

SWL  
PROJECT ID: 5016-00-70  
WITH: N/A  
COUNTY: MONROE

JULY 2017  
ORDER OF SHEETS

Section No. 1	Title
Section No. 2	Typical Sections and Details
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right-of-Way Plat
Section No. 5	Plan and Profile (Incl. Erosion Control Plans & Plat)
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 = 40

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

TOWN OF PORTLAND, NEBRASKA AVENUE

(BRANCH LITTLE LA CROSSE RIVER BRIDGE B-41-0301)

TOWN ROAD  
MONROE COUNTY

STATE PROJECT NUMBER  
5016-00-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5016-00-70	WISC 2017339	1

ACCEPTED FOR  
TOWN \_\_\_\_\_ of  
PORTLAND  
DATE: 01-11-17  
Dary Flock  
(CHAIRMAN)

ACCEPTED FOR  
COUNTY \_\_\_\_\_ of  
MONROE  
DATE: 1-11-17  
James L. Schneider Hwy Committee  
for (HIGHWAY COMMISSIONER)

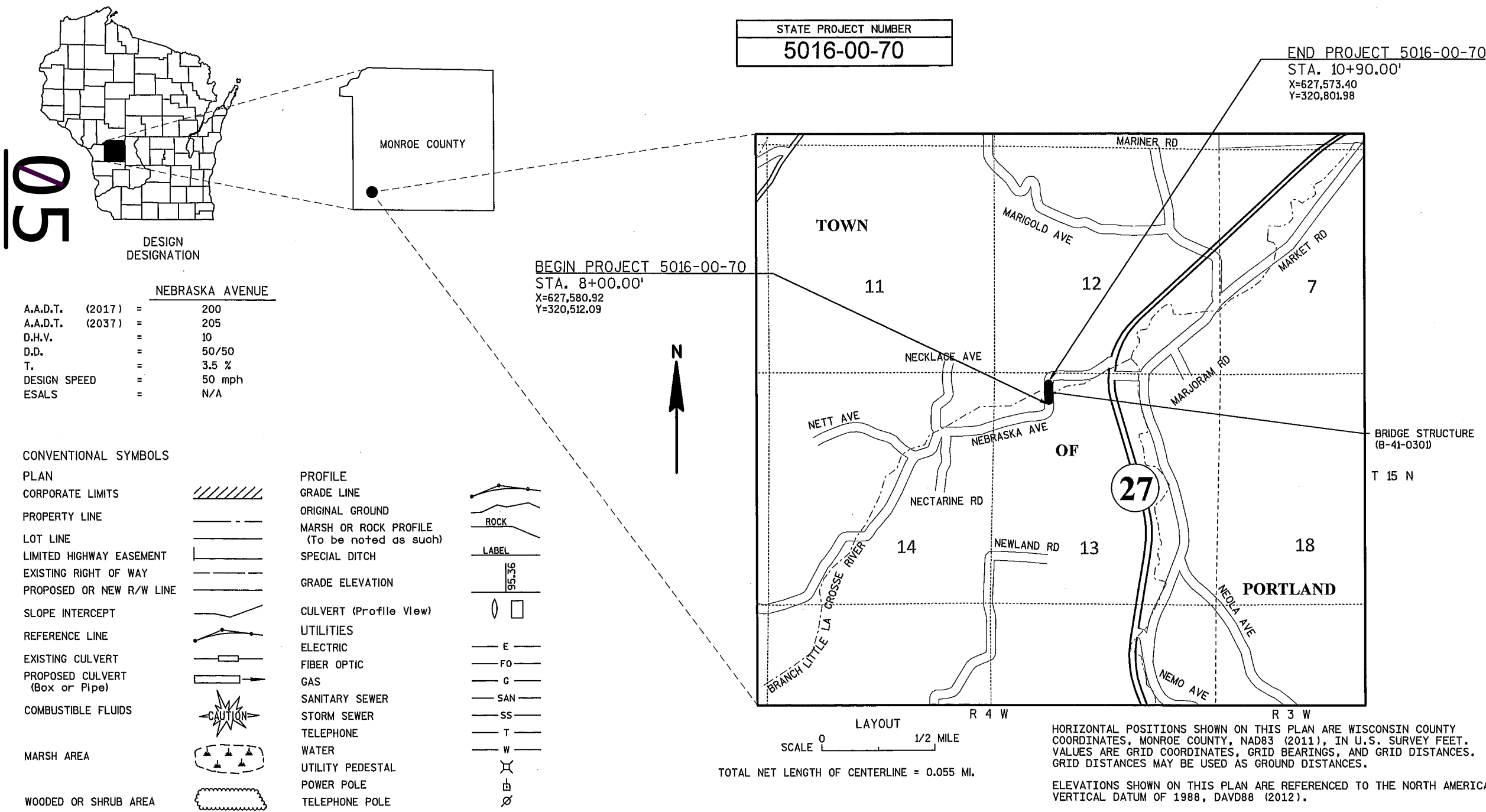
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**

1/3/2017

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY  
Surveyor \_\_\_\_\_ AYRES ASSOCIATES  
Designer \_\_\_\_\_ AYRES ASSOCIATES  
Management Consultant \_\_\_\_\_ KL ENGINEERING, INC.

APPROVED FOR THE DEPARTMENT  
DATE: 1/30/17  
[Signature]  
(MANAGEMENT CONSULTANT SIGNATURE)





GENERAL NOTES

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

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT LOCATION THAT ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES.

MAINTAIN ACCESS TO ALL DRIVEWAYS AND ALL BUSINESSES AT ALL TIMES.

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

TRAFFIC CONTROL LOCATIONS AS SHOWN IN THE PLAN ARE SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

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

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

PROTECT FROM DAMAGE AND COMPLETE SHOULDER WORK AROUND ANY EXISTING SIGNS OR MAILBOXES THAT ARE TO REMAIN IN PLACE. THE EXACT LOCATION OF PRIVATE ENTRANCES IS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

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

CONTACT THE PROJECT ENGINEER AND THE SOUTHWESTERN WISCONSIN REGIONAL PLANNING COMMISSION, AT LEAST TWO WEEKS PRIOR TO WORK NEAR ANY PUBLIC SURVEY MONUMENT.

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

THE LOCATIONS OF EROSION CONTROL ITEMS SHALL BE DETERMINED BY THE ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

ASPHALTIC SURFACE LAYERS:  
-UPPER: 1 1/2" (12.5 MM NOMINAL AGGREGATE SIZE)  
-LOWER: 2 1/4" (19.0 MM NOMINAL AGGREGATE SIZE)

ABBREVIATIONS

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

PROJECT CONTACTS

MONROE COUNTY HIGHWAY DEPT.  
JAMES SCHROEDER  
HIGHWAY COMMITTEE CHAIR  
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E: DISTRICT\_13@ME.COM

TOWN OF PORTLAND  
GARY FLOCK  
TOWN CHAIRMAN  
5590 STATE HIGHWAY 33  
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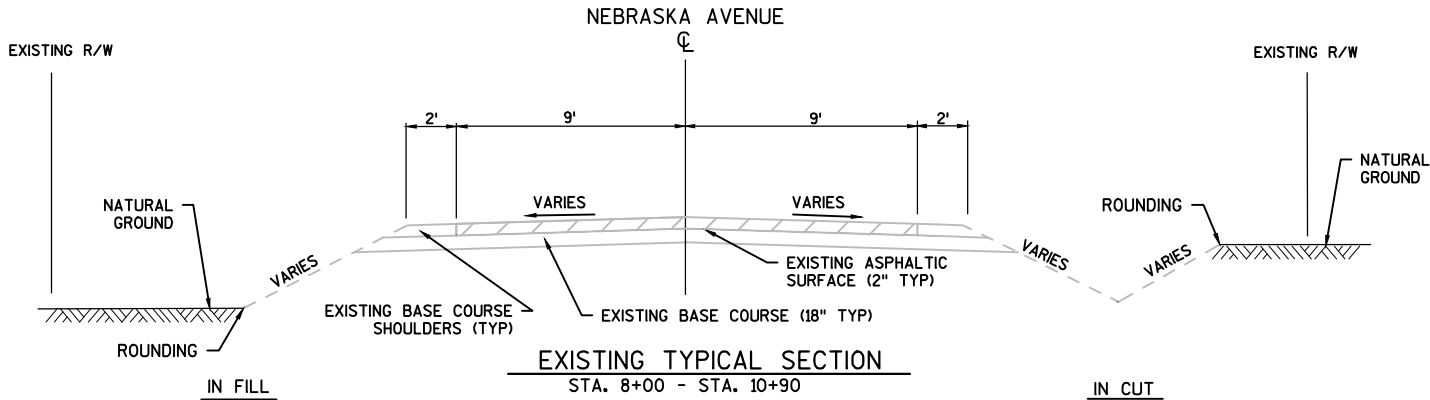
DESIGNER  
BRETT HOLLISTER, P.E.  
AYRES ASSOCIATES  
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MADISON, WI 53718  
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WISCONSIN DEPARTMENT OF NATURAL RESOURCES  
KAREN KALVELAGE  
WEST CENTRAL REGION  
3550 MORMON COULEE ROAD  
LA CROSSE, WI 54601  
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UTILITIES

CENTURYLINK  
BRET CLARK  
311 SOUTH COURT STREET  
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P: (608) 269-0819  
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XCEL ENERGY  
KAYE CROOK  
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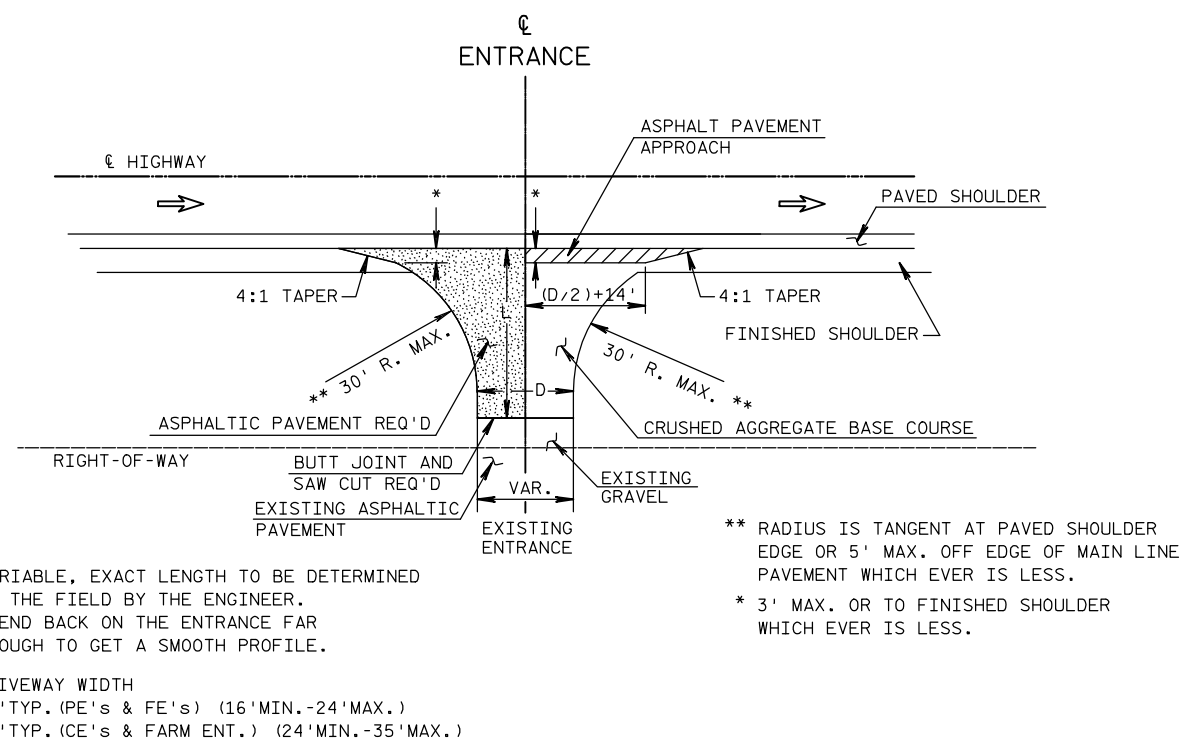
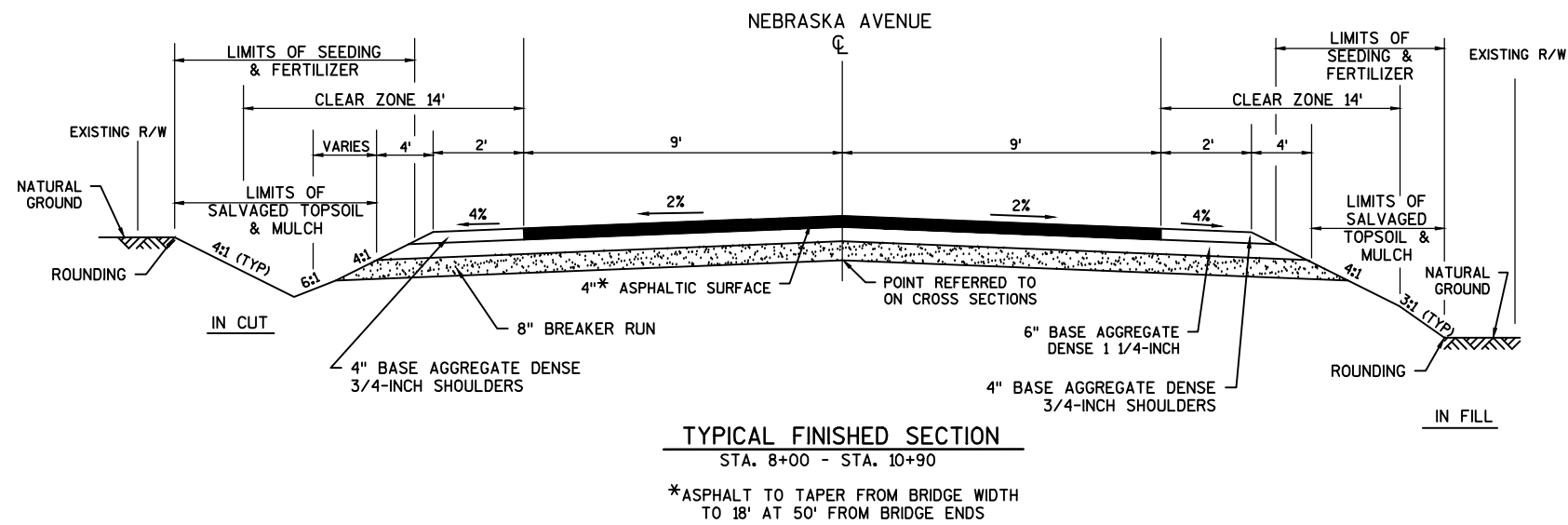
DIGGERSHOTLINE

Dial 811 or (800) 242-8511

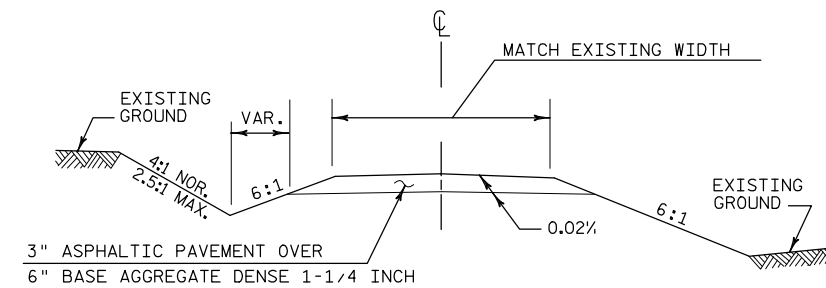
www.DiggersHotline.com

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

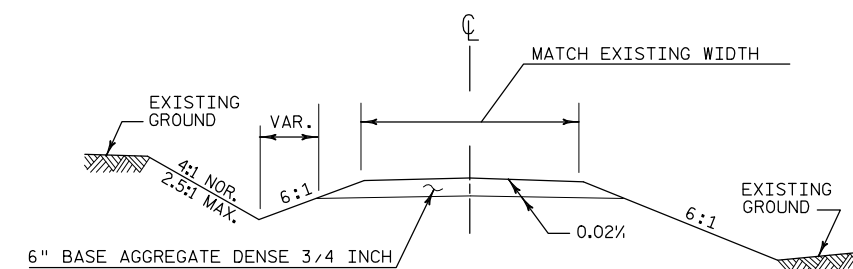




**RURAL DRIVEWAY INTERSECTION DETAIL**



**DRIVEWAY - TYPICAL CROSS SECTION**



**FIELD ENTRANCE - TYPICAL CROSS SECTION**



Estimate Of Quantities

5016-00-70					
Line	Item	Item Description	Unit	Total	Qty
0010	201.0120	Clearing	ID	130.000	130.000
0020	201.0220	Grubbing	ID	130.000	130.000
0030	203.0100	Removing Small Pipe Culverts	EACH	2.000	2.000
0040	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 9+99	LS	1.000	1.000
0050	205.0100	Excavation Common **P**	CY	499.000	499.000
0060	206.1000	Excavation for Structures Bridges (structure) 01. B-41-301	LS	1.000	1.000
0070	210.1500	Backfill Structure Type A	TON	160.000	160.000
0080	213.0100	Finishing Roadway (project) 01. ID 5016-00-70	EACH	1.000	1.000
0090	305.0110	Base Aggregate Dense 3/4-Inch	TON	60.000	60.000
0100	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	270.000	270.000
0110	311.0110	Breaker Run	TON	380.000	380.000
0120	455.0605	Tack Coat	GAL	43.000	43.000
0130	465.0105	Asphaltic Surface	TON	137.000	137.000
0140	502.0100	Concrete Masonry Bridges	CY	130.000	130.000
0150	502.3200	Protective Surface Treatment	SY	130.000	130.000
0160	505.0400	Bar Steel Reinforcement HS Structures	LB	3,140.000	3,140.000
0170	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	13,870.000	13,870.000
0180	513.4061	Railing Tubular Type M (structure) 01. B-41-301	LF	114.000	114.000
0190	516.0500	Rubberized Membrane Waterproofing	SY	16.000	16.000
0200	521.0112	Culvert Pipe Corrugated Steel 12-Inch	LF	22.000	22.000
0210	521.0115	Culvert Pipe Corrugated Steel 15-Inch	LF	26.000	26.000
0220	521.1012	Apron Endwalls for Culvert Pipe Steel 12-Inch	EACH	2.000	2.000
0230	521.1015	Apron Endwalls for Culvert Pipe Steel 15-Inch	EACH	2.000	2.000
0240	550.0500	Pile Points	EACH	8.000	8.000
0250	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	160.000	160.000
0260	606.0300	Riprap Heavy	CY	120.000	120.000
0270	606.0700	Grouted Riprap Heavy	CY	10.000	10.000
0280	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	134.000	134.000
0290	619.1000	Mobilization	EACH	1.000	1.000
0300	624.0100	Water	MGAL	5.000	5.000
0310	625.0500	Salvaged Topsoil **P**	SY	785.000	785.000
0320	627.0200	Mulching **P**	SY	785.000	785.000
0330	628.1504	Silt Fence	LF	225.000	225.000
0340	628.1520	Silt Fence Maintenance	LF	225.000	225.000
0350	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0360	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0370	628.6005	Turbidity Barriers	SY	185.000	185.000
0380	628.7504	Temporary Ditch Checks	LF	75.000	75.000



Estimate Of Quantities

5016-00-70					
Line	Item	Item Description	Unit	Total	Qty
0390	629.0210	Fertilizer Type B **P**	CWT	1.100	1.100
0400	630.0120	Seeding Mixture No. 20 **P**	LB	30.000	30.000
0410	630.0200	Seeding Temporary **P**	LB	30.000	30.000
0420	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0430	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0440	638.2602	Removing Signs Type II	EACH	6.000	6.000
0450	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0460	642.5001	Field Office Type B	EACH	1.000	1.000
0470	643.0100	Traffic Control (project) 01. ID 5016-00-70	EACH	1.000	1.000
0480	645.0120	Geotextile Type HR	SY	275.000	275.000
0490	650.4500	Construction Staking Subgrade	LF	255.000	255.000
0500	650.5000	Construction Staking Base	LF	255.000	255.000
0510	650.6000	Construction Staking Pipe Culverts	EACH	2.000	2.000
0520	650.6500	Construction Staking Structure Layout (structure) 01. B-41-0301	LS	1.000	1.000
0530	650.9910	Construction Staking Supplemental Control (project) 01. ID 5016-00-70	LS	1.000	1.000
0540	650.9920	Construction Staking Slope Stakes	LF	255.000	255.000
0550	690.0150	Sawing Asphalt	LF	47.000	47.000
0560	715.0502	Incentive Strength Concrete Structures	DOL	780.000	780.000



NEBRASKA AVENUE 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				
8+00 - 10+90	NEBRASKA AVE	499	98	127	372	372		

- 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.
- \*\*PAY PLAN QUANTITY

CLEARING AND GRUBBING				
STATION	OFFSET	LOCATION	CLEARING 201.0120	GRUBBING 201.0220
			ID	ID
8+09	23'	LT	24	24
9+32	20'	RT	12	12
9+47	20'	RT	12	12
9+62	37'	RT	12	12
9+84	27'	RT	48	48
10+42	26'	RT	22	22
TOTALS			130	130

PAVING AND BASE QUANTITIES									
STA	TO	STA	305.0110 BASE AGGREGATE DENSE 3/4-INCH	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH	311.0110 BREAKER RUN	455.0605 TACK COAT	465.0105 ASPHALTIC SURFACE	624.0100 WATER	
			TON	TON	TON	GAL	TON	MGAL	
8+00	--	9+80	45	185	260	29	92	3.5	
10+14	--	10+90	10	70	100	12	38	1.2	
UNDISTRIBUTED			5	15	20	2	7	0.3	
TOTALS			60	270	380	43	137	5.0	

FINISHING ROADWAY  
(ID 5016-00-70)

213.0100.01	
LOCATION	EACH
MAINLINE	1
TOTAL	1

PIPE CULVERTS						
STA	LOCATION	203.0100 REMOVING SMALL PIPE CULVERTS	521.0112 CULVERT PIPE CORRUGATED STEEL 12-INCH***	521.0115 CULVERT PIPE CORRUGATED STEEL 15-INCH***	521.1012 APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH	521.1015 APRON ENDWALLS FOR CULVERT PIPE STEEL 15-INCH
		EACH	LF	LF	EACH	EACH
8+32	LT	1	22	--	2	--
8+65	RT	1	--	26	--	2
TOTALS		2	22	26	2	2

\*\*\*0.064-INCH MINIMUM THICKNESS

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED



EROSION CONTROL MOBILIZATION ITEMS

	628.1905 MOBILIZATIONS EROSION CONTROL	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL
LOCATION	EACH	EACH
ID 5016-00-70	2	2
TOTALS	2	2

TURBIDITY BARRIERS

	628.6005
LOCATION	SY
NORTH ABUT	85
SOUTH ABUT	85
UNDISTRIBUTED	15
TOTAL	185

TEMPORARY DITCH CHECKS

		628.7504
LOCATION	OFFSET	LF
NORTH ABUT	LT	12.5
NORTH ABUT	RT	12.5
SOUTH ABUT	LT	12.5
SOUTH ABUT	RT	12.5
STA 8+75	LT	12.5
STA 9+00	RT	12.5
TOTAL		75

CATEGORY	LOCATION	LF	LF	EA	LS	LS	LF
0010	8+00 - 10+90	255	255	2	--	1	255
0020	B-41-0301	--	--	--	1	--	--
TOTALS		255	255	2	1	1	255

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

EROSION CONTROL ITEMS

				625.0500	627.0200	628.1504	628.1520	629.0210	630.0120	630.0200
				SALVAGED**	MULCHING**	SILT FENCE	SILT FENCE	FERTILIZER**	SEEDING**	SEEDING**
				TOPSOIL			MAINTENANCE	TYPE B	MIXTURE	TEMPORARY
									NO. 20	
STA	TO	STA	LOCATION	SY	SY	LF	LF	CWT	LB	LB
8+00	--	9+80	RT	300	300	40	40	0.4	9	9
8+00	--	9+80	LT	250	250	50	50	0.4	8	8
10+14	--	10+90	RT	95	95	30	30	0.1	3	3
10+14	--	10+90	LT	70	70	75	75	0.1	11	11
UNDISTRIBUTED				70	70	30	30	0.1	2	2
TOTALS				785	785	225	225	1.1	30	30
** PAY PLAN QUANTITY										

OBJECT MARKERS

		634.0612	637.2230	
		POSTS WOOD	SIGNS TYPE II	
		4X6-INCH X 12-FT	REFLECTIVE F	
STATION	LOCATION	EACH	SF	SIGNAGE TYPE
9+75	LT	1	3	W5-52L
9+75	RT	1	3	W5-52R
10+25	LT	1	3	W5-52R
10+25	RT	1	3	W5-52L
TOTALS		4	12	

