

ORDER OF SHEETS

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Section No. 2	Typical Sections and Details
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
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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

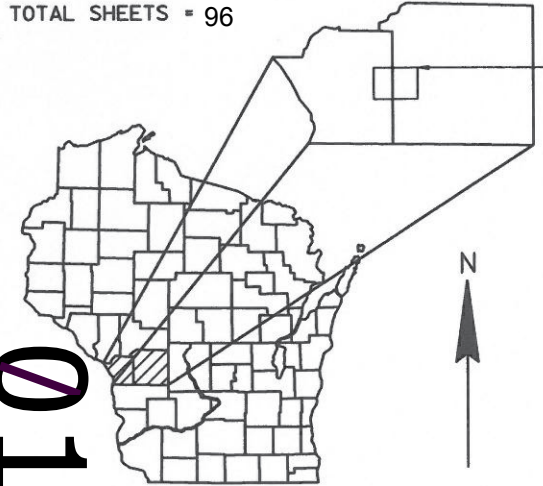
TOTAL SHEETS = 96

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
PLAN OF PROPOSED IMPROVEMENT

LA CROSSE - TOMAH  
B-41-0084, B-41-0090, B-32-0060  
IH 90  
LA CROSSE & MONROE COUNTIES

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1077-01-64	WISC 2017016	1

STATE PROJECT NUMBER
1077-01-64



PROJECT LOCATION

SITE 2 STH 71  
STRUCTURE B-41-90  
BEGIN PROJECT STA. 46+53.26  
Y=375,427.20  
X=634,712.92  
END PROJECT STA. 49+69.93

SITE 1 IDEAL ROAD  
STRUCTURE B-41-84  
BEGIN PROJECT STA. 12+95.30  
Y=371,430.61  
X=626,577.29  
END PROJECT STA. 19+27.38

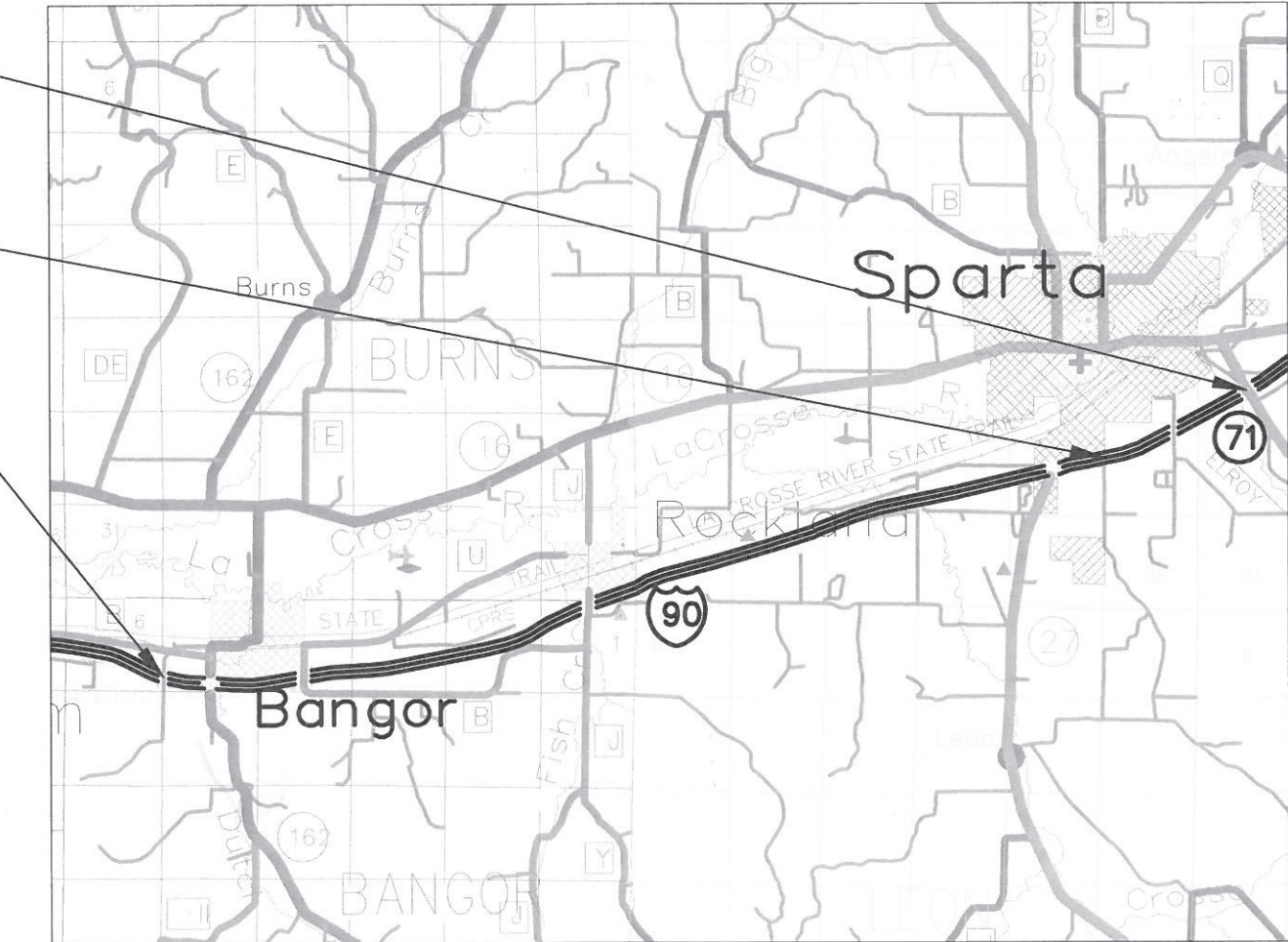
SITE 3 WOLF ROAD  
STRUCTURE B-32-60  
BEGIN PROJECT STA. 7+56.42  
Y=358,565.11  
X=573,806.58  
END PROJECT STA. 12+29.20

DESIGN	DESIGNATION	SITE 1 IDEAL	SITE 2 STH 71	SITE 3 WOLF
A.A.D.T.	2017	= 730	3600	40
A.A.D.T.	2037	= 790	4600	45
D.H.V.		= 102	593	N/A
D.D.		= 50/50	49/51	50/50
T.		= 0	4.8%	0
DESIGN SPEED		= 50	60	45
ESALS		= N/A		

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	CAUTION
MARSH AREA	---
WOODED OR SHRUB AREA	---

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



LAYOUT
SCALE 0 2.0 MI.
TOTAL NET LENGTH OF CENTERLINE
PROJECT I.D. 1077-01-64 = 0.000 MI. (SITE 1)
PROJECT I.D. 1077-01-64 = 0.000 MI. (SITE 2)
PROJECT I.D. 1077-01-64 = 0.000 MI. (SITE 3)
TOTAL = 0.000 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MONROE COUNTY, NAD83 (1991), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ORIGINAL PLANS PREPARED BY  
**KNIGHT**  
700 N Third Street  
Suite 104  
La Crosse, WI 54601  
Engineers & Architects Phone: (608) 519-1455



7/19/16  
DATE SIGNATURE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	KNIGHT E/A, INC.
Designer	KNIGHT E/A, INC.
Project Manager	CRAIG FISHER
Regional Examiner	WISDOT
Regional Supervisor	OSCAR WINGER

APPROVED FOR THE DEPARTMENT  
DATE: 7-27-2016  
Oscar J. Winger  
(Signature)

GENERAL NOTES

- NO TREES OR SHRUBS SHALL BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE BEEN DESIGNATED FOR REMOVAL BY THE ENGINEER.
- DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE SALVAGED TOPSOILED, FERTILIZED, SEEDED, AND MULCHED OR SODDED AS DIRECTED BY THE ENGINEER.
- WHEN PORTIONS OF EXISTING ASPHALTIC SURFACES ARE TO BE REMOVED TO ACCOMMODATE NEW CONSTRUCTION, THE LINE OF SUCH REMOVAL SHALL BE NEATLY DELINEATED WITH A SAW CUT JOINT THROUGH THE ASPHALTIC SURFACE SO THAT REMOVAL OF THE ASPHALT SHALL BE ACCOMPLISHED WITHOUT DAMAGE TO REMAINING PORTIONS. THE LOCATION OF SAW JOINTS AND THE AMOUNT REMOVED AT SIDE ROADS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- PAVING LIMITS ARE TO BE DETERMINED BY THE ENGINEER.
- TACK COAT SHALL BE REQUIRED BETWEEN THE MILLED PAVEMENT AND ASPHALTIC SURFACE.
- THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLAN ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
- 2" ASPHALTIC SURFACE SHALL BE PLACED IN ONE LIFT. ASPHALT SURFACE WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN.
- THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT ASPHALTIC SURFACE LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, PASSING OR PARKING LANE.
- IF FULL DECK REPAIR IS DETERMINED TO BE NECESSARY, THE APPROPRIATE TRAFFIC CONTROL PROTOCOL WILL BE DETERMINED BY THE ENGINEER IF THE AREA IS ABOVE LIVE TRAFFIC.
- ASPHALTIC SURFACE AT SITE 2, STH 71, SHALL BE CONSTRUCTED WITH A 2-1/2" UPPER LAYER AND 3" LOWER LAYER.
- CROSS SECTIONS DISPLAY ELEVATION INFORMATION BASED OFF AN ASSUMED ELEVATION.

AREA CONTACTS

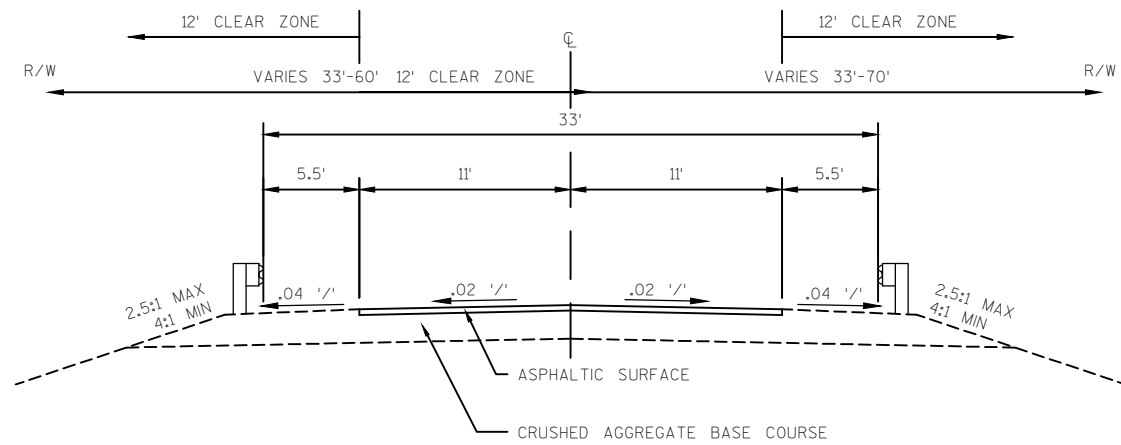
WISDOT PROJECT MANAGER	DESIGN CONTACT KNIGHT E/A INC.	WISDNR: MONROE COUNTY
CRAIG FISHER	ALEX DWORAK	KAREN KALVELAGE
3550 MORMON COULEE RD	700 N THIRD ST., SUITE 104	3550 MORMON COULEE RD
LA CROSSE, WI 54601	LA CROSSE, WI 54601	LA CROSSE, WI 54601
PHONE: (608) 785-9946	PHONE: (608) 519-1455 EXT. #5	PHONE: (608) 785-9115
CRAIG.FISHER@DOT.WI.GOV	ADWORAK@KNIGHTEA.COM	KAREN.KALVELAGE@WISCONSIN.GOV



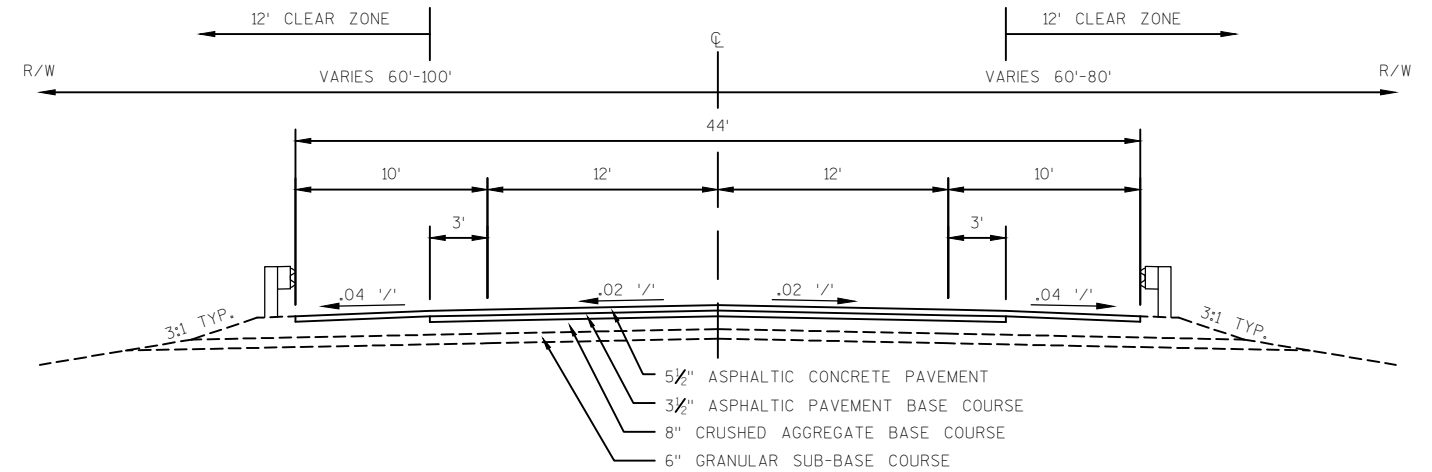
UTILITY CONTACTS

Bret Clark CenturyLink - Communication Line 333 N Front St P.O. Box 4800 La Crosse, WI 54602 (608) 796-5543 bret.clark@centurytel.com	LaTroy Brumfield We Energies - Gas/Petroleum Room A299 333 West Everett St Milwaukee, WI 53203 (414) 221-5617 LaTroy.Brumfield@we-energies.com
John Louis Wisconsin Independent Network, LLC - Communication Line Suite 219 800 Wisconsin Ave Eau Claire, WI 53086 (715) 838-4012 jlouis@WINS.net	Dawn Schultz Xcel Energy - Electricity 1414 W Hamilton Ave P.O. Box 8 Eau Claire, WI 54702-0008 (715) 737-2482 dawn.schultz@xcelenergy.com

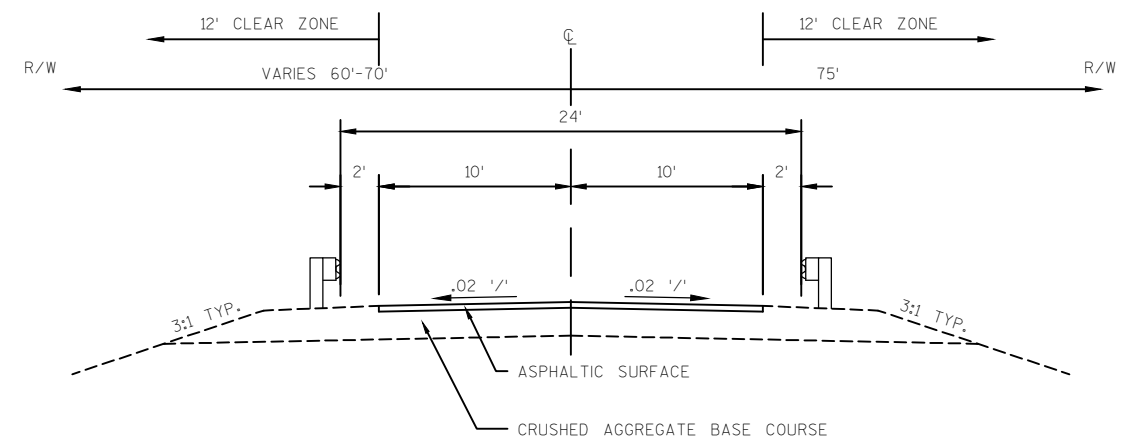




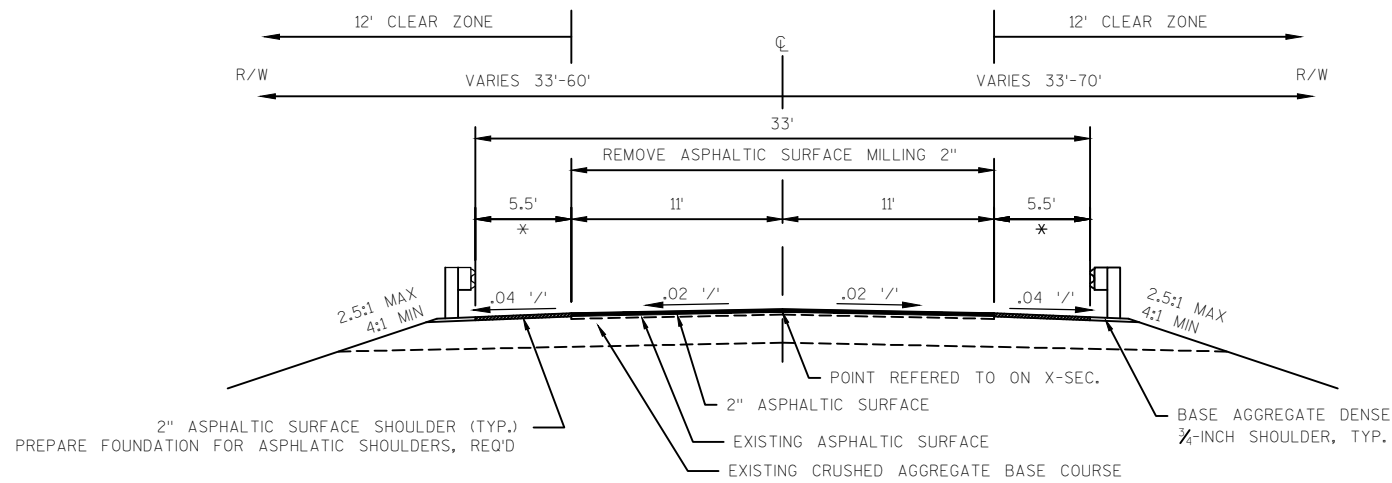
TYPICAL EXISTING SECTION  
 SITE 1, IDEAL ROAD  
 STA. 12+95.30 - 14+29.21  
 STA. 16+15.21 - 19+27.38



TYPICAL EXISTING SECTION  
 SITE 2, STH 71  
 STA. 46+53.26 - 46+91.60  
 STA. 49+31.60 - 49+69.93

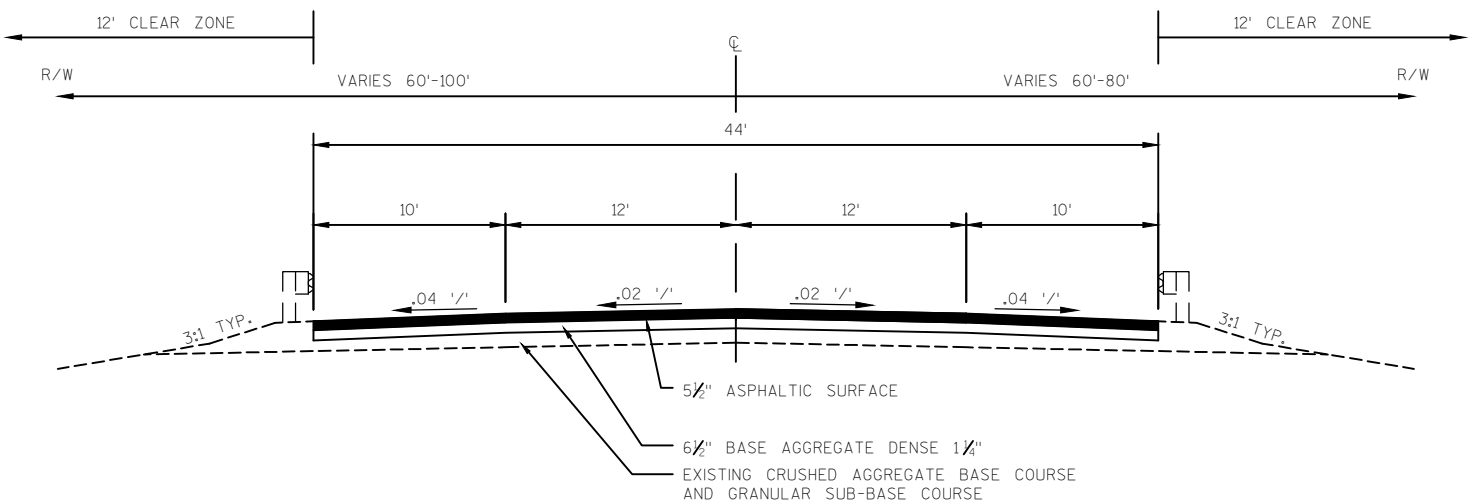


TYPICAL EXISTING SECTION  
 SITE 3, WOLF ROAD  
 STA. 7+56.42 - 8+96.74  
 STA. 10+88.88 - 12+29.20



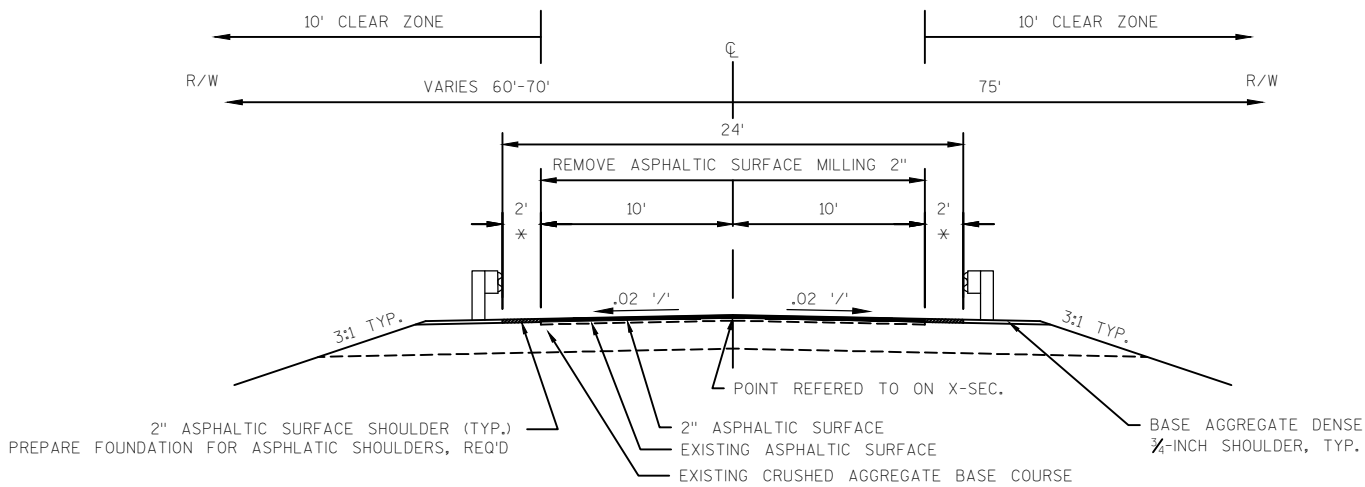
TYPICAL PROPOSED SECTION

SITE 1, IDEAL ROAD  
STA. 12+95.30 - 14+29.21  
STA. 16+15.21 - 19+27.38  
\*OUTSIDE PROJECT LIMITS 3' AGG. SHOULDER



TYPICAL PROPOSED SECTION

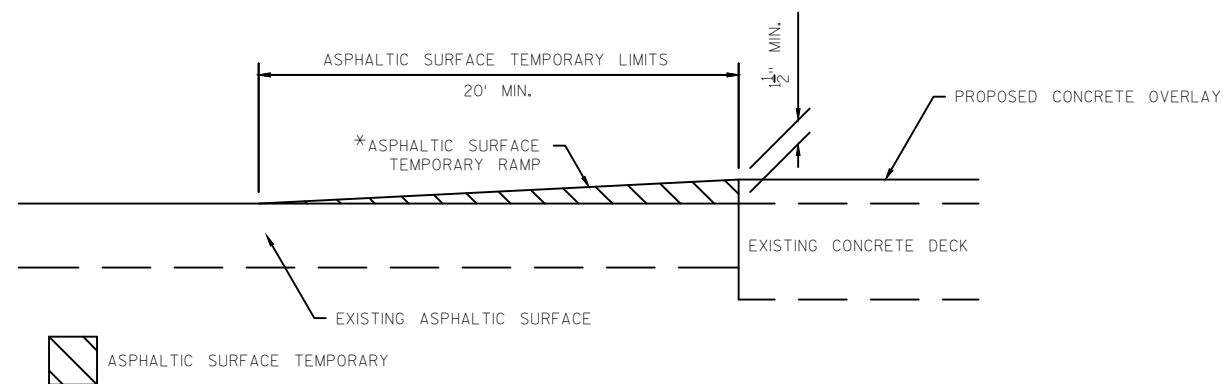
SITE 2, STH 71  
STA. 46+53.26 - 46+73.26  
STA. 49+49.93 - 49+69.93



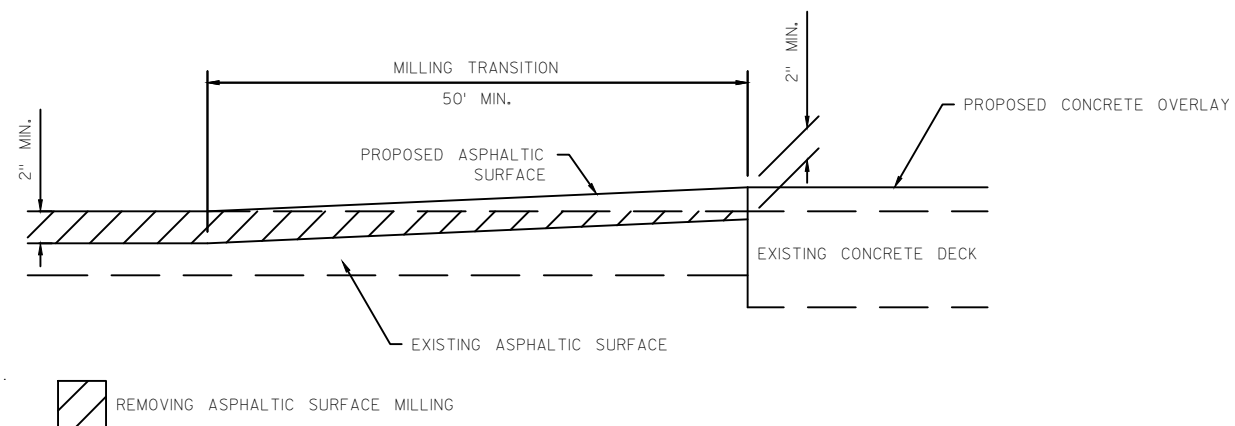
TYPICAL PROPOSED SECTION

SITE 3, WOLF ROAD  
STA. 7+56.42 - 8+96.74  
STA. 10+88.88 - 12+29.20  
\*OUTSIDE PROJECT LIMITS 3' AGG. SHOULDER

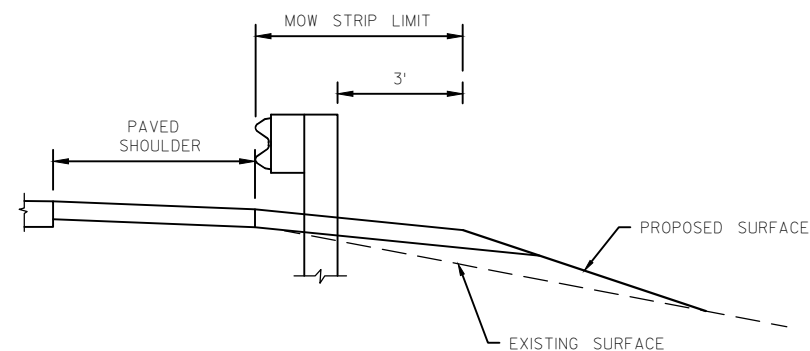
\*TO BE REMOVED WHEN MILLING TRANSITION



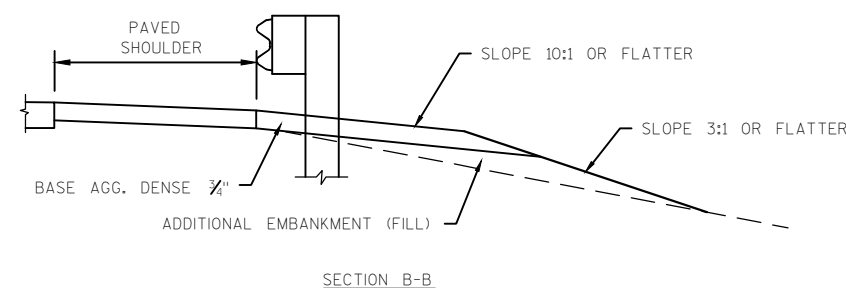
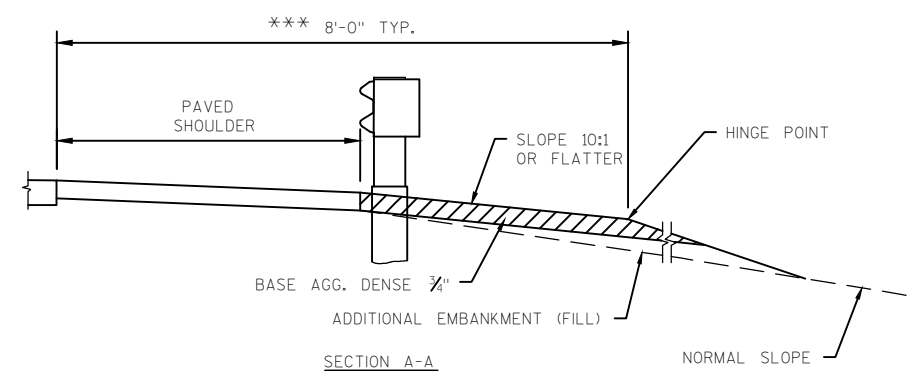
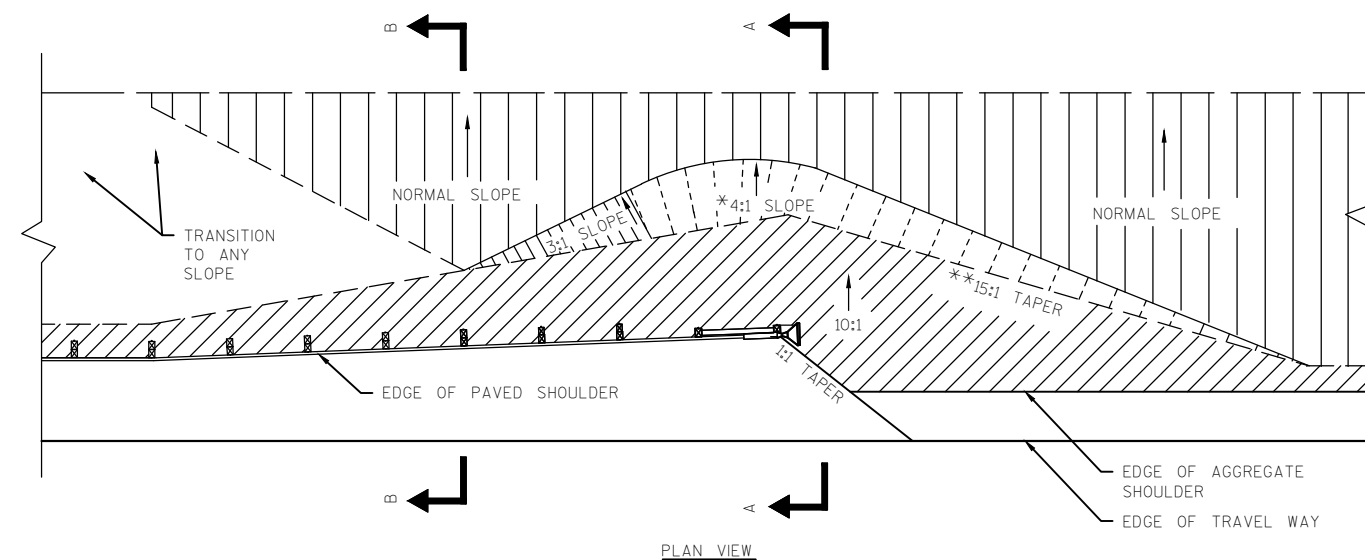
ASPHALTIC SURFACE TEMPORARY DETAIL AT STRUCTURE



MILLING DETAIL AT STRUCTURE  
SITE 1 AND 3



GUARDRAIL MOW STRIP EMULSIFIED ASPHALT SPECIAL  
ALL SITES  
LIMITS ARE FROM BRIDGE PARAPET TO 5FT BEYOND SURFACE DRAIN



NOTES

- \* LOCATIONS NOTED AS "MODIFIED GRADING" MAY HAVE A 2.5:1 SLOPE BEYOND THE CLEAR ZONE HINGE POINT.
  - \*\* TAPER MAY BE REDUCED TO 10:1 AS APPROVED BY THE ENGINEER
  - \*\*\* LOCATIONS NOTED AS "MODIFIED GRADING SECTION" MAY HAVE THE E.A.T. OFFSET REDUCED FROM 2' TO 0' AND THE SHOULDER HINGE POINT AT THE E.A.T. REDUCED FROM 8' TO 3' WITH 2.5:1 GRADING BEYOND THE SHOULDER HINGE POINT
- ALL AREAS BEYOND THE AGGREGATE SHOULDER HINGE POINT SHALL BE SEEDED AND FERTILIZED

BARRIER SYSTEM GRADING SHAPING FINISHING  
SITE 1 AND 3

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 NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.

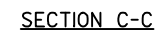
② MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

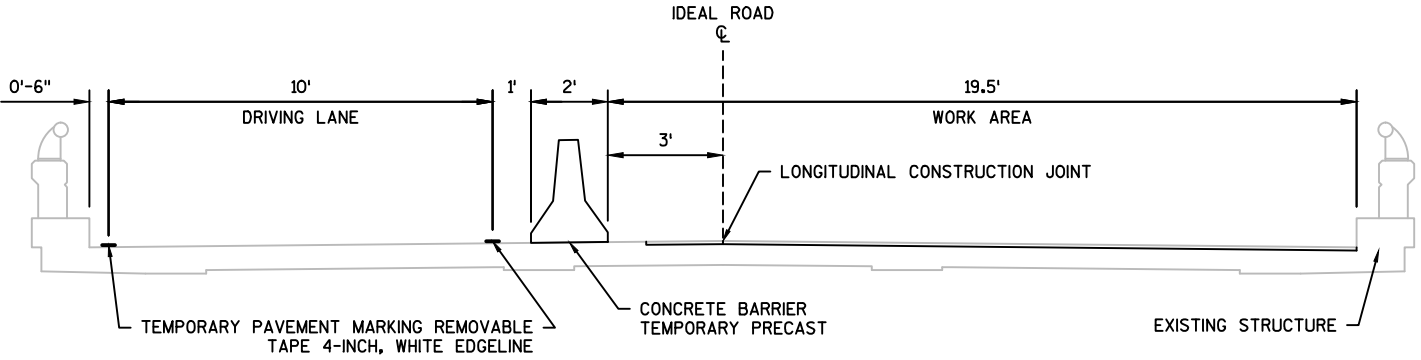
③ HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

④ ROUT AND SEAL ALONG BRIDGE DECK AND BETWEEN  
APPROACH SLAB AND CONCRETE SURFACE DRAIN.

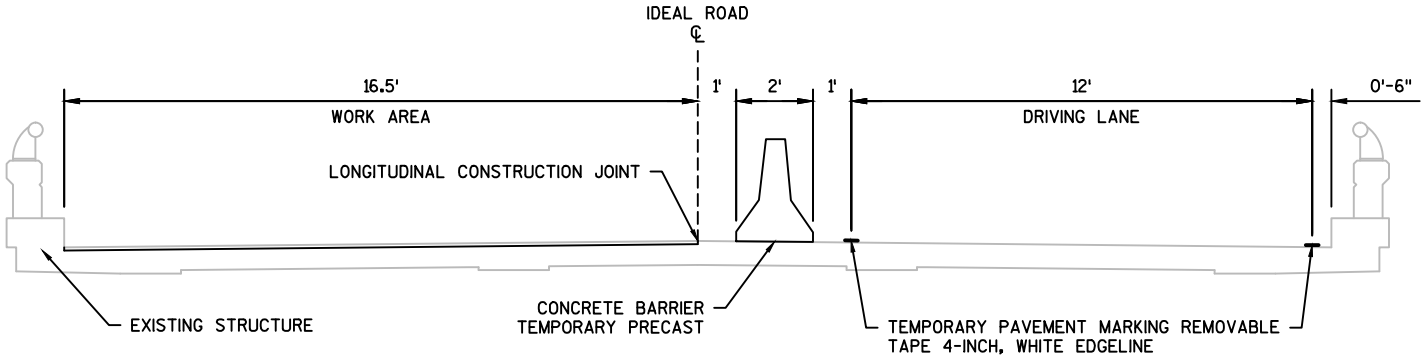
⑤ CONCRETE SAW CUT REQUIRED. LOCATION TO BE DETERMINED IN FIELD. DRILLED TIE BARS ARE REQUIRED TO TIE INTO EXISTING FLUME DRAIN. DRILL TIE BARS INTO EXISTING FLUME. SPACE TIE BARS AT 1'-6" MAX.

⑥ NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE

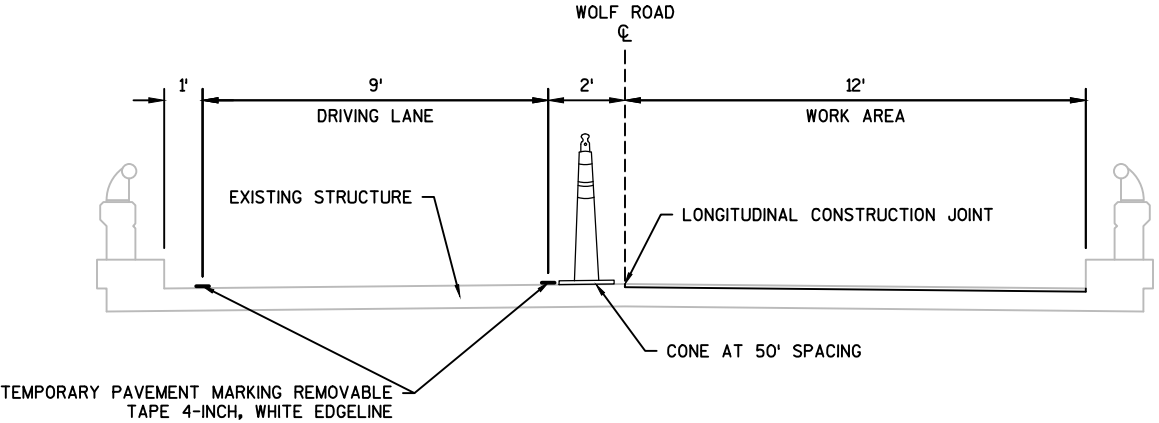




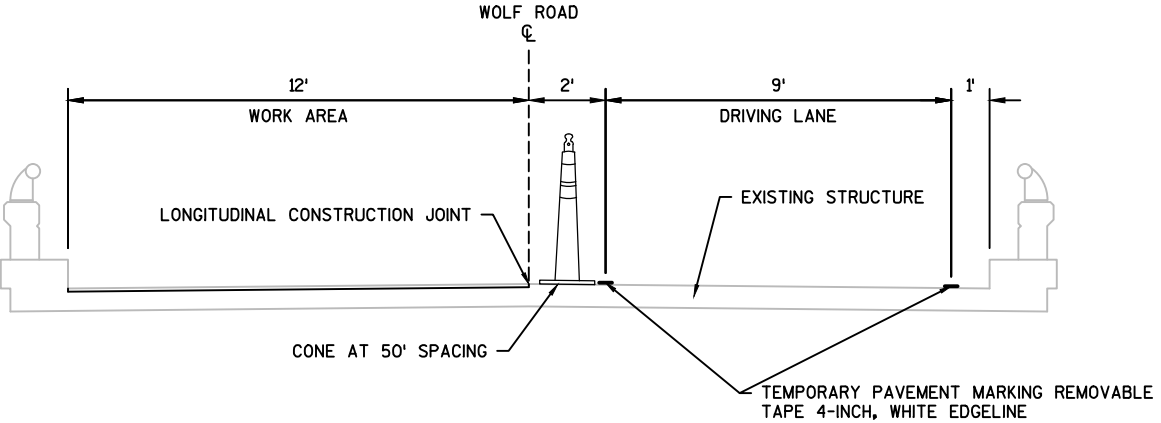
TYPICAL TRAFFIC CONTROL SECTION AT BRIDGE  
STAGE 1 - SITE 1 IDEAL ROAD (LOOKING NORTH)



TYPICAL TRAFFIC CONTROL SECTION AT BRIDGE  
STAGE 2 - SITE 1 IDEAL ROAD (LOOKING NORTH)

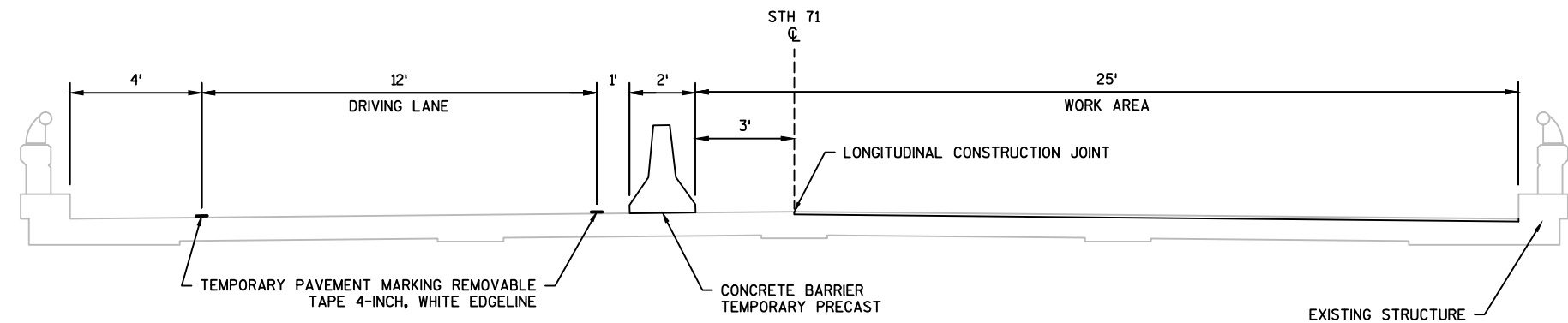


TYPICAL TRAFFIC CONTROL SECTION AT BRIDGE  
STAGE 1 - SITE 3 WOLF ROAD (LOOKING NORTH)

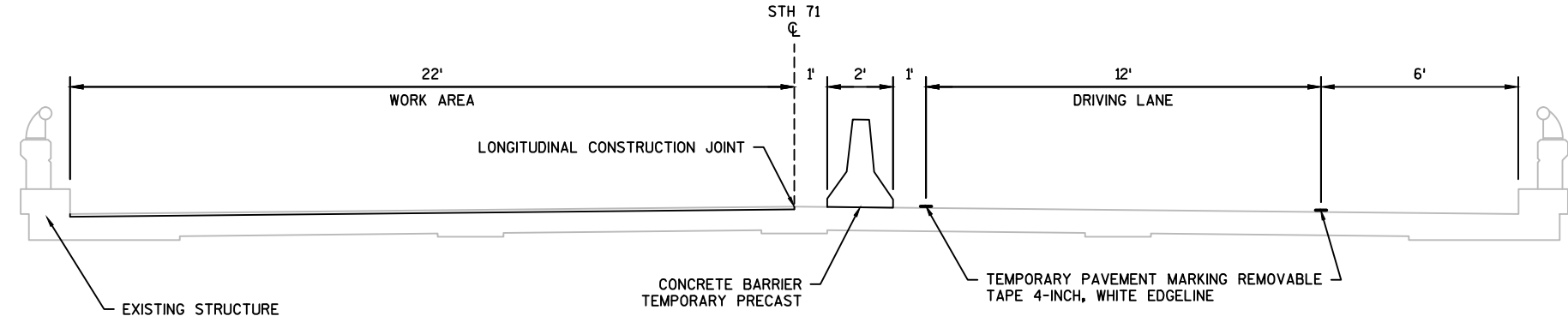


TYPICAL TRAFFIC CONTROL SECTION AT BRIDGE  
STAGE 2 - SITE 3 WOLF ROAD (LOOKING NORTH)

**NOTES:**  
SITE 1 - IDEAL ROAD, B-41-0084, SHALL CONTROL TRAFFIC WITH TEMPORARY SIGNALS. SEE SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS."  
SITE 3 - WOLF ROAD, B-32-0060, SHALL CONTROL TRAFFIC WITH STOP SIGNS. SEE SDD "TRAFFIC CONTROL, ONE LANE ROAD STOP CONDITION."  
APPROACH WORK SHALL BE COMPLETED DURING STAGE 3 FOR SITE 1 AND 3. TRAFFIC COULD BE CONTROLLED BY FLAGGING OPERATION



TYPICAL TRAFFIC CONTROL SECTION AT BRIDGE  
STAGE 1 - SITE 2 STH 71 (LOOKING NORTH)



TYPICAL TRAFFIC CONTROL SECTION AT BRIDGE  
STAGE 2 - SITE 2 STH 71 (LOOKING NORTH)

**NOTES:**  
SITE 2 - STH 71, B-41-0090, SHALL CONTROL TRAFFIC WITH TEMPORARY SIGNALS. SEE SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS." WORK STORAGE AREA IS TO BE ON THE OPPOSITE OF THE SIDE ROAD, HAVENDALE ROAD, FOR BOTH STAGES.  
APPROACH WORK SHALL BE COMPLETED DURING STAGES 1 AND 2.



Estimate Of Quantities

1077-01-64

Line	Item	Item Description	Unit	Total	Qty
0010	204.0100	Removing Pavement	SY	11.000	11.000
0020	204.0110	Removing Asphaltic Surface	SY	375.000	375.000
0030	204.0120	Removing Asphaltic Surface Milling	SY	1,714.000	1,714.000
0040	204.0165	Removing Guardrail	LF	1,436.000	1,436.000
0050	204.0190	Removing Surface Drains	EACH	4.000	4.000
0060	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	22.000	22.000
0070	213.0100	Finishing Roadway (project) 01. 1077-01-64	EACH	1.000	1.000
0080	305.0110	Base Aggregate Dense 3/4-Inch	TON	217.000	217.000
0090	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	82.000	82.000
0100	415.0070	Concrete Pavement 7-Inch	SY	29.000	29.000
0110	415.0410	Concrete Pavement Approach Slab	SY	122.000	122.000
0120	416.0610	Drilled Tie Bars	EACH	162.000	162.000
0130	416.1010	Concrete Surface Drains	CY	25.500	25.500
0140	455.0605	Tack Coat	GAL	205.000	205.000
0150	465.0105	Asphaltic Surface	TON	324.000	324.000
0160	465.0125	Asphaltic Surface Temporary	TON	77.000	77.000
0170	502.0717.S	Crack Sealing Epoxy	LF	130.000	130.000
0180	502.2000	Compression Joint Sealer Preformed Elastomeric (width) 01. 2-INCH	LF	27.000	27.000
0190	502.3100	Expansion Device (structure) 01. B-41-0084	LS	1.000	1.000
0200	502.3100	Expansion Device (structure) 02. B-41-0090	LS	1.000	1.000
0210	502.3100	Expansion Device (structure) 03. B-32-0060	LS	1.000	1.000
0220	502.3200	Protective Surface Treatment	SY	2,369.000	2,369.000
0230	502.3210	Pigmented Surface Sealer	SY	393.000	393.000
0240	502.4205	Adhesive Anchors No. 5 Bar	EACH	140.000	140.000
0250	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	5,180.000	5,180.000
0260	505.0906	Bar Couplers No. 6	EACH	5.000	5.000
0270	509.0301	Preparation Decks Type 1	SY	458.000	458.000
0280	509.0302	Preparation Decks Type 2	SY	225.000	225.000
0290	509.0500	Cleaning Decks	SY	1,195.000	1,195.000
0300	509.1000	Joint Repair	SY	84.000	84.000
0310	509.1200	Curb Repair	LF	27.000	27.000
0320	509.1500	Concrete Surface Repair	SF	85.000	85.000
0330	509.2000	Full-Depth Deck Repair	SY	22.000	22.000
0340	509.2500	Concrete Masonry Overlay Decks	CY	232.000	232.000
0350	509.9005.S	Removing Concrete Masonry Deck Overlay (structure) 01. B-41-0090	SY	1,174.000	1,174.000
0360	603.8000	Concrete Barrier Temporary Precast Delivered	LF	938.000	938.000
0370	603.8125	Concrete Barrier Temporary Precast Installed	LF	1,876.000	1,876.000
0380	606.0200	Riprap Medium	CY	4.500	4.500

Estimate Of Quantities

1077-01-64					
Line	Item	Item Description	Unit	Total	Qty
0390	614.0010	Barrier System Grading Shaping Finishing	EACH	13.000	13.000
0400	614.2300	MGS Guardrail 3	LF	3,150.000	3,150.000
0410	614.2500	MGS Thrie Beam Transition	LF	354.600	354.600
0420	614.2610	MGS Guardrail Terminal EAT	EACH	13.000	13.000
0430	614.2620	MGS Guardrail Terminal Type 2	EACH	6.000	6.000
0440	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1077-01-64	EACH	1.000	1.000
0450	619.1000	Mobilization	EACH	1.000	1.000
0460	625.0500	Salvaged Topsoil	SY	200.000	200.000
0470	627.0200	Mulching	SY	44.000	44.000
0480	628.1504	Silt Fence	LF	2,430.000	2,430.000
0490	628.1520	Silt Fence Maintenance	LF	2,430.000	2,430.000
0500	628.1905	Mobilizations Erosion Control	EACH	8.000	8.000
0510	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0520	628.2002	Erosion Mat Class I Type A	SY	1,660.000	1,660.000
0530	628.7504	Temporary Ditch Checks	LF	120.000	120.000
0540	628.7570	Rock Bags	EACH	12.000	12.000
0550	629.0210	Fertilizer Type B	CWT	0.250	0.250
0560	630.0130	Seeding Mixture No. 30	LB	4.000	4.000
0570	630.0200	Seeding Temporary	LB	6.000	6.000
0580	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	10.000	10.000
0590	637.2230	Signs Type II Reflective F	SF	38.000	38.000
0600	638.2602	Removing Signs Type II	EACH	10.000	10.000
0610	638.3000	Removing Small Sign Supports	EACH	10.000	10.000
0620	642.5001	Field Office Type B	EACH	1.000	1.000
0630	643.0100	Traffic Control (project) 01. 1077-01-64	EACH	1.000	1.000
0640	643.0300	Traffic Control Drums	DAY	2,448.000	2,448.000
0650	643.0420	Traffic Control Barricades Type III	DAY	112.000	112.000
0660	643.0715	Traffic Control Warning Lights Type C	DAY	1,228.000	1,228.000
0670	643.0800	Traffic Control Arrow Boards	DAY	24.000	24.000
0680	643.0900	Traffic Control Signs	DAY	2,936.000	2,936.000
0690	645.0130	Geotextile Type R	SY	24.000	24.000
0700	646.0106	Pavement Marking Epoxy 4-Inch	LF	2,018.000	2,018.000
0710	646.0600	Removing Pavement Markings	LF	1,054.000	1,054.000
0720	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	9,312.000	9,312.000
0730	649.1400	Temporary Pavement Marking Stop Line Removable Tape 24-Inch	LF	76.000	76.000
0740	650.8000	Construction Staking Resurfacing Reference	LF	807.000	807.000
0750	650.9910	Construction Staking Supplemental Control (project) 01. 1077-01-64	LS	1.000	1.000

Estimate Of Quantities

1077-01-64

Line	Item	Item Description	Unit	Total	Qty
0760	661.0100	Temporary Traffic Signals for Bridges (structure) 01. B-41-0084	LS	1.000	1.000
0770	661.0100	Temporary Traffic Signals for Bridges (structure) 02. B-41-0090	LS	1.000	1.000
0780	690.0150	Sawing Asphalt	LF	172.000	172.000
0790	690.0250	Sawing Concrete	LF	181.000	181.000
0800	715.0415	Incentive Strength Concrete Pavement	DOL	76.000	76.000
0810	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0820	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000
0830	SPV.0045	Special 01. Traffic Control Cones	DAY	208.000	208.000
0840	SPV.0060	Special 01. Removing Concrete Surface Drain Special	EACH	2.000	2.000
0850	SPV.0060	Special 02. Bearing Anchor Bolt Repair	EACH	1.000	1.000
0860	SPV.0090	Special 01. Rout and Seal Construction Joints	LF	368.000	368.000
0870	SPV.0180	Special 01. Guardrail Mow Strip Emulsified Asphalt Special	SY	30.000	30.000

REMOVING CONCRETE PAVEMENT

REMOVING CONCRETE PAVEMENT 204.0100			
SITE	LOCATION	SY	REMARKS
3	IH90 EB	11	NEAR SLOPE PAVING UNDER STRUCTURE
SITE 3 TOTAL =		11	
PROJECT TOTALS =		11	

FINISHING ROADWAY (PROJECT) 01. 1077-01-64

213.0100		
LOCATION	EACH	REMARKS
PROJECT 1077-01-64	1	
PROJECT TOTALS =	1	

REMOVING ASPHALTIC SURFACE ITEMS

REMOVING ASPHALTIC SURFACE 204.0110							
REMOVING ASPHALTIC MILLING 204.0120							
SITE	STATION	TO	STATION	LOCATION	SY	SY	REMARKS
1	12+95.30	-	14+29.21	IDEAL ROAD	-	327	MAINLINE
1	16+15.21	-	19+27.38	IDEAL ROAD	-	763	MAINLINE
SITE 1 TOTAL =					0	1090	
2	46+53.26	-	46+91.60	STH 71	187	-	MAINLINE
2	49+31.60	-	49+69.93	STH 71	187	-	MAINLINE
SITE 2 TOTAL =					375	0	
3	7+56.42	-	8+96.74	WOLF ROAD	-	312	MAINLINE
3	10+88.88	-	12+29.20	WOLF ROAD	-	312	MAINLINE
SITE 3 TOTAL =					0	624	
PROJECT TOTALS =					375	1714	

REMOVING GUARDRAIL

REMOVING GUARDRAIL 204.0165						
SITE	STATION	TO	STATION	LOCATION	LF	REMARKS
1	13+10	-	14+06	IDEAL RD - LT	96	STRUCTURE B-41-84
1	13+17	-	14+13	IDEAL RD - RT	96	STRUCTURE B-41-84
1	16+31	-	17+71	IDEAL RD - LT	140	STRUCTURE B-41-84
1	16+38	-	17+78	IDEAL RD - RT	140	STRUCTURE B-41-84
2	45+03	-	46+73	STH 71 - RT/LT	340	STRUCTURE B-41-90
2	49+50	-	51+07	STH 71 - RT/LT	314	STRUCTURE B-41-90
3	8+15	-	8+74	WOLF RD - RT	59	STRUCTURE B-32-60
3	8+21	-	8+80	WOLF RD - LT	59	STRUCTURE B-32-60
3	11+05	-	12+01	WOLF RD - RT	96	STRUCTURE B-32-60
3	11+12	-	12+08	WOLF RD - LT	96	STRUCTURE B-32-60
PROJECT TOTALS =					1436	

BASE AGGREGATE DENSE 3/4-INCH

305.0110						
SITE	STATION	TO	STATION	LOCATION	TON	REMARKS
1	11+98	-	14+06	SW QUAD	6	B-41-0084
1	12+05	-	14+13	SE QUAD	6	B-41-0084
1	18+40	-	20+04	NW QUAD	10	B-41-0084
1	18+15	-	19+49	NE QUAD	8	B-41-0084
1				IH90 EB	30	
1				IH90 WB	30	
SITE 1 TOTAL =					90	
2				IH90 EB	15	
2				IH90 WB	28	
SITE 2 TOTAL =					43	
3	06+87	-	08+80	SW QUAD	7	B-32-0060
3	06+68	-	08+74	SE QUAD	7	B-32-0060
3	11+12	-	13+17	NW QUAD	7	B-32-0060
3	11+05	-	12+98	NE QUAD	7	B-32-0060
3				IH90 EB	28	
3				IH90 WB	28	
SITE 3 TOTAL =					84	
PROJECT TOTALS =					217	

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

BASE AGGREGATE DENSE 1 1/4-INCH

305.0120						
SITE	STATION	TO	STATION	LOCATION	TON	REMARKS
2	46+53	-	46+73	MAINLINE	36	ASPHALT SURFACE
2	46+73	-	46+92	MAINLINE	7	CONCRETE SHOULDERS
2	49+32	-	49+50	MAINLINE	7	CONCRETE SHOULDERS
2	49+50	-	49+70	MAINLINE	32	ASPHALT SURFACE
SITE 2 TOTAL =					82	
PROJECT TOTALS =					82	

CONCRETE PAVEMENT ITEMS SUMMARY

CONCRETE PAVEMENT 7-INCH 415.0070							
CONCRETE PAVEMENT APPROACH SLAB 415.0410							
SITE	STATION	TO	STATION	LOCATION	SY	SY	REMARKS
2	46+53	-	46+73	STH 71	29	61	MAINLINE
2	49+50	-	49+70	STH 71	-	61	MAINLINE
SITE 2 TOTAL =					29	122	
PROJECT TOTALS =					29	122	

ASPHALTIC SURFACE ITEMS SUMMARY

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS 211.0400									
TACK COAT* 455.0605									
ASPHALTIC SURFACE 465.0105									
SITE	STATION	TO	STATION	LOCATION	STA	GAL	TON	REMARKS	
1	12+95	-	14+29	IDEAL ROAD	4	35	56	MAINLINE	
1	16+15	-	19+27	IDEAL ROAD	8	78	125	MAINLINE	
SITE 1 TOTAL =					12	113	181		
2	46+53	-	46+73	STH 71	1	21	31	MAINLINE	
2	49+50	-	49+70	STH 71	1	19	28	MAINLINE	
SITE 2 TOTAL =					2	40	59		
3	7+56	-	8+97	WOLF ROAD	4	26	42	MAINLINE	
3	10+89	-	12+29	WOLF ROAD	4	26	42	MAINLINE	
SITE 3 TOTAL =					8	52	84		
PROJECT TOTALS =					22	205	324		

\* APPLICATION RATE IS 0.07 GAL/SY

SURFACE DRAINS

01. GUARDRAIL MOW STRIP EMULSIFIED ASPHALT SPECIAL SPV.0180.01										
GEOTEXTILE FABRIC TYPE R 645.0130										
SITE	STATION	LOCATION	REMOVING SURFACE DRAINS 204.0190 EACH	DRILLED TIE BARS 416.0610 EACH	CONCRETE SURFACE DRAINS 416.1010 CY	RIPRAP MEDIUM 606.0200 CY	ROCK BAGS 628.7570 EACH	01. REMOVING CONCRETE SURFACE DRAIN SPECIAL SPV.0060.01 EACH	SY	REMARKS
1	16+30	IDEAL RD	2	44	11.0	1.5	4	0	12.0	B-41-84,NW & NE QUAD
SITE 1 TOTAL =			2	44	11.0	1.5	4	0	12.0	
2	49+50	STH 71	0	72	3.5	1.5	4	2	6.0	B-41-90,NW & NE QUAD
SITE 2 TOTAL =			0	72	3.5	1.5	4	2	6.0	
3	11+25	WOLF RD	2	46	11.0	1.5	4	0	12.0	B-32-60,NW & NE QUAD
SITE 3 TOTAL =			2	46	11.0	1.5	4	0	12.0	
PROJECT TOTALS =			4	162	25.5	4.5	12	2	30	24

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

ASPHALTIC SURFACE TEMPORARY

465.0125						
SITE	STATION	TO	STATION	LOCATION	TON	REMARKS
1	12+52	-	14+07	IDEAL ROAD	11	STAGES 1
1	16+32	-	17+37	IDEAL ROAD	8	STAGES 1
1	12+57	-	14+12	IDEAL ROAD	11	STAGES 2
1	16+37	-	17+42	IDEAL ROAD	7	STAGES 2
1				IDEAL ROAD	17	UNDISTRIBUTED
SITE 1 TOTAL =					55	
3	7+87	-	8+74	WOLF ROAD	3	STAGES 1
3	11+05	-	11+89	WOLF ROAD	3	STAGES 1
3	7+93	-	8+80	WOLF ROAD	3	STAGES 2
3	11+11	-	11+95	WOLF ROAD	3	STAGES 2
3				WOLF ROAD	10	UNDISTRIBUTED
SITE 3 TOTAL =					22	
PROJECT TOTALS =					77	

BARRIER SYSTEM GRADING SHAPING FINISHING

614.0010				
SITE	STATION	LOCATION	EACH	REMARKS
1	13+03	SW QUAD	1	B-41-0084
1	13+10	SE QUAD	1	B-41-0084
1	19+22	NW QUAD	1	B-41-0084
1	18+67	NE QUAD	1	B-41-0084
1		IH90 EB	1	
1		IH90 WB	1	
SITE 1 TOTAL =			6	
2		IH90 WB	1	
SITE 2 TOTAL =			1	
3	07+77	SW QUAD	1	B-32-0060
3	07+58	SE QUAD	1	B-32-0060
3	12+27	NW QUAD	1	B-32-0060
3	12+08	NE QUAD	1	B-32-0060
3		IH90 EB	1	
3		IH90 WB	1	
SITE 3 TOTAL =			6	
PROJECT TOTALS =			13	

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

TEMPORARY PRECAST CONCRETE BARRIER SUMMARY

						CONCRETE BARRIER TEMPORARY PRECAST DELIVERED 603.8000	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED 603.8125		
SITE	STATION	TO	STATION	LOCATION	STAGE	LF	LF	REMARKS	
1	13+29	-	17+65	IDEAL ROAD	1	438.0	438.0	B-41-0084	
1	13+29	-	17+65	IDEAL ROAD	2	-	438.0	B-41-0084	
SITE 1 TOTAL =						438.0	876.0		
2	48+00	-	53+19	STH 71	1	500.0	500.0	B-41-0090	
2	48+00	-	53+25	STH 71	2	-	500.0	B-41-0090	
SITE 2 TOTAL =						500.0	1000.0		
PROJECT TOTALS =						938.0	1,876.0		

APPROXIMATE QUANTITIES FOR BARRIER SYSTEM GRADING SHAPING FINISHING. INFORMATIONAL PURPOSES ONLY

LOCATION POST #1 STATION	LOCATION	FILL CY	FILL (1.25) CY	COMMON EXCAVATION CY	TOPSOIL SY	SEED AREA SY	SEED MIX 30 LBS	SEEDING TEMPORARY LBS	FERTILIZER TYPE B CWT	MULCH SY	REMARKS
13+03	SW QUAD SITE 1	62.85	79	0.00	102	120	2.17	3.26	0.08	25	MODIFIED GRADING SECTION
13+10	SE QUAD SITE 1	5.94	7	1.15	68	83	1.50	2.25	0.05	17	
19+22	NW QUAD SITE 1	2.55	3	0.11	74	84	1.51	2.27	0.05	19	
18+67	NE QUAD SITE 1	7.91	10	0.00	155	168	3.02	4.53	0.11	39	
7+77	SW QUAD SITE 3	11.22	14	0.00	126	152	2.74	4.11	0.10	32	MODIFIED GRADING SECTION
7+58	SE QUAD SITE 3	0.00	0	0.89	58	84	1.51	2.27	0.05	15	MODIFIED GRADING SECTION
12+27	NW QUAD SITE 3	6.05	8	0.27	58	85	1.52	2.28	0.05	15	
12+08	NE QUAD SITE 3	4.32	5	0.18	52	76	1.37	2.06	0.05	13	
	IH90 EB SITE 1	4.46	6	1.66	71	71	1.28	1.92	0.04	18	
	IH90 WB SITE 1	0.58	1	1.43	25	25	0.45	0.68	0.02	6	
	IH90 WB SITE 2	0.00	0	4.63	16	16	0.29	0.44	0.01	4	
	IH90 EB SITE 3	10.22	13	1.67	89	89	1.60	2.40	0.06	22	
	IH90 WB SITE 3	0.58	1	3.24	25	25	0.45	0.68	0.02	6	
TOTALS			147	15	921	1,078	19.4	29.2	1	231	



TOPSOIL, MULCHING AND SEEDING

LOCATION	SEEDING				
	SALVAGED TOPSOIL	MIXTURE NO. 30	SEEDING TEMPORARY	FERTILIZER TYPE B	MULCH
	625.0500	630.0130	630.0200	629.0210	627.0200
	SY	LBS	LBS	CWT	SY
UNDISTRIBUTED	200.00	4.00	6.00	0.25	44
PROJECT TOTAL =	200.00	4.00	6.00	0.25	44.00

MAINTENANCE AND REPAIR OF HAUL  
ROADS (PROJECT) 01. 1077-01-64

618.0100		
LOCATION	EACH	REMARKS
PROJECT 1077-01-64	1	
PROJECT TOTALS =	1	

MOBILIZATION

619.1000			
CAT.	LOCATION	EACH	REMARKS
0010	ROADWAY	0.45	
TOTAL 0010 =		0.45	
0020	STRUCTURE B-41-0084	0.15	
TOTAL 0020 =		0.15	
0030	STRUCTURE B-41-0090	0.25	
TOTAL 0030 =		0.25	
0040	STRUCTURE B-32-0060	0.15	
TOTAL 0040 =		0.15	
PROJECT TOTALS =		1.00	

BEAM GUARD SUMMARY

SITE	STATION	TO	STATION	LOCATION	MGS GUARDRAIL 3	MGS THRIE BEAM TRANSITION	MGS GUARDRAIL TERMINAL EAT	MGS GUARDRAIL TERMINAL TYPE 2	REMARKS
					614.2300	614.2500	614.2610	614.2620	
					LF	LF	EACH	EACH	
1	13+03	-	14+08	SW QUAD	12.5	39.4	1	-	B-41-0084
1	13+10	-	14+15	SE QUAD	12.5	39.4	1	-	B-41-0084
1	16+29	-	19+22	NW QUAD	200.0	39.4	1	-	B-41-0084
1	16+36	-	18+67	NE QUAD	137.5	39.4	1	-	B-41-0084
1				IH90 EB	487.5	-	1	1	
1				IH90 WB	475.0	-	1	1	
SITE 1 TOTAL =					1,325.0	157.6	6	2	
2				IH90 EB	475.0	39.4	-	1	
2				IH90 WB	425.0	-	1	1	
SITE 2 TOTAL =					900.0	39.4	1	2	
3	7+77	-	8+82	SW QUAD	12.5	39.4	1	-	B-32-0060
3	7+58	-	8+76	SE QUAD	25.0	39.4	1	-	B-32-0060
3	11+09	-	12+27	NW QUAD	25.0	39.4	1	-	B-32-0060
3	11+03	-	12+08	NE QUAD	12.5	39.4	1	-	B-32-0060
3				IH90 EB	425.0	-	1	1	
3				IH90 WB	425.0	-	1	1	
SITE 3 TOTAL =					925.0	157.6	6	2	
PROJECT TOTALS =					3,150.0	354.6	13	6	

SILT FENCE SUMMARY

SITE	STATION	TO	STATION	LOCATION	SILT FENCE 628.1504	SILT FENCE MAINTENANCE 628.1520	REMARKS
					LF	LF	
1	12+79	-	14+29	SW QUAD	157	157	B-41-0084
1	12+79	-	14+29	SE QUAD	150	150	B-41-0084
1	16+15	-	19+42	NW QUAD	175	175	B-41-0084
1	16+15	-	19+42	NE QUAD	151	151	B-41-0084
1					400	400	UNDISTRIBUTED
SITE 1 TOTAL =					1,033	1,033	
2					400	400	UNDISTRIBUTED
SITE 2 TOTAL =					400	400	
3	7+47	-	8+97	SW QUAD	142	142	B-32-0060
3	7+47	-	8+97	SE QUAD	158	158	B-32-0060
3	10+89	-	12+39	NW QUAD	151	151	B-32-0060
3	10+89	-	12+39	NE QUAD	146	146	B-32-0060
3					400	400	UNDISTRIBUTED
SITE 3 TOTAL =					997	997	
PROJECT TOTALS =					2,430	2,430	

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

MOBILIZATION EROSION CONTROL

LOCATION	MOBILIZATIONS EROSION CONTROL 628.1905	MOBILIZATIONS EMERGENCY EROSION CONTROL 628.1910	REMARKS
	EACH	EACH	
PROJECT 1077-01-64	8	4	ENTIRE PROJECT
PROJECT TOTALS =	8	4	

EROSION MAT CLASS I TYPE A

SITE	STATION	TO	STATION	LOCATION	628.2002 SY	REMARKS
1	12+42	-	13+20	SW QUAD	344	B-41-84
1	12+63	-	13+08	SE QUAD	92	B-41-84
1	18+11	-	19+32	NE QUAD	608	B-41-84
SITE 1 TOTAL =					1,044	
3	07+51	-	08+02	SW QUAD	288	B-32-60
3	11+81	-	12+34	NE QUAD	128	B-32-60
SITE 3 TOTAL =					416	
UNDISTRUBUTED					200	
PROJECT TOTALS =					1,660	

TEMPORARY DITCH CHECKS

SITE	STATION	LOCATION	628.7504 LF	REMARKS
1	13+75	SW QUAD	15	B-41-84
1	13+75	SE QUAD	15	B-41-84
1	18+75	NW QUAD	15	B-41-84
1	18+25	NE QUAD	15	B-41-84
SITE 1 TOTAL =			60	
3	8+40	SW QUAD	15	B-32-60
3	8+40	SE QUAD	15	B-32-60
3	11+50	NW QUAD	15	B-32-60
3	11+50	NE QUAD	15	B-32-60
SITE 3 TOTAL =			60	
PROJECT TOTALS =			120	

PERMANENT SIGNING

SITE	SIGN NO.	SIGN CODE	SIZE in x in	POSTS WOOD 4X6-INCH X 14-FT 634.0614	SIGNS TYPE II REFLECTIVE F 637.2230	REMOVING SIGNS TYPE II 638.2602	REMOVING SMALL SIGN SUPPORTS 638.3000	REMARKS
				EACH	SF	EACH	EACH	
1	1-1	W5-52L	36 x 12	1	3.00	1	1	
1	1-2	W5-52R	36 x 12	1	3.00	1	1	
1	1-3	W5-52R	36 x 12	1	3.00	1	1	
1	1-4	W5-52L	36 x 12	1	3.00	1	1	
1	1-5	W3-5	36 x 36	1	9.00	1	1	25 M.P.H.
1	1-6	R2-1	24 x 30	1	5.00	1	1	25 M.P.H.
SITE 1 TOTAL =				6	26	6	6	
3	3-1	W5-52L	36 x 12	1	3.00	1	1	
3	3-2	W5-52R	36 x 12	1	3.00	1	1	
3	3-3	W5-52R	36 x 12	1	3.00	1	1	
3	3-4	W5-52L	36 x 12	1	3.00	1	1	
SITE 3 TOTAL =				4	12	4	4	
PROJECT TOTALS =				10	38	10	10	

