

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

LA CROSSE - TOMAH

B-41-0084, B-41-0090, B-32-0060

IH 90

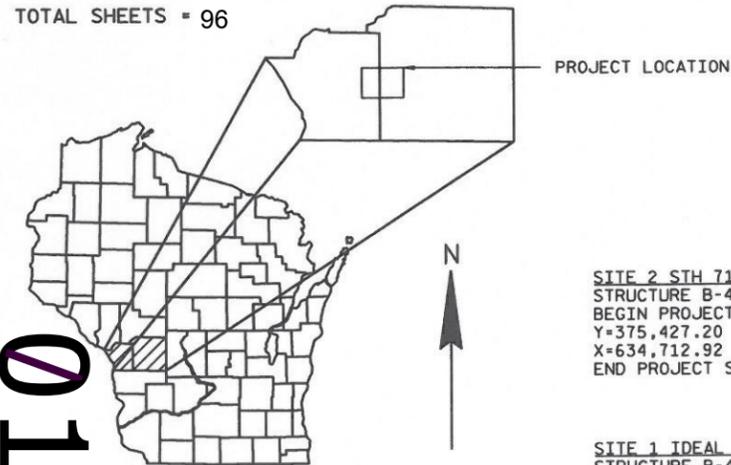
LA CROSSE & MONROE COUNTIES

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

ORDER OF SHEETS

- Section No. 1 Title
- Section No. 2 Typical Sections and Details
- Section No. 3 Estimate of Quantities
- Section No. 3 Miscellaneous Quantities
- Section No. 4 Right of Way Plat
- Section No. 5 Plan and Profile
- Section No. 6 Standard Detail Drawings
- Section No. 7 Sign Plates
- Section No. 8 Structure Plans
- Section No. 9 Computer Earthwork Data
- Section No. 9 Cross Sections

TOTAL SHEETS = 96



STATE PROJECT NUMBER
1077-01-64

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

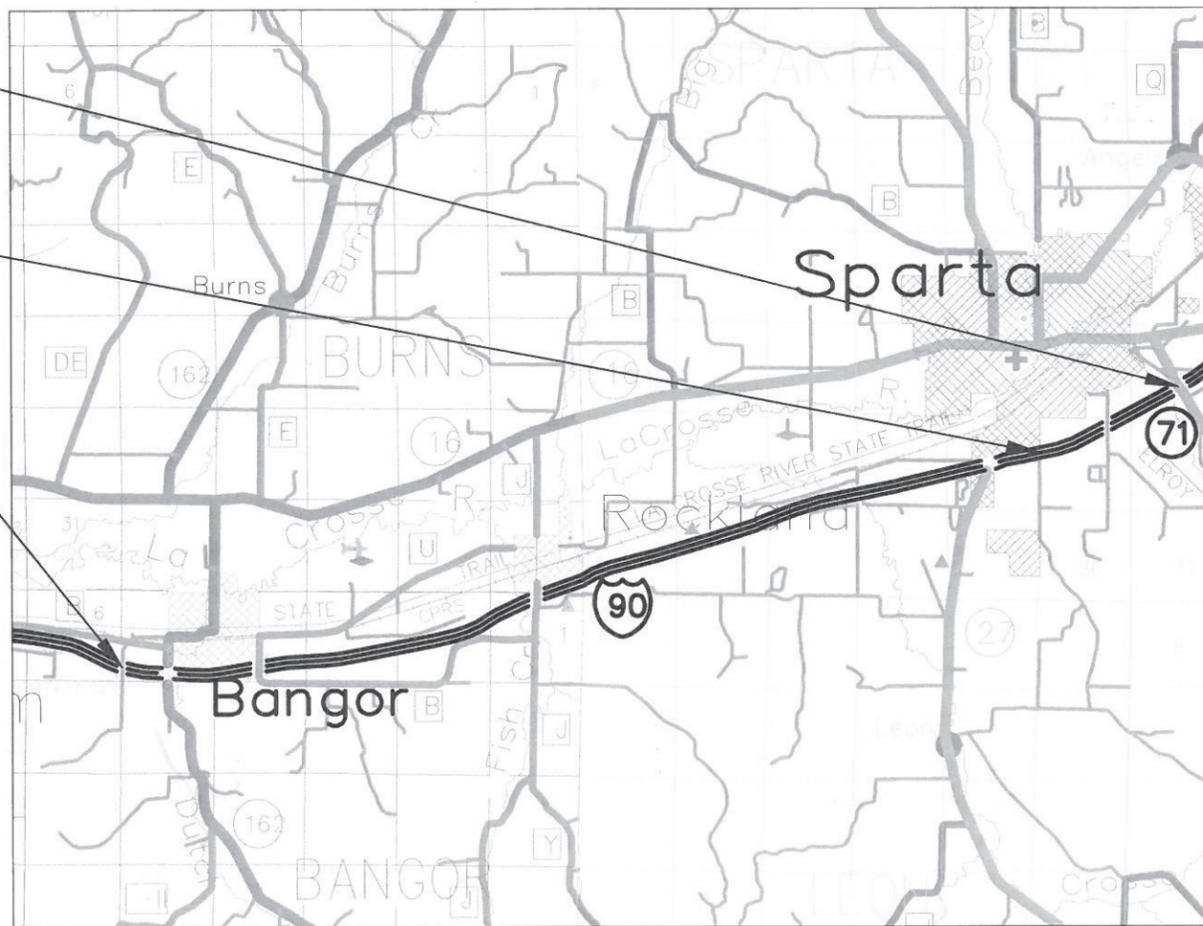
SITE 1 IDEAL ROAD
STRUCTURE B-41-84
BEGIN PROJECT STA. 12+95.30
Y=371,430.61
X=626,577.29
END PROJECT STA. 19+27.38

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

<p>PLAN</p> <p>CORPORATE LIMITS </p> <p>PROPERTY LINE </p> <p>LOT LINE </p> <p>LIMITED HIGHWAY EASEMENT </p> <p>EXISTING RIGHT OF WAY </p> <p>PROPOSED OR NEW R/W LINE </p> <p>SLOPE INTERCEPT </p> <p>REFERENCE LINE </p> <p>EXISTING CULVERT </p> <p>PROPOSED CULVERT (Box or Pipe) </p> <p>COMBUSTIBLE FLUIDS </p> <p>MARSH AREA </p> <p>WOODED OR SHRUB AREA </p>	<p>PROFILE</p> <p>GRADE LINE </p> <p>ORIGINAL GROUND </p> <p>MARSH OR ROCK PROFILE (To be noted as such) </p> <p>SPECIAL DITCH </p> <p>GRADE ELEVATION </p> <p>CULVERT (Profile View) </p> <p>UTILITIES</p> <p>ELECTRIC </p> <p>FIBER OPTIC </p> <p>GAS </p> <p>SANITARY SEWER </p> <p>STORM SEWER </p> <p>TELEPHONE </p> <p>WATER </p> <p>UTILITY PEDESTAL </p> <p>POWER POLE </p> <p>TELEPHONE POLE </p>	<p>ROCK </p> <p>LABEL </p> <p>95.36 </p> <p>E </p> <p>FO </p> <p>G </p> <p>SAN </p> <p>SS </p> <p>T </p> <p>W </p>
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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 *Chad A. Schroeder*
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 Winger*
(Signature)

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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.

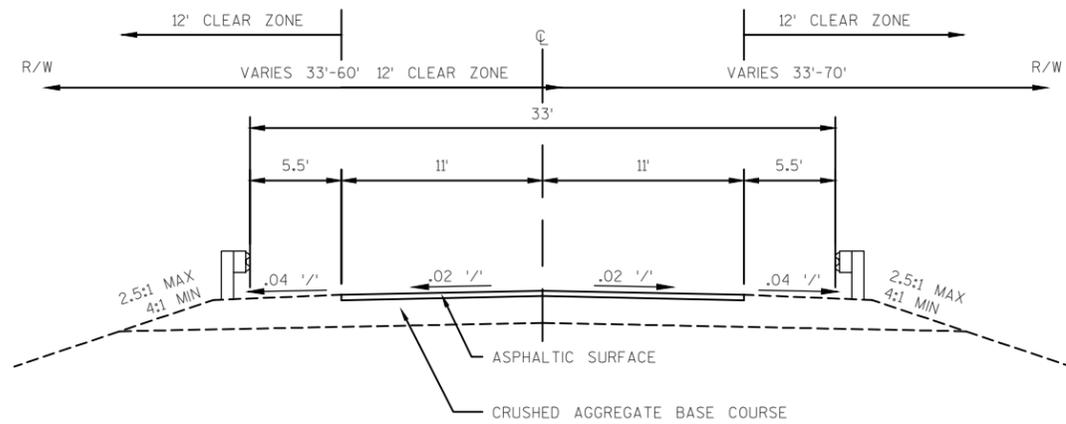
AREA CONTACTS

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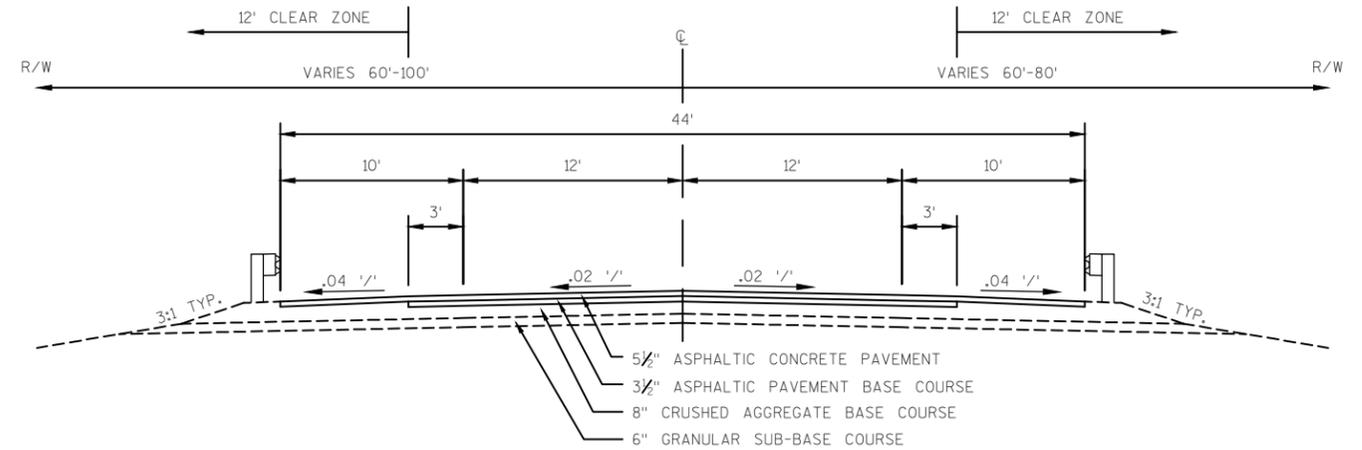
UTILITY CONTACTS

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



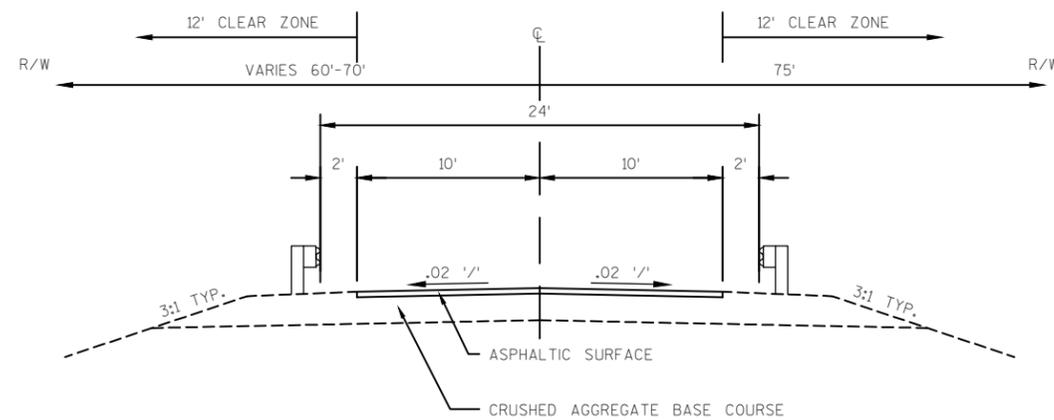
TYPICAL EXISTING SECTION

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



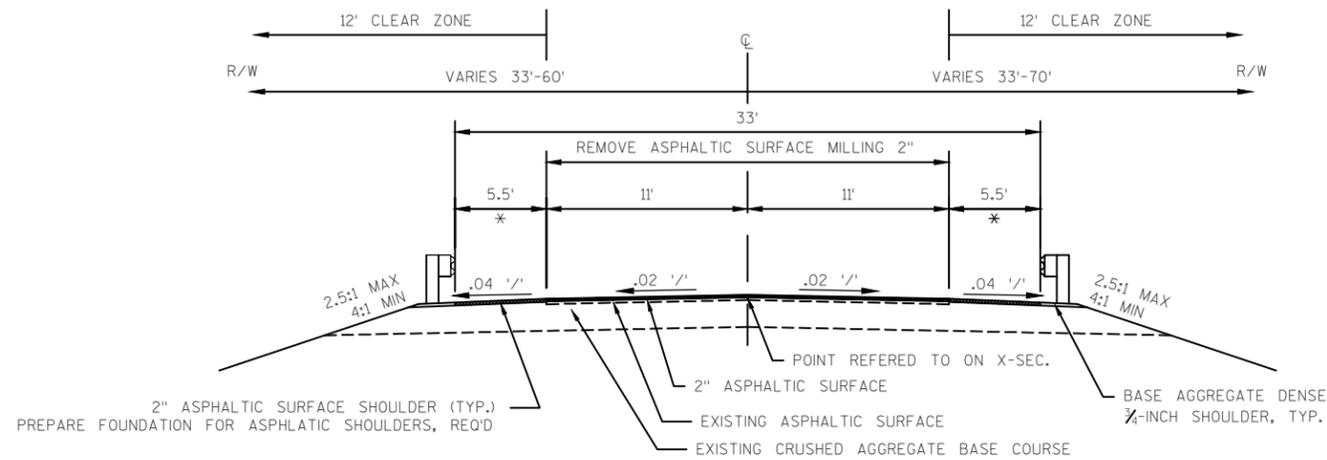
TYPICAL EXISTING SECTION

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



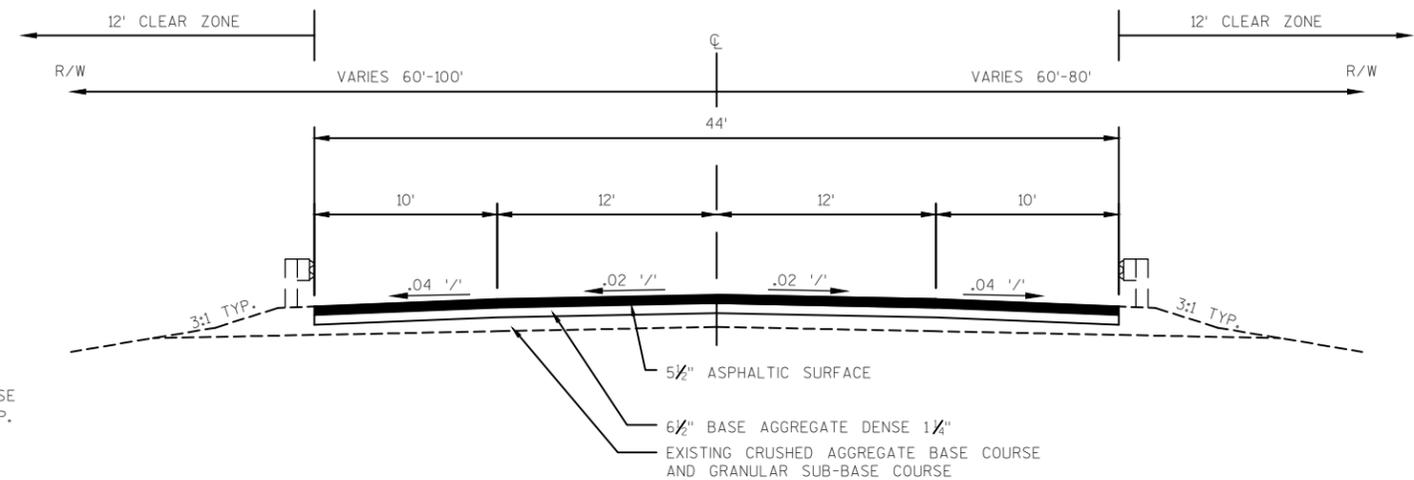
TYPICAL EXISTING SECTION

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



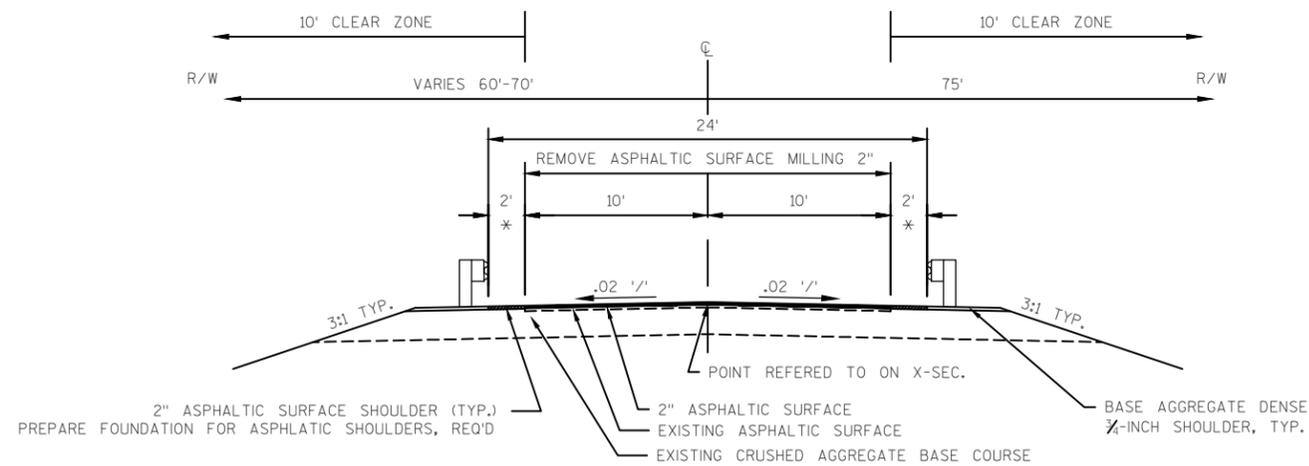
TYPICAL PROPOSED SECTION

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

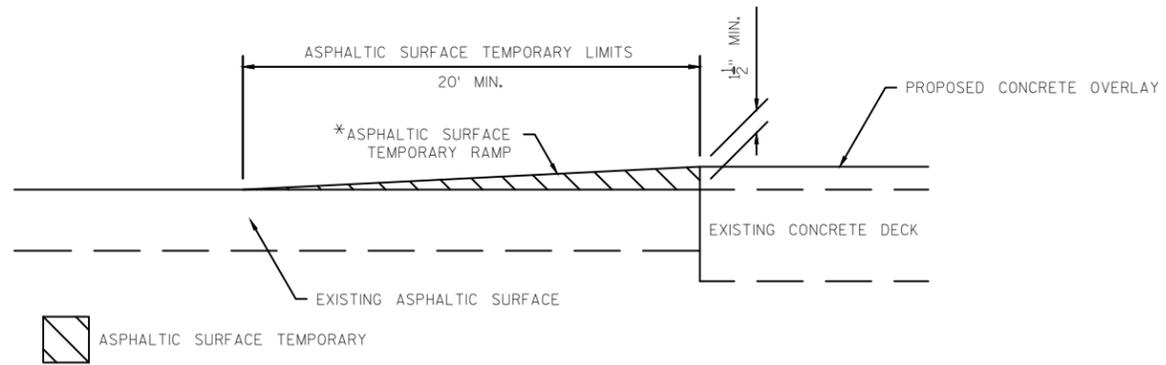
SITE 2, STH 71
 STA. 46+53.26 - 46+73.26
 STA. 49+49.93 - 49+69.93



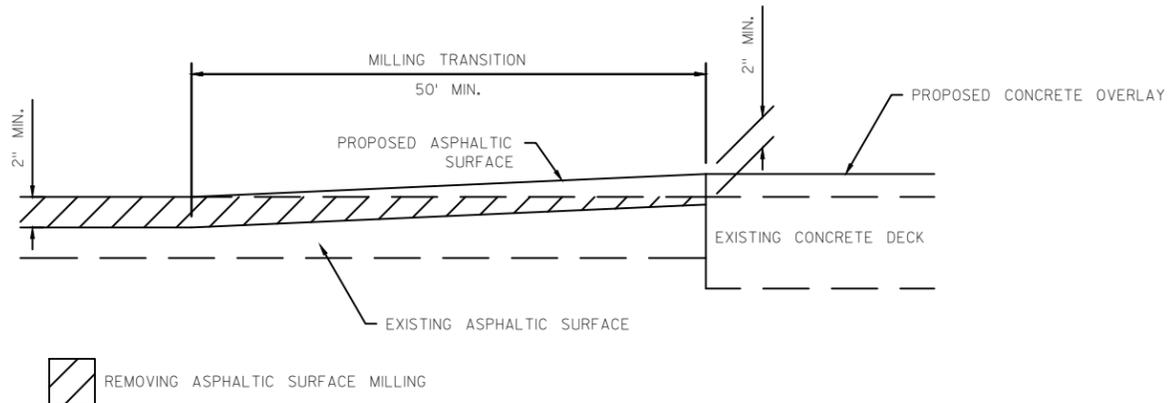
TYPICAL PROPOSED SECTION

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

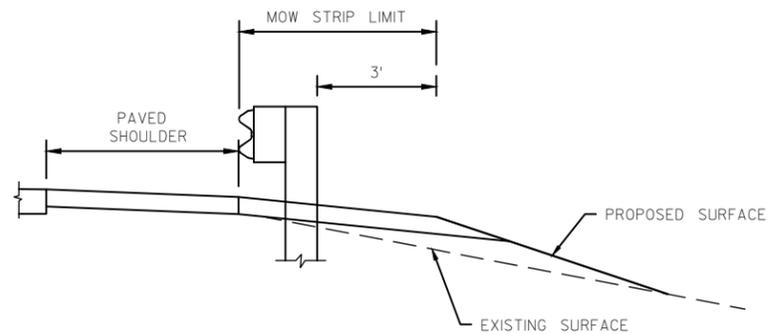
*TO BE REMOVED WHEN MILLING TRANSITION



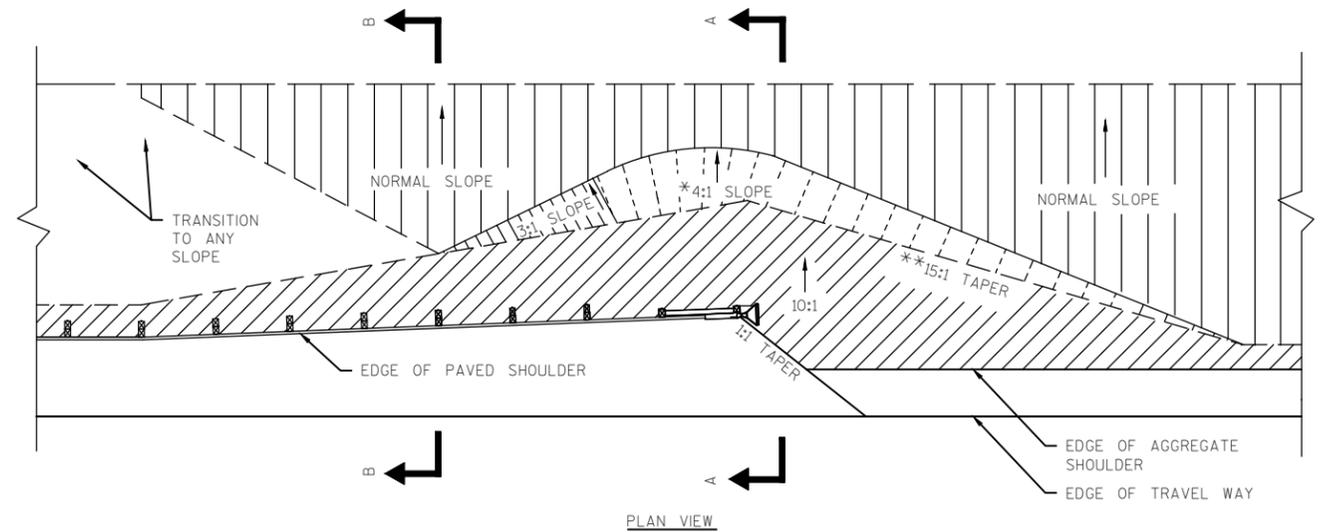
ASPHALTIC SURFACE TEMPORARY DETAIL AT STRUCTURE



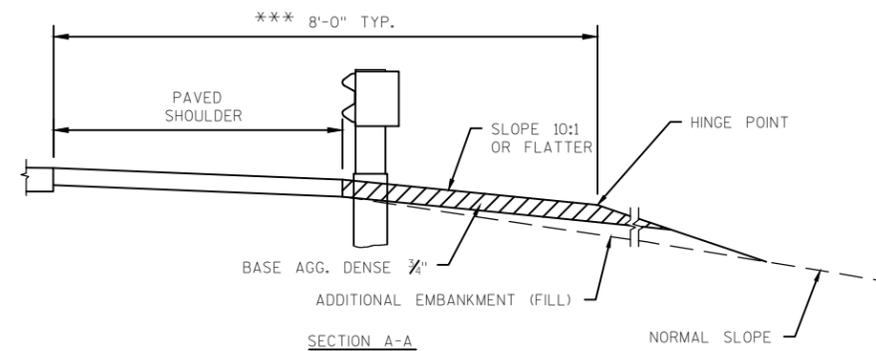
MILLING DETAIL AT STRUCTURE
SITE 1 AND 3



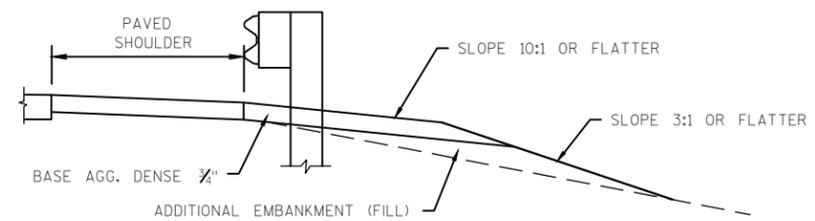
GUARDRAIL MOW STRIP EMULSIFIED ASPHALT SPECIAL
ALL SITES
LIMITS ARE FROM BRIDGE PARAPET TO 5FT BEYOND SURFACE DRAIN



PLAN VIEW



SECTION A-A



SECTION B-B

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 SEEDDED AND FERTILIZED

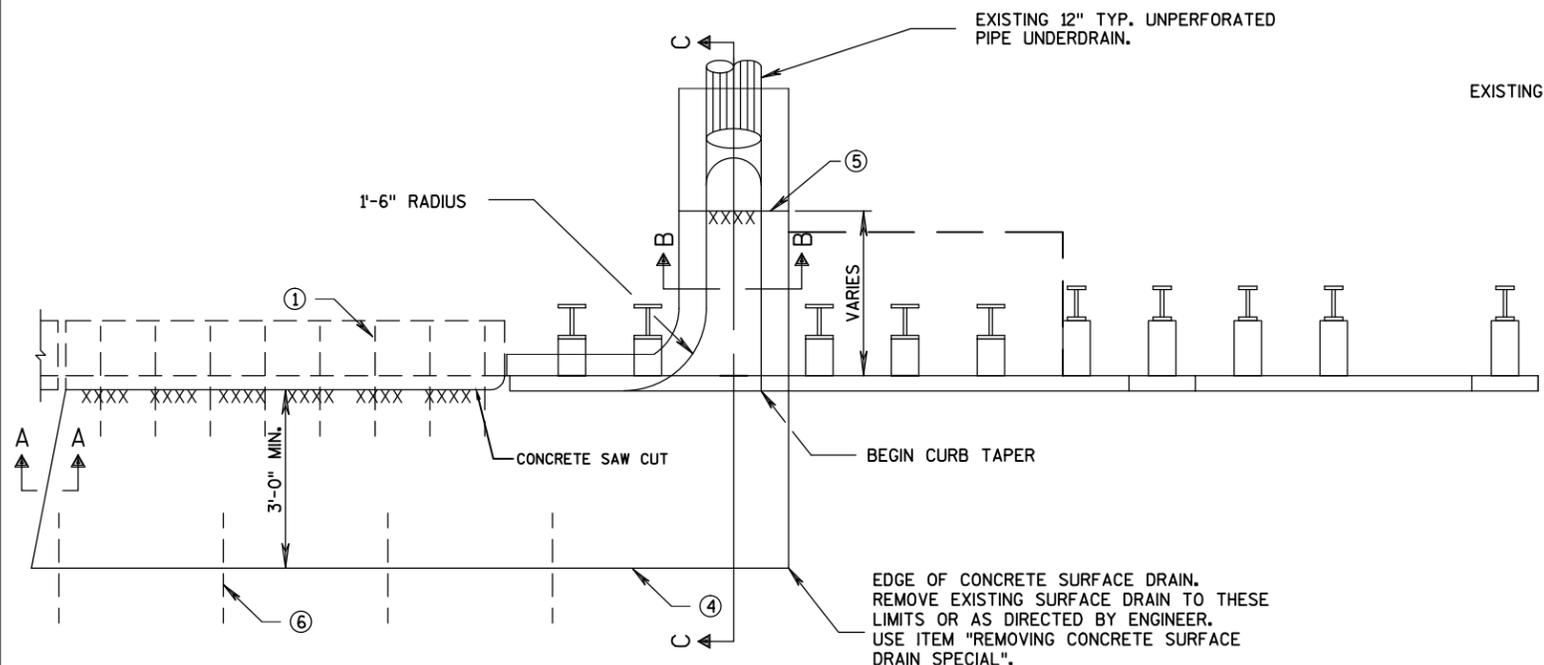
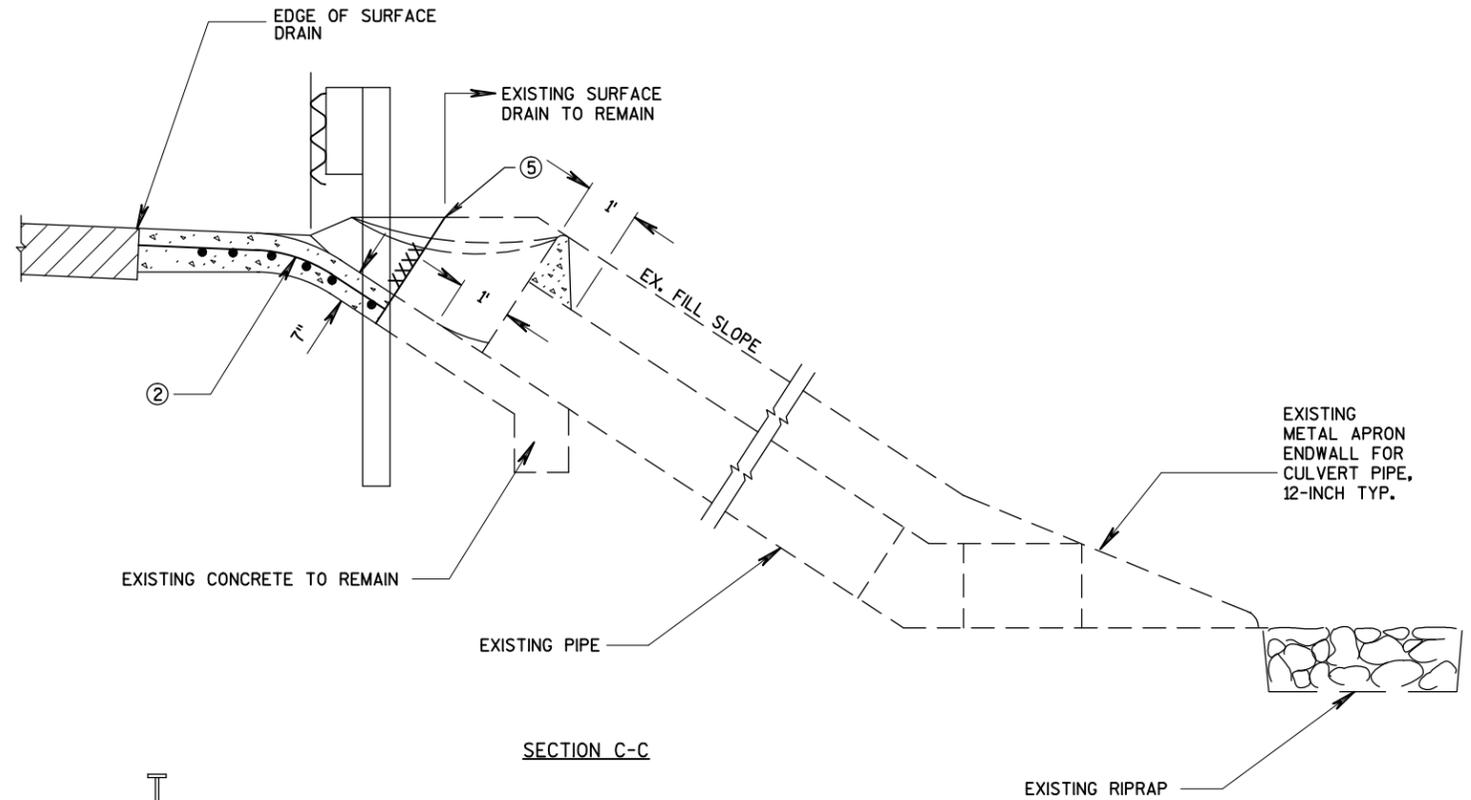
BARRIER SYSTEM GRADING SHAPING FINISHING
SITE 1 AND 3

GENERAL NOTES - STH 71

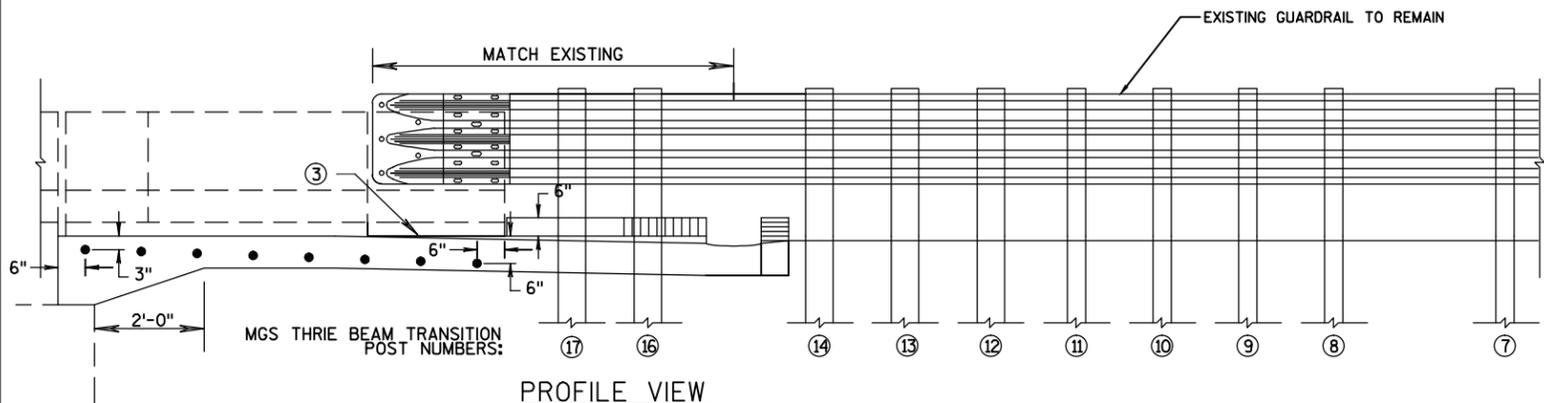
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

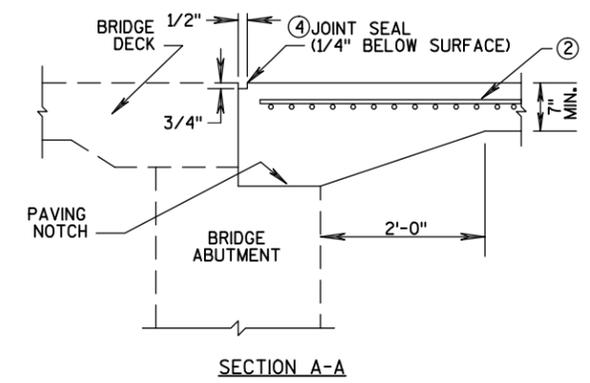
- ① NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ② MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ③ HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.
- ④ ROUT 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



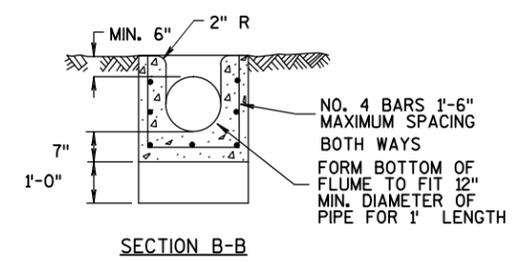
PLAN VIEW



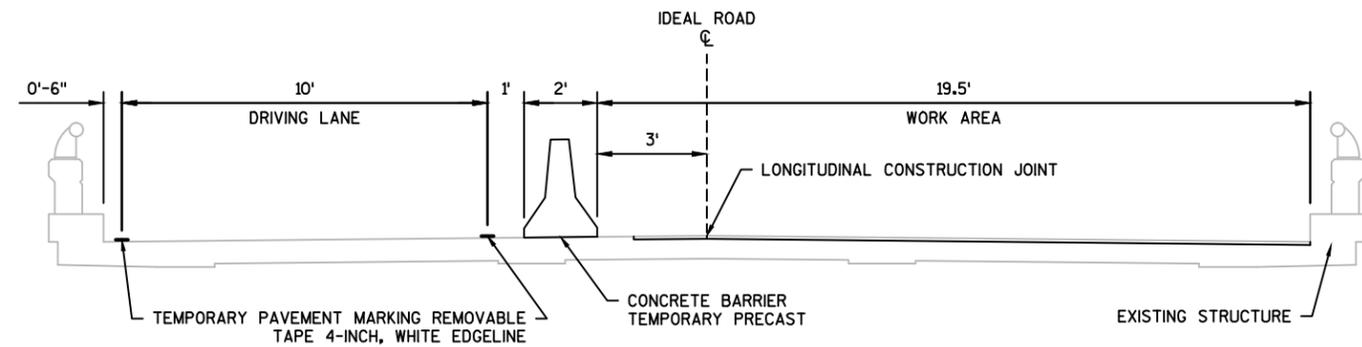
PROFILE VIEW



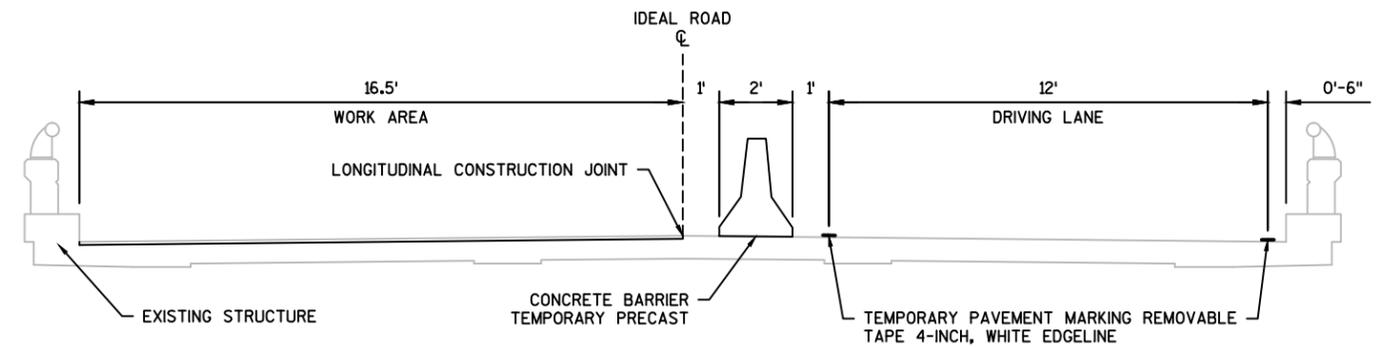
SECTION A-A



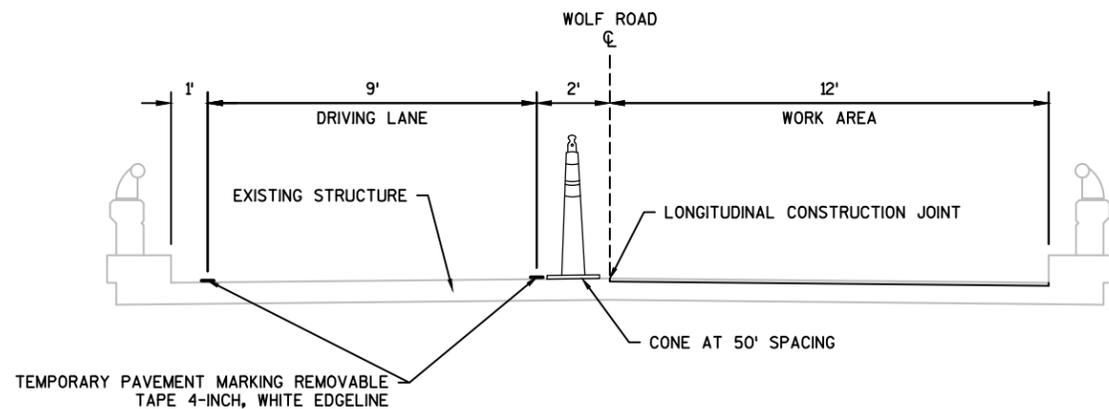
SECTION B-B



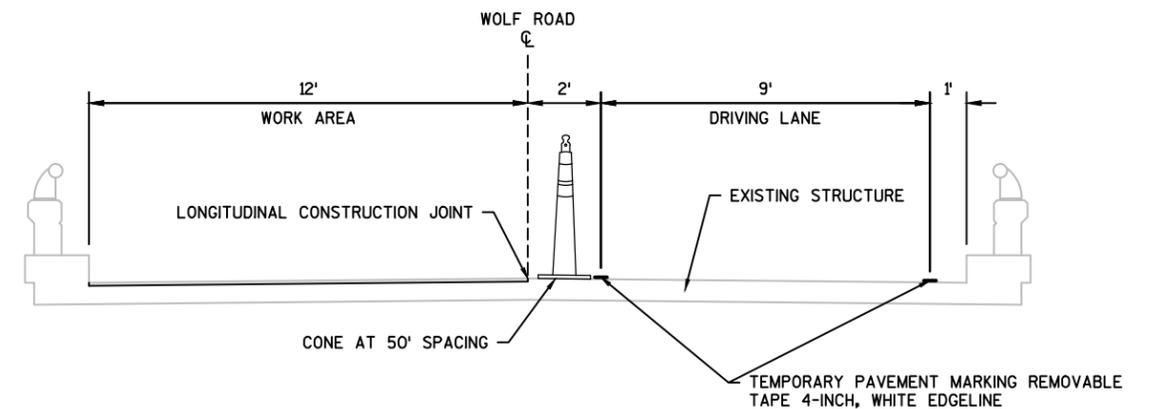
TYPICAL TRAFFIC CONTROL SECTION AT BRIDGE
STAGE 1 - SITE 1 IDEAL ROAD (LOOKING NORTH)



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)



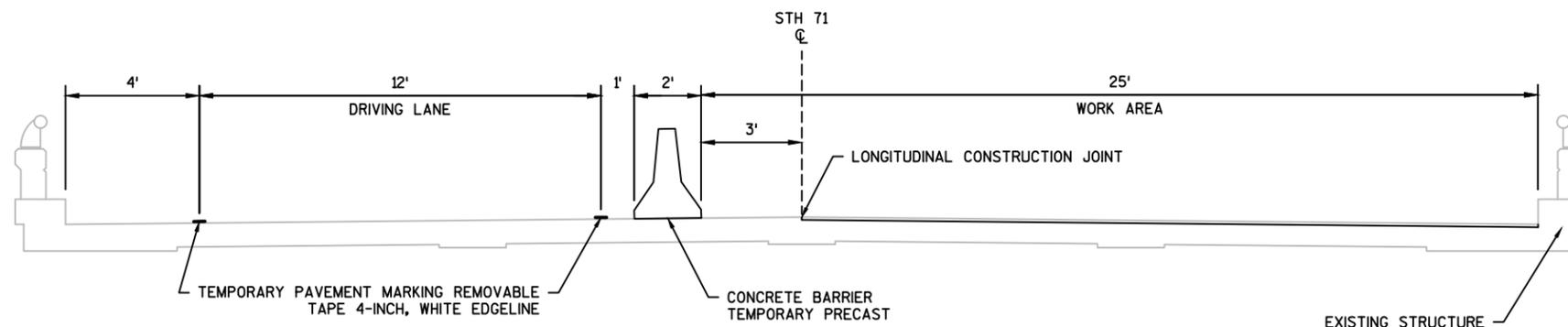
TYPICAL TRAFFIC CONTROL SECTION AT BRIDGE
STAGE 2 - SITE 3 WOLF ROAD (LOOKING NORTH)

NOTES:

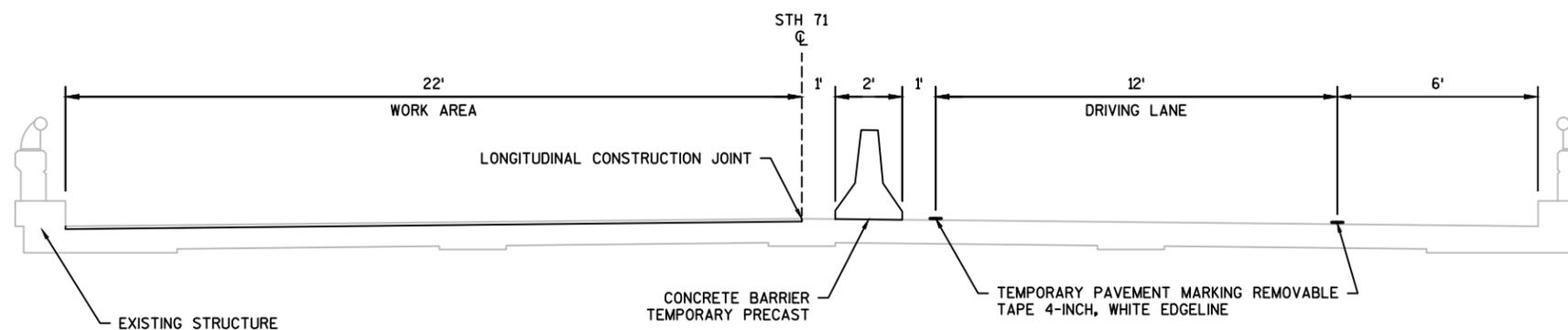
SITE 1 - IDEAL ROAD, B-41-0084, SHALL CONTROL TRAFFIC WITH TEMPORARY SIGNALS. SEE SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS."

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 GUARDRAIL

REMOVING
CONCRETE
PAVEMENT
204.0100

REMOVING
GUARDRAIL
204.0165

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

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

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

PROJECT TOTALS = 1436

213.0100

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

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	

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	

SITE 1 TOTAL = 90

SITE 2 TOTAL = 43

SITE 3 TOTAL = 84

PROJECT TOTALS = 217

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

BASE AGGREGATE DENSE 1 1/4-INCH

ASPHALTIC SURFACE ITEMS SUMMARY

SITE	STATION	TO	STATION	LOCATION	TON	REMARKS
					305.0120	
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	

SITE	STATION	TO	STATION	LOCATION	STA	GAL	TON	REMARKS		
					PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS 211.0400		TACK COAT* 455.0605		ASPHALTIC SURFACE 465.0105	
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			

CONCRETE PAVEMENT ITEMS SUMMARY

SITE	STATION	TO	STATION	LOCATION	CONCRETE PAVEMENT 7-INCH 415.0070 SY	CONCRETE PAVEMENT APPROACH SLAB 415.0410 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	

* APPLICATION RATE IS 0.07 GAL/SY

SURFACE DRAINS

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	01. GUARDRAIL MOW STRIP EMULSIFIED ASPHALT SPECIAL SPV.0180.01 SY	GEOTEXTILE FABRIC TYPE R 645.0130 SY	REMARKS
1	16+30	IDEAL RD	2	44	11.0	1.5	4	0	12.0	8.0	B-41-84,NW & NE QUAD
SITE 1 TOTAL =			2	44	11.0	1.5	4	0	12.0	8.0	
2	49+50	STH 71	0	72	3.5	1.5	4	2	6.0	8.0	B-41-90,NW & NE QUAD
SITE 2 TOTAL =			0	72	3.5	1.5	4	2	6.0	8.0	
3	11+25	WOLF RD	2	46	11.0	1.5	4	0	12.0	8.0	B-32-60,NW & NE QUAD
SITE 3 TOTAL =			2	46	11.0	1.5	4	0	12.0	8.0	
PROJECT TOTALS =			4	162	25.5	4.5	12	2	30	24	

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

ASPHALTIC SURFACE TEMPORARY

TEMPORARY PRECAST CONCRETE BARRIER SUMMARY

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	

SITE	STATION TO STATION	LOCATION	STAGE	CONCRETE BARRIER		REMARKS
				TEMPORARY PRECAST DELIVERED 603.8000 LF	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED 603.8125 LF	
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	

BARRIER SYSTEM GRADING SHAPING FINISHING

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

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	

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	
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	MODIFIED GRADING SECTION
18+67	NE QUAD SITE 1	7.91	10	0.00	155	168	3.02	4.53	0.11	39	MODIFIED GRADING SECTION
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	
12+27	NW QUAD SITE 3	6.05	8	0.27	58	85	1.52	2.28	0.05	15	MODIFIED GRADING SECTION
12+08	NE QUAD SITE 3	4.32	5	0.18	52	76	1.37	2.06	0.05	13	MODIFIED GRADING SECTION
	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	

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

TOPSOIL, MULCHING AND SEEDING

LOCATION	SEEDING				
	SALVAGED TOPSOIL	MIXTURE NO. 30	SEEDING TEMPORARY	FERTILIZER TYPE B	MULCH
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

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

MOBILIZATION

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	MGS THRIE BEAM	MGS GUARDRAIL	MGS GUARDRAIL	REMARKS
				3	TRANSITION	TERMINAL EAT	TERMINAL TYPE	
				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	SILT FENCE	REMARKS
				628.1504	MAINTENANCE 628.1520	
				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 EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL 628.1910 EACH	REMARKS
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	
UNDISTRIBUTED				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 EACH	SIGNS TYPE II REFLECTIVE F 637.2230 SF	REMOVING SIGNS TYPE II 638.2602 EACH	REMOVING SMALL SIGN SUPPORTS 638.3000 EACH	REMARKS
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

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

SITE	STATION	TO	STATION	LOCATION	650.8000 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	

SAWING ASPHALT

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	

ROUT AND SEAL CONSTRUCTION JOINTS

SITE	LOCATION	LF	REMARKS
SPV.0090.01			
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	

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

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

SAWING CONCRETE

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	

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

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

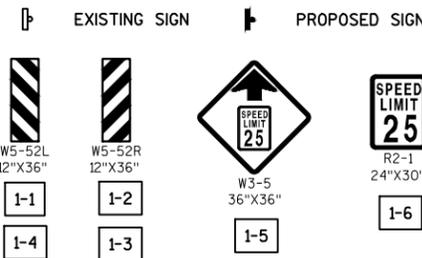
**TEMPORARY TRAFFIC SIGNALS FOR BRIDGES
(STRUCTURE) 02. B-41-0090**

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

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE



SIGN LEGEND



EROSION CONTROL LEGEND

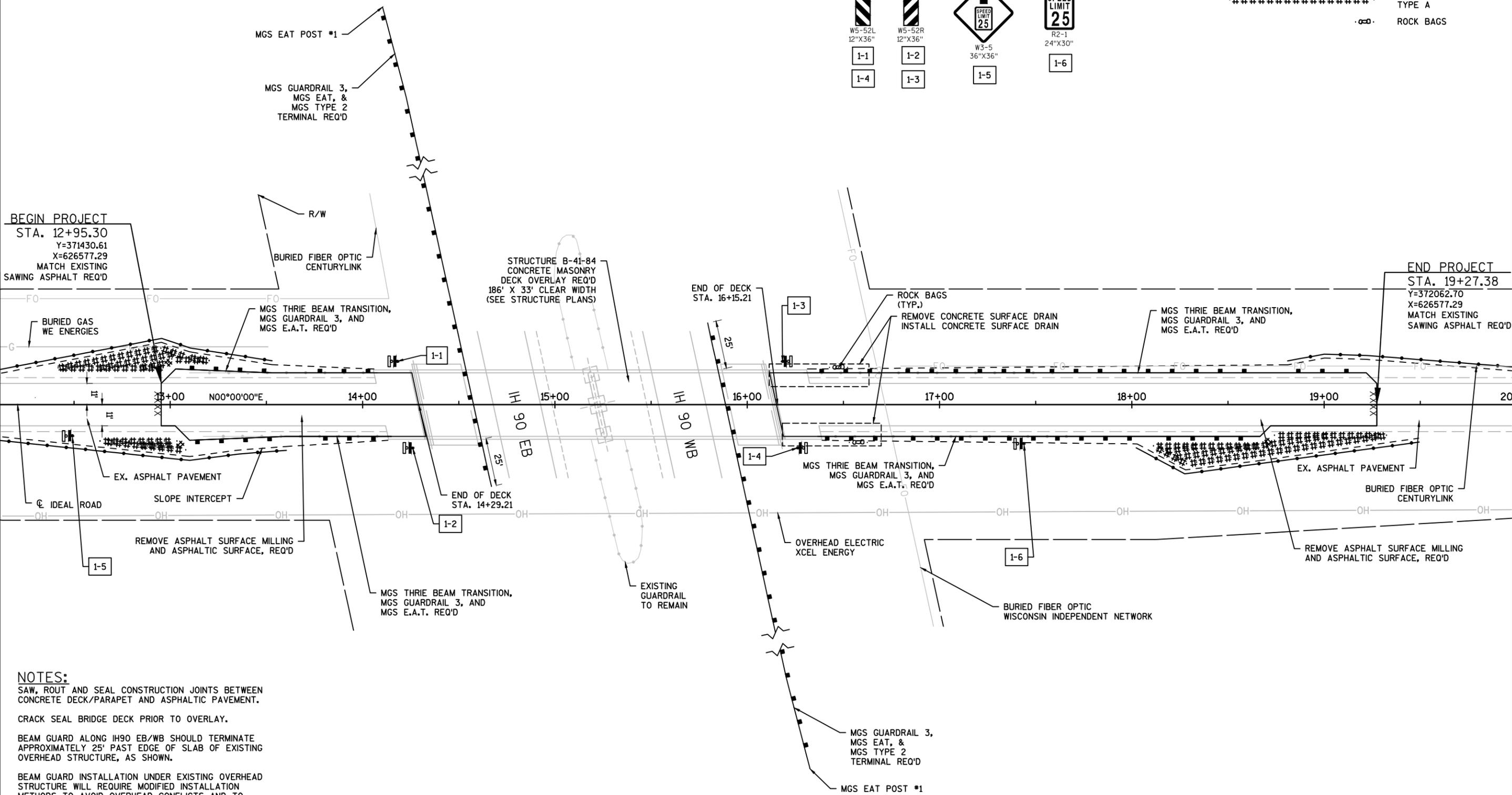


BEGIN PROJECT

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

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

ROCK BAGS
(TYP.)

*ASPHALTIC SURFACE

BURIED FIBER OPTIC
CENTURYLINK

BEGIN PROJECT
STA. 46+53.26
Y=375427.20
X=634712.92
MATCH EXISTING
SAWING ASPHALT REQ'D

CONCRETE PAVEMENT
APPROACH SLAB

STRUCTURE B-41-90
CONCRETE MASONRY DECK OVERLAY
REQ'D 240' X 44' CLEAR WIDTH (SEE
STRUCTURE PLANS)

REMOVE CONCRETE
SURFACE DRAIN
SPECIAL. INSTALL
CONCRETE
SURFACE DRAIN

END PROJECT
STA. 49+69.93
Y=375701.35
X=634554.42
MATCH EXISTING
SAWING ASPHALT REQ'D

END OF DECK
STA. 46+91.60

END OF DECK
STA. 49+31.60
49+00

44+00

45+00

46+00

47+00

N30°02'02"W 48+00

49+00

50+00

51+00

*ASPHALTIC SURFACE
CONCRETE PAVEMENT 7-INCH

REMOVE CONCRETE
SURFACE DRAIN
INSTALL
CONCRETE
SURFACE DRAIN

CONCRETE PAVEMENT APPROACH
SLAB

EXISTING BEAM GUARD TO REMAIN
TYP. ALL QUADRANTS
EX. ASPHALT PAVEMENT

BURIED FIBER OPTIC
WISCONSIN INDEPENDENT NETWORK

EXISTING
GUARDRAIL
TO REMAIN

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

MGS EAT POST #1

SCALE, FEET 0 25 50

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

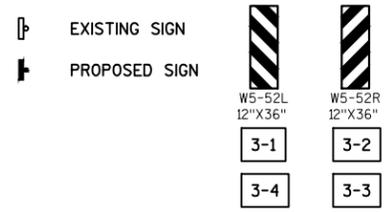
COUNTY: LA CROSSE & MONROE

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

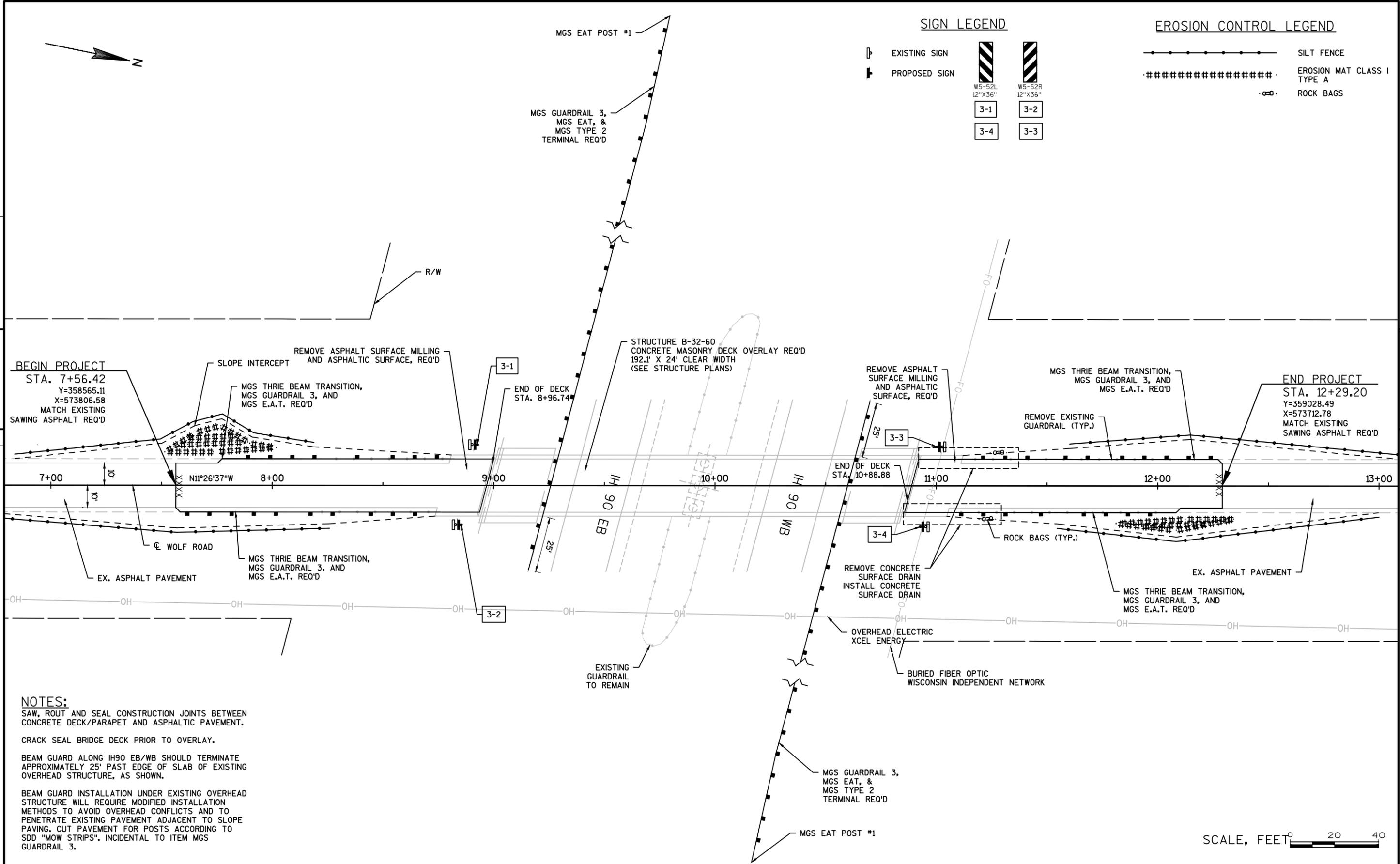
SHEET



SIGN LEGEND



EROSION CONTROL LEGEND



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

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

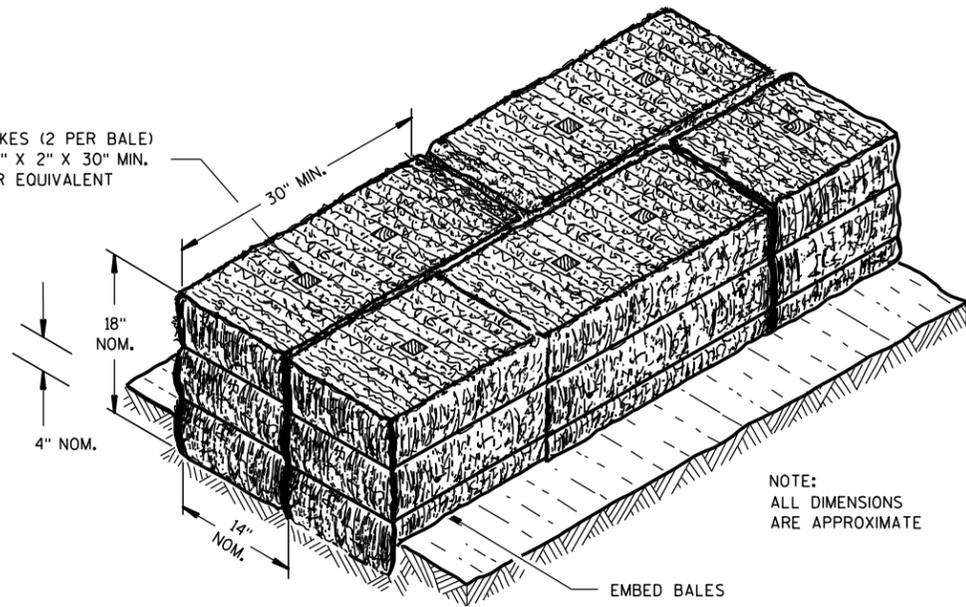
NOTES:
 SAW, ROUT AND SEAL CONSTRUCTION JOINTS BETWEEN CONCRETE DECK/PARAPET AND ASPHALTIC PAVEMENT.
 CRACK SEAL BRIDGE DECK PRIOR TO OVERLAY.
 BEAM GUARD ALONG IH90 EB/WB SHOULD TERMINATE APPROXIMATELY 25' PAST EDGE OF SLAB OF EXISTING OVERHEAD STRUCTURE, AS SHOWN.
 BEAM GUARD INSTALLATION UNDER EXISTING 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.