STAKING ITEMS

650.4500 CONSTRUCTION STAKING SUBGRADE	650.5000 CONSTRUCTION STAKING BASE	650.6000 CONSTRUCTION STAKING PIPE CULVERTS	650.6500.01 CONSTRUCTION STAKING STRUCTURE LAYOUT (B-41-0301)	650.9910.01 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (ID 5016-00-70)	650.9920 CONSTRUCTION STAKING SLOPE STAKES
LF	LF	EA	LS	LS	LF
255	255	2	--	1	255
--	--	--	1	--	--
TOTALS	255	255	2	1	255

REMOVING SIGNS & SUPPORTS

		638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	
LOCATION	OFFSET			NOTES
9+78	RT	1	1	EXISTING LOAD POSTING SIGN
9+86	LT & RT	2	2	EXISTING TIGER STRIPE MARKERS
10+13	LT & RT	2	2	EXISTING TIGER STRIPE MARKERS
10+18	LT	1	1	EXISTING LOAD POSTING SIGN
TOTALS		6	6	

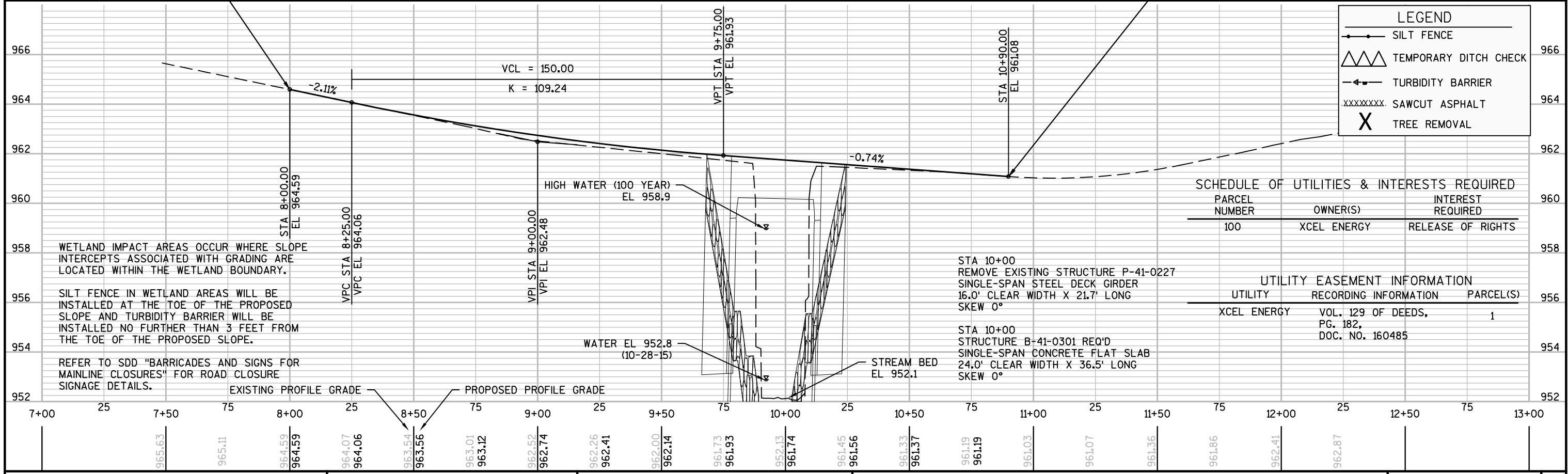
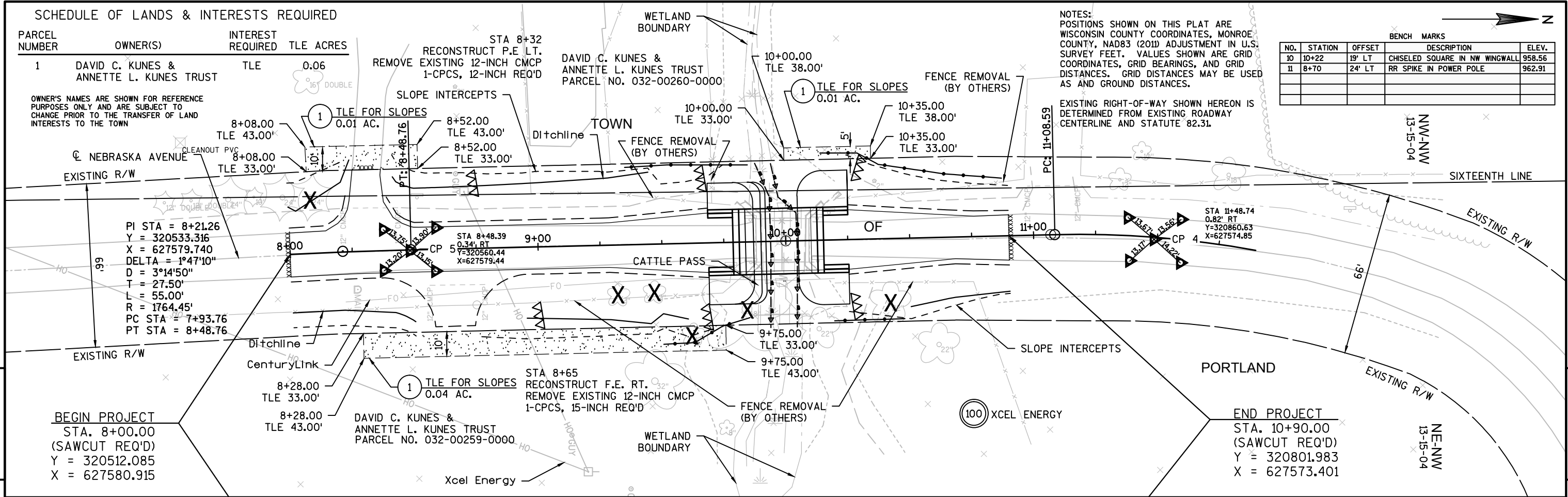
TRAFFIC CONTROL (ID 5016-00-70)

	643.0100.01 EACH
PROJECT 5016-00-70	1
TOTAL	1

SAWING ASPHALT

		690.0150
STATION	LOCATION	LF
8+00	LT & RT	18
8+26 - 8+37	LT	11
10+90	LT & RT	18
TOTAL		47



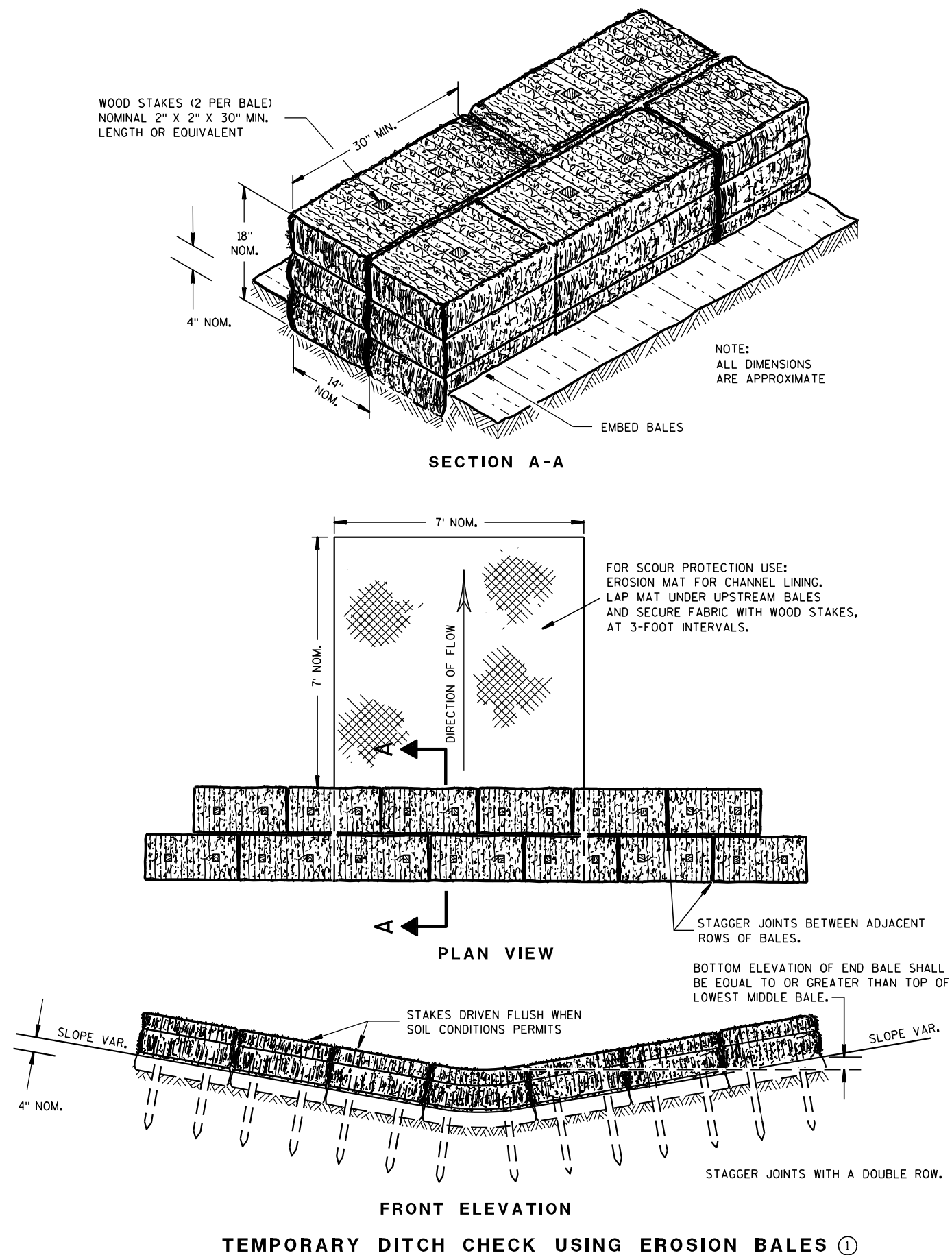




Standard Detail Drawing List

08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE FRAINS
12A03-10	NAME PLATE (STRUCTURES)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES

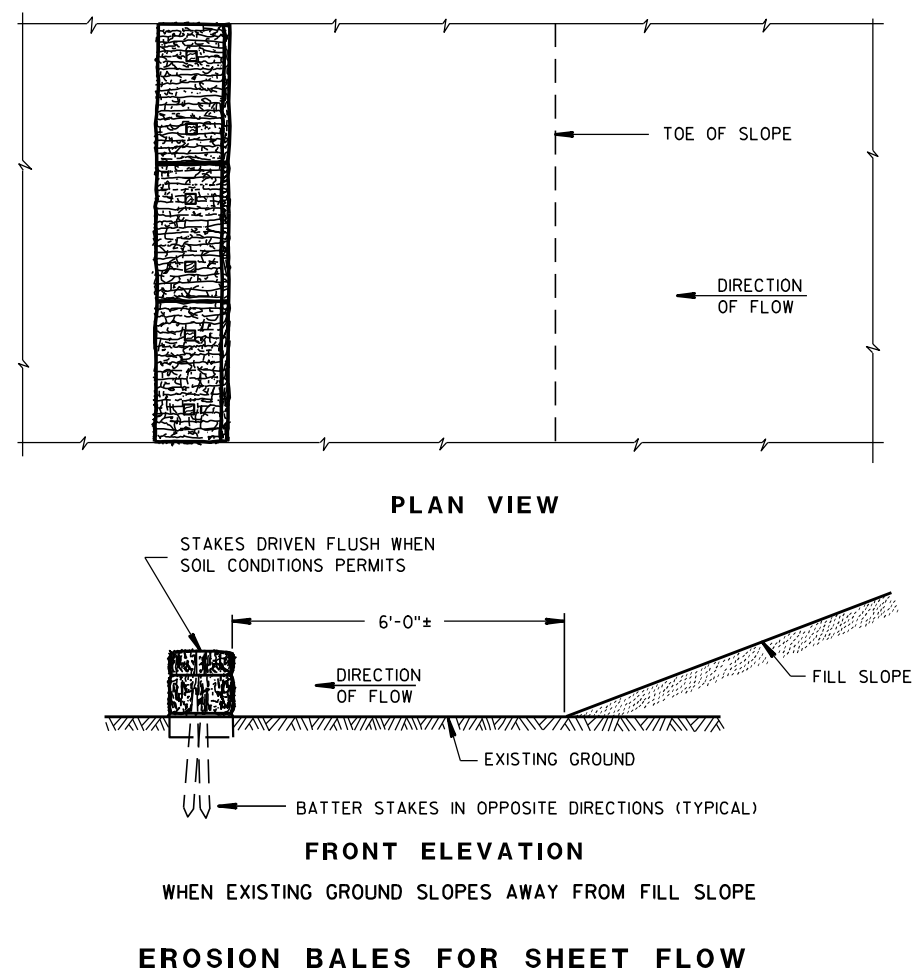
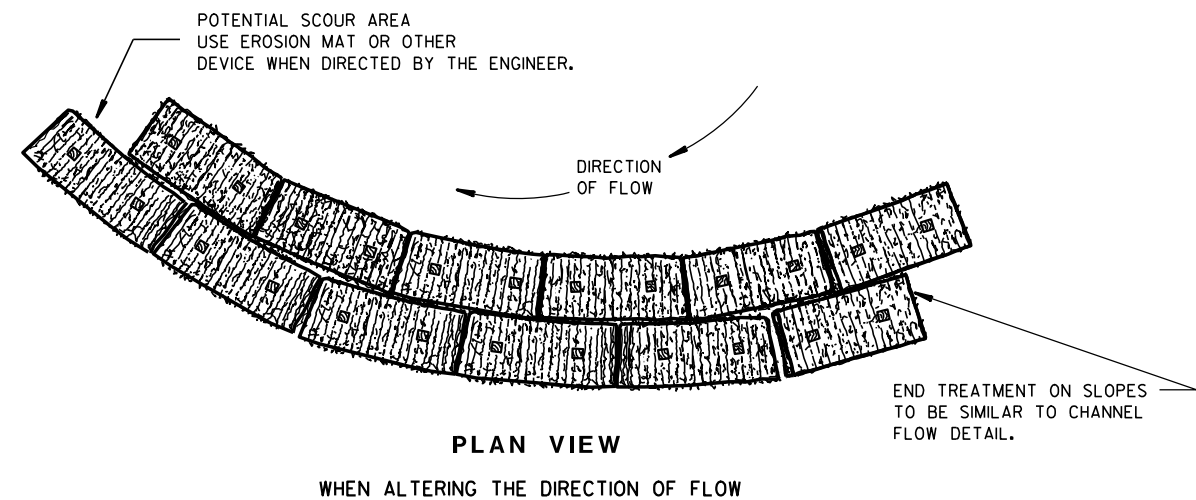




## GENERAL NOTES

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.



## TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02  
DATE

FHWA

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER



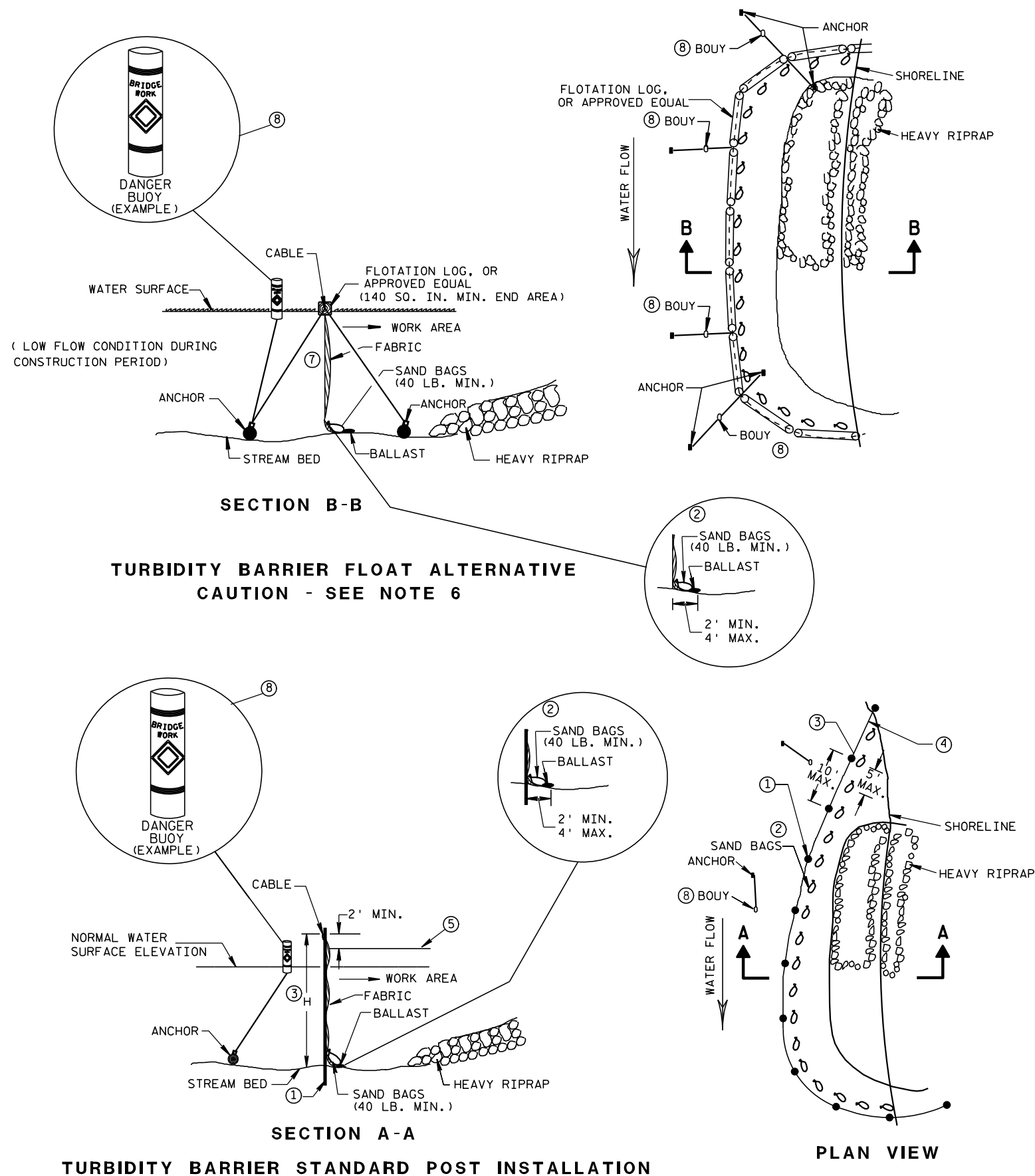


- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



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



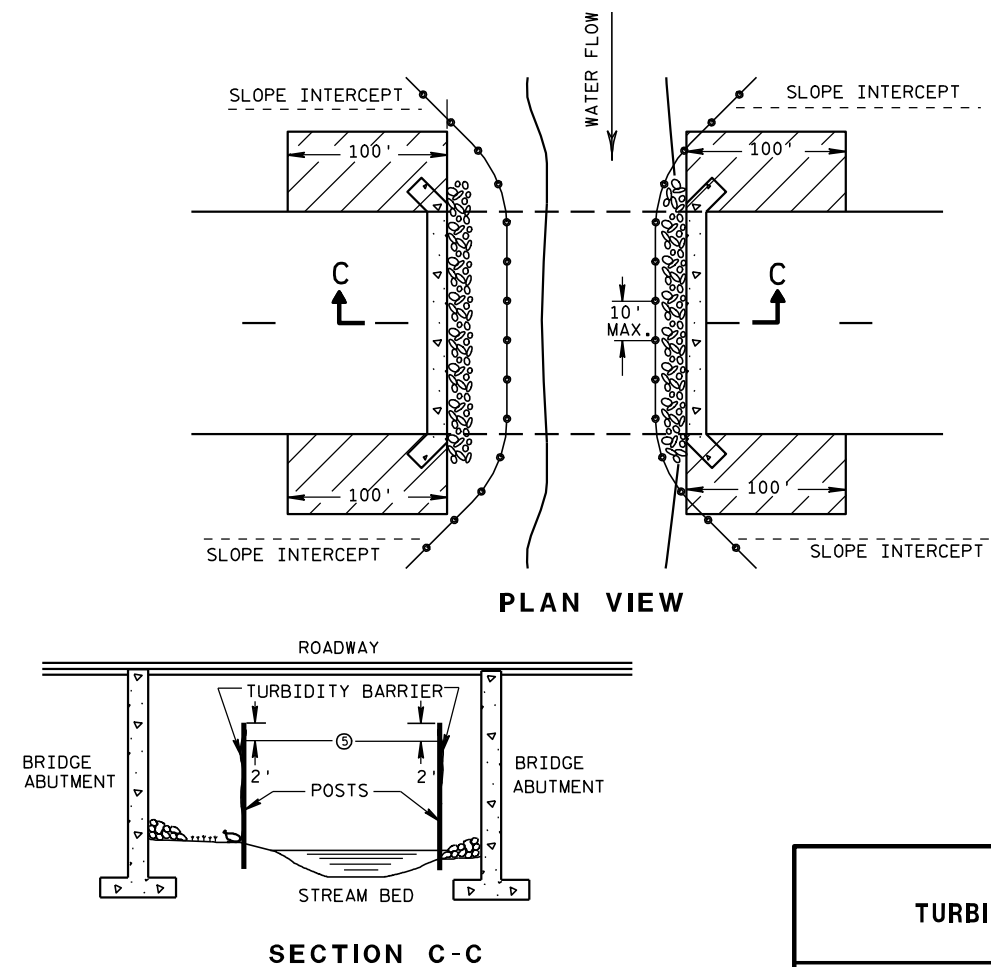


## GENERAL NOTES

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 SANDBAGS 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 FT., 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 02 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 BED ROCK 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.



## TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

### TURBIDITY BARRIER

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02  
DATE

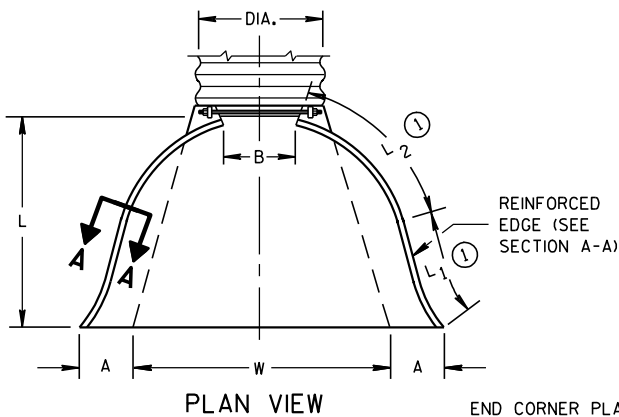
FWHA

/S/ Beth Connestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER

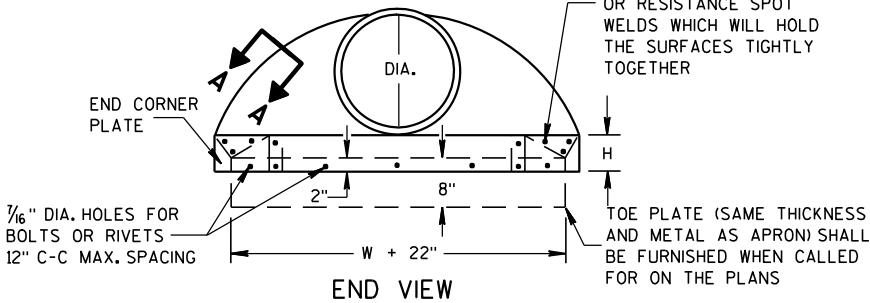


METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)						APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L <sub>1</sub> ①	L <sub>2</sub> ①			W (±2")
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2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

\* EXCEPT CENTER PANEL  
SEE GENERAL NOTES

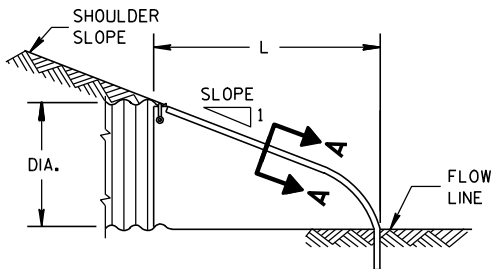


REINFORCED  
EDGE (SEE  
SECTION A-A)



END CORNER PLATES MAY  
BE FASTENED TO APRON  
PROPER BY BOLTS, RIVETS,  
OR RESISTANCE SPOT  
WELDS WHICH WILL HOLD  
THE SURFACES TIGHTLY  
TOGETHER

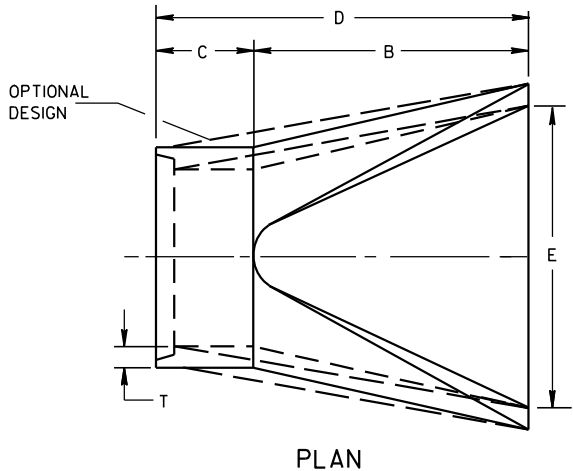
TOE PLATE (SAME THICKNESS  
AND METAL AS APRON) SHALL  
BE FURNISHED WHEN CALLED  
FOR ON THE PLANS



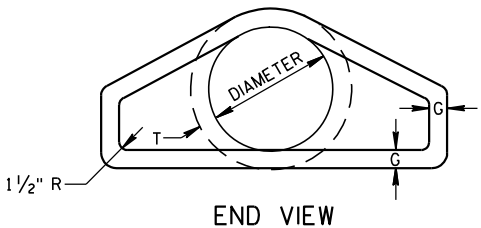
SIDE ELEVATION  
METAL ENDWALLS

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

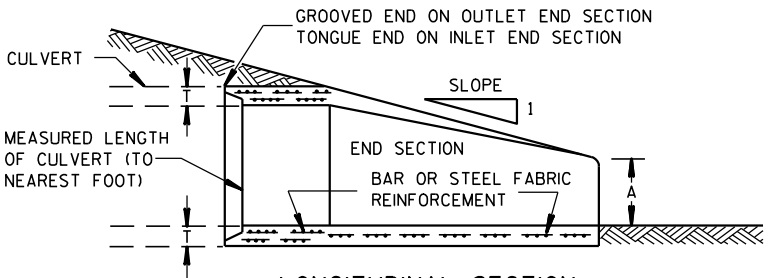
\* MINIMUM  
\*\* MAXIMUM



PLAN

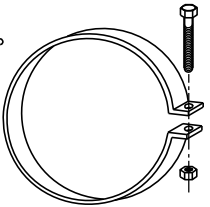


END VIEW

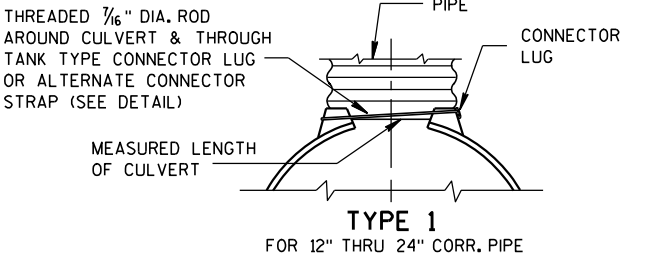


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

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

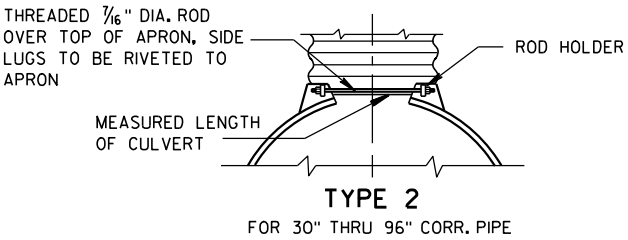


ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



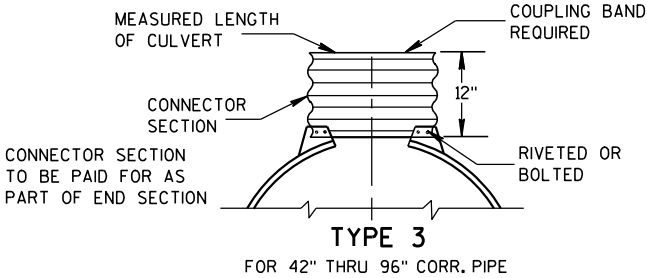
TYPE 1

FOR 12" THRU 24" CORR. PIPE



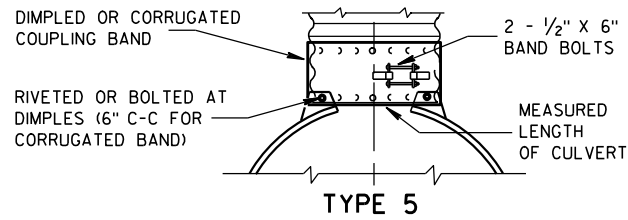
TYPE 2

FOR 30" THRU 96" CORR. PIPE



TYPE 3

FOR 42" THRU 96" CORR. PIPE



TYPE 5

ALTERNATE FOR:  
ALL SIZES CORRUGATED CIRCULAR PIPE

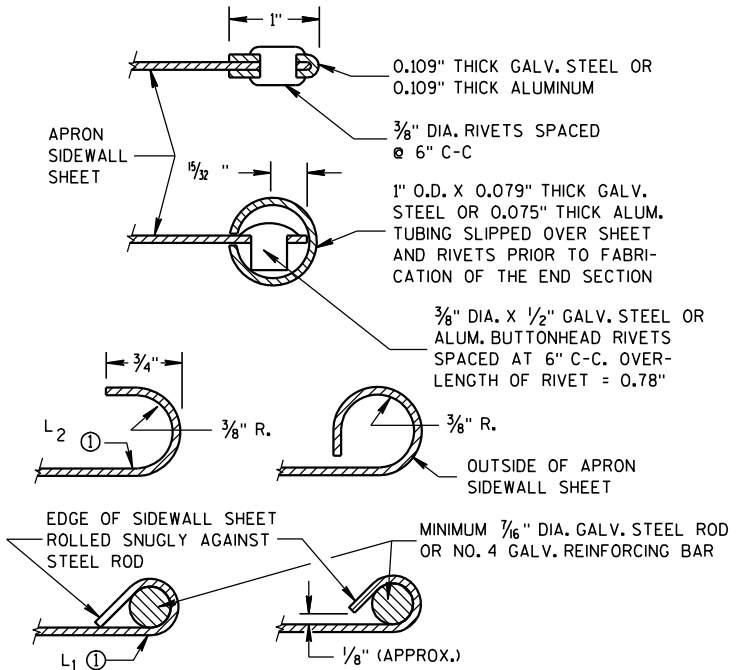
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,  
AND CORRUGATED BAND FITS INSIDE ENDWALL.  
DIMPLED BAND MAY BE USED WITH HELICALLY  
CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

### GENERAL NOTES

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

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL  
OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR  
ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE  
OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND  
LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL  
THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND  
LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH  
OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE  
PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS  
FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS.  
FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED  
EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH  
GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE  
ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM  
NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT  
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT  
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

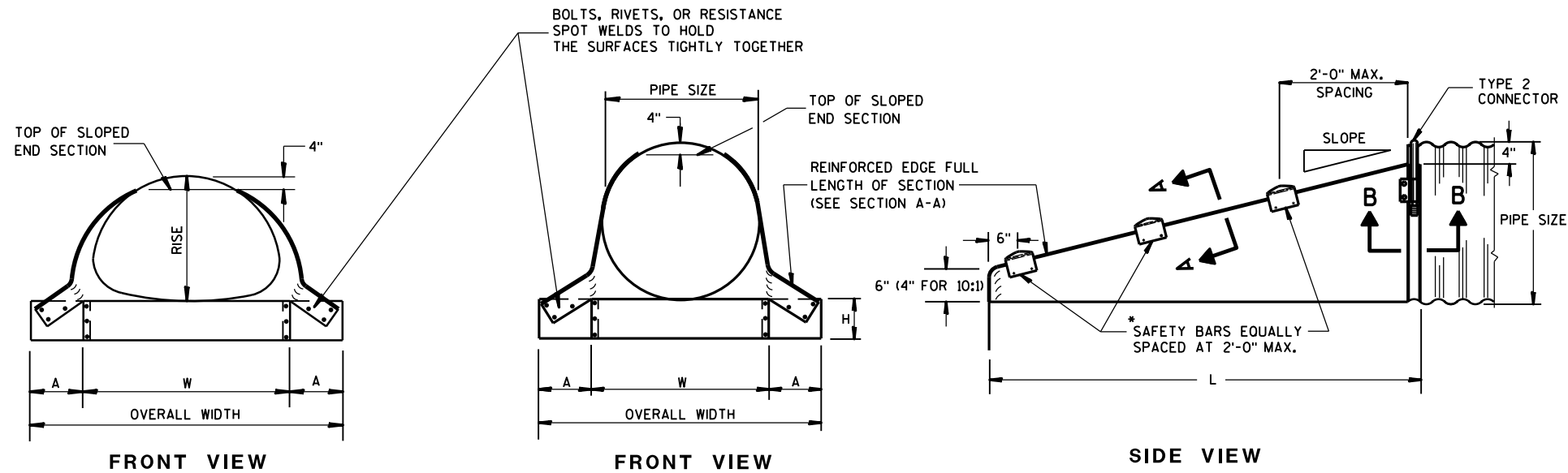
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED  
INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

### APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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





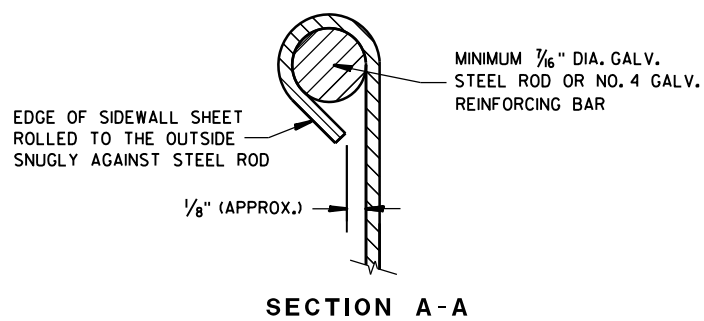
### GENERAL NOTES

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.

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

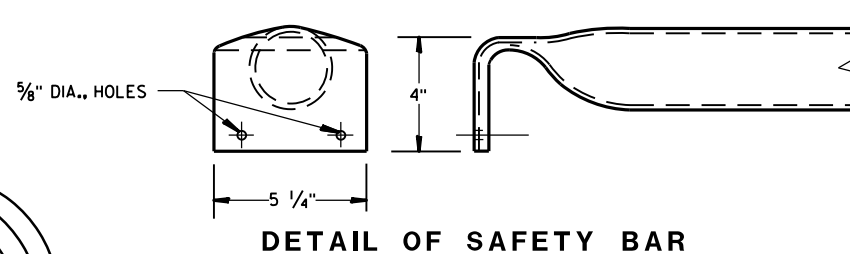
SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

STEEL APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS					
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	16	12	48	80	4:1	128	6:1	192	—	—
48	.109	16	12	54	86	4:1	152	6:1	228	—	—
54	.109	16	12	60	92	4:1	176	6:1	264	—	—
60	.109	16	12	66	98	4:1	200	6:1	300	—	—



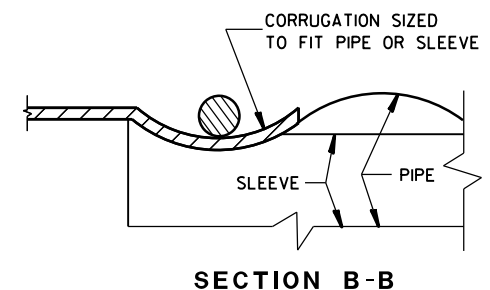
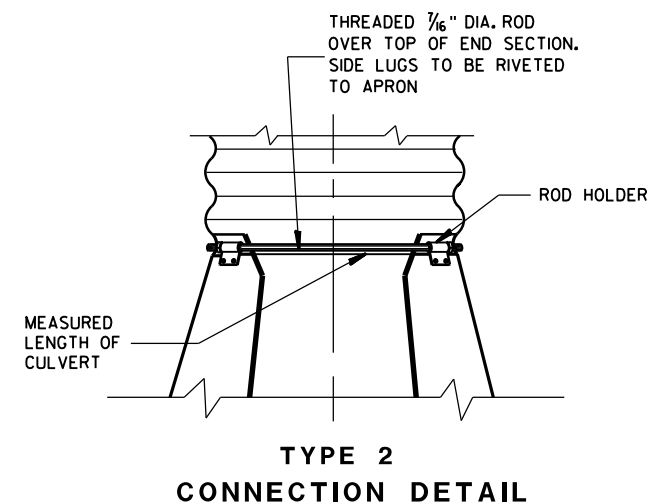
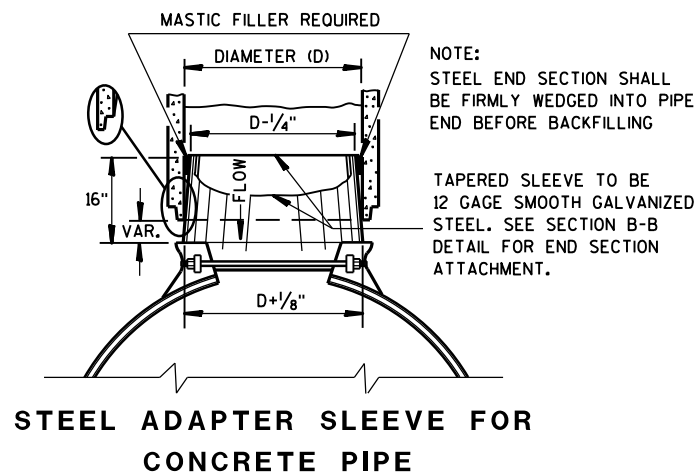
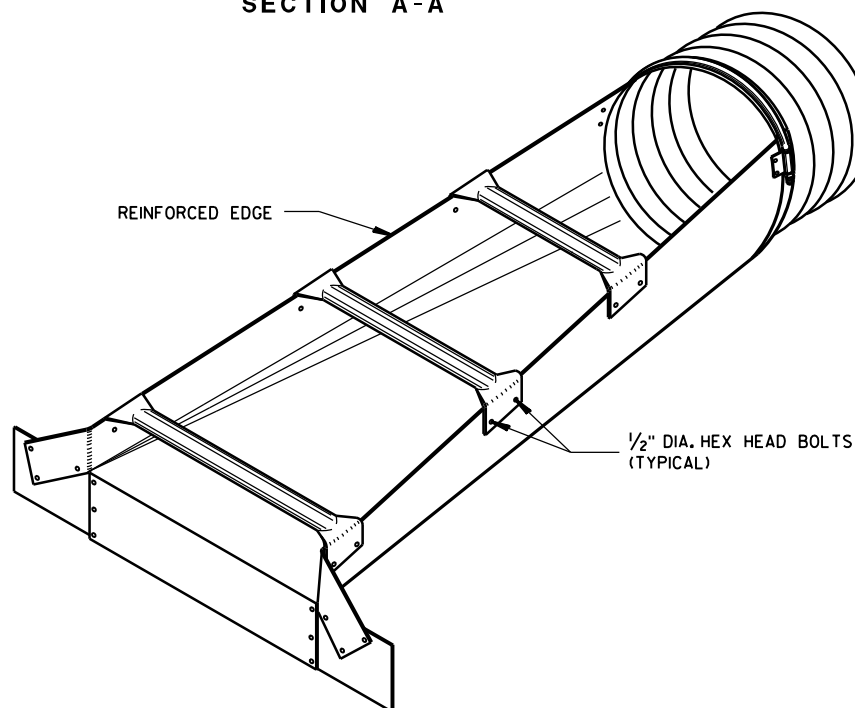
\*NOTE:  
THREE SAFETY BARS ARE SHOWN.  
ACTUAL NUMBER OF BARS REQUIRED AT  
A 2'-0" C-C MAX. SPACING WILL VARY  
DEPENDING ON THE LENGTH OF THE  
END SECTION.

3" GALVANIZED PIPE, FLATTEN  
ENDS, THEN BEND OUTSIDE 4"  
TO MATCH END SECTION SIDES.



STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS											
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches) ①	DIMENSIONS (Inches)				L DIMENSIONS			
	SPAN	RISE		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	17	13	.064 *	7	6	30	44	4:1	19	6:1	30
18	21	15	.064 *	8	6	27	43	4:1	20	6:1	30
21	24	18	.064 *	8	6	30	46	4:1	32	6:1	48
24	28	20	.064 *	8	6	34	50	4:1	40	6:1	60
30	35	24	.079 *	12	9	41	65	4:1	56	6:1	84
36	42	29	.109 *	12	9	48	72	4:1	76	6:1	114
42	49	33	.109	16	12	55	87	4:1	92	6:1	138
48	57	38	.109	16	12	63	95	4:1	112	6:1	168
54	64	43	.109	16	12	70	102	4:1	132	6:1	198

① \* MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".  
② ACTUAL SLOPE GREATER THAN 10:1.

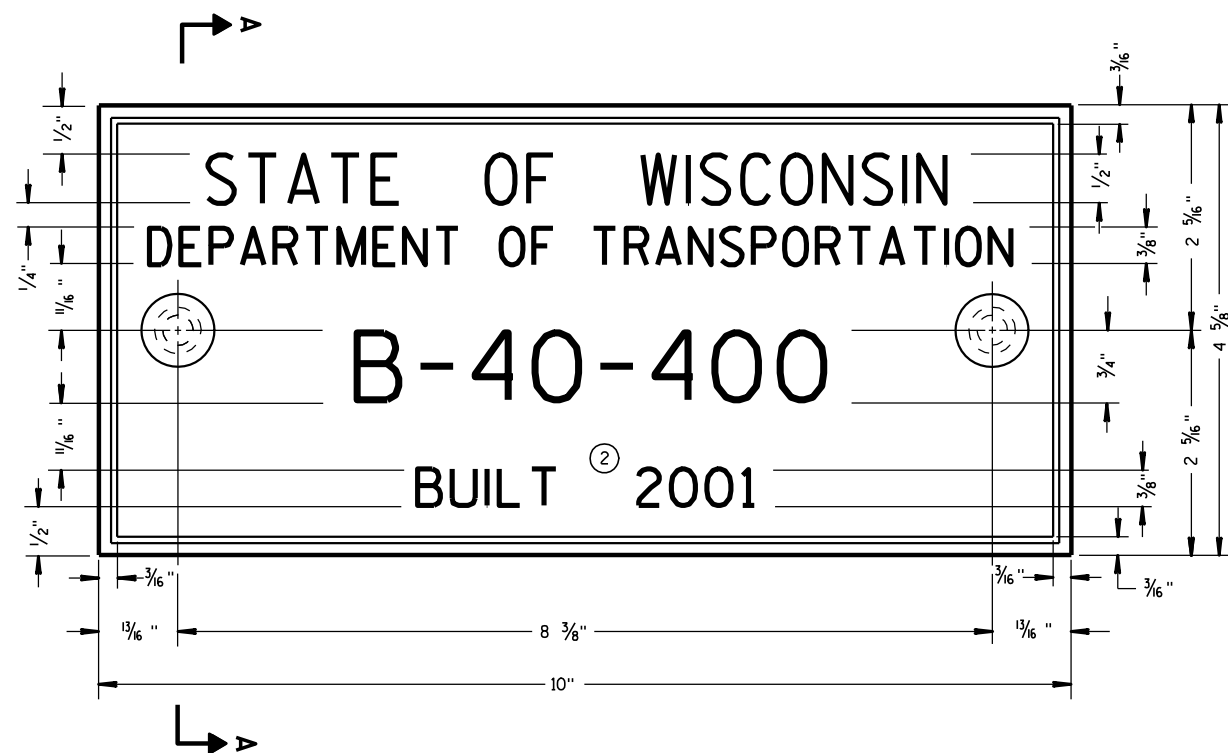


### STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS

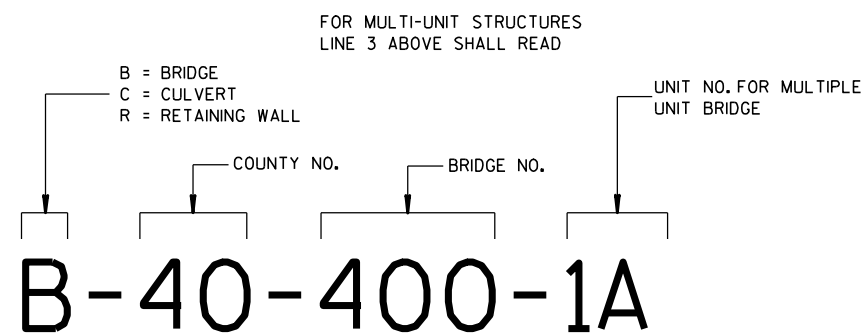
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
9/14/2012  
DATE  
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA





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



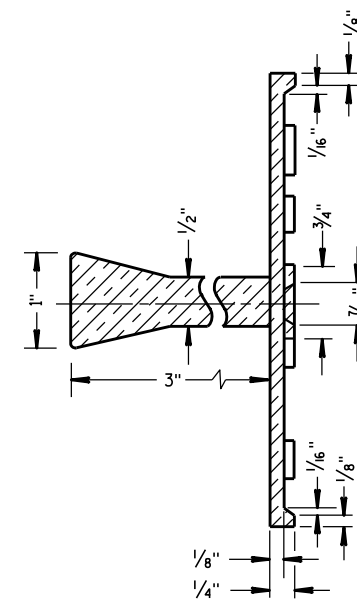
**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

## GENERAL NOTES

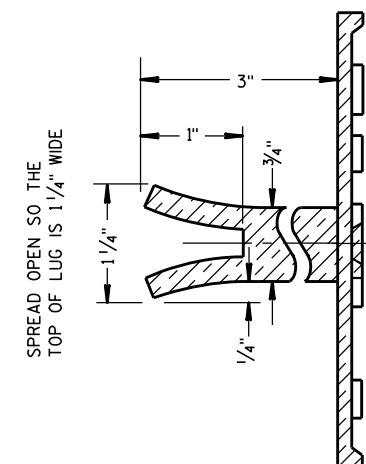
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