FIELD OFFICE TYPE B

LOCATION	642.5001 EACH	REMARKS
PROJECT 1077-01-64	1	
PROJECT TOTALS =	1	

TRAFFIC CONTROL (PROJECT) 01. 1077-01-64

LOCATION	643.0100 EACH	REMARKS
PROJECT 1077-01-64	1	
PROJECT TOTALS =	1	

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

3

3

TRAFFIC CONTROL

						TRAFFIC CONTROL CONTROL DRUMS 643.0300	TRAFFIC CONTROL WARNING LIGHTS TYPE C 643.0715	TRAFFIC CONTROL ARROW BOARDS 643.0800	01. TRAFFIC CONTROL CONES SPV.0045		
SITE	STATION	STATION	LOCATION	STAGE	EACH	DAYS	DAYS	DAYS	DAYS	REMARKS	
1	12+38	- 13+28	IDEAL RD	1	5	125	-	-	-	B-41-0084	
1	13+28	- 13+78	IDEAL RD	1	5	125	125	-	-	B-41-0084	
1	17+16	- 17+66	IDEAL RD	1	5	125	125	-	-	B-41-0084	
1	17+66	- 18+56	IDEAL RD	1	5	125	-	-	-	B-41-0084	
1	12+38	- 13+28	IDEAL RD	2	5	115	-	-	-	B-41-0084	
1	13+28	- 13+78	IDEAL RD	2	5	115	115	-	-	B-41-0084	
1	17+16	- 17+66	IDEAL RD	2	5	115	115	-	-	B-41-0084	
1	17+66	- 18+56	IDEAL RD	2	5	115	-	-	-	B-41-0084	
1			IH90 EB		44	88	10	4	-	2 ARROW BOARDS	
1			IH90 WB		44	88	10	4	-	2 ARROW BOARDS	
SITE 1 TOTAL =						1,136	500	8	0		
2	45+02	- 45+92	STH 71	1	5	125	-	-	-	B-41-0090	
2	45+92	- 46+42	STH 71	1	5	125	125	-	-	B-41-0090	
2	50+32	- 50+82	STH 71	1	5	125	125	-	-	B-41-0090	
2	50+82	- 51+72	STH 71	1	5	125	-	-	-	B-41-0090	
2	45+02	- 45+92	STH 71	2	5	115	-	-	-	B-41-0090	
2	45+92	- 46+42	STH 71	2	5	115	115	-	-	B-41-0090	
2	50+32	- 50+82	STH 71	2	5	115	115	-	-	B-41-0090	
2	50+82	- 51+72	STH 71	2	5	115	-	-	-	B-41-0090	
2			IH90 EB		44	88	10	4	-	2 ARROW BOARDS	
2			IH90 WB		44	88	10	4	-	2 ARROW BOARDS	
SITE 2 TOTAL =						1,136	500	8	0		
3	8+47	- 11+39	WOLF ROAD	1	13	-	104	-	104	B-32-0060	
3	8+47	- 11+39	WOLF ROAD	2	13	-	104	-	104	B-32-0060	
3			IH90 EB		44	88	10	4	-	2 ARROW BOARDS	
3			IH90 WB		44	88	10	4	-	2 ARROW BOARDS	
SITE 3 TOTAL =						176	228	8	208		
PROJECT TOTALS =						2,448	1,228	24	208		

TRAFFIC CONTROL BARRICADES TYPE III

643.0420						
SITE	STATION	LOCATION	STAGE	EACH	DAYS	REMARKS
1	13+29	IDEAL RD	1	1	25	B-41-0084
1	16+65	IDEAL RD	2	1	23	B-41-0084
SITE 1 TOTAL =					48	
2	50+50	STH 71	1	1	25	B-41-0090
2	46+25	STH 71	2	1	23	B-41-0090
SITE 2 TOTAL =					48	
3	08+75	WOLF ROAD	1	1	8	B-32-0060
3	10+90	WOLF ROAD	2	1	8	B-32-0060
SITE 3 TOTAL =					16	
PROJECT TOTALS =					112	
<b><u>TRAFFIC CONTROL SIGNS</u></b>						
643.0900						
SITE	STAGE	DAYS	LOCATION	SIGNS	DAYS	REMARKS
1	1	25	IDEAL RD	4	100	ADVANCE WARNING SIGNS
1	2	23	IDEAL RD	4	92	
1	1,2,3	56	IDEAL RD	20	1120	
1		2	IH 90	20	40	
SUBTOTAL SITE 1 =					1,352	
2	1	25	STH 71	6	150	ADVANCE WARNING SIGNS
2	2	23	STH 71	6	138	
2	1,2,3	48	STH 71	14	672	
2		2	IH 90	20	40	
SUBTOTAL SITE 2 =					1,000	
3	1	8	WOLF RD	2	16	STOP SIGNS ADVANCE WARNING SIGNS
3	2	8	WOLF RD	2	16	
3	1,2	16	WOLF RD	4	64	
3	1,2,3	28	WOLF RD	16	448	
3		2	IH 90	20	40	
SUBTOTAL SITE 3 =					584	
PROJECT TOTALS=					2,936	

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

PAVEMENT MARKING EPOXY 4-INCH

646.0106						
SITE	STATION	TO	STATION	LOCATION	LF	REMARKS
2	45+02	-	51+69	CENTERLINE	775	SOLID YELLOW
2	45+02	-	51+69	CENTERLINE	194	DASHED YELLOW
2	44+88	-	50+68	EDGE LINE	581	SOLID WHITE
2	46+00	-	50+68	EDGE LINE	468	SOLID WHITE
SITE 2 TOTAL =					2,018	
PROJECT TOTALS =					2,018	

TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH

649.0400							
SITE	STATION	TO	STATION	STAGE	LOCATION	LF	REMARKS
1	5+39	-	12+39	1 & 2	CENTERLINE	700	SOLID YELLOW
1	12+39	-	13+12	1 & 2	EDGE LINE	146	SOLID WHITE LT & RT
1	13+12	-	17+82	1	EDGE LINE	480	SOLID WHITE RT
1	13+12	-	17+82	1	EDGE LINE	480	SOLID WHITE LT
1	17+82	-	18+55	1 & 2	EDGE LINE	146	SOLID WHITE LT & RT
1	18+55	-	25+55	1 & 2	CENTERLINE	700	SOLID YELLOW
1	13+12	-	17+82	2	EDGE LINE	470	SOLID WHITE RT
1	13+12	-	17+82	2	EDGE LINE	470	SOLID WHITE LT
SITE 1 TOTAL =						3,592	
2	38+02	-	45+02	1 & 2	CENTERLINE	700	SOLID YELLOW
2	45+74	-	50+99	1	EDGE LINE	530	SOLID WHITE
2	46+19	-	50+54	1	EDGE LINE	436	SOLID WHITE
2	51+69	-	58+69	1 & 2	CENTERLINE	700	SOLID YELLOW
2	45+02	-	51+08	2	EDGE LINE	606	SOLID WHITE
2	46+00	-	50+68	2	EDGE LINE	468	SOLID WHITE
SITE 2 TOTAL =						3,440	
3	8+95	-	10+90	1	EDGE LINE	390	SOLID WHITE LT & RT
3	8+45	-	8+95	1	EDGE LINE	50	SOLID WHITE
3	10+90	-	11+40	1	EDGE LINE	50	SOLID WHITE
3	11+65	-	18+65	1 & 2	CENTERLINE	700	SOLID YELLOW
3	1+20	-	8+20	1 & 2	CENTERLINE	700	SOLID YELLOW
3	8+95	-	10+90	2	EDGE LINE	390	SOLID WHITE LT & RT
SITE 3 TOTAL =						2,280	
PROJECT TOTALS =						9,312	

REMOVING PAVEMENT MARKINGS

646.0600						
SITE	STATION	TO	STATION	LOCATION	LF	REMARKS
2	45+02	-	46+13	CENTERLINE	111	SOLID YELLOW
2	45+02	-	46+13	CENTERLINE	28	DASHED YELLOW
2	44+87	-	50+69	EDGE LINE	582	SOLID WHITE
2	50+25	-	51+69	CENTERLINE	144	SOLID YELLOW
2	50+25	-	51+69	CENTERLINE	36	DASHED YELLOW
2	46+00	-	46+53	EDGE LINE	54	SOLID WHITE
2	49+70	-	50+68	EDGE LINE	99	SOLID WHITE
SITE 2 TOTAL =					1,054	
PROJECT TOTALS =					1,054	

TEMPORARY PAVEMENT MARKING STOP LINE REMOVABLE TAPE 24-INCH

649.1400				
SITE	STATION	LOCATION	LF	REMARKS
1	12+39	IDEAL ROAD, NB	11	B-41-0084
1	18+55	IDEAL ROAD, SB	11	B-41-0084
SITE 1 TOTAL =			22	
2	45+02	STH 71,NB	22	B-41-0090
2	51+69	STH 71,SB	12	B-41-0090
SITE 2 TOTAL =			34	
3	11+65	WOLF ROAD, NB	10	B-32-0060
3	8+20	WOLF ROAD, SB	10	B-32-0060
SITE 3 TOTAL =			20	
PROJECT TOTALS =			76	

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

CONSTRUCTION STAKING RESURFACING REFERENCE

650.8000						
SITE	STATION	TO	STATION	LOCATION	LF	REMARKS
1	12+95	-	14+29	IDEAL RD	134	B-41-0084
1	16+15	-	19+27	IDEAL RD	313	B-41-0084
SITE 1 TOTAL =					447	
2	46+53	-	46+92	STH 71	39	B-41-0090
2	49+32	-	49+70	STH 71	39	B-41-0090
SITE 2 TOTAL =					78	
3	07+56	-	08+97	WOLF RD	141	B-32-0060
3	10+89	-	12+29	WOLF RD	141	B-32-0060
SITE 3 TOTAL =					282	
PROJECT TOTALS =					807	

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT)  
01. 1077-01-64

650.9910		
LOCATION	LS	REMARKS
PROJECT 1077-01-64	1	
PROJECT TOTALS =		1

TEMPORARY TRAFFIC SIGNALS FOR BRIDGES  
(STRUCTURE) 01. B-41-0084

661.0100		
LOCATION	LS	REMARKS
SITE 1	1	B-41-0084
PROJECT TOTALS =		1

TEMPORARY TRAFFIC SIGNALS FOR BRIDGES  
(STRUCTURE) 02. B-41-0090

661.0100		
LOCATION	LS	REMARKS
SITE 2	1	B-41-0090
PROJECT TOTALS =		1

SAWING ASPHALT

690.0150				
SITE	STATION	LF	REMARKS	
1	12+95	22	B-41-0084	
1	19+27	22	B-41-0084	
SITE 1 TOTAL =		44		
2	46+53	44	B-41-0090	
2	49+70	44	B-41-0090	
SITE 2 TOTAL =		88		
3	07+56	20	B-32-0060	
3	12+29	20	B-32-0060	
SITE 3 TOTAL =		40		
PROJECT TOTALS =		172		

SAWING CONCRETE

690.0250				
SITE	LOCATION	LF	REMARKS	
1	B-41-84,NE QUAD	18	WINGWALL TIES	
1	B-41-84,NE QUAD	2	SURFACE DRAIN	
1	B-41-84,NW QUAD	18	WINGWALL TIES	
1	B-41-84,NW QUAD	2	SURFACE DRAIN	
SITE 1 TOTAL =		40		
2	B-41-90,NE QUAD	19	WINGWALL TIES	
2	B-41-90,NE QUAD	2	SURFACE DRAIN	
2	B-41-90,NW QUAD	19	WINGWALL TIES	
2	B-41-90,NW QUAD	2	SURFACE DRAIN	
SITE 2 TOTAL =		42		
3	B-32-60,NE QUAD	19	WINGWALL TIES	
3	B-32-60,NE QUAD	2	SURFACE DRAIN	
3	B-32-60,NW QUAD	19	WINGWALL TIES	
3	B-32-60,NW QUAD	2	SURFACE DRAIN	
3	IH90 EB	57	MOW STRIP FOR BEAMGUARD	
SITE 3 TOTAL =		99		
PROJECT TOTALS =		181		

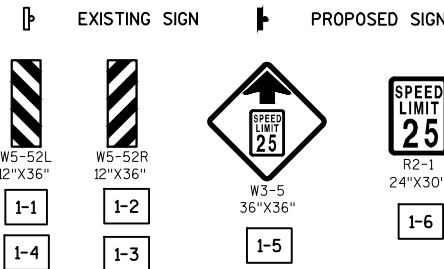
ROUT AND SEAL CONSTRUCTION JOINTS

SPV.0090.01			
SITE	LOCATION	LF	REMARKS
1	SOUTH ABUTMENT	36	B-41-84
1	NORTH ABUTMENT	36	B-41-84
1	NW SURFACE DRAIN	23	B-41-84
1	NE SURFACE DRAIN	23	B-41-84
SITE 1 TOTAL =		118	
2	SOUTH ABUTMENT	47	B-41-90
2	NORTH ABUTMENT	47	B-41-90
2	NW SURFACE DRAIN	25	B-41-90
2	NE SURFACE DRAIN	25	B-41-90
SITE 2 TOTAL =		144	
3	SOUTH ABUTMENT	28	B-32-60
3	NORTH ABUTMENT	28	B-32-60
3	NW SURFACE DRAIN	25	B-32-60
3	NE SURFACE DRAIN	25	B-32-60
SITE 3 TOTAL =		106	
PROJECT TOTALS =		368	

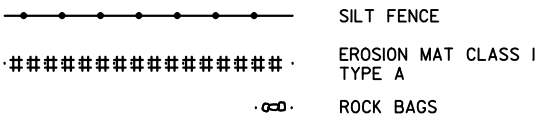
ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE



SIGN LEGEND

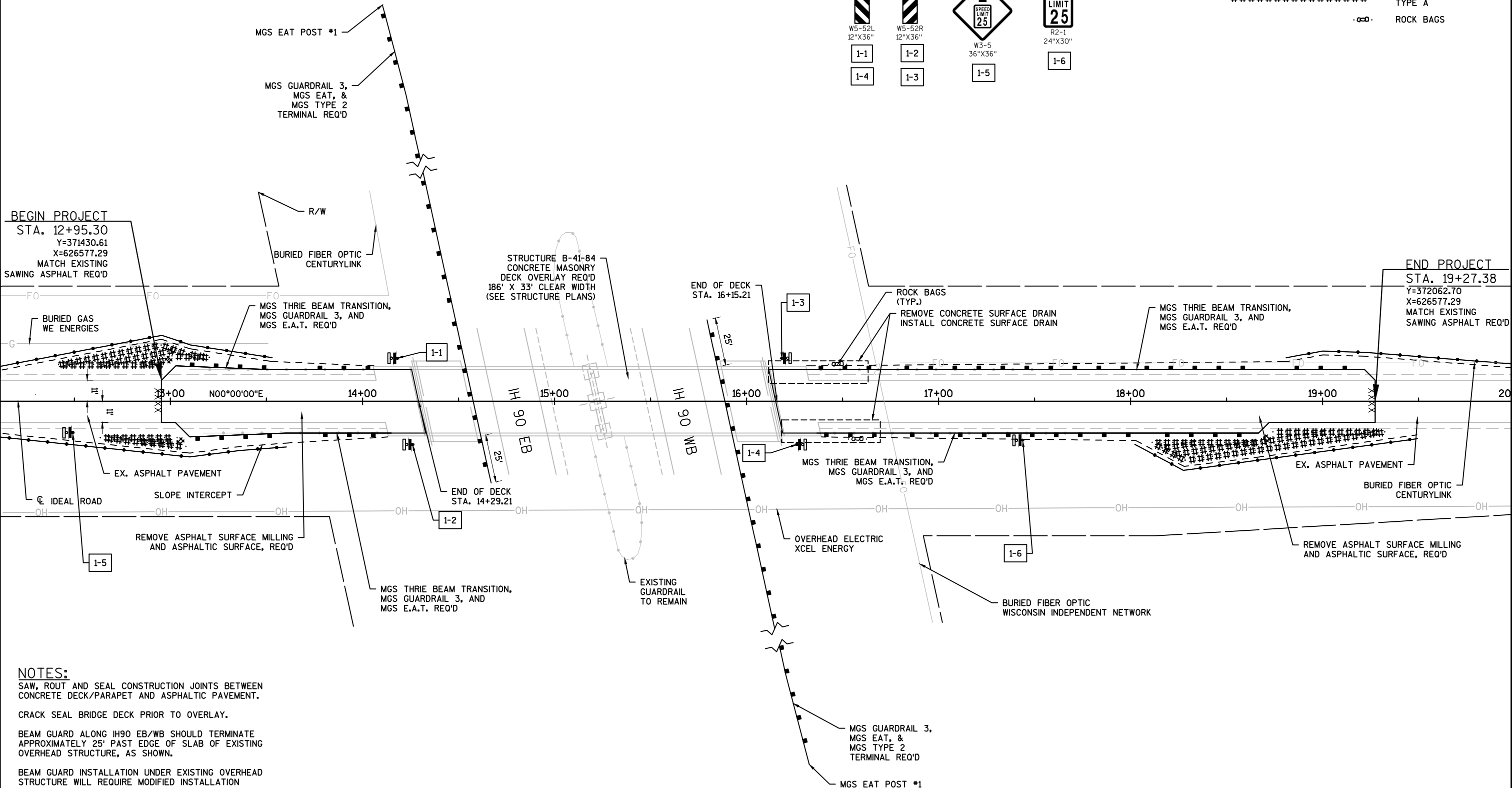


EROSION CONTROL LEGEND



BEGIN PROJECT  
STA. 12+95.30  
Y=371430.61  
X=626577.29  
MATCH EXISTING  
SAWING ASPHALT REQ'D

END PROJECT  
STA. 19+27.38  
Y=372062.70  
X=626577.29  
MATCH EXISTING  
SAWING ASPHALT REQ'D



NOTES:

SAW, ROUT AND SEAL CONSTRUCTION JOINTS BETWEEN CONCRETE DECK/PARAPET AND ASPHALTIC PAVEMENT.

CRACK SEAL BRIDGE DECK PRIOR TO OVERLAY.

BEAM GUARD ALONG IH90 EB/WB SHOULD TERMINATE APPROXIMATELY 25' PAST EDGE OF SLAB OF EXISTING OVERHEAD STRUCTURE, AS SHOWN.

BEAM GUARD INSTALLATION UNDER EXISTING OVERHEAD STRUCTURE WILL REQUIRE MODIFIED INSTALLATION METHODS TO AVOID OVERHEAD CONFLICTS AND TO PENETRATE EXISTING PAVEMENT ADJACENT TO SLOPE PAVING. CUT PAVEMENT FOR POSTS ACCORDING TO SDD "MOW STRIPS". INCIDENTAL TO ITEM MGS GUARDRAIL 3.

SCALE, FEET 0 25 50



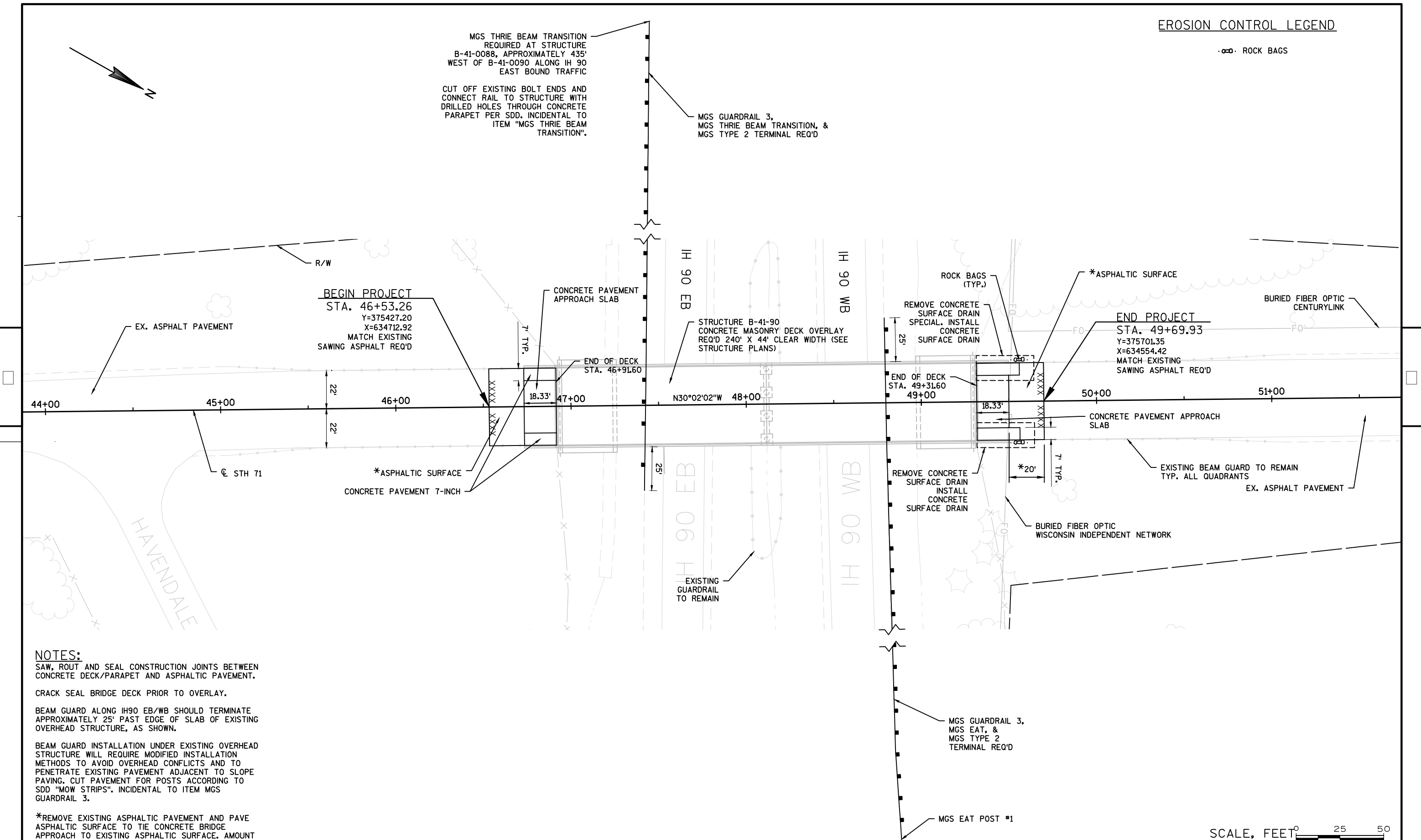
# EROSION CONTROL LEGEND

ROCK BAGS

MGS THRIE BEAM TRANSITION  
REQUIRED AT STRUCTURE  
B-41-0088, APPROXIMATELY 435'  
WEST OF B-41-0090 ALONG IH 90  
EAST BOUND TRAFFIC

CUT OFF EXISTING BOLT ENDS AND  
CONNECT RAIL TO STRUCTURE WITH  
DRILLED HOLES THROUGH CONCRETE  
PARAPET PER SDD. INCIDENTAL TO  
ITEM "MGS THRIE BEAM  
TRANSITION".

MGS GUARDRAIL 3,  
MGS THRIE BEAM TRANSITION, &  
MGS TYPE 2 TERMINAL REQ'D



## NOTES:

SAW, ROUT AND SEAL CONSTRUCTION JOINTS BETWEEN  
CONCRETE DECK/PARAPET AND ASPHALTIC PAVEMENT.

CRACK SEAL BRIDGE DECK PRIOR TO OVERLAY.

BEAM GUARD ALONG IH90 EB/WB SHOULD TERMINATE  
APPROXIMATELY 25' PAST EDGE OF SLAB OF EXISTING  
OVERHEAD STRUCTURE, AS SHOWN.

BEAM GUARD INSTALLATION UNDER EXISTING OVERHEAD  
STRUCTURE WILL REQUIRE MODIFIED INSTALLATION  
METHODS TO AVOID OVERHEAD CONFLICTS AND TO  
PENETRATE EXISTING PAVEMENT ADJACENT TO SLOPE  
PAVING. CUT PAVEMENT FOR POSTS ACCORDING TO  
SDD "MOW STRIPS". INCIDENTAL TO ITEM MGS  
GUARDRAIL 3.

\*REMOVE EXISTING ASPHALTIC PAVEMENT AND PAVE  
ASPHALTIC SURFACE TO TIE CONCRETE BRIDGE  
APPROACH TO EXISTING ASPHALTIC SURFACE. AMOUNT  
TO BE DETERMINED BY ENGINEER IN FIELD.

PROJECT NO:1077-01-64

HWY: IH 90

COUNTY: LA CROSSE & MONROE

PLAN - SITE 2 STH 71 (B-41-0090)

SHEET



SIGN LEGEND

	EXISTING SIGN		
	PROPOSED SIGN	3-1	3-2
		3-4	3-3

EROSION CONTROL LEGEND

	SILT FENCE
	EROSION MAT CLASS I TYPE A
	ROCK BAGS

MGS EAT POST #1  
MGS GUARDRAIL 3,  
MGS EAT, &  
MGS TYPE 2  
TERMINAL REQ'D

R/W

BEGIN PROJECT

STA. 7+56.42  
Y=358565.11  
X=573806.58  
MATCH EXISTING  
SAWING ASPHALT REQ'D

SLOPE INTERCEPT

MGS THRIE BEAM TRANSITION,  
MGS GUARDRAIL 3, AND  
MGS E.A.T. REQ'D

REMOVE ASPHALT SURFACE MILLING  
AND ASPHALTIC SURFACE, REQ'D

END OF DECK  
STA. 8+96.74

STRUCTURE B-32-60  
CONCRETE MASONRY DECK OVERLAY REQ'D  
192.1' X 24' CLEAR WIDTH  
(SEE STRUCTURE PLANS)

REMOVE ASPHALT  
SURFACE MILLING  
AND ASPHALTIC  
SURFACE, REQ'D

MGS THRIE BEAM TRANSITION,  
MGS GUARDRAIL 3, AND  
MGS E.A.T. REQ'D

END PROJECT

STA. 12+29.20  
Y=359028.49  
X=573712.78  
MATCH EXISTING  
SAWING ASPHALT REQ'D

REMOVE EXISTING  
GUARDRAIL (TYP.)

ROCK BAGS (TYP.)

EX. ASPHALT PAVEMENT

MGS THRIE BEAM TRANSITION,  
MGS GUARDRAIL 3, AND  
MGS E.A.T. REQ'D

EXISTING  
GUARDRAIL  
TO REMAIN

MGS GUARDRAIL 3,  
MGS EAT, &  
MGS TYPE 2  
TERMINAL REQ'D

MGS EAT POST #1

NOTES:

SAW, ROUT AND SEAL CONSTRUCTION JOINTS BETWEEN  
CONCRETE DECK/PARAPET AND ASPHALTIC PAVEMENT.

CRACK SEAL BRIDGE DECK PRIOR TO OVERLAY.

BEAM GUARD ALONG IH90 EB/WB SHOULD TERMINATE  
APPROXIMATELY 25' PAST EDGE OF SLAB OF EXISTING  
OVERHEAD STRUCTURE, AS SHOWN.

BEAM GUARD INSTALLATION UNDER EXISTING OVERHEAD  
STRUCTURE WILL REQUIRE MODIFIED INSTALLATION  
METHODS TO AVOID OVERHEAD CONFLICTS AND TO  
PENETRATE EXISTING PAVEMENT ADJACENT TO SLOPE  
PAVING. CUT PAVEMENT FOR POSTS ACCORDING TO  
SDD "MOW STRIPS". INCIDENTAL TO ITEM MGS  
GUARDRAIL 3.

SCALE, FEET 0 20 40

PROJECT NO:1077-01-64

HWY:IH 90

COUNTY:LA CROSSE & MONROE

PLAN - SITE 3 WOLF ROAD (B-32-0060)

SHEET

FILE NAME : W:\T059.04\CAD\TEMP\T059.04\SHEETSP\PLAN\050201\_PN.DWG  
LAYOUT NAME - 050203\_PN

PLOT DATE : 11/21/2016 7:48 AM

PLOT BY : DWORAK, ALEX

PLOT NAME :

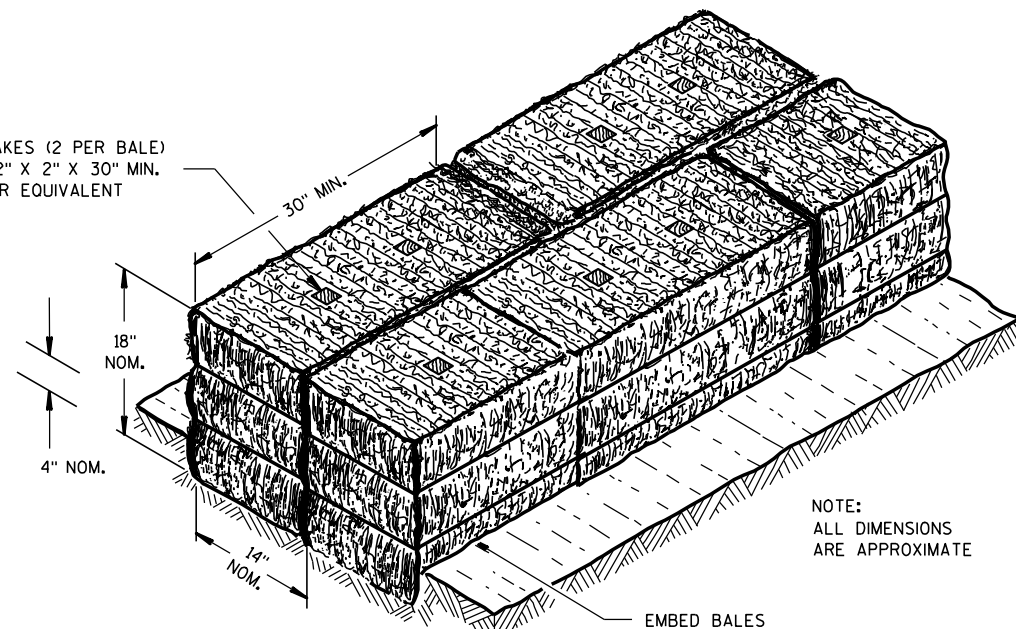
PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

Standard Detail Drawing List

08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
09G02-03A	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-03B	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-03C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
13A03-06	CONCRETE PAVEMENT SHOULDERS
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
13C01-18	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C11-11A	RURAL DOWELED CONCRETE PAVEMENT
13C11-11B	RURAL DOWELED CONCRETE PAVEMENT
14B07-14A	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-14B	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-14C	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-14D	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-14E	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-14F	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-14G	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-14H	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B28-03	GUARDRAIL MOW STRIP
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B47-02A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15D12-06A	TRAFFIC CONTROL, LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D32-04	TRAFFIC CONTROL, ONE LANE ROAD STOP CONDITION
15D33-04	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS

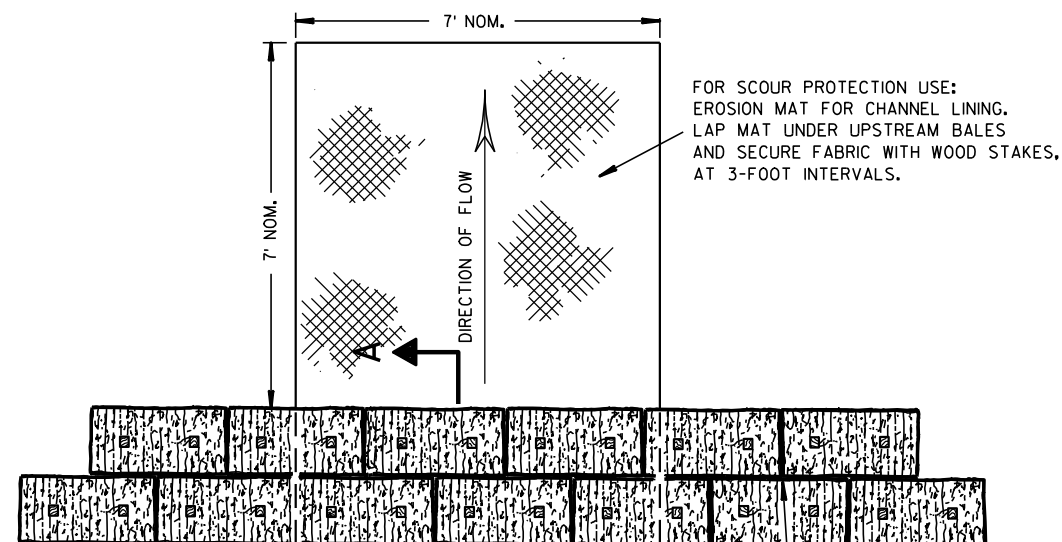
WOOD STAKES (2 PER BALE)  
NOMINAL 2" X 2" X 30" MIN.  
LENGTH OR EQUIVALENT



NOTE:  
ALL DIMENSIONS  
ARE APPROXIMATE

EMBED BALES

SECTION A-A

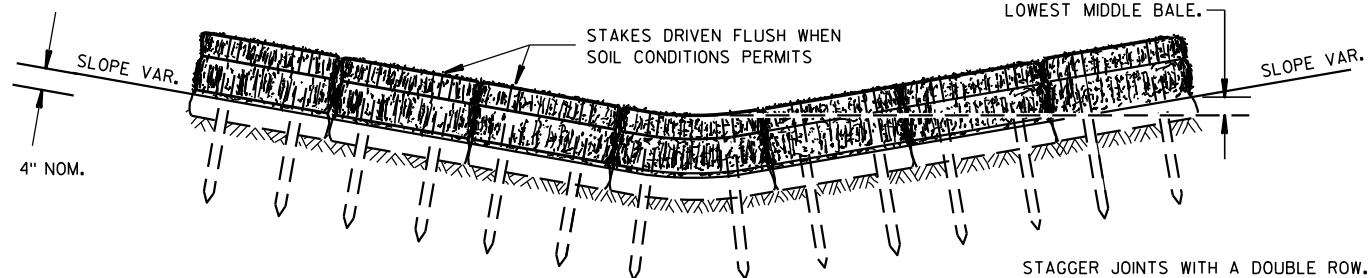


FOR SCOUR PROTECTION USE:  
EROSION MAT FOR CHANNEL LINING.  
LAP MAT UNDER UPSTREAM BALES  
AND SECURE FABRIC WITH WOOD STAKES,  
AT 3-FOOT INTERVALS.

PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT  
ROWS OF BALES.

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



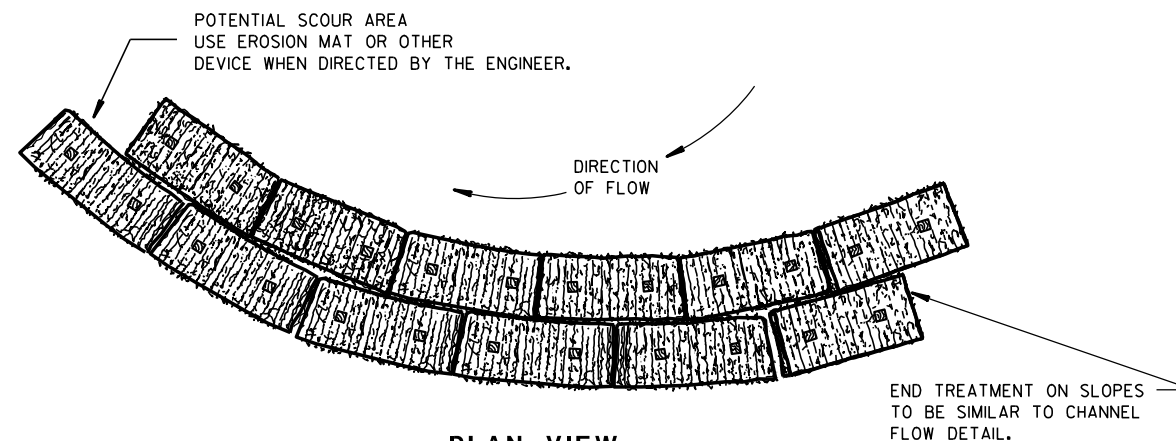
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

## GENERAL NOTES

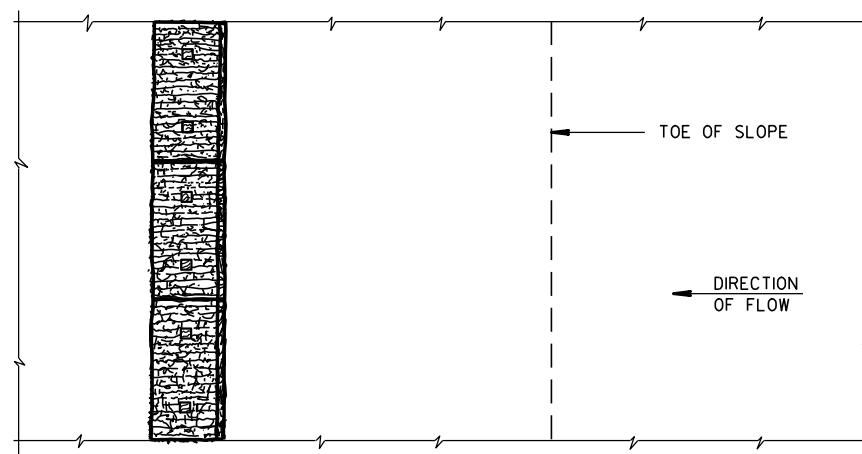
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

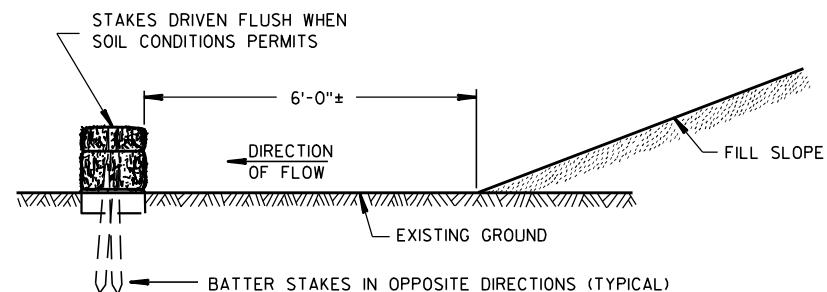


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

## TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

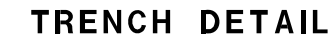
6/04/02  
DATE

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER

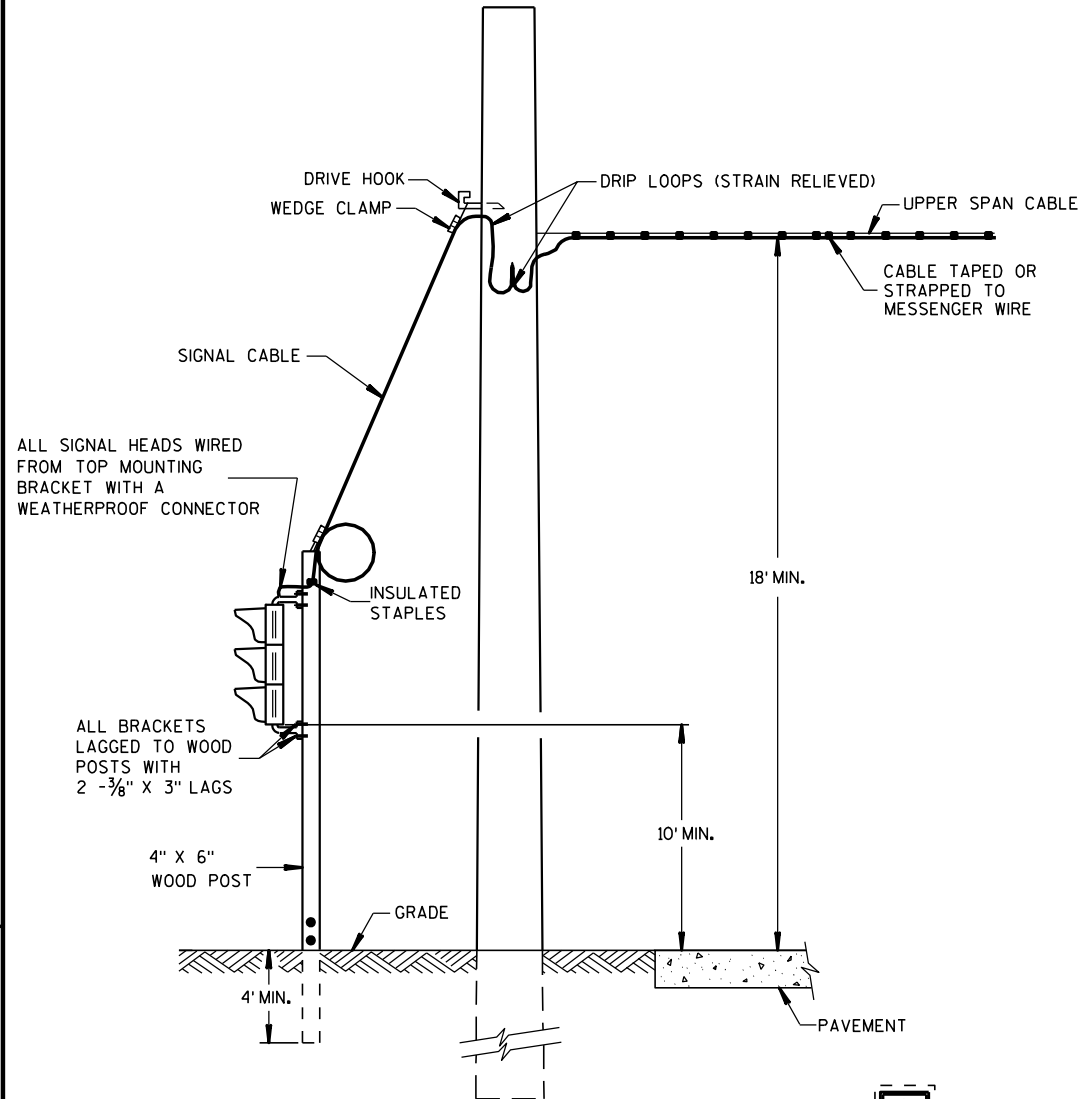
FHWA



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



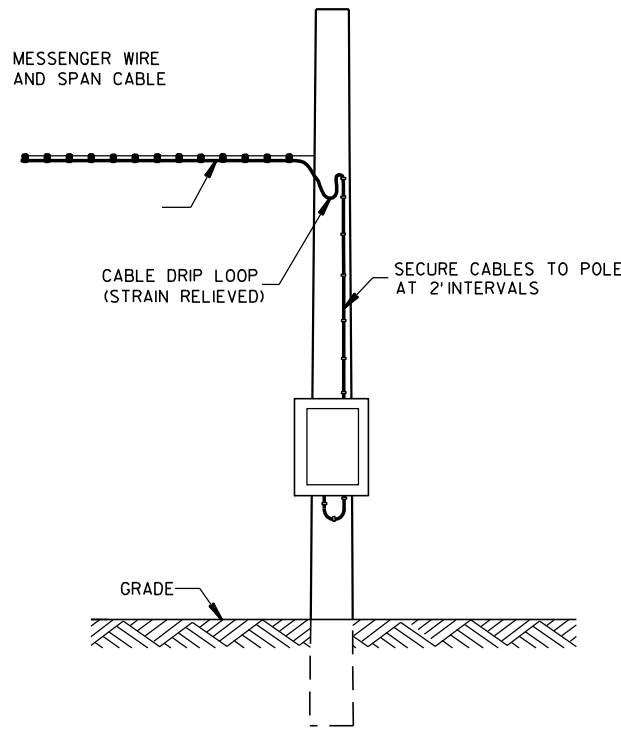
<b>SILT FENCE</b>	
<b>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</b>	
<b>APPROVED</b> <u>4-29-05</u> <b>DATE</b>	<u>/S/ Beth Cannestra</u> <b>CHIEF ROADWAY DEVELOPMENT ENGINEER</b>



TYPICAL DROP TO TRAFFIC SIGNAL FACE

OFFSET DISTANCES FOR TEMPORARY NON-BREAKAWAY POLES	
SPEED LIMIT	OFFSET DISTANCE**
GREATER THAN 45 MPH	18 FT
45 MPH OR LESS	12 FT
45 MPH OR LESS W/ CURBS	2 FT
**NOTE: OFFSET MEASURED FROM OUTER EDGE OF OUTSIDE THRU LANE.	

MINIMUM POLE LENGTHS	CLASS	MINIMUM BURIAL DEPTHS
25 FEET	Ⅴ	5 FEET
30 FEET	Ⅴ	6 FEET
35 FEET	Ⅳ	7 FEET
40 FEET	Ⅳ	8 FEET
45 FEET	Ⅳ	9 FEET



POLE MOUNT CABINET INSTALLATION

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

POLE MOUNTED TRAFFIC SIGNAL CONTROL CABINET MAYBE MOUNTED ON THE SERVICE POLE IF THE ELECTRICAL UTILITY ALLOWS THE INSTALLATION.

WHEN UTILITY PLOES ARE USED TO SPAN THE TEMPORARY OVERHEAD CABLE, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER OF THE POLES AND GIVEN TO THE PROJECT MANAGER. ALL PERTINENT UTILITY AND CODE CLEARANCES SHALL BE MAINTAINED.

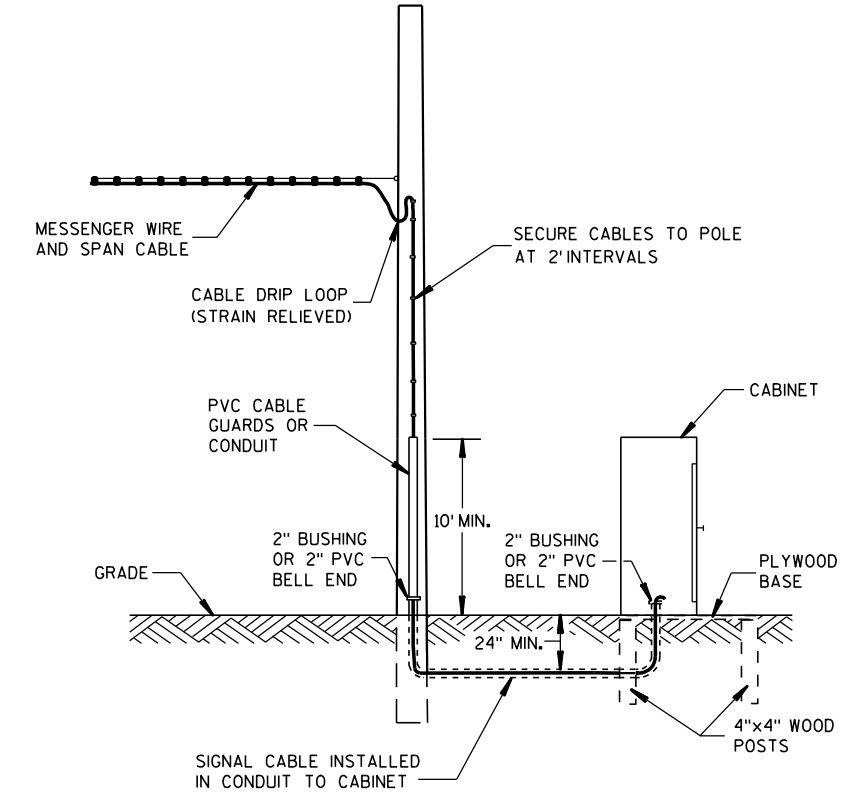
WOOD POLES (NONBREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAMGUARD, ETC.).

WOOD POSTS (BREAKAWAY) SHALL BE NO CLOSER THAN 2 FEET OUTSIDE OF SHOULDER.

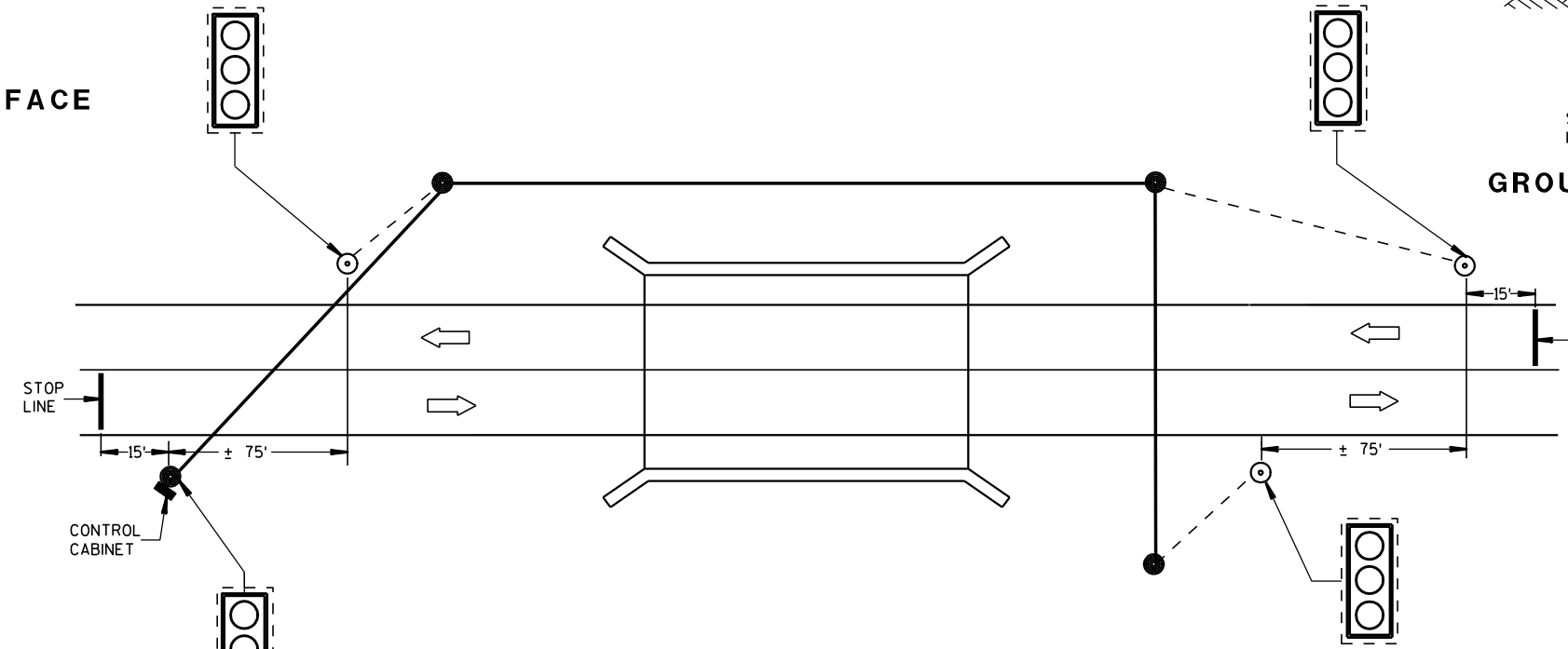
VERTICAL CLEARANCE ETC. PER NEC.

TRAFFIC SIGNAL FACES SHALL BE TYPICALLY PLACED 12 FEET FROM EDGE OF PAVEMENT.

EACH TRAFFIC SIGNAL FACE SHALL HAVE A BACKPLATE.



GROUND MOUNT CABINET INSTALLATION



PLAN VIEW  
TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION

**LEGEND**

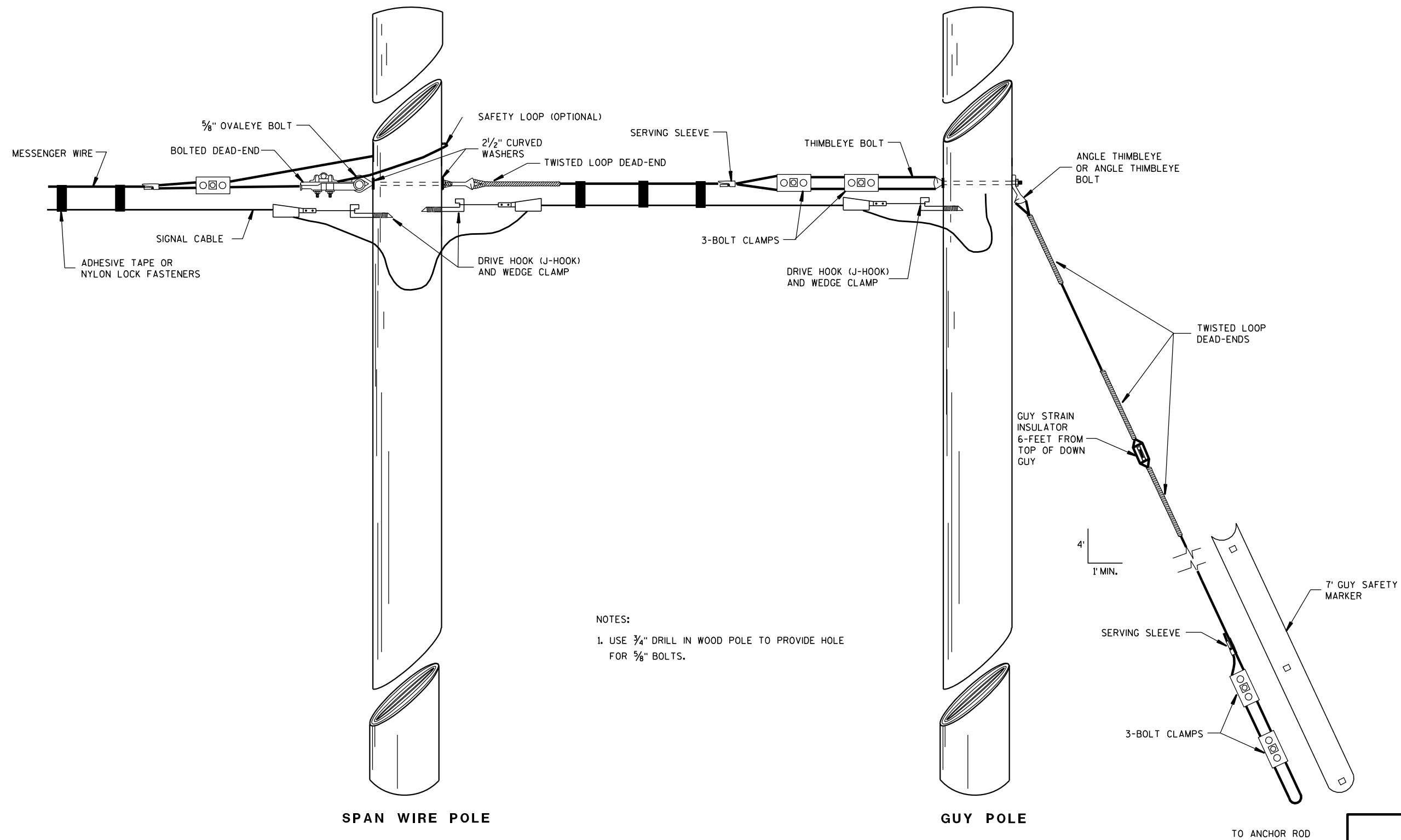
- WOOD POLE (NONBREAKAWAY)
- ⊙ WOOD POST (BREAKAWAY)
- - - SIGNAL CABLE
- SIGNAL CABLE W/MESSENGER
- LED TRAFFIC SIGNAL FACE WITH BACKPLATE
- 3'-12"
- ➡ DIRECTION OF TRAFFIC

**BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
3/2/2011 DATE /S/ Thomas J. Goring  
STATE ELECTRICAL ENGINEER FOR HWYS  
FHWA





## NOTES:

1. USE 3/4" DRILL IN WOOD POLE TO PROVIDE HOLE FOR 5/8" BOLTS.

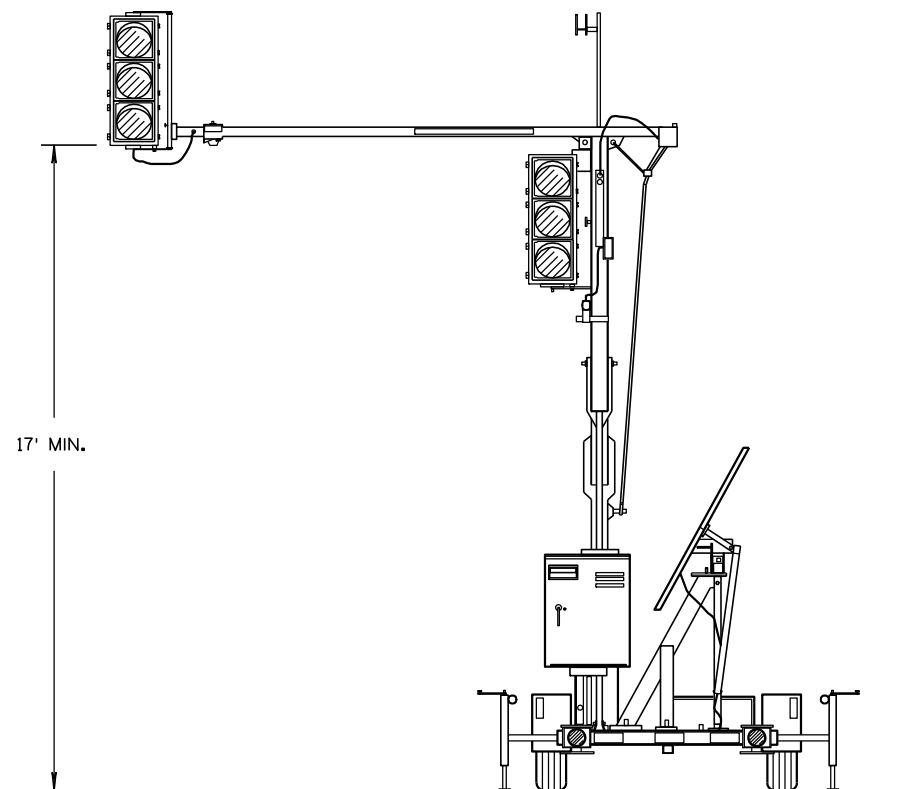
## TYPICAL DEAD-ENDINGS OR GUYING

BRIDGE TEMPORARY  
TRAFFIC SIGNAL INSTALLATIONSTATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011  
DATE/S/ Thomas J. Goring  
STATE ELECTRICAL ENGINEER FOR HWYS

FHWA

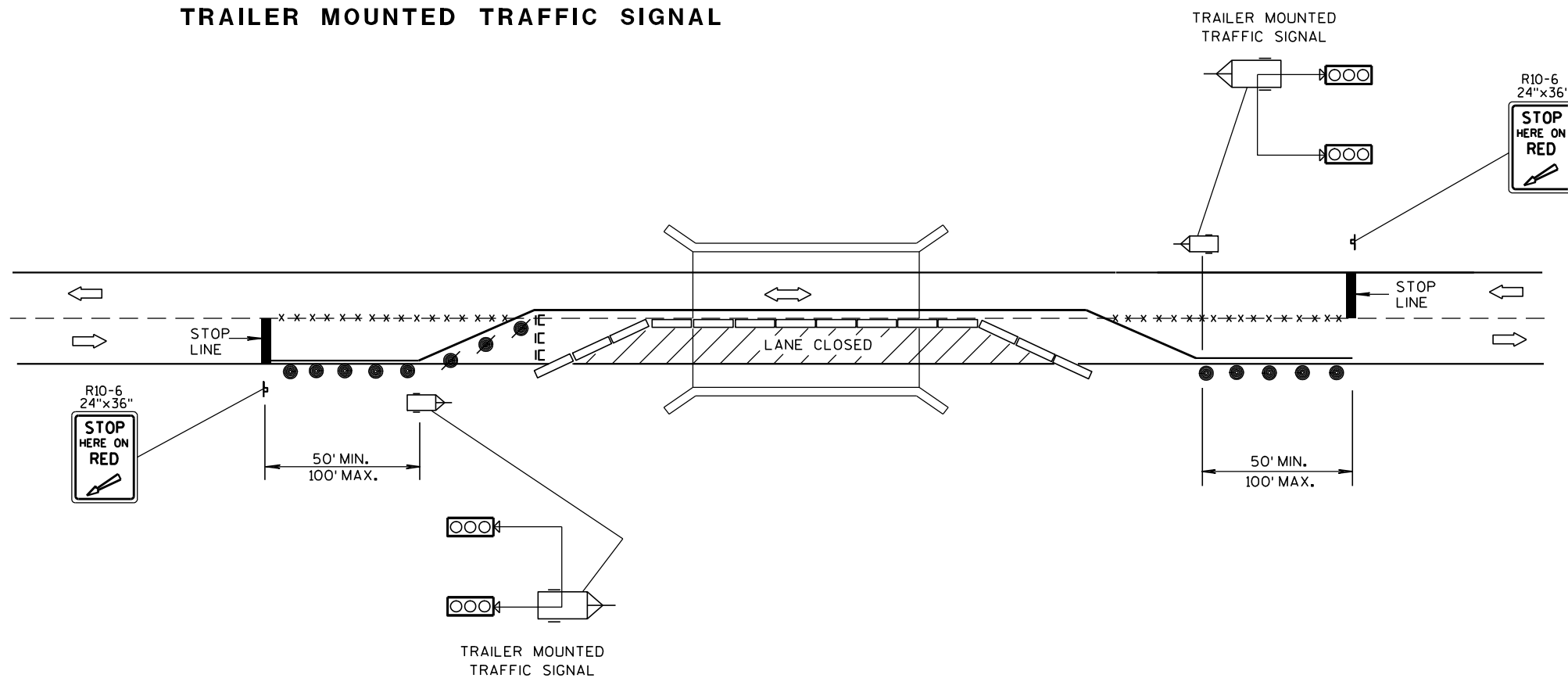


TRAILER MOUNTED TRAFFIC SIGNAL

## GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15 D 33.



TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION

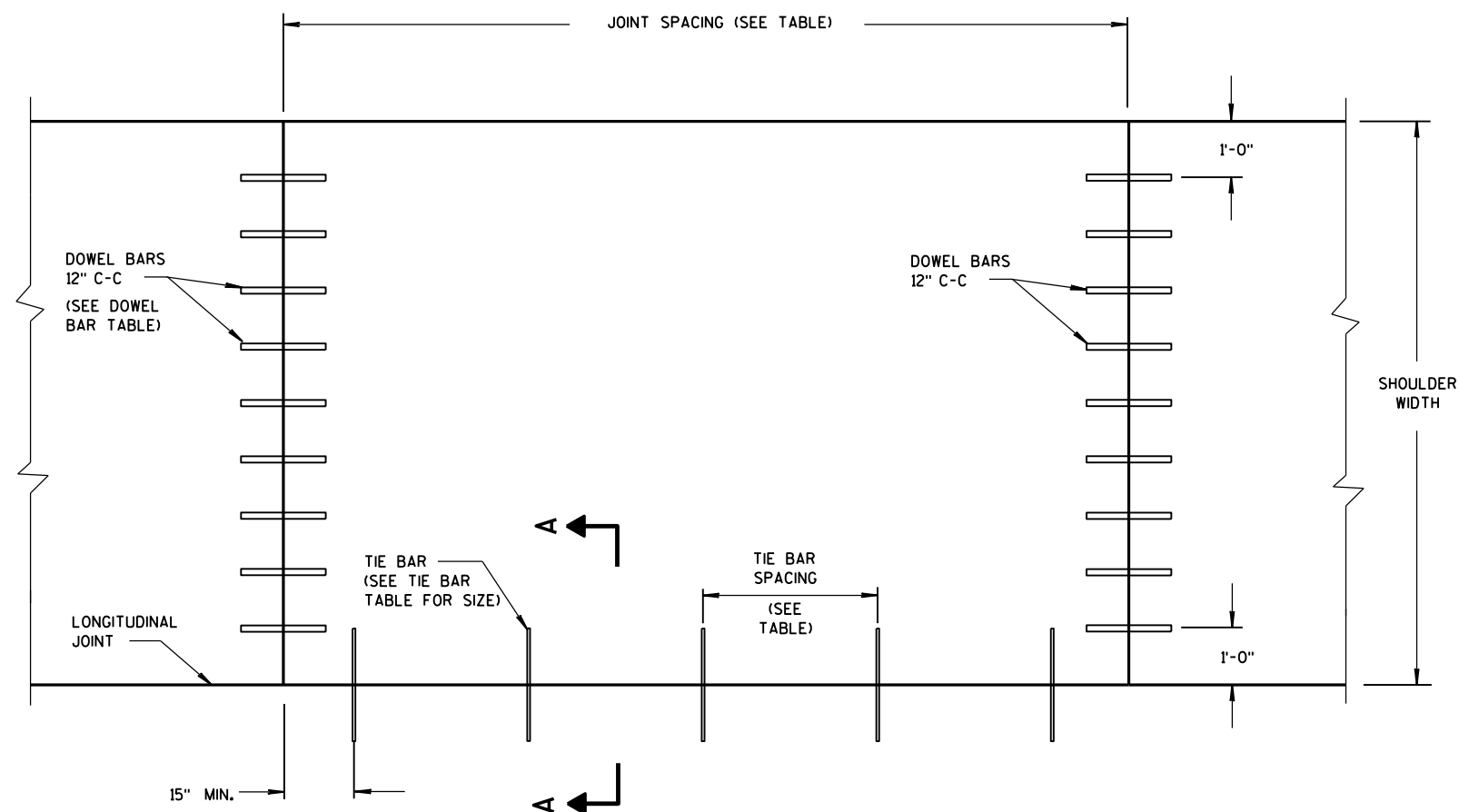
## LEGEND

- ⌵ POST MOUNTED SIGN
- \*-x-\* REMOVING PAVEMENT MARKING
- IC TYPE III BARRICADE WITH SIGN
- /● DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- ▬ TEMPORARY PRECAST CONCRETE BARRIER
- ⌵ TRAILER MOUNTED TRAFFIC SIGNAL
- ➡ DIRECTION OF TRAFFIC FLOW

## BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
3/2/2011 /S/ Thomas J. Goring  
DATE STATE ELECTRICAL ENGINEER FOR HWYS  
FHWA



PLAN VIEW  
CONCRETE PAVEMENT SHOULDER

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g., AUXILIARY LANES OR TURN LANES)

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

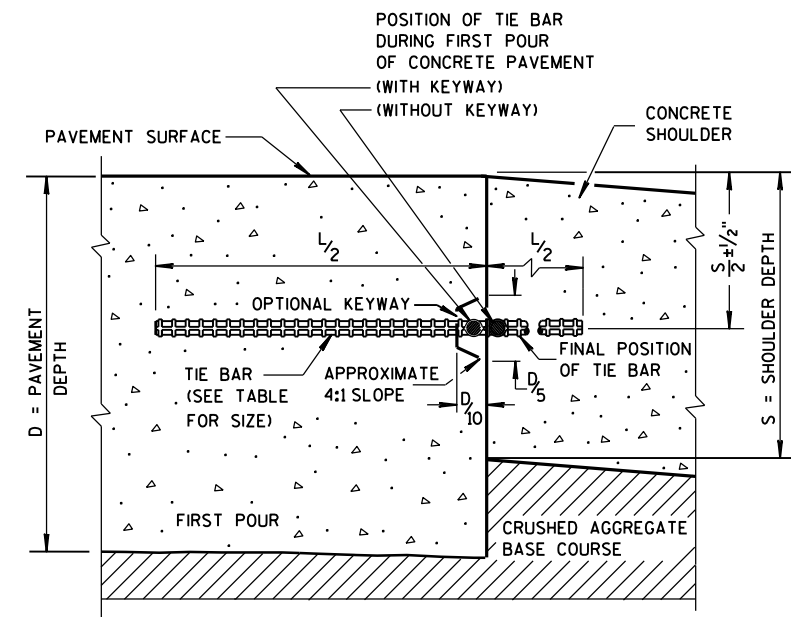
## GENERAL NOTES

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.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE  
AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER***	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

\*\*\* FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FOR THE AVERAGE THICKNESS OF THE CROSS SECTION.

## CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

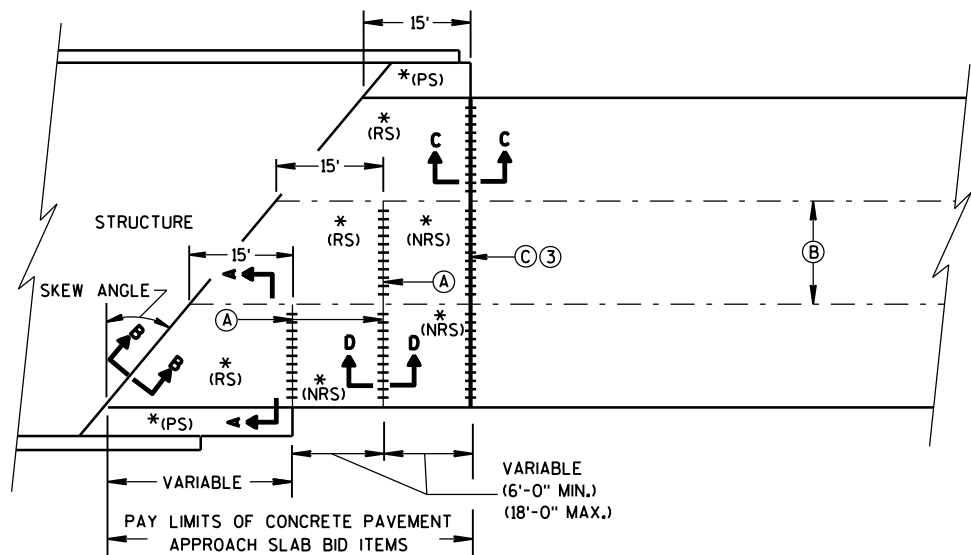
June, 2015

DATE

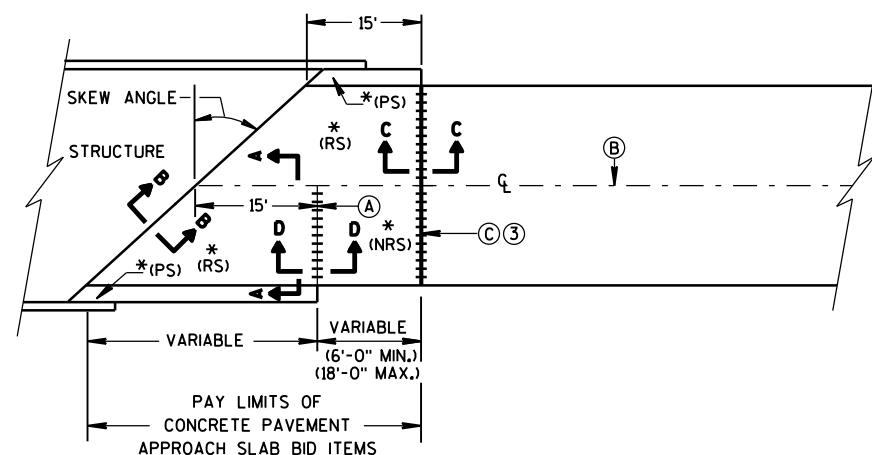
FHWA

/S/ Peter Kemp, P.E.

