AUGUST 2021

ORDER OF SHEETS

STATE OF WISCONSIN PROJECT Section No. 1 DEPARTMENT OF TRANSPORTATION Typical Sections and Details (Includes Erosion Section No. 2 Estimate of Quantities Control Plans) Section No. 3 Miscellaneous Quantities PLAN OF PROPOSED IMPROVEMENT Section No. 5 Plan and Profile Section No. 6 Standard Detail Drawings CTH H Section No. 8 Structure Plans 0 Section No. 9 Computer Earthwork Data BRIDGE OVER MILWAUKEE RIVER B660655 Section No. 9 Cross Sections CTH H TOTAL SHEETS = 128 WASHINGTON COUNTY STATE PROJECT NUMBER 4867-01-70 R-19-E KETTLE ORAINE DR MORAINE STRUCTURE B-66-140 DESIGN DESIGNATION BEGIN PROJECT A.A.D.T. (2022) = 4,240 STA. 8+25.00 A.A.D.T. (2042) = 5,840 F@REST X=359.143.96 D.H.V. = 469 Y=211,348.25 SUNNY LN D.D. = 51/49 = 10.0% DESIGN SPEED = 35 MPH = 760,000 ESALS T-12-N ISENBA CONVENTIONAL SYMBOLS SALISBURY PLAN PROFILE SHING RD GRADE LINE CORPORATE LIMITS 1/1//// RIDGE ORIGINAL GROUND PROPERTY LINE RD ROCK MARSH OR ROCK PROFILE (To be noted as such) HI MOUNT LABEL 0 LIMITED HIGHWAY EASEMENT SPECIAL DITCH RD EXISTING RIGHT OF WAY GRADE ELEVATION PROPOSED OR NEW R/W LINE 0 CULVERT (Profile View) CLUB LN SLOPE INTERCEPT UTILITIES REFERENCE LINE 36 ELECTRIC EXISTING CULVERT -----FIBER OPTIC PROPOSED CULVERT GAS (Box or Pipe) SANITARY SEWER COMBUSTIBLE FLUIDS STORM SEWER LAYOUT 0.5 MI. TELEPHONE Coordinates on this plan are referenced to the Wisconsin County Coordinate System (WCCS), Washington, NAD 83 (2011). SCALE L WATER MARSH AREA Elevations shown on this plan are referenced to the North American Vertical Datum of 1988 NAVD 88 (2012). UTILITY PEDESTAL Ħ TOTAL NET LENGTH OF CENTERLINE = 0.054 MI. POWER POLE

Ø

FEDERAL PROJECT STATE PROJECT PROJECT CONTRACT 4867-01-70

ACCEPTED FOR WASHINGTON COUNTY

4/27/2021

OIR, PUBLIC WORKS

ORIGINAL PLANS PREPARED BY



ASSOCIATES*



STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PREPARED BY Surveyor

STRAND ASSOICIATES, INC. STRAND ASSOCIATES, INC. Designer KATHLEEN KRAMER Project Manager

Regional Examiner Regional Supervisor C.O. Examiner

Date: 4-28-21 Kramer Date: 2021.04.28 Kramer Sign: 114-28-937-05'00'

TELEPHONE POLE

WOODED OR SHRUB AREA

END PROJECT

STA. 11+10.00

X=359,428.23

Y=211,368.61

GENERAL NOTES

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT 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.

EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. THE ENGINEER MAY MODIFY LOCATIONS AS NEEDED. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

THE LOCATION OF PROPOSED SIGNS AS SHOWN ON THE PLANS ARE APPROXIMATE. THE EXACT NUMBER OF SIGNS AND SIGN LOCATIONS ARE TO BE APPROVED BY THE ENGINEER IN THE FIELD.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY SHALL BE RESTORED AS DIRECTED BY THE ENGINEER.

MISCELLANEOUS REMOVAL ITEMS SHALL BE REMOVED TO AN EXISTING JOINT, SAWCUT WHERE SHOWN ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

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

SILT FENCE SHALL BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER AND IN PLACE PRIOR TO CONSTRUCTION.

ASPHALT BID/MIX SPECIFICATIONS

	THICKNESS	BID/MIX SPECIFICATION
UPPER LAYER	2"	4 MT 58-28 S
LOWER LAYER	4"	3 MT 58-28 S

UTILITIES

AT&T

JEFF OLDENBURG 2005 PEWAUKEE ROAD WAUKESHA, WI 53188 PH: (262) 896-7522 Jo2376@att.com

WE ENERGIES ELECTRIC

GREGORY BOERNER
500 SOUTH 116TH STREET
WEST ALLIS, WI 53214
(618) 409-5861
GREGORY.BOERNER@WE-ENERGIES.COM

OTHER CONTACTS

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MADISON, WI 53715
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keith.behrend@strand.com

WASHINGTON COUNTY

SCOTT M. SCHMIDT, P.E., P.L.S. 900 LANG STREET WEST BEND, WI53090 (262) 335-6881 SCOTT.SCHMIDT@WASHCOWISCO.GOV

WISDNR

KRISTINA BETZOLD
DNR SOUTHEAST REGION
2300 N. DR. MARTIN LUTHER KING JR. DR
MILWAUKEE, WI 53212
PH: (414) 263-8517
kristing.betzold@wisconsin.gov



*NOT A DIGGERS HOTLINE MEMBER

PROJECT NO: 4867-01-70

HWY: CTH H

COUNTY: W

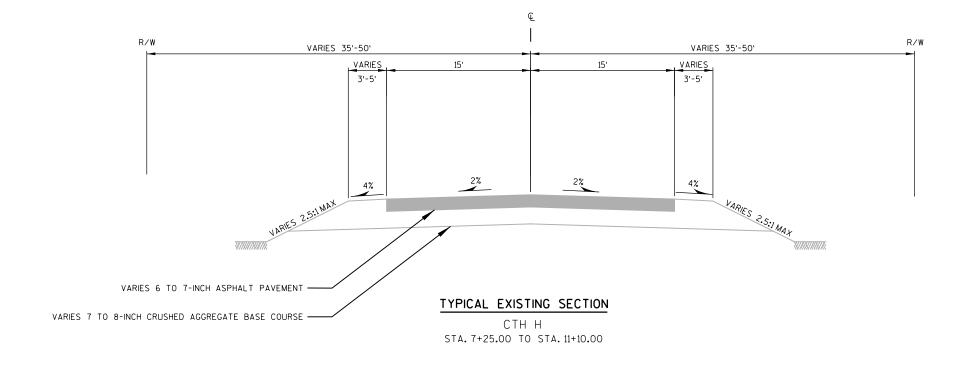
COUNTY: WASHINGTON GENERAL NOTES

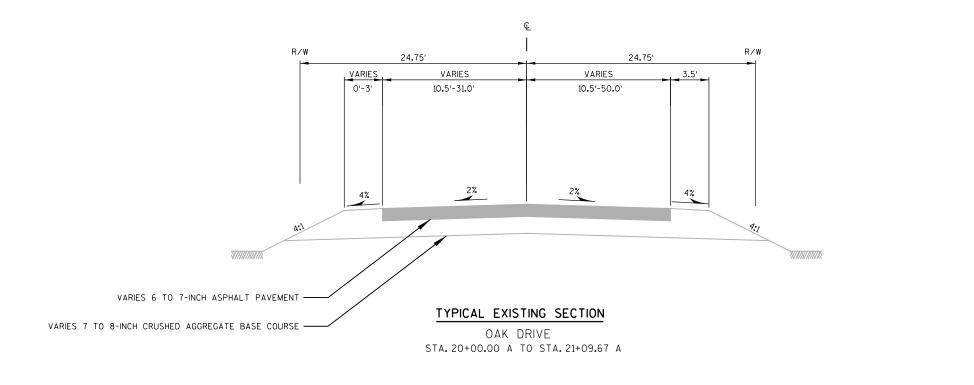
PLOT BY : _username_

SHEET

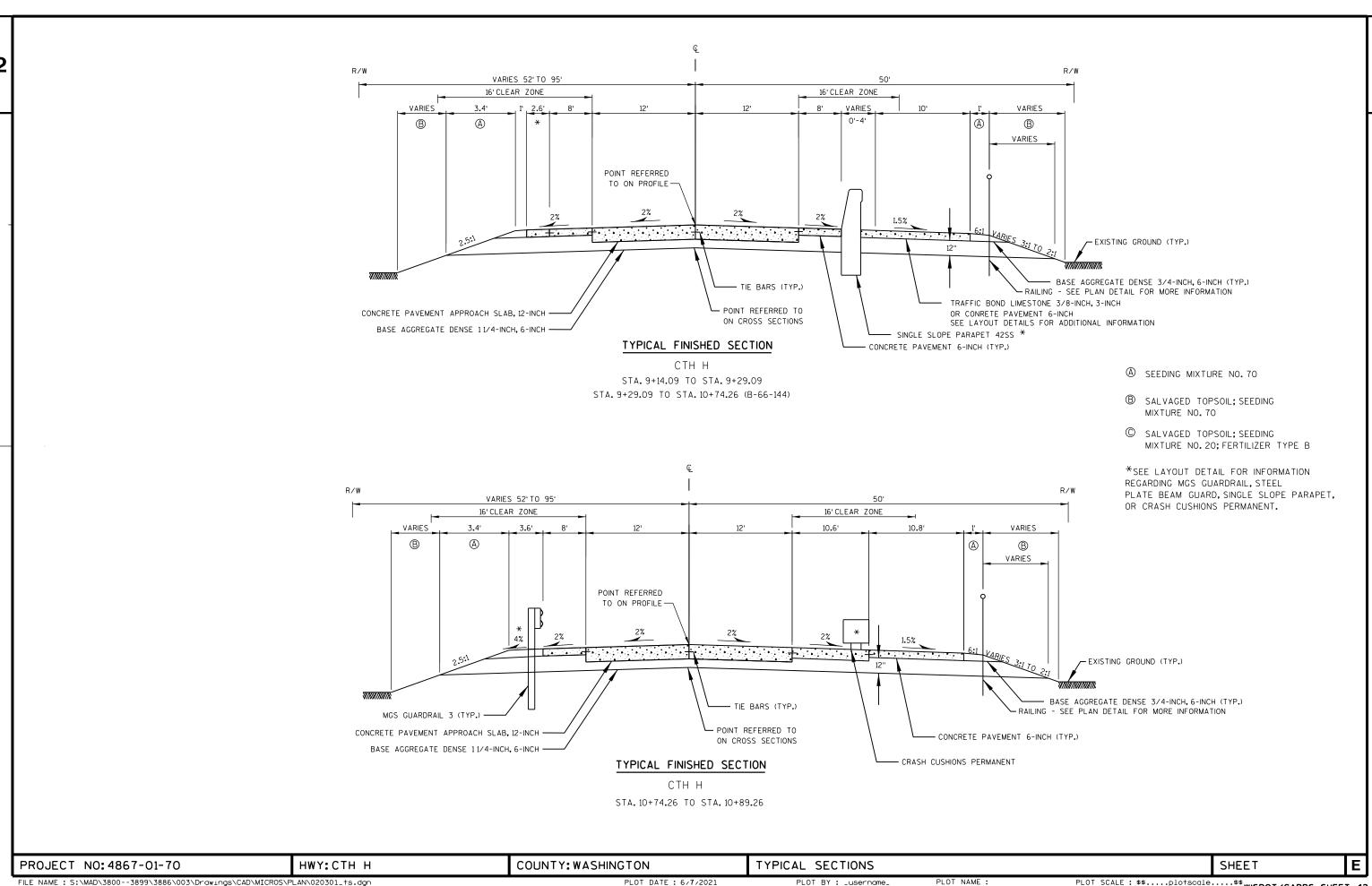
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PROJECT NO: 4867-01-70 HWY: CTH H COUNTY: WASHINGTON TYPICAL SECTIONS SHEET PLOT SCALE: \$\$.....plotscale.....\$\$ wisdot/cadds SHEET 42 PLOT DATE: 4/27/2021 PLOT BY: _username_ PLOT NAME :

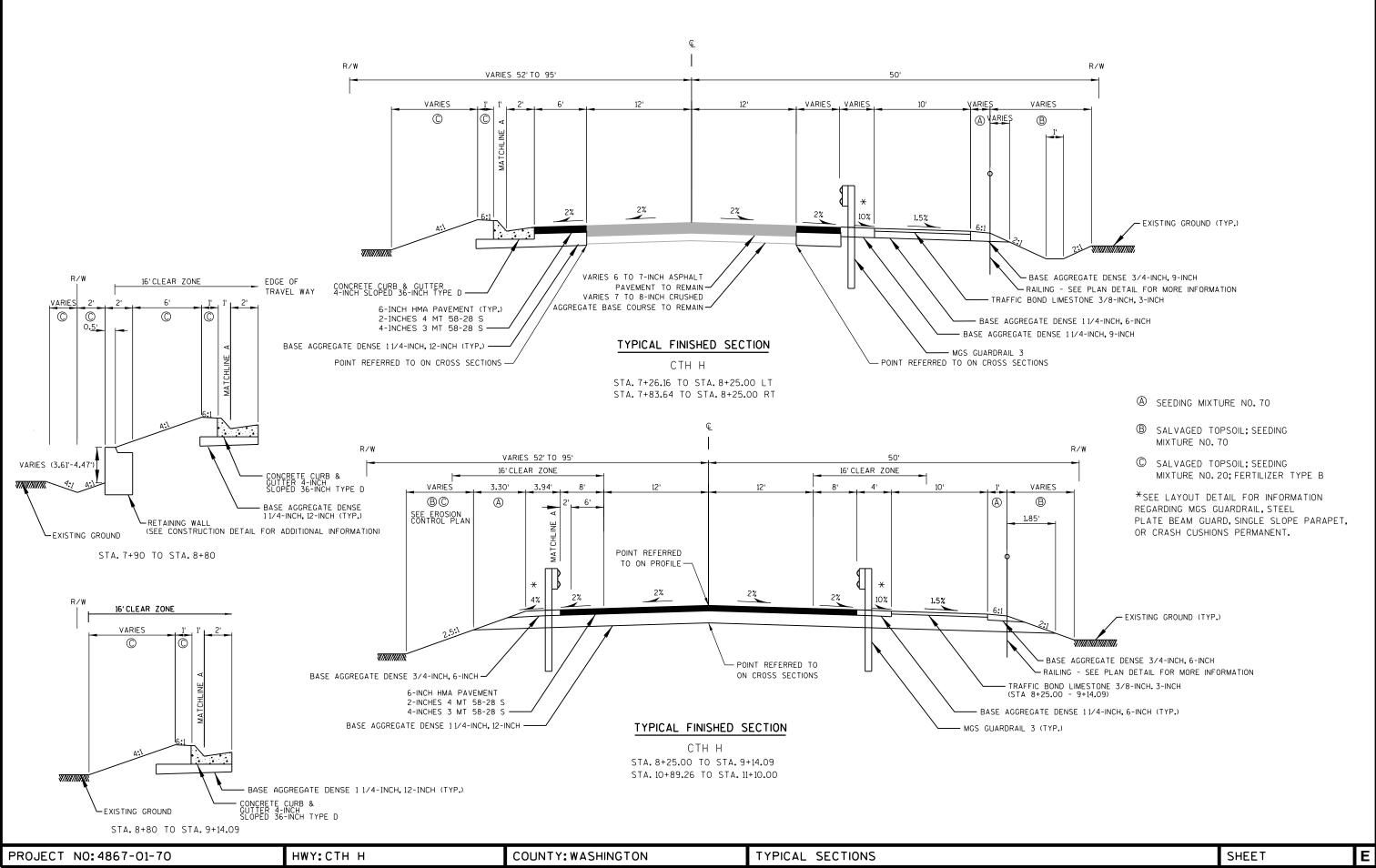


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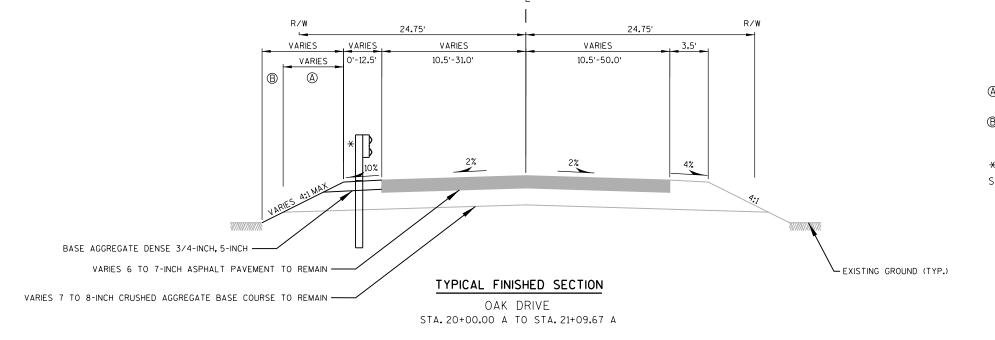
PLOT DATE : 6/7/2021

PLOT BY: _username_

PLOT SCALE: \$\$.....plotscale.....\$\$ wisdot/CADDS SHEET 42

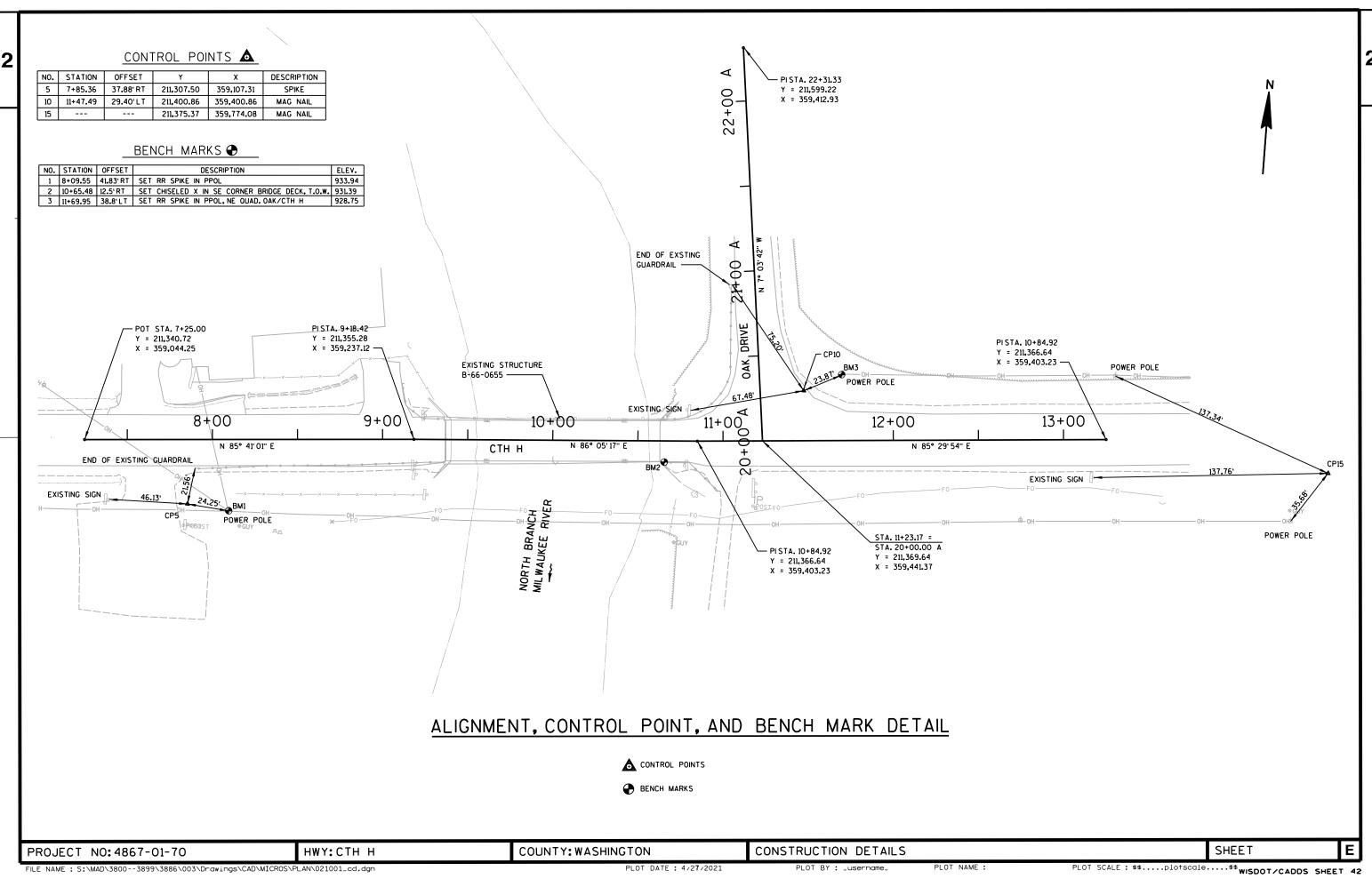


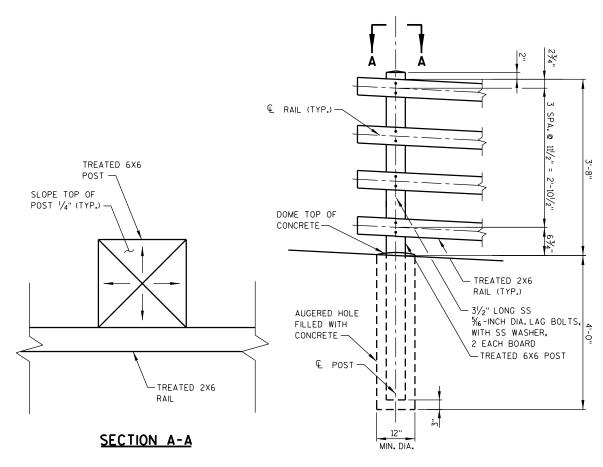




- A SEEDING MIXTURE NO. 70
- B SALVAGED TOPSOIL; SEEDING MIXTURE NO. 70
- *SEE LAYOUT DETAIL FOR INFORMATION STEEL PLATE BEAM GUARD

PROJECT NO:4867-01-70 HWY:CTH H COUNTY:WASHINGTON TYPICAL SECTIONS SHEET



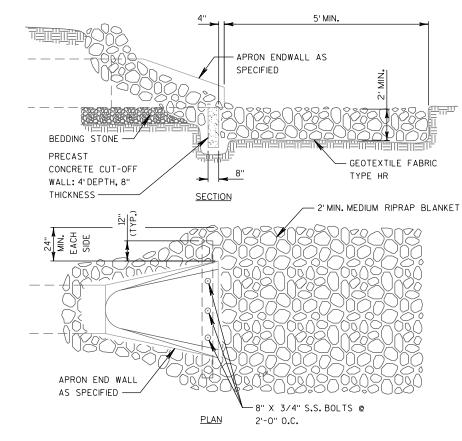


RAILING DETAIL

STA. 7+90 TO STA. 9+19 STA. 10+85 TO STA. 10+94

NOTES

- 1. PROVIDE MAX. CENTERLINE POST SPACING EQUAL TO 6'-O".
- 2. POSTS SHALL BE VERTICAL.
- 3. HORIZONTAL RAILS SHALL MATCH THE SLOPE OF THE ADJACENT PATH.



STORM SEWER OUTFALL

PLOT NAME :

STA. 8+79, 42.3'RT

PROJECT NO: 4867-01-70

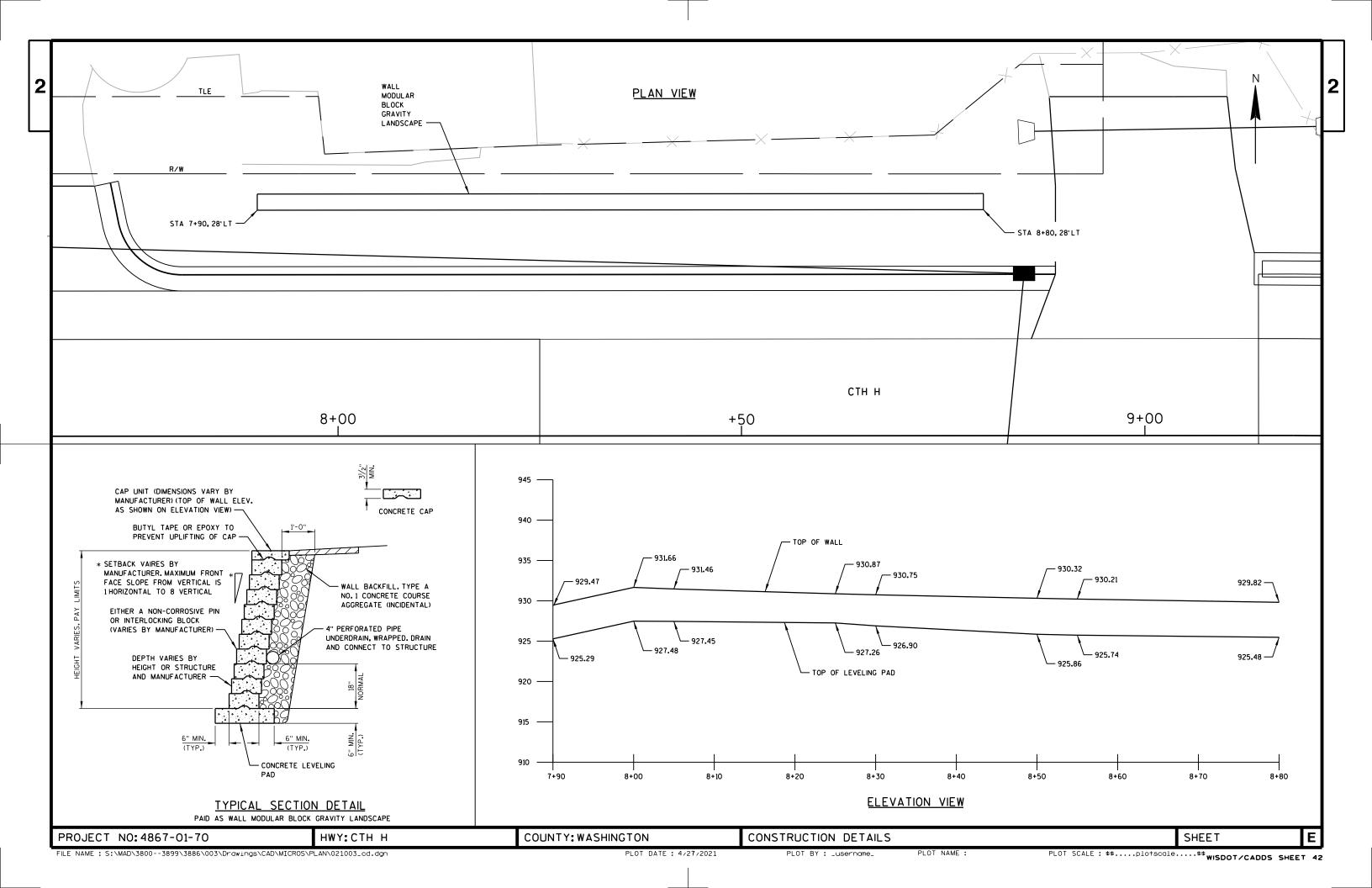
HWY: CTH H

COUNTY: WASHINGTON

CONSTRUCTION DETAILS

SHEET

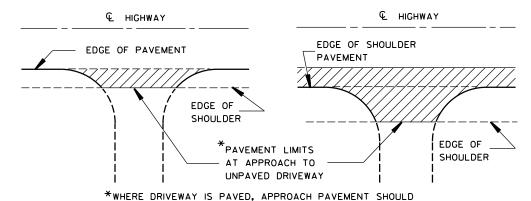
PLOT SCALE: \$\$.....plotscale.....\$\$ wisdot/cadds SHEET 42



RUNOFF COEFFICIENT TABLE

		HYDROLOGIC SOIL GROUP										
		Α Β			В	С			D			
	SLOPE	RANGE	(PERCENT)	SLOPE	RANGE	(PERCENT)	SLOPE	RANGE	(PERCENT)	SLOPE	RANGE	PERCENT
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
TURF	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-			.25			.27			.28			.30
TURF			.32			.34			.36			.38
PAVEMENT:								ı	l .			
ASPHALT						.7095						
CONCRETE						.8095						
BRICK						.7080						
DRIVES, WALKS						.7585						
ROOFS						.7595						
GRAVEL ROADS.	SHOULDE	ERS				.4060						

TOTAL PROJECT AREA = 0.94 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.46 ACRES

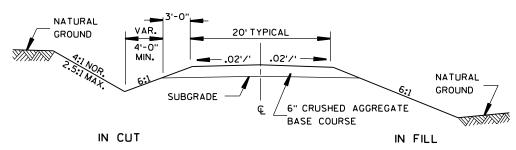


BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

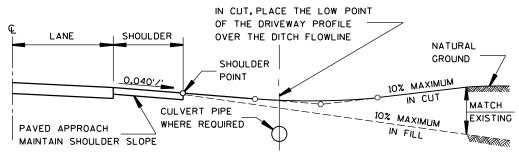
PLAN VIEW

PLAN VIEW (PAVED SHOULDER ON HIGHWAY)

RURAL DRIVEWAY INTERSECTION DETAIL



TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE



TYPICAL DRIVEWAY PROFILES

PROJECT NO: 4867-01-70

HWY: CTH H

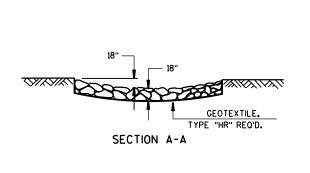
COUNTY: WASHINGTON

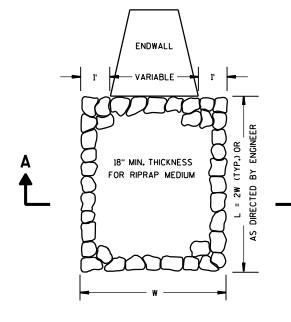
CONSTRUCTION DETAILS

PLOT NAME :

PLOT BY: _username_

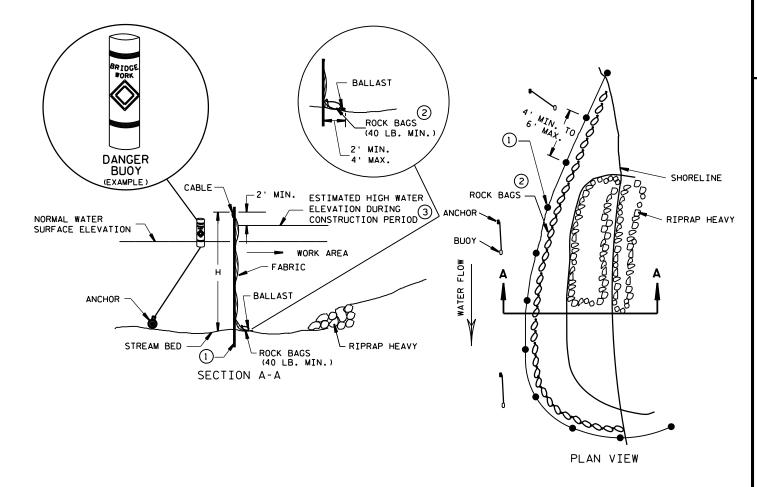
SHEET





RIPRAP MEDIUM TREATMENT AT CULVERTS

STA.8+79 RT



NOTES:

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

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEER'S DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- INSTALL A CONTINUOUS LINE OF ROCK BAGS TO ANCHOR THE BARRIER TO THE STREAM BED.
- ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2 FEET GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.

