

NOVEMBER 2021
ORDER OF SHEETS

Section No. 1	Title
Section No. 2	Typical Sections and Details (Includes Erosion Control Plans)
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 =

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T WASCOTT, LAWLER BRIDGE ROAD

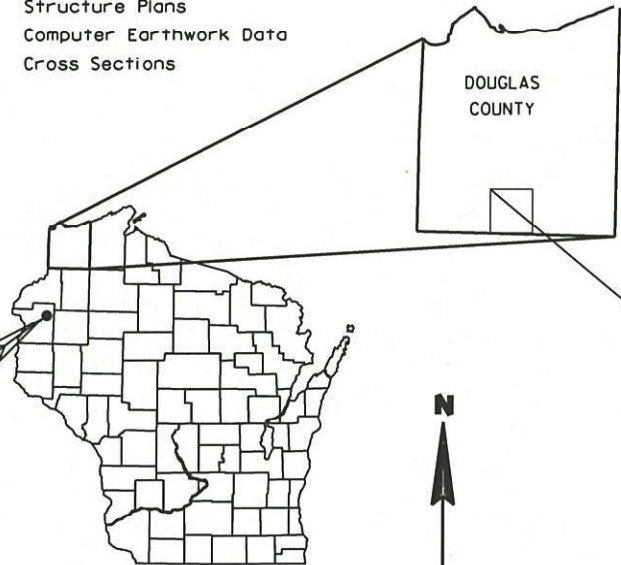
EAU CLAIRE RIVER BRIDGE B-16-0146

LOC STR DOUGLAS COUNTY

STATE PROJECT NUMBER
8396-00-73

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8396-00-73	WISC 2022034	1

PROJECT LOCATION



42



BEGIN PROJECT
STA. 18+75
Y = 124148.54
X = 239379.32

STRUCTURE B-16-0146

END PROJECT
STA. 21+00
Y = 124368.81
X = 239413.49

DESIGN DESIGNATION

A.A.D.T. (2022)	=	<100
A.A.D.T. (2042)	=	<100
D.H.V.	=	10
D.	=	50/50
T.	=	5%
DESIGN SPEED	=	20 MPH
ESALS	=	36,500

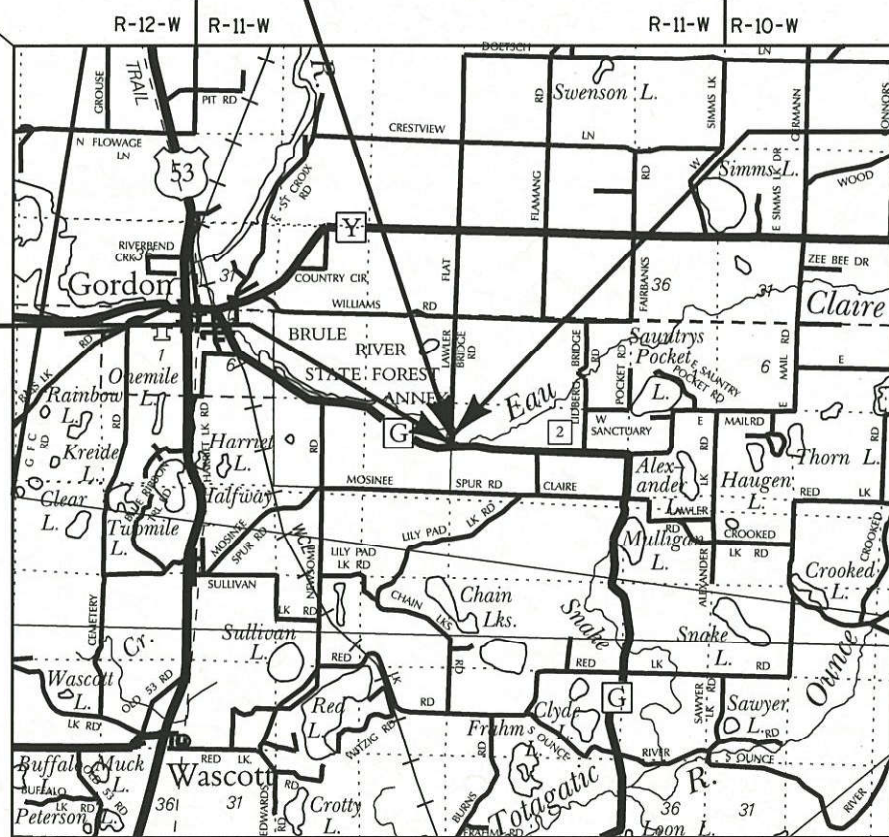
CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
HIGH VOLTAGE	
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	
OVERHEAD	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	



LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.043 MI.

SURVEY PERFORMED IN 2020.
COORDINATES ON THIS PLAN ARE REFERENCED TO
THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS),
DOUGLAS COUNTY.

ACCEPTED FOR

Town of Wascott
Date 7/28/2021
Jan Jensen
Town Chairman

ORIGINAL PLANS PREPARED BY

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



DATE 07/29/2021

DATE

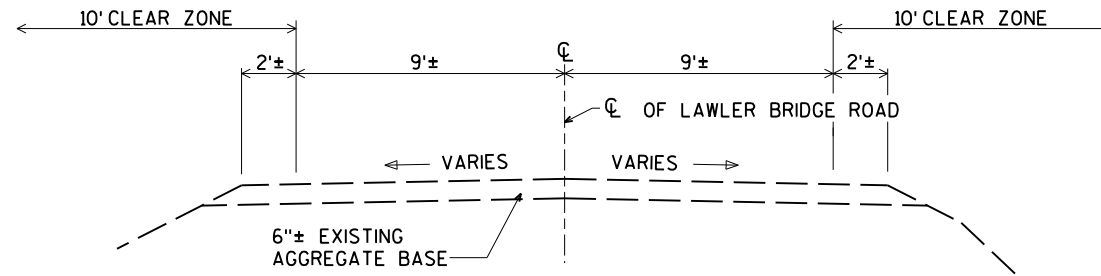
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

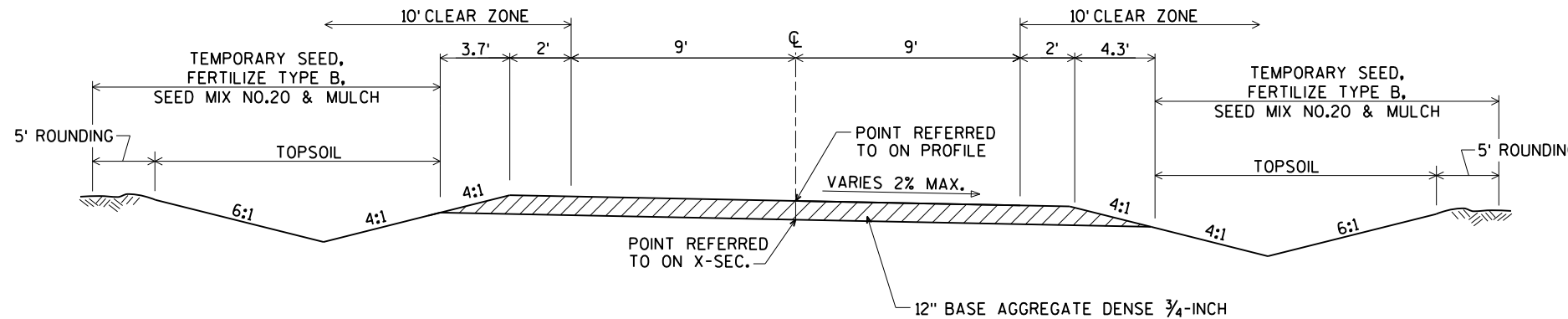
Surveyor	AYRES ASSOCIATES INC
Designer	AYRES ASSOCIATES INC
PROJECT MANAGER	MATTHEW VAN NATTA, PE
Regional Examiner	TOU YANG, PE
Regional Supervisor	TYLER RONGSTAD, PE

APPROVED FOR THE DEPARTMENT
DATE: Tyler Rongstad (Signature)

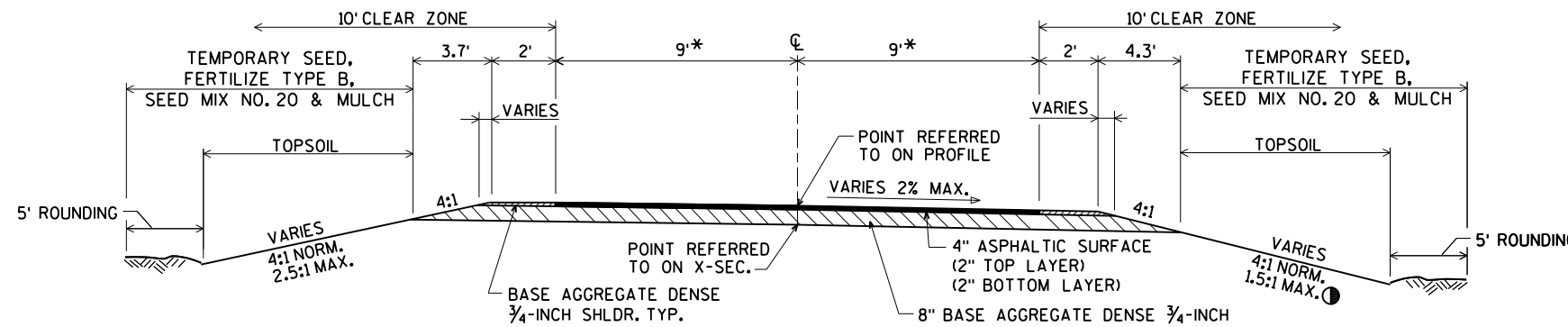
E



EXISTING TYPICAL SECTION
(LAWLER BRIDGE ROAD)
STA. 18+75 - STA. 21+00



FINISHED TYPICAL SECTION
STA. 18+75 - STA. 19+25.67
STA. 20+70.33 - STA. 21+00



FINISHED TYPICAL SECTION
STA. 19+25.67 - STA. 19+75.67
STA. 20+20.33 - STA. 20+70.33

* ASPHALT SURFACE LANE WIDTH TAPERING FROM 13.25 FT. AT THE END OF THE BRIDGE WINGS TO 9 FT. AT 50 FT. FROM END OF BRIDGE.

① 2.5:1 OUTSIDE OF RIPRAP AREA

GENERAL NOTES

EROSION CONTROL ITEMS TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.
NO TREES AND/OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.
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.
DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCLUSIVE OF THE ROADBED, SHALL BE FERTILIZED, SEED, AND MULCHED AS DIRECTED BY THE ENGINEER.

WHEN THE QUANTITY OF THE ITEM OF BASE AGGREGATE DENSE IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

ASPHALTIC REMOVAL IS INCLUDED IN THE ITEM EXCAVATION COMMON.

TOPSOIL SHALL BE PLACED ON THE SLOPES, TO THE POINT OF INTERCEPT WITH THE ORIGINAL GROUND SHOWN ON THE CROSS SECTIONS.

THE DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR A MONUMENT WHICH SHALL BE SET IN THE STRUCTURE AS DIRECTED BY THE ENGINEER IN THE FIELD. INSTALLATION WILL BE INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD 88).

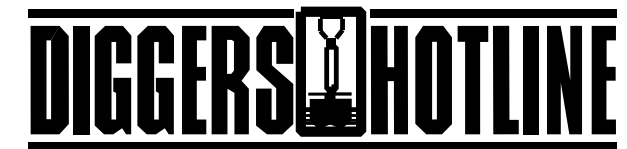
ASPHALT SURFACE SHALL USE 1/2" NOMINAL AGGREGATE SIZE.

WETLANDS EXIST IN THE PROJECT AREA. NO DISTURBANCE IS ALLOWED OUTSIDE THE SLOPE INTERCEPTS.

UTILITIES

LUMEN TECHNOLOGIES
135 N. 21st STREET
SUPERIOR, WI 54880
ATTN: RUSS VANCE
715-919-8003
russell.vance@lumen.com

DAHLBERG LIGHT & POWER CO.
9221 E. MAIN STREET
PO BOX 300
SOLON SPRINGS, WI 54873-0300
ATTN: JAMES DAHLBERG
715-816-4153
715-378-2205
deanicez@dahlberglightandpower.com



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

WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONTACT:

AMY CRONK
810 W MAPLE STREET
SPOONER, WI 54801
715-635-4229
715-320-3976
amy.cronk@wisconsin.gov

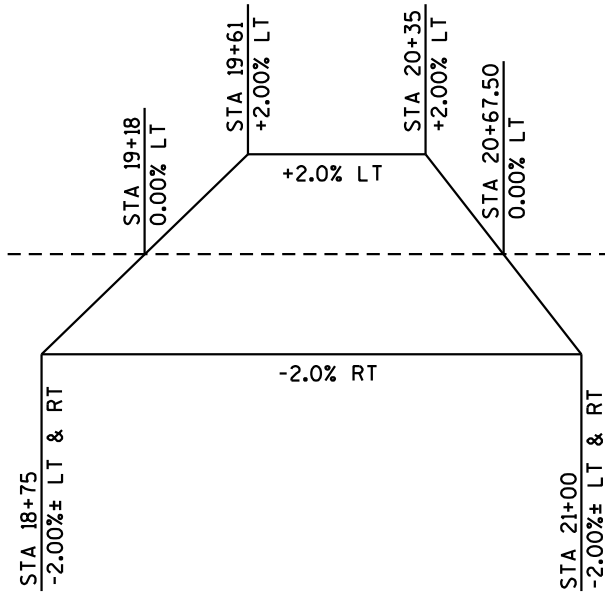
DESIGNER

AYRES ASSOCIATES
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE, WI 54701
ATTN: DANIEL N. SYDOW
715-834-3161
sydowd@AyresAssociates.com

TOWN CONTACT:

TOWN OF WASCOTT, TOWN CHAIRMAN
16362S TOWN HALL ROAD
P.O. BOX 159
WASCOTT, WI 54890
ATTN: JAN JENSON
715-376-4403
218-341-2125 (cell)
jkjenson01@yahoo.com

SUPERELEVATION:



SUPERELEVATION DIAGRAM

CURVE DATA

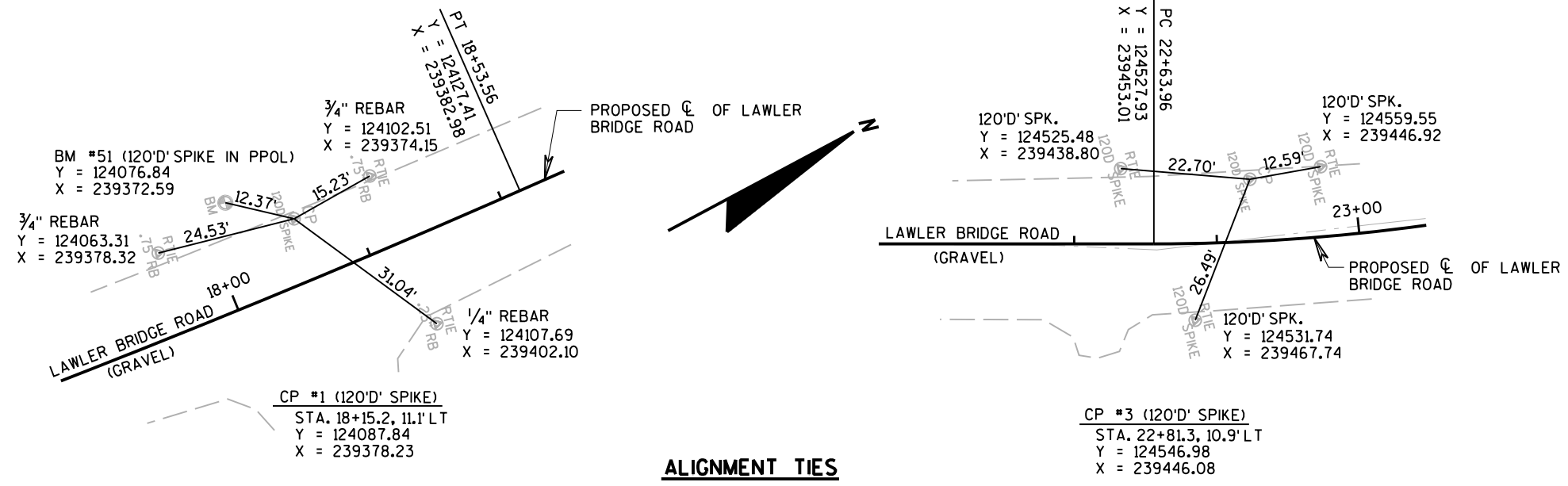
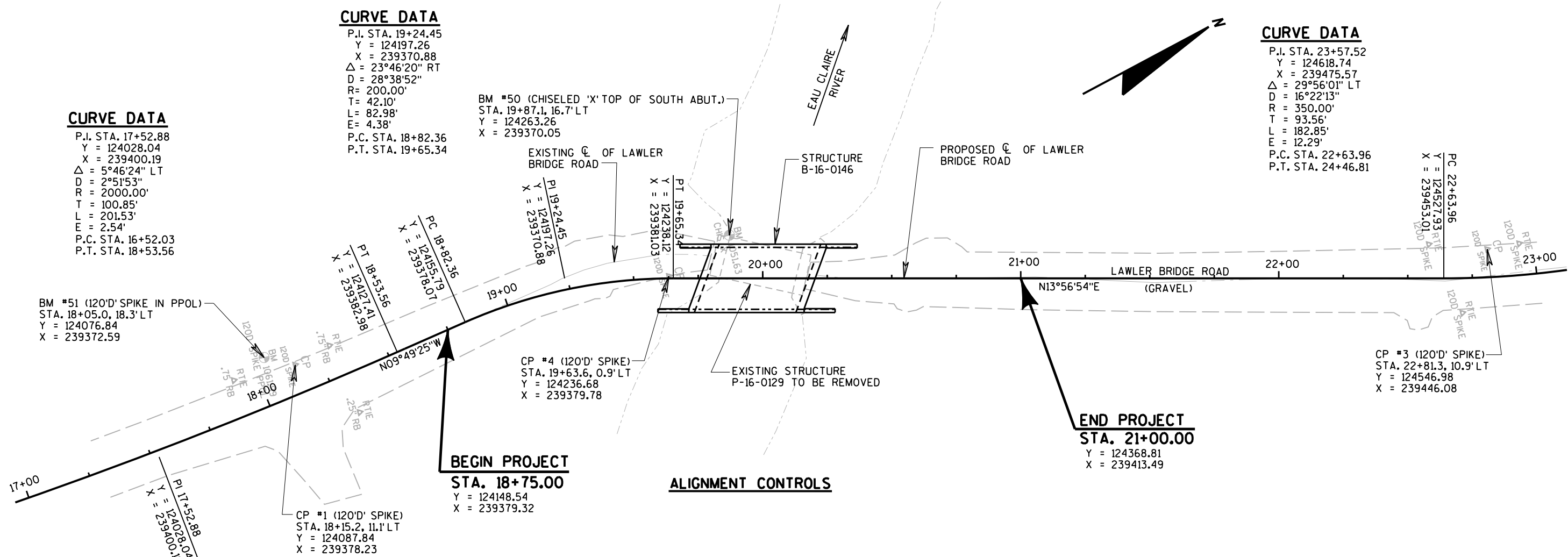
P.I. STA. 17+52.88
 Y = 124028.04
 X = 239400.19
 $\Delta = 5^{\circ}46'24''$ LT
 D = $2^{\circ}51'53''$
 R = 2000.00'
 T = 100.85'
 L = 201.53'
 E = 2.54'
 P.C. STA. 16+52.03
 P.T. STA. 18+53.56

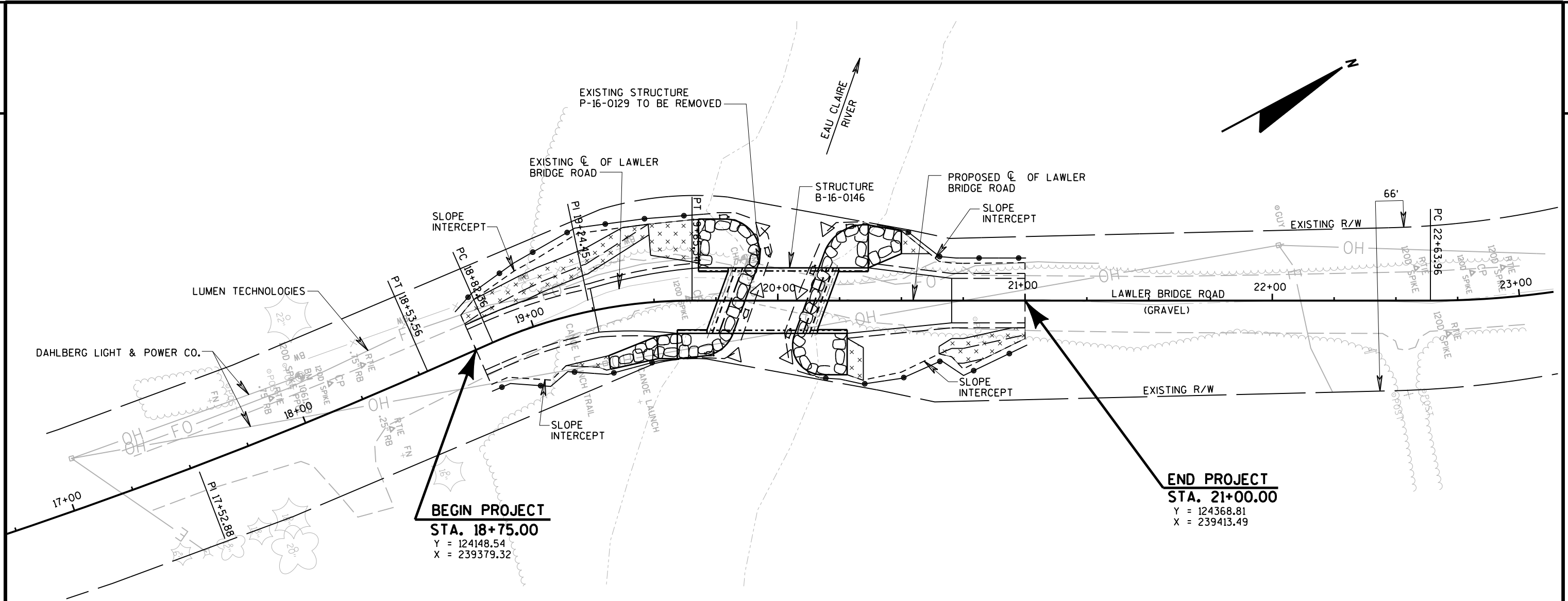
CURVE DATA

P.I. STA. 19+24.45
 Y = 124197.26
 X = 239370.88
 $\Delta = 23^{\circ}46'20''$ RT
 D = $28^{\circ}38'52''$
 R = 200.00'
 T = 42.10'
 L = 82.98'
 E = 4.38'
 P.C. STA. 18+82.36
 P.T. STA. 19+65.34

CURVE DATA

P.I. STA. 23+57.52
 Y = 124618.74
 X = 239475.57
 $\Delta = 29^{\circ}56'01''$ LT
 D = $16^{\circ}22'13''$
 R = 350.00'
 T = 93.56'
 L = 182.85'
 E = 12.29'
 P.C. STA. 22+63.96
 P.T. STA. 24+46.81





BEGIN PROJECT
STA. 18+75.00
 Y = 124148.54
 X = 239379.32

END PROJECT
STA. 21+00.00
 Y = 124368.81
 X = 239413.49

	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											

HIGH WATER₂ EL. 1049.03

- LEGEND**
- EROSION MAT CLASS II TYPE C
 - SILT FENCE
 - TURBIDITY BARRIER
 - RIPRAP HEAVY

TOTAL PROJECT AREA = 0.347 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.242 ACRES

Estimate Of Quantities

8396-00-73

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	203.0250	Removing Structure Over Waterway Remove Debris (structure) 01. P-16-0129	EACH	1.000	1.000
0008	205.0100	Excavation Common	CY	155.000	155.000
0010	206.1000	Excavation for Structures Bridges (structure) 01. B-16-0146	LS	1.000	1.000
0012	208.0100	Borrow	CY	60.000	60.000
0014	210.1500	Backfill Structure Type A	TON	240.000	240.000
0016	213.0100	Finishing Roadway (project) 01. 8396-00-73	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	325.000	325.000
0020	455.0605	Tack Coat	GAL	36.000	36.000
0022	465.0105	Asphaltic Surface	TON	60.000	60.000
0024	502.0100	Concrete Masonry Bridges	CY	153.000	153.000
0026	502.3200	Protective Surface Treatment	SY	160.000	160.000
0028	505.0400	Bar Steel Reinforcement HS Structures	LB	3,490.000	3,490.000
0030	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	18,470.000	18,470.000
0032	513.4061	Railing Tubular Type M	LF	142.300	142.300
0034	516.0500	Rubberized Membrane Waterproofing	SY	18.000	18.000
0036	550.0500	Pile Points	EACH	10.000	10.000
0038	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	300.000	300.000
0040	606.0300	Riprap Heavy	CY	180.000	180.000
0042	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	150.000	150.000
0044	618.0100	Maintenance And Repair of Haul Roads (project) 01. 8396-00-73	EACH	1.000	1.000
0046	619.1000	Mobilization	EACH	1.000	1.000
0048	623.0200	Dust Control Surface Treatment	SY	420.000	420.000
0050	624.0100	Water	MGAL	3.000	3.000
0052	625.0100	Topsoil	SY	280.000	280.000
0054	627.0200	Mulching	SY	340.000	340.000
0056	628.1504	Silt Fence	LF	445.000	445.000
0058	628.1520	Silt Fence Maintenance	LF	890.000	890.000
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	225.000	225.000
0066	628.6005	Turbidity Barriers	SY	205.000	205.000
0068	629.0210	Fertilizer Type B	CWT	0.500	0.500
0070	630.0120	Seeding Mixture No. 20	LB	16.000	16.000
0072	630.0200	Seeding Temporary	LB	16.000	16.000
0074	630.0500	Seed Water	MGAL	13.000	13.000
0076	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0078	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0080	638.2602	Removing Signs Type II	EACH	4.000	4.000
0082	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0084	642.5001	Field Office Type B	EACH	1.000	1.000
0086	643.0420	Traffic Control Barricades Type III	DAY	1,260.000	1,260.000
0088	643.0705	Traffic Control Warning Lights Type A	DAY	1,960.000	1,960.000
0090	643.0900	Traffic Control Signs	DAY	980.000	980.000
0092	643.5000	Traffic Control	EACH	1.000	1.000
0094	645.0111	Geotextile Type DF Schedule A	SY	90.000	90.000
0096	645.0120	Geotextile Type HR	SY	365.000	365.000
0098	650.4500	Construction Staking Subgrade	LF	181.000	181.000

Estimate Of Quantities

8396-00-73

Line	Item	Item Description	Unit	Total	Qty
0100	650.5000	Construction Staking Base	LF	181.000	181.000
0102	650.6500	Construction Staking Structure Layout (structure) 01. B-16-0146	LS	1.000	1.000
0104	650.9910	Construction Staking Supplemental Control (project) 01. 8396-00-73	LS	1.000	1.000
0106	650.9920	Construction Staking Slope Stakes	LF	181.000	181.000
0108	715.0502	Incentive Strength Concrete Structures	DOL	918.000	918.000
0110	999.2000.S	Installing and Maintaining Bird Deterrent System (Station) 01. 20+00	EACH	1.000	1.000
0112	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0114	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000
0116	SPV.0090	Special 01. Flashing Stainless Steel	LF	89.300	89.300

CLEARING AND GRUBBING

CATEGORY	STATION	TO	STATION	LOCATION	201.0105	201.0205
					CLEARING STA	GRUBBING STA
0010	18+75	-	21+00	LAWLER BRIDGE ROAD	3	3
TOTAL 0010					3	3

LAWLER BRIDGE ROAD EARTHWORK SUMMARY

From/To Station	Location	Common Excavation (1) (Item 205.0100)	Unexpanded Fill	Expanded Fill (2)	Mass Ordinate +/- (3)	Waste	Borrow (Item 208.0100)	Comment:
		Cut		Factor 1.30				
18+75 - 21+00	LAWLER BRIDGE RD	155	165	215	-60	0	60	

- 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.

