

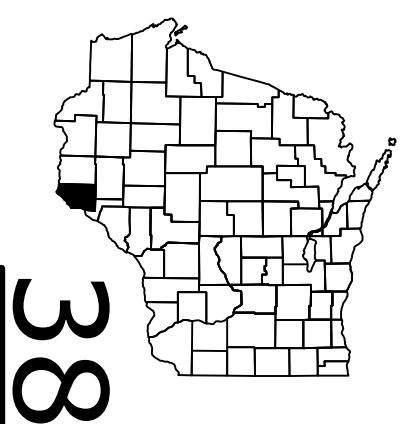
EAU NOVEMBER 2023
 PROJECT ID: 7180-00-78
 WITH: N/A
 COUNTY: PIERCE

NOVEMBER 2023

ORDER OF SHEETS

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

TOTAL SHEETS = 116



DESIGN DESIGNATION

A.A.D.T.	2025	=	3150
A.A.D.T.	2045	=	3500
D.H.V.		=	
D.D.		=	61%/39%
T.		=	14.1%
DESIGN SPEED		=	35 MPH
ESALS		=	

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)
RIGHT OF ENTRY	UTILITIES
SLOPE INTERCEPT	ELECTRIC
REFERENCE LINE	FIBER OPTIC
EXISTING CULVERT	GAS
PROPOSED CULVERT (Box or Pipe)	SANITARY SEWER
COMBUSTIBLE FLUIDS	STORM SEWER
MARSH AREA	TELEPHONE
WOODED OR SHRUB AREA	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE

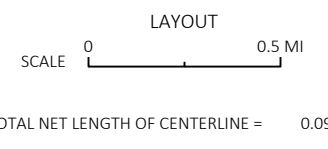
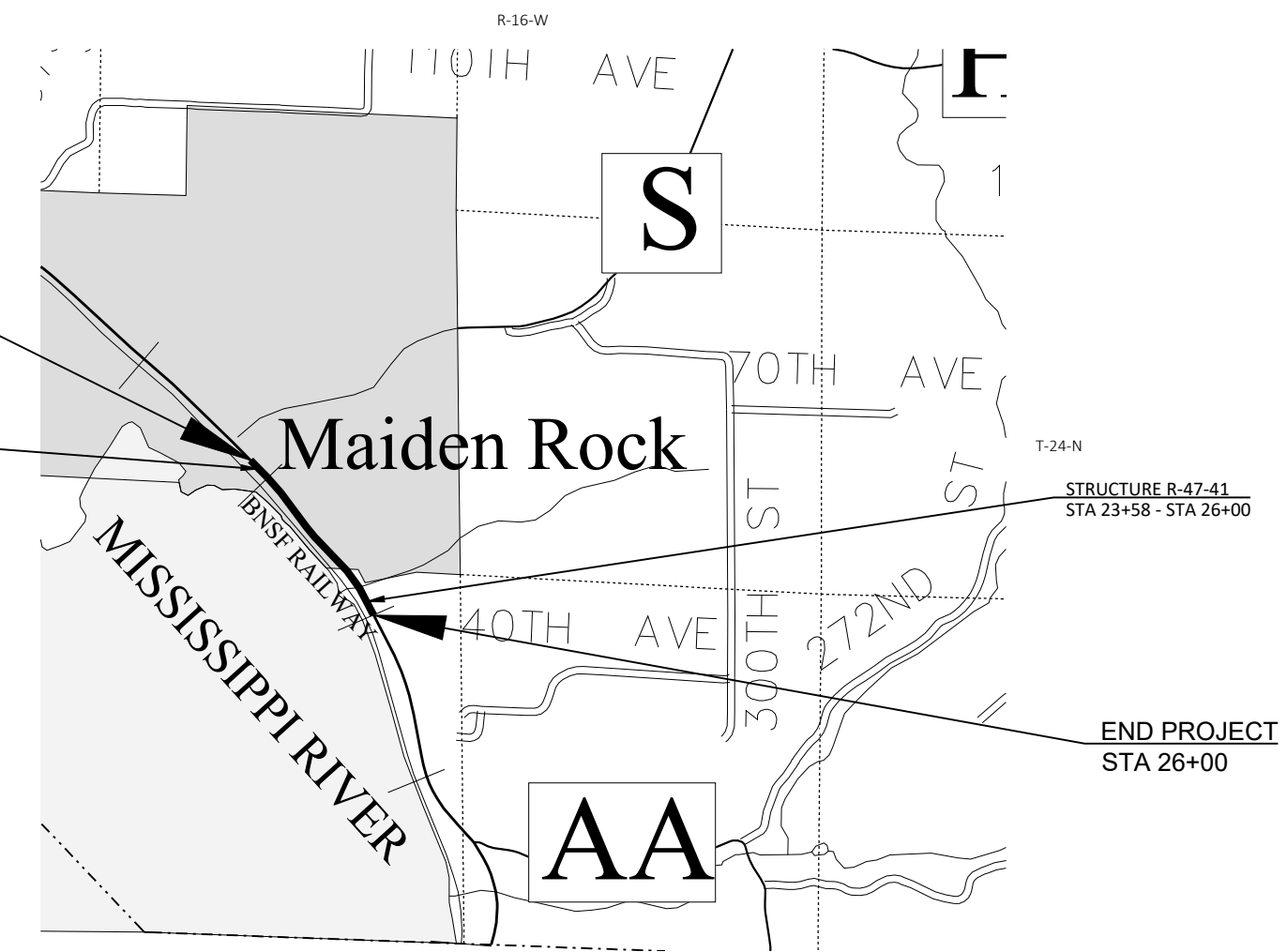
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

PEPIN - HAGER CITY

GREEN ST TO PARK ST
 STH 35
 PIERCE

STATE PROJECT NUMBER
 7180-00-78



HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), PIERCE COUNTY NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
7180-00-78	WISC 2024043	1

ORIGINAL PLANS PREPARED BY
Michael Baker INTERNATIONAL

WISCONSIN PROFESSIONAL ENGINEER
 LINDSAY M. KAUFMANN
 E-43439
 MILWAUKEE, WI

DATE: 7/25/2023
Lindsay M. Kaufmann
 (Professional Engineer Signature)

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	CBS SQUARED, CONSULTING ENGINEER
Designer	MICHAEL BAKER INTERNATIONAL
Project Manager	JESSE LARSON, PE
Regional Examiner	REGIONAL EXAMINER
Regional Supervisor	REGIONAL SUPERVISOR

APPROVED FOR THE DEPARTMENT
 DATE: 8/24/2023
Jesse Larson
 (Signature)

E

GENERAL NOTES

NO TREES AND/OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO HAVE ALL UTILITIES LOCATED BEFORE EXCAVATIONS.

A VERTICAL SAWCUT SHALL BE MADE THROUGH EXISTING DRIVEWAYS AND PAVEMENTS AT MATCHES.

PERMANENTLY RESTORE ALL GRADED AREAS WITHIN 5 DAYS OF DISTURBANCE WITH SEED AND MULCH. IF GRADED AREAS WILL NOT BE PERMANENTLY RESTORED WITHIN 5 DAYS, APPLY TEMPORARY SEED AND MULCH WITHIN 24 HOURS OF DISTURBANCE. THIS INCLUDES ALL EQUIPMENT AND MATERIAL STORAGE AREAS.

UTILITY CONTACTS

CENTURYLINK - COMMUNICATION
KYLE SCHLAMPP
20 S WILSON AVE
RICE LAKE, WI 54868
PHONE: (715) 475-2029
MOBILE: (715) 292-0082
EMAIL: KYLE.SCHLAMPP@LUMEN.COM

VILLAGE OF MAIDEN ROCK - WATER
BRIAN GARAY
P.O. BOX 186
MAIDEN ROCK, WI 54750-0186
PHONE: (651) 387-1593
EMAIL: PUBLICWORKS.MMAIDEN@CENTURYTEL.NET

MAIDEN ROCK WASTEWATER TREATMENT FACILITY - SEWER
BRIAN GARAY
P.O. BOX 186
MAIDEN ROCK, WI 54750-0186
PHONE: (651) 387-1593
EMAIL: PUBLICWORKS.MMAIDEN@CENTURYTEL.NET

XCEL ENERGY - ELECTRICITY
TRAVIS WERLEIN
320 HELLER ROAD
MENOMONIE, WI 54751
PHONE: (715) 232-7415
MOBILE: (715) 495-3441
EMAIL: TRAVIS.A.WERLEIN@XCELENERGY.COM

XCEL ENERGY - GAS/ PETROLEUM
BRIAN MELLO
2001 OLD HWY 35 S
HUDSON, WI 54016
PHONE: (715) 377-1810
MOBILE: (715) 577-5828
EMAIL: BRIAN.M.MELLO@XCELENERGY.COM

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

AGENCIES

WISCONSIN DEPARTMENT OF TRANSPORTATION

WISDOT NORTHWEST REGION
JESSE LARSON
718 WEST CLAIREMONT AVENUE
EAU CLAIRE, WI 54701
PHONE: (715) 491-1470
EMAIL: JESSE.LARSON@DOT.WI.GOV

DNR LIAISON

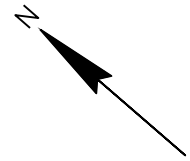
AMY LESIK
1300 W CLAIREMONT AVENUE
EAU CLAIRE, WI 54701
PHONE: (715) 495-1903
EMAIL: AMYL.LESIK@WISCONSIN.GOV

DESIGN CONTACT

MICHAEL BAKER INTERNATIONAL
LINDA KRUEGER
1255 FOURIER DRIVE, SUITE 100
MADISON, WI 53717
PHONE: (608) 821-8704
EMAIL: LINDA.KRUEGER@MBAKERINTL.COM

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- REMOVAL PLAN
- PLAN DETAILS
- EROSION CONTROL AND FENCING
- PERMANENT SIGNING
- TRAFFIC CONTROL



BEGIN PROJECT

STA 12+98
X: 528866.7560
Y: 254507.3909

STRUCTURE R-47-41
STA 23+58 - STA 26+00

END PROJECT
STA 26+00

PI STA = 21+74.18
Y = 253855.548
X = 529451.194
DELTA = 1°53'13" RT
D = 0°27'36"
T = 205.13'
L = 410.23'
R = 12457.21'
PC STA = 19+69.04
PT STA = 23+79.28

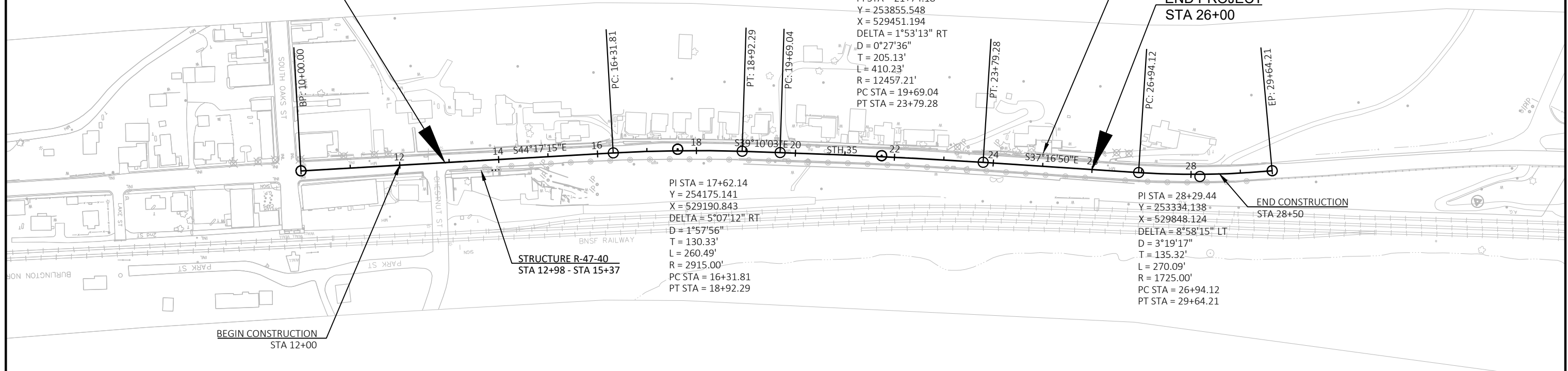
PI STA = 17+62.14
Y = 254175.141
X = 529190.843
DELTA = 5°07'12" RT
D = 1°57'56"
T = 130.33'
L = 260.49'
R = 2915.00'
PC STA = 16+31.81
PT STA = 18+92.29

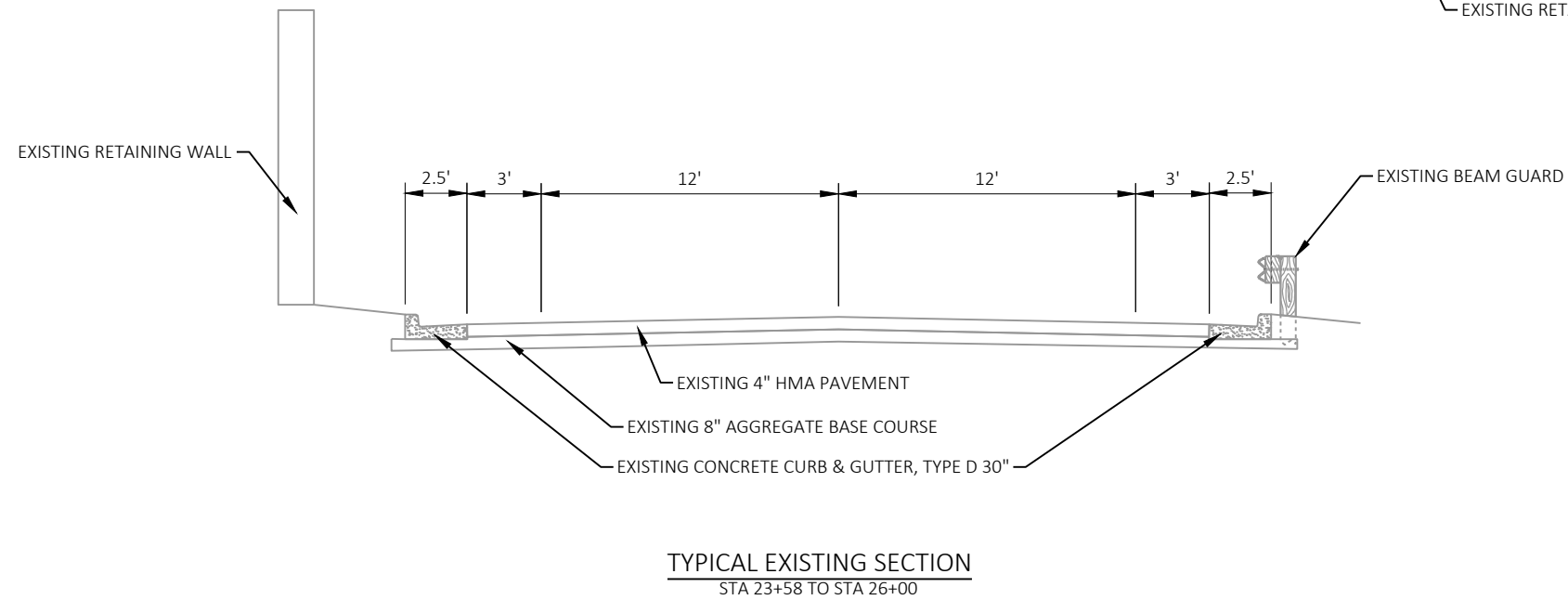
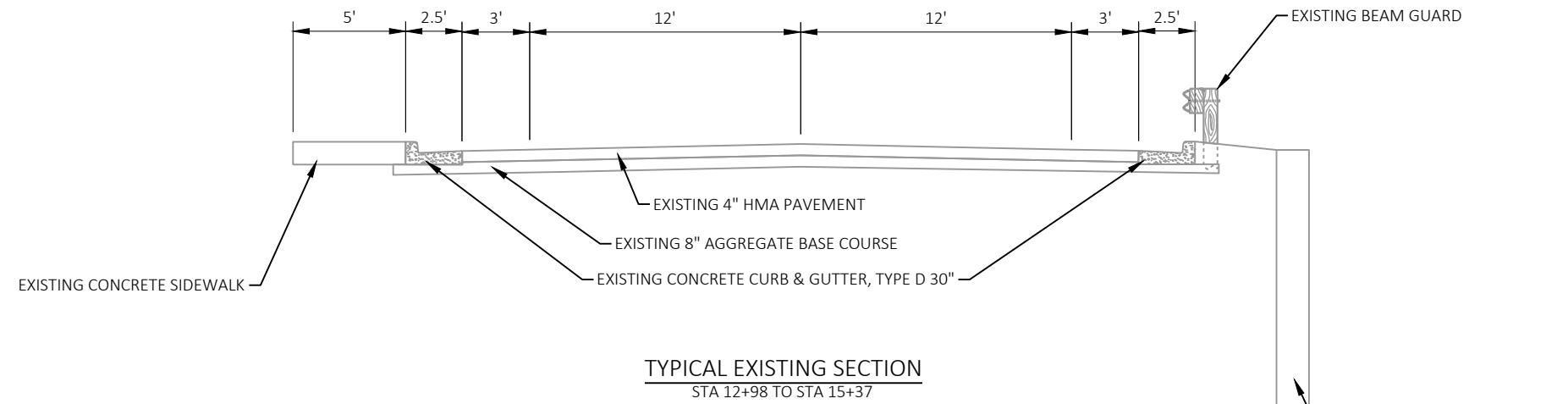
PI STA = 28+29.44
Y = 253334.138
X = 529848.124
DELTA = 8°58'15" LT
D = 3°19'17"
T = 135.32'
L = 270.09'
R = 1725.00'
PC STA = 26+94.12
PT STA = 29+64.21

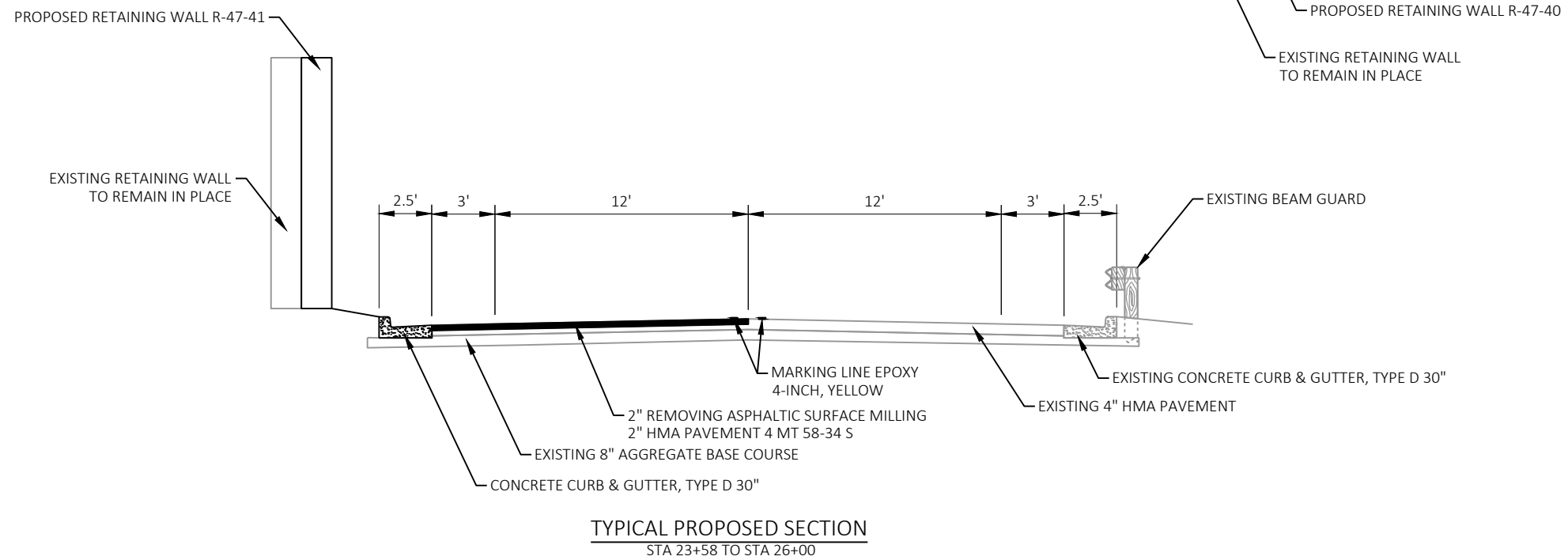
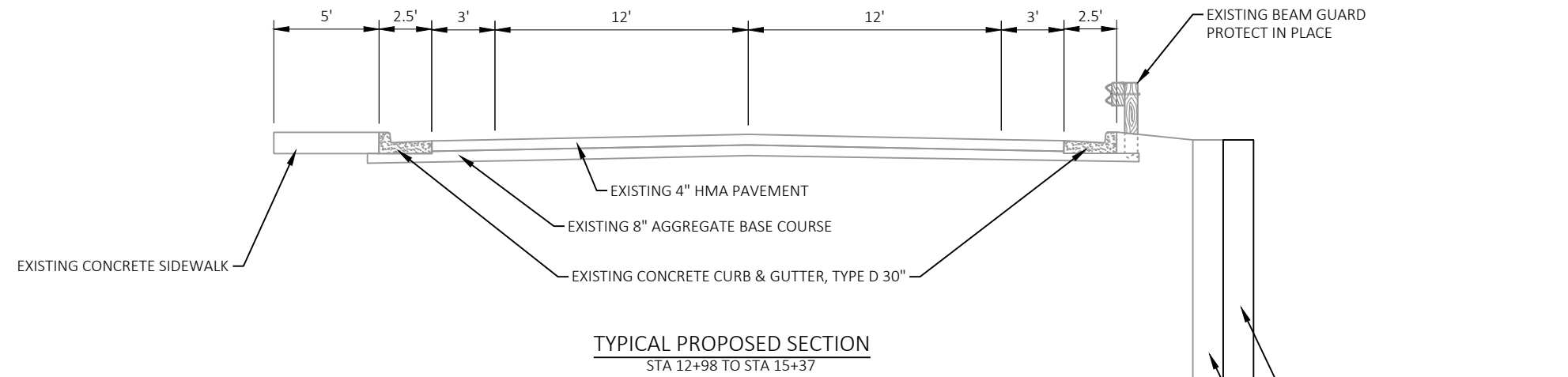
END CONSTRUCTION
STA 28+50

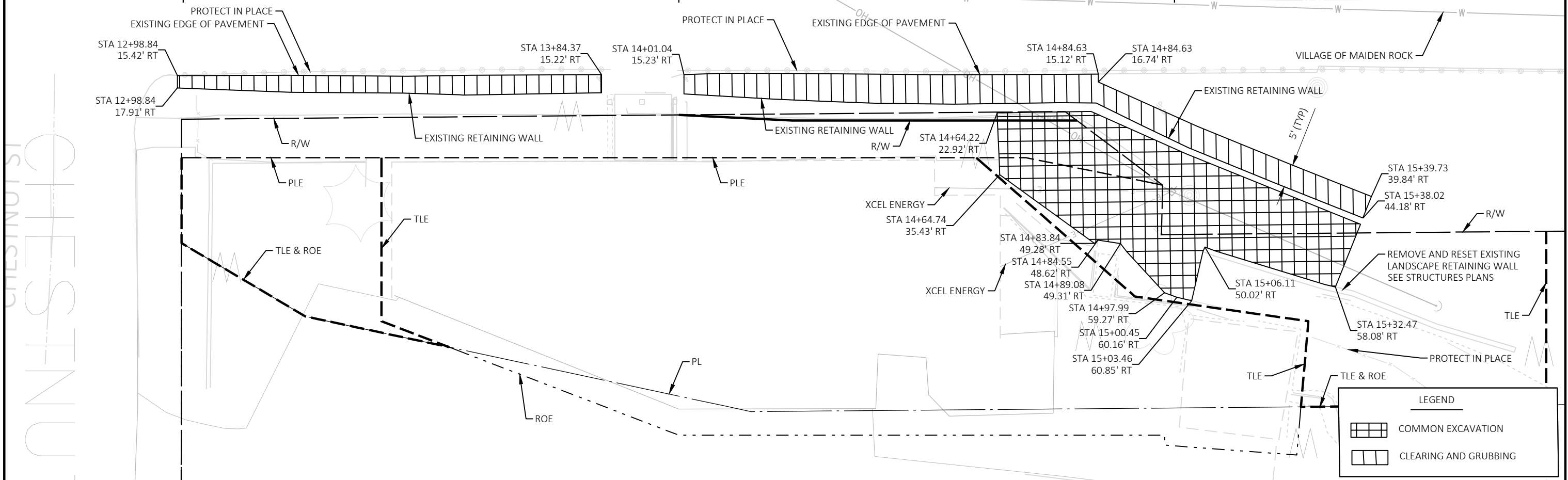
STRUCTURE R-47-40
STA 12+98 - STA 15+37

BEGIN CONSTRUCTION
STA 12+00



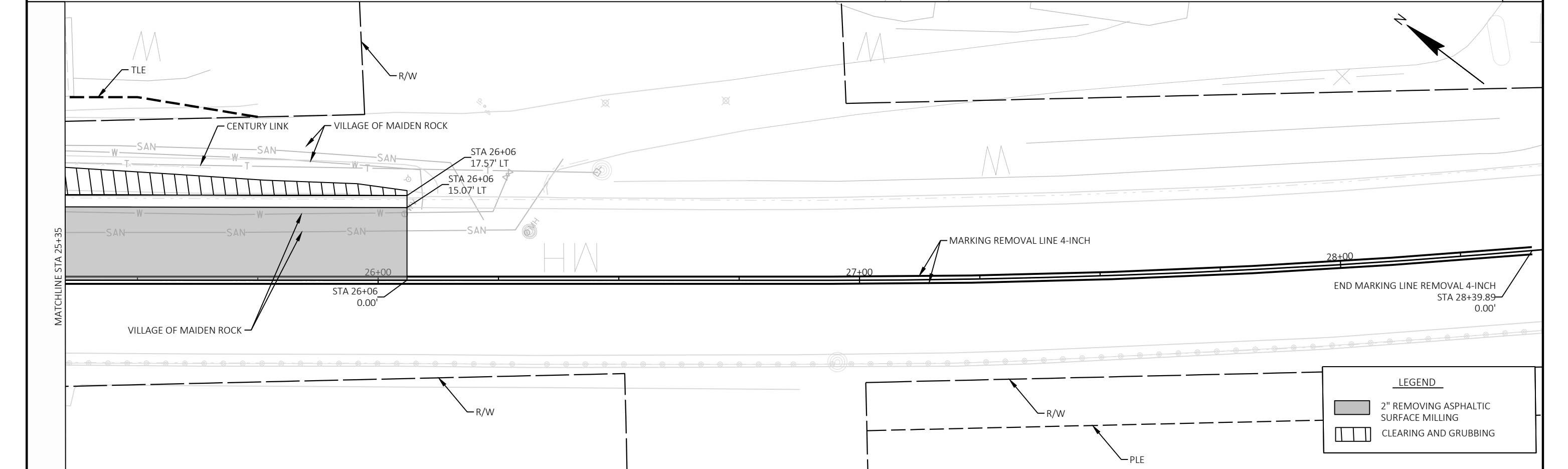
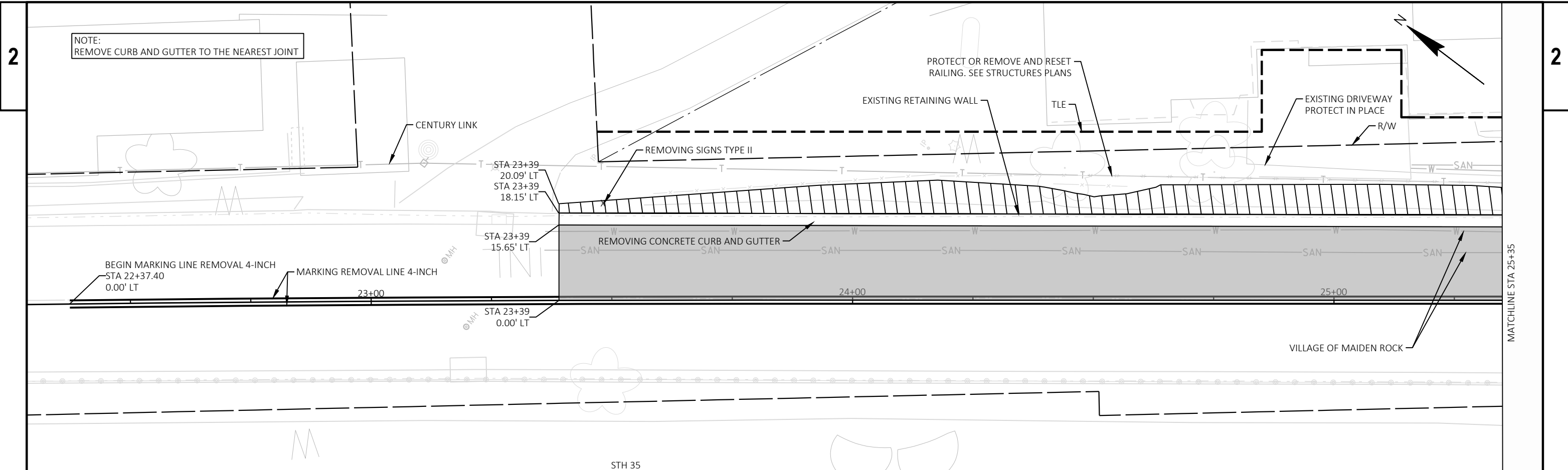








LEGEND	
	COMMON EXCAVATION
	CLEARING AND GRUBBING

PROJECT NO: 7180-00-78 HWY: STH 35 COUNTY: PIERCE REMOVAL PLAN SHEET E



LEGEND	
	2" REMOVING ASPHALTIC SURFACE MILLING
	CLEARING AND GRUBBING

PROJECT NO: 7180-00-78

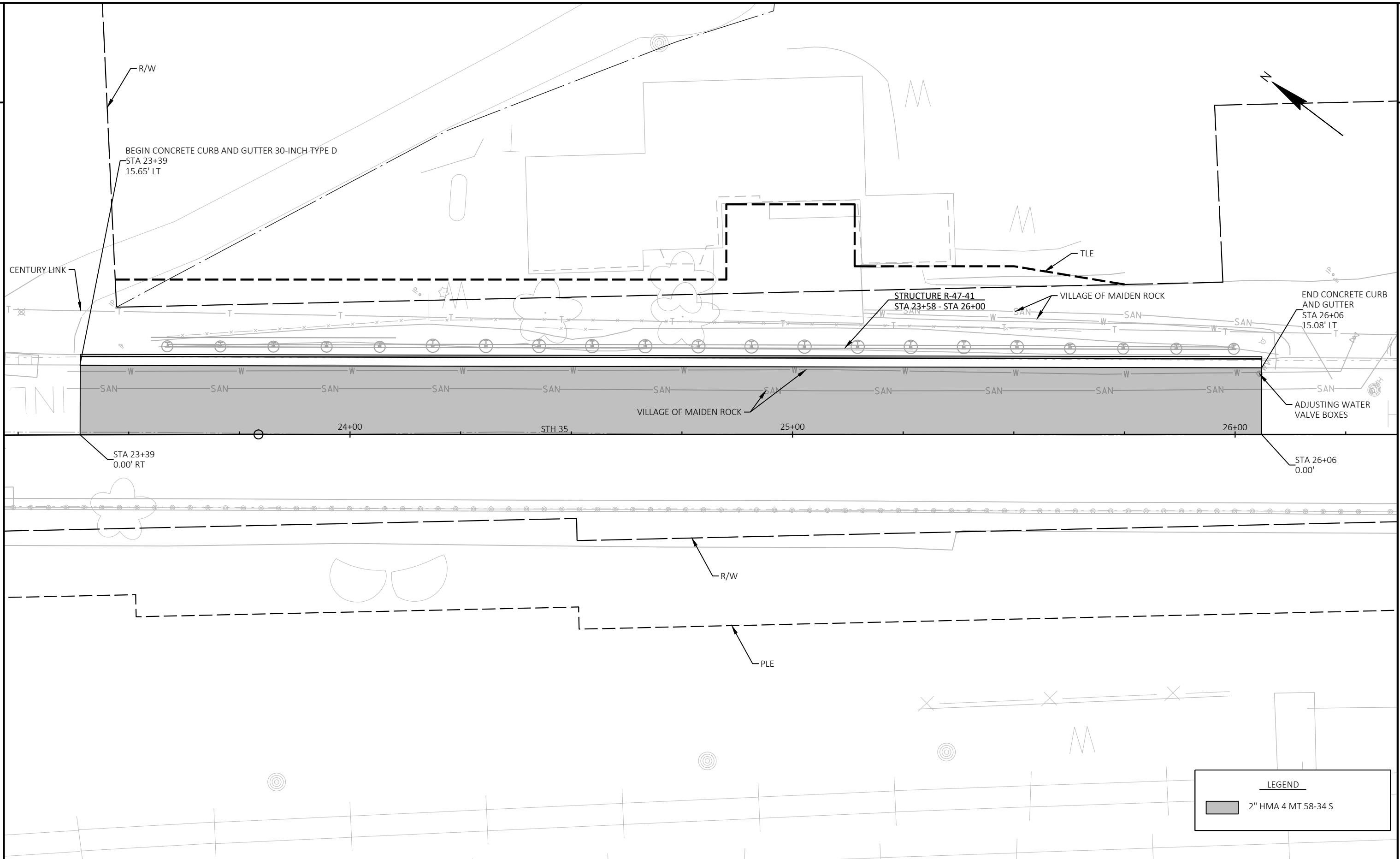
HWY: STH 35

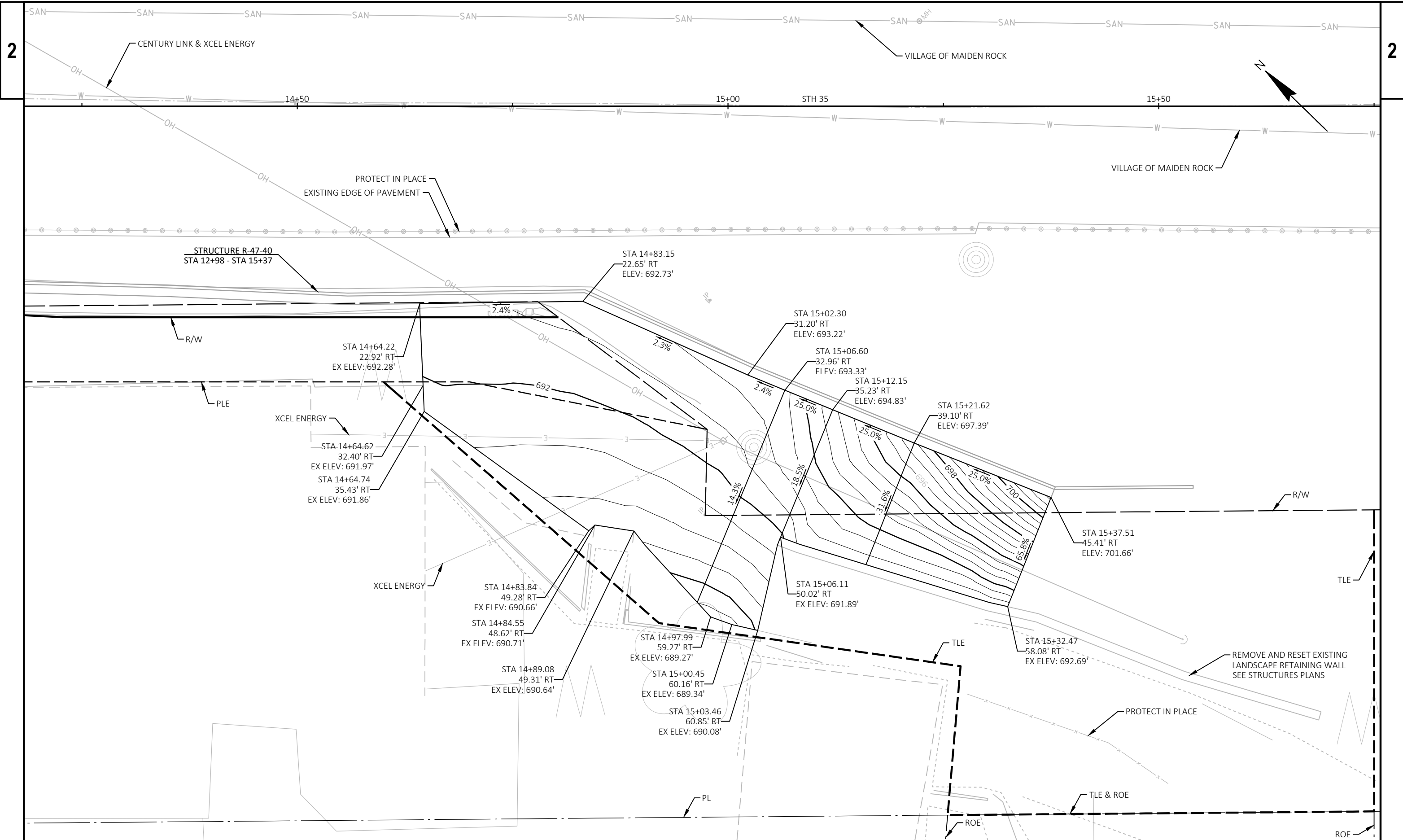
COUNTY: PIERCE

REMOVAL PLAN

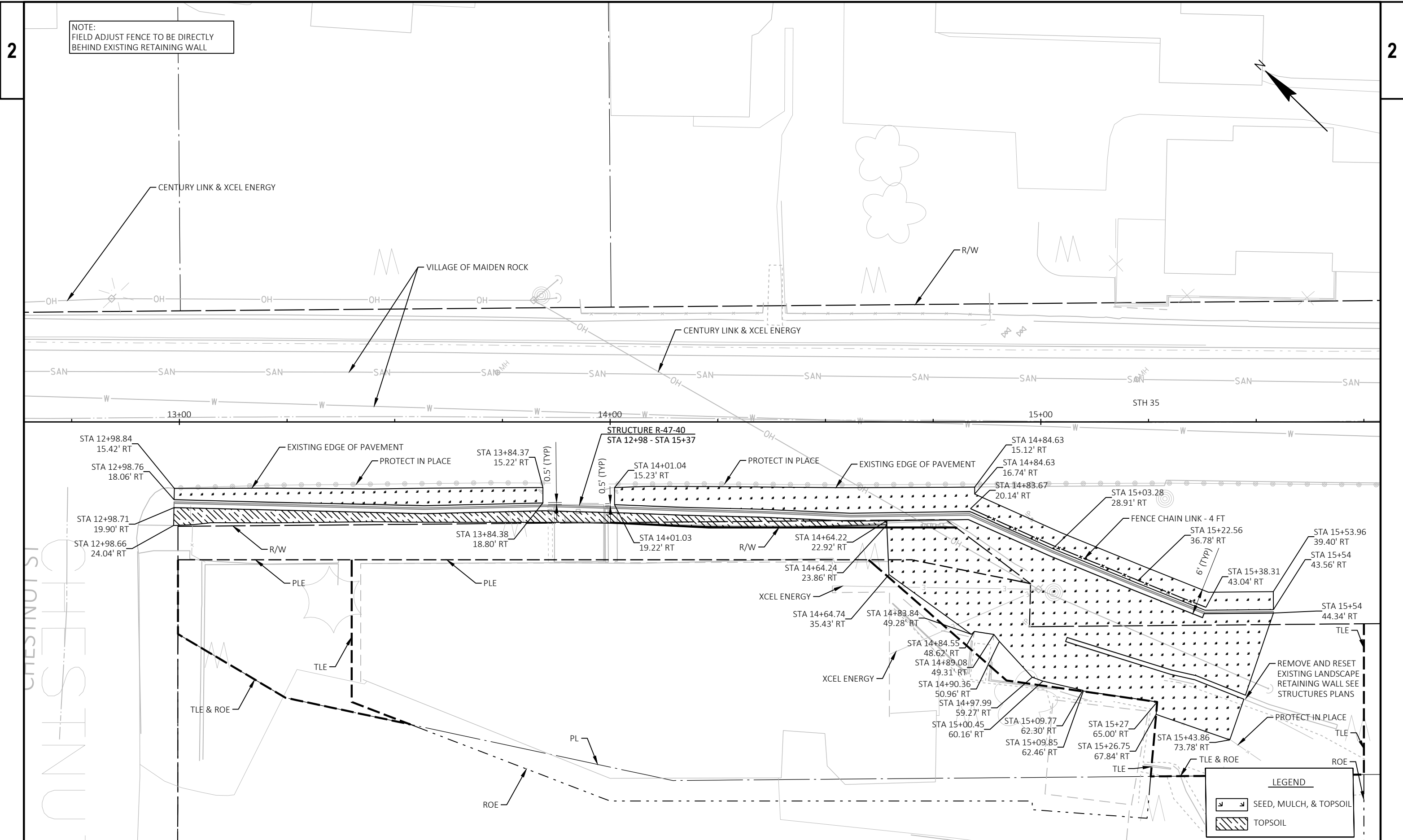
SHEET

E

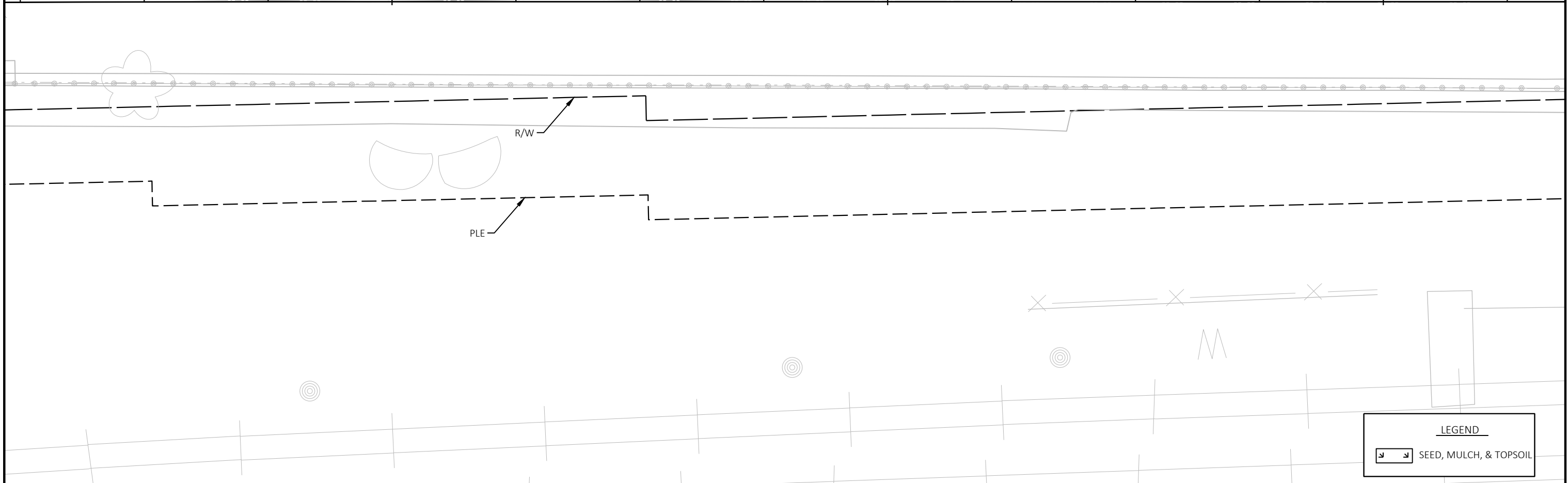
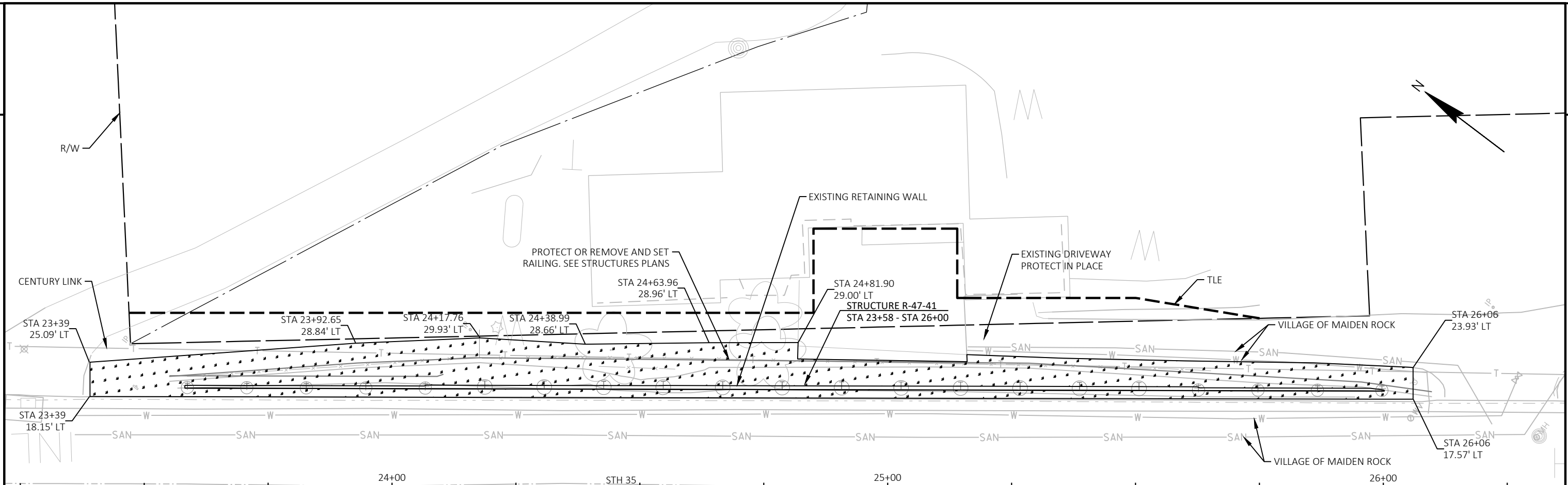




PROJECT NO: 7180-00-78 HWY: STH 35 COUNTY: PIERCE GRADING PLAN SHEET E

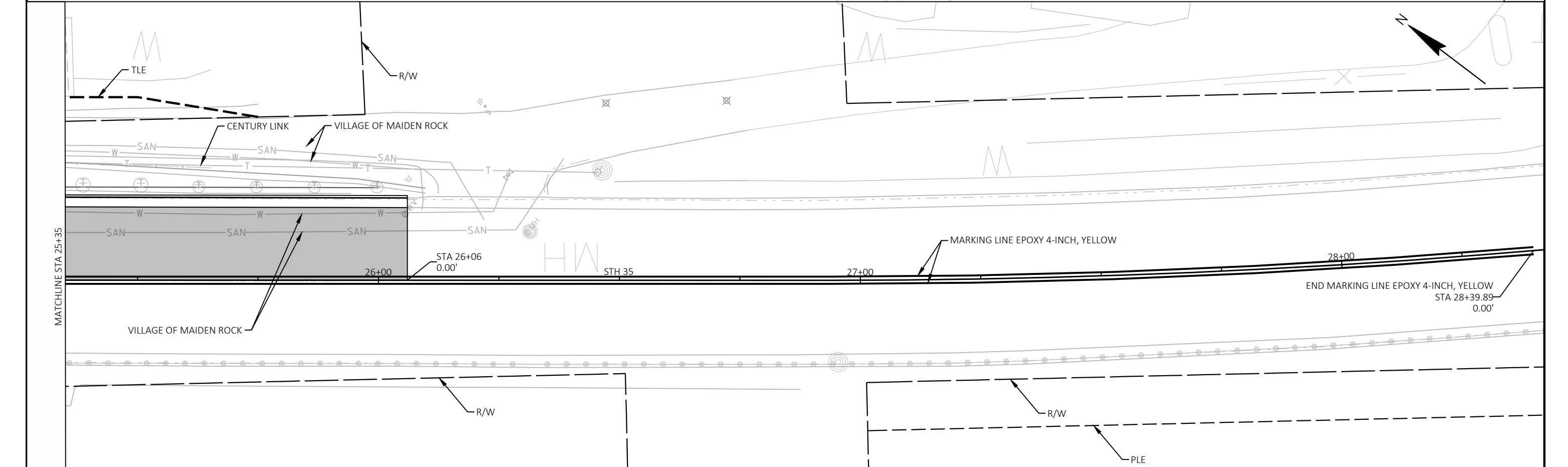
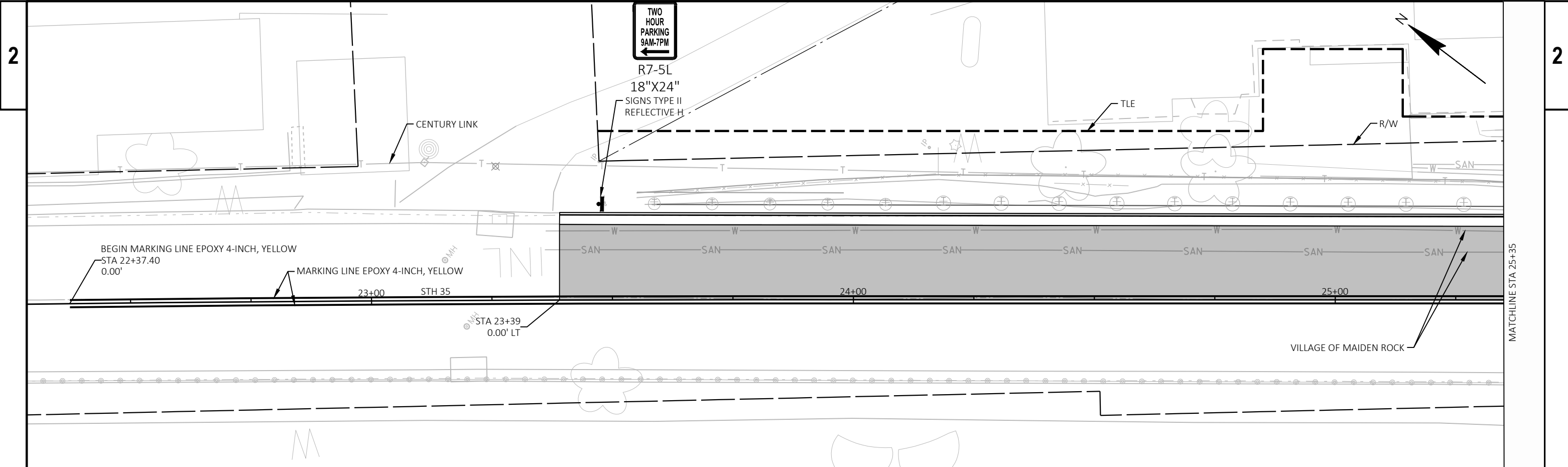


NOTE:
FIELD ADJUST FENCE TO BE DIRECTLY
BEHIND EXISTING RETAINING WALL



LEGEND

SEED, MULCH, & TOPSOIL



PROJECT NO: 7180-00-78	HWY: STH 35	COUNTY: PIERCE	PERMANENT SIGNING AND MARKING	SHEET	E
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TRAFFIC CONTROL NOTES

TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

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

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

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED IN THE PLANS.

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

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

ALL EXISTING CONFLICTING PAVEMENT MARKING SHOULD BE REMOVED.

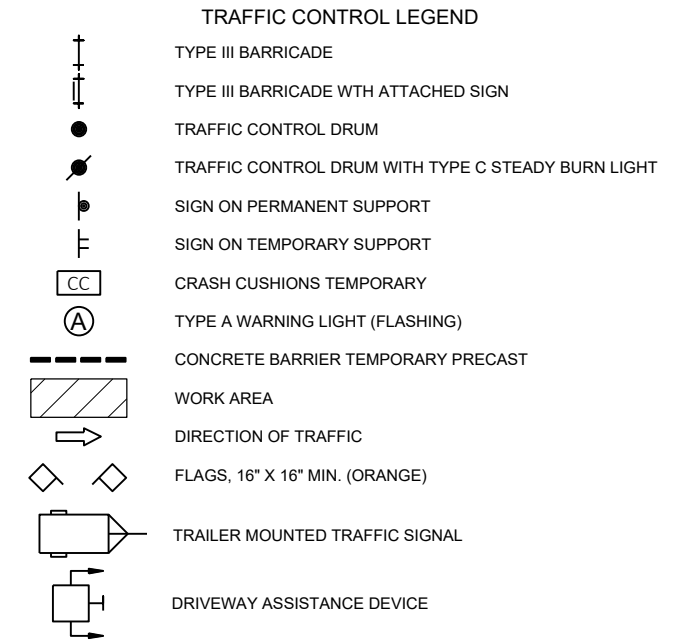
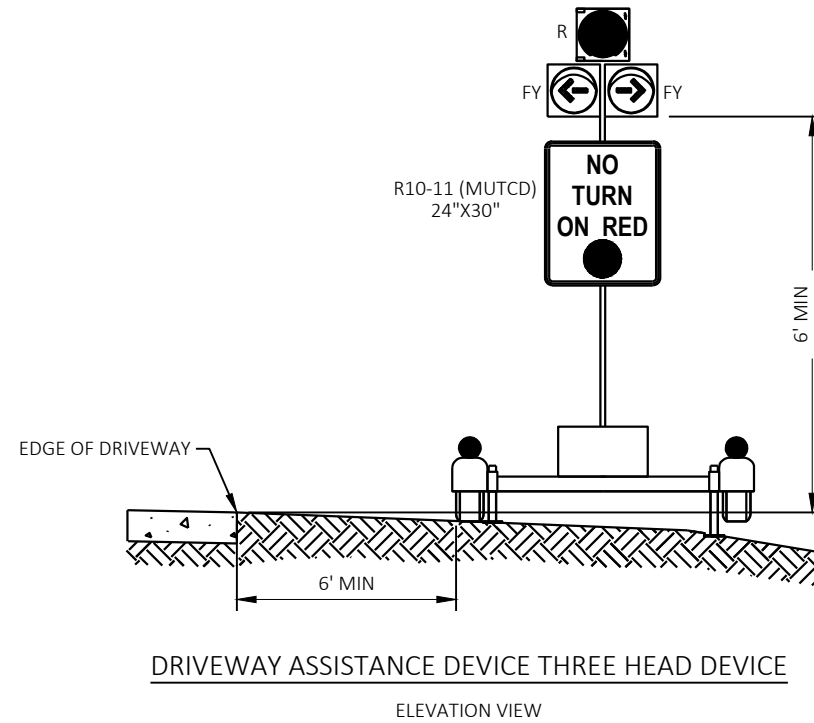
DRIVEWAY ASSISTANCE DEVICE SHALL BE CONTROLLED BY THE TEMPORARY TRAFFIC SIGNAL CONTROLLER VIA WIRELESS OR HARD WIRE INTERCONNECT.

DURING TRAFFIC SIGNAL EMERGENCY FLASH, THE DRIVEWAY ASSISTANCE DEVICE SHALL FLASH RED.

CONTRACTOR SHALL CONDUCT AN EDUCATION SESSION WITH PROPERTY OWNERS WITHIN 7 DAYS PRIOR TO IMPLEMENTING ALTERNATING OPERATION. THE CONTRACTOR SHALL HAVE A REPRESENTATIVE AT EACH DRIVEWAY FOR THE FIRST 12 HOURS OF OPERATION TO ANSWER QUESTIONS OF PROPERTY OWNERS.

TEMPORARY TRAFFIC SIGNAL SHALL OPERATION PRE-TIMED UNLESS VEHICLE DETECTION IS PROVIDED AT EACH APPROACH AND DRIVEWAY.

EACH DRIVEWAY ASSISTANCE DEVICE MUST HAVE ONE SIGNAL HEAD CONSISTING OF THREE LED INDICATIONS AS FOLLOWS; ONE 12 IN. DIAMETER STEADY RED BALL INDICATION CENTERED OVER ONE 12 IN. DIAMETER YELLOW FLASHING LEFT ARROW AND ONE 12 IN. DIAMETER YELLOW FLASHING RIGHT ARROW.

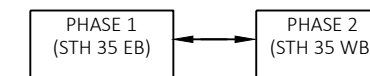


TEMPORARY TRAFFIC SIGNAL TIMINGS

INTERVAL	Phase Time (Seconds)	Cumulative Time (Seconds)	Phase 1 Direction		Phase 2 Direction	
			West Driveway	STH 35 EB	East Driveway	STH 35 WB
1	31	31	FYA(L)	Green	FYA(L)	Red
2	4	35	FYA(L)	Yellow	FYA(L)	Red
3	25	60	Red	Red	Red	Red
4	31	91	FYA(R)	Red	FYA(R)	Green
5	4	95	FYA(R)	Red	FYA(R)	Yellow
6	25	120	Red	Red	Red	Red

FYA(L) - FLASHING YELLOW ARROW, LEFT
FYA(R) - FLASHING YELLOW ARROW, RIGHT

TEMPORARY TRAFFIC SIGNAL PHASING

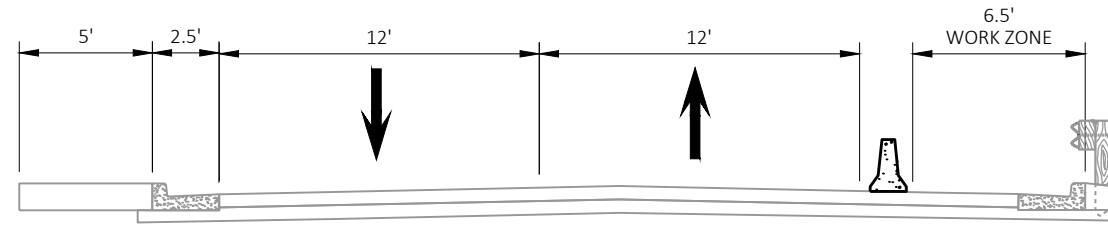




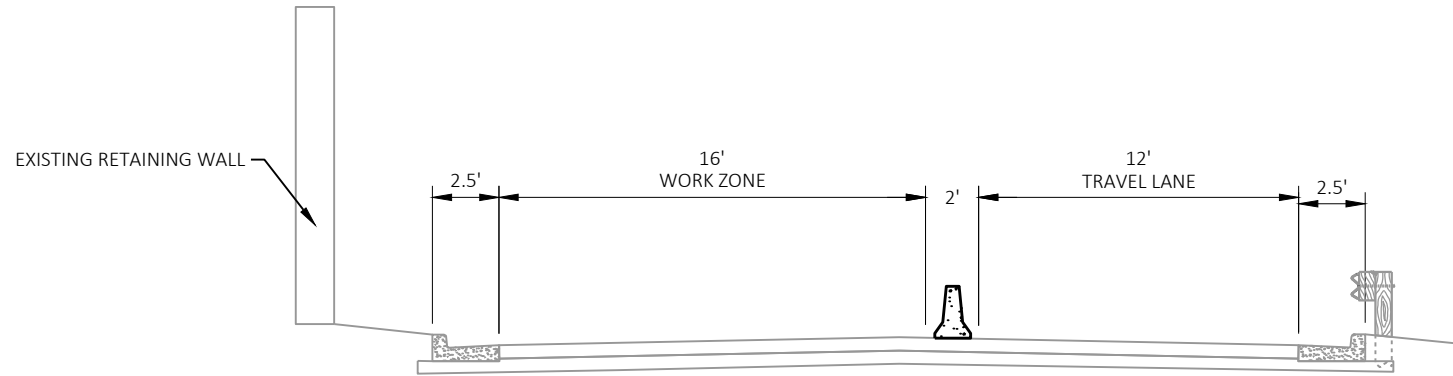
5

5

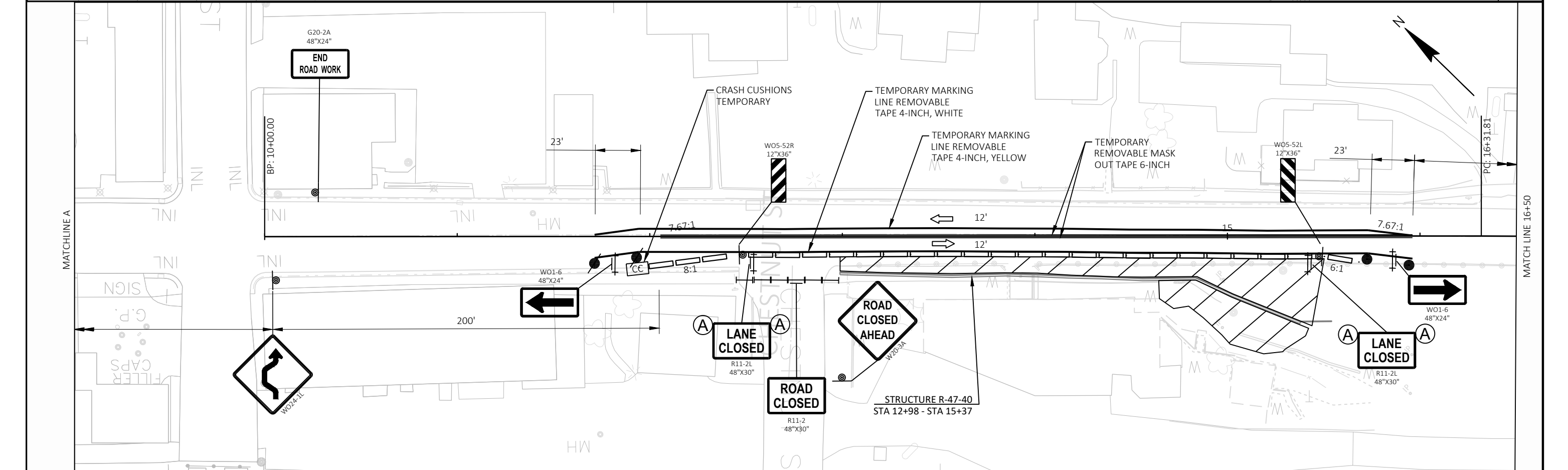
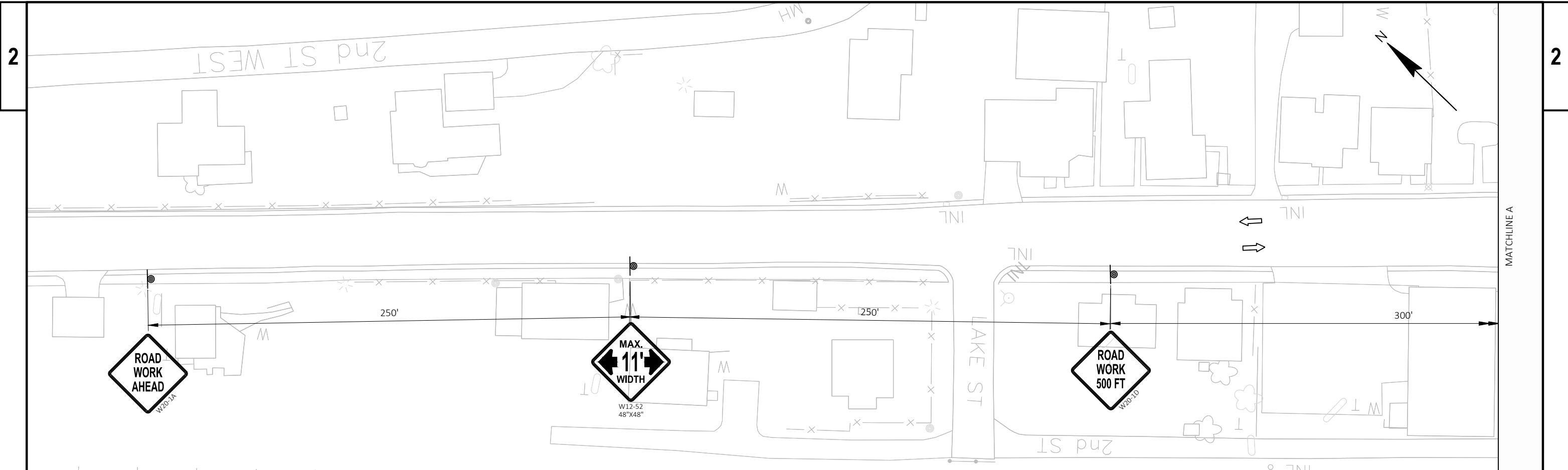
PROJECT NO: 7180-00-78	HWY: STH 35	COUNTY: PIERCE	TRAFFIC CONTROL - ADVANCED SIGNING	SHEET	E
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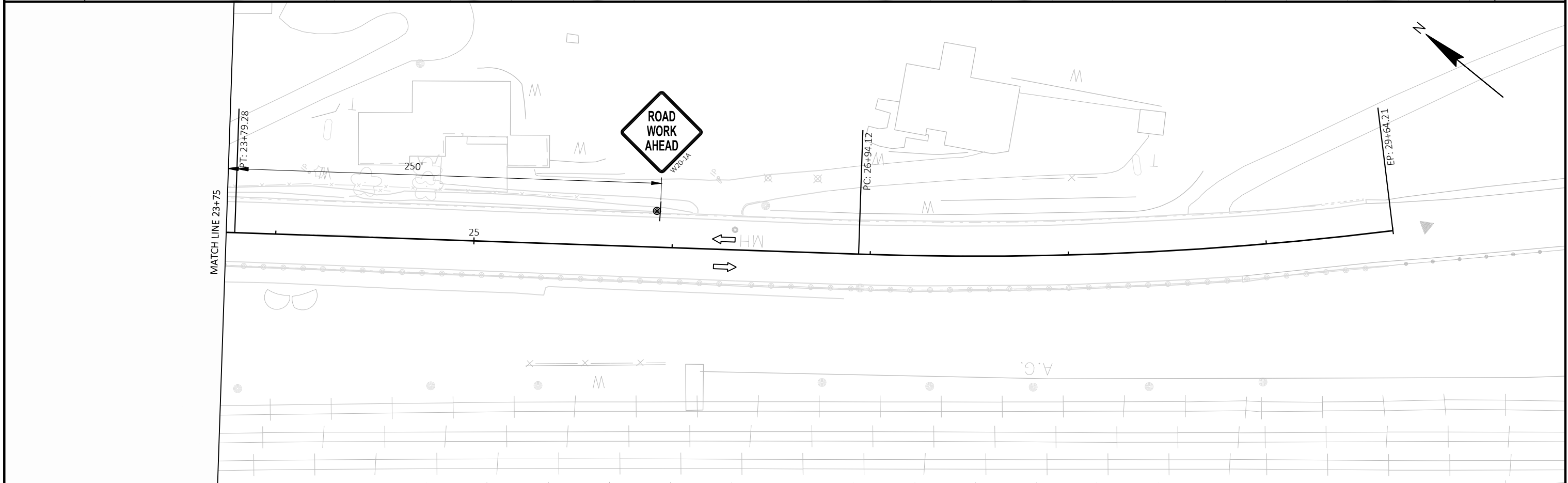
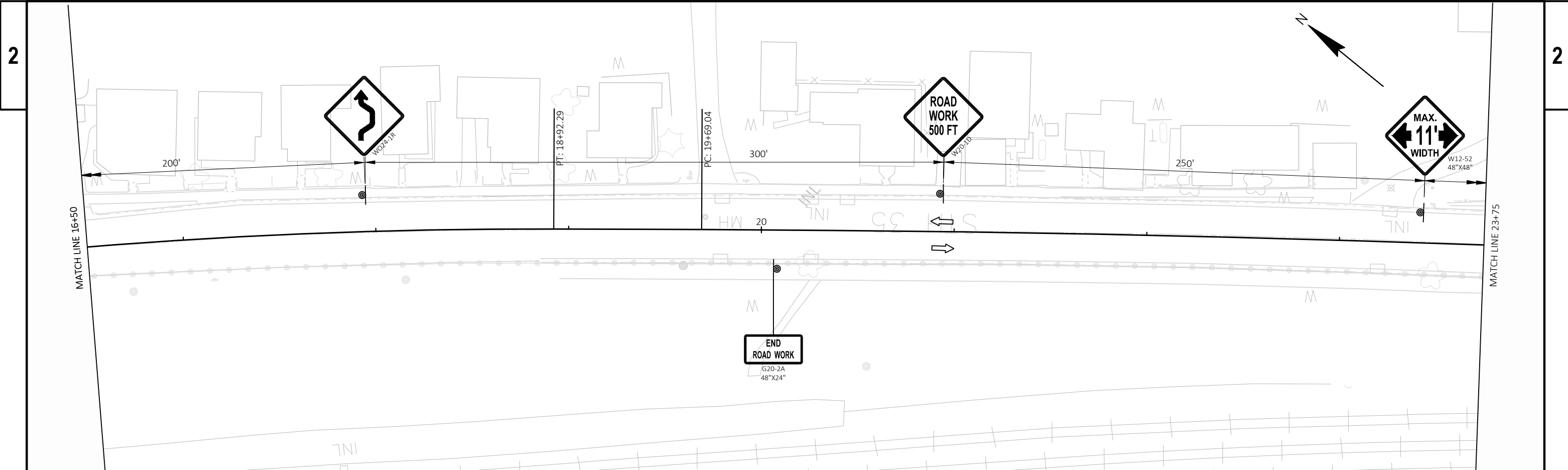
STAGE 1
STA 12+98 TO STA 15+37



STAGE 2
STA 23+58 TO STA 26+00

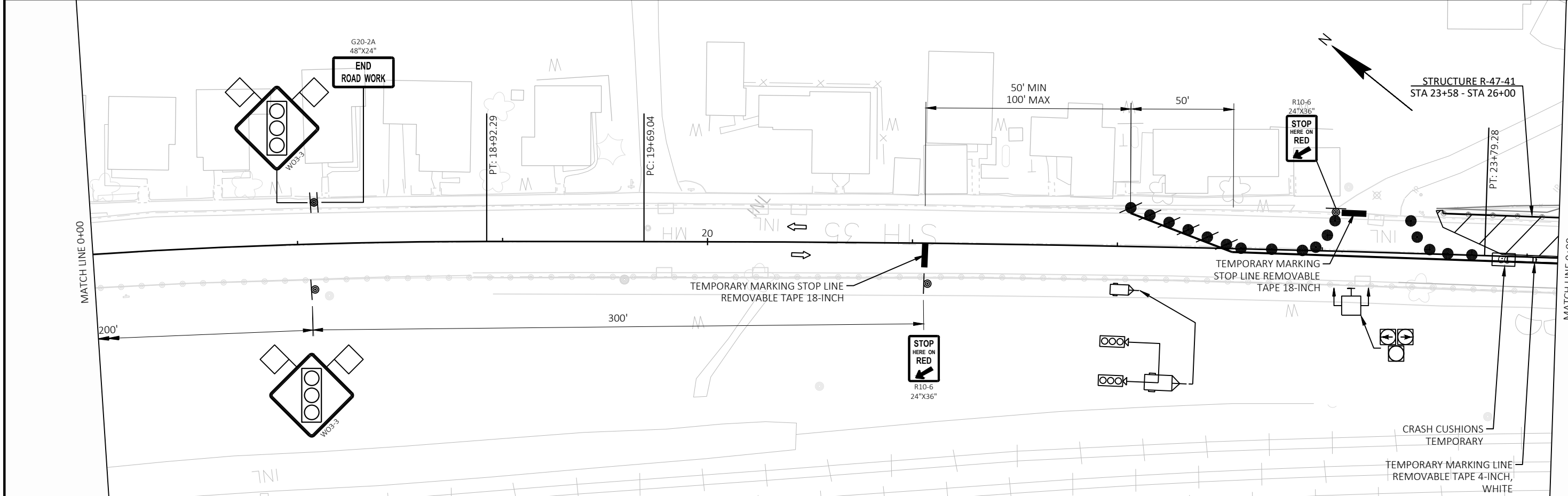
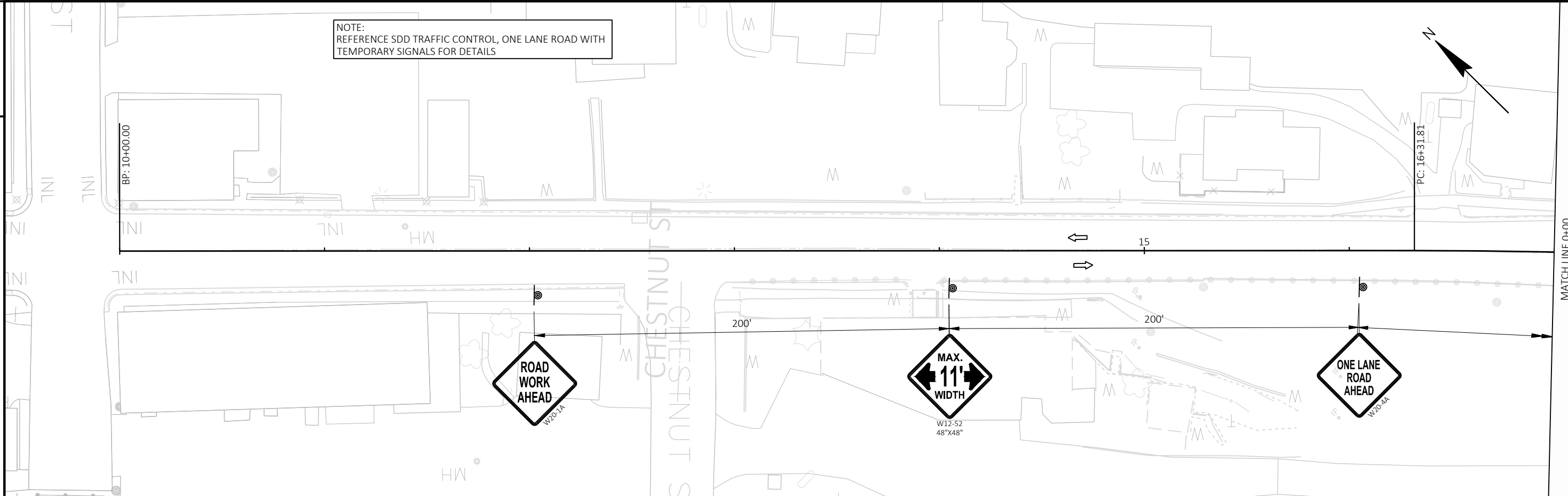
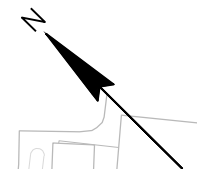


PROJECT NO: 7180-00-78	HWY: STH 35	COUNTY: PIERCE	TRAFFIC CONTROL - STAGE 1	SHEET	E
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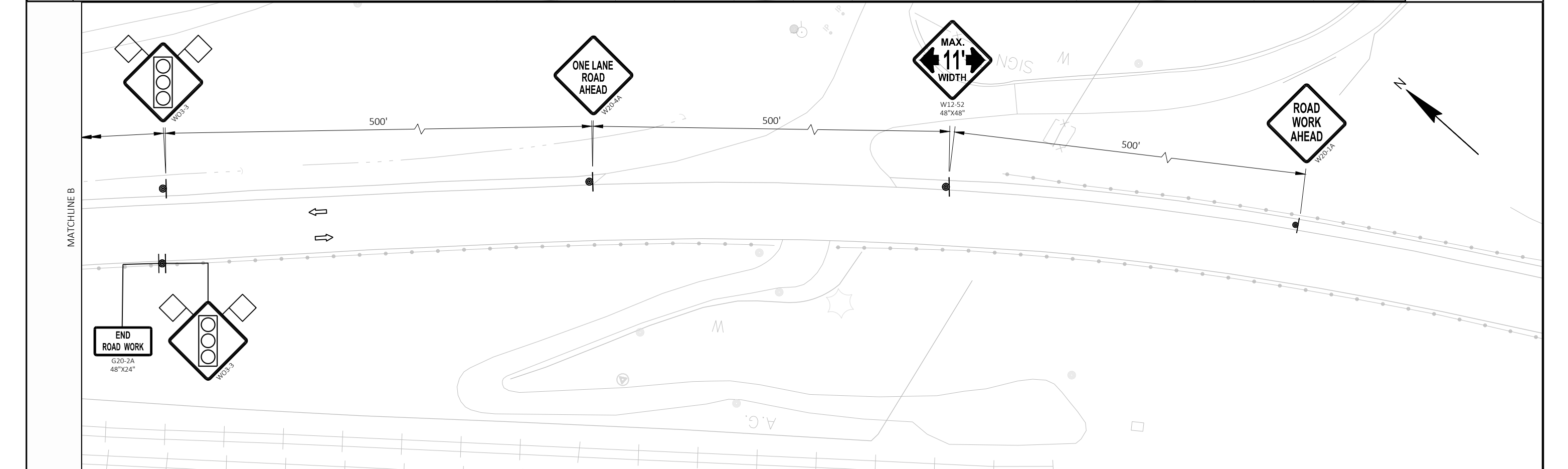
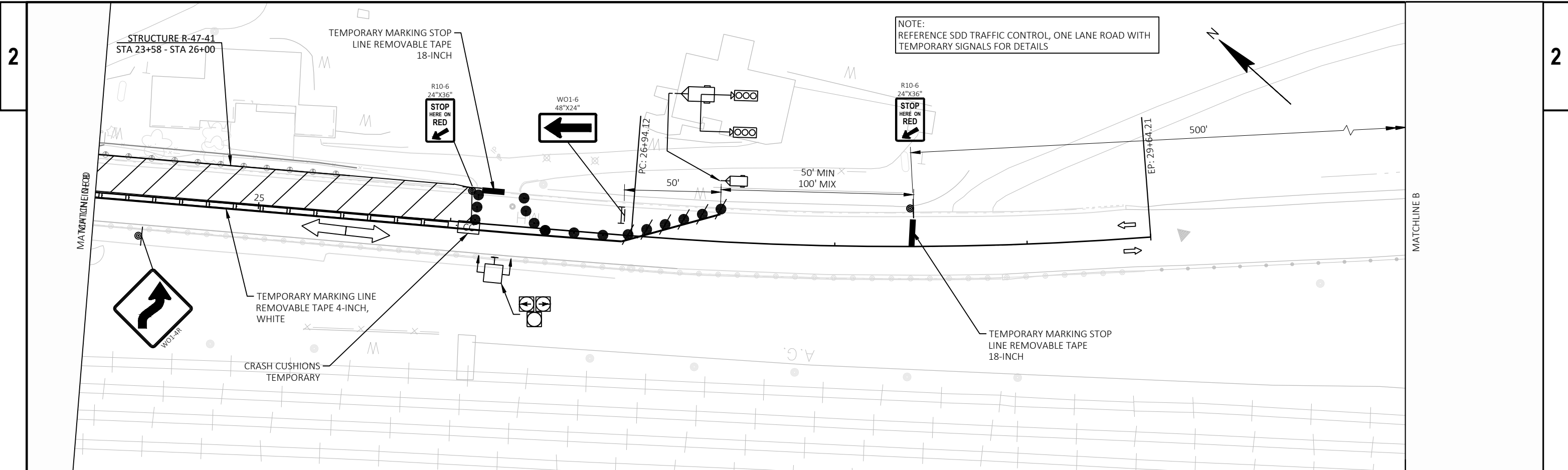


PROJECT NO: 7180-00-78	HWY: STH 35	COUNTY: PIERCE	TRAFFIC CONTROL - STAGE 1	SHEET	E
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NOTE:
REFERENCE SDD TRAFFIC CONTROL, ONE LANE ROAD WITH
TEMPERARY SIGNALS FOR DETAILS



PROJECT NO: 7180-00-78	HWY: STH 35	COUNTY: PIERCE	TRAFFIC CONTROL - STAGE 2	SHEET	E
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PROJECT NO: 7180-00-78 HWY: STH 35 COUNTY: PIERCE TRAFFIC CONTROL - STAGE 2 SHEET E