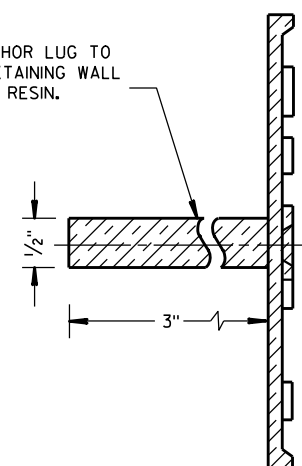


**SECTION A-A**



**ALTERNATE LUG**

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



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

**NAME PLATE  
(STRUCTURES)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

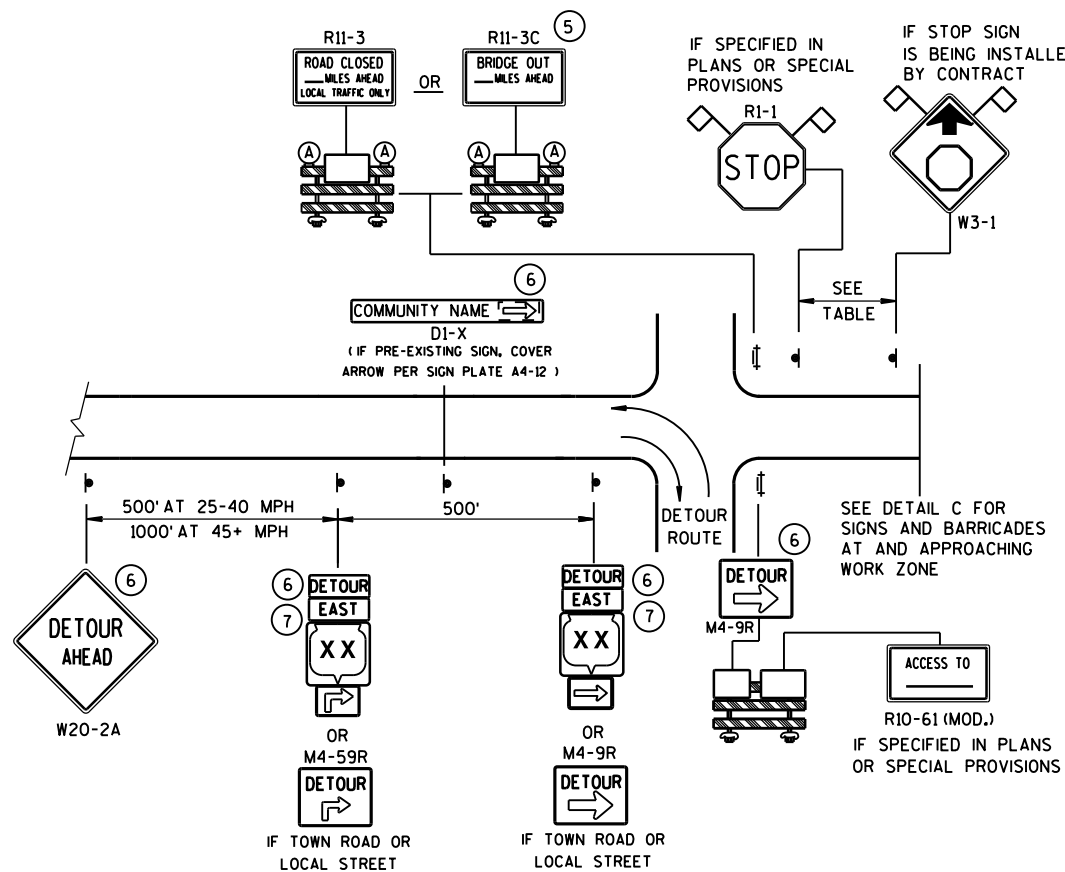
APPROVED

3/26/10  
DATE

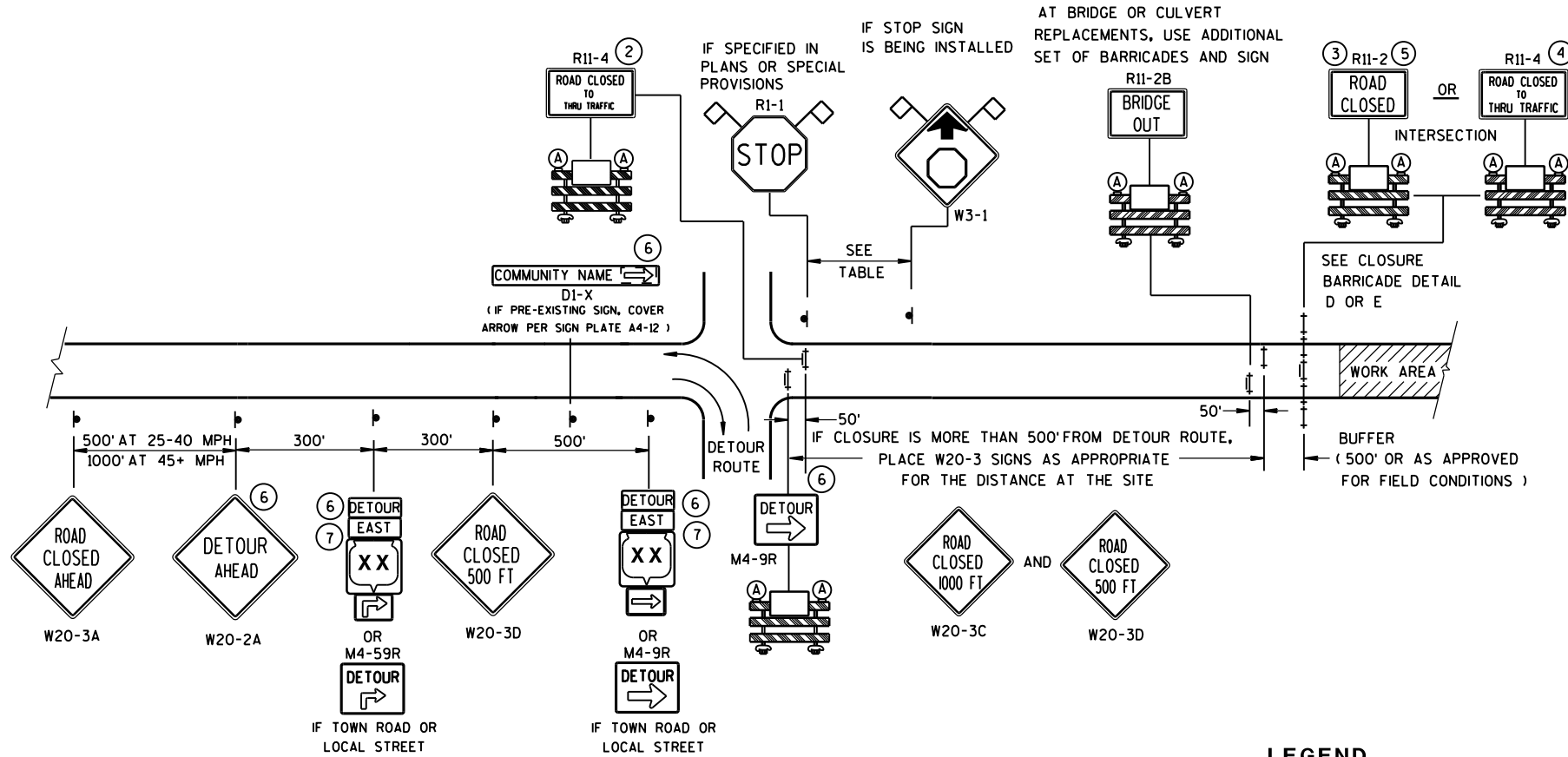
FHWA

/S/ Scot Becker  
CHIEF STRUCTURAL DEVELOPMENT ENGINEER

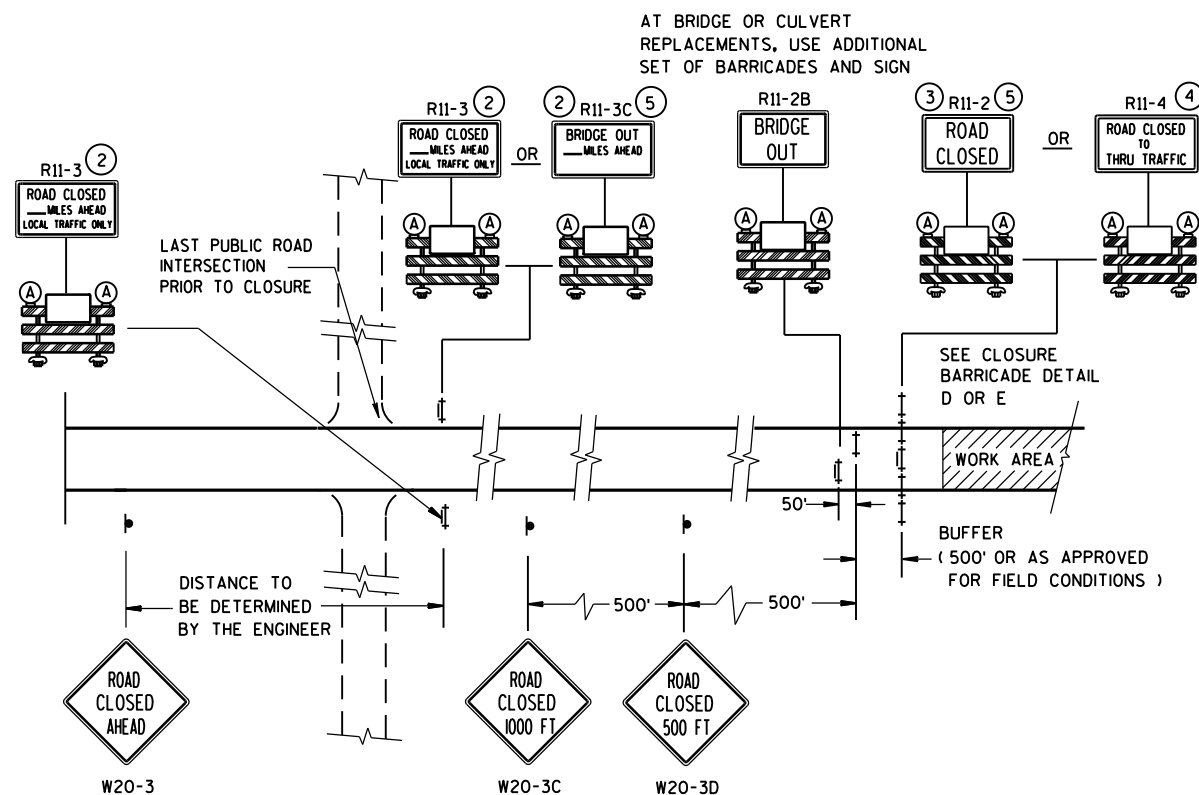




**DETAIL A**  
**MAINLINE CLOSURE WITH POSTED DETOUR**  
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



**DETAIL B**  
**MAINLINE CLOSURE WITH POSTED DETOUR**  
WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



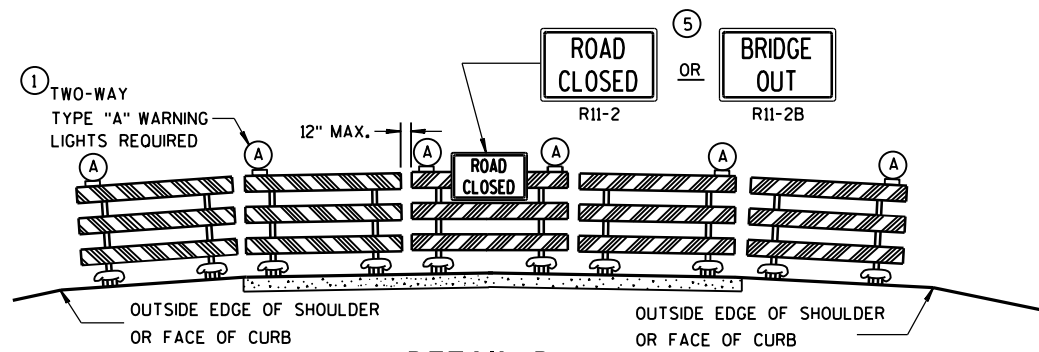
**DETAIL C**  
**MAINLINE CLOSURE, NO POSTED DETOUR**

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

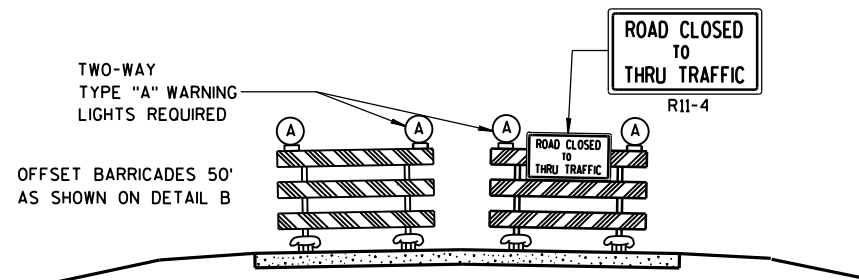
SEE SDD 15C2-SHEET "b"  
FOR GENERAL NOTES  
AND FOOTNOTES ① THROUGH ⑦

<b>BARRICADES AND SIGNS FOR MAINLINE CLOSURES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
Sept. 2015 DATE	/S/ Peter Amokobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY 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 BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

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

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

R11-2 SHALL BE 48" X 30".

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

M4-9 SHALL BE 30" X 24".

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

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

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

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

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

R1-1 SHALL BE 36" X 36".

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

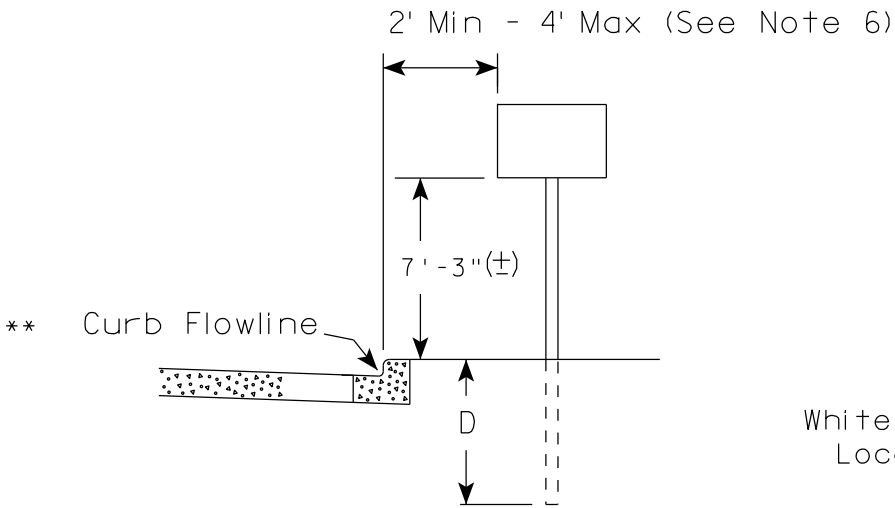
## BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

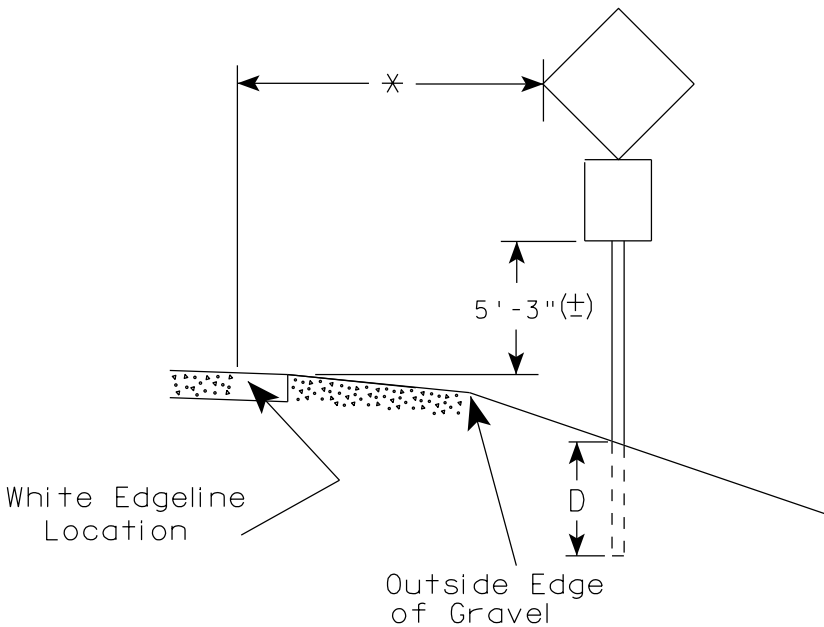
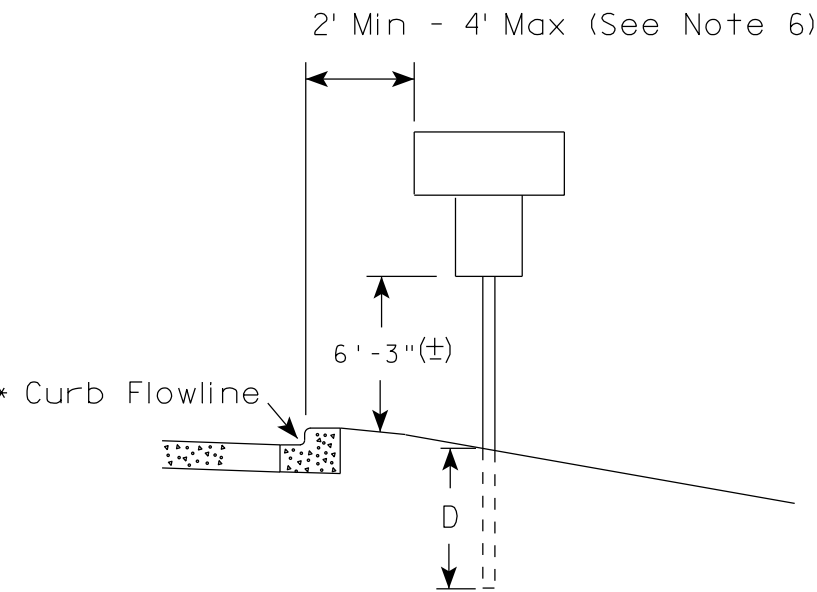
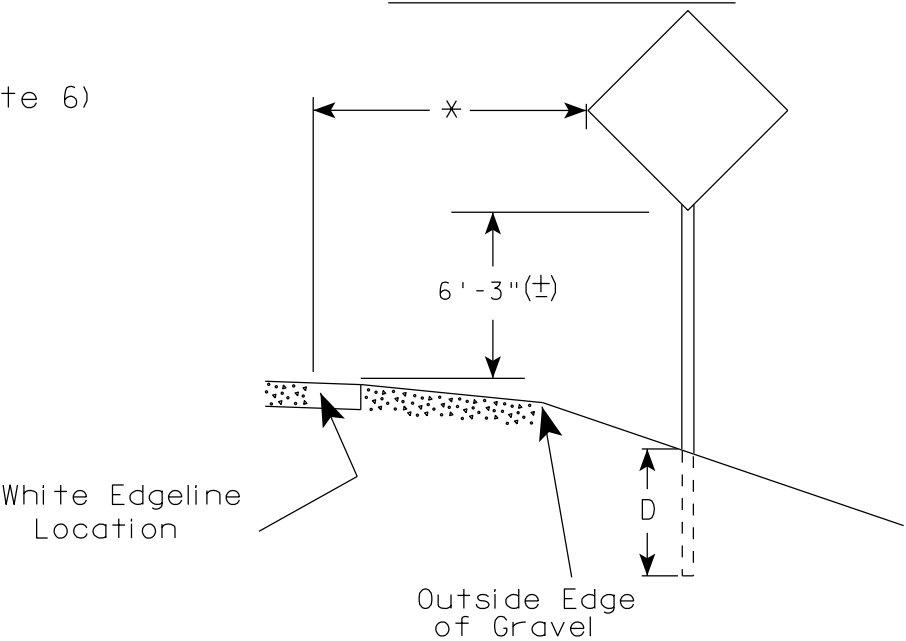
Sept. 2015 /S/ Peter Amokobe Atepe  
DATE STATEWIDE WORK ZONE TRAFFIC  
FHWA SAFETY ENGINEER



URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

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

POST EMBEDMENT DEPTH

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

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

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

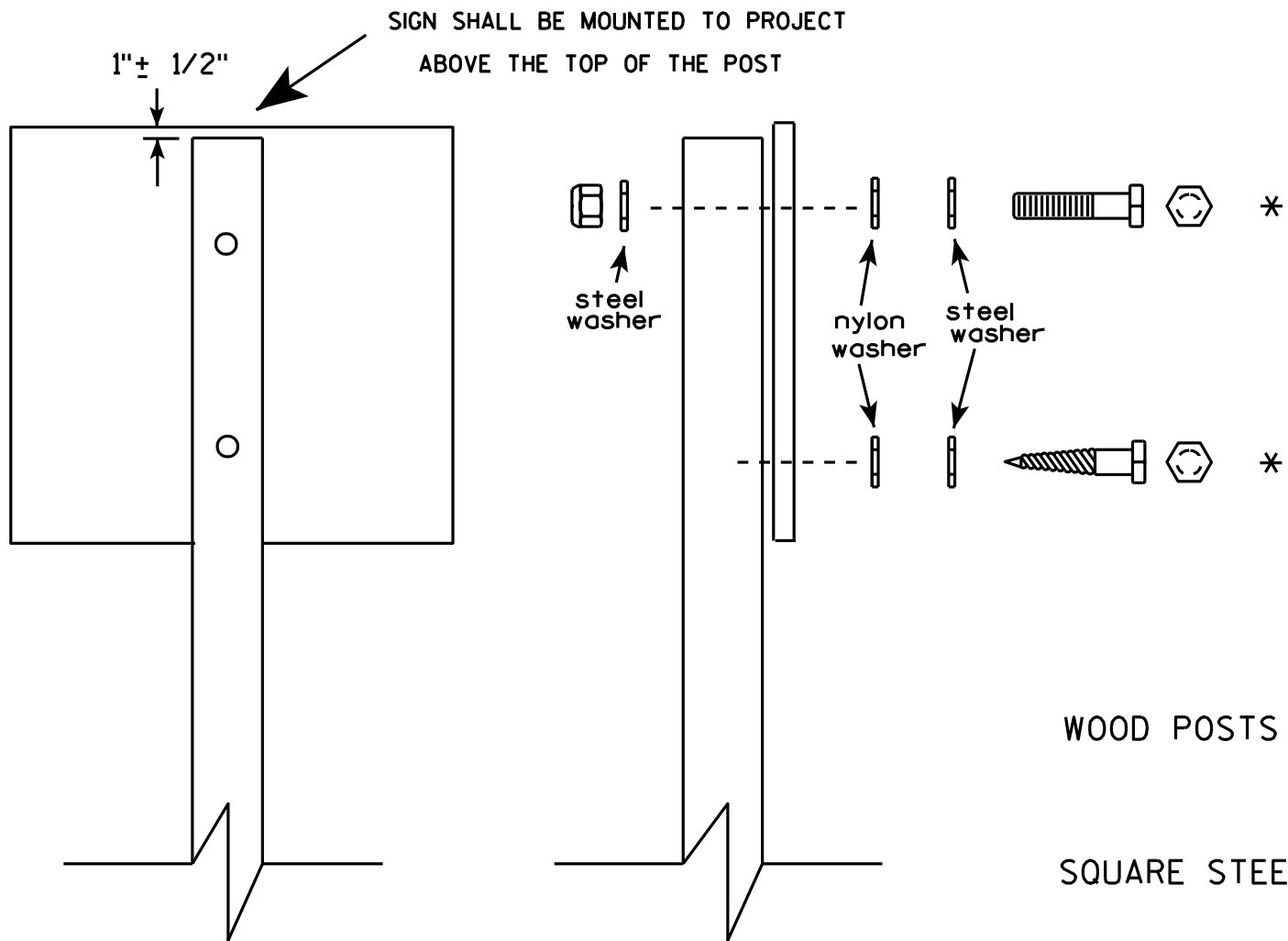
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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



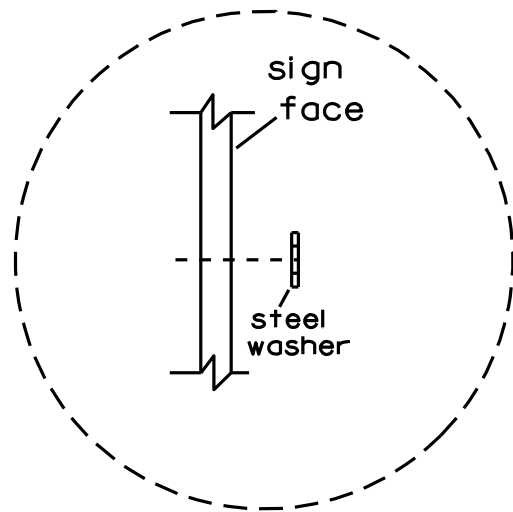


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

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

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

- WOOD POSTS (4" x 4" or 4" x 6")  
LAG SCREWS -  $\frac{3}{8}$ " X 3"  
MACHINE BOLTS -  $\frac{5}{16}$ " X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")  
MACHINE BOLTS -  $\frac{3}{8}$ " X 3-1/4" Length w/ nuts  
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 for all Type H signs.

