

SUP

MARCH 2024

PROJECT ID: 8386-00-73  
WITH: N/A

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 = 44

34

DESIGN DESIGNATION

A.A.D.T. (2024)	=	220
A.A.D.T. (2044)	=	300
D.H.V.	=	20
D.D.	=	50/50
T.	=	5%
DESIGN SPEED	=	20 MPH
ESALS	=	36,500

CONVENTIONAL SYMBOLS

<b>PLAN</b>	<b>PROFILE</b>
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	<b>UTILITIES</b>
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
MARSH AREA	STORM SEWER
WOODED OR SHRUB AREA	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE

# STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

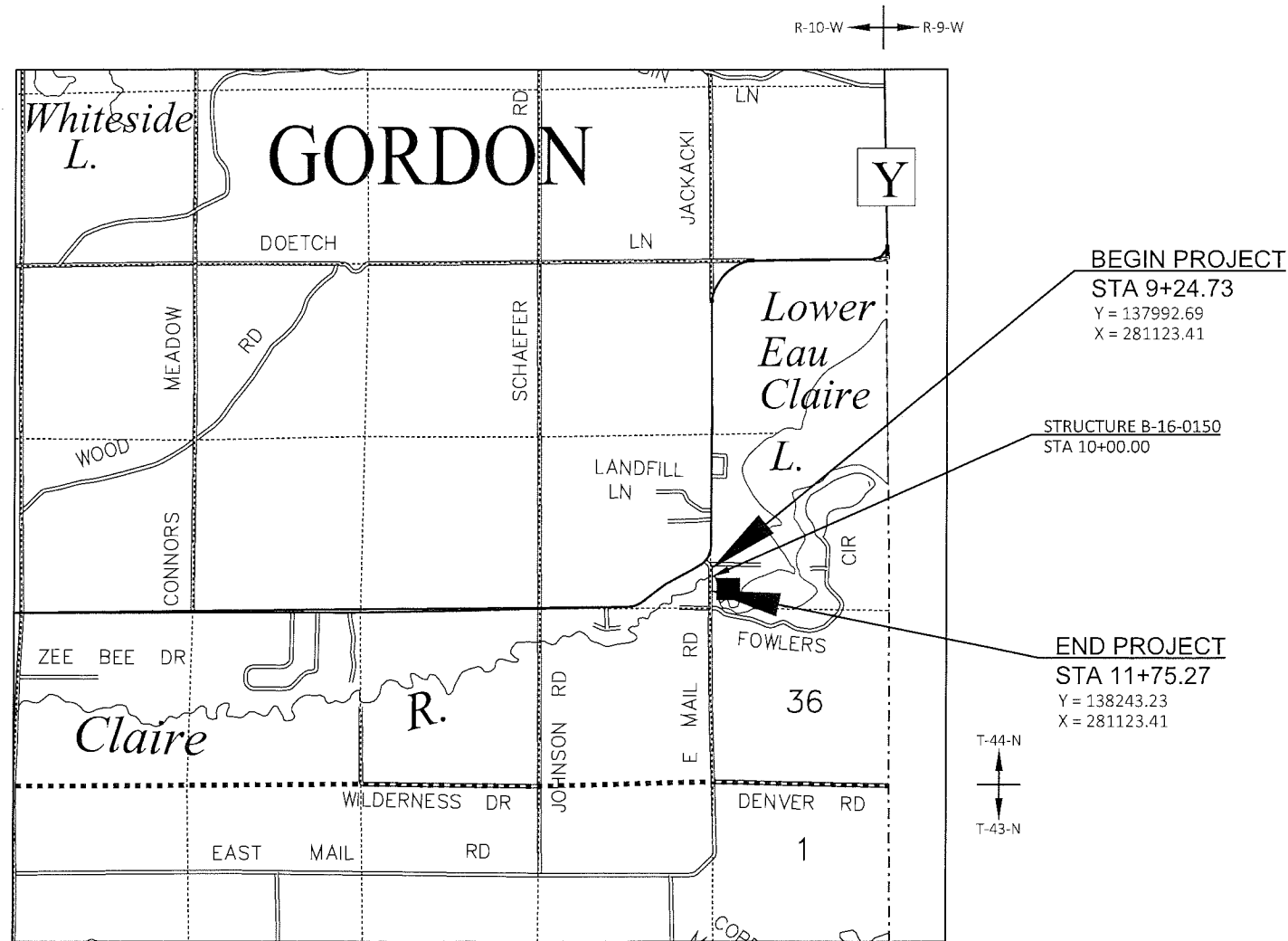
## T GORDON, EAST MAIL ROAD

EAU CLAIRE RIVER BRIDGE B-16-0150

LOC STR  
DOUGLAS COUNTY

STATE PROJECT NUMBER  
8386-00-73

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8386-00-73	WISC 2024301	1



LAYOUT  
SCALE 0 1 MI  
TOTAL NET LENGTH OF CENTERLINE = 0.047 MI

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

ACCEPTED FOR  
TOWN of GORDON  
10/19/23  
(Date) (Signature)  
(Town Chairman)

ORIGINAL PLANS PREPARED BY  
**AYRES**  
DANIEL N. SYDOW  
E-38363  
WI  
PROFESSIONAL ENGINEER  
10/25/2023  
(Date) (Signature)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
PREPARED BY  
Surveyor AYRES ASSOCIATES, INC.  
Designer AYRES ASSOCIATES, INC.  
Project Manager PAULA GROOM, PE  
Regional Examiner TONY YANG, PE  
Regional Supervisor TYLER RONGSTAD, PE

APPROVED FOR THE DEPARTMENT  
DATE: 11/1/2023  
(Signature)  
Paula Groom

E

**GENERAL NOTES:**

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

FILL EXPANSION FACTOR IS 30%.

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

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

BEARINGS SHOWN ON THIS PLAN ARE TRUE BEARINGS TO THE NEAREST SECOND.

ALL TIES ON THIS PLAN ARE HORIZONTAL UNLESS DESCRIBED OTHERWISE.

EROSION CONTROL LOCATIONS AS SHOWN ON THE EROSION CONTROL PLAN ARE APPROXIMATE. THE EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SUBGRADE SHOULDER POINTS ARE TO BE SEEDED AND EROSION MAT AS DIRECTED BY THE ENGINEER.

SEED MIXTURE NO. 20 AND SEEDING TEMPORARY SHALL BE USED IN THE PROJECT AND SHALL BE PLACED AS SHOWN IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.

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

ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH A 2" UPPER LAYER AND A 2" LOWER LAYER. ASPHALTIC SURFACE SHALL BE USED 12.5 mm NOMINAL AGGREGATE SIZE.

THE DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR WITH A MONUMENT TO BE INSTALLED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

**RUNOFF COEFFICIENT TABLE**

	HYDROLOGIC SOIL GROUP											
	A			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 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP-TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE-TURF			.25 .32			.27 .34			.28 .36			.30 .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 = 0.380 ACRES  
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.247 ACRES

UTILITIES

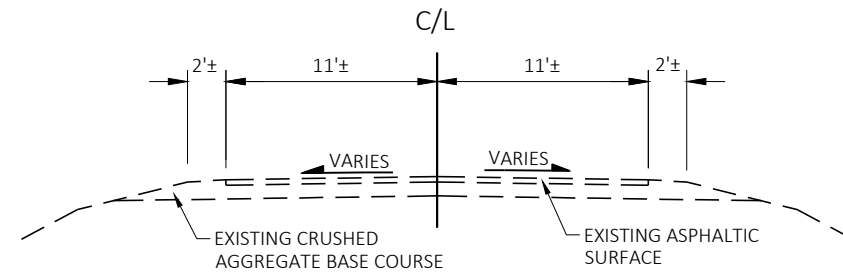
BRIGHTSPEED  
 1409 JOHN AVE.  
 SUPERIOR, WI 54880  
 ATTN: MICHAEL COUGHLIN  
 980-376-1865  
 michael.coughlin@brightspeed.com  
 relocations@brightspeed.com

DAHLBERG LIGHT & POWER  
 9221 E. MAIN  
 P.O. BOX 300  
 SOLON SPRINGS, WI 54873  
 ATTN: JAMES DAHLBERG  
 715-378-2205  
 jimdahlberg@dahlberglightandpower.com

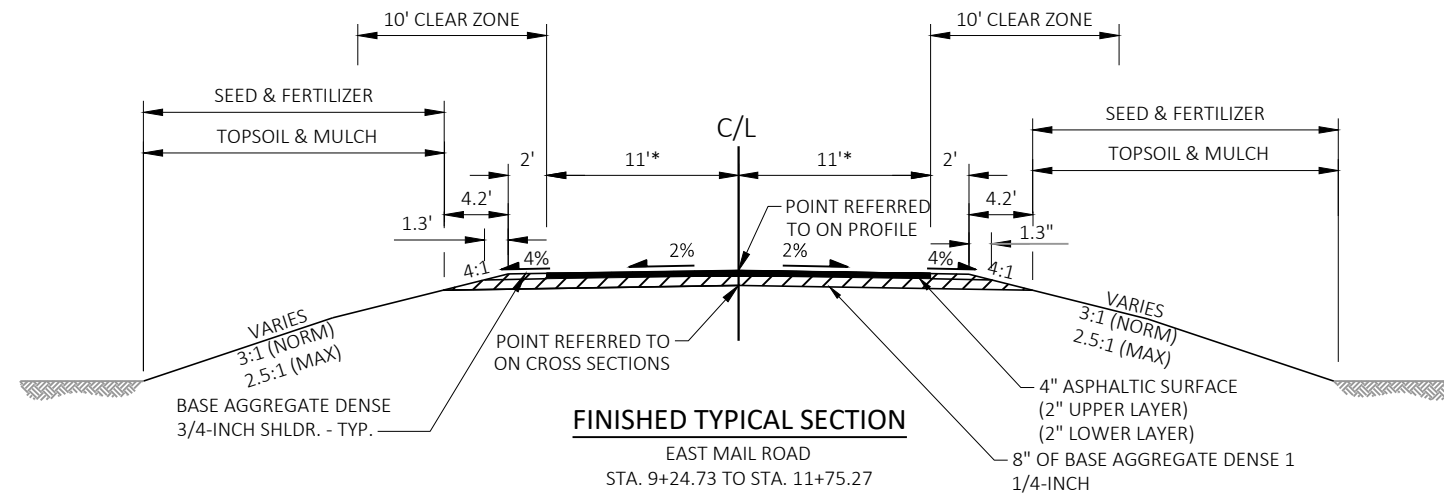
\*\* DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS



<p><u>DESIGNER</u></p> <p>AYRES ASSOCIATES                  DANIEL N. SYDOW                  3433 OAKWOOD HILLS PARKWAY                  EAU CLAIRE, WI 54701                  715-834-3161                  sydowd@AyresAssociates.com</p>	<p><u>WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONTACT:</u></p> <p>WDNR                  AMY CRONK                  810 W. MAPLE STREET                  SPOONER, WI 54801                  715-635-4229                  715-520-3976                  amy.cronk@wisconsin.gov</p>	<p><u>TOWN CONTACT</u></p> <p>TOWN OF GORDON                  CRAIG GOLEMBIEWSKI, SUPERVISOR                  9709 E. COUNTY RD Y                  PO BOX 68                  GORDON, WI 54838                  715-520-3716                  townofgordonsupervisor1@gmail.com</p>
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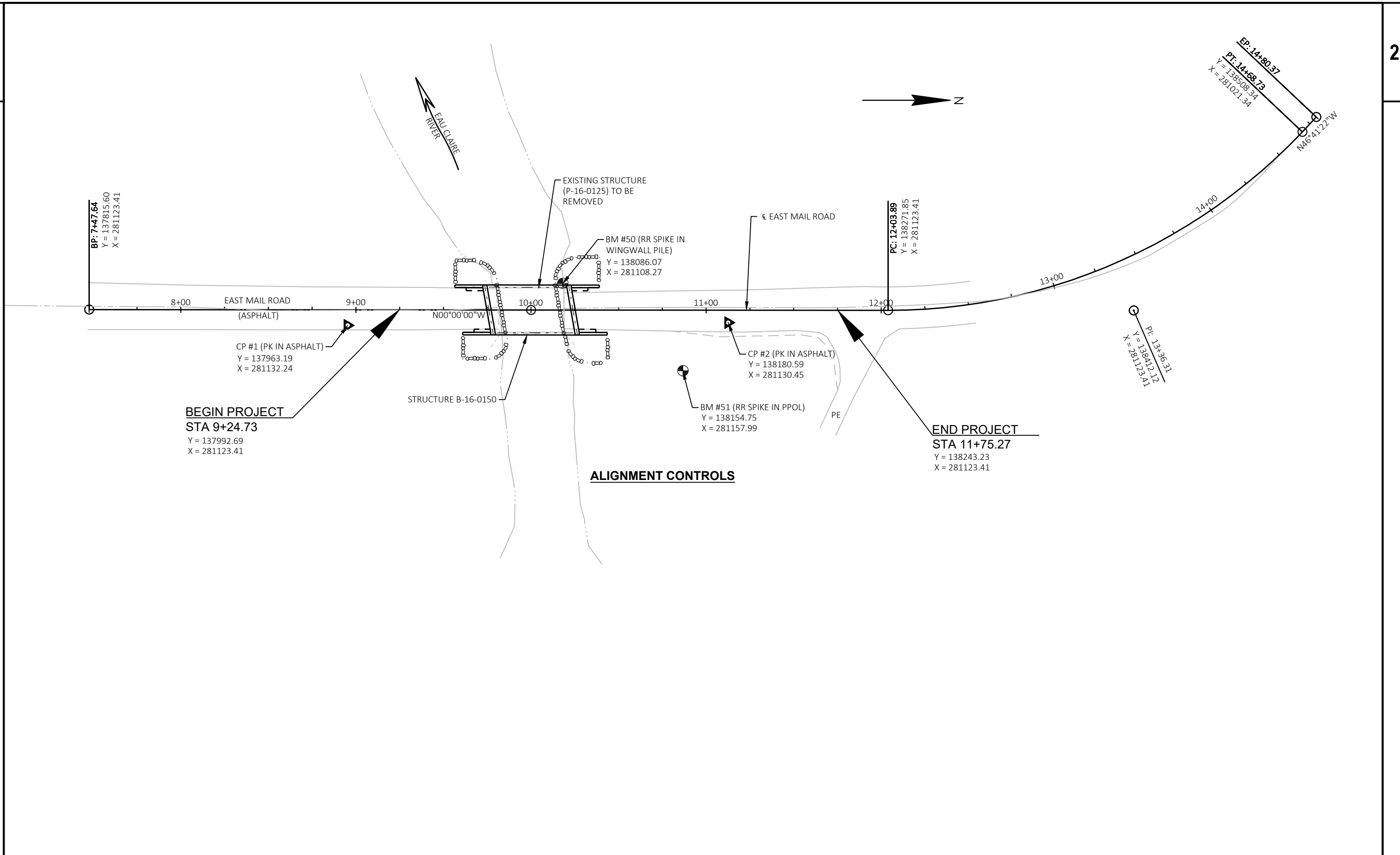


**EXISTING TYPICAL SECTION**  
EAST MAIL ROAD

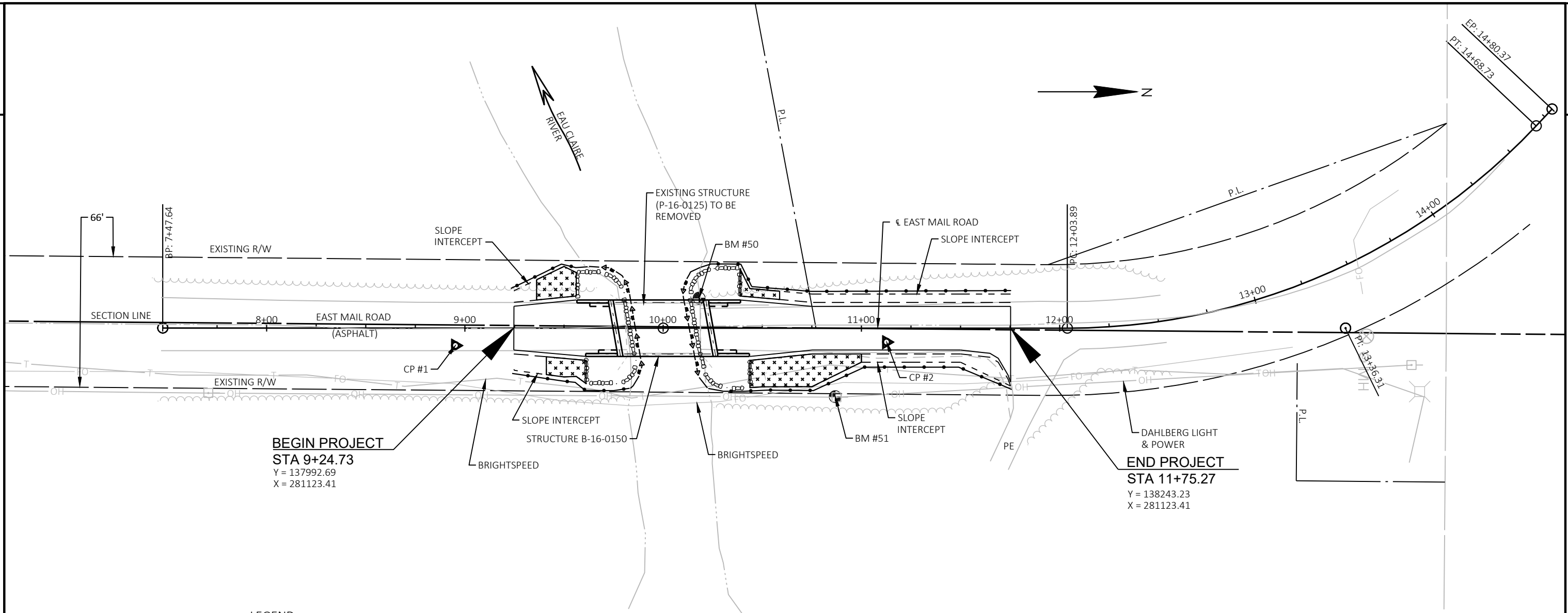


**FINISHED TYPICAL SECTION**  
EAST MAIL ROAD  
STA. 9+24.73 TO STA. 11+75.27

\*THE ASPHALTIC SURFACE LANE SHALL TAPER FROM 14.25 FEET WIDE AT THE ENDS OF THE WINGS TO 11 FEET WIDE AT 50 FEET FROM THE END OF THE BRIDGE AND MATCH INTO EXISTING AT ENDS OF PROJECT.






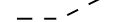


PROJECT NO: 8386-00-73	HWY: EAST MAIL ROAD	COUNTY: DOUGLAS	ALIGNMENT CONTROLS	SHEET	E
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**BEGIN PROJECT**  
**STA 9+24.73**  
 Y = 137992.69  
 X = 281123.41

**END PROJECT**  
**STA 11+75.27**  
 Y = 138243.23  
 X = 281123.41

LEGEND

-  EROSION MAT CLASS II (TYPE C)
-  SILT FENCE
-  RIP RAP
-  SLOPE INTERCEPT
-  TURBIDITY BARRIER
-  TEMPORARY DITCH CHECK (UNDISTRIBUTED)

NOTE:  
 NO DISTURBANCE OR TOPSOIL STOCKPILING IS ALLOWED OUTSIDE OF THE SLOPE INTERCEPTS.  
 WETLANDS EXIST IN THE PROJECT AREA.  
 NO INSTREAM WORK BETWEEN SEPTEMBER 15 TO JUNE 1.  
 HIGHWATER<sub>2</sub> EL. 1117.87

Estimate Of Quantities

8386-00-73

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	3.000	3.000
0004	201.0205	Grubbing	STA	3.000	3.000
0006	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. P-16-0125	EACH	1.000	1.000
0008	205.0100	Excavation Common	CY	151.000	151.000
0010	205.0506.S	Excavation, Hauling, and Disposal of Creosote Contaminated Soil	TON	80.000	80.000
0012	206.1001	Excavation for Structures Bridges (structure) 01. B-16-0150	EACH	1.000	1.000
0014	210.1500	Backfill Structure Type A	TON	800.000	800.000
0016	213.0100	Finishing Roadway (project) 01. 8386-00-73	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	20.000	20.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	295.000	295.000
0022	455.0605	Tack Coat	GAL	76.000	76.000
0024	465.0105	Asphaltic Surface	TON	120.000	120.000
0026	502.0100	Concrete Masonry Bridges	CY	207.000	207.000
0028	502.3200	Protective Surface Treatment	SY	235.000	235.000
0030	505.0400	Bar Steel Reinforcement HS Structures	LB	4,120.000	4,120.000
0032	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	26,070.000	26,070.000
0034	513.4061	Railing Tubular Type M	LF	169.500	169.500
0036	516.0500	Rubberized Membrane Waterproofing	SY	18.000	18.000
0038	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	350.000	350.000
0040	606.0300	Riprap Heavy	CY	140.000	140.000
0042	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	140.000	140.000
0044	618.0100	Maintenance and Repair of Haul Roads (project) 01. 8386-00-73	EACH	1.000	1.000
0046	619.1000	Mobilization	EACH	1.000	1.000
0048	623.0200	Dust Control Surface Treatment	SY	610.000	610.000
0050	624.0100	Water	MGAL	3.000	3.000
0052	625.0100	Topsoil	SY	275.000	275.000
0054	627.0200	Mulching	SY	440.000	440.000
0056	628.1504	Silt Fence	LF	545.000	545.000
0058	628.1520	Silt Fence Maintenance	LF	1,635.000	1,635.000
0060	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0062	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0064	628.2027	Erosion Mat Class II Type C	SY	150.000	150.000
0066	628.6005	Turbidity Barriers	SY	130.000	130.000
0068	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0070	629.0210	Fertilizer Type B	CWT	0.400	0.400
0072	630.0120	Seeding Mixture No. 20	LB	19.000	19.000
0074	630.0200	Seeding Temporary	LB	19.000	19.000
0076	630.0500	Seed Water	MGAL	13.000	13.000
0078	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0080	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0082	638.2602	Removing Signs Type II	EACH	4.000	4.000
0084	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0086	642.5001	Field Office Type B	EACH	1.000	1.000
0088	643.0420	Traffic Control Barricades Type III	DAY	1,260.000	1,260.000
0090	643.0705	Traffic Control Warning Lights Type A	DAY	1,960.000	1,960.000
0092	643.0900	Traffic Control Signs	DAY	980.000	980.000
0094	643.5000	Traffic Control	EACH	1.000	1.000
0096	645.0111	Geotextile Type DF Schedule A	SY	60.000	60.000
0098	645.0120	Geotextile Type HR	SY	290.000	290.000
0100	646.1020	Marking Line Epoxy 4-Inch	LF	501.000	501.000

Estimate Of Quantities

8386-00-73

Line	Item	Item Description	Unit	Total	Qty
0102	650.4500	Construction Staking Subgrade	LF	200.000	200.000
0104	650.5000	Construction Staking Base	LF	200.000	200.000
0106	650.6501	Construction Staking Structure Layout (structure) 01. B-16-0150	EACH	1.000	1.000
0108	650.9911	Construction Staking Supplemental Control (project) 01. 8386-00-73	EACH	1.000	1.000
0110	650.9920	Construction Staking Slope Stakes	LF	200.000	200.000
0112	690.0150	Sawing Asphalt	LF	64.000	64.000
0114	715.0502	Incentive Strength Concrete Structures	DOL	1,242.000	1,242.000
0116	999.2005.S	Maintaining Bird Deterrent System (station) 01. 10+00	EACH	1.000	1.000
0118	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0120	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000

**CLEARING AND GRUBBING**

CATEGORY	STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
0010	9+24.73	-	11+75.27	LT/RT	3	3
TOTAL 0010					3	3

NOTE: CUTTING TREES TO BE DONE BY OTHERS PRIOR TO CONSTRUCTION.

**EAST MAIL ROAD EARTHWORK SUMMARY**

From/To Station	Location	Common Excavation (1) (Item 205.0100)	Unexpanded Fill	Expanded Fill (2)	Mass Ordinate +/- (3)	Waste	Comment:
		Cut		Factor 1.30			
9+24.73 - 9+74.73	MAINLINE	46	10	13	33	33	
10+25.27 - 11+75.27	MAINLINE	105	12	16	89	89	
		<b>151</b>					

- 1) Common Excavation is the Cut. 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 Division. Plus quantity indicates an excess of material on the project.
- 4) All quantities shown in CY.

**EXCAVATION, HAULING, AND DISPOSAL OF CREOSOTE CONTAMINATED SOIL**

CATEGORY	STATION	TO	STATION	LOCATION	205.0506.S TON	REMARKS
0020	9+73	-	9+82	S. ABUT.	40	TIMBER ABUTMENT
0020	10+19	-	10+25	N. ABUT.	40	TIMBER ABUTMENT
TOTAL 0020					80	

EXCAVATE A 2' OFFSET AROUND EACH EXISTING BRIDGE TIMBER SUBSTRUCTURE AND 3' DEEP

**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+24.73	-	9+74.73	LT/RT	5	75	1	SOUTH APPROACH
0010	10+25.27	-	11+75.27	LT/RT	15	220	2	NORTH APPROACH
TOTAL 0010					20	295	3	

**ASPHALT**

CATEGORY	STATION	TO	STATION	LOCATION	* 455.0605 TACK COAT GAL	** 465.0105 ASPHALTIC SURFACE TON	REMARKS
					0010	9+24.73	
0010	10+25.27	-	11+75	MAINLINE	56	90	150' NORTH APPROACH
TOTAL 0010					76	120	

- NOTES:**
- \* TACK COAT APPLICATION RATE = 0.07 GAL/SY
  - \*\* ASSUMED HMA AT 112 LBS/SY/IN

**MAINTENANCE AND REPAIR OF HAUL ROADS**

CATEGORY	LOCATION	618.0100.01 MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) (01. 8386-00-73) EACH
0030	EAST MAIL ROAD	1
TOTAL 0030		1



**MISCELLANEOUS ITEMS**

CATEGORY	STATION	TO	STATION	LOCATION	623.0200	628.1905	628.1910	628.7504
					DUST CONTROL SURFACE TREATMENT SY	MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EROSION CONTROL EACH	TEMPORARY DITCH CHECKS LF
0010	9+24.73	-	11+75.27	PROJECT-WIDE	610	4	4	50
TOTAL 0010					610	4	4	50

**EROSION CONTROL**

CATEGORY	STATION	TO	STATION	LOCATION	625.0100	627.0200	628.1504	628.1520	628.2027	628.6005	629.0210	630.0120	630.0200	630.0500
					TOPSOIL SY	MULCHING SY	SILT FENCE LF	SILT FENCE MAINTENANCE LF	EROSION MAT CLASS II TYPE C SY	TURBIDITY BARRIERS SY	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 20 LB	SEEDING TEMPORARY LB	SEED WATER MGAL
0010	9+24.73	-	9+84.00	LT	40	50	45	135	10	55	0.04	2	2	1
0010	9+24.73	-	9+84.00	RT	40	45	65	195	15		0.04	2	2	1
0010	10+16.00	-	11+75.27	LT	70	135	165	495	10	50	0.09	5	5	3
0010	10+16.00	-	11+75.27	RT	125	120	160	480	85		0.13	6	6	5
0010			UNDISTRIBUTED		-	90	110	330	30	25	0.10	4	4	3
TOTAL 0010					275	440	545	1,635	150	130	0.40	19	19	13

**SIGNS**

CATEGORY	STATION	LOCATION	634.0614	637.2230	638.2602	638.3000	REMARKS
			POSTS WOOD 4X6-INCH X 14-FT EACH	SIGNS TYPE II REFLECTIVE F SF	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	
0010	9+56	LT	1	3	--	--	W5-52L (OBJECT MARKER)
0010	9+60	RT	1	3	--	--	W5-52R (OBJECT MARKER)
0010	9+80	LT	--	--	1	1	W5-52L (OBJECT MARKER)
0010	9+82	RT	--	--	1	2	W5-52R (OBJECT MARKER) / R12-1 (WEIGHT LIMIT 10 TONS)
0010	10+19	LT	--	--	1	2	W5-52R (OBJECT MARKER) / R12-1 (WEIGHT LIMIT 10 TONS)
0010	10+19	RT	--	--	1	1	W5-52L (OBJECT MARKER)
0010	10+53	LT	1	3	--	--	W5-52R (OBJECT MARKER)
0010	10+53	RT	1	3	--	--	W5-52L (OBJECT MARKER)
TOTAL 0010			4	12	4	6	

**TRAFFIC CONTROL**

CATEGORY	LOCATION	DURATION DAYS	NO.	643.0420 TRAFFIC CONTROL BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0900 TRAFFIC CONTROL SIGNS	
				DAY	NO.	DAY	NO.	DAY	NO.
0010	PER SDD 15C2	70	18	1,260	28	1,960	14	980	
0010	EAST MAIL ROAD	-	-	-	-	-	-	-	
TOTAL 0010				1,260		1,960		980	

**MARKING LINE**

CATEGORY	STATION TO	STATION	LOCATION	646.1020 4-INCH MARKING LINE EPOXY YELLOW		REMARKS
				LF		
0010	9+24.73 -	11+75.27	C/L	501		YELLOW DOUBLE CENTERLINE
TOTAL 0010				501		

