

LAX

PROJECT ID: 5429-02-61

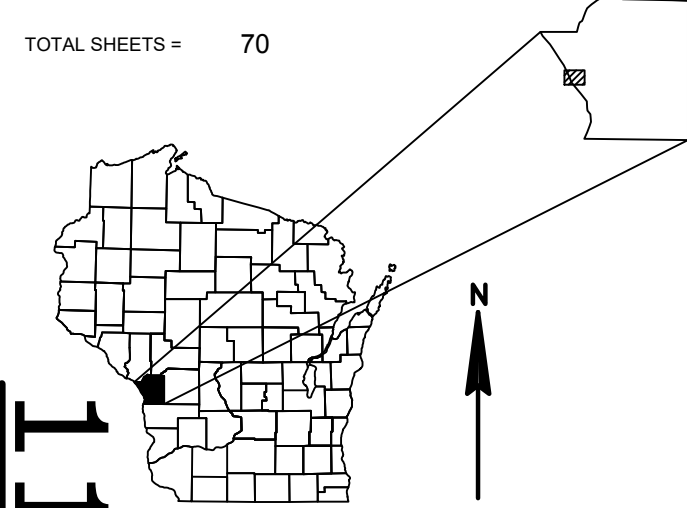
COUNTY: LA CROSSE

WITH:

MAY 2019

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 Plan
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	Gross Sections



DESIGN DESIGNATION

A.A.D.T.	2014	=	9,700
A.A.D.T.	2040	=	12,200
D.H.V.		=	8.0%
D.D.		=	59/41
T.		=	9.3%
DESIGN SPEED		=	40
ESALS		=	N/A

CONVENTIONAL SYMBOLS

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

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY REHABILITATION-MAINTENANCE PROJECT

FRENCH ISLAND-LA CROSSE

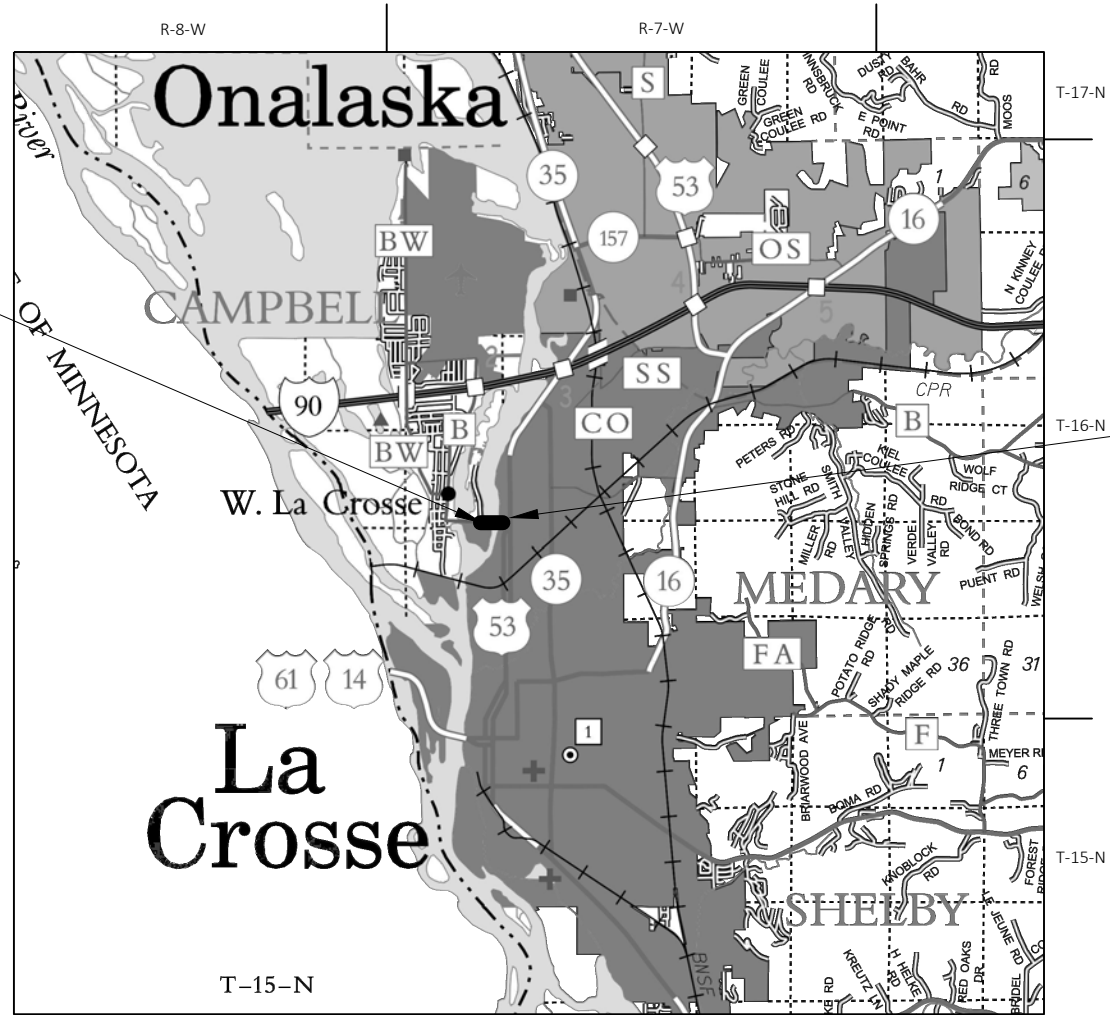
BLACK RIVER BRIDGE B-32-77

CTH B

LA CROSSE COUNTY

STATE PROJECT NUMBER

5429-02-61



LAYOUT

SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE = 0.13 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE BASED ON AN ASSUMED COORDINATE SYSTEM.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5429-02-61	WISC 2019281	1

ORIGINAL PLANS PREPARED BY

KNIGHT

831 Critter Court
Suite 400
Onalaska, WI 54650
Engineers & Architects Phone: (608) 519-1455

1/17/19 (Date)

(Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor

Designer

Project Manager

Regional Examiner

Regional Supervisor

KNIGHT E/A

TODD WALDO

SW REGION

REINY YAHNKE

APPROVED FOR THE DEPARTMENT

DATE: 1/17/2019

Todd Waldo (Signature)

E

STANDARD ABBREVIATIONS

AC	ACRE	INL	INLET
AGG	AGGREGATE	INV	INVERT
AH	AHEAD	JCT	JUNCTION
AADT	ANNUAL AVERAGE DAILY TRAFFIC	LT	LEFT
ASPH	ASPHALTIC	L	LENGTH OF CURVE
AVG	AVERAGE	LIN FT or LF	LINEAR FOOT
BK	BACK	LS	LUMP SUM
BAD	BASE AGGREGATE DENSE	NC	NORMAL CROWN
BM	BENCH MARK	N	NORTH
BR	BRIDGE	NB	NORTHBOUND
CL or C/L	CENTER LINE	NO	NUMBER
CE	COMMERCIAL ENTRANCE	PT	POINT
CONC	CONCRETE	PC	POINT OF CURVATURE
CO	COUNTY	PI	POINT OF INTERSECTION
CTH	COUNTY TRUNK HIGHWAY	PT	POINT OF TANGENCY
CR	CREEK	PCC	PORTLAND CEMENT CONCRETE
CABC	CRUSHED AGGREGATE BASE COURSE	LB	POUND
CSD	COMMUNITY SENSITIVE DESIGN	PE	PRIVATE ENTRANCE
CY or CUYD	CUBIC YARD	R	RADIUS
CULV	CULVERT	RL or R/L	REFERENCE LINE
CP	CULVERT PIPE	RT	RIGHT
C & G	CURB AND GUTTER	R/W	RIGHT-OF-WAY
D	DEGREE OF CURVE	RD	ROAD
DIA	DIAMETER	SHLDR	SHOULDER
DISCH	DISCHARGE	SB	SOUTHBOUND
E	EAST	SF or SQ FT	SQUARE FEET
EB	EASTBOUND	SY or SQ YD	SQUARE YARD
EL or ELEV	ELEVATION	SDD	STANDARD DETAIL DRAWINGS
EW	ENDWALL	STH	STATE TRUNK HIGHWAYS
ENT	ENTRANCE	SE	SUPERELEVATION
EXC	EXCAVATION	T	TANGENT
EX	EXISTING	TEMP	TEMPORARY
FERT	FERTILIZER	TWLT	TWO-WAY LEFT-TURN LANE
FE	FIELD ENTRANCE	UG	UNDERGROUND
FL or F/L	FLOW LINE	USH	UNITED STATES HIGHWAY
FT	FOOT	V	VELOCITY OR DESIGN SPEED
HE	HIGHWAY EASEMENT	VC	VERTICAL CURVE
HMA	HOT MIX ASPHALT	WB	WESTBOUND
CWT	HUNDREDWEIGHT	YD	YARD

GENERAL NOTES

- NO TREES OR SHRUBS SHALL BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE BEEN DESGINATED FOR REMOVAL BY THE ENGINEER.
- DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE SALVAGED TOPSOILED, FERTILIZED, SEEDED, AND E-MATTED AS DIRECTED BY THE ENGINEER.
- PAVING LIMITS ARE TO BE DETERMINED BY THE ENGINEER.
- 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.
- WHEN THE QUANTITIY OF BASE AGGREGATE IS MEASURED FOR PAVEMENT BY THE TON OR CUBIC YARD, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.
- RIGHT OF WAY DEPICTED ON THE PLANS ARE BASED OFF OF PREVIOUS AS BUILTS. IF CONFLICTS ARE ANTICIPATED, THE CONTRACTOR SHALL FIELD VERIFY EXACT LIMITS AND NOTIFY THE ENGINEER.
- COORDINATES AND ALIGNMENT ARE BASED ON ASSUMED COORDINATE SYSTEM.

RUNOFF COEFFICIENT TABLE

A	HYDROLOGIC SOIL GROUP											
	B C									D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE: TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT						.70 - .95						
CONCRETE						.80 - .95						
BRICK						.70 - .80						
DRIVES, WALKS						.75 - .85						
ROOFS						.75 - .95						
GRAVEL ROADS, SHOULDERS						.40 - .60						

TOTAL PROJECT AREA = 1.12 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.19 ACRES

AREA CONTACTS

WISDOT PROJECT MANAGER
TODD WALDO
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
(608) 785-9462
TODD.WALDO@DOT.WI.GOV

LOCAL GOVERNMENT
LA CROSSE COUNTY HIGHWAY DEPARTMENT
RONALD CHAMBERLAIN
301 CARLSON ROAD
WEST SALEM, WI 54669
(608) 786-3813
RCHAMBERLAIN@LACROSSECOUNTY.ORG

DESIGN CONTACT
KNIGHT E/A, INC.
RYAN MCKANE, PE
831 CRITTER COURT
ONALASKA, WI 54650
(608) 519-1455
RMCKANE@KNIGHTEA.COM

CITY OF LA CROSSE
CITY OF LA CROSSE ENGINEER
RANDY TURTENWALD
400 LA CROSSE ST.
LA CROSSE, WI 54601
(608) 789-7505
TURTENWALDR@CITYOFLACROSSE

WIDNR: LA CROSSE COUNTY
KAREN KALVELAGE
3550 MORMON COULEE RD
LA CROSSE, WI 54601
(608) 785-9115
KAREN.KALVELAGE@WISCONSIN.GOV

UTILITY CONTACTS

CHARTERCOM
BRANDON STORM
12405 POWERSCOURT DR.
ST. LOIUS, MO 63131
(608) 274-3822
BRANDON.STORM@CHARTER.COM

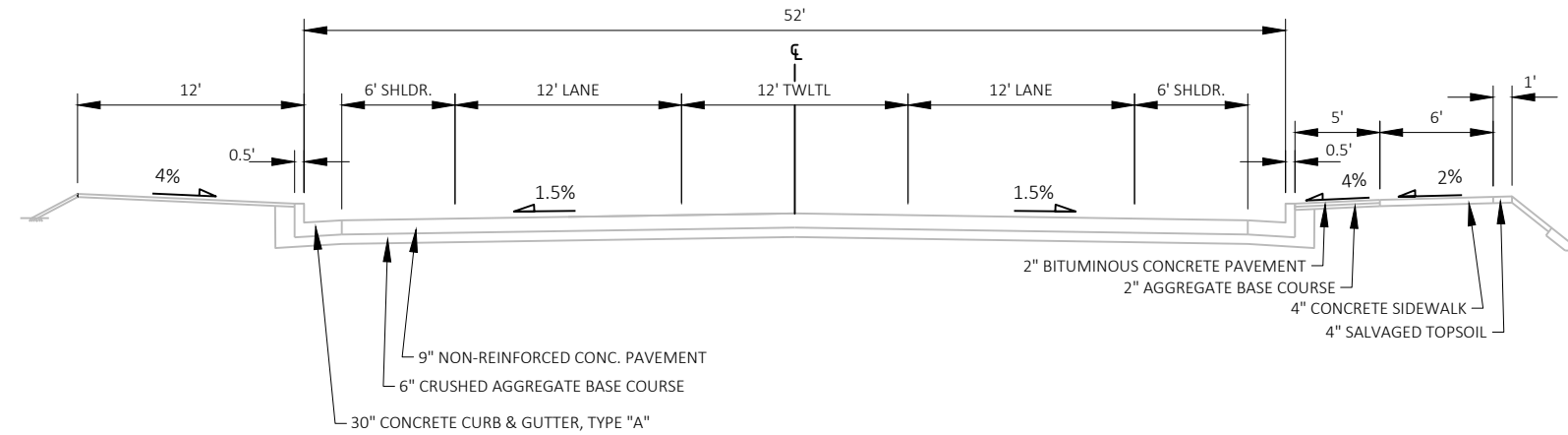
CENTURYLINK
MONTY PARKER
20 S WILSON AVENUE
RICE LAKE, WI 54868
(715) 234-5528

CITY OF LA CROSSE
BERNIE LENZ
400 LA CROSSE ST.
LA CROSSE, WI 54601
(608) 789-7364
LENZB@CITYOFLACROSSE.ORG

DIGGERSHOTLINE

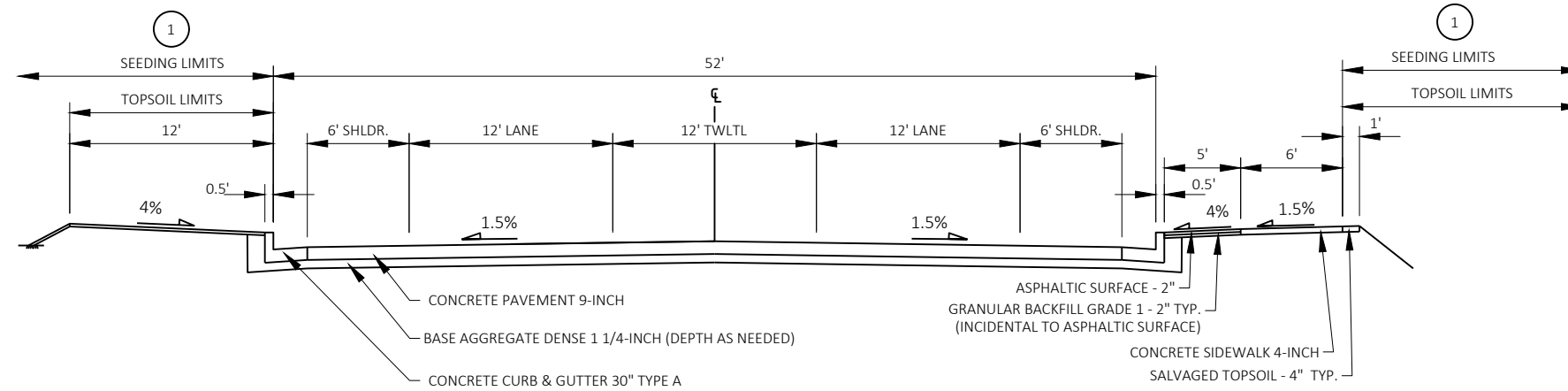
Dial 811 or (800) 242-8511

www.DiggersHotline.com



TYPICAL EXISTING SECTION FOR CTH B (CLINTON STREET)

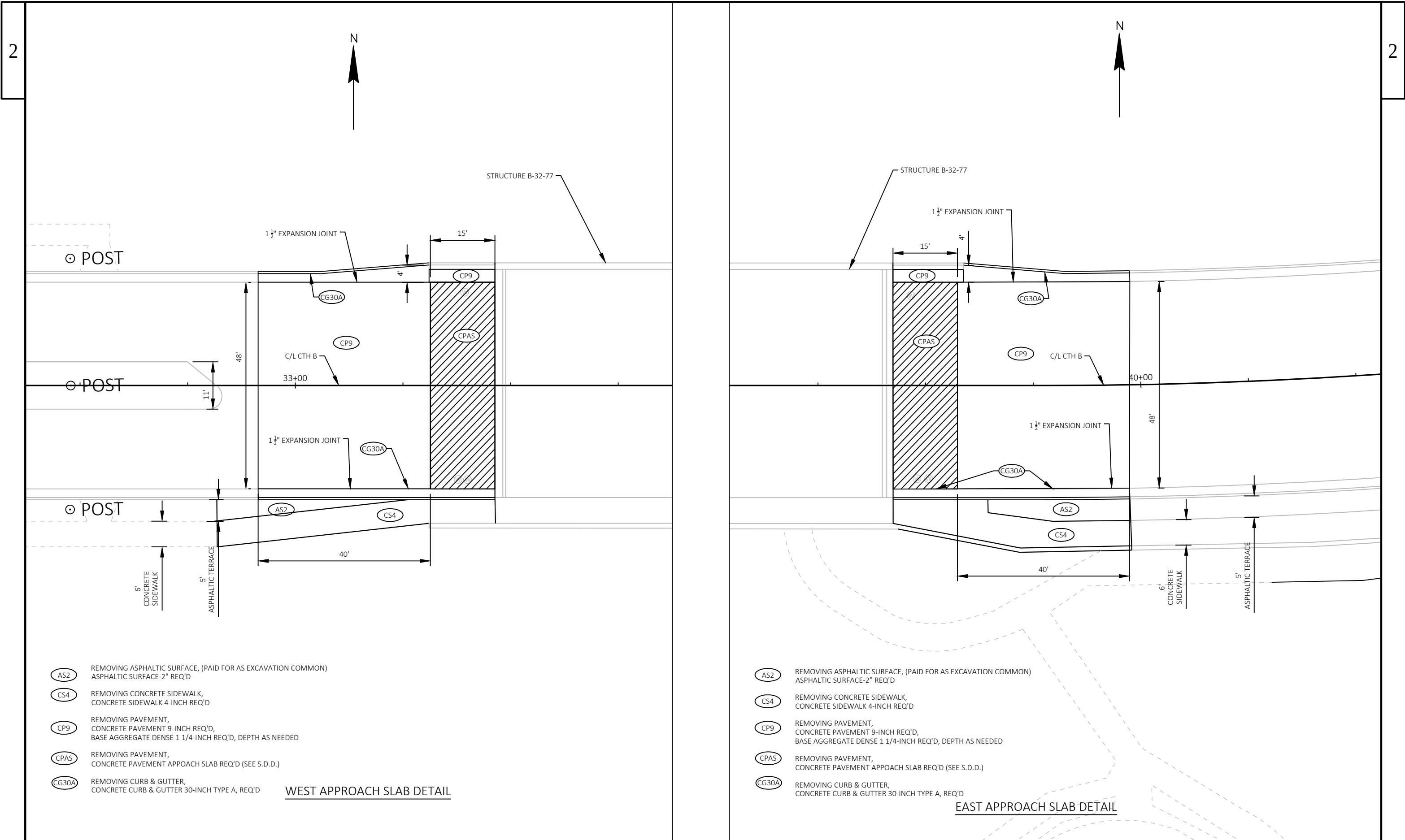
STA. 32+92 TO STA. 33+31
STA. 39+57 TO STA. 39+97



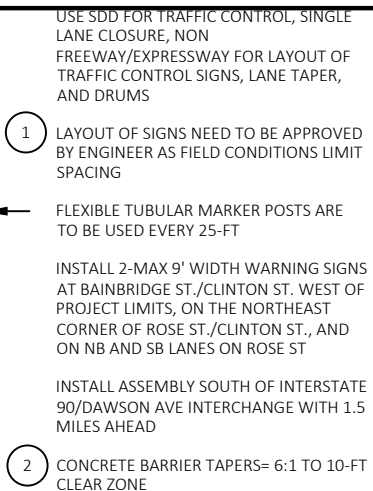
TYPICAL PROPOSED SECTION FOR CTH B (CLINTON STREET)

STA. 32+92 TO STA. 33+31
STA. 39+57 TO STA. 39+97

1 SEEDING MIXTURE NO. 40, FERTILIZER TYPE B, SALVAGED TOPSOIL, AND EROSION MAT URBAN CLASS 1 TYPE A REQ'D, SEEDING LIMITS EXTEND 5-FT BEYOND SLOPE INTERCEPTS

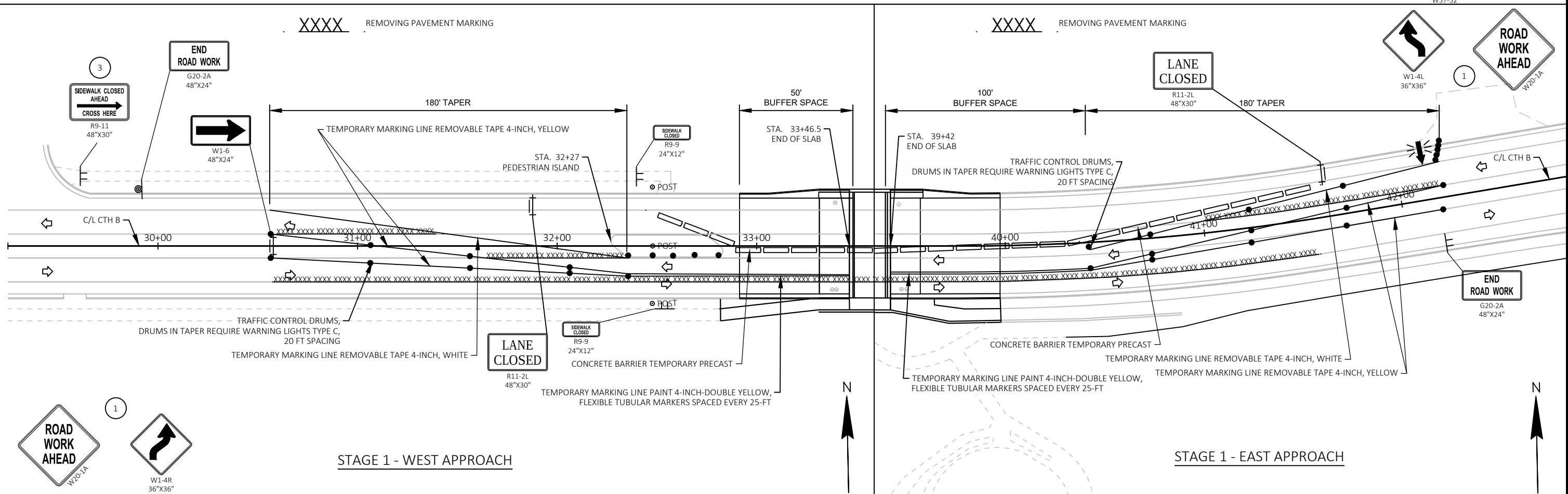
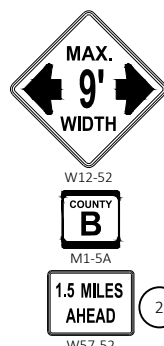


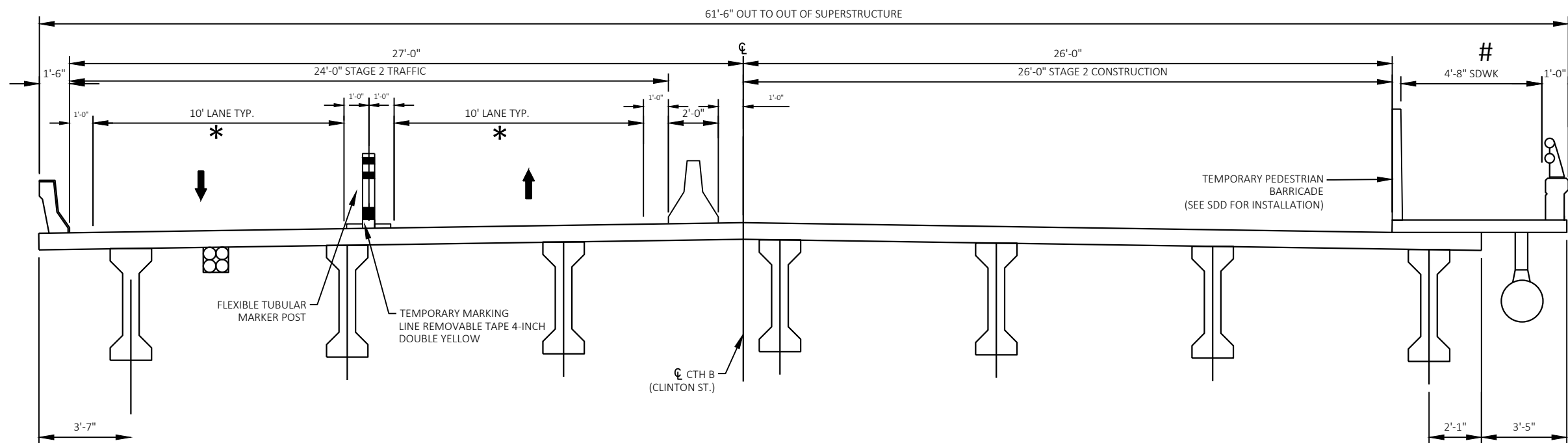




TRAFFIC CONTROL STAGE 1
(LOOKING EAST)

* 9' LANE WIDTH ON WEST SIDE OF
STRUCTURE DUE TO PEDESTRIAN ISLAND





TRAFFIC CONTROL STAGE 2
(LOOKING EAST)

* 9' LANE WIDTH ON WEST SIDE OF STRUCTURE DUE TO PEDESTRIAN ISLAND

REFER TO SDD TRAFFIC CONTROL, TEMPORARY PEDESTRIAN ACCOMMODATION FOR MIN SPACING/NARROW SIDEWALK PASSING DETAIL

USE SDD FOR TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON FREEWAY/EXPRESSWAY FOR LAYOUT OF TRAFFIC CONTROL SIGNS, LANE TAPER, AND DRUMS

1 LAYOUT OF SIGNS NEED TO BE APPROVED BY ENGINEER AS FIELD CONDITIONS LIMIT SPACING

FLEXIBLE TUBULAR MARKER POSTS ARE TO BE USED EVERY 25-FT

INSTALL 2-MAX 9' WIDTH WARNING SIGNS AT BAINBRIDGE ST./CLINTON ST. WEST OF PROJECT LIMITS, ON THE NORTHEAST CORNER OF ROSE ST./CLINTON ST., AND ON NB AND SB LANES ON ROSE ST

INSTALL ASSEMBLY SOUTH OF INTERSTATE 90/DAWSON AVE INTERCHANGE WITH 1.5 MILES AHEAD

2 CONCRETE BARRIER TAPERS= 6:1 TO 10-FT CLEAR ZONE



W12-52

COUNTY

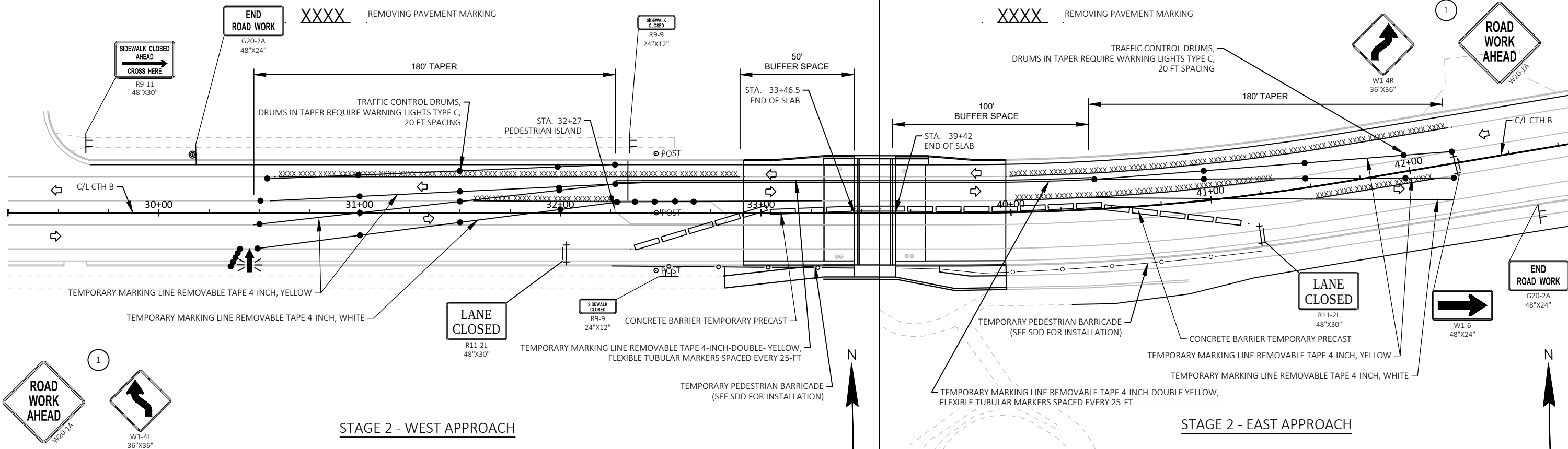
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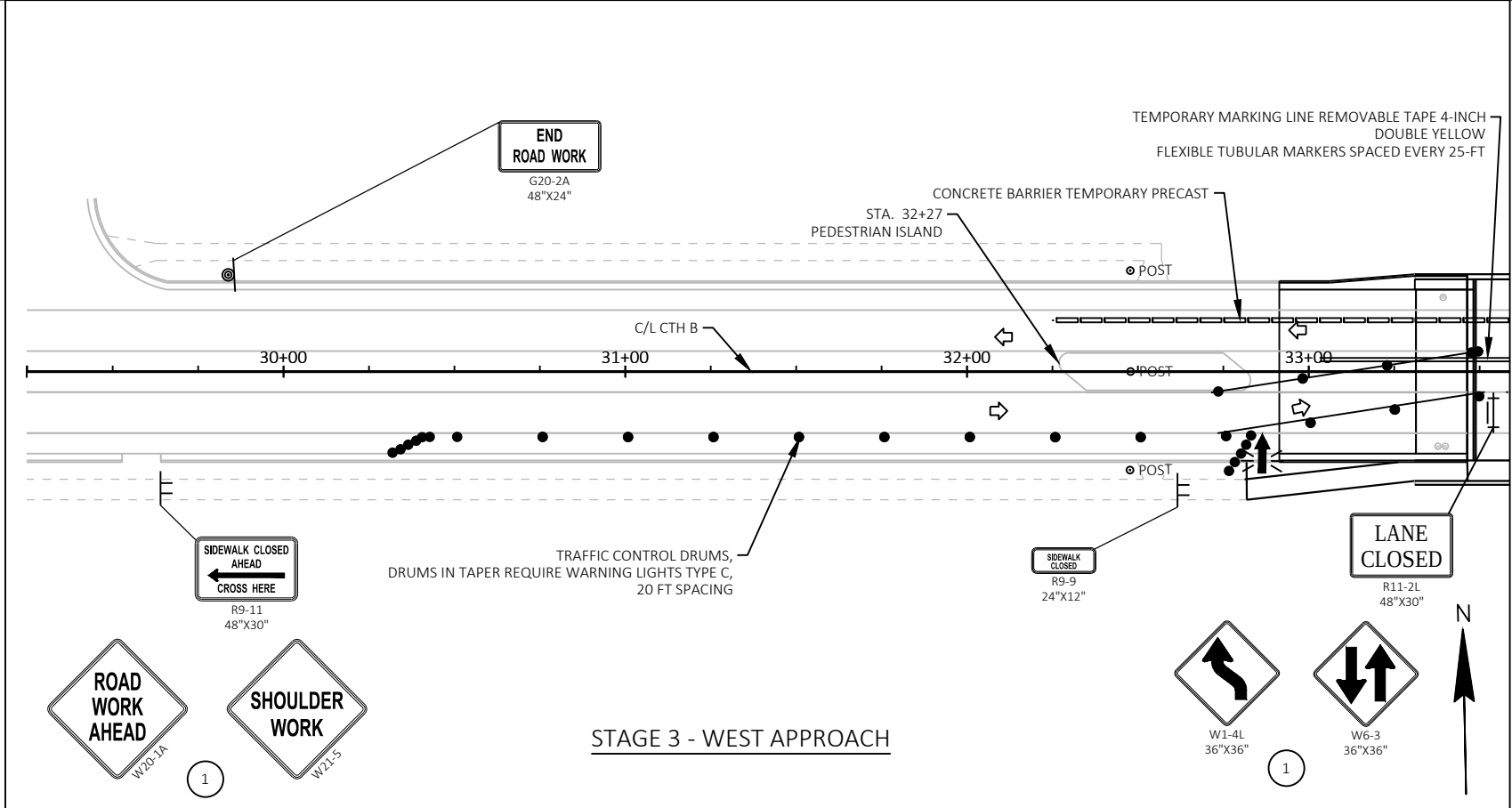
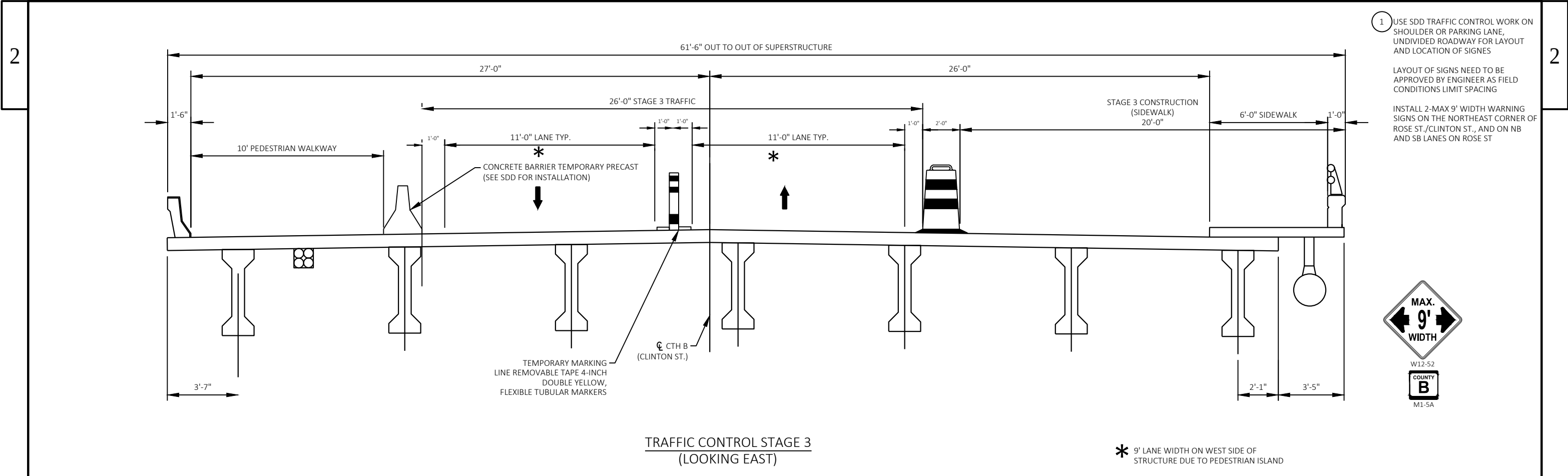
M1-5A

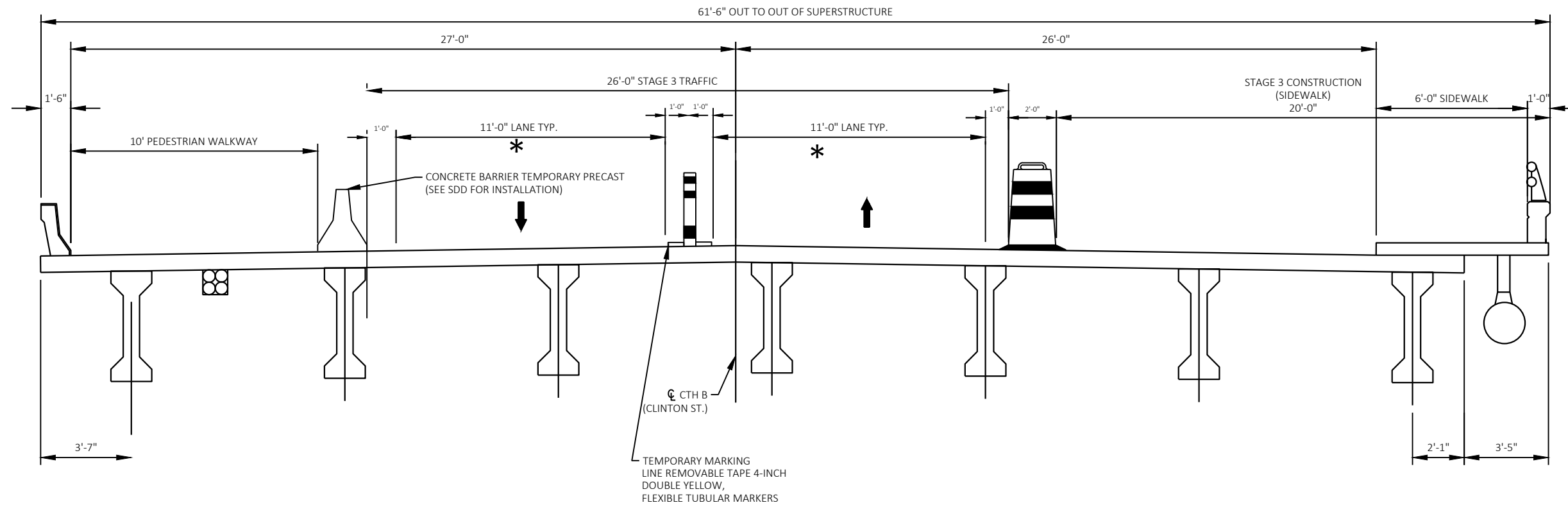
1.5 MILES AHEAD

W57-52

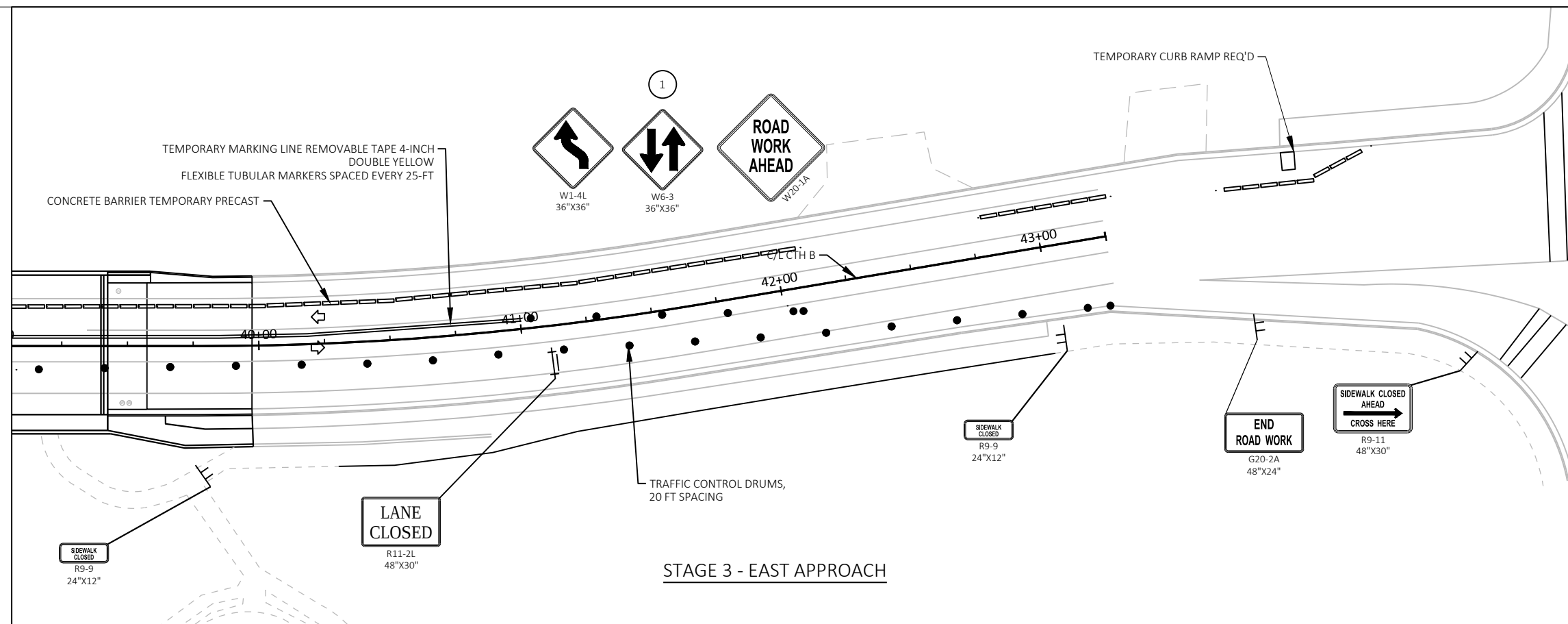
2







TRAFFIC CONTROL STAGE 3
(LOOKING EAST)



Estimate Of Quantities

5429-02-61

Line	Item	Item Description	Unit	Total	Qty
0002	203.0200	Removing Old Structure (station) 01. 36+44.71	LS	1.000	1.000
0004	204.0100	Removing Pavement	SY	600.000	600.000
0006	204.0150	Removing Curb & Gutter	LF	189.000	189.000
0008	204.0155	Removing Concrete Sidewalk	SY	86.000	86.000
0010	204.9060.S	Removing (item description) 01. Parapet Rail Sign Bracket	EACH	1.000	1.000
0012	205.0100	Excavation Common	CY	3.200	3.200
0014	206.1000	Excavation for Structures Bridges (structure) 01. B-32-77	LS	1.000	1.000
0016	210.1500	Backfill Structure Type A	TON	124.000	124.000
0018	213.0100	Finishing Roadway (project) 01. 5429-02-61	EACH	1.000	1.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	68.000	68.000
0022	415.0090	Concrete Pavement 9-Inch	SY	438.000	438.000
0024	415.0410	Concrete Pavement Approach Slab	SY	160.000	160.000
0026	416.0620	Drilled Dowel Bars	EACH	76.000	76.000
0028	465.0105	Asphaltic Surface	TON	4.000	4.000
0030	502.0100	Concrete Masonry Bridges	CY	14.000	14.000
0032	502.0717.S	Crack Sealing Epoxy	LF	175.000	175.000
0034	502.3100	Expansion Device (structure) 01. B-32-77	LS	1.000	1.000
0036	502.3200	Protective Surface Treatment	SY	3,491.000	3,491.000
0038	502.3210	Pigmented Surface Sealer	SY	542.000	542.000
0040	502.4204	Adhesive Anchors No. 4 Bar	EACH	40.000	40.000
0042	502.4205	Adhesive Anchors No. 5 Bar	EACH	139.000	139.000
0044	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	5,810.000	5,810.000
0046	505.0905	Bar Couplers No. 5	EACH	6.000	6.000
0048	505.0906	Bar Couplers No. 6	EACH	16.000	16.000
0050	506.6000	Bearing Assemblies Expansion (structure) 01. B-32-77	EACH	14.000	14.000
0052	506.7050.S	Removing Bearings (structure) 01. B-32-77	EACH	14.000	14.000
0054	509.0301	Preparation Decks Type 1	SY	40.000	40.000
0056	509.0302	Preparation Decks Type 2	SY	20.000	20.000
0058	509.0400.S	Cleaning Concrete Surfaces	SY	886.000	886.000
0060	509.0500	Cleaning Decks	SY	3,491.000	3,491.000
0062	509.1000	Joint Repair	SY	53.000	53.000
0064	509.1500	Concrete Surface Repair	SF	15.000	15.000
0066	509.2000	Full-Depth Deck Repair	SY	5.000	5.000
0068	509.2500	Concrete Masonry Overlay Decks	CY	210.000	210.000
0070	509.9025.S	Epoxy Injection Crack Repair	LF	117.000	117.000
0072	509.9026.S	Cored Holes 2-Inch Diameter	EACH	5.000	5.000
0074	511.1100	Temporary Shoring	SF	162.000	162.000
0076	516.0500	Rubberized Membrane Waterproofing	SY	4.000	4.000

Estimate Of Quantities

5429-02-61

Line	Item	Item Description	Unit	Total	Qty
0078	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	189.000	189.000
0080	602.0405	Concrete Sidewalk 4-Inch	SF	658.000	658.000
0082	603.8000	Concrete Barrier Temporary Precast Delivered	LF	1,100.000	1,100.000
0084	603.8125	Concrete Barrier Temporary Precast Installed	LF	3,300.000	3,300.000
0086	606.0300	Riprap Heavy	CY	41.000	41.000
0088	619.1000	Mobilization	EACH	1.000	1.000
0090	624.0100	Water	MGAL	1.000	1.000
0092	625.0500	Salvaged Topsoil	SY	506.000	506.000
0094	628.1504	Silt Fence	LF	389.000	389.000
0096	628.1520	Silt Fence Maintenance	LF	389.000	389.000
0098	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0100	628.1910	Mobilizations Emergency Erosion Control	EACH	1.000	1.000
0102	628.2006	Erosion Mat Urban Class I Type A	SY	506.000	506.000
0104	628.7015	Inlet Protection Type C	EACH	5.000	5.000
0106	629.0210	Fertilizer Type B	CWT	0.400	0.400
0108	630.0140	Seeding Mixture No. 40	LB	9.100	9.100
0110	630.0200	Seeding Temporary	LB	4.500	4.500
0112	638.2101	Moving Signs Type I	EACH	3.000	3.000
0114	638.4000	Moving Small Sign Supports	EACH	1.000	1.000
0116	642.5001	Field Office Type B	EACH	1.000	1.000
0118	643.0300	Traffic Control Drums	DAY	4,325.000	4,325.000
0120	643.0410	Traffic Control Barricades Type II	DAY	370.000	370.000
0122	643.0420	Traffic Control Barricades Type III	DAY	210.000	210.000
0124	643.0500	Traffic Control Flexible Tubular Marker Posts	EACH	96.000	96.000
0126	643.0600	Traffic Control Flexible Tubular Marker Bases	EACH	96.000	96.000
0128	643.0715	Traffic Control Warning Lights Type C	DAY	2,010.000	2,010.000
0130	643.0800	Traffic Control Arrow Boards	DAY	85.000	85.000
0132	643.0900	Traffic Control Signs	DAY	1,545.000	1,545.000
0134	643.5000	Traffic Control	EACH	1.000	1.000
0136	644.1601.S	Temporary Curb Ramp	EACH	1.000	1.000
0138	644.1810.S	Temporary Pedestrian Barricade	LF	1,000.000	1,000.000
0140	645.0111	Geotextile Type DF Schedule A	SY	5.000	5.000
0142	645.0120	Geotextile Type HR	SY	62.000	62.000
0144	646.1020	Marking Line Epoxy 4-Inch	LF	7,068.000	7,068.000
0146	646.5020	Marking Arrow Epoxy	EACH	6.000	6.000
0148	646.5220	Marking Symbol Epoxy	EACH	2.000	2.000
0150	646.7020	Marking Diagonal Epoxy 6-Inch	LF	263.000	263.000
0152	646.9000	Marking Removal Line 4-Inch	LF	3,786.000	3,786.000
0154	649.0105	Temporary Marking Line Paint 4-Inch	LF	1,612.000	1,612.000
0156	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	4,846.000	4,846.000

Estimate Of Quantities

5429-02-61

Line	Item	Item Description	Unit	Total	Qty
0158	650.7000	Construction Staking Concrete Pavement	LF	80.000	80.000
0160	650.9910	Construction Staking Supplemental Control (project) 01. 5429-01-61	LS	1.000	1.000
0162	652.0125	Conduit Rigid Metallic 2-Inch	LF	3.000	3.000
0164	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	20.000	20.000
0166	690.0250	Sawing Concrete	LF	106.000	106.000
0168	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0170	715.0502	Incentive Strength Concrete Structures	DOL	1,344.000	1,344.000
0172	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0174	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000
0176	SPV.0035	Special 01. Cement Slurry Mixture	CY	4.000	4.000
0178	SPV.0035	Special 02. Scour Repair Grout	CY	2.000	2.000
0180	SPV.0035	Special 03. Scour Repair Grout Bags	CY	157.000	157.000
0182	SPV.0035	Special 04. Scour Repair Grout Mats 4-inch	CY	125.000	125.000
0184	SPV.0060	Special 01. Embedded Galvanic Anodes	EACH	32.000	32.000
0186	SPV.0060	Special 02. Cleaning and Painting Brackets and Hangers	EACH	34.000	34.000
0188	SPV.0060	Special 03. Adjusting Watermain Valve Boxes	EACH	6.000	6.000
0190	SPV.0060	Special 04. Adjusting Floor Drain and Downspout Repair	EACH	8.000	8.000
0192	SPV.0060	Special 05. Marking Yield Line Epoxy 36-Inch	EACH	4.000	4.000
0194	SPV.0090	Special 01. Repairing Fence Chain Link 4-FT	LF	216.000	216.000
0196	SPV.0090	Special 02. Pipe Underdrain Wrapped 6-Inch Special	LF	24.000	24.000
0198	SPV.0165	Special 01. Geocomposite Drain Board	SF	145.000	145.000
0200	SPV.0165	Special 02. Fiber Wrap Reinforcing Non-Structural	SF	308.000	308.000
0202	SPV.0165	Special 03. Repairing Railing Tubular Type H	SF	85.000	85.000
0204	SPV.0165	Special 04. Anti-Graffiti Coating	SF	3,054.000	3,054.000
0206	SPV.0165	Special 05. Waterline Insulation and Jacketing Repair	SF	14.000	14.000

