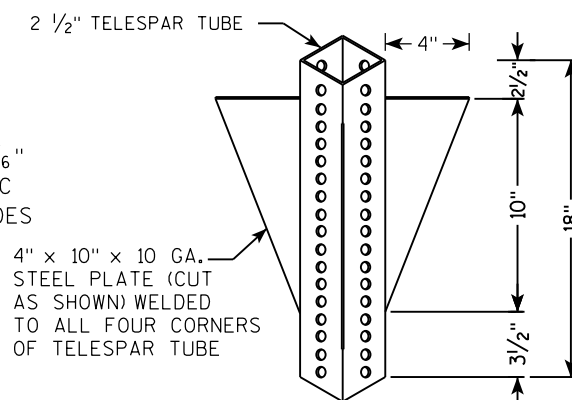
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

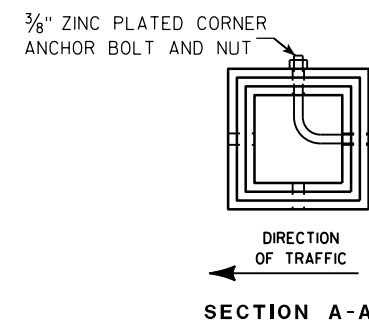


TECHNICAL DRAWING OF A VERTICAL SIGN POST ASSEMBLY, INCLUDING DIMENSIONS AND COMPONENTS:

- TELESCOPE PIECES FLUSH AT TOP**
- 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**
- 18" DIA SCHEDULE 40 PVC BOX-OUT**
- 36"** (Overall height dimension)
- 18"** (Dimension for the upper section)
- 13"** (Dimension for the lower section)
- $\frac{3}{16}$ " ZINC PLATED ANCHOR BOLT AND NUT**
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)**
- 2 1/4" SQUARE X 36"**
- SIGN**
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL**

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

- TELESCOPE PIECES FLUSH AT TOP**: Indicated by a dimension line on the left.
- 2" STEEL TUBULAR SQUARE UPPER SECTION**: The main vertical support.
- ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES**: Specification for the perforations in the tubular section.
- SIGN**: Attached to the top of the post.
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL**: Reference to a sign plate for hardware details.
- 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT**: Hardware used to secure the post to the base.
- 1"**: Dimension for the offset of the anchor bolt from the post face.
- 3/8" ZINC PLATED ANCHOR BOLT AND NUT**: Hardware used to secure the base plate to the ground.
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)**: The base plate of the post.
- 2 1/4" SQUARE X 36"**: The main base plate.
- 36"**: Dimension for the length of the main base plate.
- 18"** and **12"**: Dimensions for the offset of the anchor bolt from the post face.
- A**: Downward arrows indicating load or weight.



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 Matthew R Rauch

for State Traffic Engineer

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

PROJECT NO:

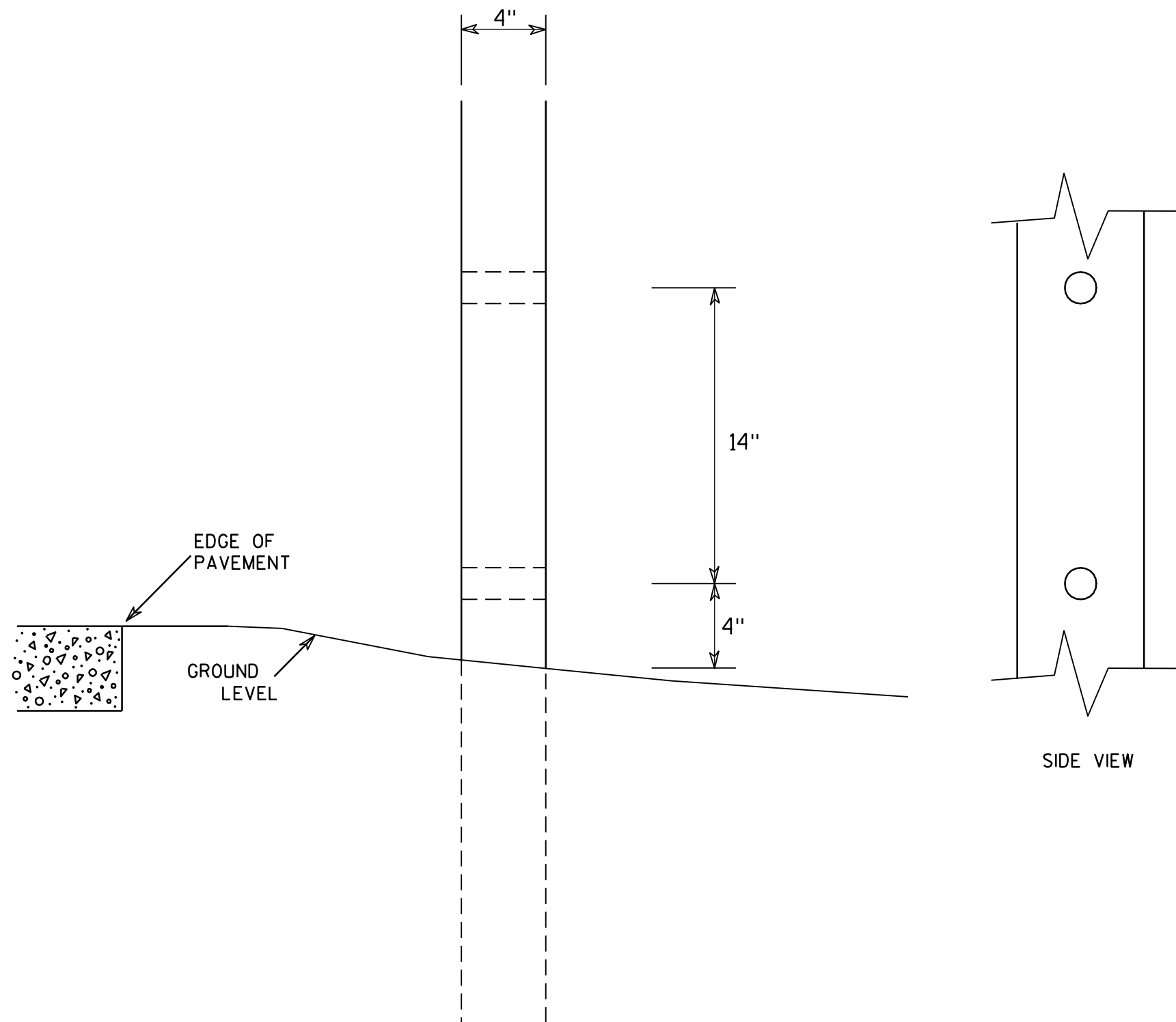
HWY:

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:

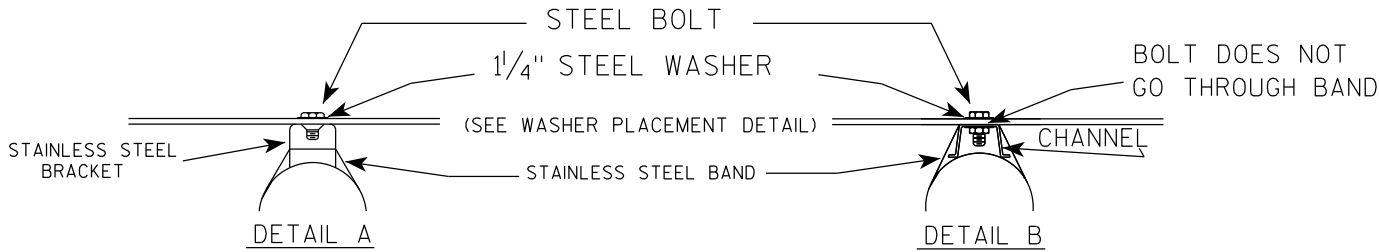
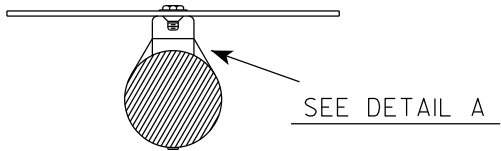
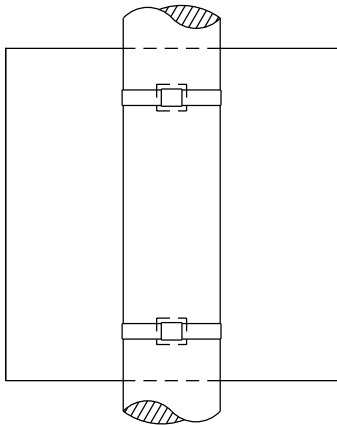
COUNTY:

SHEET NO:

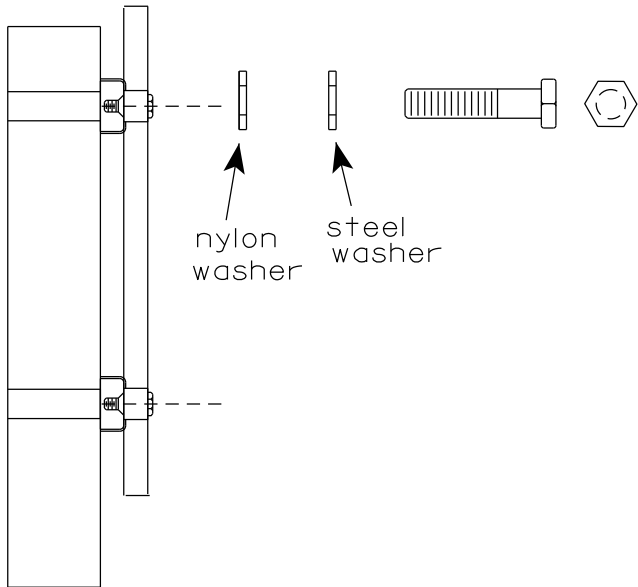
E

BANDING

SINGLE SIGN



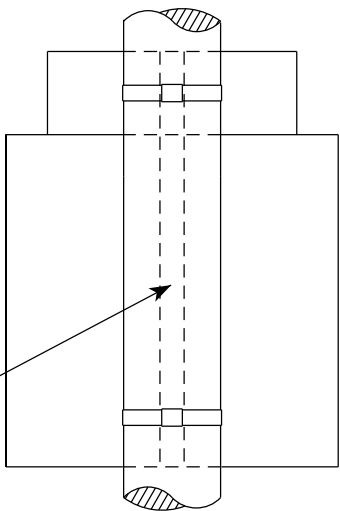
WASHER PLACEMENT



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

CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

"J" ASSEMBLY



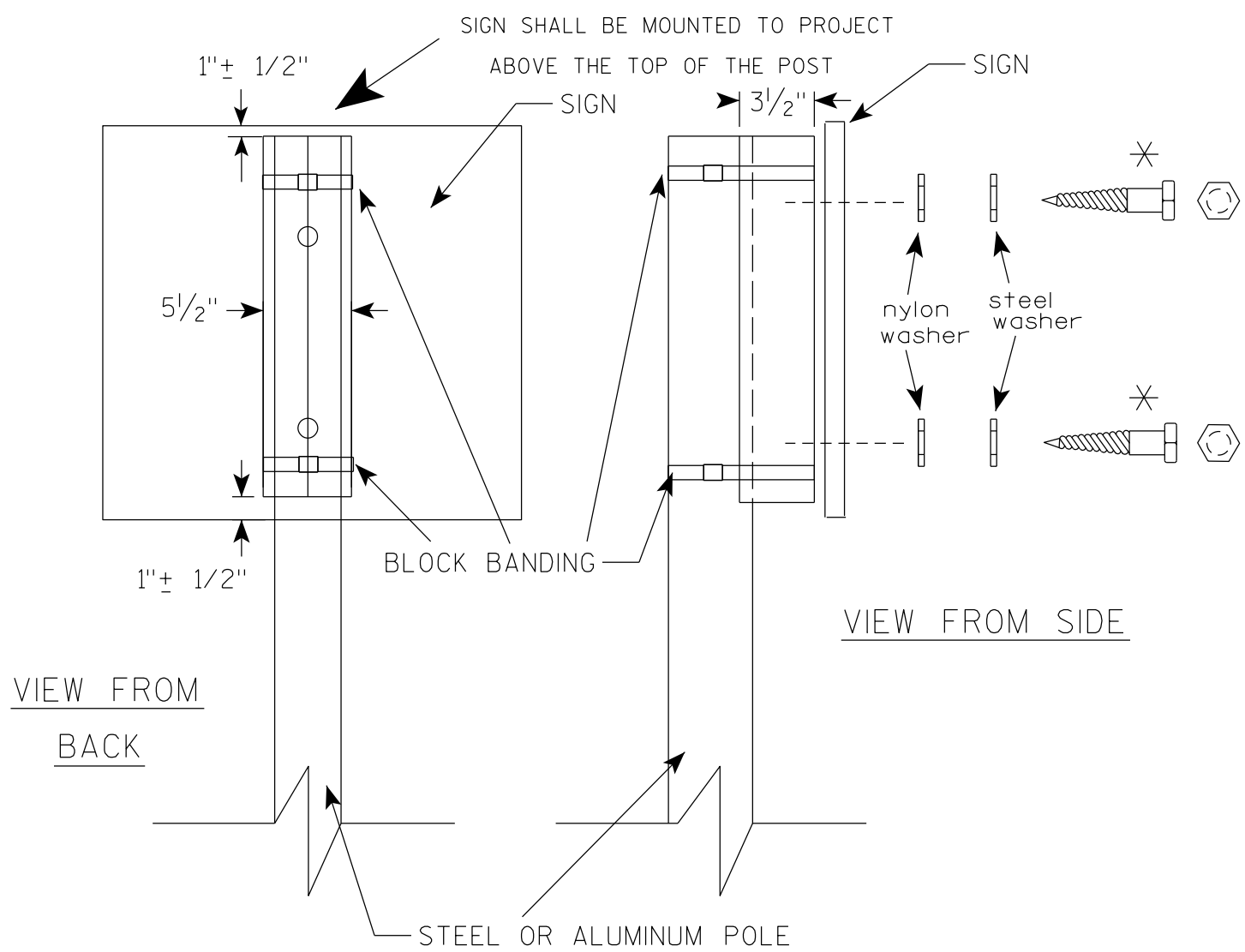
SEE DETAIL B

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

STANDARD SIGN
SIGN BANDING DETAILS

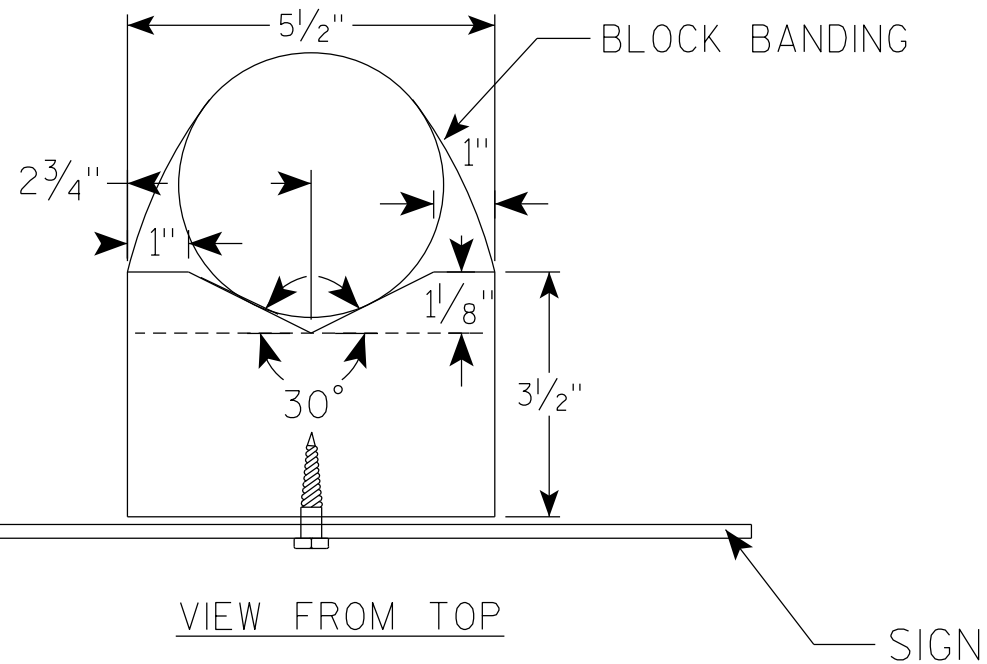
WISCONSIN DEPT OF TRANSPORTATION

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

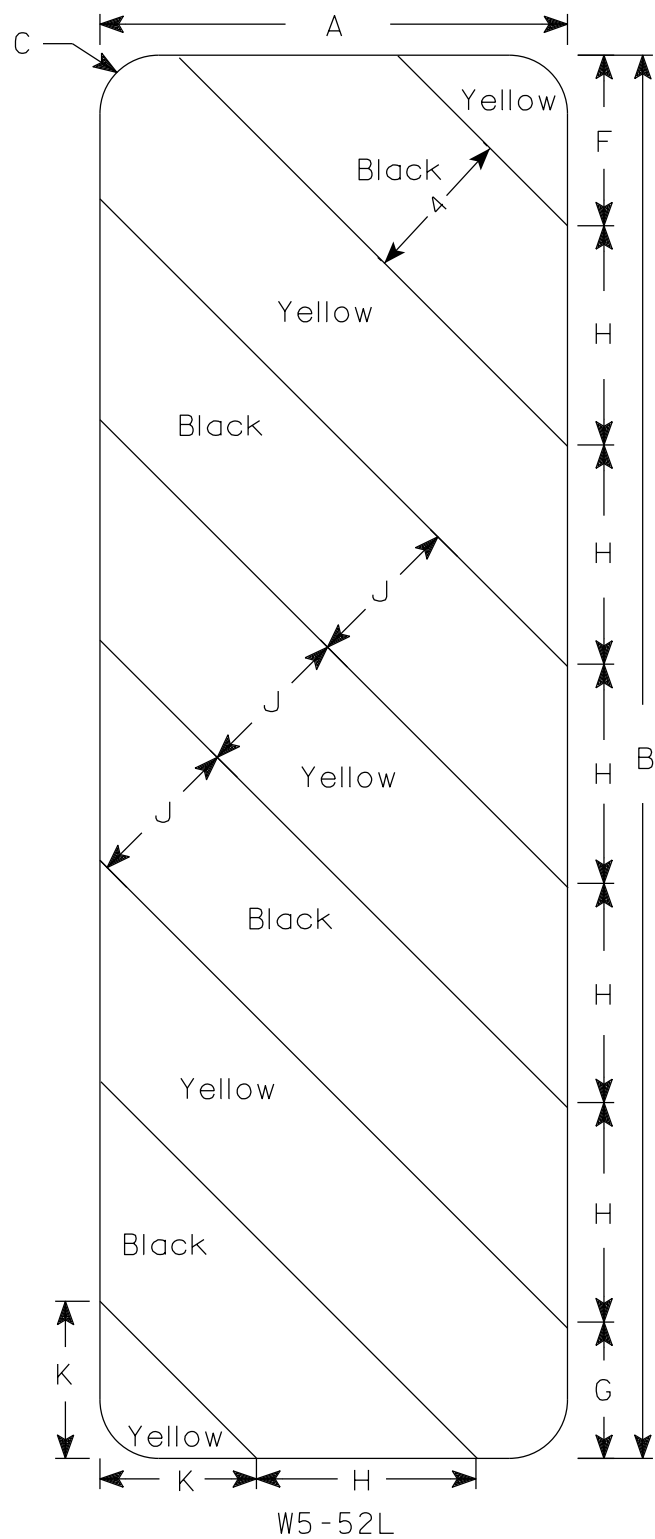
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

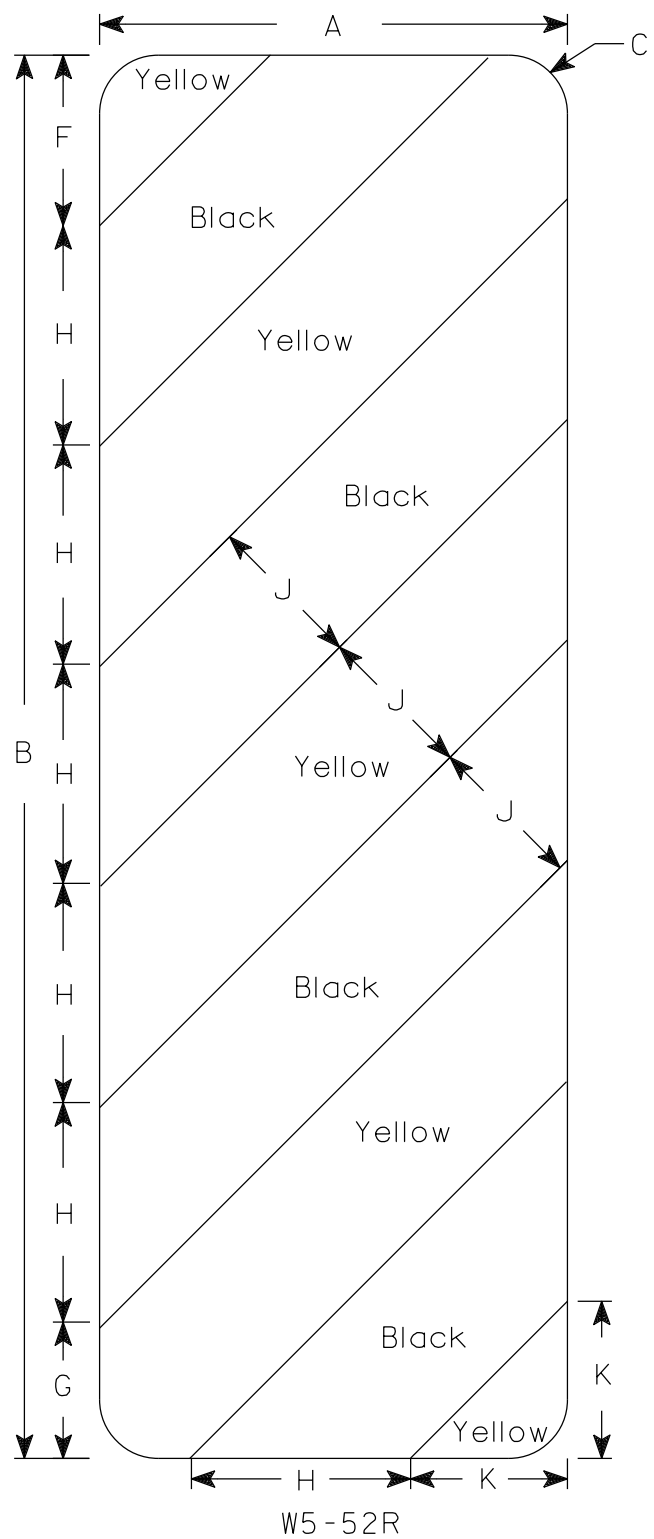
PROJECT NO:

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 9/16																6.75
4																											
5																											

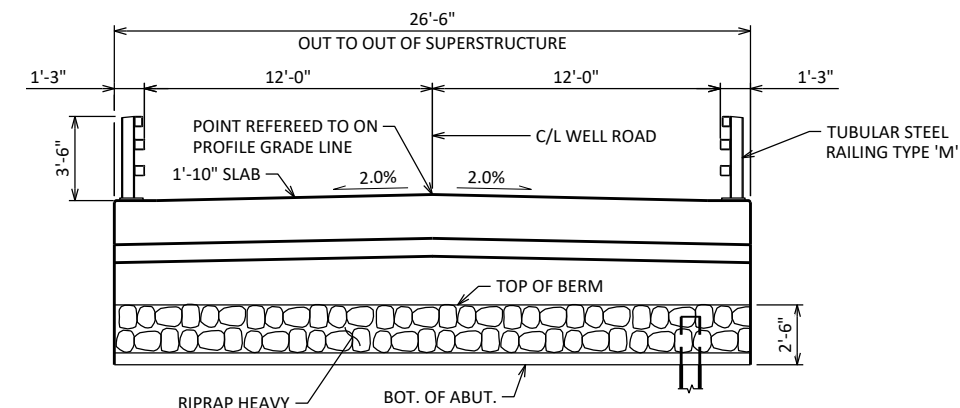
STANDARD SIGN

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



TYPICAL SECTION THRU BRIDGE

DESIGN DATA

DESIGN LOADING: HL-93
INVENTORY RATING: RF = 1.04
OPERATING RATING: RF = 1.35
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

CONCRETE MASONRY:

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

BAR STEEL REINFORCEMENT
GRADE 60 _____ $f_y = 60,000$ PS

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 160 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

ESTIMATED 20'-0" LONG AT WEST ABUTMENT.

ESTIMATED 25'-0" LONG AT EAST ABUTMENT.

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

HYDRAULIC DATA

Q₁₀₀ = 931 C.F.S.
V₁₀₀ = 4.5 F.P.S.
HW₁₀₀ = EL. 804.51
WATERWAY AREA = 208 SQ. FT.
DRAINAGE AREA = 34.5 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 5

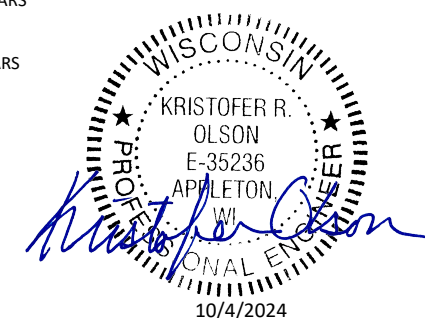
$Q_2 = 445 \text{ C.F.S.}$
 $V_2 = 4.2 \text{ F.P.S.}$
 $HW_2 = \text{EL. } 801.65$

TRAFFIC DATA

ADT = <100 (2025)
ADT = <100 (2045)
R.D.S. = 30 MPH

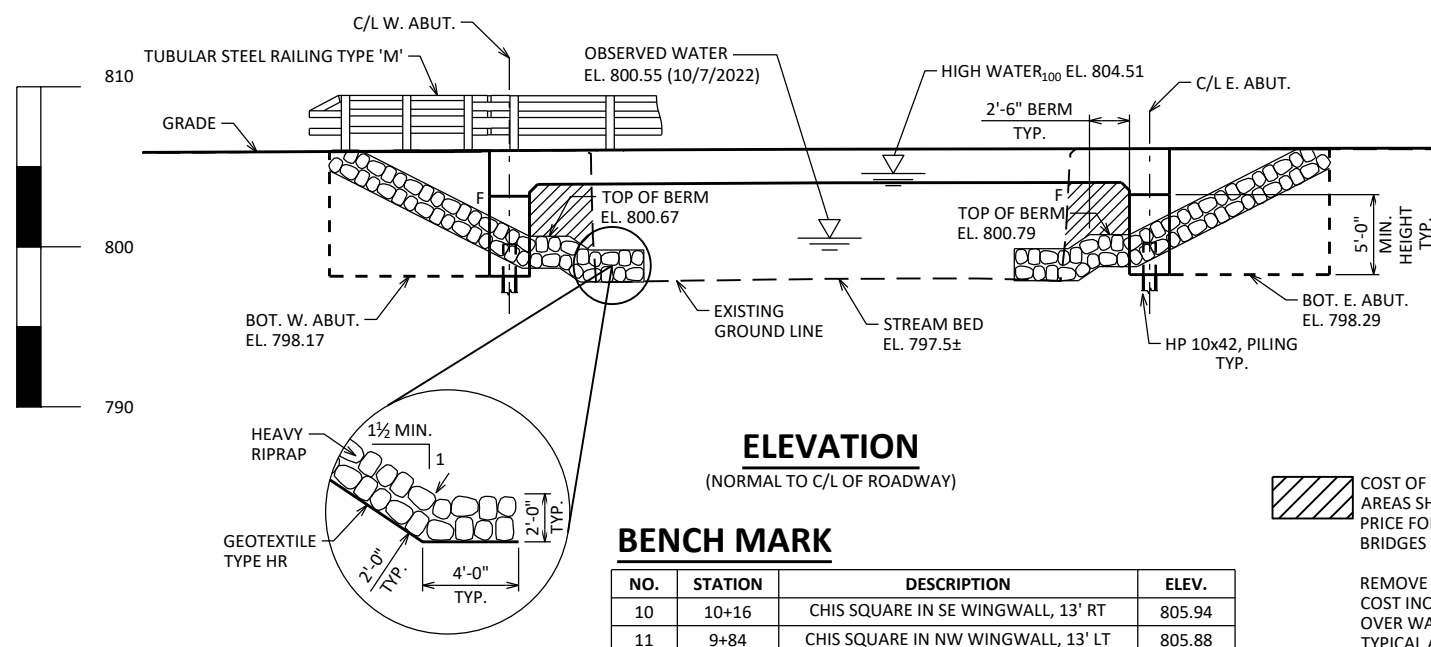
LIST OF DRAWINGS:


- 1 GENERAL PLAN
2 QUANTITIES AND NOTES
3 SUBSURFACE EXPLORATION
4 WEST ABUTMENT
5 WEST ABUTMENT WING DETAIL
6 WEST ABUTMENT PILE LAYOUT AND BILL OF BARS
7 EAST ABUTMENT
8 EAST ABUTMENT WING DETAIL
9 EAST ABUTMENT PILE LAYOUT AND BILL OF BARS
10 SUPERSTRUCTURE
11 SUPERSTRUCTURE PLAN
12 TUBULAR STEEL RAILING TYPE "M"



STRUCTURE DESIGN CONTACTS:


AARON BONK	608-261-0261
KRISTOFER OLSON	920-498-1200



 COST OF EXCAVATION OR FILL IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-14-226".

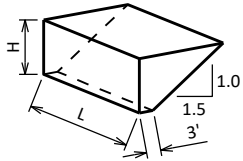
REMOVE EXISTING STRUCTURE AS NEEDED.
COST INCLUDED IN "REMOVING STRUCTURE
OVER WATERWAY REMOVE DEBRIS" ITEM.
TYPICAL AT ALL SUBSTRUCTURES.

NO.	STATION	DESCRIPTION	ELEV.
10	10+16	CHIS SQUARE IN SE WINGWALL, 13' RT	805.94
11	9+84	CHIS SQUARE IN NW WINGWALL, 13' LT	805.88

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
		3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com	
STATE OF WISCONSIN INSURANCE			
ACCEPTED		SDR	10/04/24
CHIEF STRUCTURES DESIGN ENGINEER		DATE	
STRUCTURE B-14-226			
WELL ROAD OVER SHAW BROOK			
COUNTY	DODGE	TOWN	LOWELL
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATION			
DESIGNED BY	DESIGNED CK'D	DRAWN BY	PLANS CK'D
JMC	NBE	JMC	KRO
GENERAL PLAN			SHEET 1 OF 12

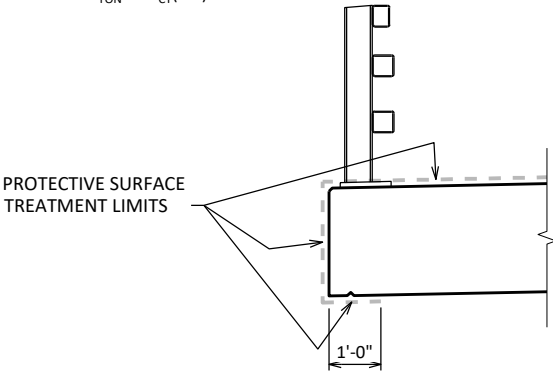
TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER	W ABUT.	E ABUT.	TOTALS
203.0250	REMOVING STRUCTURE OVER WATERWAY REMOVE DEBRIS P-14-38	EACH	---	---	---	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-14-226	EACH	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	---	95	95	190
502.0100	CONCRETE MASONRY BRIDGES	CY	80.4	27.5	27.5	135
502.3200	PROTECTIVE SURFACE TREATMENT	SY	155	10	10	175
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	---	1,530	1,530	3,060
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	13,880	1360	1360	16,600
513.4061	RAILING TUBULAR TYPE M	LF	85	22.5	22.5	130
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	---	8	8	16
550.1100	PIILING STEEL HP 10-INCH X 42 LB	LF	---	80	100	180
606.0300	RIPRAP HEAVY	CY	---	62	65	127
612.0406	PIPE UNDERDRAIN WRAPPED 6 - INCH	LF	---	70	70	140
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	---	30	30	60
645.0120	GEOTEXTILE TYPE HR	SY	---	121	126	247
	NON-BID ITEMS					
	FILLER	SIZE	---	---	---	½", ¾"

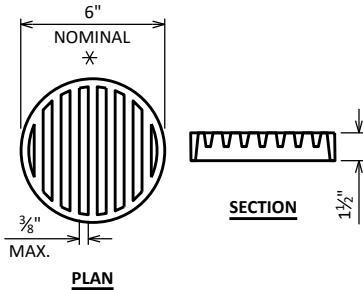


ABUTMENT BACKFILL DIAGRAM

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



PROTECTIVE SURFACE TREATMENT DETAIL



RODENT SHIELD DETAIL

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

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

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

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.

SLAB FALSE WORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATIVE METHOD IS APPROVED BY THE ENGINEER.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-14-226" SHALL BE THE EXISTING GROUNDLINE.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET AND APPLY TO THE TOP AND EXTERIOR EXPOSED FACE OF WINGS AND THE END 1'-0" OF THE FRONT FACE OF ABUTMENTS

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.

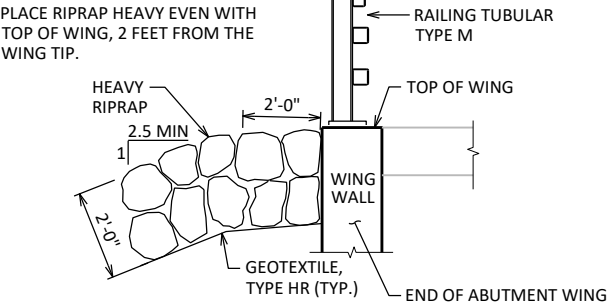
EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENTS.

EXISTING SUBSTRUCTURE LOCATIONS ARE BASED ON SURVEY. EXTENT OF BELOW GRADE SUBSTRUCTURES ARE NOT KNOWN. REMOVE EXISTING SUBSTRUCTURES AS NEEDED TO BUILD NEW SUBSTRUCTURES. COST OF SUBSTRUCTURE REMOVAL IS CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE" BID ITEM.

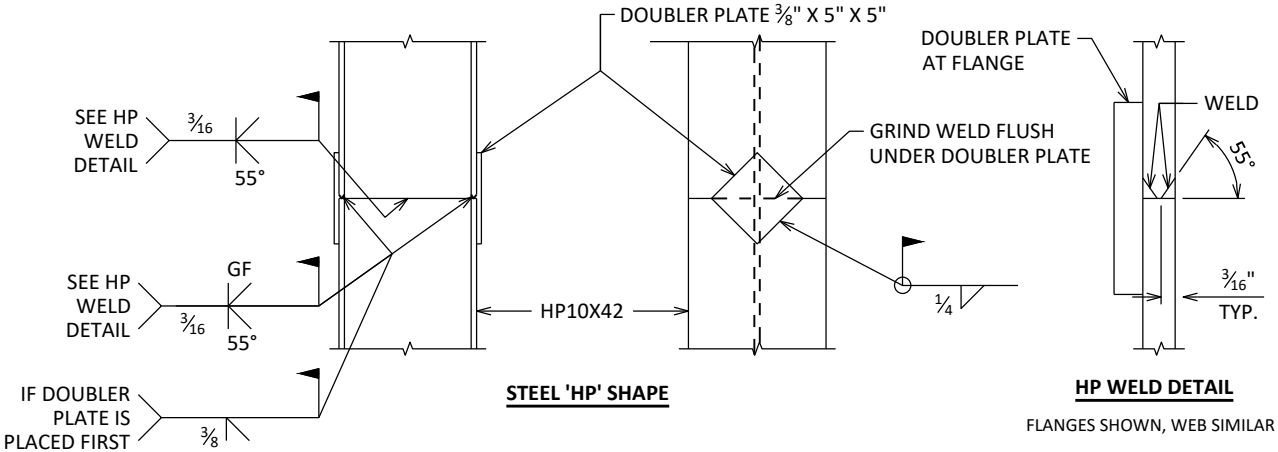
AT ABUTMENTS CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

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

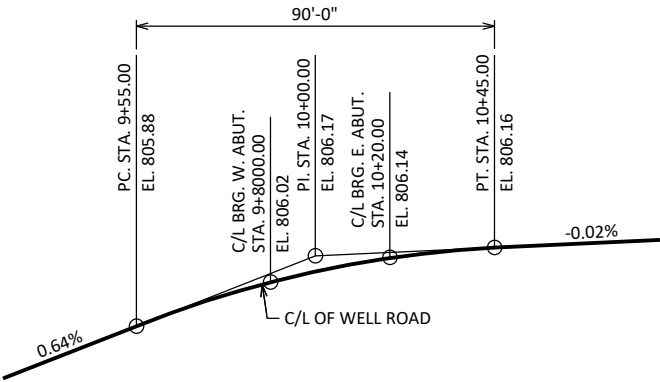
NOTE: PLACE RIPRAP HEAVY AS SHOWN ON GENERAL PLAN SHEET



TYPICAL FILL SECTION AT WING TIPS



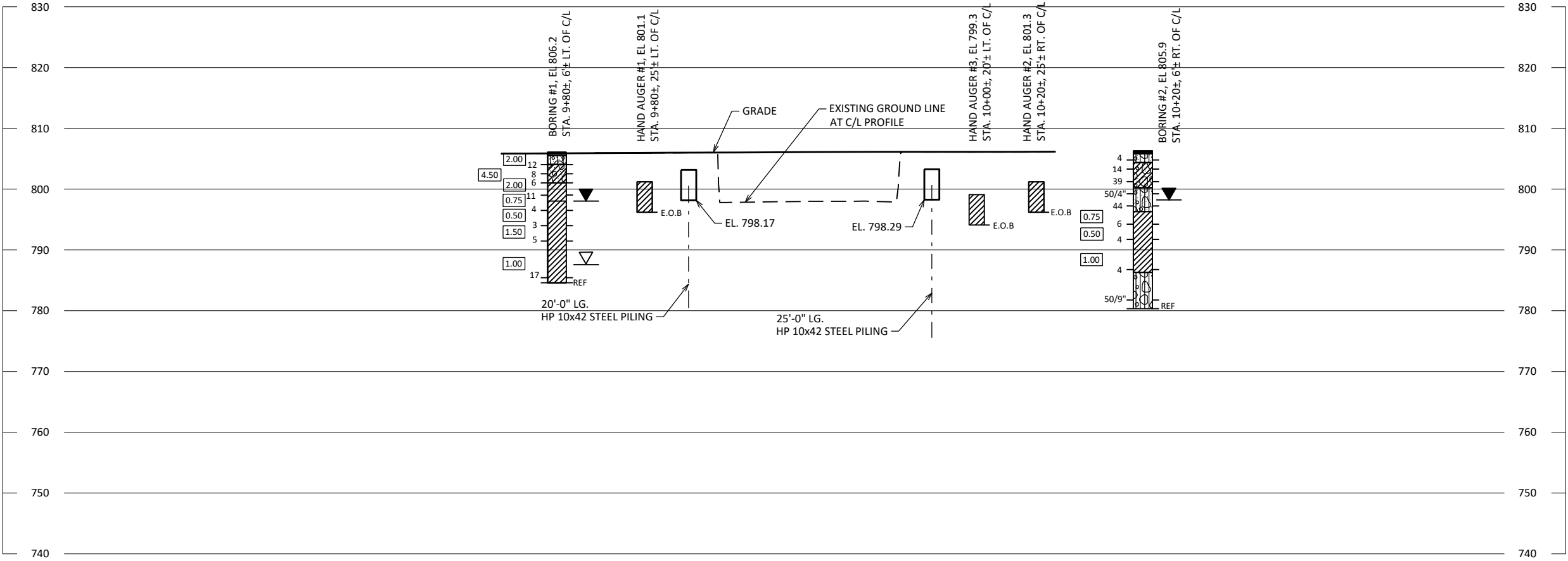
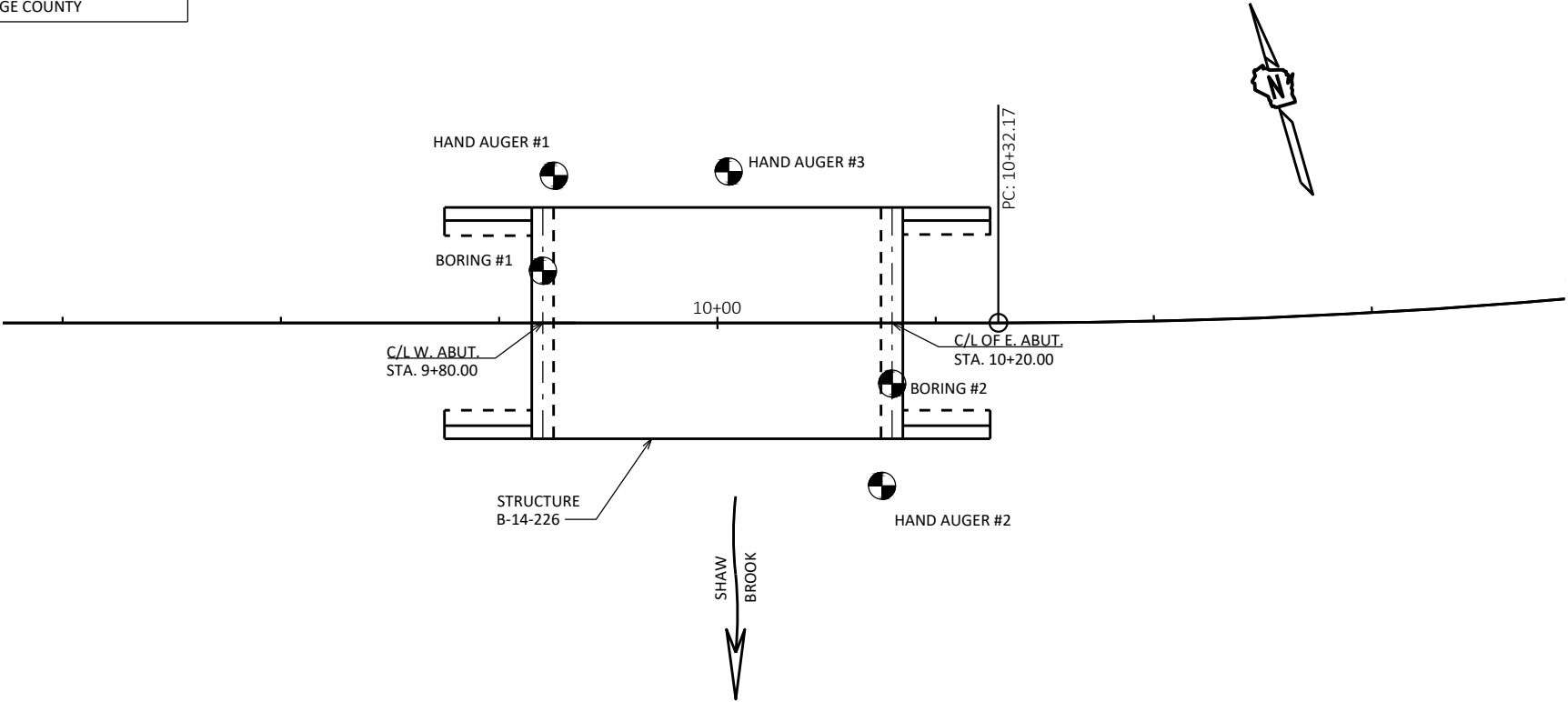
'HP' PILE DETAILS



PROFILE GRADE LINE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-226			
DRAWN BY JMC		PLANS CK'D SAP	
QUANTITIES AND NOTES		SHEET 2 of 12	

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-1	6/6/2023	687280.364	851711.955
B-2	6/6/2023	687257.199	851747.031
A-1	10/26/2022	687290.483	851716.199
A-2	10/26/2022	687279.650	851747.910
A-3	10/26/2022	687246.251	851742.780
BORINGS COMPLETED BY: ECS MIDWEST, LLC			
REPORT COMPLETED BY: ECS MIDWEST, LLC			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) DODGE COUNTY			



STATE PROJECT NUMBER

3804-00-75

MATERIAL SYMBOLS

ASPHALT

CONCRETE

SAND

BOULDERS OR COBBLES

SHALE

TOPSOIL

FILL

CLAY

LIMESTONE

SANDSTONE

PEAT

GRAVEL

SILT

BEDROCK (UNKNOWN)

IGNEOUS/META

LEGEND OF BORING

BORING #/EL STA./OFFSET

ST

0.25

17

F-C

COBBLE OR BOULDER

WEATHERED LIMESTONE

CORE RUN #1 - 24'-29'

REC=80%, RQD=72%

(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

▽

 AT TIME OF DRILLING

▼

 END OF DRILLING

▼

 AFTER DRILLING

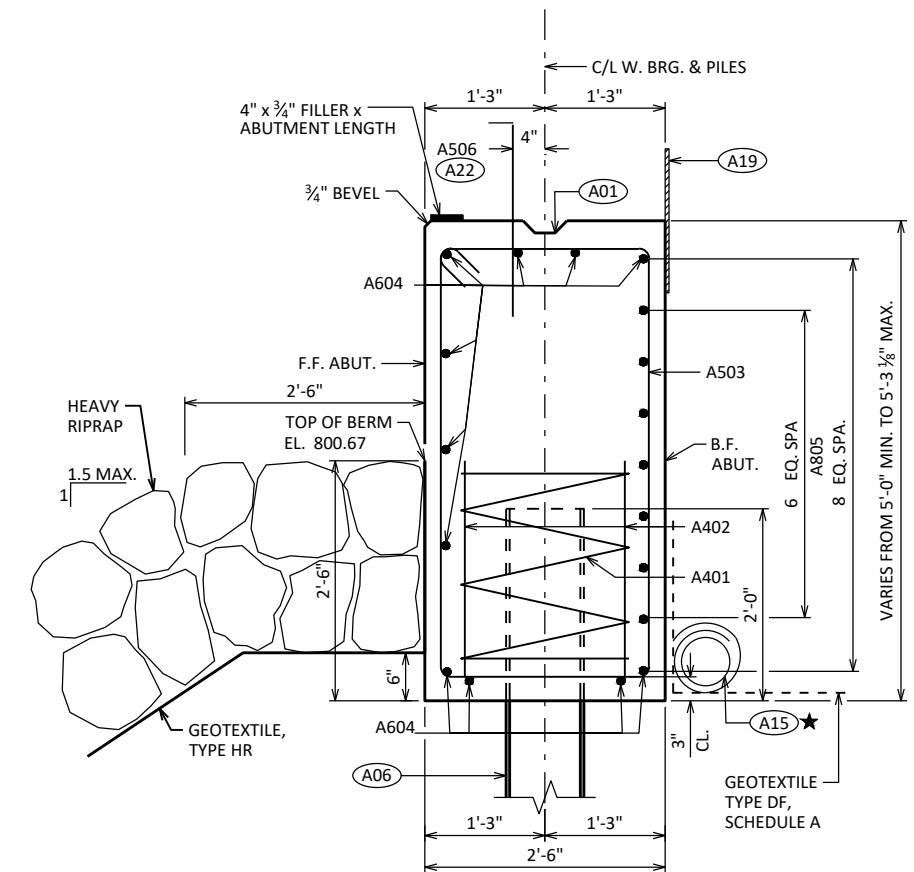
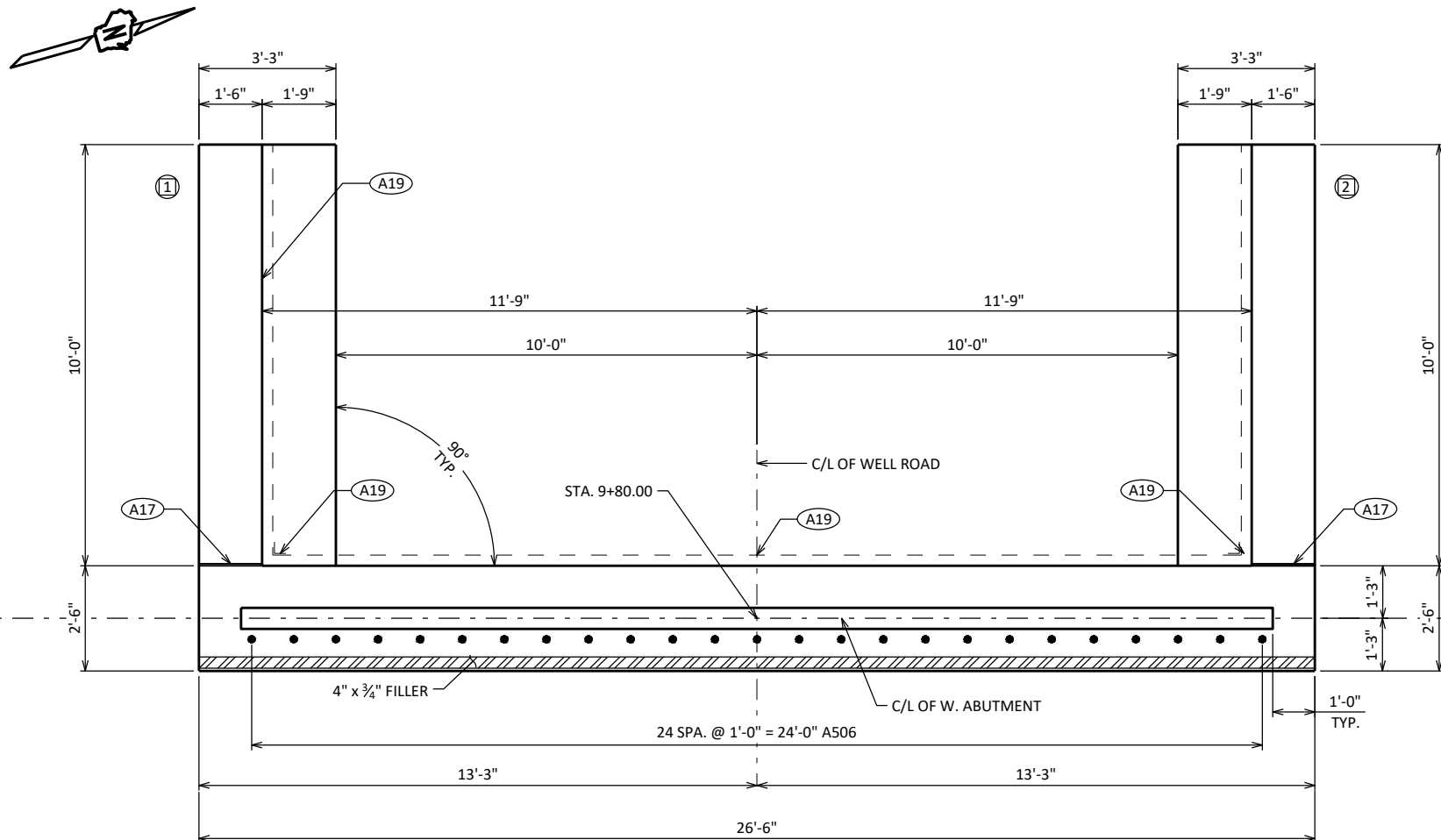
ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

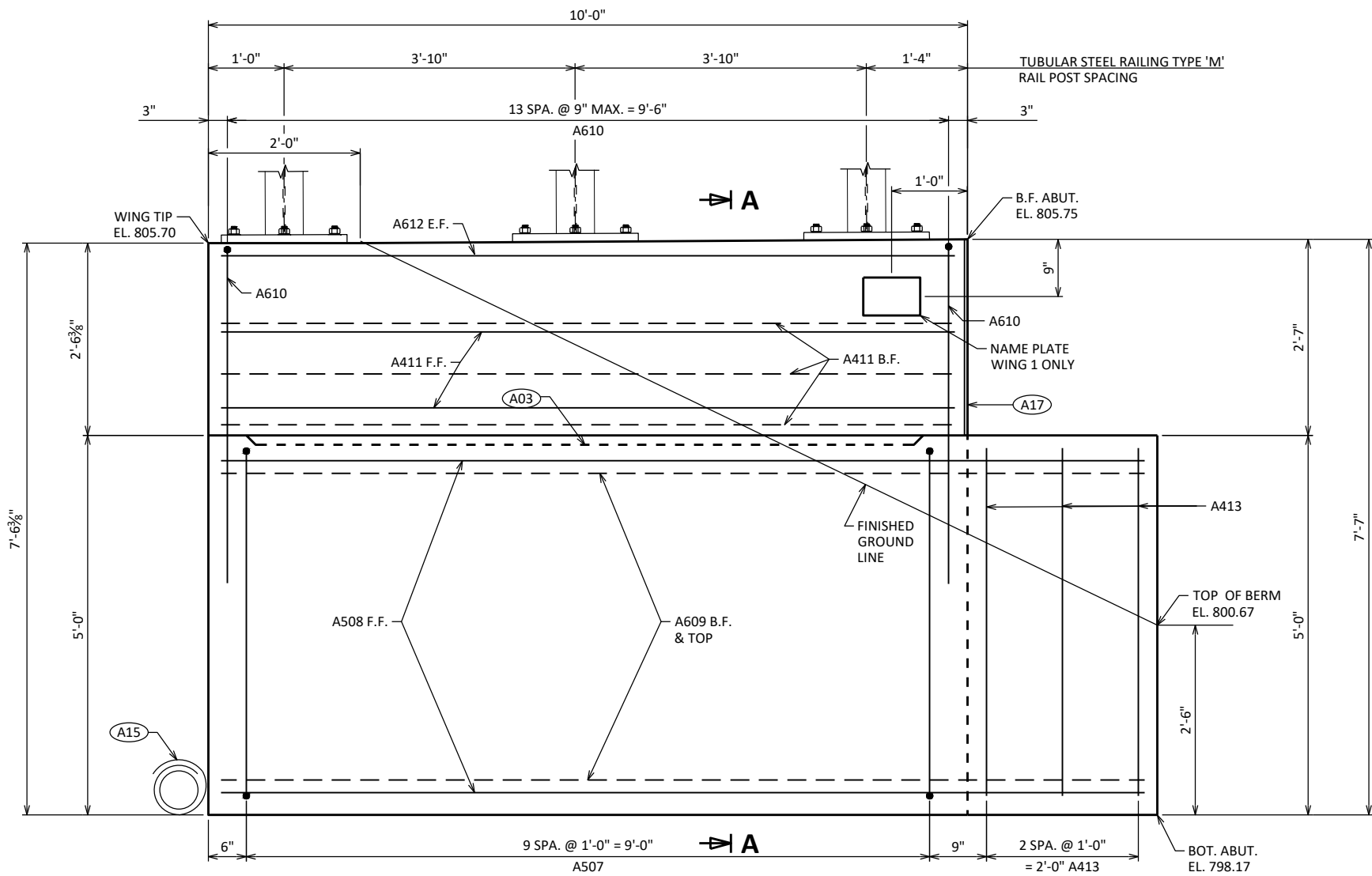
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-226			
DRAWN BY JMC		PLANS CK'D SAP	
SUBSURFACE EXPLORATION		SHEET 3 of 12	



- A01** CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
- A06** SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 20'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.
- A15** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17** ½" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ¾" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19** 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- A22** BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

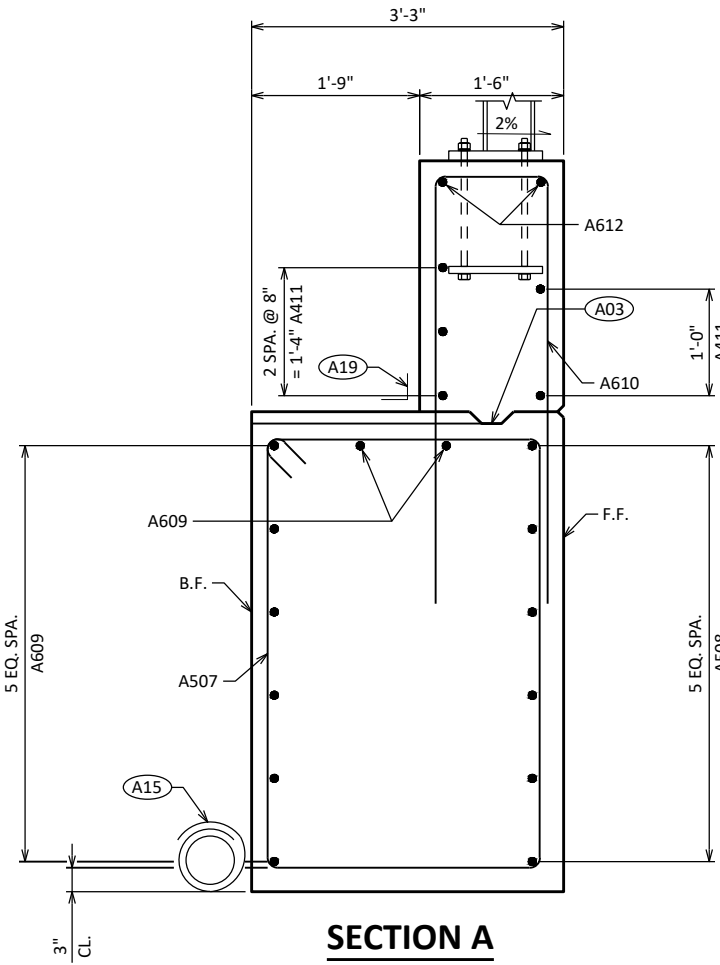
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-14-226	
		DRAWN BY	PLANS CK'D
		JMC	SAP
WEST ABUTMENT		SHEET 4 OF 12	



ELEVATION - WING 1
(WING 1 SHOWN - WING 2 SIMILAR)

RAILING TUBULAR TYPE M NOT SHOWN. FOR DETAILS SEE SHEET 12

STATE PROJECT NUMBER
3804-00-75



SECTION A

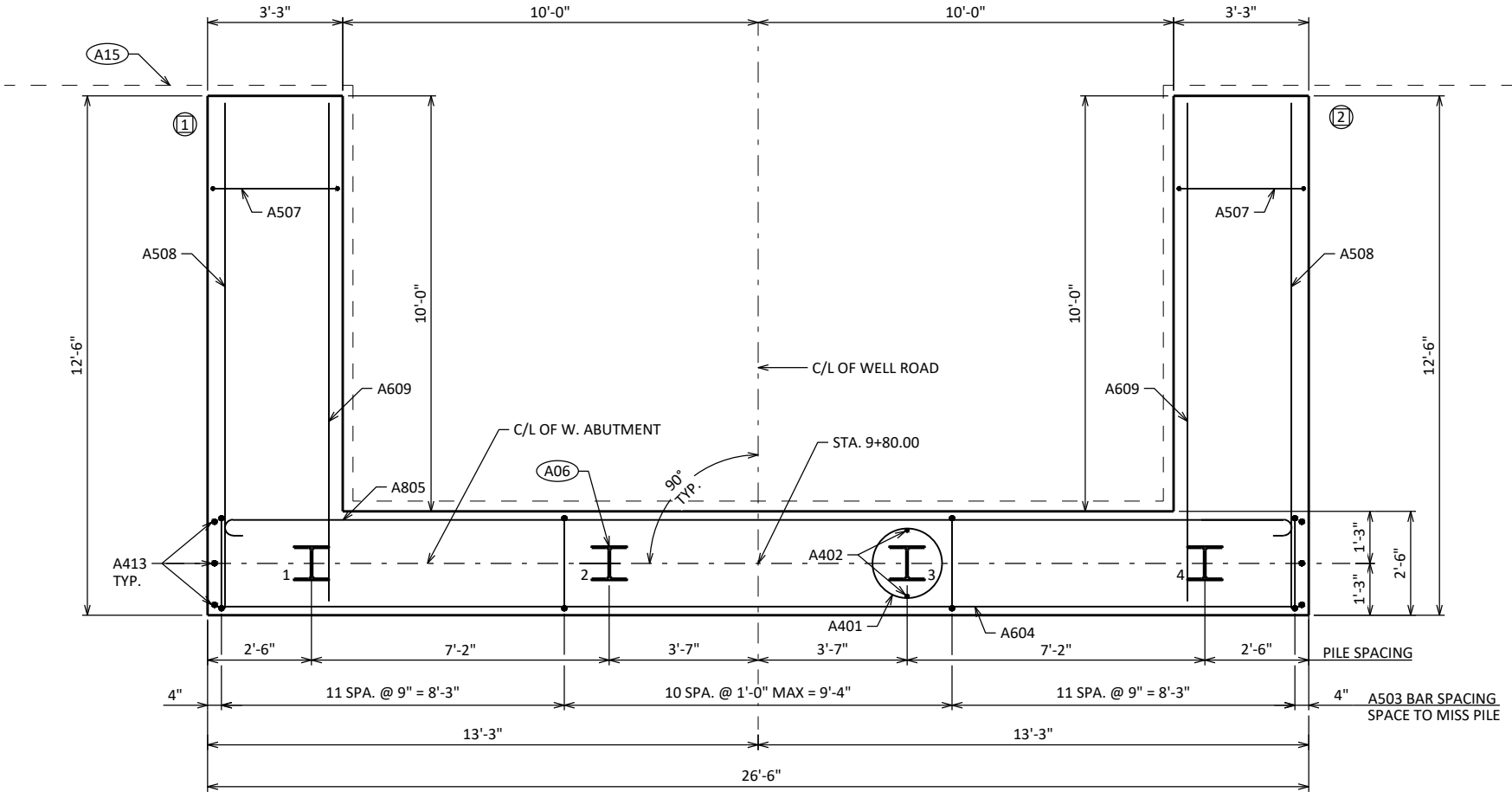
- (A03)** OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- (A15)** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17)** 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19)** 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

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STRUCTURE B-14-226			
DRAWN BY JMC		PLANS CK'D SAP	
WEST ABUTMENT WING DETAIL		SHEET 5 OF 12	