**STAKING**

CATEGORY	STATION TO	STATION	LOCATION	650.4500	650.5000	650.6501.01	650.9911.01	650.9920
				CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (01. B-16-0150) EACH	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 8386-00-73) EACH	CONSTRUCTION STAKING SLOPE STAKES LF
0010	-	-	MAINLINE	200	200	-	-	200
0010	-	-	PROJECT 8386-00-73	-	-	-	1	-
TOTAL 0010				200	200	0	1	200
0020	-	-	B-16-0150	-	-	1	-	-
TOTAL 0020				0	0	1	0	0
PROJECT TOTAL				200	200	1	1	200

**SAWING ASPHALT**

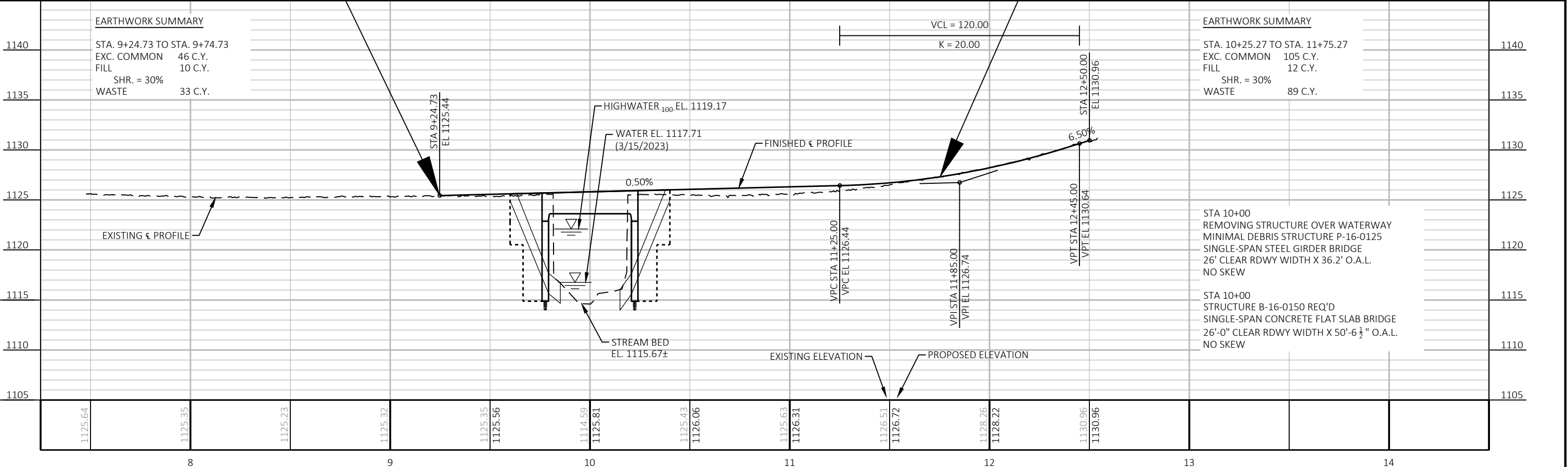
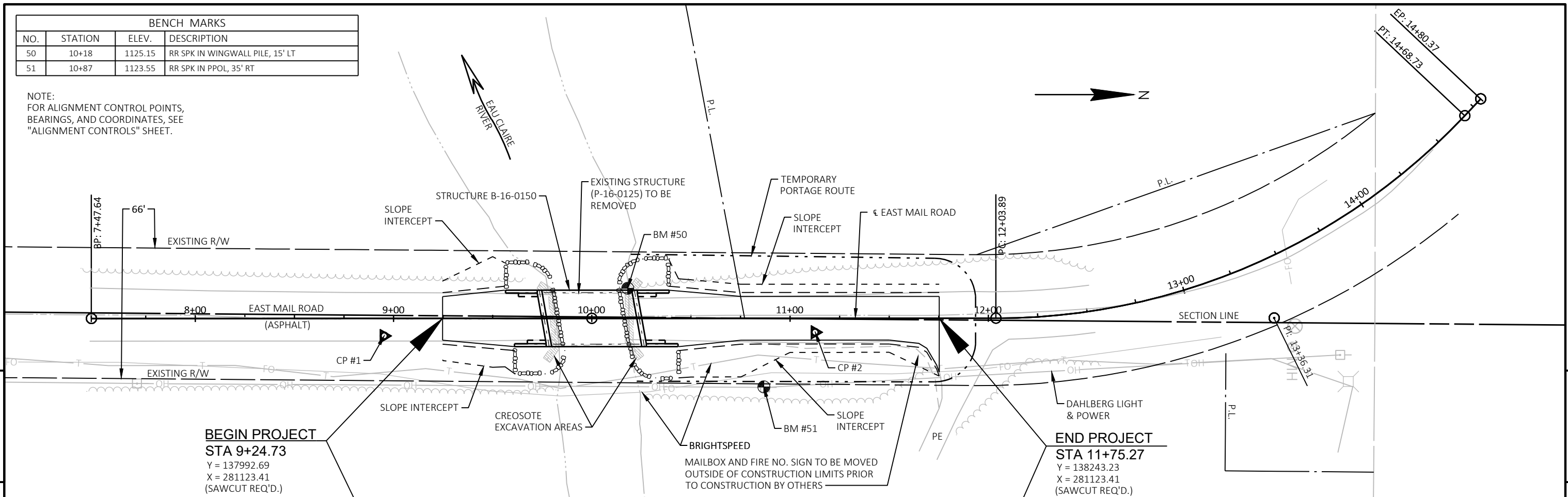
CATEGORY	STATION	LOCATION	690.0150 SAWING ASPHALT LF
0010	9+24.73	MAINLINE	24
0010	11+75.27	MAINLINE	40
TOTAL 0010			64

**MAINTAINING BIRD DETERRENT SYSTEM**

CATEGORY	STATION	999.2005.S MAINTAINING BIRD DETERRENT SYSTEM EACH
0010	10+00	1
TOTAL 0010		1

BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
50	10+18	1125.15	RR SPK IN WINGWALL PILE, 15' LT
51	10+87	1123.55	RR SPK IN PPOL, 35' RT

NOTE:  
FOR ALIGNMENT CONTROL POINTS,  
BEARINGS, AND COORDINATES, SEE  
"ALIGNMENT CONTROLS" SHEET.

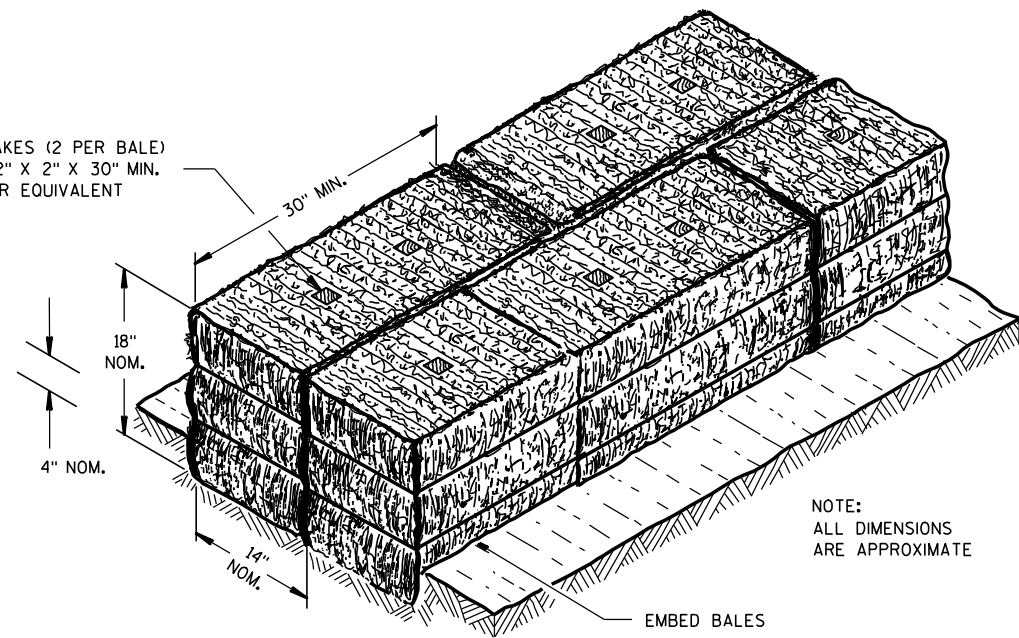


PROJECT NO: 8386-00-73      HWY: EAST MAIL ROAD      COUNTY: DOUGLAS      PLAN AND PROFILE:      SHEET: 5

## Standard Detail Drawing List

08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES

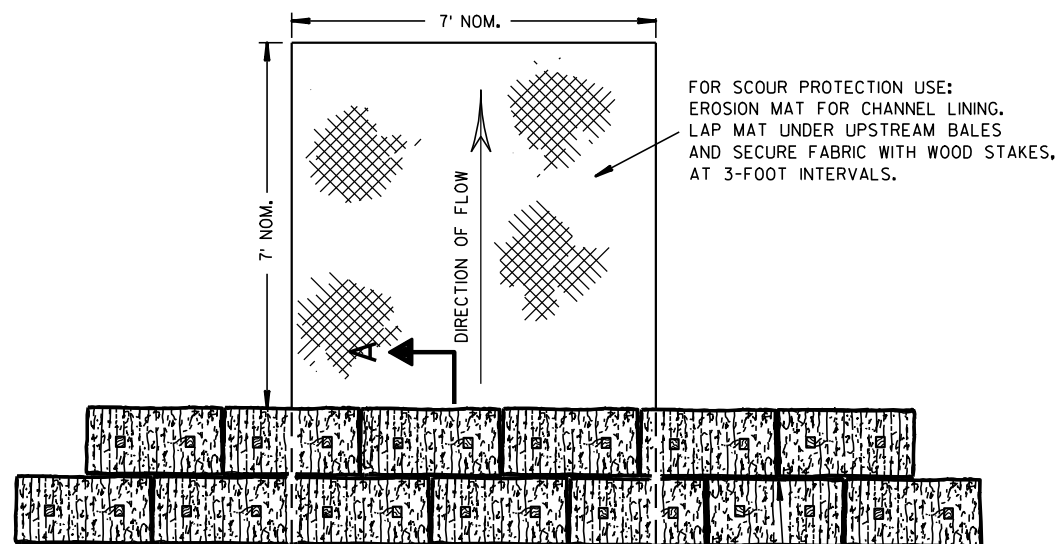
WOOD STAKES (2 PER BALE)  
NOMINAL 2" X 2" X 30" MIN.  
LENGTH OR EQUIVALENT



NOTE:  
ALL DIMENSIONS  
ARE APPROXIMATE

EMBED BALES

SECTION A-A

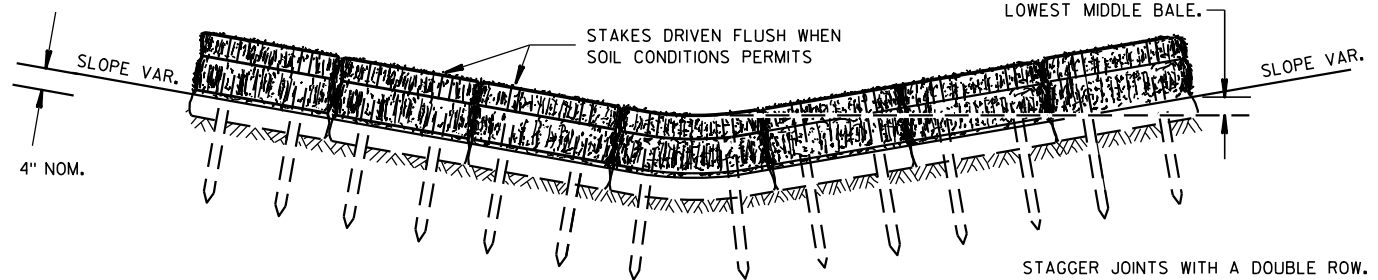


FOR SCOUR PROTECTION USE:  
EROSION MAT FOR CHANNEL LINING.  
LAP MAT UNDER UPSTREAM BALES  
AND SECURE FABRIC WITH WOOD STAKES,  
AT 3-FOOT INTERVALS.

STAGGER JOINTS BETWEEN ADJACENT  
ROWS OF BALES.

PLAN VIEW

BOTTOM ELEVATION OF END BALE SHALL  
BE EQUAL TO OR GREATER THAN TOP OF  
LOWEST MIDDLE BALE.



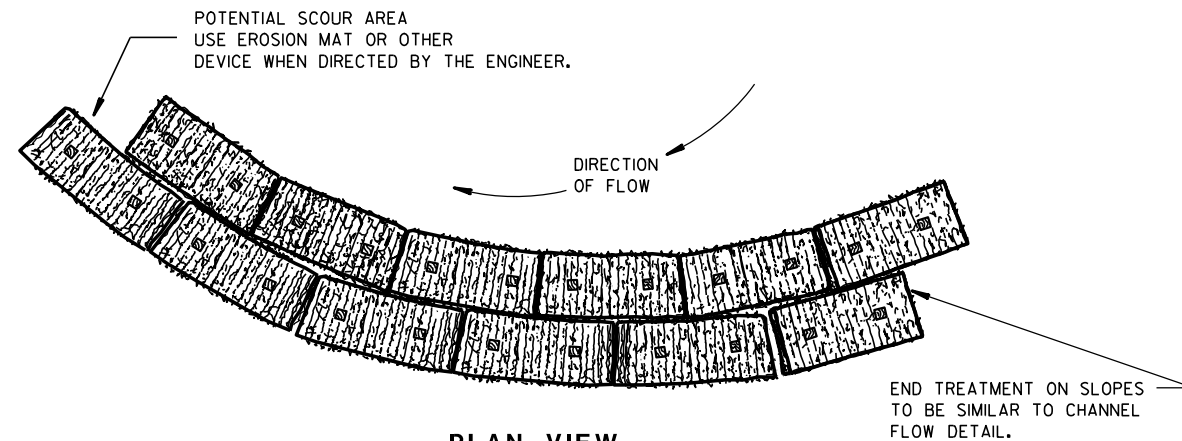
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

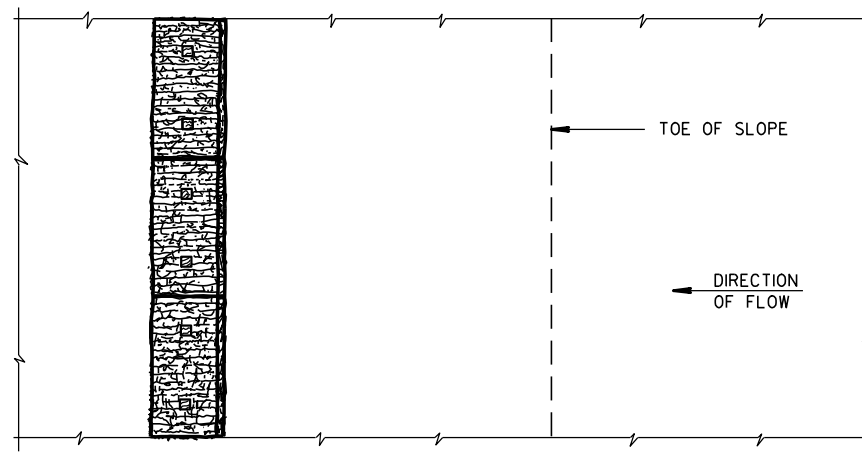
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

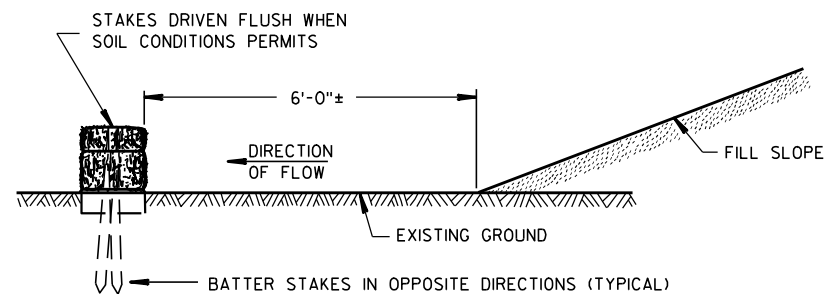


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

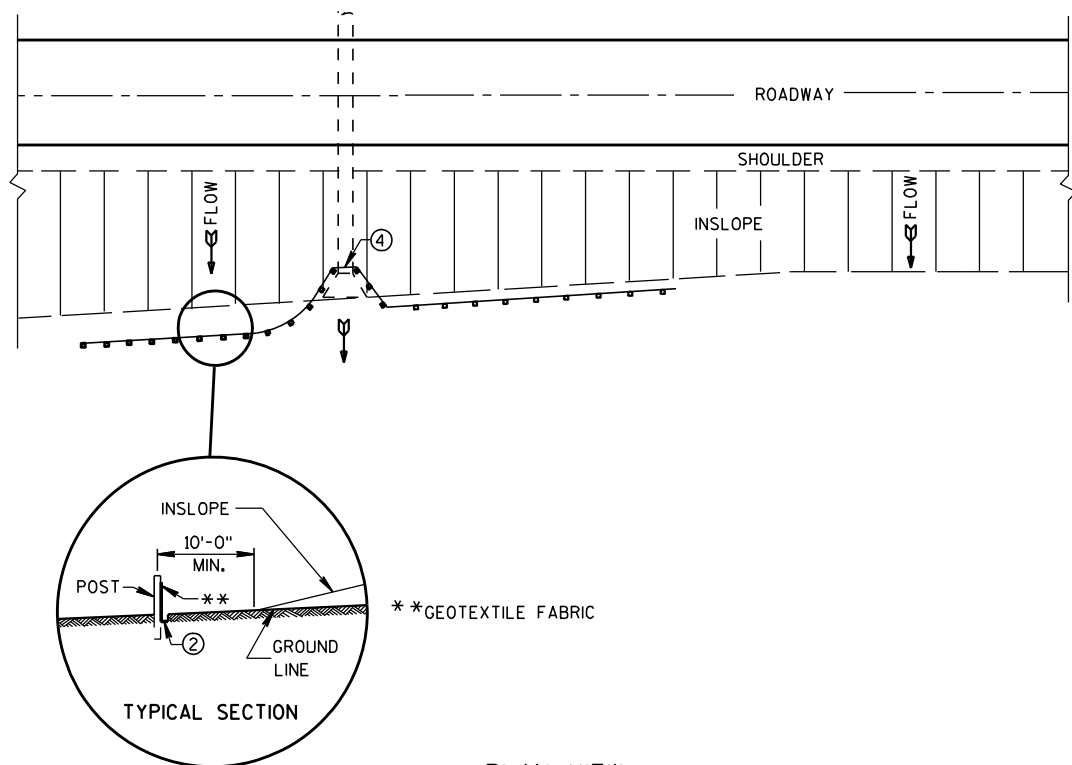
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

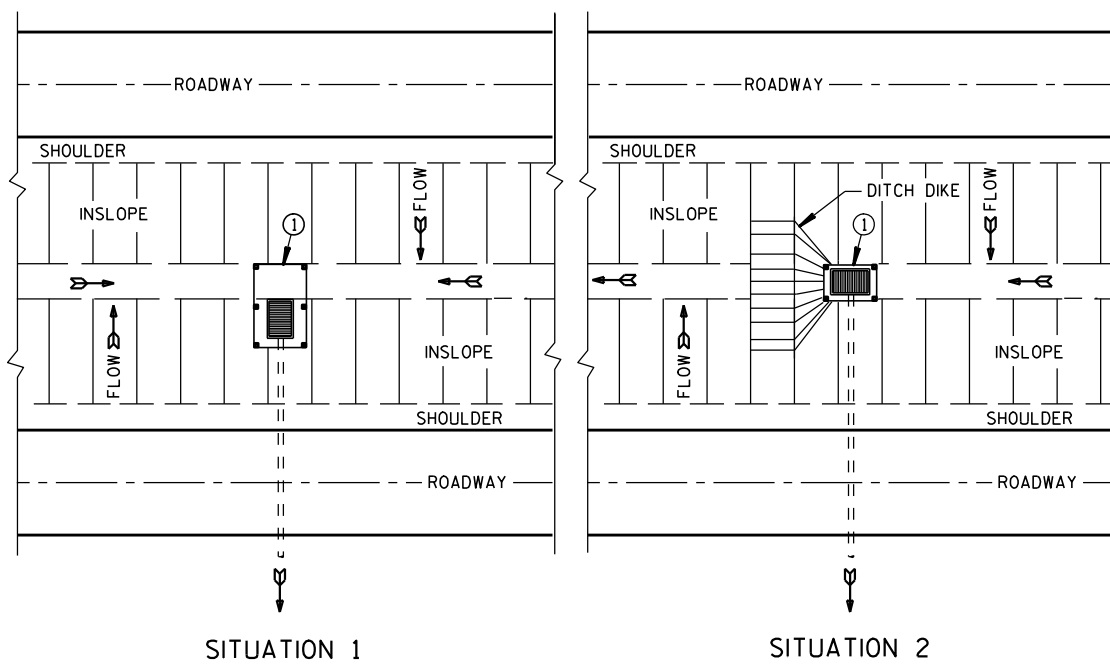
TYPICAL INSTALLATIONS OF  
EROSION BALES / TEMPORARY  
DITCH CHECKS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
 6/04/02 /S/ Beth Canestra  
 DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
 FHWA



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

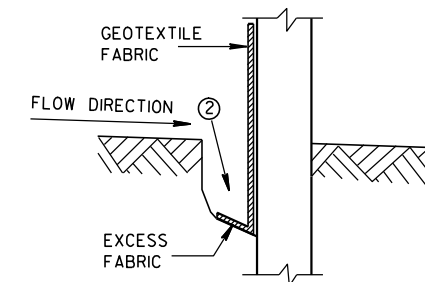


SITUATION 1      SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

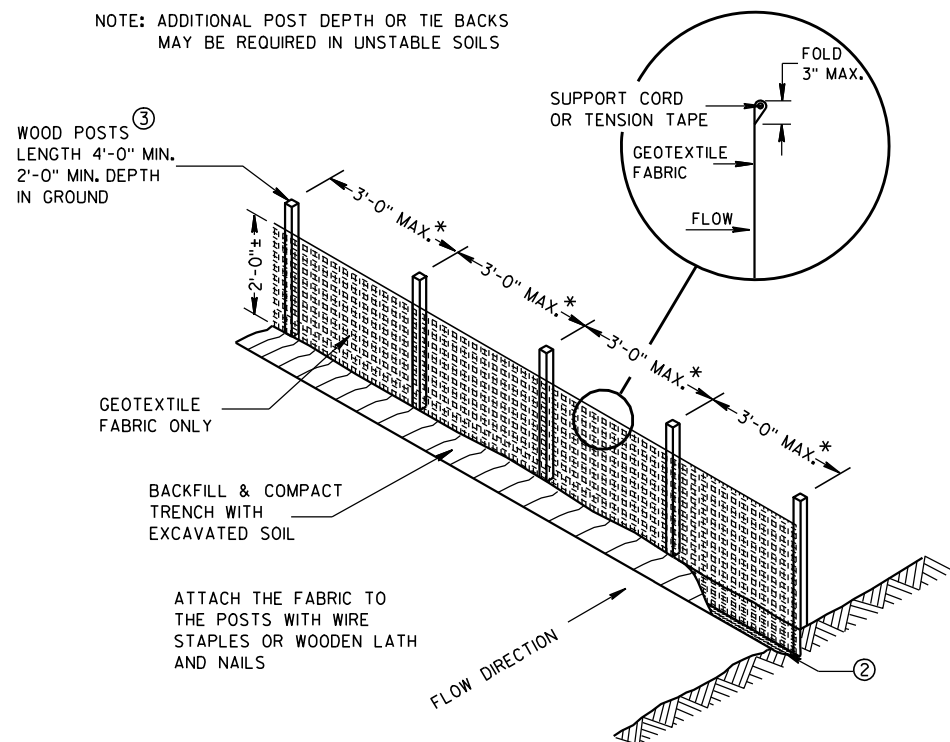
**GENERAL NOTES**

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

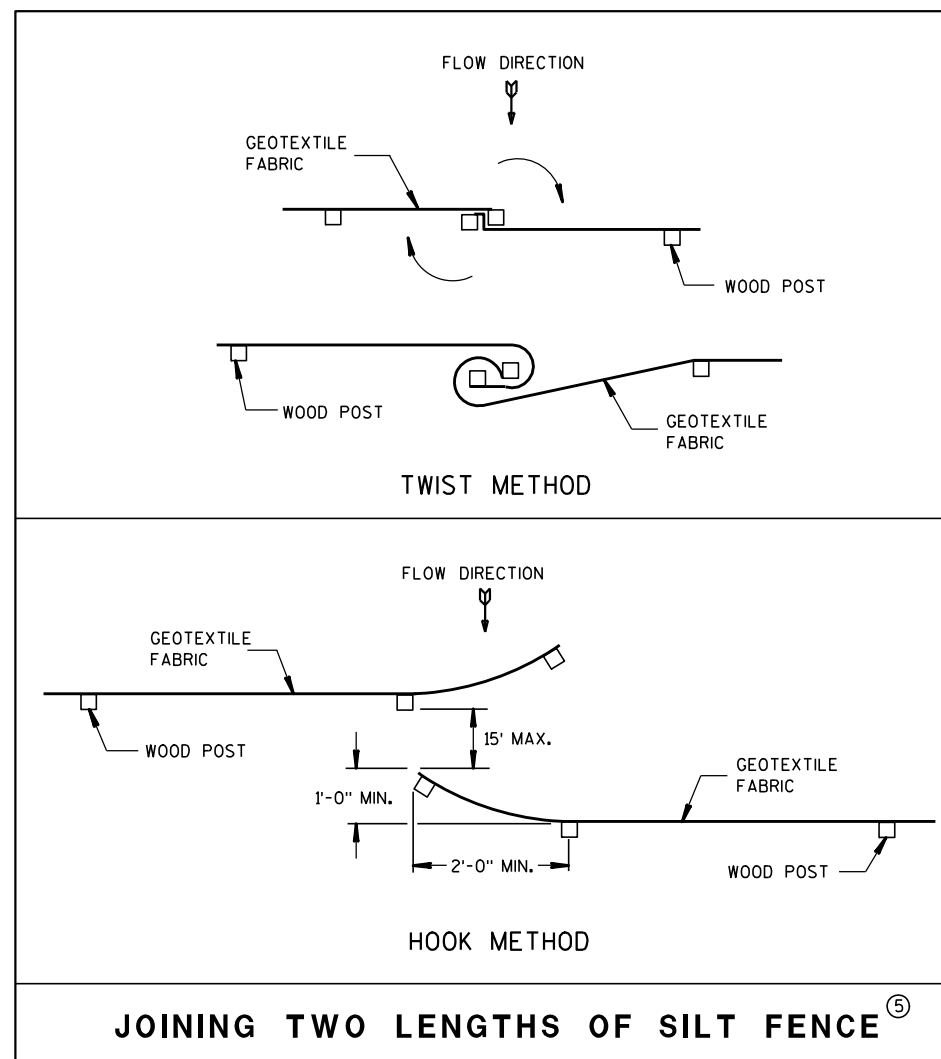
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS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



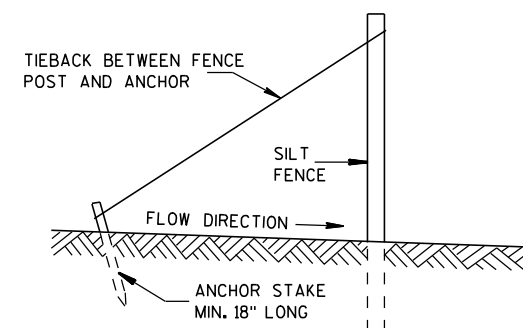
TRENCH DETAIL



SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE ⑤

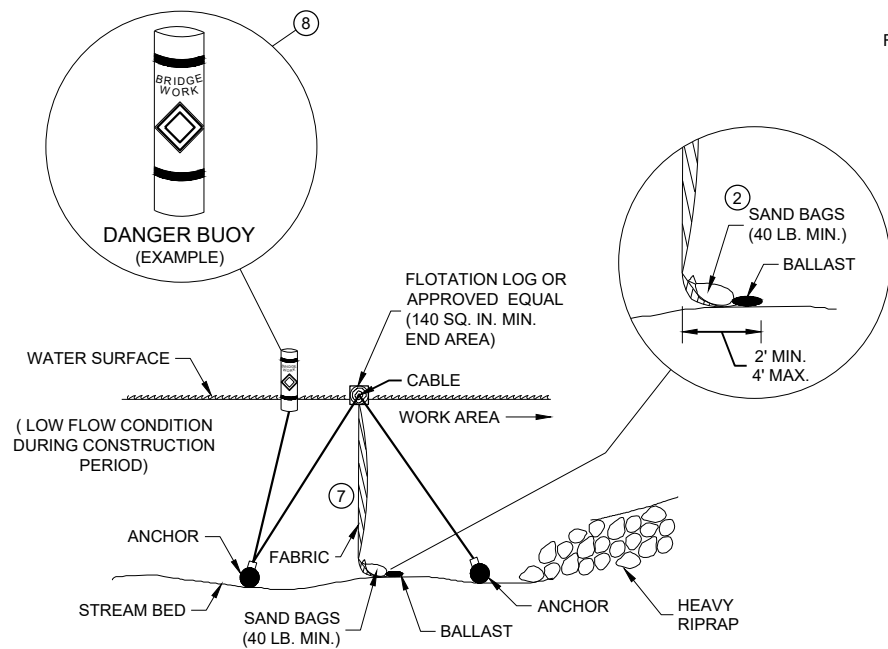


SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

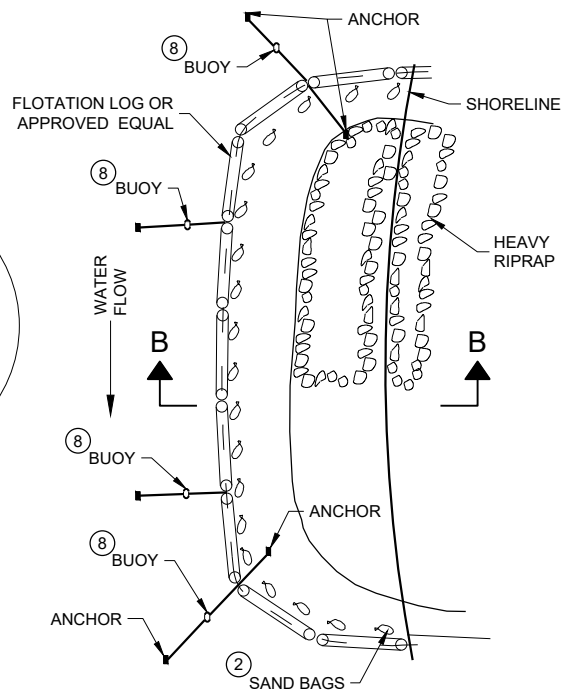
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
4-29-05 /S/ Beth Canestra  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA