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	208.0100 BORROW	COMMENT
			CUT (2)			FACTOR 1.25				
DIVISION 1	14+64/15+30		180	180	103	129	51	51	0	
QUANTITYREPORTTEMPXML			180	180	103	129	51	51	0	
DIVISION 1 SUBTOTAL			180	180	103	129	51	51	0	
GRAND TOTAL			180	180	103	129	51	51	0	
TOTAL COMMON EXC			180							

NOTES:

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
- (2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- (5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (13) EXPANDED FILL FACTOR = X.6X
- (14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
- (15) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

Estimate Of Quantities

7180-00-78

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	6.000	6.000
0004	201.0205	Grubbing	STA	6.000	6.000
0006	203.0220	Removing Structure (structure) 01. R-47-29	EACH	1.000	1.000
0008	203.0220	Removing Structure (structure) 02. R-47-30	EACH	1.000	1.000
0010	204.0120	Removing Asphaltic Surface Milling	SY	455.000	455.000
0012	204.0150	Removing Curb & Gutter	LF	267.000	267.000
0014	205.0100	Excavation Common	CY	180.000	180.000
0016	206.3001	Excavation for Structures Retaining Walls (structure) 01. R-47-41	EACH	1.000	1.000
0018	209.1500	Backfill Granular Grade 1	TON	13.000	13.000
0020	210.1500	Backfill Structure Type A	TON	354.000	354.000
0022	213.0100	Finishing Roadway (project) 01. 7180-00-78	EACH	1.000	1.000
0024	310.0110	Base Aggregate Open-Graded	TON	30.000	30.000
0026	455.0605	Tack Coat	GAL	32.000	32.000
0028	460.2000	Incentive Density HMA Pavement	DOL	40.000	40.000
0030	460.6244	HMA Pavement 4 MT 58-34 S	TON	51.000	51.000
0032	502.0110.S	Concrete Masonry Soldier Pile Footings	CY	128.000	128.000
0034	504.0500	Concrete Masonry Retaining Walls	CY	121.000	121.000
0036	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	4,550.000	4,550.000
0038	506.0605	Structural Steel HS	LB	80,788.000	80,788.000
0040	511.1200	Temporary Shoring (structure) 01. R-47-40	SF	130.000	130.000
0042	513.8011	Railing Steel Pedestrian Type C2	LF	63.000	63.000
0044	516.0500	Rubberized Membrane Waterproofing	SY	32.000	32.000
0046	517.0601	Painting Epoxy System (structure) 01. R-47-41	EACH	1.000	1.000
0048	517.1010.S	Concrete Staining (structure) 01. R-47-40	SF	3,855.000	3,855.000
0050	517.1010.S	Concrete Staining (structure) 02. R-47-41	SF	2,406.000	2,406.000
0052	517.1050.S	Architectural Surface Treatment (structure) 01. R-47-40	SF	3,125.000	3,125.000
0054	517.1050.S	Architectural Surface Treatment (structure) 02. R-47-41	SF	1,550.000	1,550.000
0056	542.1000.S	Precast Panels for Soldier Pile Walls	SF	2,128.000	2,128.000
0058	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	267.000	267.000
0060	603.8000	Concrete Barrier Temporary Precast Delivered	LF	585.000	585.000
0062	603.8125	Concrete Barrier Temporary Precast Installed	LF	585.000	585.000
0064	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	581.000	581.000
0066	614.0905	Crash Cushions Temporary	EACH	3.000	3.000
0068	616.0204	Fence Chain Link 4-FT	LF	59.000	59.000
0070	616.0700.S	Fence Safety	LF	256.000	256.000
0072	618.0100	Maintenance And Repair of Haul Roads (project) 01. 7180-00-78	EACH	1.000	1.000
0074	619.1000	Mobilization	EACH	1.000	1.000
0076	625.0100	Topsoil	SY	665.000	665.000
0078	627.0200	Mulching	SY	621.000	621.000
0080	628.1905	Mobilizations Erosion Control	EACH	8.000	8.000
0082	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0084	629.0210	Fertilizer Type B	CWT	0.390	0.390
0086	630.0130	Seeding Mixture No. 30	LB	12.000	12.000
0088	630.0500	Seed Water	MGAL	11.010	11.010
0090	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	1.000	1.000
0092	636.0050.S	Foundation Drilling (diameter) 01. 30-Inch	LF	216.000	216.000
0094	636.0050.S	Foundation Drilling (diameter) 02. 36-Inch	LF	336.000	336.000
0096	637.2210	Signs Type II Reflective H	SF	3.000	3.000
0098	638.2602	Removing Signs Type II	EACH	1.000	1.000

Estimate Of Quantities

7180-00-78

Line	Item	Item Description	Unit	Total	Qty
0100	638.3000	Removing Small Sign Supports	EACH	1.000	1.000
0102	642.5201	Field Office Type C	EACH	1.000	1.000
0104	643.0300	Traffic Control Drums	DAY	1,644.000	1,644.000
0106	643.0420	Traffic Control Barricades Type III	DAY	1,030.000	1,030.000
0108	643.0705	Traffic Control Warning Lights Type A	DAY	412.000	412.000
0110	643.0715	Traffic Control Warning Lights Type C	DAY	1,262.000	1,262.000
0112	643.0900	Traffic Control Signs	DAY	6,200.000	6,200.000
0114	643.1000	Traffic Control Signs Fixed Message	SF	38.000	38.000
0116	643.3150	Temporary Marking Line Removable Tape 4-Inch	LF	1,258.000	1,258.000
0118	643.3850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	52.000	52.000
0120	643.3960	Temporary Marking Removable Mask Out Tape 6-Inch	LF	850.000	850.000
0122	643.5000	Traffic Control	EACH	1.000	1.000
0124	645.0112	Geotextile Type DF Schedule B	SY	257.000	257.000
0126	646.1020	Marking Line Epoxy 4-Inch	LF	1,206.000	1,206.000
0128	646.9000	Marking Removal Line 4-Inch	LF	1,206.000	1,206.000
0130	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	267.000	267.000
0132	650.6501	Construction Staking Structure Layout (structure) 01. R-47-40	EACH	1.000	1.000
0134	650.6501	Construction Staking Structure Layout (structure) 02. R-47-41	EACH	1.000	1.000
0136	650.8000	Construction Staking Resurfacing Reference	LF	267.000	267.000
0138	650.9911	Construction Staking Supplemental Control (project) 7180-00-78	EACH	1.000	1.000
0140	650.9920	Construction Staking Slope Stakes	LF	513.000	513.000
0142	661.0300	Generators	DAY	528.000	528.000
0144	690.0150	Sawing Asphalt	LF	267.000	267.000
0146	690.0250	Sawing Concrete	LF	5.000	5.000
0148	999.1001.S	Seismograph	EACH	1.000	1.000
0150	999.1501.S	Crack and Damage Survey	EACH	1.000	1.000
0152	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 14+00	EACH	1.000	1.000
0154	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 02. 25+00	EACH	1.000	1.000
0156	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,600.000	1,600.000
0158	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,200.000	1,200.000
0160	SPV.0045	Special 01. Driveway Assistance Device System 7180-00-78	DAY	88.000	88.000
0162	SPV.0060	Special 01. Soil Nail Verification Tests R-47-40	EACH	2.000	2.000
0164	SPV.0060	Special 02. Soil Nail Proof Tests R-47-40	EACH	10.000	10.000
0166	SPV.0060	Special 03. Adjusting Water Valve Boxes	EACH	1.000	1.000
0168	SPV.0060	Special 04. Utility Line Opening (ULO)	EACH	30.000	30.000
0170	SPV.0060	Special 05. Protect Existing Building, Bridge, Patio, Parking Lot, Archway, and Gate	EACH	1.000	1.000
0172	SPV.0060	Special 06. Temporary Bracing of the Existing Bridge	EACH	1.000	1.000
0174	SPV.0060	Special 07. Remove and Reset Existing Landscape Retaining Wall	EACH	1.000	1.000
0176	SPV.0060	Special 08. Temporary Excavation Support	EACH	1.000	1.000
0178	SPV.0060	Special 09. Protect or Remove and Reset Railing	EACH	1.000	1.000
0180	SPV.0165	Special 01. Soil Nail Retaining Walls R-47-40	SF	3,409.000	3,409.000

3

3

STAGE	STATION	TO	STATION	LOCATION	201.0105	201.0205
					CLEARING STA	GRUBBING STA
STAGE 1	12+99	-	13+84	'RT'	1	1
STAGE 1	14+01	-	15+45	'RT'	2	2
STAGE 2	23+39	-	26+06	'LT'	3	3
TOTAL					6	6

STAGE	STATION	TO	STATION	LOCATION	204.0120	204.0150
					REMOVING ASPHALTIC SURFACE MILLING SY	REMOVING CURB & GUTTER LF
STAGE 2	23+39	-	26+06	'LT'	455	267
TOTAL					455	267

STAGE	STATION	TO	STATION	LOCATION	455.0605	460.6244
					TACK COAT GAL	HMA PAVEMENT 4 MT 58-34 S TON
STAGE 2	23+39	-	26+06	'LT'	32	51
TOTAL					32	51

601.0411
 CONCRETE CURB & GUTTER
 30-INCH TYPE D

STAGE	STATION	TO	STATION	LOCATION	LF
STAGE 2	23+39	-	26+06	'LT'	267
TOTAL					267

603.8000
 CONCRETE BARRIER TEMPORARY
 PRECAST DELIVERED

603.8125
 CONCRETE BARRIER TEMPORARY
 PRECAST INSTALLED

STAGE	STATION	TO	STATION	LOCATION	LF	LF
STAGE 1	11+98	-	15+68	'RT'	370	370
STAGE 2	23+88	-	26+03	'LT'	215	215
TOTAL					585	585

LOCATION	STAGE	614.0905 Crash Cushions Temporary	Back Width FT	Object Marking Pattern	Crash Test Level	Traffic Direction	Traffic Location	Crash Cushion Shields
11+94 RT	STAGE 1	1	2	OM-3R (WO5-58R)	TL-2	Bidirectional	RT	Temporary concrete barrier
23+88 LT	STAGE 2	1	2	OM-3L (WO5-58L)	TL-2	Bidirectional	LT	Temporary concrete barrier
26+03 LT	STAGE 2	1	2	OM-3R (WO5-58R)	TL-2	Bidirectional	RT	Temporary concrete barrier
Total		3						

616.0204 FENCE CHAIN LINK 4-FT					
STAGE	STATION	TO	STATION	LOCATION	LF
STAGE 1	14+84	-	15+38	'RT'	59
TOTAL					59

STAGE	STATION	TO	STATION	LOCATION	625.0100	627.0200	628.1905	628.1910	629.0210	630.0130	630.0500
					TOPSOIL SY	MULCHING SY	MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 30 LB	SEED WATER MGAL
STAGE 1	12+99	-	13+84	'RT'	33	33	4	1	0.02	1	0.74
STAGE 1	12+99		14+64	'RT'	44						
STAGE 1	14+01	-	15+54	'RT'	318	318			0.20	6	7.24
STAGE 2	23+39	-	26+06	'LT'	270	270	4	1	0.17	5	3.03
TOTAL					665	621	8	2	0.39	12	11.01

STAGE	STATION	LOCATION	SIGN CODE	SIZE	DESCRIPTION	634.0612	637.2210	638.2602	638.3000	643.1000
						POSTS WOOD 4X6-INCH X 12-FT EACH	SIGNS TYPE II REFLECTIVE H SF	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	TRAFFIC CONTROL SIGNS FIXED MESSAGE SF
PRE-WARN			G20-57	76" X 36"	HWY 35 ROAD WORK BEGINS XXX XX					38
STAGE 2	23+48	'LT'	R7-5L	18" X 24"	TWO HOUR PARKING 9AM-7PM (LEFT ARROW)	1	3	1	1	
TOTAL						1	3	1	1	38

3

3

STAGE	STATION	TO	STATION	LOCATION	DAYS	643.0300	643.0715
						TRAFFIC CONTROL DRUMS DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY
STAGE 1	12+03	-	12+28	'RT'	103	206	206
STAGE 1	15+73	-	15+96	'RT'	103	206	
STAGE 2	23+37	-	23+87	'LT'	88	528	528
STAGE 2	26+03	-	27+40	'LT'	88	704	528
TOTAL						1,644	1,262

STAGE	LOCATION	DAYS	643.0420	643.0705	643.0900
			TRAFFIC CONTROL BARRICADES TYPE III DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	TRAFFIC CONTROL SIGNS DAY
STAGE 1	'LT'	103			1,648
STAGE 1	'RT'	103	1,030	412	1,648
STAGE 2	'LT'	88			1,936
STAGE 2	'RT'	88			968
TOTAL			1,030	412	6,200

STAGE	STATION	LOCATION	DAYS	661.0300
				GENERATORS DAY
STAGE 2	22+47	'RT'	88	88
STAGE 2	23+06	'RT'	88	88
STAGE 2	23+37	'LT'	88	88
STAGE 2	26+17	'RT'	88	88
STAGE 2	27+38	'RT'	88	88
STAGE 2	28+35	'LT'	88	88
TOTAL				528

STAGE	STATION	TO	STATION	LOCATION	COLOR	646.1020	646.9000
						MARKING LINE EPOXY 4-INCH LF	MARKING REMOVAL LINE 4- INCH LF
STAGE 2	22+37	-	28+40	'CL'	YELLOW	1,206	
STAGE 2	22+37	-	28+40	'CL'			1,206
TOTAL						1,206	1,206

STAGE	STATION	TO	STATION	LOCATION	COLOR	643.3150	643.3850	643.3960
						TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH LF	TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH LF	TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH LF
STAGE 1	11+71	-	15+96	'LT'	YELLOW	425		
STAGE 1	11+71	-	15+96	'RT'	WHITE	425		
STAGE 1	12+05		15+96	'RT'				850
STAGE 2	22+37		22+37	'RT'	WHITE		14	
STAGE 2	23+09	-	23+21	'LT'	WHITE		12	
STAGE 2	23+37	-	27+40	'LT'	WHITE	408		
STAGE 2	26+15	-	26+27	'LT'	WHITE		12	
STAGE 2	28+40	-	28+40	'LT'	WHITE		14	
TOTAL						1,258	52	850

STAGE	STATION	TO	STATION	LOCATION	650.5500	650.8000	650.9920
					CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF	CONSTRUCTION STAKING RESURFACING REFERENCE LF	CONSTRUCTION STAKING SLOPE STAKES LF
STAGE 1	12+99	-	15+45	'RT'			246
STAGE 2	23+39	-	26+06	'LT'	267	267	267
TOTAL					267	267	513

3

STAGE	STATION	TO	STATION	LOCATION	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF
STAGE 2	23+39	-	23+39	'LT'		2.5
STAGE 2	23+39	-	26+06	'LT'	267	
STAGE 2	26+06	-	26+06	'LT'		2.5
TOTAL					267	5

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SPV.0045.01 DRIVEWAY ASSISTANCE DEVICE SYSTEM 7180-00-78		
STAGE	DAYS	DAY
STAGE 2	88	88
TOTAL		88

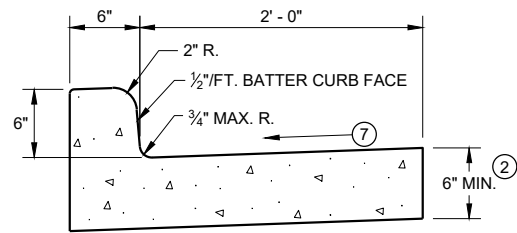
SPV.0060.03 ADJUSTING WATER VALVE BOXES			
STAGE	STATION	LOCATION	EACH
STAGE 2	26+06	'LT'	1
TOTAL			1

ITEM #	DESCRIPTION	UNIT	SUM OF QUANTITY
213.0100.01	FINISHING ROADWAY 7180-00-78	EACH	1
619.1000	MOBILIZATION	EACH	1
642.5201	FIELD OFFICE TYPE C	EACH	1
643.5000	TRAFFIC CONTROL	EACH	1
650.6500.01	CONSTRUCTION STAKING STRUCTURE LAYOUT R-47-40	EACH	1
650.6500.02	CONSTRUCTION STAKING STRUCTURE LAYOUT R-47-41	EACH	1
650.9911	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL 7180-00-78	EACH	1

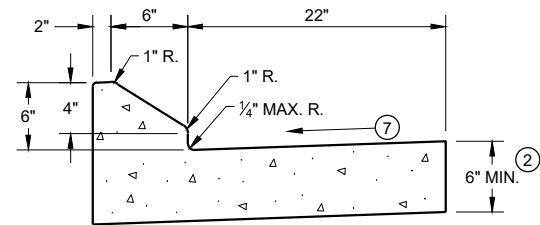
SPV.0060.04 UTILITY LINE OPENING (ULO)		
STAGE	LOCATION	EACH
STAGE 1	'UNDISTRIBUTED'	30
TOTAL		30

Standard Detail Drawing List

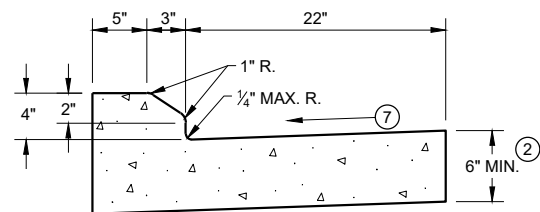
08D01-23A	CONCRETE CURB & GUTTER
09G02-05A	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-05B	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-05C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
13C19-03	HMA LONGITUDINAL JOINTS
14B07-16A	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16B	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16C	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16D	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16E	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16F	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16G	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16H	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16I	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16J	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16K	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16L	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16M	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16N	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
15B03-15A	FENCE CHAIN LINK
15B03-15B	FENCE CHAIN LINK
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09F	ADVANCED WIDTH RESTRICTION SIGNING
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C05-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M. P. H. OR LESS
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-23B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-08A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15D33-09	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS
15D40-05C	TRAFFIC CONTROL, PARTIAL LANE SHIFT NON-FREEWAY/EXPRESSWAY OR MULTILANE DIVIDED 45 MPH AND UNDER



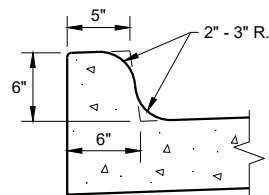
TYPES A¹ & D



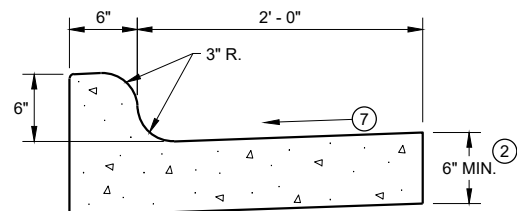
6" SLOPED CURB TYPES G¹ & J



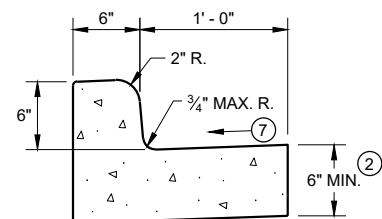
4" SLOPED CURB TYPES G¹ & J



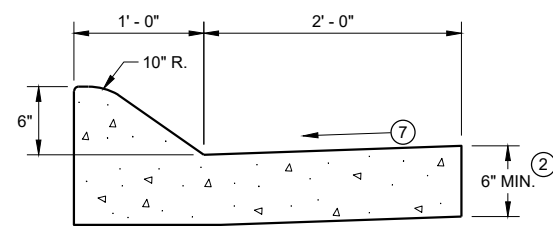
TYPES K¹ & L
(OPTIONAL CURB SHAPE)



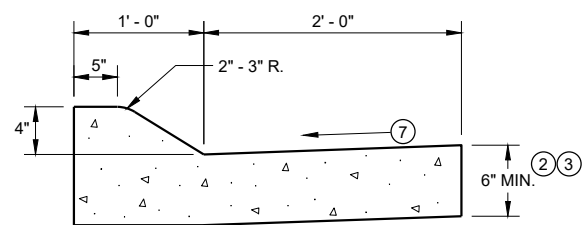
TYPES K¹ & L
CONCRETE CURB AND GUTTER 30"



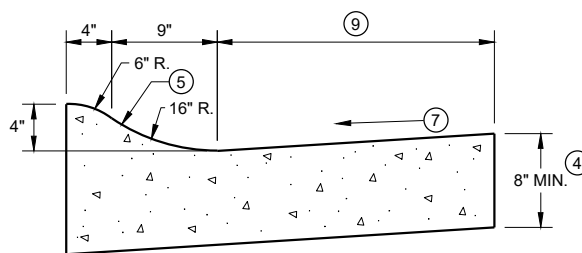
TYPES A¹ & D
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A¹ & D

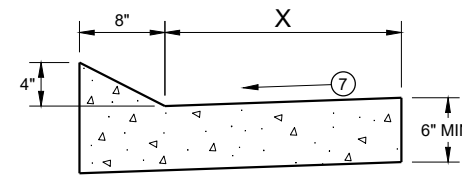


4" SLOPED CURB TYPES A¹ & D
CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R¹ & T

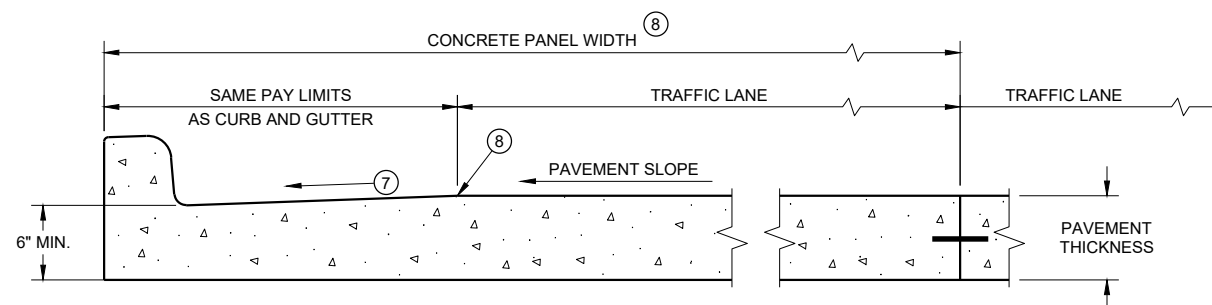
TBT & TBTT	X
30"	22"
36"	28"



TYPES TBT & TBTT¹
CONCRETE CURB AND GUTTER

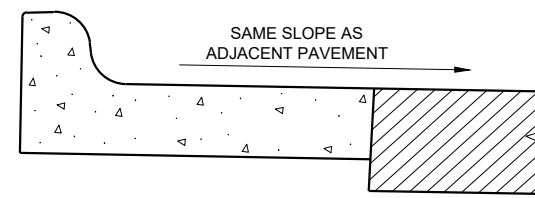
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT* WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER⁶
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

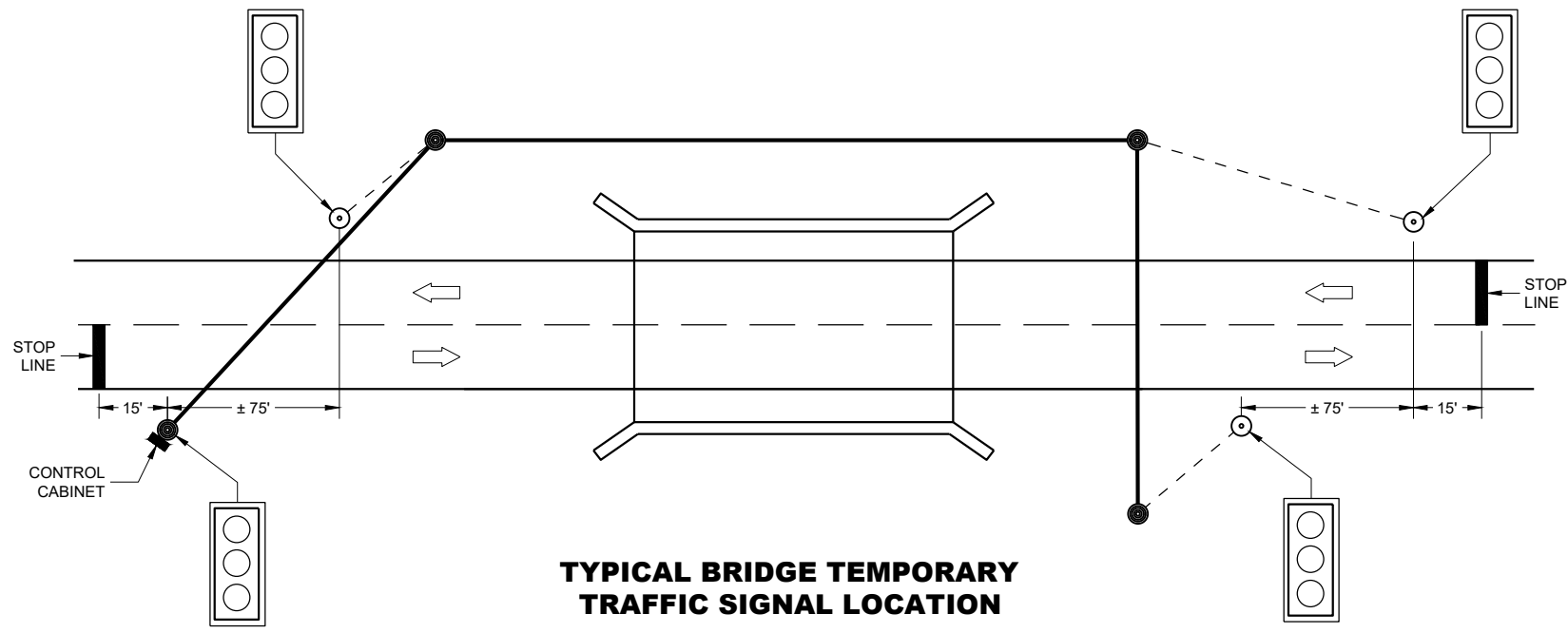
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

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

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 GUTTERS 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 UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES 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.
- ⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES



TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION

LEGEND

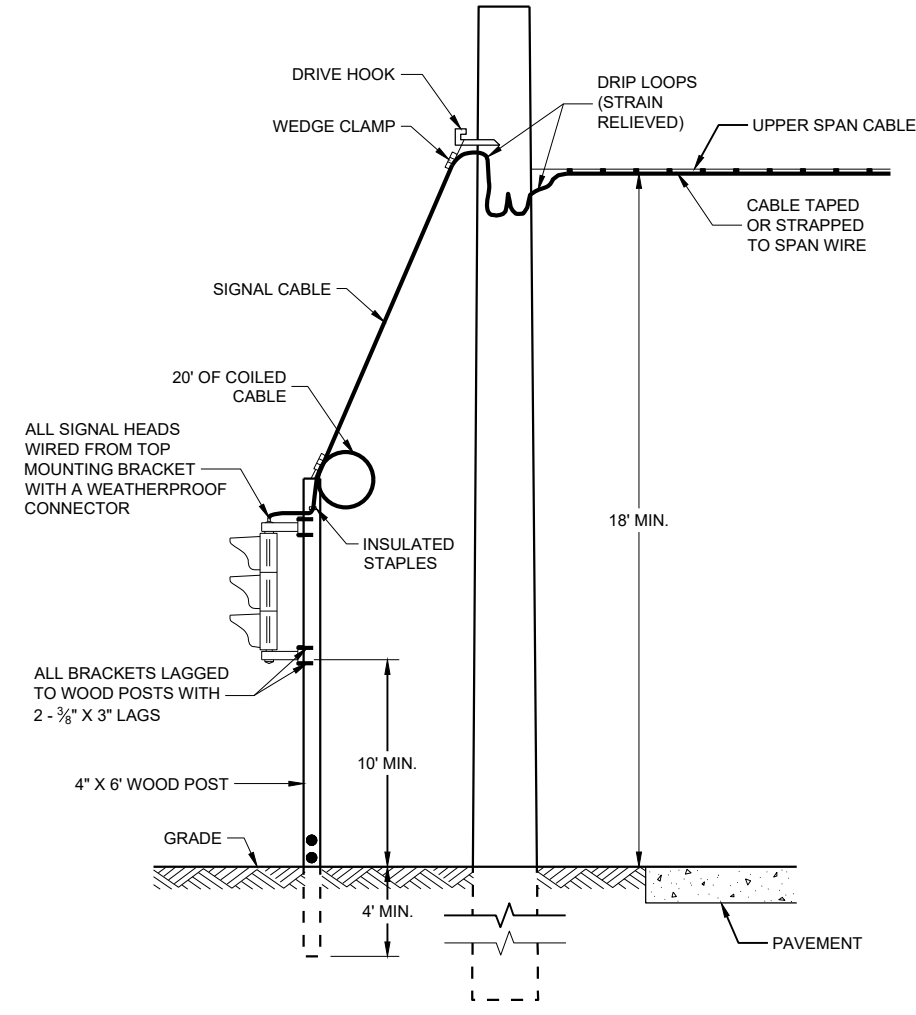
- WOOD POLE (NON-BREAKAWAY)
- WOOD POST (BREAKAWAY)
- - - SIGNAL CABLE
- SIGNAL CABLE W/MESSENGER

DIRECTION OF TRAFFIC →

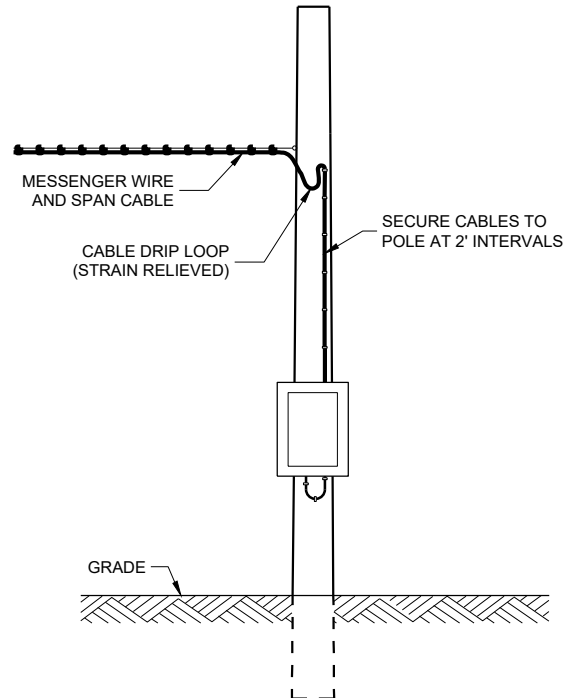
LED TRAFFIC SIGNAL WITH BACKPLATE
3-12"

GENERAL NOTES

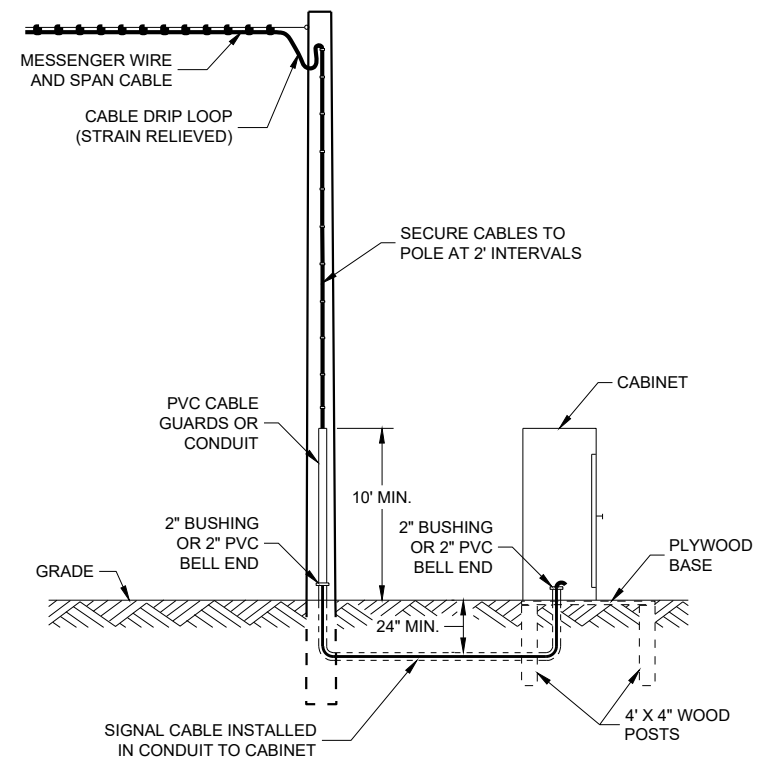
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- POLE MOUNTED TRAFFIC SIGNAL CONTROL CABINET MAY BE MOUNTED ON THE SERVICE POLE IF THE ELECTRICAL UTILITY ALLOWS THE INSTALLATION.
- WHEN UTILITY POLES ARE USED TO SPAN THE TEMPORARY OVERHEAD CABLE, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER OF THE POLES AND GIVEN TO THE PROJECT MANAGER. ALL PERTINENT UTILITY AND CODE CLEARANCES SHALL BE MAINTAINED.
- WOOD POLES (NON-BREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAM GUARD, ETC.).
- WOOD POSTS (BREAKAWAY) SHALL BE NO CLOSER THAN 2 FEET OUTSIDE OF SHOULDER.
- VERTICAL CLEARANCE ETC. PER NEC.
- TRAFFIC SIGNAL FACES SHALL BE TYPICALLY PLACED 12 FEET FROM EDGE OF PAVEMENT.
- EACH TRAFFIC SIGNAL SHALL HAVE A BACKPLATE.
- SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15D33.



TYPICAL DROP TO TRAFFIC SIGNAL FACE



POLE MOUNT CABINET INSTALLATION



GROUND MOUNT CABINET INSTALLATION

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

OFFSET DISTANCES FOR TEMPORARY NON-BREAKAWAY POLES	
SPEED LIMIT	OFFSET DISTANCE*
GREATER THAN 45 MPH	18 FT
45 MPH OR LESS	12 FT
45 MPH OR LESS W/CURBS	2 FT

* NOTE: OFFSET MEASURED FROM OUTER EDGE OF OUTSIDE THRU LANE.

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Ahmet Demirelek
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

6

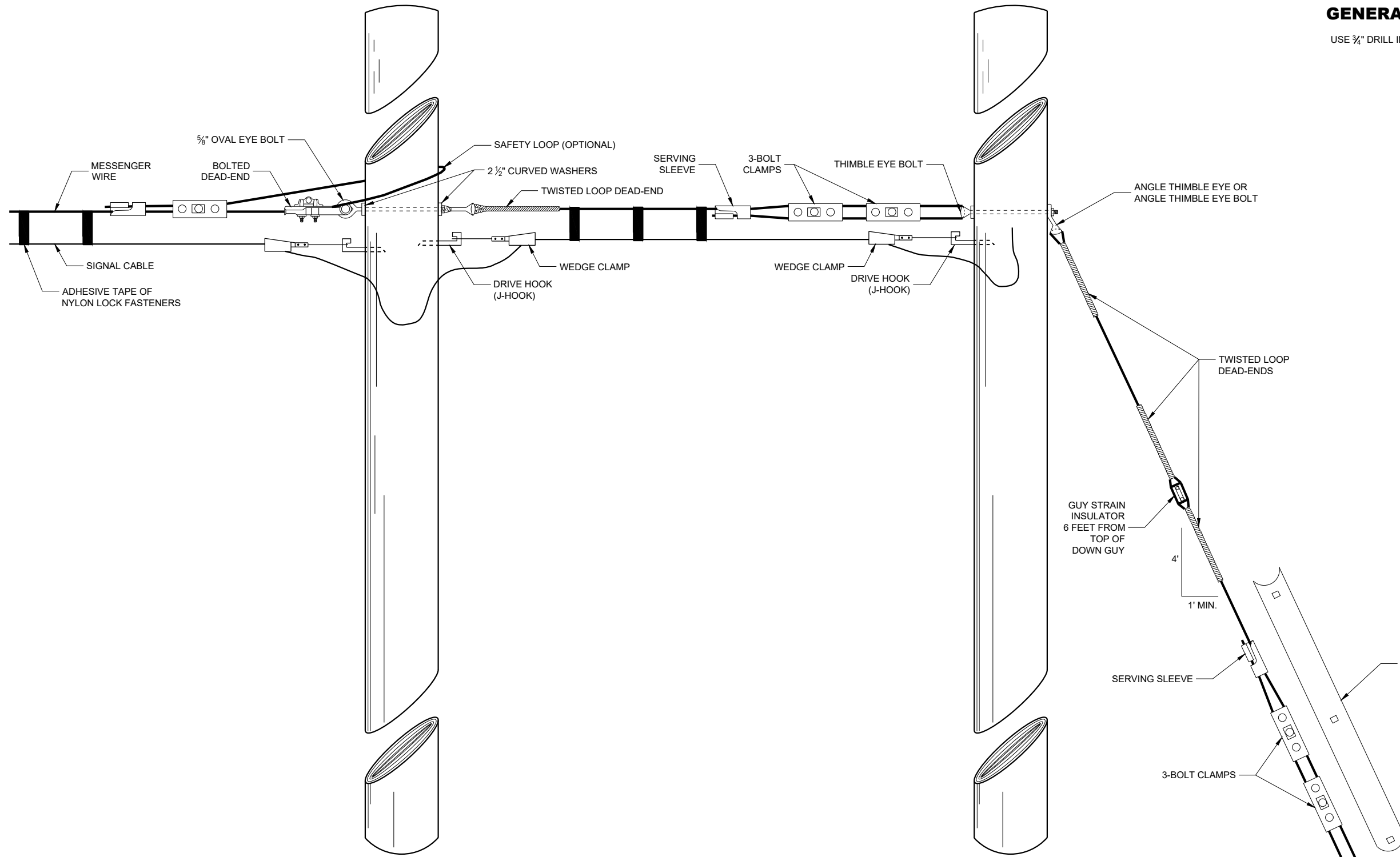
6

SDD09G02 - 05a

SDD09G02 - 05a

GENERAL NOTES

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



SPAN WIRE POLE

GUY POLE

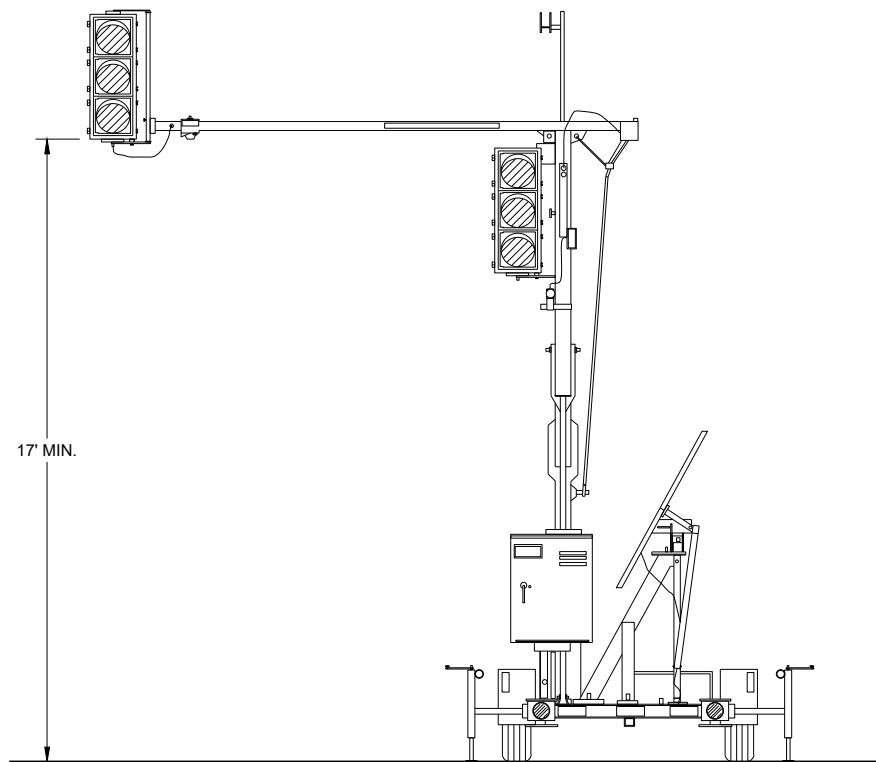
TYPICAL DEAD-ENDINGS OR GUYING

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2015 DATE /S/ Ahmet Demerbilek
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

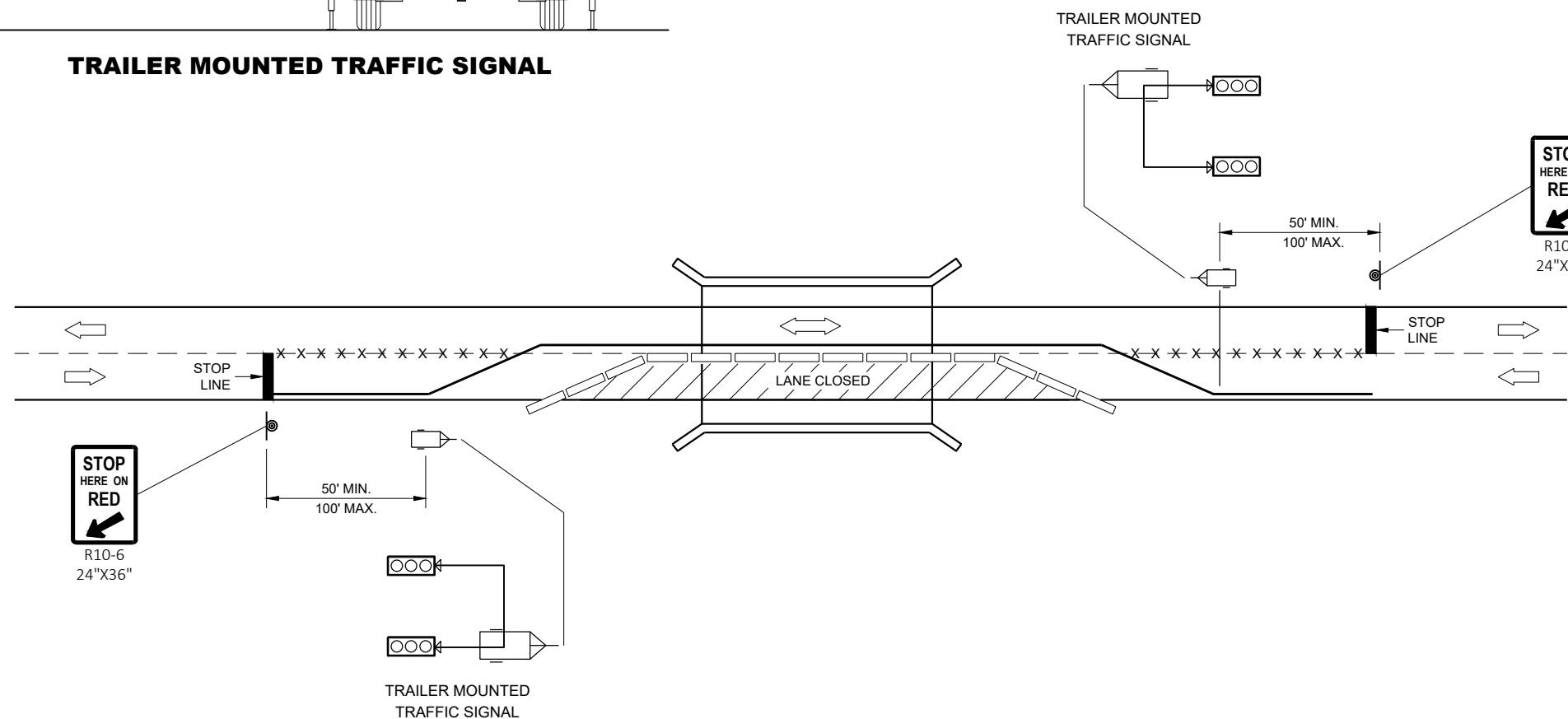


TRAILER MOUNTED TRAFFIC SIGNAL

GENERAL NOTES






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

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15D33.



TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION

LEGEND

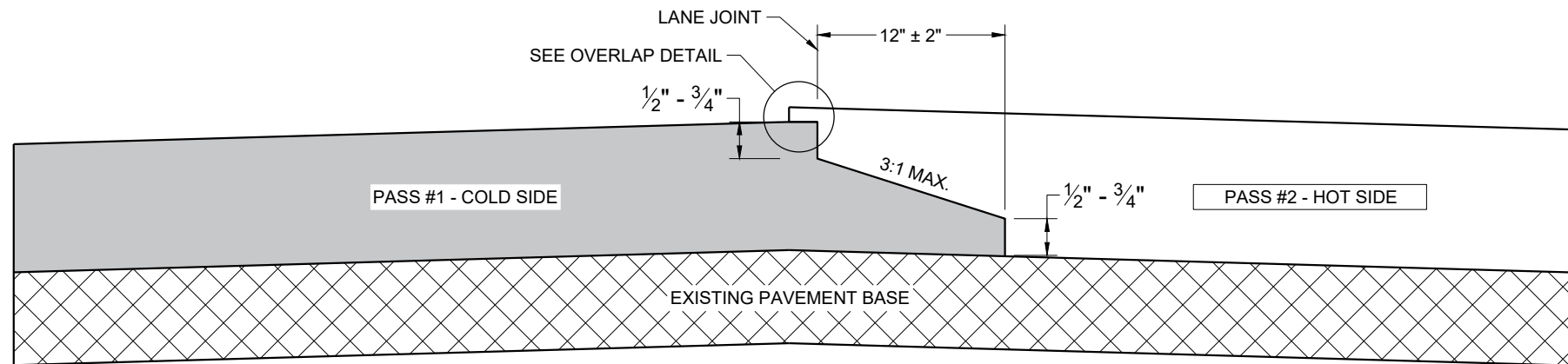
-  POST MOUNTED SIGN
-  TEMPORARY PRECAST CONCRETE BARRIER
-  TRAILER MOUNTED TRAFFIC SIGNAL
-  REMOVE PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

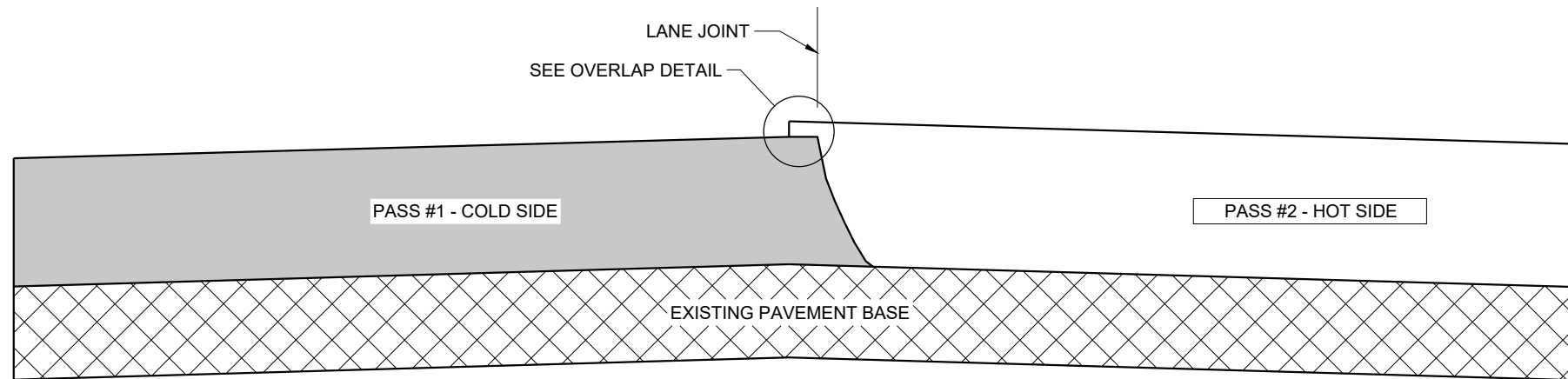
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2015 /S/ Ahmet Demerbilek
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

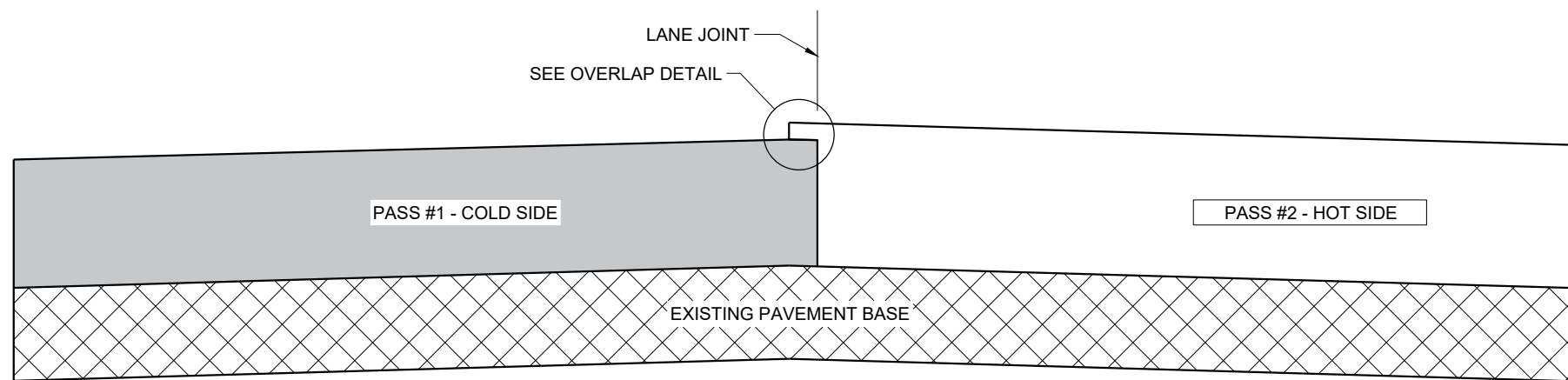
FHWA



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)**

GENERAL NOTES

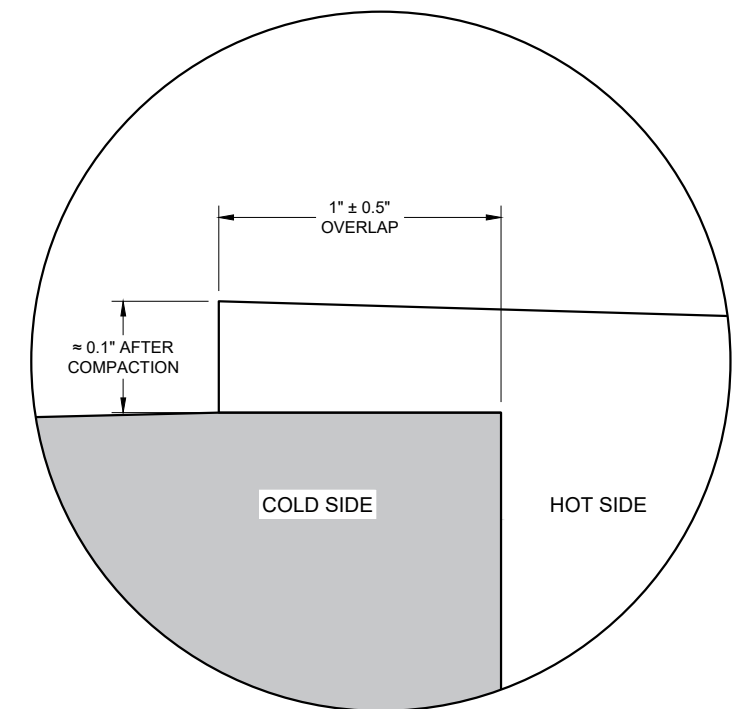
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



OVERLAP DETAIL (TYPICAL)

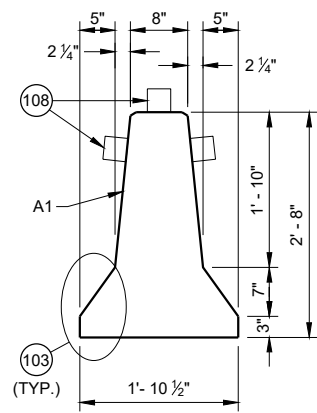
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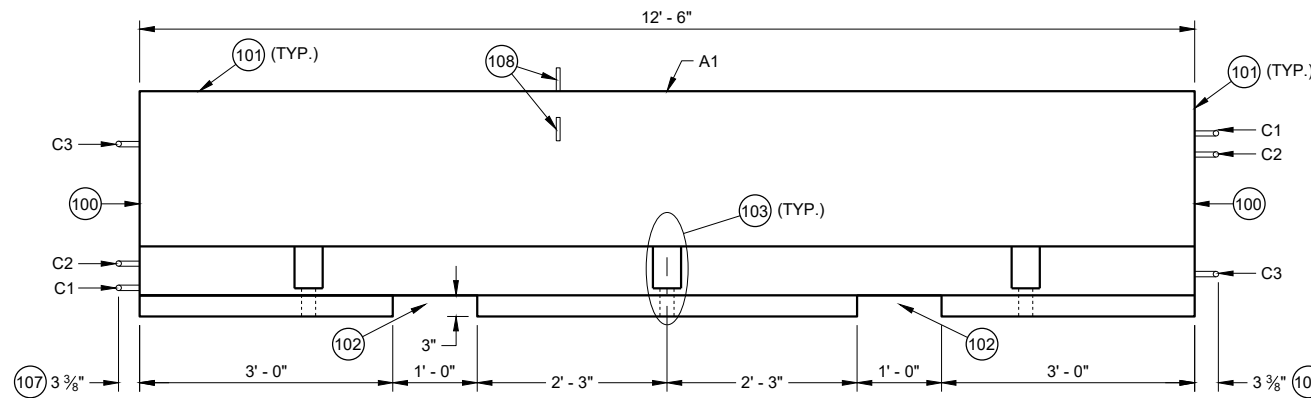
SDD 13C19 - 03

SDD 13C19 - 03

HMA LONGITUDINAL JOINTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2020 DATE	/S/ Steven Hefel HMA PAVEMENT ENGINEER
FHWA	



CROSS SECTION



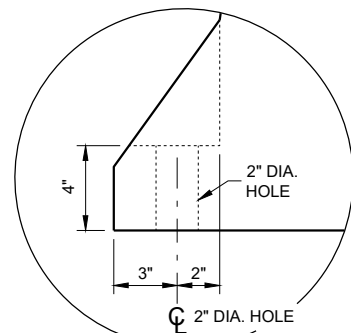
PROFILE VIEW

GENERAL NOTES

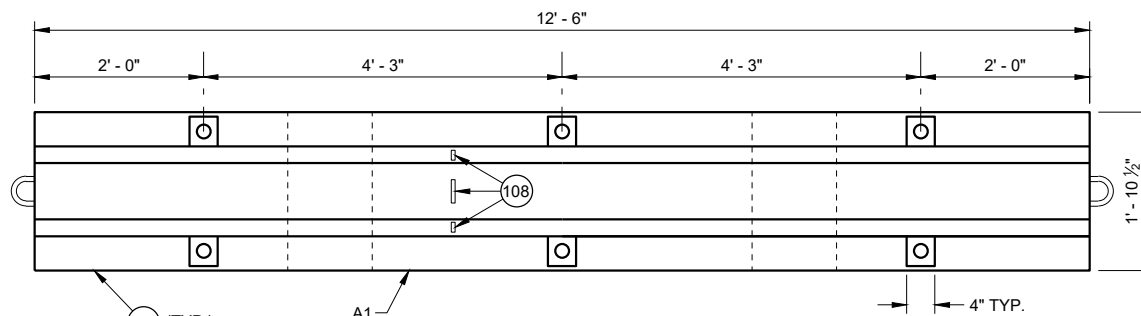
PLACE BARRIER ON PAVED SURFACE. BEFORE PLACEMENT OF TEMPORARY BARRIER, REMOVE ALL LOOSE MATERIAL FROM PAVED SURFACE.

LOOP BARS C1, C2 AND C3 ARE NOT FOR PLACEMENT OR MOVEMENT OF BARRIER.

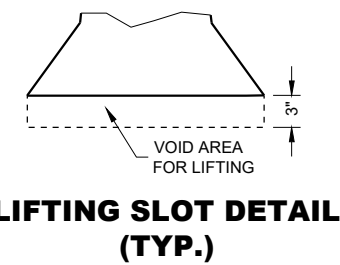
- (100) PERMANENTLY FORM INTO ONE END OF BARRIER THE FOLLOWING INFORMATION:
A. TYPE OF BARRIER: WI-CBTP
B. MANUFACTURER
C. DATE OF MANUFACTURE (MONTH AND YEAR)
- (101) 1" OPTIONAL CHAMFER
- (102) SEE LIFTING SLOT DETAIL
- (103) SEE ANCHOR BLOCK DETAIL
- (104) 1 3/4" MIN. CLEAR COVER
- (105) 2" MIN. CLEAR COVER
- (106) 1" MIN. CLEAR COVER
- (107) ± 1/8" MEASURED FROM FACE OF CONCRETE BARRIER TO OUTSIDE OF LOOP BAR (TYP.)
- (108) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURERS INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED LEFT OF TRAFFIC AND WHITE WHEN BARRIER IS LOCATED RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART, PROVIDE TO MOUNTED DELINEATORS IN ADDITION TO SIDE MOUNTED DELINEATORS ON BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAT 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.



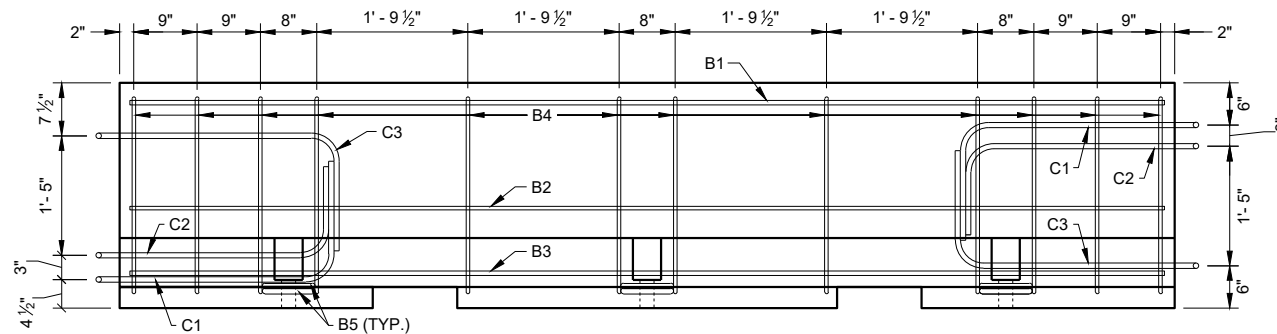
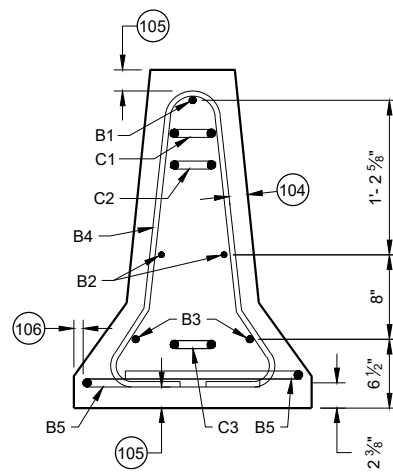
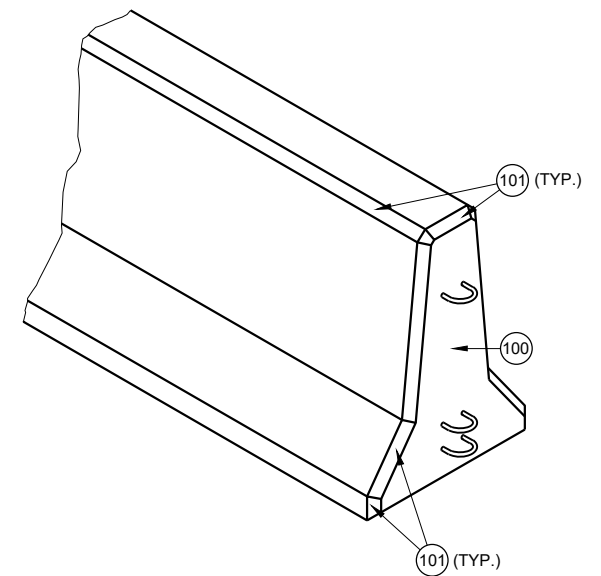
ANCHOR BLOCK DETAIL



**PLAN VIEW
TEMPORARY BARRIER**



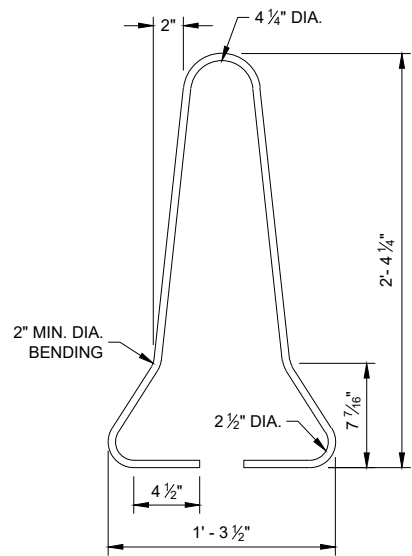
**LIFTING SLOT DETAIL
(TYP.)**



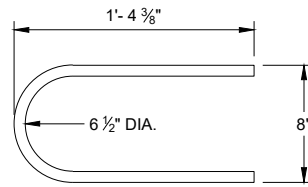
**PROFILE VIEW
TEMPORARY BARRIER REINFORCEMENT**

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

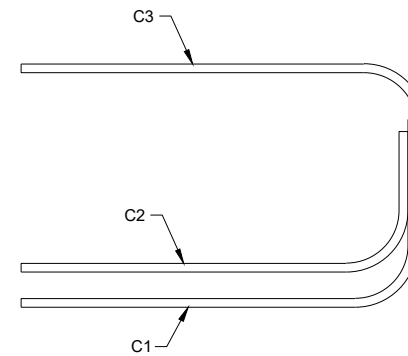
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



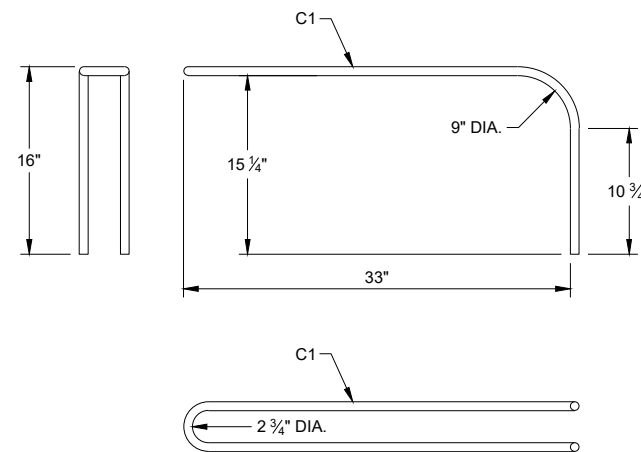
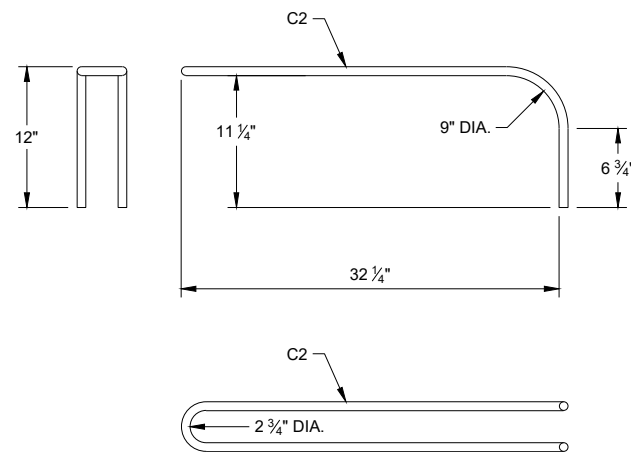
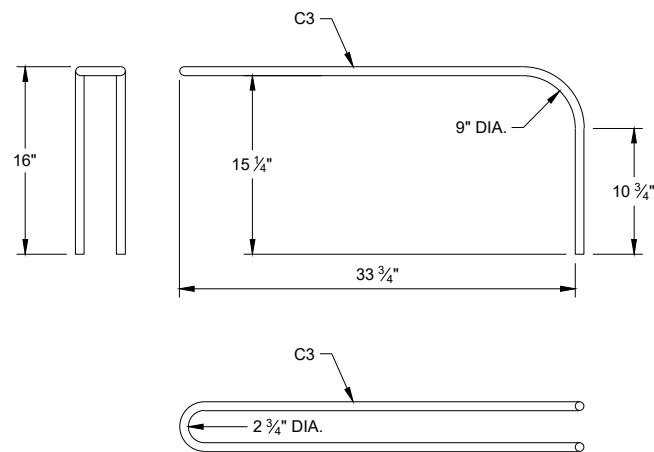
B4 BAR DETAIL



B5 BAR DETAIL



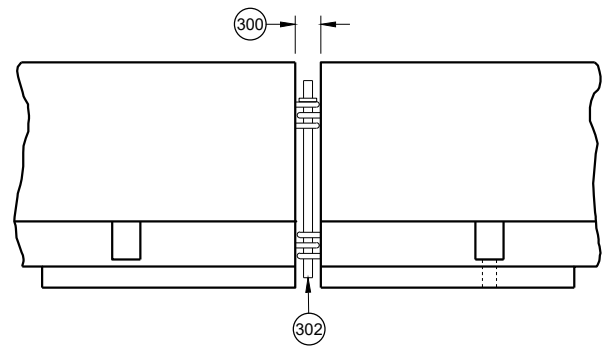
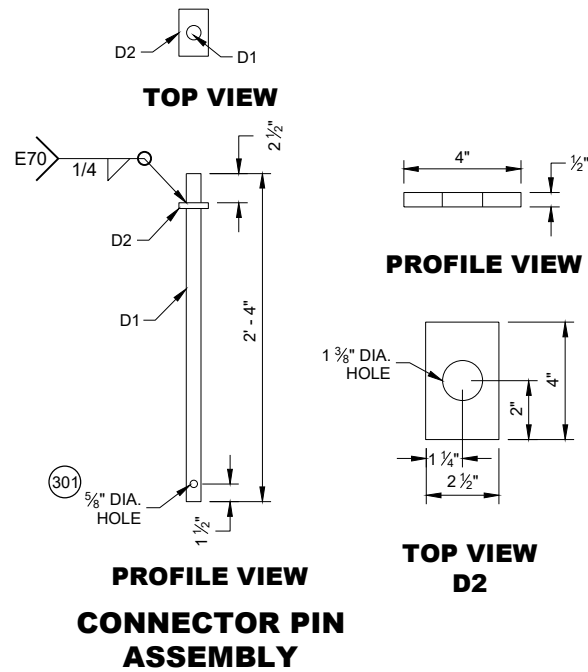
**PROFILE VIEW
LOOP BAR ASSEMBLY**



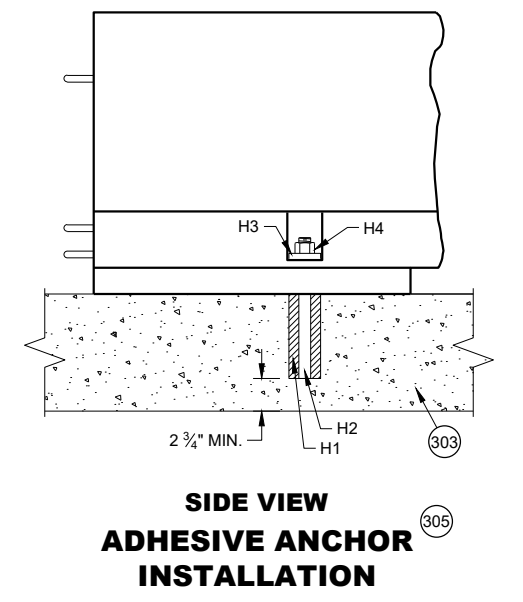
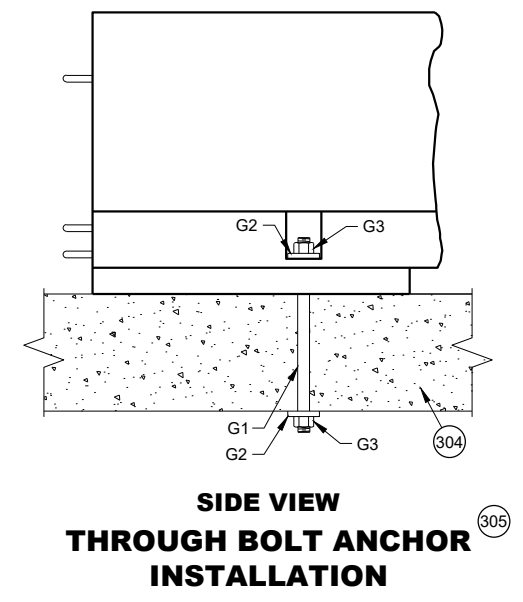
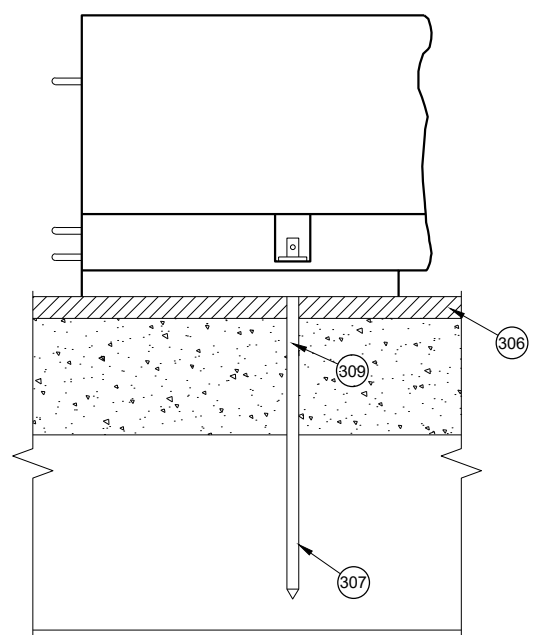
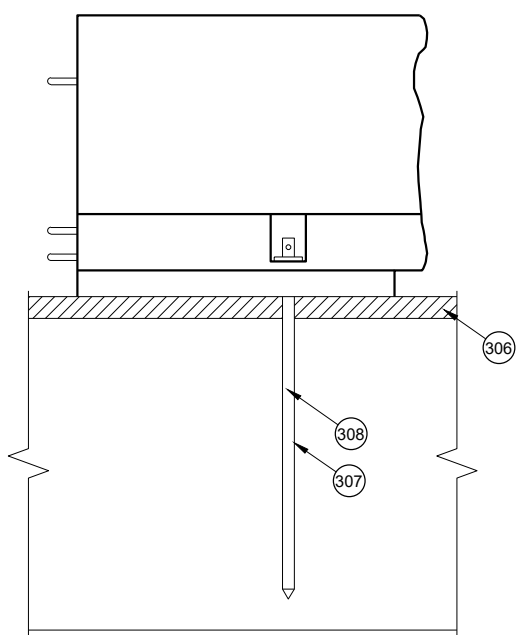
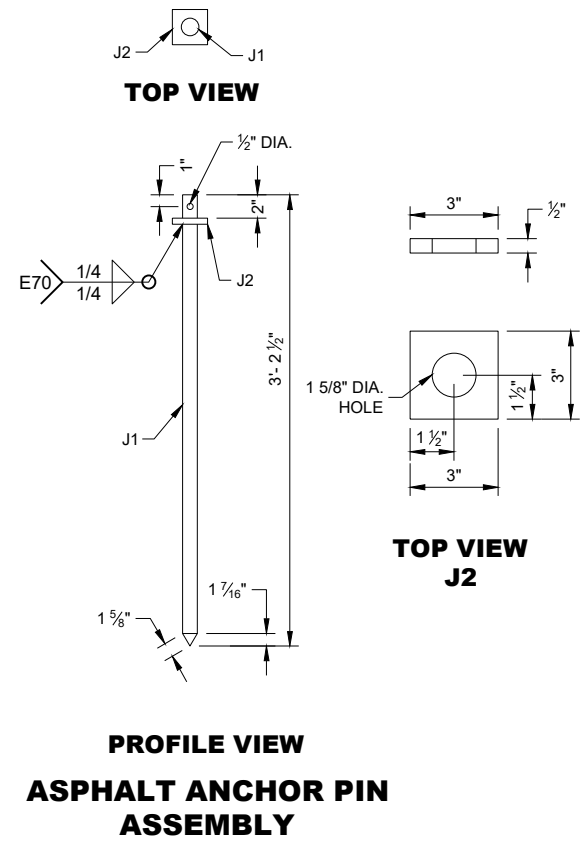
C BAR DETAILS

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



- GENERAL NOTES**
- (300) SET WITH 3 5/8" WOOD BLOCK.
 - (301) HOLE IS OPTIONAL.
 - (302) CONNECTOR PIN ASSEMBLY.
 - (303) CONCRETE PAVEMENT, APPROACH SLAB, OR DECK.
 - (304) CONCRETE DECK.
 - (305) DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY OR CONCRETE PAVEMENT WITH ASPHALT OVERLAY.
 - (306) MINIMUM OF 2" OF ASPHALT.
 - (307) ASPHALT ANCHOR PIN ASSEMBLY
 - (308) IF DRILLING A PILOT HOLE, THE MAX. DIA. OF THE HOLE IS 3/4"
 - (309) WHEN THERE IS ASPHALT OVERLAYING CONCRETE PAVEMENT, A 1 5/8" DIA. PILOT HOLE CAN BE DRILLED INTO THE OVERLAY AND CONCRETE. IF NEEDED DRILL A 3/4" PILOT HOLE IN BASE COURSE.