ENHANCED TURBIDITY BARRIER DETAIL

PLOT NAME :

PROJECT NO: 4867-01-70

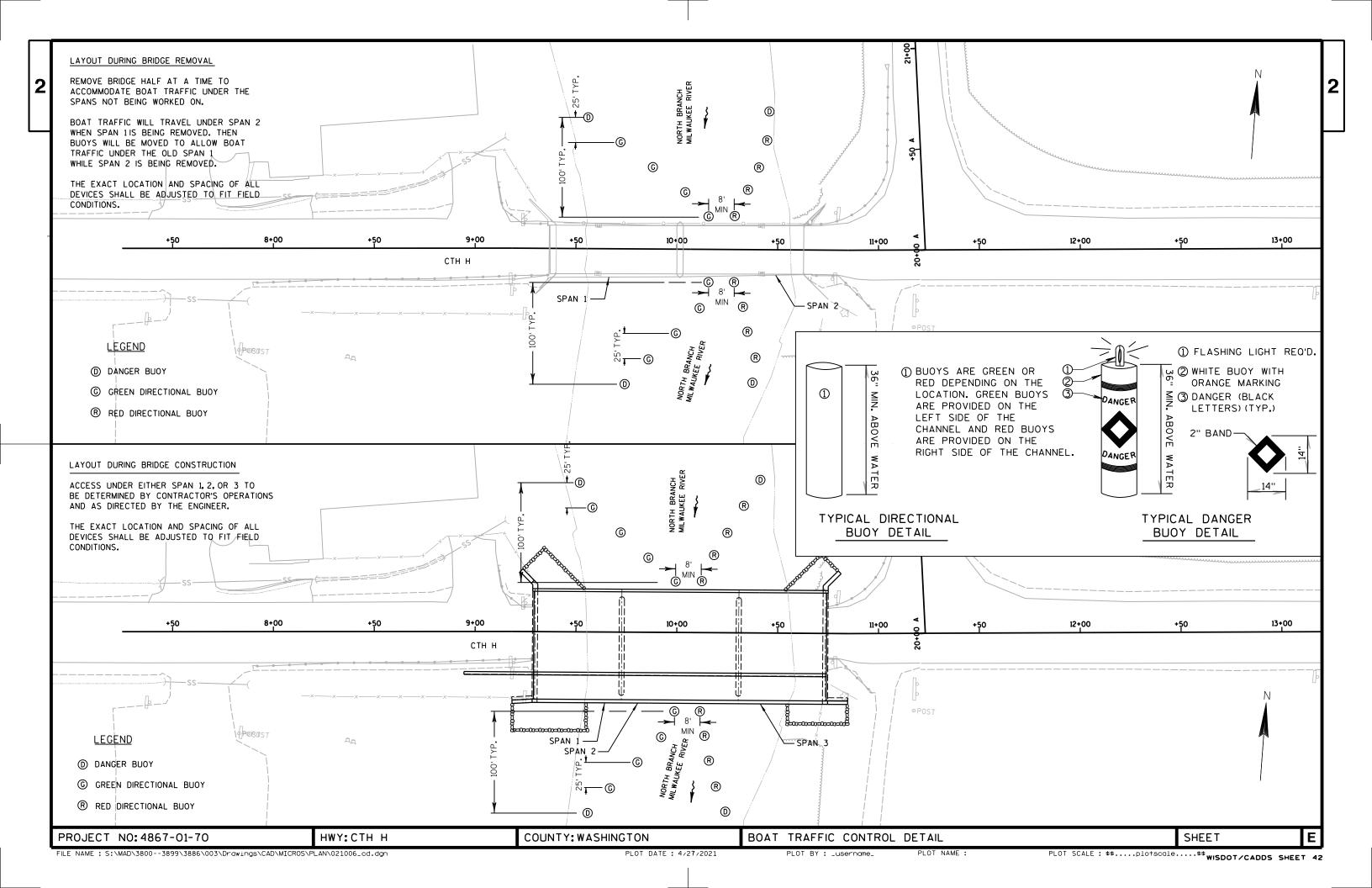
HWY: CTH H

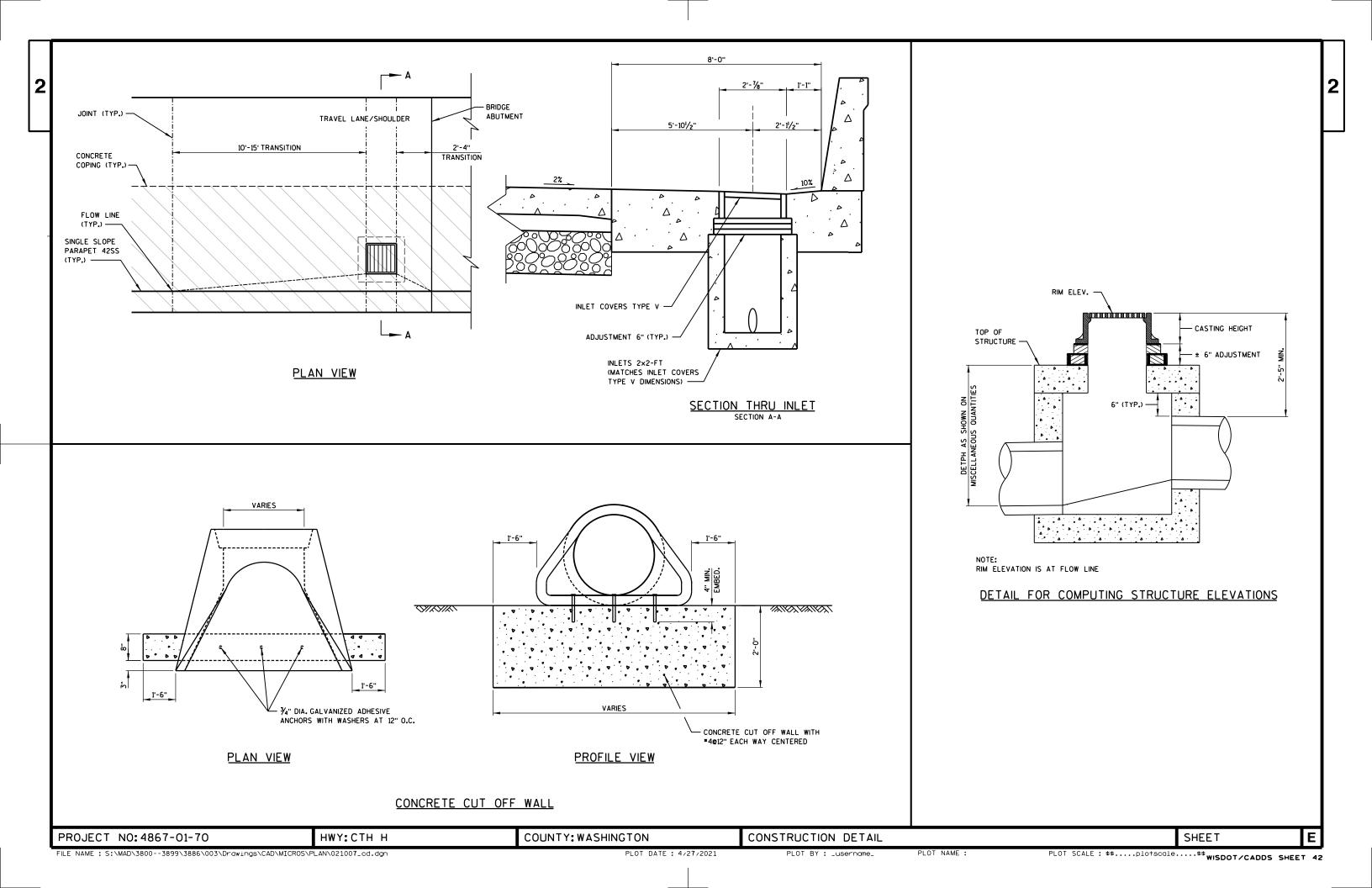
COUNTY: WASHINGTON

CONSTRUCTION DETAILS

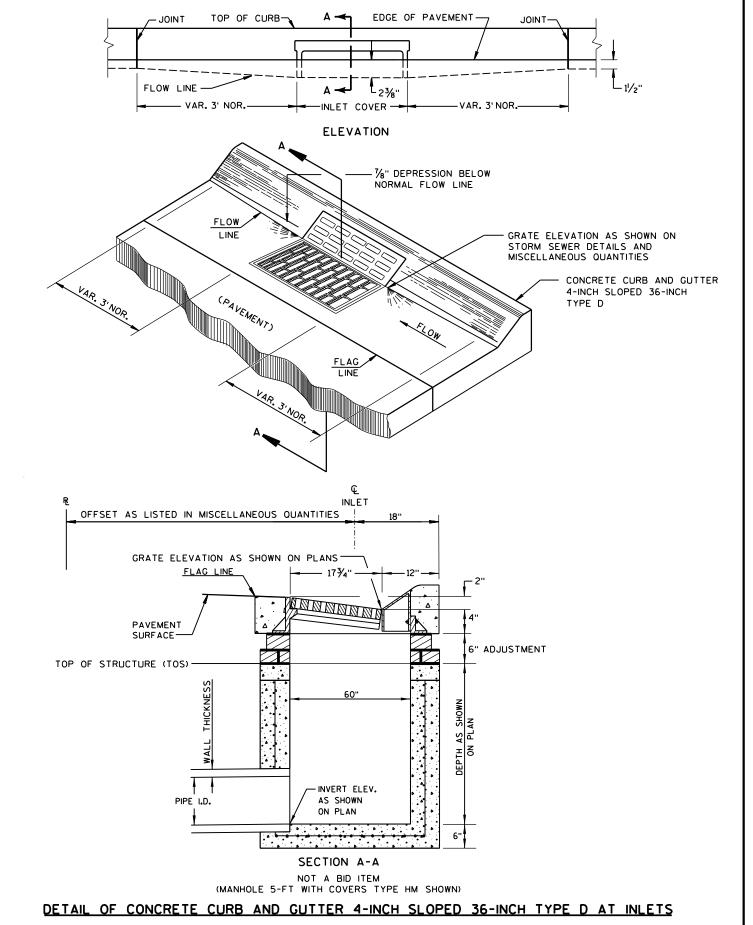
SHEET

PLOT SCALE: \$\$.....plotscale.....\$\$ wisdot/CADDS SHEET 42

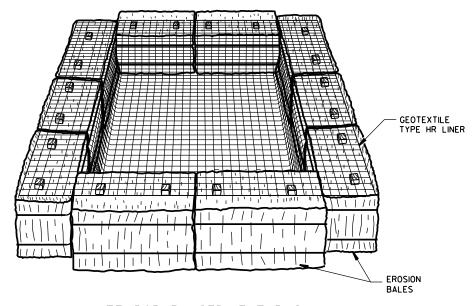








HWY: CTH H



TEMPORARY SEDIMENT BASIN

(SIZE TO BE DETERMINED IN FIELD)
(GEOTEXTILE/SEDIMENT BAG REO'D; NOT SHOWN)

ITEM IS INCIDENTAL TO EXACATION FOR STRUCTURES BRIDGES, B-66-140

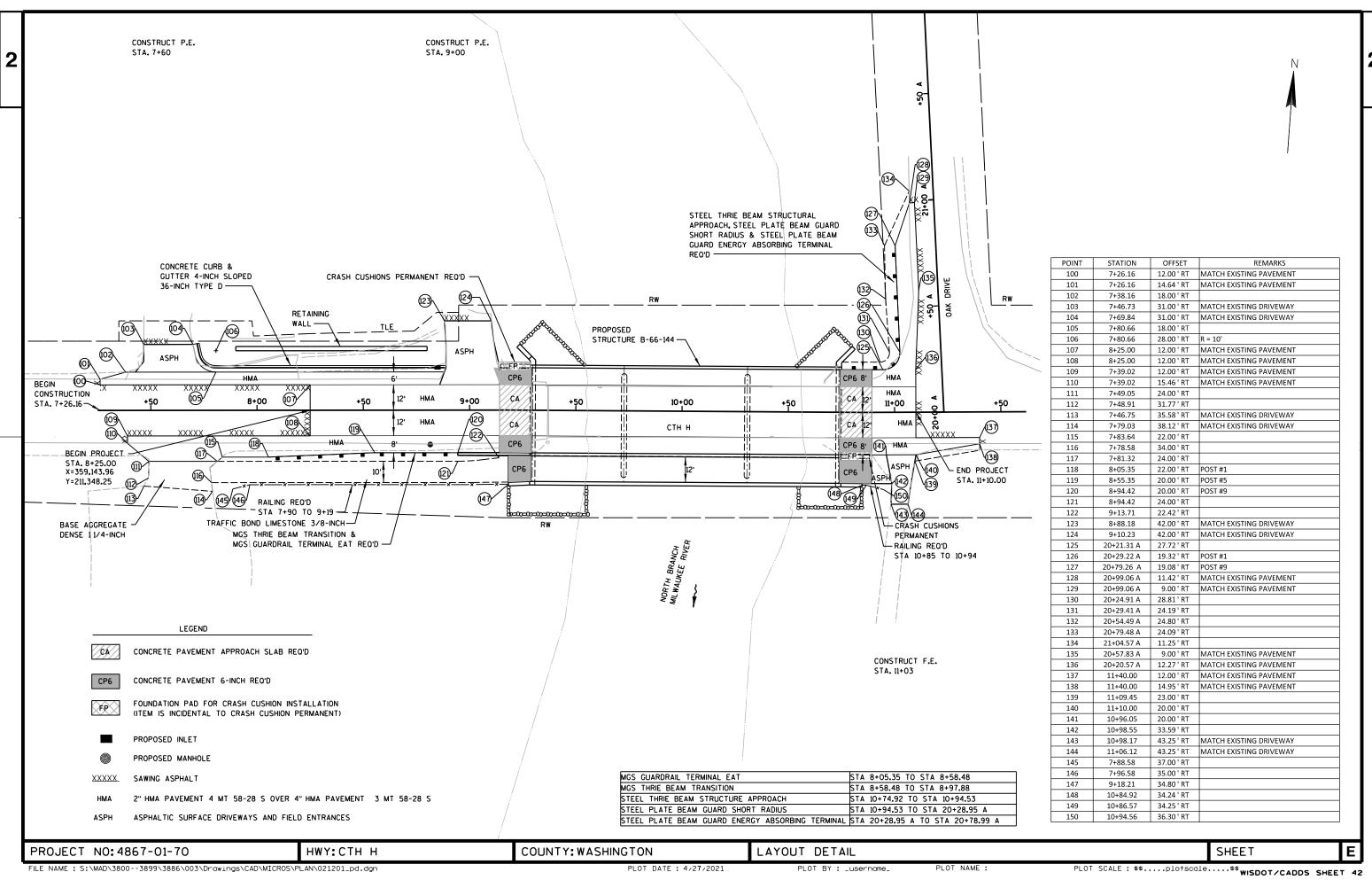
CONSTRUCTION DETAIL

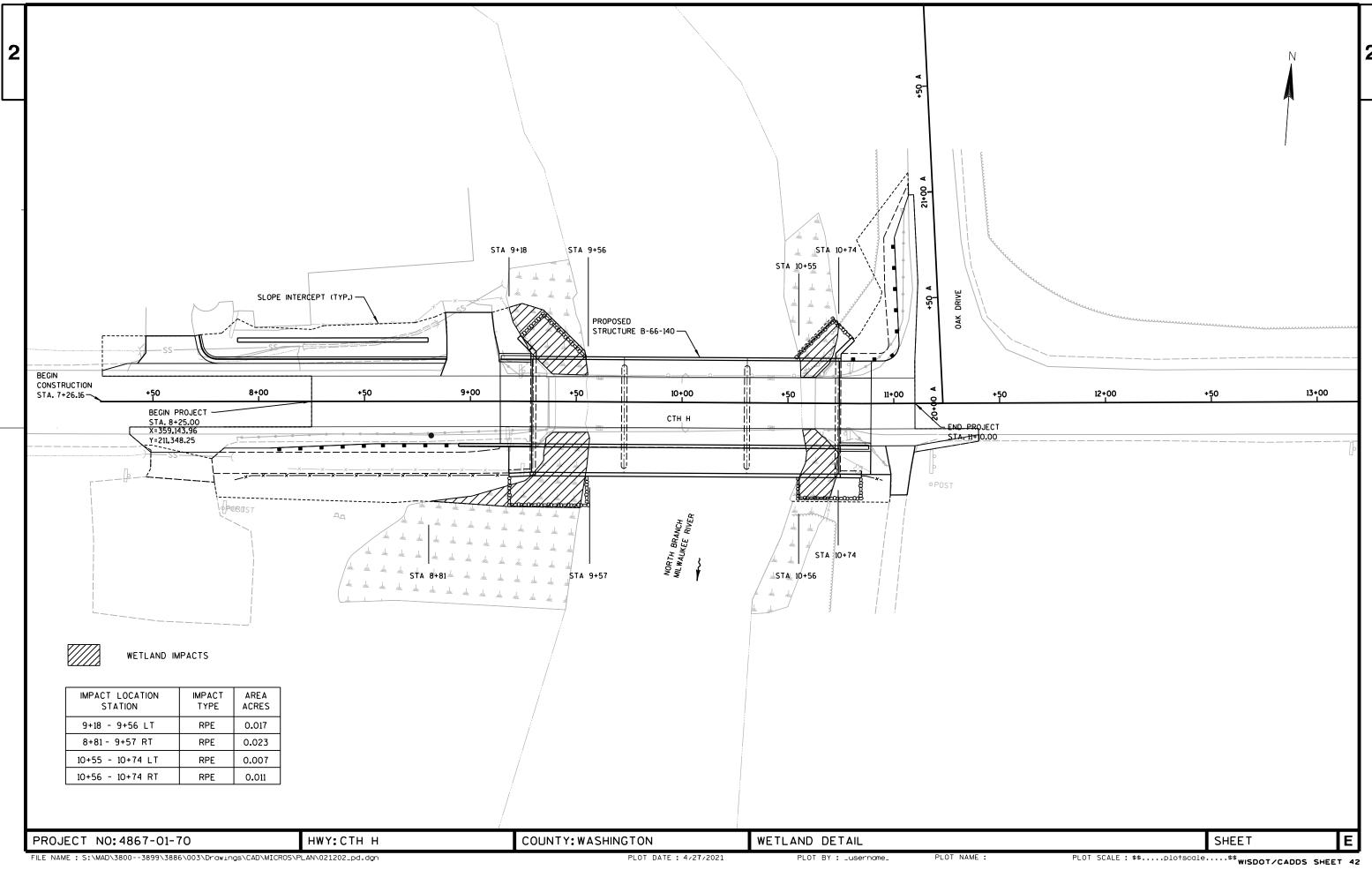
PLOT NAME :

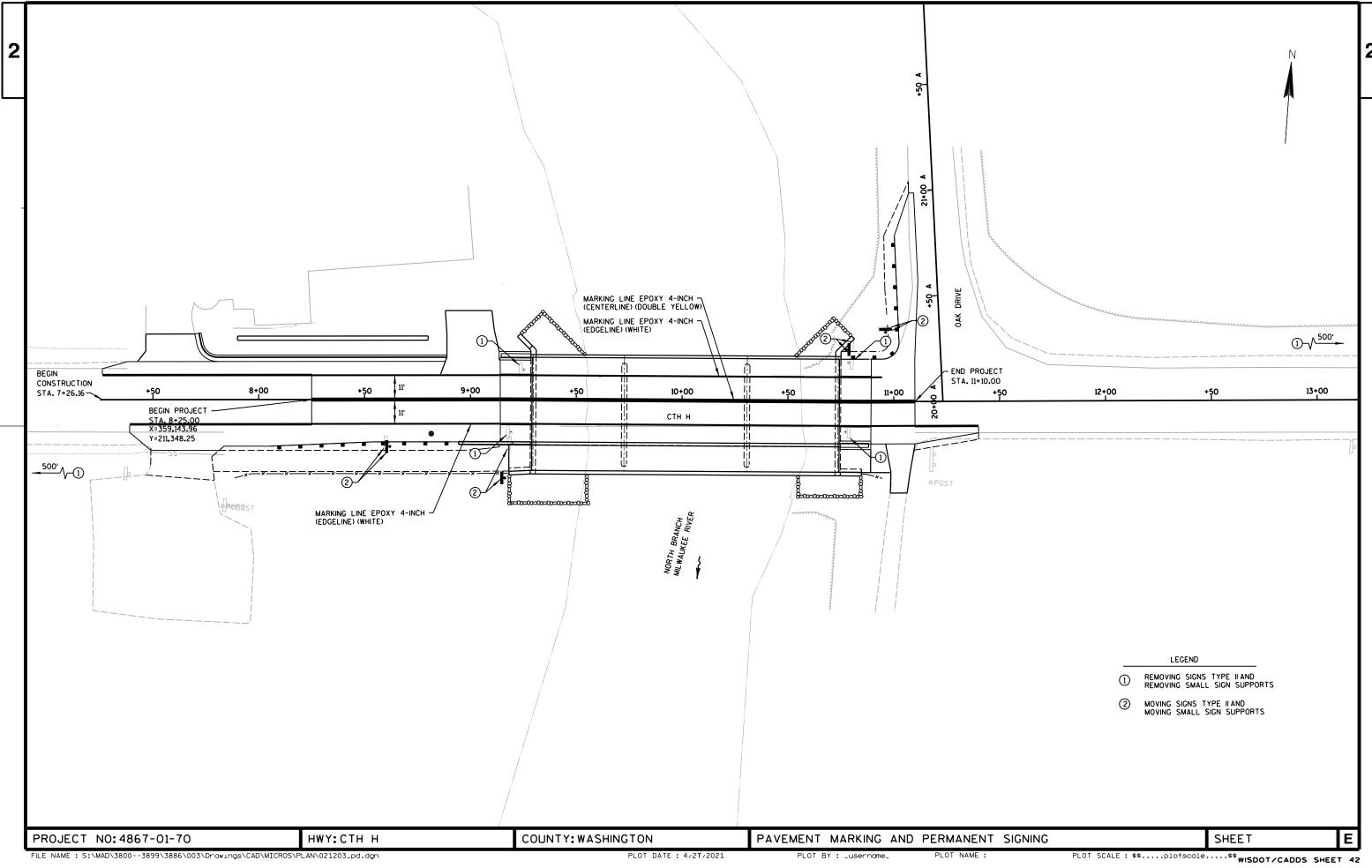
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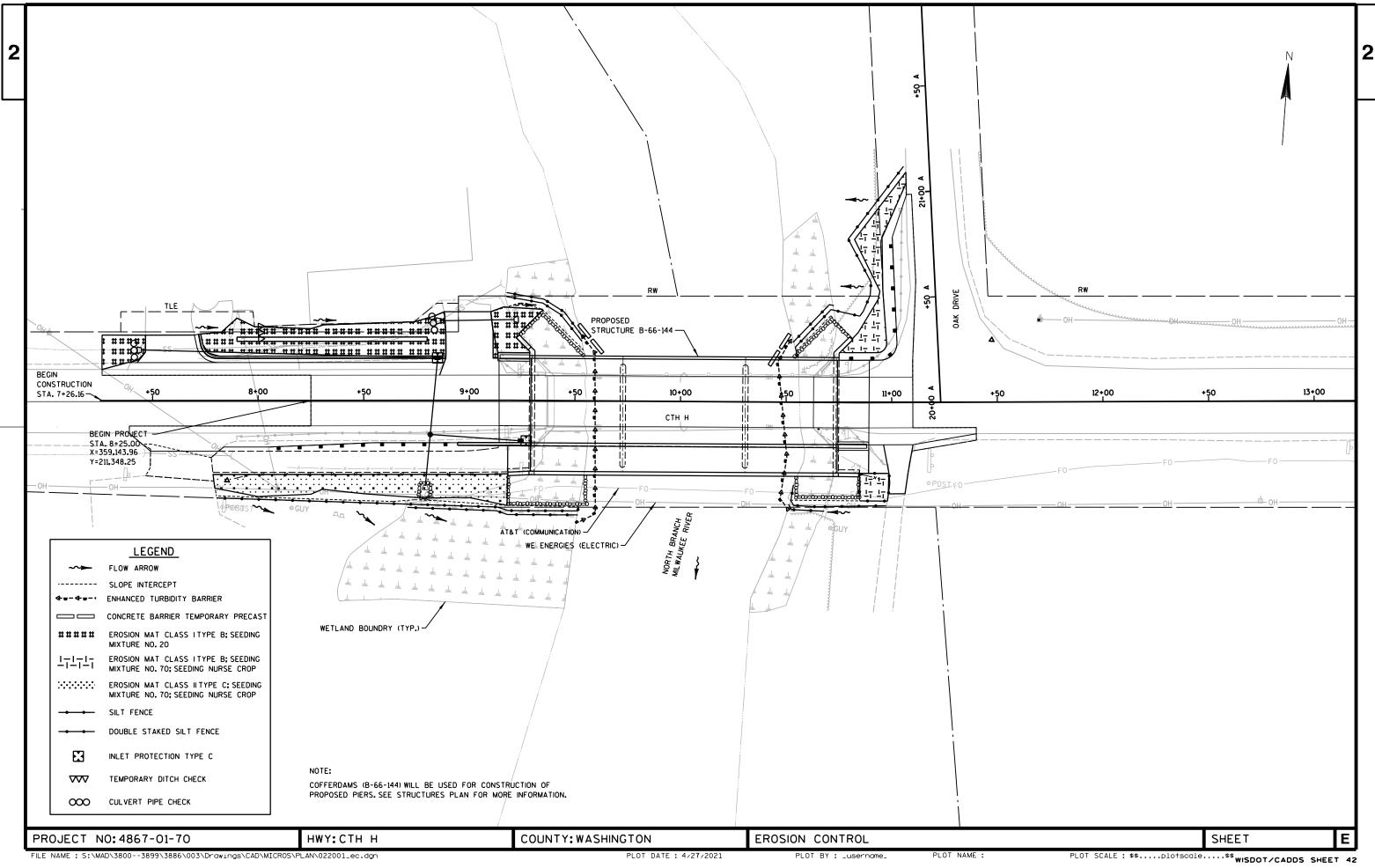
PROJECT NO: 4867-01-70