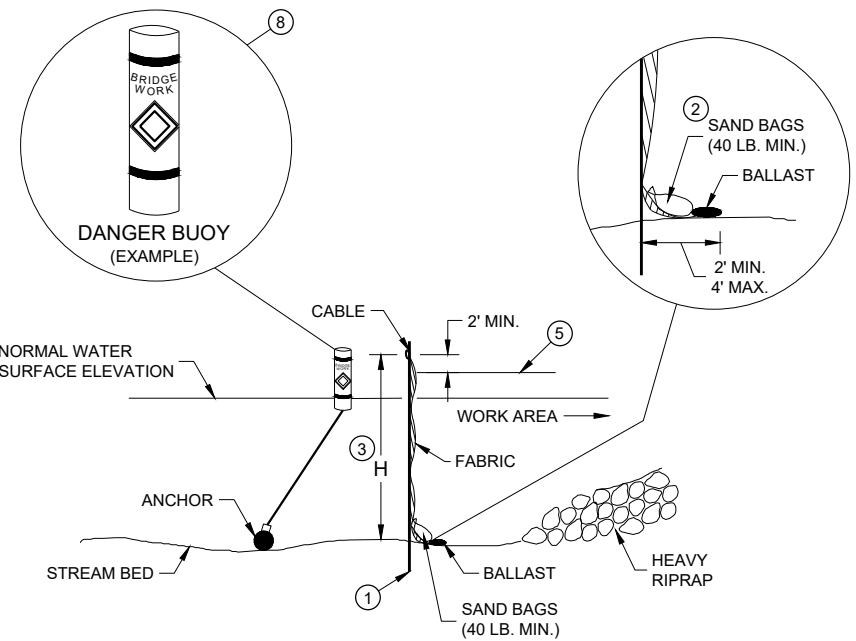


**SECTION B - B**

**TURBIDITY BARRIER - FLOAT ALTERNATIVE  
CAUTION - SEE NOTE 6**

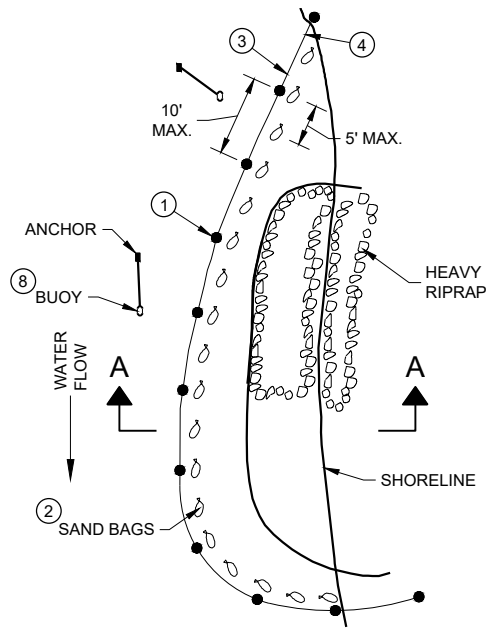


**PLAN VIEW**



**SECTION A - A**

**TURBIDITY BARRIER - STANDARD POST INSTALLATION**



**PLAN VIEW**

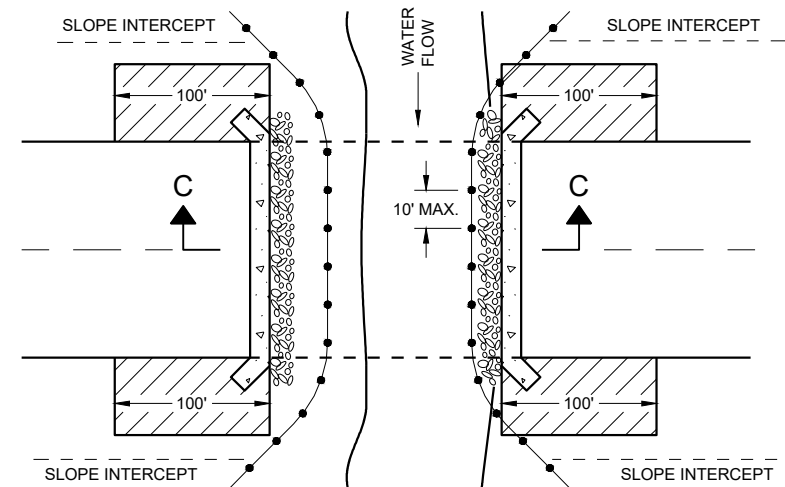
**TURBIDITY BARRIER PLACEMENT DETAILS**

**GENERAL NOTES**

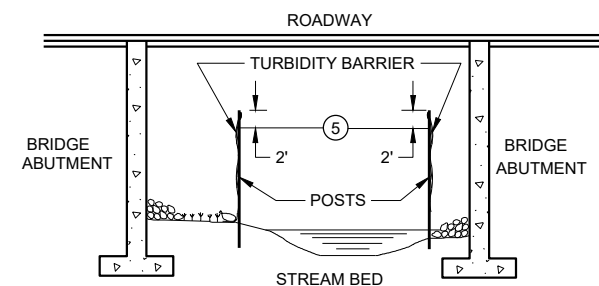
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

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



**PLAN VIEW**



**SECTION C - C**

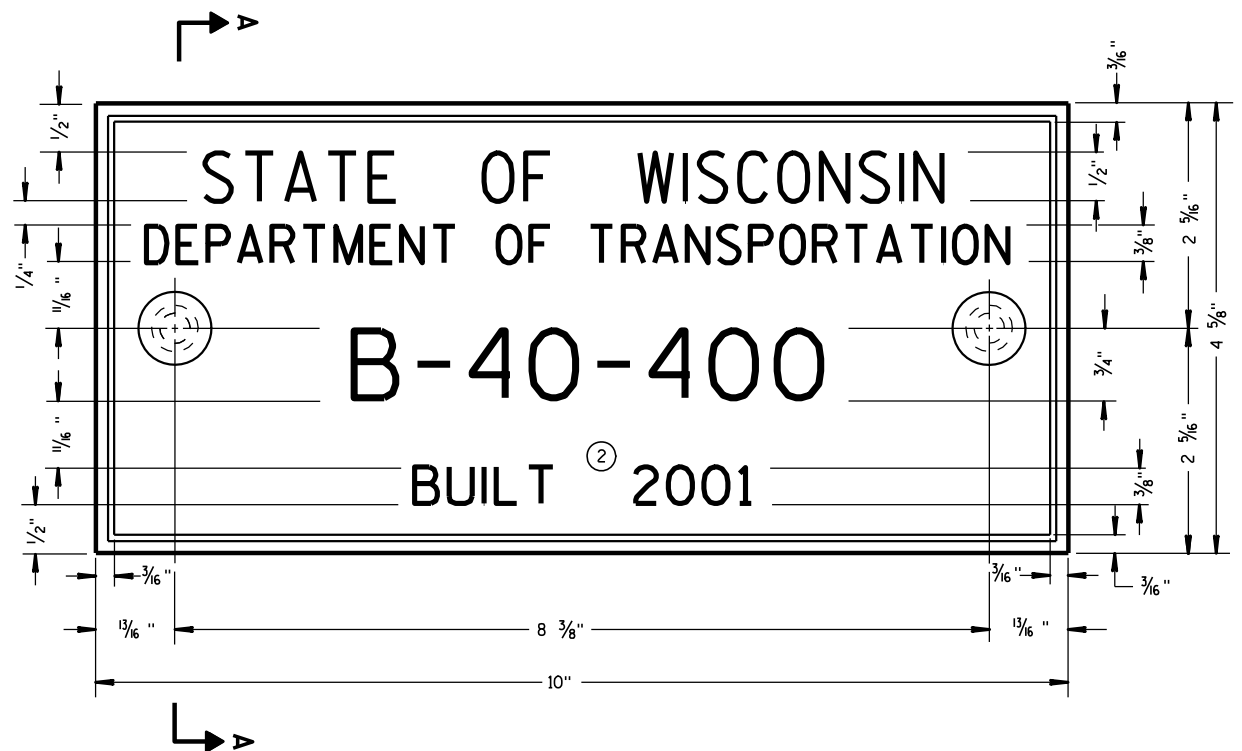
**TURBIDITY BARRIER DETAIL SHOWING  
TYPICAL PLACEMENT AT STRUCTURES**

**TURBIDITY BARRIER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



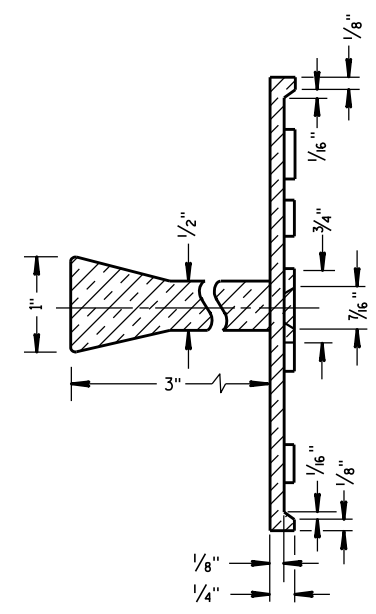
**TYPICAL NAME PLATE**  
(BRIDGES, CULVERTS, AND RETAINING WALLS)

**GENERAL NOTES**

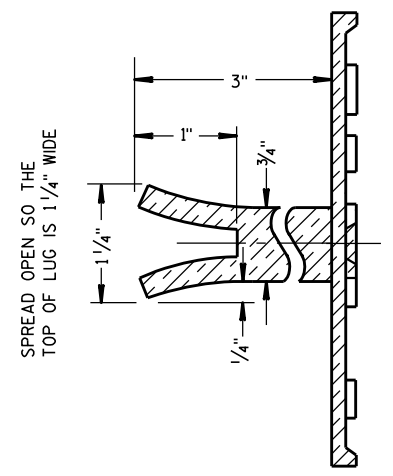
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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**



SPREAD OPEN SO THE TOP OF LUG IS 1 1/4" WIDE

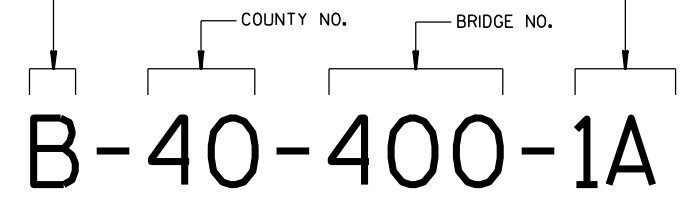
**ALTERNATE LUG**

6

6

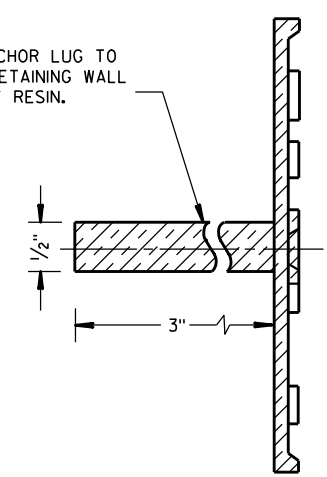
FOR MULTI-UNIT STRUCTURES  
LINE 3 ABOVE SHALL READ

- B = BRIDGE
- C = CULVERT
- R = RETAINING WALL
- UNIT NO. FOR MULTIPLE UNIT BRIDGE



**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

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



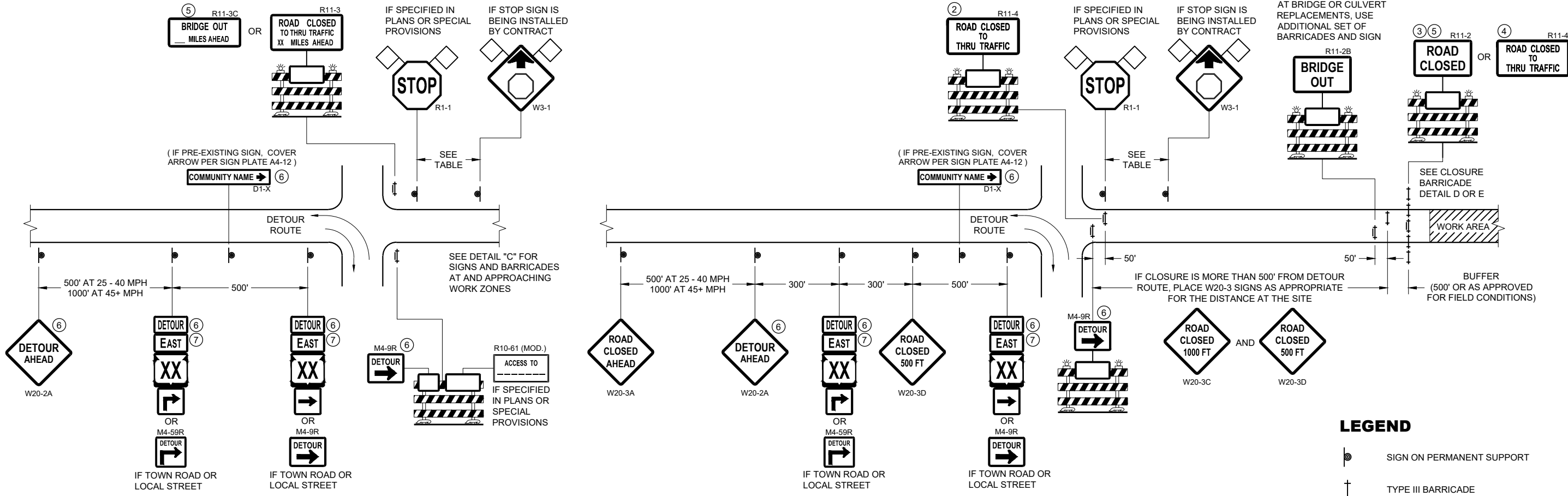
**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

S.D.D. 12 A 3-10

S.D.D. 12 A 3-10

<b>NAME PLATE (STRUCTURES)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 3/26/10	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	





**DETAIL A  
MAINLINE CLOSURE WITH POSTED DETOUR**

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

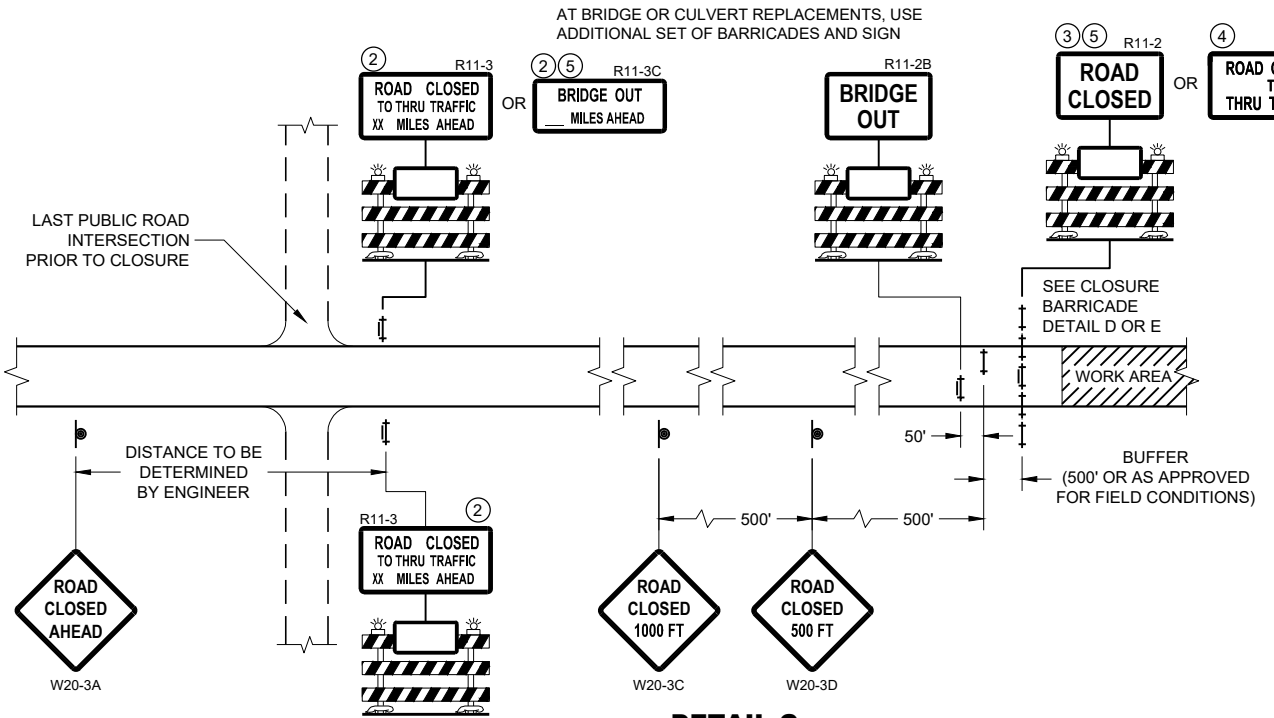
**DETAIL B  
MAINLINE CLOSURE WITH POSTED DETOUR**

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

- 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)

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

- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1



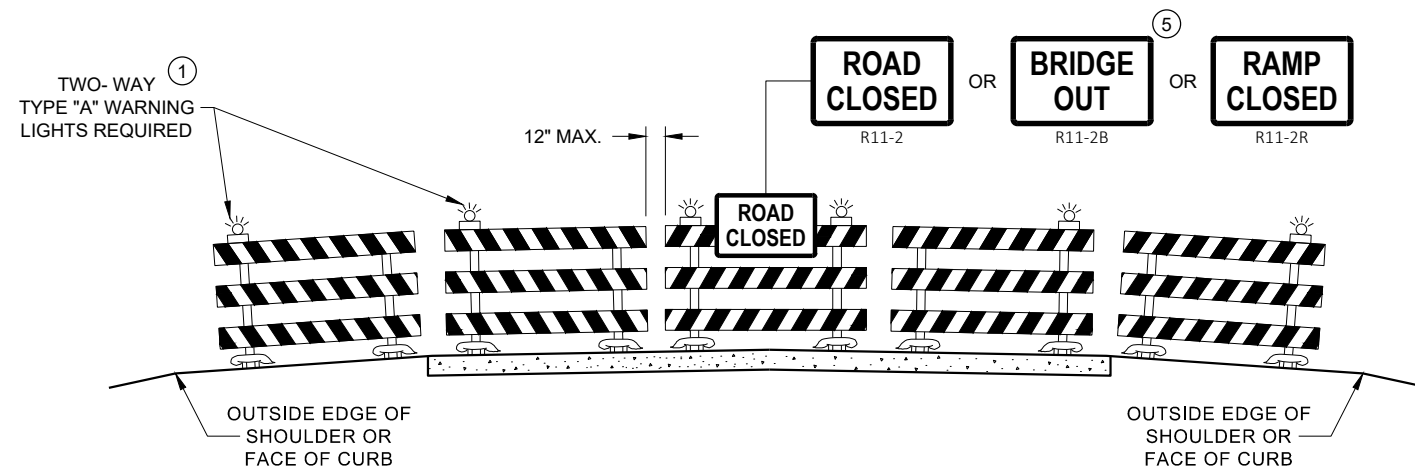
**DETAIL C  
MAINLINE CLOSURE, NO POSTED DETOUR**

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

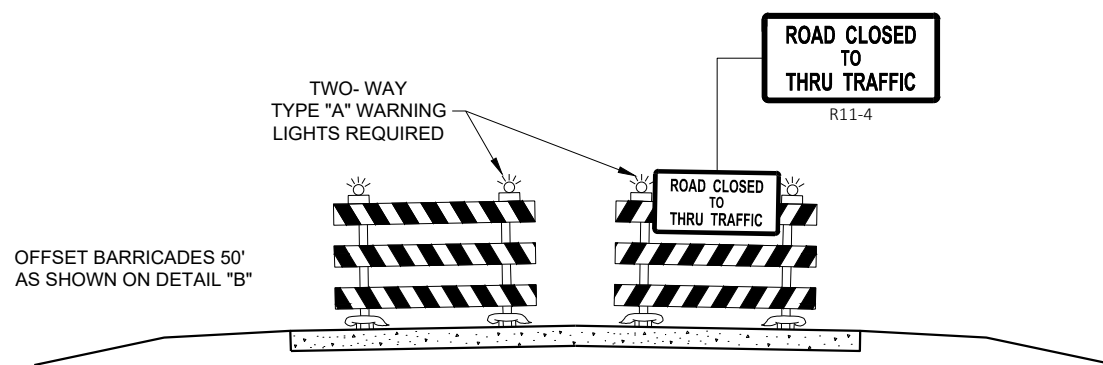
**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Andrew Heidtke  
DATE 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:

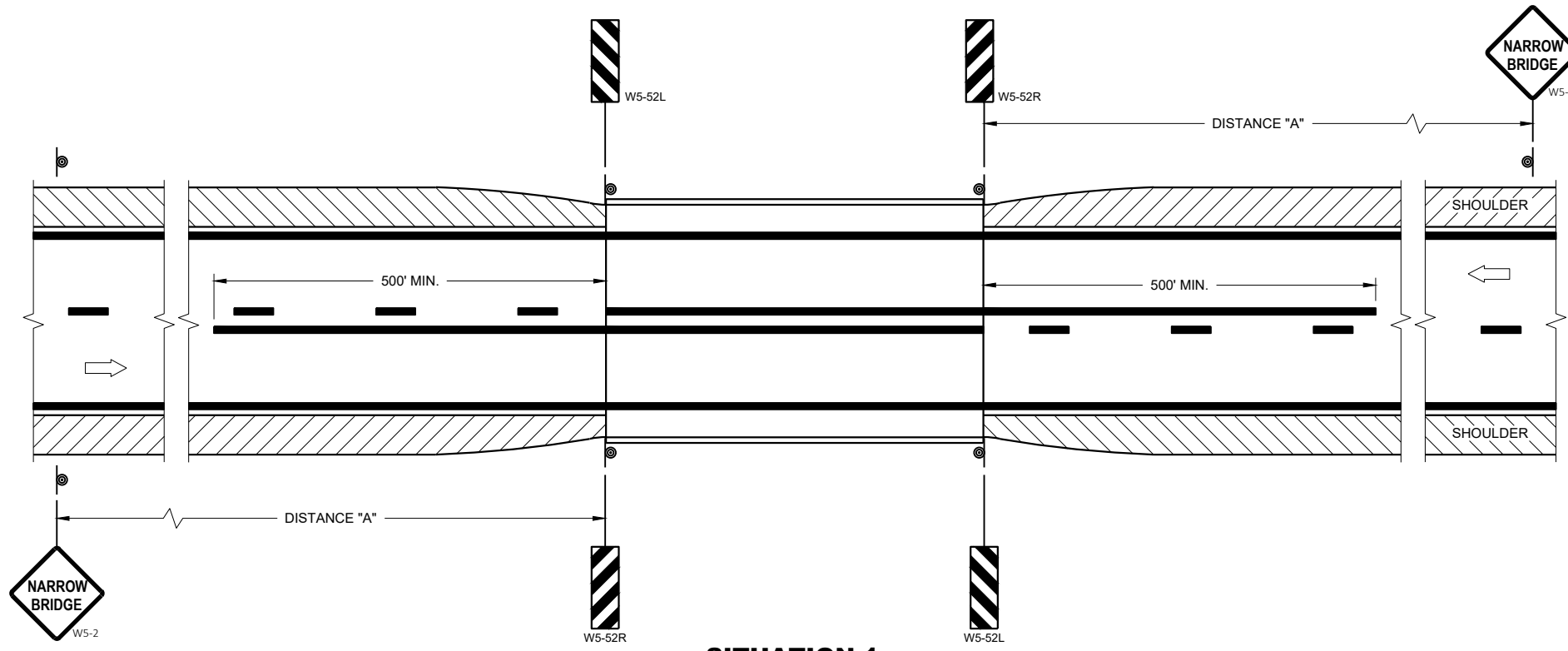
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24"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

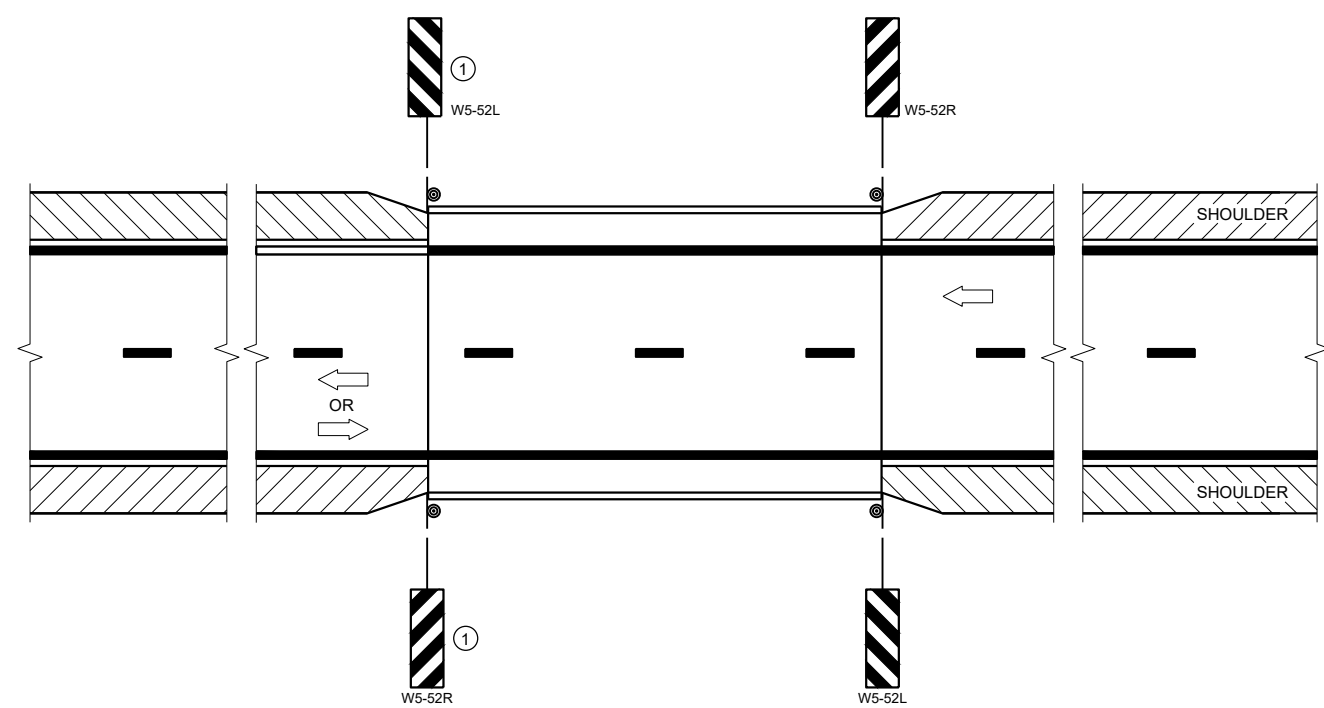
**BARRICADES AND SIGNS  
FOR  
VARIOUS CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**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**