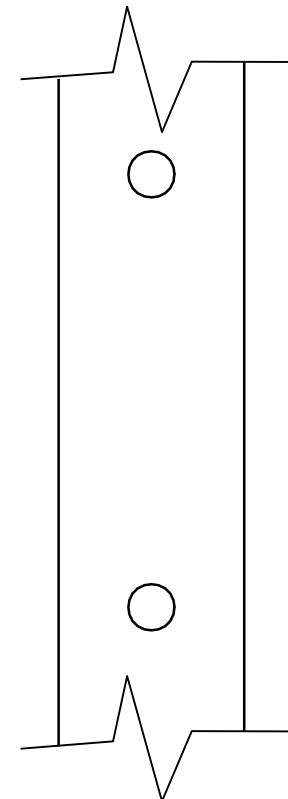
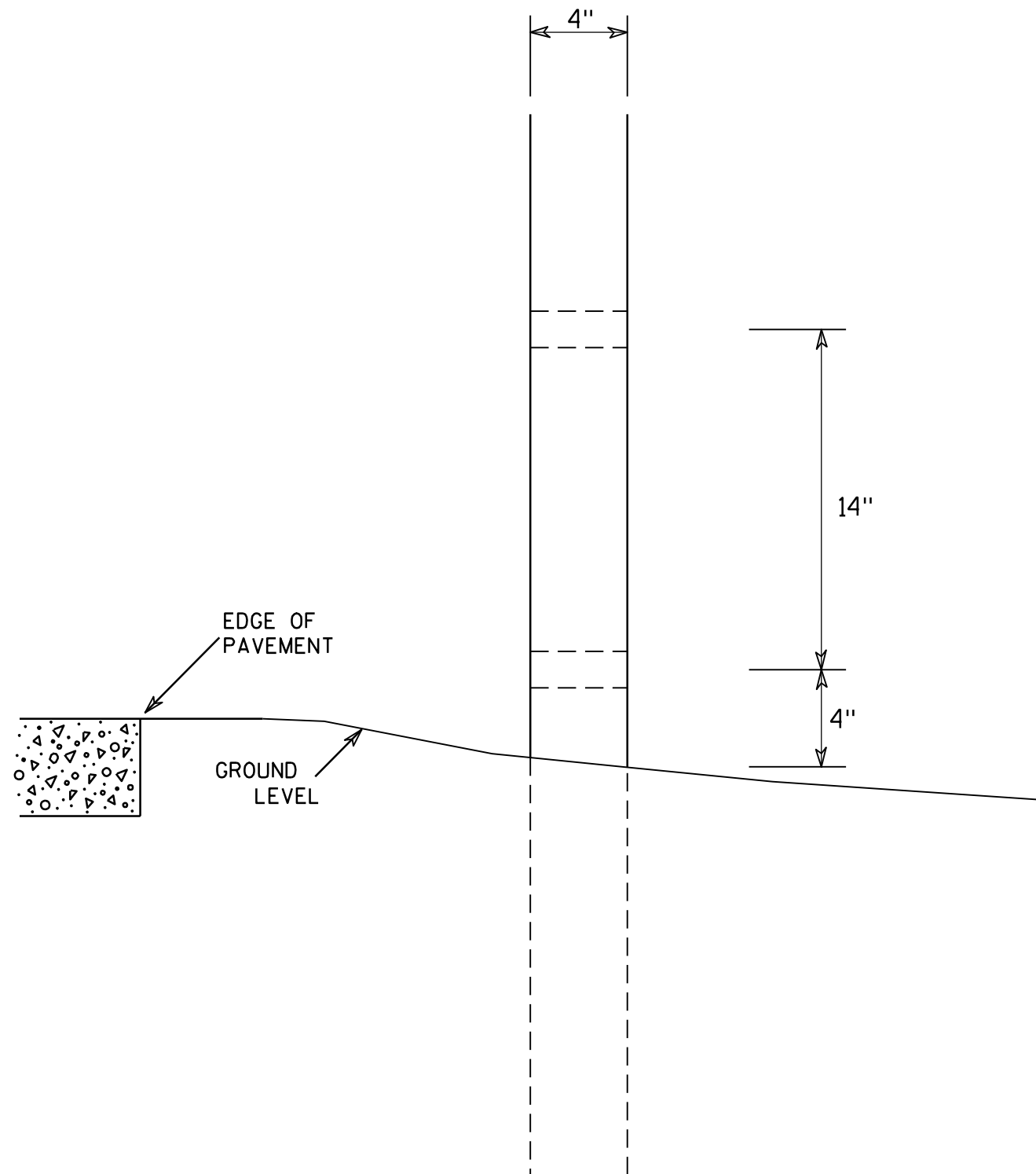


Washer Placement when Sign Has Other Than Type H or Type F Face

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

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





SIDE VIEW

# GENERAL NOTES

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

## 4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Chester J. Spang*  
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

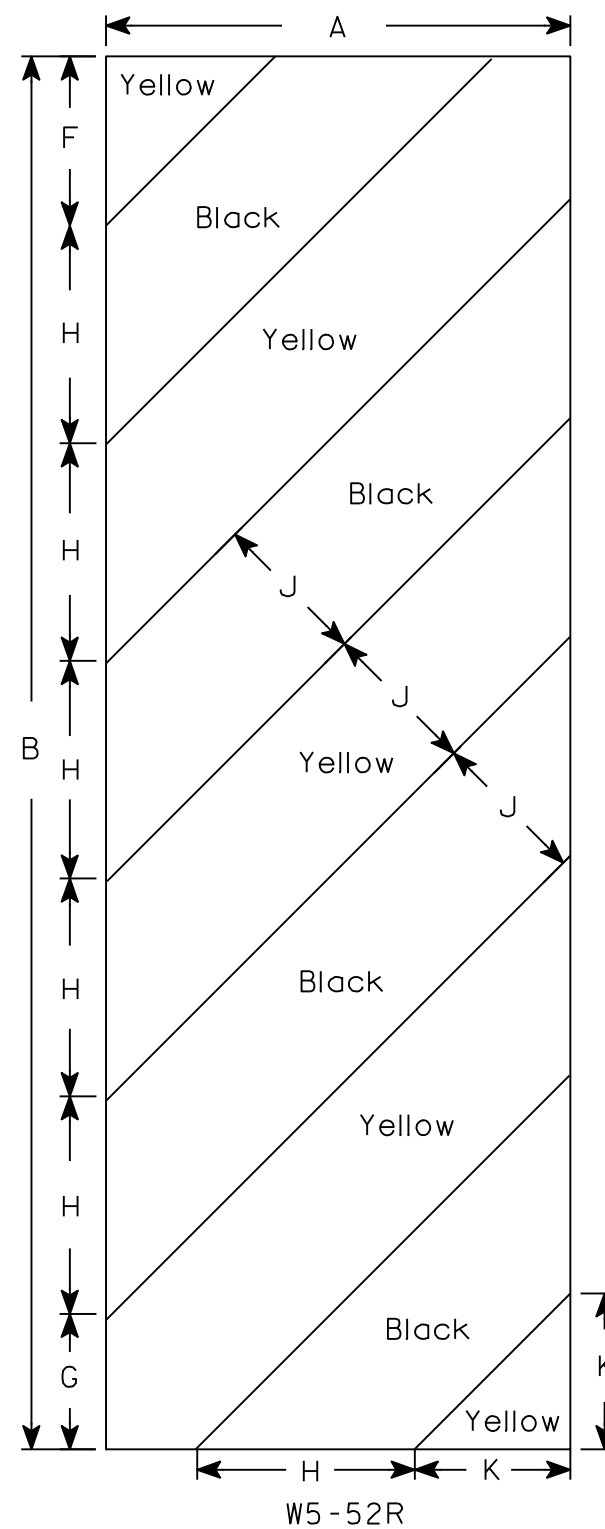
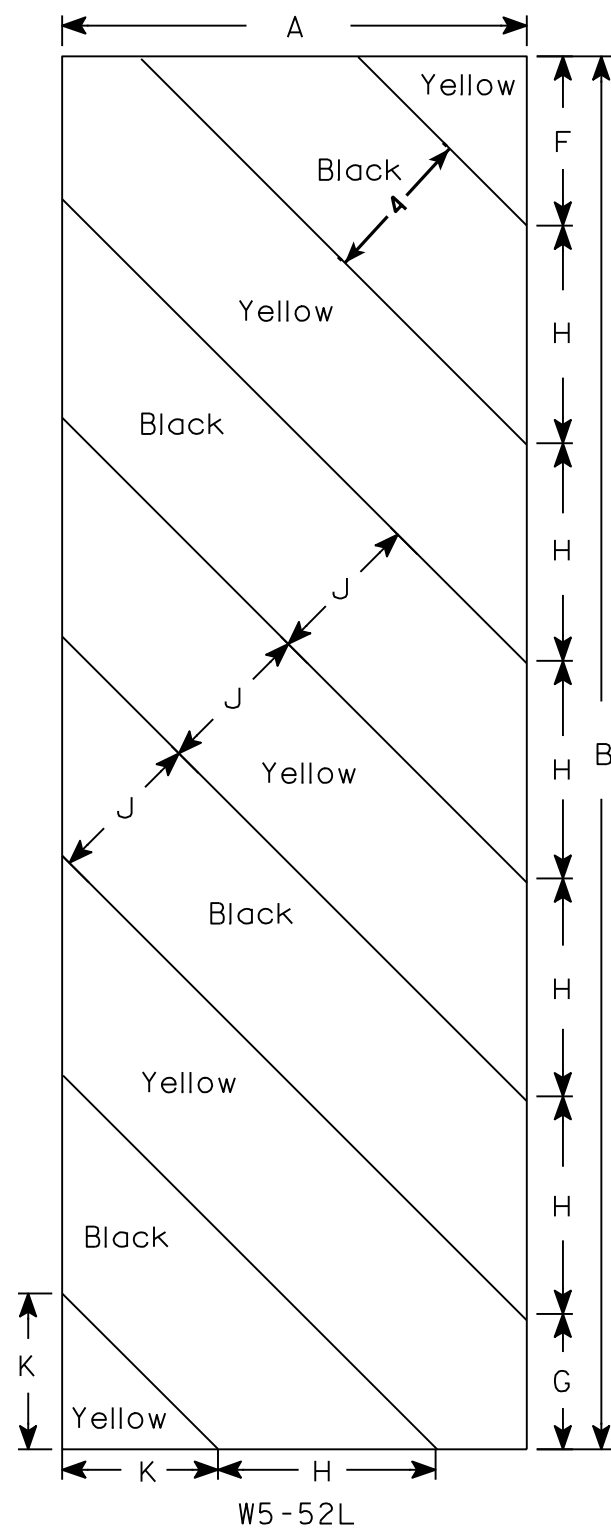
HWY:

COUNTY:

SHEET NO:

E





## 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.

[illegible]

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

PROJECT NO:

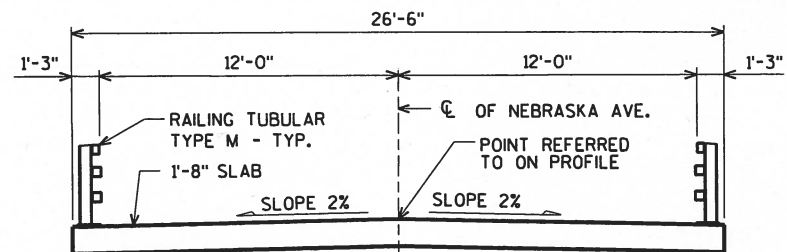
HWY:

COUNTY:

SHEET NO:

E



**TYPICAL SECTION THRU BRIDGE**

(LOOKING NORTH)

**DESIGN DATA****LIVE LOAD:**

DESIGN LOADING: HL-93  
INVENTORY RATING FACTOR: 1.11  
OPERATING RATING FACTOR: 1.44  
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)  $f_y$  = 60,000 p.s.i.

**HYDRAULIC DATA:****100 YEAR FLOOD**

DRAINAGE AREA = 2.7 sq. mi.  
WATERWAY AREA = 144 sq. ft.  
V = 6.5 f.p.s.  
Q<sub>100</sub> = 940 c.f.s.  
HIGH WATER<sub>100</sub> EL. 958.9  
HIGH WATER<sub>2</sub> EL. 951.7  
SCOUR CRITICAL CODE = 8  
DATUM = NAVD88 (2012)

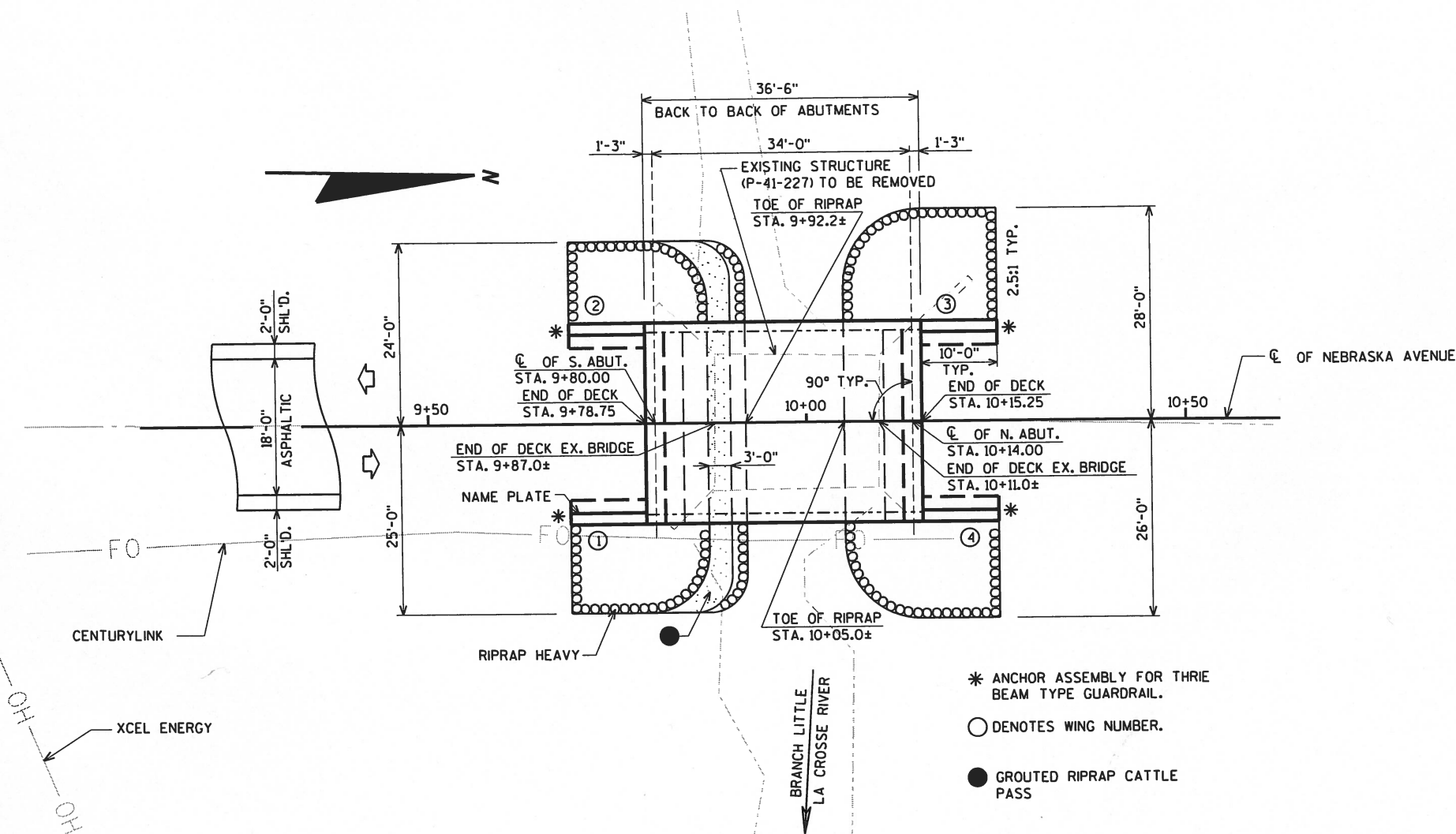
**FOUNDATION DATA:**

ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS \* PER PILE. ESTIMATED LENGTH OF 20'-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.D.T. = 200 (2017)  
A.D.T. = 205 (2037)  
R.D.S. = 50 M.P.H.

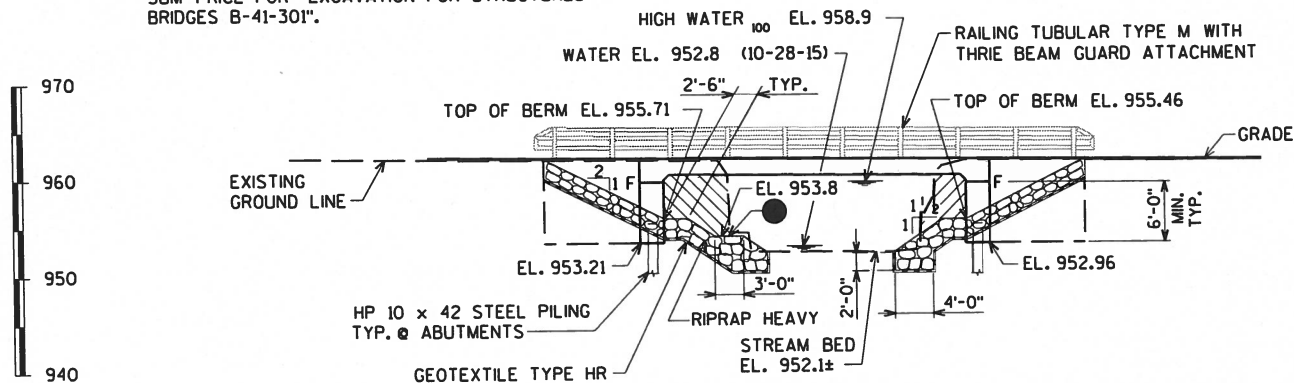
**PLAN**

SINGLE SPAN CONCRETE FLAT SLAB

**LIST OF DRAWINGS**

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

COST OF EXCAVATION IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-41-301".

**ELEVATION**

BRIDGE OFFICE CONTACT:  
WILLIAM DREHER  
(608)-266-8489

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

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY <b>AYRES ASSOCIATES</b> 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION ACCEPTED <i>William C. Dreher</i> <sup>SR</sup> <b>05/03/17</b> CHIEF STRUCTURES DESIGN ENGINEER DATE			
<b>STRUCTURE B-41-301</b>			
NEBRASKA AVENUE OVER BR. LITTLE LA CROSSE RIVER			
COUNTY	MONROE	TOWN/CITY/VILLAGE	PORTLAND
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	CKJ	DESIGN CK'D.	JWZ
DRAWN BY	CKJ/JWZ	PLANS CK'D.	DVS
<b>GENERAL PLAN</b>			SHEET 1 OF 12

SPRNAME\$ U:\42-1011.00 - Monroe County, Nebraska Ave+BRIDGE+421011 gp\_FINAL.dgn

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

8

8



\$PRNAME\$  
U:\42-1011.00 - Monroe County, Nebraska Ave\BRIDGE\421011 gp-FINAL.dgn

STATE PROJECT NUMBER

5016-00-70

**TOTAL ESTIMATED QUANTITIES**

**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 FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY OR GROUTED RIPRAP HEAVY AND GEOTEXTILE TYPE HR AS SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.

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

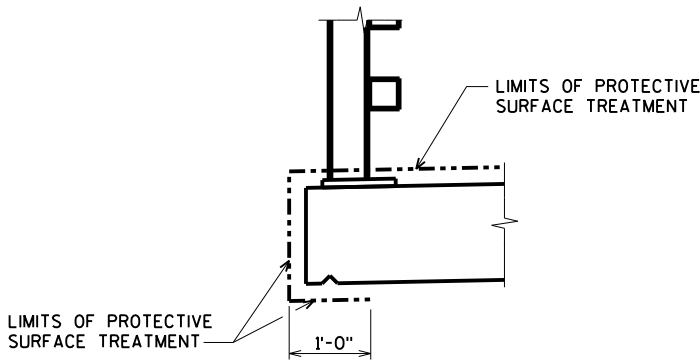
THE EXISTING GROUND LINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.

THE EXISTING STRUCTURE, P-41-227, TO BE REMOVED, IS A SINGLE SPAN STEEL DECK GIRDER BRIDGE ON CONCRETE ABUTMENTS, 21.7 FOOT LONG WITH A 16.0 FOOT CLEAR ROADWAY WIDTH.

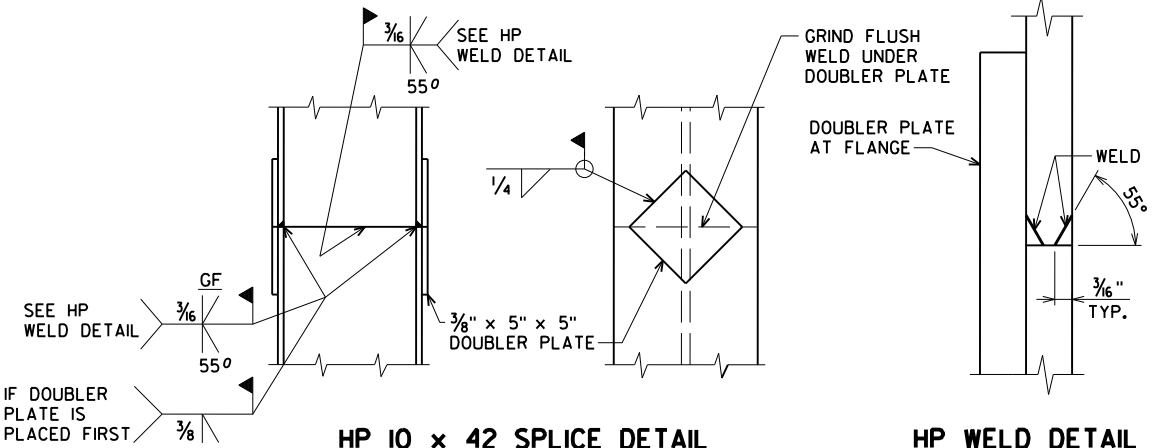
AT BACKFACE OF ABUTMENTS ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.

PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.

BID ITEM NUMBER	BID ITEMS	UNIT	S. ABUT.	N. ABUT.	SUPER.	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 9+99	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-41-301	LS	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	80	80	-----	160
502.0100	CONCRETE MASONRY BRIDGES	CY	33	33	64	130
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	130	130
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1,570	1,570	-----	3,140
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,380	1,380	11,110	13,870
513.4061	RAILING TUBULAR TYPE M B-41-301	LF	20	20	74	114
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8	8	-----	16
550.0500	PILE POINTS	EACH	4	4	-----	8
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	80	80	-----	160
606.0300	RIPRAP HEAVY	CY	55	65	-----	120
606.0700	GROUTED RIPRAP HEAVY	CY	10	-----	-----	10
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	67	67	-----	134
645.0120	GEOTEXTILE TYPE HR	SY	145	130	-----	275
	NON-BID ITEMS					
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"



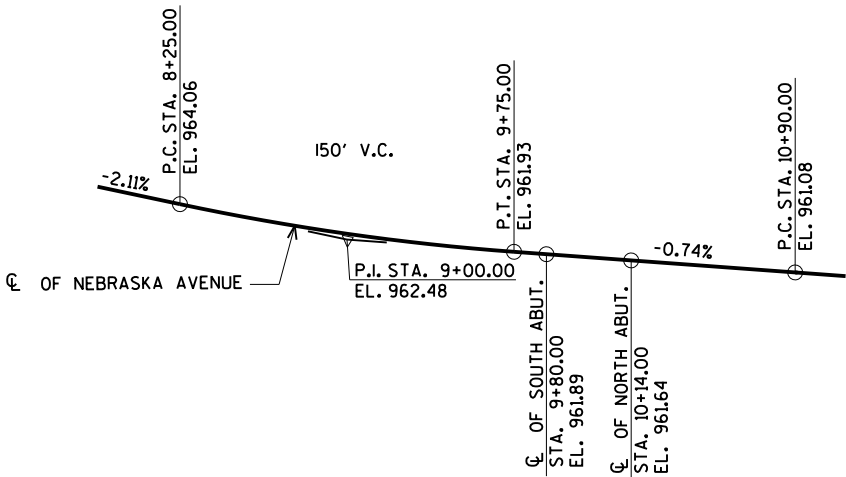
**PROTECTIVE SURFACE TREATMENT DETAIL**



**HP 10 x 42 SPLICE DETAIL**

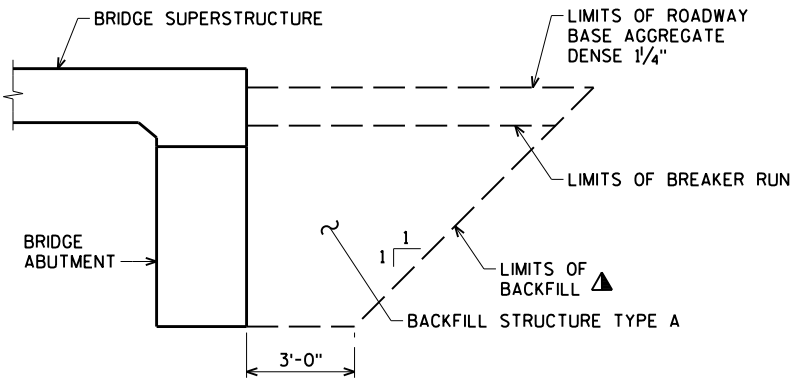
**HP WELD DETAIL**

FLANGE SHOWN, WEB SIMILAR



**PROFILE GRADE LINE**  
(NEBRASKA AVENUE)

BENCH MARK:  
CHISLED SQUARE AT NW WING WALL OF BRIDGE  
STA. 10+21.5, 19.0' LT.  
EL. 958.56



**BACKFILL STRUCTURE LIMITS**

▲ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-41-301			
DRAWN BY CKJ/JWZ		PLANS CK'D. CJM	
QUANTITIES AND NOTES		SHEET 2 OF 12	



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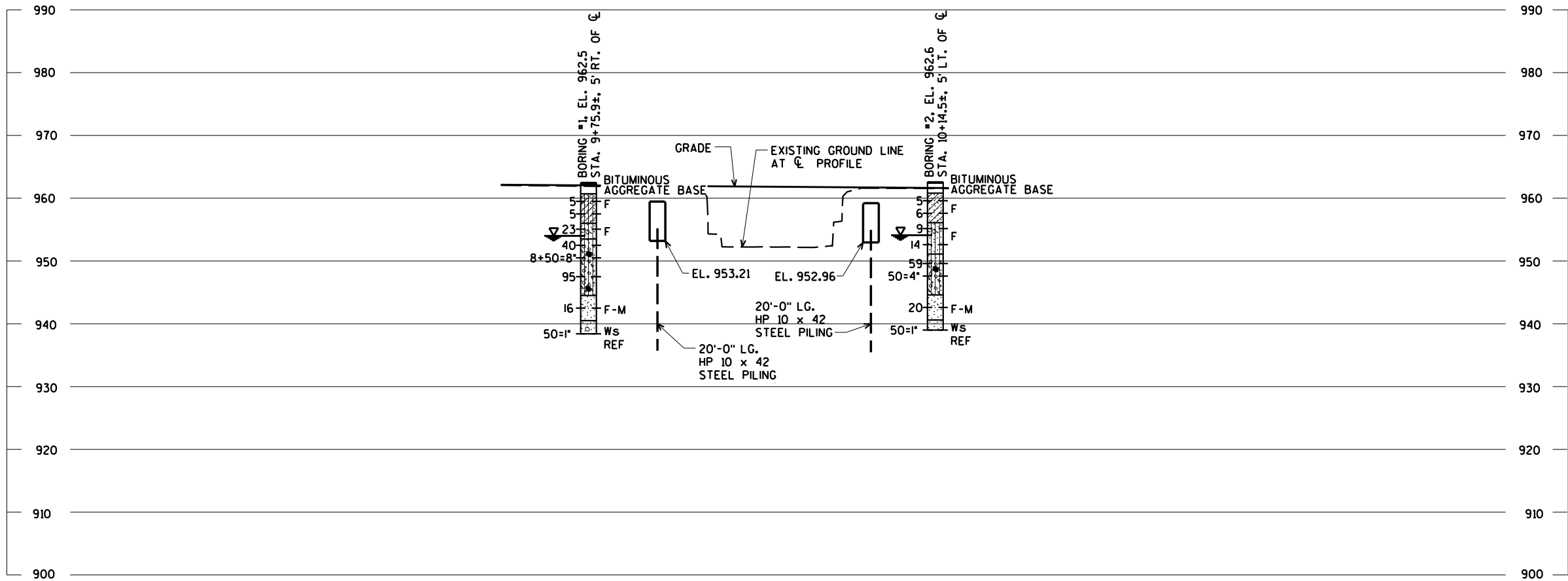
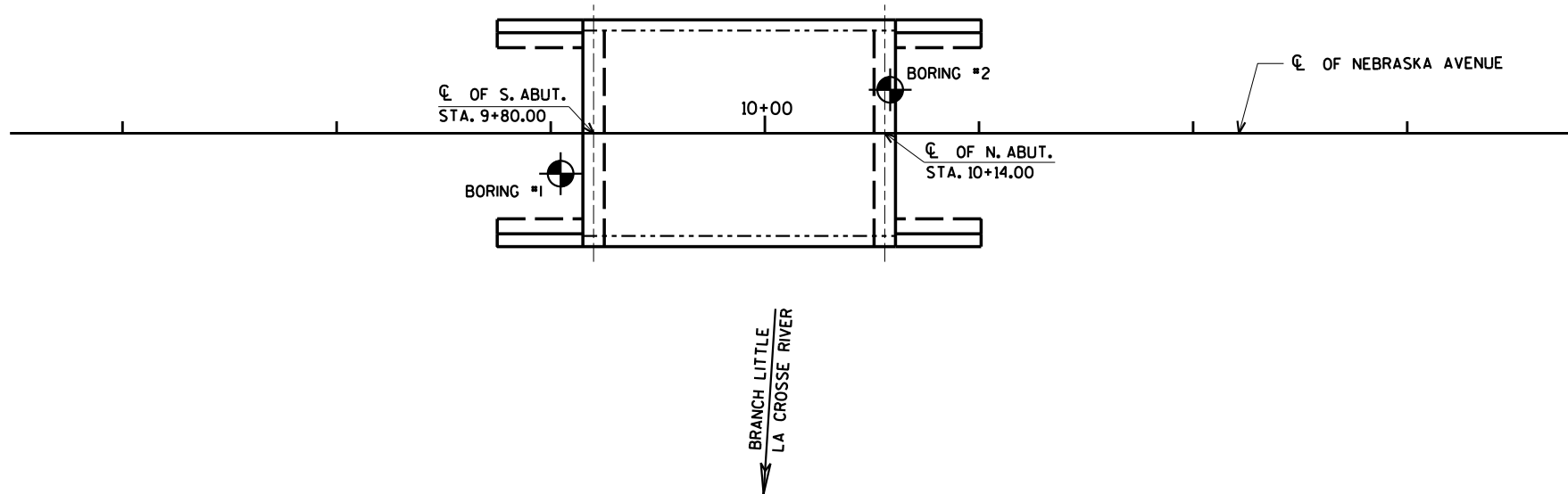
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BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	MAY 2, 2016	320688.015	627580.787
2	MAY 2, 2016	320726.424	627570.274

BORINGS COMPLETED BY: CHOSEN VALLEY TESTING, INC.