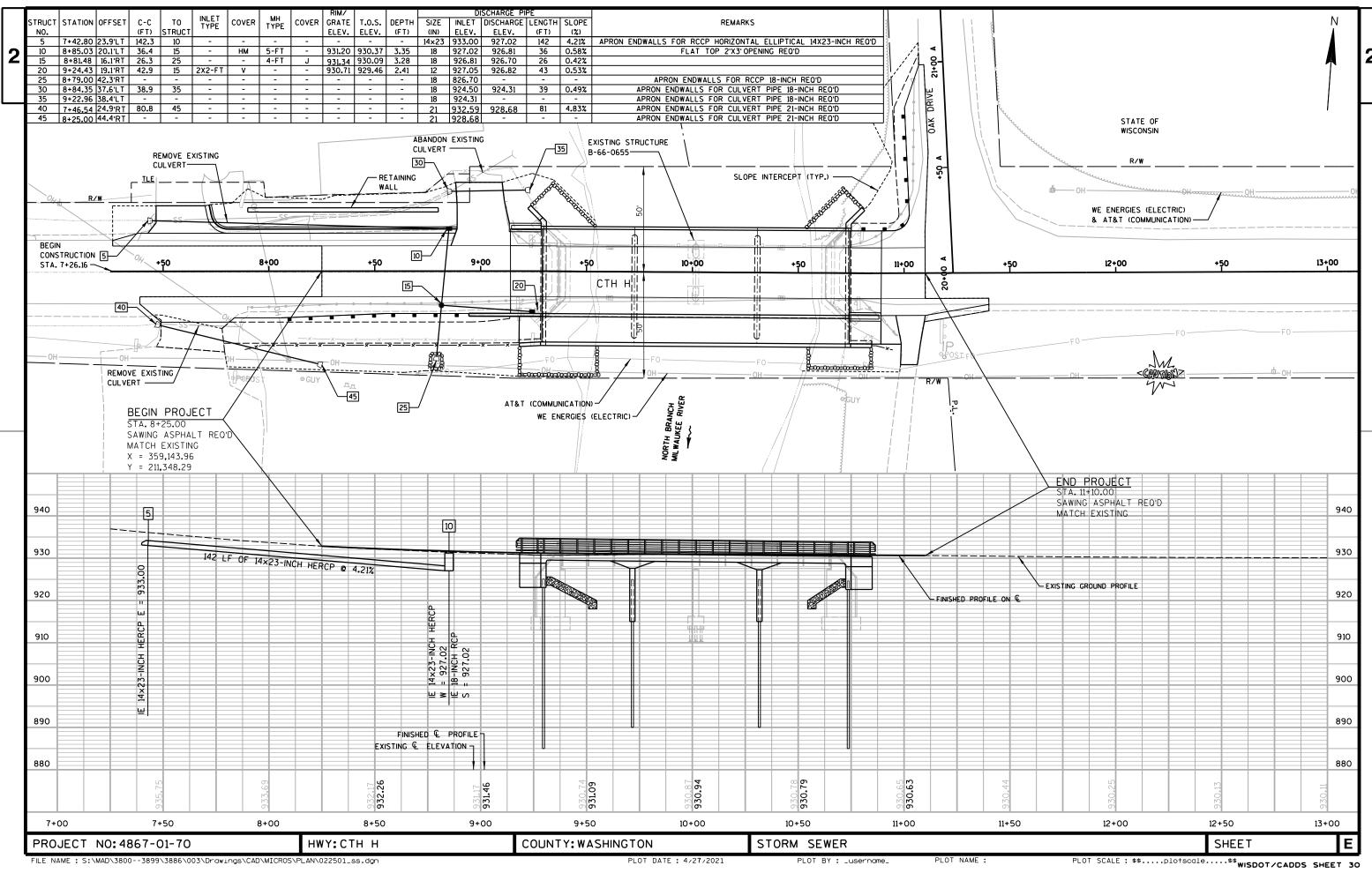
COUNTY: WASHINGTON











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HWY: CTH H

PROJECT NO: 4867-01-70

COUNTY: WASHINGTON

PLOT DATE: 4/27/2021

PLOT BY: _username_

DETOUR ROUTE

PLOT NAME :

PLOT SCALE : \$\$.....plo†scale.....\$\$ wiSDOT/CADDS SHEET 42

SHEE 1

LEGEND

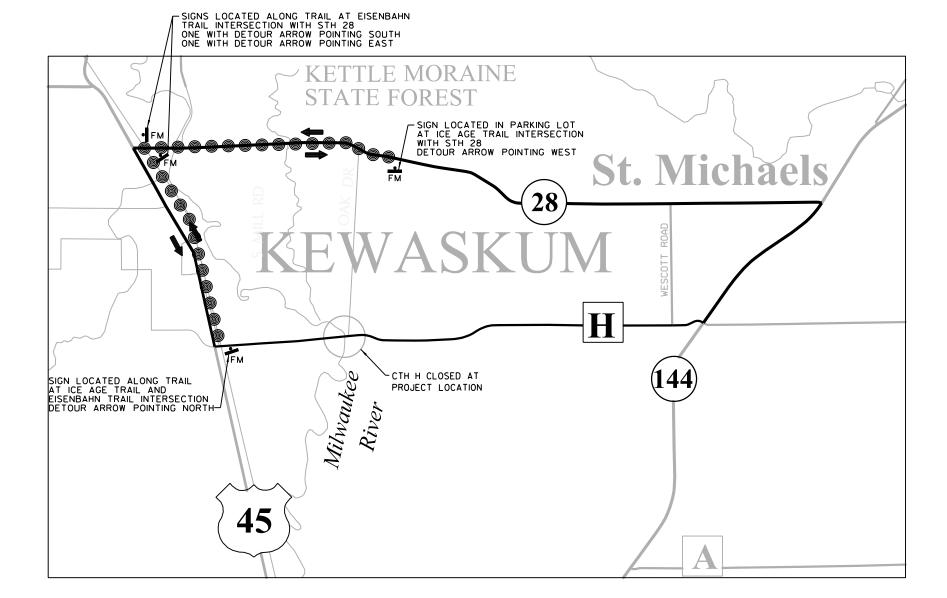
DETOUR ROUTE

TRAFFIC CONTROL SIGNS FIXED MESSAGE (SEE SIGN DETAILS FOR MORE INFORMATION)

GENERAL NOTES

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

SEE SIGN DETAIL SHEETS FOR MORE INFORMATION.



PROJECT NO: 4867-01-70

HWY: CTH H

COUNTY: WASHINGTON

DETOUR ROUTE - ICE AGE TRAIL

PLOT NAME :

SHEET

Ε

					4867-01-70
Line	Item	Item Description	Unit	Total	Qty
0002	203.0700.S	Removing Old Structure Over Waterway With Debris Capture System (station) 01. 10+00	LS	1.000	1.000
0004	204.0165	Removing Guardrail	LF	339.000	339.000
0006	204.0170	Removing Fence	LF	156.000	156.000
8000	205.0100	Excavation Common	CY	522.000	522.000
0010	206.1000	Excavation for Structures Bridges (structure) 01. B-66-140	LS	1.000	1.000
0012	206.5000	Cofferdams (structure) 01. B-66-140	LS	1.000	1.000
0014	208.0100	Borrow	CY	107.000	107.000
0016	210.1500	Backfill Structure Type A	TON	548.000	548.000
0018	213.0100	Finishing Roadway (project) 01. 4867-01-70	EACH	1.000	1.000
0020	305.0110	Base Aggregate Dense 3/4-Inch	TON	40.000	40.000
0022	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	2,051.000	2,051.000
0024	311.0110	Breaker Run	TON	20.000	20.000
0026	415.0060	Concrete Pavement 6-Inch	SY	75.000	75.000
0028	415.0410	Concrete Pavement Approach Slab	SY	76.000	76.000
0030	455.0605	Tack Coat	GAL	40.000	40.000
0032	460.2000	Incentive Density HMA Pavement	DOL	165.000	165.000
0034	460.6223	HMA Pavement 3 MT 58-28 S	TON	170.000	170.000
0036	460.6224	HMA Pavement 4 MT 58-28 S	TON	85.000	85.000
0038	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	30.000	30.000
0040	465.0315	Asphaltic Flumes	SY	8.000	8.000
0042	502.0100	Concrete Masonry Bridges	CY	798.000	798.000
0044	502.3200	Protective Surface Treatment	SY	800.000	800.000
0046	502.3210	Pigmented Surface Sealer	SY	160.000	160.000
0048	502.9000.S	Underwater Substructure Inspection (Structure) 01. B-	EACH	2.000	2.000
	332.3000.0	66-140		2.000	2.000
0050	505.0400	Bar Steel Reinforcement HS Structures	LB	13,960.000	13,960.000
0052	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	118,530.000	118,530.000
0054		Polymer Overlay	SY	196.000	196.000
0056	513.4061	Railing Tubular Type M	LF	149.000	149.000
0058	513.7084	Railing Steel Type NY4	LF	170.000	170.000
0060	514.0445	Floor Drains Type GC	EACH	2.000	2.000
0062	516.0500	Rubberized Membrane Waterproofing	SY	28.000	28.000
0064	520.1018	Apron Endwalls for Culvert Pipe 18-Inch	EACH	2.000	2.000
0066	520.1021	Apron Endwalls for Culvert Pipe 21-Inch	EACH	2.000	2.000
0068	520.4118	Culvert Pipe Class IV 18-Inch	LF	39.000	39.000
0070	520.4121	Culvert Pipe Class IV 21-Inch	LF	81.000	81.000
0072	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	1.000	1.000
0074	522.2614	Apron Endwalls for Culvert Pipe Reinforced Concrete	EACH	1.000	1.000

0146

628.7504

Temporary Ditch Checks

LF

6.000

6.000

4867-01-70 Unit Total Line Item **Item Description** Qty Horizontal Elliptical 14x23-Inch 0076 550.1120 Piling Steel HP 12-Inch X 53 Lb LF 1,560.000 1,560.000 0078 601.0553 Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type D LF 124.000 124.000 0800 603.8000 Concrete Barrier Temporary Precast Delivered LF 38.000 38.000 LF 38.000 0082 603.8125 Concrete Barrier Temporary Precast Installed 38.000 0084 606.0200 Riprap Medium CY 3.000 3.000 0086 606.0300 Riprap Heavy CY 357.000 357.000 Storm Sewer Pipe Reinforced Concrete Class IV 12-LF 43.000 43.000 0088 608.0412 Storm Sewer Pipe Reinforced Concrete Class IV 18-LF 56.000 56.000 0090 608.0418 Storm Sewer Pipe Reinforced Concrete Horizontal LF 0092 608.2414 136.000 136.000 Elliptical Class HE-IV 14x23-Inch 0094 Manhole Covers Type J **EACH** 1.000 611.0530 1.000 **EACH** 0096 611.0627 Inlet Covers Type HM 1.000 1.000 Inlet Covers Type V **EACH** 1.000 0098 611.0654 1.000 0100 611.2004 Manholes 4-FT Diameter **EACH** 1.000 1.000 Manholes 5-FT Diameter **EACH** 0102 611.2005 1.000 1.000 **EACH** 0104 611.3220 Inlets 2x2-FT 1.000 1.000 0106 611.9800.S Pipe Grates **EACH** 2.000 2.000 LF Pipe Underdrain Wrapped 6-Inch 200.000 200.000 0108 612.0406 0110 614.0150 Anchor Assemblies for Steel Plate Beam Guard **EACH** 2.000 2.000 LF 0112 614.0200 Steel Thrie Beam Structure Approach 20.600 20.600 Steel Plate Beam Guard Short Radius LF 13.000 13.000 0114 614.0345 0116 614.0370 Steel Plate Beam Guard Energy Absorbing Terminal **EACH** 1.000 1.000 Crash Cushions Permanent **EACH** 2.000 2.000 0118 614.0800 LF 0120 614.2500 MGS Thrie Beam Transition 39.400 39.400 **EACH** 0122 614.2610 MGS Guardrail Terminal EAT 1.000 1.000 0124 618.0100 Maintenance And Repair of Haul Roads (project) 01. **EACH** 1.000 1.000 4867-01-70 Mobilization **EACH** 0126 619.1000 1.000 1.000 MGAL 0128 624.0100 Water 5.200 5.200 SY 459.000 459.000 0130 625.0500 Salvaged Topsoil LF 0132 628.1504 Silt Fence 278.000 278.000 LF 0134 628.1520 Silt Fence Maintenance 867.000 867.000 **EACH** 0136 628.1905 Mobilizations Erosion Control 5.000 5.000 Mobilizations Emergency Erosion Control **EACH** 3.000 0138 628.1910 3.000 0140 628.2004 Erosion Mat Class I Type B SY 381.000 381.000 0142 Erosion Mat Class II Type C SY 194.000 194.000 628.2027 0144 628.7015 Inlet Protection Type C **EACH** 1.000 1.000 4867-01-70

Line	Item	Item Description	Unit	Total	Qty
0148	628.7555	Culvert Pipe Checks	EACH	6.000	6.000
0150	629.0210	Fertilizer Type B	CWT	0.200	0.200
0152	630.0120	Seeding Mixture No. 20	LB	5.400	5.400
0154	630.0170	Seeding Mixture No. 70	LB	1.400	1.400
0156	630.0400	Seeding Nurse Crop	LB	3.000	3.000
0158	630.0500	Seed Water	MGAL	10.000	10.000
0160	633.5200	Markers Culvert End	EACH	6.000	6.000
0162	638.2102	Moving Signs Type II	EACH	4.000	4.000
0164	638.2602	Removing Signs Type II	EACH	6.000	6.000
0166	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0168	638.4000	Moving Small Sign Supports	EACH	4.000	4.000
0170	642.5201	Field Office Type C	EACH	1.000	1.000
0170	643.0420	Traffic Control Barricades Type III	DAY	3,564.000	3,564.000
0172	643.0705	Traffic Control Warning Lights Type A	DAY	2,376.000	2,376.000
0174	643.0900	Traffic Control Signs	DAY	26,136.000	26,136.000
0178	643.1000	Traffic Control Signs Fixed Message	SF	32.000	32.000
0180	643.5000	Traffic Control	EACH	1.000	1.000
0182	645.0111	Geotextile Type DF Schedule A	SY	130.000	130.000
0184	645.0120	Geotextile Type HR	SY	625.000	625.000
0186	646.1020	Marking Line Epoxy 4-Inch	LF	1,265.000	1,265.000
0188	650.5000	Construction Staking Base	LF	265.000	265.000
0190	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	124.000	124.000
0192	650.6500	Construction Staking Structure Layout (structure) 01. B-66-140	LS	1.000	1.000
0104	650 7000		1.5	20.000	20.000
0194	650.7000	Construction Staking Concrete Pavement	LF	30.000	30.000
0196	650.9910	Construction Staking Supplemental Control (project) 01. 4867-01-70	LS	1.000	1.000
0198	650.9920	Construction Staking Slope Stakes	LF	285.000	285.000
0200	690.0150	Sawing Asphalt	LF	405.000	405.000
0200	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0202	715.0415	Incentive Strength Concrete Structures	DOL	4,806.000	4,806.000
	SPV.0060	Special 01. Concrete Cutoff Wall	EACH		
0206		·		2.000	2.000
0208	SPV.0090	Special 01. Railing	LF	130.000	130.000
0210	SPV.0090	Special 02. Silt Fence Double Staked	LF	153.000	153.000
0212	SPV.0090	Special 03. Flashing Stainless Steel	LF	293.000	293.000
0214	SPV.0165	Special 01. Wall Modular Block Gravity Landscape (7+90)	SF	90.000	90.000
0216	SPV.0180	Special 01. Enhanced Turbidity Barriers	SY	49.000	49.000
0218	SPV.0195	Special 01. Traffic Bond Limestone 3/8-Inch	TON	30.000	30.000
0220	SPV.0195	Special 02. Select Crushed Material for Travel Corridor	TON	140.000	140.000
		-			

				SALVAGED/ UNUSABLE			311.0110	205.0100	EBS				208.0100	624.0100
			EXCAVATION	PAVEMENT MATERIAL	AVAILABLE	EBS	BREAKER	EXCAVATION	EXCAVATION	UNEXPANDED	EXPANDED	MASS		
			COMMON	REMOVAL (1)	MATERIAL (2	EXCAVATION (3)	RUN (4)	COMMON (5)	REDUCED (6)	FILL	FILL (7)	ORDINATE (8)	BORROW	WATER*
						5% OF AVAILABL	E		FACTOR		FACTOR			
						MATERIAL			0.8		1.25			
CATEGORY	STATION	LOCATION	CY	CY	CY	CY	TON	CY	CY	CY	CY		CY	MGAL
0010	7+26.16 - 9+29.09	LT & RT	384	240	144	7	12	391	6	273	341	-191	-191	0.8
	10+74.26 - 11+10.00	LT & RT	87	45	42	2	4	89	2	0	0	44	44	0.2
	20+ 29.22 A - 20+79.72 A	LT & RT	40	0	40	2	4	42	2	2	3	40	40	0.1
-	TOTALS		511	285	226	11	20	522	10	275	344	-107	-107	1.1
-	PAY QUANTITIES						20	522					107	1.1

- 1) SALVAGED/UNUSABLE MATERIALS ARE INCLUDED IN EXCAVATION COMMON COLUMN
- 2) AVAILABLE MATERIAL = EXCAVATION COMMON SALGVAGED/UNUSABLE MATERIALS
- 3) EBS EXCAVATION TO BE BACKFILLED WITH BREAKER RUN.
- 4) BREAKER RUN = EBS EXCAVATION x 1.75 TONS/CY.
- 5) TOTAL EXCAVATION COMMON = EXCAVATION COMMON + EBS EXCAVATION.
- 6) REDUCED EBS IN FILL: EXCAVATED EBS MATERIAL IS USEABLE IN FILLS OUTSIDE THE 1:1 SLOPE. EBS IN FILL REDUCTION FACTOR = 0.8.
- 7) EXPANDED FILL FACTOR = 1.25
- 8) THE MASS ORDINATE + OR QUANTITY CALCULATED FOR THE CATEGORY. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE CATEGORY, MINUS QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE CATEGORY
- * ADDITIONAL QUANTITIES LISTED ELSEWHERE

10+61 - 11+05

	REMOVING (GUARDRAIL			FINISHING ROADWAY	
CATEGORY	STATION - STATION	LOCATION	204 . 0165 LF	CATEGORY	PROJECT I.D.	213.0100 EACH
0010	7+89 - 9+37	RT	148	0010	4867-01-70	1
	9+11 - 9+36	LT	40			
	10+67 - 10+97	RT	38			

		213.0100	
CATEGORY	PROJECT I.D.	EACH	
0010	4867-01-70	1	_

REMOVING F	FENCE
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CATEGORY	STATION - STATION	LOCATION	204 . 0170 LF
0010	8+13 - 9+23 9+14 - 9+30 10+76 - 10+89	RT LT RT	110 30 16
		TOTAL	156

CONCRETE PAVEMENT APPROACH SLAB

CATEGORY	STATION - STATION	LOCATION	415.0410 SY
0010	9+14.09 - 9+29.09 10+74.26 - 10+89.26	LT & RT LT & RT	38 38
		TOTAL	76

PROJECT NO: 4867-01-70

HWY: CTH H

LT

TOTAL

COUNTY: WASHINGTON

MISCELLANEOUS QUANTITIES

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CONCRETE PAVEMENT						
CATECODY	CTATION CTATION	LOCATION	415.0060 6-INCH			
CATEGORY	STATION - STATION	LOCATION	SY			
0010	8+25.00 - 9+29.09 10+74.26 - 11+10.00	LT & RT LT & RT	36 39			

TOTAL

75

305.01	305.0110	
5.465	D.4.6.E	

			305.0110 BASE AGGREGATE DENSE 3/4-INCH	305.0120 BASE AGGREGATE DENSE 11/4-INCH	624.0100 WATER
CATEGORY	STATION	LOCATION	TON	TON*	MGAL*
0010	7+26.16 - 9+29.09	LT & RT	15	1,493	3.0
	10+74.26 - 11+10.00	LT & RT		508	1.0
	20+00.00 A - 21+04.57 A	LT	25	50	0.1
		TOTALS	40	2,051	4.1

BASE AGGREGATE SUMMARY

TRAFFIC BOND LIMESTONE 3/8-INCH

CATEGORY	STATION	LOCATION	SPV.0195.01 TON
0010	7+26.16 - 9+29.09	RT	30

ASPHALTIC ITEMS

			455.0605	460 . 6223 HMA	460.6224 HMA	465.0120 ASPHLTIC SURFACE
			TACK	PAVEMENT	PAVEMENT	DRIVEWAYS AND
			COAT	3 MT 58-28 S	4 MT 58-28 S	FIELD ENTRANCES
CATEGORY		LOCATION	GAL	TON	TON	TON
0010	7+26.16 - 9+29.09	LT & RT	30	125	60	15
	10+74.26 - 11+10.00	LT & RT	5	25	15	5
	20+00.00 A - 21+04.57 A	LT	5	20	10	10
		TOTALS	40	170	85	30

CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D

			601.0553
CATEGORY	STATION - STATION	LOCATION	LF
0010	7+26.16 - 9+29.09	LT & RT	124

ASPHALTIC FLUMES

			465.0315
CATEGORY	STATION	LOCATION	SY
0.040	2 12		•
0010	9+12	LT	8

COUNTY: WASHINGTON PROJECT NO: 4867-01-70 HWY: CTH H MISCELLANEOUS QUANTITIES SHEET

STE										RT RADIUS						
CATEGORY	STATION - STATION	LOCATION	614 . 0200 LF			САТЕ	EGORY STA	ATION - STA	TION L	614.03 OCATION LF		CATEGORY	STATI	ON - STATION	LOCATION	614.0370 EACH
0010	10+74.92 - 10+94.53	RT	20.6			00	010 10+94	4.53 - 20+2	3.95 A	LT 13		0010	20+28.95	A - 20+78.99	A LT	1
	CATEGORY	STATION -	STATION	LOCATION	614.0800 EACH	CRA BACK WIDTH FT	SH CUSHION P OBJEC MARKIN PATTE	CT C	RASH EST EVEL	TRAFFIC DIRECTION	TRAFFIC LOCATION	CRASH CUSHION SHIE	 _DS			
	0010	9+28. 10+73	.42	LT RT	1 1	2 2	OM-3L (W!	5-58L)	L-3	UNIDIRECTIONAL UNIDIRECTIONAL	R R	BLUNT END OF PARA BLUNT END OF PARA	PET			
				TOTAL	2	_										
CATEGORY 0010	MGS THRIE BEAM TRA STATION - STATION 8+58.48 - 8+97.88		614.2500 LF 39.4				MGS GUARDE STATION - ST 8+05.35 - 8+	ATION LOC		614.2610 EACH		CATEGOR	Y PR	BILIZATION ROJECT I.D.	619.1000 EACH	
	STATION - STATION	LOCATION	<u>LF</u>	ITEMS			STATION - ST	ATION LOC	A TION	EACH		CATEGOF 0010	PY PR			
	STATION - STATION	LOCATION	FINISHING 625.0500 SALVAGED	629.02	IO 6 S	0010 30.0120 EEDING IIXTURE	STATION - ST 8+05.35 - 8+ 630.0170 SEEDING MIXTURE	630.0400 SEEDING	ATION RT 630.050 SEED	EACH 1	CATEGORY	0010	Y PR 48 SILT FENC	ROJECT I.D. 867-01-70 CE SUMMARY 628.1504 SILT FENCE	EACH 1 SPV.0090.02 SILT FENCE DOUBLE STAKED	SILT FE MAINTEN
CATEGORY 0010	STATION - STATION	LOCATION	FINISHING 625.0500 SALVAGED TOPSOIL	629 . 02	10 6 S ER M B	30.0120 EEDING IIXTURE NO. 20	STATION - ST 8+05.35 - 8+ 630.0170 SEEDING MIXTURE NO. 70	630.0400 SEEDING	ATION RT 630.050 SEED P WATER	EACH 1	CATEGORY		Y PR 48 SILT FENC	ROJECT I.D. 867-01-70 CE SUMMARY 628.1504 SILT FENCE	EACH 1 SPV.0090.02 SILT FENCE	628.15; SILT FE MAINTENA LF
0010	STATION - STATION 8+58.48 - 8+97.88	LOCATION RT	FINISHING 625.0500 SALVAGED	629.02 FERTILIZ TYPE	10 6 S ER M B	0010 30.0120 EEDING IIXTURE	STATION - ST 8+05.35 - 8+ 630.0170 SEEDING MIXTURE	630.0400 SEEDING	ATION RT 630.050 SEED	EACH 1	CATEGORY 0010	0010	Y PR 48 SILT FENC	ROJECT I.D. 867-01-70 CE SUMMARY 628.1504 SILT FENCE	EACH 1 SPV.0090.02 SILT FENCE DOUBLE STAKED	SILT FE MAINTENA
0010 EGORY	STATION - STATION 8+58.48 - 8+97.88 STATION 7+26.16 - 9+29.09	LOCATION RT LOCATION LT/RT	FINISHING 625.0500 SALVAGED TOPSOIL SY 361	629.02 FERTILIZ TYPE	10 6 S ER M B	30.0120 EEDING IIXTURE NO. 20	STATION - ST 8+05.35 - 8+ 630.0170 SEEDING MIXTURE NO. 70 LB	630.0400 SEEDING NURSE CRO LB	630.050 SEED P WATER MGAL	EACH 1		STATION - STATION 7+79 - 9+50 10+56 - 11+10	SILT FENCE LOCATION RT RT	ROJECT I.D. 867-01-70 CE SUMMARY 628.1504 SILT FENCE LF 90 37	SPV.0090.02 SILT FENCE DOUBLE STAKED LF 80 17	SILT FE MAINTEN LF 340 108
0010 EGORY	STATION - STATION 8+58.48 - 8+97.88 STATION	LOCATION	FINISHING 625.0500 SALVAGED TOPSOIL SY	629.02 FERTILIZ TYPE CWT	10 6 S ER M B	30.0120 EEDING IIXTURE NO. 20 LB	STATION - ST 8+05.35 - 8+ 630.0170 SEEDING MIXTURE NO. 70 LB	630.0400 SEEDING NURSE CRO	630.050 SEED P WATER MGAL	EACH 1		0010 STATION - STATION 7+79 - 9+50	SILT FENCE LOCATION	ROJECT I.D. 867-01-70 CE SUMMARY 628.1504 SILT FENCE LF 90	EACH 1 SPV.0090.02 SILT FENCE DOUBLE STAKED LF 80	SILT FE MAINTEN LF 340 108
0010	STATION - STATION 8+58.48 - 8+97.88 STATION 7+26.16 - 9+29.09	LOCATION RT LOCATION LT/RT	FINISHING 625.0500 SALVAGED TOPSOIL SY 361	629.02 FERTILIZ TYPE CWT 0.1	10 6 S ER M B	30.0120 EEDING IIXTURE NO. 20 LB	STATION - ST 8+05.35 - 8+ 630.0170 SEEDING MIXTURE NO. 70 LB	630.0400 SEEDING NURSE CRO LB	630.050 SEED P WATER MGAL	EACH 1		STATION - STATION 7+79 - 9+50 10+56 - 11+10	SILT FENCE LOCATION RT RT	ROJECT I.D. 867-01-70 CE SUMMARY 628.1504 SILT FENCE LF 90 37	SPV.0090.02 SILT FENCE DOUBLE STAKED LF 80 17	SILT FE) MAINTEN. LF

PROJECT NO: 4867-01-70

HWY: CTH H

COUNTY: WASHINGTON

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INLET PROTECTION TYPE C

628.7015

CATEGORY STATION EACH

0010 8+84 1

MOBILIZATIONS EROSION CONTROL

628.1905 CATEGORY EACH MOBILIZATIONS EMERGENCY
EROSION CONTROL

628.1910 CATEGORY EACH

-	ERC	SION MAT		
			628.2004 CLASS I TYPE B	628.2027 CLASS II TYPE C
CATEGORY	STATION - STATION	LOCATION	SY	SY
0010	7+26.16 - 9+29.09 10+54.04 - 12+50.00	LT/RT LT/RT	205 100	155 O
	UNDISTRIBUTED		76	39
		TOTALS	381	194

	TEMPORARY DITCH CHECKS						
CATEGORY	STATION	LOCATION	628.7504 LF				
0010	8+00	LT	5				
	UNDISTRIBUTED		1				
		TOTAL	6				

	CULVERT PIPE	- CHECKS	
CATEGORY	STATION	LOCATION	628.7555 EACH
0010	7+42 8+84	LT LT	3 2
	UNDISTRIBUTED		1
		TOTAL	6

TURBIDITY	BARRIERS
ווטוטוטווו	DAIMILING

				CONCRETE BAF	RRIER TEMPORARY
			SPV.0180.01	603.8000	603.8125
			ENHANCED TURBIDITY	PRECAST	PRECAST
			BARRIERS	DELIVERED	INSTALLED
CATEGORY	STATION	LOCATION	SY	LF	LF
0010	9+59	LT & RT	26	19	19
	10+47	LT & RT	23	19	19
		TOTALS	49	38	38

FIELD OFFICE TYPE C

PLOT NAME :

		642.5201
CATEGORY	PROJECT I.D.	EACH
0.040		
0010	4867-01-70 1	

PROJECT NO: 4867-01-70

HWY: CTH H

COUNTY: WASHINGTON

MISCELLANEOUS QUANTITIES

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PLOT DATE: 4/27/2021

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CATEGORY	STATION	LOCATION	SIGN CODE	SIGN MESSAGE	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS	638.2102 MOVING SIGNS TYPE II EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH
0010	500'WEST OF PROJECT LIMIT	RT	W5-2	NARROW BRIDGE	1	1		
	8+60	RT	W8-70	CENTERLINE RUMBLE STRIPS			1	1
	9+19	RT	W5-52R	CLEARANCE STRIPE	1	1		
	9+20	RT	D3-1	MILWAUKEE RIVER			1	1
	9+25	LT	W5-52L	CLEARANCE STRIPE	1	1		
	10+77	RT	W5-52L	CLEARANCE STRIPE	1	1		
	10+79	LT	W5-52R	CLEARANCE STRIPE	1	1		
	10+80	LT	D-3	MILWAUKEE RIVER			1	1
	500'EAST OF PROJECT LIMIT	LT	W5-2	NARROW BRIDGE	1	1		
	20+34 A	RT	R1-1	STOP			1	1
				TOTALS	6	6	4	4