6

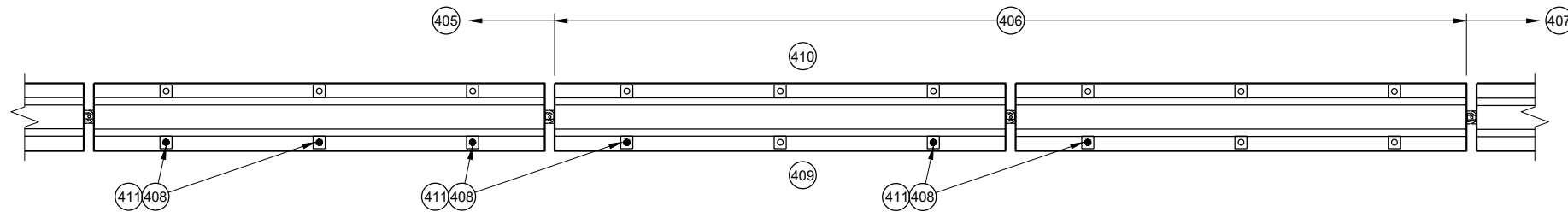
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SDD 14B07-16C

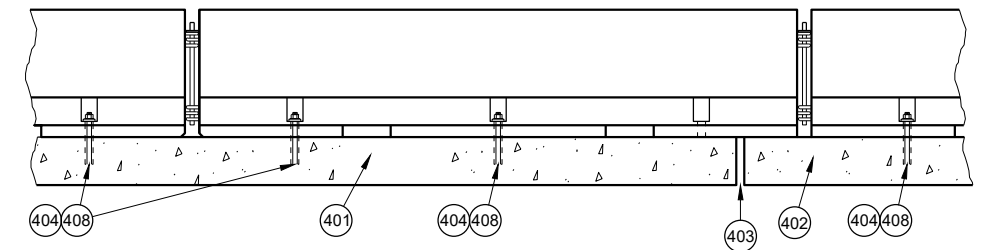
SDD 14B07-16C

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

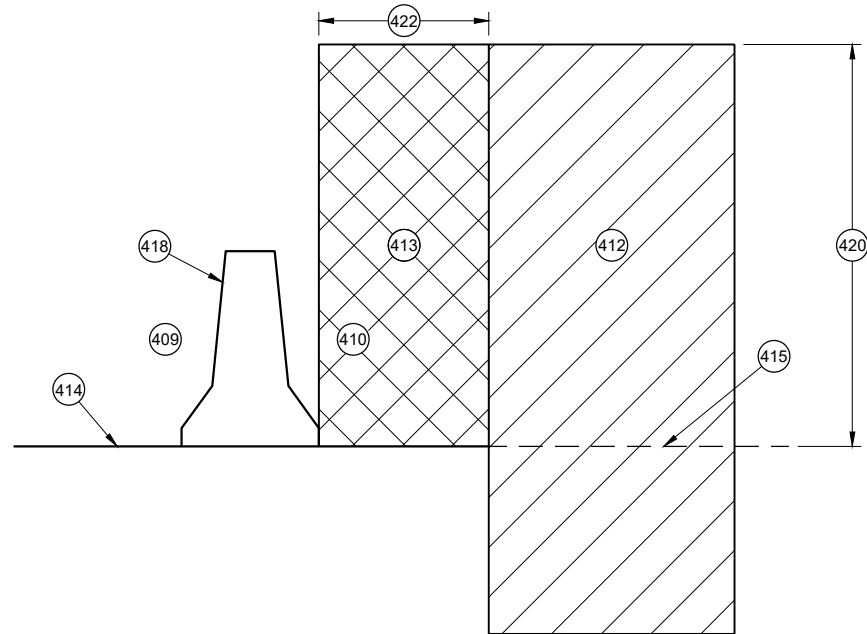
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



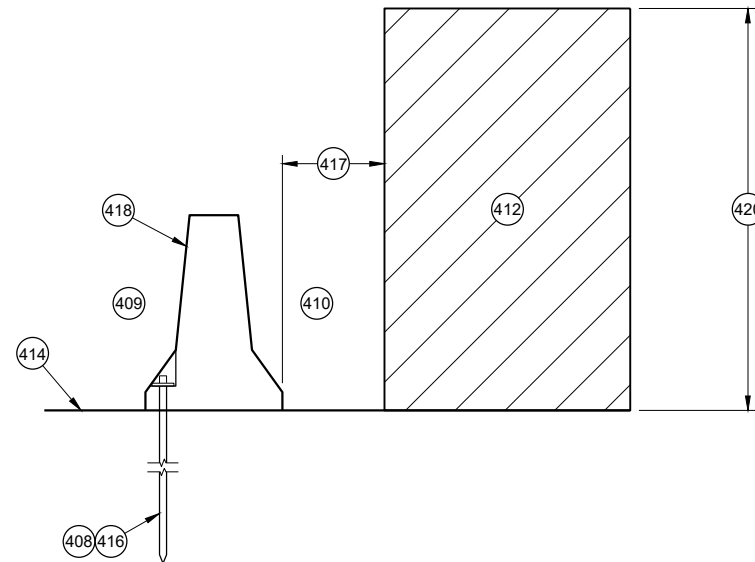
PLAN VIEW
TRANSITION FROM FREE STANDING TO ANCHORED BARRIER



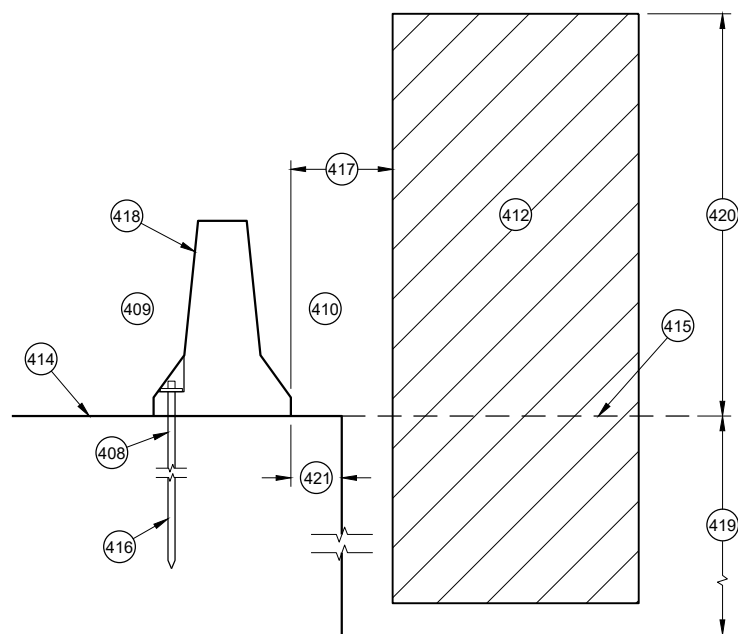
PROFILE VIEW
ANCHORED BARRIER NEAR EXPANSION JOINT



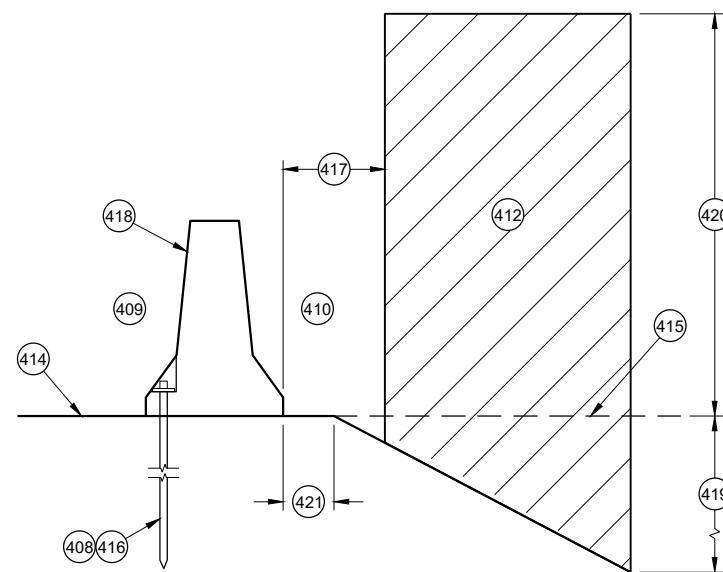
CROSS SECTION
FREE STANDING BARRIER



CROSS SECTION
ANCHORED BARRIER FOR OBJECTS ABOVE THE GRADE LINE AND NEAR THE BARRIER



CROSS SECTION
ANCHORED BARRIER NEAR VERTICAL DROP OFF



CROSS SECTION
ANCHORED BARRIER NEAR A SLOPE

GENERAL NOTES

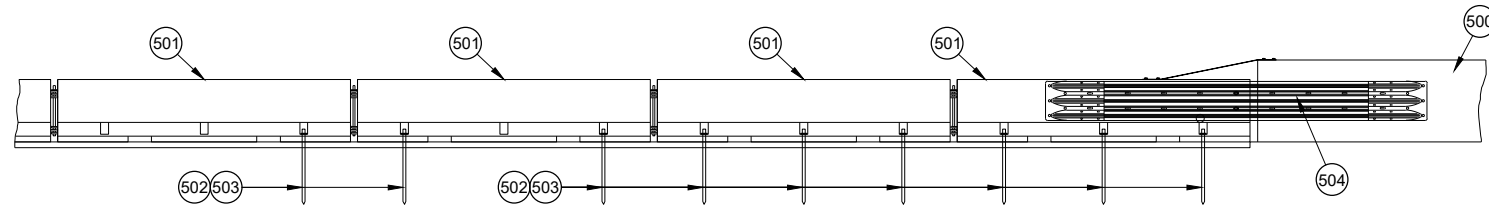
- (400) NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.
- (401) CONCRETE DECK
- (402) CONCRETE DECK OR APPROACH SLAB.
- (403) EXPANSION JOINT
- (404) ADHESIVE ANCHOR SHOWN. SEE ANCHOR DETAILS.
- (405) ANCHORED TEMPORARY BARRIER
- (406) TRANSITION FROM ANCHORED TEMPORARY BARRIER TO FREE STANDING
- (407) FREE STANDING BARRIER
- (408) 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.
- (409) TRAFFIC SIDE
- (410) NON-TRAFFIC SIDE
- (411) ANCHOR LOCATION. SEE ANCHORING DETAILS.
- (412) WORK AREA
- (413) AREA FREE OF OBJECTS AND WORKERS
- (414) GRADE LINE
- (415) EXTENDED GRADE LINE
- (416) ANCHORED TEMPORARY BARRIER. SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR AN ASPHALT ANCHOR ROD DETAILS FOR MORE INFORMATION. ASPHALT ANCHOR ROD SHOWN.
- (417) WHEN OBJECTS EXTEND ABOVE THE GRADE. A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT.
- (418) OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR ALLOWED TO LEAN AGAINST THE BARRIER WITHOUT WRITTEN PERMISSION OF THE PROJECT ENGINEER.
- (419) DEPTHS OF 3 FEET OR MORE.
- (420) Y = 6.5'
- (421) OFFSET FROM BACK OF BARRIER EDGE:
 CONCRETE PAVEMENT 0.5'
 ASPHALT 0.5'
- (422) POSTED SPEED (MPH):
 45 OR GREATER 4.0'
 40 OR LOWER 2.0'

CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

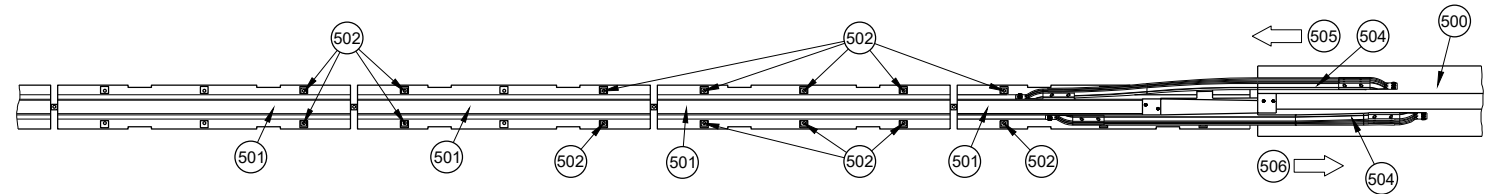
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

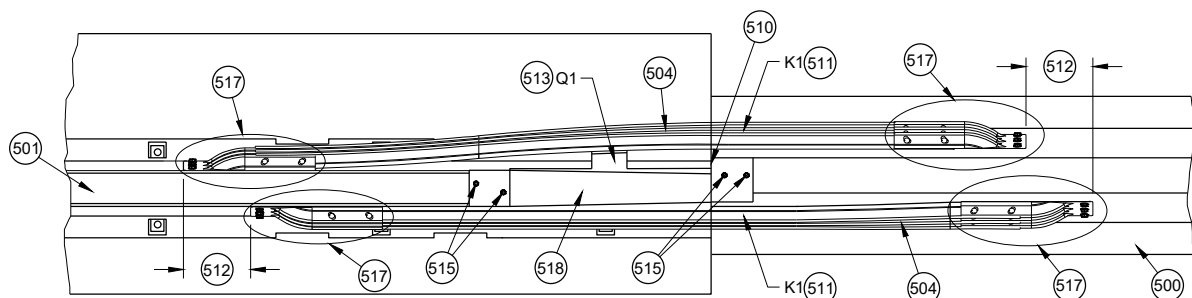
- (500) EXISTING RIGID BARRIERS (VARIES)
- (501) TEMPORARY BARRIER
- (502) SEE OTHER DETAIL ON HOW TO ANCHOR TEMPORARY BARRIER (BARRIER ASPHALT ANCHOR SHOWN).
- (503) ANCHORS ARE REQUIRED ON BOTH SIDE OF THE TEMPORARY BARRIER.
- (504) NESTED RAILS ARE REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.
- (505) TRAFFIC TRAVELS FROM PERMANENT BARRIER TO TEMPORARY BARRIER.
- (506) TRAFFIC TRAVELS FROM TEMPORARY BARRIER TO PERMANENT BARRIER.
- (507) VERTICAL BARRIER
- (508) SAFETY SHAPE BARRIER
- (509) SINGLE SLOPE BARRIER
- (510) CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF RIGID BARRIER.
- (511) BENT THRIE BEAM TO FIT.
- (512) THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
- (513) TWO (2) P1, P2 AND P3 ARE REQUIRED
- (514) FIVE (5) N1, N2 AND N3 ARE REQUIRED
- (515) TWO (2) R1, R2 AND R3 ARE REQUIRED
- (516) CUT WOOD BLOCK TO FIT.
- (517) SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL ASSEMBLY.
- (518) CAP ASSEMBLY
- (519) 4" MAX. GAP BETWEEN TEMPORARY BARRIER AND RIGID BARRIER.
- (520) ALL TWELVE SPLICE HOLES REQUIRE M1 AND M2



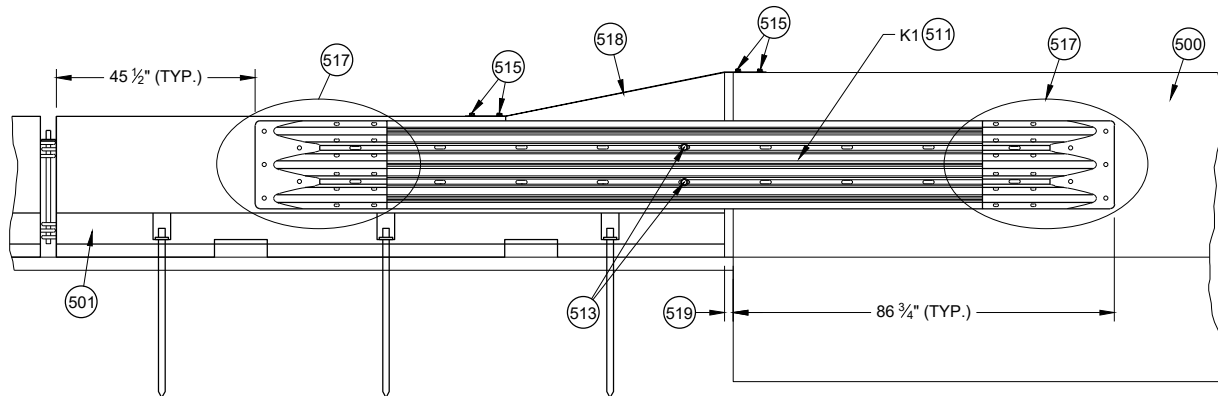
PROFILE VIEW



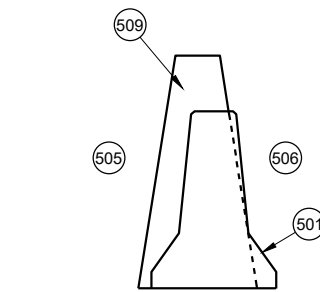
**PLAN VIEW
TRANSITION TO RIGID BARRIER**



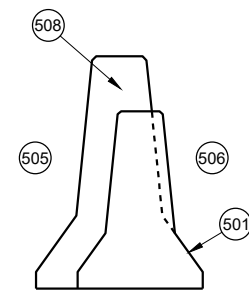
**PLAN DETAIL VIEW
TRANSITION TO RIGID BARRIER**



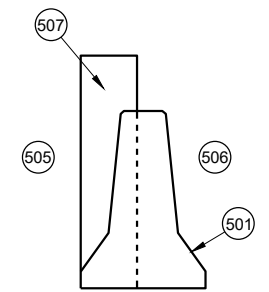
**FRONT DETAIL VIEW
TRANSITION TO RIGID BARRIER**



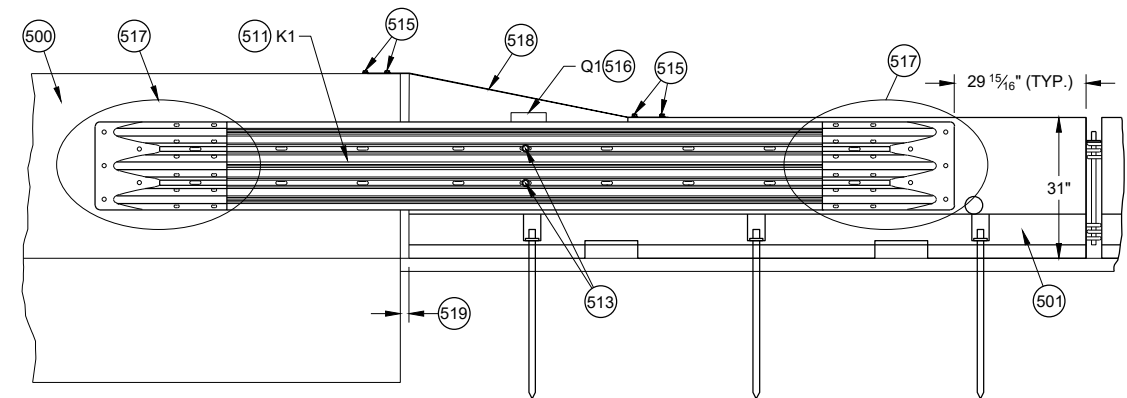
**CROSS SECTION
TEMPORARY BARRIER
PLACEMENT SINGLE SLOPE**



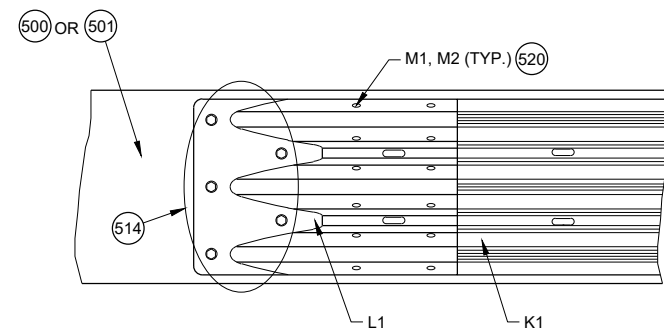
**CROSS SECTION
TEMPORARY BARRIER
PLACEMENT SAFETY SHAPE**



**CROSS SECTION
TEMPORARY BARRIER
PLACEMENT VERTICAL**



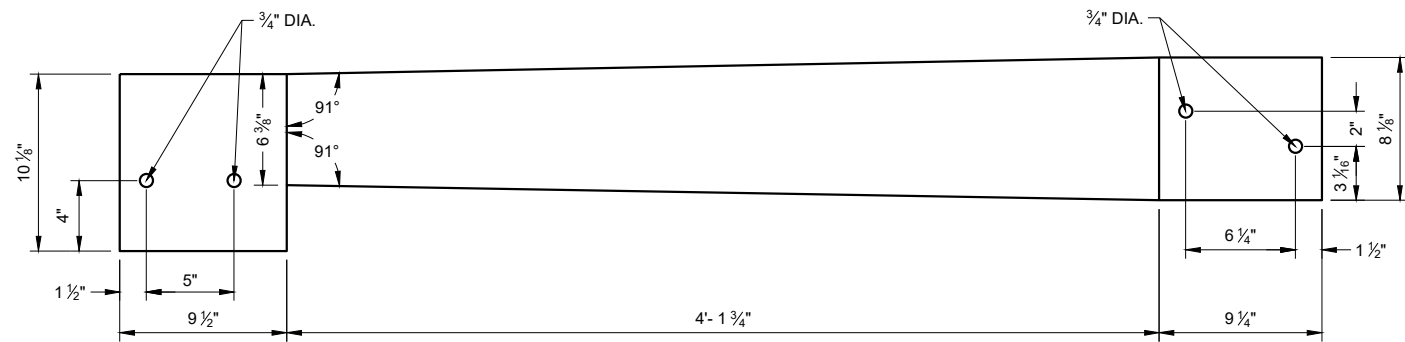
**BACK DETAIL VIEW
TRANSITION TO RIGID BARRIER**



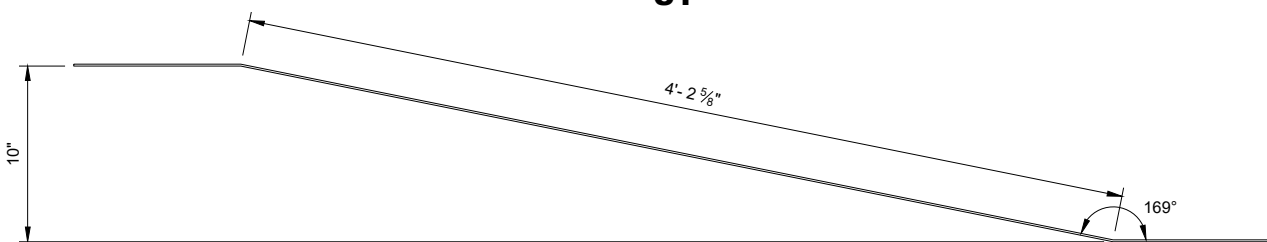
**(517) DETAIL PLAN VIEW
THRIE BEAM RAIL TERMINAL CONNECTOR ASSEMBLY**

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

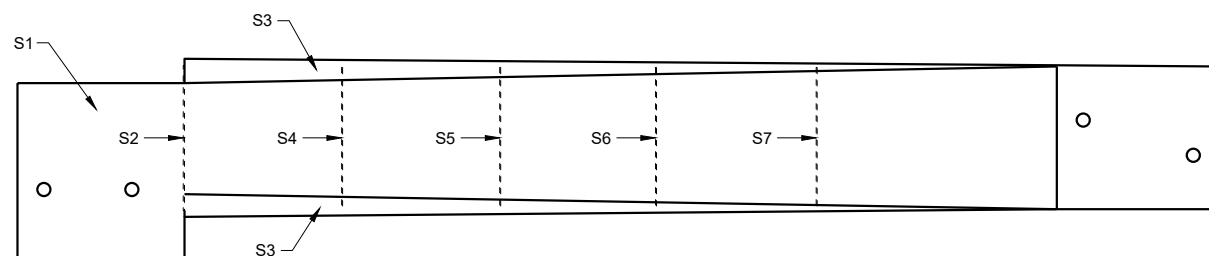
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



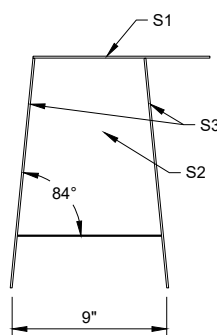
**TOP VIEW
S1**



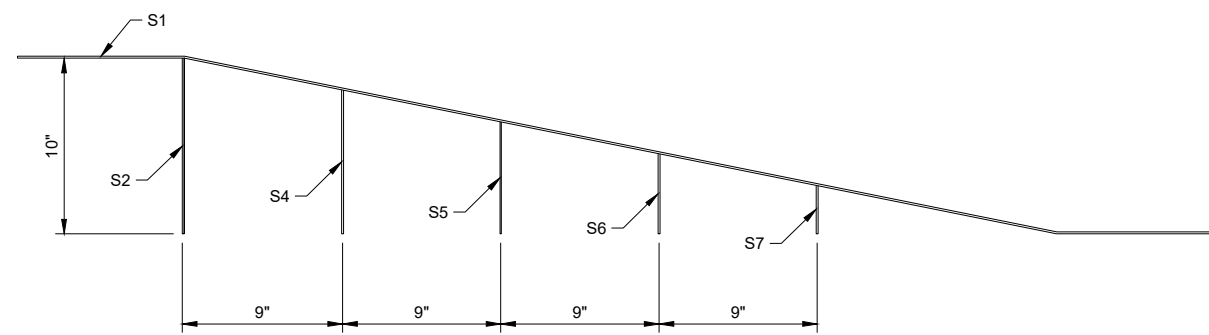
**ELEVATION VIEW
S1**



PLAN VIEW

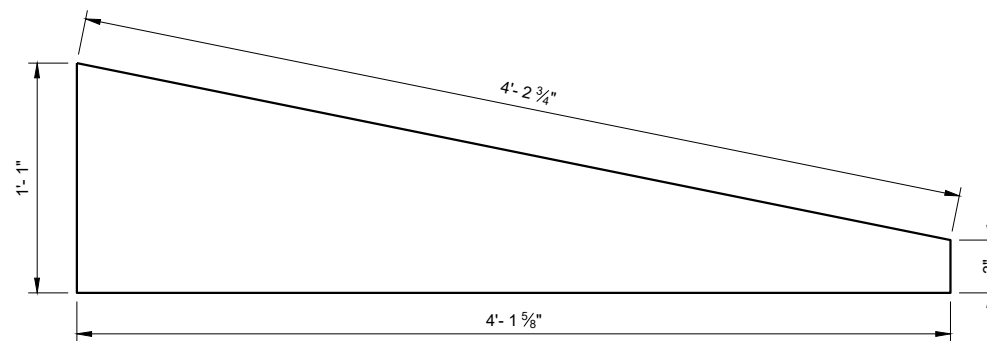


BACK VIEW

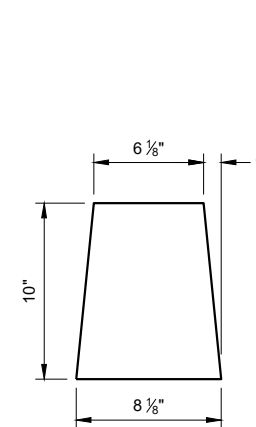


SIDE VIEW (600)

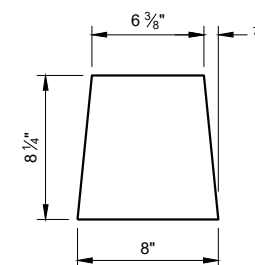
42" TOP CAP ASSEMBLY



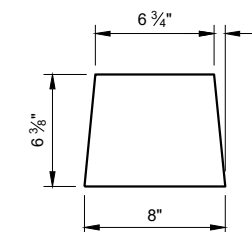
**SIDE VIEW
S3**



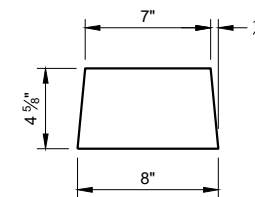
S2



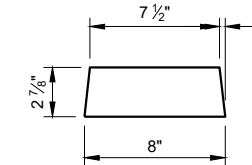
S4



S5



S6



S7

GENERAL NOTES

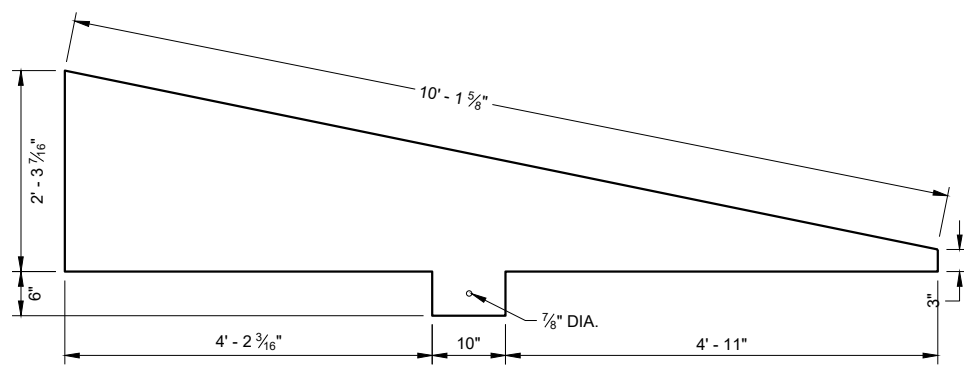
STITCH WELD GUSSET PLATES AND END PLATES ON THREE SIDES

STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.

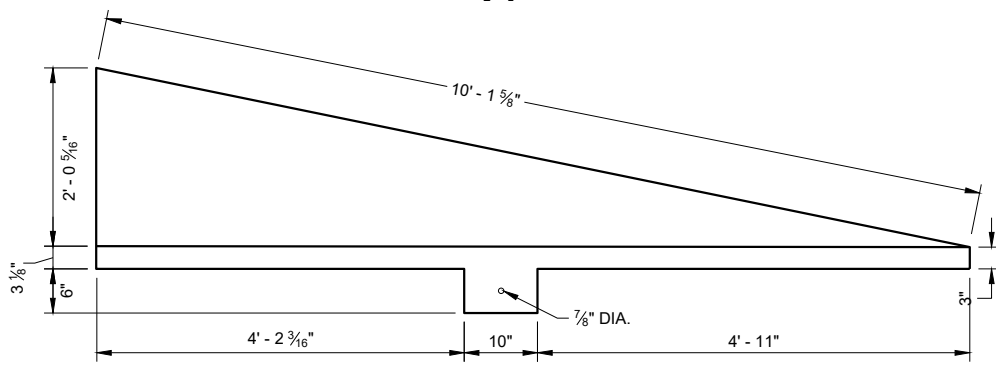
(600) SIDE PLATES (S3) NOT SHOWN FOR CLARITY.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**SIDE VIEW
T4**



**SIDE VIEW
T3**

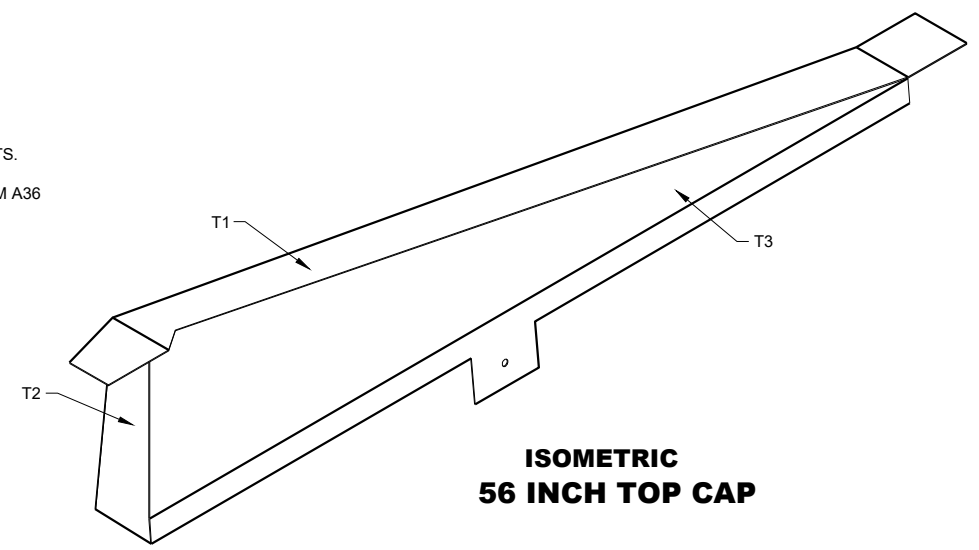
**END
VIEW**

**END
VIEW**

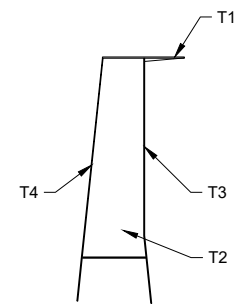
**END
VIEW**

GENERAL NOTES

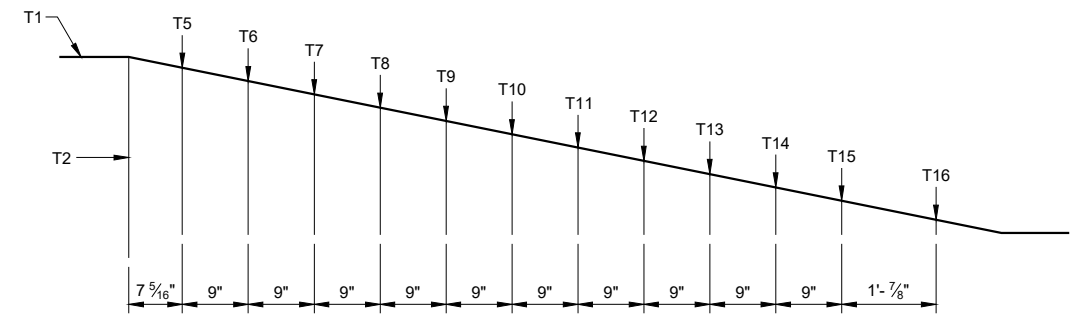
- STITCH WELD GUSSET PLATES AND END PLATES ON THRIE SIDES
- STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.
- SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.
- (700) SIDE PLATES (T3 AND T4) NOT SHOWN FOR CLARITY.



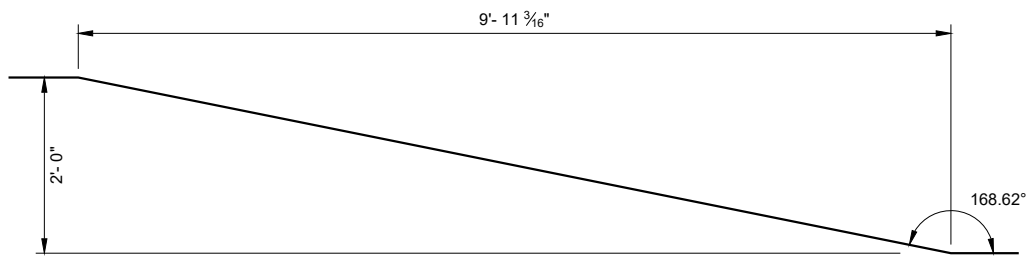
**ISOMETRIC
56 INCH TOP CAP**



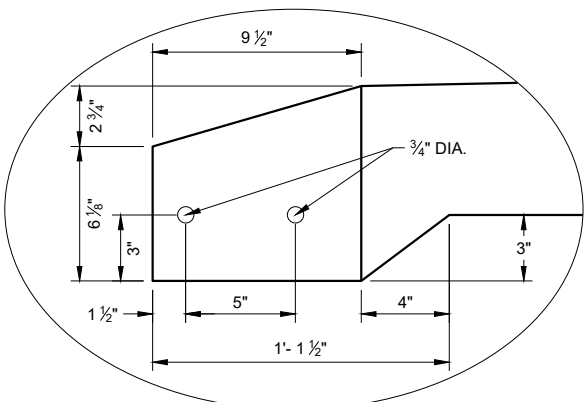
**END VIEW
56 INCH TOP CAP**



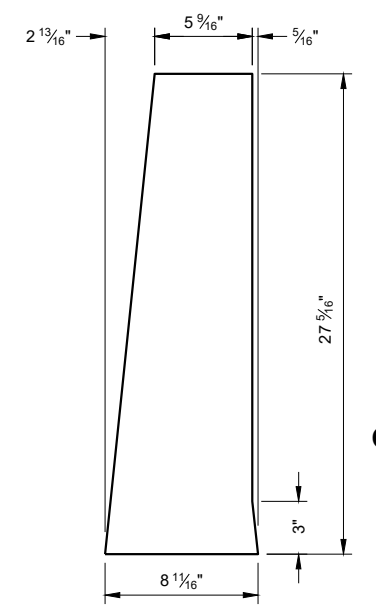
**SIDE VIEW
56 INCH TOP CAP (700)**



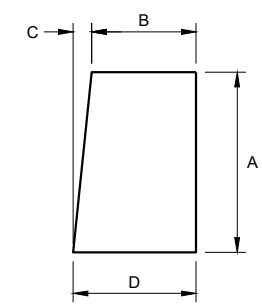
**SIDE VIEW
TOP PLATE T1**



DETAIL "A"

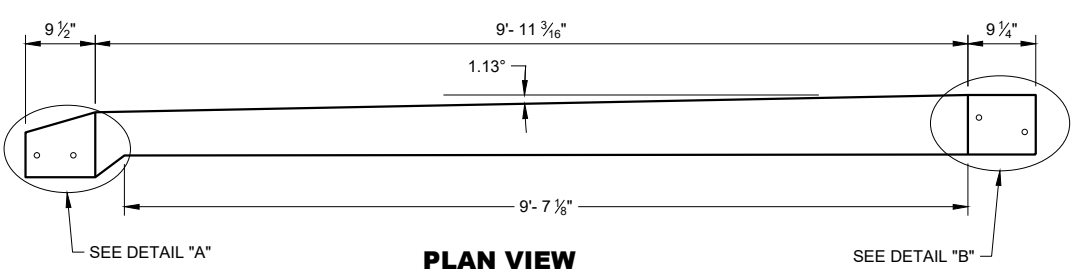


END PLATE T2

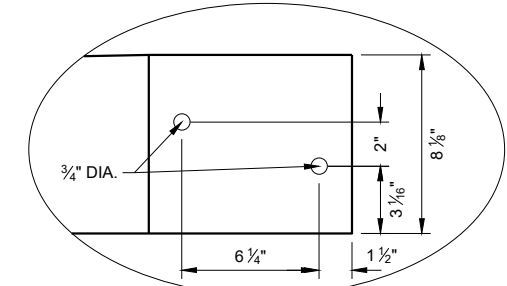


**GUSSET PLATES
T5 - T16**

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
T5	22 13/16"	5 1/16"	2 5/16"	8 1/16"
T6	21"	5 7/8"	2 3/16"	8 1/16"
T7	19 3/16"	6 1/16"	1 13/16"	8 1/16"
T8	17 3/8"	6 1/4"	1 13/16"	8 1/16"
T9	15 9/16"	6 7/16"	1 1/16"	8 1/16"
T10	13 3/4"	6 5/8"	1 7/16"	8 1/16"
T11	11 15/16"	6 13/16"	1 1/4"	8 1/16"
T12	10 1/8"	7"	1 1/16"	8 1/16"
T13	8 5/16"	7 3/16"	7/8"	8 1/16"
T14	6 1/2"	7 3/8"	1 1/16"	8 1/16"
T15	4 1/16"	7 1/16"	1/2"	8"
T16	2 7/8"	7 3/4"	1/4"	8"



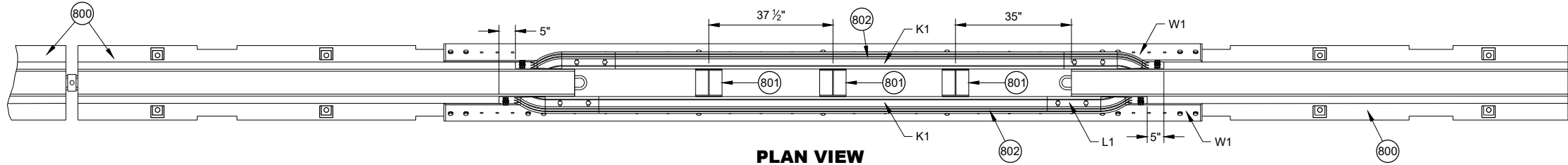
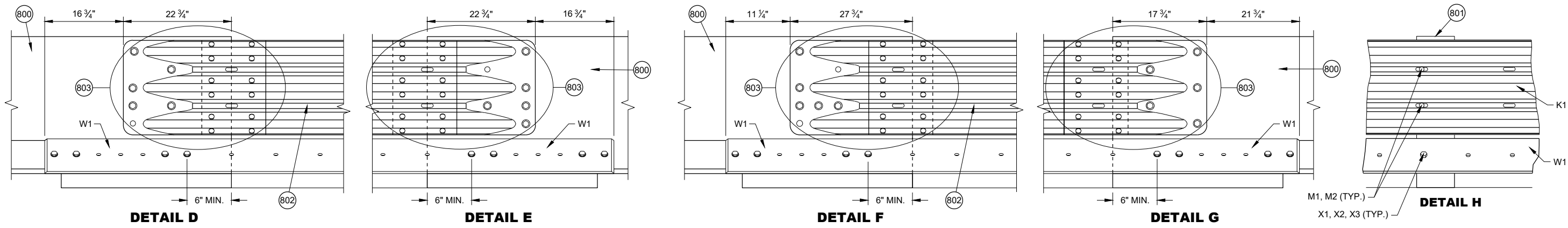
**PLAN VIEW
TOP PLATE T1**



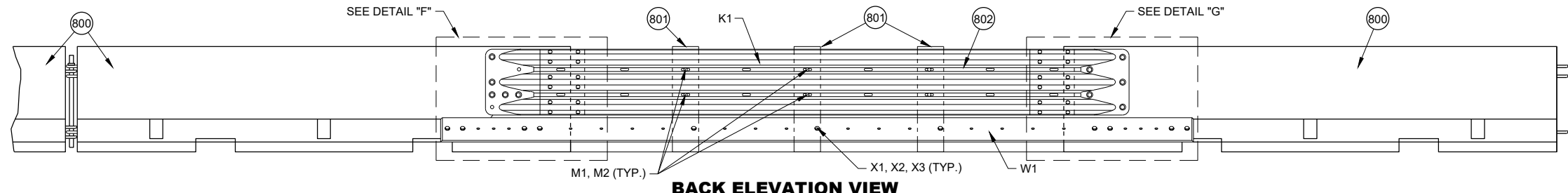
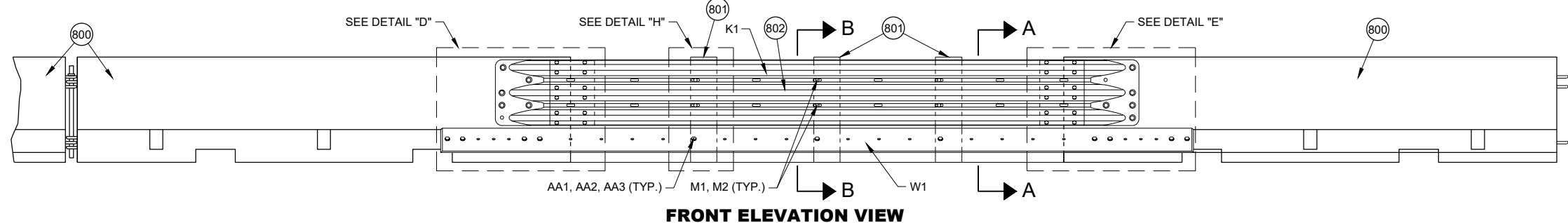
DETAIL "B"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



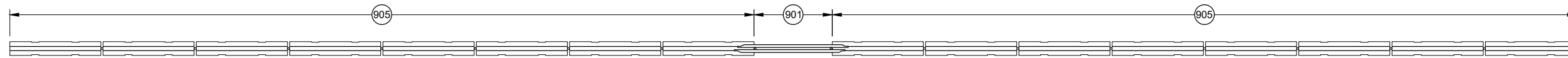
- GENERAL NOTES**
- 800 FREE STANDING TEMPORARY BARRIER
 - 801 GAP STIFFENER ASSEMBLY
 - 802 THRIE BEAMS ARE NESTED ON BOTH SIDES OF THE TEMPORARY BARRIER.
 - 803 SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL



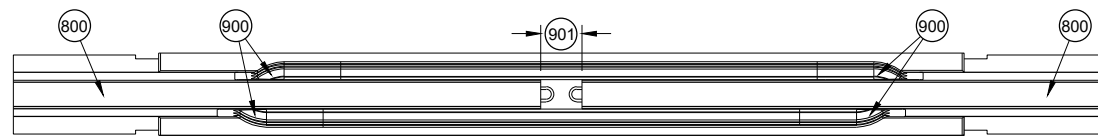
PORTABLE CONCRETE BARRIER GAP THRIE BEAM COVER

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

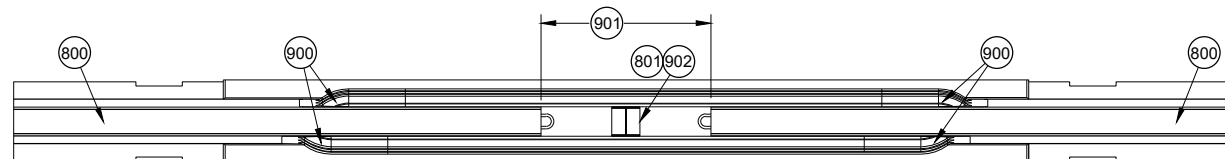
STATE OF WISCONSIN
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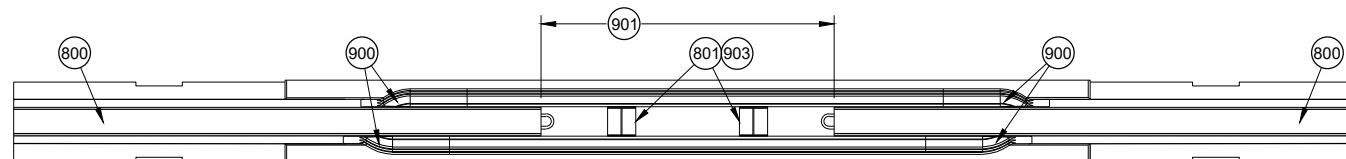
**PLAN VIEW
GAP WITHIN SPACING**



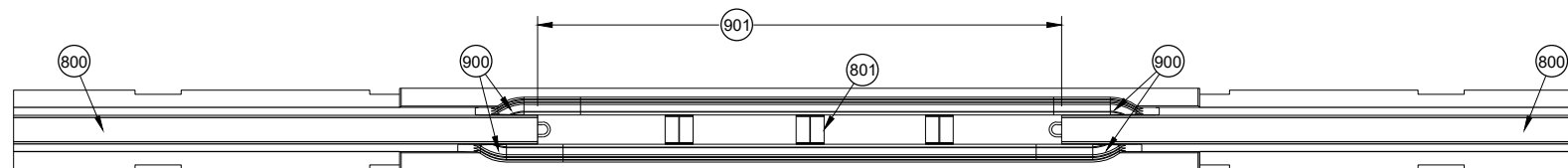
**PLAN VIEW
TEMPORARY BARRIER GAP OVER 4" TO 1' MAX. 904**



**PLAN VIEW
TEMPORARY BARRIER GAP OVER 1' TO 4' MAX. 904**



**PLAN VIEW
TEMPORARY BARRIER GAP OVER 4' TO 7' MAX. 904**



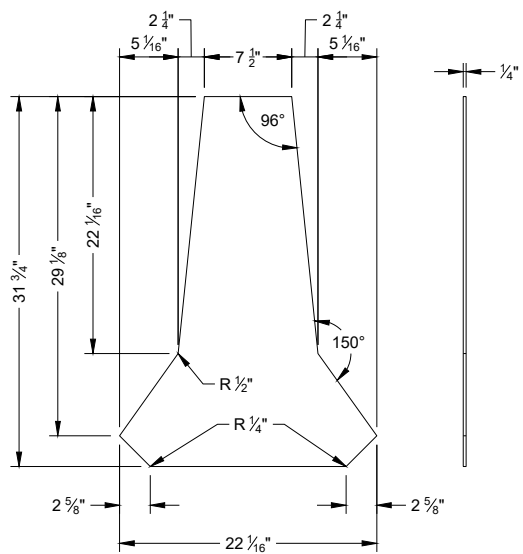
**PLAN VIEW
TEMPORARY BARRIER GAP OVER 7' TO 12.5' MAX. 904**

GENERAL NOTES

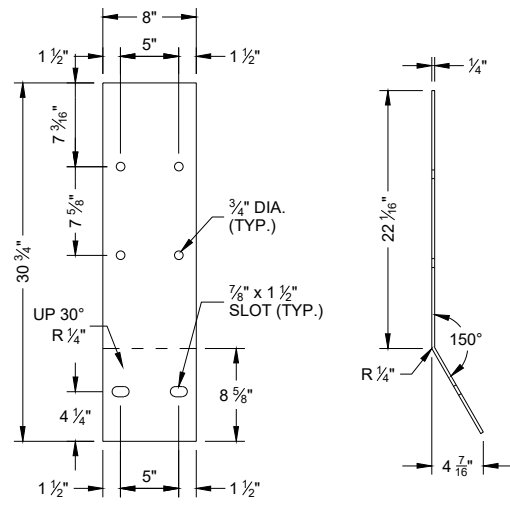
- 900 SEE OTHER DETAILS FOR TEMPORARY GAP HARDWARE (TYP.)
- 901 TEMPORARY BARRIER GAP
- 902 GAP STIFFENER ASSEMBLY CENTERED IN THE GAP.
- 903 GAP STIFFENER ASSEMBLY IS OFFSET 18 3/4" FROM CENTER
- 904 MINIMUM NUMBER OF GAP STIFFENERS SHOWN FOR THE GAP RANGE SHOWN.
- 905 MINIMUM OF 8 CONTINUOUS FREE STANDING TEMPORARY BARRIERS

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

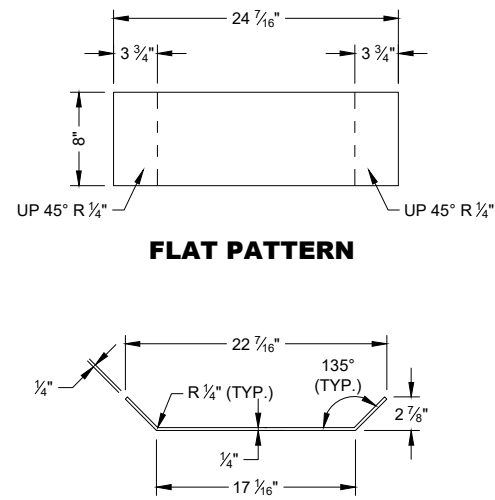
STATE OF WISCONSIN
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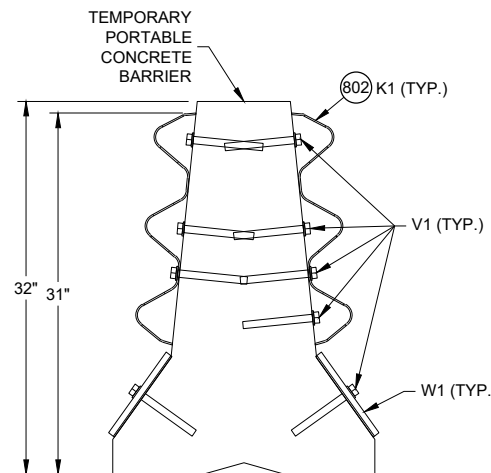
PROFILE VIEW **SIDE VIEW**
STIFFENER ASSEMBLY
CENTER PANEL U1



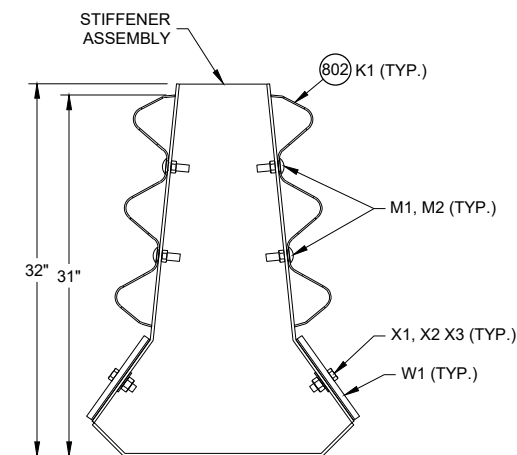
FLAT PATTERN **SIDE VIEW**
STIFFENER ASSEMBLY
SIDE PANEL U2



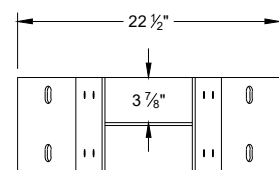
PROFILE VIEW
STIFFENER ASSEMBLY
BOTTOM PANEL U3



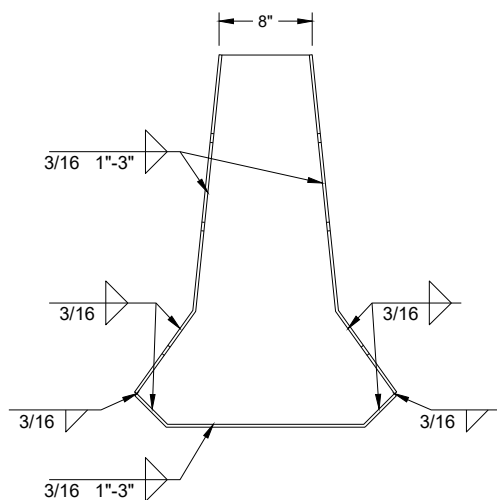
SECTION A - A



SECTION B - B

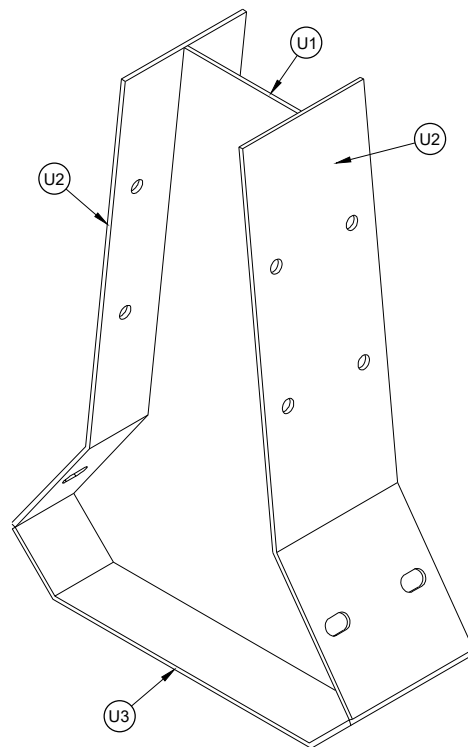


PLAN VIEW

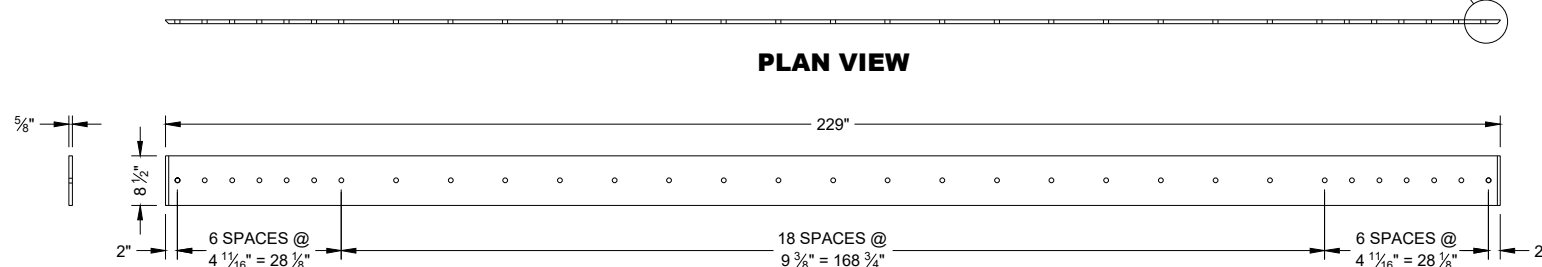
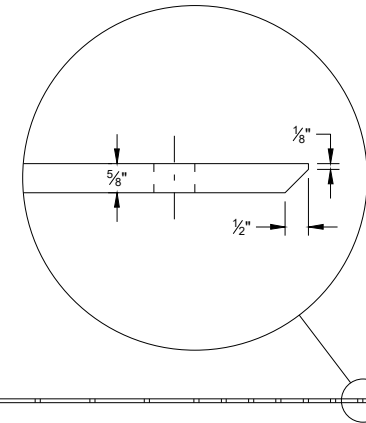


PROFILE VIEW **SIDE VIEW**

GAP STIFFENER ASSEMBLY



ISOMETRIC

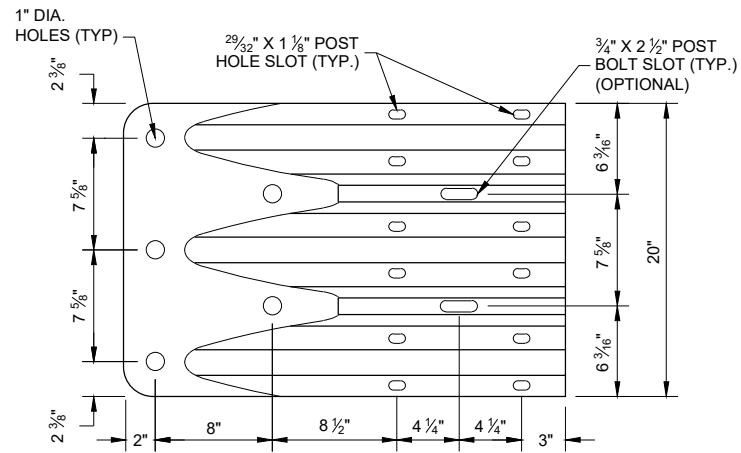


SIDE VIEW

PLAN VIEW
ELEVATION VIEW
W1 TOE PLATE

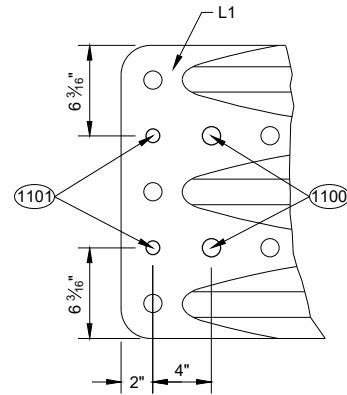
CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION



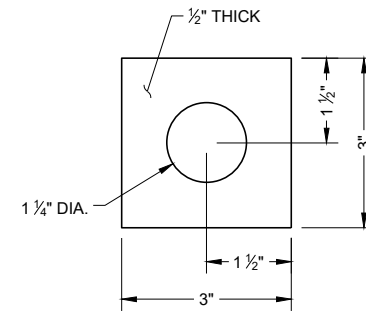
ELEVATION VIEW

**THRIE BEAM
TERMINAL CONNECTOR**



ELEVATION VIEW

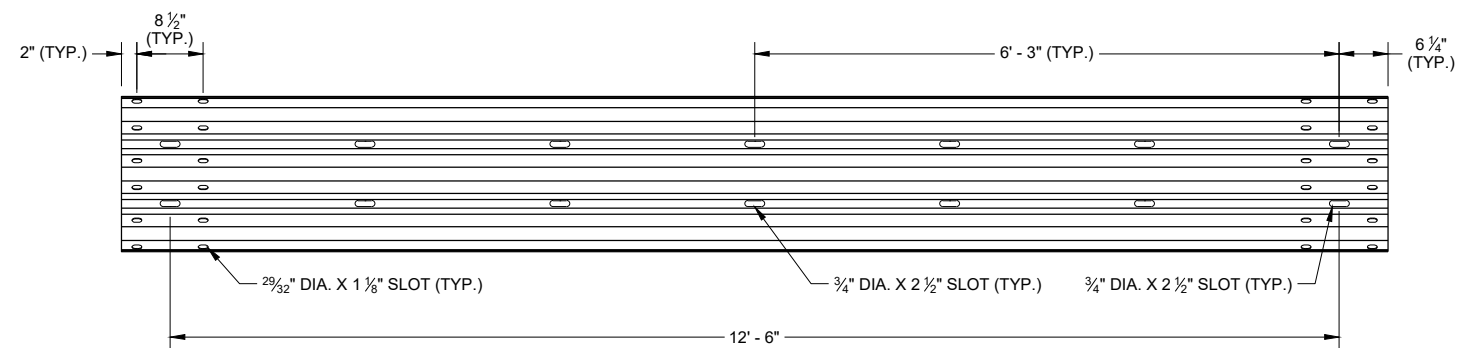
**ADDITIONAL THRIE BEAM
TERMINAL CONNECTOR HOLE DETAIL** (1102)



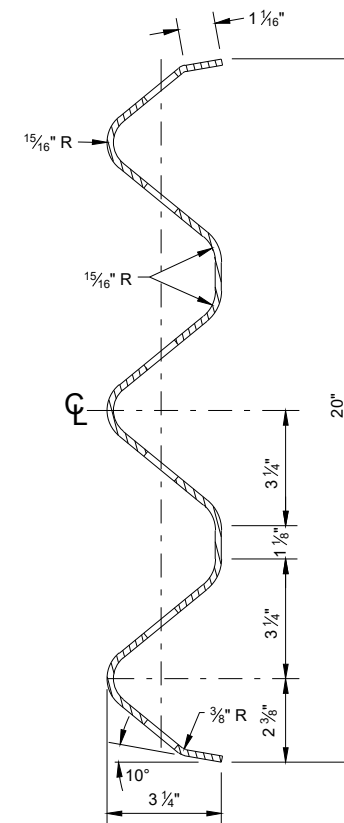
**PLATE WASHER DETAIL
G2, H3**

GENERAL NOTES

- (1100) 1" DIA. HOLE
- (1101) 3/4" DIA. HOLE
- (1102) PROVIDE HOLES IN THRIE BEAM TERMINAL CONNECTOR TO LIMIT STEEL REINFORCEMENT OR LOOP BAR CONFLICT. CONTRACTOR MAY FIELD DRILL ADDITIONAL HOLE OR PROVIDE THRIE BEAM TERMINAL CONNECTOR WITH ADDITIONAL HOLES FROM SUPPLIER.



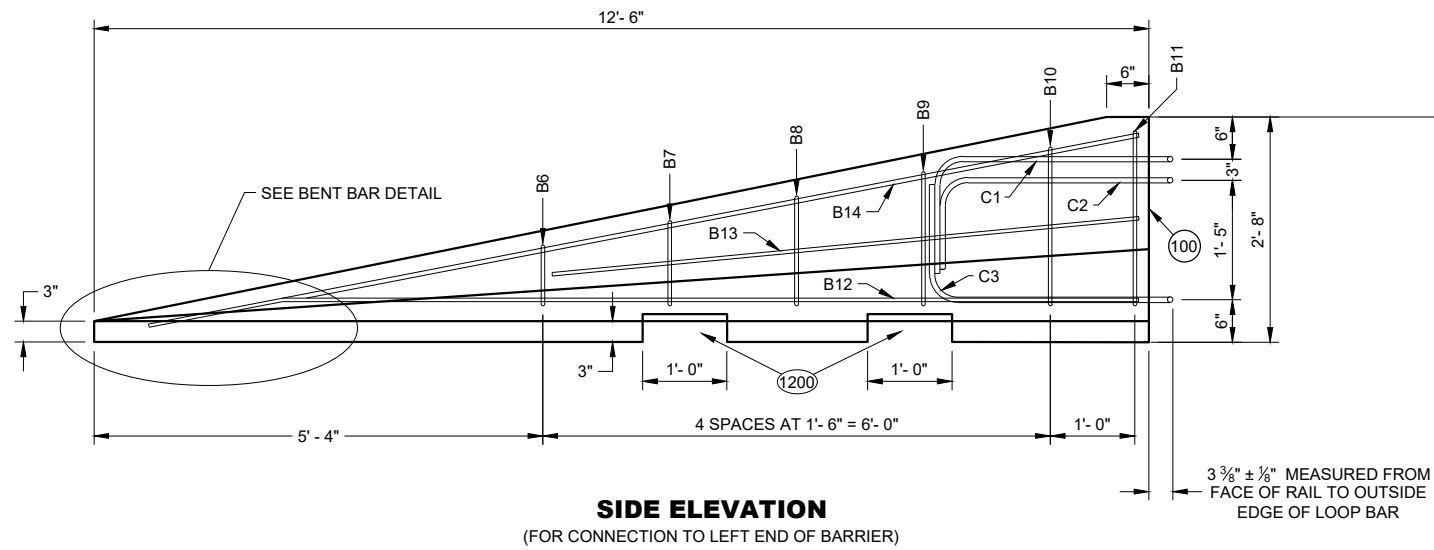
SLOTTED THRIE BEAM RAIL K1



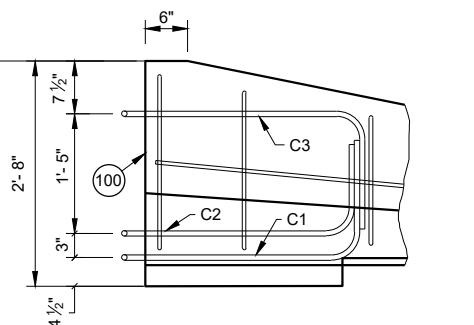
**SECTION THROUGH
BEAM K1**

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



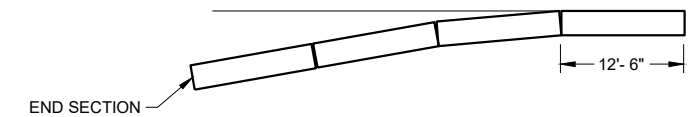
SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



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

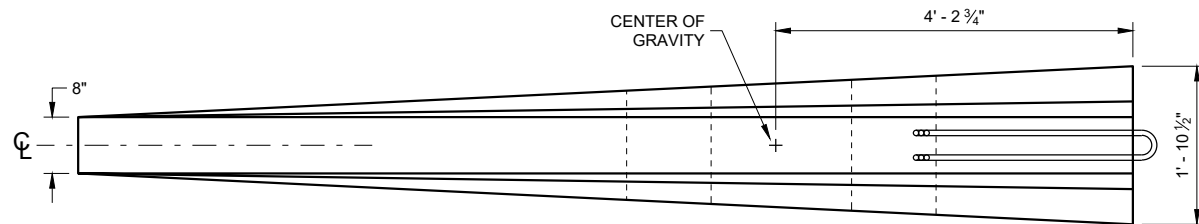
GENERAL NOTES

(1200) SEE LIFTING SLOT DETAIL. LOCATION OF LIFTING SLOTS DETERMINED BY CONTRACTOR.

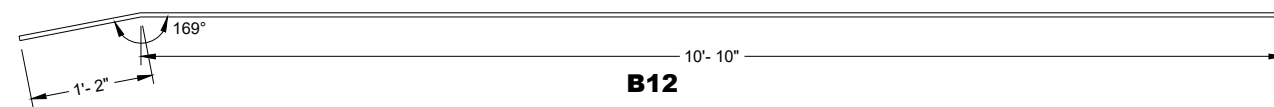


FLARE AT BARRIER END

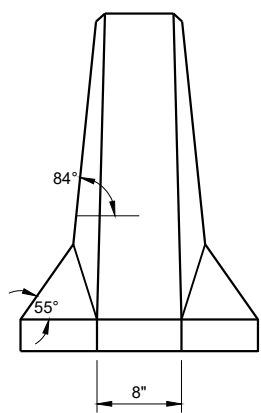
POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1



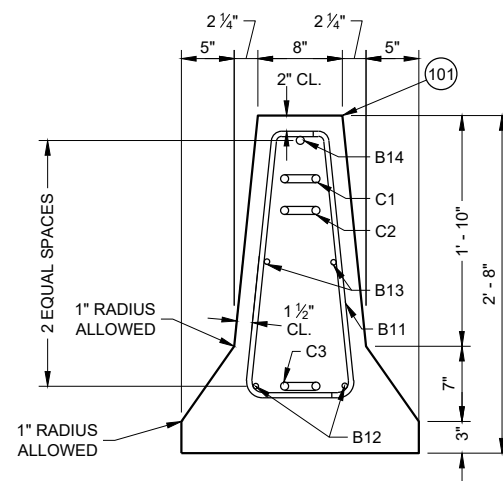
PLAN VIEW



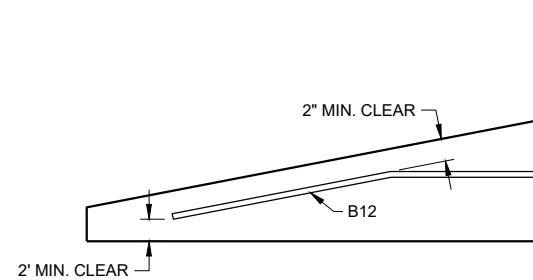
B12



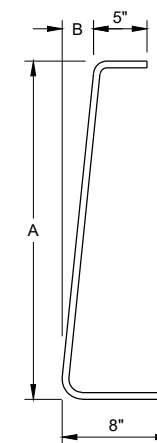
FRONT ELEVATION



END SECTION



BENT BAR DETAIL



BAR	A	B
B6	10"	1"
B7	1'- 1"	1 1/4"
B8	1'- 5"	1 5/8"
B9	1'- 8"	1 7/8"
B10	2'- 0 1/2"	2 3/8"
B11	2'- 3"	2 3/4"

B BARS

2 OF EACH SIZE REQUIRED FOR STIRRUP ASSEMBLY

DETAILS OF BARRIER TAPER SECTION

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - CONCRETE BARRIER PRECAST

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	PRECAST TEMPORARY BARRIER - CONCRETE	MIN. = f _c 5000 PSI	
B1	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 12'-2"
B2	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 12'-2"
B3	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 12'-2"
B4	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 6'-0"
B5	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#6 REBAR, LENGTH 2'-11"
B6	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 1'-11"
B7	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-2"
B8	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-6"
B9	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-9"
B10	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 3'-2"
B11	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 3'-4"
B12	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 12'-0"
B13	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 7'-9"
B14	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 11'-9"
C1	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
C2	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
C3	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
D1	CONNECTION PIN - ROD	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	1 ½" DIA.
D2	CONNECTION PIN - TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G1	BOLT THROUGH ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A OR SAE J429 GRADE 2 UNC	1 ½" DIA.
G2	BOLT THROUGH ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G3	BOLT THROUGH ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
H1	ADHESIVE ANCHOR - ADHESIVE	ICC-ES-AC308 5 ¼" EMBEDMENT WITH A MIN. BOND STRENGTH OF 1,650 PSI. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
H2	ADHESIVE ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A / SAE J429 GRADE 2 UNC	1 ½" DIA.
H3	ADHESIVE ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
H4	ADHESIVE ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
J1	ASPHALT ANCHOR PIN - ROD	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	1 ½" DIA.
J2	ASPHALT ANCHOR PIN - STOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
K1	THRIE BEAM RAIL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE
L1	THRIE BEAM RAIL - TERMINAL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
M1	SPLICE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	¾" DIA.
M2	SPLICE BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
N1	THRIE BEAM RAIL TERMINAL - MECHANICAL ANCHOR	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA. LENGTH 6"
N2	THRIE BEAM RAIL TERMINAL - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
N3	THRIE BEAM RAIL TERMINAL MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
P1	THRIE BEAM RAIL CONNECTION 1-BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA.
P2	THRIE BEAM RAIL CONNECTION 1-WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
P3	THRIE BEAM RAIL CONNETION 1- MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
Q1	BLOCK WOOD	SEE STANDARD SPEC. 614	
R1	CAP - BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA.
R2	CAP - BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
R3	CAP - BOLT - MECHANICAL ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	12 GAUGE
S1	CAP 42-INCH TOP PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S2	CAP 42-INCH END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S3	CAP 42-INCH SIDE PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S4	CAP 42-INCH GUSSET 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S5	CAP 42-INCH GUSSET 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S6	CAP 42-INCH GUSSET 3	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S7	CAP 42-INCH GUSSET 4	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE

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SDD 14B07-16m

SDD 14B07-16m

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - CONCRETE BARRIER PRECAST

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
T1	CAP 56-INCH TOP PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T2	CAP 56-INCH END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T3	CAP 56-INCH SIDE PLATE 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T4	CAP 56-INCH SIDE PLATE 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T5	CAP 56-INCH GUSSET 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T6	CAP 56-INCH GUSSET 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T7	CAP 56-INCH GUSSET 3	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T8	CAP 42-INCH GUSSET 4	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T9	CAP 42-INCH GUSSET 5	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T10	CAP 42-INCH GUSSET 6	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T11	CAP 42-INCH GUSSET 7	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T12	CAP 42-INCH GUSSET 8	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T13	CAP 42-INCH GUSSET 9	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T14	CAP 42-INCH GUSSET 10	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T15	CAP 42-INCH GUSSET 11	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T16	CAP 42-INCH GUSSET 12	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
U1	GAP STIFFENER	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	
U2	GAP STIFFENER - CONNECTOR PLATE 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	
U3	GAP STIFFENER - CONNECTOR PLATE 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
V1	THREE BEAM RAIL TERMINAL MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS ULTIMATE TENSILE LOAD 24.0 KIPS AND ULTIMATE SHEAR LOAD 21.5 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	¾" DIA.
V2	GAP STIFFENER - BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
W1	TOE PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	
X1	TOE PLATE - CONNECTION BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 UNC HEAVY HEX HEAD OR AASTHO M180 HEAD, ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX HEAD OR SAE J429 GRADE 5 HEAVY HEX HEAD / ASTM A449 TYPE 1 HEAVY HEX HEAD. BOLTS MAY BE FULLY THREADED. PROVIDE ENOUGH THREADING FOR PROPER TIGHTENING OF BOLT.	¾" DIA.
X2	TOE PLATE - CONNECTION BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1 (HARDEN WASHER ONLY)	
X3	TOE PLATE - CONNECTION BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	

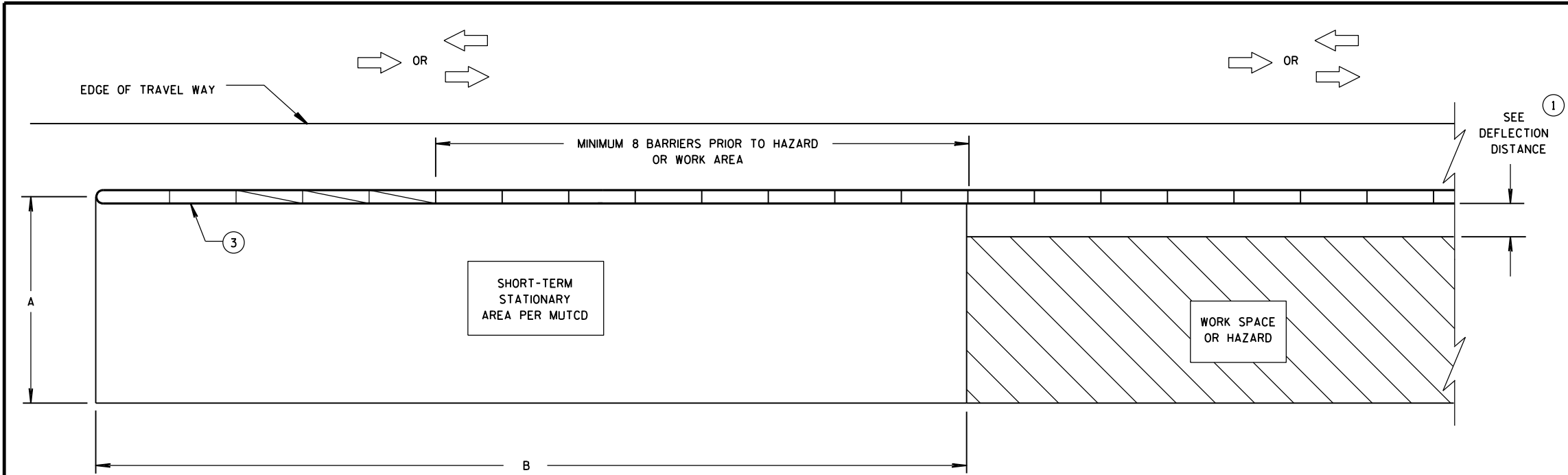
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SDD 14B07-16n

SDD 14B07-16n

CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2023 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



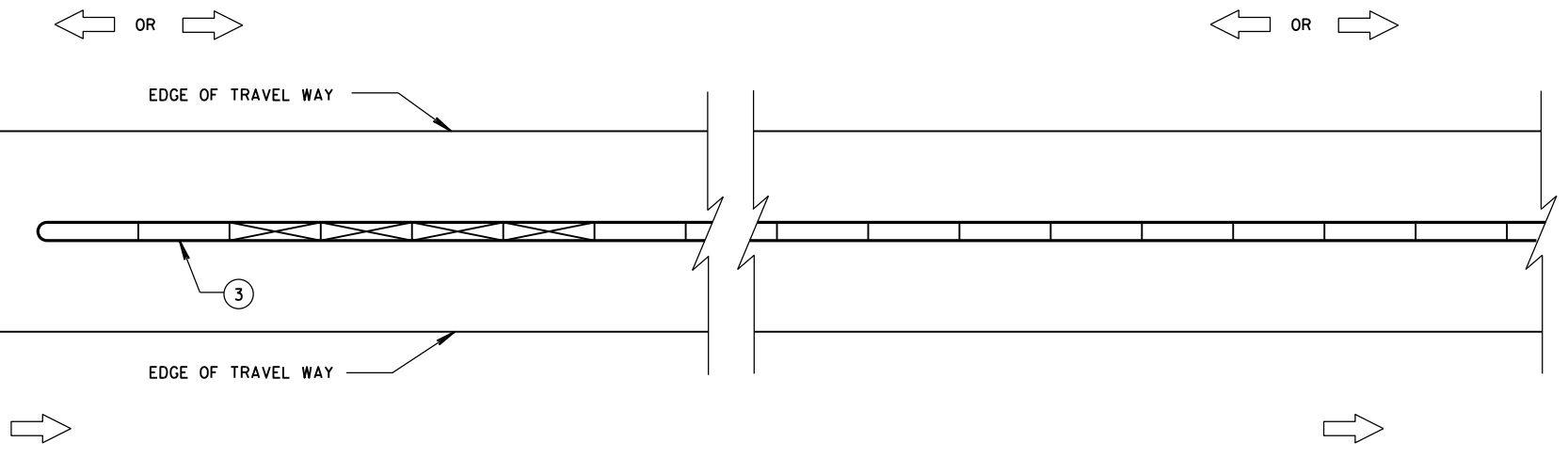
DIMENSION A TABLE ⁽²⁾

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER**

DIMENSION B TABLE ⁽²⁾

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER**

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

- ⁽¹⁾ FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ⁽²⁾ VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ⁽³⁾ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

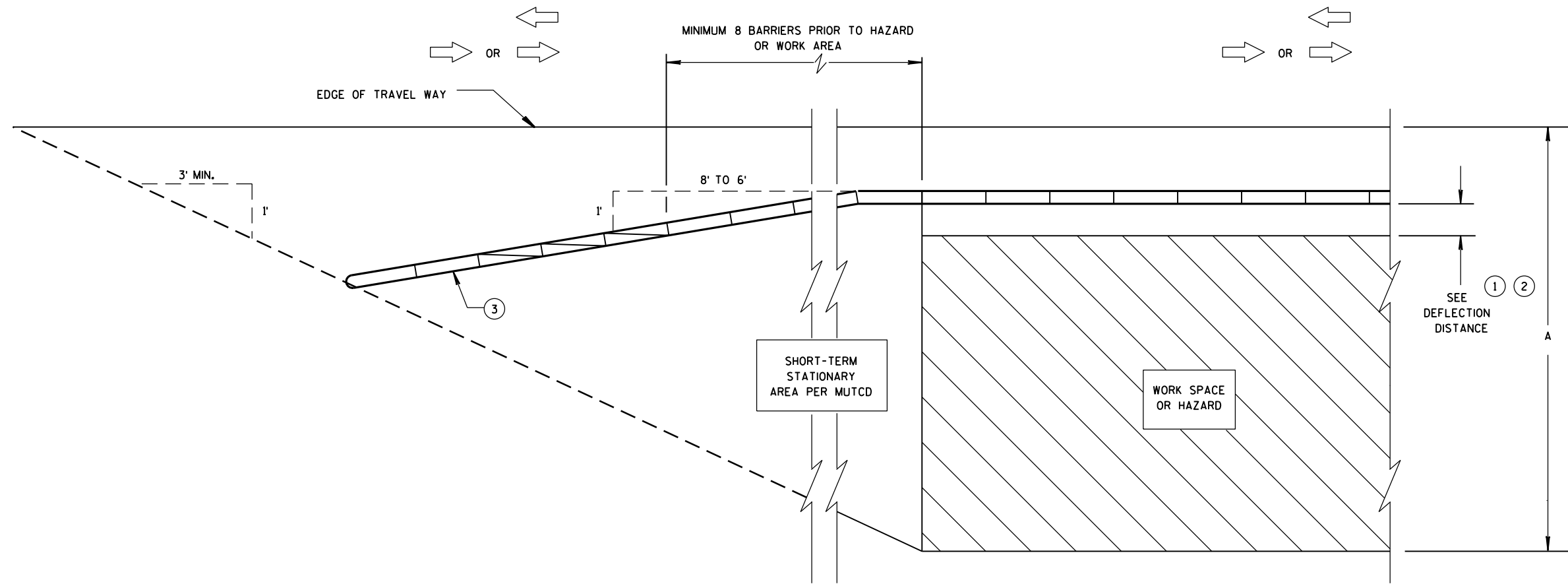
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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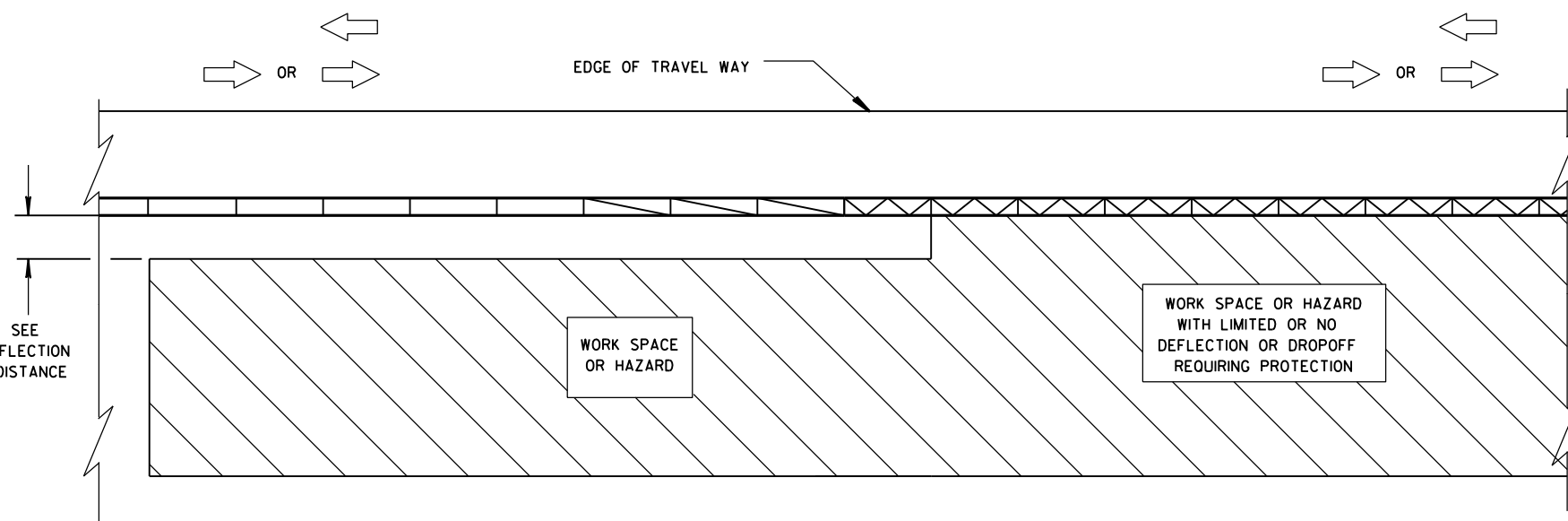
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S.D.D. 14 B 8-2a

S.D.D. 14 B 8-2a



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



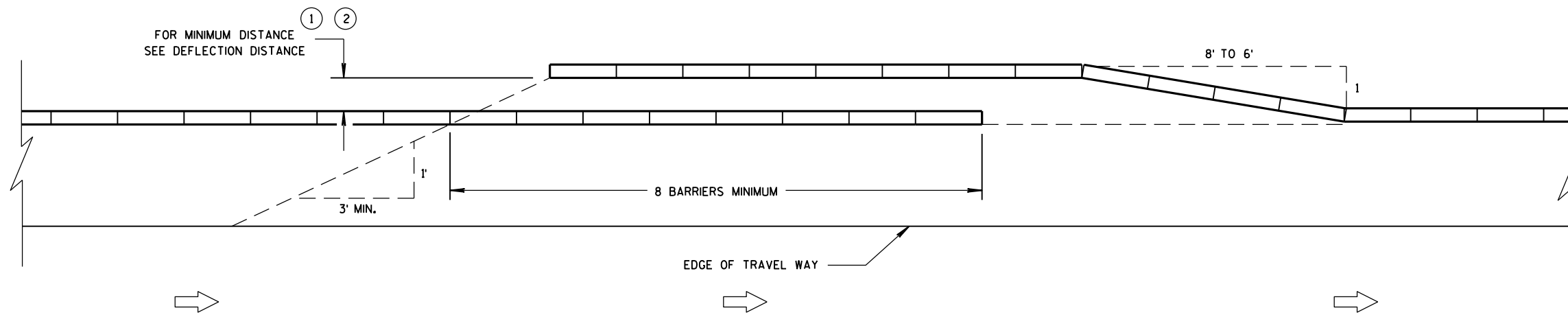
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