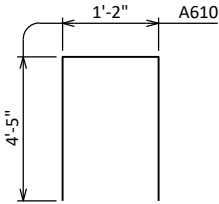
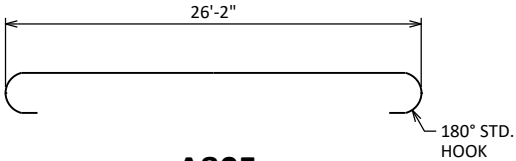
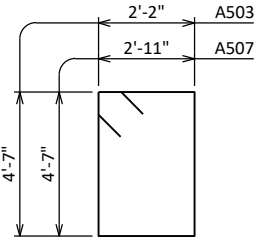
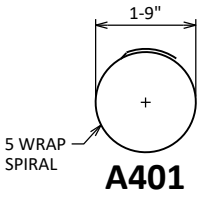
BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A401		4	28'-0"	X		BODY @ PILES
A402		8	2'-3"			BODY @ PILES
A503		33	14'-2"	X		BODY VERT.
A604		11	26'-2"			BODY HORIZ.
A805		7	28'-0"	X		BODY HORIZ. B.F.
A506	X	25	2'-0"			BODY DOWELS
A507	X	20	15'-8"	X		WINGS 1 & 2 VERT
A508	X	12	12'-2"			WINGS 1 & 2 HORIZ. F.F.
A609	X	16	11'-11"			WINGS 1 & 2 HORIZ B.F. & TOP
A610	X	28	9'-8"	X		WINGS 1 & 2 VERT
A411	X	10	9'-7"			WINGS 1 & 2 HORIZ. E.F.
A612	X	4	9'-7"			WINGS 1 & 2 HORIZ. B.F. & TOP
A413	X	6	4'-7"			BODY VERT. END @ WINGS 1 & 2

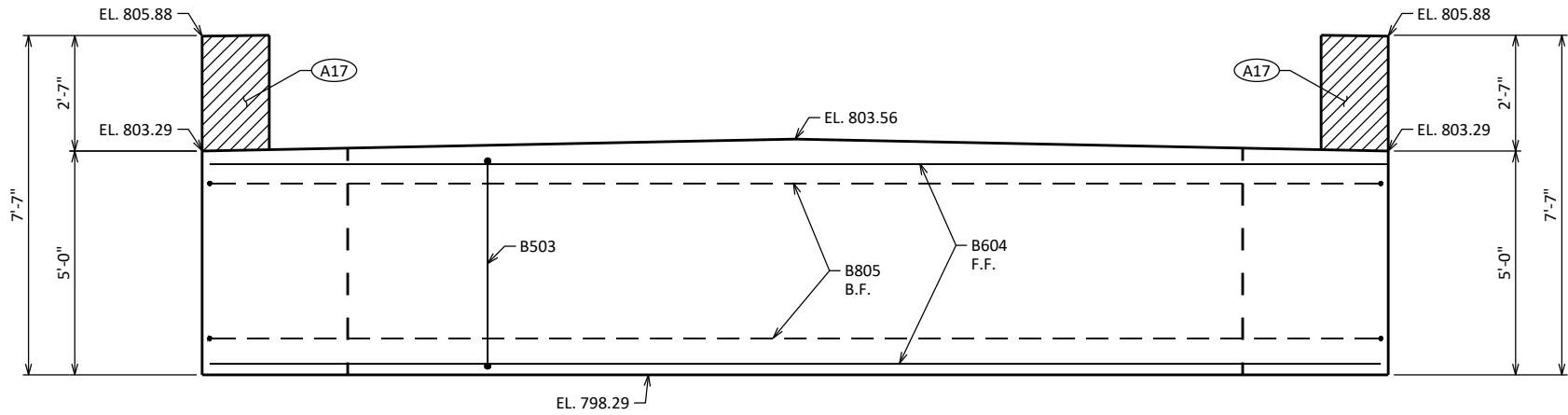


PILE LAYOUT

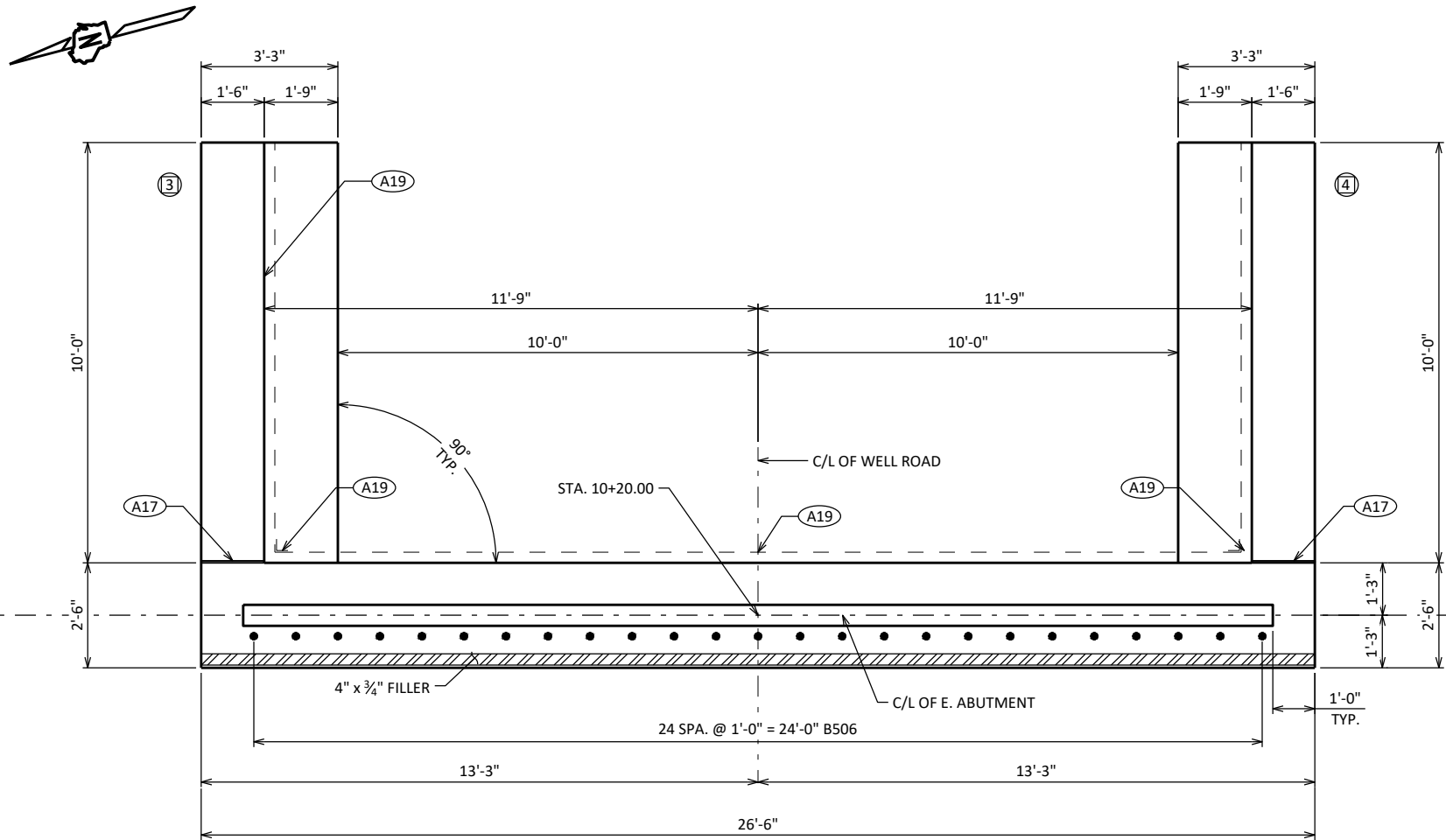


- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 20'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

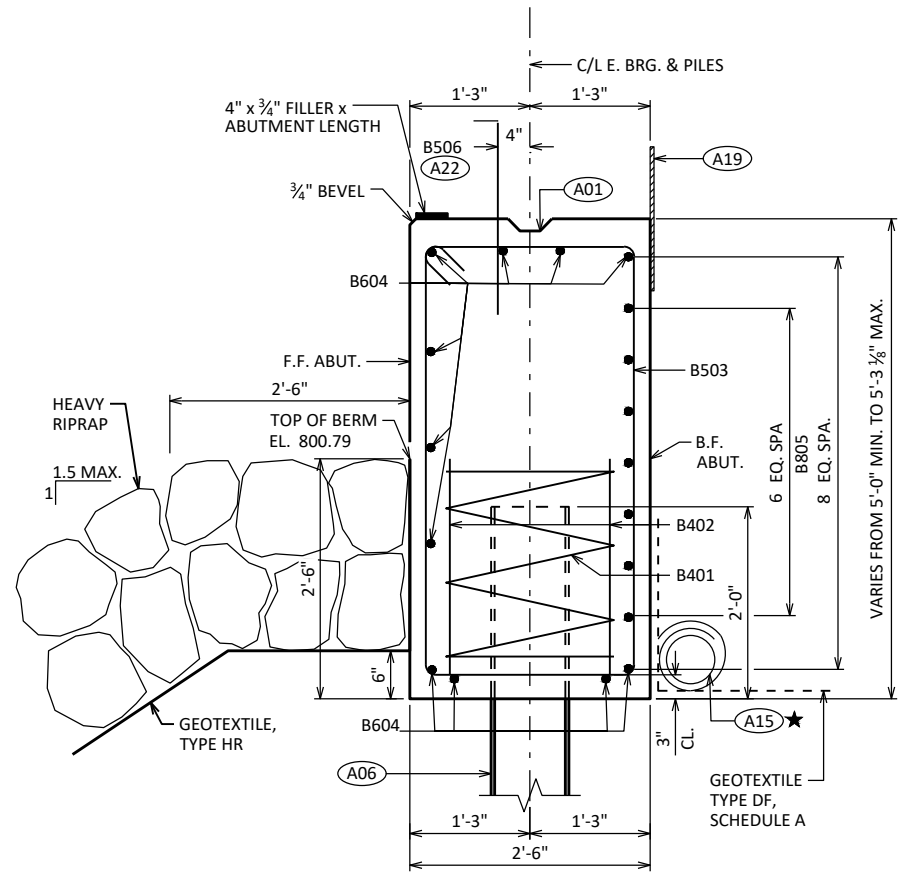
NO.	DATE	REVISION	BY
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STRUCTURE B-14-226			
DRAWN BY JMC		PLANS CK'D SAP	
WEST ABUTMENT PILE LAYOUT AND BILL OF BARS		SHEET 6 OF 12	



ELEVATION
(LOOKING EAST)



PLAN

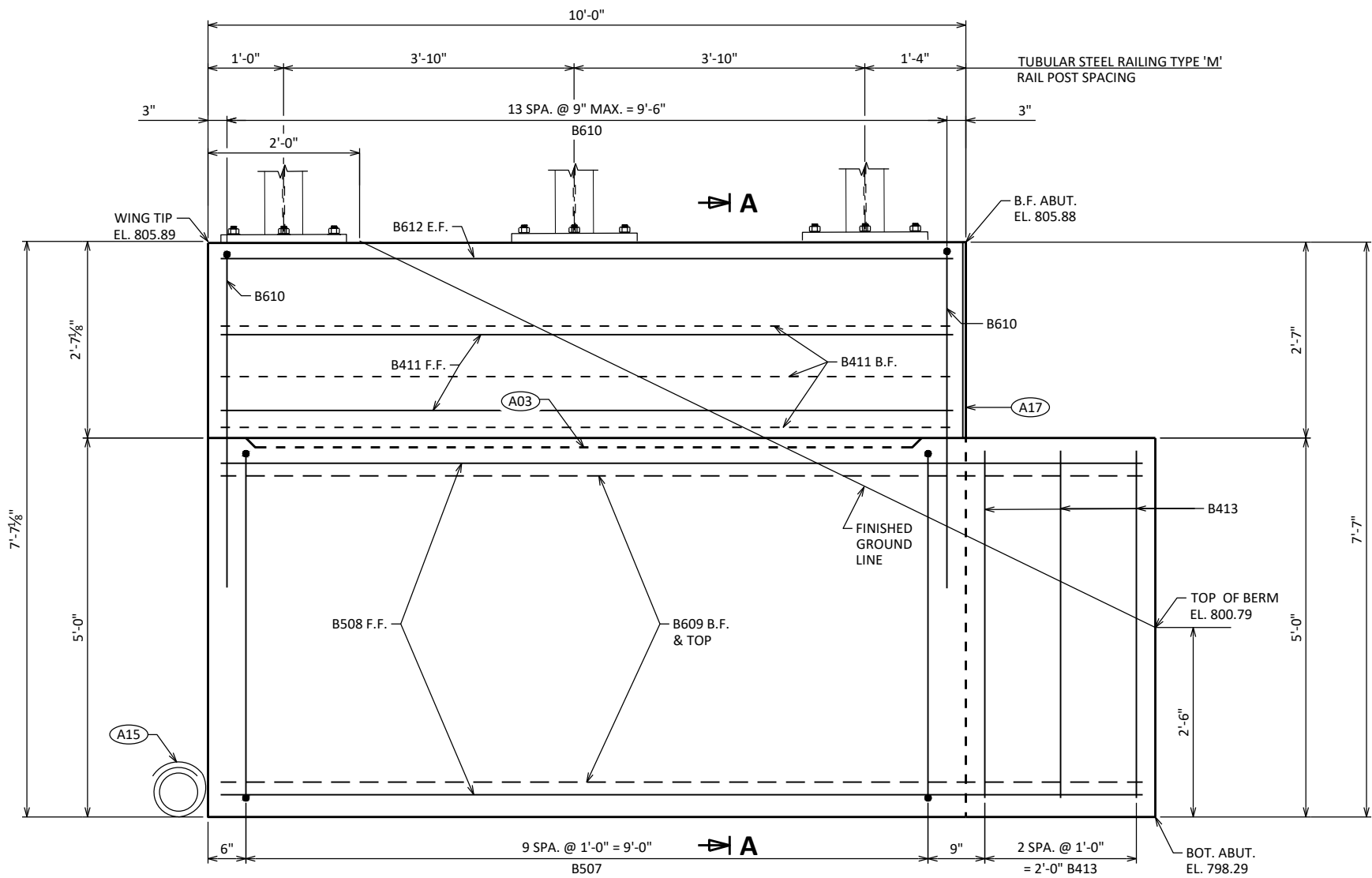


SECTION THRU BODY

★ FOR BOTTOM OF ABUTMENTS LOCATED BELOW NORMAL WATER, PLACE DRAIN ABOVE NORMAL WATER. SEE BRIDGE MANUAL 12.6.1 FOR ADDITIONAL GUIDANCE

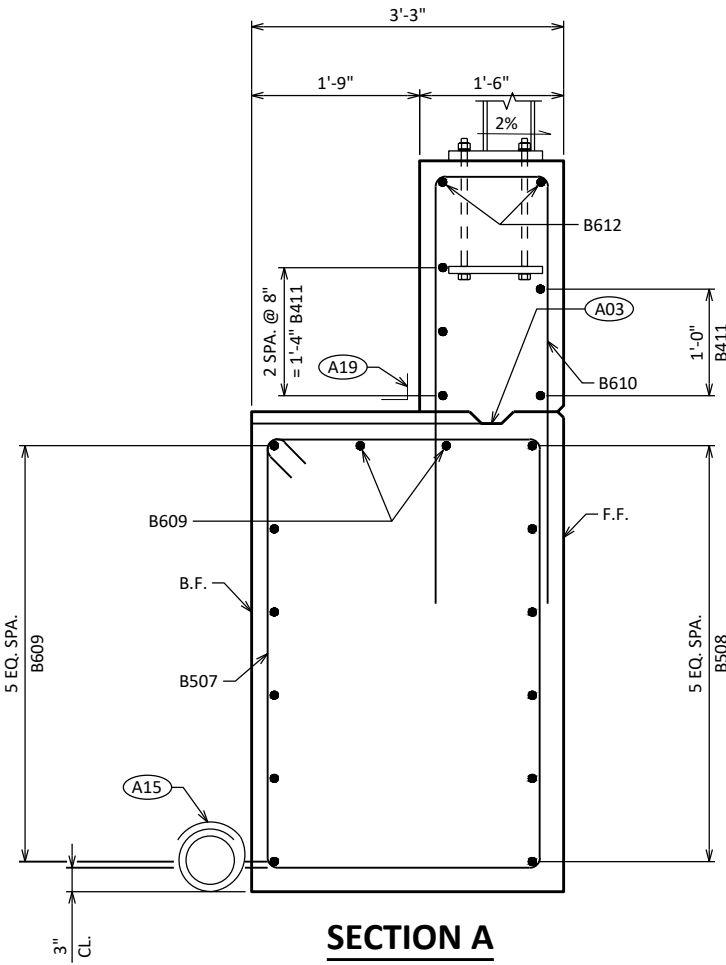
- A01** CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
- A06** SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.
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- A17** ½" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ½" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19** 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- A22** BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

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NO.	DATE	REVISION	BY
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DRAWN BY		JMC	PLANS CK'D SAP
EAST ABUTMENT		SHEET 7 OF 12	



ELEVATION - WING 3
(WING 3 SHOWN - WING 4 SIMILAR)

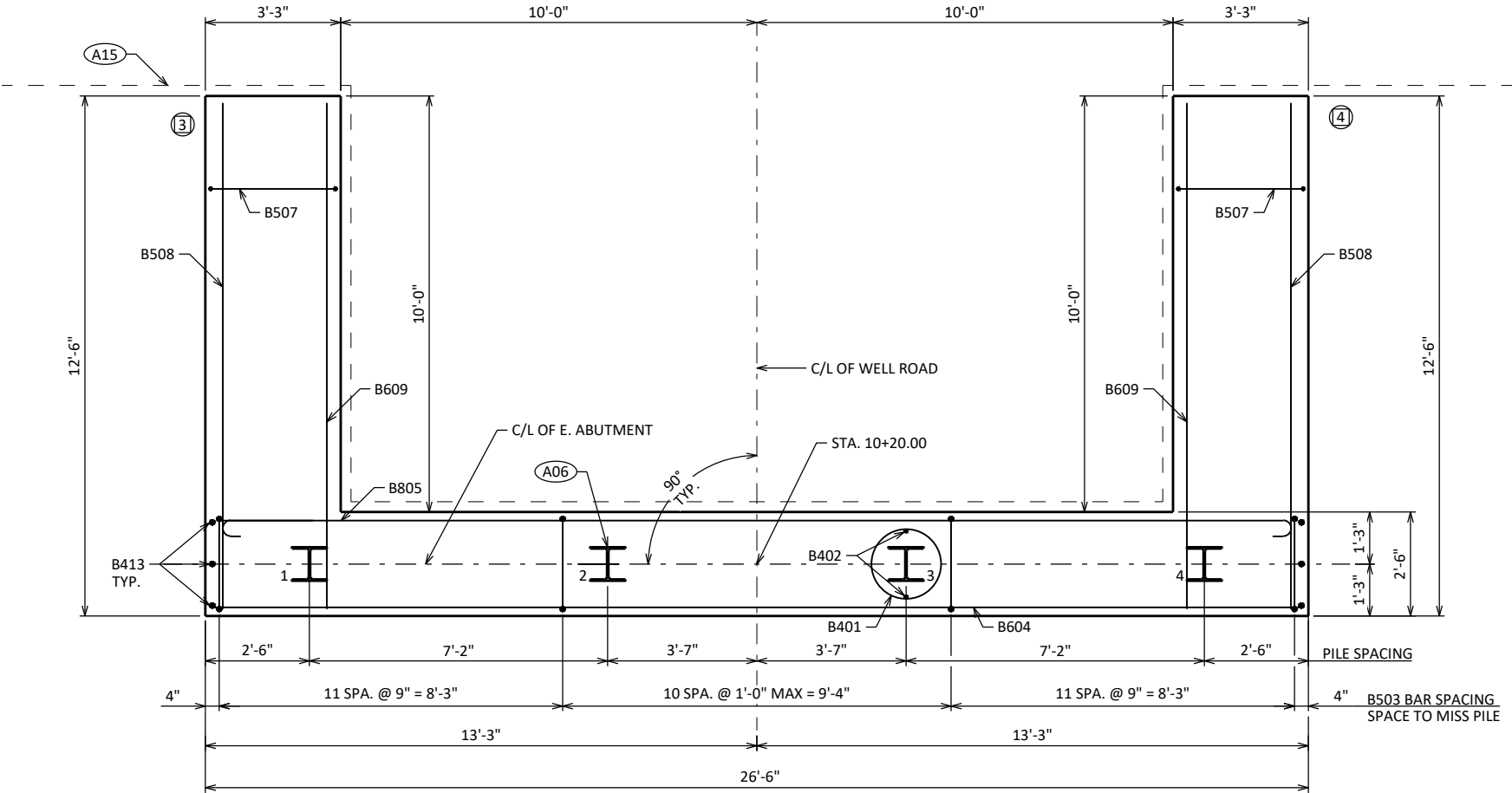
RAILING TUBULAR TYPE M NOT SHOWN. FOR DETAILS SEE SHEET 12



SECTION A

- A03 OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
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STRUCTURE B-14-226			
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EAST ABUTMENT WING DETAIL		SHEET 8 OF 12	

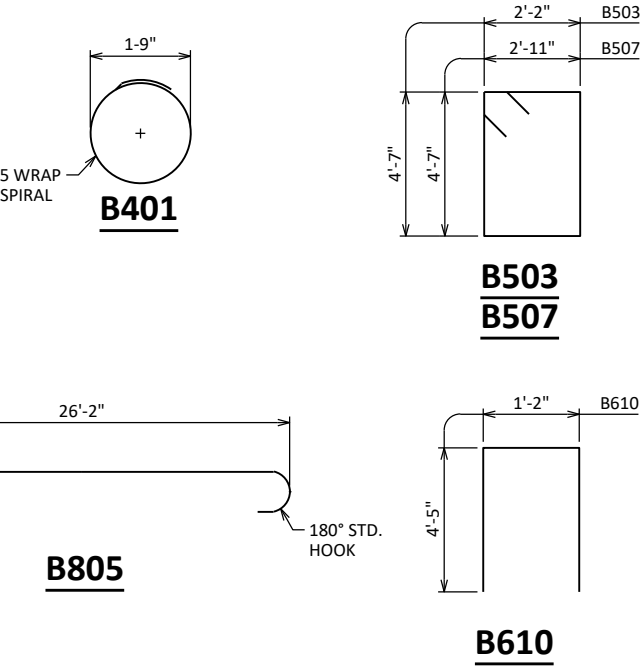


PILE LAYOUT

BILL OF BARS

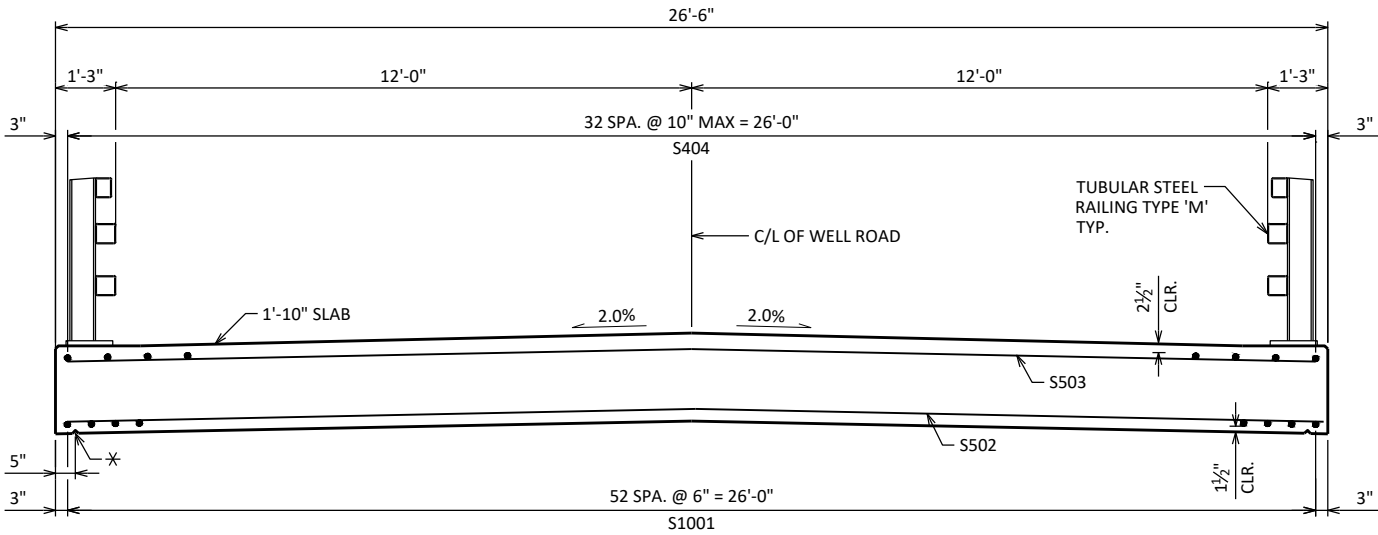
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B401		4	28'-0"	X		BODY @ PILES
B402		8	2'-3"			BODY @ PILES
B503		33	14'-2"	X		BODY VERT.
B604		11	26'-2"			BODY HORIZ.
B805		7	28'-0"	X		BODY HORIZ. B.F.
B506	X	25	2'-0"			BODY DOWELS
B507	X	20	15'-8"	X		WINGS 3 & 4 VERT
B508	X	12	12'-2"			WINGS 3 & 4 HORIZ. F.F.
B609	X	16	11'-11"			WINGS 3 & 4 HORIZ B.F. & TOP
B610	X	28	9'-8"	X		WINGS 3 & 4 VERT
B411	X	10	9'-7"			WINGS 3 & 4 HORIZ. E.F.
B612	X	4	9'-7"			WINGS 3 & 4 HORIZ. B.F. & TOP
B413	X	6	4'-7"			BODY VERT. END @ WINGS 3 & 4

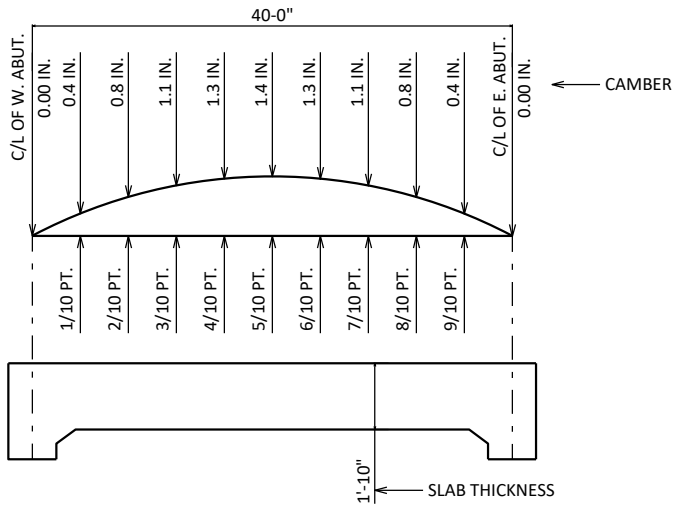


- A06 SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

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EAST ABUTMENT PILE LAYOUT AND BILL OF BARS		SHEET 9 OF 12	



TYPICAL SECTION THRU BRIDGE



CAMBER AND SLAB THICKNESS DIAGRAM

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

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

LESS	TOP OF SLAB ELEVATION AT FINAL GRADE
PLUS	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

TOP OF SLAB ELEVATIONS

LOCATION	C/L W. ABUT	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L E. ABUT.
N. EDGE OF SLAB	805.75	805.77	805.79	805.80	805.82	805.83	805.84	805.85	805.86	805.87	805.88
C/L OF WELL RD.	806.02	806.04	806.05	806.07	806.08	806.10	806.11	806.12	806.13	806.14	806.14
S. EDGE OF SLAB	805.75	805.77	805.79	805.80	805.82	805.83	805.84	805.85	805.86	805.87	805.88

* 3/4" V-GROOVE. TERMINATE 6" FROM F.F. OF ABUTS.

V-GROOVES ARE REQUIRED.

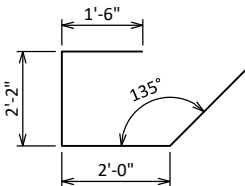
TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

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

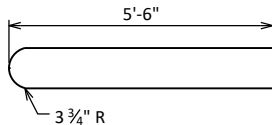
BILL OF BARS

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

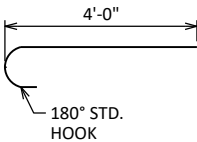
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S1001	X	53	36'-11"			SLAB LONG. BOT.
S502	X	64	26'-2"			SLAB TRANS. BOT.
S503	X	43	26'-2"			SLAB TRANS. TOP.
S404	X	33	42'-2"			SLAB LONG. TOP.
S505	X	54	7'-5"	X		SLAB @ ABUT. DIAPHRAGM STIRRUPS
S506	X	4	26'-2"			SLAB @ ABUT. DIAPHRAGM TRANS
S607	X	32	11'-3"	X		SLAB @ RAIL POST
S608	X	48	6'-0"			SLAB @ INT. RAIL POST
S609	X	16	4'-8"	X		SLAB @ END RAIL POSTS



S505



S607



S609

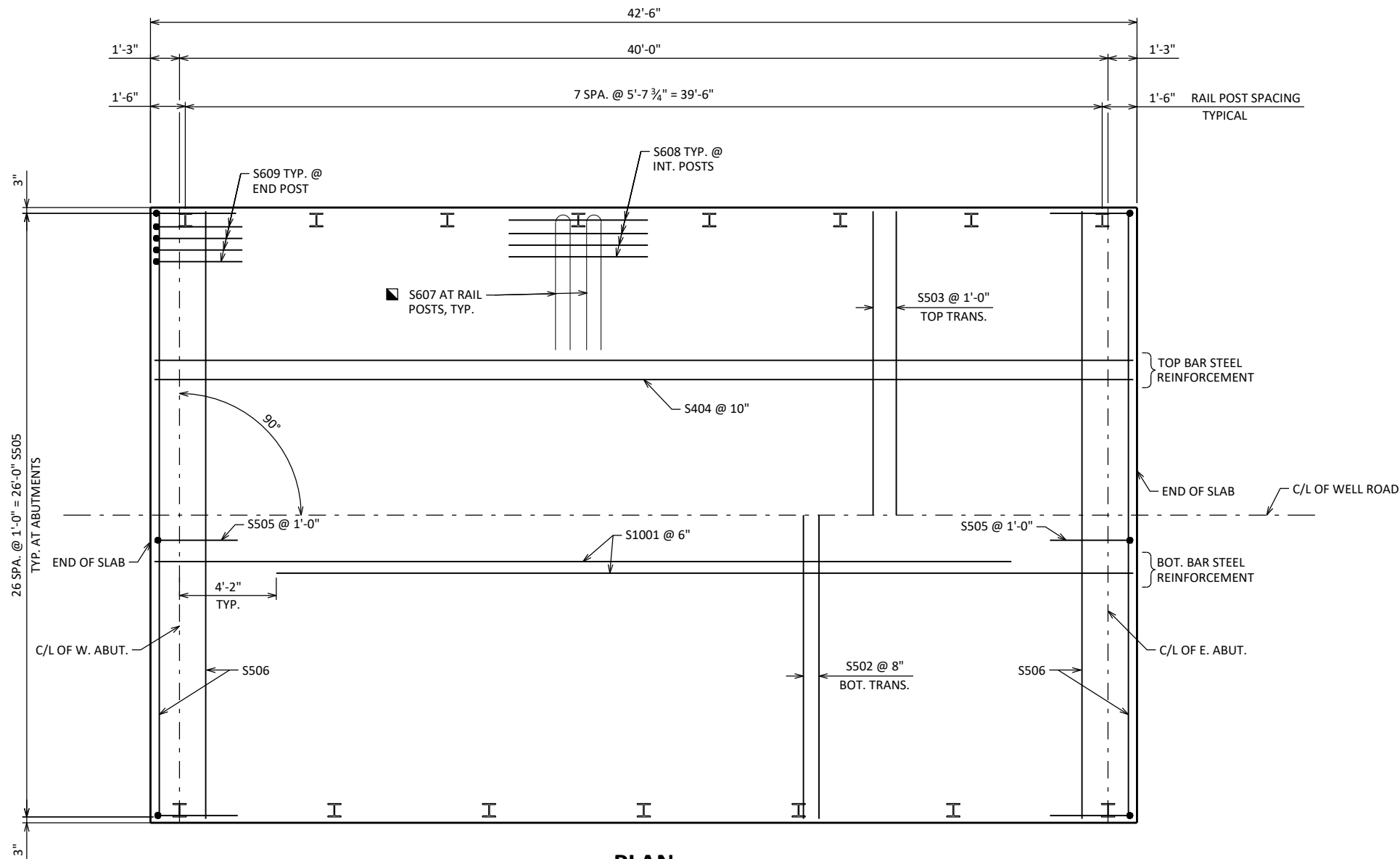
SURVEY TOP OF SLAB ELEVATIONS

	W. ABUTMENT	5/10 PT.	E. ABUTMENT
N. EDGE OF SLAB			
C/L OF WELL RD			
S. EDGE OF SLAB			

PRIOR TO RELEASING SLAB FORMWORK, TAKE TOP OF DECK ELEVATIONS AT THE C/L OF ABUTMENTS, AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND C/L.. RECORD ELEVATIONS IN THE TABLE ABOVE FOR THE "AS BUILT" PLANS.

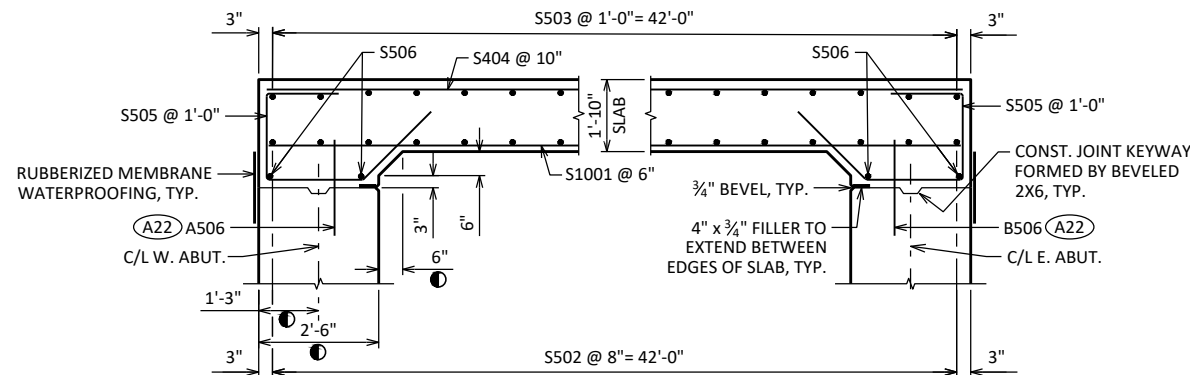
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STRUCTURE B-14-226			
DRAWN BY JMC		PLANS CK'D SAP	
SUPERSTRUCTURE			SHEET 10 OF 12



PLAN

PLACE BELOW AND TIE TO TOP MAT OF STEEL



LONGITUDINAL SECTION

DIMENSIONS ARE GIVEN PARALLEL TO C/L ROADWAY UNLESS OTHERWISE NOTED.

MEASURED NORMAL TO THE C/L OF ABUTMENT. DIMENSIONS ARE TYPICAL FOR BOTH ABUTMENTS.

A506, B506 BARS SPACED @ 1'-0" CNTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

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SUPERSTRUCTURE PLAN		SHEET 11 OF 12	

- ① W6 X 25 WITH $1\frac{1}{8}"$ X $1\frac{1}{2}"$ HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE $1\frac{1}{4}"$ X $11\frac{3}{4}"$ X $1'-8"$ WITH $1\frac{1}{16}"$ DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- ③ ASTM A449 - $1\frac{1}{8}"$ DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE $1'-9"$ LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS $> 16"$ USE $1'-3"$ LONG. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY).

- (4) $\frac{3}{8}$ " X 11" X 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 $\frac{1}{16}$ " DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- (5) TS 5 X 4 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- (5A) TS 5 X 5 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- (6) $\frac{7}{8}$ " DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, $\frac{3}{16}$ " X $1\frac{5}{8}$ " X $1\frac{3}{8}$ " MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- (7) $\frac{1}{2}$ " THK. BACK-UP PLATE WITH 2 - $\frac{7}{8}$ " X $1\frac{1}{2}$ " THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- (8) 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR $\frac{7}{8}$ " DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- (9) SPLICE SLEEVE FABRICATED FROM $\frac{1}{4}$ " PLATE. PROVIDE "SLIDING FIT".
- (10) $\frac{3}{8}$ " X $3\frac{3}{8}$ " X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- (10A) $\frac{3}{8}$ " X $2\frac{5}{8}$ " X 2'-4" PLATE USED IN NO. 5, $\frac{3}{8}$ " X $3\frac{3}{8}$ " X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- (11) $\frac{7}{8}$ " DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE $1\frac{5}{16}$ " X $1\frac{1}{4}$ " LONGIT. SLOTTED HOLES AT FIELD JOINTS AND $1\frac{5}{16}$ " X $2\frac{1}{4}$ " MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
- (12) $\frac{7}{8}$ " DIA. X $1\frac{1}{2}$ " LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- (13) $\frac{3}{8}$ " X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- (14) $\frac{7}{8}$ " DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- (15) 1" DIA. HOLES IN TUBES NO. 5A FOR $\frac{7}{8}$ " DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

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 $\frac{1}{8}$ 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 NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 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.



LOCATION MUST BE SHOWN
ON SHOP DRAWINGS



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



THREE BEAM RAIL ATTACHMENT



AT BEAM GUARD ATTACHMENT



AT BEAM GUARD ATTACHMENT



AT BEAM GUARD ATTACHMENT

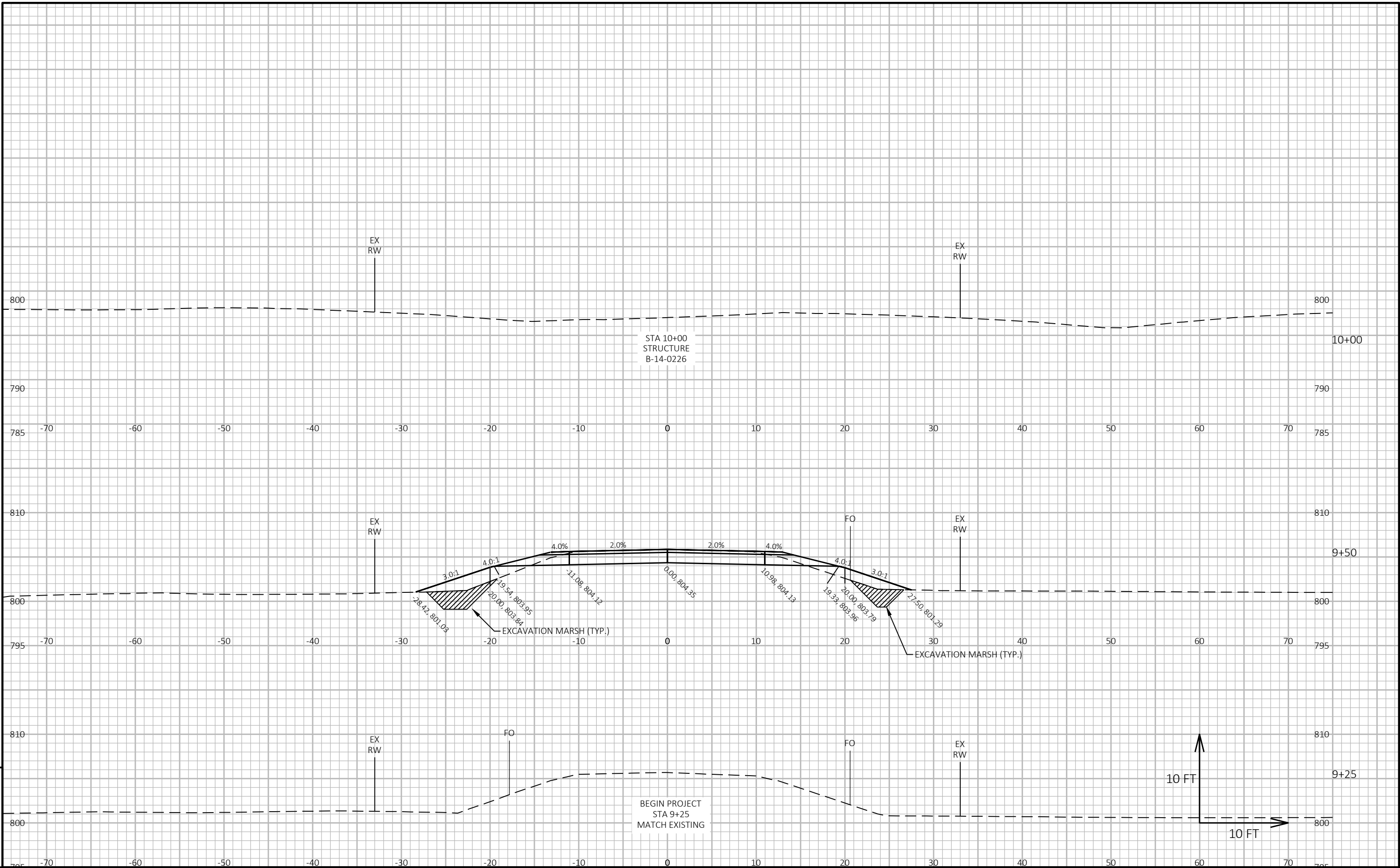


- ▲ TIE TO TOP MAT OF STEEL.
- ✱ ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED
- 1/4" TO 3/4" OPENING FOR A1 ABUTMENT.

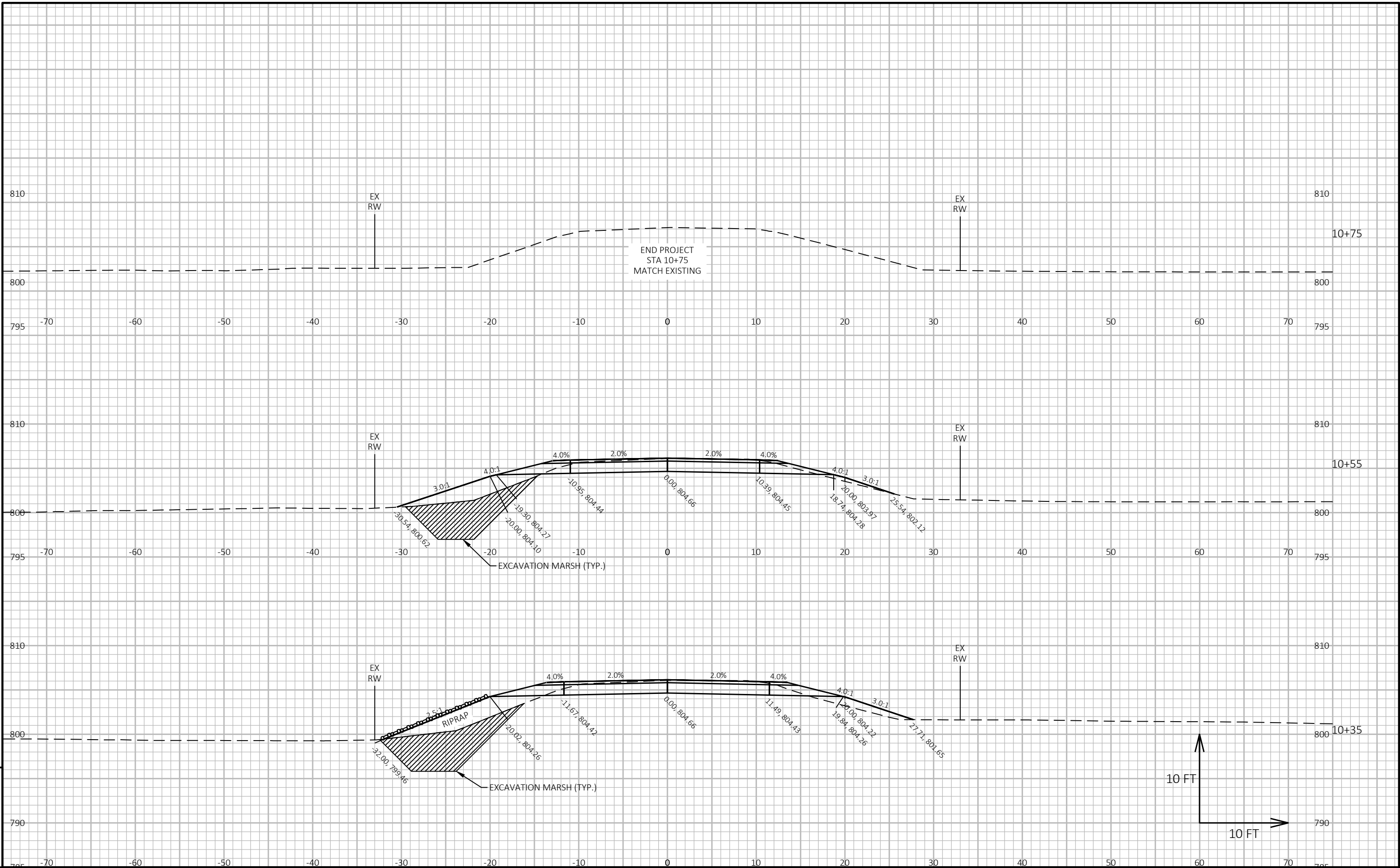
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-48-63			
		DRAWN BY	CLP PLANS CK'D DRS
TUBULAR STEEL RAILING TYPE "M"		SHEET 12 OF 12	

WELL ROAD COMPUTER EARTHWORK																
Station	Distance	Area (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)				Mass Ordinate		
		Cut	Unusable	Fill	Marsh	Cut	Unusable	Cut	Fill	Marsh	Cut	Unusable	Cut		Expanded	Marsh
Note 1	Note 2	Note 5	Note 1	Note 2	Note 3	Note 5	Note 4									
9+25	--	37.9	0.8	20.3	13.0	--	--	--	--	0	0	0	0	0	0	
9+50	25	38.5	0.8	22.9	18.0	35	1	20	14	35	1	26	14	8	8	
9+79	29	41.3	0.8	59.4	26.0	43	1	44	24	78	2	83	38	-7	-7	
NEW BRIDGE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10+21	--	38.6	0.8	59.5	79.9					78	2	83	38	-7	-7	
10+50	29	36.8	0.8	27.6	47.1	40	1	47	68	118	3	144	106	-29	-29	
10+75	25	38.9	0.8	11.6	29.6	35	1	18	36	153	4	168	142	-18	-18	
						153	4	129	142							

Note 1 -	Usable cut only
Note 2 -	Existing asphalt pavement. Assumed not to be used as fill.
Note 3 -	Volume needed to be filled = Fill * 1.30
Note 4 -	(Cut - Unusable Cut) - (Expanded Fill-Riprap (In Fill))
Note 5 -	Existing marsh material to be removed wasted, and volume backfilled with select crushed material.



PROJECT NO: 3804-00-75	HWY: WELL RD	COUNTY: DODGE	CROSS SECTIONS: WELL RD	SHEET	E
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Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

<http://www.dot.wisconsin.gov>

MAD

PROJECT ID:
WITH: 3804-00-75

3814-00-70

COUNTY:

DODGE

December 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
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 = 74

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T OF HUSTISFORD, ST. HELENA ROAD

DEAD CREEK BRIDGE, B-14-0228

LOC STR
DODGE

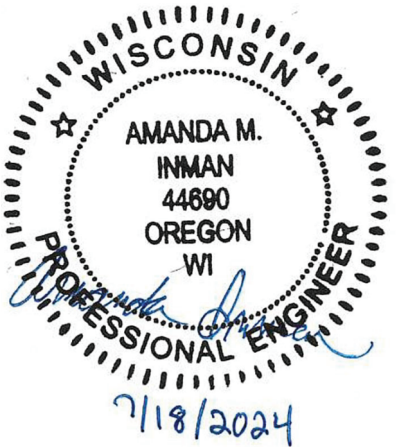
STATE PROJECT NUMBER
3814-00-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
3814-00-70	WISC 2025093	1
3804-00-75		

ACCEPTED FOR
TOWN
HUSTISFORD
DATE: 7/15/24
[Signature]
(CHAIRMAN)

ORIGINAL PLANS PREPARED BY

AYRES

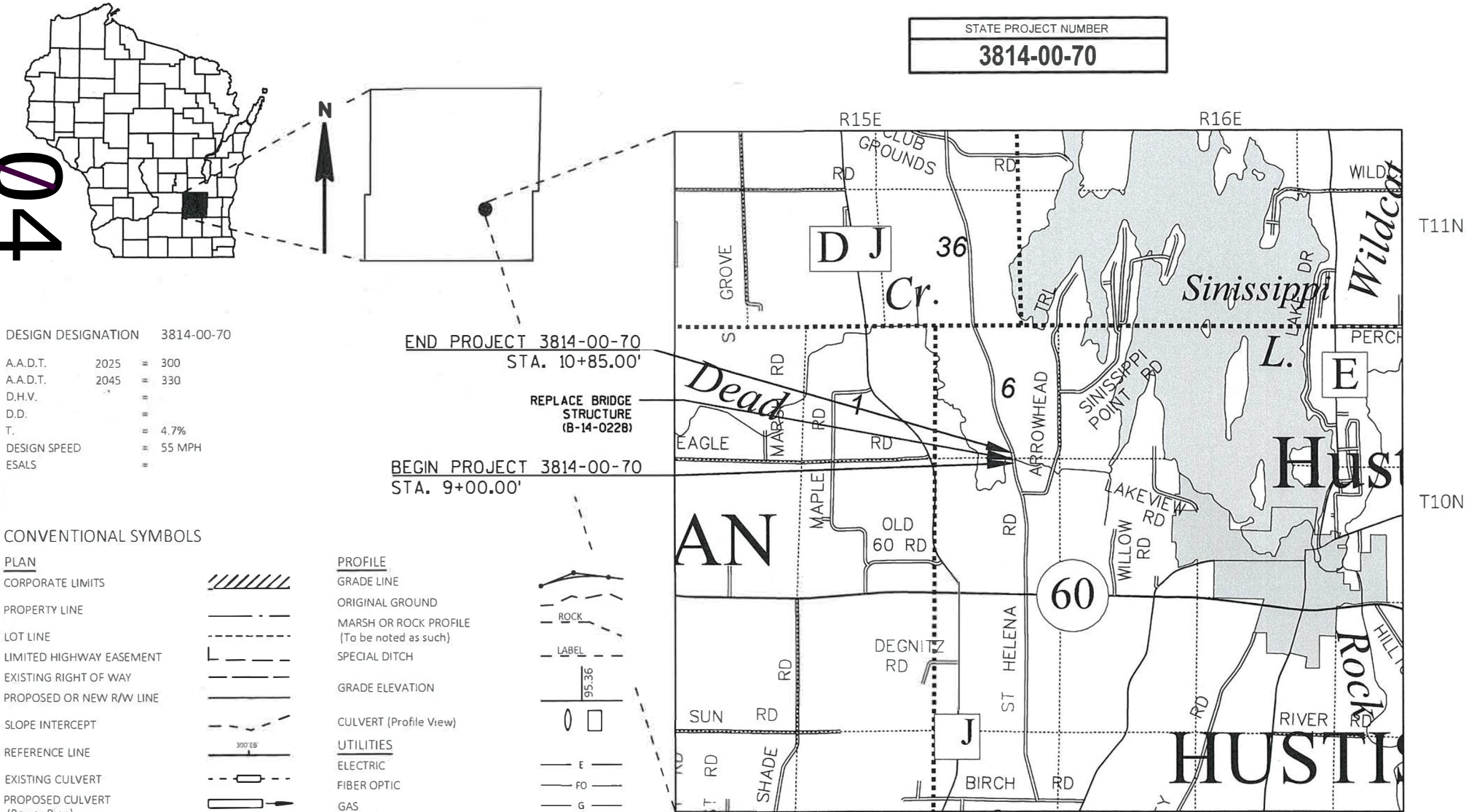


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	AYRES ASSOCIATES INC
Designer	AYRES ASSOCIATES INC
Project Manager	ZACH PEARSON
Regional Examiner	
Regional Supervisor	KYLE HEMP

APPROVED FOR THE DEPARTMENT
DATE: 08/01/2024 [Signature]
(Signature)

E



DESIGN DESIGNATION	3814-00-70
A.A.D.T.	2025 = 300
A.A.D.T.	2045 = 330
D.H.V.	
D.D.	
T.	4.7%
DESIGN SPEED	55 MPH
ESALS	

CONVENTIONAL SYMBOLS

PLAN	
CORPORATE LIMITS	////
PROPERTY LINE	---
LOT LINE	- - -
LIMITED HIGHWAY EASEMENT	L---
EXISTING RIGHT OF WAY	=====
PROPOSED OR NEW R/W LINE	=====
SLOPE INTERCEPT	- - - - -
REFERENCE LINE	300' E
EXISTING CULVERT	- - - - -
PROPOSED CULVERT (Box or Pipe)	=====
COMBUSTIBLE FLUIDS	CAUTION
MARSH AREA	=====
WOODED OR SHRUB AREA	=====

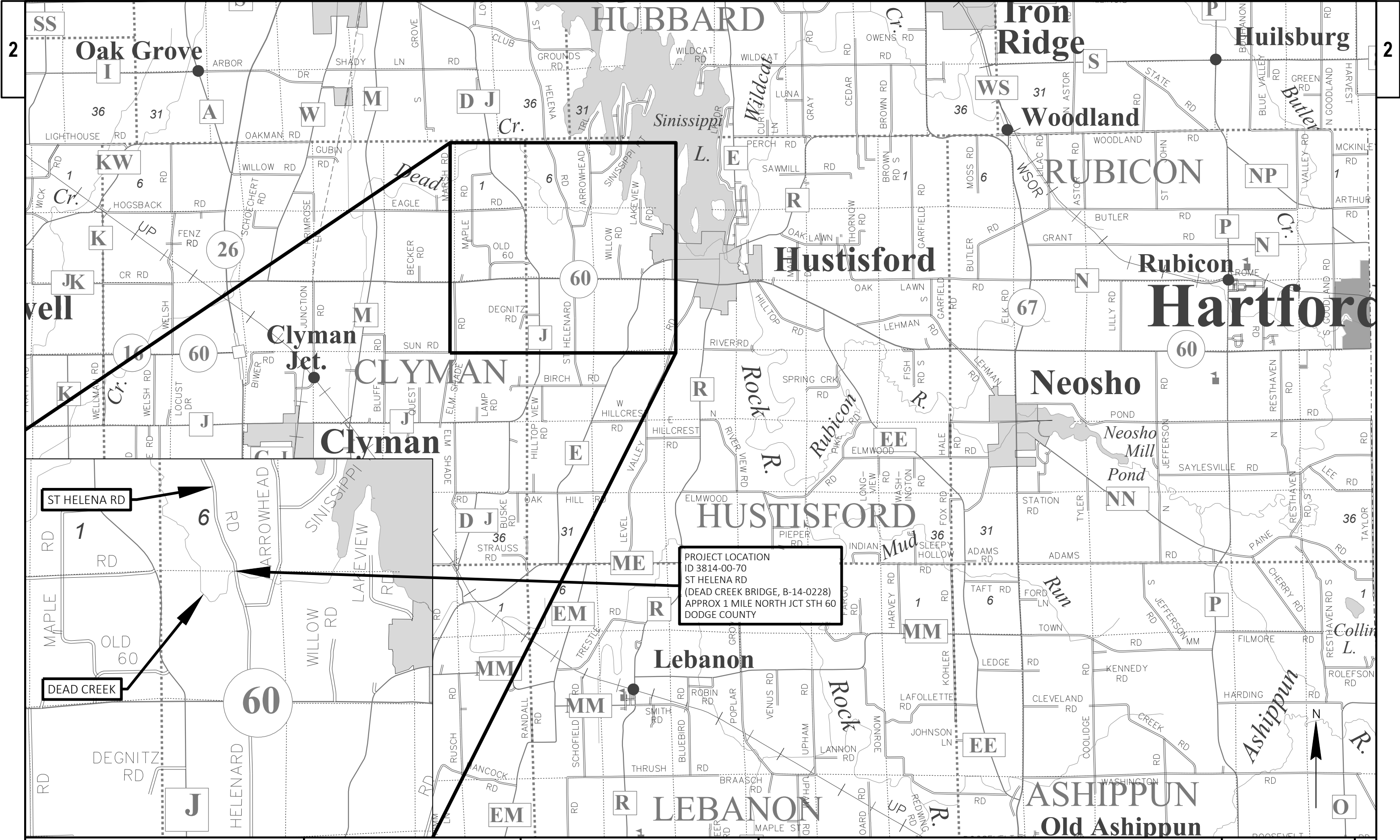
PROFILE	
GRADE LINE	=====
ORIGINAL GROUND	=====
MARSH OR ROCK PROFILE (To be noted as such)	=====
SPECIAL DITCH	=====
GRADE ELEVATION	95.36
CULVERT (Profile View)	=====
UTILITIES	
ELECTRIC	E
FIBER OPTIC	FO
GAS	G
SANITARY SEWER	SAN
STORM SEWER	SS
TELEPHONE	T
WATER	W
UTILITY PEDESTAL	=====
POWER POLE	=====
TELEPHONE POLE	=====

LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.035 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN
COORDINATE REFERENCE SYSTEM (WISCRS), DODGE 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.



PROJECT NO: 3814-00-70	HWY: ST HELENA RD	COUNTY: DODGE	PROJECT OVERVIEW	SHEET E
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GENERAL NOTES

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

THERE ARE NO KNOWN UTILITY FACILITIES WITHIN THE PROJECT AREA.

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT IS TO MEET AN EXISTING PAVED SURFACE.

EXACT TRAFFIC CONTROL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS DESIGNATED FOR REMOVAL BY THE ENGINEER.

PROTECT FROM DAMAGE AND COMPLETE SHOULDER WORK AROUND ANY EXISTING SIGNS OR MAILBOXES THAT ARE TO REMAIN IN PLACE.

RESTORATION OF EXPOSED SLOPES AND DITCHES SHALL TAKE PLACE WITHIN 7 CALENDAR DAYS AFTER FINISHED GRADING IS COMPLETE.

WETLANDS ARE PRESENT IN THE PROJECT AREA. DO NOT DISTURB WETLANDS OUTSIDE THE PROPOSED SLOPE INTERCEPTS.

IF AN EXISTING SIGN IS TO BE REMOVED AND REPLACED WITH A NEW SIGN, DO NOT REMOVE THE EXISTING SIGN PRIOR TO INSTALLATION OF THE NEW SIGN.