REPORT COMPLETED BY: CHOSEN VALLEY TESTING, INC.

ALL COORDINATES REFERENCED TO WCCS NAVD 88(2012) MONROE CO.



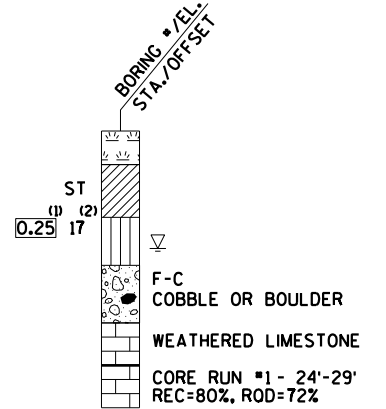
STATE PROJECT NUMBER

5016-00-70

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.

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-41-301			
DRAWN BY JWZ		PLANS CK'D. CJM	
SUBSURFACE EXPLORATION		SHEET 3 OF 12	





■ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.



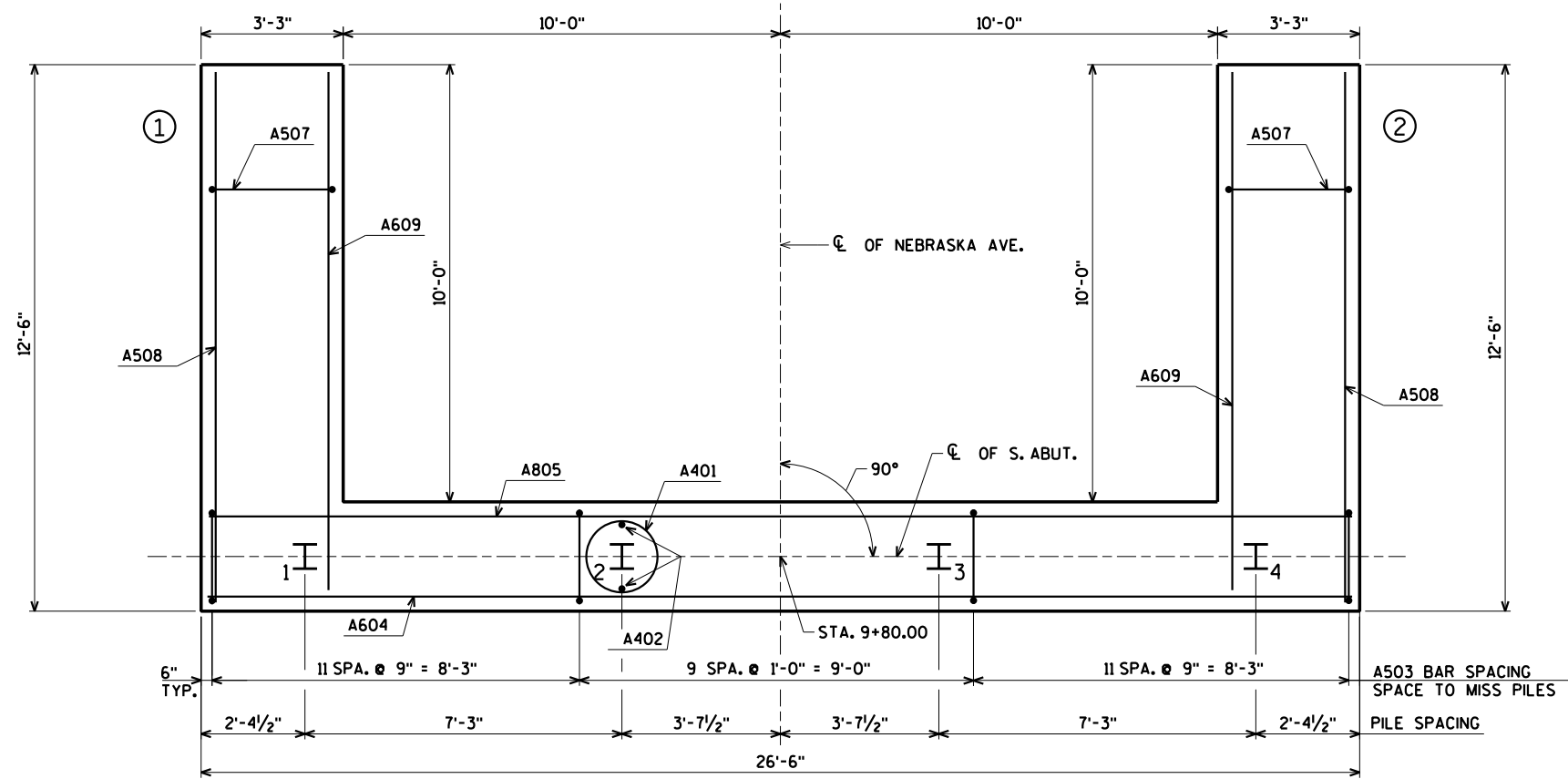
B.F. DENOTES BACK FACE  
E.F. DENOTES EACH FACE  
F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-41-301			
DRAWN BY		CKJ	PLANS CK'D. CJM
SOUTH ABUTMENT		SHEET 4 OF 12	

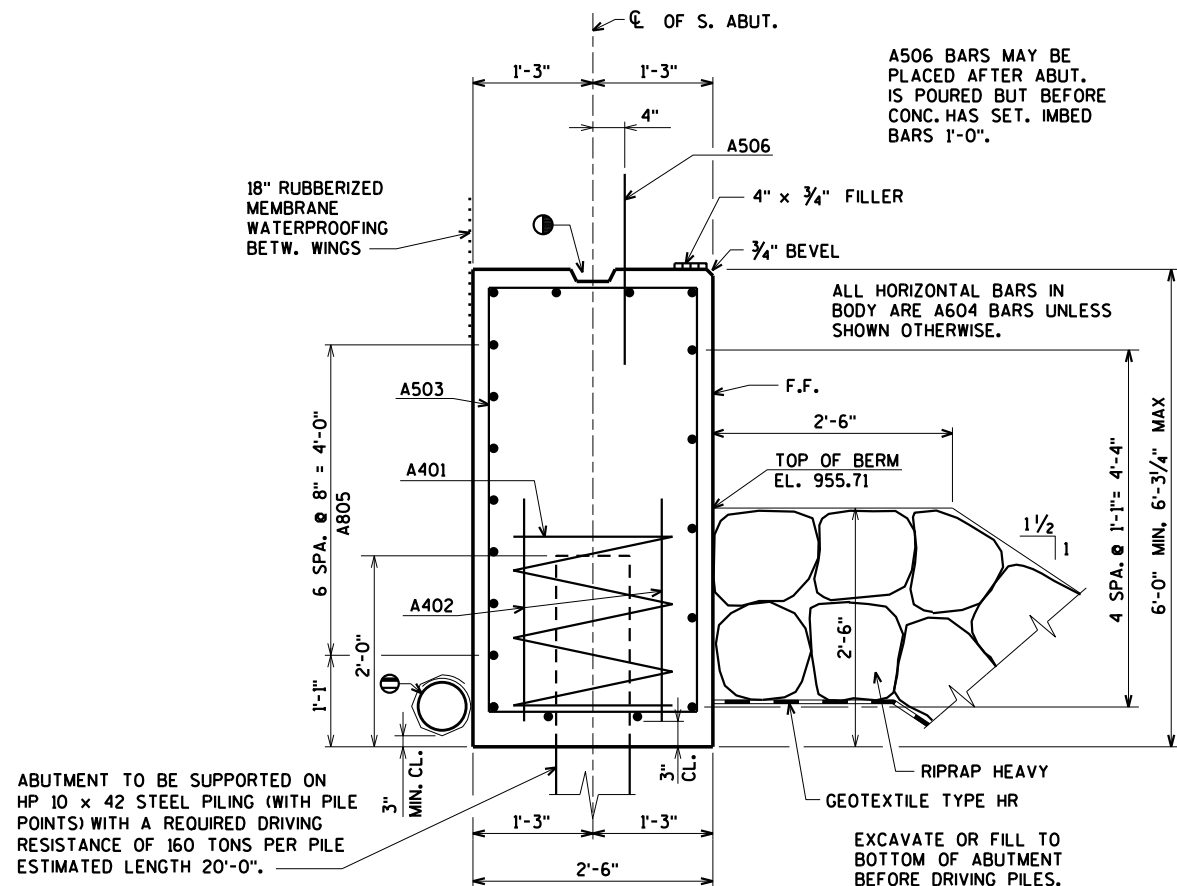


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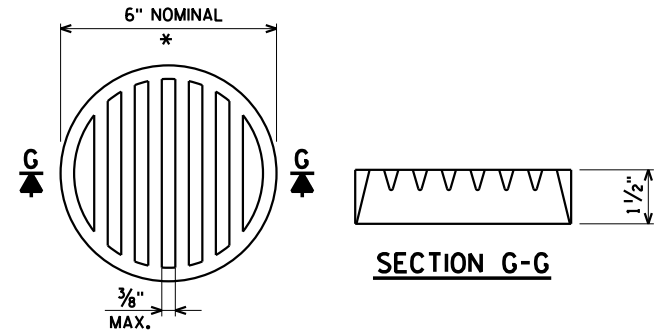
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PILE LAYOUT



TYPICAL SECTION THRU BODY



\* 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

① PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON THIS SHEET. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

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

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE ESTIMATED LENGTH 20'-0".

EXCAVATE OR FILL TO BOTTOM OF ABUTMENT BEFORE DRIVING PILES.

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

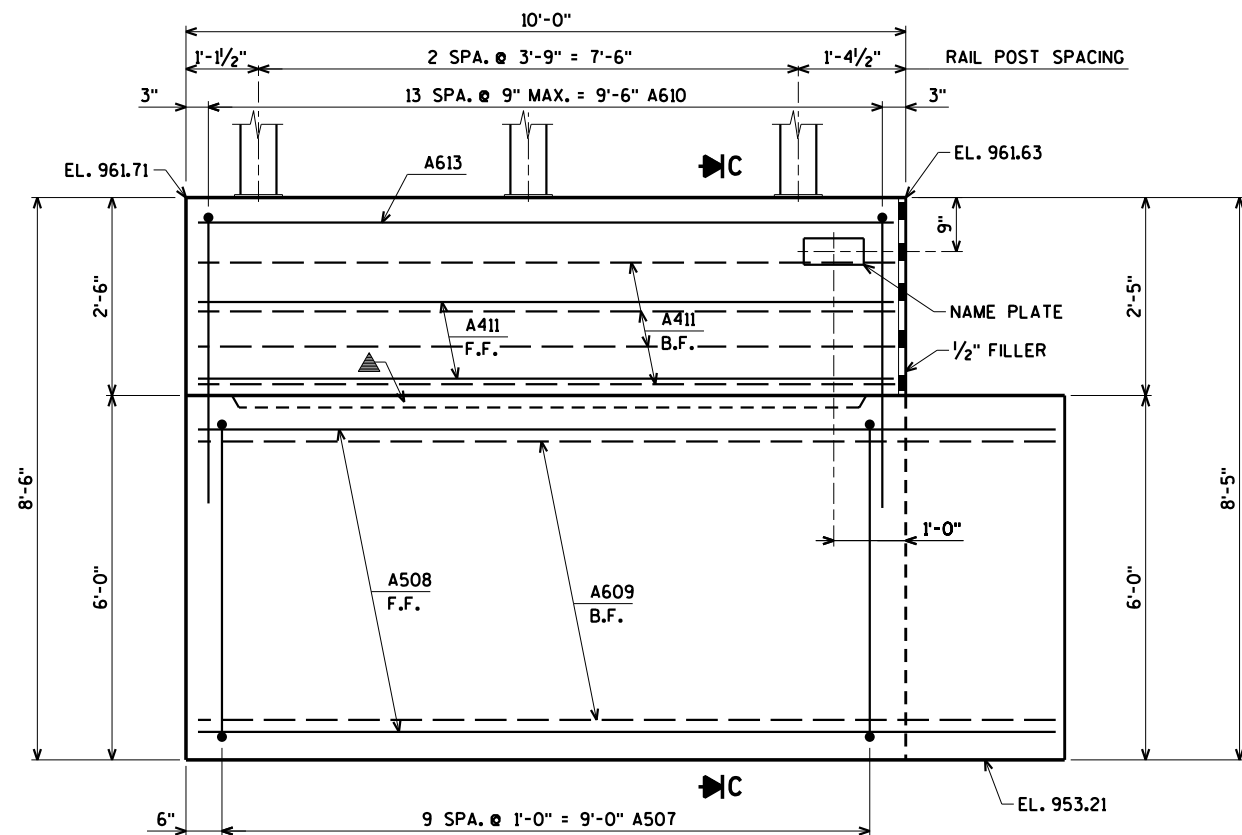
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-41-301			
DRAWN BY CKJ		PLANS CK'D. CJM	
SOUTH ABUTMENT DETAILS		SHEET 5 OF 12	

8

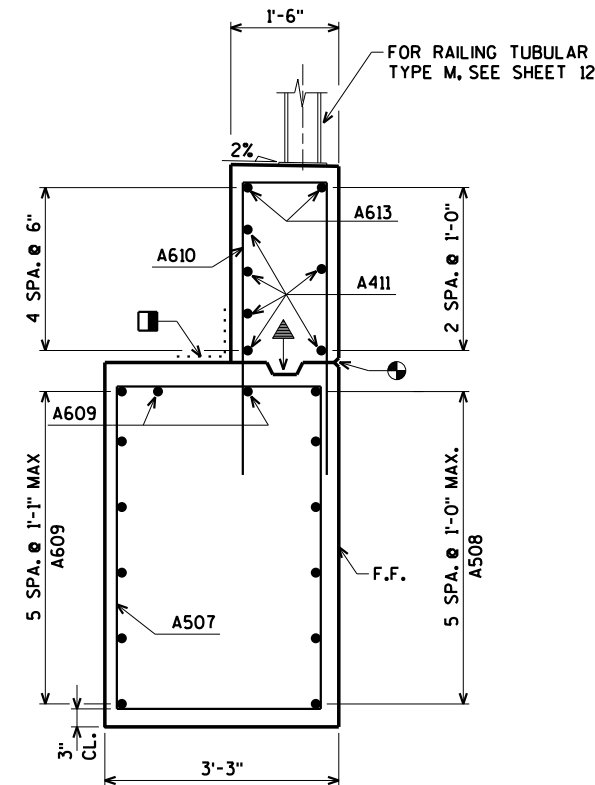


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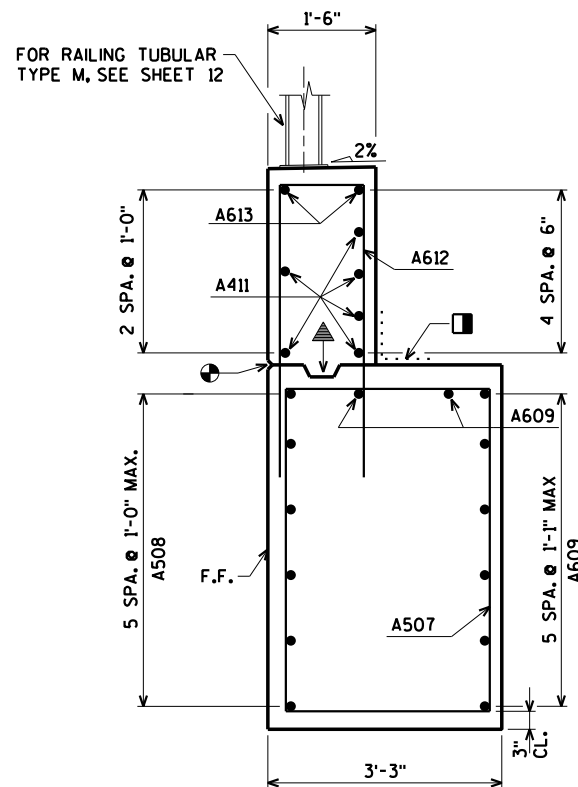
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ELEVATION - WING 1



SECTION C

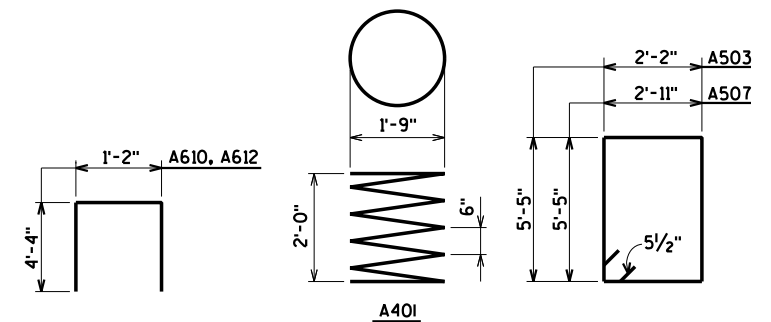


SECTION D

BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	1,570# UNCOATED 1,380# COATED
						LOCATION
A401		4	28-0	X		BODY @ PILES
A402		8	2-3			BODY @ PILES
A503		32	15-8	X		BODY VERTS.
A604		12	26-2			BODY HORIZ. E.F.
A805		7	26-2			BODY HORIZ. B.F.
A506	X	25	2-0			BODY DOWELS
A507	X	20	17-3	X		WINGS 1 & 2 VERT.
A508	X	12	12-2			WINGS 1 & 2 HORIZ. F.F.
A609	X	16	11-11			WINGS 1 & 2 HORIZ. B.F. AND TOP
A610	X	14	9-6	X		WING 1 VERT.
A411	X	12	9-7			WINGS 1 & 2 HORIZ. E.F.
A612	X	14	9-6	X		WING 2 VERT.
A613	X	4	9-7			WINGS 1 & 2 HORIZ. TOP

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JOINT IS NOT USED.

OPT. CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY.

3/4" V-GROOVE ON FRONT FACE ONLY.

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

B.F. DENOTES BACK FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-41-301			
DRAWN BY CKJ		PLANS CK'D. CJM	
SOUTH ABUTMENT DETAILS AND BILL OF BARS			SHEET 6 OF 12

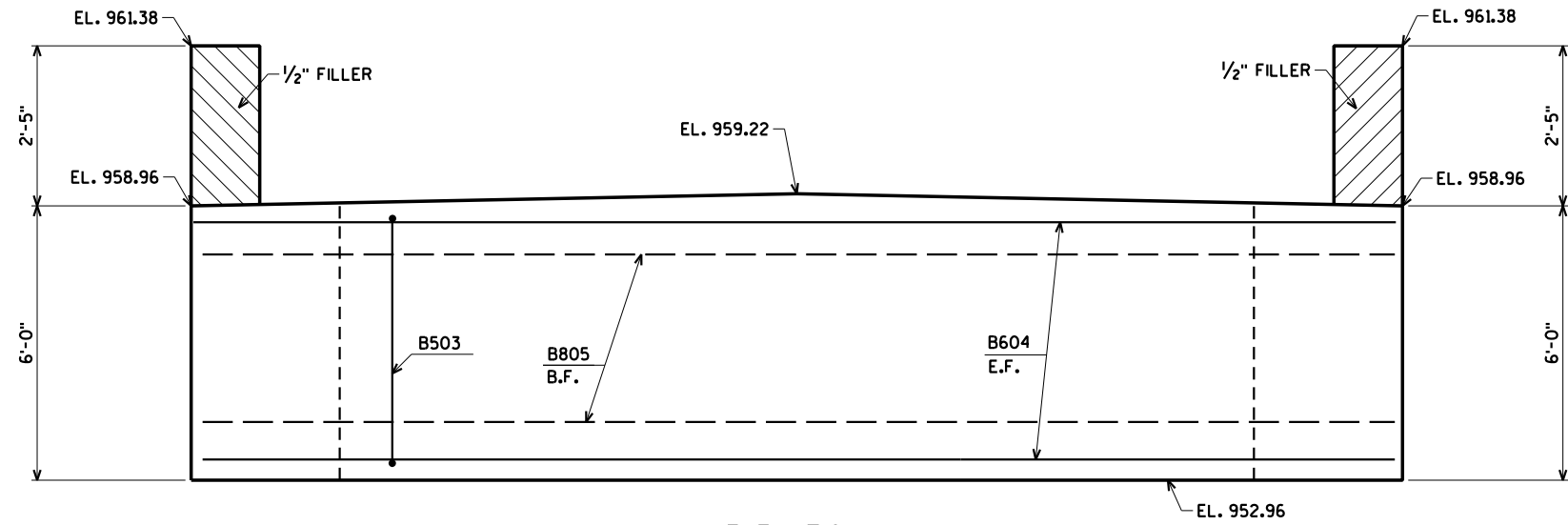
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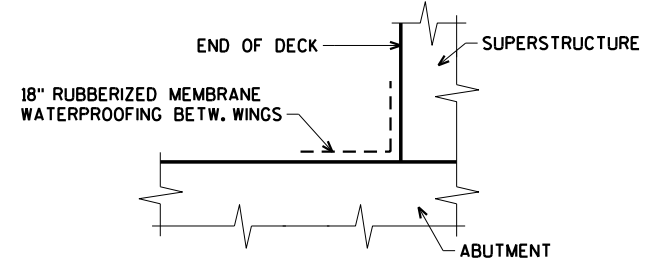
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STATE PROJECT NUMBER

5016-00-70

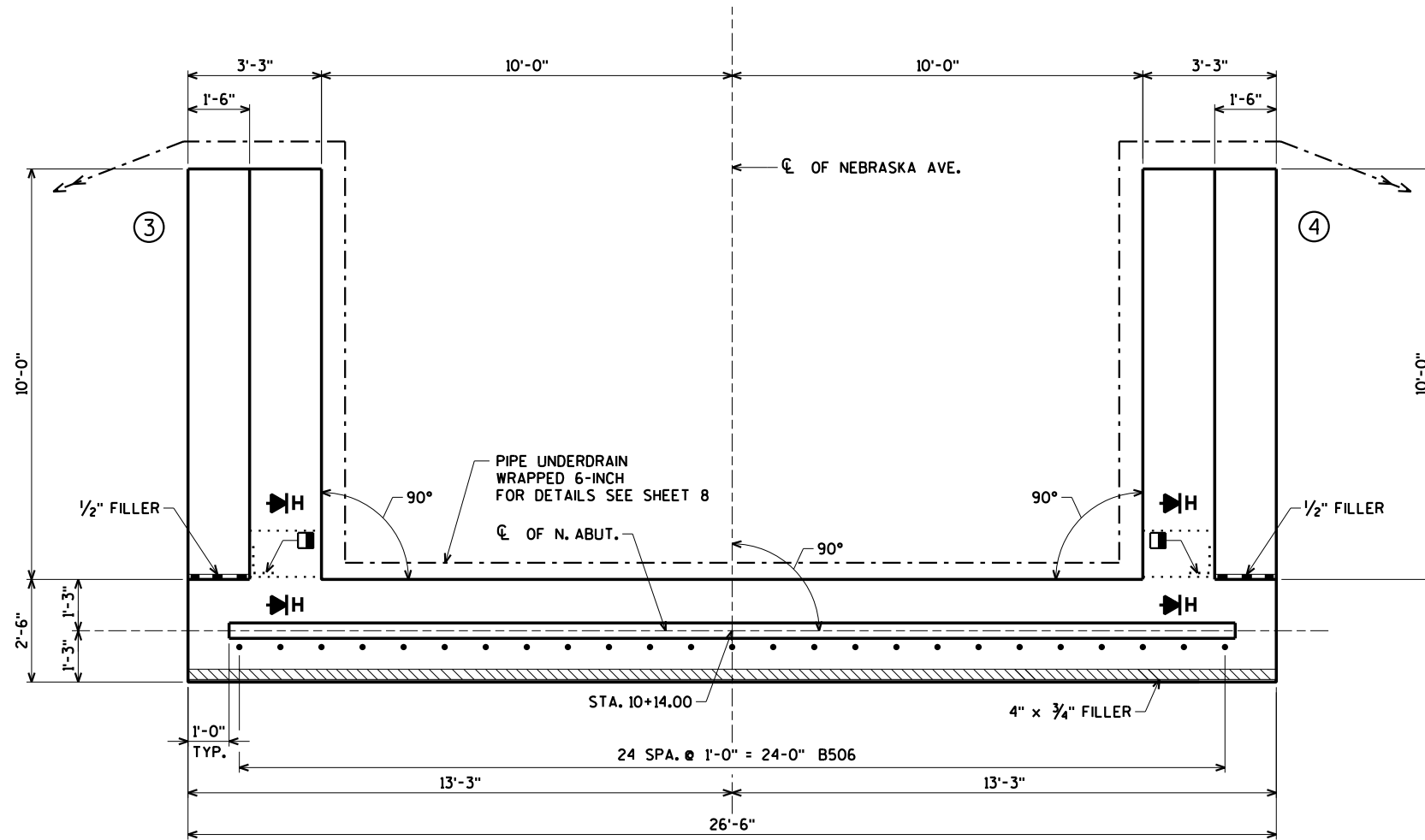


**ELEVATION**  
(LOOKING NORTH)



**SECTION H**

■ VERTICAL 18" RUBBERIZED MEMBRANE  
WATERPROOFING TO EXTEND FROM  
BRIDGE SEAT TO TOP OF WING WALL.