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

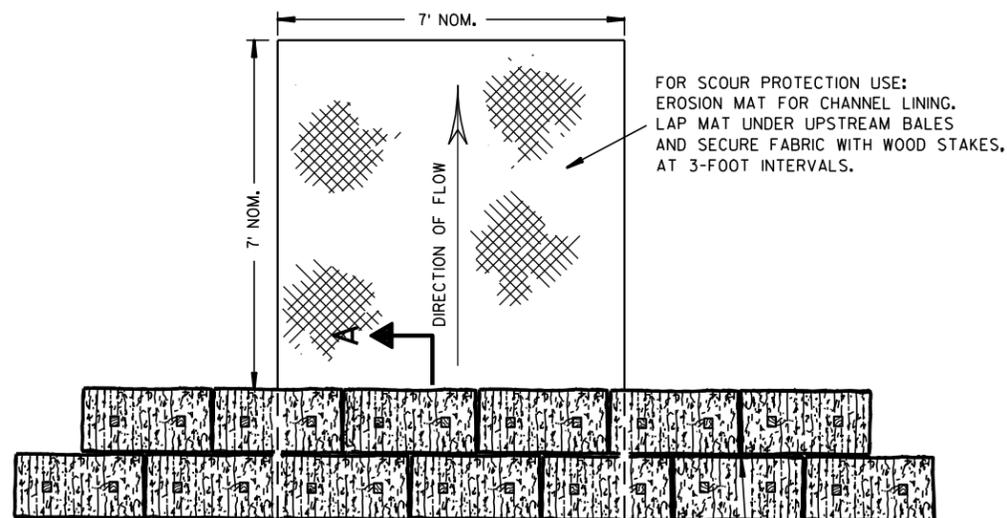
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

EMBED BALES

SECTION A-A

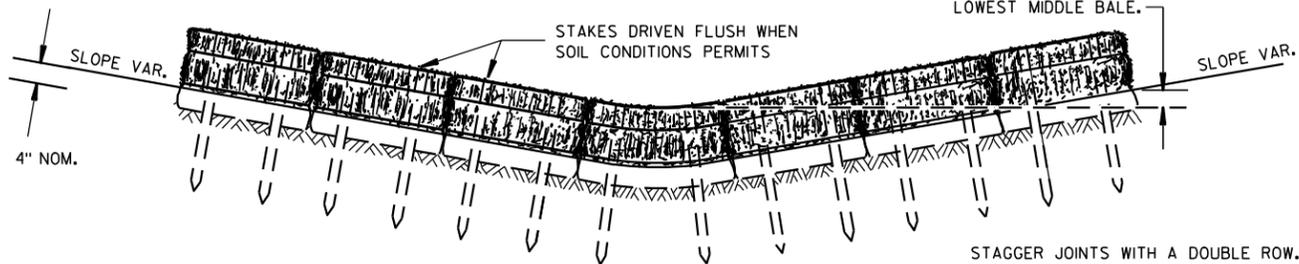


FOR SCOUR PROTECTION USE:
EROSION MAT FOR CHANNEL LINING.
LAP MAT UNDER UPSTREAM BALES
AND SECURE FABRIC WITH WOOD STAKES,
AT 3-FOOT INTERVALS.

STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

PLAN VIEW

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



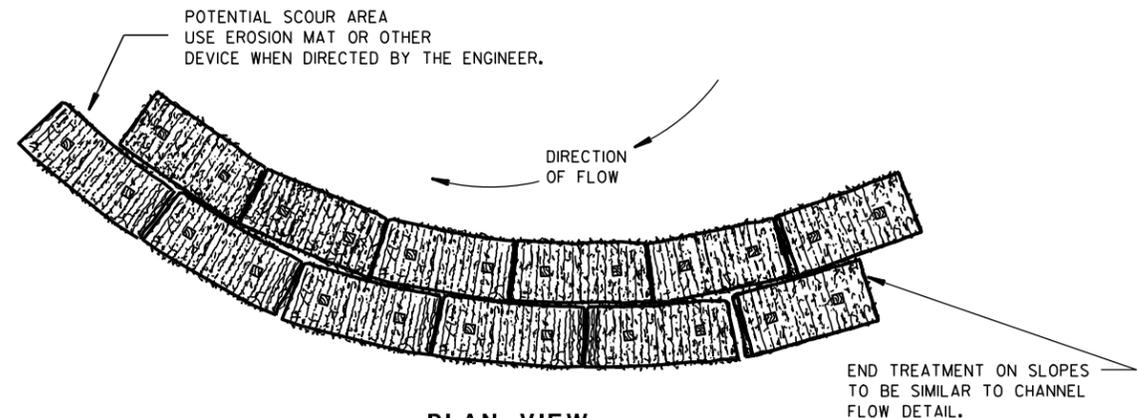
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

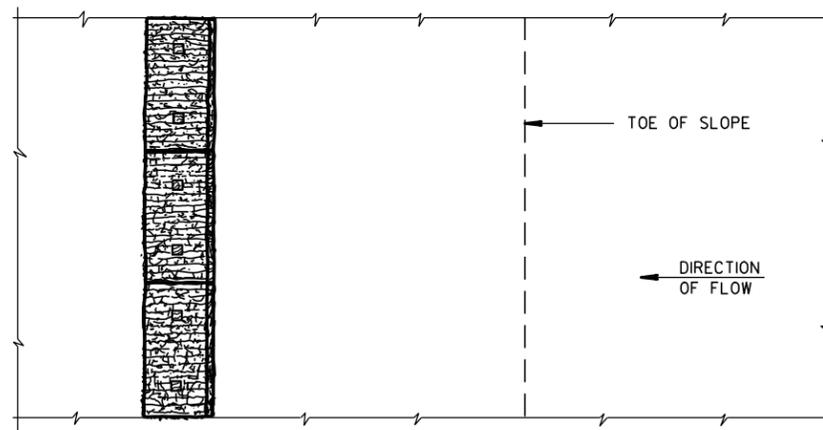
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

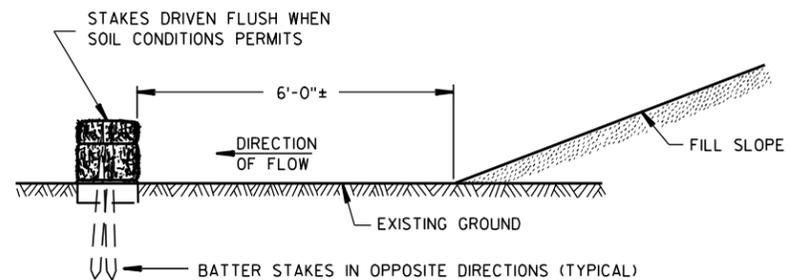


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

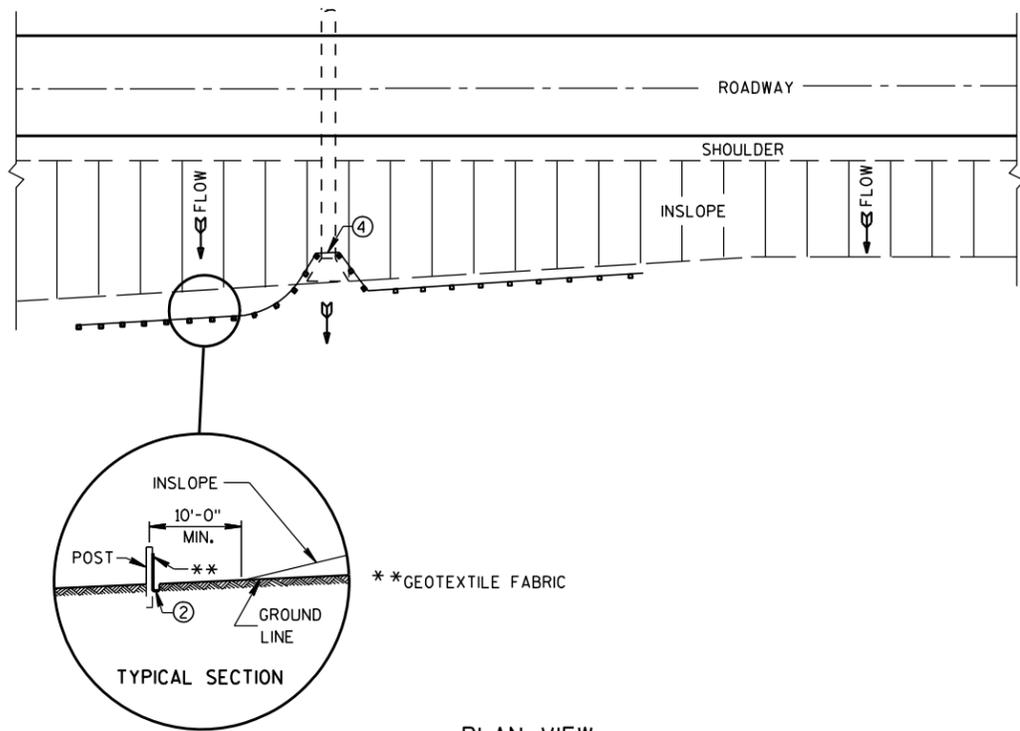
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

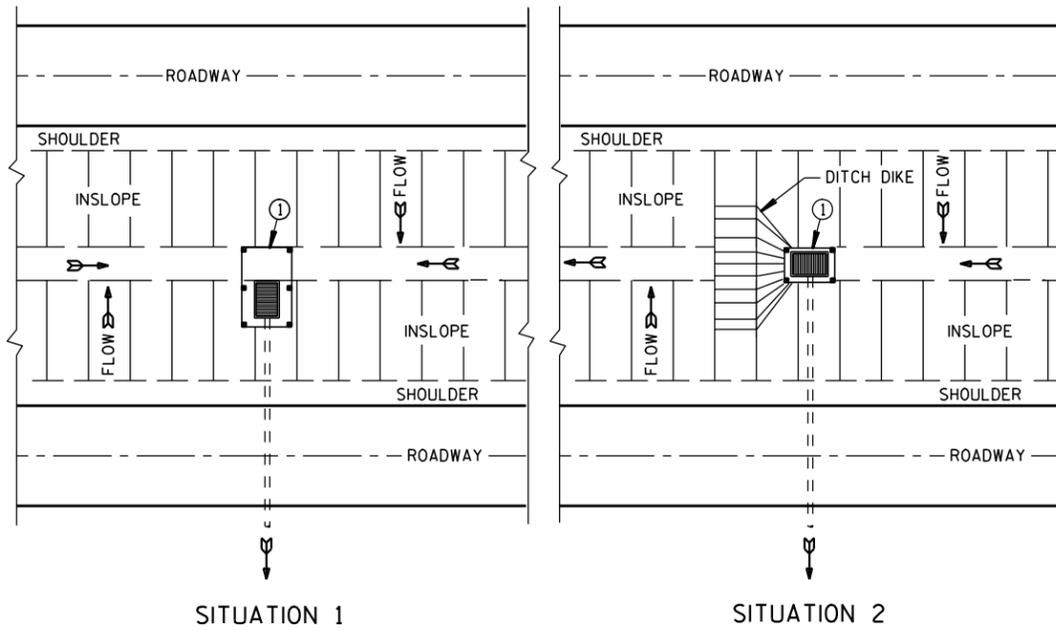
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

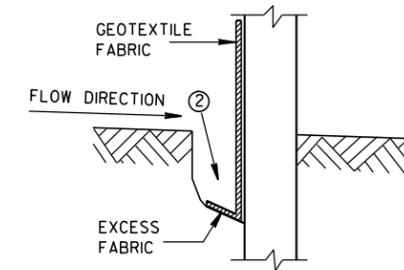


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

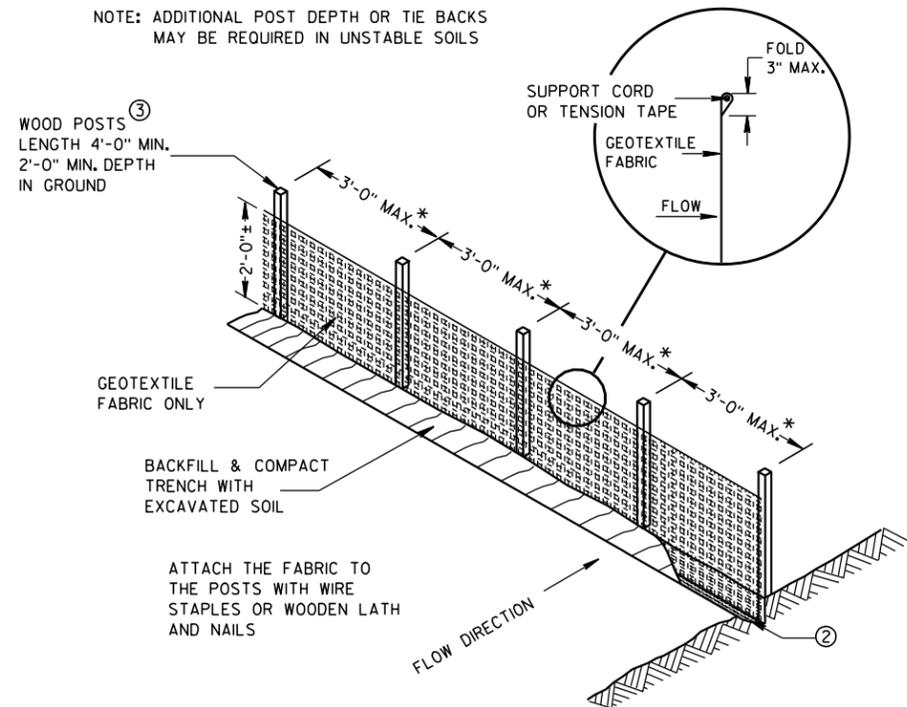
GENERAL NOTES

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

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

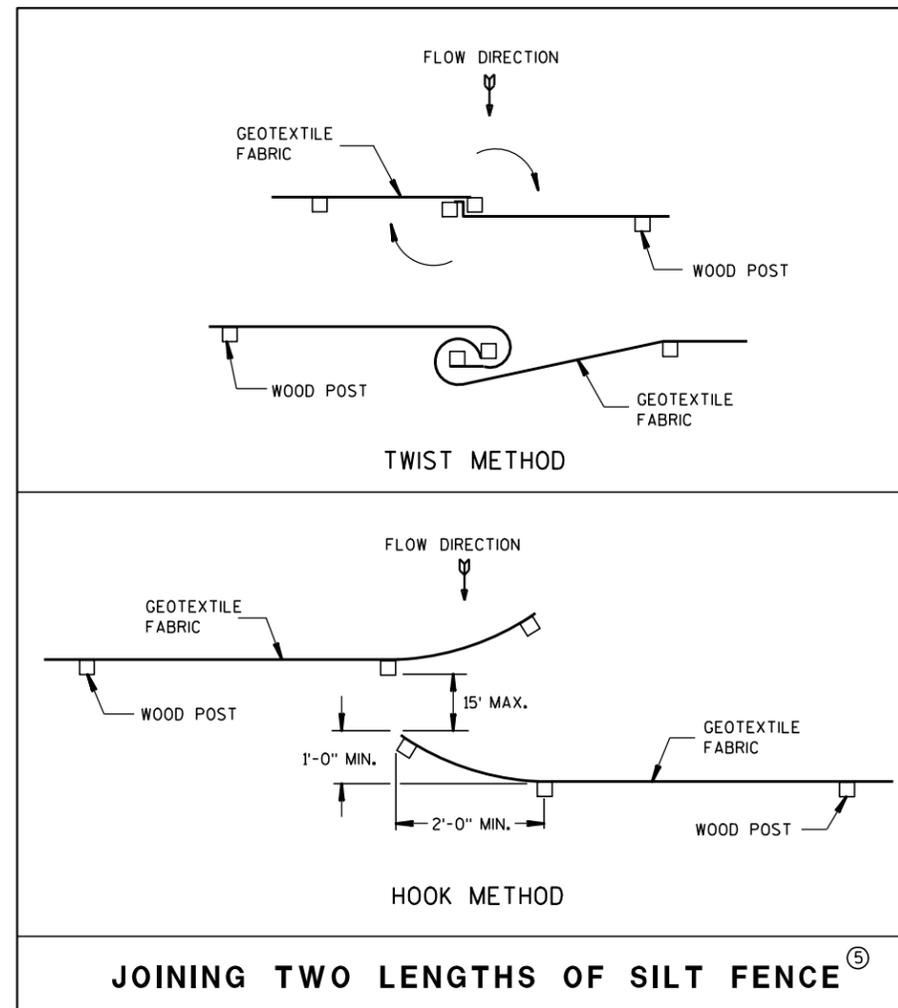


TRENCH DETAIL

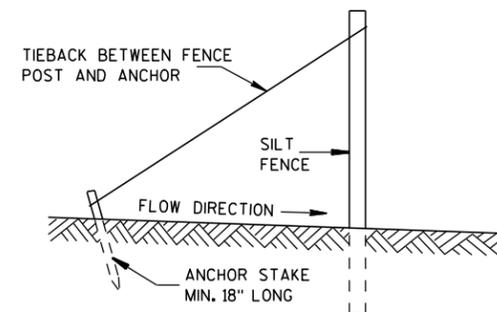


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Canestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

GENERAL NOTES

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

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

WHEN UTILITY POLES 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.

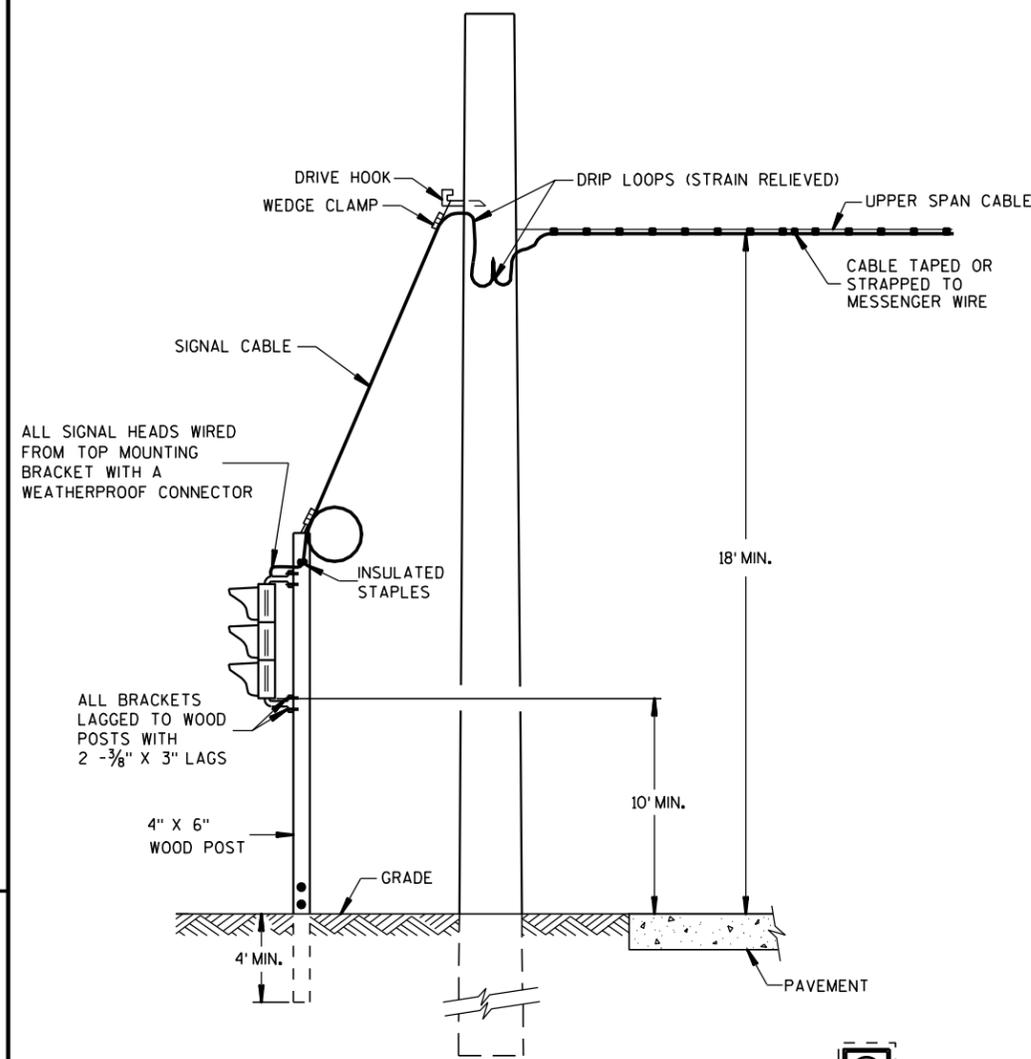
WOOD POLES (NONBREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAMGUARD, ETC.).

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

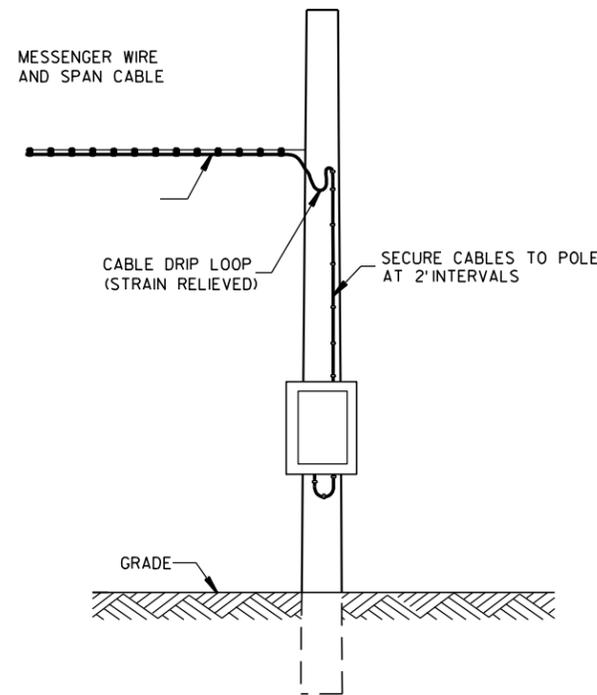
VERTICAL CLEARANCE ETC. PER NEC.

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

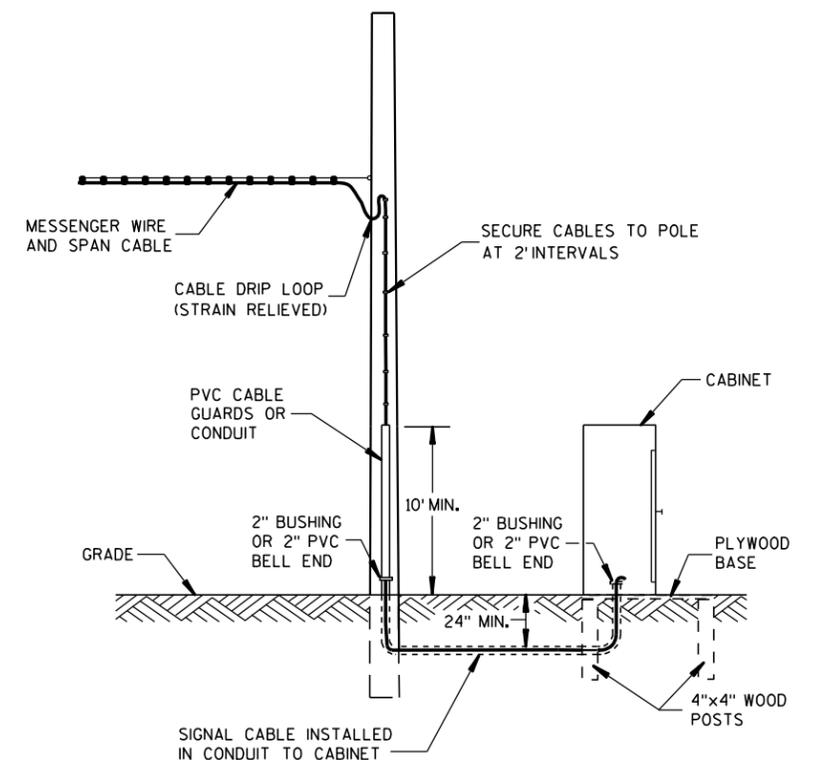
EACH TRAFFIC SIGNAL FACE SHALL HAVE A BACKPLATE.



TYPICAL DROP TO TRAFFIC SIGNAL FACE



POLE MOUNT CABINET INSTALLATION

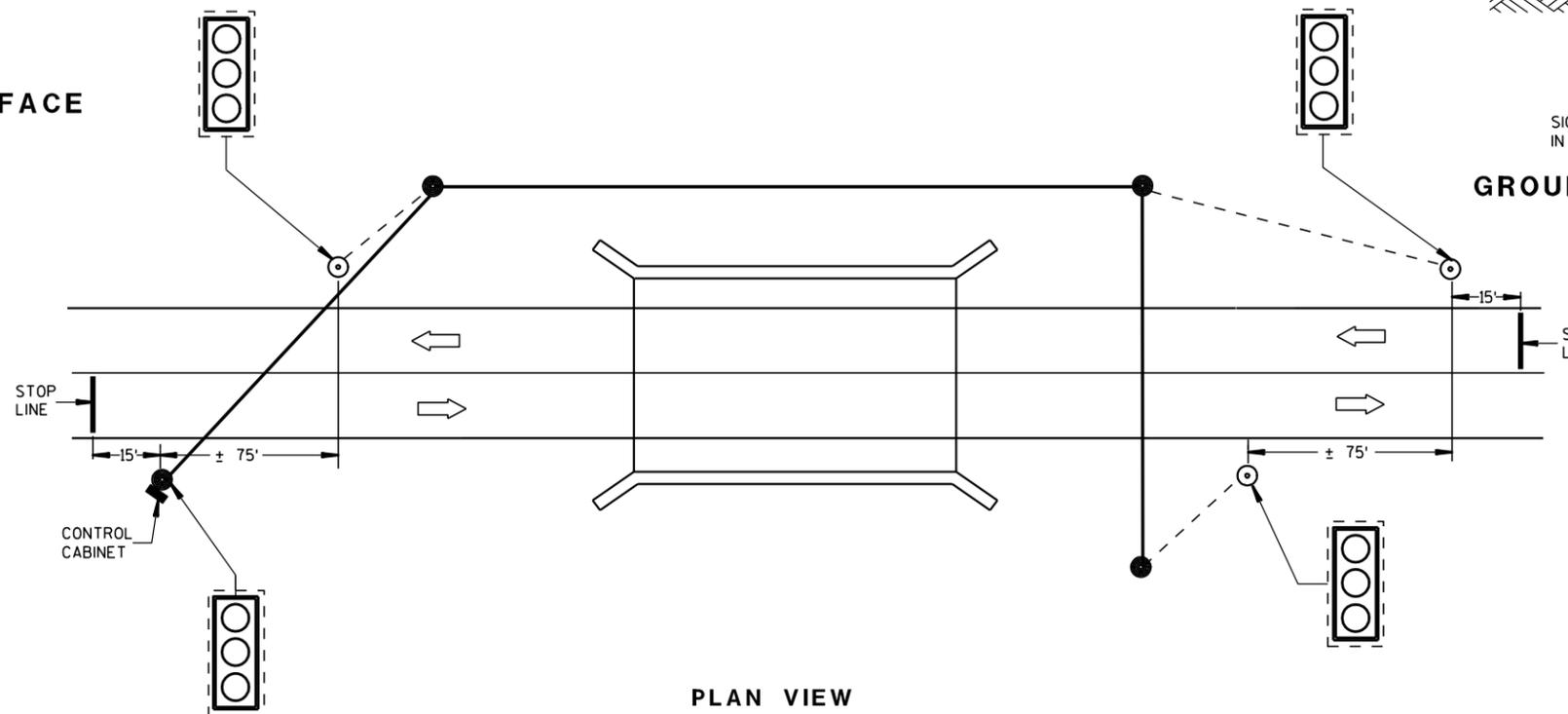


GROUND MOUNT CABINET INSTALLATION

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



PLAN VIEW TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION

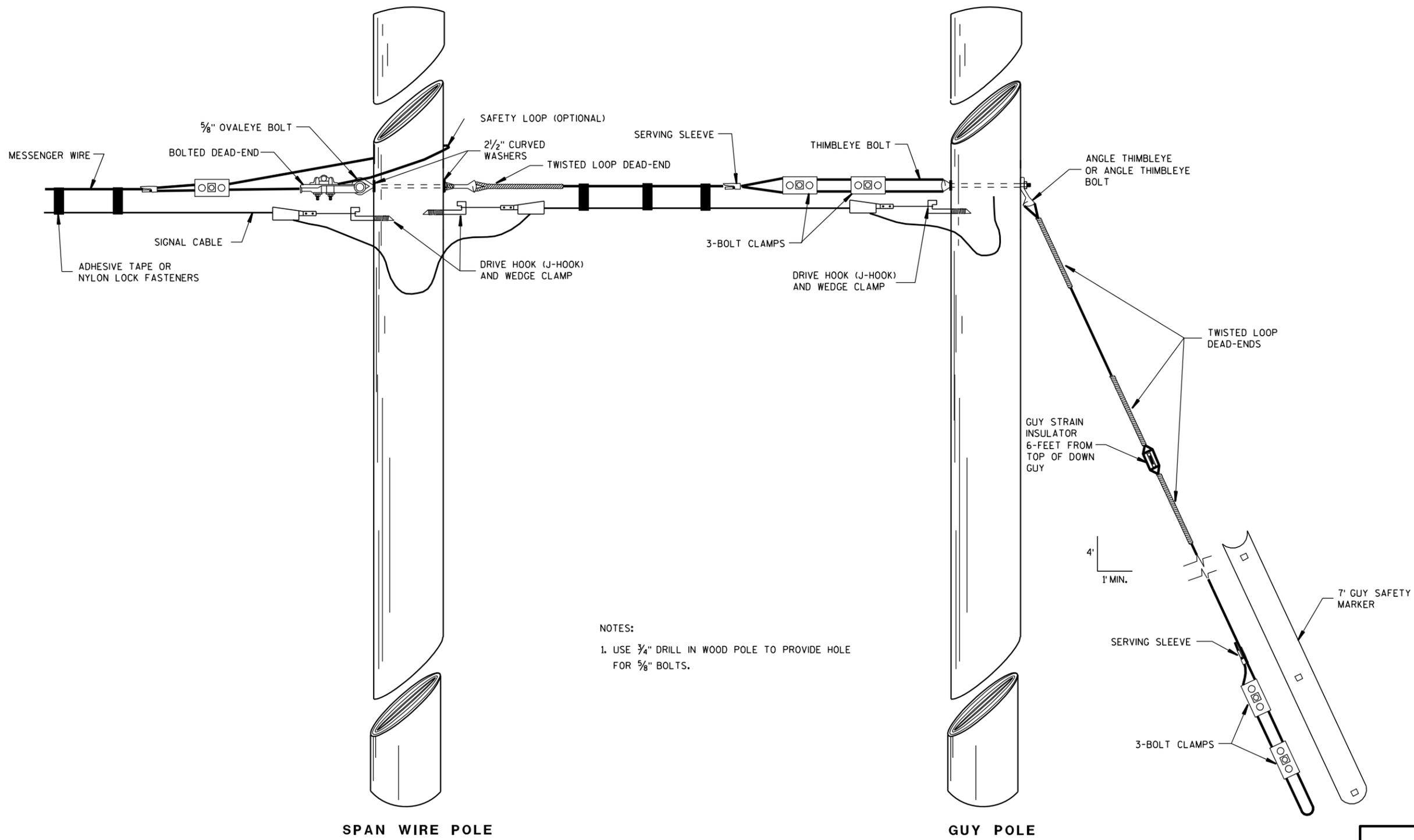
LEGEND

- 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.

SPAN WIRE POLE

GUY POLE

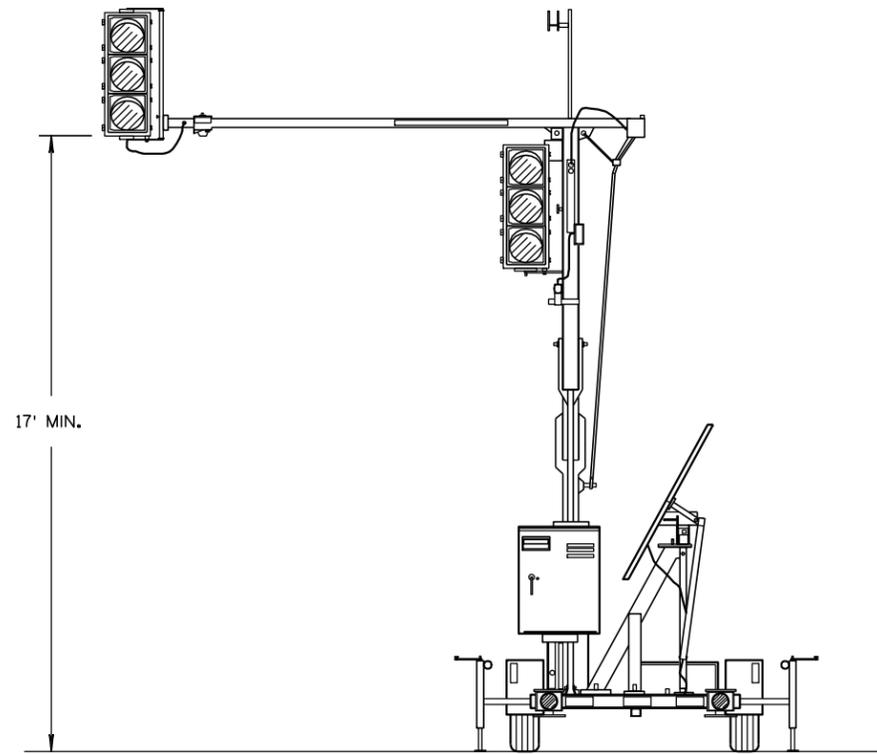
TO ANCHOR ROD

TYPICAL DEAD-ENDINGS OR GUYING

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

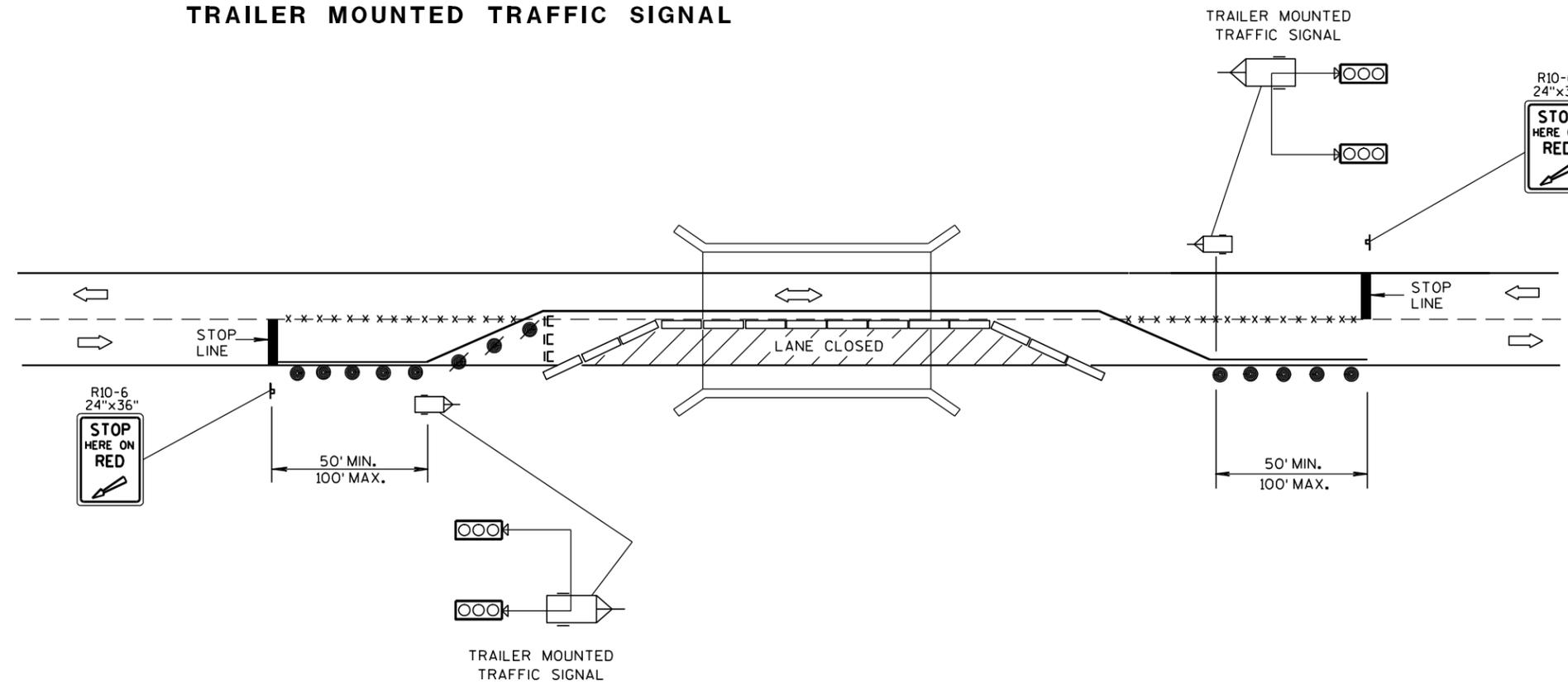


TRAILER MOUNTED TRAFFIC SIGNAL

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.



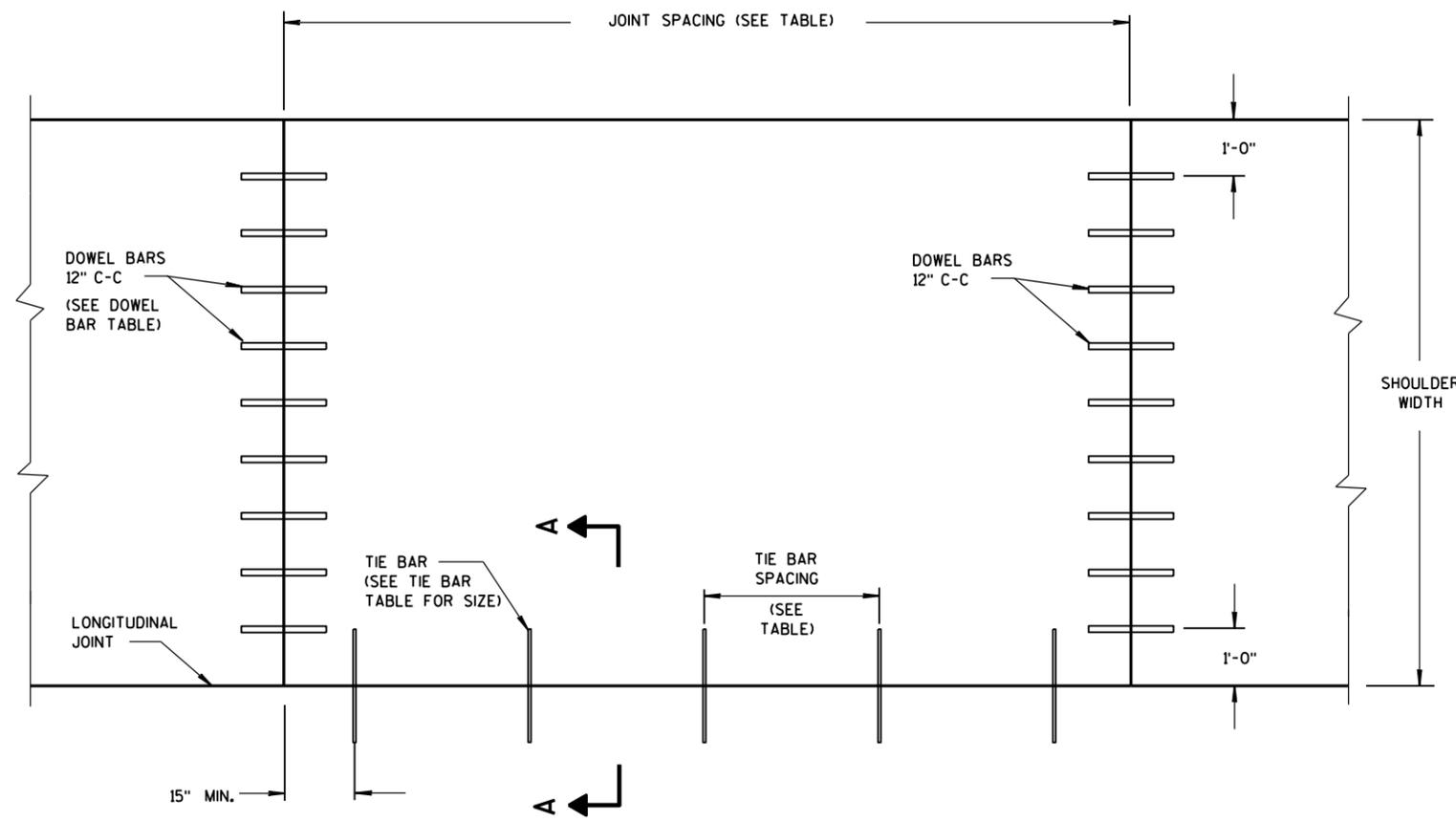
TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION

- LEGEND**
- ⌞ POST MOUNTED SIGN
 - *-x-* REMOVING PAVEMENT MARKING
 - ⌞ 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. Gorring
DATE STATE ELECTRICAL ENGINEER FOR HWYS
FHWA



PLAN VIEW
CONCRETE PAVEMENT SHOULDER

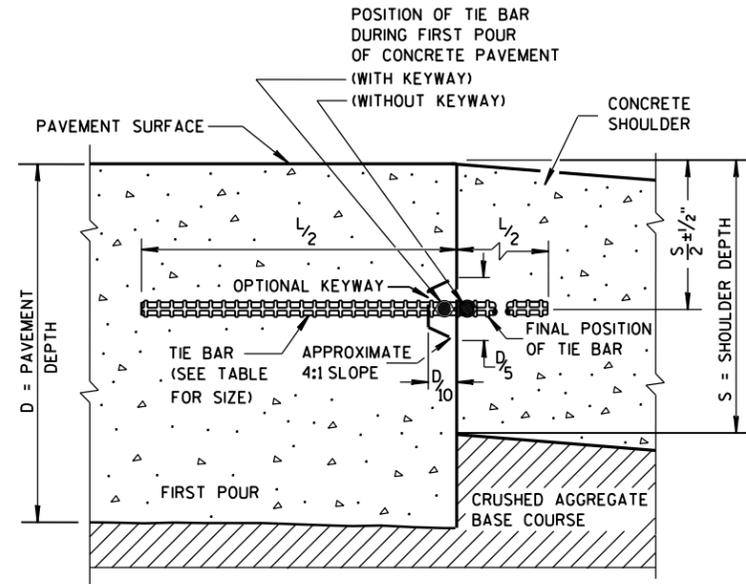
GENERAL NOTES

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

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.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

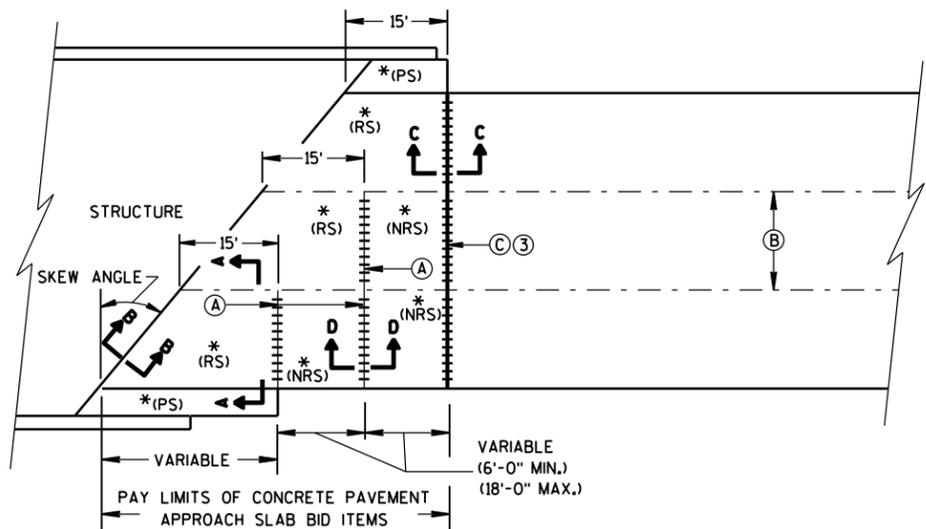
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER***	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

*** 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.

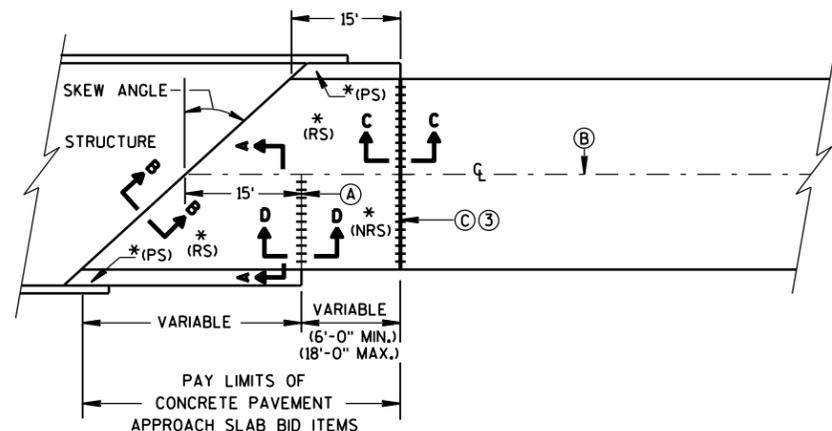
CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

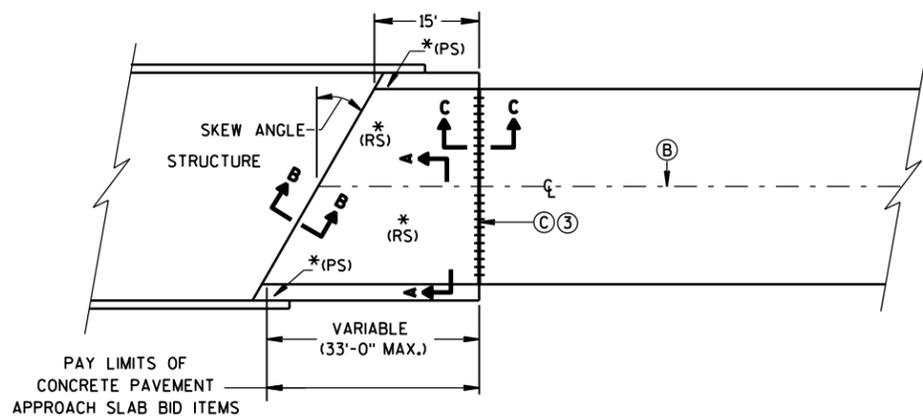
APPROVED
June, 2015 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR
FHWA



**SKewed Approach
(Pavement More Than 2 Lanes)**



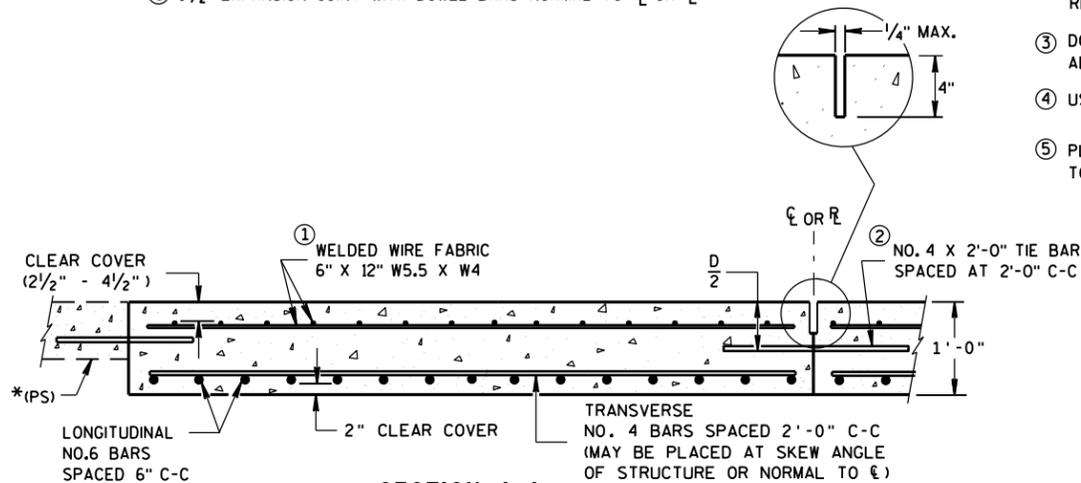
**SKews > 20°
(Pavement Width ≤ 30')**



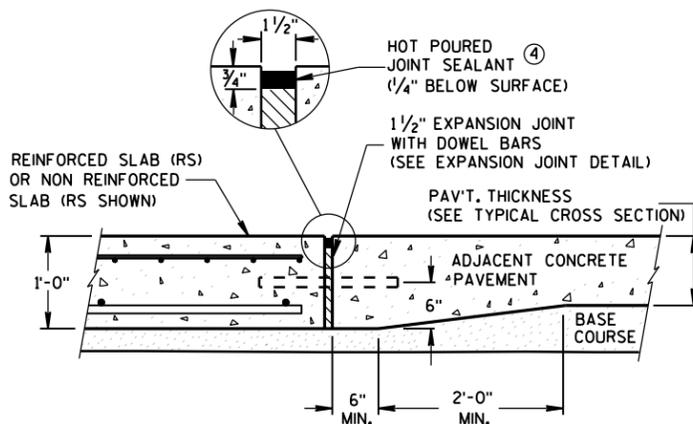
**SKews ≤ 20°
(Pavement Width ≤ 30')
Approach Slab and Adjacent Pavement**

* (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)

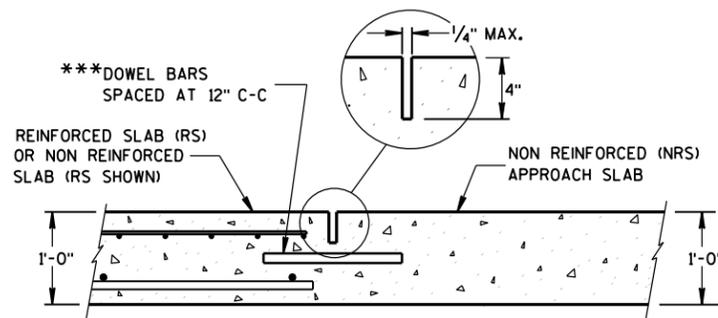
- (A) STANDARD CONTRACTION JOINT NORMAL TO \bar{L} OR \bar{L}
- (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- (C) 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO \bar{L} OR \bar{L}



**SECTION A-A
REINFORCEMENT POSITIONING DETAIL**



**SECTION C-C
TRANSITION DETAIL
Approach Slab to Adjacent Pavement**



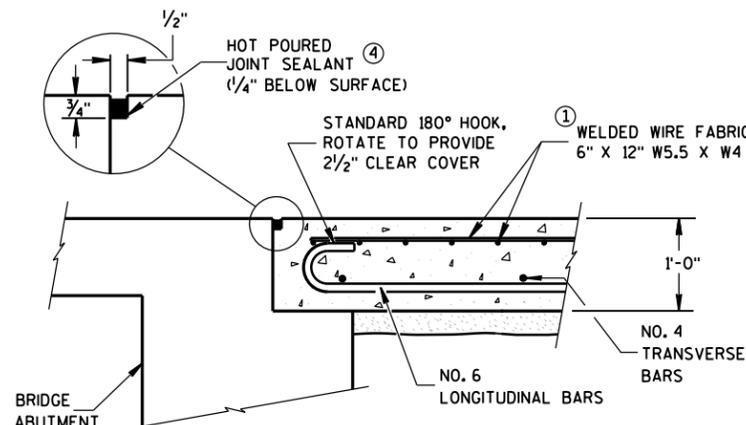
**SECTION D-D
CONTRACTION JOINT**

GENERAL NOTES

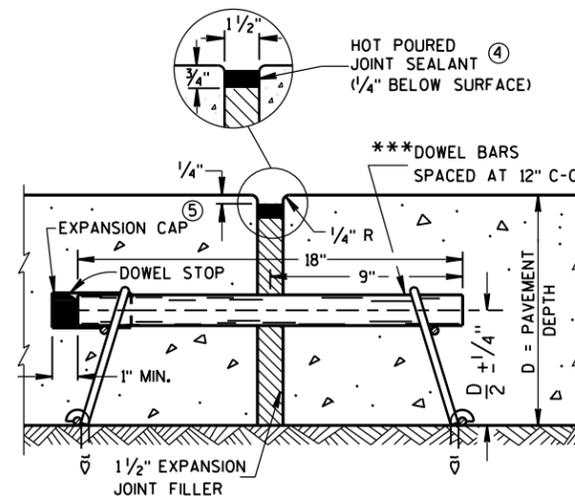
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- ① 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.
- ② THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.
- ⑤ 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**

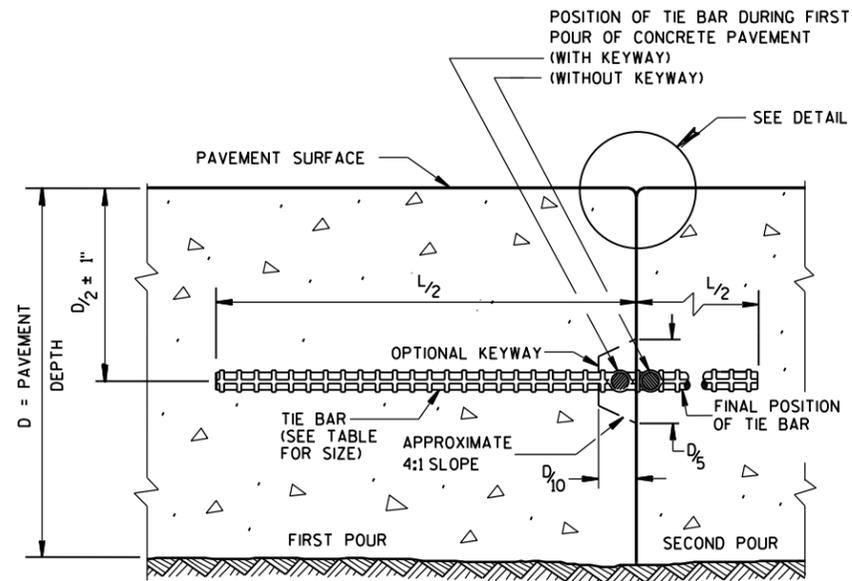


EXPANSION JOINT DETAIL

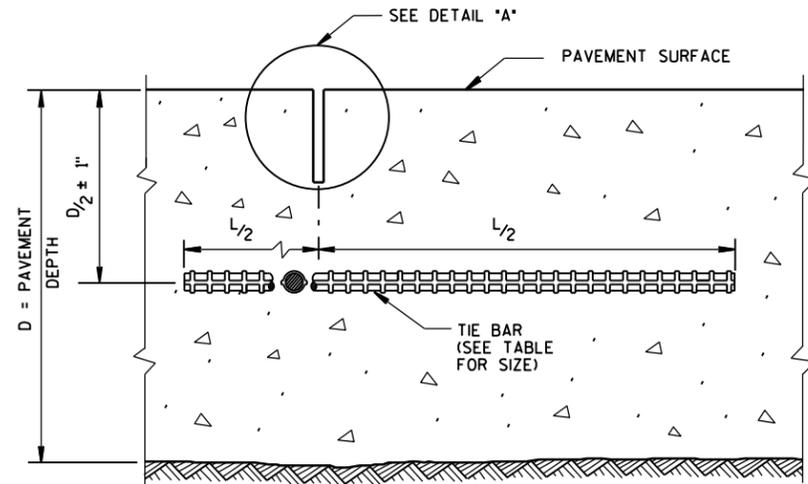
**CONCRETE PAVEMENT
Approach Slab**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



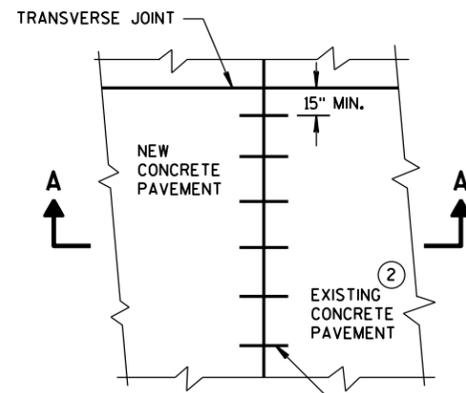
CONSTRUCTION JOINT



SAWED JOINT

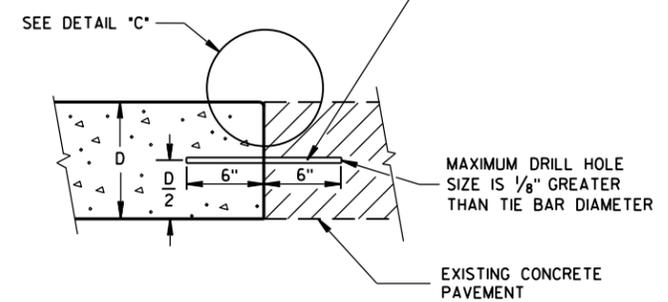
GENERAL NOTES

- 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.

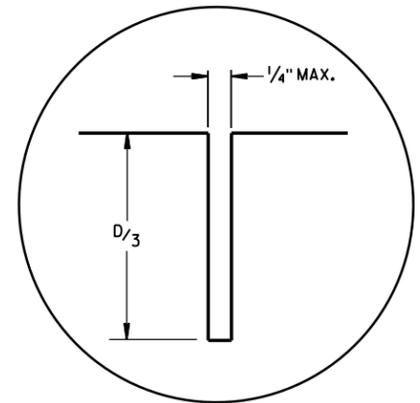


PLAN VIEW

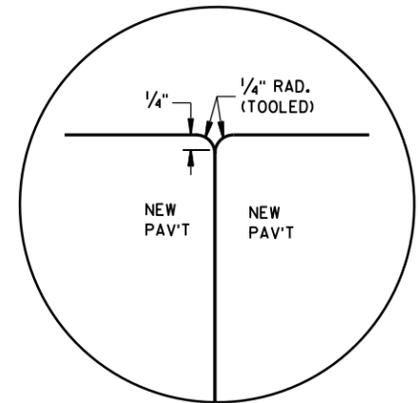
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



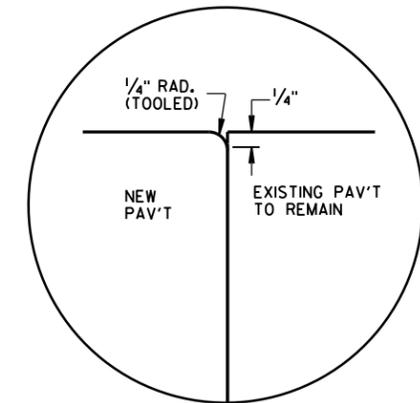
**SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT**



DETAIL "A"



DETAIL "B"



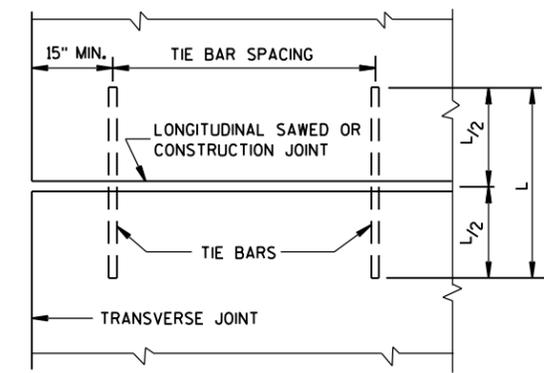
DETAIL "C"

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" **

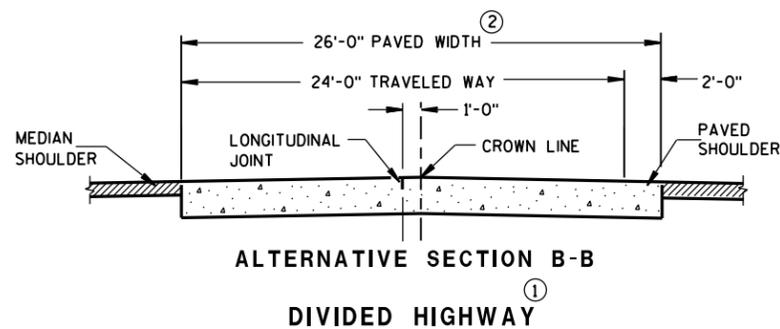
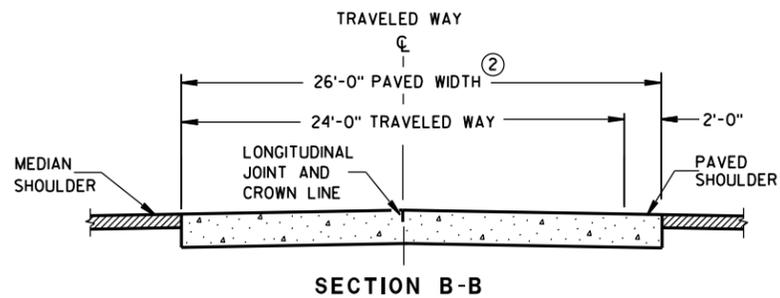
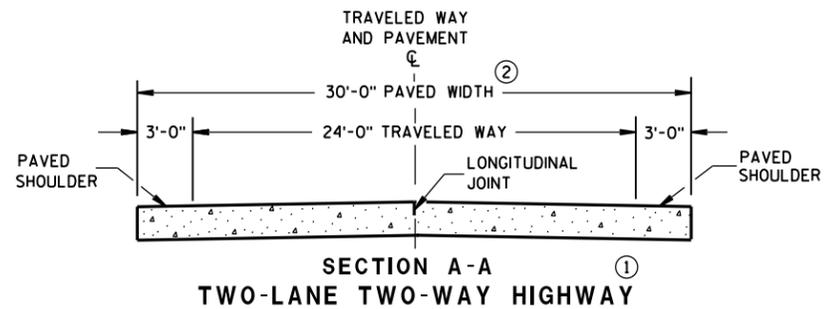
* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** 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	/s/ Peter Kemp, P.E. PAVEMENT SUPERVISOR
FHWA	



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.