THE LOCATIONS OF EROSION CONTROL ITEMS SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

ABBREVIATIONS

A.D.T.	AVERAGE DAILY TRAFFIC
ATMS	ARTERIAL TRAFFIC MANAGEMENT SYSTEM
BM	BENCHMARK
BOC	BACK OF CURB
BTWN	BETWEEN
C&G	CURB AND GUTTER
C.E.	COMMERCIAL ENTRANCE
CONST	CONSTRUCTION
CP	CONTROL POINT
CTR.	CENTER
D.D.	DIRECTIONAL DISTRIBUTION
D.H.V.	DESIGN HOURLY VOLUME
DMS	DYNAMIC MESSAGE SIGN
EB	EASTBOUND
EXIST	EXISTING
GALV.	GALVANIZED
HMA	HOT MIX ASPHALT
H.S.	HIGH STRENGTH
ITS	INTELLIGENT TRAFFIC SYSTEM
MAX	MAXIMUM
MIN	MINIMUM
NB	NORTHBOUND
NOR	NORMAL
PC	POINT OF CURVATURE
PCC	POINT OF COMMON CURVATURE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVT	PAVEMENT
R/L	REFERENCE LINE
REQ'D	REQUIRED
SB	SOUTHBOUND
SYM	SYMMETRICAL
T.	PERCENT TRUCKS
TCC	TRAFFIC CONDITION CAMERA
TYP	TYPICAL
VAR	VARIABLE
WB	WESTBOUND
Wt.	WEIGHT
X-WALK	CROSS WALK

PROJECT CONTACTS

TOWN OF HUSTISFORD
DAVE MARGELOFSKY
TOWN CHAIRMAN
N3906 CTY RD EE
NEOSHO, WI 53059
P: (920) 349-8425
F: (920) 349-9414
C: (920) 210-3257
E: TOWNOFHUSTISFORD@GMAIL.COM

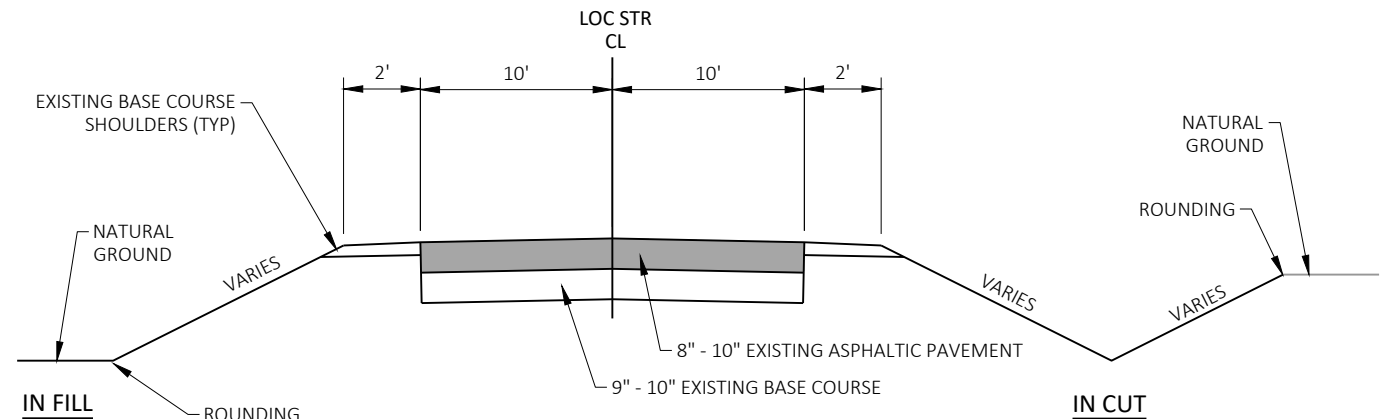
UTILITIES
NO UTILITIES IN PROJECT AREA

DODGE COUNTY PUBLIC WORKS
BRIAN FIELD
HIGHWAY COMMISSIONER
211 E. CENTER STREET
JUNEAU, WI 53039-1309
P: (920) 386-3653
F: (920) 386-3525
E: BFIELD@CO.DODGE.WI.US

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
SHELLY NELSON
DNR SOUTH CENTRAL REGION HEADQUARTERS
3911 FISH HATCHERY RD
FITCHBERG, WI 53711
P: (608) 444-2835
E: SHELLEY.NELSON@WISCONSIN.GOV

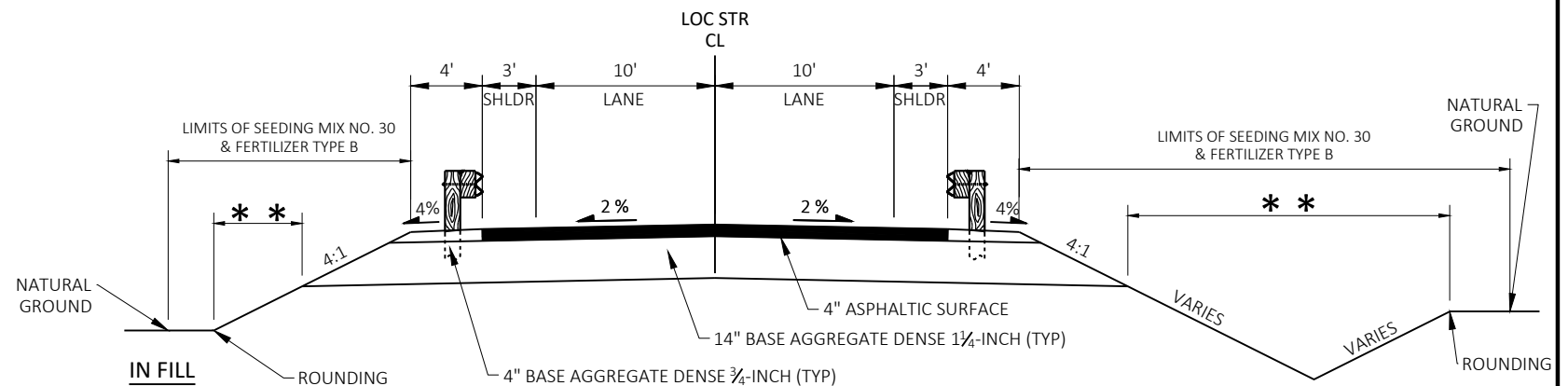
DESIGNER
AMANDA INMAN, PE
AYRES ASSOCIATES
5201 EAST TERRACE DRIVE, SUITE 200
MADISON, WI 53718
P: (608) 443-1239
E: INMANA@AYRESASSOCIATES.COM

** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS



TYPICAL EXISTING SECTION

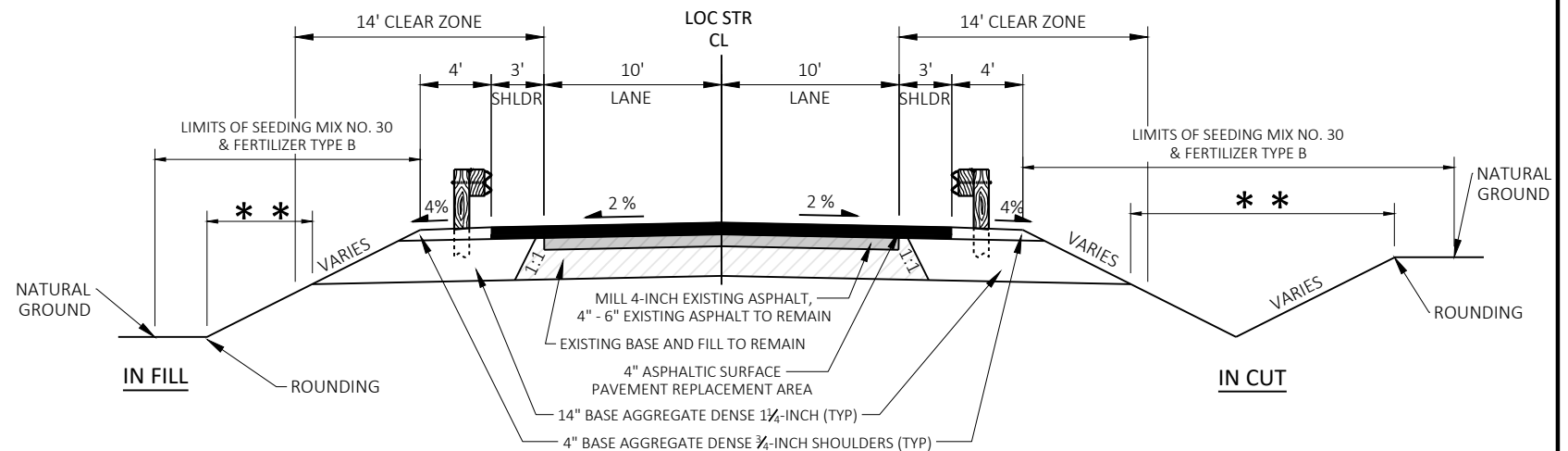
STA. 7+75 - STA. 9+80
STA. 10+20 - STA. 11+35



FINISHED TYPICAL SECTION

STA. 9+00 - STA. 9+80
STA. 10+20 - STA. 10+85

** LIMITS OF SALVAGED TOPSOIL AND EROSION MAT URBAN CLASS I TYPE B



FINISHED TYPICAL SECTION

STA. 7+75 - STA. 9+00
STA. 10+85 - STA. 11+35

PROJECT NO: 3814-00-70

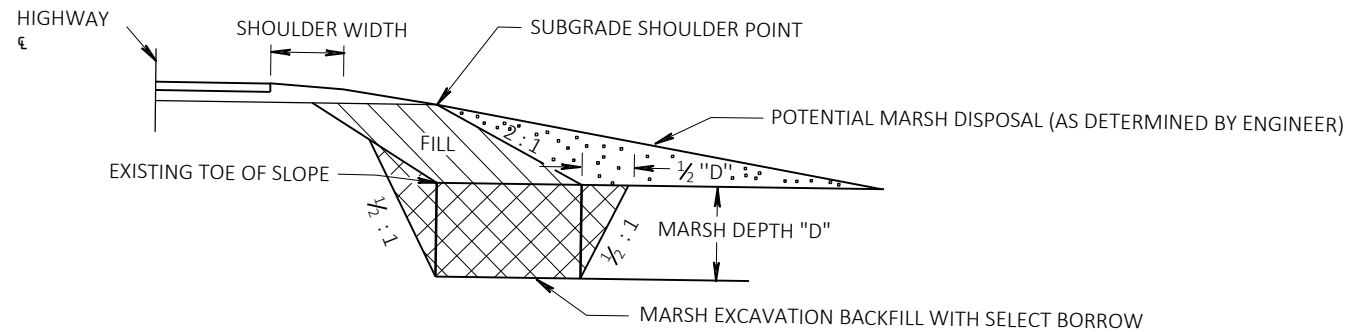
HWY: ST HELENA RD

COUNTY: DODGE

GENERAL NOTES & TYPICAL SECTIONS

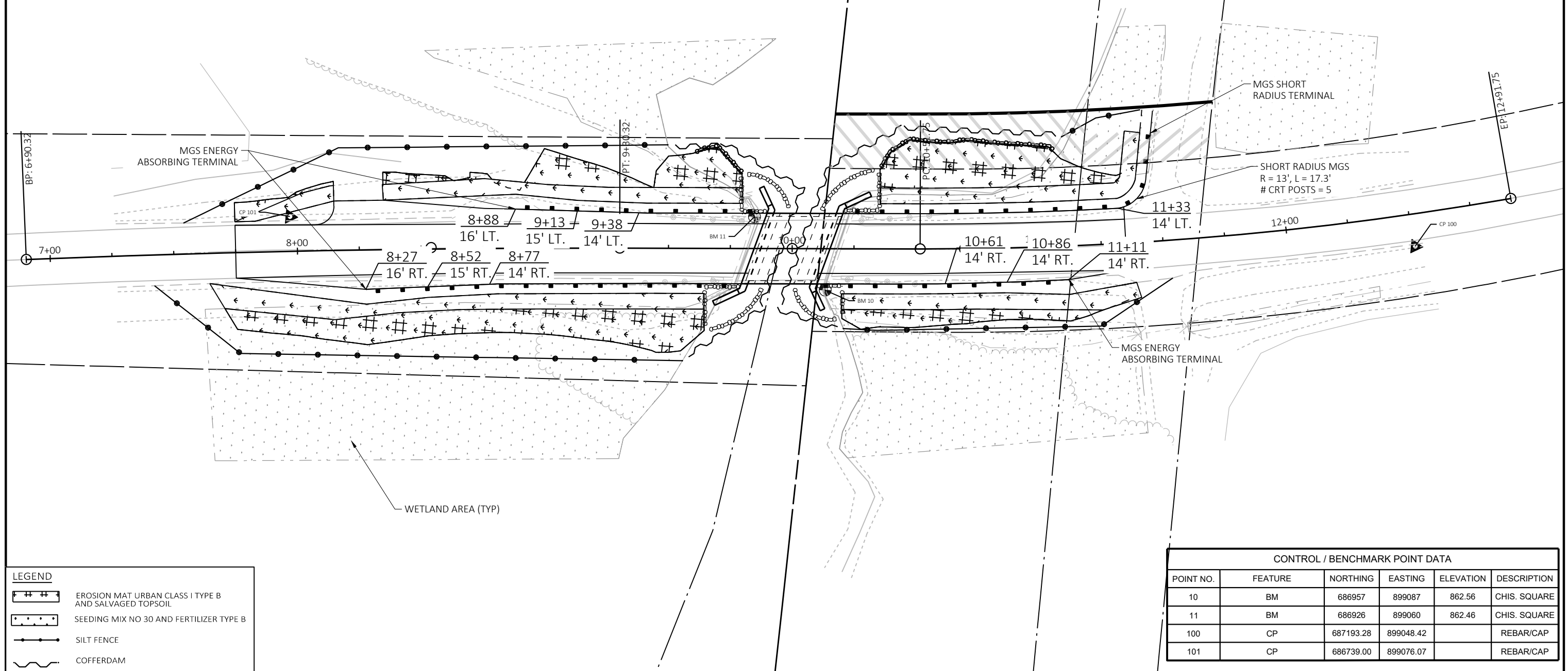
SHEET

E



TYPICAL MARSH EXCAVATION

WEST OF ST. HELENA ROAD, D = 14"
EAST OF ST. HELENA ROAD, D = 8"



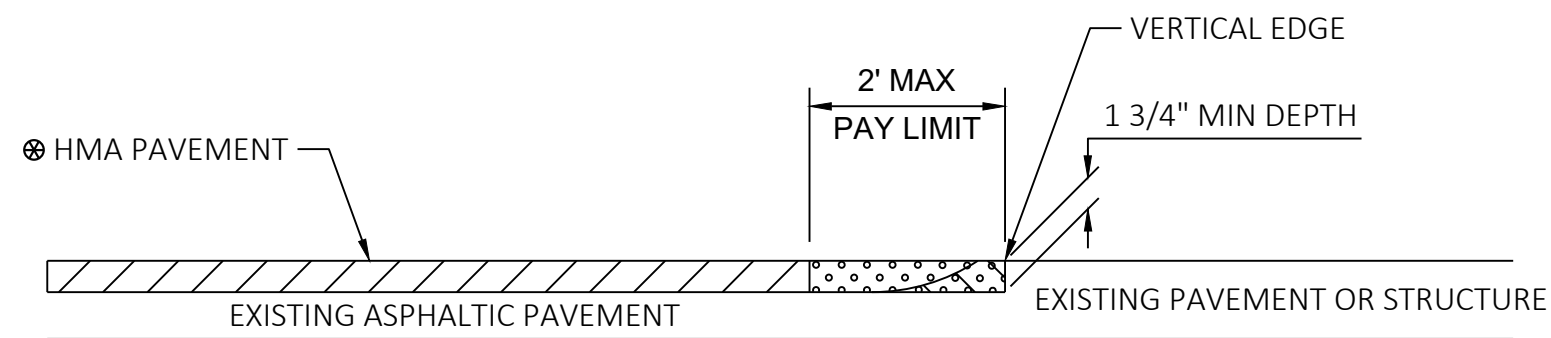
LEGEND	
	EROSION MAT URBAN CLASS I TYPE B AND SALVAGED TOPSOIL
	SEEDING MIX NO 30 AND FERTILIZER TYPE B
	SILT FENCE
	COFFERDAM

CONTROL / BENCHMARK POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
10	BM	686957	899087	862.56	CHIS. SQUARE
11	BM	686926	899060	862.46	CHIS. SQUARE
100	CP	687193.28	899048.42		REBAR/CAP
101	CP	686739.00	899076.07		REBAR/CAP




A	HYDROLOGIC SOIL GROUP											
	B C									D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	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 STRIP-TURF	.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 SLOPE: TURF			.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 = 0.55 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.66 ACRES

RUNOFF COEFFICIENT TABLE



⊗ SEE TYPICAL CROSS SECTION FOR PAVEMENT TYPE AND THICKNESS OF INDIVIDUAL LAYERS

-  REMOVING ASPHALTIC SURFACE, MILLING
-  REMOVING ASPHALTIC SURFACE, BUTT JOINTS
-  REMOVE ASPHALTIC SURFACE WEDGE AT BUTT JOINT TO CREATE VERTICAL EDGE

BUTT JOINT DETAIL FOR ASPHALTIC PAVEMENTS (NO PROFILE CHANGE)

Estimate Of Quantities By Plan Sets

3814-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	2.000	2.000
0004	201.0205	Grubbing	STA	2.000	2.000
0008	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 02. P-14-106	EACH	1.000	1.000
0010	204.0115	Removing Asphaltic Surface Butt Joints	SY	9.000	9.000
0012	204.0120	Removing Asphaltic Surface Milling	SY	381.000	381.000
0014	204.0165	Removing Guardrail	LF	156.000	156.000
0016	205.0100	Excavation Common	CY	542.000	542.000
0018	205.0400	Excavation Marsh	CY	90.000	90.000
0022	206.1001	Excavation for Structures Bridges (structure) 02. B-14-228	EACH	1.000	1.000
0024	206.5001	Cofferdams (structure) 02. B-14-228	EACH	1.000	1.000
0026	208.0100	Borrow	CY	464.000	464.000
0028	208.1100	Select Borrow	CY	135.000	135.000
0030	210.1500	Backfill Structure Type A	TON	620.000	620.000
0034	213.0100	Finishing Roadway (project) 02. 3814-00-70	EACH	1.000	1.000
0036	305.0110	Base Aggregate Dense 3/4-Inch	TON	80.000	80.000
0038	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	950.000	950.000
0040	312.0110	Select Crushed Material	TON	72.000	72.000
0042	455.0605	Tack Coat	GAL	76.000	76.000
0044	465.0105	Asphaltic Surface	TON	240.000	240.000
0046	502.0100	Concrete Masonry Bridges	CY	131.000	131.000
0048	502.3200	Protective Surface Treatment	SY	155.000	155.000
0050	505.0400	Bar Steel Reinforcement HS Structures	LB	4,780.000	4,780.000
0052	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	12,910.000	12,910.000
0054	513.4061	Railing Tubular Type M	LF	64.800	64.800
0056	516.0500	Rubberized Membrane Waterproofing	SY	14.000	14.000
0058	550.0500	Pile Points	EACH	14.000	14.000
0060	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	420.000	420.000
0062	606.0300	Riprap Heavy	CY	170.000	170.000
0064	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	160.000	160.000
0066	614.2300	MGS Guardrail 3	LF	137.500	137.500
0068	614.2350	MGS Guardrail Short Radius	LF	70.000	70.000
0070	614.2500	MGS Thrie Beam Transition	LF	160.000	160.000
0072	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0074	614.2630	MGS Guardrail Short Radius Terminal	EACH	1.000	1.000
0078	618.0100	Maintenance and Repair of Haul Roads (project) 02. 3814-00-70	EACH	1.000	1.000
0080	619.1000	Mobilization	EACH	0.500	0.500
0082	623.0200	Dust Control Surface Treatment	SY	970.000	970.000
0084	624.0100	Water	MGAL	15.000	15.000
0086	625.0500	Salvaged Topsoil	SY	570.000	570.000
0088	628.1504	Silt Fence	LF	753.000	753.000
0090	628.1520	Silt Fence Maintenance	LF	1,506.000	1,506.000
0092	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0094	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0096	628.2008	Erosion Mat Urban Class I Type B	SY	627.000	627.000
0100	629.0210	Fertilizer Type B	CWT	1.400	1.400
0102	630.0130	Seeding Mixture No. 30	LB	25.000	25.000
0104	630.0200	Seeding Temporary	LB	38.000	38.000
0106	630.0500	Seed Water	MGAL	28.800	28.800
0108	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000

Estimate Of Quantities By Plan Sets

3814-00-70

Line	Item	Item Description	Unit	Total	Qty
0110	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0112	638.2602	Removing Signs Type II	EACH	4.000	4.000
0114	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0116	642.5001	Field Office Type B	EACH	0.500	0.500
0118	643.0420	Traffic Control Barricades Type III	DAY	1,980.000	1,980.000
0120	643.0705	Traffic Control Warning Lights Type A	DAY	3,080.000	3,080.000
0122	643.0900	Traffic Control Signs	DAY	1,540.000	1,540.000
0124	643.5000	Traffic Control	EACH	0.500	0.500
0126	645.0111	Geotextile Type DF Schedule A	SY	140.000	140.000
0128	645.0120	Geotextile Type HR	SY	340.000	340.000
0130	650.4500	Construction Staking Subgrade	LF	155.000	155.000
0132	650.5000	Construction Staking Base	LF	155.000	155.000
0136	650.6501	Construction Staking Structure Layout (structure) 02. B-14-228	EACH	1.000	1.000
0140	650.9911	Construction Staking Supplemental Control (project) 02. 3814-00-70	EACH	1.000	1.000
0142	650.9920	Construction Staking Slope Stakes	LF	329.000	329.000
0144	690.0150	Sawing Asphalt	LF	40.000	40.000
0146	715.0502	Incentive Strength Concrete Structures	DOL	786.000	786.000
0148	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 02. 10+00	EACH	1.000	1.000

CLEARING & GRUBBING

CATEGORY	STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
0010	9+00	-	11+00	RT	2	2
				TOTAL 0010	2	2

MILLING ASPHALT

CATEGORY	STATION	TO	STATION	LOCATION	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	REMARKS
0010	7+75	-	9+00	Mainline	4.5	274	South of Bridge
0010	10+85	-	11+35	Mainline	4.5	107	North of Bridge
				TOTAL 0010	9.0	381	

ASPHALT

CATEGORY	STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON	REMARKS
0010	7+75	-	9+85	MAINLINE & SHLDR WIDEN	29	91	
0010	7+75	-	9+00	MILL & OVERLAY	20	64	Two layers tack needed
0010	10+15	-	11+35	MAINLINE & SHLDR WIDEN	19	59	
0010	10+85	-	11+35	MILL & OVERLAY	8	26	Two layers tack needed
				TOTAL 0010	76	240	

NOTES:

* TACK COAT APPLICATION RATE = 0.07 GAL/SY

** ASSUMED ASPHALT AT 112 LBS/SY/IN

GUARDRAIL

CATEGORY	STATION	TO	STATION	LOCATION	204.0165 REMOVING GUARDRAIL LF	614.2300 MGS GUARDRAIL 3 LF	614.2350 MGS GUARDRAIL SHORT RADIUS LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2630 MGS GUARDRAIL SHORT RADIUS TERMINAL EACH	REMARKS
0010	8+27	-	9+82	RT	39	62.5	-	40	1	-	SE Quadrant
0010	8+87	-	9+90	LT	40	12.5	-	40	1	-	SW Quadrant
0010	10+10	-	11+10	RT	38	12.5	-	40	1	-	NE Quadrant
0010	10+18	-	11+43	LT	39	50.0	70	40	-	1	NW Quadrant
				TOTAL 0010	156	137.5	70	160	3	1	

ST. HELENA ROAD EARTHWORK SUMMARY

From/To Station	Location	Common Excavation (1)		Marsh Ex (Item 205.0400)	Unexpanded Fill	Expanded Fill (2)	Select Borrow (Item 208.1100) Marsh Ex Backfill	Riprap (In Fill)	Mass Ordinate +/- (3)	Waste	Borrow (Item 208.0100)	Comment:
		Cut	Unusable			Factor 1.30	Factor 1.50					
7+75 to 9+84	ST. HELENA ROAD	261	53	48	300	390	72	0	-182	-	182	
10+15 to 11+35	ST. HELENA ROAD	184	44	42	379	493	63	71	-282	-	282	
	TOTAL	542		90	679	883	135	71	-464	-	464	

1) Common Excavation is the Cut. Unusable excavation is existing pavement. Item number 205.0100.

2) Expanded Fill. Factor = 1.30; Expanded Fill = Unexpanded Fill * Fill Factor

3) The Mass Ordinate + or - Qty calculated for the side of the waterway. Plus quantity indicates an excess of material on the side of the waterway.

4) All quantities shown in CY.

BASE AGGREGATE

CATEGORY	STATION	TO	STATION	LOCATION	305.0110 TON	305.0120 BASE AGGREGATE DENSE 1 1/4- INCH TON	624.0100 WATER MGAL	REMARKS
0010	7+75	-	9+85	Mainline	50	580	9	SOUTH APPROACH
0010	10+15	-	11+35	Mainline	30	370	6	NORTH APPROACH
				TOTAL 0010	80	950	15	

MAINTENANCE AND REPAIR OF HAUL ROADS

CATEGORY	LOCATION	618.0100.02 MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) (02. 3814-00-70) EACH	REMARKS
0030	PROJECT-WIDE	1	
	TOTAL 0030	1	

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

EROSION CONTROL AND FINISHING ITEMS

					625.0500	628.1504	628.1520	628.2008	629.0210	630.0130	630.0200	630.0500
					SALVAGED		SILT FENCE	EROSION MAT	FERTILIZER	SEEDING	SEEDING	
					TOPSOIL	SILT FENCE	MAINTENANCE	URBAN CLASS I	TYPE B	MIXTURE NO. 30	TEMPORARY	SEED WATER
CATEGORY	STATION	TO	STATION	LOCATION	SY	LF	LF	SY	CWT	LB	LB	MGAL
0010	7+75	-	10+00	LT	121	203	406	121	0.2	5	7	5.5
0010	7+75	-	10+00	RT	231	223	446	231	0.3	7	11	8.5
0010	10+00	-	11+35	LT	156	38	76	156	0.2	5	7	5.5
0010	10+00	-	11+35	RT	62	139	278	62	0.1	3	5	3.4
0010	UNDISTRIBUTED				-	150	300	57	0.6	5	8	5.9
TOTAL 0010					570	753	1,506	627	1.4	25	38	28.8

TRAFFIC CONTROL

						643.0420	643.0705	643.0900	643.5000		
						TRAFFIC	TRAFFIC				
						CONTROL	CONTROL				
						BARRICADES	WARNING				
						TYPE III	LIGHTS TYPE A				
CATEGORY	LOCATION	DURATION	NO.	DAY	NO.	DAY	NO.	DAY	EACH	REMARKS	
0010	PER SDD 15C2	110.00	18	1,980	28	3,080	14	1,540		BRIDGE OUT & ROAD CLOSED	
0010	ST. HELENA RD		-	-	-	-	-	-	0.5	TO THRU TRAFFIC SIGNS	
TOTAL 0010				1,980		3,080		1,540	0.5		

CATEGORY	STATION	TO	STATION	LOCATION													
0010	9+00	-	10+85	ST. HELENA ROAD	1	0.5	970	4	4	0.5	1						
TOTAL 0010					1	0.5	970	4	4	0.5	1						

STAKING

						650.4500	650.5000	650.6501.02	650.9911.02	650.9920
								CONSTRUCTION	CONSTRUCTION	
								STAKING	STAKING	
								STRUCTURE	SUPPLEMENTAL	
								LAYOUT	CONTROL	
								(STRUCTURE)	(PROJECT) (02.	CONSTRUCTION
								02. B-14-228)	3814-00-70)	STAKING SLOPE
CATEGORY	STATION	TO	STATION	LOCATION		LF	LF	EACH	EACH	LF
0010	7+75	-	11+35	MAINLINE	155	155		-	1	329
TOTAL 0010					155	155		0	1	329
0020	9+00	-	10+85	B-14-0228	-	-		1	-	-
TOTAL 0020					0	0		1	0	0
PROJECT TOTAL						155	155	1	1	329

SIGNS

						634.0614	637.2230	638.2602	638.3000		
						POSTS WOOD			REMOVING		
						4X6-INCH X 14-	SIGNS TYPE II	REMOVING	SMALL SIGN		
						FT	REFLECTIVE F	SIGNS TYPE II	SUPPORTS		
CATEGORY	LOCATION					EACH	SF	EACH	EACH	REMARKS	
0010	S OF BRIDGE					1	3	1	1	W5-52R: CLEARANCE STRIPER DOWN	
0010	S OF BRIDGE					1	3	1	1	W5-52L: CLEARANCE STRIPER DOWN	
0010	N OF BRIDGE					1	3	1	1	W5-52L: CLEARANCE STRIPER DOWN	
0010	N OF BRIDGE					1	3	1	1	W5-52R: CLEARANCE STRIPER DOWN	
TOTAL 0010						4	12	4	4		

PROJECT-WIDE ITEMS

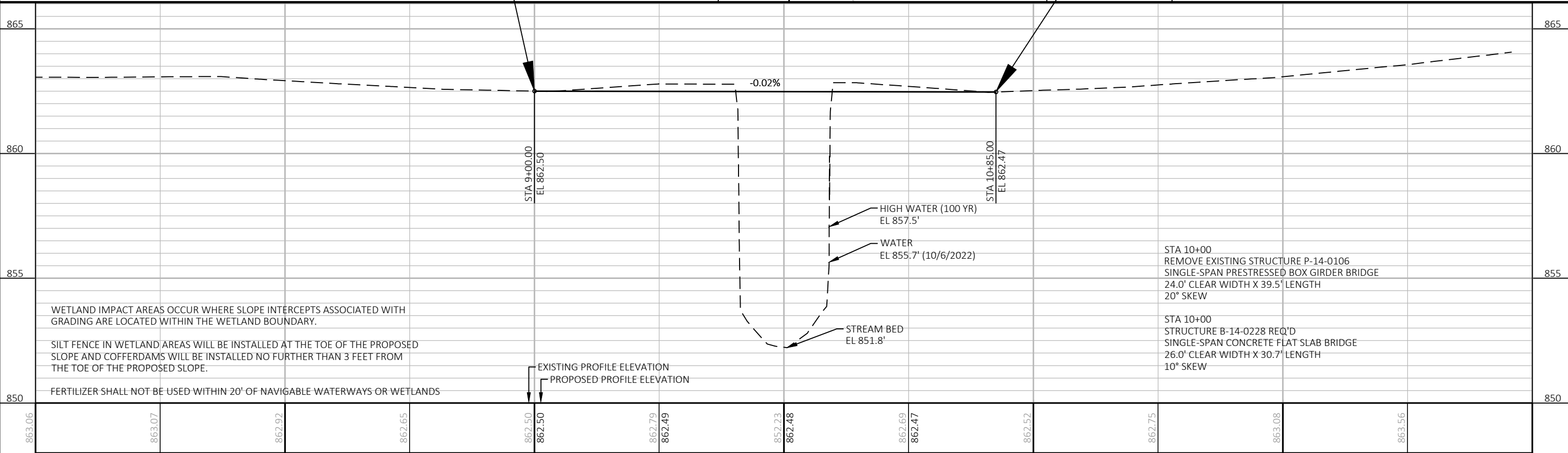
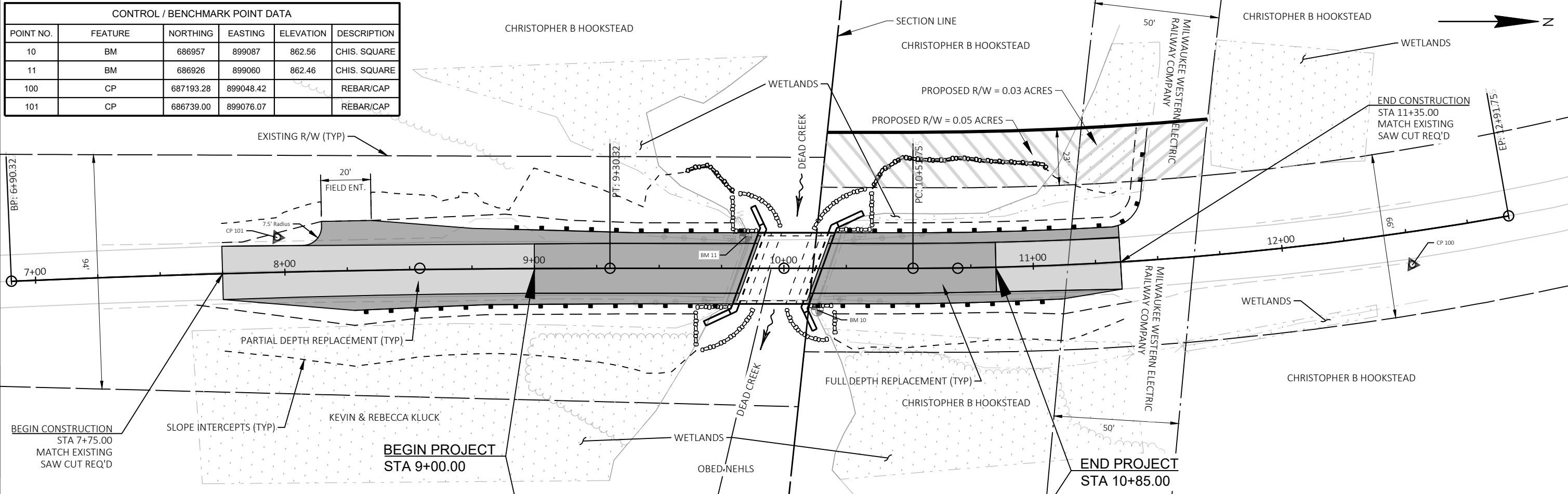
213.0100.02	619.1000	623.0200	628.1905	628.1910	642.5001	999.2000.S.02
FINISHING				MOBILIZATIONS		INSTALLING AND
ROADWAY		DUST CONTROL	MOBILIZATIONS	EMERGENCY		MAINTAINING BIRD
(PROJECT) (02.		SURFACE	EROSION	EROSION	FIELD OFFICE	DETERRENT SYSTEM
3814-00-70)	MOBILIZATION	TREATMENT	CONTROL	CONTROL	TYPE B	(STATION) (02. 10+00)
EACH	EACH	SY	EACH	EACH	EACH	EACH
<u>1</u>	<u>0.5</u>	<u>970</u>	<u>4</u>	<u>4</u>	<u>0.5</u>	<u>1</u>
1	0.5	970	4	4	0.5	1

SAWING ASPHALT

						690.0150		
						SAWING		
						ASPHALT		
CATEGORY	STATION	TO	STATION	LOCATION		LF	REMARKS	
0010	9+00	-	10+85	MAINLINE	40		BEGIN/END	
TOTAL 0010					40			

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

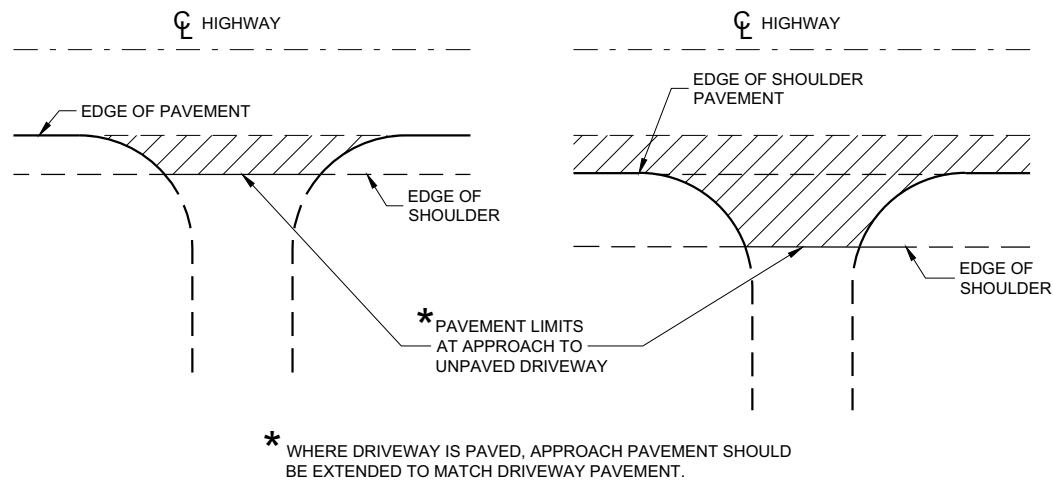
CONTROL / BENCHMARK POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
10	BM	686957	899087	862.56	CHIS. SQUARE
11	BM	686926	899060	862.46	CHIS. SQUARE
100	CP	687193.28	899048.42		REBAR/CAP
101	CP	686739.00	899076.07		REBAR/CAP



PROJECT NO:	3814-00-70	HWY:	ST HELENA RD	COUNTY:	DODGE	PLAN AND PROFILE:	DEAD CREEK BRIDGE	SHEET	E
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Standard Detail Drawing List

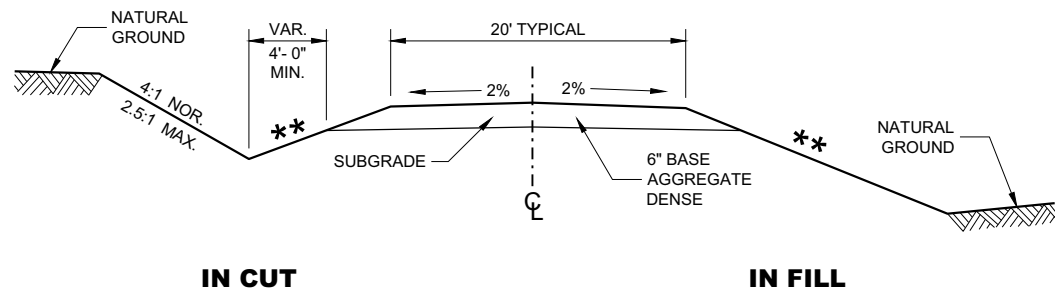
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E09-06	SILT FENCE
12A03-10	NAME PLATE (STRUCTURES)
13C19-03	HMA LONGITUDINAL JOINTS
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL 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)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B53-02A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C11-10A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

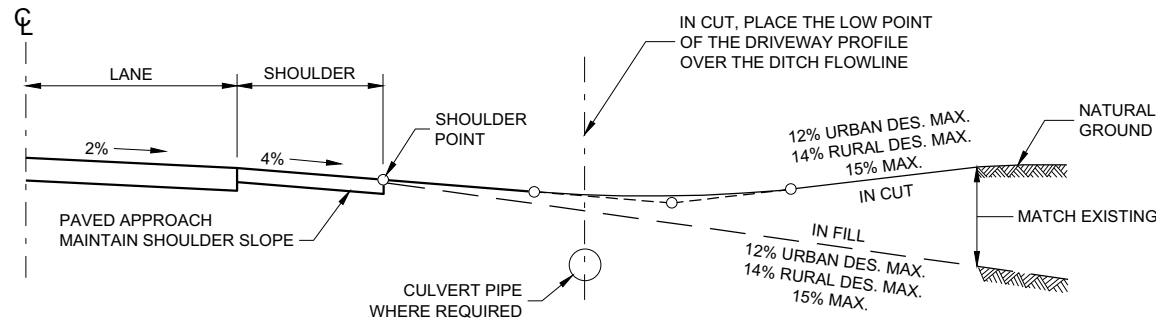
**RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB AND GUTTER OR SIDEWALK)**



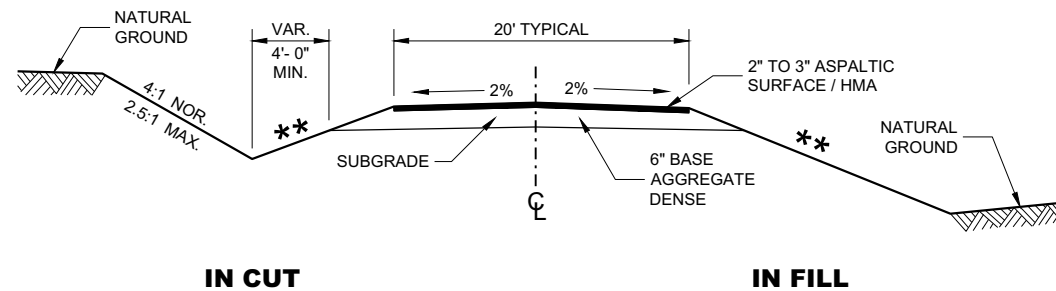
**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
AGGREGATE SURFACE**

****** 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

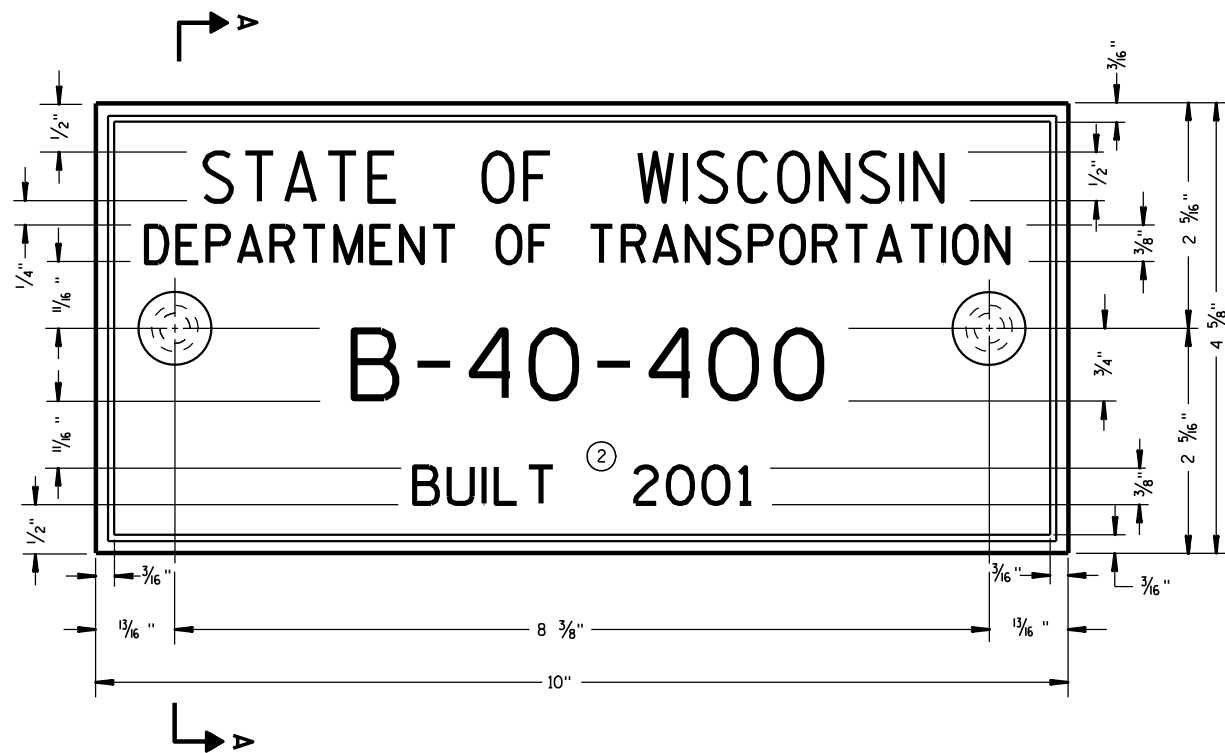
APPROVED
December 2017
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



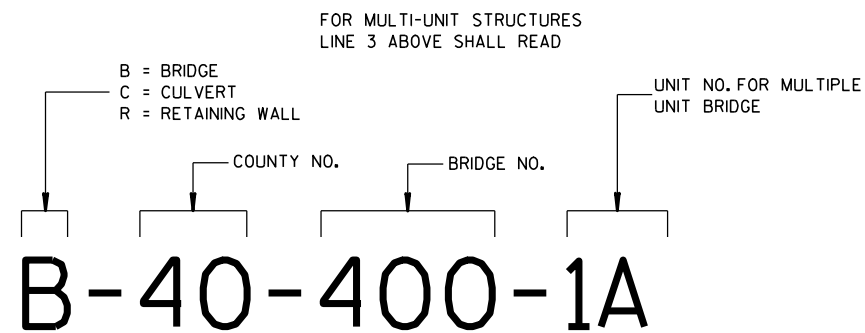
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS 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.



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



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



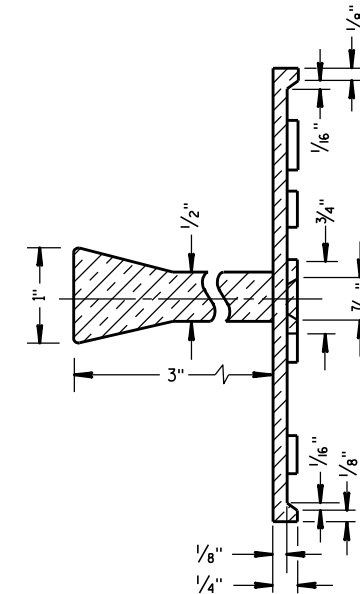
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

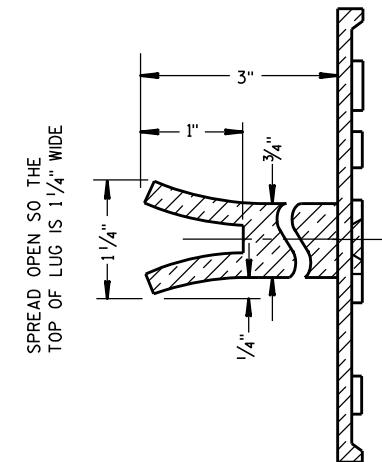
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

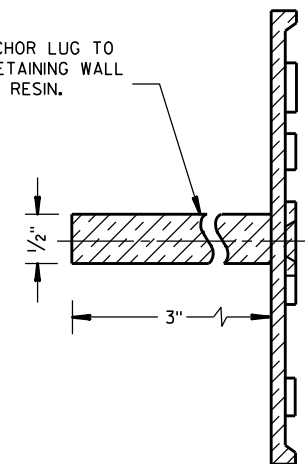


SECTION A-A



ALTERNATE LUG

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



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

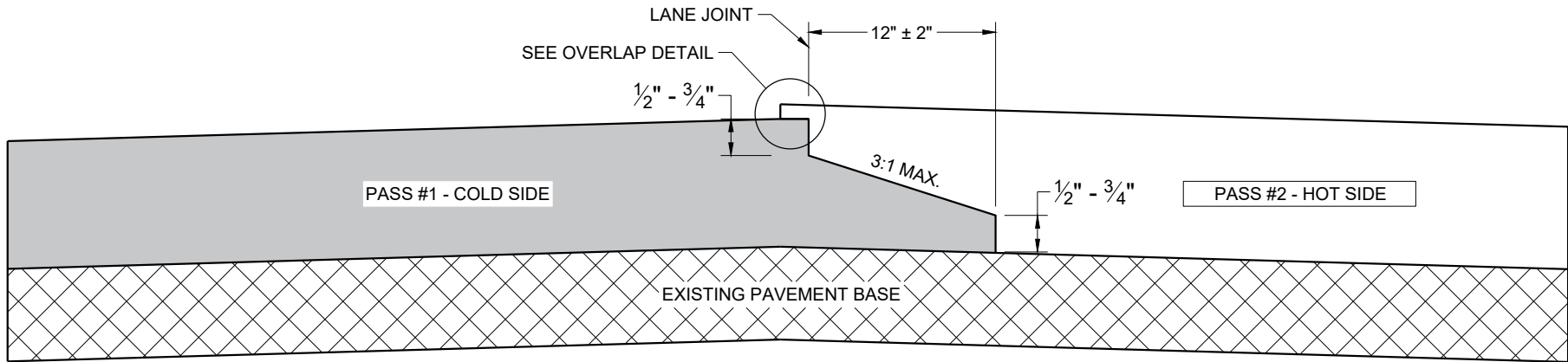
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

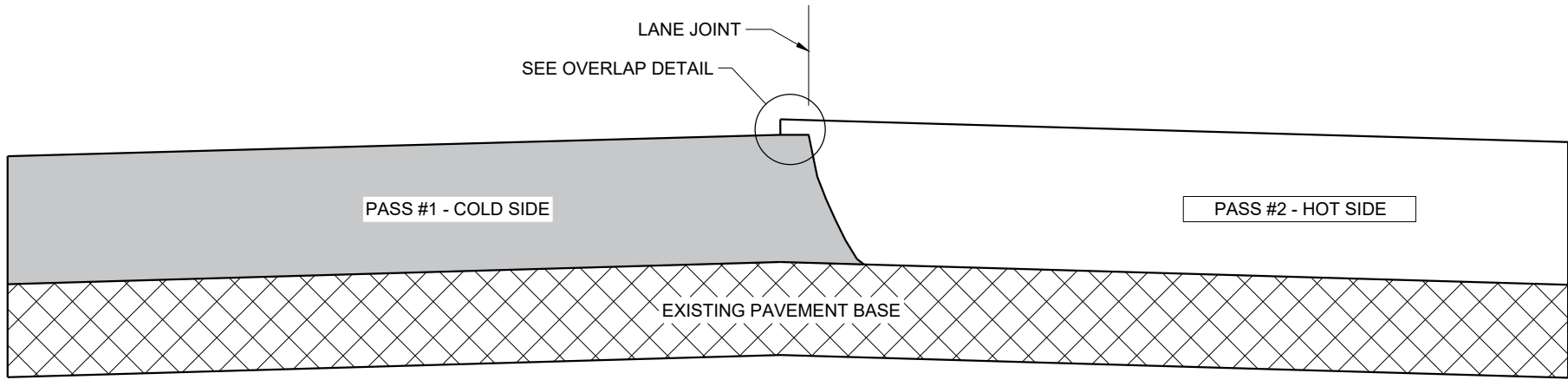
3/26/10
DATE

FHWA

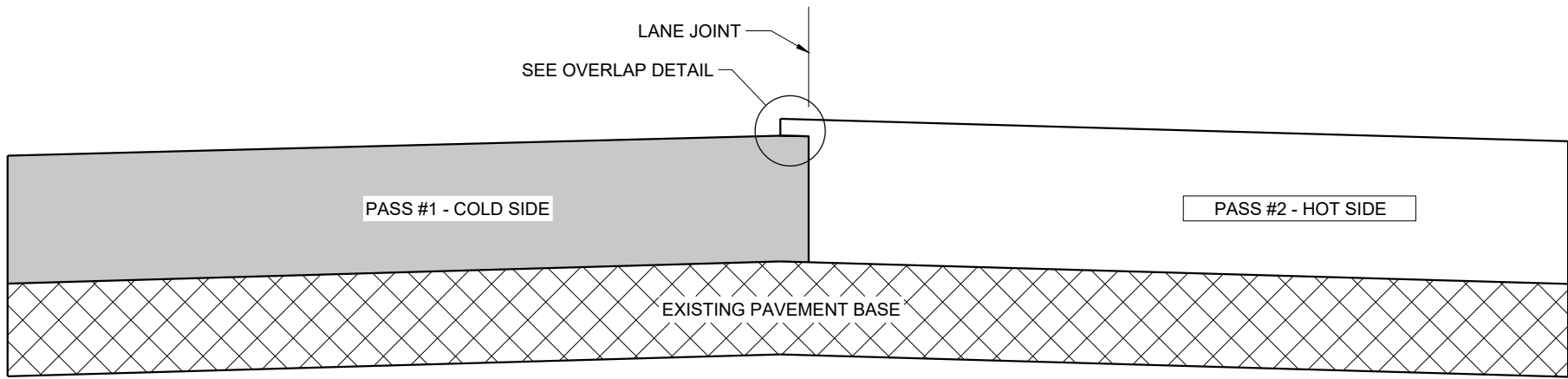
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

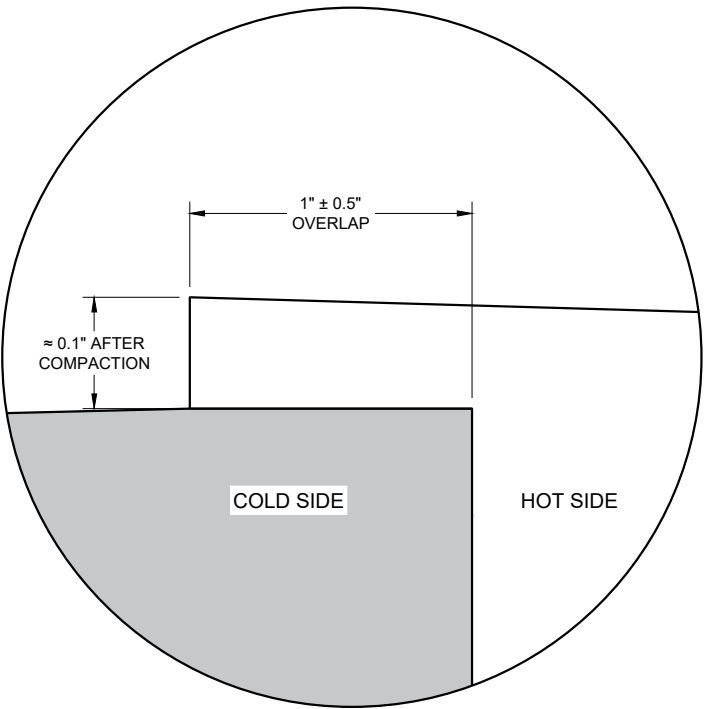
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



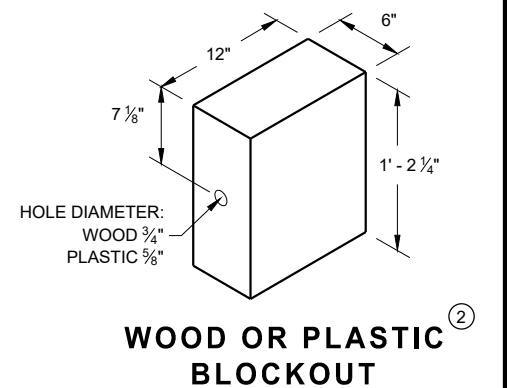
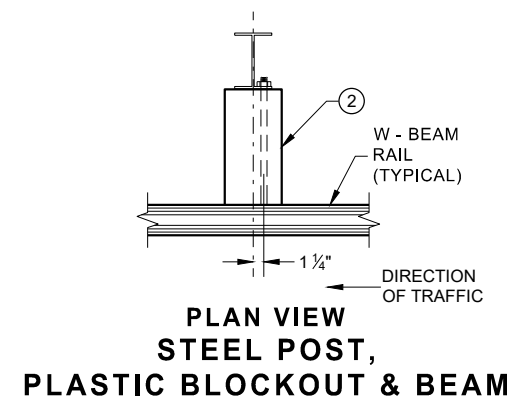
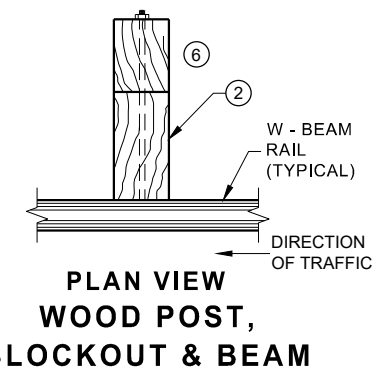
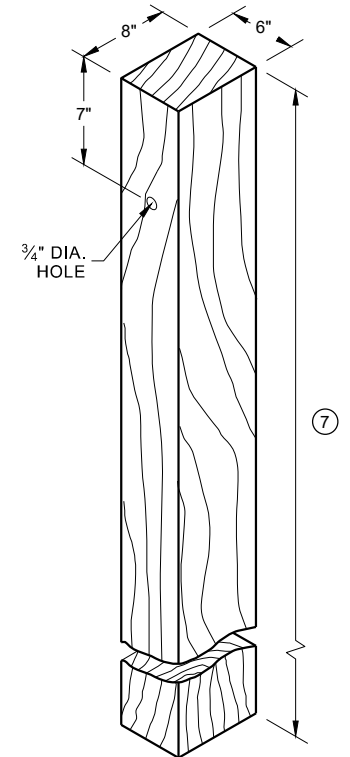
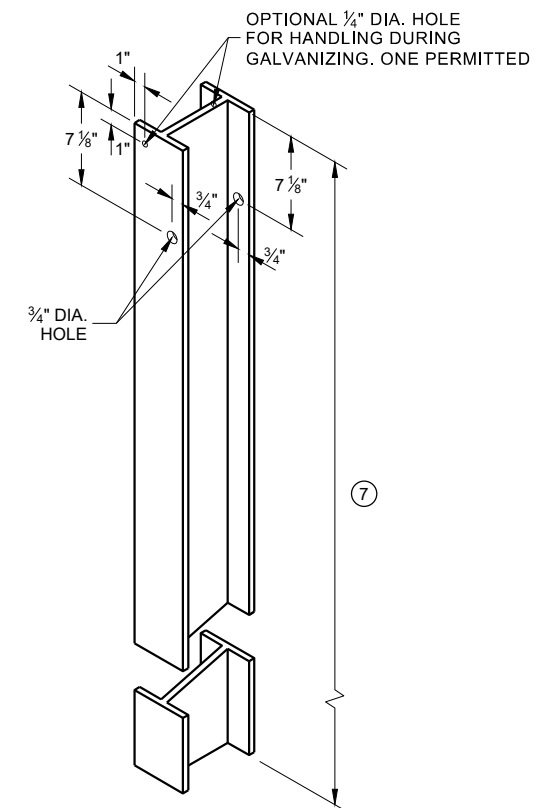
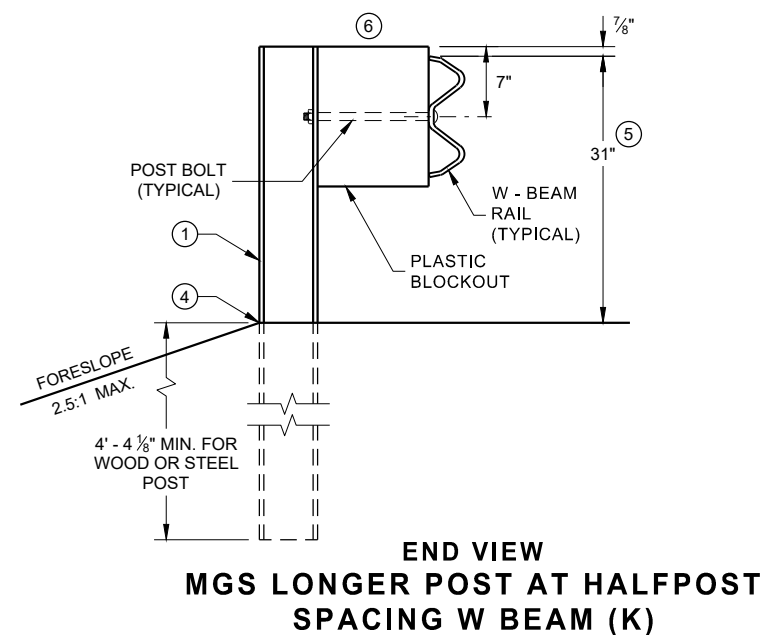
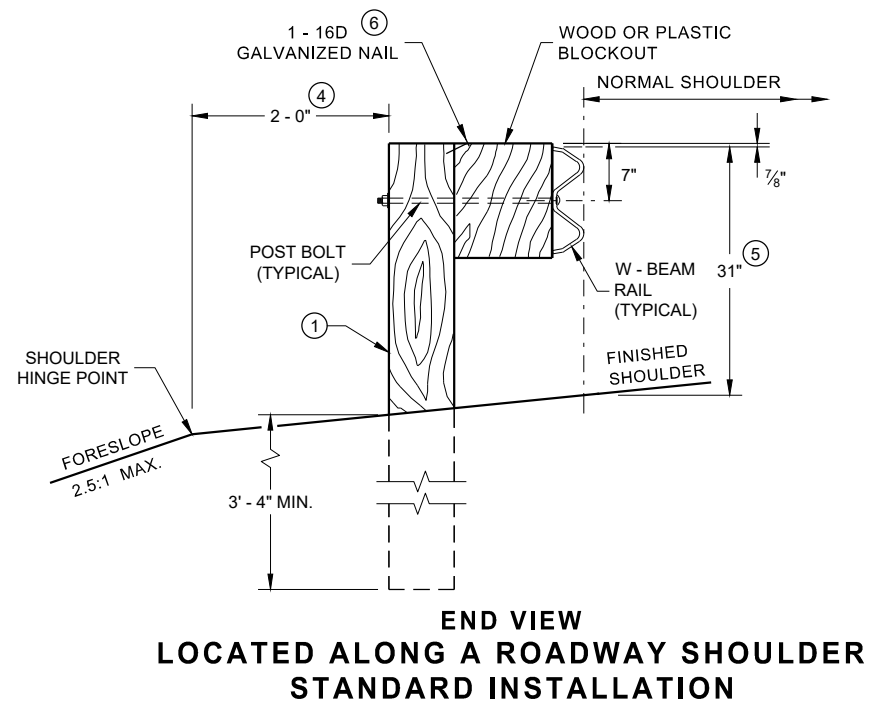
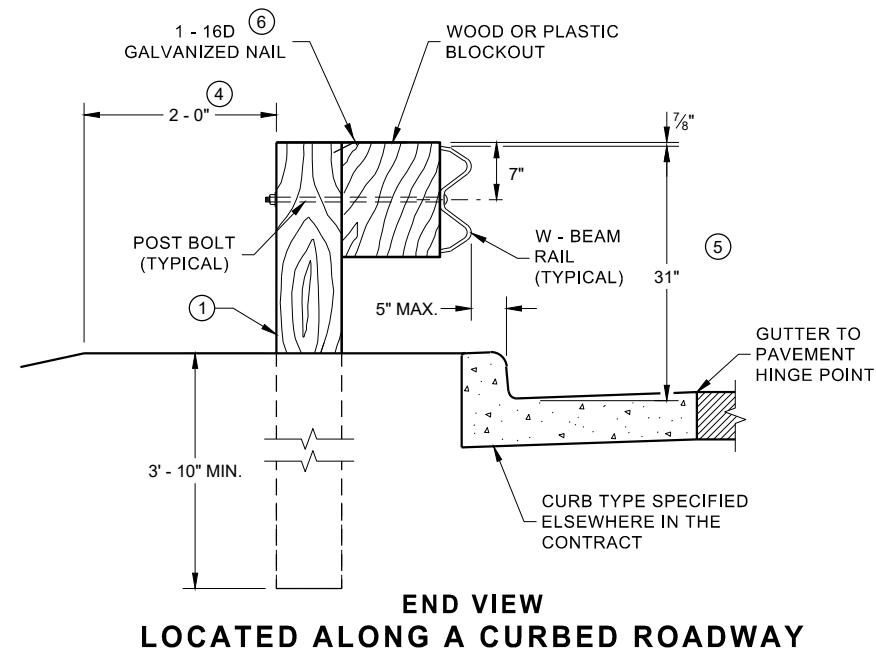
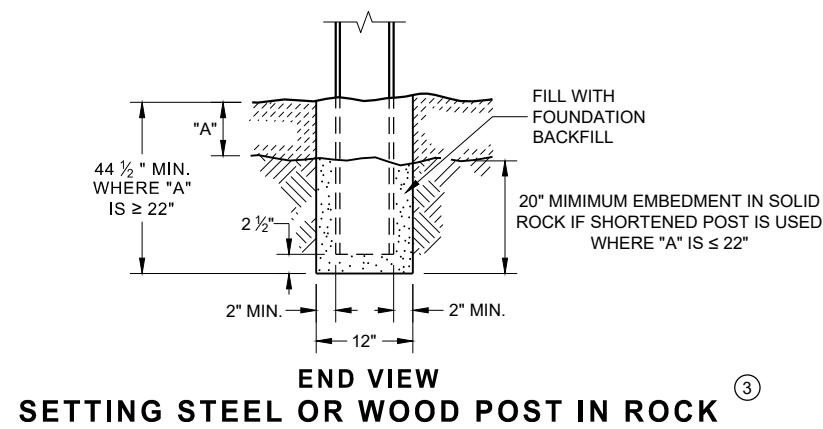
OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

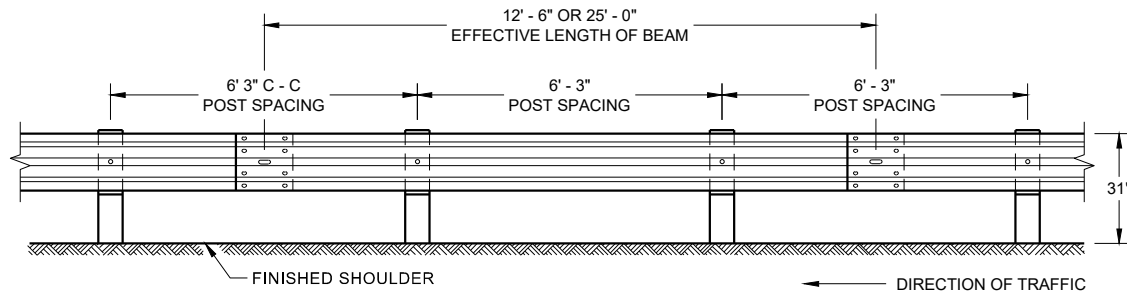
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER
FHWA

- 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 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".