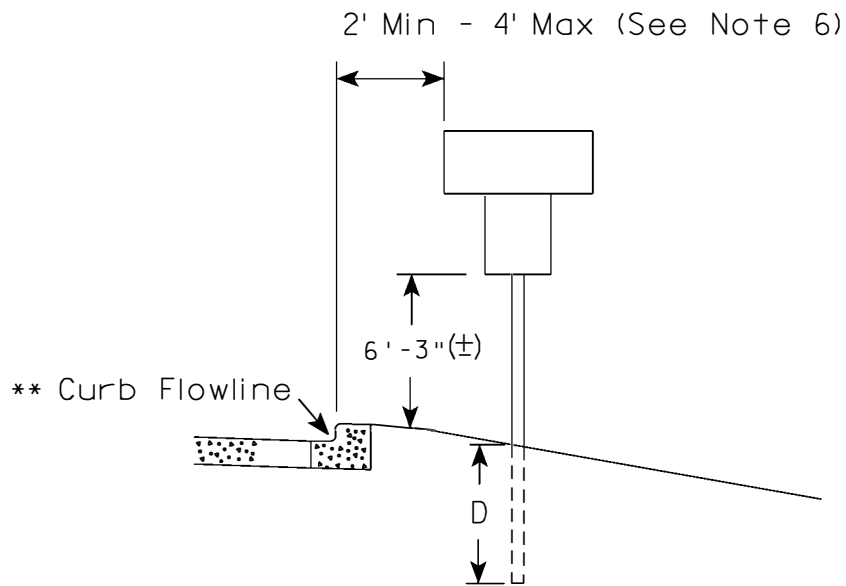
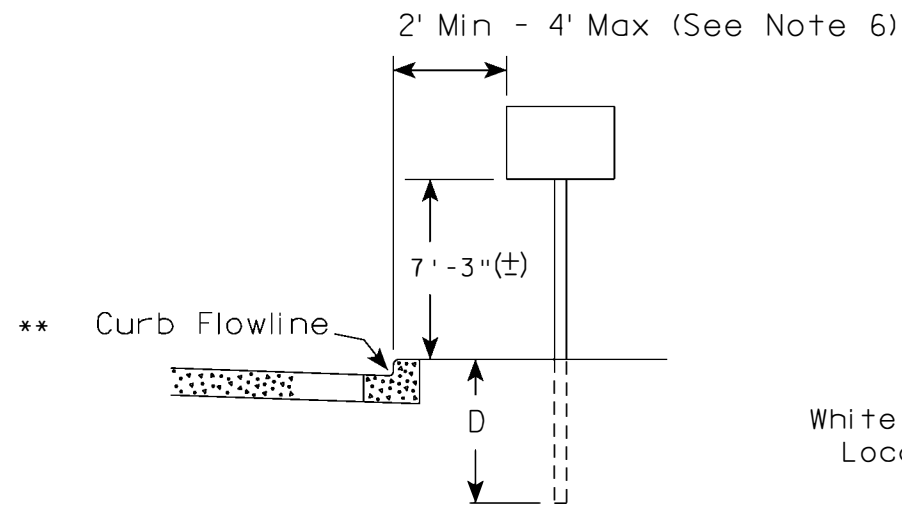
POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

**SIGNING AND MARKING FOR TWO LANE BRIDGES**

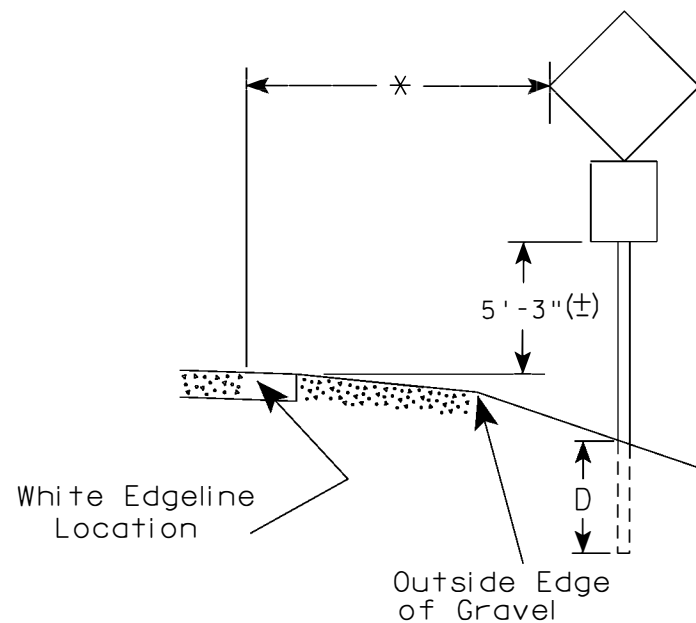
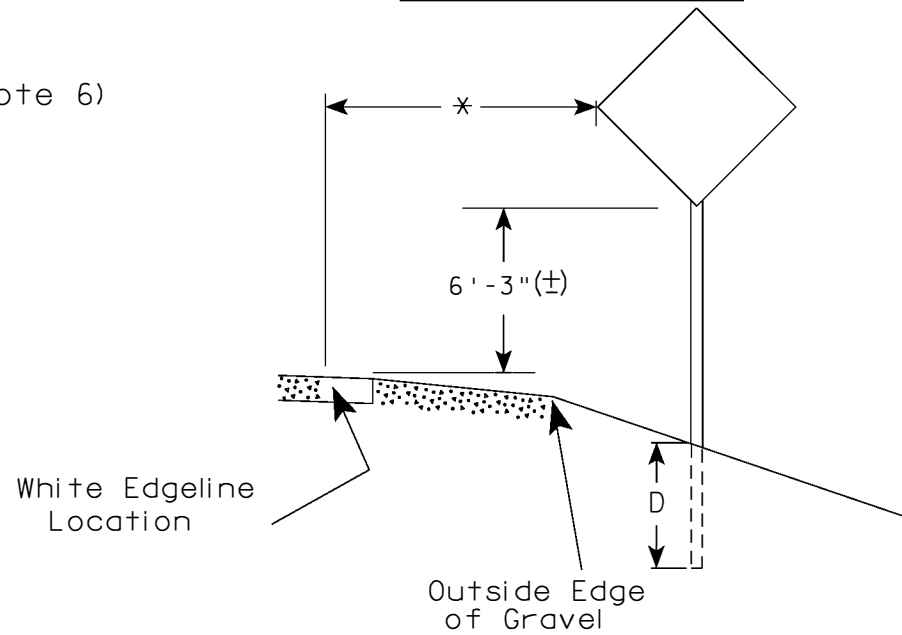
STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

APPROVED  
 May 2023 /S/ Jeannie Silver  
 DATE STATE SIGNING AND MARKING ENGINEER

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

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

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

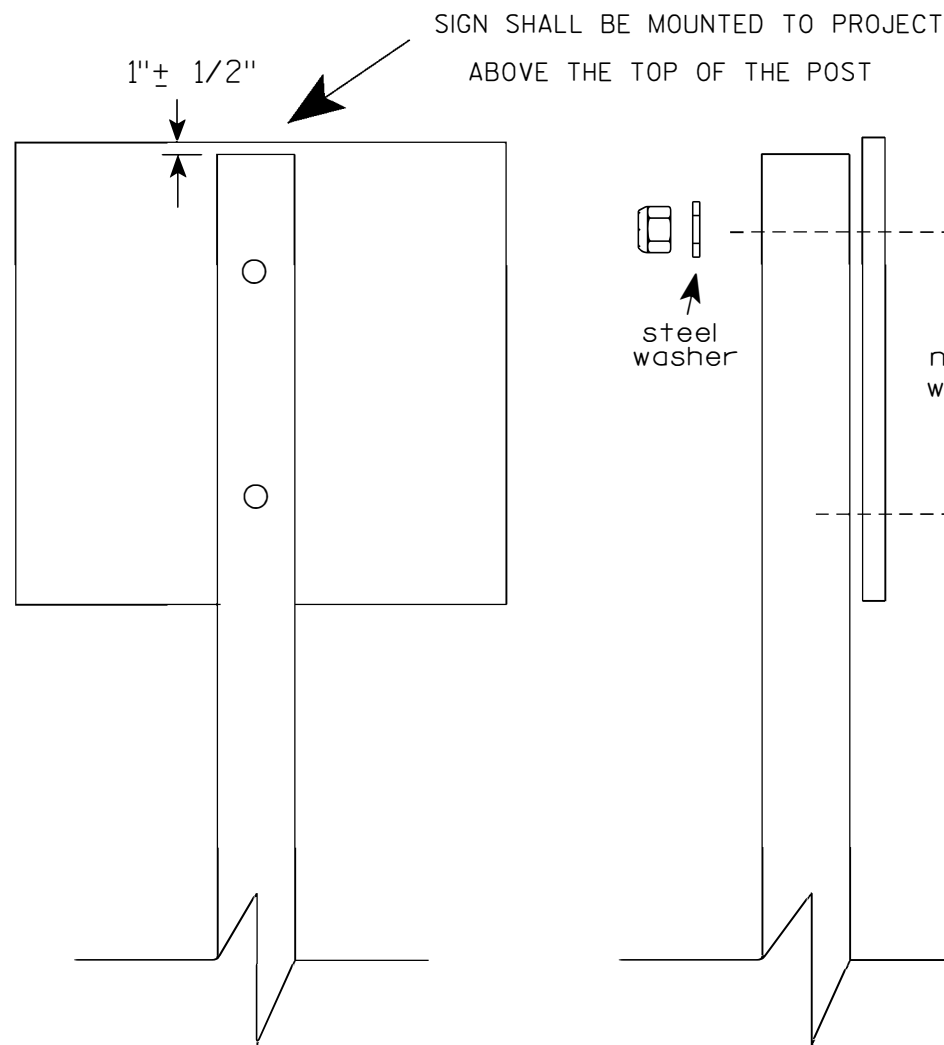
\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Raush*  
for State Traffic Engineer

DATE 5/13/2020 PLATE NO. A4-3.22



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

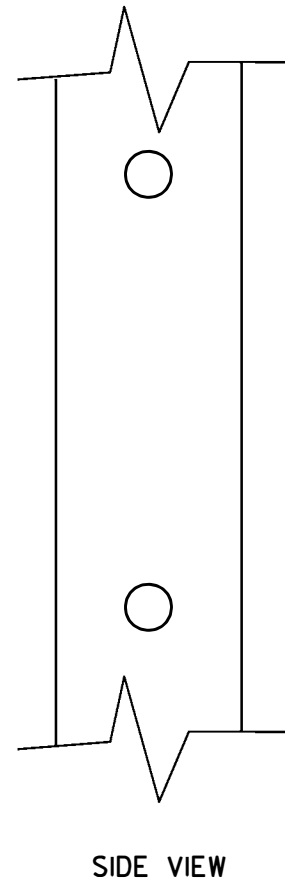
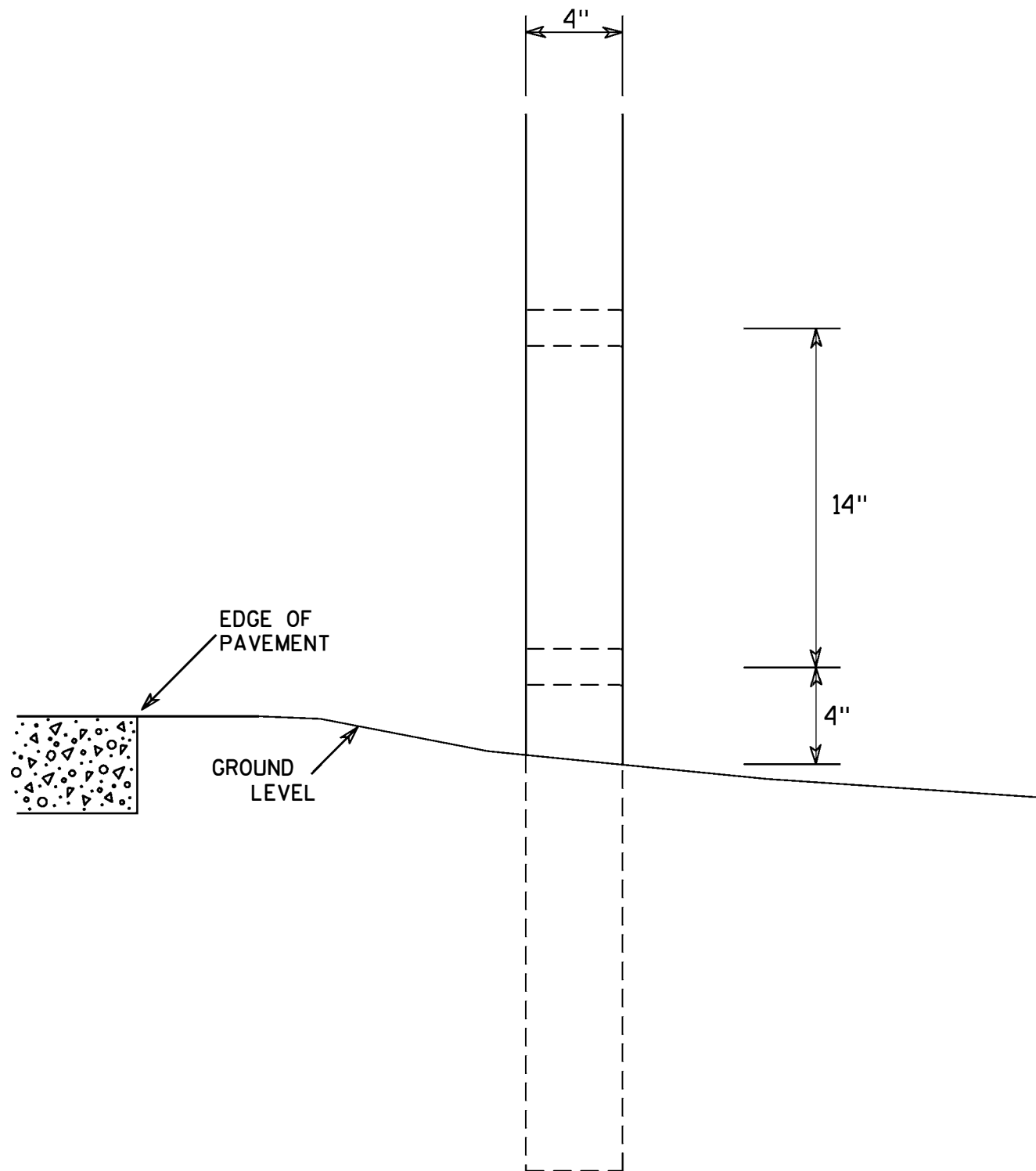
- Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)  
3/8" X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)  
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL  
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
- 1-1/4" O.D. X 3/8" I.D. X .080 NYLON

\* 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



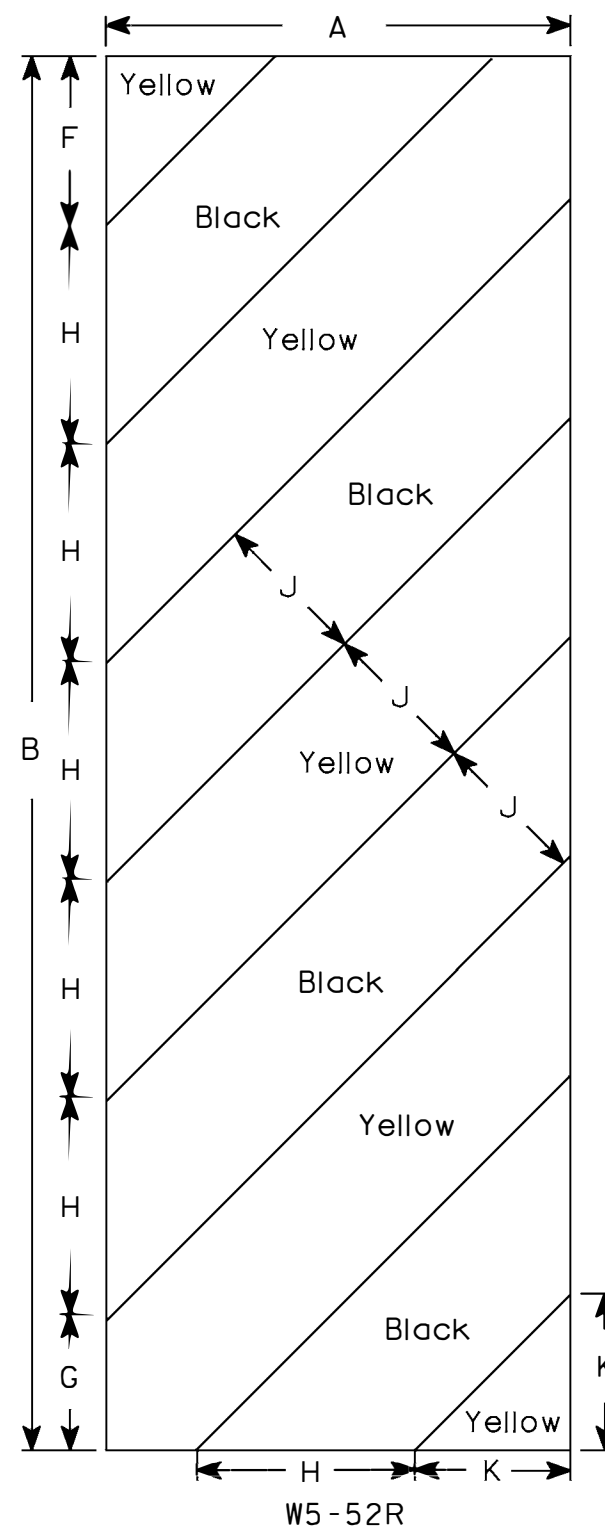
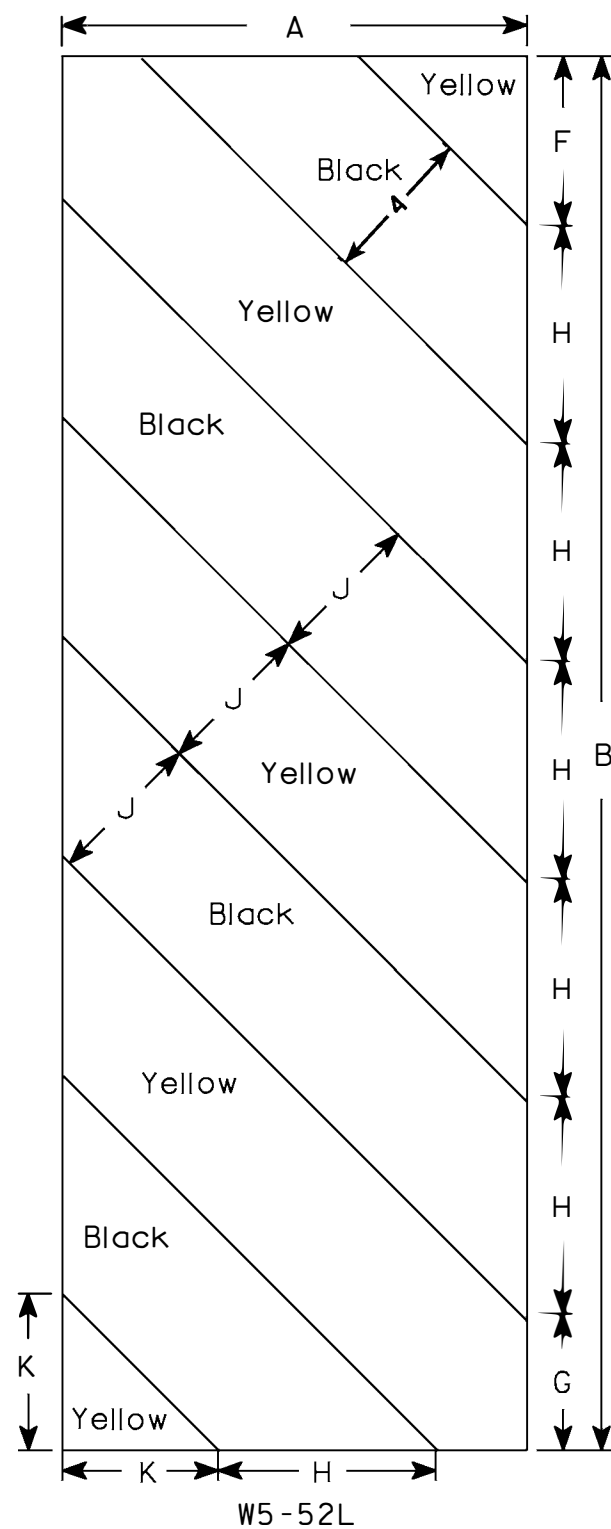
GENERAL NOTES

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

7

7

4 X 6 WOOD POST MODIFICATIONS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Chester J. Spang</i> for State Traffic Engineer
DATE 3/27/97	PLATE NO. A4-11.2



NOTES

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

7

7

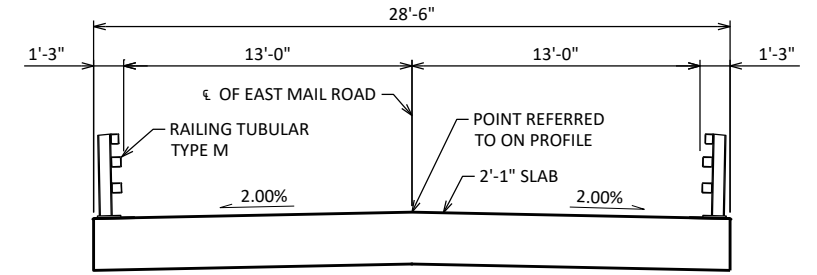
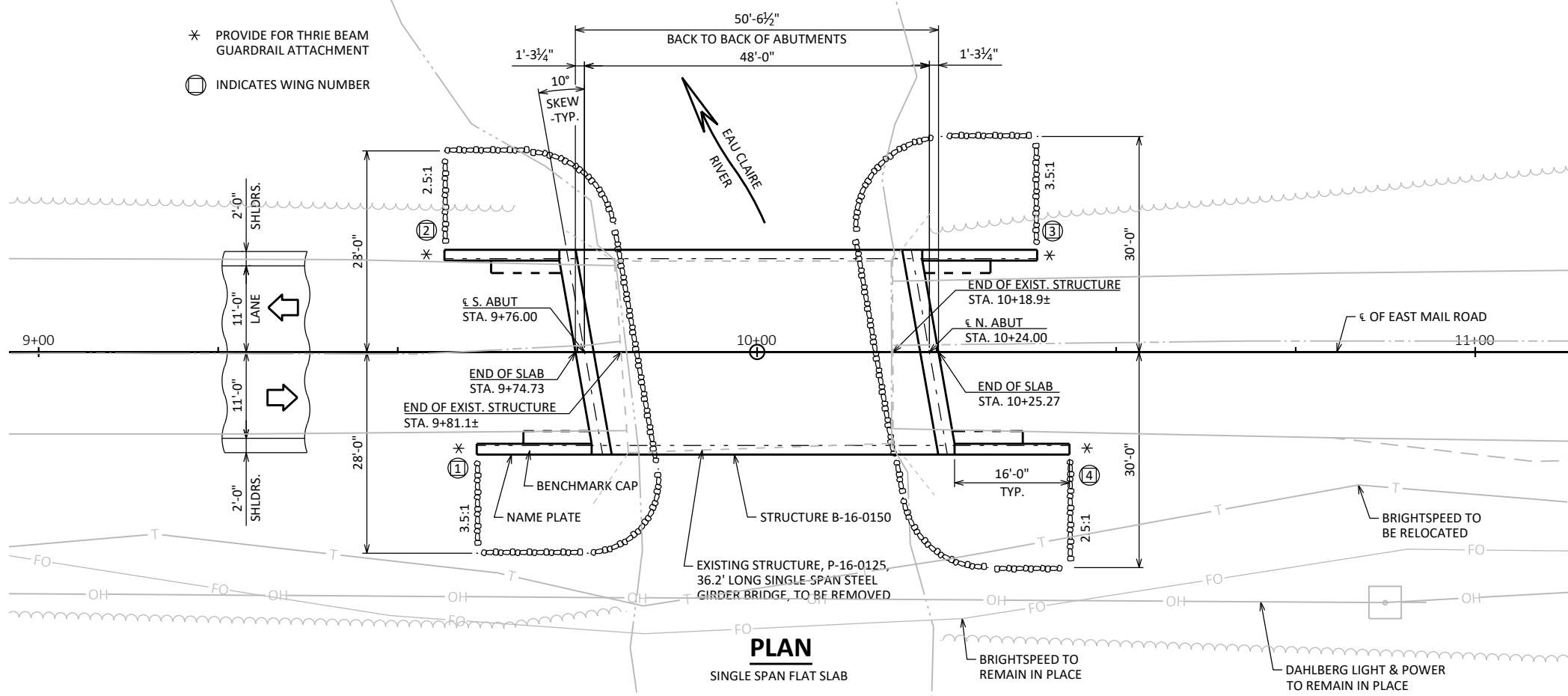
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 5/16																6.75
4																											
5																											

STANDARD SIGN  
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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



**DESIGN DATA**

**LIVE LOAD:**

DESIGN LOADING: HL-93  
 INVENTORY RATING: RF = 1.18  
 OPERATING RATING: RF = 1.53  
 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 & STRUCTURAL APPROACH SLAB  $f'_c = 4,000$  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 HP 10 X 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS \*\* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.  
 ESTIMATED 25'-0" LONG AT BOTH ABUTMENTS.

\*\*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**

**100-YEAR FREQUENCY:**  
 $Q_{100} = 400$  C.F.S.  
 $V_{100} = 5.5$  F.P.S.  
 $HW_{100} = EL. 1119.17$   
 WATERWAY AREA = 225 SQ. FT.  
 DRAINAGE AREA = 36.5 SQ. MI.  
 ROADWAY OVERTOPPING = N/A  
 SCOUR CRITICAL CODE = 5

**2-YEAR FREQUENCY:**  
 $Q_2 = 130$  C.F.S.  
 $V_2 = 5.1$  F.P.S.  
 $HW_2 = EL. 1117.87$

**TRAFFIC DATA**

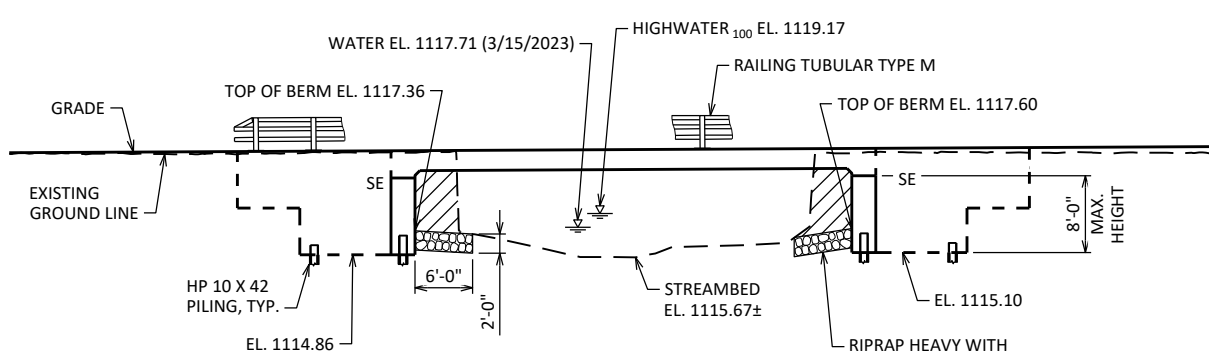
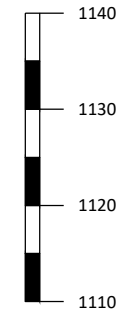
**FEATURE ON:**  
 ADT = 220 (2024)  
 ADT = 300 (2044)  
 R.D.S. = 20 MPH

**LIST OF DRAWINGS:**

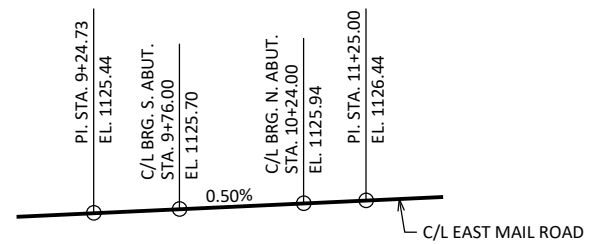
1. GENERAL PLAN
2. NOTES & QUANTITIES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT WING 1 DETAILS
6. SOUTH ABUTMENT WING 2 DETAILS
7. SOUTH ABUTMENT PILE LAYOUT AND BILL OF BARS
8. NORTH ABUTMENT
9. NORTH ABUTMENT WING 3 DETAILS
10. NORTH ABUTMENT WING 4 DETAILS
11. NORTH ABUTMENT PILE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

\* PROVIDE FOR THREE BEAM GUARDRAIL ATTACHMENT

○ INDICATES WING NUMBER



/// COST OF EXCAVATION OR FILL IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-16-150".



**BENCH MARK**

NO.	STATION	DESCRIPTION	ELEV.
50	10+18.1	RR SPIKE IN NW WING PILE	1125.15
51	10+87	RR SPIKE IN PPOL	1123.55



10/31/2023

**STRUCTURE DESIGN CONTACTS:**  
 ARLEN BEAUDETTE 715-834-3161  
 AARON BONK 608-261-0261

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
<b>AYRES</b>		3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	<i>[Signature]</i>	SDR	11/07/23
CHIEF STRUCTURES DESIGN ENGINEER		DATE	
<b>STRUCTURE B-16-150</b>			
EAST MAIL ROAD OVER EAU CLAIRE RIVER			
COUNTY	DOUGLAS	TOWN	GORDON
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATION			
DESIGNED BY	ZSS	DESIGNED CK'D	DRS
DRAWN BY	ZSS	PLANS CK'D	AEB
<b>GENERAL PLAN</b>			SHEET 1 OF 14



**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER	S. ABUT.	N. ABUT.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-16-0125	EACH	----	----	----	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-16-150	EACH	----	----	----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	----	400	400	800
502.0100	CONCRETE MASONRY BRIDGES	CY	115.4	45.8	45.8	207
502.3200	PROTECTIVE SURFACE TREATMENT	SY	195	20	20	235
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	----	2,060	2,060	4,120
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	21,910	2,080	2,080	26,070
513.4061	RAILING TUBULAR TYPE M	LF	101.1	34.2	34.2	169.5
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	----	9	9	18
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	----	175	175	350
606.0300	RIPRAP HEAVY	CY	----	65	75	140
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	----	140	150	290
<b>NON-BID ITEMS</b>						
	FILLER	SIZE	---	---	---	1/2", 3/4"

**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

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

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

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

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-16-150" SHALL BE THE EXISTING GROUNDLINE.