LEGEND

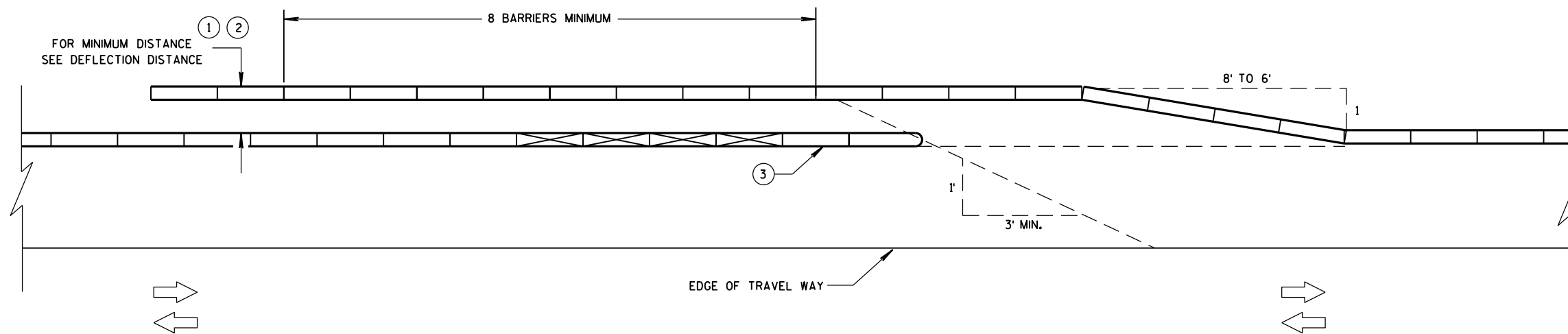
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

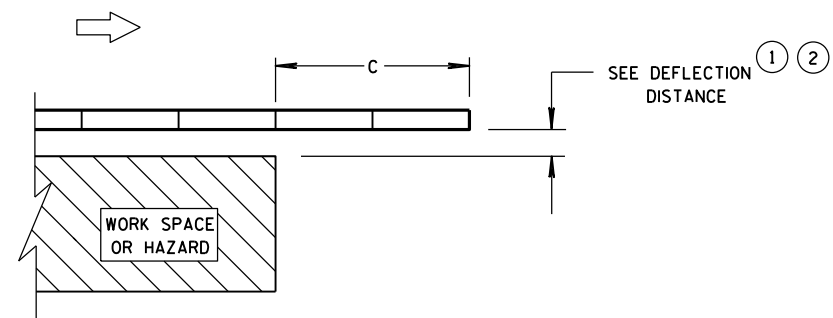
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



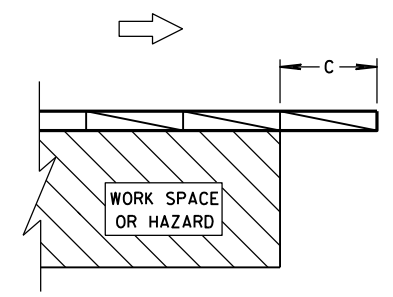
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



**ENDING TEMPORARY BARRIER
DOWNSTREAM - UNANCHORED**



**ENDING TEMPORARY BARRIER
DOWNSTREAM - ANCHORED**

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

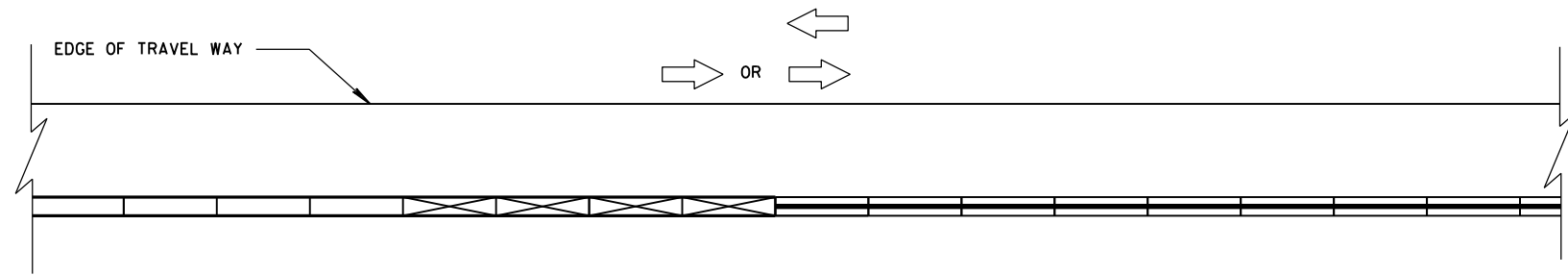
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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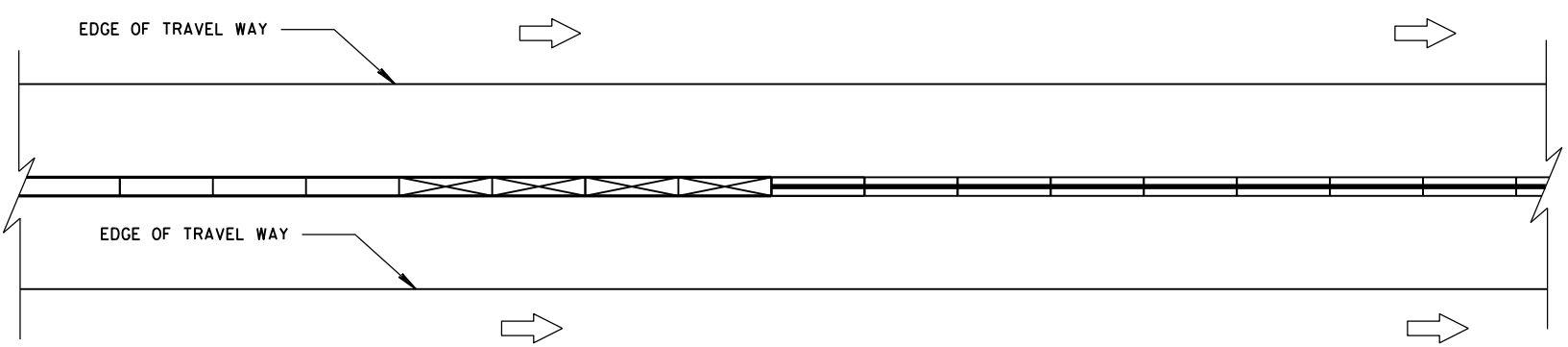
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S.D.D. 14 B 8-2c

S.D.D. 14 B 8-2c



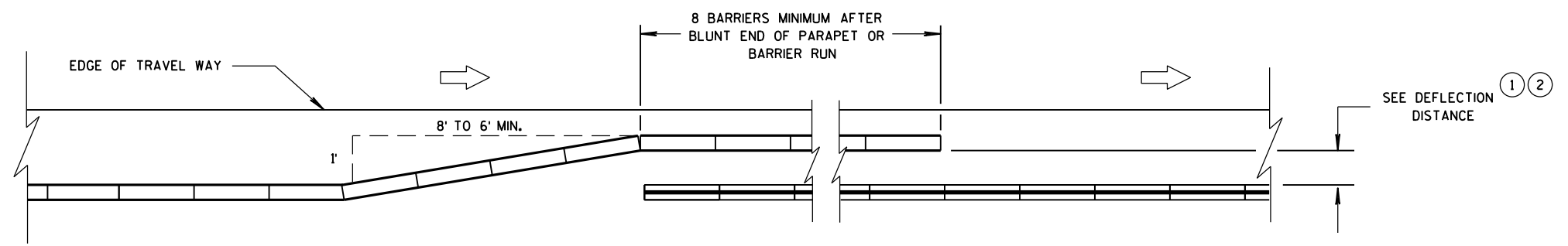
CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON ONE SIDE



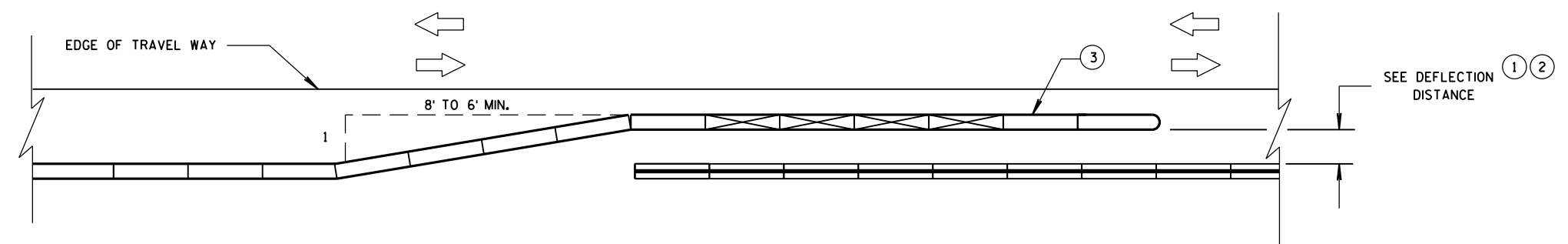
CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - TWO WAY TRAFFIC

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

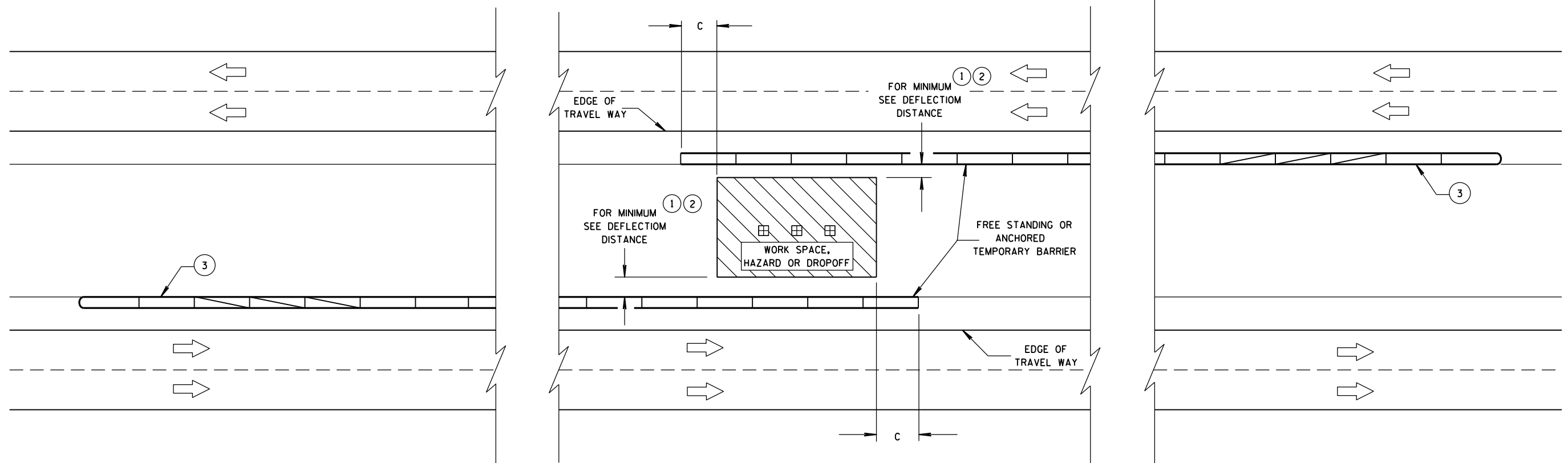
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE ²

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100



6

6

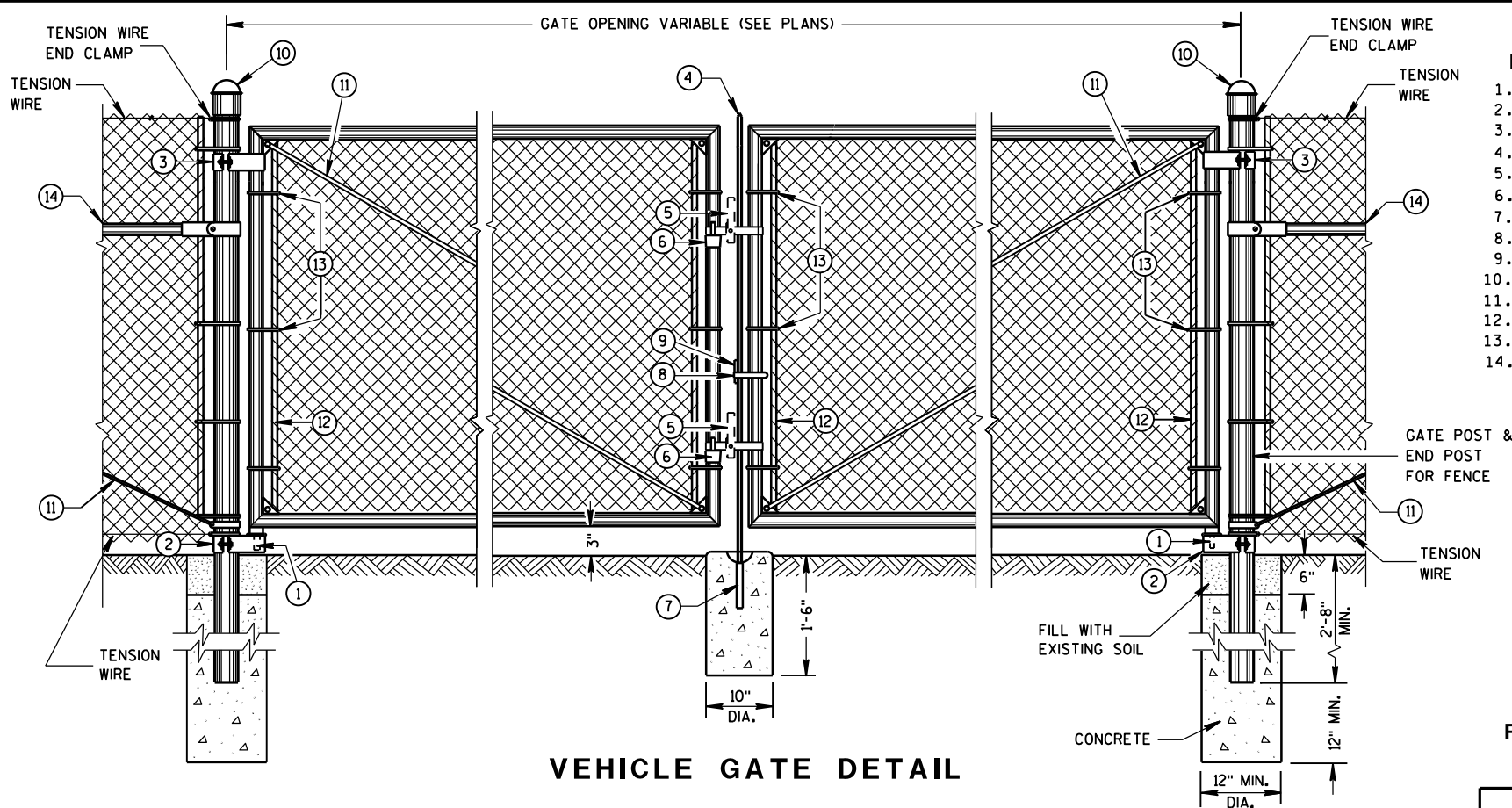
S.D.D. 14 B 8-2e

S.D.D. 14 B 8-2e

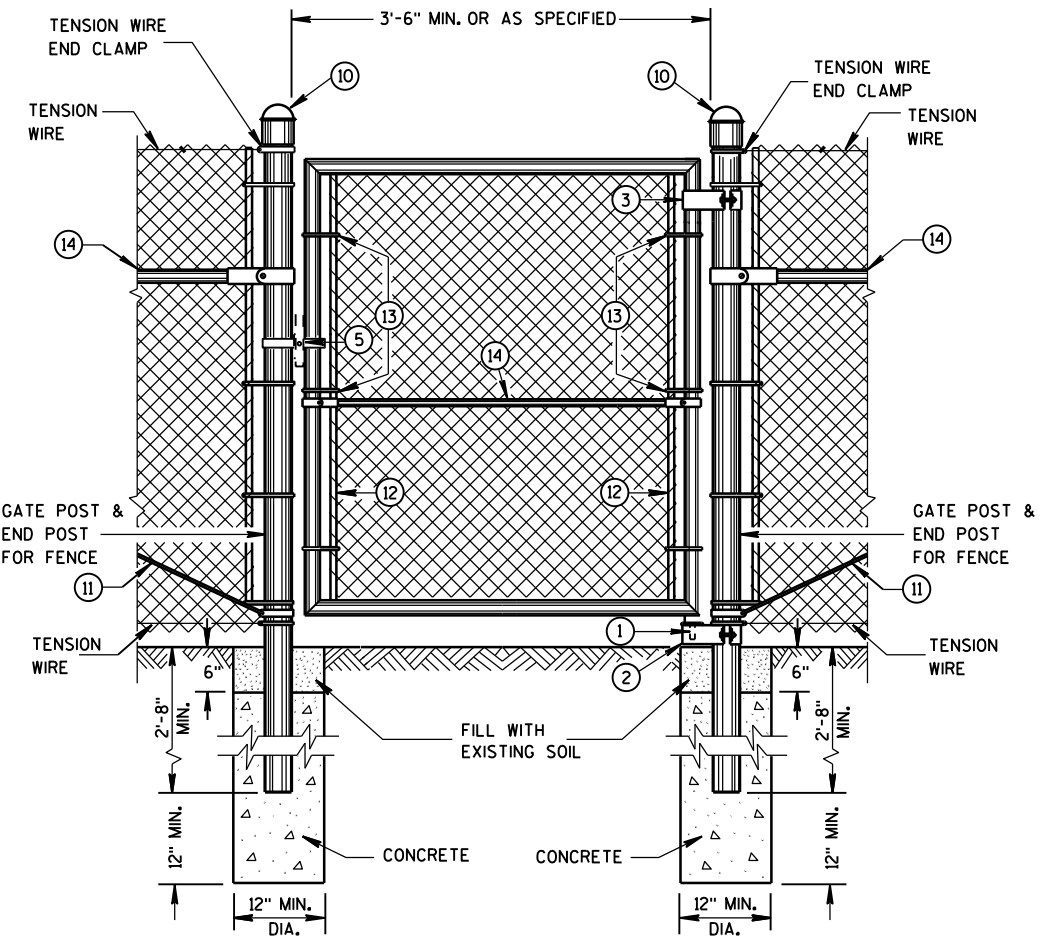
CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



VEHICLE GATE DETAIL



PEDESTRIAN GATE DETAIL

LEGEND

- 1. STRAIGHT PLUG
- 2. BOTTOM HINGE
- 3. TOP HINGE
- 4. PLUNGER ROD
- 5. FULCRUM LATCH
- 6. FORK CATCH *
- 7. PLUNGER ROD CATCH
- 8. LOCK KEEPER GUIDE
- 9. LOCK KEEPER
- 10. DOME TOPS
- 11. TRUSS RODS
- 12. TENSION BAR
- 13. TENSION BANDS
- 14. BRACE RAIL

*NOT REQUIRED ON SINGLE SWING PEDESTRIAN GATE

GENERAL NOTES

FENCE POSTS INSTALLED ON CONCRETE WALLS SHALL BE ANCHORED INTO EMBEDDED METAL SLEEVES OR CORED HOLE BY FILLING THE ANNULAR SPACE WITH PEA GRAVEL FOLLOWED BY AN EPOXY RESIN ADHESIVE. THE EPOXY RESIN ADHESIVE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 235, CLASS A, B OR C.

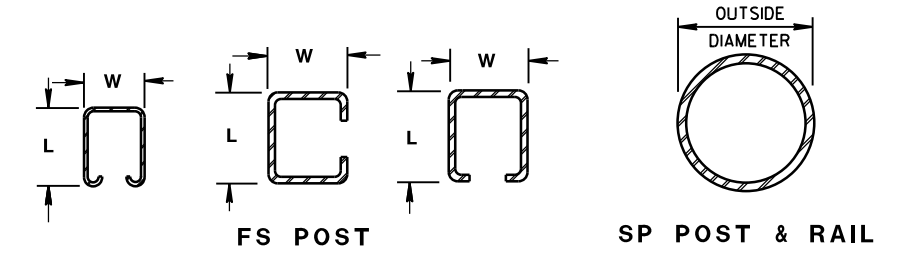
USE FENCE FABRIC KNUCKLED AT BOTH SELVAGES.

FOR LEAF GATES GREATER THAN 8 FEET WIDE, INSTALL INTERIOR VERTICAL BRACE RAIL AT 8 FOOT INTERVALS.

FOR FABRIC HEIGHTS GREATER THAN 8 FEET, INSTALL INTERIOR HORIZONTAL BRACE RAILS TO LEAF GATE.

MAXIMUM SAG FOR OUTER GATE MEMBER SHALL NOT EXCEED THE GREATER OF 1% OF THE LEAF GATE WIDTH OR 2 INCHES.

USE TYPE 2, CLASS 3, MARCELLED/CRIMPED, TENSION WIRE PER ASTM A 817.



CROSS SECTIONS OF POSTS AND RAILS

ROLLED-FORMED STEEL FENCE POST (2.0 OZ./SQ. FT. COATING)

POST TYPE	LENGTH (L) INCH	WIDTH (W) INCH	WEIGHT LBS/FT
FS1	1.625	1.25	1.35
FS2†	1.875	1.625	1.850
FS2	1.875	1.625	2.400
FS3	2.250	1.700	2.780

ROUND STEEL FENCE POST (1.8 OZ./SQ. FT. COATING)

POST TYPE	OUTSIDE DIMENSION INCH	WALL THICKNESS INCH	WEIGHT LBS/FT
SP1	1.660	0.140	2.270
SP2	1.900	0.145	2.720
SP3	2.375	0.154	3.650
SP4	2.875	0.203	5.800
SP5	4.000	0.226	9.120
SP6	6.625	0.280	18.990
SP7	8.625	0.322	28.580

REQUIRED FENCE POST SIZES

USE	FABRIC HEIGHTS FEET	POST TYPE
TERMINAL POSTS **	LESS THAN OR EQUAL TO 6 FT.	SP3
	GREATER THAN OR EQUAL TO 6 FT.	SP4
LINE POSTS	LESS THAN OR EQUAL TO 6 FT.	SP2
	LESS THAN OR EQUAL TO 8 FT.	SP3
	GREATER THAN OR EQUAL TO 8 FT.	SP4
	LESS THAN OR EQUAL TO 8 FT.	FS2 OR FS2†
	GREATER THAN OR EQUAL TO 8 FT.	FS3

REQUIRED POST SIZE FOR GATES

USE	LEAF WIDTHS FEET	POST TYPE
GATES	LESS THAN OR EQUAL TO 6 FT.	SP4
	LESS THAN OR EQUAL TO 13 FT.	SP5
	LESS THAN OR EQUAL TO 18 FT.	SP6
	LESS THAN OR EQUAL TO 23 FT.	SP7

BRACE RAIL TYPES

USE	TYPE
BRACE RAIL	SP1 OR FS1

** INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS

FENCE CHAIN LINK

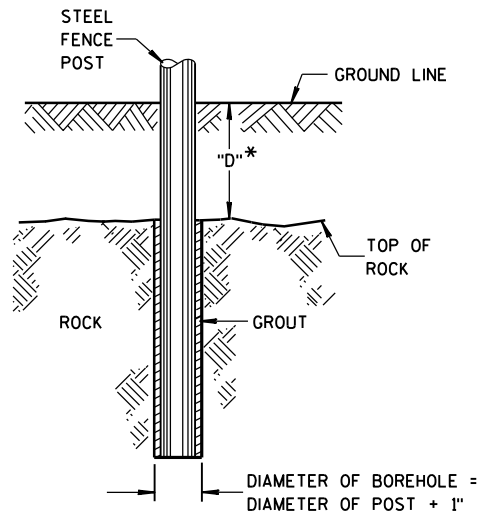
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

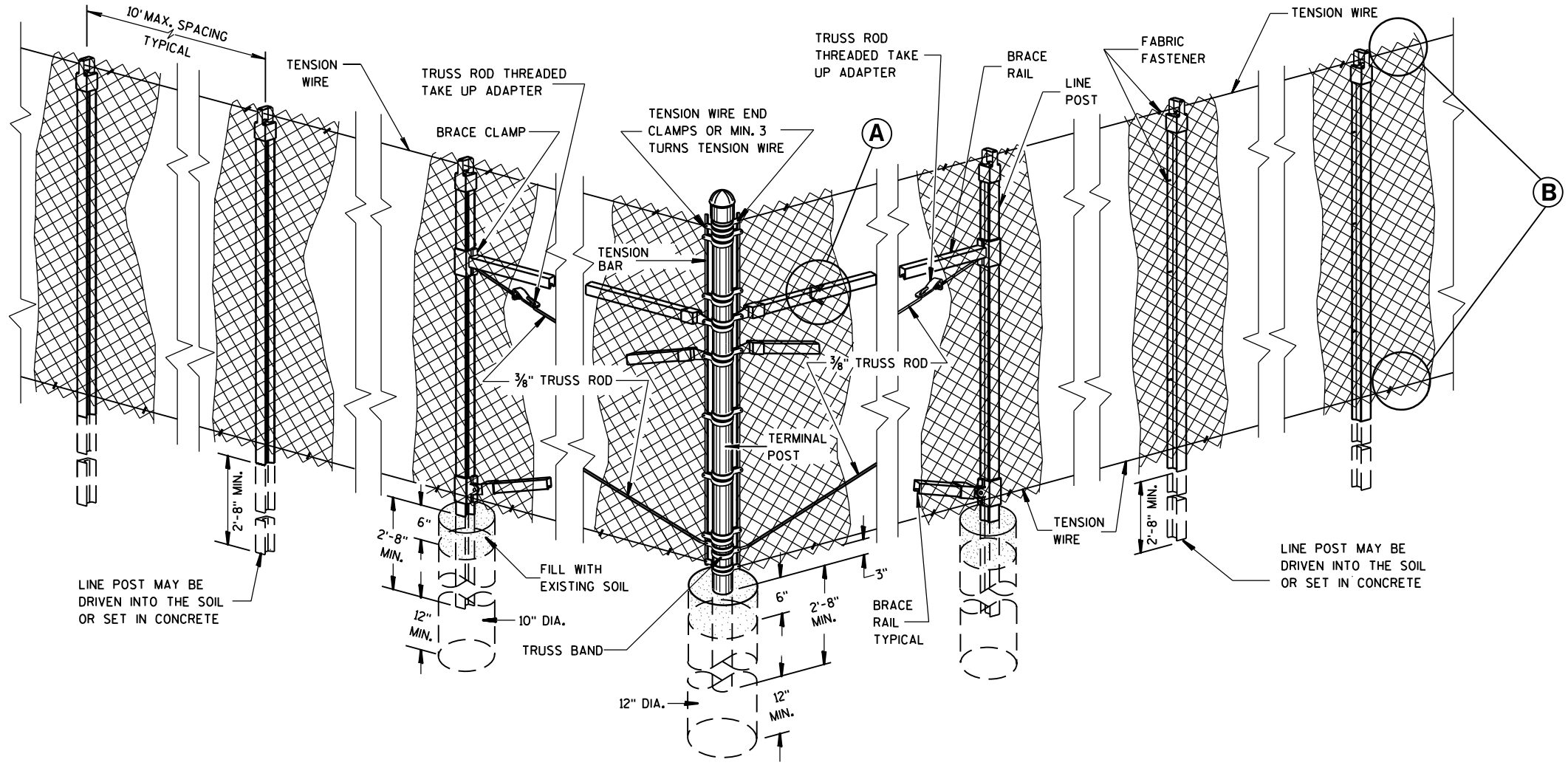
S.D.D. 15 B 3-15a

S.D.D. 15 B 3-15a

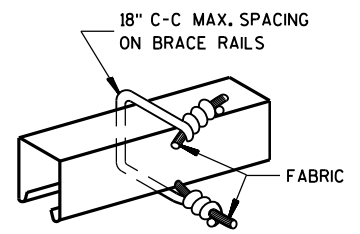


* IF "D" IS LESS THAN 2'-6",
DRILL ROCK AND INSTALL GROUT

**ROCK INSTALLATION
OF LINE POST**

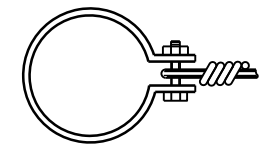


**END, CORNER, ANGLE
INTERSECTION & INTERMEDIATE
BRACED POSTS**

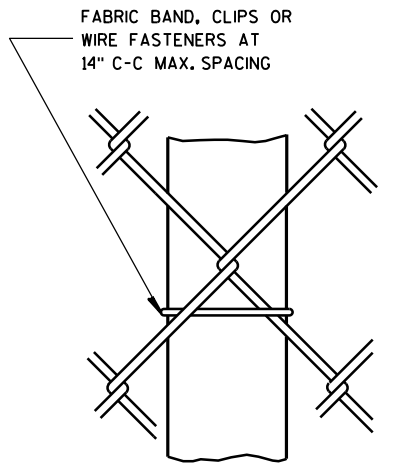


**BRACE RAIL
FABRIC FASTENER**

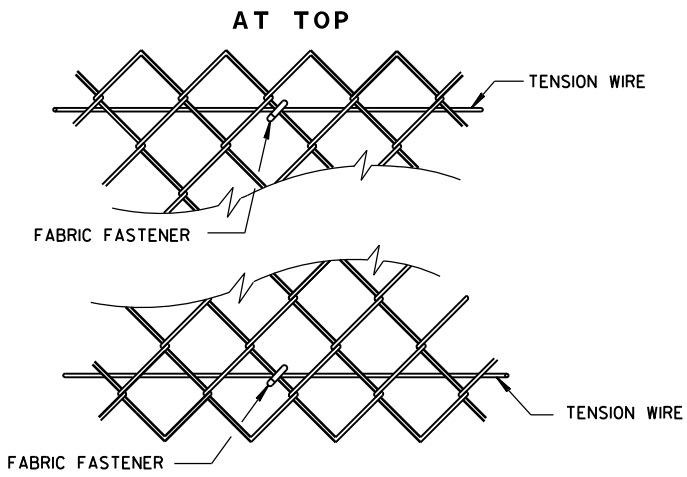
(A)



TENSION WIRE END CLAMP

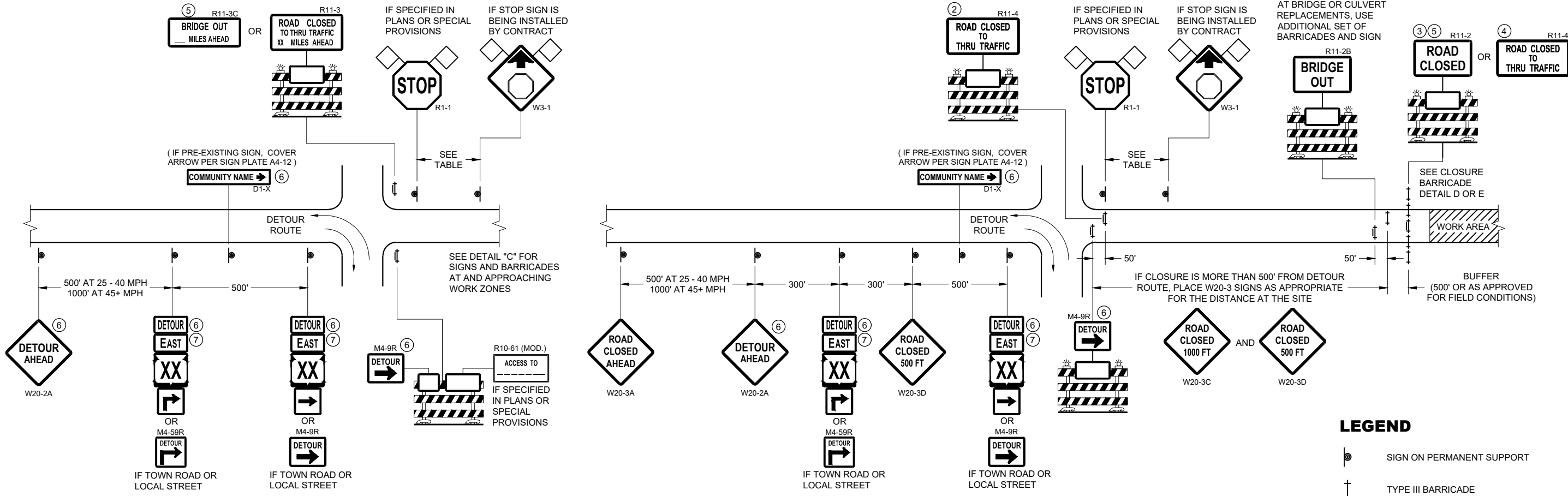


**LINE POST
FABRIC FASTENER**



(B)

FENCE CHAIN LINK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED FEB. 2015 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

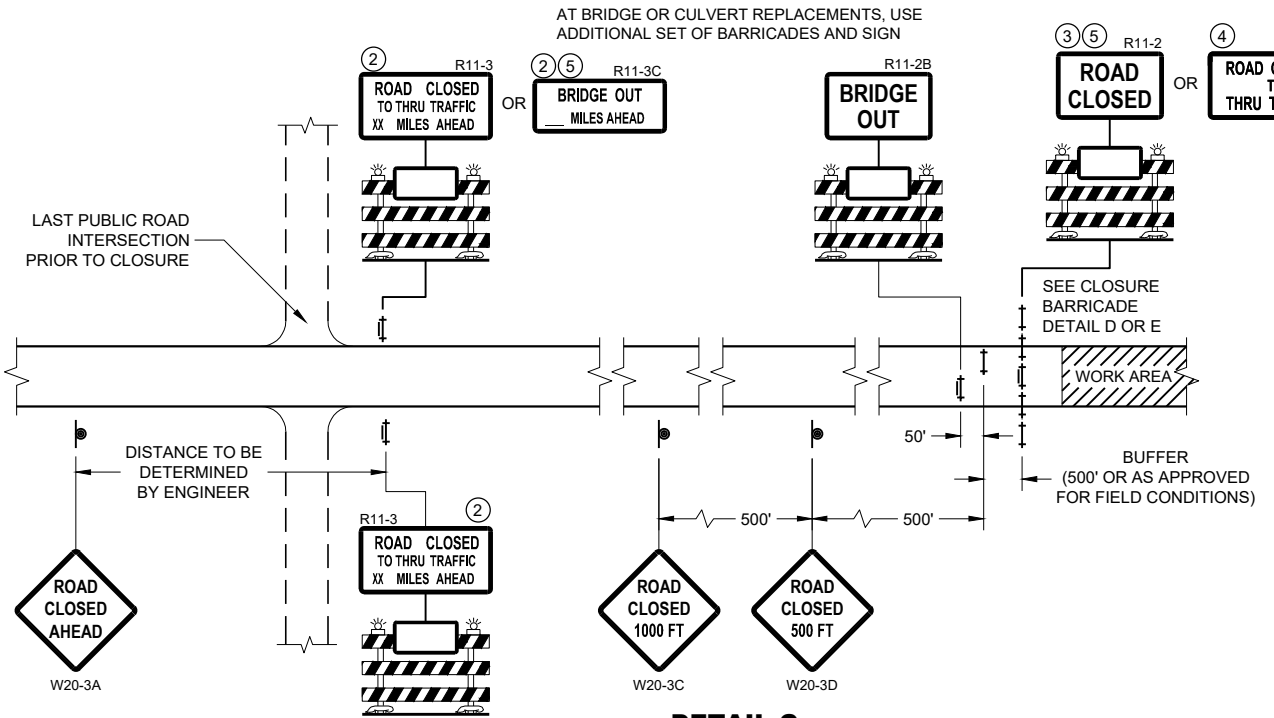
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

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

- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1



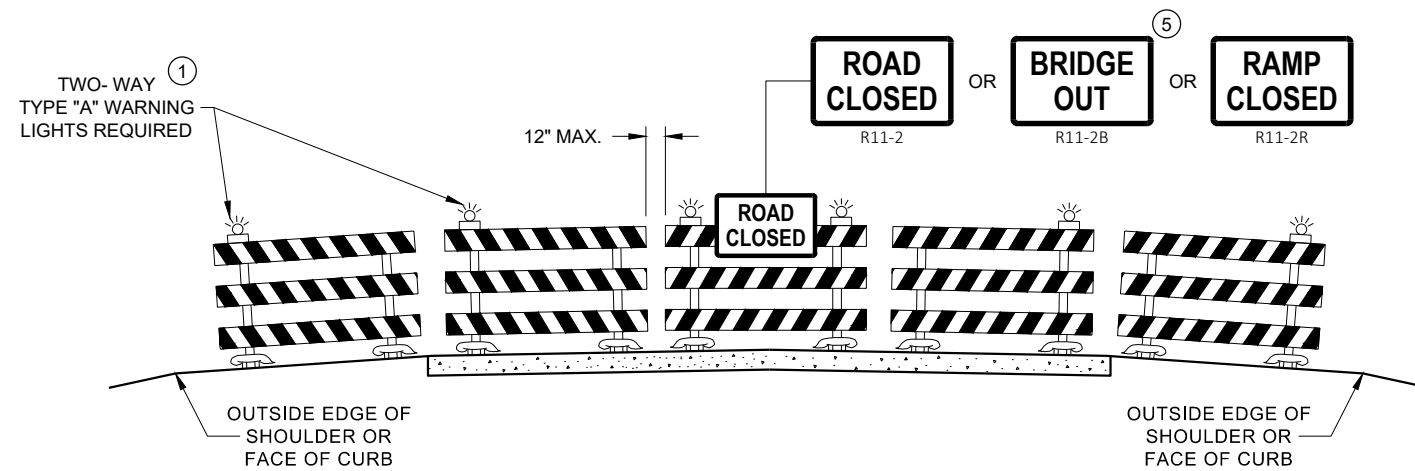
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

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

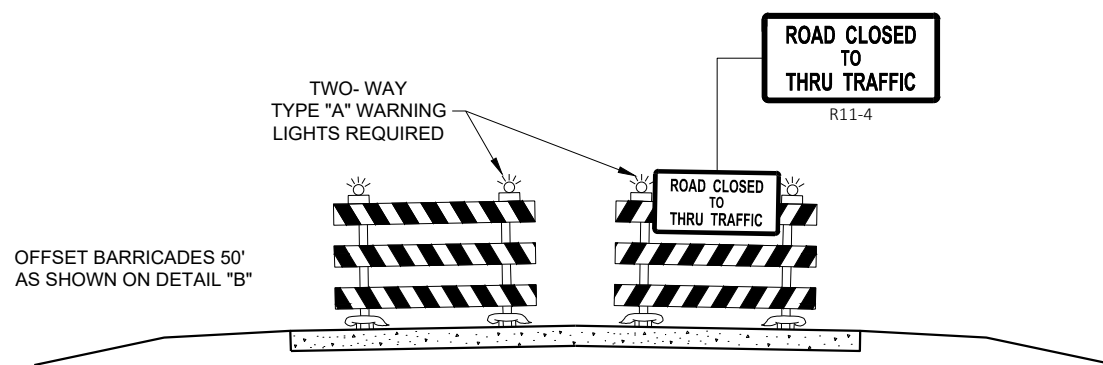
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE DATE WORK ZONE ENGINEER



**DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW**



**DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

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

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

- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

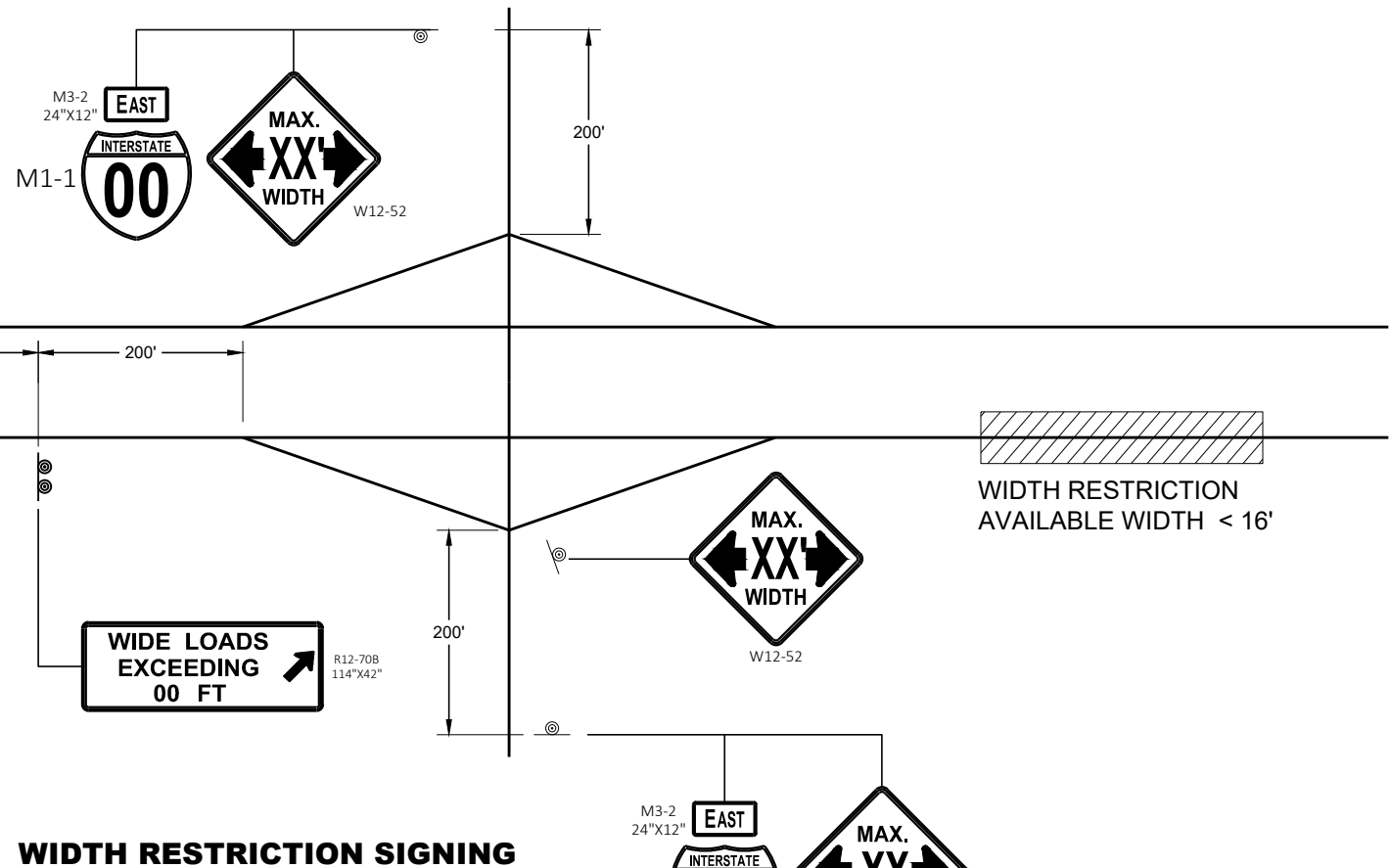
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS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

**BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES**

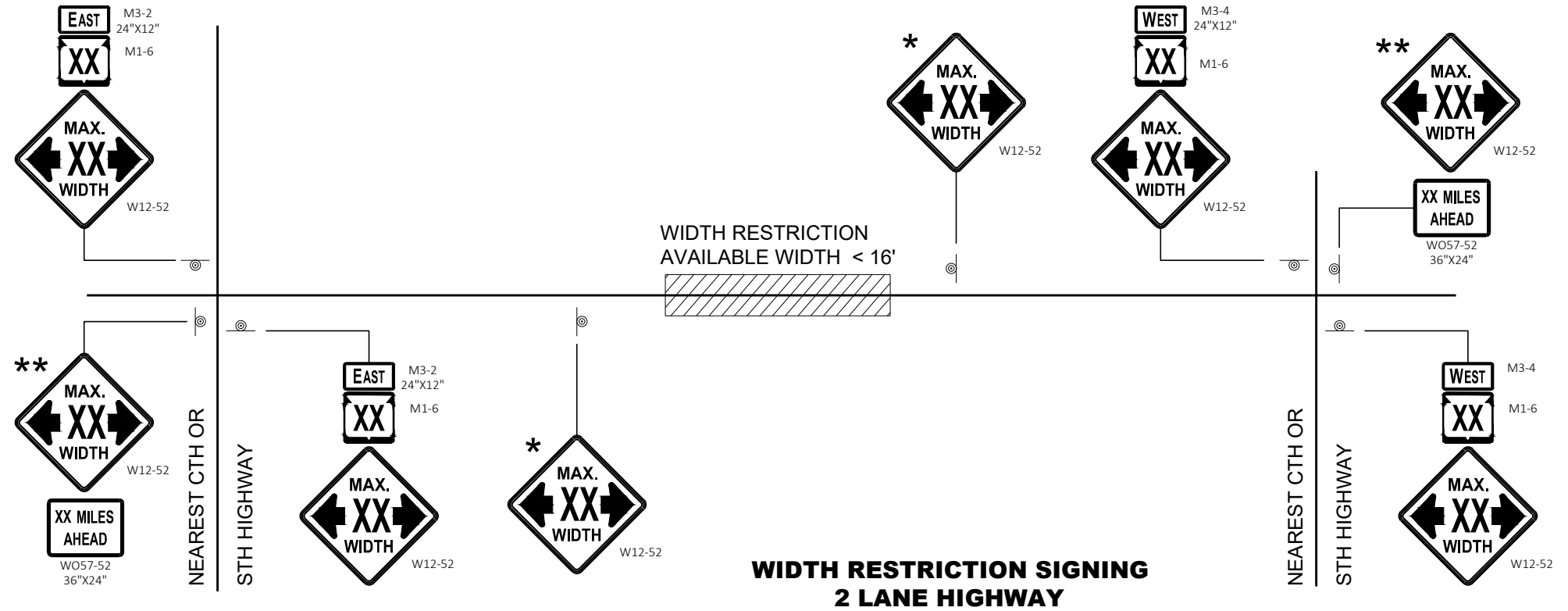
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



WIDTH RESTRICTION SIGNING



**WIDTH RESTRICTION SIGNING
2 LANE HIGHWAY**

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

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

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

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.

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

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

WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.

* PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.

** SIGN SHALL BE VISIBLE FROM ROADWAY.

*** ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.

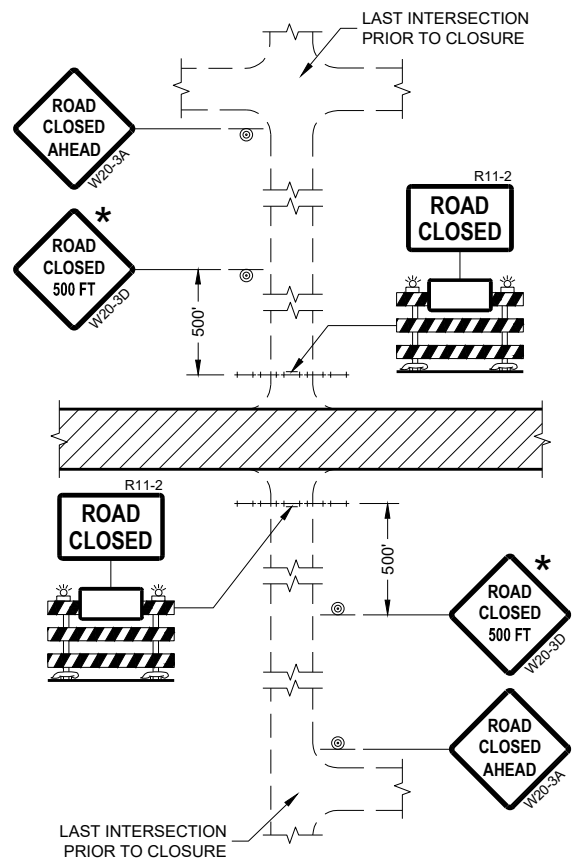


WIDTH ON SIGN TO BE APPROX. 1 - FOOT LESS THAN AVAILABLE WIDTH

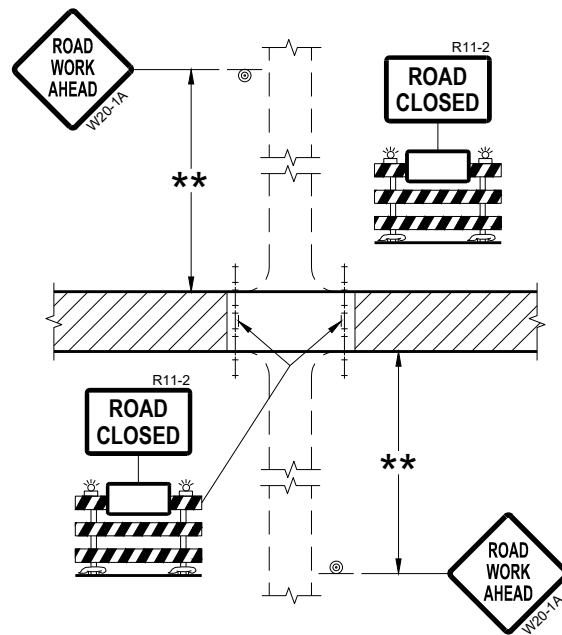
**ADVANCED WIDTH
RESTRICTION SIGNING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

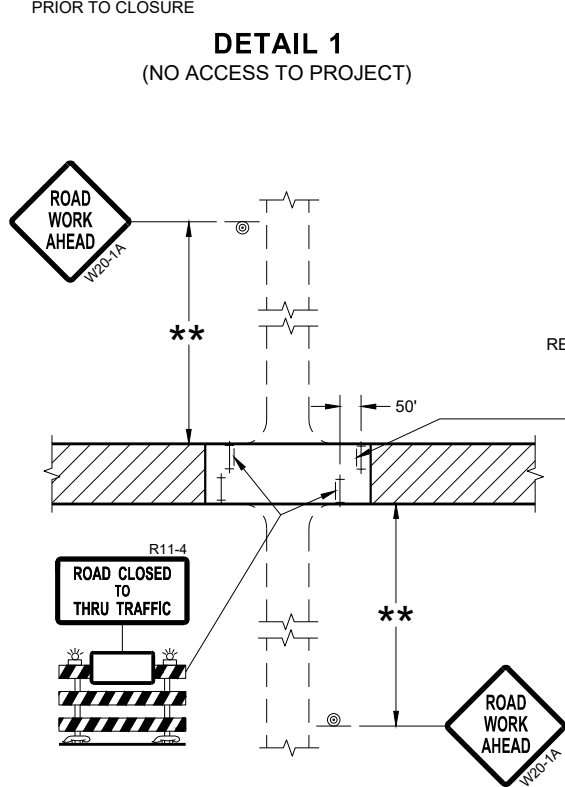
APPROVED	/S/ Andrew Heidtke
DATE	May 2023
FHWA	WORK ZONE ENGINEER



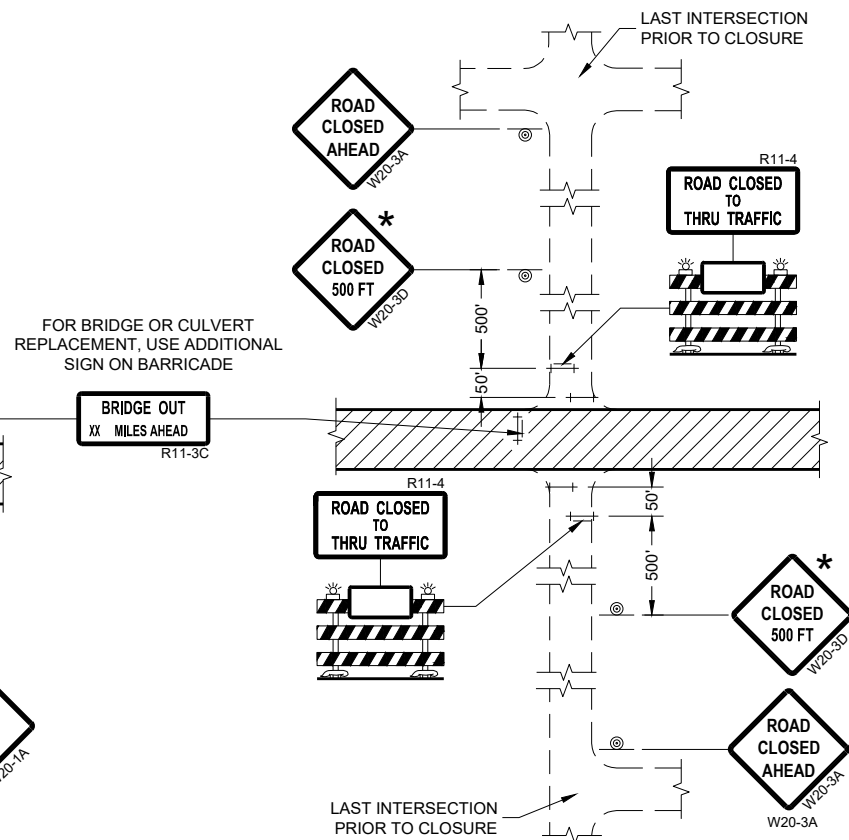
DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT)



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED.
CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)



DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

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

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

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

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

- * OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.
- ** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

- ⊙ SIGN ON PERMANENT SUPPORT
- ⊥ TYPE III BARRICADE
- ⊥ TYPE III BARRICADE WITH ATTACHED SIGN
- ⚡ TYPE "A" WARNING LIGHT (FLASHING)
- ▨ WORK AREA

**BARRICADES AND SIGNS
FOR
SIDEROAD CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

GENERAL NOTES

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

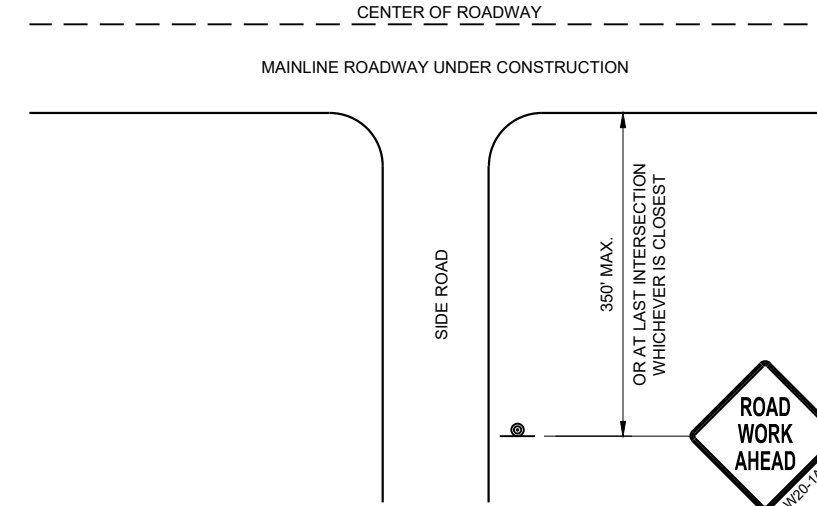
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"X36" SIGNS MAY BE USED INSTEAD OF 48" X 48" SIGNS.

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

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

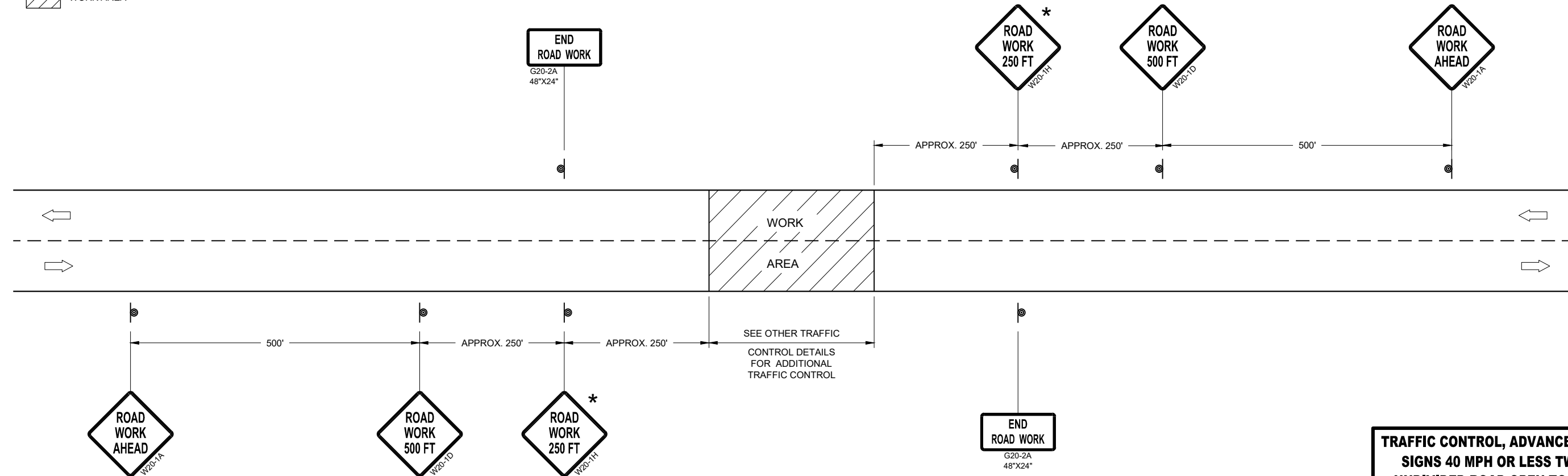
* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FEET" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.



**TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL**

LEGEND

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA



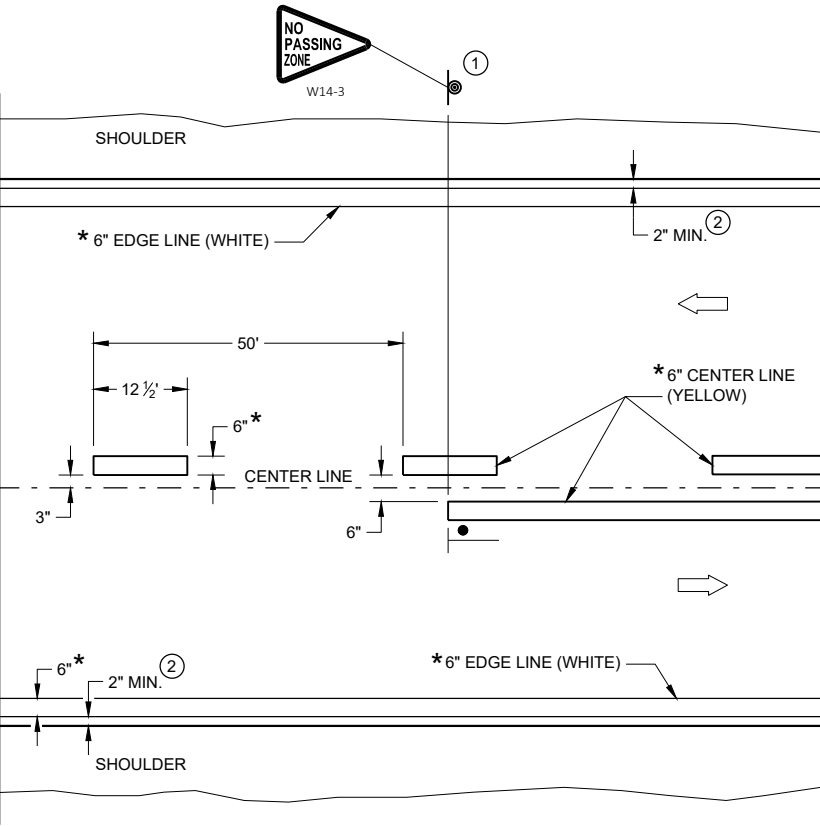
TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40MPH OR LESS

**TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 40 MPH OR LESS TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC**

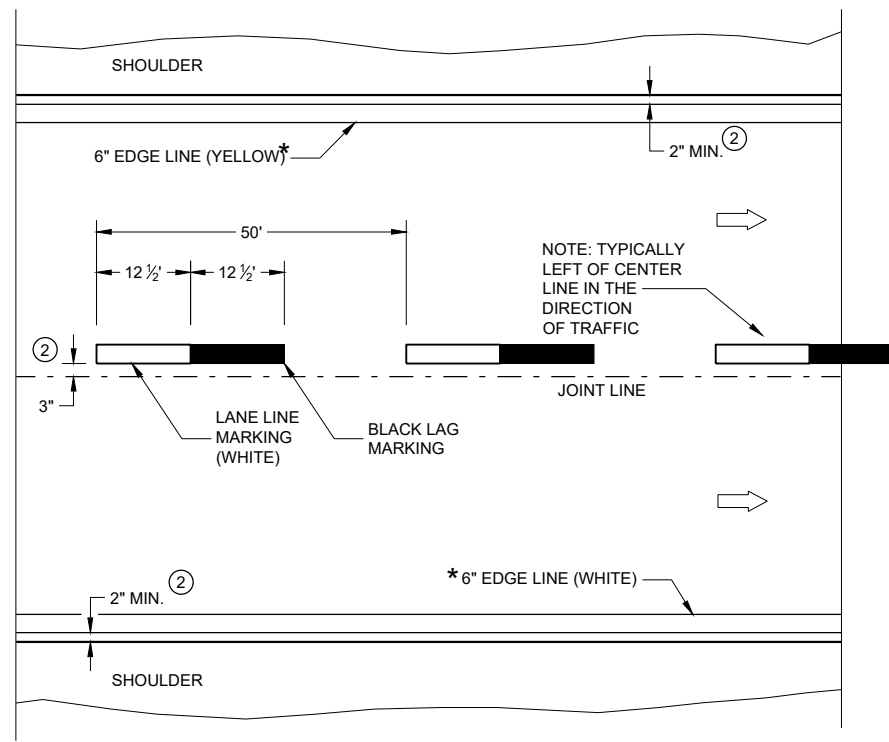
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

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
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

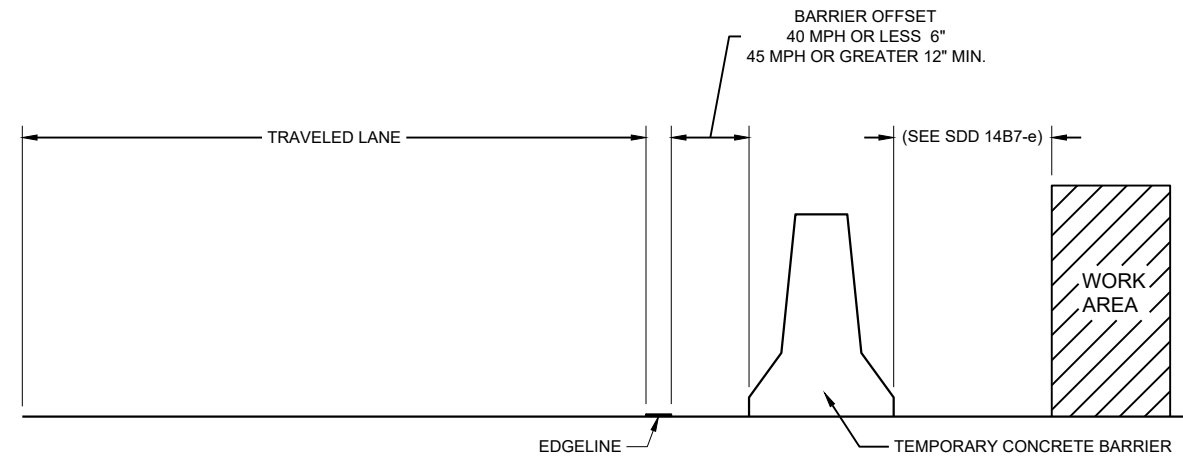
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	/S/ Jeannie Silver
May 2023	DATE
	STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



TEMPORARY BARRIER OFFSET FROM EDGELINE

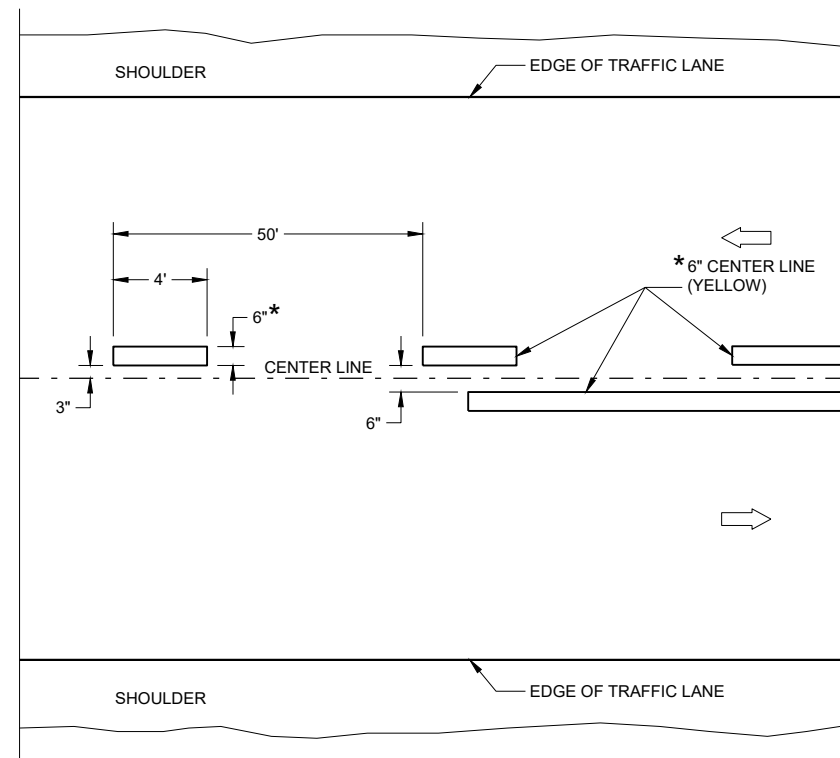
GENERAL NOTES

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

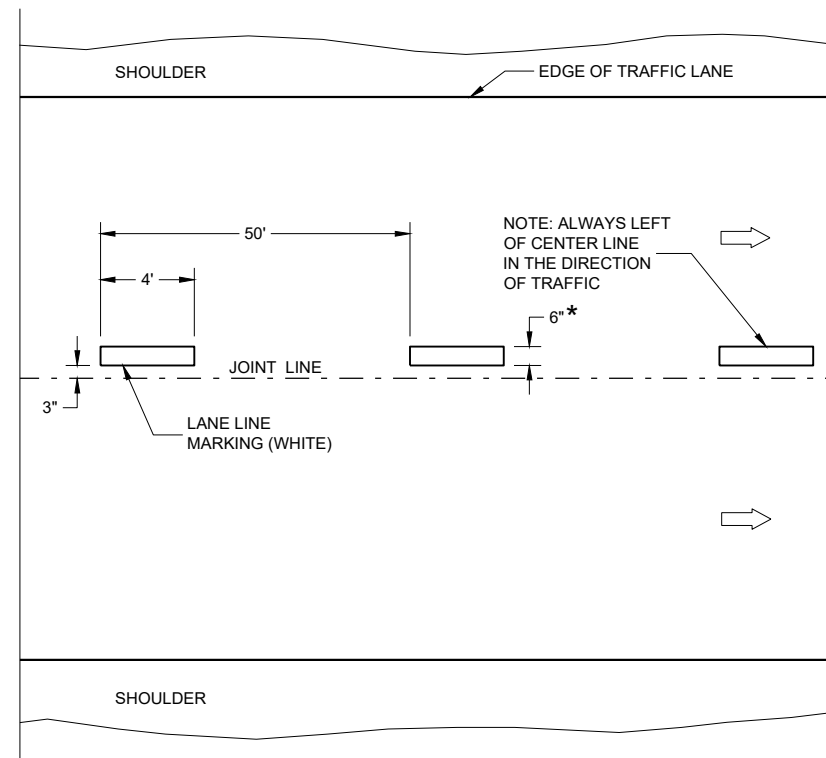
LEGEND

➔ DIRECTION OF TRAFFIC

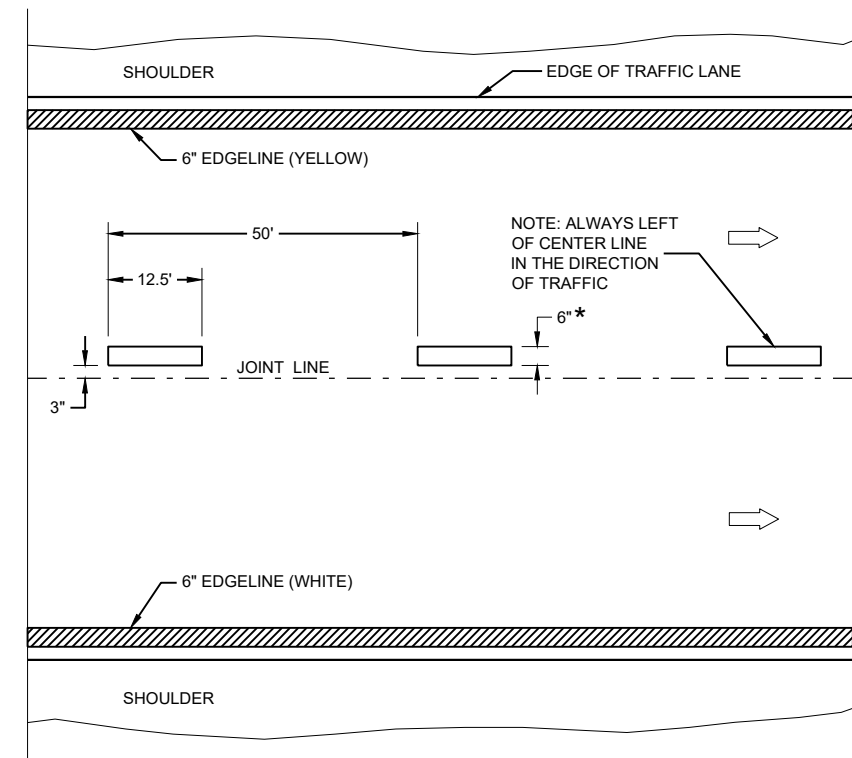
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

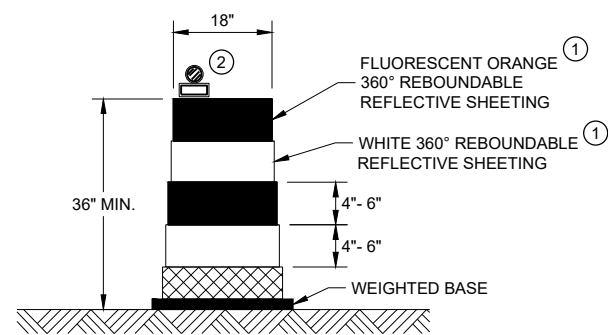
TEMPORARY PAVEMENT MARKING

TEMPORARY LONGITUDINAL PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

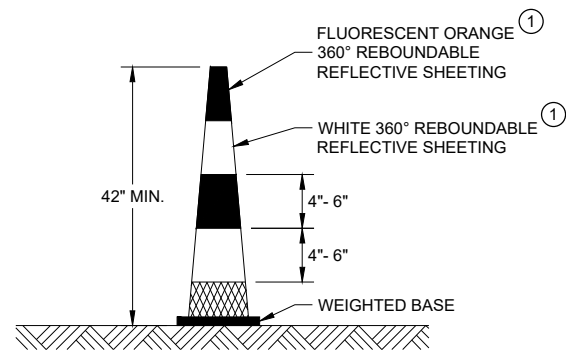
APPROVED
May 2023 /S/ Jeannie Silver
DATE STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



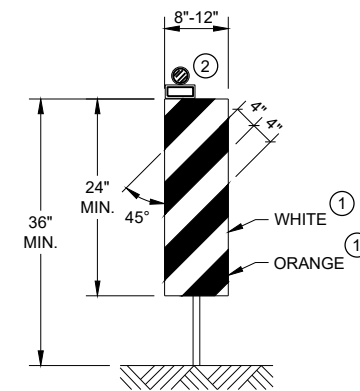
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS
BALLAST WIDTHS
RANGE FROM 14"-20"

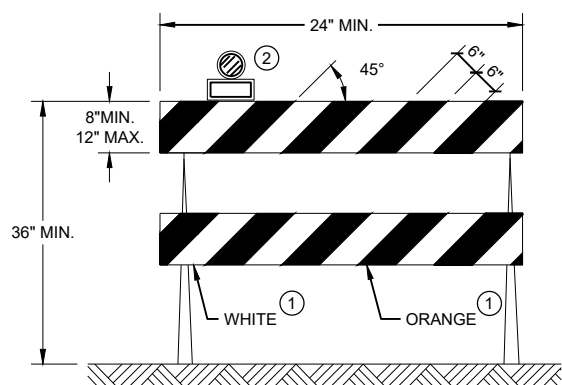


VERTICAL PANEL

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

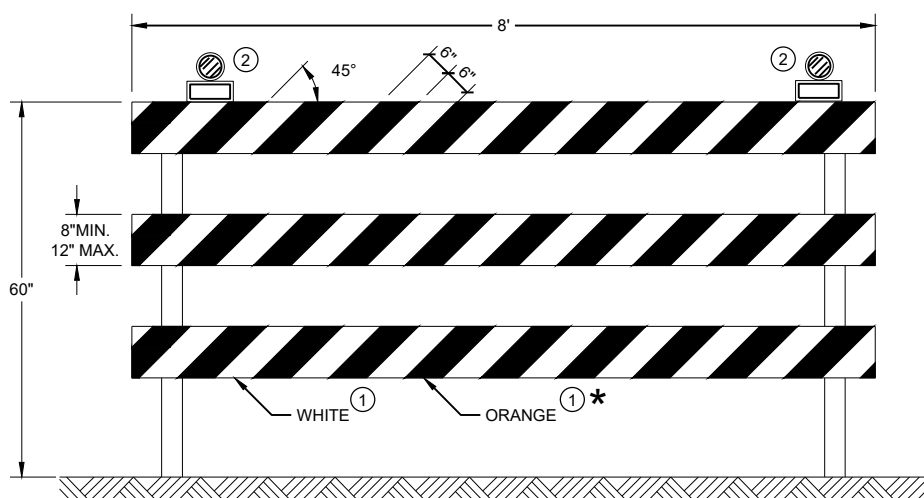
GENERAL NOTES

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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






* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
 November 2022 /S/ Andrew Heidtke
 DATE WORK ZONE ENGINEER
 FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

FLAGGING

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

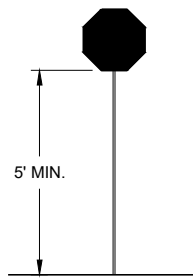
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER

ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.



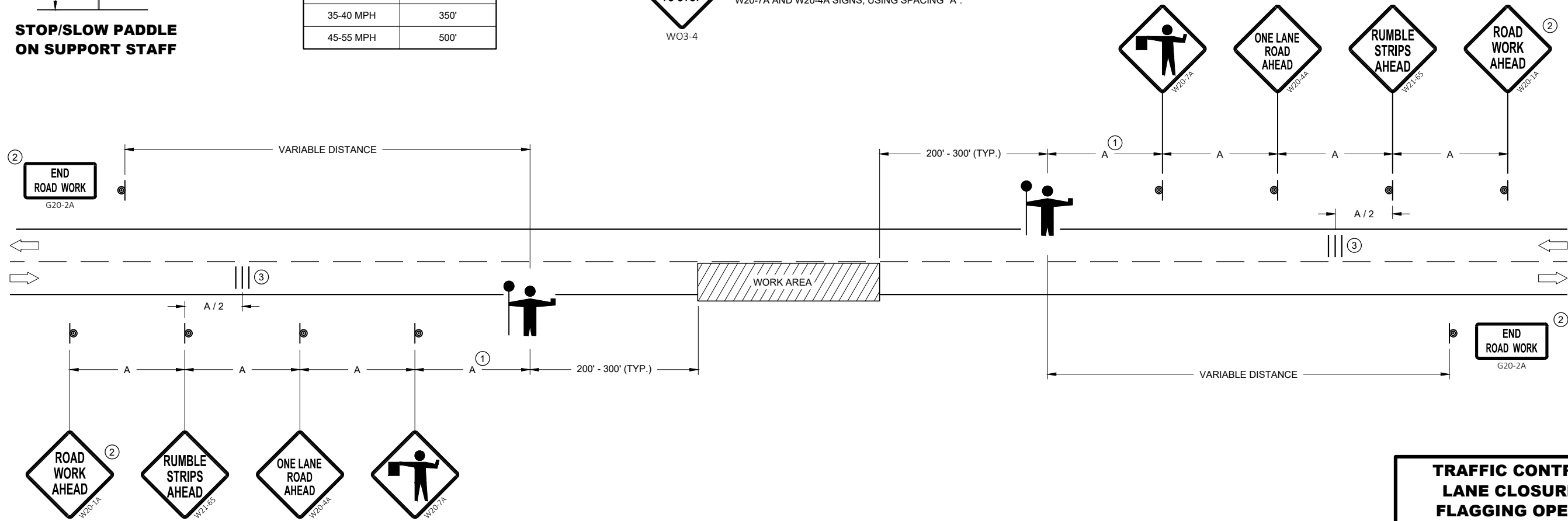
STOP/SLOW PADDLE ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



6

6

SDD 15C12 - 09a

SDD 15C12 - 09a





TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE May 2022 /S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

- V1 LEAD VEHICLE
- V2 MARKING VEHICLE
- V3 SHADOW VEHICLE
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC
-  FLASHING ARROW PANEL (CAUTION)

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC.

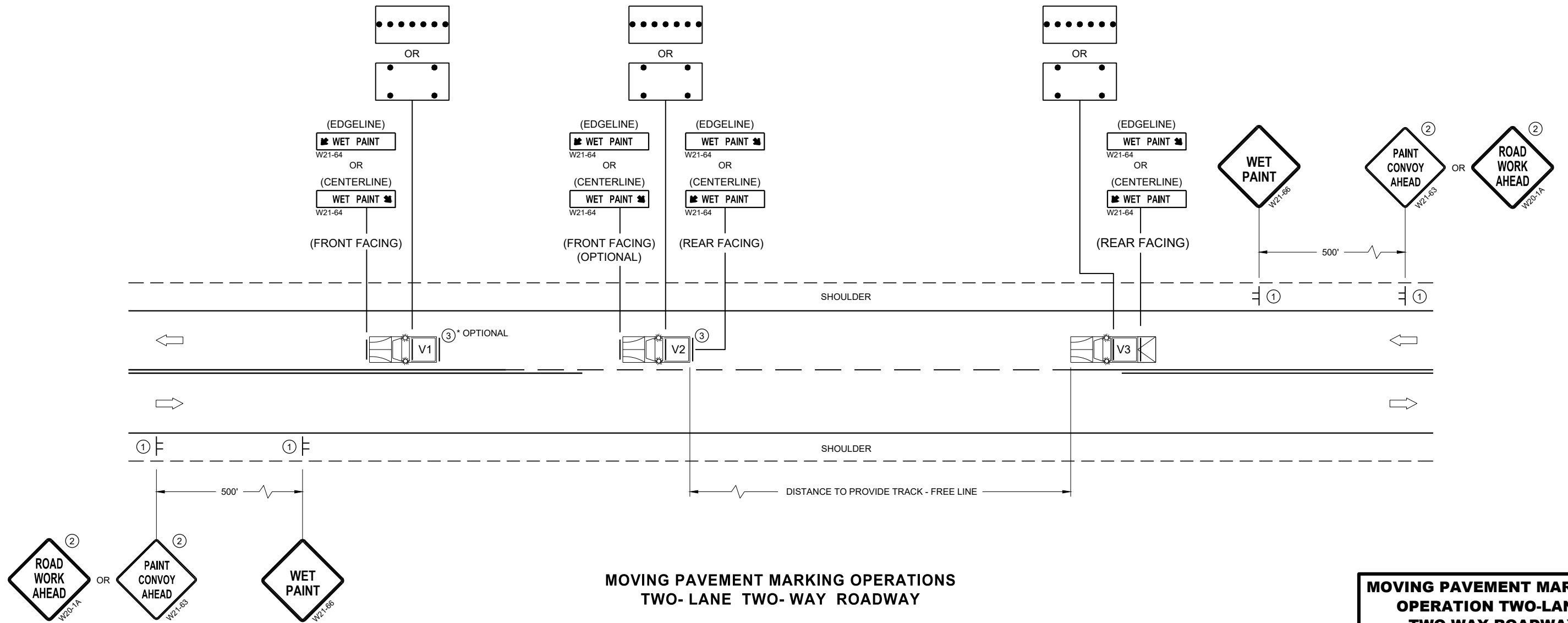
CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM OF 28" FOR WET PAVEMENT MARKING.