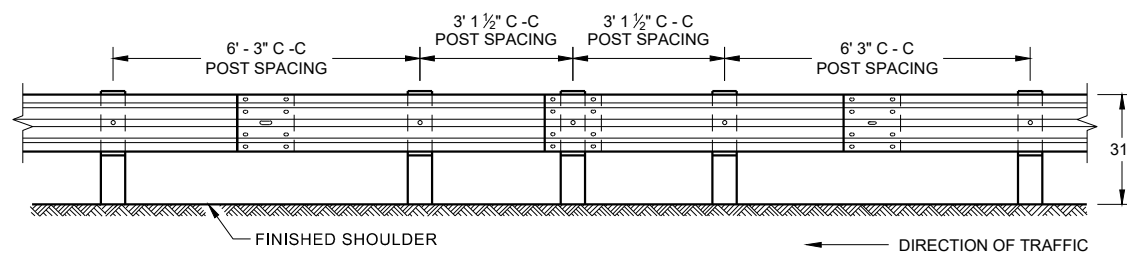


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

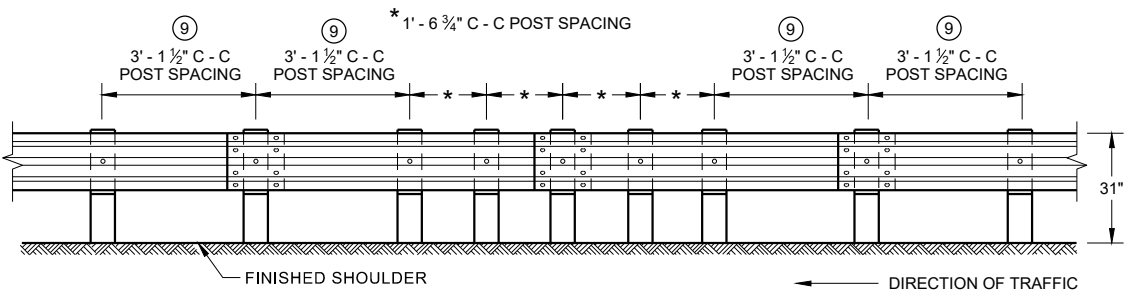
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



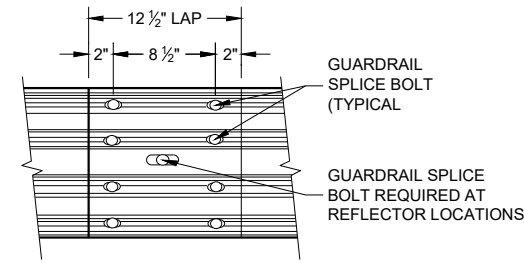
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



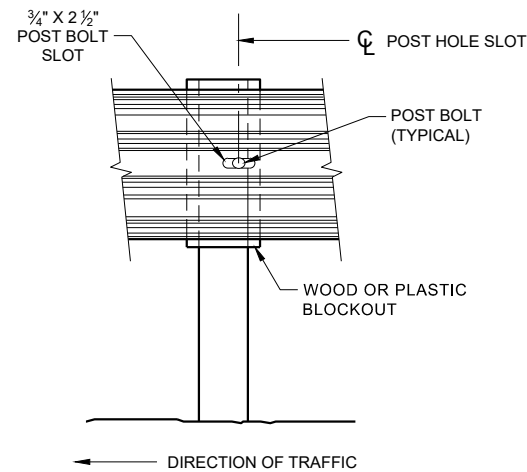
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



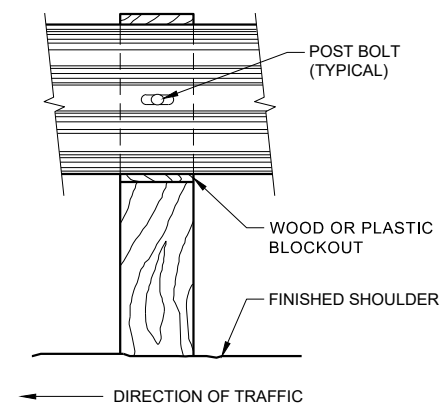
**FRONT VIEW
QUARTER POST SPACING (QS)**



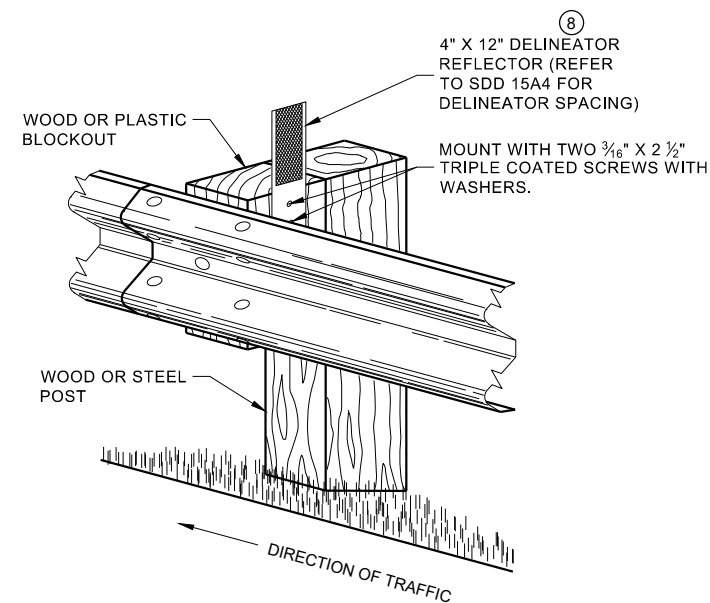
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



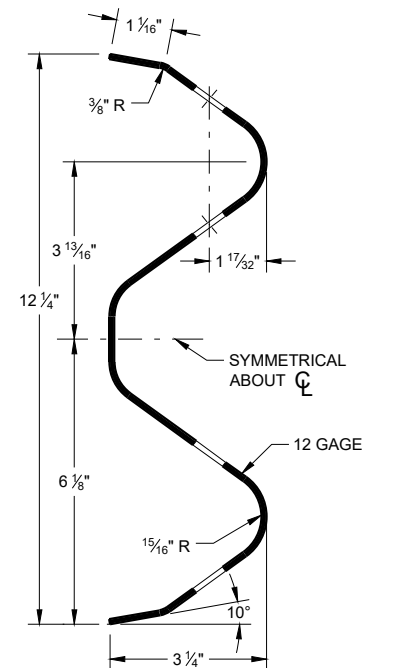
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

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 3/8" 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.

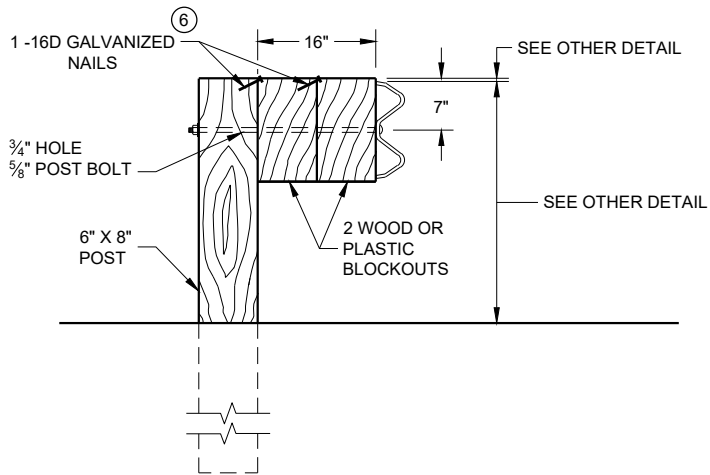
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

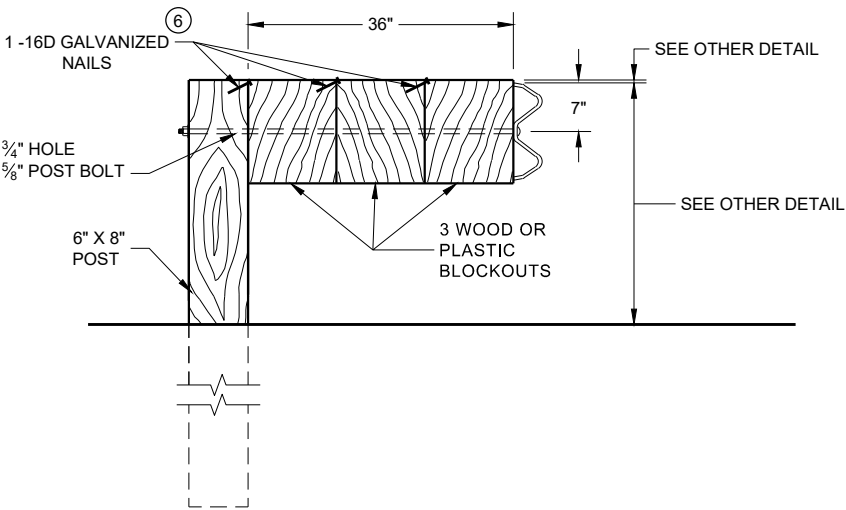
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

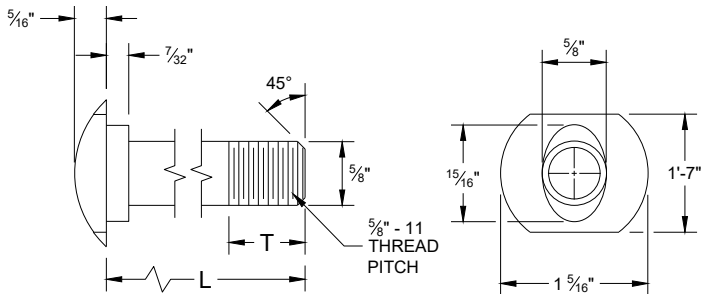
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

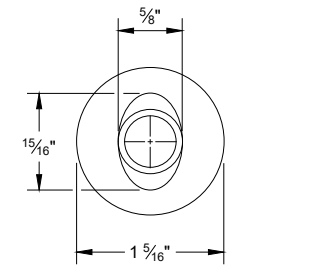
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT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

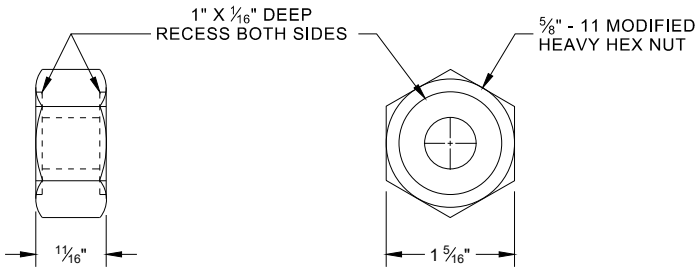


POST BOLT TABLE

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"

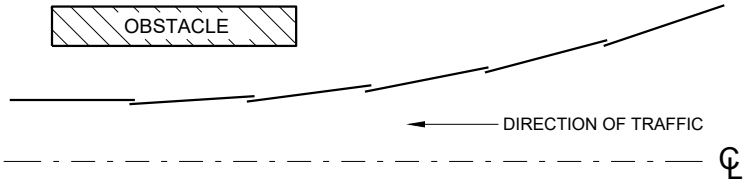


ALTERNATE BOLT HEAD

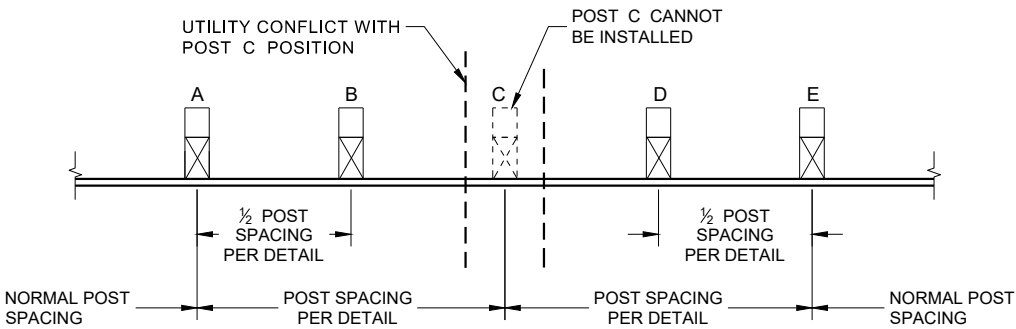


POST BOLT, SPLICE BOLT
AND RECESS NUT

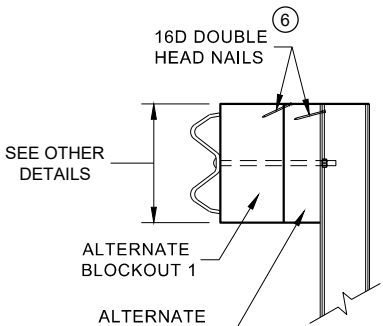
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



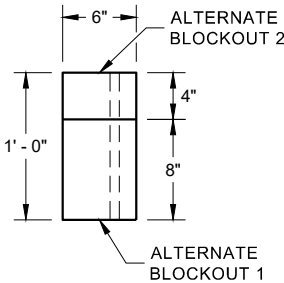
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

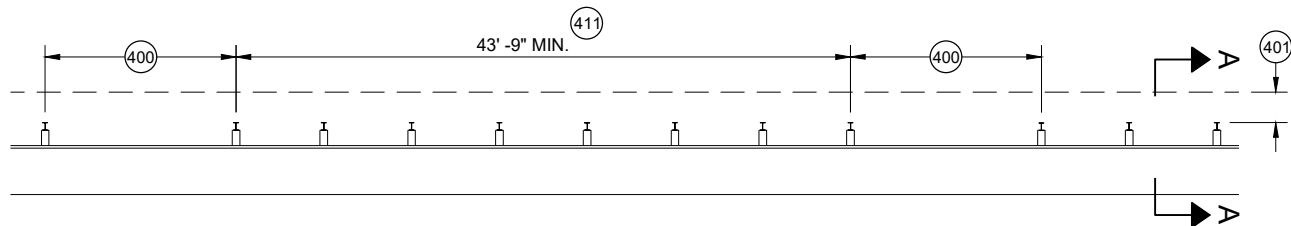


PLAN VIEW

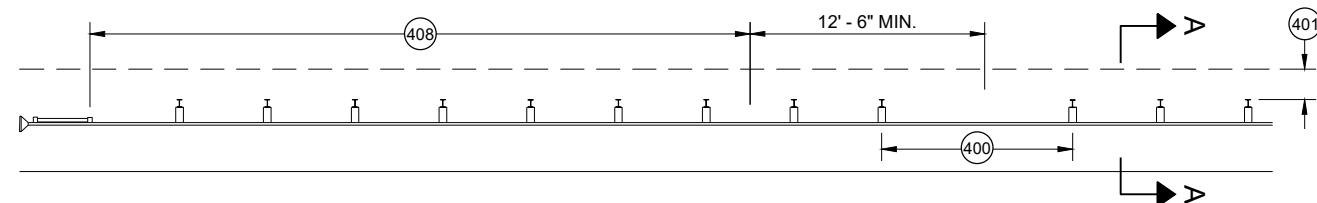
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

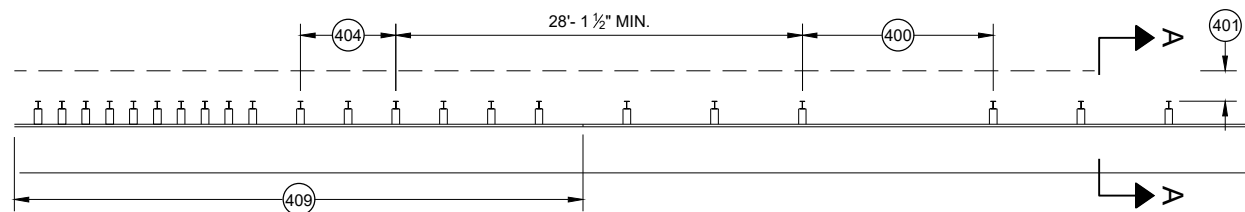
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



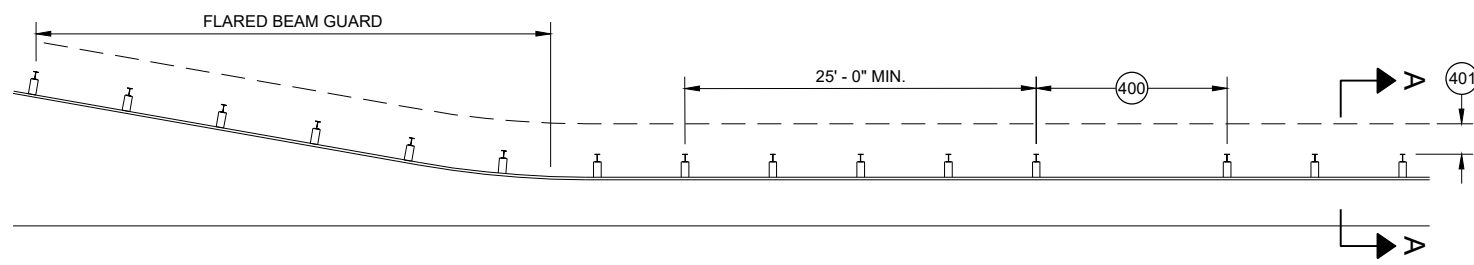
MISSING POST IN MGS GUARDRAIL



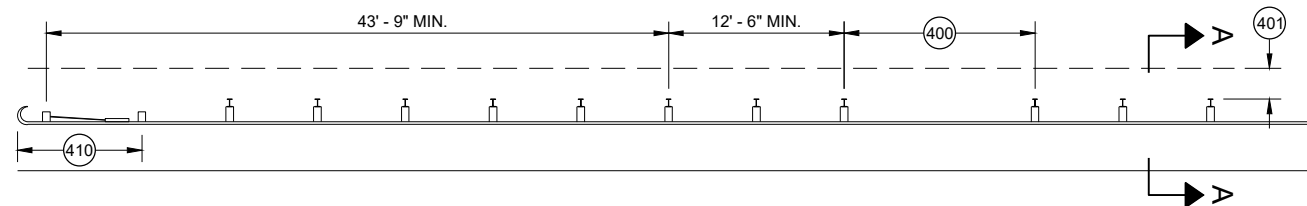
MISSING POST IN MGS GUARDRAIL NEAR EAT



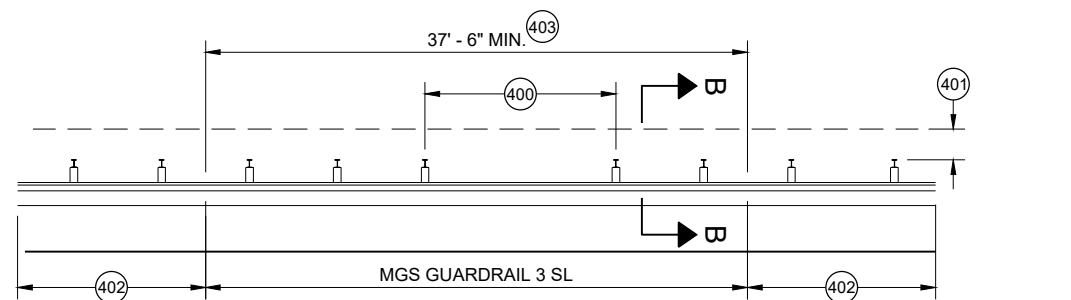
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

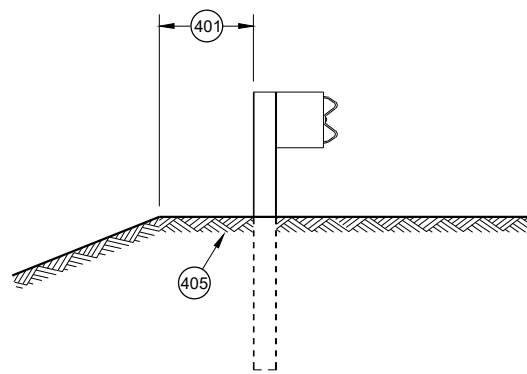


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

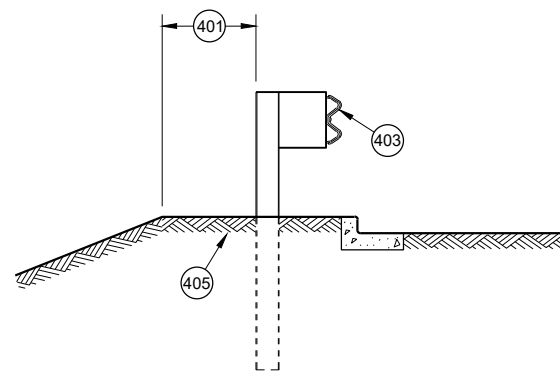


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (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	

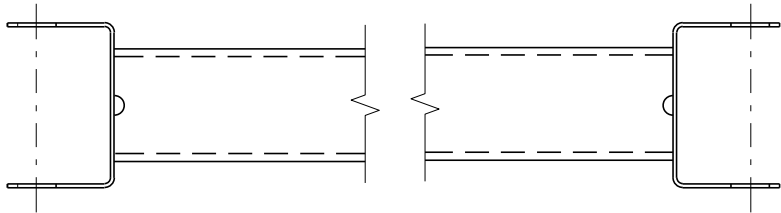
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. 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 3½" 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.

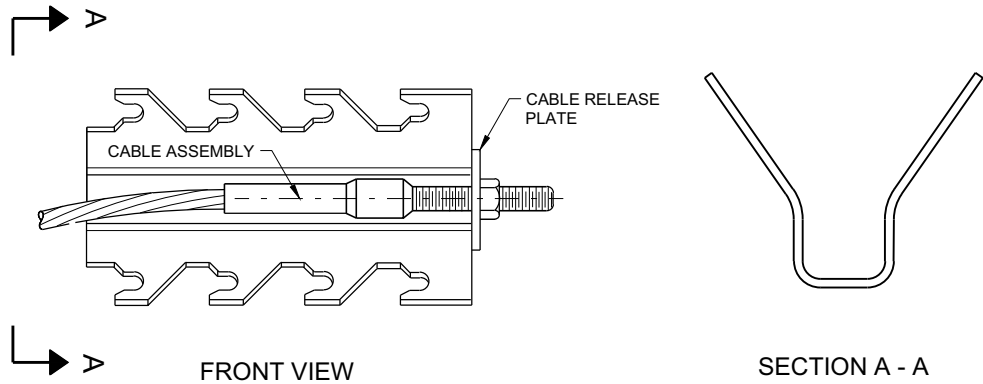


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

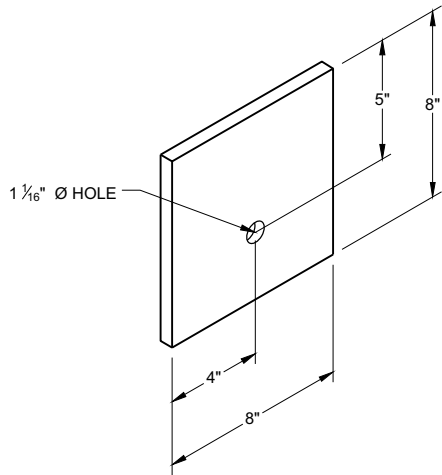


GENERIC GROUND STRUT ⁹ ^E

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



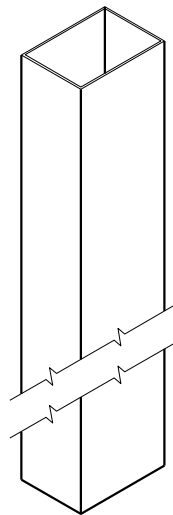
GENERIC ANCHOR CABLE BOX ⁹ ^E



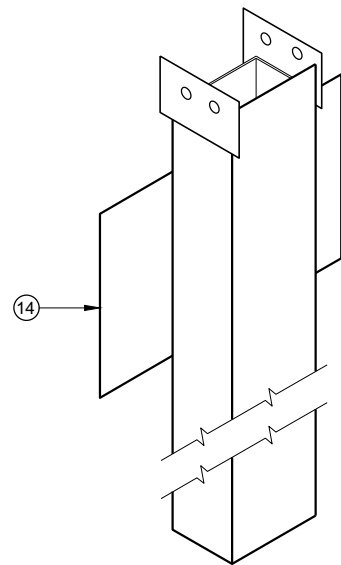
BEARING PLATE ⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

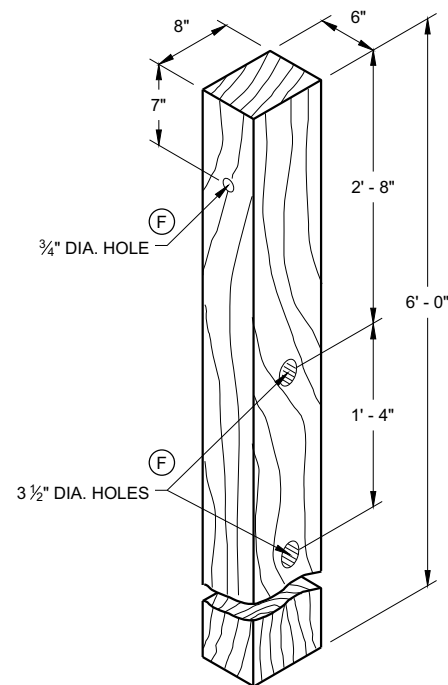
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



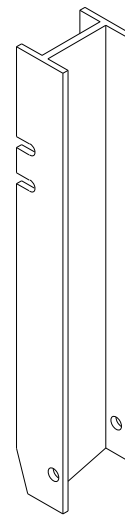
UPPER POST NO. 1^① (E)



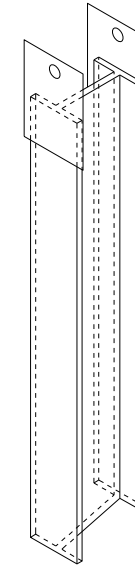
LOWER POST NO. 1^② (E)



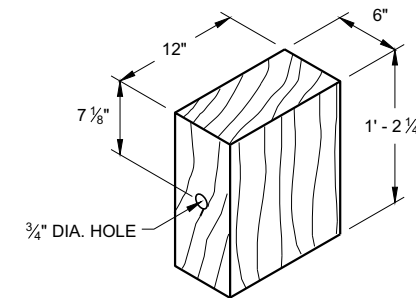
WOOD CRT POST^③ (E)
POSTS NUMBER 3-9



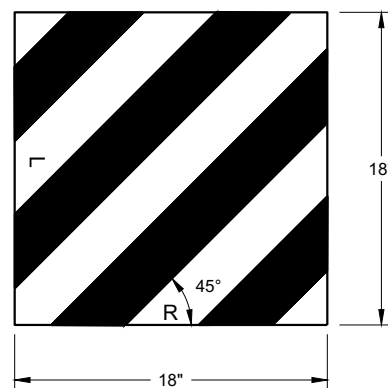
UPPER POST NO. 2^⑮ (E)



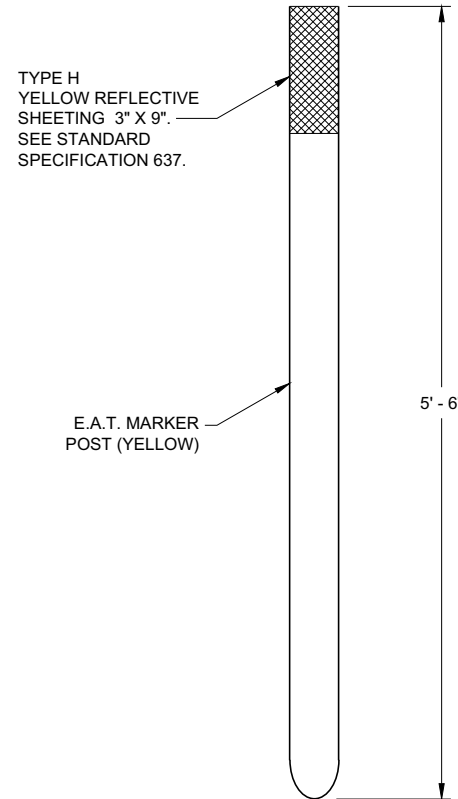
LOWER POST NO. 2^⑯ (E)



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



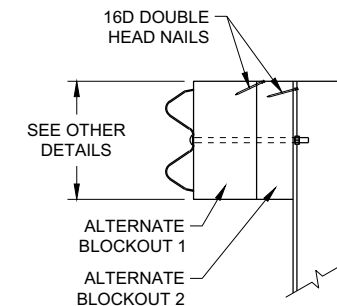
W5 - 59
REFLECTIVE SHEETING DETAIL^⑤



FRONT VIEW
E.A.T. MARKER POST^⑬

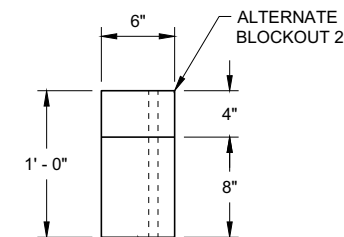


SIDE VIEW



SIDE VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

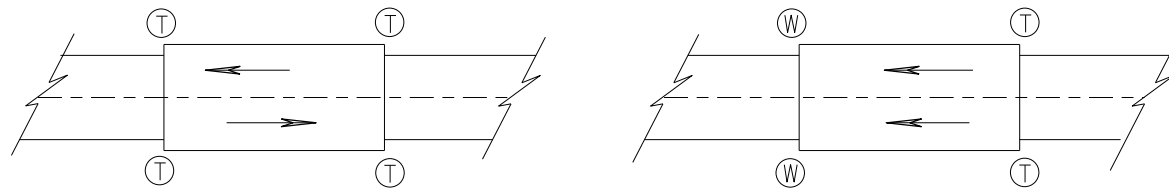


TOP VIEW

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

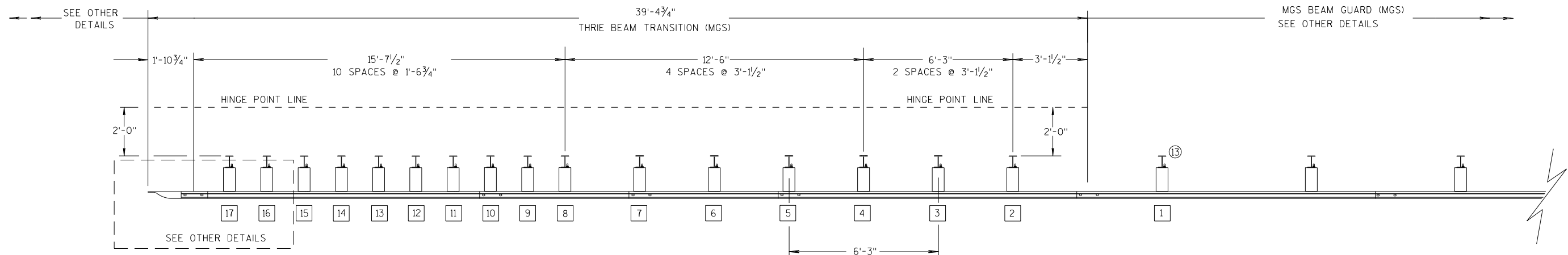
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

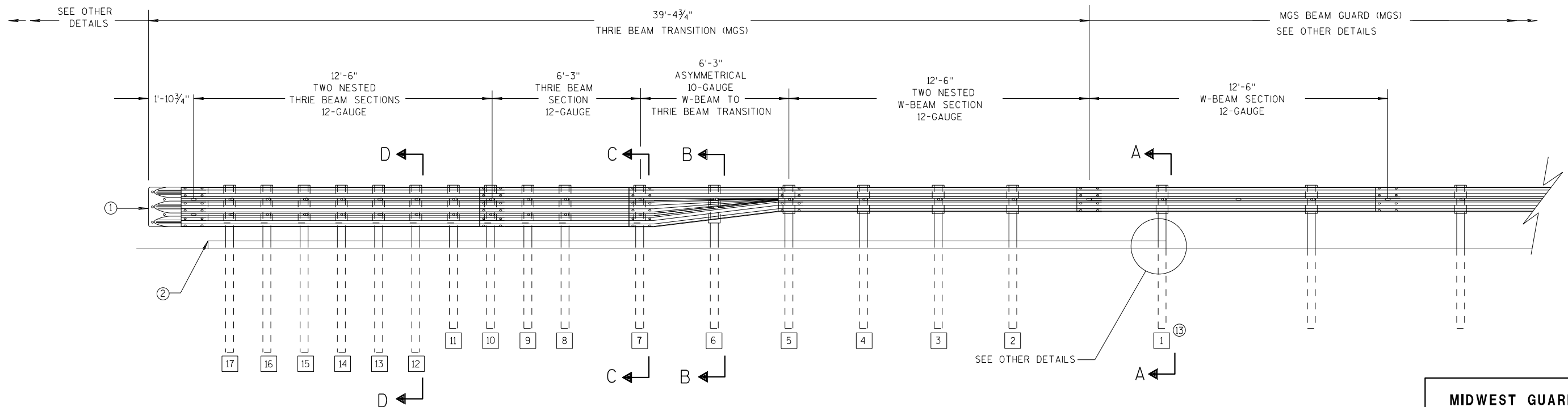
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

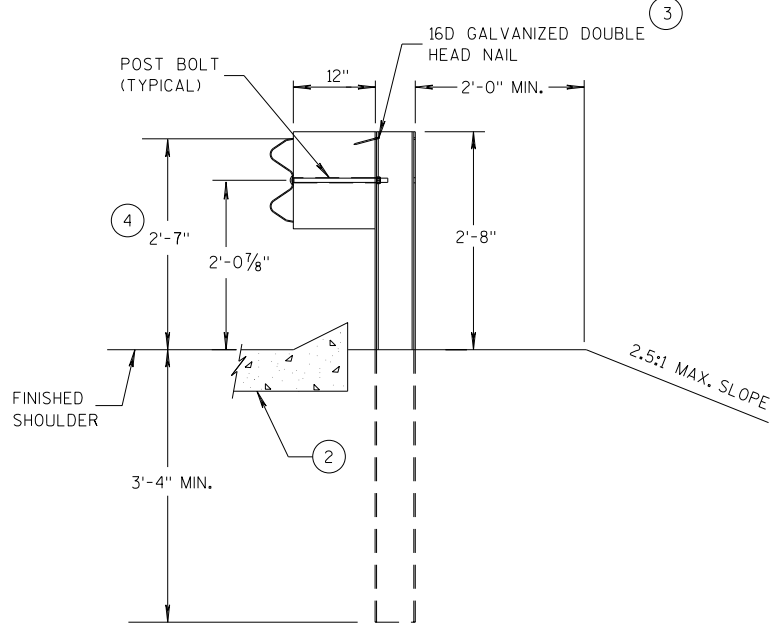
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

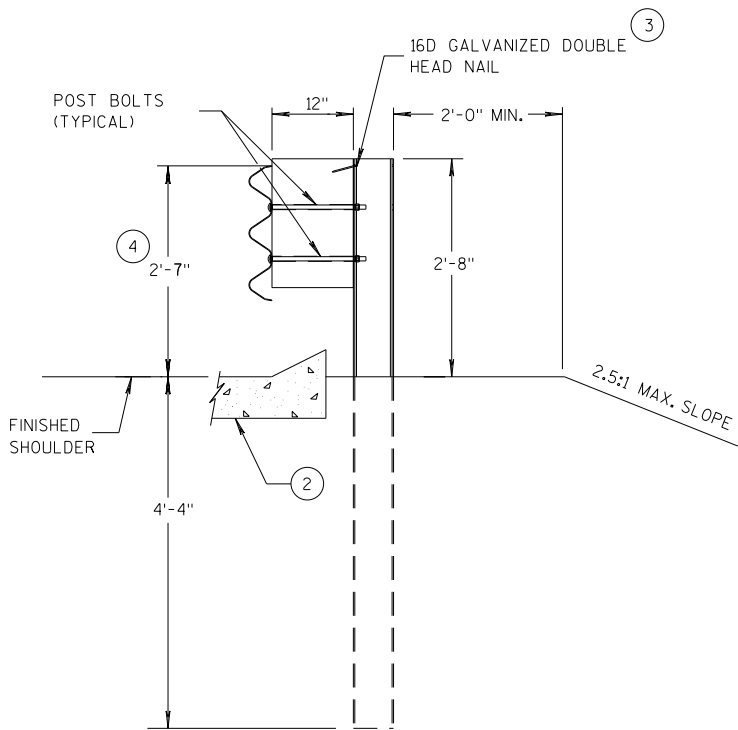
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

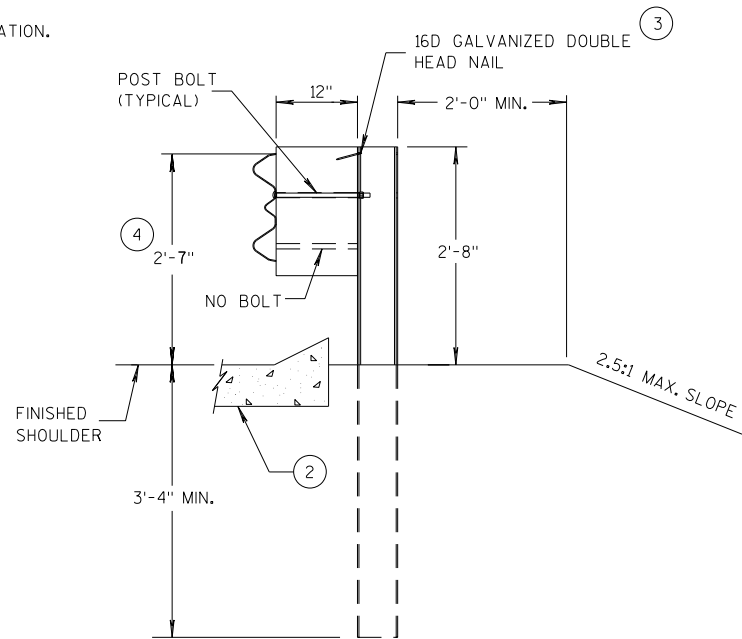
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



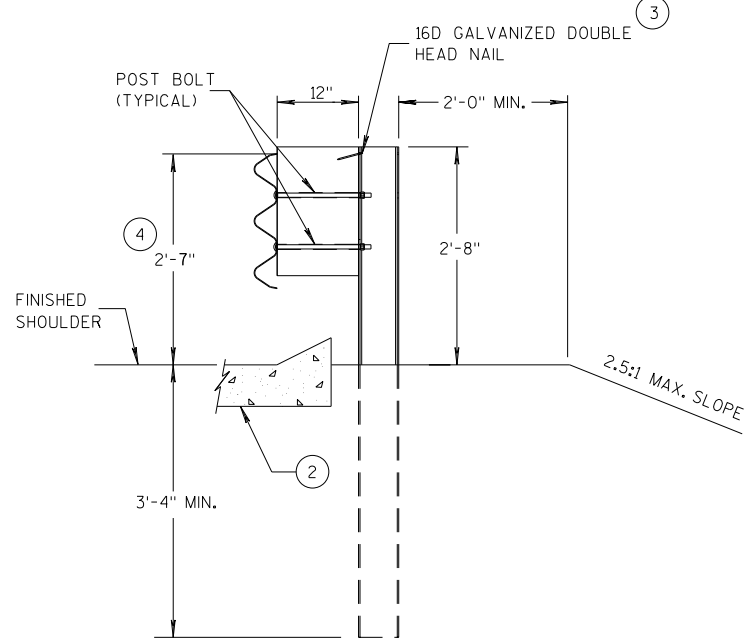
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

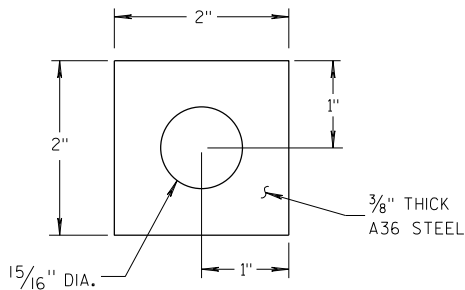
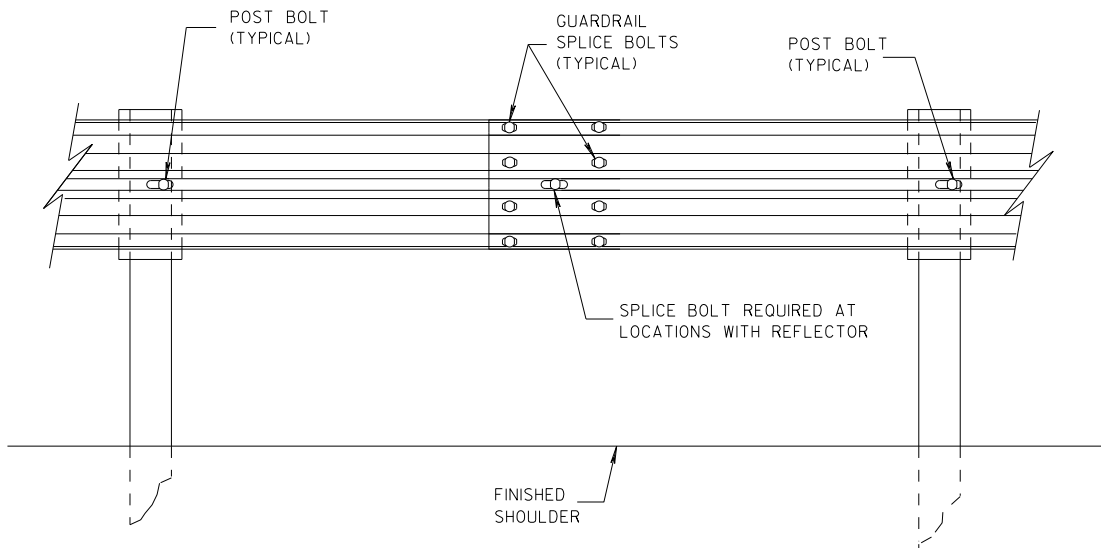
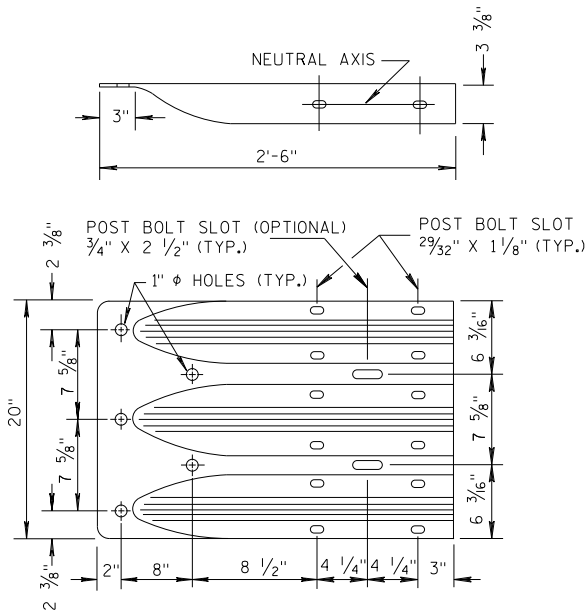


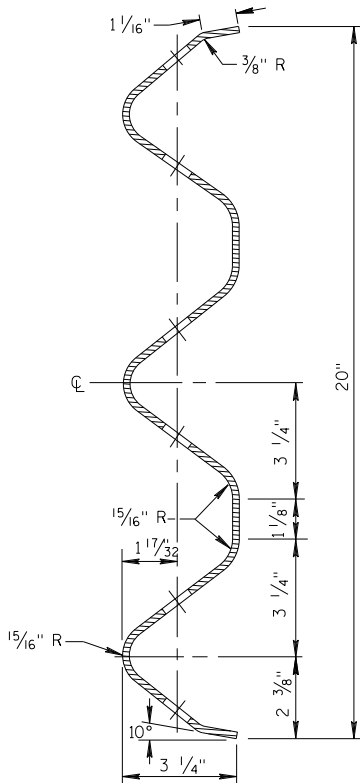
PLATE WASHER DETAIL



SPlice DETAIL



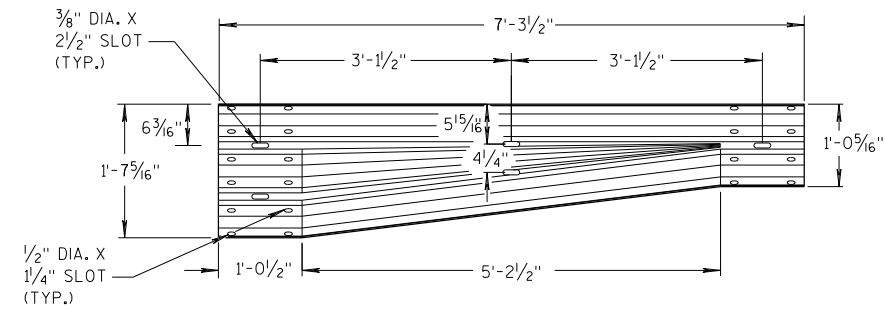
THRIE BEAM
TERMINAL CONNECTOR



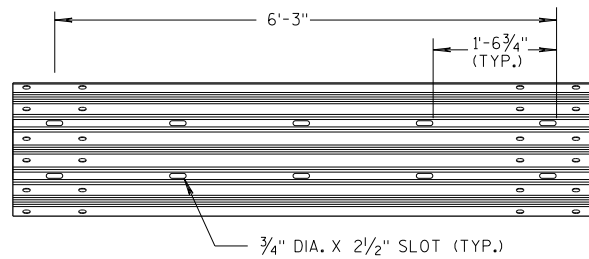
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

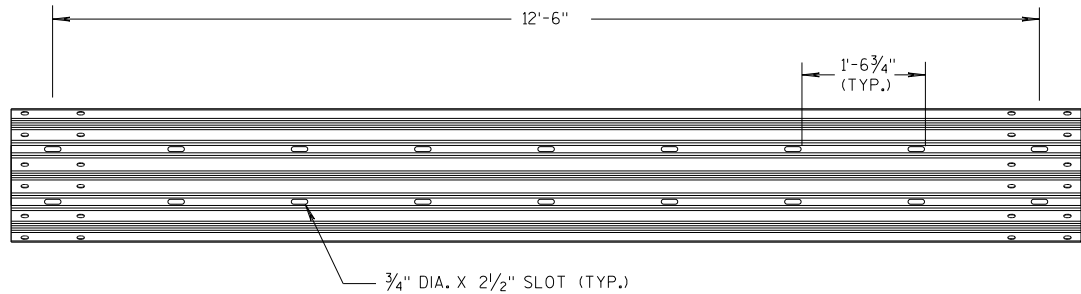
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



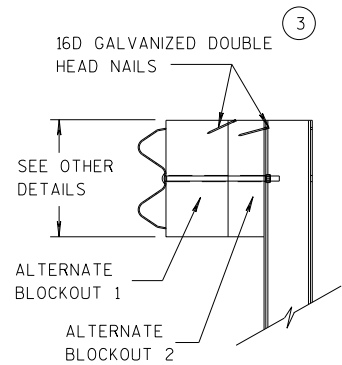
W-BEAM TO THRIE BEAM TRANSITION SECTION



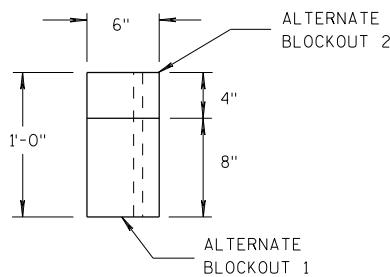
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

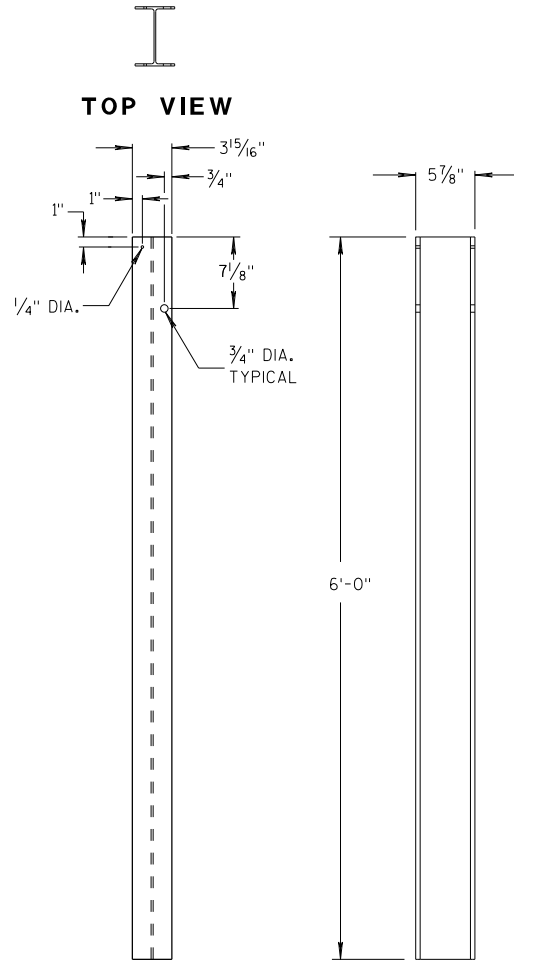


SIDE VIEW



TOP VIEW

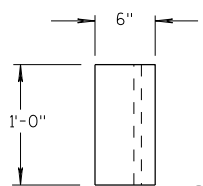
ALTERNATE WOOD BLOCKOUT DETAIL



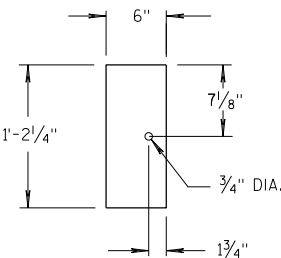
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

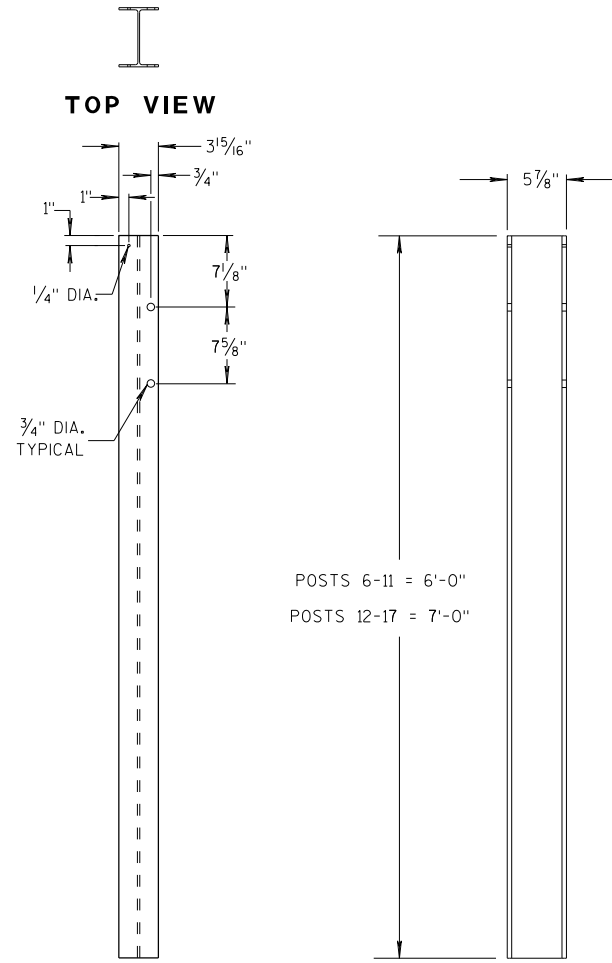


TOP VIEW



FRONT VIEW

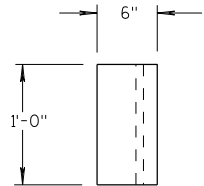
BLOCKOUT POSTS 1-5



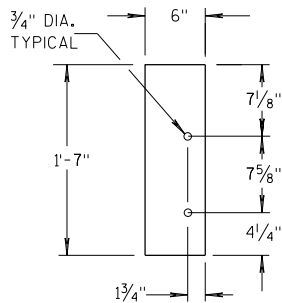
FRONT VIEW

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.