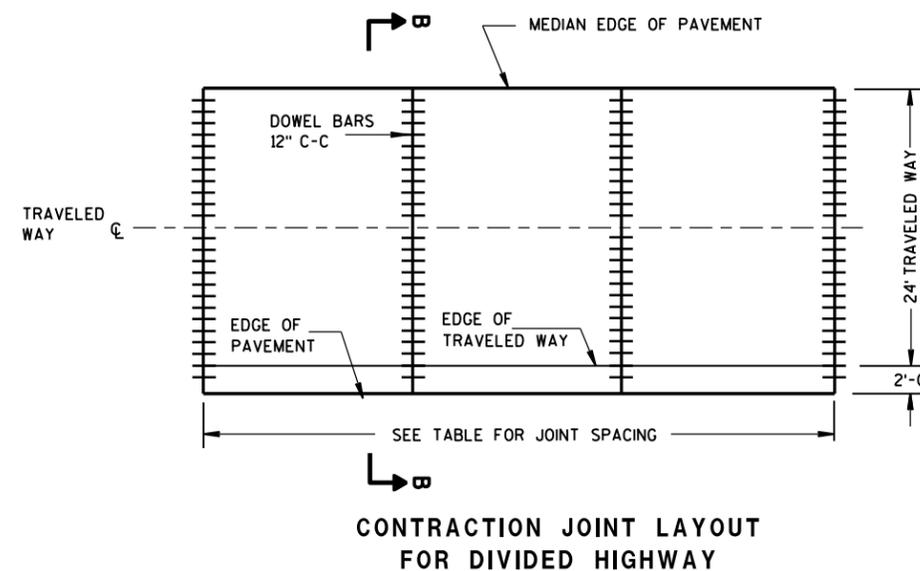
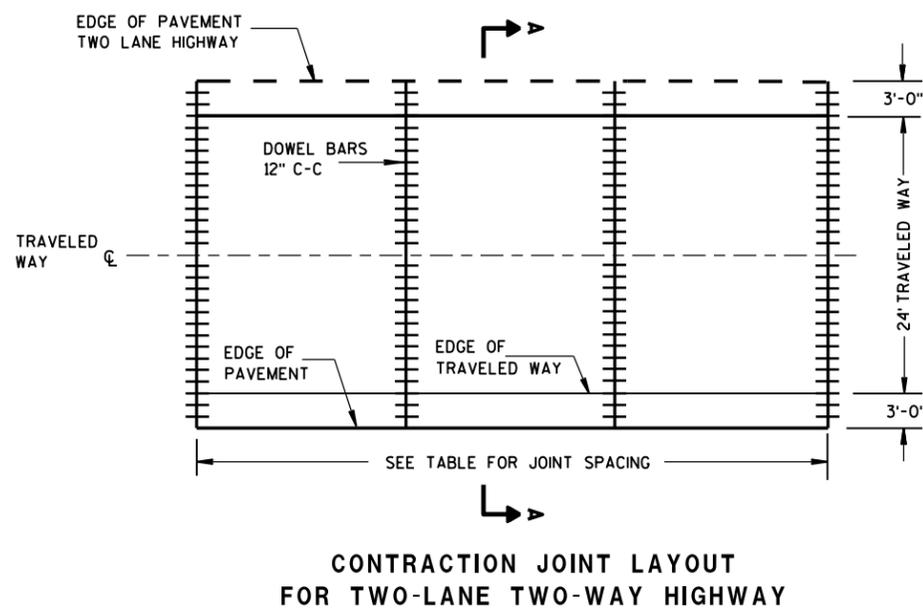
- ① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.
- ② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED PAVED SHOULDER AS CONCRETE PAVEMENT.

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'

6

6

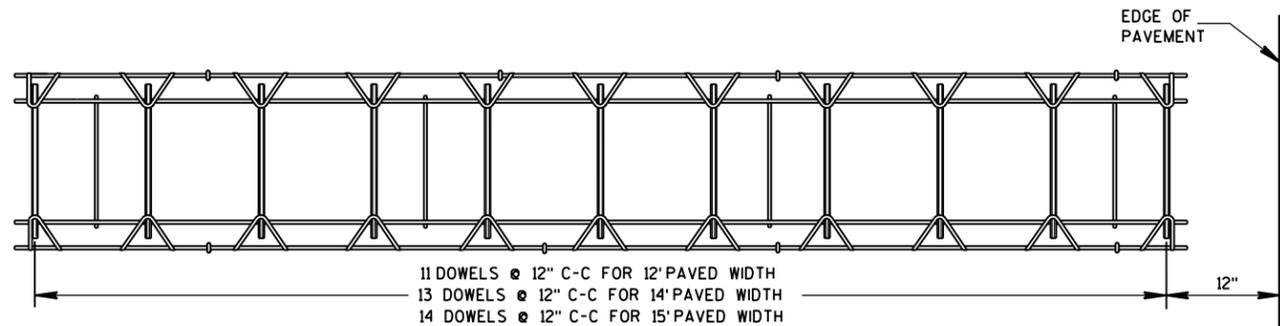


S.D.D. 13 C 11-11a

S.D.D. 13 C 11-11a

**RURAL DOWELED
 CONCRETE PAVEMENT**

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION



PLAN VIEW

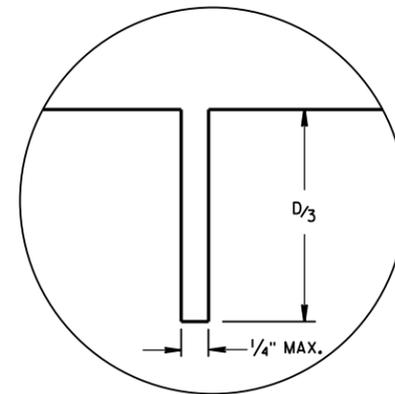


②

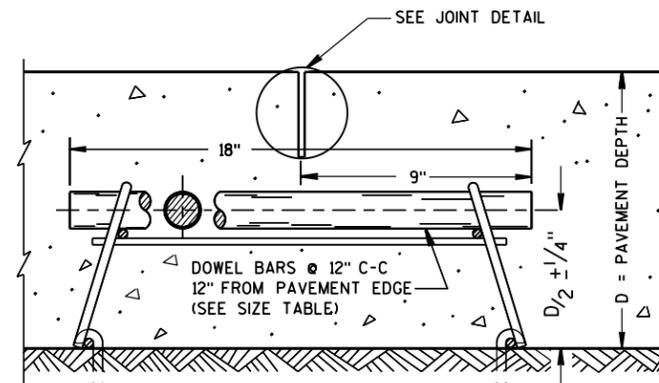
SIDE VIEW

(NORMAL TO CENTERLINE)

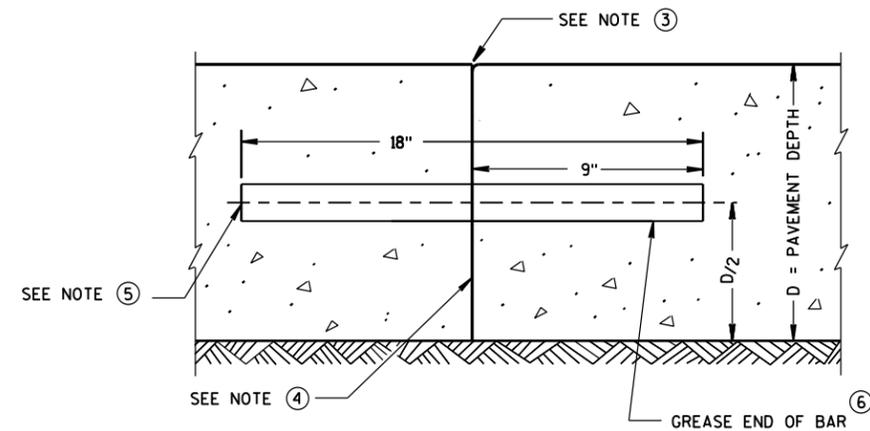
CONTRACTION JOINT DOWEL ASSEMBLY ①



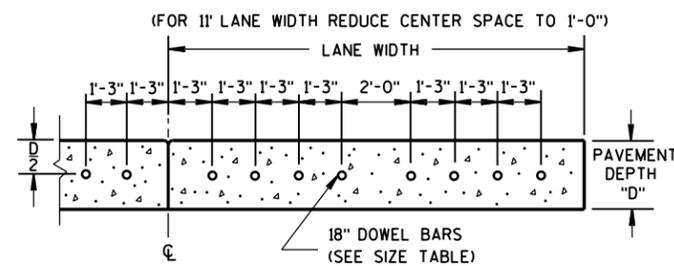
JOINT DETAIL



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT

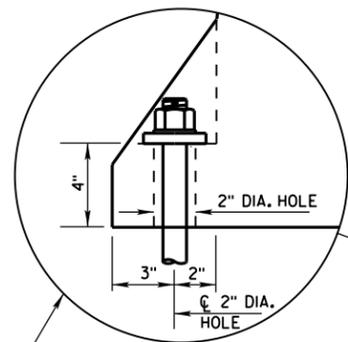


DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦

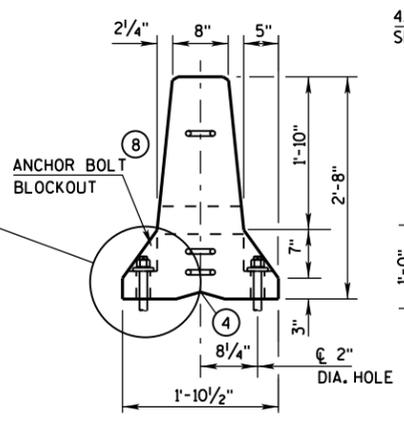
GENERAL NOTES

- 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.

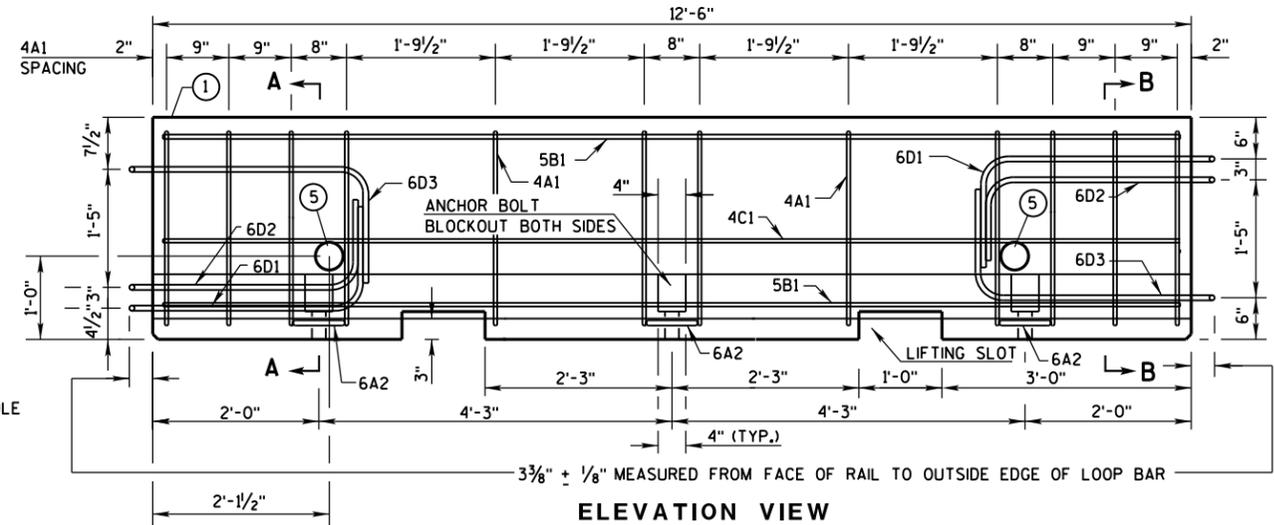
RURAL DOWELED CONCRETE PAVEMENT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 5/3/2013	/S/ Deb Bischoff PAVEMENT POLICY & DESIGN ENGINEER
FHWA	



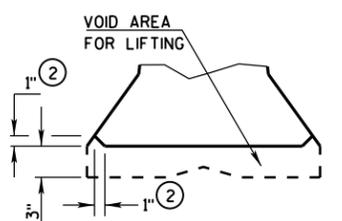
ANCHOR ON TRAFFIC SIDE (8) ONLY WHEN REQUIRED (SEE SHEET D FOR ADDITIONAL ANCHOR DETAIL)



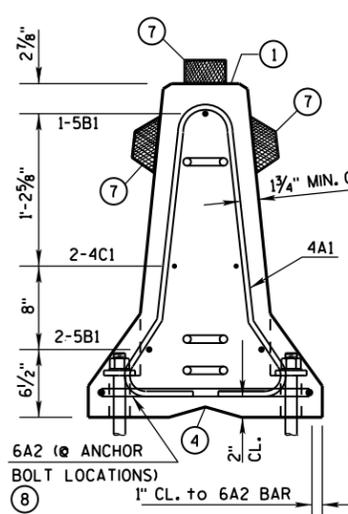
END VIEW



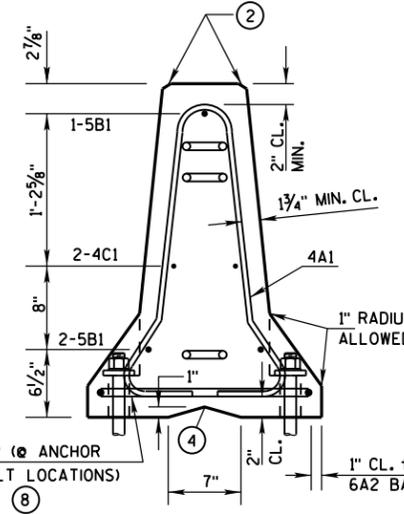
ELEVATION VIEW



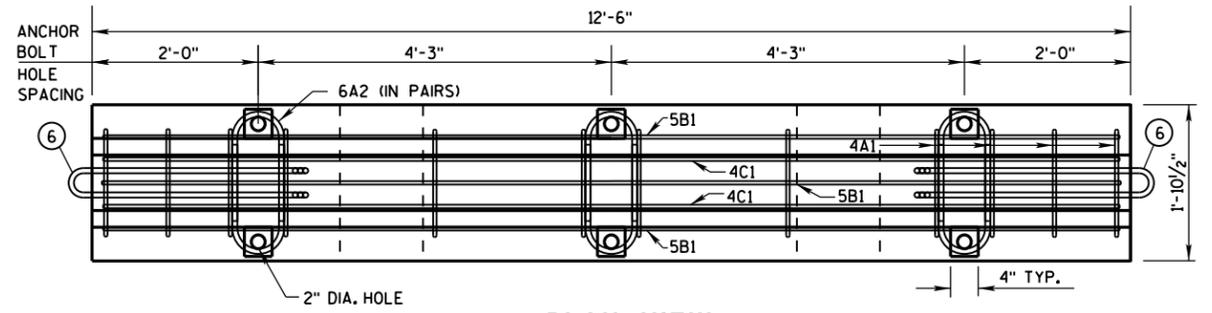
DETAIL "B" LIFTING SLOT DETAIL



SECTION A-A (STIRRUP PLACEMENT)



SECTION B-B (STIRRUP PLACEMENT)



PLAN VIEW

DETAILS OF BARRIER SECTION

GENERAL NOTES

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

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRCAST, 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.

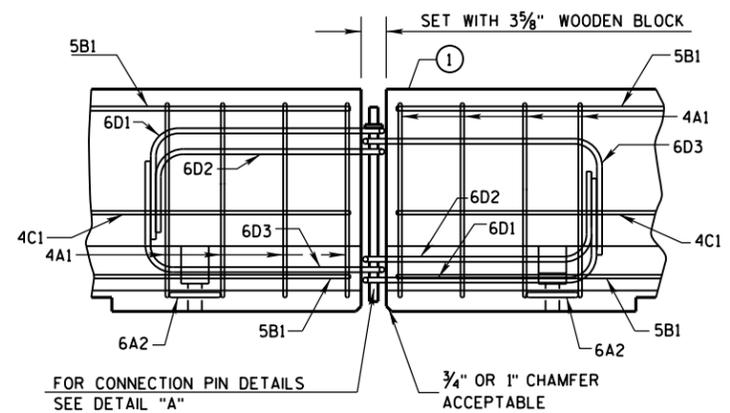
LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND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

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

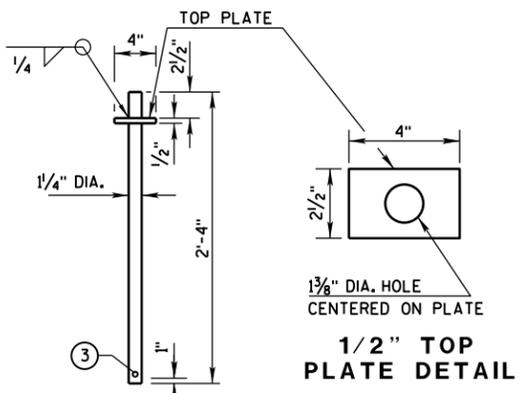
PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

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

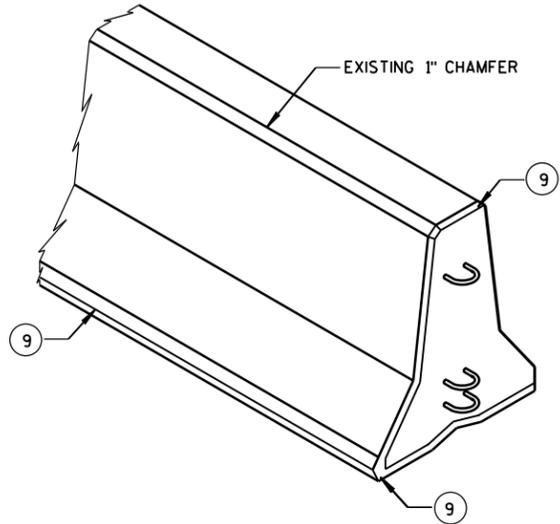
- 1 MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE: W/CBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- 2 1" CHAMFER TO PREVENT SPALLING.
- 3 A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- 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 MANUFACTURER'S 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.



DETAILS OF BARRIER CONNECTION



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



CONCRETE BARRIER
TEMPORARY PRCAST, 12'-6"

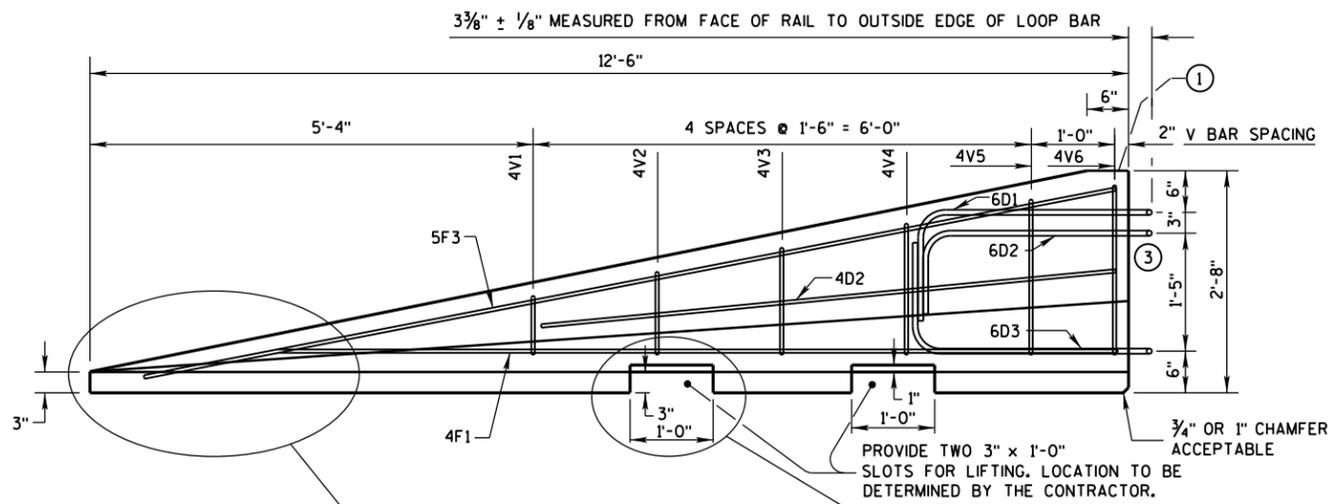
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

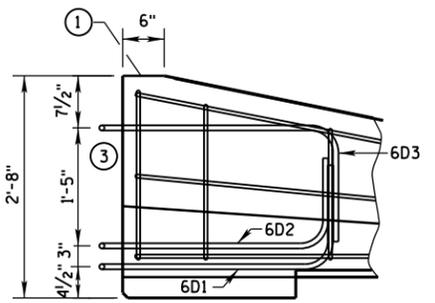
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S.D.D. 14 B 7-14a

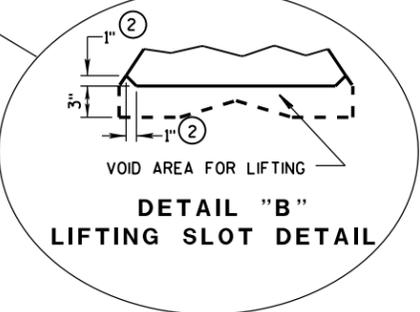
S.D.D. 14 B 7-14a



SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



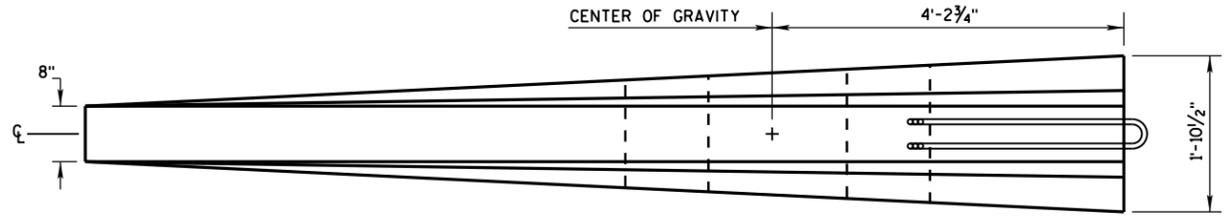
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)



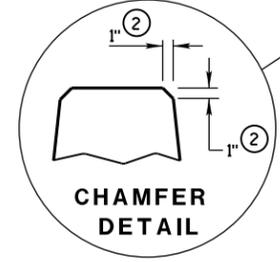
DETAIL "B"
LIFTING SLOT DETAIL

GENERAL NOTES

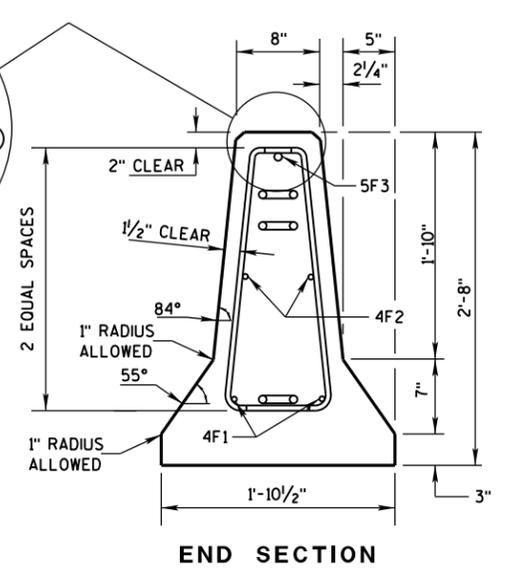
- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
a. TYPE WICBTP
b. MANUFACTURER
c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



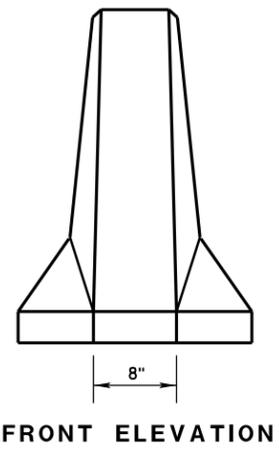
PLAN VIEW



CHAMFER DETAIL

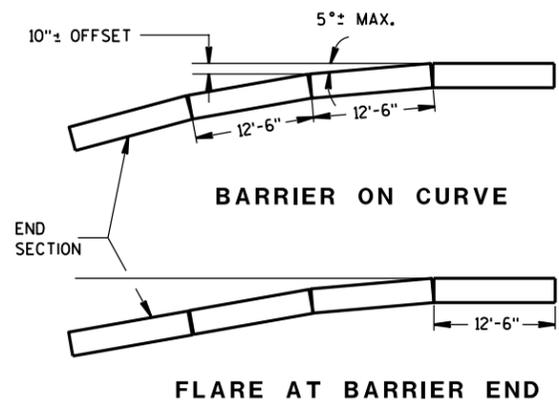


END SECTION



FRONT ELEVATION

DETAILS OF BARRIER TAPER SECTION



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

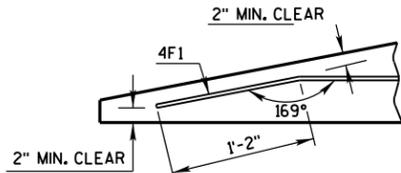
GENERAL NOTES

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

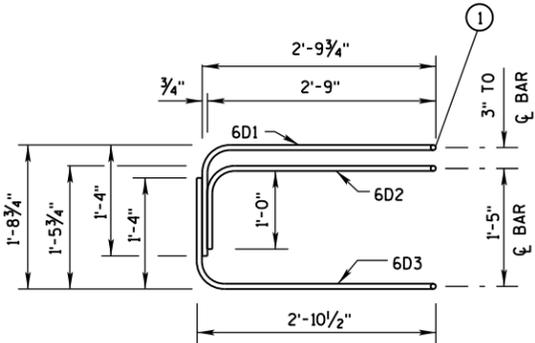
**BARRIER TAPER SECTION
BILL OF MATERIALS**
(PER 12'-6" BARRIER TAPER SECTION)

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"

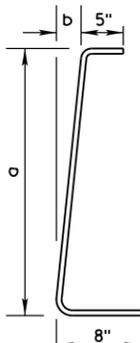
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



**DETAIL "C"
BENT BAR DETAIL**



**ELEVATION
LOOP BAR ASSEMBLY**



BAR	a	b
V1	10"	1"
V2	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"

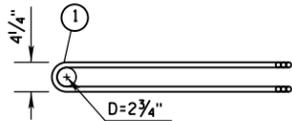
4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

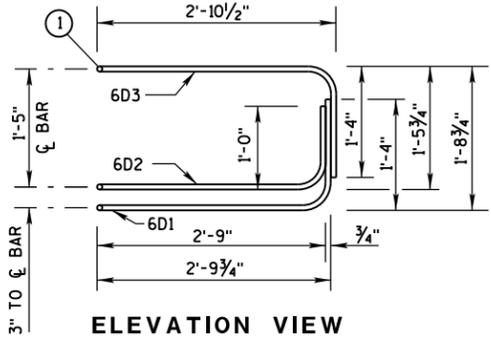
**BARRIER SECTION
BILL OF MATERIALS**
(PER 12'-6" BARRIER SECTION)

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"

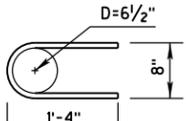
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



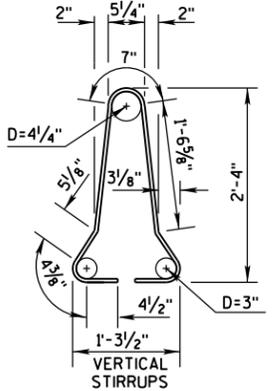
**PLAN VIEW
LOOP BAR ASSEMBLY**
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

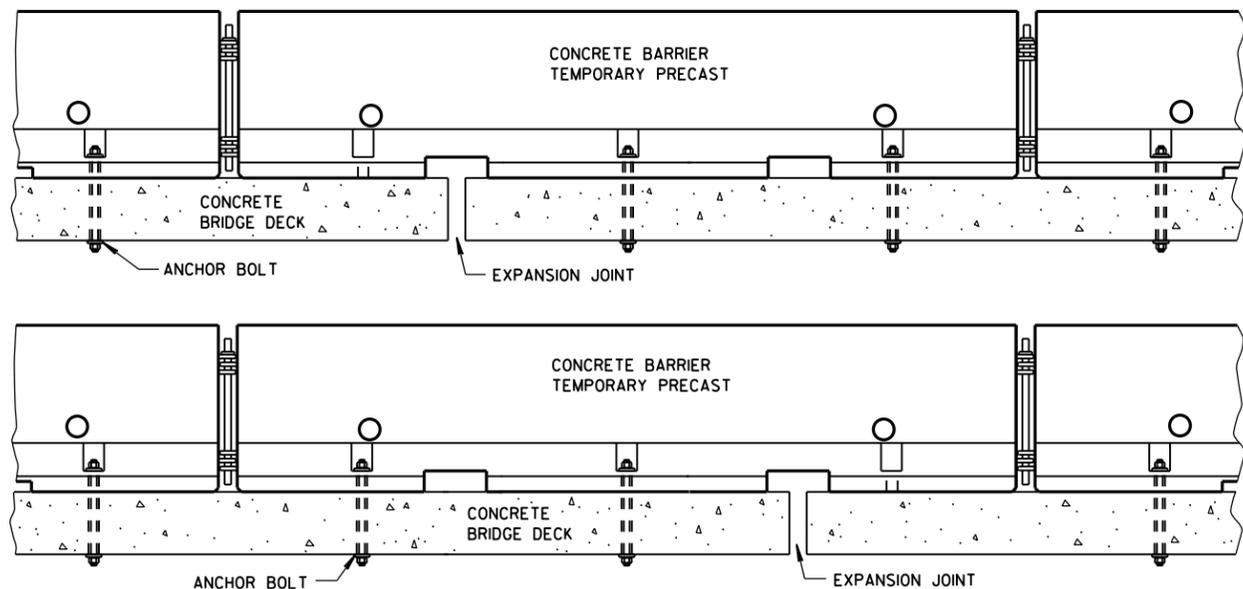


4A1

BARRIER SECTION

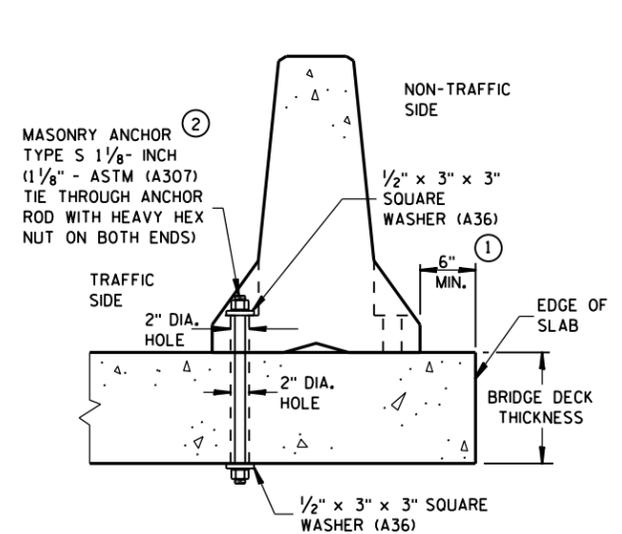
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

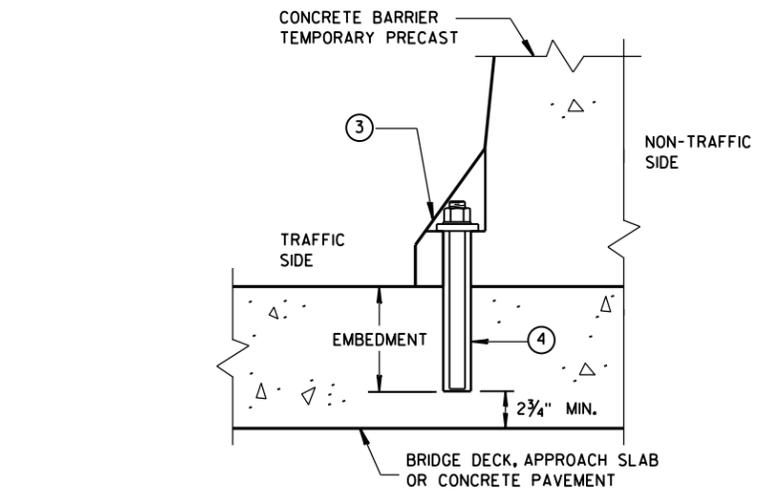


TREATMENT AT BRIDGE DECK EXPANSION JOINTS

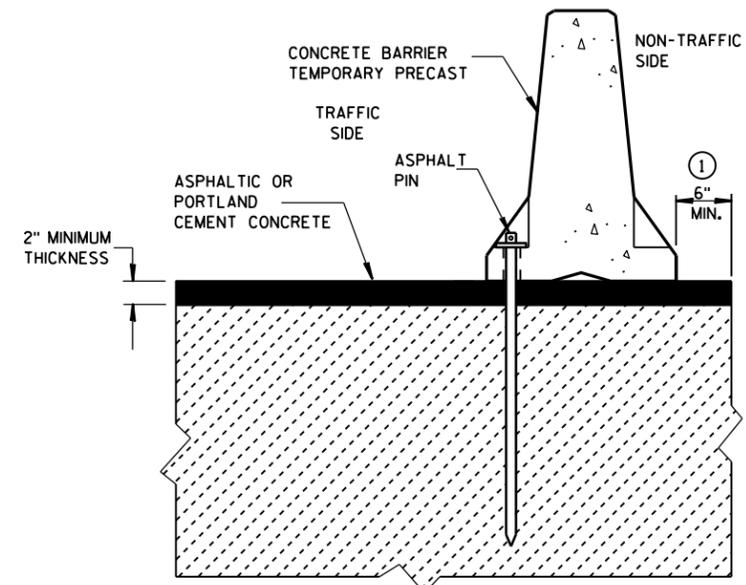
(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



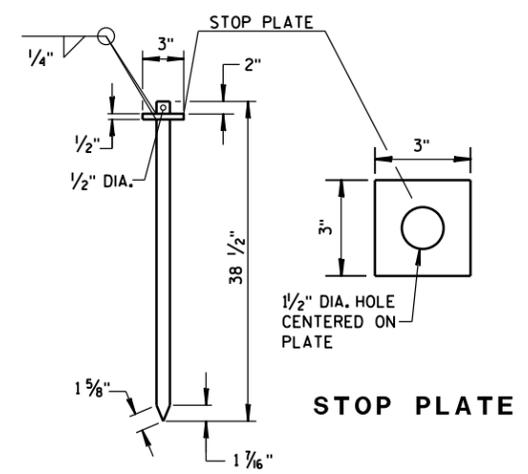
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK
(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



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)

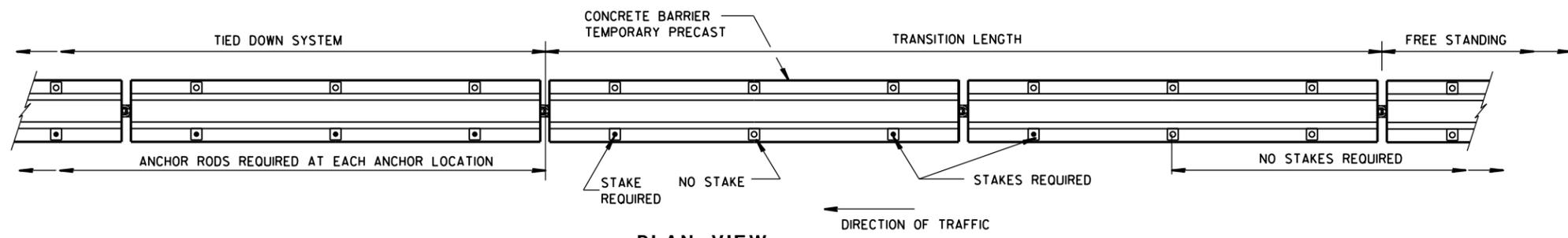
GENERAL NOTES

- 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 CONCRETE 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.

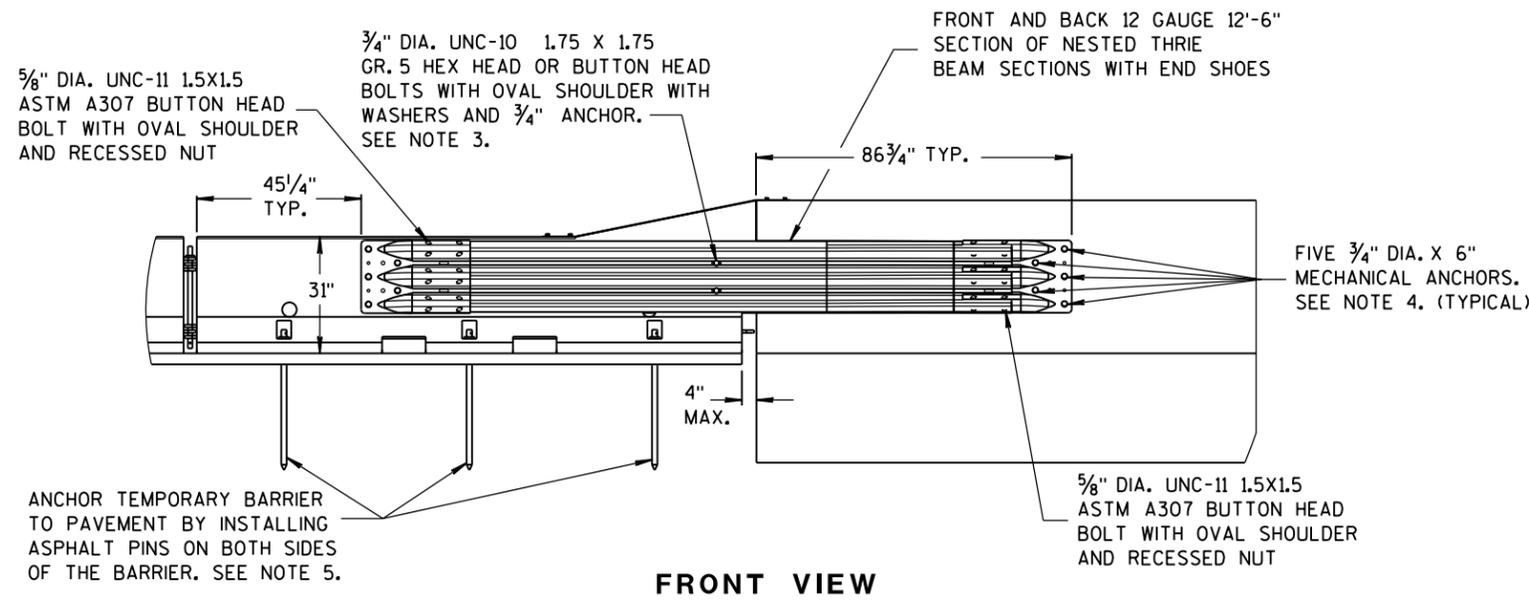


FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

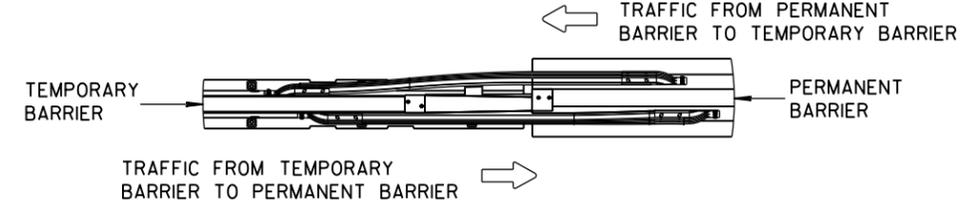
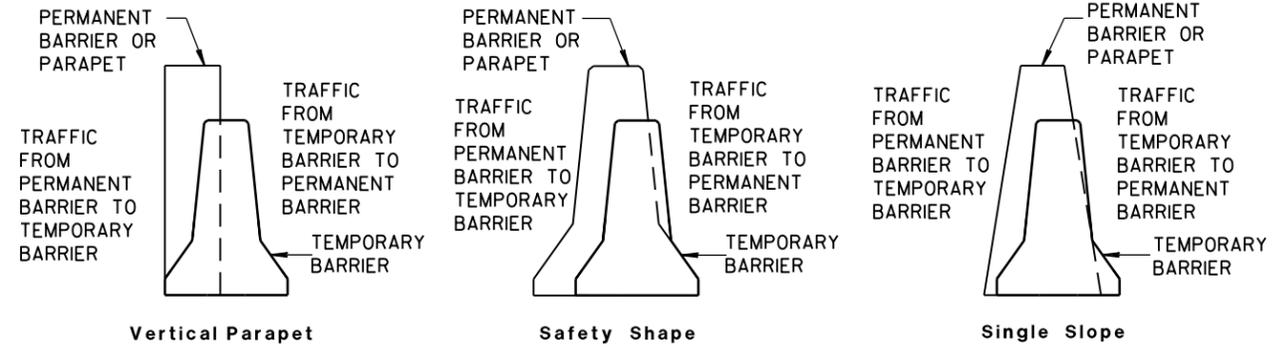
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



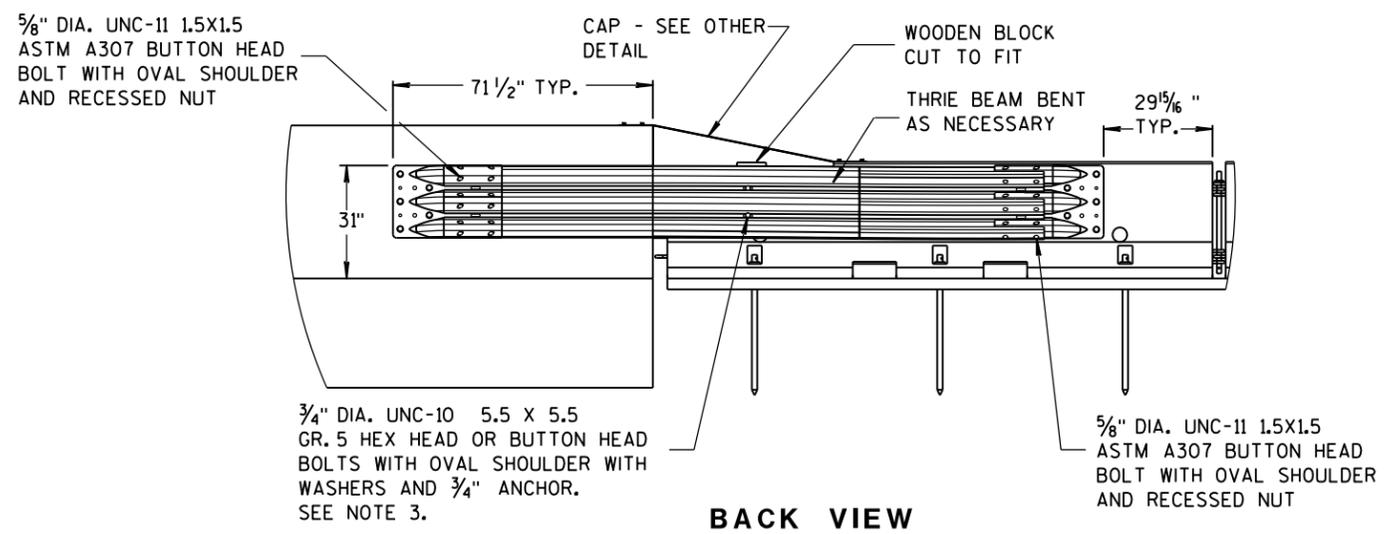
FRONT VIEW



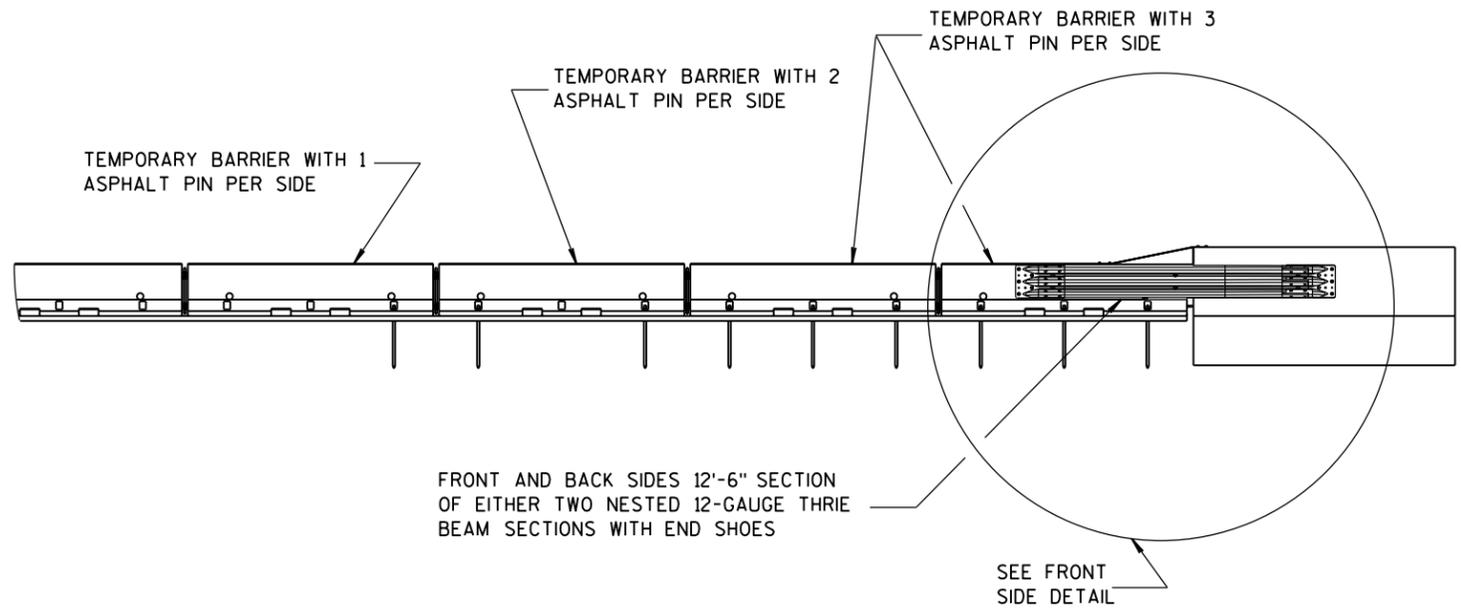
TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

NOTES

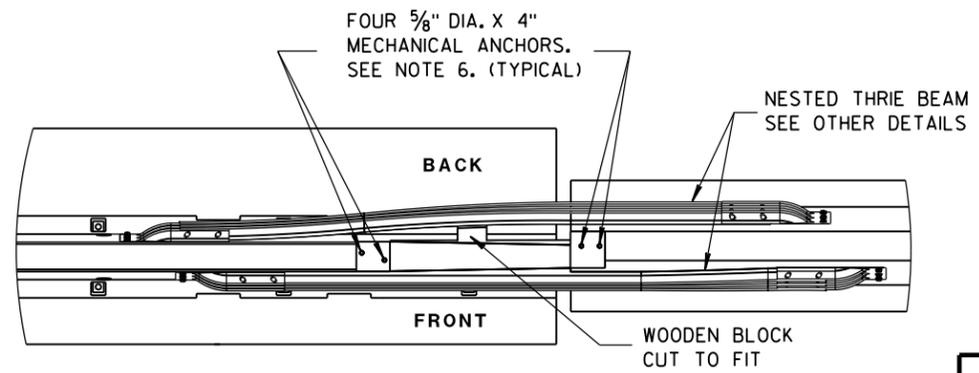
- NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.
- CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
 - THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
 - MINIMUM MECHANICAL OR ADHESIVE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



BACK VIEW



FRONT VIEW

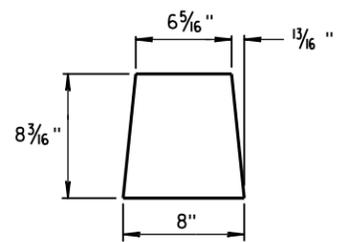


PLAN VIEW

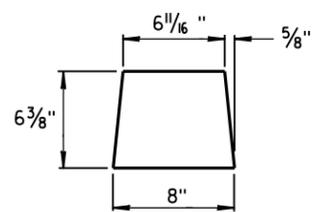
BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

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

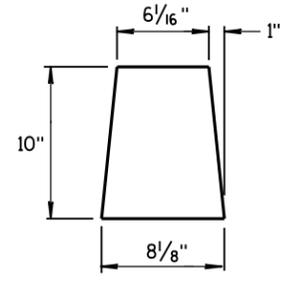
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



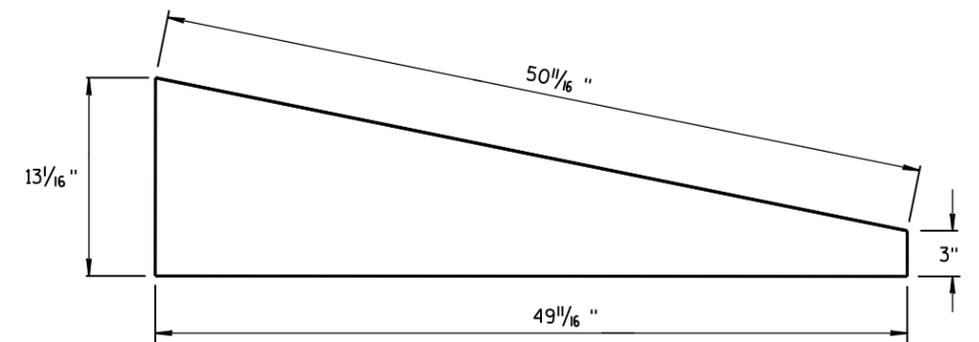
GUSSET 1



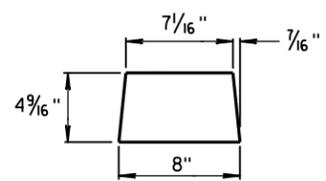
GUSSET 2



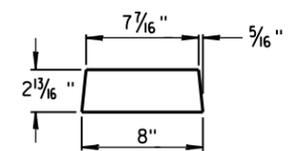
END PLATE



SIDE PLATE

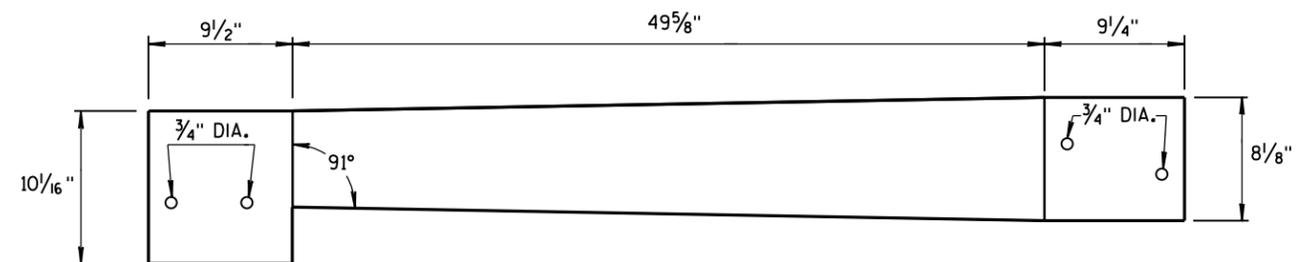


GUSSET 3

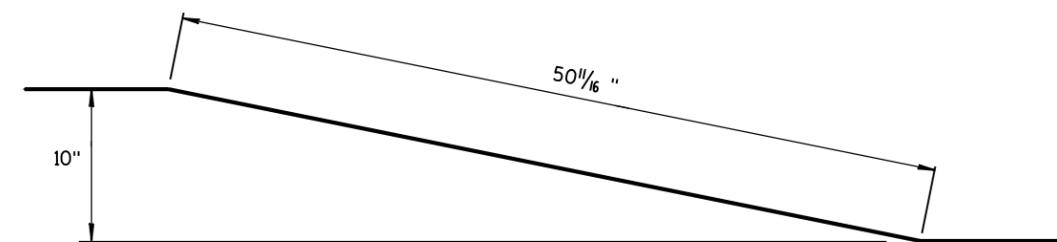


GUSSET 4

GUSSETS

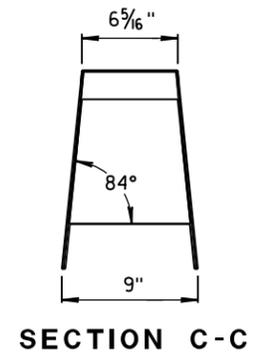
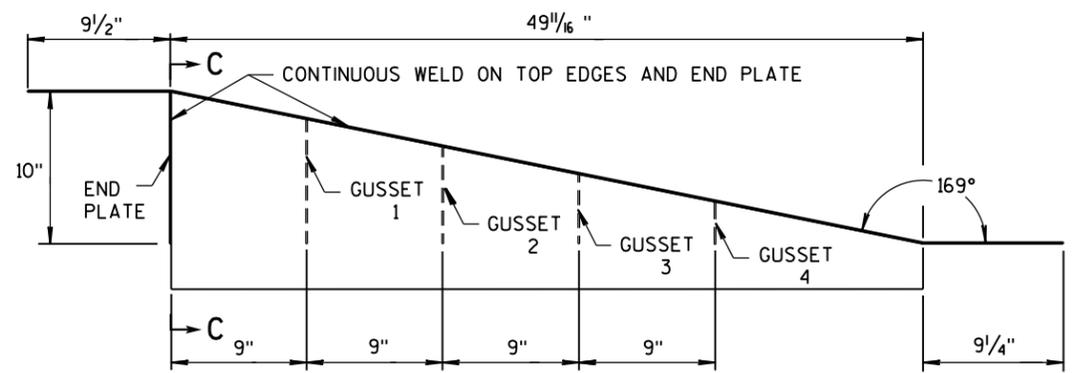
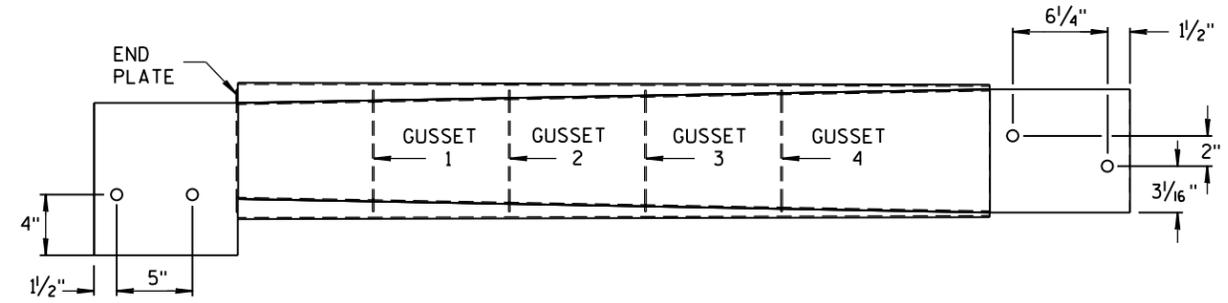


TOP PLATE



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

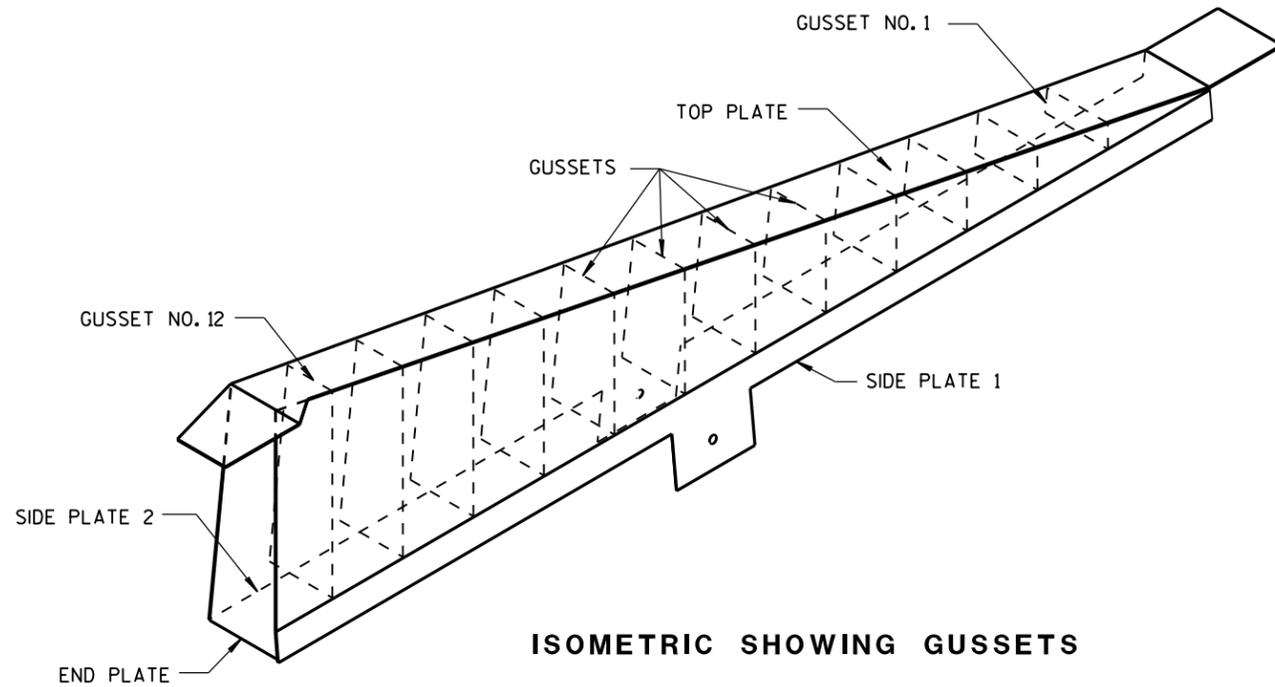
NOTES

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.

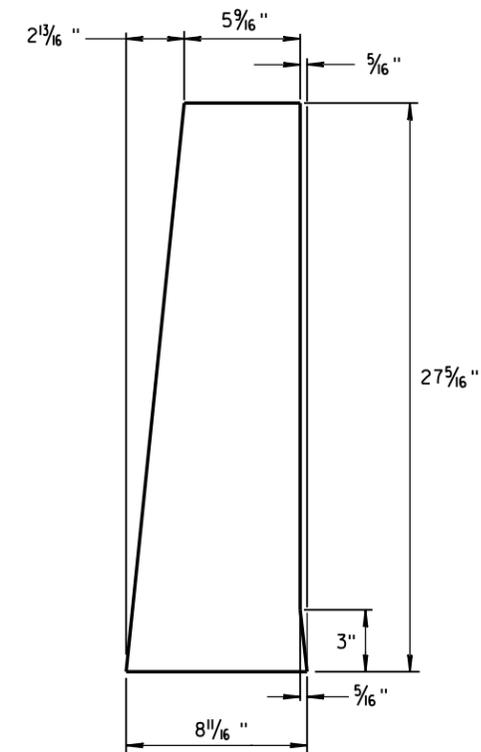
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

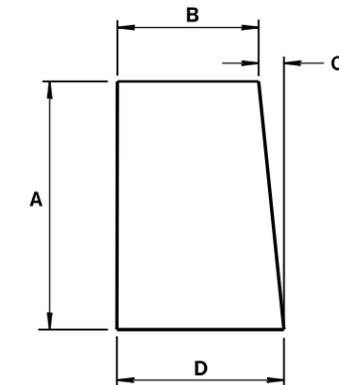


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



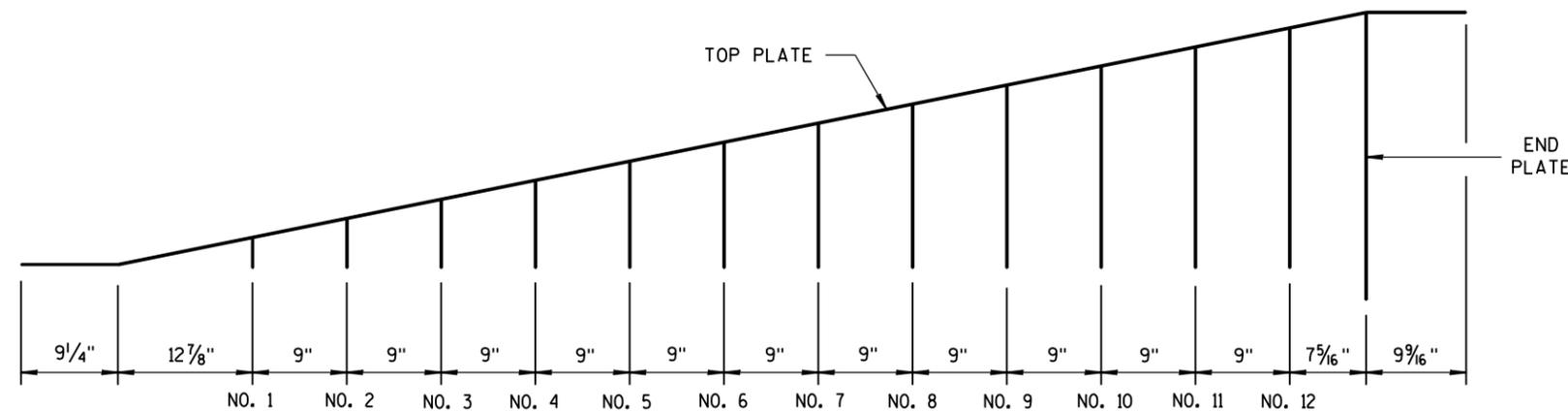
GUSSETS 1 - 12

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 7/16"	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 3/16"	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.