BASE AGGREGATE

CATEGORY	STATION	TO	STATION	LOCATION	305.0110	624.0100	REMARKS
					BASE AGGREGATE DENSE 3/4-INCH TON	WATER MGAL	
0010	18+75	-	19+75.67	LT/RT	185	2	SOUTH APPROACH
0010	20+20.33	-	21+00	LT/RT	140	1	NORTH APPROACH
TOTAL 0010					325	3	

ASPHALT

CATEGORY	STATION	TO	STATION	LOCATION	* 455.0605	** 465.0105	REMARKS
					TACK COAT GAL	ASPHALTIC SURFACE TON	
0010	19+25.67	-	19+75.67	MAINLINE	18	30	50' SOUTH APPROACH
0010	20+20.33	-	20+70.33	MAINLINE	18	30	50' NORTH APPROACH
TOTAL 0010					36	60	

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. 8396-00-73) EACH
0030	LAWLER BRIDGE RD	1
TOTAL 0030		1

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	18+75	-	19+75.67	LT	150	85	115	230	125	-	0.1	6	6	5
0010	18+75	-	19+75.67	RT	35	60	80	160	5	85	0.1	2	2	1
0010	20+20.33	-	21+00	LT	15	40	65	130	5	-	0.1	1	1	1
0010	20+20.33	-	21+00	RT	80	85	95	190	45	80	0.1	4	4	3
0010			UNDISTRIBUTED		-	70	90	180	45	40	0.1	3	3	3
TOTAL 0010					280	340	445	890	225	205	0.5	16	16	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	19+84	LT	1	3	--	--	W5-52L: BRIDGE HASH MARKS
0010	19+60	RT	1	3	--	--	W5-52R: BRIDGE HASH MARKS
0010	19+82	LT	--	--	1	1	W5-52L: BRIDGE HASH MARKS
0010	19+79	RT	--	--	1	1	W5-52R: BRIDGE HASH MARKS
0010	20+19	LT	--	--	1	1	W5-52L: BRIDGE HASH MARKS
0010	20+16	RT	--	--	1	1	W5-52R: BRIDGE HASH MARKS
0010	20+35	LT	1	3	--	--	W5-52L: BRIDGE HASH MARKS
0010	20+27	RT	1	3	--	--	W5-52R: BRIDGE HASH MARKS
TOTAL 0010			4	12	4	4	

TRAFFIC CONTROL

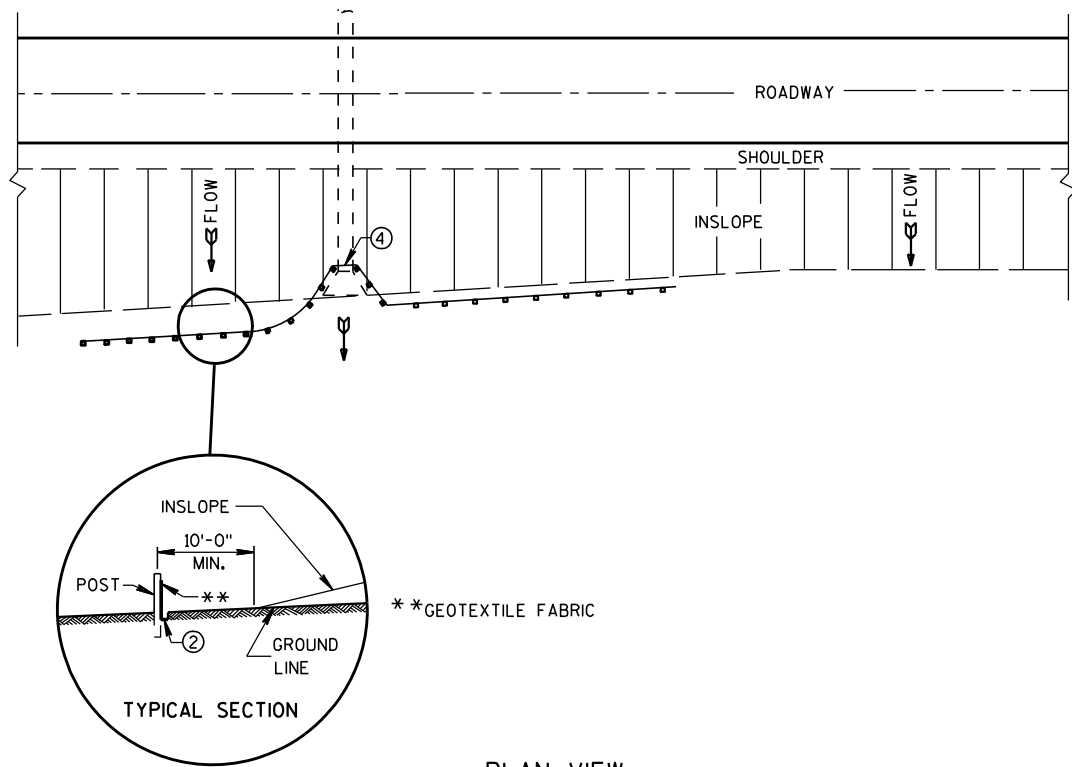
CATEGORY	LOCATION	DURATION		643.0420 TRAFFIC CONTROL BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0900 TRAFFIC CONTROL SIGNS		643.5000 TRAFFIC CONTROL EACH
		DAYS	NO.	DAY	NO.	DAY	NO.	DAY		
0010	PER SDD 15C2	70	18	1,260	28	1,960	14	980	-	
0010	LAWLER BRIDGE RD	-	-	-	-	-	-	-	1	
TOTAL 0010				1,260		1,960		980	1	

STAKING

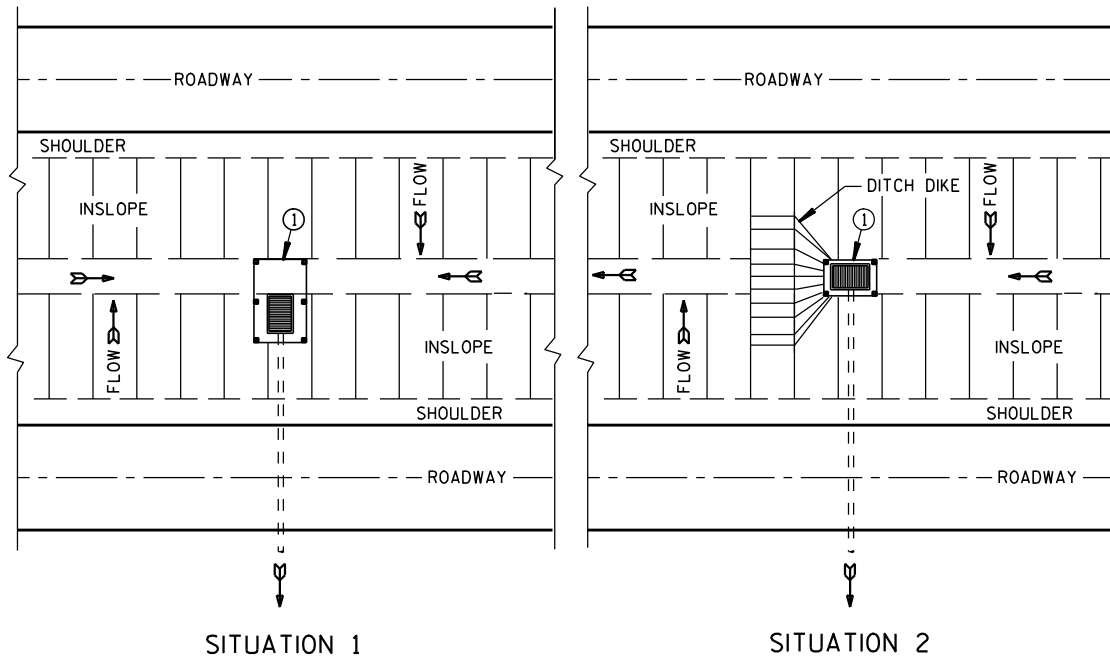
CATEGORY	STATION	TO	STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE		650.5000 CONSTRUCTION STAKING BASE		650.6500.01 CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (01. B-16-0146)		650.9910.01 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 8396-00-73)		650.9920 CONSTRUCTION STAKING SLOPE STAKES	
					LF	LF	LS	LS	LS	LS	LF			
0010	18+75	-	21+00	MAINLINE	181	181	-	-	-	-	-	-	181	
0010	18+75	-	21+00	PROJECT 8396-00-73	-	-	-	-	-	1	-	-	-	
TOTAL 0010					181	181	0	1	1	1	181			
0020	19+75.67	-	20+20.33	B-16-0146	-	-	1	-	-	-	-	-	-	
TOTAL 0020					0	0	1	0	0	0	0			
PROJECT TOTAL					181	181	1	1	1	1	181			

Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

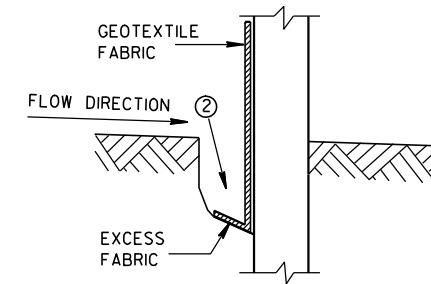


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

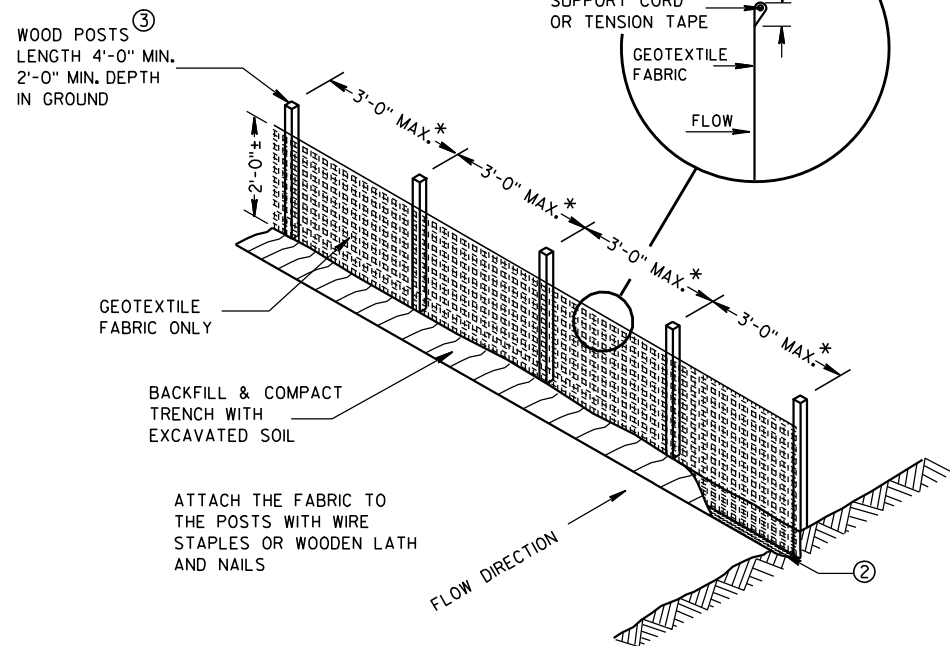
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- 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.



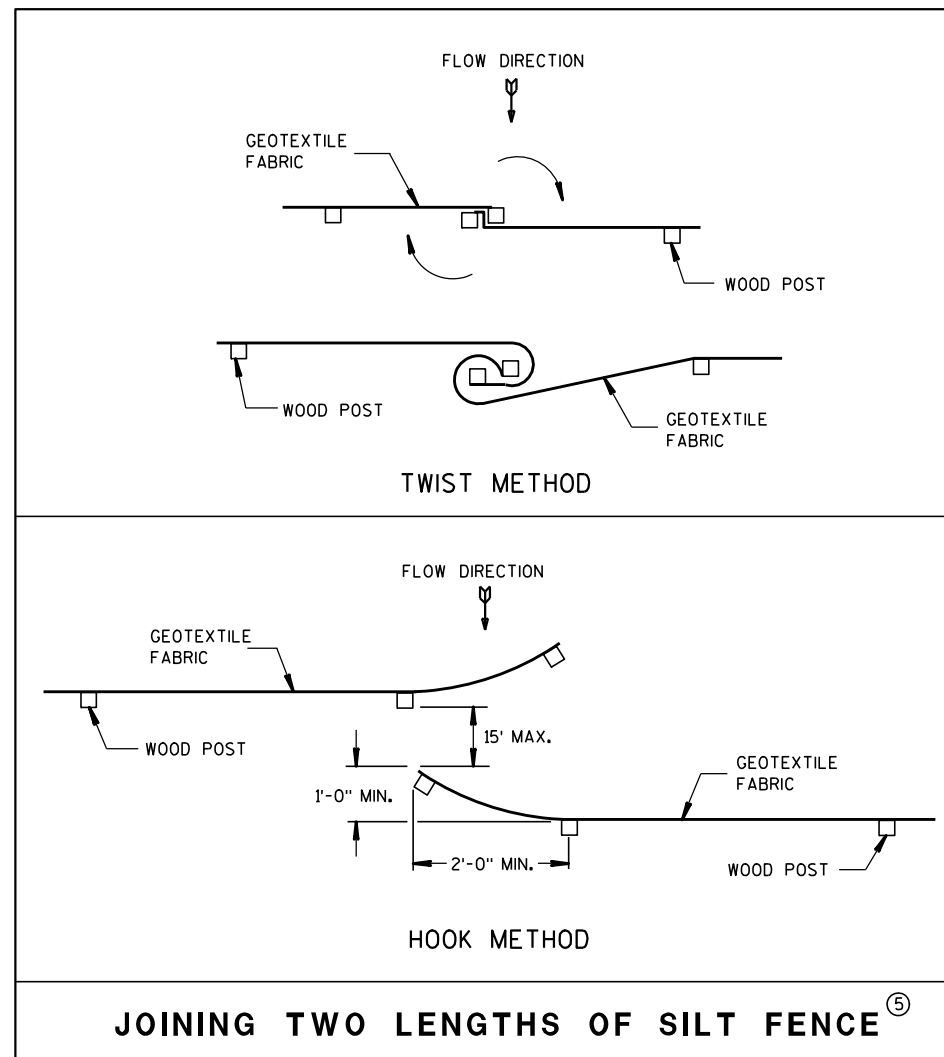
TRENCH DETAIL

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

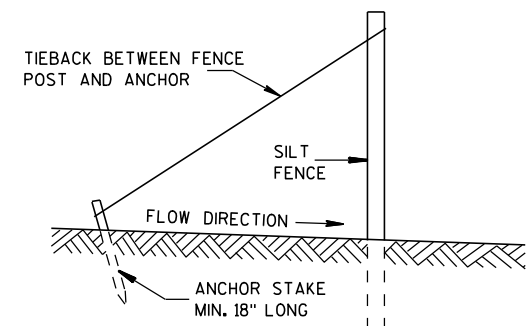


SILT FENCE

* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

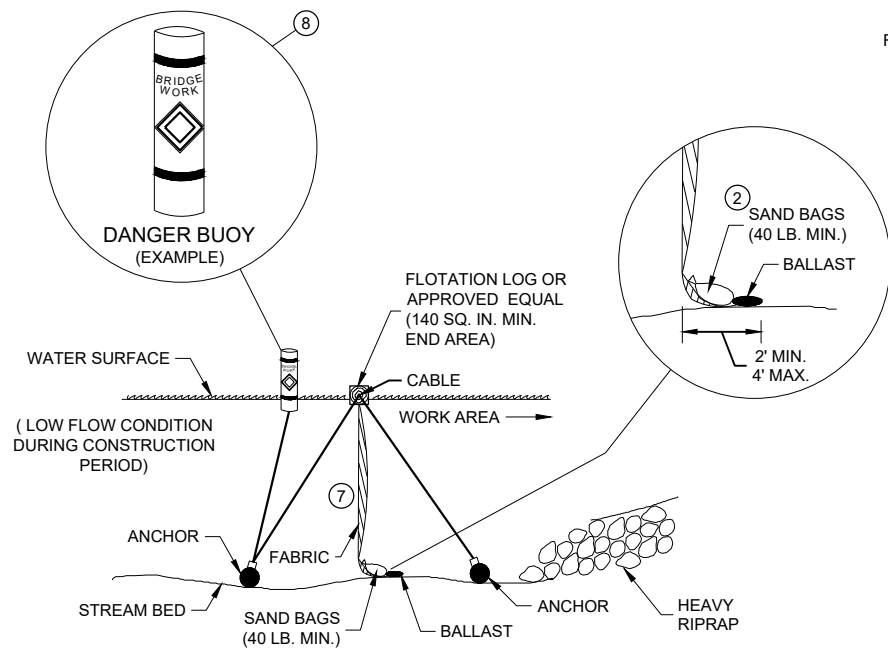
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-29-05
DATE

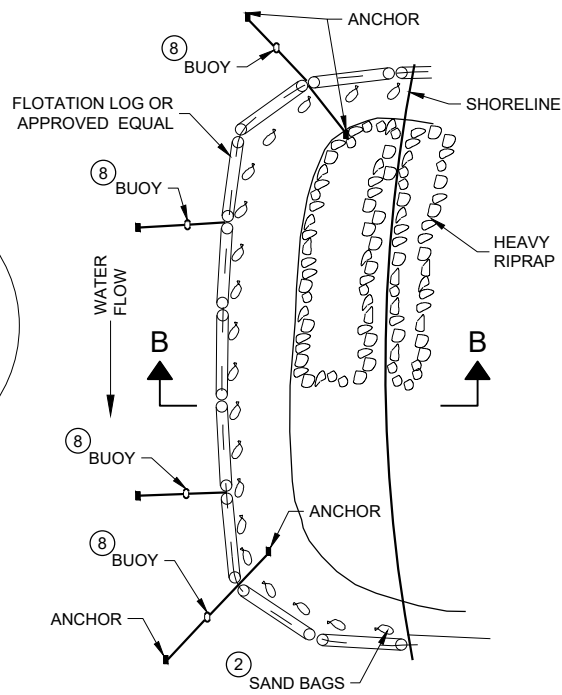
FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

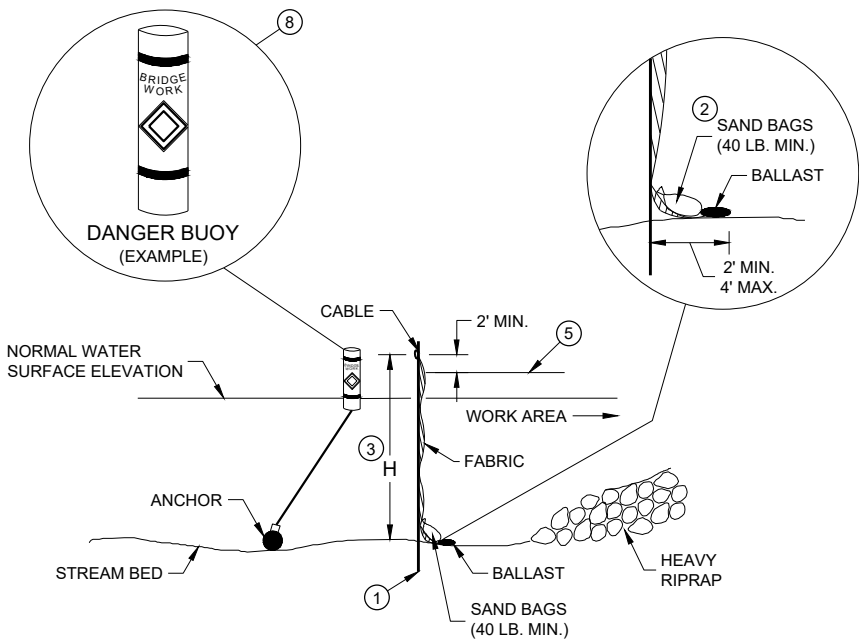


SECTION B - B

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

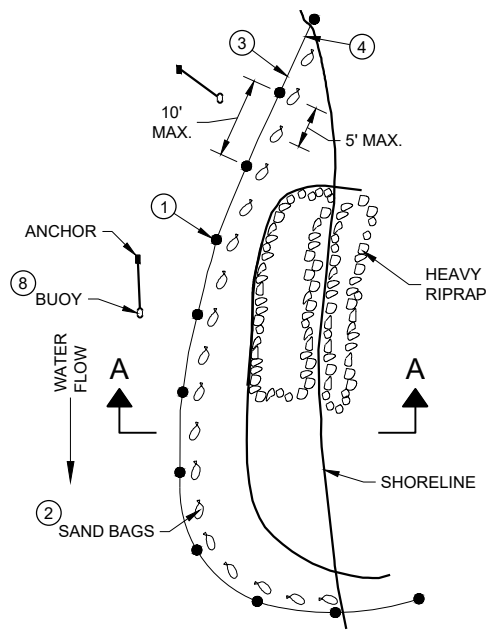


PLAN VIEW



SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW

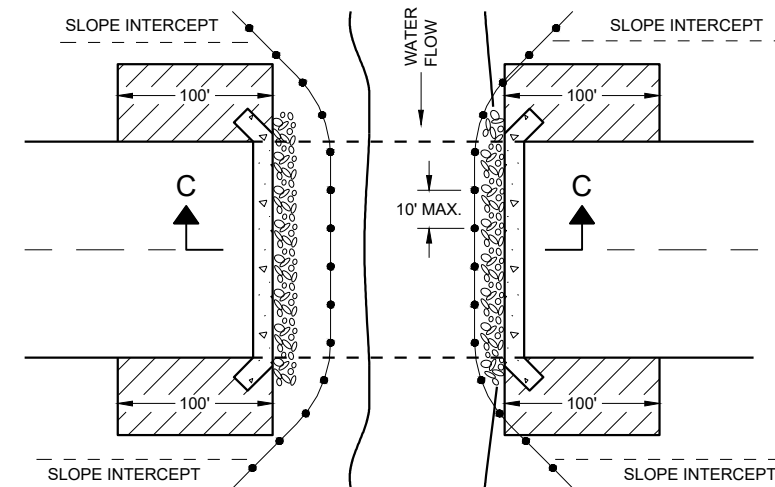
TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

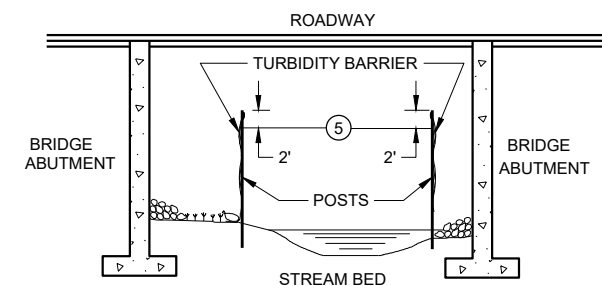
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

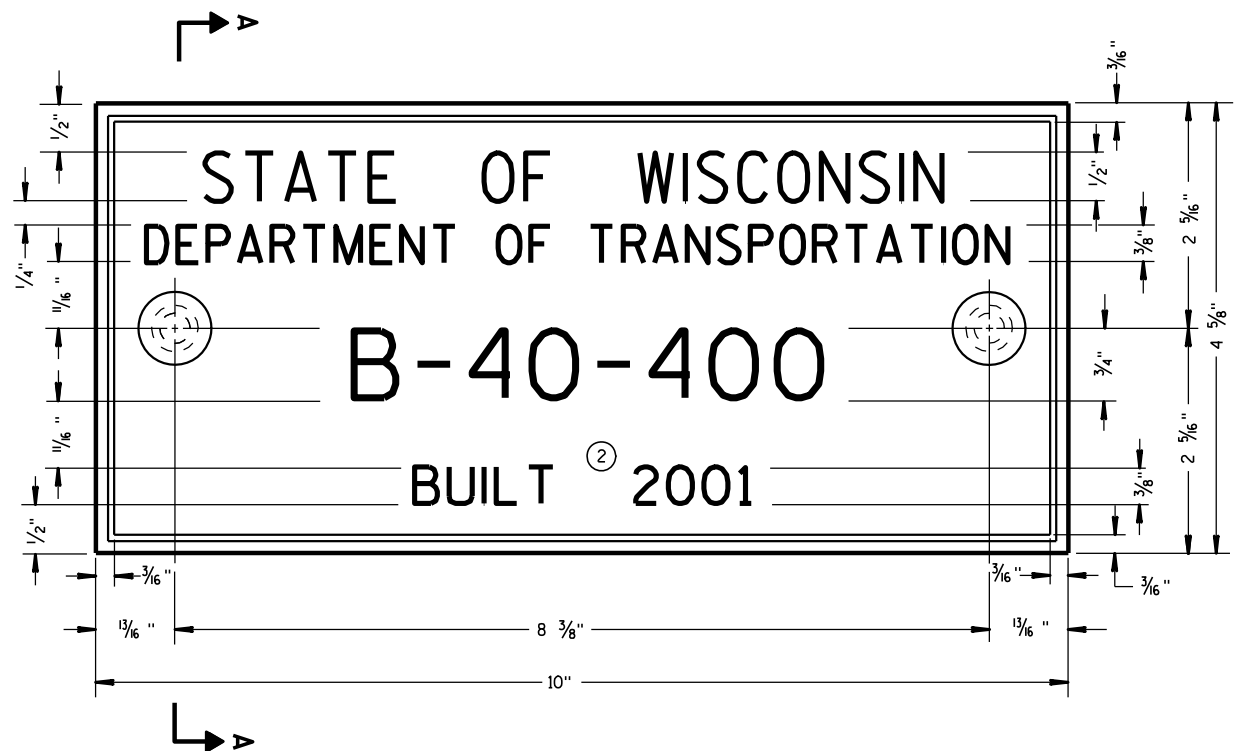
**TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES**

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



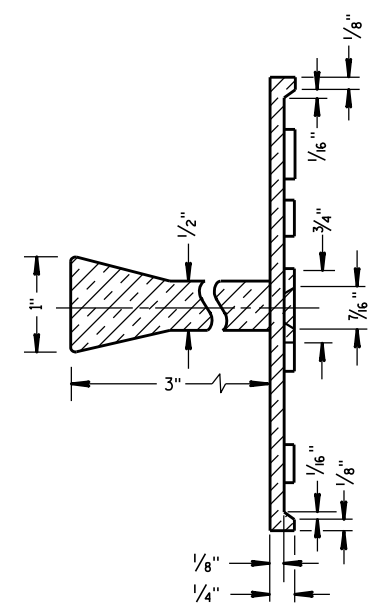
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

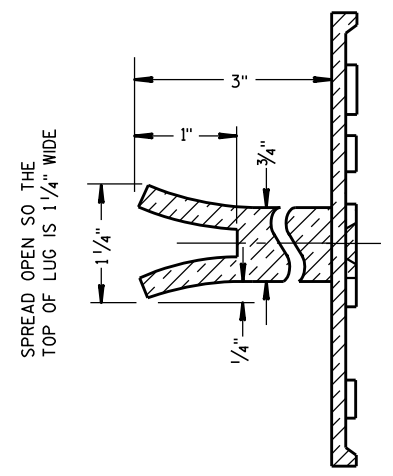
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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



ALTERNATE LUG

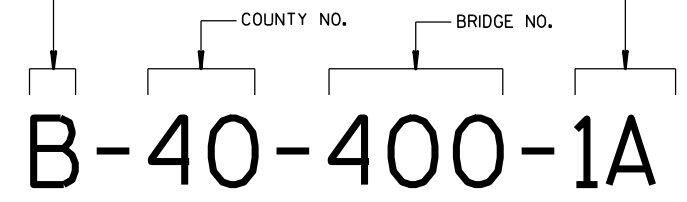
6

6

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

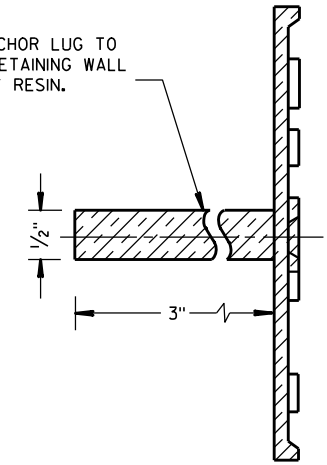
B = BRIDGE
C = CULVERT
R = RETAINING WALL