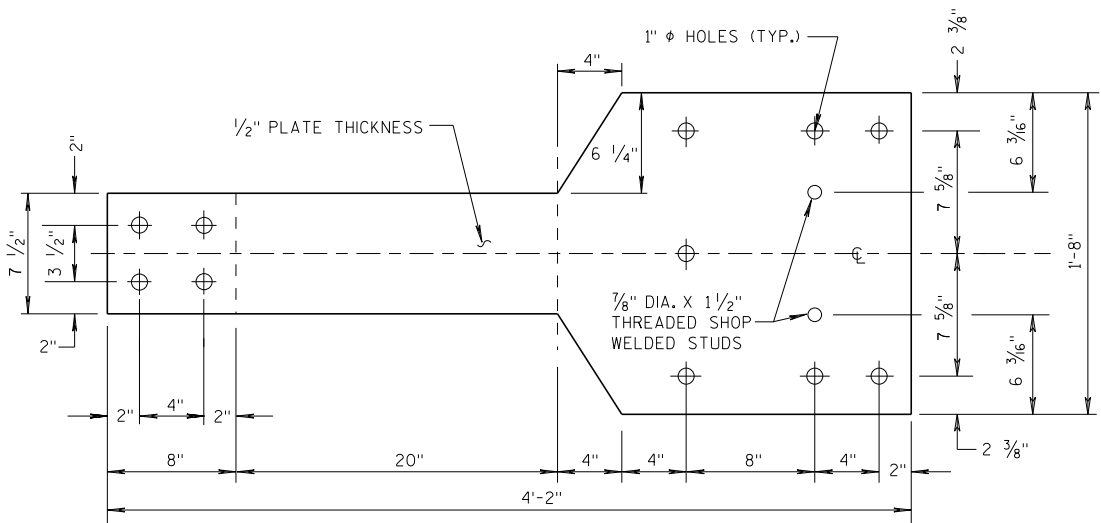
⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

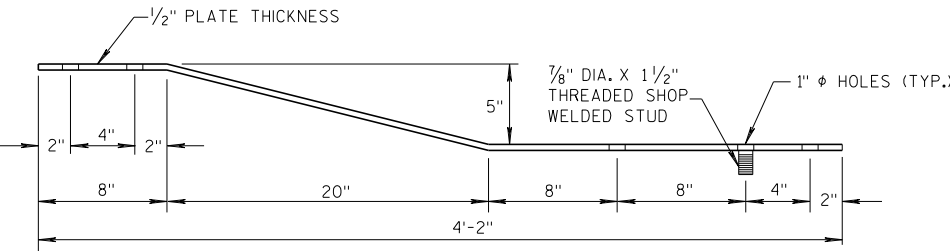
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

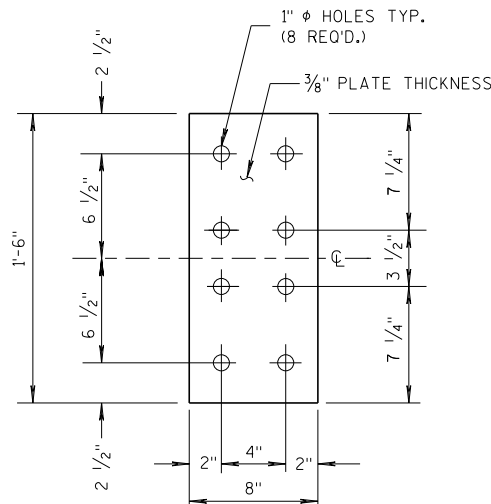
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



FRONT VIEW

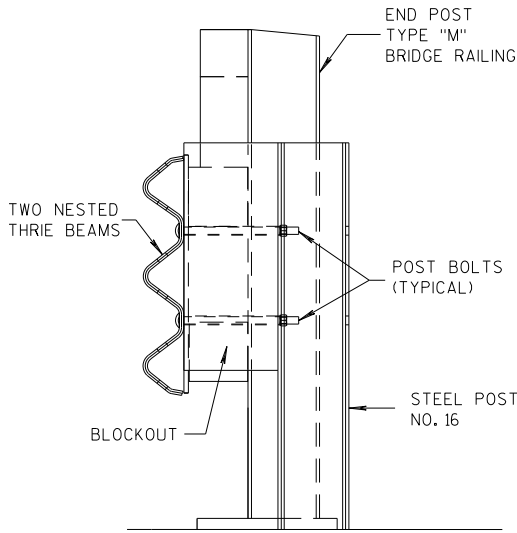


PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"

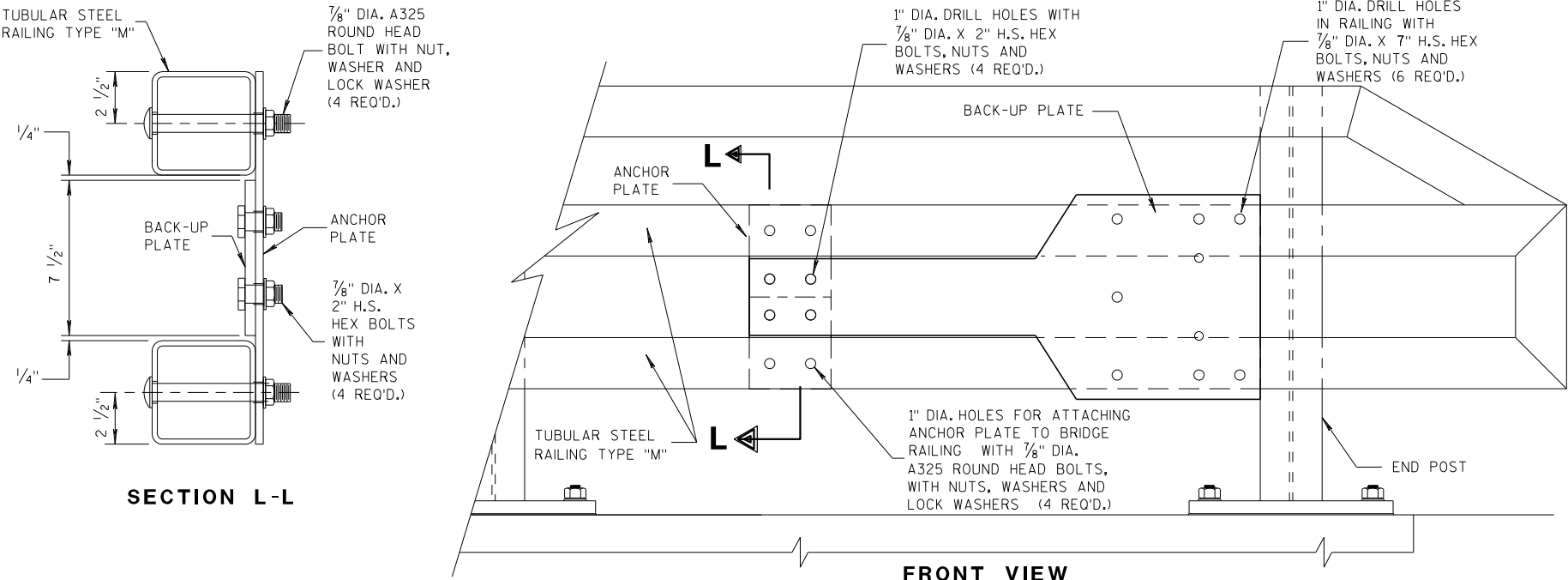


FRONT VIEW

ANCHOR
PLATE DETAIL,
TYPE "M"



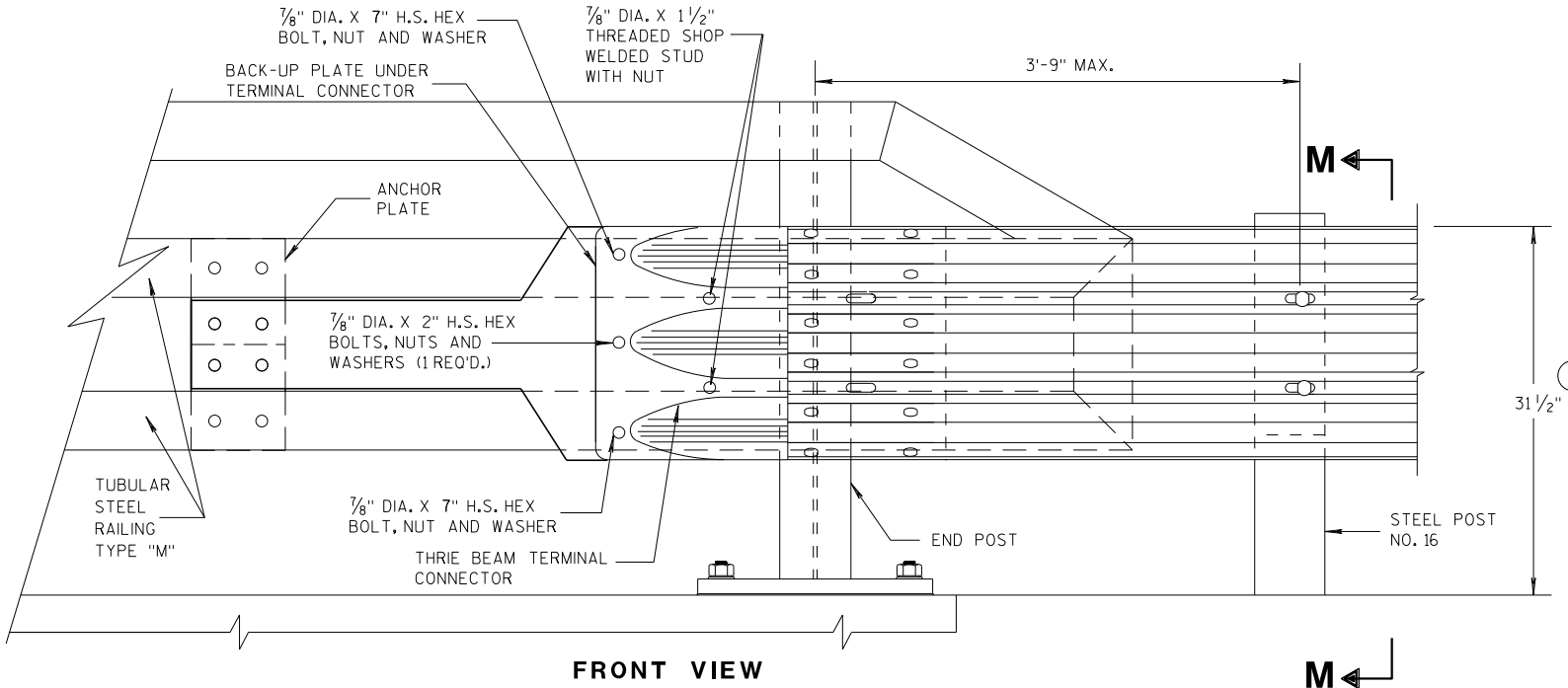
SECTION M-M



SECTION L-L

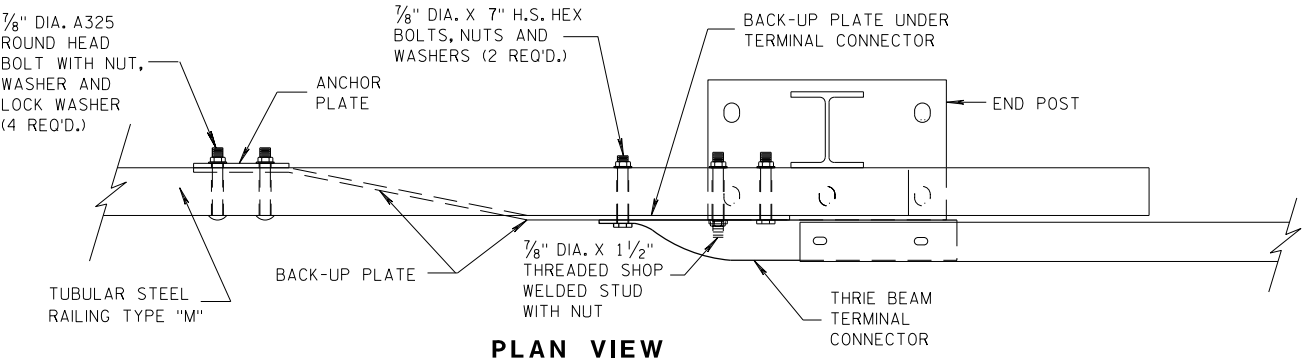
FRONT VIEW

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



FRONT VIEW

M



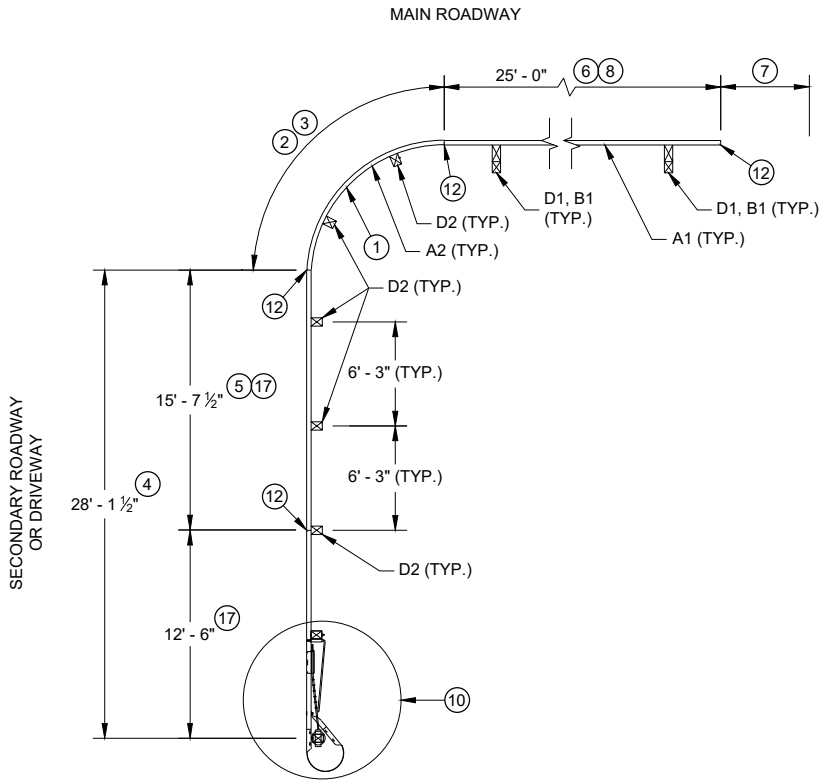
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

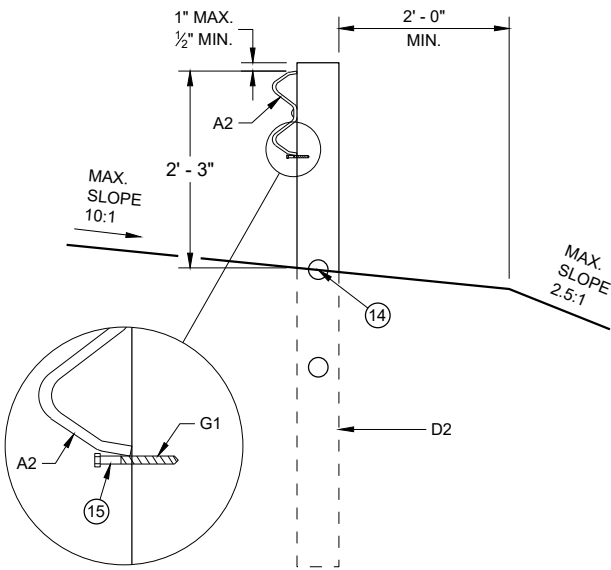
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

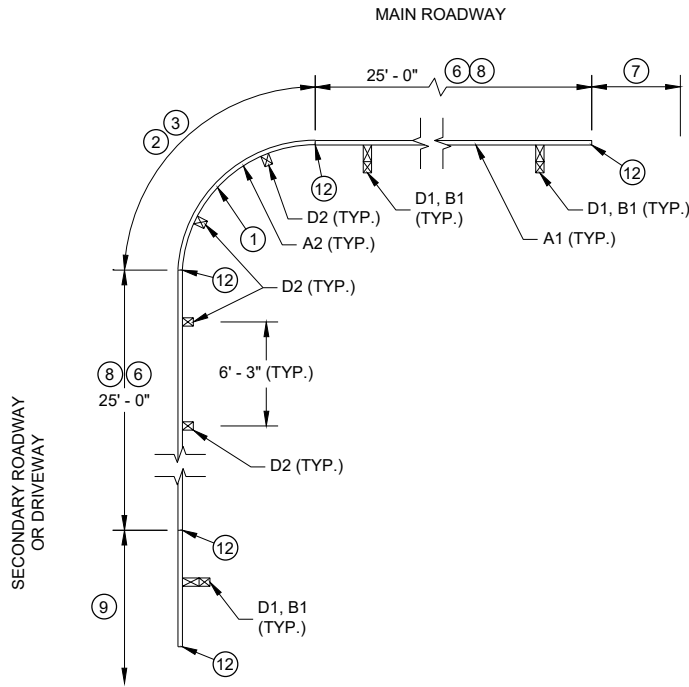
APPROVED
07/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



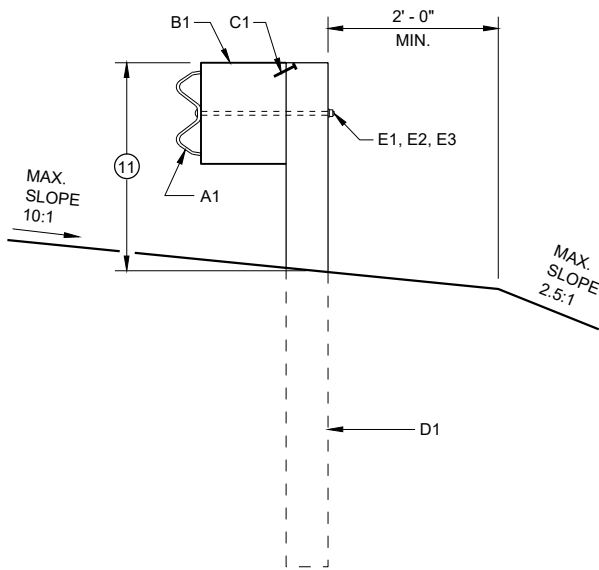
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
SHORT RADIUS TERMINAL ON
SECONDARY ROAD OR DRIVEWAY



CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS



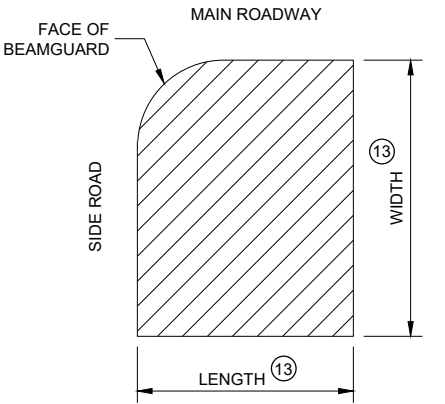
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER ON
SECONDARY ROAD OR DRIVEWAY



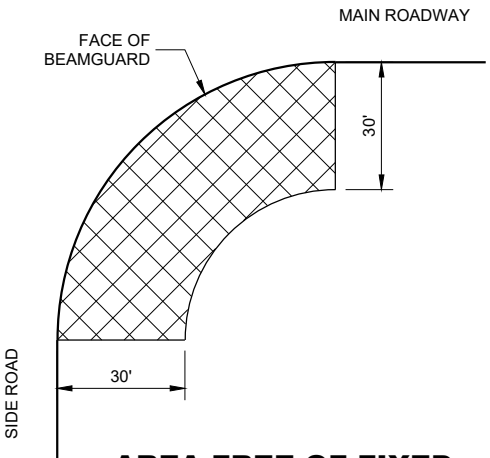
BEAM GUARD POSTS
IN HEIGHT TRANSITION

TABLE FOR RADIUS OF 32' AND LESS

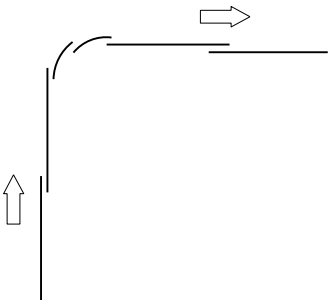
RADIUS (FT)	LENGTH (FT)	WIDTH (FT)
8	25	15
16	30	15
24	40	20
32	50	30



AREA FREE OF FIXED
OBJECTS FOR RADIUS
32' AND LESS



AREA FREE OF FIXED
OBJECTS FOR RADIUS
GREATER THAN 32'



LAP SPLICE DETAIL

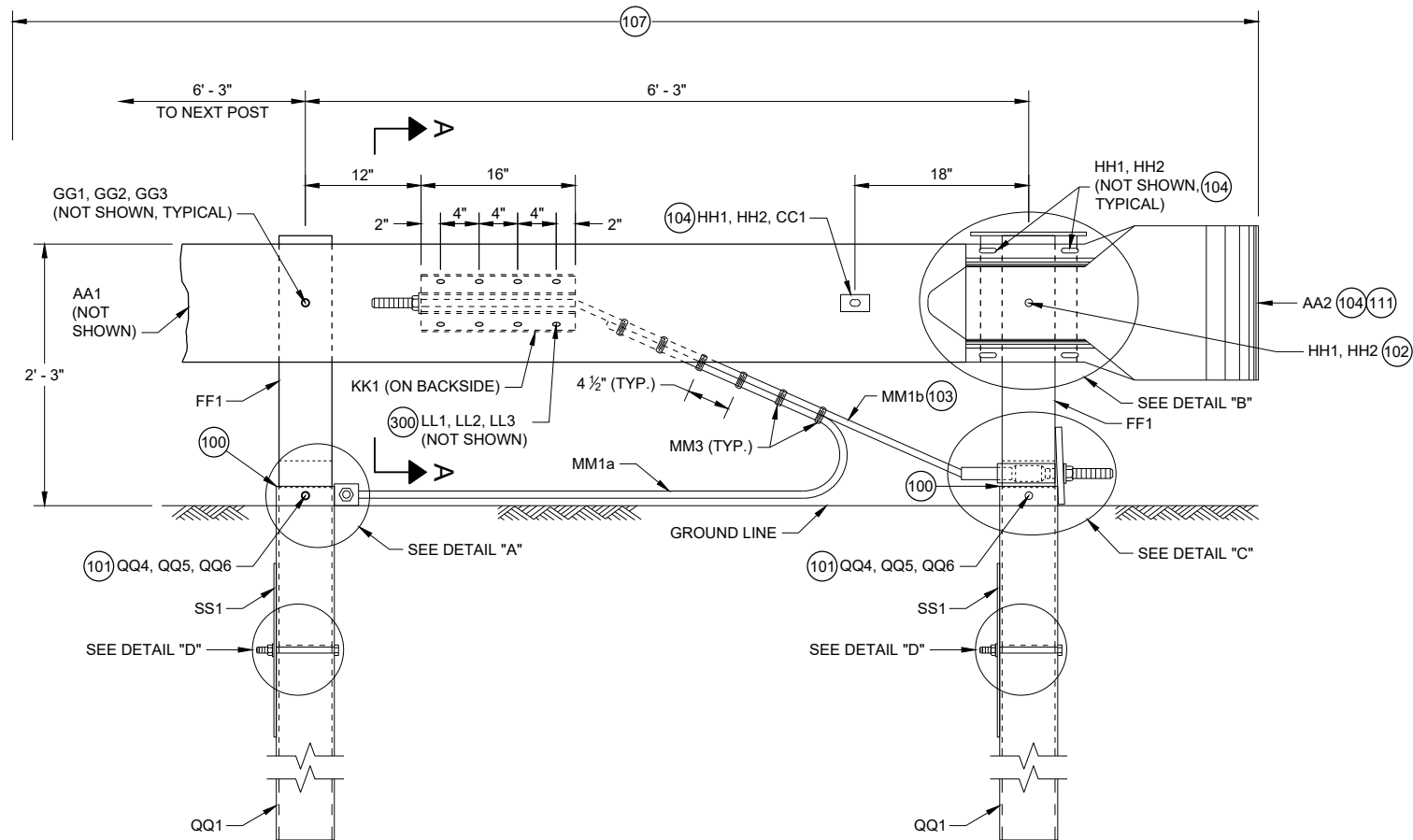
GENERAL NOTES

- SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.
- SEE SDD 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.
- GALVANIZE PARTS AFTER FABRICATION.
- WELDING TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI / AWS D1.1.
- UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.
- UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERTICAL.
- ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUT.
- UNLESS NOTED OTHERWISE, CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT.
- DRAWINGS ARE NOT TO SCALE.

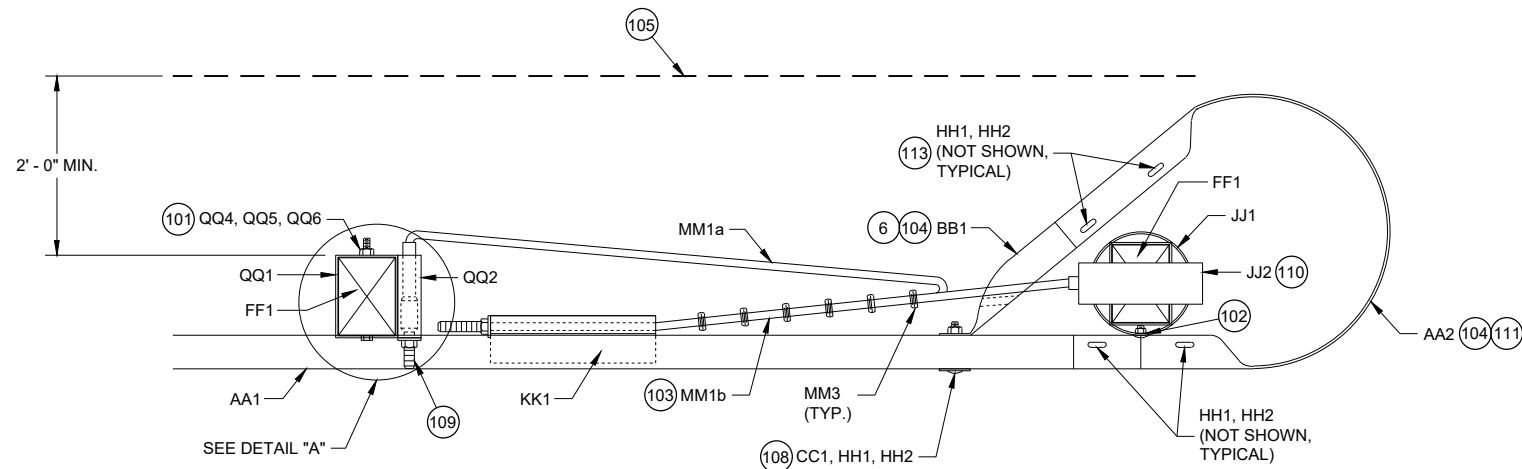
- (1) RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- (2) CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
- (3) WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
- (4) MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
- (5) ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- (6) MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER. ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- (7) BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- (8) TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- (9) ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- (10) SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
- (11) HEIGHT VARIES. SEE NOTE (8) AND (8).
- (12) BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- (13) SEE TABLE FOR VALUES.
- (14) MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- (15) DRILL POST 1 5/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- (16) SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- (17) TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



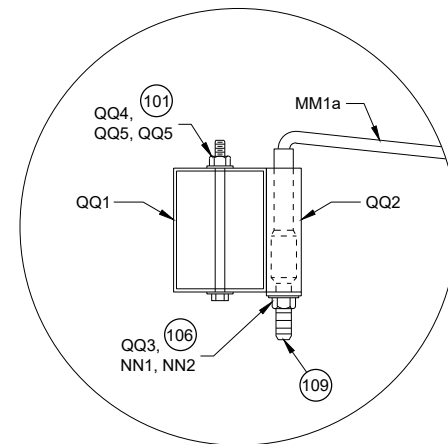
**PROFILE VIEW
SHORT RADIUS TERMINAL**



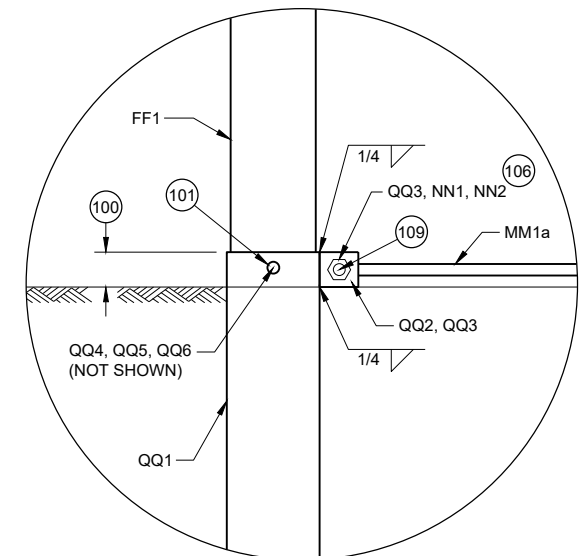
**TOP VIEW
SHORT RADIUS TERMINAL**

GENERAL NOTES

- (100) TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- (101) WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- (102) SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL "B".
- (103) CABLE IS TAUT.
- (104) ADJUST AA2 AND BB1 TO FIT.
- (105) BREAK POINT OF SHOULDER.
- (106) TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL "A" PROFILE VIEW.
- (107) PAY LIMIT FOR BEAM GUARD.
- (108) SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
- (109) CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
- (110) SEE STEEL PIPE ASSEMBLY DETAILS.
- (111) ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
- (112) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
- (113) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.



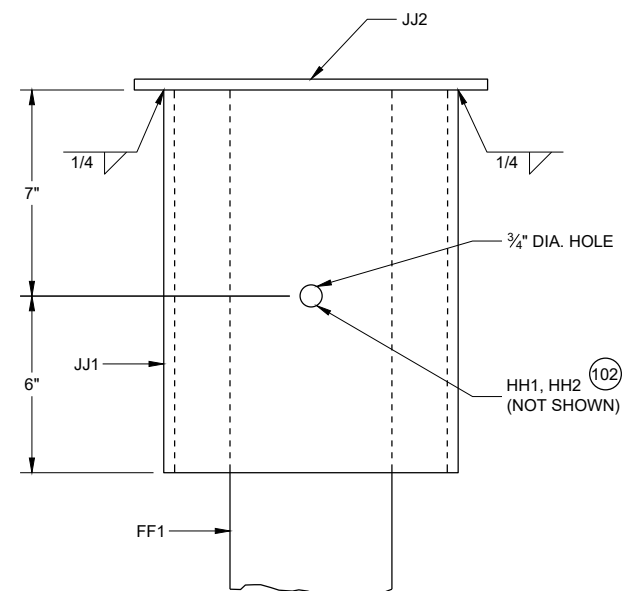
**TOP VIEW
DETAIL "A"
(WOOD BREAKAWAY AND BEAM
GUARD RAIL POSTS NOT SHOWN)**



**PROFILE VIEW
DETAIL "A"**

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

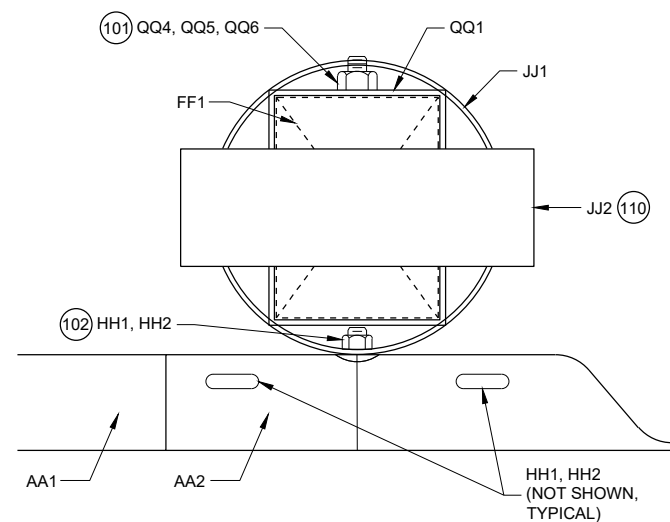
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



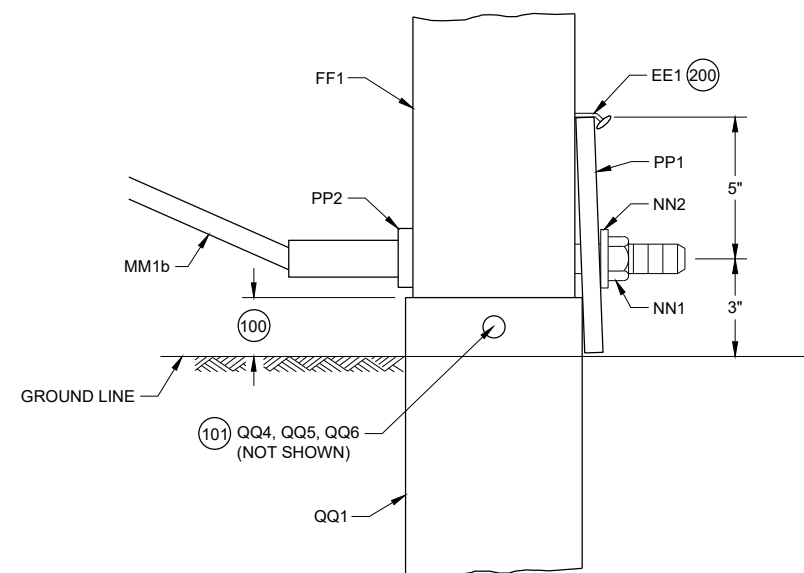
PROFILE VIEW

DETAIL "B"

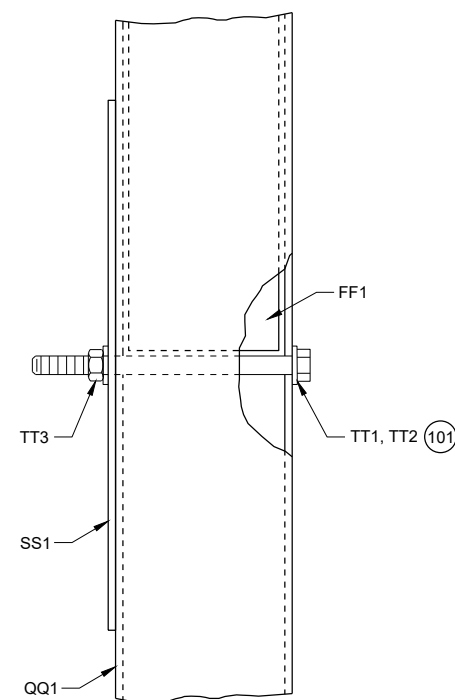
STEEL PIPE ASSEMBLY
(BEAM GUARD AND W BEAM
END SECTION NOT SHOWN)



PLAN VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY



**PROFILE VIEW
DETAIL "C"**



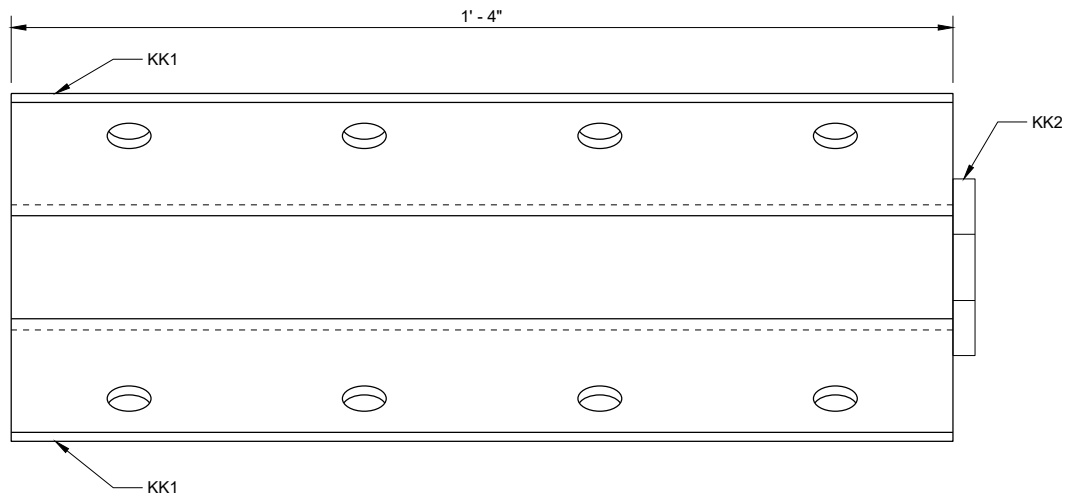
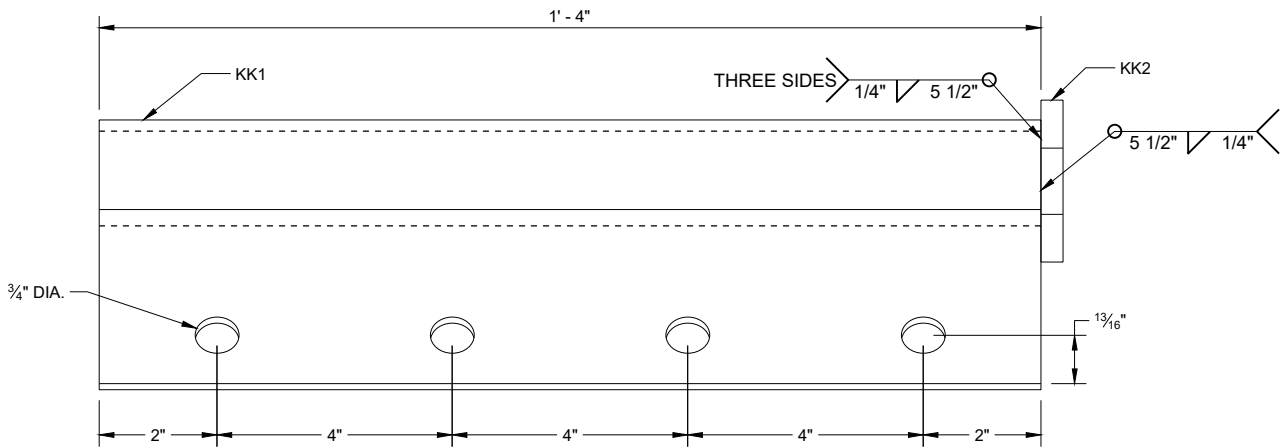
**PROFILE VIEW
DETAIL "D"**

GENERAL NOTES

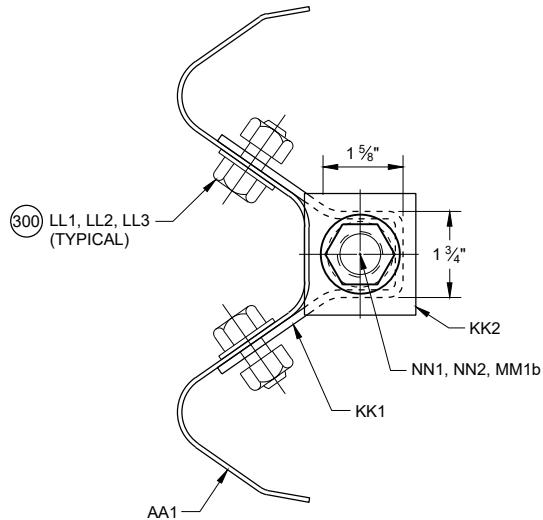
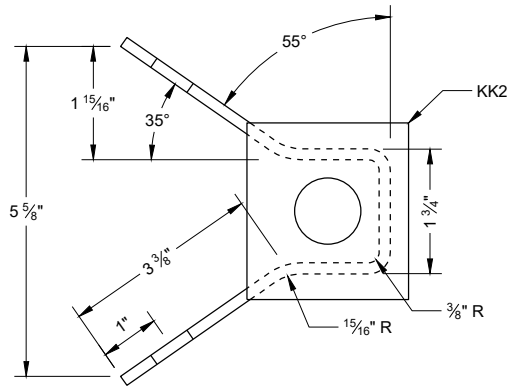
(200) TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

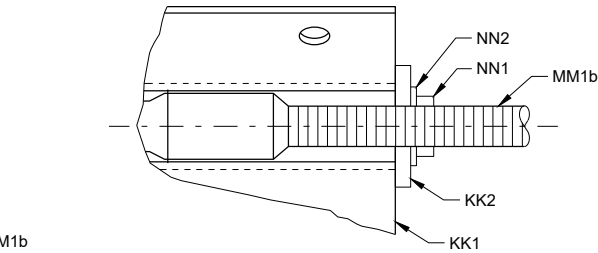


ANCHOR BRACKET (KK1, KK2)

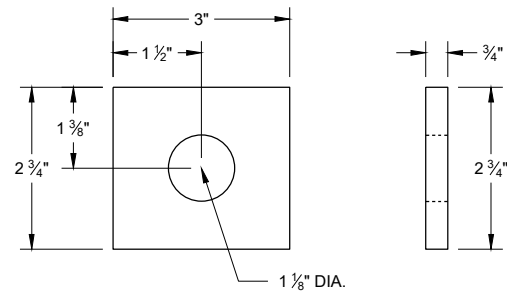


SECTION A - A

300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.

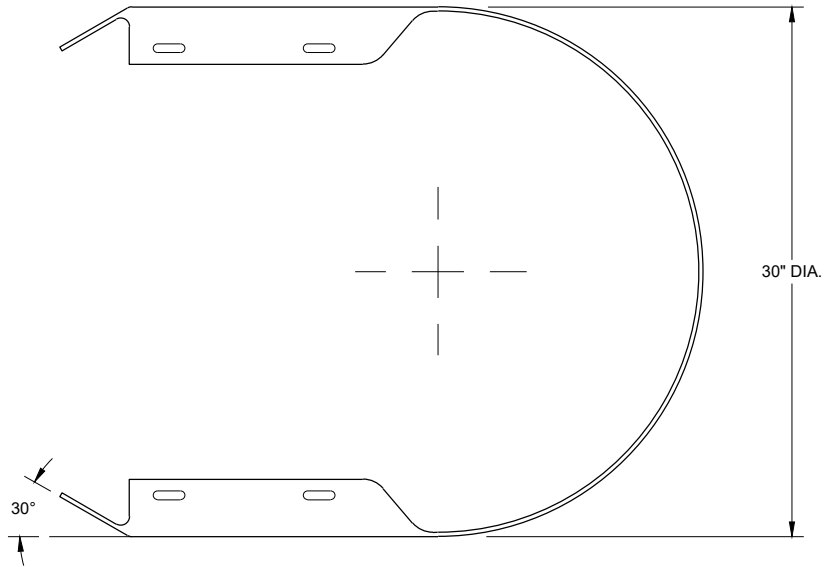


ANCHOR BRACKET BEARING PLATE (KK2)

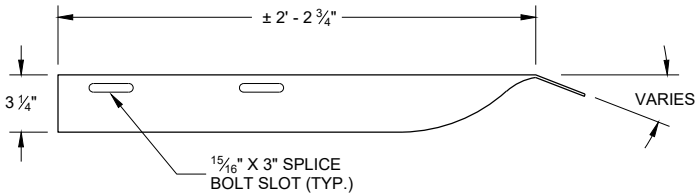


SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

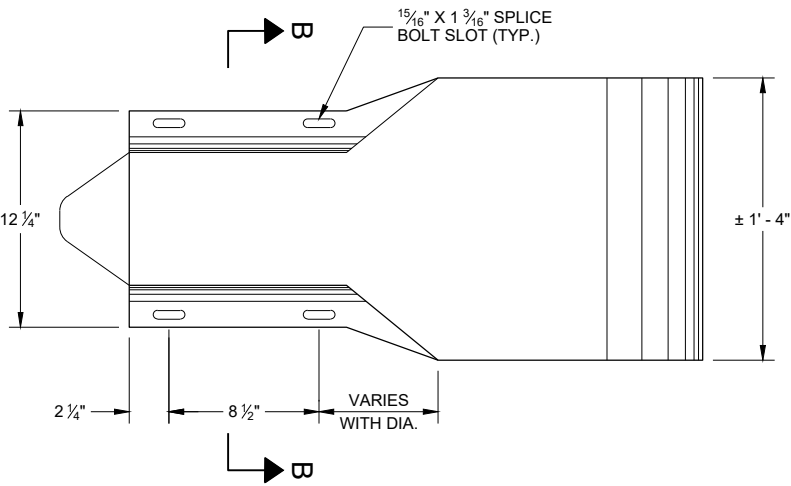
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



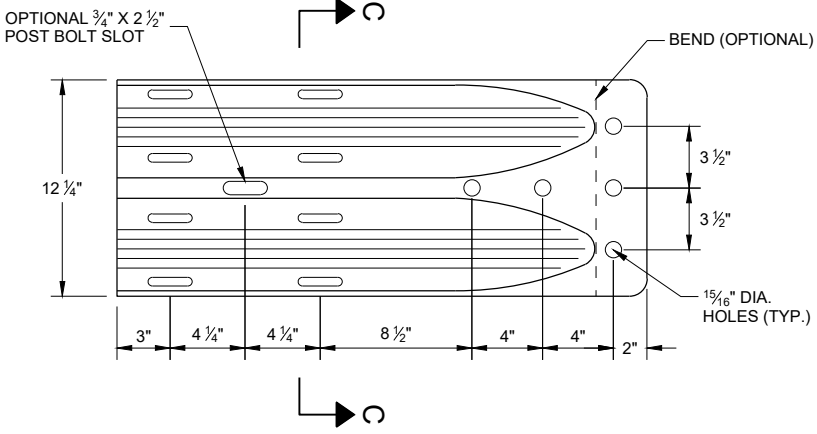
TOP VIEW



TOP VIEW



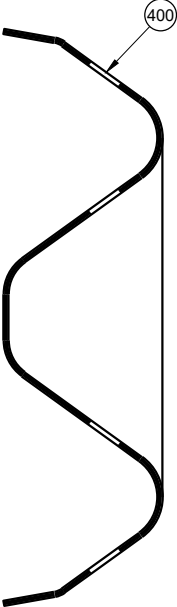
PROFILE VIEW
W BEAM
END SECTION BUFFER (AA2)



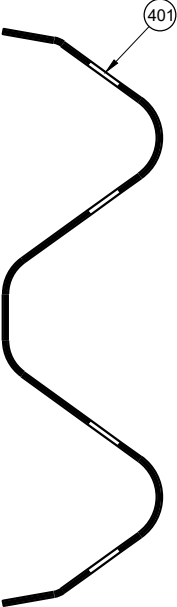
PROFILE VIEW
W BEAM
TERMINAL CONNECTOR (BB1)

GENERAL NOTES

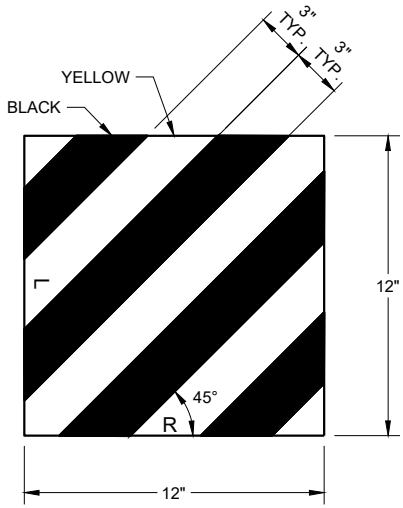
- (400) CROSS SECTION OF PART IS TO FIT OVER AA1 .
- (401) CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



SECTION B -B



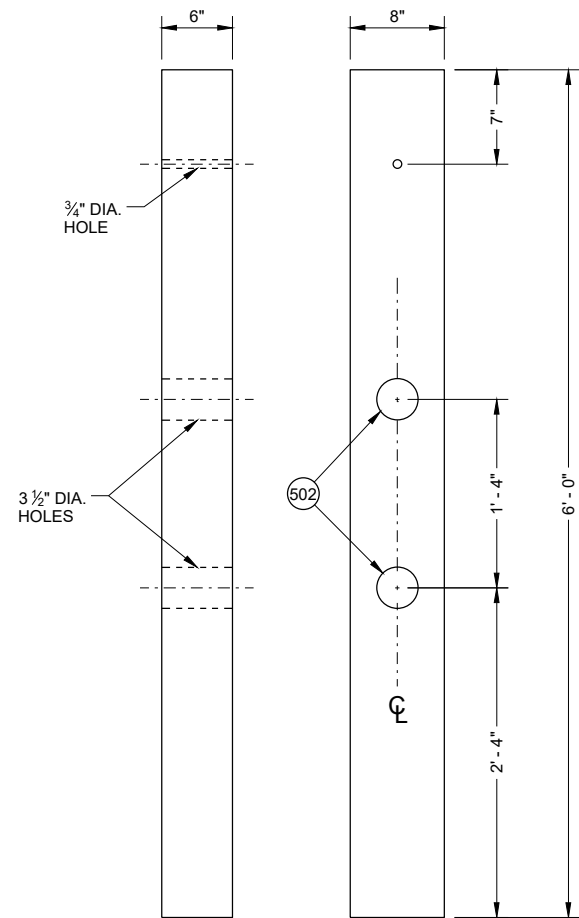
SECTION C -C



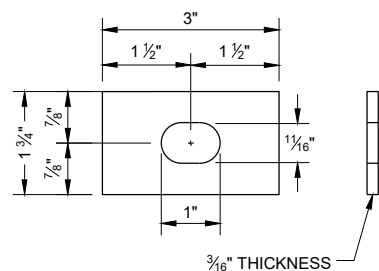
REFLECTIVE SHEETING (UU1, UU2)

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

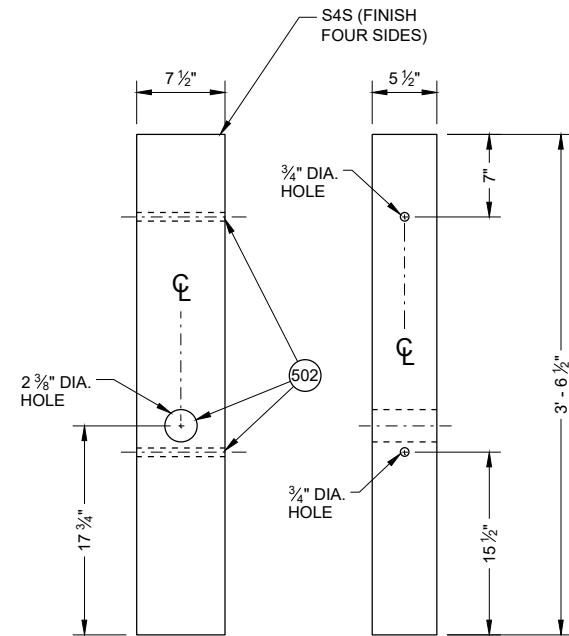
STATE OF WISCONSIN
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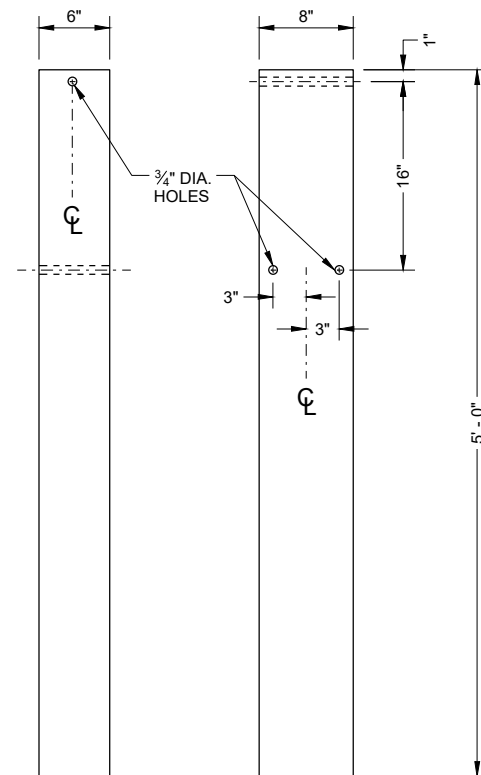
FRONT VIEW SIDE VIEW
CONTROLLED RELEASE POST (CRT) (DD2)



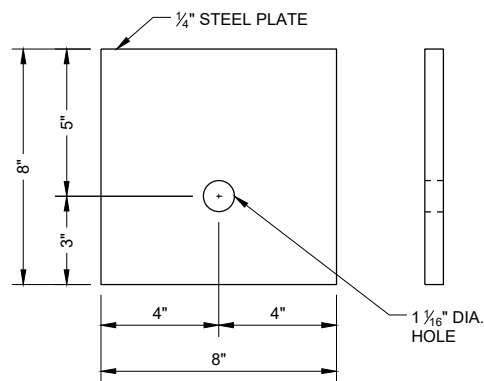
RECTANGULAR PLATE WASHER (CC1)



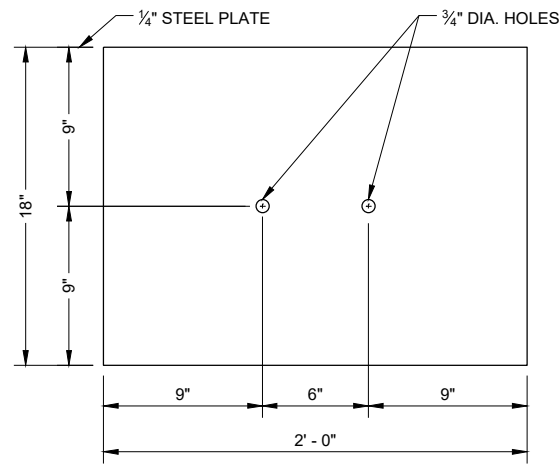
FRONT VIEW SIDE VIEW
WOOD BREAKAWAY POST (FF1)



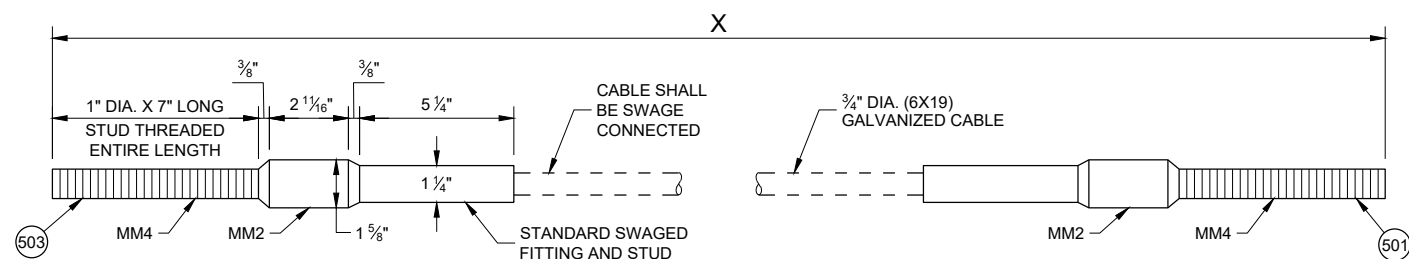
FRONT VIEW SIDE VIEW
FOUNDATION TUBE (QQ1) (500)



BEARING PLATE (PP1)



SOIL PLATE (SS1)



CABLE ASSEMBLY (MM1a, MM1b)

"X" LENGTH

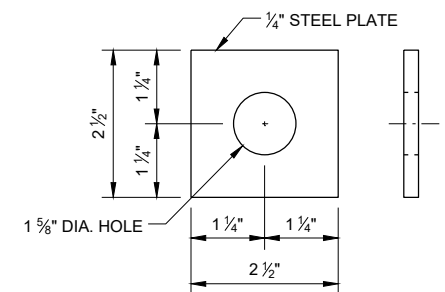
MM1b	9' - 0"
MM1b	6' - 8"

GENERAL NOTES

- (500) SEE DETAIL "D" FOR LOCATION AND ATTACHMENT OF SS1.
- (501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
- (502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
- (503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).



FOUNDATION TUBE - ANCHOR CABLE TUBE (QQ2)



ANCHOR CABLE TUBE END PLATE (QQ3)

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL THE RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
E3	POST BOLT - NUT	AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	3/8" DIA. SEE 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 3/8" X 4" X 1' - 0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	3/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	3/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	3/4"
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	1" DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X $\frac{3}{16}$ "
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 $\frac{1}{2}$ " X 2 $\frac{1}{4}$ " X $\frac{1}{4}$ " X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 $\frac{1}{2}$ " X 2 $\frac{1}{2}$ " X $\frac{1}{4}$ "
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	$\frac{5}{8}$ DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{5}{8}$ DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	$\frac{5}{8}$ DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

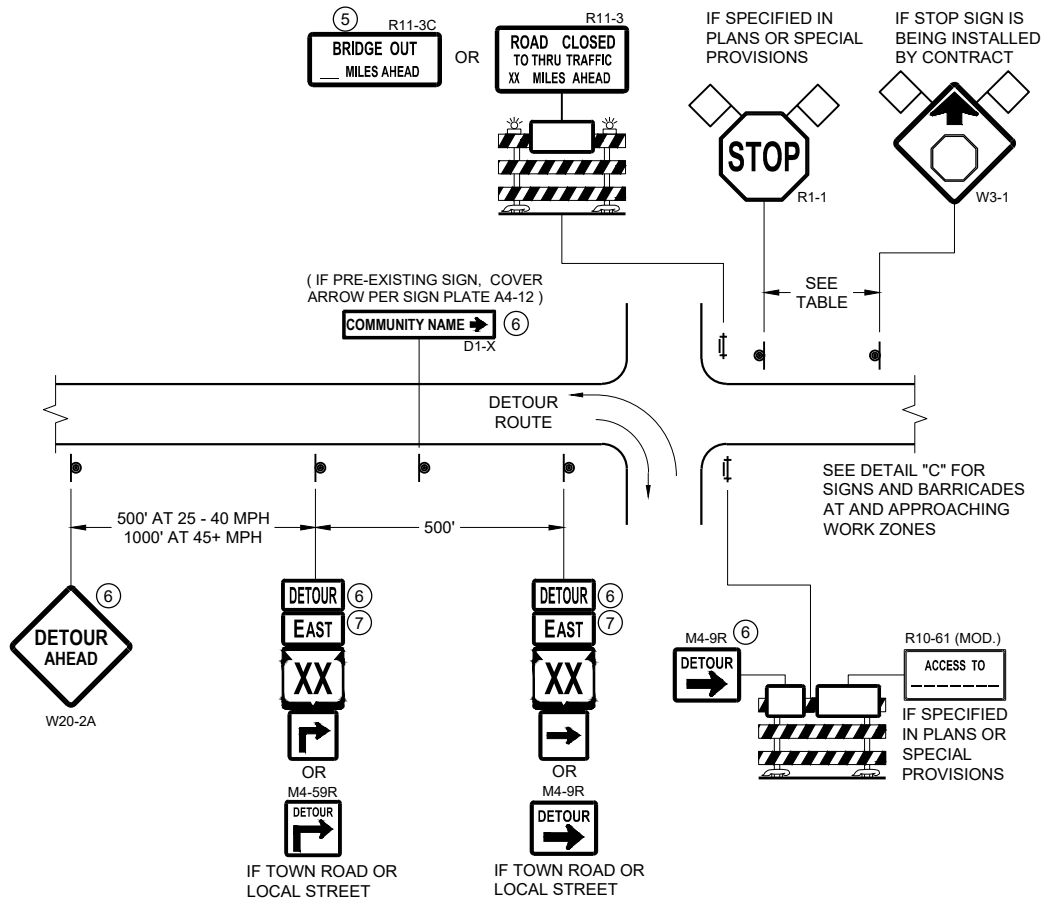
PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
SS1	SOIL PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	$\frac{5}{8}$ DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{5}{8}$ DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	$\frac{5}{8}$ DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING. SHEETING TYPE FOR MARKER.
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

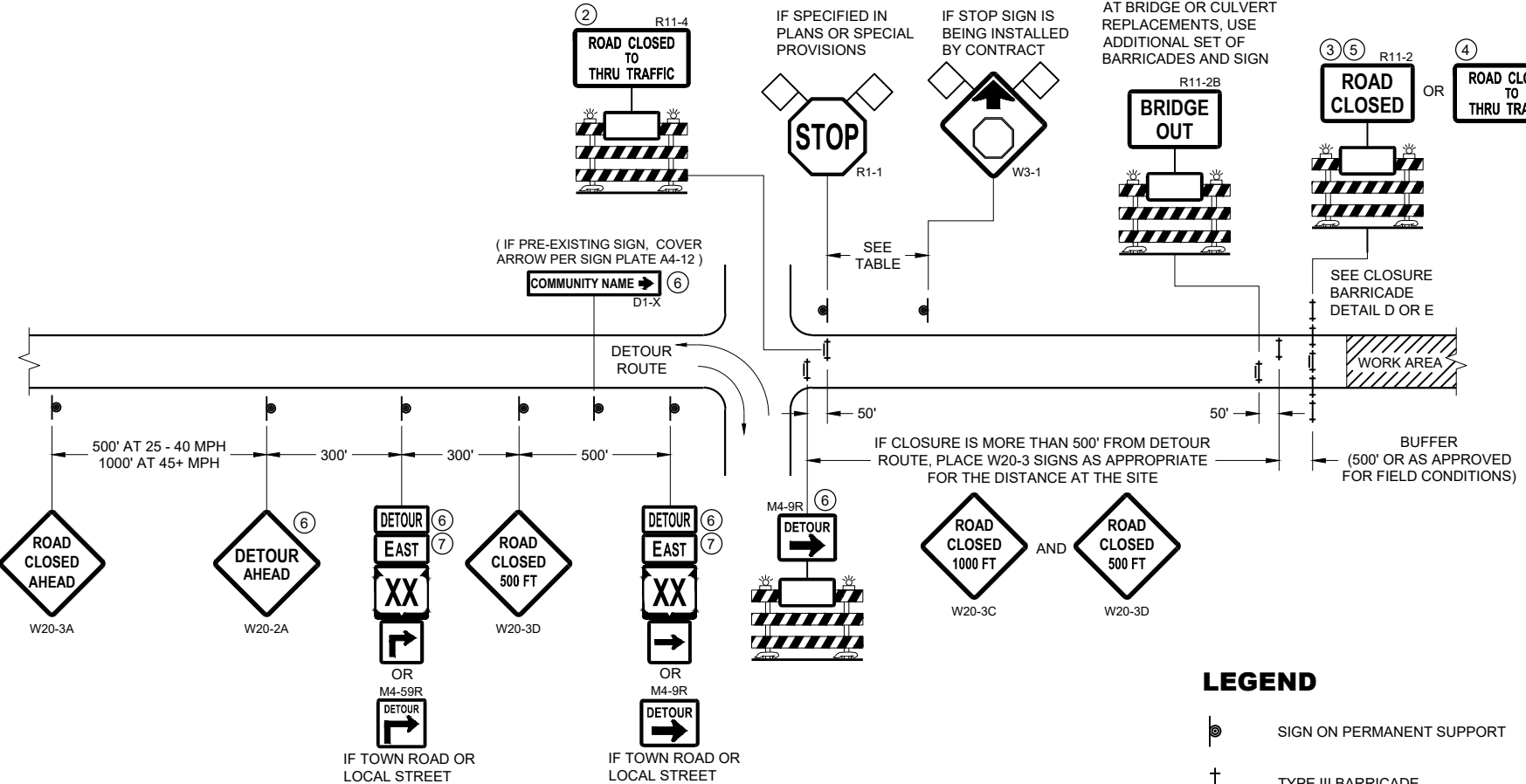
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	
May 2022	/S/ Rodney Taylor
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER

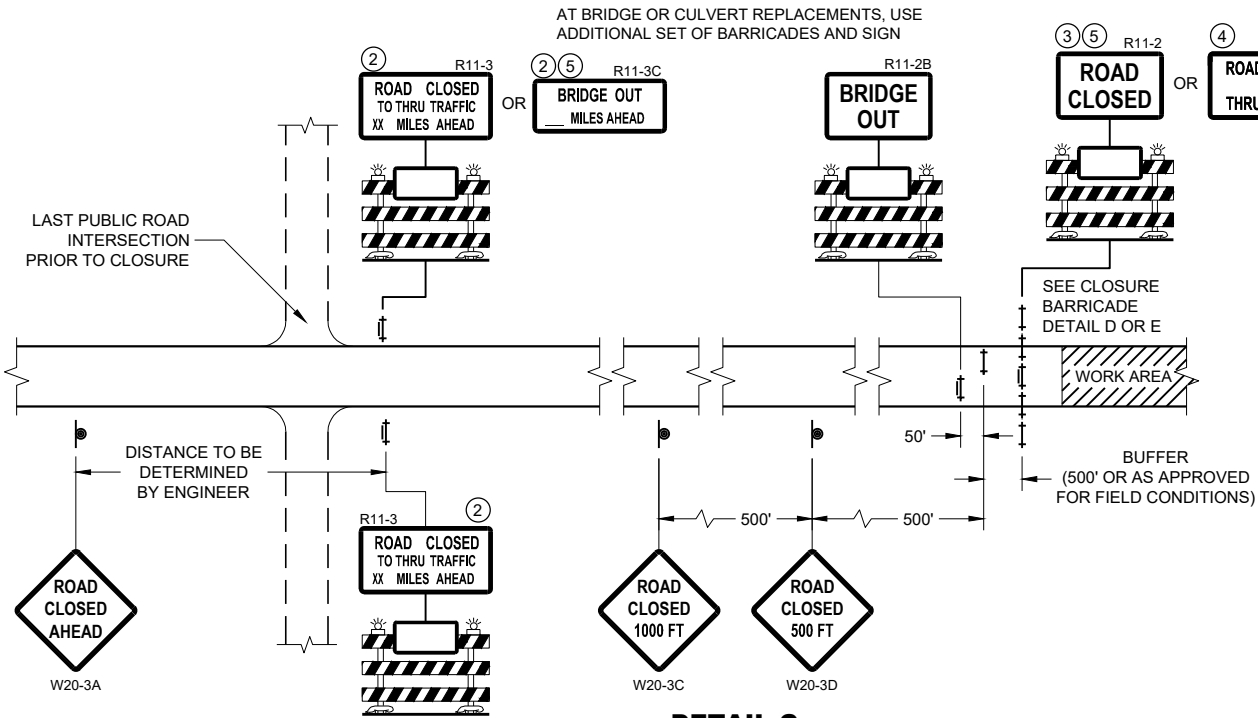
FHWA



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

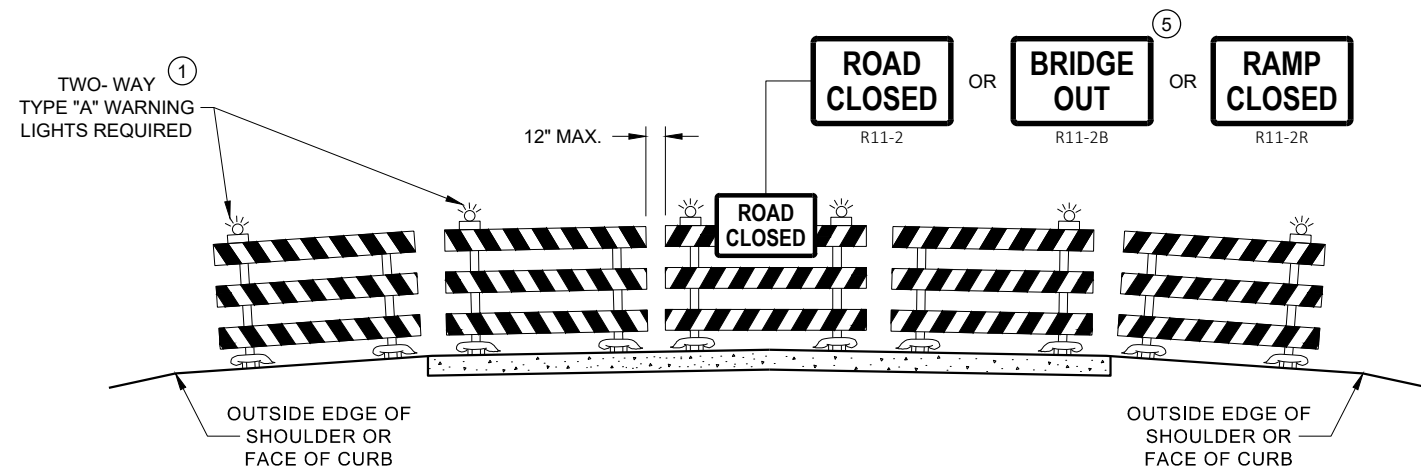
LEGEND

- 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

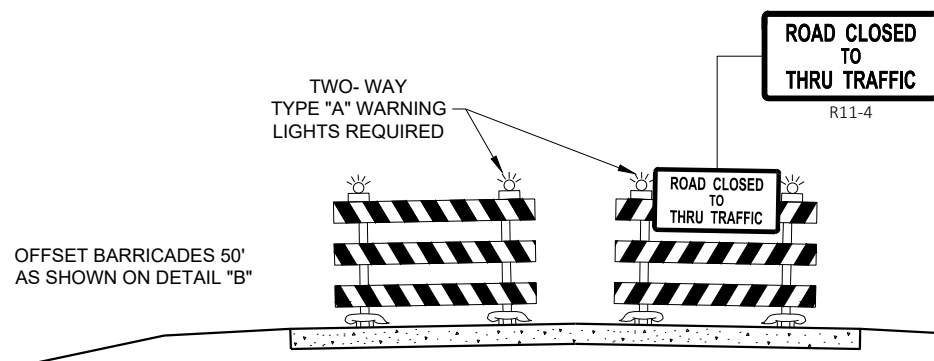
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

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:

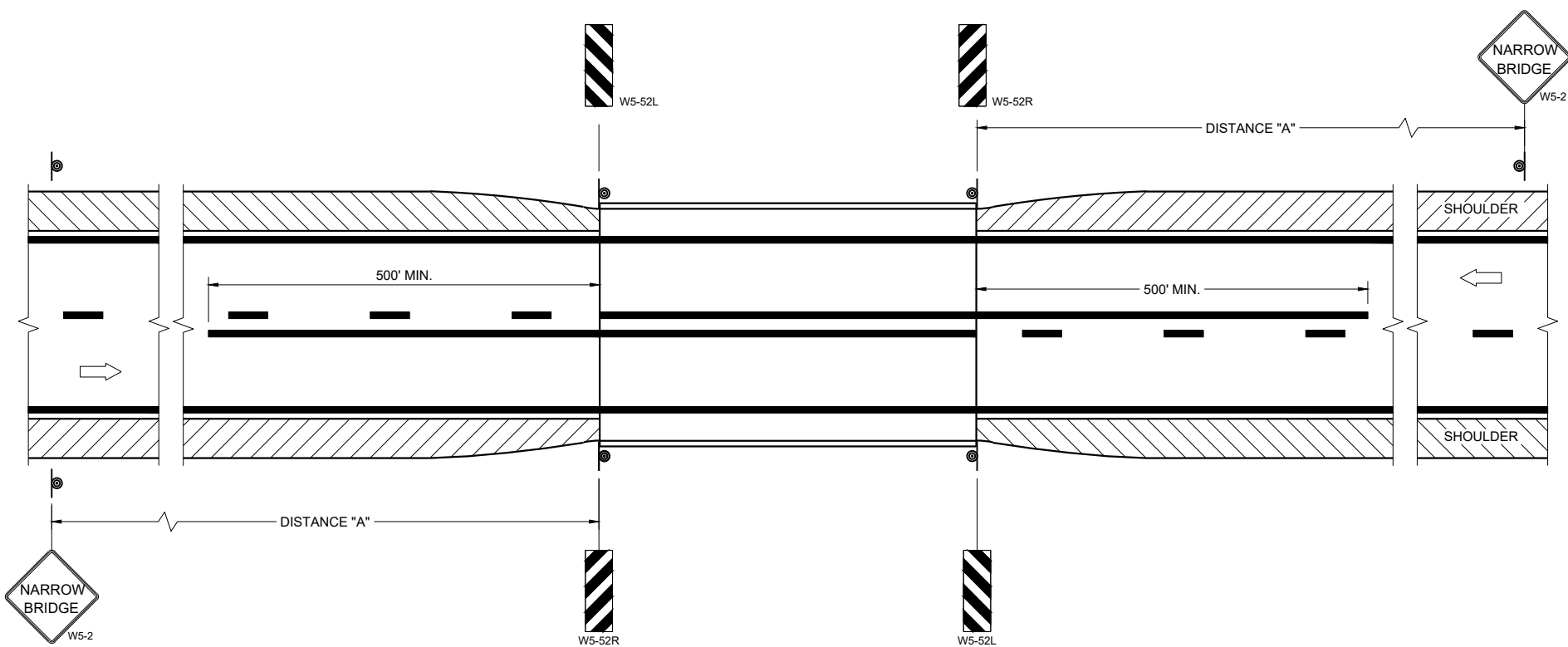
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 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.