TRAFFIC	CONTROL
---------	---------

		643.5000
CATEGORY	PROJECT I.D.	EACH
0010	4867-01-70	1

TRAFFIC CONTROL SIGNS FIXED MESSAGE

		643.1000
CATEGORY	STATION	SF
0010	WEST OF BRIDGE	12
	EAST OF BRIDGE	12
	ICE AGE TRAIL DETOUR	8
	TOTAL	32

TRAFFIC CONTROL SUMMARY

		DURATION	BARRI	0420 CADES PE III		.0900 GNS	WARNING	0705 CONTROL LIGHTS
CATEGORY	STATION	CALENDAR DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS
0010	ROAD CLOSURE	198	14	2,772	12	2376	12	2,376
	DETOUR ROUTE	198	4	792	120	23,760	0	
		TOTALS		3,564		26,136		2,376

PROJECT NO: 4867-01-70

HWY: CTH H

COUNTY: WASHINGTON

MISCELLANEOUS QUANTITIES

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PIPE SUMMARY

				608.0418 STORM SEWE SS IV	608.2414 R PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV	520.4118 CULVERT F	520.4121 PIPE CLASS IV
	FROM	TO	12-INCH	18-INCH	14X23-INCH	18-INCH	21-INCH
CATEGORY	STRUCTURE	STRUCTURE	LF	LF	LF	LF	LF
0010	5	10			136		
	10	15		36			
	15	25		20			
	20	15	43				
	30	35				39	
_	40	45					81
_	TOTA	ALS.	43	56	136	39	81

MANHOLES AND INLETS SUMMARY

				611.2004 MANH	611 . 2005 IOLES	611.3220	611.0530 MANHOLE COVERS	611.0627 INLET (
				4-FT	5-FT	INLETS	TYPE		
	STRUCTURE	•	STRUCTURE	DIAMETER	DIAMETER	2X2-FT	J	TYPE HM	TYPE V
CATEGORY	NUMBER	STATION	OFFSET	EACH	EACH	EACH	EACH	EACH	EACH
0010	10	8+85.03	20.1'LT		1			1	
	15	8+81.48	16.1'RT	1			1		
	20	9+24.43	19.1'RT			1			1
_		TOTALS		1	1	1	1	1	1

APRON ENDWALLS SUMMAR

STORM SEWER OUTFALL RIPRAP AND GEOTEXTILE FABRIC

S	STRUCT.			522 . 1018	522.2614 APRON ENDWALLS FOR CU IFORCED CONCRETE HORIZONTAL ELLIPTICAL	520,1018 ILVERT PIPE	520.1021	SPV.0060.01 CONCRETE CUTOFF WALL	611.9800.S PIPE GRATES	633.5200 MARKERS CULVERT END	
CATEGORY	NO.	STATION	OFFSET	18-INCH EACH	14×23-INCH EACH	18-INCH EACH	21-INCH EACH	EACH	EACH	EACH	CATEC
0010	5 25 30 35 40 45	7+42.80 8+79.00 8+84.35 9+22.96 7+46.54 8+25.00	23.9'LT 42.3'RT 37.6'LT 38.4'LT 24.9'RT 44.4'RT	1	1 	1 1 1	 1 1	1 1 	1 1 	1 1 1 1 1	001
			TOTALS	1	1	0 2	2	2	2	6	

			MEDIUM	TYPE HR
CATEGORY	STATION - STATION	LOCATION	CY	SY
0010	8+79	RT	3	15
		TOTALS	3	15

PROJECT NO: 4867-01-70

HWY: CTH H

COUNTY: WASHINGTON

MISCELLANEOUS QUANTITIES

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GEOTEXTILE

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PLOT DATE: 4/27/2021

PLOT NAME :

PLOT SCALE : \$\$.....plotscale.....\$\$ wisDOT/CADDS SHEET 43

606.0200 RIPRAP

		MA	ARKING					CONSTRUCTION	N STAKING SUMI	MARY		
			646	.1020					650.5000	650 . 5500	650.7000	650.9920
			LINE EPOXY	LINE EPOX	Y							
			4-INCH	4-INCH						CURB GUTTER AND	CONCRETE	SLOPE
			(WHITE)	(YELLOW)					BASE	CURB & GUTTER	PAVEMENT	STAKES
CATEGORY	STATION	LOCATION	LF	LF	REMARKS	CATEGORY	STATION	LOCATION	LF	LF	LF	LF
0010	7+26 - 11+10	LT	368		EDGELINE	0010	7+26.16 - 9+29.09	LT & RT	190	124	15	190
	7+83 - 11+10	RT	327		EDGELINE		10+74.26 - 11+10.00	LT & RT	15		15	35
	8+65 - 11+50	CL		570	CENTERLINE		20+00.00 A -21+04.57 A	LT	60			60
		TOTALS	695	570				TOTALS	265	124	30	285
		TOTAL	1,;	265								

	NG STRUCTURE LAYOUT
CATEGORY STRUG	650.6500 CTURE LS
0010 B-66	1 140

<u>CONSTRUCTION</u>	STAKING SUPPL	EMENTAL CONTROL
CATEGORY	PROJECT	650 . 9910
0010	4867-01-70	1

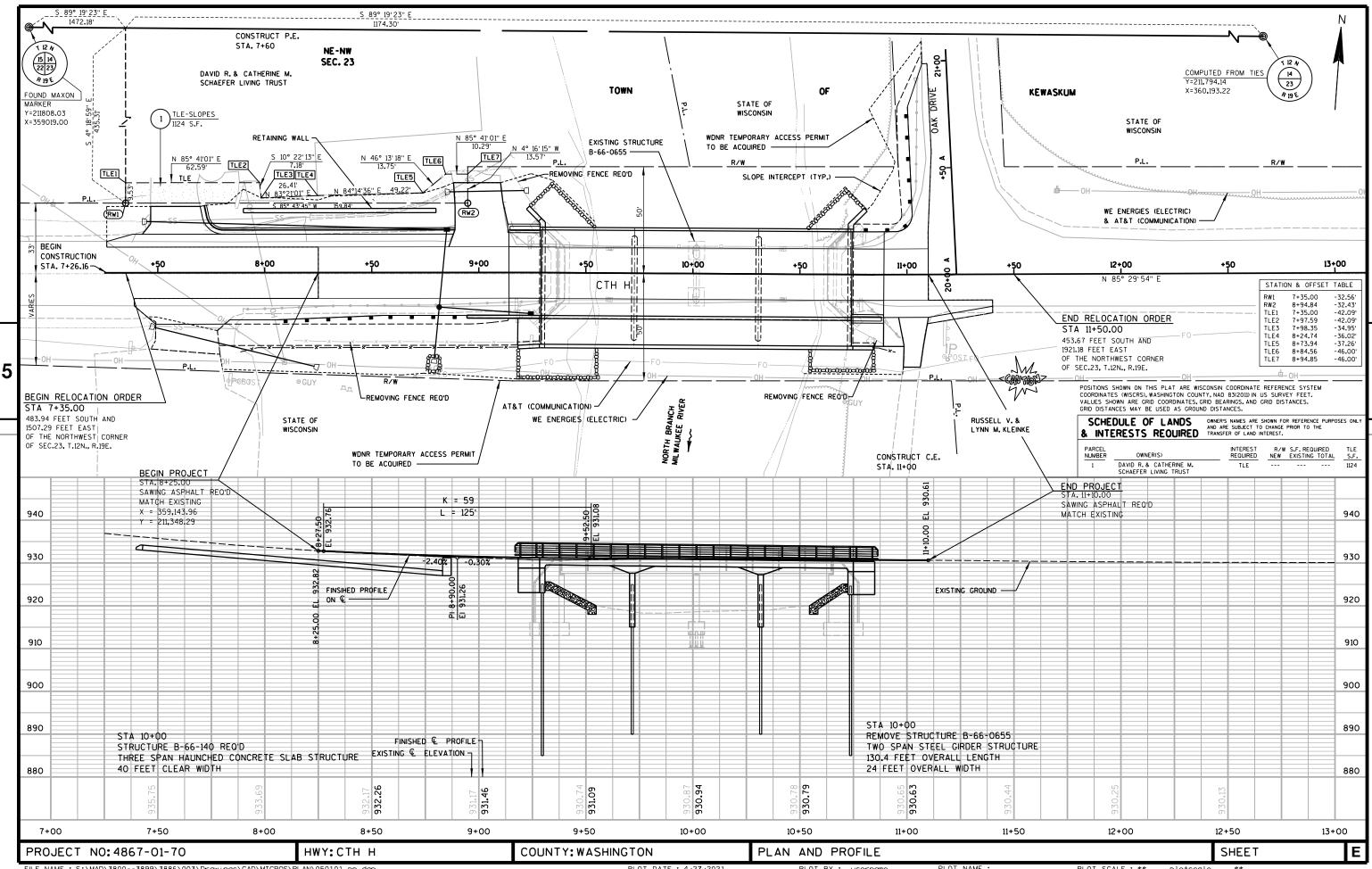
	SAWING ASPHA	ALT	
			690.0150
CATEGORY	STATION	LOCATION	LF
0010	7+26.16 - 9+29.09	LT & RT	360
0010	10+74.26 - 11+10.00		260 145
		TOTAL	405
		TOTAL	405

_		RAILING		
				SBV 0000 01
	CATEGORY	CTATION CTATION	LOCATION	SPV.0090.01 LF
-	CATEGORI	STATION - STATION	LUCATION	Lr
	0010	7+88 - 9+18	RT	130

			SPV.0165.01
CATEGORY	STATION	LOCATION	l LF
0010	7+90	LT	90

WALL MODULAR BLOCK GRAVITY LANDSCAPE (7+90)

PROJECT NO: 4867-01-70 HWY: CTH H COUNTY: WASHINGTON MISCELLANEOUS QUANTITIES SHEET E

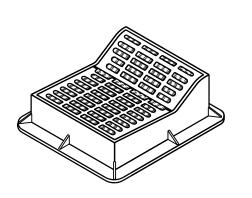


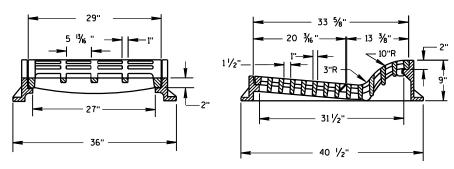
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Standard Detail Drawing List

08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-02	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR CULVERT FIFE APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10 13B02-09A	NAME PLATE (STRUCTURES)
	CONCRETE PAVEMENT APPROACH SLAB
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
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B18-06B	STEEL PLATE BEAM GUARD, CLASS "A" AT MEDIAN APPROACH TO BRIDGES
14B20-11B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B20-11C	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS
14B20-11D	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SLOPED END PARAPETS
14B20-11E	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" AND "W"
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B20-11G 14B20-11H	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL STEEL THRIE BEAM STRUCTURE APPROACH, SINGLE SLOPE ATTACHMENT
14B24-09A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-06A	MI DWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MI DWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MI DWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRI CADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-08B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS

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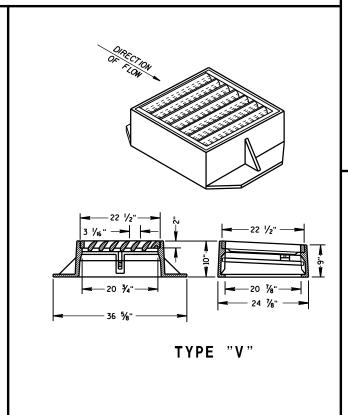




TYPE "F"

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

25 1/8" 23 1/4" R. 25 1/4" R. 27 1/4" R. 28 1/4" R. 29 1/4" R. 20 1/4" R. 20 1/4" R. 21 1/4" R. 22 1/4" R. 22 1/4" R. 23 1/4" R. 24 1/4" R. 25 1/4" R. 27 1/4" R. 28 1/4" R. 29 1/4" R. 20 1/4" R. 20 1/4" R. 20 1/4" R. 21 1/4" R. 22 1/4" R. 22 1/4" R. 23 1/4" R. 24 1/4" R. 25 1/4" R. 27 1/4" R. 28 1/4" R. 29 1/4" R. 20 1/4" R. 20 1/4" R. 20 1/4" R. 21 1/4" R. 22 1/4" R. 22 1/4" R. 23 1/4" R. 24 1/4" R. 25 1/4" R. 26 1/4" R. 27 1/4" R. 28 1/4" R. 29 1/4" R. 20 1/4" R.

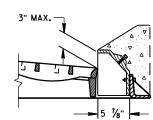


GENERAL NOTES

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

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

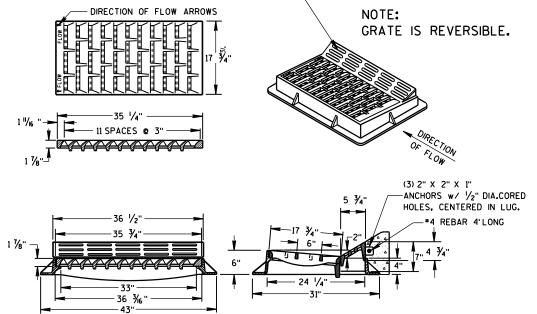
_1" X 5 %" SLOTS (TYPICAL)



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

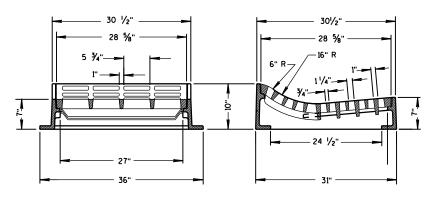
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE



TYPE "HM"

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE



TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



STATE OF WISCONSIN
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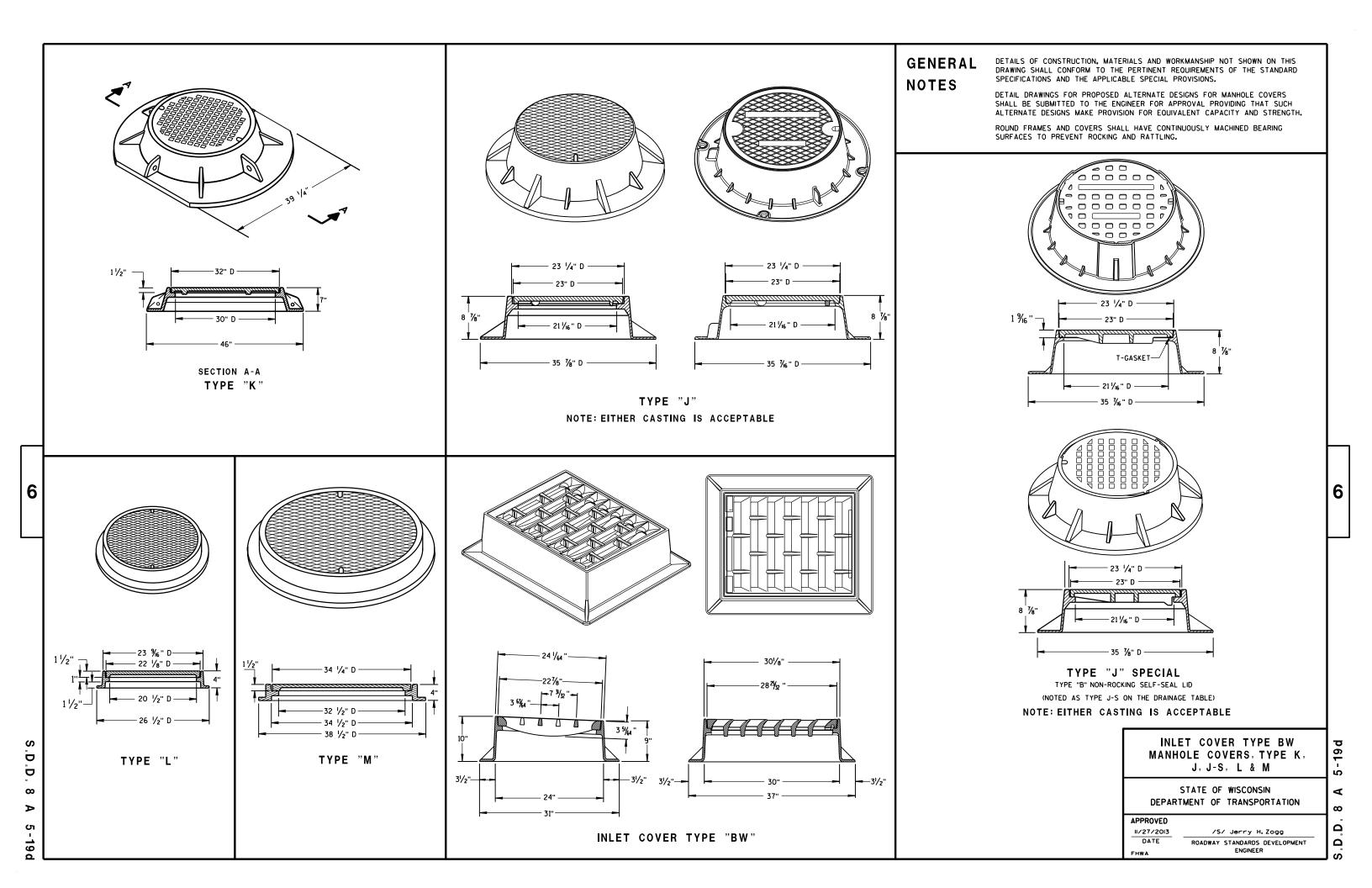
APPROVED

II/27/2013
DATE / /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

A 5-19c

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D.D.





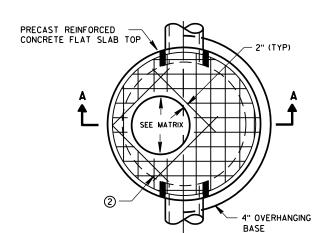
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SEE DETAIL "B"





PLAN VIEW CIRCULAR OPENING

SEE

MATRIX

SEE __ MATRIX **PRECAST** REINFORCED CONCRETE RISERS

OPTIONAL PRECAST REINFORCED CONCRETE **ECCENTRIC TOP**

PRECAST

WALL

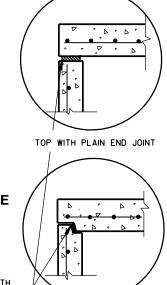
PRECAST REINFORCED

CONCRETE FLAT SLAB TOP

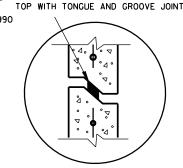
PRECAST REINFORCED

CONCRETE BASE 2

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

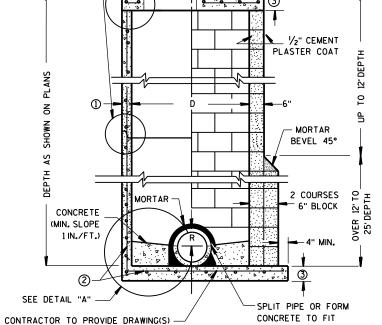


JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS **RECOMMENDATIONS** CONFORMING TO ASTM C990 (TYP)



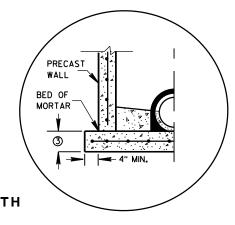
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B'



STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES PRECAST REINFORCED CONCRETE BLOCK WITH **CONCRETE WITH** CAST-IN-PLACE OR

MONOLITHIC BASE

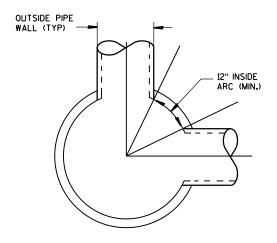


PRECAST REINFORCED

CONCRETE WITH INTEGRAL BASE OPTION

SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

GENERAL NOTES

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

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER. THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES, FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

CONCRETE BLOCK WILL NOT BE PERMITED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES O MINIMUM WALL IHICKNESS SHALL DE 4 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.
- (2) FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- (3) PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS

MANHOLE COVER OPENING MATRIX

ĺ	MANHOLE COVER TYPE	С	ALL J'S	K	L	М
	OPENING SIZE (FT)					
	2 DIA.	х	х		Х	
ı	3 DIA.			Х		Х

PIPE MATRIX

MANHOLE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES			
SIZE	180° SEPARATION (IN)	90° SEPARATION (IN)		
3-FT	15	12		
4-FT	24	18		
5-FT	36	24		
6-FT	42	36		
7-FT	48	36		
8-FT	60	42		

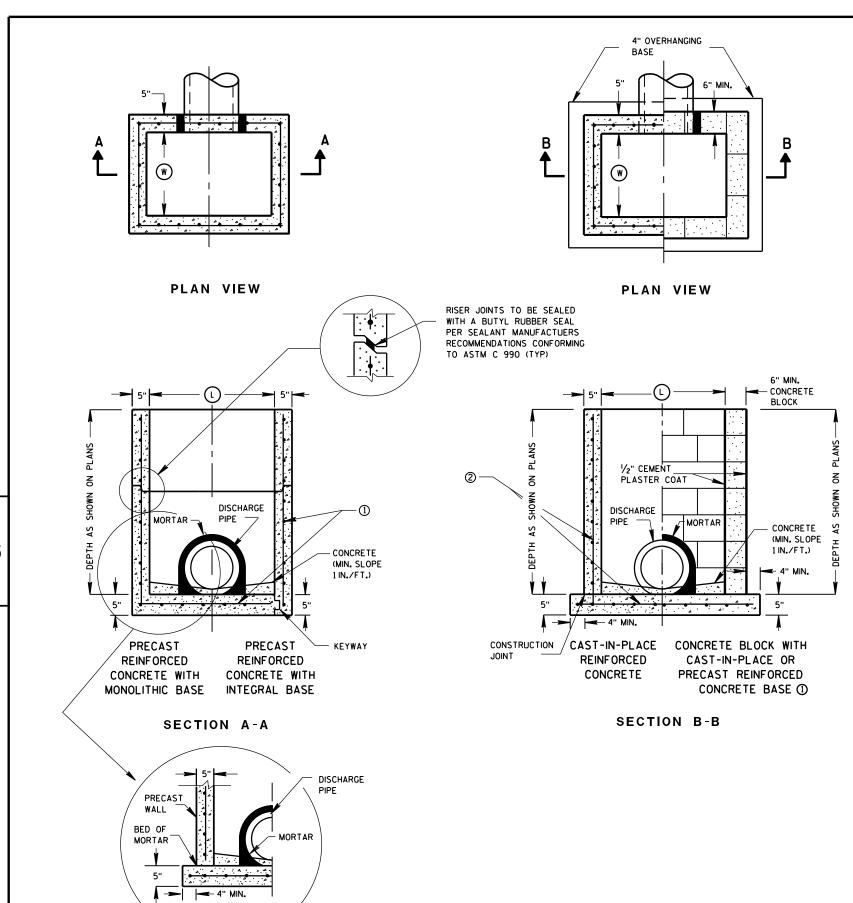
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT 7-FT AND 8-FT DIAMETER

> STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

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DATE UNIT SUPERVISOR

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT



GENERAL NOTES

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

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS.
4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED.

OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

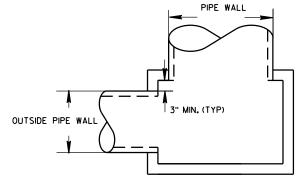
- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE		INLET COVER TYPE	ALL A'S	ALL B'S	BW	F	ALL H'S	S	Т	٧	WM
	WIDTH (V) (FT)	LENGTH (L) (FT)									
2X2-FT	2	2	х	Х				Х		х	
2X2.5-FT	2	2.5			Х			Х	Х	Х	Х
2X3-FT	2	3					Х				
2.5X3-FT	2.5	3				Х					

PIPE MATRIX

	MAXIMUM IN DIAM	ISIDE PIPE ETER
INLET SIZE	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



DETAIL "A"

OUTSIDE

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INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept., 2016

DATE

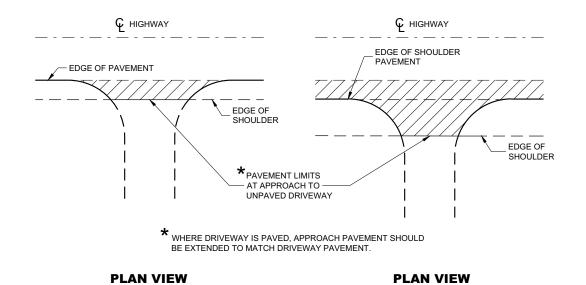
ROADWAY STANDARDS DEVELOPMENT

UNIT SUPERVISOR

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

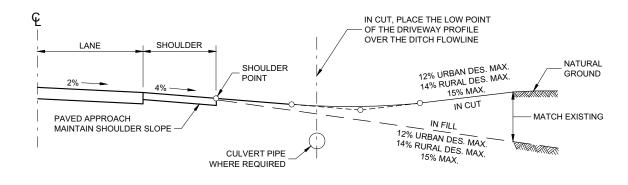
SEPARATE PRECAST REINFORCED

CONCRETE BASE OPTION

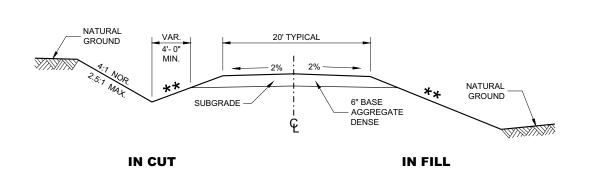


RURAL DRIVEWAY INTERSECTION DETAIL (NO CURB AND GUTTER OR SIDEWALK)

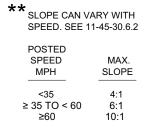
(PAVED SHOULDER ON HIGHWAY)

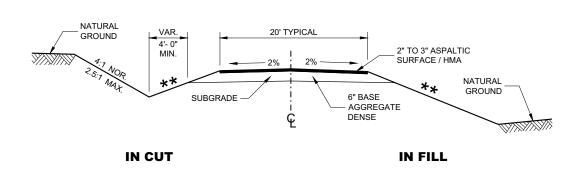


TYPICAL DRIVEWAY PROFILES



(UNPAVED SHOULDER ON HIGHWAY)





TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE ASPHALTIC SURFACE

TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE **AGGREGATE SURFACE**

DRIVEWAYS WITHOUT CURB AND GUTTER

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED

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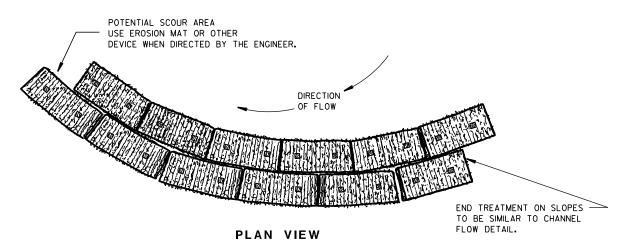
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/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR December 2017 DATE

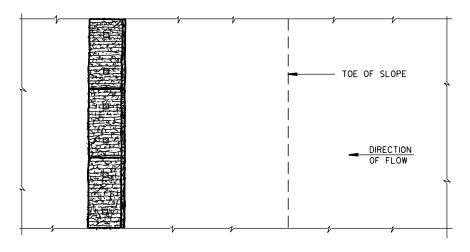
GENERAL NOTES

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

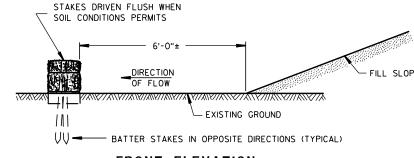
TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.



WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF **EROSION BALES / TEMPORARY** DITCH CHECKS

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02 /S/ Beth Connestro
CHIEF ROADWAY DEVELOPMENT ENGINEER

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TYPICAL APPLICATION OF SILT FENCE

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PLAN VIEW SILT FENCE AT MEDIAN SURFACE DRAINS



GENERAL NOTES

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

- \bigcirc HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- 3 WOOD POSTS SHALL BE A MINIMUM SIZE OF 11/8" X 11/8" OF OAK OR HICKORY.
- 4) SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- (5) CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



TRENCH DETAIL



SILT FENCE TIE BACK

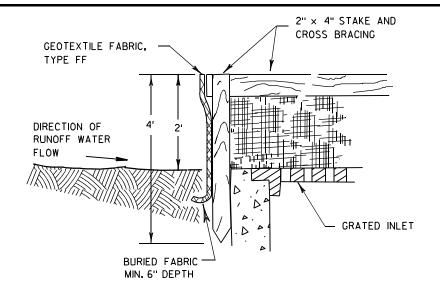
(WHEN REQUIRED BY THE ENGINEER)

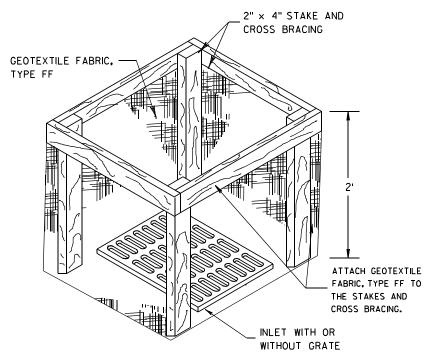


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INLET PROTECTION, TYPE A

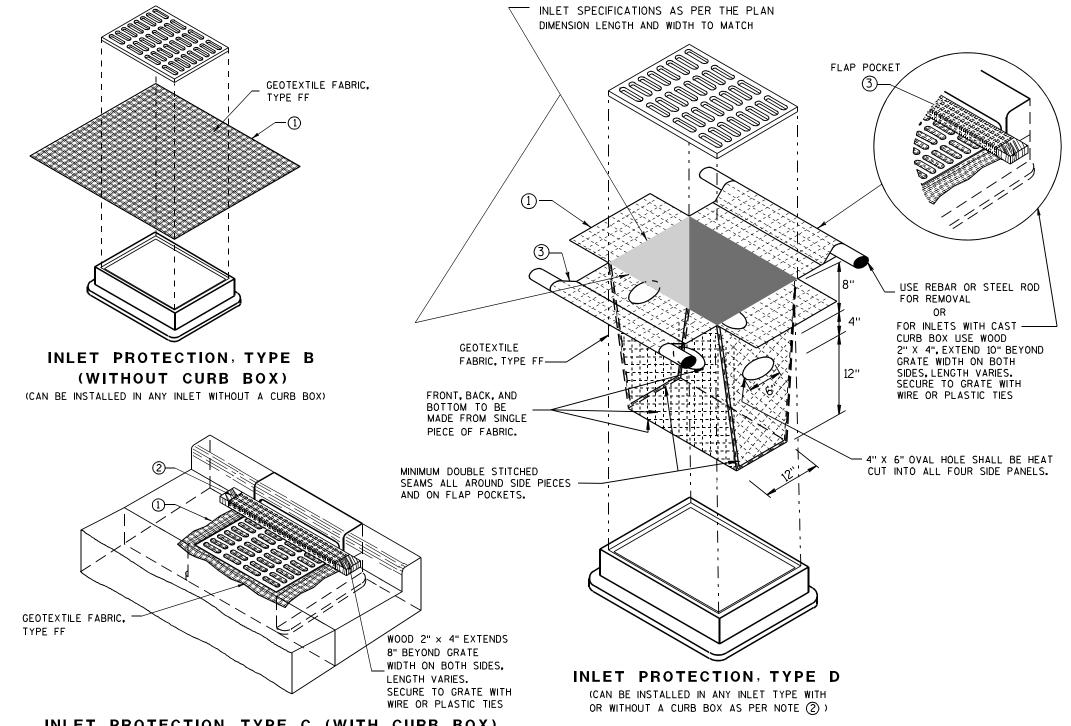
GENERAL NOTES

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

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

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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

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

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

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

INLET PROTECTION TYPE A, B, C, AND D

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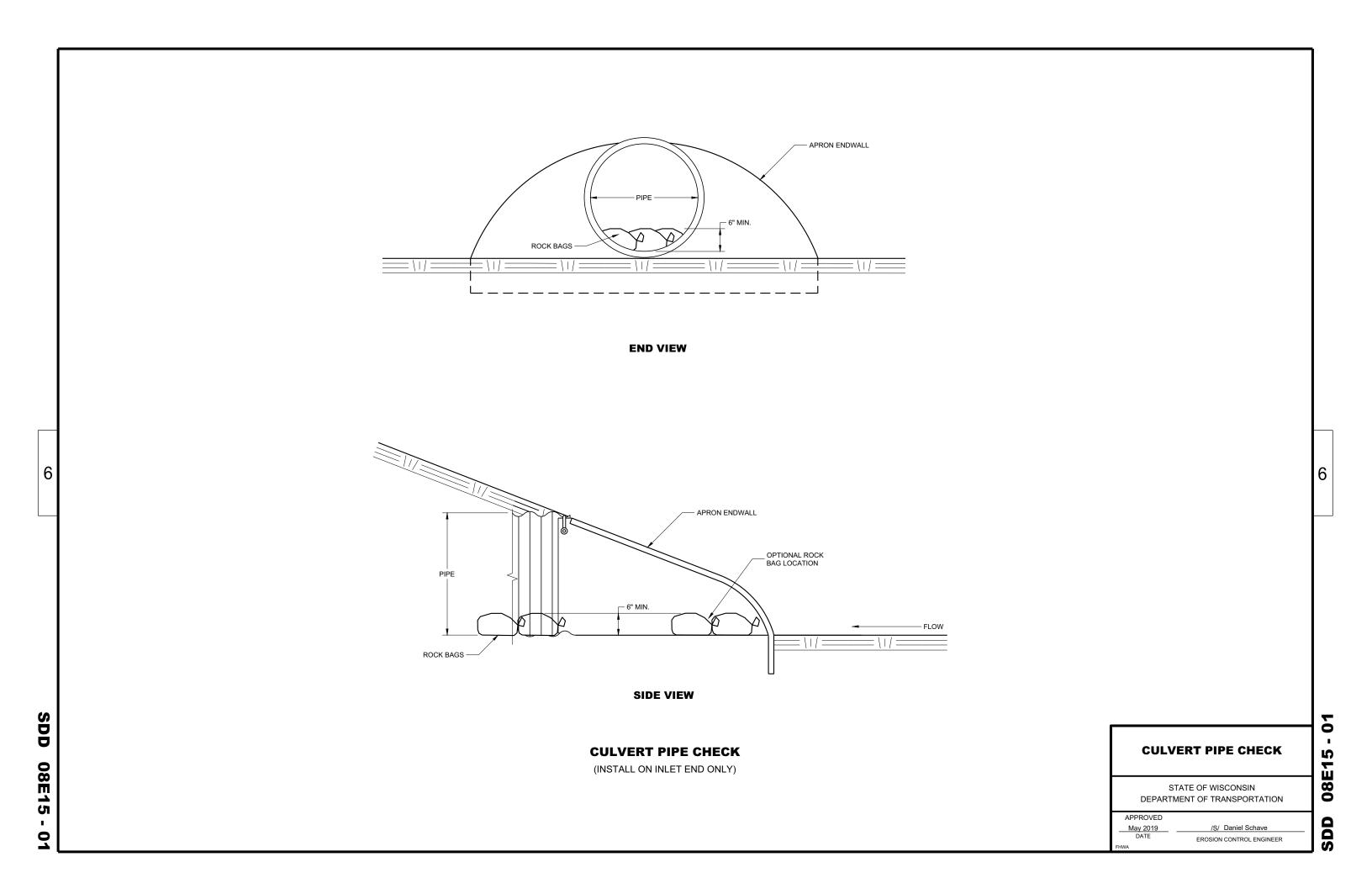
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED

/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER

10/16/02



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END CORNER

1/16" DIA. HOLES FOR

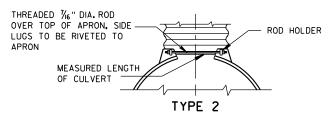
BOLTS OR RIVETS -

12" C-C MAX. SPACING

	METAL APRON ENDWALLS											
PIPE	MIN. T	HICK.			DIMENS	SIONS (I	nches)			APPROX.		
DIA. (IN.)	(Inch		A (±]")	B (MAX.)	H (±]")	L (±1 ½")	<u>1</u> 0	L 2	₩ (±2")	SLOPE	BODY	
12	.064	.060	6	6	6	21	12	171/2	24	2½+o 1	1Pc.	
15	.064	.060	7	8	6	26	14	213/4	30	21/2+o 1	1 Pc.	
18	.064	.060	8	10	6	31	15	281/4	36	$2\frac{1}{2}$ to 1	1Pc.	
21	.064	.060	9	12	6	36	18	29%	42	$2\frac{1}{2}$ to 1	1Pc.	
24	.064	.075	10	13	6	41	18	371/4	48	21/2+0 1	1Pc.	
30	.079	.075	12	16	8	51	18	521/4	60	2½+o 1	1Pc.	
36	.079	. 105	14	19	9	60	24	59¾	72	2½+o 1	2 Pc.	
42	.109	. 105	16	22	11	69	24	75%	84	21/2+o 1	2 Pc.	
48	.109	.105	18	27	12	78	24	81	90	2 ¹ / ₄ †o 1	3 Pc.	
54	.109	.105	18	30	12	84	30	851/2	102	2 ¹ / ₄ †o 1	3 Pc.	
60	.109×	.105×	18	33	12	87	_	_	114	2 to 1	3 Pc.	
66	.109×	.105×	18	36	12	87	_	_	120	2 to 1	3 Pc.	
72	.109×	.105×	18	39	12	87	_	_	126	2 to 1	3 Pc.	
78	.109×	.105×	18	42	12	87	_	_	132	11/2+0 1	3 Pc.	
84	.109×	.105×	18	45	12	87	_	_	138	1½+0 1	3 Pc.	
90	.109×	.105×	18	37	12	87	_	_	144	11/2 to 1	3 Pc.	
96	.109×	.105×	18	35	12	87	ı	ı	150	1½+0 1	3 Pc.	

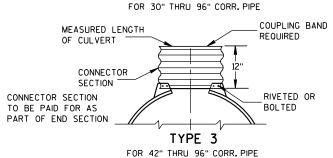
	RE	INFORC	ED C	ONCRE T	E APRO	N E	NDWAL	.LS
PIPE			DIM	Ensions	(Inches)			APPROX.
DIA.	T	A	В	С	D	E	G	SLOPE
12	2	4	24	48 1/8	721/8	24	2	3 to 1
15	21/4	6	27	46	73	30	21/4	3 to 1
18	$2\frac{1}{2}$	9	27	46	73	36	21/2	3 to 1
21	23/4	9	36	371/2	731/2	42	23/4	3 to 1
24	3	91/2	431/2	30	731/2	48	3	3 to 1
27	31/4	101/2	$49^{1}/_{2}$	24	731/2	54	31/4	3 to 1
30	$3\frac{1}{2}$	12	54	193⁄4	731/2	60	31/2	3 to 1
36	4	15	63	343/4	973/4	72	4	3 to 1
42	$4\frac{1}{2}$	21	63	35	98	78	41/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	51/2		65	* ** 331/4-35	8 ¹ /4- 100	90	51/2	2% to 1
60	6	* ** 30-35	60	39	99	96	5	2 to 1
66	61/2		* ** 72-78	* * * 21-27	99	102	51/2	2 to 1
72	7	* ** 24-36	78	21	99	108	6	2 to 1
78	71/2	* ** 24-36	78	21	99	114	61/2	2 to 1
84	8	36	901/2	21	1111/2	120	61/2	11/2 to 1
90	81/2	41	871/2	24	1111/2	132	61/2	11/2+0 1

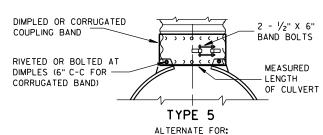
END SECTION CONNECTOR STRAP THREADED 76" DIA. ROD AROUND CULVERT & THROUGH CONNECTOR TANK TYPE CONNECTOR LUG LUG OR ALTERNATE CONNECTOR STRAP (SEE DETAIL) MEASURED LENGTH OF CULVERT



TYPE 1

FOR 12" THRU 24" CORR. PIPE





ALL SIZES CORRUGATED CIRCULAR PIPE

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

> FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5

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

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

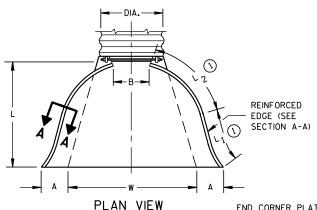
CONNECTION DETAILS

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

*MINIMUM **MAXIMUM

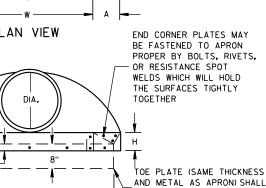
OPTIONAL

DESIGN



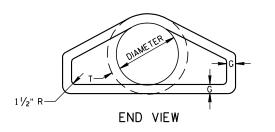
* EXCEPT CENTER PANEL

SEE GENERAL NOTES

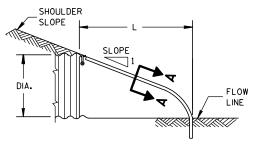


BE FURNISHED WHEN CALLED

FOR ON THE PLANS

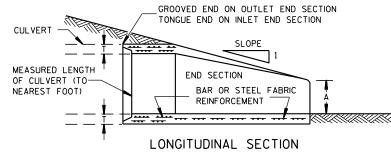


PLAN

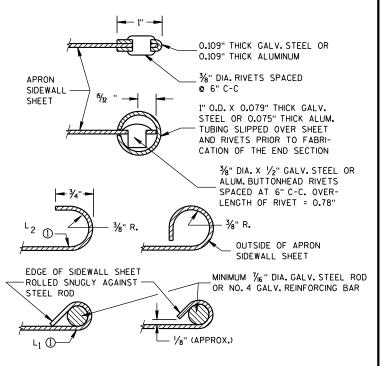


END VIEW





CONCRETE ENDWALLS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

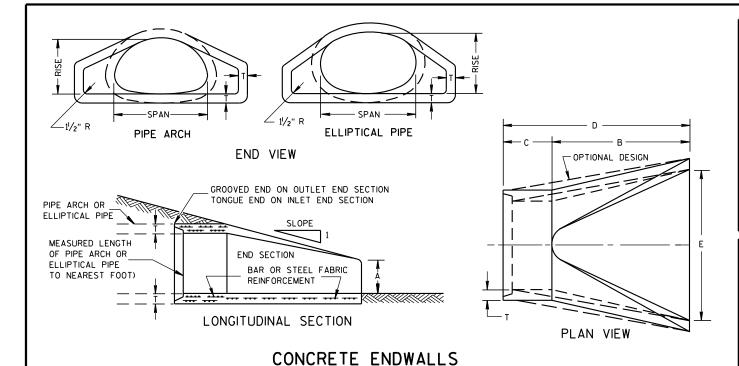
(1) FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.



STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

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

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REINFORCED

- EDGE (SEE

FLOW

	2- ² / ₃ " X 1/ ₂ " CORRUGATIONS													
EQUIV.	(Incl	2051	MIN. 1	HICK.			DIMENS	SIONS (I	nches)			W APPROX. BOD		
DIA.			(Inch	nes)	A	В	Н	L	Lı	L ₂	W	SLOPE	BODY	
(Inches)	SPAN	RISE	STEEL	ALUM.	(±]")	(MAX.)	(±]")	(±1 ½")	①	<u> </u>	(±2")	JLOI L		
15	17	13	.064	.060	7	9	6	19	14	16	30	2½+o 1	1Pc.	
18	21	15	.064	.060	7	10	6	23	14	193/8	36	21/2+o 1	1Pc.	
21	24	18	.064	.060	8	12	6	28	18	213/4	42	21/2 to 1	1Pc.	
24	28	20	.064	.060	9	14	6	32	18	271/2	48	21/2 to 1	1Pc.	
30	35	24	.079	.075	10	16	6	39	18	375/8	60	21/2+o 1	1Pc.	
36	42	29	.079	.075	12	18	8	46	24	45%	75	21/2+o 1	1Pc.	
42	49	33	.109	.105	13	21	9	53	24	54¾	85	21/2+o 1	2 Pc.	
48	57	38	.109	.105	18	26	12	63	24	68	90	21/2+o 1	3 Pc.	
54	64	43	.109	.105	18	30	12	70	24	723/4	102	2 ¹ / ₄ +o 1	3 Pc.	
60	71	47	.109*	. 105*	18	33	12	77	30	821/4	114	2 ¹ / ₄ +o 1	3 Pc.	
66	77	52	.109 *	. 105 *	18	36	12	77	ı	-	126	2 to 1	3 Pc.	
72	83	57	. 109*	. 105*	18	39	12	77	_	_	138	2 to 1	3 Pc.	

	3" X 1" CORRUGATIONS													
EQUIV.	(Incl		MIN. 1		A	В	DIMENS H	L	nches)	L ₂	W	APPROX. SLOPE	BODY	
(Inches)	SPAN	RISE	STEEL	ALUM.	(±1")	(MAX.)	(±1")	(±1 ½")	①	0	(±2")	320.2		
48	53	41	.109	.105	18	26	12	63	24	723/4	90	2½+o 1	2 Pc.	
54	60	46	.109	.105	18	30	12	70	30	821/4	102	2 to 1	2 Pc.	
60	66	51	.109*	. 105*	18	33	12	77	_	_	114	11/2+0 1	3 Pc.	
66	73	55	.109 ×	. 105*	18	36	12	77	_	_	126	1½+o 1	3 Pc.	
72	81	59	. 109*	. 105*	18	39	12	77	_	_	138	2 to 1	3 Pc.	
78	87	63	.109×	. 105*	22	38	12	77	_	_	148	11/2+0 1	3 Pc.	
84	95	67	.109*	. 105*	22	34	12	77	_	_	162	11/2+0 1	3 Pc.	
90	103	71	.109*	. 105*	22	38	12	77	_	_	174	1½+o 1	3 Pc.	
96	112	75	.109*	. 105*	24	40	12	77		_	174	11/2 to 1	3 Pc.	

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

THREADED 7/6" DIA. ROD OVER TOP OF APRON, SIDE

LUGS TO BE RIVETED TO

* EXCEPT CENTER PANEL SEE GENERAL NOTES

ROD HOLDER

COUPLING BAND

REQUIRED

RIVETED OR

BOLTED

REINFORCED CONCRETE PIPE ARCH												
EQUIV.		DIMENSIONS (Inches)										
DIA. (Inches)	** SPAN	** RISE	T	A	В	С	D	E	SLOPE			
24	29	18	3	81/2	39	33	72	48	3 to 1			
30	36	22	31/2	91/2	50	46	96	60	3 to 1			
36	44	27	4	111/8	60	36	96	72	3 to 1			
42	51	31	41/2	1513/16	60	36	96	78	3 to 1			
48	58	36	5	21	60	36	96	84	3 to 1			
54	65	40	51/2	251/2	60	36	96	90	3 to 1			
60	73	45	6	31	60	36	96	96	3 to 1			
72	88	54	7	31	60	39	99	120	2 to 1			
84	102	62	8	281/2	83	19	102	144	2 to 1			

REINFORCED CONCRETE ELLIPTICAL PIPE												
EOUIV.		DIMENSIONS (Inches)										
DIA. (Inches)	** SPAN	** RISE	T	A	В	С	D	E	APPROX. SLOPE			
24	30	19	31/4	81/2	39	33	72	48	3 to 1			
30	38	24	3¾	91/2	54	18	72	60	3 to 1			
36	45	29	41/2	111/8	60	24	84	72	21/2 to 1			
42	53	34	5	15¾	60	36	96	78	21/2+o 1			
48	60	38	51/2	21	60	36	96	84	21/2+0 1			
54	68	43	6	251/2	60	36	96	90	2½+o 1			
60	76	48	61/2	30	60	36	96	96	2½to 1			

**NOMINAL SIZE

GENERAL NOTES

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

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

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

(1) FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

TYPE 3 FOR 64" X 43" THRU 112" X 75" PIPE ARCH OUTSIDE OF APRON DIMPLED OR SIDEWALL SHEET 2 -1/2" X 6" CORRUGATED-BAND BOLTS COUPLING BAND RIVETED OR BOLTED AT GALV. REINFORCING BAR MEASURED LENGTH DIMPLES (6" C-C FOR -CORRUGATED BAND) OF PIPE ARCH TYPE 5 ALTERNATE FOR: ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL.

APRON ENDWA	LLS FOR
PIPE ARCH	AND
ELLIPTICAL	PIPE

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED				
11/30/94	/S/ R	ory	L. Rhines	mith
DATE	CHIEF ROAD	WAY	DEVELOPMEN	T ENGINEER
FHWA				

6	SECTION A-A)
	PLAN VIEW END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY
	BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER RISE END CORNER PLATE W + 10" (RISE 23" THRU 29") W + 20" (RISE 33" THRU 75") END VIEW W FOR RIVETS BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER TOE PLATE (SAME THICKNESS AND METAL AS APRON) SHALL BE FURNISHED WHEN CALLED FOR ON THE PLANS
	SHOULDER
	SLOPE SLOPE

SIDE ELEVATION

METAL ENDWALLS

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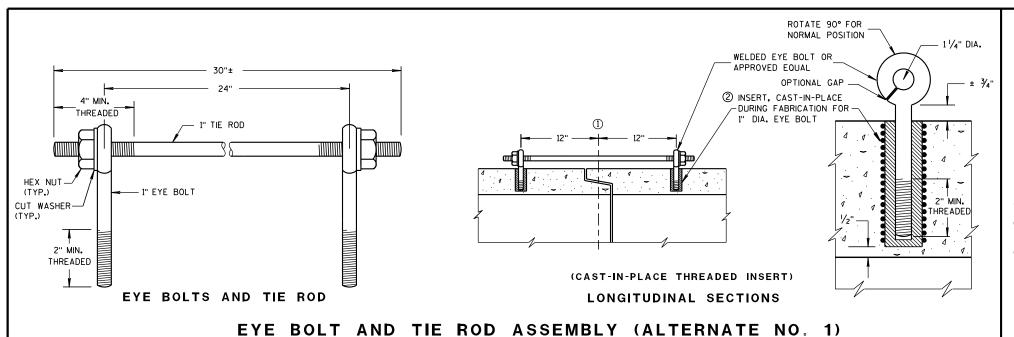
MEASURED LENGTH OF PIPE ARCH 0.109" THICK GALV. STEEL OR 0.109" THICK ALUMINUM FOR 17" X 13" THRU 112" X 75" PIPE ARCH 3/8" DIA. RIVETS SPACED APRON SIDEWALL AT 6" C-C MEASURED LENGTH SHEET OF PIPE ARCH 1" O.D. X O.079" THICK GALV. STEEL OR 0.075" THICK ALUM. CONNECTOR TUBING SLIPPED OVER SHEET SECTION AND RIVETS PRIOR TO FABRI-CATION OF THE END SECTION CONNECTOR SECTION TO BE PAID FOR AS 38" DIA. X 1/2" - GALV. STEEL PART OF END SECTION OR ALUM. BUTTONHEAD RIVETS SPACED AT 6" C-C. OVER-LENGTH OF RIVET = 0.78" EDGE OF SIDEWALL SHEET MINIMUM 7/6" DIA. GALV. -ROLLED SNUGLY AGAINST STEEL ROD OR 10M STEEL ROD

SECTION A-A

- 1/8" (APPROX.)

CONNECTION DETAILS

TYPE 2



GENERAL NOTES

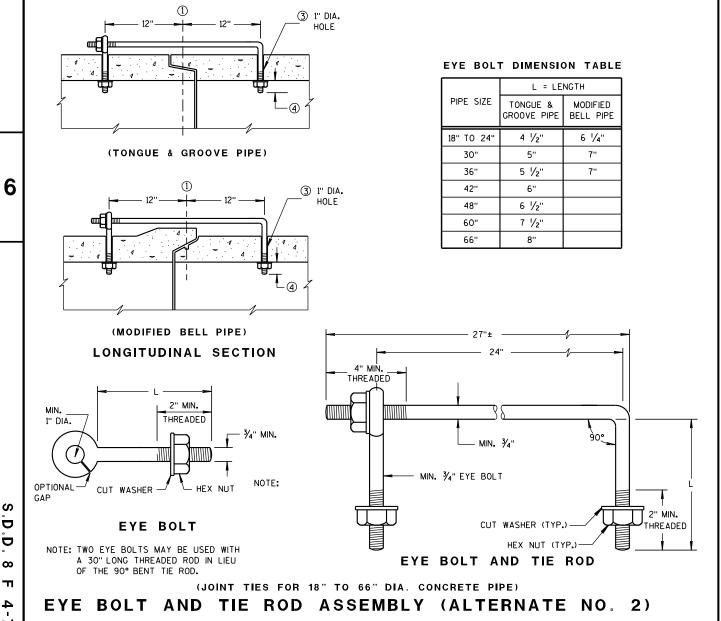
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES, ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

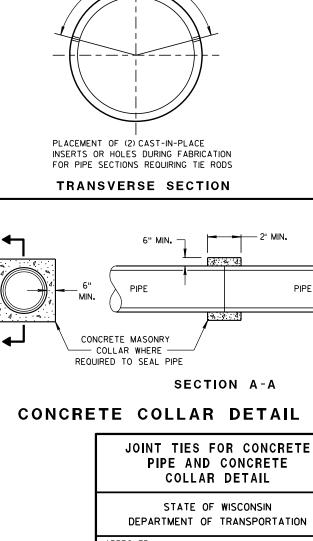
- (1) & OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE
- ${\mathfrak S}$ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ${\mathfrak C}$ OF TONGUE AND GROOVE.
- 4 BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- (5) OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN $rac{1}{2}$ INCH OF THE INNER SURFACE OF THE PIPE.



ADJUSTABLE TIE ROD TABLE 5/8 5 12-60 3/4 5 1/2 3/4 90-108 DIMENSIONS SHOWN ARE IN INCHES **TAPERED** PLAIN RIGHT AND LEFT THREADS **SLEEVE NUTS** 2 1/2" MIN. THREADED FILL WITH MORTAR SLEEVE NUTS (SEE DETAILS) LONGITUDINAL SECTION

(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



6/5/2012 /S/ Jerry H. Zogg DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

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TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION MULTI-UNIT STRUCTURES

GENERAL NOTES

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

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

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



SPREAD OPEN SO THE TOP OF LUG IS 11/4" WIDE

SECTION A-A

ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

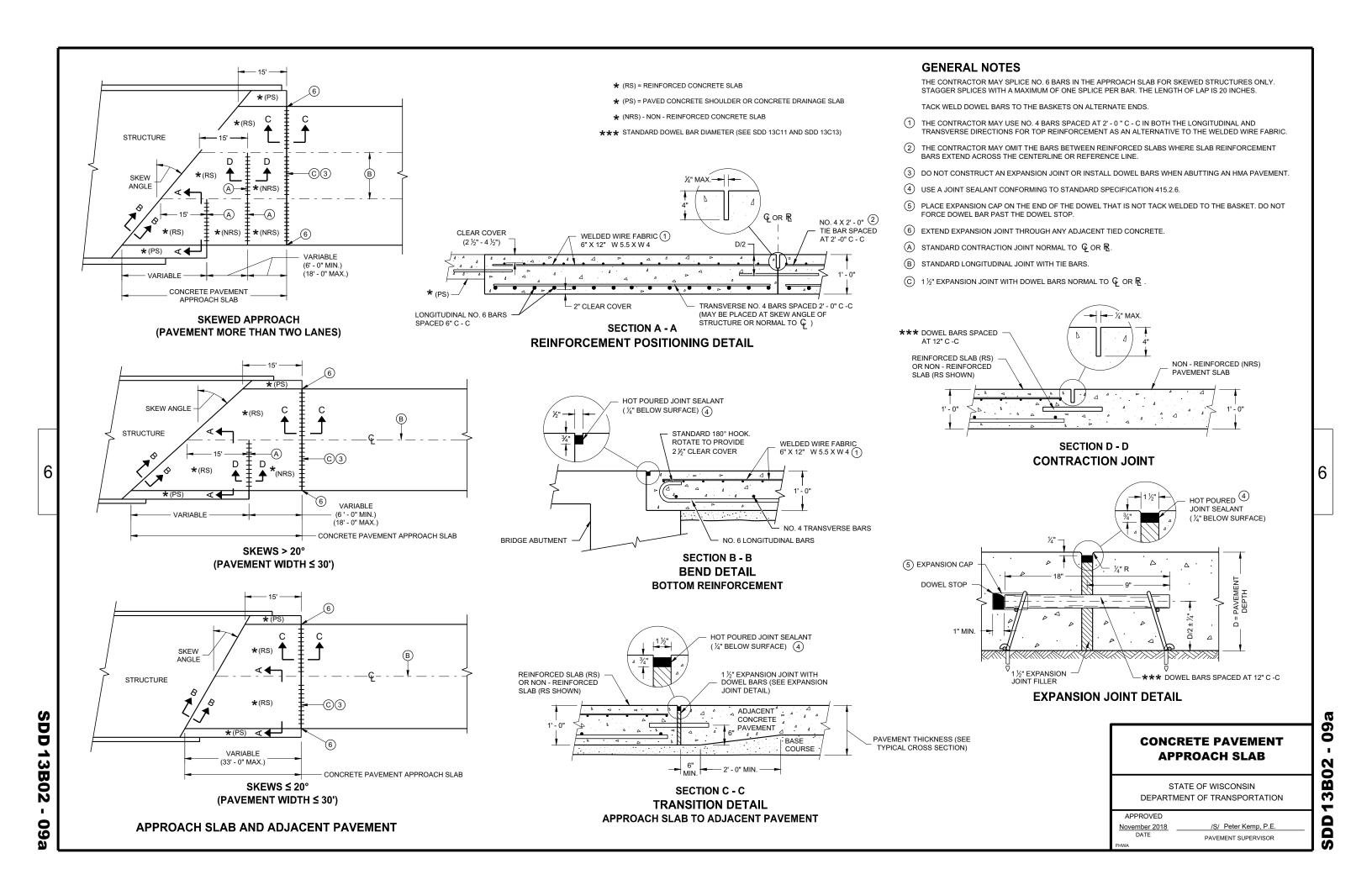
APPROVED

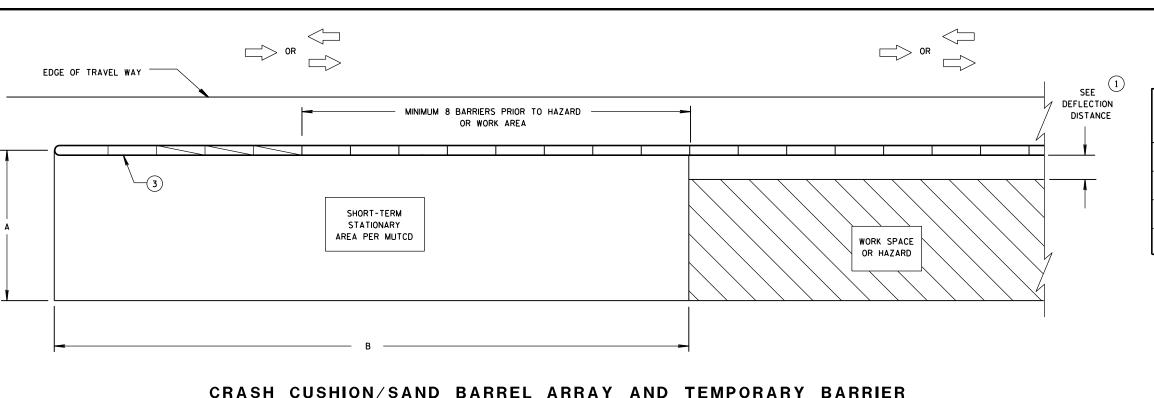
3/26/IO /S/ Scot Becker

DATE CHIEF STRUCTURAL DEVELOPMENT ENGINEER

.D.D. 12 A

3-10





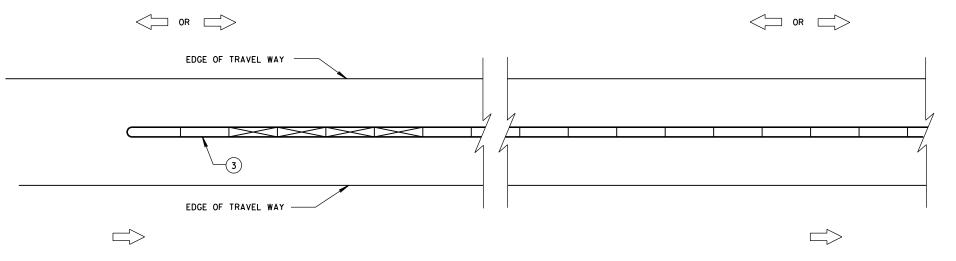
DIMENSION A TABLE (2)