UNIT NO. FOR MULTIPLE
UNIT BRIDGE



**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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

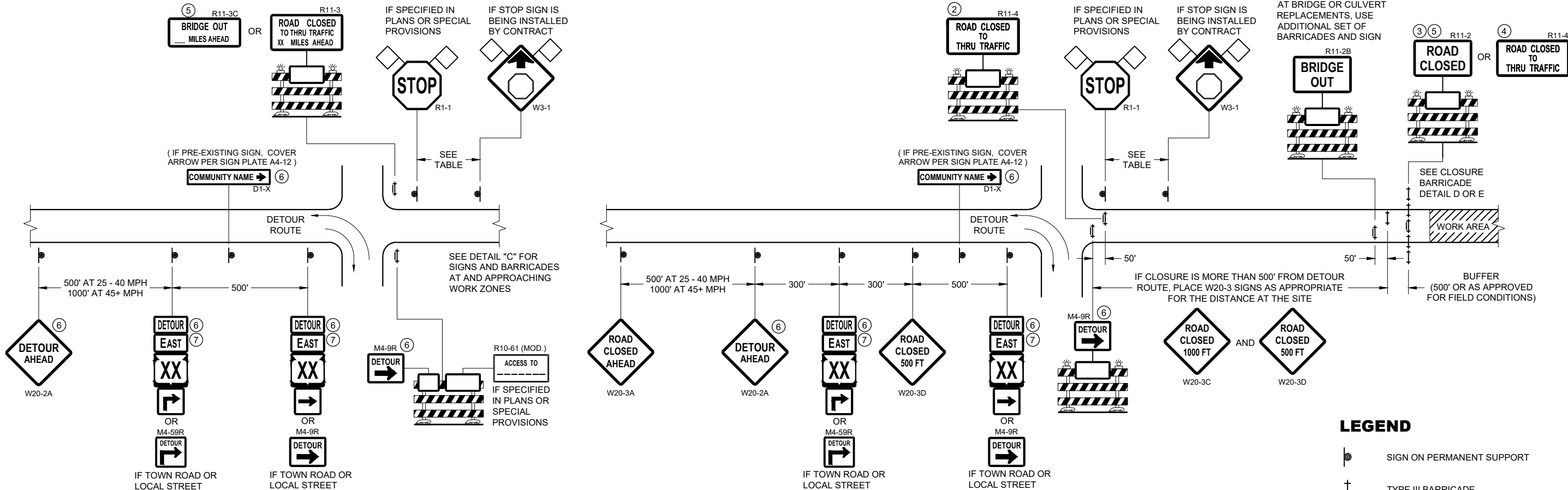


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

S.D.D. 12 A 3-10

S.D.D. 12 A 3-10

NAME PLATE (STRUCTURES)	
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**

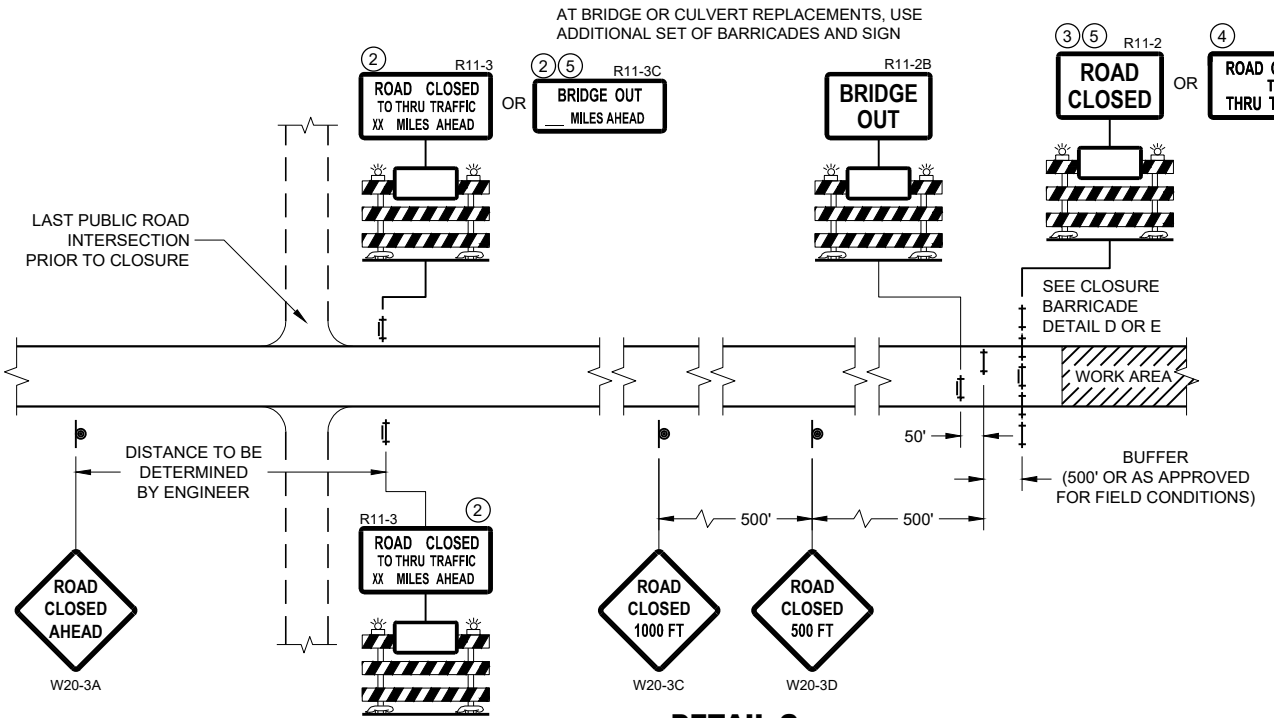
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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)
- M4 - 8
- M3 - X
- M1 - 4 OR M1 - 6 OR M1 - 5A
- 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

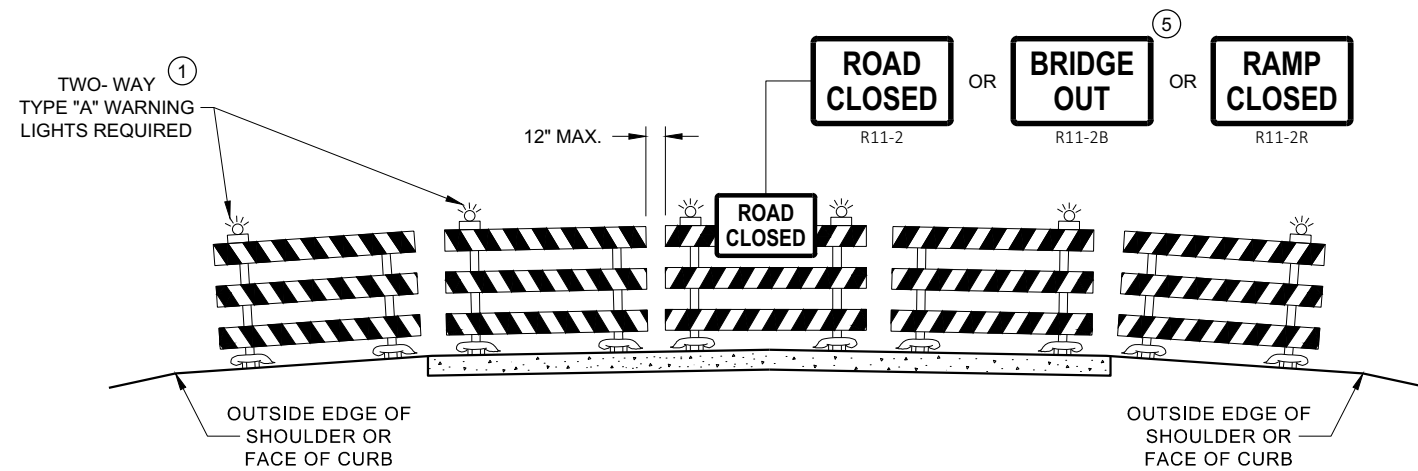


**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

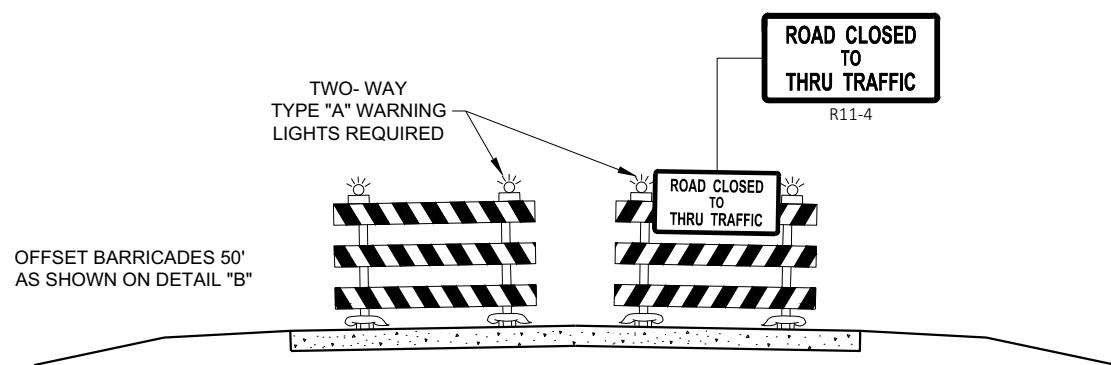
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER



**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
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

GENERAL NOTES

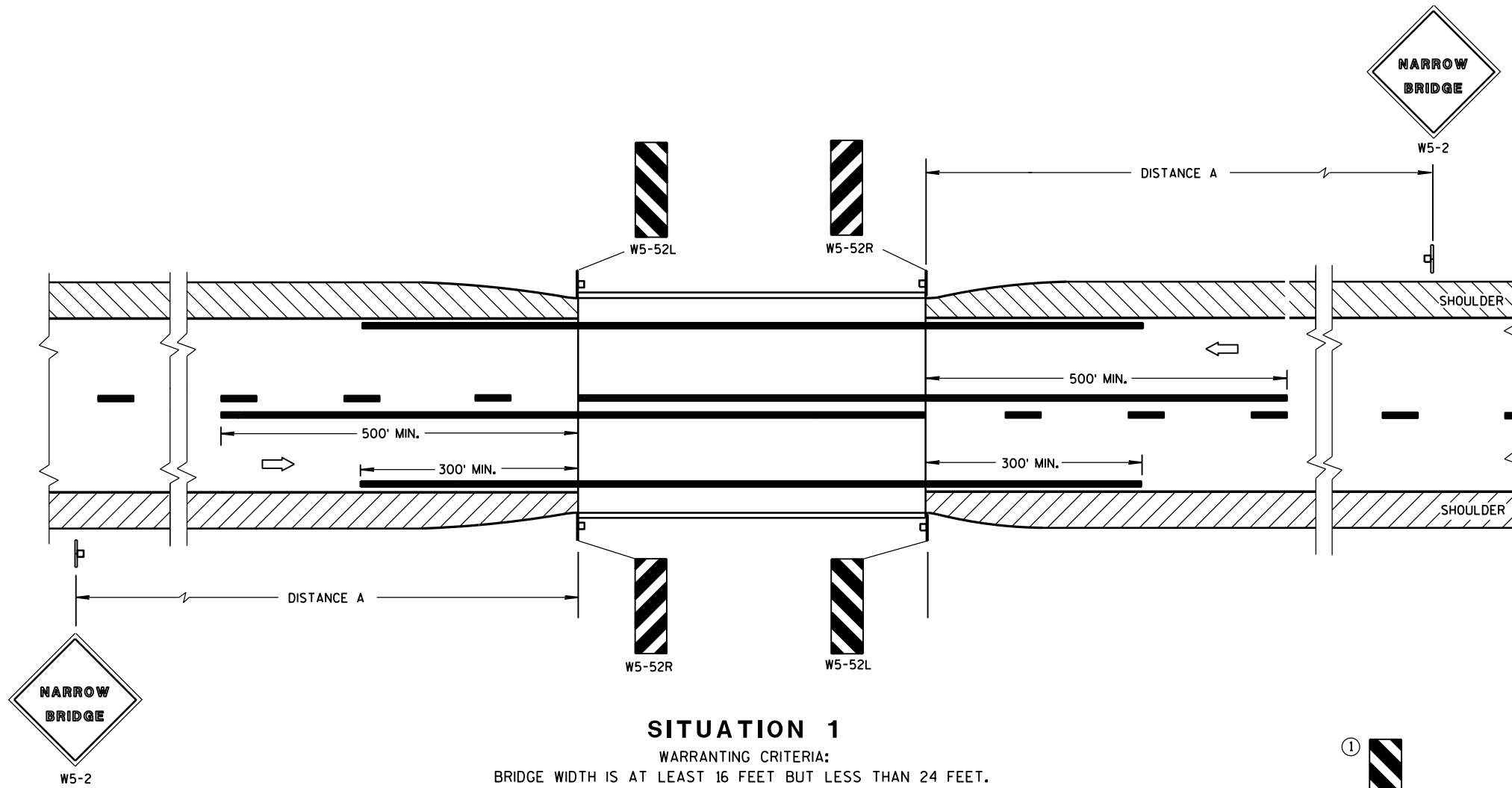
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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.

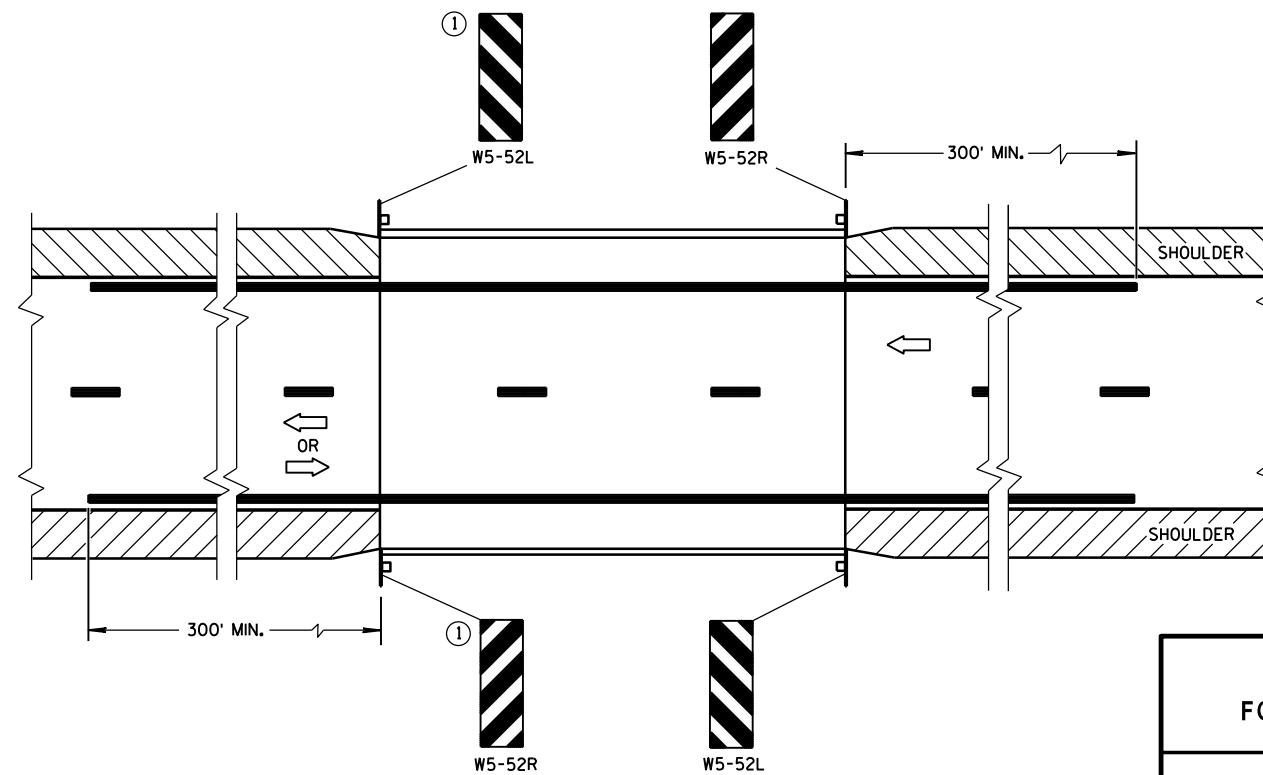
① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



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.

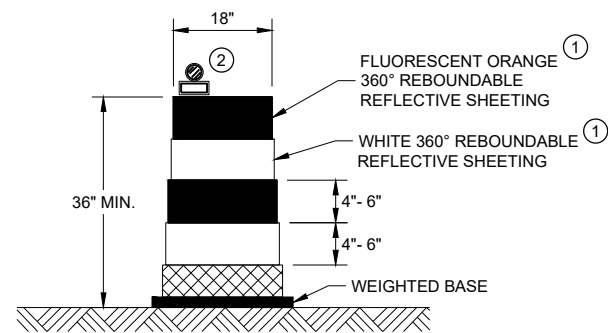
DISTANCE TABLE

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

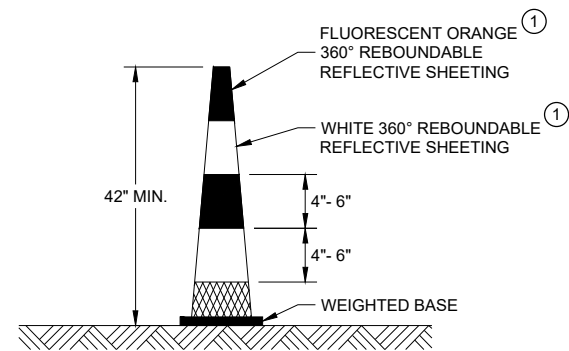
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

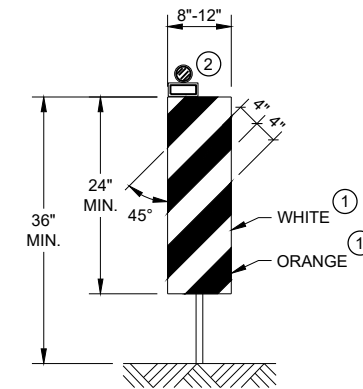


DRUM



42" CONE

DO NOT USE IN TAPERS
 1/2 SPACING OF DRUMS

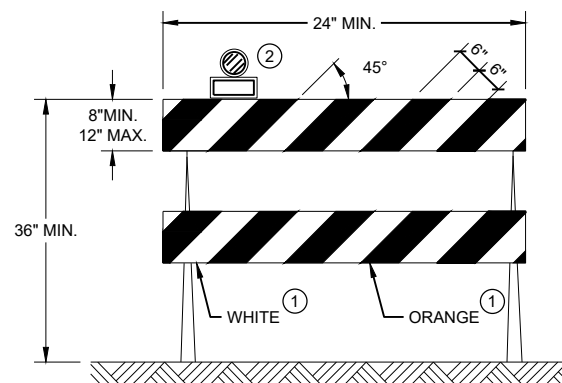


VERTICAL PANEL

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

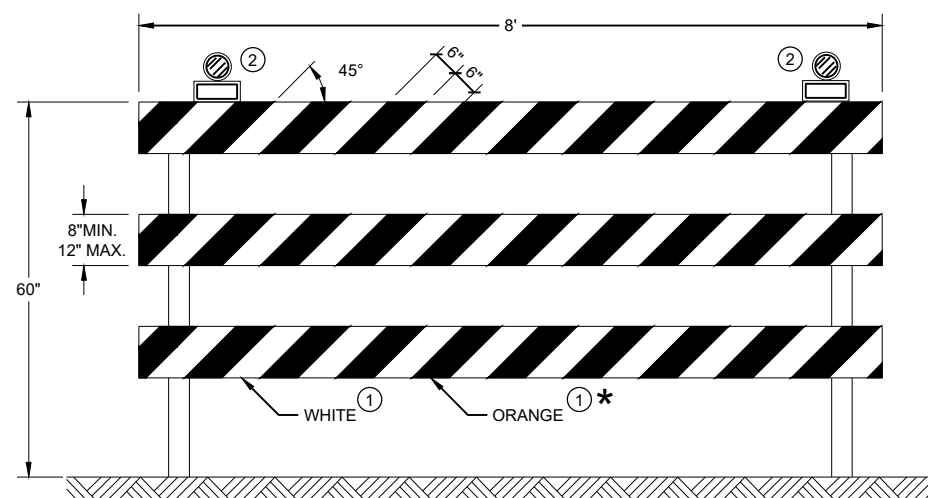
GENERAL NOTES

- 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.



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.

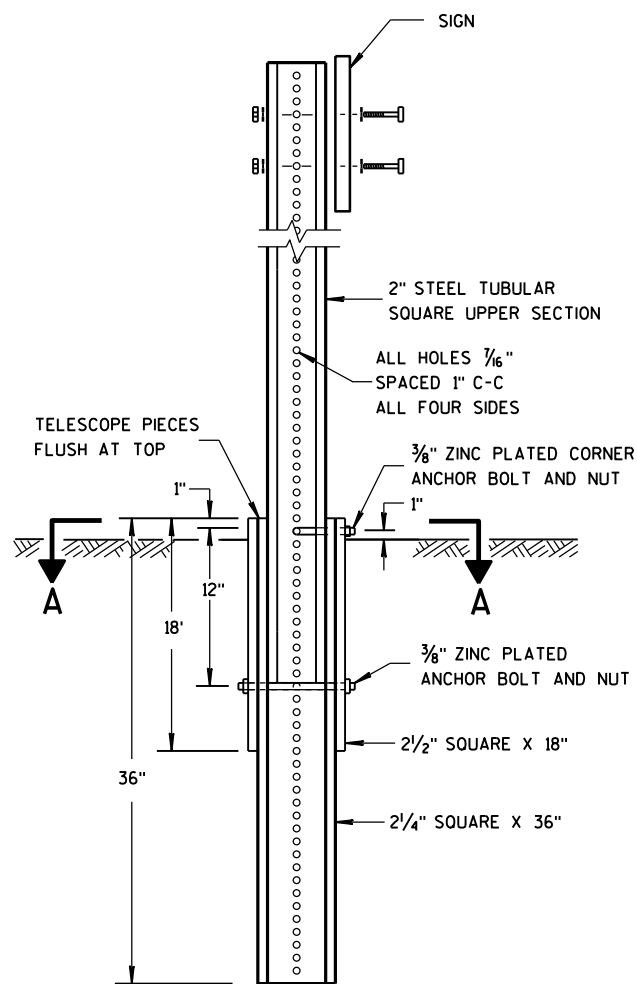


TYPE III BARRICADE

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.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
<small>FHWA</small>	



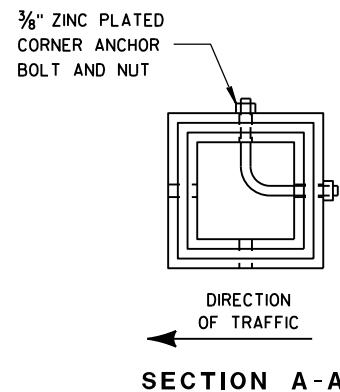
DETAIL OF TUBULAR STEEL SIGN POST

TUBULAR STEEL POSTS

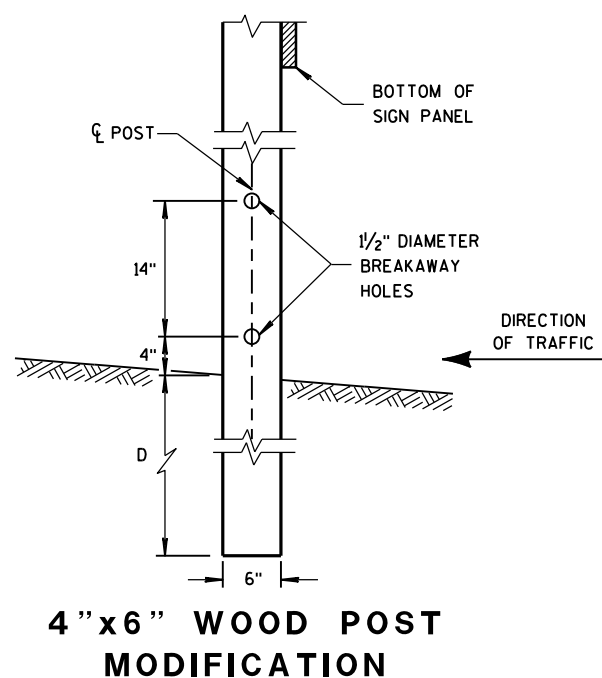
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

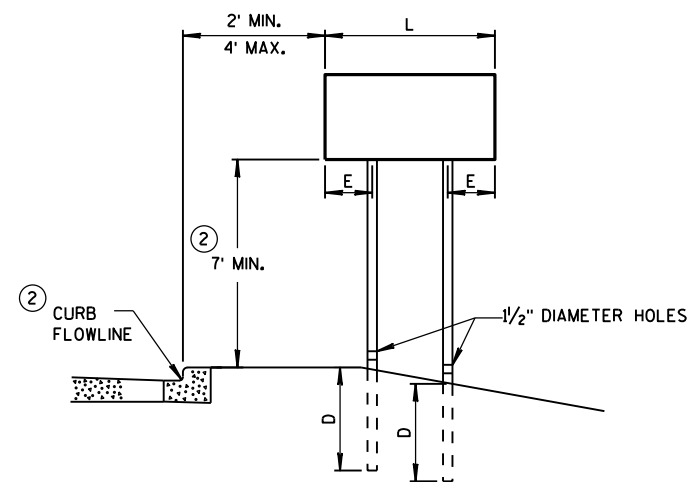
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.