REMOVING PAVEMENT

204.0100						
CAT	STA	TO	STA	LOCATION	SY	REMARKS
0010	32+91	-	33+31	WEST APPROACH	214	PAVEMENT
0010	33+31	-	33+46	WEST APPROACH	86	APPROACH SLAB
0010	39+42	-	39+57	EAST APPROACH	86	APPROACH SLAB
0010	39+57	-	39+97	EAST APPROACH	214	PAVEMENT
PROJECT TOTAL=					600	

CURB & GUTTER SUMMARY

						CONCRETE CURB & GUTTER 30-INCH TYPE A 204.0150 601.0409
CAT	STA	TO	STA	LOCATION	LF	LF
0010	32+91	-	33+46	RT	55	55
0010	32+91	-	33+31	LT	40	40
0010	39+57	-	39+97	LT	39	39
0010	39+42	-	39+97	RT	55	55
PROJECT TOTALS=					189	189

REMOVING CONCRETE SIDEWALK

204.0155						
CAT	STA	TO	STA	LOCATION	SY	
0010	32+91	-	33+46	WEST APPROACH	43	
0010	39+42	-	39+97	EAST APPROACH	43	
PROJECT TOTAL=					86	

EXCAVATION COMMON

205.0100						
CAT	STA	TO	STA	LOCATION	CY	
0010	32+91	-	33+17	WEST APPROACH	1.3	
0010	39+65	-	39+97	EAST APPROACH	1.9	
PROJECT TOTALS=					3.2	

REMOVING PARAPET RAIL SIGN BRACKET

204.9060.S						
CAT	STA.	LOCATION	DESCRIPTION	EACH	REMARKS	
0030	39+61	LT	SOUTH PARAPET	1		
PROJECT TOTALS=				1		

BASE AGGREGATE DENSE 1 1/4-INCH

305.0120						
CAT	STA	TO	STA	LOCATION	TON	REMARKS
0010	32+91	-	33+31	WEST APPROACH	34	PAVEMENT
0010	39+57	-	39+98	EAST APPROACH	34	PAVEMENT
PROJECT TOTALS=					68	

FINISHING ROADWAY (PROJECT) 01.5429-02-61

213.0100						
CAT	STA	TO	STA	LOCATION	EACH	
0010	32+91	-	39+97	PROJECT	1	
PROJECT TOTALS=					1	

WATER

624.0100						
CAT	STA	TO	STA	LOCATION	MGAL	
0010	32+91	-	33+31	WEST APPROACH	0.5	
0010	39+57	-	39+98	EAST APPROACH	0.5	
PROJECT TOTALS=					1.0	

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

CONCRETE PAVEMENT SUMMARY

					DRILLED DOWEL BARS 416.0620 EACH	CONCRETE PAVEMENT 9-INCH 415.0090 SY	CONCRETE PAVEMENT APPROACH SLAB 415.0410 SY
CAT	STA	TO	STA	LOCATION			
0010	32+91	-	33+46	WEST APPROACH	-	219	-
0010	39+57	-	39+97	EAST APPROACH	-	219	-
0010	32+91		-	WEST APPROACH	38	-	-
0010	39+97		-	EAST APPROACH	38	-	-
0010	33+31	-	33+46	WEST APPROACH	-	-	80
0010	39+42	-	39+57	EAST APPROACH	-	-	80
PROJECT TOTALS=					76	438	160

SIDEWALK/TERRACE SUMMARY

					ASPHALTIC SURFACE 465.0105 TON	CONCRETE SIDEWALK 4-INCH 602.0405 SF
CAT	STA	TO	STA	LOCATION		
0010	32+91		33+46	WEST APPROACH	-	278
0010	39+42		39+97	EAST APPROACH	-	380
0010	32+91	-	33+17	WEST APPROACH	2	-
0010	39+64	-	39+97	EAST APPROACH	2	-
PROJECT TOTAL=					4	658

CONCRETE BARRIER

					CONCRETE BARRIER TEMPORARY PRECAST DELIVERED 603.8000 LF	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED 603.8125 LF
CAT	STA	TO	STA	LOCATION		
0010	32+25	-	42+10	PROJECT	1,100	3,300
PROJECT TOTALS=					1,100	3,300

MOBILIZATION AND FIELD OFFICE SUMMARY

					MOBILIZATION 619.1000 EACH	MOBILIZATIONS EROSION CONTROL 628.1905 EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL 628.1910 EACH	FIELD OFFICE TYPE B 642.5001 EACH
CAT	STA	TO	STA	LOCATION				
0010	32+91	-	39+97	PROJECT	1	4	1	1
PROJECT TOTALS=					1	4	1	1

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

EROSION CONTROL SUMMARY

CAT	STA	TO	STA	LOCATION	SALVAGED	EROSION MAT	INLET	SILT FENCE	SILT FENCE	SEEDING	SEEDING	FERTILIZER		
					TOPSOIL	URBAN CLASS I	PROTECTION		MAINTENANCE	MIXTURE			TEMPORARY	TYPE B
					625.0500	TYPE A	TYPE C			NO. 40				TYPE B
					628.2006	628.7015	628.1504	628.1520	630.0140	630.0200	629.0210			
					SY	SY	EACH	LF	LF	LB	LB	CWT		
0010	39+38	-	40+33	LT	121	121	-	103	103	2.2	-	0.1		
0010	32+69	-	33+67	LT	151	151	-	111	111	2.7	-	0.1		
0010	32+69	-	33+67	RT	150	150	-	110	110	2.7	-	0.1		
0010	40+85	-	-	RT	-	-	1	-	-	-	-	-		
0010	41+36	-	-	RT	-	-	1	-	-	-	-	-		
0010	41+35	-	-	LT	-	-	1	-	-	-	-	-		
0010	29+70	-	-	RT	-	-	1	-	-	-	-	-		
0010	29+70	-	-	LT	-	-	1	-	-	-	-	-		
0010	UNDISTRIBUTED				84	84	-	65	65	1.5	4.5	0.1		
PROJECT TOTALS=					506	506	5	389	389	9.1	4.5	0.4		

PERMANENT SIGNING SUMMARY

CAT	SIGN NO.	STA.	LOCATION	SIGN CODE	DESCRIPTION	SIZE X	MOVING SMALL		REMARKS
							MOVING SIGNS	SIGN	
							TYPE 1	SUPPORTS	
							638.2101	638.4000	
							EACH	EACH	
0010	101	39+61	LT	R9-56	NO FISHING OR DIVING FROM BRIDGE	18 X 24	1	1	
0010	102A	34+44	RT	-	CITY DIRECTIONAL SIGN		1	-	MOUNTED ON STREET LIGHT
0010	102B	38+43	RT	-	CITY DIRECTIONAL SIGN		1	-	MOUNTED ON STREET LIGHT
PROJECT TOTALS=							3	1	

TRAFFIC CONTROL SUMMARY

CATEGORY	LOCATION	STAGE	LENGTH (DAYS)	TRAFFIC CONTROL								REMARKS
				TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	
				DRUMS	BARRICADES	BARRICADES	TUBULAR MARKER	FLEXIBLE TUBULAR	WARNING LIGHTS	ARROW BOARDS	TRAFFIC CONTROL	
				643.0300	643.0410	643.0420	643.0500	643.0600	643.0715	643.0800	643.0900	
				DAY	DAY	DAY	EACH	EACH	DAY	DAY	DAY	
0010	PROJECT	1	40	1,880	160	120	33	33	1,080	40	720	
0010	PROJECT	2	30	1,560	120	90	33	33	810	30	540	
0010	PROJECT	3	15	885	90	-	30	30	120	15	285	
PROJECT TOTALS=			85	4,325	370	210	96	96	2,010	85	1,545	

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

TEMPORARY PEDESTRIAN ITEMS

CAT	STA	TO	STA	LOCATION	TEMPORARY	TEMPORARY	REMARKS
					CURB RAMP 644.1601.S	PEDESTRIAN BARRICADE 644.1810.S	
					EACH	LF	
0010	-	-	-	EAST OF HARDEES DRIVE	1	-	STAGE 3
	32+25	-	41+25	BRIDGE	-	1,000	STAGE 2
PROJECT TOTALS=					1	1,000	

PERMANENT PAVEMENT MARKING SUMMARY

CAT	STA	TO	STA	LOCATION	MARKING					REMARKS
					MARKING LINE EPOXY 4-INCH 646.1020	MARKING ARROW EPOXY 646.5020	MARKING SYMBOL EPOXY 646.5520	DIAGONAL EPOXY 6-INCH 646.7020	MARKING YIELD LINE EPOXY 36-INCH SPV.0060.05	
					LF	EACH	EACH	LF	EACH	
0010	30+50	-	41+50	PROJECT	2,200		-	-	-	RIGHT EDGE LINE, WHITE
0010	30+50	-	42+50	PROJECT	2,400	-	-	-	-	LEFT EDGE LINE, WHITE
0010	30+50	-	42+00	PROJECT	1,974	-	-	-	-	TWLT SOLID, YELLOW
0010	30+50	-	42+00	PROJECT	494	-	-	-	-	TWLT DASHED, YELLOW
0010	30+50	-	41+50	RT	-	-	-	125	-	BIKE LANE DIAGONAL
0010	30+50	-	42+50	LT	-	-	-	137	-	BIKE LANE DIAGONAL
0010	35+45	-	-	LT	-	1	1	-	-	BIKE SYMBOL, ARROW TYPE 1
0010	35+45	-	-	RT	-	1	1	-	-	BIKE SYMBOL, ARROW TYPE 1
0010	34+45	-	-	-	-	2	-	-	-	ARROW TYPE 2
0010	38+42	-	-	-	-	2	-	-	-	ARROW TYPE 2
0010	33+08	-	-	WB LANE	-	-	-	-	4	YIELD TRIANGLE
PROJECT TOTALS=					7,068	6	2	263	4	

PAVEMENT MARKING REMOVAL

CAT	STA	TO	STA	LOCATION	MARKING REMOVAL LINE 4- INCH 646.9000	REMARKS
					LF	
0010	30+50	-	42+50	PROJECT	2,554	STAGE 1
0010	30+50	-	42+50	PROJECT	1,232	STAGE 2
PROJECT TOTALS=					3,786	

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

TEMPORARY PAVEMENT MARKING SUMMARY

CAT	STA	TO	STA	LOCATION	TEMPORARY MARKING LINE PAINT 4-INCH	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH	REMARKS
					649.0105 LF	649.0150 LF	
0010	32+36	-	40+42	PROJECT	1,612	-	STAGE 1, DOUBLE YELLOW CENTERLINE
0010	30+56	-	32+36	WEST APPROACH	-	180	STAGE 1, YELLOW, EASTBOUND TAPER
0010	30+56	-	32+36	WEST APPROACH	-	180	STAGE 1, YELLOW, WESTBOUND TAPER
0010	30+56	-	32+36	WEST APPROACH	-	180	STAGE 1, WHITE, WESTBOUND TAPER
0010	40+42	-	42+22	EAST APPROACH	-	180	STAGE 1, YELLOW, WESTBOUND TAPER
0010	40+42	-	42+22	EAST APPROACH	-	180	STAGE 1, WHITE, WESTBOUND TAPER
0010	40+42	-	42+23	EAST APPROACH	-	180	STAGE 1, WHITE, EASTBOUND TAPER
0010	32+28	-	40+41	PROJECT	-	1,626	STAGE 2, DOUBLE YELLOW, CENTERLINE
0010	30+48	-	32+28	WEST APPROACH	-	180	STAGE 2, WHITE, EASTBOUND TAPER
0010	30+48	-	32+28	WEST APPROACH	-	180	STAGE 2, YELLOW, EASTBOUND TAPER
0010	30+48	-	32+28	WEST APPROACH	-	180	STAGE 2, YELLOW, WESTBOUND TAPER
0010	33+00	-	41+00	PROJECT	-	1,600	STAGE 3, DOUBLE YELLOW, CENTERLINE
PROJECT TOTALS=					1,612	4,846	

CONSTRUCTION STAKING SUMMARY

				CONSTRUCTION STAKING	CONSTRUCTION SUPPLEMENTAL CONTROL (PROJECT)
CAT	STA	TO	STA	CONCRETE PAVEMENT 650.7000 LF	01.5429-02-61 650.9910 LS
0010	32+91	-	33+46	40	-
0010	39+57	-	39+97	40	-
0010	PROJECT			-	1
PROJECT TOTALS=				80	1

SAWING CONCRETE

CAT	STA	TO	STA	LOCATION	690.0250 LF
0010	32+91	-	-	WEST APPROACH	53
0010	39+97	-	-	EAST APPROACH	53
PROJECT TOTAL=					106

ADJUSTING WATERMAIN VALVE BOXES

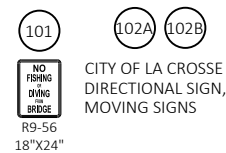
CAT	STA.	LOCATION	SPV.0060.03 EACH
0030	33+48	VARIES	3
0030	39+42	VARIES	3
			6

REPAIRING FENCE CHAIN LINK 4-FT

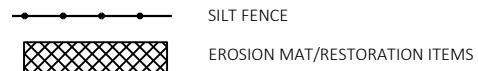
CAT	STA	TO	STA	LOCATION	SPV.0090.01 LF
0010	40+85	-	42+99	RT	216
PROJECT TOTAL=					216

ALL ITEMS ARE CAT 0010 UNLESS NOTED OTHERWISE

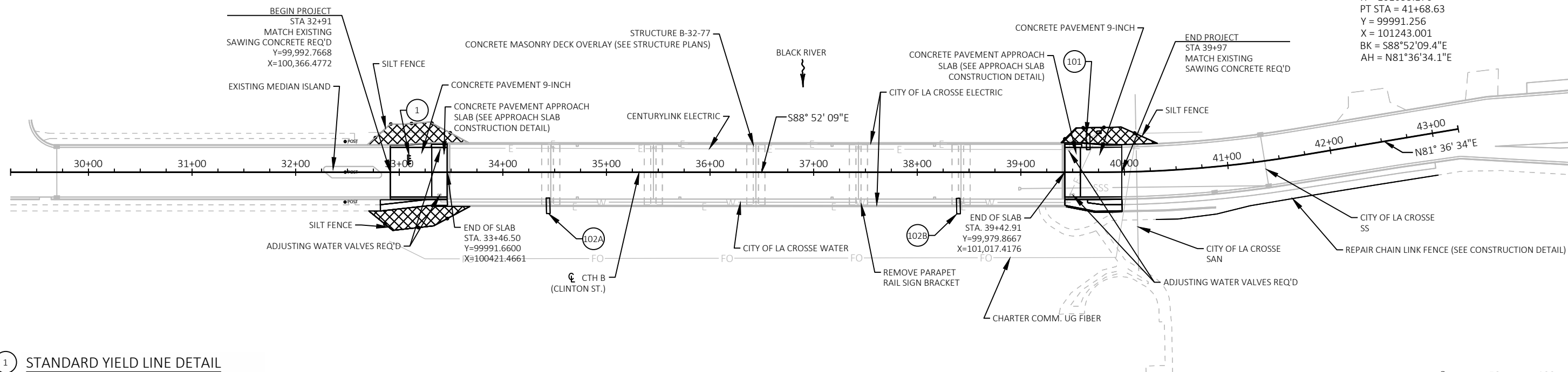
SIGN LEGEND



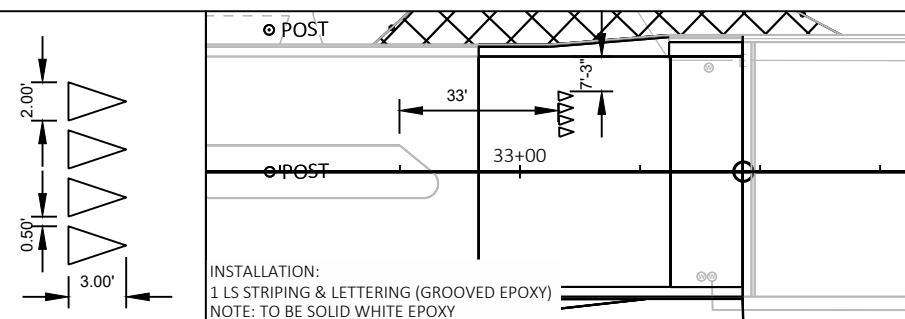
EROSION CONTROL LEGEND



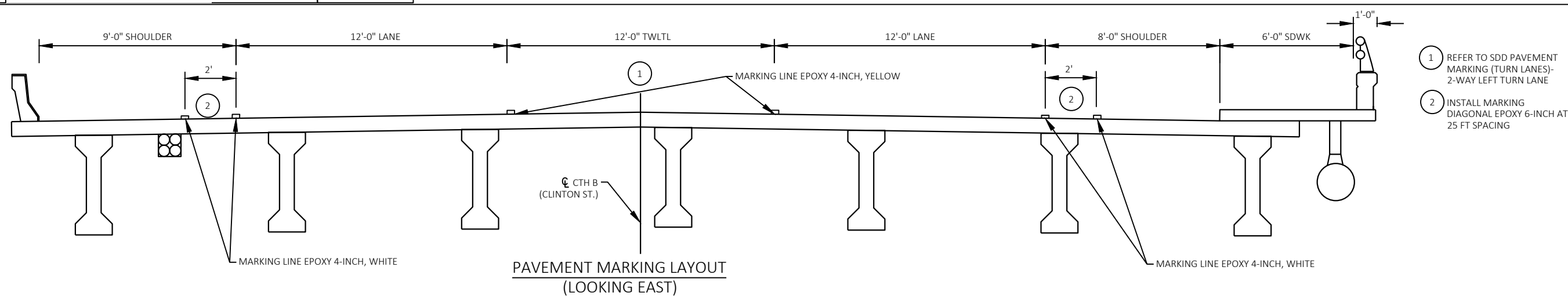
PI STA = 40+73.64
Y = 99977.330
X = 101148.590
DELTA = 9°31'16"
D = 5°00'00"
T = 95.43'
L = 190.43'
R = 1145.92'
PC STA = 39+78.21
Y = 99979.213
X = 101053.176
PT STA = 41+68.63
Y = 99991.256
X = 101243.001
BK = S88°52'09.4"E
AH = N81°36'34.1"E



1 STANDARD YIELD LINE DETAIL



SCALE, FEET 0 50 100



- 1 REFER TO SDD PAVEMENT MARKING (TURN LANES)- 2-WAY LEFT TURN LANE
- 2 INSTALL MARKING DIAGONAL EPOXY 6-INCH AT 25 FT SPACING

PROJECT NO: 5429-02-61

HWY: CTH B

COUNTY: LA CROSSE

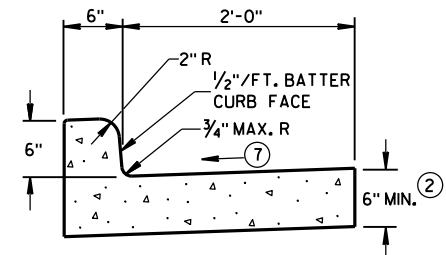
PLAN

SHEET

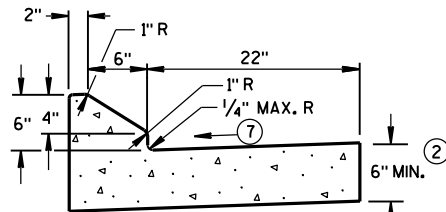
E

Standard Detail Drawing List

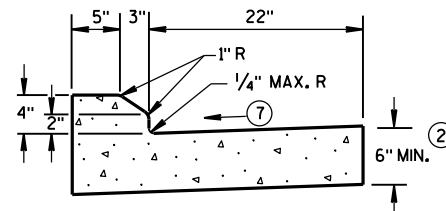
08D01-20A	CONCRETE CURB & GUTTER
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13B02-09B	STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB
13C13-09	URBAN DOWELED CONCRETE PAVEMENT
13C18-07A	CONCRETE PAVEMENT JOINTING
13C18-07C	CONCRETE PAVEMENT JOINT TYPES
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15E	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15F	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15G	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15H	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15I	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
15A04-04A	FLEXIBLE DELINEATOR POST
15C07-14A	PAVEMENT MARKING SYMBOLS
15C07-14C	PAVEMENT MARKING ARROWS
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C08-19B	PAVEMENT MARKING (TURN LANES)
15C08-19C	PAVEMENT MARKING (TURN LANES)
15C11-07A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D20-04	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D28-03	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D30-04B	TRAFFIC CONTROL, TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION
15D30-04C	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



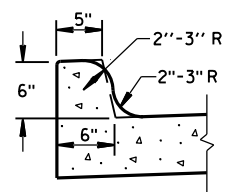
TYPES A^① & D



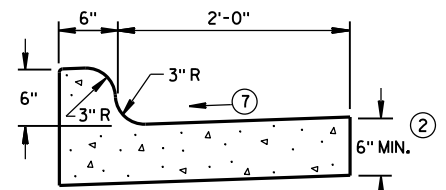
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

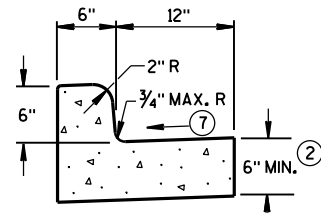


TYPES K^① & L
(OPTIONAL CURB SHAPE)



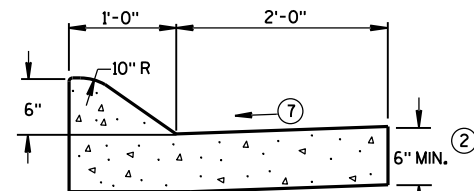
TYPES K^① & L

CONCRETE CURB & GUTTER 30"

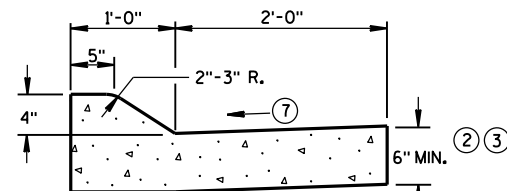


TYPES A^① & D

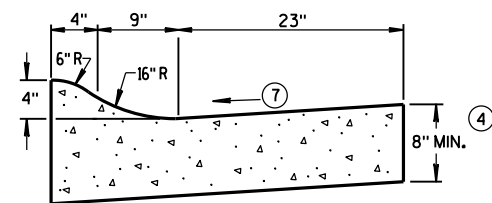
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A^① & D

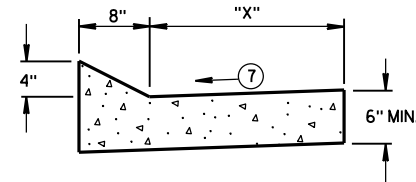


4" SLOPED CURB TYPES A^① & D



4" SLOPED CURB TYPES R^① & T^⑤

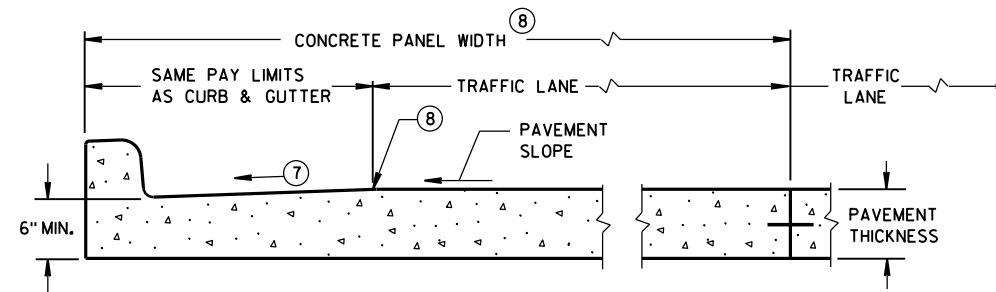
CONCRETE CURB & GUTTER 36"



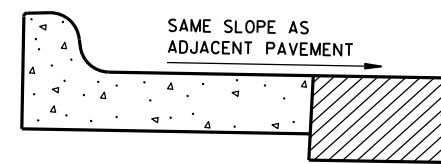
TYPES TBT & TBTT^①

CONCRETE CURB & GUTTER

TBT & TBTT	"X"
30"	22"
36"	28"



PARTIAL SECTION OF PAVEMENT^{*}
WITH INTEGRAL CURB & GUTTER



REVERSE SLOPE GUTTER^⑥
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

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

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'

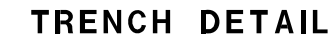
* BIKE LANE IS NOT SHOWN.

CONCRETE CURB & GUTTER

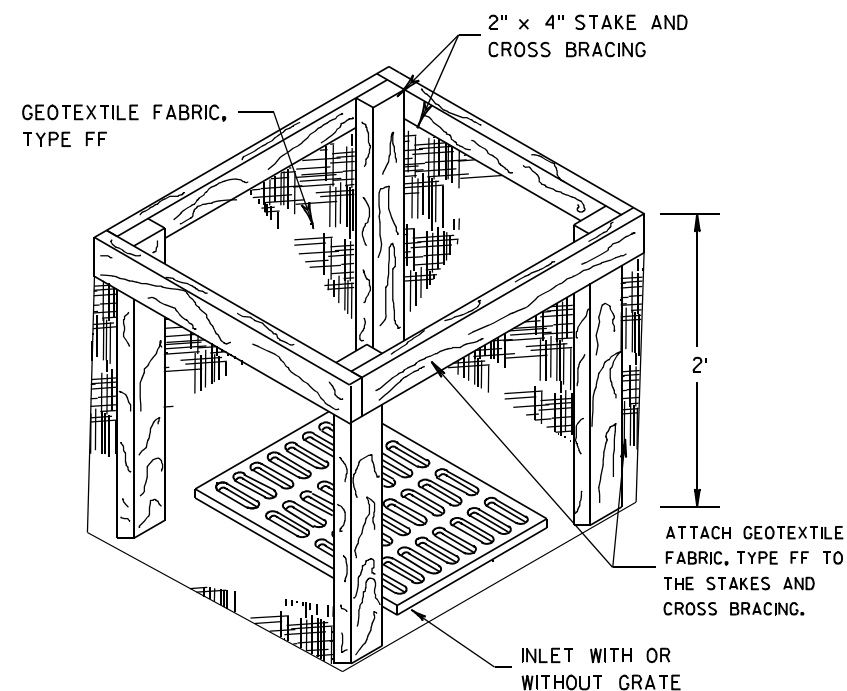
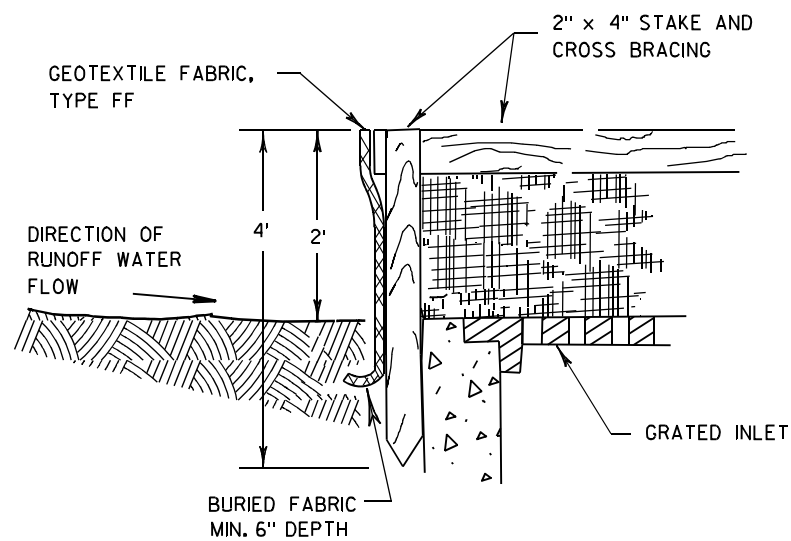
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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



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



INLET PROTECTION, TYPE A

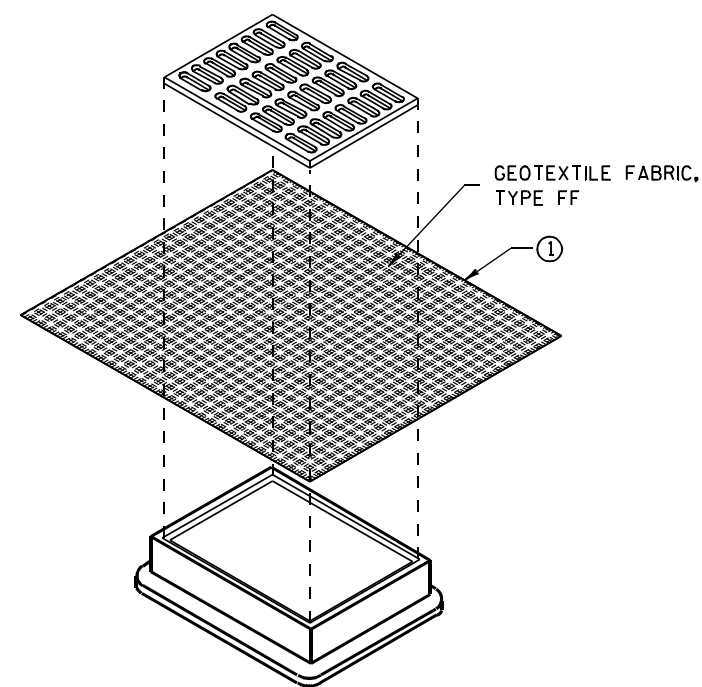
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

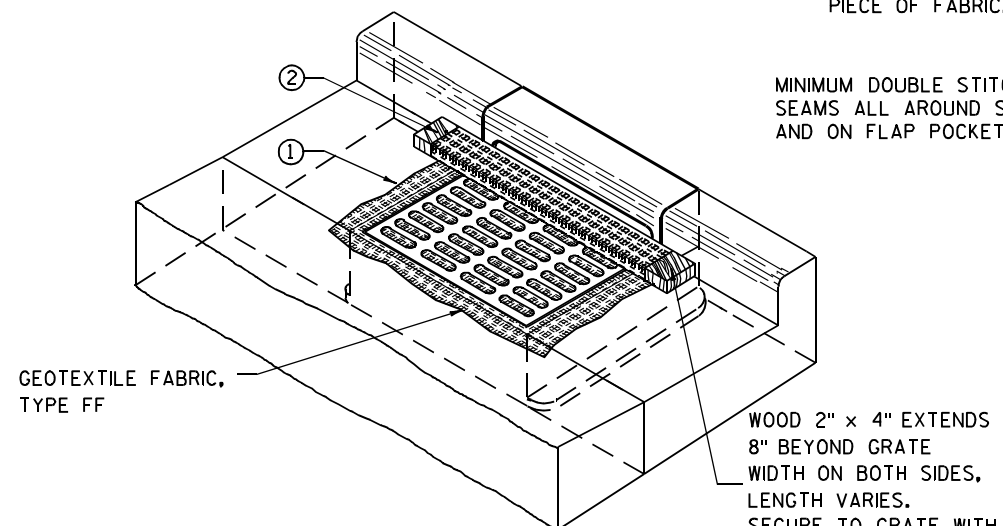
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

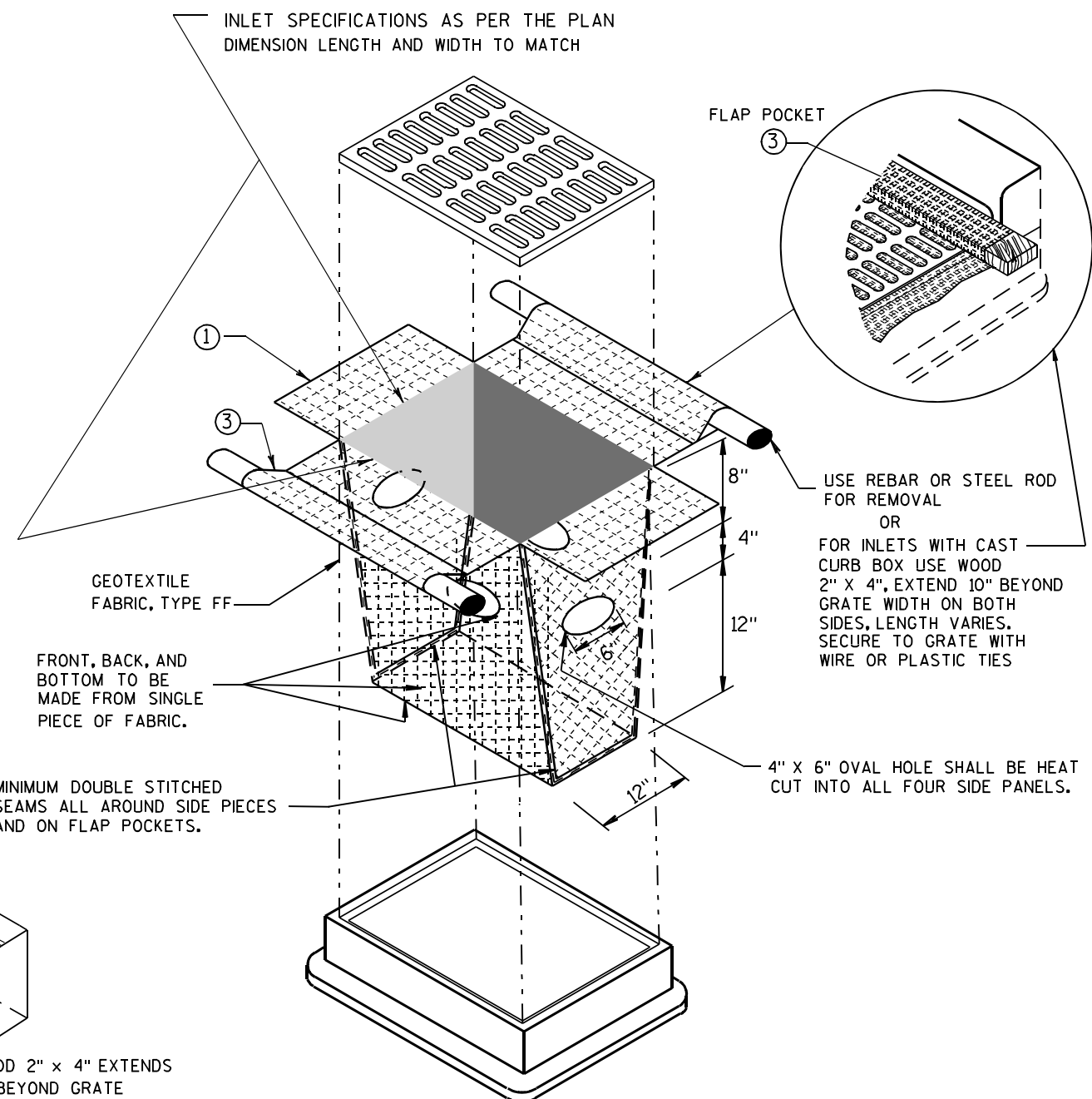
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLower THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

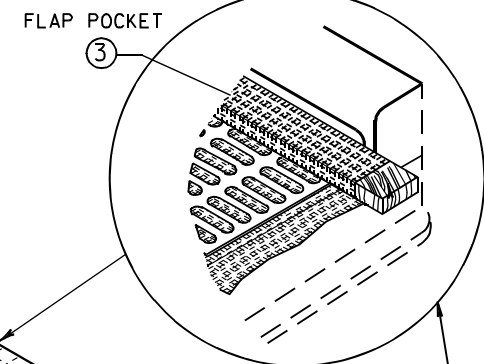
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)



USE REBAR OR STEEL ROD FOR REMOVAL OR
FOR INLETS WITH CAST CURB BOX USE WOOD 2" X 4", EXTEND 10" BEYOND GRATE WIDTH ON BOTH SIDES, LENGTH VARIES. SECURE TO GRATE WITH WIRE OR PLASTIC TIES

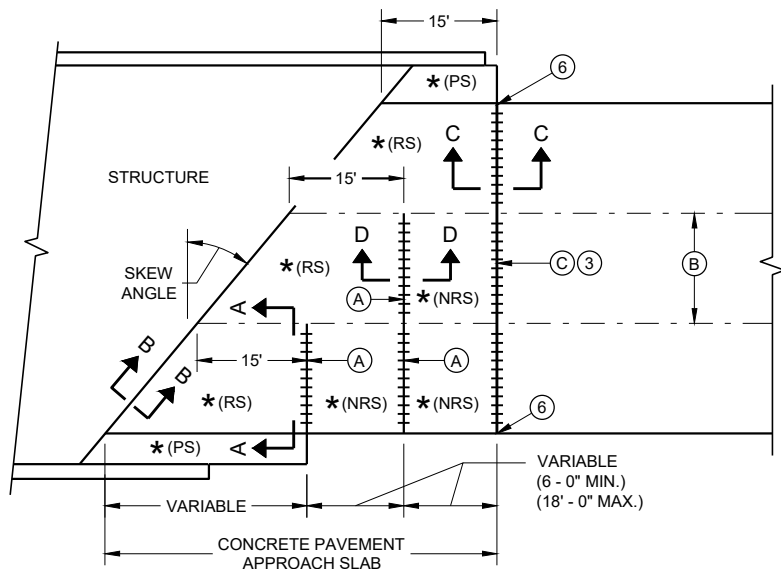
MINIMUM DOUBLE STITCHED SEAMS ALL AROUND SIDE PIECES AND ON FLAP POCKETS.

4" X 6" OVAL HOLE SHALL BE HEAT CUT INTO ALL FOUR SIDE PANELS.

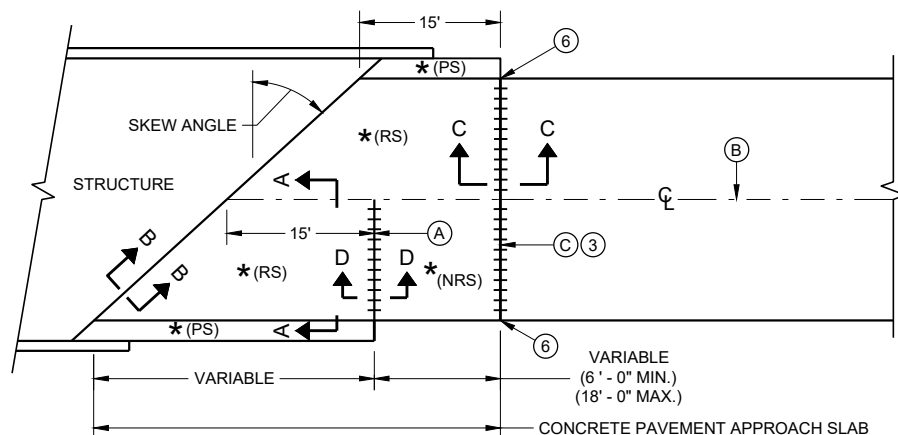
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
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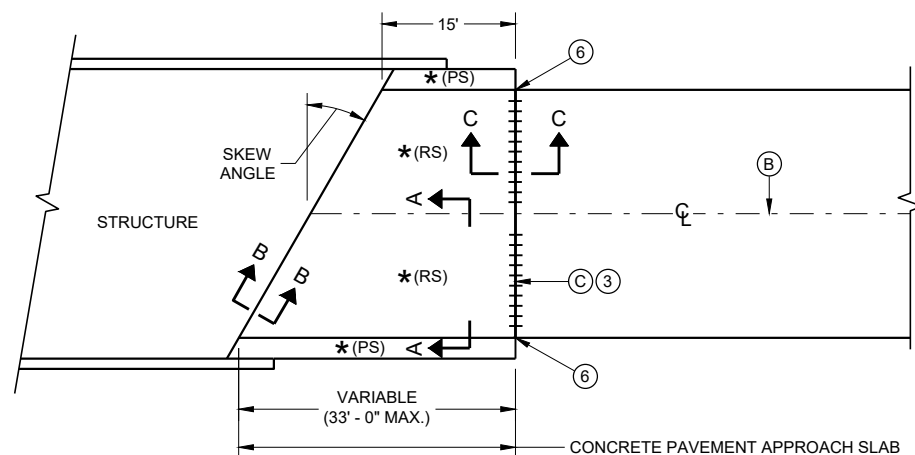
APPROVED
10/16/02 /S/ Beth Cannestra
DATE
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



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

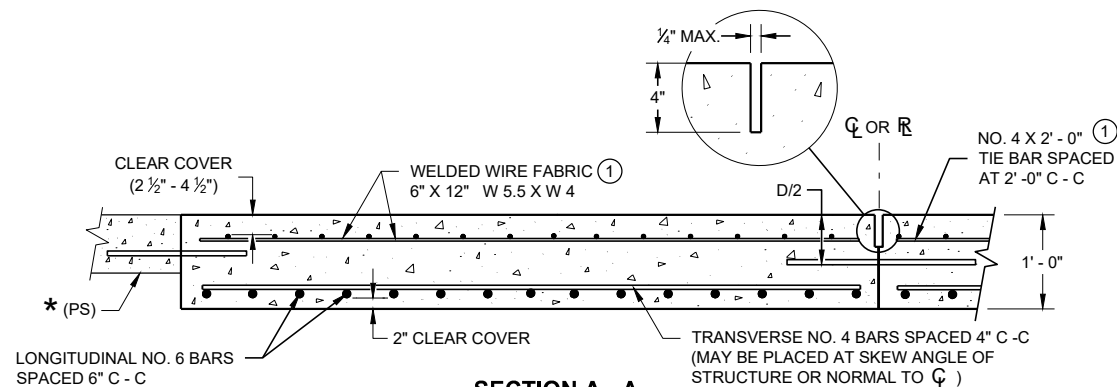


**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**

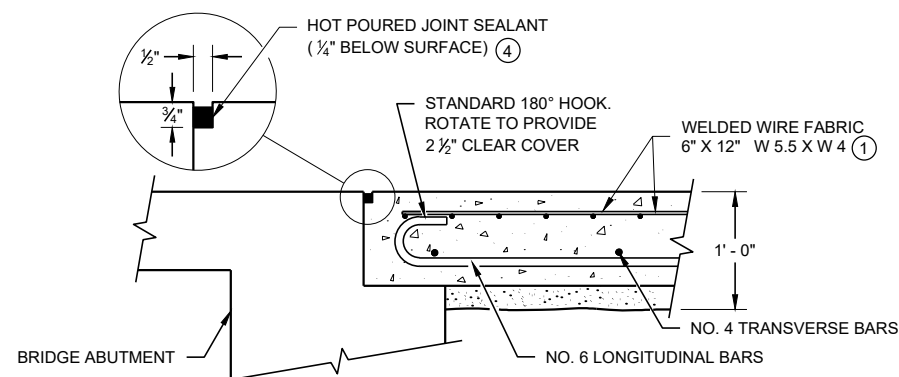


**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**
APPROACH SLAB AND ADJACENT PAVEMENT

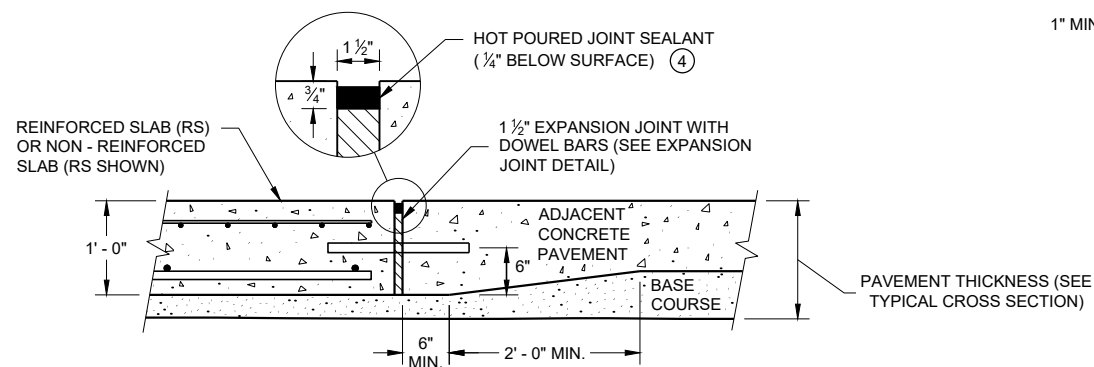
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



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



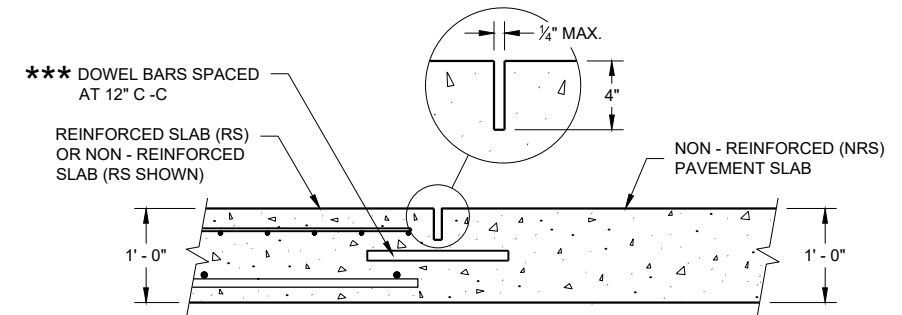
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

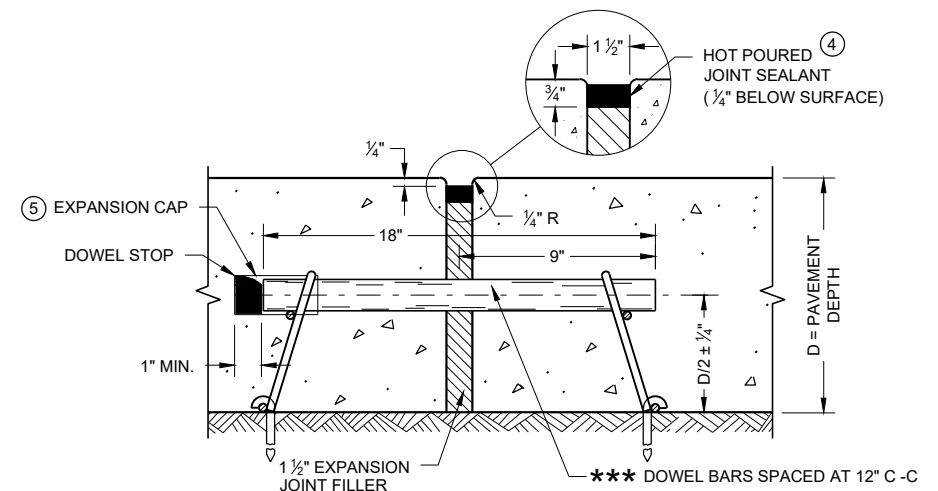
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

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 THE 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.
- ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- (A) STANDARD CONTRACTION JOINT NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.
- (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.