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

EXCAVATION BELOW THE ABUTMENT BEYOND EXTENTS SHOWN ON THIS SHEET AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.

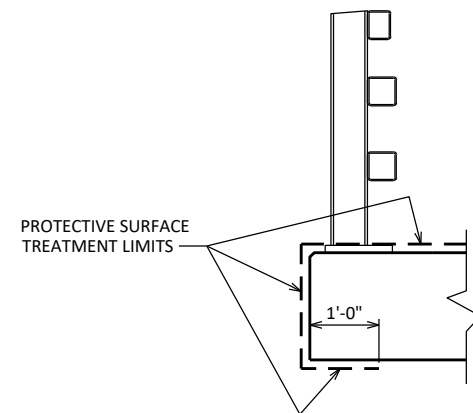
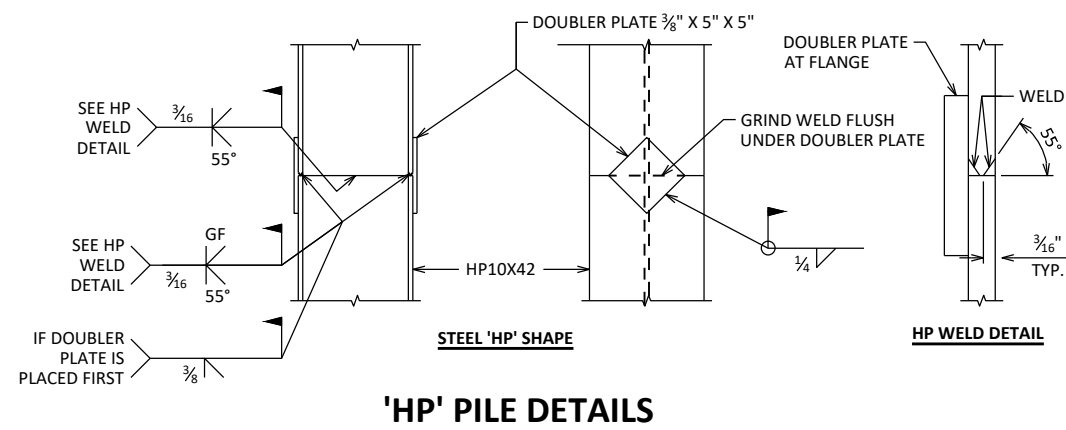
THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK TO THE TOP AND EXTERIOR EXPOSED FACE OF WINGS, AND THEN END 1'-0" OF THE FRONT FACE OF ABUTMENT.

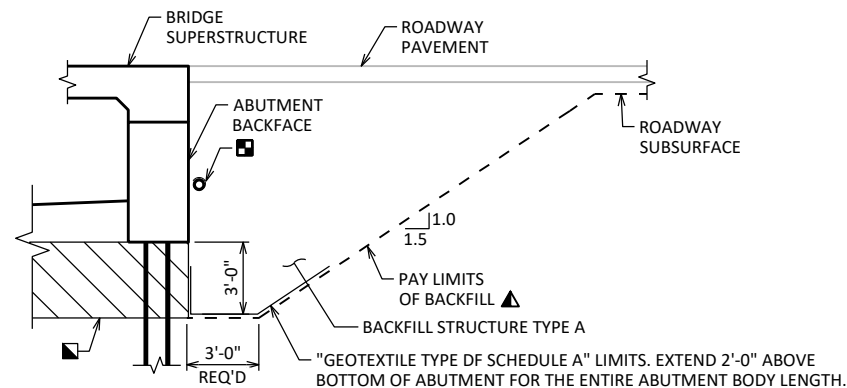
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE "HR" TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS..

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

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.

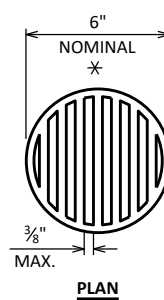


**PROTECTIVE SURFACE TREATMENT DETAILS**



**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.
- HATCHED AREA UNDER ABUTMENT AND RIPRAP TO BE REMOVED AND REPLACED WITH STRUCTURAL BACKFILL. PAID FOR AS BACKFILL STRUCTURE, TYPE A.

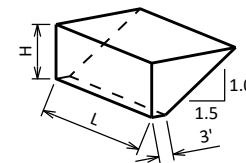


**RODENT SHIELD DETAIL**

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

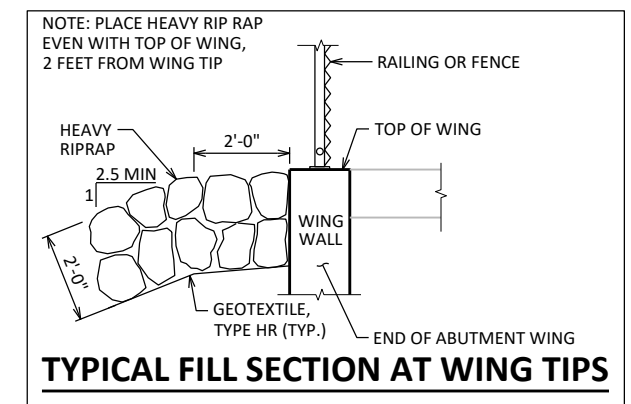
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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.



**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)
- $V_{CF} = (L)(3.0')(H) + (L)(0.5')(1.5H)(H)$
- $V_{CY} = V_{CF}(EF)/27$
- $V_{TON} = V_{CF}(2.0)$



**TYPICAL FILL SECTION AT WING TIPS**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-150</b>			
DRAWN BY		ZSS	PLANS CK'D AEB
<b>NOTES AND QUANTITIES</b>			SHEET 2 OF 14

ORIGINAL PLANS PREPARED BY  
**AYRES** 3433 Oakwood Hills Parkway  
 Eau Claire, WI 54701  
 www.AyresAssociates.com

8

8

SCALE =

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	5/18/2023	138043.04	281117.41
2	5/18/2023	138094.88	281117.41

BORINGS COMPLETED BY: GEOTECHNICAL DRILLING CONTRACTORS, LLC  
 REPORT COMPLETED BY: ECS MIDWEST, LLC  
 ALL COORDINATES REFERENCED TO WCCS NAD 83(91) DOUGLAS COUNTY

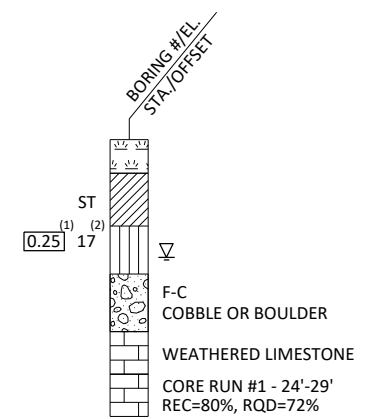
STATE PROJECT NUMBER

**8386-00-73**

**MATERIAL SYMBOLS**

	ASPHALT		TOPSOIL		PEAT
	CONCRETE		FILL		GRAVEL
	SAND		CLAY		SILT
	BOULDERS OR COBBLES		LIMESTONE		BEDROCK (UNKNOWN)
	SHALE		SANDSTONE		IGNEOUS/META

**LEGEND OF BORING**



(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

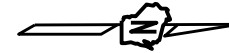
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**STRUCTURE B-16-150**

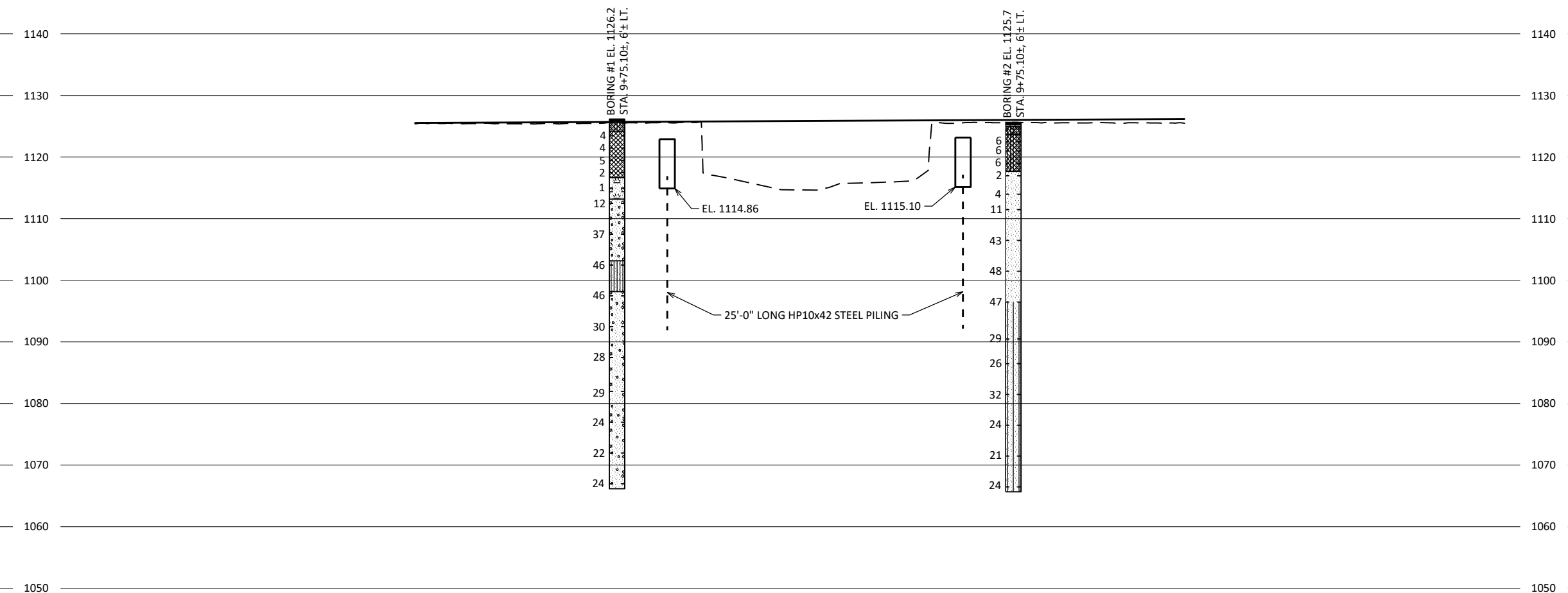
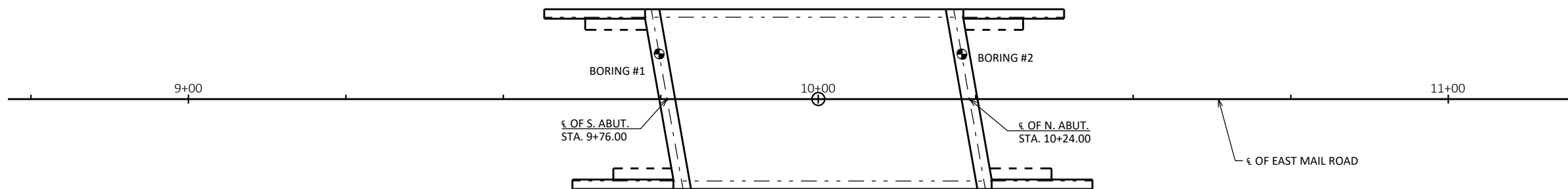
DRAWN BY	ZSS	PLANS CK'D	AEB
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**SUBSURFACE EXPLORATION**

SHEET 3 OF 14

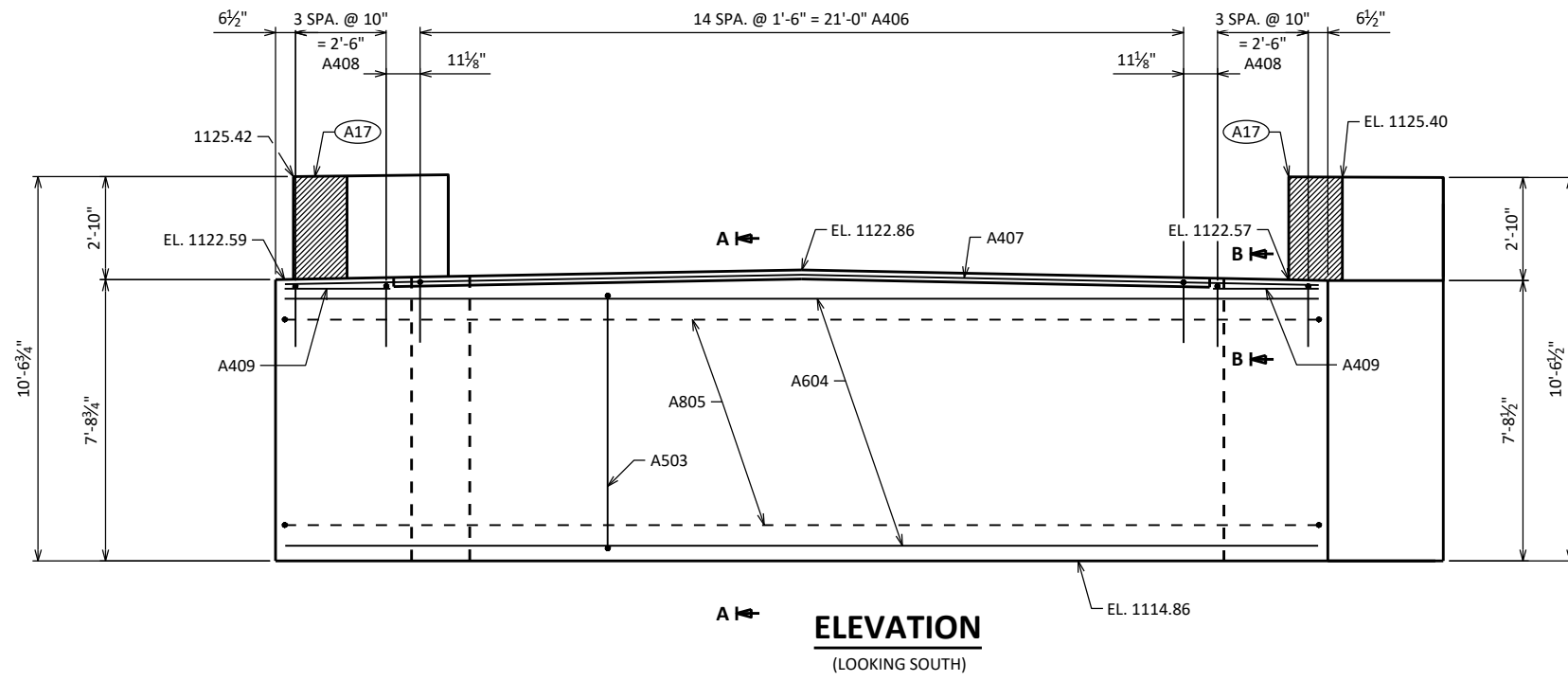


EAU CLAIRE RIVER



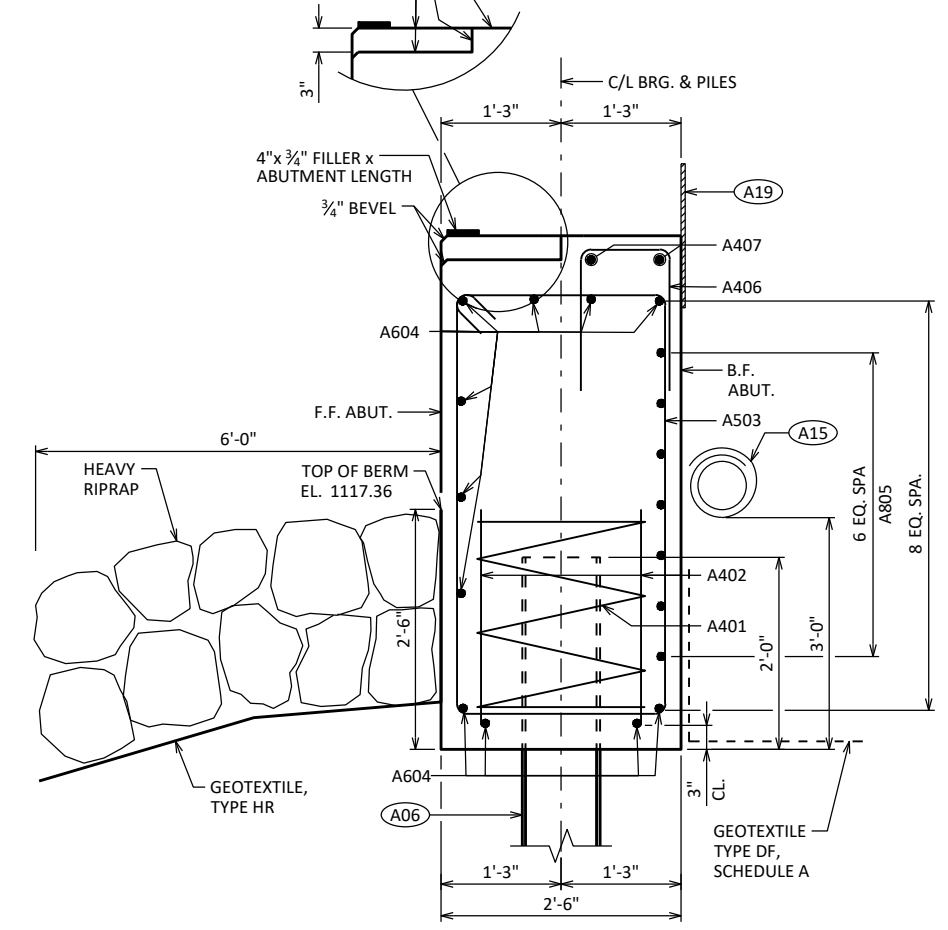
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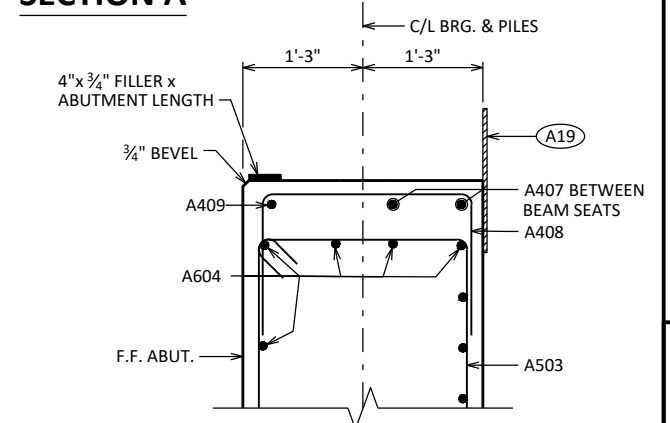


**ELEVATION**  
(LOOKING SOUTH)

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

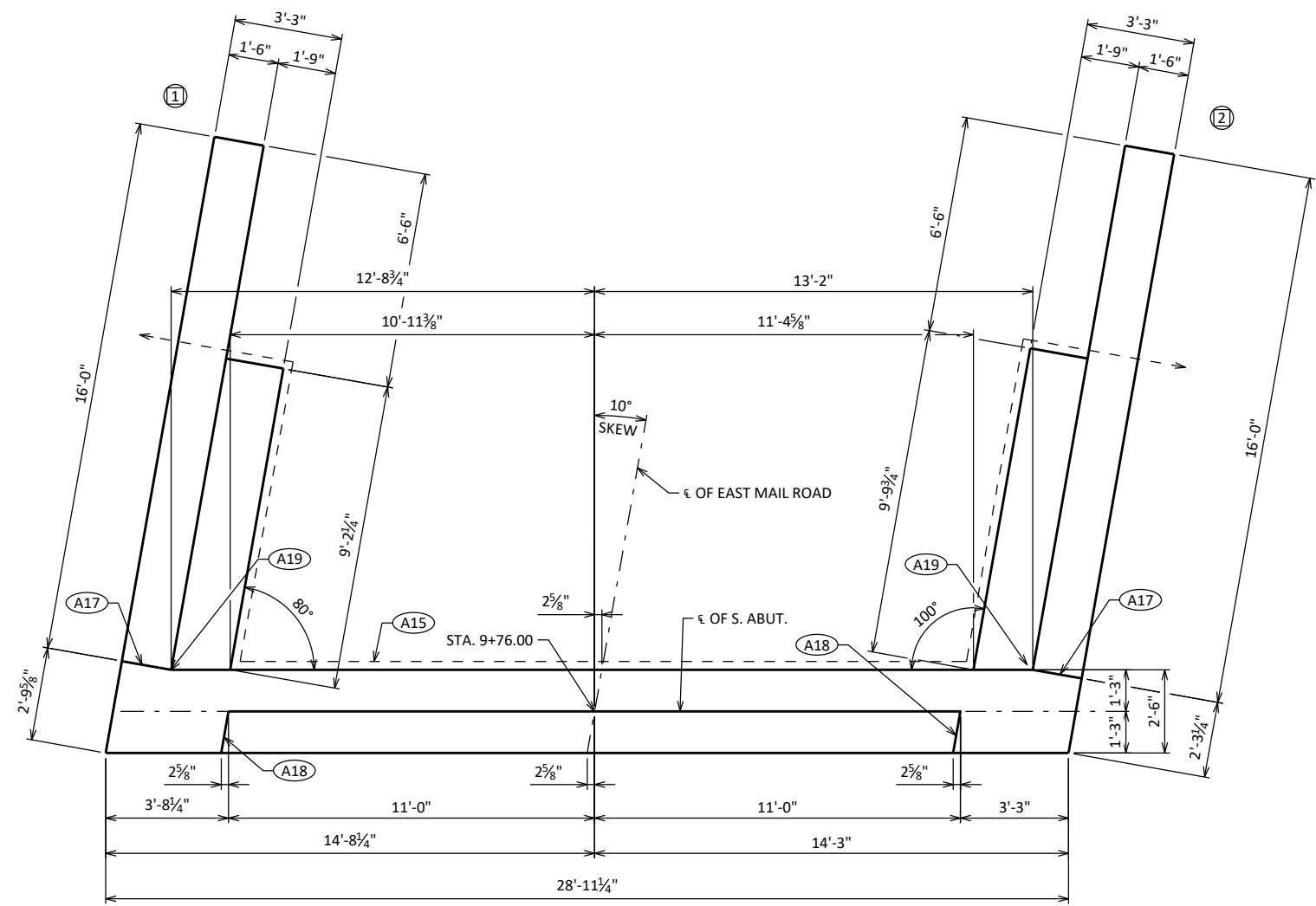


**SECTION A**



**SECTION B**

- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- (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 3/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A18) 3/4" CORK FILLER UP VERT. FACE ONLY.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.



**PLAN**

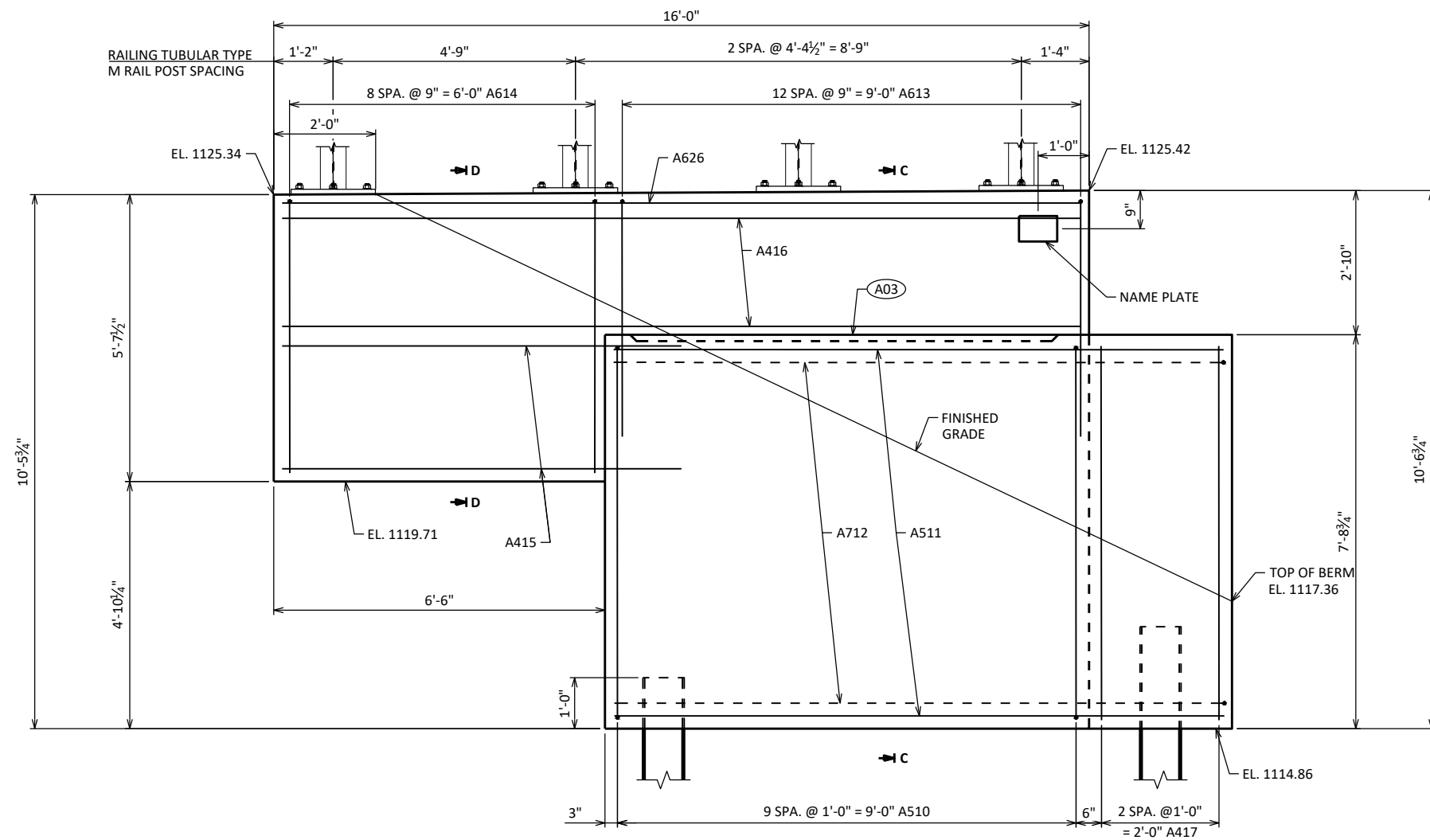
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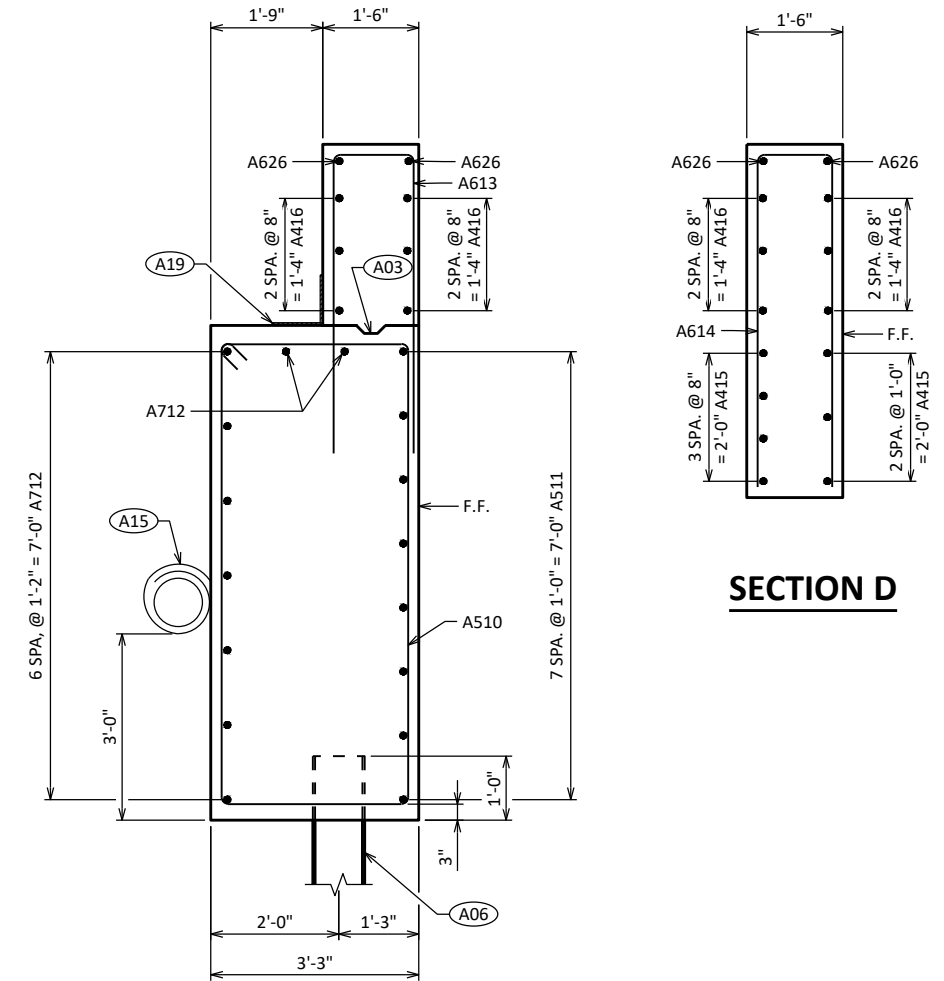
ORIGINAL PLANS PREPARED BY  
**AYRES** 3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-150</b>			
DRAWN BY		ZSS	PLANS CK'D AEB
<b>SOUTH ABUTMENT</b>			SHEET 4 OF 14