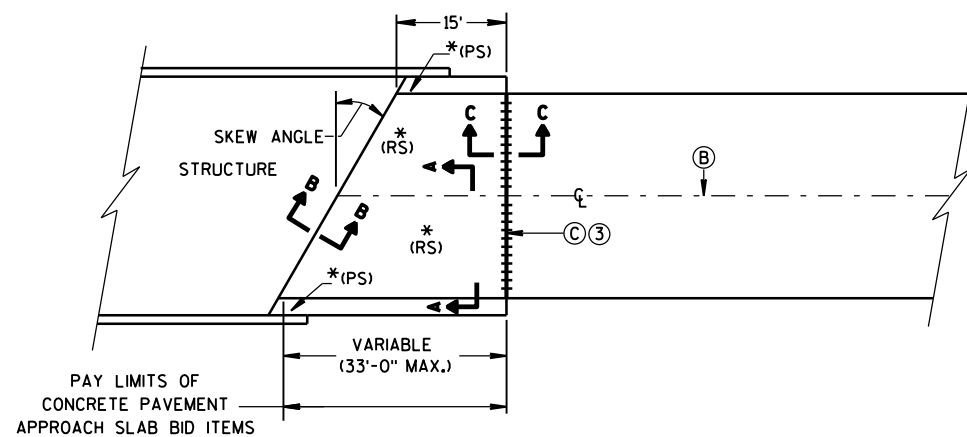
PAVEMENT SUPERVISOR



**SKewed APPROACH  
(PAVEMENT MORE THAN 2 LANES)**



**SKews > 20°  
(PAVEMENT WIDTH ≤ 30')**

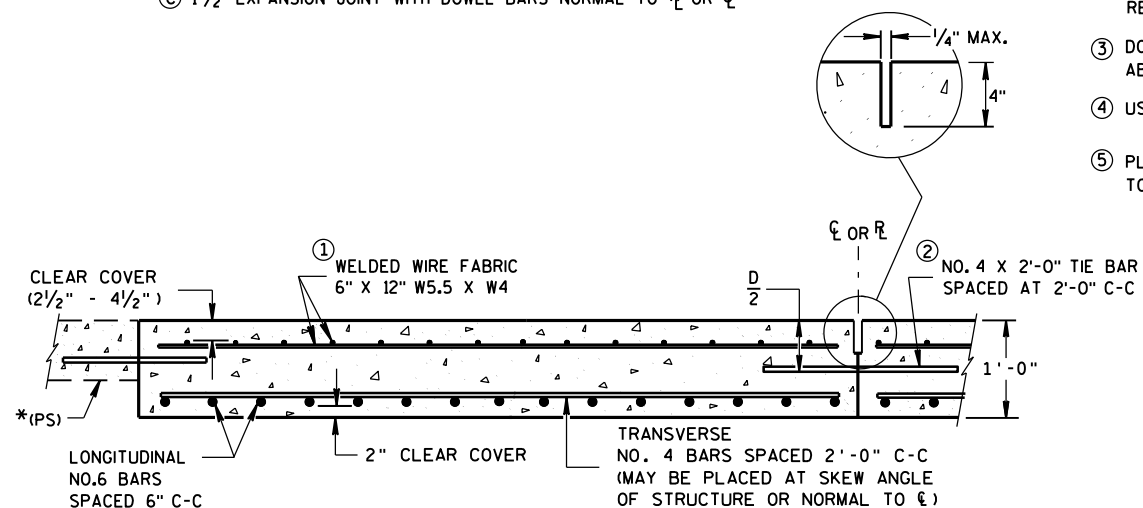


**SKews ≤ 20°  
(PAVEMENT WIDTH ≤ 30')  
APPROACH SLAB AND ADJACENT PAVEMENT**

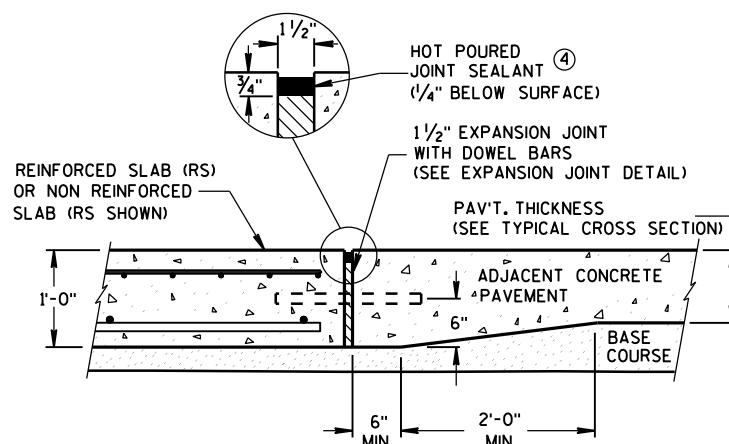
\* (RS) = REINFORCED CONCRETE SLAB  
\* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB  
(SEE DETAILS ELSEWHERE IN THE PLAN)  
\* (NRS) = NON-REINFORCED CONCRETE SLAB

\*\*\* STANDARD DOWEL BAR DIAMETER  
(SEE SDD 13C11, & SDD 13C13)

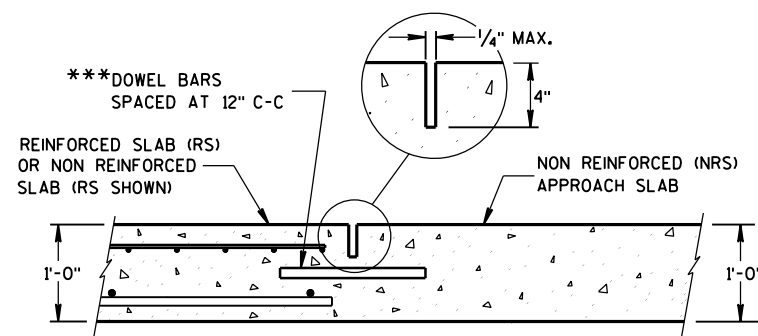
- (A) STANDARD CONTRACTION JOINT NORMAL TO  $\ell$  OR  $\ell_c$   
(B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.  
(C) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $\ell$  OR  $\ell_c$



**SECTION A-A  
REINFORCEMENT POSITIONING DETAIL**



**SECTION C-C  
TRANSITION DETAIL  
APPROACH SLAB TO ADJACENT PAVEMENT**



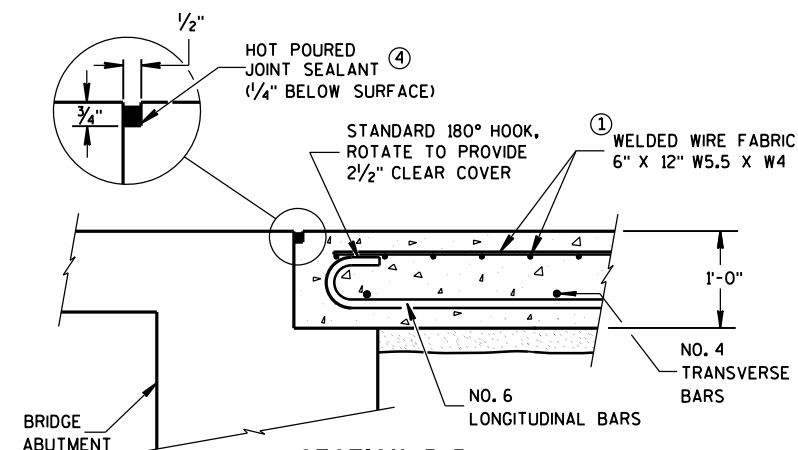
**SECTION D-D  
CONTRACTION JOINT**

## GENERAL NOTES

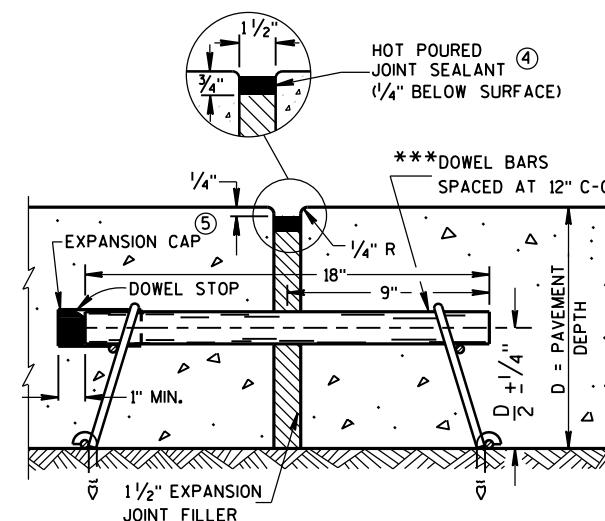
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.
- PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.



**SECTION B-B  
BEND DETAIL  
BOTTOM REINFORCEMENT**

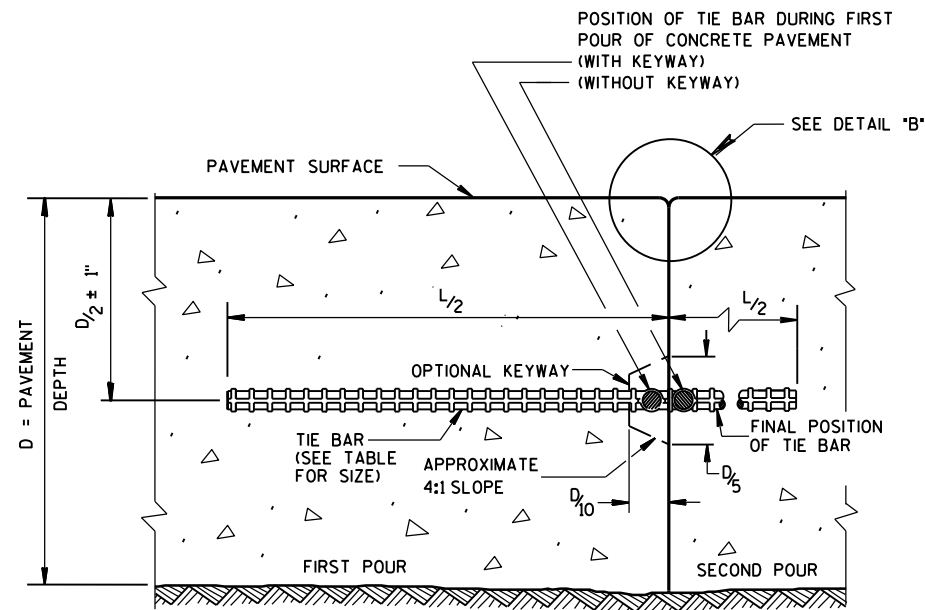


**EXPANSION JOINT DETAIL**

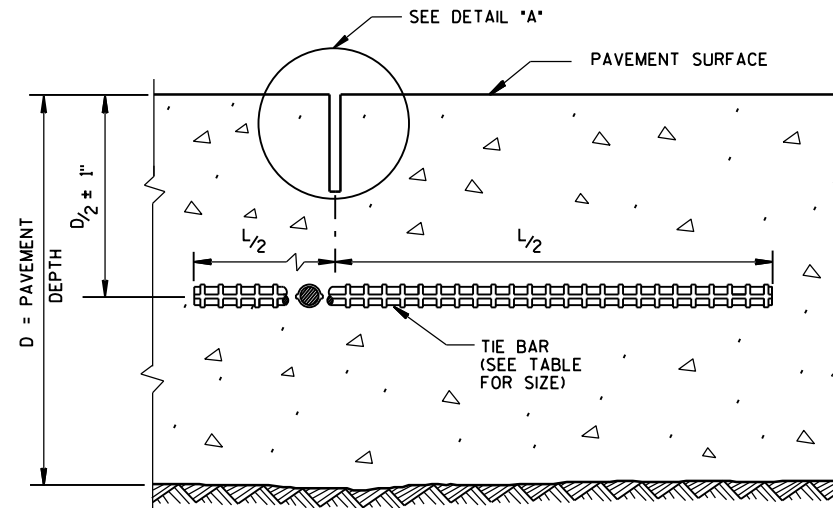
**CONCRETE PAVEMENT  
APPROACH SLAB**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015 /S/ Peter Kemp, P.E.  
DATE PAVEMENT SUPERVISOR  
FHWA



CONSTRUCTION JOINT



SAWED JOINT

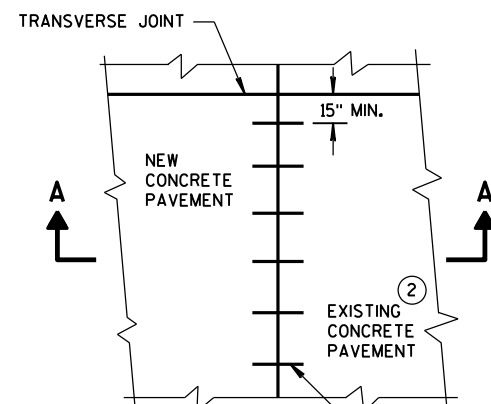
## GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

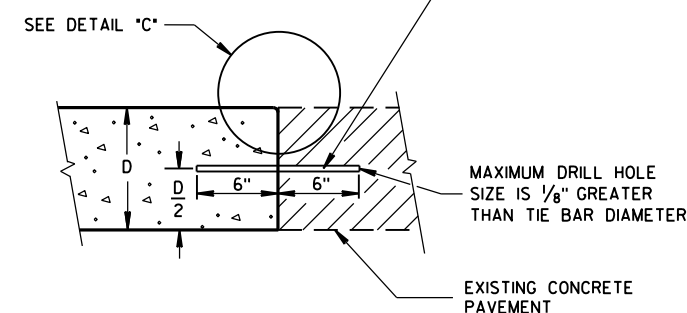
CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



PLAN VIEW

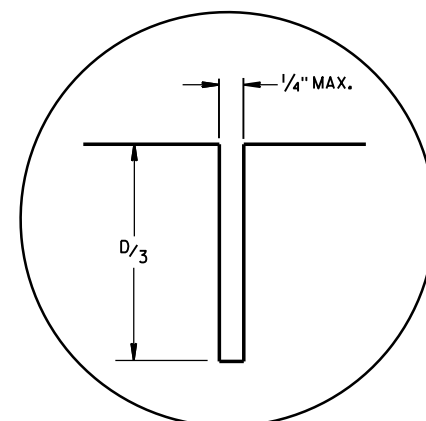


SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT

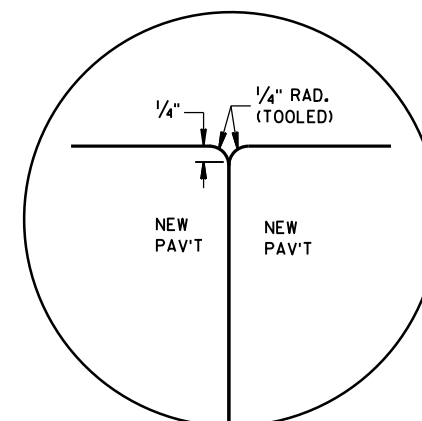
NO. 6 TIE BARS SPACED 30" C-C,  
INSTALLED PERPENDICULAR  
TO THE LONGITUDINAL JOINT. ①

MAXIMUM DRILL HOLE  
SIZE IS 1/8" GREATER  
THAN TIE BAR DIAMETER

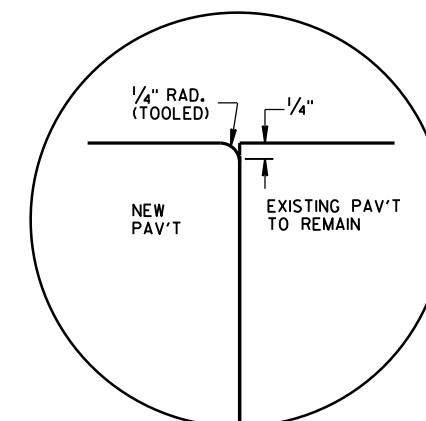
EXISTING CONCRETE  
PAVEMENT



DETAIL "A"



DETAIL "B"



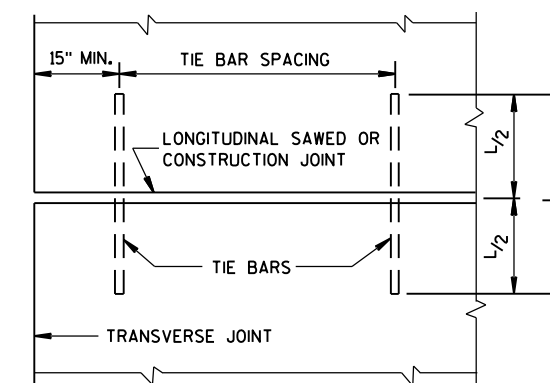
DETAIL "C"

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



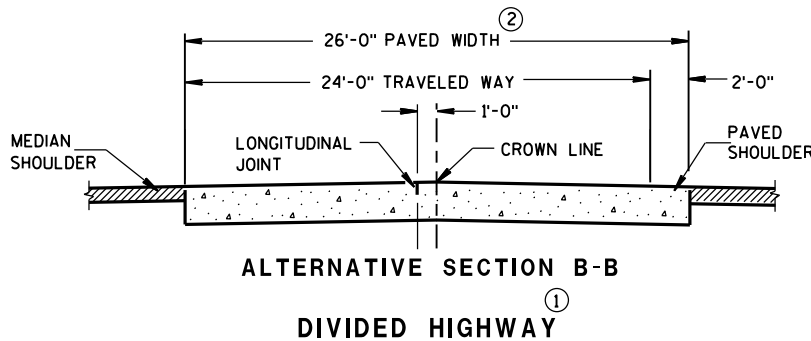
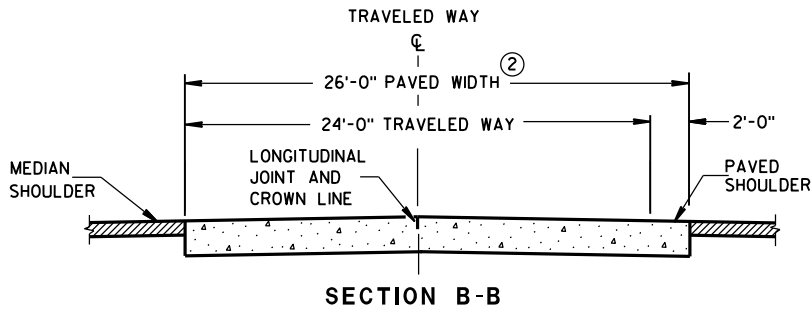
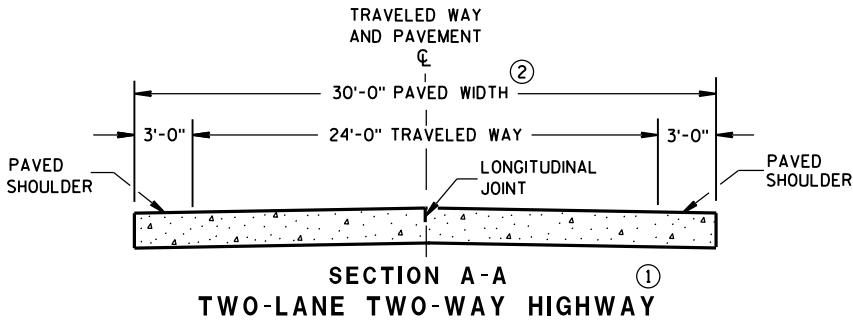
PLAN VIEW  
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT  
LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015  
DATE  
FHWA

/S/ Peter Kemp, P.E.  
PAVEMENT SUPERVISOR



GENERAL NOTES

**CONTRACTION JOINTS**  
CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

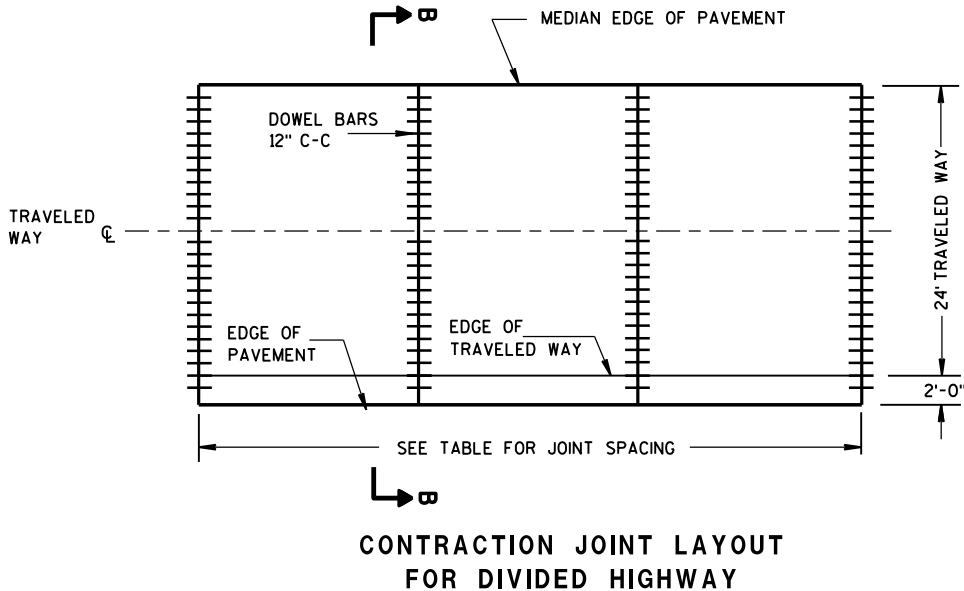
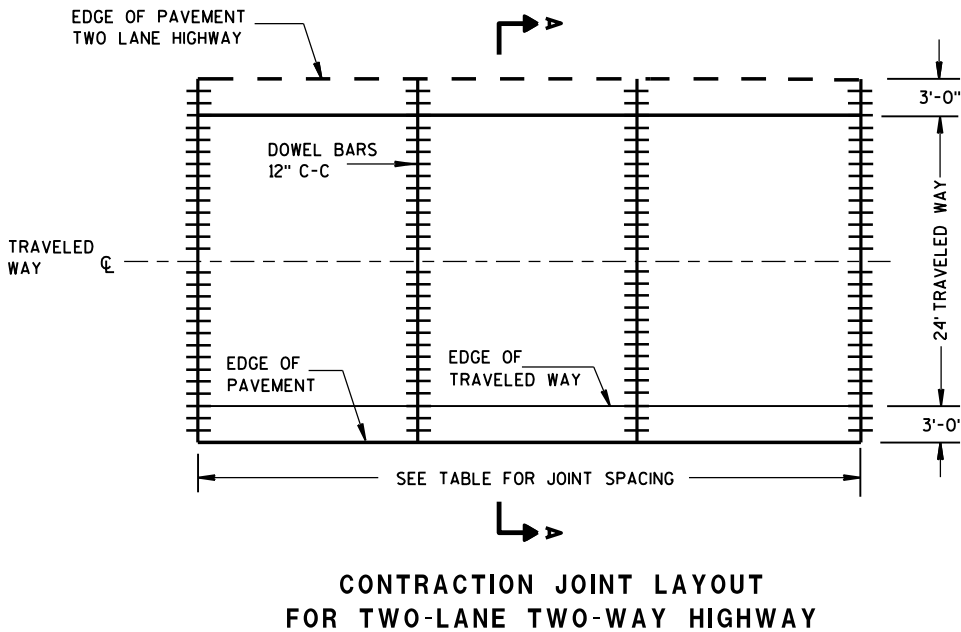
FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

**CONSTRUCTION JOINTS**  
LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

- ① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.
- ② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED PAVED SHOULDER AS CONCRETE PAVEMENT.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

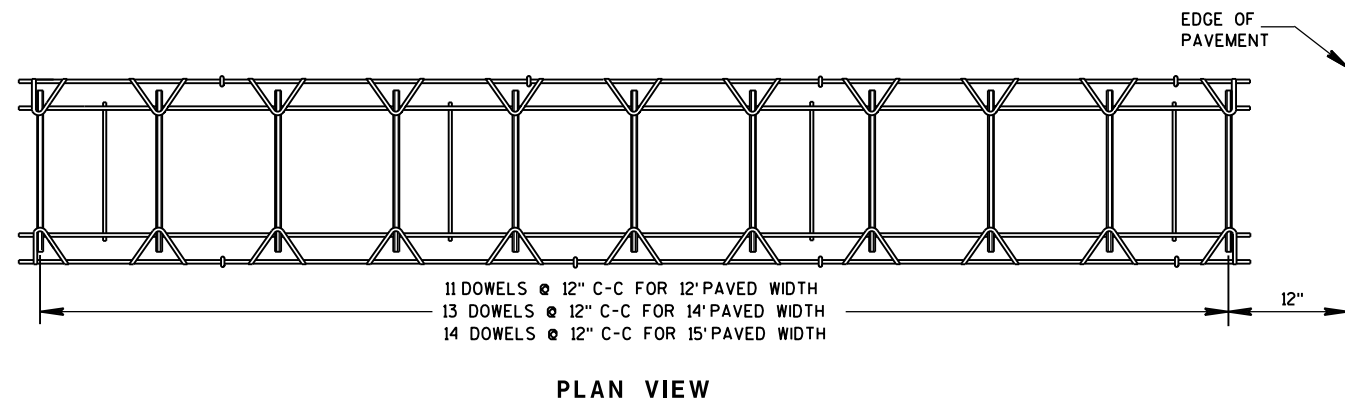
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'



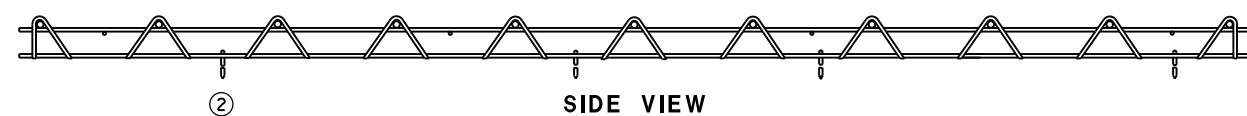
RURAL DOWELED  
CONCRETE PAVEMENT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



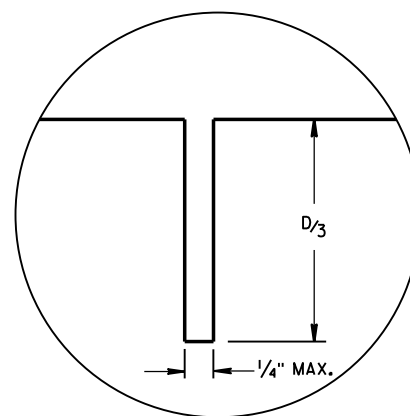


PLAN VIEW

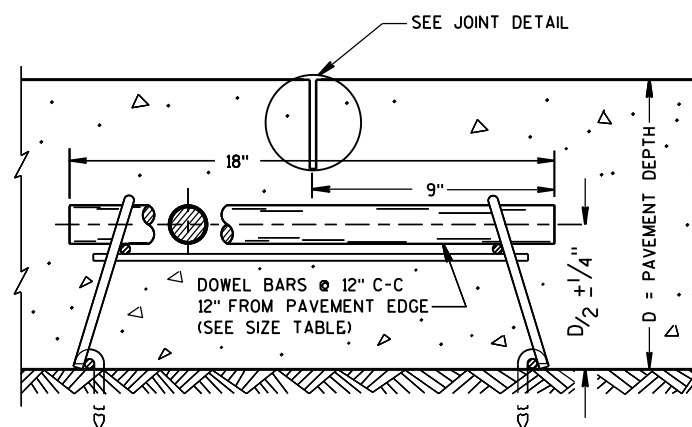


SIDE VIEW

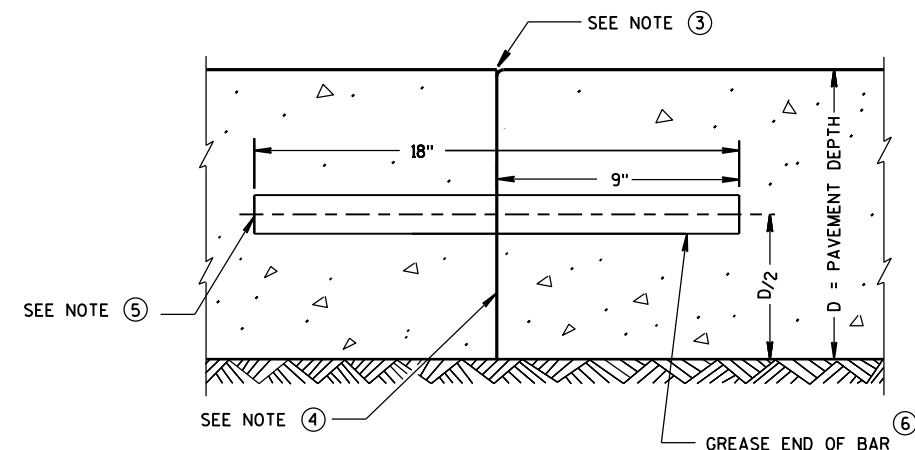
(NORMAL TO CENTERLINE)

CONTRACTION JOINT DOWEL ASSEMBLY<sup>①</sup>

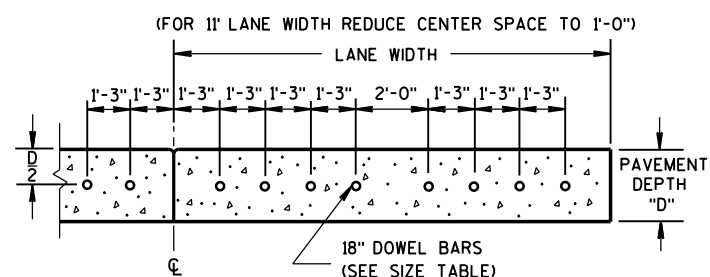
JOINT DETAIL



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT

DRILLED DOWEL BAR CONSTRUCTION JOINT<sup>⑦</sup>

## GENERAL NOTES

- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.

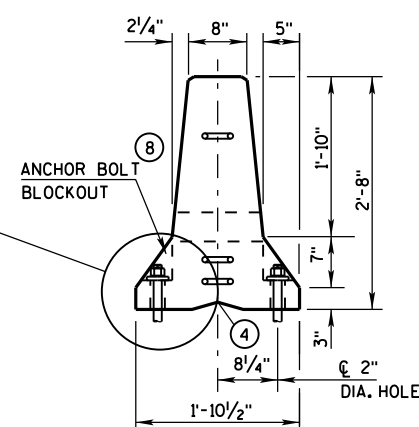
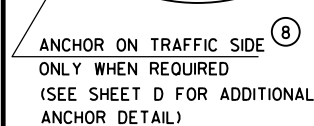
RURAL DOWELED  
CONCRETE PAVEMENTSTATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

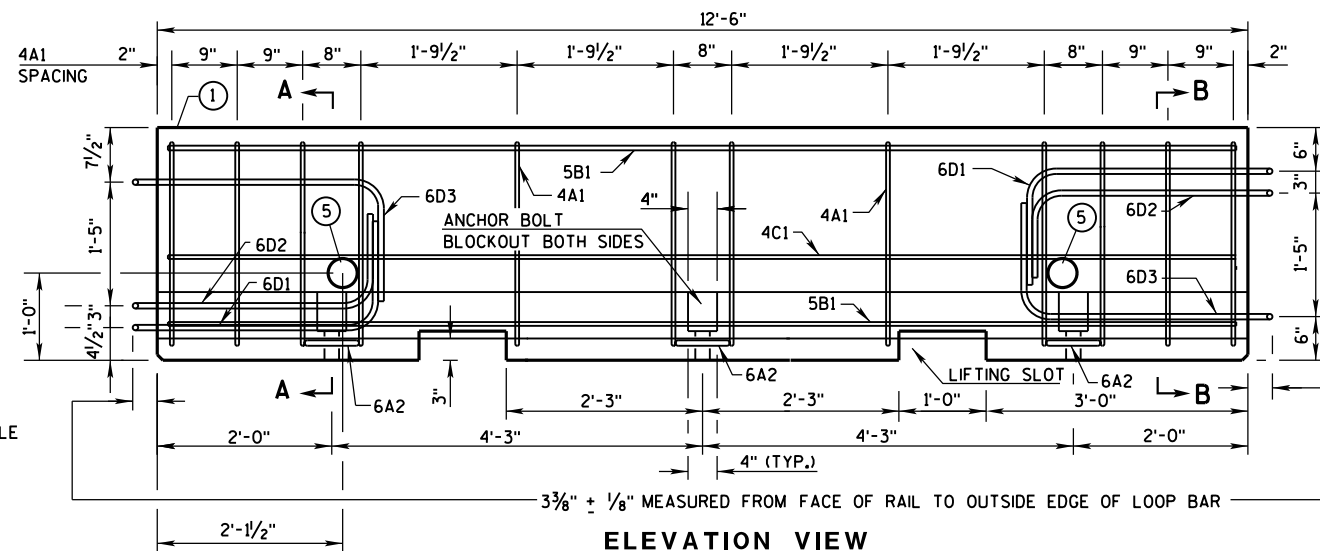
5/3/2013  
DATE

FHWA

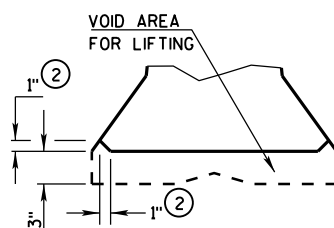
/S/ Deb Bischoff  
PAVEMENT POLICY & DESIGN ENGINEER



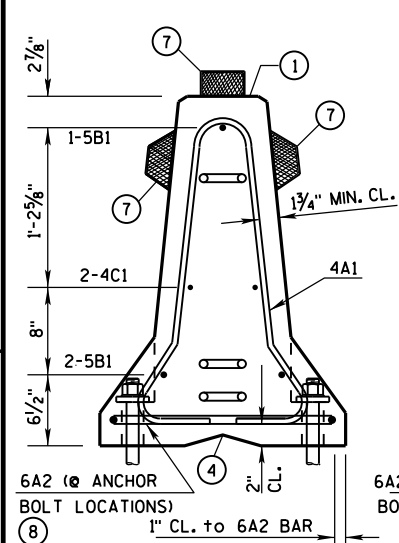
**END VIEW**



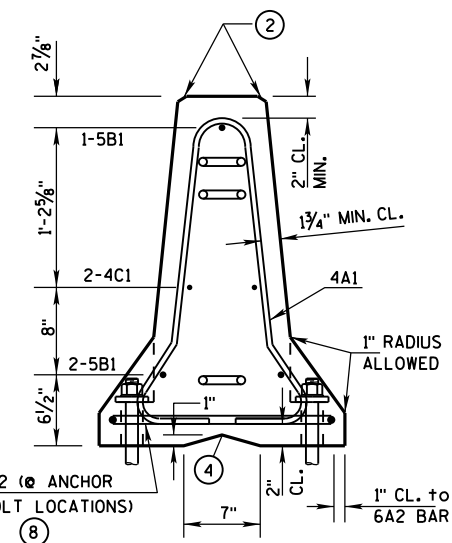
**ELEVATION VIEW**



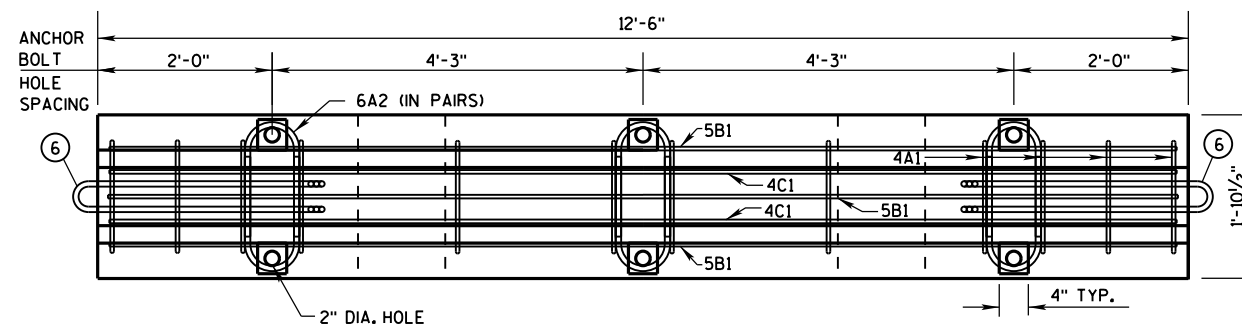
**DETAIL "B"**  
**LIFTING SLOT DETAIL**



**SECTION A-A**  
(STIRRUP PLACEMENT)

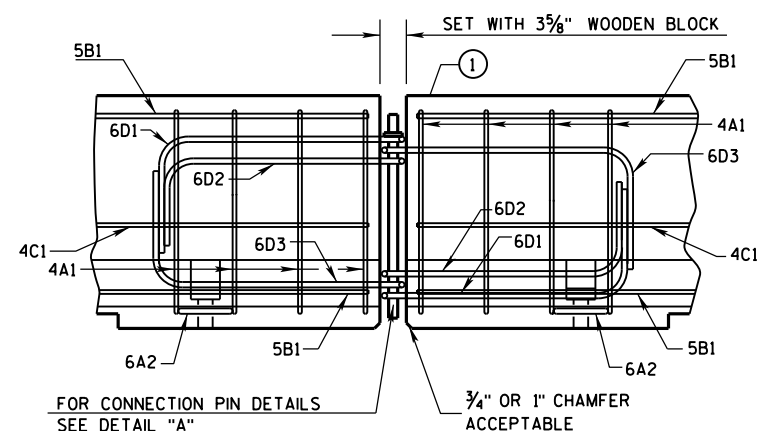


**SECTION B-B**  
(STIRRUP PLACEMENT)

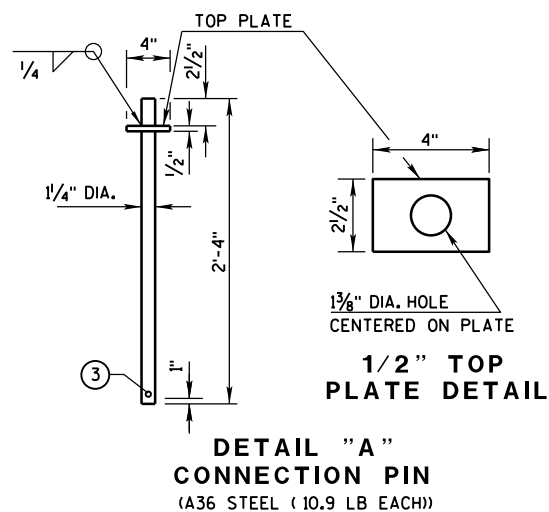


### PLAN VIEW

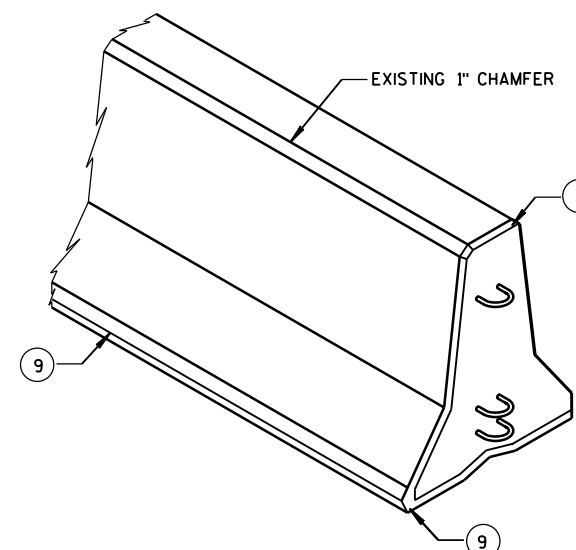
### DETAILS OF BARRIER SECTION



## DETAILS OF BARRIER CONNECTION



**DETAIL "A"**  
**CONNECTION PIN**  
(A36 STEEL (10.9 LB EACH))



## GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-14(d) THRU 14B7-14(h).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE  $\frac{3}{4}$ " SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3- $\frac{1}{2}$ " PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN  $\frac{1}{8}$ " OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

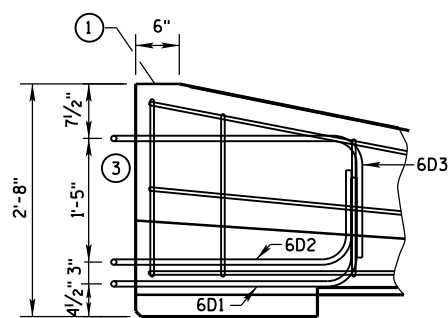
PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS.  
PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
  - a. TYPE: WICBTP
  - b. MANUFACTURER
  - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ A  $\frac{3}{8}$ " HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- ④ "V" NOTCH IS OPTIONAL.
- ⑤ THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- ⑥ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- ⑦ USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- ⑧ SEE SHEET D FOR ANCHORING CRITERIA.
- ⑨ 1" CHAMFER OPTIONAL.

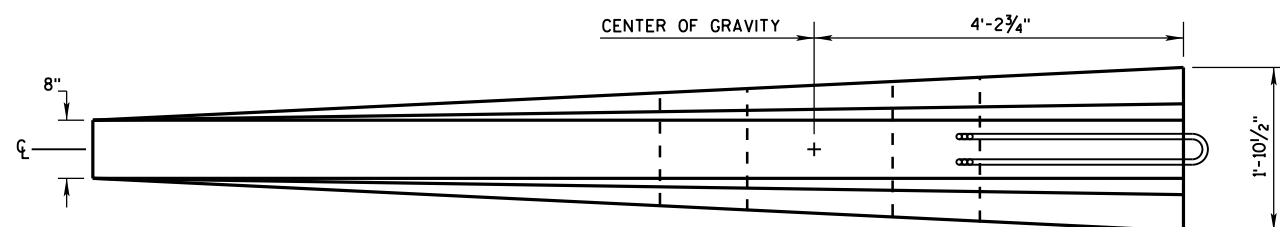
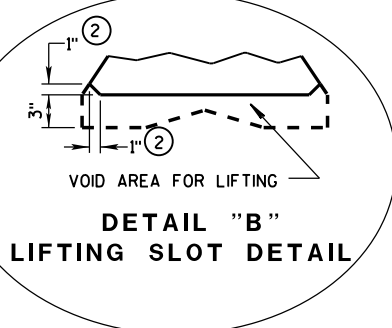
CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
  - a. TYPE WICBTP
  - b. MANUFACTURER
  - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

LOOP BAR ASSEMBLY INVERTED  
FOR OPPOSITE END.  
(FOR CONNECTION TO RIGHT END OF BARRIER)



**CHAMFER  
DETAIL**

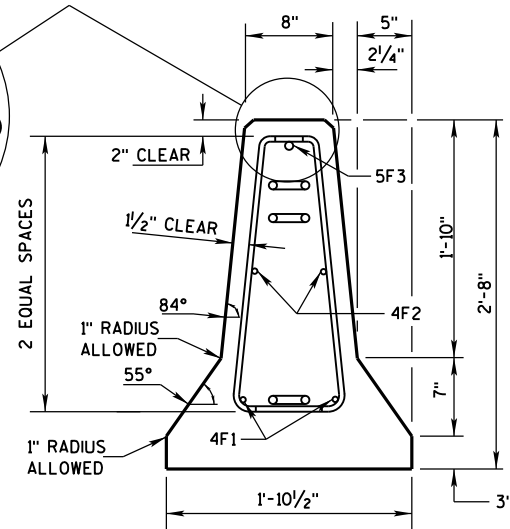


Diagram illustrating the barrier placement on a curve. The diagram shows a cross-section of a barrier with a 10"± OFFSET and a 5°± MAX. angle. The barrier is divided into sections, with dimensions of 12'-6" and 12'-6" indicated. The text "BARRIER ON CURVE" is prominently displayed. The diagram also shows the "END SECTION" of the barrier.

## FLARE AT BARRIER END

POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

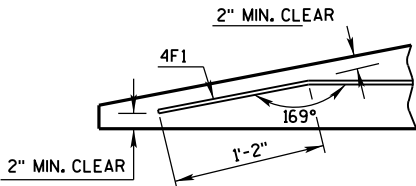
CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

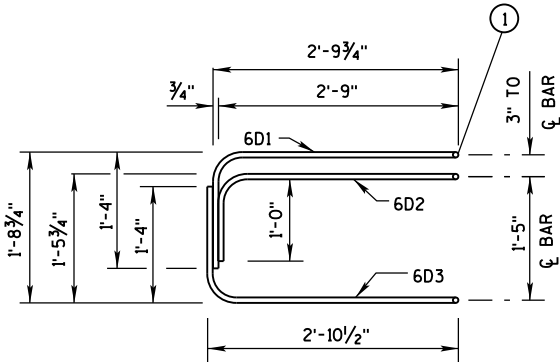
BARRIER TAPER SECTION  
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

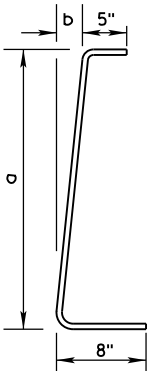
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"  
BENT BAR DETAIL



ELEVATION  
LOOP BAR ASSEMBLY



4V BARS  
2 AT EACH SIZE REQUIRED  
FOR STIRRUP ASSEMBLY

BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

TAPER BARRIER SECTION

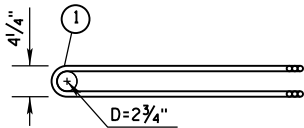
GENERAL NOTES

① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

BARRIER SECTION  
BILL OF MATERIALS

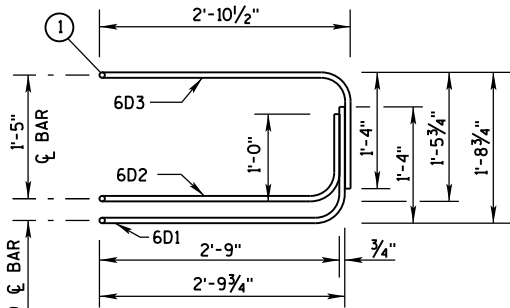
(PER 12'-6" BARRIER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"

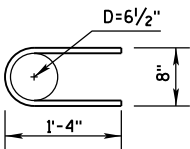


PLAN VIEW  
LOOP BAR ASSEMBLY

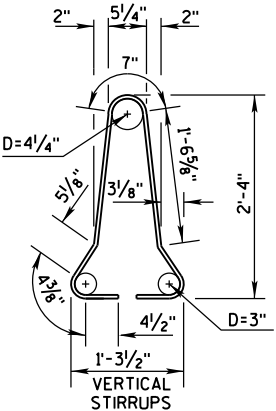
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

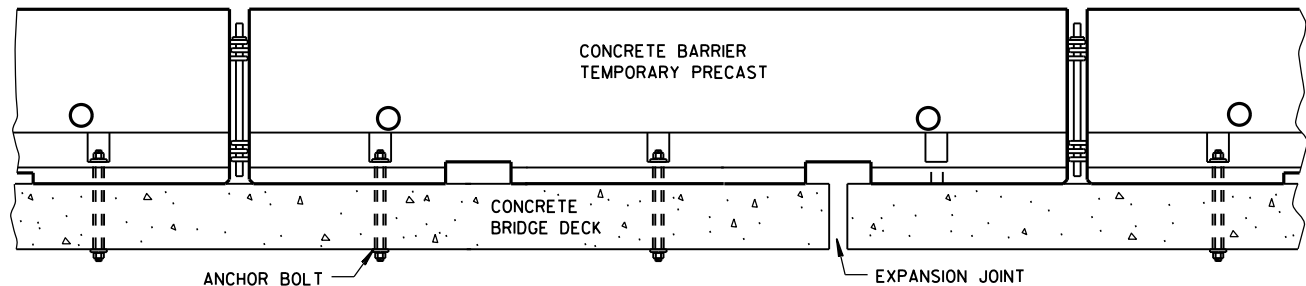
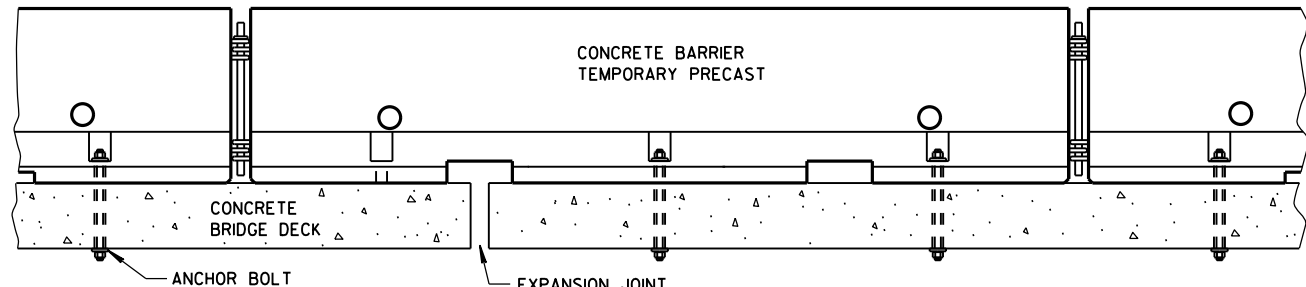


4A1

BARRIER SECTION

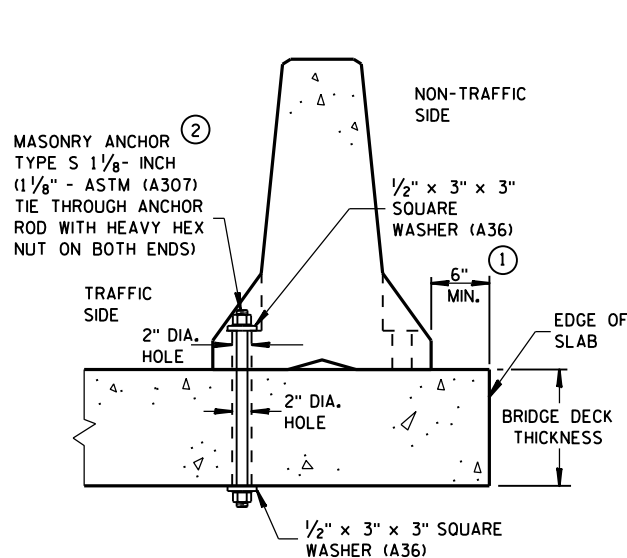
CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



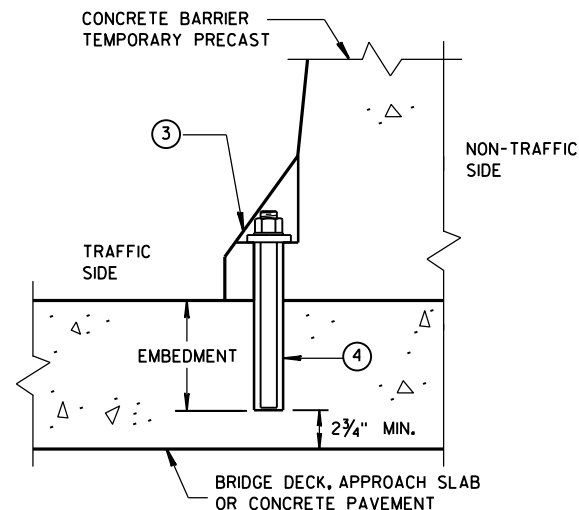
### TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



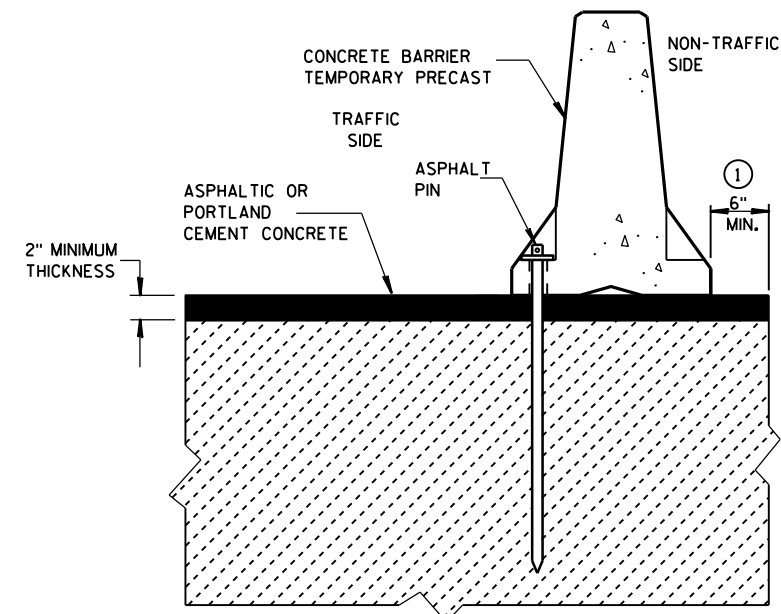
### THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



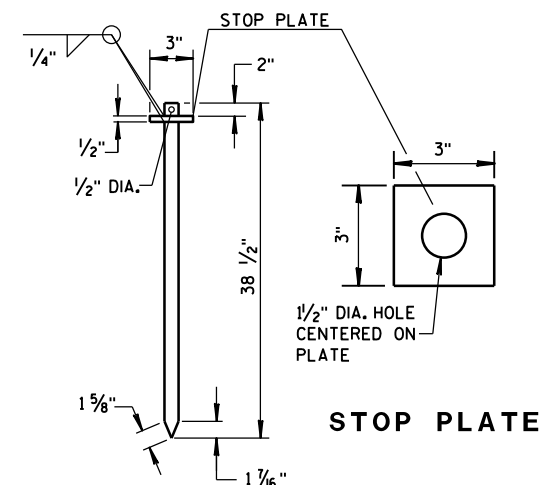
### REMOVABLE ADHESIVE BONDED ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

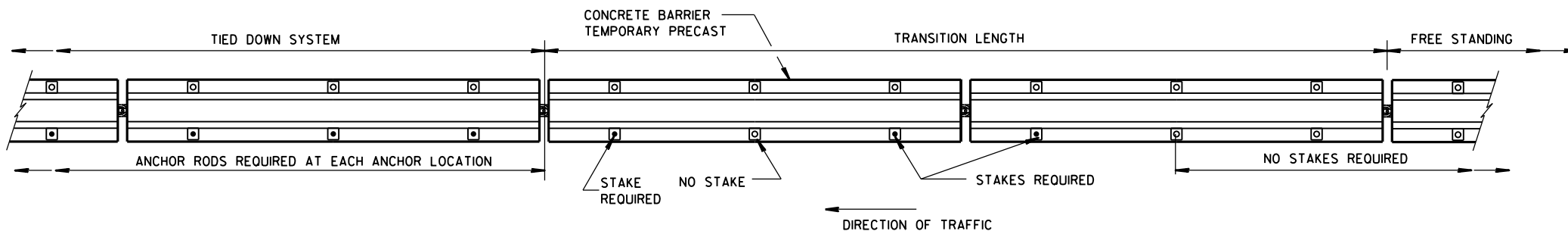


### STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



ASPHALT PIN  
(ASTM A36 STEEL)



PLAN VIEW

### FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

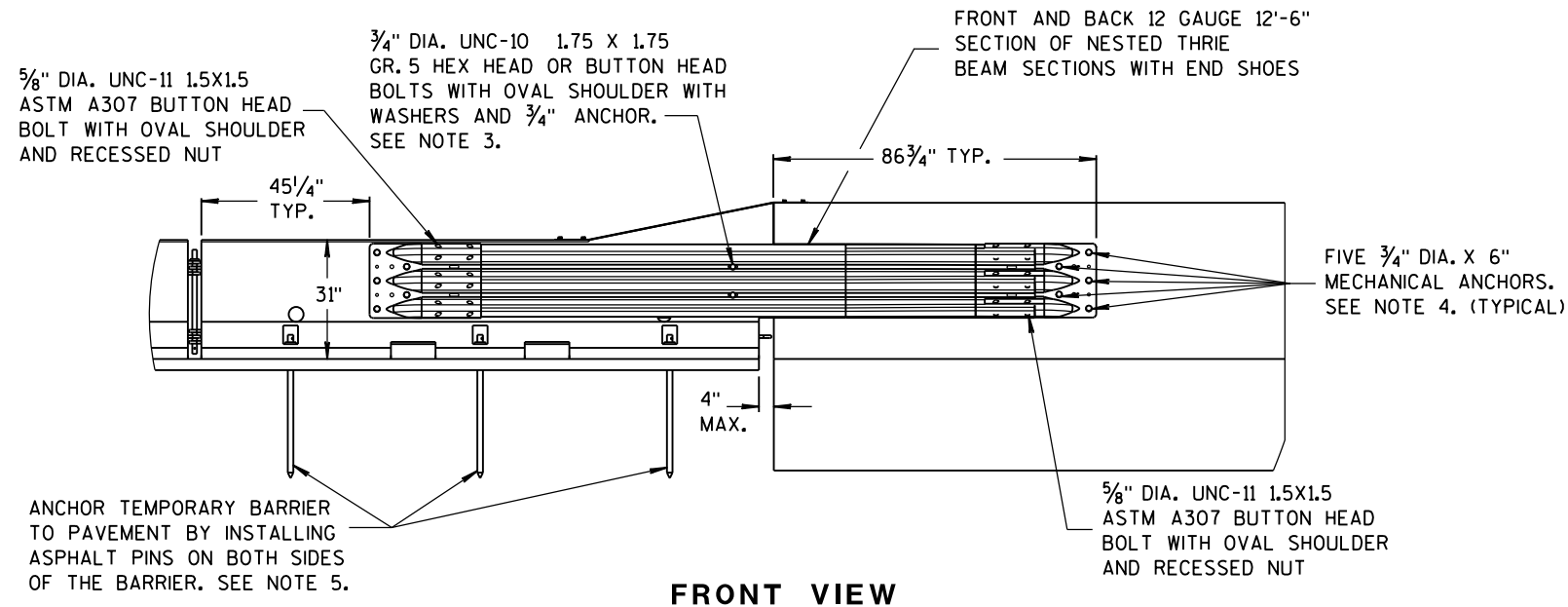
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

### GENERAL NOTES

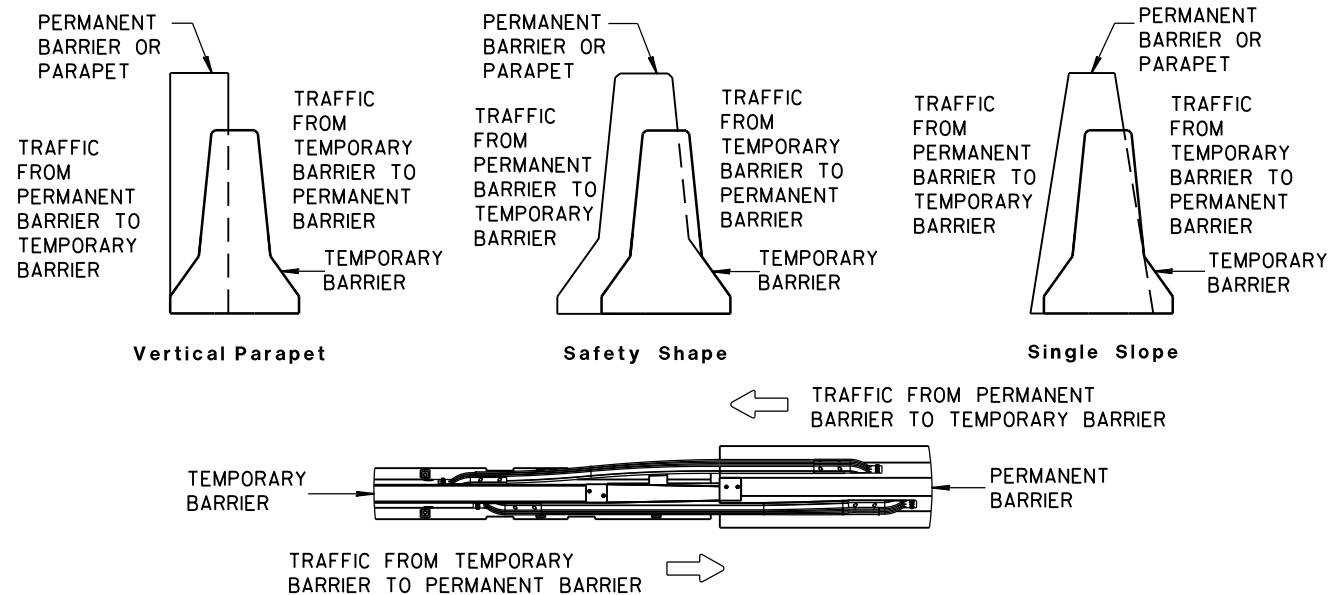
- ① CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:  
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V,  
FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT,  
IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF  
AND THE POSTED SPEED IS 45 MPH OR GREATER, OR  
  
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V,  
FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT,  
IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF  
AND THE POSTED SPEED IS 40 MPH OR LESS.
- ② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.  
  
WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED ANCHOR BOLT  
INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE  
BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE  
S 1 1/8"-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE  
ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.  
  
UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALL ANCHOR BOLTS AND COMPLETELY  
FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CON-  
CRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERCIAL GROUT OR MATERIAL  
IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.
- ③ 1/8" DIAMETER A307 THREADED ROD, 1/2" x 3" x 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL,  
ASTM A563A HEAVY HEX NUT.
- ④ ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2  
AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.

CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



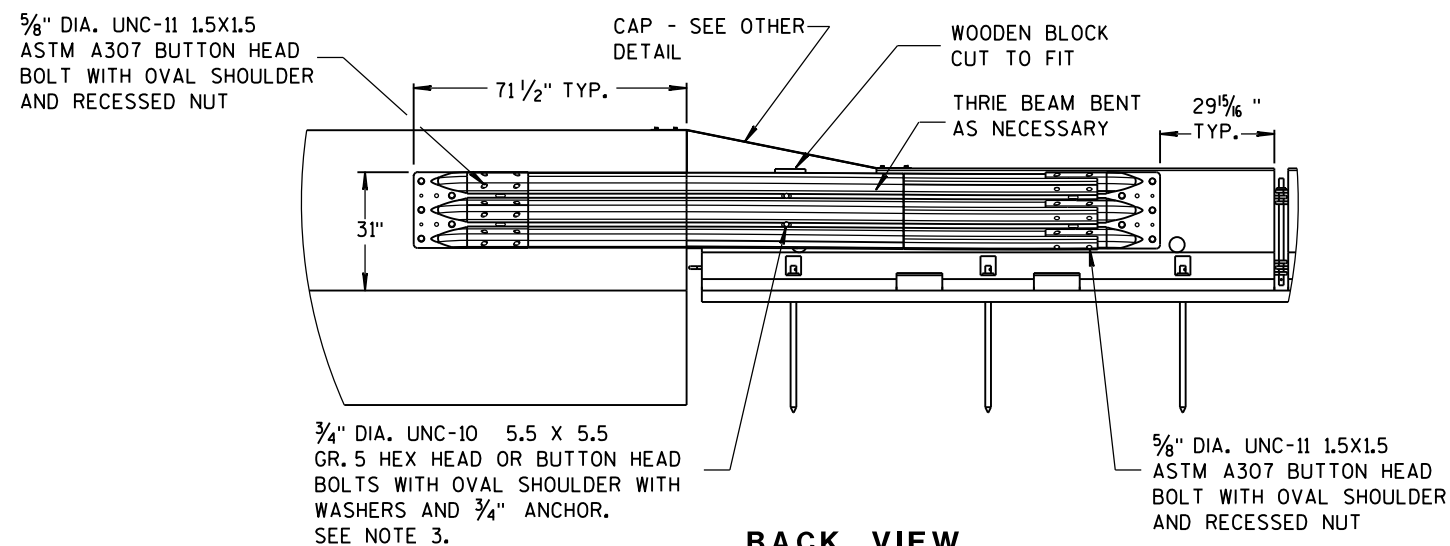
FRONT VIEW



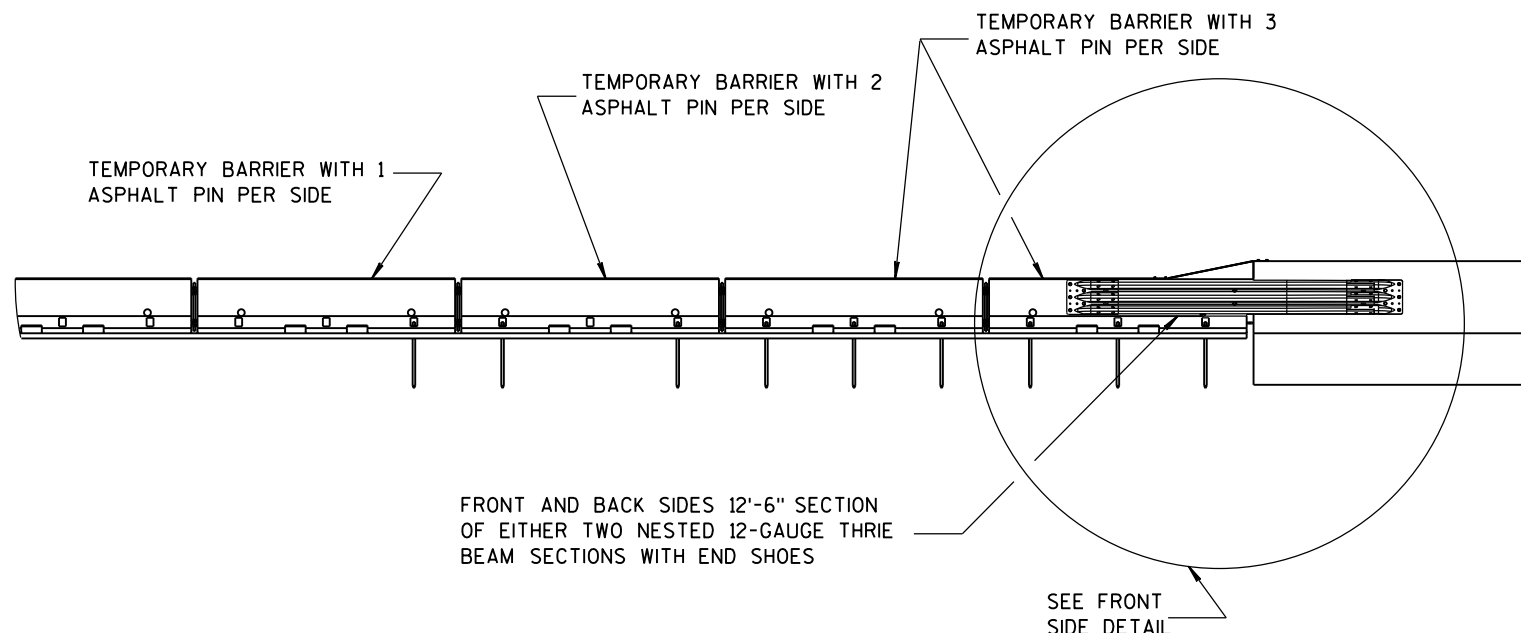
TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

# NOTES

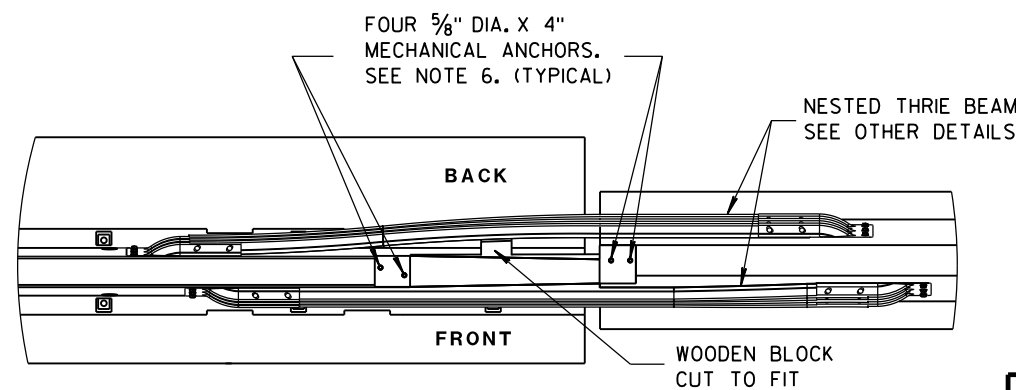
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW

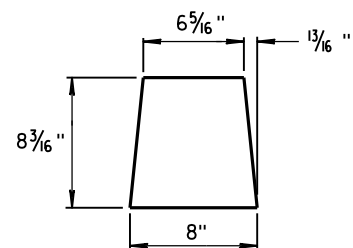


PLAN VIEW

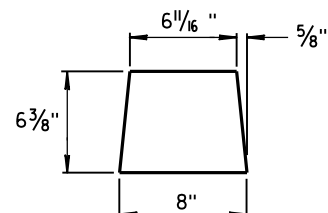
BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

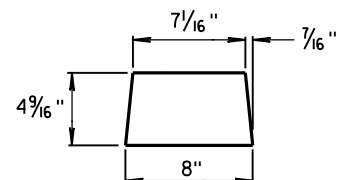
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



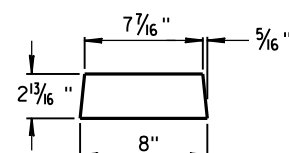
**GUSSET 1**



**GUSSET 2**

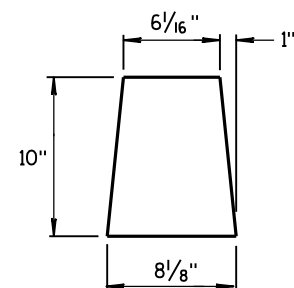


**GUSSET 3**

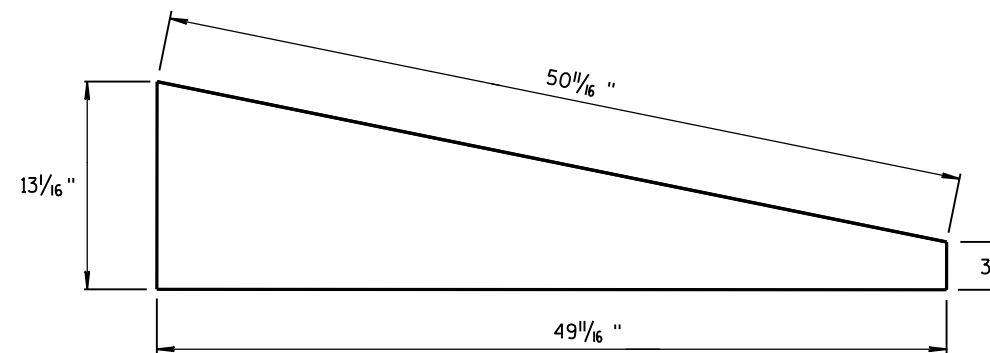


**GUSSET 4**

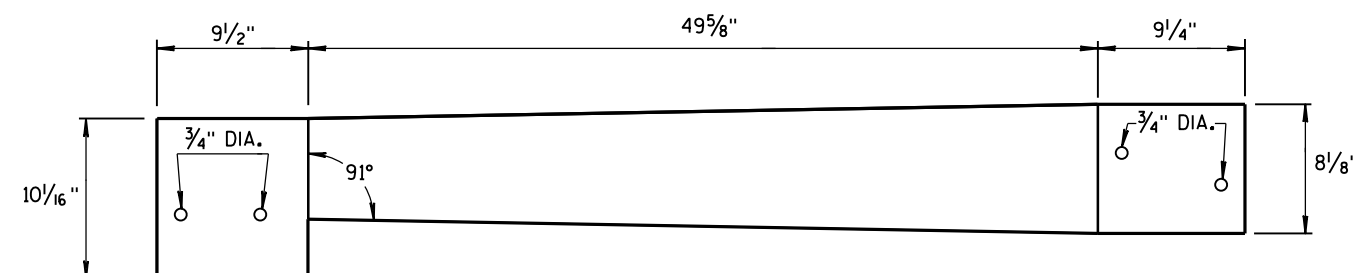
**GUSSETS**



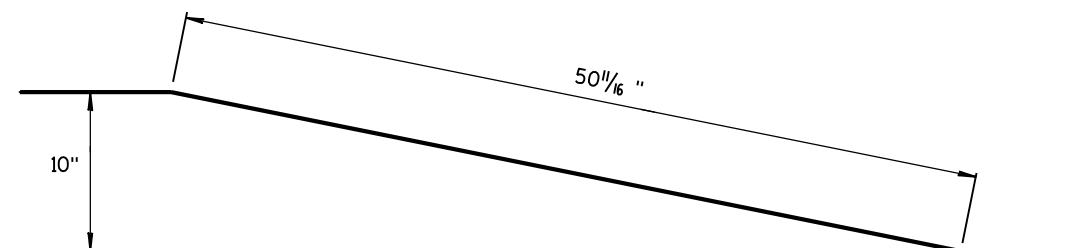
**END PLATE**



**SIDE PLATE**

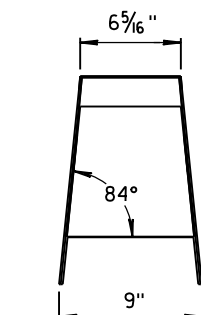
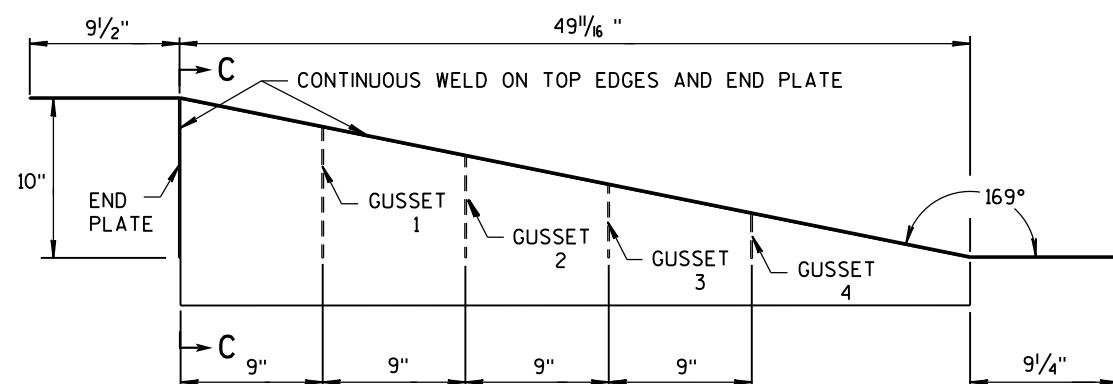
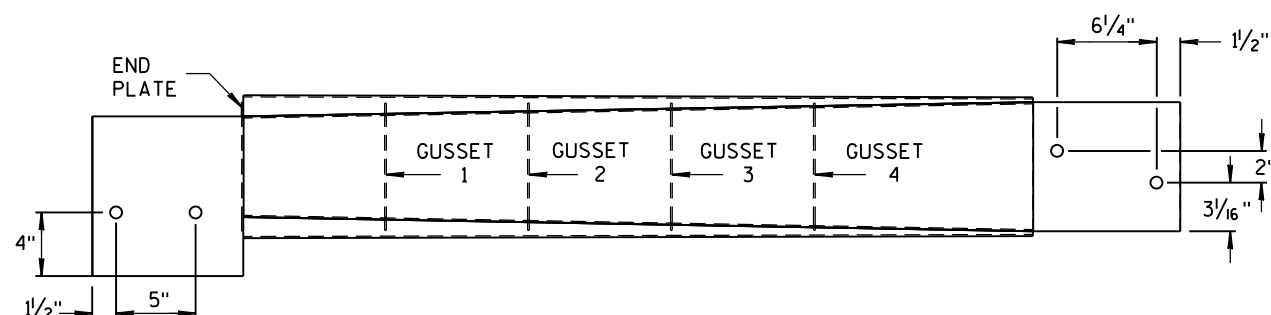


**TOP PLATE**



**SIDE, TOP AND END PLATES FOR CAP  
FROM TEMPORARY CONCRETE BARRIER  
TO 42" PERMANENT CONCRETE BARRIER**

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



**SECTION C-C**

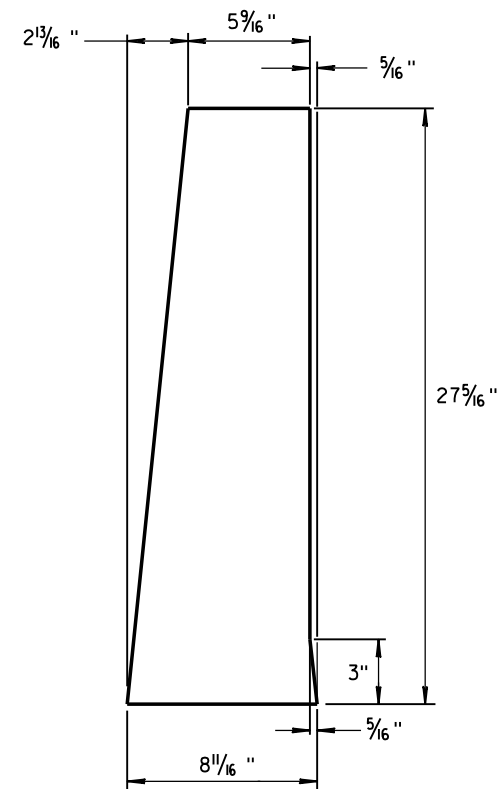
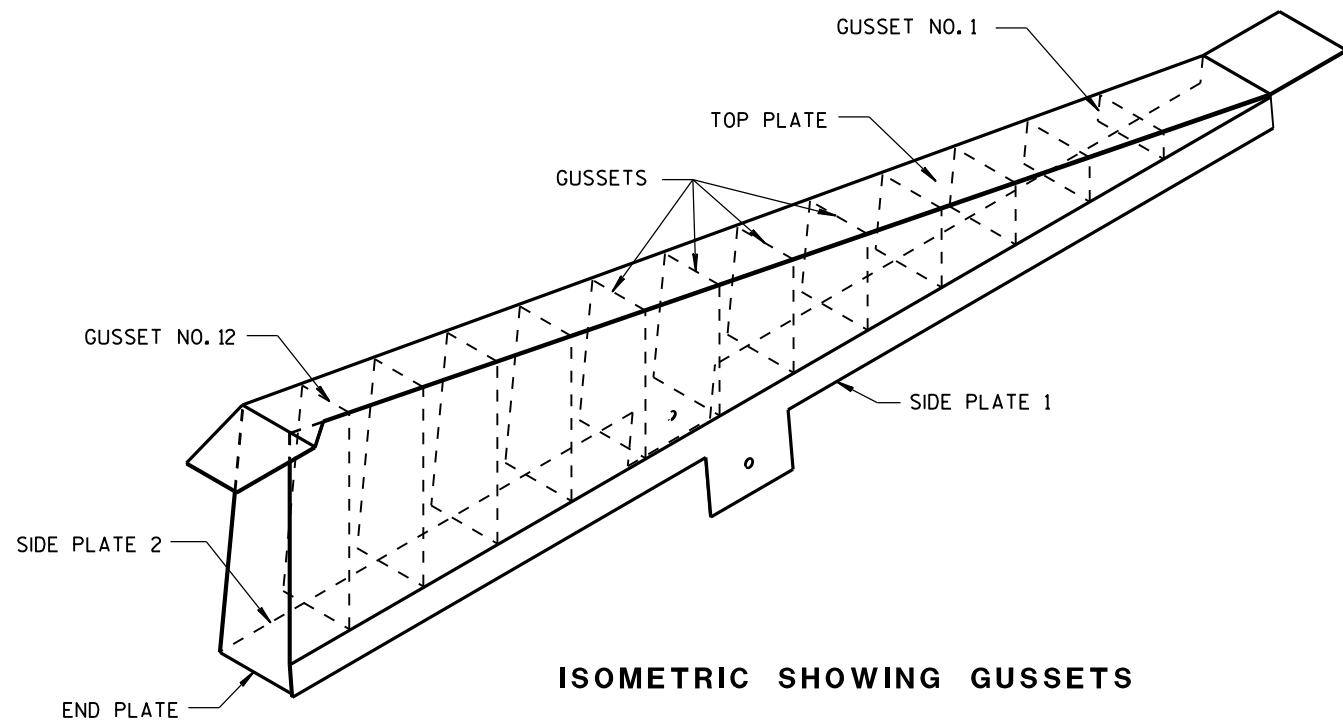
**NOTES**

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

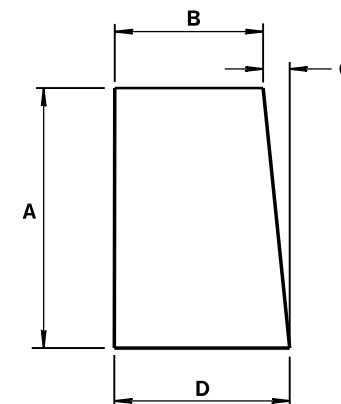
**CAP DETAILS FOR TEMPORARY CONCRETE  
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

**CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



1/8" STEEL PLATE

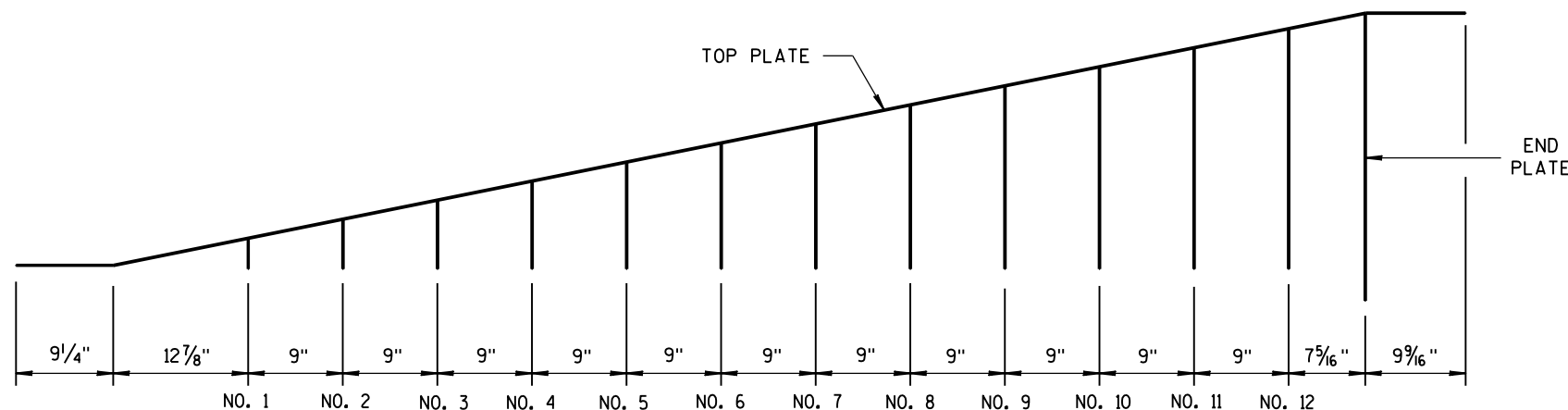


ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 1/16 "	7 9/16 "	1/2"	8
3	6 1/2"	7 3/8"	1 1/16 "	8 1/16 "
4	8 5/16"	7 3/16"	7/8"	8 1/16 "
5	10 1/8"	7"	1 1/16 "	8 1/16 "
6	11 5/16 "	6 13/16 "	1 1/4"	8 1/16 "
7	13 3/4"	6 5/8"	1 7/16 "	8 1/16 "
8	15 9/16 "	6 7/16 "	1 9/16 "	8 1/16 "
9	17 3/8"	6 1/4"	1 13/16 "	8 1/16 "
10	19 3/16"	6 1/16"	1 15/16 "	8 1/16 "
11	21"	5 7/8"	2 3/16 "	8 1/16 "
12	22 13/16 "	5 11/16 "	2 5/16 "	8 1/16 "

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.

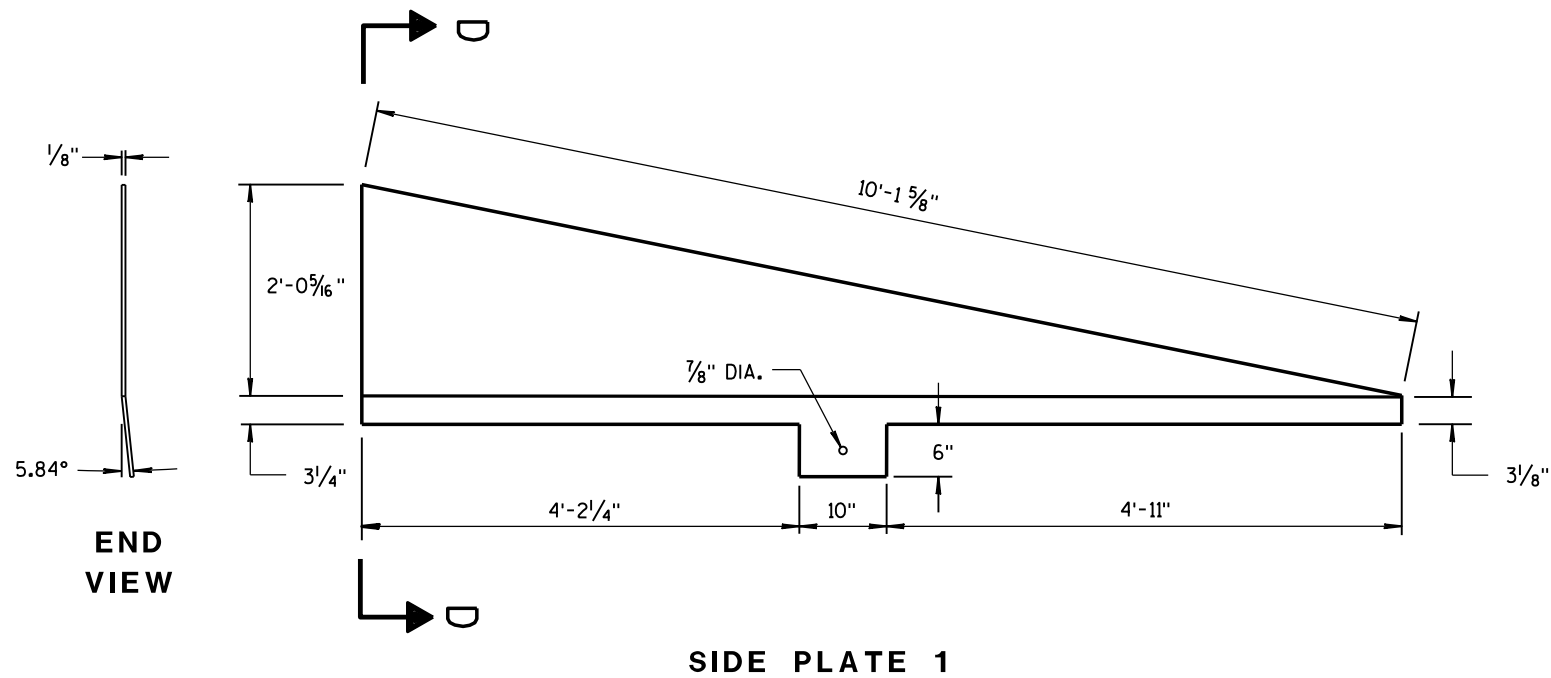
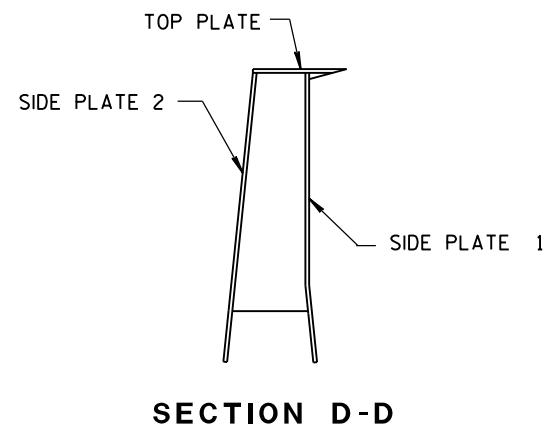
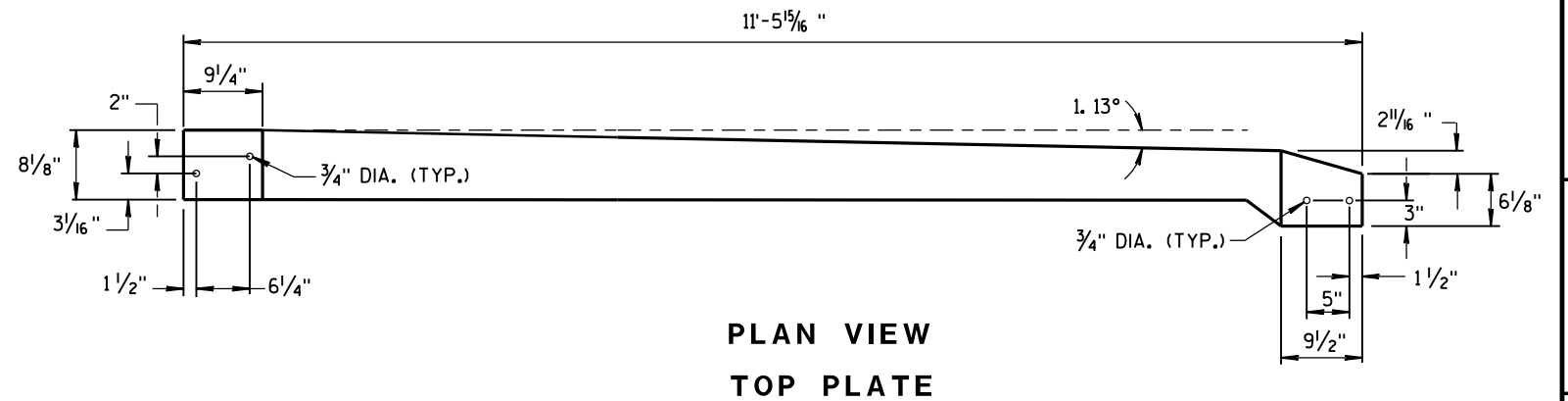
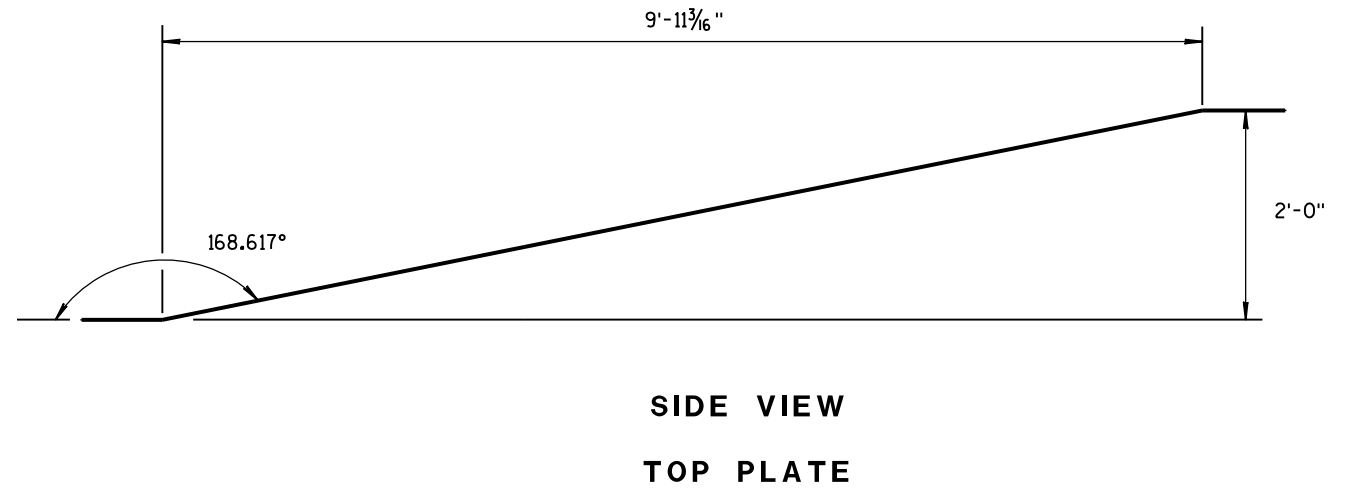
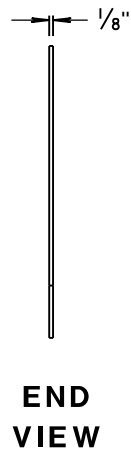
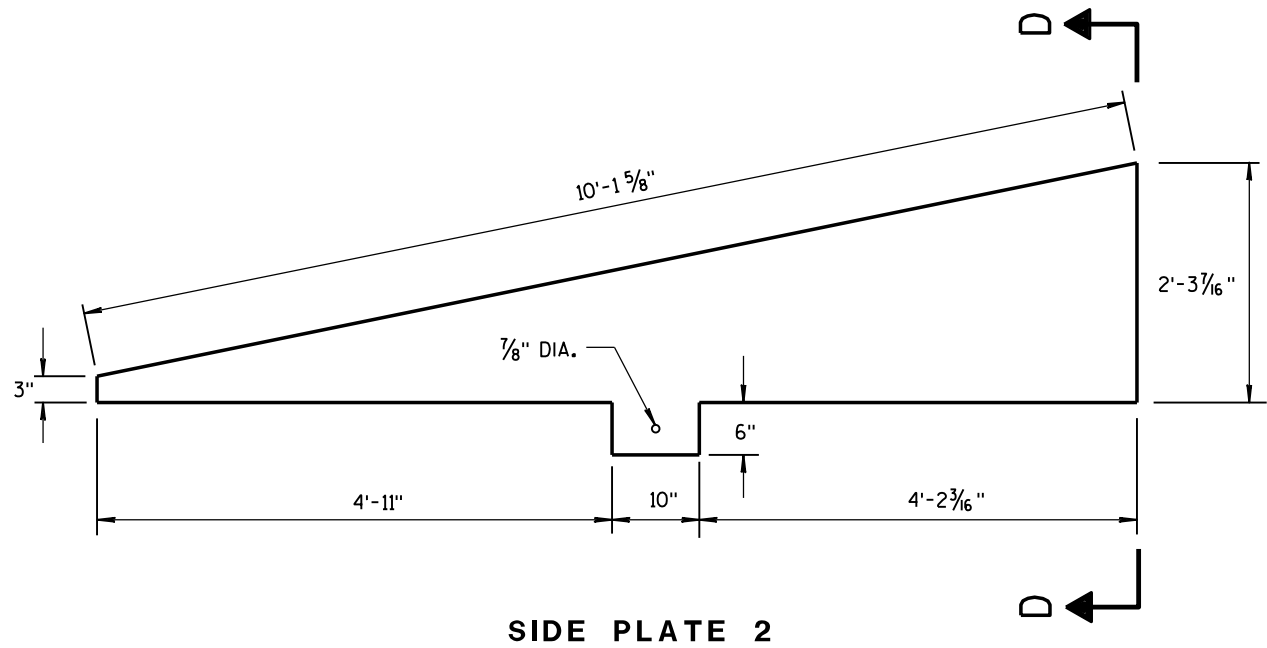


CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

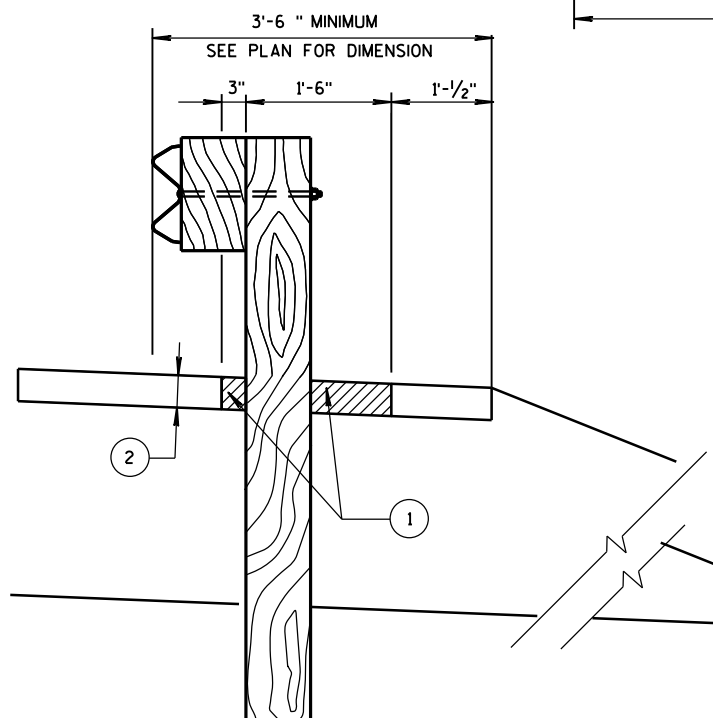
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



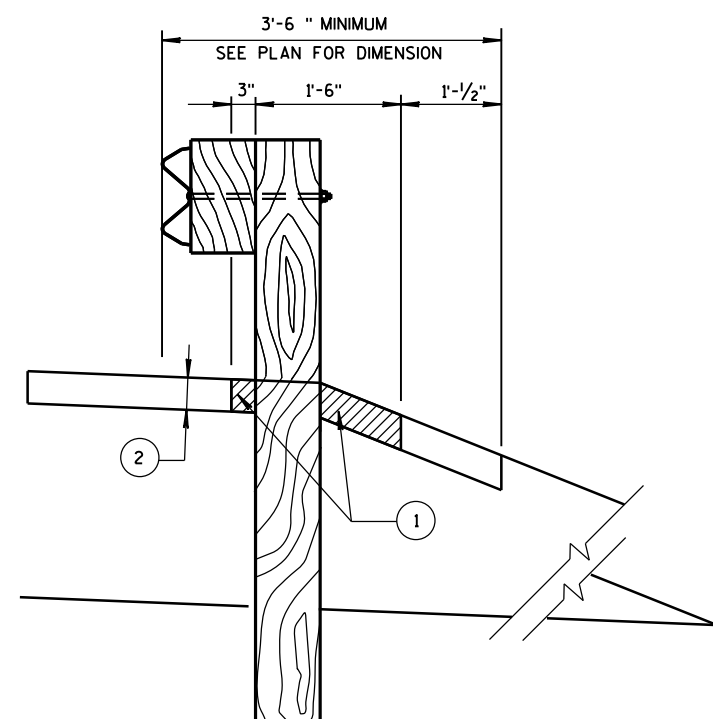


CAP DETAILS FOR TEMPORARY CONCRETE  
BARRIER TO 56" PERMANENT CONCRETE BARRIER

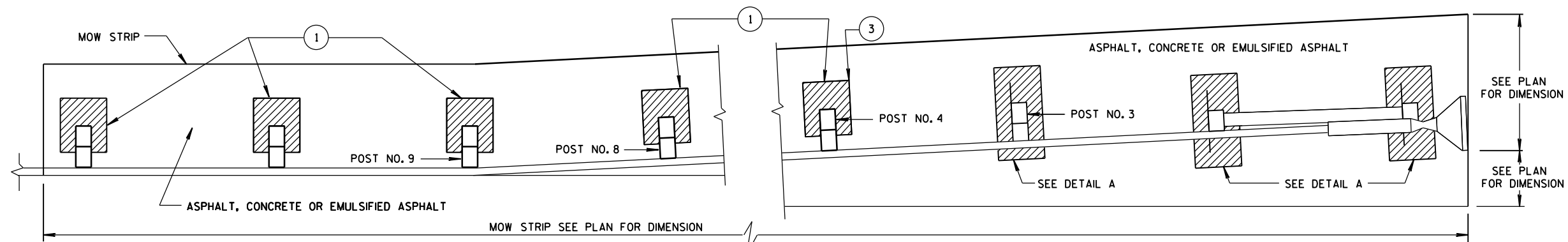
CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2014 DATE	/S/ Jerry H. Zogg ROADWAY STANDARD DEVELOPMENT ENGINEER
FHWA	



SECTION A-A

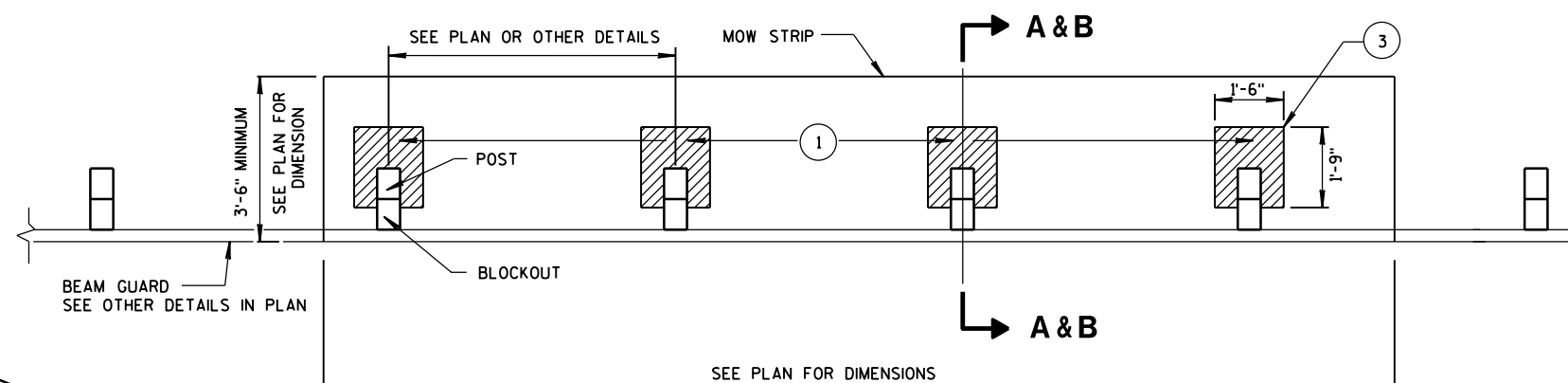


SECTION B-B



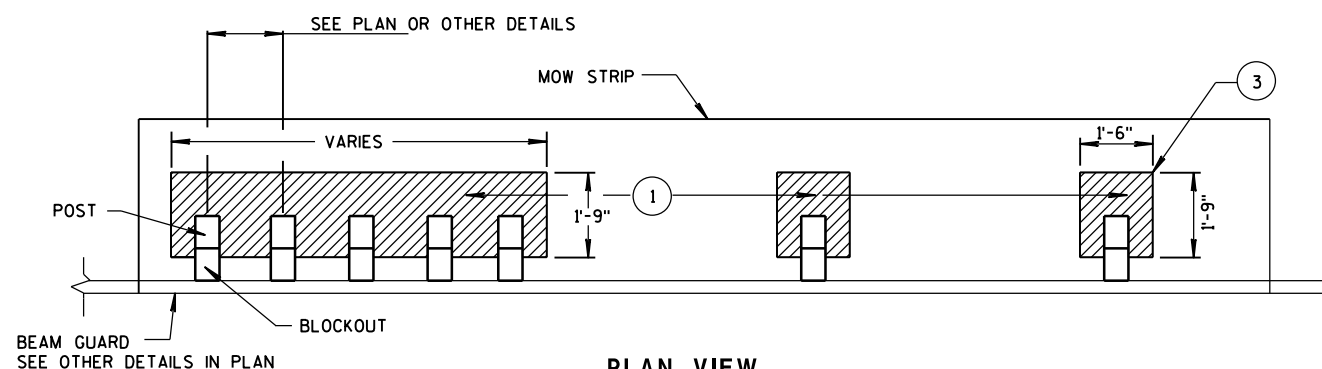
PLAN VIEW

## MOW STRIP LAYOUT FOR ENERGY ABORING TERMINAL



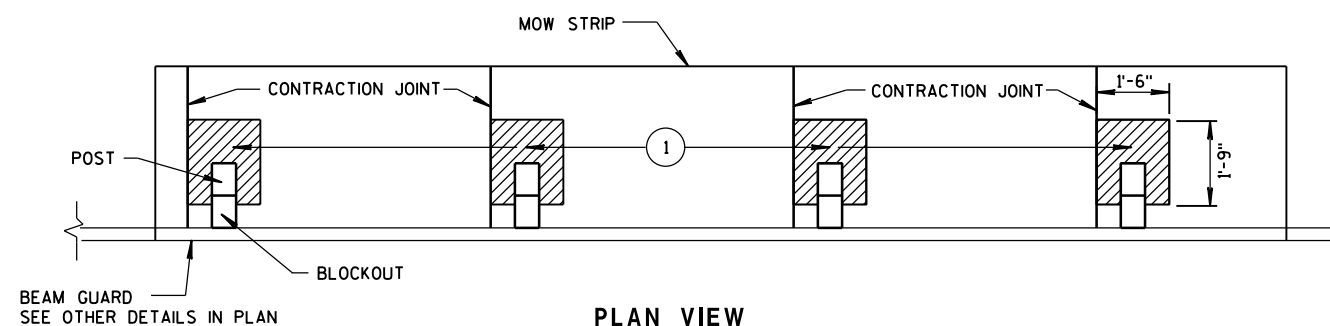
PLAN VIEW

## MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT



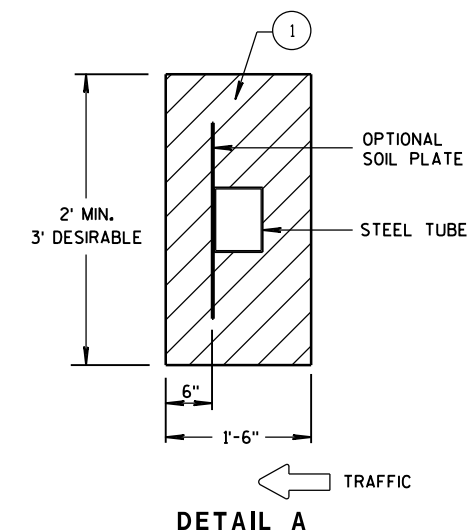
PLAN VIEW

## MOW STRIP FOR TIGHT SPACING LAYOUT

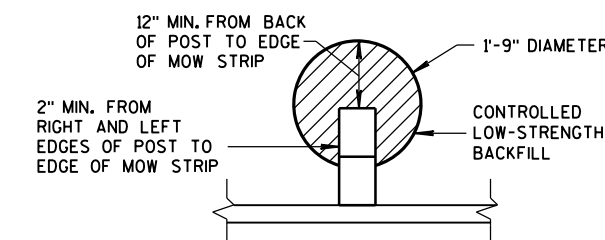


PLAN VIEW

## JOINT PLACEMENT FOR CONCRETE MOW STRIP



DETAIL A

ALTERNATIVE HMA  
MOW STRIP DESIGN

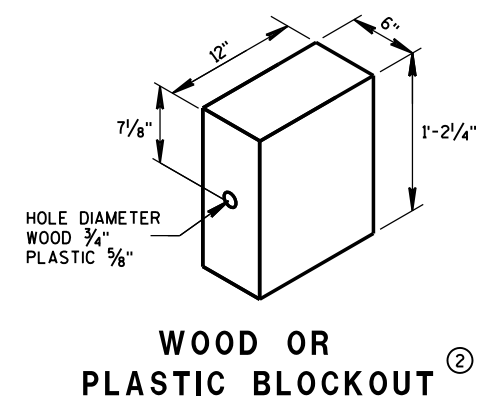
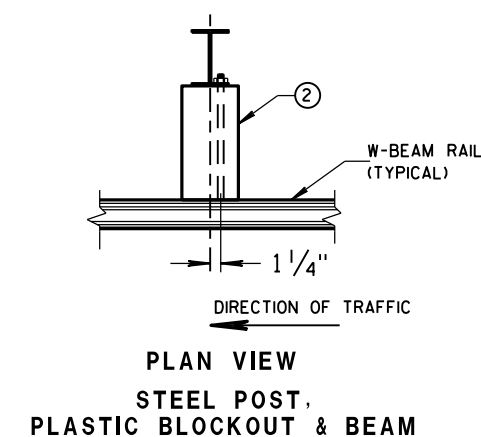
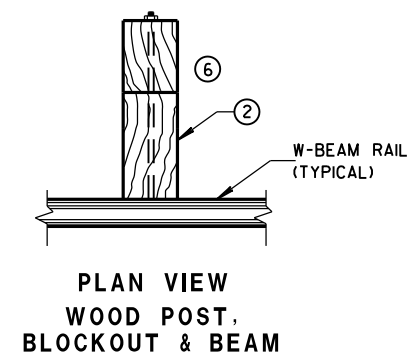
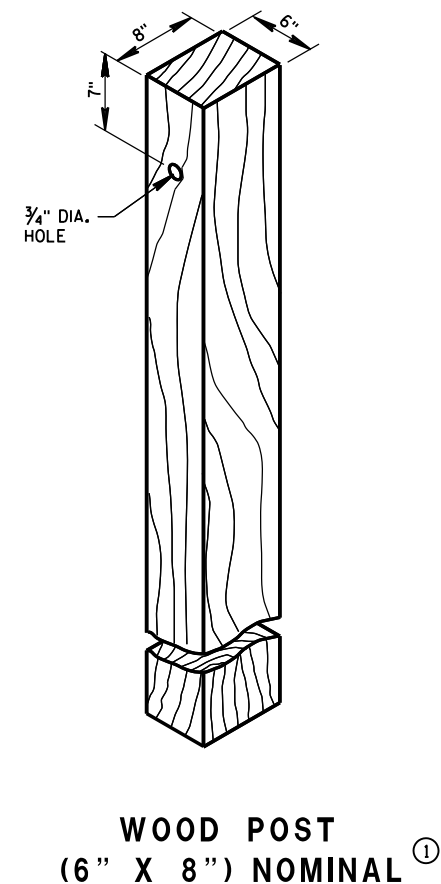
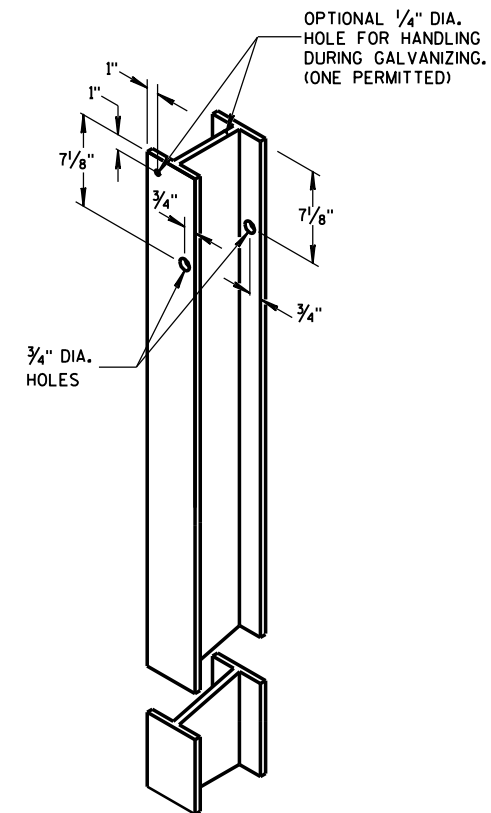
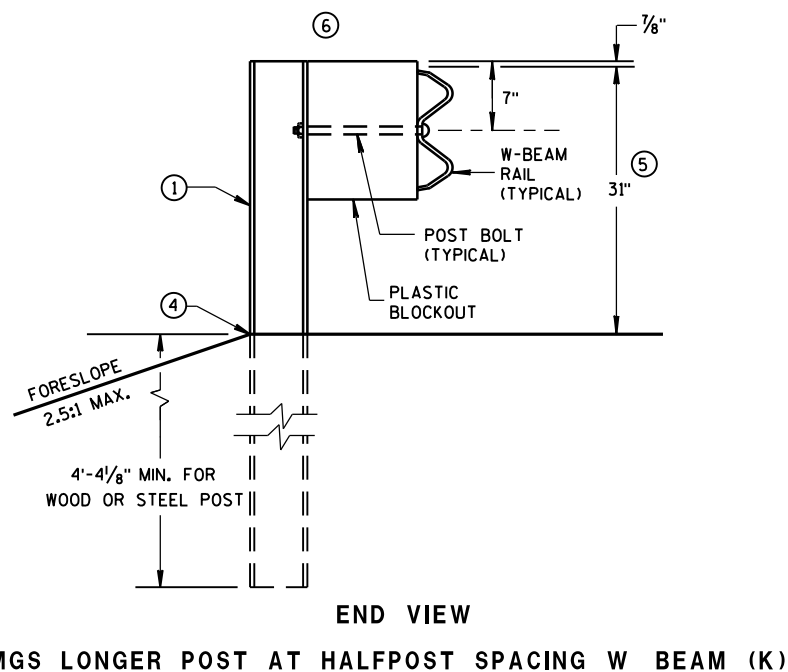
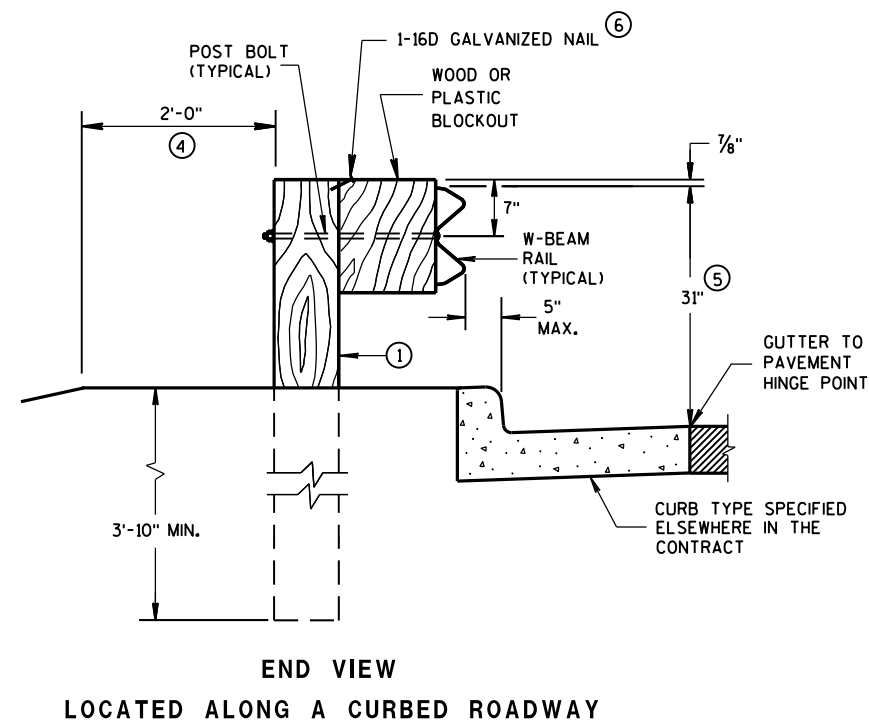
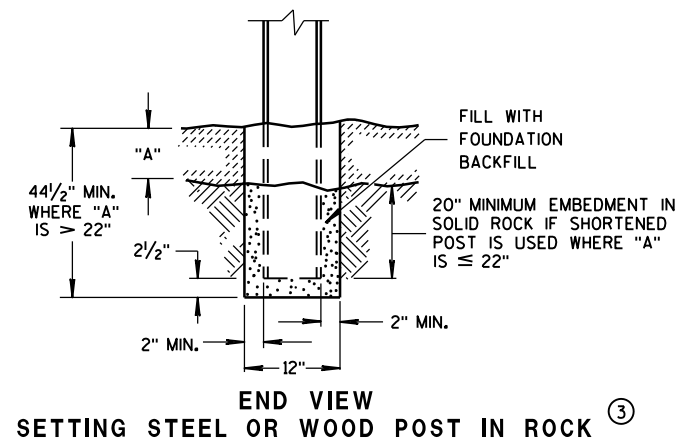
- ① CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.
- ② DEPTH OF MOW STRIP:  
ASPHALT - 4"  
CONCRETE - 4"  
EMULSIFIED ASPHALT - 1" OR LESS
- ③ FOR EMULSIFIED ASPHALT MOW STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS.)

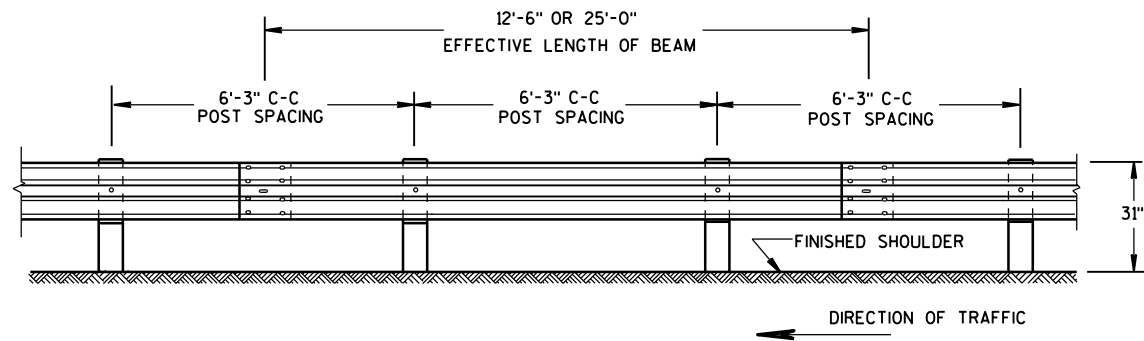
## GUARDRAIL MOW STRIP

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2014 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA ENGINEER

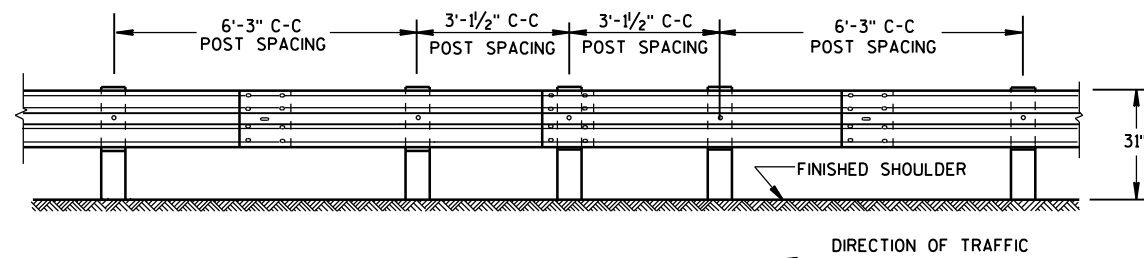
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO THE LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.





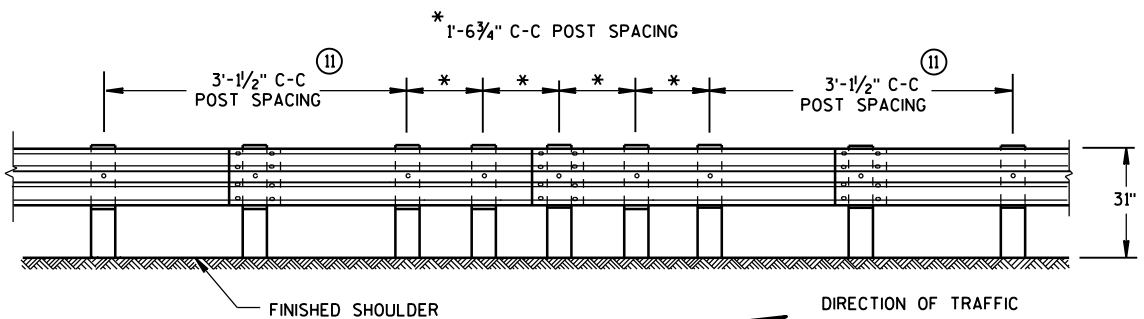
FRONT VIEW

## POST SPACING STANDARD INSTALLATION



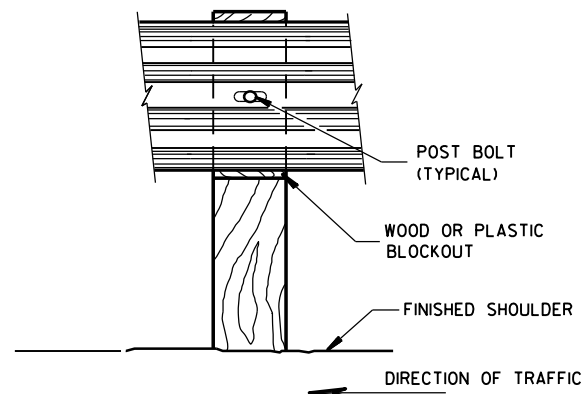
FRONT VIEW

## HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

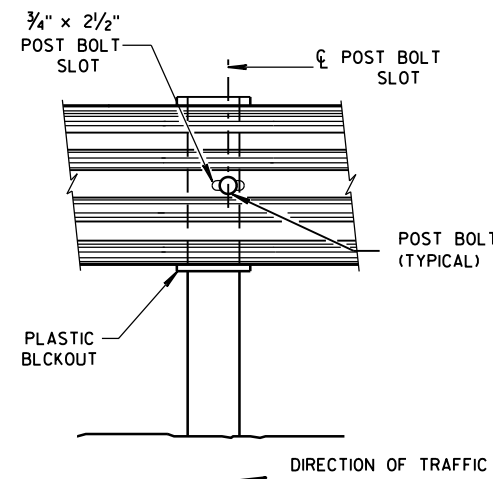


FRONT VIEW

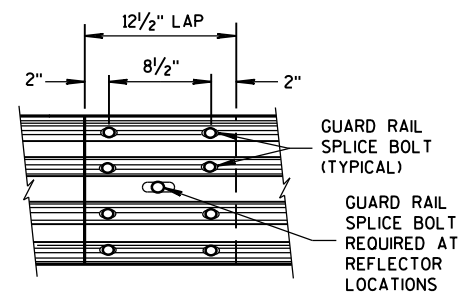
## QUARTER POST SPACING (QS)



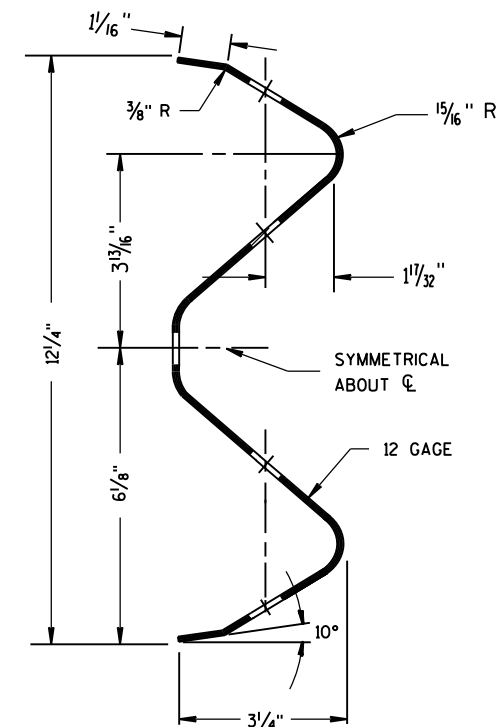
FRONT VIEW AT WOOD POST



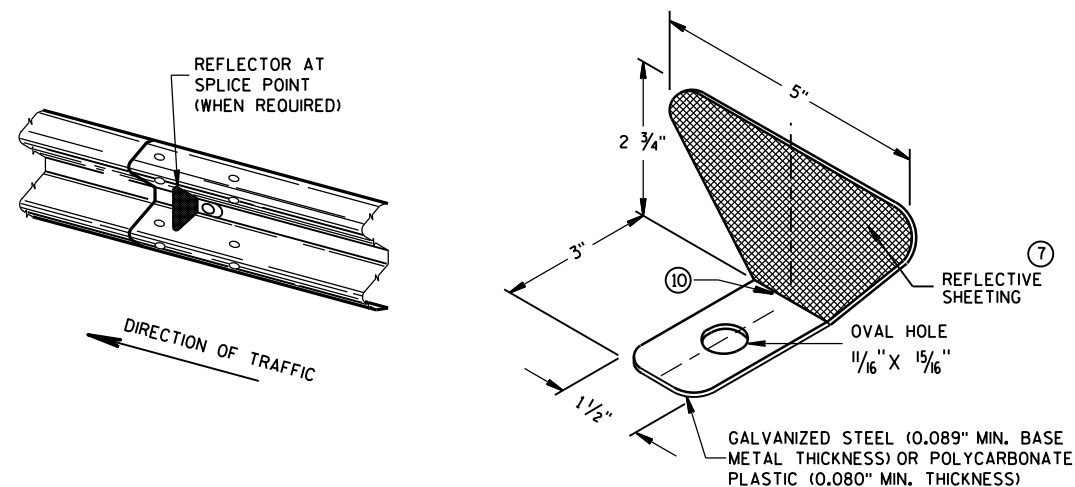
FRONT VIEW AT STEEL POST



FRONT VIEW  
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



## ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

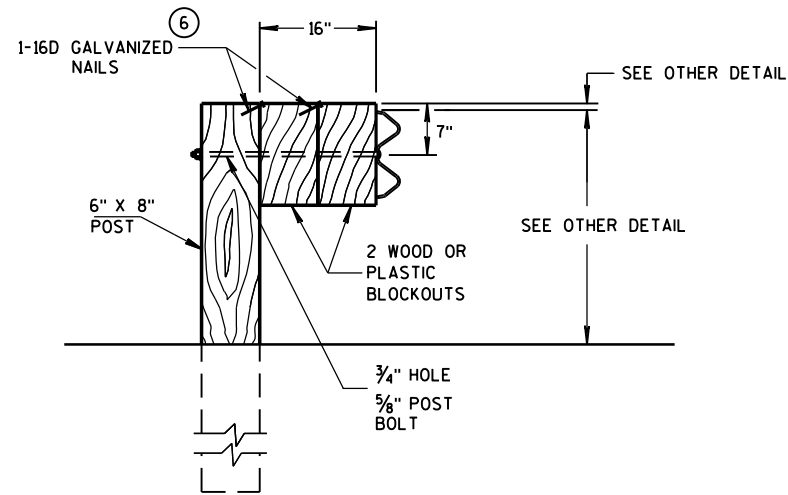
- ⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
  - ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
  - ⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
  - ⑩ PROVIDE AN ANGLE OF BEND OF  $90^\circ \pm 1^\circ$  FOR TWO-SIDED REFLECTORS.
  - ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A  $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES  $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND  $\frac{5}{8}$ " DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A  $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES  $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

## REFLECTOR SPACING

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ⑨	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ⑩	3
	> 200'	100' C-C	2	

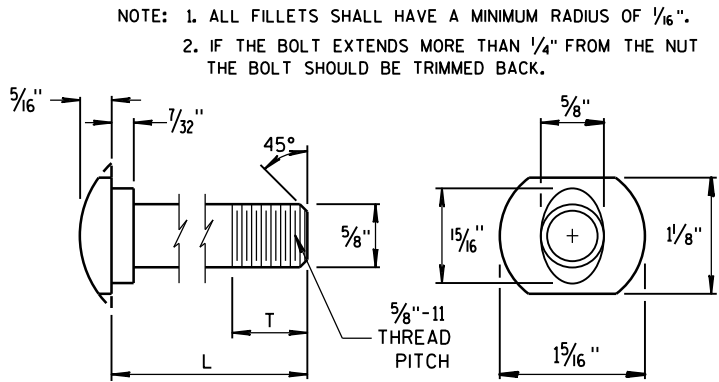
## MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

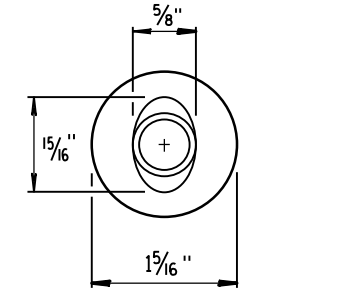


### DETAIL FOR 16" BLOCKOUT DEPTH

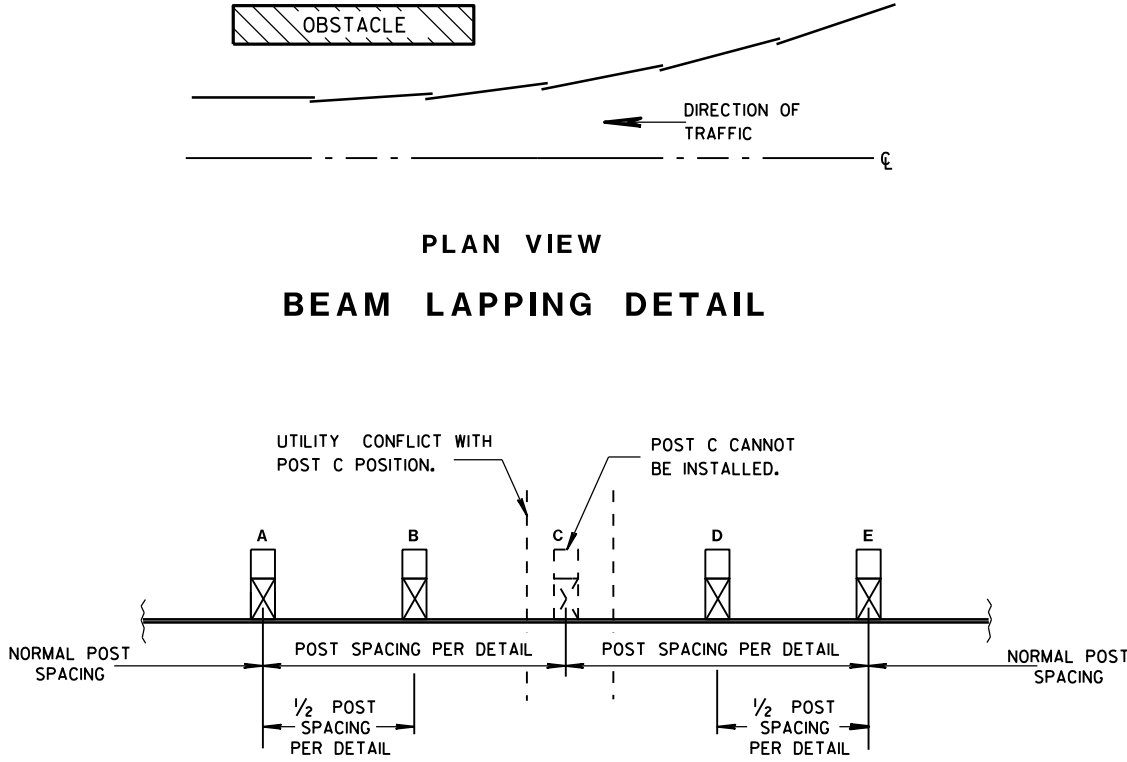
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



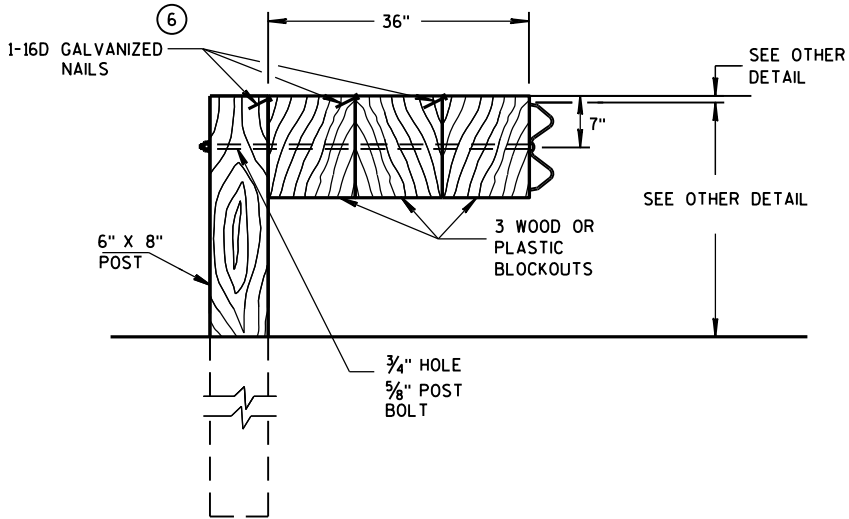
POST BOLT TABLE



ALTERNATE BOLT HEAD



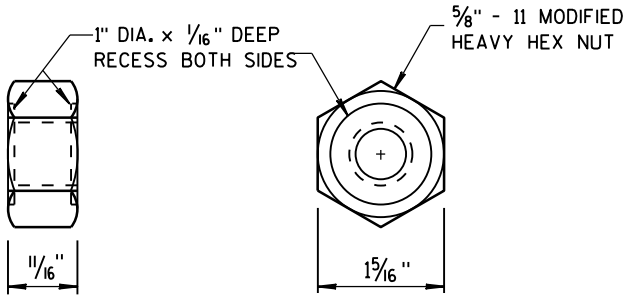
### POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



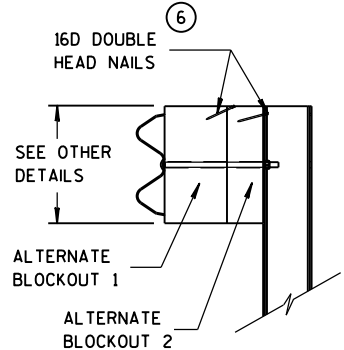
### DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

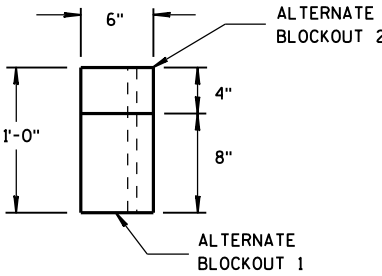
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



### POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW



TOP VIEW

### ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2016 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.
- (G) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.
- (I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

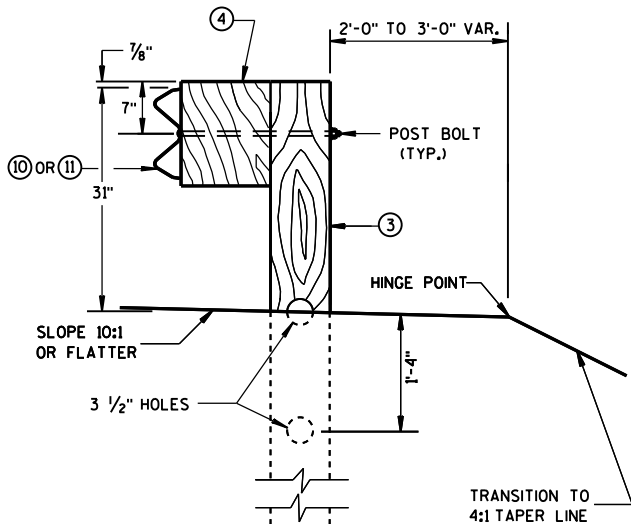
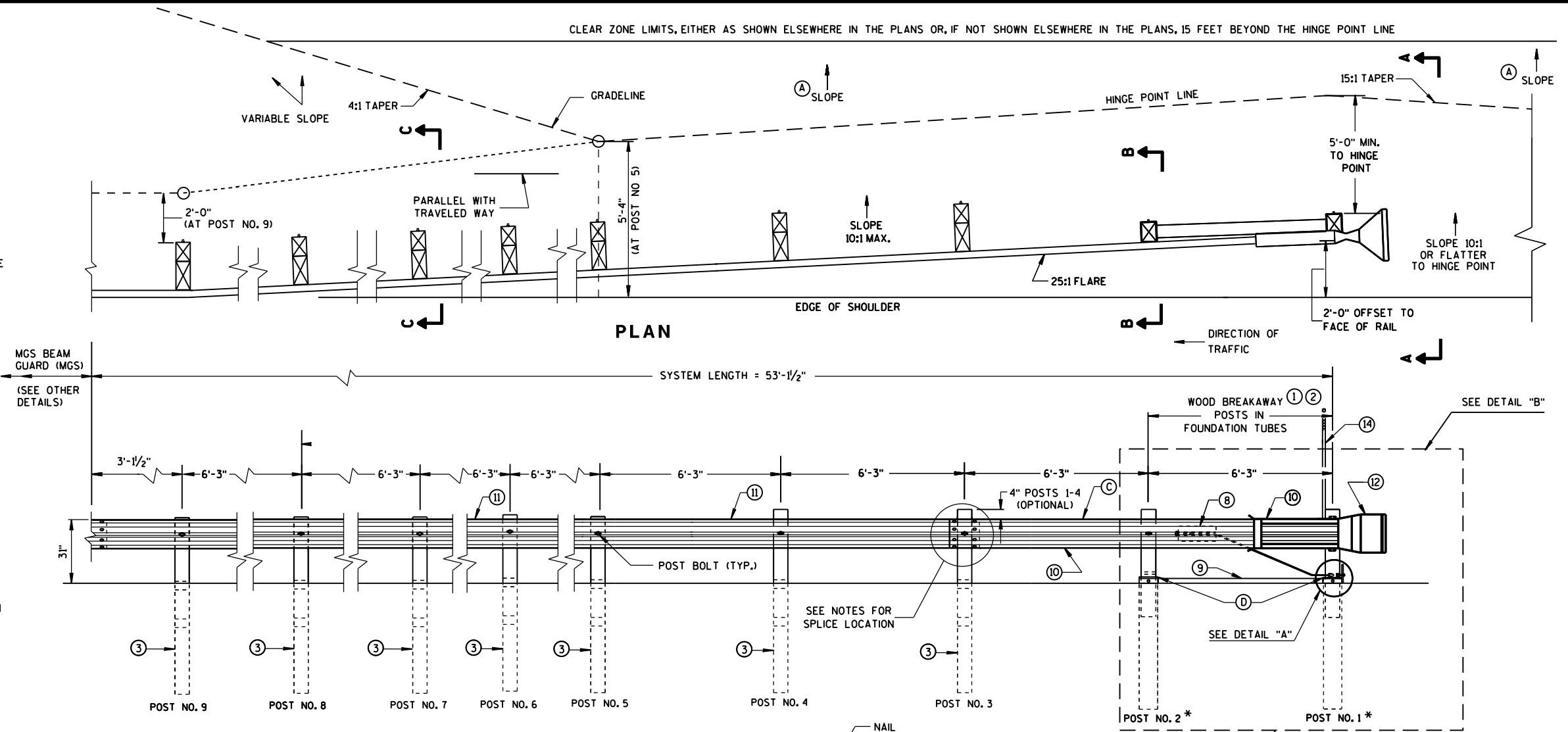
SEE SDD 14B42 FOR MORE INFORMATION.

\* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

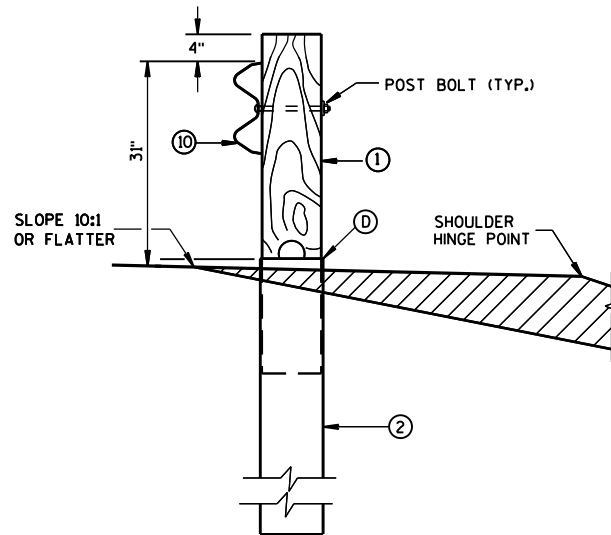
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

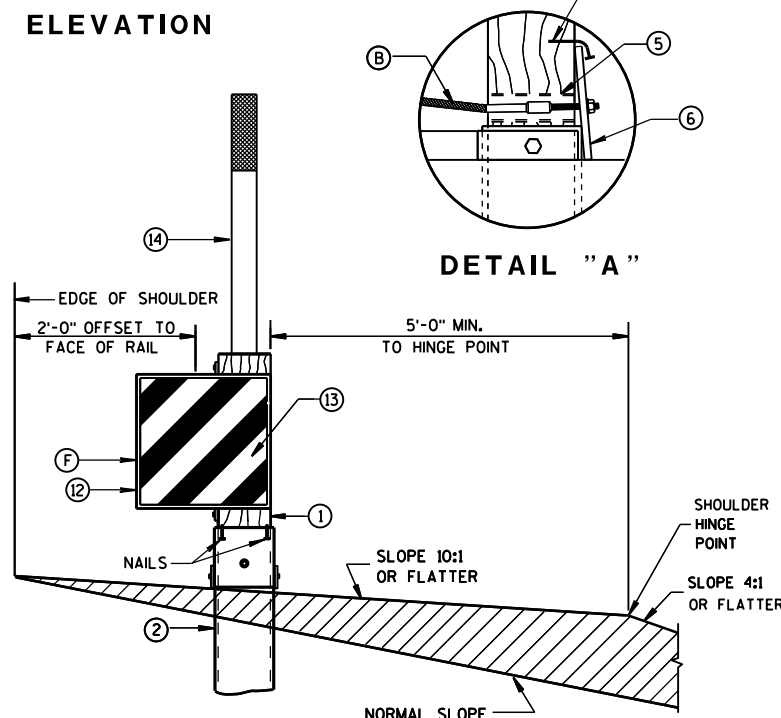
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



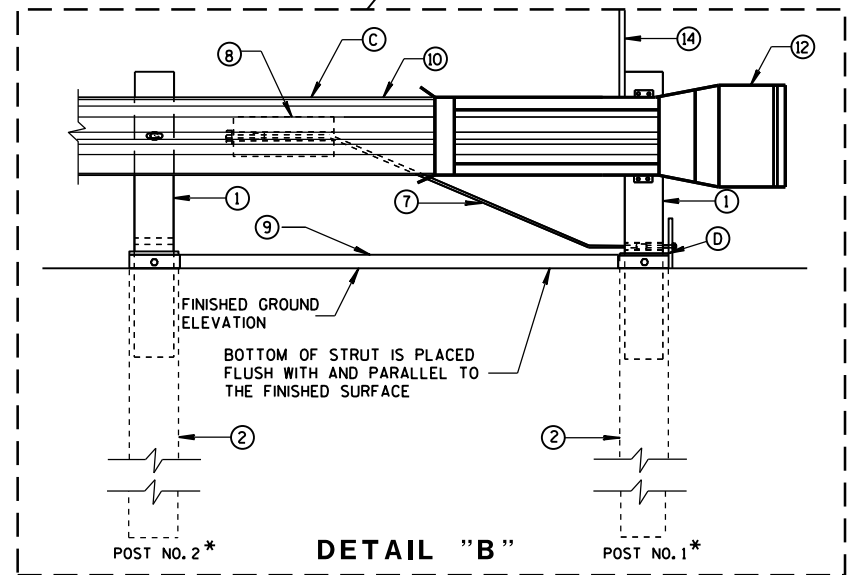
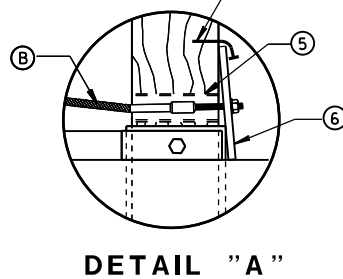
SECTION C-C  
TYPICAL AT POST NOS. 3-9



SECTION B-B  
TYPICAL AT POST NO. 2\*

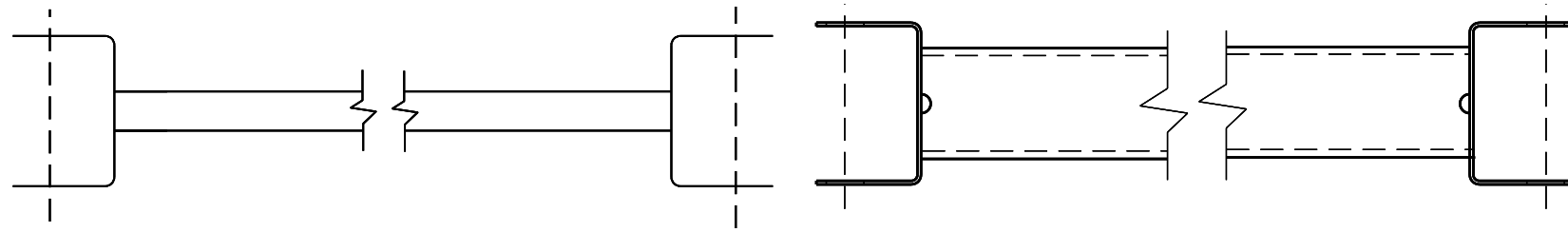


SECTION A-A  
TYPICAL AT POST NO. 1\*

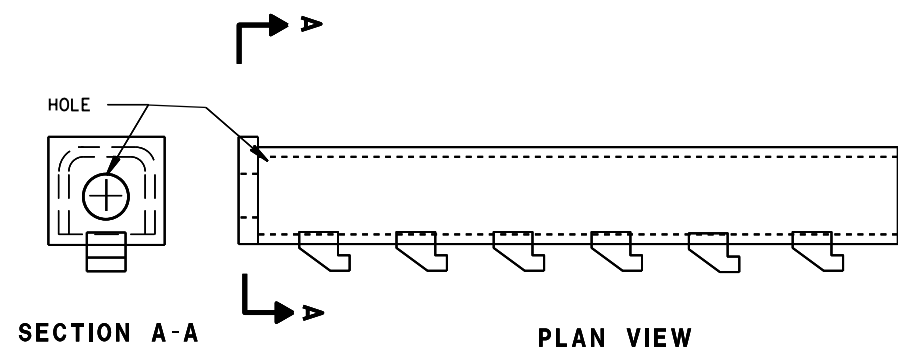
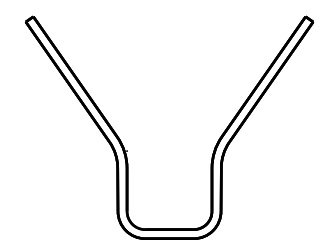
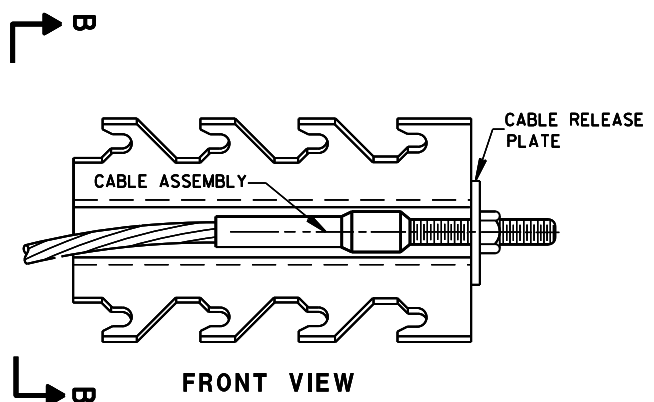


MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



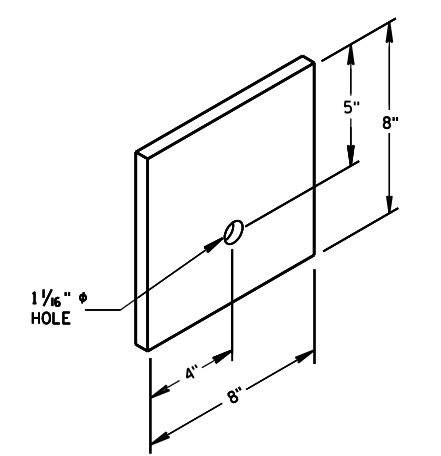
9 H  
GENERIC GROUND STRUT



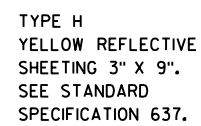
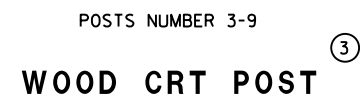
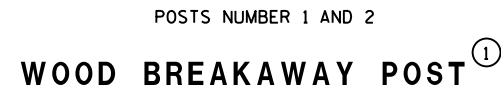
8 H  
GENERIC ANCHOR CABLE BOX

BILL OF MATERIALS

PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	END SECTION EAT
⑬	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
⑭	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)

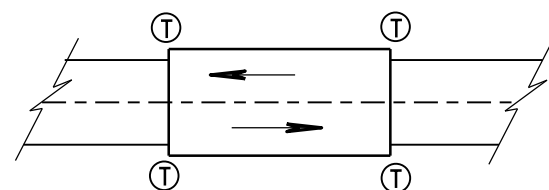


⑥  
BEARING PLATE

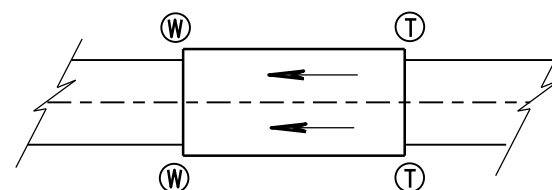


<p>MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)</p>	
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>	
<p>APPROVED June 2014</p>	<p>/S/ Jerry H. Zogg</p>
<p>DATE</p>	<p>ROADWAY STANDARDS DEVELOPMENT ENGINEER</p>
<p>FHWA</p>	





**TWO WAY TRAFFIC**



## ONE WAY TRAFFIC

⑦ THREE BEAM CONNECTION

Ⓢ W-BEAM CONNECTION WHEN REQUIRED

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

## GENERAL NOTES

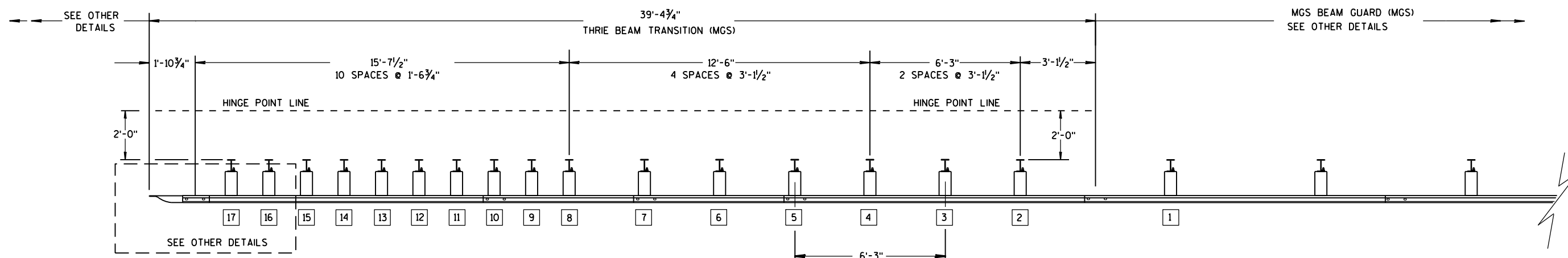
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

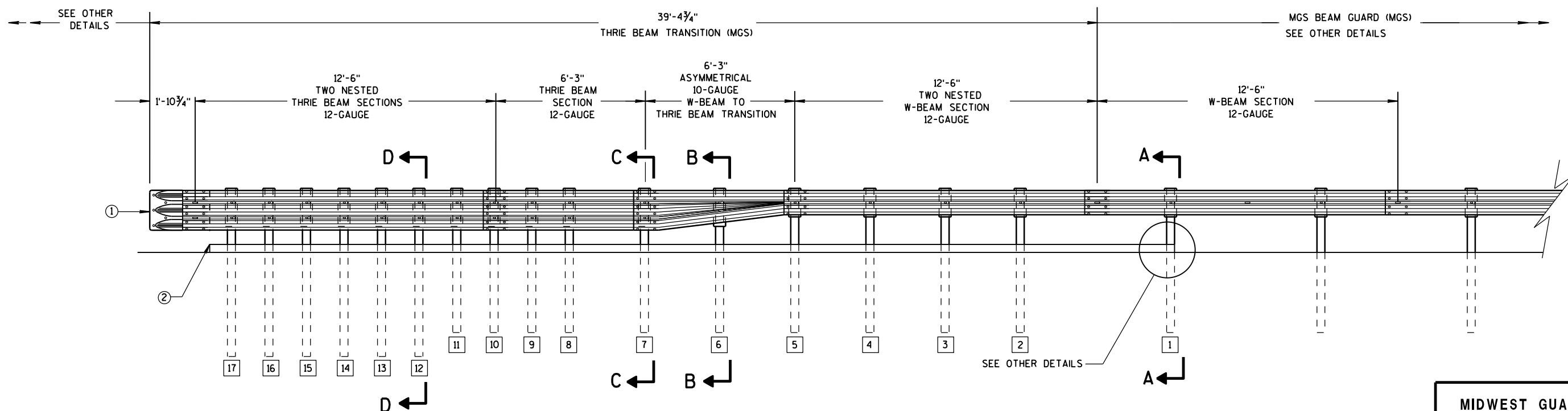
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.



**PLAN VIEW**



**ELEVATION VIEW**

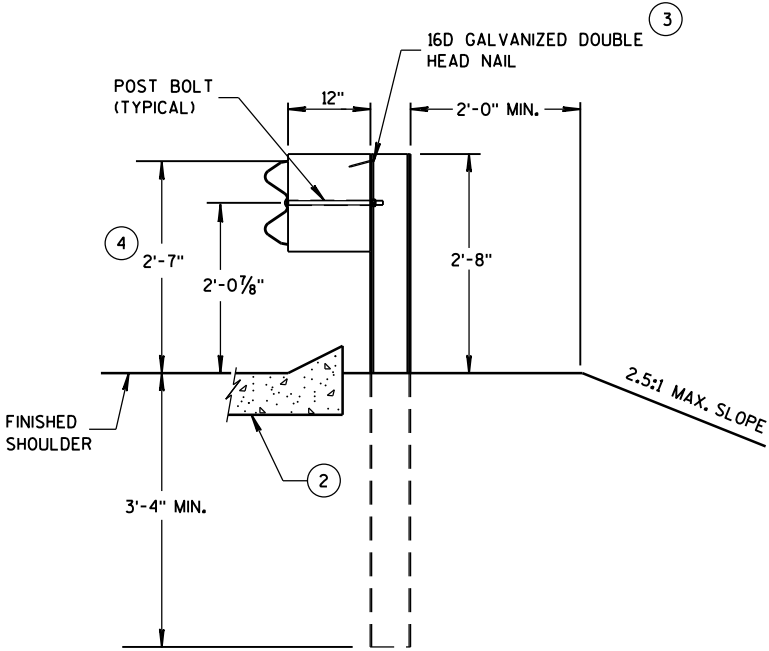
## MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

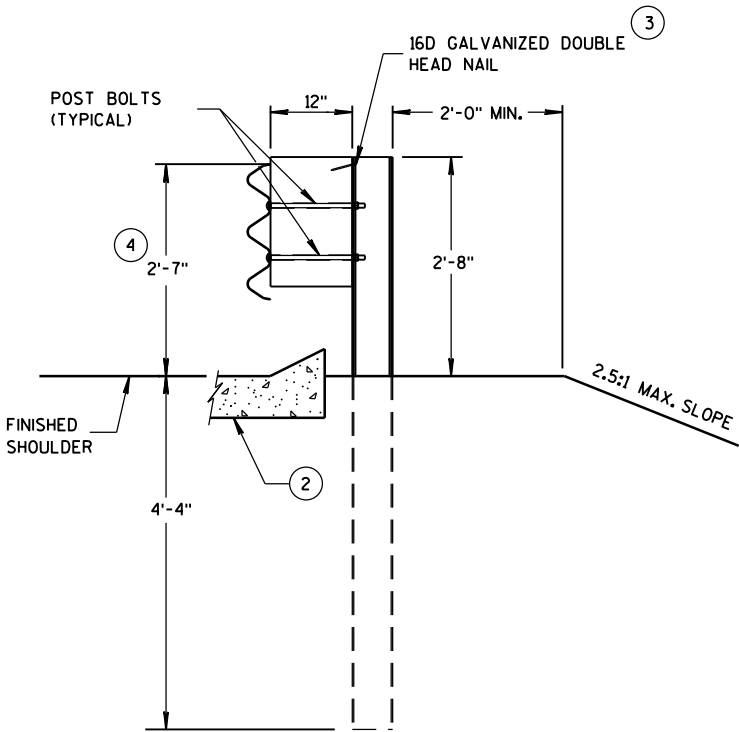
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

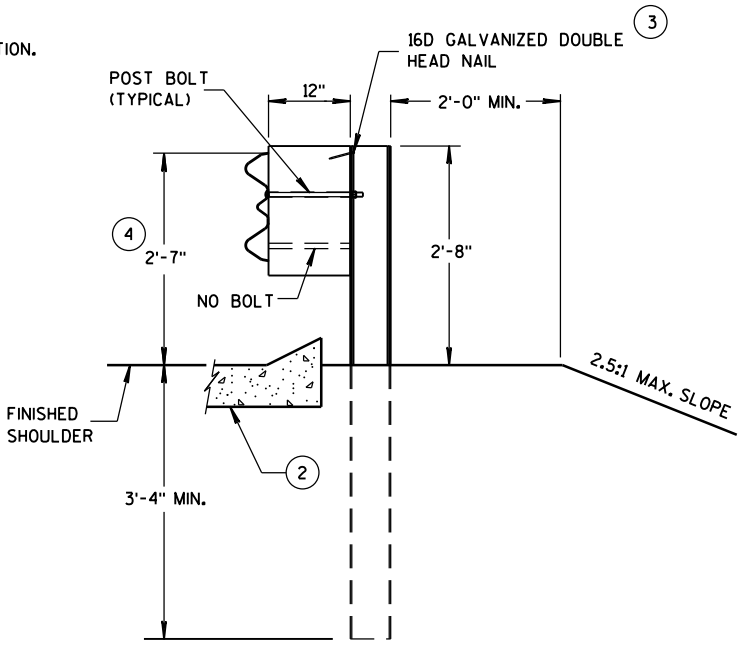
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS  $\pm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



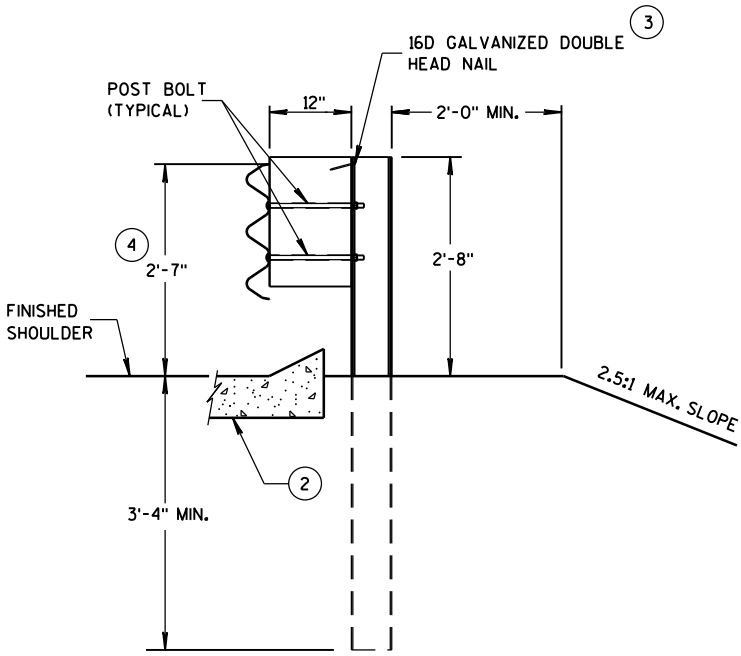
SECTION A-A  
POSTS 1-5



SECTION D-D  
POSTS 12-17



SECTION B-B  
POST 6



SECTION C-C  
POSTS 7-11

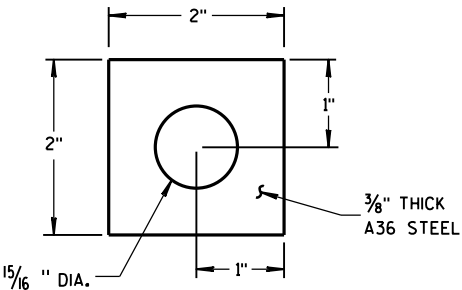
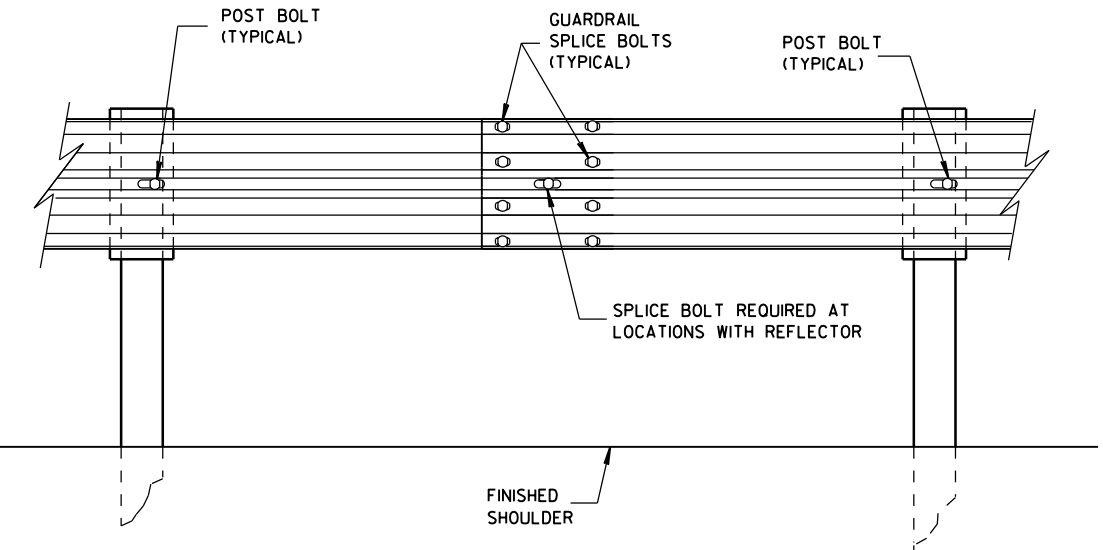
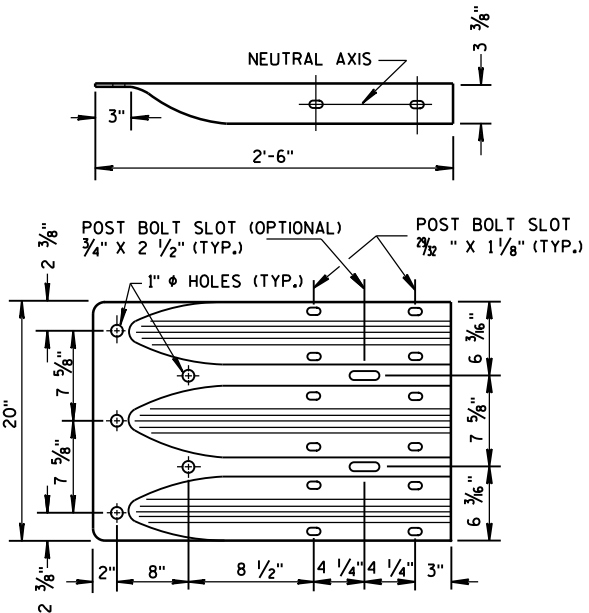


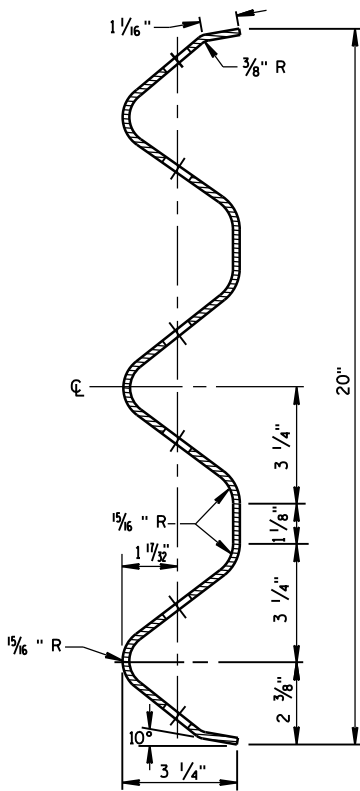
PLATE WASHER DETAIL



SPLICE DETAIL



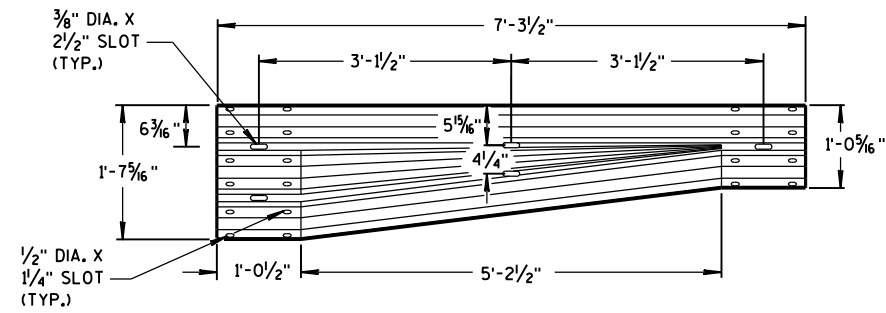
THRIE BEAM  
TERMINAL CONNECTOR



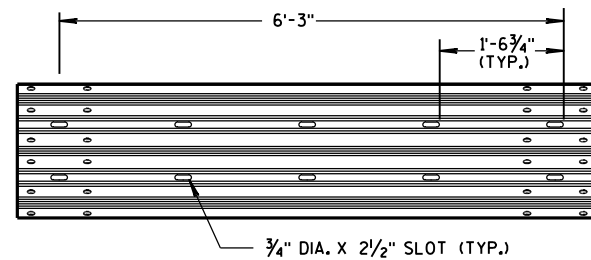
SECTION THRU THRIE  
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

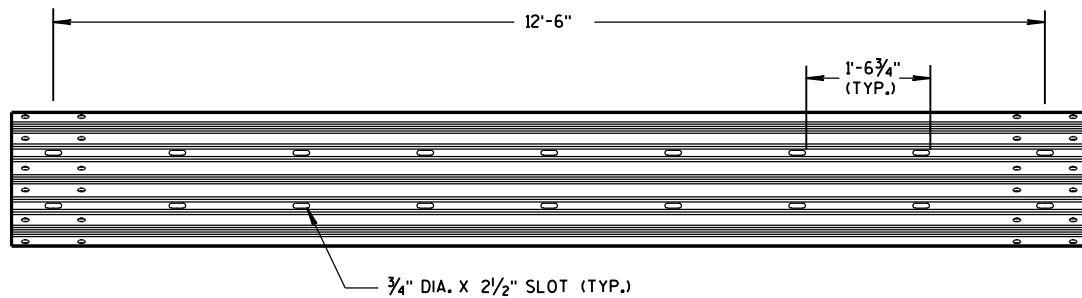
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



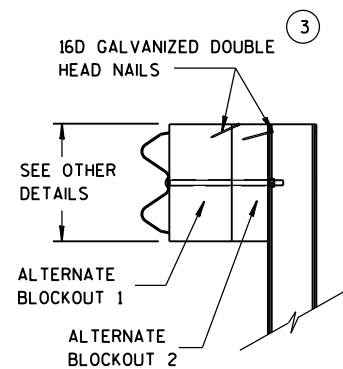
W-BEAM TO THRIE BEAM TRANSITION SECTION



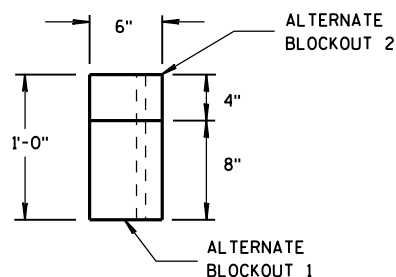
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

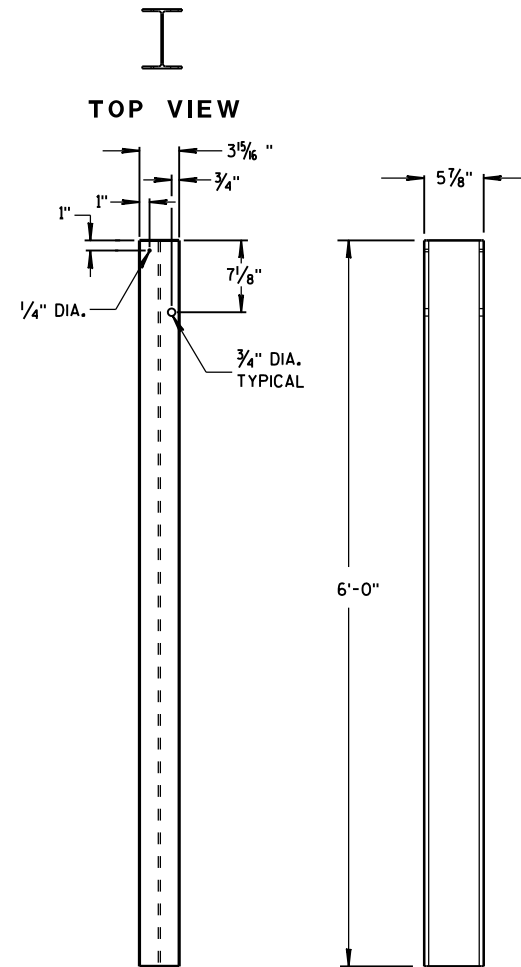


SIDE VIEW



TOP VIEW

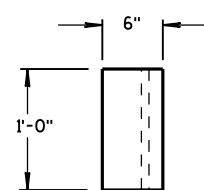
ALTERNATE WOOD BLOCKOUT DETAIL



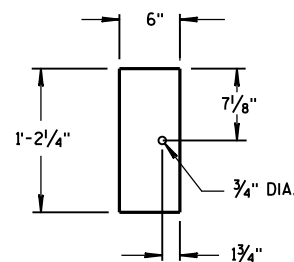
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

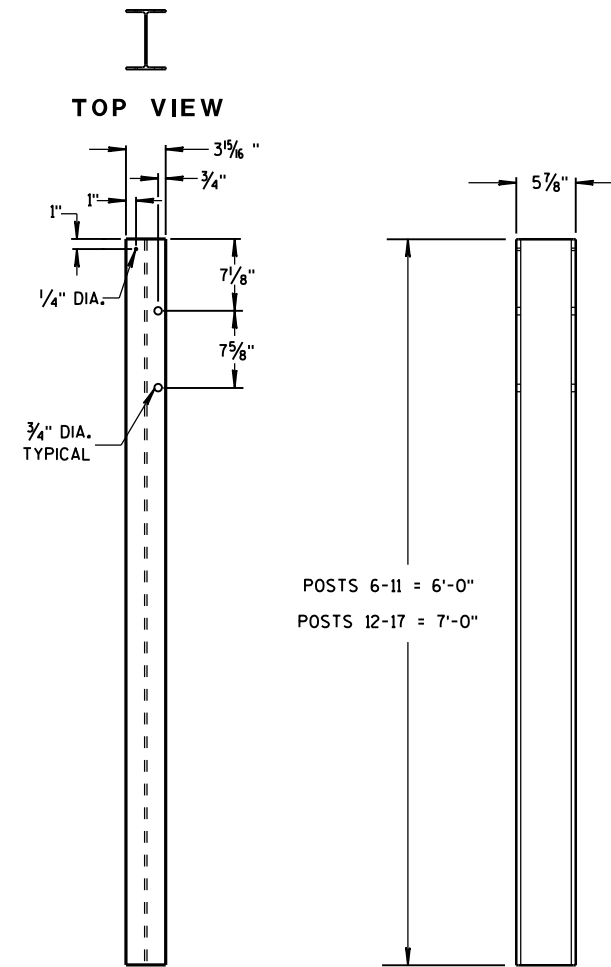


TOP VIEW



FRONT VIEW

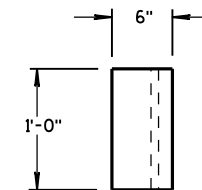
BLOCKOUT  
POSTS 1-5



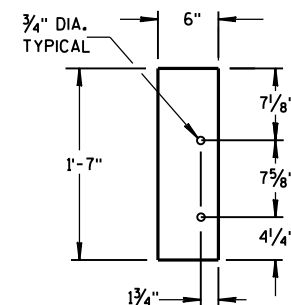
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT  
POSTS 6-17

## GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

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

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

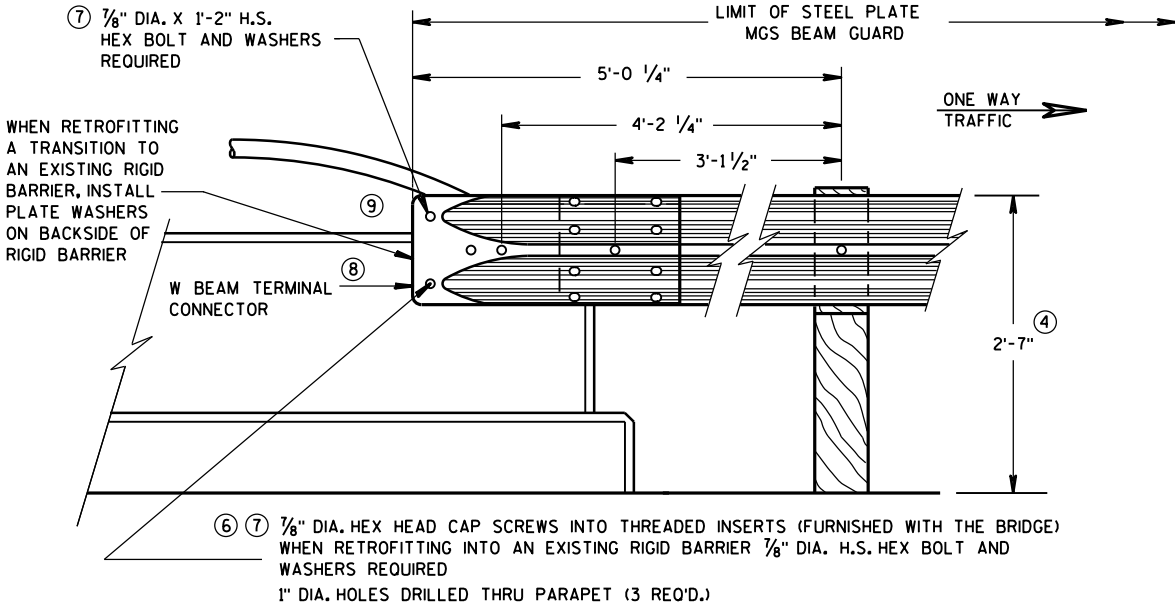
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

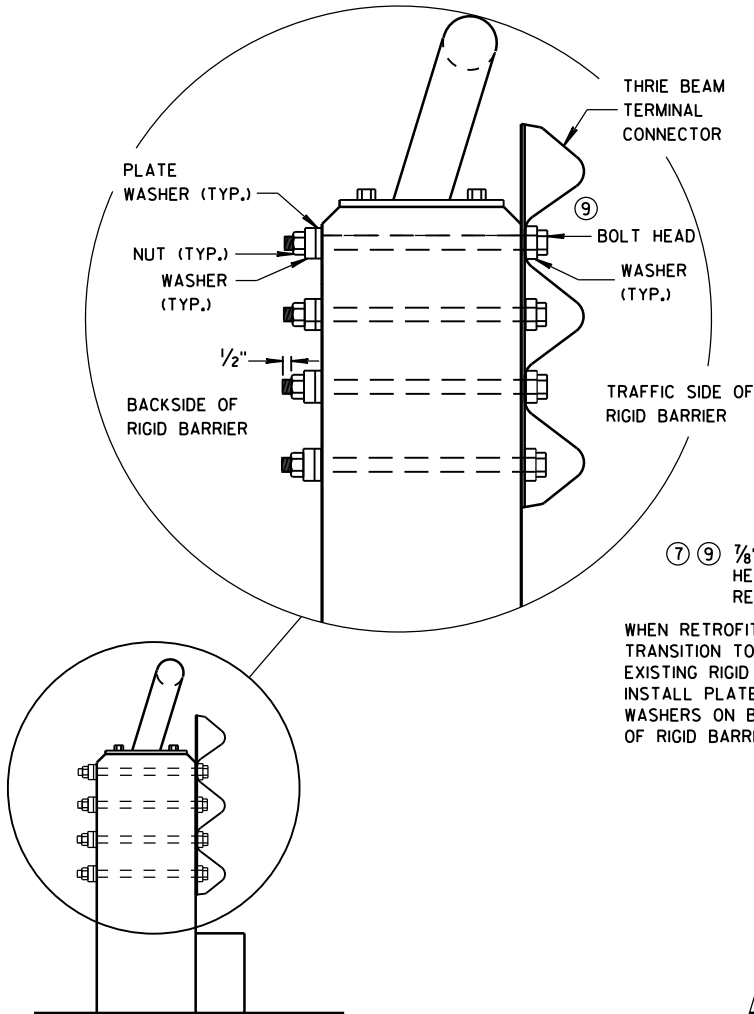
GENERAL NOTES

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

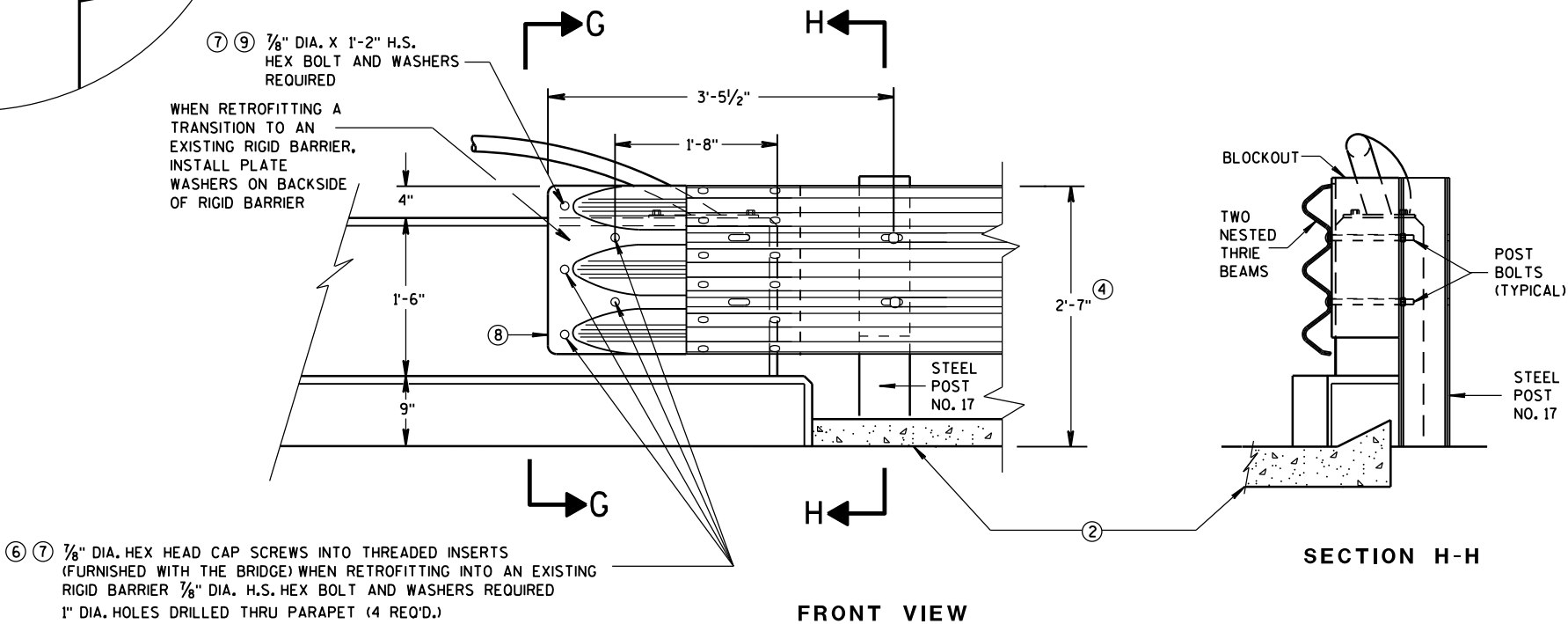
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X  $\frac{5}{8}"$  THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3  $\frac{1}{2}"$ .
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.



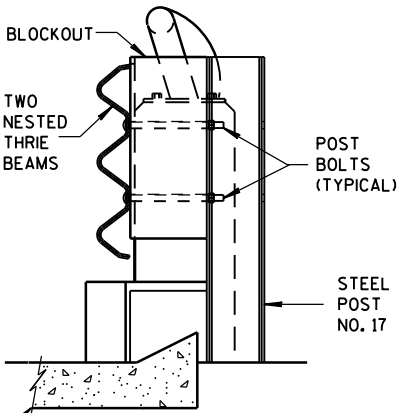
FRONT VIEW  
W BEAM CONNECTION TO VERTICAL FACE PARAPET  
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION G-G



FRONT VIEW  
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



SECTION H-H

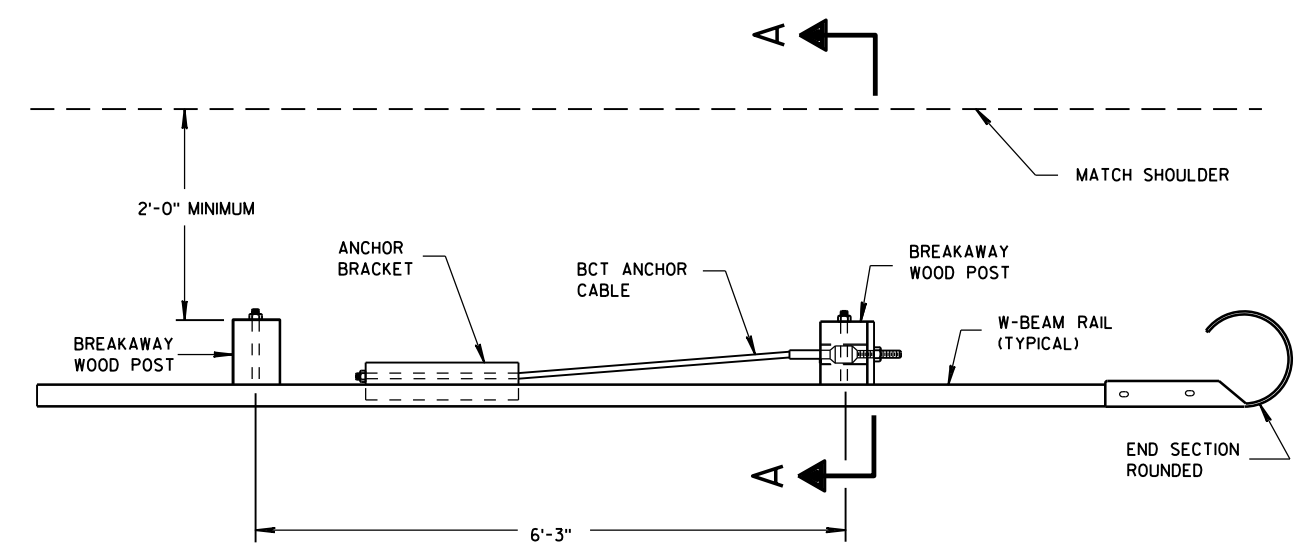
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

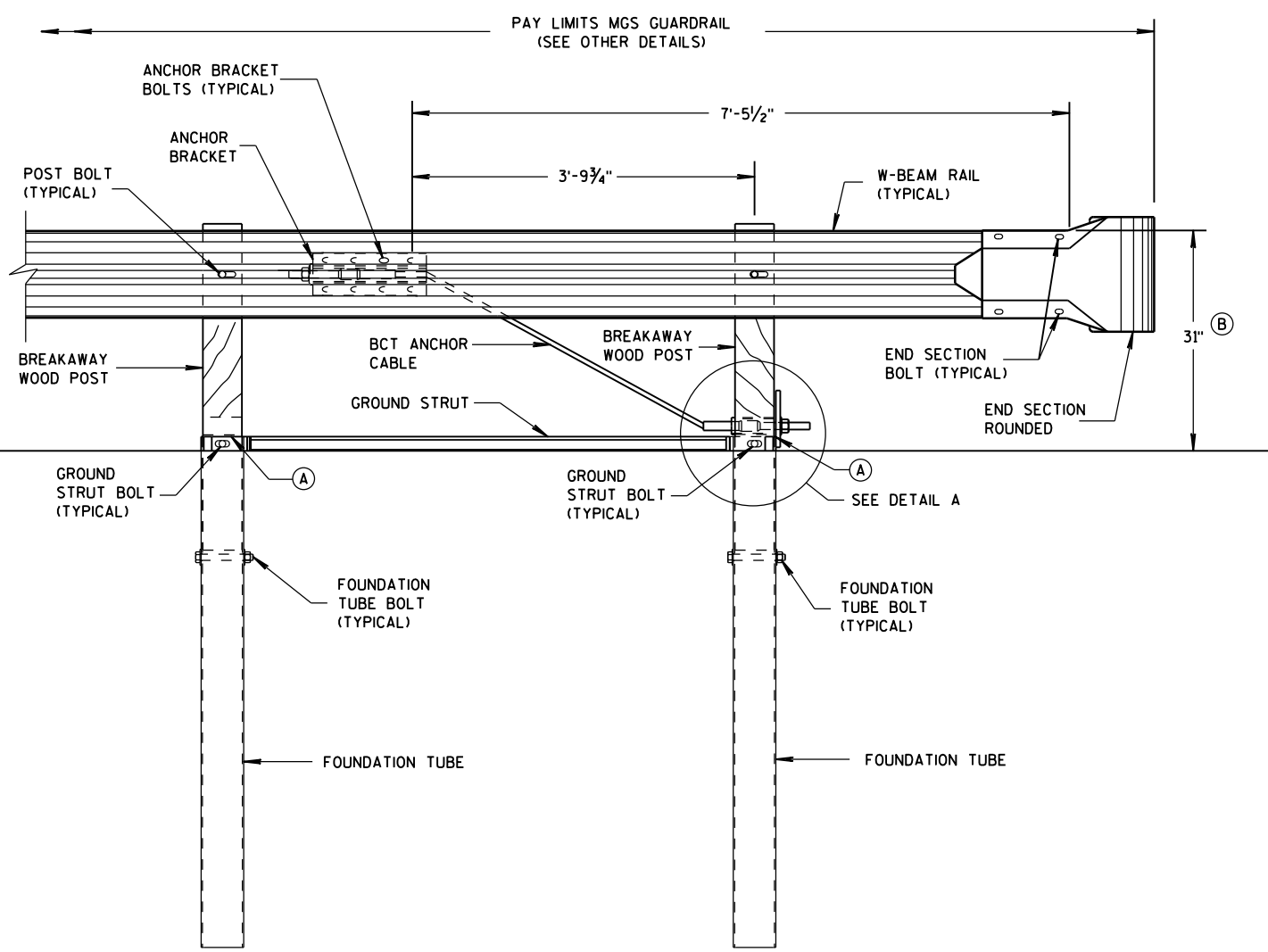
APPROVED  
June, 2015  
DATE  
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

6

S.D.D. 14 B 47-2a

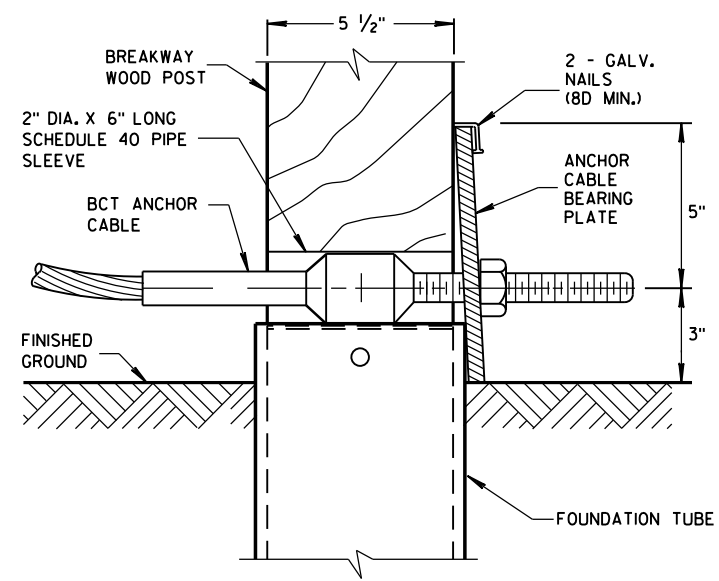


PLAN VIEW



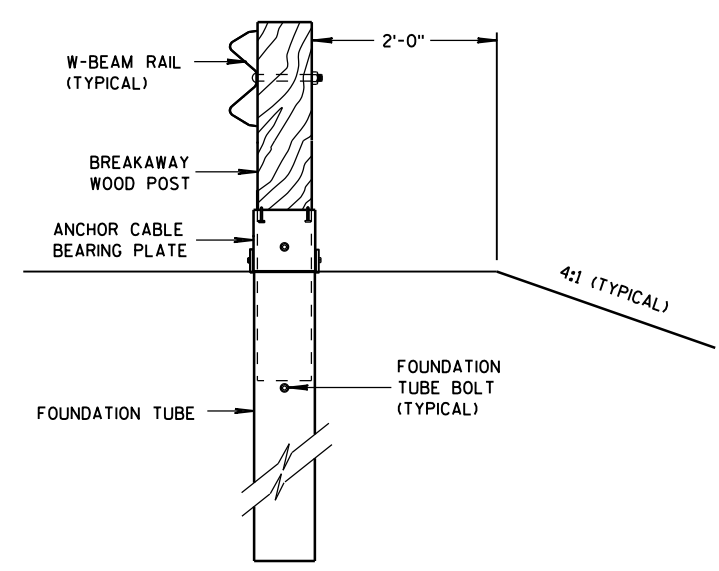
FRONT VIEW

END RAIL DETAIL



DETAIL A

POST NO. 1  
GROUND STRUT NOT SHOWN FOR CLARITY.



SECTION A-A

### GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

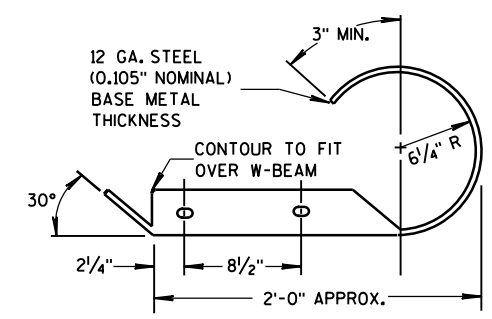
END SECTION BOLTS AND NUTS HAVE THE SAME MATERIAL REQUIREMENTS AS SPLICE BOLTS.

FOUNDATION TUBE BOLTS ARE 7/8" DIAMETER ASTM A307 HEX HEAD BOLT. FOUNDATION TUBE BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 7/8" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

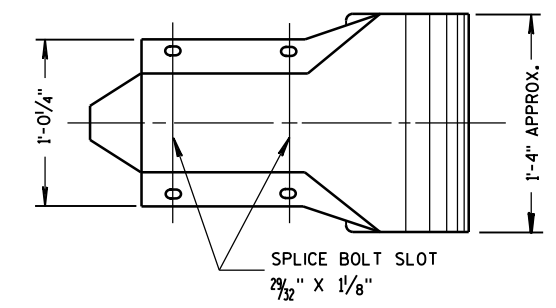
ANCHOR BRACKET AND GROUND STRUT BOLTS ARE A 5/8" DIAMETER ASTM A307 HEX HEAD BOLT. ANCHOR BRACKET BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 5/8" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

W-BEAM END SECTION ROUNDED HAS THE SAME MATERIAL PROPERTIES AS STANDARD STEEL RAIL.

- (A) TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.
- (B) FOR NEW CONSTRUCTION TOP OF RAIL IS 31" ± 1". FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27 3/4" TO 32" ± 1".



PLAN VIEW



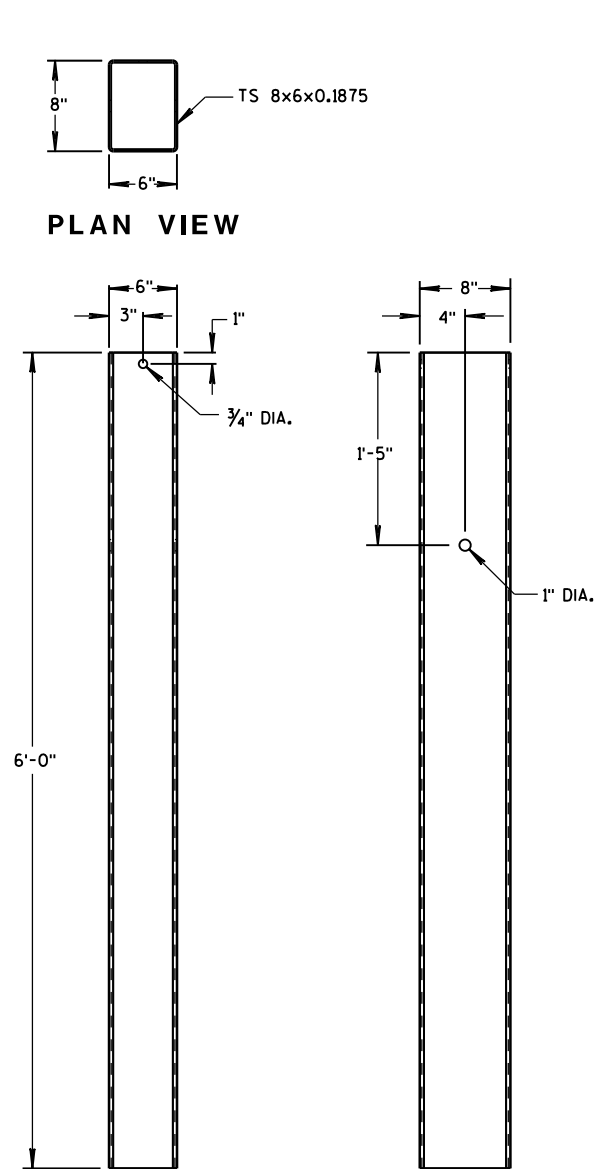
FRONT VIEW

W BEAM END  
SECTION ROUNDED

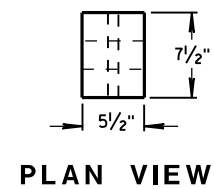
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6

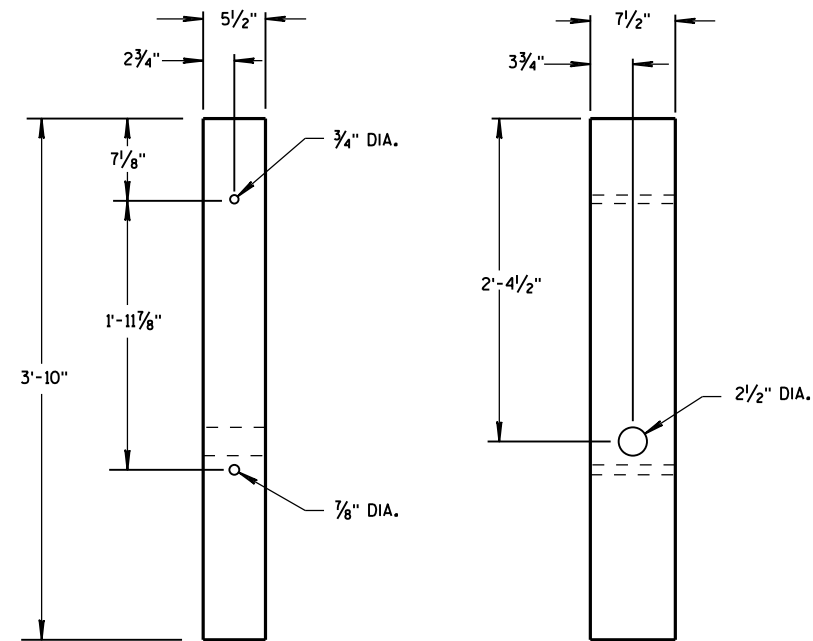
S.D.D. 14 B 47-2a



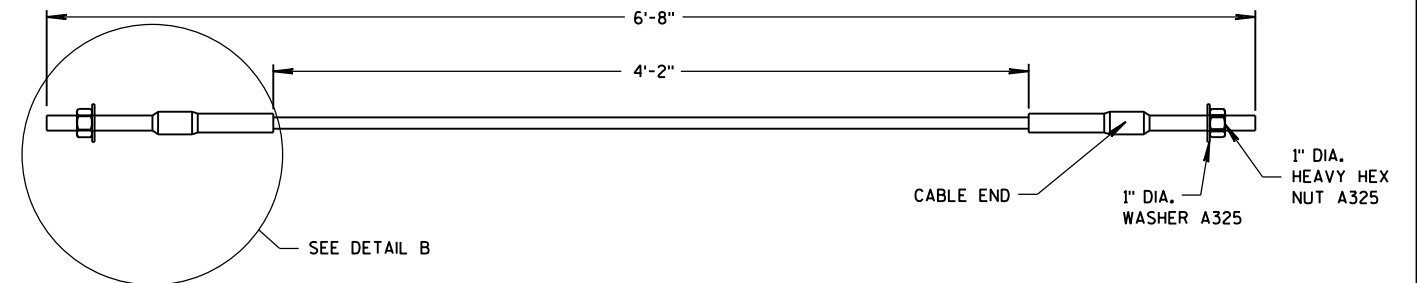
FRONT VIEW      SIDE VIEW  
FOUNDATION TUBE



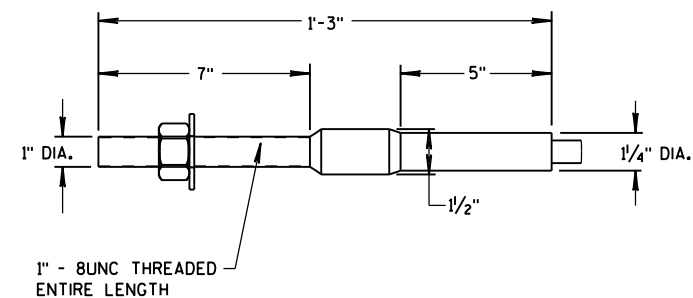
PLAN VIEW



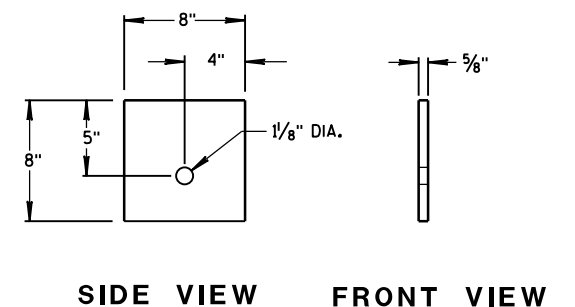
FRONT VIEW      SIDE VIEW  
BREAKAWAY WOOD POST



BCT ANCHOR CABLE



DETAIL B



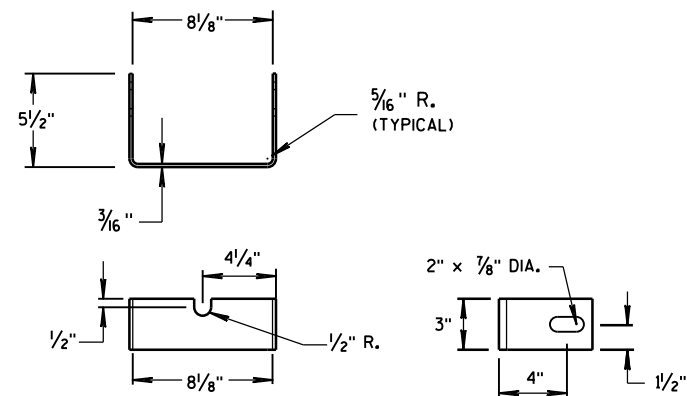
SIDE VIEW      FRONT VIEW  
ANCHOR CABLE  
BEARING PLATE

MIDWEST GUARDRAIL  
SYSTEM (MGS) TYPE 2 TERMINAL

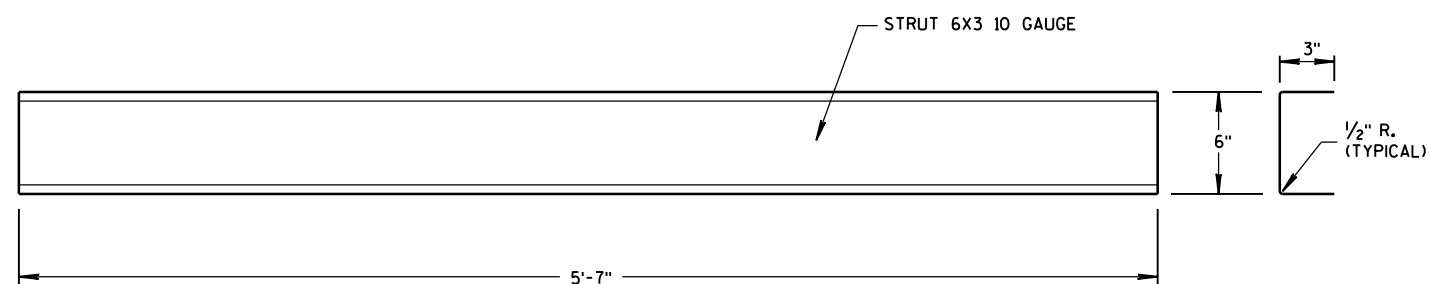
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

## GENERAL NOTES

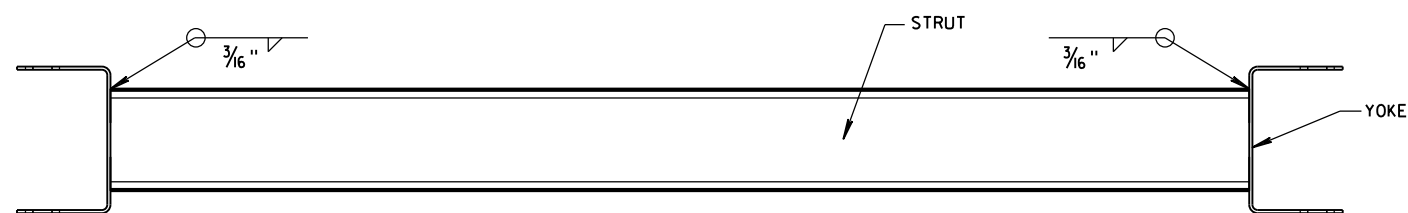
BCT ANCHOR CABLE IS A  $\frac{3}{4}$ " DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. TREADED STUD SHALL CONFORM TO ASTM A325 OR SAE GRADE 5. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB. WIRE ROPE IS TO BE TAUT.



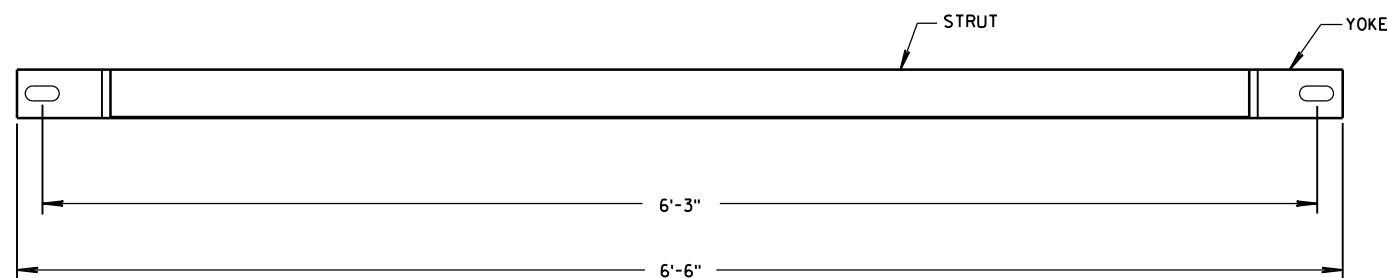
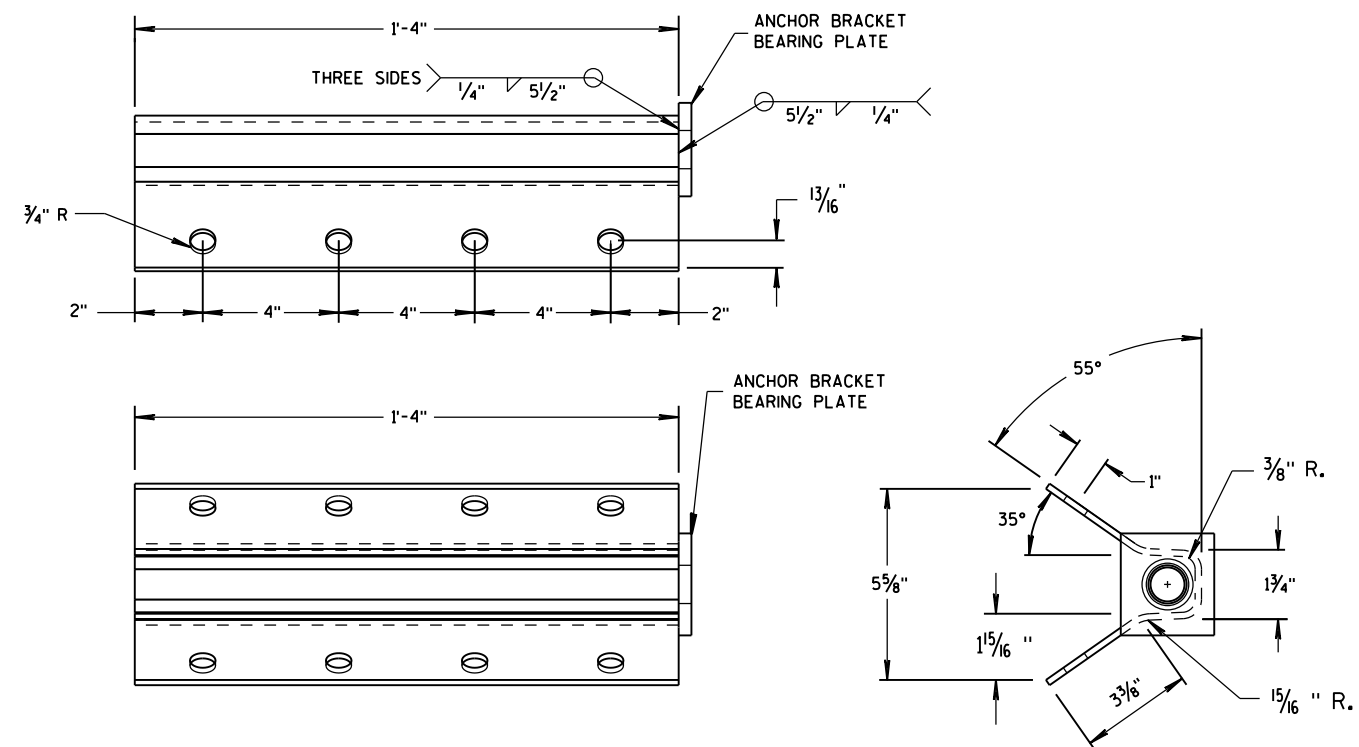
YOKE DETAIL



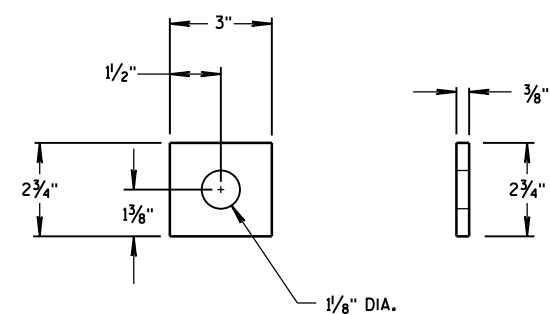
STRUT DETAIL



PLAN VIEW

FRONT VIEW  
GROUND STRUT DETAIL

ANCHOR BRACKET

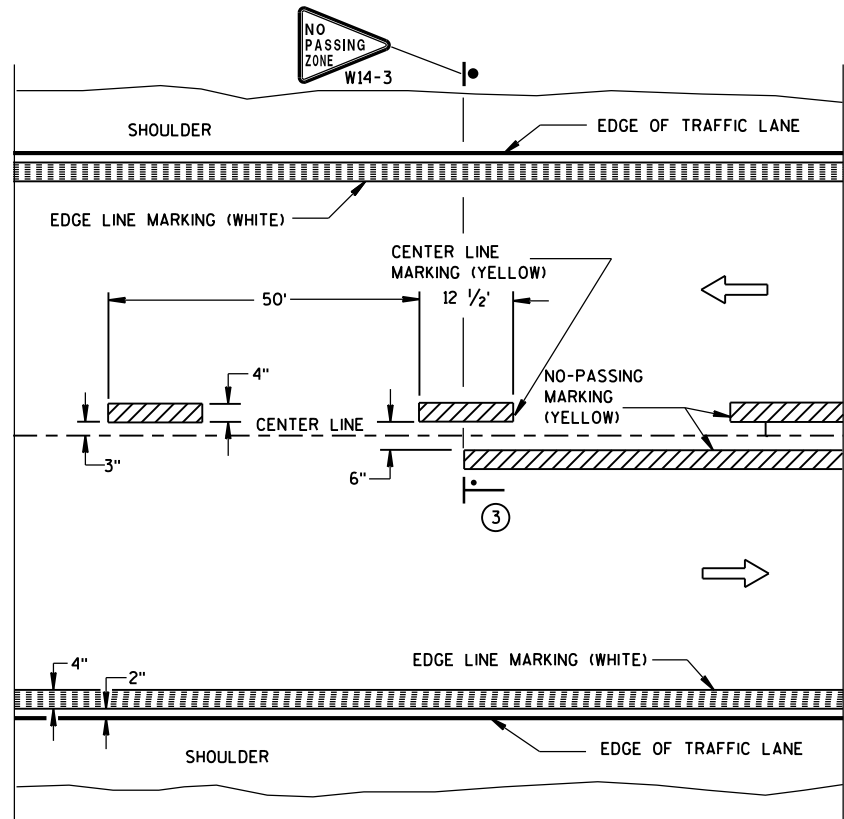
ANCHOR BRACKET  
BEARING PLATEMIDWEST GUARDRAIL  
SYSTEM (MGS) TYPE 2 TERMINALSTATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

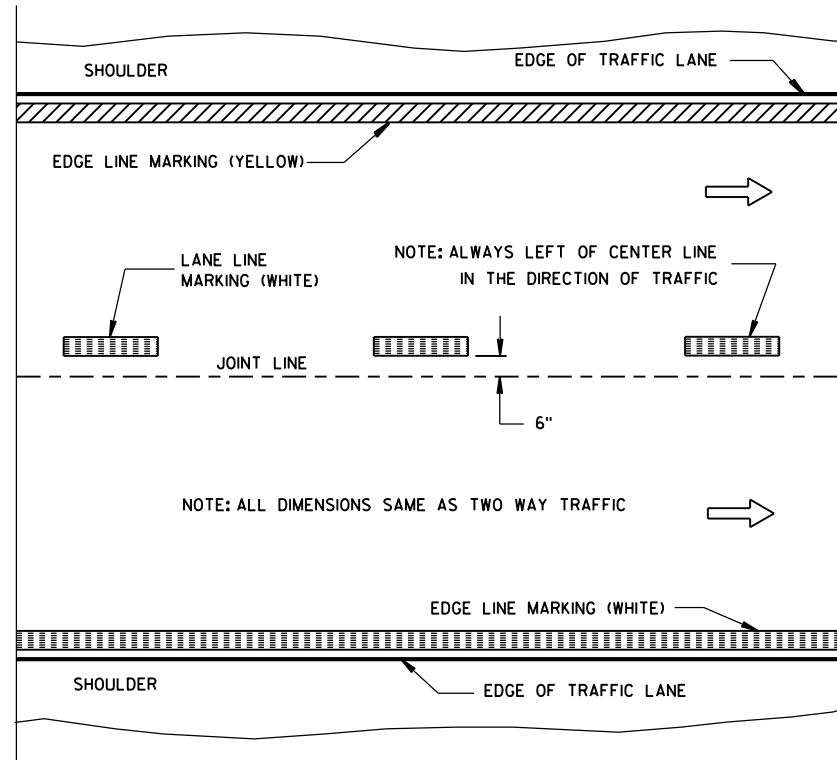
June 2014  
DATE

FHWA

/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

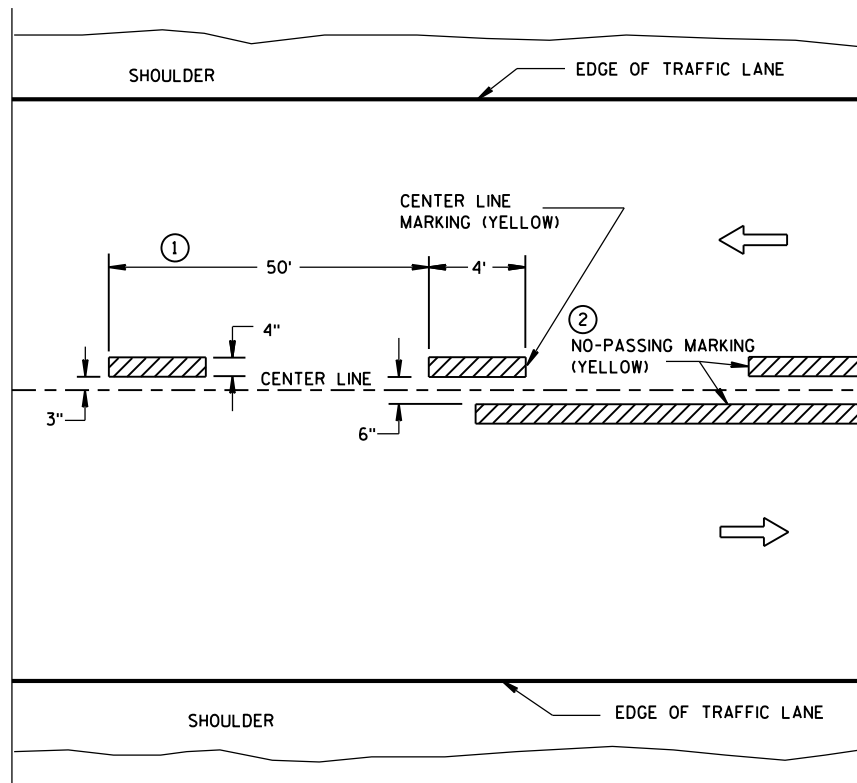


TWO WAY TRAFFIC

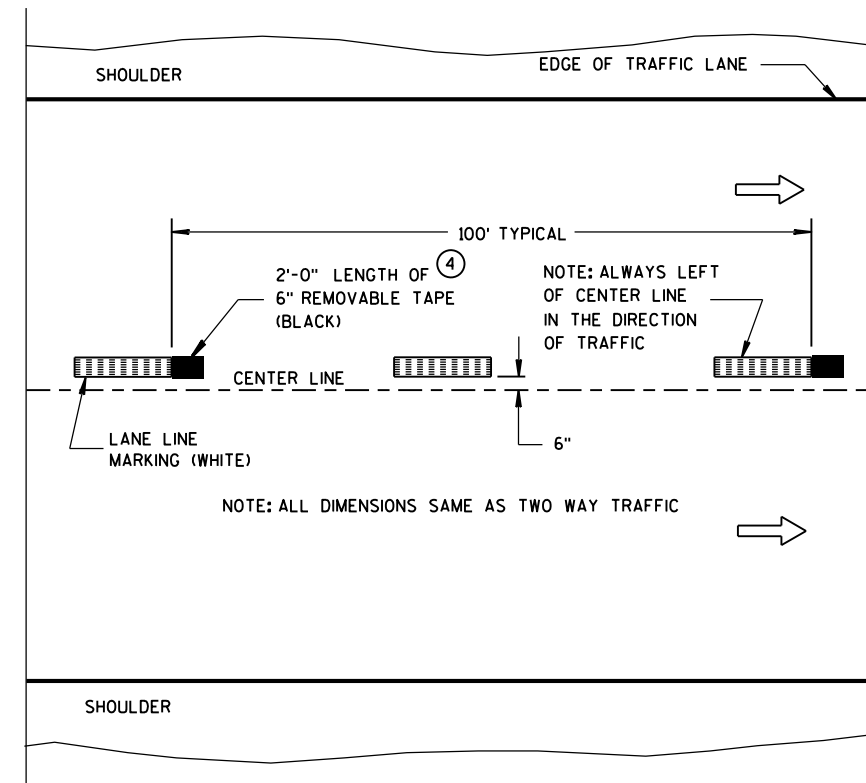


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING  
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

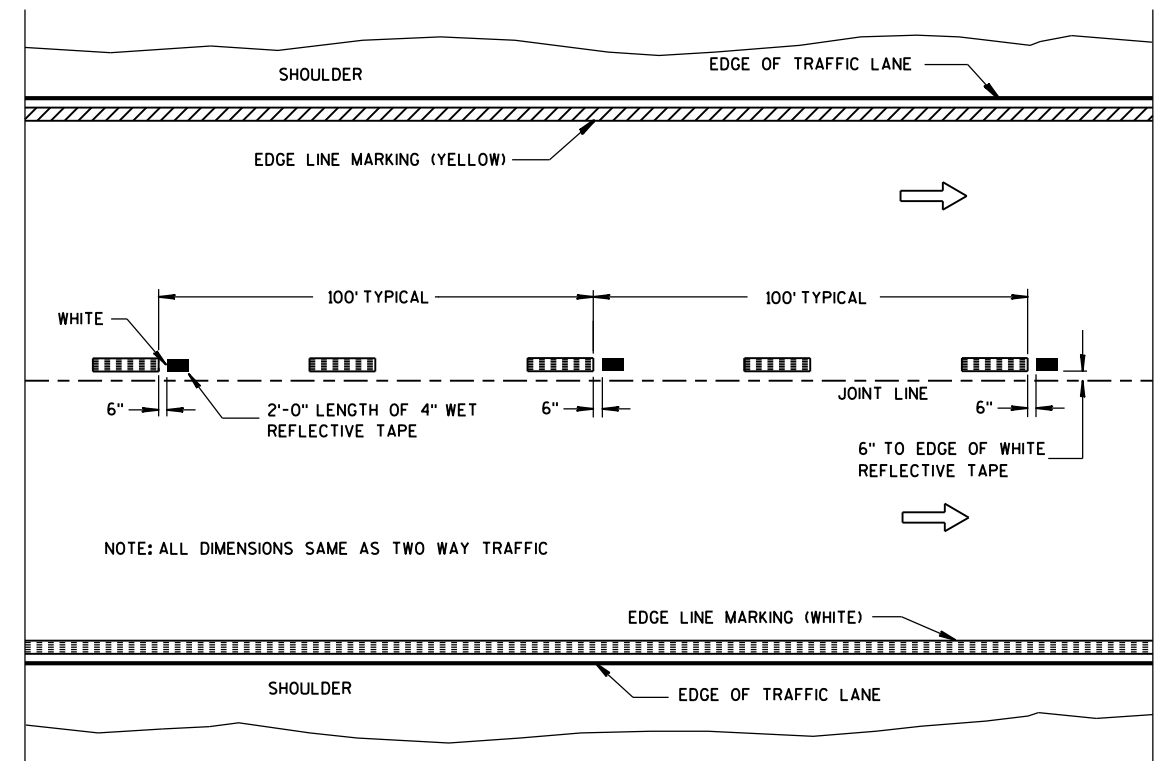
GENERAL NOTES

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

- 1 HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- 2 NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- 3 NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
- 4 CONCRETE ONLY.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO  
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

- "T" MARKING
- POST MOUNTED SIGN

PAVEMENT MARKING  
(MAINLINE)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
5-13-2013 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER  
FHWA



LEGEND

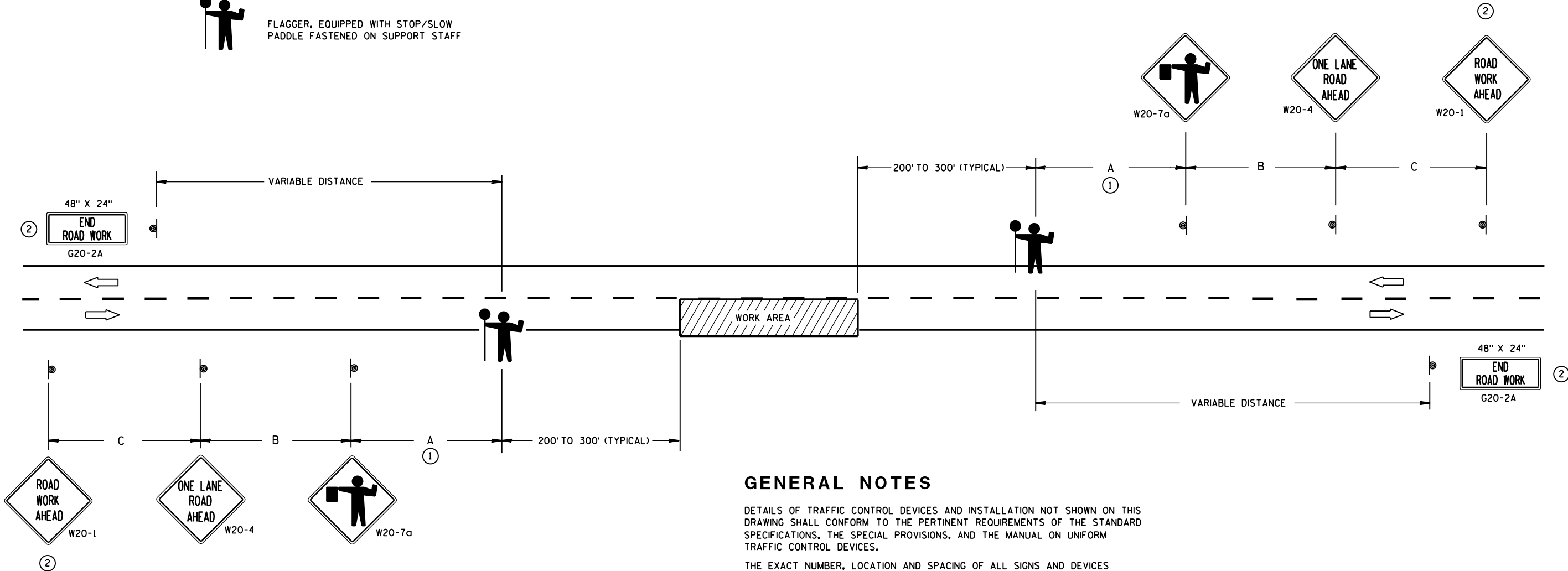
-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

SPEED LIMIT	SIGN SPACING A,B,C
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



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.