**SECTION D - D
CONTRACTION JOINT**

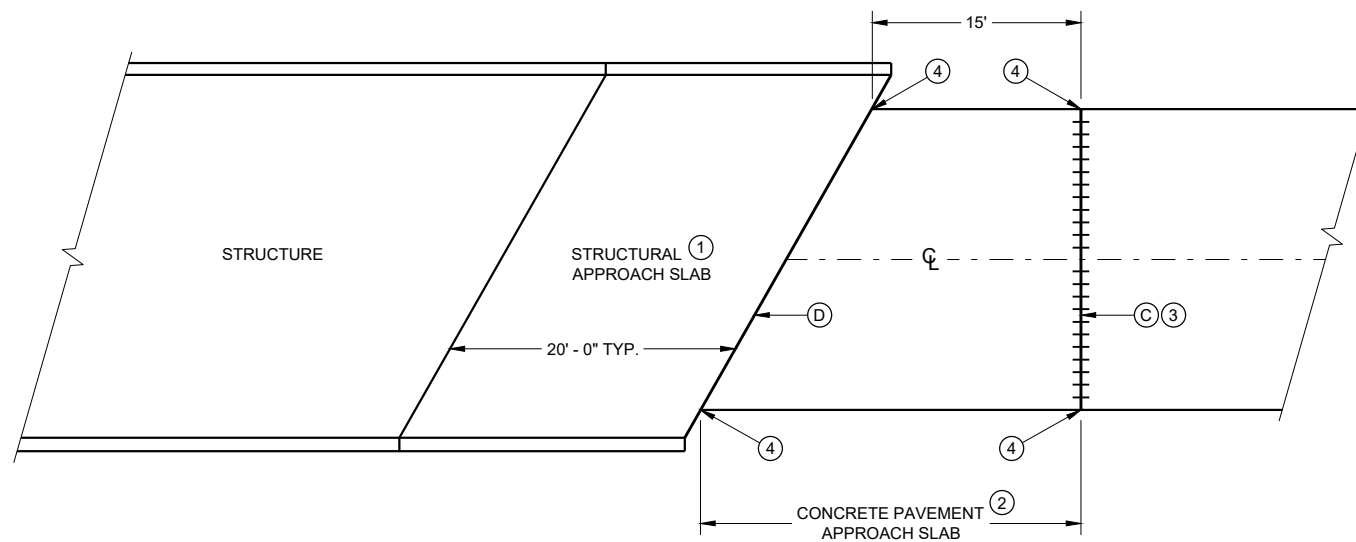


EXPANSION JOINT DETAIL

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DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR

FHWA

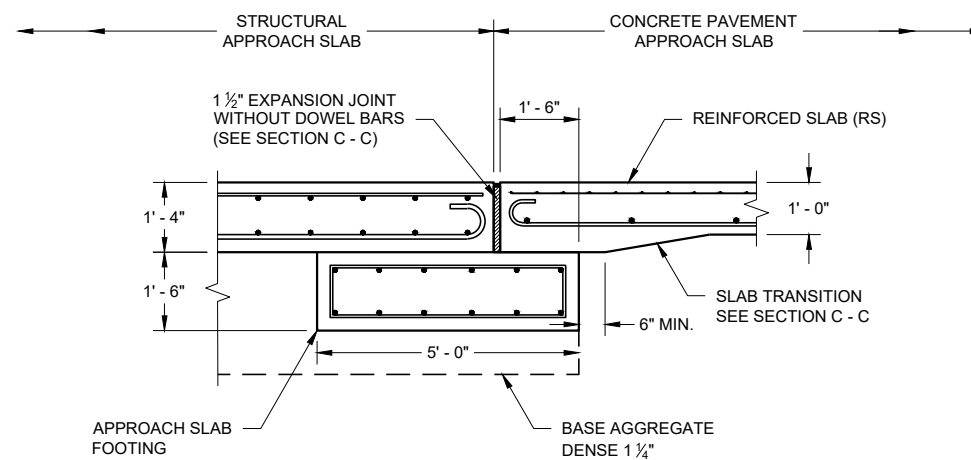


GENERAL NOTES

ALL PROJECTS THAT INVOLVE A STRUCTURAL APPROACH SLAB WILL ALSO HAVE A CONCRETE PAVEMENT APPROACH SLAB.

- ① SEE BRIDGE PLAN.
- ② CONFORM TO SDD 13B02 SHEET A FOR CONCRETE PAVEMENT APPROACH SLAB DETAILS
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- Ⓒ 1 ½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO $\overleftrightarrow{C}$ OR $\overleftrightarrow{R}$.
- Ⓓ 1 ½" EXPANSION JOINT (NO DOWELS)

BRIDGE APPROACHES



SECTION E - E
FOOTING DETAIL
STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH

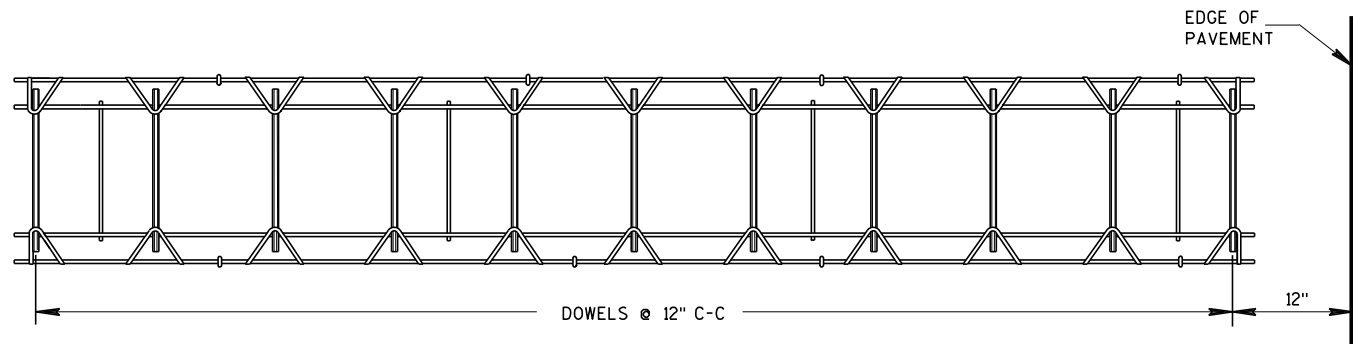
STRUCTURAL APPROACH SLAB

□ □ □ □ □ □ □ □ □ □ □ □ □ □ **M** □ □ □ □
□ □ □ □ □ □ □ □ □ □ □ □ □ □

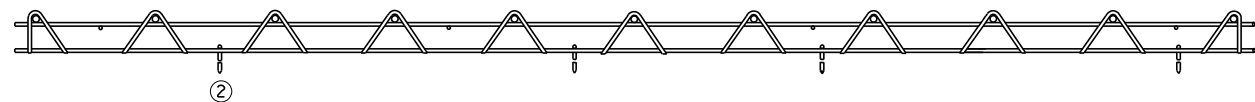
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APPROVED
November 2018 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR

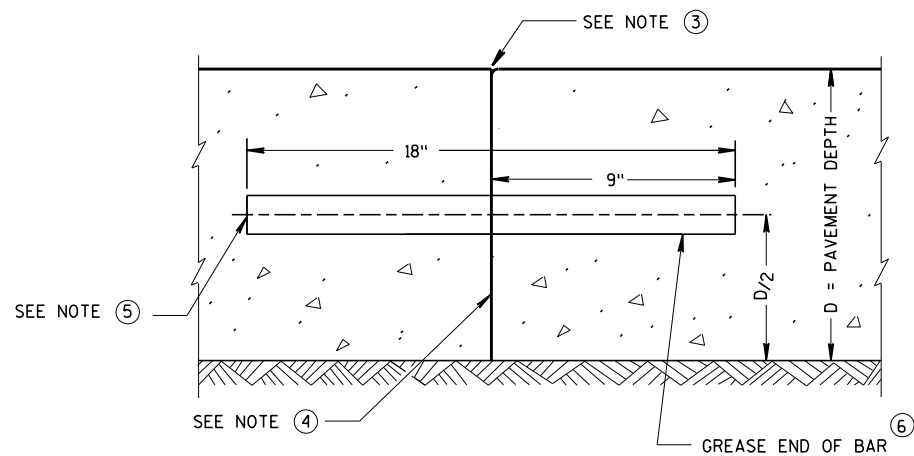
FHWA



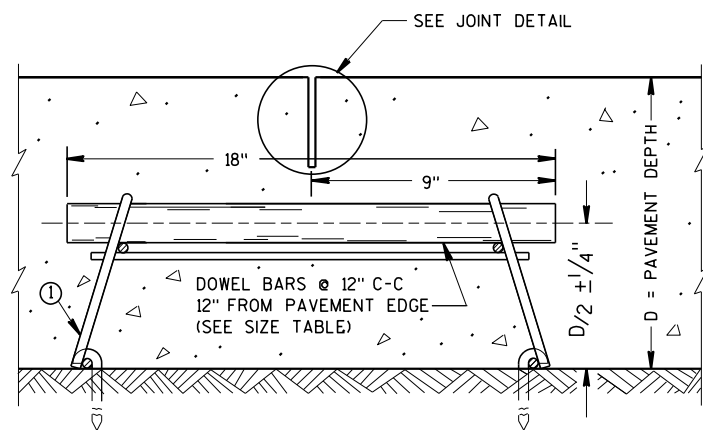
PLAN VIEW



SIDE VIEW
CONTRACTION JOINT DOWEL ASSEMBLY ①



TRANSVERSE CONSTRUCTION JOINT



DOWELED CONTRACTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE
AND JOINT SPACING TABLE

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

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.

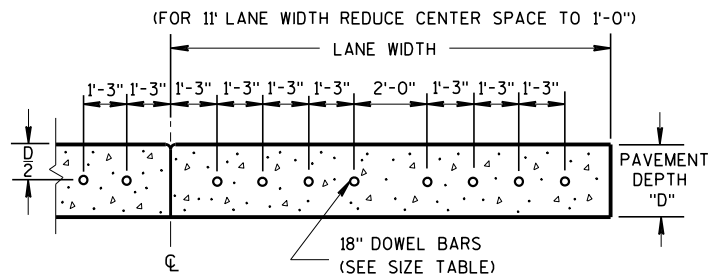
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

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 LONGITUDINAL JOINT AND THE FREE EDGE OF PAVEMENT.

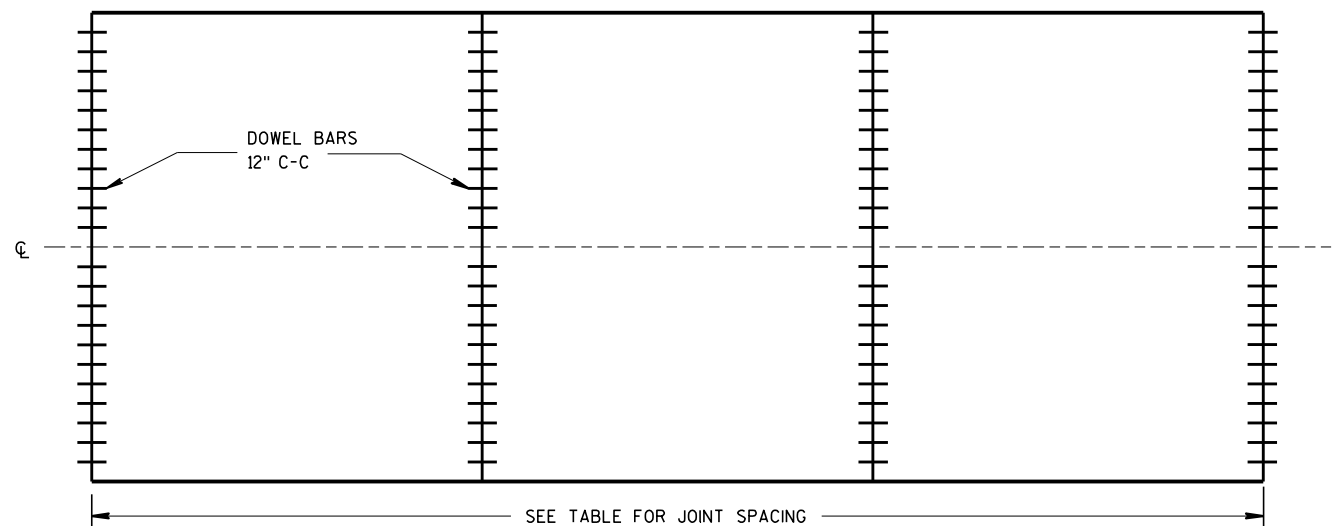
CONSTRUCTION JOINTS

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

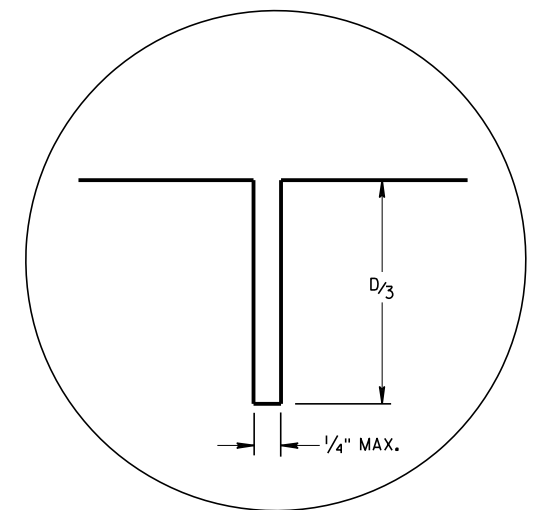
- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND 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.



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



CONTRACTION JOINT LOCATIONS

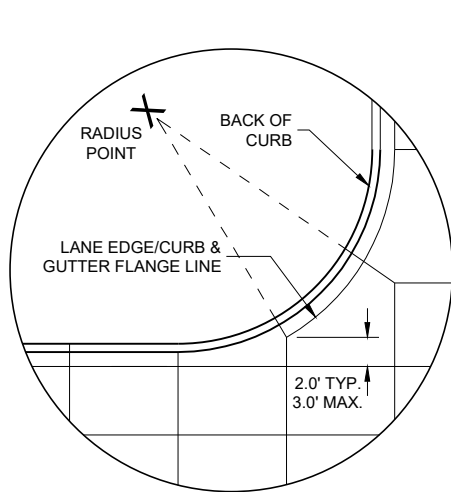


JOINT DETAIL

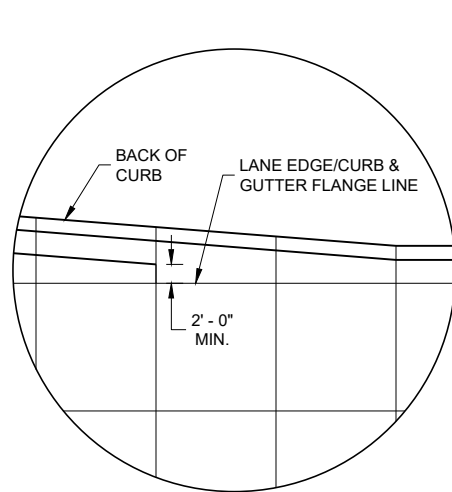
URBAN DOWELED
CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

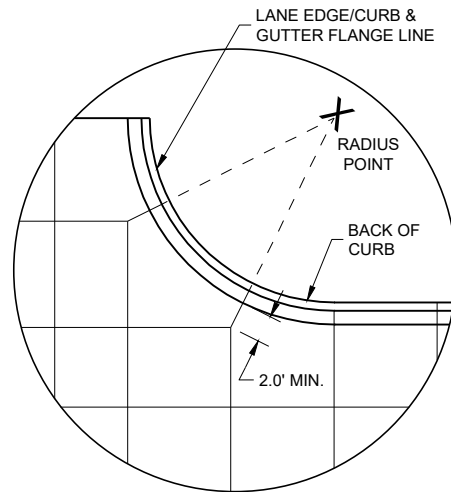
APPROVED
March 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR
FHWA



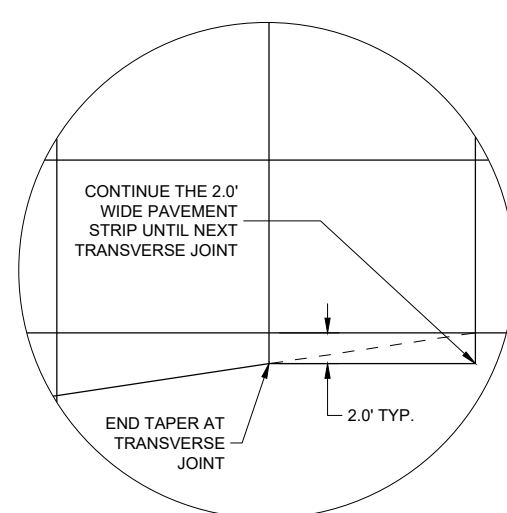
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.

AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.

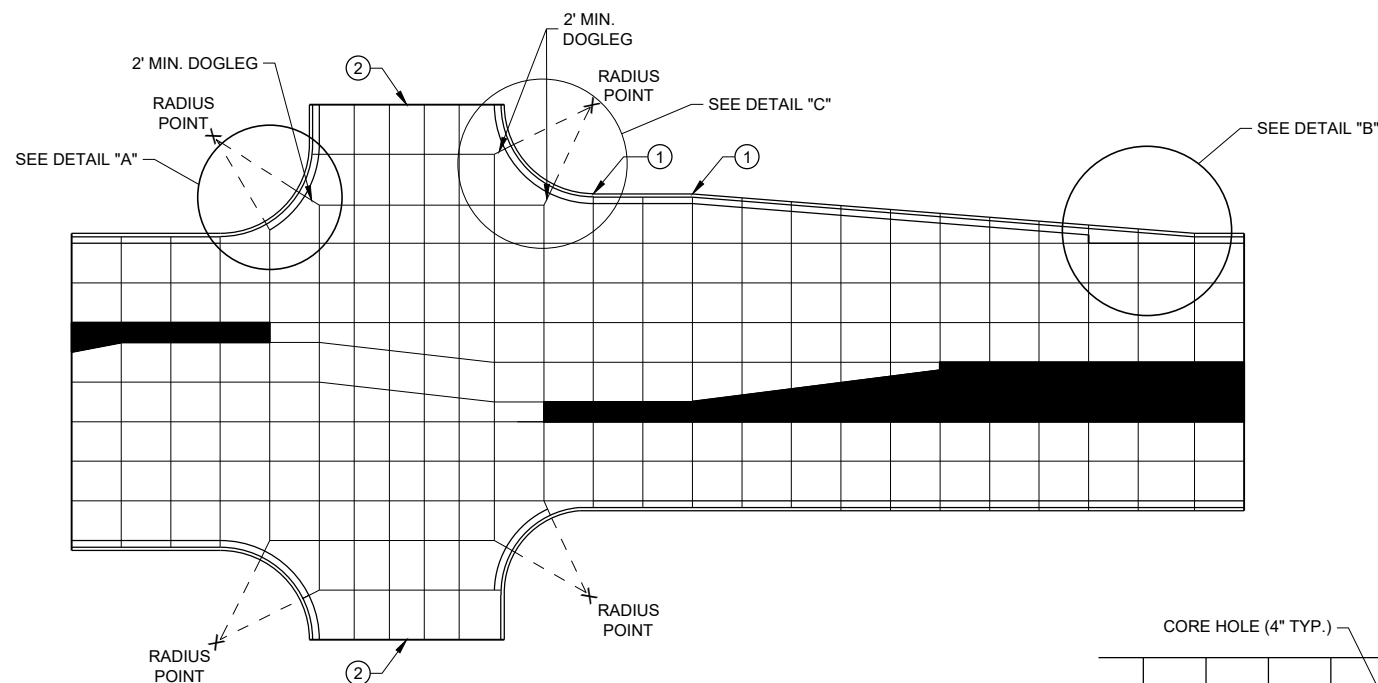
AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

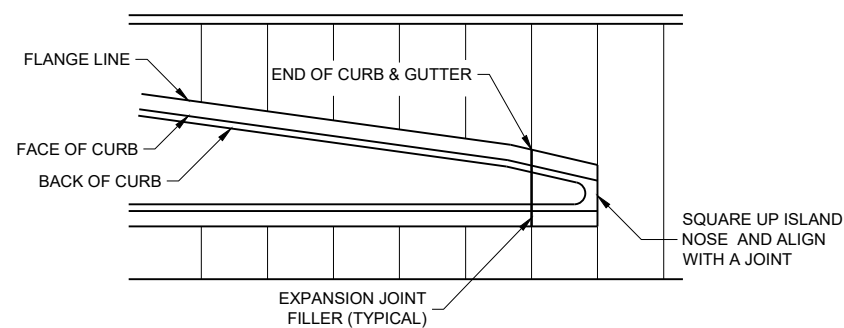
- ① PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
- ② CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
- ③ THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.

PAVEMENT DEPTH AND JOINT SPACING TABLE

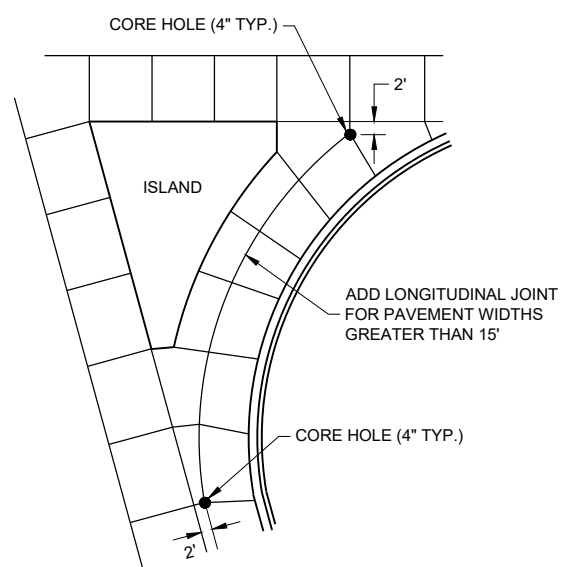
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 ½"	12'
7", 7 ½"	14'
8" & ABOVE	15'



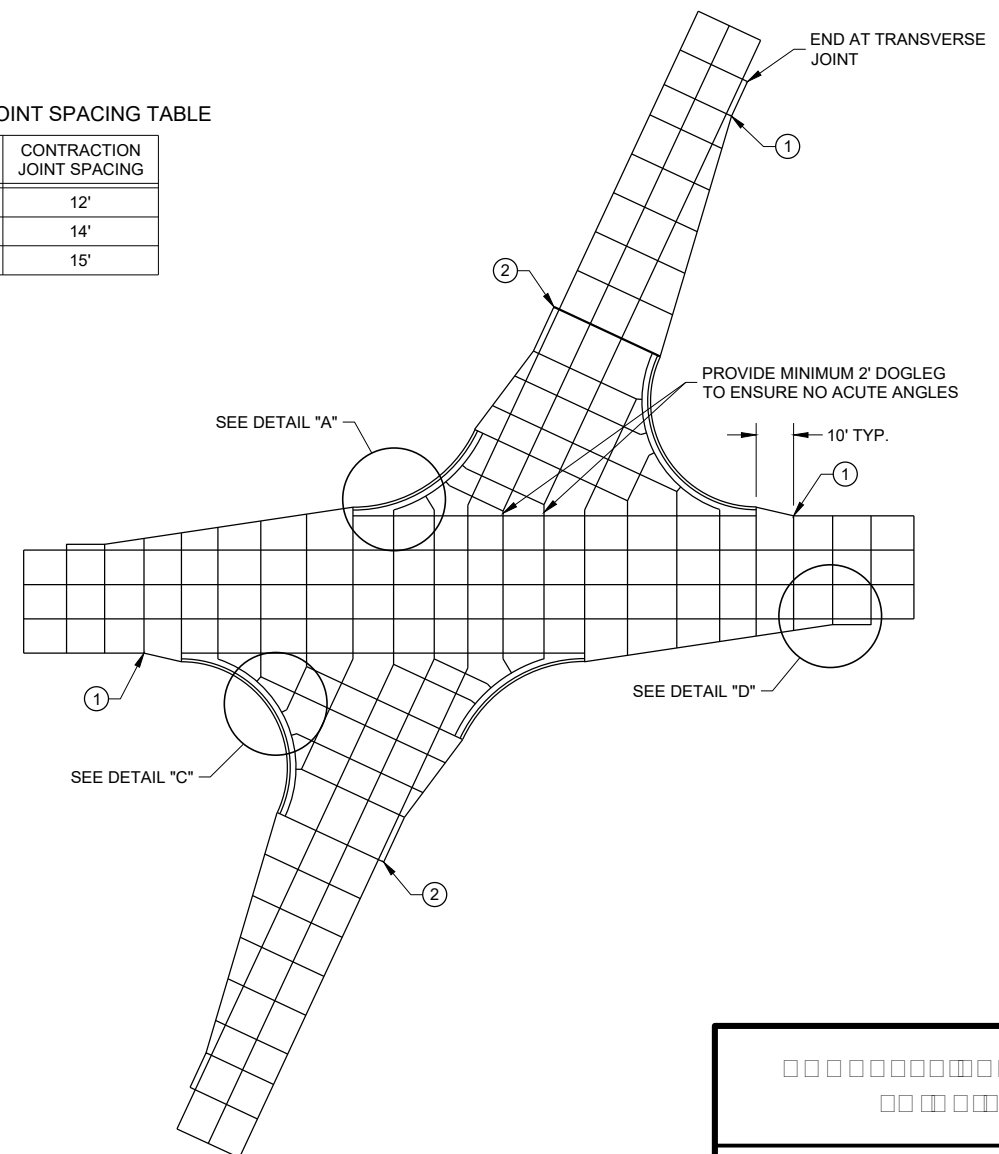
STANDARD INTERSECTION



APPROACH TO MEDIAN

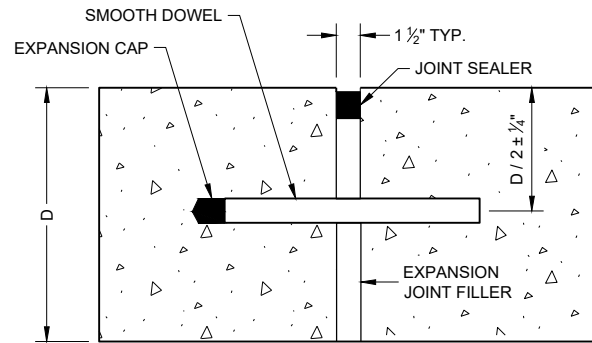


LARGE RIGHT TURN

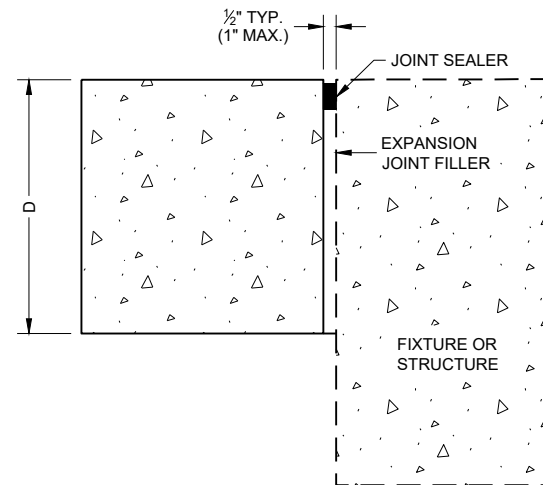


SKewed INTERSECTION

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DOWELED TRANSVERSE ①



UNTIED - LONGITUDINAL

EXPANSION JOINTS

TIE BAR TABLE

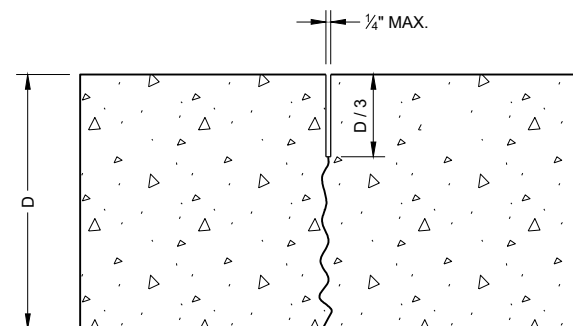
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

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

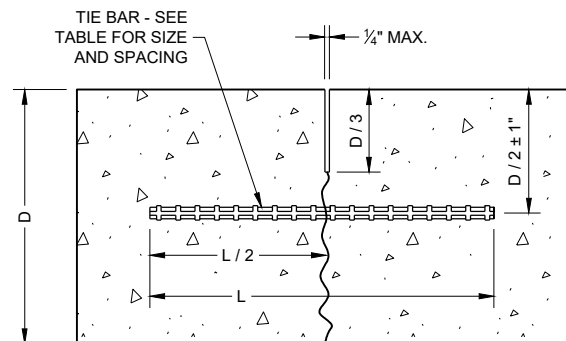
** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

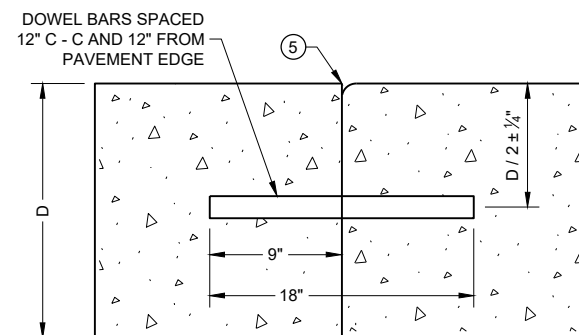
- USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.
- LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
- CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
- IF JOINT IS FORMED, PROVIDE A 1/4" RADIUS.
- ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



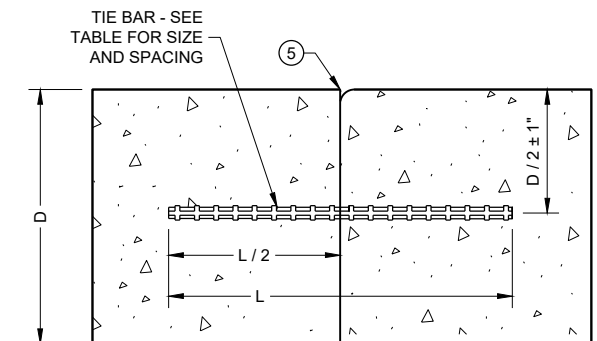
UNDOWELED TRANSVERSE



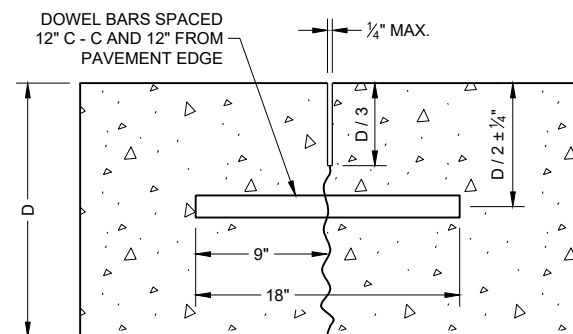
TIED LONGITUDINAL



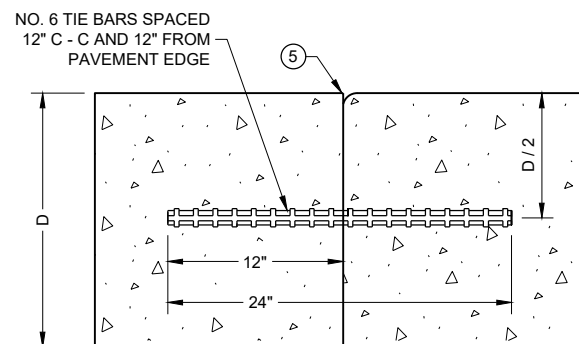
DOWELED TRANSVERSE ③



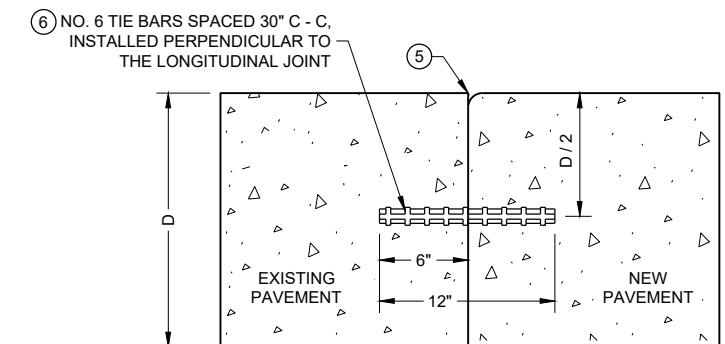
TIED LONGITUDINAL



DOWELED TRANSVERSE



TIED TRANSVERSE ③
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)

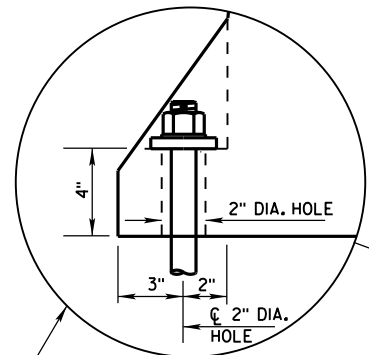


TIED LONGITUDINAL TO EXISTING

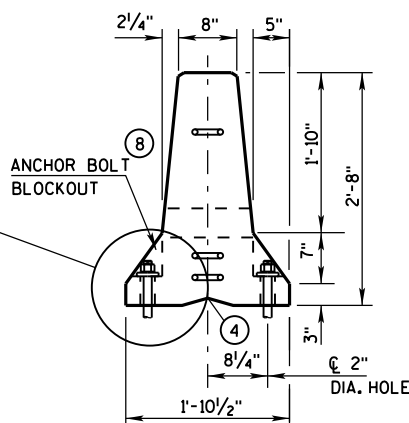
CONTRACTION JOINTS ②

CONSTRUCTION JOINTS ④

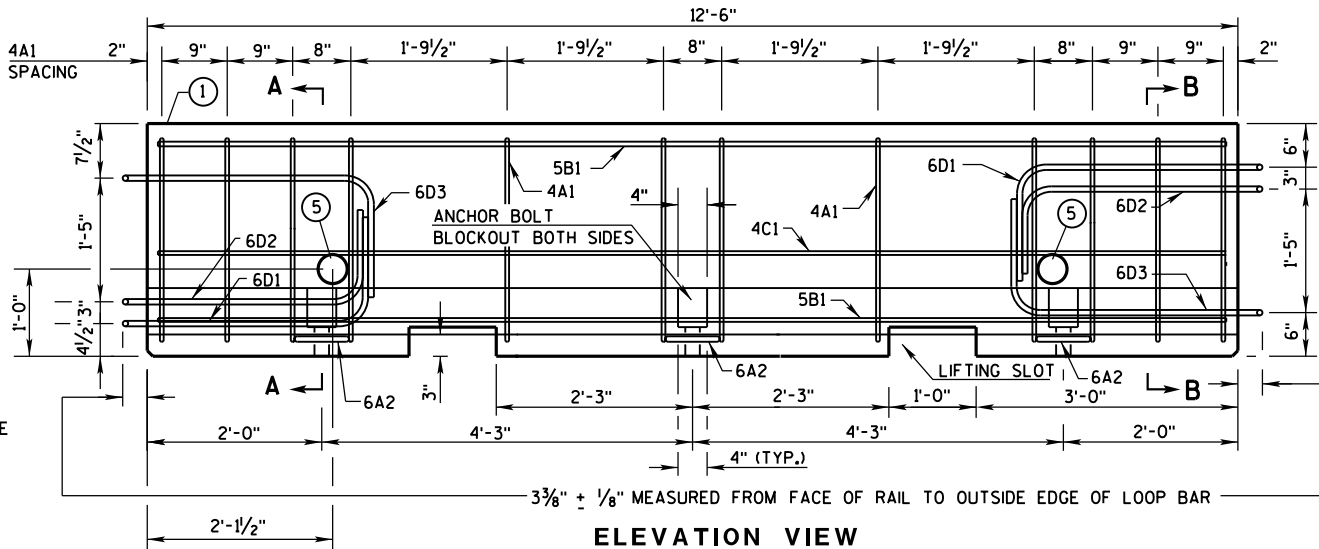
STATE OF WISCONSIN
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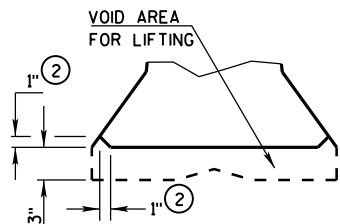
ANCHOR ON TRAFFIC SIDE
ONLY WHEN REQUIRED
(SEE SHEET D FOR ADDITIONAL
ANCHOR DETAIL)



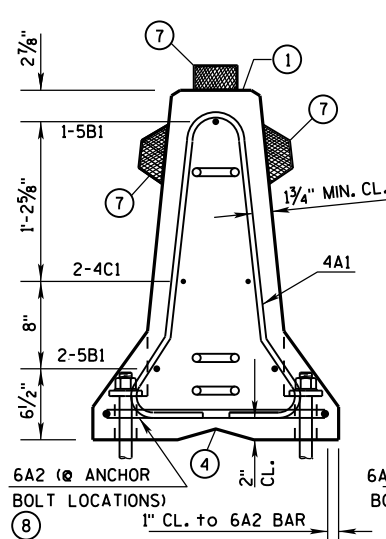
END VIEW



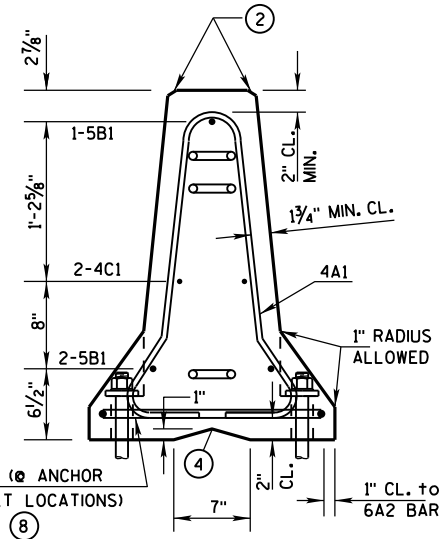
ELEVATION VIEW



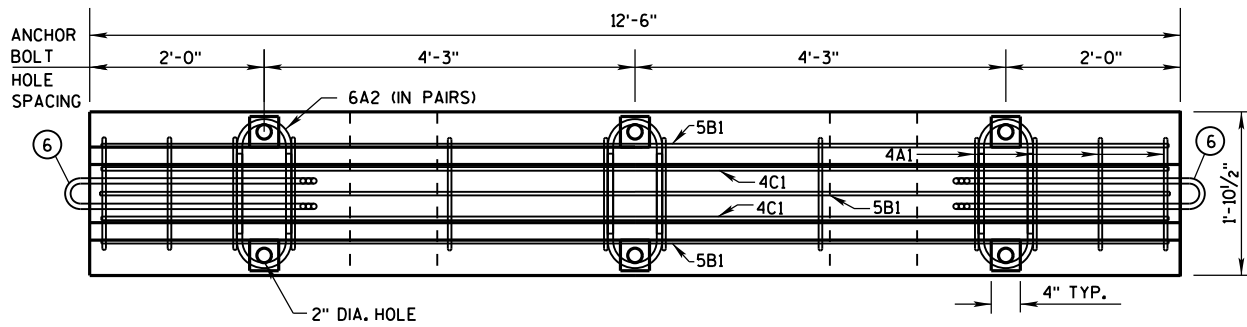
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

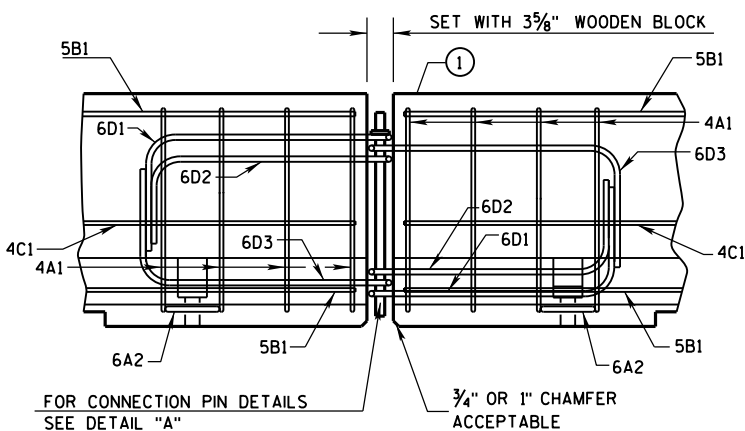


SECTION B-B
(STIRRUP PLACEMENT)

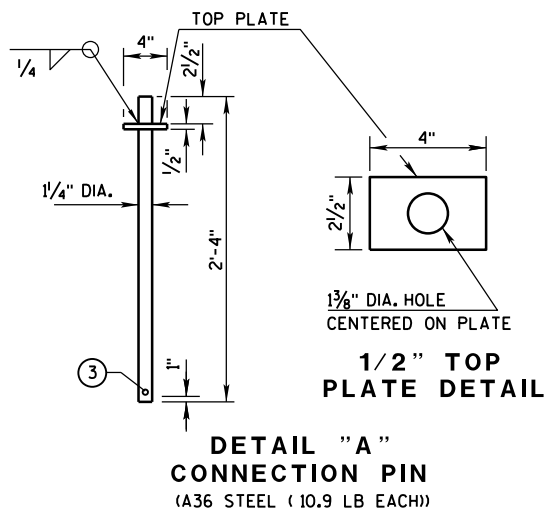


PLAN VIEW

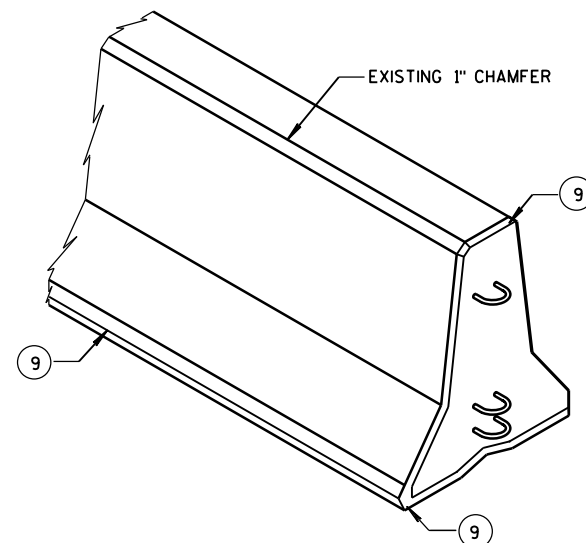
DETAILS OF BARRIER SECTION



DETAILS OF BARRIER CONNECTION



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



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(a) THRU 14B7-15(i).

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

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

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 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.

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

f'c = 4,000 psi

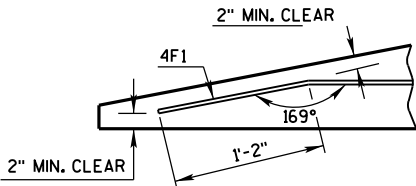
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

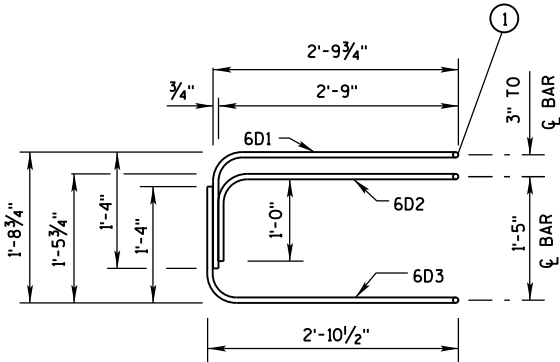
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

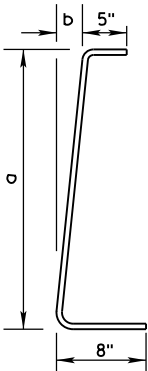
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

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

TAPER BARRIER SECTION

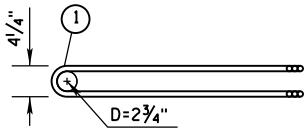
GENERAL NOTES

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

BARRIER SECTION
BILL OF MATERIALS

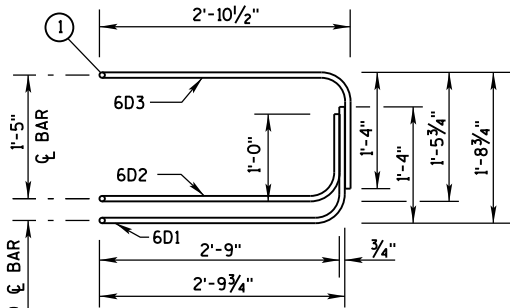
(PER 12'-6" BARRIER SECTION)

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

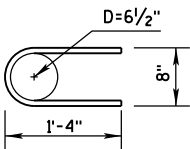


PLAN VIEW
LOOP BAR ASSEMBLY

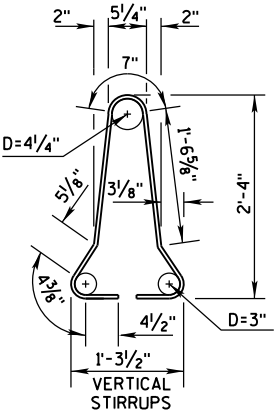
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

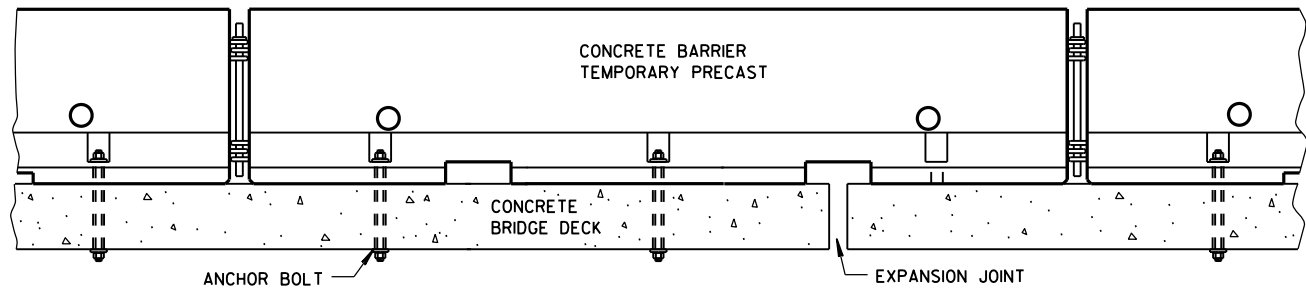
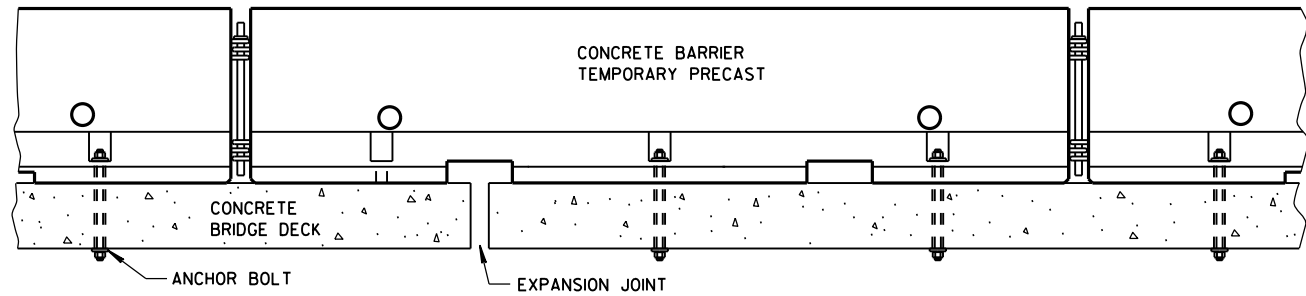


4A1

BARRIER SECTION

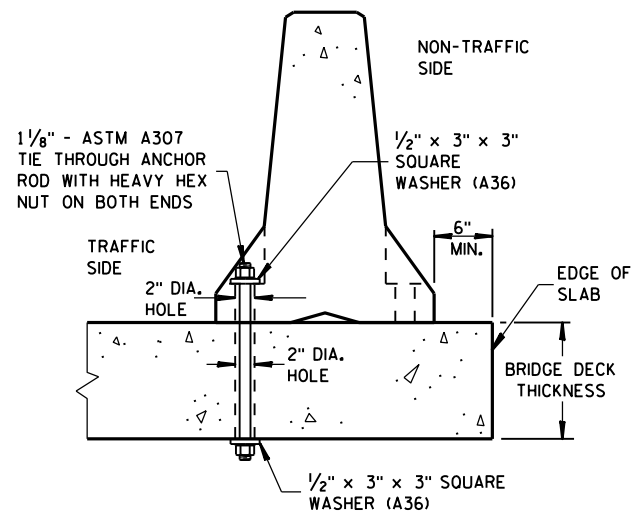
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



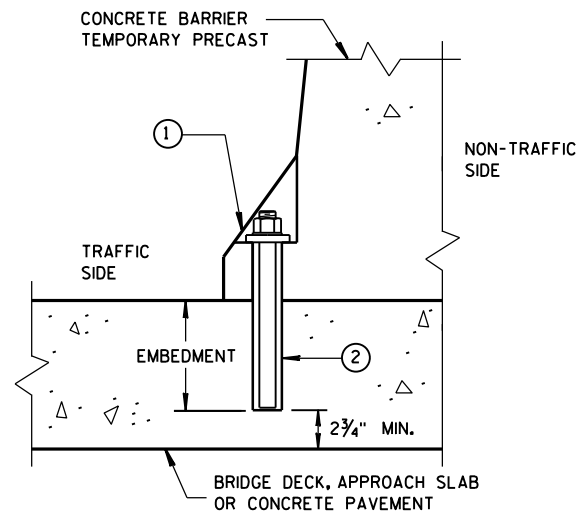
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

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



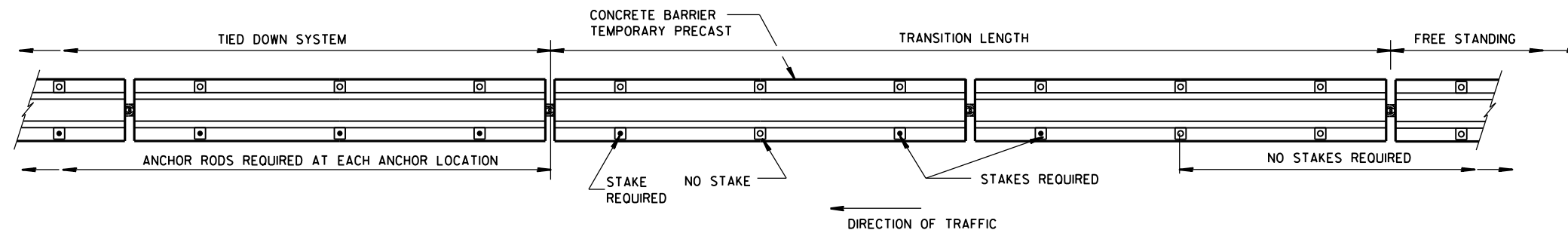
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

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



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

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

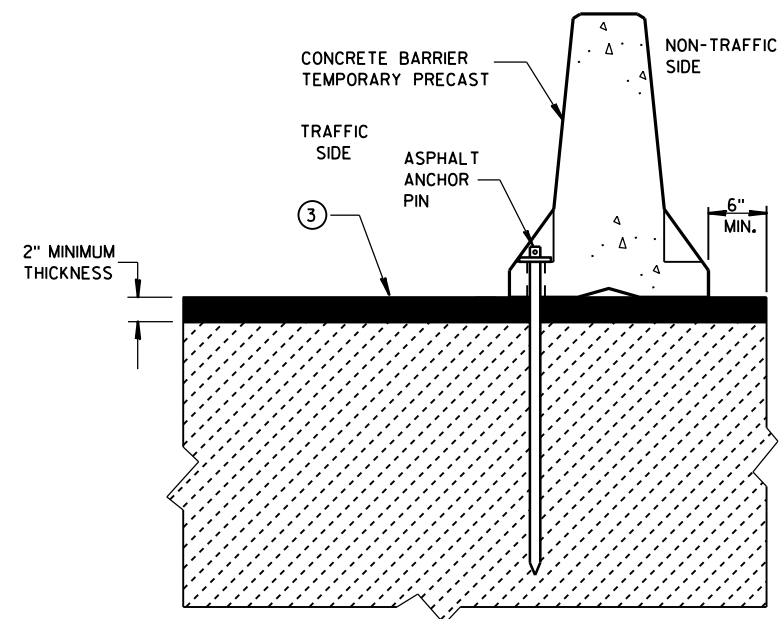
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

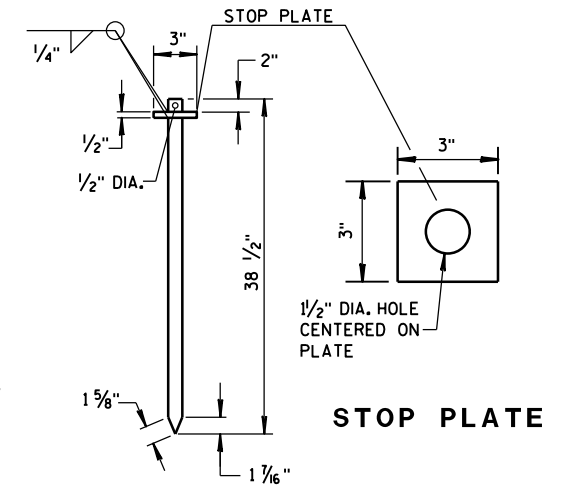
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.12 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.



STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE

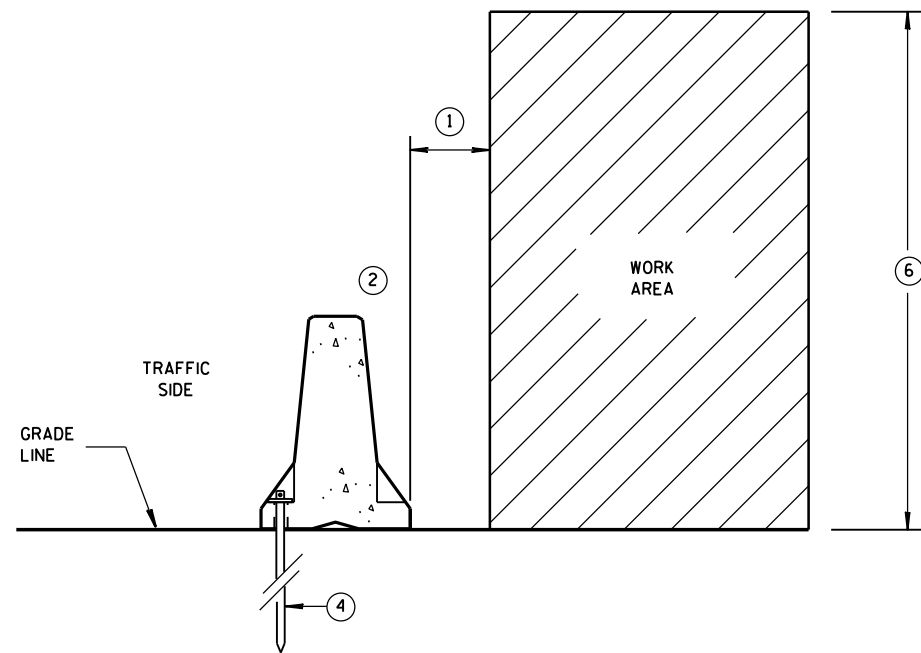


ASPHALT ANCHOR PIN

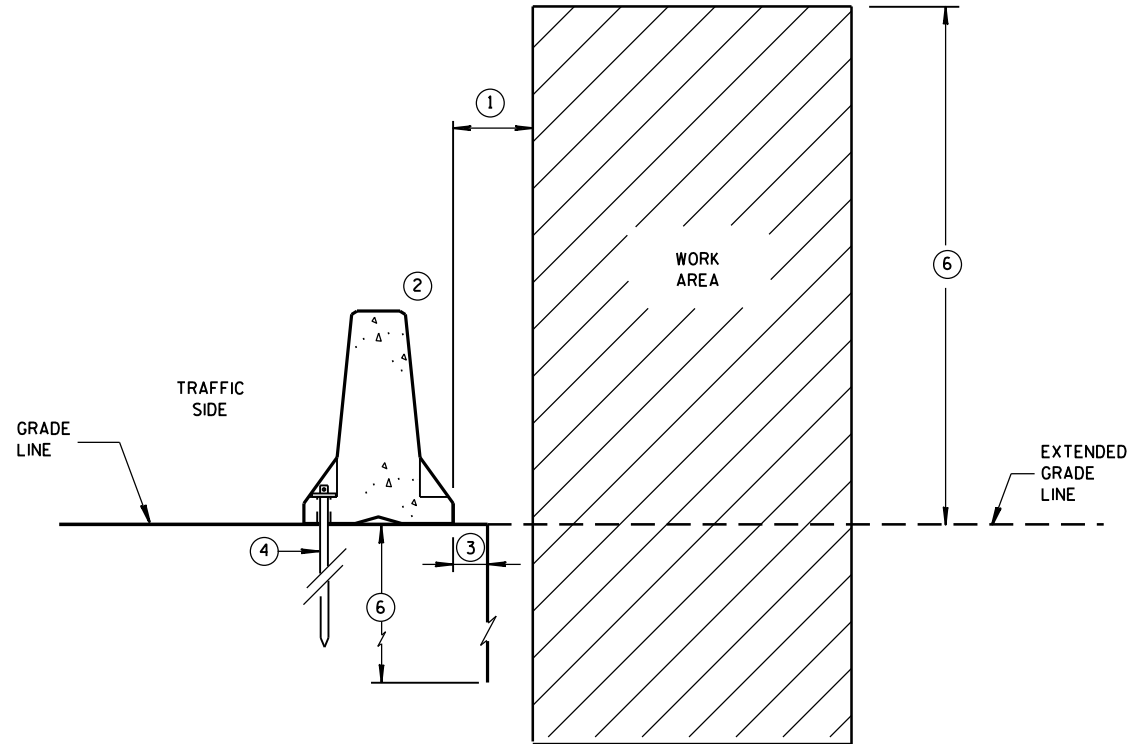
(ASTM A36 STEEL)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

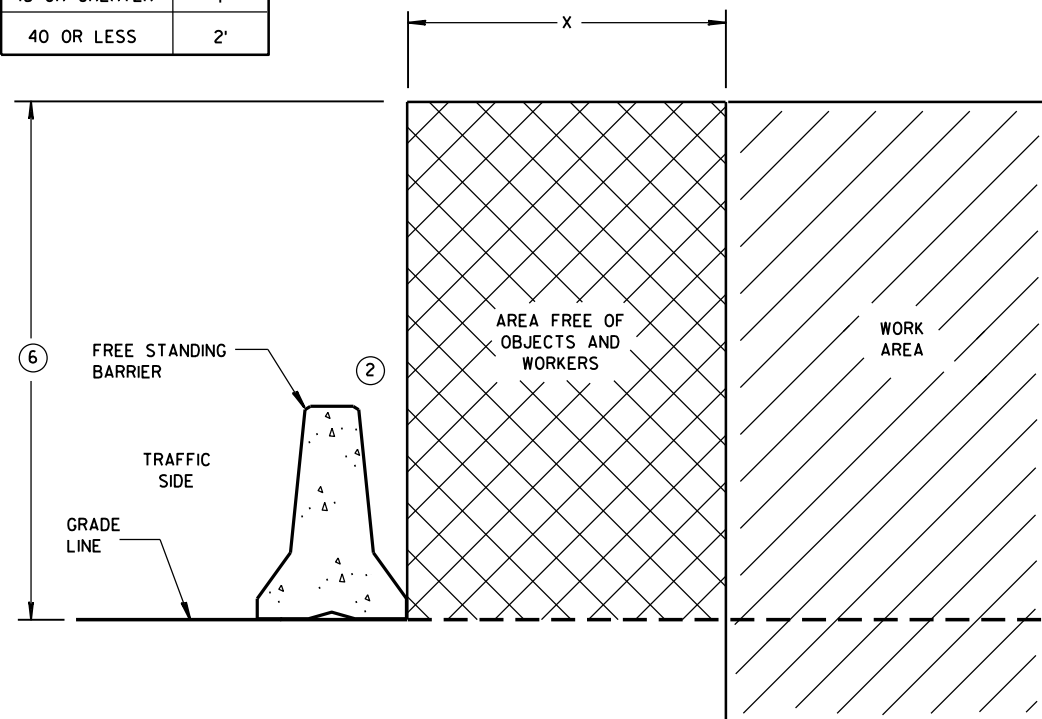


**ANCHORED BARRIER SPACE REQUIREMENTS
FOR HAZARDS EXTENDED
ABOVE THE GRADE LINE**

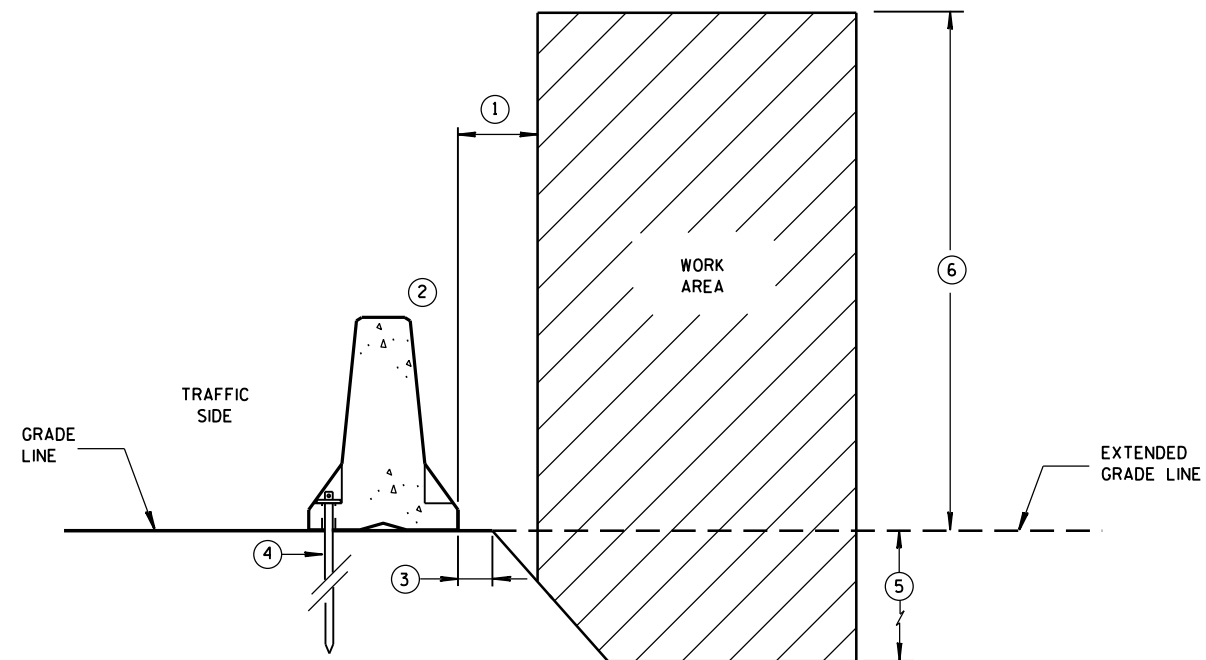


**ANCHORED BARRIER SPACE REQUIREMENTS
ON VERTICAL DROP OFFS**

POSTED SPEED MPH	X
45 OR GREATER	4'
40 OR LESS	2'



FREE STANDING BARRIER SPACE REQUIREMENTS



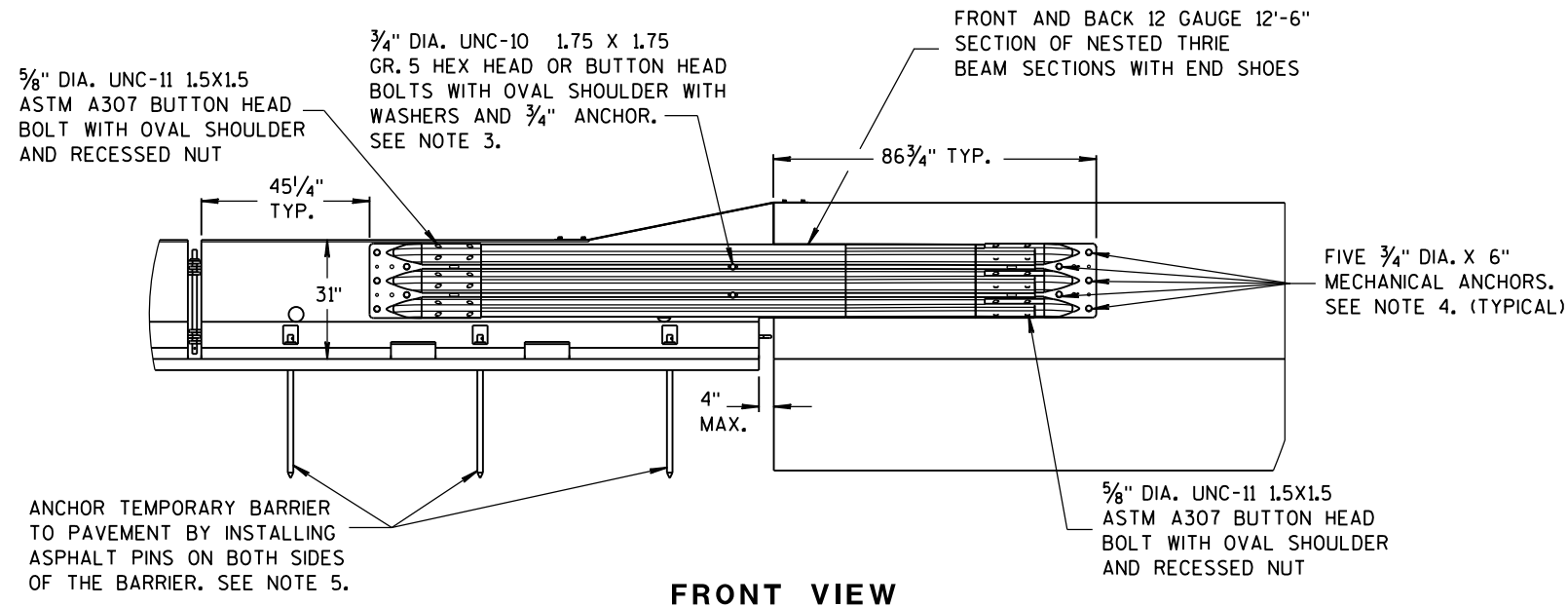
**ANCHORED BARRIER SPACE REQUIREMENTS
ON SLOPES**

GENERAL NOTES

- 1 WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- 2 OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- 3 SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- 4 SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- 5 DEPTH OF 3 FEET OR MORE.
- 6 Y = 6'-6".

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



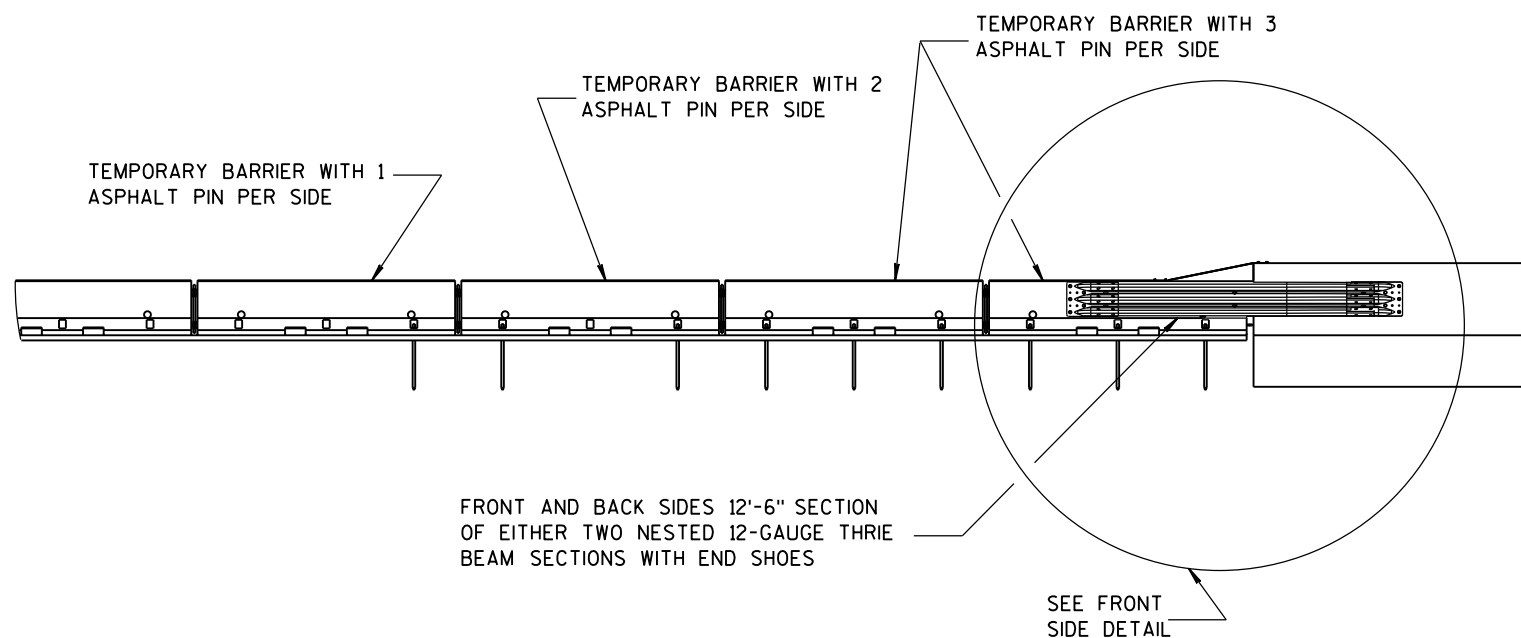
FRONT VIEW

NOTES

NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS REGARDLESS OF TRAFFIC.

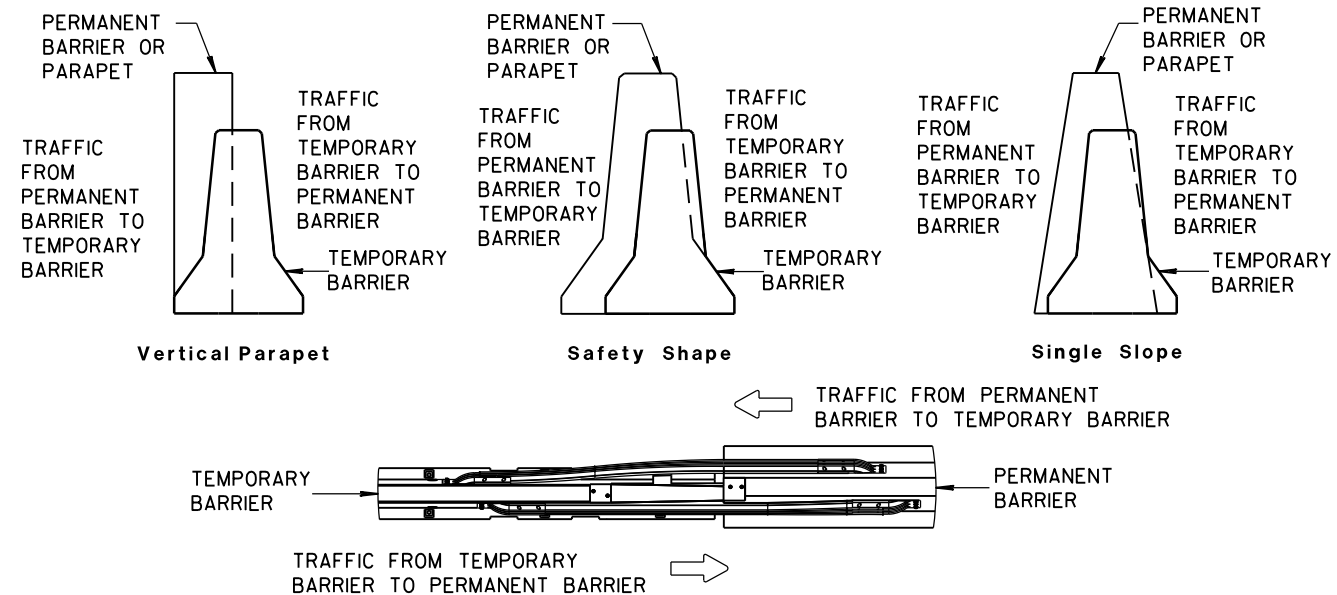
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.

4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.

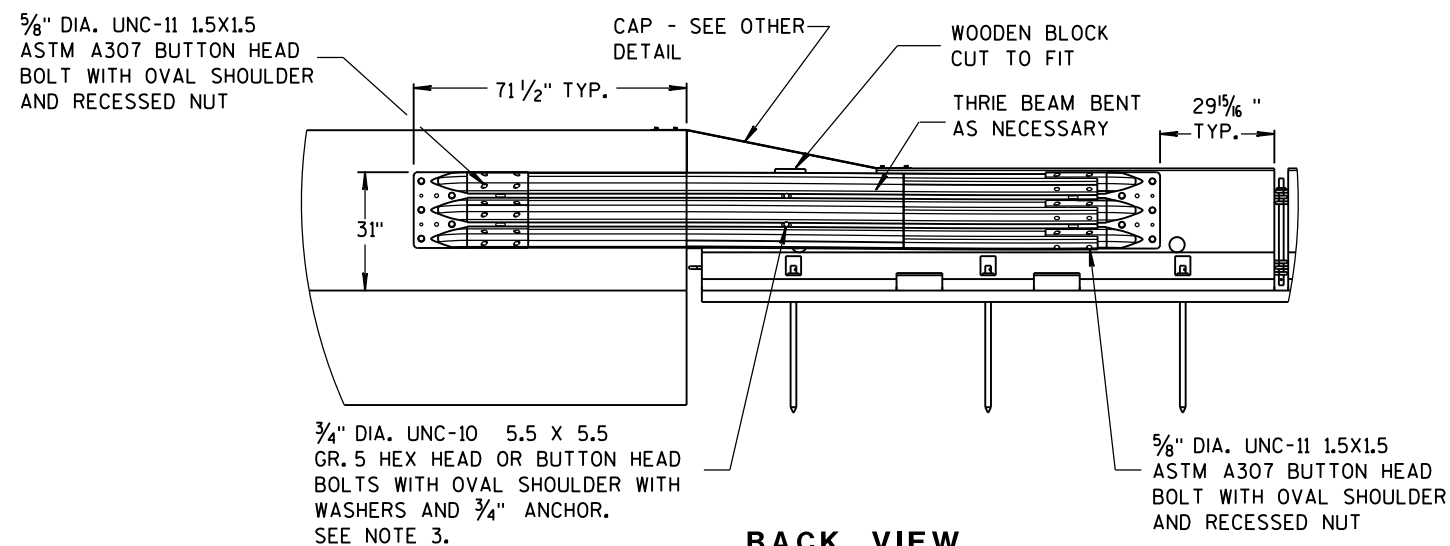


FRONT VIEW

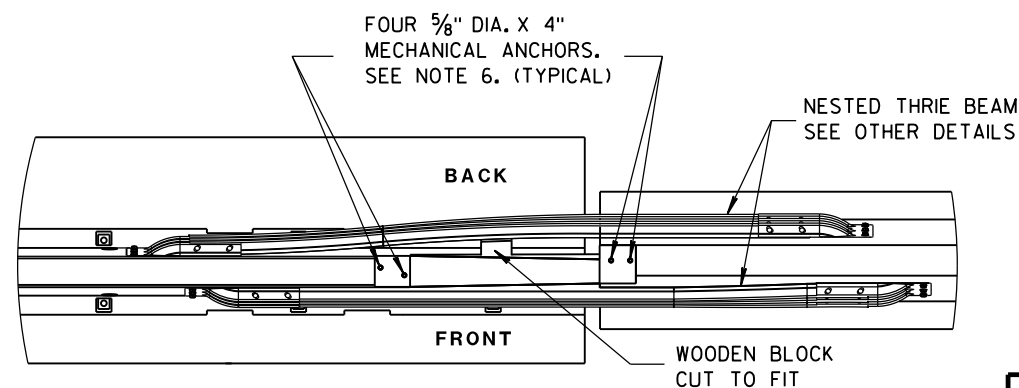
BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



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



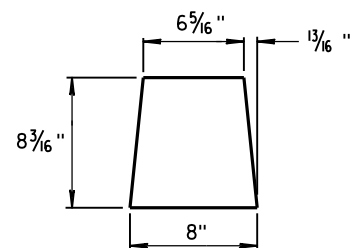
BACK VIEW



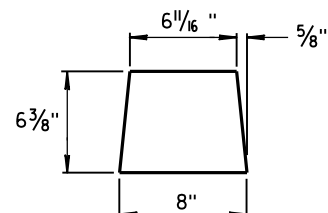
PLAN VIEW

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

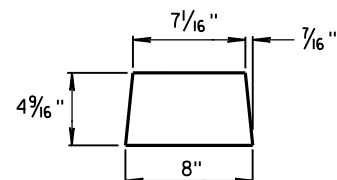
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



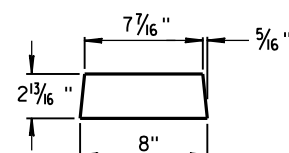
GUSSET 1



GUSSET 2

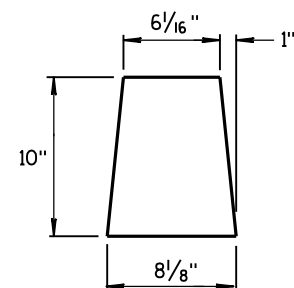


GUSSET 3

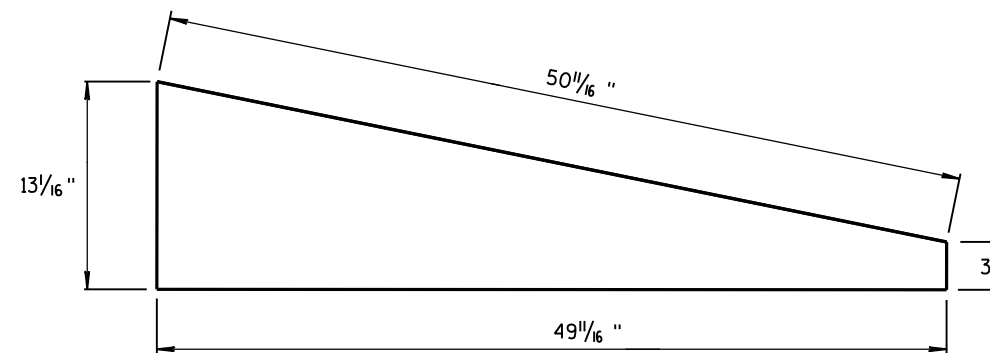


GUSSET 4

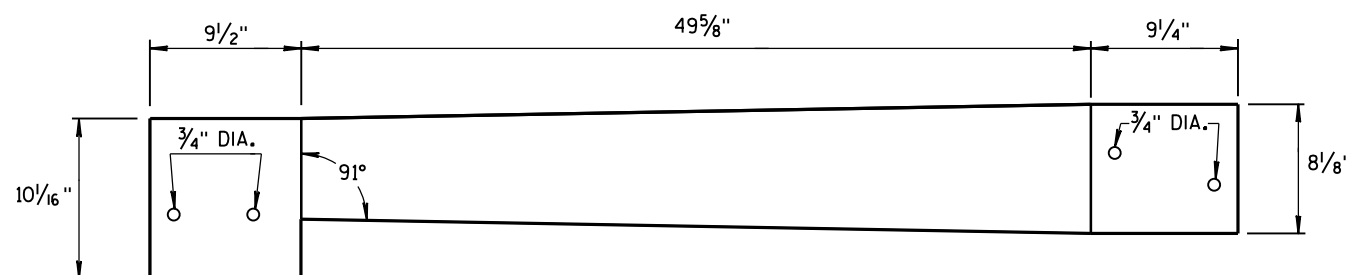
GUSSETS



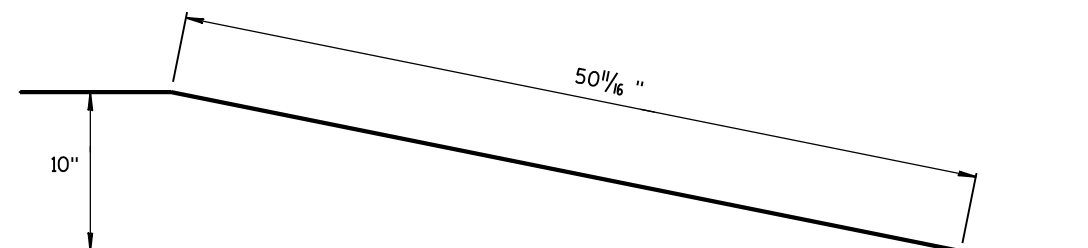
END PLATE



SIDE PLATE

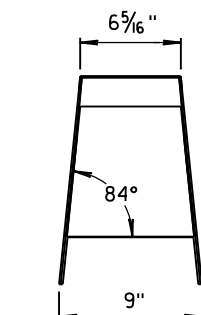
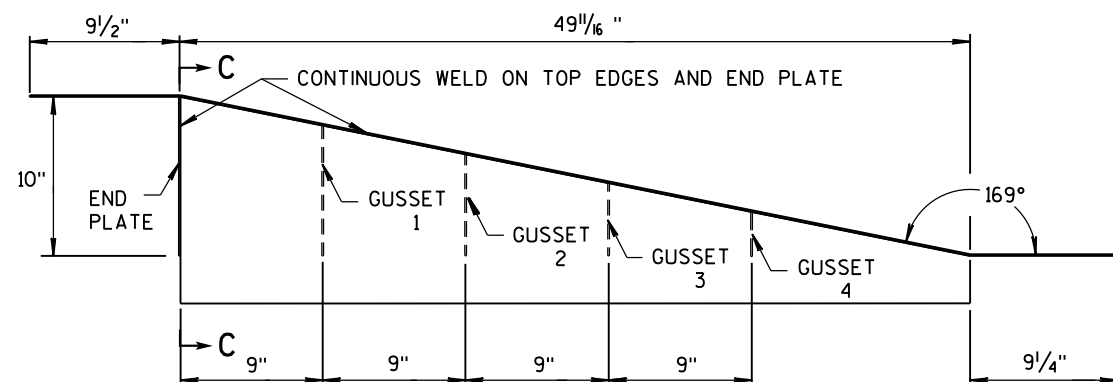
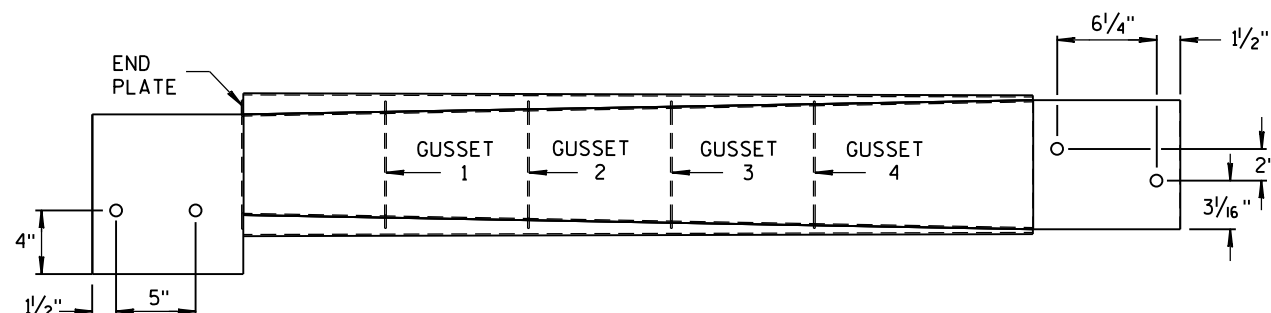


TOP PLATE



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

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



SECTION C-C

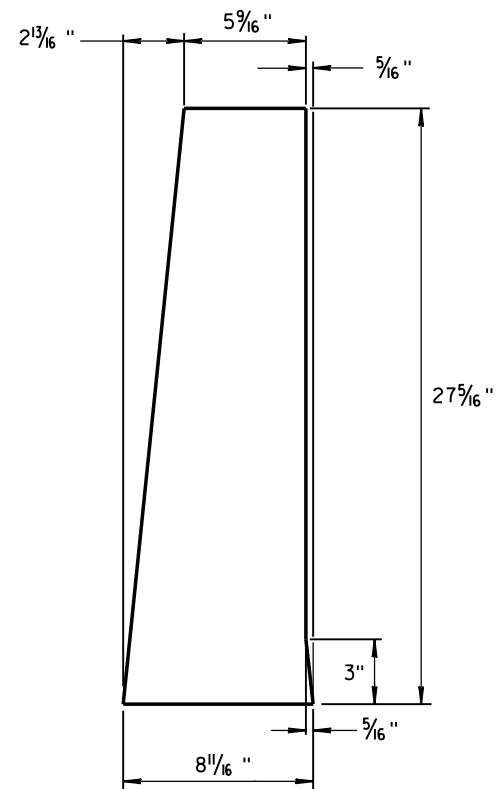
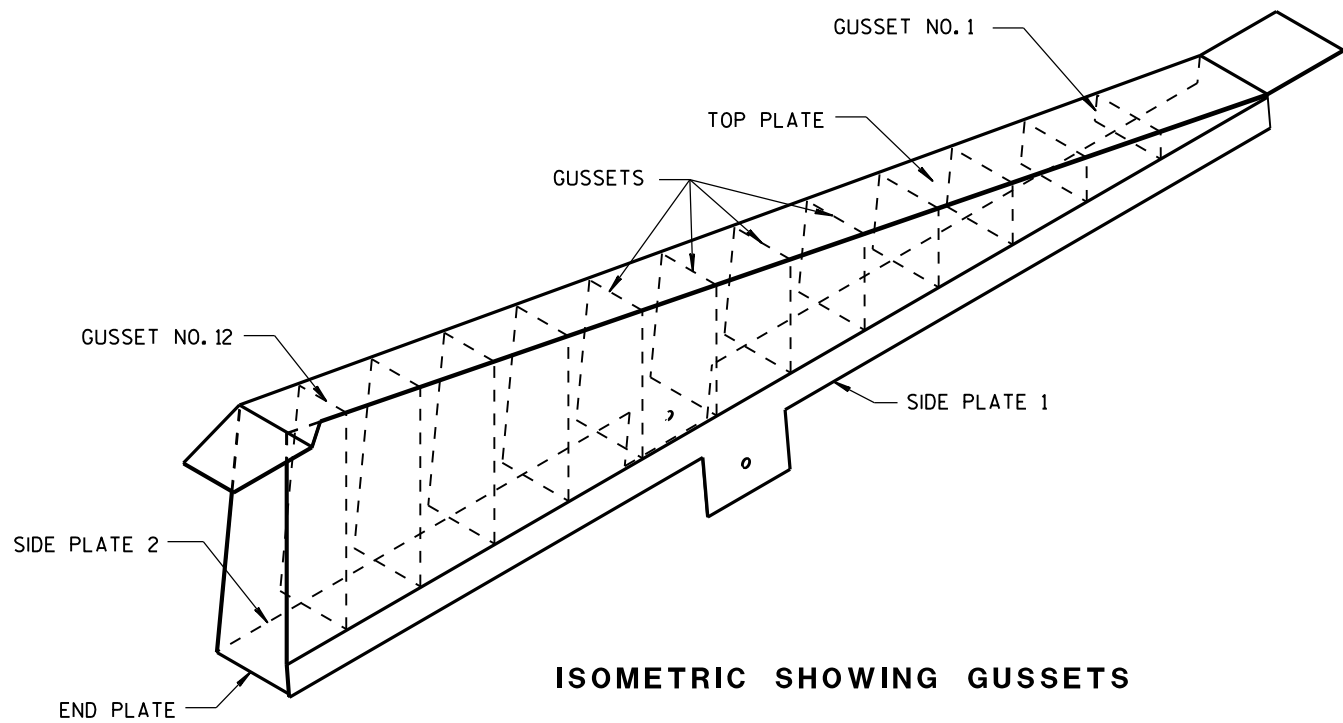
NOTES

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

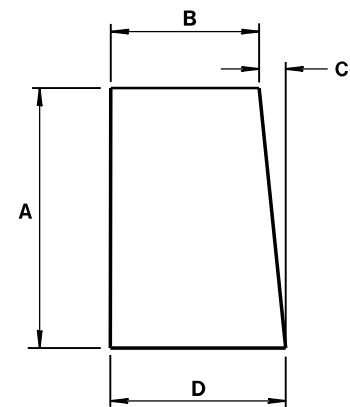
**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



1/8" STEEL PLATE

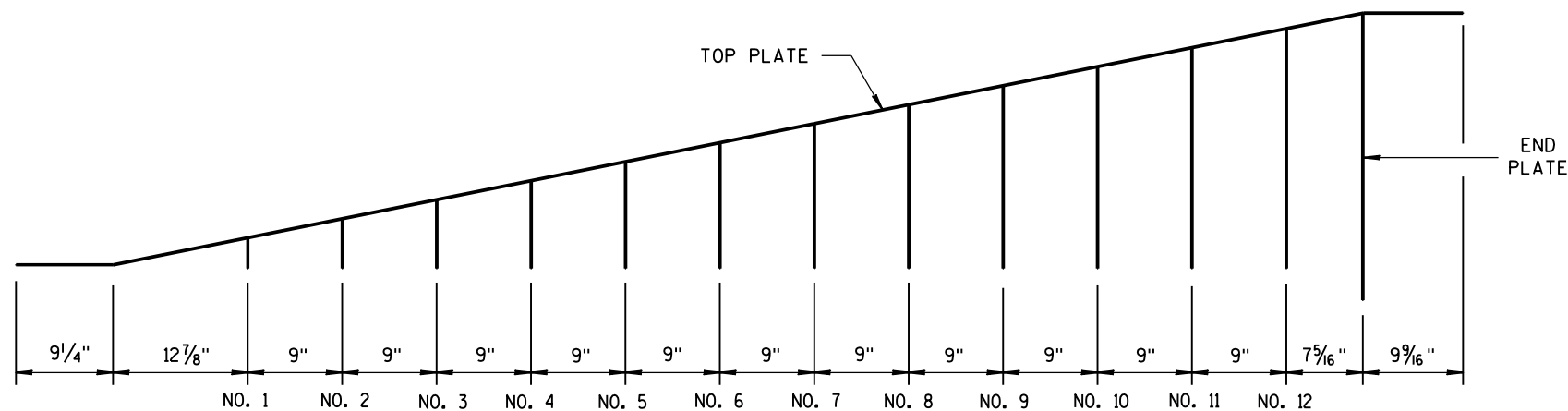


ALL GUSSETS 1/8" STEEL PLATE

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

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

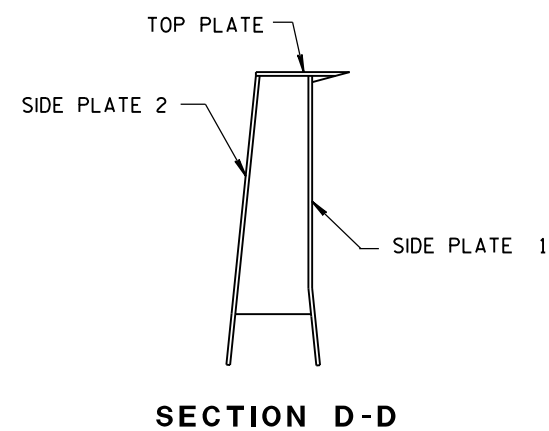
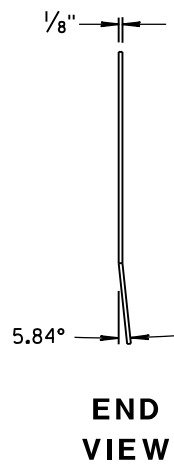
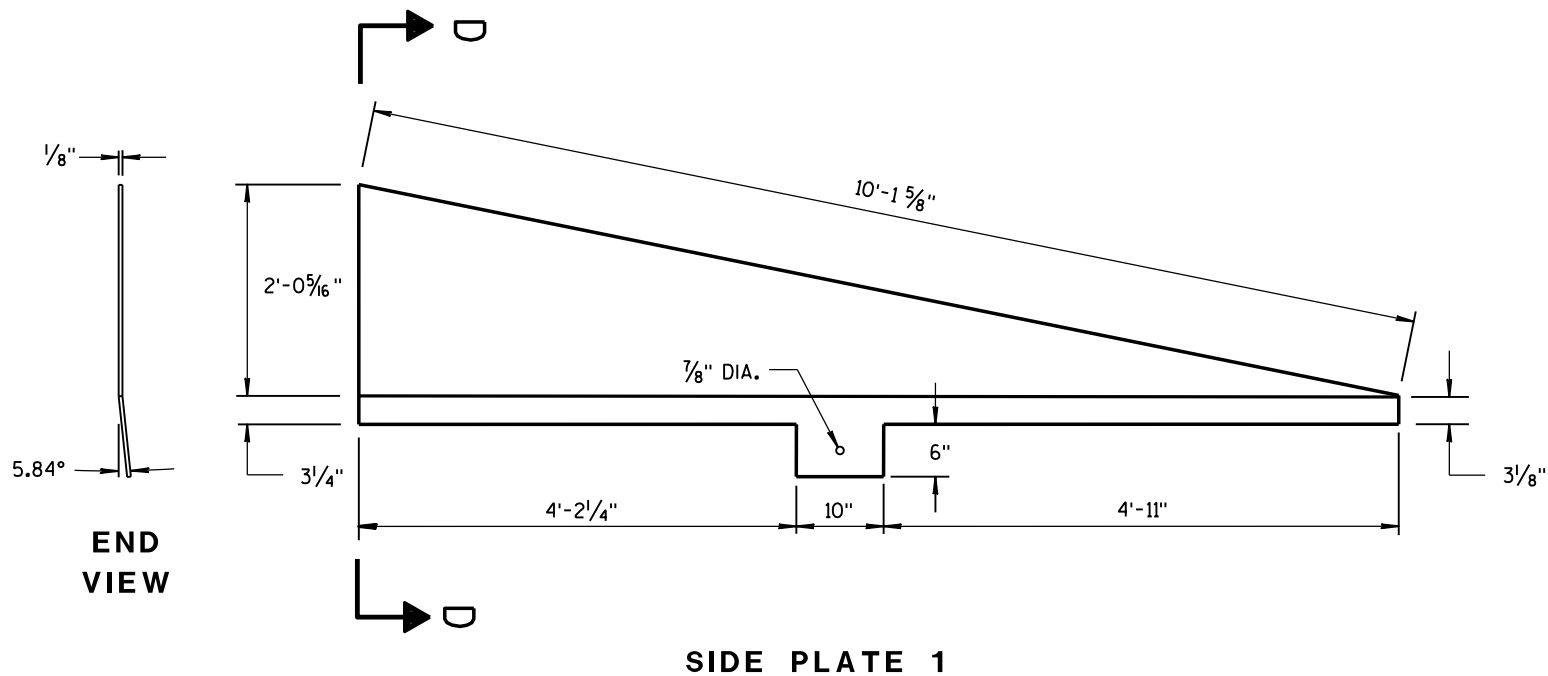
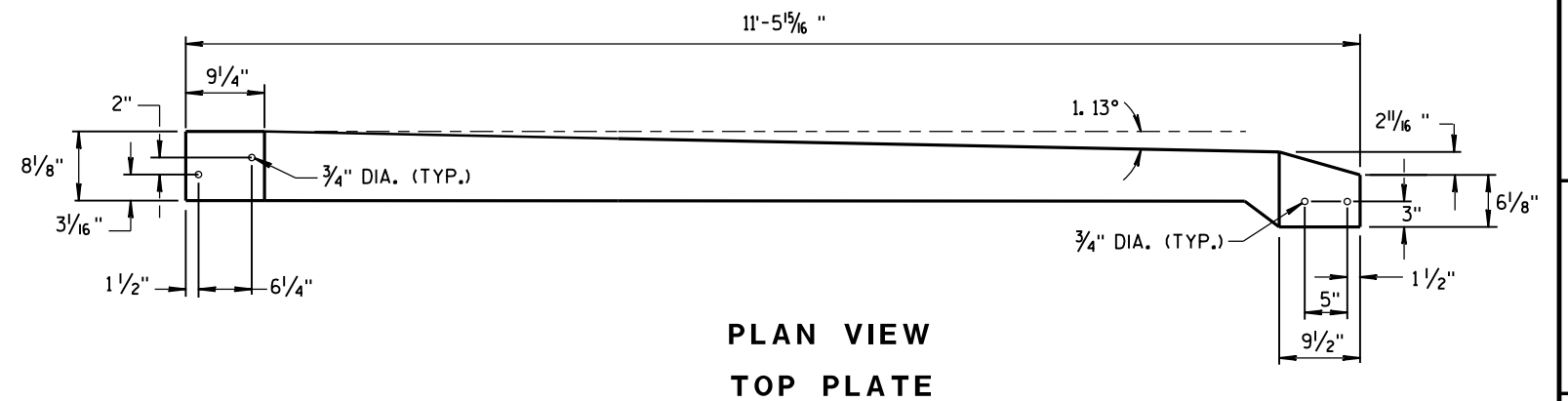
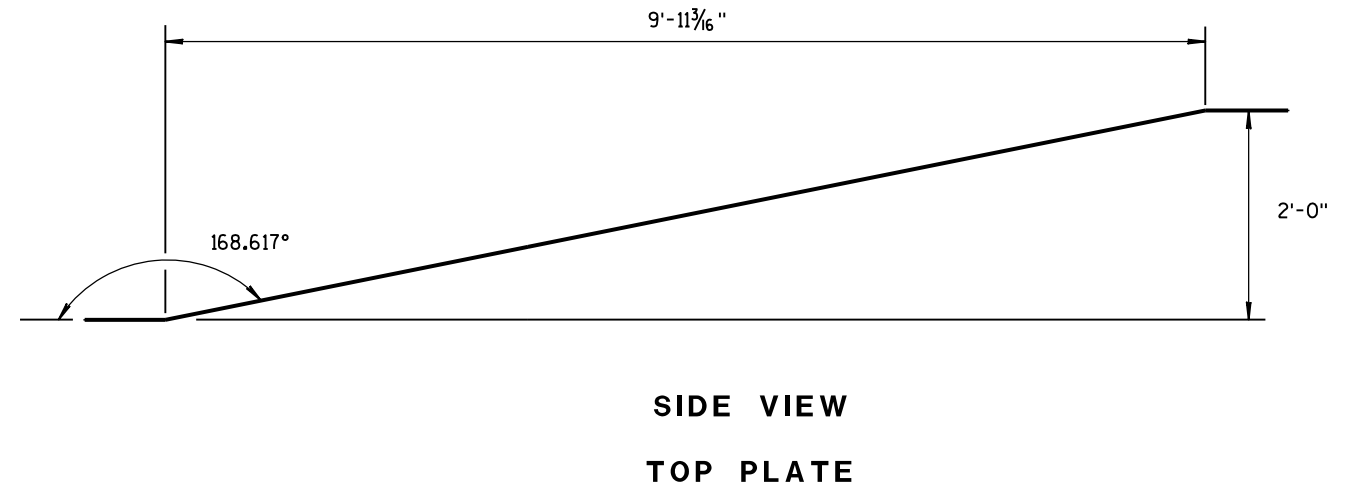
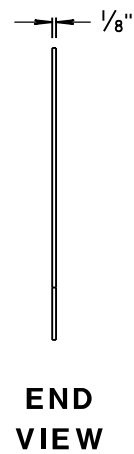
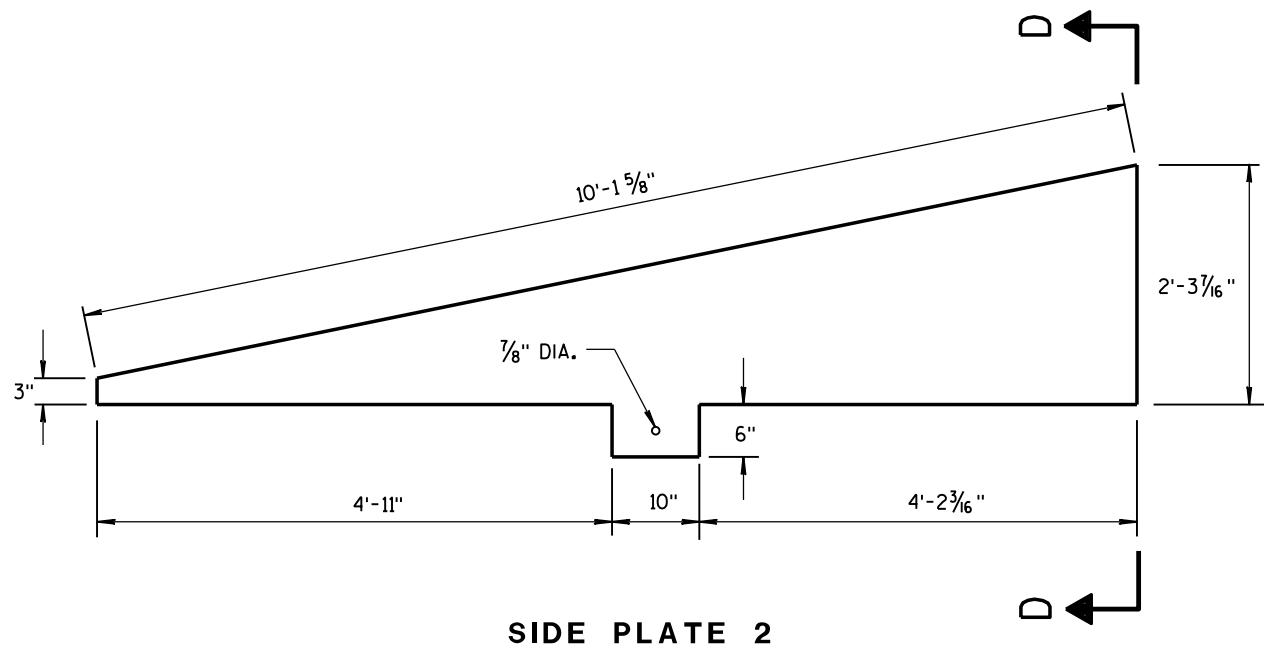
GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