SCALE =



**ELEVATION - WING 1**



**SECTION C**

**SECTION D**

- 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).
- A06** SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- A15** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A19** 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

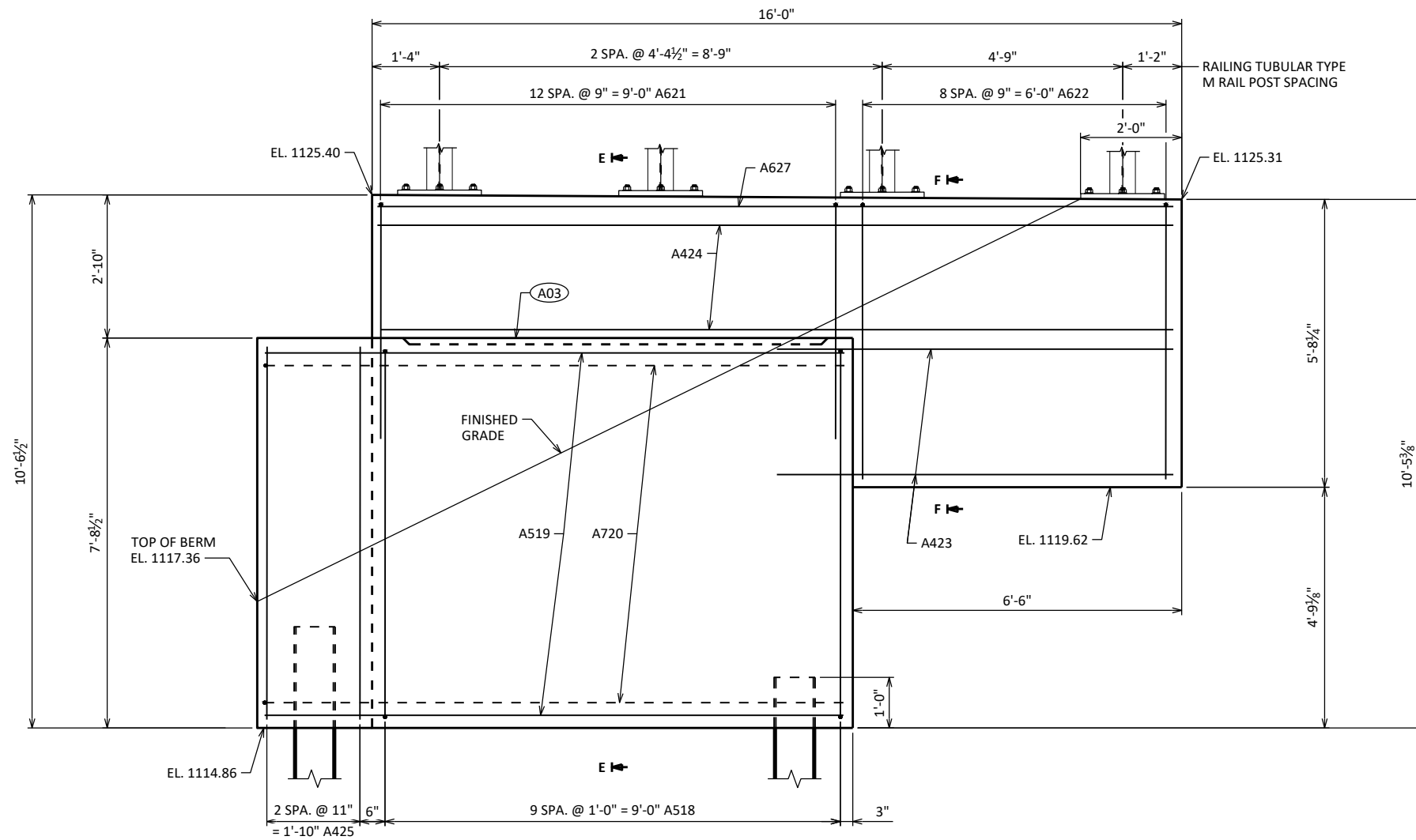
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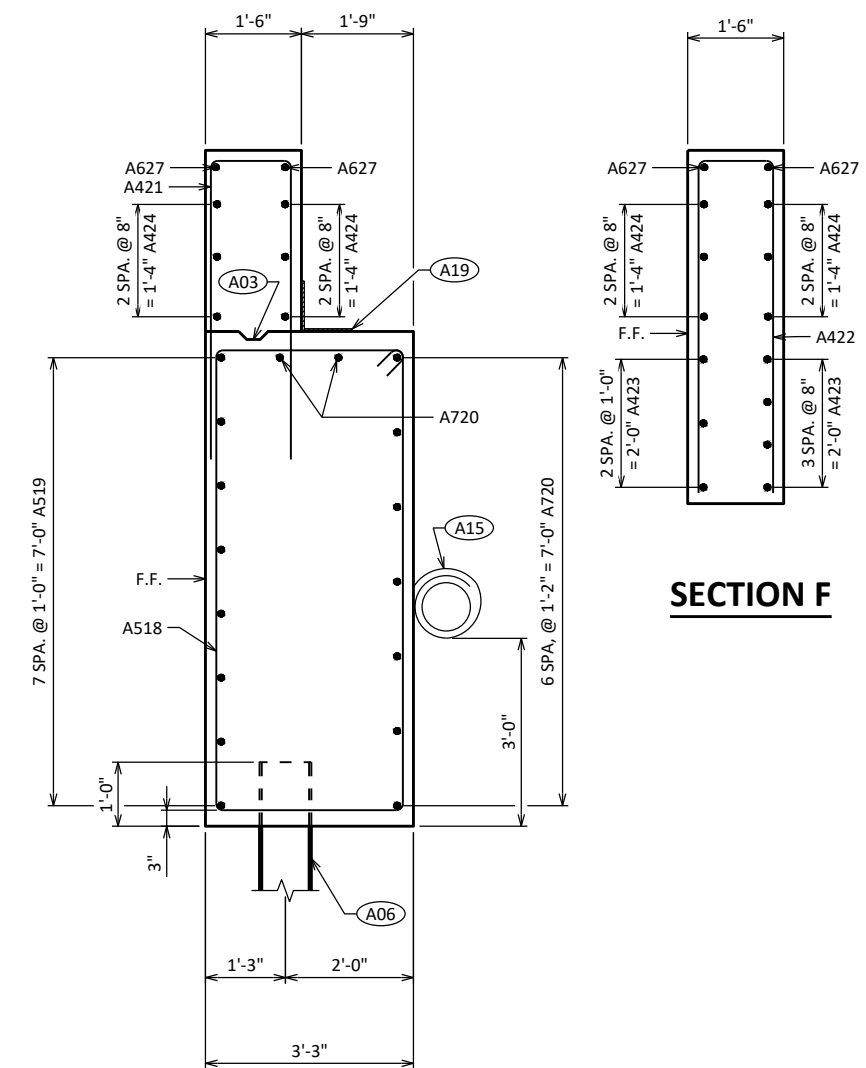
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-150</b>			
DRAWN BY		PLANS CK'D	
ZSS		AEB	
<b>SOUTH ABUTMENT WING 1 DETAILS</b>			SHEET 5 OF 14

ORIGINAL PLANS PREPARED BY  
**AYRES** 3433 Oakwood Hills Parkway  
 Eau Claire, WI 54701  
 www.AyresAssociates.com

SCALE =



**ELEVATION - WING 2**



**SECTION E**

**SECTION F**

- (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).
- (A06)** SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- (A15)** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A19)** 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-150</b>			
DRAWN BY		ZSS	PLANS CK'D AEB
ORIGINAL PLANS PREPARED BY			SHEET 6 OF 14
<b>AYRES</b> 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			<b>SOUTH ABUTMENT WING 2 DETAILS</b>

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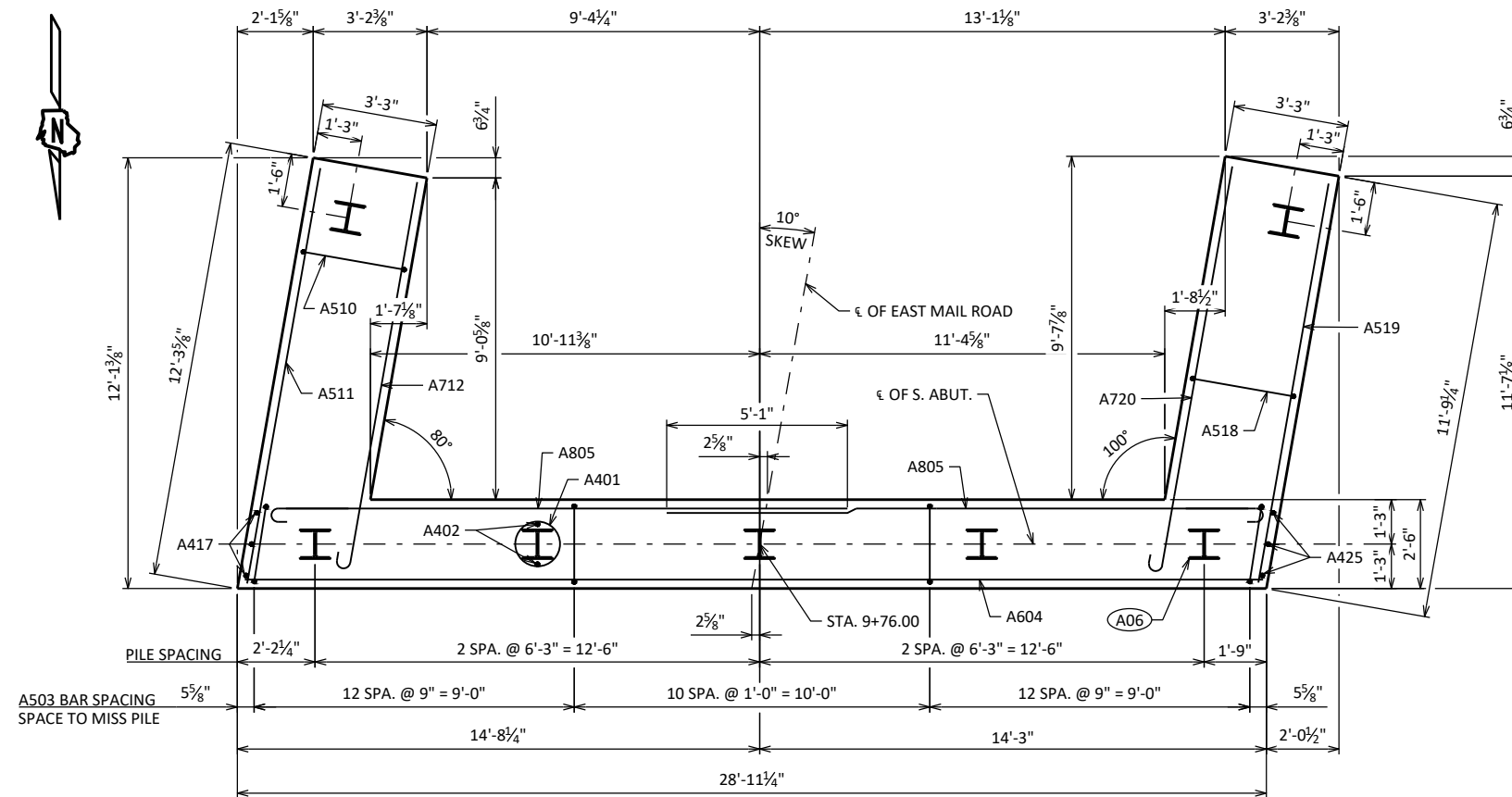
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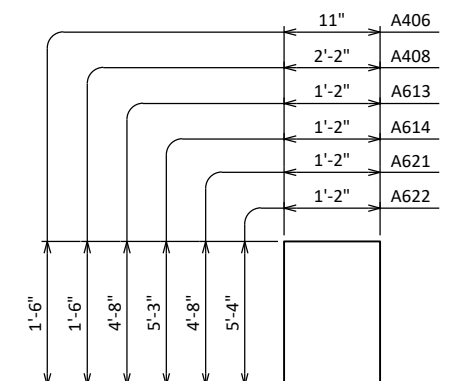
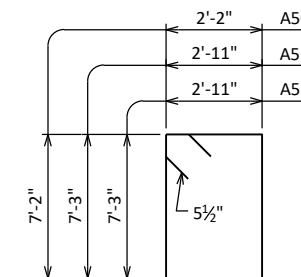
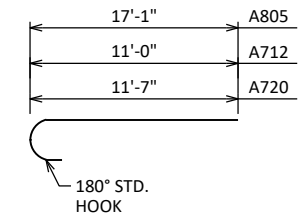
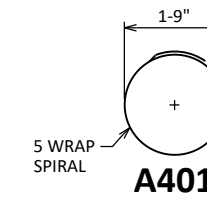
**BILL OF BARS**

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		5	28'-0"	X		BODY @ PILES
A402		12	2'-3"			BODY @ PILES
A503		35	19'-3"			BODY VERT.
A604		11	28'-7"			BODY HORIZ.
A805		14	17'-11"	X		BODY HORIZ. B.F.
A406		15	3'-9"	X		BODY VERT. TOP
A407		2	28'-7"			BODY HORIZ. TOP
A408		8	5'-0"	X		BODY VERT. TOP
A409		2	2'-11"			BODY HORIZ. TOP
A510	X	10	20'-11"	X		WING 1 VERT.
A511	X	8	11'-9"			WING 1 HORIZ. F.F.
A712	X	9	11'-10"	X		WING 1 HORIZ. B.F.
A613	X	13	10'-2"	X		WING 1 VERT.
A614	X	9	11'-3"	X		WING 1 VERT.
A415	X	7	7'-11"			WING 1 HORIZ. E.F.
A416	X	5	15'-8"			WING 1 HORIZ. E.F.
A417	X	3	7'-3"			BODY VERT. END @ WING 1
A518	X	10	20'-11"	X		WING 2 VERT.
A519	X	8	11'-5"			WING 2 HORIZ. F.F.
A720	X	9	12'-5"	X		WING 2 HORIZ. B.F.
A621	X	13	10'-2"	X		WING 2 VERT.
A622	X	9	11'-5"	X		WING 2 VERT.
A423	X	7	7'-11"			WING 2 HORIZ. E.F.
A424	X	5	15'-8"			WING 2 HORIZ. E.F.
A425	X	3	7'-3"			BODY VERT. END @ WING 2
A626	X	2	15'-8"			WING 1 HORIZ. TOP
A627	X	2	15'-8"			WING 2 HORIZ. TOP



**PILE LAYOUT**



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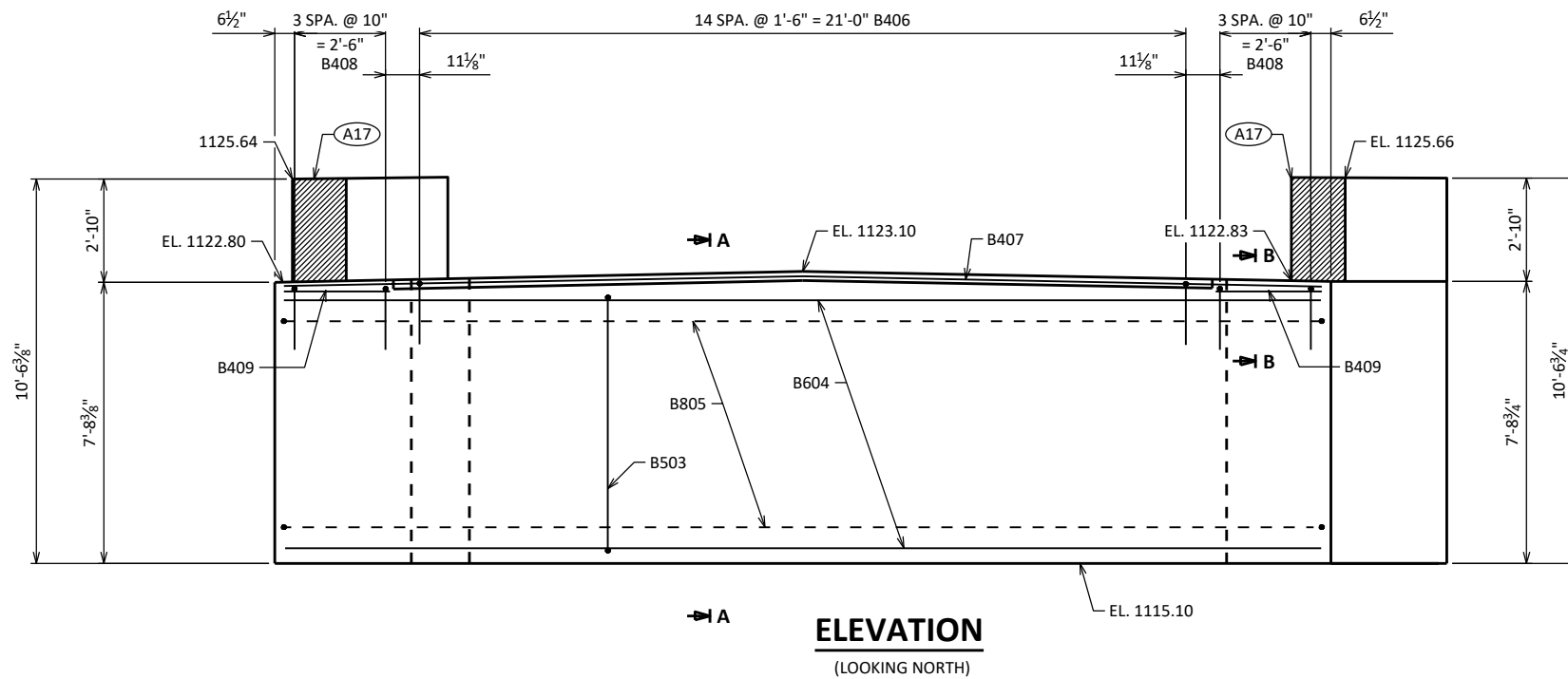
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(A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

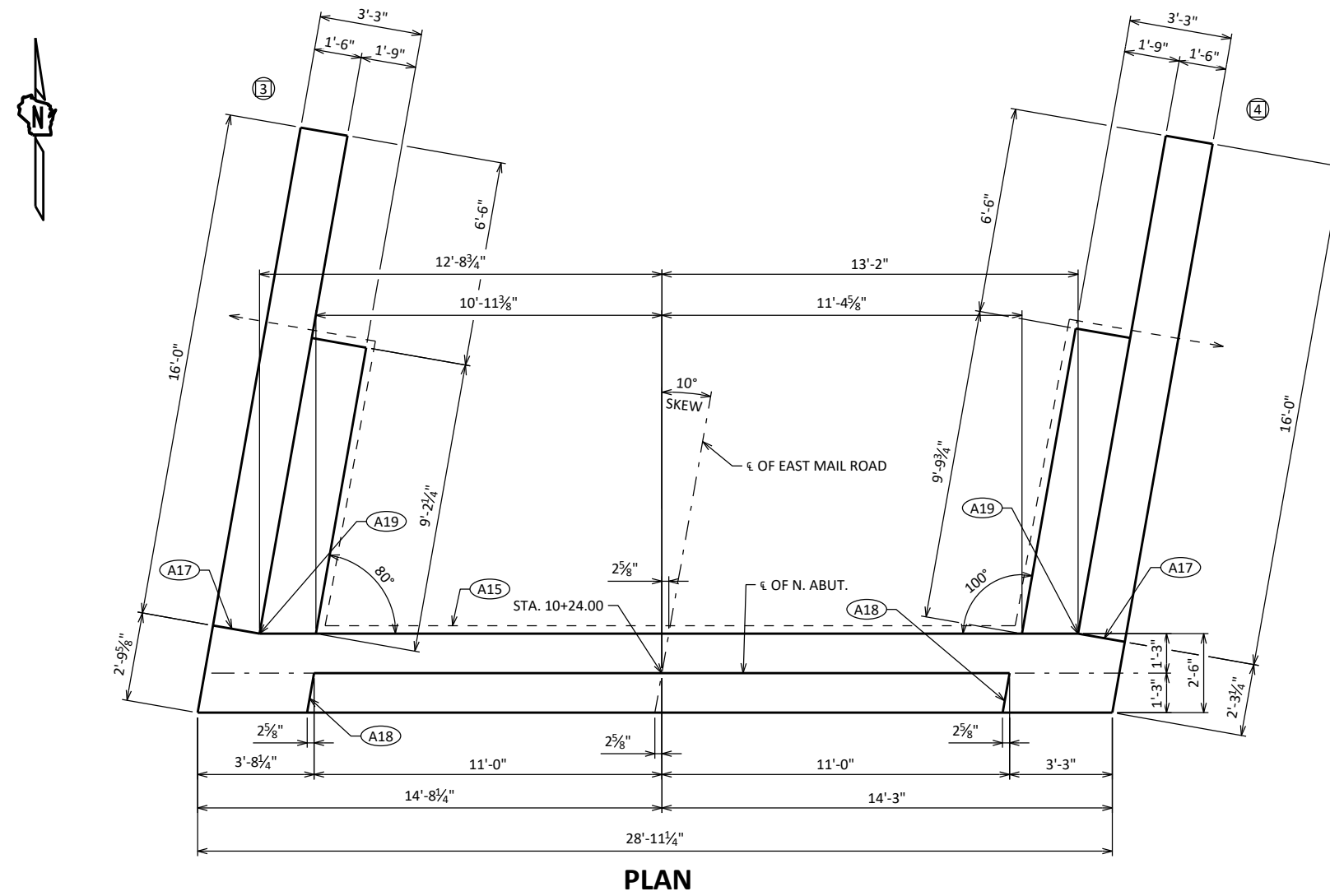
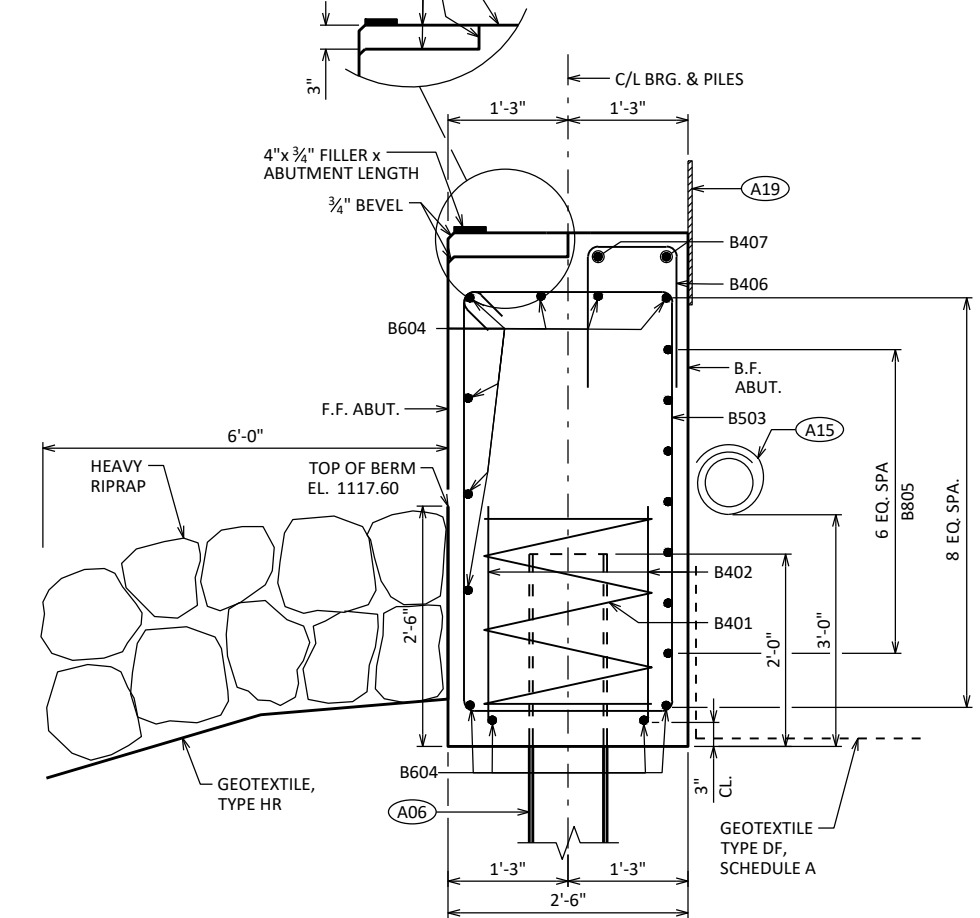
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-150</b>			
DRAWN BY		ZSS	PLANS CK'D AEB
<b>SOUTH ABUTMENT PILE LAYOUT AND BILL OF BARS</b>		SHEET 7 OF 14	

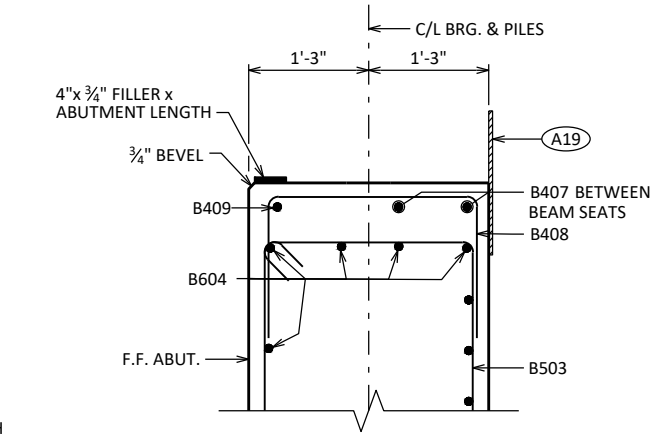
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STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".