		DIMENSION A		
FACILITY	POSTED SPEED MPH	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	

DIMENSION B TABLE (2)

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

INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER



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

GENERAL NOTES

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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

DEPARTMENT OF TRANSPORTATION

6

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

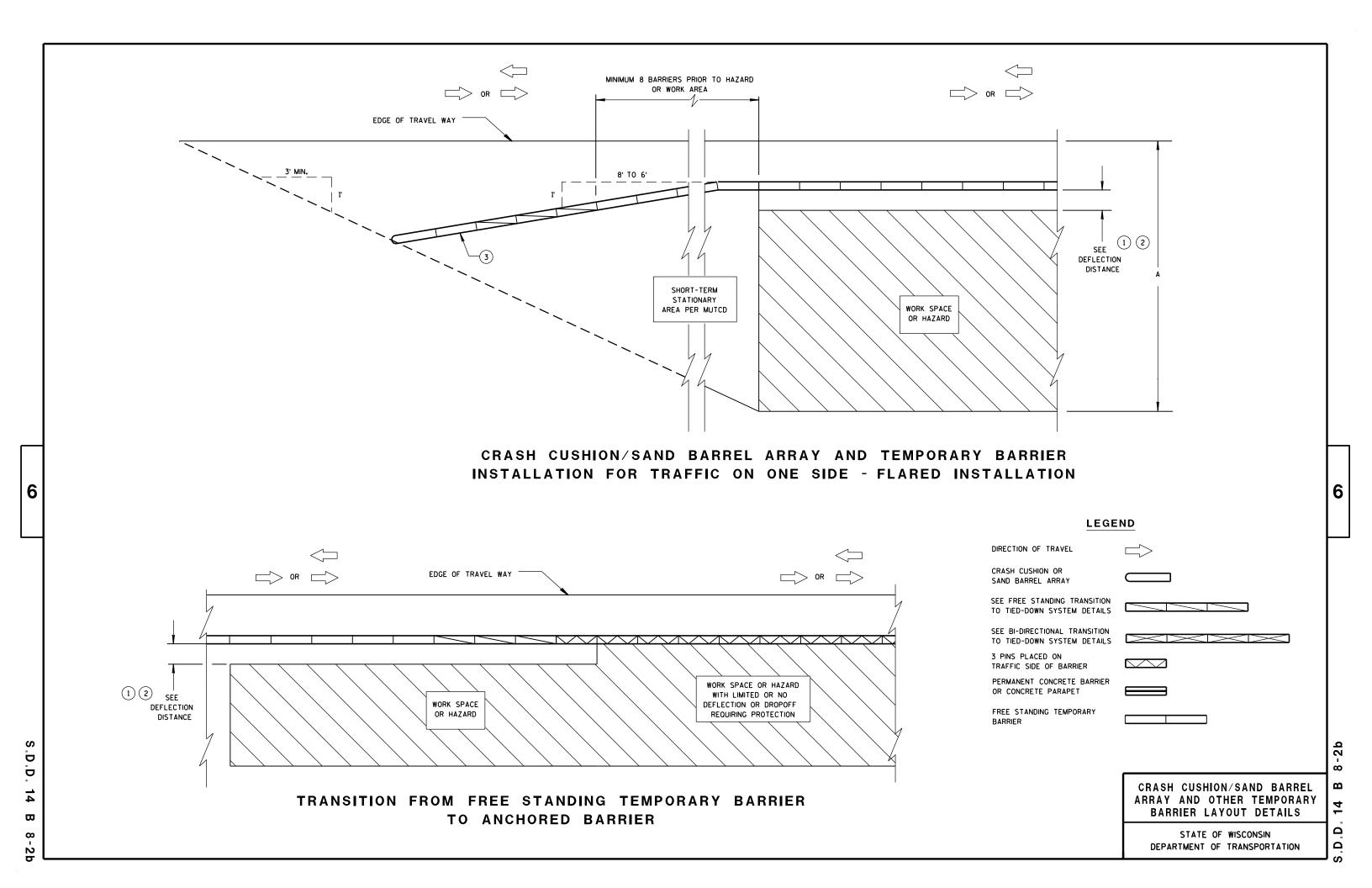
OR CONCRETE PARAPET

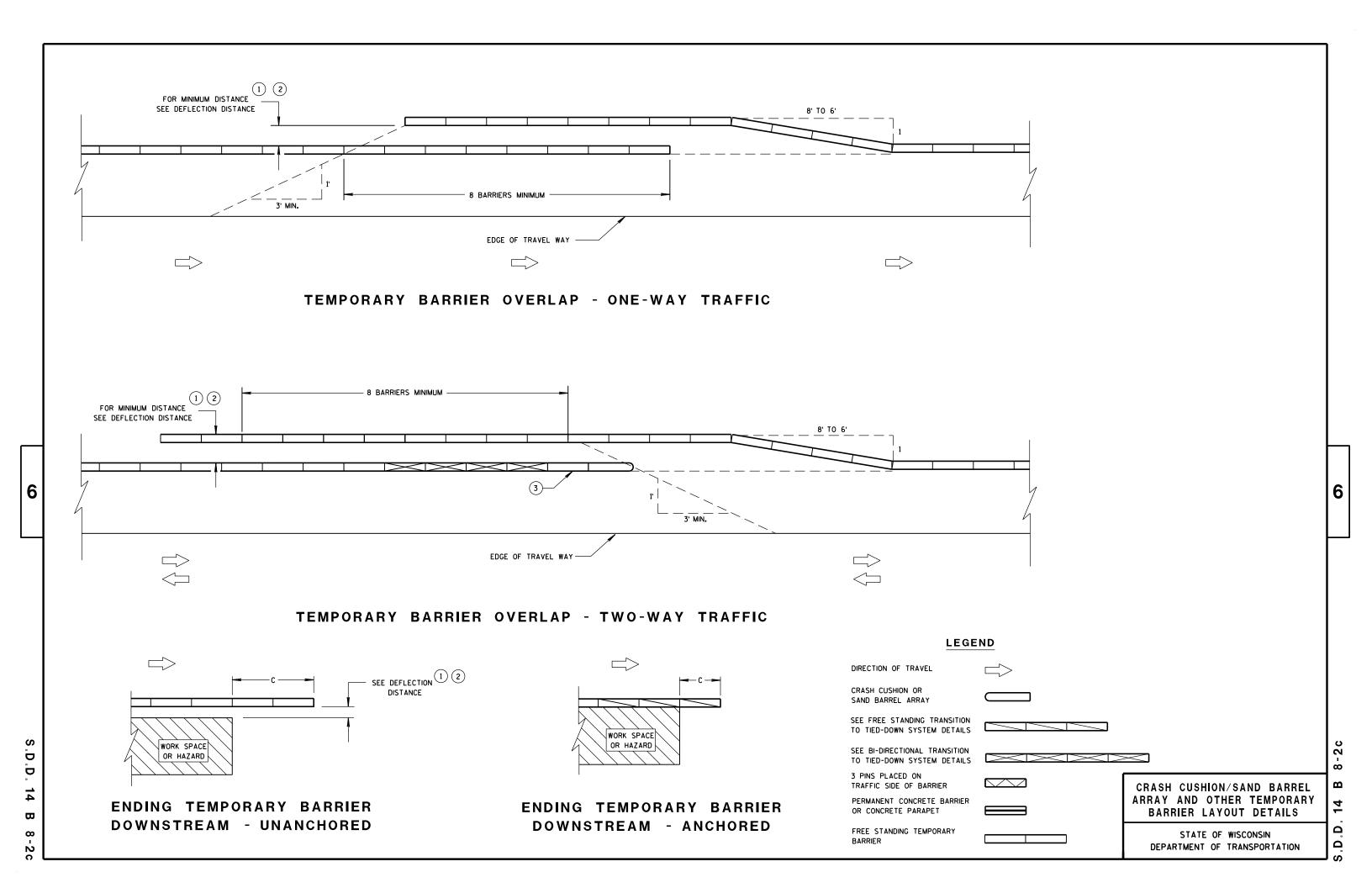
PERMANENT CONCRETE BARRIER

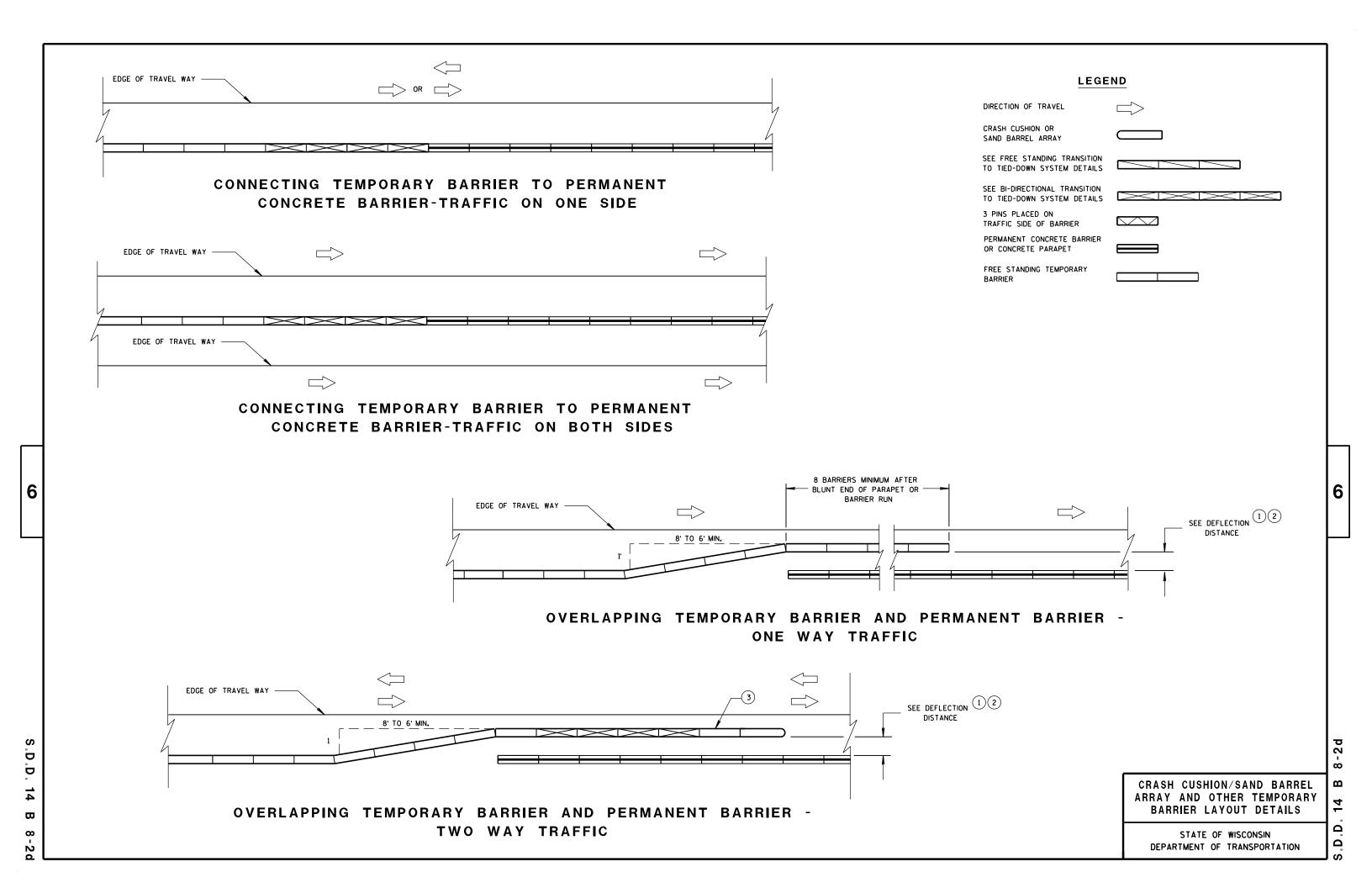
FREE STANDING TEMPORARY BARRIER

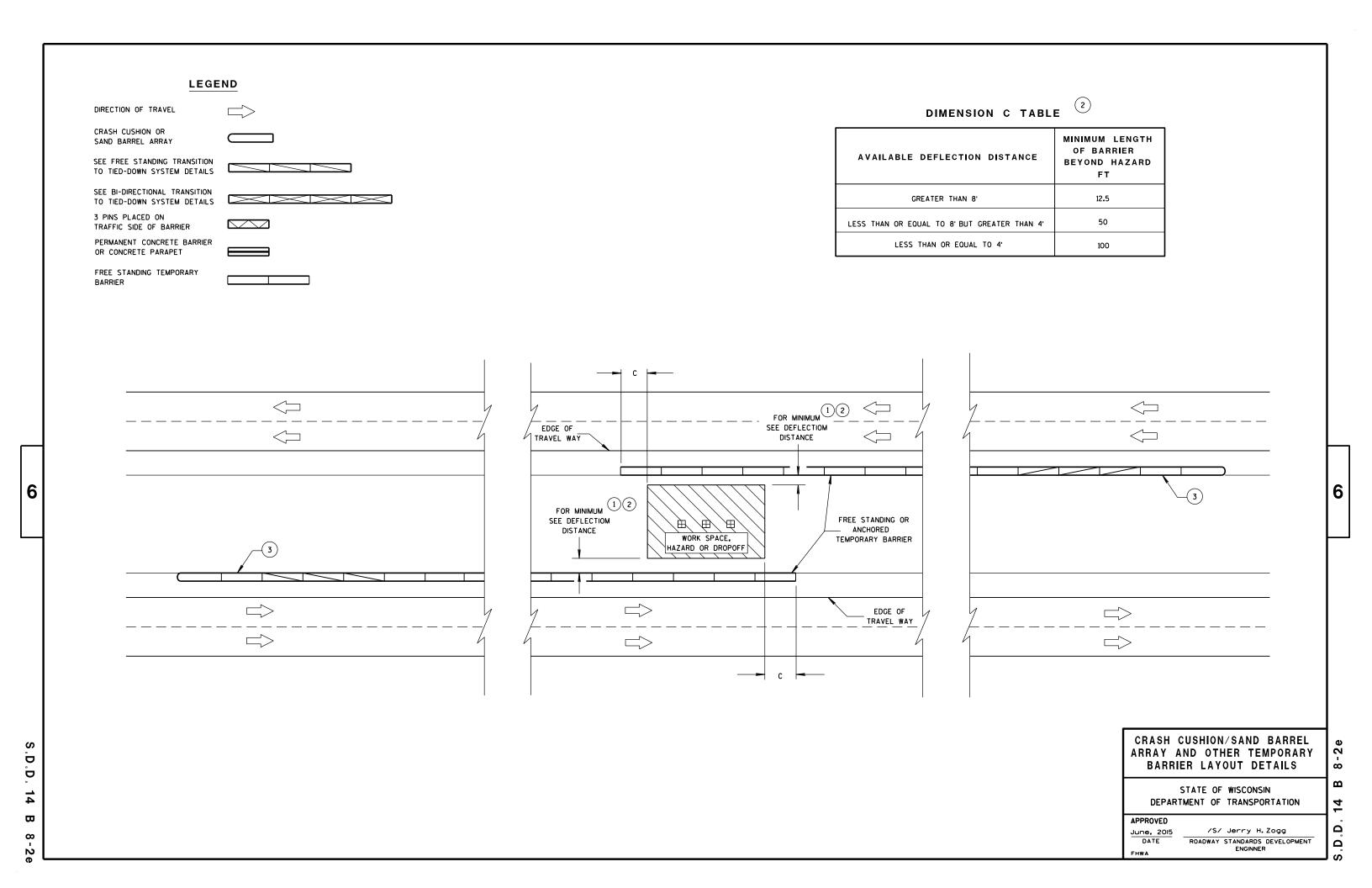
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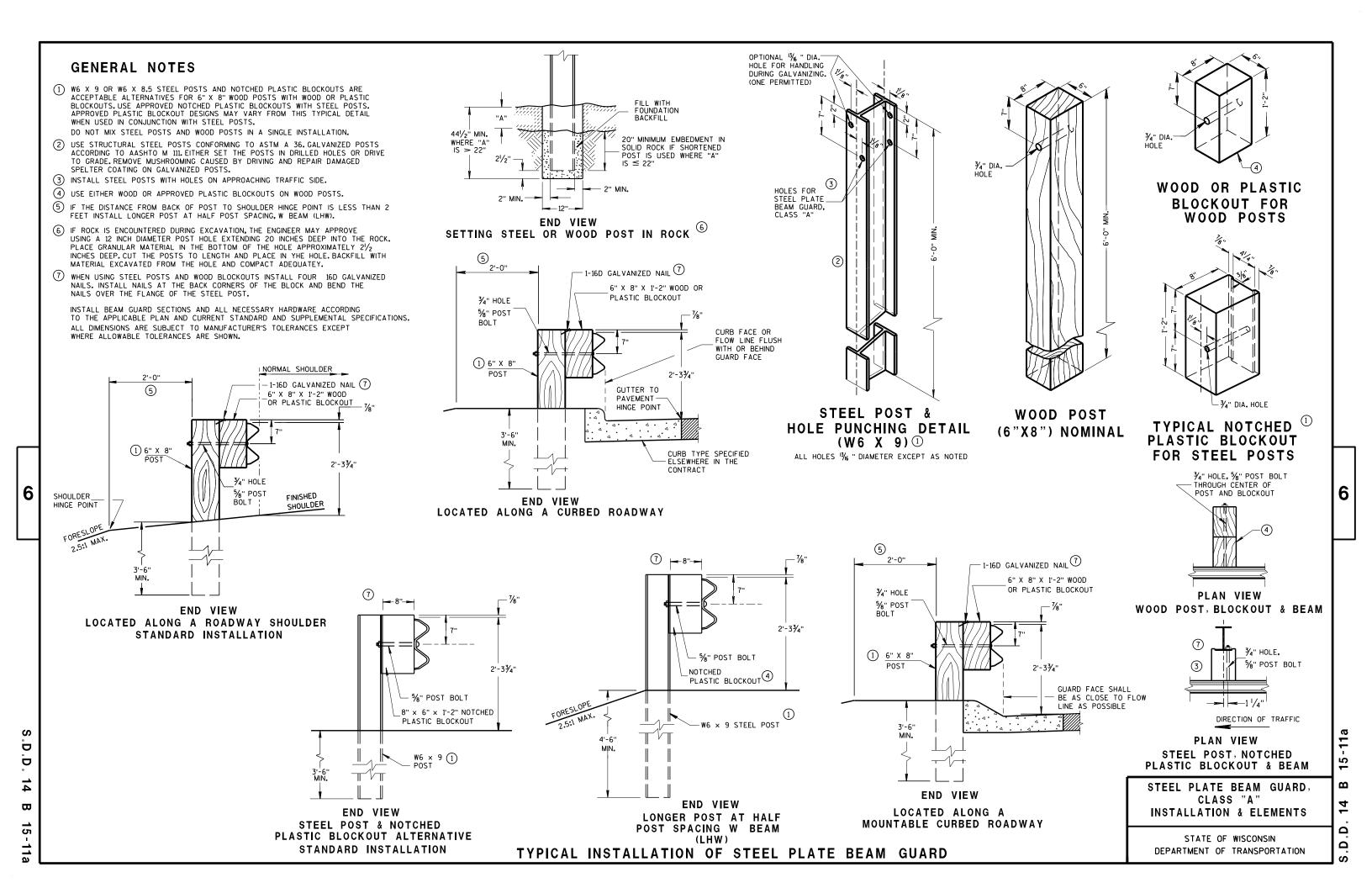
STATE OF WISCONSIN Ω











POST SPACING STANDARD INSTALLATION

12'-6" OR 25'-0"

FRONT VIEW

SECTION THRU W

SYMMETRICAL

BEAM

ABOUT & -12 GAGE

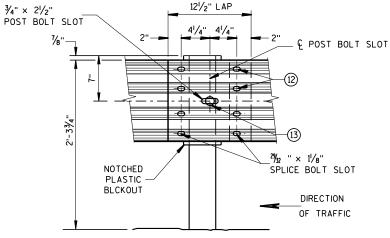
121/2" LAP WOOD OR PLASTIC BLOCKOUT FINISHED SHOULDER DIRECTION OF TRAFFIC FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

GENERAL NOTES

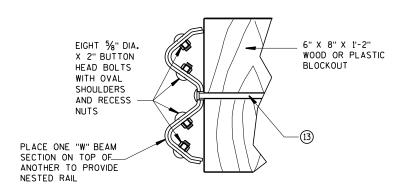
FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

- (9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA, START REFLECTORS AT POST *9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.
- (12) 8 1/8" \$ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- (13) 5%" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5%" DIA. F844 FLAT WASHER UNDER NUT.



FRONT VIEW BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD



NESTED W BEAM (NW)

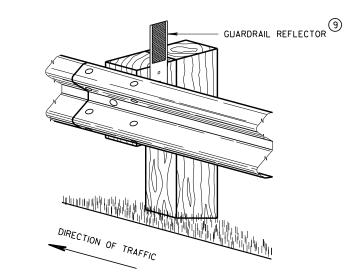
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR CONSTRUCTING NESTED W BEAM (NW)

EFFECTIVE LENGTH OF BEAM 3'-11/2" C-C 3'-11/2" C-C 3'-1¹/₂" C-C 3'-1¹/₂" C-C POST SPACING SPACING **SPACING** SPACING FINISHED DIRECTION OF SHOULDER TRAFFIC

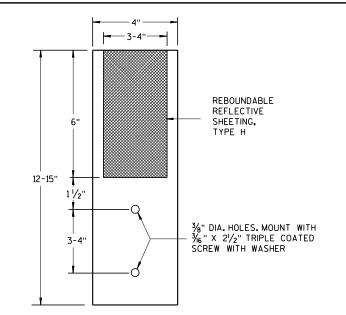
FRONT VIEW

POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)

* USE DOUBLE SIDED WHITE GUADRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN), USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



4" X 12" GUARDRAIL REFLECTOR DETAIL AND TYPICAL INSTALLATION *



4"x 12" GUARDRAIL REFLECTOR

STEEL PLATE BEAM GUARD, CLASS "A", **INSTALLATION & ELEMENTS**

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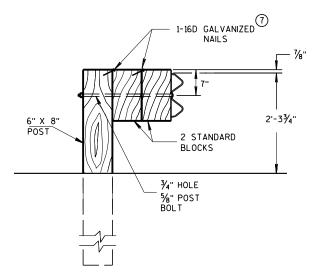
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

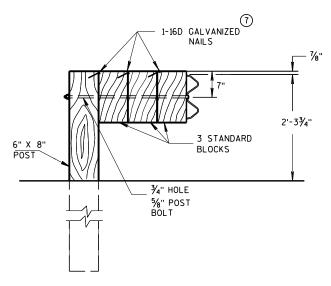
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DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS WITHIN A BARRIER RUN IS UNLIMITED

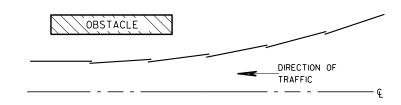


DETAIL FOR TRIPLE BLOCKS

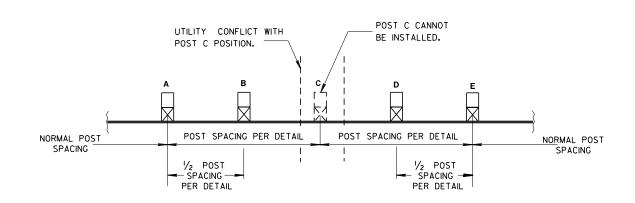
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES PREVENT THE POST FROM BEING INSTALLED.

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



PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017

DATE

FHWΔ

/S/ Rodney Taylor

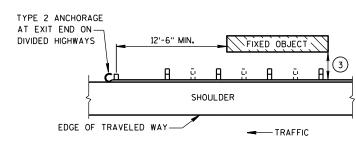
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

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BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES **EXIT END - ONE WAY TRAFFIC**

GENERAL NOTES

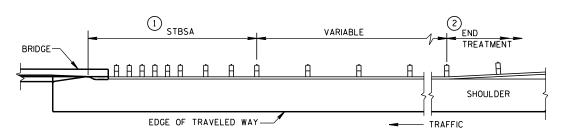
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

- (1) STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) SEE CURRENT SDD 14B20.
- 2 USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT		POST SPACING
	3'-6"	3' - 11/2"
	4'-6"	6' - 3"



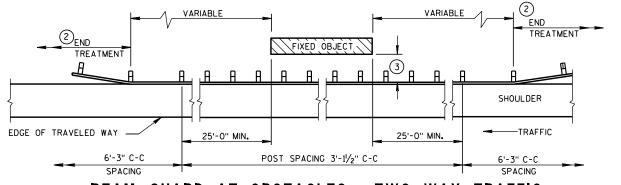
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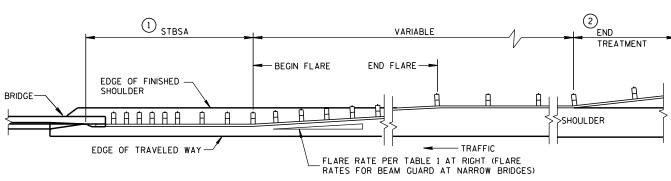
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BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")



BEAM	GUARD AT	NARROW	BRIDGES
(FLARED TO S	HOULDER EDGE	THEN PARALL	EL TO ROADWAY)

TABLE 1 FLARE RATES FOR BEAM **GUARD AT NARROW BRIDGES**

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1

STEEL PLATE BEAM GUARD CLASS "A' AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

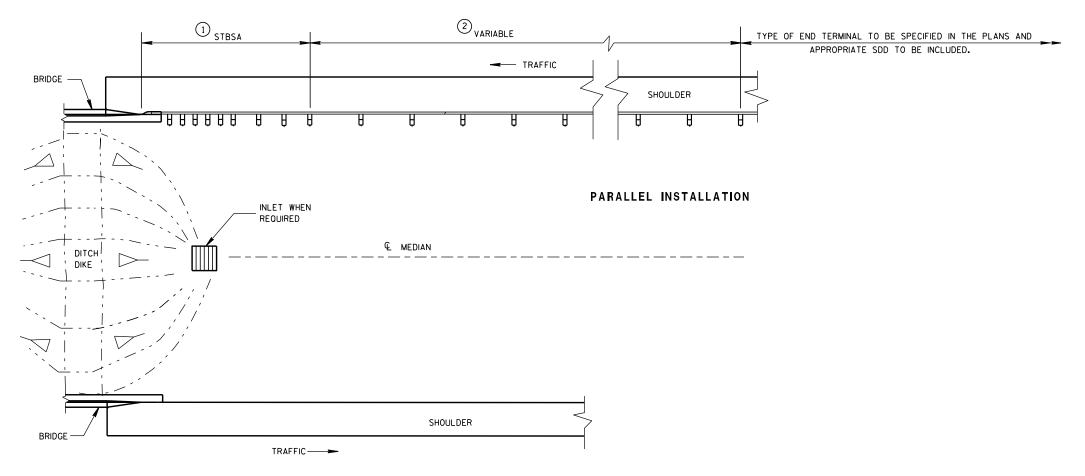
APPROVED		
8-21-07	/S/ Jerry H.Zogg	
DATE	ROADWAY STANDARDS DEVELOPMENT	
FHWΔ	ENGINEER	

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- 1 STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) SEE CURRENT SDD 14B20.
- 2) LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.