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

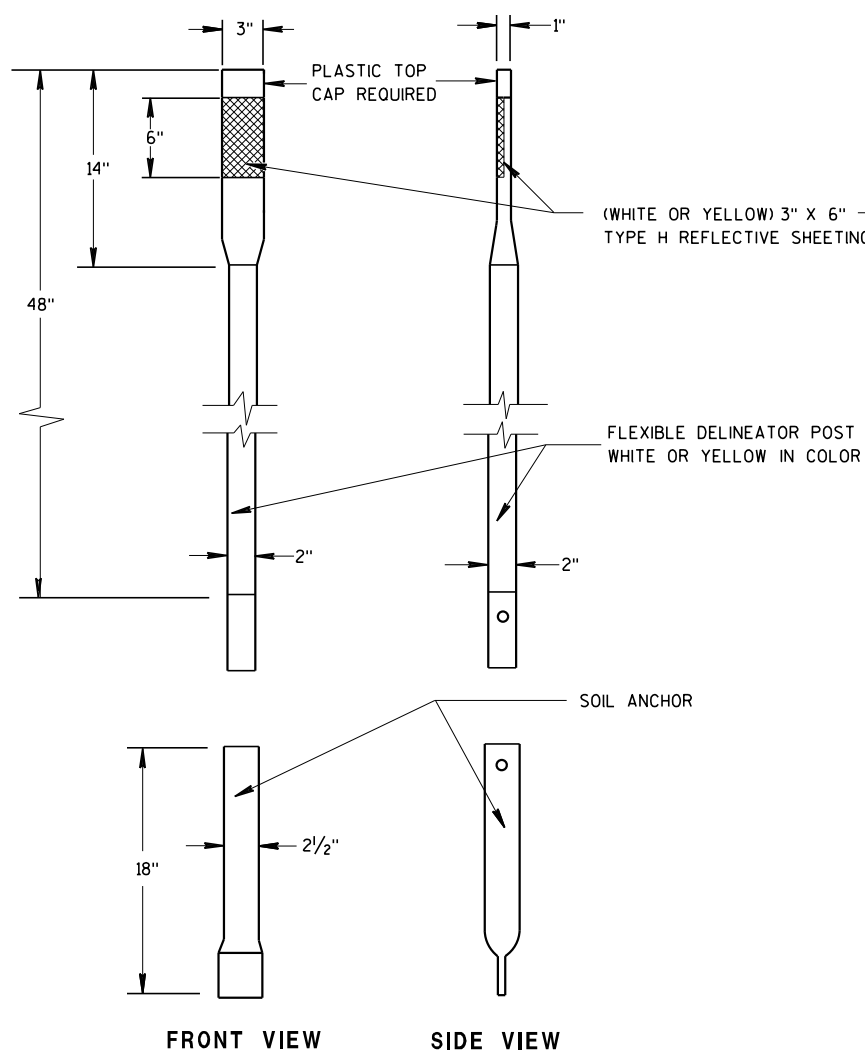
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

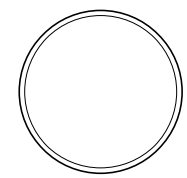


**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

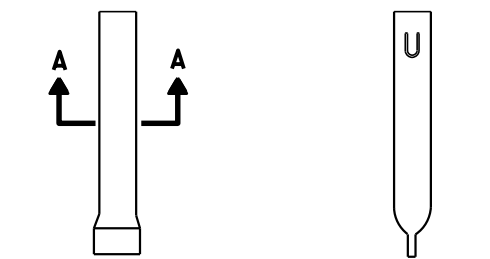
CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Rodney Taylor ROADWAY STANDARD DEVELOPMENT UNIT SUPERVISOR
FHWA	



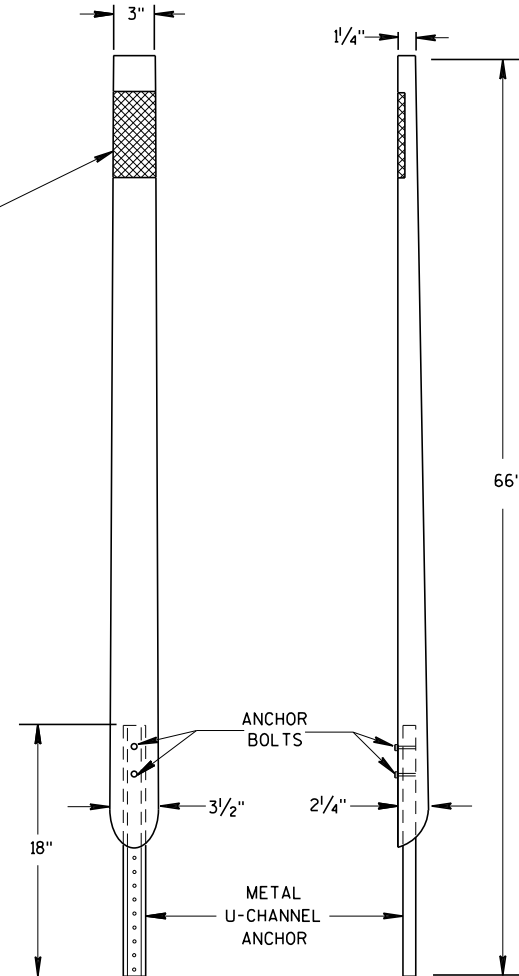
ALTERNATE 1



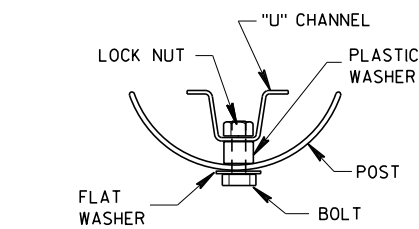
SECTION A-A



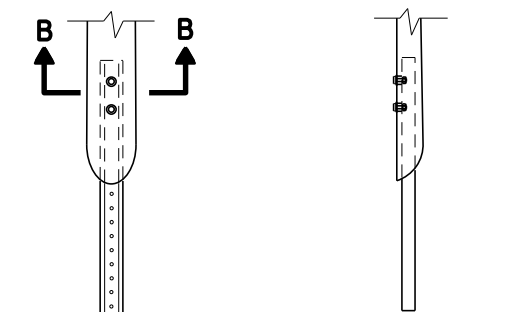
ALTERNATE 1



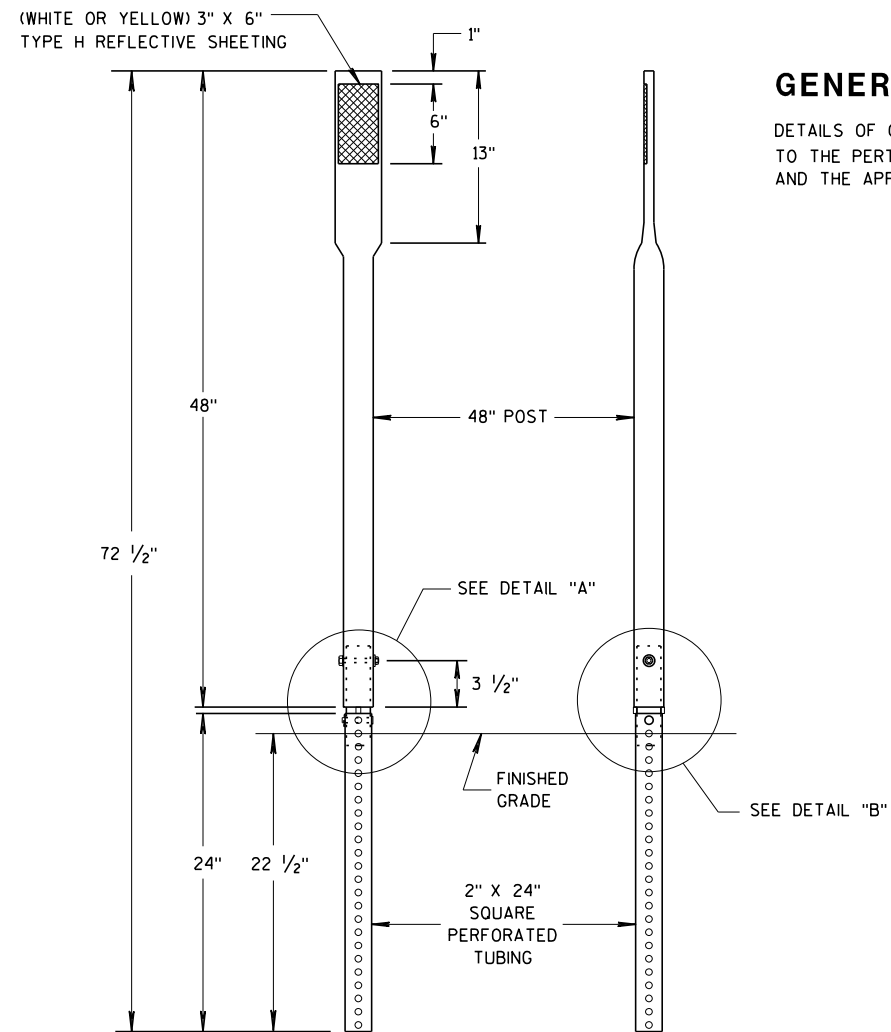
ALTERNATE 2
FLEXIBLE DELINEATOR POSTS



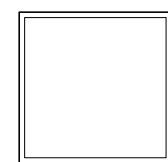
SECTION B-B



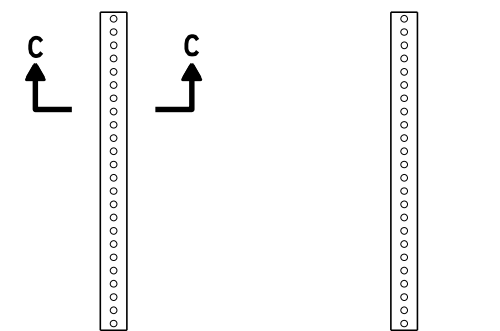
ALTERNATE 2
FLEXIBLE MARKER POST ANCHORS



ALTERNATE 3



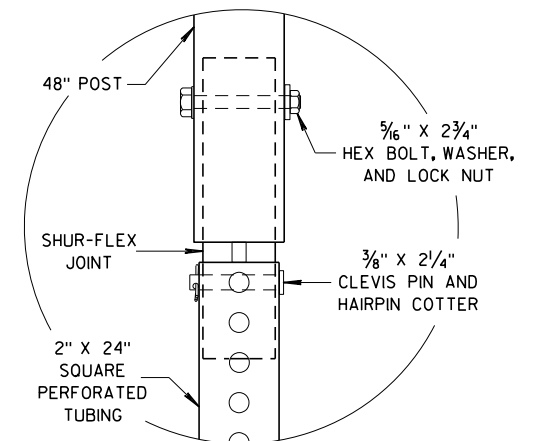
SECTION C-C



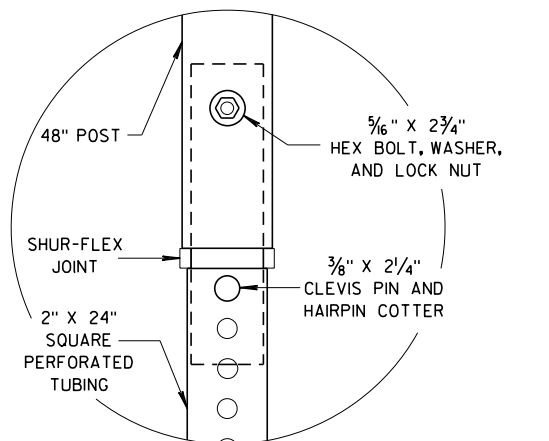
ALTERNATE 3

GENERAL NOTES

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



DETAIL A



DETAIL B

REFLECTOR SPACING TABLE

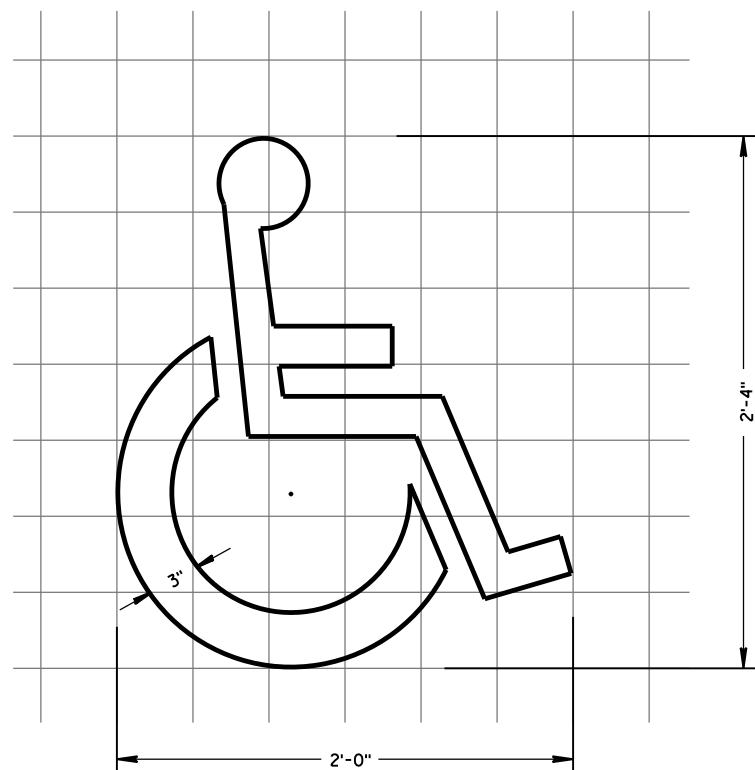
REFLECTOR SPACING	LOCATION
*100' C-C	RAMPS
400' C-C	MAINLINE

*START AT BEGINNING OF RAMP TAPER AND END AT END OF RAMP TAPER

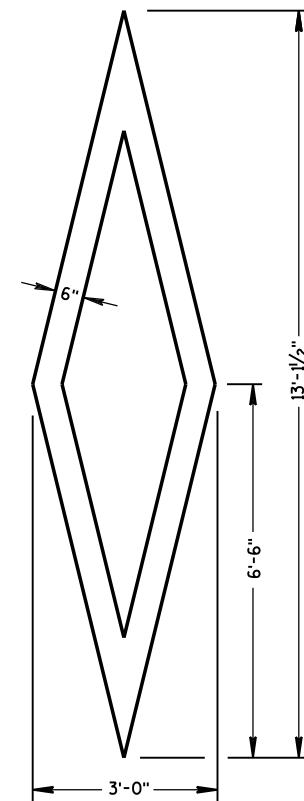
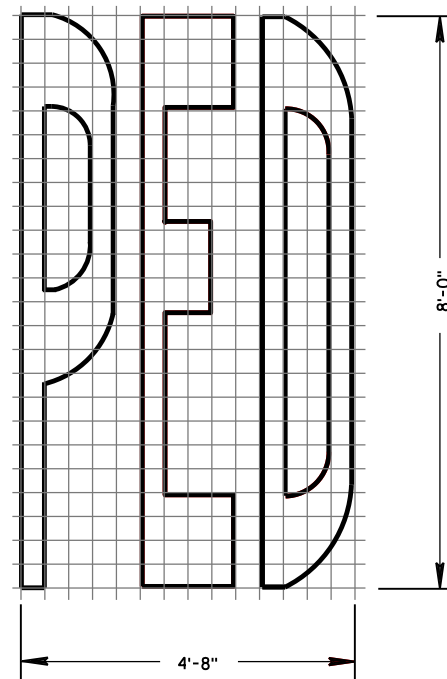
FLEXIBLE DELINEATOR POST

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Matt Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA



HANDICAP SYMBOL

PREFERENTIAL
LANE SYMBOL**GENERAL NOTES**

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

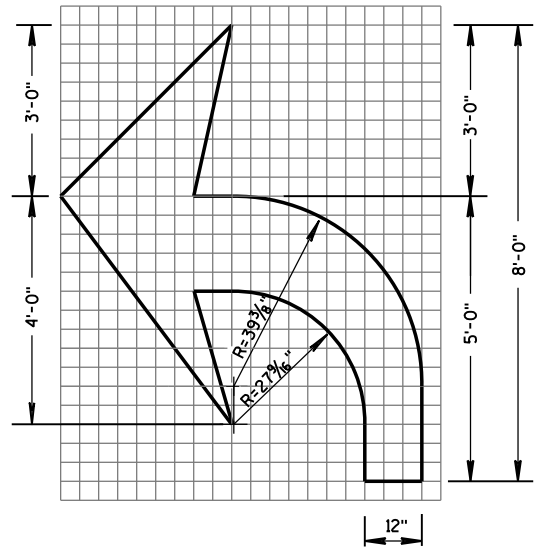
PAVEMENT MARKING SYMBOLS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

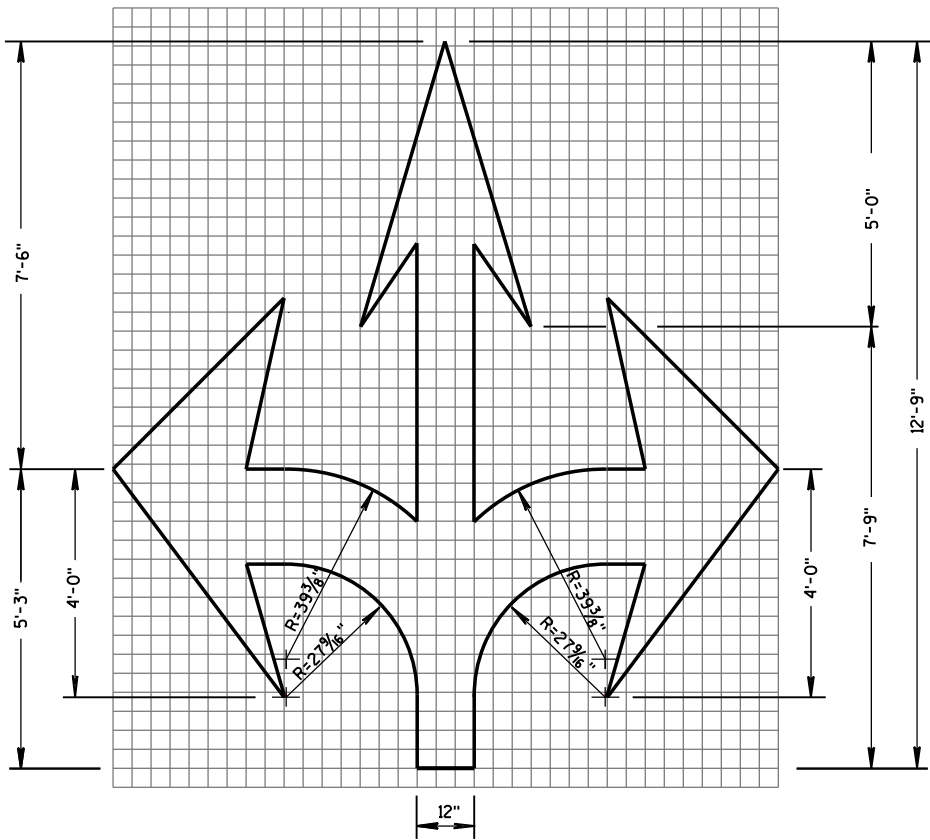
APPROVED

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

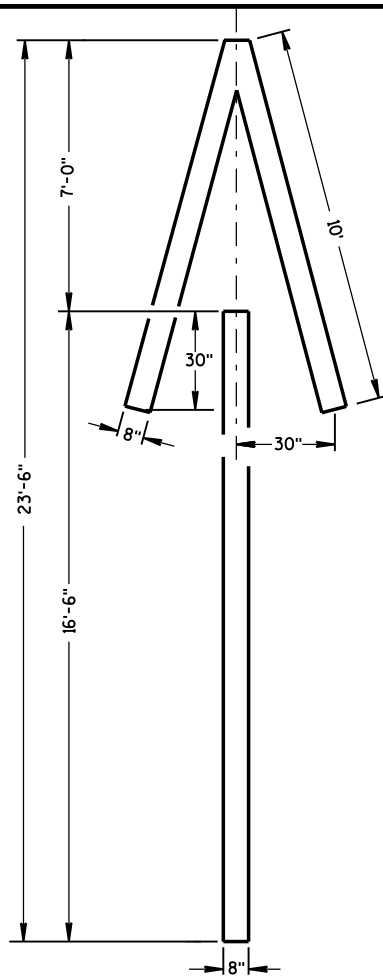
FHWA



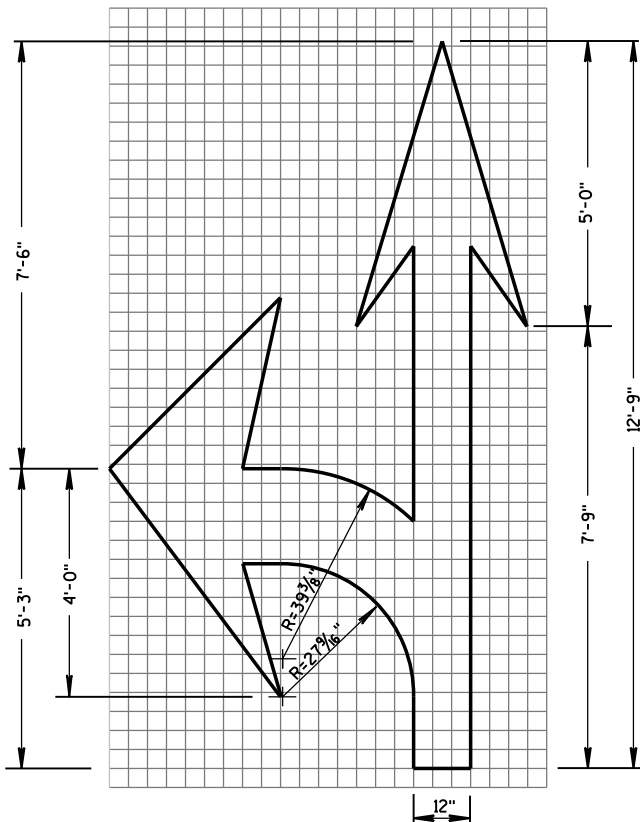
TYPE 2



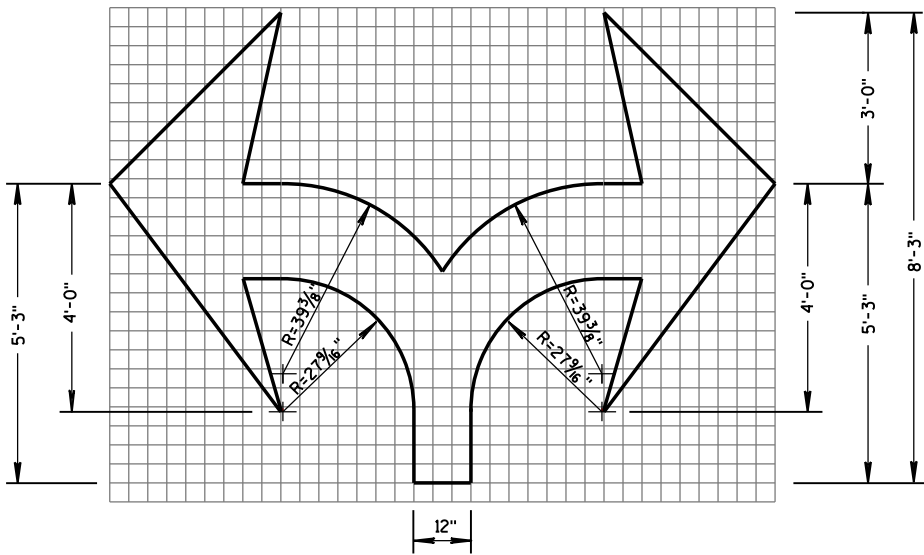
TYPE 6



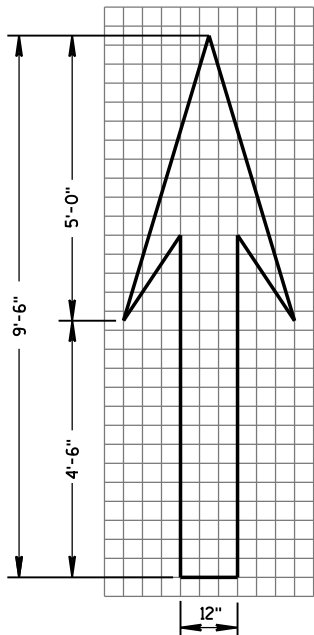
TYPE 4



TYPE 3



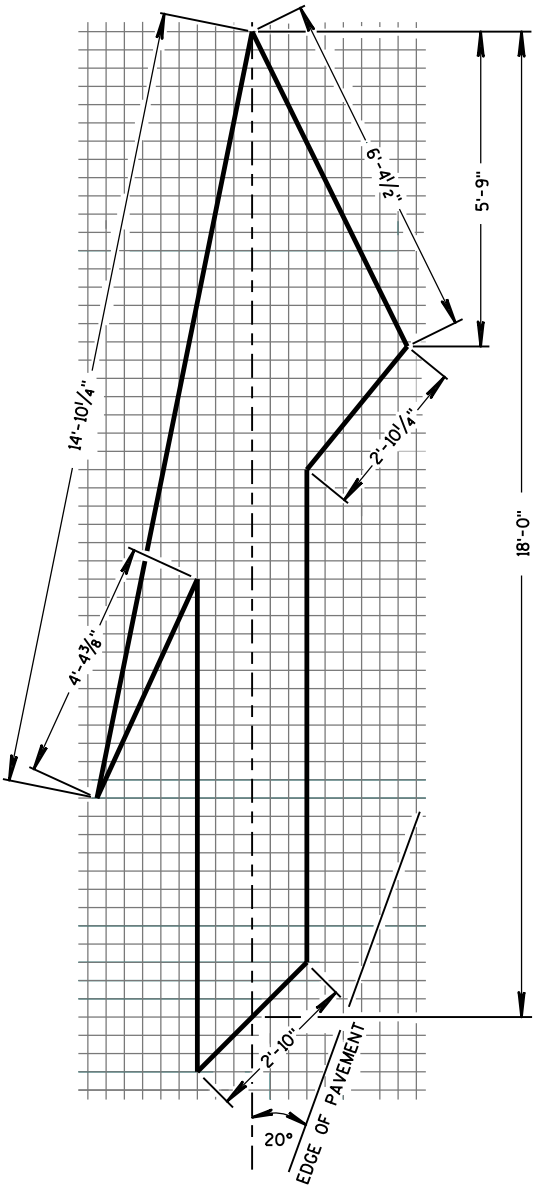
TYPE 7



TYPE 1

GENERAL NOTES

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

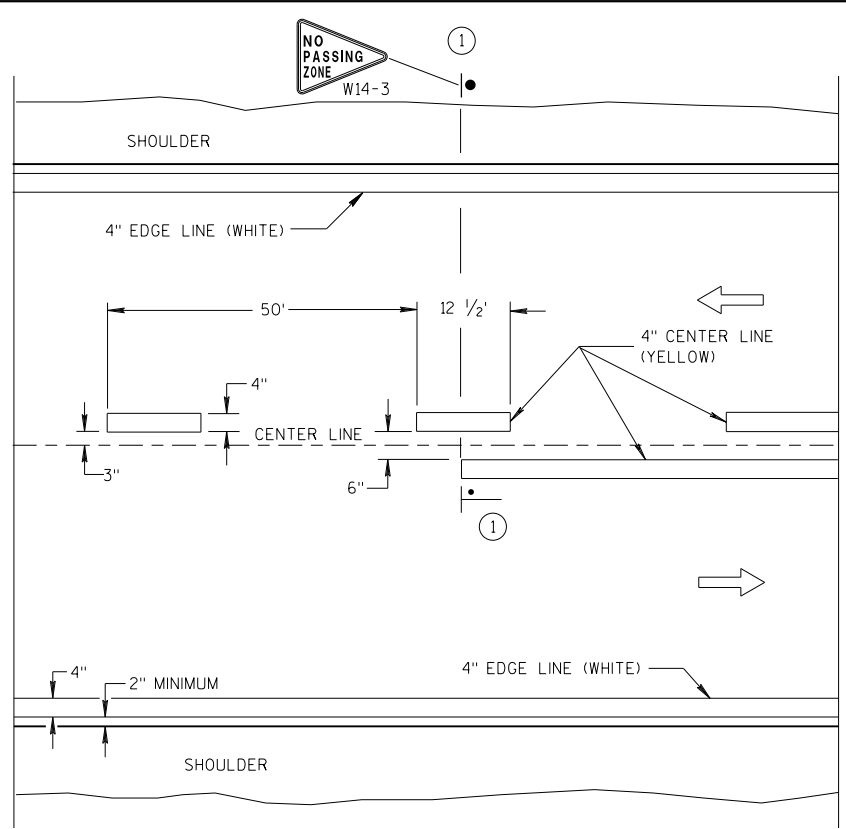


TYPE 5 LANE DROP ARROW

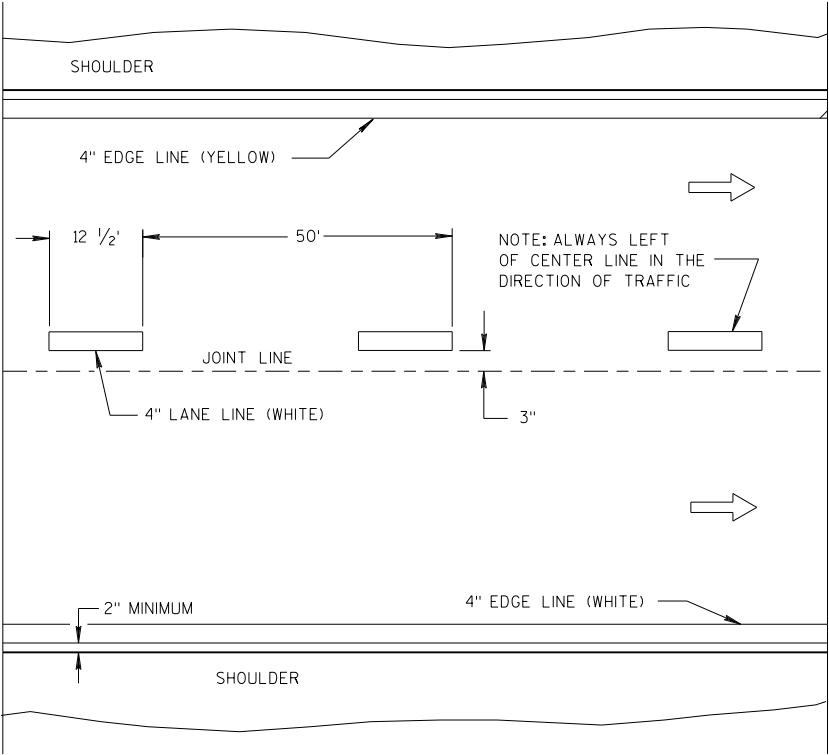
PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

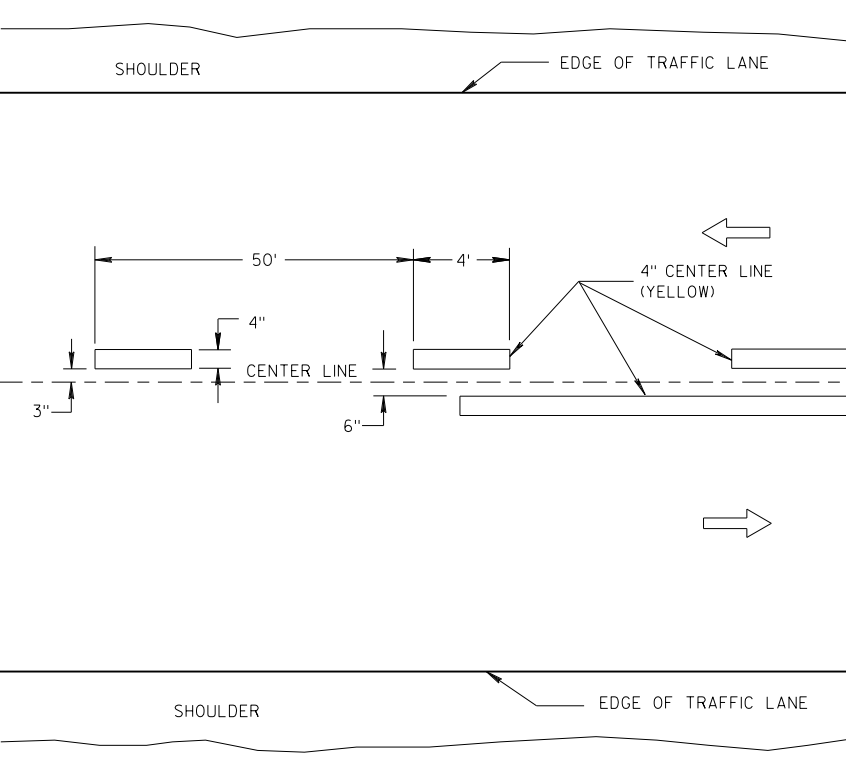


TWO WAY TRAFFIC

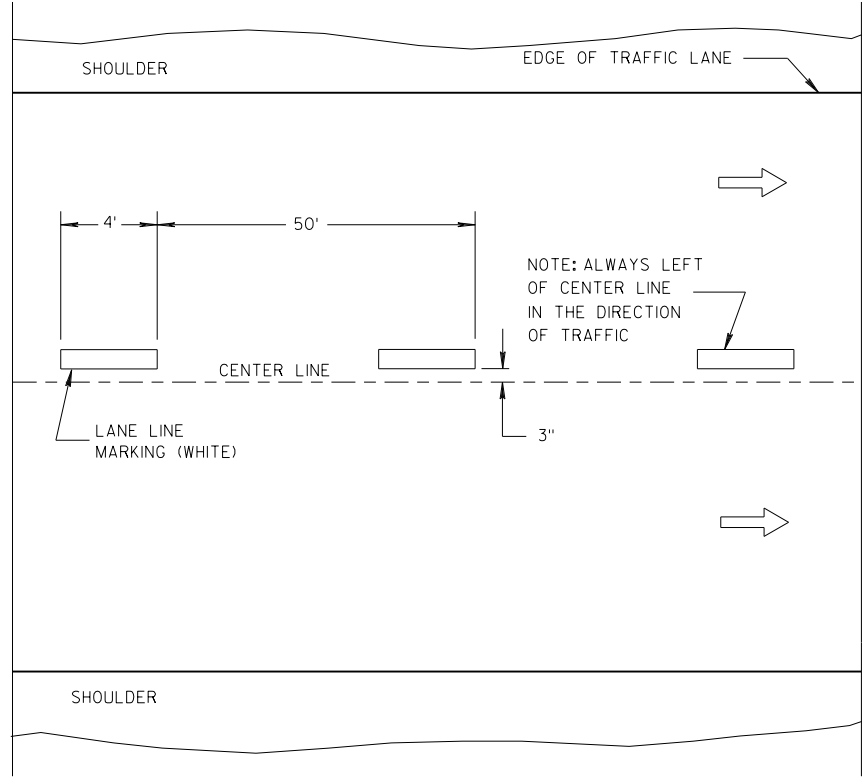


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

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

① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

NOTE

ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL

LEGEND

- "T" MARKING
- POST MOUNTED SIGN

LONGITUDINAL MARKING (MAINLINE)

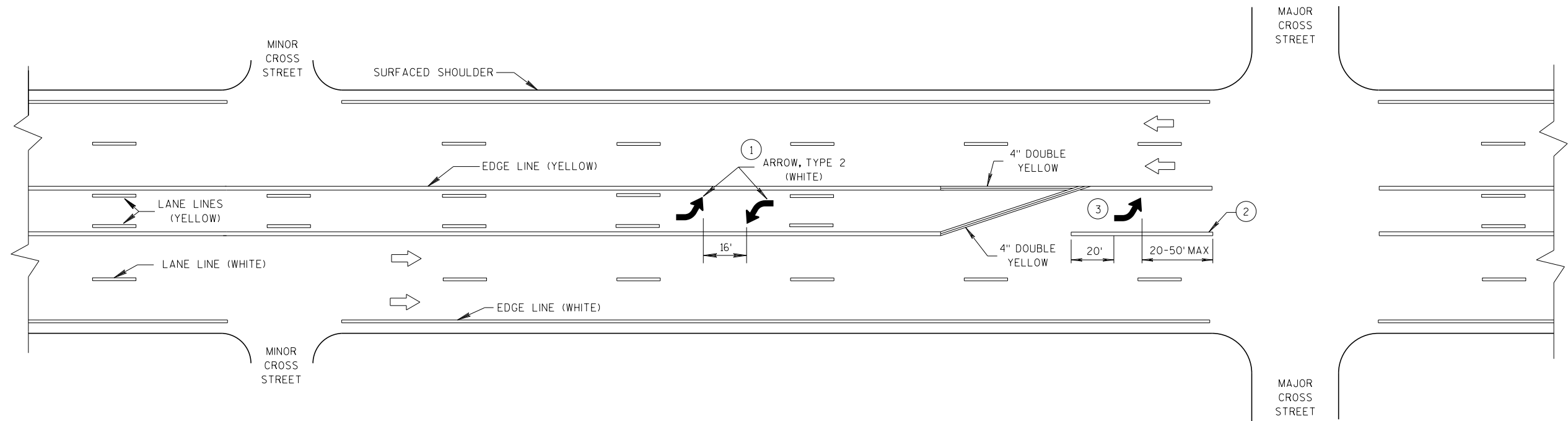
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

GENERAL NOTES

- 1 A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- 2 8" WHITE
- 3 TURN BAY LENGTH OF LESS THAN 48'DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT

DIRECTION OF TRAFFIC



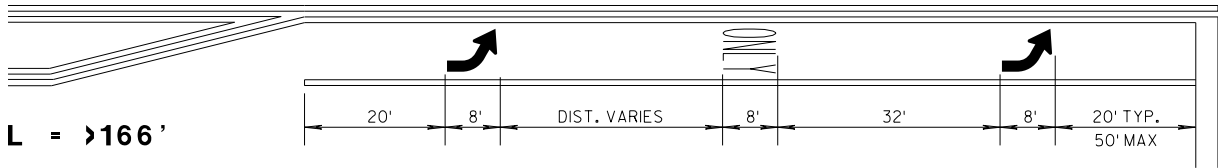
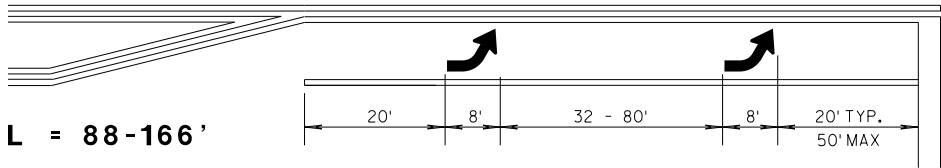
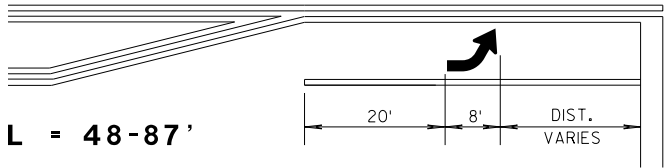
TWO WAY LEFT TURN LANE

PAVEMENT MARKING
(TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

TURN LANE OPTIONS

LENGTH OF TURN BAY (L) OF 0-47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



*(SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

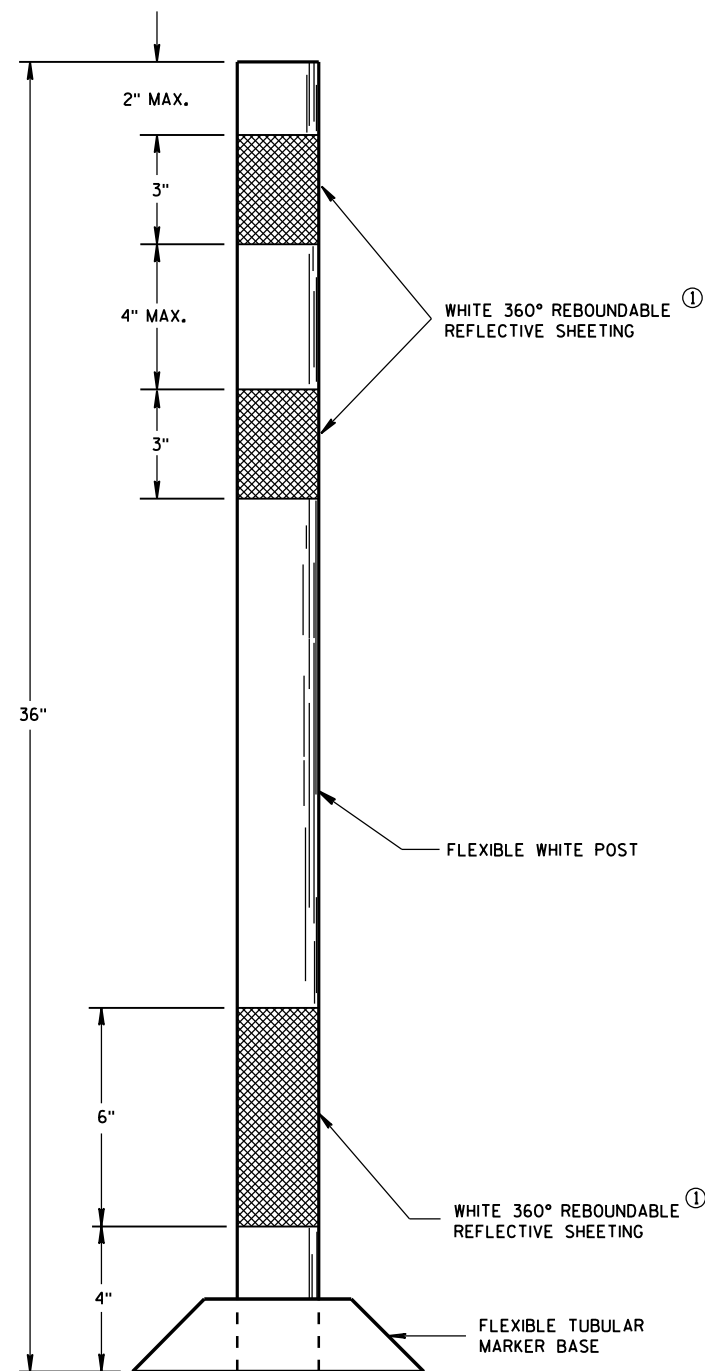
GENERAL NOTES

- ① 8" WHITE
- ② QUANTITY AND LOCATION OF TYPE 3 ARROW ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION, THE ARROWS AND ONLY MARKING ARE ELIMINATED.

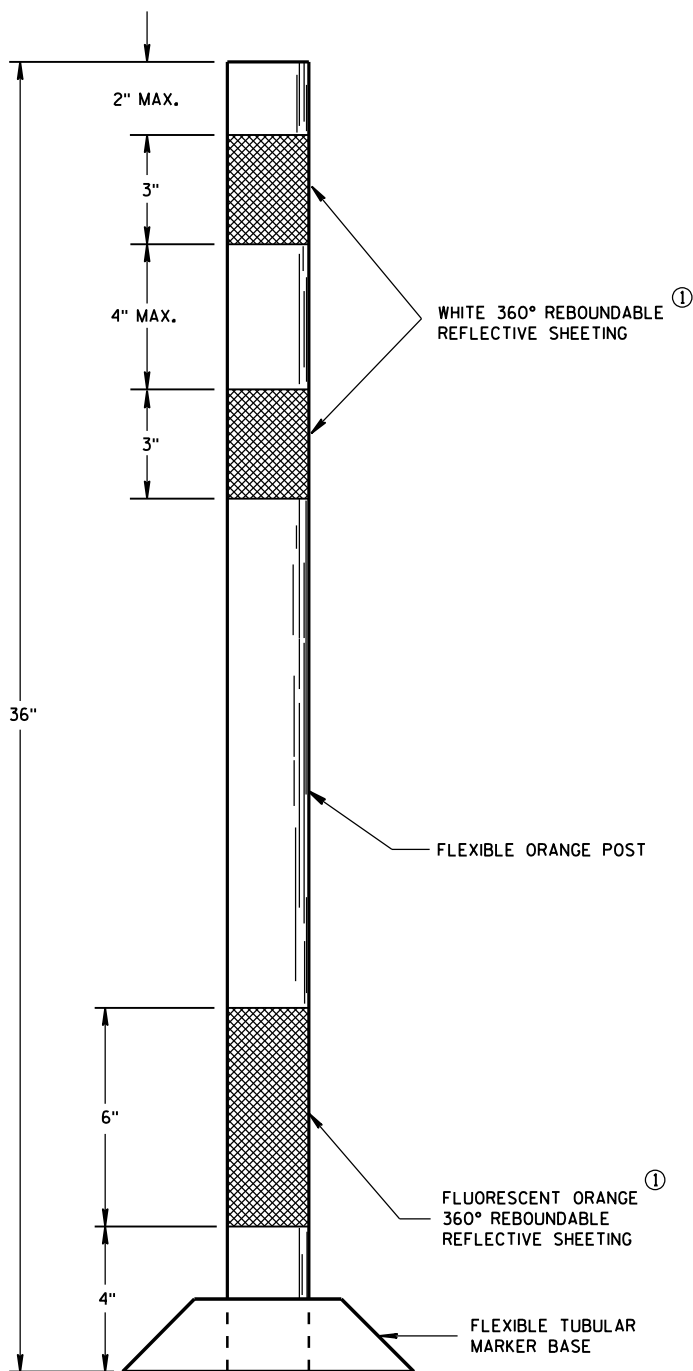
➡ DIRECTION OF TRAFFIC
L = LENGTH OF TURN BAY

PAVEMENT MARKING
(TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**FLEXIBLE
TUBULAR MARKER POST
PERMANENT CROSSOVER**



**FLEXIBLE
TUBULAR MARKER POST
WORK ZONE**

GENERAL NOTES

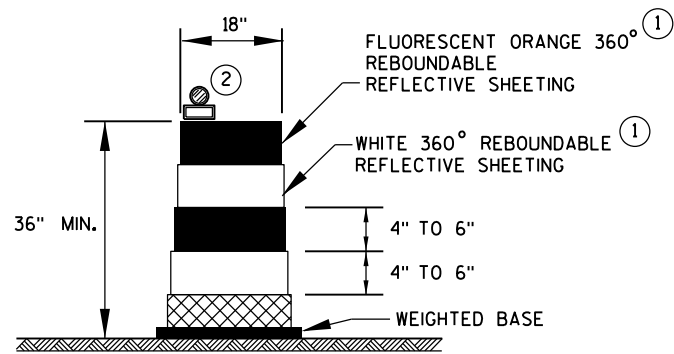
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

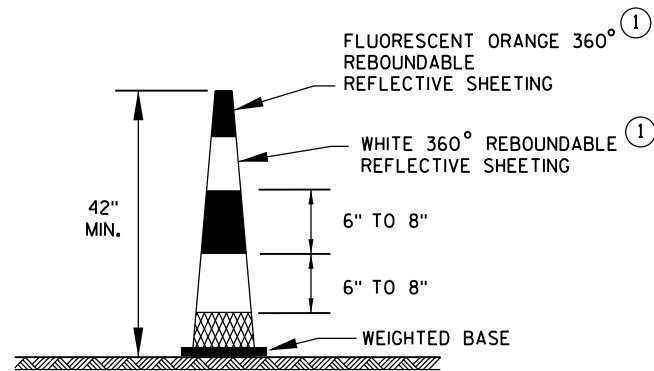
THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heldtke WORK ZONE ENGINEER
FHWA	



DRUM

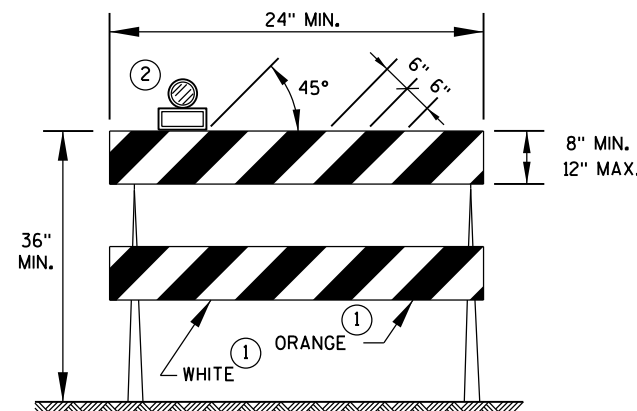


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

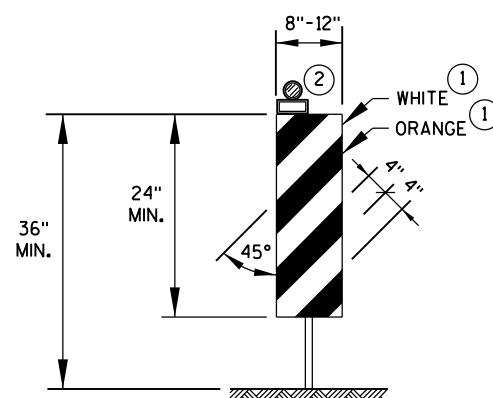
GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



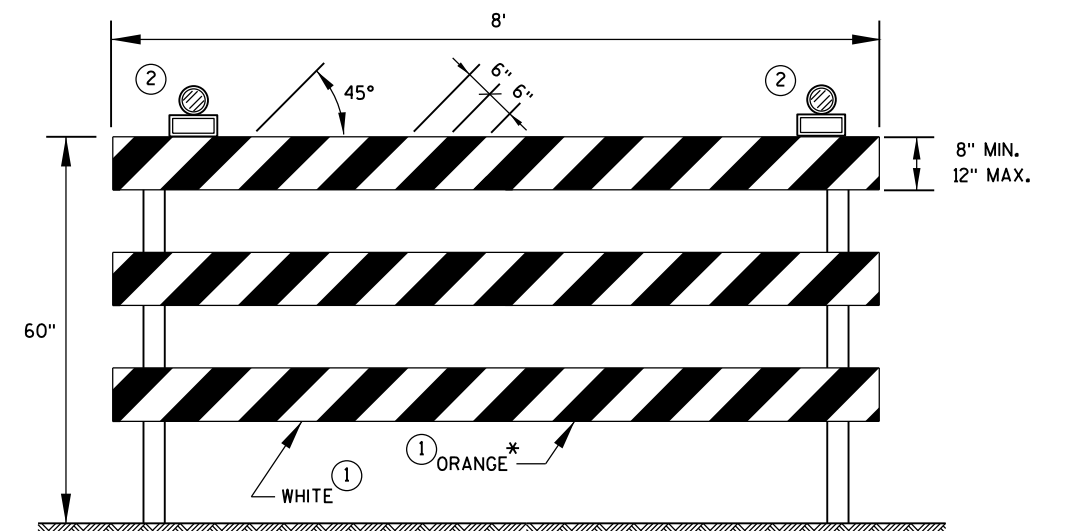
TYPE 2 BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED.
ALL STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.