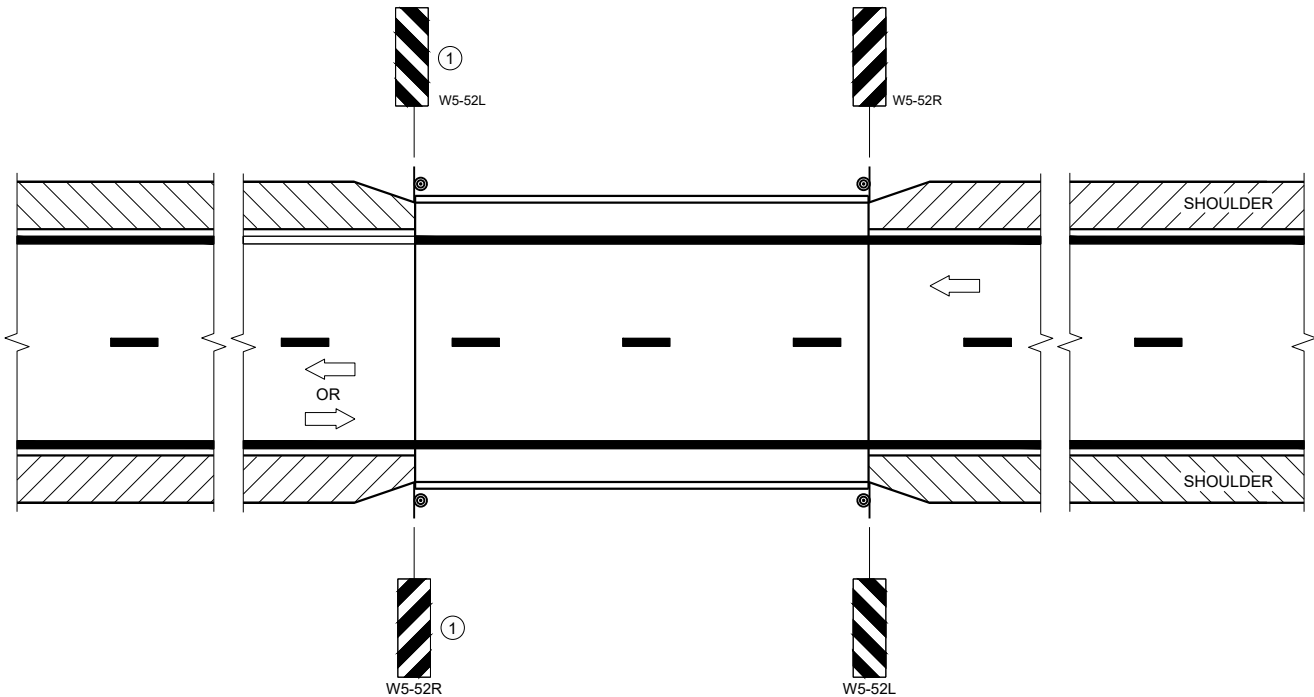
BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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

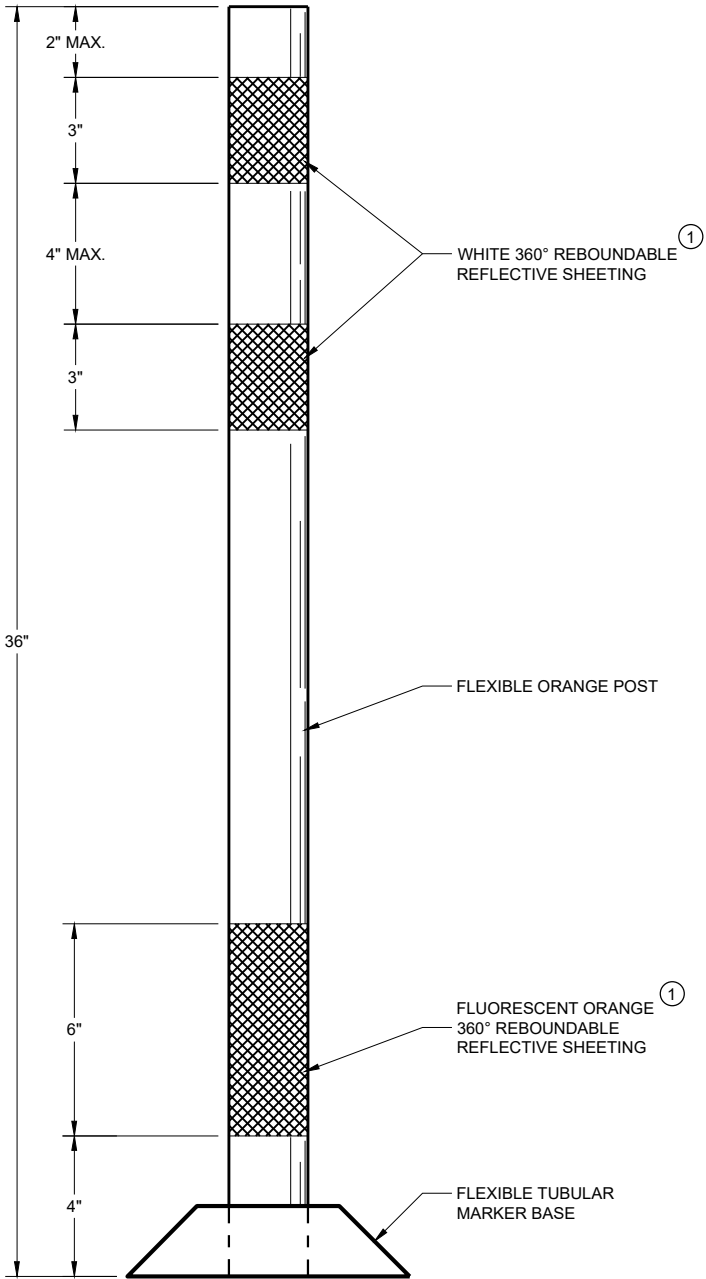
DISTANCE TABLE

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



FLEXIBLE TUBULAR
MARKER POST
WORK ZONE

GENERAL NOTES

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

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

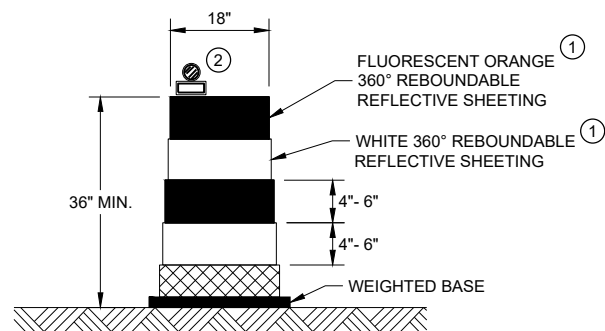
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES
FLEXIBLE TUBULAR
MARKER POST

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

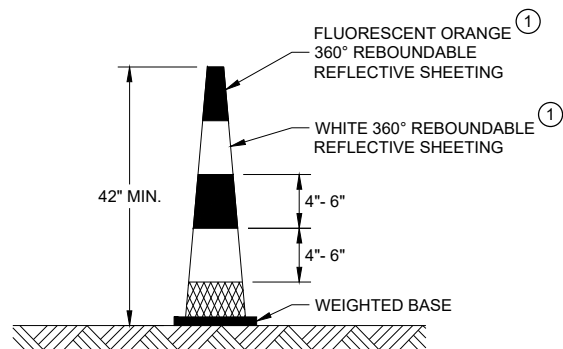
APPROVED
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



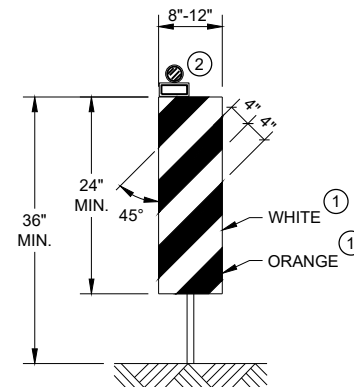
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



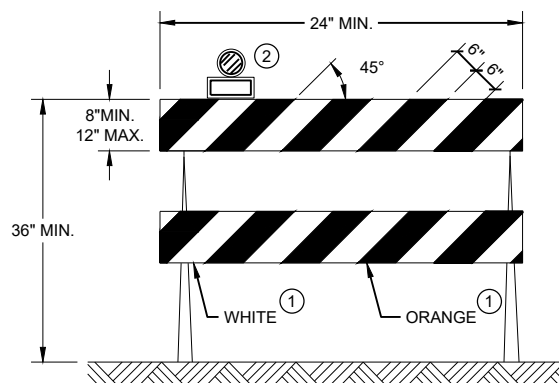
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS
BALLAST WIDTHS
RANGE FROM 14"-20"



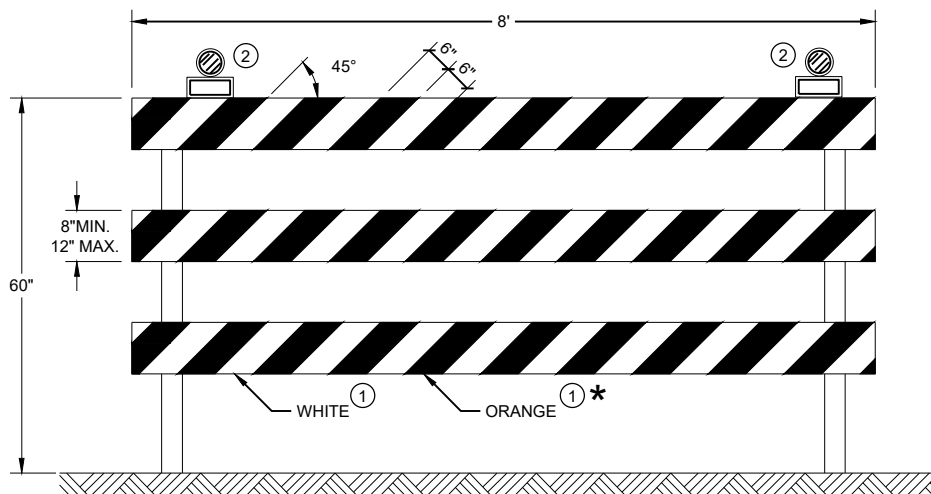
VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES
MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD
TO THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE III BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

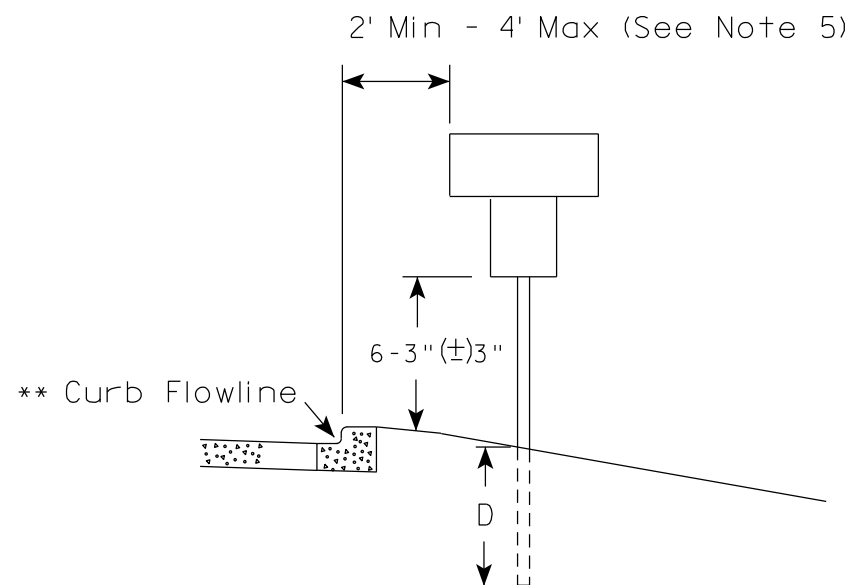
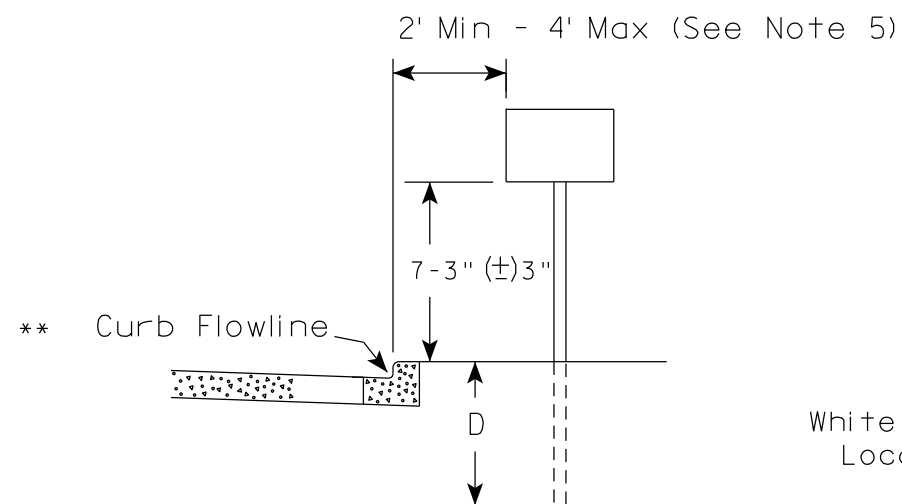
* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

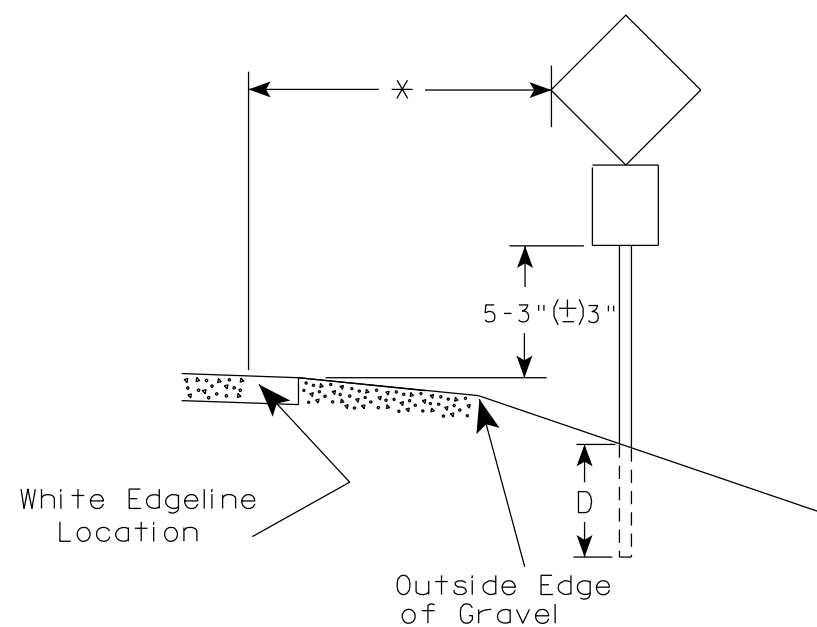
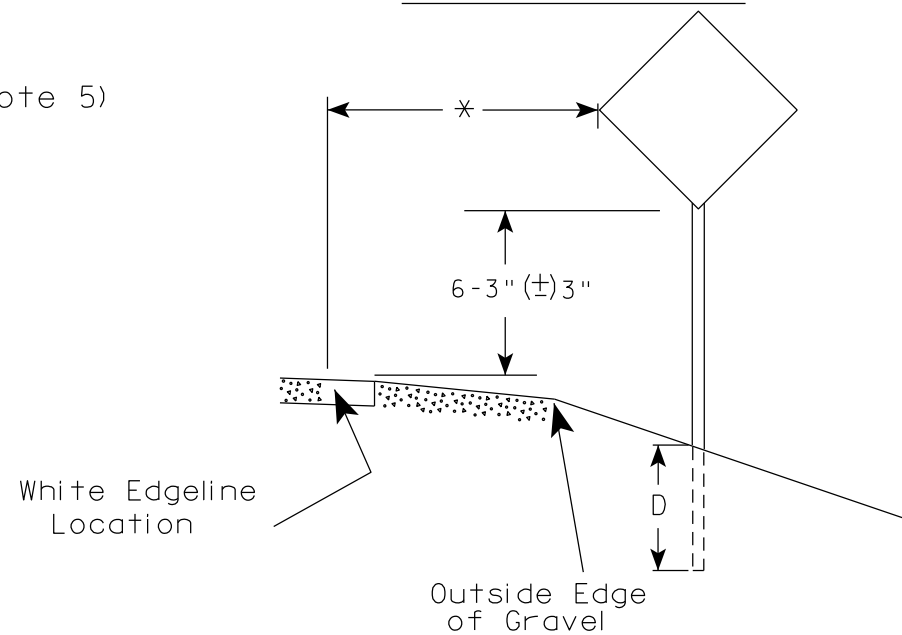
CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

URBAN AREA



* * 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.

RURAL AREA (See Note 2)



* 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.

POST EMBEDMENT DEPTH

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

GENERAL NOTES

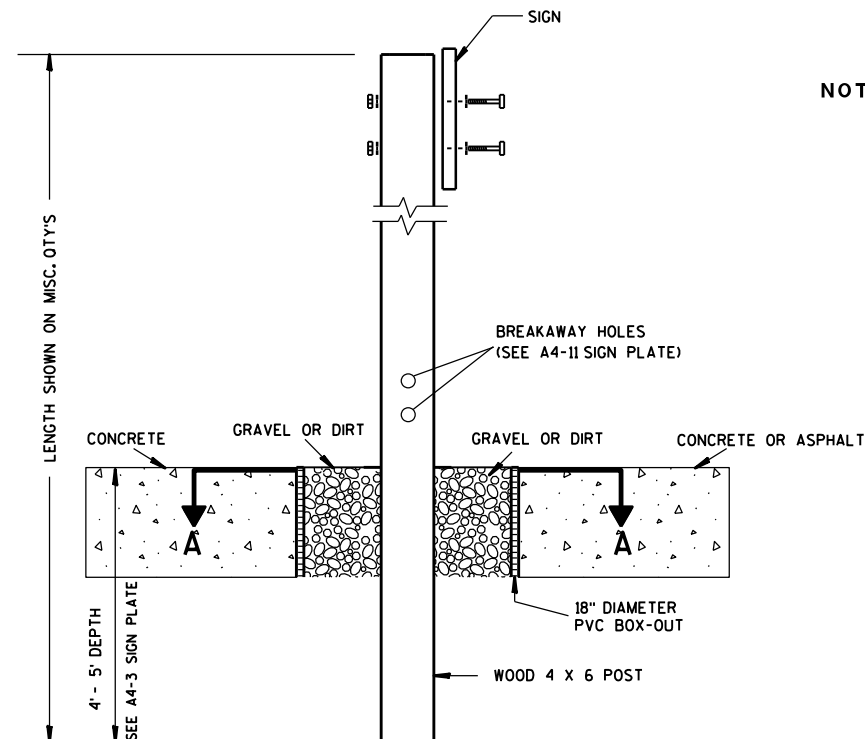
- Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
- If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (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".
- For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
- Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
- Offset distance shall be consistent with existing signs or consistent throughout length of project.
- Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the Engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

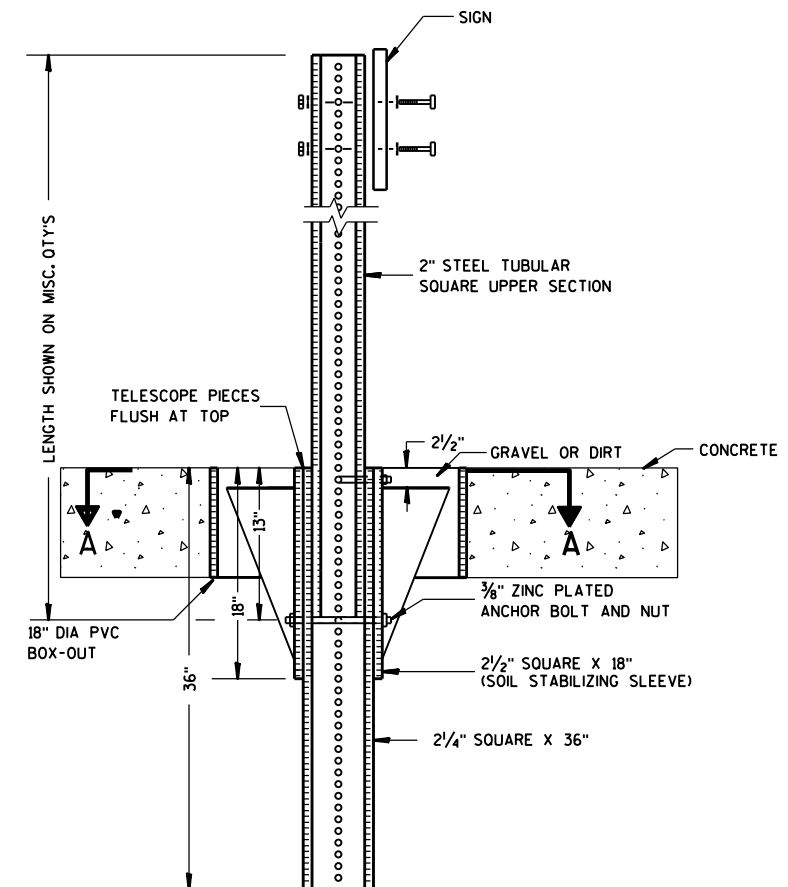
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

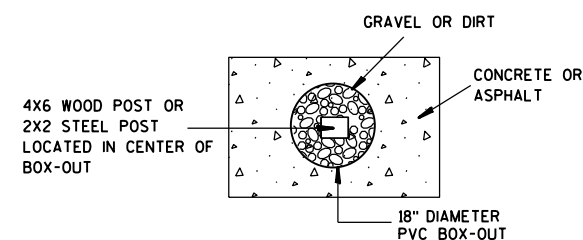
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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:

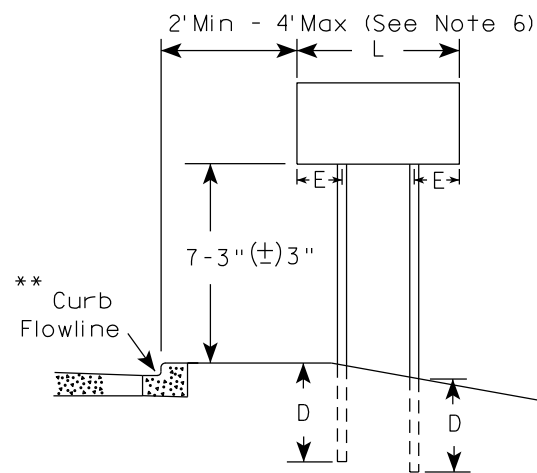
HWY:

COUNTY:

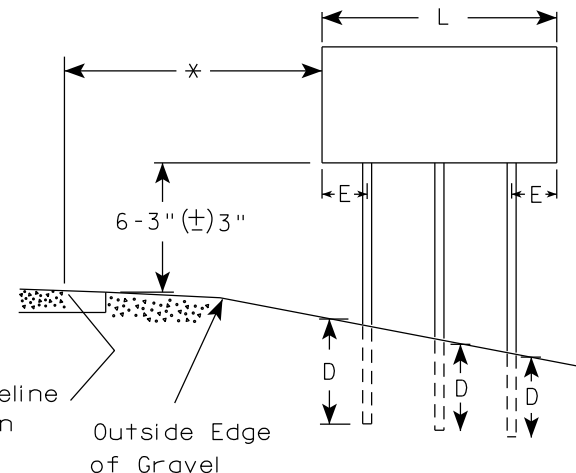
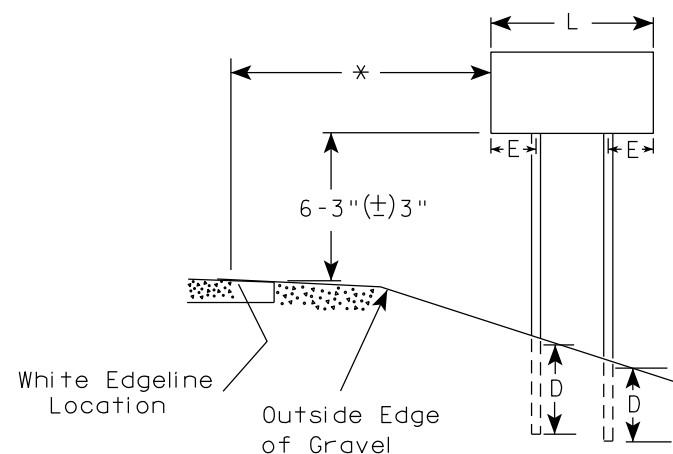
SHEET NO:

E

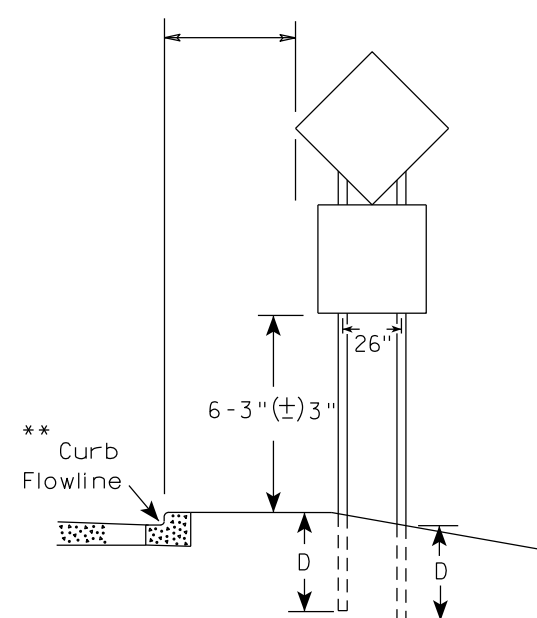
URBAN AREA



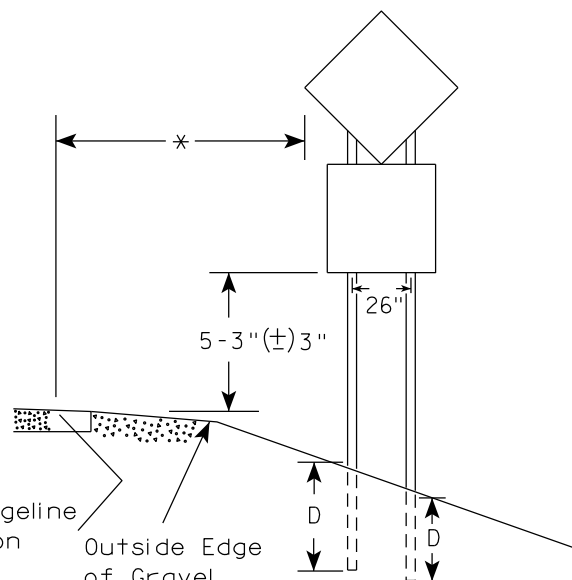
RURAL AREA (See Note 3)



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

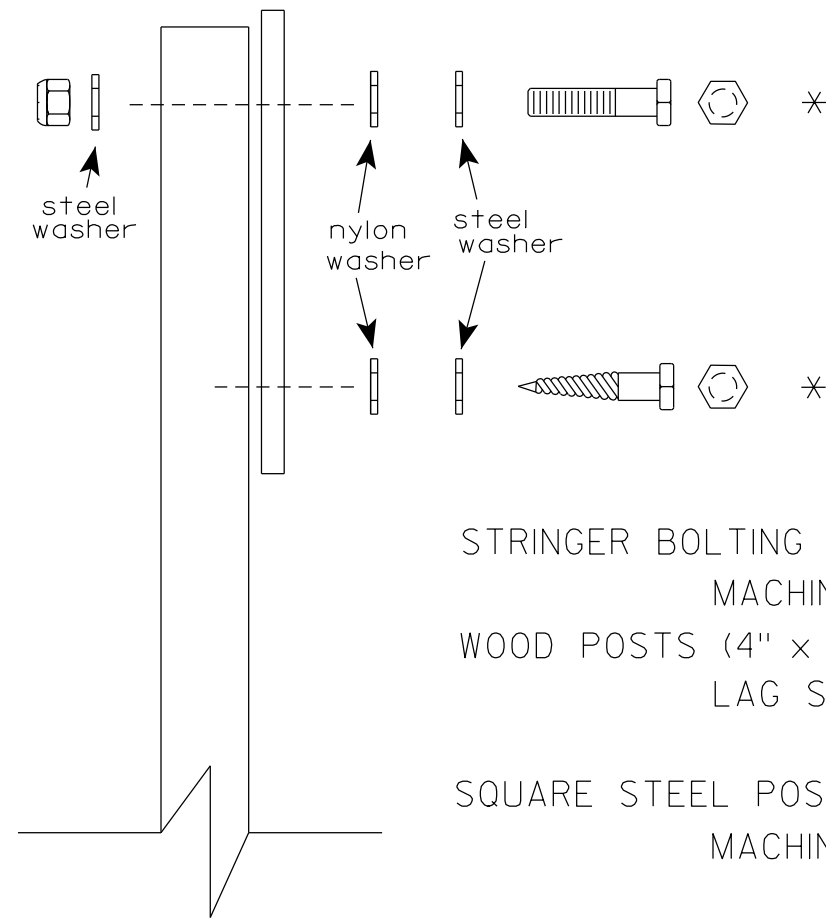
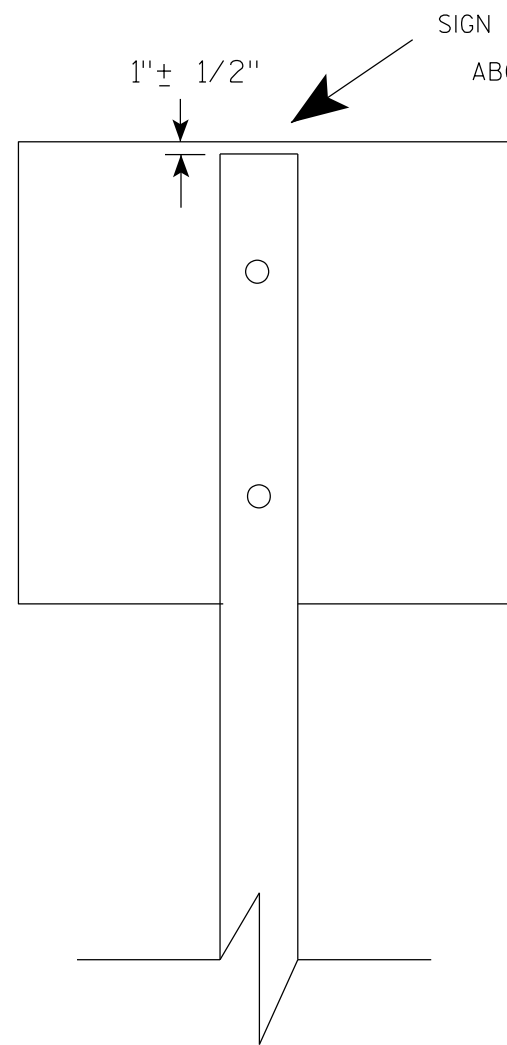
Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

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



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

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

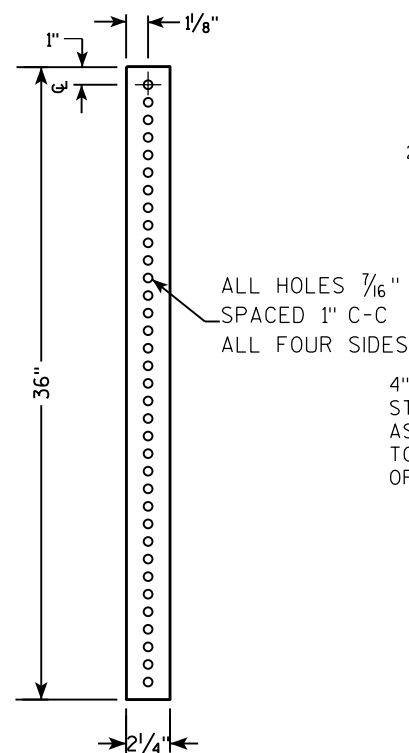
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- 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

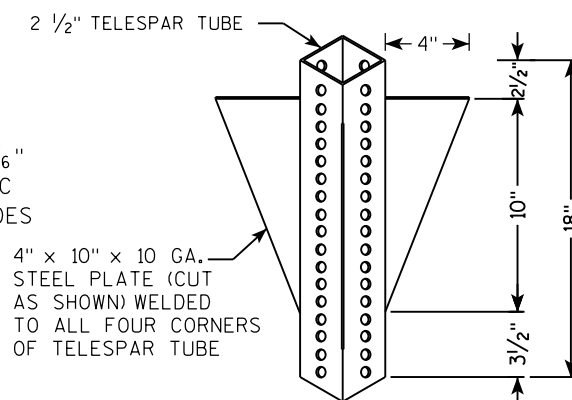
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

Labels and Dimensions:

- 18" DIA SCHEDULE 40 PVC BOX-OUT**: The base container for the assembly.
- 36"**: Total height of the PVC box-out.
- 18"**: Height of the gravel/dirt section at the base.
- 13"**: Height of the soil stabilizing sleeve section.
- 2 1/2" GRAVEL OR DIRT**: The base layer within the box-out.
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)**: The sleeve section within the box-out.
- 2 1/4" SQUARE X 36"**: The main vertical support post.
- 2" STEEL TUBULAR SQUARE UPPER SECTION**: The upper part of the main post.
- ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES**: Specification for the holes in the steel tubular section.
- 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT**: Hardware securing the sleeve.
- 3/8" ZINC PLATED ANCHOR BOLT AND NUT**: Hardware securing the base of the post.
- SIGN**: The sign plate at the top.
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL**: Reference to a specific sign plate for hardware details.
- TELESCOPE PIECES FLUSH AT TOP**: Note on the top alignment of the post sections.

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY.

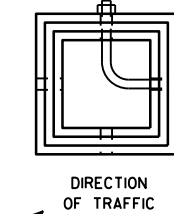
Side View Dimensions:

- Overall height: LENGTH SHOWN ON MISC. QTYS
- Top section: 2" STEEL TUBULAR SQUARE UPPER SECTION
- Telescope pieces: TELESCOPE PIECES FLUSH AT TOP
- Vertical dimensions from ground line: 36", 18", 12"
- Ground level: Indicated by a horizontal line with hatching below it.

End View Details:

- Top: SIGN
- Fasteners: SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
- Upper section: 2" STEEL TUBULAR SQUARE UPPER SECTION
- Holes: ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C
- Material: ALL FOUR SIDES $\frac{3}{8}$ " ZINC PLATED CORNER
- Fasteners: $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
- Anchor spacing: 1"
- Fasteners: $\frac{3}{8}$ " 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"

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 Matthaeus R. Rauch

for State Traffic Engineer

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

PROJECT NO:

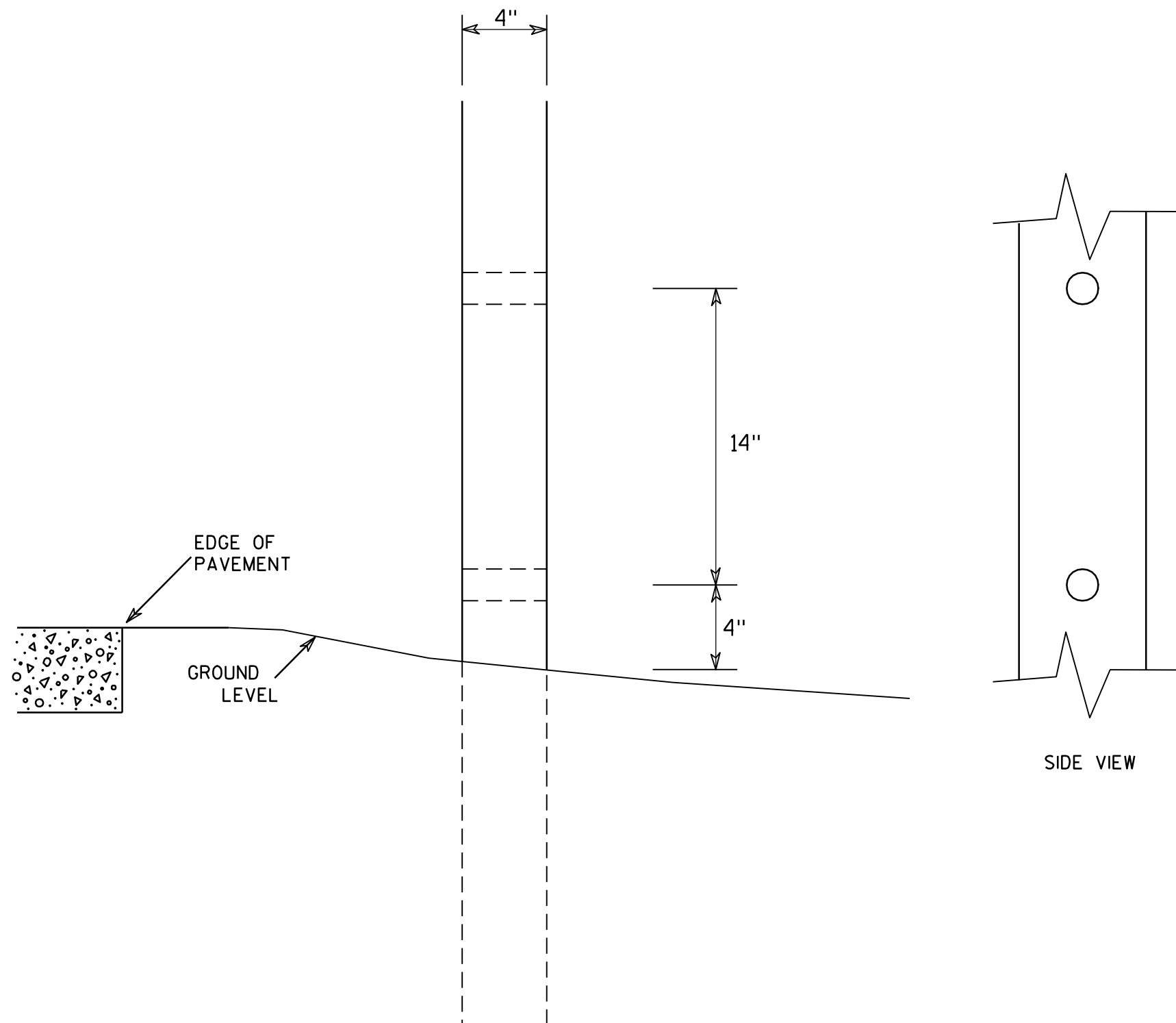
HWY:

COUNTY:

SHEET NO:

E

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:

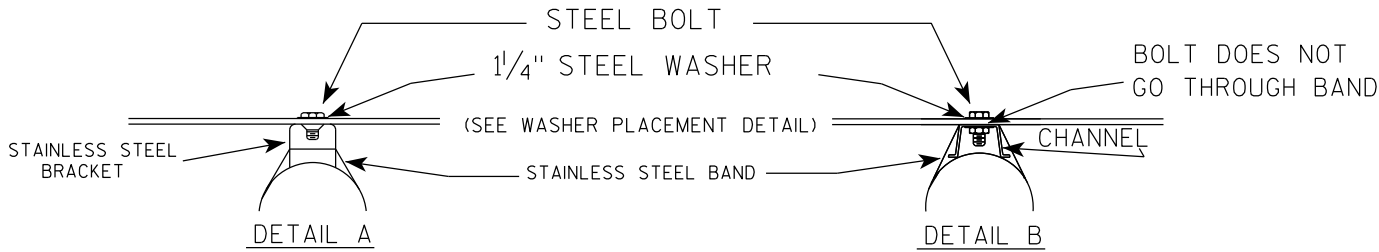
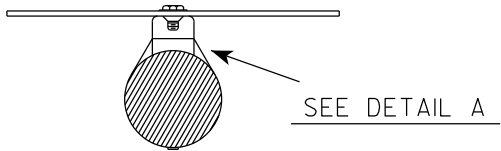
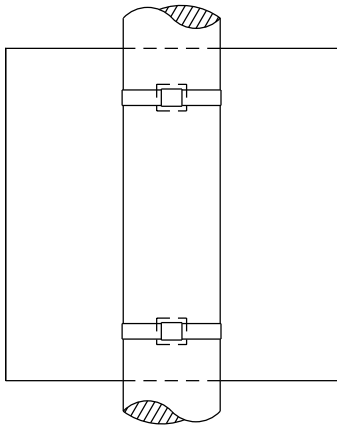
COUNTY:

SHEET NO:

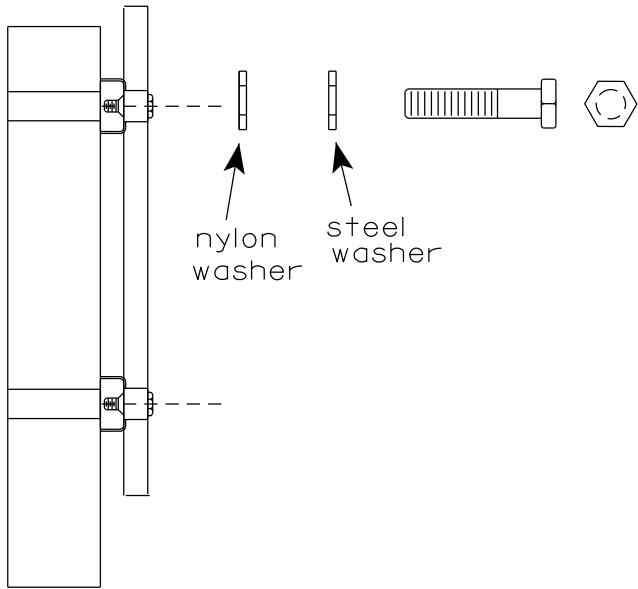
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

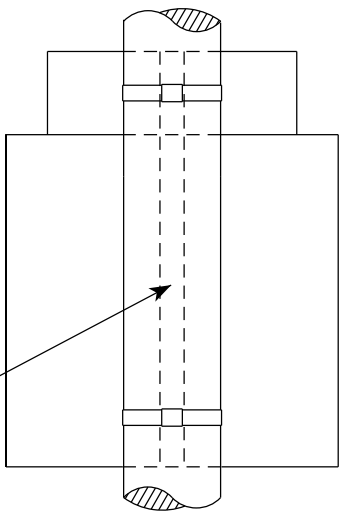


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

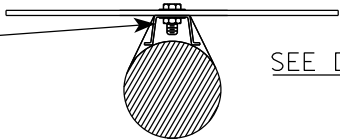
GENERAL NOTES

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



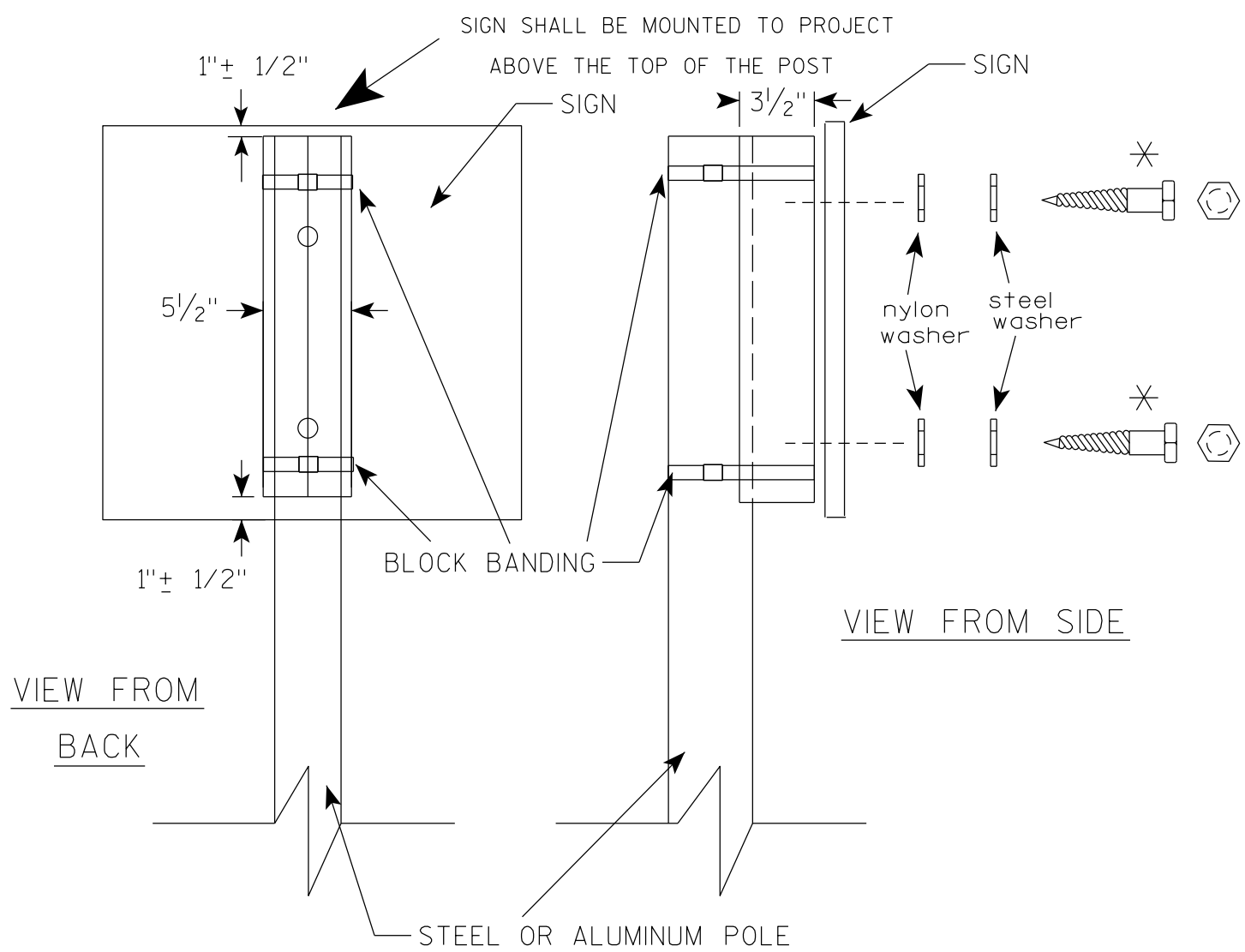
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

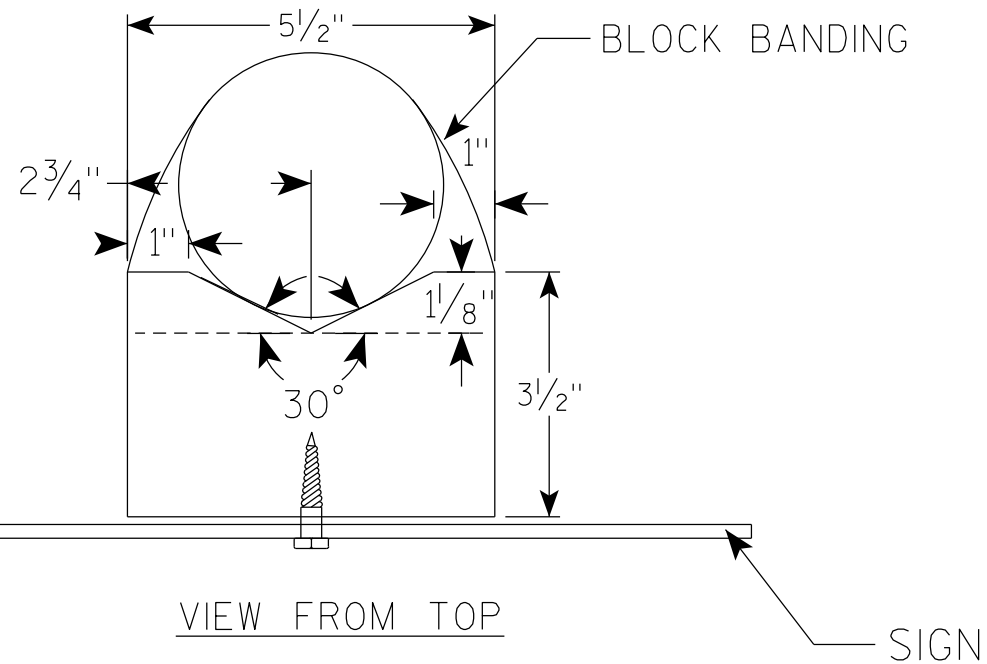
WISCONSIN DEPT OF TRANSPORTATION

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

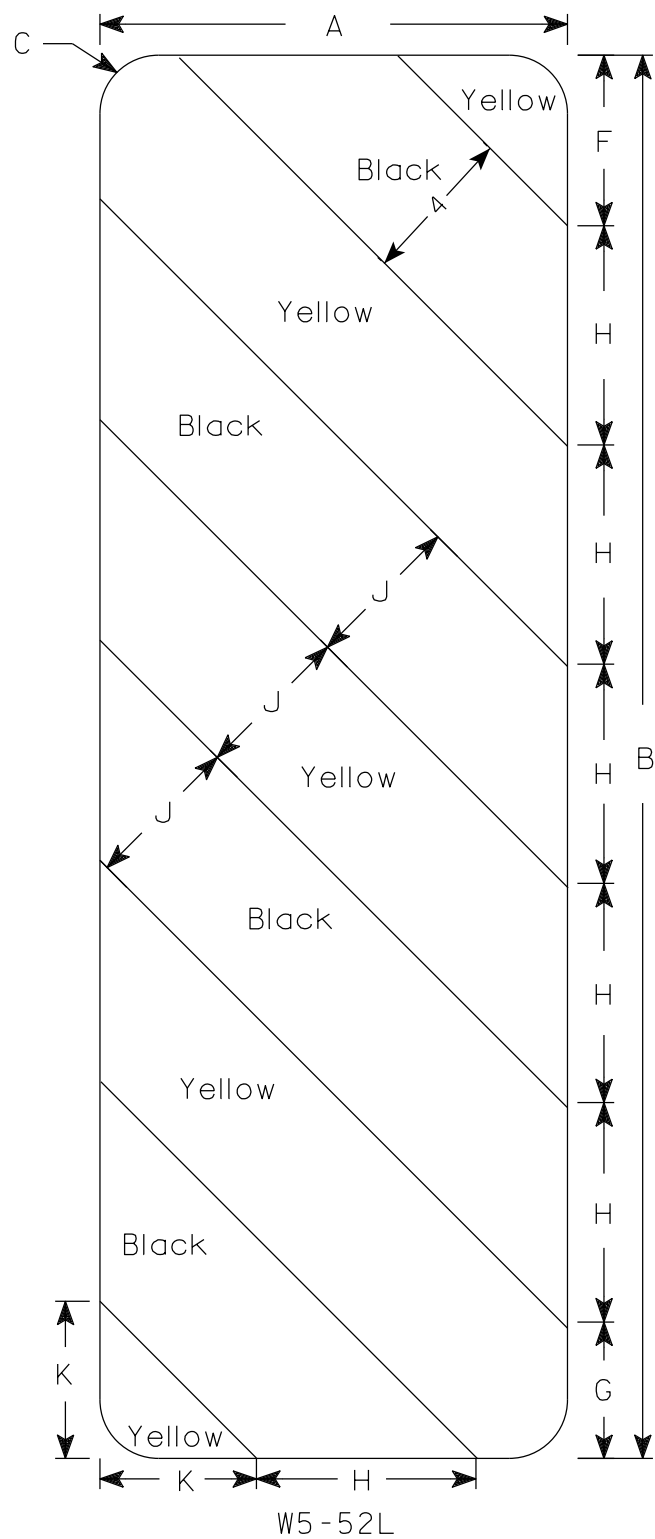
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

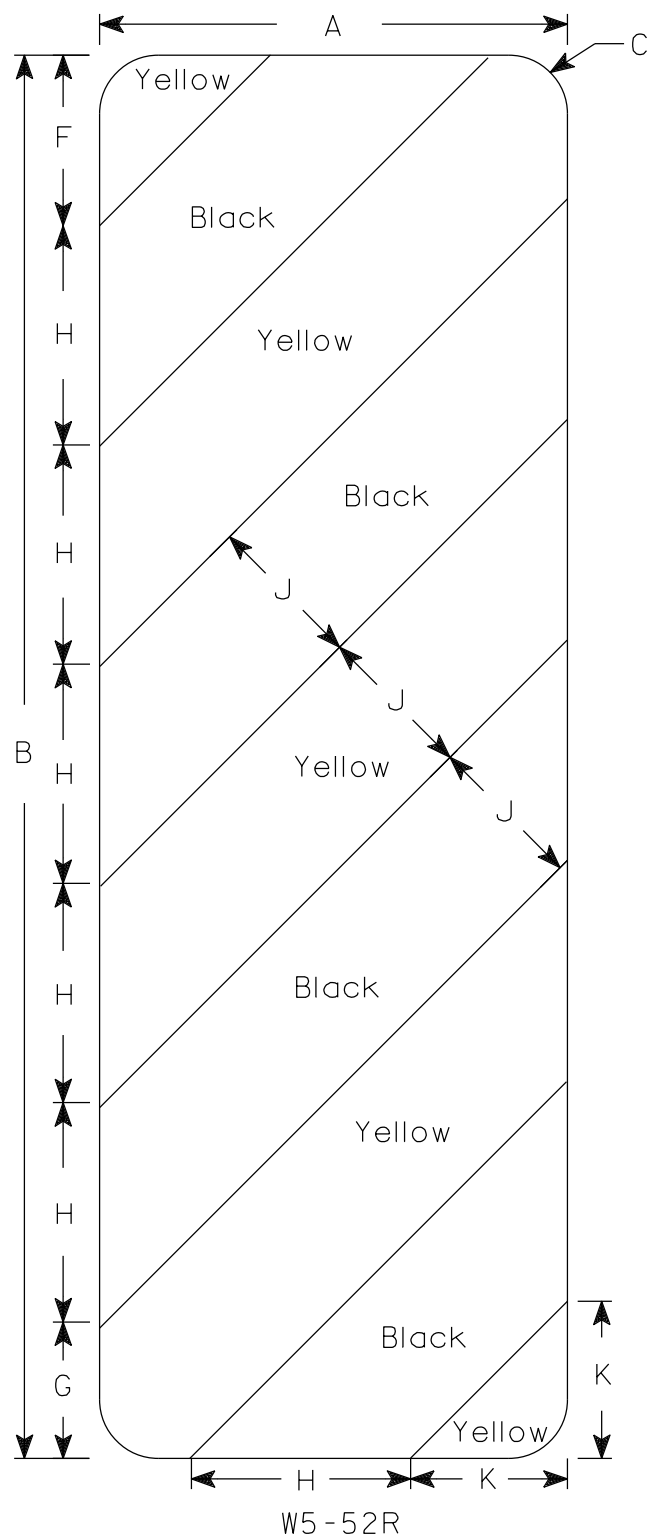
PROJECT NO:

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.

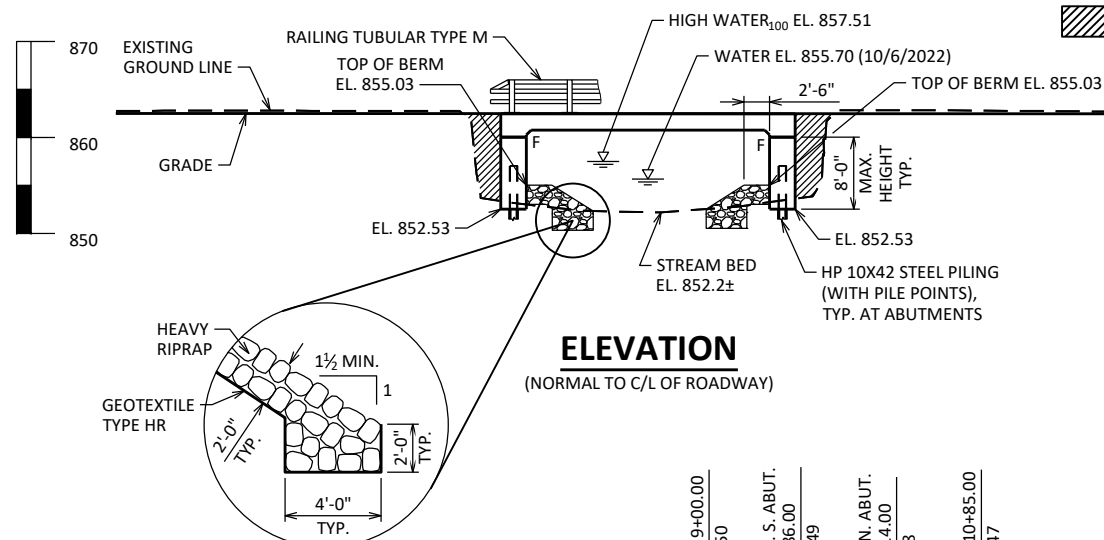
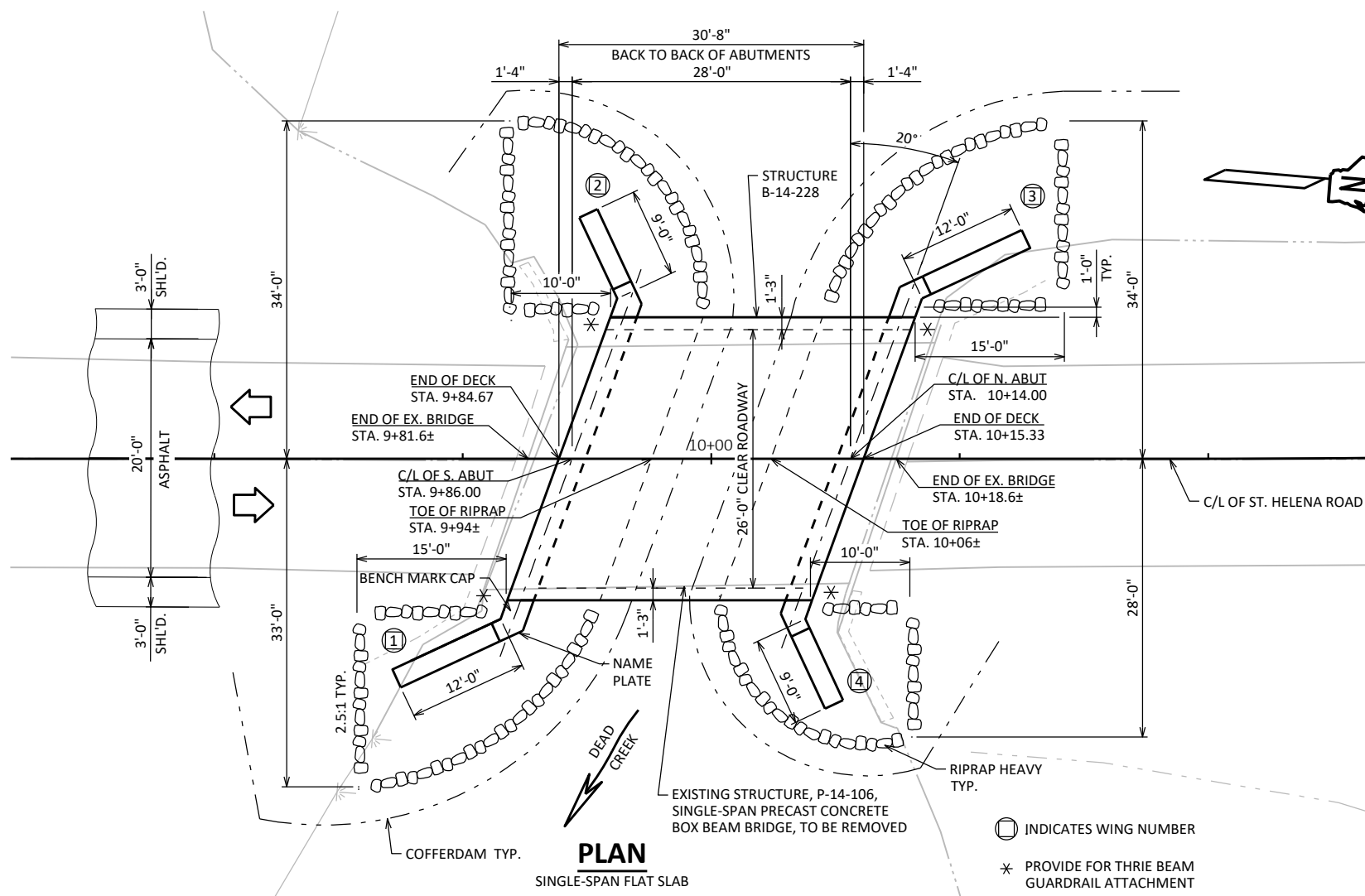
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

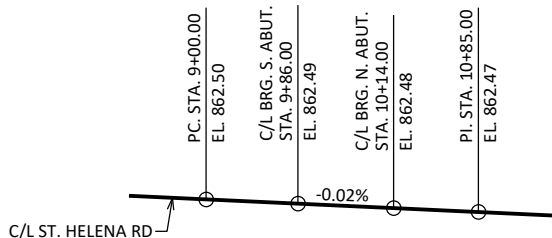
DATE 3/4/2024 PLATE NO. W5-52.10



BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
10	10+15	CHIS. SQUARE IN NE WINGWALL, 17' RT	862.56
11	9+84	CHIS. SQUARE IN SW WINGWALL, 13' LT	862.46

PROFILE GRADE LINE



LIST OF DRAWINGS:

1. GENERAL PLAN
2. QUANTITIES AND NOTES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT WING DETAILS
6. SOUTH ABUTMENT DETAILS AND BILL OF BARS
7. NORTH ABUTMENT
8. NORTH ABUTMENT WING DETAILS
9. NORTH ABUTMENT DETAILS AND BILL OF BARS
10. SUPERSTRUCTURE
11. SUPERSTRUCTURE PLAN
12. TUBULAR STEEL RAILING TYPE "M"

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
 INVENTORY RATING: RF = 1.11
 OPERATING RATING: RF = 1.44
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

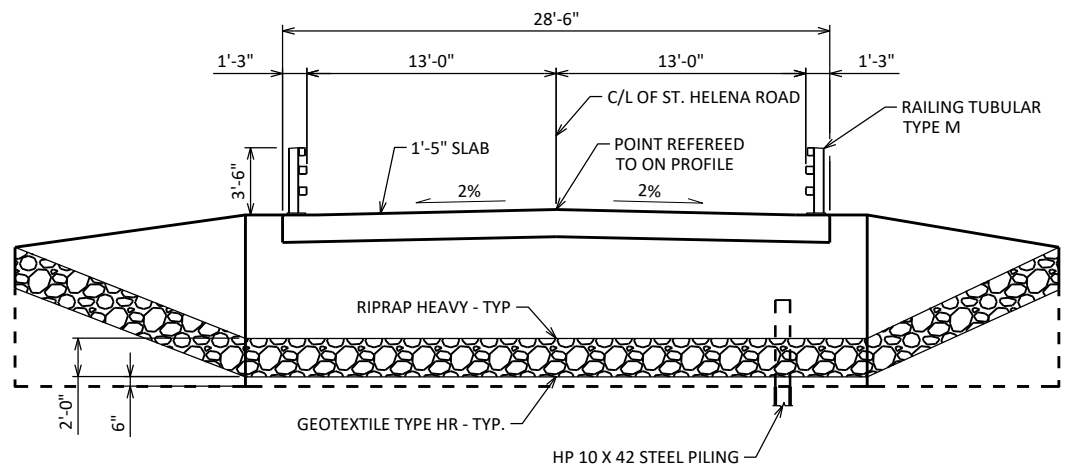
CONCRETE MASONRY:
 SUPERSTRUCTURE $f'_c = 4,000$ PSI
 ALL OTHER $f'_c = 3,500$ PSI

BAR STEEL REINFORCEMENT
 GRADE 60 $f_y = 60,000$ PSI

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON 10 X 42 PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 120 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
 ESTIMATED 30'-0" LONG AT SOUTH ABUTMENT.
 ESTIMATED 30'-0" LONG AT NORTH ABUTMENT.