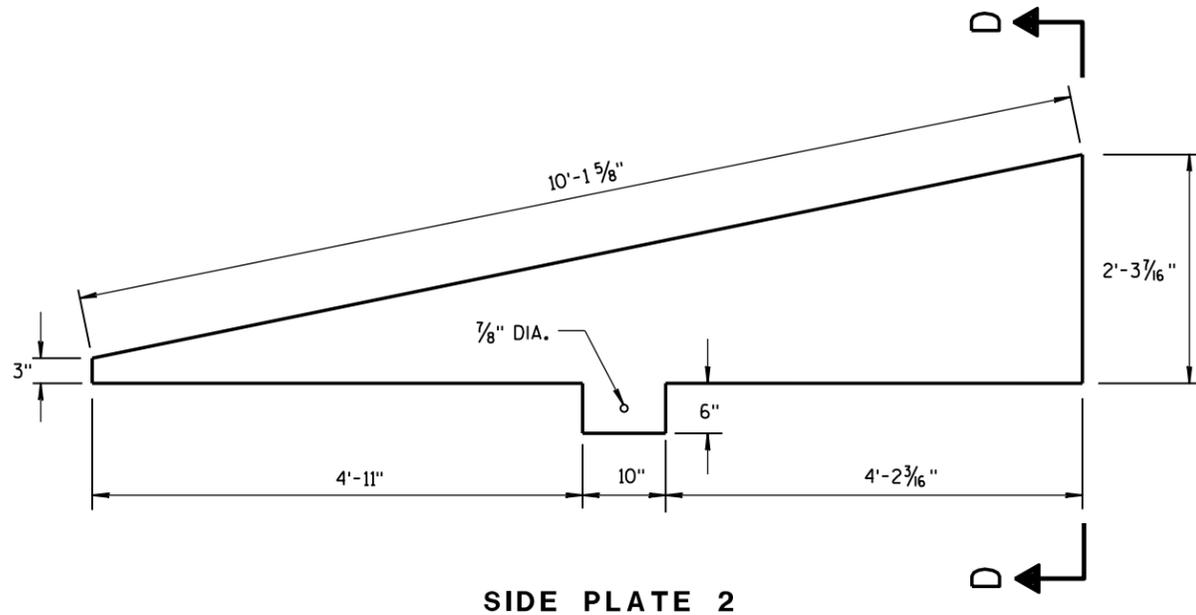


GUSSET LOCATION

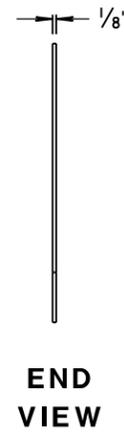
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

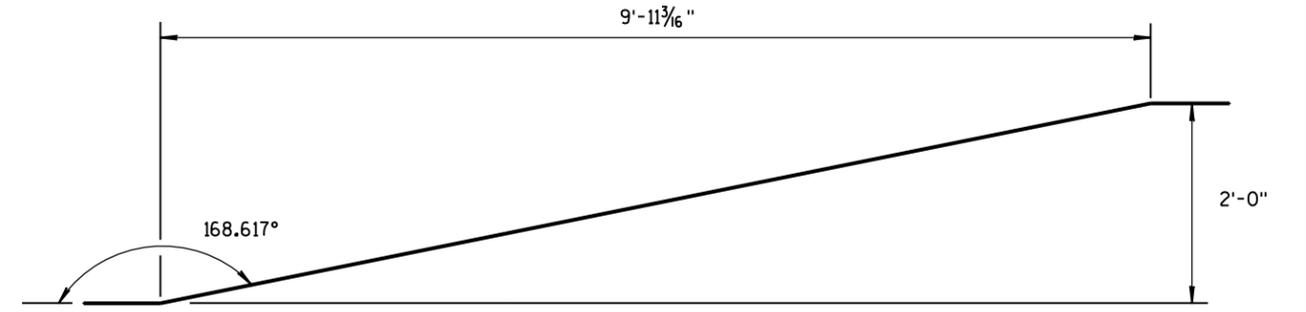
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



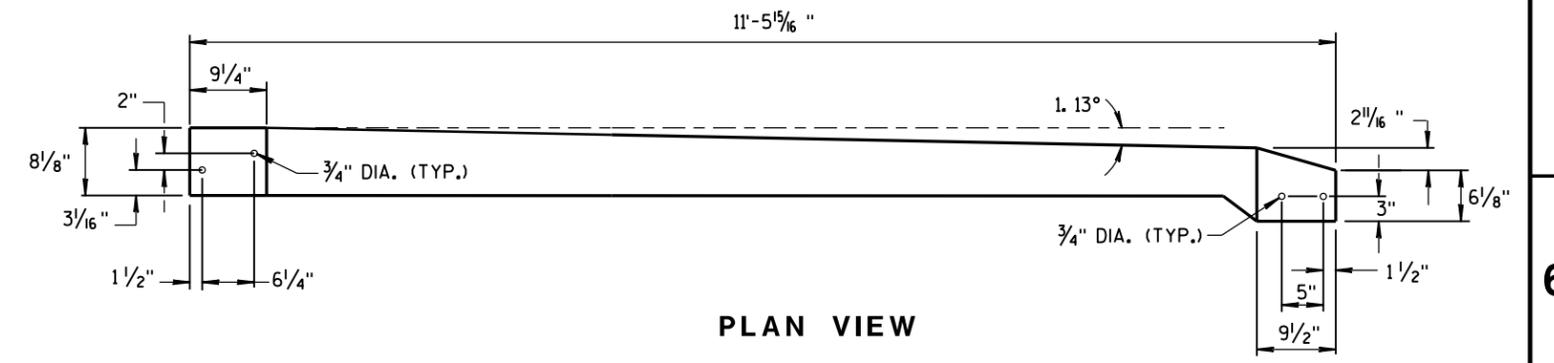
SIDE PLATE 2



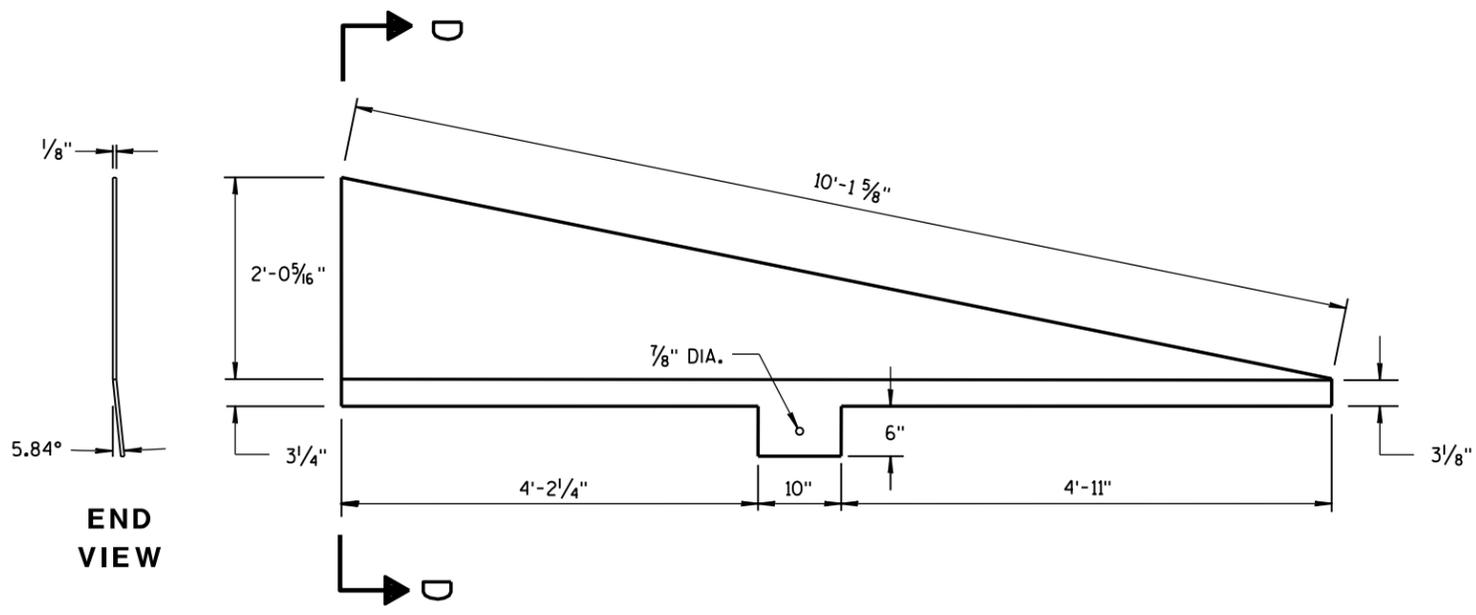
END VIEW



**SIDE VIEW
TOP PLATE**



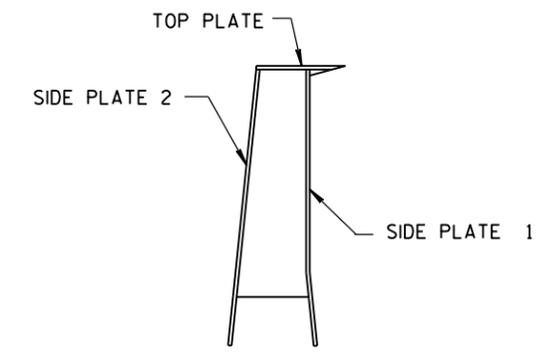
**PLAN VIEW
TOP PLATE**



SIDE PLATE 1



END VIEW



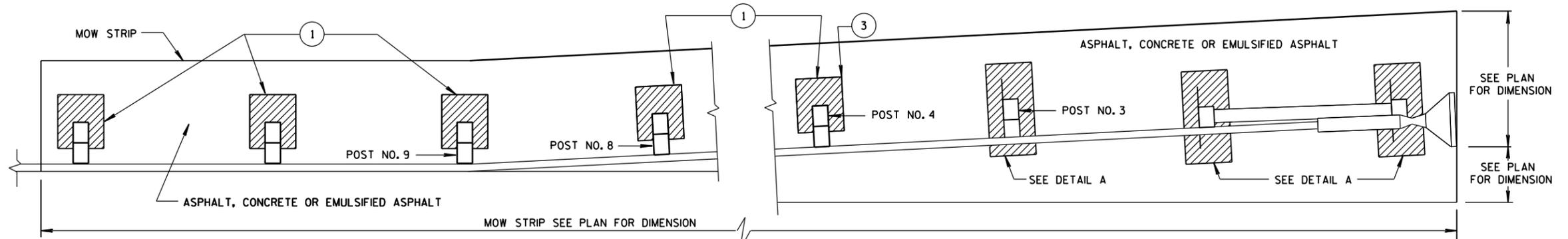
SECTION D-D

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

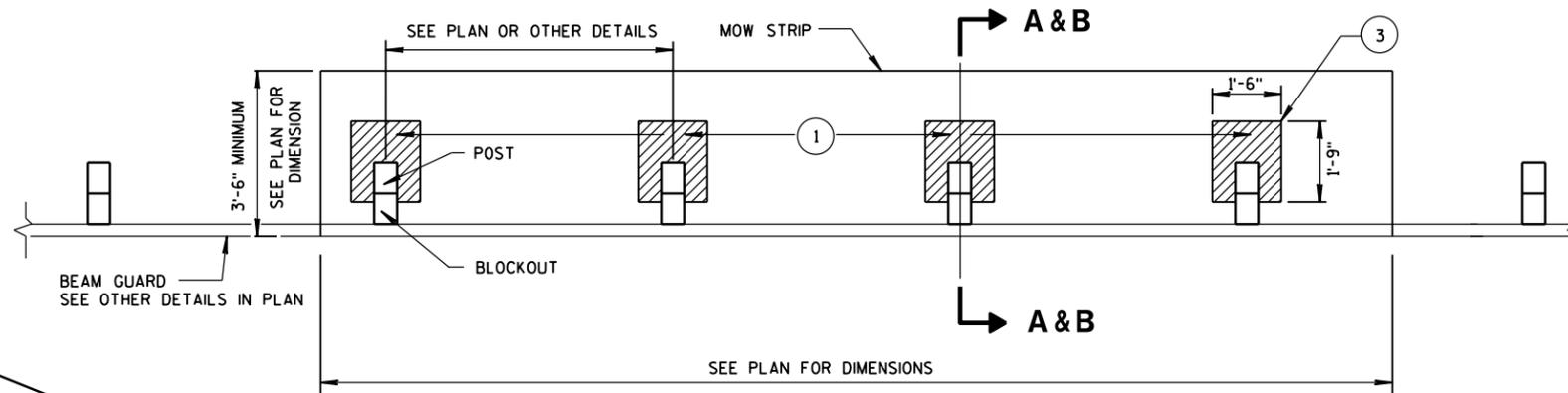
**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**

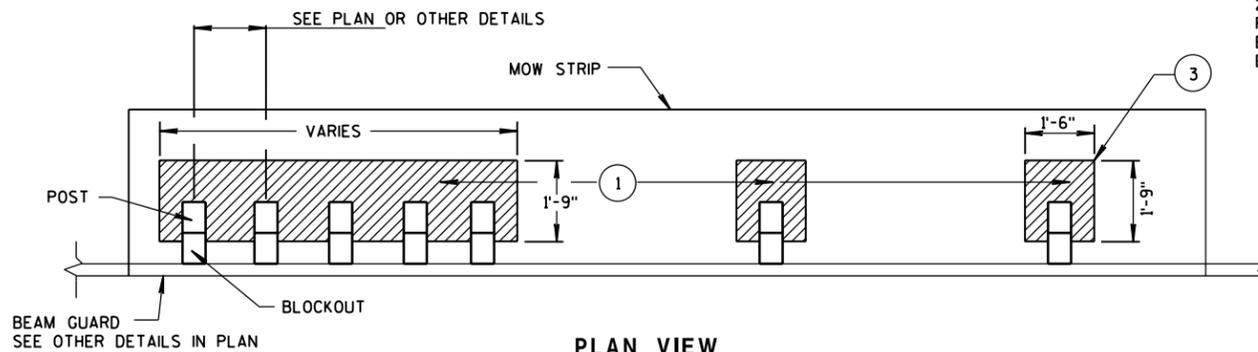
APPROVED
June 2014 DATE /S/ Jerry H. Zogg
ROADWAY STANDARD DEVELOPMENT ENGINEER
FHWA



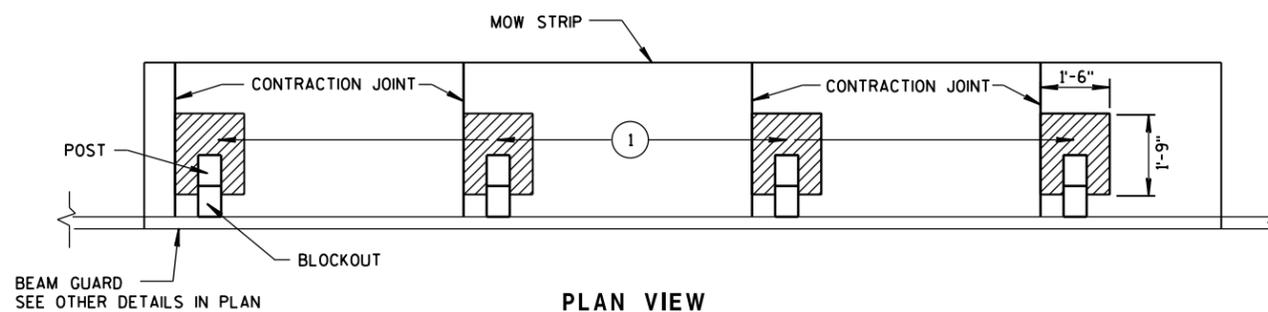
PLAN VIEW
MOW STRIP LAYOUT FOR ENERGY ABORING TERMINAL



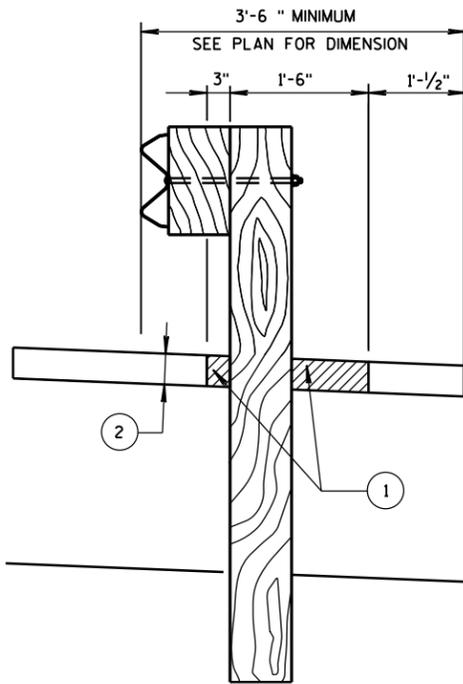
PLAN VIEW
MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT



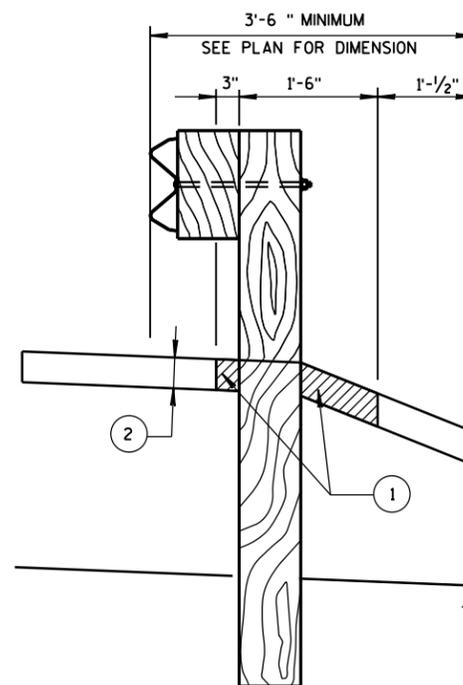
PLAN VIEW
MOW STRIP FOR TIGHT SPACING LAYOUT



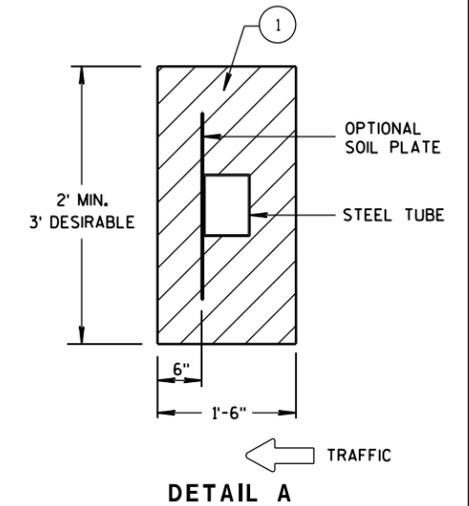
PLAN VIEW
JOINT PLACEMENT FOR CONCRETE MOW STRIP



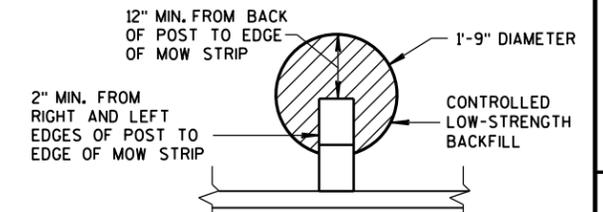
SECTION A-A



SECTION B-B



DETAIL A



ALTERNATIVE HMA MOW STRIP DESIGN

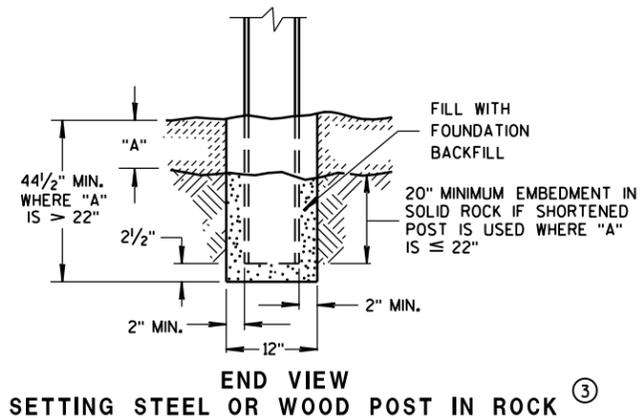
- ① CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.
- ② DEPTH OF MOW STRIP:
 ASPHALT - 4"
 CONCRETE - 4"
 EMULSIFIED ASPHALT - 1" OR LESS
- ③ FOR EMULSIFIED ASPHALT MOW STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS.)

GUARDRAIL MOW STRIP

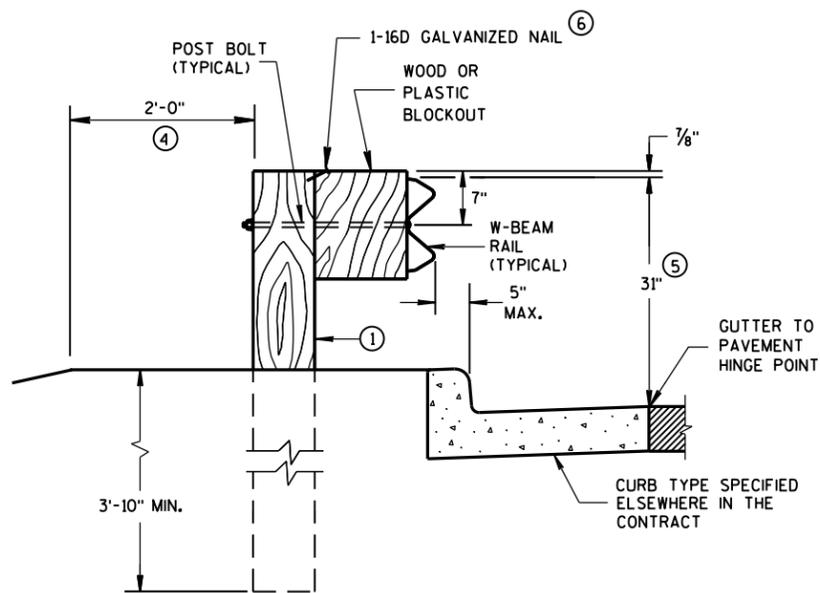
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

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

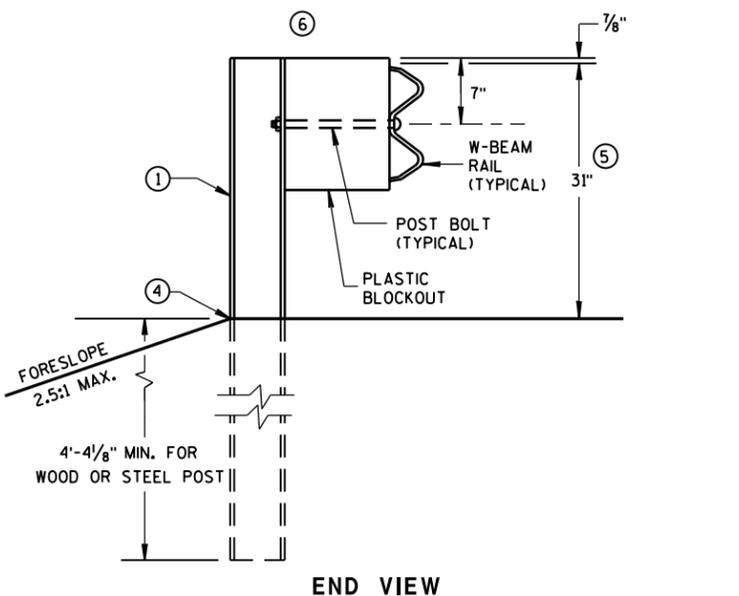
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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 2 1/2 INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



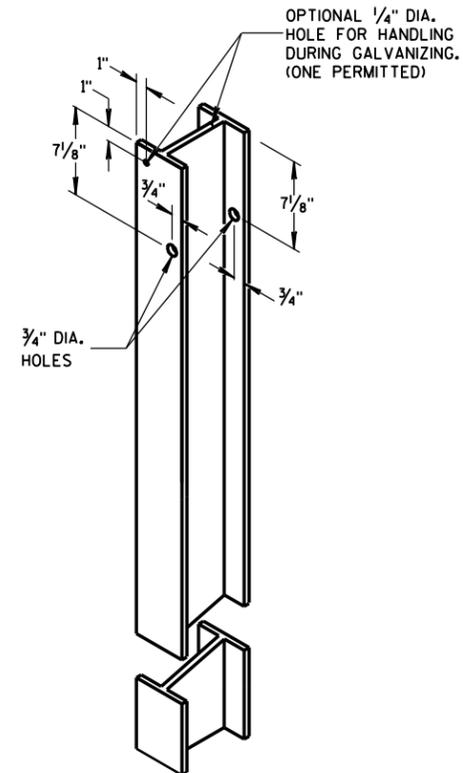
END VIEW SETTING STEEL OR WOOD POST IN ROCK ③



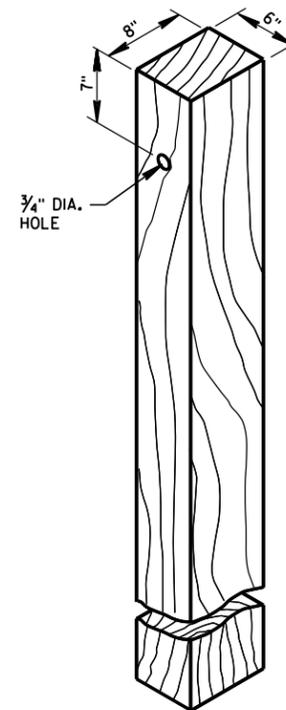
END VIEW LOCATED ALONG A CURBED ROADWAY



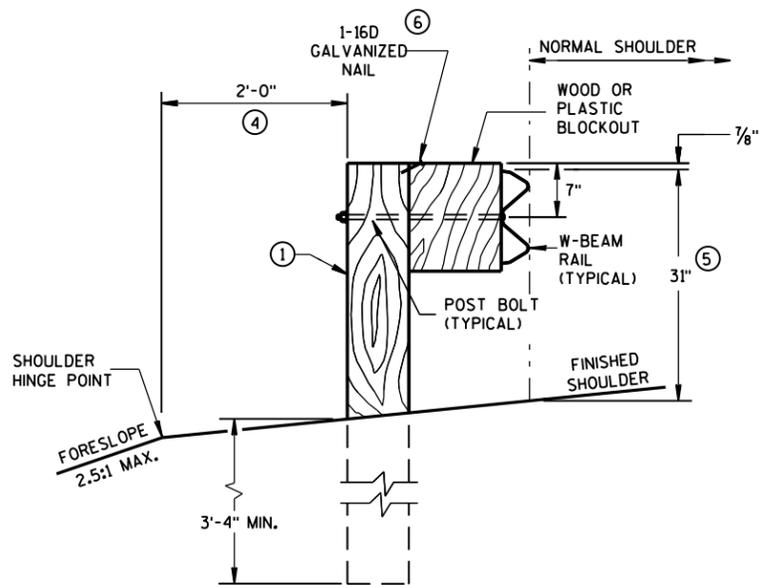
END VIEW MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



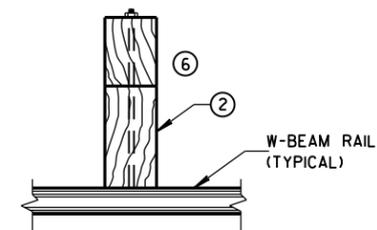
STEEL POST & HOLE PUNCHING DETAIL (w6X9) ①



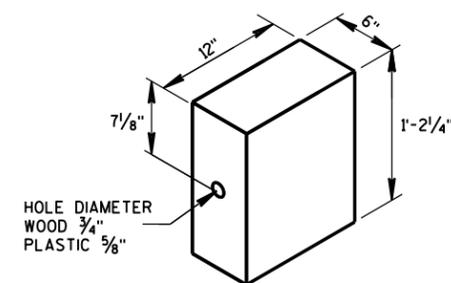
WOOD POST (6" X 8") NOMINAL ①



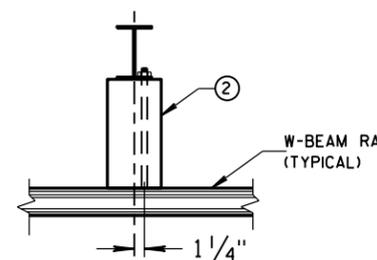
END VIEW LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



PLAN VIEW WOOD POST, BLOCKOUT & BEAM



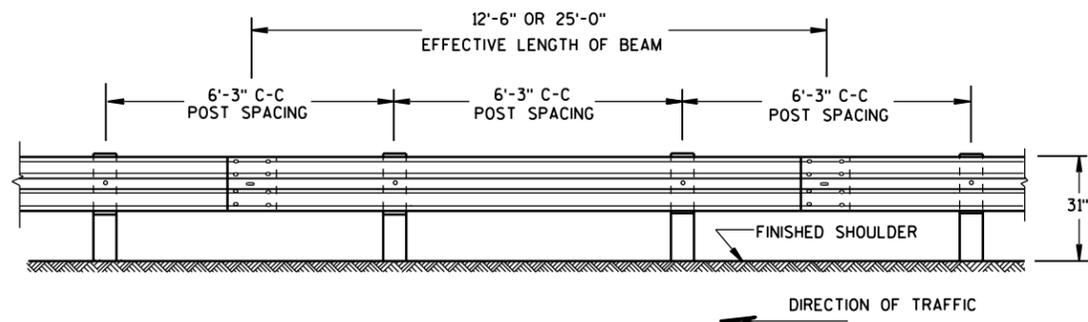
WOOD OR PLASTIC BLOCKOUT ②



PLAN VIEW STEEL POST, PLASTIC BLOCKOUT & BEAM

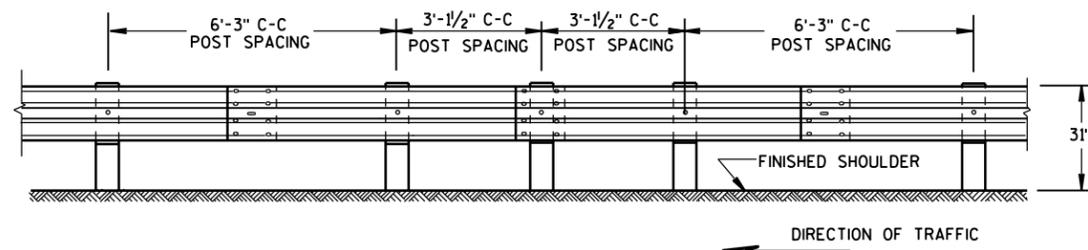
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



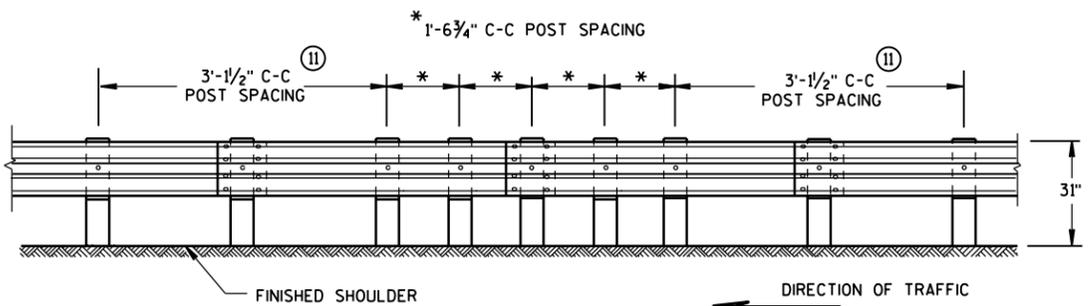
FRONT VIEW

POST SPACING STANDARD INSTALLATION



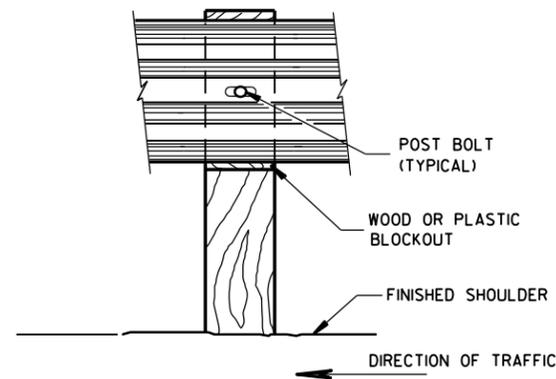
FRONT VIEW

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

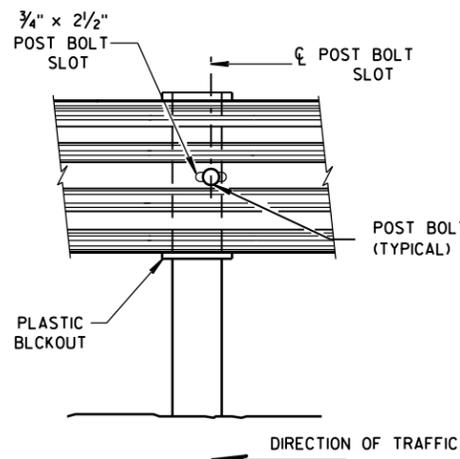


FRONT VIEW

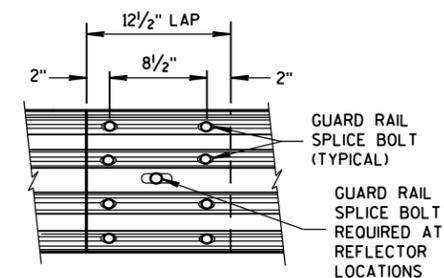
QUARTER POST SPACING (QS)



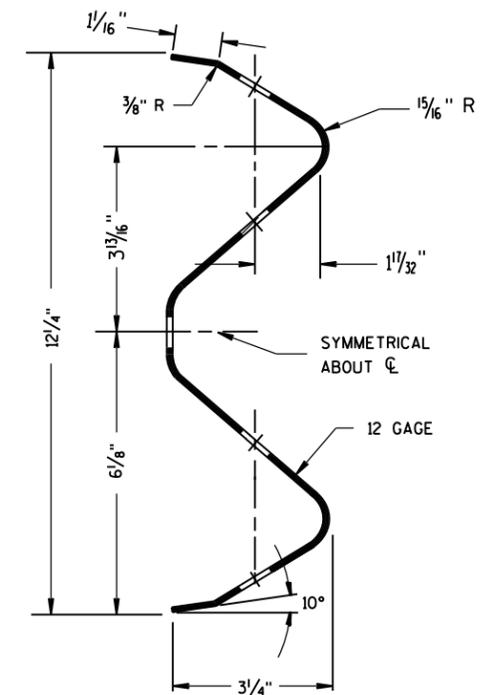
FRONT VIEW AT WOOD POST



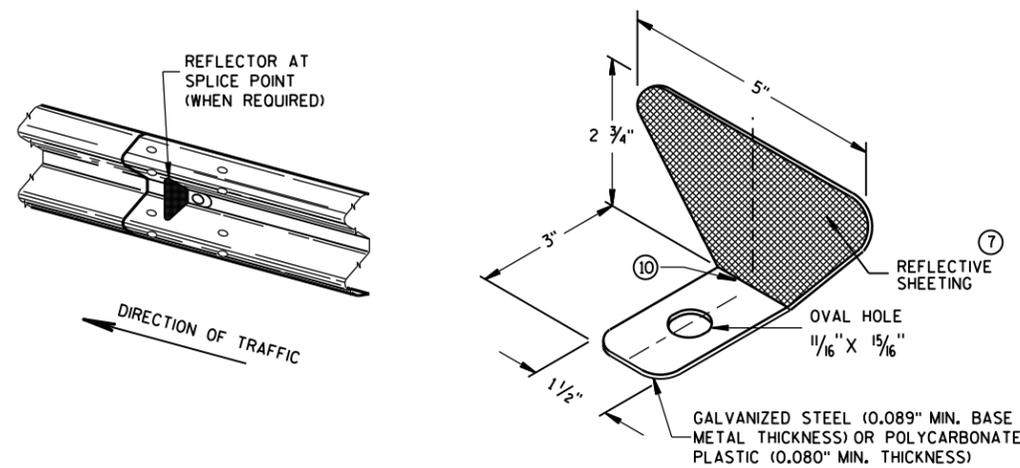
FRONT VIEW AT STEEL POST



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.

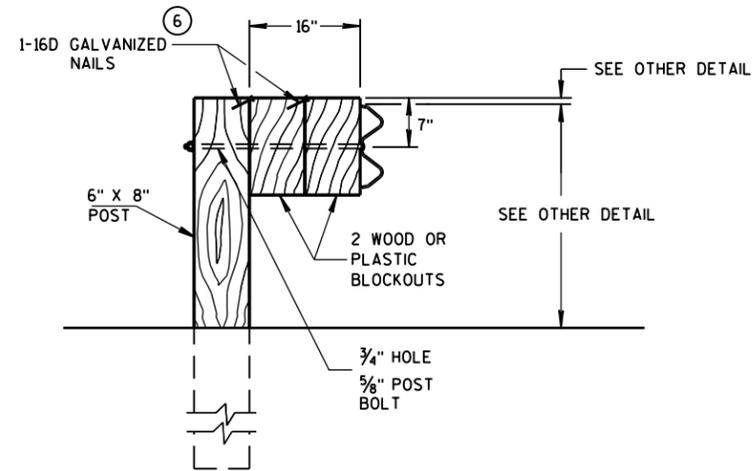
GUARD RAIL SPLICE BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING ^⑧

	BEAM GUARD RAIL 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	

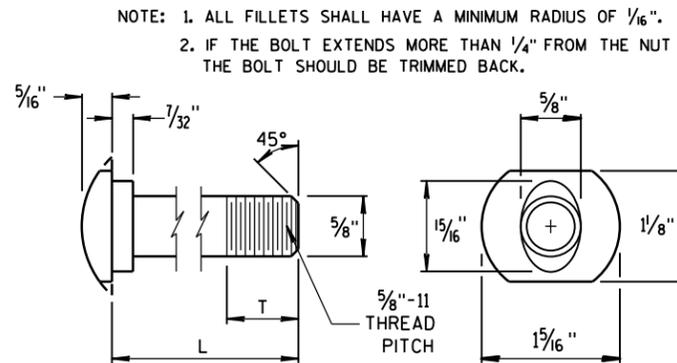
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



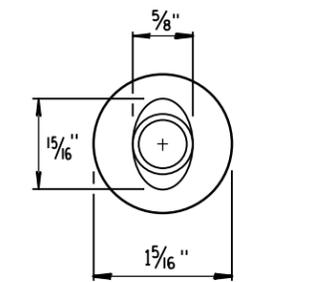
DETAIL FOR 16" BLOCKOUT DEPTH

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.

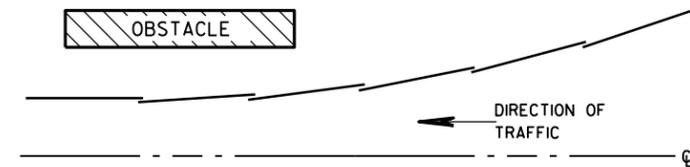


POST BOLT TABLE

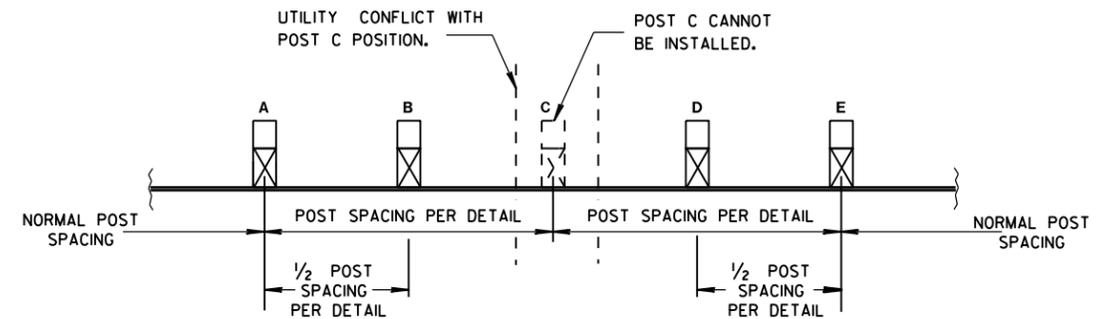
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



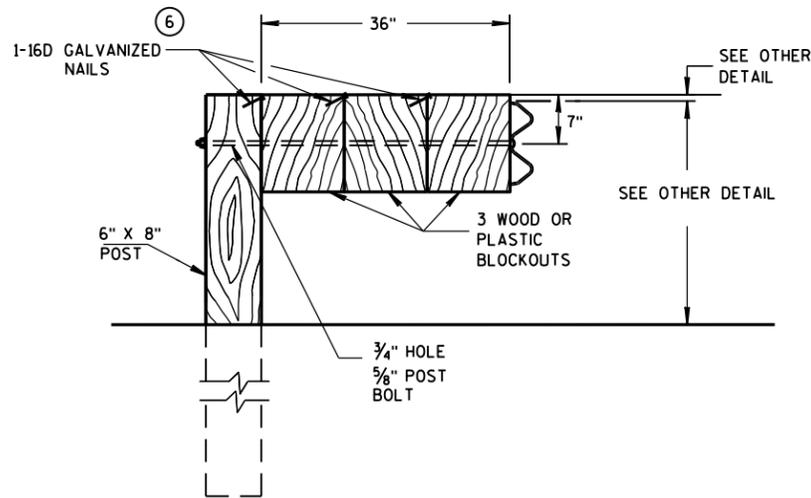
ALTERNATE BOLT HEAD



**PLAN VIEW
BEAM LAPPING DETAIL**



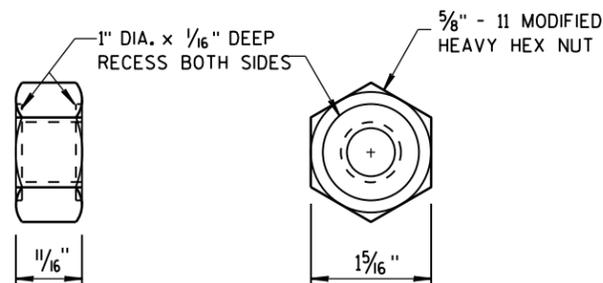
**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**



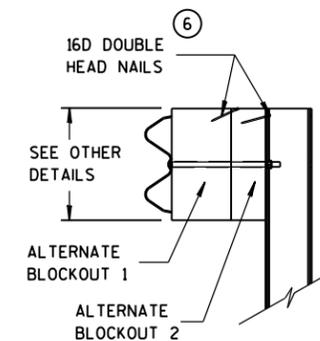
DETAIL FOR 36" BLOCKOUT DEPTH

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.

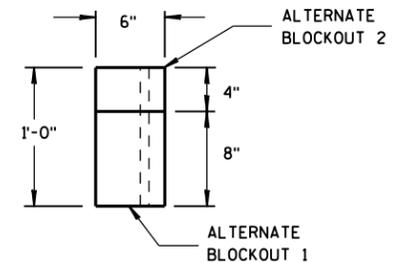
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



**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

CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE

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.

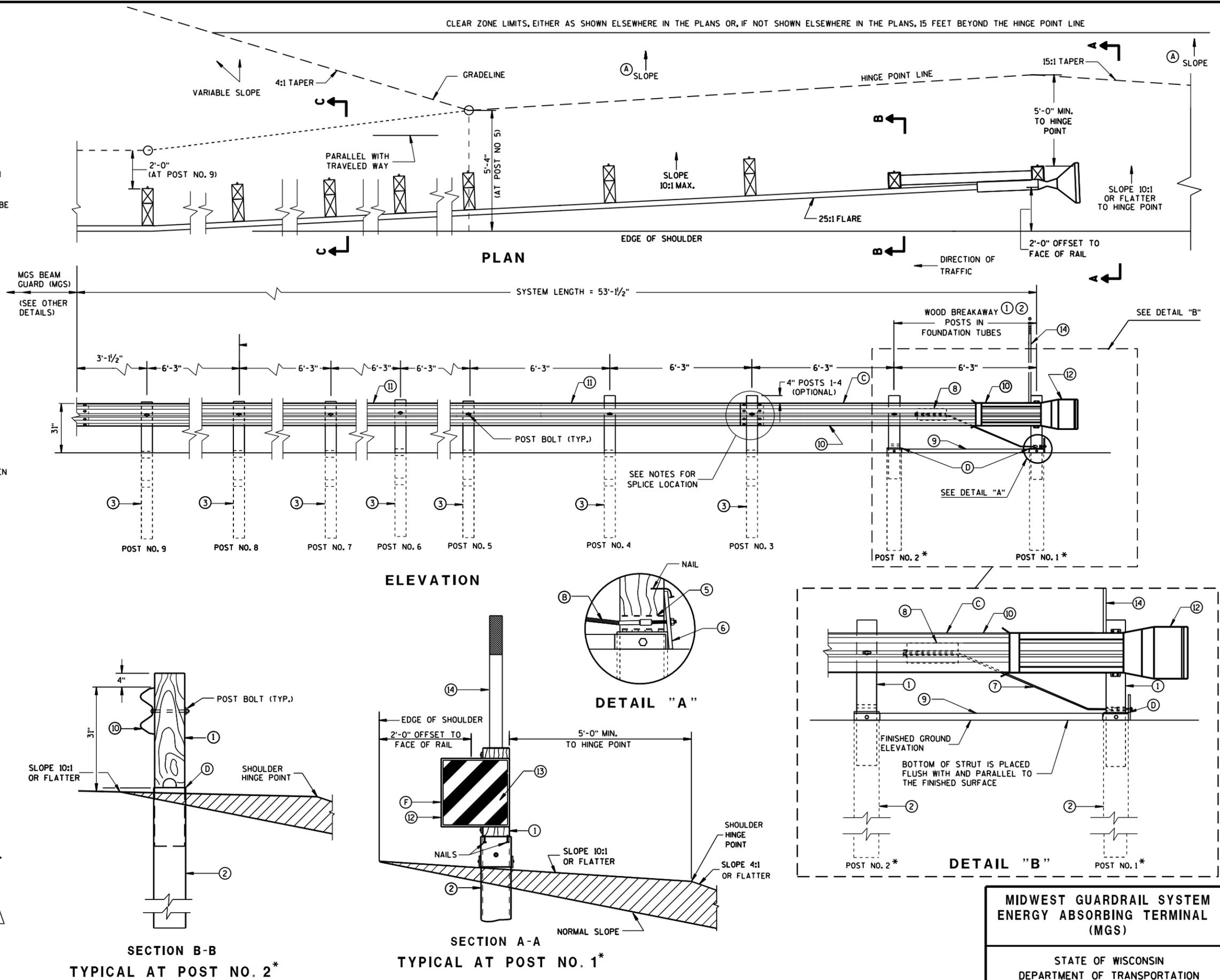
SEE SDD 14B42 FOR MORE INFORMATION.

* 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.



6

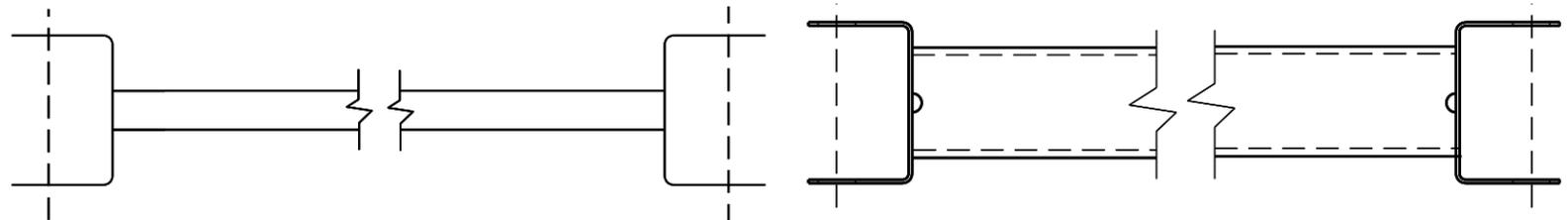
6

S.D.D. 14 B 44-2a

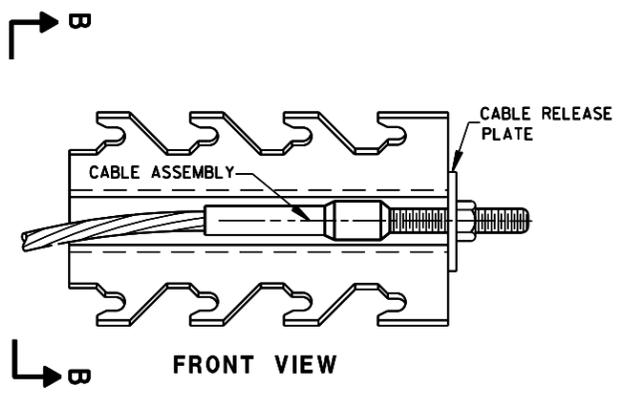
S.D.D. 14 B 44-2a

**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

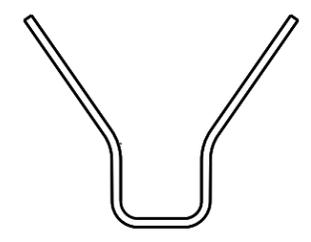
STATE OF WISCONSIN
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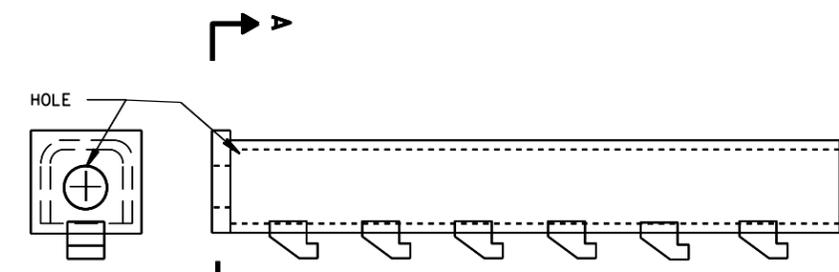
GENERIC GROUND STRUT (9) (H)



FRONT VIEW



SECTION B-B



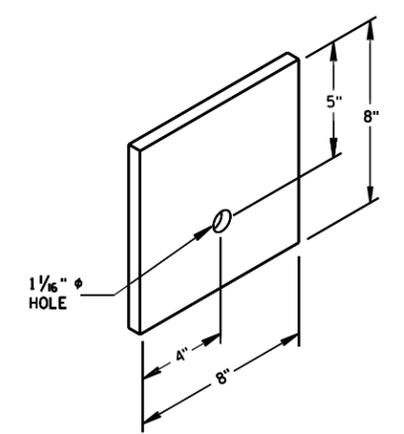
SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)

BILL OF MATERIALS

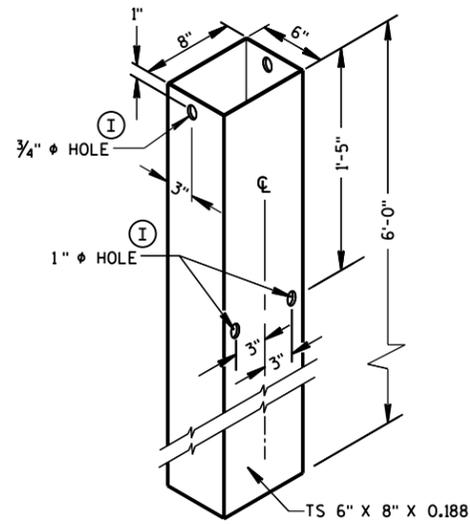
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR 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)



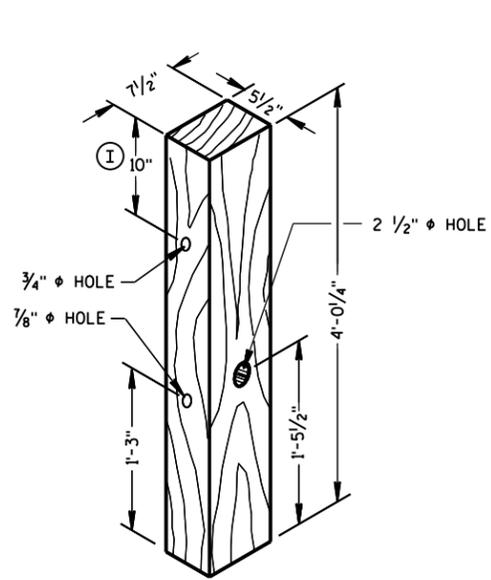
BEARING PLATE (6)

6

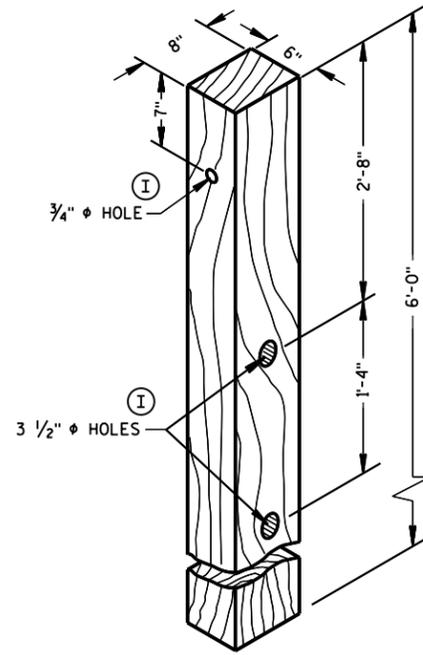
6



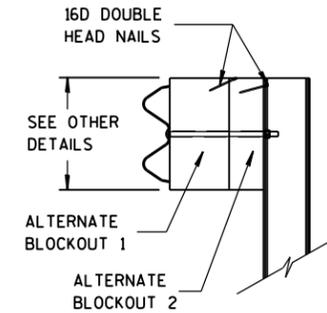
FOUNDATION TUBE ②



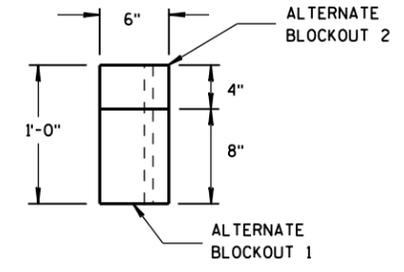
POSTS NUMBER 1 AND 2
WOOD BREAKAWAY POST ①



POSTS NUMBER 3-9
WOOD CRT POST ③

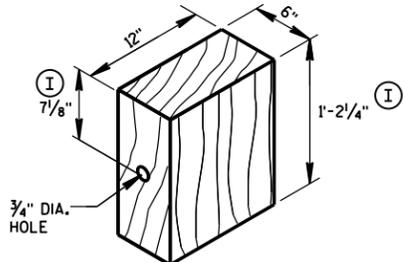


SIDE VIEW



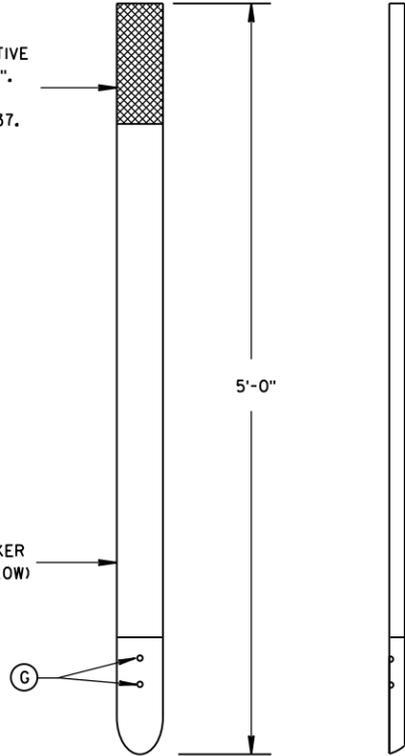
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



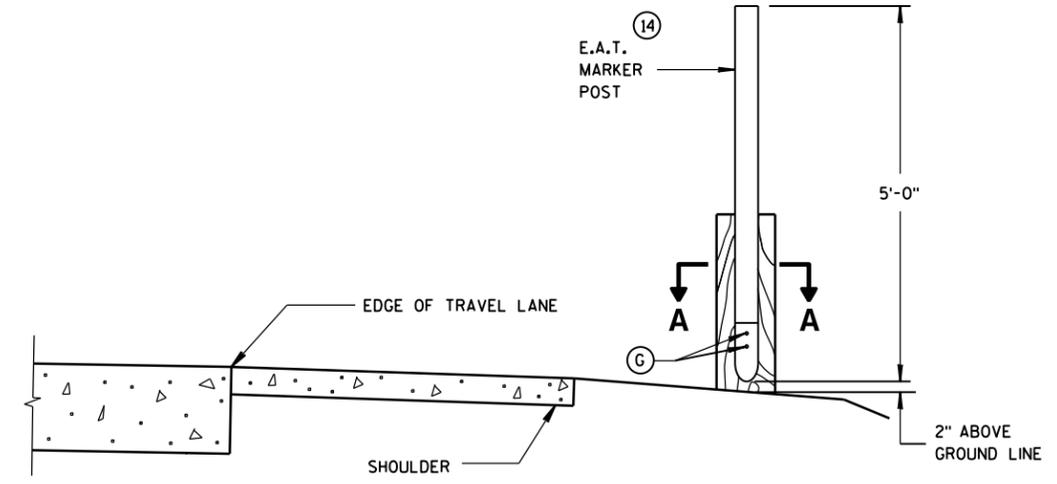
WOOD BLOCKOUT ④
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

TYPE H
YELLOW REFLECTIVE
SHEETING 3" X 9".
SEE STANDARD
SPECIFICATION 637.

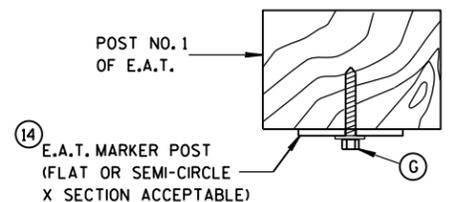


FRONT VIEW **SIDE VIEW**

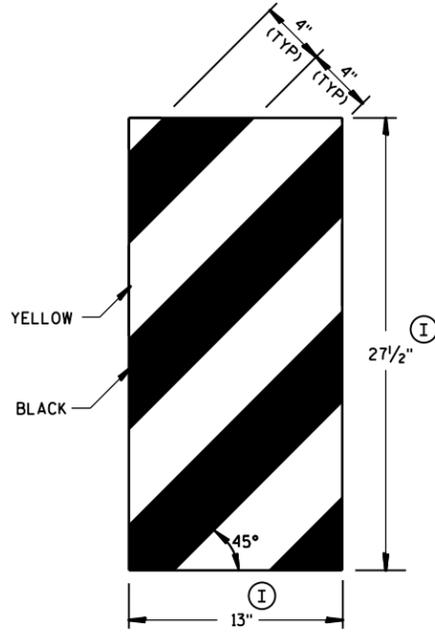
E.A.T. MARKER POST ⑭



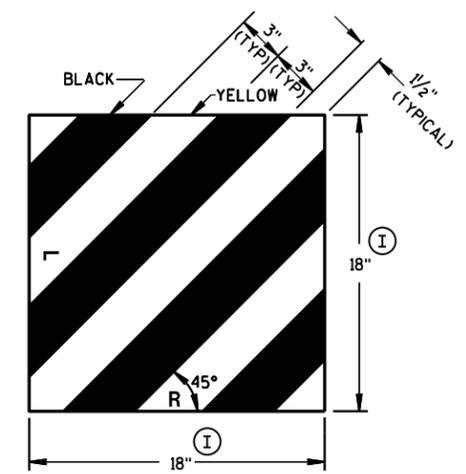
TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1
(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A



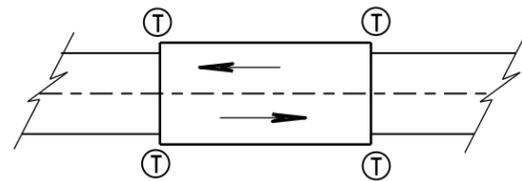
GENERIC REFLECTIVE SHEETING ⑬ ①



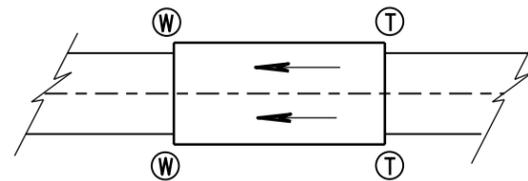
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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.