VERTICAL PANEL

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



TYPE 3 BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION, USE RED SHEETING.

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017
DATE

FHWA

/S/ Andrew Heidtke
WORK ZONE ENGINEER

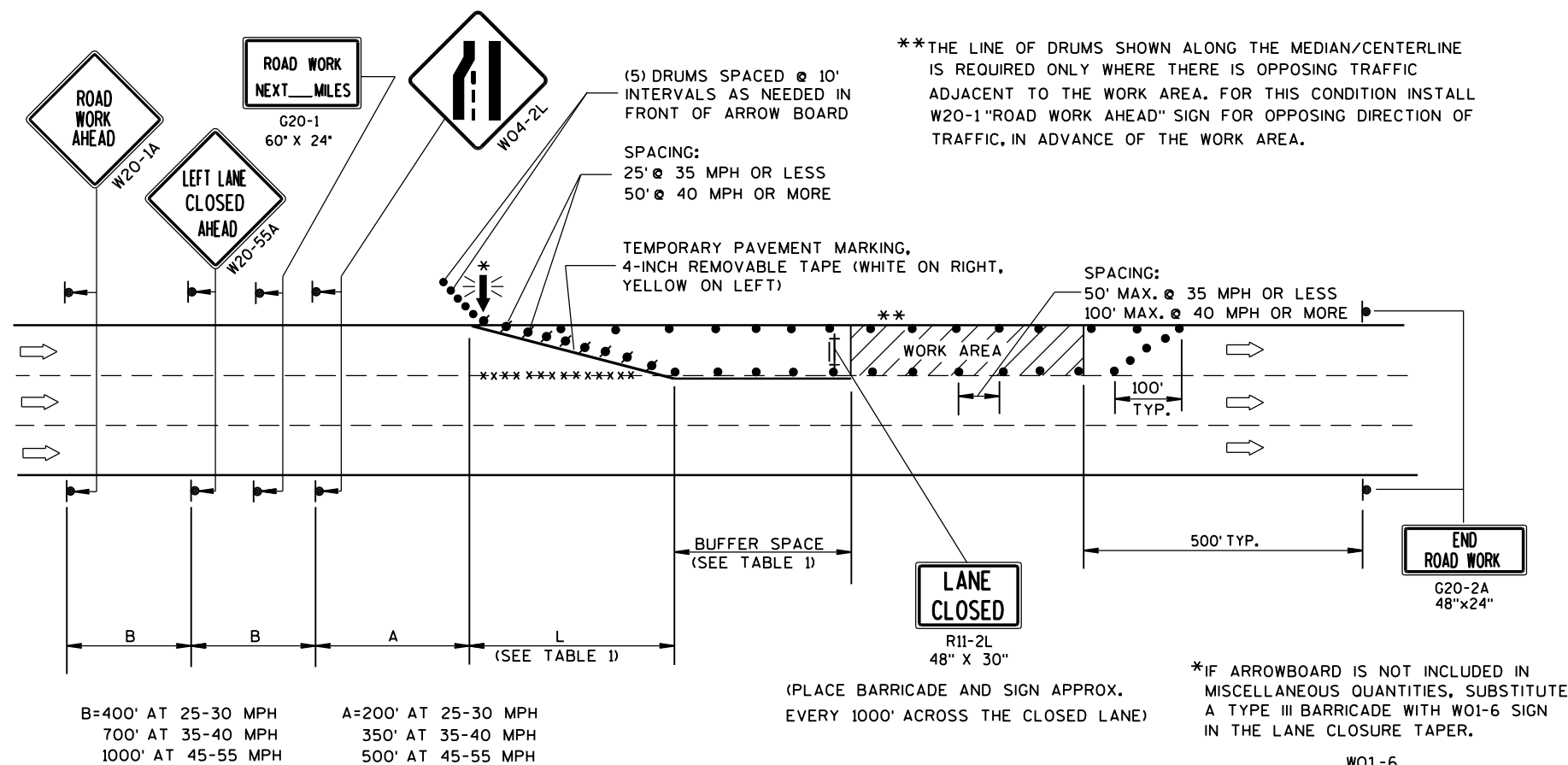


TABLE 1
 TAPER AND BUFFER SPACE
 FOR 12' LANE WIDTH

S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

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

GENERAL NOTES

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, 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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

ON UNDIVIDED ROADWAYS, OMIT THE SIGNS SHOWN ON LEFT SIDE OF ROAD.

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

PLACE THE ARROWBOARD AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE LANE CLOSURE TAPER, PREFERABLY ON THE SHOULDER OR TERRACE.

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

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED

June 2016

DATE

FHWA

/S/ Peter Amakobe Atepe

STATEWIDE WORK ZONE TRAFFIC

SAFETY ENGINEER

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.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

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.

W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

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

TABLE A

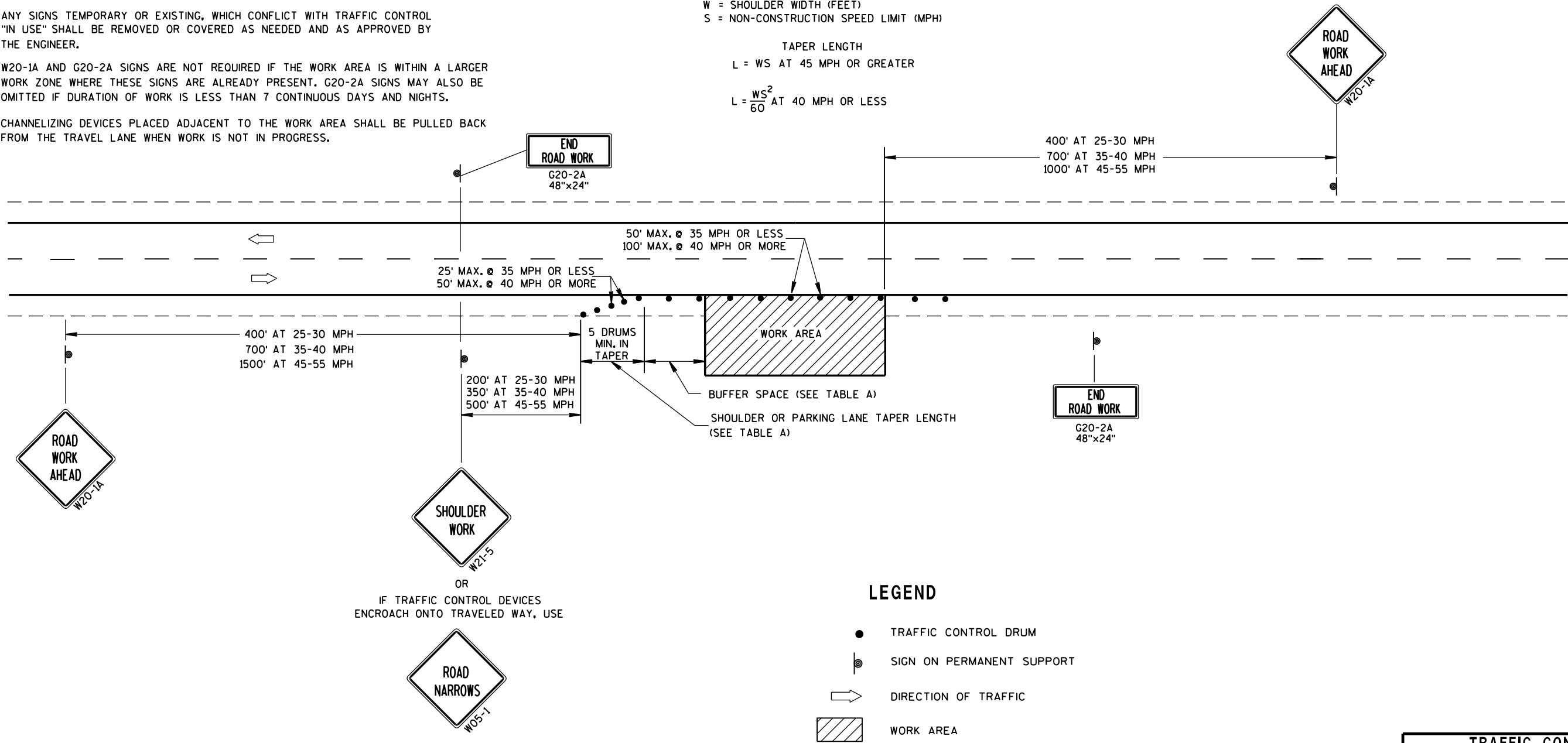
SHOULDER TAPER LENGTH (FEET)					BUFFER SPACE (FEET)
S	W	4	6	8	
30	20	30	40	50	200
35	30	45	55	70	250
40	40	55	75	90	305
45	60	90	120	150	360
50	70	100	135	170	425
55	75	110	150	185	495

W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

TAPER LENGTH
L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

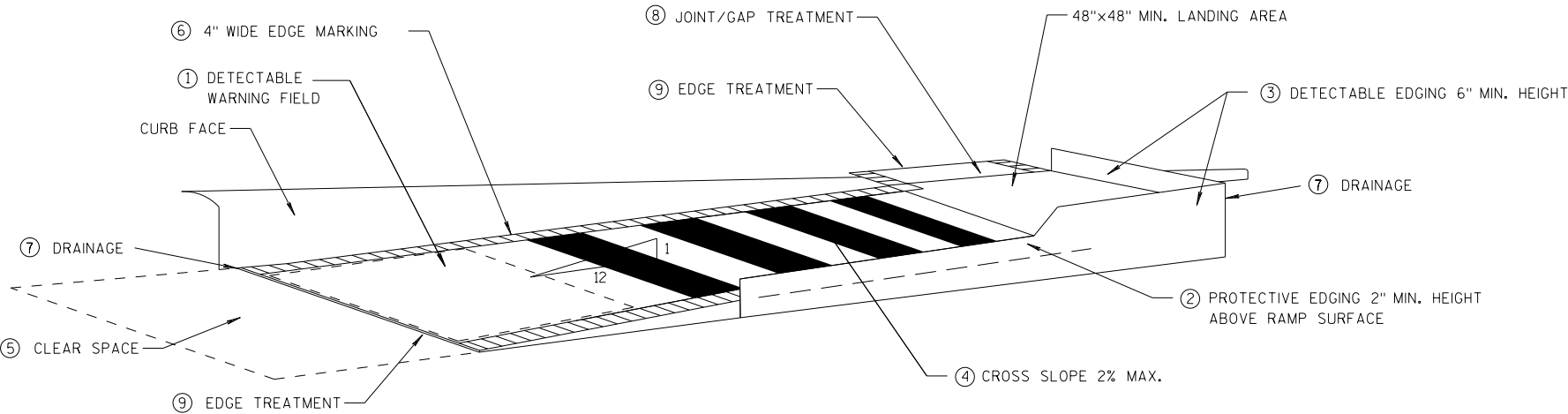
SHOULDER TAPER LENGTH = $\frac{1}{3}L$



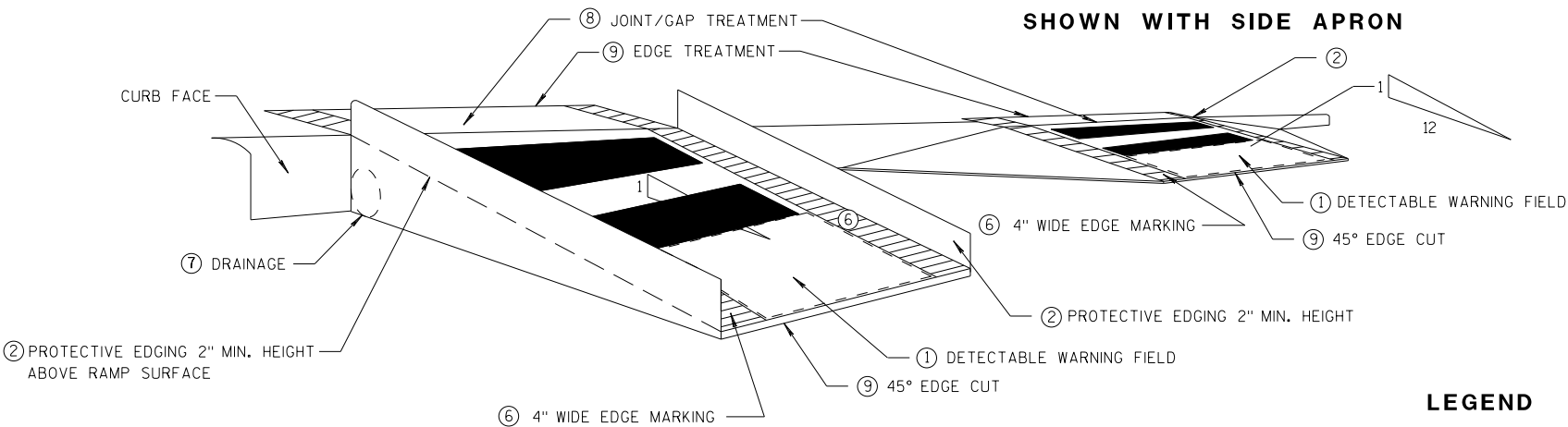
TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED July 14, 2015 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

GENERAL NOTES

- NOTIFY THE BUS COMPANY 7 DAYS IN ADVANCE OF THE BUS STOP RELOCATION.
ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.
- 1 CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE. INSTALL CONTRASTING DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS. REFER TO SDD 805 SHEET "E".
 - 2 PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
 - 3 DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
 - 4 CURB RAMPS AND LANDINGS SHALL HAVE A 1:50 (2%) MAX. CROSS-SLOPE.
 - 5 CLEAR SPACE OF 48"x48" MIN. SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
 - 6 THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A YELLOW COLOR, 4" WIDE MARKING, UNLESS A CONTRASTING DETECTABLE WARNING FIELD IS PROVIDED.
 - 7 DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
 - 8 LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.
 - 9 CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES SHALL BE VERTICAL UP TO 1/4" HIGH, AND BEVELED AT 1:2 BETWEEN 1/4" AND 1/2".
 - 10 5' WIDE MIN. WITH PEDSETRIAN SAFETY FENCE, 10' WIDE MIN. WITHOUT PEDESTRIAN SAFETY FENCE.

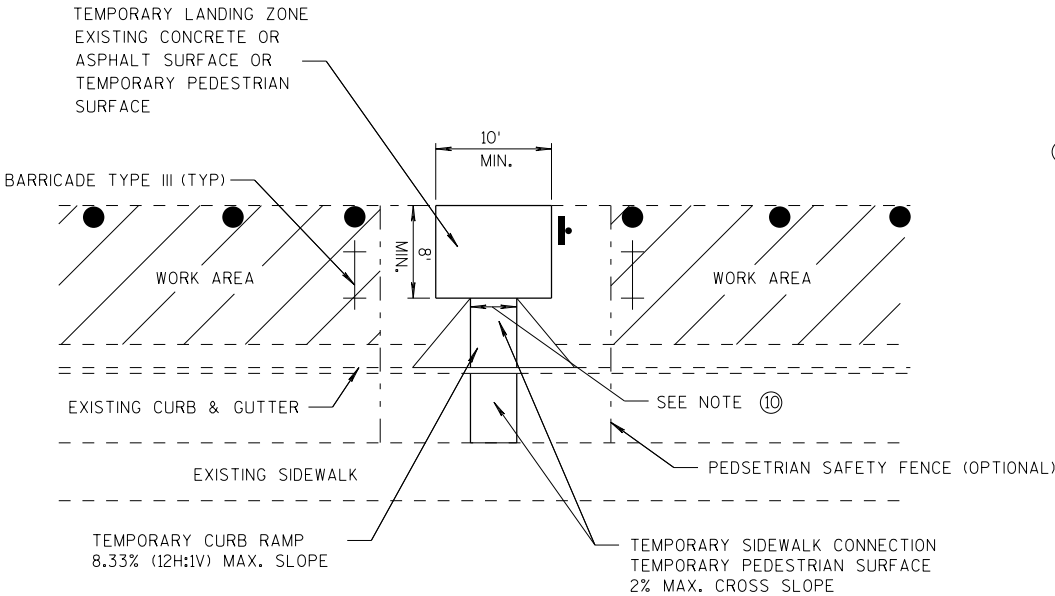


TEMPORARY CURB RAMP
PARALLEL TO CURB



SHOWN WITH PROTECTIVE EDGE

TEMPORARY CURB RAMP
PERPENDICULAR TO CURB

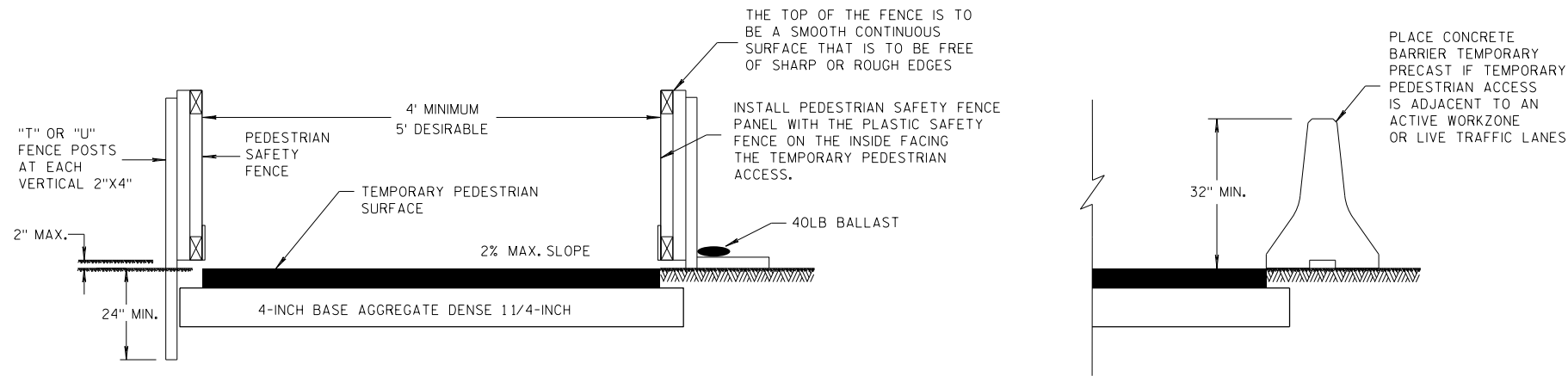


TEMPORARY BUS STOP PAD

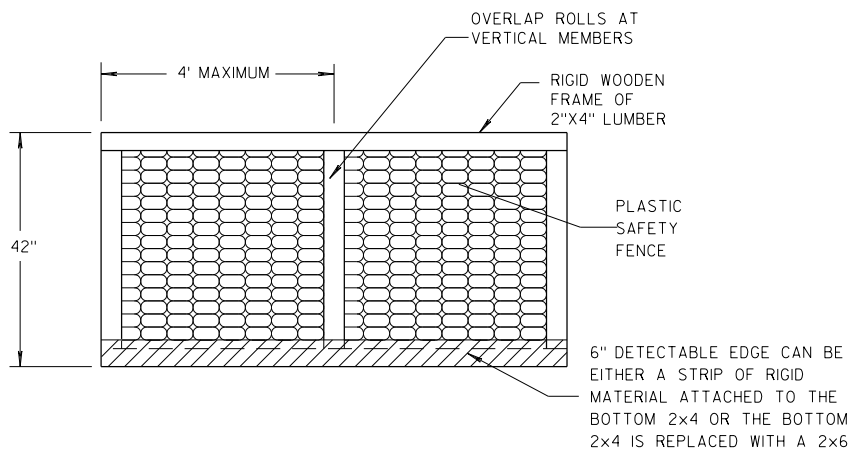
LEGEND

	WORK AREA
	TYPE III BARRICADE
	TRAFFIC CONTROL DRUM

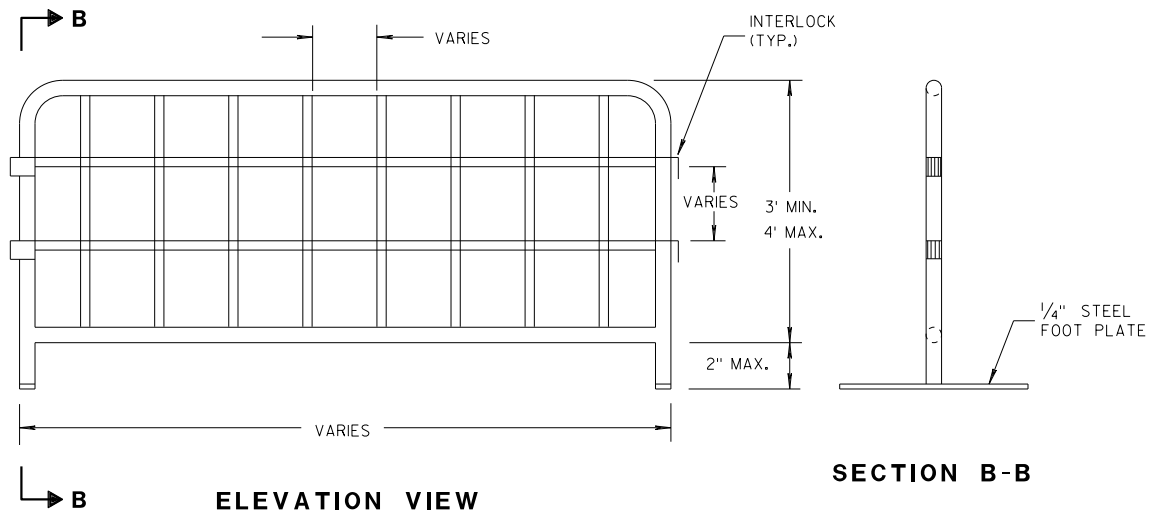
TRAFFIC CONTROL, TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



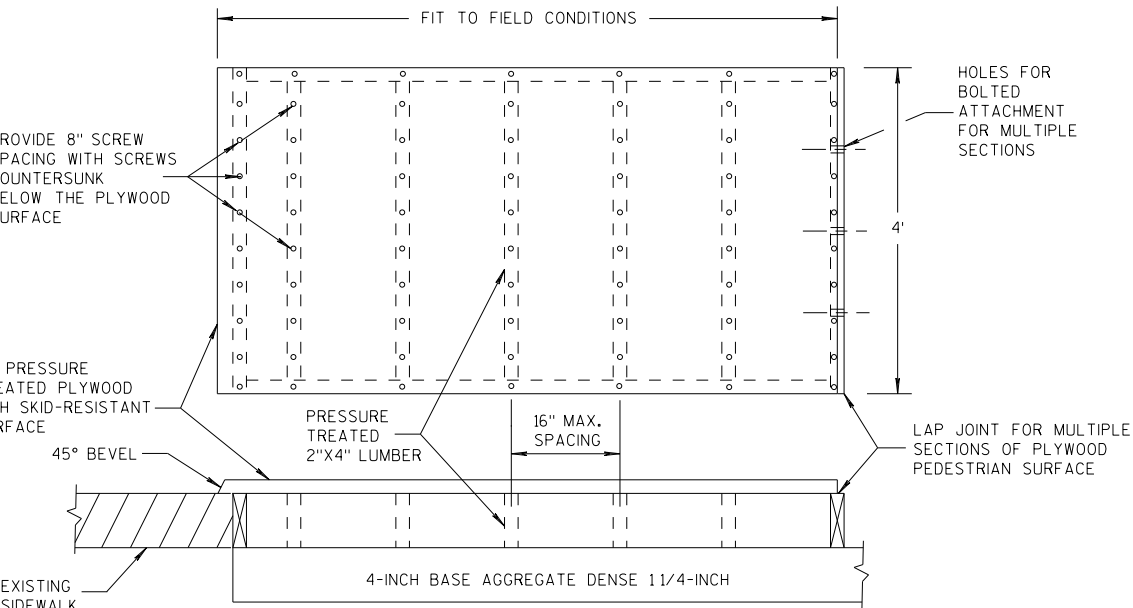
TEMPORARY PEDESTRIAN ACCESS



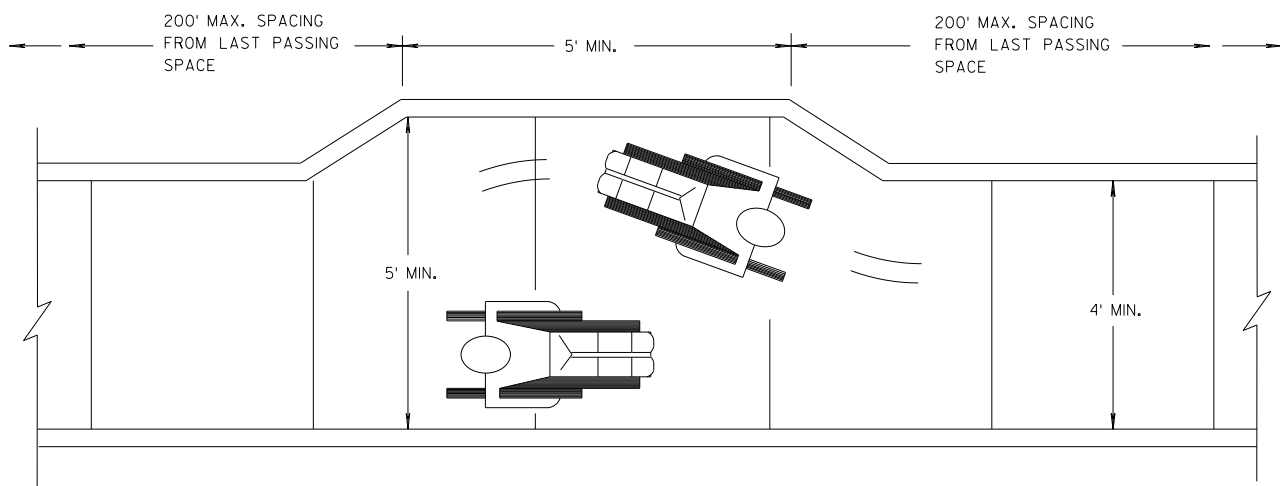
PEDESTRIAN SAFETY FENCE



TEMPORARY PEDESTRIAN STEEL BARRICADE



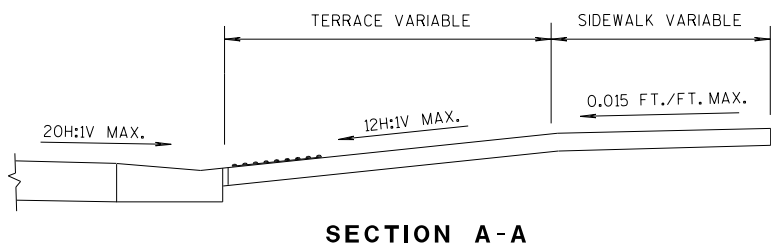
TEMPORARY PEDESTRIAN SURFACE PLYWOOD



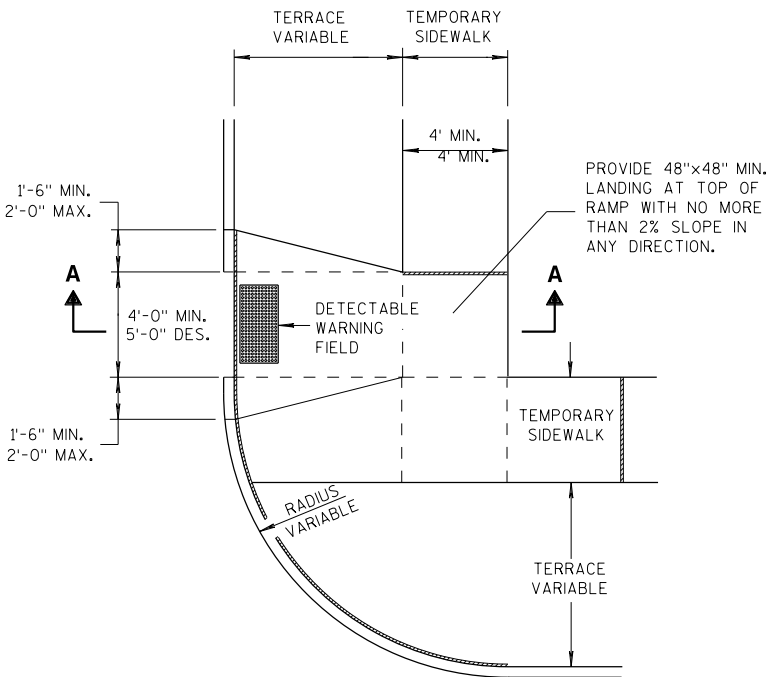
NARROW SIDEWALK PASSING DETAIL

GENERAL NOTES

- ① INTERCHANGEABLE WITH THE PEDESTRIAN SAFETY FENCE.

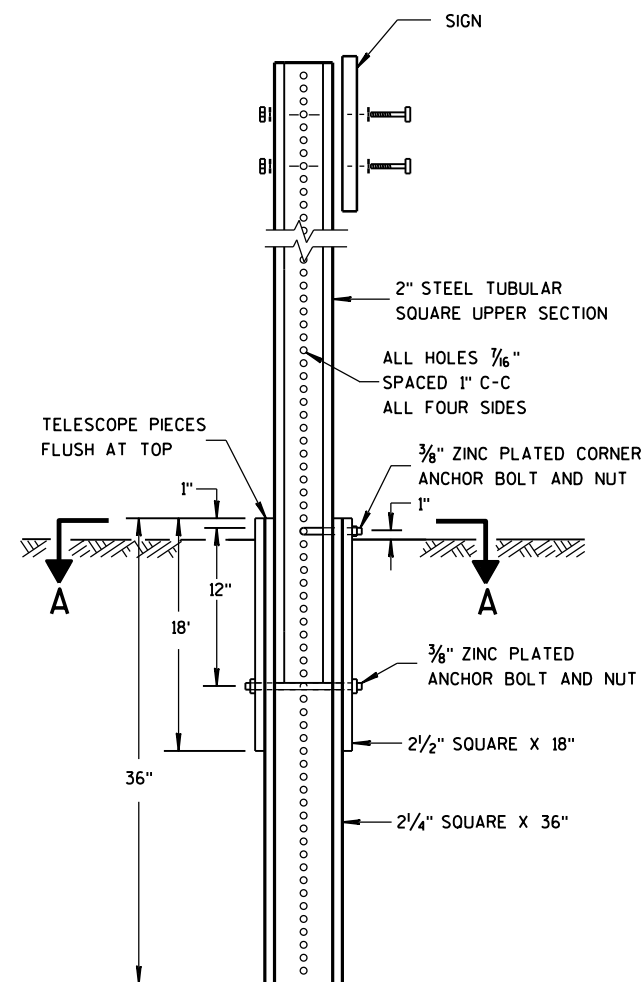


SECTION A-A



TEMPORARY TYPE 3 RAMP
(OUTSIDE OF CROSSWALK AREA)

TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



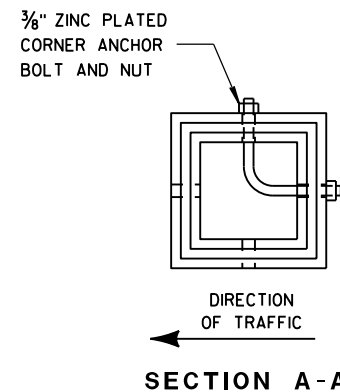
DETAIL OF TUBULAR
STEEL SIGN POST

TUBULAR STEEL POSTS

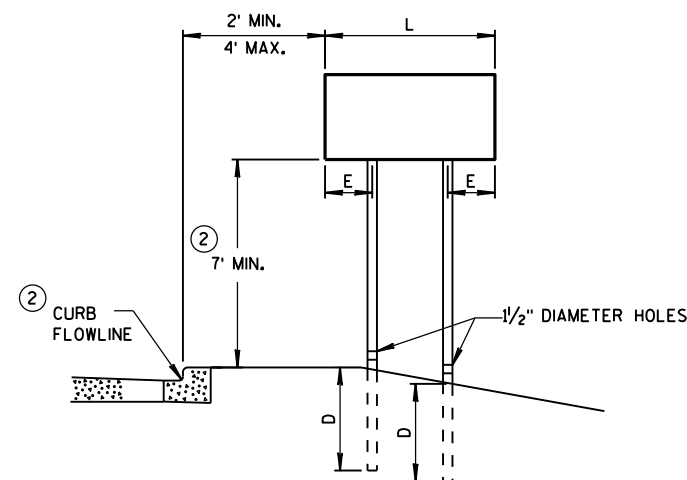
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

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

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



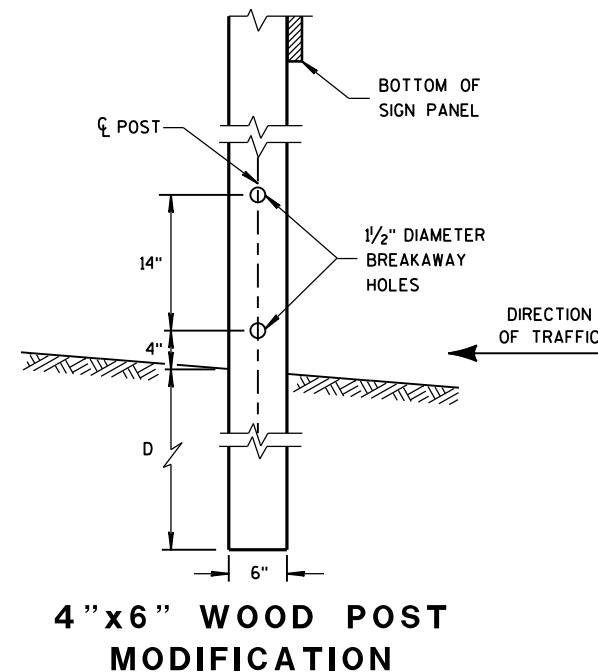
SECTION A-A



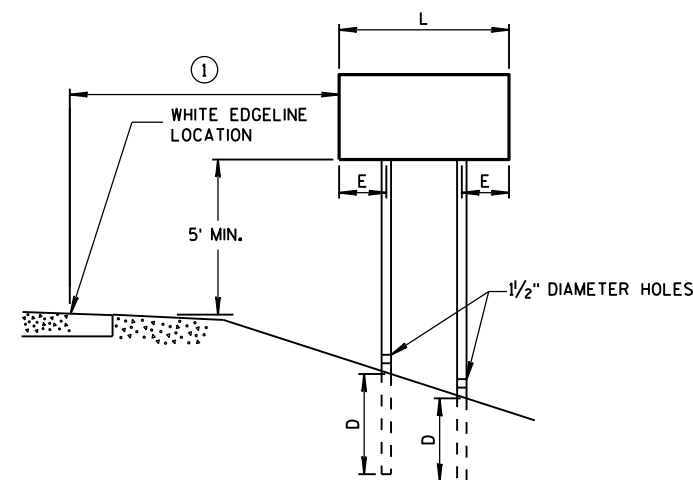
URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

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



4 "x6 " WOOD POST
MODIFICATION



RURAL AREA

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

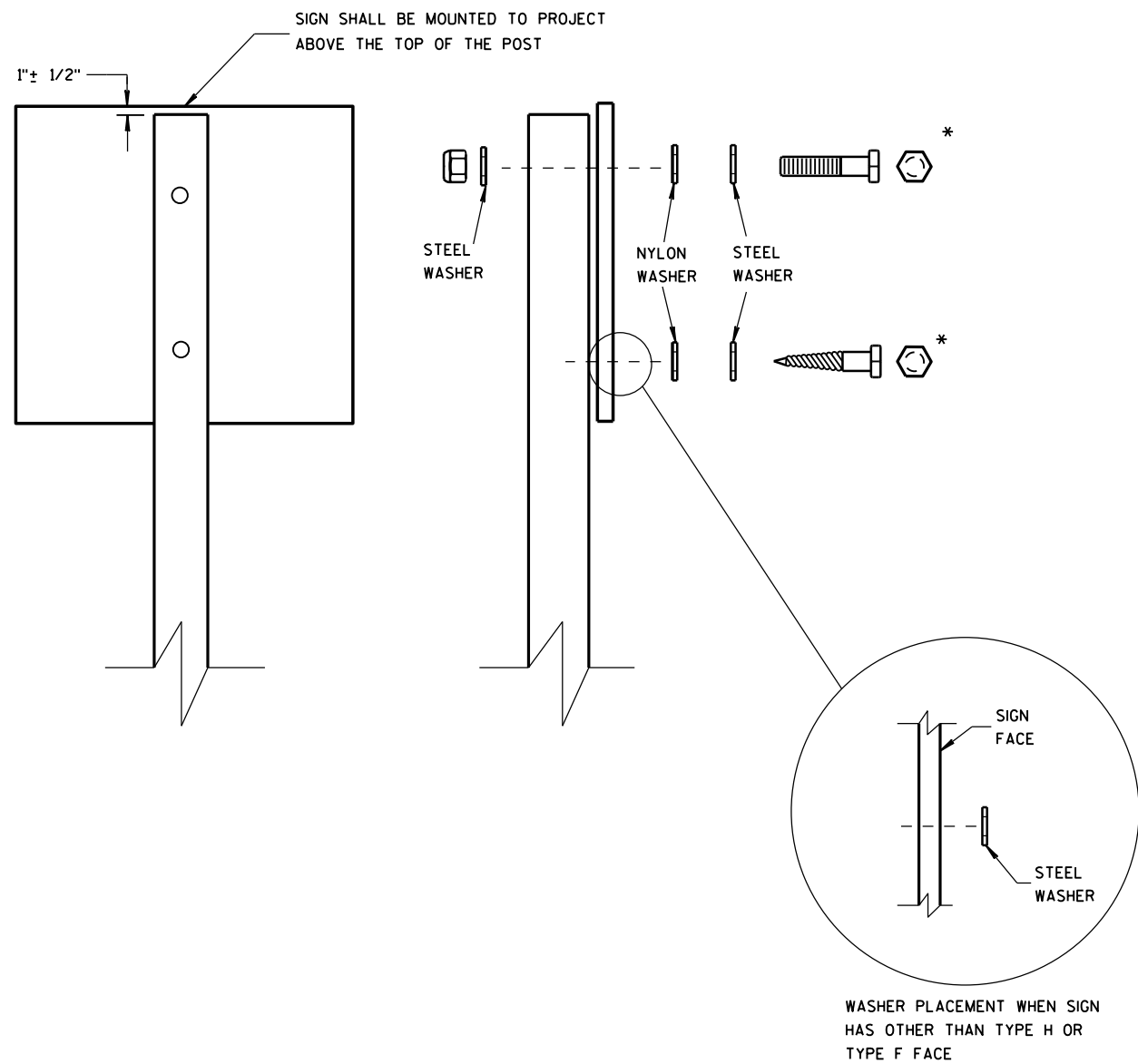
SEE NOTE ③

GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL
SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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

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

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

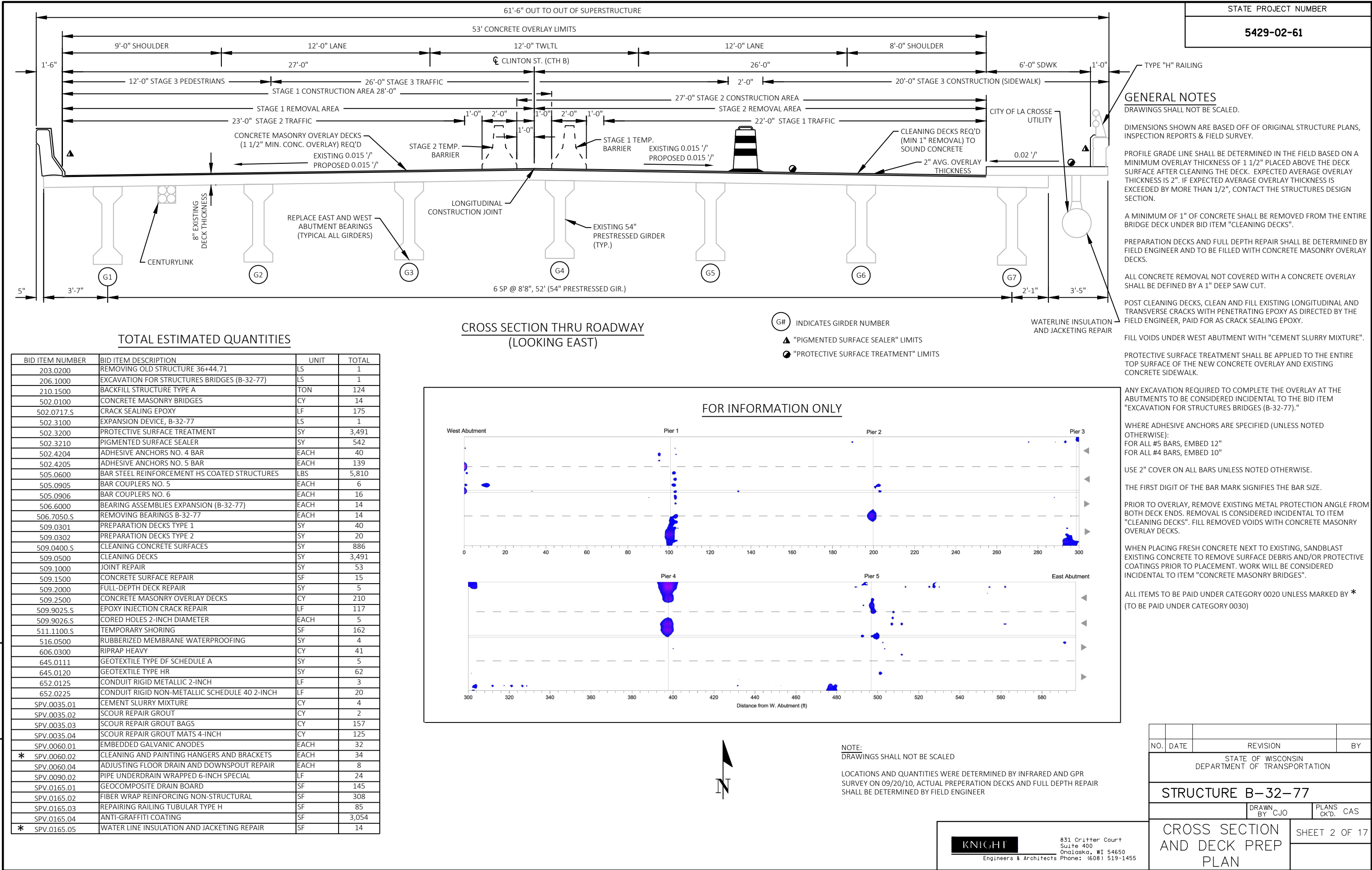
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" x 3"
 - MACHINE BOLTS - 5/16" x 6-1/2" OR 7" LENGTH W/ NUTS

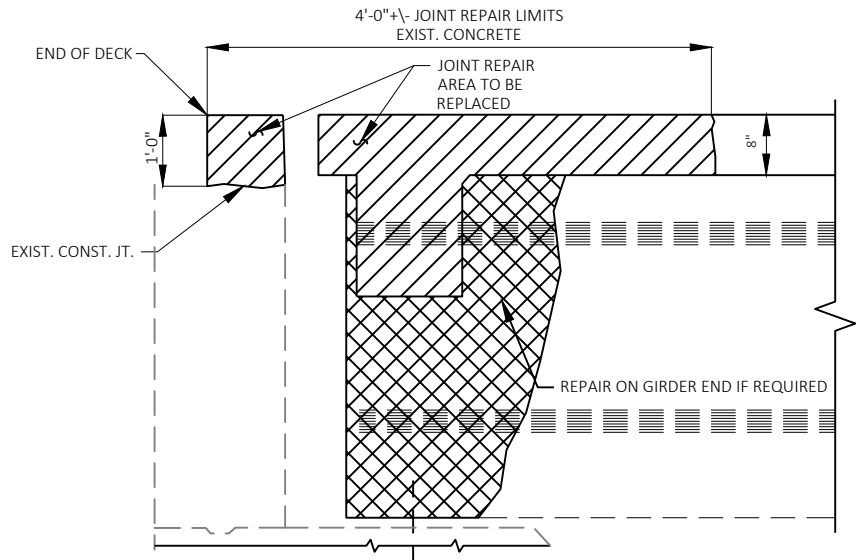
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

- 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 FOR ALL TYPE H SIGNS

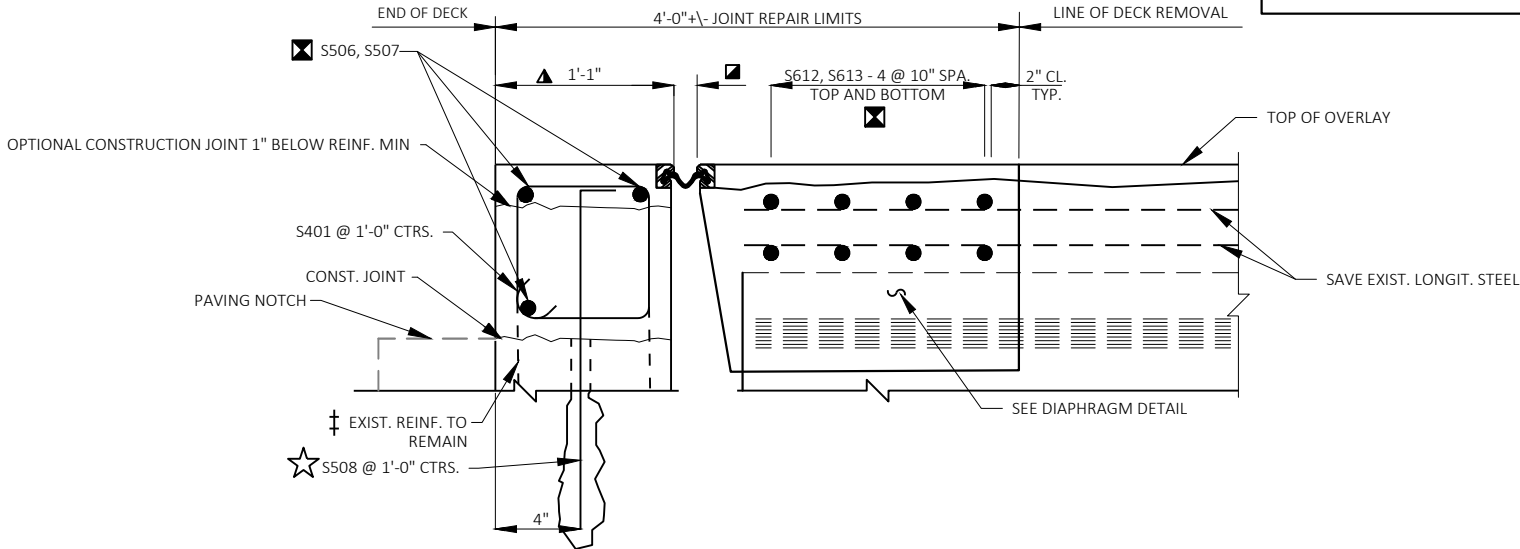
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

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





EXPANSION JOINT REMOVAL DETAIL



SECTION THRU EXPANSION JOINT

▲ DIMENSIONS GIVEN ARE NORMAL TO $\perp$ OF SUBSTRUCTURE UNIT.