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.
- ③ V1 AND V2 CAN BE SWITCHED SO THAT THE MARKER IS THE LEAD VEHICLE.

6

6



**MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY**

SDD 15C19-08a

SDD 15C19-08a

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

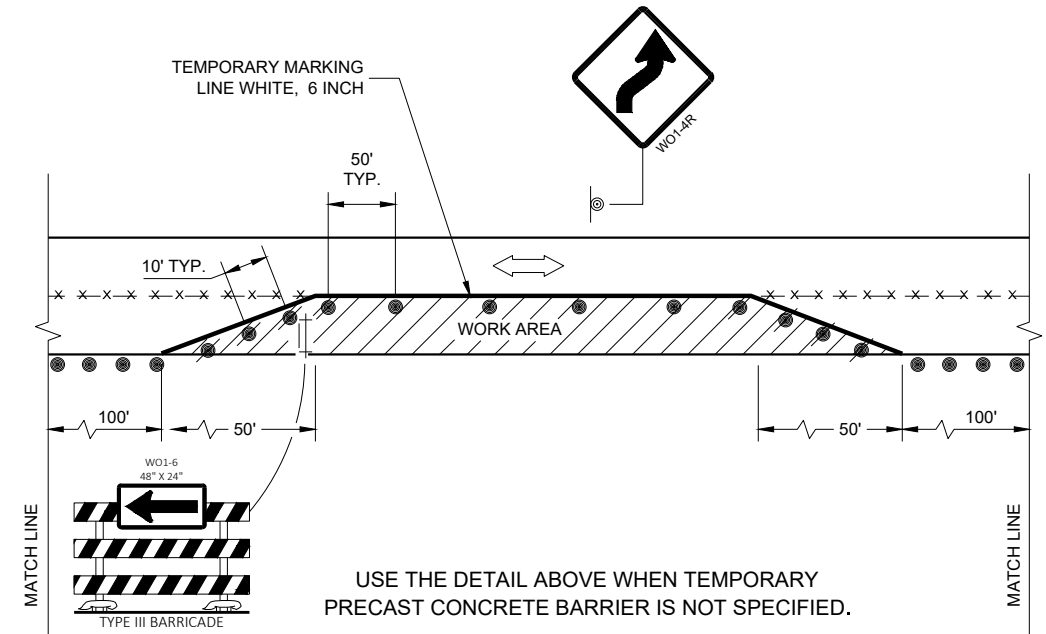
LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLAGS, 16" X 16" MIN. (ORANGE)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- ASPHALTIC PAVEMENT WIDENING
- CONCRETE BARRIER TEMPORARY PRECAST
- TEMPORARY SIGNAL. SEE SDD 09G02 FOR EXACT PLACEMENT

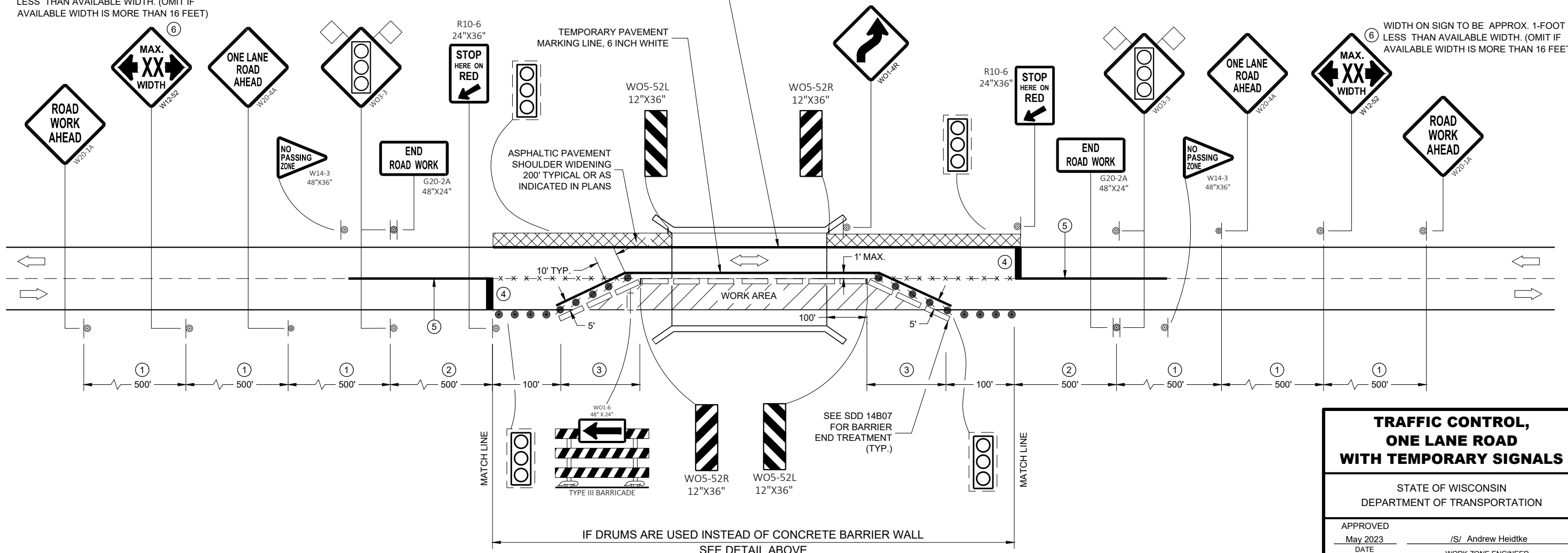
WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)

GENERAL NOTES

- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE..
- THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.
- ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.
- "WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.
- REMOVE PAVEMENT MARKING AND PLACE TEMPORARY PAVEMENT MARKING LINES IF THE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.
- INSTALL OVERHEAD TEMPORARY SIGNAL HEADS ABOVE THE MIDDLE OF THE TRAVEL LANE THEY ARE CONTROLLING.
- ① 500 FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35 - 40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25 - 30 MPH, USE 200 FOOT TYPICAL SPACING.
 - ② USE 300 FOOT SPACING IF THE PRE - CONSTRUCTION REGULATORY SPEED IS 35 MPH OR LESS.
 - ③ DIMENSION DETERMINED BY CBTP TAPER FROM EDGE LINE TO TANGENT SECTION OF THE ROAD.
 - ④ TEMPORARY PAVEMENT MARKING LINE, 18 INCH WHITE STOP LINE.
 - ⑤ 700 FOOT TEMPORARY PAVEMENT MARKING LINE, 6 INCH DOUBLE YELLOW . WHEN THE DISTANCE FOR THE PRECEDING NO - PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.
 - ⑥ SEE SDD 15C02 - SHEET "F" FOR ADVANCED WIDTH RESTRICTION SIGNING.



TEMPORARY PAVEMENT MARKING LINE, 6 INCH WHITE (STOPLINE TO STOPLINE). REMOVE EXISTING EDGELINE AND OFFSET THE TEMPORARY EDGELINE IF THE DISTANCE FROM THE EDGELINE TO CONCRETE BARRIER WALL IS LESS THAN 9 FEET.












**TRAFFIC CONTROL,
ONE LANE ROAD
WITH TEMPORARY SIGNALS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED _____
DATE May 2023 /S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

-  TYPE III BARRICADE WITH ATTACHED SIGN
-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE "A" WARNING LIGHT (FLASHING)
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
-  CONCRETE BARRIER TEMPORARY PRECAST

GENERAL NOTES

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

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

THIS LANE CLOSURE IS TYPICAL FOR LANE SHIFT LEFT - REVERSE FOR SHIFTING RIGHT.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON ANY "COVERED" OR "DOWNED" SIGNS.

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

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

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

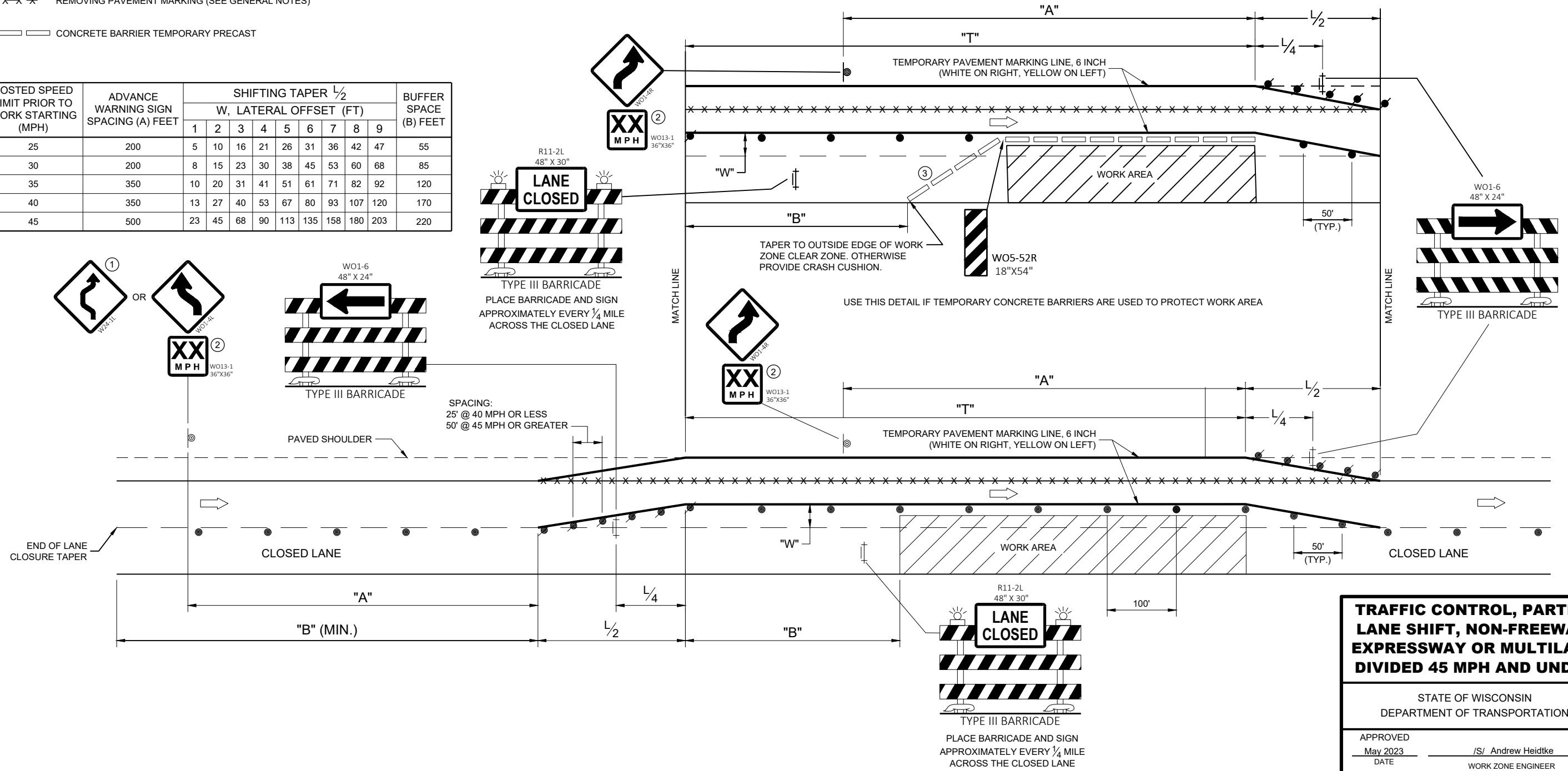
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

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

- ① USE ONLY WHEN T < 600', OMIT WO1-4R.
- ② IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.
- ③ BARRIER FLARE RATE: 6:1 @ 40 MPH OR LESS
8:1 @ 45 MPH OR GREATER

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHIFTING TAPER 1/2 W, LATERAL OFFSET (FT)									BUFFER SPACE (B) FEET
		1	2	3	4	5	6	7	8	9	
25	200	5	10	16	21	26	31	36	42	47	55
30	200	8	15	23	30	38	45	53	60	68	85
35	350	10	20	31	41	51	61	71	82	92	120
40	350	13	27	40	53	67	80	93	107	120	170
45	500	23	45	68	90	113	135	158	180	203	220



TRAFFIC CONTROL, PARTIAL LANE SHIFT, NON-FREEWAY/ EXPRESSWAY OR MULTILANE DIVIDED 45 MPH AND UNDER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: May 2023 /S/ Andrew Heidtke
WORK ZONE ENGINEER

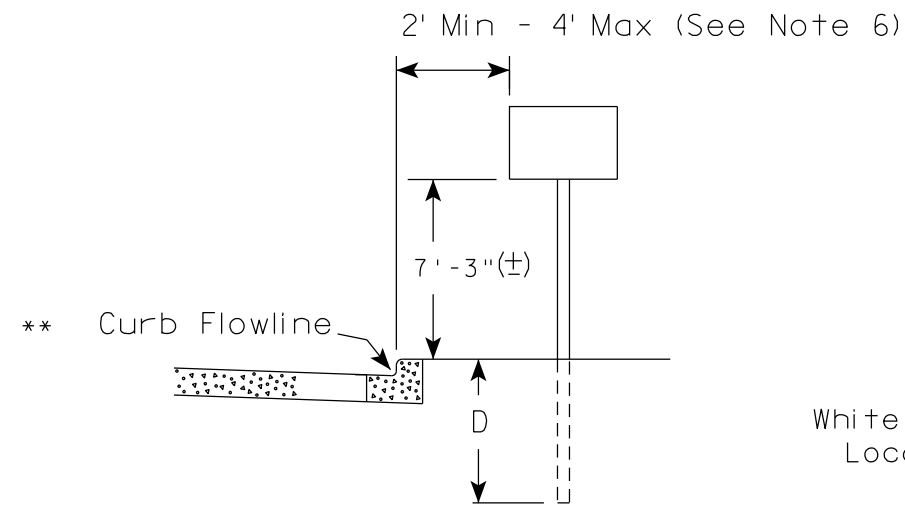
FHWA

SDD 15D40-05C

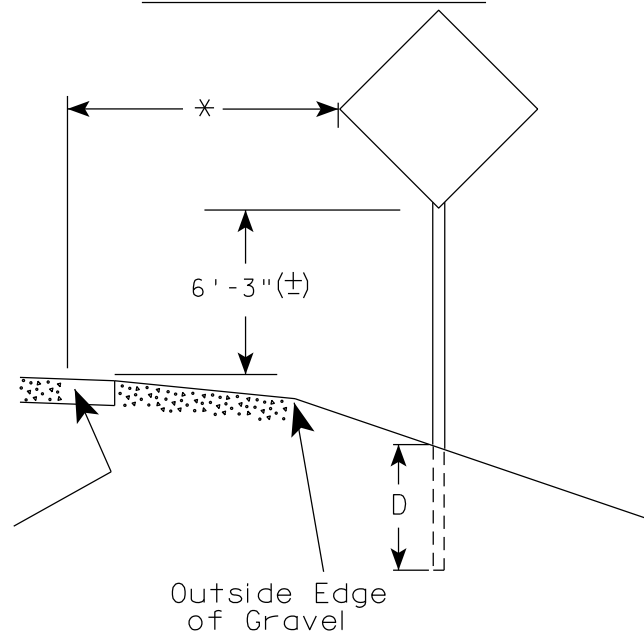
SDD 15D40-05C

URBAN AREA

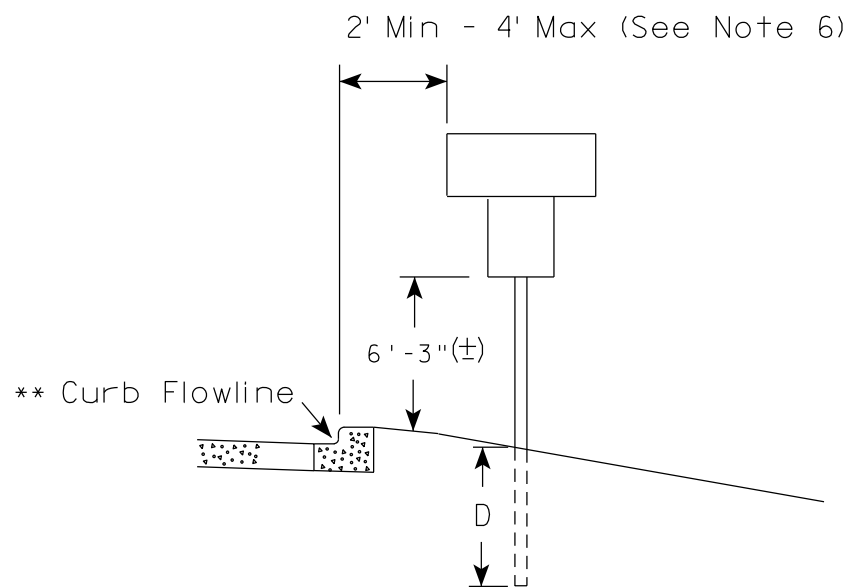
RURAL AREA (See Note 2)



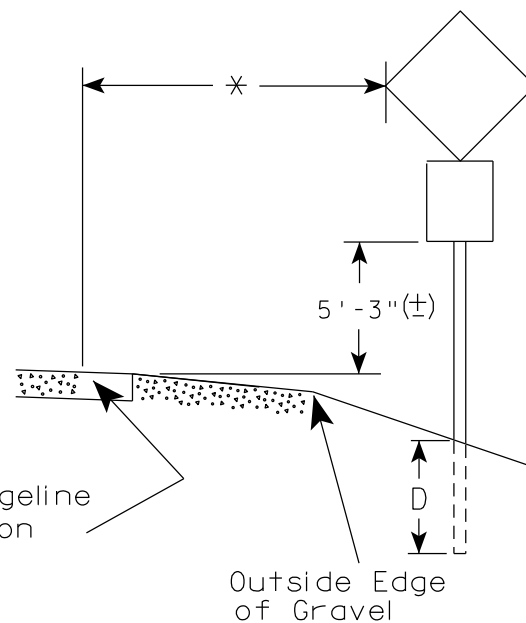
White Edgeline Location



Outside Edge of Gravel



White Edgeline Location



Outside Edge of Gravel

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

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

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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

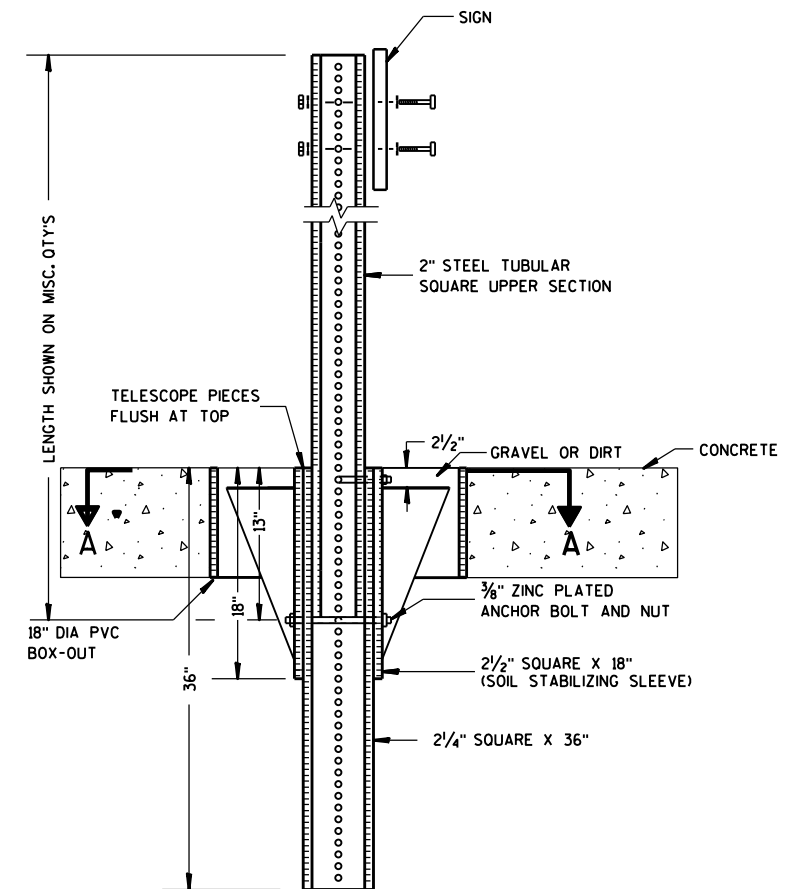
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

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

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



ELEVATION VIEW

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



PLAN VIEW

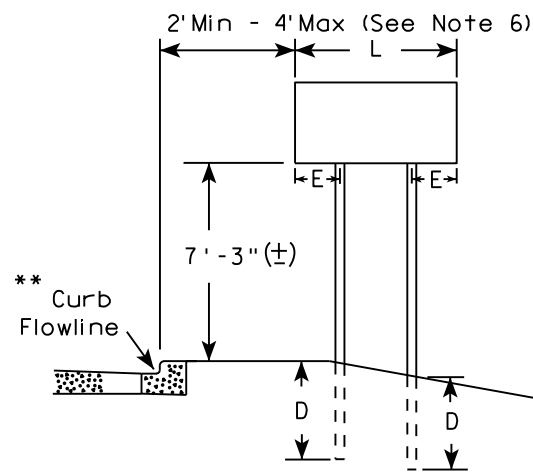
FOR NEW CONCRETE/ ASPHALT INSTALLATIONS

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

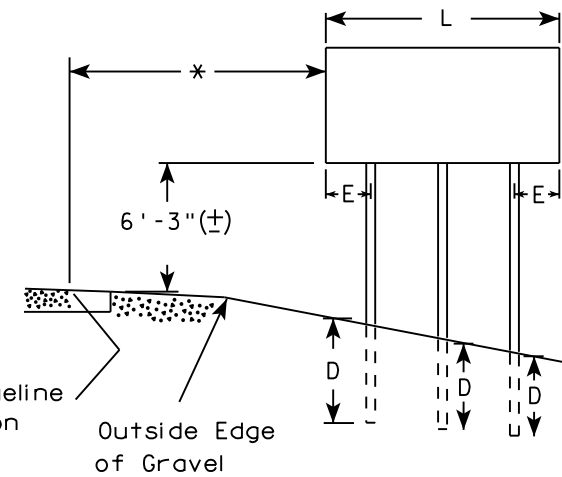
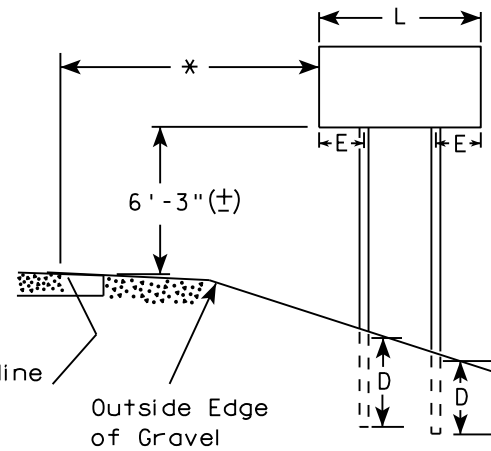
GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

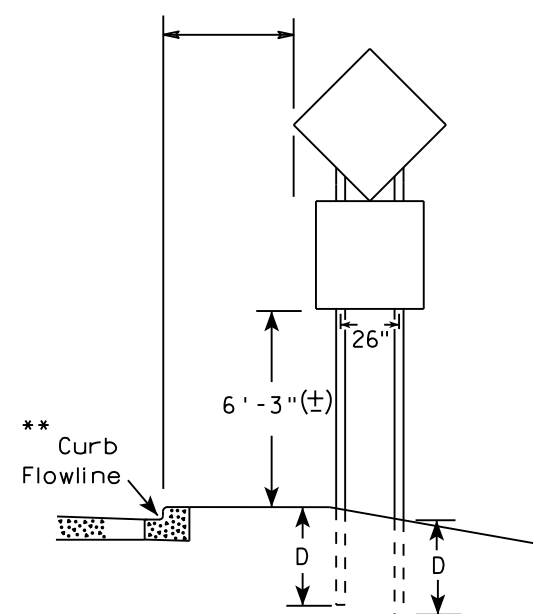
URBAN AREA



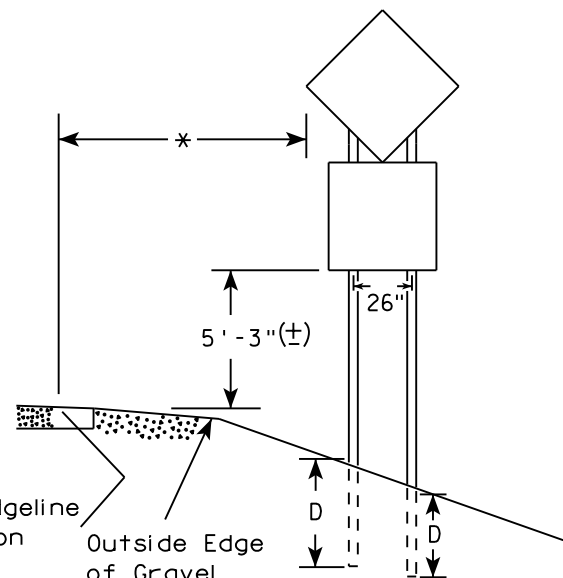
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

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

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

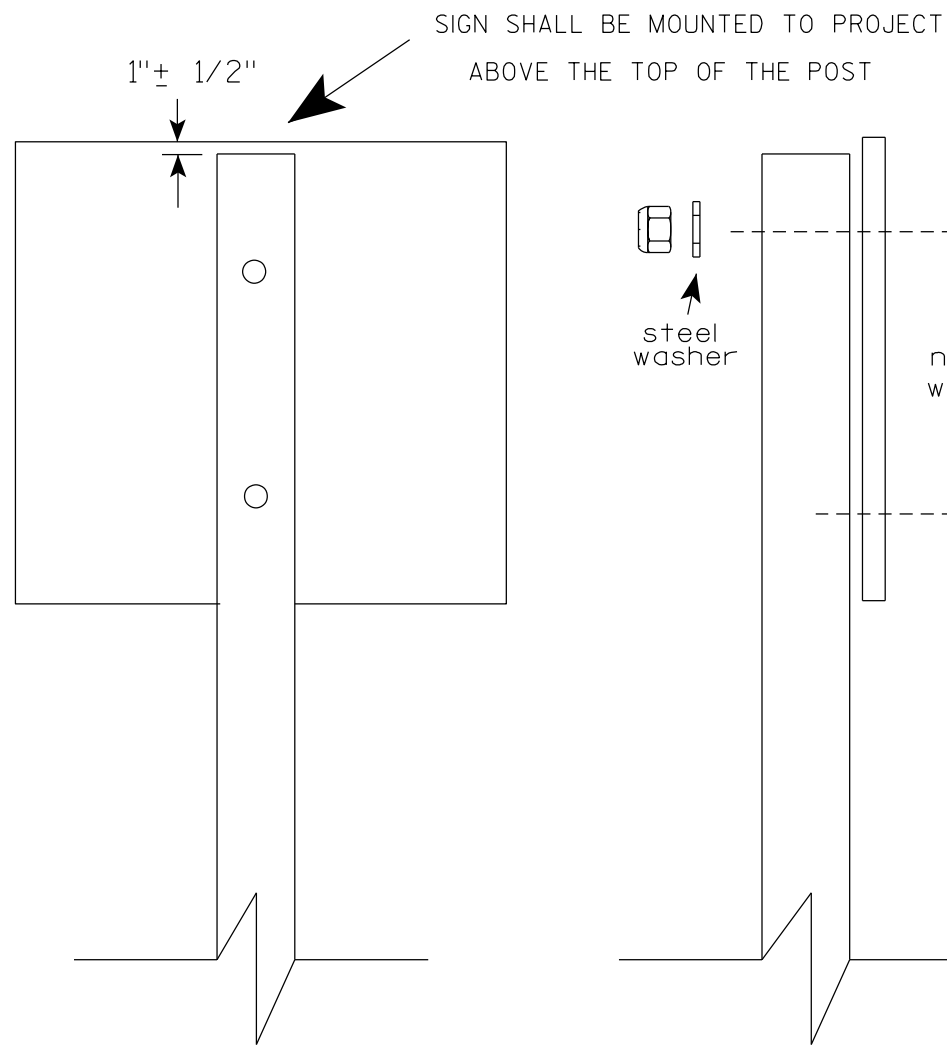
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15



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

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

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

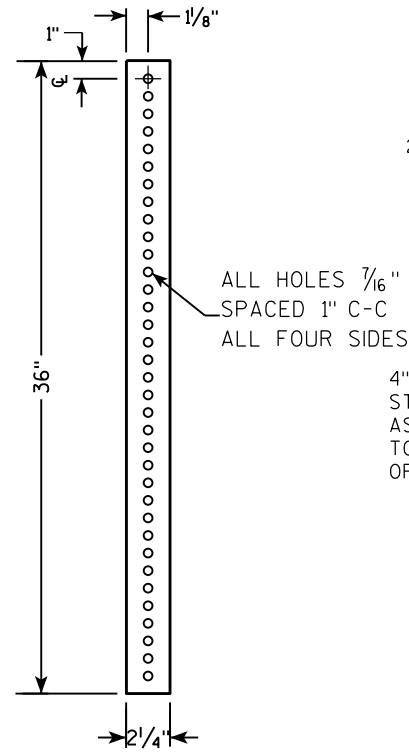
- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 - $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 - $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

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

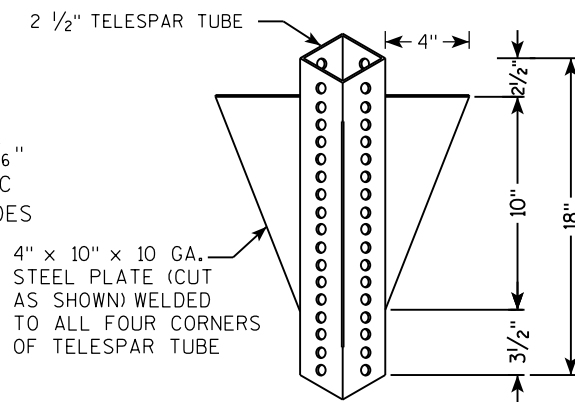
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

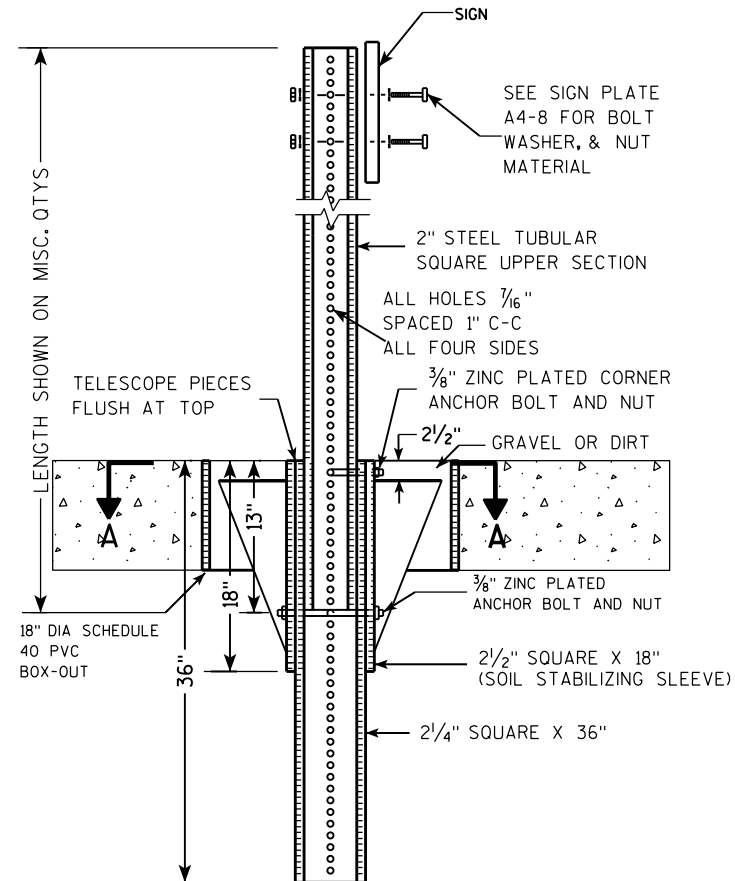
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



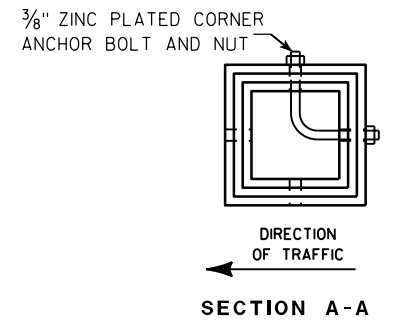
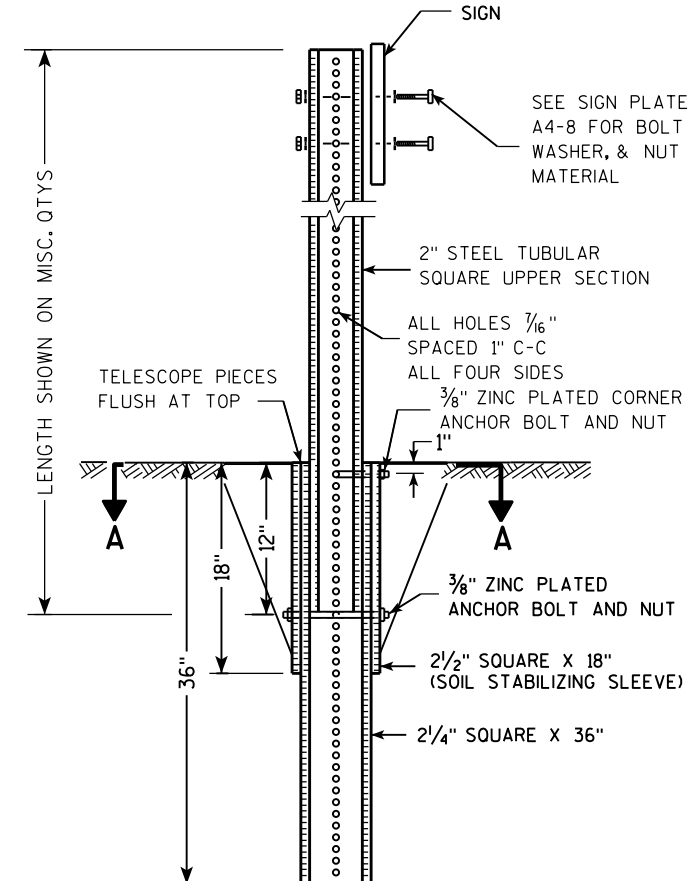
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



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



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



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

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

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

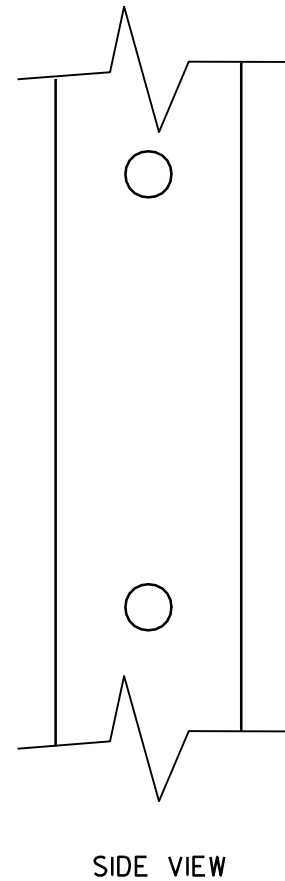
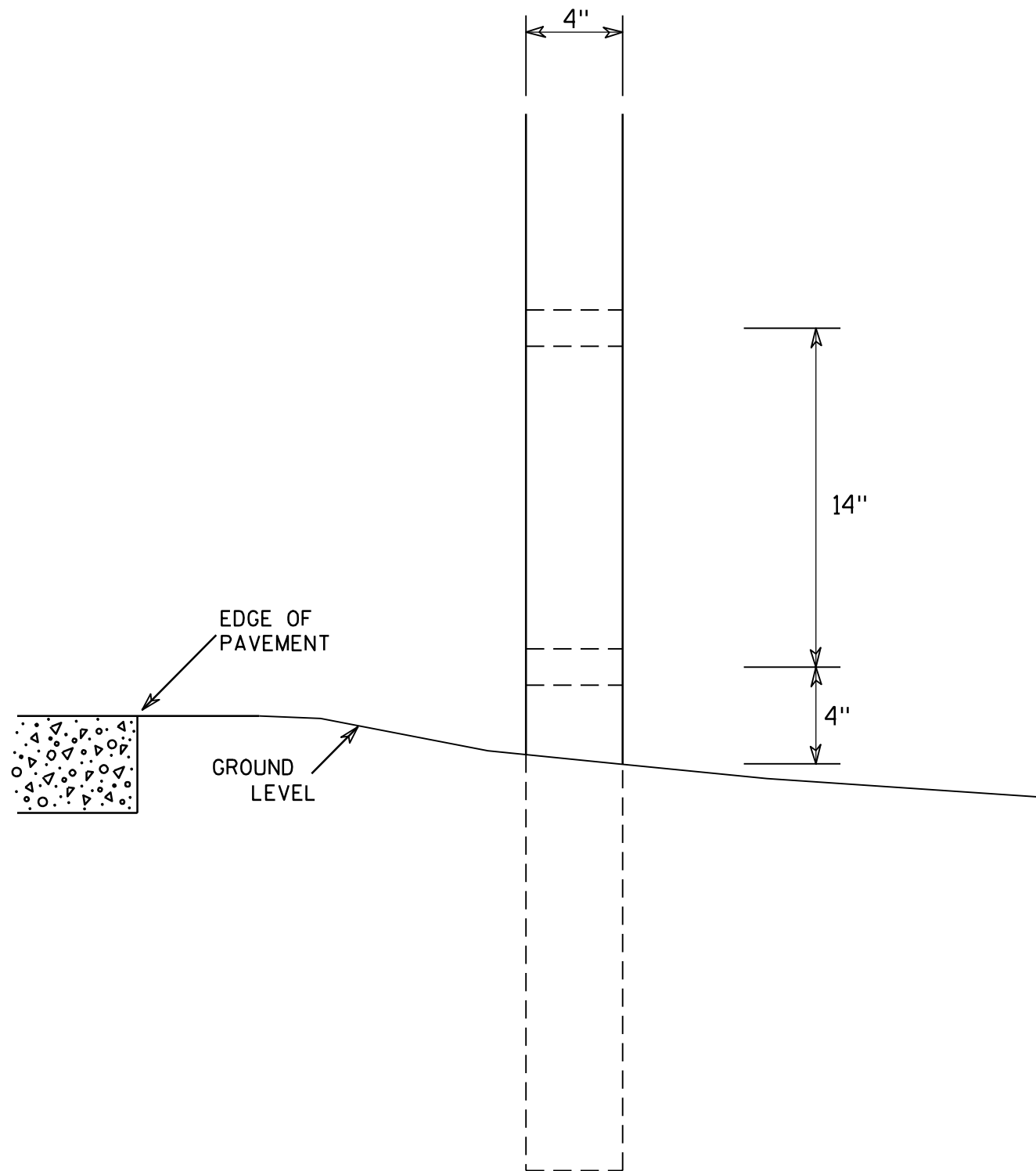
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



GENERAL NOTES

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

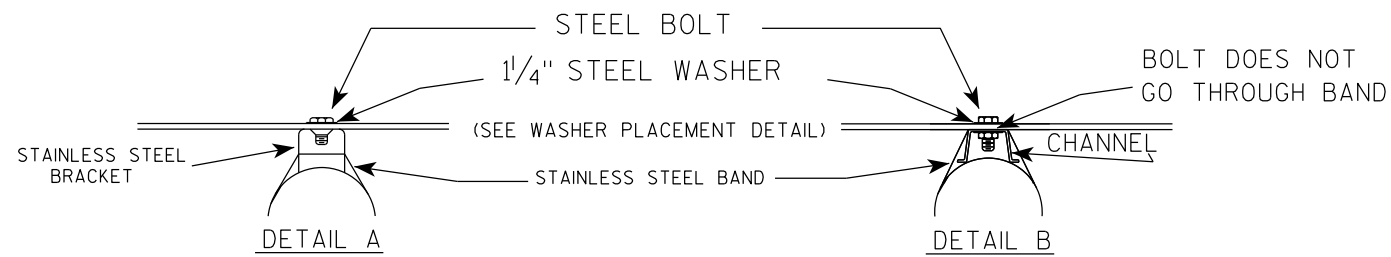
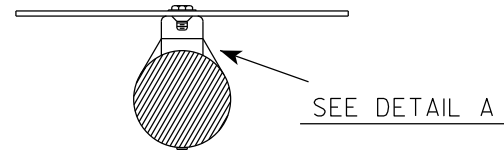
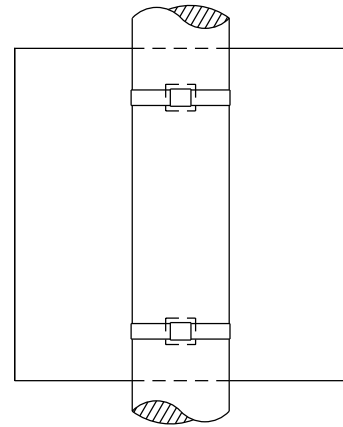
7

7

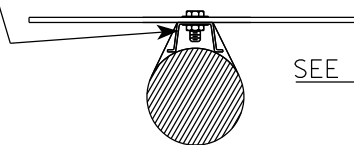
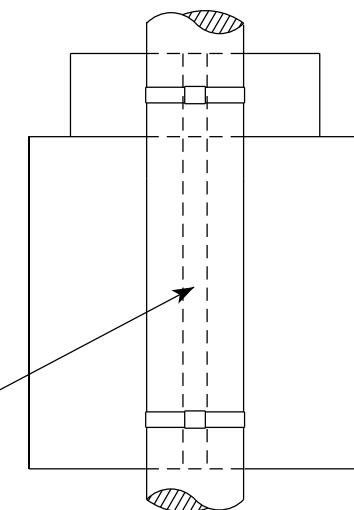
4 X 6 WOOD POST MODIFICATIONS	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>

BANDING

SINGLE SIGN

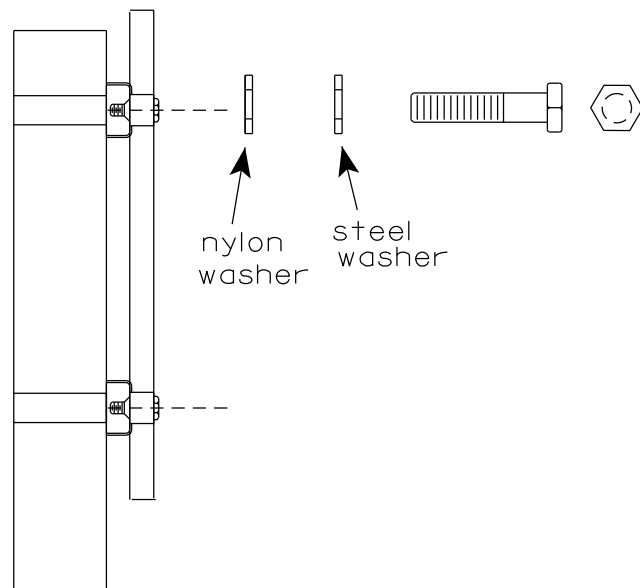


"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

WASHER PLACEMENT



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

GENERAL NOTES

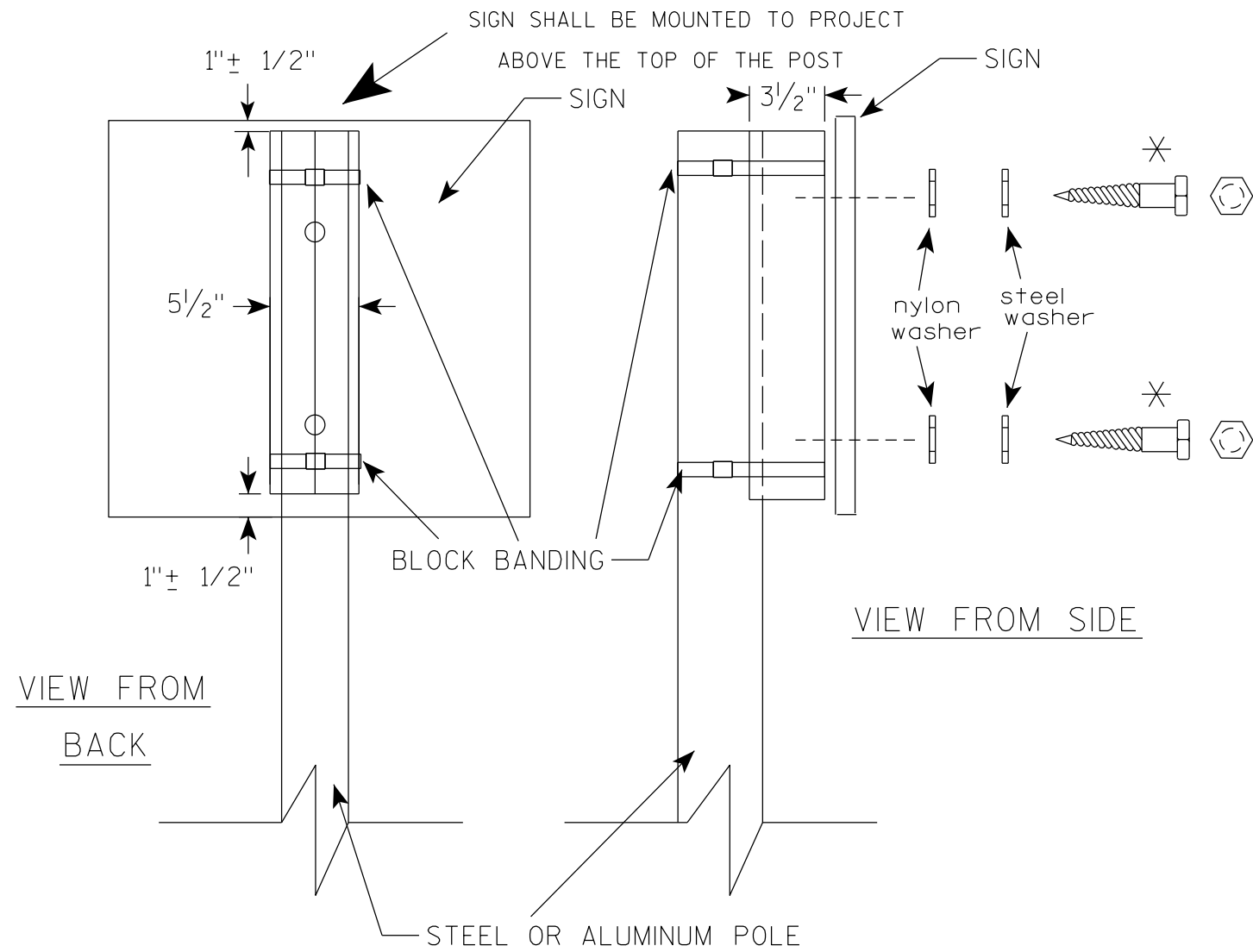
1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

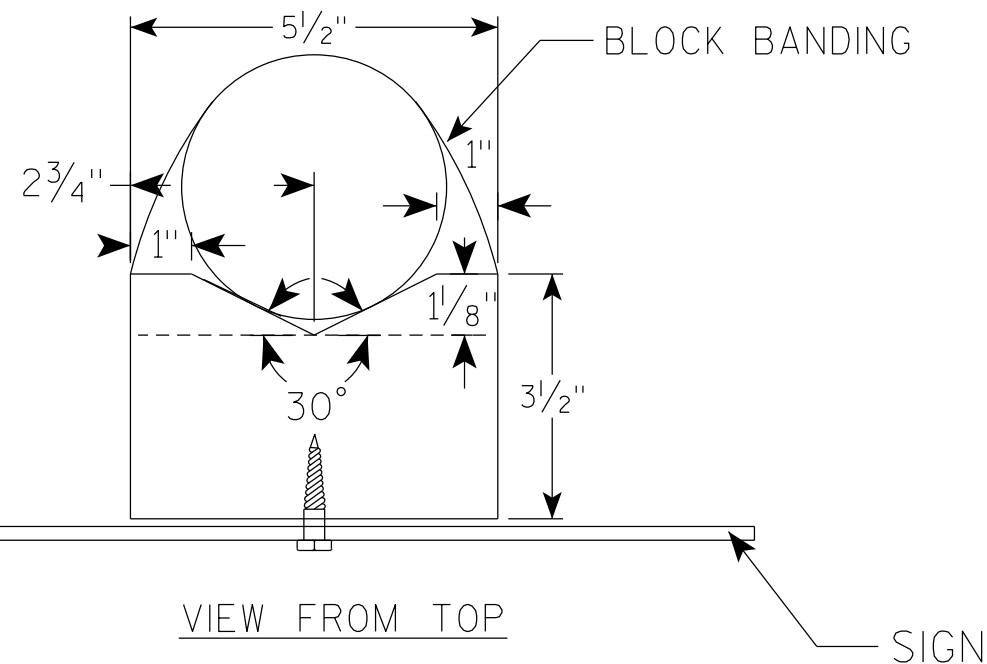
DATE 6/10/19 PLATE NO. A5-9.4



GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, 3/4" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1/4" O.D. X 3/8" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1/4" O.D. X 3/8" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"



BLOCK BANDING DETAIL
(V-BLOCK OPTION)

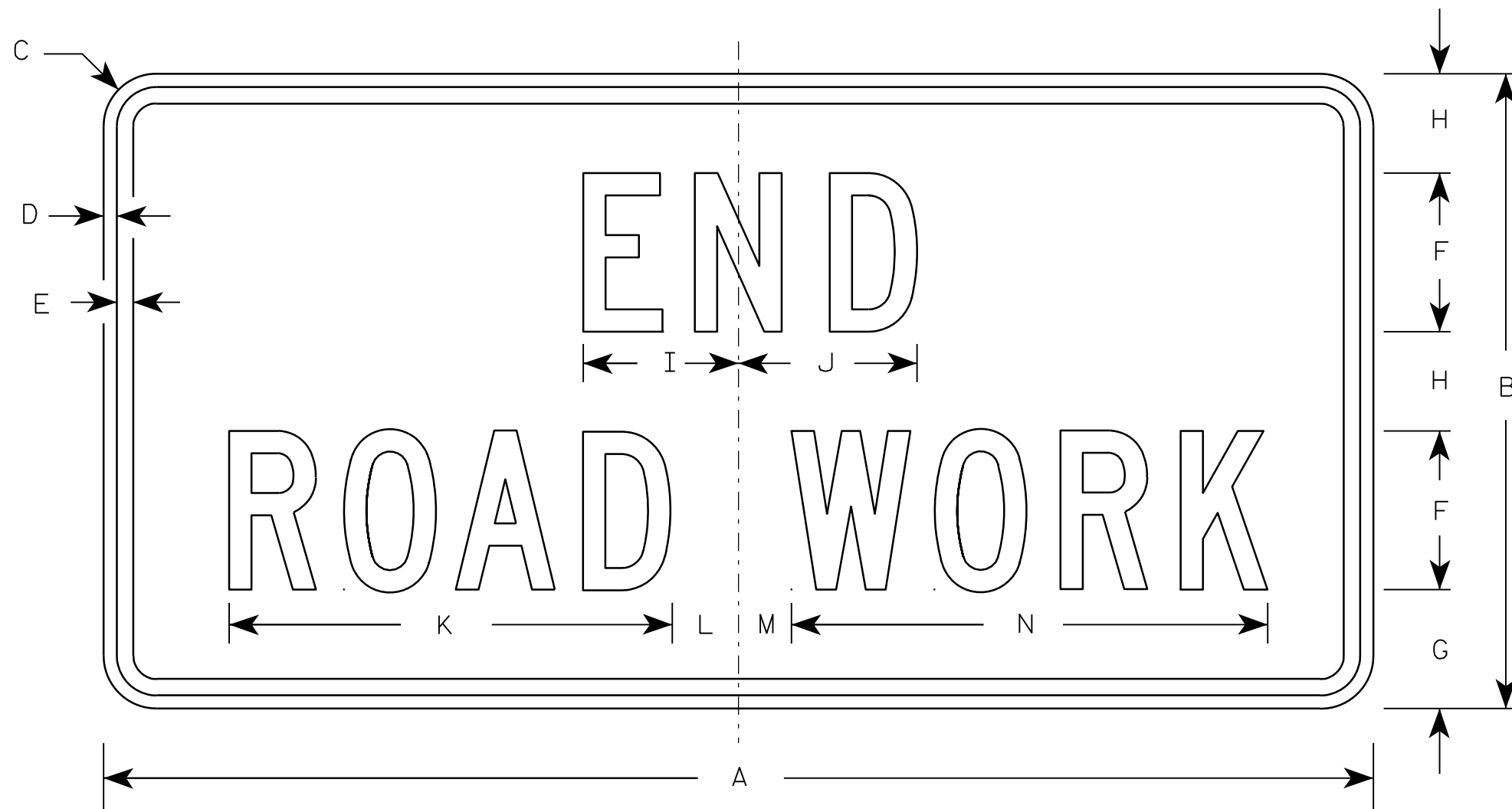
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
for State Traffic Engineer

DATE 4/19/2022 PLATE NO. A5-10.3

NOTES

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



G20-2A

7

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Metric equivalent for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

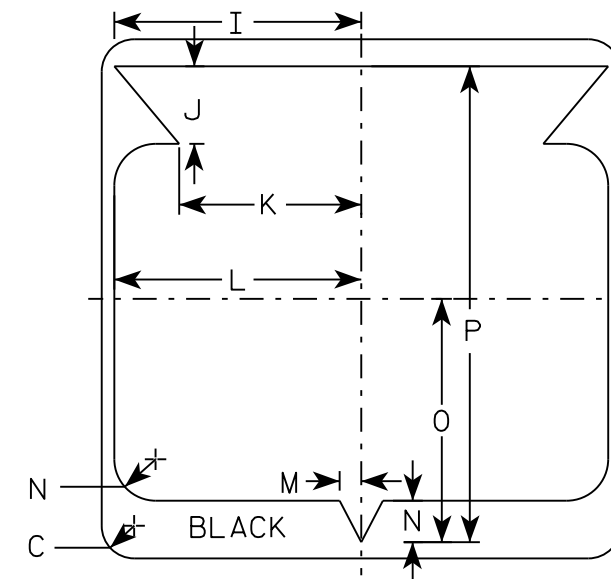
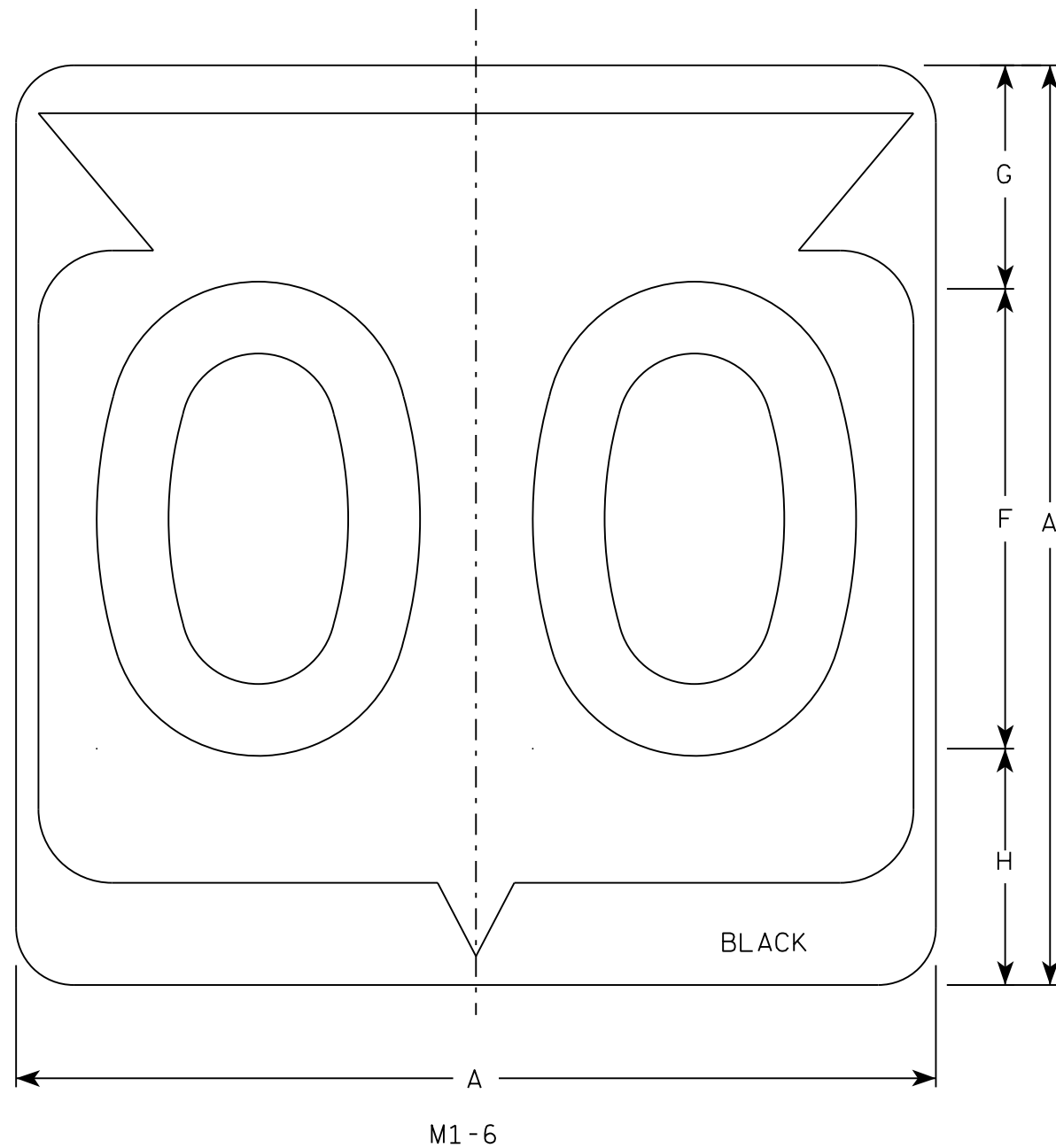
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq. m.
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

STANDARD SIGN G20-2A	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 9/30/09	PLATE NO. G20-2A.8

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - D except 3 number signs Series C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0

STATE ROUTE MARKER
M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/16/18 PLATE NO. M1-6.10

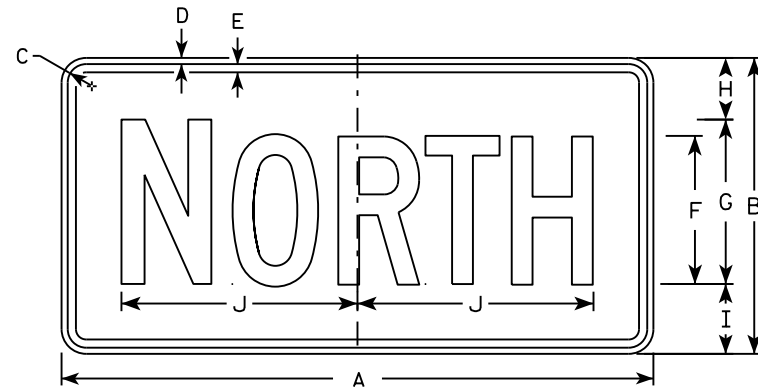
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ **E**

7

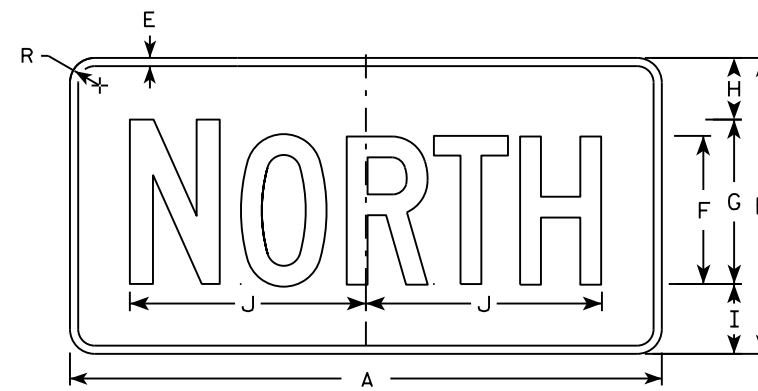
7

NOTES

- All Signs Type II - Type H
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 Background - White
 Message - Black
 MB3-1 thru MB3-4 Background - Blue
 Message - White
 MK3-1 thru MK3-4 Background - Green
 Message - White
 MM3-1 thru MM3-4 Background - White
 Message - Green
 MN3-1 thru MN3-4 Background - Brown
 Message - White
 MP3-1 thru MP3-4 Background - White
 Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.



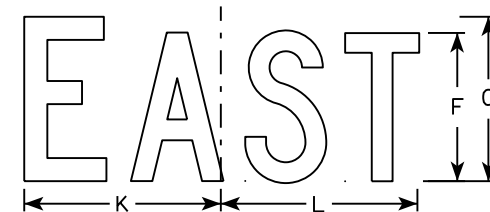
M3-1
MM3-1
MP3-1



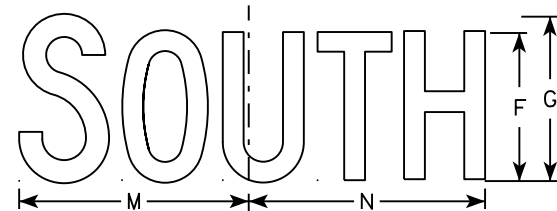
MB3-1
MK3-1
MN3-1



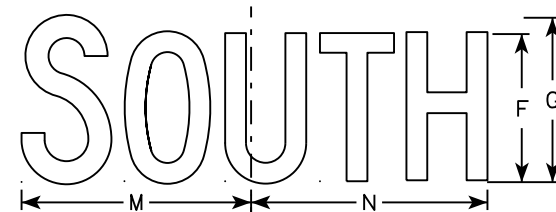
M3-2
MM3-2
MP3-2



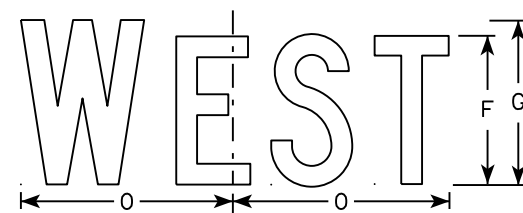
MB3-2
MK3-2
MN3-2



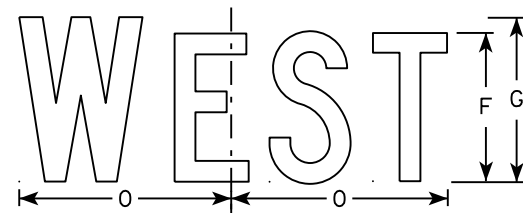
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thru M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M3-1.14

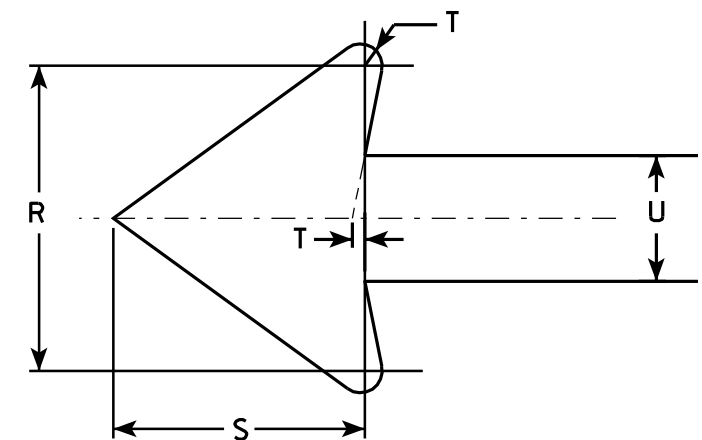


R7-5

* - See Note 5

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Green
3. Message Series - See Note 7
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals as required & adjust spacing to achieve proper balance.
6. R7-5D (double arrow)
R7-5L (left arrow)
R7-5R (right arrow)
7. Lines 1, 2 & 3 are series C Copy
Line 4 Series B Copy.



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	12	18	1 1/8	3/8	3/8	2	2	2 1/4	1 1/4	4	2 1/2	2 1/8	2	2 7/8	4 5/8	4 1/2	3 7/8	1 3/4	1 1/2	1/8	3/4					1.5	
2S	18	24	1 1/8	3/8	1/2	3	3	2 5/8	1 1/4	5 5/8	3 1/4	3 1/8	3 1/8	4 1/4	6 7/8	6 3/4	5 7/8	2 5/8	2 1/4	1/4	1 1/8					3.0	
2M	24	30	1 1/8	3/8	1/2	4	3	3	2	6	3 1/2	4 1/4	4 1/8	5 3/4	9 1/8	9 1/8	7 3/4	3 1/2	3	1/4	1 1/2					5.0	
3	24	30	1 1/8	3/8	1/2	4	3	3	2	6	3 1/2	4 1/4	4 1/8	5 3/4	9 1/8	9 1/8	7 3/4	3 1/2	3	1/4	1 1/2					5.0	
4																											
5																											

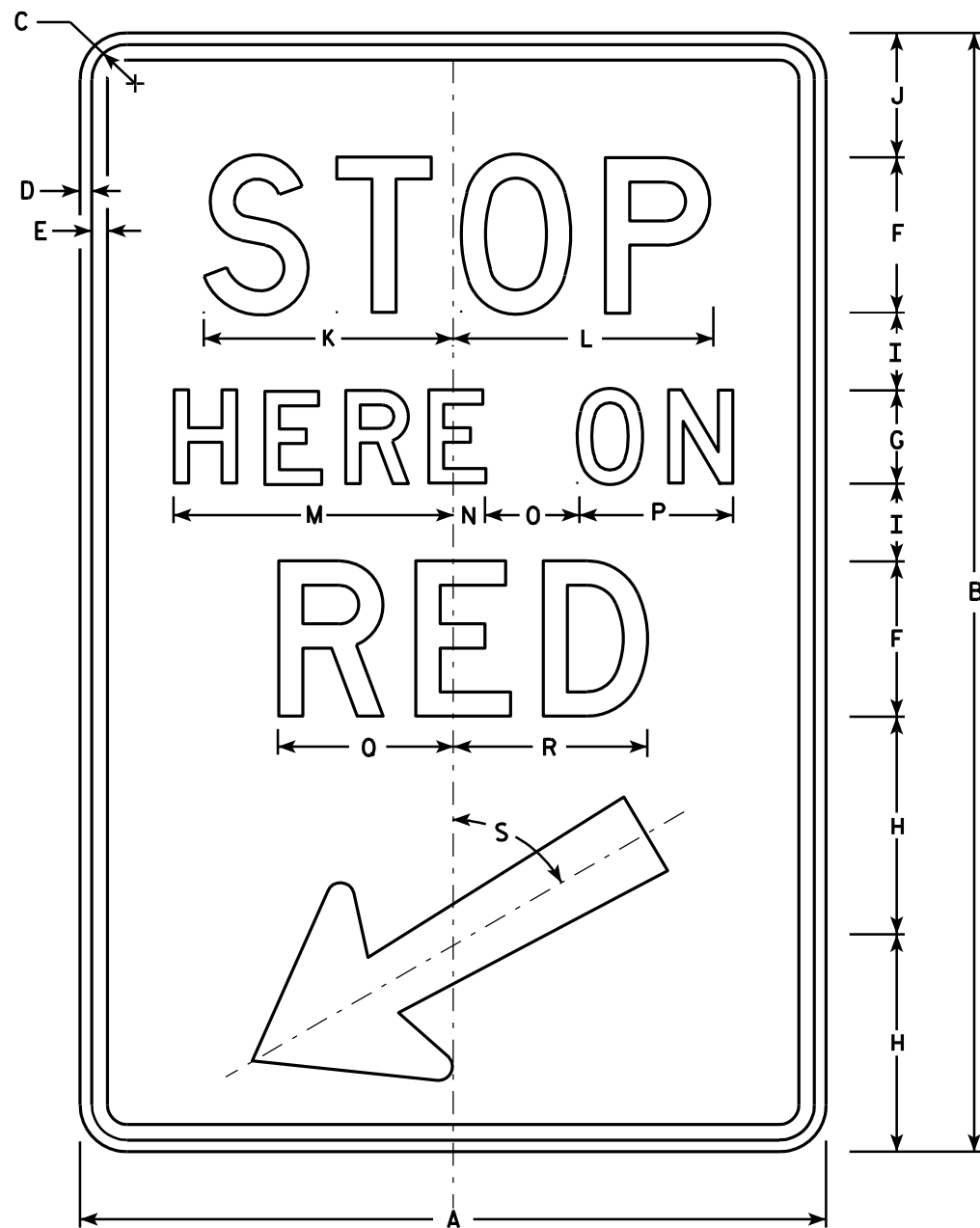
STANDARD SIGN
R7-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Raub*
for State Traffic Engineer

DATE 03/31/2011 PLATE NO. R7-5.8

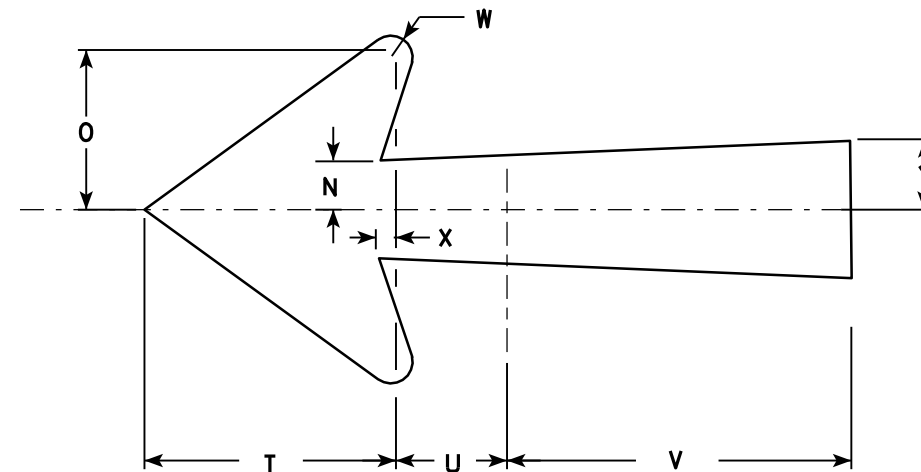
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



R10-6

NOTES

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



Arrow Detail

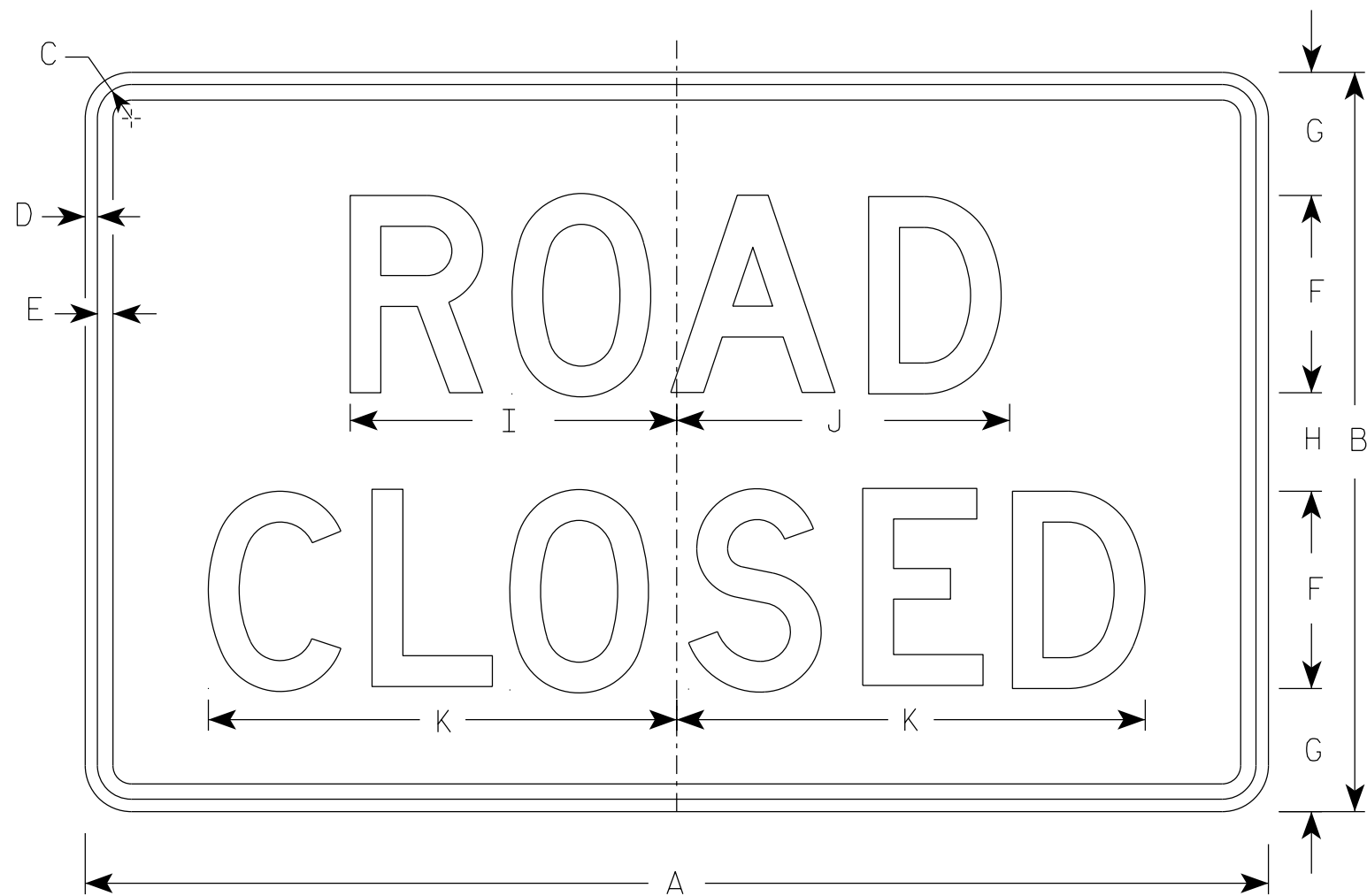
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	36	1 1/8	3/8	1/2	5	3	7	2 1/2	4	8	8 3/8	9	1	3	5	5 5/8	6 1/4	60°	5 1/4	2 1/4	7 1/8	1/2	3/8	1 3/8	6.0	
2M	24	36	1 1/8	3/8	1/2	5	3	7	2 1/2	4	8	8 3/8	9	1	3	5	5 5/8	6 1/4	60°	5 1/4	2 1/4	7 1/8	1/2	3/8	1 3/8	6.0	
3																											
4																											
5																											

STANDARD SIGN
R10-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

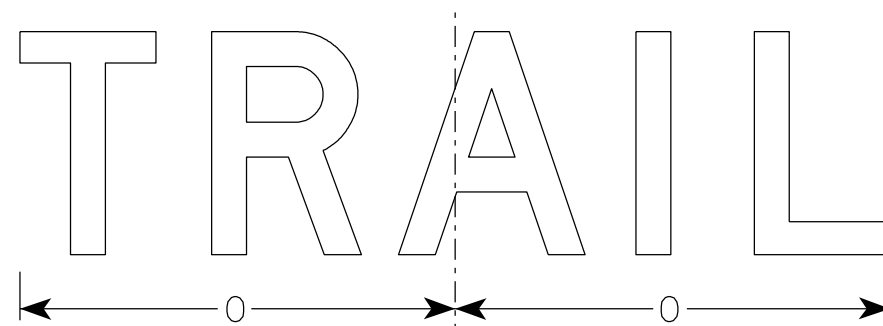
DATE 4/5/11 PLATE NO. R10-6.6



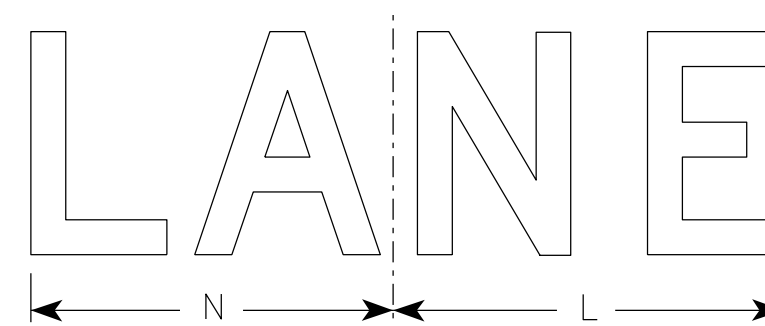
R11-2



R11-2R



R11-2T



R11-2L

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0

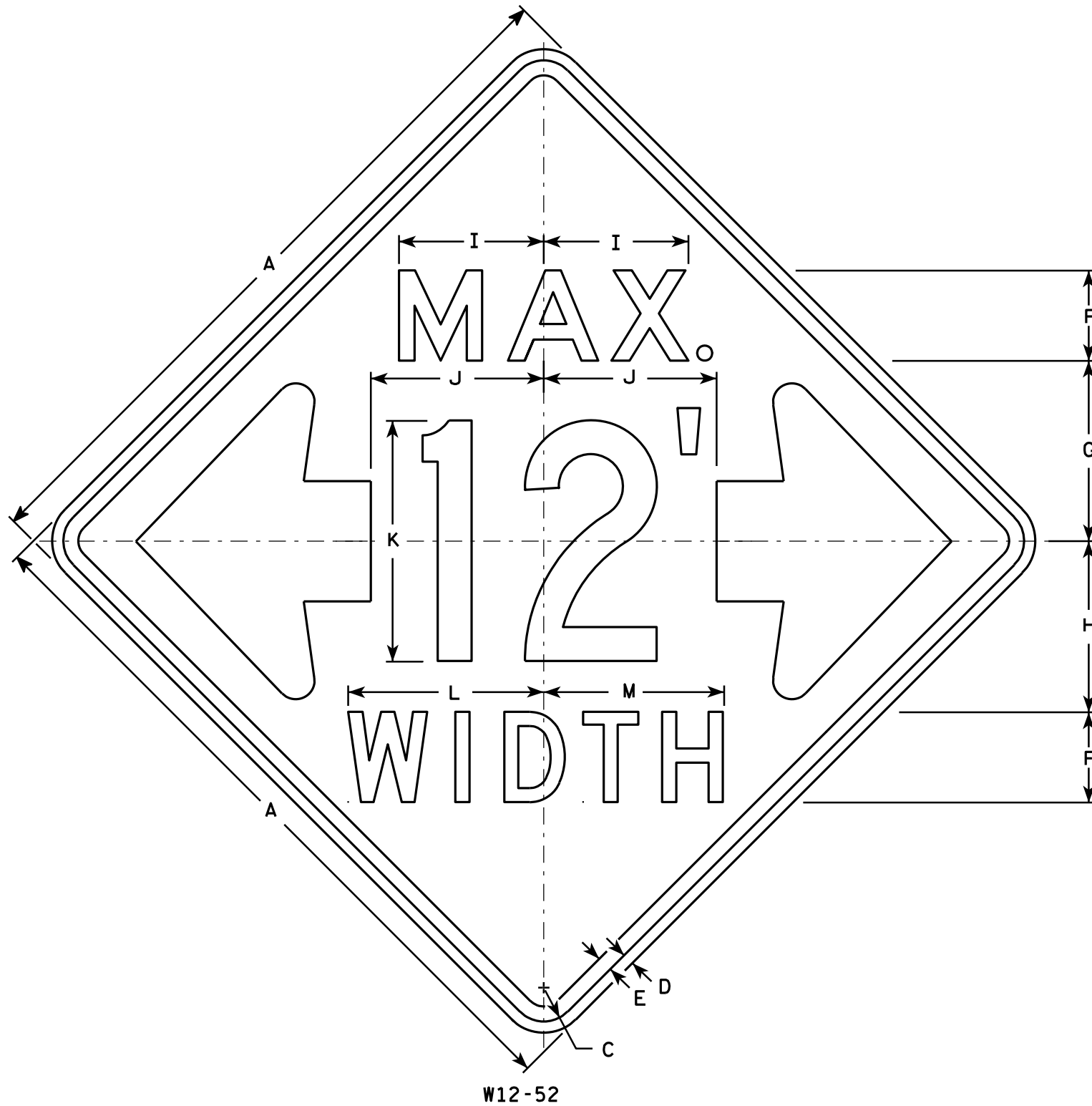
STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
For State Traffic Engineer

DATE 3/29/2021 PLATE NO. R11-2.11

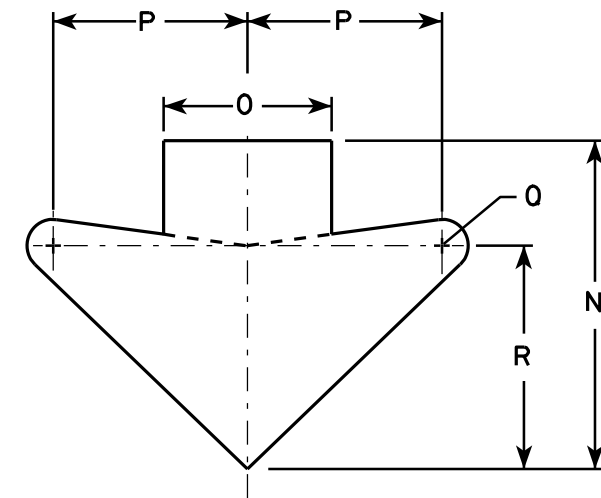
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



W12-52

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. The top line is series E, the numerals are series C, and the bottom line is series D.
6. Substitute appropriate numerals and adjust spacing as required.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8								16.0	
2M	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8								16.0	
3																											
4																											
5																											

STANDARD SIGN
W12-52

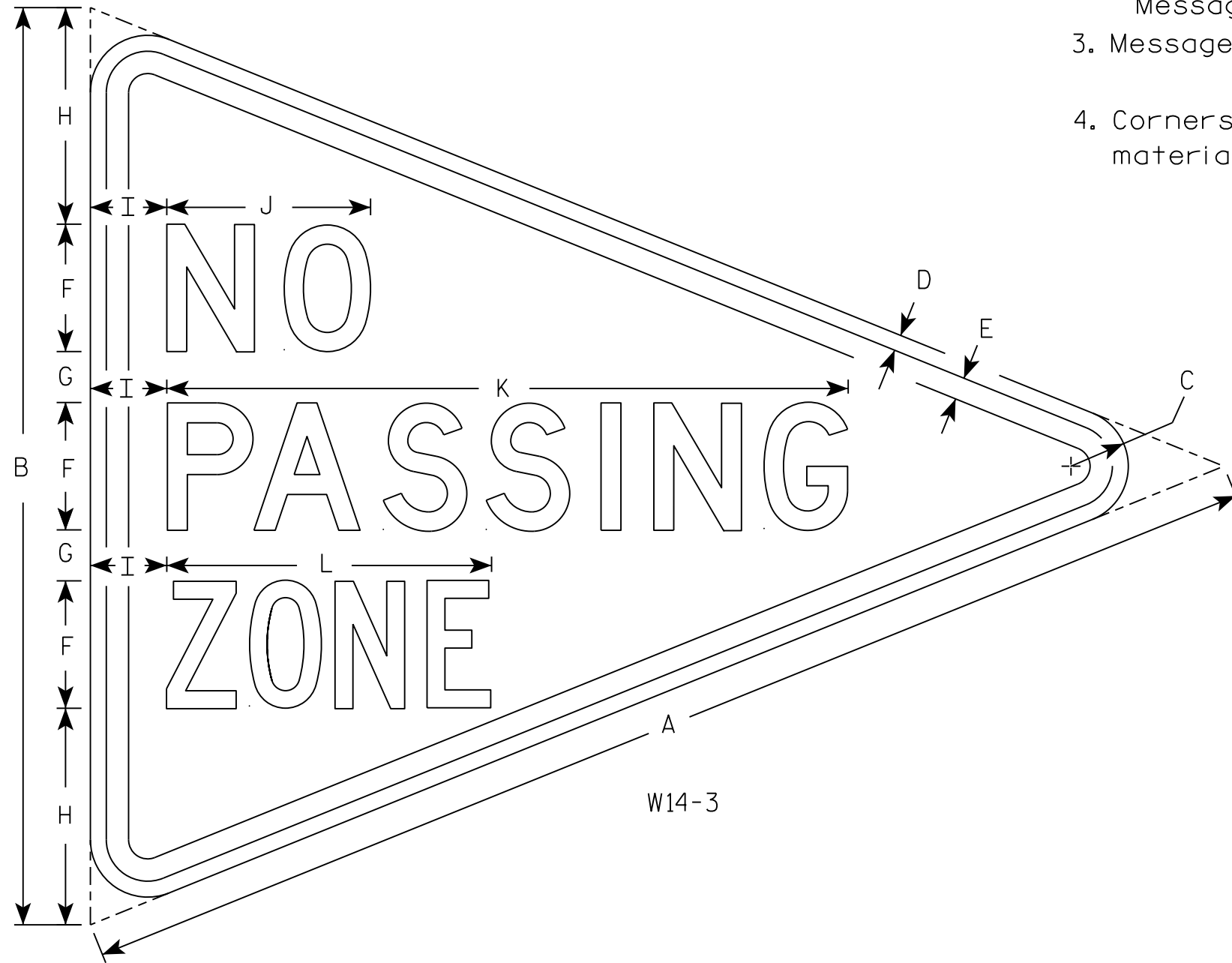
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/16/11 PLATE NO. W12-52.7

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black
3. Message Series - Lines 1 and 2 are Series D.
Line 3 is series C.
4. Corners and borders shall be rounded on all base materials for this sign.