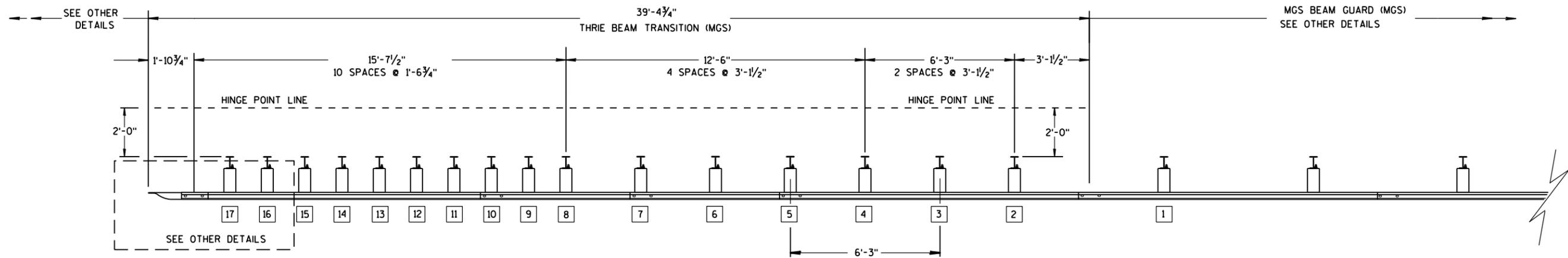
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

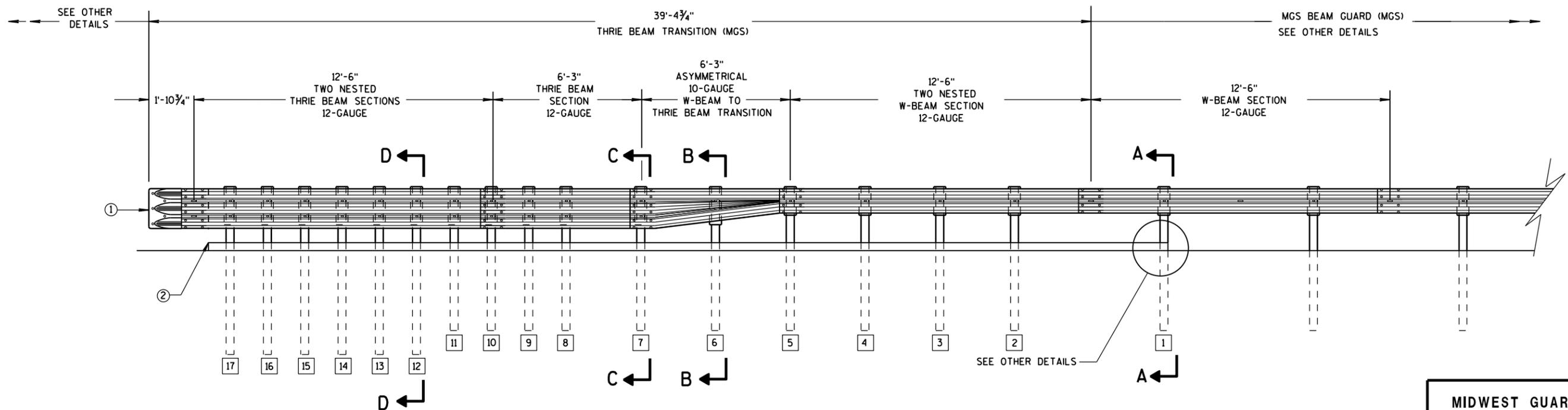
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

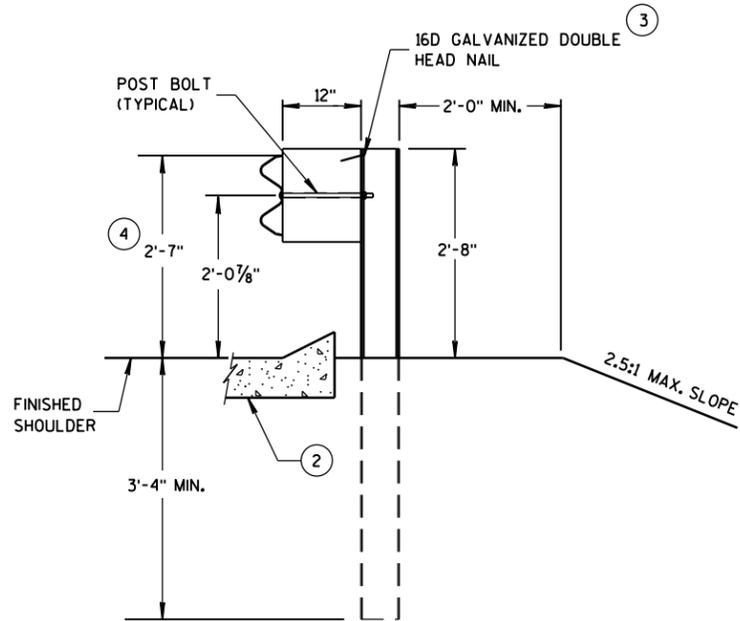
6

S.D.D. 14 B 45-4a

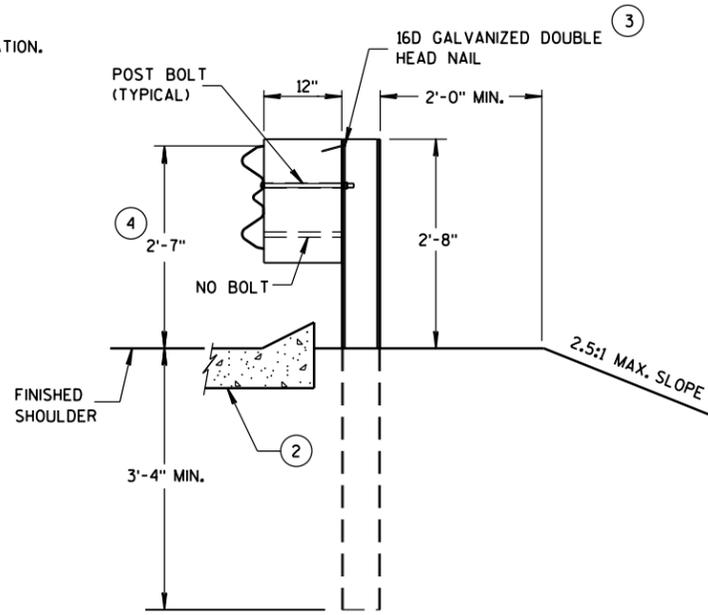
S.D.D. 14 B 45-4a

GENERAL NOTES

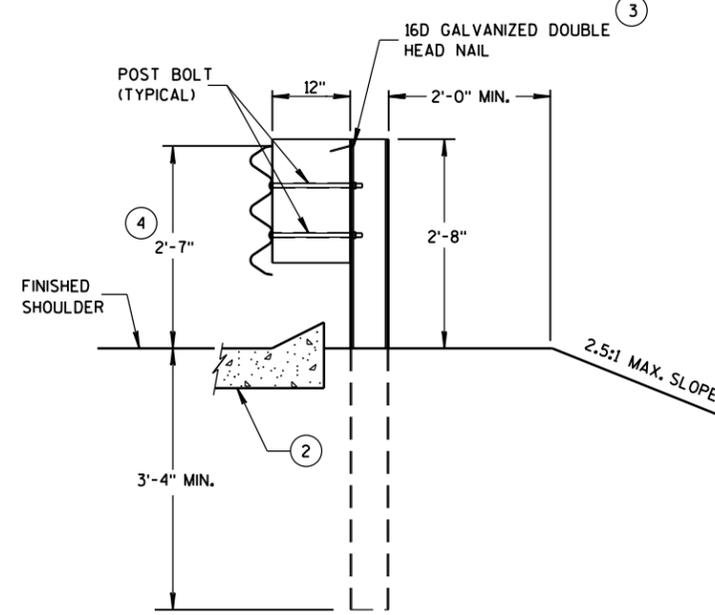
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



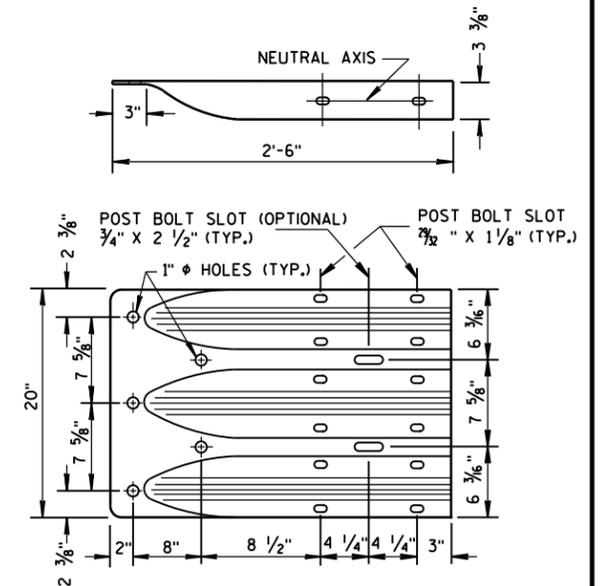
**SECTION A-A
POSTS 1-5**



**SECTION B-B
POST 6**



**SECTION C-C
POSTS 7-11**



**THRIE BEAM
TERMINAL CONNECTOR**

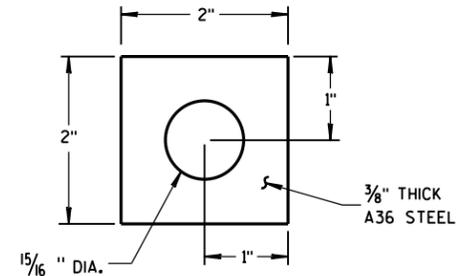
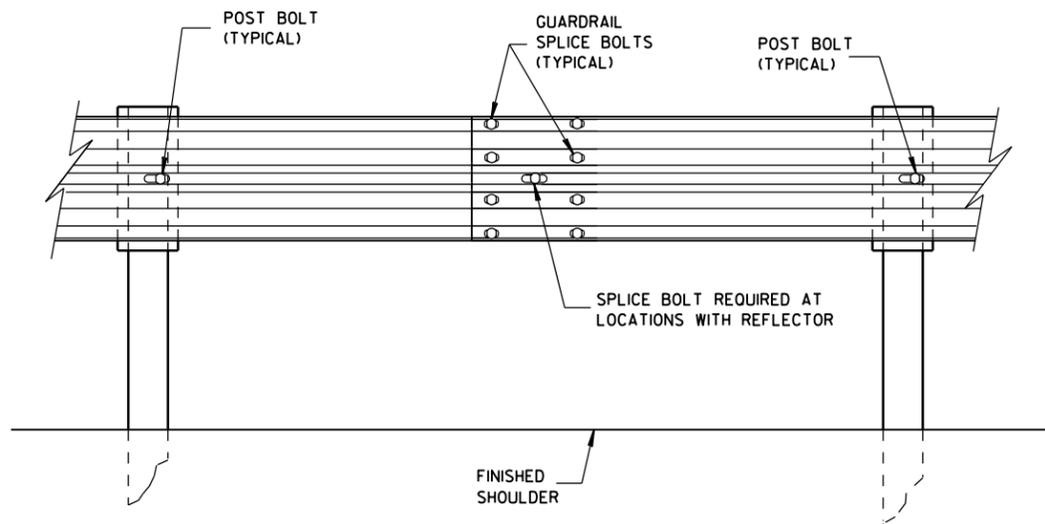
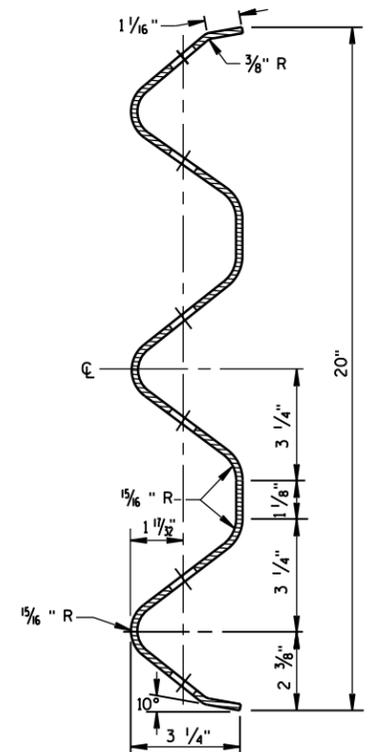


PLATE WASHER DETAIL



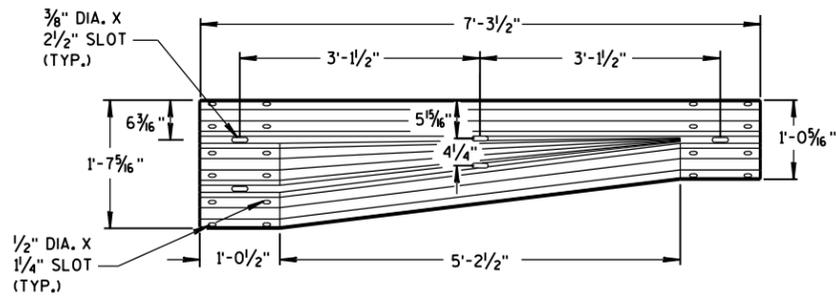
SPLICE DETAIL



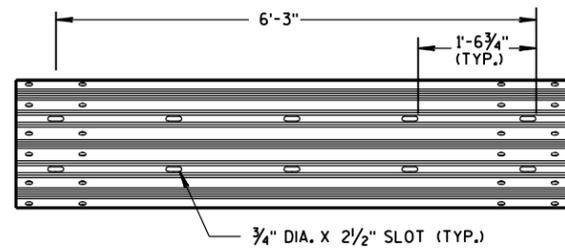
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

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

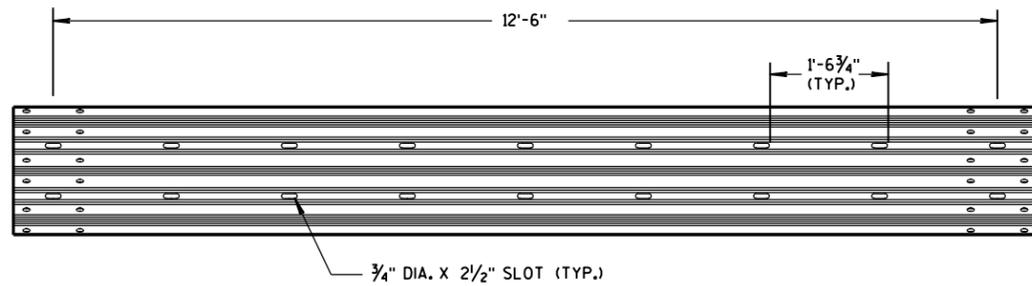
**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**



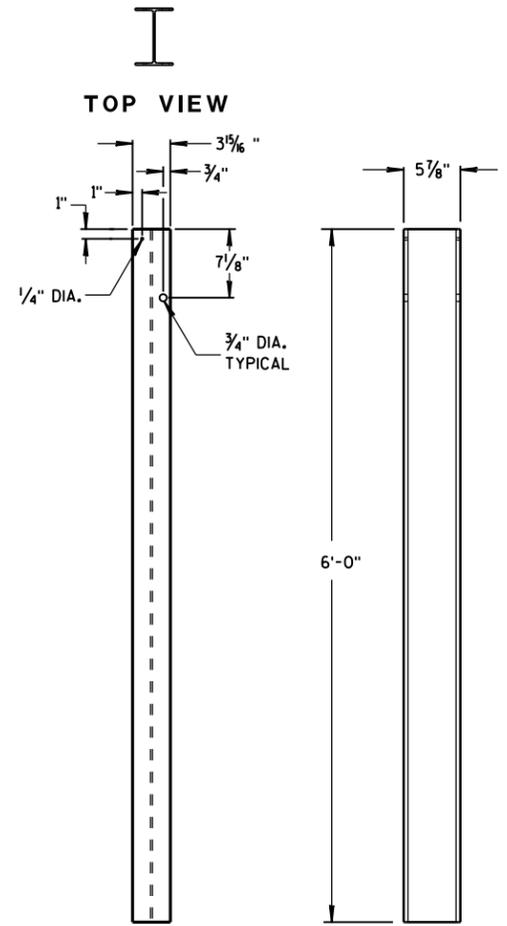
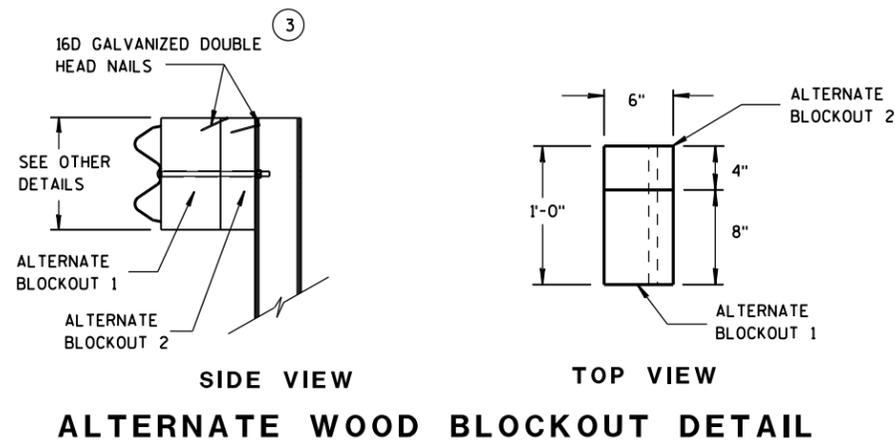
W-BEAM TO THRIE BEAM TRANSITION SECTION



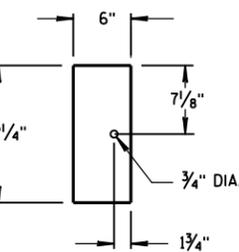
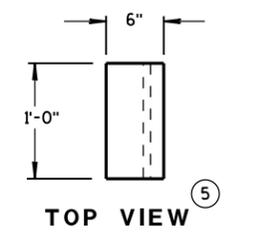
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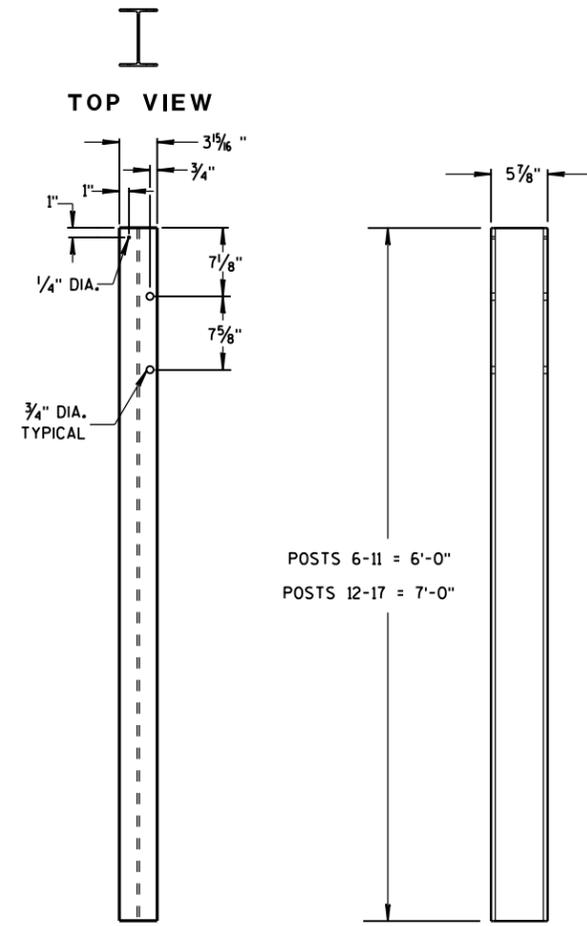
12'-6\"/>



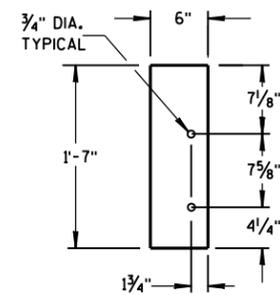
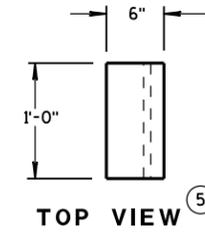
STEEL POSTS 1-5



BLOCKOUT POSTS 1-5



STEEL POSTS 6-17



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.

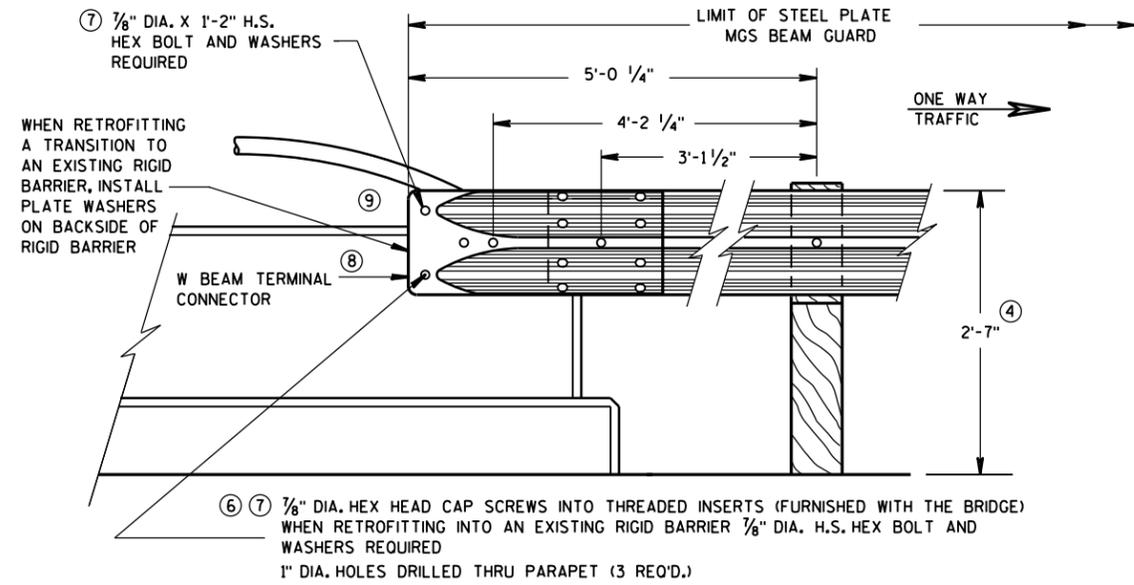
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

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

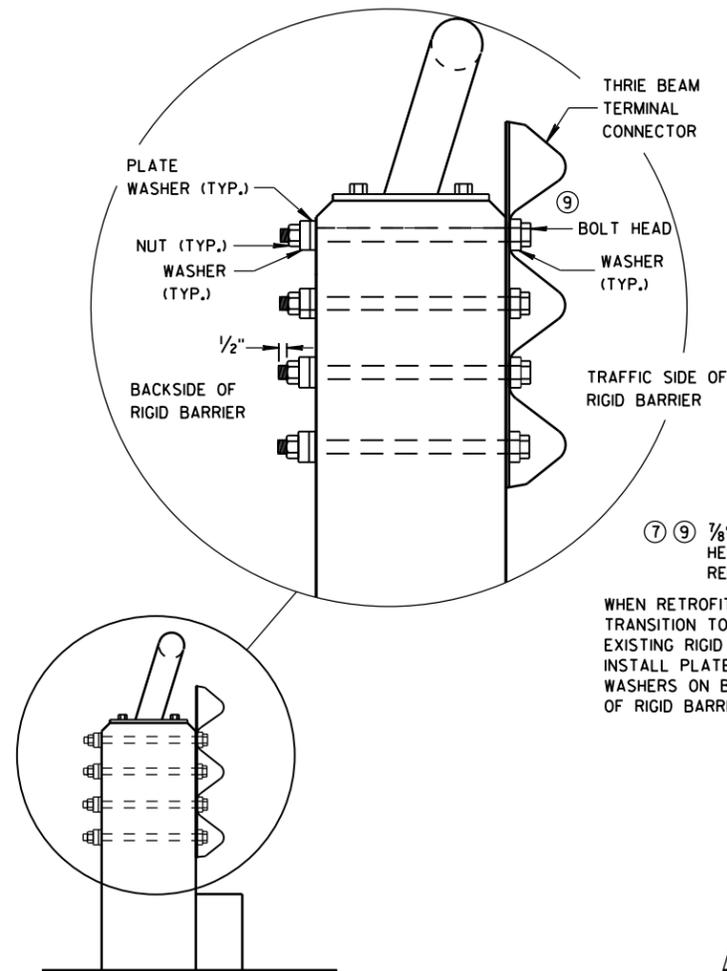
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1'$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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.



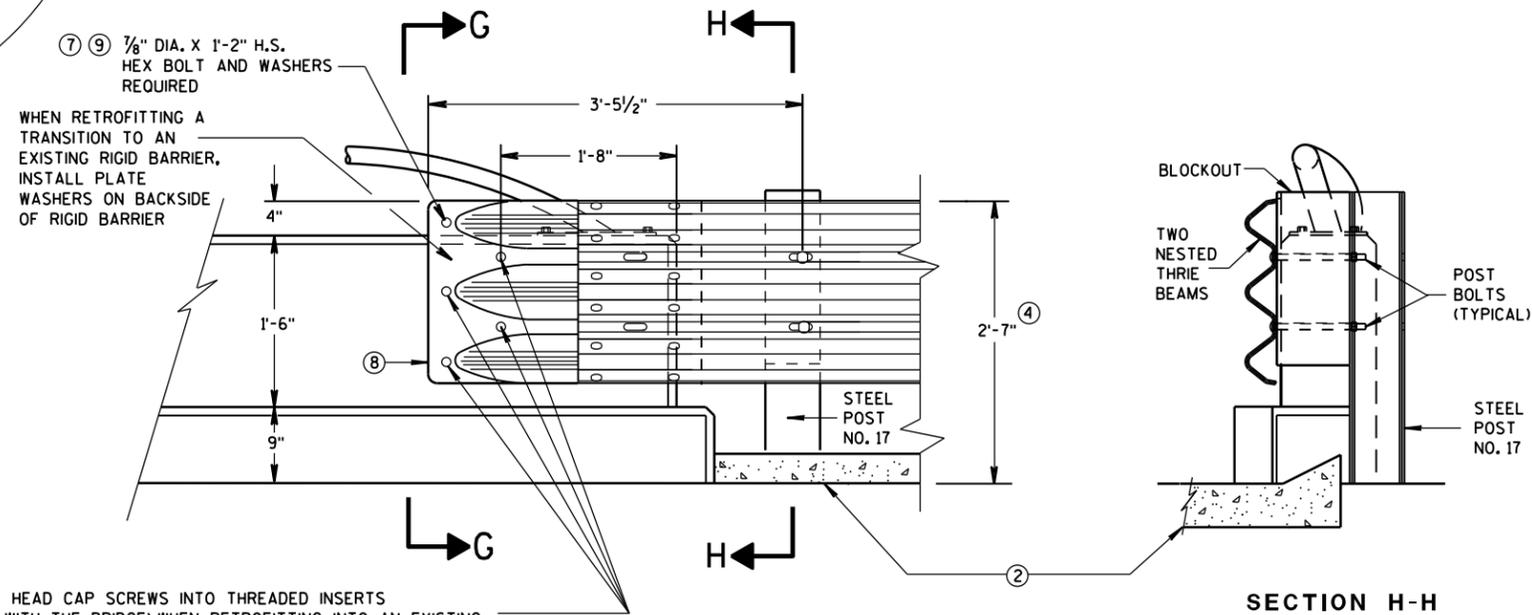
FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

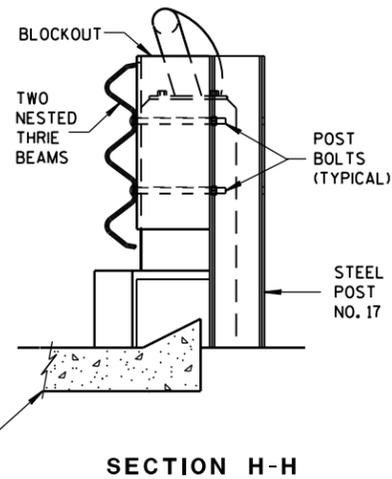


SECTION G-G



FRONT VIEW

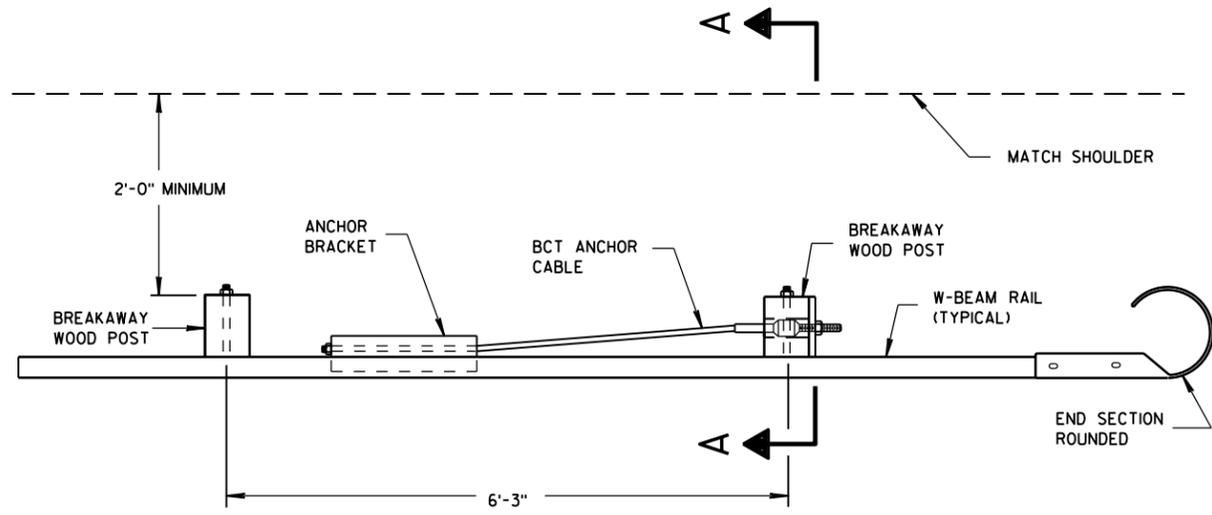
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



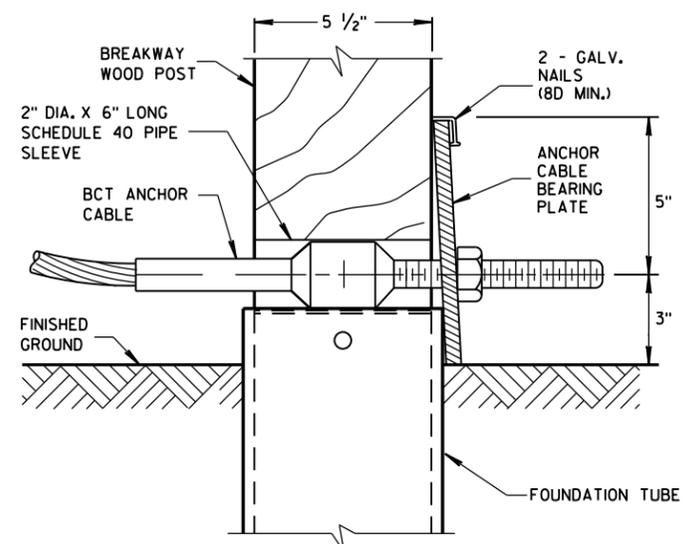
SECTION H-H

- ⑥ ⑦ $\frac{7}{8}$ " DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER $\frac{7}{8}$ " DIA. H.S. HEX BOLT AND WASHERS REQUIRED 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)

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	

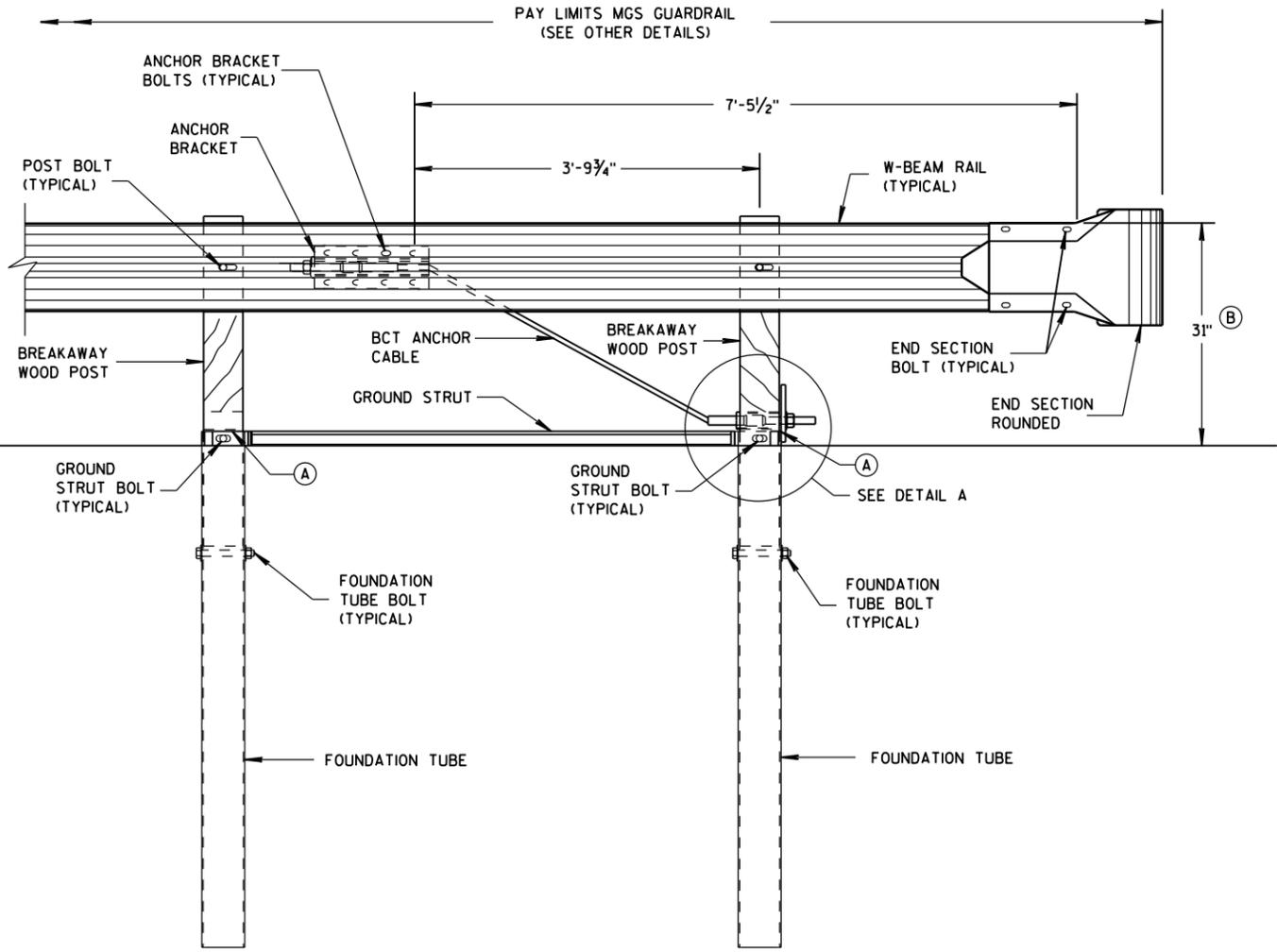


PLAN VIEW



DETAIL A

POST NO. 1
GROUND STRUT NOT SHOWN FOR CLARITY.



FRONT VIEW

END RAIL DETAIL

GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

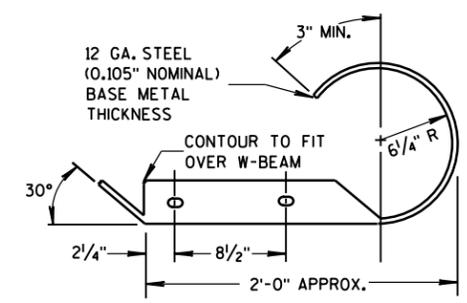
END SECTION BOLTS AND NUTS HAVE THE SAME MATERIAL REQUIREMENTS AS SPLICE BOLTS.

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.

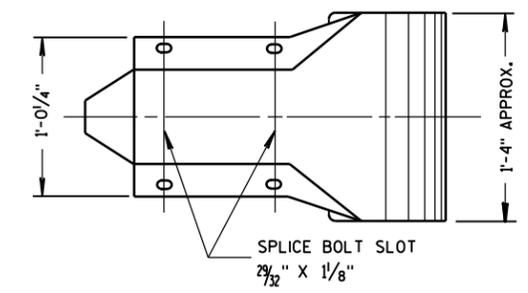
ANCHOR BRACKET AND GROUND STRUT BOLTS ARE A 5/8" DIAMETER ASTM A307 HEX HEAD BOLT. ANCHOR BRACKET BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 5/8" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

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".

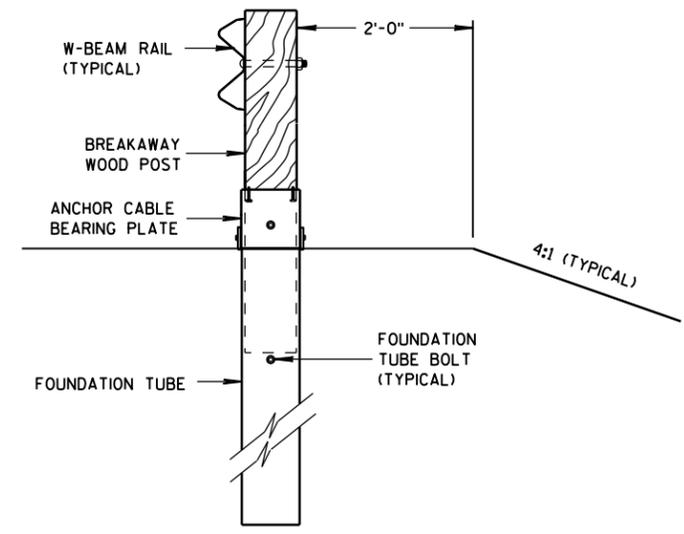


PLAN VIEW



FRONT VIEW

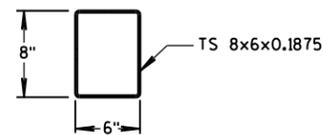
W BEAM END SECTION ROUNDED



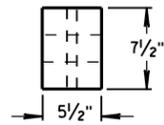
SECTION A-A

MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL

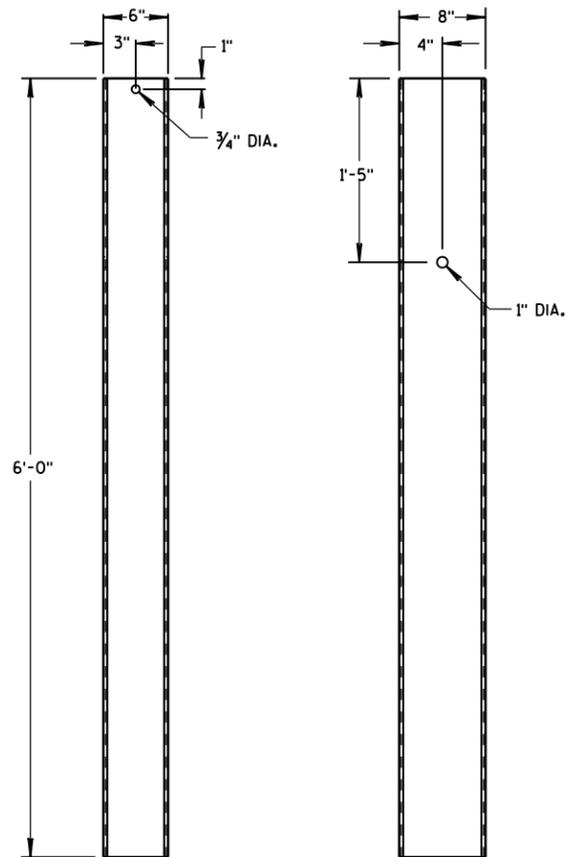
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



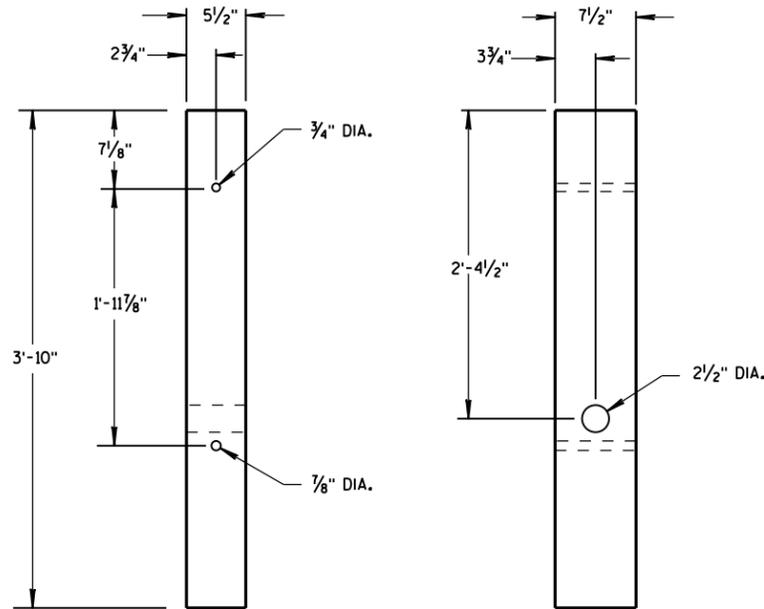
PLAN VIEW



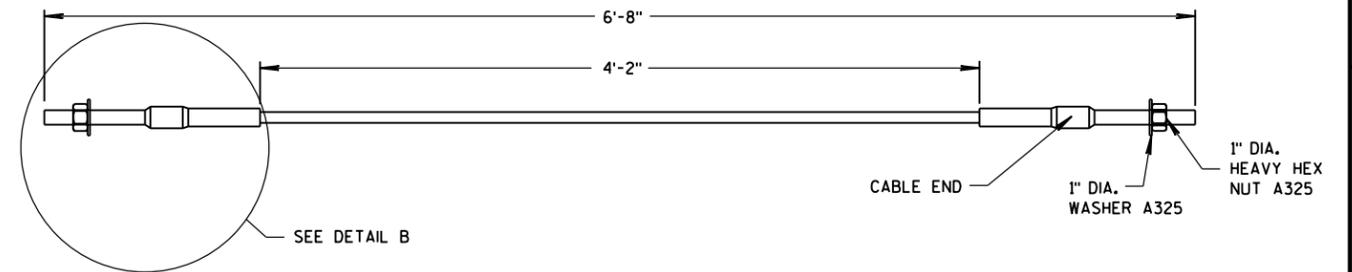
PLAN VIEW



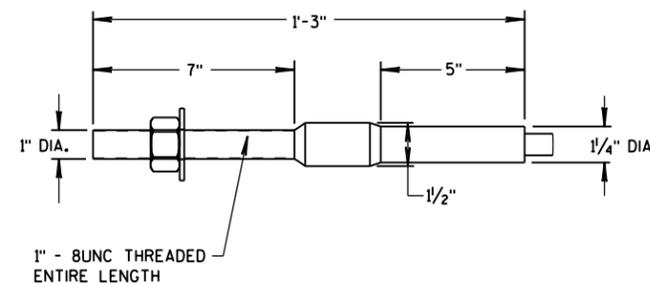
FRONT VIEW SIDE VIEW
FOUNDATION TUBE



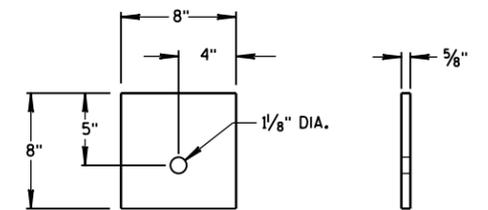
FRONT VIEW SIDE VIEW
BREAKAWAY WOOD POST



BCT ANCHOR CABLE



DETAIL B

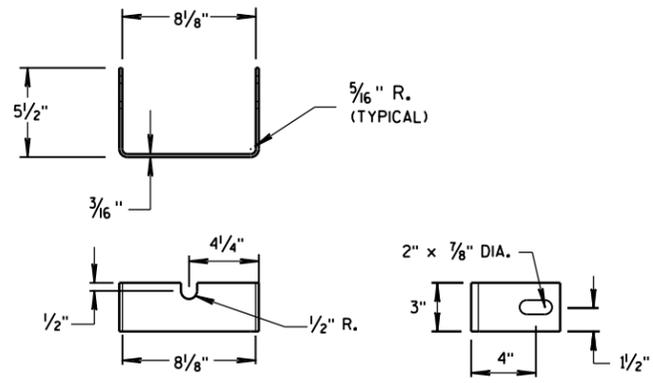


SIDE VIEW FRONT VIEW
ANCHOR CABLE BEARING PLATE

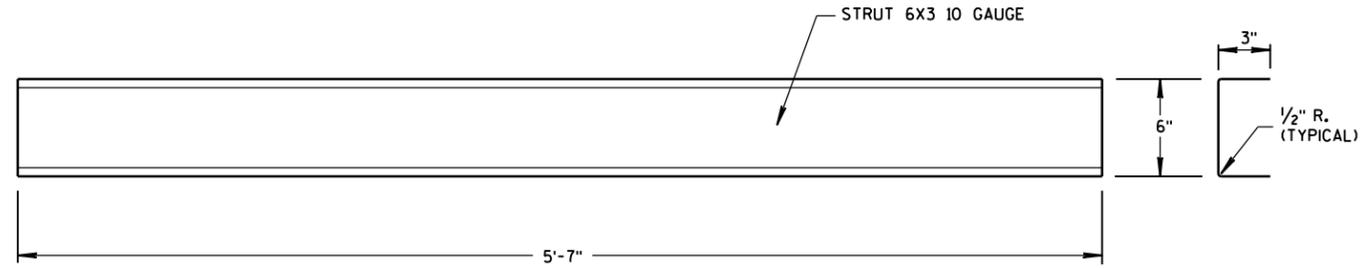
GENERAL NOTES

BCT ANCHOR CABLE IS A 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.

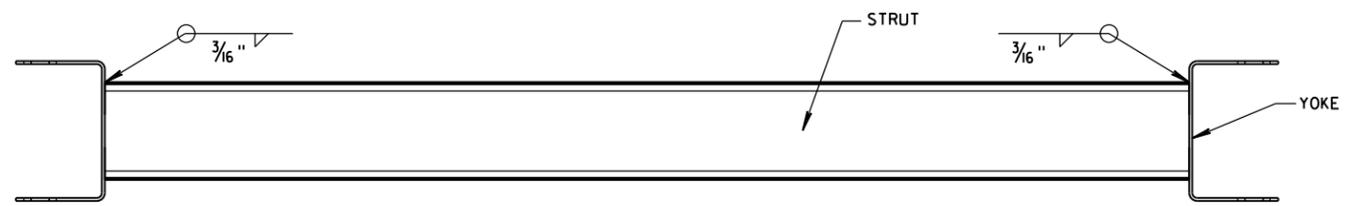
MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



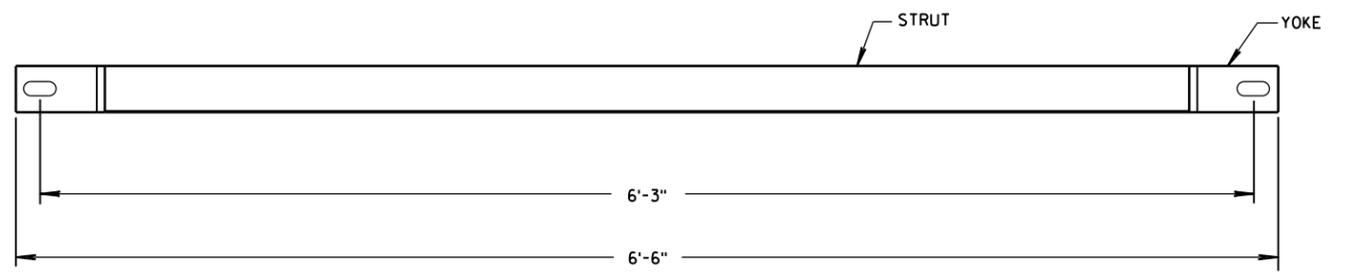
YOKE DETAIL



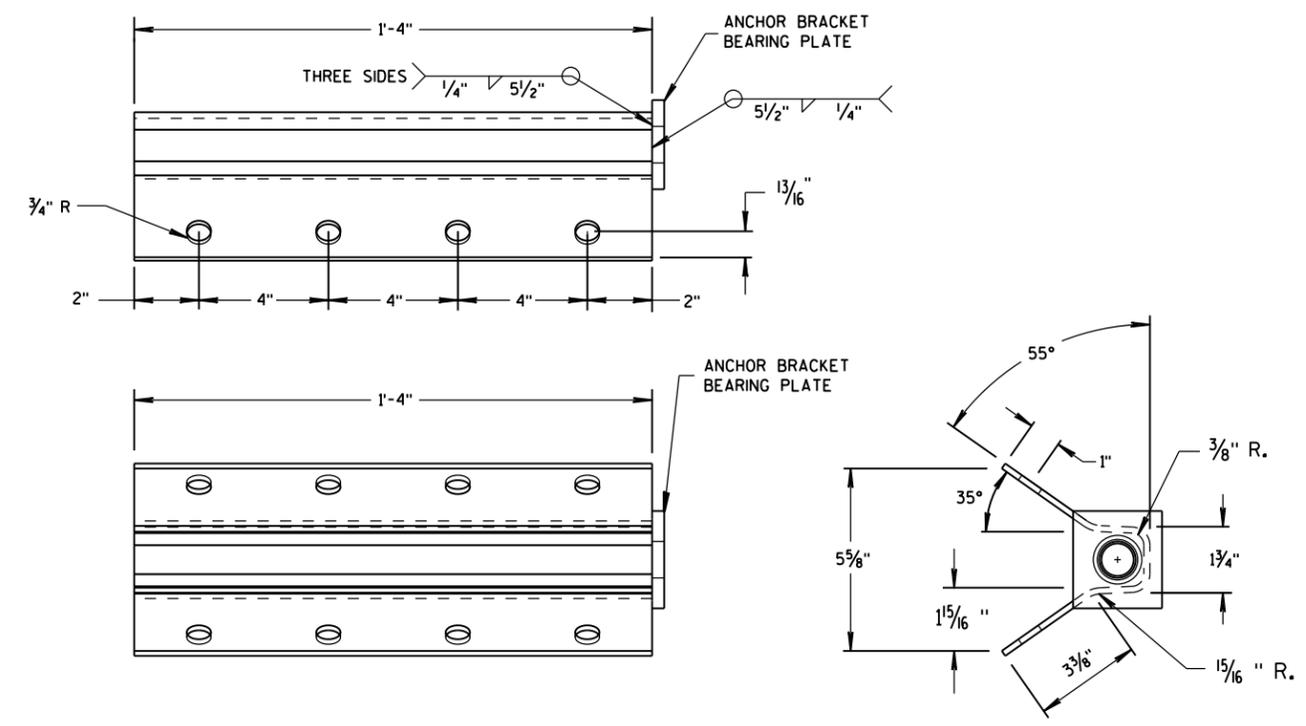
STRUT DETAIL



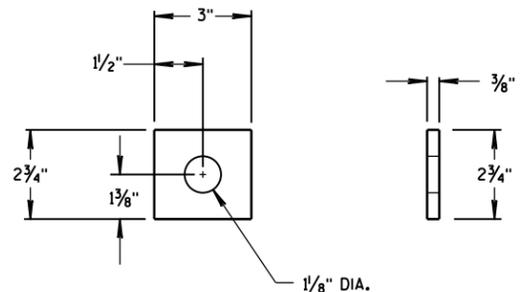
PLAN VIEW



**FRONT VIEW
GROUND STRUT DETAIL**



ANCHOR BRACKET



**ANCHOR BRACKET
BEARING PLATE**

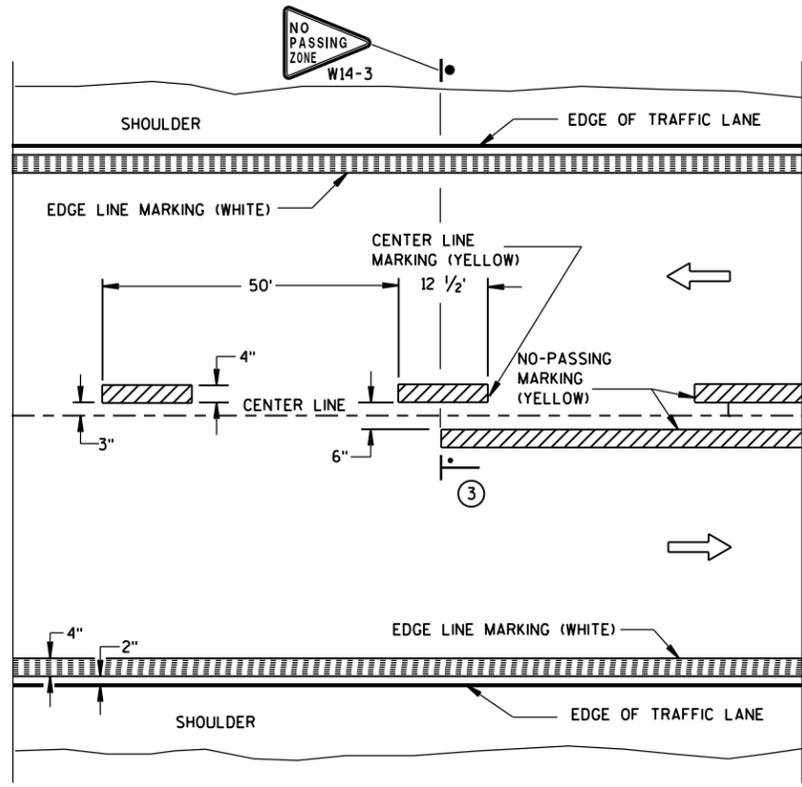
6

6

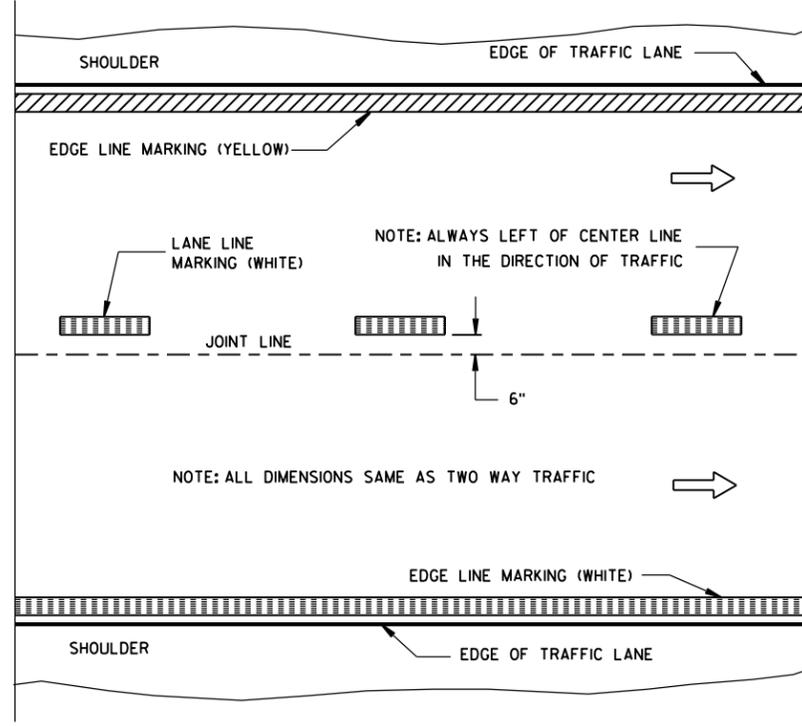
S.D.D. 14 B 47-2c

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

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2014 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

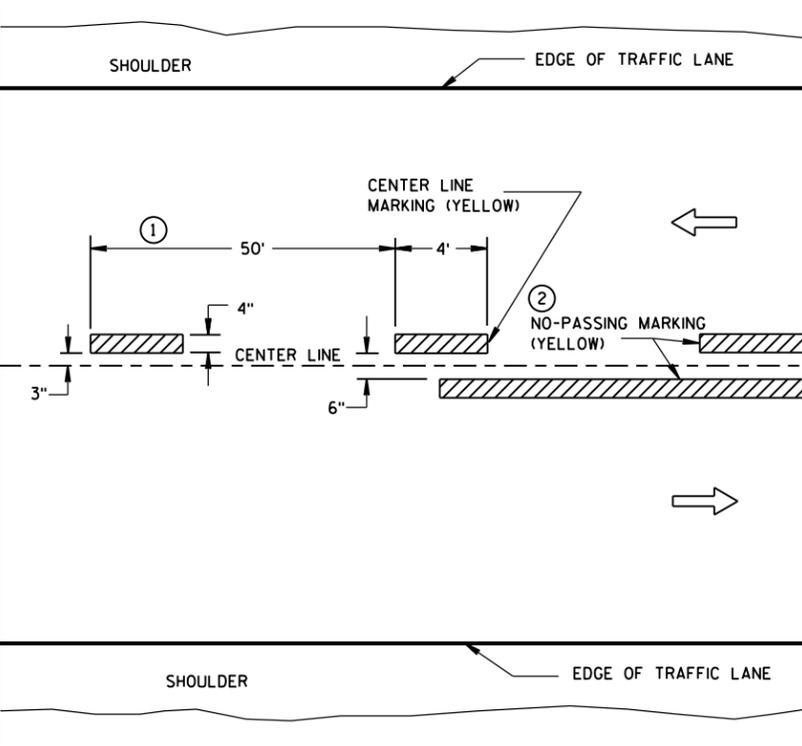


TWO WAY TRAFFIC

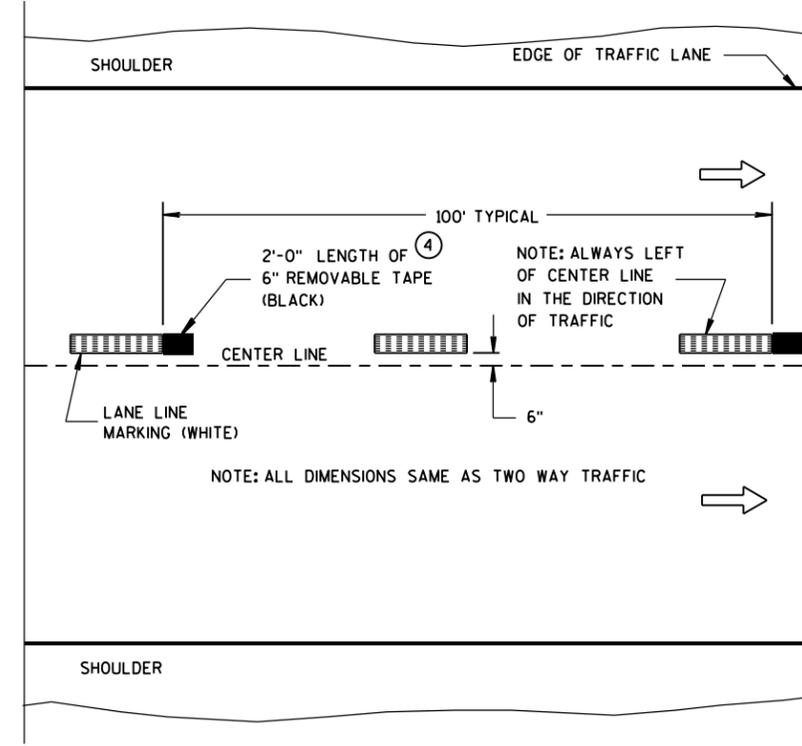


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

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

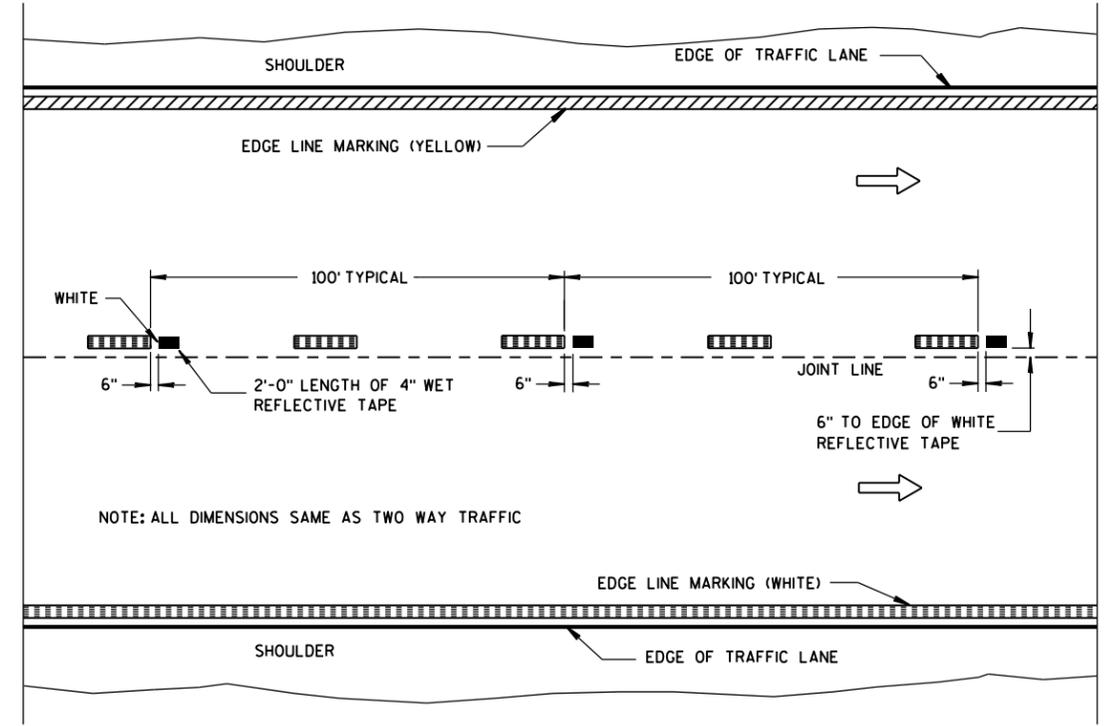
GENERAL NOTES

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 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER
FHWA	

LEGEND

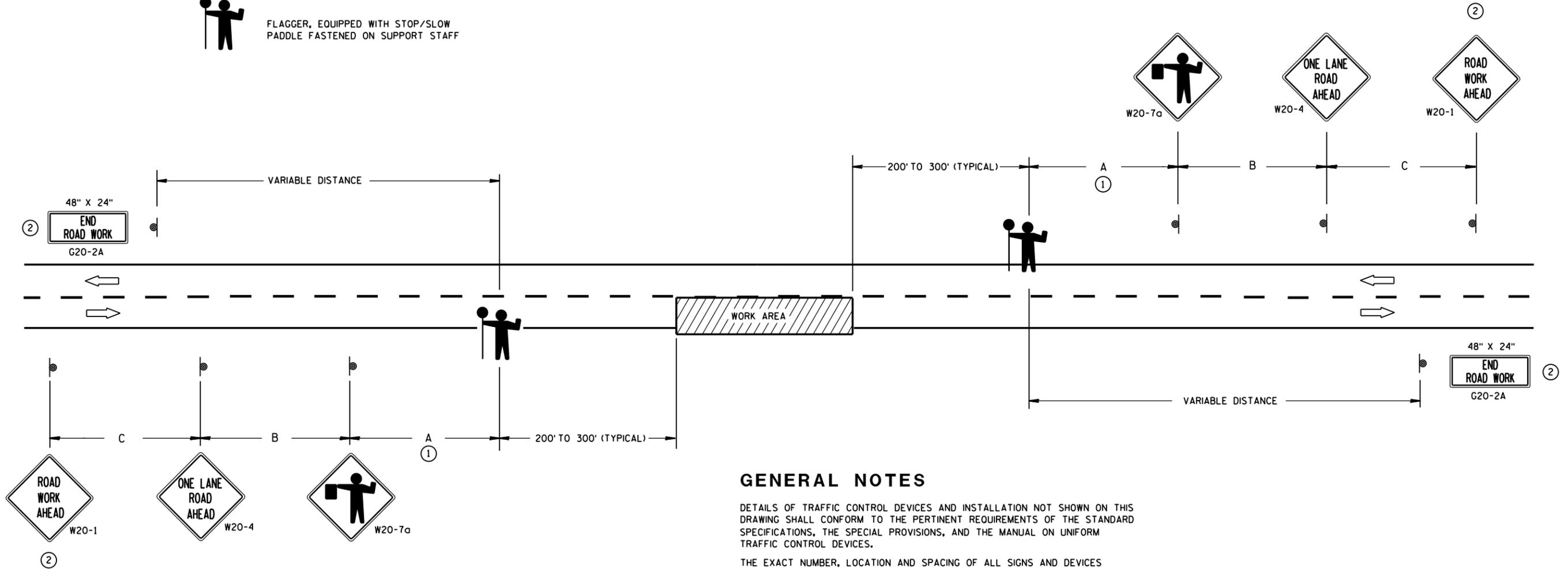
-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

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

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.