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



TYPICAL SECTION THRU BRIDGE

HYDRAULIC DATA

100-YEAR FREQUENCY:

$Q_{100} = 247$ C.F.S.
 $V_{100} = 2.4$ F.P.S.
 $HW_{100} = EL. 857.51$
 WATERWAY AREA = 103 SQ. FT.
 DRAINAGE AREA = 25.2 SQ. MI.
 ROADWAY OVERTOPPING = N/A
 SCOUR CRITICAL CODE = 5

2-YEAR FREQUENCY:

$Q_2 = 133$ C.F.S.
 $V_2 = 2.4$ F.P.S.
 $HW_2 = EL. 855.82$

TRAFFIC DATA

FEATURE ON:

ADT = 305 (2025)
 ADT = 340 (2045)
 R.D.S. = 55 MPH



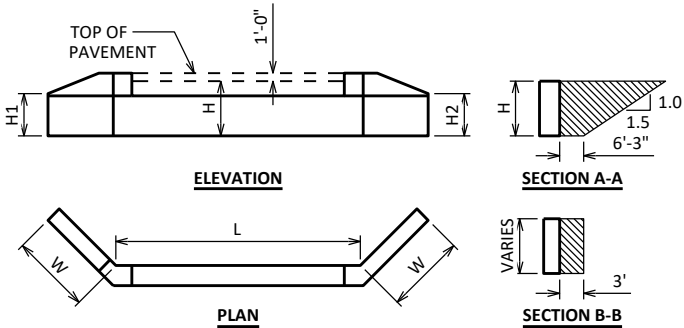
STRUCTURE DESIGN CONTACTS:

AARON BONK 608-261-0261
 KRISTOFER OLSON 920-498-1200

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
AYRES 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	<i>[Signature]</i>	SDR 08/14/24	DATE
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-14-228			
ST. HELENA ROAD OVER DEAD CREEK			
COUNTY	DODGE	TOWN	HUSTISFORD
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATION			
DESIGNED BY	JMC	DESIGNED CK'D	NBE
DRAWN BY	JMC/CLP	PLANS CK'D	KRO
GENERAL PLAN			SHEET 1 OF 12

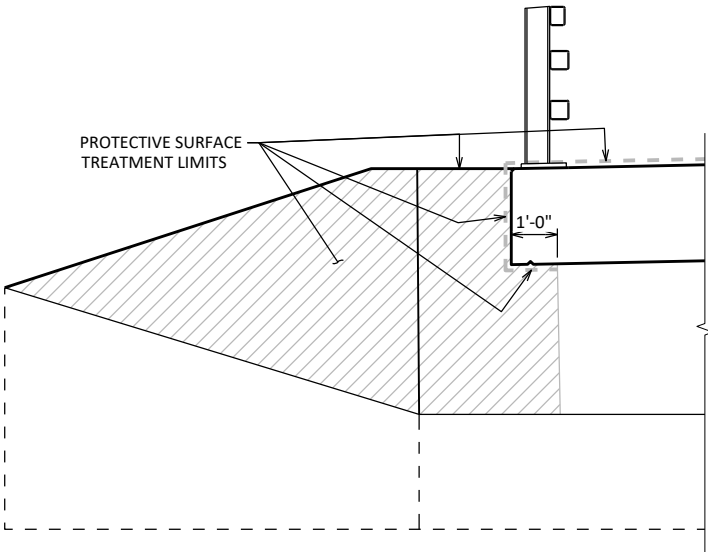
TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER	S ABUT.	N ABUT.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS (P-14-106)	EACH	---	---	---	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-14-228	EACH	---	---	---	1
206.5001	COFFERDAMS B-14-228	EACH	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	---	310	310	620
312.0110	SELECT CRUSHED MATERIAL	TON	---	36	36	72
502.0100	CONCRETE MASONRY BRIDGES	CY	50.5	40.3	40.3	131
502.3200	PROTECTIVE SURFACE TREATMENT	SY	115	20	20	155
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	---	2,390	2,390	4,780
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	9,690	1,610	1,610	12,910
513.4061	RAILING TUBULAR TYPE M	LF	64.8	---	---	64.8
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	---	7	7	14
550.0500	PILE POINTS	EACH	---	7	7	14
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	---	210	210	420
606.0300	RIPRAP HEAVY	CY	---	90	80	170
612.0406	PIPE UNDERDRAIN WRAPPED 6 - INCH	LF	---	80	80	160
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	---	70	70	140
645.0120	GEOTEXTILE TYPE HR	SY	---	165	175	340
	NON-BID ITEMS					
	FILLER	SIZE	---	---	---	1/2" , 3/4"

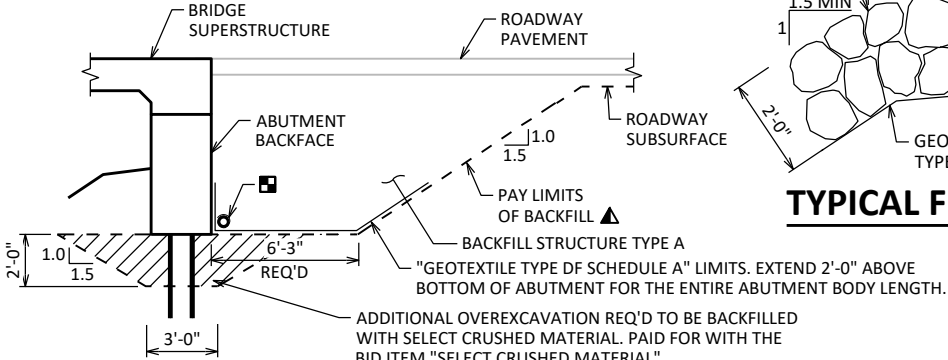


ABUTMENT BACKFILL DIAGRAM

L = ABUTMENT BODY LENGTH AT BACKFACE (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
H1 = WING 1 HEIGHT AT TIP (FT)
H2 = WING 2 HEIGHT AT TIP (FT)
W = WING LENGTH (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{cf} = (L)(6.25')(H) + (L)(0.5)(1.5H)(H) + (3')(0.5)(H1+H2+H+H)(W)$
 $V_{cy} = V_{cf}(EF)/27$
 $V_{ton} = V_{cy}(2.0)$

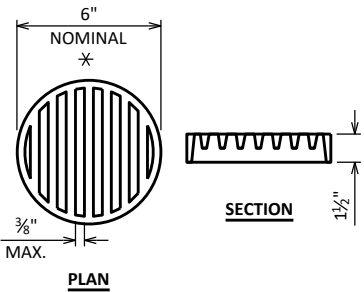


PROTECTIVE SURFACE TREATMENT DETAILS



TYPICAL SECTION THRU ABUTMENT

- ▲ BACKFILL PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

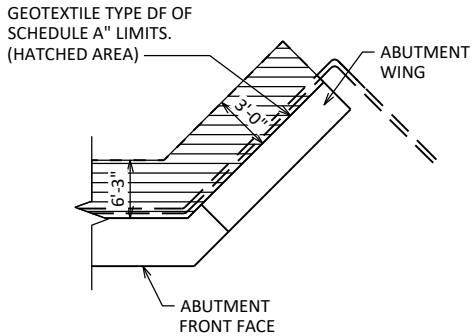


RODENT SHIELD DETAIL

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

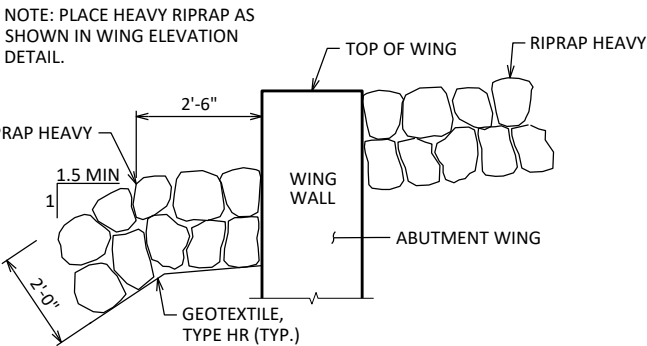
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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



BACKFILL STRUCTURE LIMITS

ABUTMENT PLAN WITH WING



TYPICAL FILL SECTION AT WING

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR COVER 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.

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

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.

SLAB FALSE WORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATIVE METHOD IS APPROVED BY THE ENGINEER.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-14-228" SHALL BE THE EXISTING GROUNDLINE.

THE REMOVAL OF THE EXISTING STRUCTURE IS INCLUDED IN A LUMP SUM PAY ITEM FOR BRIDGE P-14-106.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET AND APPLY TO THE TOP AND EXTERIOR EXPOSED FACE OF WINGS, AND THE END 1'-0" OF THE FRONT FACE OF ABUTMENTS.

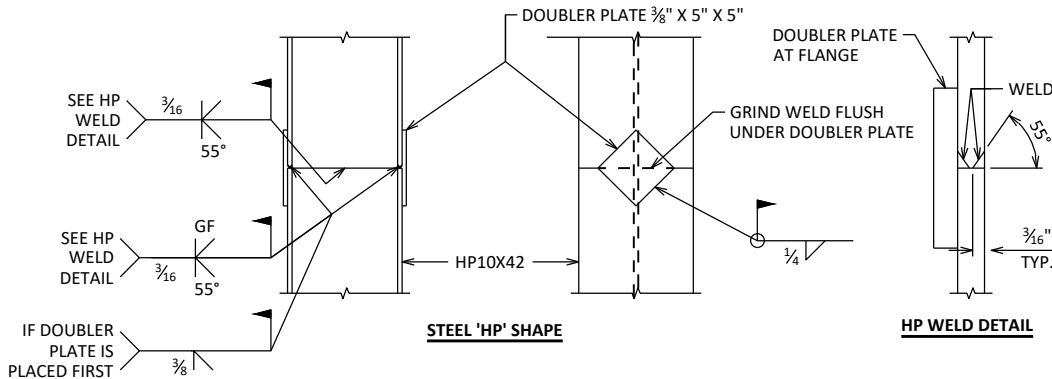
AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET A THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENTS.

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

REMOVE EXISTING SUBSTRUCTURES AS NEEDED TO BUILD NEW SUBSTRUCTURES. COST OF SUBSTRUCTURE REMOVAL IS CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE" BID ITEM.

CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.



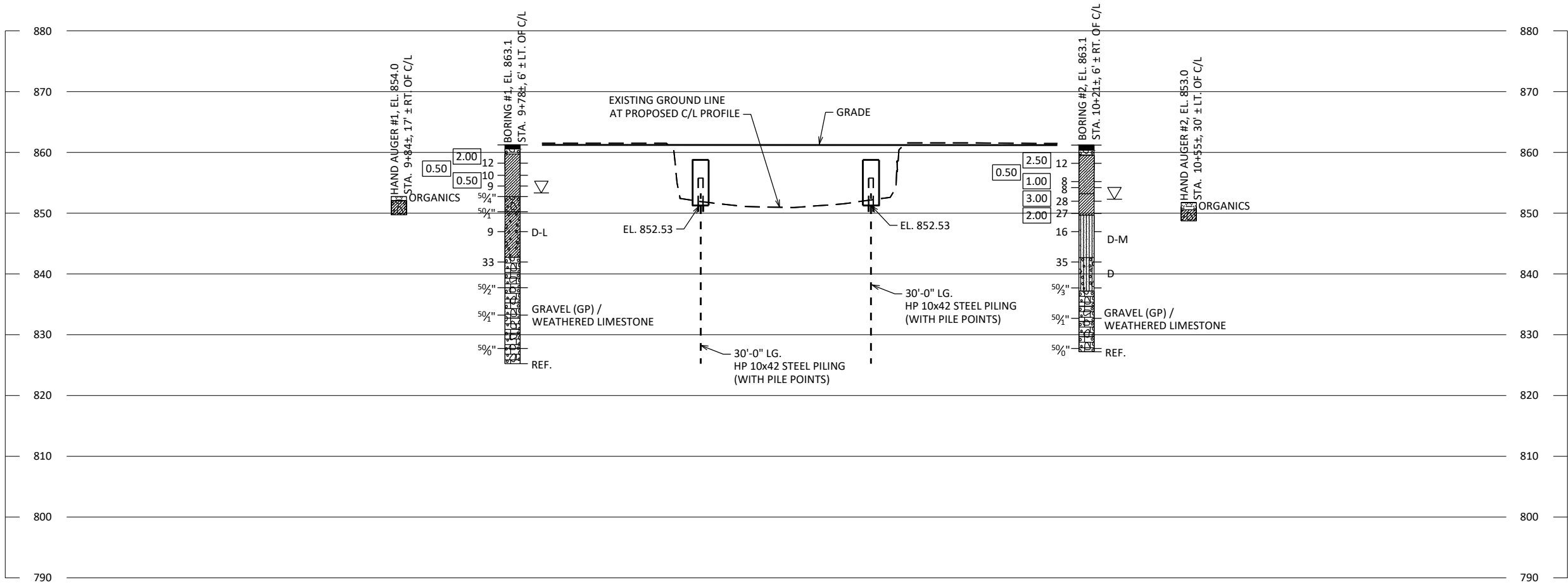
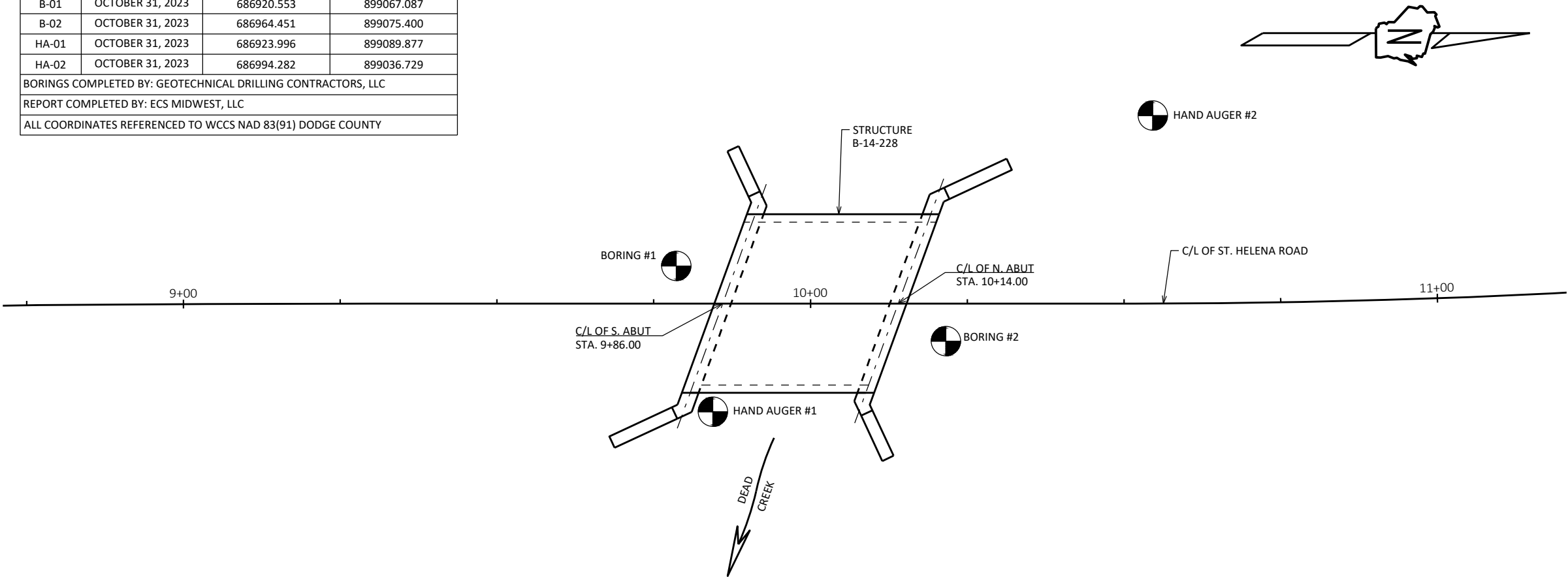
'HP' PILE DETAILS

FLANGE SHOWN, WEB SIMILAR

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-228			
DRAWN BY JMC/CLP		PLANS CK'D DRS	
QUANTITIES AND NOTES		SHEET 2 OF 12	

SCALE =

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-01	OCTOBER 31, 2023	686920.553	899067.087
B-02	OCTOBER 31, 2023	686964.451	899075.400
HA-01	OCTOBER 31, 2023	686923.996	899089.877
HA-02	OCTOBER 31, 2023	686994.282	899036.729
BORINGS COMPLETED BY: GEOTECHNICAL DRILLING CONTRACTORS, LLC			
REPORT COMPLETED BY: ECS MIDWEST, LLC			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) DODGE COUNTY			



STATE PROJECT NUMBER

3814-00-70

MATERIAL SYMBOLS

ASPHALT

CONCRETE

SAND

BOULDERS OR COBBLES

SHALE

TOPSOIL

FILL

CLAY

LIMESTONE

SANDSTONE

PEAT

GRAVEL

SILT

BEDROCK (UNKNOWN)

IGNEOUS/META

LEGEND OF BORING

BORING #/EL STA./OFFSET

ST

0.25

17

F-C

COBBLE OR BOULDER

WEATHERED LIMESTONE

CORE RUN #1 - 24'-29'

REC=80%, RQD=72%

(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

▽ AT TIME OF DRILLING

▼ END OF DRILLING

▼ AFTER DRILLING

ABBREVIATIONS

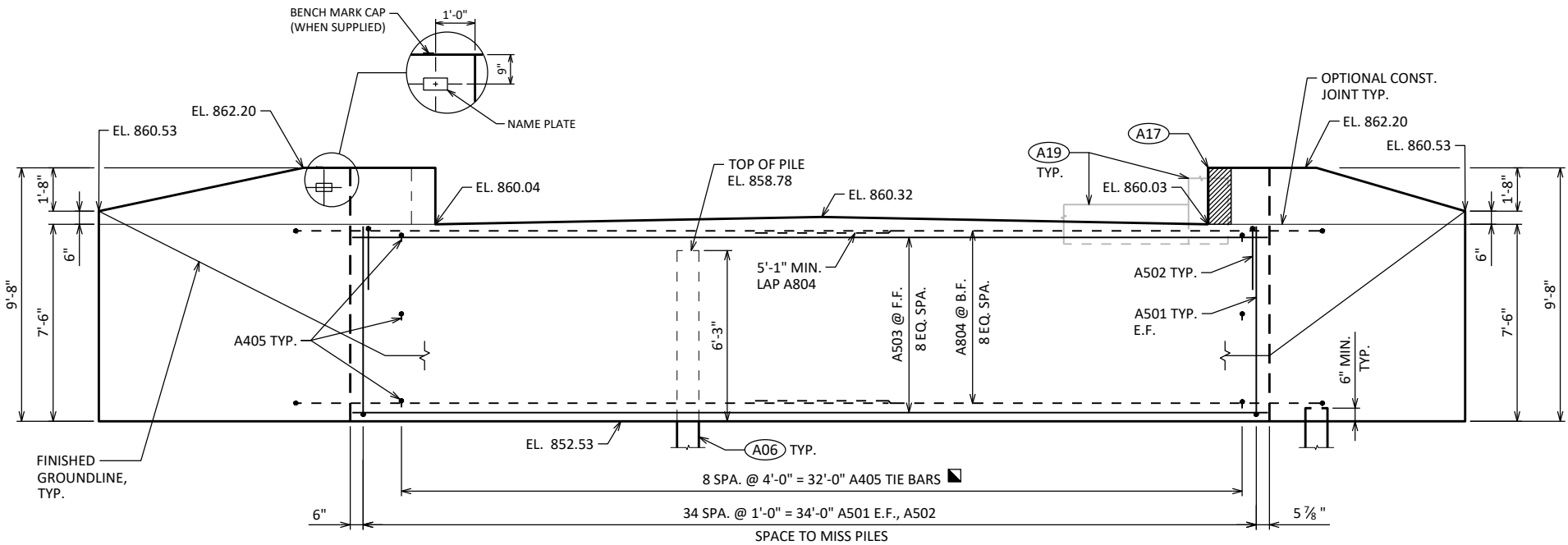
F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

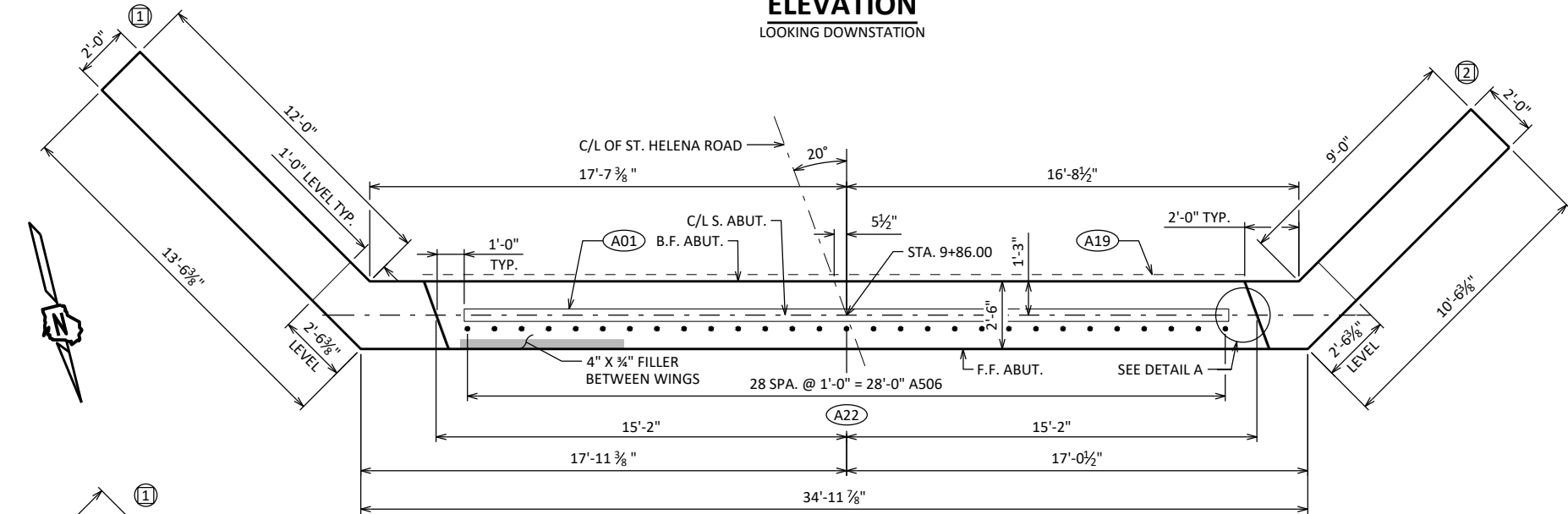
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-228			
DRAWN BY JMC		PLANS CK'D DRS	
SUBSURFACE EXPLORATION		SHEET 3 OF 12	

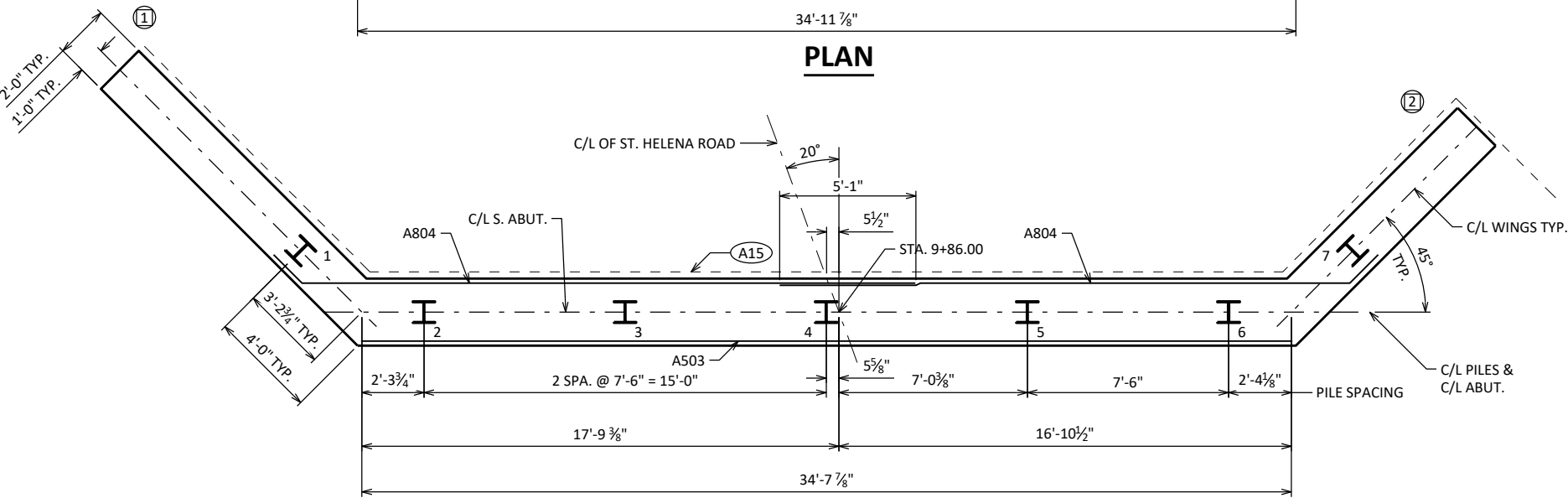
SCALE =



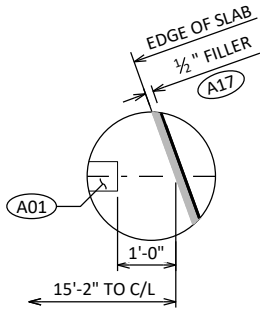
ELEVATION
LOOKING DOWNSTATION



PLAN



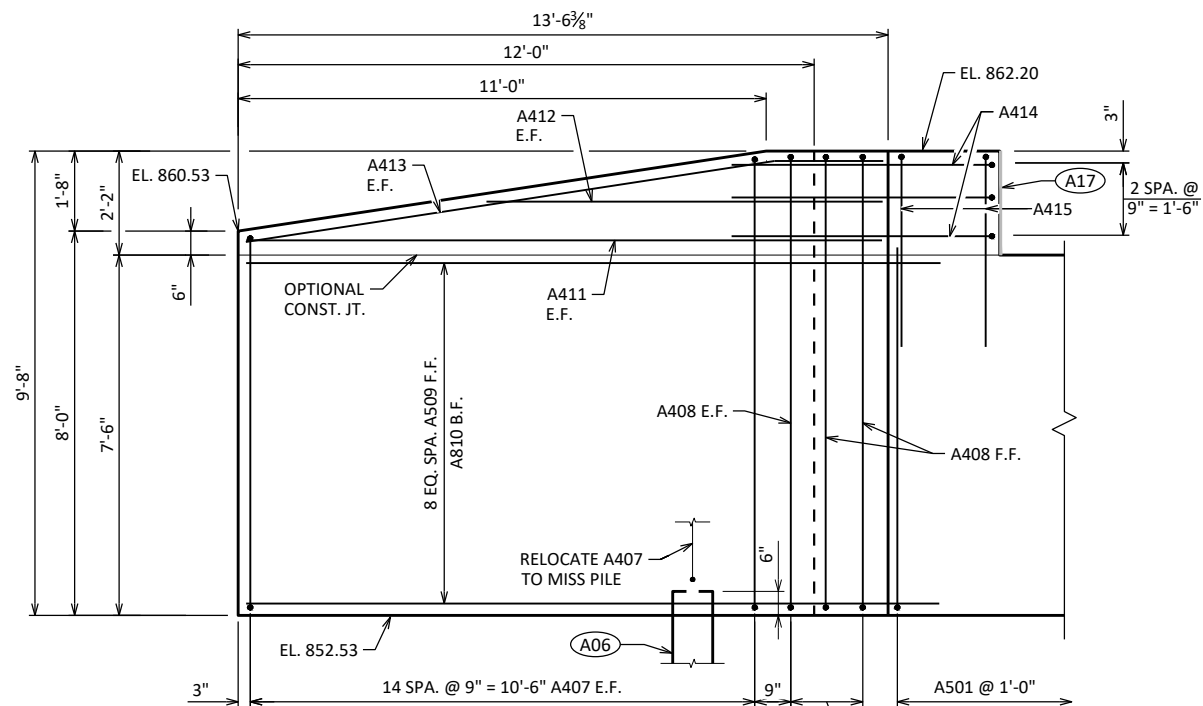
PILE PLAN



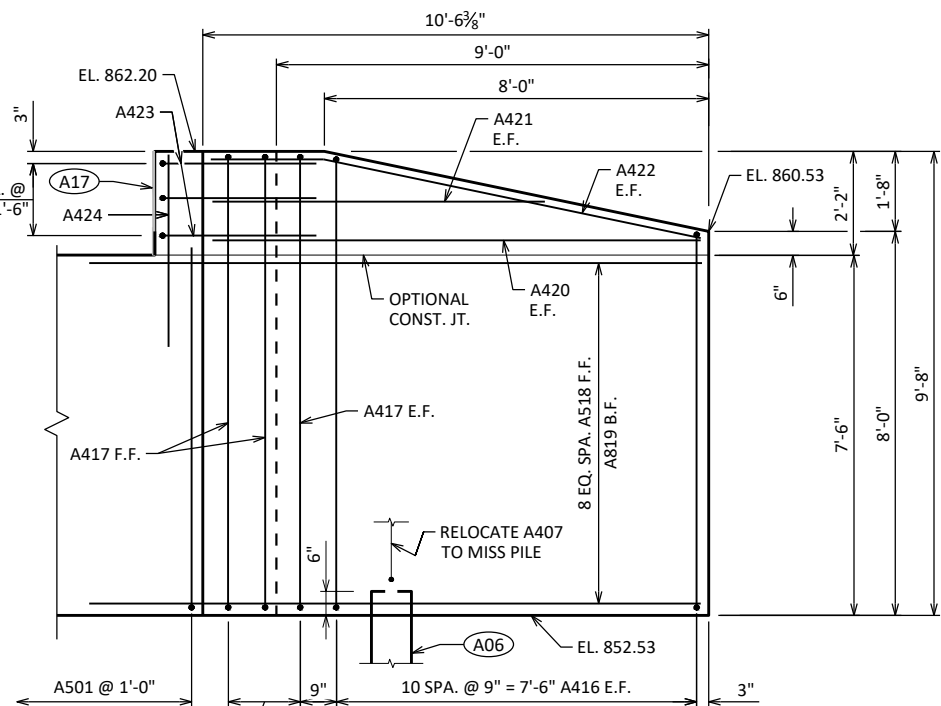
DETAIL A

- A01** CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6.
- A06** SUPPORT ABUTMENT ON HP 10 x 42 PILING, WITH PILE POINTS. ESTIMATED 30' LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.
- A15** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17** 1/2" FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/2" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19** 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- A22** A506 BARS SPACED @ 1'-0" CNTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

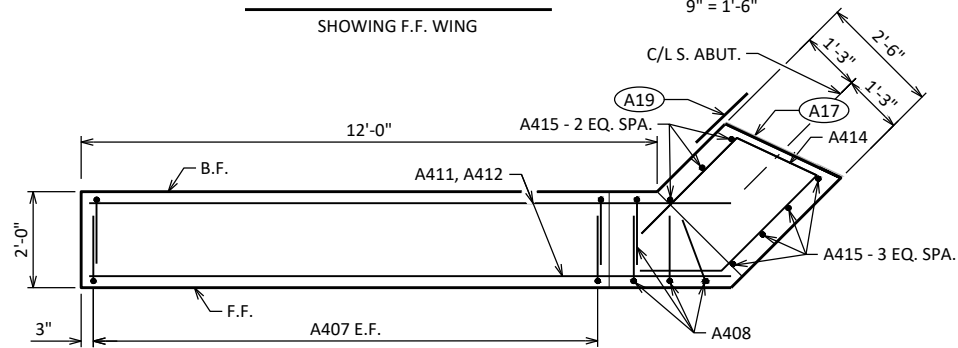
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-228			
DRAWN BY		CLP	PLANS CK'D DRS
SOUTH ABUTMENT		SHEET 4 OF 12	

**WING 1 ELEVATION**

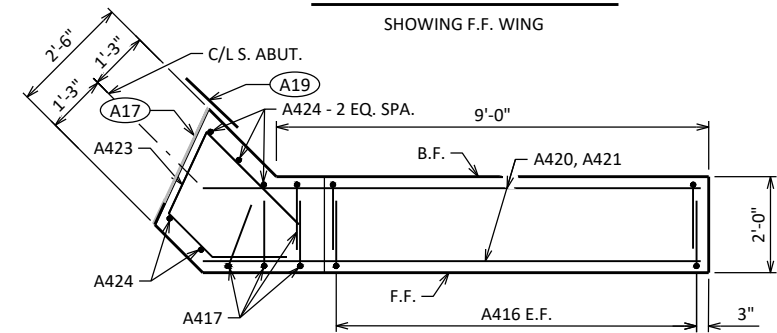
SHOWING F.F. WING

**WING 2 ELEVATION**

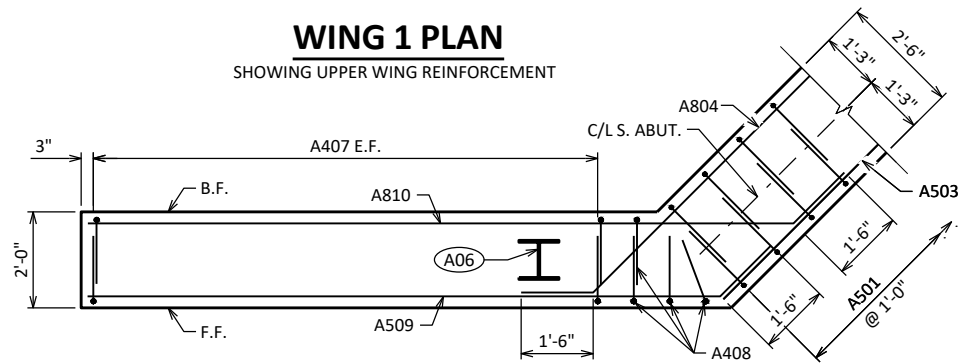
SHOWING F.F. WING

**WING 1 PLAN**

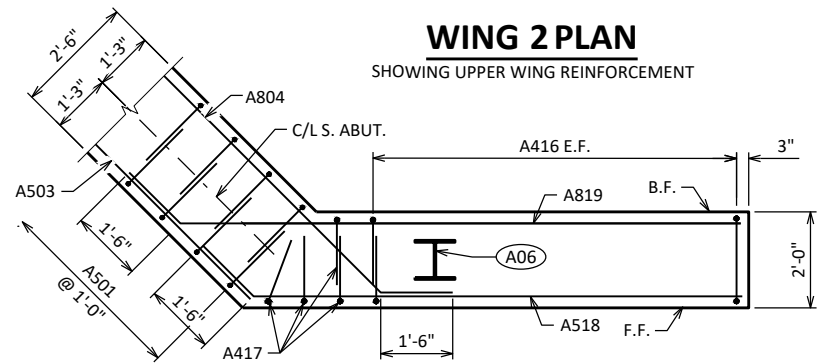
SHOWING UPPER WING REINFORCEMENT

**WING 2 PLAN**

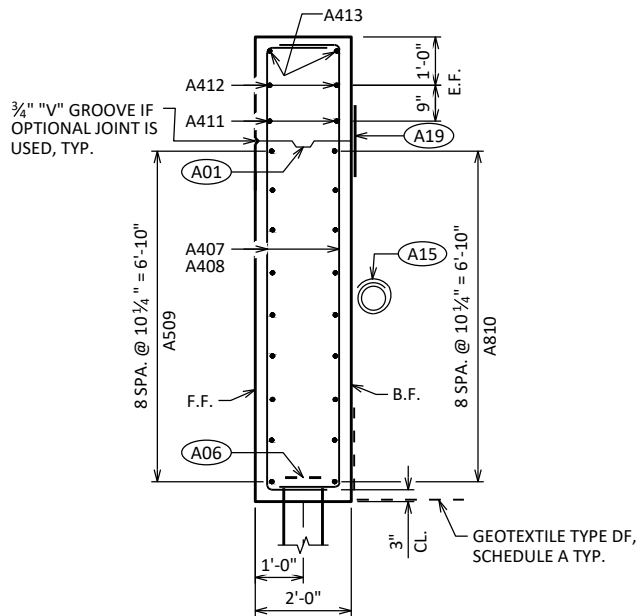
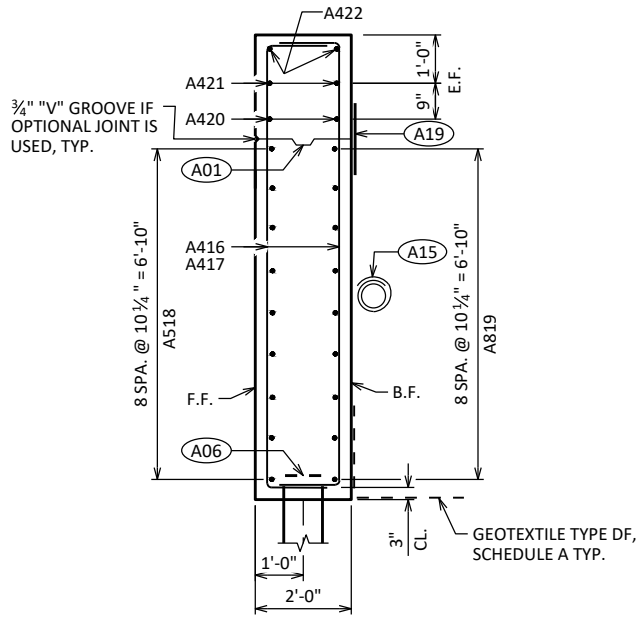
SHOWING UPPER WING REINFORCEMENT

**WING 1 PLAN**

SHOWING LOWER WING REINFORCEMENT

**WING 2 PLAN**

SHOWING LOWER WING REINFORCEMENT

**SECTION THRU WING 1****SECTION THRU WING 2**

(A01) OPTIONAL CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6. PROVIDE 3/4" "V" GROOVE ON F.F. OF WINGWALL IF JOINT IS USED.

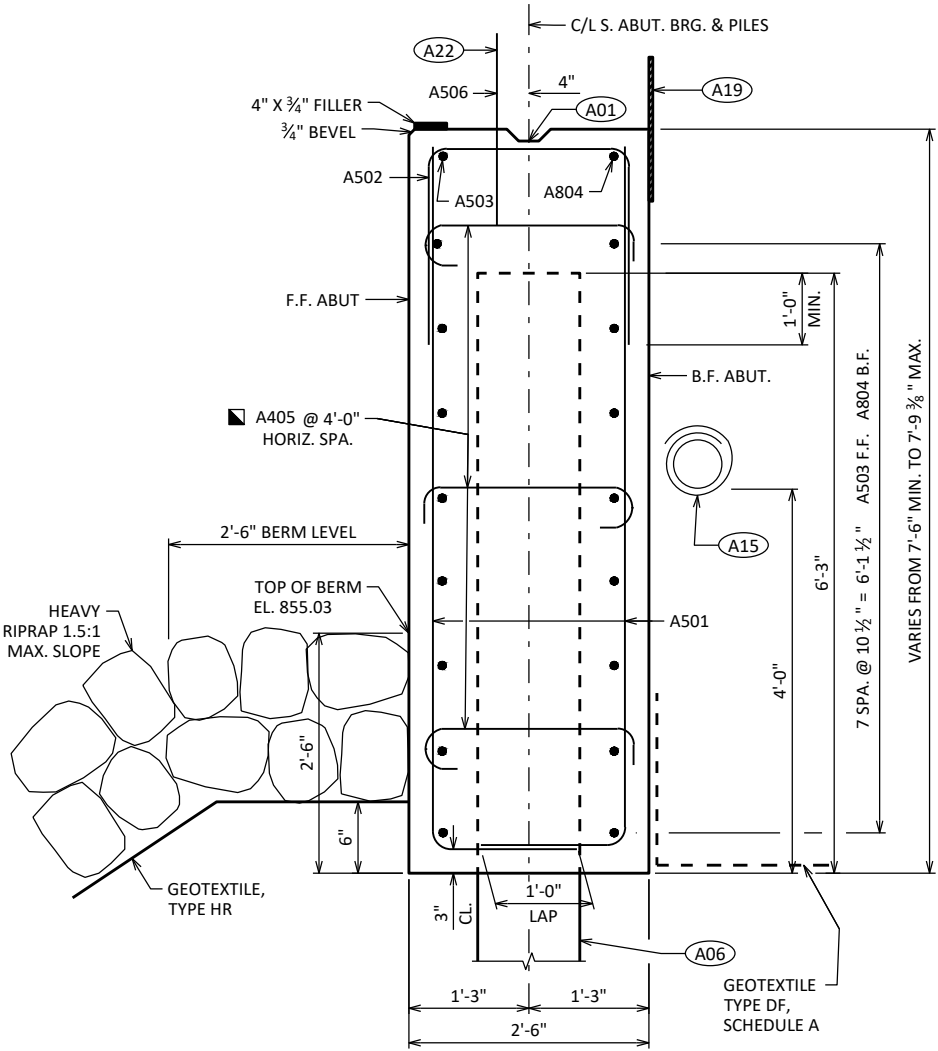
(A06) SUPPORT ABUTMENT ON HP 10 x 42 PILING, WITH PILE POINTS. ESTIMATED 30' LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

(A17) 1/2" FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 3/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

(A19) 18" RUBBERIZED MEMBRANE WATERPROOFING, ONLY IF OPTIONAL CONSTRUCTION JOINT IS USED. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY STRUCTURES".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-228			
DRAWN BY		CLP	PLANS CK'D DRS
SOUTH ABUTMENT WING DETAILS		SHEET 5 OF 12	



SECTION THRU BODY

- A01

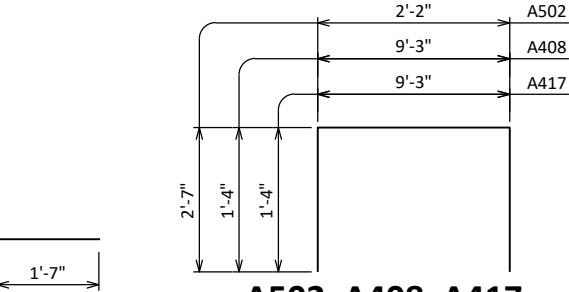
CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6.
- A06

SUPPORT ABUTMENT ON HP 10 x 42 PILING, WITH PILE POINTS. ESTIMATED 30' LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.
- A15

PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A19

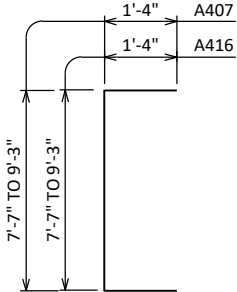
18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- A22

A506 BARS SPACED @ 1'-0" CNTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

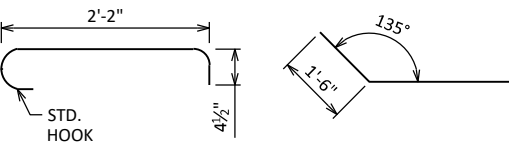


A501

A502, A408, A417

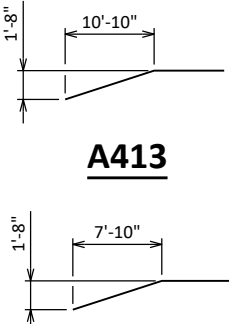


A407, A416



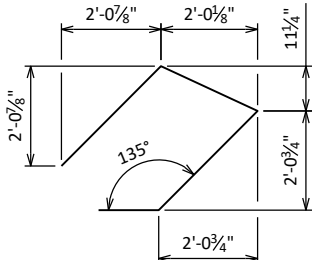
A405

A804, A509, A810
A518, A819

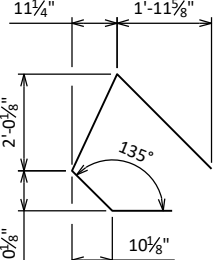


A413

A422



A414



A423

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		70	8'-6"	X		ABUT BODY STIRRUPS
A502		35	7'-1"	X		ABUT BODY STIRRUPS - TOP U-BAR
A503		9	34'-9"			ABUT BODY HORIZ. - F.F.
A804		18	23'-7"	X		ABUT BODY HORIZ. - B.F.
A405		27	2'-11"	X		ABUT BODY TIE BARS
A506	X	29	2'-0"			ABUT BODY DOWEL BARS
A407	X	30	10'-11"	X	▲	WING 1 STIRRUPS
A408	X	4	11'-10"	X		WING 1 STIRRUPS
A509	X	9	14'-9"	X		WING 1 LOWER HORIZ. - F.F.
A810	X	9	16'-5"	X		WING 1 LOWER HORIZ. - B.F.
A411	X	2	13'-3"			WING 1 UPPER HORIZ.
A412	X	2	8'-3"			WING 1 UPPER HORIZ.
A413	X	2	12'-6"	X		WING 1 UPPER DIAG.
A414	X	3	9'-1"	X		WING 1 TOP HORIZ. CORNER
A415	X	7	3'-6"			WING 1 TOP VERT. CORNER
A416	X	22	10'-11"	X	▲	WING 2 STIRRUPS
A417	X	4	11'-10"	X		WING 2 STIRRUPS
A518	X	9	11'-9"	X		WING 2 LOWER HORIZ. - F.F.
A819	X	9	13'-5"	X		WING 2 LOWER HORIZ. - B.F.
A420	X	2	10'-1"			WING 2 UPPER HORIZ.
A421	X	2	6'-6"			WING 2 UPPER HORIZ.
A422	X	2	9'-6"	X		WING 2 UPPER DIAG.
A423	X	3	7'-3"	X		WING 2 TOP HORIZ. CORNER
A424	X	5	3'-6"			WING 2 TOP VERT. CORNER

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

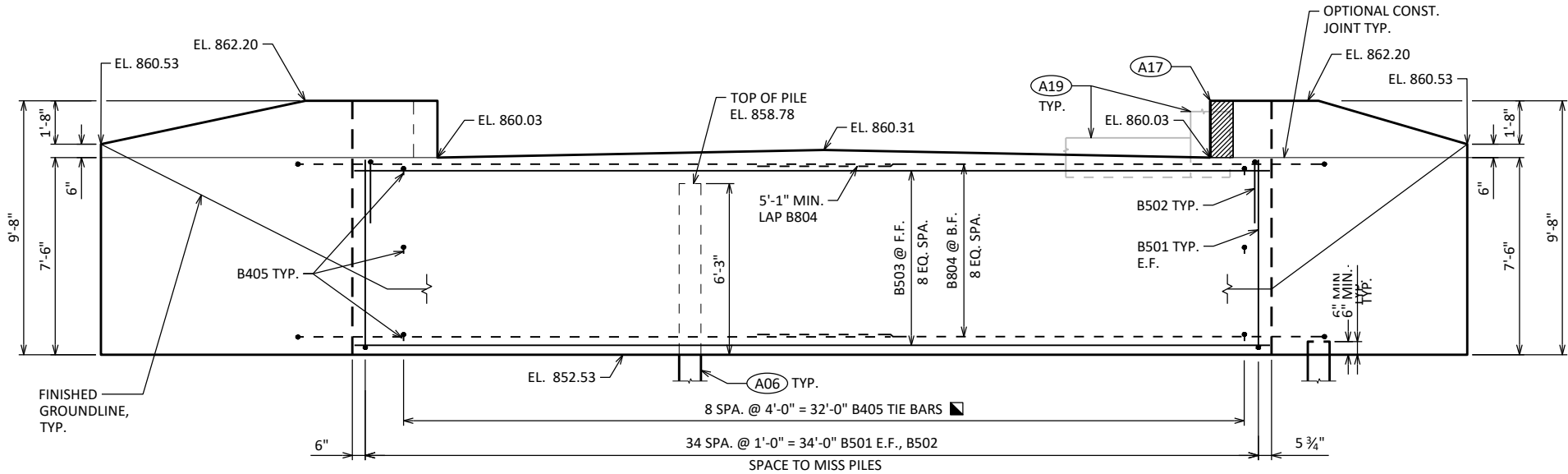
▲ LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

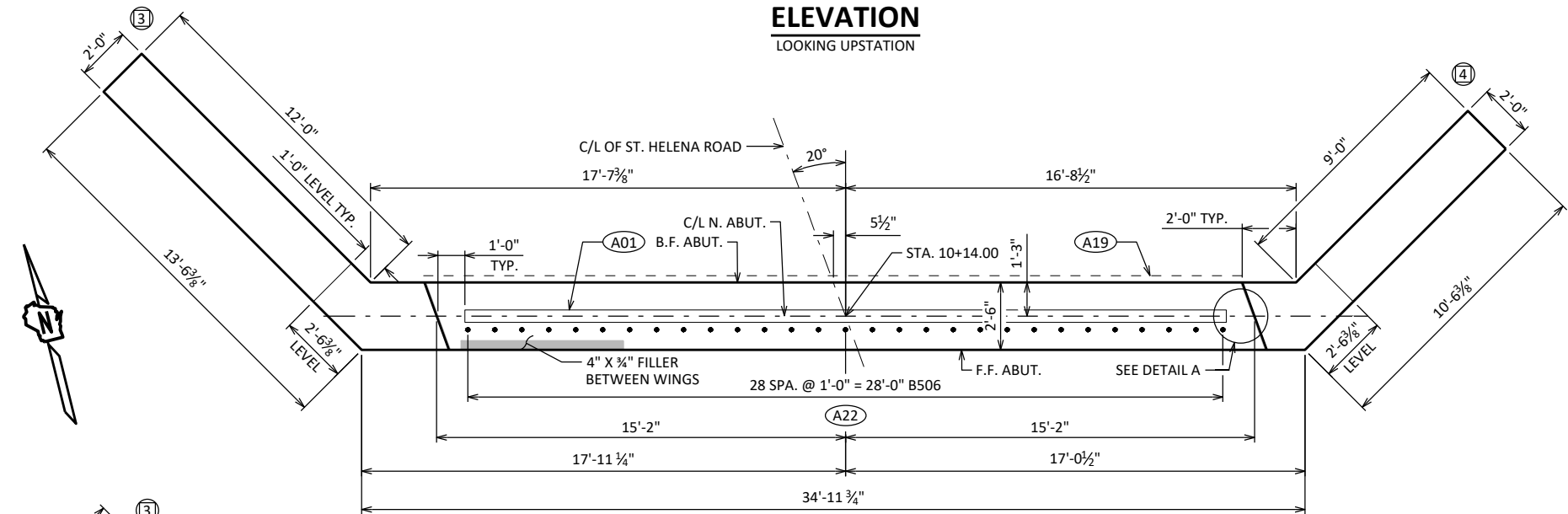
BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO.	REQ'D.	LENGTH
A407	2	SERIES OF 15	10'-1" TO 11'-9"
A416	2	SERIES OF 11	10'-1" TO 11'-9"

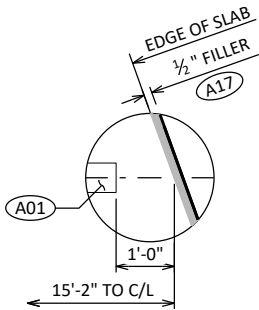
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-228			
DRAWN BY		CLP	PLANS CK'D DRS
SOUTH ABUTMENT DETAILS AND BILL OF BARS		SHEET 6 OF 12	



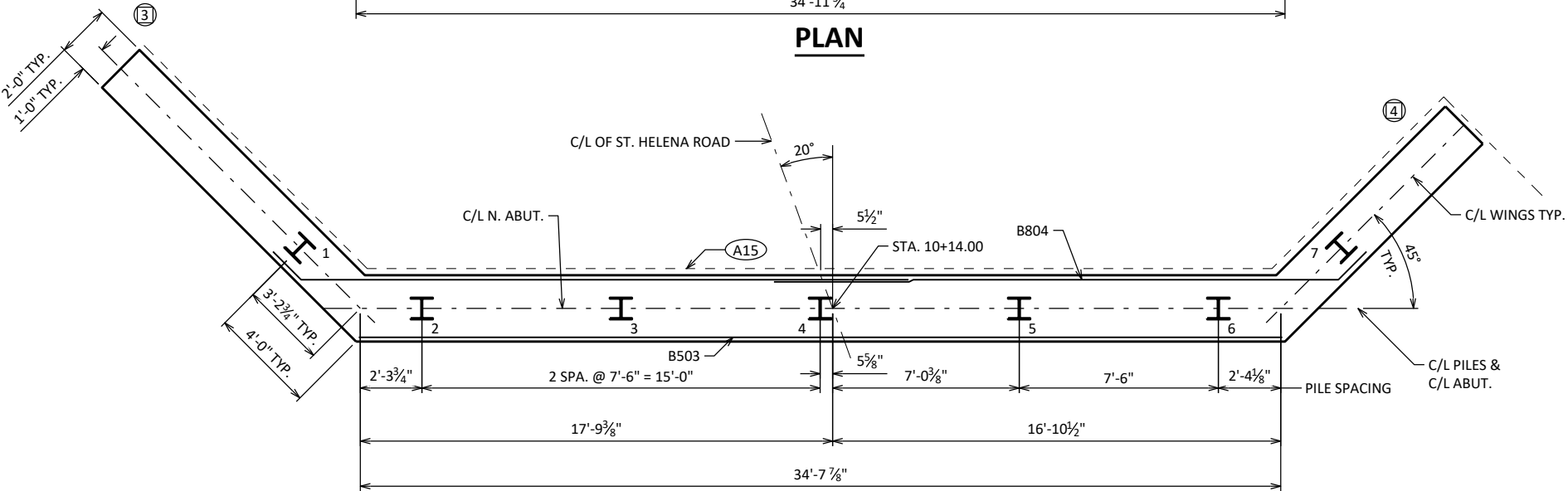
ELEVATION
LOOKING UPSTATION



PLAN



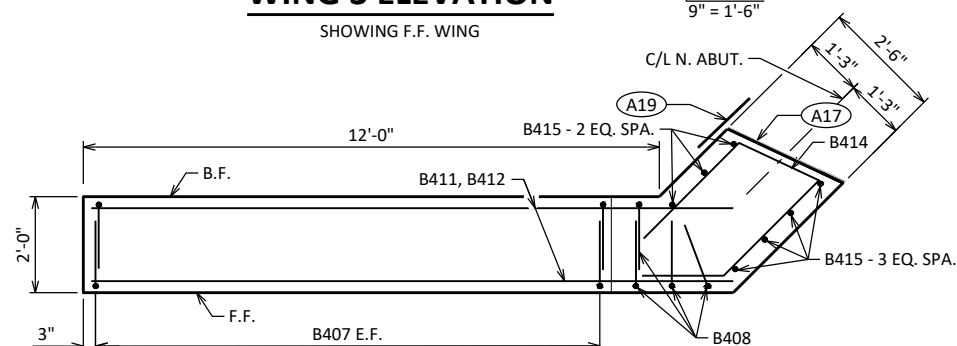
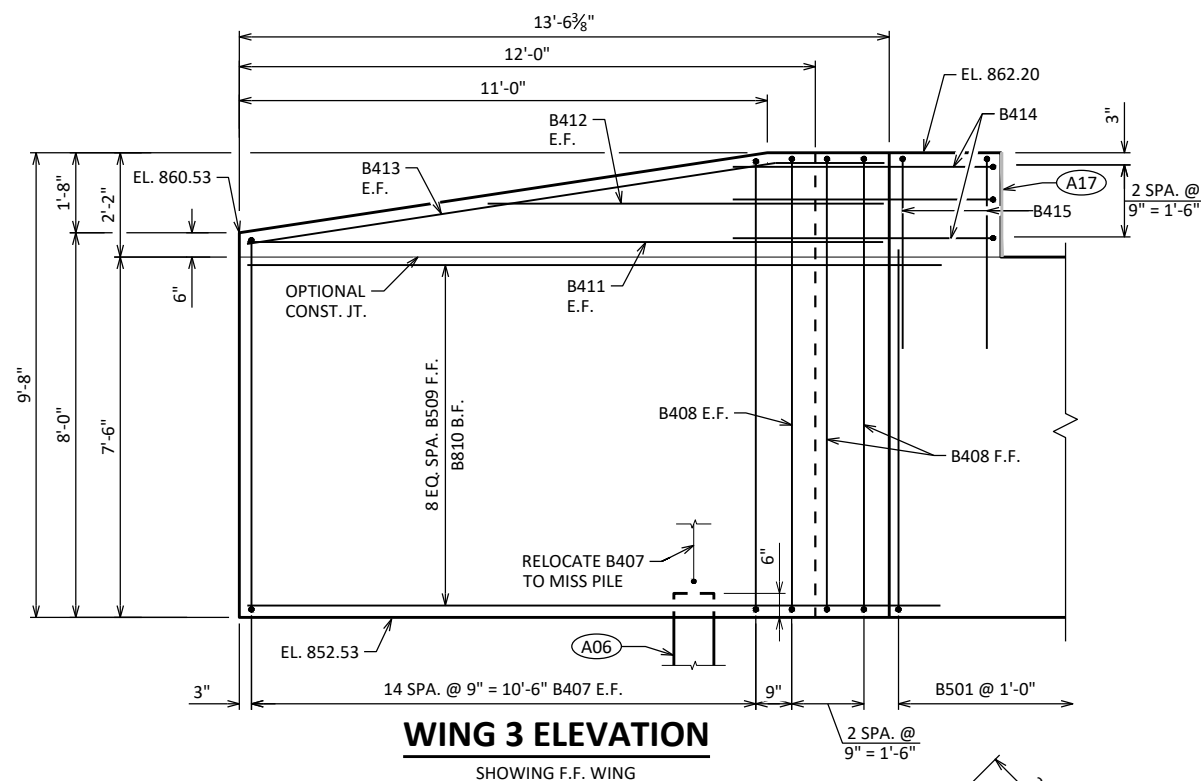
DETAIL A