**PLAN**

B.F. DENOTES BACK FACE  
E.F. DENOTES EACH FACE  
F.F. DENOTES FRONT FACE

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-41-301			
DRAWN BY CKJ		PLANS CK'D. CJM	
NORTH ABUTMENT			SHEET 7 OF 12

ORIGINAL PLANS PREPARED BY  
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Eau Claire, WI 54701  
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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



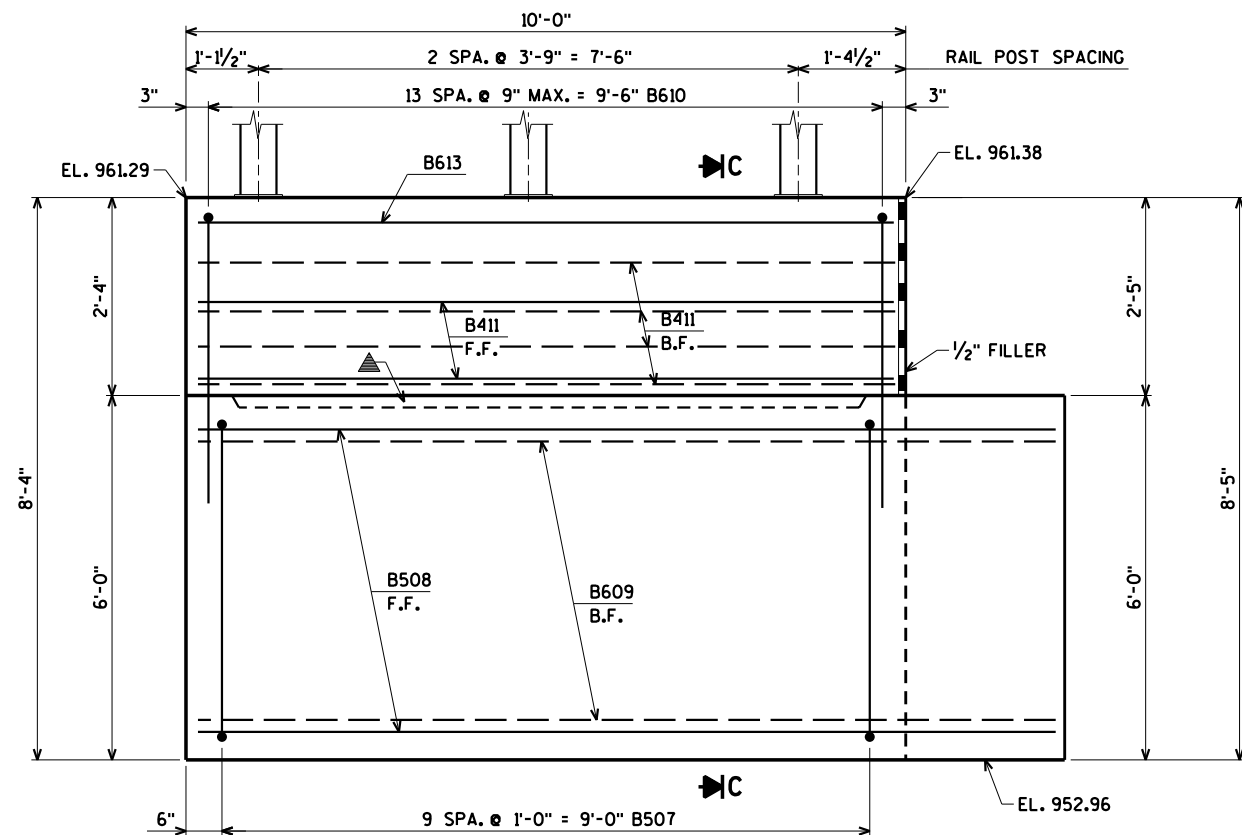
F.F. DENOTES FRONT FACE

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STRUCTURE B-41-301			
		DRAWN BY	CKJ
		PLANS CK'D.	CJM
NORTH ABUTMENT DETAILS		SHEET 8 OF 12	

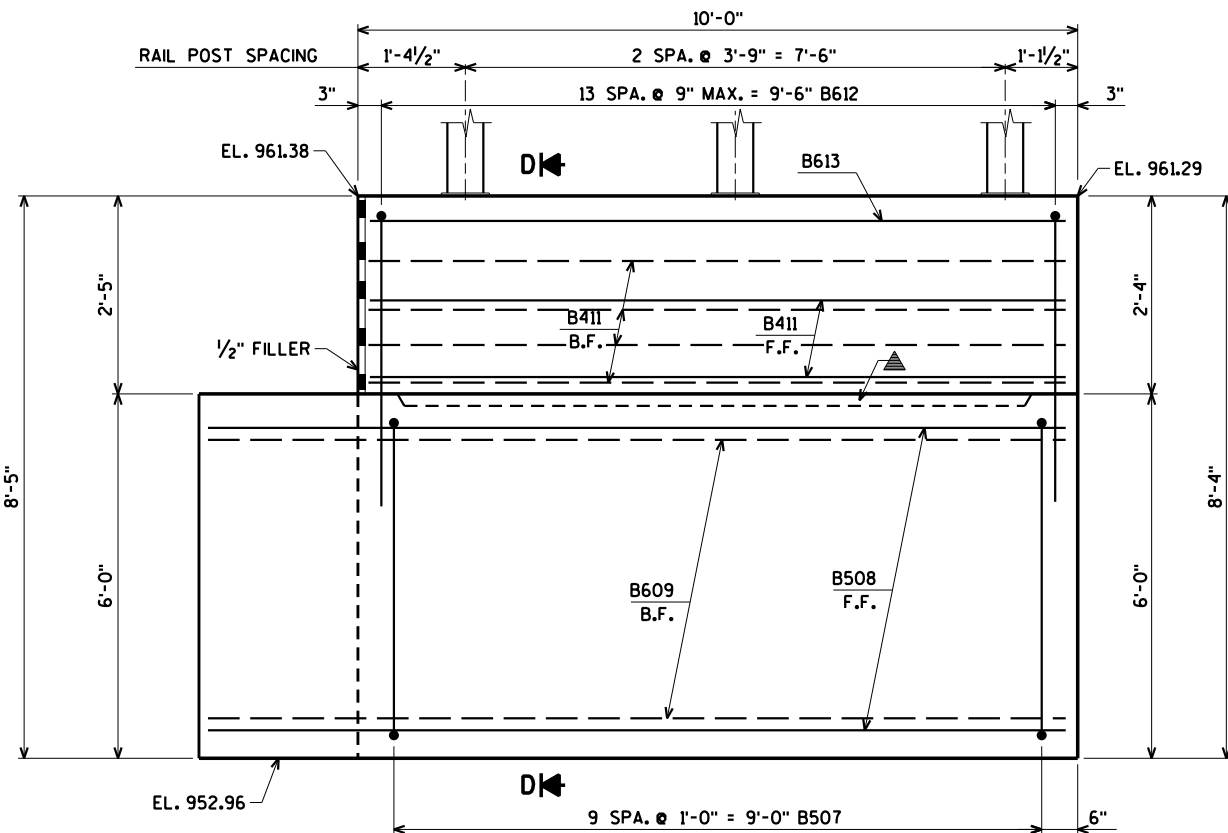


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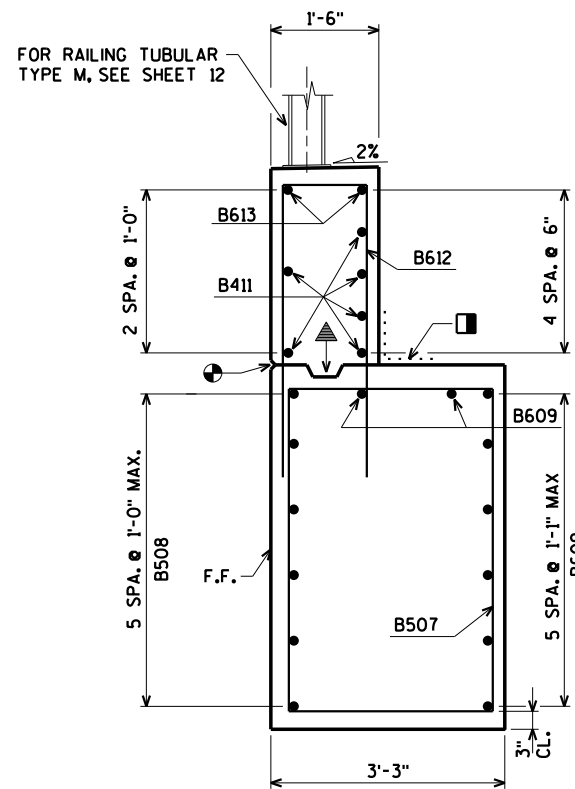
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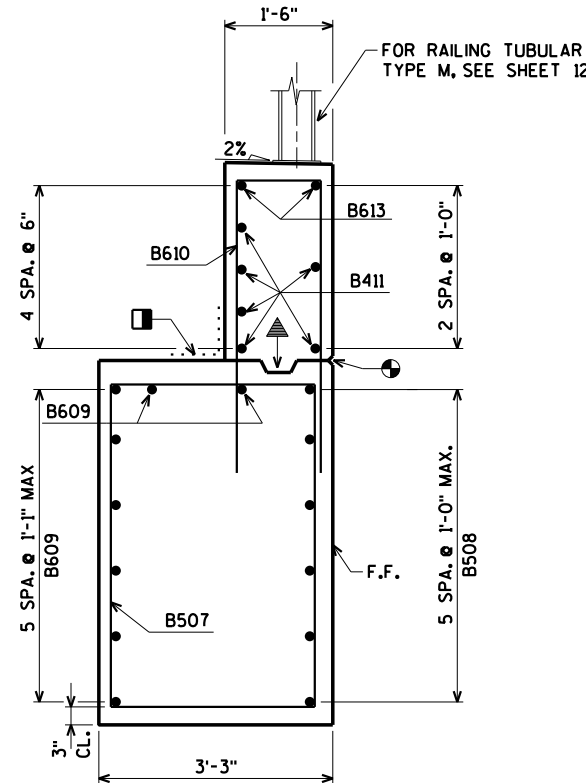
ELEVATION - WING 3



ELEVATION - WING 4



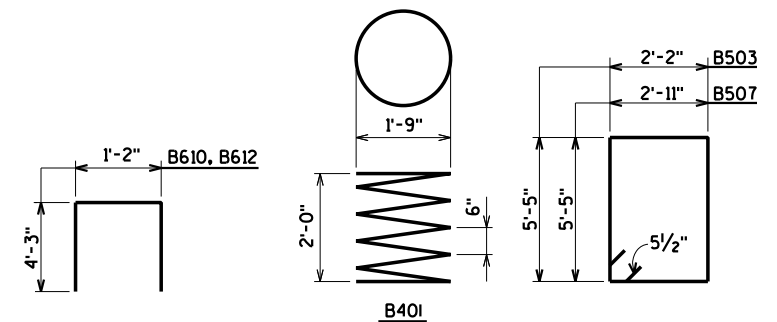
SECTION D



SECTION C

BILL OF BARS								
BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	1,570# UNCOATED 1,380# COATED	
							LOCATION	
B401		4	28-0	X			BODY @ PILES	
B402		8	2-3				BODY @ PILES	
B503		32	15-8	X			BODY VERTS.	
B604		12	26-2				BODY HORIZ. E.F.	
B805		7	26-2				BODY HORIZ. B.F.	
B506	X	25	2-0				BODY DOWELS	
B507	X	20	17-3	X			WINGS 3 & 4 VERT.	
B508	X	12	12-2				WINGS 3 & 4 HORIZ. F.F.	
B609	X	16	11-11				WINGS 3 & 4 HORIZ. B.F. AND TOP	
B610	X	14	9-4	X			WING 3 VERT.	
B411	X	12	9-7				WINGS 3 & 4 HORIZ. E.F.	
B612	X	14	9-4	X			WING 4 VERT.	
B613	X	4	9-7				WINGS 3 & 4 HORIZ. TOP	

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JOINT IS NOT USED.

OPT. CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY.

3/4" V-GROOVE ON FRONT FACE ONLY.

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

B.F. DENOTES BACK FACE

ORIGINAL PLANS PREPARED BY  
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STRUCTURE B-41-301			
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NORTH ABUTMENT DETAILS AND BILL OF BARS			SHEET 9 OF 12



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STATE PROJECT NUMBER

5016-00-70

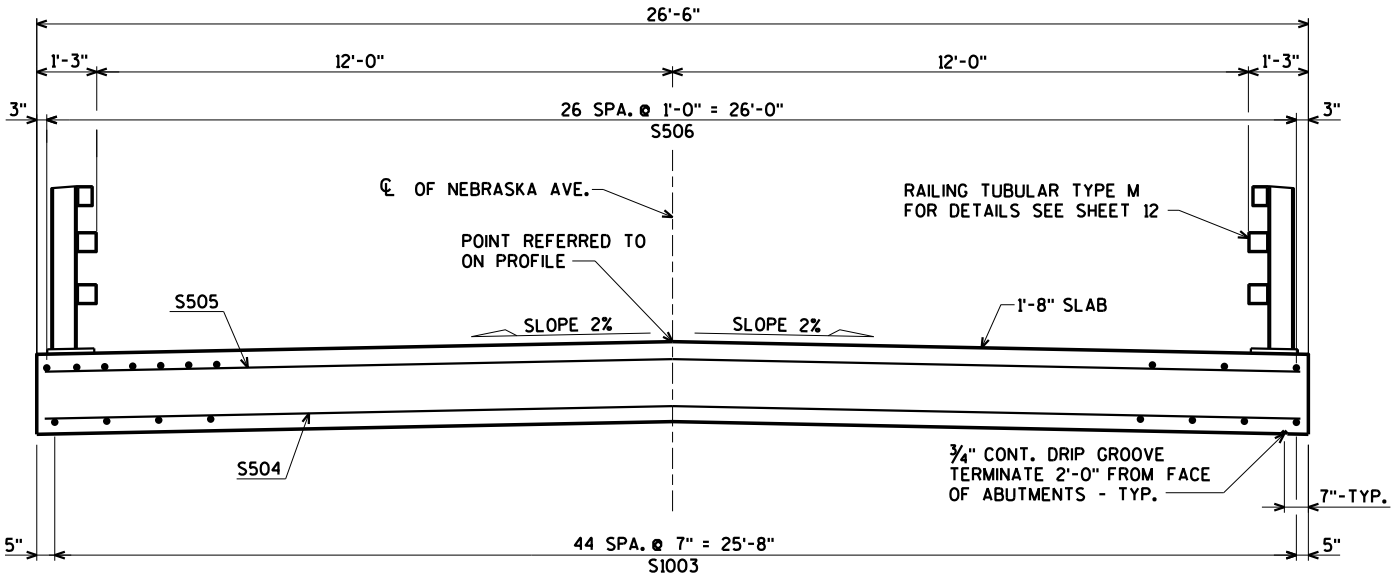
**BILL OF BARS**

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	11,110* COATED
							LOCATION
S501	X	54	5-5	X			SLAB @ ABUT.
S502	X	54	3-4	X			SLAB @ ABUT.
S1003	X	45	31-5				SLAB LONG. BOT.
S504	X	55	26-2				SLAB TRANS. BOT.
S505	X	37	26-2				SLAB TRANS. TOP
S506	X	27	36-2				SLAB LONG. TOP
S607	X	28	12-0	X			SLAB @ RAIL POSTS
S608	X	40	6-0				SLAB @ INT. RAIL POSTS
S609	X	16	6-0	X			SLAB @ END RAIL POSTS

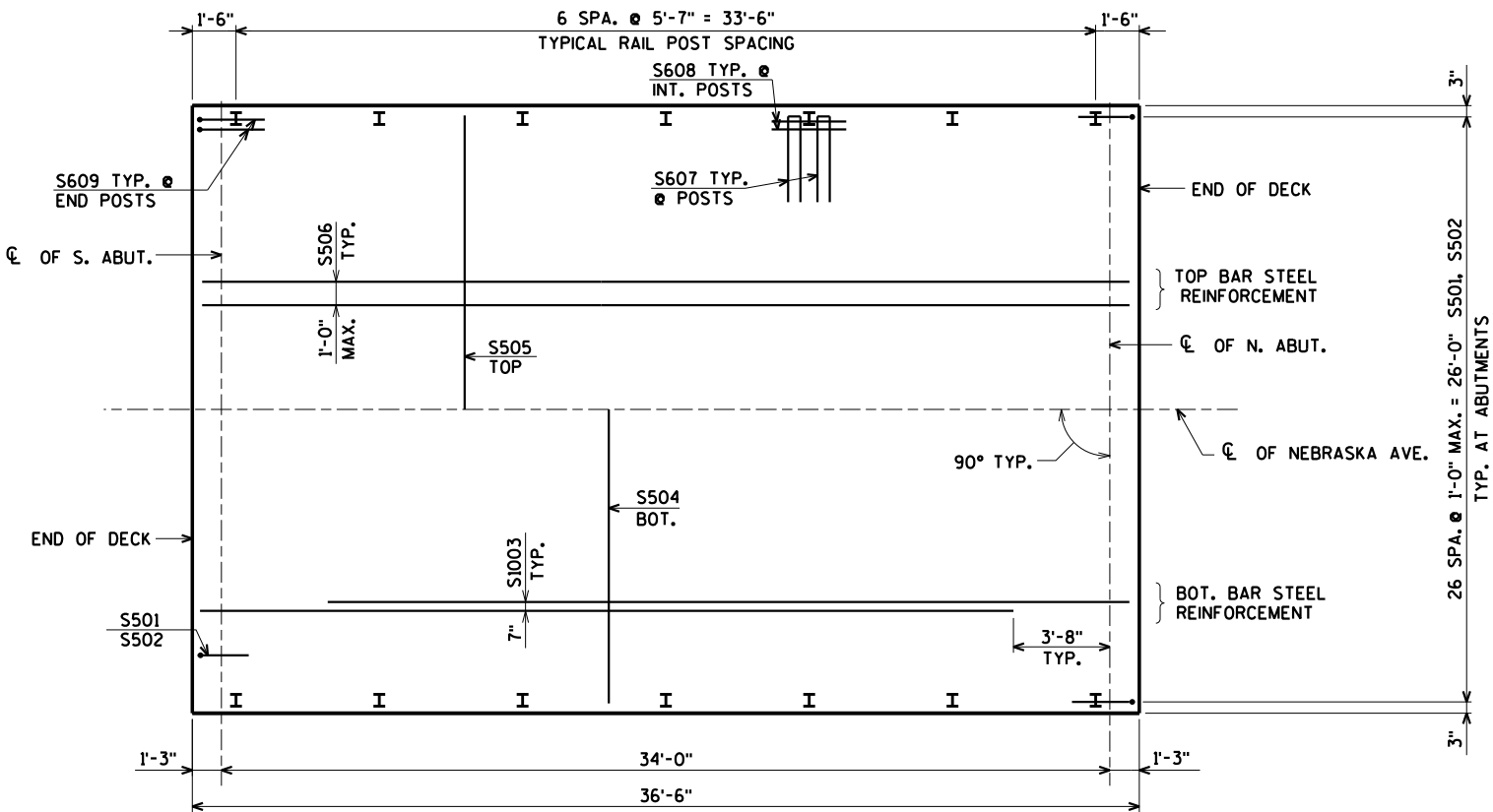
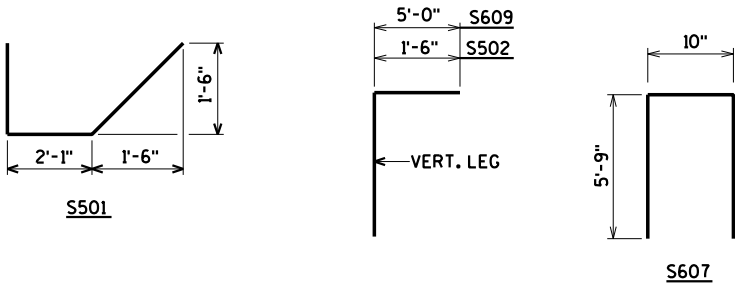
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

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 (+).



**CROSS SECTION THRU BRIDGE**  
(LOOKING NORTH)



**PLAN**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-41-301			
DRAWN BY		CKJ	PLANS CK'D. CJM
SUPERSTRUCTURE			SHEET 10 OF 12

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The diagram shows a parabolic arch with a total span of 34'-0". The arch is divided into 10 equal spaces by 11 vertical lines. The vertical distances from the horizontal chord to the arch at these points are labeled as follows:

Point	Vertical Distance (ft)
1 (Left Abutment)	0.2"
2	0.5"
3	0.6"
4	0.7"
5 (Crown)	0.8"
6	0.7"
7	0.6"
8	0.5"
9	0.2"
10 (Right Abutment)	0.2"

The horizontal distance between each of the 10 spaces is 3'-4". The total span is 34'-0". The points are labeled "C OF ABUT." at the ends.

### CAMBER DIAGRAM

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE  $\mathcal{C}$  OF ABUTMENTS, AND AT  $\frac{1}{2}$  PT. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR  $\mathcal{C}$ .