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

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

① FOR A MOVING WORK OPERATION, SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8/2013 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER OF DESIGN  
FHWA

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"W0" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

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. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

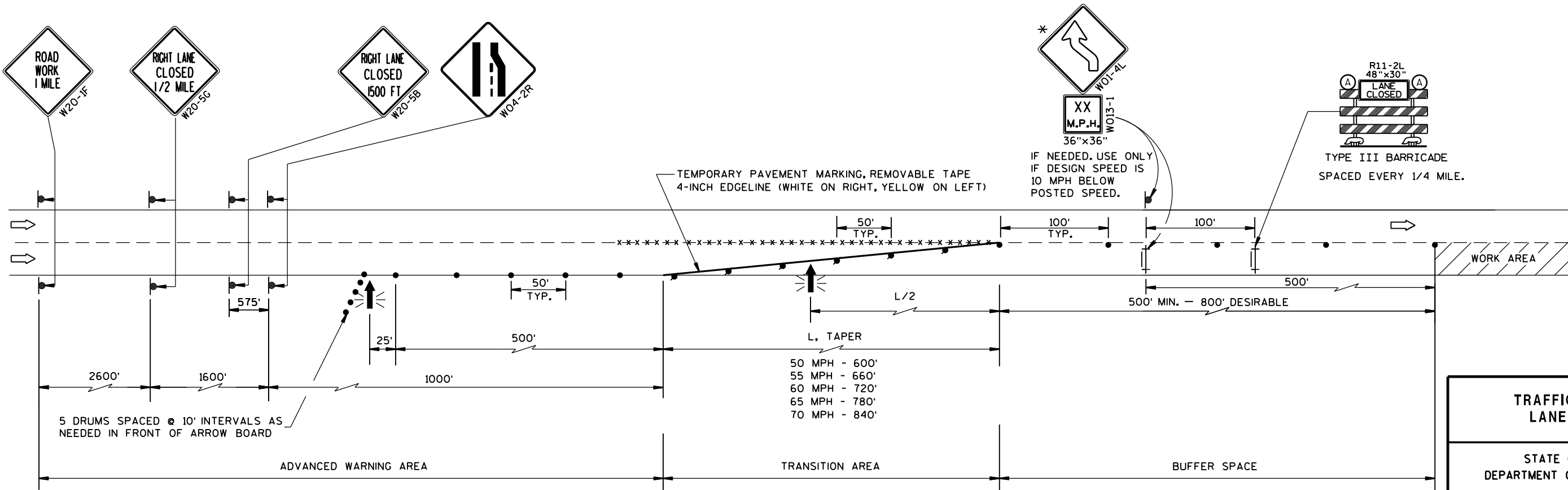
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

\* THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



TRAFFIC CONTROL, LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2016 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

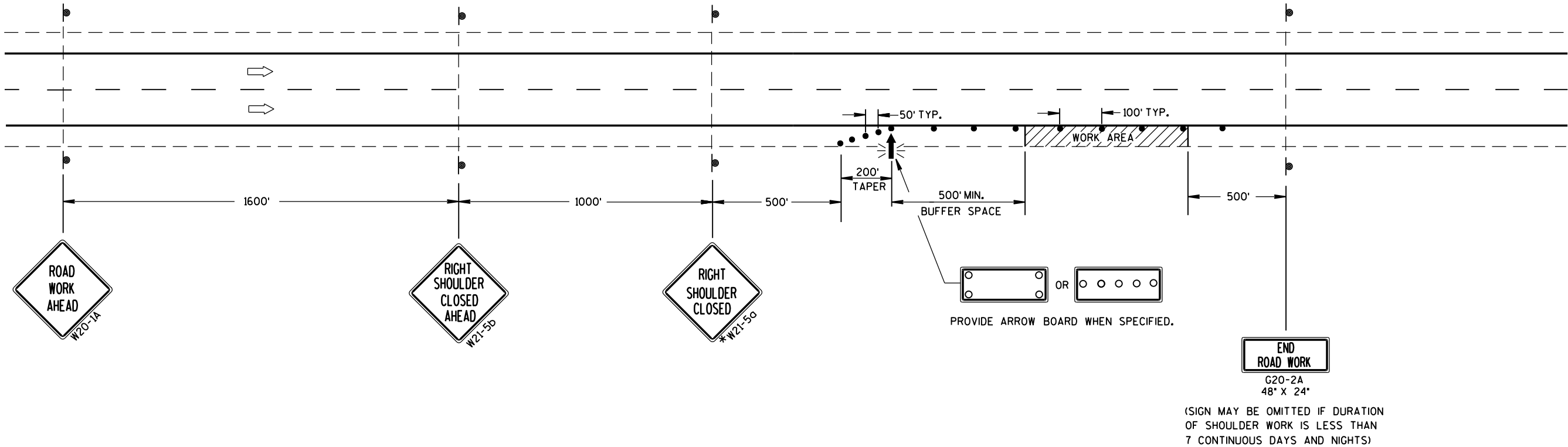
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

\*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL  
SHOULDER CLOSURE ON DIVIDED  
ROADWAY, SPEEDS GREATER  
THAN 40 MPH

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2016 /S/ Peter Amakobe Atepe  
DATE STATEWIDE WORK ZONE TRAFFIC  
FHWA SAFETY ENGINEER

LEGEND

- SIGN ON PERMANENT SUPPORT
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH ATTACHED SIGN
- CONCRETE BARRIER TEMPORARY PRECAST
- FLAGS, 16" x 16" MIN., (ORANGE)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ASPHALTIC PAVEMENT WIDENING
- DIRECTION OF TRAFFIC

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

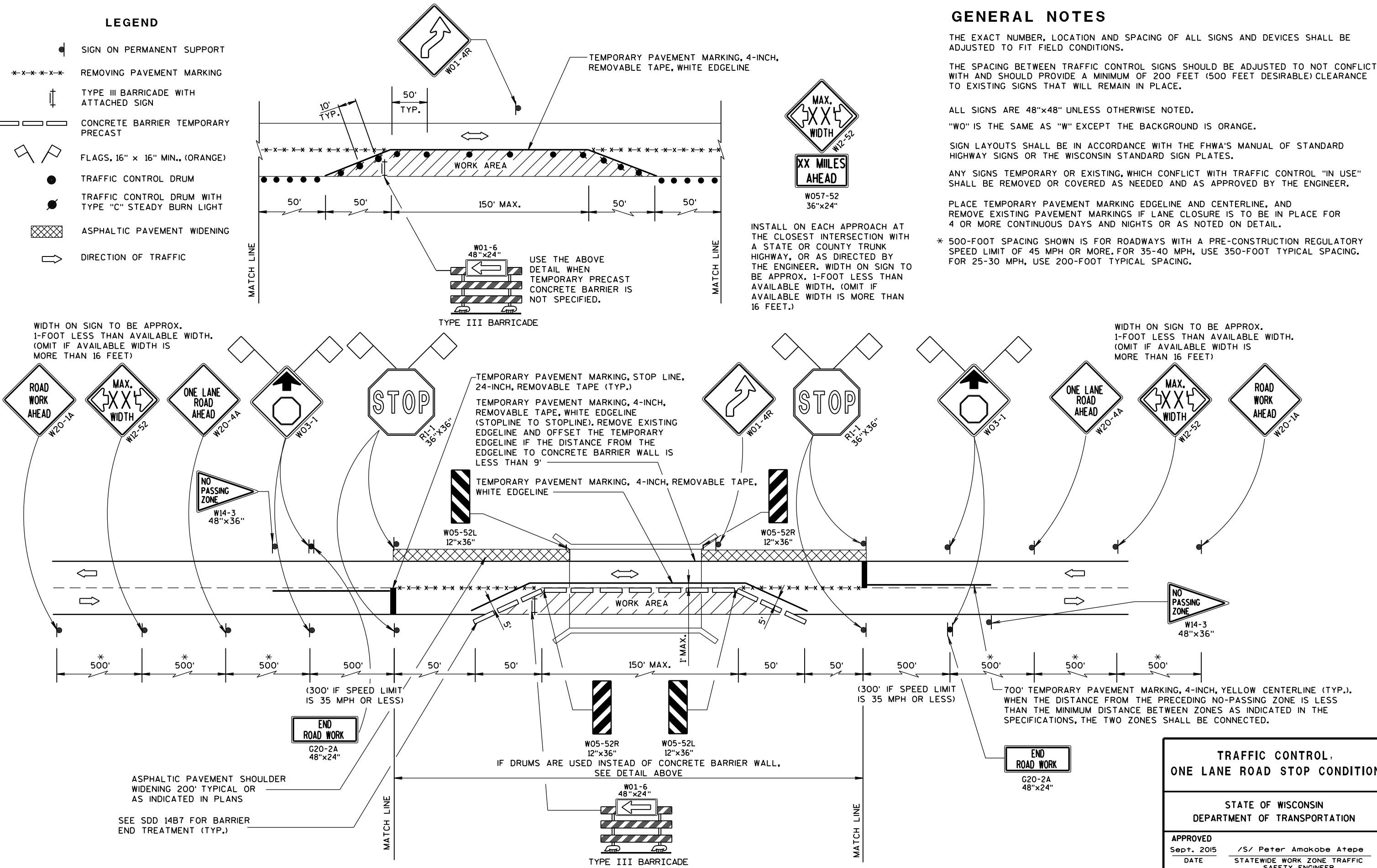
"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

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.

PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

\* 500-FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350-FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200-FOOT TYPICAL SPACING.



TRAFFIC CONTROL,  
ONE LANE ROAD STOP CONDITION

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

LEGEND

- SIGN ON PERMANENT SUPPORT
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH ATTACHED SIGN
- CONCRETE BARRIER TEMPORARY PRECAST
- FLAGS, 16" x 16" MIN., (ORANGE)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ASPHALTIC PAVEMENT WIDENING
- DIRECTION OF TRAFFIC
- 4" X 6" WOOD POST
- TEMPORARY SIGNAL WITH BACKPLATE AND 12-INCH LENSES ON BREAKAWAY POLE

INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET.)

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

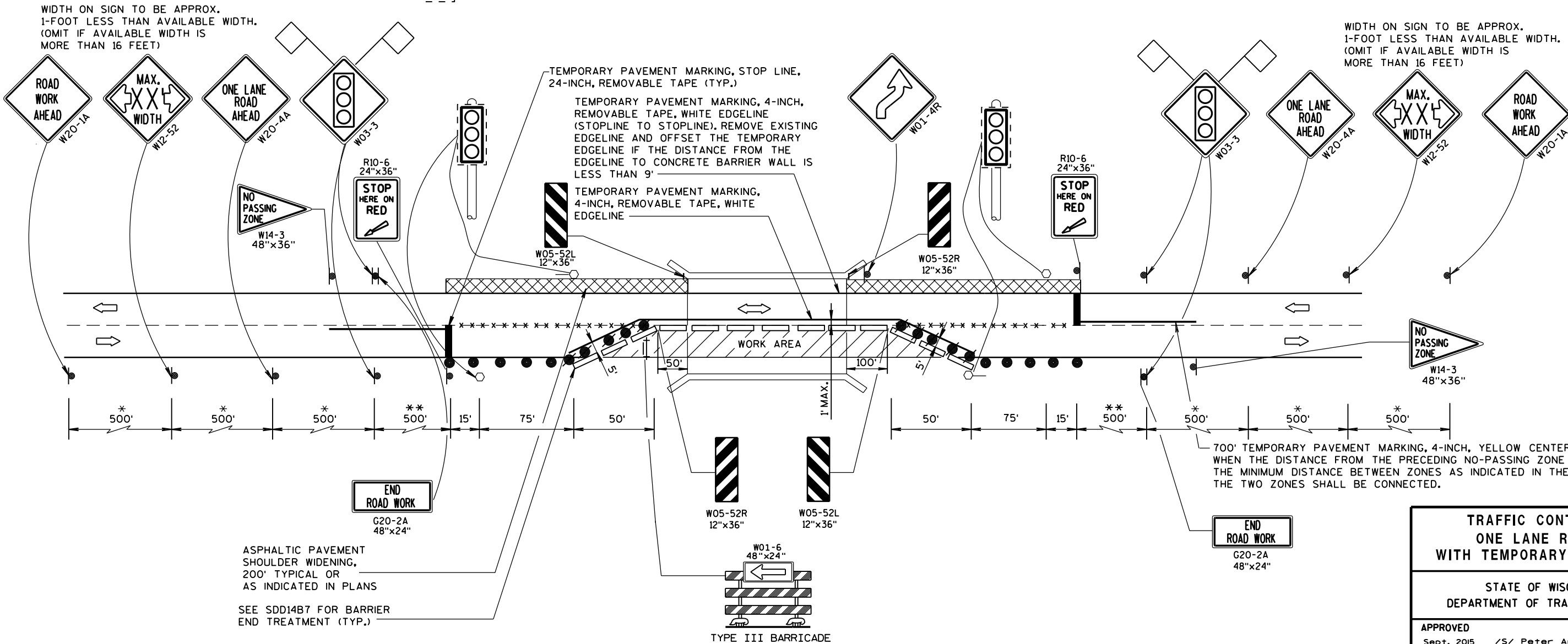
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

\* 500-FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350-FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200-FOOT TYPICAL SPACING.

\*\* USE 300' SPACING IF PRE-CONSTRUCTION REGULATORY SPEED LIMIT IS 35 MPH OR LESS.

6



6

TRAFFIC CONTROL,  
ONE LANE ROAD  
WITH TEMPORARY SIGNALS

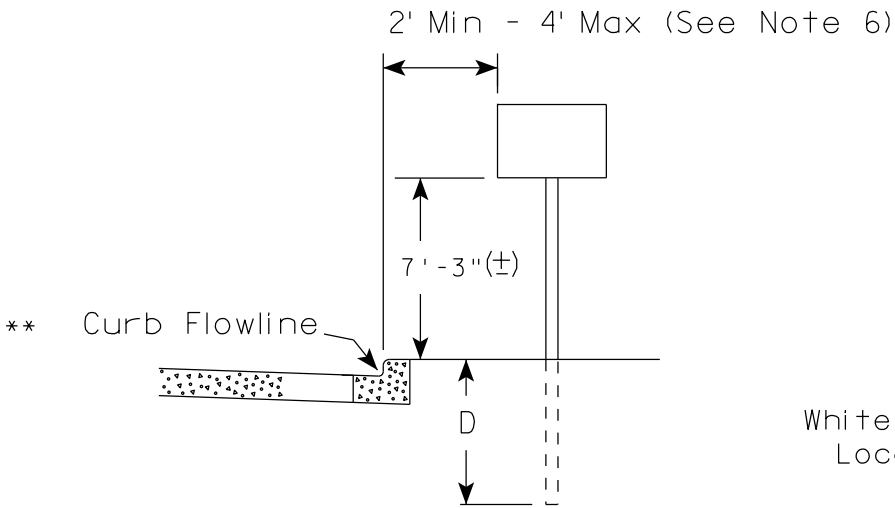
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

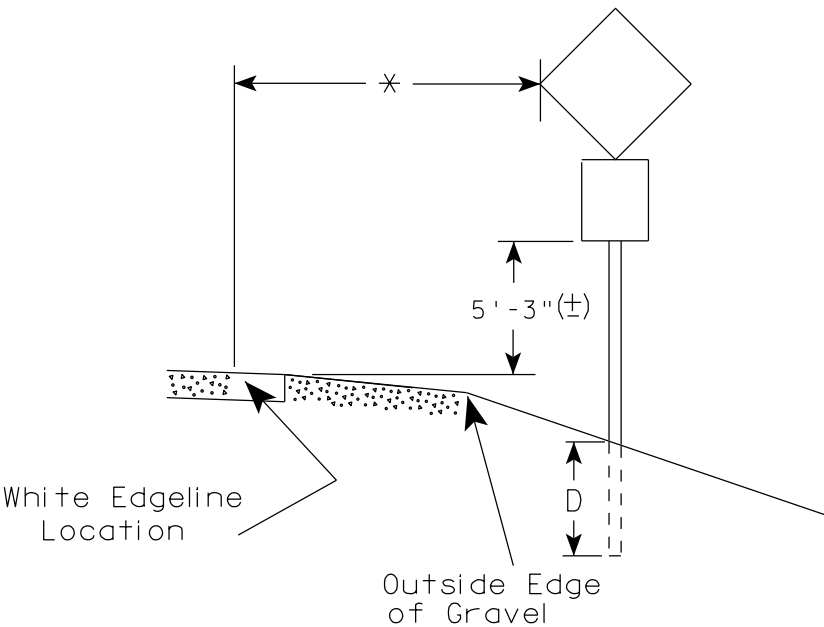
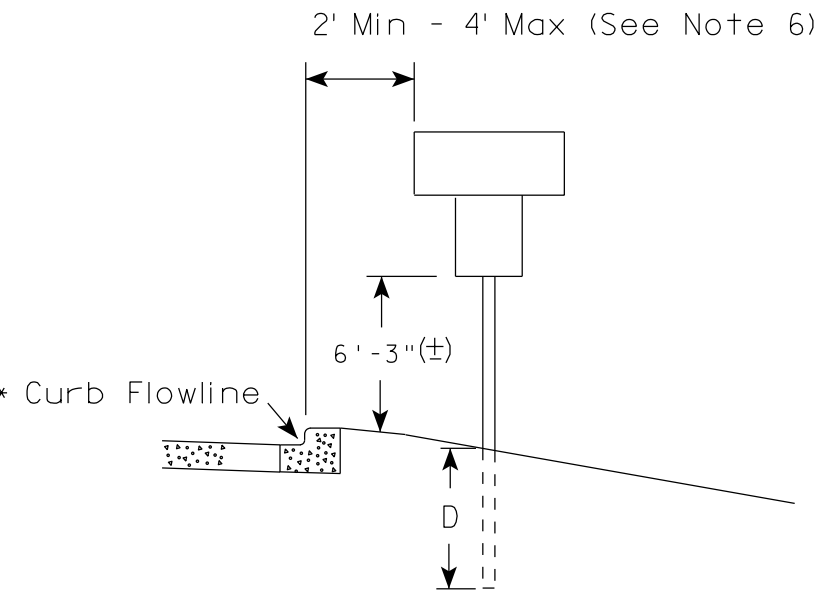
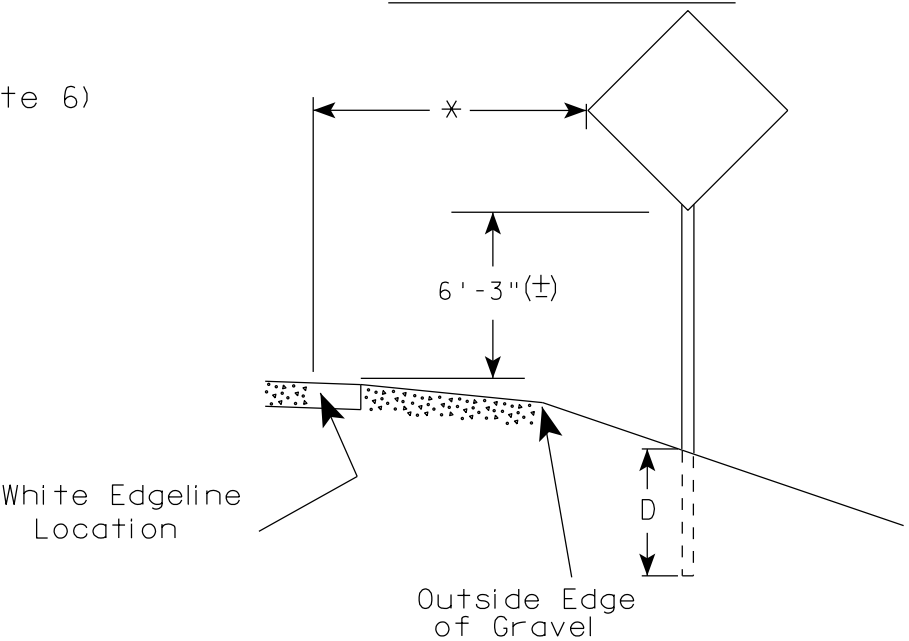
S.D.D. 15 D 33-4

S.D.D. 15 D 33-4

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.

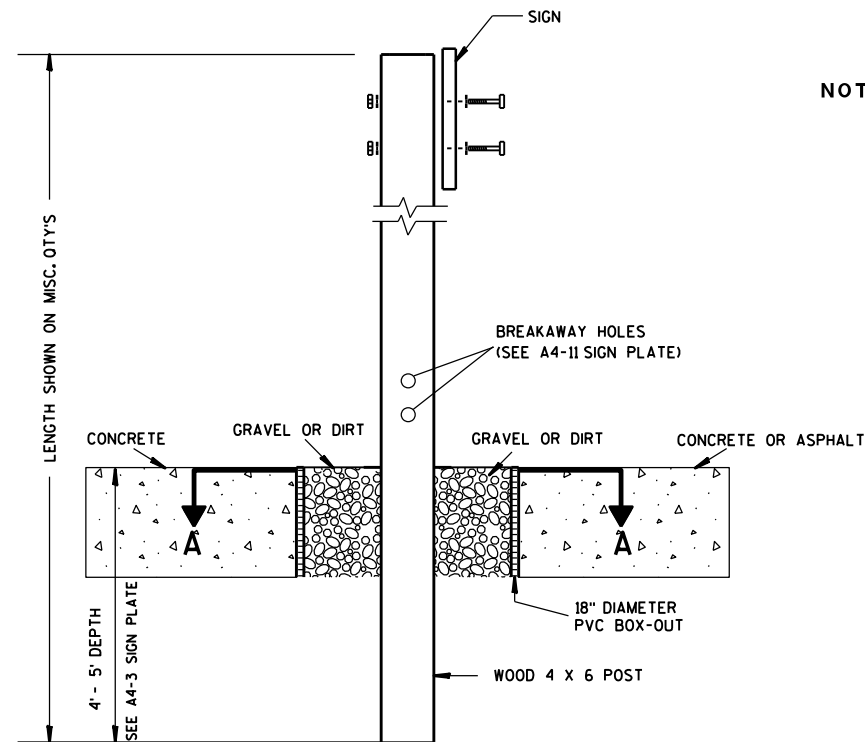
\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

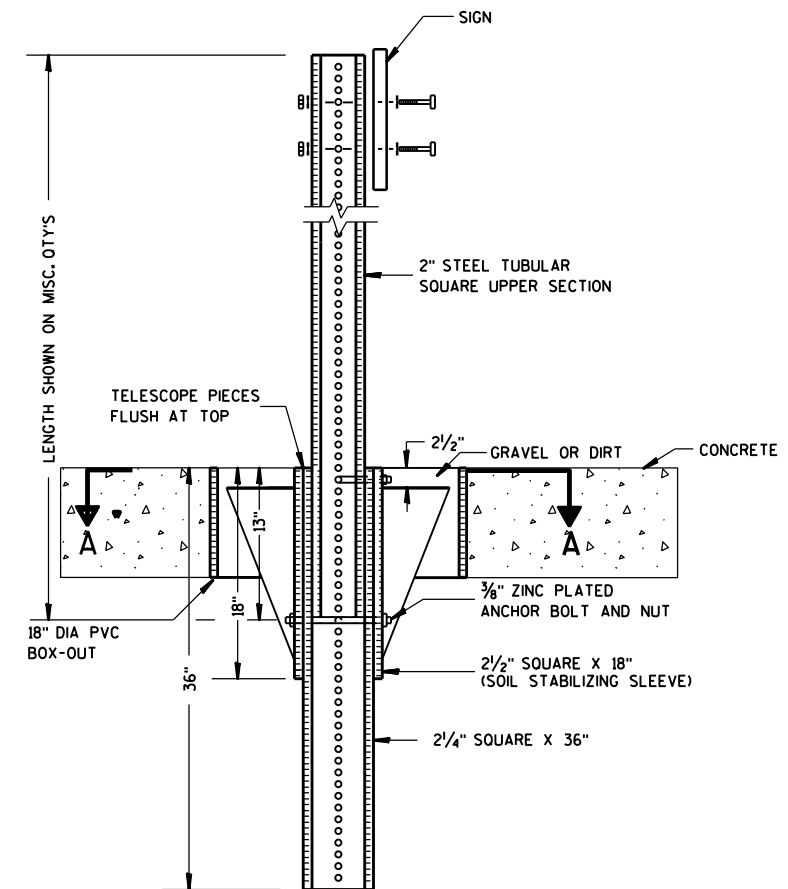
DATE 7/23/15 PLATE NO. A4-3.20



### ELEVATION VIEW

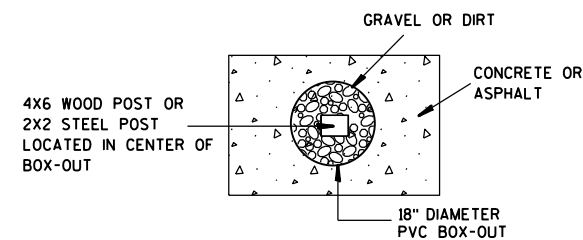
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



### ELEVATION VIEW

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



### PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST  
BOX-OUTS  
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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

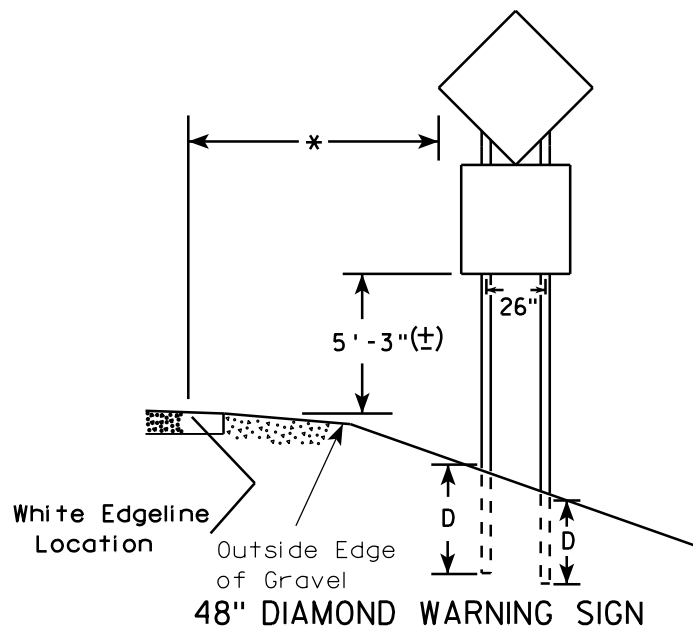
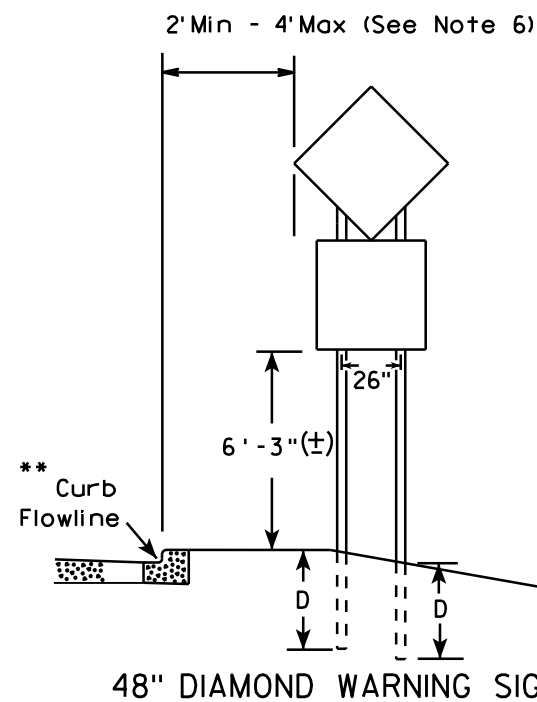
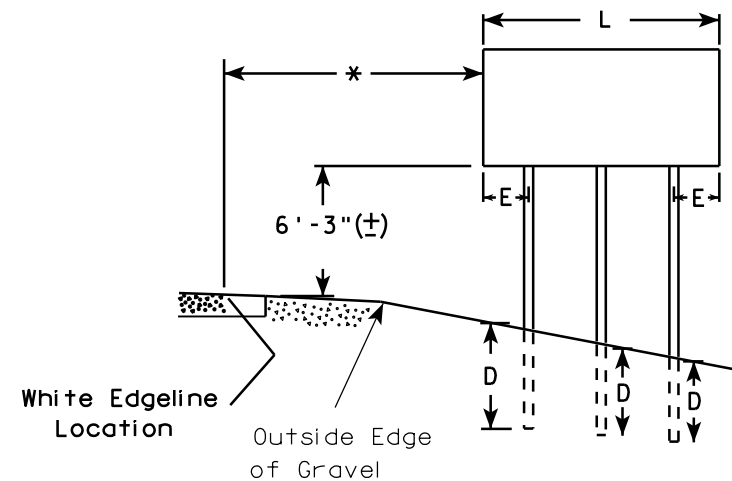
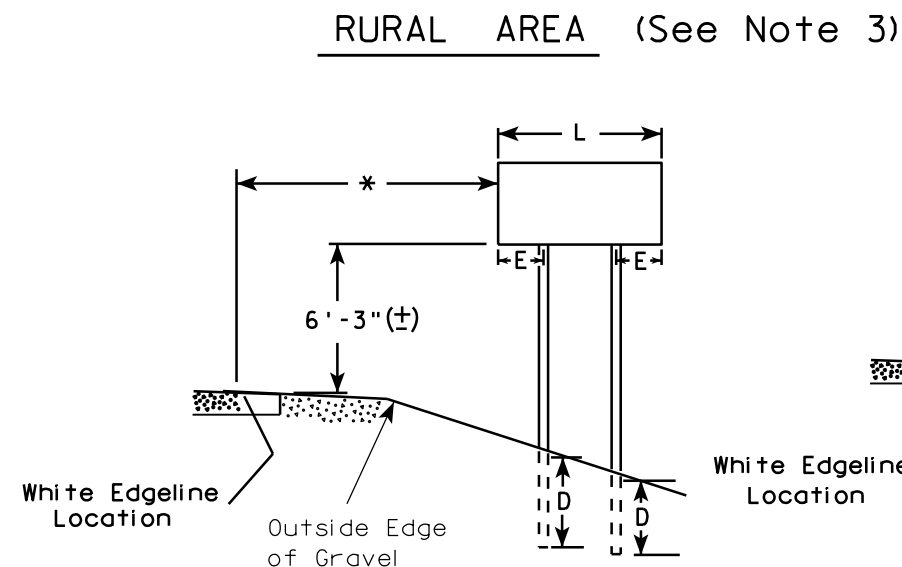
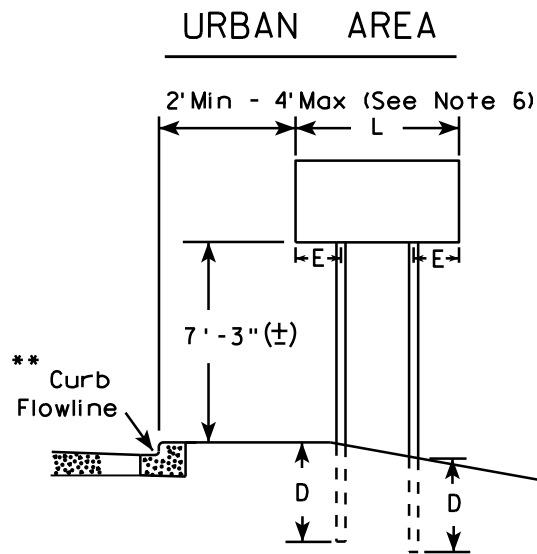
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



- GENERAL NOTES**
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
  2. See tables below for required number of posts.
  3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
  4. The (±) tolerance for mounting height is 3 inches.
  5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
  6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
  7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
  8. 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), 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" (±).

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

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

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

\*\*\*

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

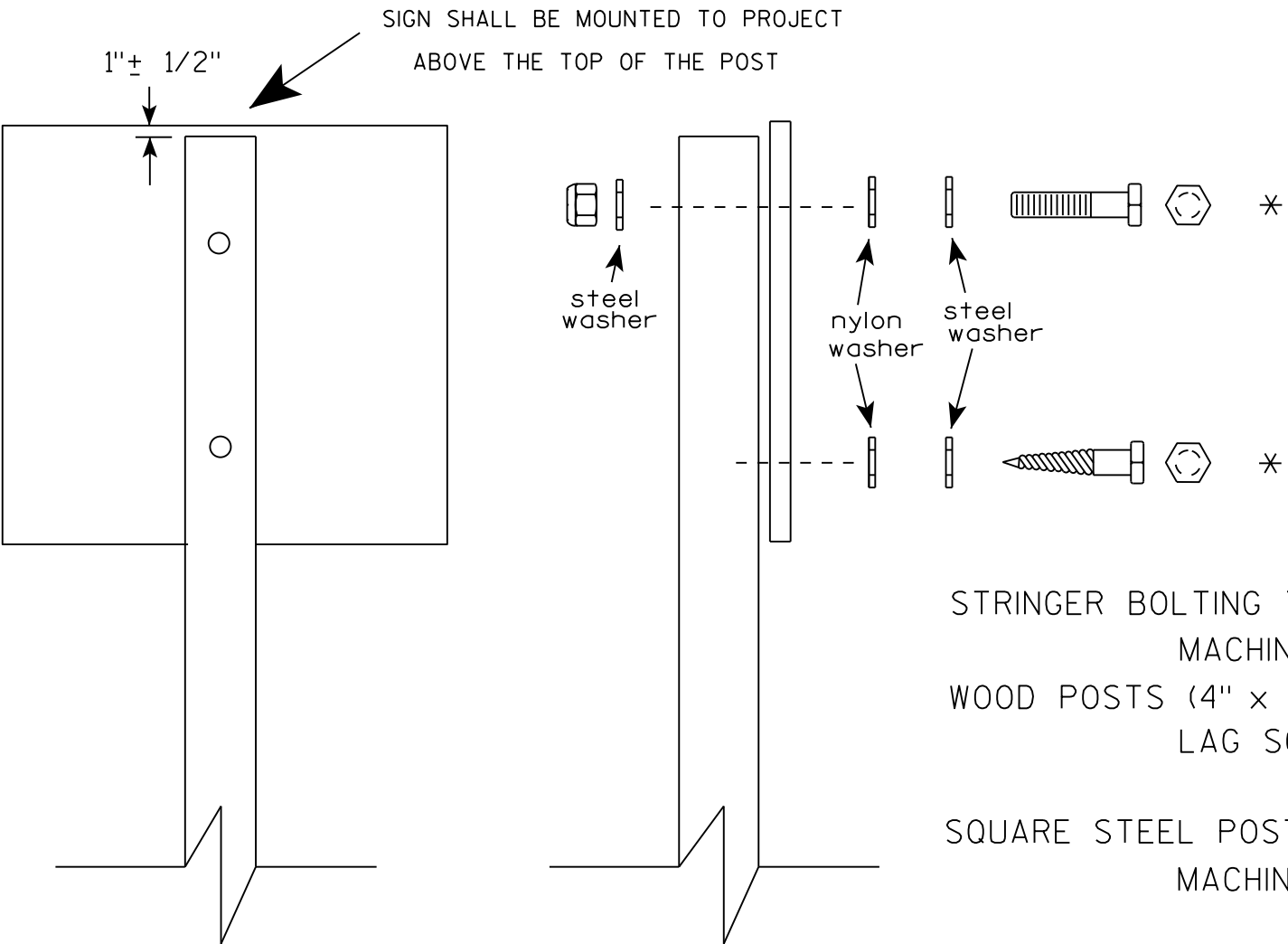
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 7/23/15	PLATE NO. A4-4.14





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

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

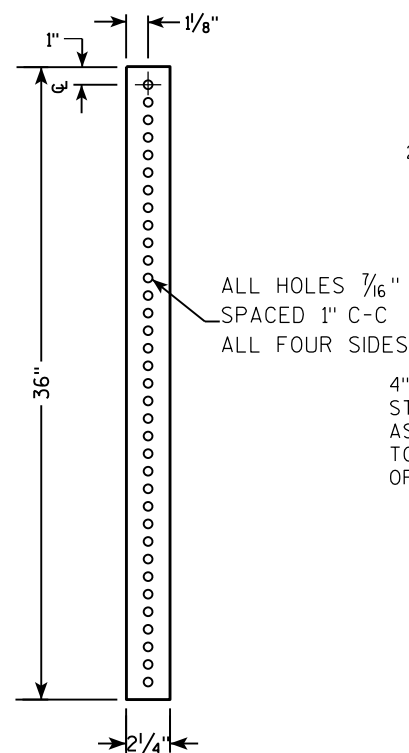
ATTACHMENT OF SIGNS  
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

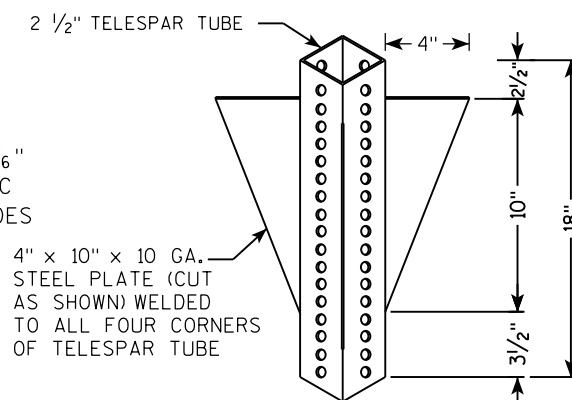
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8

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



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

[illegible]

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

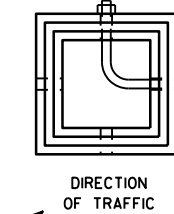
**Side View Dimensions:**

- Overall height: LENGTH SHOWN ON MISC. Q'TYS
- Top section: 2" STEEL TUBULAR SQUARE UPPER SECTION
- Telescope pieces: TELESCOPE PIECES FLUSH AT TOP
- Vertical dimensions from ground line: 36", 18", 12"
- Ground level: Indicated by a hatched line with downward arrows labeled 'A'.

**End View Details:**

- Top: SIGN
- Fasteners: SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
- Upper section: 2" STEEL TUBULAR SQUARE UPPER SECTION
- Drilling: ALL HOLES  $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES
- Corner fasteners:  $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT (1" from corner)
- Ground anchors:  $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
- Soil stabilizing sleeve: 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
- Base post: 2 1/4" SQUARE X 36"

3/8" ZINC PLATED CORNER  
ANCHOR BOLT AND NUT



SECTION A-A

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

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

TUBULAR STEEL  
SIGN POST  
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthaeus R. Rauch

for State Traffic Engineer

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

PROJECT NO:

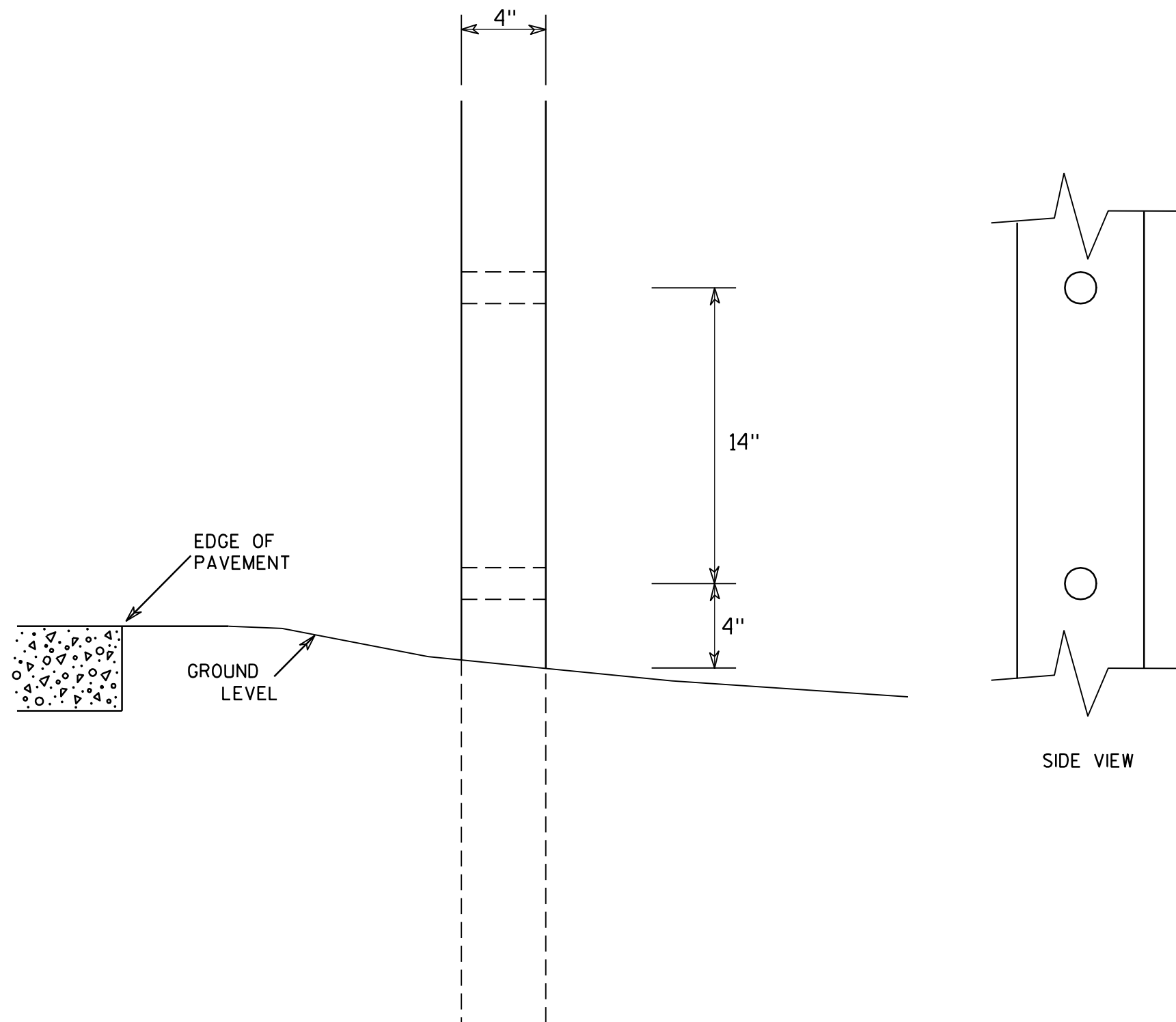
HWY:

COUNTY:

SHEET NO:

E

7



### GENERAL NOTES

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

7

### 4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Chester J. Spang*  
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

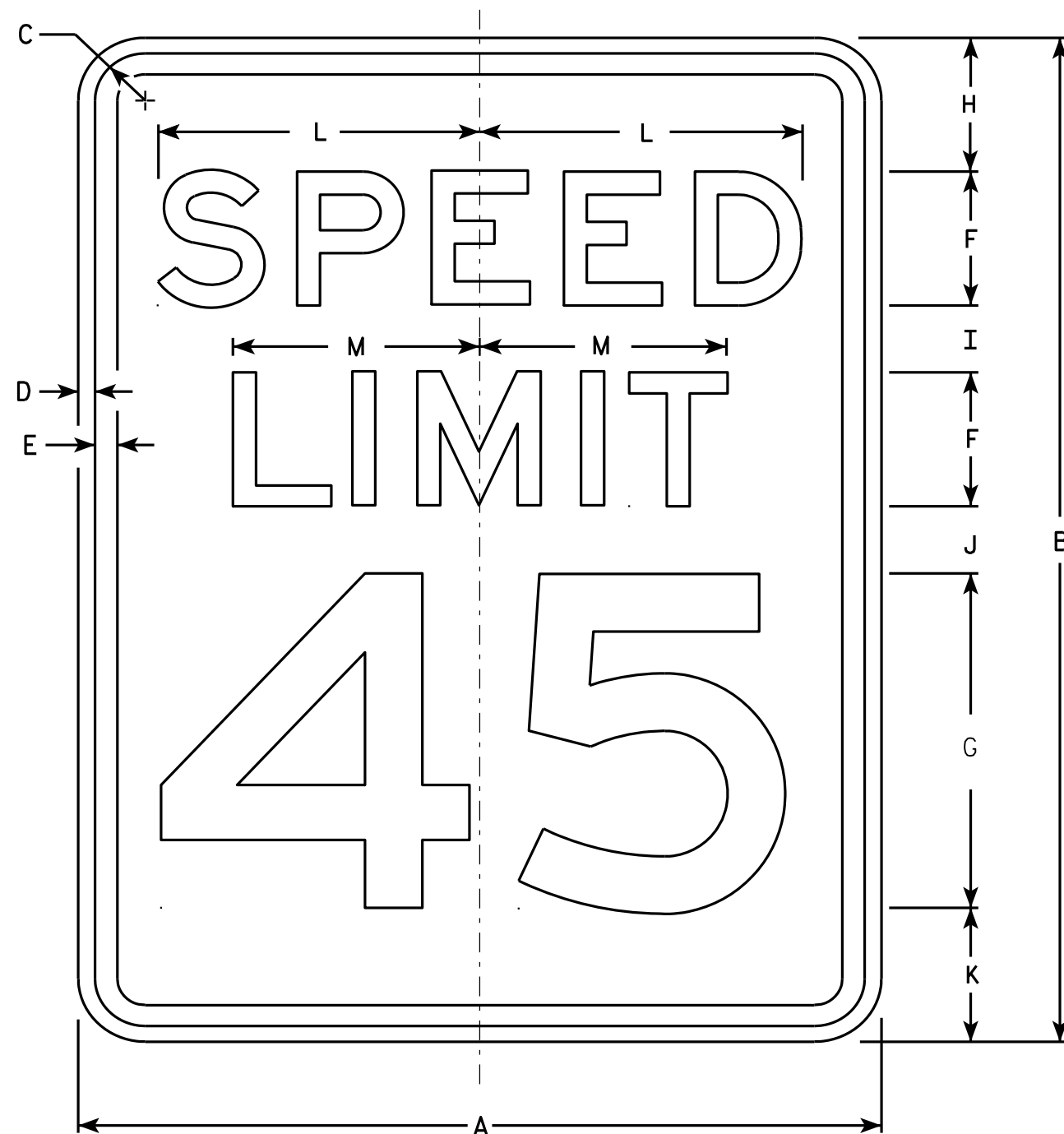
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



R2-1

NOTES

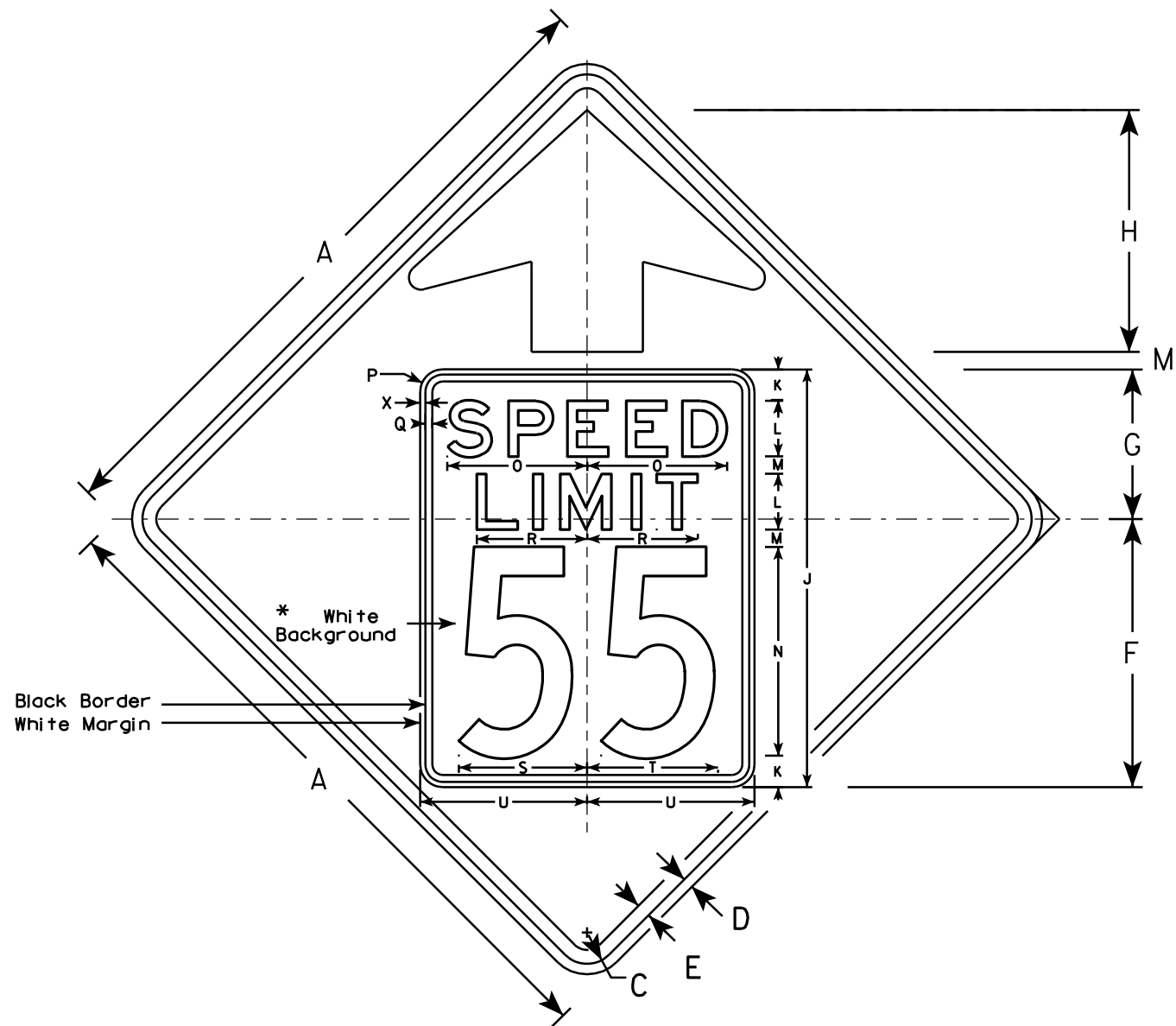
1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

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	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

STANDARD SIGN  
R2-1

WISCONSIN DEPT OF TRANSPORTATION  
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer  
DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO: HWY: COUNTY: SHEET NO: E

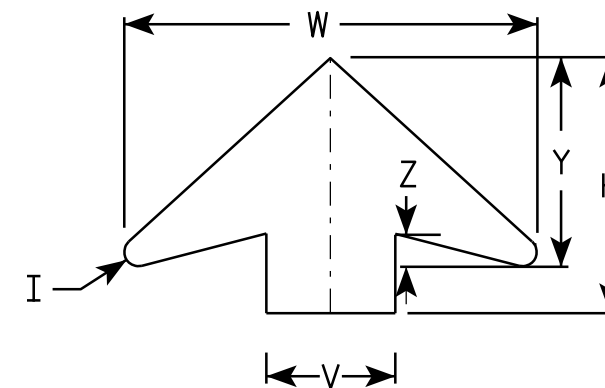


W3-5

### 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. Message Series - C for numbers Series E for wording
4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

\*Speed Limit Sign shall have a White Background



ARROW DETAIL

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	36		1 5⁄8	5⁄8	3⁄4	14 1⁄2	9 1⁄2	11 1⁄2	5⁄8	24	2	3	1	12	7 1⁄8	1 1⁄2	3⁄8	5 3⁄4	7 1⁄4	7 1⁄8	9	6	19 1⁄4	3⁄8	9 3⁄4	1 5⁄8	9.0
2M	36		1 5⁄8	5⁄8	3⁄4	14 1⁄2	9 1⁄2	11 1⁄2	5⁄8	24	2	3	1	12	7 1⁄8	1 1⁄2	3⁄8	5 3⁄4	7 1⁄4	7 1⁄8	9	6	19 1⁄4	3⁄8	9 3⁄4	1 5⁄8	9.0
3	36		1 5⁄8	5⁄8	3⁄4	14 1⁄2	9 1⁄2	11 1⁄2	5⁄8	24	2	3	1	12	7 1⁄8	1 1⁄2	3⁄8	5 3⁄4	7 1⁄4	7 1⁄8	9	6	19 1⁄4	3⁄8	9 3⁄4	1 5⁄8	9.0
4	48		2 1⁄4	3⁄4	1	19 1⁄4	10 3⁄4	17 3⁄8	7⁄8	30	2 1⁄4	4	1 1⁄4	15	10	1 5⁄8	1⁄2	8	9 1⁄4	9 3⁄8	12	8	25 5⁄8	3⁄8	13	2	16.0
5	48		2 1⁄4	3⁄4	1	19 1⁄4	10 3⁄4	17 3⁄8	7⁄8	30	2 1⁄4	4	1 1⁄4	15	10	1 5⁄8	1⁄2	8	9 1⁄4	9 3⁄8	12	8	25 5⁄8	3⁄8	13	2	16.0

### STANDARD SIGN

W3-5

WISCONSIN DEPT OF TRANSPORTATION

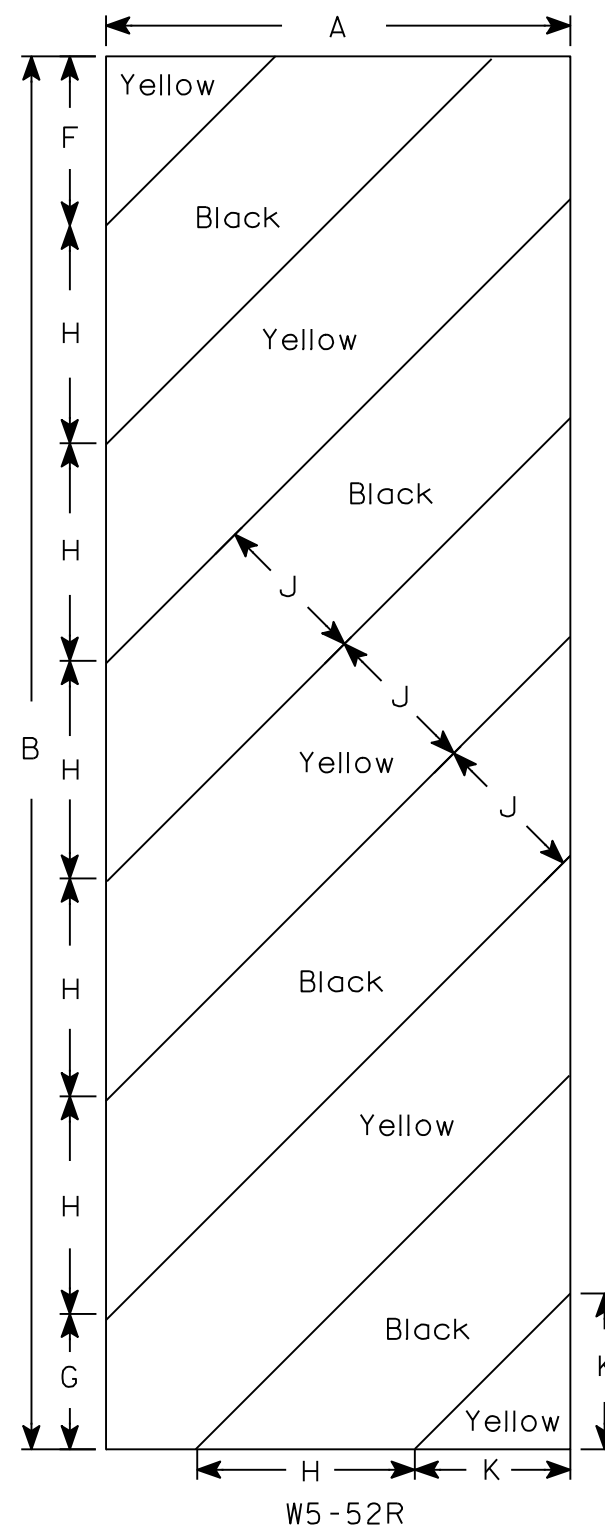
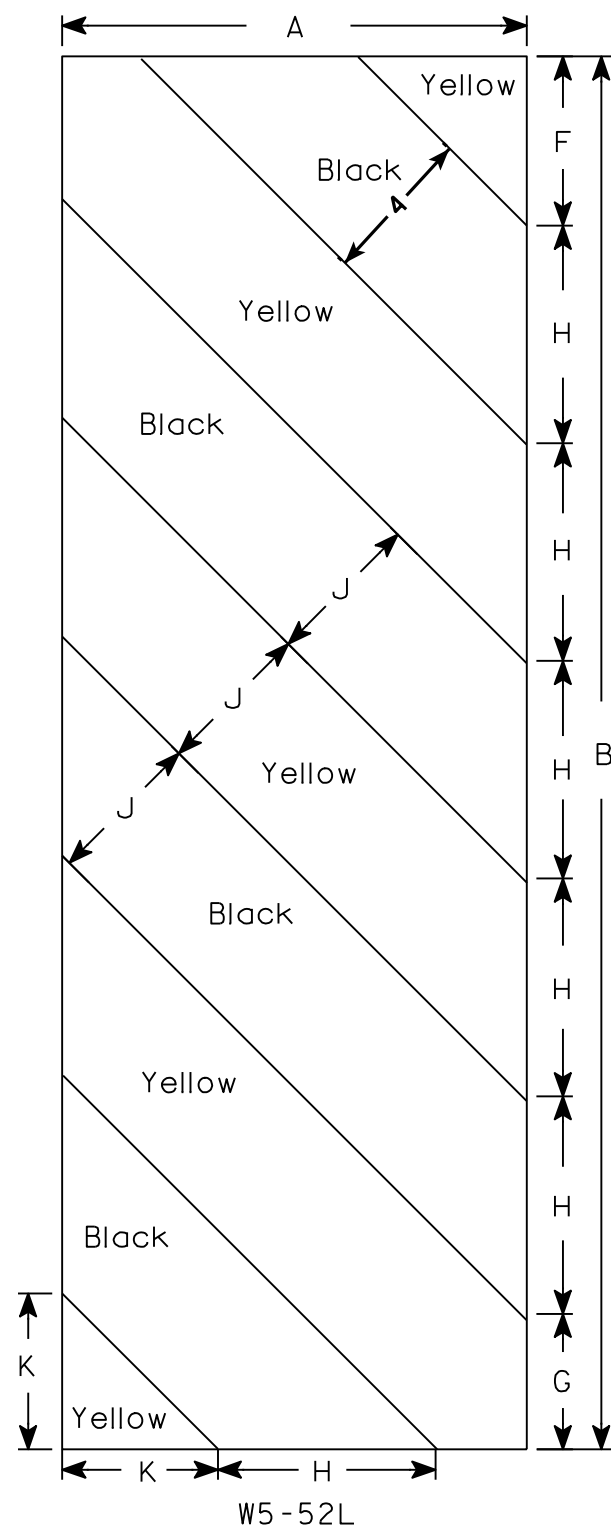
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W3-5.5

PROJECT NO:

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

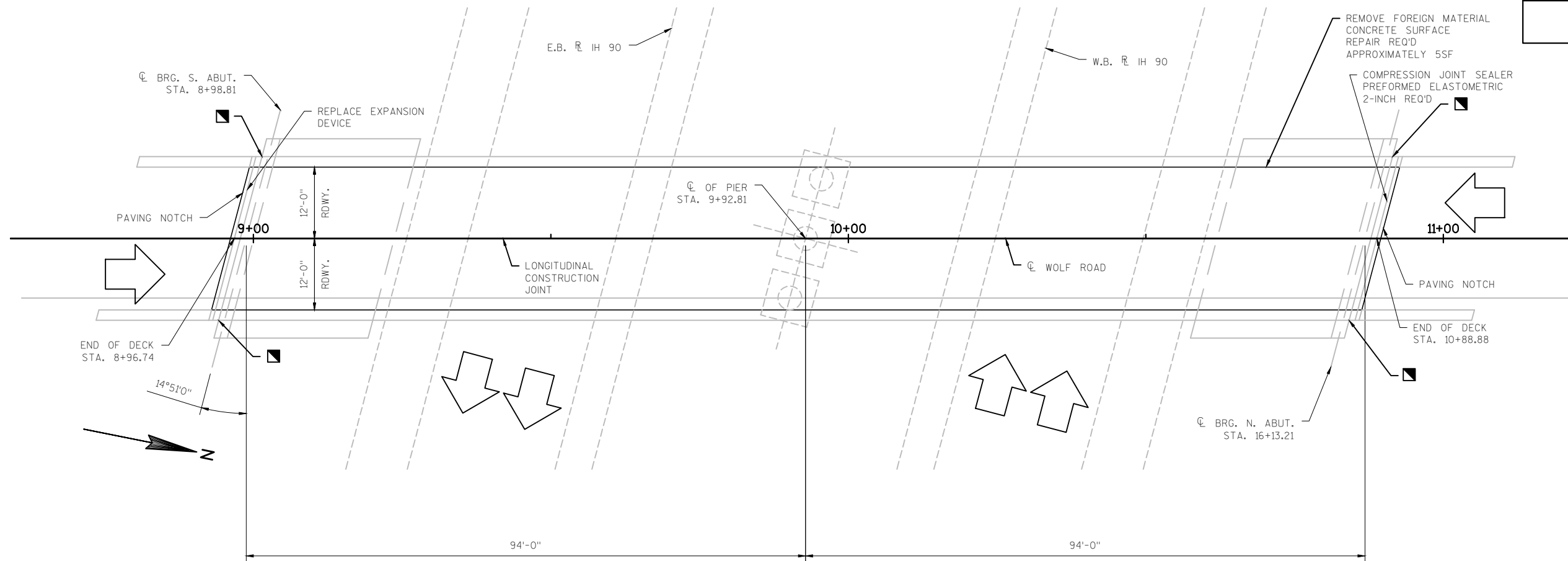
PROJECT NO:

HWY:

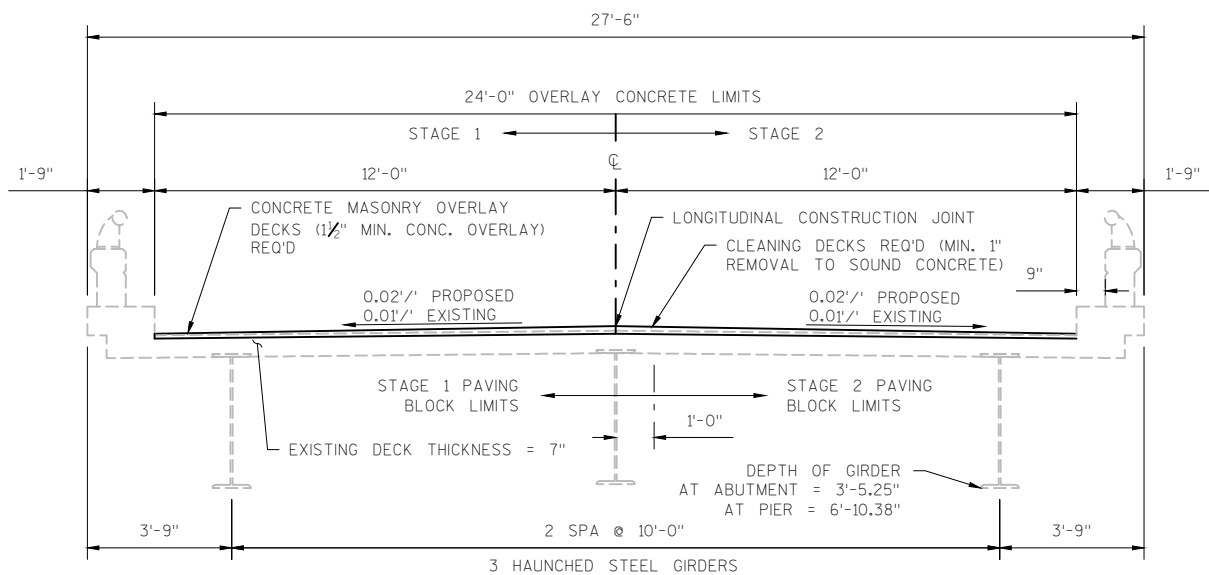
COUNTY:

SHEET NO:

E



PLAN - B-32-60  
2 SPAN - STEEL GIRDER



CROSS SECTION THRU ROADWAY  
LOOKING NORTH

## LIST OF DRAWINGS

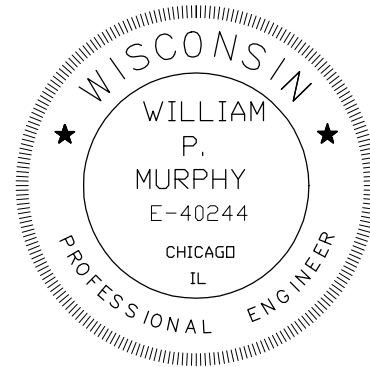
1. GENERAL PLAN
2. QUANTITIES AND DETAILS
3. EXPANSION DEVICE
4. EXPANSION DEVICE

## DESIGN DATA

LIVE LOAD  
DESIGN LOADING: HS-20  
INVENTORY RATING: HS-12  
OPERATIONAL RATING: HS-20  
WISCONSIN STANDARD PERMIT VEHICLE LOAD:  
WIS-SPV: 140 KIPS  
MATERIAL PROPERTIES:  
CONCRETE MASONRY, OVERLAY DECKS -----  $f'_c$  = 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.