**SECTION A**

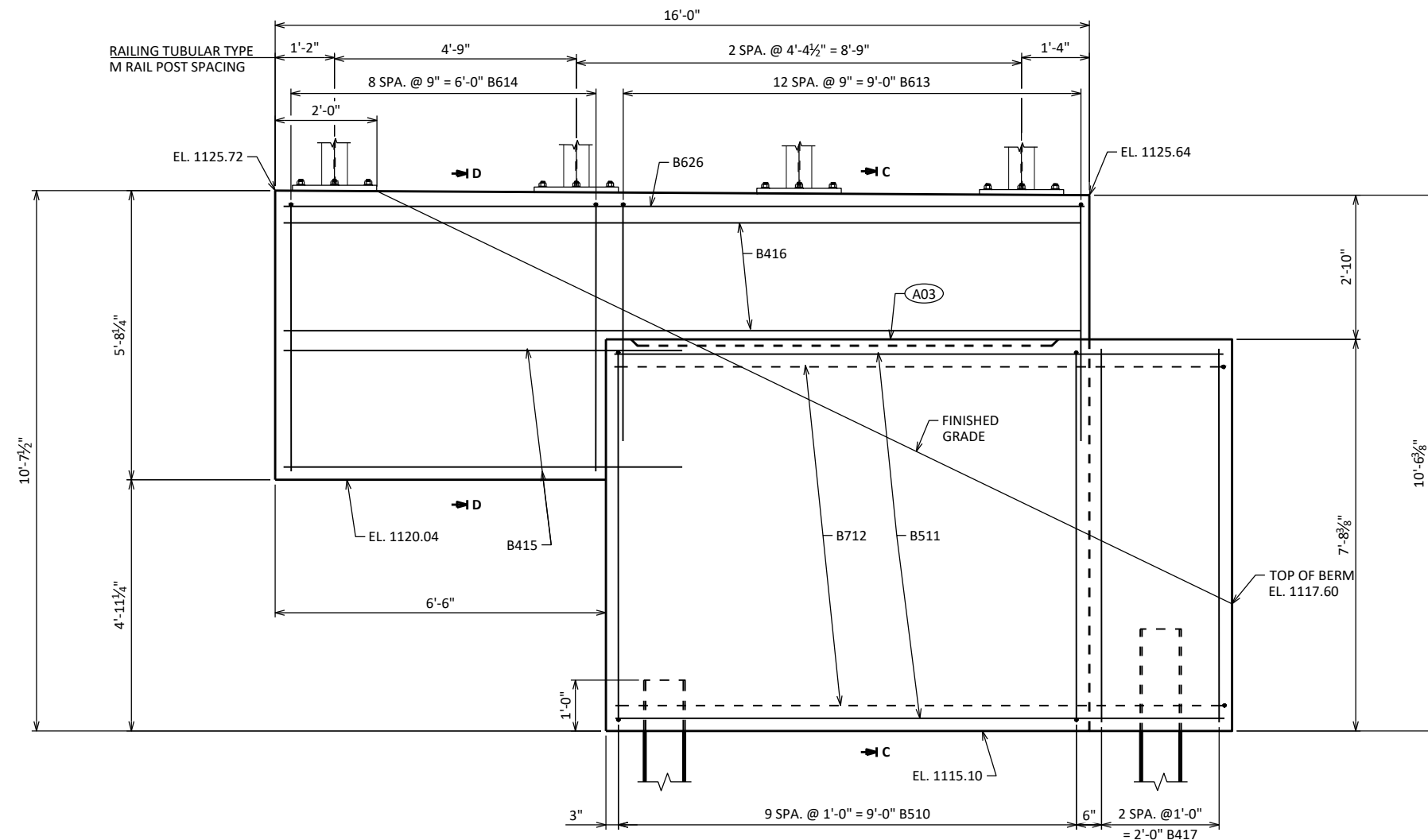


- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/2" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A18) 3/4" CORK FILLER UP VERT. FACE ONLY.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

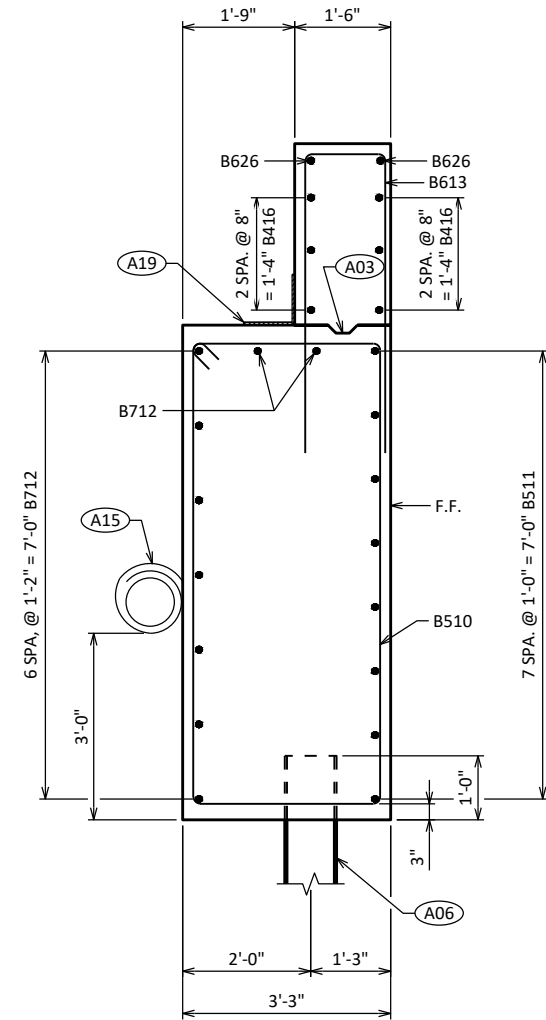
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-150</b>			
DRAWN BY		ZSS	PLANS CK'D AEB
<b>NORTH ABUTMENT</b>			SHEET 8 OF 14

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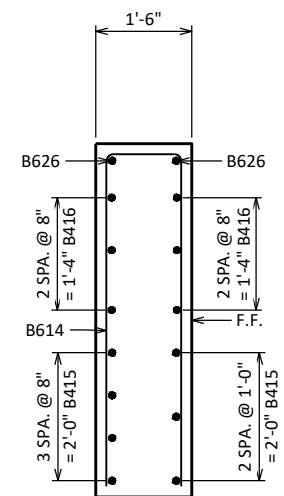
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**ELEVATION - WING 3**



**SECTION C**



**SECTION D**

- 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).
- A06** SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- A15** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A19** 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

8

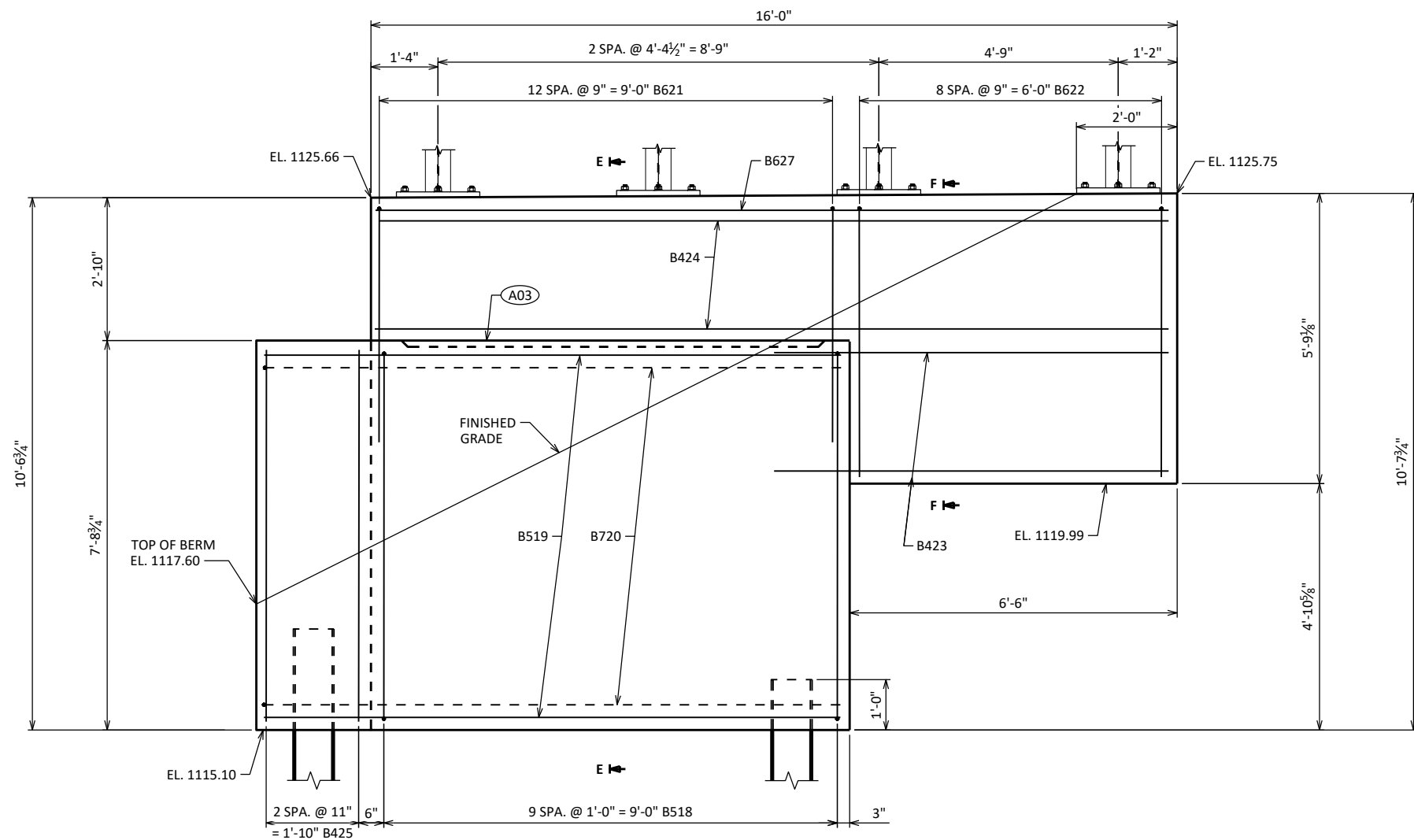
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-150</b>			
DRAWN BY		ZSS	PLANS CK'D AEB
<b>NORTH ABUTMENT WING 3 DETAILS</b>			SHEET 9 OF 14

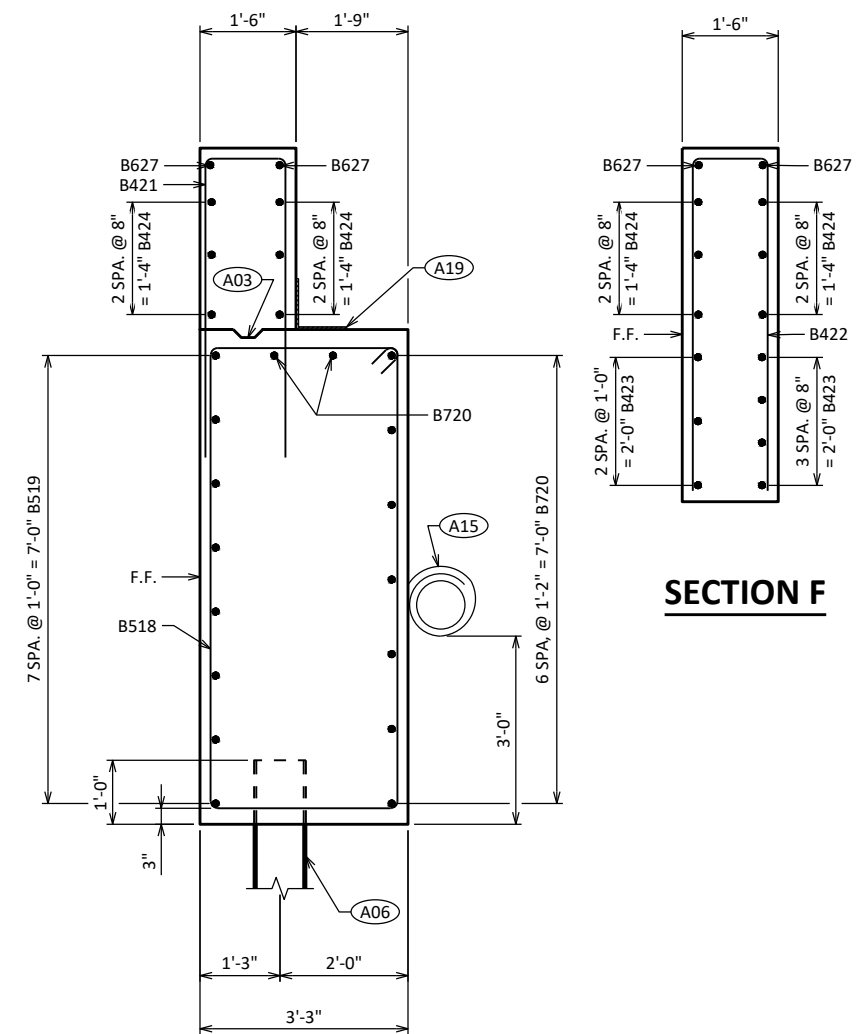
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 Eau Claire, WI 54701  
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SCALE =





**ELEVATION - WING 4**



**SECTION E**

**SECTION F**

- (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).
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-150</b>			
DRAWN BY		ZSS	PLANS CK'D AEB
<b>NORTH ABUTMENT WING 4 DETAILS</b>			SHEET 10 OF 14

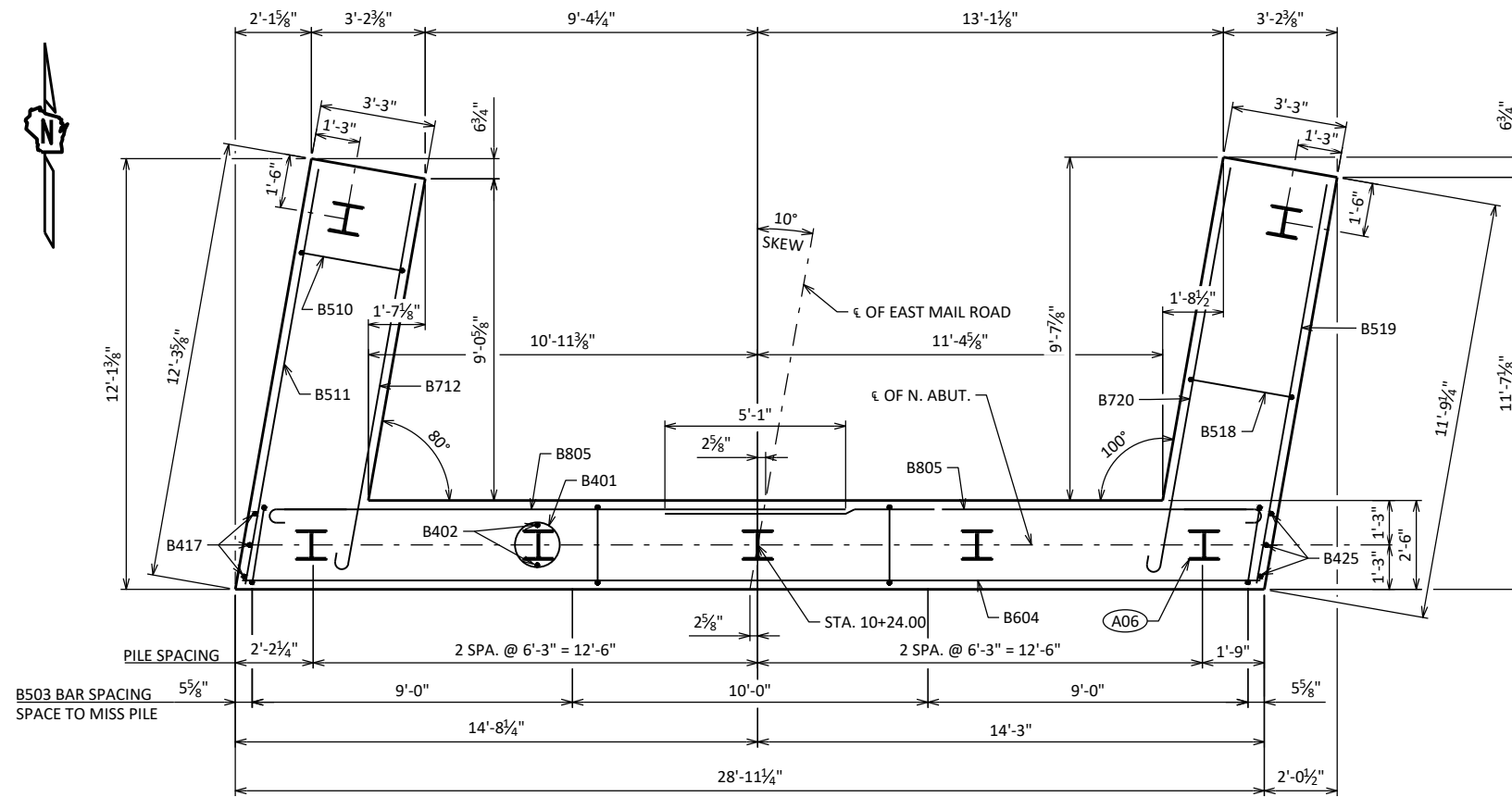
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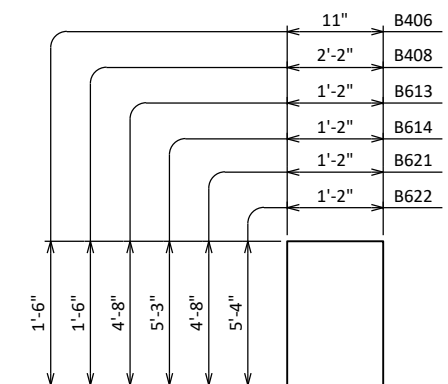
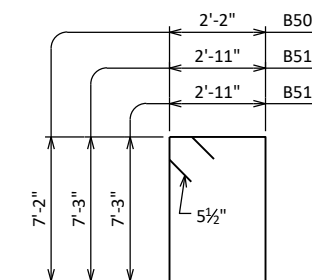
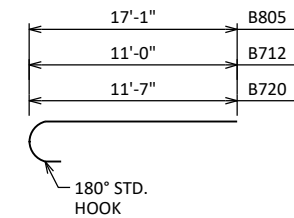
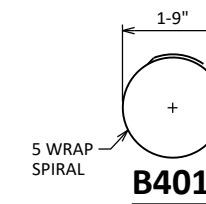
**BILL OF BARS**

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		5	28'-0"	X		BODY @ PILES
B402		12	2'-3"			BODY @ PILES
B503		35	19'-3"	X		BODY VERT.
B604		11	28'-7"			BODY HORIZ.
B805		14	17'-11"	X		BODY HORIZ. B.F.
B406		15	3'-9"	X		BODY VERT. TOP
B407		2	28'-7"			BODY HORIZ. TOP
B408		8	5'-0"	X		BODY VERT. TOP
B409		2	2'-11"			BODY HORIZ. TOP
B510	X	10	20'-11"	X		WING 3 VERT.
B511	X	8	11'-9"			WING 3 HORIZ. F.F.
B712	X	9	11'-10"	X		WING 3 HORIZ. B.F.
B613	X	13	10'-2"	X		WING 3 VERT.
B614	X	9	11'-3"	X		WING 3 VERT.
B415	X	7	7'-11"			WING 3 HORIZ. E.F.
B416	X	5	15'-8"			WING 3 HORIZ. E.F.
B417	X	3	7'-3"			BODY VERT. END @ WING 3
B518	X	10	20'-11"	X		WING 4 VERT.
B519	X	8	11'-5"			WING 4 HORIZ. F.F.
B720	X	9	12'-5"	X		WING 4 HORIZ. B.F.
B621	X	13	10'-2"	X		WING 4 VERT.
B622	X	9	11'-5"	X		WING 4 VERT.
B423	X	7	7'-11"			WING 4 HORIZ. E.F.
B424	X	5	15'-8"			WING 4 HORIZ. E.F.
B425	X	3	7'-3"			BODY VERT. END @ WING 4
B626	X	2	15'-8"			WING 3 HORIZ. TOP
B627	X	2	15'-8"			WING 4 HORIZ. TOP



**PILE LAYOUT**



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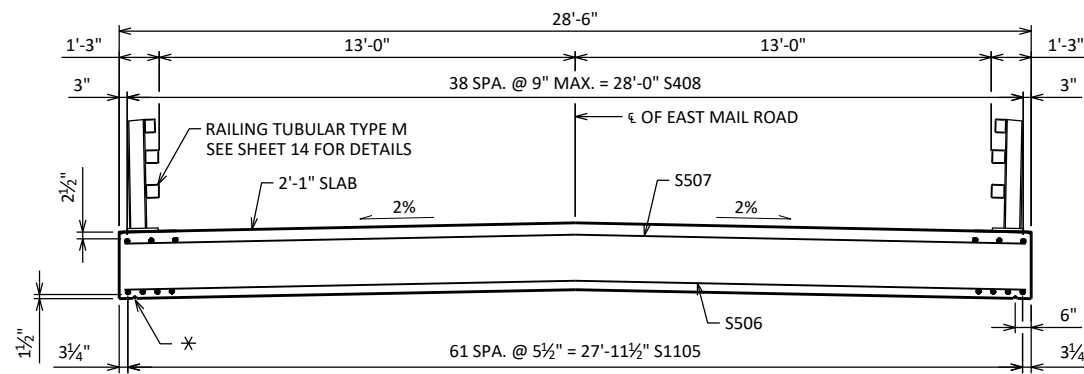
8

(A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

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<b>STRUCTURE B-16-150</b>			
DRAWN BY		ZSS	PLANS CK'D AEB
<b>NORTH ABUTMENT PILE LAYOUT AND BILL OF BARS</b>		SHEET 11 OF 14	

SCALE =



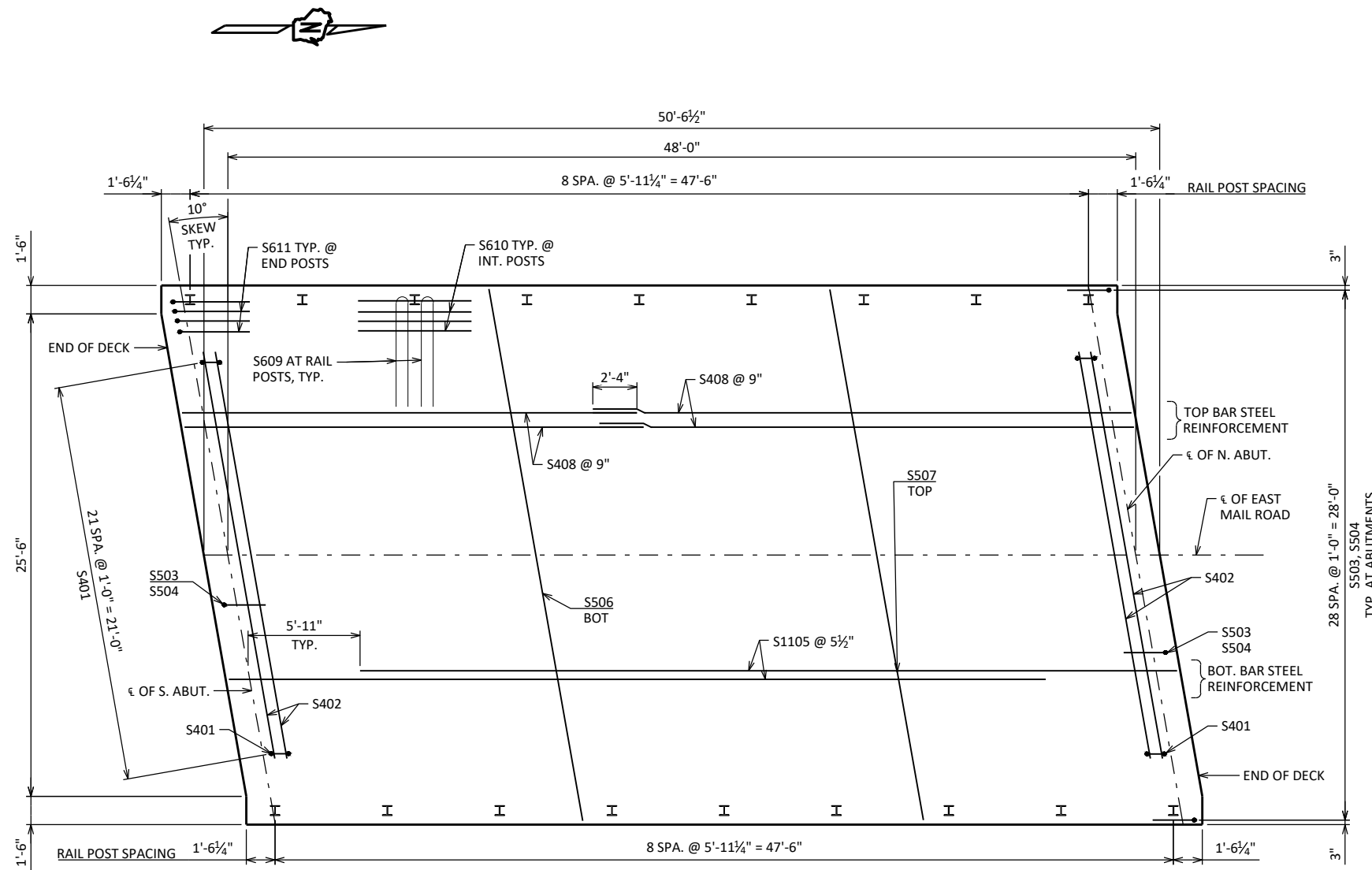
TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

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

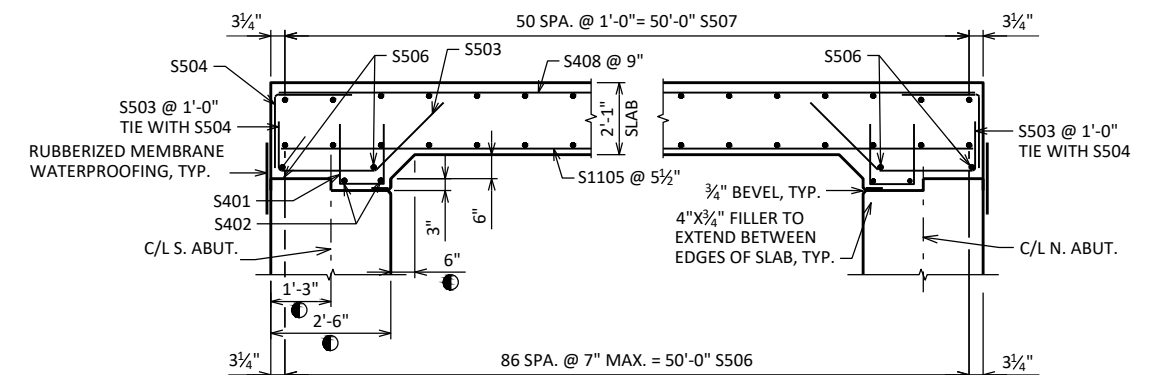
\* 3/4" V-GROOVE. EXTEND V-GROOVE TO 6" FROM F.F. OF ABUT. DIAPHRAGM.

V-GROOVES ARE REQUIRED.

**TYPICAL SECTION THRU BRIDGE**



**PLAN**



**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.

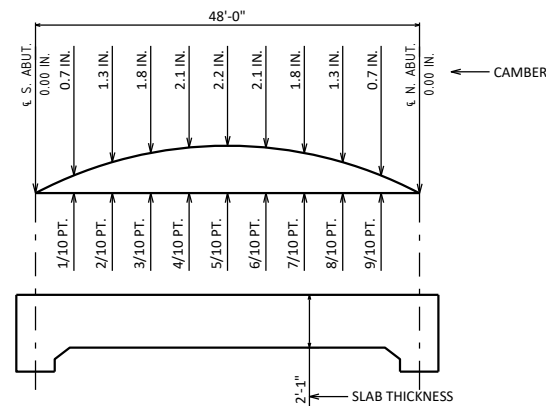
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-16-150</b>			
DRAWN BY		ZSS	PLANS CK'D
<b>SUPERSTRUCTURE</b>		SHEET 12 OF 14	

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SCALE =



**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:

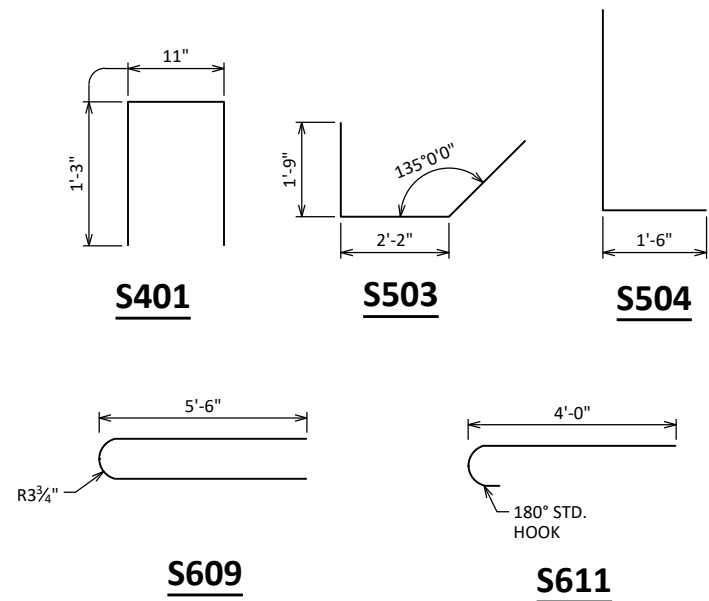
- LESS TOP OF SLAB ELEVATION AT FINAL GRADE
- PLUS SLAB THICKNESS
- PLUS CAMBER
- PLUS FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
- EQUALS TOP OF SLAB FALSEWORK ELEVATION

**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
S401	x	44	3'-3"	X		SLAB @ ABUT. NOTCH
S402	x	4	21'-4"			SLAB @ ABUT. NOTCH
S503	x	58	6'-6"	X		SLAB @ ABUT.
S504	x	58	4'-0"	X		SLAB @ ABUT.
S1105	x	62	43'-2"			SLAB LONG. BOT.
S506	x	91	28'-7"			SLAB TRANS. BOT.
S507	x	51	28'-7"			SLAB TRANS. TOP
S408	x	78	26'-3"			SLAB LONG. TOP
S609	x	36	12'-0"	X		SLAB @ RAIL POSTS
S610	x	56	6'-0"			SLAB @ INT. RAIL POSTS
S611	x	16	6'-0"	X		SLAB @ END RAIL POSTS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



**TOP OF DECK ELEVATIONS**

LOCATION	ε 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.	ε N. ABUT.
W. EOD	1125.40	1125.42	1125.45	1125.47	1125.49	1125.52	1125.54	1125.57	1125.59	1125.61	1125.64
ε OF EAST MAIL ROAD	1125.70	1125.72	1125.74	1125.77	1125.79	1125.82	1125.84	1125.86	1125.89	1125.91	1125.94
E. EOD	1125.42	1125.45	1125.47	1125.50	1125.52	1125.54	1125.57	1125.59	1125.62	1125.64	1125.66

**SURVEY TOP OF SLAB ELEVATIONS**

	ABUTMENT	5/10 PT.	ABUTMENT
W. EDGE OF SLAB			
ε OF EAST MAIL ROAD			
E. EDGE OF SLAB			

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

NO.	DATE	REVISION	BY
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<b>STRUCTURE B-16-150</b>			
DRAWN BY		PLANS CK'D	
ZSS		AEB	
<b>SUPERSTRUCTURE DETAILS</b>			SHEET 13 OF 14

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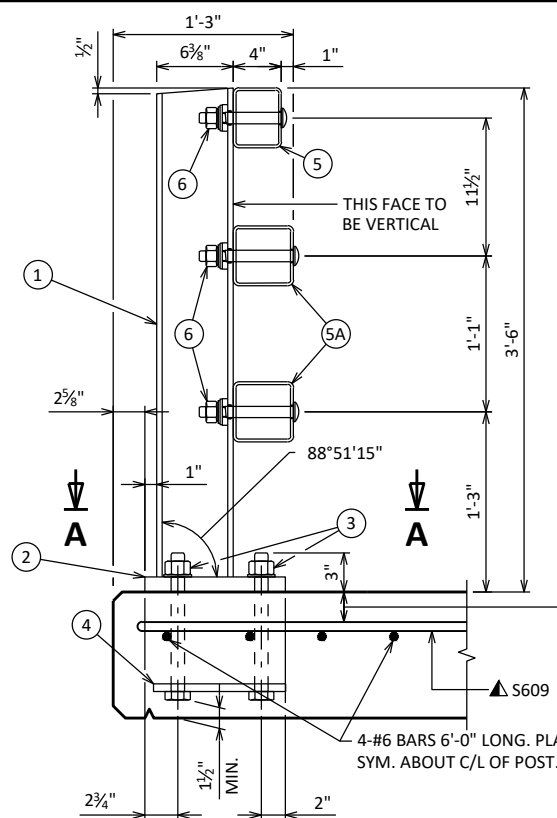
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**LEGEND**

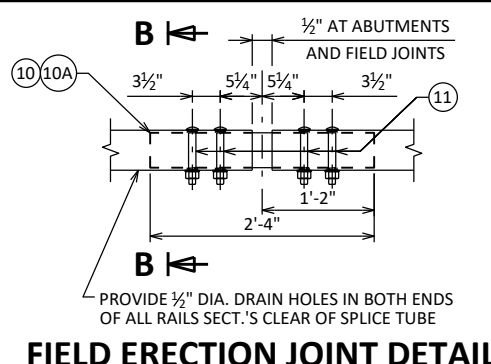
- ① W6 X 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1 1/4" X 11 3/4" X 1'-8" WITH 1 1/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- ③ ASTM A449 - 1 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. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
- ④ 3/8" X 11" X 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 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 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- ⑦ 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 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 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- ⑨ SPLICE SLEEVE FABRICATED FROM 3/4" PLATE. PROVIDE "SLIDING FIT".
- ⑩ 3/8" X 3 3/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑩A 3/8" X 2 5/8" X 2'-4" PLATE USED IN NO. 5, 3/8" X 3 3/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑪ 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/16" X 1 1/2" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1 3/16" X 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
- ⑫ 7/8" DIA. X 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- ⑬ 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 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 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

**GENERAL NOTES**

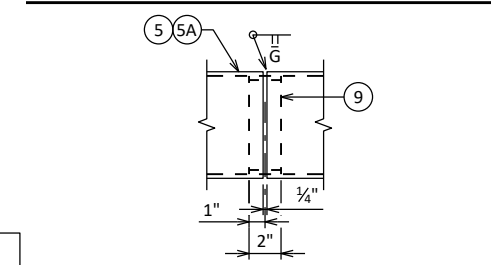
- 1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
- 2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
- 3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/2 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.