BEAM GUARD AT MEDIAN APPROACH TO BRIDGES

STEEL PLATE BEAM GUARD CLASS "A" AT MEDIAN APPROACH TO BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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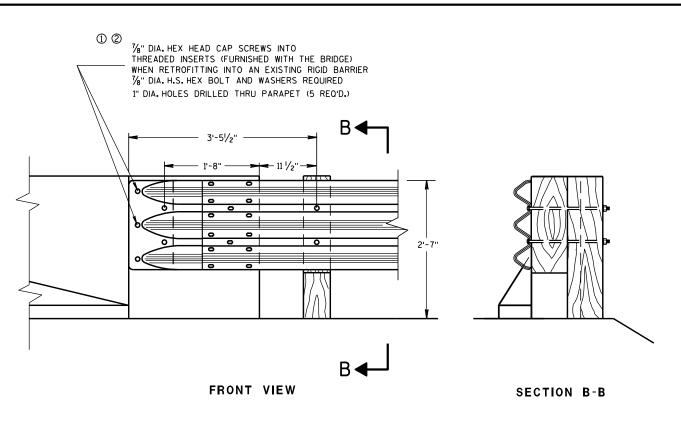
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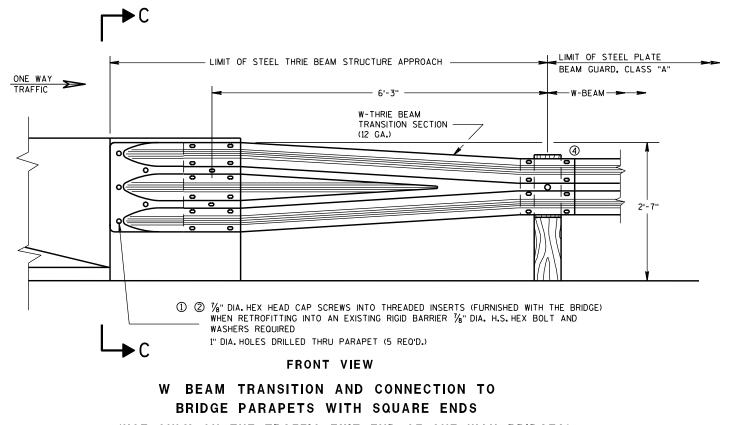
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THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

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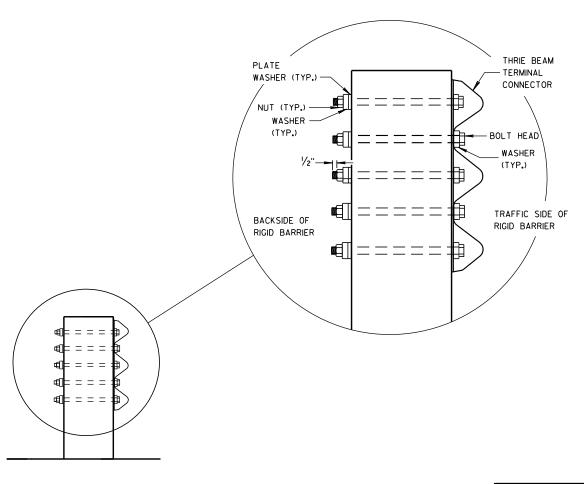
GENERAL NOTES

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

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5%" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- (3) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



SECTION C-C

STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO
SQUARE END PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

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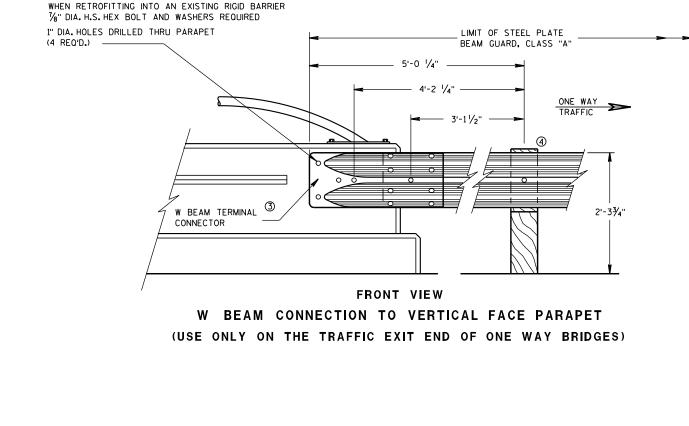
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(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

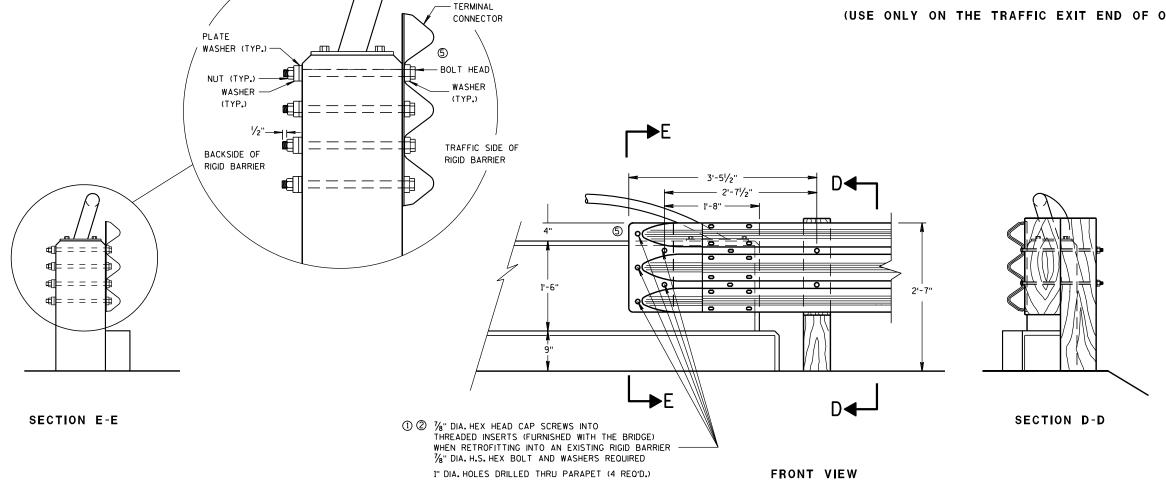
- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5%" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- (3) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.
- (5) BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO

THREADED INSERTS (FURNISHED WITH THE BRIDGE)



THRIE BEAM

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS 6

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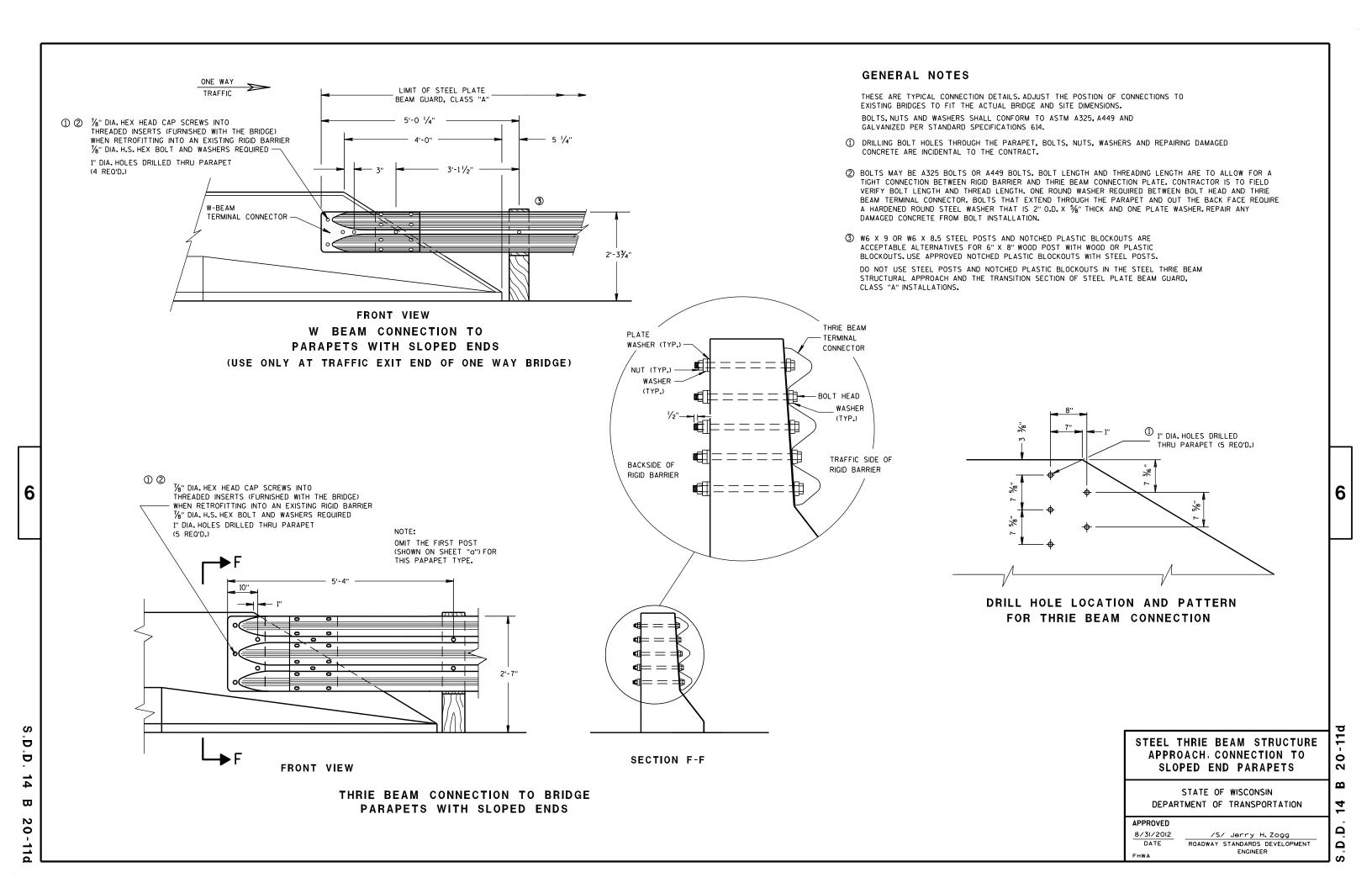
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DEPARTMENT OF TRANSPORTATION

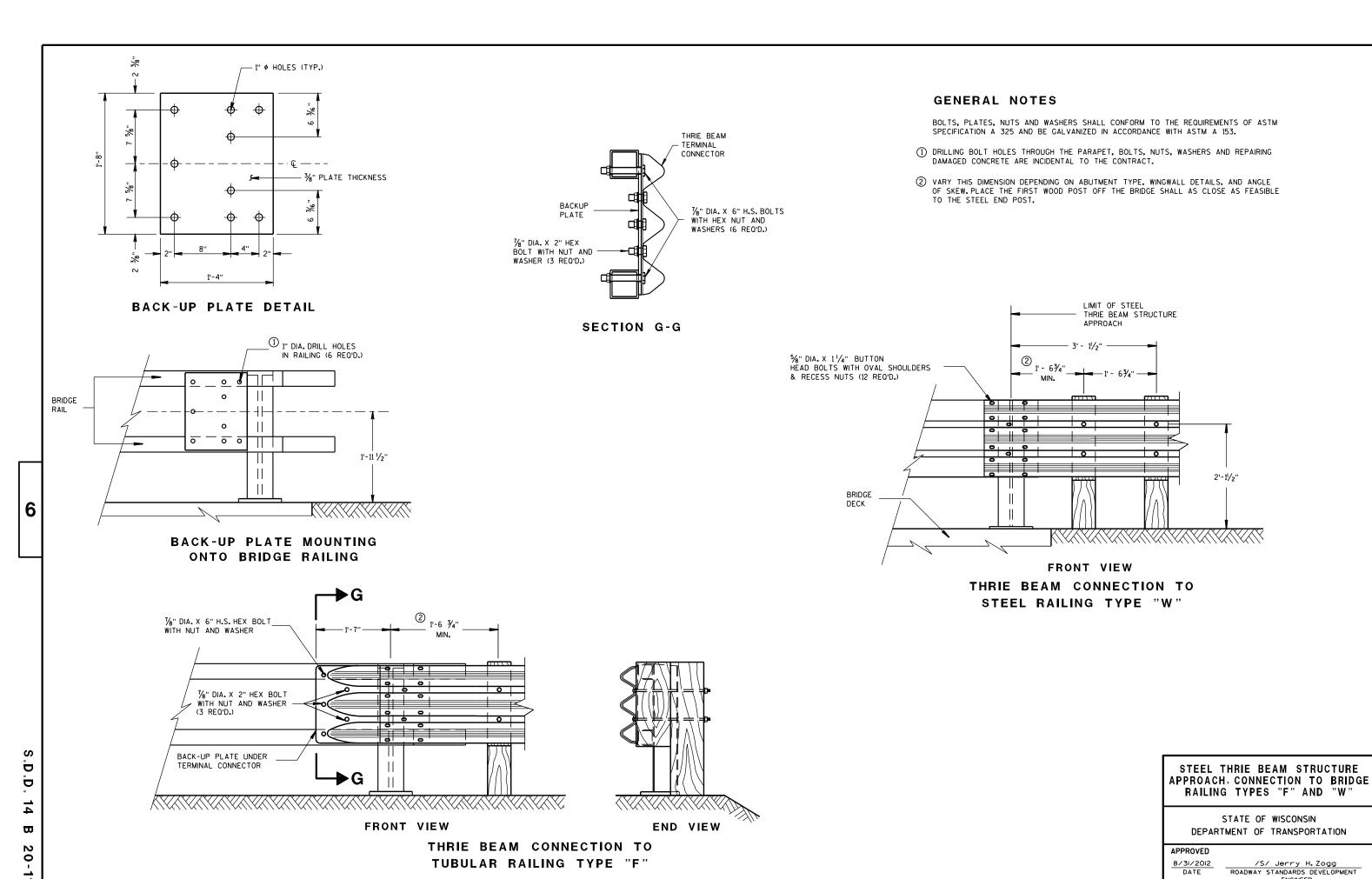
APPROVED

8/31/2012 /S/ Jerry H. Zogg

DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

S.D.D. 14 B 20-11c

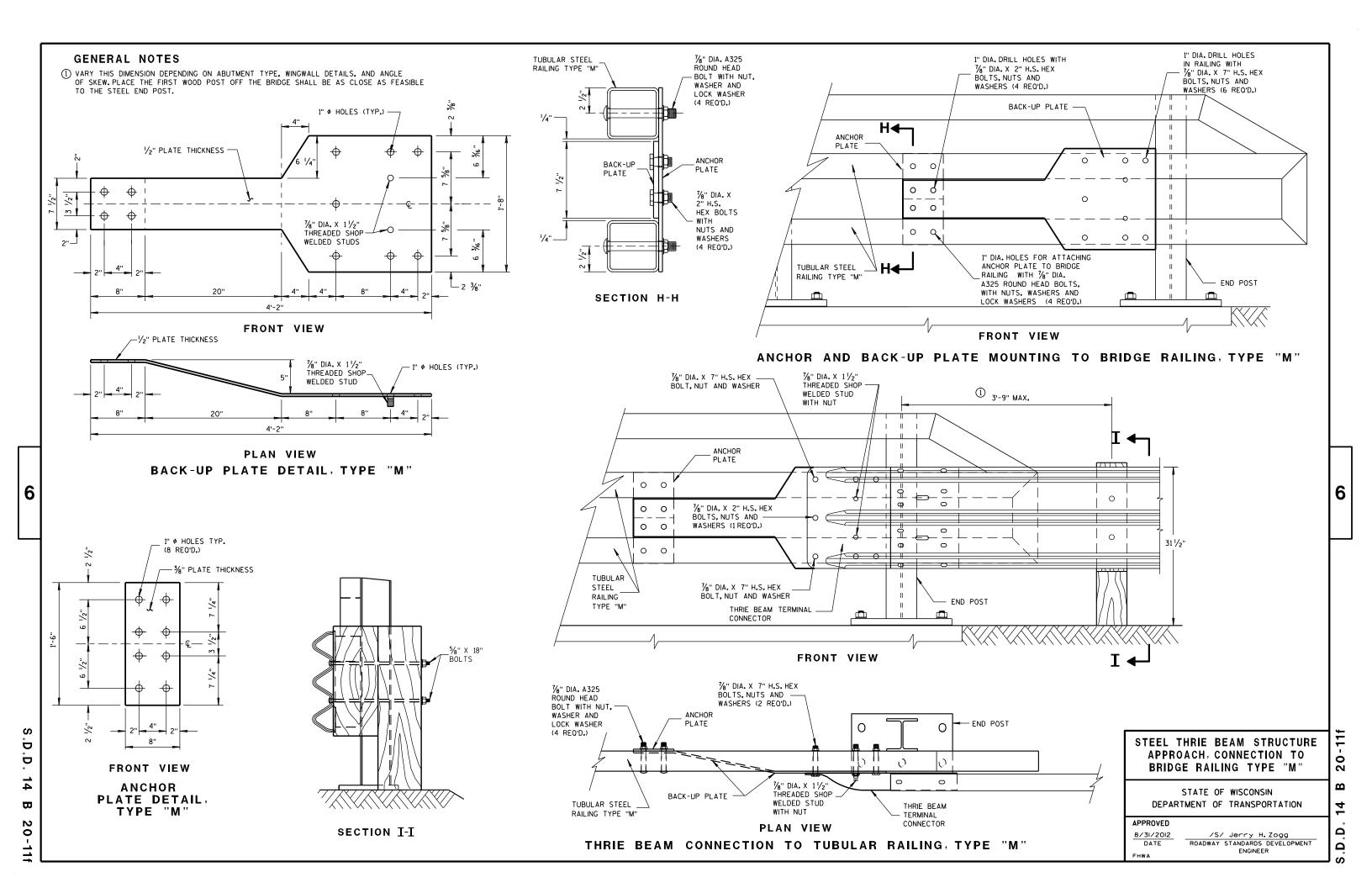


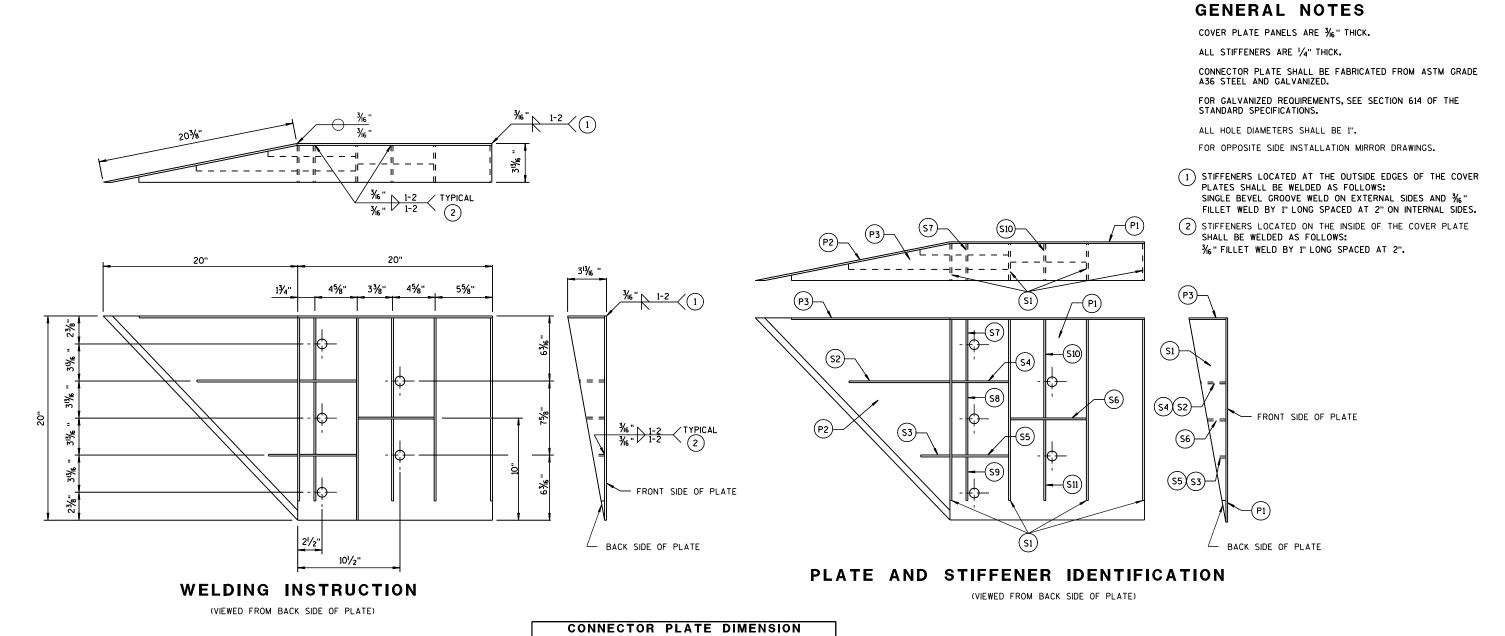


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(PER ASSEMBLY) PLATE QUANTITY SHAPE SIZE $(A \times B \times C \times D)$ THICKNESS P1 20" × 20" 3∕16 " в₫ P2 20" × 20" × 28%; 3∕6" B₽Ĉ Р3 39" × 3%" × 20" × 19%6" 3∕16 '' BA C D S1 181/6" × 35/8" × 183/4" 4 1/4" BA 101/4" × 21/16" × 103/8" × 1/2" S2 1/4" S3 вфо 3" × 11/16" × 31/8" × 1/2" 1/4" S4 вЁ 61/8" × 21/16" 1/4" S5 1 вД 61/8" × 11/16" 1/4" в∟ S6 7¾" × 1¾" 1/4" **S7** 2%6" × 6" × 3%" × 5%" 1/4" 1⁵/₃₂ " × 7¹/₂" × 2¹/₂" × 7³/₈" S8 1/4" S9 C B 61/16" × 63/16" × 13/32" 1/4" S10 A₽C 11/8" × 91/8" × 35/8" × 91/16 " 1/4" S11 C A 8½" × 8¾" × 11¾ " 1/4"

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STEEL THRIE BEAM STRUCTURE APPROACH

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

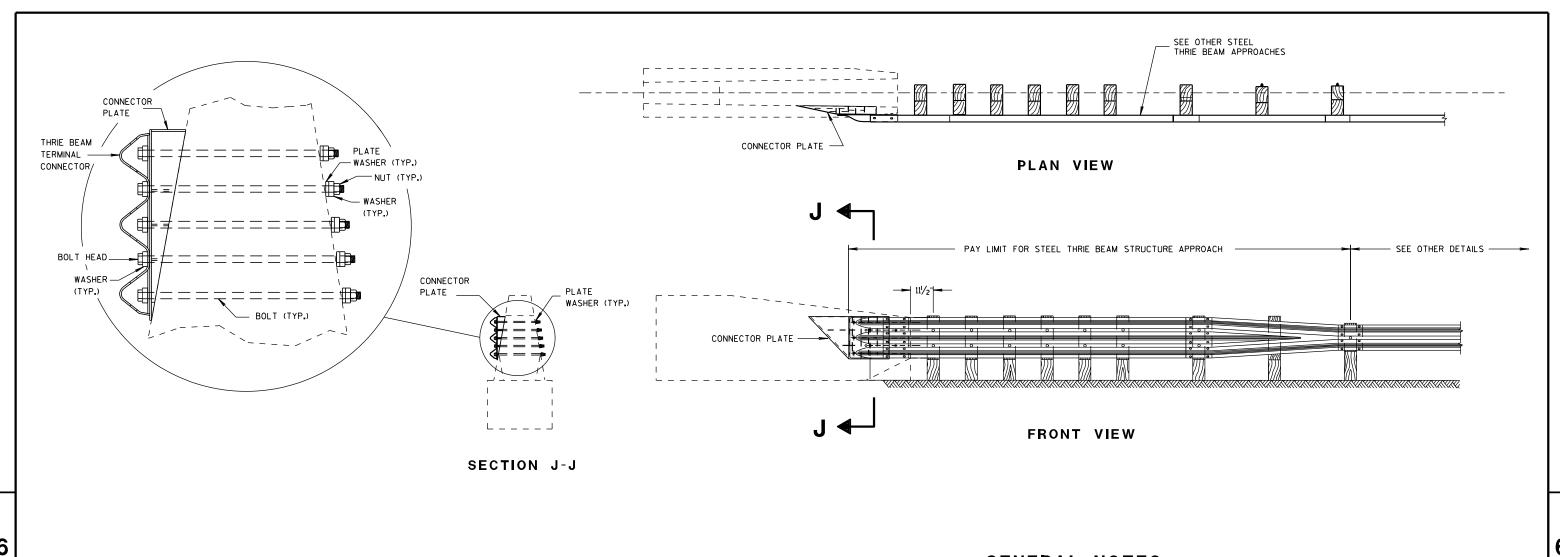
8/31/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

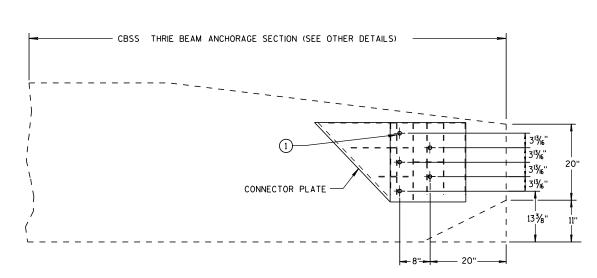
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GENERAL NOTES

CONSTRUCT PER STANDARD SPECIFICATION 614.

CONNECTOR PLATE, DRILLING HOLES THROUGH PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

1 BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

CONNECTOR PLATE LOCATION

STEEL THRIE BEAM STRUCTURE APPROACH

STEEL THRIE BEAM STRUCTURE APPROACH, SINGLE SLOPE ATTACHMENT

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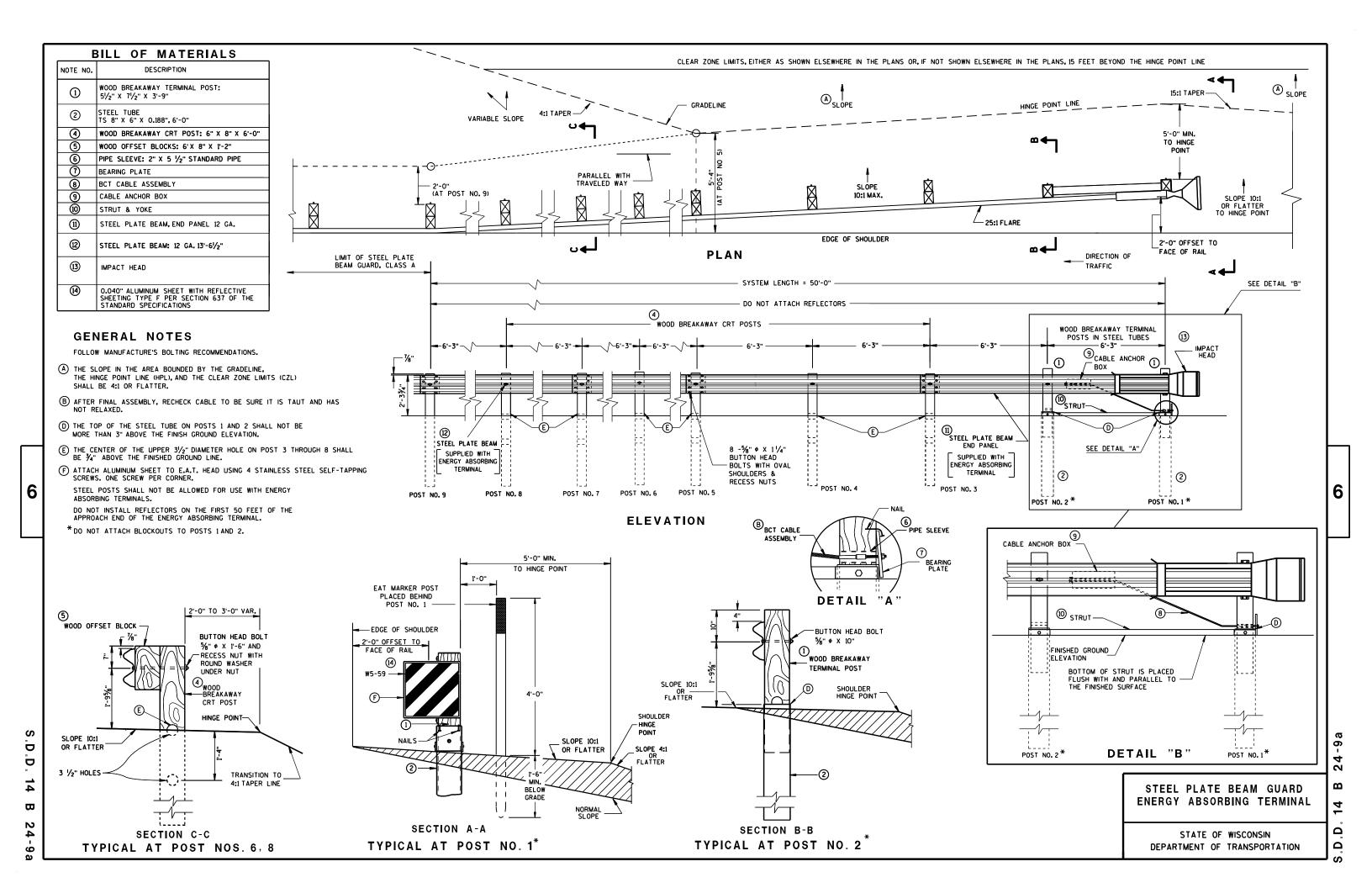
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

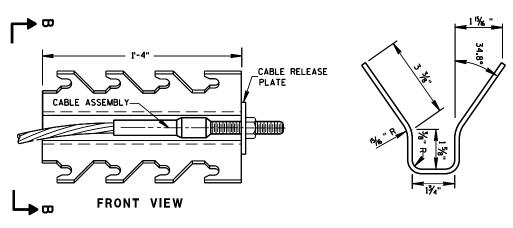
APPROVED

8/31/2012 /S/ Jerry H. Zogg

DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

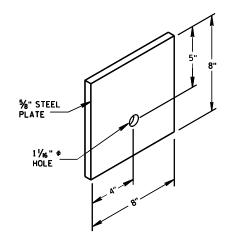
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SECTION B-B

(9) CABLE ANCHOR BOX



[⊙]STEEL BEARING PLATE

STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

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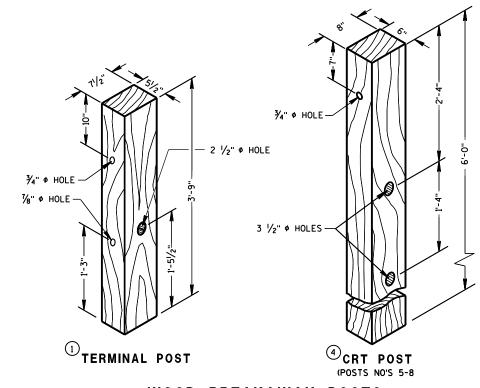
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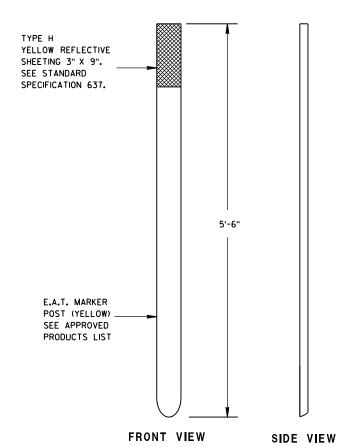
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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(4) REFLECTIVE SHEETING DETAILS



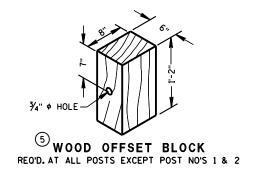
WOOD BREAKAWAY POSTS



E.A.T. MARKER POST

GENERAL NOTES

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.