EXPANSION JOINT BILL OF BARS

BAR MARK	NUMBER REQUIRED	LENGTH	BENT	COAT	LOCATION
S401	118	3'-4"	X	X	EXPANSION JOINTS, APPROACHES
S402	108	7'-0"	X	X	DIAPHRAGMS
S403	8	7'-8"		X	DIAPHRAGM BLOCK HORIZ. EXTERIOR GIRDERS
S404	8	8'-3"	X	X	SIDEWALK, DECK
S405	8	4'-3"		X	SIDEWALK, TRANSVERSE
S506	6	26'-8"		X	EXPANSION JOINTS, APPROACHES, STAGE 1
S507	6	25'-8"		X	EXPANSION JOINTS, APPROACHES, STAGE 2
☆ S508	118	3'-0"	X	X	EXPANSION JOINTS, APPROACHES
S509	12	8'-0"		X	PAVING BLOCK, TRANSVERSE
S510	8	6'-9"	X	X	SIDEWALK, TRANSVERSE
S511	4	5'-8"		X	SIDEWALK PAVING BLOCK, TRANSVERSE
S612	16	26'-8"		X	EXPANSION JOINTS, DECK ENDS, STAGE 1
S613	16	25'-8"		X	EXPANSION JOINTS, DECK ENDS, STAGE 2
S714	96	7'-8"		X	DIAPHRAGMS, BETWEEN BEAMS

TOTAL WEIGHT = 4520 LBS

TEMP (F)	DIM (IN)
90	1 5/8
80	1 7/8
70	2 1/8
60	2 5/16
50	2 1/2
45	2 5/8
40	2 3/4
30	2 15/16

TEMP. IS THE SHADED UNDERSIDE DECK TEMP. (TEMPERATURE VS. DIMENSION TABLE FROM AS-BUILTS USED)

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. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

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-32-77".

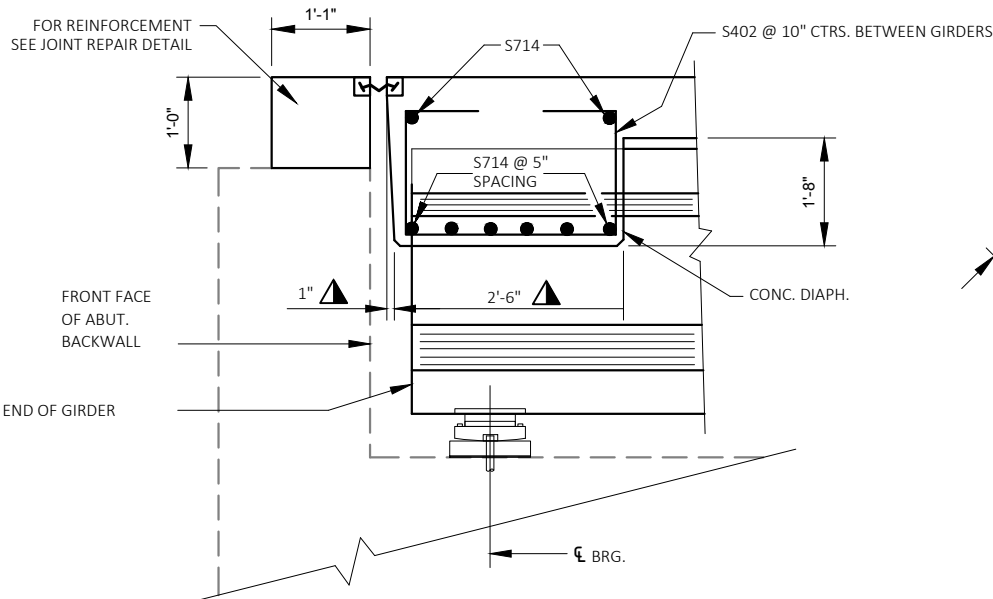
☆ ADHESIVE ANCHORS NO. 5 BARS. EMBED A MINIMUM OF 1'-6" INTO CONCRETE. SPACE AT 1'-0". TURN 10" AS NECESSARY TO FIT.

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: ☆

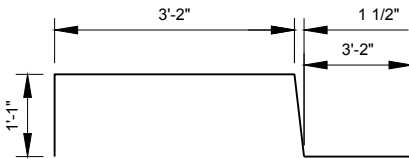
SPlice LENGTHS FOR REINFORCEMENT ARE THE FOLLOWING: #6 BARS = 2'-3", #5 BARS = 1'-6", #4 BARS = 1'-3"

☒ PROVIDE 16 #6 AND 6 #5 BAR COUPLERS LOCATED AT THE LONGITUDINAL JOINTS. COUPLERS ARE TO BE USED TO CONNECT S612 AND S613 AS WELL AS S506 AND S507 BETWEEN STAGES 1 AND 2.

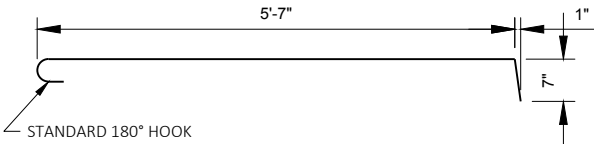
SEE SHEETS 4, 5, AND 6 FOR ADDITIONAL DETAILS



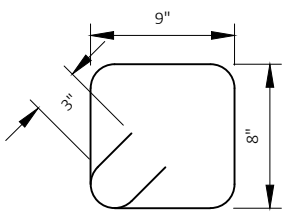
DIAPHRAGM DETAIL



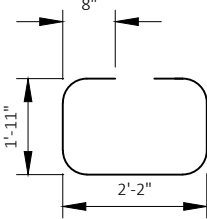
S404



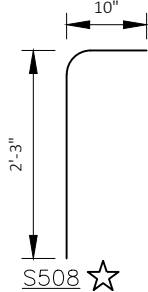
S510



S401



S402



S508 ☆

LEGEND

- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
- ② STUDS 5/8" DIA. 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" DIA. 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" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. GROUT THREADED ROD INTO FIELD DRILLED HOLES ON ` OF GIRDER. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- ④ 3/4" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" X 1 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" DIA. HOLE FOR NO. 3 & 1" DIA. HOLE FOR NO. 4.
- ⑥ GALVANIZED PLATE 3/8" X 10" X 2'-2" WITH HOLES FOR NO. 7 FOR SINGLE SLOPE PARAPET.
- ⑦ 3/4" DIA. X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- ⑧ 3/4" DIA. X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨ 3/4" DIA. X 2 1/4" GALVANIZED THREADED COUPLING.
- ⑩ 1" x 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
- ⑪ SIDEWALK COVER PLATE 3/8" X 2'-0" X LIMITS SHOWN. BEND DOWN FACE OF SIDEWALK WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.

■ SEE TABLE ON EXPANSION JOINT DETAIL 1 SHEET

▲ DIMENSIONS GIVEN ARE NORMAL TO ϵ OF SUBSTRUCTURE UNIT.

NOTES

SEE SHEETS 3, 5, AND 6 FOR ADDITIONAL DETAILS

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.

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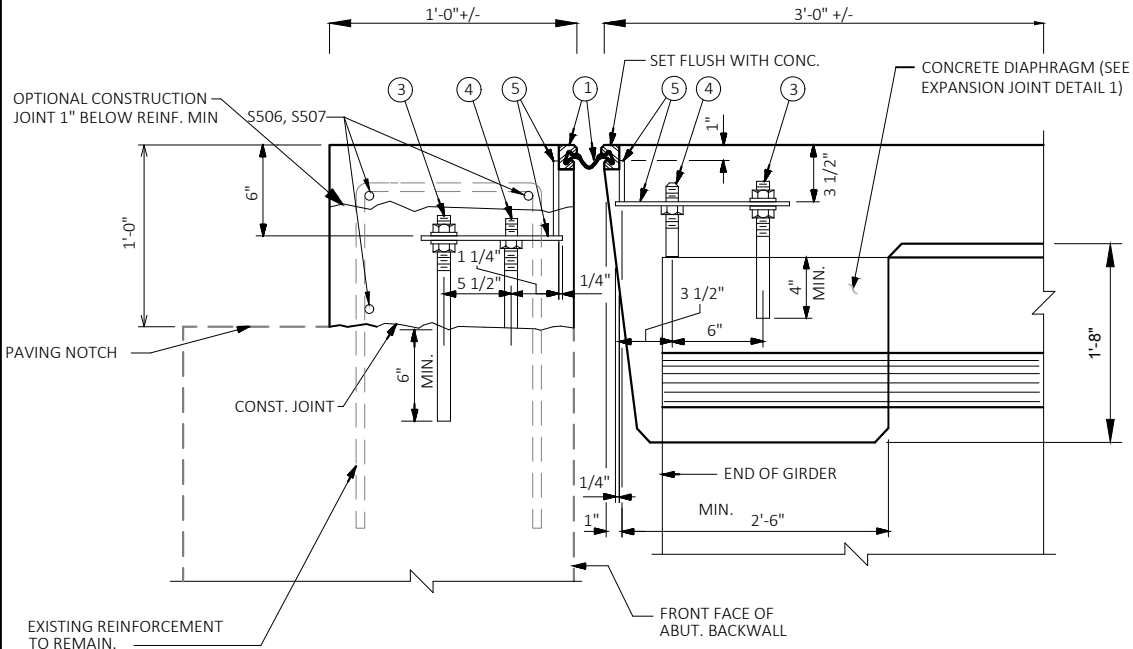
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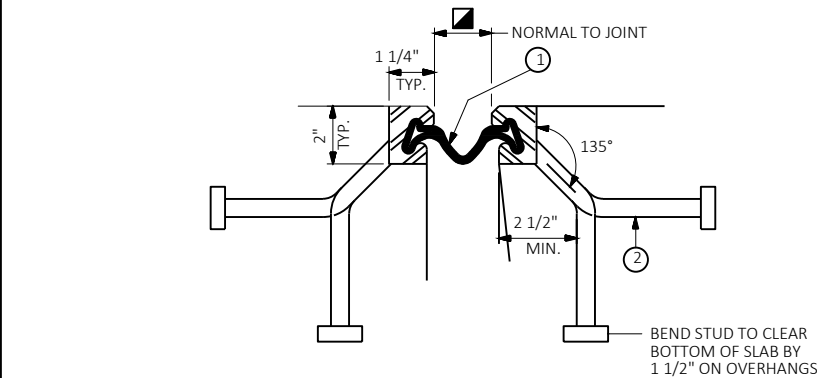
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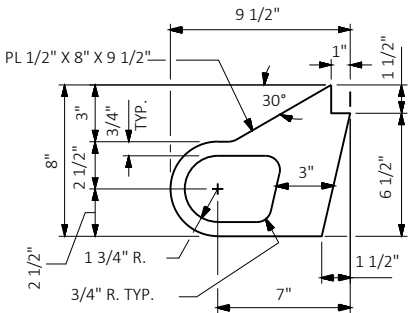
† SPlice LENGTHS FOR REINFORCEMENT ARE THE FOLLOWING: #6 BARS = 2'-3", #5 BARS = 1'-6", #4 BARS = 1'-3"



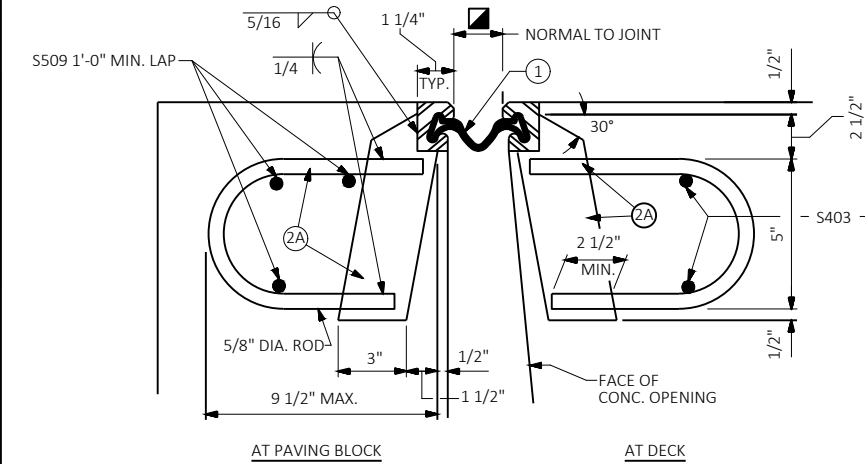
SECTION THRU JOINT AT ABUTMENT
NORMAL TO ϵ SUBSTRUCTURE



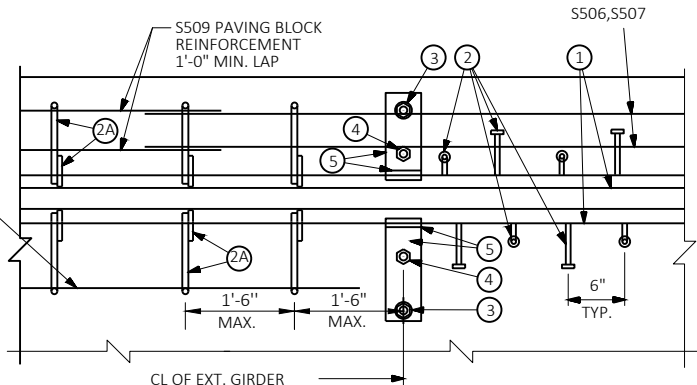
SECTION THRU JOINT
EXTERIOR GIRDER TO EDGE OF DECK AND AT
PARAPETS, MEDIANS AND SIDEWALKS



ALTERNATE STRIP SEAL ANCHOR



SECTION THRU JOINT
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

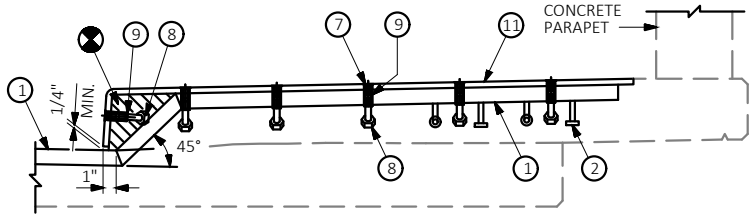


PART PLAN

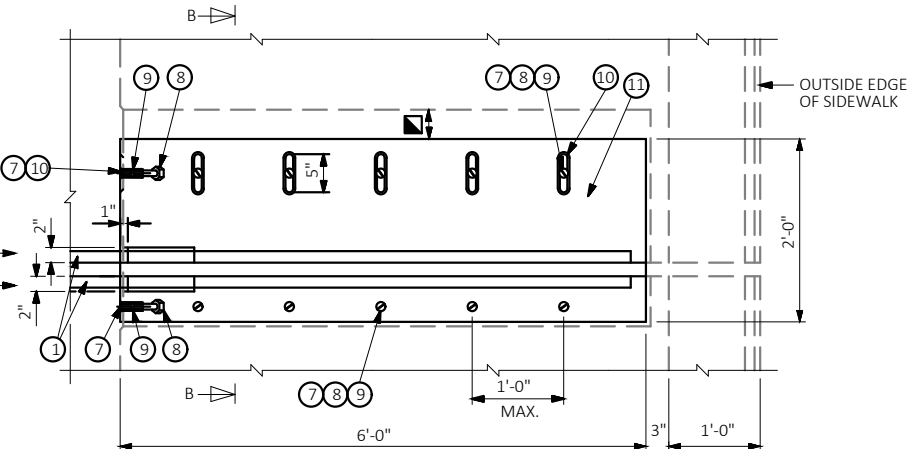
KNIGHT

831 Critter Court
Suite 400
Oshkosh, WI 54650
Engineers & Architects Phone: (608) 519-1455

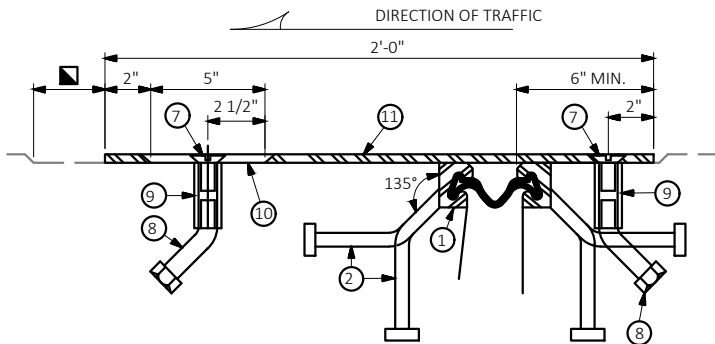
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-32-77			
DRAWN BY CJO		PLANS CK'D. CAS	
EXPANSION JOINT DETAIL 2			SHEET 4 OF 17



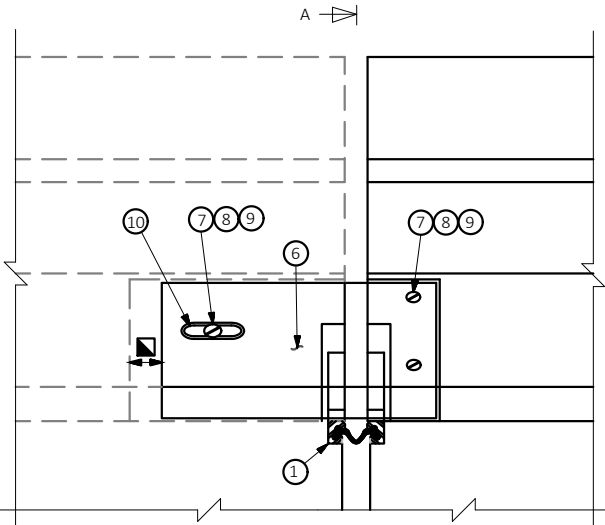
SECTION AT SIDEWALK



PLAN AT SIDEWALK



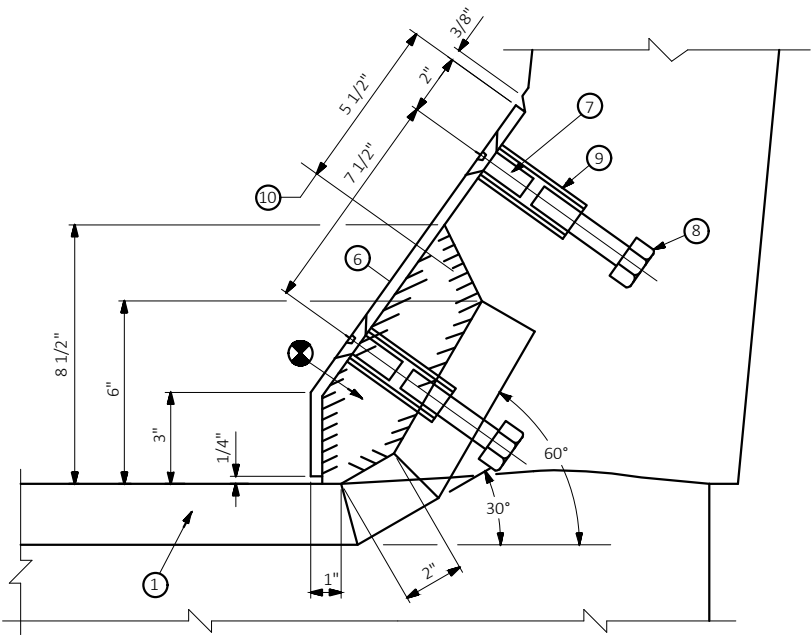
SECTION B-B



VIEW OF PARAPET PLATE-NORTH PARAPET FROM ROADWAY

NOTES:

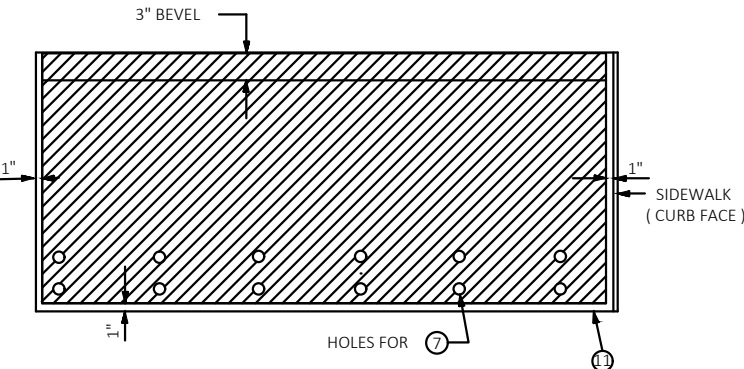
SEE SHEETS 3 AND 4 FOR ADDITIONAL DETAILS



SECTION A-A

LEGEND

- 1 NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
- 2 STUDS 5/8" DIA. 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" DIA. 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" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. GROUT THREADED ROD INTO FIELD DRILLED HOLES ON ` OF GIRDER. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- 4 3/4" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- 5 FABRICATE SUPPORT FROM 3" X 1 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" DIA. HOLE FOR NO. 3 & 1" DIA. HOLE FOR NO. 4.
- 6 GALVANIZED PLATE 3/8" X 10" X 2'-2" WITH HOLES FOR NO. 7 FOR SLOPE FACED PARAPET.
- 7 3/4" DIA. X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- 8 3/4" DIA. X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- 9 3/4" DIA. X 2 1/4" GALVANIZED THREADED COUPLING.
- 10 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
- 11 SIDEWALK COVER PLATE 3/8" X 2'-0" X LIMITS SHOWN. BEND DOWN FACE OF SIDEWALK WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

- ▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY (NOT ON CURB FACE). GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.
- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2". SEE TABLE ON EXPANSION JOINT DETAIL 1 SHEET

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-32-77			
DRAWN BY CJO		PLANS CK'D. CAS	
COVER PLATE DETAILS		SHEET 5 OF 17	

KNIGHT
831 Critter Court
Suite 400
Oshkosh, WI 54650
Engineers & Architects Phone: (608) 519-1455

NOTES:

STEEL SPLICE (COUPLER) ASSEMBLY SHALL BE AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125% OF THE YIELD STRENGTH OF THE SPLICED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL BE A MINIMUM 60 KSI YIELD STRENGTH, AND HAVE TENSILE STRENGTH AREA EQUAL OR OR GREATER THAN THAT OF THE LAPPED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL MEET THE DEFORMATION REQUIREMENTS FOR STANDARD ASTM A615 DEFORMED REINFORCING BARS.

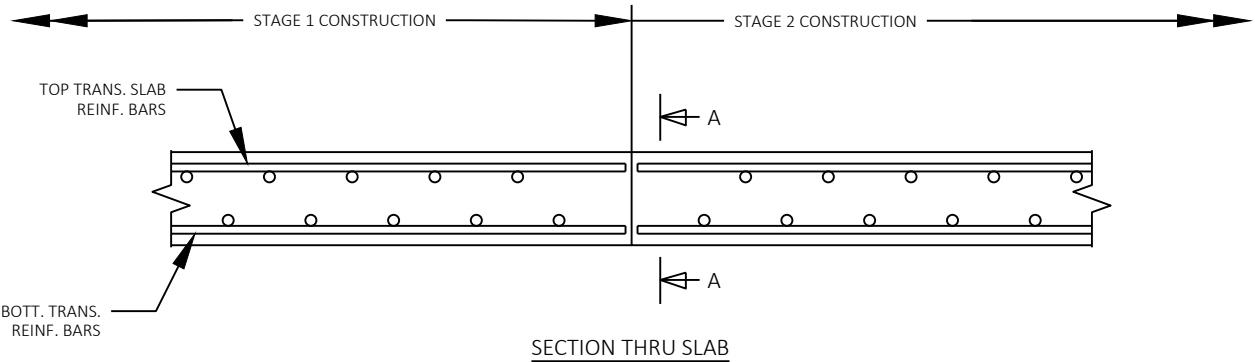
FOR DOWEL BAR SPLICERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE SPLICER BARS.

SPLICER (COUPLER) ASSEMBLY IN THE SLAB SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS FOR REINFORCEMENT BARS.

OTHER SYSTEMS OF SIMILAR DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. APPROVAL SHALL BE BASED ON CERTIFIED TEST RESULTS FROM AN APPROVED TESTING LABORATORY THAT THE PROPOSED SPLICER (COUPLER) ASSEMBLY SATISFIES THE FOLLOWING REQUIREMENT:

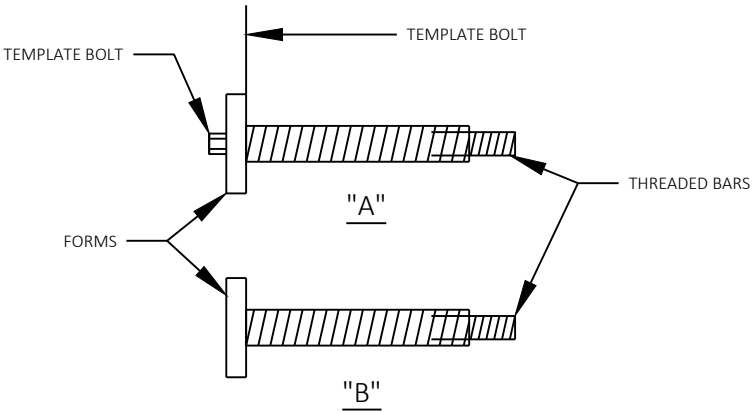
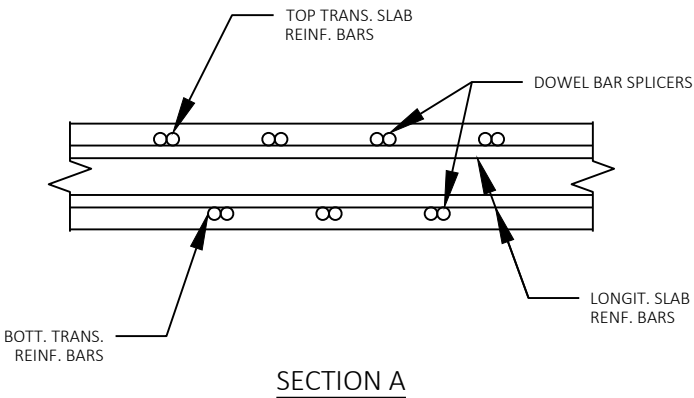
MINIMUM CAPACITY = 1.25 X f_y X AREA OF SPLICED REINFORCEMENT BAR.

WHERE f_y = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS.



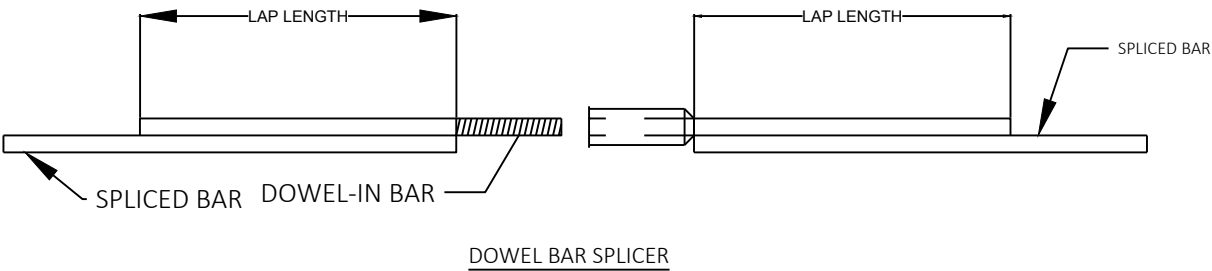
DOWEL BAR SPLICER LENGTHS

CONCRETE UNDER BAR	BAR SIZE	4	5	6	7	8	9	10	11
12" OR LESS	$f_c = 3500$	1'-8"	2'-8"	3'-2"	4'-3"	5'-6"	7'-0"	8'-9"	10'-11"
	$f_c = 4000$	1'-8"	2'-8"	3'-2"	4'-0"	5'-2"	6'-6"	8'-3"	10'-2"
MORE THAN 12"	$f_c = 3500$	2'-3"	2'-11"	3'-6"	4'-8"	6'-1"	7'-10"	9'-10"	12'-1"
	$f_c = 4000$	2'-3"	2'-11"	3'-6"	4'-5"	5'-8"	7'-4"	9'-2"	11'-4"



INSTALLATION AND SETTING METHODS

"A" SET SPLICER BY MEANS OF TEMPLATE BOLT
"B" SET SPLICER BY NAILING TO WOOD FORMS OR CEMENTING TO STEEL FORMS



SPLICER ALTERNATIVES

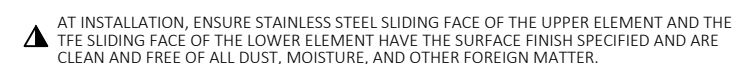


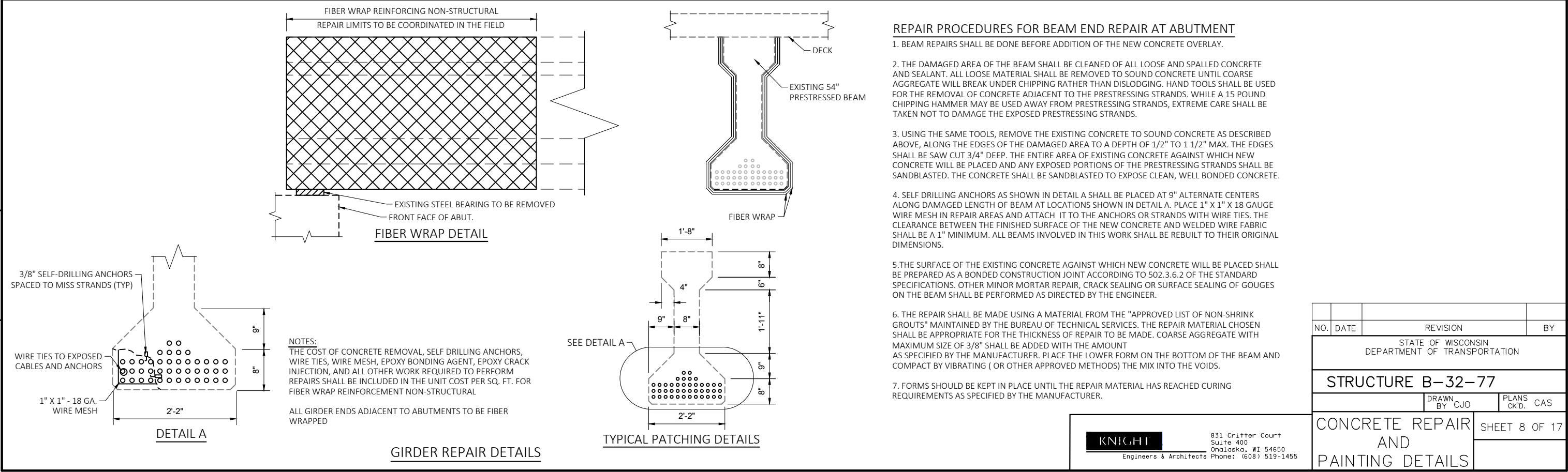
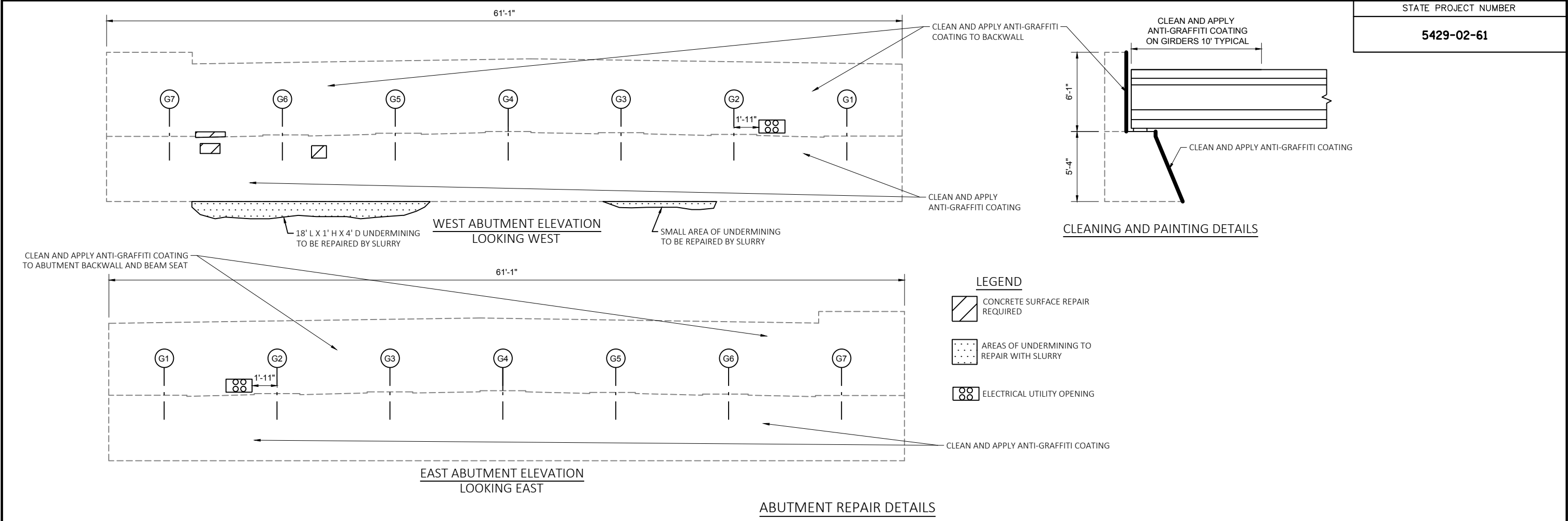
ONE PIECE THREADED SPLICER

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SPLICER DETAILS		SHEET 6 OF 17	

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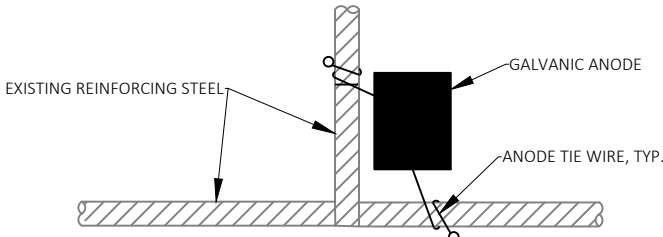
GENERAL NOTES

SEE SPECIAL PROVISION "EMBEDDED GALVANIC ANODES" FOR DESCRIPTION MATERIALS, CONSTRUCTION, MEASUREMENT, AND PAYMENT INFORMATION.

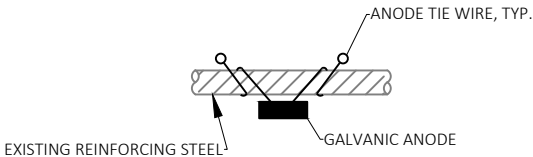
ANODES NEAREST TO EDGE OF REPAIR TO BE WITHIN 6" OF EDGE.

AFTER PLACEMENT, GALVANIC ANODES SHOULD MAINTAIN A MINIMUM TOP COVER OF 1 1/2" AND MINIMUM BOTTOM COVER OF 3/4".

"EMBEDDED GALVANIC ANODES" TO BE APPLIED AT LOCATIONS OF "CONCRETE SURFACE REPAIR" AND DAMAGED GIRDER ENDS IN TANDEM WITH "FIBER WRAP REINFORCING NON-STRUCTURAL"



TYPICAL INSTALLATION AT BAR STEEL INTERSECTION

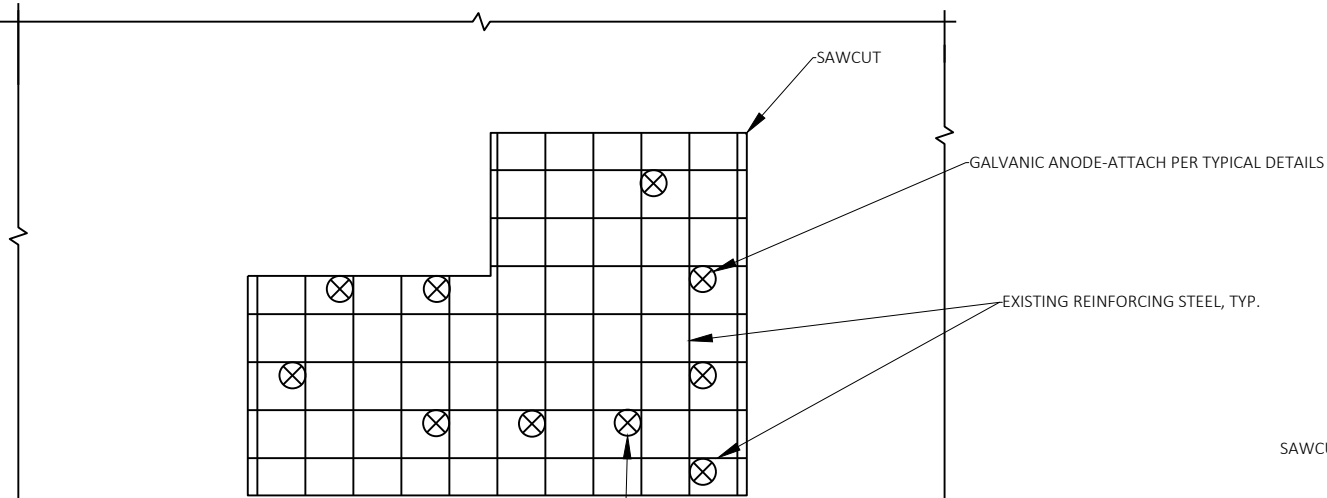


TYPICAL INSTALLATION FOR BAR STEEL

STEEL DENSITY RATIO	MAXIMUM ANODE SPACING (INCHES)
≤ 0.30	24"
0.31 → 0.50	20"
0.51 → 0.60	18"
0.61 → 0.80	16"
0.81 → 0.90	15"
0.91 → 1.00	14"
1.01 → 1.20	12"
≥ 1.20	*

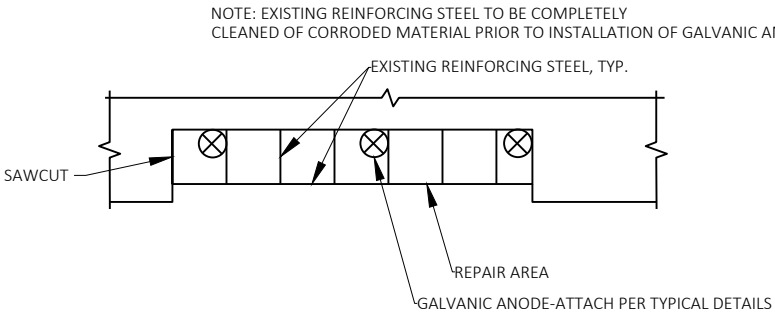
NOTES:

- 1) *AT STEEL DENSITY RATIOS GREATER THAN 1.20, GC TO CONSULT THE ENGINEER TO DETERMINE MAXIMUM ANODE SPACING AND ANODE LAYOUT.
- 2) STEEL DENSITY RATIO IS THE RATIO OF STEEL REINFORCING BAR SURFACE AREA TO EXPOSED CONCRETE SURFACE AREA WITHIN THE REPAIR AREA.
- 3) TABLE IS BASED ON THE HIGH CORROSION RISK WITHIN THE SURFACE REPAIR AREA, A MINIMUM ZINC MASS OF 38 GRAMS, AND AN APPROXIMATE SERVICE LIFE OF 10-20 YEARS.



PLACE GALVANIC ANODES AT INTERIOR OR REPAIR WHEN REINFORCING STEEL IS IN CONTACT WITH THE EXISTING CONCRETE AT THE BOTTOM OF THE REPAIR

PART. PLAN TYPICAL REPAIR DETAIL



NOTE: EXISTING REINFORCING STEEL TO BE COMPLETELY CLEANED OF CORRODED MATERIAL PRIOR TO INSTALLATION OF GALVANIC ANODES.

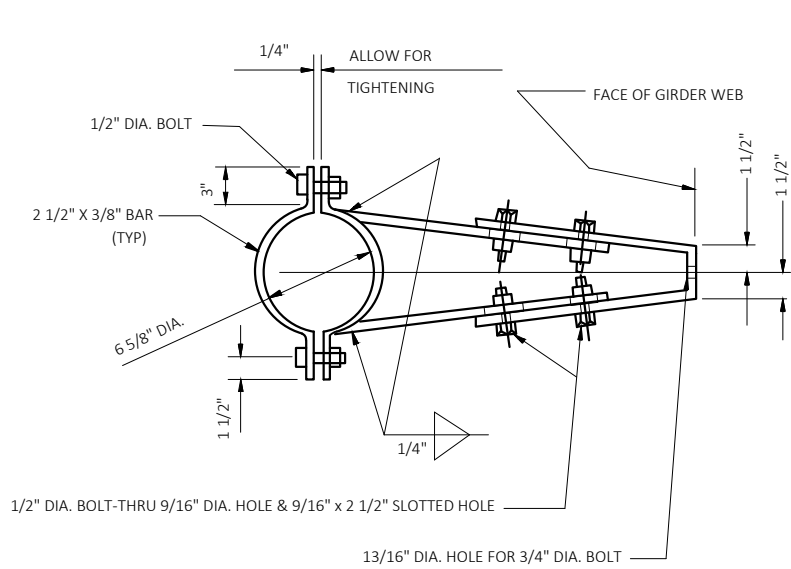
PART. PLAN TYPICAL REPAIR DETAIL

CATHODIC PROTECTION

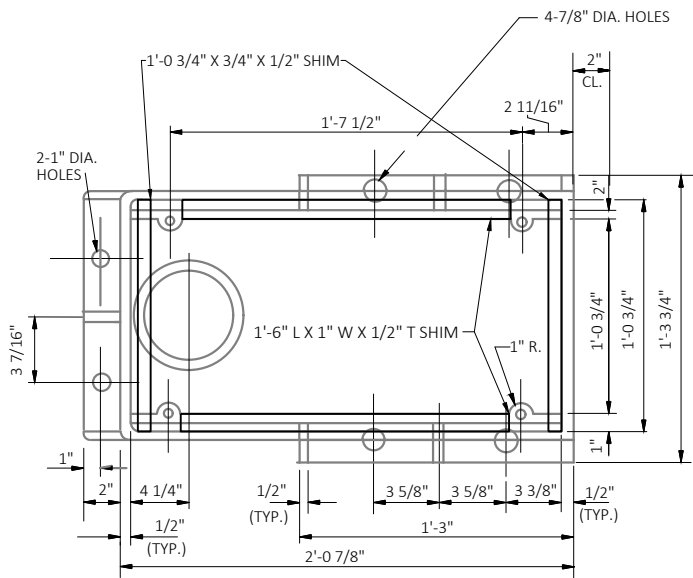
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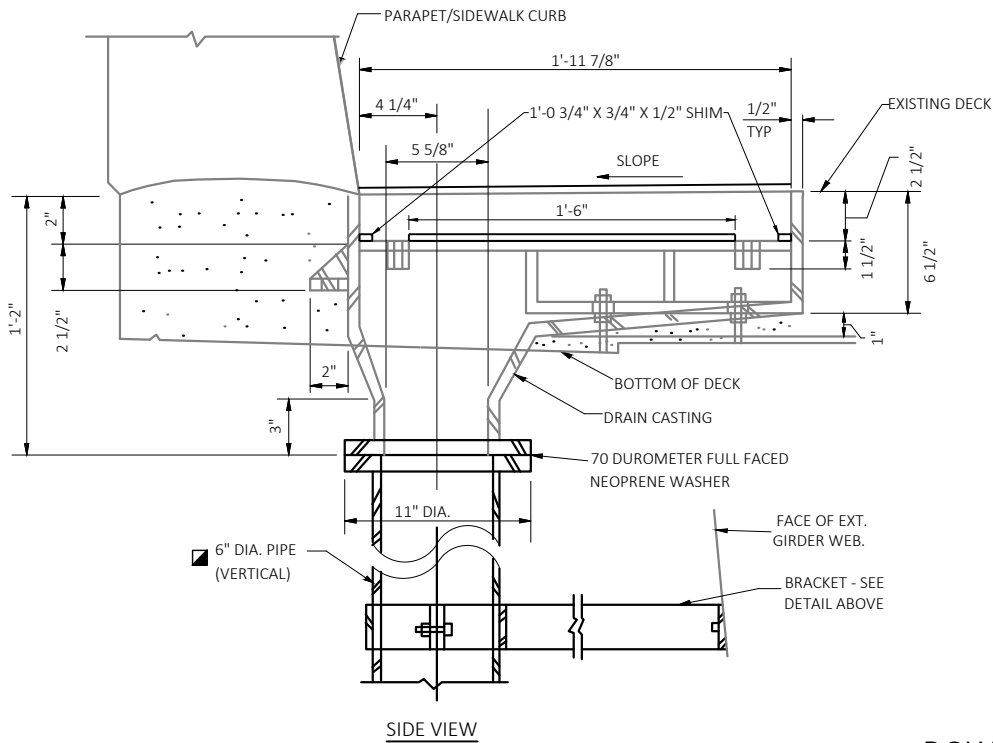
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-32-77			
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GALVANIC ANODES DETAIL			SHEET 9 OF 17



BRACKET DETAIL



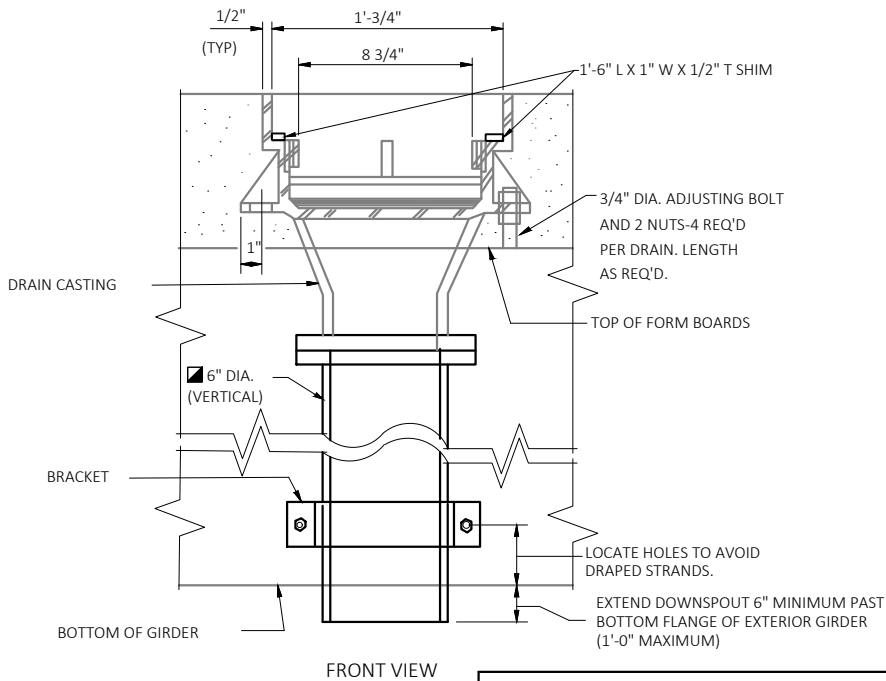
PLAN



SIDE VIEW

DOWNSPOUT REPAIR DETAIL

ALL WORK SHOWN INCIDENTAL TO ITEM SPV.0060.04

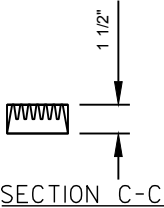
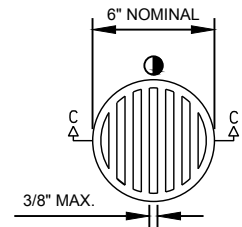


FRONT VIEW

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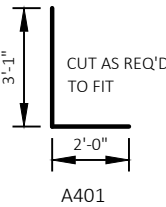
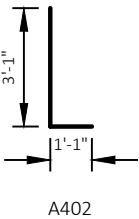
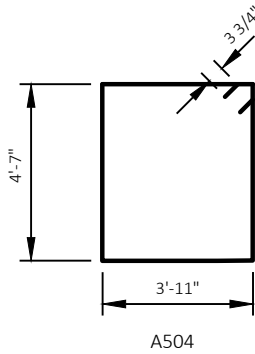
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-32-77			
DRAWN BY CJO		PLANS CK'D. CAS	
DOWNSPOUT AND UTILITY HANGER DETAIL			SHEET 10 OF 17



PIPE UNDERDRAIN RODENT SHIELD DETAIL

① DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

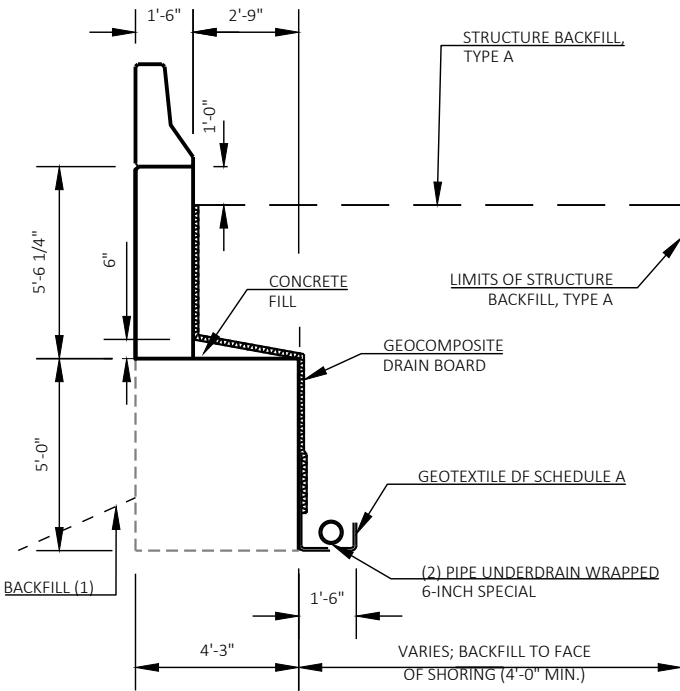


NORTHEAST WING (WING 3) BILL OF BARS

BAR MARK	NUMBER REQUIRED	LENGTH	BENT	COAT	LOCATION
* A401	18	5'-0"	X	X	WING 3 VERTICAL, B.F.
* A402	22	4'-1"	X	X	WING 3 VERTICAL, F.F.
A503	12	13'-8"		X	WING 3 HORIZONTAL F.F & B.F.
A504	8	17'-8"	X	X	WING 3 STIRUP
A505	30	7'-5"		X	WING 3 VERTICAL, F.F. & B.F.
A506	5	13'-8"		X	WING 3 HORIZONTAL, F.F.
* A507	11	6'-5"		X	WING 3 VERTICAL, B.F.
* A508	10	3'-6"		X	WING 3 HORIZONTAL
A709	6	6'-2"		X	WING 3 HORIZONTAL
A710	5	12'-0"		X	WING 3 HORIZONTAL, B.F.