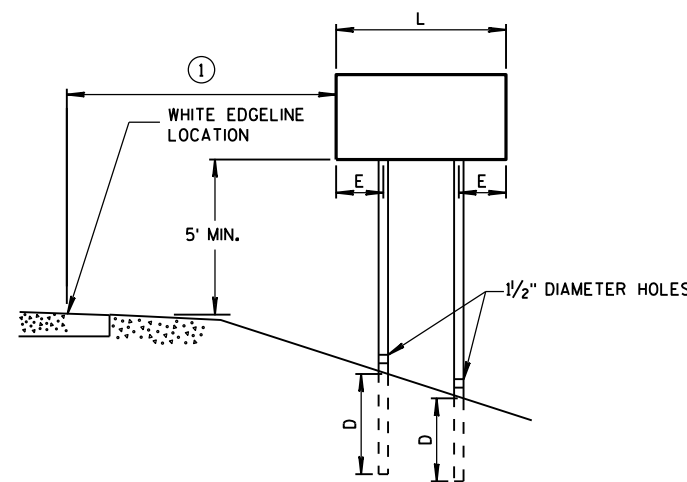
SECTION A-A



4" X 6" WOOD POST MODIFICATION



URBAN AREA



RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'

4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

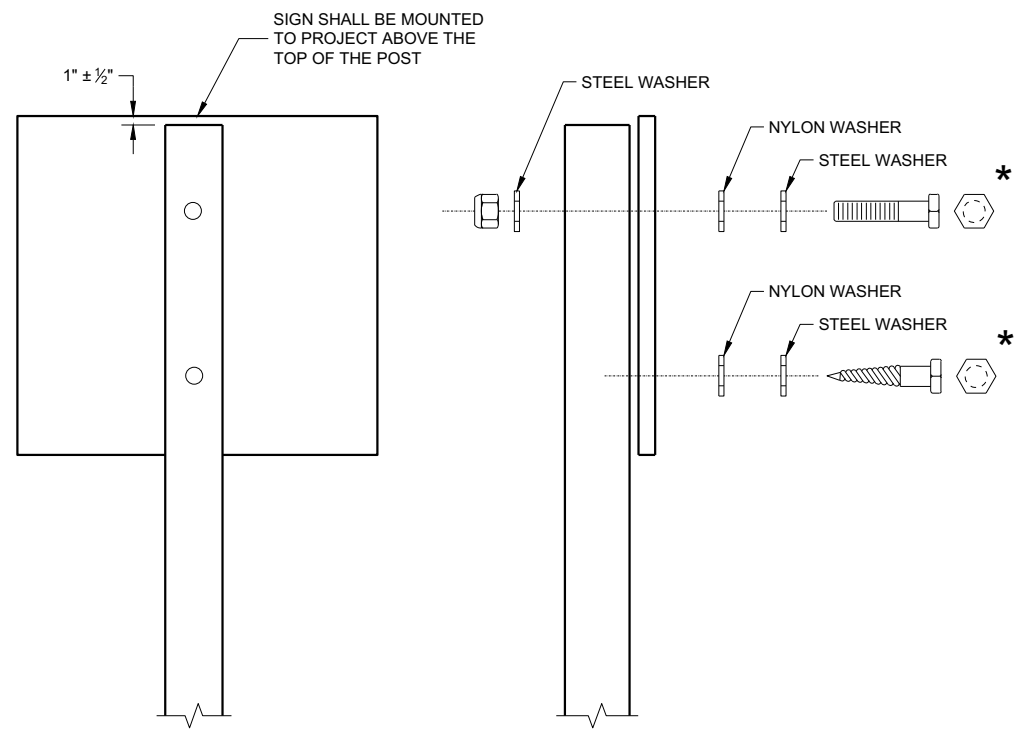
SEE NOTE ③

GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② 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. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

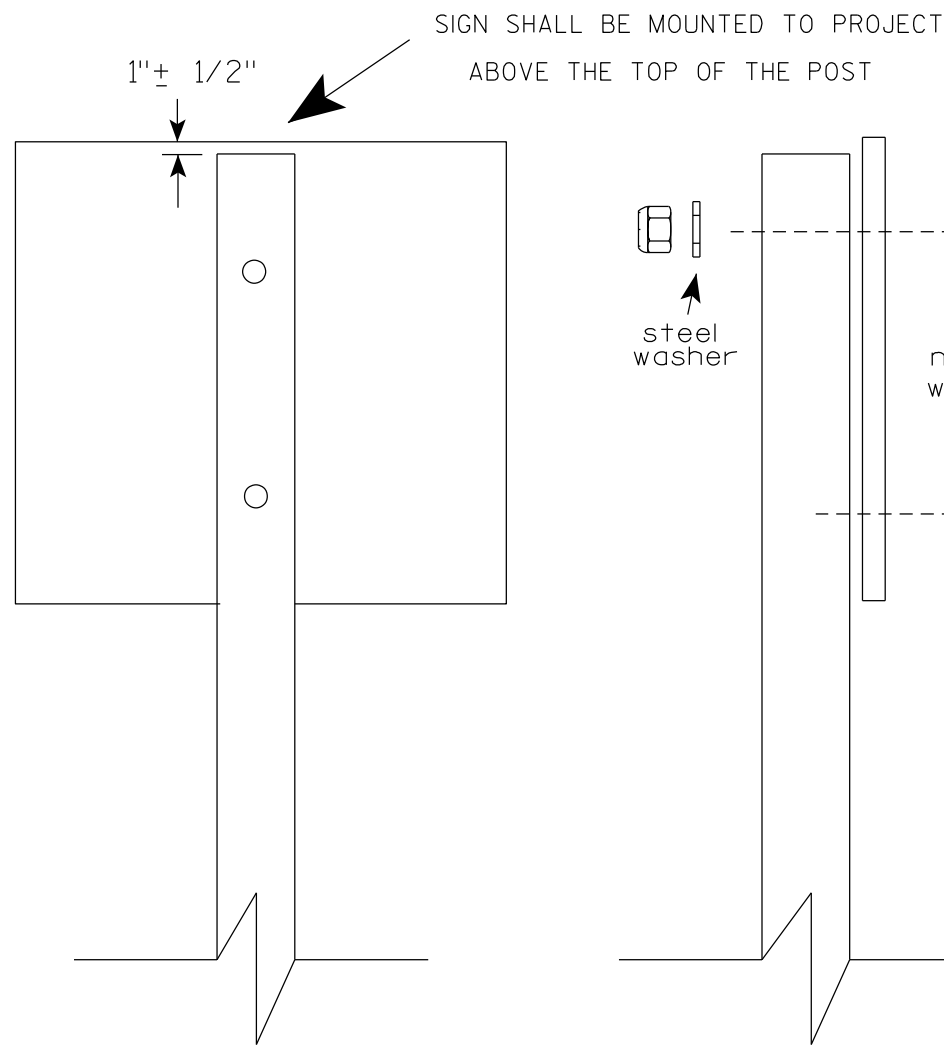
WOOD POST (4" x 6")
LAG SCREWS - 3/8" x 3"
MACHINE BOLTS - 5/16" x 6 1/2" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")
MACHINE BOLTS - 3/8" x 3 1/4" LENGTH W/NUTS
RIVETS - 3/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM
BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,
GRIP RANGE 0.042 - 0.375 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 0.080 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. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



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.

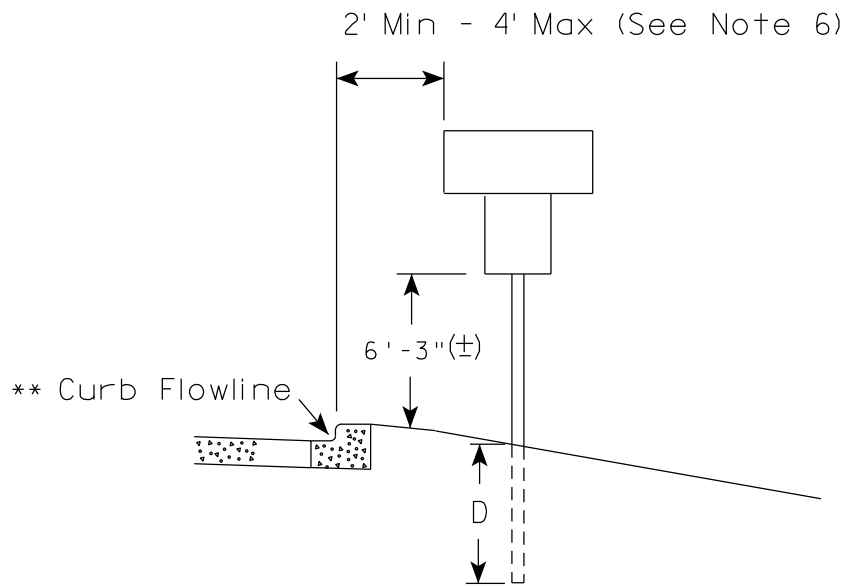
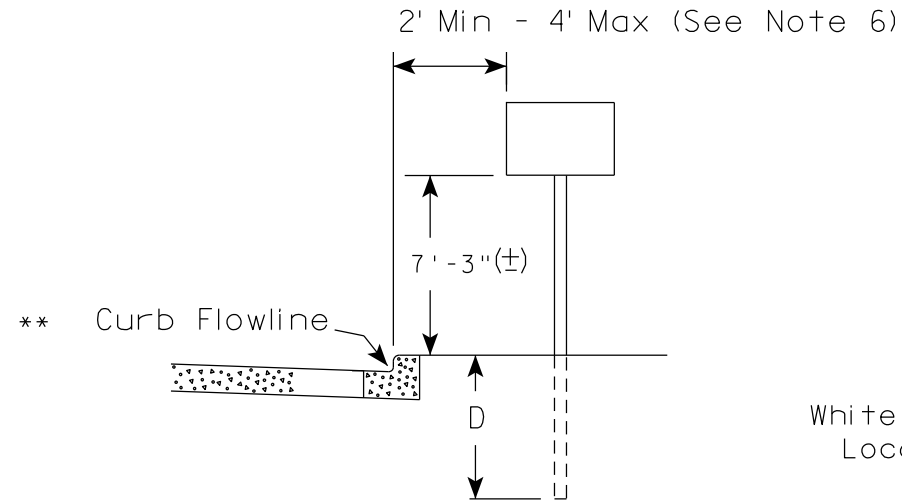
ATTACHMENT OF SIGNS
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

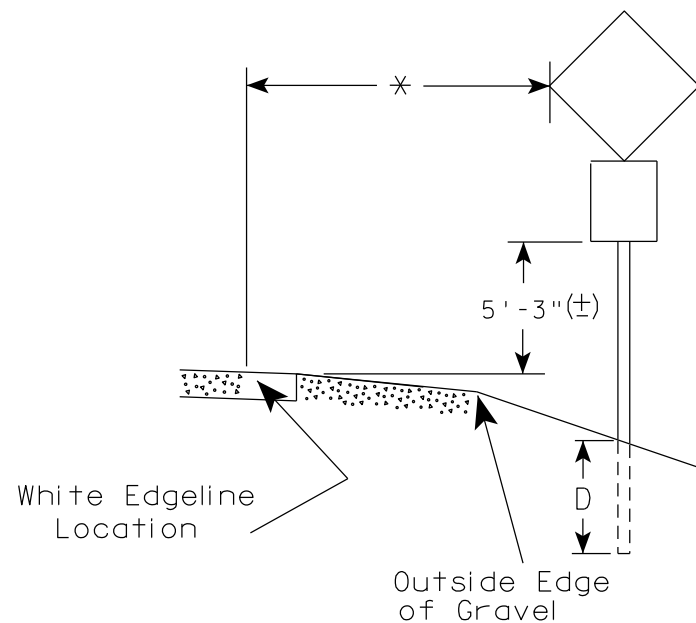
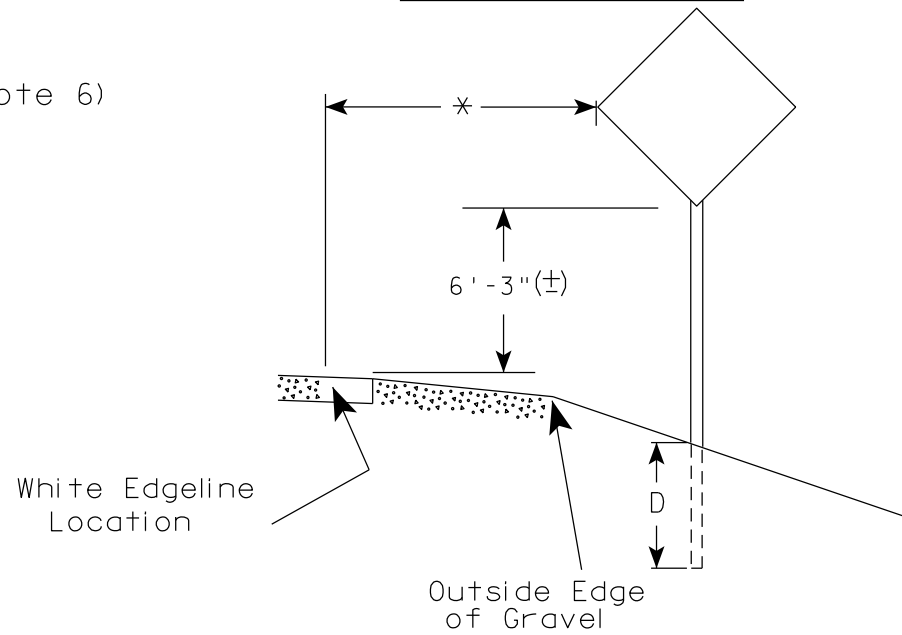
APPROVED *Matthew R Rauch*
For State Traffic Engineer

DATE 4/1/2020 PLATE NO. A4-8.9

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.

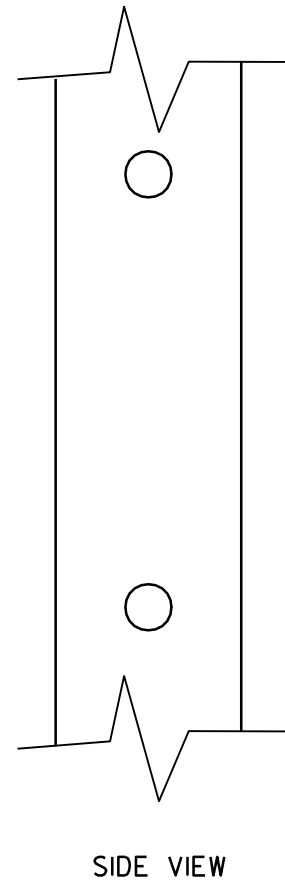
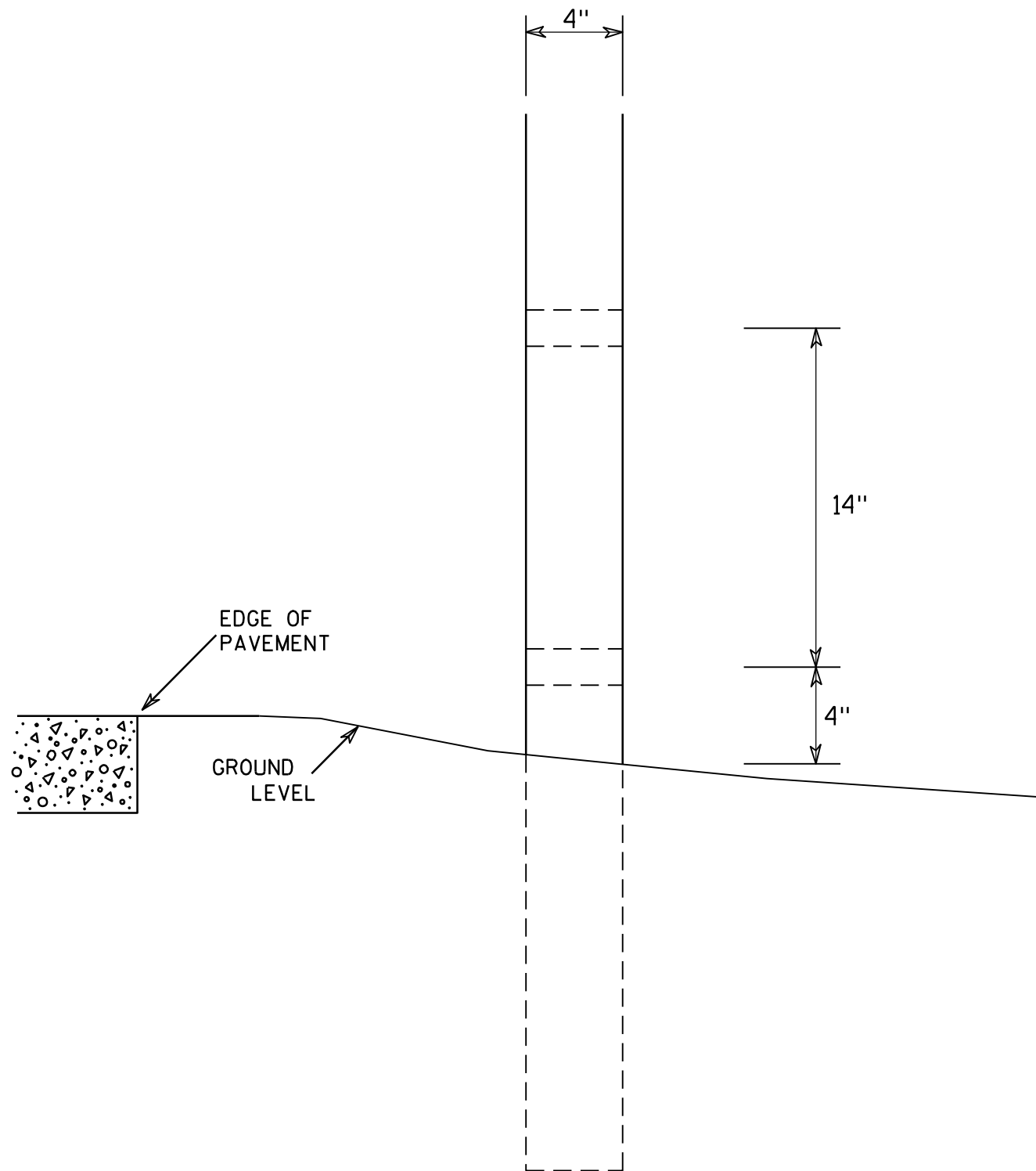
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



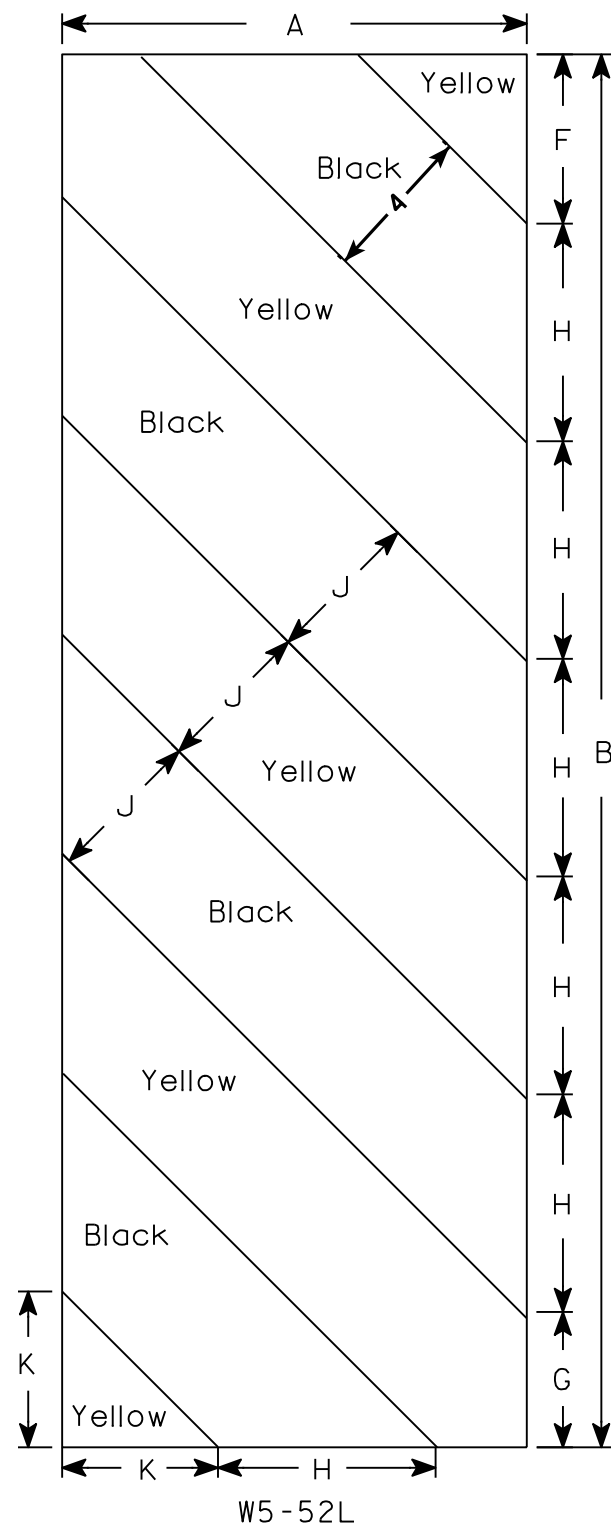
GENERAL NOTES

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

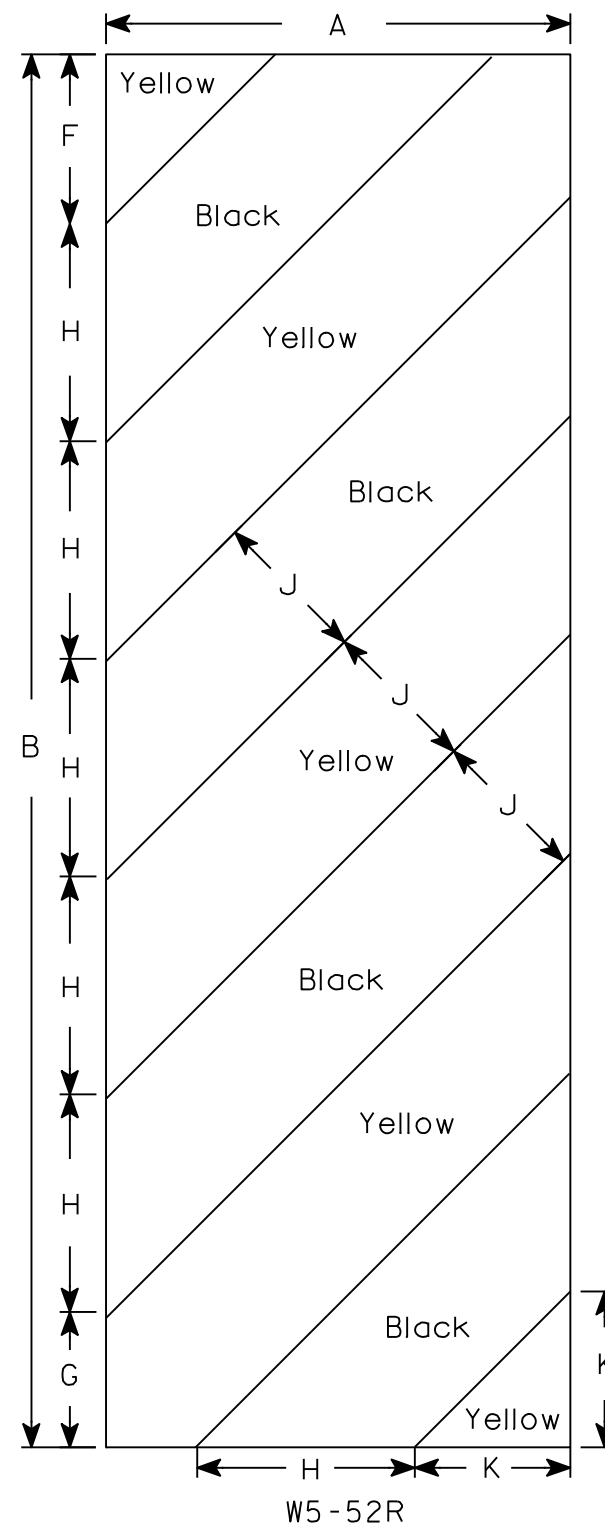
7

7

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



W5-52L



W5-52R

NOTES

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

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 9/16																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

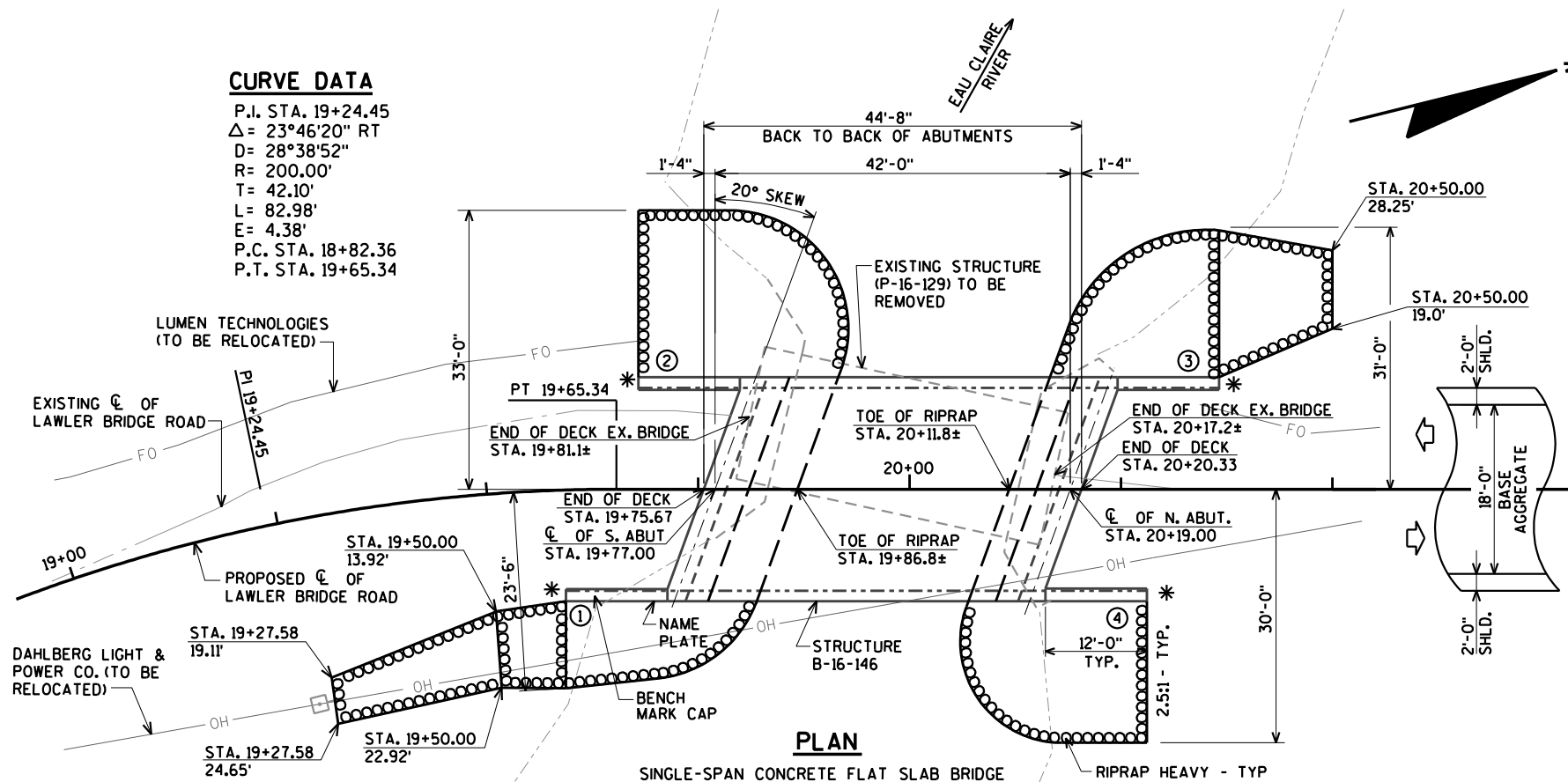
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

CURVE DATA

P.I. STA. 19+24.45
Δ = 23°46'20" RT
D = 28°38'52"
R = 200.00'
T = 42.10'
L = 82.98'
E = 4.38'
P.C. STA. 18+82.36
P.T. STA. 19+65.34

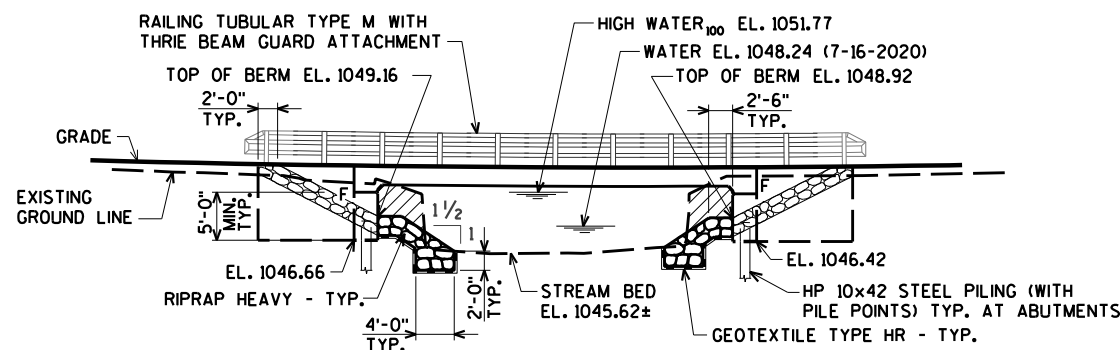


PLAN

SINGLE-SPAN CONCRETE FLAT SLAB BRIDGE

* ATTACHMENT FOR THRIE BEAM TYPE GUARDRAIL.
O DENOTES WING NUMBER.