### TOP OF DECK ELEVATIONS

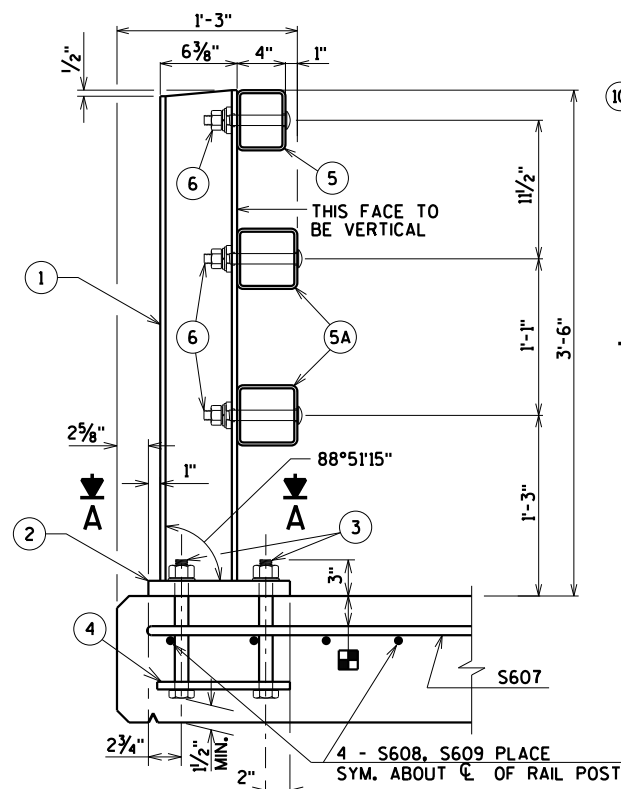
LOCATION	℄ OF S. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ OF N. ABUT.
W. EDGE OF SLAB	961.63	961.60	961.58	961.55	961.53	961.50	961.48	961.45	961.43	961.40	961.38
℄ OF STRUCTURE	961.89	961.87	961.84	961.82	961.79	961.77	961.74	961.72	961.69	961.67	961.64
E. EDGE OF SLAB	961.63	961.60	961.58	961.55	961.53	961.50	961.48	961.45	961.43	961.40	961.38

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STRUCTURE B-41-301			
		DRAWN BY	CKJ
		PLANS CK'D.	CJM
SUPERSTRUCTURE DETAILS		SHEET 11 OF 12	



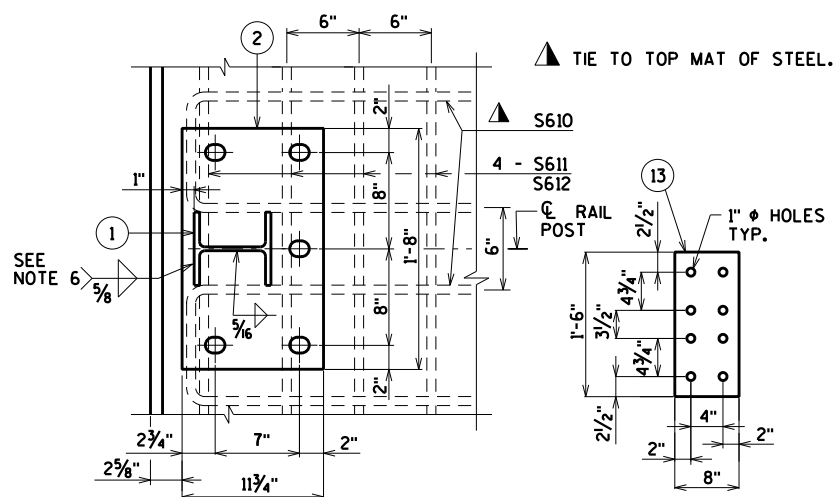
**LEGEND**

- 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.
- PLATE 1/4" x 11 3/4" x 1'-8" WITH 1 5/8" x 1 5/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ASTM A449 - 1/6" 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 CONSTRUCTIBILITY.)
- 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 5/8" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- 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.
- 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/8" x 1 5/8" x 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- 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 THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- 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.
- SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- 3/8" x 3 5/8" x 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- 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.
- 7/8" A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/8" x 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS ~~AND 1 5/8" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.~~
- 7/8" DIA. x 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D.).
- 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.
- 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- 1" 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.

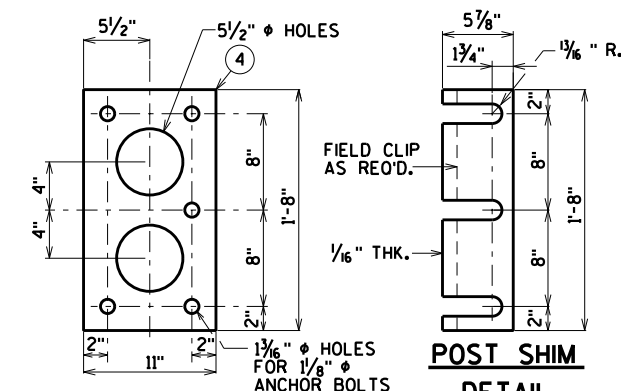


**SECTION THRU RAILING ON DECK**

PLACE BELOW TOP MAT SLAB REINFORCEMENT.

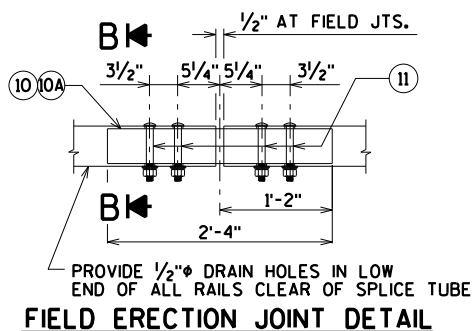


**SECTION A**

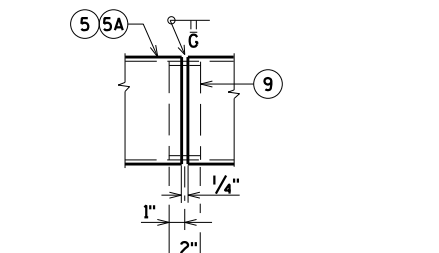


**ANCHOR PLATE**

(AT RAIL TO DECK CONNECTION)

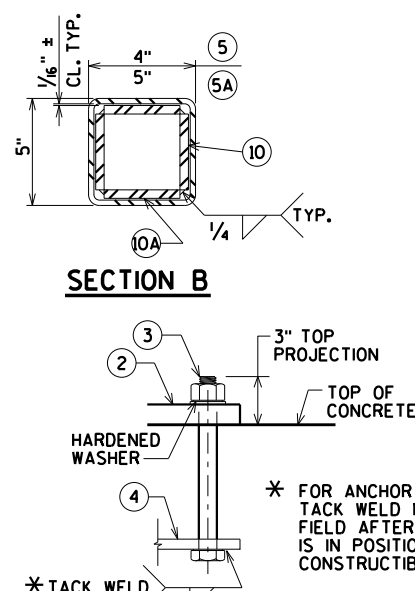


**FIELD ERECTION JOINT DETAIL**

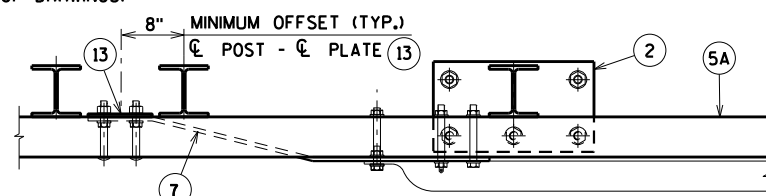


**SHOP RAIL SPICE DETAIL**

(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)

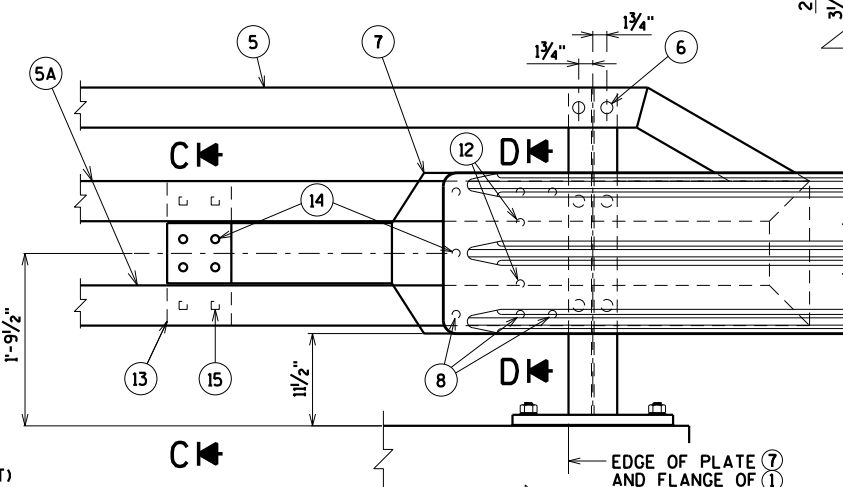


**ANCHOR BOLTS**



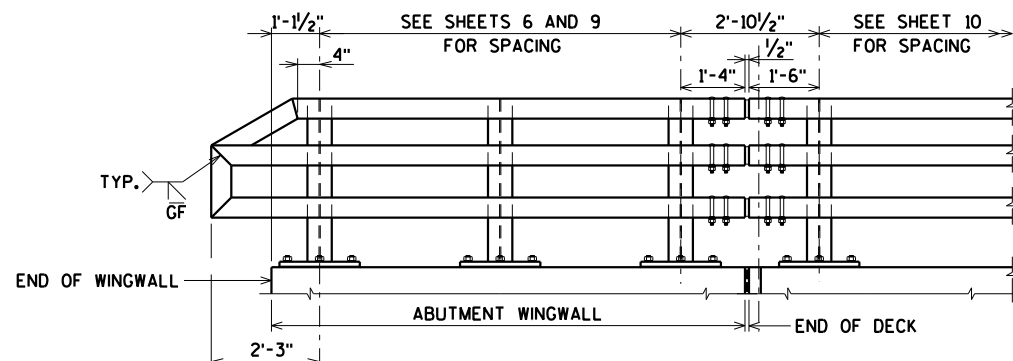
**TOP VIEW AT END POST**

(THRIE BEAM RAIL ATTACHMENT)

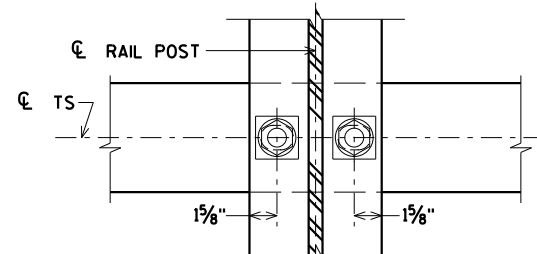


**DETAIL AT END POST**

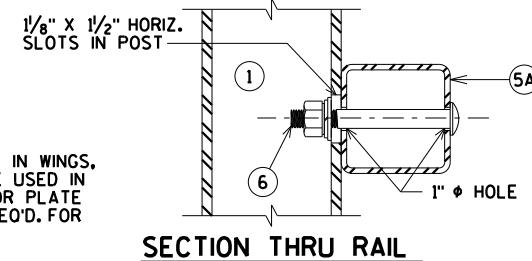
(THRIE BEAM RAIL ATTACHMENT)



**PART ELEVATION OF RAILING**



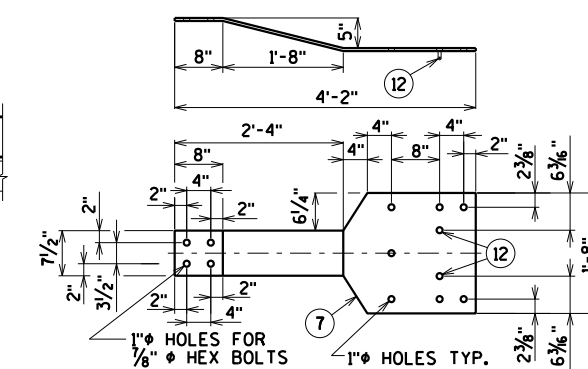
**SECTION THRU POST WEB**



**SECTION THRU RAIL**

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

**TYPICAL RAIL TO POST CONNECTIONS**

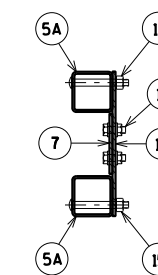


**BACK-UP PLATE DETAIL**

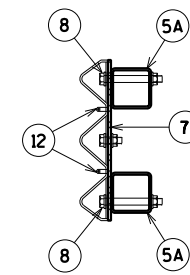
(AT BEAM GUARD ATTACHMENT)

**GENERAL NOTES**

- BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-41-301" WHICH INCLUDES ALL ITEMS SHOWN.
- 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.
- THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
- 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.
- ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
- WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
- 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.
- 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.
- 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 S.S.P.C. SPECIFICATIONS.
- WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
- THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
- PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.



**SECTION C**



**SECTION D**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-41-301			
DRAWN BY CKJ		PLANS CK'D. CJM	
RAILING TUBULAR TYPE M		SHEET 12 OF 12	



NEBRASKA AVENUE COMPUTER EARTHWORK

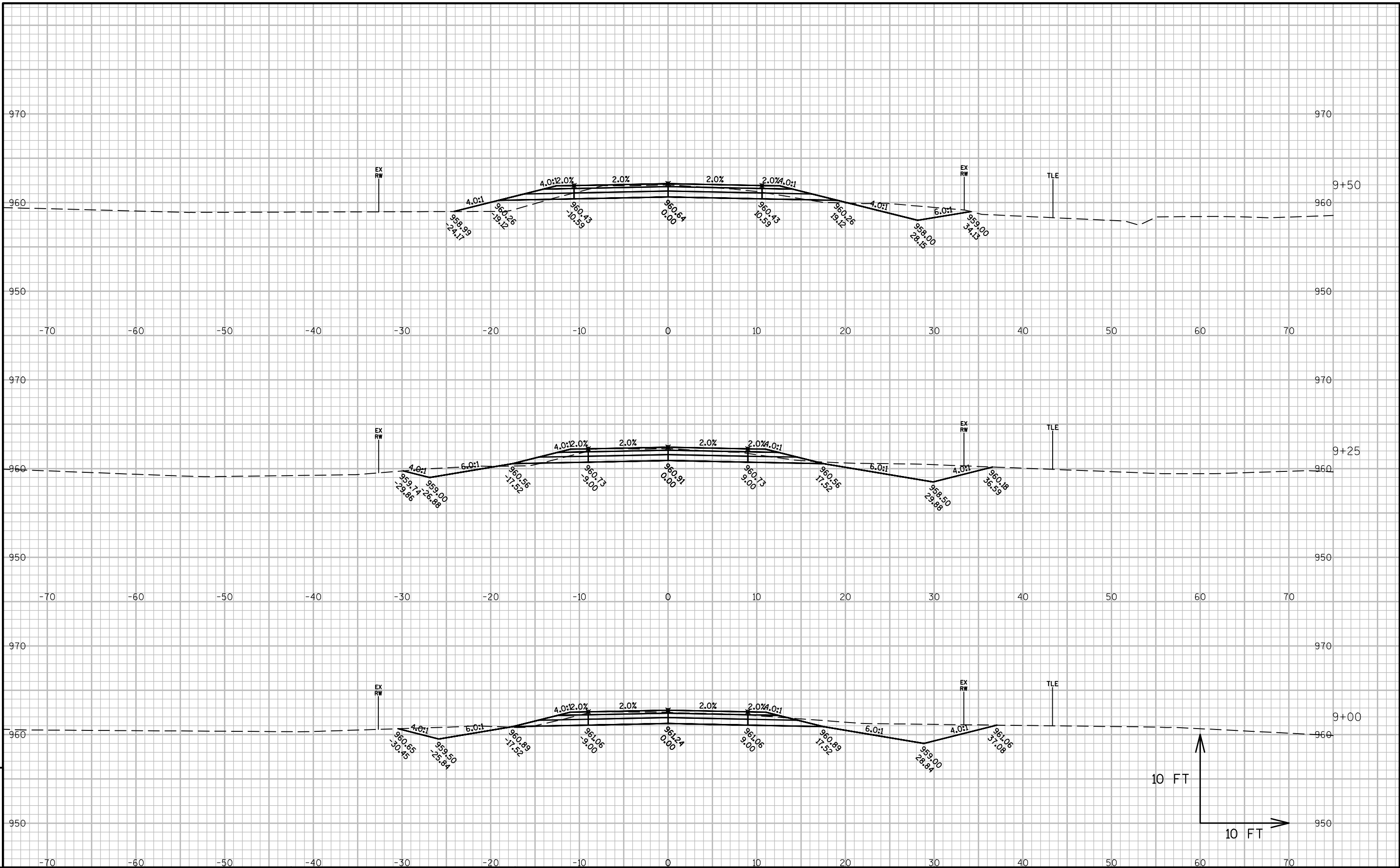
Station	Distance	Area (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
		Cut	Fill	Cut	Fill	Cut	Expanded Fill	
				Note 1	Note 2	Note 1		Note 3
8+00	--	69.7	0.0					
8+15	15	69.7	0.0	39	0	39	0	39
8+30	15	65.0	0.0	37	0	76	0	76
8+50	20	76.0	0.0	52	0	128	0	128
8+65	15	52.2	0.0	36	0	164	0	164
9+00	35	68.4	0.2	78	0	242	0	242
9+25	25	55.5	1.0	57	1	300	1	299
9+50	25	40.0	8.4	44	4	344	7	337
9+75	25	22.7	66.6	29	35	373	52	321
9+80	5	22.7	66.6	4	12	377	68	309
NEW BRIDGE	--	--	--	--	--	--	--	--
10+14	--	26.5	61.2	--	--	--	--	--
10+25	11	26.5	61.2	11	25	388	100	288
10+50	25	51.2	11.2	47	10	435	114	322
10+75	25	39.0	4.9	42	7	477	123	354
10+90	15	39.0	4.9	22	3	499	127	372
				499	98			

Note 1 - Cut	Cut includes existing asphalt pavement. Assumed to be reused as fill outside the 1:1 road core.
Note 2 - Fill	Volume needed to be filled.
Note 3 - Mass Ordinate	(Cut) - (Fill * 1.30)

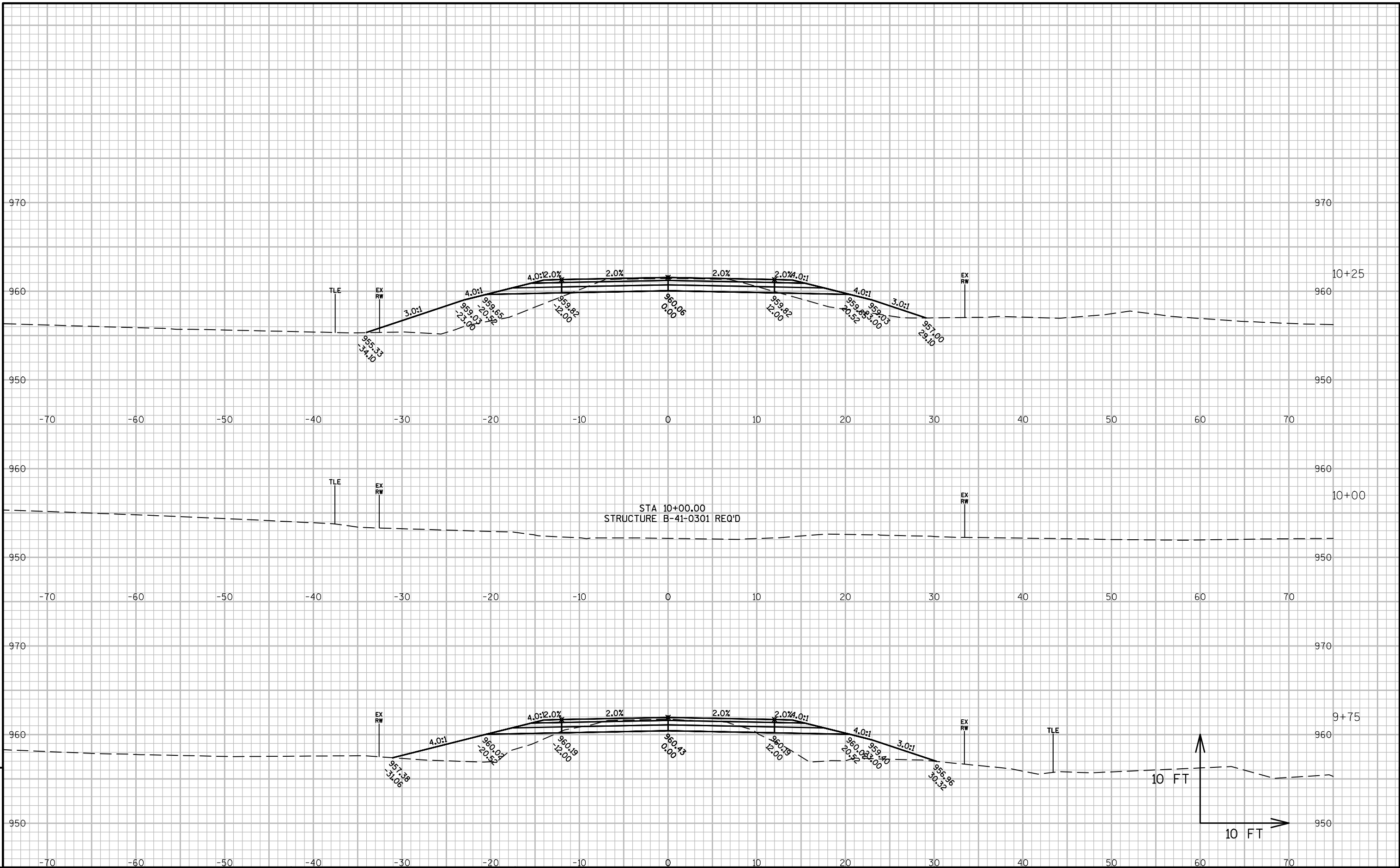




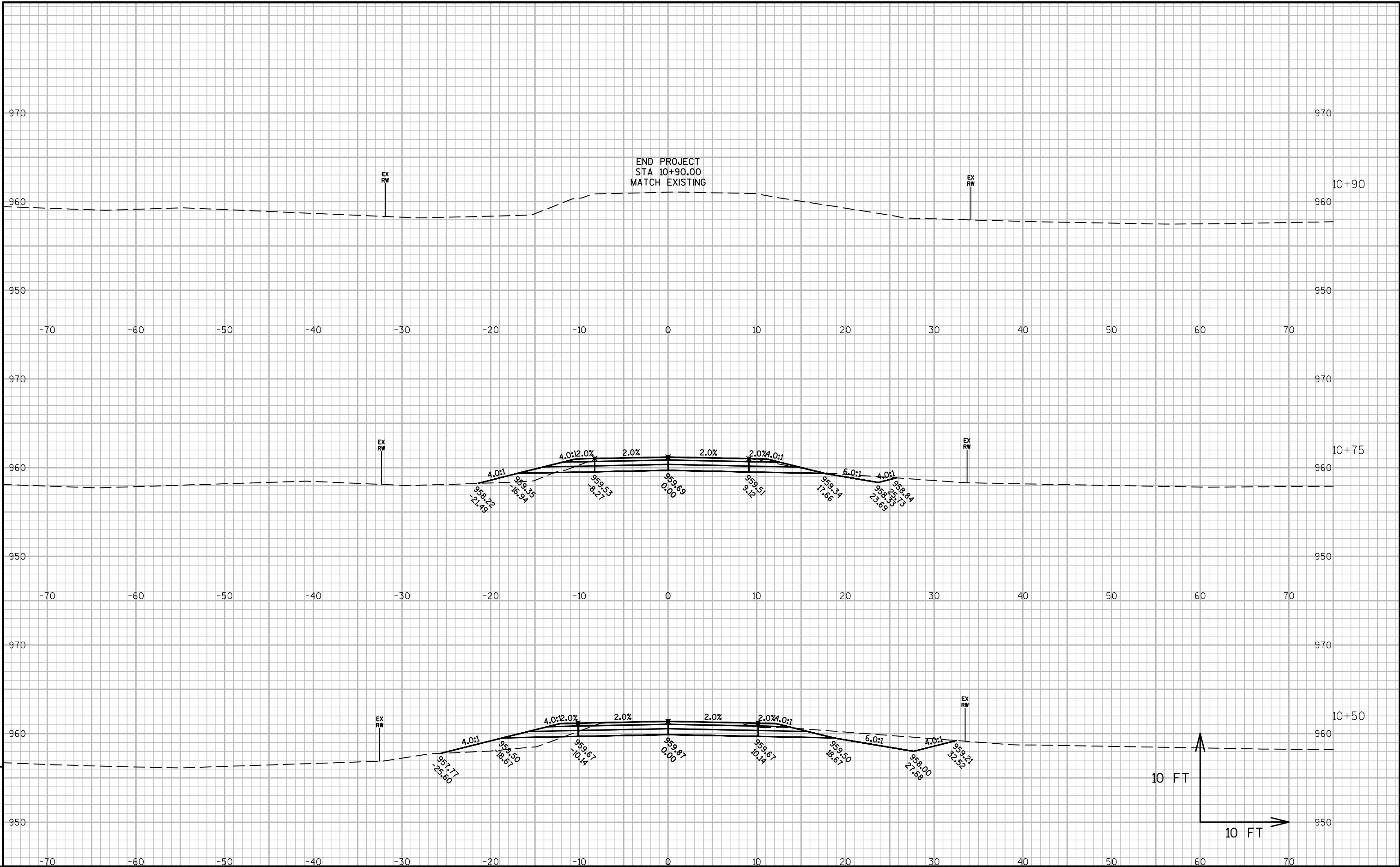














## Notes





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

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