*ADHESIVE ANCHORS REQUIRED

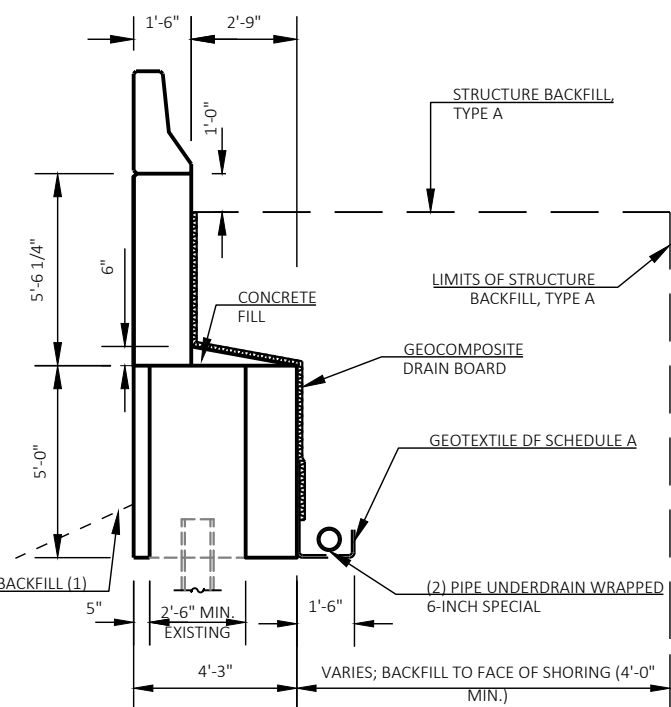
TOTAL WEIGHT = 1060 LBS



SECTION A-A

(1) WHEN COMPLETE, BACKFILL WITH EXCAVATED MATERIAL FROM B.F. OF WINGS. RESTORE WITH TOPSOIL, SEEDING MIXTURE NO. #40, FERTILIZER TYPE B, AND EROSION MAT URBAN CLASS 1 TYPE B. INCIDENTAL TO ITEM 'EXCAVATION FOR STRUCTURES BRIDGES (B-32-77).

WALL DRAIN AND UNDERDRAIN DETAIL
SEE WING DETAILS FOR LOCATIONS OF SHOWN SECTIONS



SECTION B-B

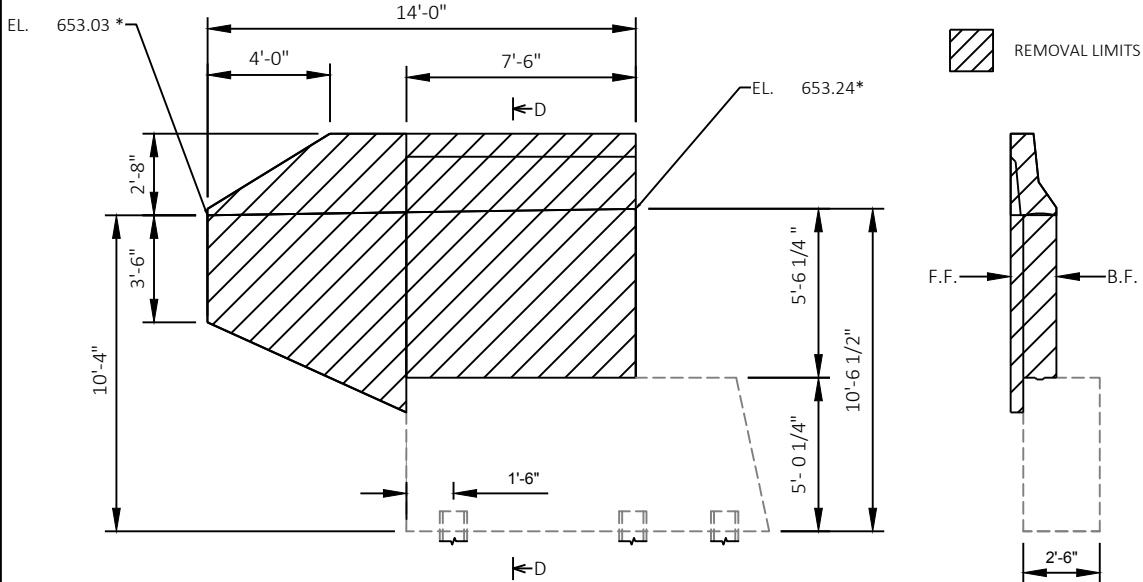
(2) DAYLIGHT END OF UNDERDRAIN 15-FEET PERPENDICULAR TO WING END. COUPLERS BETWEEN UNDERDRAIN TYPES AND RODENT SHIELD INCIDENTAL TO UNDERDRAIN ITEMS.

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STRUCTURE B-32-77			
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DRAINAGE AND WING REBAR TABLE		SHEET 11 OF 17	

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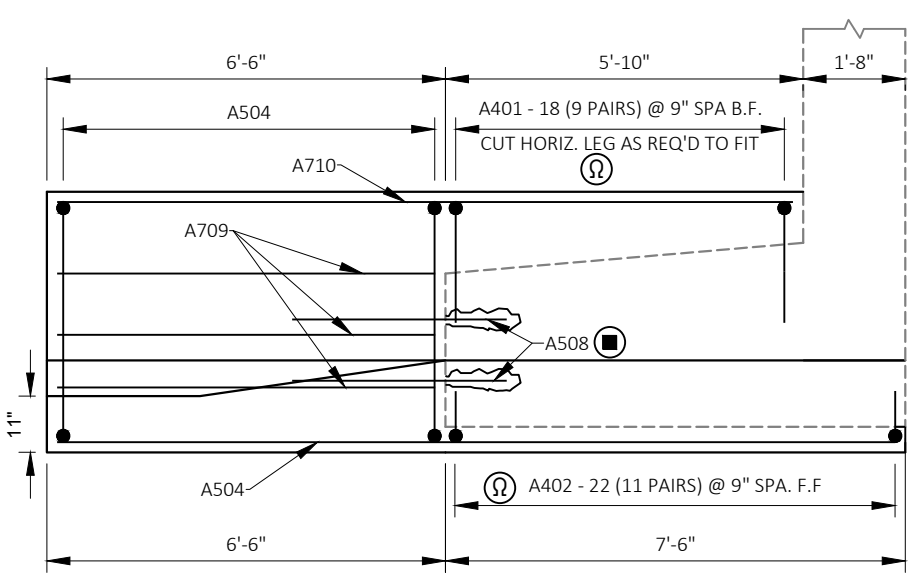
NOTES:

- * STAGGER BARS TO MISS PILES
- APPROXIMATE DISTANCE PER AS-BUILT. STAGGER A401 BARS TO AVOID PILE AS NEEDED.
- ADHESIVE ANCHORS REQ'D, EMBED 12".
- ADHESIVE ANCHORS REQ'D. EMBED 10".
- 1/2" FILLER, SEALER AND 18" RUBBERIZED MEMBRANE WATERPROOFING
- OPTIONAL CONST. JOINT FORMED BY SURFACED BEVELED 2" X 6" KEYWAY ('V'-GROOVE NOT REQ'D IF JOINT IS NOT USED).
- SEE PARAPET DETAIL FOR BAR STEEL PLACEMENT INTO WING.
- P.V.C. 2" DIA. NON-METALLIC CONDUIT. (EXPANSION FITTING REQUIRED AT EXPANSION JOINTS) TERMINATE TO MATCH LOCATION OF EXISTING CONDUIT IN EXISTING PARAPET.
- NON METALLIC CONDUIT TO METALLIC CONDUIT ADAPTER FITTING (UL OR NRTL LISTED FOR ELECTRICAL USE SHALL BE USED).
- USE 2" DIA. RIGID METALLIC (RMC) CONDUIT AT FITTINGS. PROVIDE RMC FOR 3'-0" MIN. FOR JOINT OPENING UNLESS NOTED OTHERWISE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING

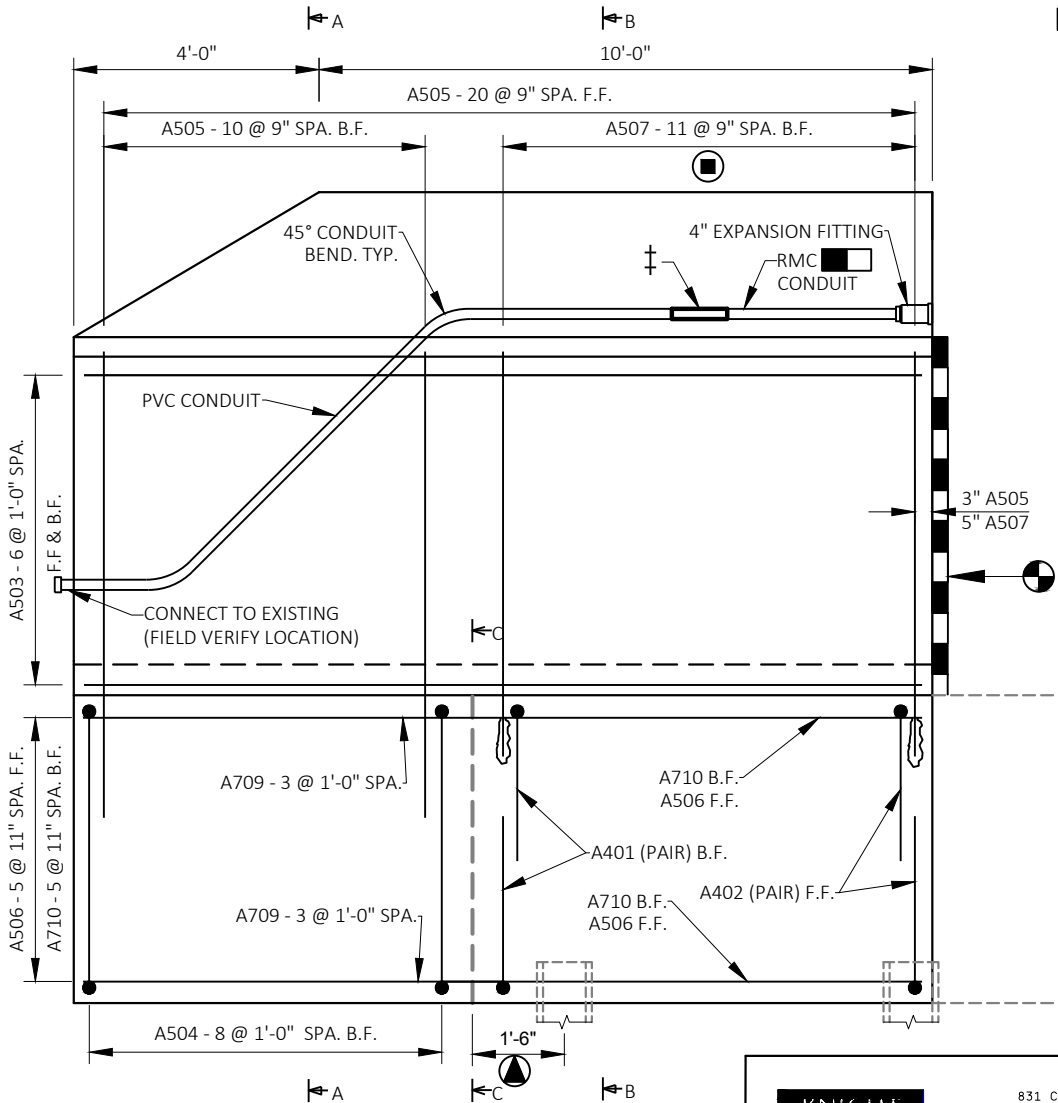


*BRIDGE ELEVATIONS TAKEN FROM ASBUILT PLANS AND ARE FOR VERTICAL REFERENCE ONLY

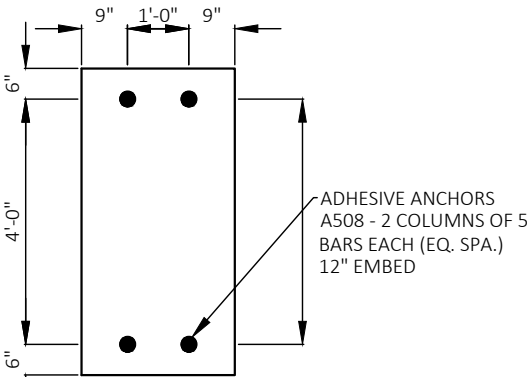
WING REMOVAL DETAILS



NORTHEAST WINGWALL PLAN

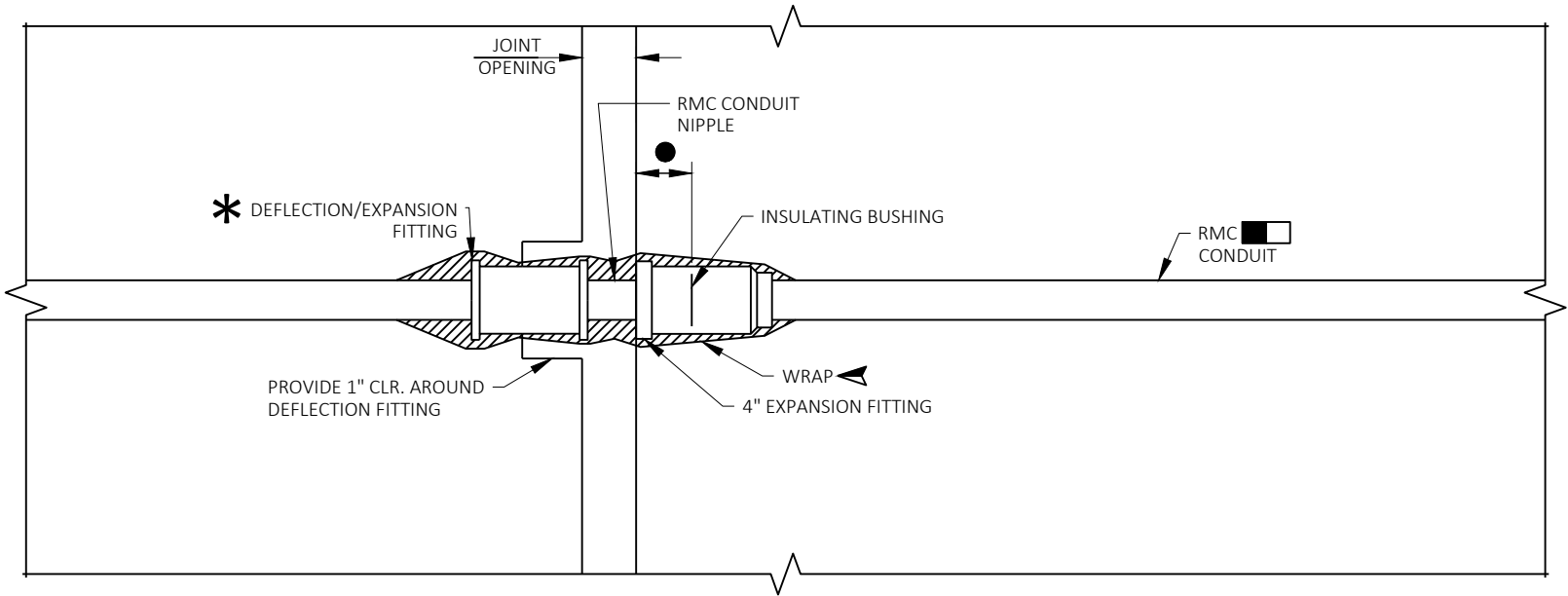


NORTHEAST WINGWALL ELEVATION



SECTION C-C
ANCHOR AND BAR PLACEMENT
INTO REMAINING WING END.

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STRUCTURE B-32-77			
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NORTHEAST WING DETAIL 1 (WING 3)		SHEET 12 OF 17	



DEFLECTION/EXPANSION AND 4" EXPANSION FITTING

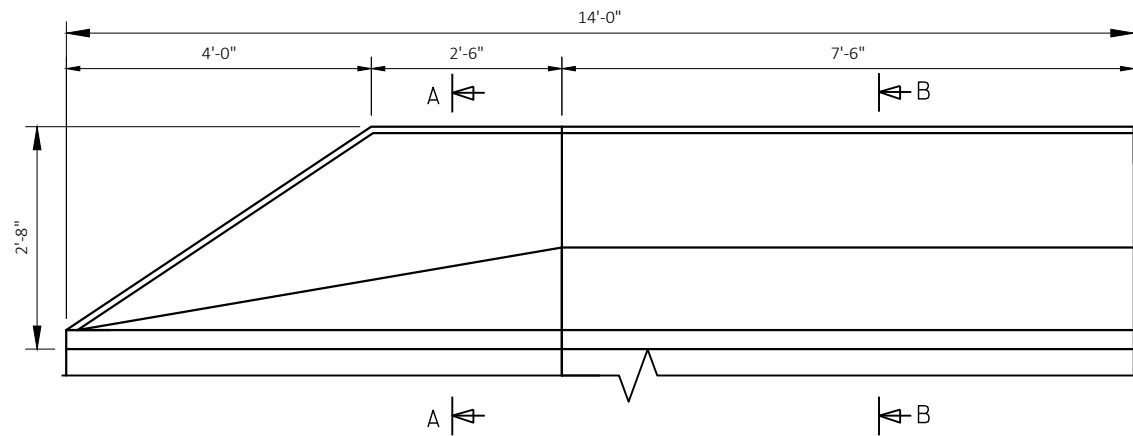
LEGEND:

- SPONGE RUBBER WRAP TO BE AASHTO M153, TYPE 1 OR EQUIVALENT - 1/4" MINIMUM THICKNESS. PROVIDE WRAP FOR THE ENTIRE LENGTH OF THE FITTING OR AS SHOWN. SPONGE RUBBER WRAP INCIDENTAL TO "CONDUIT METALLIC 2-INCH".
- USE 2" DIA. RIGID METALLIC (RMC) CONDUIT AT FITTINGS. PROVIDE RMC FOR 3'-0" MIN. ON EACH SIDE OF JOINT OPENINGS UNLESS NOTED OTHERWISE.
- POSITION MOVABLE END OF CONDUIT INSIDE EXPANSION FITTING, SUCH THAT WILL HAVE THE SAME ALLOWANCE FOR MOVEMENT (EXPANSION/CONTRACTION AS THE EXPANSION DEVICE SET IN PLACE IN THE DECK BELOW IT. TAKE CARE TO INSTALL EXPANSION FITTING AND CONDUIT EXACTLY PARALLEL TO BRIDGE MOVEMENT.
- DEFLECTION/EXPANSION FITTING REQUIREMENTS (IF USED):
UP TO 3/4" CONDUIT CONTRACTION OR EXPANSION AND UP TO 30 DEGREES OF ANGULAR MISALIGNMENT IN ANY DIRECTION WITH BONDING JUMPER.

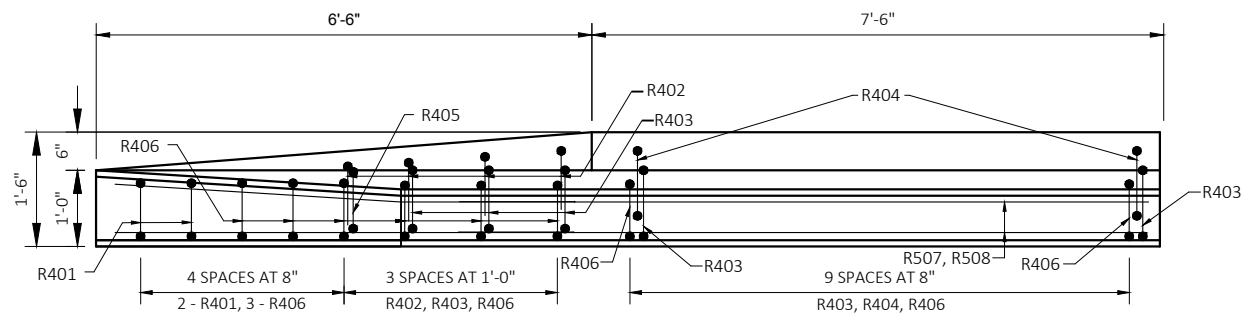
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-32-77			
		DRAWN BY CJO	PLANS CK'D. CAS
NORTHEAST WING DETAIL 2 (WING 3)		SHEET 13 OF 17	

KNIGHT

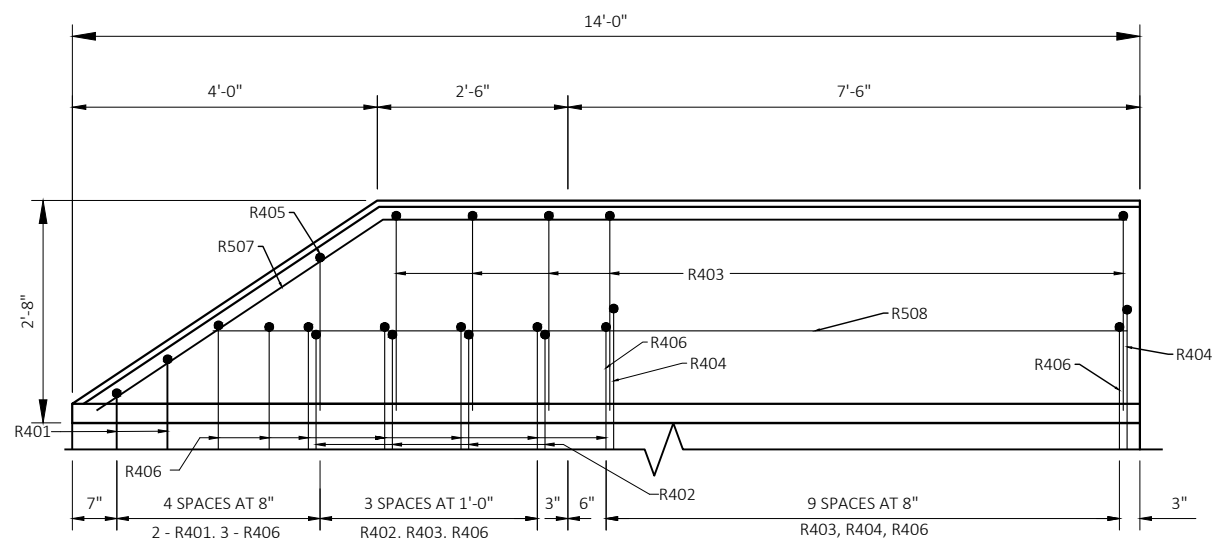
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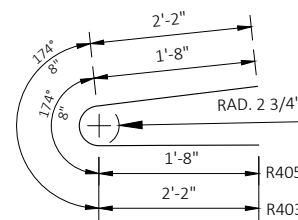
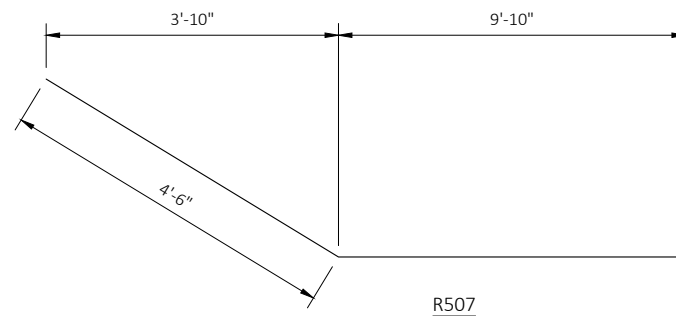
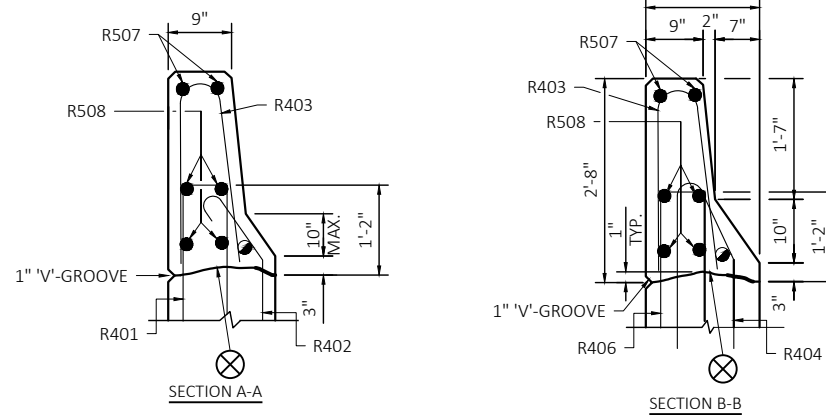
INSIDE ELEVATION OF PARAPET



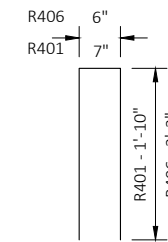
PLAN



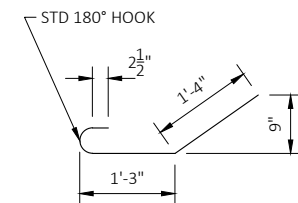
OUTSIDE ELEVATION OF PARAPET



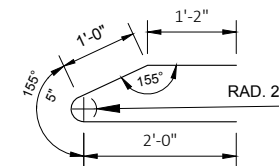
R403, R405



R401, R406



R402



R404

PARAPET BAR BENDS

PARAPET BILL OF BARS

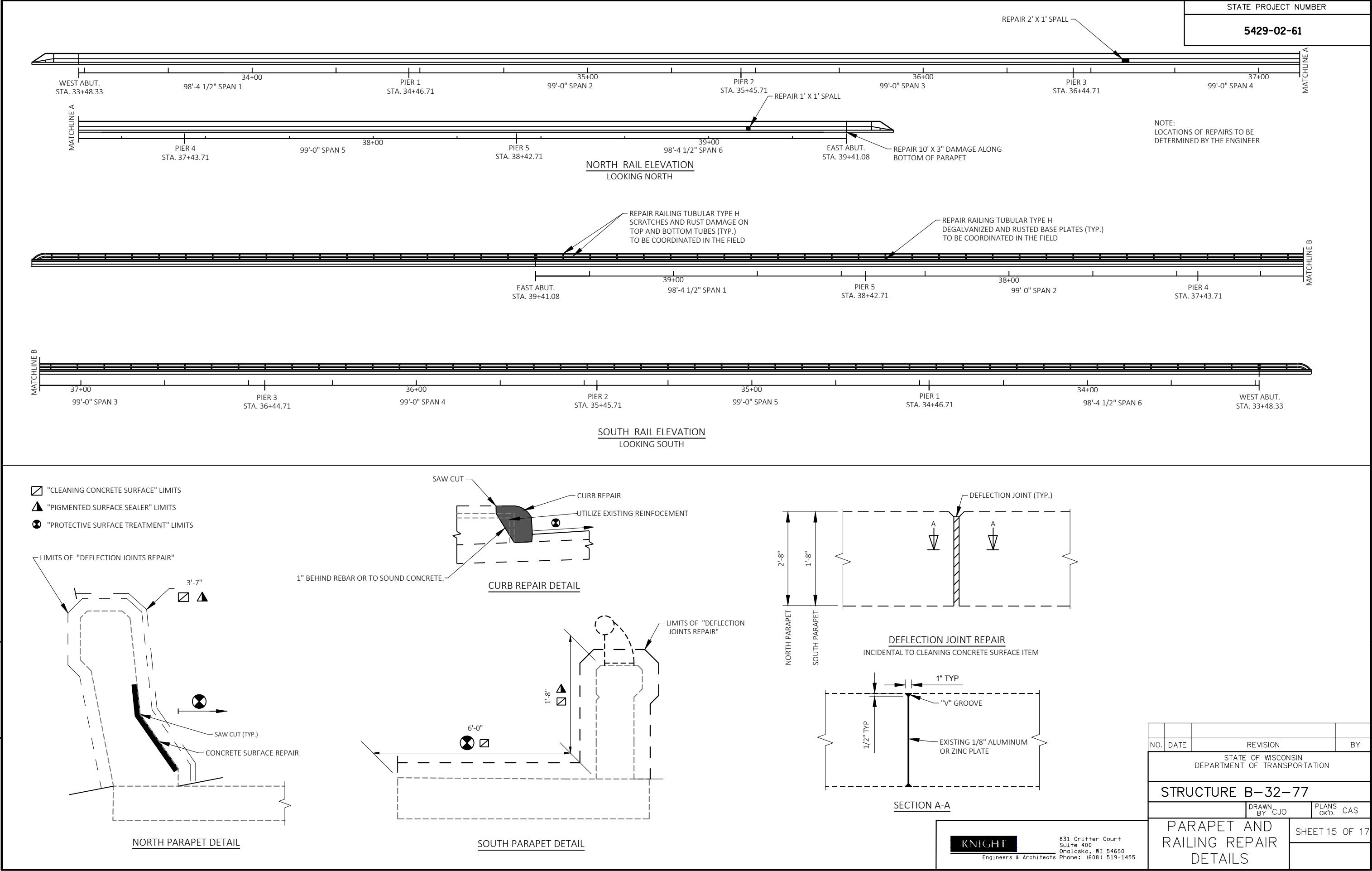
BAR MARK	NUMBER REQUIRED	LENGTH	BENT	COAT	LOCATION
R401	2	4'-1"	X	X	PARAPET, WING 3, VERTICAL
R402	4	3'-1"	X	X	PARAPET, WING 3, VERTICAL
R403	13	5'-0"	X	X	PARAPET, WING 3, VERTICAL
R404	10	4'-7"	X	X	PARAPET, WING 3, VERTICAL
R405	1	4'-0"	X	X	PARAPET, WING 3, VERTICAL
R406	16	4'-10"	X	X	PARAPET, WING 3, VERTICAL
R507	2	14'-4"	X	X	PARAPET, WING 3, HORIZONTAL
R508	4	12'-0"		X	PARAPET, WING 3, HORIZONTAL

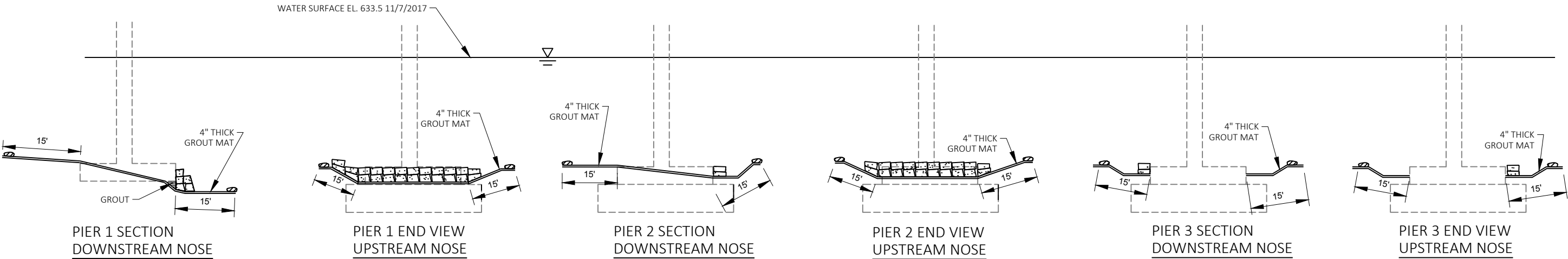
TOTAL WEIGHT = 230 LBS

- NOTES
- P.V.C. 2" DIA. NON-METALLIC CONDUIT. (EXPANSION FITTING REQUIRED AT EXPANSION JOINTS) TERMINATE TO MATCH LOCATION OF EXISTING CONDUIT IN EXISTING PARAPET. SEE NORTHEAST WING DETAIL FOR MORE INFORMATION
 - CONST. JOINT - STRIKE OFF AS SHOWN.

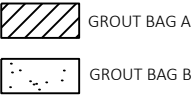
NO.	DATE	REVISION	BY
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PARAPET DETAILS		SHEET 14 OF 17	

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LEGEND



NOTES

RIVER BOTTOM ELEVATION, EXTENT OF SCOUR, AND UNDERMINING OF FOOTING/SEAL ARE FROM THE "UNDERWATER BRIDGE INSPECTION REPORT C.T.H. B OVER THE BLACK RIVER, STRUCTURE B-32-77" DATED 11/02/2017 AYRES ASSOCIATES INC.

GROUT BAG "A" SHALL BE 3'-0" WIDE X 4'-0" LONG X 1'-0" THICK.

GROUT BAG "B" SHALL BE A MINIMUM OF 3'-0" WIDE X 4'-0" LONG X 1'-0" THICK AND A MAXIMUM OF 3'-6" WIDE X 8'-0" LONG X 2'-6" THICK.

REMOVE OR CUT GROUT TUBE FLUSH WITH TOP OF BAGS AFTER FILLING CAVITY BELOW FOOTING/SEAL WITH GROUT.

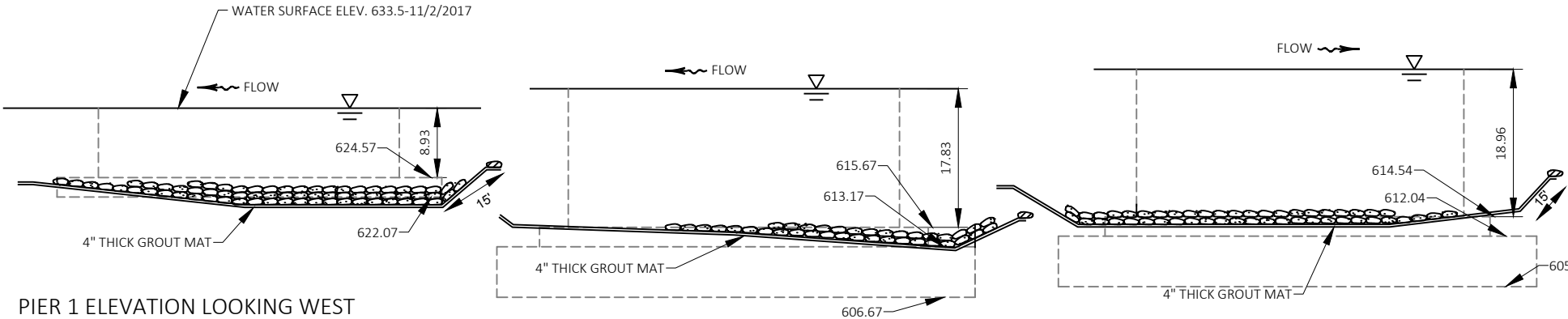
BAGS AND MAT ARE TO BE PLACED SO THAT THERE IS NO GAP BETWEEN THE BAGS AND THE FOOTING/SEAL. PLACE GROUT MAT 2'-0" ABOVE TOP OF FOOTING.

ADJACENT MATS SHALL BE JOINED BY FIELD SEWING OR ZIPPERING BEFORE FILLING THE MATS WITH GROUT.

STACK BAGS AS REQUIRED. JOINTS BETWEEN BAGS IN SUCCESSIVE ROWS AND TIERS SHALL BE STAGGERED. PIN ROWS TOGETHER WITH "5 BARS @ 4'-0" SPACING.

REMOVE SILT AND LOOSE MATERIAL UNDER FOOTING/SEAL BEFORE PLACING GROUT MAT, BAGS, AND GROUT.

REMOVE MATERIAL THAT CONFLICTS WITH OR COULD DAMAGE GROUT MAT. DIMENSIONS' SHOWING LIMITS OF GROUT MAT ARE MEASURED ALONG FINISHED SURF ACE OF MAT AFTER GROUTING.



PIER 1 ELEVATION LOOKING WEST

FOOTING EXPOSURE ALONG THE EAST FACE UP TO 3 FEET VERTICAL EXPOSURE AT THE UPSTREAM NOSE. UNDERMINING ALONG THE UPSTREAM HALF OF THE EAST FACE UP TO 1 FOOT HIGH AND 2 FEET OF PENETRATION.

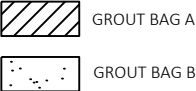
PIER 2 ELEVATION LOOKING WEST

FOOTING EXPOSURE ALONG THE EAST FACE UP TO 3 FEET VERTICAL EXPOSURE AT THE UPSTREAM NOSE, 1 FEET AT MID LENGTH, AND NONE AT THE DOWNSTREAM NOSE.

PIER 3 ELEVATION LOOKING EAST

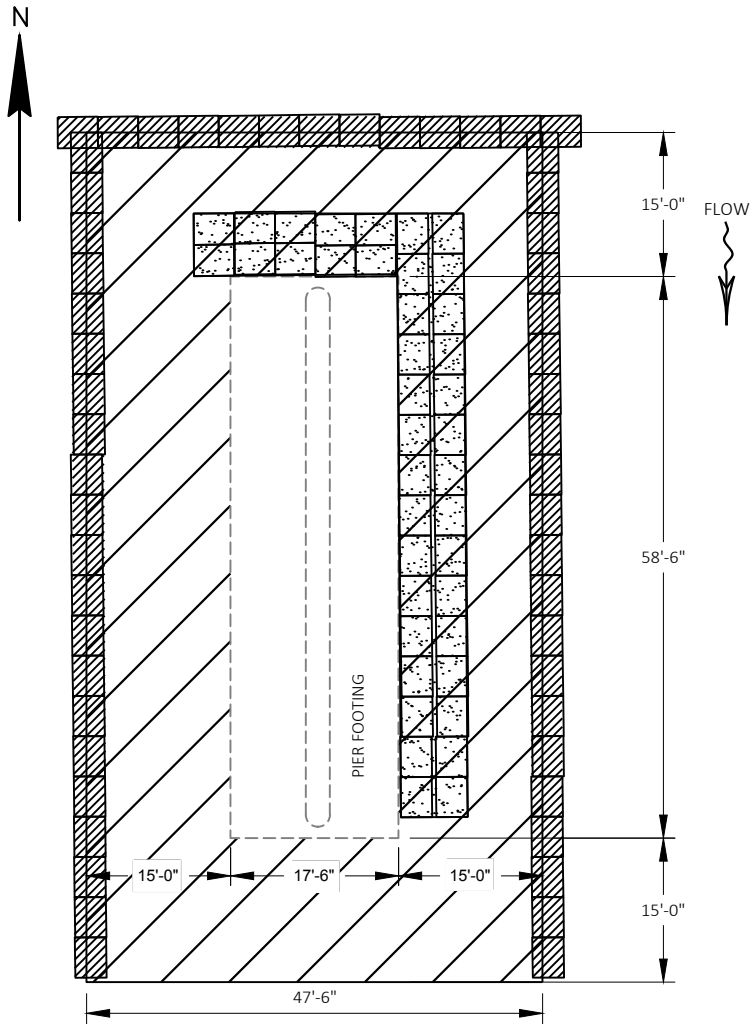
TOP OF FOOTING NO LONGER EXPOSED AT THE UPSTREAM NOSE. FOOTING EXPOSURE ALONG THE WEST FACE UP TO 2 FEET VERTICALLY NEAR DOWNSTREAM NOSE, EXTENDING THREE QUARTERS OF THE PIER LENGTH.

LEGEND



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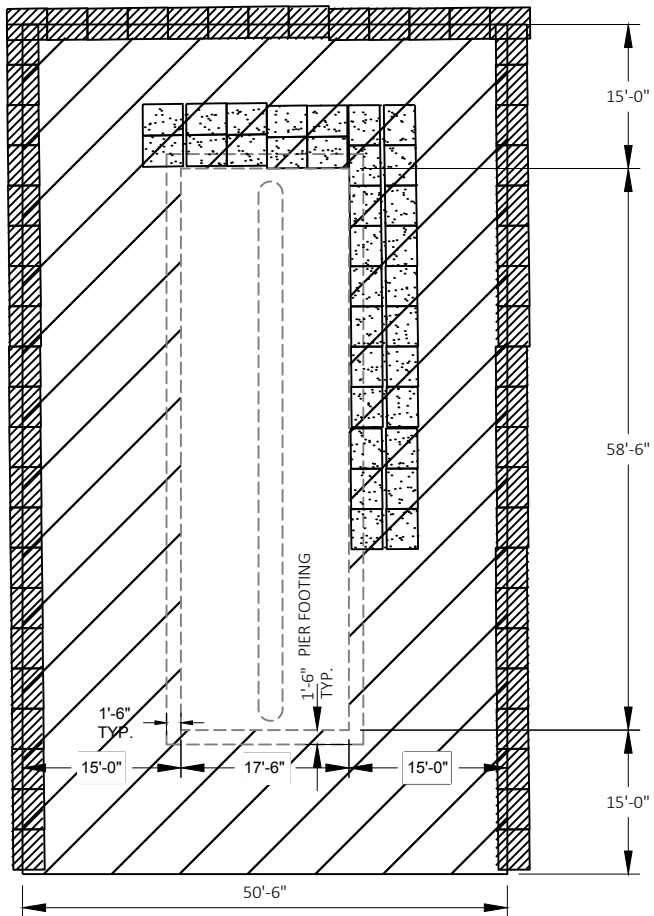
NO.	DATE	REVISION	BY
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DRAWN BY CJO		PLANS CK'D. CAS	
SCOUR REPAIR DETAILS 1			SHEET 16 OF 17



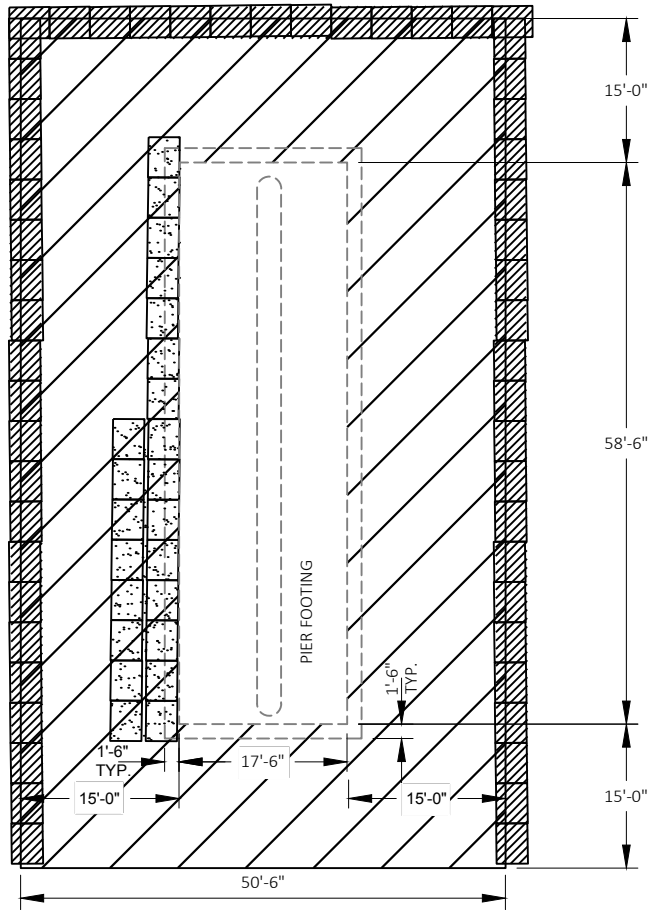
PIER 1 PLAN VIEW

LEGEND

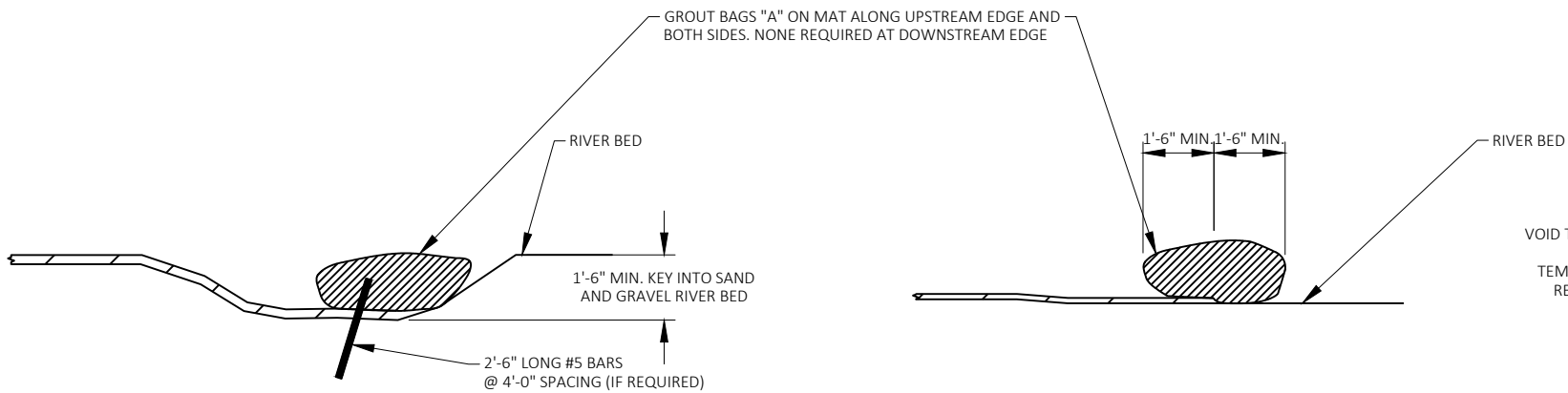
- GROUT BAG A
- GROUT BAG B
- GROUT MAT 4-INCH THICK



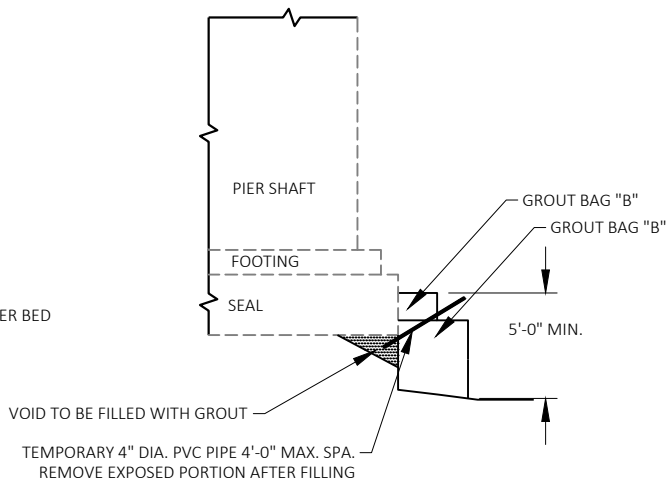
PIER 2 PLAN VIEW



PIER 3 PLAN VIEW



TERMINATION DETAIL

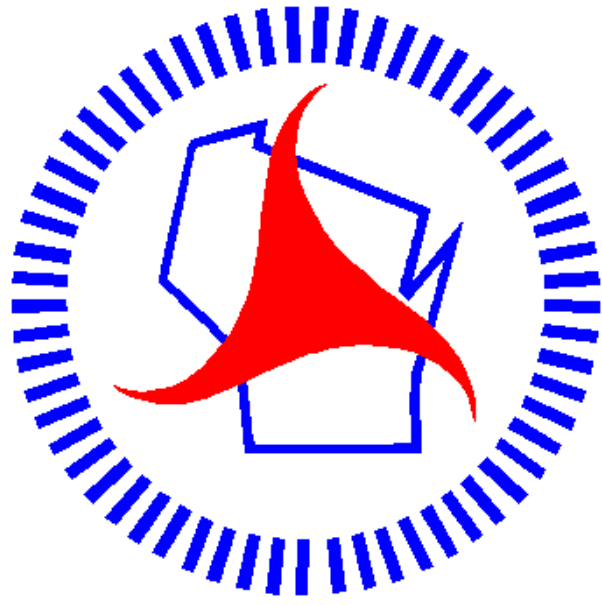


TYPICAL SECTION

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831 Critter Court
Suite 400
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-32-77			
DRAWN BY CJO		PLANS CK'D. CAS	
SCOUR REPAIR DETAILS 2			SHEET 17 OF 17

Notes



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