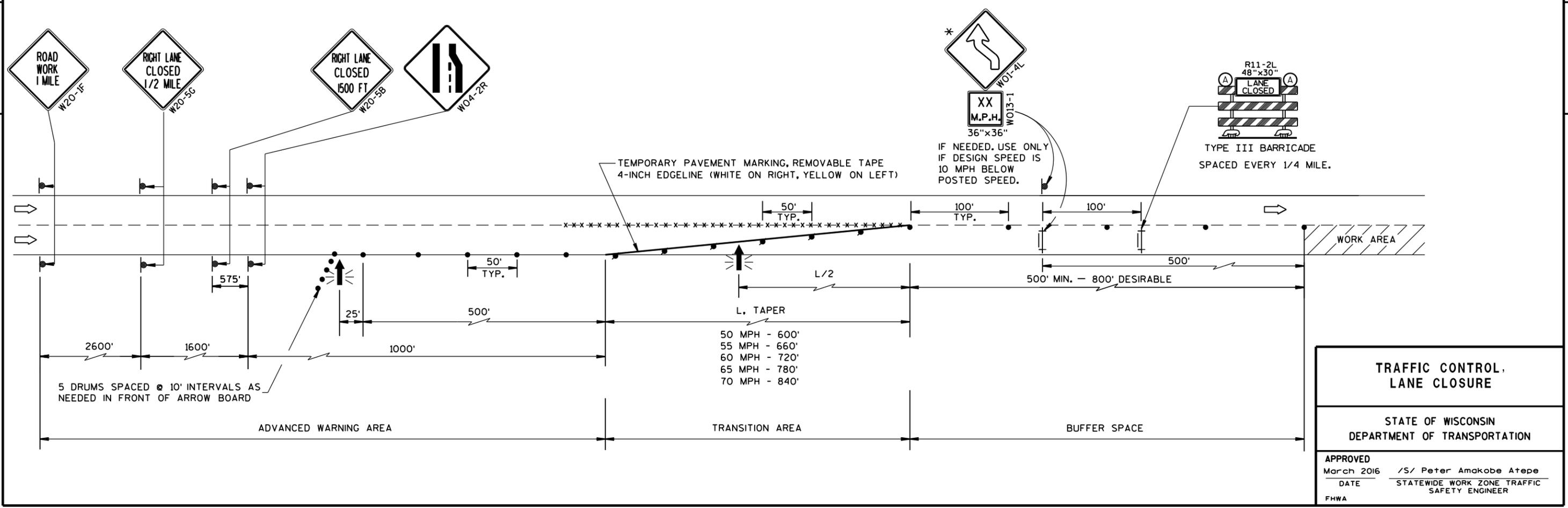
IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST 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.

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



S.D.D. 15 D 12-6a

S.D.D. 15 D 12-6a

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	

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.

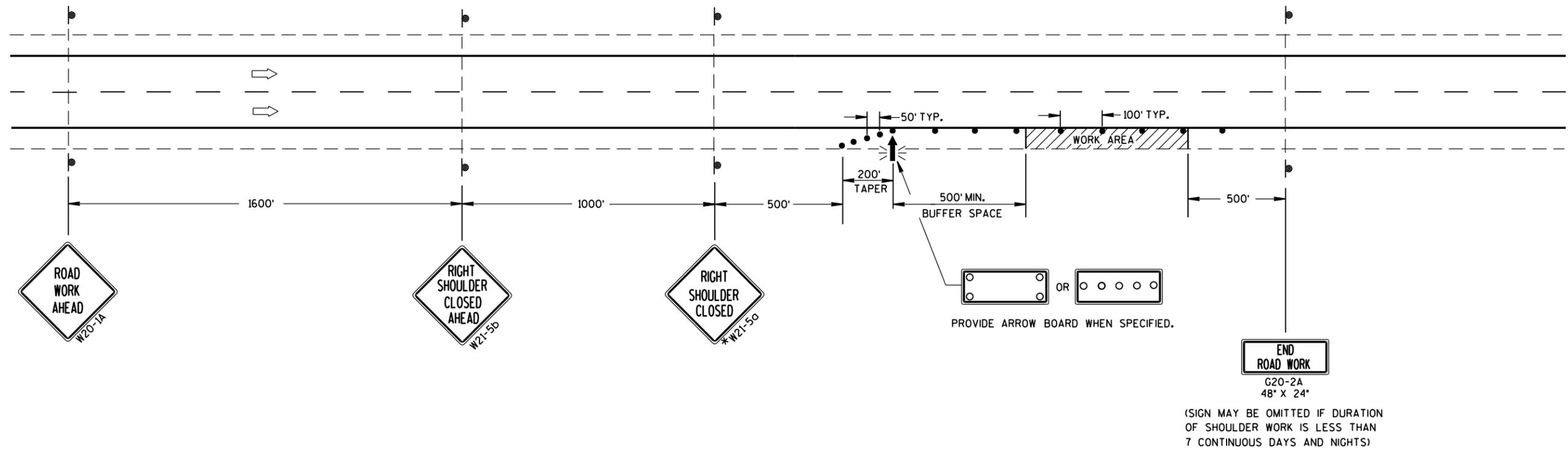
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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 W21-50 SIGN MAY BE OMITTED.

LEGEND

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



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2016 DATE	/s/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

6

6

S.D.D. 15 D 27-3

S.D.D. 15 D 27-3

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.

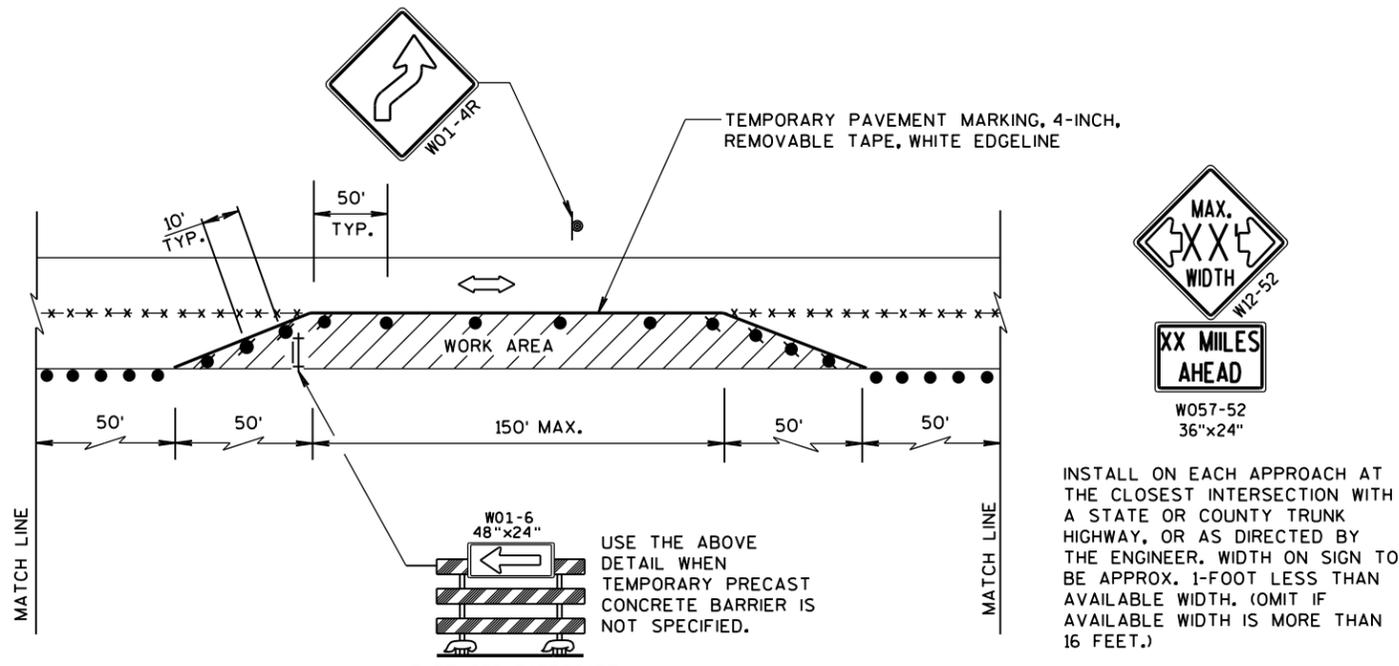
"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

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.

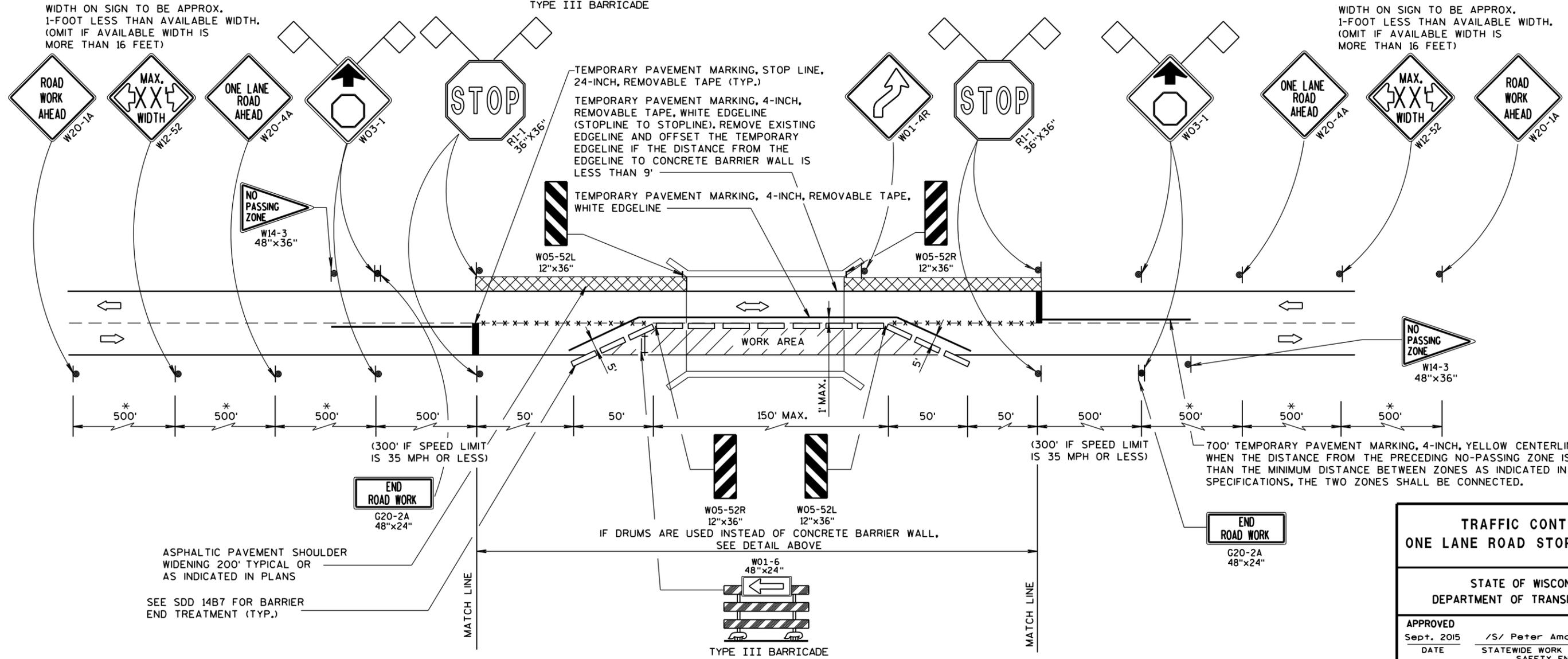
PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

* 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.



6

6



S.D.D. 15 D 32-4

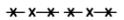
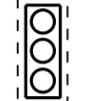
S.D.D. 15 D 32-4

**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



W057-52
36"x24"

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.

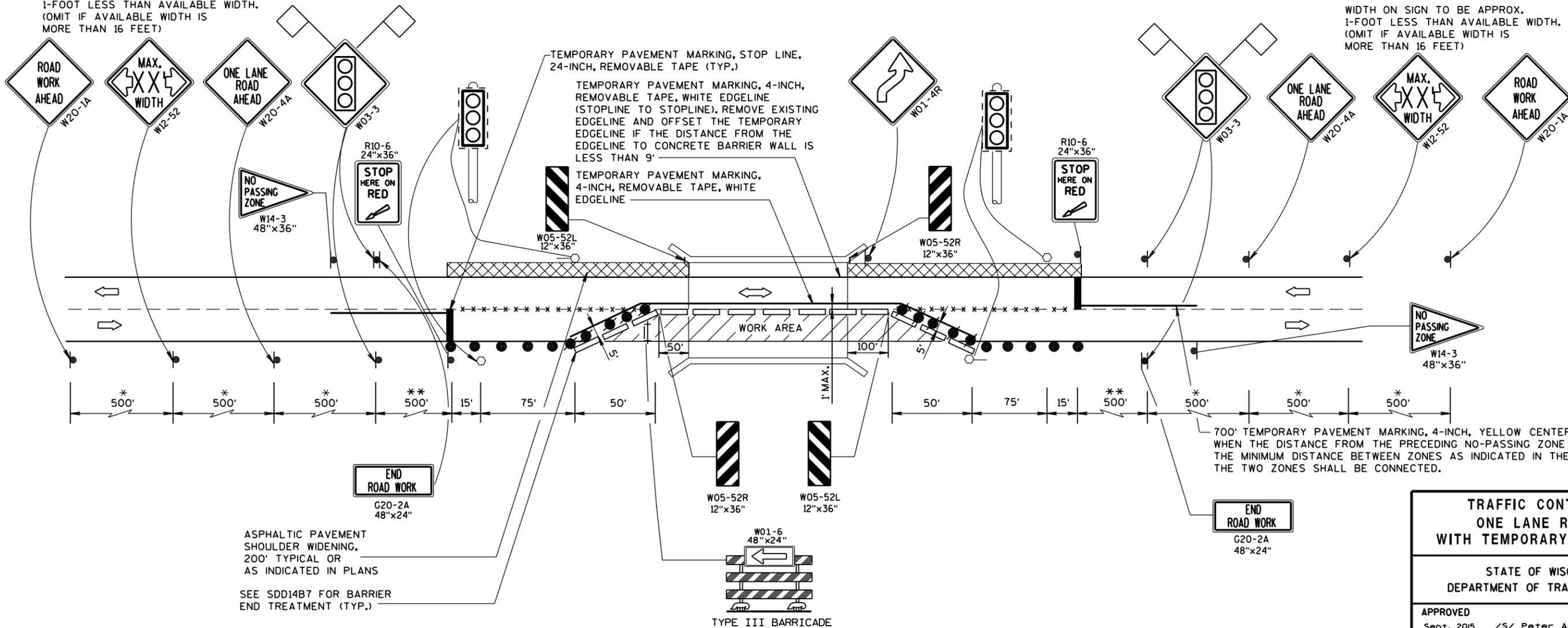
PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

* 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.

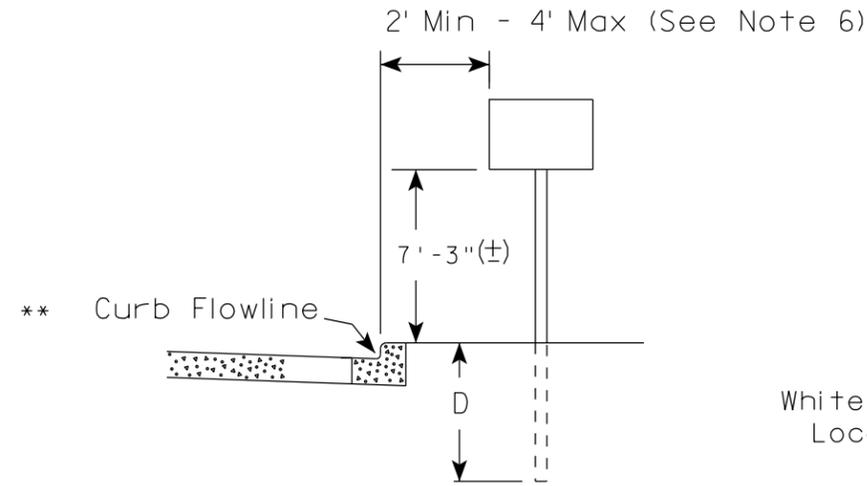
WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)

WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)

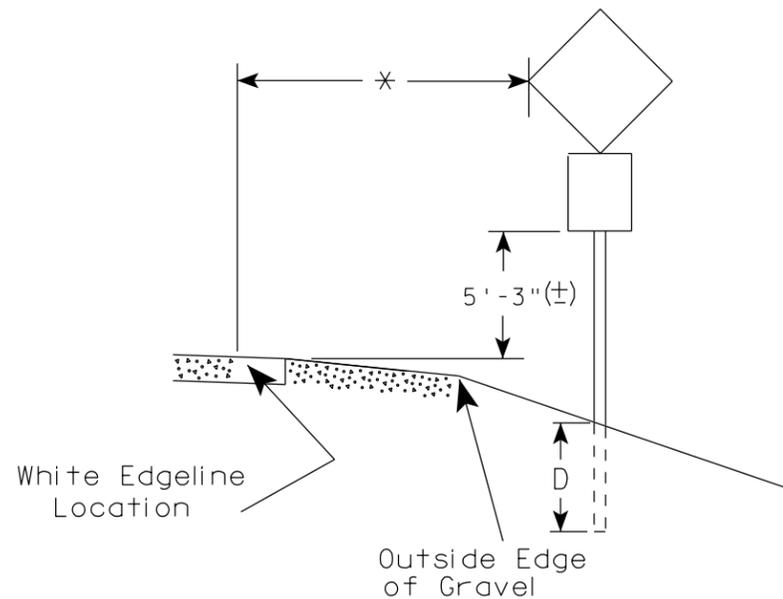
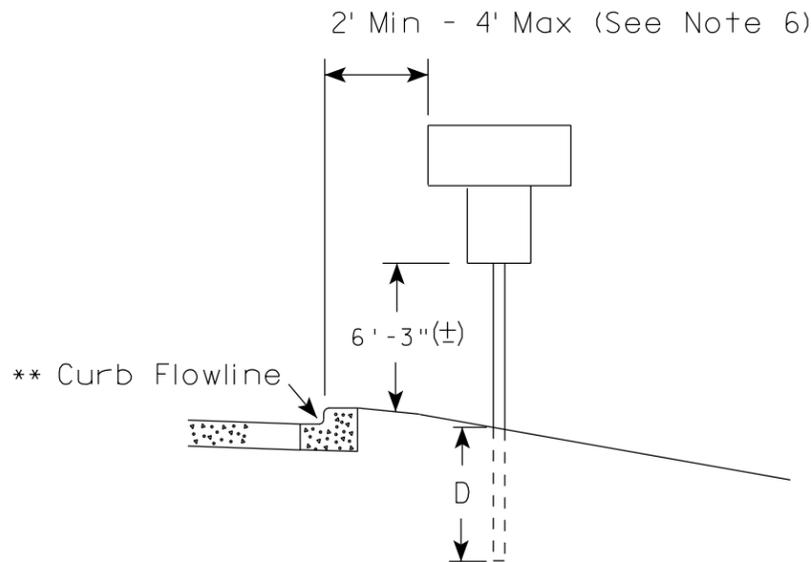
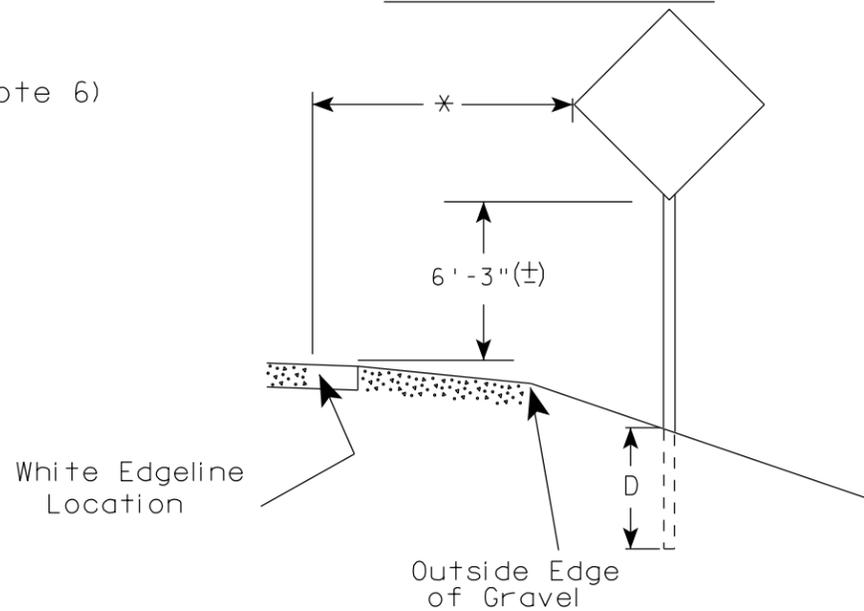


TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

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.

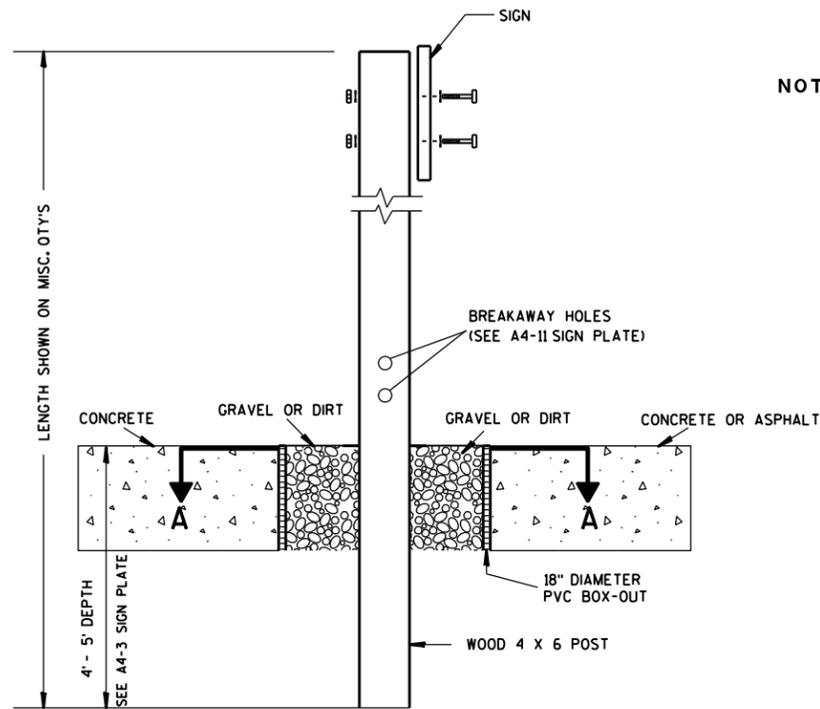
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

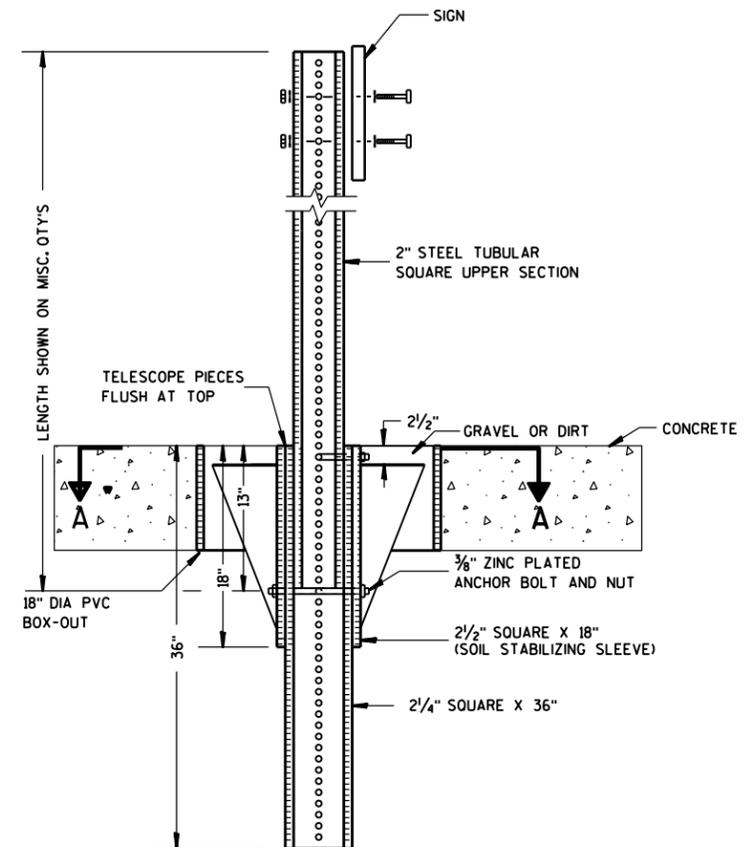
DATE 7/23/15 PLATE NO. A4-3.20



ELEVATION VIEW

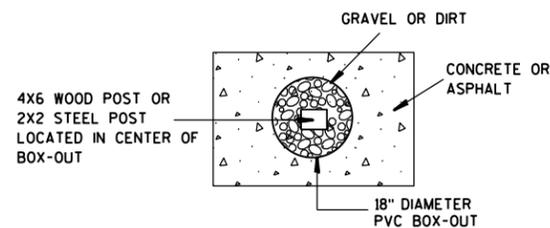
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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



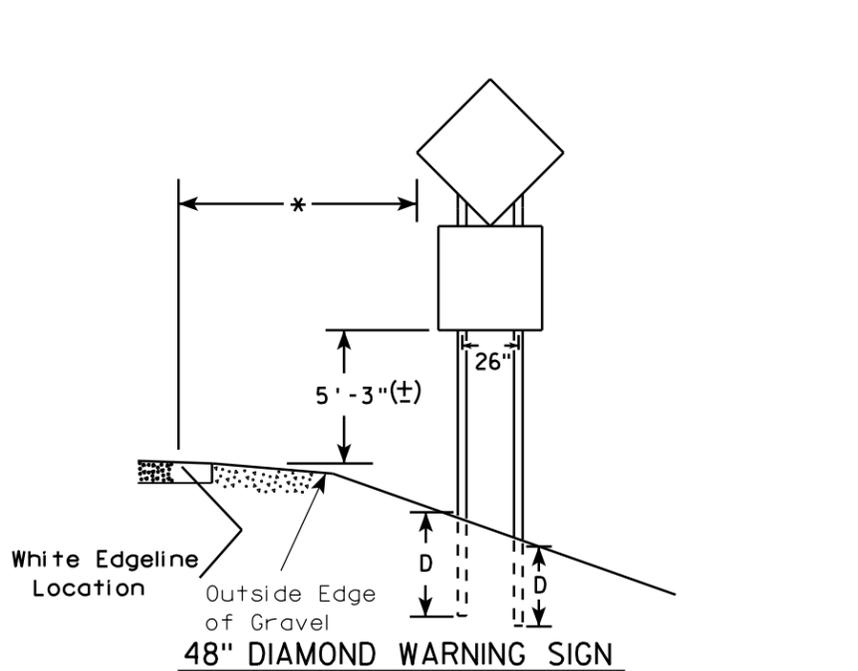
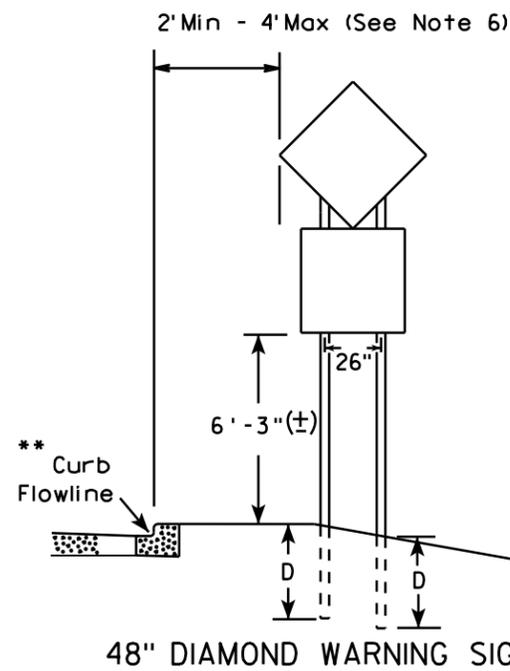
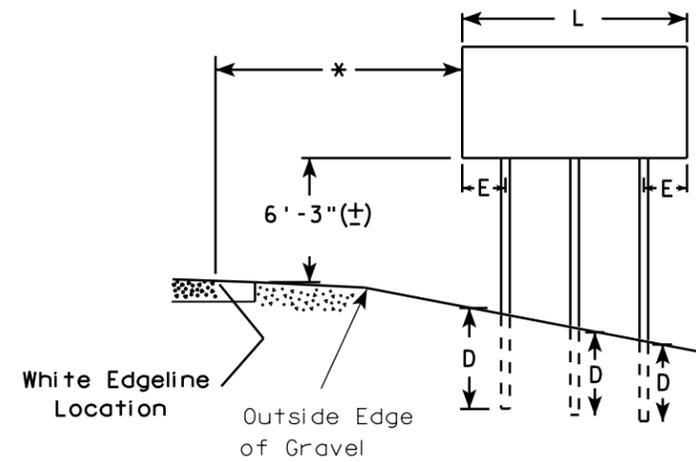
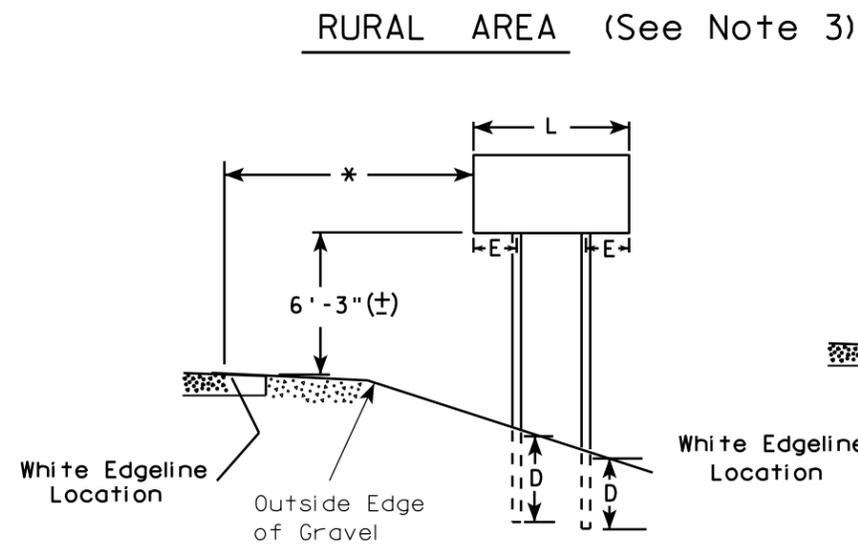
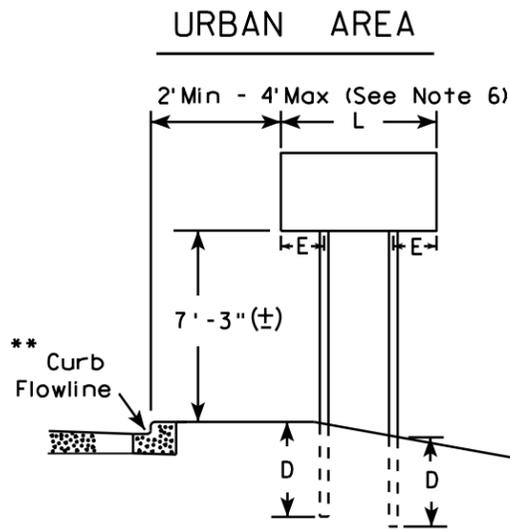
PLAN VIEW

FOR NEW CONCRETE/ ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B	
<small>WISCONSIN DEPT OF TRANSPORTATION</small>	
APPROVED <i>Matthew R. Rauch</i> <small>for State Traffic Engineer</small>	
<small>DATE 1/27/14</small>	<small>PLATE NO. A4-3B.1</small>

GENERAL NOTES

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

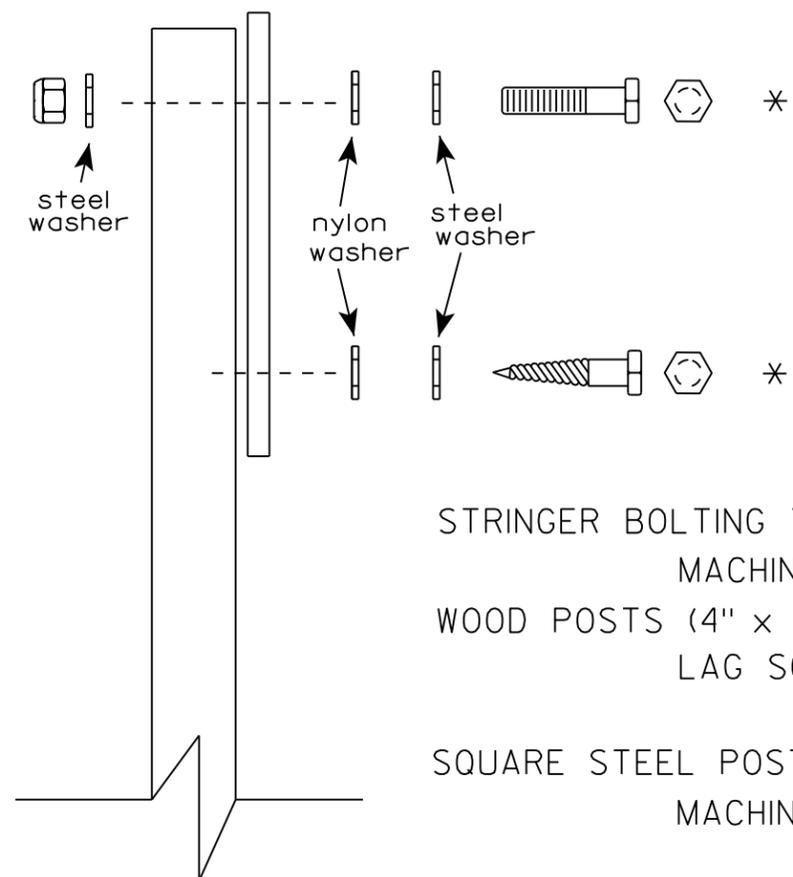
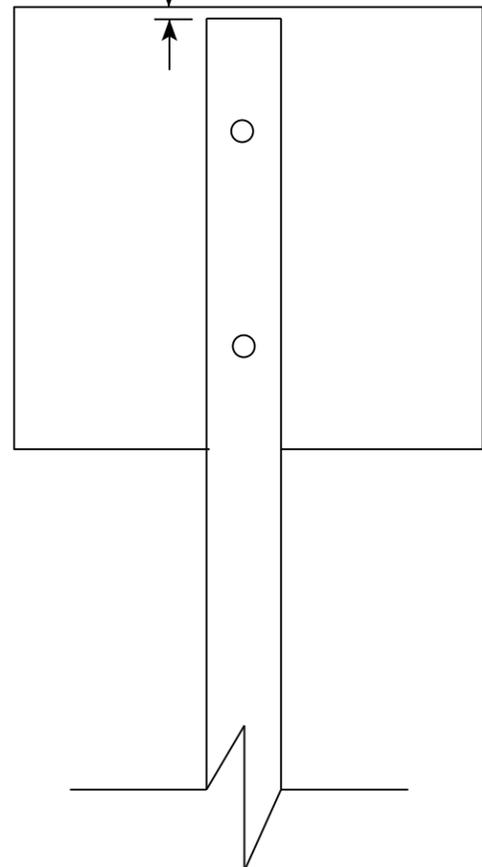
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-4.14

1"± 1/2"

SIGN SHALL BE MOUNTED TO PROJECT ABOVE THE TOP OF THE POST



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

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

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

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 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

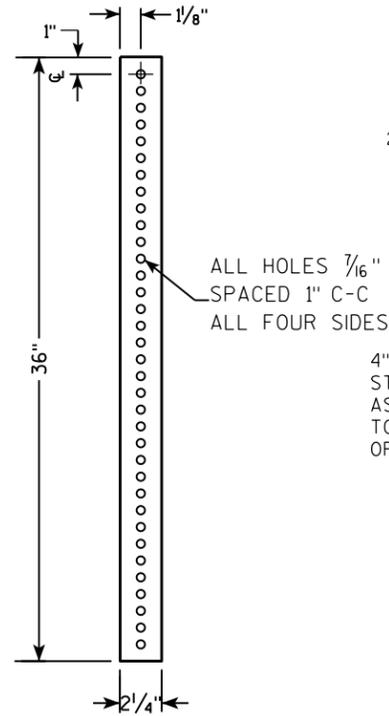
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

7

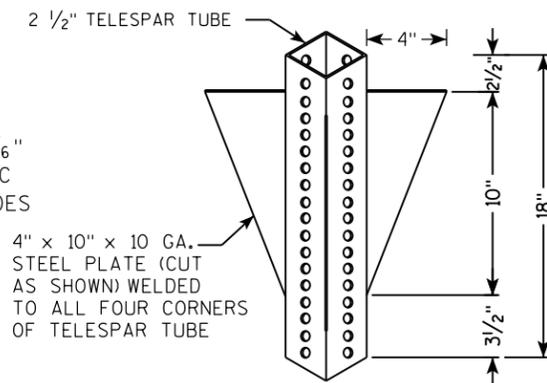
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 8/11/16	PLATE NO. A4-8.8

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

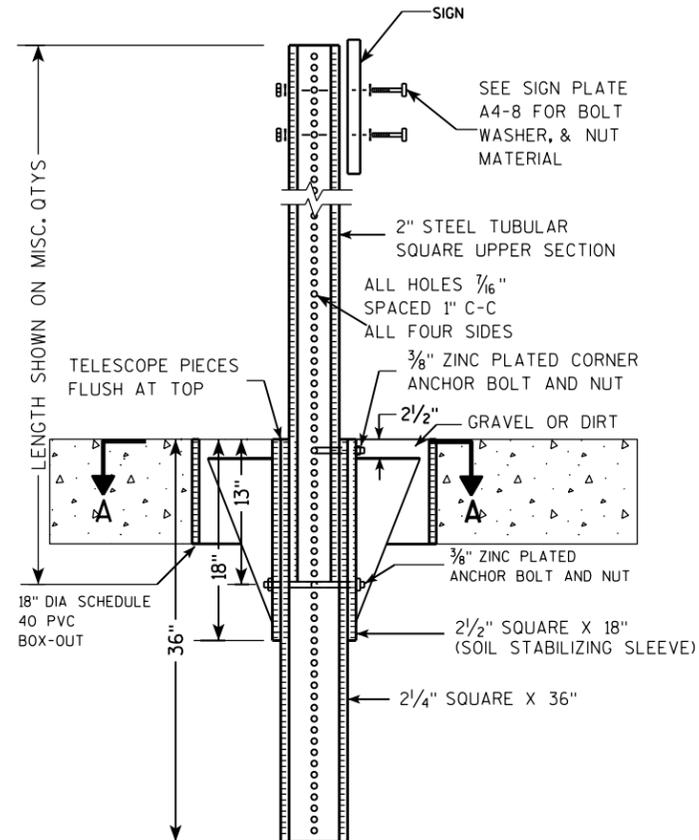
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



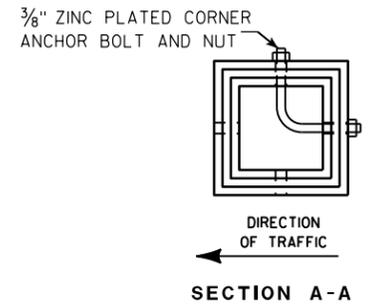
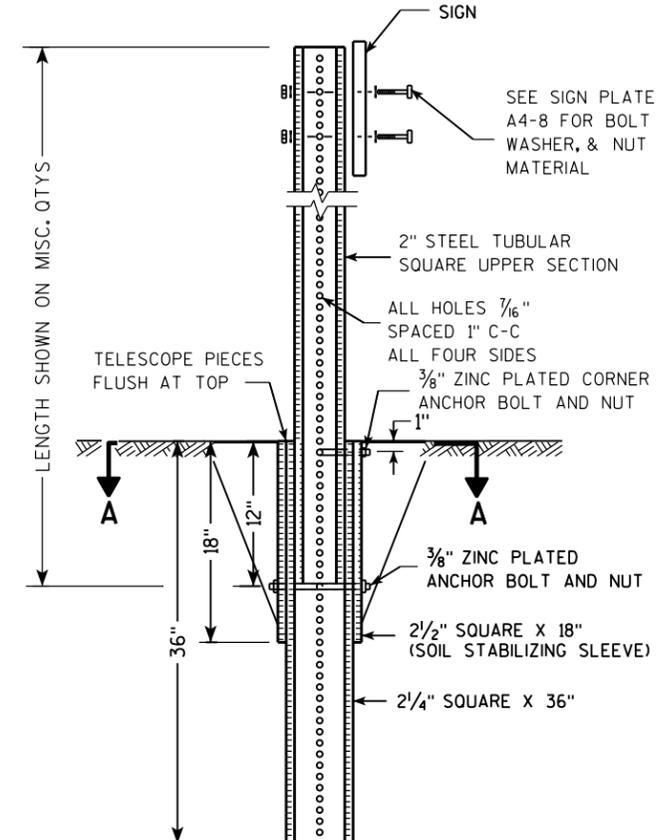
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



**DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)**



**DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)**



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

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

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

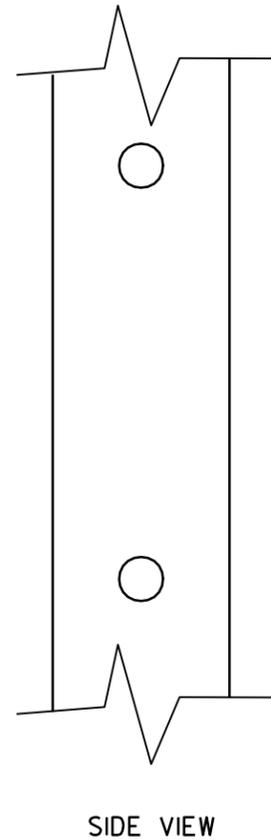
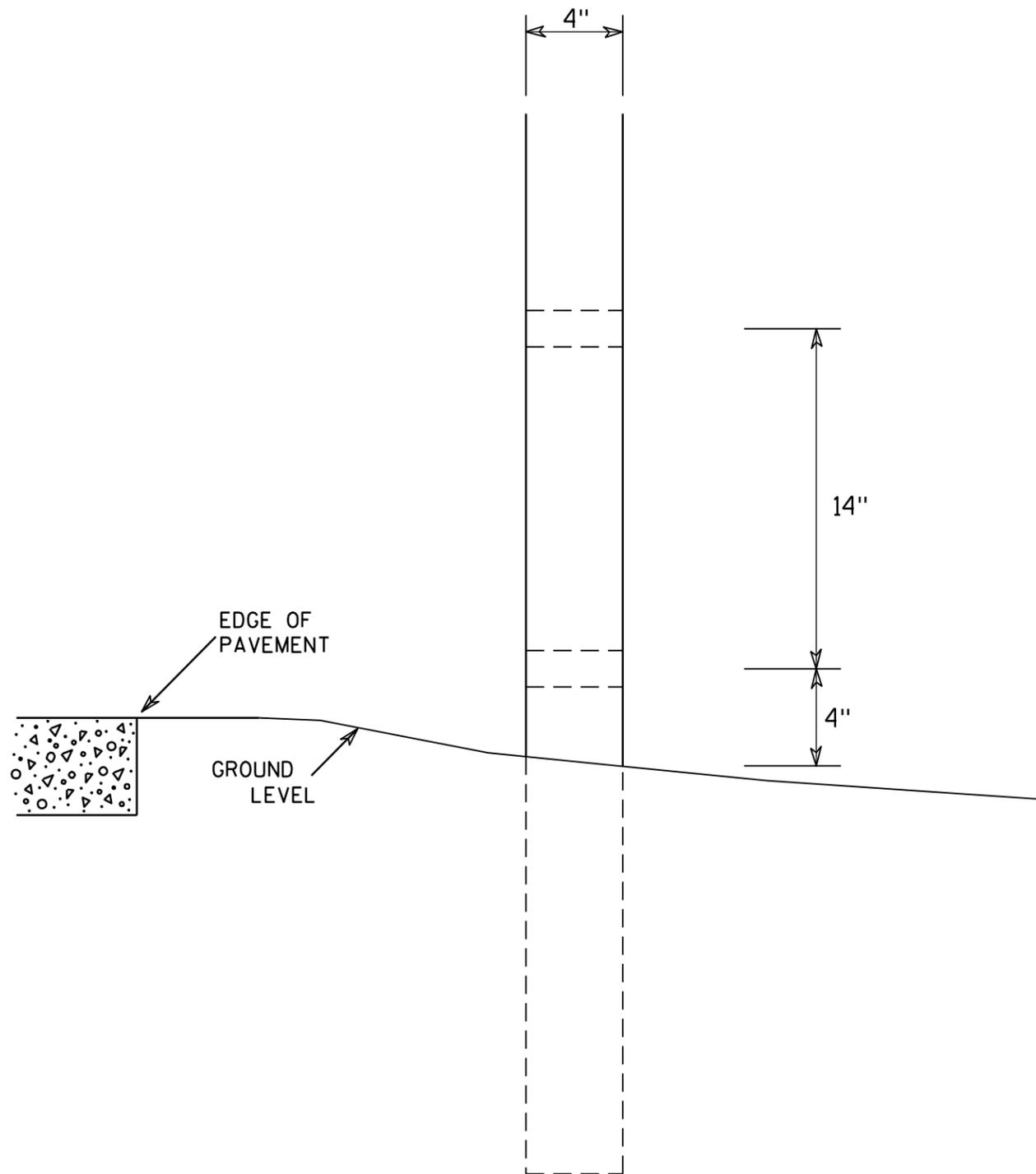
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

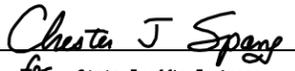


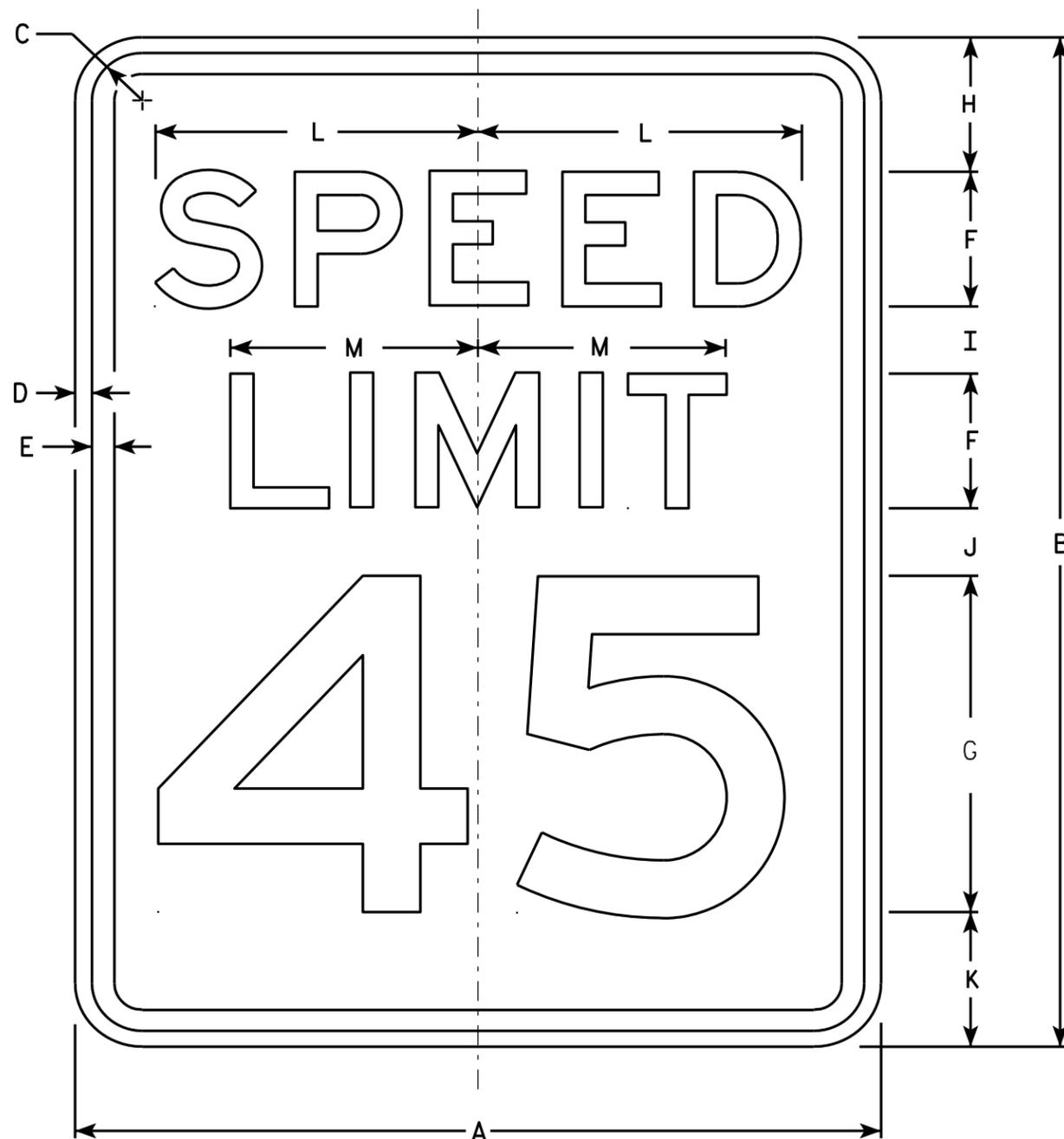
GENERAL NOTES

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

7

7

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



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.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	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

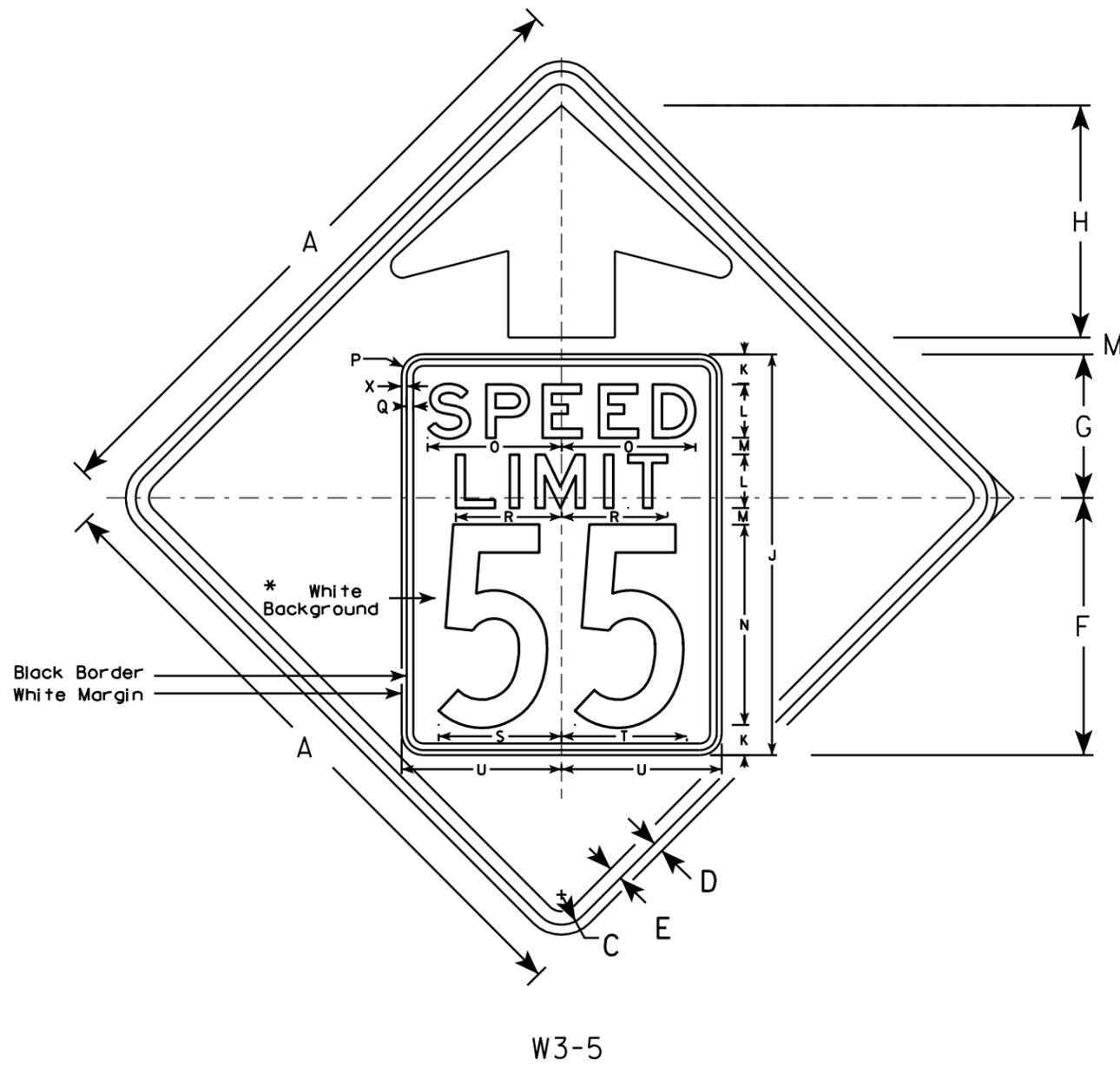
STANDARD SIGN
R2-1

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

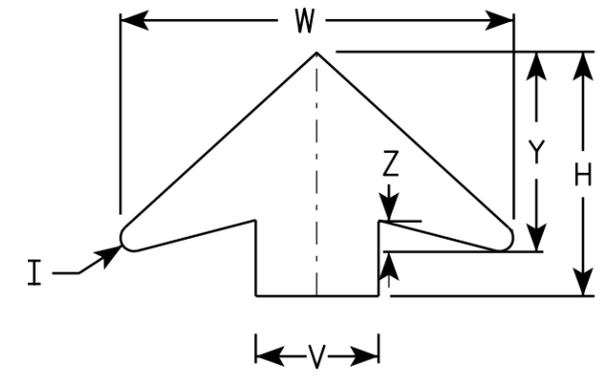


W3-5

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

7

7

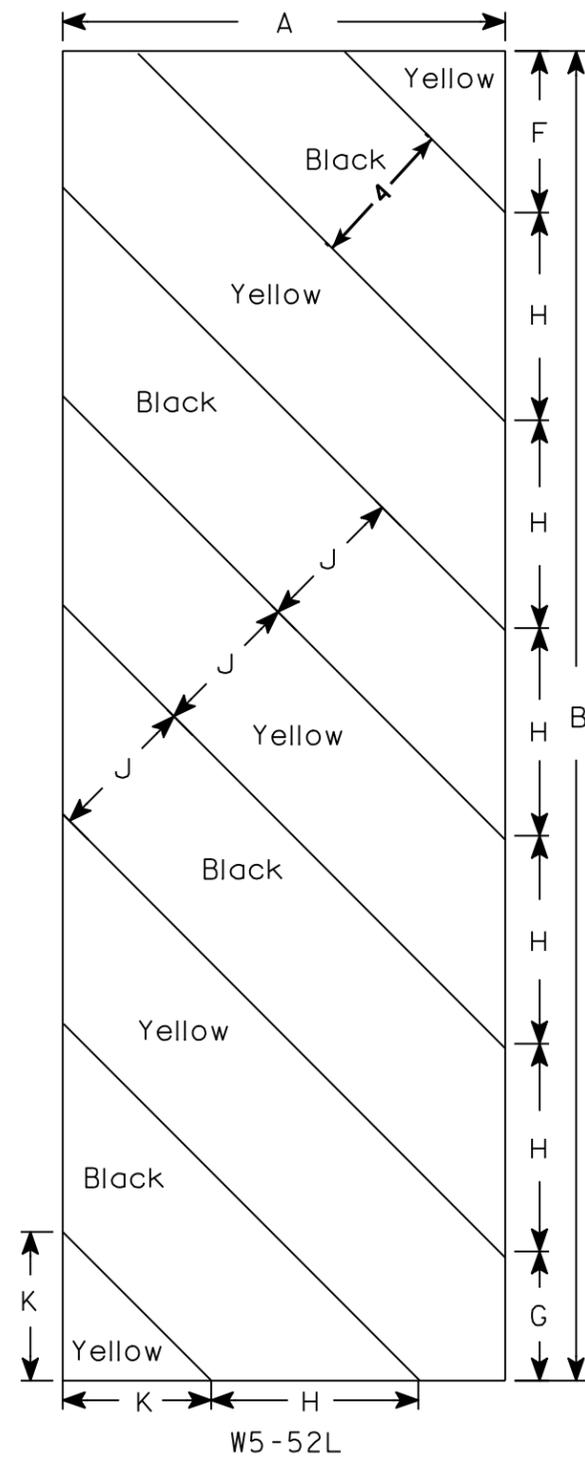
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
2M	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 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

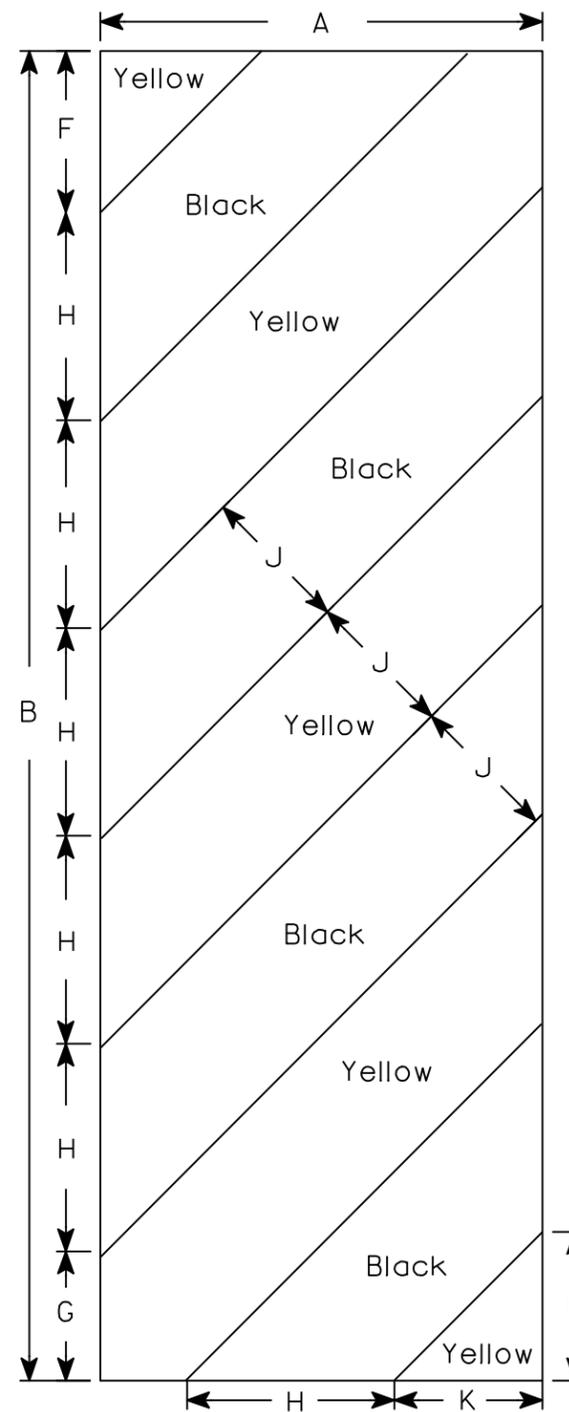
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



W5-52L



W5-52R

NOTES

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

7

7

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

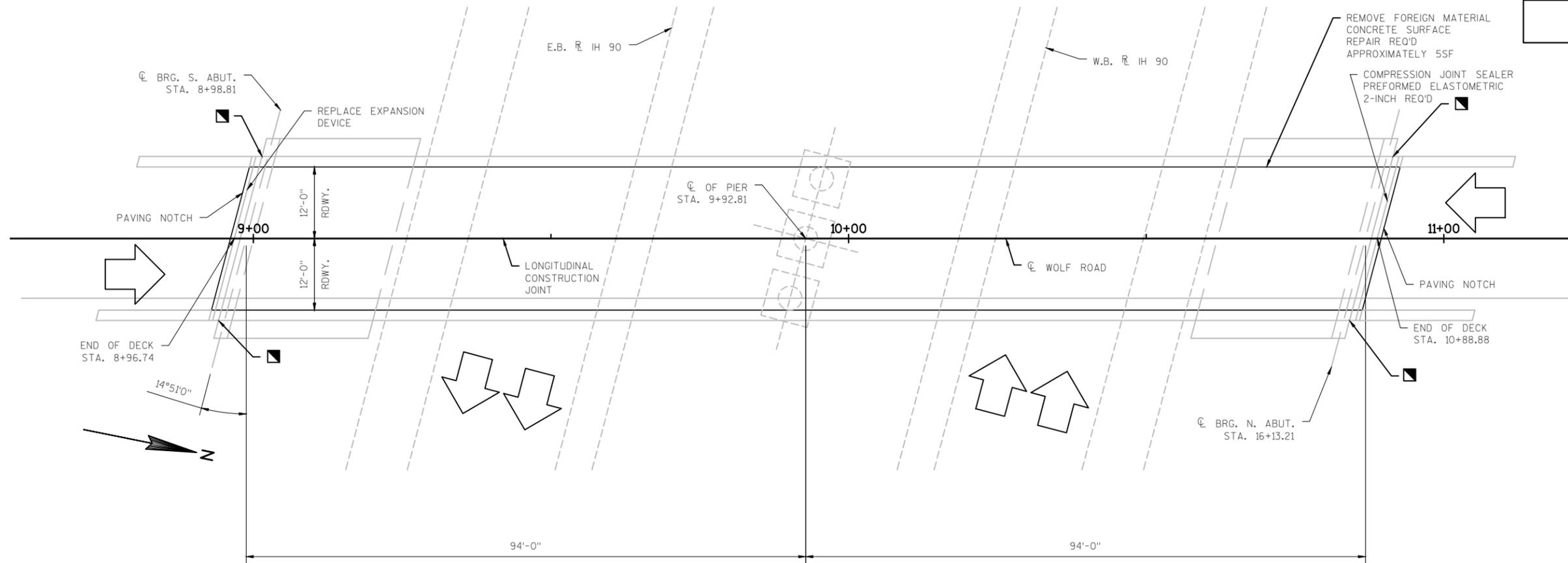
STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

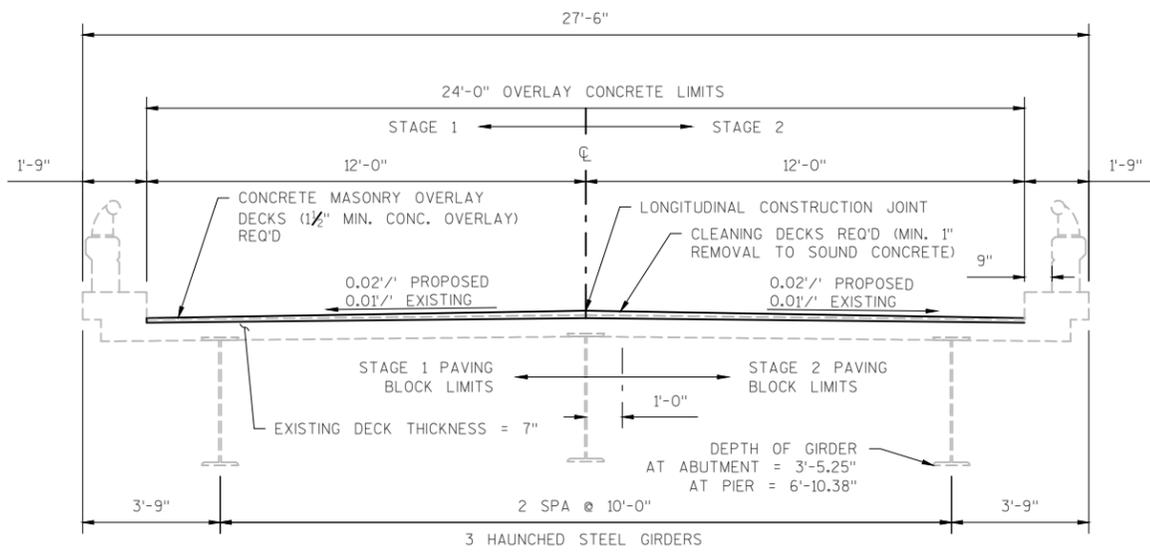
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

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

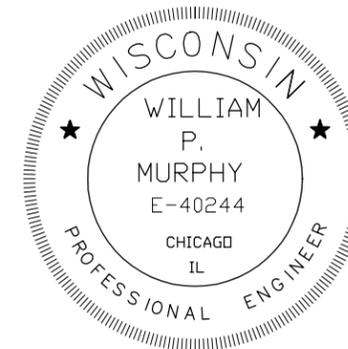
DESIGN DATA

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 ----- Fy = 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

William P. Murphy
SIGNATURE

BRIDGE OFFICE CONTACT

WILLIAM DREHER, PE
(608) 266-8489

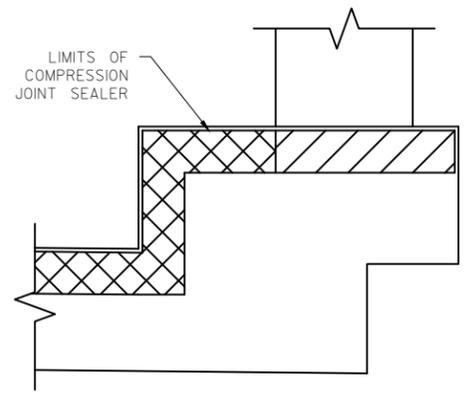
DESIGN CONSULTANT

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
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> ^{SOR} 11/22/16 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-32-60 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

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

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.