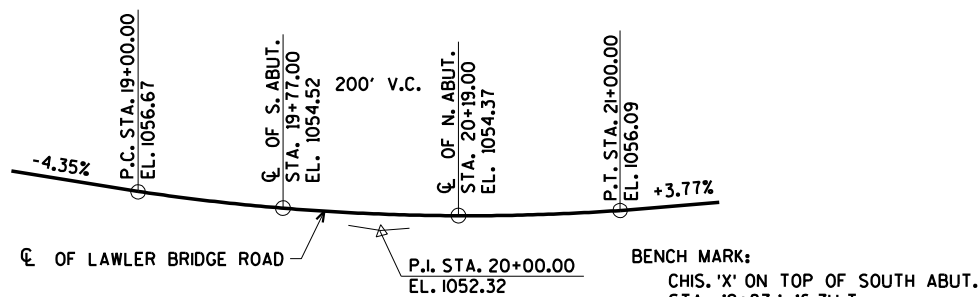
COST OF EXCAVATION OR FILL IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-16-146".



ELEVATION

(NORMAL TO CL OF EAU CLAIRE RIVER)

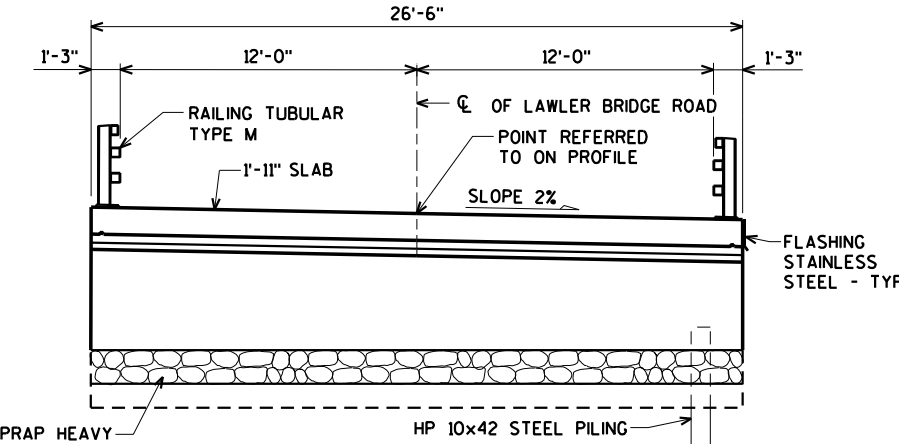
REMOVE EXISTING SUBSTRUCTURE AS NEEDED. COST CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE" ITEM. TYPICAL AT ALL SUBSTRUCTURES.



PROFILE GRADE LINE (LAWLER BRIDGE ROAD)

LIST OF DRAWINGS

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



TYPICAL SECTION THRU BRIDGE (LOOKING NORTH)

DESIGN DATA

LIVE LOAD:
DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.06
OPERATING RATING FACTOR: 1.38
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 "/S.F.

MATERIAL PROPERTIES:

CONCRETE MASONRY (SUPERSTRUCTURE) f'c = 4,000 p.s.i.
(ALL OTHER) f'c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) fy = 60,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FREQUENCY

Q100 = 1,080 c.f.s.
VEL. = 8.0 f.p.s.
HW100 = EL. 1051.77
WATERWAY AREA = 134 sq. ft.
DRAINAGE AREA = 62.4 sq. mi.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 5
DATUM = NAVD88 (2012)

2 YEAR FREQUENCY

Q2 = 300 c.f.s.
VEL. = 4.5 f.p.s.
HW2 = EL. 1049.03

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS ± PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 30'-0".

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

TRAFFIC DATA:

A.A.D.T. = <100 (2022)
A.A.D.T. = <100 (2042)
R.D.S. = 20 M.P.H.



BRIDGE OFFICE CONTACT:
AARON BONK
(608)-261-0261

CONSULTANT CONTACT:
DAN SYDOW
(715)-834-3161

Table with columns for NO., DATE, REVISION, and BY. Includes project details: ORIGINAL PLANS PREPARED BY AVRES, 3433 Oakwood Hills Parkway, Eau Claire, WI 54701. DATE: 08/24/21. STRUCTURE B-16-146. LAWLER BRIDGE ROAD OVER EAU CLAIRE RIVER. COUNTY: DOUGLAS. TOWN/CITY/VILLAGE: WASCOTT. SHEET 1 OF 12.

8/23/2021
PENTABLE:BRou...shd_util.tbl

DATE:
DATE:
CHECKED BY:
BACK CHECKED BY:
CORRECTED BY:

8

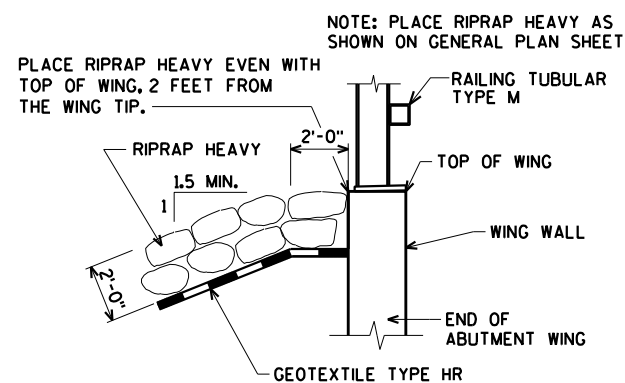
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TOTAL ESTIMATED QUANTITIES

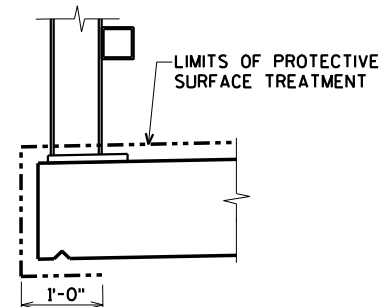
BID ITEM NUMBER	BID ITEMS	UNIT	S. ABUT.	N. ABUT.	SUPER.	TOTAL
203.0250	REMOVING STRUCTURE OVER WATERWAY REMOVE DEBRIS P-16-129	EACH	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-16-146	LS	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	120	120	-----	240
502.0100	CONCRETE MASONRY BRIDGES	CY	32	33	88	153
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	160	160
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1,760	1,730	-----	3,490
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,690	1,690	15,090	18,470
513.4061	RAILING TUBULAR TYPE M	LF	26.5	26.5	89.3	142.3
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9	9	-----	18
550.0500	PILE POINTS	EACH	5	5	-----	10
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	150	150	-----	300
606.0300	RIPRAP HEAVY	CY	95	85	-----	180
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	75	75	-----	150
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	45	45	-----	90
645.0120	GEOTEXTILE TYPE HR	SY	195	170	-----	365
SPV.0090.01	FLASHING STAINLESS STEEL	LF	-----	-----	89.3	89.3
NON-BID ITEMS						
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

GENERAL NOTES

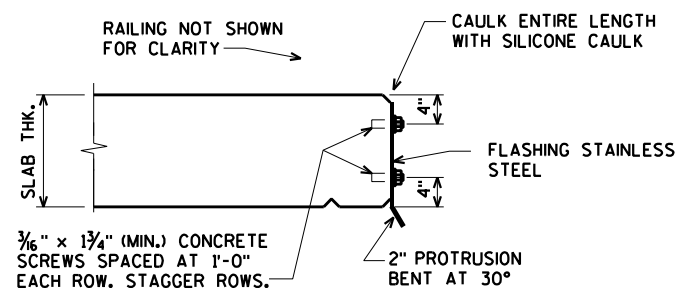
DRAWINGS SHALL NOT BE SCALED.
 BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.
 THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE. JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.
 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 FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.
 THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-16-146" SHALL BE THE EXISTING GROUNDLINE.
 THE EXISTING STRUCTURE, P-16-129, TO BE REMOVED, IS A 36.7-FT. LONG SINGLE-SPAN STEEL DECK GIRDER BRIDGE ON CONCRETE FULL-RETAINING ABUTMENTS WITH A 15-FT. CLEAR ROADWAY WIDTH.
 THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENTS WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.
 PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.
 BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS NOTED OTHERWISE.
 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 ABUTMENT.
 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 UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.



TYPICAL FILL SECTION AT WING TIPS



PROTECTIVE SURFACE TREATMENT DETAIL



FLASHING DETAIL FOR NEW BRIDGES WITH OPEN RAILING

THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK, 3/16" CONCRETE SCREWS AND CLEANING THE EDGE OF THE SLAB PRIOR TO ATTACHMENT OF THE FLASHING.

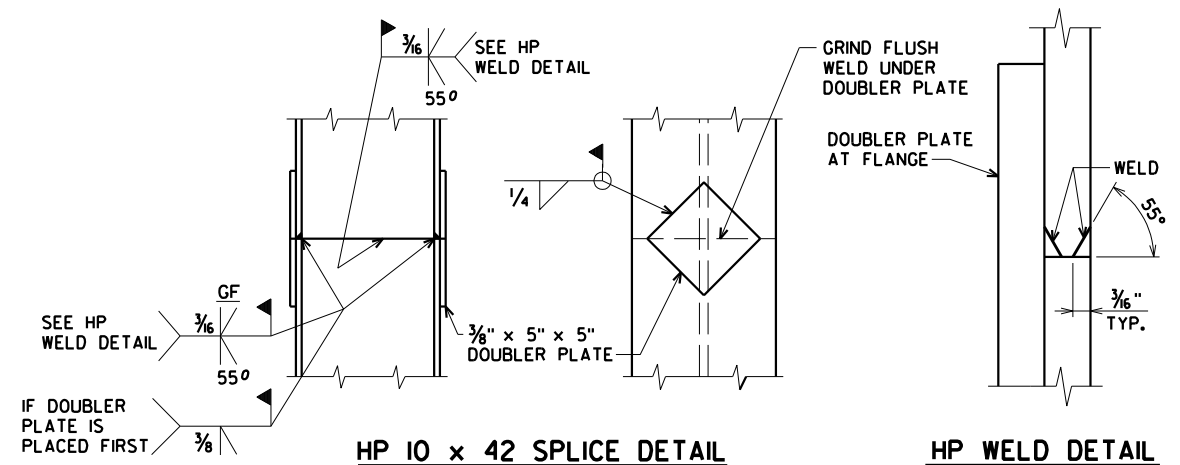
FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.

CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.

EXTEND FLASHING TO BACK FACE OF ABUTMENT.

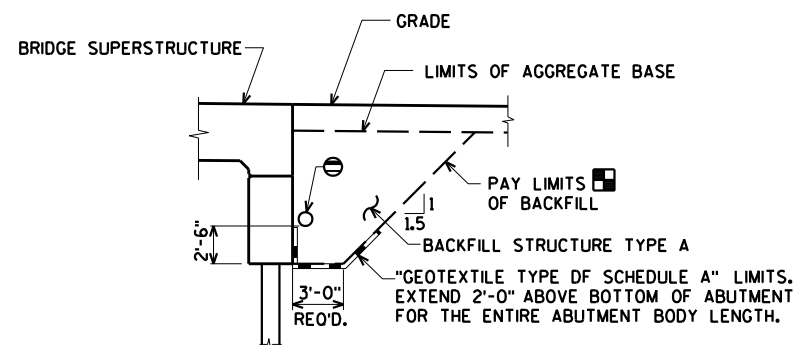
TOP OF FLASHING TO BEGIN APPROX. 1-INCH BELOW TOP OF SLAB SURFACE.

THE FLASHING IS TO BE A CONSTANT HEIGHT BASED ON THE THINNEST SLAB DEPTH OVER THE BRIDGE LENGTH.



HP 10 x 42 SPLICE DETAIL

HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR



BACKFILL STRUCTURE LIMITS THRU ABUTMENT

BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL 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 AS DETAILED ON SHEET 6.

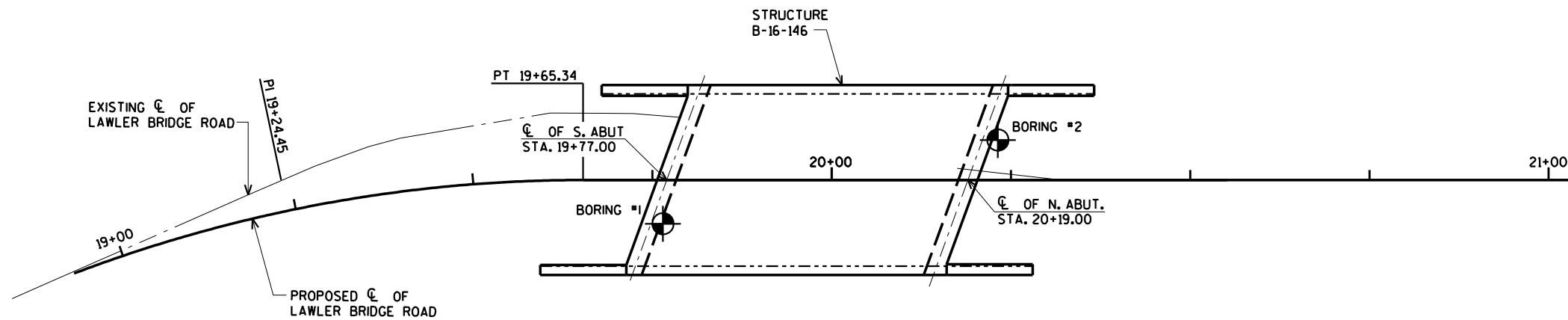
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-146			
DRAWN BY		CLP	PLANS CK'D. ZSS
QUANTITIES AND NOTES			SHEET 2 OF 12

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

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	NOVEMBER 4, 2020	124248.52	239379.35
2	NOVEMBER 4, 2020	124295.57	239389.51

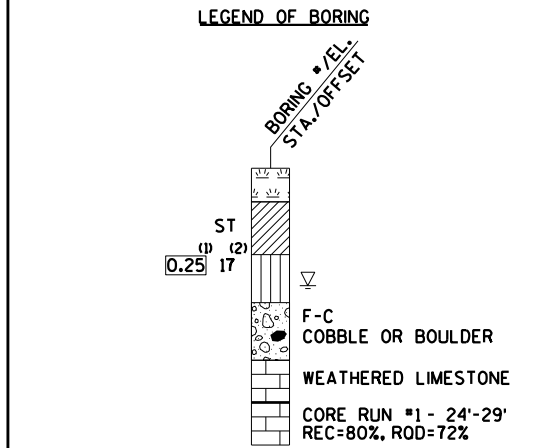
BORINGS COMPLETED BY: GEOTECHNICAL DRILLING CONTRACTORS, LLC
 REPORT COMPLETED BY: ECS MIDWEST, LLC
 ALL COORDINATES REFERENCED TO WCCS NAD 83(9) DOUGLAS COUNTY

EAU CLAIRE RIVER



MATERIAL SYMBOLS

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



⁽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

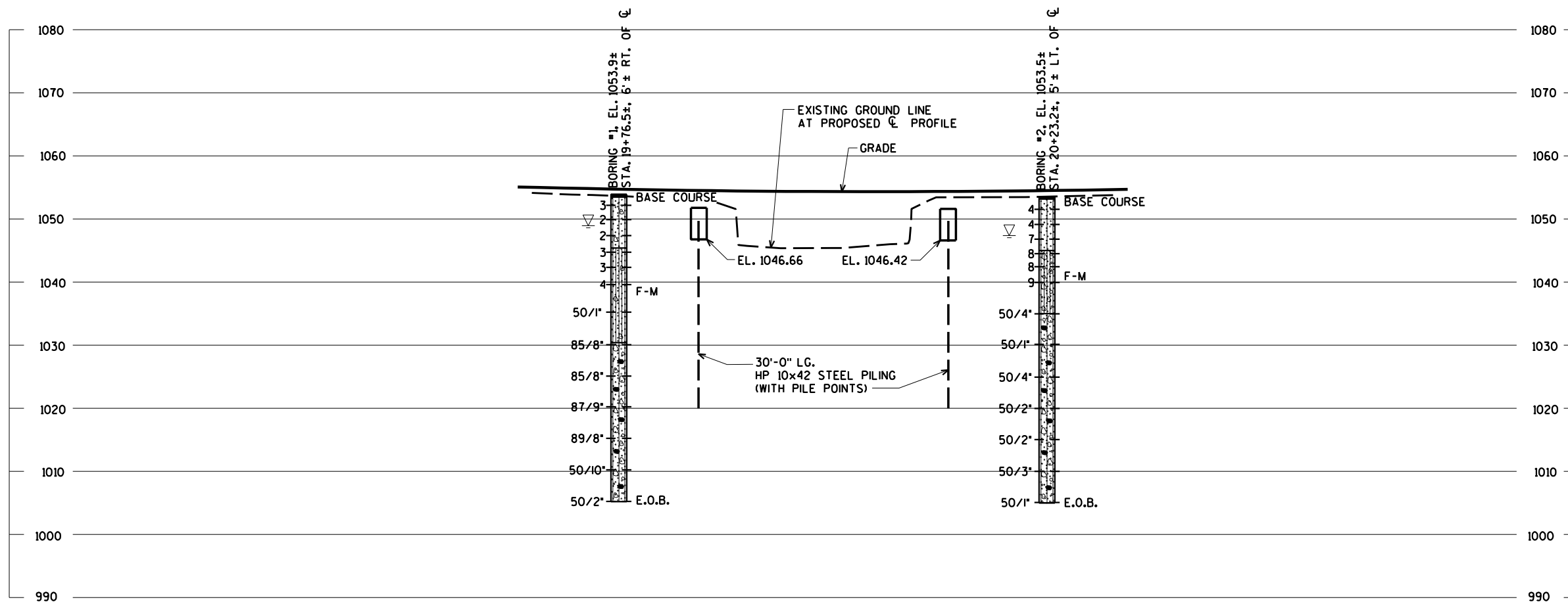
- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

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.



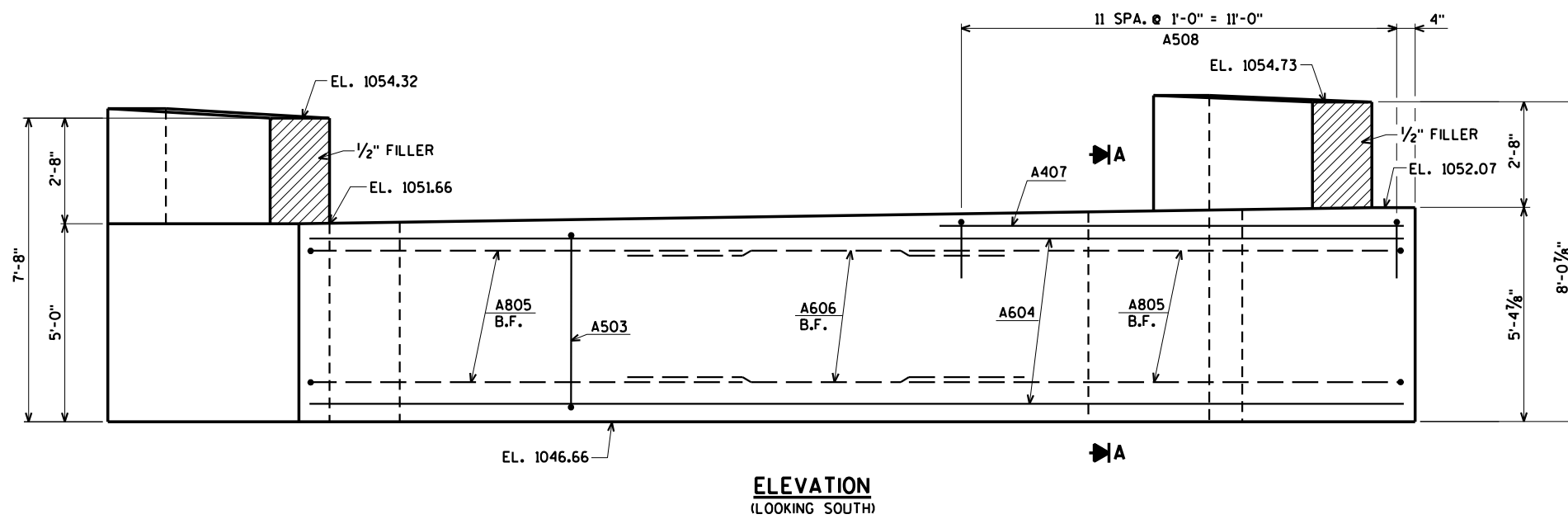
5/4/2021 PENTABLE:BRedu_shd_util.tb1

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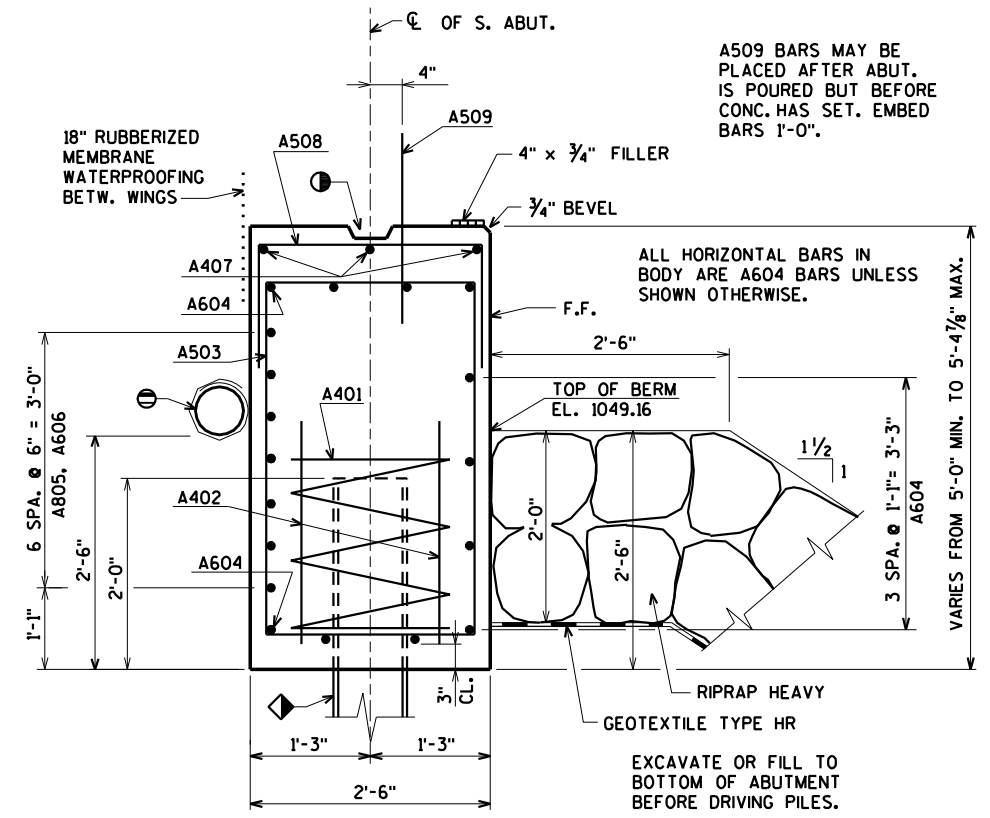
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-146			
DRAWN BY		CLP	PLANS CKD. ZSS
SUBSURFACE EXPLORATION			SHEET 3 OF 12

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

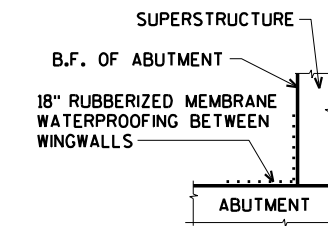


ELEVATION
(LOOKING SOUTH)



SECTION A

◆ ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE. ESTIMATED LENGTH 30'-0".



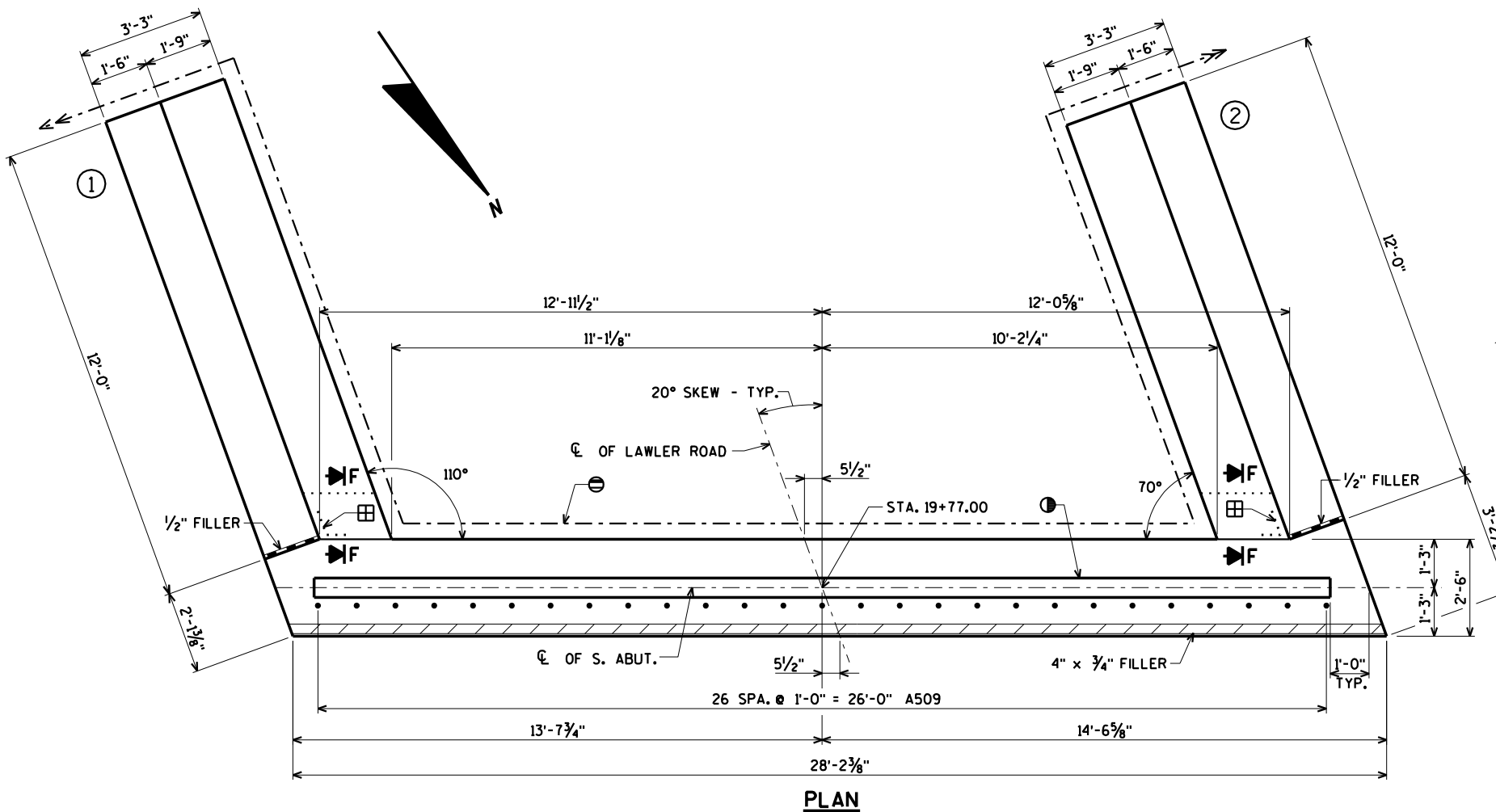
SECTION F

⊙ PIPE UNDERDRAIN WRAPPED 6-INCH, SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

⊙ KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

⊠ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WINGWALL.

FOR PILE SPLICE DETAIL SEE SHEET 2.