PILE PLAN

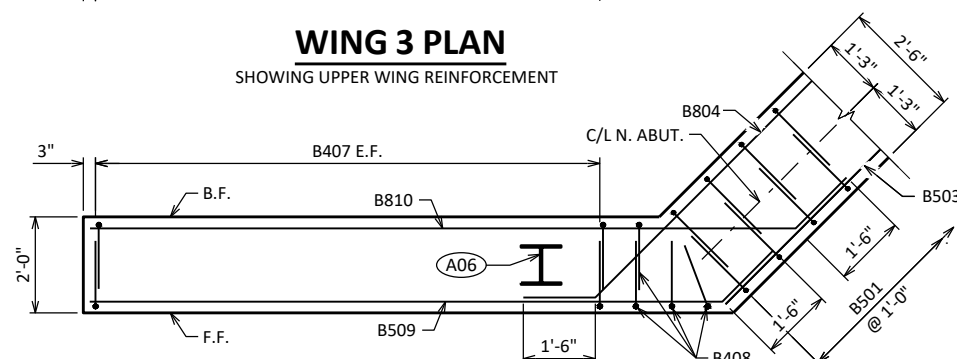
- (A01) CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6.
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 PILING, WITH PILE POINTS. ESTIMATED 30' LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/2" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A22) B506 BARS SPACED @ 1'-0" CNTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-228			
DRAWN BY		CLP	PLANS CK'D DRS
NORTH ABUTMENT		SHEET 7 OF 12	

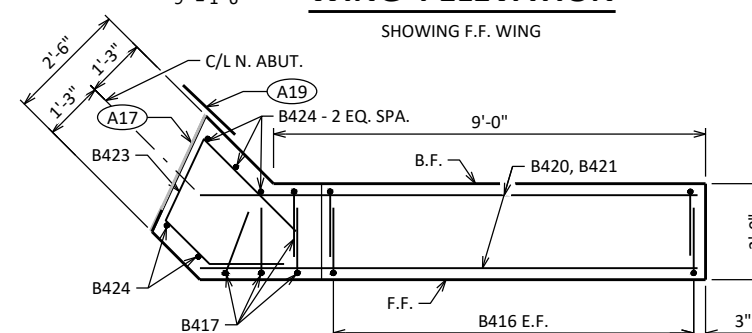
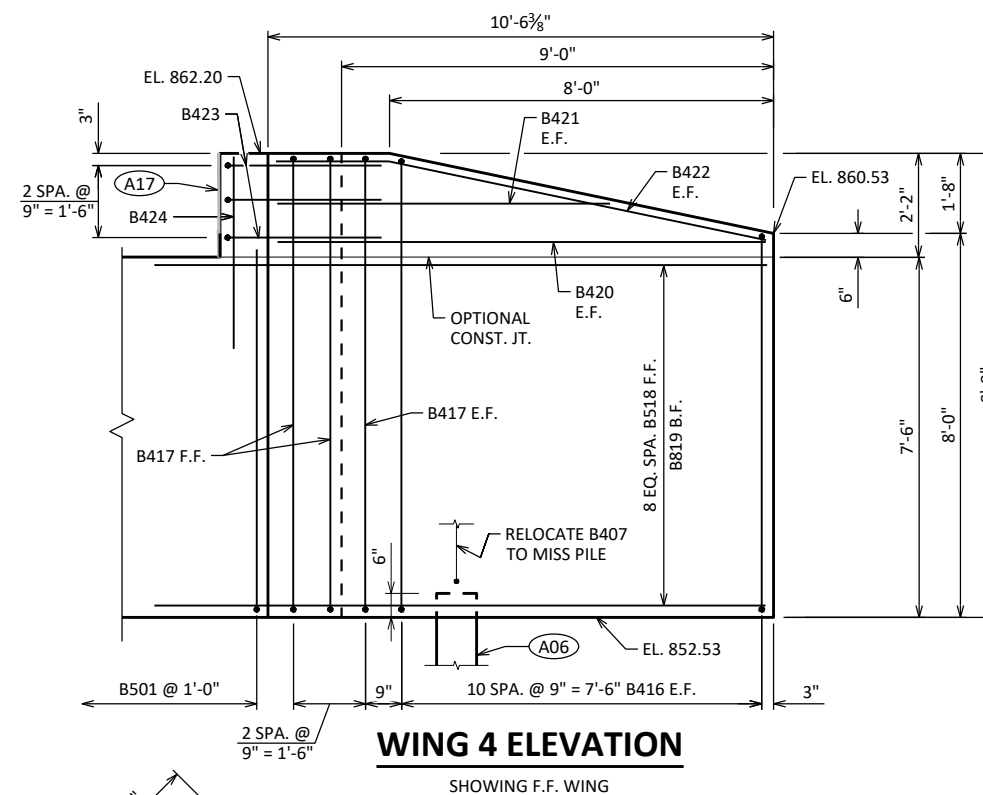


WING 3 PLAN

SHOWING UPPER WING REINFORCEMENT

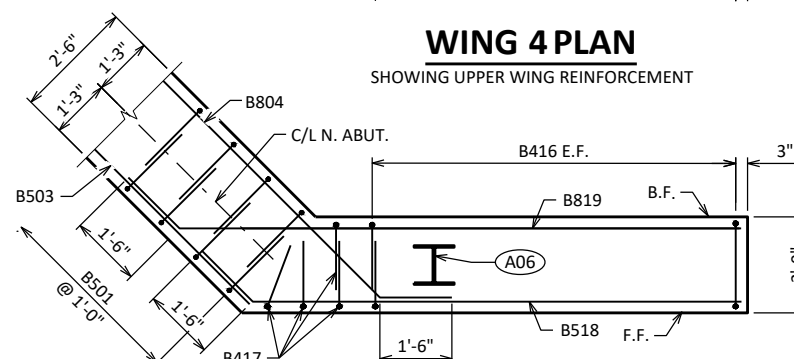


WING 3 PLAN

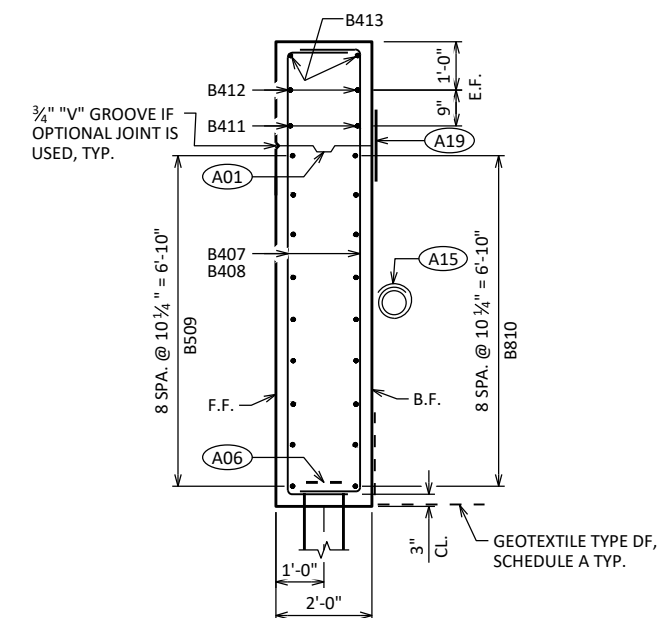


WING 4 PLAN

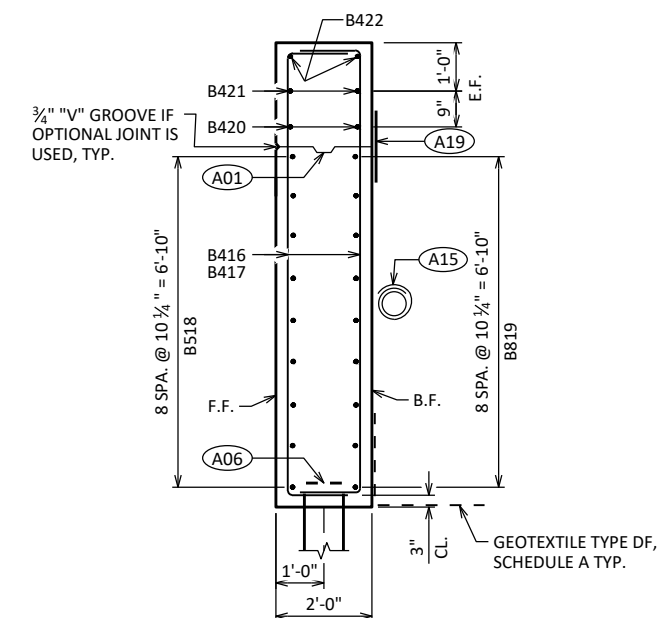
SHOWING UPPER WING REINFORCEMENT



WING 4 PLAN

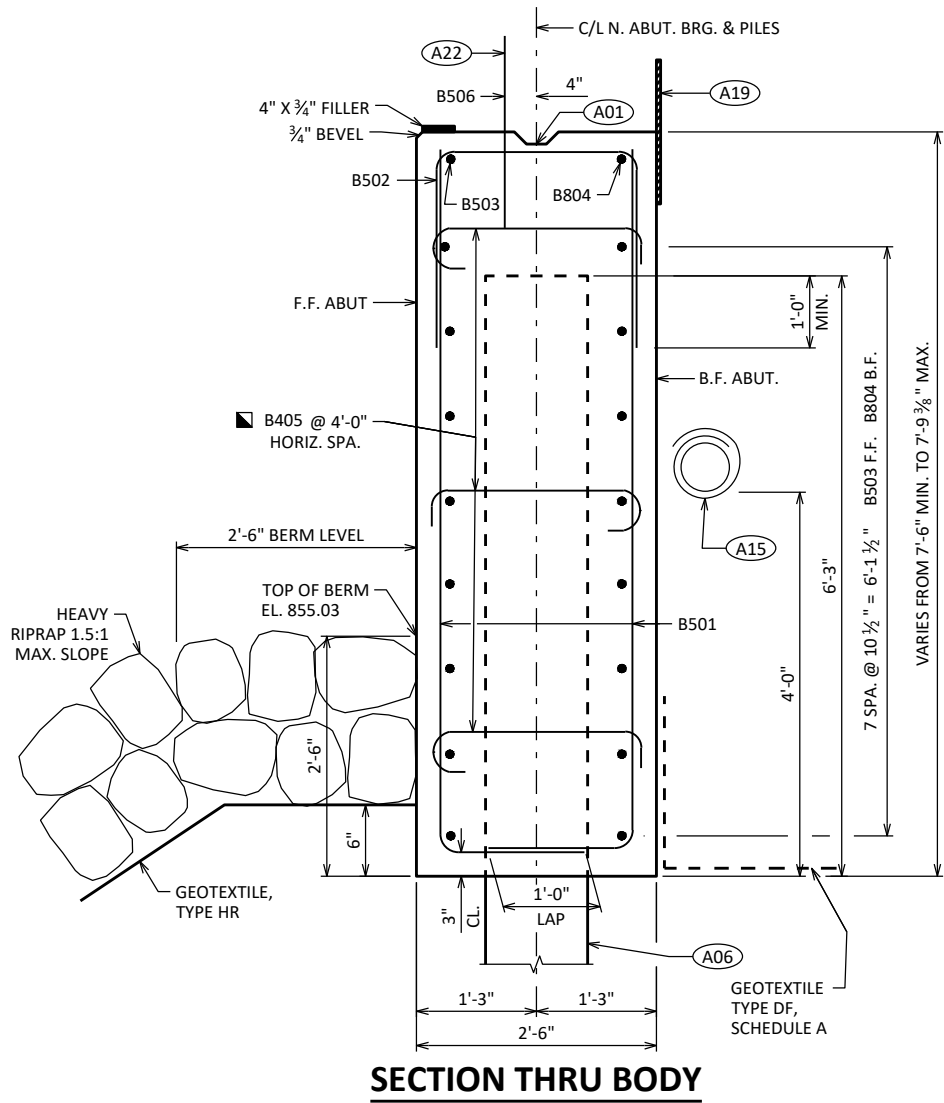


SECTION THRU WING 3

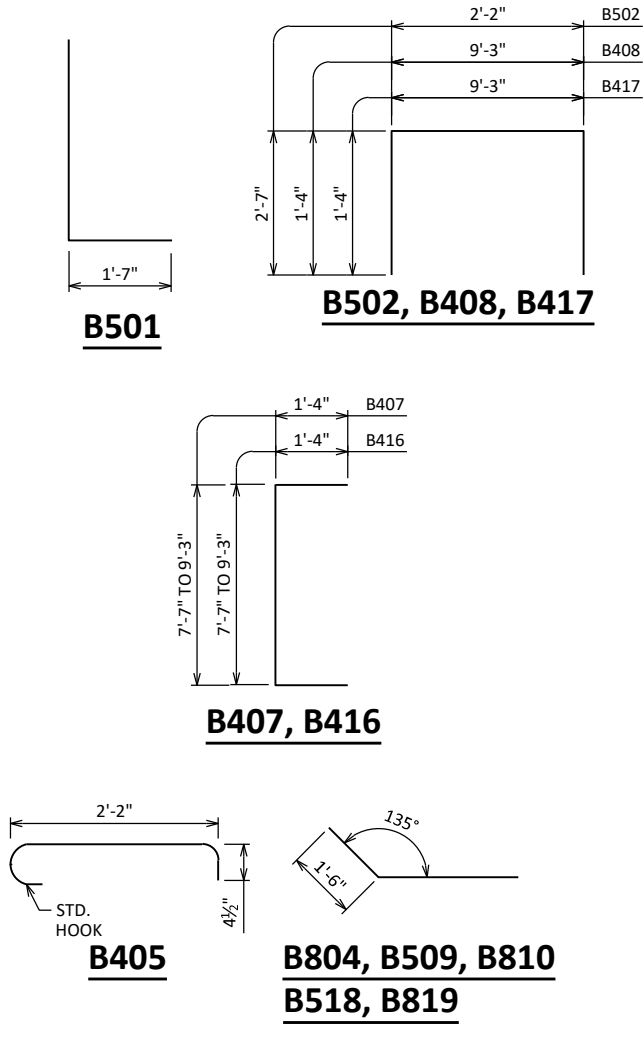


SECTION THRU WING 4

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-14-228	
		DRAWN BY	CLP
		PLANS CK'D	DRS
NORTH ABUTMENT WING DETAILS		SHEET 8 OF 12	



- (A01) CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6.
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 PILING, WITH PILE POINTS. ESTIMATED 30' LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A19) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A22) B506 BARS SPACED @ 1'-0" CNTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.



BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.	LENGTH
B407	2 SERIES OF 15	10'-1" TO 11'-9"
B416	2 SERIES OF 11	10'-1" TO 11'-9"

STATE PROJECT NUMBER
3814-00-70

BILL OF BARS

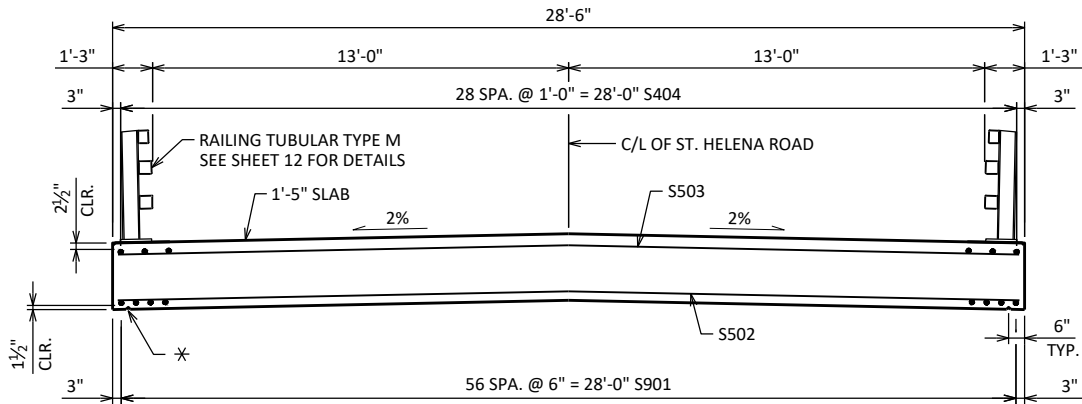
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501		70	8'-6"	X		ABUT BODY STIRRUPS
B502		35	7'-1"	X		ABUT BODY STIRRUPS - TOP U-BAR
B503		9	34'-9"			ABUT BODY HORIZ. - F.F.
B804		18	23'-7"	X		ABUT BODY HORIZ. - B.F.
B405		27	2'-11"	X		ABUT BODY TIE BARS
B506	X	29	2'-0"			ABUT BODY DOWEL BARS
B407	X	30	10'-11"	X	▲	WING 3 STIRRUPS
B408	X	4	11'-10"	X		WING 3 STIRRUPS
B509	X	9	14'-9"	X		WING 3 LOWER HORIZ. - F.F.
B810	X	9	16'-5"	X		WING 3 LOWER HORIZ. - B.F.
B411	X	2	13'-3"			WING 3 UPPER HORIZ.
B412	X	2	8'-3"			WING 3 UPPER HORIZ.
B413	X	2	12'-6"	X		WING 3 UPPER DIAG.
B414	X	3	9'-1"	X		WING 3 TOP HORIZ. CORNER
B415	X	7	3'-6"			WING 3 TOP VERT. CORNER
B416	X	22	10'-11"	X	▲	WING 4 STIRRUPS
B417	X	4	11'-10"	X		WING 4 STIRRUPS
B518	X	9	11'-9"	X		WING 4 LOWER HORIZ. - F.F.
B819	X	9	13'-5"	X		WING 4 LOWER HORIZ. - B.F.
B420	X	2	10'-1"			WING 4 UPPER HORIZ.
B421	X	2	6'-6"			WING 4 UPPER HORIZ.
B422	X	2	9'-6"	X		WING 4 UPPER DIAG.
B423	X	3	7'-3"	X		WING 4 TOP HORIZ. CORNER
B424	X	5	3'-6"			WING 4 TOP VERT. CORNER

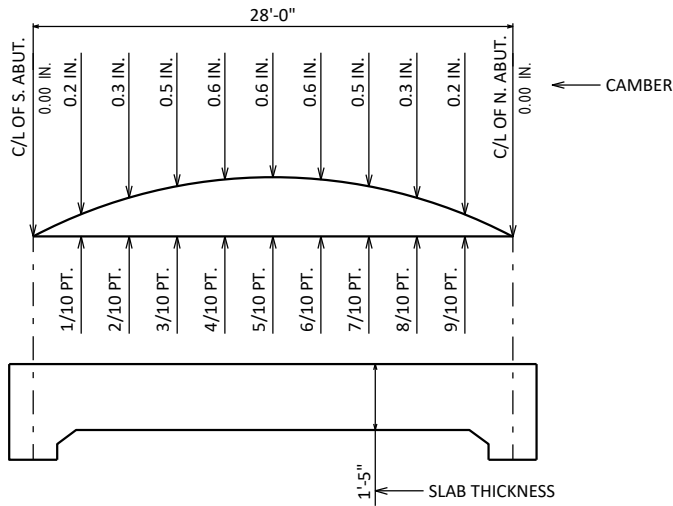
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-228			
DRAWN BY		CLP	PLANS CK'D DRS
NORTH ABUTMENT DETAILS AND BILL OF BARS		SHEET 9 OF 12	



TYPICAL SECTION THRU BRIDGE



CAMBER AND SLAB THICKNESS DIAGRAM

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

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

LESS	TOP OF SLAB ELEVATION AT FINAL GRADE
PLUS	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

TOP OF SLAB ELEVATIONS

LOCATION	C/L S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L N. ABUT.
W. EDGE OF SLAB	862.20	862.20	862.20	862.20	862.20	862.20	862.20	862.20	862.20	862.20	862.20
C/L OF ST HELENA RD	862.49	862.49	862.49	862.48	862.48	862.48	862.48	862.48	862.48	862.48	862.48
E. EDGE OF SLAB	862.20	862.20	862.20	862.20	862.20	862.20	862.20	862.20	862.20	862.20	862.20

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

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

* 3/4" V-GROOVE. EXTEND V-GROOVE TO 6" FROM F.F. OF ABUT.

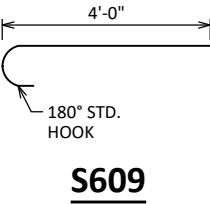
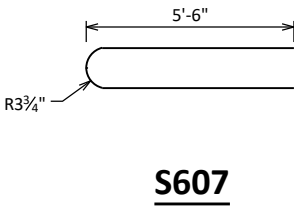
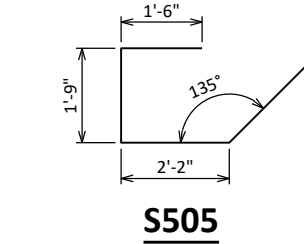
V-GROOVES ARE REQUIRED.

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S901	x	57	25'-11"			SLAB LONG. BOT.
S502	x	42	30'-0"			SLAB TRANS. BOT.
S503	x	42	30'-0"			SLAB TRANS. TOP
S404	x	29	30'-3"			SLAB LONG. TOP
S505	x	58	7'-7"	X		SLAB @ ABUT. DIAPHRAGM STIRRUPS
S506	x	4	29'-11"			SLAB @ ABUT. DIAPHRAGM TRANS.
S607	x	24	12'-0"	X		SLAB @ RAIL POSTS
S608	x	32	6'-0"			SLAB @ INT. RAIL POSTS
S609	x	16	6'-0"	X		SLAB @ END RAIL POSTS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



SURVEY TOP OF SLAB ELEVATIONS

	ABUTMENT	5/10 PT.	ABUTMENT
W. EDGE OF SLAB			
C/L OF ST HELENA RD			
E. EDGE OF SLAB			

PRIOR TO RELEASING SLAB FORMWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF ABUTMENTS, AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND C/L. . RECORD ELEVATIONS IN THE TABLE ABOVE FOR THE "AS BUILT" PLANS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-228			
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SUPERSTRUCTURE		SHEET 10 OF 12	



MEASURED NORMAL TO THE C/L OF ABUTMENT. DIMENSIONS ARE TYPICAL FOR BOTH ABUTMENTS.

A506, B506 BARS SPACED @ 1'-0" CNTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

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STRUCTURE		B-14-228	
		DRAWN BY	PLANS CK'D
		CLP	DRS
SUPERSTRUCTURE PLAN		SHEET 11 OF 12	

- ① W6 X 25 WITH $1\frac{1}{8}"$ X $1\frac{1}{2}"$ HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE $1\frac{1}{4}"$ X $11\frac{3}{4}"$ X $1'-8"$ WITH $1\frac{1}{16}"$ DIA. OVERSIZED HOLES FOR ANCHOR BOLT NO. 3. WELD TO NO. 1 AS SHOWN.
- ③ ASTM A449 - $1\frac{1}{8}"$ DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE TREADING. USE $1'-9"$ LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS $> 16"$ USE $1'-3"$ LONG. USE $10\frac{1}{4}"$ LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT TREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)

- (4) $\frac{3}{8}$ " X 11" X 1'-8" ANCHOR PLATE (GALVANIZED) WITH $1\frac{3}{16}$ " DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- (5) TS 5 X 4 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- (5A) TS 5 X 5 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- (6) $\frac{7}{8}$ " DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, $\frac{3}{4}$ " X $1\frac{5}{8}$ " X $1\frac{5}{8}$ " MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- (7) $\frac{1}{2}$ " THK. BACK-UP PLATE WITH 2 - $\frac{7}{8}$ " X $1\frac{1}{2}$ " THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- (8) 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR $\frac{7}{8}$ " DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- (9) SPLICE SLEEVE FABRICATED FROM $\frac{1}{4}$ " PLATE. PROVIDE "SLIDING FIT".
- (10) $\frac{3}{8}$ " X $3\frac{5}{8}$ " X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- (10A) $\frac{3}{8}$ " X $2\frac{5}{8}$ " X 2'-4" PLATE USED IN NO. 5, $\frac{3}{8}$ " X $3\frac{5}{8}$ " X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- (11) $\frac{7}{8}$ " DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE $1\frac{3}{16}$ " X $1\frac{1}{4}$ " LONGIT. SLOTTED HOLES AT FIELD JOINTS AND $1\frac{5}{16}$ " X $2\frac{1}{4}$ " MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
- (12) $\frac{7}{8}$ " DIA. X $1\frac{1}{2}$ " LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- (13) $\frac{3}{8}$ " X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- (14) $\frac{7}{8}$ " DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- (15) 1" DIA. HOLES IN TUBES NO. 5A FOR $\frac{7}{8}$ " DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

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 $\frac{1}{8}$ 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 NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 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.



LOCATION MUST BE SHOWN
ON SHOP DRAWINGS



AT BEAM GUARD ATTACHMENT



THREE BEAM RAIL ATTACHMENT



THREE BEAM RAIL ATTACHMENT



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



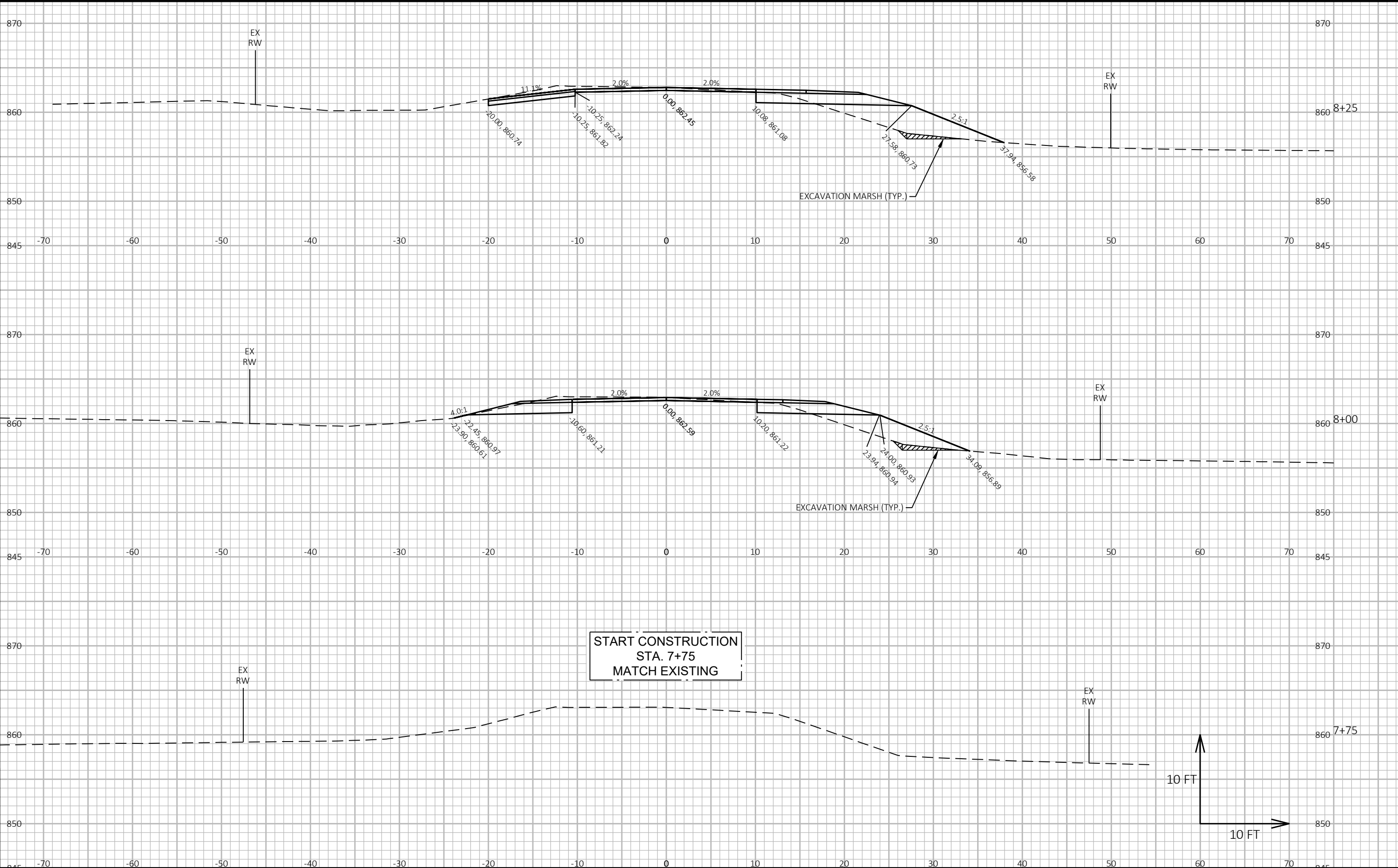
AT BEAM GUARD ATTACHMENT

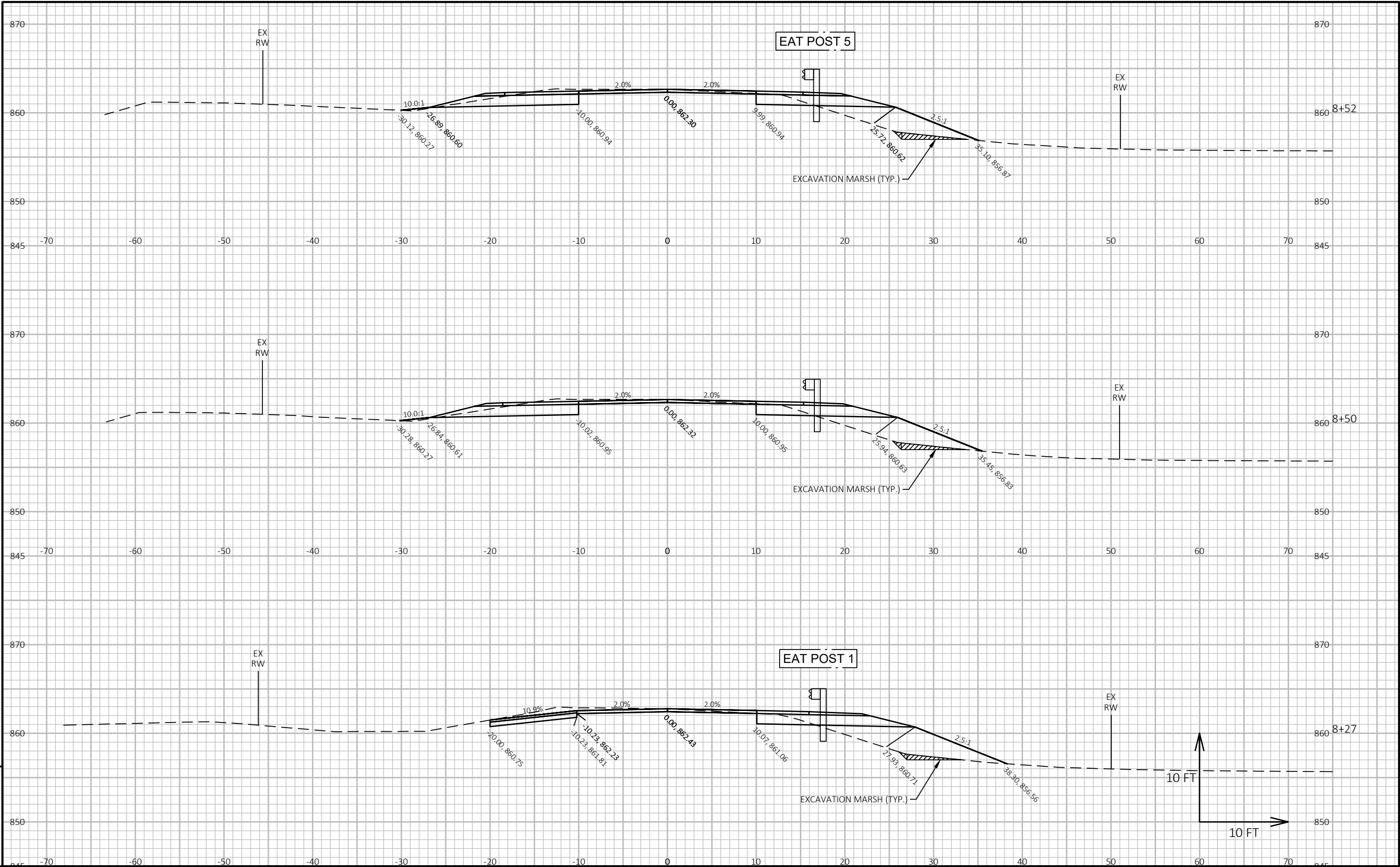
▲ TIE TO TOP MAT OF STEEL.

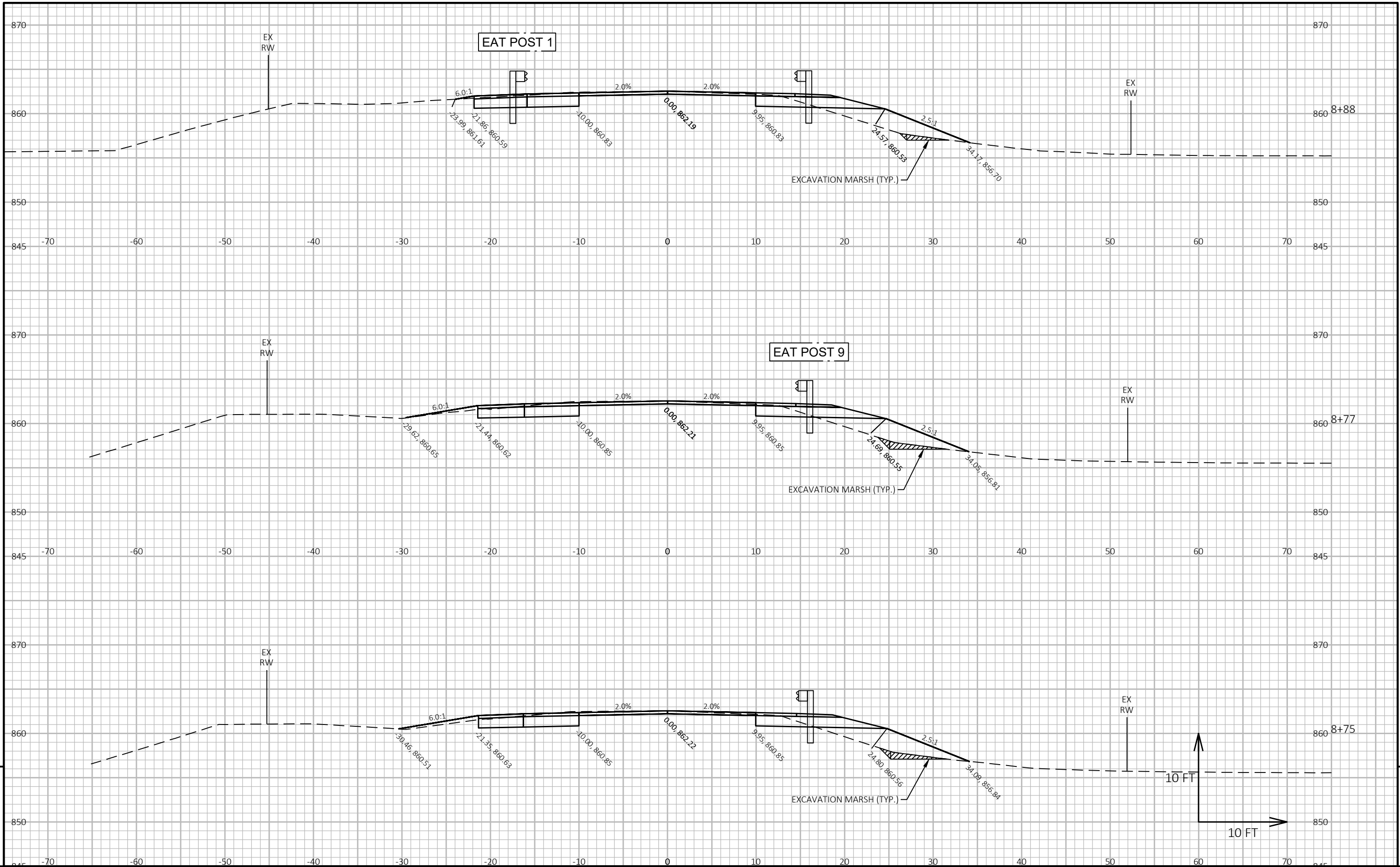
✱ ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.

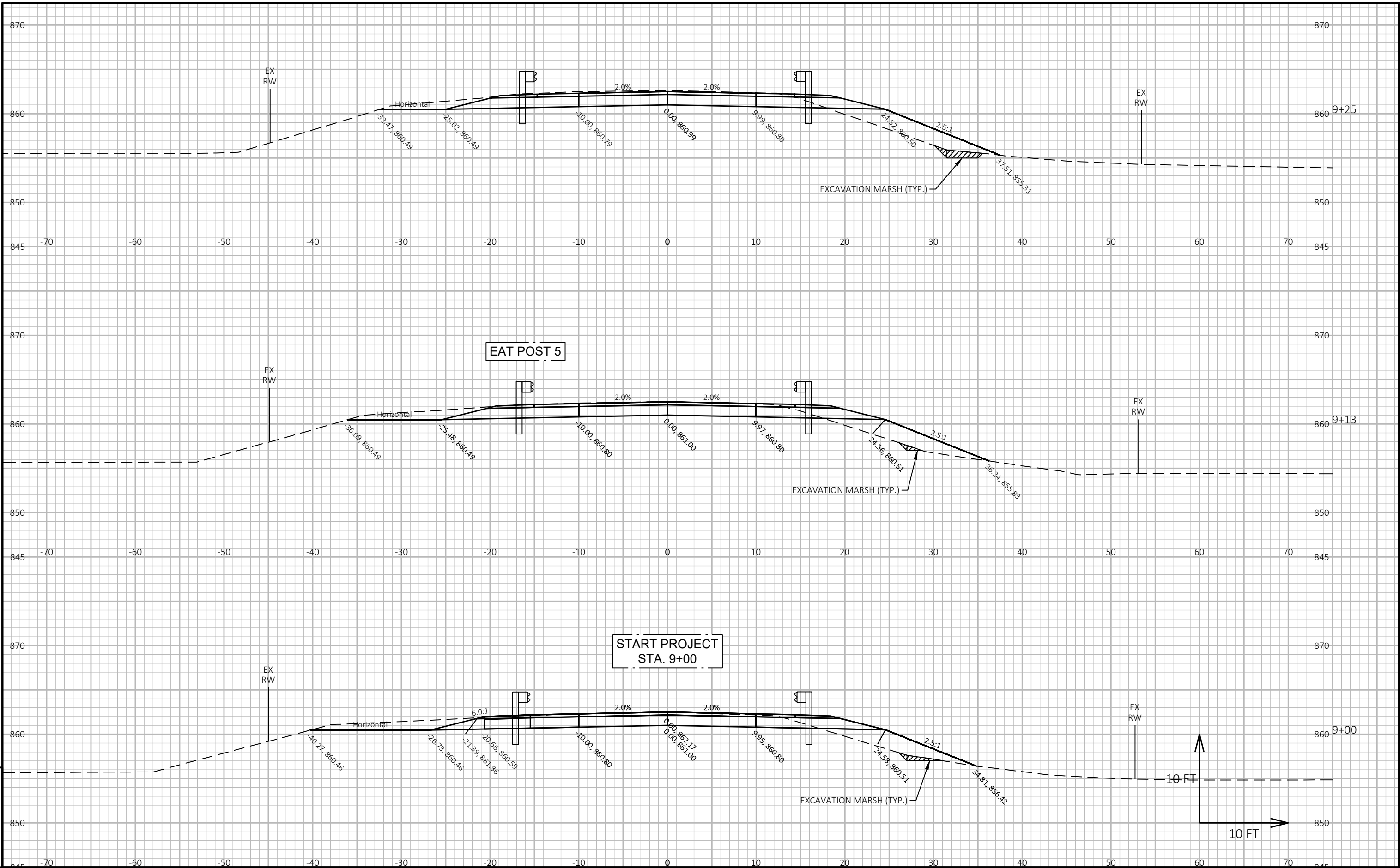
ST. HELENA ROAD COMPUTER EARTHWORK																	
Station	Distance	Area (SF)					Incremental Vol (CY) (Unadjusted)					Cumulative Vol (CY)					Mass Ordinate
		Unusable		Fill	Marsh Exc	Riprap (In Fill)	Cut	Unusable Cut	Fill	Marsh Exc	Riprap (In Fill)	Cut 1.00	Unusable Cut	Expanded Fill 1.30	Expanded Marsh 1.50	Riprap (In Fill)	
		Cut	Cut														
7+75	--	0.0	0.0	0.0	0.0	0.0	--	--	--	--	--	0	0	0	0	0	0
8+00	25	16.6	0.0	23.9	2.4	0.0	8	0	11	1	0	8	0	14	2	0	-6
8+25	25	15.2	0.0	34.5	2.2	0.0	15	0	27	2	0	23	0	49	5	0	-26
8+50	25	22.0	0.0	27.3	3.1	0.0	17	0	29	2	0	40	0	87	8	0	-47
8+75	25	24.1	0.0	22.3	3.1	0.0	21	0	23	3	0	61	0	117	12	0	-56
9+00	25	56.7	16.7	20.2	1.7	0.0	37	8	20	2	0	98	8	143	15	0	-53
9+25	25	66.7	16.7	26.3	3.4	0.0	57	15	22	2	0	155	23	172	18	0	-40
9+50	25	60.0	16.7	64.9	11.1	0.0	59	15	42	7	0	214	38	226	29	0	-50
9+75	25	40.8	16.7	207.9	50.4	0.0	47	15	126	29	0	261	53	390	72	0	-182
9+84	9																
NEW BRIDGE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10+15	--	59.2	16.7	154.4	11.4	0.0						261	53	390	72	0	-182
10+25	10	59.2	16.7	154.4	11.4	0.0	22	6	57	4	0	283	59	464	78	0	-240
10+50	25	59.9	16.7	105.0	11.4	27.3	55	15	120	11	13	338	74	620	95	13	-343
10+75	25	53.7	16.7	97.7	12.9	26.4	53	15	94	11	25	391	89	742	111	38	-402
11+00	25	20.7	0.0	60.8	11.3	22.5	34	8	73	11	23	425	97	837	128	61	-448
11+25	25	15.6	0.0	9.6	0.0	0.0	17	0	33	5	10	442	97	880	135	71	-464
11+35	10	0.0	0.0	0.0	0.0	0.0	3	0	2	0	0	445	97	883	135	71	-464
							445	97	679	90	71						

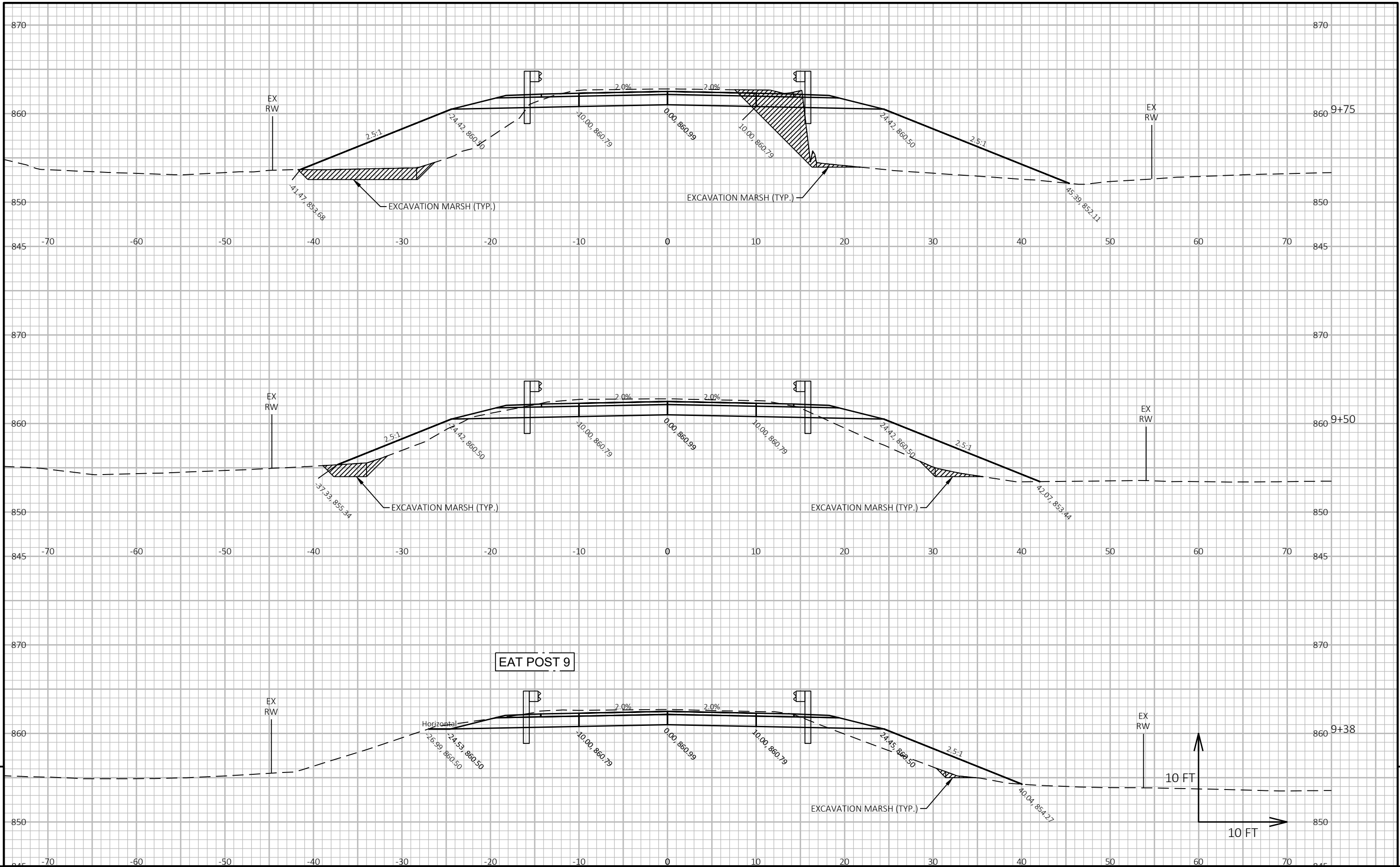
Note 1 -	Usable cut only
Note 2 -	Existing concrete and asphalt pavement. Not to be used outside the 1:1 road core.
Note 3 -	Volume needed to be filled = Fill * 1.30
Note 4 -	(Cut - Unusable Cut) - (Expanded Fill-Riprap (In Fill))
Note 5 -	Existing marsh material to be removed and backfilled with select borrow, standalone quantity, not tied to any other earthwork calculations.
Note 6 -	Riprap used in place of fill material, resulting in less fill material needed.



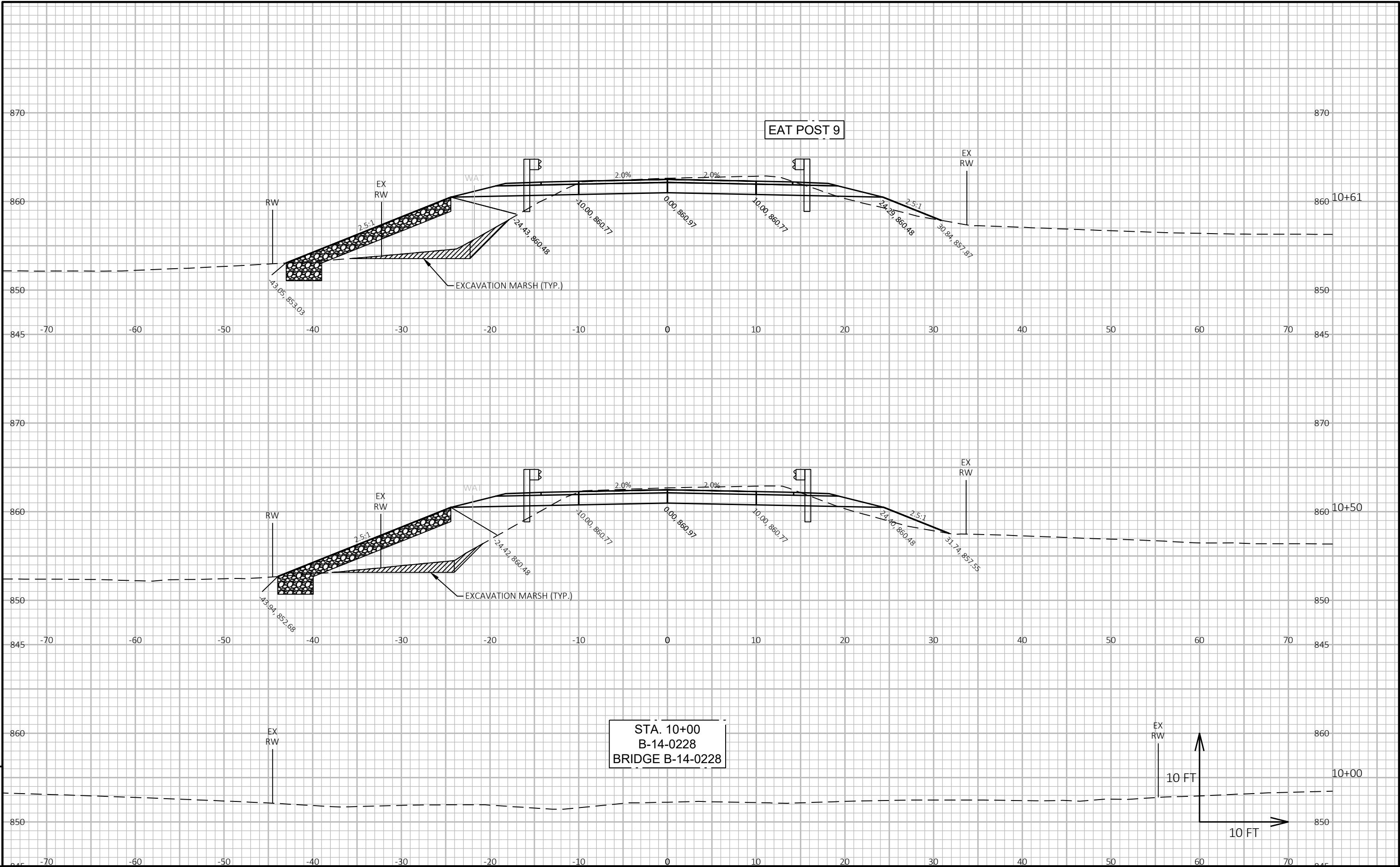




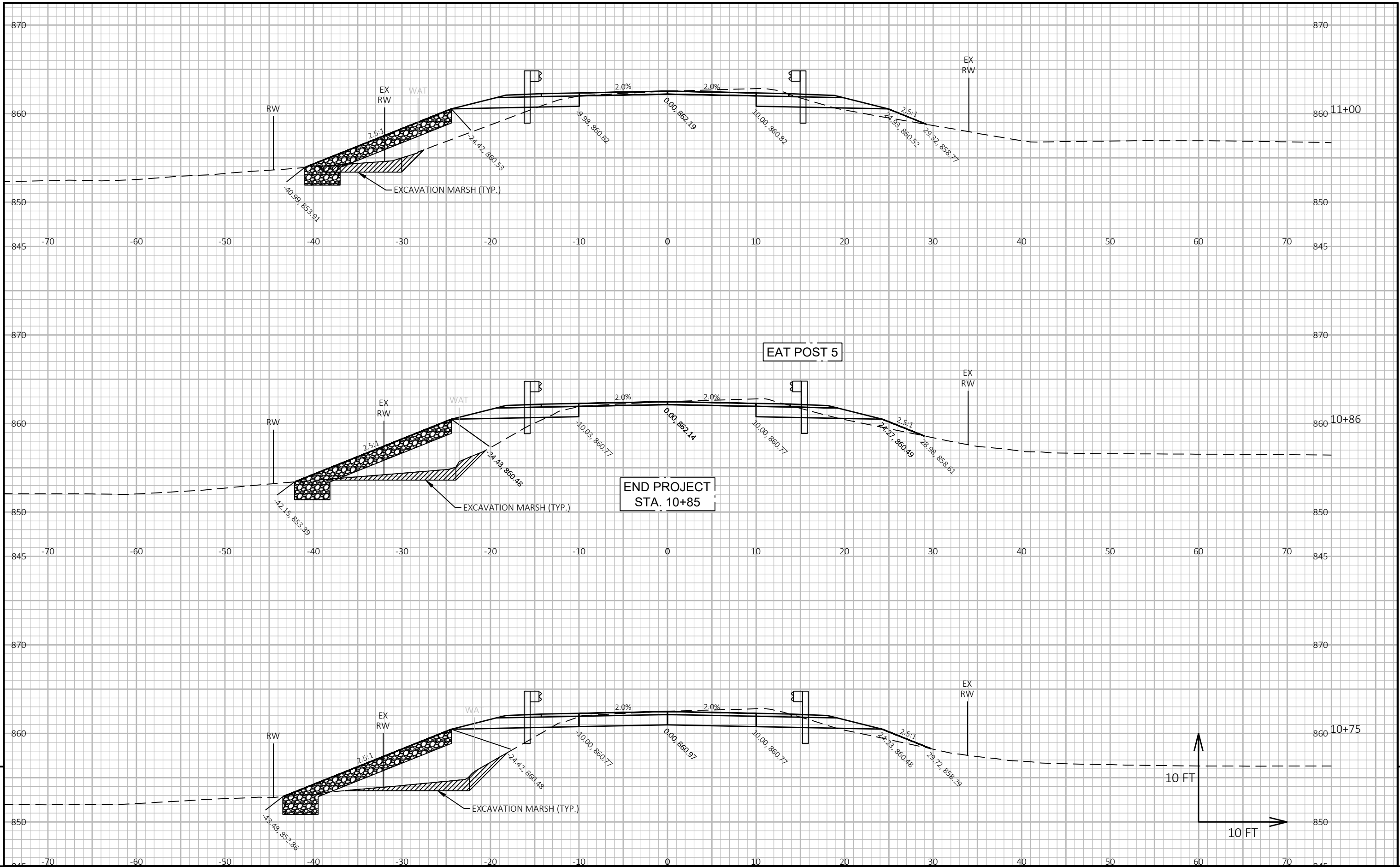


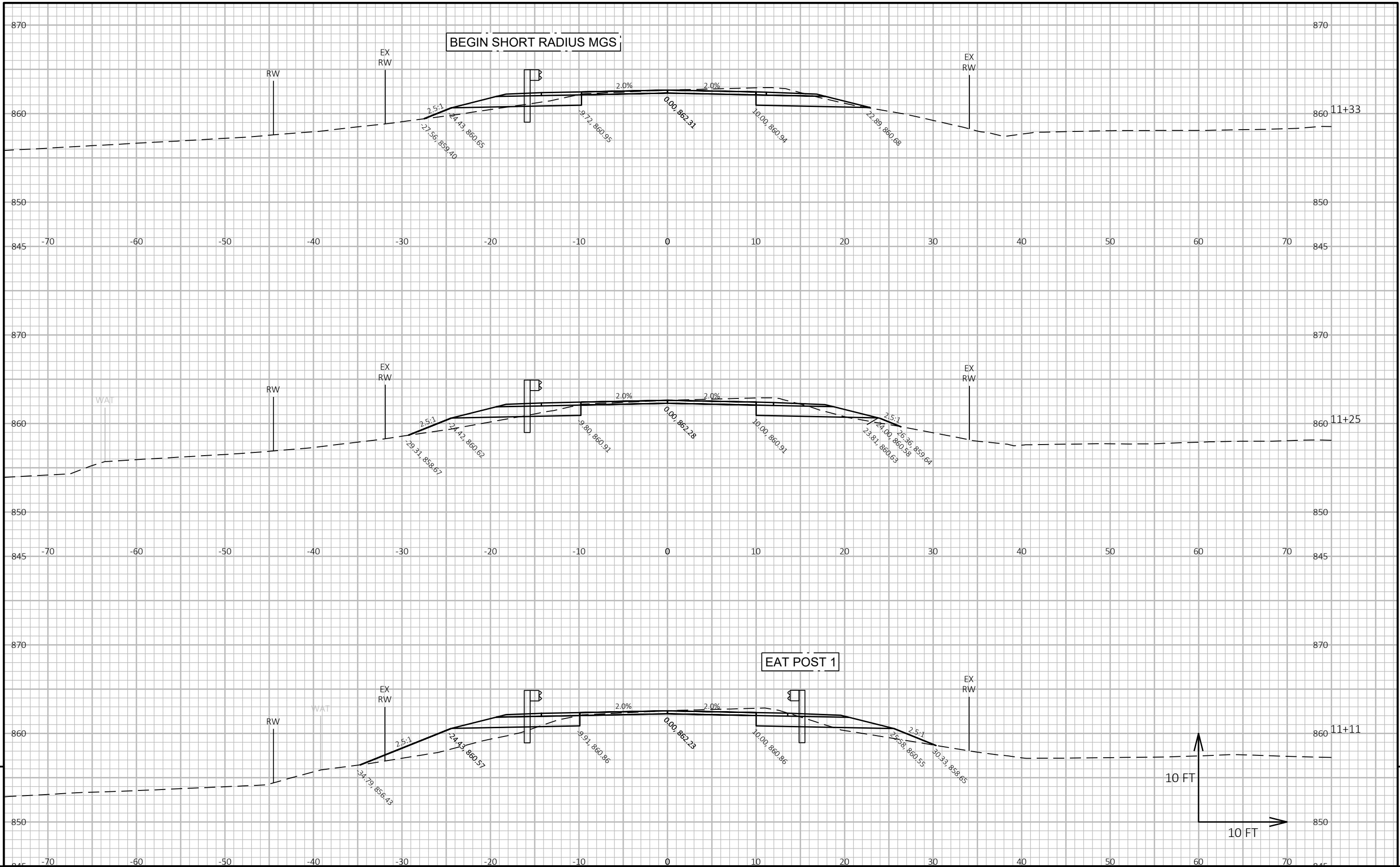


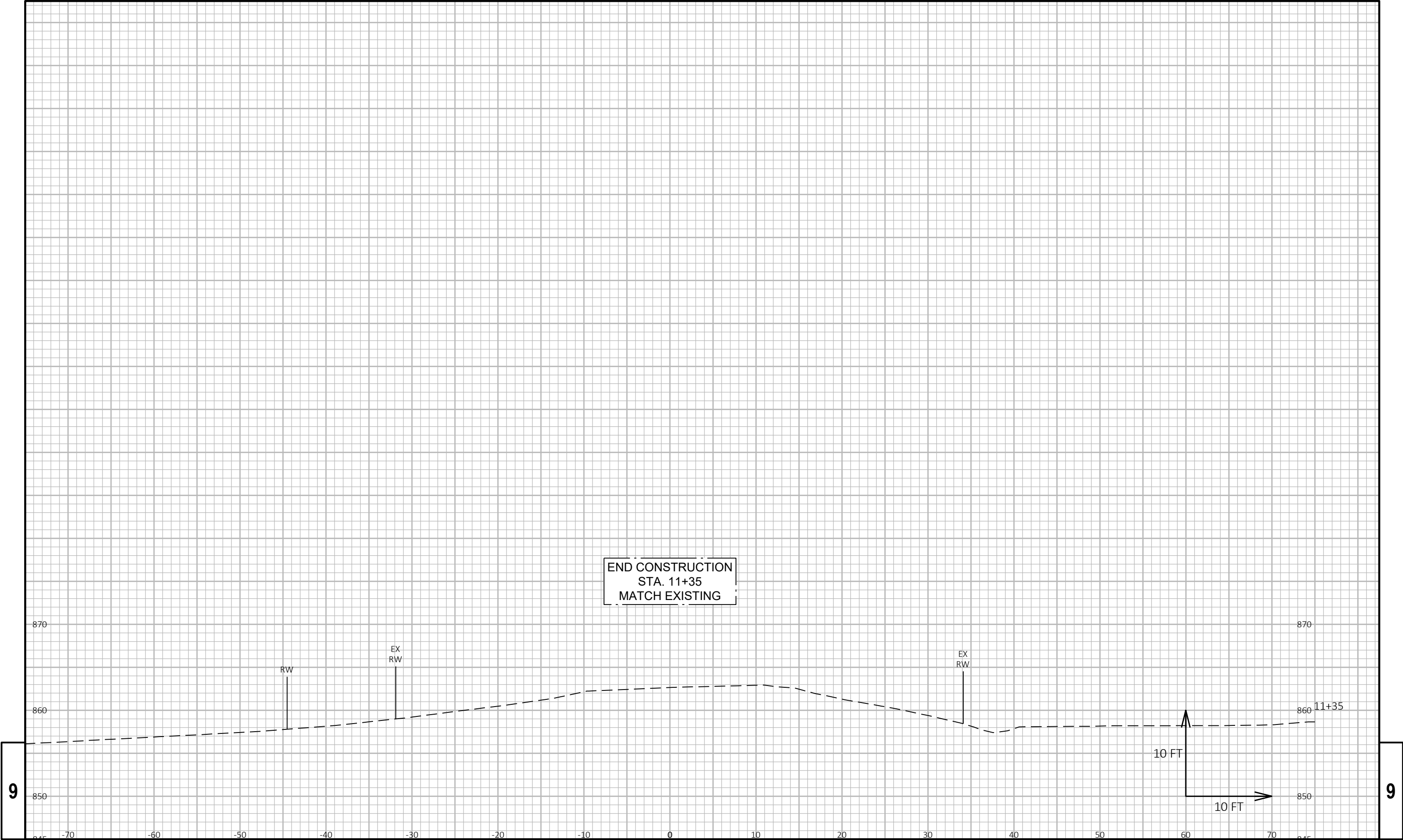
PROJECT NO: 3814-00-70	HWY: ST HELENA RD	COUNTY: DODGE	CROSS SECTIONS: -	SHEET	E
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PROJECT NO: 3814-00-70	HWY: ST HELENA RD	COUNTY: DODGE	CROSS SECTIONS: -	SHEET E
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