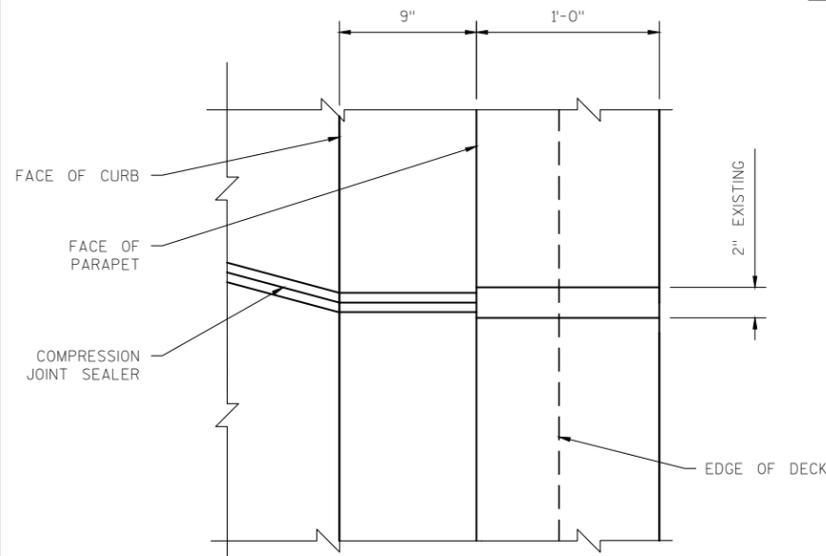
ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAW CUT.

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.

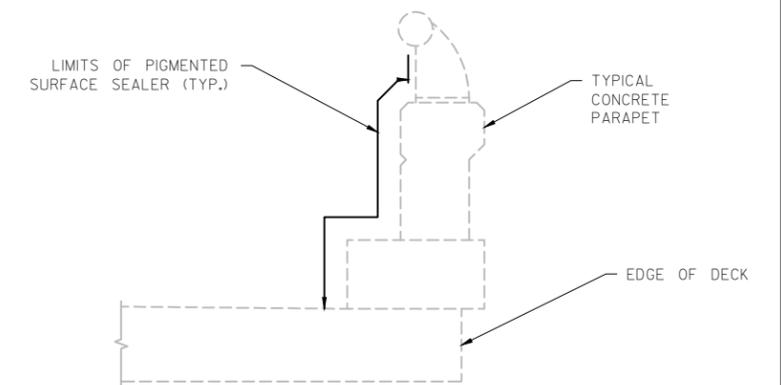
AT "CURB REPAIR" EXPOSE EXISTING REINFORCEMENT A MINIMUM OF 1-1/2" CLEAR.



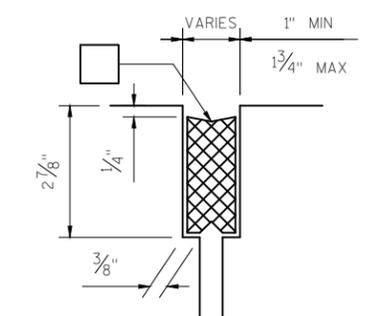
PLAN

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 *.

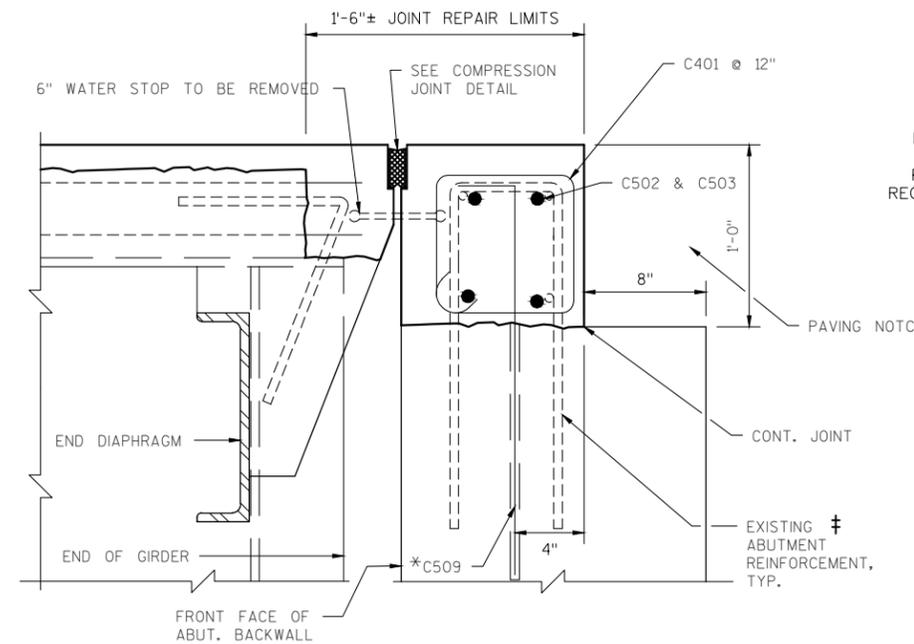


PIGMENTED SURFACE SEALER DETAIL



COMPRESSION JOINT DETAIL

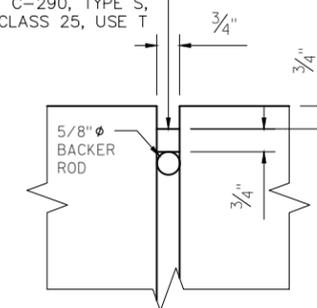
- MANUFACTURER MUST LABEL TOP OF SEAL



SECTION THRU JOINT AT NORTH ABUTMENT

NORMAL TO C SUBSTRUCTURE

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



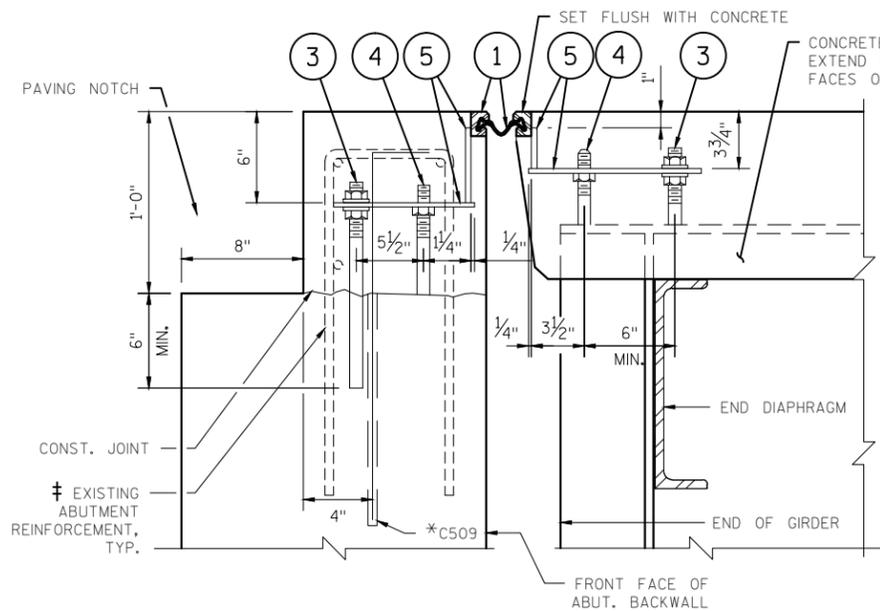
PARAPET JOINT DETAIL

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

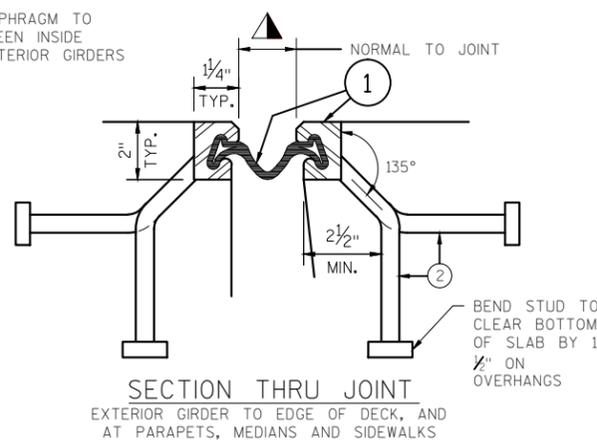
NO.	DATE	REVISION	BY
700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-32-60			
DRAWN BY AFD		PLANS CK'D. WPM	
QUANTITIES AND DETAILS			SHEET 2 OF 4

8

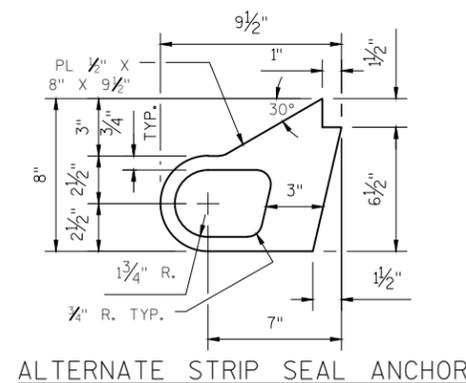
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SECTION THRU JOINT AT SOUTH ABUTMENT
NORMAL TO SUBSTRUCTURE

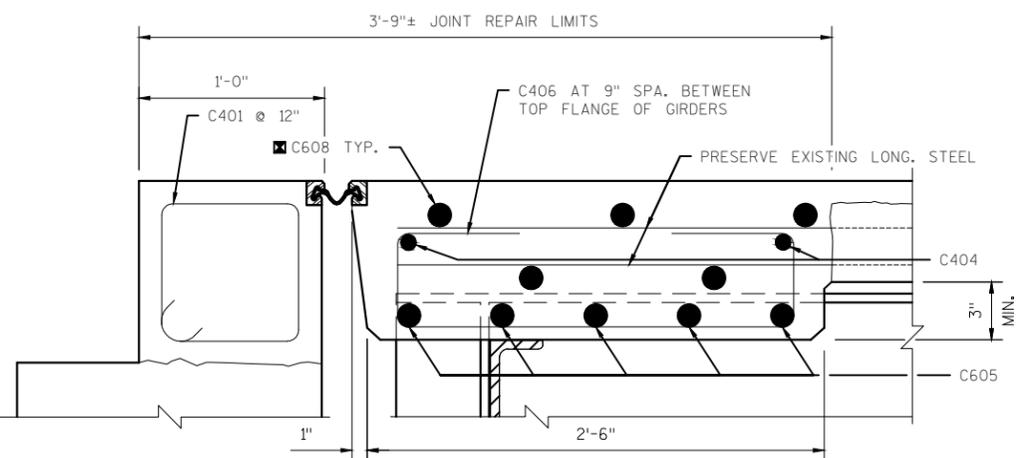


SECTION THRU JOINT
EXTERIOR GIRDER TO EDGE OF DECK, AND
AT PARAPETS, MEDIANS AND SIDEWALKS

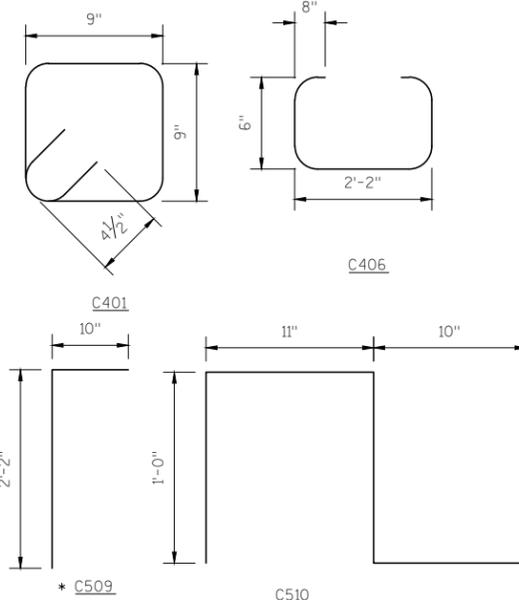


ALTERNATE STRIP SEAL ANCHOR

- LEGEND**
- ① NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS, SET JOINT OPENING AT 1 3/4".
 - ② STUDS 5/8"φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
 - ②A 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 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.
 - ④ 3/4"φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
 - 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.



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



PART PLAN

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 *.

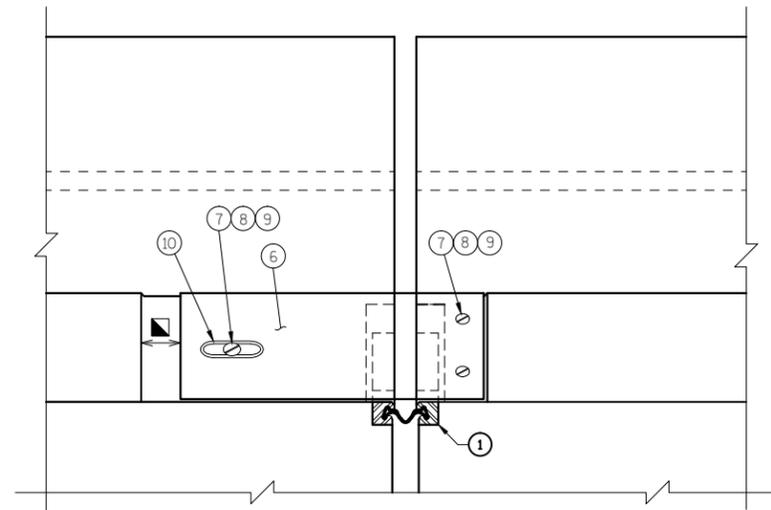
‡ PROVIDE 5 #6 BAR COUPLERS LOCATED AT THE LONGITUDINAL JOINT, C. OF WOLF ROAD. COUPLERS ARE TO BE USED TO CONNECT C608 FROM STAGE 1 TO STAGE 2.

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

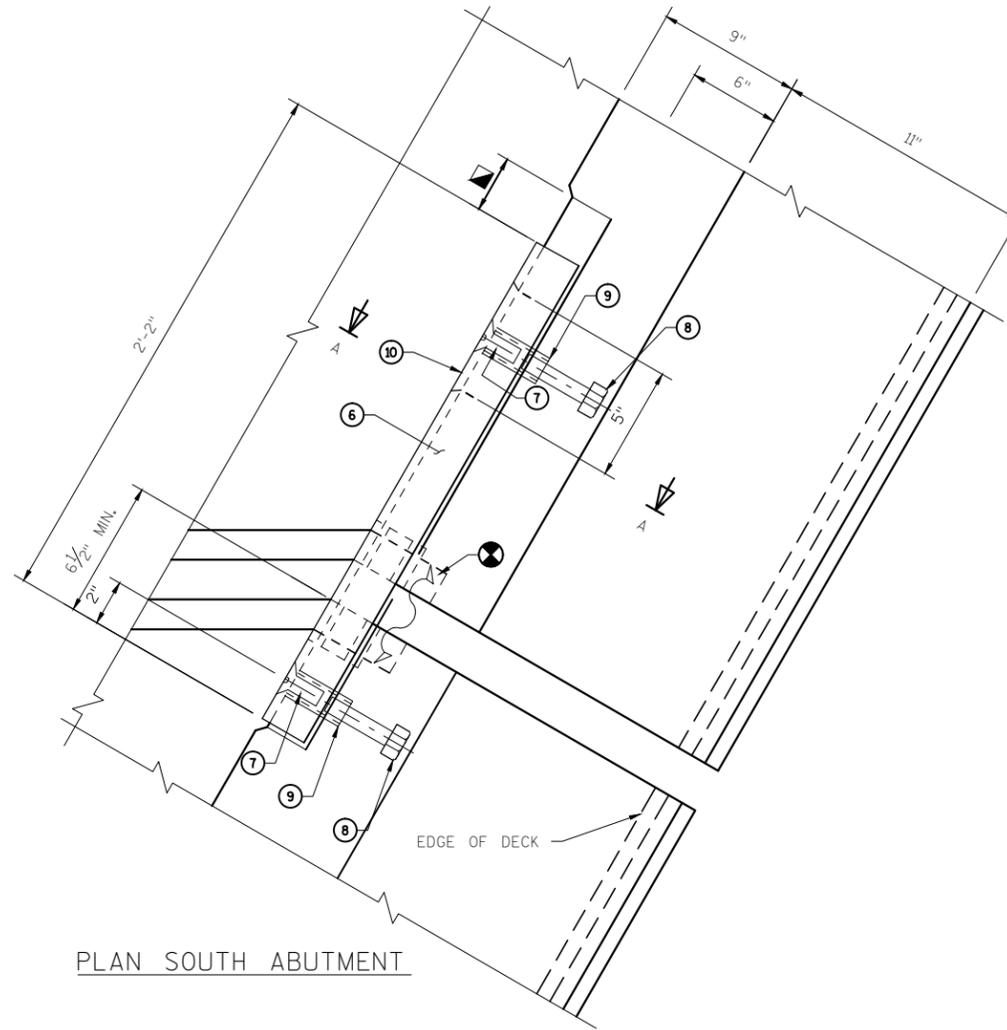
8

8

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



VIEW OF PARAPET PLATE FROM ROADWAY



PLAN SOUTH ABUTMENT

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

GENERAL NOTES

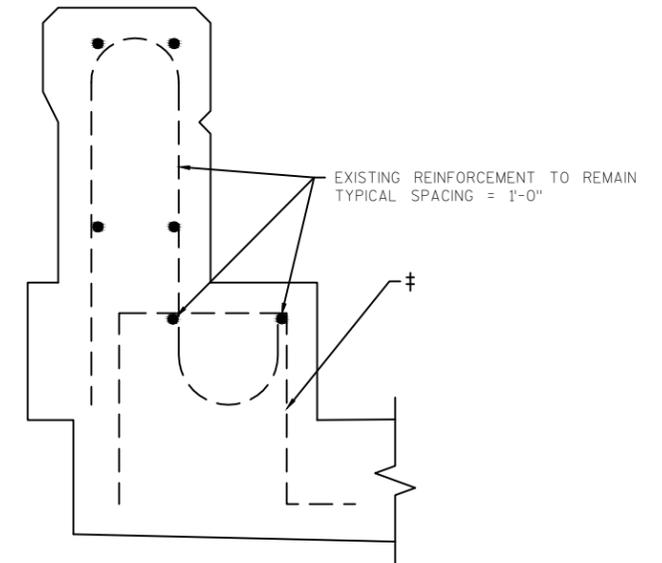
ANCHOR SYSTEM NO. 8 & NO. 9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C & D.

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

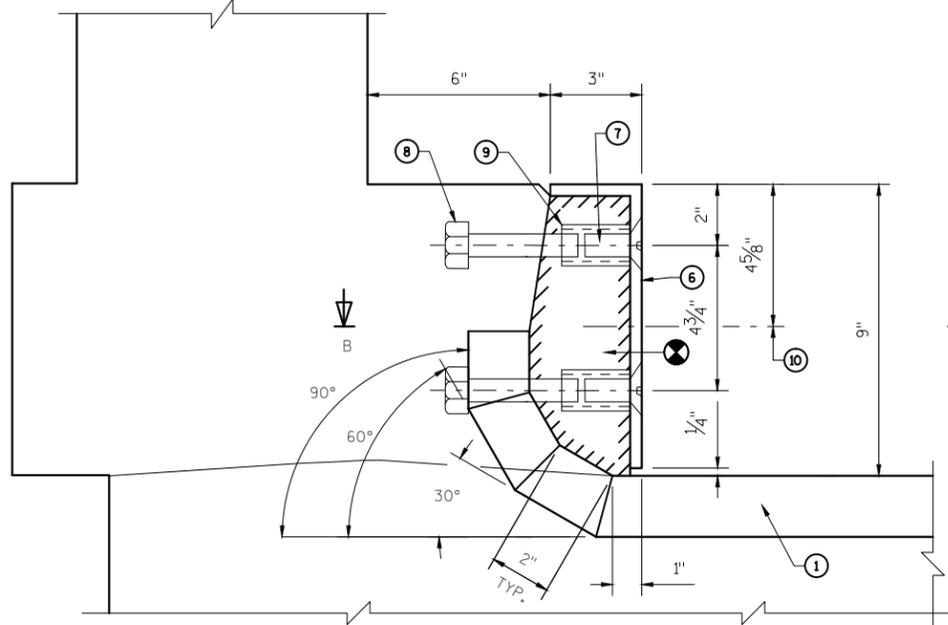
⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING

▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2"

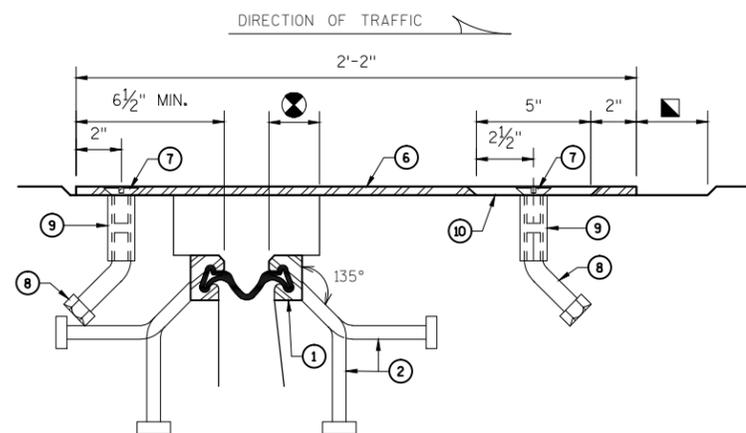
‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH C510.



THRU SECTION OF PARAPET

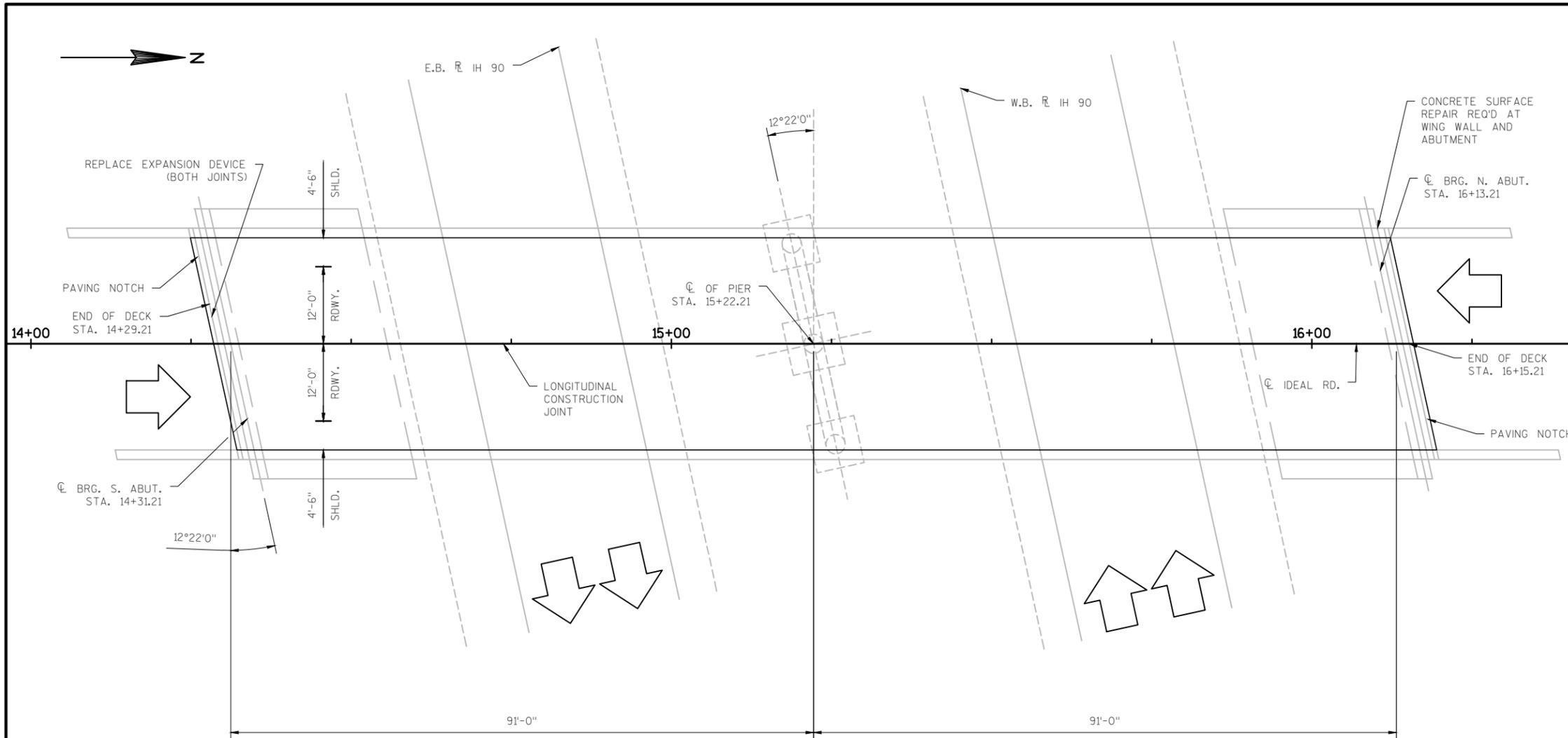


SECTION A-A



SECTION B-B

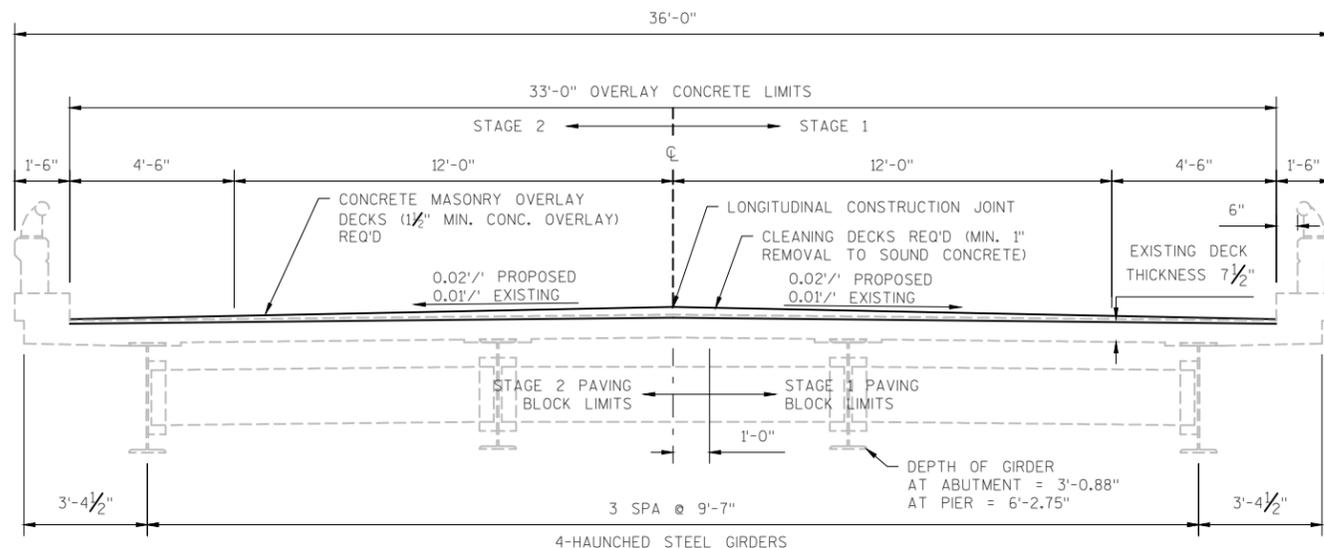
NO.	DATE	REVISION	BY
700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-32-60			
DRAWN BY AFD		PLANS CK'D. WPM	
EXPANSION DEVICE			SHEET 4 OF 4



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" 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.

PLAN - B-41-84
2 SPAN - STEEL GIRDER



CROSS 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:
 WIS-SPV: 170 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 ----- Fy = 60,000 P.S.I.

TRAFFIC DATA

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

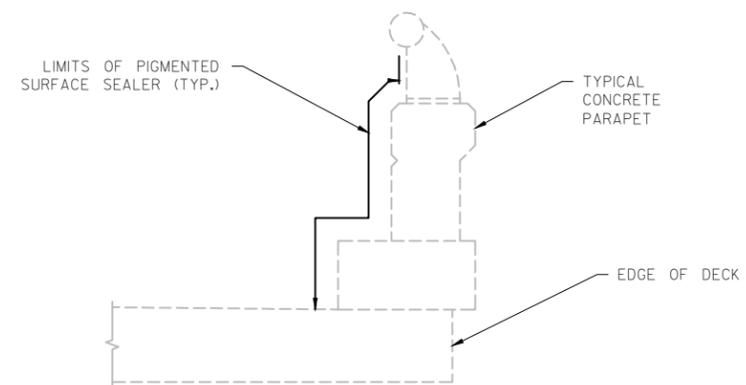


William P. Murphy
 SIGNATURE

11/21/2016
 DATE

BRIDGE OFFICE CONTACT: WILLIAM DREHER, PE (608) 266-8489
 DESIGN CONSULTANT: ALEX DWORAK (608) 519-1455

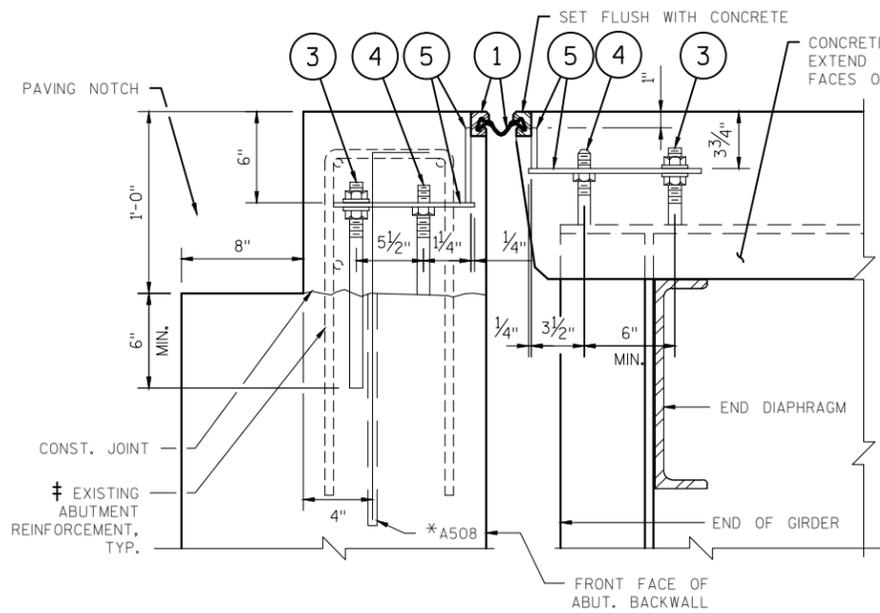
NO.	DATE	REVISION	BY
700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION ACCEPTED <i>William C. Dreher</i> SDR 11/22/16 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-41-84			
IDEAL ROAD OVER IH 90			
COUNTY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



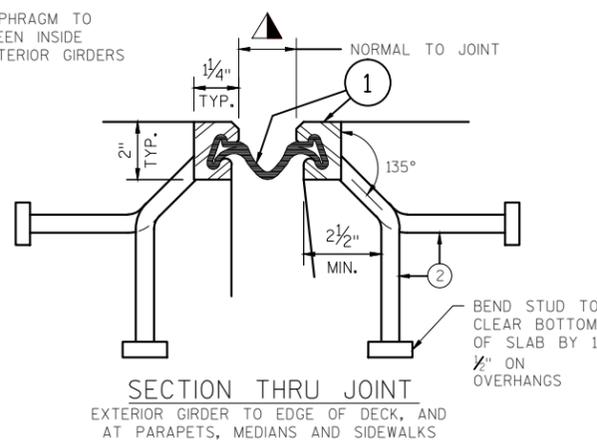
PIGMENTED SURFACE SEALER DETAIL

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

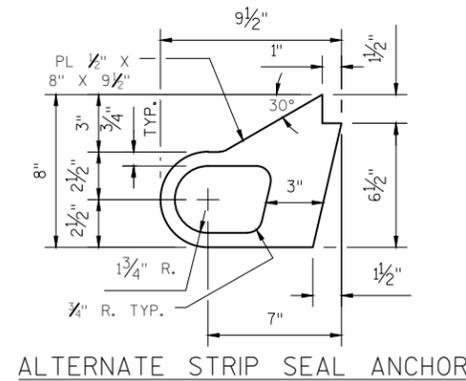
NO.	DATE	REVISION	BY
 700 N Third Street Suite 104 La Crosse, WI 54601 Engineers & Architects Phone: (608) 519-1455			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-41-84			
DRAWN BY AFD		PLANS CK'D. WPM	
QUANTITIES & DETAILS			SHEET 2 OF 4



SECTION THRU JOINT AT ABUTMENT
NORMAL TO CL SUBSTRUCTURE



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

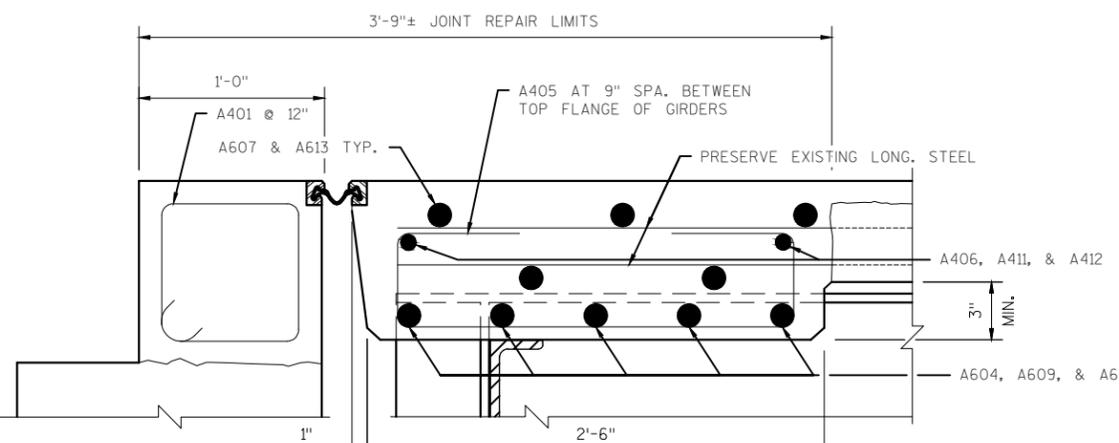


- LEGEND**
- ① NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS, SET JOINT OPENING AT 1 3/4".
 - ② STUDS 5/8" φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
 - ②A 1/2" THICK ANCHOR PLATE WITH 5/8" φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
 - ③ 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.
 - ④ 3/4" φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
 - 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.

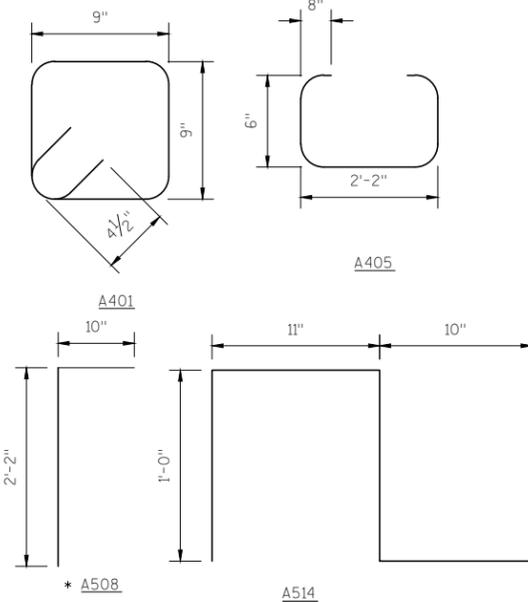
BILL OF BARS

1910 LBS. COATED

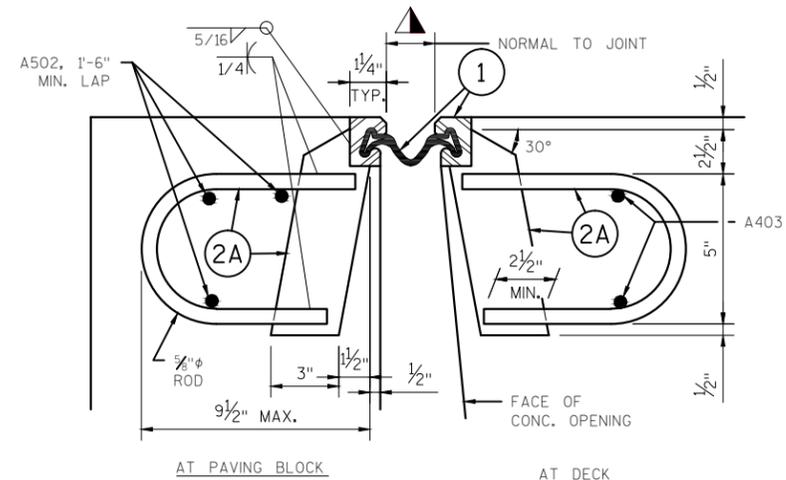
BAR MARK	NUMBER REQUIRED		LENGTH	BENT	COAT	LOCATION
	N. ABUT.	S. ABUT.				
A401	35	35	3'-9"	X	X	PAVING BLOCK, STIRRUP
A502	18	18	6'-11"		X	PAVING BLOCK, TRANSVERSE (STRIP SEAL)
A403	4	4	9'-6"		X	DECK - TRANSVERSE (STRIP SEAL)
A604	10	10	9'-6"		X	DIAPHRAGM - TRANSVERSE
A405	36	36	4'-6"	X	X	DIAPHRAGM - 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



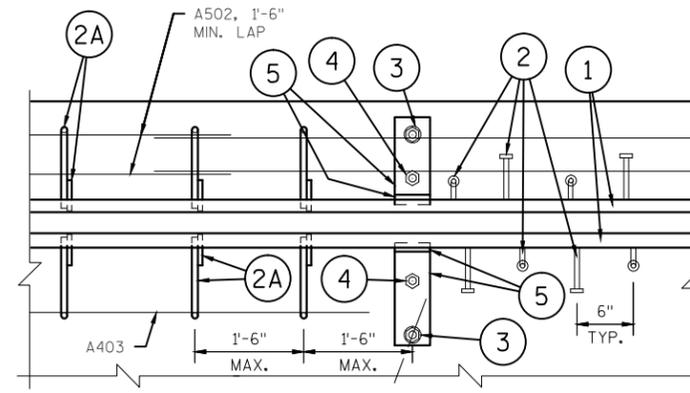
SECTION THRU JOINT
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



PART PLAN



SECTION THRU JOINT
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



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"

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

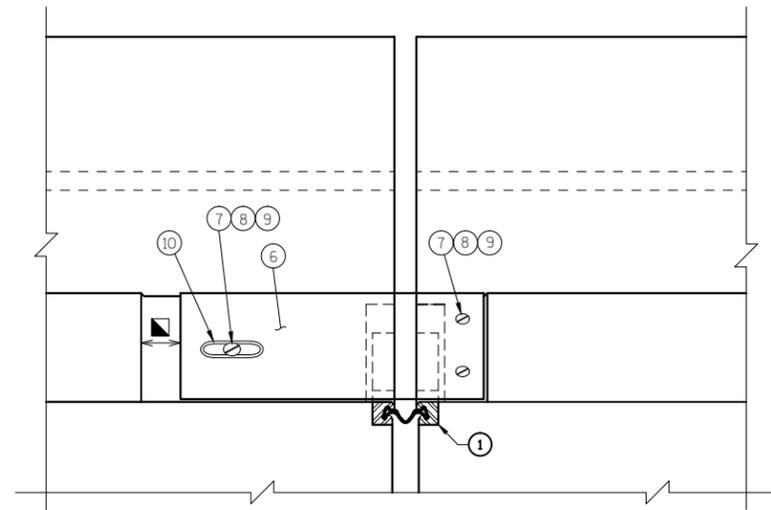
NO.	DATE	REVISION	BY

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

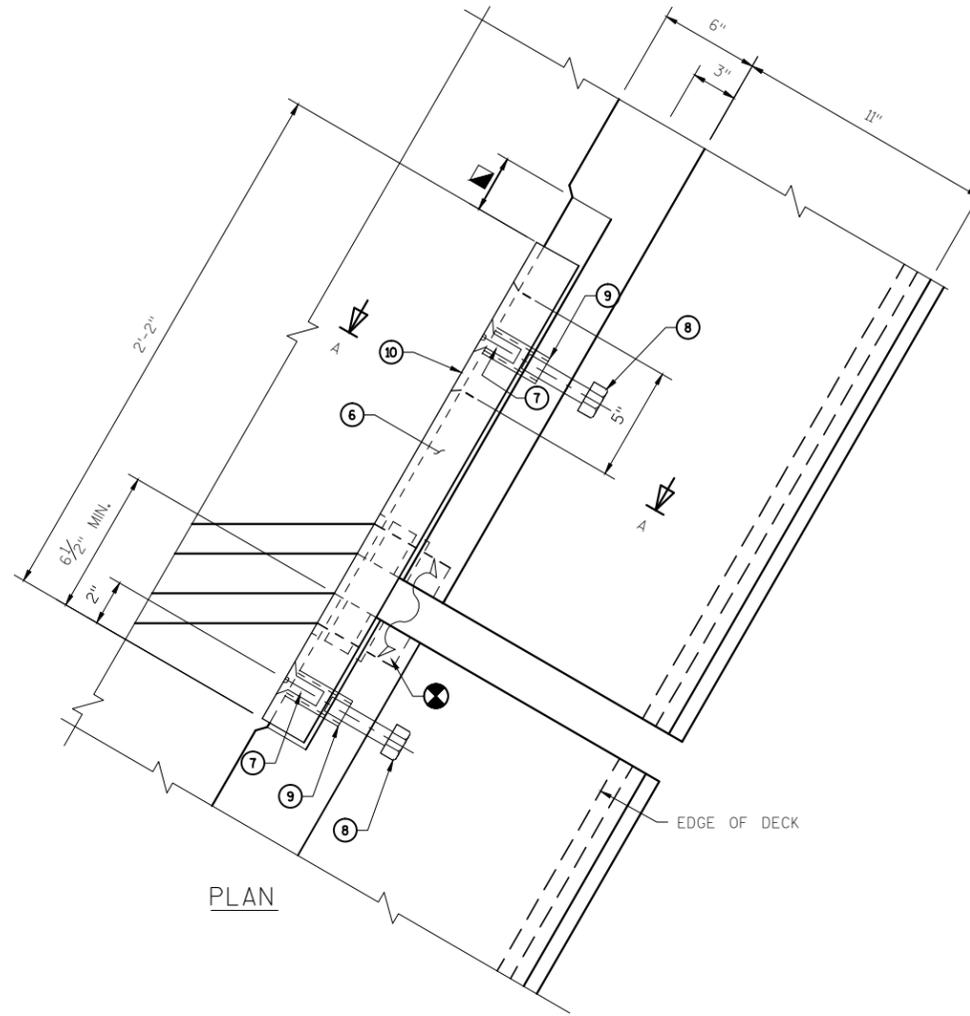
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-41-84

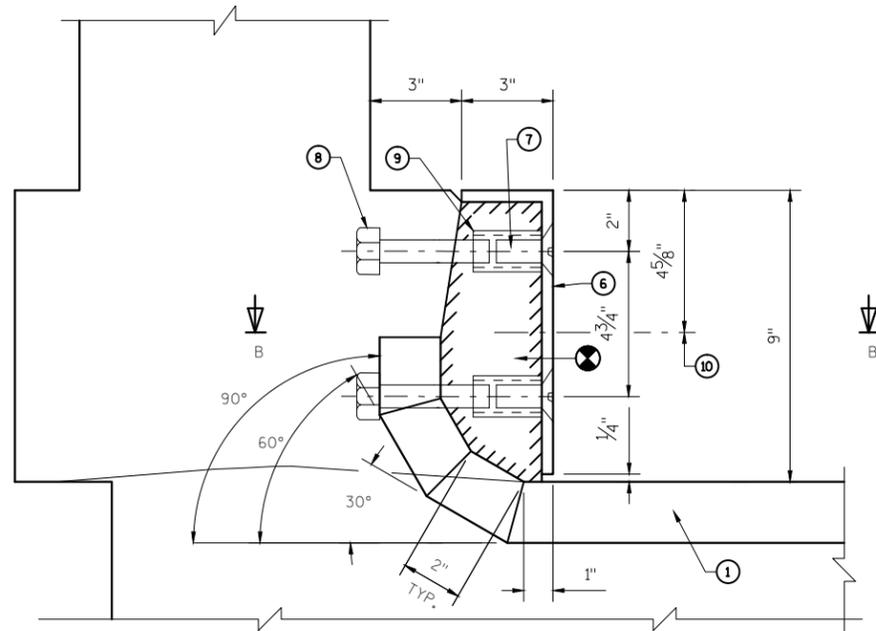
DRAWN BY: AFD	PLANS CK'D: WPM
EXPANSION DEVICE	
SHEET 3 OF 4	



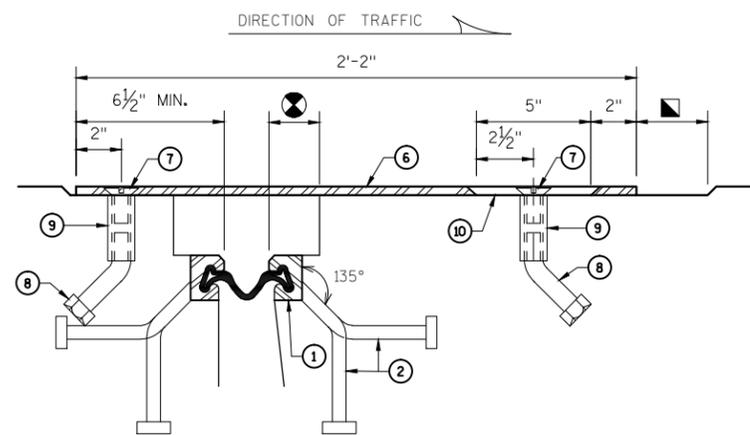
VIEW OF PARAPET PLATE FROM ROADWAY



PLAN



SECTION A-A



SECTION B-B

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

GENERAL NOTES

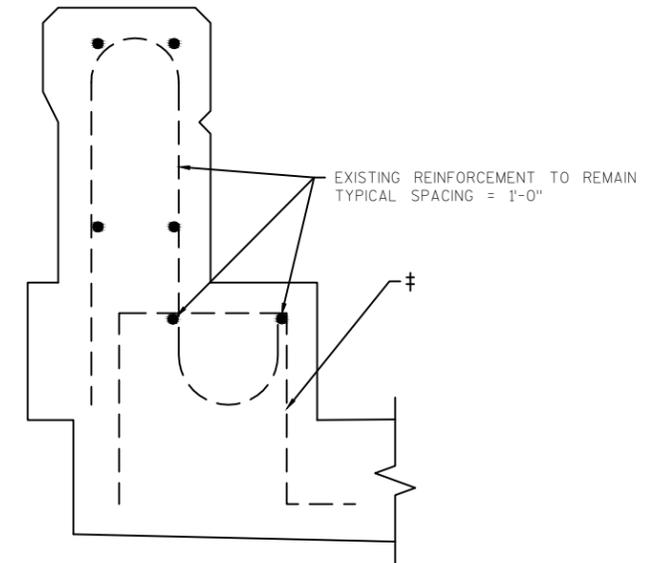
ANCHOR SYSTEM NO. 8 & NO. 9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C & D.

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

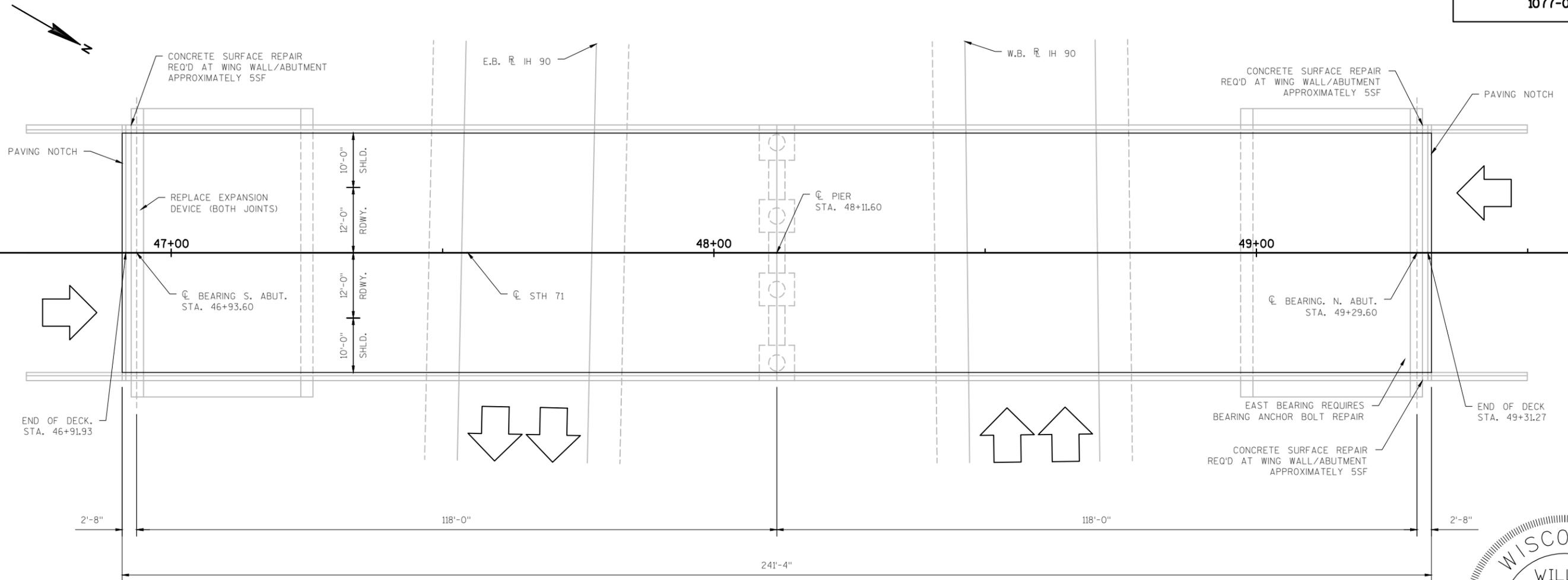
▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2"

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

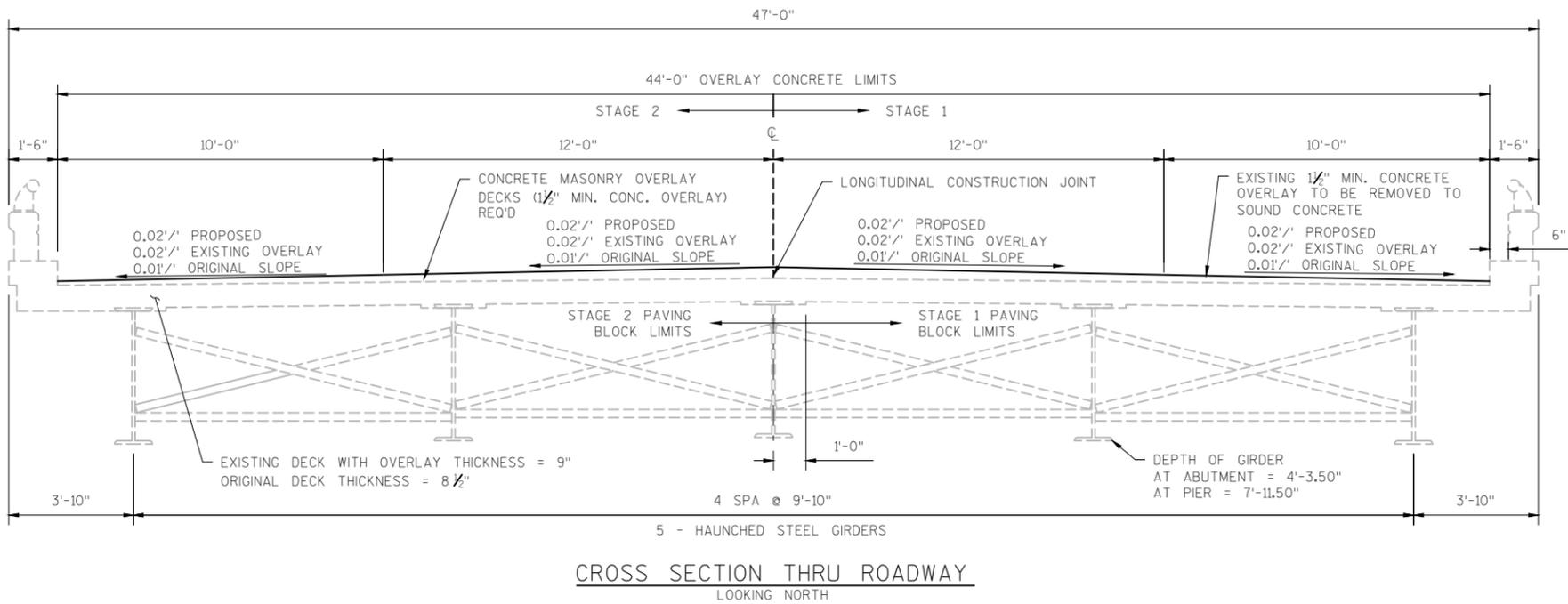


THRU SECTION OF PARAPET

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	
EXPANSION DEVICE			SHEET 4 OF 4



PLAN - B-41-90
2 SPAN - STEEL GIRDER



CROSS SECTION THRU ROADWAY
LOOKING NORTH

11/21/2016
DATE

William P. Murphy
SIGNATURE

BRIDGE OFFICE CONTACT

WILLIAM DREHER, PE
(608) 266-8489

DESIGN CONSULTANT

ALEX DWORAK
(608) 519-1455



LIST OF DRAWINGS

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

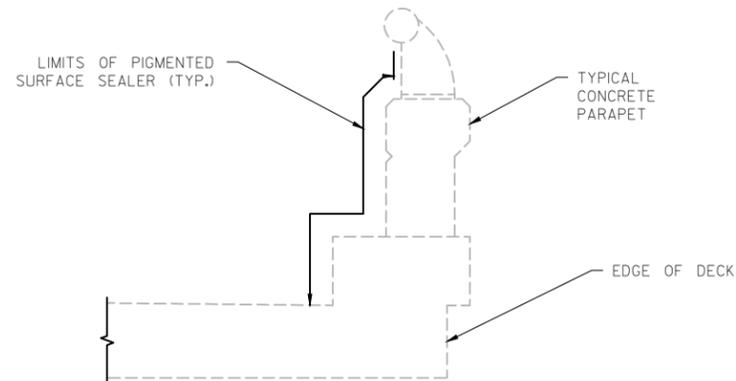
DESIGN DATA

LIVE LOAD
DESIGN LOADING: HS-20
INVENTORY RATING: HS-17
OPERATIONAL RATING: HS-28
WISCONSIN STANDARD PERMIT VEHICLE LOAD:
WIS-SPV: 170 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 ----- Fy = 60,000 P.S.I.

TRAFFIC DATE

A.A.D.T. = 3600 (2017)
A.A.D.T. = 4600 (2037)
D.S. = 60 MPH

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			
ACCEPTED <i>William C. Decker</i> 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



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.

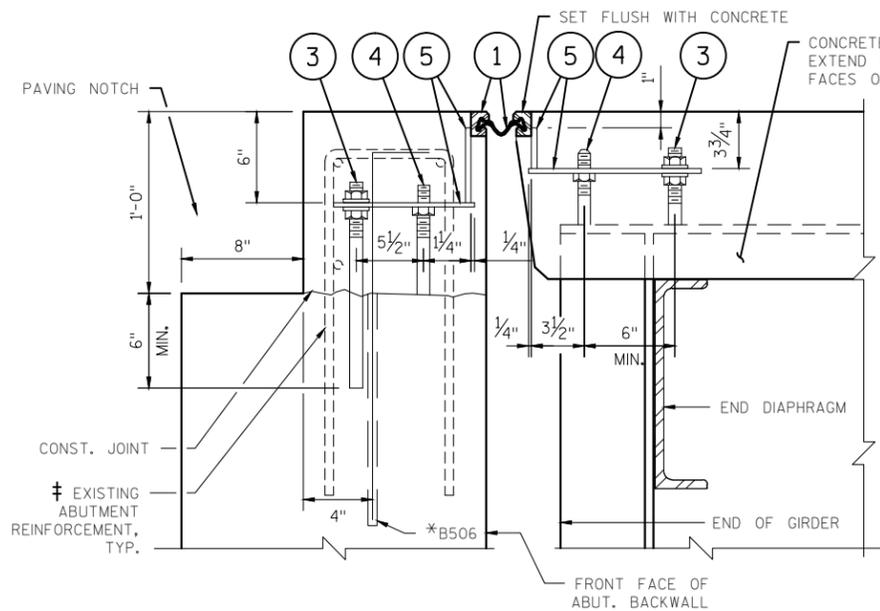
EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID FOR IN THE LUMP SUM PRICE BID AS "EXPANSION DEVICE B-41-90".