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															5.56
2M																											
3																											
4																											
5																											

STANDARD SIGN
W14-3

WISCONSIN DEPT OF TRANSPORTATION

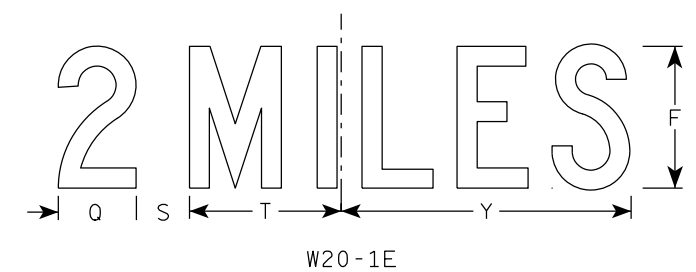
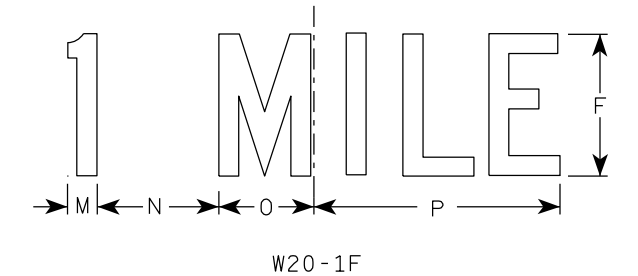
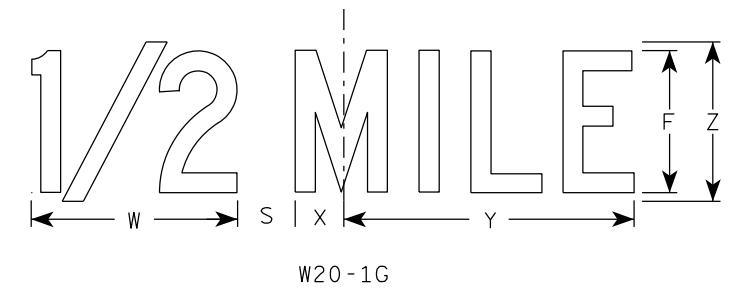
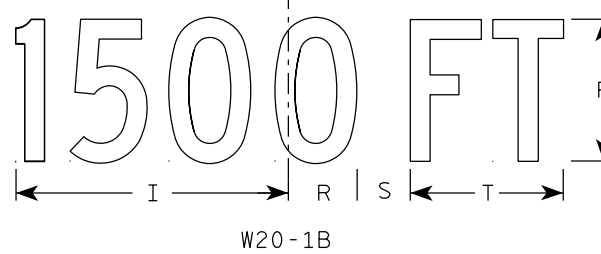
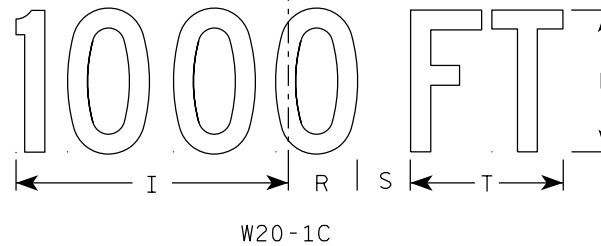
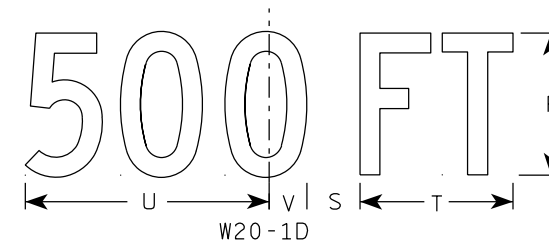
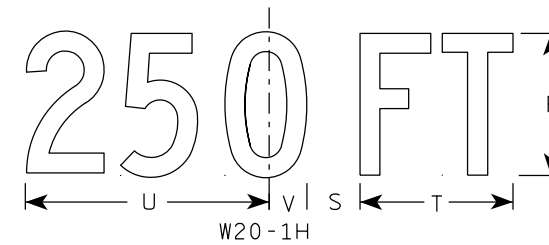
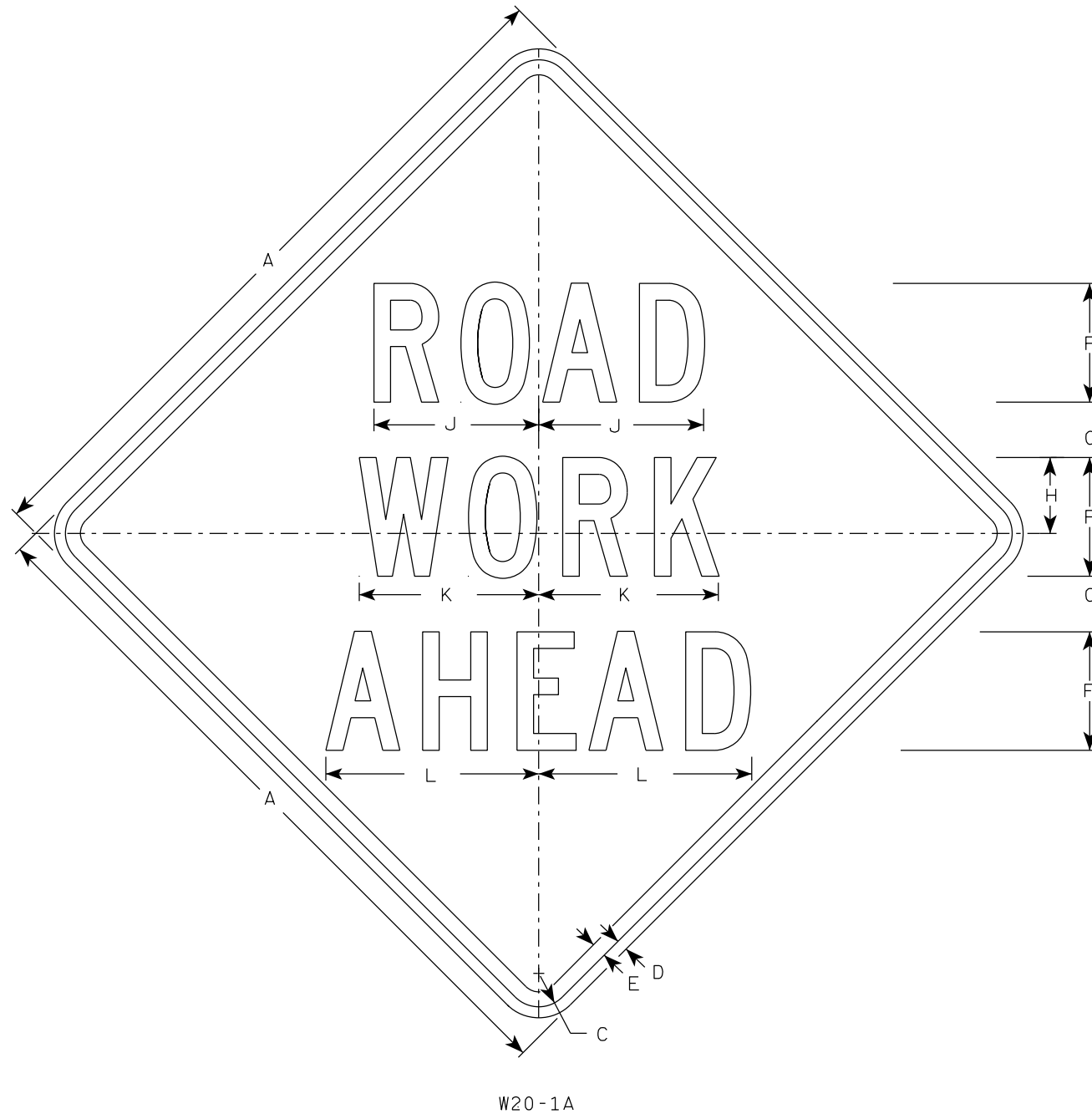
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/21/17 PLATE NO. W14-3.10

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



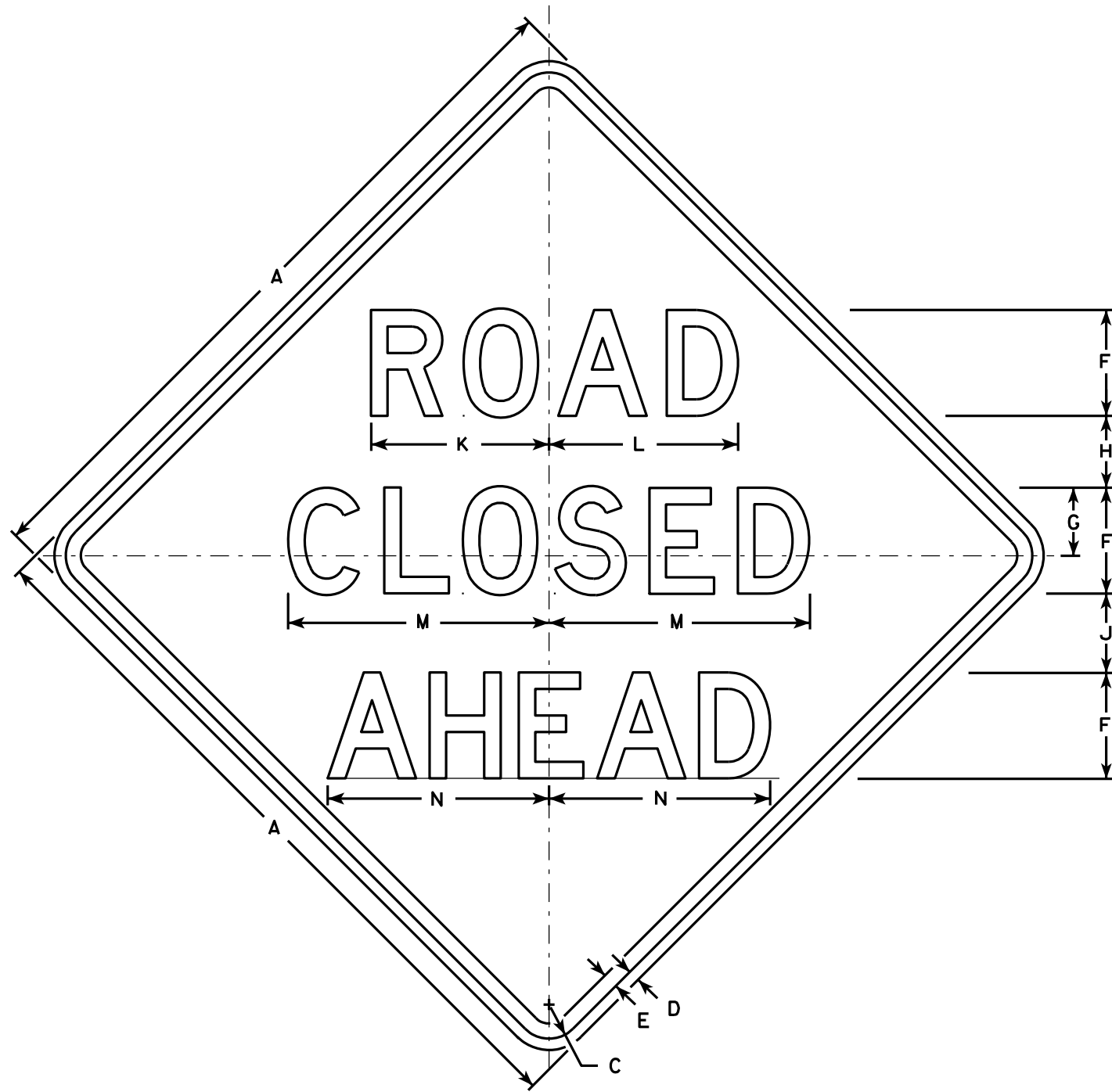
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, E, F, G & H

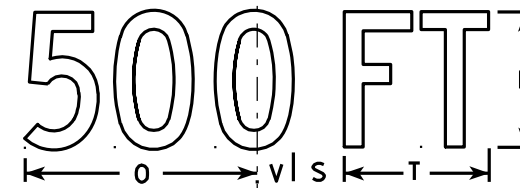
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

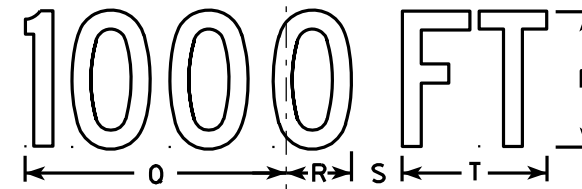
DATE 3/25/2020 PLATE NO. W20-1.11



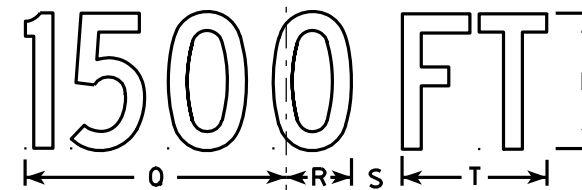
W20-3A



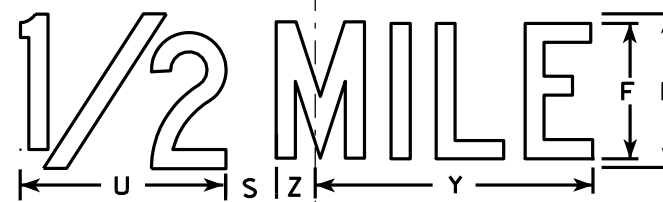
W20-3D



W20-3C



W20-3B



W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

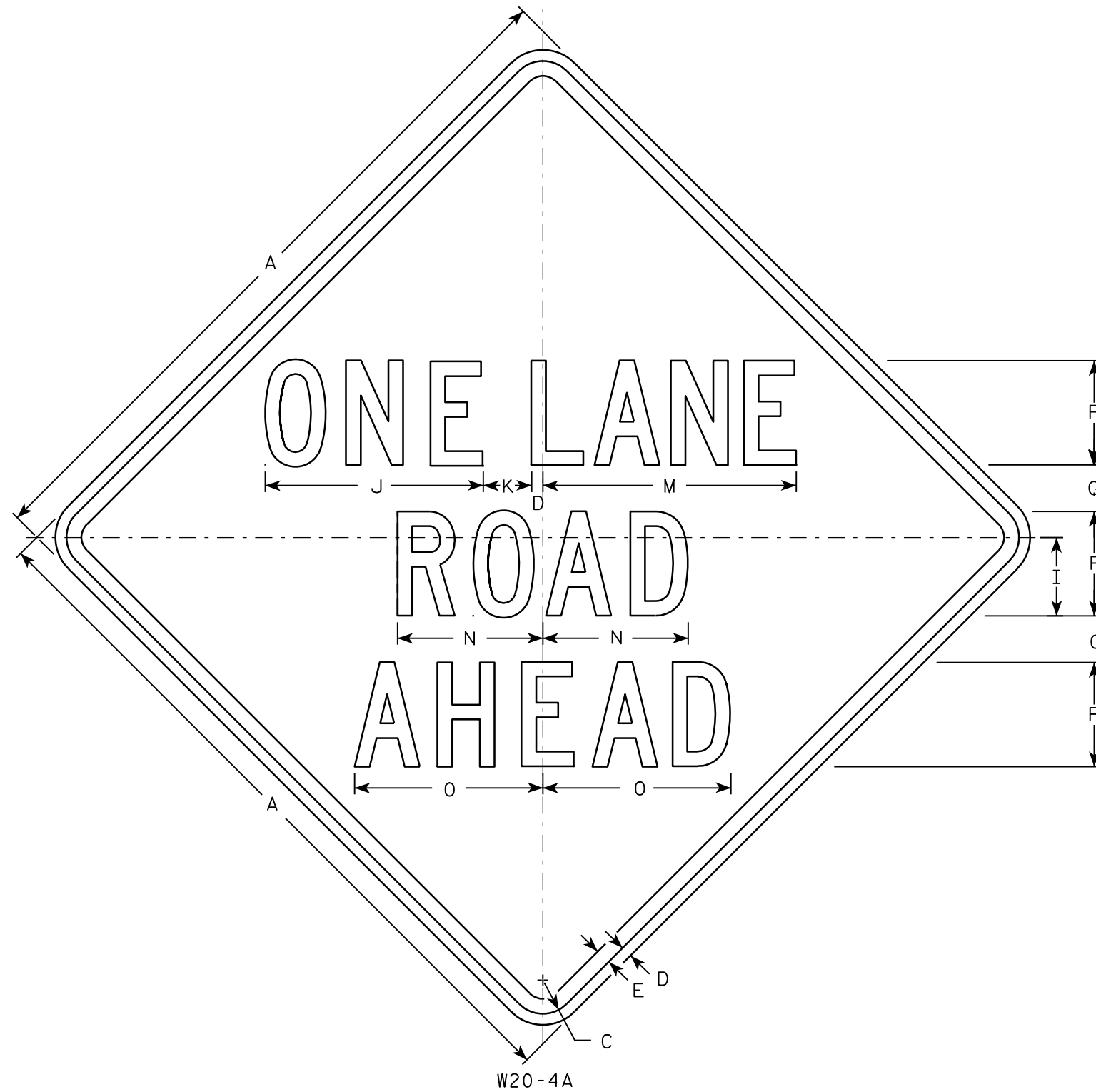
STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

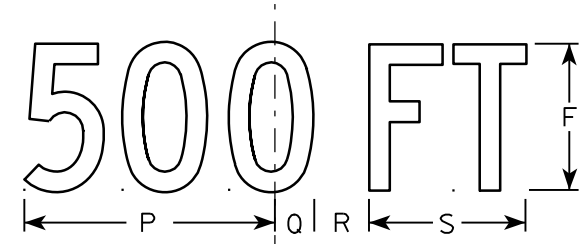
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-3.7

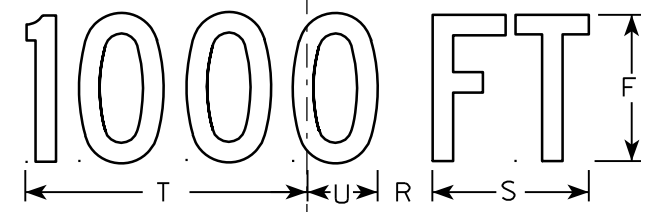
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



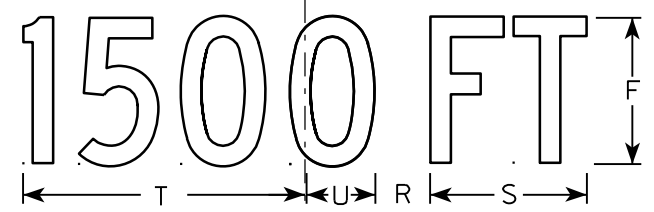
W20-4A



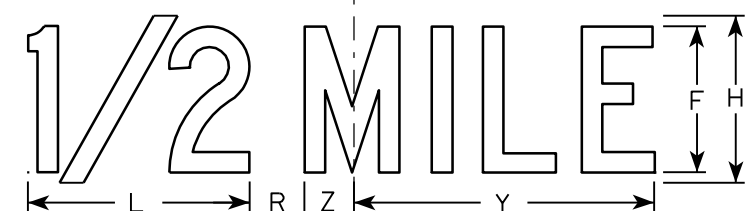
W20-4D



W20-4C



W20-4B



W20-4G



W20-4F

NOTES

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

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 3/8	6	3 3/4	10 3/8	2 3/8	8	13 1/2	7	8 7/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-4A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

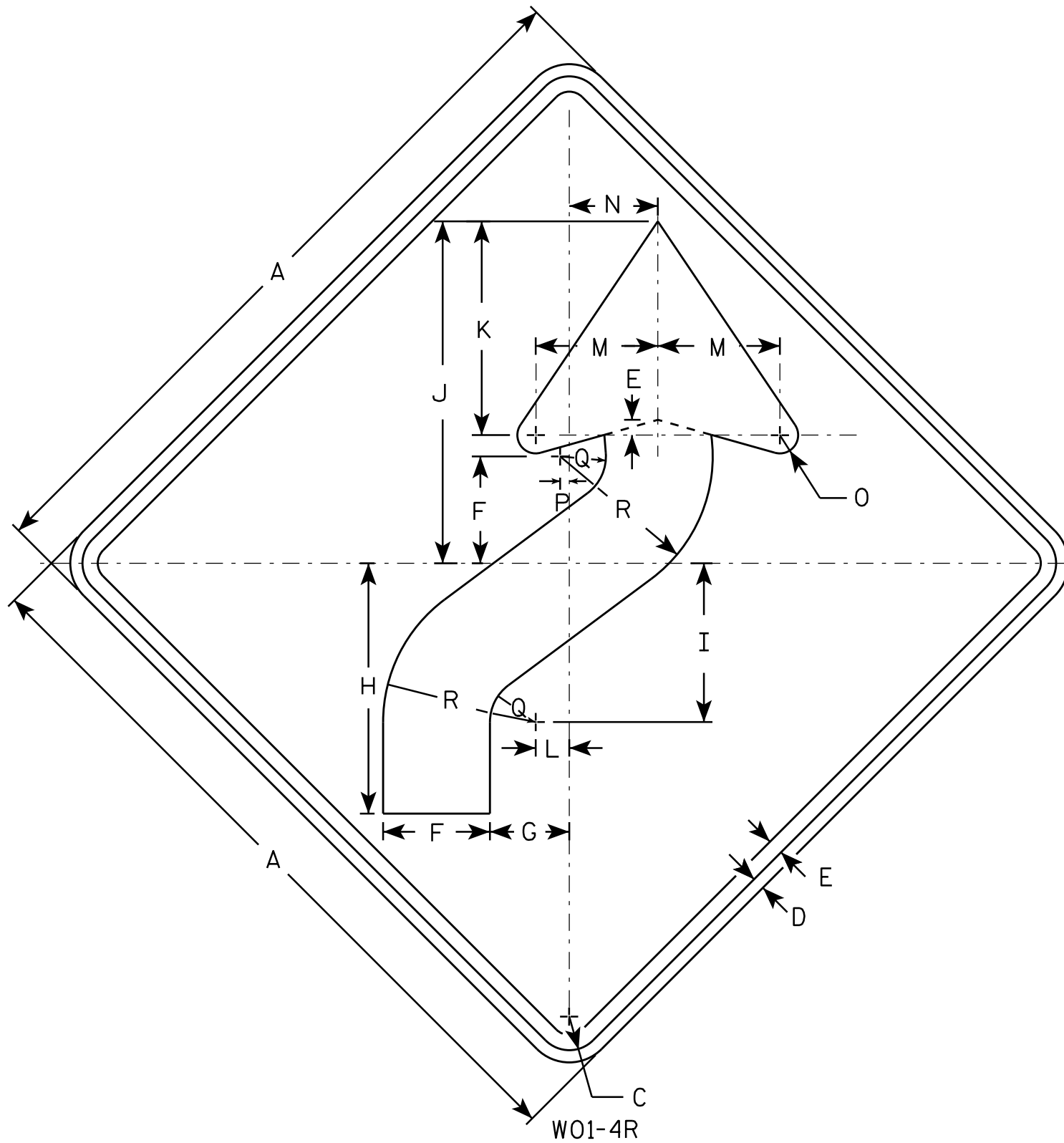
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-4.9

PROJECT NO:

SHEET NO:

E



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W01-4L is the same as W01-4R except the arrow is reversed along the vertical centerline.

7

7

W01-4R

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5 1/4	4	12 3/8	7 7/8	16 7/8	10 1/2	1 5/8	6	4 1/2	1	1/2	2 1/4	7 1/2									9.0
2S	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
2M	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
3	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
4	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
5	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0

STANDARD SIGN
W01-4

WISCONSIN DEPT OF TRANSPORTATION

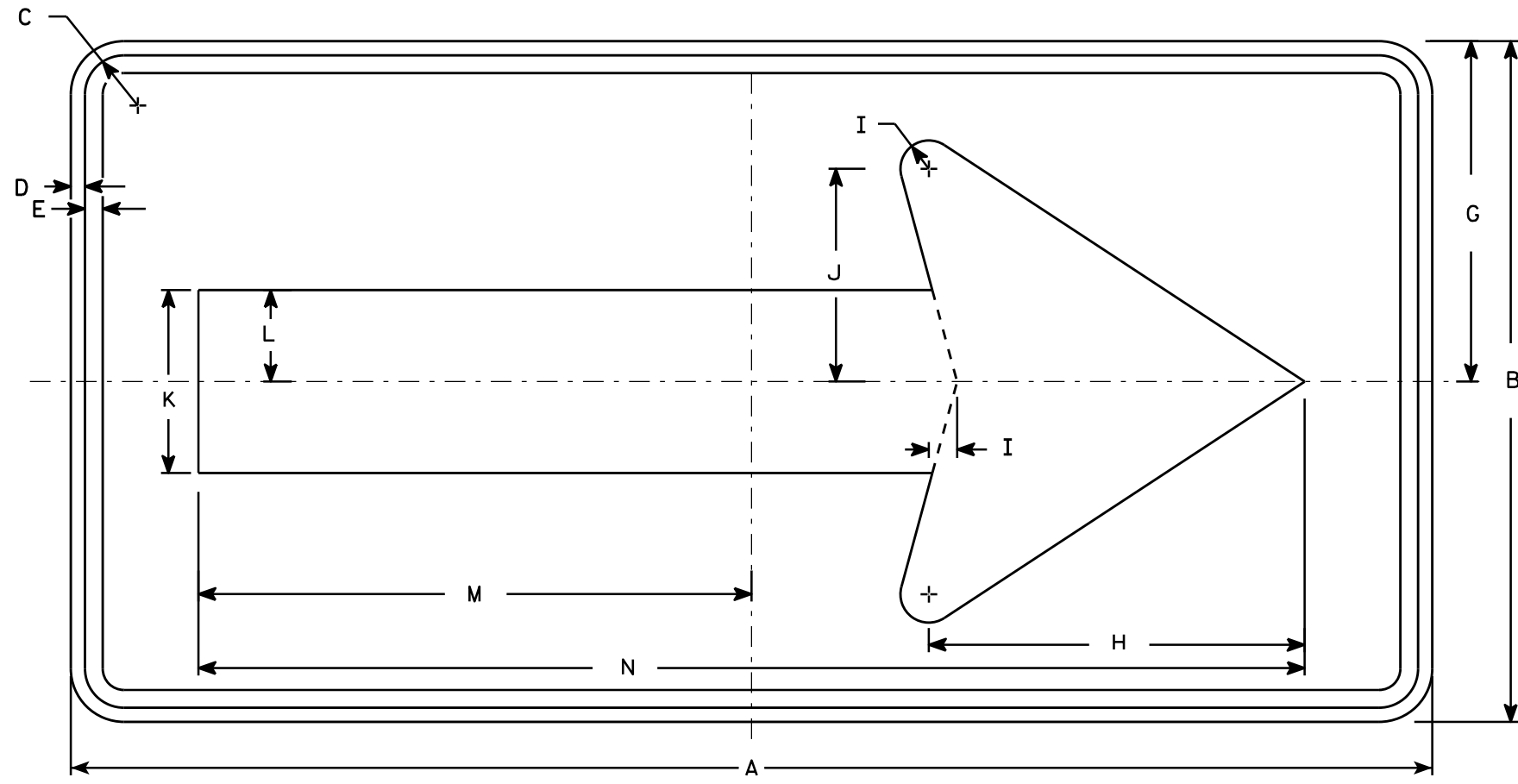
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/18/13 PLATE NO. W01-4.1

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

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



W01-6

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5

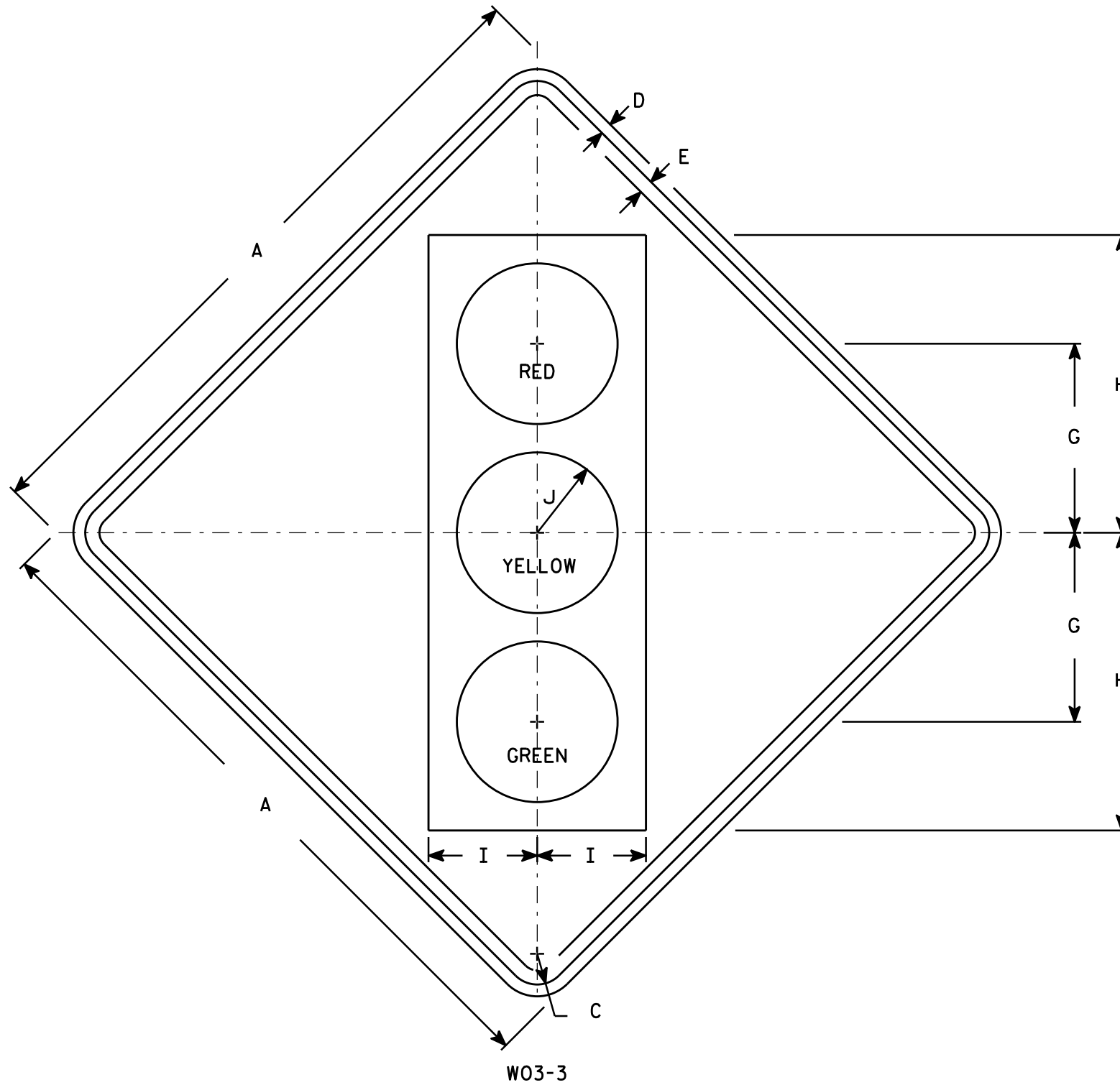
STANDARD SIGN
W01-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/18/13 PLATE NO. W01-6.1

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - See Note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Symbol and border are non-reflective black.
Top circle - Type H ReflectORIZED Red
Center circle - Same as background
Bottom circle - Type H ReflectORIZED Green

7

7

W03-3

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4		10	15 3/4	5 3/4	4 1/4																	9.0
2S	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0
2M	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0
3	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0
4	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0
5	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0

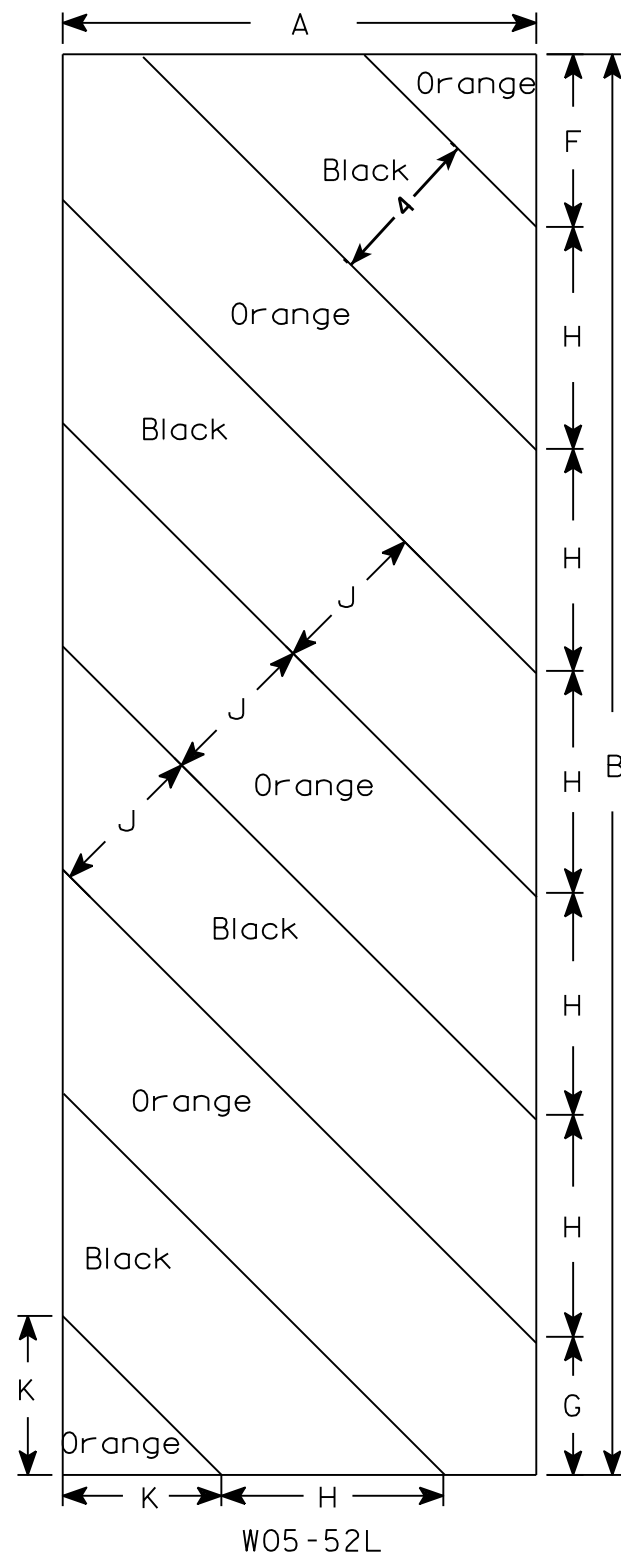
STANDARD SIGN
W03-3

WISCONSIN DEPT OF TRANSPORTATION

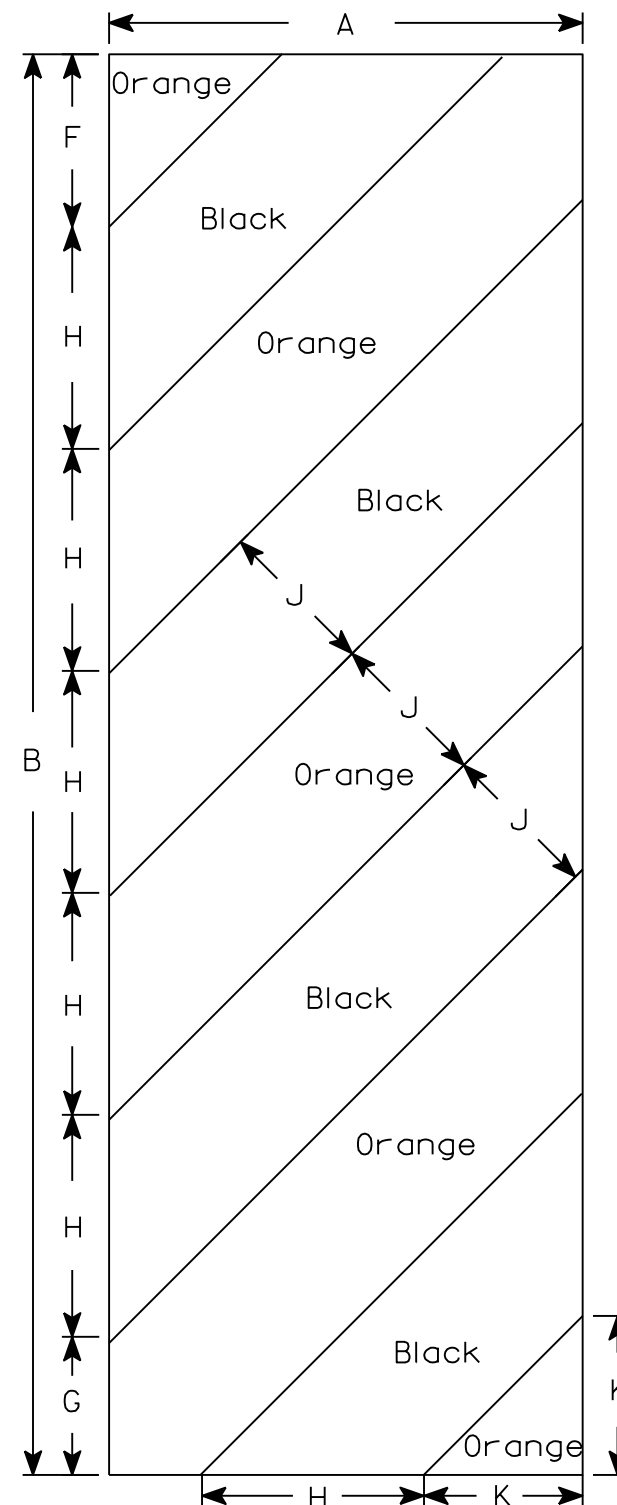
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/20/13 PLATE NO. W03-3.1

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



W05-52L



W05-52R

NOTES

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

7

7

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

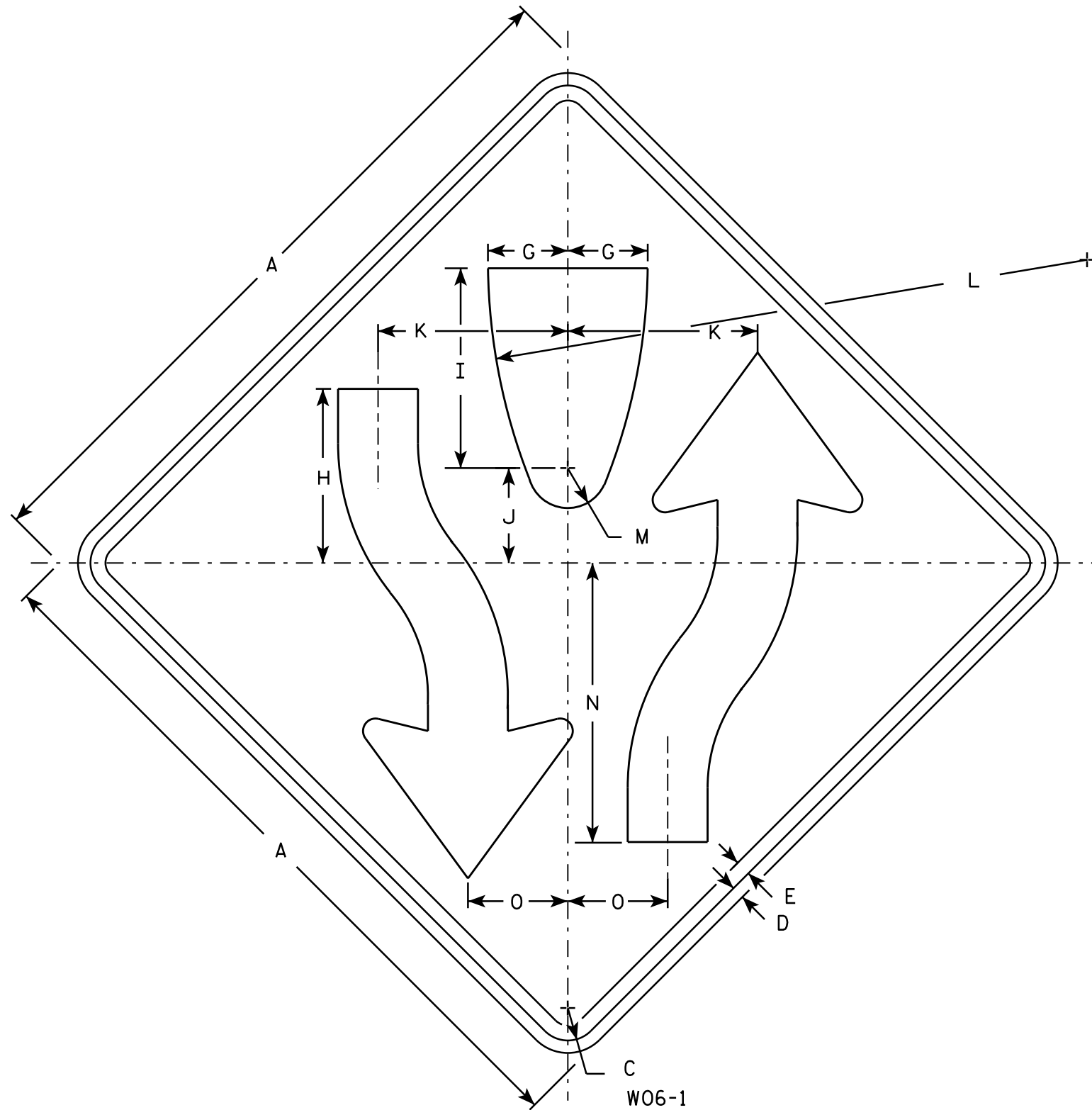
STANDARD SIGN
W05-52L & W05-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Raub*
for State Traffic Engineer

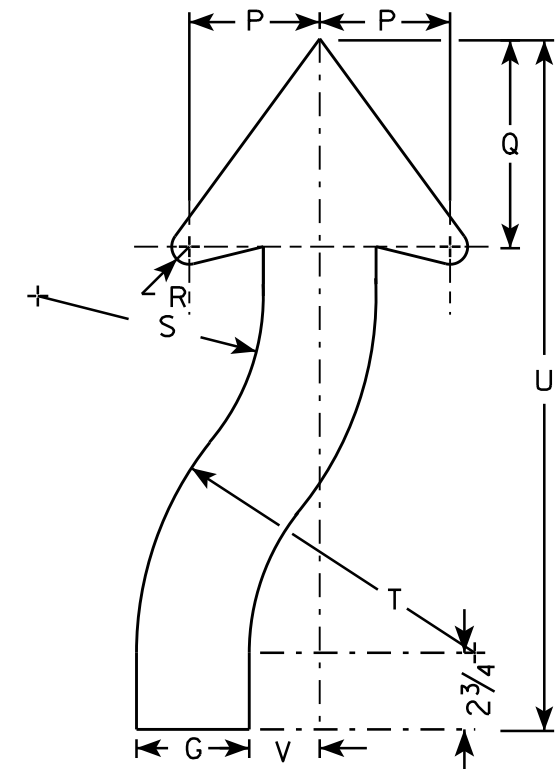
DATE 11/20/13 PLATE NO. W05-52.1

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W06-2 same as W06-1 but is rotated 180° when mounted.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4		4	8 3/4	10	4 3/4	9 1/2	30	2	14	5	4 5/8	7 3/8	7/8	8	12	24 1/2	2 1/2					9.0
2S	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0
2M	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0
3	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0
4	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0
5	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0

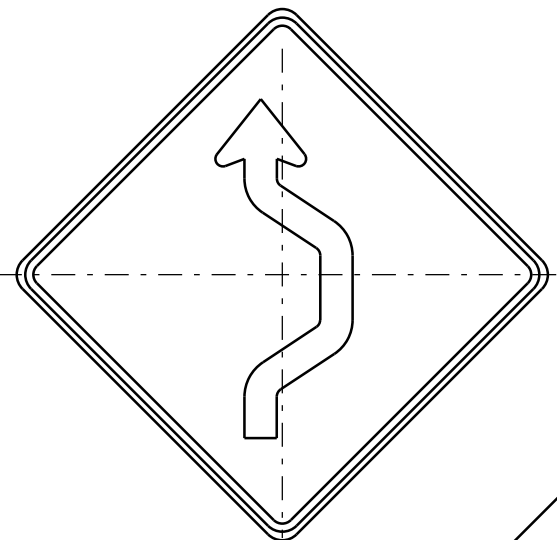
STANDARD SIGN
W06-1 & W06-2

WISCONSIN DEPT OF TRANSPORTATION

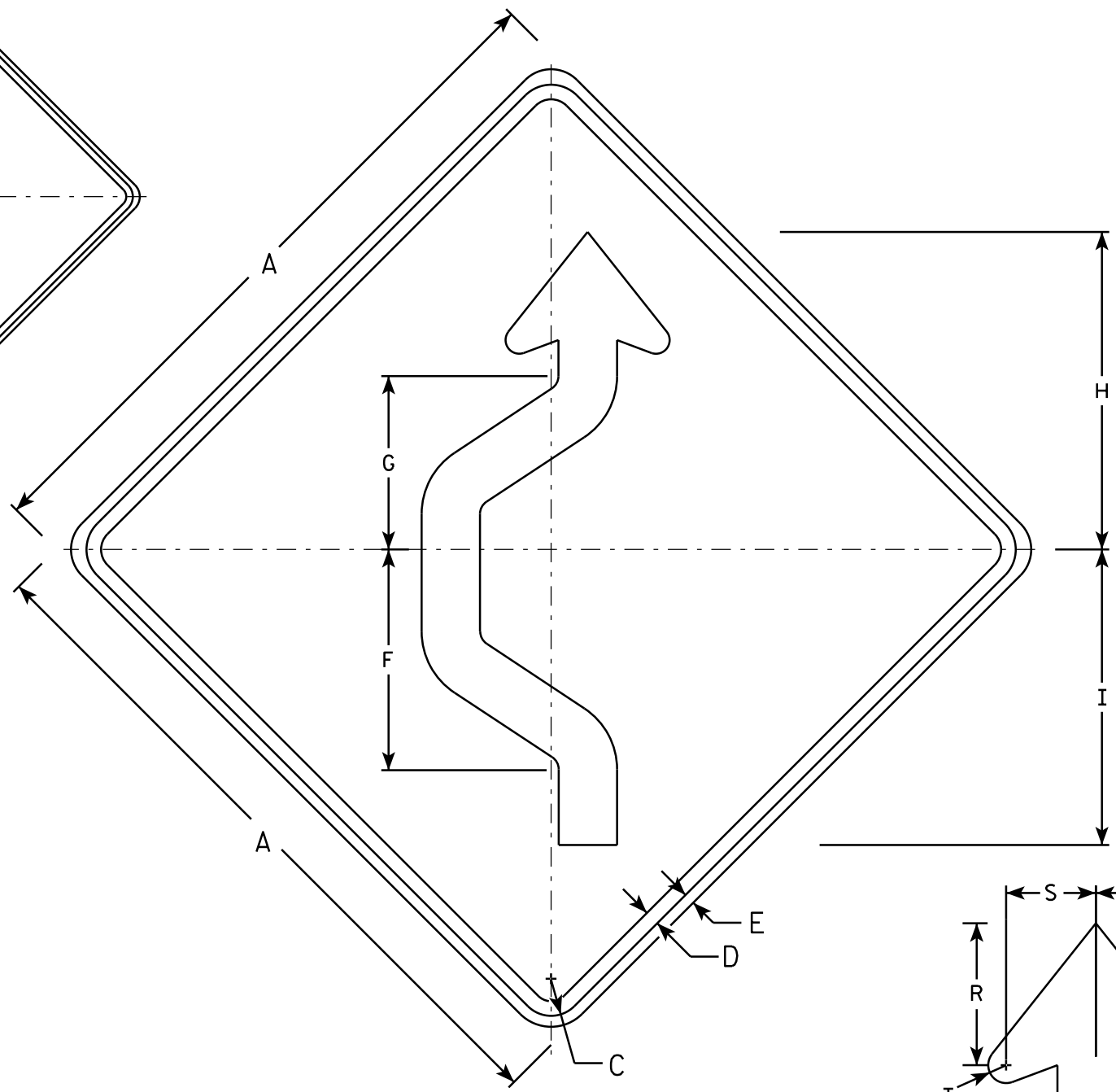
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/20/13 PLATE NO. W06-1.1

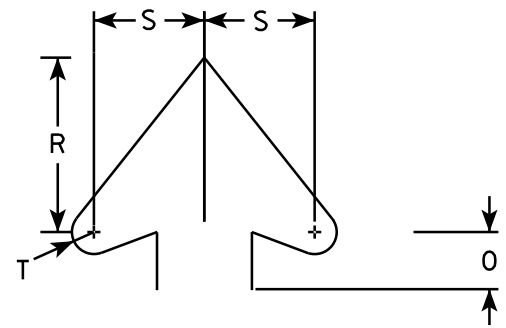
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



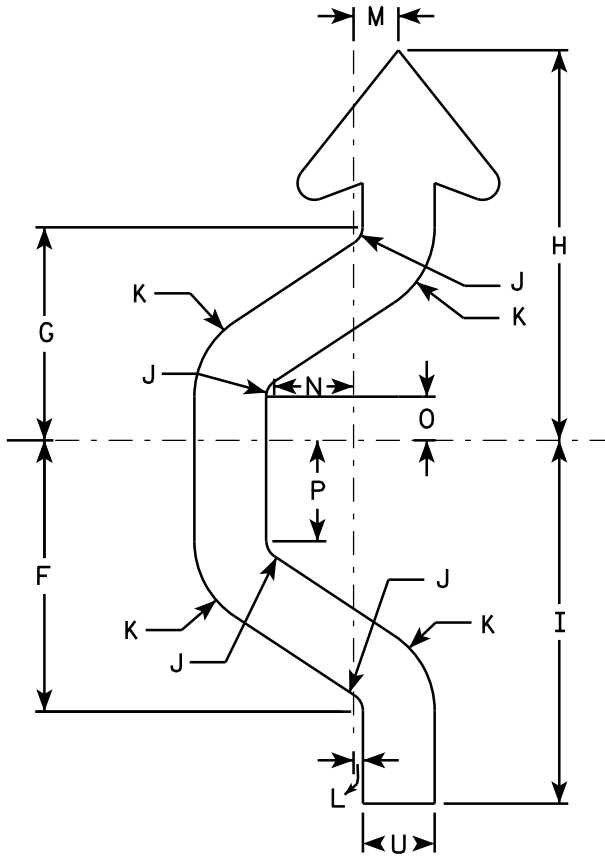
W024-1R



W024-1L



Arrowhead Detail



Arrow Detail

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W024-1R is the same as W024-1L except reversed along the vertical centerline.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	5/8	1/2	11 3/8	8 7/8	16 3/8	15 1/4	3/4	3 3/4	3/8	2	3 3/8	1 7/8	4 1/4		5 1/2	3 1/2	5/8	3						9
2S	48		2 1/4	1	3/4	15 1/8	11 7/8	21 3/4	20 1/4	1	5	1/2	2 1/2	4 3/8	2 3/8	5 5/8		7 3/8	4 3/4	7/8	4						16
2M	48		2 1/4	1	3/4	15 1/8	11 7/8	21 3/4	20 1/4	1	5	1/2	2 1/2	4 3/8	2 3/8	5 5/8		7 3/8	4 3/4	7/8	4						16
3	48		2 1/4	1	3/4	15 1/8	11 7/8	21 3/4	20 1/4	1	5	1/2	2 1/2	4 3/8	2 3/8	5 5/8		7 3/8	4 3/4	7/8	4						16
4	48		2 1/4	1	3/4	15 1/8	11 7/8	21 3/4	20 1/4	1	5	1/2	2 1/2	4 3/8	2 3/8	5 5/8		7 3/8	4 3/4	7/8	4						16
5	48		2 1/4	1	3/4	15 1/8	11 7/8	21 3/4	20 1/4	1	5	1/2	2 1/2	4 3/8	2 3/8	5 5/8		7 3/8	4 3/4	7/8	4						16

STANDARD SIGN
W024-1 L & R

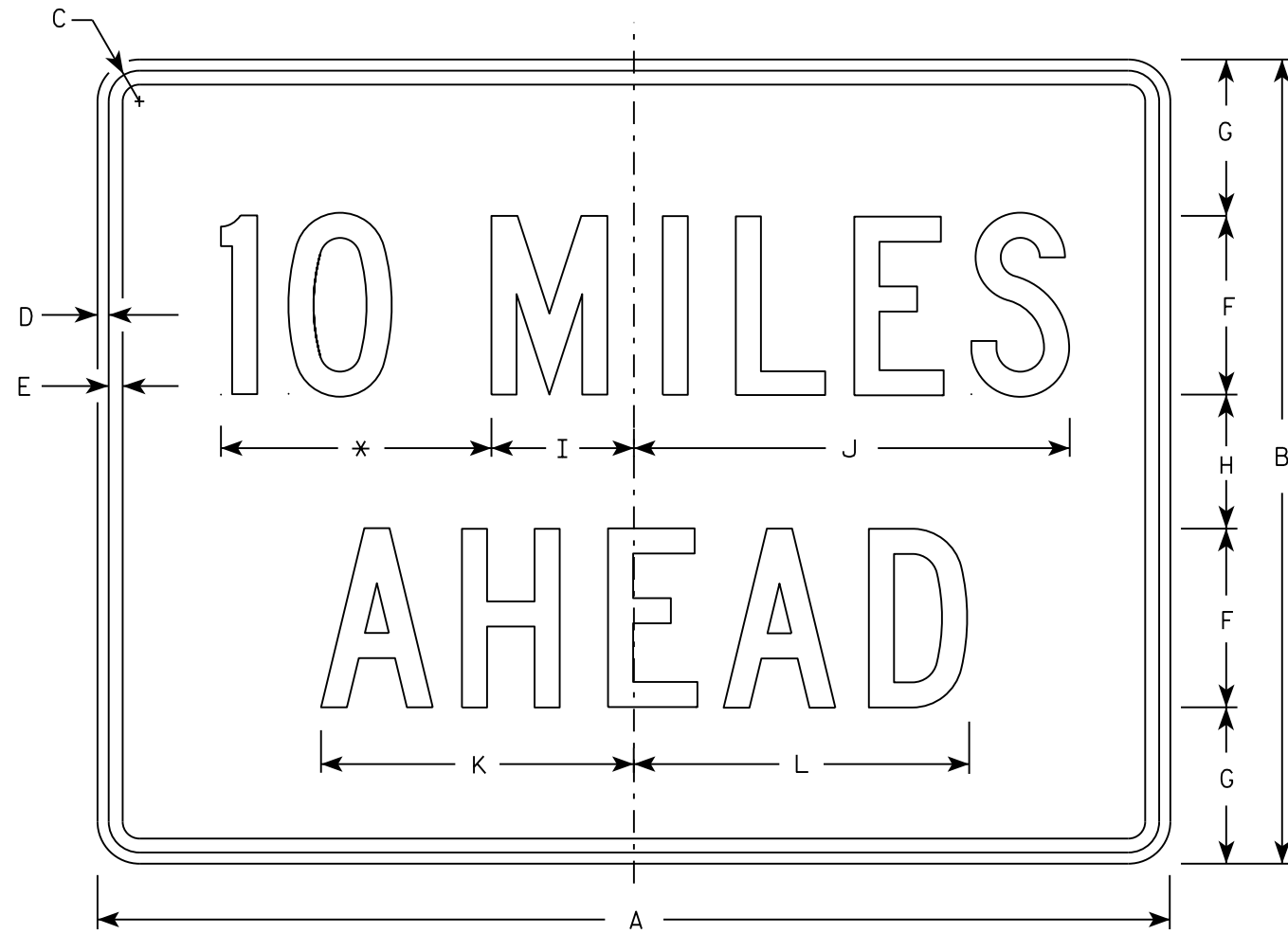
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

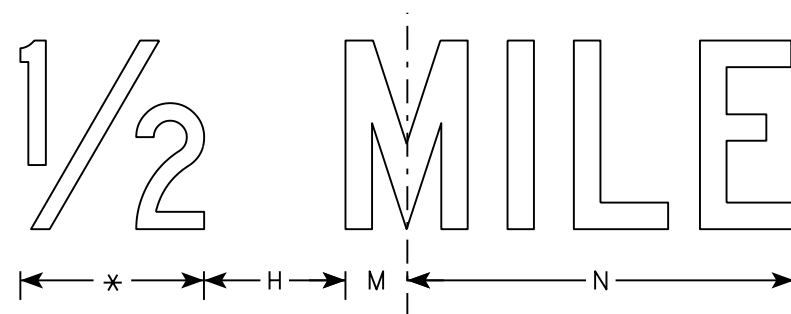
DATE 9/25/2013 PLATE NO. W024-1.1

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals to the nearest quarter mile and optically adjust spacing to achieve proper balance.



W057-52



* See note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	24	1 1/8	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	12													6.0
2S	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
2M	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
3	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
4	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
5	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0

STANDARD SIGN
W057-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 3/21/17 PLATE NO. W057-52.2

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

DESIGN DATA

LIVE LOAD:
LIVE LOAD SURCHARGE: 240 PSF

MATERIAL PROPERTIES:

SHOTCRETE f'c = 2,000 P.S.I. (3 DAY)
f'c = 4,000 P.S.I. (28 DAY)

NAIL GROUT..... f'c = 1,500 P.S.I. (3 DAY)
f'c = 3,000 P.S.I. (28 DAY)

CONCRETE MASONRY RETAINING WALLS... f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT
HIGH STRENGTH, GRADE 60..... fy = 60,000 P.S.I.

LIST OF DRAWINGS

1. GENERAL PLAN & ELEVATION
2. GENERAL NOTES, QUANTITIES, & WALL DATA
3. TYPICAL SECTIONS 1
4. TYPICAL SECTIONS 2
5. SOIL NAIL WALL DETAILS 1
6. SOIL NAIL WALL DETAILS 2
7. WALL REINFORCING DETAILS 1
8. WALL REINFORCING DETAILS 2
9. WALL REINFORCING DETAILS 3
10. ARCHITECTURAL SURFACE TREATMENT DETAILS
11. SUBSURFACE EXPLORATION
12. BORING LOGS 1
13. BORING LOGS 2

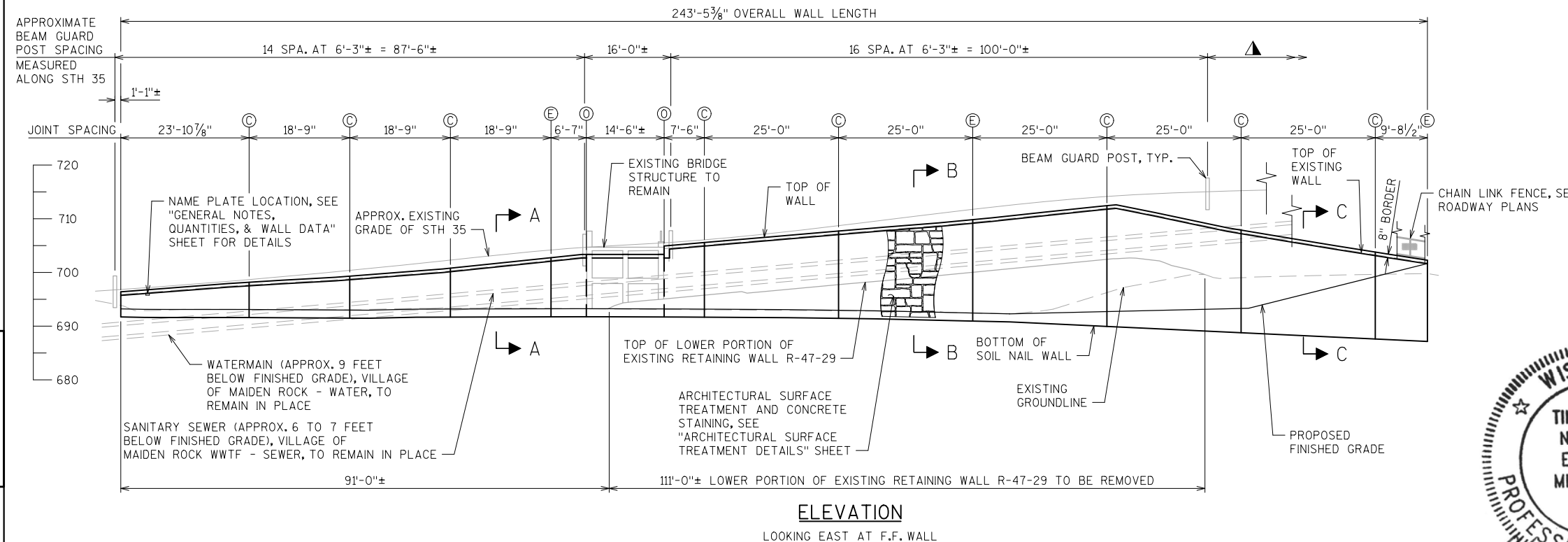
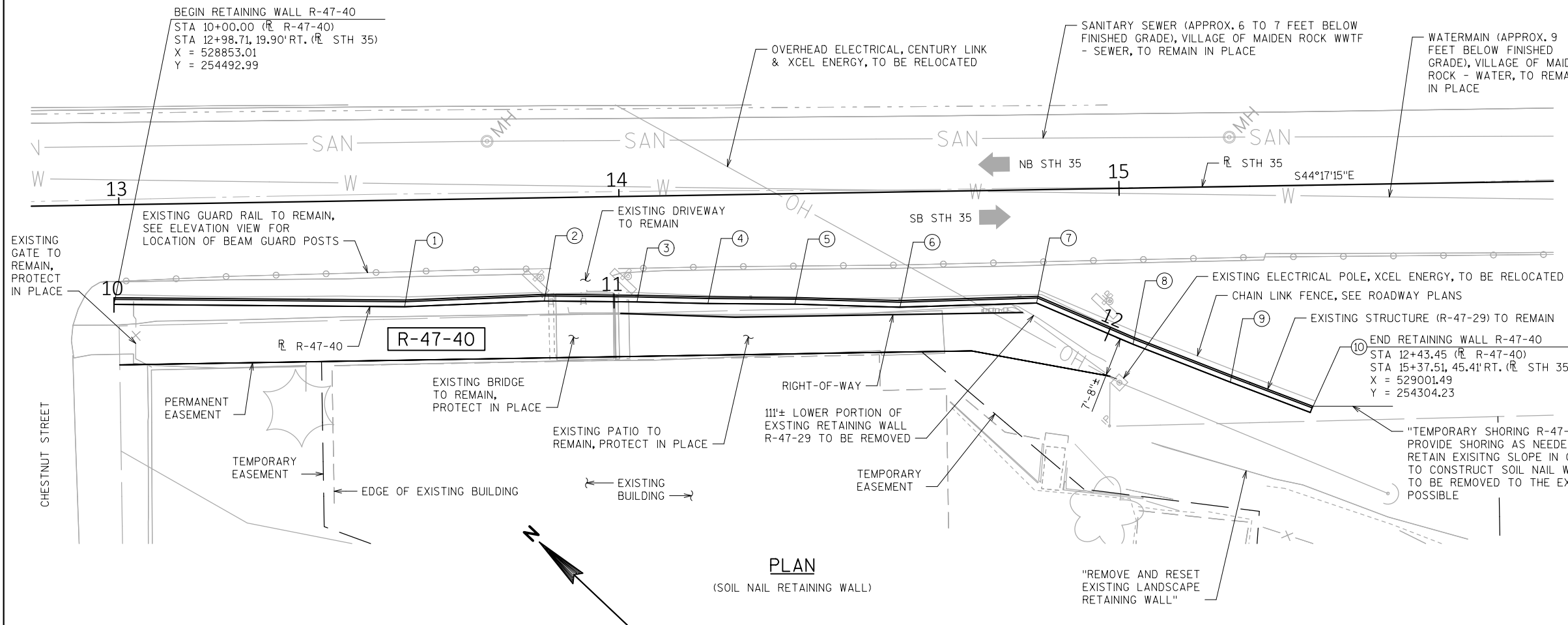
NOTES:

FOR SECTIONS A-A, B-B, AND C-C, SEE "TYPICAL SECTIONS 1" SHEET.

JOINT SPACINGS SHOWN ARE LAID OUT TO COINCIDE AT BEAM GUARD POSTS TO ACCOMMODATE PLACEMENT OF SOIL NAILS BETWEEN BEAM GUARD POSTS. CONTRACTOR MAY ADJUST LAYOUT WITH APPROVAL FROM ENGINEER. SPACE CONTRACTION JOINTS AT 30" MAX AND EXPANSION JOINTS AT 90" MAX.

LEGEND

- (C) CONTRACTION JOINT
- (E) EXPANSION JOINT
- (O) OPTIONAL JOINT
- (#) PI, SEE GENERAL NOTES, QUANTITIES, & WALL DATA SHEET FOR STATIONS AND OFFSETS.
- (▲) BEAM GUARD POSTS CONTINUE AT 6'-3"± SPA. ALONG STH 35. THE BOTTOM OF POSTS WILL BE ABOVE TOP OF WALL FROM STA. 12+00± TO THE END OF WALL.



BENCH MARKS

NO.	NORTHING (Y)	EASTING (X)	DESCRIPTION	ELEV.
50	254010.977	529357.594	3/8" SPIKE IN POWER POLE ON SOUTH SIDE OF GREEN STREET	728.72
51	253600.367	529623.678	CHISELED "X" IN BACK OF CURB	736.61



STRUCTURE DESIGN CONTACTS
BUREAU OF STRUCTURES:
AARON BONK (608) 261-0261
CONSULTANT:
LINDA KRUEGER (608) 821-8700

NO.	DATE	REVISION	BY

Michael Baker INTERNATIONAL 1255 FOURIER DRIVE SUITE 100 MADISON, WI 53717

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SDR **05/30/23**
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-47-40

SOIL NAIL WALL ALONG STH 35

COUNTY: PIERCE TOWN/CITY/VILLAGE: MAIDEN ROCK

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY: TJN/GZ DESIGN: CK'D. AA/DRG DRAWN BY: TJN CK'D. LMK PLANS: LMK

GENERAL PLAN & ELEVATION SHEET 1 OF 13

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
203.0220.01	REMOVING STRUCTURE R-47-29	EACH	1
209.1500	BACKFILL GRANULAR GRADE 1	TON	13
310.0110	BASE AGGREGATE OPEN-GRADED	TON	30
504.0500	CONCRETE MASONRY RETAINING WALLS	CY	121
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	4,550
511.1200.01	TEMPORARY SHORING R-47-40	SF	130
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	1
517.1010.S.01	CONCRETE STAINING R-47-40	SF	3,855
517.1050.S.01	ARCHITECTURAL SURFACE TREATMENT R-47-40	SF	3,125
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	319
645.0112	GEOTEXTILE TYPE DF SCHEDULE B	SY	135
* SPV.0060.01	SOIL NAIL VERIFICATION TESTS R-47-40	EACH	2
* SPV.0060.02	SOIL NAIL PROOF TESTS R-47-40	EACH	10
SPV.0060.05	PROTECT EXISTING BUILDING, BRIDGE, PATIO, PARKING LOT, ARCHWAY, AND GATE	EACH	1
SPV.0060.06	TEMPORARY BRACING OF THE EXISTING BRIDGE	EACH	1
SPV.0060.07	REMOVE AND RESET EXISTING LANDSCAPE RETAINING WALL	EACH	1
SPV.0165.01	SOIL NAIL RETAINING WALLS R-47-40	SF	3,409
NON-BID ITEMS			
	FILLER	SIZE	¾", 2"
	NAME PLATE		

* QUANTITY IS AN ESTIMATE. REFER TO SPECIAL PROVISIONS.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

ALL DIMENSIONS, STATIONS, AND OFFSETS ARE GIVEN AT THE FRONT FACE OF WALL AT THE GROUNDLINE, UNLESS OTHERWISE SHOWN.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS SHOWN OTHERWISE.

ALL STATIONS AND ELEVATIONS ARE IN FEET.

THE PLAN QUANTITY FOR THE BID ITEM "SOIL NAIL RETAINING WALLS R-47-40" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF WALL TO BOTTOM OF WALL.

THE EXISTING GROUND LINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR THE STRUCTURE.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.

THE COLOR OF THE STAIN SHALL BE MEDIUM TAN, FEDERAL STANDARD COLOR NO. 33446.

EXISTING RETAINING WALL R-47-29 IS APPROXIMATELY 250 FEET LONG AND VARIES IN HEIGHT FROM 2'-5"± TO 19'-5"±. THE ONLY PORTION OF THE STRUCTURE TO BE REMOVED IS THE LOWER PORTION BETWEEN STA 10+91± AND 12+02±. THE REST OF THE STRUCTURE IS TO REMAIN.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATIONS AS TO TYPE AND LOCATION (IN X, Y, AND Z COORDINATES) OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE. EXISTING SANITARY SEWER AND WATER MAIN TO BE LOCATED USING AIR VACUUM EXCAVATION TO ACCURATELY LOCATE UTILITIES IN 3D TO AVOID DAMAGE DUE TO SOIL NAIL INSTALLATION. PAYMENT FOR UTILITY LOCATION AND RESTORATION OF DAMAGED AREAS OF ROADWAY DUE TO UTILITY LOCATION INCLUDED IN THE BID ITEM "UTILITY LINE OPENING (ULO)", SEE ROADWAY PLANS.

AN AVERAGE THICKNESS OF 1" WAS USED FOR THE THICKNESS OF THE ARCHITECTURAL SURFACE TREATMENT TO DETERMINE THE QUANTITY OF "CONCRETE MASONRY RETAINING WALLS".

COST OF GEOCOMPOSITE DRAIN STRIPS INCLUDED IN THE BID ITEM "SOIL NAIL RETAINING WALLS R-47-40".

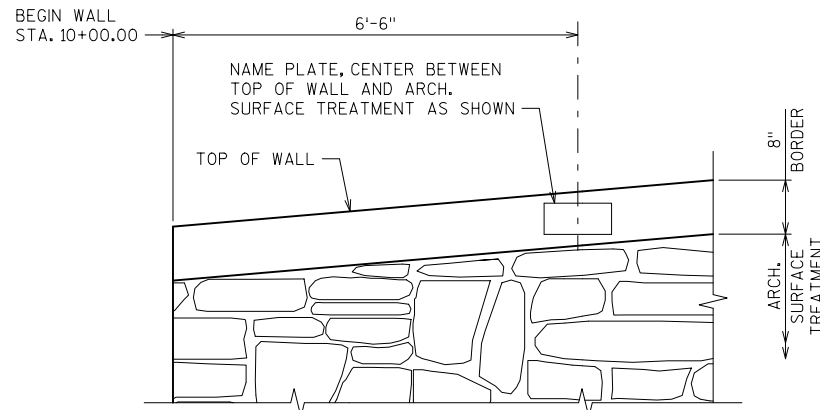
FOR DETERMINING THE QUANTITY OF "CONCRETE MASONRY RETAINING WALLS" AN ADDITIONAL 2" OF THICKNESS WAS ADDED TO THE THICKNESS OF THE C.I.P. FACING TO ACCOUNT FOR FORMWORK NOT BEING ABLE TO FOLLOW THE ALIGNMENT OF THE EXISTING WALL AND SHOTCRETE MATCHING THE ALIGNMENT OF THE EXISTING WALL.

CUT EXISTING WEEP HOLES TO BE FLUSH WITH THE EXISTING WALL AND PROVIDE GEOCOMPOSITE DRAIN STRIPS FROM EXISTING WEEP HOLE INTO LEVELING PAD AS SHOWN IN SECTION A-A ON THE "TYPICAL SECTIONS 1" SHEET. COSTS INCLUDED IN BID ITEM, "SOIL NAIL RETAINING WALLS R-47-40".

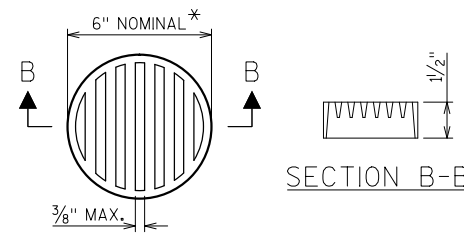
GEOMETRY TABLE

ALL DIMENSIONS AND ELEVATIONS ARE IN FEET.