## TRAFFIC DATA

A.A.D.T. = 40 (2017)  
A.A.D.T. = 45 (2037)  
A.S. = 45 MPH



11/21/2016  
DATE

SIGNATURE

BRIDGE OFFICE CONTACT

WILLIAM DREHER, PE  
(608) 266-8489

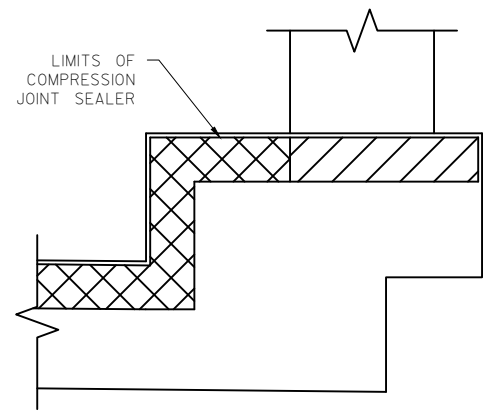
DESIGN CONSULTANT

ALEX DWORAK  
(608) 519-1455

## LEGEND

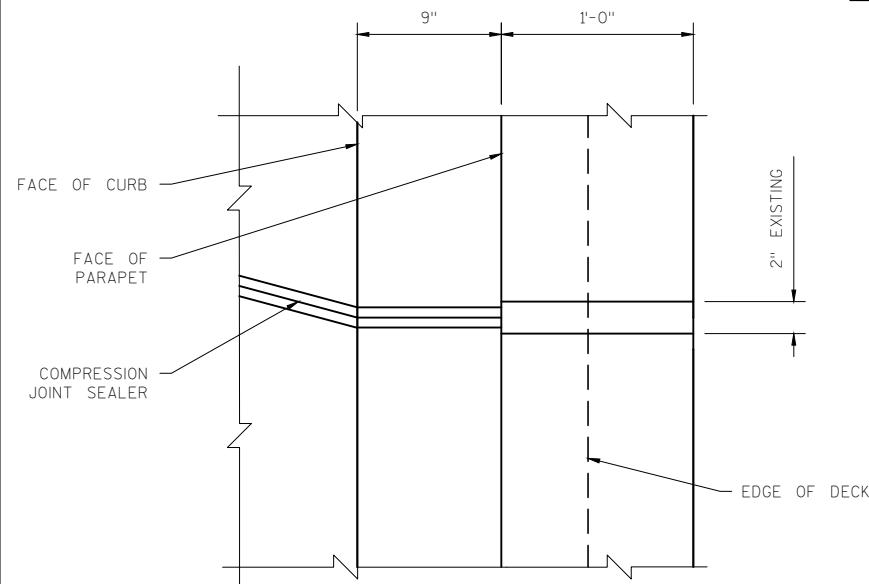
- CONCRETE SURFACE REPAIR REQUIRED AT WING WALL/ABUTMENT. APPROXIMATE QUANTITIES FOR EACH QUADRANT ARE LISTED BELOW.
- |             |        |
|-------------|--------|
| NW QUADRANT | = 25SF |
| SW QUADRANT | = 10SF |
| NE QUADRANT | = 10SF |
| SE QUADRANT | = 5SF  |

NO.	DATE	REVISION	BY
<b>KNIGHT</b> 700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>William C. Dreher</i> SDR 11/22/16 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE <b>B-32-60</b>			
WOLF ROAD OVER IH 90			
COUNTY	LA CROSSE	TOWN	BANGOR
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	AFD	DESIGN CK'D	WPM
DRAWN BY	AFD	PLANS CK'D	WPM
GENERAL PLAN			SHEET 1 OF 4

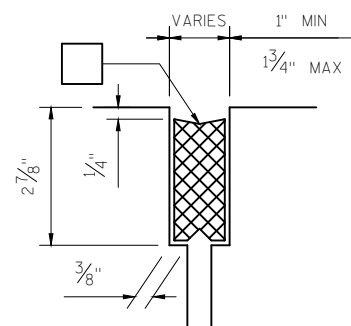


COMPRESSION SEALER LIMITS

- COMPRESSION SEALER
- CAULK AND BACKER ROD



PLAN



COMPRESSION JOINT DETAIL

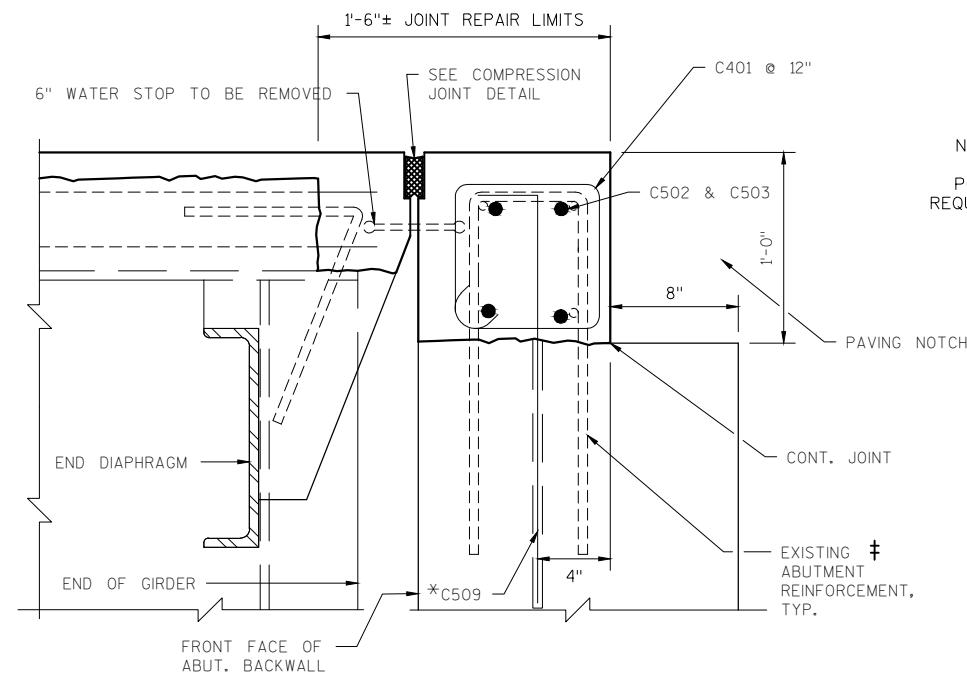
- MANUFACTURER MUST LABEL TOP OF SEAL

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEM DESCRIPTION	UNIT	TOTAL
502.0717.S	CRACK SEALING EPOXY	LF	30
502.2000	COMPRESSION JOINT SEALER PREFORMED ELASTOMERIC (2-INCH)	LF	27
502.3100	EXPANSION DEVICE (B-32-60)	LS	1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	513
502.3210	PIGMENTED SURFACE SEALER	SY	123
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	20
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	830
505.0906	BAR COUPLERS NO. 6	EACH	5
509.0301	PREPARATION DECKS TYPE 1	SY	12
509.0302	PREPARATION DECKS TYPE 2	SY	2
509.0500	CLEANING DECKS	SY	513
509.1000	JOINT REPAIR	SY	15
509.1200	CURB REPAIR	LF	7
509.1500	CONCRETE SURFACE REPAIR	SF	55
509.2000	FULL-DEPTH DECK REPAIR	SY	2
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	34

LEGEND

- \* MASONRY ANCHORS TYPE L NO. 5 BARS. EMBED A MINIMUM OF 1'-6" INTO CONCRETE. SPACE AT 1'-0". TURN 10" AS NECESSARY TO FIT.
- ‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY \*.



SECTION THRU JOINT AT NORTH ABUTMENT

NORMAL TO  $\phi$  SUBSTRUCTURE

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED OFF OF ORIGINAL STRUCTURE PLANS, INSPECTION REPORTS & FIELD SURVEY.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1-1/2" PLACED ABOVE THE DECK SURFACE AFTER CLEANING THE DECK. EXPECTED AVERAGE OVERLAY THICKNESS IS 2-1/2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR JOINT REPAIRS IS INCIDENTAL TO THE BID ITEM, "CONCRETE MASONRY OVERLAY DECKS".

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER BID ITEM "CLEANING DECKS", BUT LESS THAN 1-1/2" MAXIMUM.

PREPARATION DECKS, FULL DEPTH REPAIR, AND CONCRETE SURFACE REPAIR SHALL BE DETERMINED BY FIELD ENGINEER.

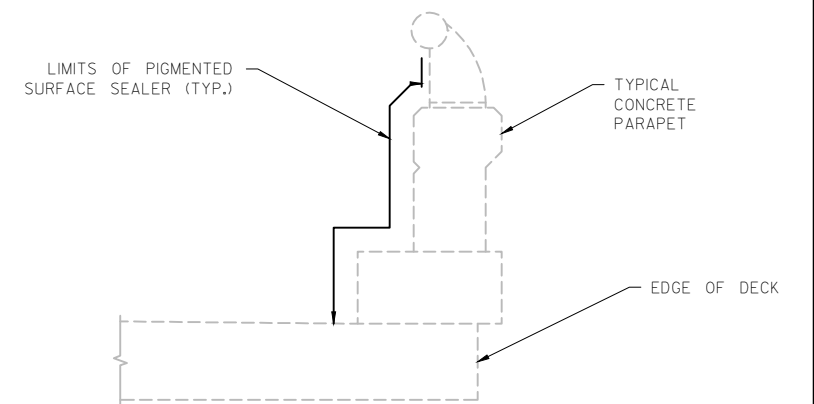
ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAW CUT.

CLEAN AND FILL EXISTING LONGITUDINAL AND TRANSVERSE CRACKS WITH PENETRATING EPOXY AFTER DECK PREP AND PRIOR TO OVERLAY AS DIRECTED BY THE FIELD ENGINEER.

EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID FOR IN THE LUMP SUM PRICE BID AS "EXPANSION DEVICE B-32-60".

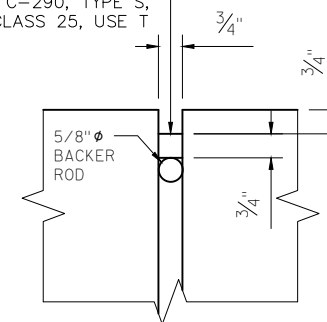
UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

AT "CURB REPAIR" EXPOSE EXISTING REINFORCEMENT A MINIMUM OF 1-1/2" CLEAR.



PIGMENTED SURFACE SEALER DETAIL

NON-STAINING GRAY ONE COMPONENT  
NON-SAG ELASTOMERIC GUN GRADE  
POLYURETHANE SEALANT MEETING THE  
REQUIREMENTS OF ASTM C-290, TYPE S,  
GRADE NS, CLASS 25, USE T

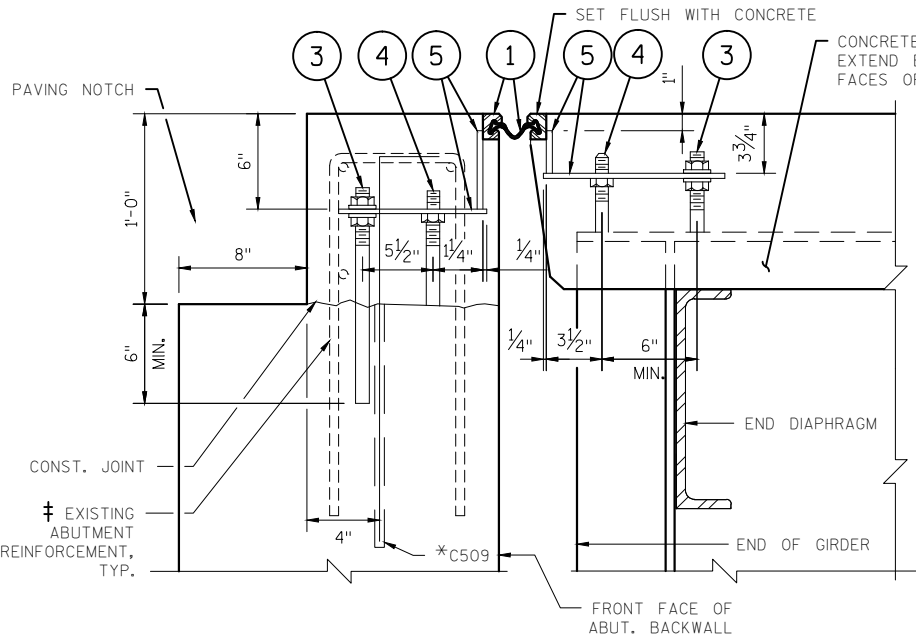


PARAPET JOINT DETAIL

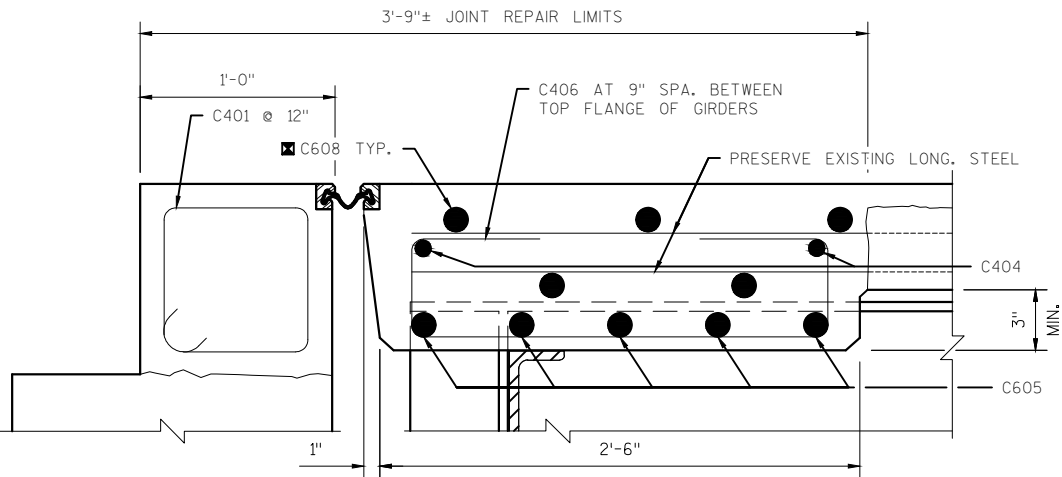
WORK PERFORMED BY INSTALLING BACKER ROD AND CAULK IS INCIDENTAL TO BID ITEM "COMPRESSION JOINT SEALER PREFORMED ELASTOMERIC (2-INCH)"

STATE PROJECT NUMBER			
1077-01-64			
8			
NO.	DATE	REVISION	BY
KNIGHT 700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-32-60			
DRAWN BY AFD		PLANS CK'D. WPM	
QUANTITIES AND DETAILS		SHEET 2 OF 4	

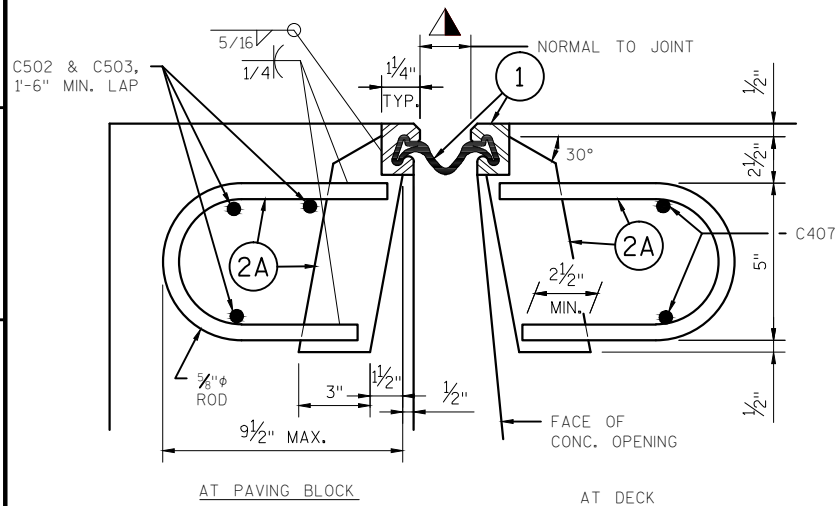




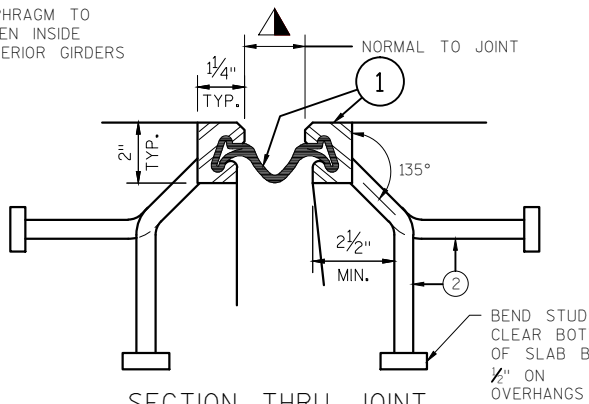
SECTION THRU JOINT AT SOUTH ABUTMENT  
NORMAL TO  $\phi$  SUBSTRUCTURE



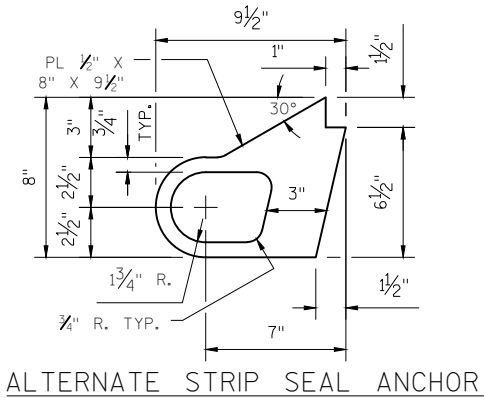
SECTION THRU JOINT AT SOUTH ABUTMENT  
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



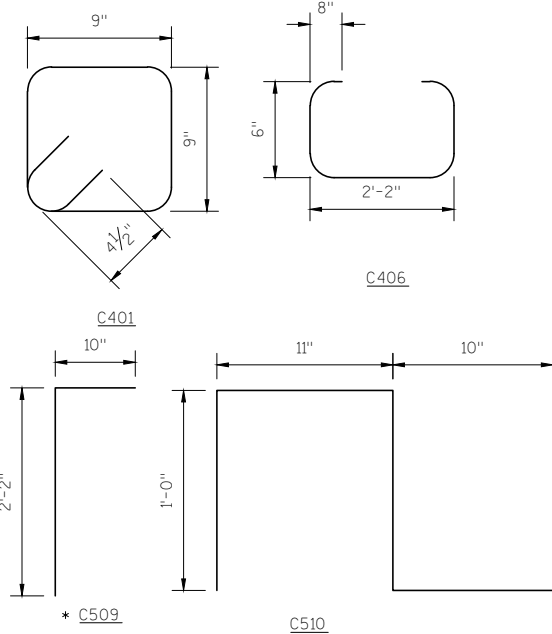
SECTION THRU JOINT AT SOUTH ABUTMENT  
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



SECTION THRU JOINT  
EXTERIOR GIRDER TO EDGE OF DECK, AND  
AT PARAPETS, MEDIANS AND SIDEWALKS



ALTERNATE STRIP SEAL ANCHOR



BILL OF BARS

830 LBS. COATED

BAR MARK	NUMBER REQUIRED		LENGTH	BENT	COAT	LOCATION
	N. ABUT.	S. ABUT.				
C401	25	25	3'-9"	X	X	PAVING BLOCK, STIRRUP
C502	3	4	12'-11"		X	PAVING BLOCK, TRANSVERSE (STRIP SEAL), STAGE 2
C503	3	4	12'-11"		X	PAVING BLOCK, TRANSVERSE (STRIP SEAL), STAGE 1
C404	-	4	9'-11"		X	DIAPHRAGM - TRANSVERSE
C605	-	10	9'-11"		X	DIAPHRAGM - TRANSVERSE
C406	-	26	4'-6"	X	X	DIAPHRAGM - STIRRUP
C407	-	4	8'-8"		X	DECK - TRANSVERSE (STRIP SEAL)
C608	-	10	13'-6"		X	DECK - TRANSVERSE
C509	10	10	3'-0"	X	X	MASONRY ANCHORS TYPE L NO. 5 BAR
C510	-	8	3'-5"		X	PARAPET - VERTICAL

NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.  
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-32-60".

\* MASONRY ANCHORS TYPE L NO. 5 BARS. EMBED A MINIMUM OF 1'-6" INTO CONCRETE. SPACE AT 1'-0". TURN 10" AS NECESSARY TO FIT.

† EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY \*.

‡ PROVIDE 5 #6 BAR COUPLERS LOCATED AT THE LONGITUDINAL JOINT,  $\phi$  OF WOLF ROAD. COUPLERS ARE TO BE USED TO CONNECT C608 FROM STAGE 1 TO STAGE 2.

SPLICE LENGTHS FOR REINFORCEMENT ARE THE FOLLOWING: #5 BARS = 1'-6"

NO.	DATE	REVISION	BY
<b>KNIGHT</b> 700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE <b>B-32-60</b>			
EXPANSION DEVICE		DRAWN BY AFD	PLANS CK'D. WPM
		SHEET 3 OF 4	

## LEGEND

- ① NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 1  $\frac{3}{4}$ ".
- ② STUDS  $\frac{3}{8}$ " $\phi$  X 6  $\frac{7}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ⑥ GALVANIZED PLATE  $\frac{3}{8}$ " X 12" X 2'-2" LONG WITH HOLES FOR NO. 7.
- ⑦  $\frac{3}{4}$ " $\phi$  X 1  $\frac{1}{2}$ " STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS  $\frac{1}{16}$ " BELOW PLATE SURFACE.
- ⑧  $\frac{3}{4}$ " $\phi$  X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨  $\frac{3}{4}$ " $\phi$  X 2  $\frac{1}{4}$ " GALVANIZED THREADED COUPLING.
- ⑩ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

## GENERAL NOTES

ANCHOR SYSTEM NO. 8 & NO. 9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C & D.

REMOVE EXISTING PARAPET AS REQUIRED TO REMOVE EXISTING AND INSTALL NEW EXPANSION DEVICE. (INCORPORATE ALL LONGITUDINAL SLAB REINFORCEMENT INTO NEW WORK.)

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING

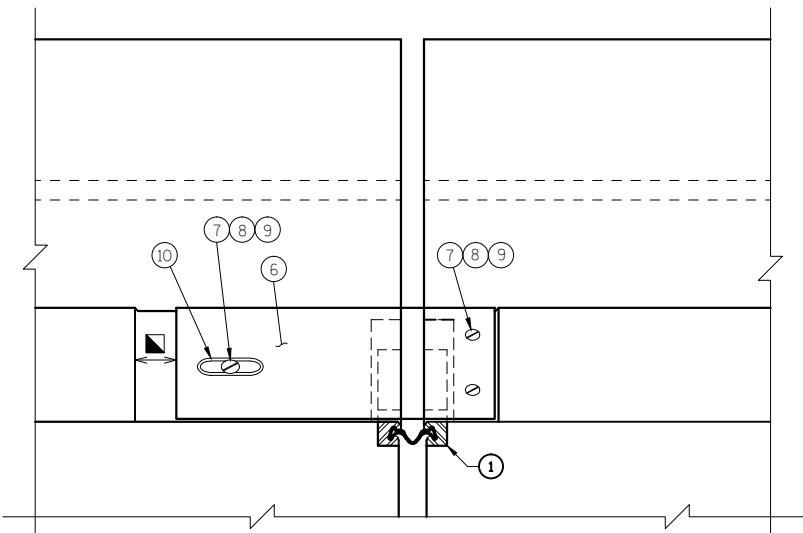
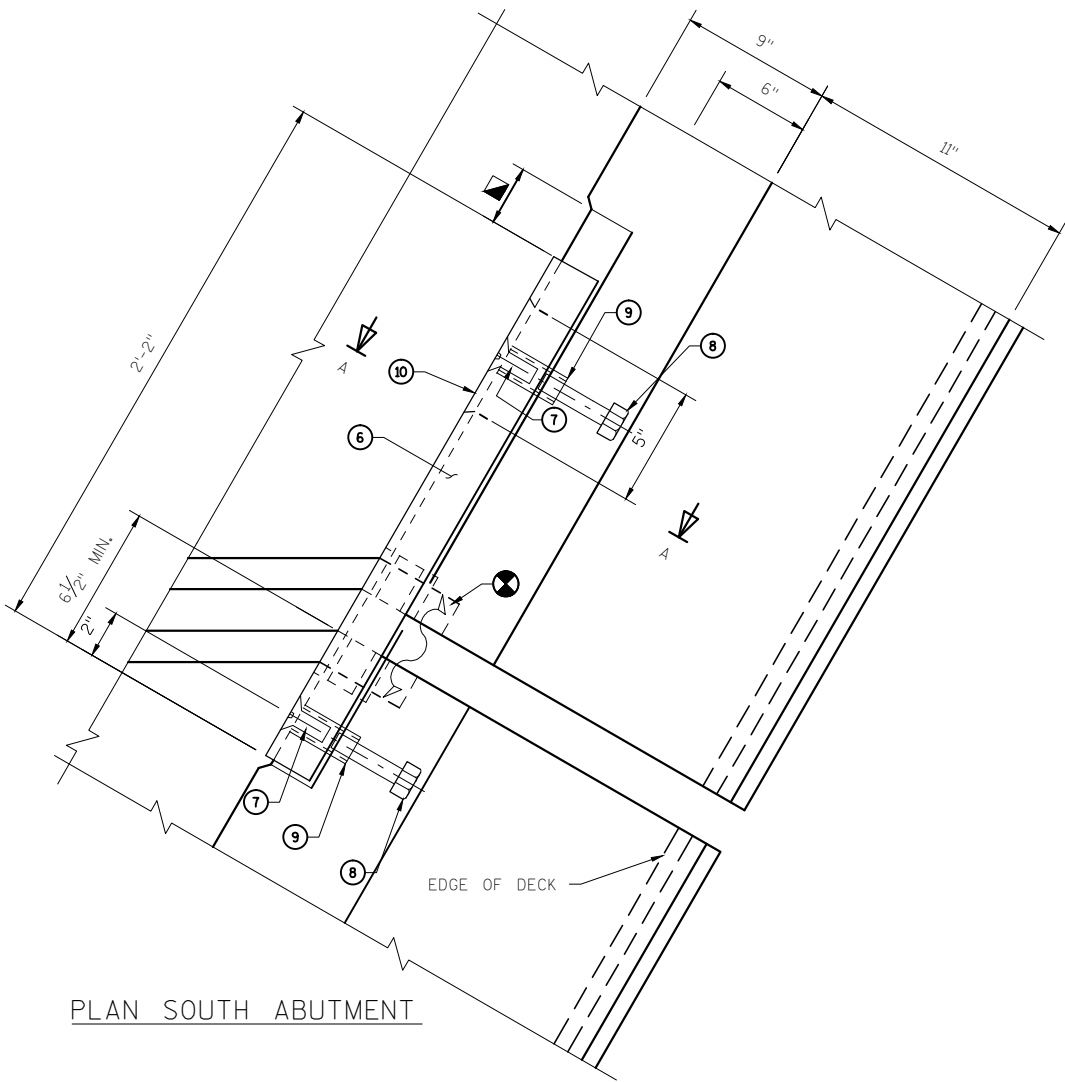
▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2"

‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH C510.

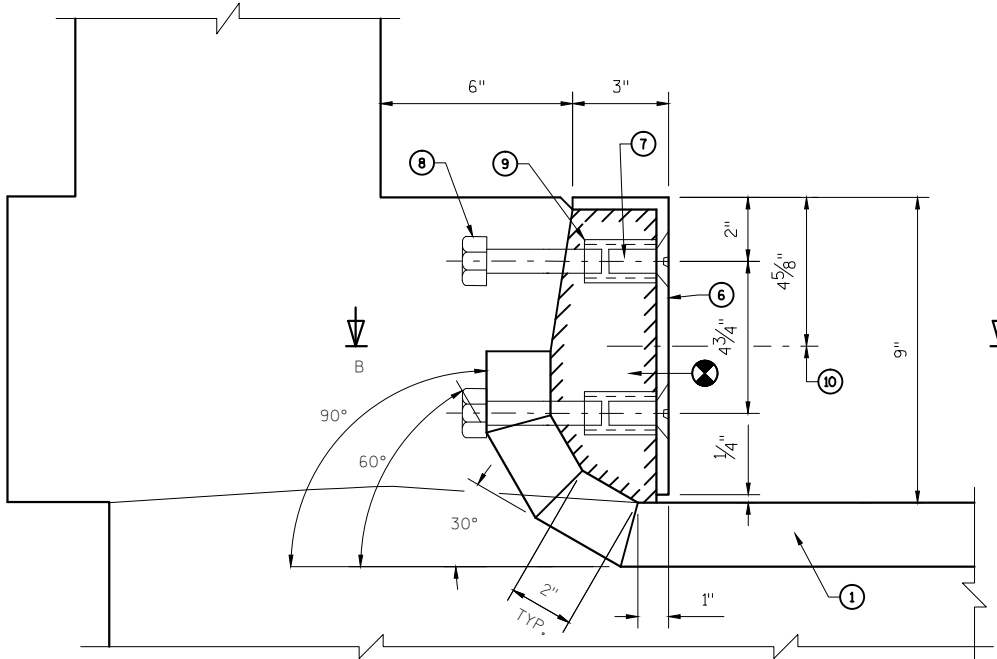
EXISTING REINFORCEMENT TO REMAIN  
TYPICAL SPACING = 1'-0"

## THRU SECTION OF PARAPET

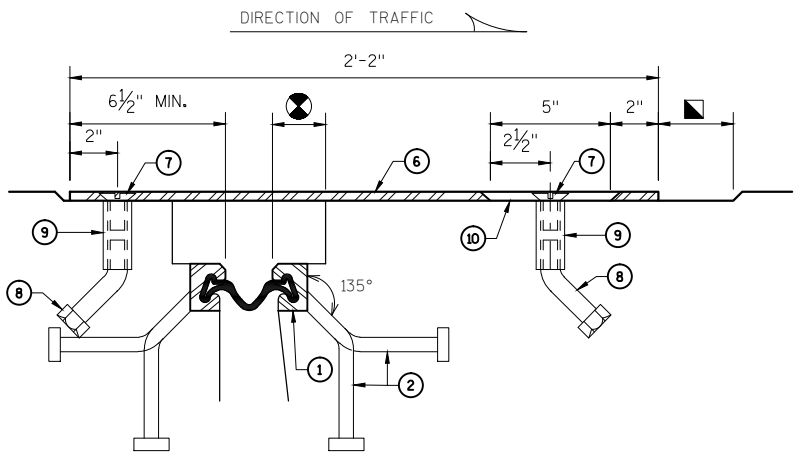
NO.	DATE	REVISION	BY
<div><div><div>KNIGHT</div></div><div>700 N Third Street Suite 104 La Crosse, WI 54601 Engineers &amp; Architects Phone: (608) 519-1455</div></div>			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE <b>B-32-60</b>			
DRAWN BY AFD		PLANS CK'D. WPM	
EXPANSION DEVICE			SHEET 4 OF 4

VIEW OF PARAPET PLATE  
FROM ROADWAY

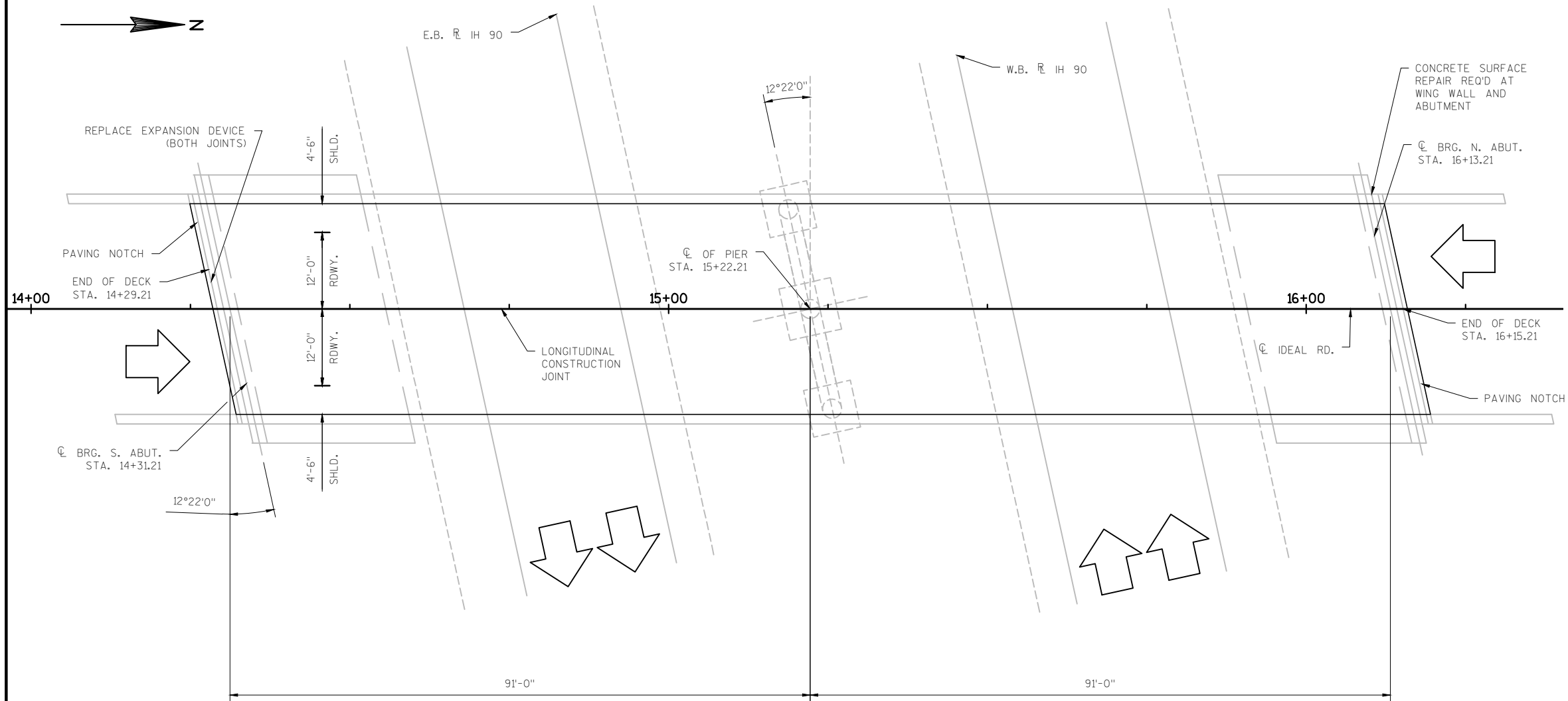
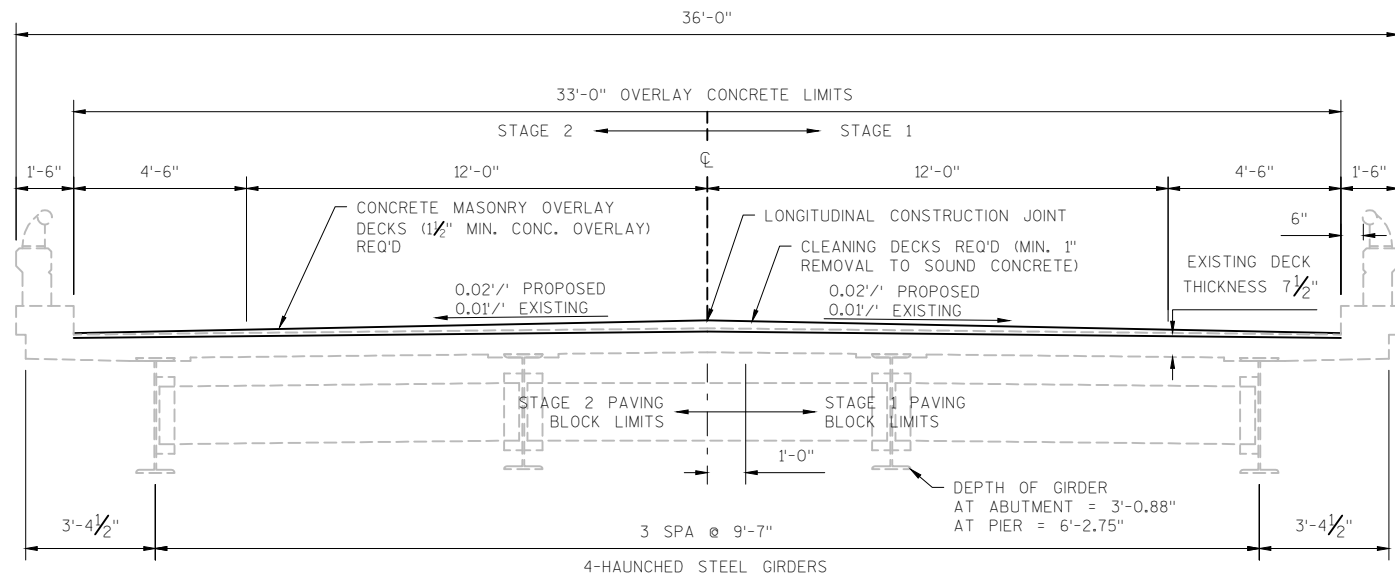
PLAN SOUTH ABUTMENT



SECTION A-A



SECTION B-B

PLAN - B-41-84  
2 SPAN - STEEL GIRDERCROSS SECTION THRU ROADWAY  
LOOKING NORTH

## LIST OF DRAWINGS

1. GENERAL PLAN
2. QUANTITIES & DETAILS
3. EXPANSION DEVICE
4. EXPANSION DEVICE

## DESIGN DATA

LIVE LOAD  
DESIGN LOADING: HS-20  
INVENTORY RATING: HS-13  
OPERATIONAL RATING: HS-22  
WISCONSIN STANDARD PERMIT VEHICLE LOAD: 170 KIPS  
WIS-SPV:  
MATERIAL PROPERTIES:  
CONCRETE MASONRY,  
OVERLAY DECKS ---- 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.

## TRAFFIC DATA

A.A.D.T. = 730 (2017)  
A.A.D.T. = 790 (2037)  
A.S. = 50 MPH

11/21/2016  
DATE

SIGNATURE

BRIDGE OFFICE CONTACT

WILLIAM DREHER, PE  
(608) 266-8489

DESIGN CONSULTANT

ALEX DWORAK  
(608) 519-1455

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED OFF OF ORIGINAL STRUCTURE PLANS, INSPECTION REPORTS &amp; FIELD SURVEY.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1-1/2" PLACED ABOVE THE DECK SURFACE AFTER CLEANING THE DECK. EXPECTED AVERAGE OVERLAY THICKNESS IS 2-1/2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR JOINT REPAIRS IS INCIDENTAL TO THE BID ITEM, "CONCRETE MASONRY OVERLAY DECKS".

A MINIMUM OF 1" OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER BID ITEM "CLEANING DECKS".

PREPARATION DECKS, FULL DEPTH REPAIR, AND CONCRETE SURFACE REPAIR SHALL BE DETERMINED BY FIELD ENGINEER. SEE SHEET 2 FOR ESTIMATED QUANTITIES.

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAW CUT.

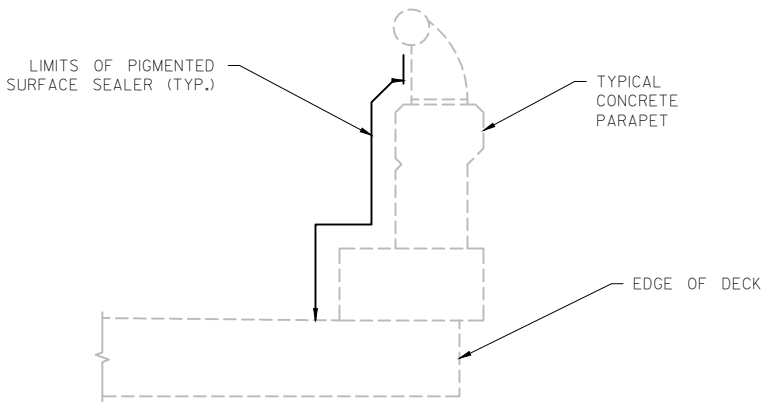
CLEAN AND FILL EXISTING LONGITUDINAL AND TRANSVERSE CRACKS WITH PENETRATING EPOXY AFTER DECK PREP AND PRIOR TO OVERLAY AS DIRECTED BY THE FIELD ENGINEER.

EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID FOR IN THE LUMP SUM PRICE BID AS "EXPANSION DEVICE B-41-84".

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.


AT "CURB REPAIR" EXPOSE EXISTING REINFORCEMENT A MINIMUM OF 1-1/2" CLEAR.

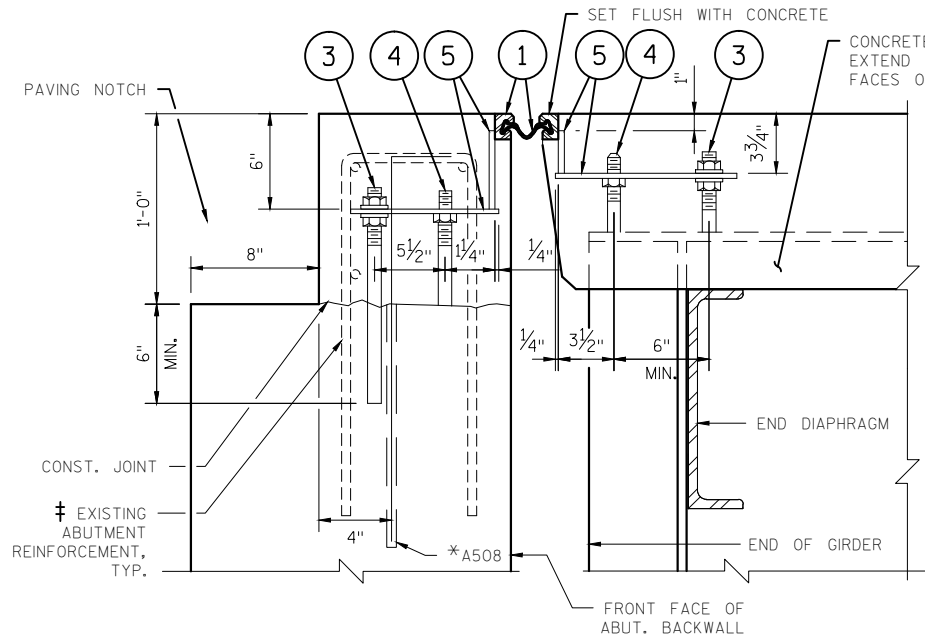
NO.	DATE	REVISION	BY
<b>KNIGHT</b> 700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION ACCEPTED <i>William C. Dreher</i> SDR 11/22/16 CHIEF STRUCTURES DESIGN ENGINEER DATE			
<b>STRUCTURE B-41-84</b>			
IDEAL ROAD OVER IH 90			
COUNTY	MONROE	TOWN	SPARTA
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	AFD	DESIGN CK'D	WPM
DRAWN BY	AFD	PLANS CK'D	WPM
<b>GENERAL PLAN</b>			SHEET 1 OF 4



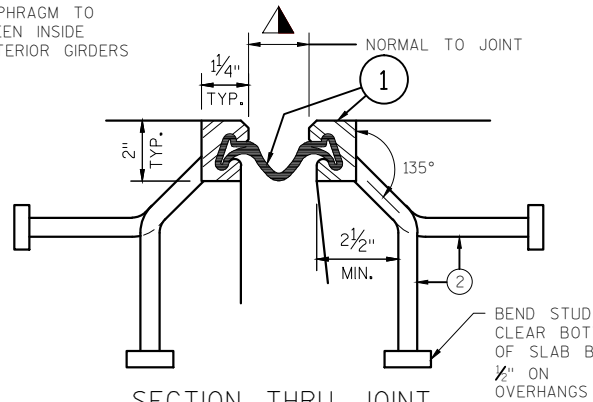
PIGMENTED SURFACE SEALER DETAIL

BID ITEM NUMBER	BID ITEM DESCRIPTION	UNIT	TOTAL
502.0717.S	CRACK SEALING EPOXY	LF	50
502.3100	EXPANSION DEVICE (B-41-84)	LS	1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	682
502.3210	PIGMENTED SURFACE SEALER	SY	120
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	50
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,910
509.0301	PREPARATION DECKS TYPE 1	SY	268
509.0302	PREPARATION DECKS TYPE 2	SY	134
509.0500	CLEANING DECKS	SY	682
509.1000	JOINT REPAIR	SY	30
509.1200	CURB REPAIR	LF	10
509.1500	CONCRETE SURFACE REPAIR	SF	15
509.2000	FULL-DEPTH DECK REPAIR	SY	10
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	79

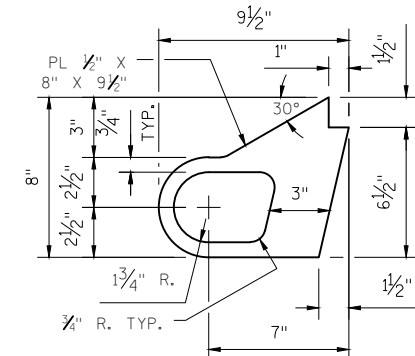
NO.	DATE	REVISION	BY
		700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-41-84	
DRAWN BY AFD		PLANS CK'D. WPM	
QUANTITIES & DETAILS		SHEET 2 OF 4	



SECTION THRU JOINT AT ABUTMENT  
NORMAL TO CL SUBSTRUCTURE



SECTION THRU JOINT  
EXTERIOR GIRDER TO EDGE OF DECK, AND  
AT PARAPETS, MEDIANS AND SIDEWALKS



ALTERNATE STRIP SEAL ANCHOR



LEGEND

- NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS, SET JOINT OPENING AT 1 3/4".
- STUDS 5/8"  $\phi$  X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- 1/2" THICK ANCHOR PLATE WITH 5/8"  $\phi$  ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- 3/4"  $\phi$  THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- 3/4"  $\phi$  THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2"  $\phi$  HOLE FOR NO. 3 AND 1"  $\phi$  HOLE FOR NO. 4.

BILL OF BARS

1910 LBS. COATED

BAR MARK	NUMBER REQUIRED		LENGTH	BENT	COAT	LOCATION
	N. ABUT.	S. ABUT.				
A401	35	35	3'-9"	X	X	PAVING BLOCK, STIRRUP
A502	18	18	6'-11"		X	PAVING BLOCK, TRANSVERSE (STRIP SEAL)
A403	4	4	9'-6"		X	DECK - TRANSVERSE (STRIP SEAL)
A604	10	10	9'-6"		X	DIAPHRAGM - TRANSVERSE
A405	36	36	4'-6"	X	X	DIAPHRAGM - STIRRUP
A406	4	4	9'-6"		X	DIAPHRAGM - TRANSVERSE
A607	5	5	20'-8"		X	DECK - TRANSVERSE - STAGE 1
A508	25	25	3'-0"	X	X	MASONRY ANCHORS TYPE L NO. 5 BAR
A609	5	5	7'-0"		X	DIAPHRAGM - TRANSVERSE - STAGE 1
A610	5	5	4'-9"		X	DIAPHRAGM - TRANSVERSE - STAGE 2
A411	2	2	6'-0"		X	DECK - TRANSVERSE (STRIP SEAL) - STAGE 1
A412	2	2	4'-9"		X	DECK - TRANSVERSE (STRIP SEAL) - STAGE 2
A613	5	5	17'-7"		X	DECK - TRANSVERSE - STAGE 2
A514	8	8	3'-5"	X	X	PARAPET - VERTICAL
A415	2	2	6'-0"		X	DIAPHRAGM - TRANSVERSE - STAGE 1
A416	2	2	4'-9"		X	DIAPHRAGM - TRANSVERSE - STAGE 2

NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE. DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

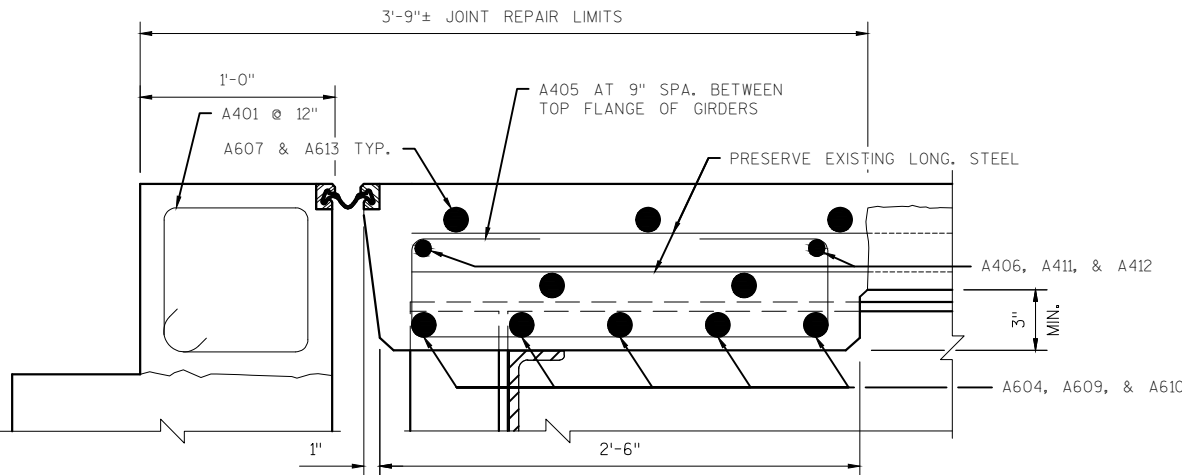
ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-41-84".

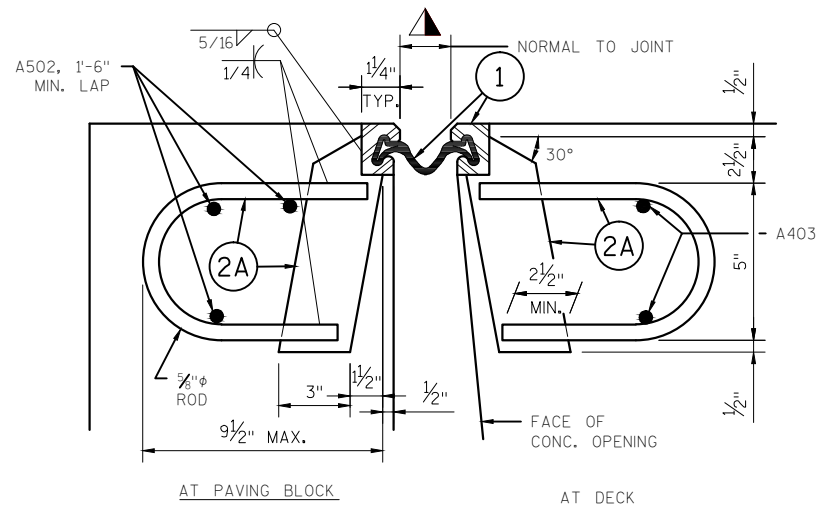
\* MASONRY ANCHORS TYPE L NO. 5 BARS. EMBED A MINIMUM OF 1'-6" INTO CONCRETE. SPACE AT 1'-0". TURN 10" AS NECESSARY TO FIT.

† EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY \*.

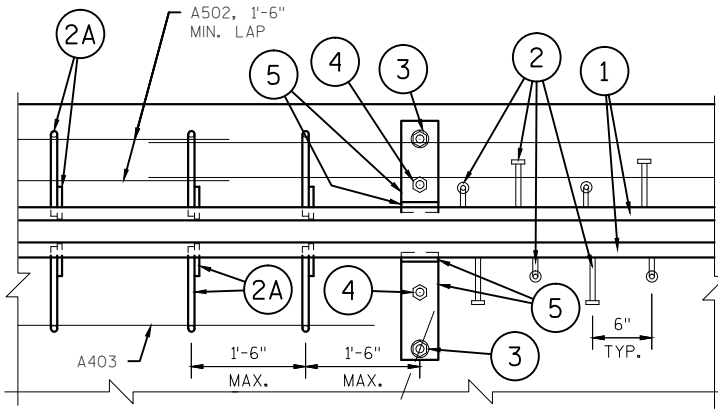
SPLICE LENGTHS FOR REINFORCEMENT ARE THE FOLLOWING: #6 BARS = 2'-3", #5 BARS = 1'-6", #4 BARS = 1'-3"



SECTION THRU JOINT  
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



SECTION THRU JOINT  
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



PART PLAN

## LEGEND

- ① NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 1  $\frac{3}{4}$ ".
- ② STUDS  $\frac{3}{8}$ "  $\phi$  X 6  $\frac{7}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ⑥ GALVANIZED PLATE  $\frac{3}{8}$ " X 12" X 2'-2" LONG WITH HOLES FOR NO. 7.
- ⑦  $\frac{3}{4}$ "  $\phi$  X 1  $\frac{1}{2}$ " STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS  $\frac{1}{16}$ " BELOW PLATE SURFACE.
- ⑧  $\frac{3}{4}$ "  $\phi$  X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨  $\frac{3}{4}$ "  $\phi$  X 2  $\frac{1}{4}$ " GALVANIZED THREADED COUPLING.
- ⑩ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

## GENERAL NOTES

ANCHOR SYSTEM NO. 8 & NO. 9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C & D.

REMOVE EXISTING PARAPET AS REQUIRED TO REMOVE EXISTING AND INSTALL NEW EXPANSION DEVICE. (INCORPORATE ALL LONGITUDINAL SLAB REINFORCEMENT INTO NEW WORK.)

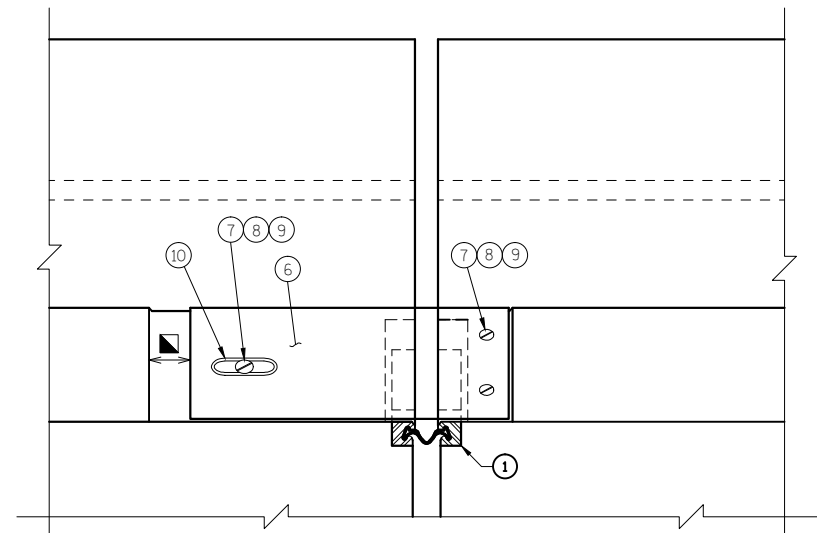
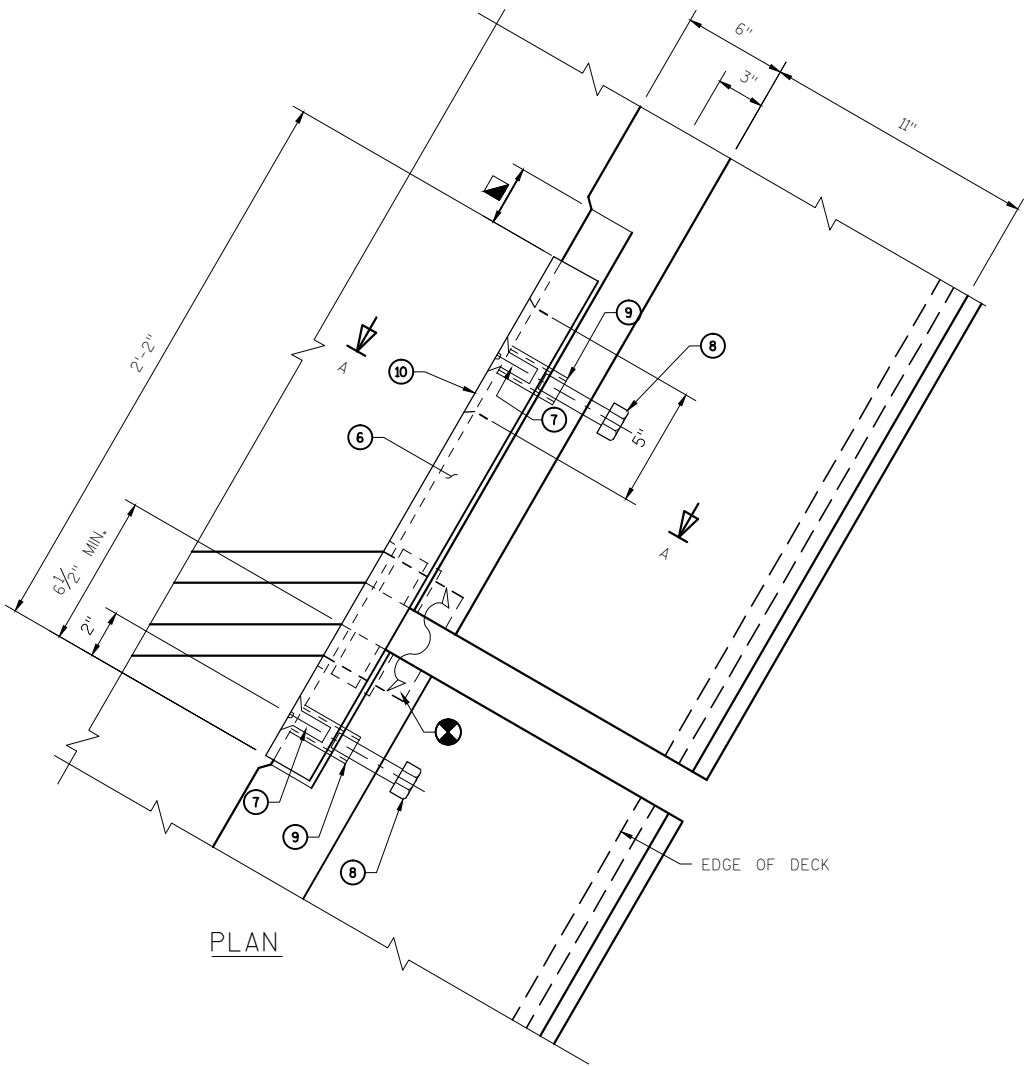
⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING

▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2"

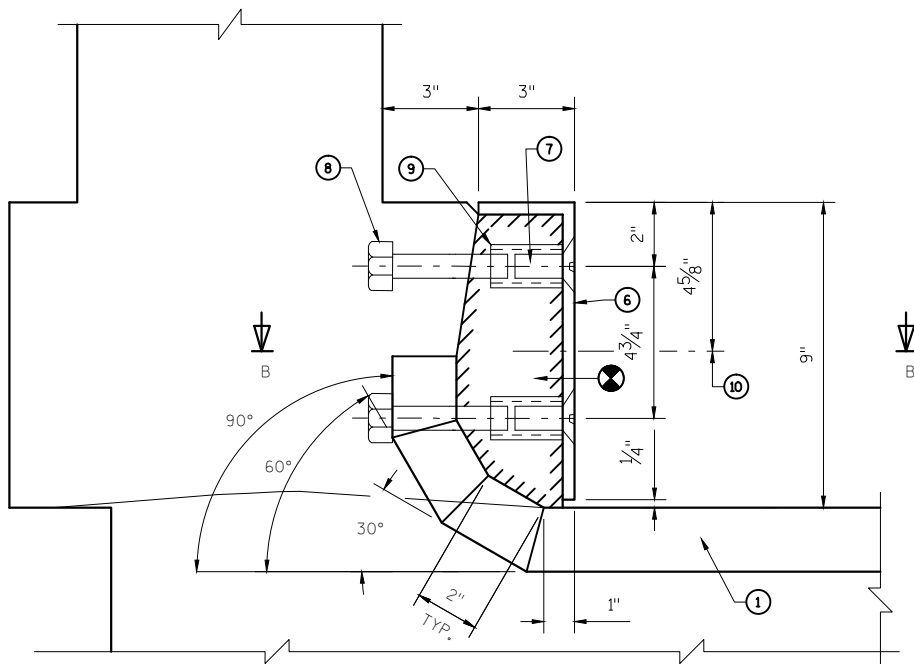
‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH A514.

EXISTING REINFORCEMENT TO REMAIN  
TYPICAL SPACING = 1'-0"

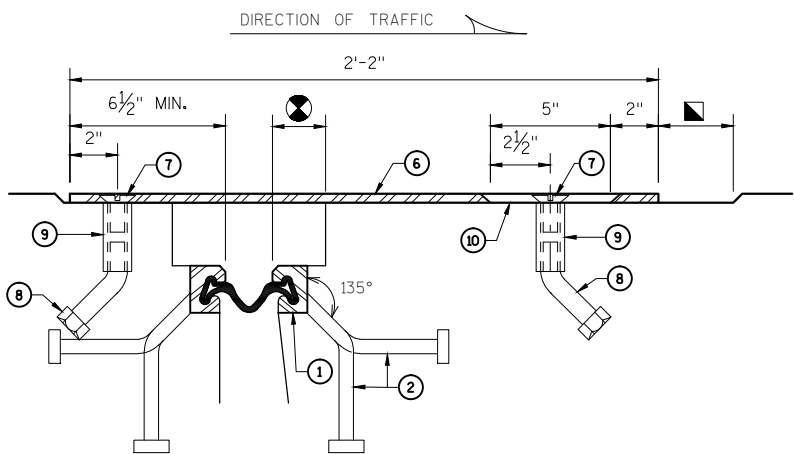
## THRU SECTION OF PARAPET

VIEW OF PARAPET PLATE  
FROM ROADWAY

PLAN



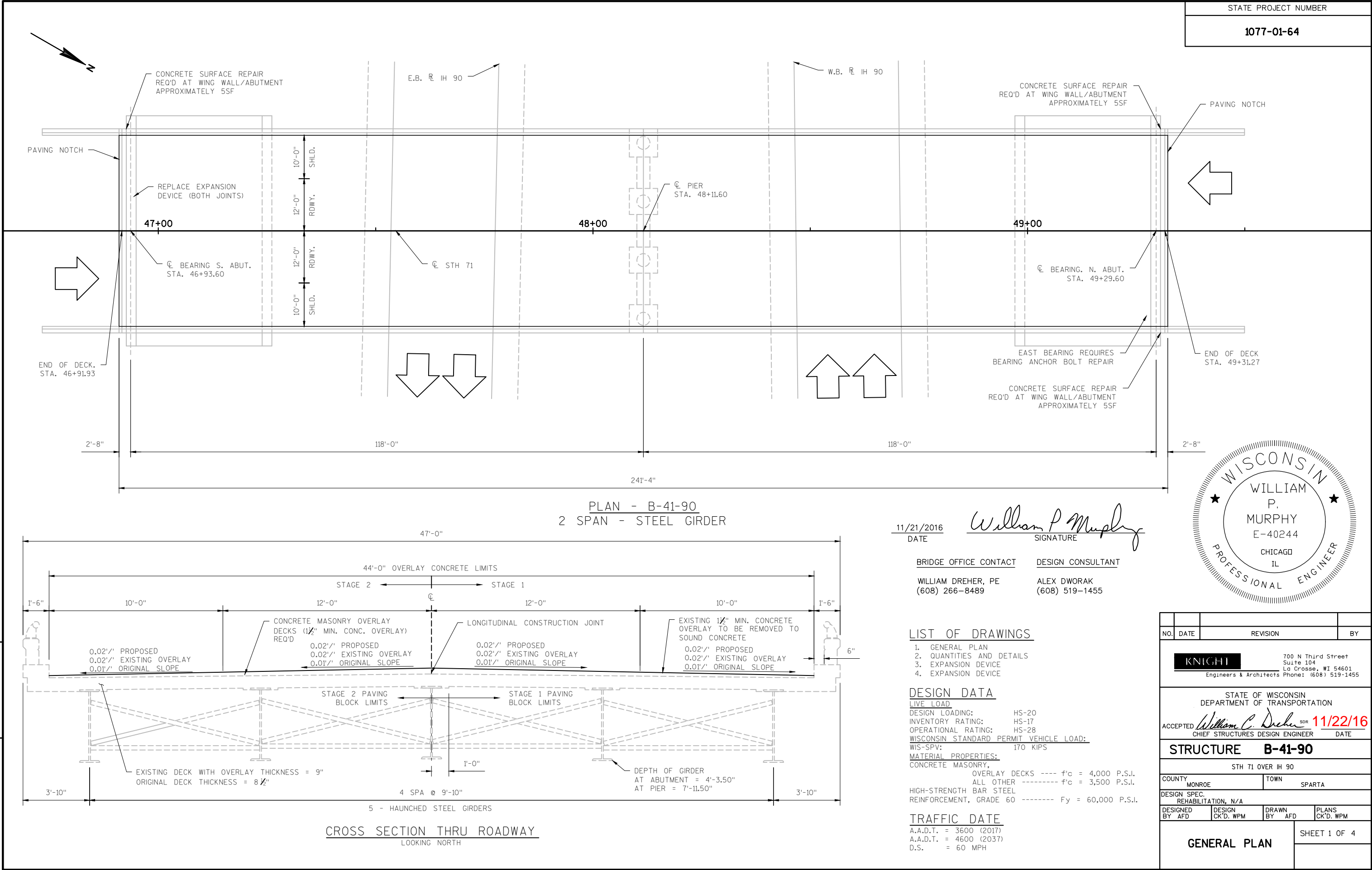
SECTION A-A



SECTION B-B

NO.	DATE	REVISION	BY
<b>KNIGHT</b> 700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE <b>B-41-84</b>			
DRAWN BY AFD		PLANS CK'D. WPM	
EXPANSION DEVICE			SHEET 4 OF 4





WISCONSIN

WILLIAM P. MURPHY

E-40244

CHICAGO IL

PROFESSIONAL ENGINEER

NO.	DATE	REVISION	BY

KNIGHT

700 N Third Street  
Suite 104  
La Crosse, WI 54601  
Engineers & Architects Phone: (608) 519-1455

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

ACCEPTED *William C. Diehn* SDR 11/22/16  
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-41-90

STH 71 OVER IH 90

COUNTY MONROE TOWN SPARTA

DESIGN SPEC. REHABILITATION, N/A

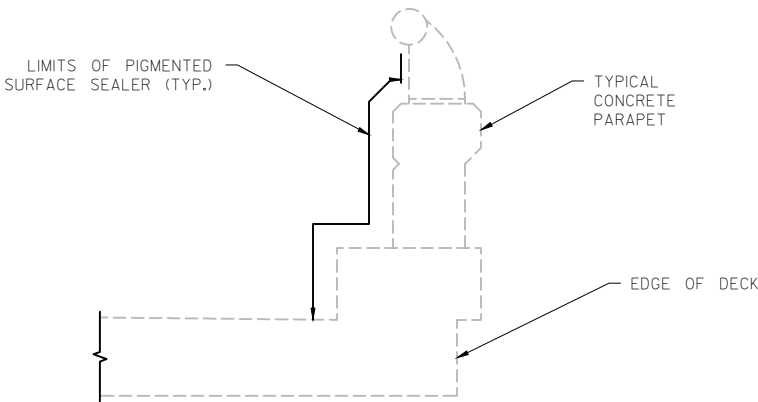
DESIGNED BY AFD DESIGN CK'D. WPM DRAWN BY AFD PLANS CK'D. WPM

GENERAL PLAN SHEET 1 OF 4

FILE NAME : W:\7059.04\CAD\TEMP\7059.04\SHEETSPLAN\080102\_BR.DWG

PLOT DATE : 11/21/2016 7:05 AM

PLOT BY : DWORAK, ALEX



PIGMENTED SURFACE SEALER DETAIL

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED OFF OF ORIGINAL STRUCTURE PLANS, INSPECTION REPORTS & FIELD SURVEY.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1-1/2" PLACED ABOVE THE DECK SURFACE AFTER REMOVING EXISTING CONCRETE OVERLAY. EXPECTED AVERAGE OVERLAY THICKNESS IS 2-3/4". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR JOINT REPAIRS IS INCIDENTAL TO THE BID ITEM, "CONCRETE MASONRY OVERLAY DECKS".

PREPARATION DECKS, FULL DEPTH REPAIR, AND CONCRETE SURFACE REPAIR SHALL BE DETERMINED BY FIELD ENGINEER.

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAW CUT.


CLEAN AND FILL EXISTING LONGITUDINAL AND TRANSVERSE CRACKS WITH PENETRATING EPOXY AFTER DECK PREP AND PRIOR TO OVERLAY AS DIRECTED BY THE FIELD ENGINEER.

EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID FOR IN THE LUMP SUM PRICE BID AS "EXPANSION DEVICE B-41-90".