PLAN

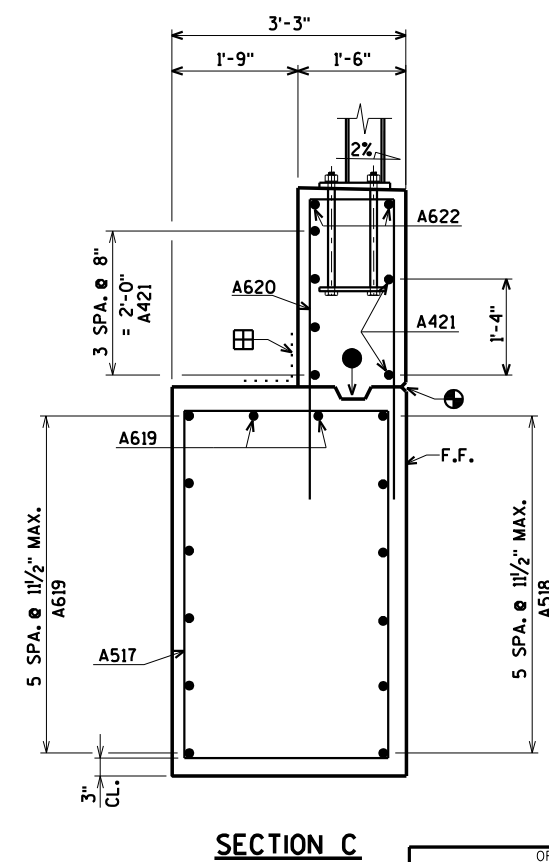
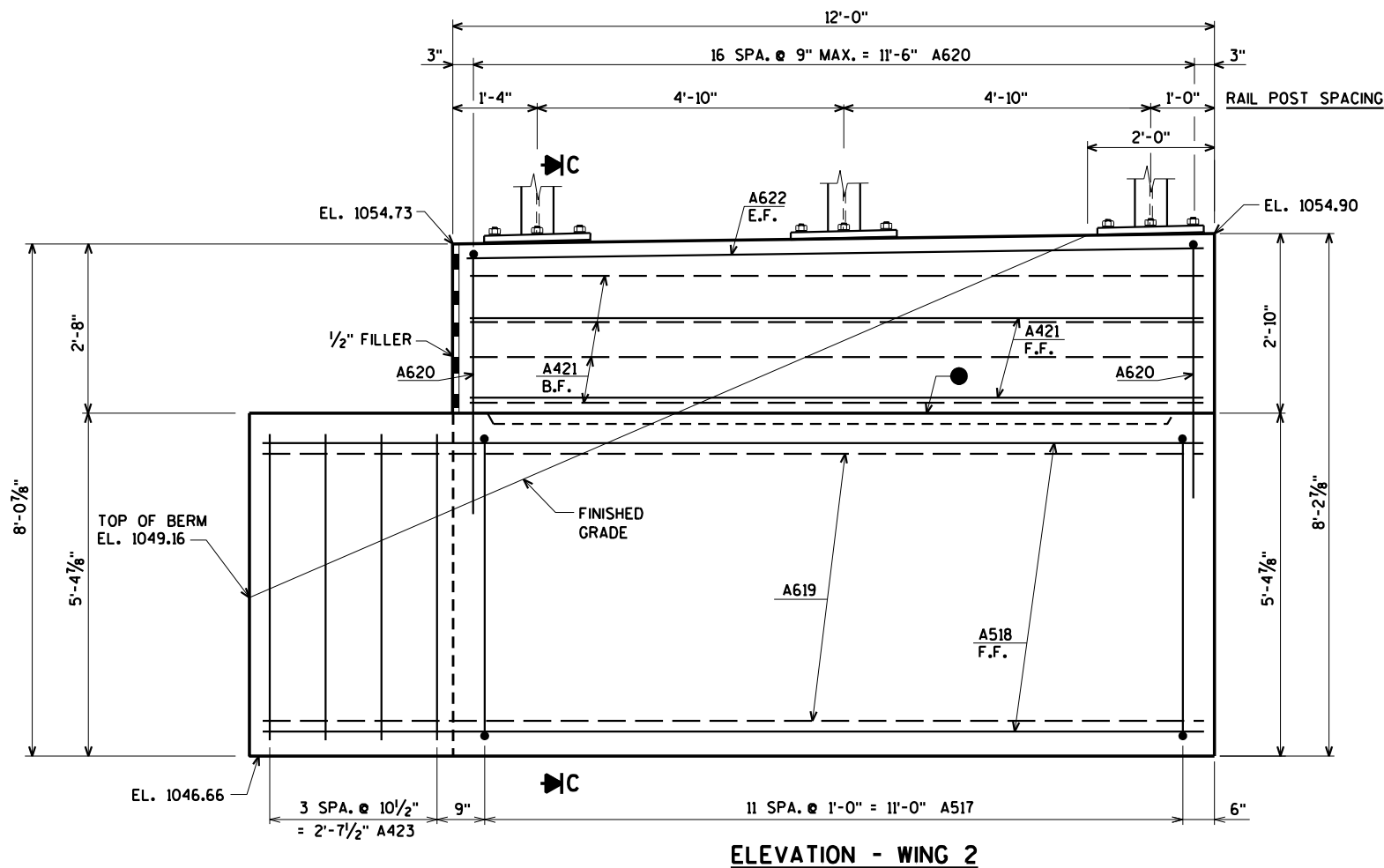
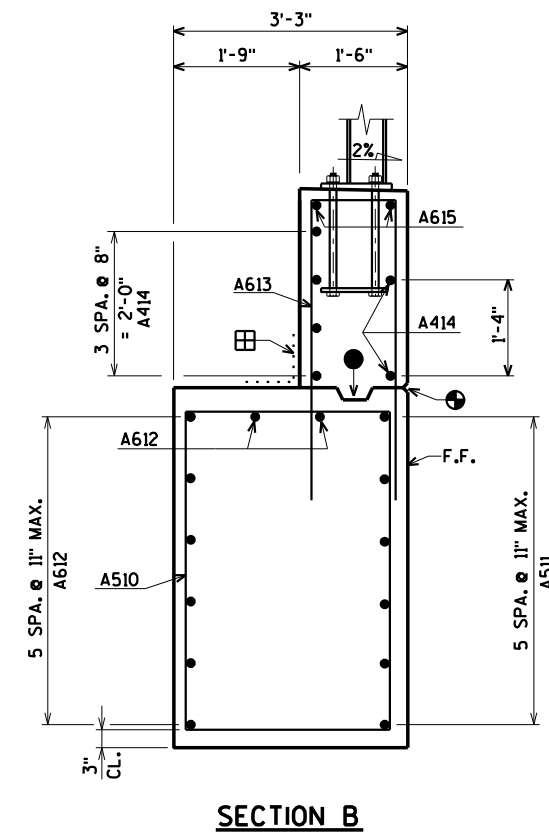
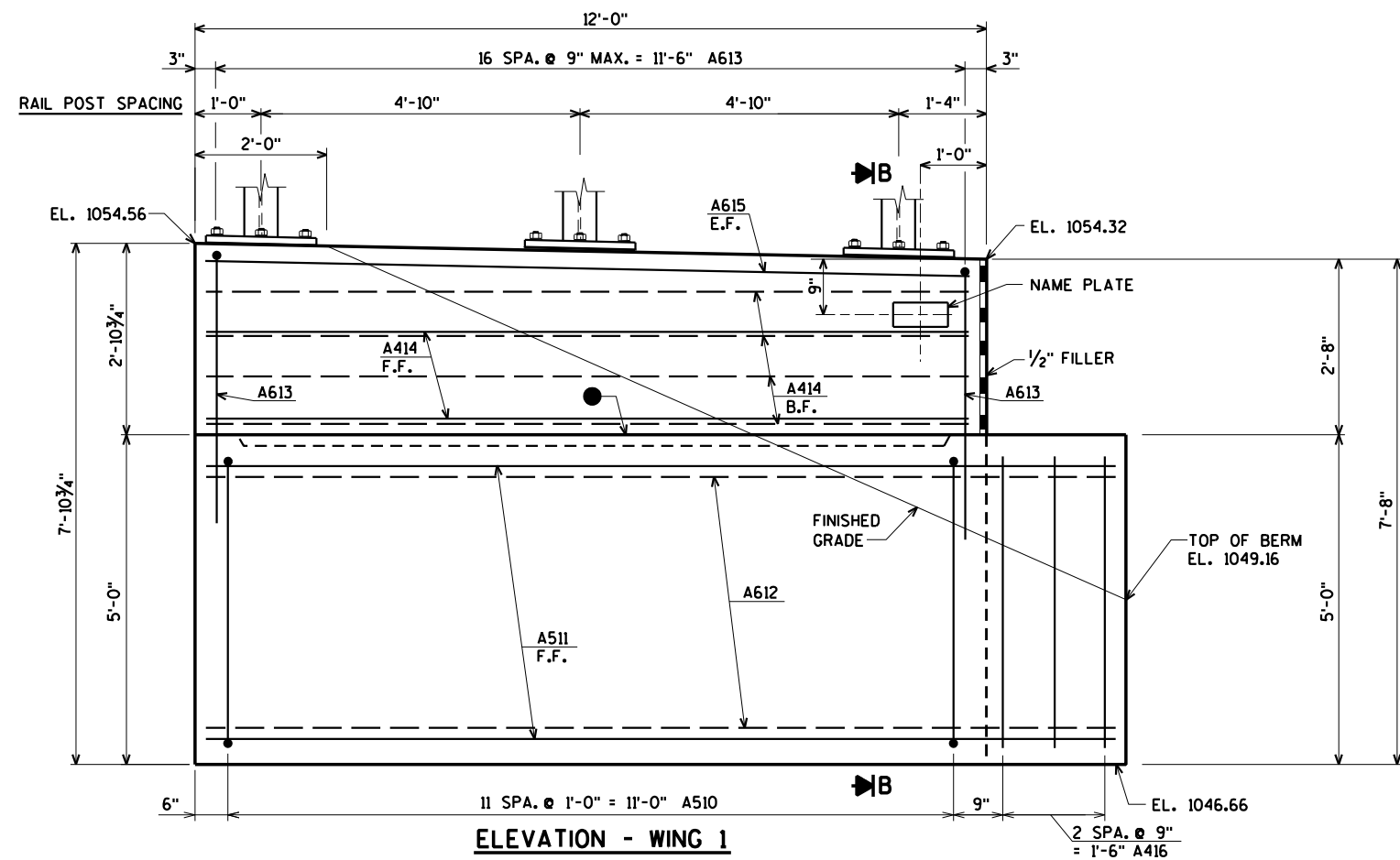
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-146			
DRAWN BY		CLP	PLANS CK'D. ZSS
SOUTH ABUTMENT			SHEET 4 OF 12

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- ⊕ 3/4" "V" GROOVE ON FRONT FACE OF WINGWALL. ONLY REQUIRED IF OPTIONAL CONSTRUCTION JOINT IS USED.
- OPT. CONST. JOINT FORMED BY A BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.
- ⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HOIRZONTAL AND VERTICAL JOINTS ON BACKFACE.

5/4/2021 PENTABLE:BRRedu_shd_util.tbl

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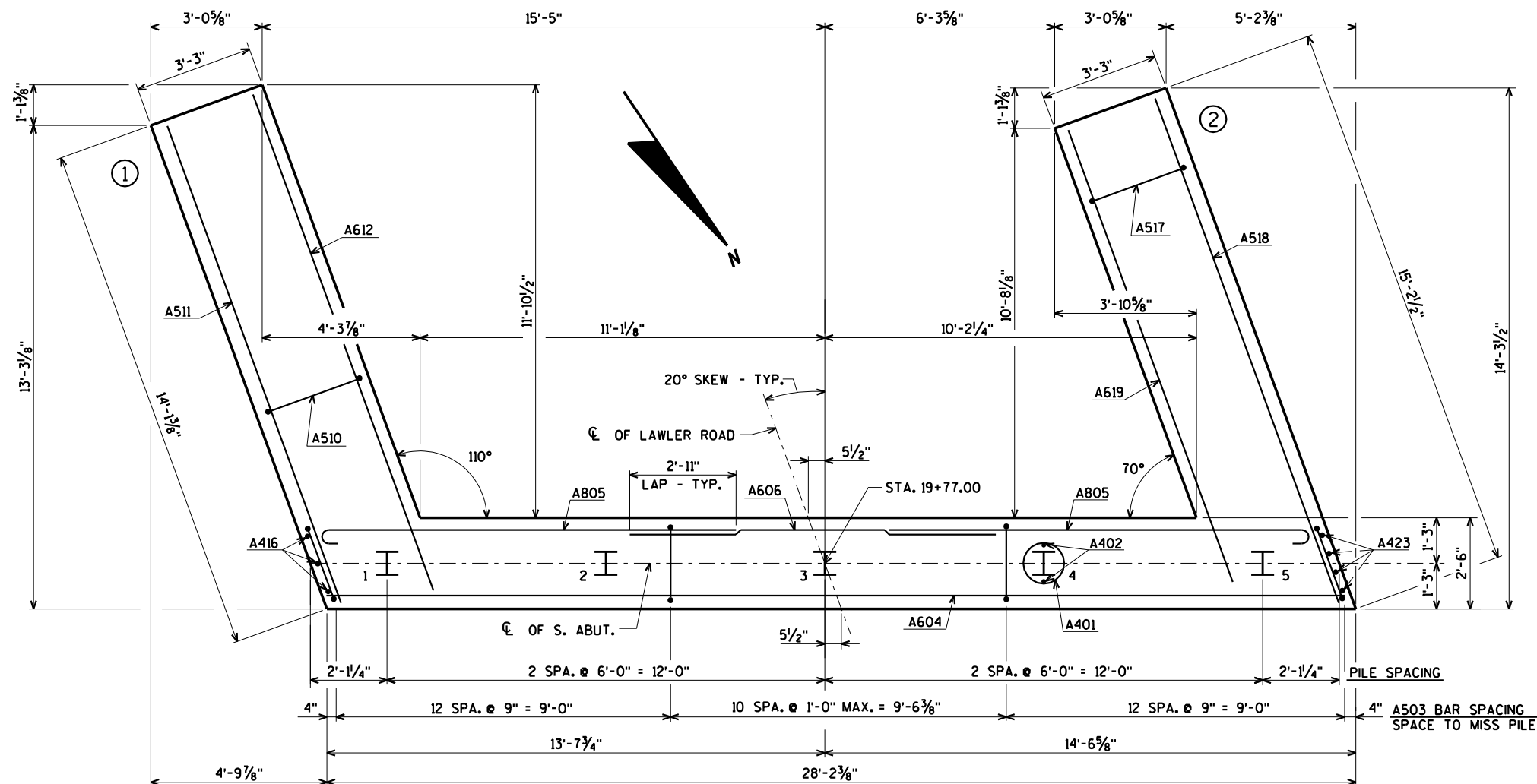
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-146			
DRAWN BY CLP		PLANS CK'D. ZSS	
SOUTH ABUTMENT WING DETAILS			SHEET 5 OF 12

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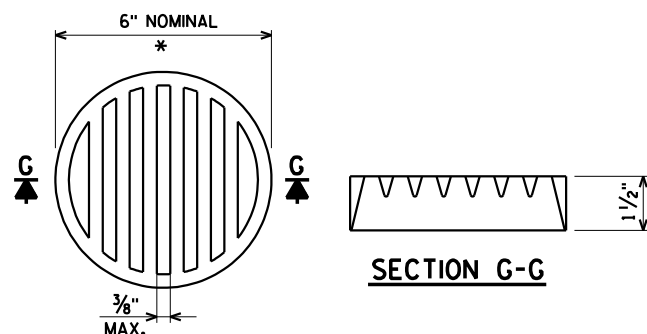
BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	1,690* COATED	1,760* UNCOATED
LOCATION								
A401		5	28-0	X			BODY @ PILES	
A402		10	2-3				BODY @ PILES	
A503		35	14-2	X			BODY VERT.	
A604		11	27-9				BODY HORIZ.	
A805		14	12-11	X			BODY HORIZ. @ WING B.F.	
A606		7	10-0				BODY HORIZ. BETW. WINGS B.F.	
A407		3	11-8				BODY HORIZ. TOP	
A508		12	4-11	X			BODY VERT. TOP	
A509	X	27	2-0				BODY DOWELS	
A510	X	12	15-8	X			WING 1 VERT.	
A511	X	6	13-9				WING 1 HORIZ. F.F.	
A612	X	8	14-5				WING 1 HORIZ. B.F. & TOP	
A613	X	17	10-6	X			WING 1 VERT.	
A414	X	6	11-8				WING 1 HORIZ. E.F.	
A615	X	2	11-8				WING 1 HORIZ. E.F.	
A416	X	3	4-7				BODY VERT. END @ WING 1	
A517	X	12	16-4	X			WING 2 VERT.	
A518	X	6	14-9				WING 2 HORIZ. F.F.	
A619	X	8	13-2				WING 2 HORIZ. B.F. & TOP	
A620	X	17	10-6	X			WING 2 VERT.	
A421	X	6	11-8				WING 2 HORIZ. E.F.	
A622	X	2	11-8				WING 2 HORIZ. E.F.	
A423	X	4	4-11				BODY VERT. END @ WING 2	

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



PILE LAYOUT

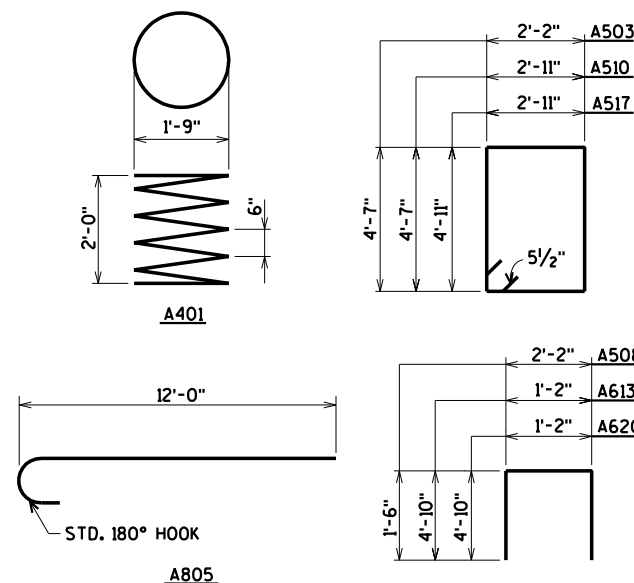


* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

RODENT SHIELD DETAIL

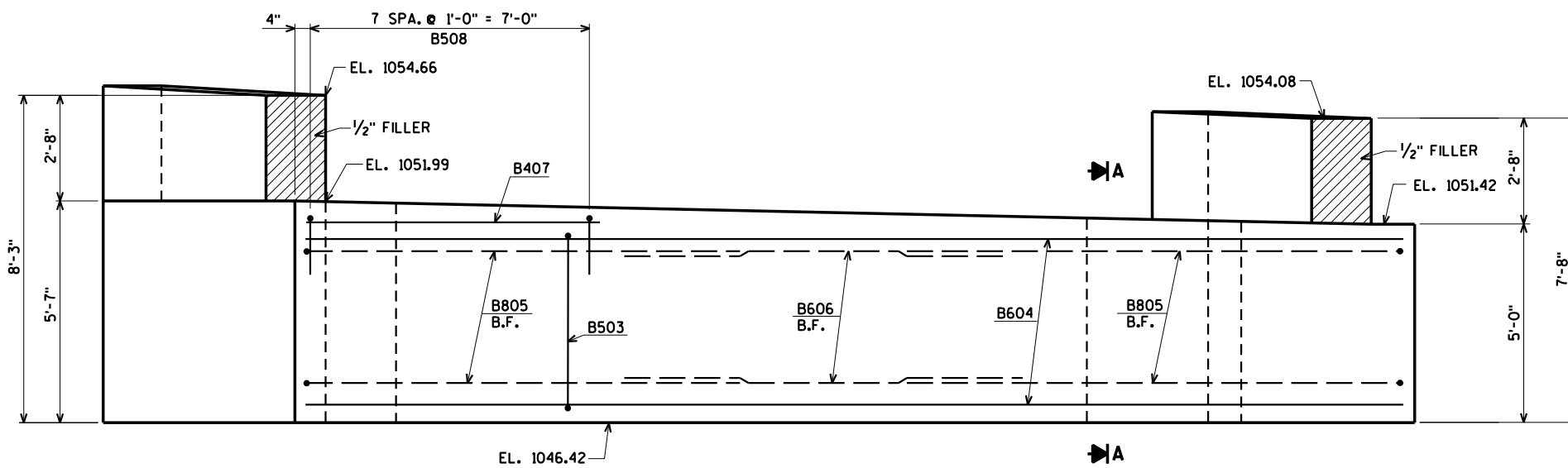


FOR PILE SPLICE DETAIL SEE SHEET 2.

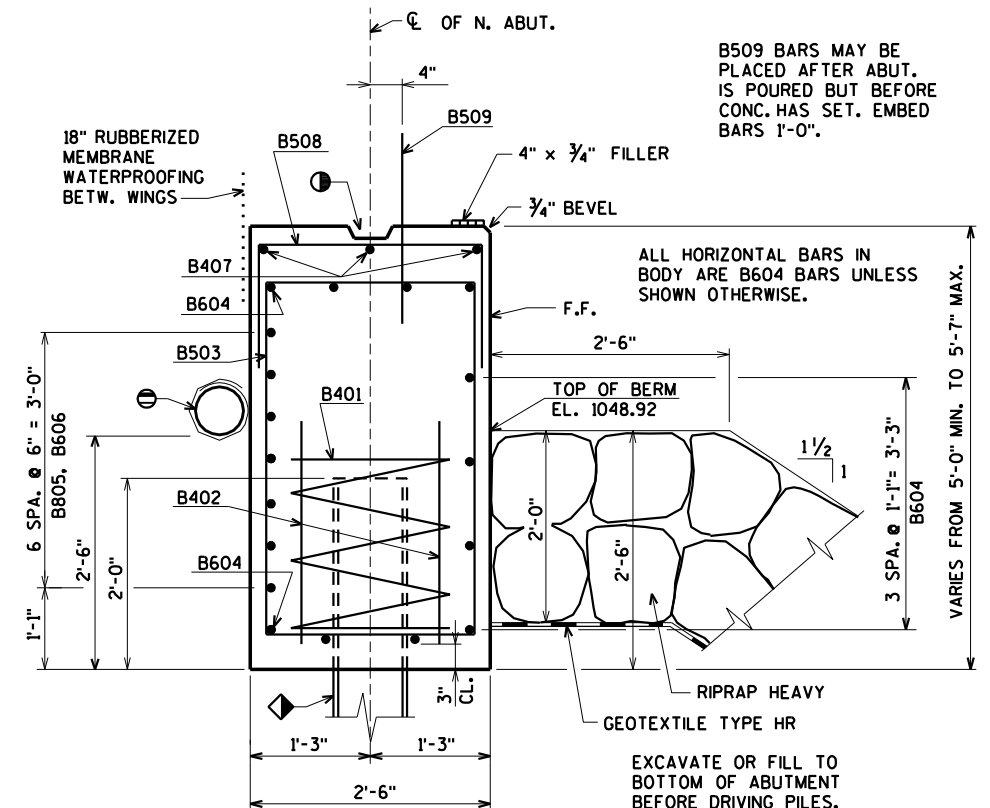
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-146			
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SOUTH ABUTMENT PILE LAYOUT & BILL OF BARS			SHEET 6 OF 12

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

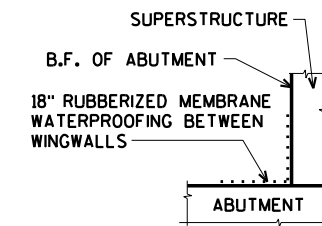


ELEVATION
(LOOKING NORTH)



SECTION A

◆ ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE. ESTIMATED LENGTH 30'-0".



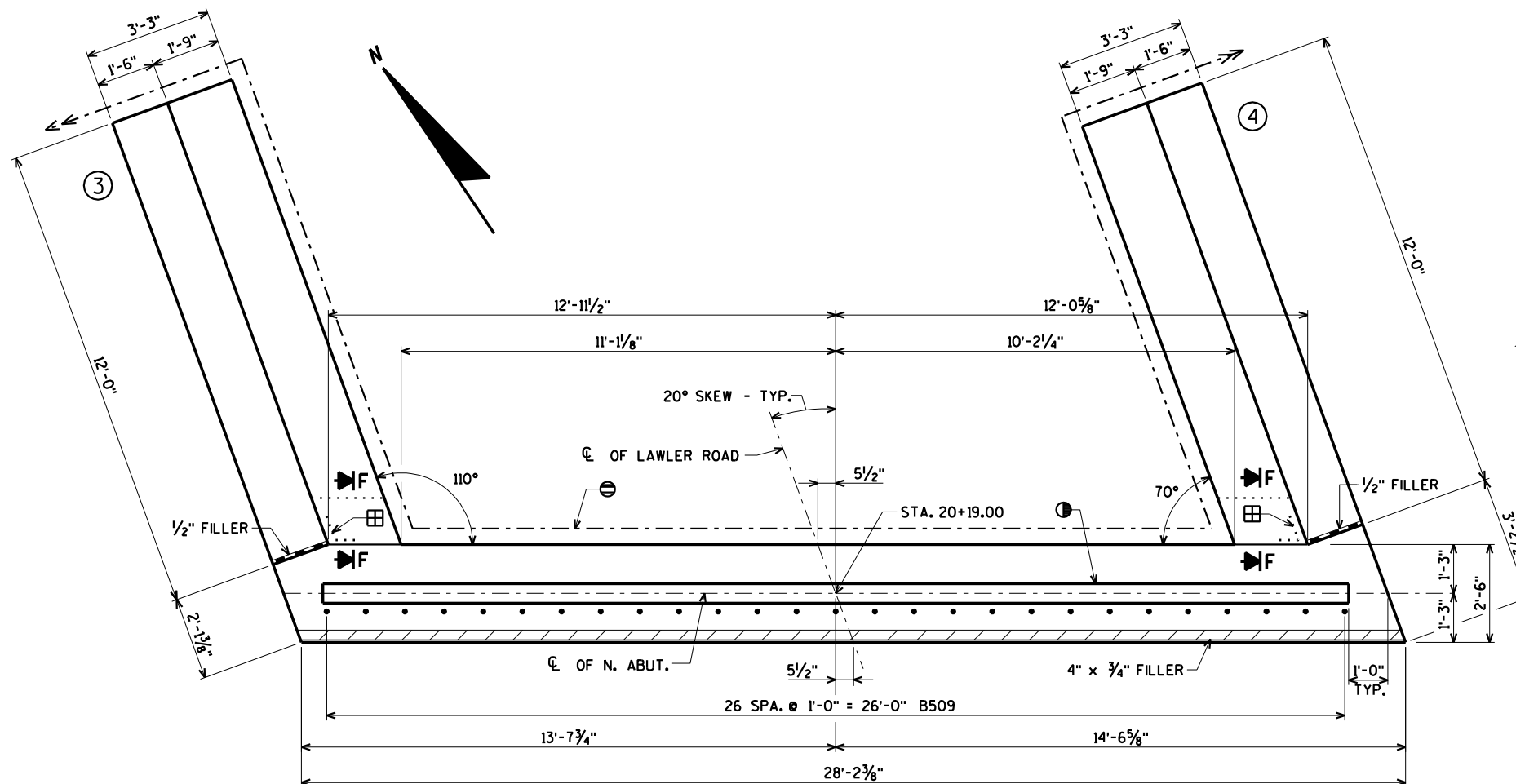
SECTION F

⊙ PIPE UNDERDRAIN WRAPPED 6-INCH, SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

⊙ KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

⊕ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WINGWALL.

FOR PILE SPLICE DETAIL SEE SHEET 2.