WALL STA.	R _L STH 35 STA.	OFFSET TO R-47-40 (FT.)	TOP OF WALL EL.	FINISHED GRADE EL.	EXISTING GRADE EL.
10+00.00	12+98.71	19.90	696.39	693.22	693.88
10+10.00	13+08.71	20.14	697.16	693.11	693.06
10+20.00	13+18.70	20.38	697.93	693.10	693.12
10+30.00	13+28.70	20.63	698.55	693.06	693.10
10+40.00	14+38.70	20.87	699.10	693.00	693.04
10+50.00	13+48.70	21.11	699.88	693.05	693.20
① 10+58.11	13+56.80	21.31	700.50	693.15	693.30
10+60.00	13+58.69	21.27	700.65	693.18	693.32
10+70.00	13+68.69	21.02	701.69	693.21	693.36
10+80.00	13+78.69	20.78	702.73	693.24	693.31
OPTIONAL CONST. JT. ② 10+86.74	13+85.42	20.65	703.36	693.25	693.24
10+90.00	13+88.68	20.73	703.36	693.25	693.20
OPTIONAL CONST. JT. ③ 11+00.00	13+98.68	21.00	703.36	693.21	693.12
③ 11+01.24	13+99.92	21.03	703.36	693.21	693.11
11+01.24	13+99.92	21.03	704.93	693.21	693.11
④ 11+04.58	14+03.26	21.12	705.22	693.19	693.08
11+10.00	14+08.67	21.33	705.68	693.16	693.04
④ 11+18.77	14+17.44	21.66	706.43	693.11	692.97
11+20.00	14+18.67	21.69	706.54	693.10	692.96
11+30.00	14+28.66	21.93	707.39	693.00	692.88
⑤ 11+36.16	14+34.82	22.08	707.91	692.92	692.83
11+40.00	14+38.66	22.26	708.24	692.87	692.80
11+50.00	14+48.65	22.71	709.04	692.64	692.71
⑥ 11+57.19	14+55.83	23.04	709.69	692.48	692.49
11+60.00	14+58.64	23.00	709.95	692.41	692.41
11+65.86	14+64.50	22.91	710.55	692.29	692.30
11+70.00	14+68.64	22.86	711.00	692.39	692.68
11+80.00	14+78.64	22.71	712.06	692.62	695.10
11+83.74	14+82.38	22.66	712.60	692.71	696.78
⑦ 11+84.52	14+83.15	22.65	712.48	692.73	696.91
11+90.00	14+88.16	24.89	711.69	692.86	697.78
⑧ 12+00.00	14+97.29	28.97	709.61	693.09	699.63
12+10.00	15+06.48	32.91	707.68	693.33	699.04
12+20.00	15+15.74	36.69	706.01	695.80	699.35
⑨ 12+26.36	15+21.62	39.10	704.98	697.39	699.49
12+30.00	15+25.01	40.44	704.39	698.30	699.57
12+40.00	15+34.30	44.14	702.81	700.80	699.74
⑩ 12+43.45	15+37.51	45.41	702.27	701.66	699.79



NAME PLATE DETAIL

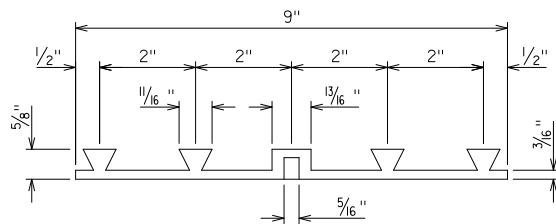


RODENT SHIELD DETAIL

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

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE 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.



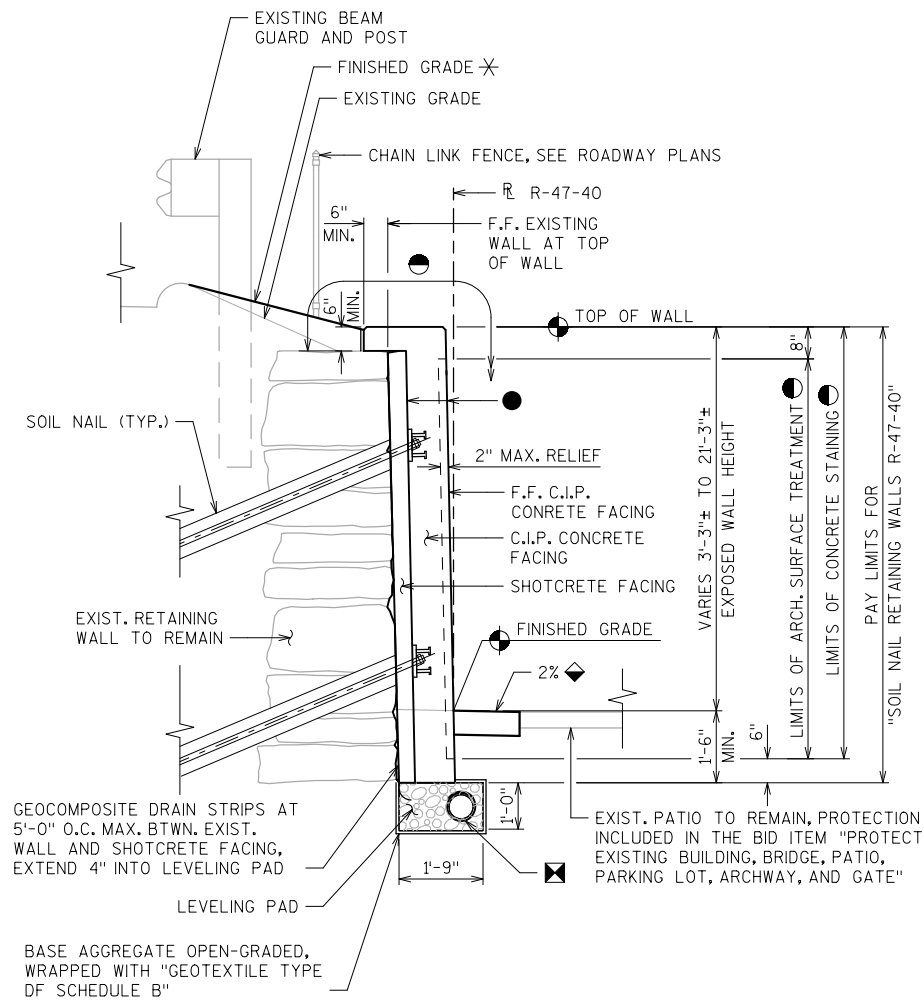
P.C.W. "TYPE B" DETAIL

(POLYVINYL CHLORIDE WATERSTOP)
 (INCLUDED IN BID ITEM "CONCRETE MASONRY RETAINING WALLS")
 P.C.W. SHALL BE BUTT SPliced AT ANY INTERSECTIONS BY USING A HEATED SPlicing IRON. HOLD P.C.W. FLUSH WITH CONCRETE. SEAL TOP ENDS OF P.C.W. WITH NON-STAINING BITUMINOUS JOINT SEALER

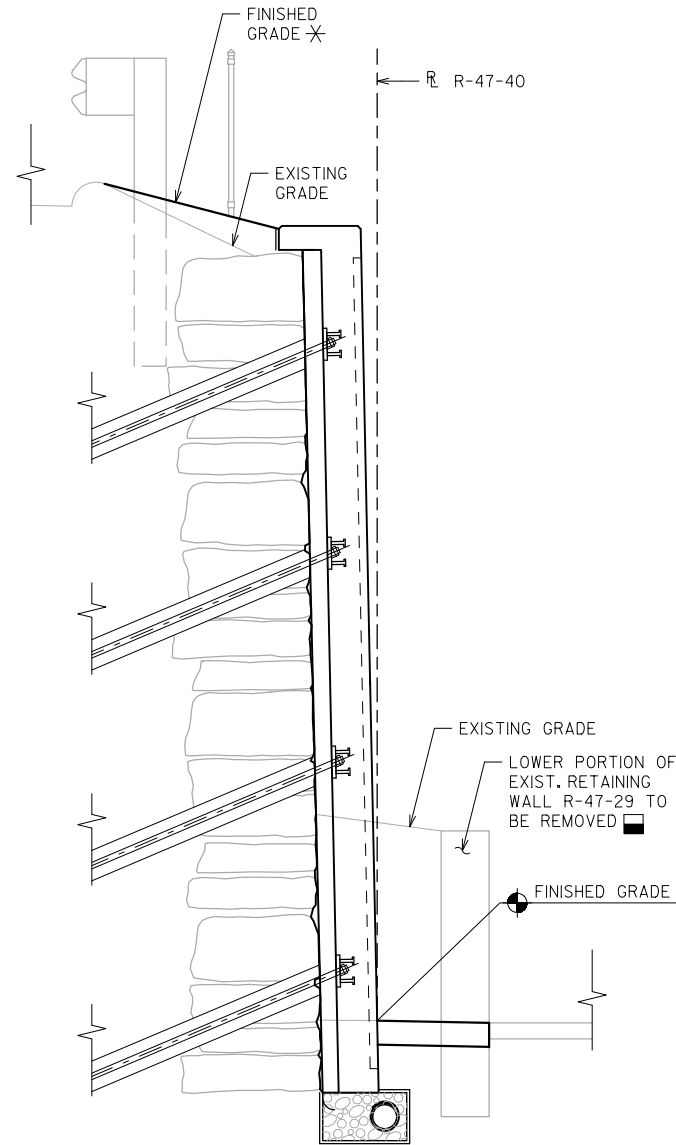
LEGEND

- PI, SEE "GENERAL PLAN & ELEVATION" SHEET. PIS SHOWN FOR INFORMATION ONLY. CONTRACTOR MAY STRAIGHT-LINE WALL ALIGNMENT BETWEEN JOINTS WITH APPROVAL FROM THE ENGINEER.
- PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

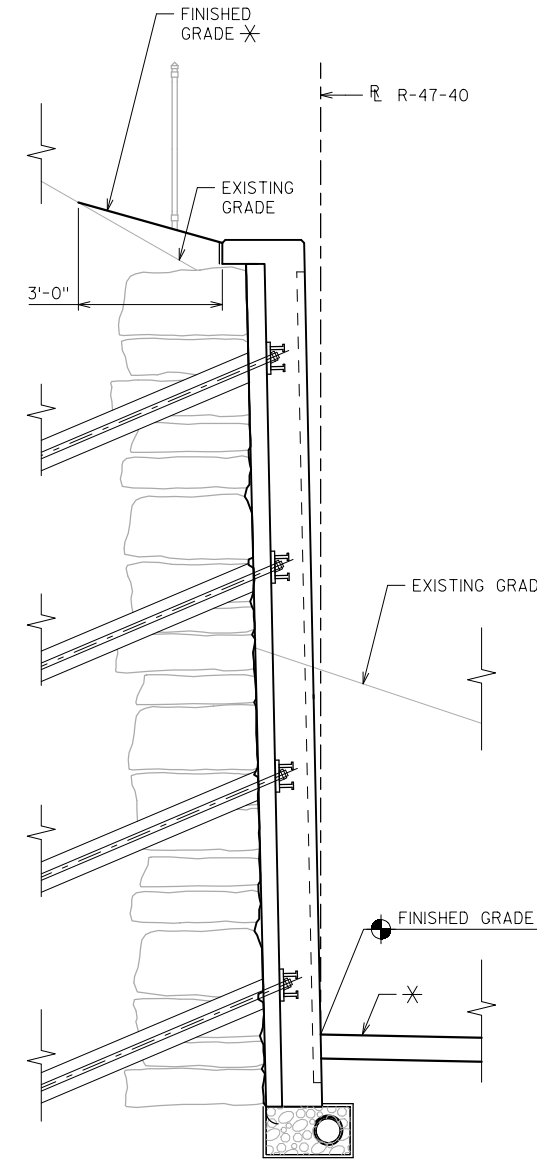
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		TUN	PLANS CK'D. LMK
GENERAL NOTES, QUANTITIES, & WALL DATA			SHEET 2 OF 13



SECTION A-A
(STA. 10+00.00 TO STA. 10+86.74)



SECTION B-B
(DETAIL SAME AS SECTION A-A, UNLESS NOTED OTHERWISE)
(STA. 11+01.24 TO STA. 11+84.52)



SECTION C-C
(DETAIL SAME AS SECTION A-A, UNLESS NOTED OTHERWISE)
(STA. 11+84.52 TO STA. 12+48.58)

NOTES:

- FOR LOCATIONS OF SECTIONS A-A, B-B, AND C-C, SEE "GENERAL PLAN & ELEVATION" SHEET.
- FOR ARCHITECTURAL SURFACE TREATMENT DETAILS, SEE "ARCHITECTURAL SURFACE TREATMENT DETAILS" SHEET.
- FOR TYPICAL SECTION AT EXISTING BRIDGE, SEE "SOIL NAIL WALL DETAILS 2" SHEET.

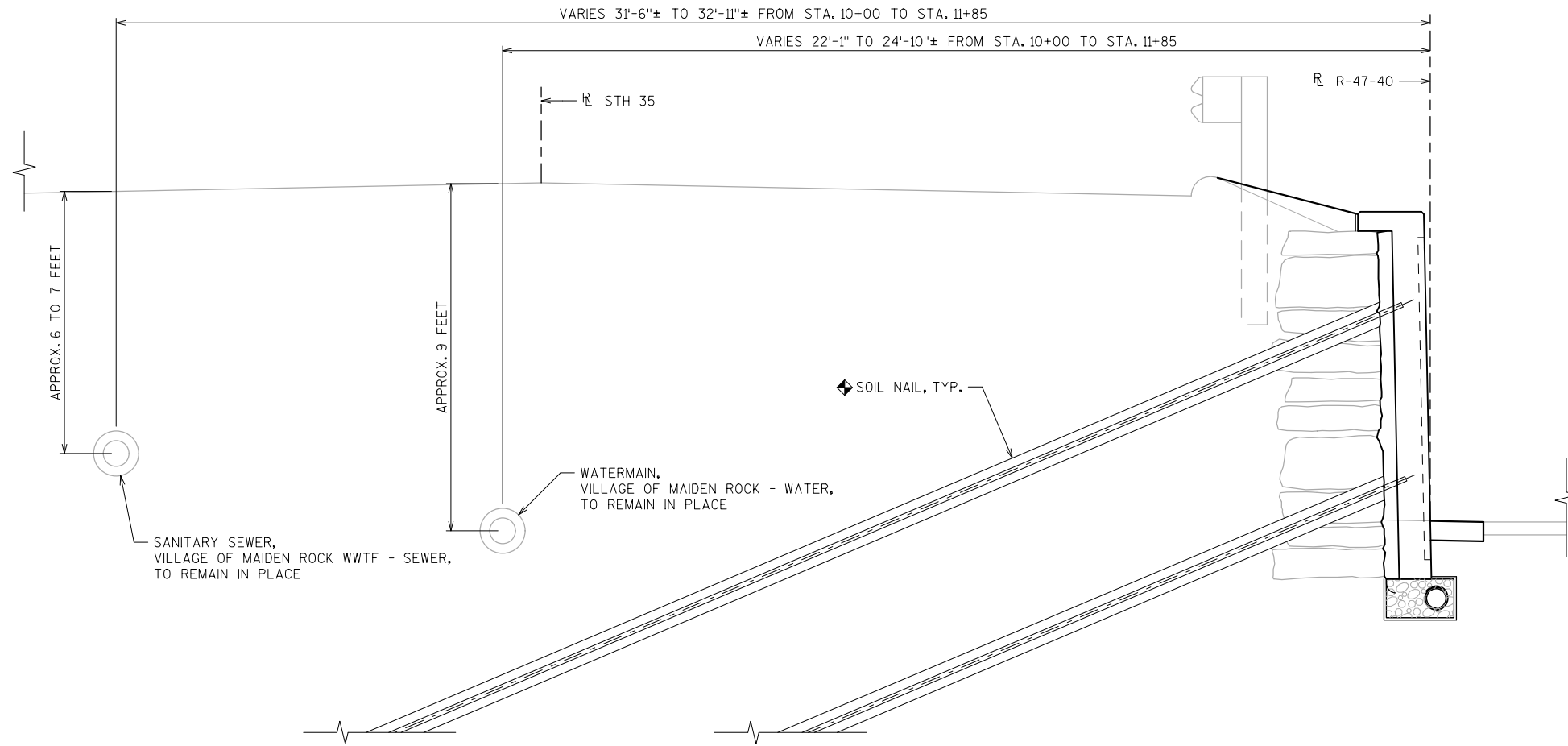
LEGEND

- ▣ PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.
- LIMITS OF "ARCHITECTURAL SURFACE TREATMENT R-47-40" AND "CONCRETE STAINING R-47-40" TO EXTEND TO 6" ABOVE BOTTOM OF WALL. STAIN FRONT FACE OF WALL TO THE LIMITS SHOWN, AND STAIN THE TOP AND BACK FACE OF THE CAP.
- ▣ INSTALL SOIL NAILS ON UPPER PORTION OF PROPOSED WALL, R-47-40, BEFORE REMOVING LOWER PORTION OF EXISTING WALL R-47-29
- ◆ TOPSOIL DISTURBED AREAS, SEE ROADWAY PLANS. 6" MIN. TOPSOIL.
- * SEED AND TOPSOIL DISTURBED AREAS, SEE ROADWAY PLANS. 6" MIN. TOPSOIL.
- BATTER OF THE EXISTING WALL VARIES. SHOTCRETE LAYER TO BE 4" MIN. FILLING IN VOIDS BETWEEN STONES. BATTER OF WALL TO MATCH EXISTING WALL EXCEPT AT LOCATIONS WHERE THE BATTER OF THE EXISTING WALL IS FORWARD LEANING, INCREASE THE THICKNESS OF THE SHOTCRETE OR C.I.P. CONCRETE FACING TO MAKE THE F.F. OF WALL PLUMB.
- ⊕ FOR ELEVATIONS, SEE GEOMETRY TABLE ON "GENERAL NOTES, QUANTITIES, AND WALL DATA" SHEET.

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		TJN	PLANS CK'D. LMK
TYPICAL SECTIONS 1			SHEET 3 OF 13



NOTES:

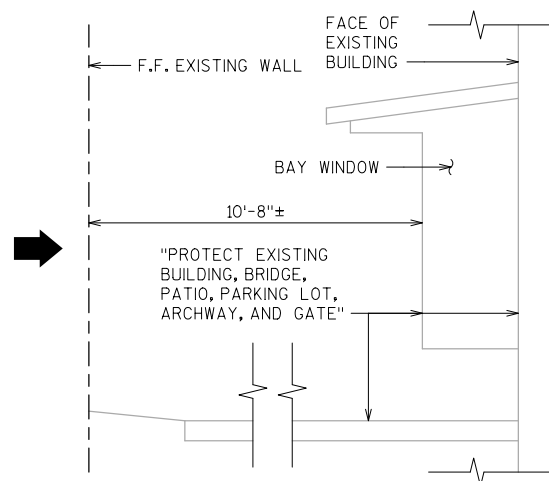
FOR NOTES ON LOCATING EXISTING UTILITIES, SEE GENERAL NOTES ON "GENERAL NOTES, QUANTITIES, & WALL DATA" SHEET.

LEGEND

◆ NUMBER OF ROWS AND SPACING TO BE DETERMINED BY CONTRACTOR. SOIL NAIL INCLINATION TO VARY ALONG THE LENGTH OF THE WALL TO AVOID EXISTING SEWER AND WATER MAIN.

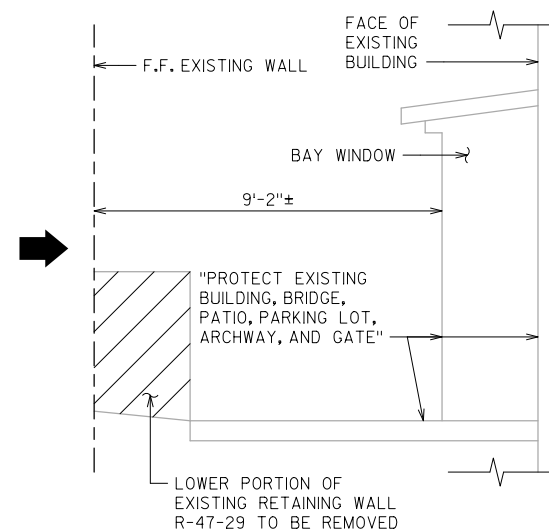
SECTION THRU ROADWAY

LOOKING SOUTH



LATERAL CLEARANCE AT BAY WINDOW

LOOKING SOUTH AT NORTHEAST CORNER OF EXISTING BUILDING



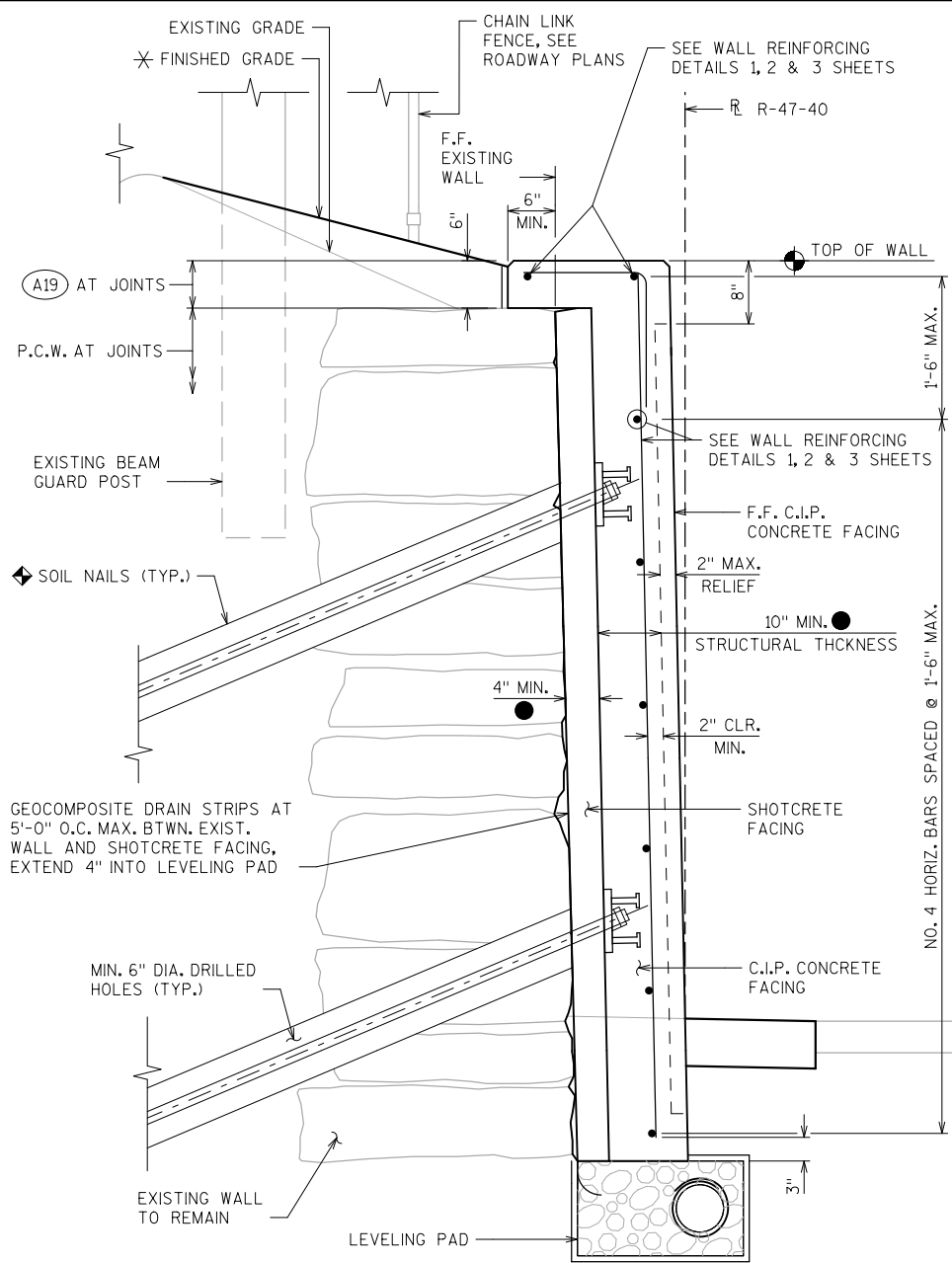
LATERAL CLEARANCE AT ENTRYWAY

LOOKING SOUTH AT SOUTHEAST CORNER OF EXISTING BUILDING

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		TJN	PLANS CK'D. LMK
TYPICAL SECTIONS 2			SHEET 4 OF 13

8

8



SOIL NAIL TYPICAL SECTION

STEEL REINFORCEMENT IN SOIL NAIL WALL PER CONTRACTOR DESIGN.

- ✘ SEED AND TOPSOIL DISTURBED AREAS, SEE ROADWAYS PLANS, 6" MIN. TOPSOIL.
- ◆ NUMBER OF ROWS AND SPACING TO BE DETERMINED BY CONTRACTOR. SOIL NAIL INCLINATION TO VARY ALONG THE LENGTH OF THE WALL TO AVOID EXISTING SANITARY SEWER AND WATER MAIN.
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL JOINTS IN CAP.

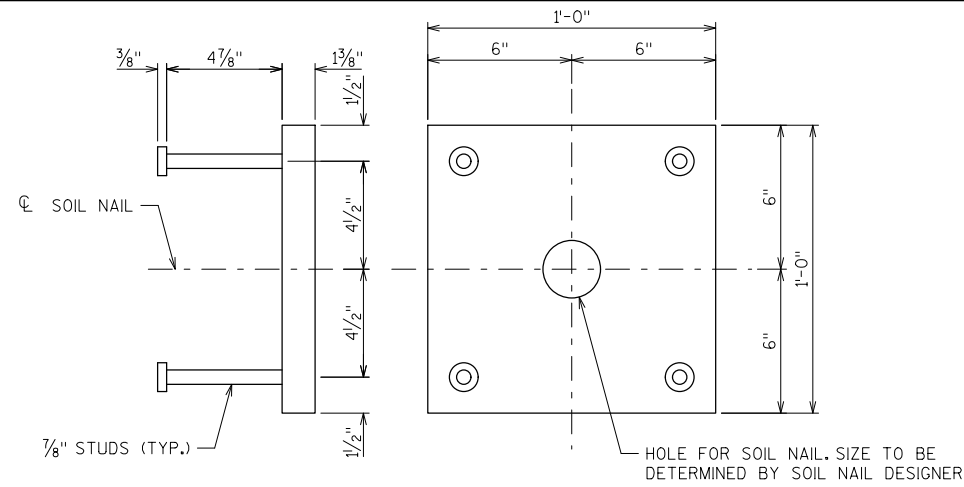
● BATTER OF THE EXISTING WALL VARIES. SHOTCRETE LAYER TO BE 4" MIN. FILLING IN VOIDS BETWEEN STONES. BATTER OF WALL TO MATCH EXISTING WALL EXCEPT AT LOCATIONS WHERE THE BATTER OF THE EXISTING WALL IS FORWARD LEANING, INCREASE THE THICKNESS OF THE SHOTCRETE OR C.I.P. CONCRETE FACING TO MAKE THE F.F. OF WALL PLUMB.

DESIGN NOTES

SOIL NAIL AND ANCHOR PLATE DETAILS ARE PROVIDED TO SHOW GENERAL WALL CONFIGURATION. CONTRACTOR'S WALL DESIGN SHALL DESIGN AND DETAIL SOIL NAIL WALL SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS AND THE SPECIFIC SITE REQUIREMENTS.

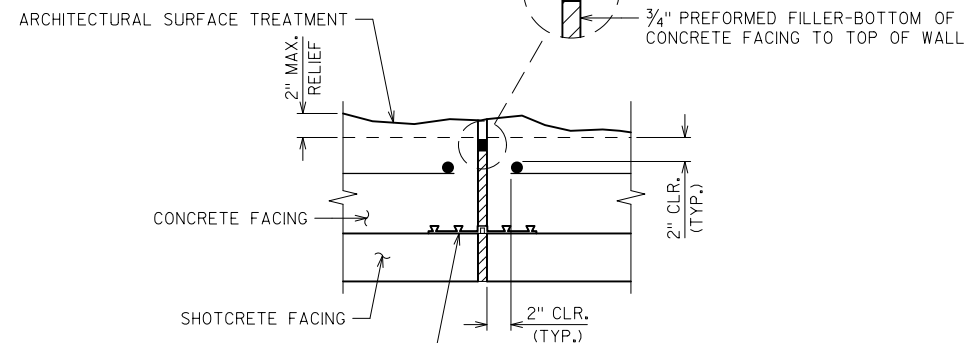
CAST-IN-PLACE CONCRETE FACING IS INTENDED TO PROVIDE AN AESTHETIC WALL FINISH. THE CONCRETE FACING HAS NOT BEEN DESIGNED TO TRANSFER LATERAL LOADS BETWEEN THE SOIL NAIL ANCHOR PLATES. THE CONTRACTOR'S WALL DESIGNER SHALL REVIEW AND REVISE CONCRETE FACING AND ANCHOR PLATE DESIGN AS REQUIRED TO MEET THE CONTRACTOR'S SOIL NAIL WALL DESIGN.

SOIL NAILS SHALL BE LOCATED TO NOT CONFLICT WITH THE EXISTING BEAM GUARD POSTS, GATE, AND SANITARY SEWER AND WATERMAIN UTILITIES AS SHOWN ON THE "GENERAL PLAN & ELEVATION" SHEET.



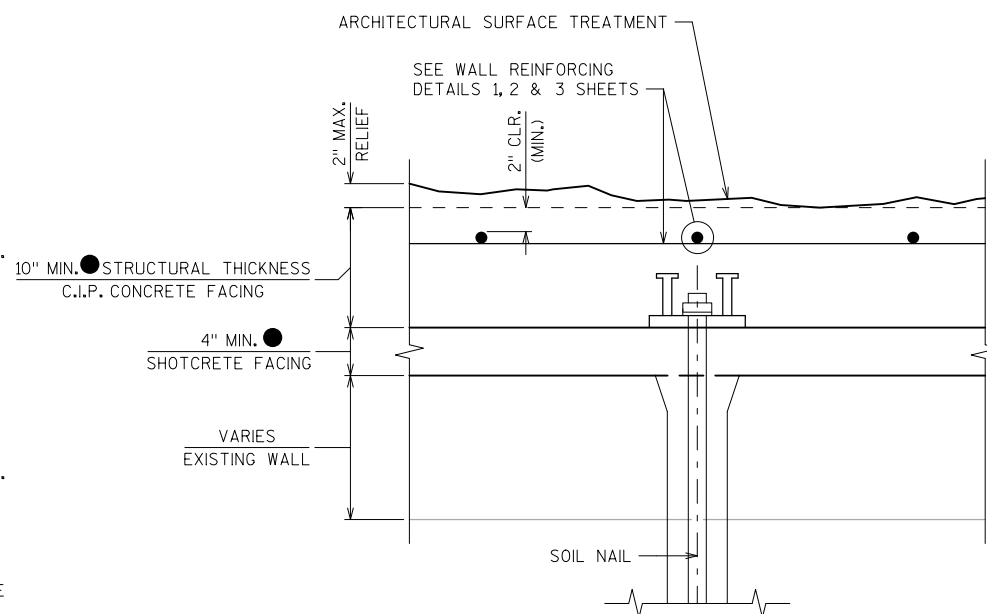
BEARING PLATE DETAILS

SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES WITH NON-STAINING, NON-BITUMINOUS JOINT SEALER, COLOR OF SEALER TO CLOSELY MATCH WALL STAIN, OR UNSTAINED CONCRETE AS APPLICABLE. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE)

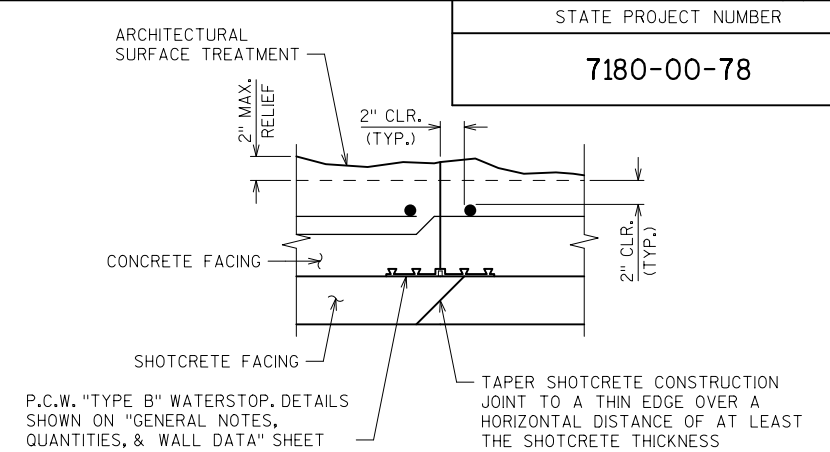


VERTICAL EXPANSION JOINT

DO NOT RUN ANY BAR STEEL THROUGH JOINT. SEE "GENERAL PLAN & ELEVATION" SHEET FOR JOINT SPACING.

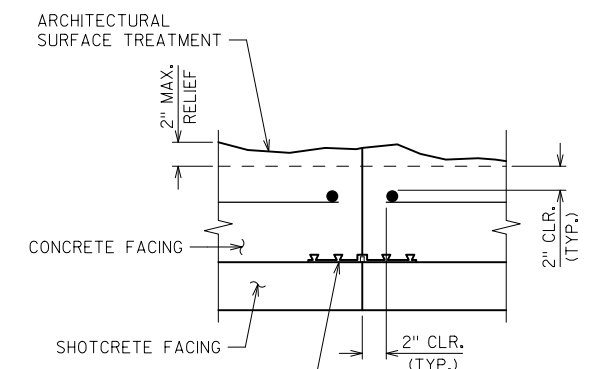


CONCRETE FACING DETAIL



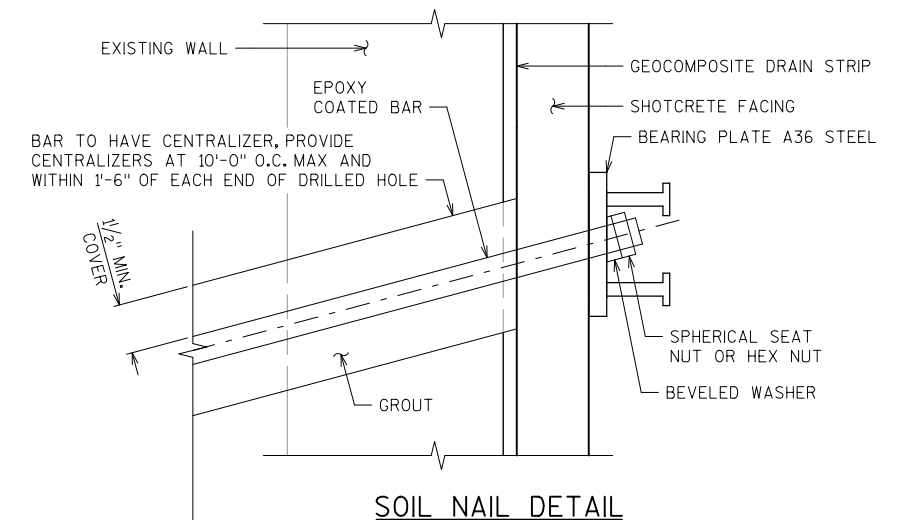
OPTIONAL VERTICAL CONSTRUCTION JOINT

SEE "GENERAL PLAN & ELEVATION" SHEET FOR JOINT SPACING.



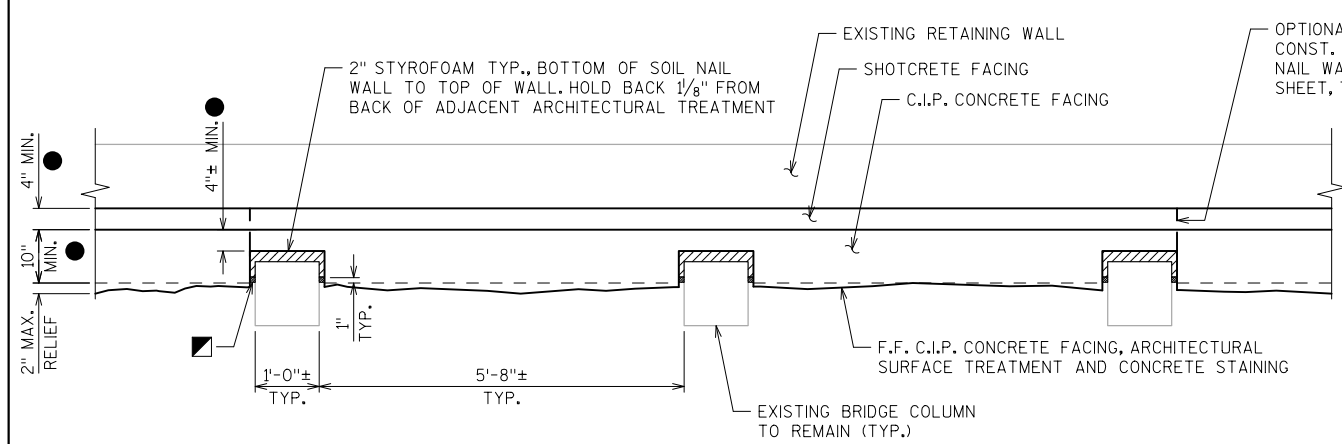
VERTICAL CONTRACTION JOINT

DO NOT RUN ANY BAR STEEL THROUGH JOINT. SEE "GENERAL PLAN & ELEVATION" SHEET FOR JOINT SPACING.

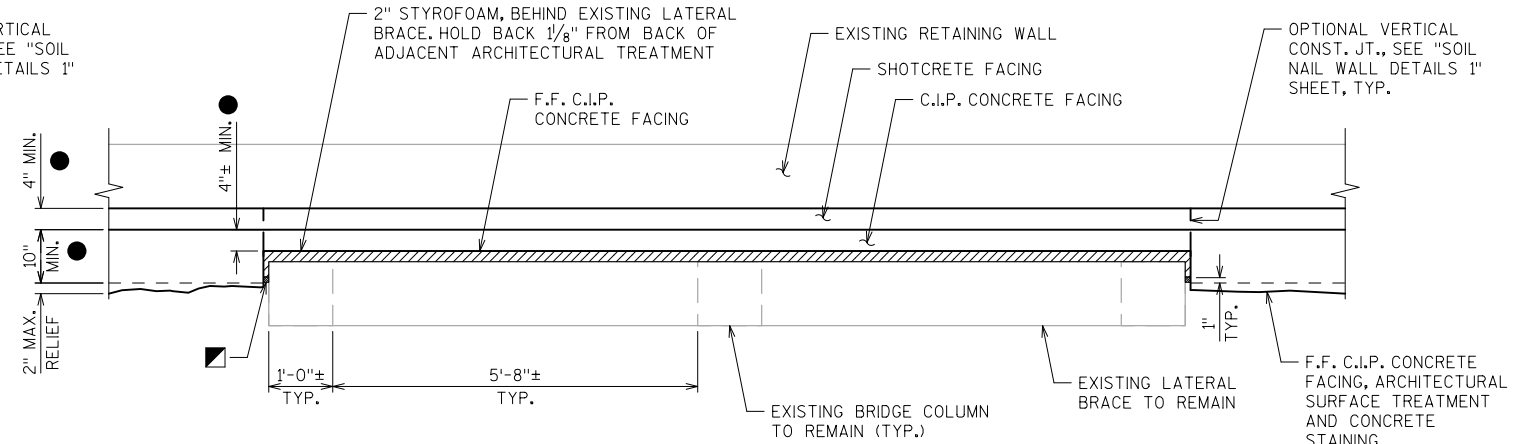


SOIL NAIL DETAIL

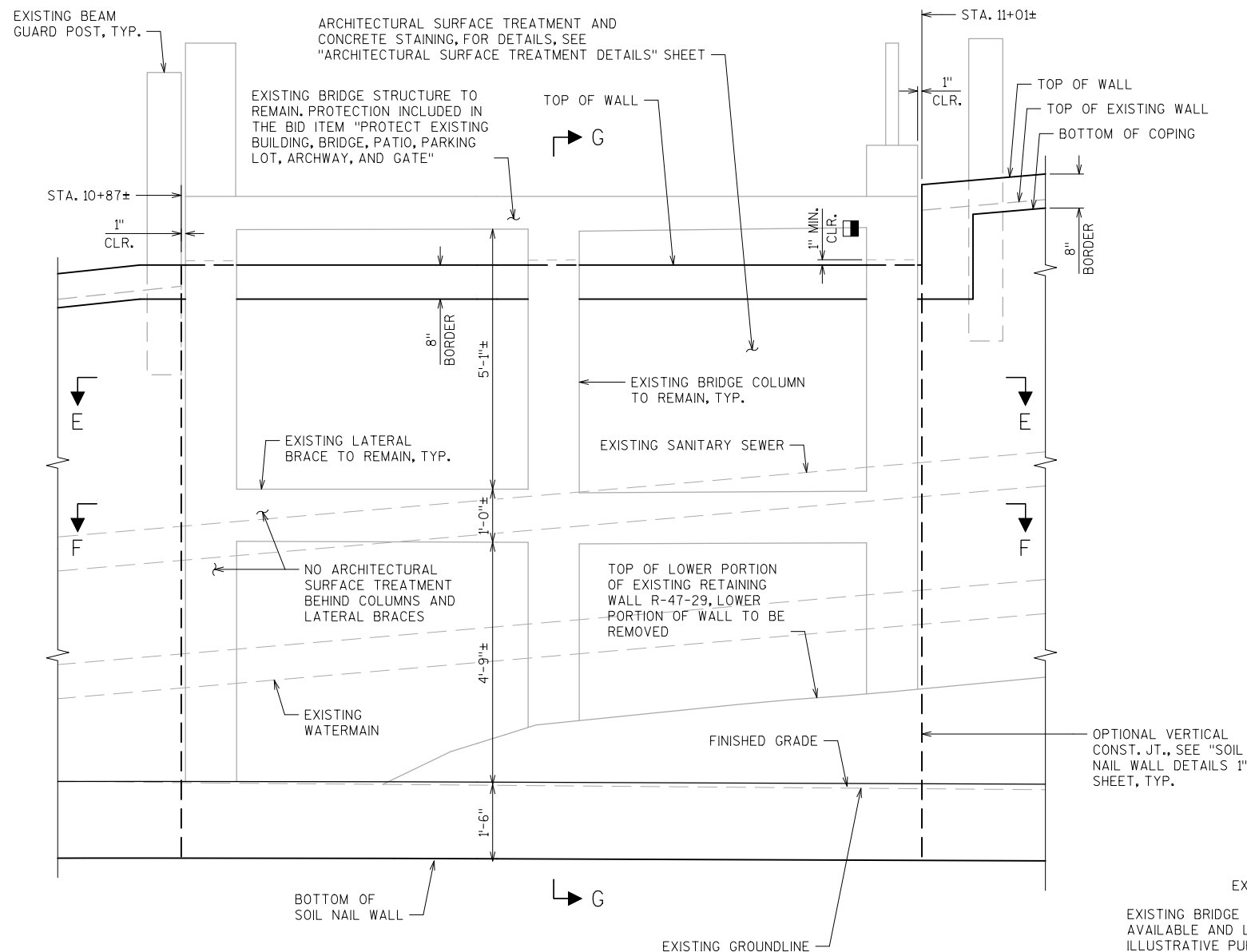
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		TJN	PLANS CK'D. LMK
SOIL NAIL WALL DETAILS 1			SHEET 5 OF 13



SECTION E-E

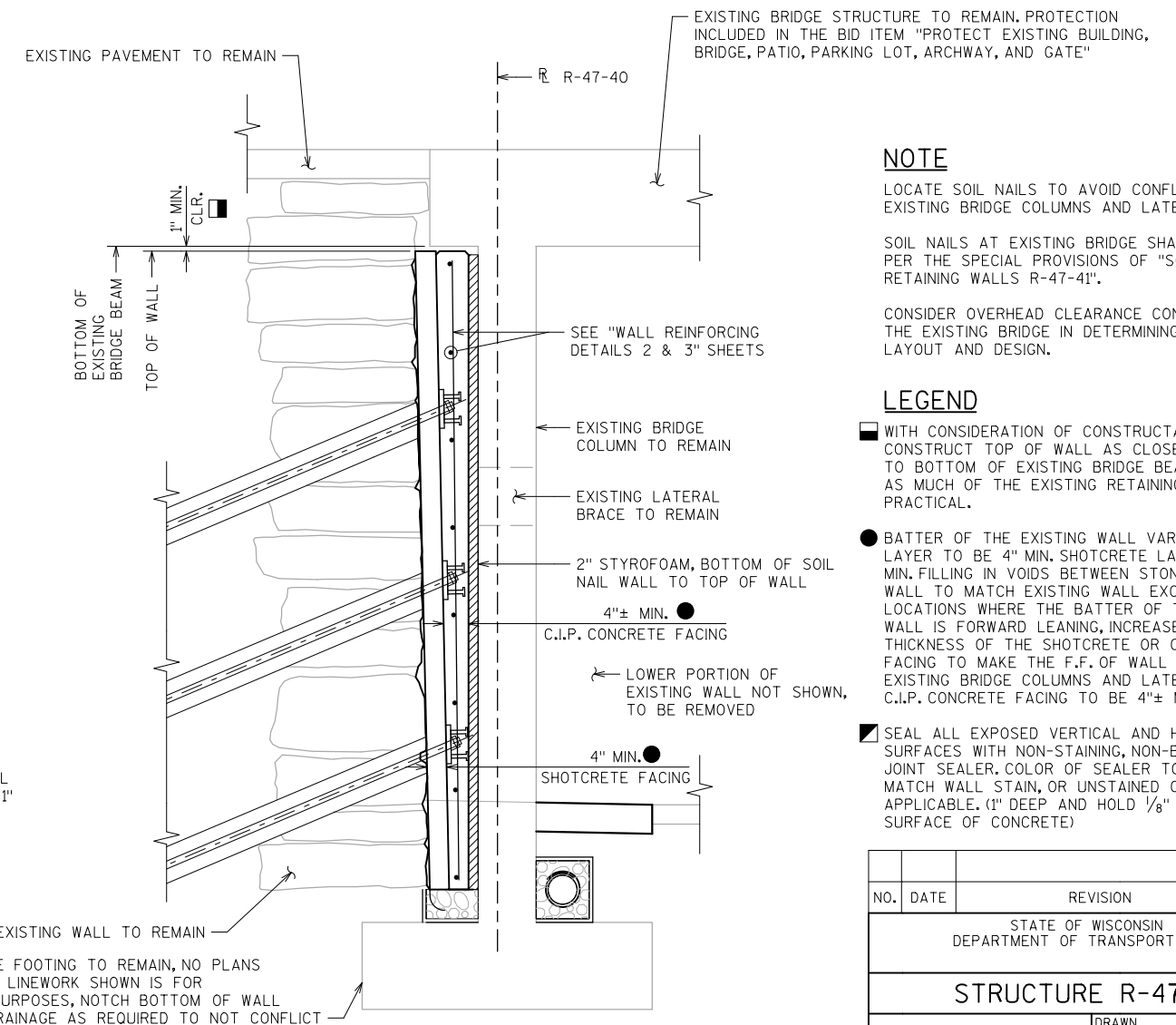


SECTION F-F



ELEVATION AT EXISTING BRIDGE

LOOKING AT F.F. WALL,
PREFORMED FILLER AT COLUMNS NOT SHOWN



SECTION G-G

DETAIL SAME AS SOIL NAIL TYPICAL SECTION ON "SOIL NAIL WALL DETAILS 1" SHEET, UNLESS NOTED OTHERWISE

NOTE

LOCATE SOIL NAILS TO AVOID CONFLICT WITH EXISTING BRIDGE COLUMNS AND LATERAL BRACING.

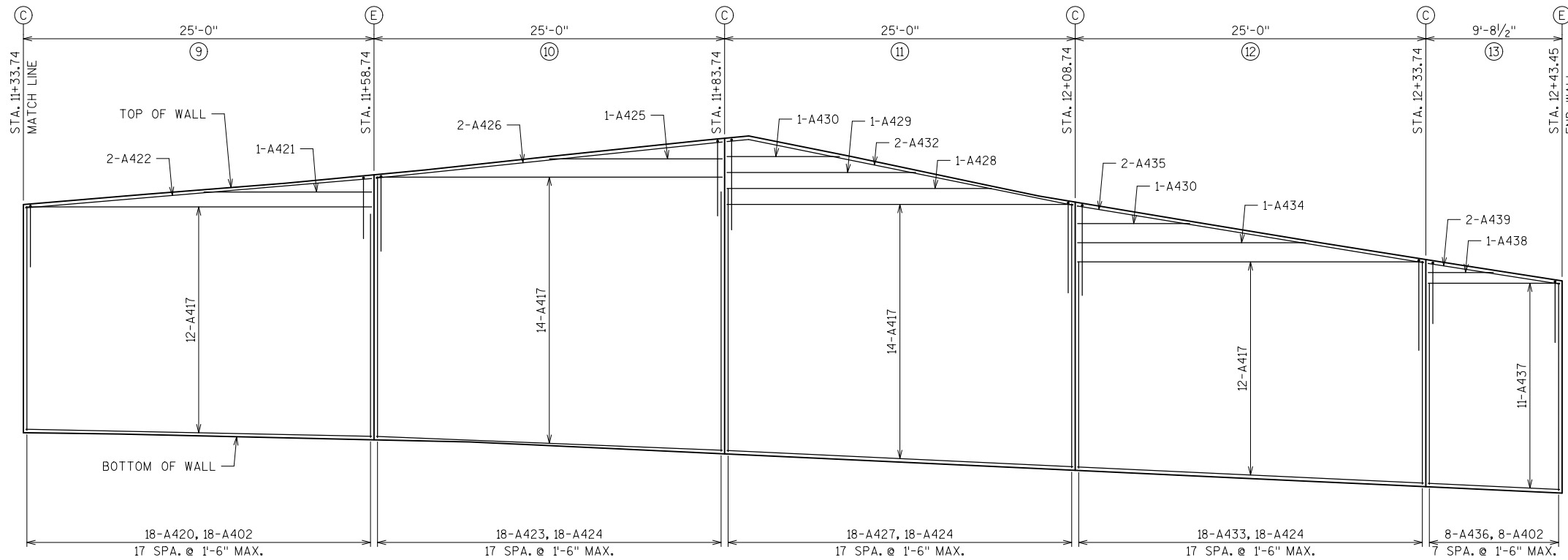
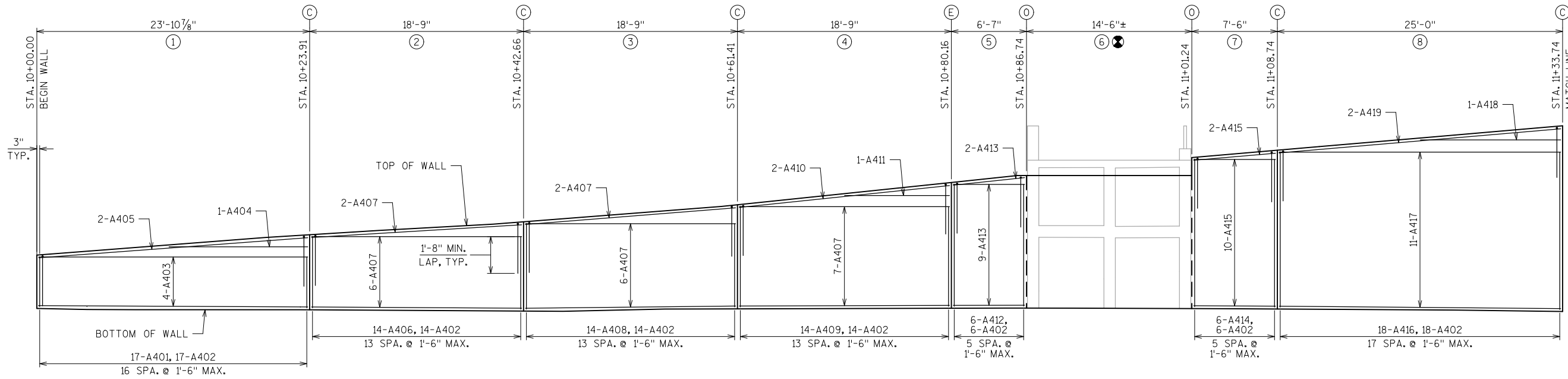
SOIL NAILS AT EXISTING BRIDGE SHALL BE DESIGNED PER THE SPECIAL PROVISIONS OF "SOIL NAIL RETAINING WALLS R-47-41".

CONSIDER OVERHEAD CLEARANCE CONSTRAINTS WITH THE EXISTING BRIDGE IN DETERMINING SOIL NAIL LAYOUT AND DESIGN.

LEGEND

- WITH CONSIDERATION OF CONSTRUCTABILITY, CONSTRUCT TOP OF WALL AS CLOSE AS POSSIBLE TO BOTTOM OF EXISTING BRIDGE BEAMS TO RETAIN AS MUCH OF THE EXISTING RETAINING WALL AS PRACTICAL.
- BATTER OF THE EXISTING WALL VARIES. SHOTCRETE LAYER TO BE 4" MIN. SHOTCRETE LAYER TO BE 4" MIN. FILLING IN VOIDS BETWEEN STONES. BATTER OF WALL TO MATCH EXISTING WALL EXCEPT AT LOCATIONS WHERE THE BATTER OF THE EXISTING WALL IS FORWARD LEANING, INCREASE THE THICKNESS OF THE SHOTCRETE OR C.I.P. CONCRETE FACING TO MAKE THE F.F. OF WALL PLUMB. AT THE EXISTING BRIDGE COLUMNS AND LATERAL BRACING, C.I.P. CONCRETE FACING TO BE 4"± MIN.
- SEAL ALL EXPOSED VERTICAL AND HORIZONTAL SURFACES WITH NON-STAINING, NON-BITUMINOUS JOINT SEALER. COLOR OF SEALER TO CLOSELY MATCH WALL STAIN, OR UNSTAINED CONCRETE AS APPLICABLE. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		TJN	PLANS CK'D. LMK
SOIL NAIL WALL DETAILS 2			SHEET 6 OF 13



ELEVATION
LOOKING AT F.F. WALL

NOTE

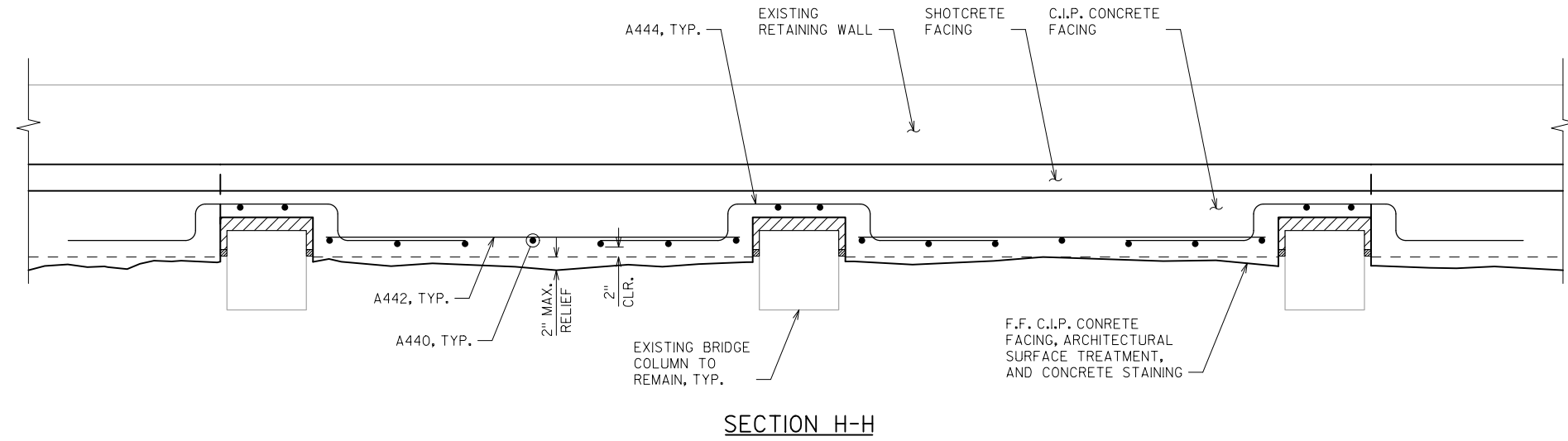
REINFORCING SHOWN ON THIS SHEET MEETS TEMPERATURE AND SHRINKAGE REQUIREMENTS PER AASHTO LRFD AND REPRESENTS THE MINIMUM REINFORCING REQUIRED IN THE CIP CONCRETE FACING. FINAL DESIGN OF THE FACING'S REINFORCEMENT TO BE COMPLETED BY THE CONTRACTOR. SEE SPECIFICATIONS FOR DESIGN REQUIREMENTS.

SPACE ALL HORIZONTAL AND VERTICAL REINFORCEMENT AT 1'-6" MAX EXCEPT AT PANEL #6 SPACE HORIZONTAL AND VERTICAL REINFORCEMENT AT 1'-0" MAX.

LEGEND

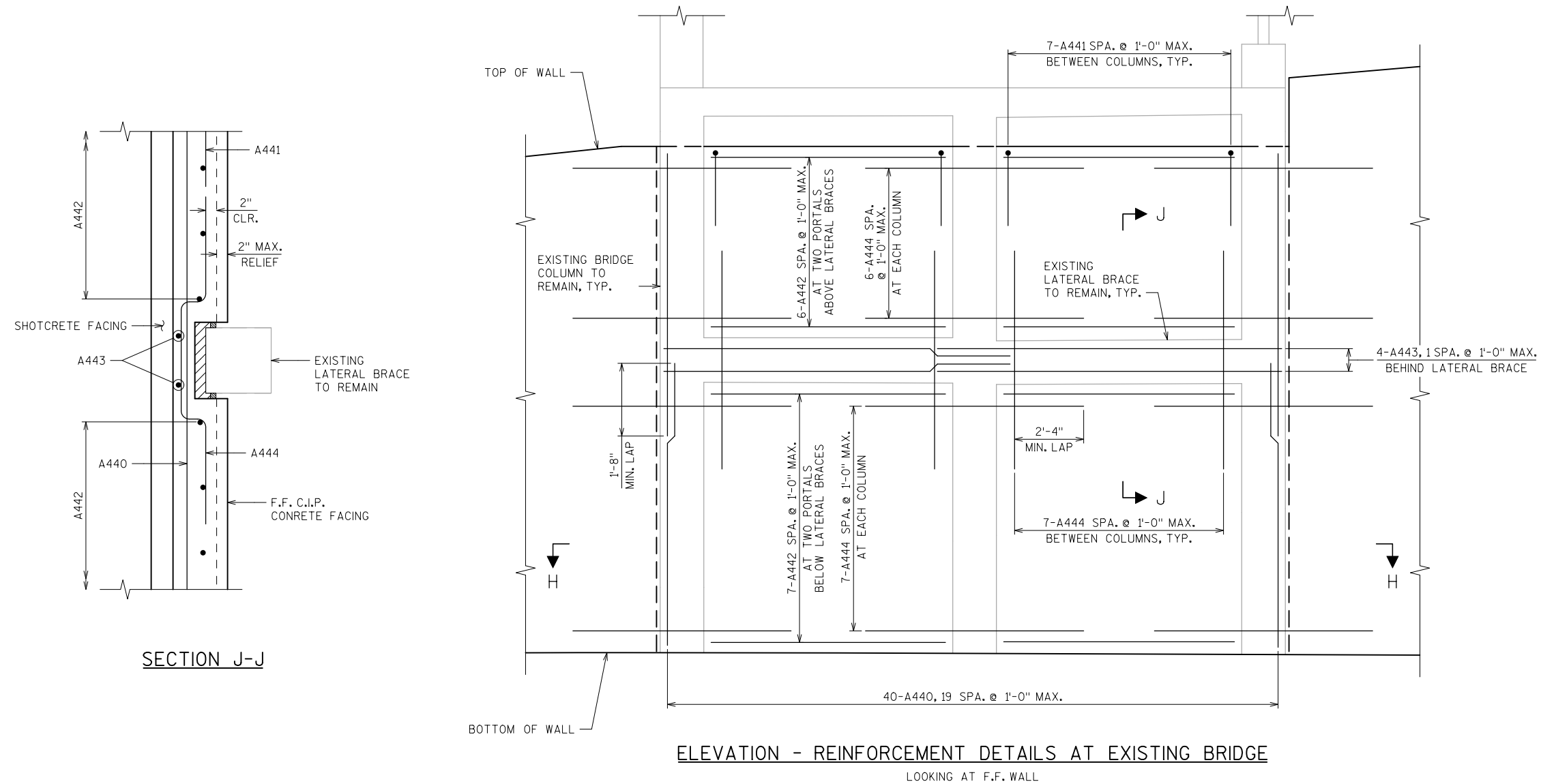
- Ⓢ CONTRACTION JOINT
- ⓔ EXPANSION JOINT
- Ⓞ OPTIONAL JOINT
- ⊕ PANEL NUMBER, BILL OF BARS ON "WALL REINFORCING DETAILS 3" SHEET USED PANEL NUMBERS IN BAR LOCATION DESCRIPTIONS
- ⊗ FOR PANEL #20 REINFORCEMENT DETAILS, SEE "WALL REINFORCING DETAIL 2" SHEET.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		TJN	PLANS CK'D. LMK
WALL REINFORCING DETAILS 1			SHEET 7 OF 13



NOTES

EXISTING BRIDGE FOOTING NOT SHOWN.
 DEPTH OF EXISTING BRIDGE COLUMNS BELOW GROUND LINE IS UNKNOWN. EXISTING BRIDGE COLUMNS ONLY SHOWN TO BOTTOM OF WALL ON THIS SHEET.



ELEVATION - REINFORCEMENT DETAILS AT EXISTING BRIDGE
 LOOKING AT F.F. WALL

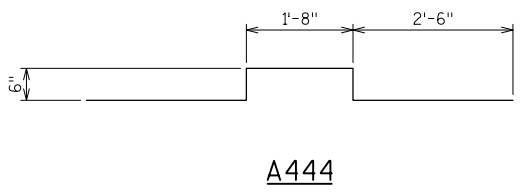
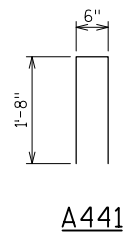
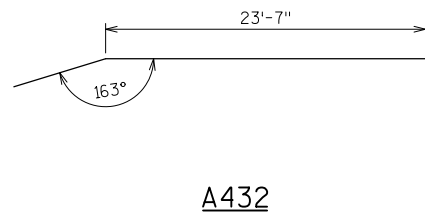
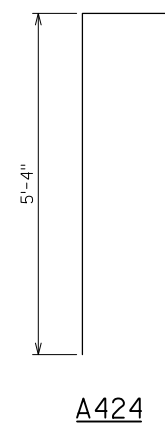
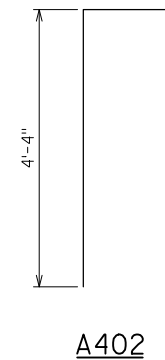
SECTION J-J

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		TJN	PLANS CK'D. LMK
WALL REINFORCING DETAILS 2			SHEET 8 OF 13

SOIL NAIL WALL BILL OF BARS

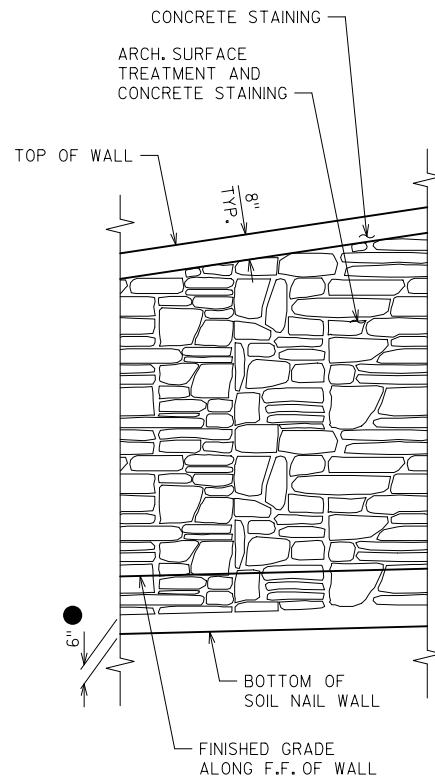
BAR MARK	NO. REQ'D.	LENGTH	COAT	STAINLESS STEEL	BENT	BAR SERIES	LOCATION
A401	17	4'-3"	X				PANEL 1 - VERTICAL
A402	115	5'-7"	X		X		PANELS 1-5, 7-9, 13 - VERTICAL AT TOP
A403	4	23'-6"	X				PANEL 1 - HORIZONTAL
A404	1	12'-2"	X				PANEL 1 - HORIZONTAL AT TOP
A405	2	23'-7"	X				PANEL 1 - HORIZONTAL AT TOP
A406	14	6'-2"	X				PANEL 2 - VERTICAL
A407	23	18'-5"	X				PANEL 2-4 - HORIZONTAL
A408	14	7'-5"	X				PANEL 3 - VERTICAL
A409	14	8'-9"	X				PANEL 4 - VERTICAL
A410	2	18'-6"	X				PANEL 4 - HORIZONTAL AT TOP
A411	1	9'-2"	X				PANEL 4 - HORIZONTAL AT TOP
A412	6	10'-8"	X				PANEL 5 - VERTICAL
A413	11	6'-3"	X				PANEL 5 - HORIZONTAL
A414	6	12'-10"	X				PANEL 7 - VERTICAL
A415	12	7'-2"	X				PANEL 7 - HORIZONTAL
A416	18	13'-6"	X				PANEL 8 - VERTICAL
A417	63	24'-8"	X				PANEL 8-12 - HORIZONTAL
A418	1	12'-3"	X				PANEL 8 - HORIZONTAL AT TOP
A419	2	24'-8"	X				PANEL 8 - HORIZONTAL AT TOP
A420	18	15'-11"	X				PANEL 9 - VERTICAL
A421	1	11'-11"	X				PANEL 9 - HORIZONTAL AT TOP
A422	2	24'-8"	X				PANEL 9 - HORIZONTAL AT TOP
A423	18	18'-6"	X				PANEL 10 - VERTICAL
A424	54	6'-7"	X		X		PANELS 10-12 - VERTICAL AT TOP
A425	1	12'-4"	X				PANEL 10 - HORIZONTAL AT TOP
A426	2	24'-9"	X				PANEL 10 - HORIZONTAL AT TOP
A427	18	18'-9"	X				PANEL 11 - VERTICAL
A428	1	18'-10"	X				PANEL 11 - HORIZONTAL AT TOP
A429	1	13'-5"	X				PANEL 11 - HORIZONTAL AT TOP
A430	2	8'-0"	X				PANEL 11-12 - HORIZONTAL AT TOP
A432	2	25'-1"	X		X		PANEL 11 - HORIZONTAL AT TOP
A433	18	15'-10"	X				PANEL 12 - VERTICAL
A434	1	16'-3"	X				PANEL 12 - HORIZONTAL AT TOP
A435	2	24'-9"	X				PANEL 12 - HORIZONTAL AT TOP
A436	8	14'-9"	X				PANEL 13 - VERTICAL
A437	11	9'-4"	X				PANEL 13 - HORIZONTAL
A438	1	4'-7"	X				PANEL 13 - HORIZONTAL AT TOP
A439	2	9'-6"	X				PANEL 13 - HORIZONTAL AT TOP
A440	40	6'-6"	X				PANEL 6 - VERTICAL
A441	14	3'-8"	X		X		PANEL 6 - VERTICAL AT TOP
A442	26	5'-4"	X				PANEL 6 - HORIZONTAL
A443	4	8'-5"	X				PANEL 6 - HORIZONTAL
A444	53	7'-4"	X		X		PANEL 6 - AT COLUMNS AND LATERAL BRACES

8



8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		PLANS CK'D.	LMK
WALL REINFORCING DETAILS 3		SHEET 9 OF 13	



TYPICAL WALL ELEVATION

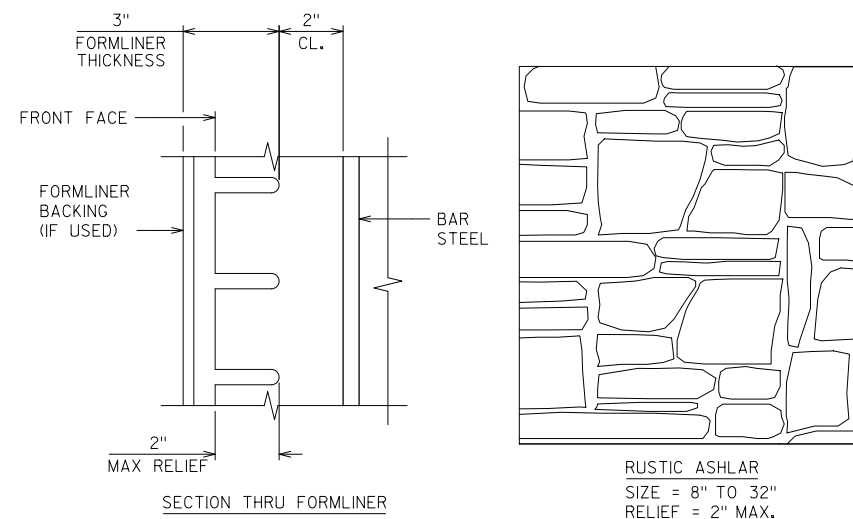
LOOKING AT FRONT FACE

NOTES

FOR LIMITS AND DETAILS OF ARCHITECTURAL SURFACE TREATMENT AT EXISTING BRIDGE, SEE "SOIL NAIL WALL DETAILS 2" SHEET.

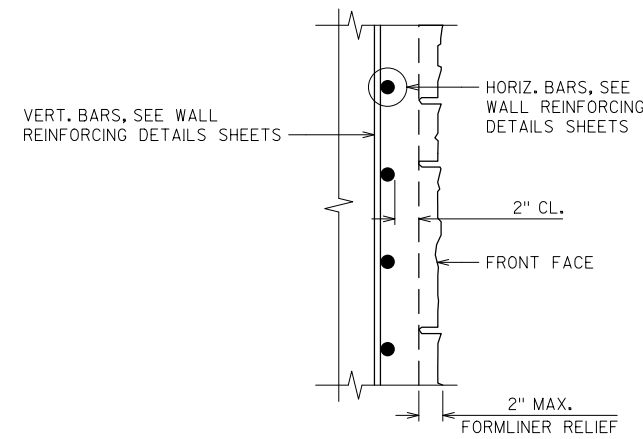
LEGEND

- LIMITS OF "ARCHITECTURAL SURFACE TREATMENT R-47-40" AND "CONCRETE STAINING R-47-40" TO EXTEND TO 6" ABOVE BOTTOM OF WALL. STAIN FRONT FACE OF WALL TO THE LIMITS SHOWN, AND STAIN THE TOP AND BACK FACE OF THE CAP.



FORMLINER DETAILS

- NOTES:**
- FORMLINER COURSING ON WALL SHALL BE LEVEL.
 - THE FORMLINER COURSING SHALL BE VERTICALLY ALIGNED.
 - THE FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS WALL CONSTRUCTION JOINTS.
 - WRAP AROUND/MATCH FORMLINER PATTERN AT CORNERS.