**SECTION THRU RAILING ON DECK**

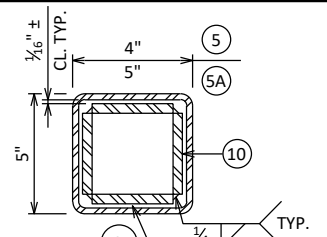


**FIELD ERECTION JOINT DETAIL**

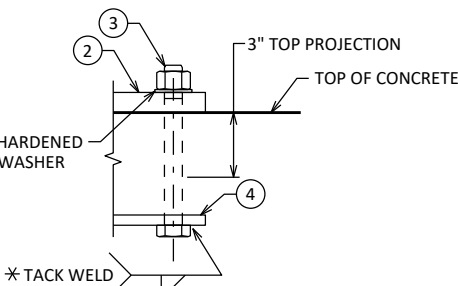


**SHOP RAIL SPLICE DETAIL**

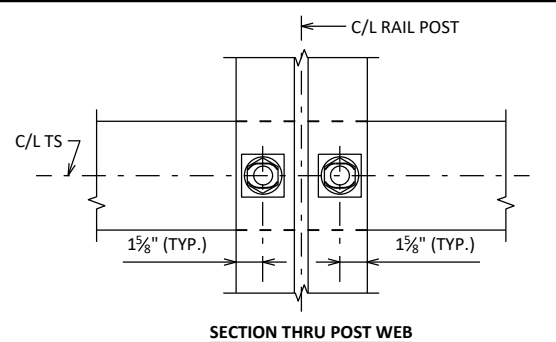
LOCATION MUST BE SHOWN ON SHOP DRAWINGS  
2 1/2" FOR SLABS ON GIRDERS; FOR OTHER STRUCTURES, PLACE BELOW TOP MAT SLAB REINFORCEMENT



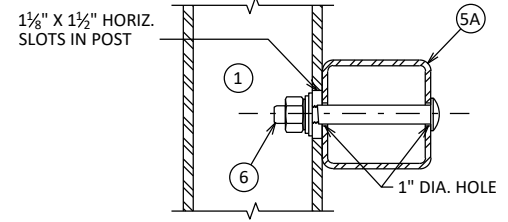
**SECTION B-B**



**ANCHOR BOLTS**



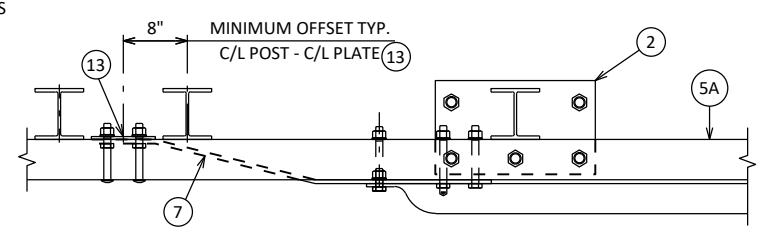
**SECTION THRU POST WEB**



**SECTION THRU RAIL**

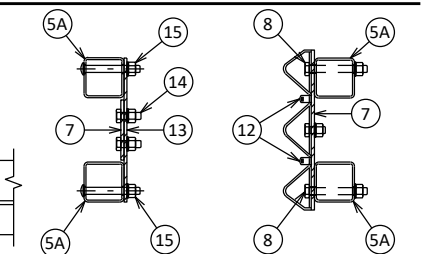
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

**TYPICAL RAIL TO POST CONNECTIONS**

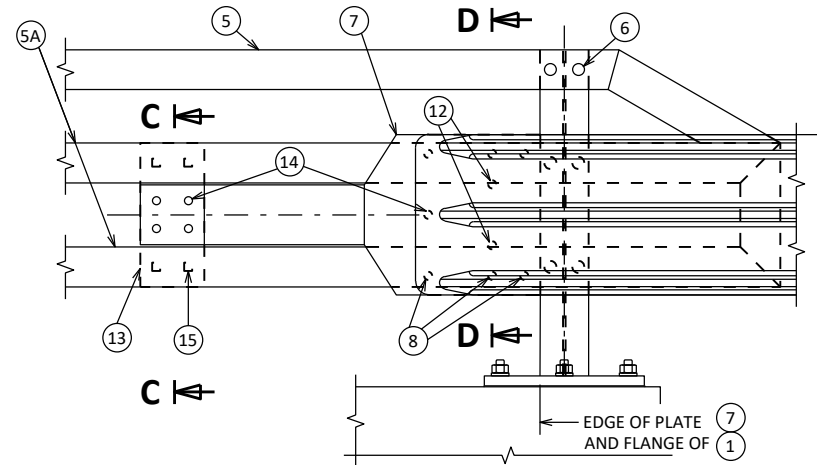


**TOP VIEW AT END POST**

THRIE BEAM RAIL ATTACHMENT

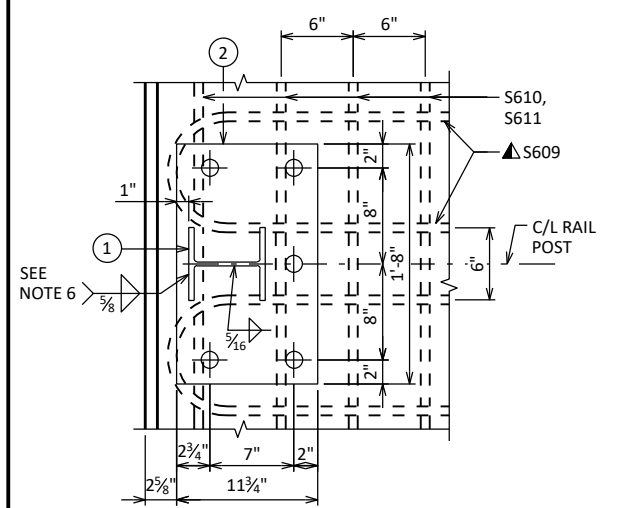


**SECTION C-C SECTION D-D**



**ANCHOR PLATE**

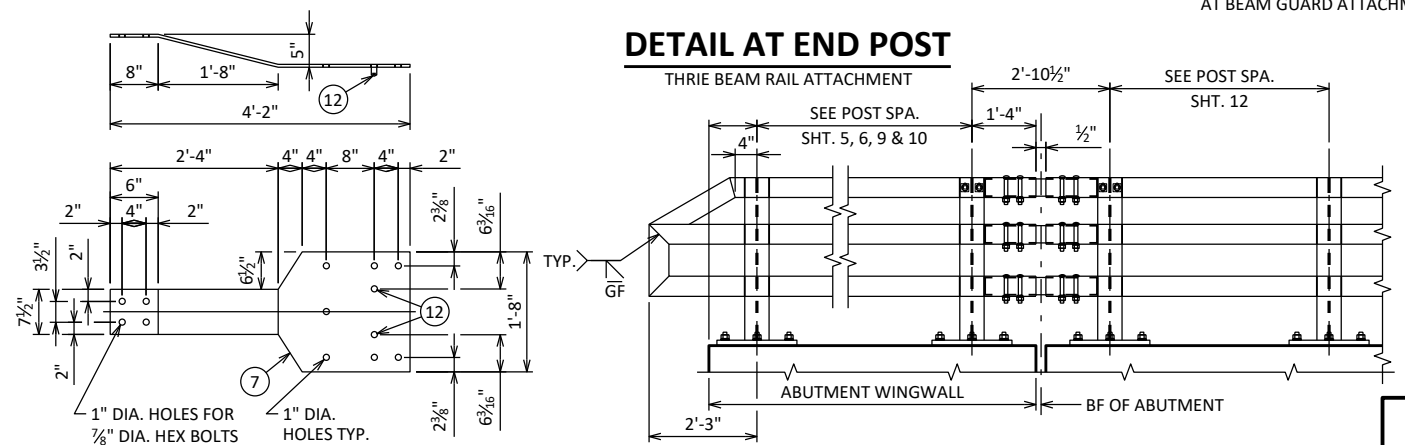
AT BEAM GUARD ATTACHMENT



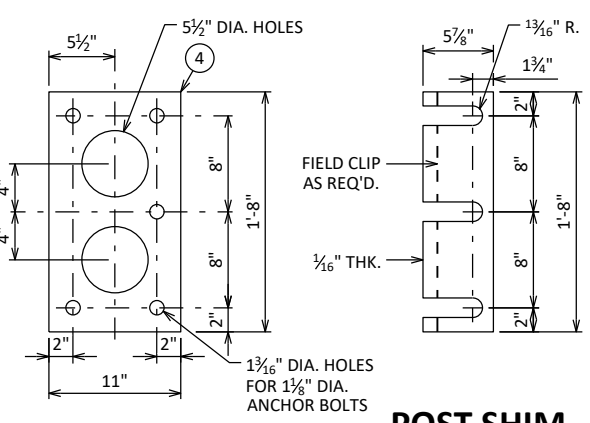
**SECTION A-A**

**DETAIL AT END POST**

THRIE BEAM RAIL ATTACHMENT



**PART ELEVATION OF RAILING**



**ANCHOR PLATE**

AT RAIL TO DECK CONNECTION

**POST SHIM DETAIL**

FIELD CLIP AS REQ'D.  
1/16" THK.

**BACK-UP PLATE DETAIL**

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.

ORIGINAL PLANS PREPARED BY



3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-16-150</b>			
DRAWN BY		ZSS	PLANS CK'D AEB
<b>TUBULAR STEEL RAILING TYPE "M"</b>			SHEET 14 OF 14

SCALE = 2:00

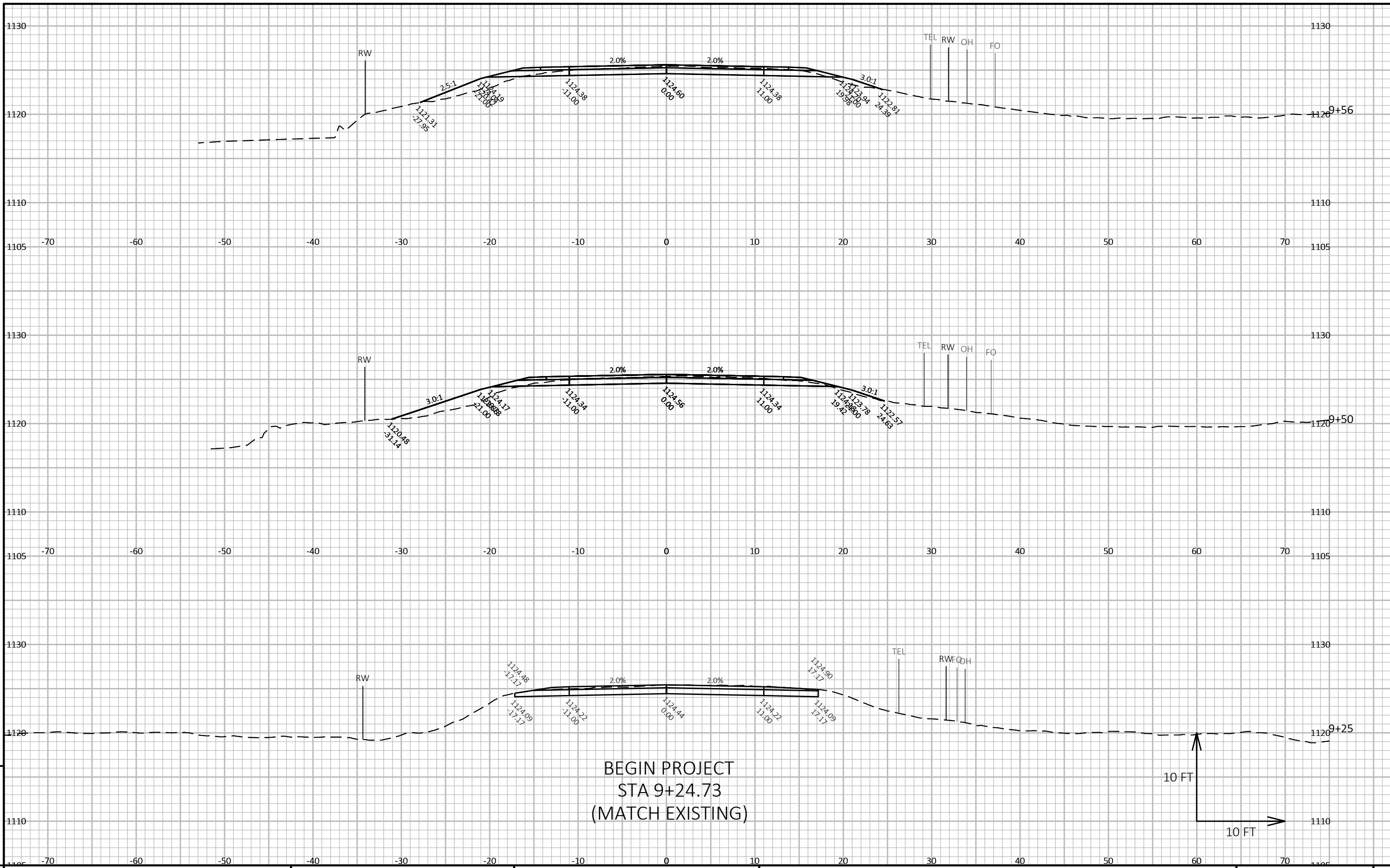
8

8

**EAST MAIL ROAD COMPUTER EARTHWORK**

Station	Distance	Area (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
		Cut	Fill	Cut	Fill	Expanded		
						1.00	1.30	
				Note 1	Note 2	Note 1		Note 3
9+24.73	--	30.6	0.0					
9+50	25	22.8	13.5	25	6	25	8	17
9+56	6	23.2	10.5	5	3	30	12	18
9+61	5	24.2	1.5	4	1	34	13	21
9+74.73	14	24.2	0.0	12	0	47	14	33
BRIDGE	--	--	--	--	--	--	--	--
10+25.27	--	15.7	0.0	--	--	--	--	--
10+39	14	16.0	2.9	8	1	55	15	40
10+44	5	15.8	20.0	3	2	58	17	40
10+50	6	20.0	5.9	4	3	62	21	41
10+75	25	8.1	3.5	13	4	75	27	48
11+00	25	10.1	0.0	8	2	83	29	54
11+25	25	18.1	0.0	13	0	96	29	67
11+50	25	28.3	0.0	21	0	118	29	89
11+75.27	25	44.8	0.0	34	0	152	29	123
				151	22			

Note 1 - Cut	Volume need to be cut.
Note 2 - Fill	Volume needed to be filled.
Note 3 - Mass Ordinate	(Cut) - (Fill * 1.30)

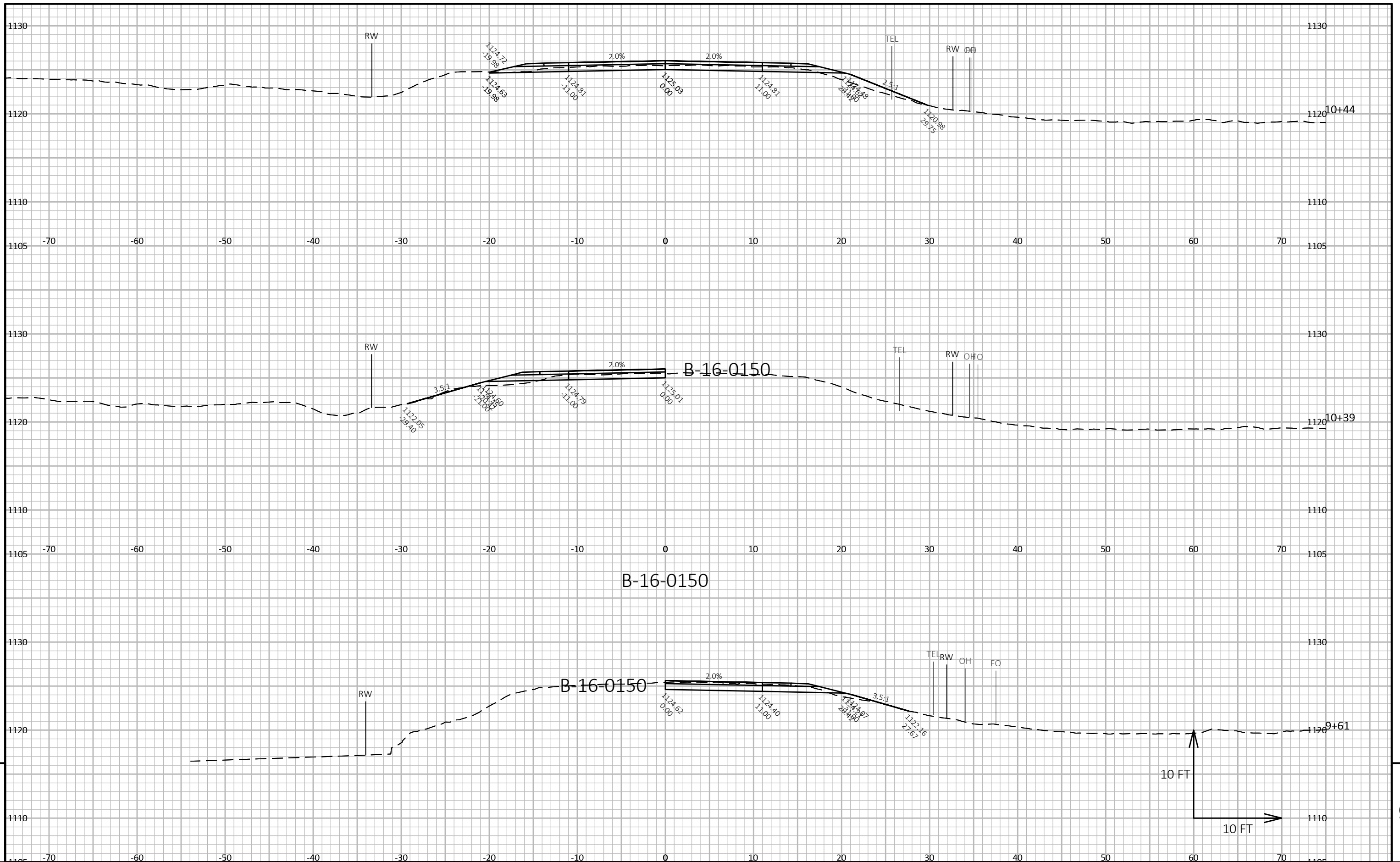


9

9

PROJECT NO: 8386-00-73      HWY: EAST MAIL ROAD      COUNTY: DOUGLAS      CROSS SECTIONS: EAST MAIL ROAD      SHEET      E

FILE NAME: I:\42\42-1361.00 - DOUGLAS CO, TN GORDON, SE MAIL RD OVER EC RIVER\C3D\DSGN\CRDR\CRDR-E MAIL RD.DWG      PLOT DATE: 7/25/2023 7:35 AM      PLOT BY: WALDERA, KAREN      PLOT NAME:      PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49



PROJECT NO: 8386-00-73

HWY: EAST MAIL ROAD

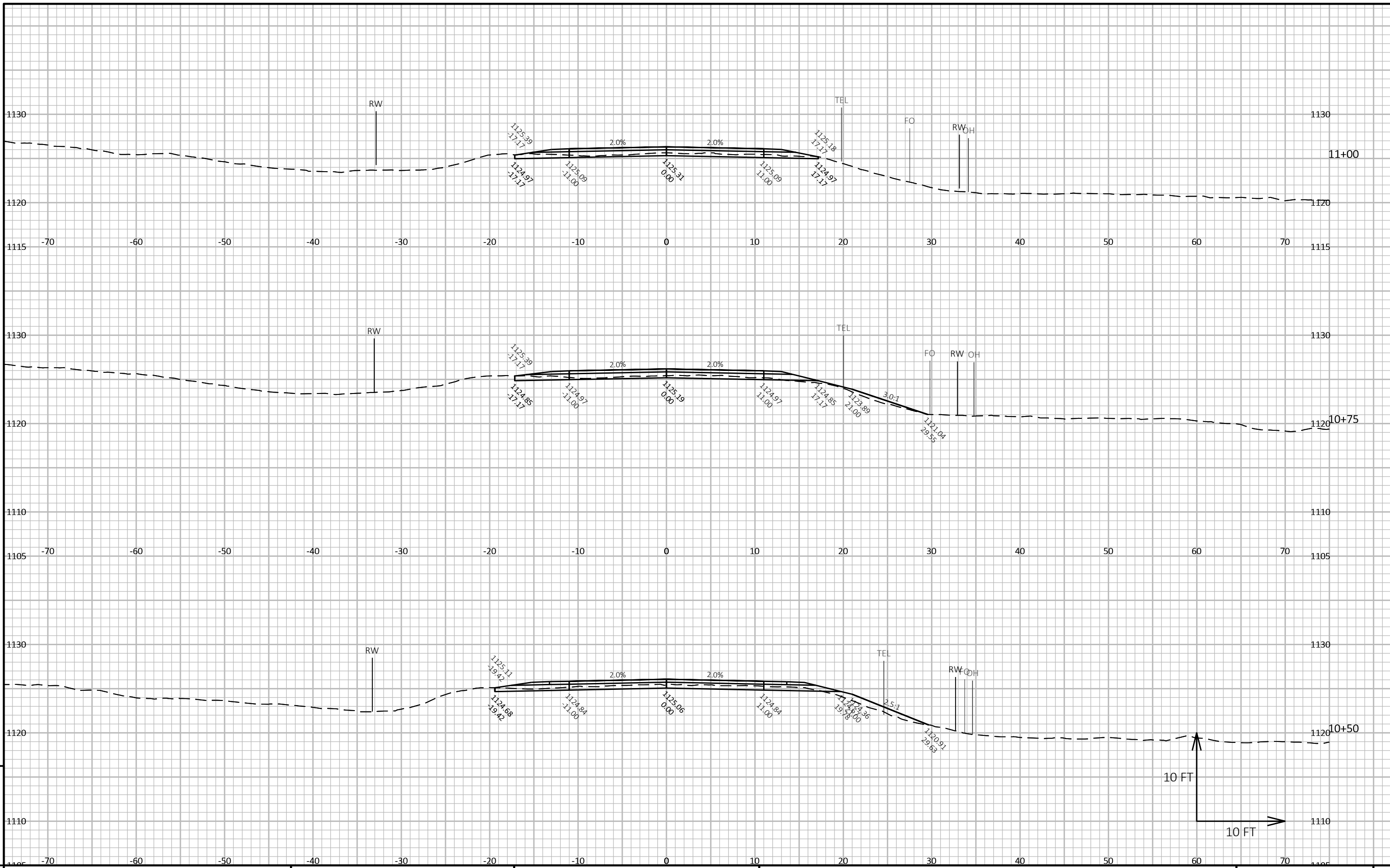
COUNTY: DOUGLAS

CROSS SECTIONS: EAST MAIL ROAD

SHEET

E





9

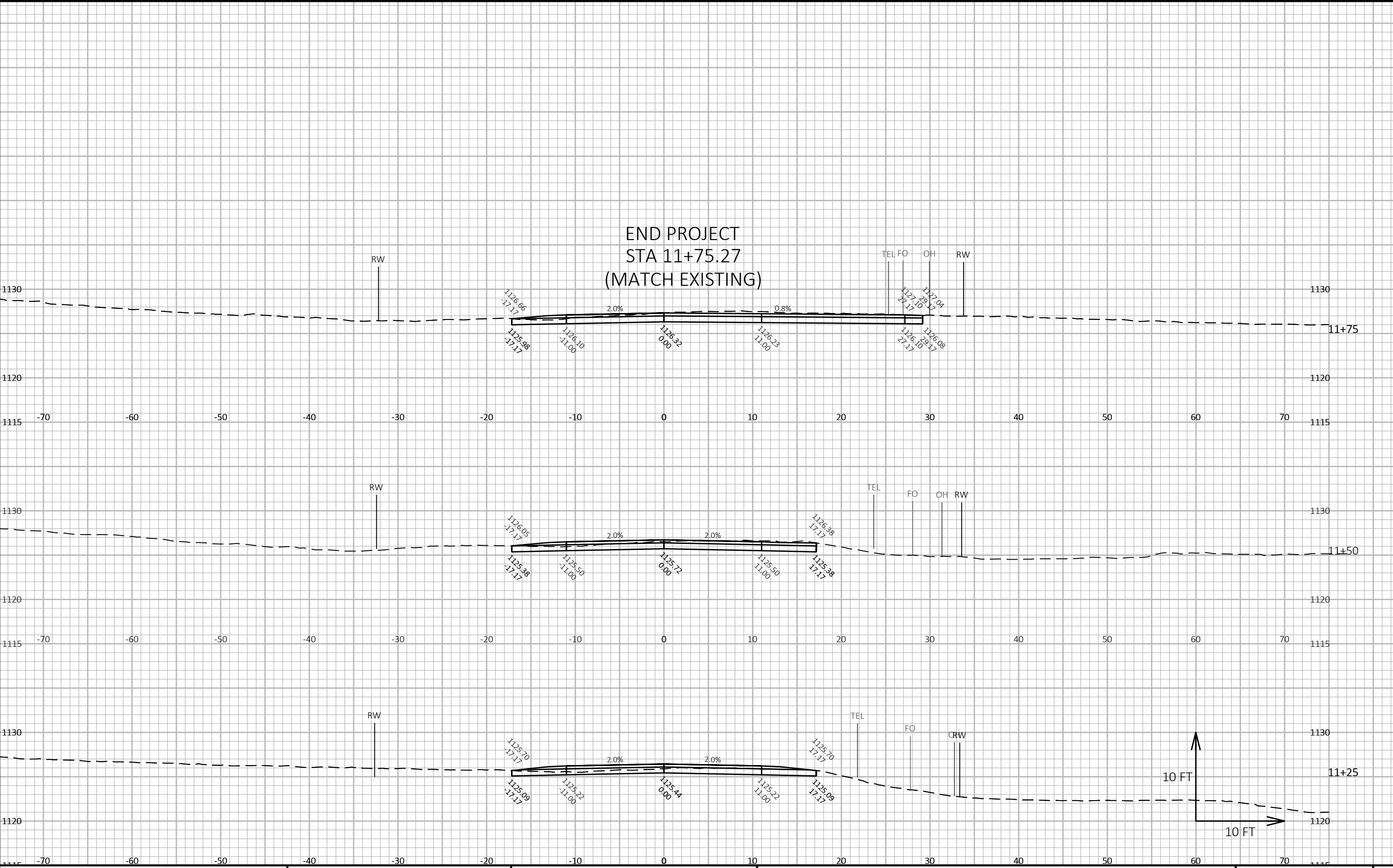
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PROJECT NO: 8386-00-73      HWY: EAST MAIL ROAD      COUNTY: DOUGLAS      CROSS SECTIONS: EAST MAIL ROAD      SHEET      E

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LAYOUT NAME - 03

END PROJECT  
 STA 11+75.27  
 (MATCH EXISTING)



# Notes



## ***Wisconsin Department of Transportation***

Dedicated people creating transportation solutions through innovation and exceptional service.

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