PLAN

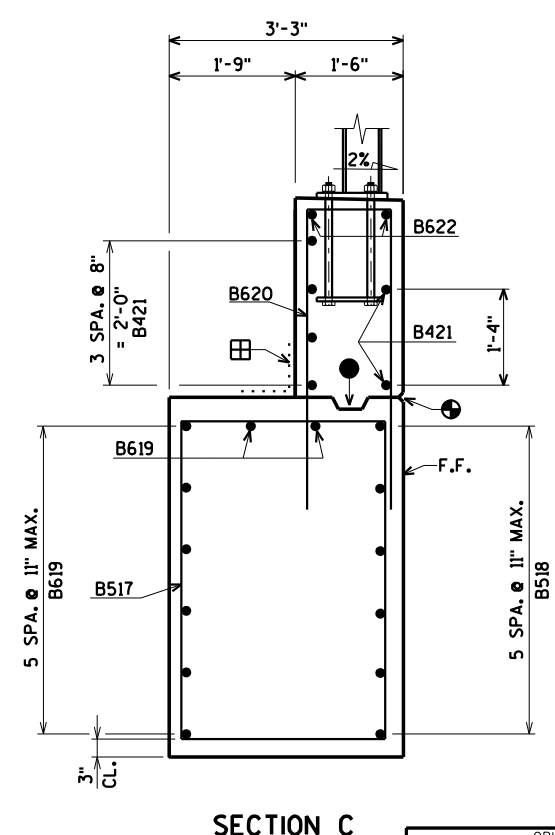
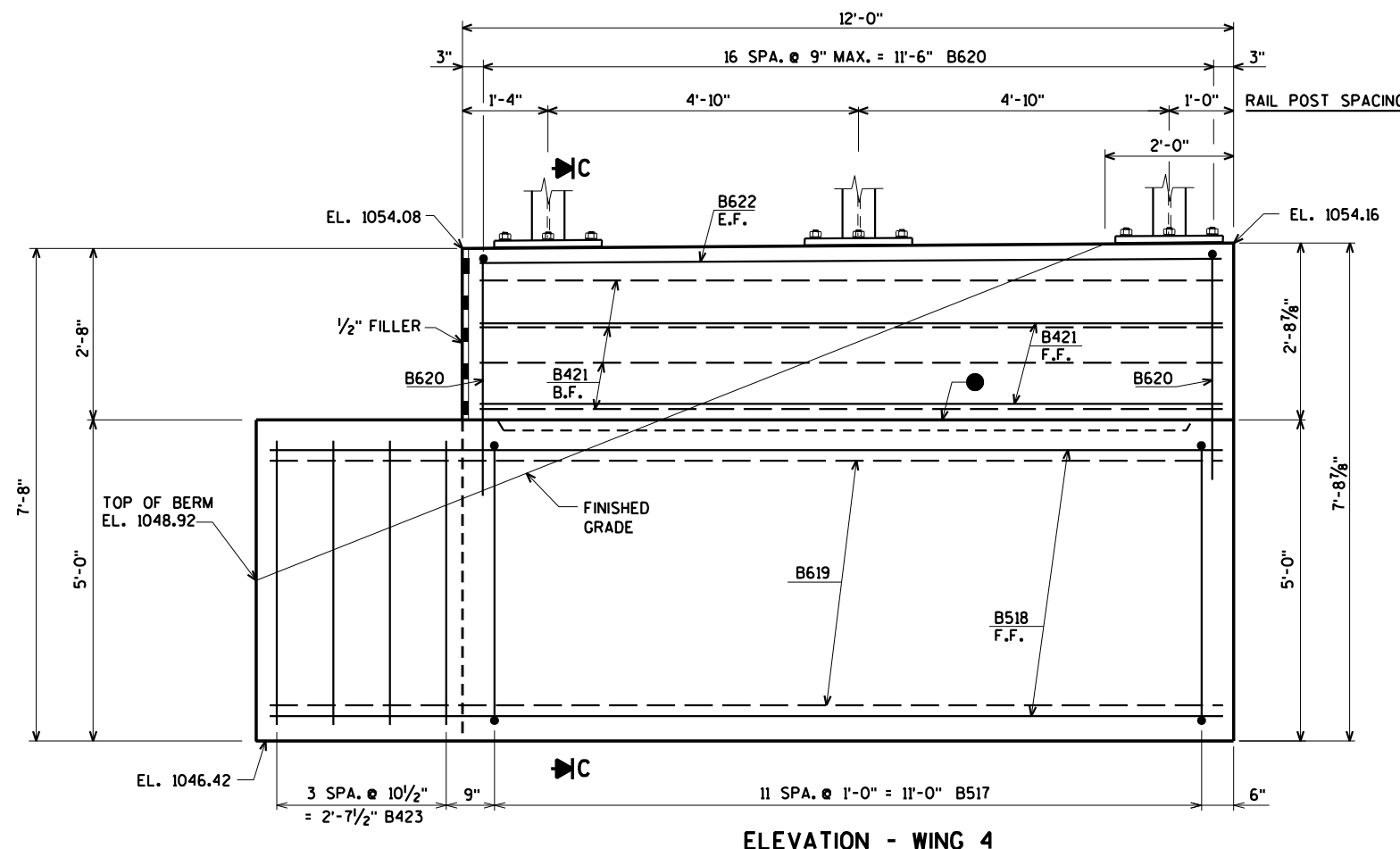
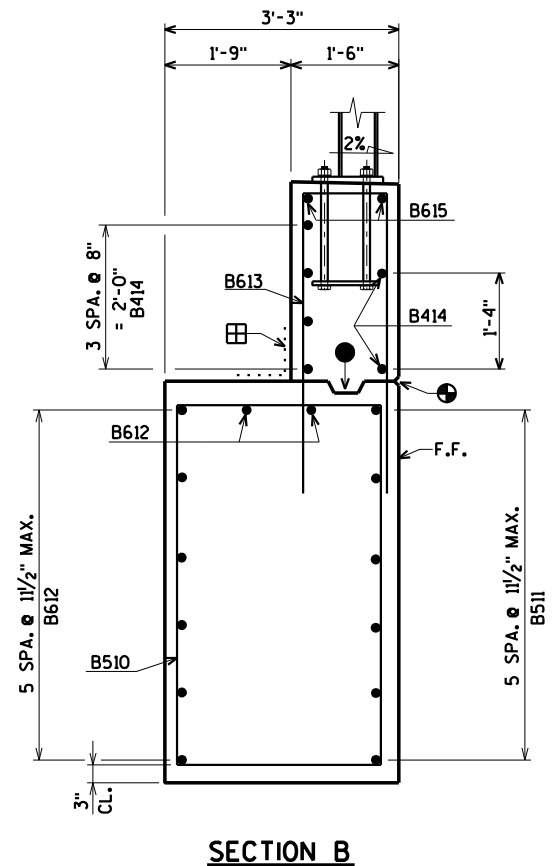
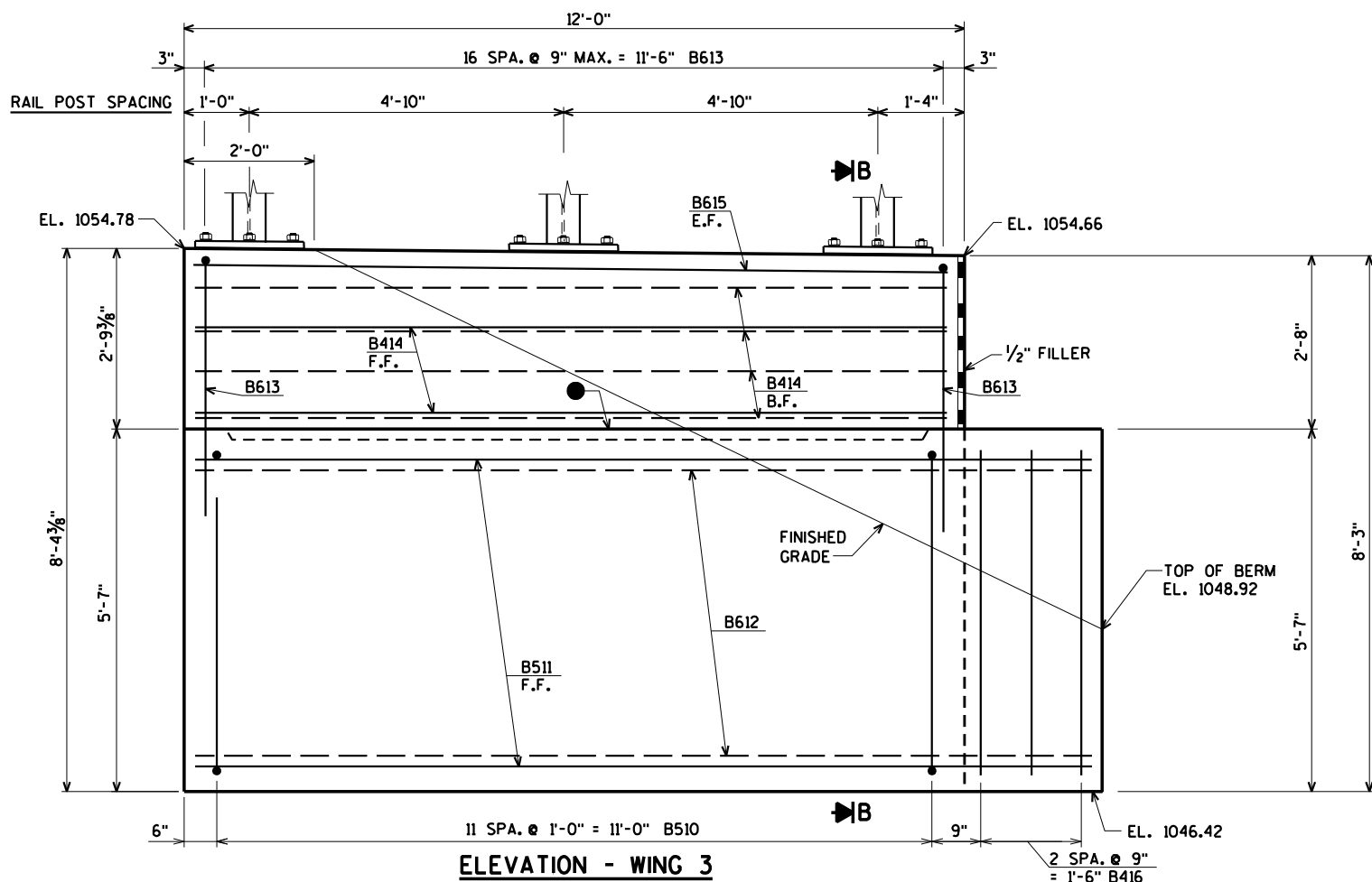
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NORTH ABUTMENT			SHEET 7 OF 12



- ⊕ 3/4" "V" GROOVE ON FRONT FACE OF WINGWALL. ONLY REQUIRED IF OPTIONAL CONSTRUCTION JOINT IS USED.
- OPT. CONST. JOINT FORMED BY A BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.
- ⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HOIRZONTAL AND VERTICAL JOINTS ON BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-146			
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NORTH ABUTMENT WING DETAILS			SHEET 8 OF 12

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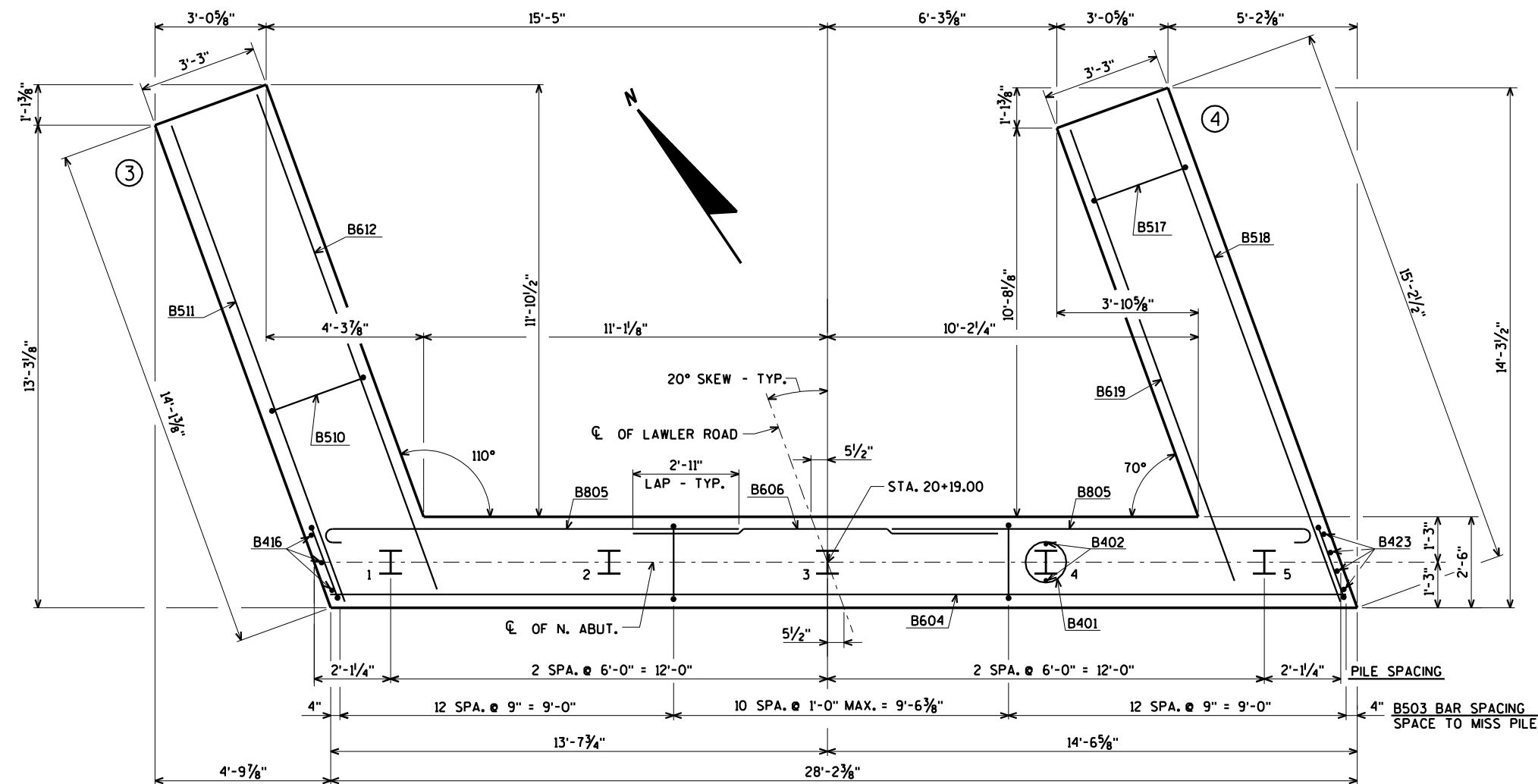
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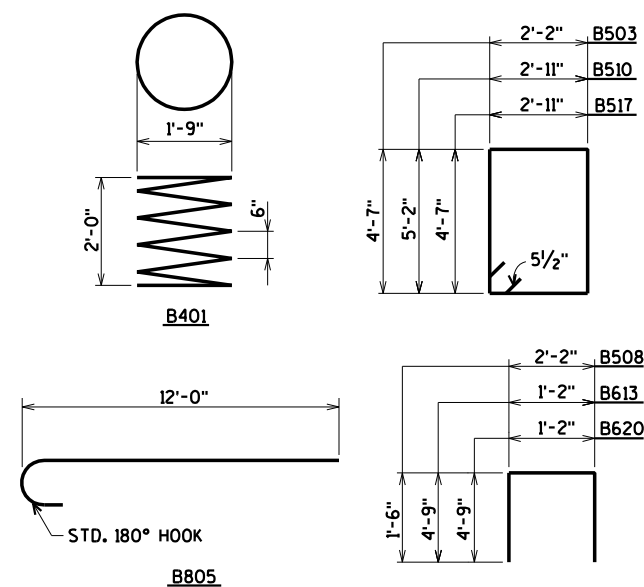
BILL OF BARS

BAR NO.	COATED BAR	NO. REOD.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	1,690* COATED	1,730* UNCOATED
LOCATION								
B401		5	28-0	X			BODY @ PILES	
B402		10	2-3				BODY @ PILES	
B503		35	14-2	X			BODY VERT.	
B604		11	27-9				BODY HORIZ.	
B805		14	12-11	X			BODY HORIZ. @ WING B.F.	
B606		7	10-0				BODY HORIZ. BETW. WINGS B.F.	
B407		3	7-7				BODY HORIZ. TOP	
B508		8	4-11	X			BODY VERT. TOP	
B509	X	27	2-0				BODY DOWELS	
B510	X	12	16-9	X			WING 3 VERT.	
B511	X	6	13-9				WING 3 HORIZ. F.F.	
B612	X	8	14-5				WING 3 HORIZ. B.F. & TOP	
B613	X	17	10-4	X			WING 3 VERT.	
B414	X	6	11-8				WING 3 HORIZ. E.F.	
B615	X	2	11-8				WING 3 HORIZ. E.F.	
B416	X	3	5-2				BODY VERT. END @ WING 3	
B517	X	12	15-8	X			WING 4 VERT.	
B518	X	6	14-9				WING 4 HORIZ. F.F.	
B619	X	8	13-2				WING 4 HORIZ. B.F. & TOP	
B620	X	17	10-4	X			WING 4 VERT.	
B421	X	6	11-8				WING 4 HORIZ. E.F.	
B622	X	2	11-8				WING 4 HORIZ. E.F.	
B423	X	4	4-7				BODY VERT. END @ WING 4	

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



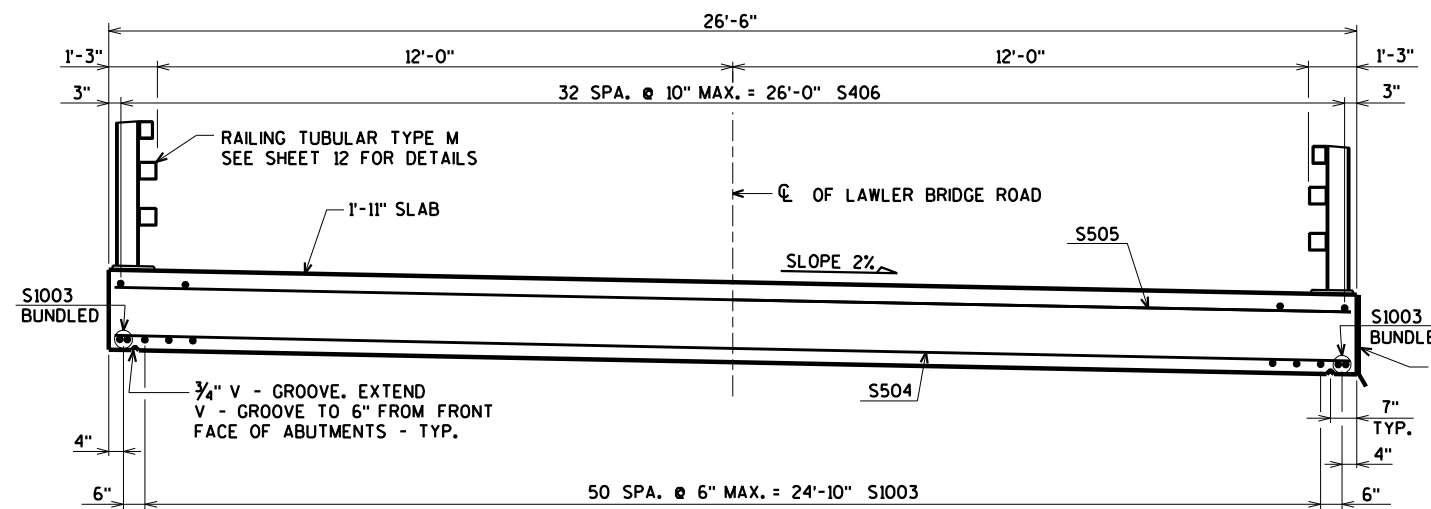
PILE LAYOUT



FOR PILE SPLICE DETAIL SEE SHEET 2.

NO.	DATE	REVISION	BY
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STRUCTURE B-16-146			
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NORTH ABUTMENT PILE LAYOUT & BILL OF BARS			SHEET 9 OF 12

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TYPICAL SECTION THRU BRIDGE
(LOOKING NORTH)

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 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 TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

BILL OF BARS

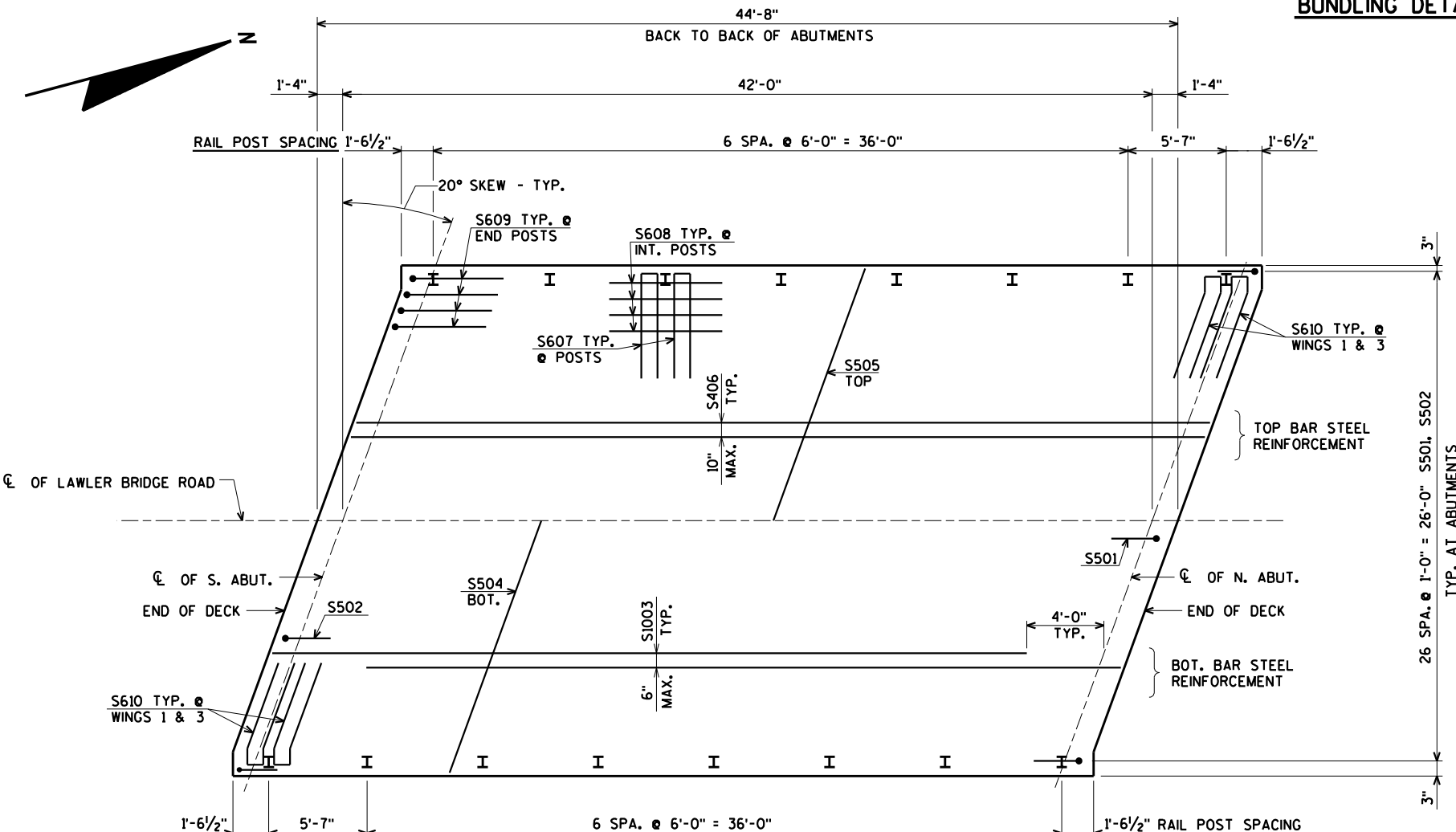
BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	15,090* COATED	
							LOCATION	
S501	X	54	6-3	X			SLAB @ ABUT.	
S502	X	54	3-8	X			SLAB @ ABUT.	
S1003	X	55	39-2	X			SLAB LONG. BOT.	
S504	X	63	27-10				SLAB TRANS. BOT.	
S505	X	45	27-10				SLAB TRANS. TOP	
S406	X	33	44-3				SLAB LONG. TOP	
S607	X	28	12-0	X			SLAB @ RAIL POSTS	
S608	X	48	6-0				SLAB @ INT. RAIL POSTS	
S609	X	16	6-0	X			SLAB @ END RAIL POSTS	
S610	X	4	12-0	X			SLAB @ END RAIL POSTS	

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

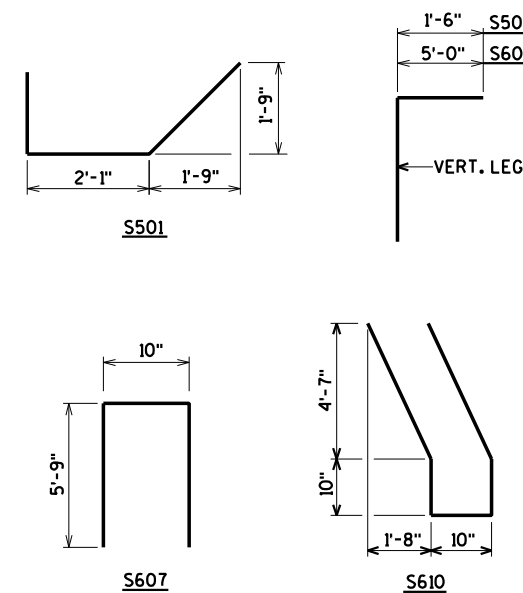
WIRE BARS TOGETHER
@ 2'-0" CENTERS



BUNDLING DETAIL



PLAN



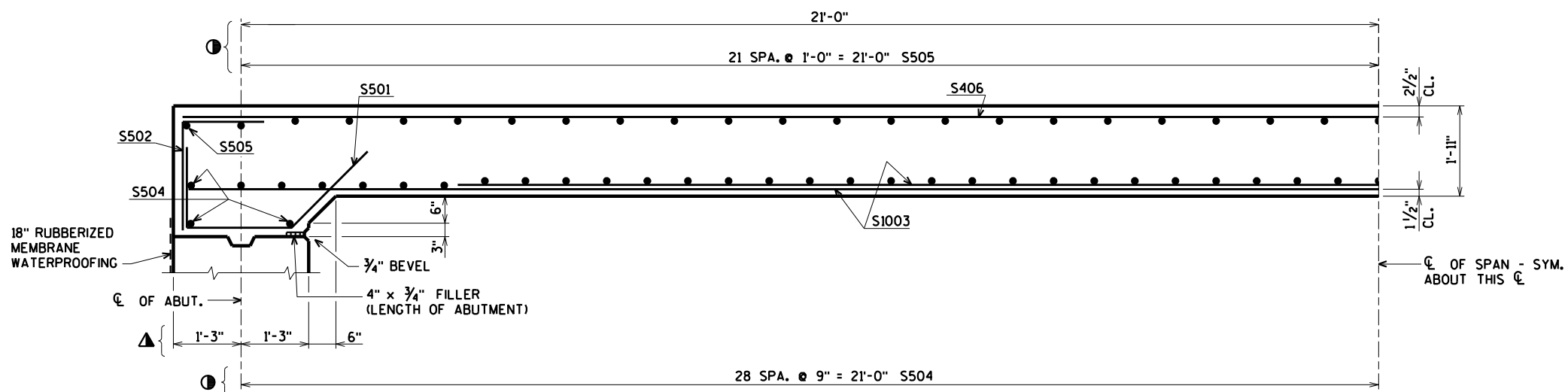
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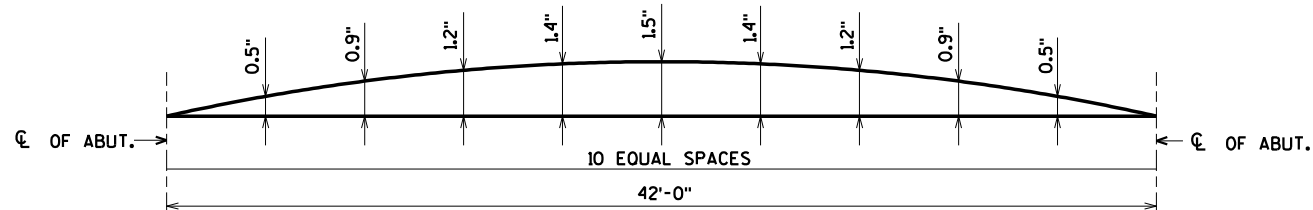
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SUPERSTRUCTURE			SHEET 10 OF 12

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PART LONGITUDINAL SECTION

- ▲ DIMENSIONS MEASURED NORMAL TO CL OF SUBSTRUCTURE.
- DIMENSIONS MEASURED ALONG CL OF LAWLER BRIDGE ROAD.