TYPICAL SECTION THRU FORMLINER

ALL BAR STEEL REINFORCEMENT SHALL BE EPOXY COATED

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		TJN	PLANS CK'D. LMK
ARCHITECTURAL SURFACE TREATMENT DETAILS		SHEET 10 OF 13	

BEGIN RETAINING WALL R-47-40
 STA 10+00.00 (R R-47-40)
 STA 12+98.71, 19.90' RT. (R STH 35)
 X = 528853.01
 Y = 254492.99

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-1	08/19/2021	254476.6	528887.0
B-1A	10/21/2021	* 254480.2	* 528883.6
B-2	08/19/2021	254425.2	528936.2
B-3	08/19/2021	254368.5	528990.7

* = (ESTIMATED) 5' NW OF BORING B-1, 12' FROM FACE OF WALL
 BORINGS COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.
 REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.
 ALL COORDINATES REFERENCED TO NAD 83 (2011), WISCONSIN PIERCE COUNTY

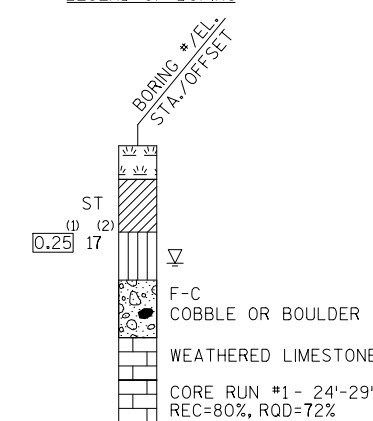
STATE PROJECT NUMBER

7180-00-78

MATERIAL SYMBOLS

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

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- ▽ AT TIME OF DRILLING
- ▼ END OF DRILLING
- ▼ AFTER DRILLING

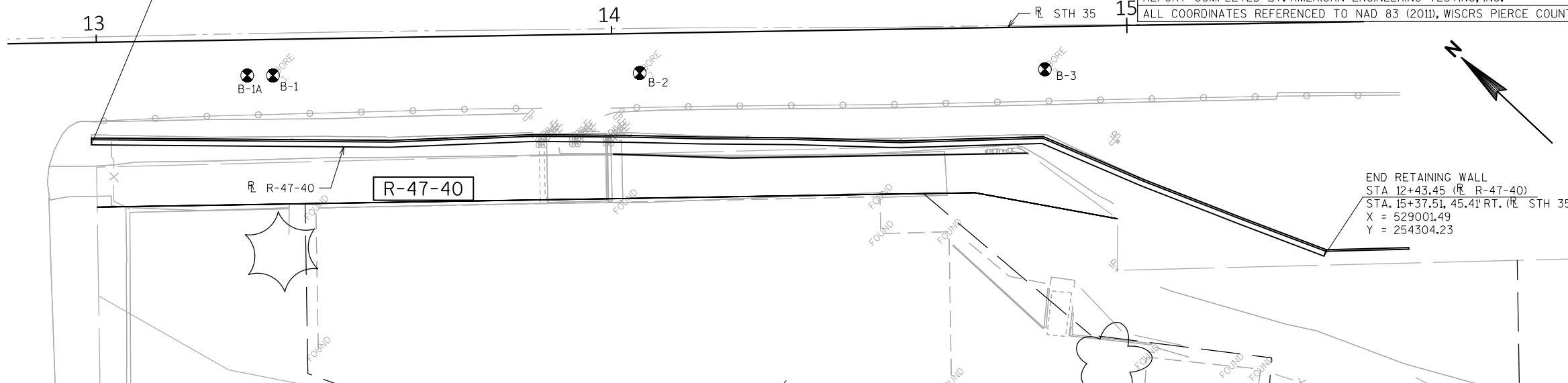
ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

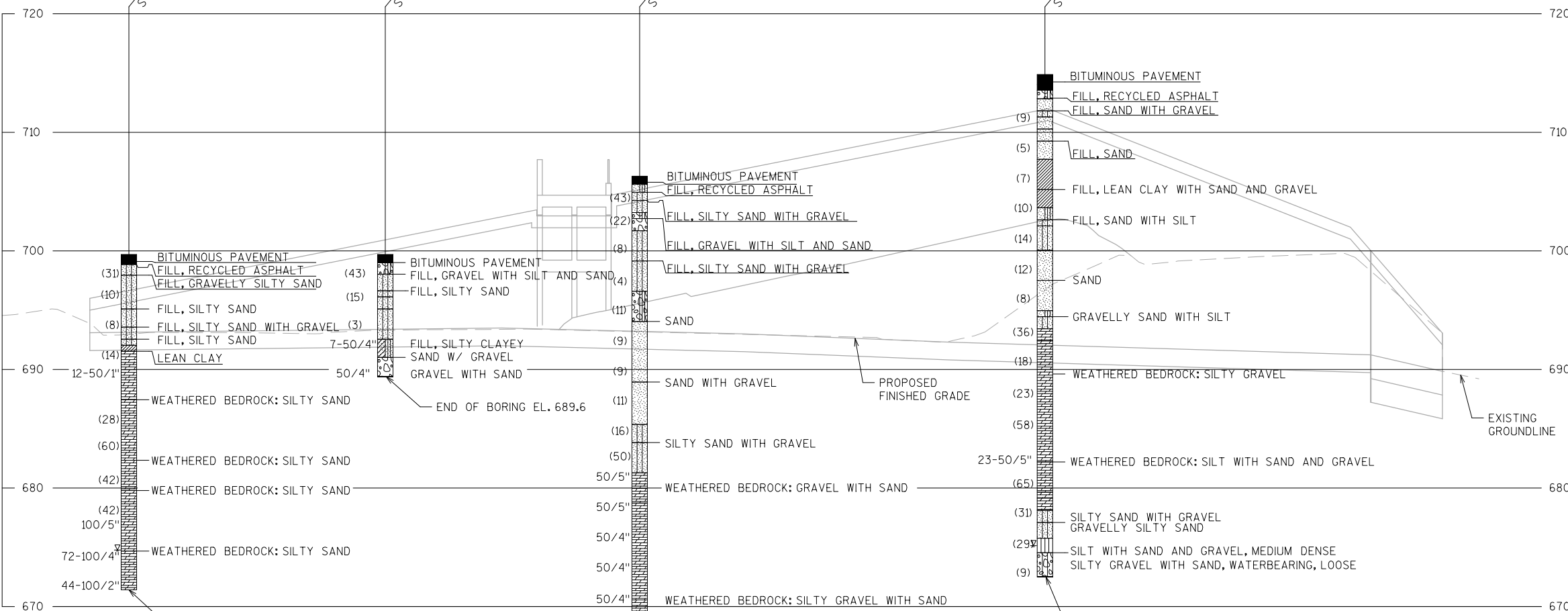
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		RBH	PLANS CK'D. LMK
SUBSURFACE EXPLORATION			SHEET 11 OF 13



PLAN



ELEVATION

8

8

BORING LOGS

SOIL DESCRIPTION	FRICTION ANGLE (DEGREES)	COHESION (PSF)	UNIT WEIGHT (PCF)
BORING 1			
BITUMINOUS PAVEMENT EL. 699.7 FT. TO EL. 699.0 FT.	34	0	130
FILL: GRAVEL WITH SILT AND SAND, BROWN, MOIST EL. 699.0 FT. TO EL. 698.1 FT.	34	0	130
FILL: SILTY SAND, FINE TO MEDIUM GRAINED A LITTLE GRAVEL, DARK BROWN, MOIST, WITH A LENS OF BROWN LEAN CLAY EL. 698.1 FT. TO EL. 696.7 FT.	34	0	130
FILL: GRAVELLY SILTY SAND, FINE TO MEDIUM GRAINED, DARK BROWN, MOIST, WITH SOME APPARENT BOILER SLAG EL. 696.7 FT. TO EL. 696.2 FT.	34	0	130
FILL: SILTY SAND WITH GRAVEL, FINE TO COARSE GRAINED, BROWN MOIST EL. 696.2 FT. TO EL. 695.2 FT.	34	0	130
FILL: SILTY SAND, FINE GRAINED, BROWN, MOIST EL. 695.2 FT. TO EL. 692.7 FT.	30	0	110
FILL: SILTY CLAYEY SAND WITH GRAVEL, FINE TO MEDIUM GRAINED, BROWN, MOIST EL. 692.7 FT. TO EL. 691.2 FT.	36	0	130
GRAVEL: ROCK CHIPS WITH SAND, YELLOW, DRY, VERY DENSE, POSSIBLE FILL EL. 691.2 FT. TO EL. 689.6 FT.	36	0	130
REFUSAL EL. 689.6	---	---	---
BORING 1A			
BITUMINOUS PAVEMENT EL. 699.8 FT. TO EL. 699.2 FT.	36	0	130
FILL: APPARENT RECYCLED ASPHALT EL. 699.2 FT. TO EL. 699.0 FT.	36	0	130
FILL: GRAVELLY SILTY SAND, FINE TO MEDIUM GRAINED, BROWN, MOIST EL. 699.0 FT. TO EL. 698.1 FT.	36	0	130
FILL: SILTY SAND, FINE TO MEDIUM GRAINED, A LITTLE GRAVEL, DARK BROWN AND BROWN, MOIST, WITH SOME APPARENT BOILER SLAG FROM ABOUT 2 TO 3 FEET EL. 698.1 FT. TO EL. 695.3 FT.	33	0	115
FILL: SILTY SAND, FINE TO MEDIUM GRAINED, DARK BROWN, MOIST EL. 695.3 FT. TO EL. 693.8 FT.	33	0	115
FILL: SILTY SAND WITH GRAVEL, FINE TO MEDIUM GRAINED, BROWN, MOIST EL. 693.8 FT. TO EL. 692.8 FT.	33	0	115
FILL: SILTY SAND, FINE TO MEDIUM GRAINED, DARK BROWN, MOIST EL. 692.8 FT. TO EL. 692.3 FT.	33	0	115
LEAN CLAY: DARK BROWN EL. 692.3 FT. TO EL. 691.8 FT.	26	0	115
WEATHERED BEDROCK: SAND WITH SILT, FINE TO MEDIUM GRAINED, A LITTLE GRAVEL, OLIVE YELLOW, MOIST, MEDIUM DENSE TO VERY DENSE EL. 691.8 FT. TO EL. 687.8 FT.	36	0	125
WEATHERED BEDROCK: SILTY SAND WITH GRAVEL, FINE TO COARSE GRAINED, OLIVE YELLOW, MOIST, MEDIUM DENSE TO VERY DENSE EL. 687.8 FT. TO EL. 682.8 FT.	38	0	135
WEATHERED BEDROCK: SILTY SAND, FINE GRAINED, A LITTLE GRAVEL, BROWN AND DARK OLIVE GREEN, MOIST, DENSE EL. 682.8 FT. TO EL. 680.3 FT.	40	0	135
WEATHERED BEDROCK: SILTY SAND WITH GRAVEL, FINE TO COARSE GRAINED, OLIVE YELLOW AND OLIVE, MOIST, DENSE TO VERY DENSE EL. 680.3 FT. TO EL. 675.3 FT.	40	0	135
WEATHERED BEDROCK: SILTY SAND, FINE GRAINED, DARK OLIVE GREEN, WATERBEARING, VERY DENSE EL. 675.3 FT. TO EL. 672.1 FT.	40	0	135*
END BORING EL. 672.1	---	---	---

*SATURATED UNIT WEIGHT

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		TJN	PLANS CK'D. LMK
BORING LOGS 1			SHEET 12 OF 13

BORING LOGS

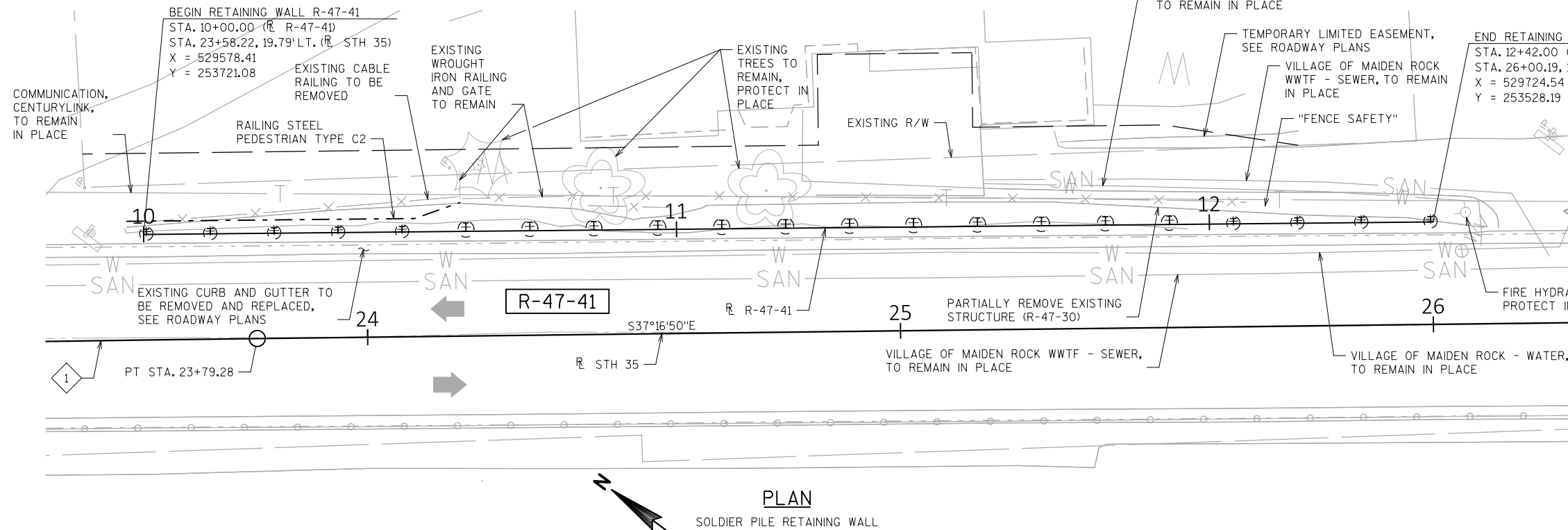
SOIL DESCRIPTION	FRICTION ANGLE (DEGREES)	COHESION (PSF)	UNIT WEIGHT (PCF)
BORING 2			
BITUMINOUS PAVEMENT EL. 706.3 FT. TO EL. 705.8 FT.	36	0	130
FILL: APPARENT RECYCLED ASPHALT EL. 705.8 FT. TO EL. 705.6 FT.	36	0	130
FILL: GRAVELLY SAND WITH SILT, FINE TO MEDIUM GRAINED, BROWN, MOIST EL. 705.6 FT. TO EL. 705.0 FT.	36	0	130
FILL: SILTY SAND WITH GRAVEL, FINE TO MEDIUM GRAINED, BROWN, MOIST EL. 705.0 FT. TO EL. 704.3 FT.	36	0	130
FILL: SILTY SAND, FINE TO MEDIUM GRAINED, A LITTLE GRAVEL, DARK BROWN, MOIST EL. 704.3 FT. TO EL. 703.3 FT.	36	0	130
FILL: GRAVEL WITH SILT AND SAND, BROWN AND DARK BROWN, MOIST EL. 703.3 FT. TO EL. 702.8 FT.	36	0	130
FILL: GRAVEL WITH SAND, LIGHT GRAY, DRY EL. 702.8 FT. TO EL. 701.8 FT.	36	0	130
FILL: MIX OF YELLOWISH BROWN SAND AND DARK BROWN SILTY SAND WITH GRAVEL, MOIST EL. 701.8 FT. TO EL. 699.3 FT.	31	0	115
FILL: SILTY SAND, FINE TO MEDIUM GRAINED, A LITTLE GRAVEL, DARK BROWN, MOIST EL. 699.3 FT. TO EL. 696.8 FT.	31	0	115
FILL: GRAVEL WITH SILT AND SAND, BROWN, MOIST EL. 696.8 FT. TO EL. 694.3 FT.	33	0	120
SAND: FINE TO MEDIUM GRAINED, A LITTLE GRAVEL, BROWN, MOIST, LOOSE, POSSIBLE FILL EL. 694.3 FT. TO EL. 689.3 FT.	31	0	120
SAND WITH GRAVEL: FINE TO COARSE GRAINED, BROWN, MOIST, MEDIUM DENSE, POSSIBLE FILL EL. 689.3 FT. TO EL. 685.8 FT.	33	0	125
GRAVELLY SILTY SAND: FINE GRAINED, OLIVE BROWN, MOIST, MEDIUM DENSE EL. 685.8 FT. TO EL. 684.3 FT.	33	0	125
SILTY SAND WITH GRAVEL: FINE TO MEDIUM GRAINED, LIGHT GRAY AND BROWN AND DARK OLIVE GREEN, MOIST, VERY DENSE EL. 684.3 FT. TO EL. 681.8 FT.	40	0	135
WEATHERED BEDROCK: GRAVEL WITH SAND, OLIVE YELLOW, MOIST, VERY DENSE EL. 681.8 FT. TO EL. 679.3 FT.	40	0	135
WEATHERED BEDROCK: SILTY GRAVEL WITH SAND, OLIVE, MOIST, VERY DENSE EL. 679.3 FT. TO EL. 669.3 FT.	40	0	135
END BORING EL. 669.0	---	---	---

SOIL DESCRIPTION	FRICTION ANGLE (DEGREES)	COHESION (PSF)	UNIT WEIGHT (PCF)
BORING 3			
BITUMINOUS PAVEMENT EL. 714.0 FT. TO EL. 713.2 FT.	32	0	120
FILL: APPARENT RECYCLED ASPHALT EL. 713.2 FT. TO EL. 712.7 FT.	32	0	120
FILL: GRAVEL WITH SILT AND SAND, BROWN, MOIST EL. 712.7 FT. TO EL. 712.0 FT.	32	0	120
FILL: SAND WITH GRAVEL, FINE TO MEDIUM GRAINED, BROWN, MOIST EL. 712.0 FT. TO EL. 711.0 FT.	32	0	120
FILL: SILTY SAND WITH GRAVEL, FINE TO MEDIUM GRAINED, DARK BROWN, MOIST EL. 711.0 FT. TO EL. 710.5 FT.	32	0	120
FILL: SAND, FINE TO MEDIUM GRAINED, A LITTLE GRAVEL, YELLOWISH BROWN, MOIST, WITH A LENS OF DARK BROWN SILTY SAND EL. 710.5 FT. TO EL. 709.5 FT.	32	0	120
FILL: SAND, FINE TO COARSE GRAINED, A LITTLE GRAVEL, BROWN, MOIST, WITH SEVERAL LENSES OF DARK BROWN SILTY SAND EL. 709.5 FT. TO EL. 708.5 FT.	32	0	120
FILL: SAND, FINE TO MEDIUM GRAINED, YELLOWISH BROWN, MOIST EL. 708.5 FT. TO EL. 707.0 FT.	32	0	120
FILL: LEAN CLAY WITH SAND AND GRAVEL, BROWN EL. 707.0 FT. TO EL. 704.5 FT.	26	0	120
FILL: LEAN CLAY WITH SAND, BROWN, WITH A LENS OF SAND EL. 704.5 FT. TO EL. 703.0 FT.	26	0	120
FILL: SAND WITH SILT, FINE TO MEDIUM GRAINED, BROWN, MOIST, WITH LENSES OF LEAN CLAY EL. 703.0 FT. TO EL. 702.0 FT.	34	0	125
FILL: SILTY SAND, FINE TO MEDIUM GRAINED, A LITTLE GRAVEL, BROWN, MOIST EL. 702.0 FT. TO EL. 701.5 FT.	34	0	125
FILL: SILTY SAND WITH GRAVEL, FINE TO COARSE GRAINED, BROWN, MOIST EL. 701.5 FT. TO EL. 699.5 FT.	34	0	125
SAND WITH GRAVEL: FINE TO MEDIUM GRAINED, BROWN, MOIST, MEDIUM DENSE, POSSIBLE FILL EL. 699.5 FT. TO EL. 697.0 FT.	31	0	120
SAND: FINE TO MEDIUM GRAINED, A LITTLE GRAVEL, BROWN, MOIST, LOOSE, POSSIBLE FILL EL. 697.0 FT. TO EL. 694.5 FT.	31	0	120
GRAVELLY SAND WITH SILT: FINE TO COARSE GRAINED, BROWN, MOIST, DENSE EL. 694.5 FT. TO EL. 694.0 FT.	40	0	135
GRAVELLY SILTY SAND: FINE TO MEDIUM GRAINED, BROWN, MOIST, DENSE EL. 694.0 FT. TO EL. 693.0 FT.	40	0	135
WEATHERED BEDROCK: SILTY GRAVEL WITH SAND, LIGHT OLIVE, MOIST, DENSE EL. 693.0 FT. TO EL. 692.0 FT.	40	0	135
WEATHERED BEDROCK: SILTY GRAVEL WITH SAND, OLIVE YELLOW, MOIST, MEDIUM DENSE TO VERY DENSE EL. 692.0 FT. TO EL. 687.0 FT.	35	0	135
WEATHERED BEDROCK: SILTY GRAVEL WITH SAND, OLIVE YELLOW, MOIST, MEDIUM DENSE TO VERY DENSE EL. 687.0 FT. TO EL. 682.0 FT.	40	0	135
WEATHERED BEDROCK: SILT WITH SAND AND GRAVEL, OLIVE, MOIST, VERY DENSE EL. 682.0 FT. TO EL. 679.5 FT.	40	0	135
WEATHERED BEDROCK: SILTY GRAVEL WITH SAND, OLIVE, MOIST, DENSE EL. 679.5 FT. TO EL. 678.0 FT.	36	0	135
SILTY SAND WITH GRAVEL: FINE TO MEDIUM GRAINED, DARK BROWN, MOIST EL. 678.0 FT. TO EL. 677.0 FT.	36	0	135
GRAVELLY SILTY SAND: FINE TO MEDIUM GRAINED, BROWN AND OLIVE, MOIST, MEDIUM DENSE EL. 677.0 FT. TO EL. 675.7 FT.	36	0	135
SILT WITH SAND AND GRAVEL: OLIVE GREEN, MOIST, MEDIUM DENSE EL. 675.7 FT. TO EL. 674.5 FT.	29	0	135
SILTY GRAVEL WITH SAND: OLIVE GREEN, WATERBEARING, LOOSE EL. 674.5 FT. TO EL. 672.5 FT.	29	0	135
END BORING EL. 672.5	---	---	---

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-40			
DRAWN BY		TJN	PLANS CK'D. LMK
BORING LOGS 2			SHEET 13 OF 13



DESIGN DATA

LIVE LOAD:
LIVE LOAD SURCHARGE: 100 PSF

MATERIAL PROPERTIES:
CONCRETE MASONRY RETAINING WALLS:
PRECAST PANELS.....f'c = 4,000 P.S.I.
SOLDIER PILE FOOTINGS.....f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT
HIGH STRENGTH, GRADE 60.....fy = 60,000 P.S.I.

STRUCTURAL STEEL
ASTM A709 GRADE 50.....fy = 50,000 P.S.I.

LEGEND

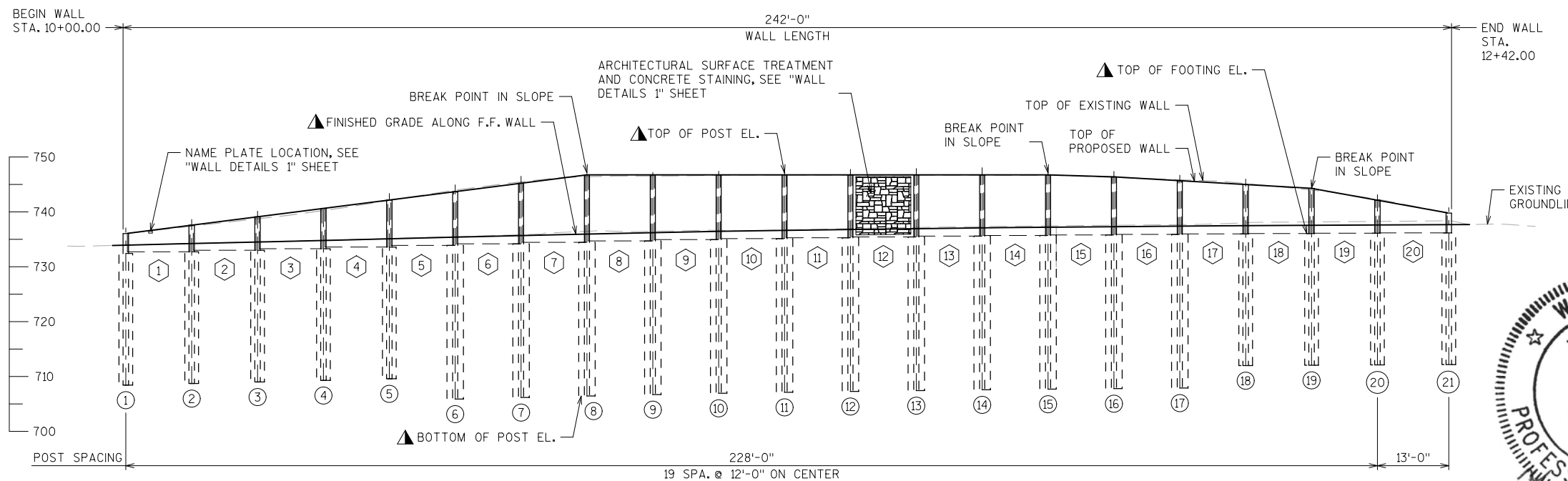
- ⬡ INDICATES PANEL NO.
- INDICATES POST NO.
- ▲ FOR ELEVATIONS AND APPLICABLE DATA, SEE WALL DATA TABLES ON "GENERAL NOTES & QUANTITIES" SHEET.
- ◇ CURVE NO.

CURVE DATA

◇ 1
P.I. STA. = 21+74.18
Y = 253855.548
X = 529451.194
DELTA = 1°53'13" RT
D = 0°27'36"
T = 205.13'
L = 410.23'
R = 12,457.21'
PC STA. = 19+69.04
PT STA. = 23+79.28

LIST OF DRAWINGS

1. GENERAL PLAN & ELEVATION
2. GENERAL NOTES & QUANTITIES
3. TYPICAL SECTION
4. WALL DETAILS 1
5. WALL DETAILS 2
6. COMBINATION RAILING TYPE C2
7. RAILING DETAILS
8. SUBSURFACE EXPLORATION



ELEVATION

LOOKING AT F.F. WALL

BENCH MARKS

NO.	NORTHING (Y)	EASTING (X)	DESCRIPTION	ELEV.
50	254010.977	529357.594	3/8" SPIKE IN POWER POLE ON SOUTH SIDE OF GREEN STREET	728.72
51	253600.367	529623.678	CHISELED "X" IN BACK OF CURB	736.61



STRUCTURE DESIGN CONTACTS
BUREAU OF STRUCTURES:
AARON BONK (608) 261-0261
CONSULTANT:
LINDA KRUEGER (608) 821-8700

NO.	DATE	REVISION	BY

Michael Baker INTERNATIONAL MICHAEL BAKER INTERNATIONAL
1255 FOURIER DRIVE
SUITE 100
MADISON, WI 53717

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SPR **05/30/23**
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-47-41
SOLDIER PILE WALL ALONG STH 35

COUNTY: PIERCE TOWN/CITY/VILLAGE: MAIDEN ROCK

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY: TJN	DESIGN CK'D.: JRS	DRAWN BY: TJN	PLANS CK'D.: LMK
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GENERAL PLAN & ELEVATION SHEET 1 OF 8

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
203.0220.02	REMOVING STRUCTURE R-47-30	EACH	1
206.3001.01	EXCAVATION FOR STRUCTURES RETAINING WALLS R-47-41	EACH	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	354
502.0110.S	CONCRETE MASONRY SOLDIER PILE FOOTINGS	CY	128
506.0605	STRUCTURAL STEEL HS	LB	80,788
513.8011	RAILING STEEL PEDESTRIAN TYPE C2	LF	63
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	31
517.0601.01	PAINTING EPOXY SYSTEM R-47-41	EACH	1
517.1010.S.02	CONCRETE STAINING R-47-41	SF	2,406
517.1050.S.02	ARCHITECTURAL SURFACE TREATMENT R-47-41	SF	1,550
542.1000.S	PRECAST PANELS FOR SOLDIER PILE WALLS	SF	2,128
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	262
616.0700.S	FENCE SAFETY	LF	256
636.0050.S.01	FOUNDATION DRILLING 30-INCH DIAMETER	LF	216
636.0050.S.02	FOUNDATION DRILLING 36-INCH DIAMETER	LF	336
645.0112	GEOTEXTILE TYPE DF SCHEDULE B	SY	122
SPV.0060.08	TEMPORARY EXCAVATION SUPPORT	EACH	1
SPV.0060.09	PROTECT OR REMOVE AND RESET RAILING	EACH	1
NON-BID ITEMS			
	NAME PLATE	EACH	1

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

ALL DIMENSIONS, STATIONS, AND OFFSETS ARE GIVEN AT THE FRONT FACE OF WALL AT THE TOP OF THE FOOTING, UNLESS OTHERWISE SHOWN.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS SHOWN OTHERWISE.

ALL STATIONS AND ELEVATIONS ARE IN FEET.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.

THE COLORS FOR THE FINISH EPOXY TOP COAT OF THE STEEL POSTS, STAIN FOR THE ARCHITECTURAL SURFACE TREATMENT, AND STAIN FOR THE PRECAST CONCRETE WALL PANELS BEYOND THE LIMITS OF THE ARCHITECTURAL SURFACE TREATMENT SHALL MATCH THE COLOR OF THE ADJACENT RETAINING WALL, R-47-16, ON STH 35 JUST SOUTH OF THE PROPOSED WALL, R-47-41. COLOR IS A SAND TAN. COLOR SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.

THE FINISH EPOXY TOP COAT OF THE STEEL POSTS SHALL EXTEND FROM THE TOP OF POST TO 1'-0" BELOW THE TOP OF FOOTING. PAINTING IS TO BE COMPLETED PRIOR TO SETTING POSTS.

EXISTING RETAINING WALL R-47-30 IS APPROXIMATELY 250 FEET LONG AND VARIES IN HEIGHT FROM 9'-± TO 10'-7"±. TOP 1-FOOT± OF THE EXISTING WALL IS TO BE REMOVED. CONTRACTOR TO REMOVE AS LITTLE AS POSSIBLE OF THE EXISTING WALL AS NEEDED FOR CONSTRUCTION. PARTIAL REMOVAL TO BE PAID FOR AS "REMOVING OLD STRUCTURE R-47-30". TEMPORARY BRACING OF THE WALL TO BE PAID FOR AS "TEMPORARY EXCAVATION SUPPORT".

THE PLAN QUANTITY FOR THE BID ITEM "PRECAST PANELS FOR SOLDIER PILE WALLS" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE WALL TO A CONSTANT DEPTH OF 1'-6" BELOW THE FINISHED GRADE.

DO NOT SPLICE SOLDIER PILES.

THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAILS SHOWN IN THE PLANS.

THE EXISTING GROUND LINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR THE STRUCTURE.

ALL REBAR IN THE PRECAST CONCRETE PANELS IS EPOXY COATED GRADE 60.

PANELS HEIGHTS OF 6'-0" OR GREATER MAY BE FABRICATED FULL PANEL HEIGHT OR HALF PANEL HEIGHT. PANELS SHALL BE CLEARLY LABELED FOR CORRECT LOCATION AND ORIENTATION.

FOR THE CONCRETE USED IN "CONCRETE MASONRY SOLDIER PILE FOOTINGS", THE CONTRACTOR SHALL PROVIDE COARSE AGGREGATE WITH 100 PERCENT PASSING THE 1-INCH SIEVE.

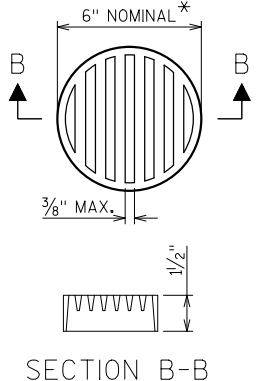
CONTRACTOR IS RESPONSIBLE TO TRIM TREES TO MEET THEIR MEANS AND METHODS OF WALL CONSTRUCTION WITH APPROVAL FROM THE ENGINEER. TREE TRIMMING SHOULD BE KEPT TO A MINIMUM. COSTS TO TRIM TREES SHALL BE INCIDENTAL TO "REMOVING OLD STRUCTURE R-47-30".

RODENT SHIELD DETAIL

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

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE 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.



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POST NUMBER	POST R. STATION	POST R. OFFSET (FT.)	POST WALL STATION	FINISHED GRADE EL.	POST SHAPE	TOP OF POST AND PANEL EL.	BOTTOM OF POST AND FOOTING EL.	POST LENGTH (FT.)	TOP OF FOOTING EL.	FOOTING HEIGHT (FT.)	FOOTING DIAMETER (FT.)
1	23+58.72	19.79	10+00.50	733.92	W12x72	736.05	708.42	27.63	732.42	24.00	2.50
2	23+70.70	19.75	10+12.50	734.21	W12x72	737.58	708.71	28.87	732.71	24.00	2.50
3	23+82.68	19.72	10+24.50	734.49	W12x72	739.10	708.99	30.11	732.99	24.00	2.50
4	23+94.69	19.69	10+36.50	734.78	W12x72	740.63	709.28	31.35	733.28	24.00	2.50
5	24+06.69	19.66	10+48.50	735.08	W12x72	742.16	709.58	32.58	733.58	24.00	2.50
6	24+18.69	19.63	10+60.50	735.38	W18x130	743.69	705.88	37.81	733.88	28.00	3.00
7	24+30.69	19.61	10+72.50	735.67	W18x130	745.22	706.17	39.05	734.17	28.00	3.00
8	24+42.69	19.58	10+84.50	735.94	W18x130	746.75	706.44	40.31	734.44	28.00	3.00
9	24+54.69	19.55	10+96.50	736.19	W18x130	746.75	706.69	40.06	734.69	28.00	3.00
10	24+66.69	19.52	11+08.50	736.44	W18x130	746.75	706.94	39.81	734.94	28.00	3.00
11	24+78.69	19.49	11+20.50	736.62	W18x130	746.75	707.12	39.63	735.12	28.00	3.00
12	24+90.69	19.47	11+32.50	736.78	W18x130	746.75	707.28	39.47	735.28	28.00	3.00
13	25+02.69	19.44	11+44.50	736.93	W18x130	746.75	707.43	39.32	735.43	28.00	3.00
14	25+14.69	19.41	11+56.50	737.08	W18x130	746.75	707.58	39.17	735.58	28.00	3.00
15	25+26.69	19.38	11+68.50	737.19	W18x130	746.75	707.69	39.06	735.69	28.00	3.00
16	25+38.69	19.35	11+80.50	737.29	W18x130	746.38	707.79	38.59	735.79	28.00	3.00
17	25+50.69	19.33	11+92.50	737.40	W18x130	745.68	707.90	37.78	735.90	28.00	3.00
18	25+62.69	19.30	12+04.50	737.48	W12x72	744.99	711.98	33.01	735.98	24.00	2.50
19	25+74.69	19.27	12+16.50	737.55	W12x72	744.29	712.05	32.24	736.05	24.00	2.50
20	25+86.69	19.24	12+28.50	737.61	W12x72	742.13	712.11	30.02	736.11	24.00	2.50
21	25+99.69	19.21	12+41.50	737.66	W12x72	739.78	712.16	27.62	736.16	24.00	2.50

PANEL NUMBER	PANEL TOP EL. LEFT	PANEL TOP EL. RIGHT	PANEL BOTTOM EL.	PANEL HEIGHT LEFT (FT.)	PANEL HEIGHT RIGHT (FT.)	PANEL THICKNESS (IN.)
1	736.05	737.58	732.71	3.34	4.87	6.50
2	737.58	739.10	732.99	4.59	6.11	6.50
3	739.10	740.63	733.28	5.82	7.35	6.50
4	740.63	742.16	733.58	7.05	8.58	6.50
5	742.16	743.69	733.88	8.28	9.81	8.25
6	743.69	745.22	734.17	9.52	11.05	8.25
7	745.22	746.75	734.44	10.78	12.31	8.25
8	746.75	746.75	734.69	12.06	12.06	8.25
9	746.75	746.75	734.94	11.81	11.81	8.25
10	746.75	746.75	735.12	11.63	11.63	8.25
11	746.75	746.75	735.28	11.47	11.47	8.25
12	746.75	746.75	735.43	11.32	11.32	8.25
13	746.75	746.75	735.58	11.17	11.17	8.25
14	746.75	746.75	735.69	11.06	11.06	8.25
15	746.75	746.38	735.79	10.96	10.59	8.25
16	746.38	745.68	735.90	10.48	9.78	8.25
17	745.68	744.99	735.98	9.70	9.01	8.25
18	744.99	744.29	736.05	8.94	8.24	6.50
19	744.29	742.13	736.11	8.18	6.02	6.50
20	742.13	739.78	736.16	5.97	3.62	6.50

8

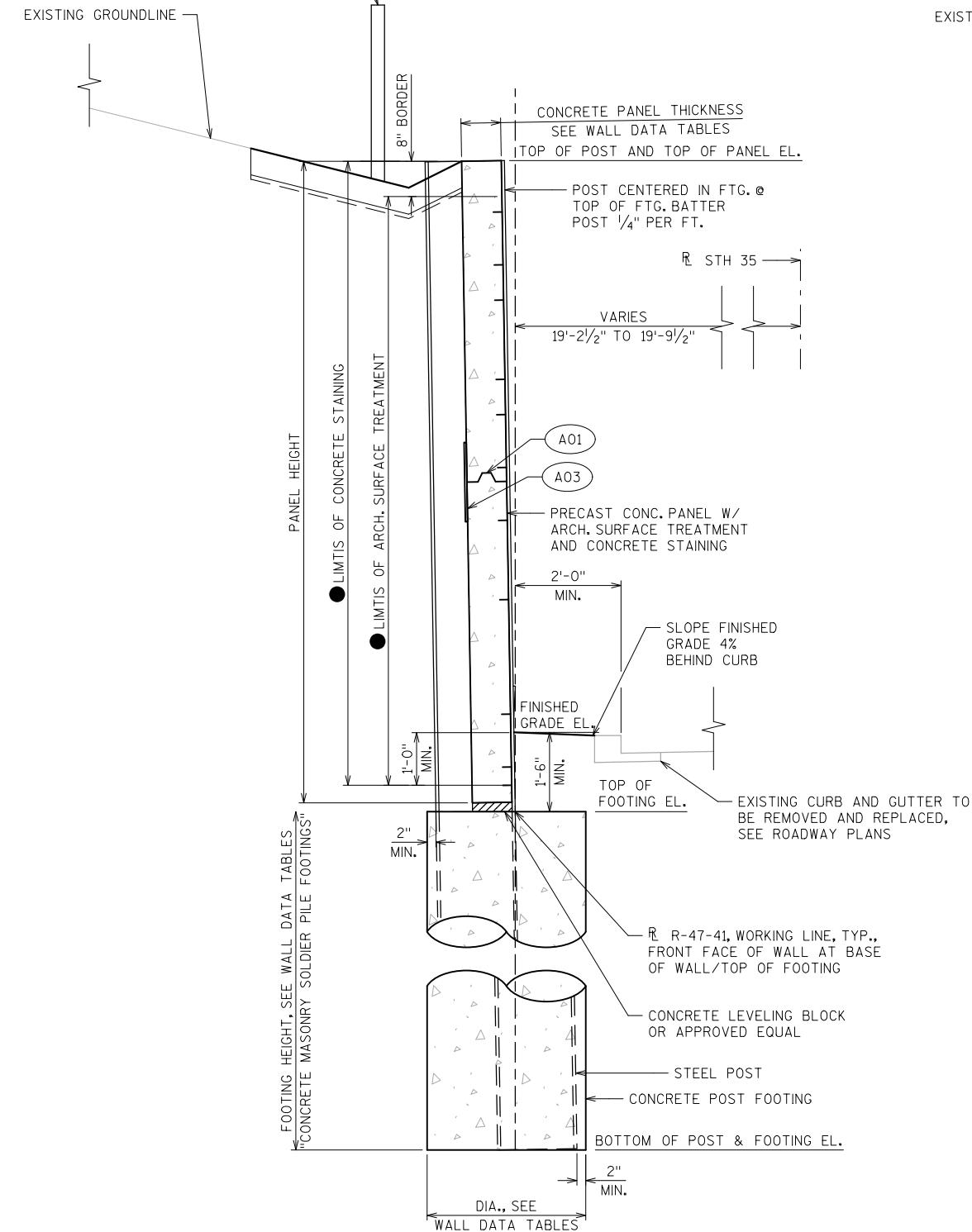
WALL DATA TABLES

ALL GIVEN DIMENSIONS AND ELEVATIONS ARE IN FEET. POST LENGTHS AND PANEL HEIGHTS MAY BE FABRICATED TO THE NEAREST WHOLE INCH AT CONTRACTORS OPTION

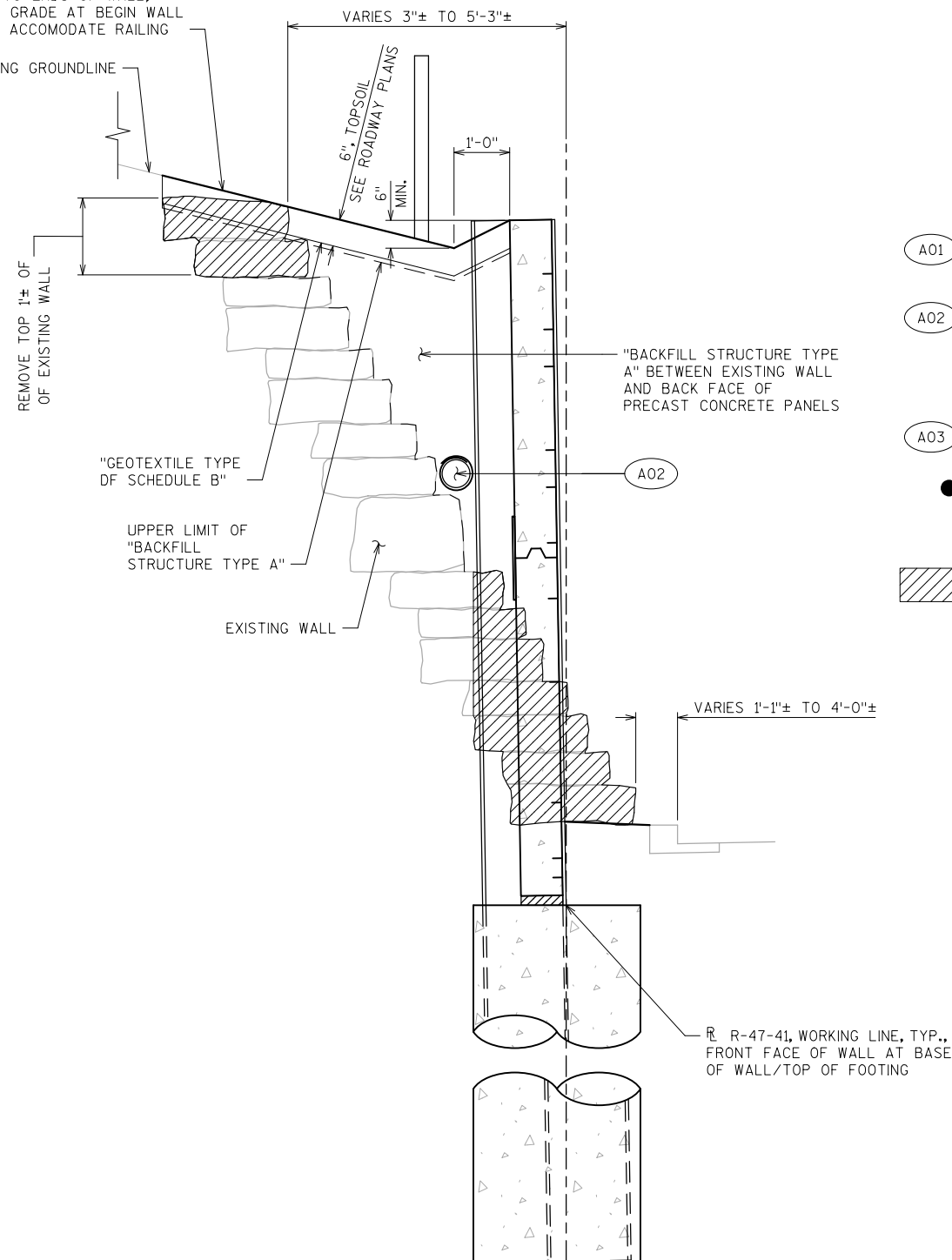
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-41			
DRAWN BY		TJN	PLANS CK'D. LMK
GENERAL NOTES & QUANTITIES			SHEET 2 OF 8

EXISTING WROUGHT IRON RAILING TO BE PAID FOR AS "PROTECT OR REMOVE AND RESET RAILING" STA. 24+18 TO 25+65, RAILING STEEL PEDESTRIAN TYPE C2 STA. 23+55 TO 24+18, SEE "COMBINATION RAILING TYPE C2" SHEET

SHAPE FINISHED GRADE TO CREATE DITCH SIMILAR TO SHOWN DETAIL TO DRAIN RUNOFF TO ENDS OF WALL, SLOPE FINISHED GRADE AT BEGIN WALL AS NEEDED TO ACCOMMODATE RAILING



SECTION THRU WALL
EXISTING WALL NOT SHOWN FOR CLARITY



SECTION THRU WALL
SHOWING EXISTING WALL

NOTE

FOR ELEVATIONS AND APPLICABLE DATA, SEE WALL DATA TABLES ON "GENERAL NOTES & QUANTITIES" SHEET.

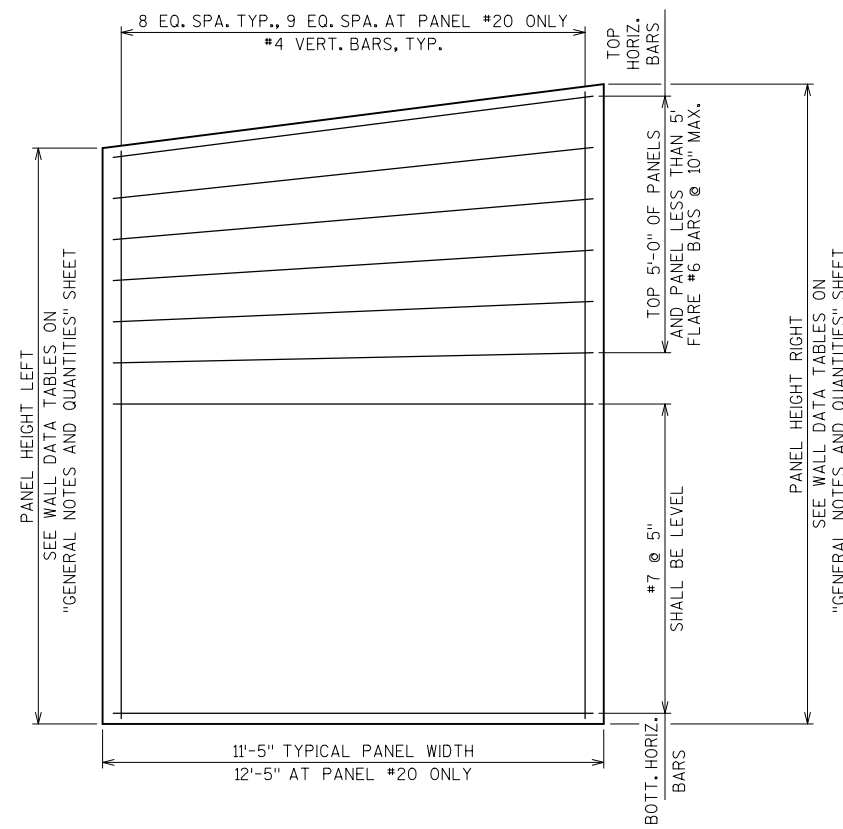
LEGEND

- A01 OPTIONAL HORIZ. CONSTRUCTION JOINT: FORMED BY BEVELED 2" x 4". JOINT SHALL BE LEVEL. FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS THE JOINT.
- A02 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED. OUTLET UNDERDRAIN THROUGH WALL AT 100' MAX. SPACING. PROVIDE BLOCKOUTS IN PRECAST CONCRETE WALL PANELS FOR OUTLETS AND "GEOTEXTILE TYPE DF SCHEDULE B" BETWEEN PIPE AND AT BACKFACE OF WALL AT OUTLETS. CONTRACTOR TO DETERMINE LOCATIONS.
- A03 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING. SEAL HORIZONTAL JOINTS BETWEEN PANELS ON BACKFACES OF THE PANELS.
- LIMITS OF "ARCHITECTURAL SURFACE TREATMENT R-47-41" AND "CONCRETE STAINING R-47-41" TO EXTEND 1'-0" BELOW FINISHED GRADE. STAIN FRONT FACE OF PANELS TO THE LIMITS SHOWN AND STAIN THE TOP AND THE TOP 1'-0" OF THE BACK FACE OF THE PANELS.
- TOP 1-FOOT± OF THE EXISTING WALL IS TO BE REMOVED. CONTRACTOR TO REMOVE AS LITTLE AS POSSIBLE OF THE EXISTING WALL AS NEEDED FOR CONSTRUCTION TO BORE HOLES FOR CONCRETE POST FOOTINGS AND TO INSTALL PRECAST CONCRETE PANELS. PARTIAL REMOVAL TO BE PAID FOR AS "REMOVING OLD STRUCTURE R-47-30". TEMPORARY BRACING OF THE WALL TO BE PAID FOR AS "TEMPORARY EXCAVATION SUPPORT".

8

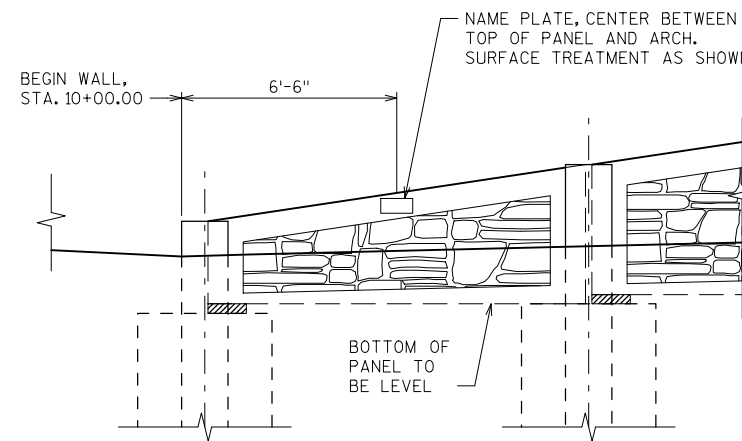
8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-41			
DRAWN BY		TJN	PLANS CK'D. LMK
TYPICAL SECTION			SHEET 3 OF 8



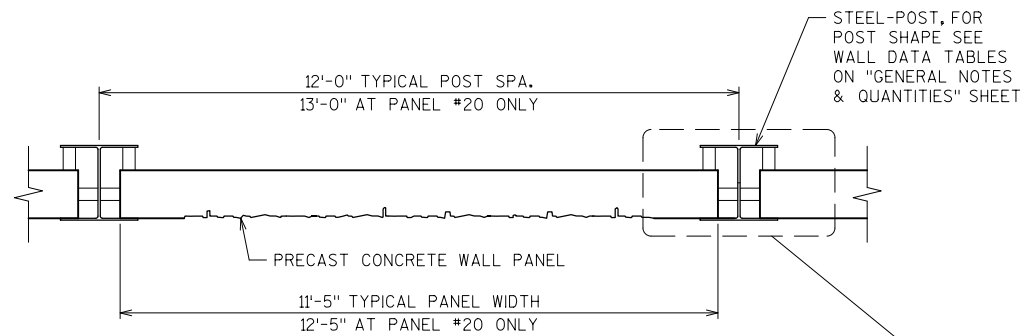
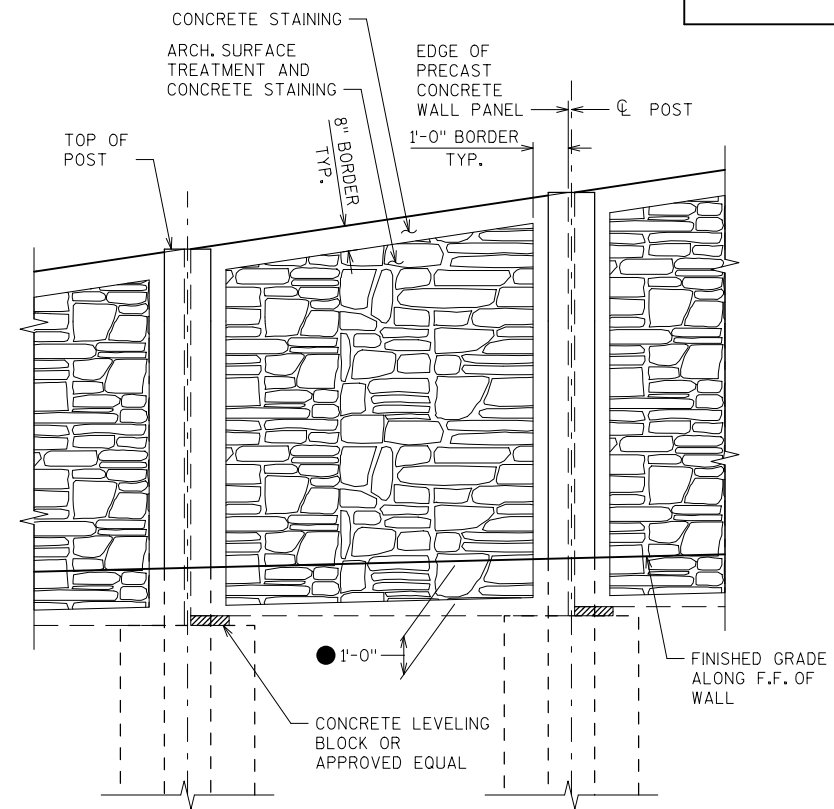
TYPICAL PANEL ELEVATION

(LOOKING AT FRONT FACE)
ALL BAR STEEL REINFORCEMENT SHALL BE EPOXY COATED

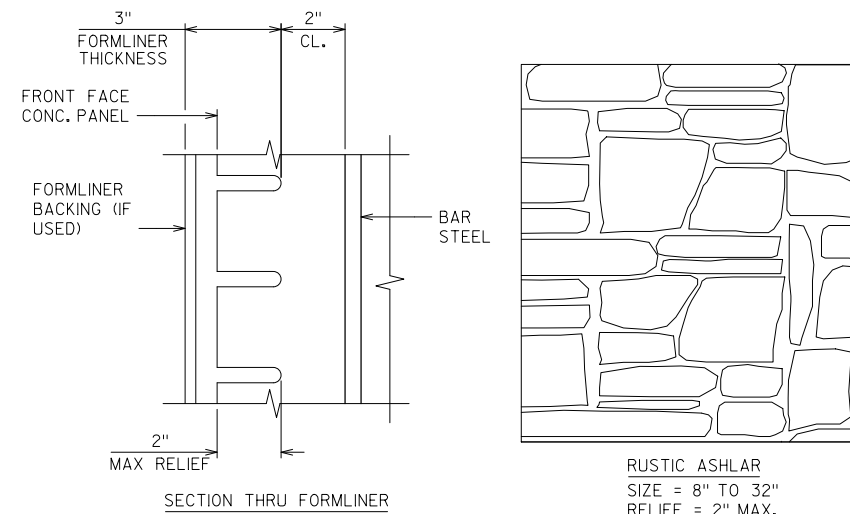


TYPICAL WALL ELEVATION

(LOOKING AT FRONT FACE)

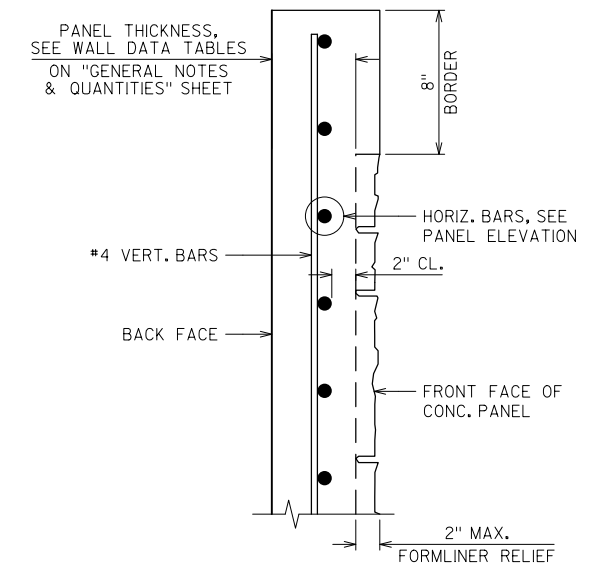


PLAN OF PANEL



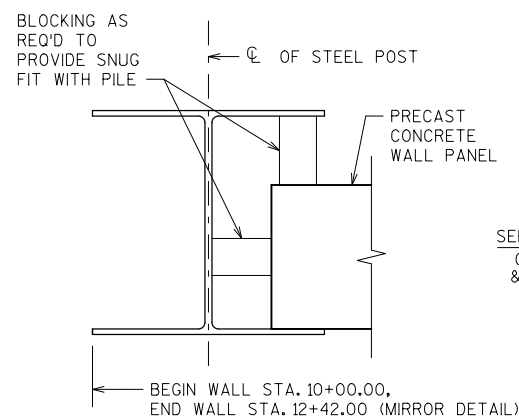
FORMLINER DETAILS

- NOTES:
- FORMLINER COURSING ON WALL SHALL BE LEVEL.
 - THE FORMLINER COURSING SHALL BE VERTICALLY ALIGNED.
 - THE FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS WALL CONSTRUCTION JOINTS.
 - LIMITS OF "ARCHITECTURAL SURFACE TREATMENT R-47-41" AND "CONCRETE STAINING R-47-41" TO EXTEND 1'-0" BELOW FINISHED GRADE. STAIN FRONT FACE OF PANELS TO THE LIMITS SHOWN AND STAIN THE TOP AND THE TOP 1'-0" OF THE BACK FACE OF THE PANELS.

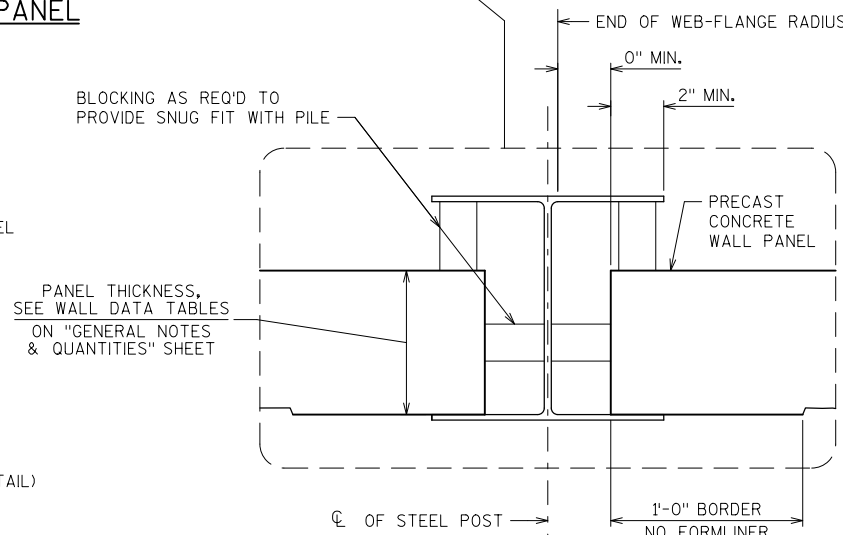


TYPICAL SECTION THRU PANEL

ALL BAR STEEL REINFORCEMENT SHALL BE EPOXY COATED

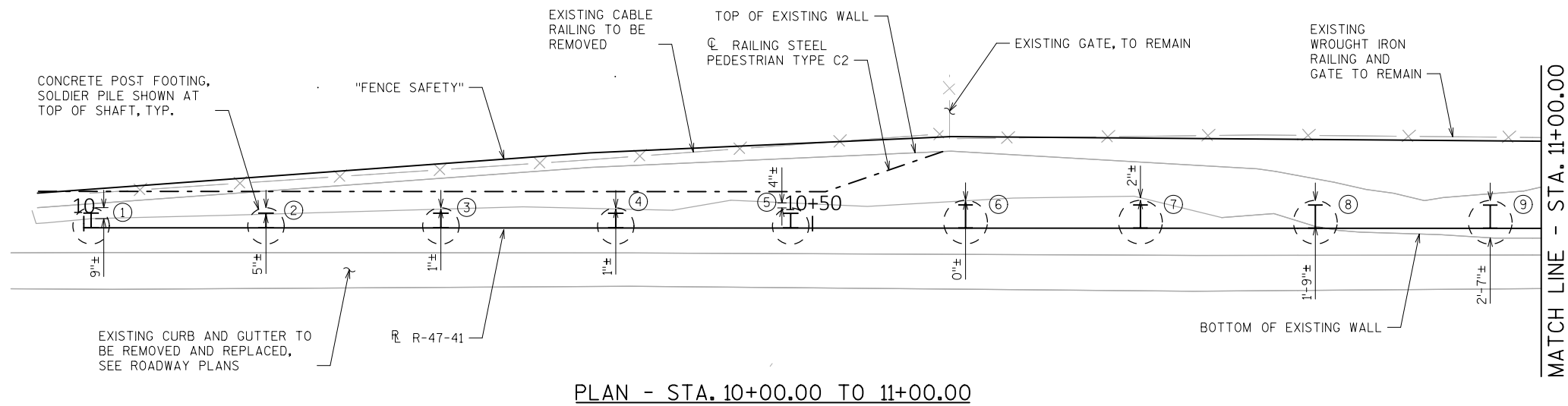


PLAN OF POST DETAIL AT BEGIN/END OF WALL



PLAN OF PANEL DETAIL AT POST

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-41			
DRAWN BY		TUN	PLANS CK'D. LMK
WALL DETAILS 1			SHEET 4 OF 8



PLAN - STA. 10+00.00 TO 11+00.00

MATCH LINE - STA. 11+00.00

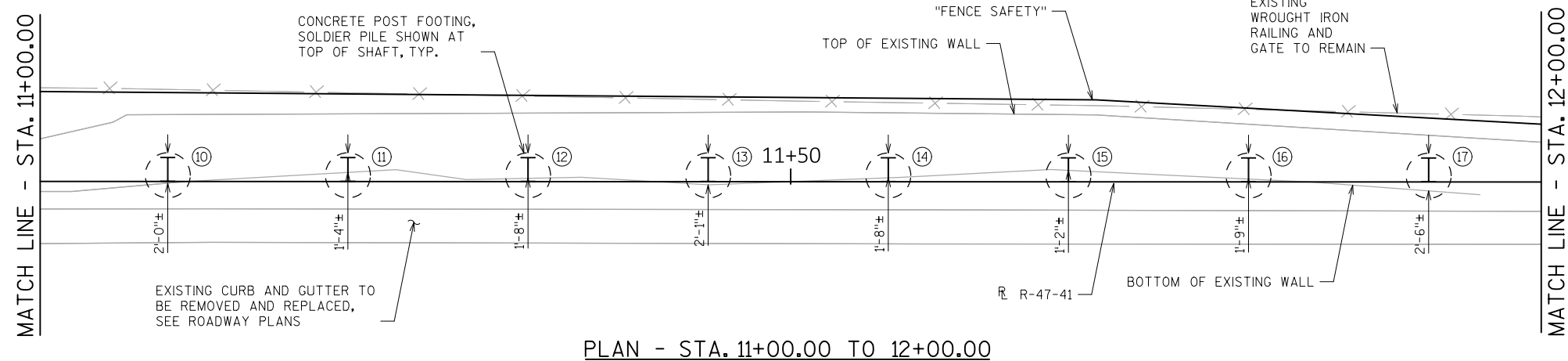
NOTES

SHEET SHOWS THE APPROXIMATE LOCATIONS OF THE TOP AND BOTTOM OF THE EXISTING WALL. DIMENSIONS FROM THE CONCRETE POST FOOTINGS TO THE BOTTOM OF WALL ARE SHOWN TO AID THE CONTRACTOR IN DETERMINING AREAS WHERE THE EXISTING WALL WILL NEED TO BE REMOVED AS-NEEDED FOR CONSTRUCTION.

EXISTING UTILITIES NOT SHOWN. FOR LOCATION OF EXISTING UTILITIES, SEE "GENERAL PLAN & ELEVATION" SHEET.

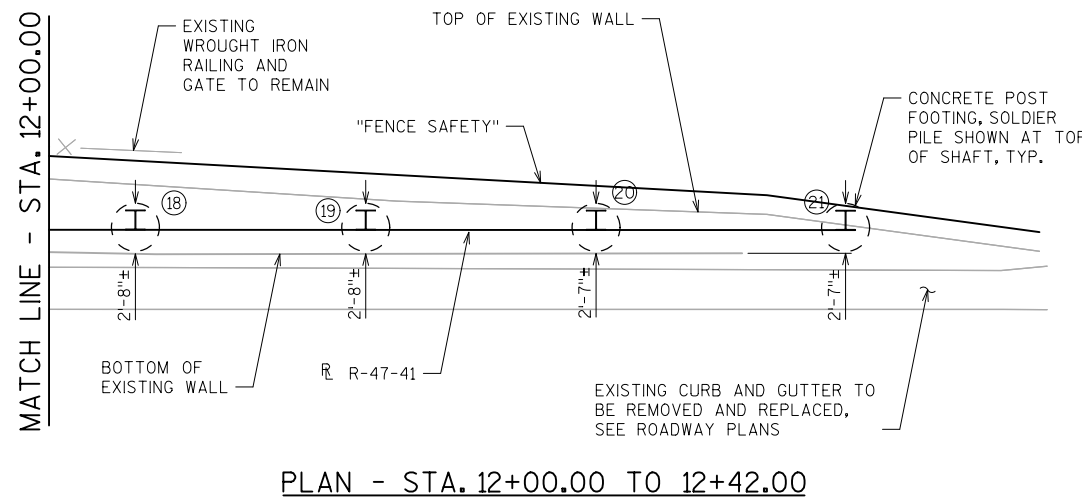
LEGEND

① INDICATES POST NO.



PLAN - STA. 11+00.00 TO 12+00.00

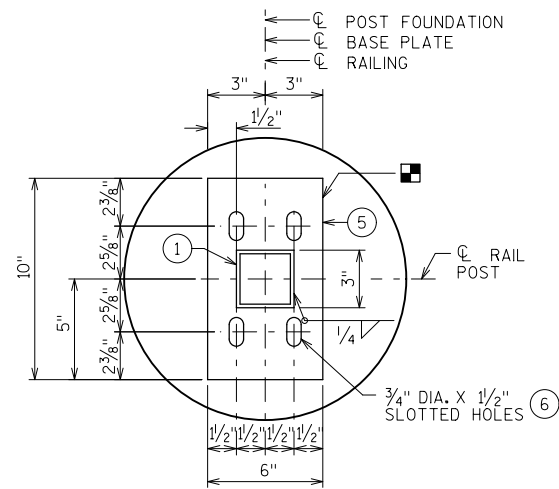
MATCH LINE - STA. 12+00.00



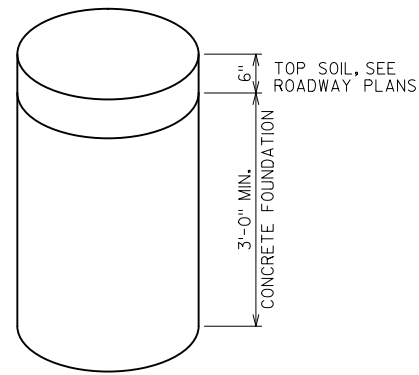
PLAN - STA. 12+00.00 TO 12+42.00

MATCH LINE - STA. 12+00.00

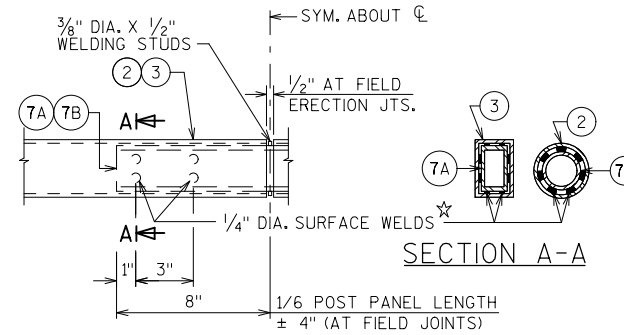
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-41			
DRAWN BY		TJN	PLANS CK'D. LMK
WALL DETAILS 2			SHEET 5 OF 8



TYPICAL RAIL POST BASE PLATE



POST FOUNDATION DETAIL



FIELD ERECTION JOINT DETAIL

☆ MIN. 5/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.

LEGEND

- ① STRUCTURAL TUBING 3" X 3" X 3/16". PLACE VERTICAL. WELD TO NO. 2, 3 & 5.
- ② STRUCTURAL TUBING 2 1/2" DIA. (STANDARD SIZE) (2.875" O.D.) WELD TO NO. 1. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION JOINTS.
- ③ STRUCTURAL TUBING 3" X 1 1/2" X 3/16" RAILS. WELD TO NO. 1. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION JOINTS.
- ④ BAR 1" X 1" PICKETS. WELD TO NO. 3. SPACE AT 6" MAX @ TO @ SPACING. PLACE VERTICAL.
- ⑤ PLATE 5/8" X 6" X 10" WITH 3/4" X 1/2" SLOTTED HOLES.
- ⑥ 5/8" DIA. X 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. ALTERNATE ANCHORAGE: CONCRETE ADHESIVE ANCHORS 5/8"-INCH. EMBED 7" IN CONCRETE FOR RAIL POSTS. EMBED 5" IN CONCRETE FOR END RAILS. 3 3/4" MAXIMUM ALLOWED DISTANCE FROM CENTERLINE ANCHOR TO EDGE OF CONCRETE FOUNDATION. ADHESIVE ANCHORS SHALL CONFORM TO SECTIONS 502.2.12 AND 502.3.14 OF THE STANDARD SPECIFICATIONS.
- ⑦A RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. 1'-4" @ FIELD ERECTION JTS. PROVIDE SLIDING FIT.
- ⑦B CIRCULAR SLEEVE FABRICATED FROM STRUCTURAL TUBING 2" DIA. (STANDARD SIZE) (2.375" O.D.) 1'-4" @ FIELD ERECTION JTS.
- ⑧ 1/4" X 5" X 9" ANCHOR PLATE WITH 1/16" DIA. HOLES FOR THR'D. RODS ⑥

RAILING NOTES

BID ITEM SHALL BE "RAILING STEEL PEDESTRIAN TYPE C2", WHICH SHALL INCLUDE ALL STEEL AND CONCRETE ITEMS SHOWN. COST OF REMOVING OLD RAILING INCLUDED IN THE BID ITEM "REMOVING OLD STRUCTURE R-47-30".

PROVIDE AND PLACE CONCRETE FOR POST FOUNDATION AS SHOWN ON THE PLANS. CONCRETE SHALL CONFORM TO SECTION 616 OF THE STANDARD SPECIFICATIONS.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL PLATES, BARS, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

CAULK AROUND PERIMETER OF BASE PLATES, NO. 5, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

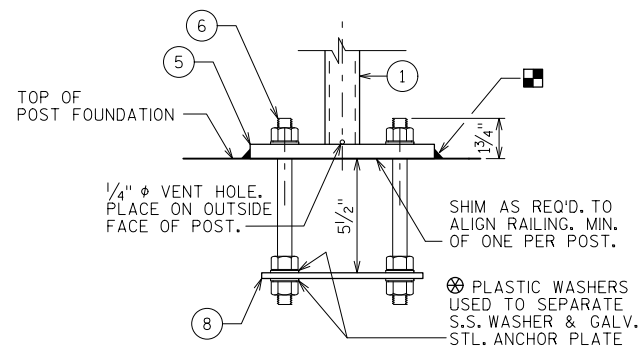
ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED AMS STD. COLOR NO. 27038, BLACK.

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS EXCEPT AT CORNER POST TO EXISTING POST SECTION.

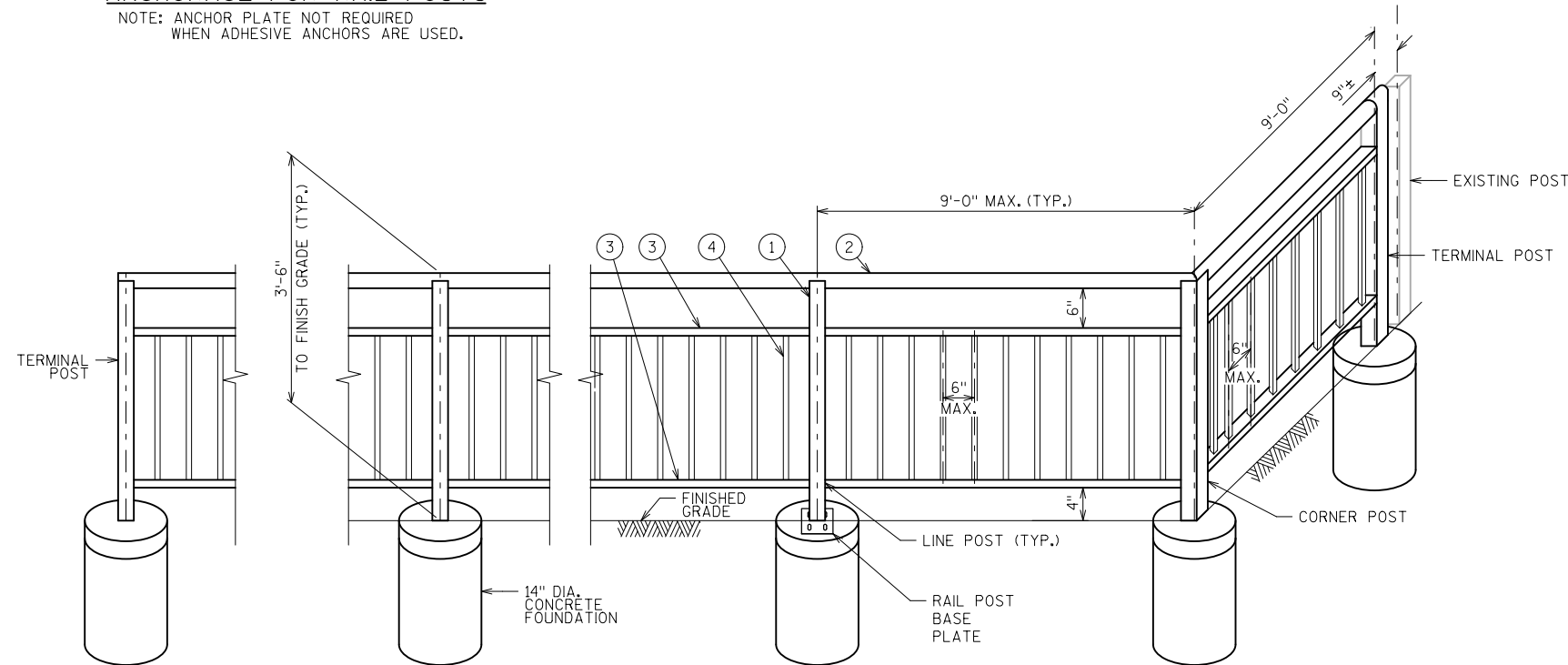
TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

CONTRACTOR SHALL COORDINATE POST INSTALLATION TO MINIMIZE DAMAGE TO "GEOTEXTILE TYPE DF SCHEDULE B".



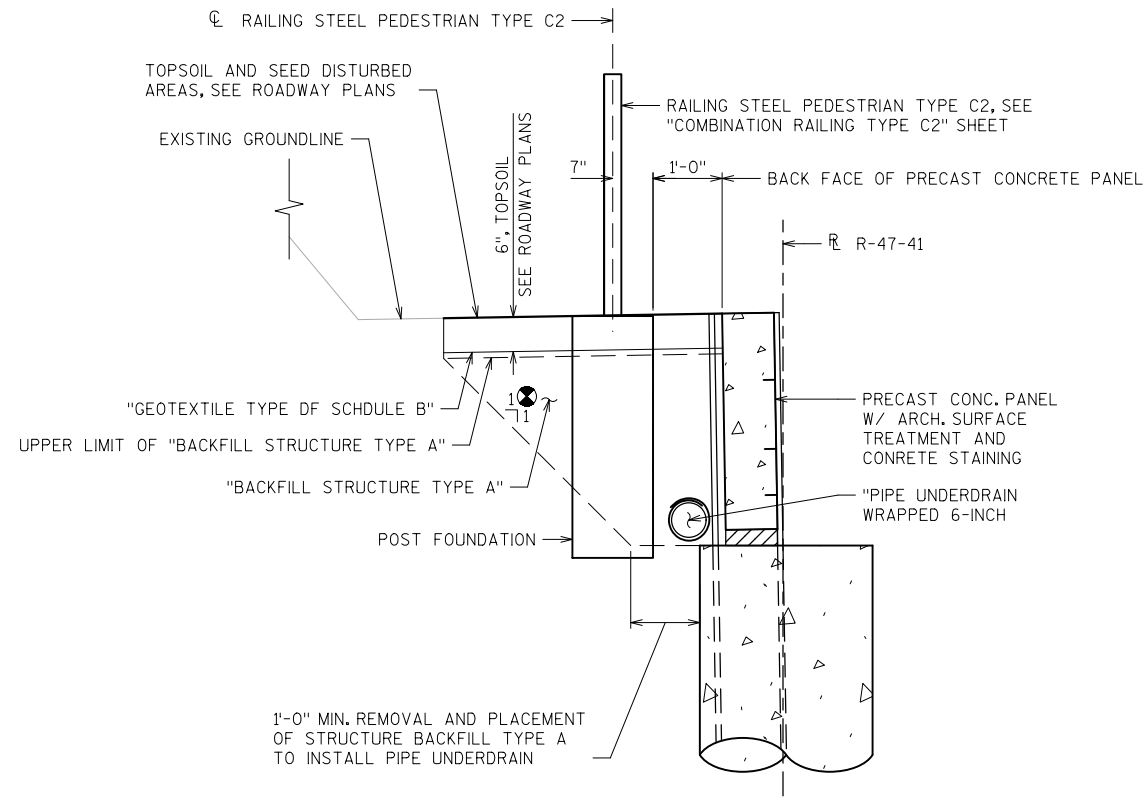
ANCHORAGE FOR RAIL POSTS

NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.



RAILING ELEVATION

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-41			
DRAWN BY		TJN	PLANS CK'D. LMK
COMBINATION RAILING TYPE C2			SHEET 6 OF 8



SECTION A-A

EXISTING WALL NOT SHOWN FOR CLARITY
 AT A MINIMUM, TOP 3'-6" OF EXISTING WALL WILL NEED TO BE REMOVED FROM 23+55 TO 23+80 TO NOT CONFLICT WITH POST FOUNDATIONS
 FOR CALLOUTS NOT SHOWN, SEE "TYPICAL SECTION" SHEET

NOTES

FABRICATOR IS RESPONSIBLE FOR THE LAYOUT OF THE RAILING. SPACE POSTS TO NOT CONFLICT WITH SOLDIER PILE POSTS AND FOOTINGS. LIMITS OF RAILING SHOWN ON PLAN INDICATE THE ANTICIPATED MINIMUM LENGTH OF RAILING AS MEASURED ALONG THE ϕ OF THE RAILING.

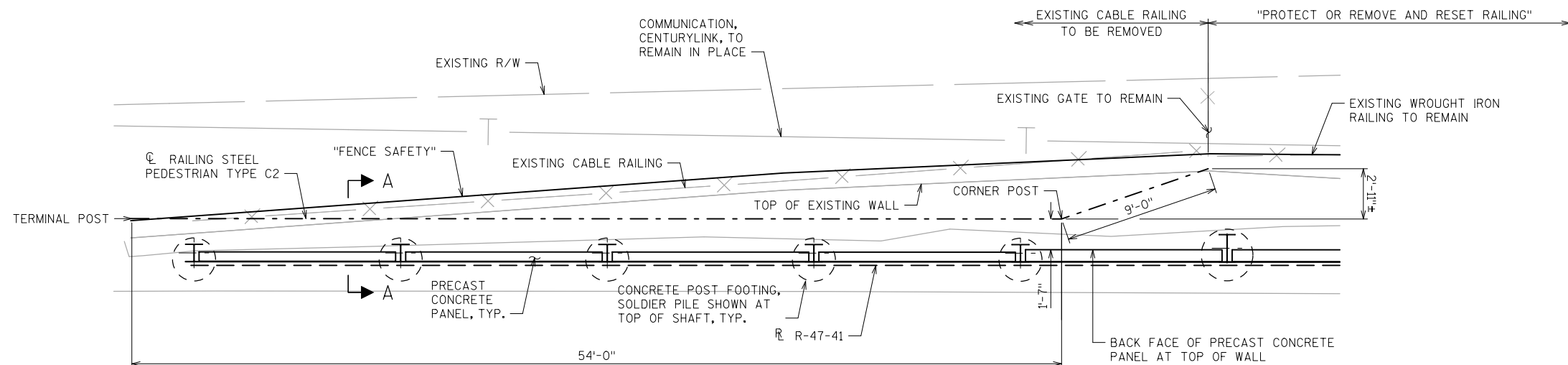
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

SECTION A-A AND THE BACKFILL LIMITS SHOWN ARE GIVEN AND ARE ONLY APPLICABLE TO AREAS WHERE THE CONTRACTOR HAS ELECTED TO REMOVE THE EXISTING WALL FROM TOP OF EXISTING WALL TO TOP OF FOOTING.

CONTRACTOR SHALL COORDINATE POST INSTALLATION TO MINIMIZE DAMAGE TO "GEOTEXTILE TYPE DF SCHEDULE B".

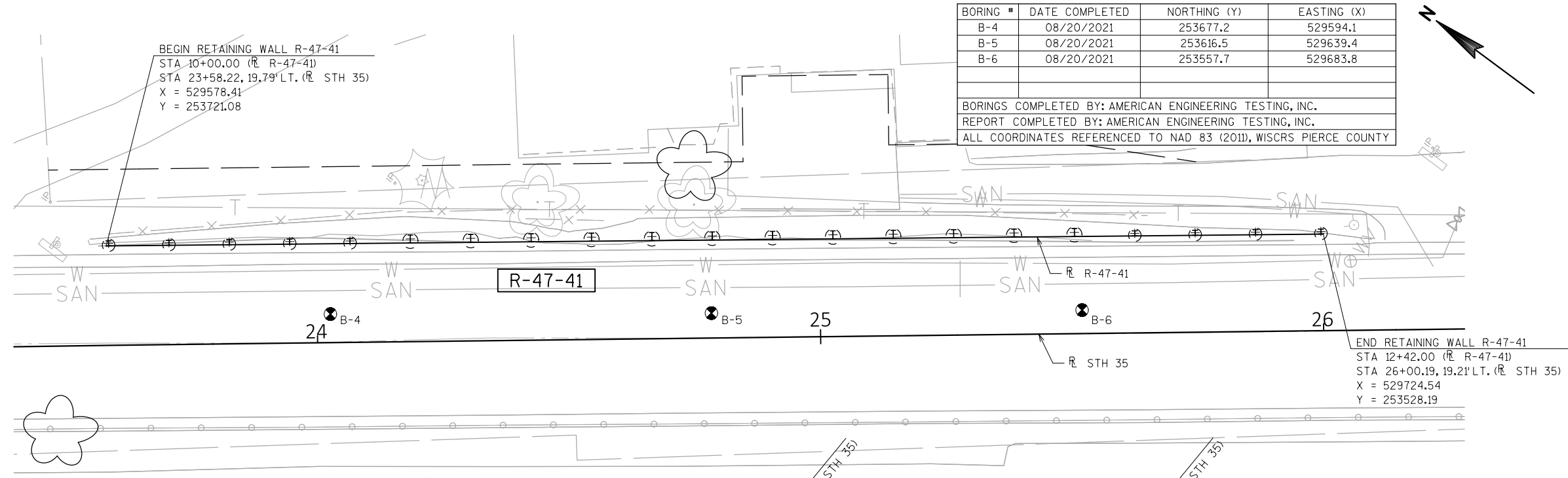
LEGEND

⊗ SLOPE MAY BE ADJUSTED WITH APPROVAL FROM THE ENGINEER.

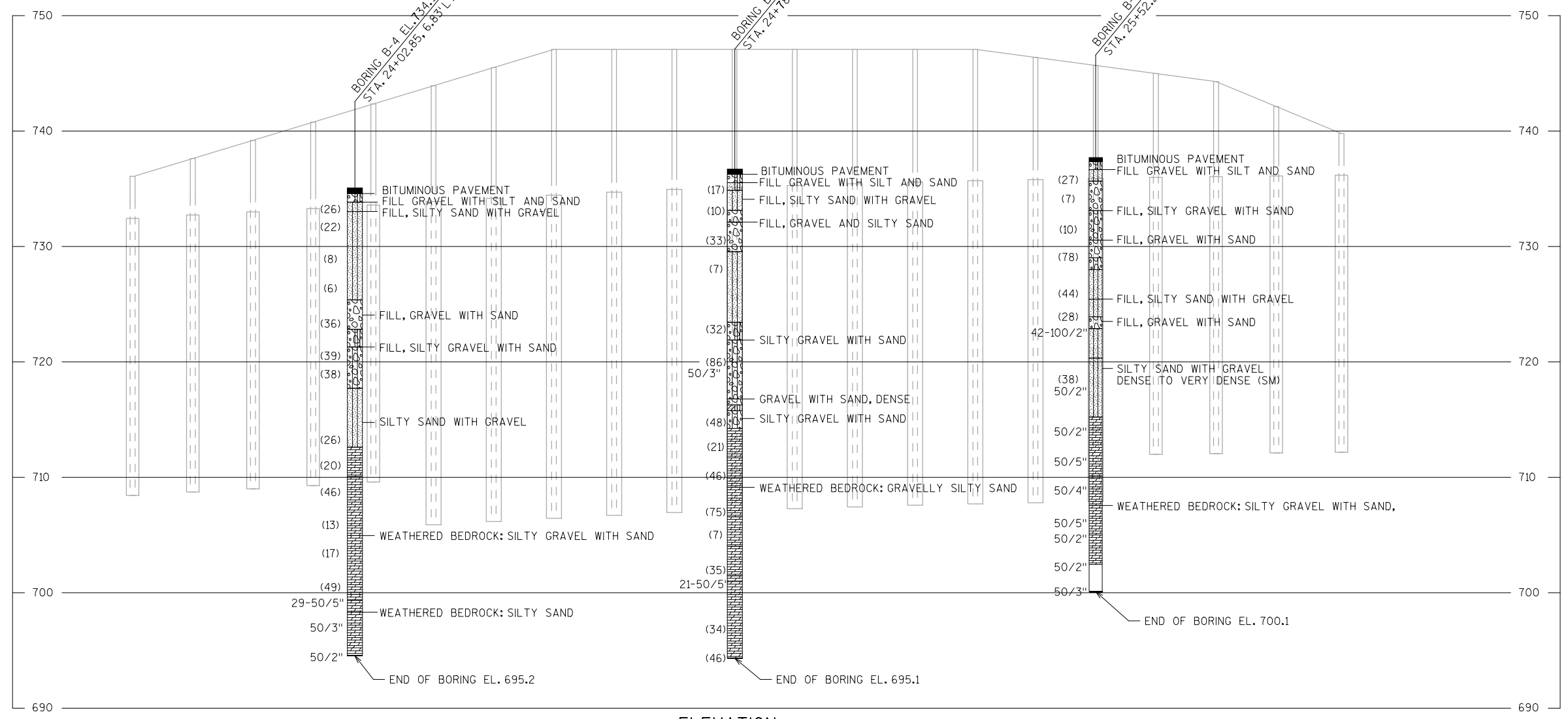


PLAN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-41			
DRAWN BY		TJN	PLANS CK'D. LMK
RAILING DETAILS			SHEET 7 OF 8



PLAN



ELEVATION

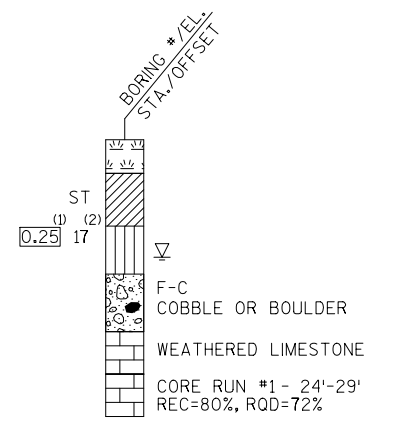
STATE PROJECT NUMBER

7180-00-78

MATERIAL SYMBOLS

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

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)
 (2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-47-41			
DRAWN BY		RBH	PLANS CK'D. LMK
SUBSURFACE EXPLORATION			SHEET 8 OF 8

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Notes



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