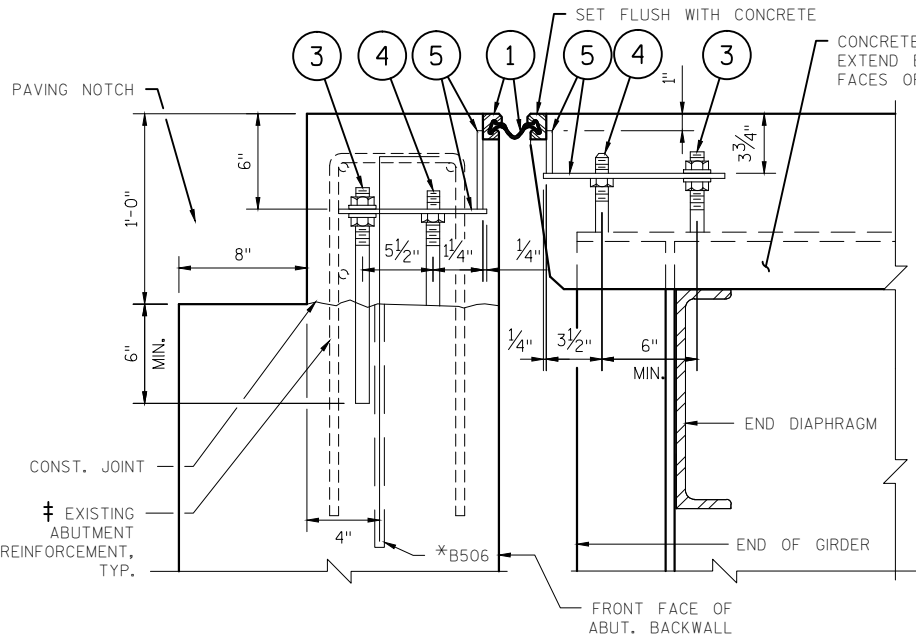
UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

AT "CURB REPAIR" EXPOSE EXISTING REINFORCEMENT A MINIMUM OF 1-1/2" CLEAR.

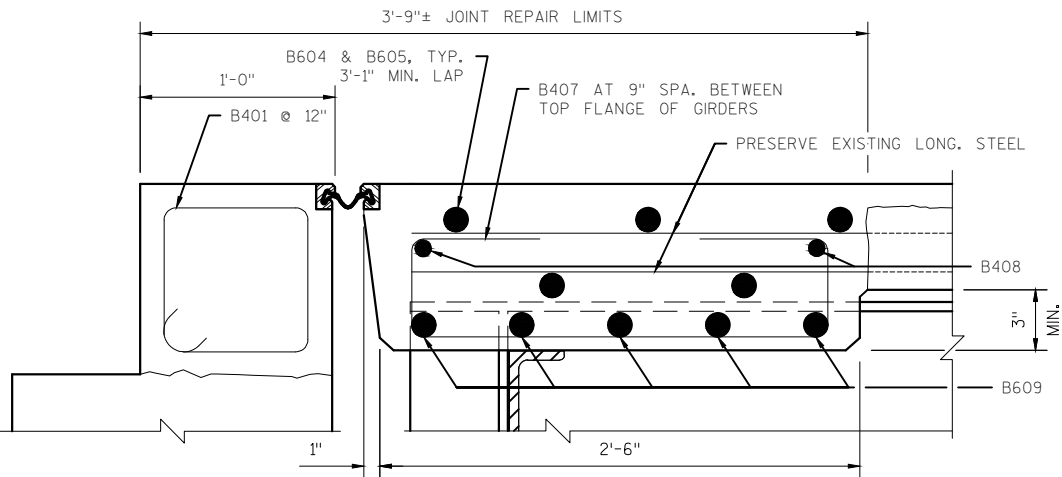
BID ITEM NUMBER	BID ITEM DESCRIPTION	UNIT	TOTAL
502.0717.S	CRACK SEALING EPOXY	LF	50
502.3100	EXPANSION DEVICE (B-41-90)	LS	1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	1,174
502.3210	PIGMENTED SURFACE SEALER	SY	150
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	70
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2,440
509.0301	PREPARATION DECKS TYPE 1	SY	178
509.0302	PREPARATION DECKS TYPE 2	SY	89
509.1000	JOINT REPAIR	SY	39
509.1200	CURB REPAIR	LF	10
509.1500	CONCRETE SURFACE REPAIR	SF	15
509.2000	FULL-DEPTH DECK REPAIR	SY	10
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	119
509.9005.S	REMOVING CONCRETE MASONRY DECK OVERLAY B-41-0090	SY	1,174
SPV.0060.02	BEARING ANCHOR BOLT REPAIR	EACH	1

NO.	DATE	REVISION	BY
		700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-41-90	
DRAWN BY AFD		PLANS CK'D. WPM	
QUANTITIES AND DETAILS		SHEET 2 OF 4	

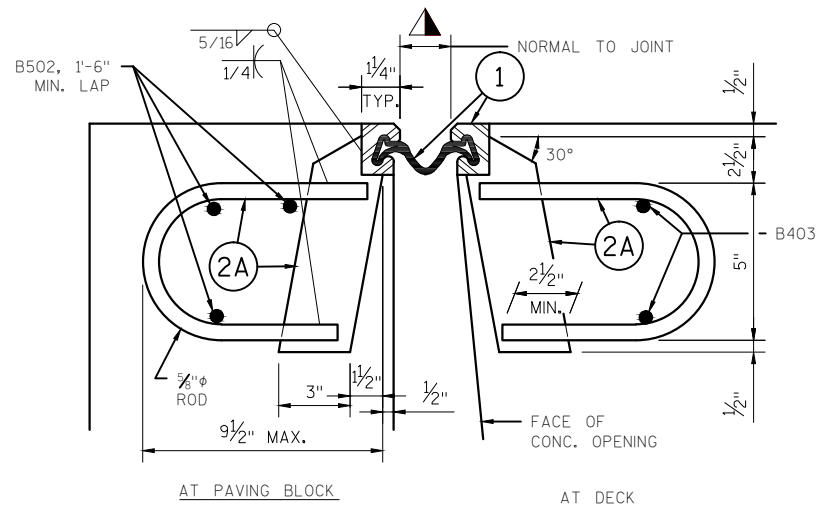




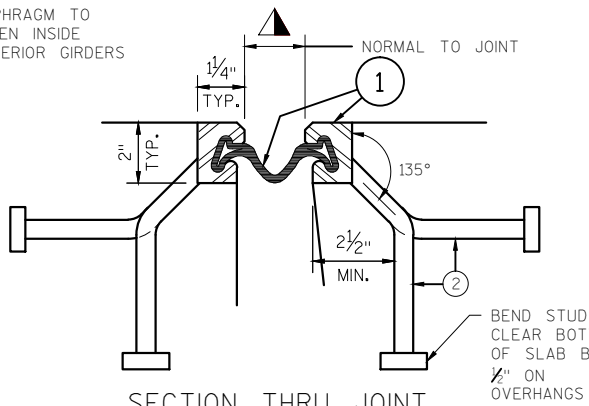
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NORMAL TO CL SUBSTRUCTURE



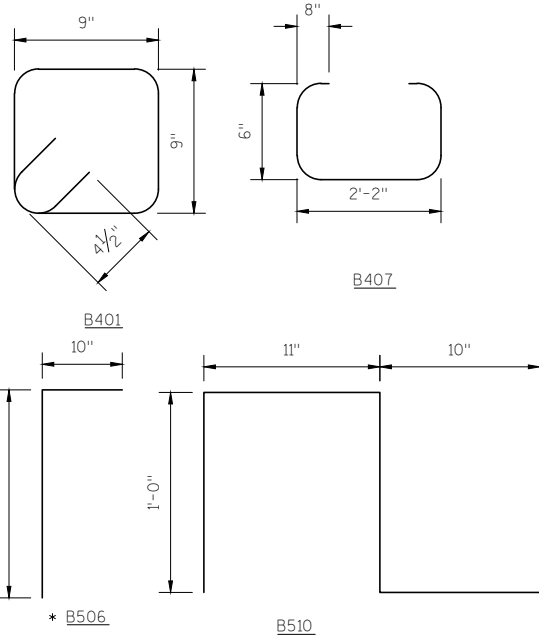
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ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



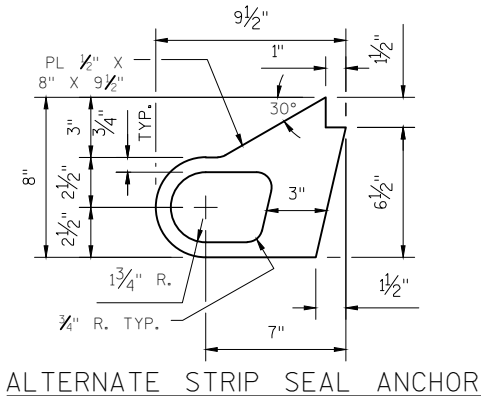
SECTION THRU JOINT  
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



SECTION THRU JOINT  
EXTERIOR GIRDER TO EDGE OF DECK, AND  
AT PARAPETS, MEDIANS AND SIDEWALKS



PART PLAN



LEGEND

- NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 1 3/4".
- STUDS 5/8"φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- 1/2" THICK ANCHOR PLATE WITH 5/8"φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- 3/4" φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- 3/4"φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" φ HOLE FOR NO. 3 AND 1" φ HOLE FOR NO. 4.

BILL OF BARS

2440 LBS. COATED

BAR MARK	NUMBER REQUIRED		LENGTH	BENT	COAT	LOCATION
	N. ABUT.	S. ABUT.				
B401	45	45	3'-9"	X	X	PAVING BLOCK, STIRRUP
B502	18	18	8'-7"		X	PAVING BLOCK, TRANSVERSE (STRIP SEAL)
B403	8	8	9'-6"		X	DECK - TRANSVERSE (STRIP SEAL)
B604	5	5	26'-2"		X	DECK - TRANSVERSE - STAGE 1
B605	5	5	23'-1"		X	DECK - TRANSVERSE - STAGE 2
B506	35	35	3'-0"	X	X	MASONRY ANCHORS TYPE L NO. 5 BAR
B407	52	52	4'-6"	X	X	DIAPHRAGM - STIRRUP
B408	8	8	9'-6"		X	DIAPHRAGM - TRANSVERSE
B609	20	20	9'-6"		X	DIAPHRAGM - TRANSVERSE
B510	8	8	3'-9"	X	X	PARAPET - VERTICAL

NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE. DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-41-90".

\* MASONRY ANCHORS TYPE L NO. 5 BARS. EMBED A MINIMUM OF 1'-6" INTO CONCRETE. SPACE AT 1'-0". TURN 10" AS NECESSARY TO FIT.

† EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY \*.

SPLICE LENGTHS FOR REINFORCEMENT ARE THE FOLLOWING: #6 BARS = 3'-1", #5 BARS = 1'-6"

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<b>KNIGHT</b> 700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE <b>B-41-90</b>			
DRAWN BY AFD		PLANS CK'D. WPM	
EXPANSION DEVICE		SHEET 3 OF 4	

## LEGEND

- ① NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 1  $\frac{3}{4}$ ".
- ② STUDS  $\frac{3}{8}$ "  $\phi$  X 6  $\frac{7}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ⑥ GALVANIZED PLATE  $\frac{3}{8}$ " X 12" X 2'-2" LONG WITH HOLES FOR NO. 7.
- ⑦  $\frac{3}{4}$ "  $\phi$  X 1  $\frac{1}{2}$ " STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS  $\frac{1}{16}$ " BELOW PLATE SURFACE.
- ⑧  $\frac{3}{4}$ "  $\phi$  X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨  $\frac{3}{4}$ "  $\phi$  X 2  $\frac{1}{4}$ " GALVANIZED THREADED COUPLING.
- ⑩ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

## GENERAL NOTES

ANCHOR SYSTEM NO. 8 & NO. 9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C & D.

REMOVE EXISTING PARAPET AS REQUIRED TO REMOVE EXISTING AND INSTALL NEW EXPANSION DEVICE. (INCORPORATE ALL LONGITUDINAL SLAB REINFORCEMENT INTO NEW WORK.)

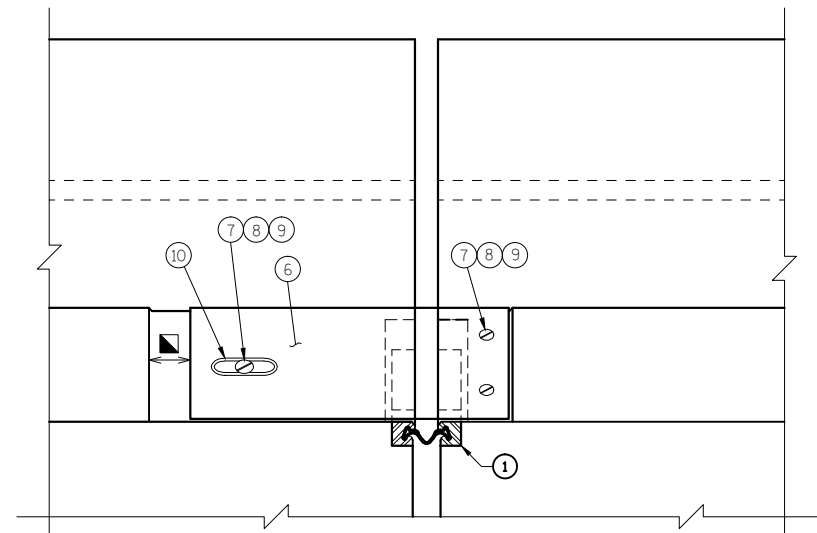
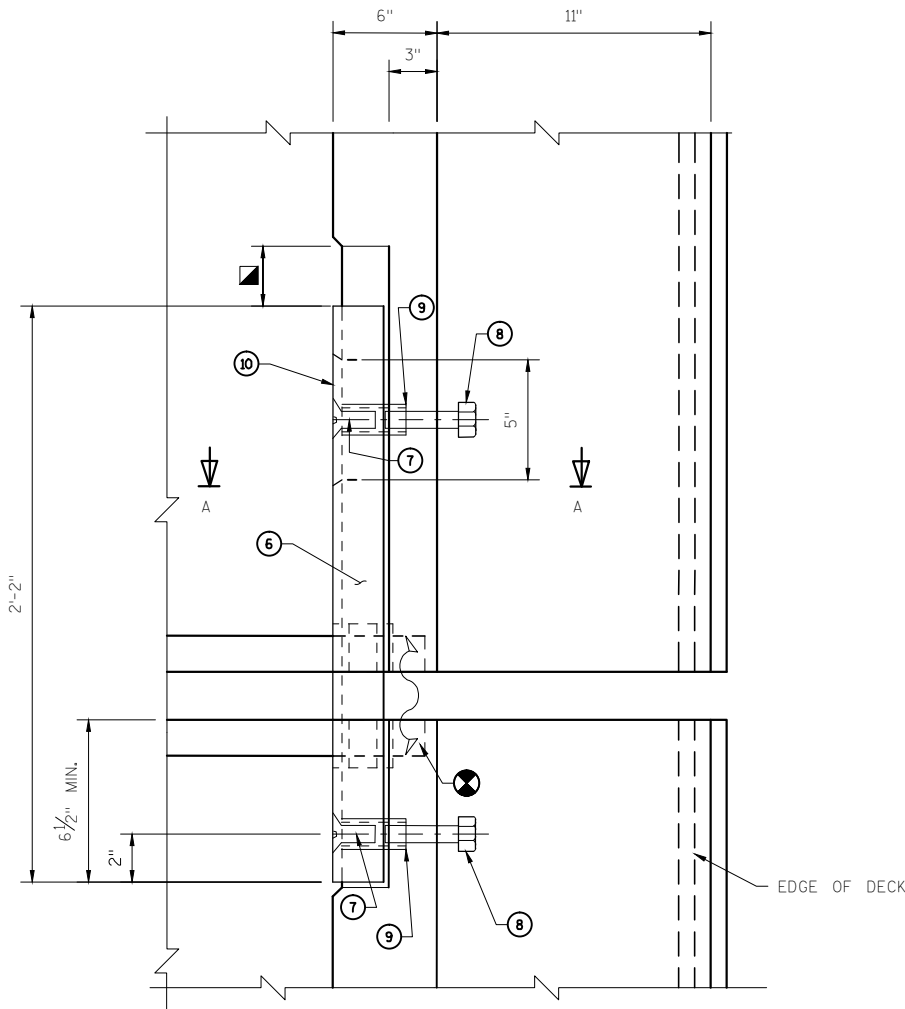
⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING

▣ JOINT OPENING DIMENSION ALONG SKEW PLUS  $\frac{1}{2}$ "

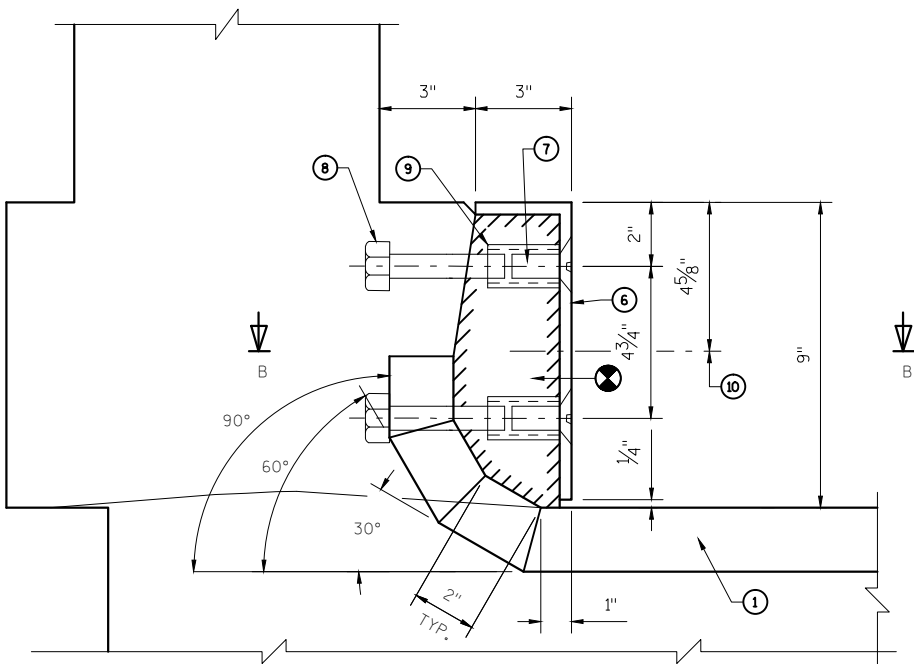
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EXISTING REINFORCEMENT TO REMAIN  
TYPICAL SPACING = 1'-0"

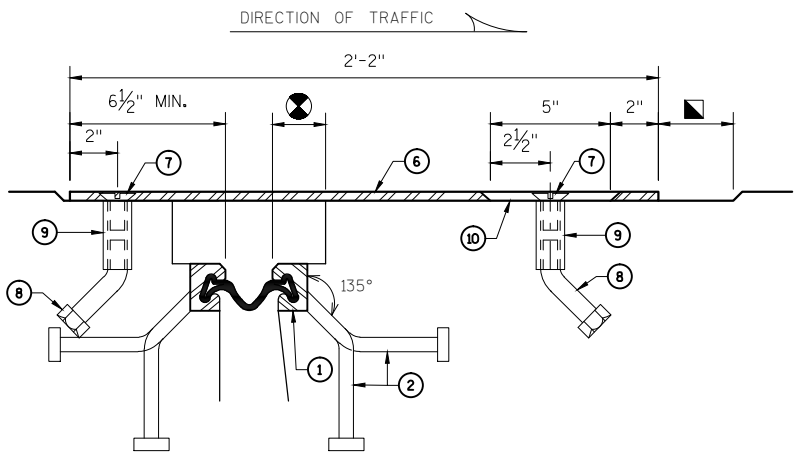
## THRU SECTION OF PARAPET

VIEW OF PARAPET PLATE  
FROM ROADWAY

PLAN



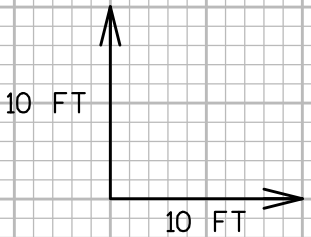
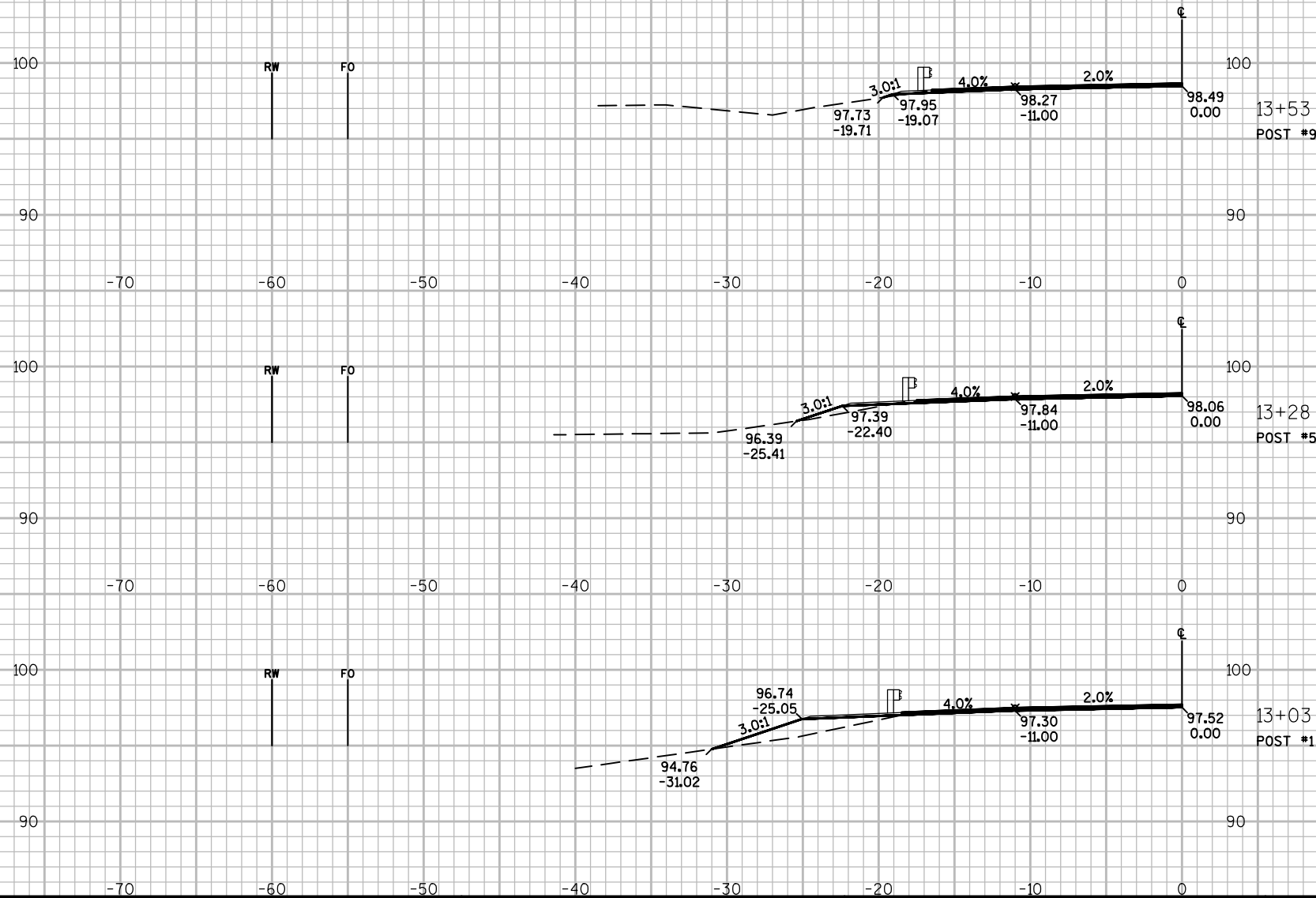
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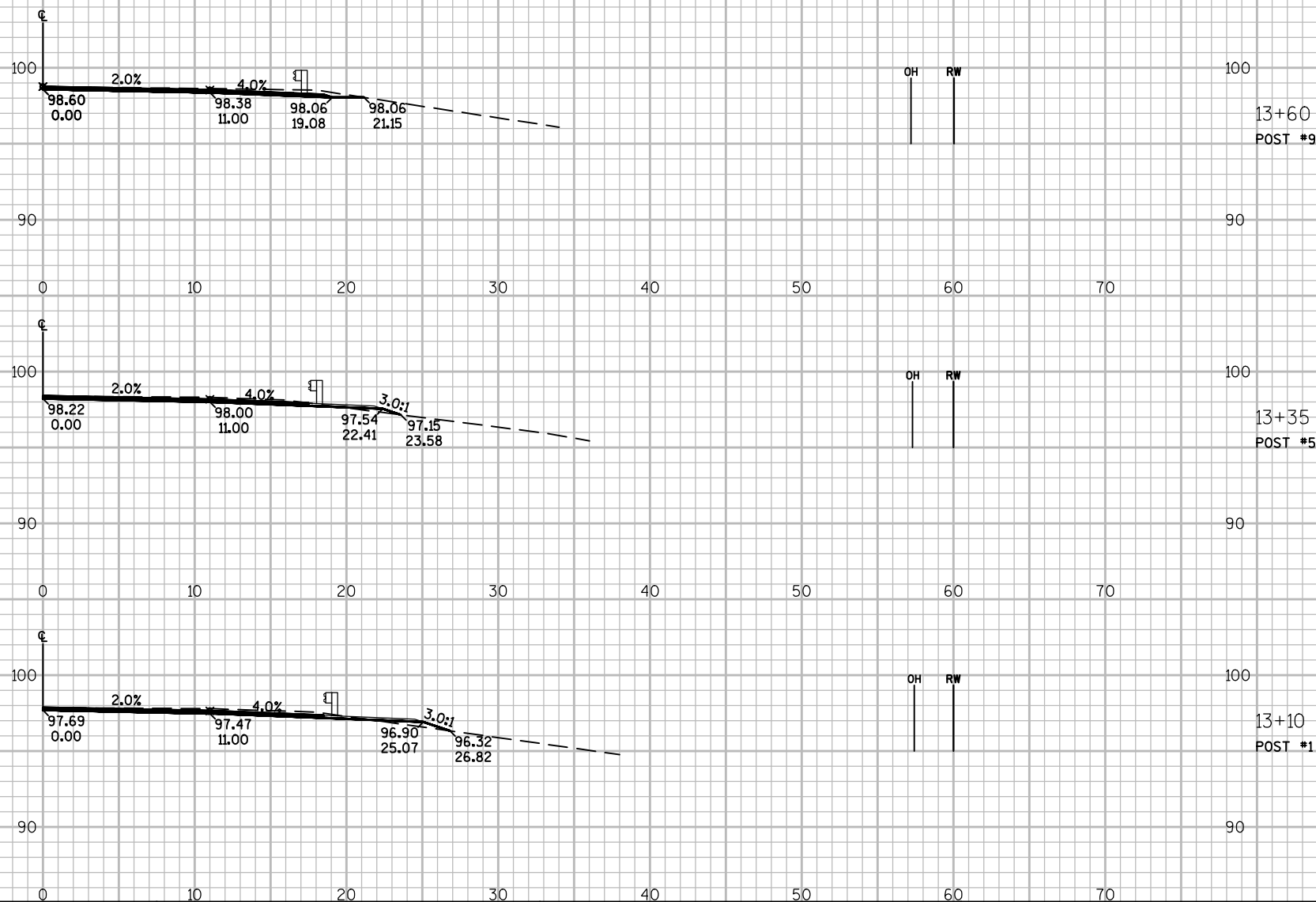
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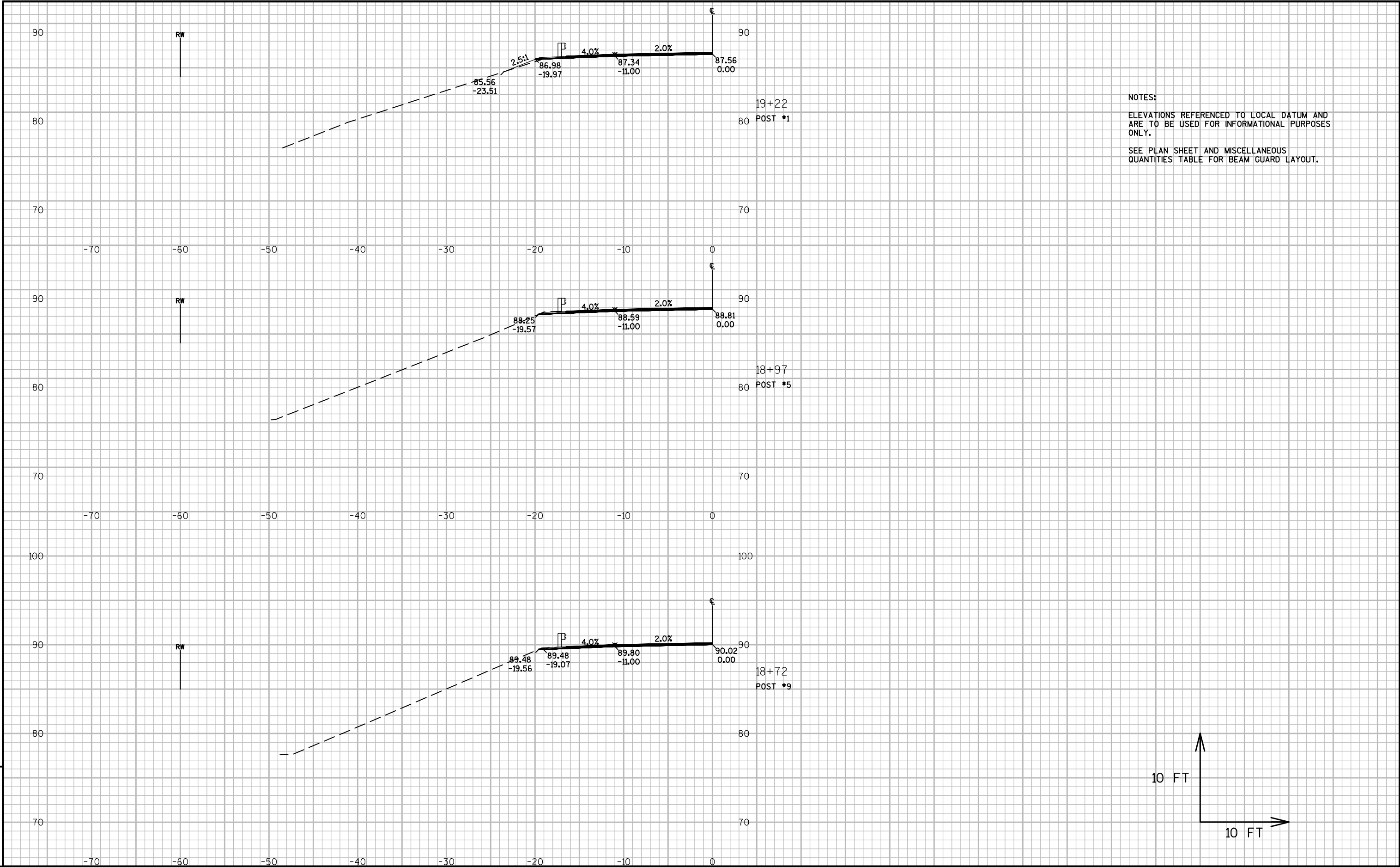
NO.	DATE	REVISION	BY
<b>KNIGHT</b> 700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE <b>B-41-90</b>			
DRAWN BY AFD		PLANS CK'D. WPM	
EXPANSION DEVICE			SHEET 4 OF 4

NOTES:  
ELEVATIONS REFERENCED TO LOCAL DATUM AND  
ARE TO BE USED FOR INFORMATIONAL PURPOSES  
ONLY.  
SEE PLAN SHEET AND MISCELLANEOUS  
QUANTITIES TABLE FOR BEAM GUARD LAYOUT.

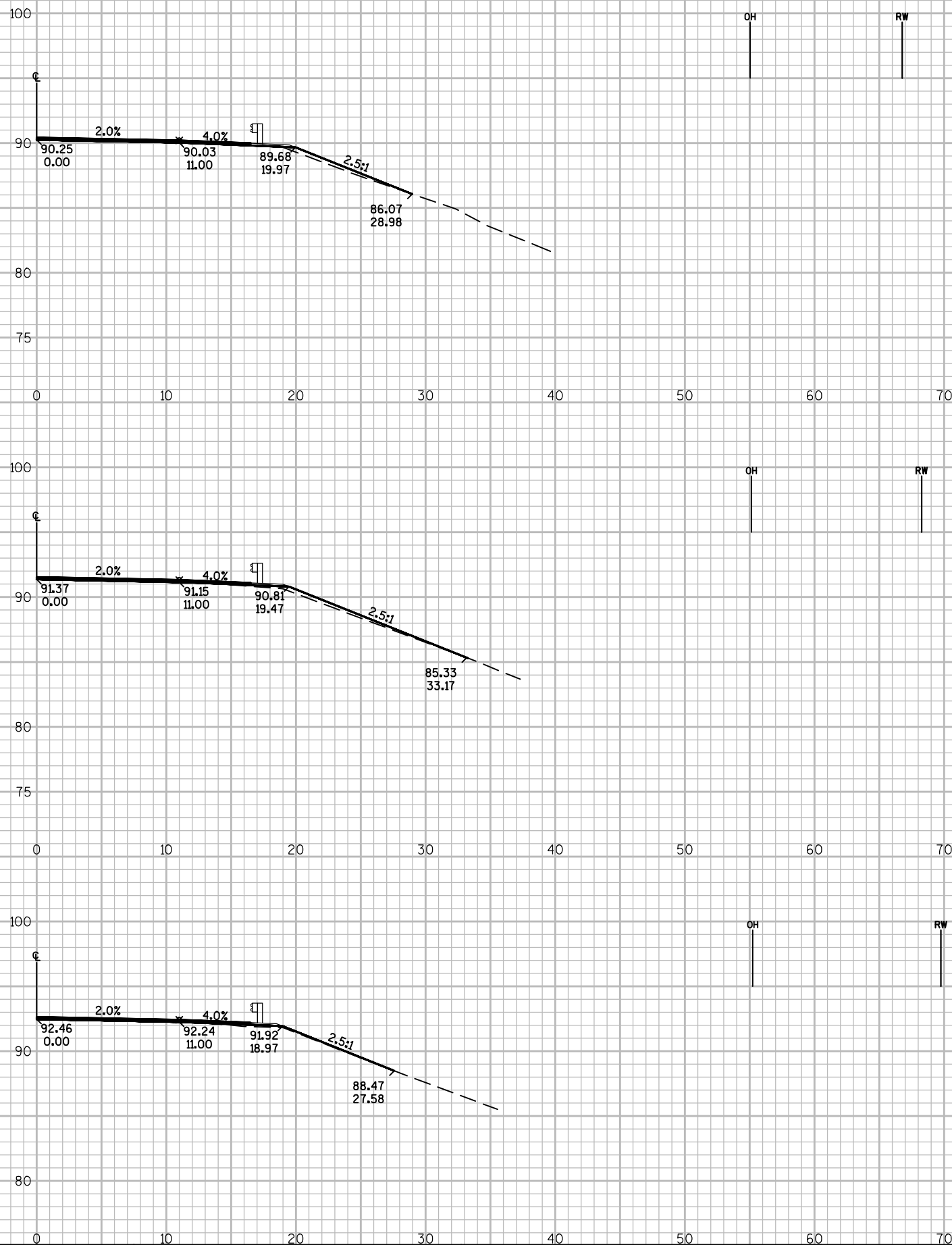


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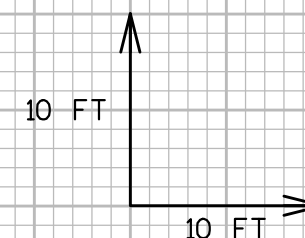




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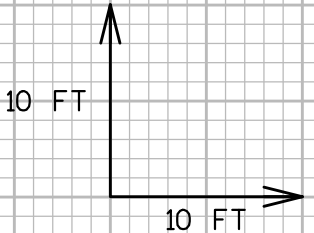
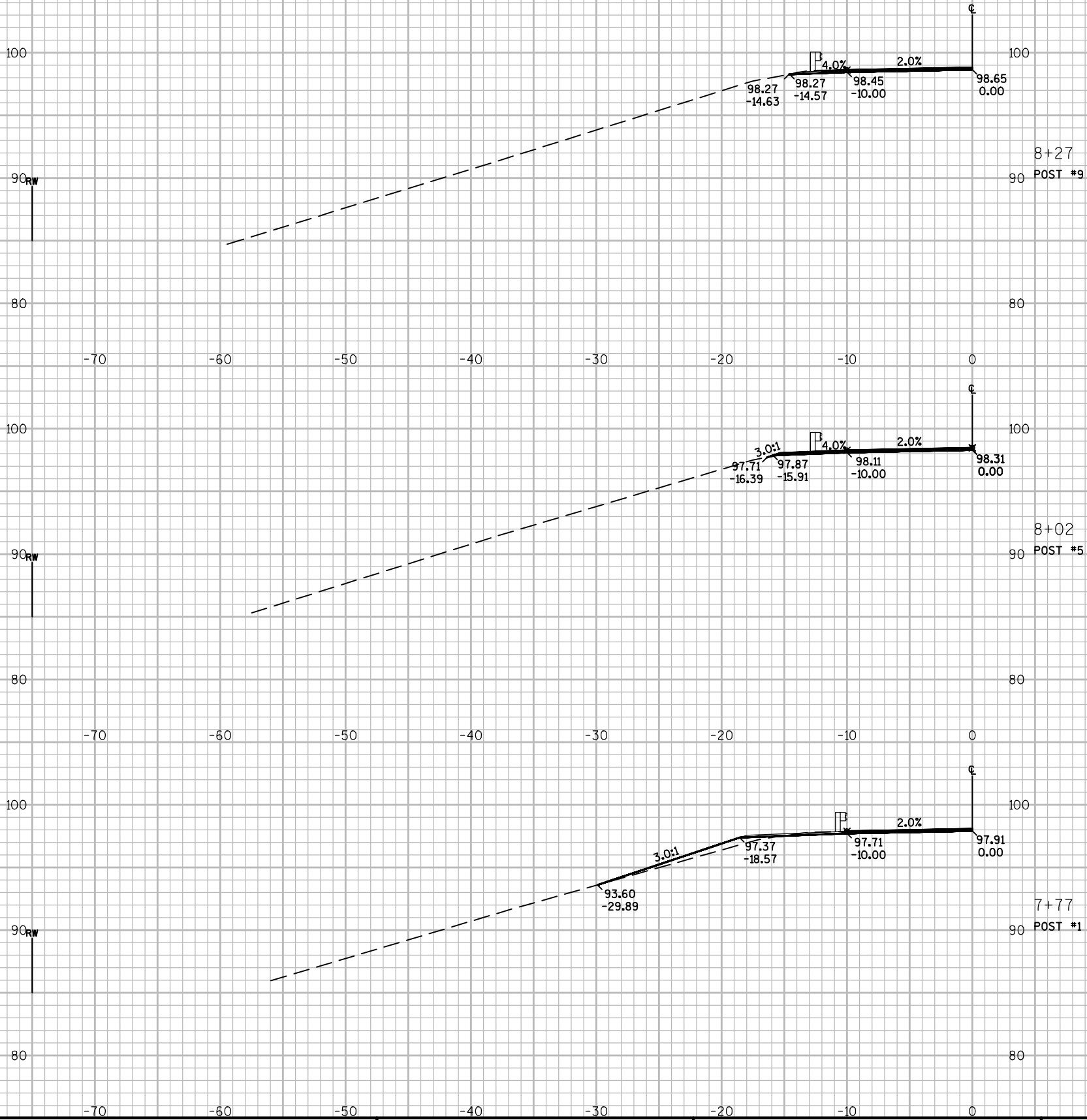
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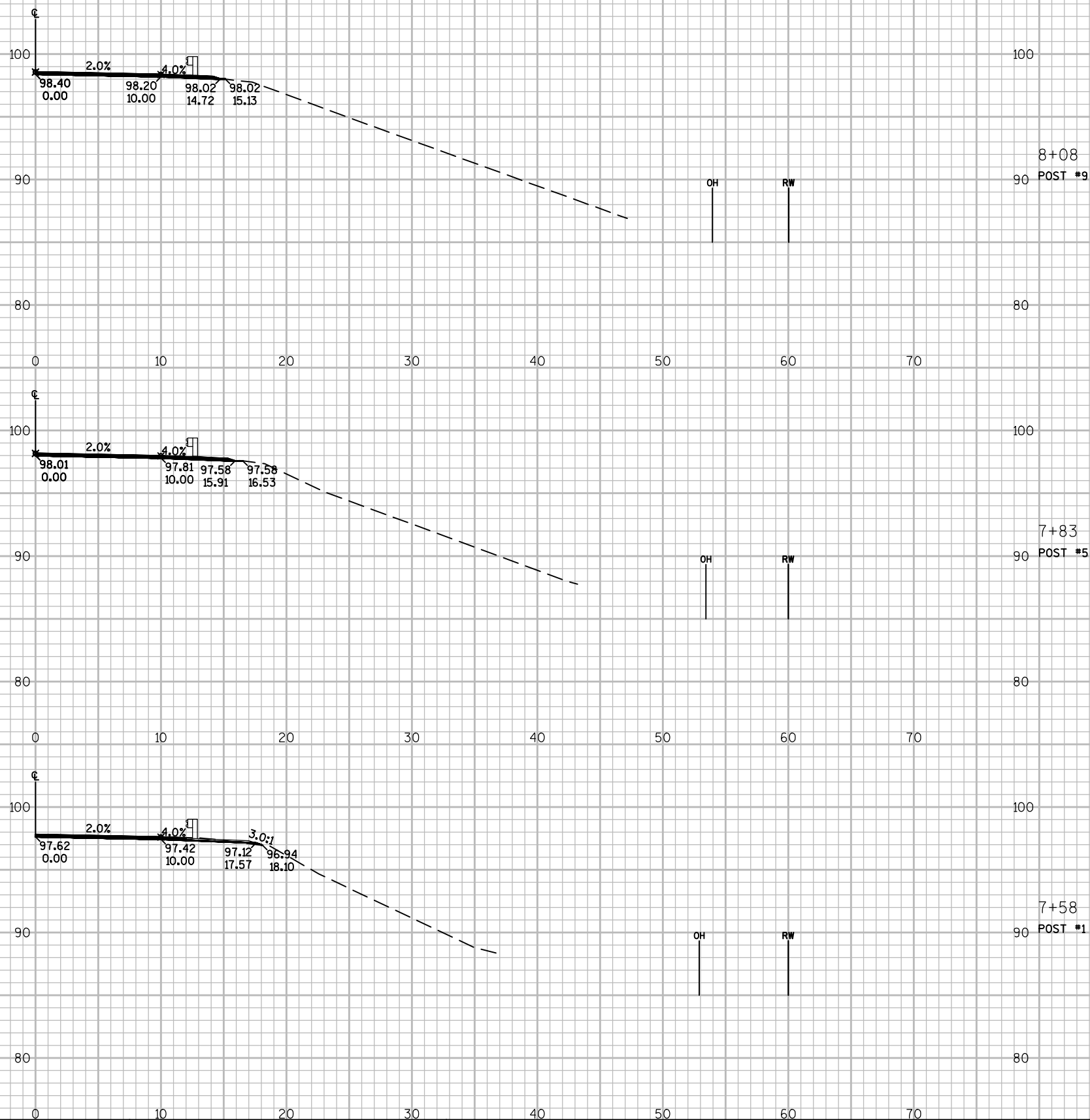


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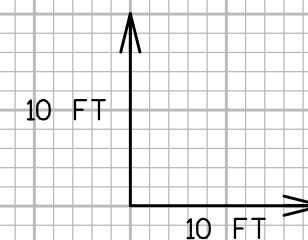
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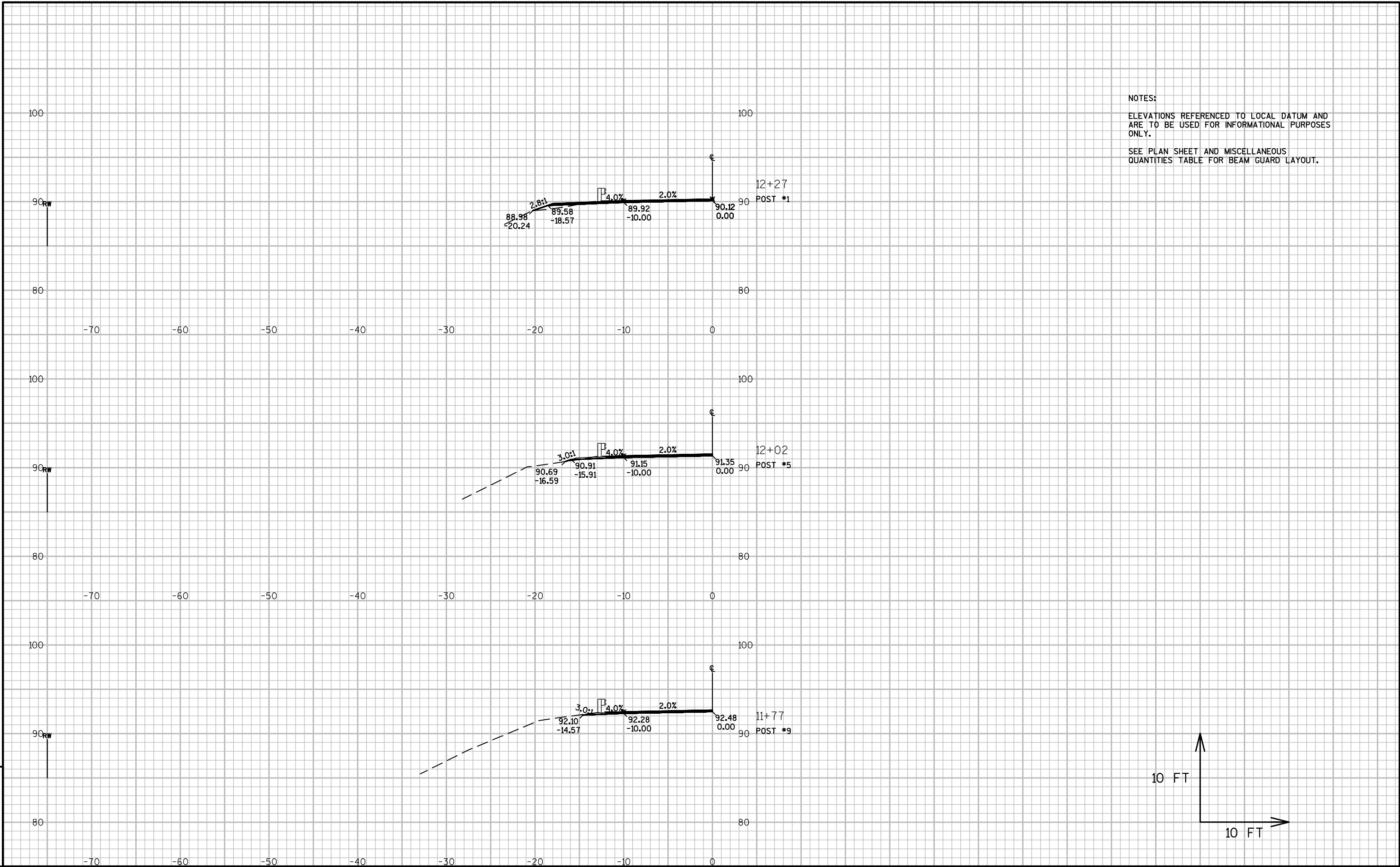


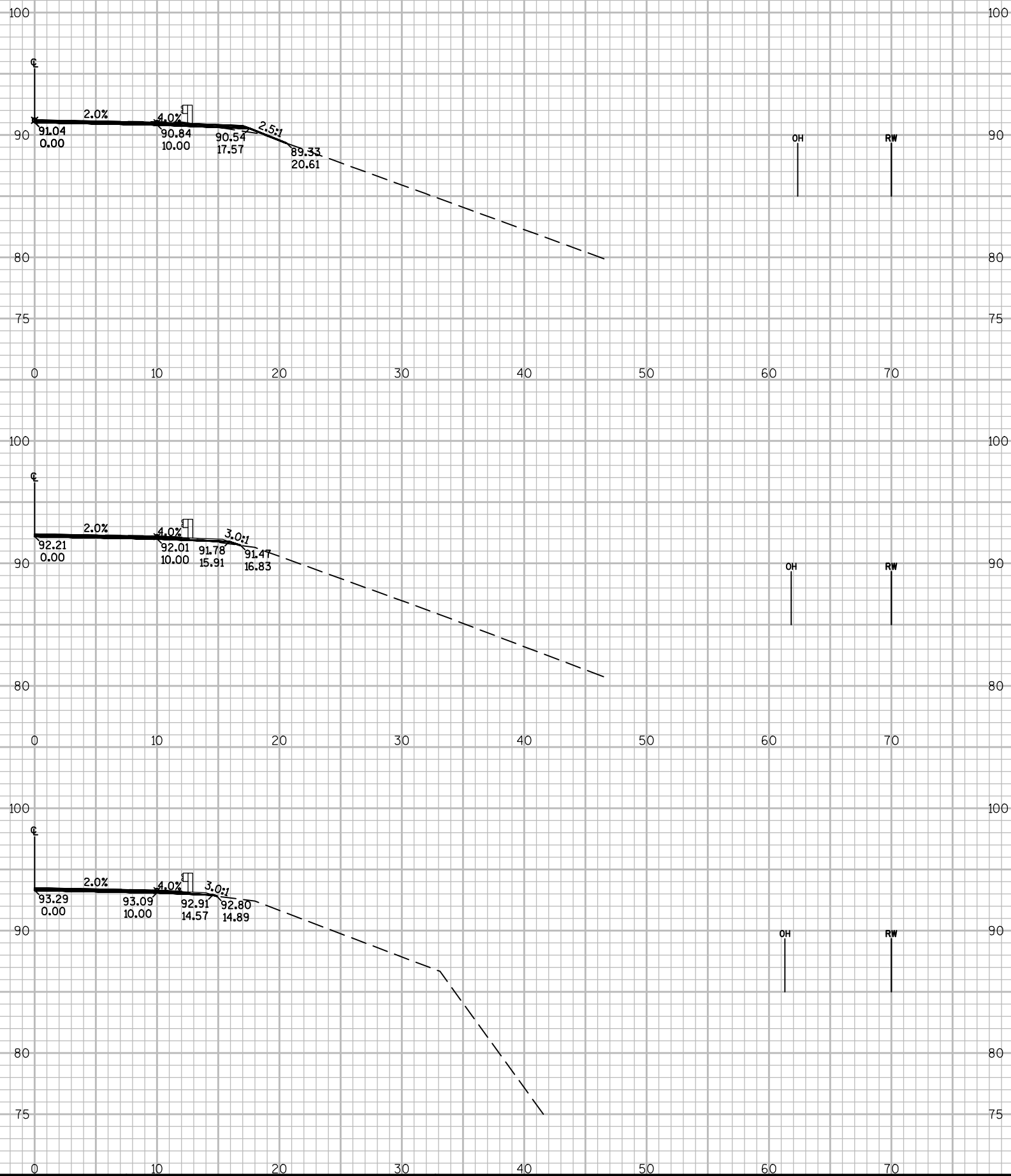
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9



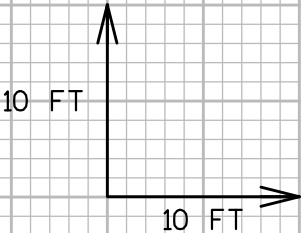
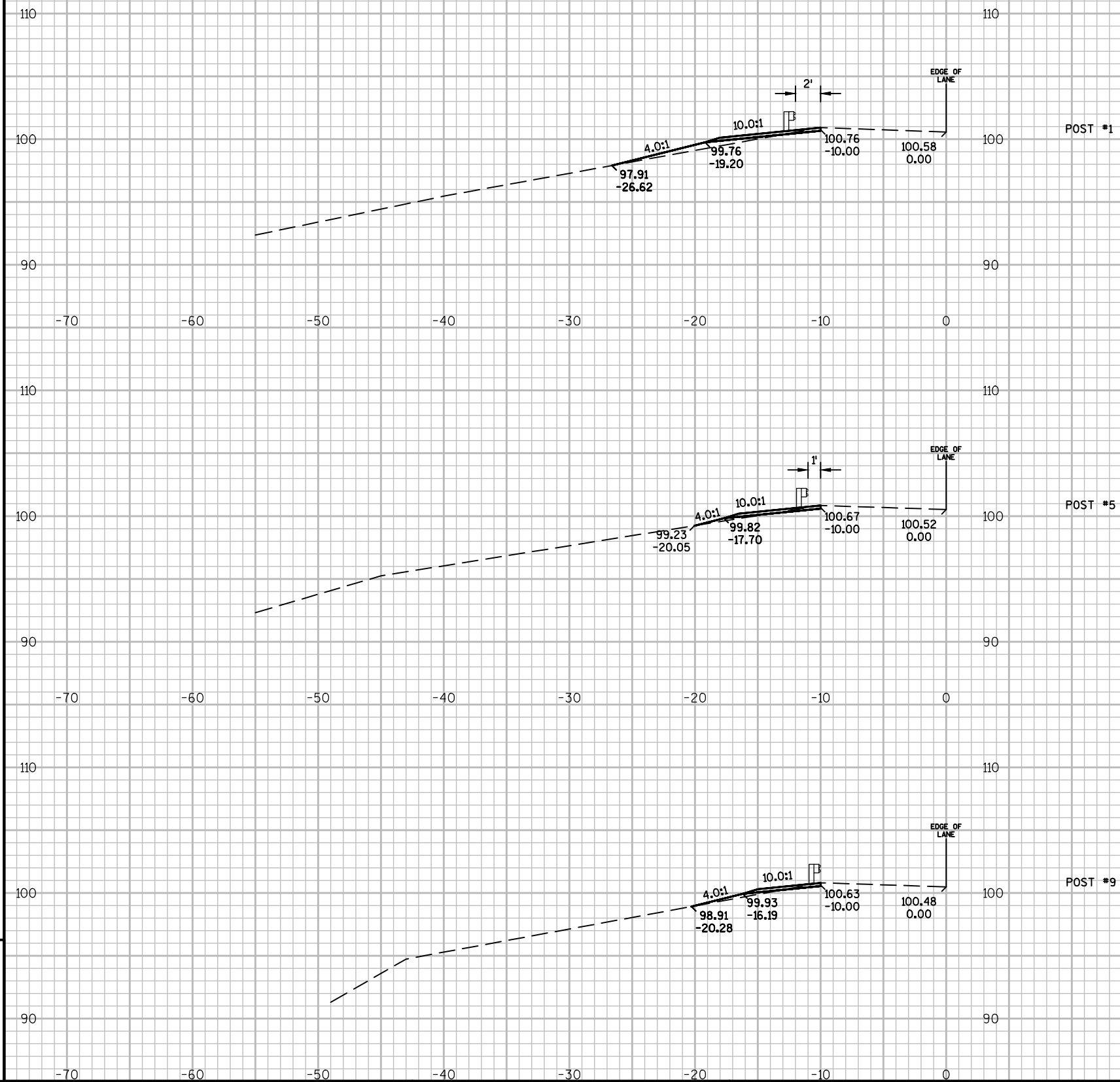
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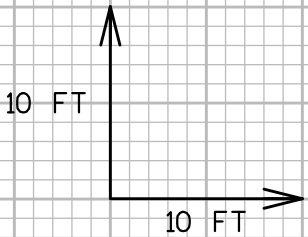
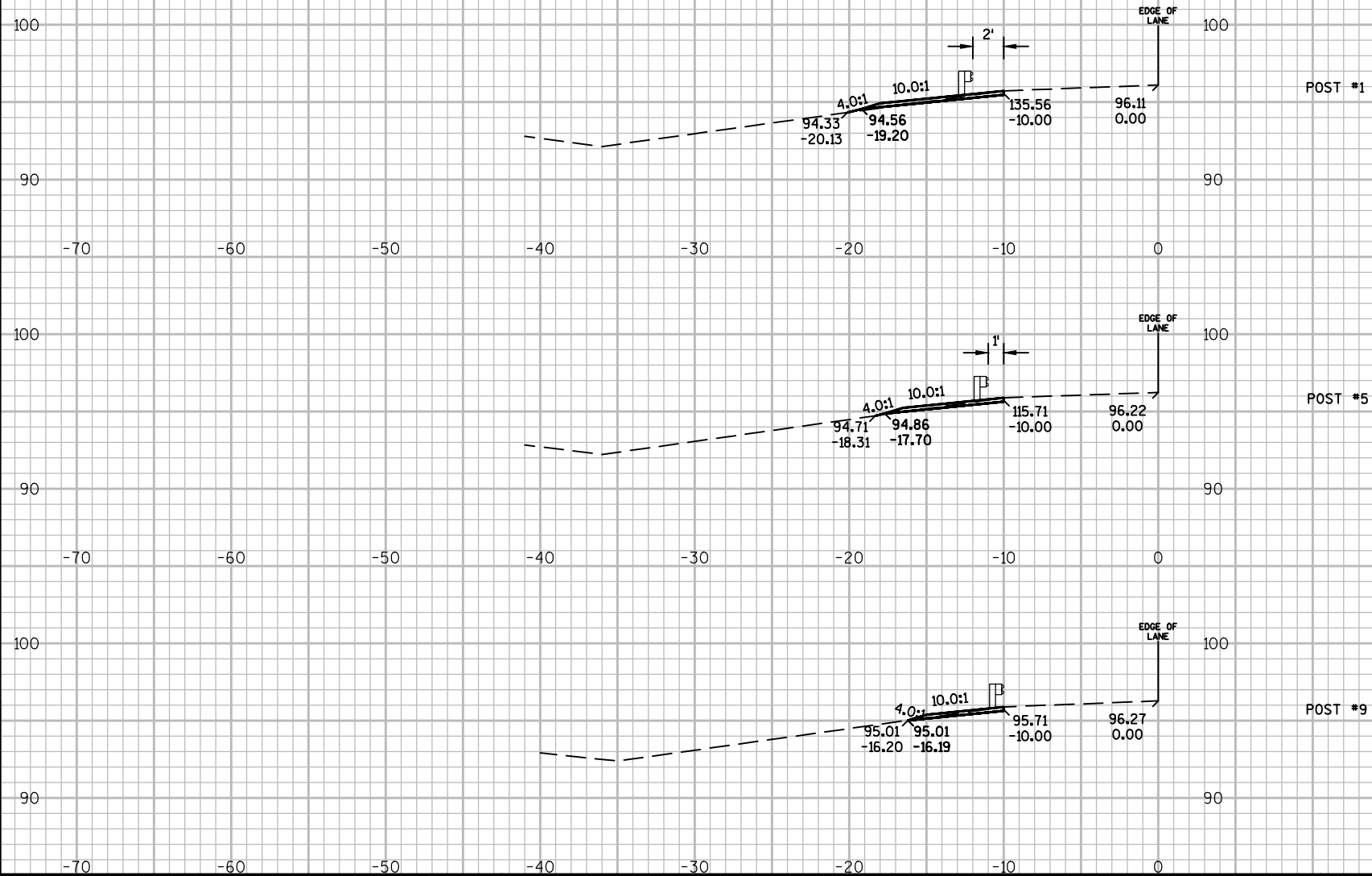


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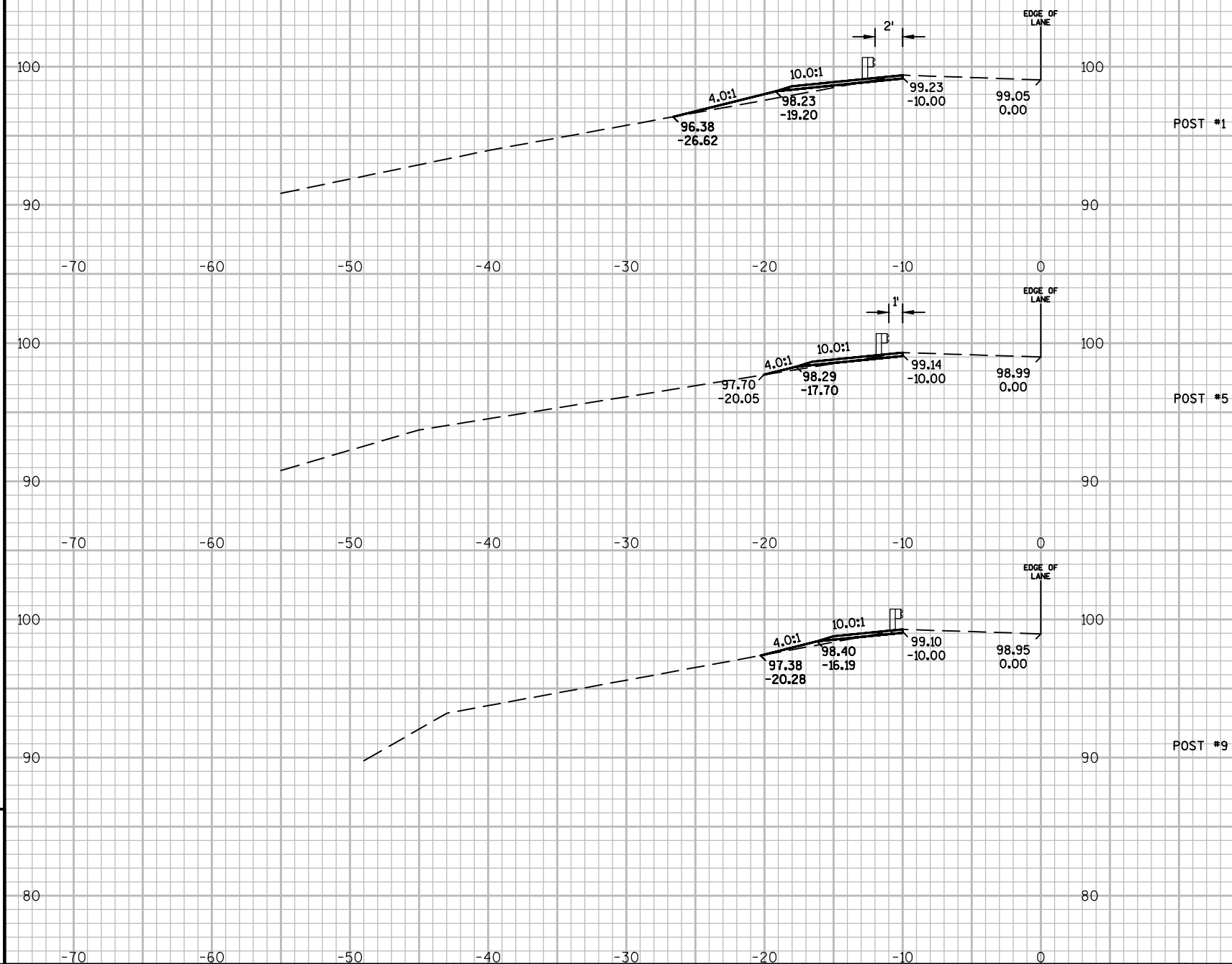
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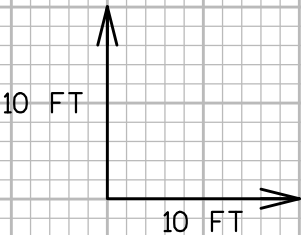
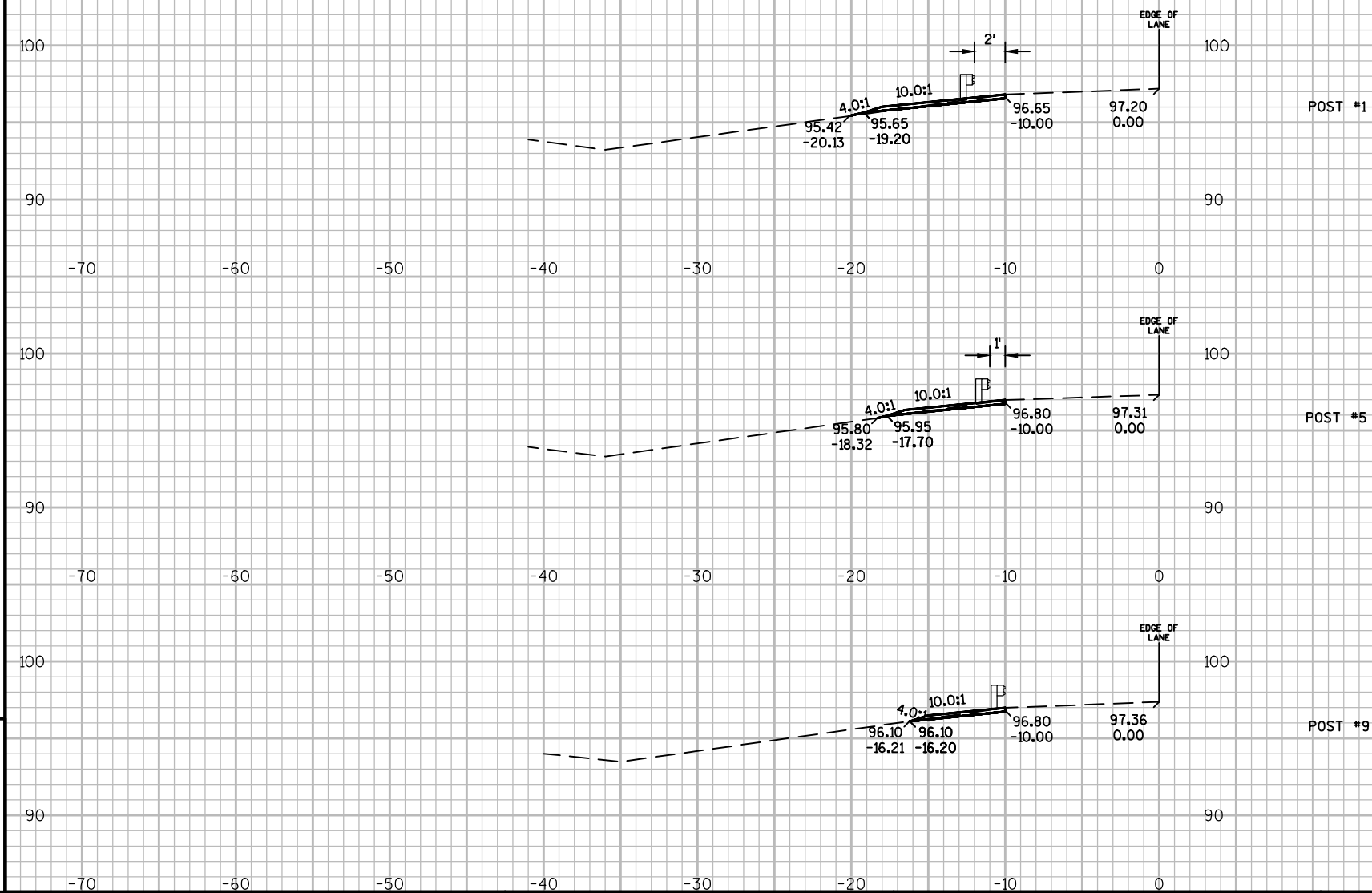
NOTES:  
ELEVATIONS REFERENCED TO LOCAL DATUM AND  
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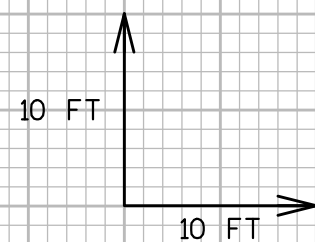
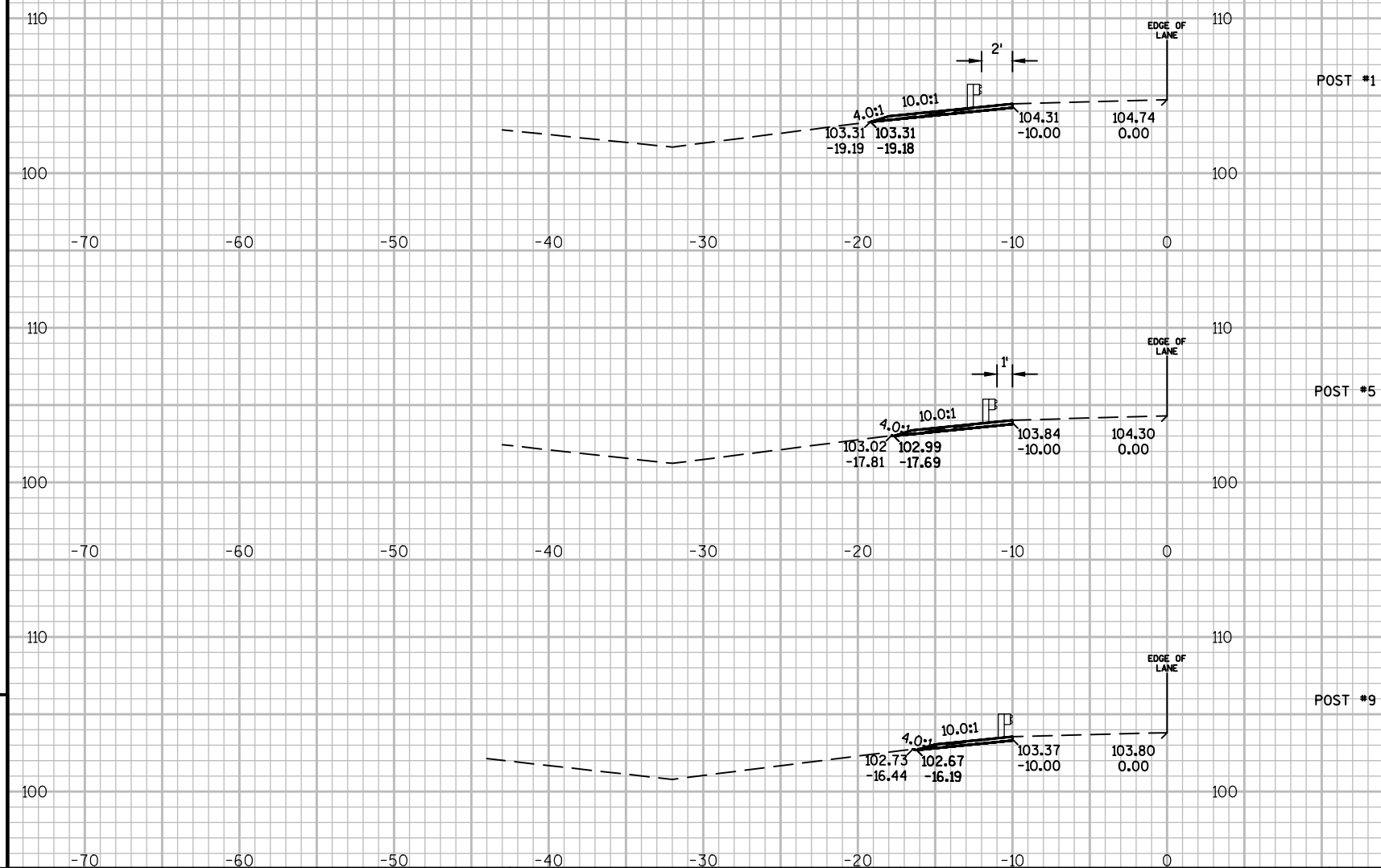
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