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

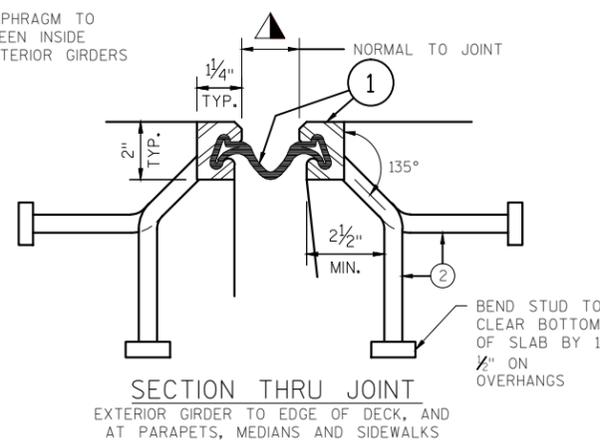
AT "CURB REPAIR" EXPOSE EXISTING REINFORCEMENT A MINIMUM OF 1-1/2" CLEAR.

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

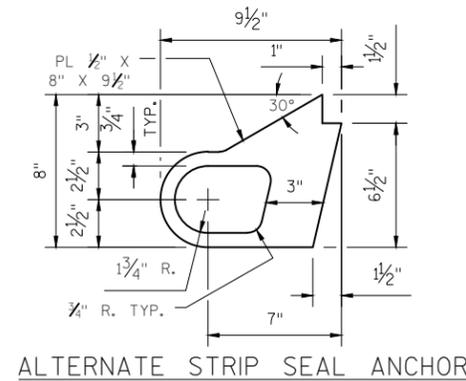
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-41-90			
DRAWN BY AFD		PLANS CK'D. WPM	
QUANTITIES AND DETAILS			SHEET 2 OF 4



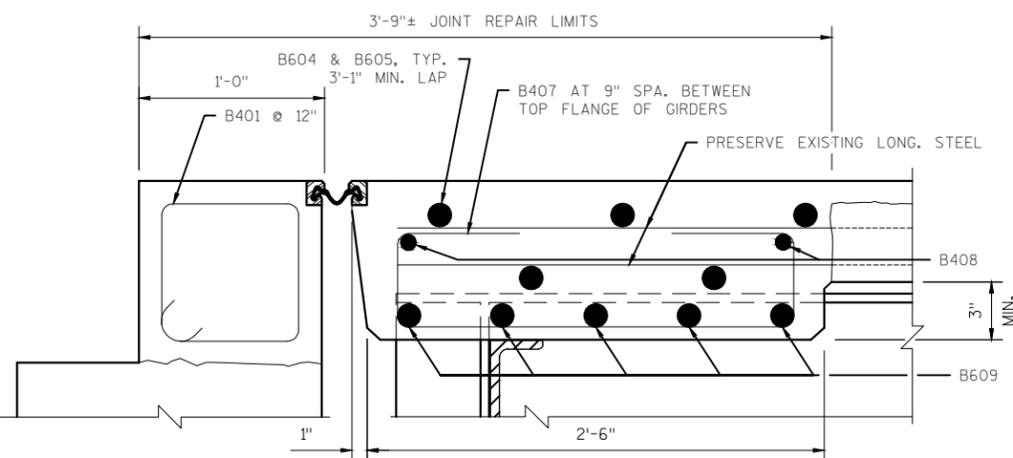
SECTION THRU JOINT AT ABUTMENT
NORMAL TO CL SUBSTRUCTURE



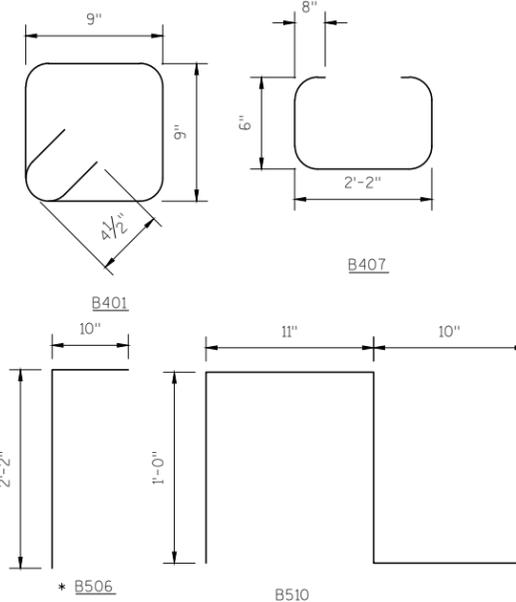
SECTION THRU JOINT
EXTERIOR GIRDER TO EDGE OF DECK, AND AT PARAPETS, MEDIANS AND SIDEWALKS



- LEGEND**
- ① NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS, SET JOINT OPENING AT 1 3/4".
 - ② STUDS 5/8"φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
 - ②A 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 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.
 - ④ 3/4"φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
 - 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.



SECTION THRU JOINT
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



PART PLAN

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.

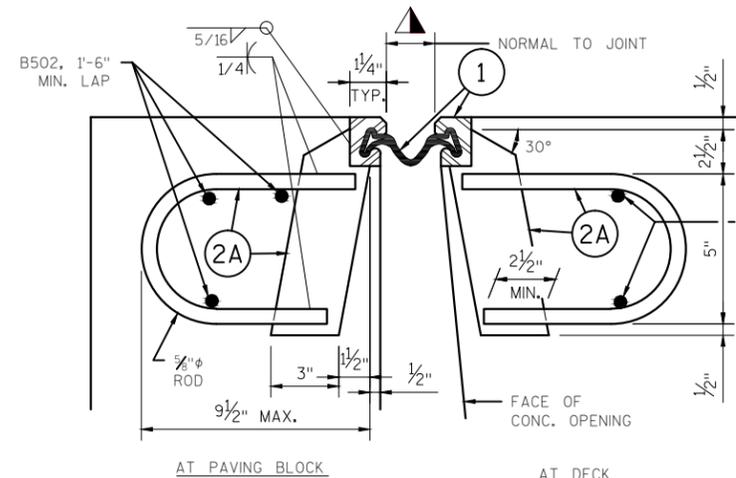
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STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-41-90".

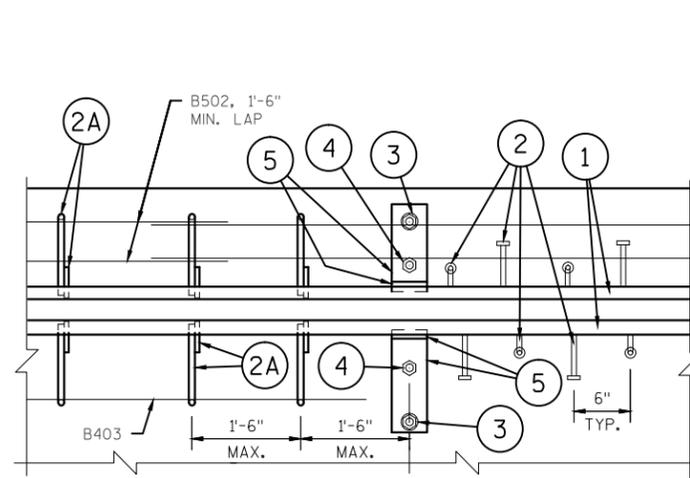
* MASONRY ANCHORS TYPE L NO. 5 BARS. EMBED A MINIMUM OF 1'-6" INTO CONCRETE. SPACE AT 1'-0". TURN 10" AS NECESSARY TO FIT.

† 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"



SECTION THRU JOINT
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



PART PLAN

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-41-90**

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 3/4".
- ② STUDS 3/8"φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ③ GALVANIZED PLATE 3/8" X 12" X 2'-2" LONG WITH HOLES FOR NO. 7.
- ④ 3/4"φ X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/8" BELOW PLATE SURFACE.
- ⑤ 3/8"φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑥ 3/8"φ X 2 1/4" GALVANIZED THREADED COUPLING.
- ⑦ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

GENERAL NOTES

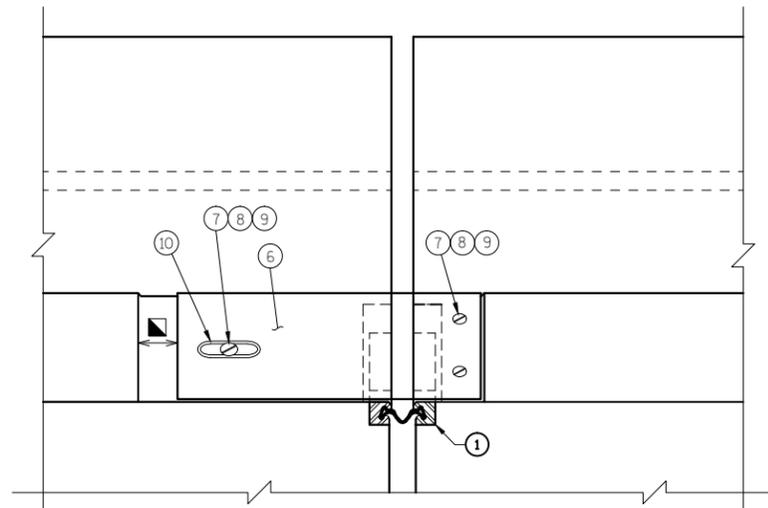
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REMOVE EXISTING PARAPET AS REQUIRED TO REMOVE EXISTING AND INSTALL NEW EXPANSION DEVICE. (INCORPORATE ALL LONGITUDINAL SLAB REINFORCEMENT INTO NEW WORK.)

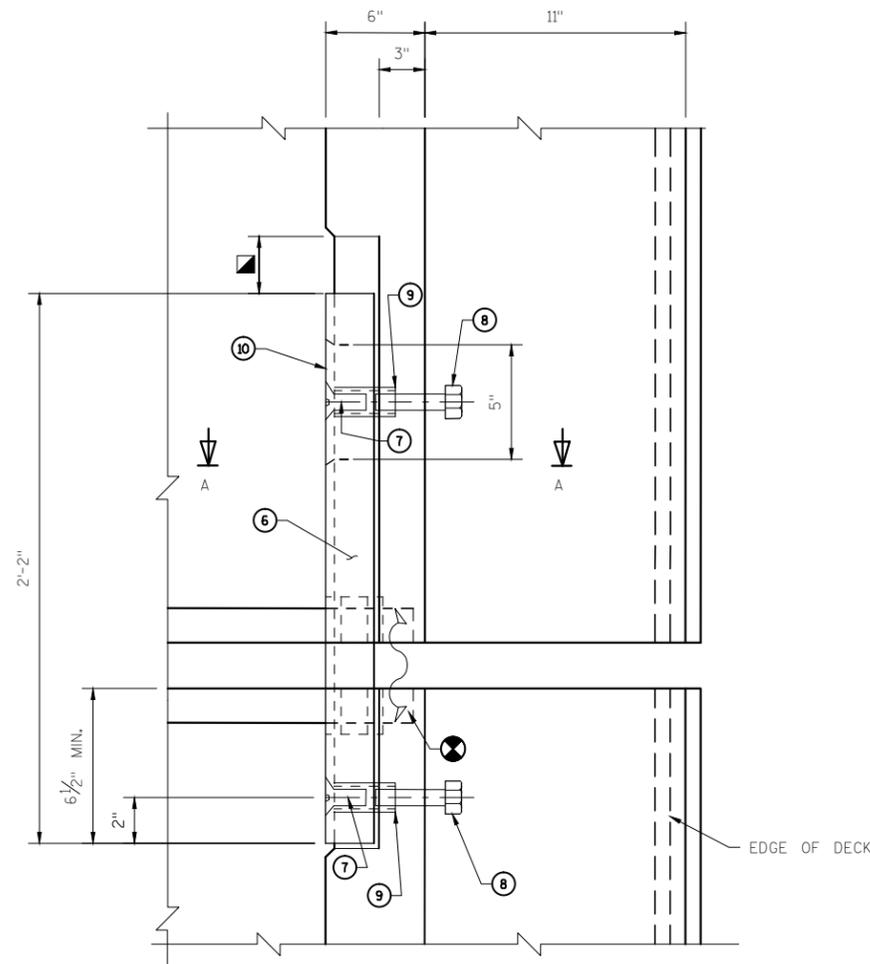
⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING

▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2"

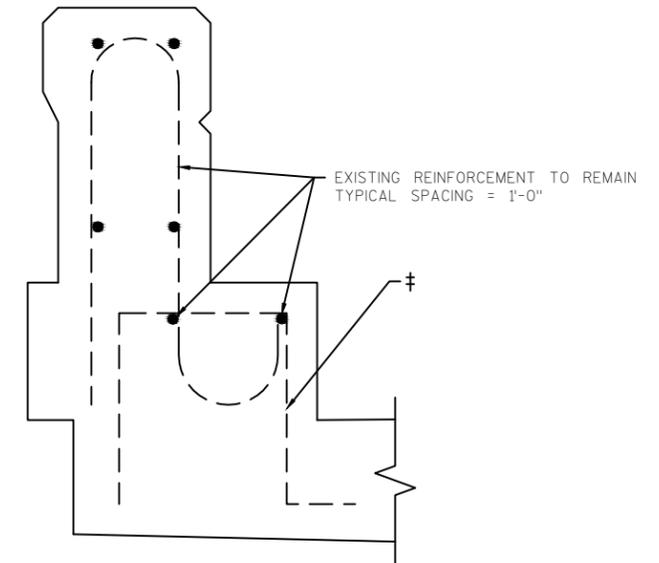
‡ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH B510.



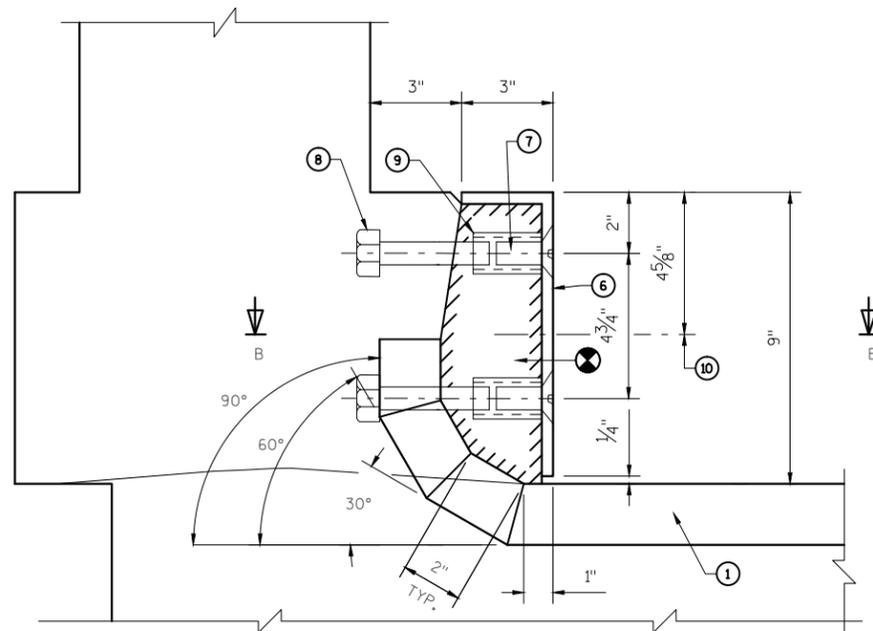
VIEW OF PARAPET PLATE FROM ROADWAY



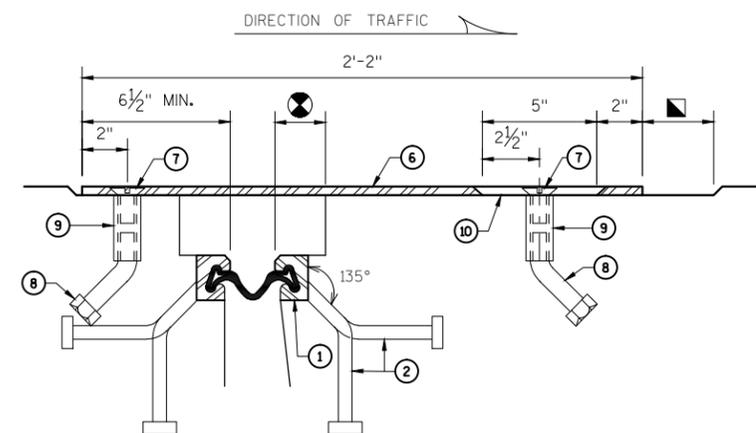
PLAN



THRU SECTION OF PARAPET



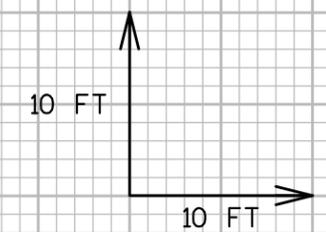
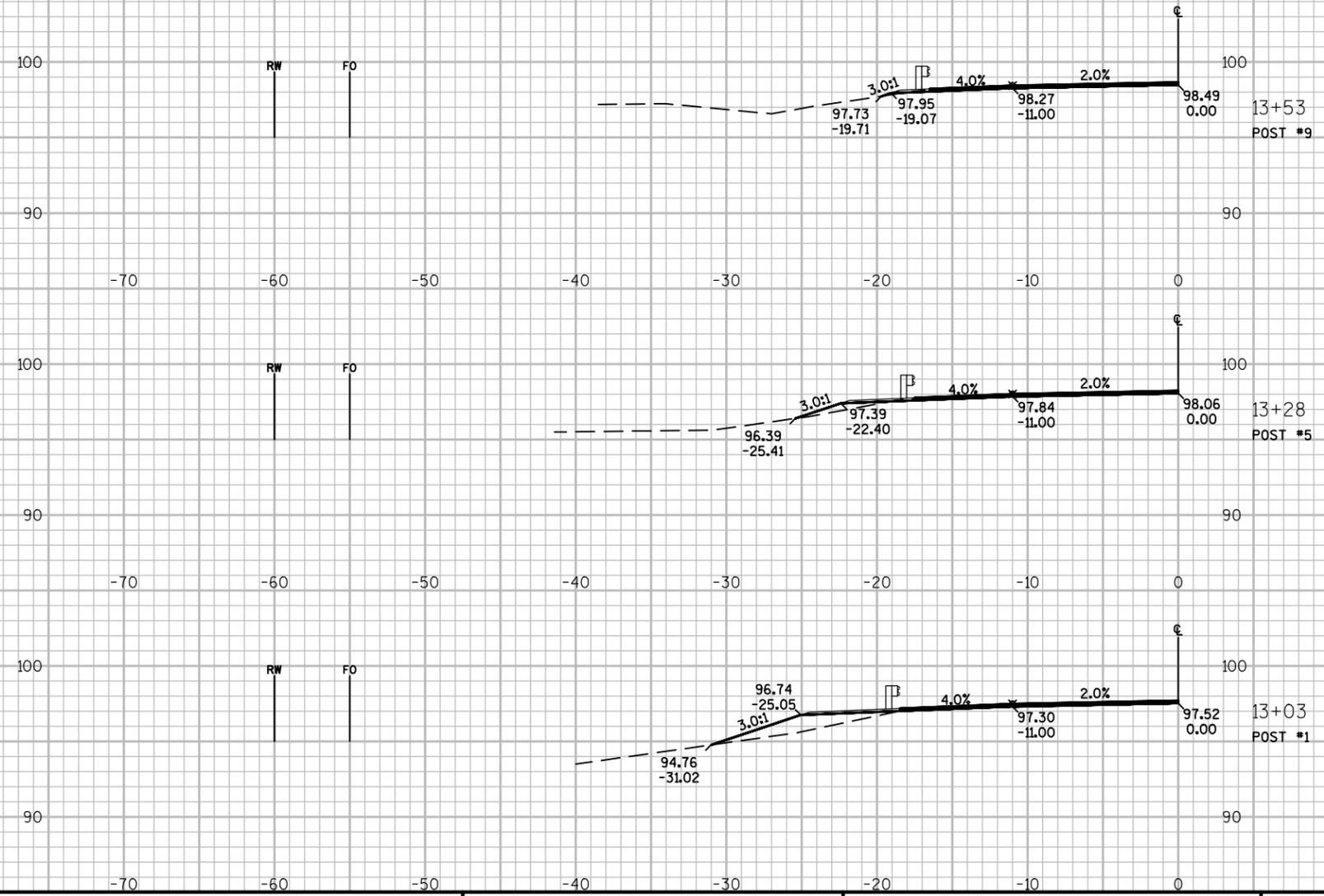
SECTION A-A



SECTION B-B

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	
EXPANSION DEVICE			SHEET 4 OF 4

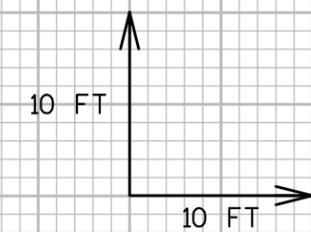
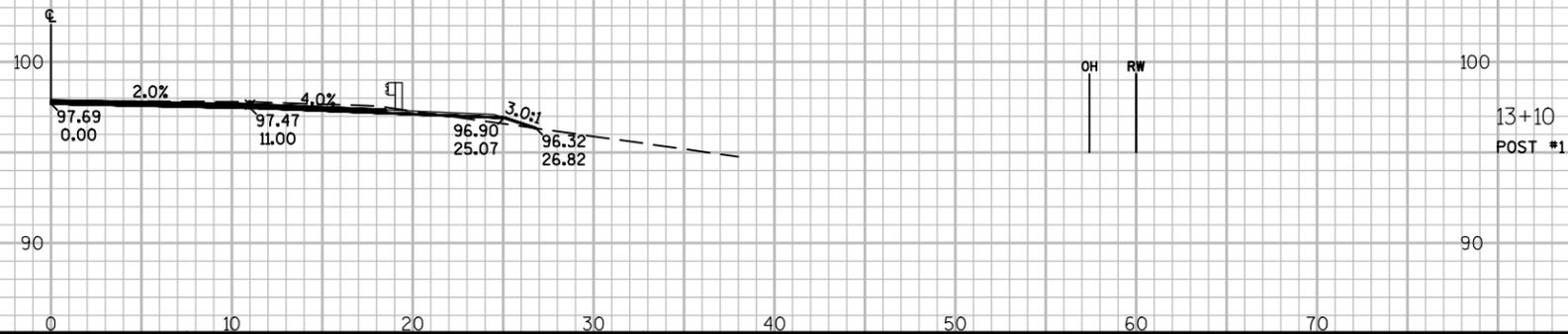
NOTES:
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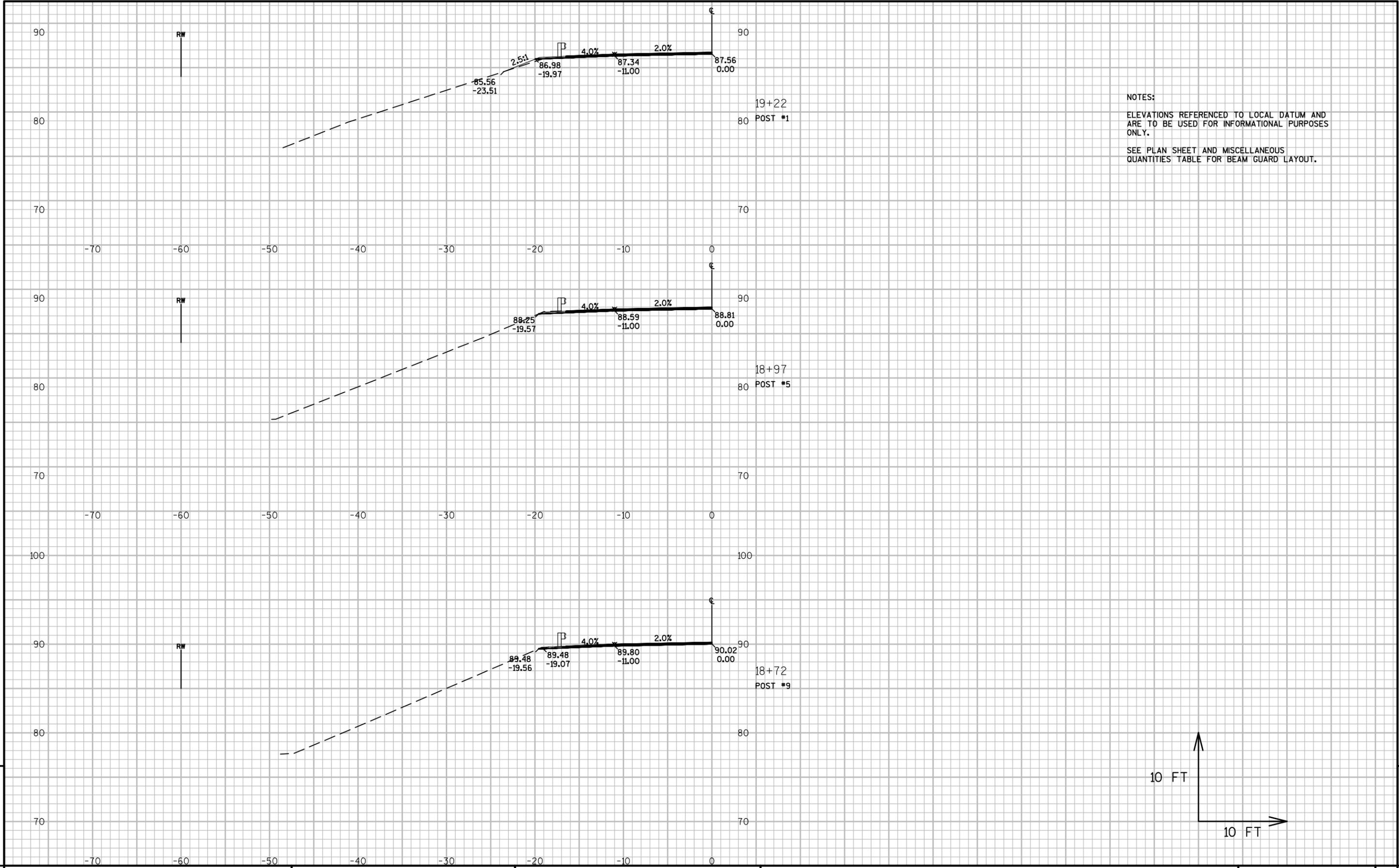


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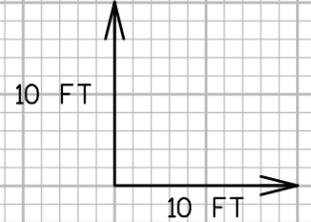
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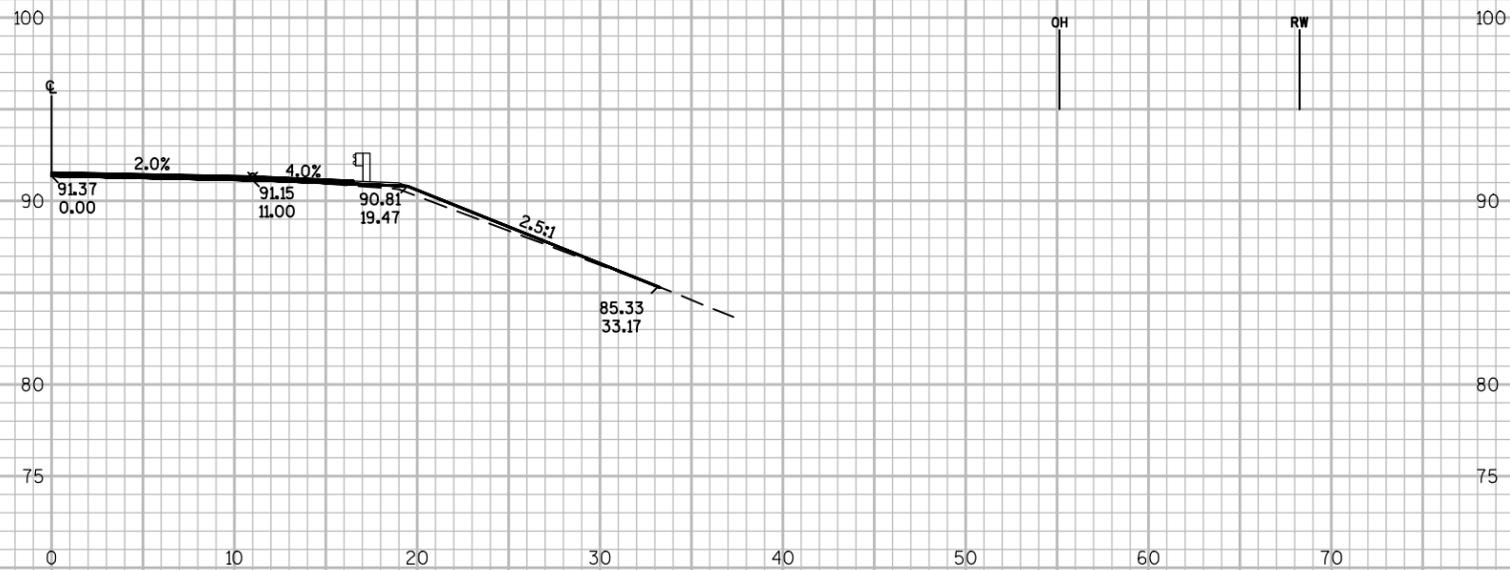
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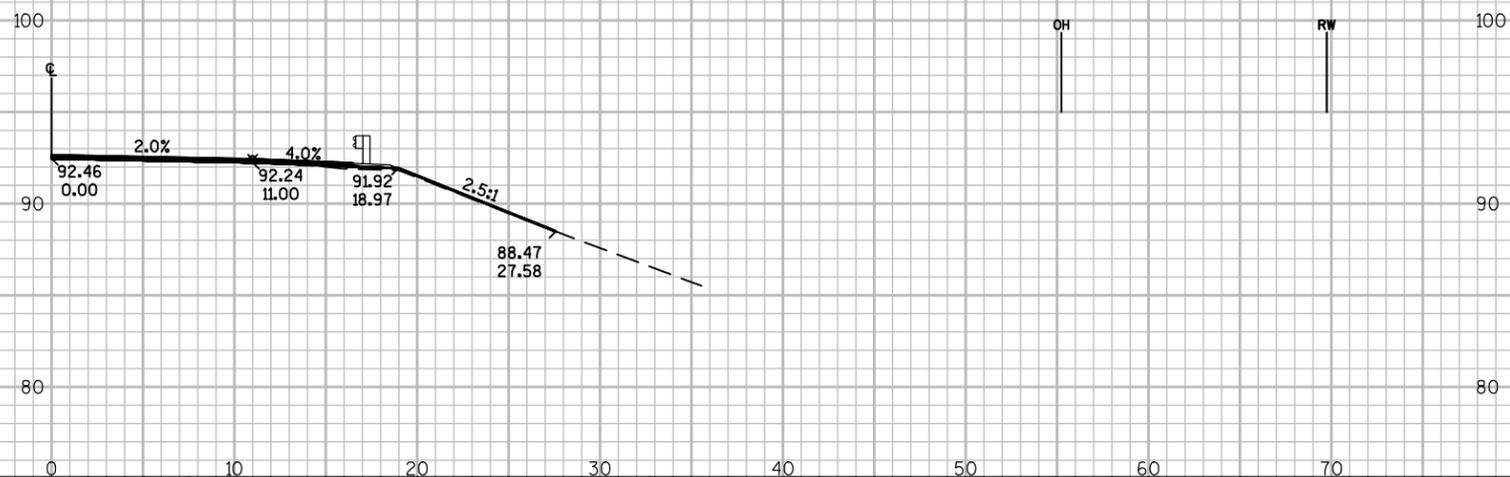


18+67
POST #1

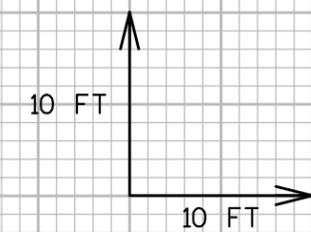
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18+42
POST #5



18+17
POST #9



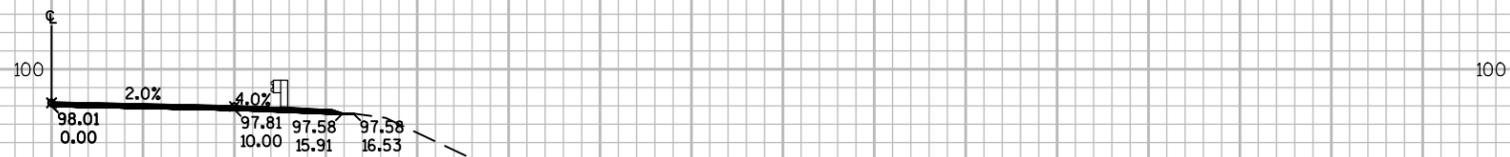
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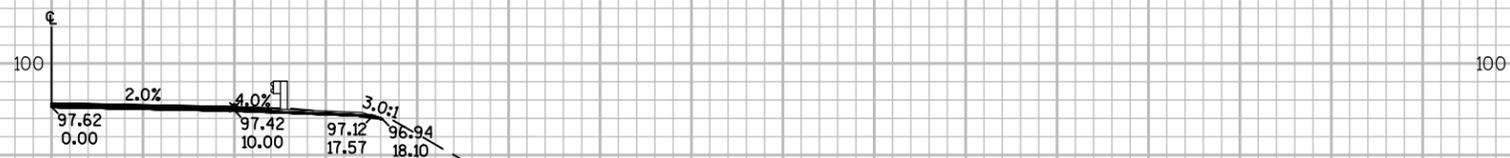


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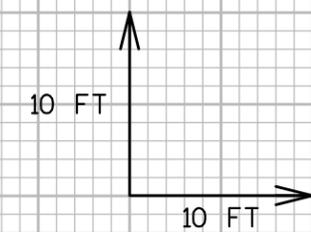
8+08
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7+83
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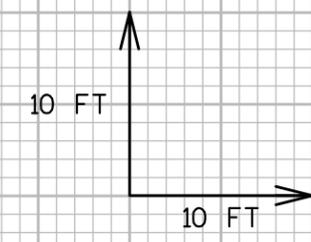
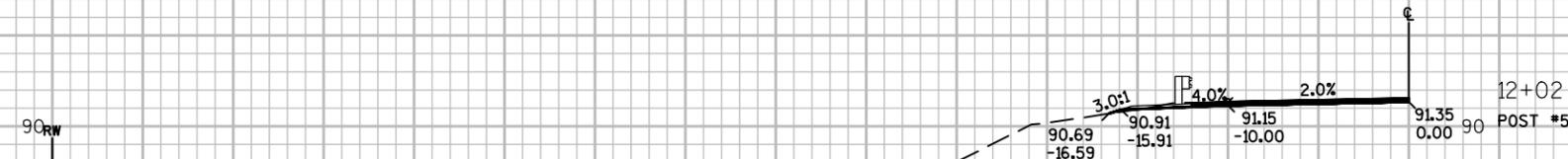
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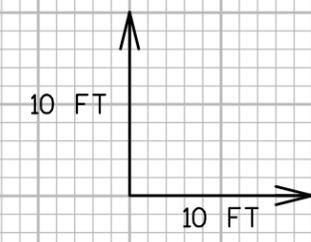
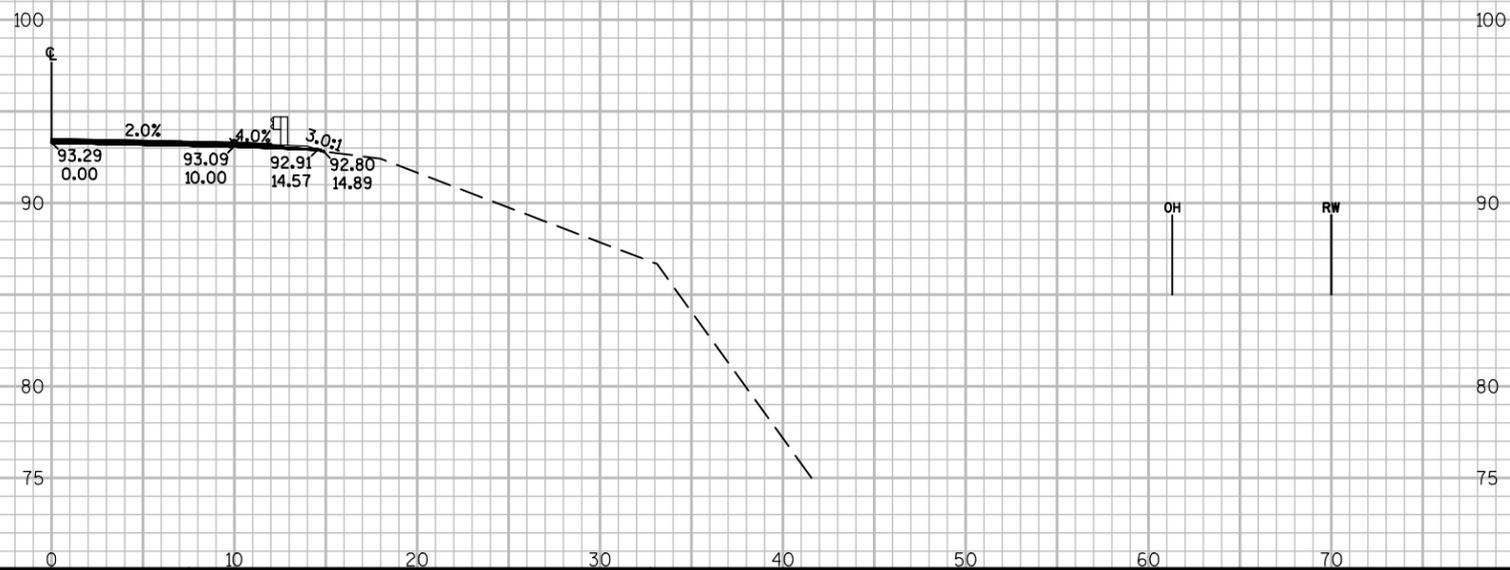
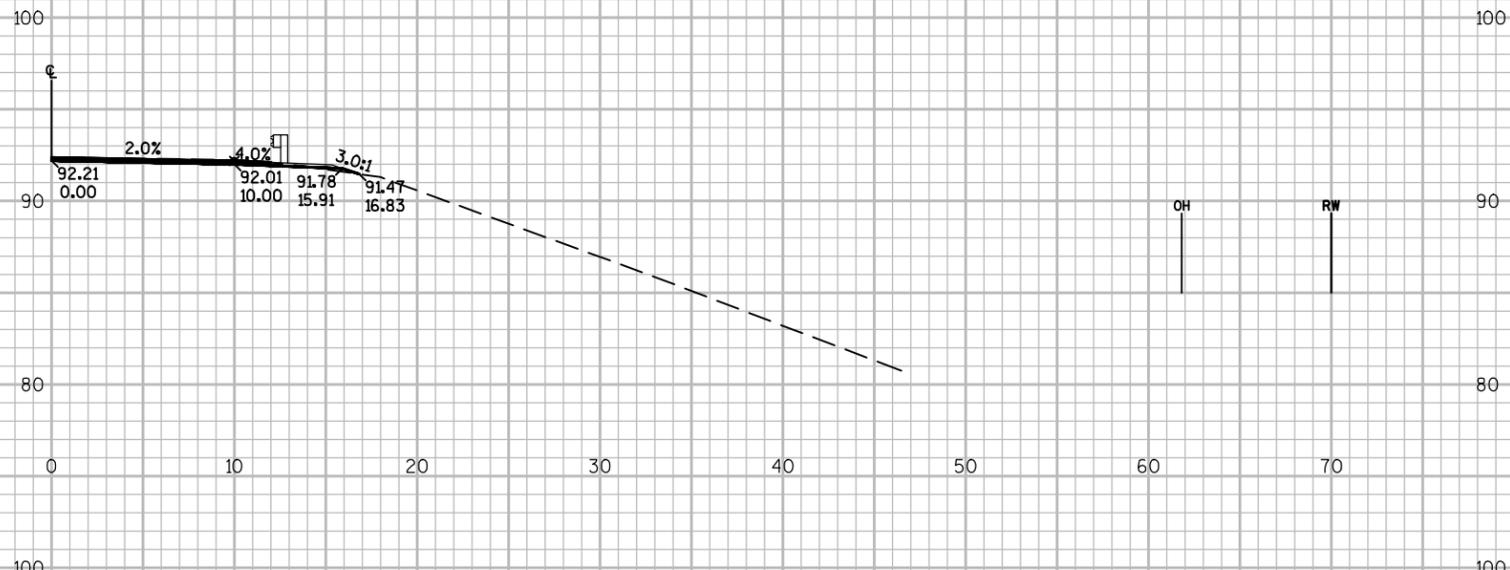
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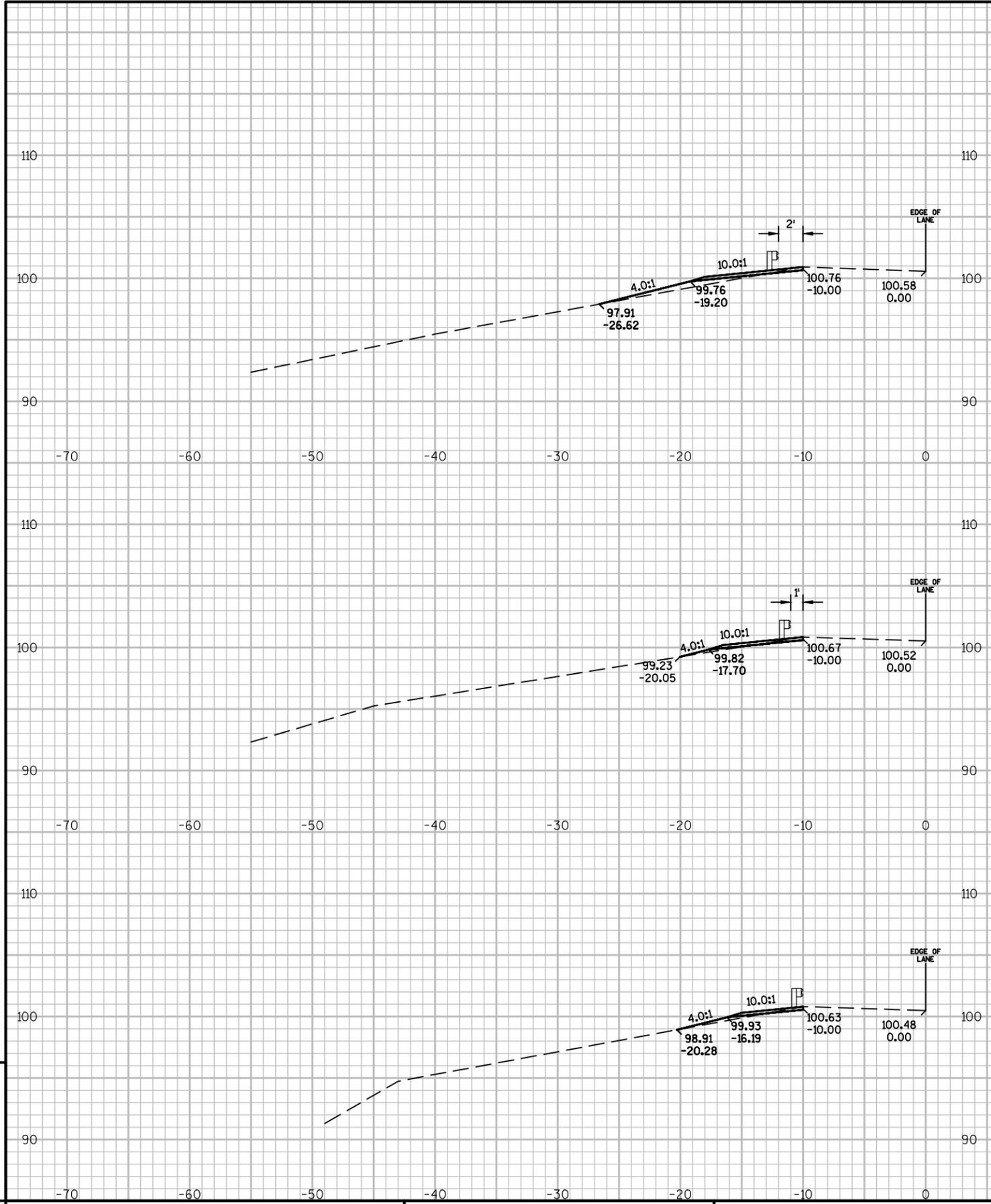
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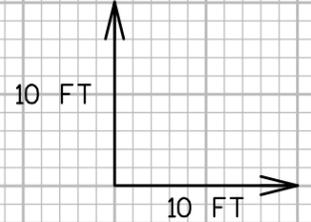
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POST #1

POST #5

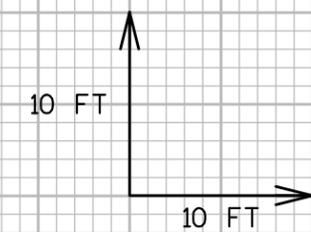
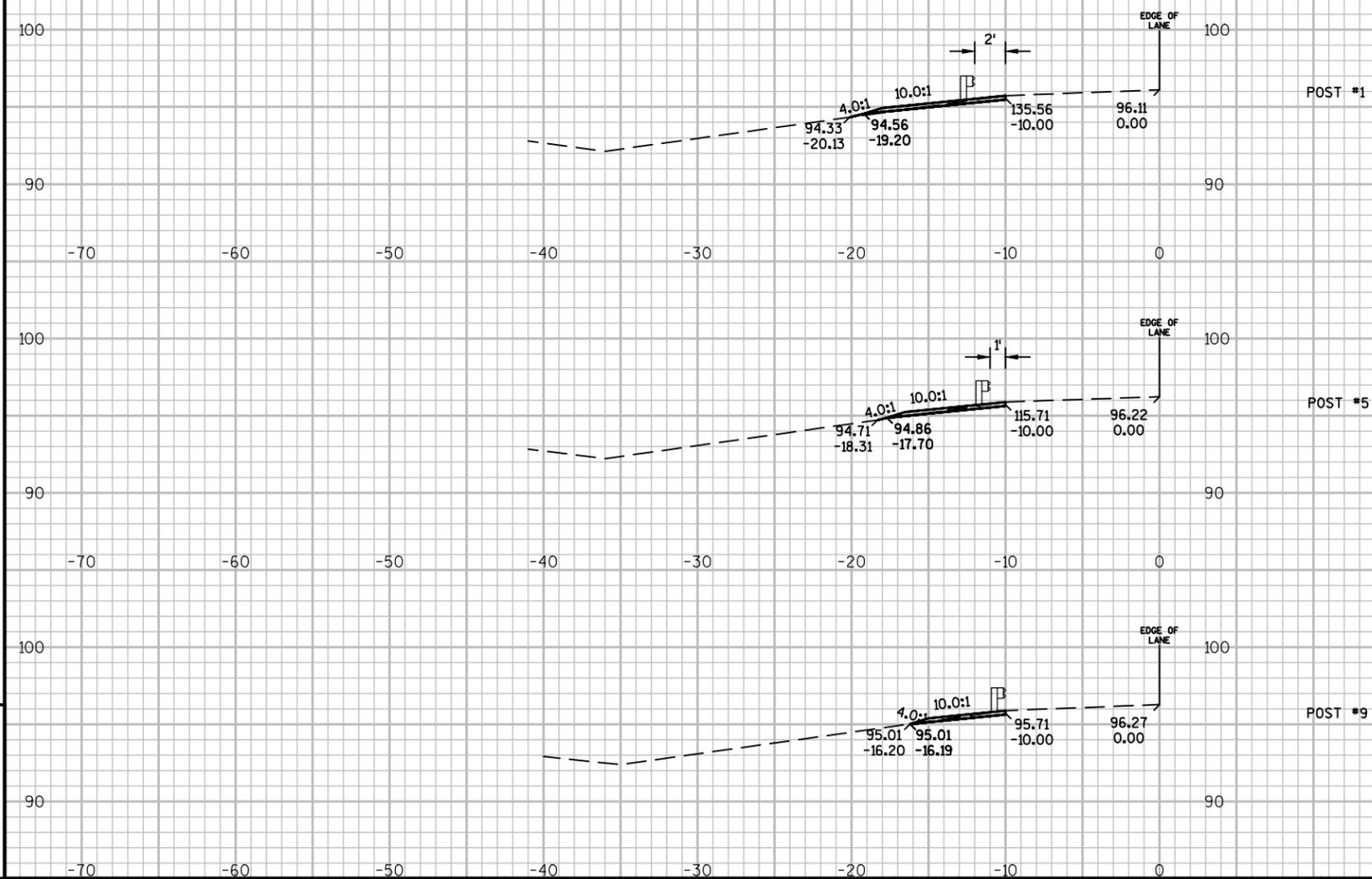
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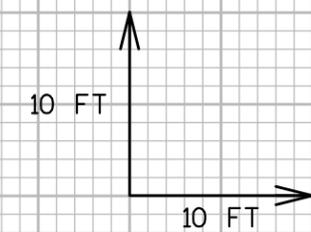
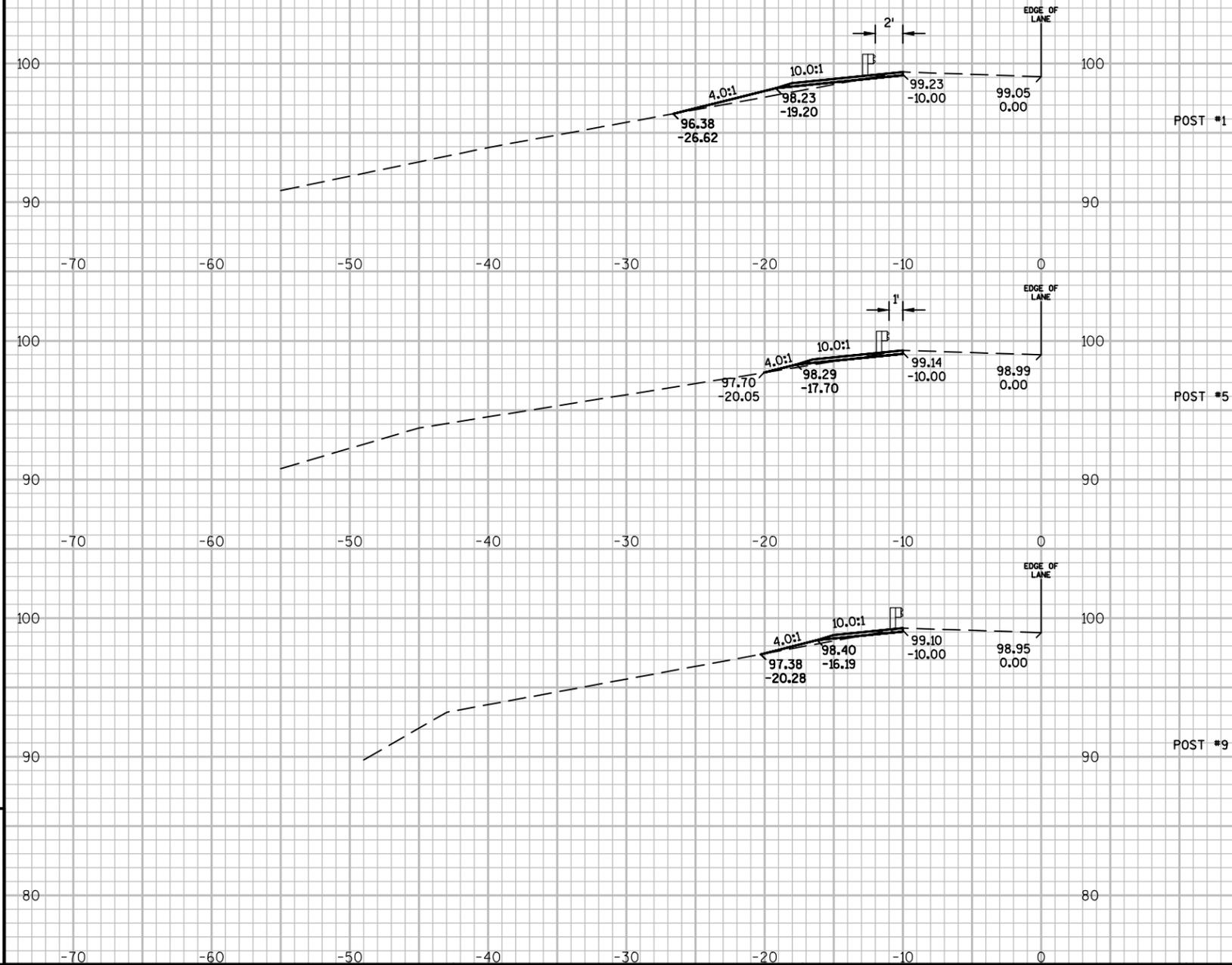
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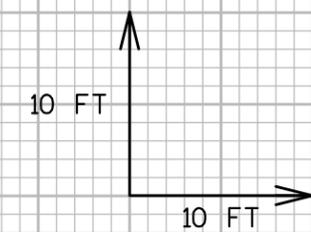
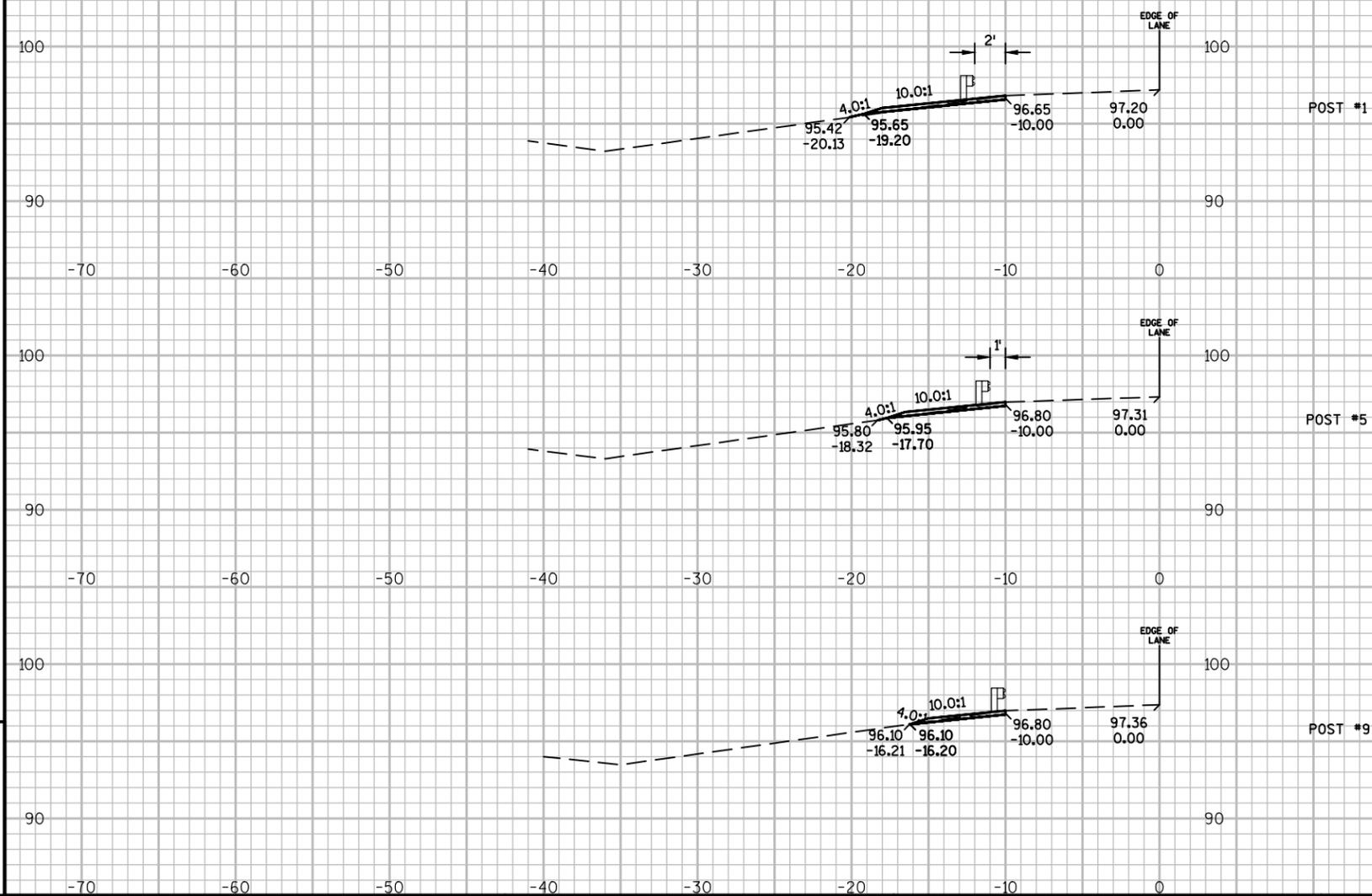
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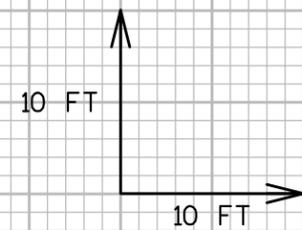
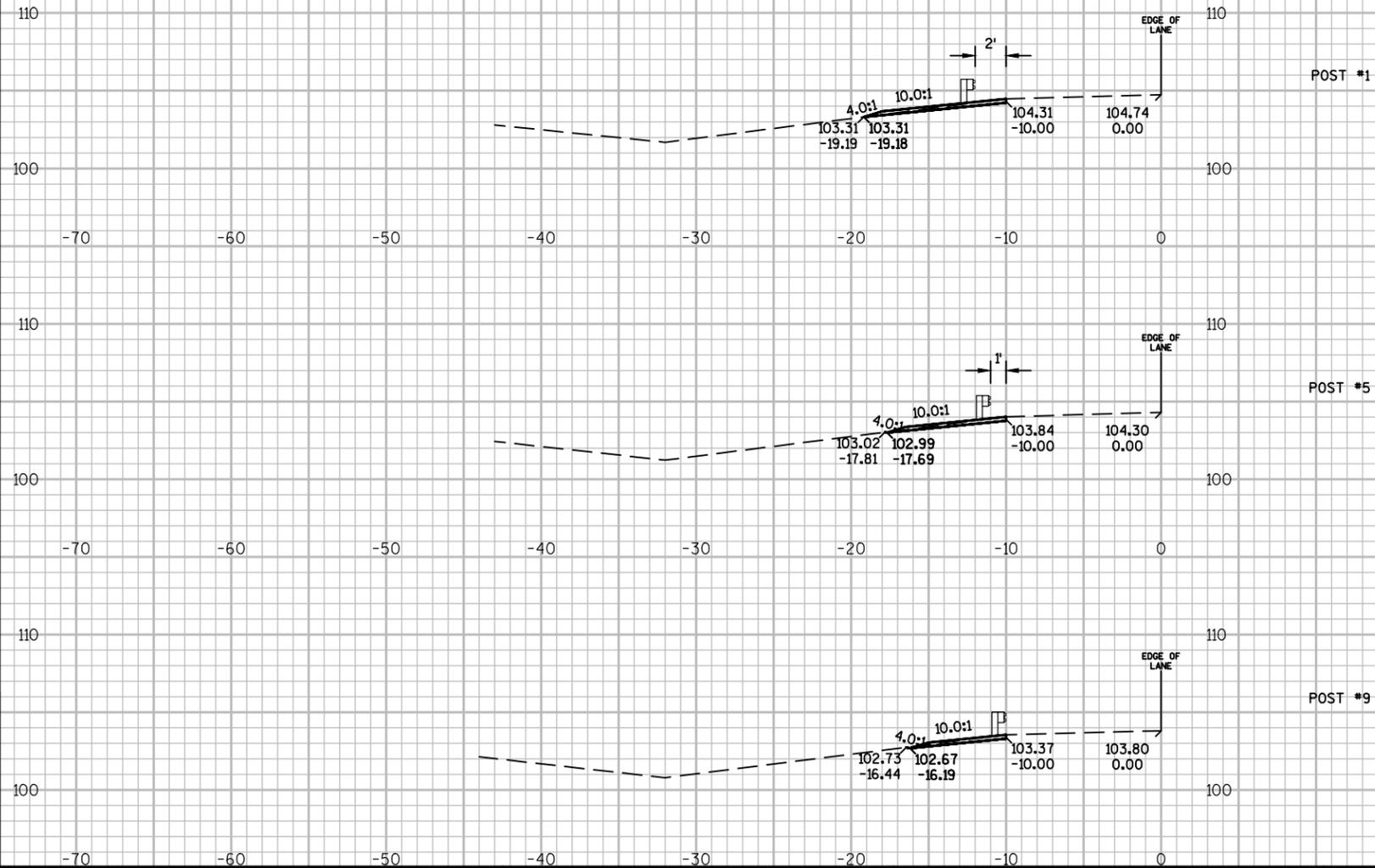
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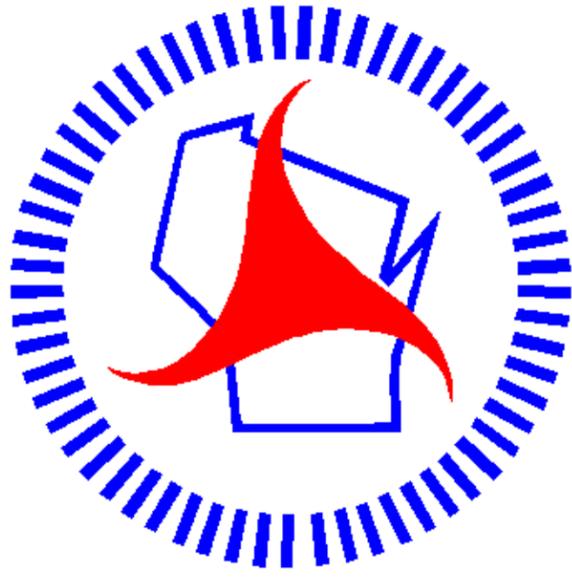


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