CAMBER DIAGRAM

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

SURVEY TOP OF SLAB ELEVATIONS

LOCATION	CL OF S. ABUT.	5/10 PTS.	CL OF N. ABUT.
W. EDGE OF SLAB			
CL OF STRUCTURE			
E. EDGE OF SLAB			

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

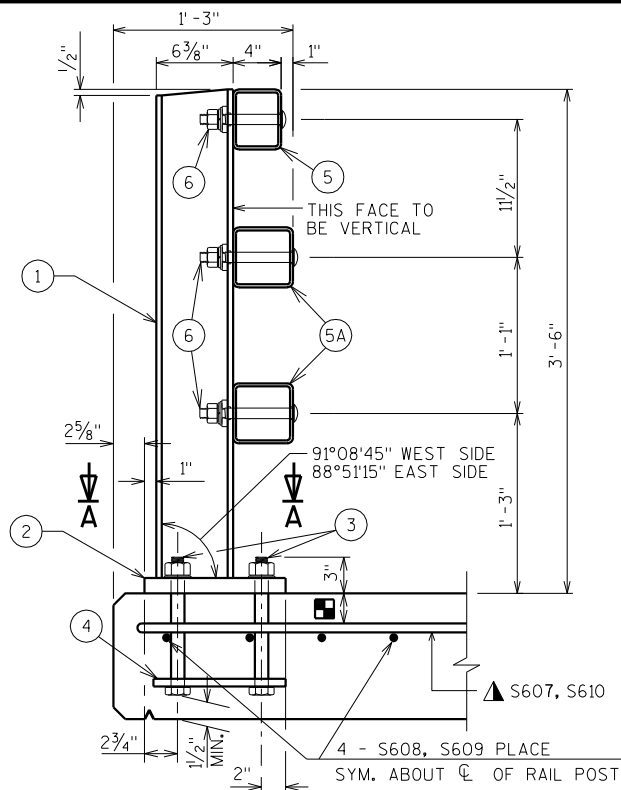
TOP OF DECK ELEVATIONS

LOCATION	CL OF S. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL OF N. ABUT.
W. EDGE OF SLAB	1054.73	1054.70	1054.66	1054.64	1054.62	1054.61	1054.60	1054.61	1054.62	1054.64	1054.66
CL OF STRUCTURE	1054.52	1054.48	1054.44	1054.40	1054.38	1054.36	1054.34	1054.34	1054.34	1054.35	1054.37
E. EDGE OF SLAB	1054.32	1054.27	1054.22	1054.18	1054.14	1054.11	1054.09	1054.08	1054.08	1054.08	1054.08

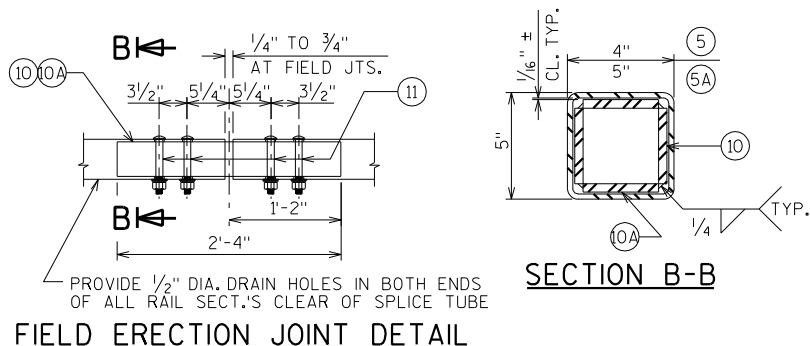
ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES OF DEAD LOAD DEFLECTION AND FUTURE CREEP.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-146			
DRAWN BY		CLP	PLANS CK'D. ZSS
AYRES			SHEET 11 OF 12

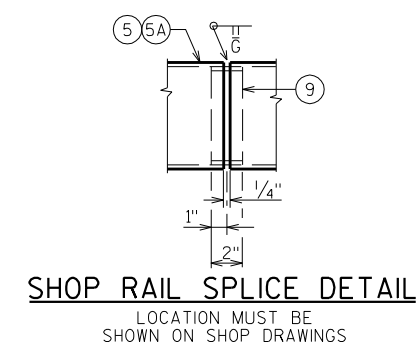
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SECTION THRU RAILING ON DECK

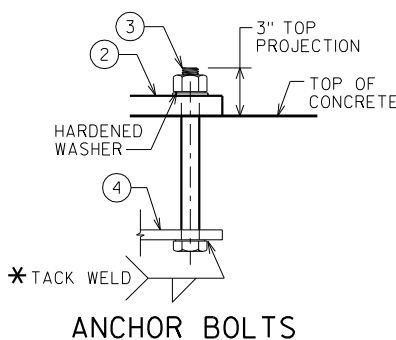


FIELD ERECTION JOINT DETAIL

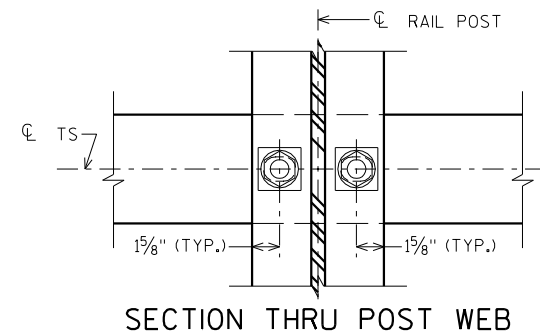


SHOP RAIL SPLICE DETAIL

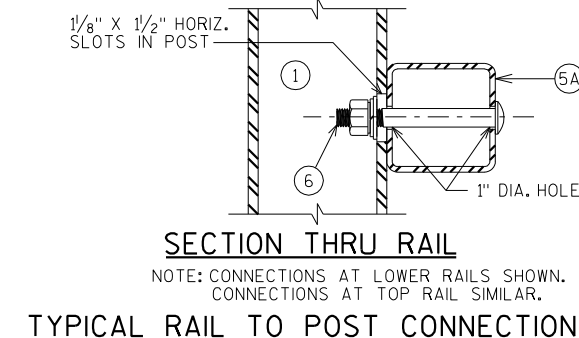
SECTION B-B



ANCHOR BOLTS

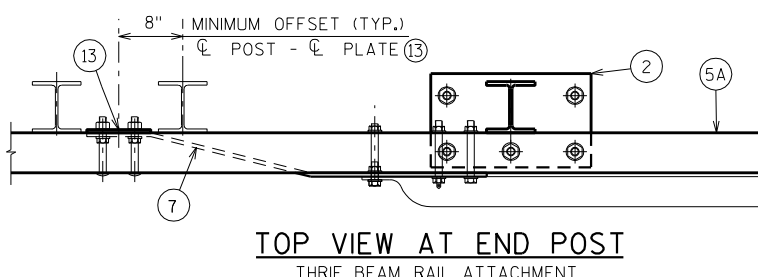


SECTION THRU POST WEB

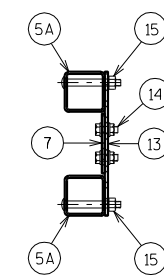


SECTION THRU RAIL

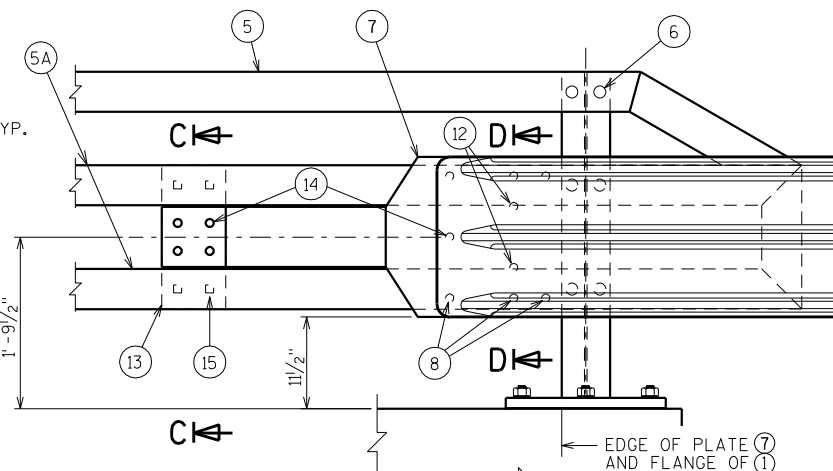
TYPICAL RAIL TO POST CONNECTIONS



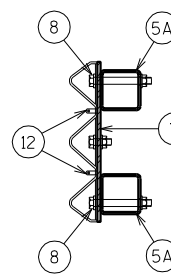
TOP VIEW AT END POST
THREE BEAM RAIL ATTACHMENT



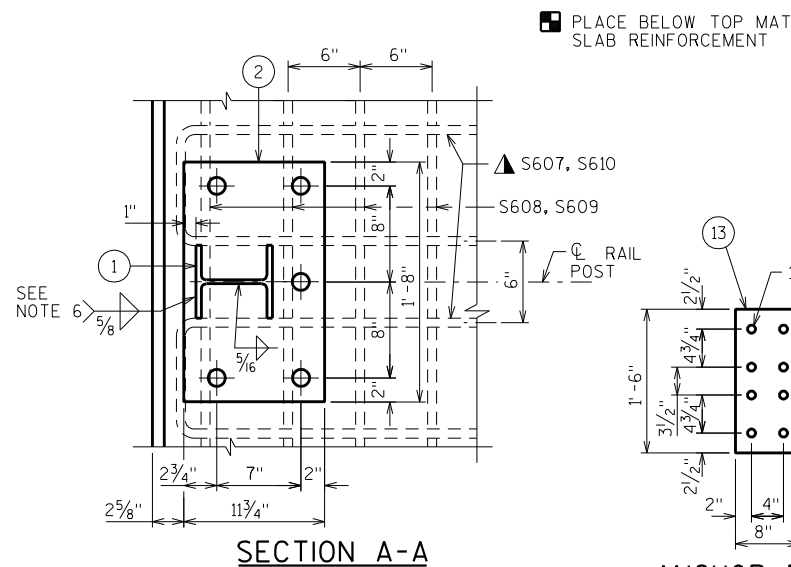
SECTION C-C



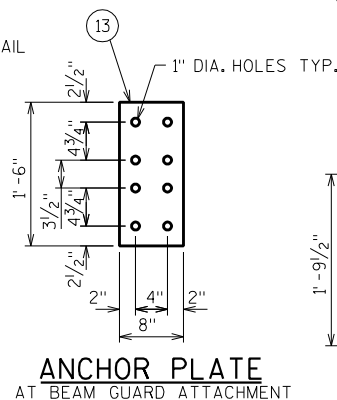
DETAIL AT END POST
THREE BEAM RAIL ATTACHMENT



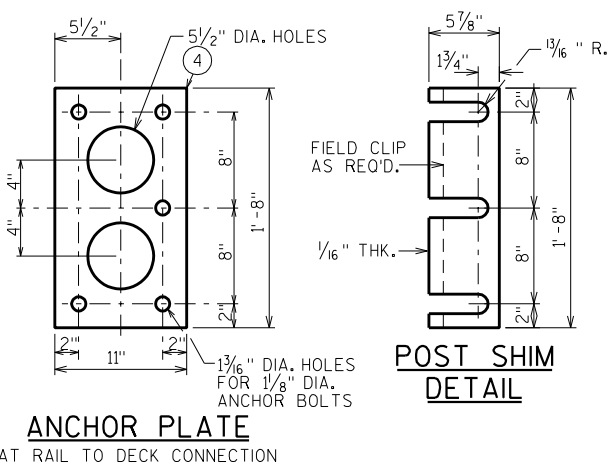
SECTION D-D



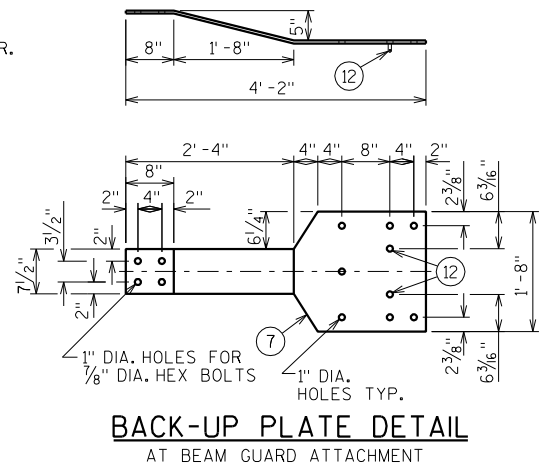
SECTION A-A



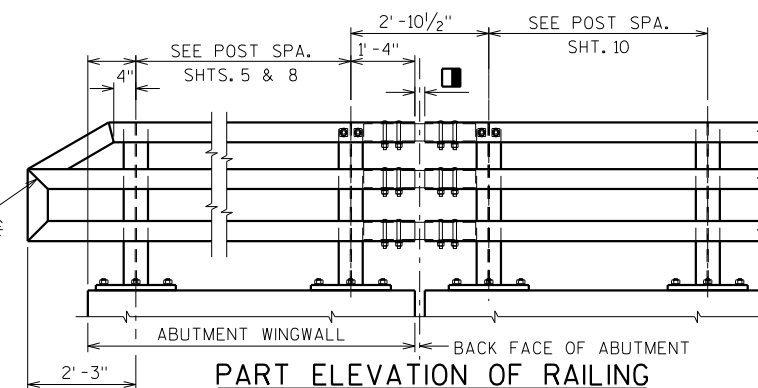
ANCHOR PLATE
AT BEAM GUARD ATTACHMENT



ANCHOR PLATE
AT RAIL TO DECK CONNECTION



BACK-UP PLATE DETAIL
AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

LEGEND

- ① W6 x 25 WITH 1/8" x 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 1/4" x 11 3/4" x 1'-8" WITH 1 7/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- ③ ASTM A449 - 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED), 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE 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 7/8" 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 5/8" 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 15/8" x 15/8" 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 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THREE 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 1/4" PLATE. PROVIDE "SLIDING FIT".
- ⑩ 3/8" x 3 5/8" 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 5/8" 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 5/8" x 1 1/4" LONGIT. SLOTTED HOLES IN PLATE NO. 10A. AT FIELD JOINTS AND 1 7/8" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A. PROVIDE 1/16" DIA. ROUND HOLES IN TUBES NO. 5 AND NO. 5A.
- ⑫ 7/8" DIA. x 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 THREE 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 1/8 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.

□ 1/4" TO 3/4" OPENING AT ABUTMENTS.

▲ 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.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-146

DRAWN BY CLP PLANS CK'D. ZSS

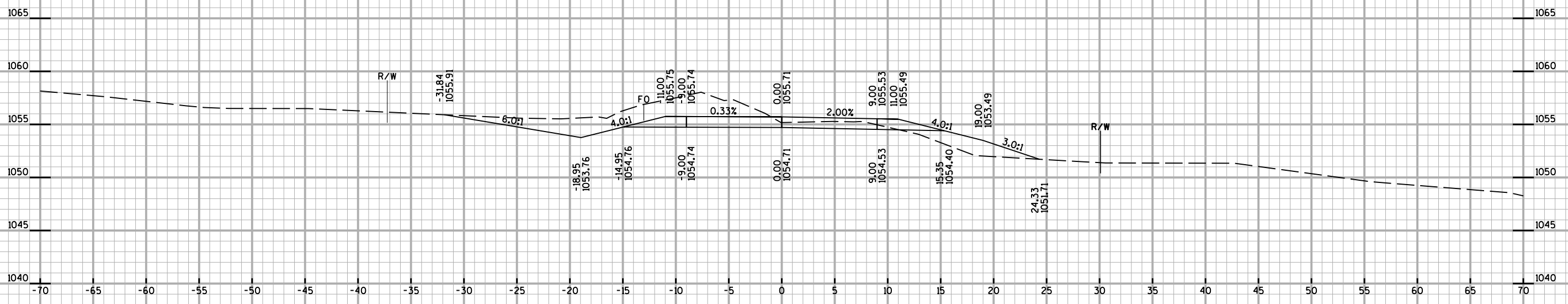
TUBULAR STEEL RAILING TYPE 'M' SHEET 12 OF 12

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

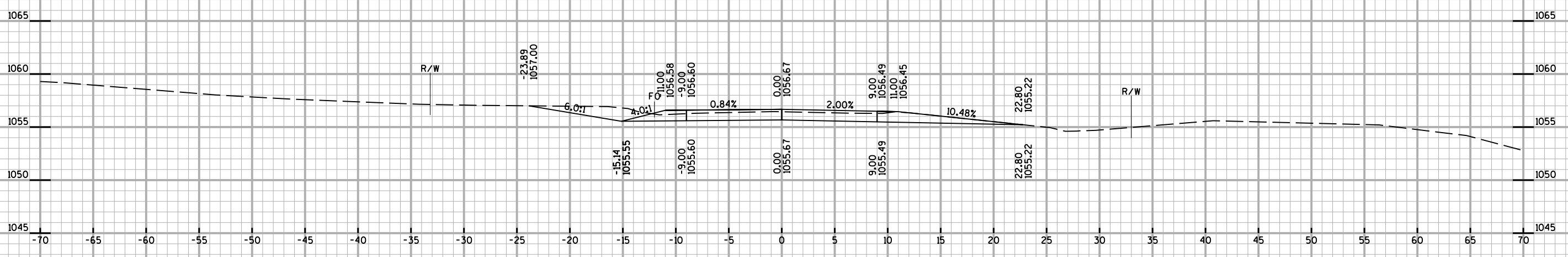
LAWLER BRIDGE ROAD COMPUTER EARTHWORK

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
18+75	--	31.8	0.0					
19+00	25	32.0	0.0	30	0	30	0	30
19+25	25	56.6	11.6	41	5	71	7	64
19+25.67	1	55.8	13.0	1	0	72	7	65
19+50	24	6.3	17.0	28	14	100	25	75
19+61.12	11	0.0	64.0	1	17	101	47	55
19+69.95	9	0.6	63.5	0	21	101	74	28
19+75.67	6	0.6	63.5	0	13	101	91	10
NEW BRIDGE	--	--	--	--	--	--	--	--
20+20.33	--	0.7	90.3	--	--	--	--	--
20+26.05	6	0.7	90.3	0	19	102	116	-15
20+34.61	9	0.4	82.6	0	27	102	152	-50
20+50	15	2.7	37.6	1	34	103	196	-94
20+70.33	20	46.2	0.0	18	14	121	215	-94
20+75	5	33.1	0.0	7	0	128	215	-87
21+00	25	26.2	0.0	27	0	155	215	-60
				155	165			

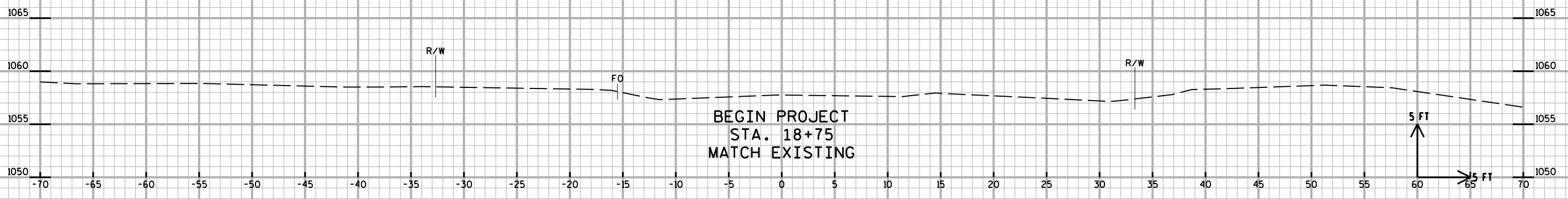
Note 1 - Cut Cut includes existing asphalt pavement.
 Note 2 - Fill Volume needed to be filled.
 Note 3 - Mass Ordinate (Cut) - (Fill * 1.30)



19+25



19+00

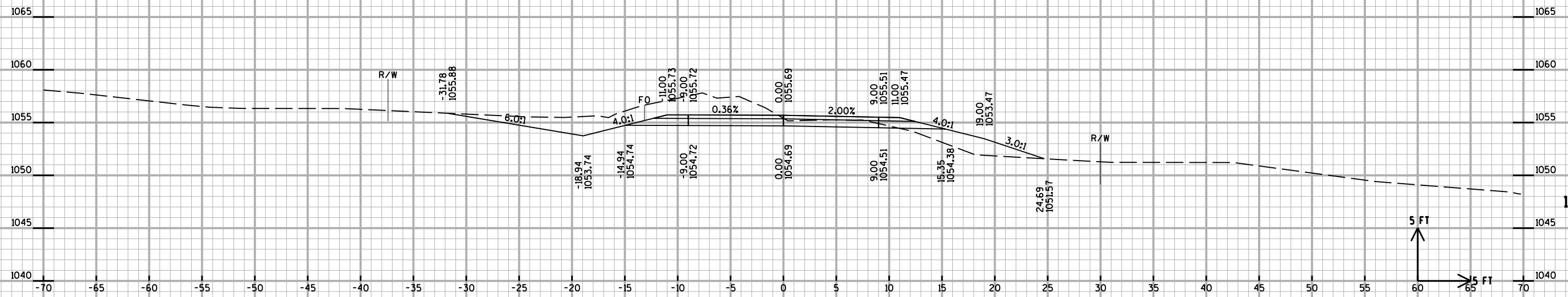
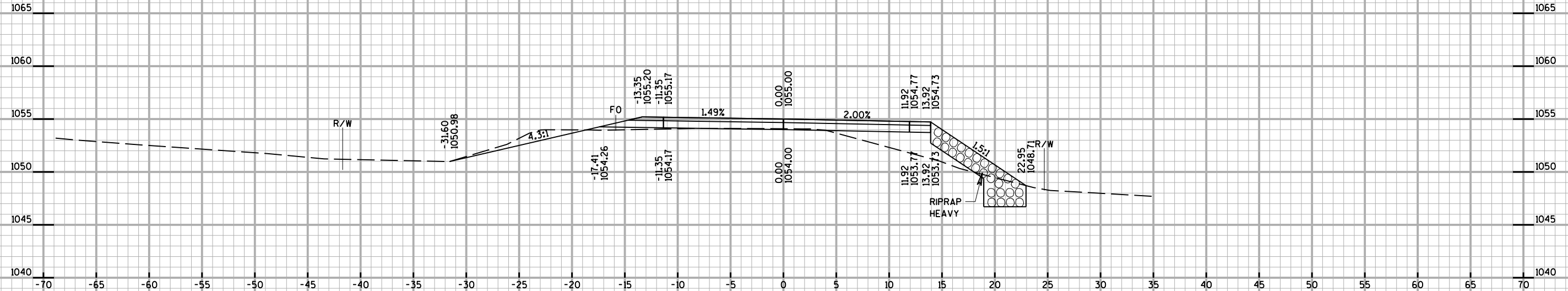


18+75

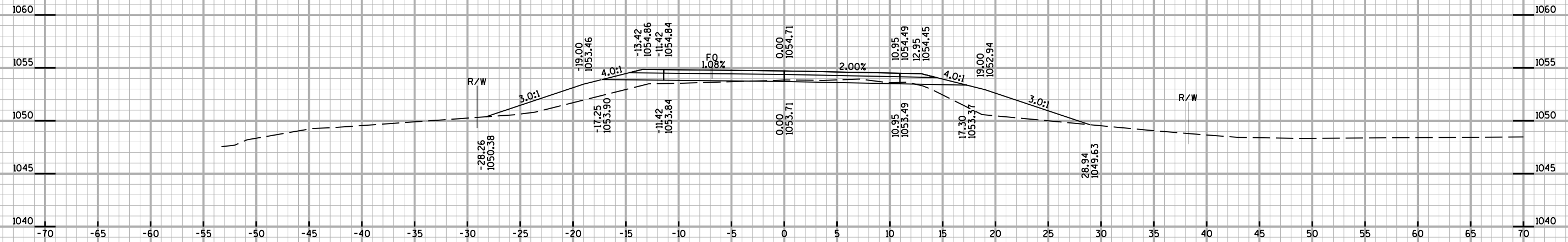
BEGIN PROJECT
STA. 18+75
MATCH EXISTING

9

STRUCTURE B-16-0146

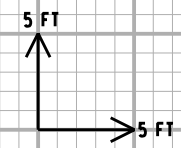


9



20+50

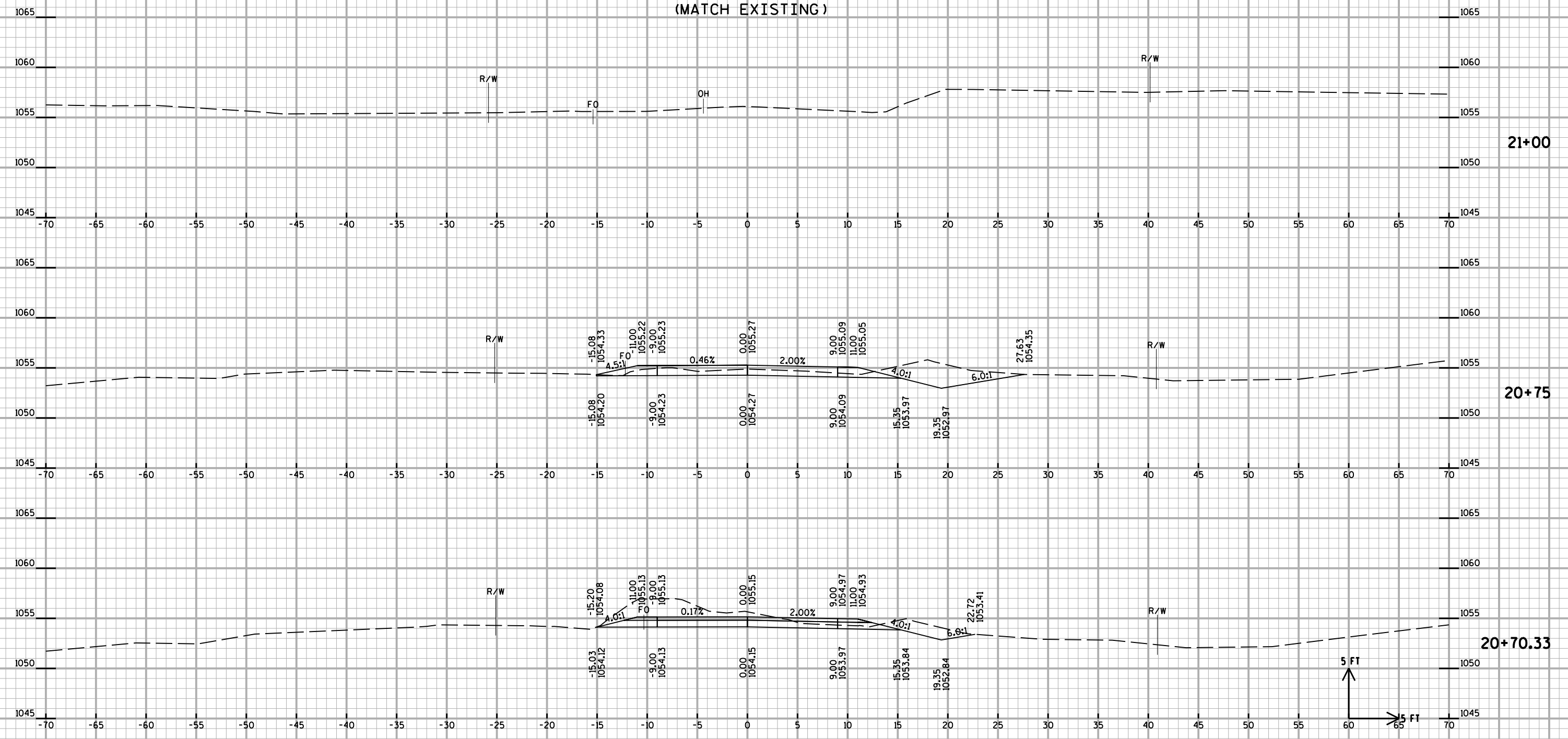
STRUCTURE B-16-0146



9

9

END PROJECT
STA. 21+00
(MATCH EXISTING)



9

PROJECT NO: 8396-00-73 HWY: LAWLER BRIDGE ROAD COUNTY: DOUGLAS CROSS SECTIONS SHEET E

9

Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions through innovation and exceptional service.

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