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STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED June 2017

/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

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STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

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GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123, PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2. UNLESS NOTED OTHERWISE.

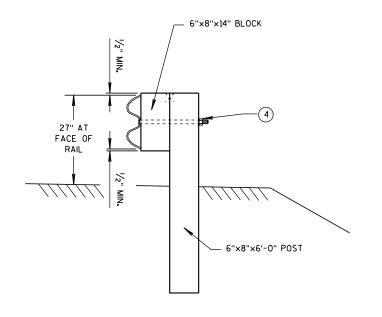
SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

- (1) ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.
- 2) RADIUS FROM 8' 36'. SEE PLAN.
- 3 HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.
- (4) %" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	* NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH × WIDTH)
8'	5	1 at 12.5'	25' × 15'
16'	7	1 a† 25'	30' × 15'
24'	9	1 at 25' and 1 at 12 . 5'	40' × 20'
32'	11	2 at 25'	50' × 20'

* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



SECTION B-B (BEAM GUARD POST)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION 6

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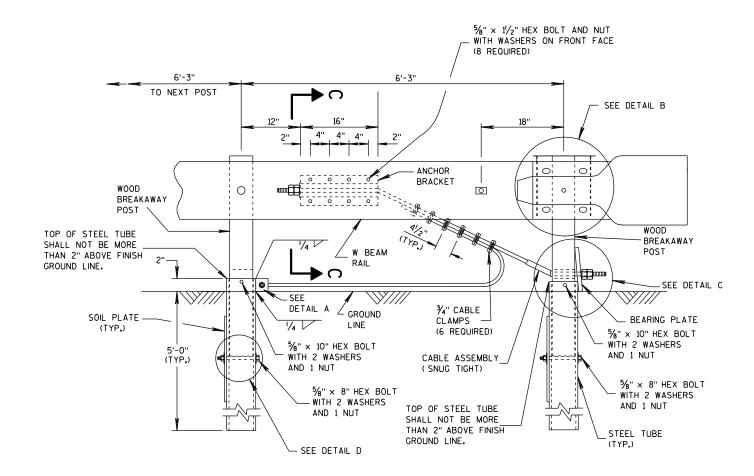
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¾" DIA. X 9'-O" CABLE WITH ONE SWAGED END

SEE DETAIL A -

30" DIAMETER 12 GAGE TERMINAL SECTION (ADJUST TO FIT)



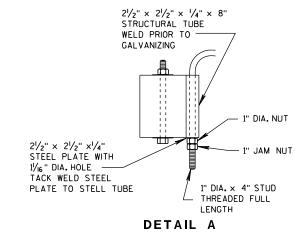
ELEVATION VIEW

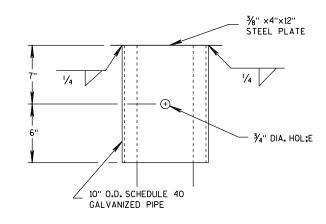
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

GENERAL NOTES

ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A 5%" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.

INSTALL GALVANIZED 3/4" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.





DETAIL B (BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

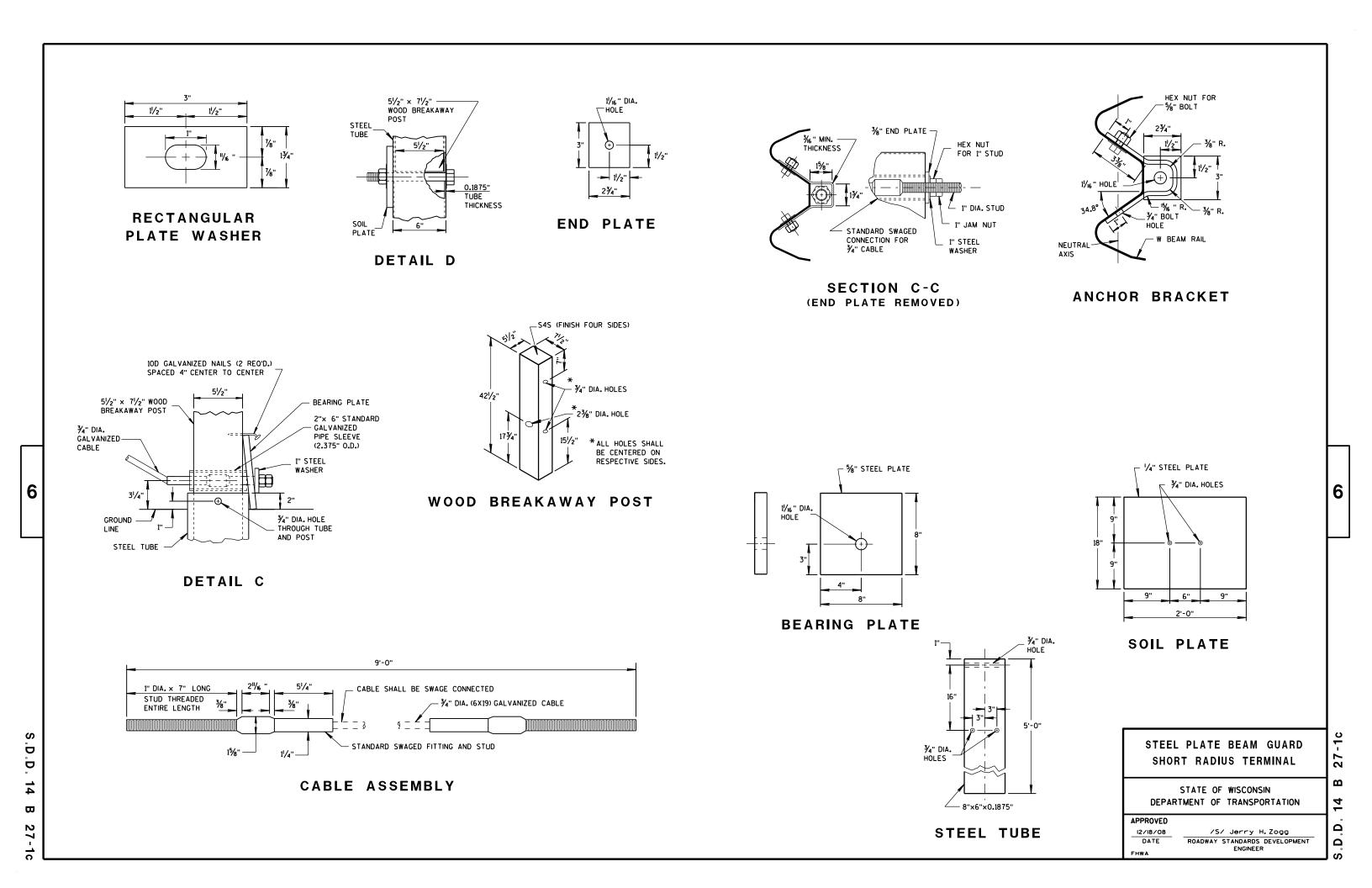
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

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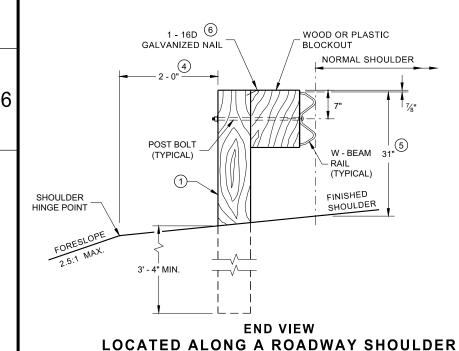
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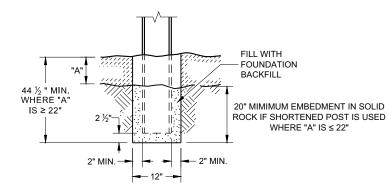
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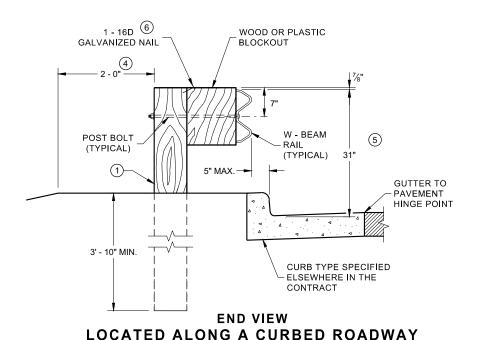
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- 3 IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- 4 WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- $_{\mbox{\scriptsize (5)}}$ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS +1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 $^3\!4''$ TO 32".
- (6) WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

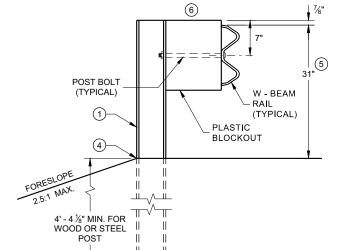


STANDARD INSTALLATION

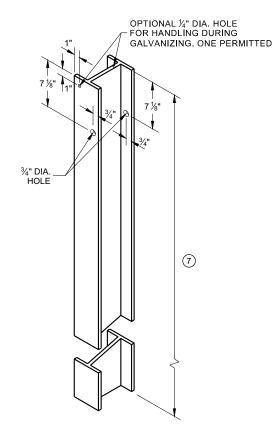


SETTING STEEL OR WOOD POST IN ROCK

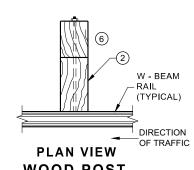




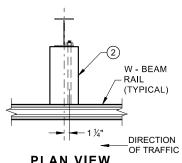
END VIEW
MGS LONGER POST AT HALFPOST
SPACING W BEAM (K)



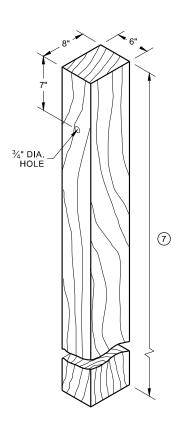
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



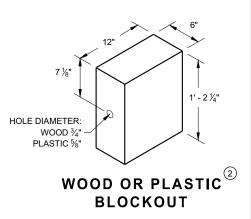
PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM



WOOD POST (6" X 8") NOMINAL



MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD14B42-0

FINISHED SHOULDER DIRECTION OF TRAFFIC **FRONT VIEW** HALF POST SPACING (HS) AND

HALF POST SPACING WITH LONGER POSTS (K)

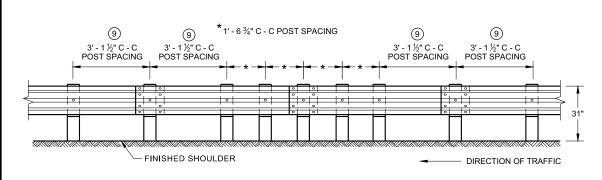
3' 1 ½" C - C 3' 1 ½" C - C POST SPACING POST SPACING

6' 3" C - C

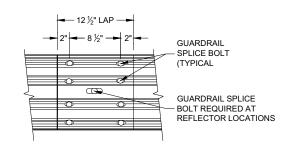
POST SPACING

6' - 3" C -C

POST SPACING



FRONT VIEW **QUARTER POST SPACING (QS)**



FRONT VIEW MID-SPAN BEAM SPLICE

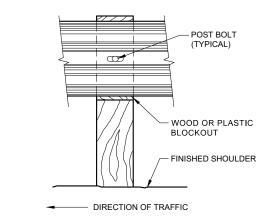
¾" X 2 ½" POST BOLT C POST HOLE SLOT POST BOLT (TYPICAL)

- WOOD OR PLASTIC

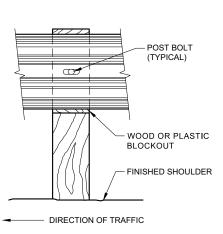
BLOCKOUT

— DIRECTION OF TRAFFIC

FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



GENERAL NOTES

OF THE ENERGY ABSORBING TERMINAL.

RECESSED (DR) HEAVY HEX NUT.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END

(9) 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS

POST BOLTS ARE A %" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT

GUARD RAIL SPLICE BOLTS ARE A %" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES %" DIAMETER A563A DOUBLE

REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8"

DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS

SECTION THRU W-BEAM RAIL

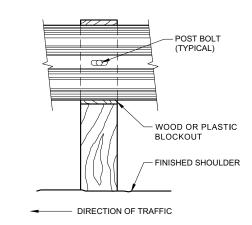
3 13/16"

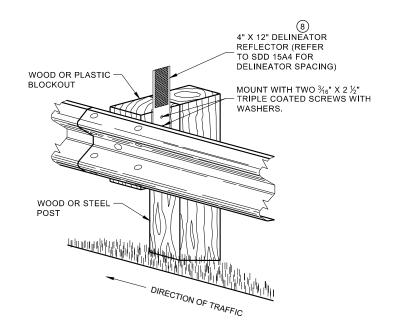
6 1/8"

SYMMETRICAL ABOUT \mathbb{Q}

12 GAGE

12 1/4"





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

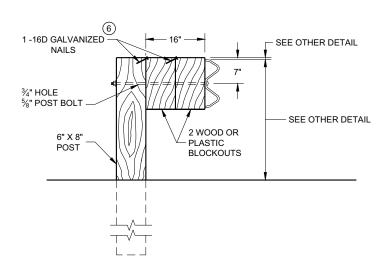
> STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

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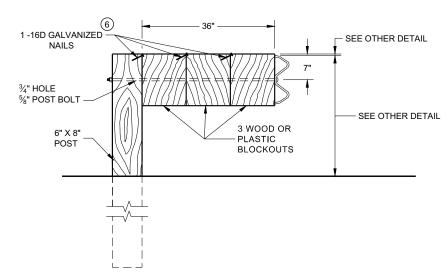
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DETAIL FOR 16" BLOCKOUT DEPTH

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



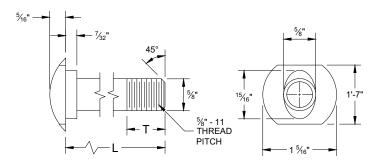
DETAIL FOR 36" BLOCKOUT DEPTH

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

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

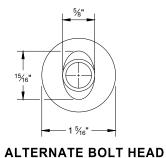
NOTE:

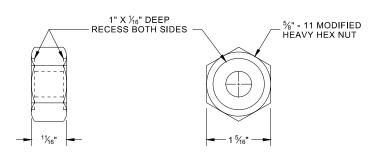
- 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF $\frac{3}{16}$ ".
- 2. IF THE BOLT EXTENDS MORE THAN $\mbox{\ensuremath{\mbox{\sc M}}}\mbox{\sc "}\mbox{\sc FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.}$



POST BOLT TABLE

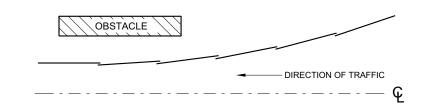
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



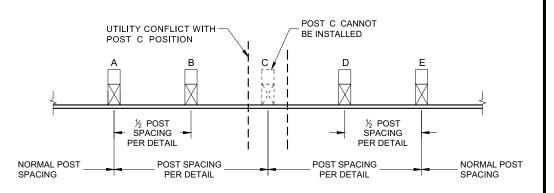


POST BOLT, SPLICE BOLT AND RECESS NUT

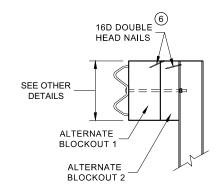
(6) WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

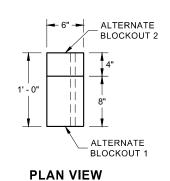


PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION





SIDE VIEW

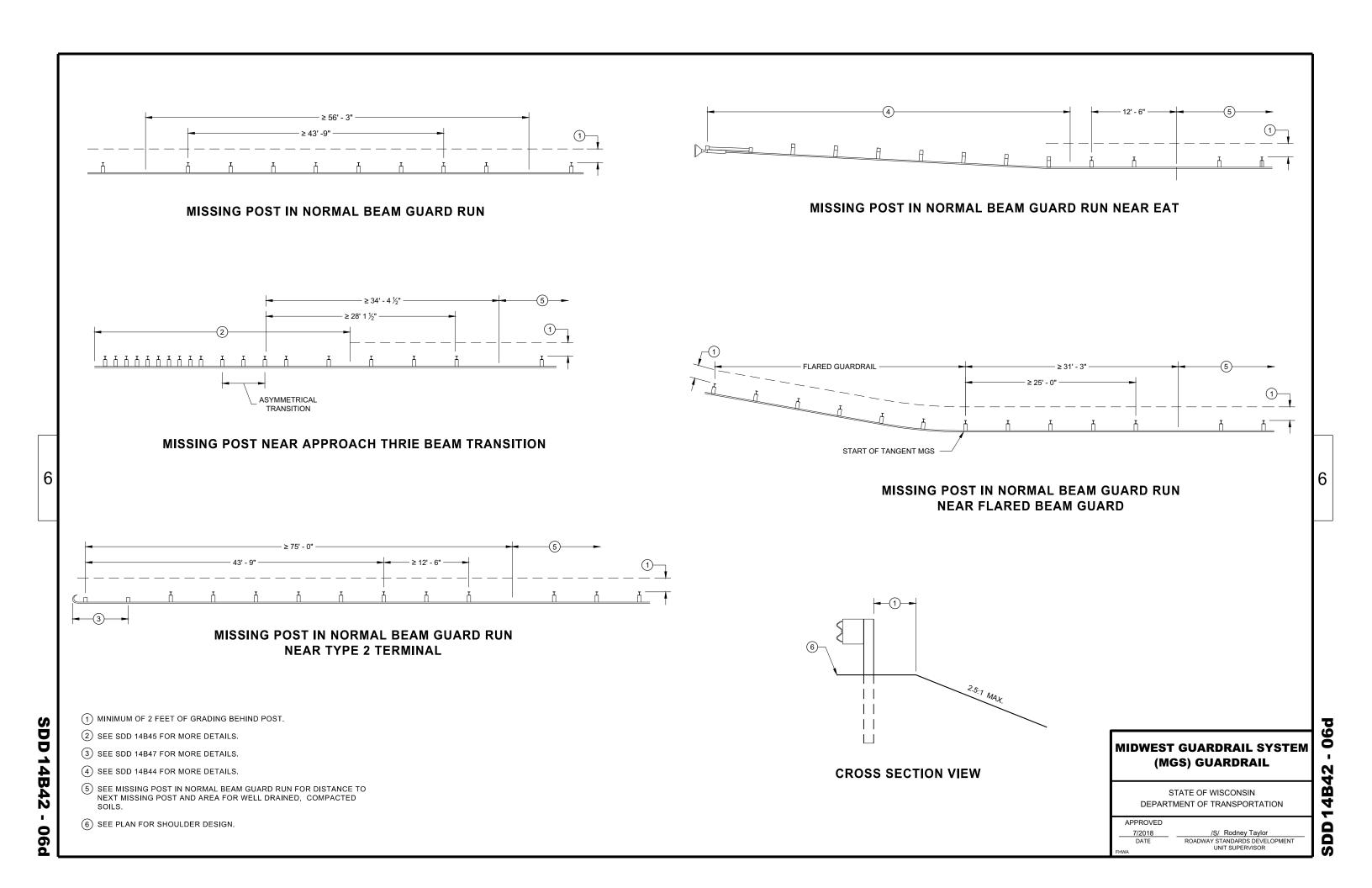
ALTERNATE WOOD BLOCKOUT DETAIL

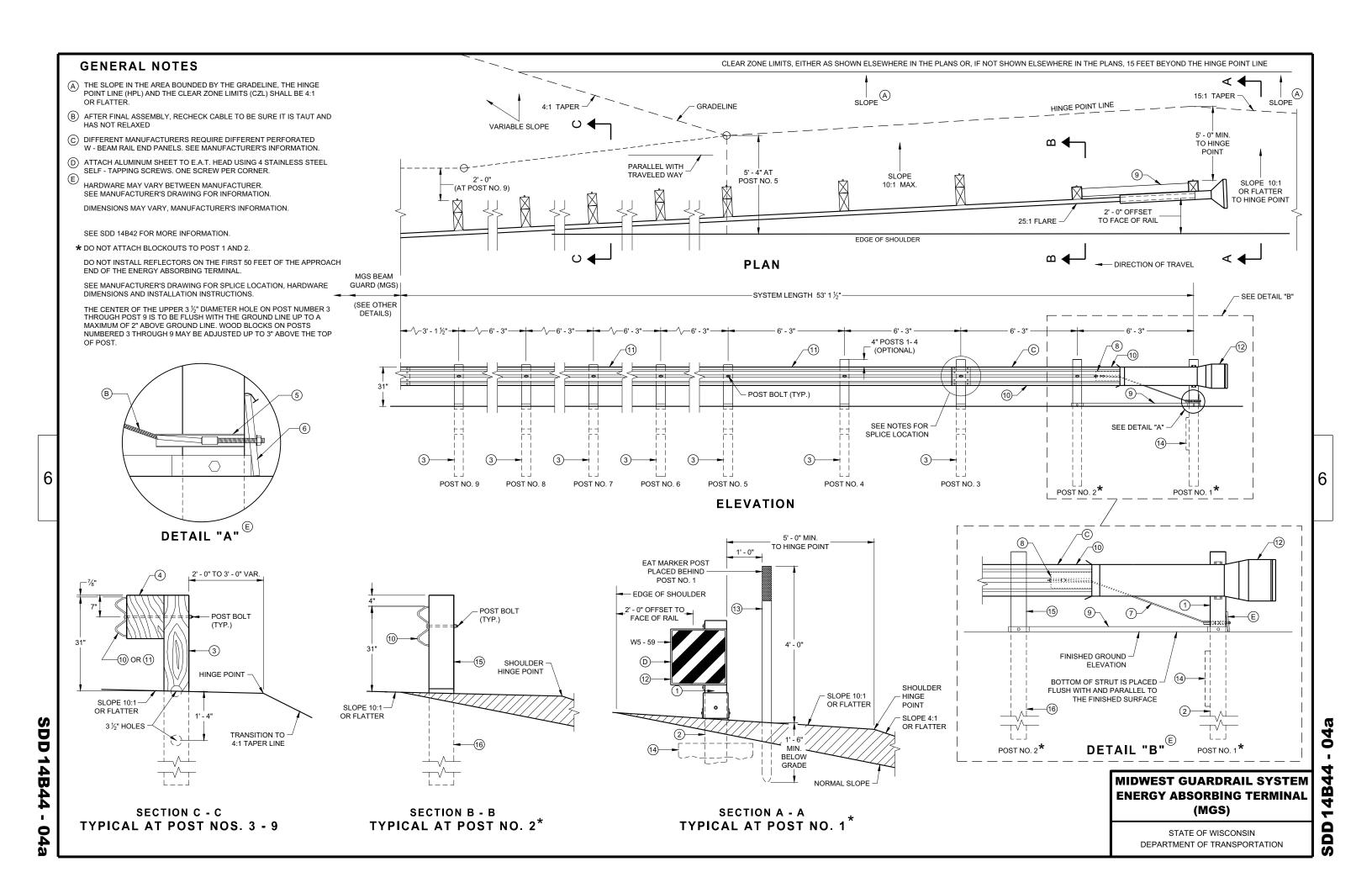
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

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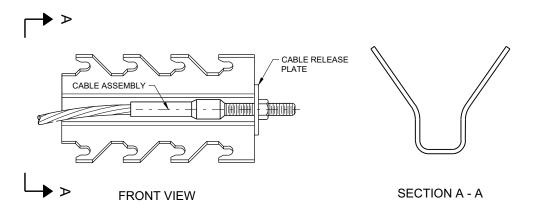
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

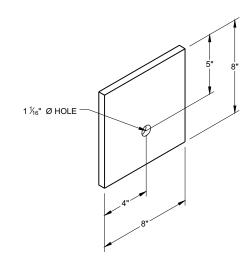




GENERIC GROUND STRUT



GENERIC ANCHOR CABLE BOX ^{(9) (E)}



BEARING PLATE

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

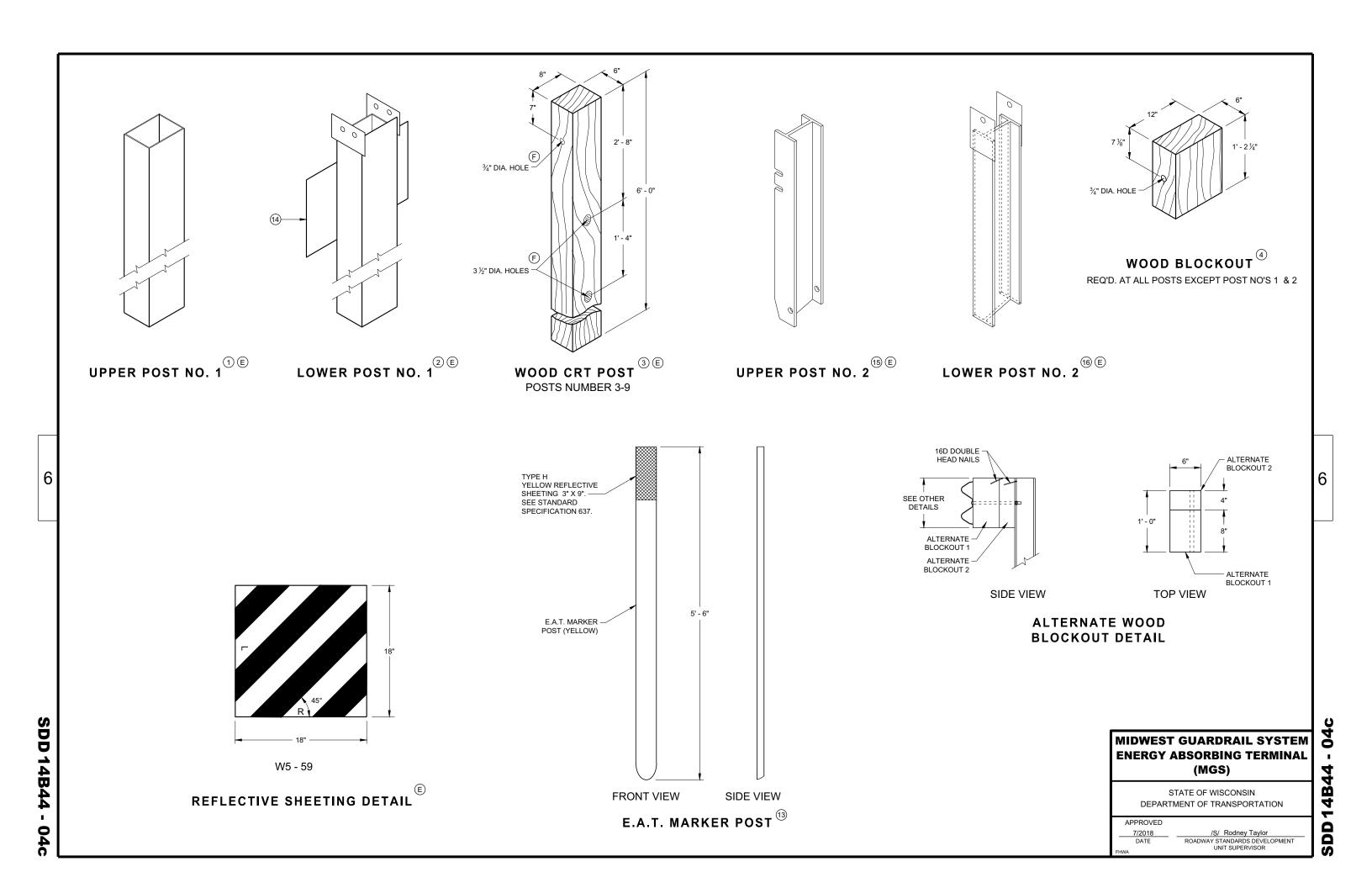
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

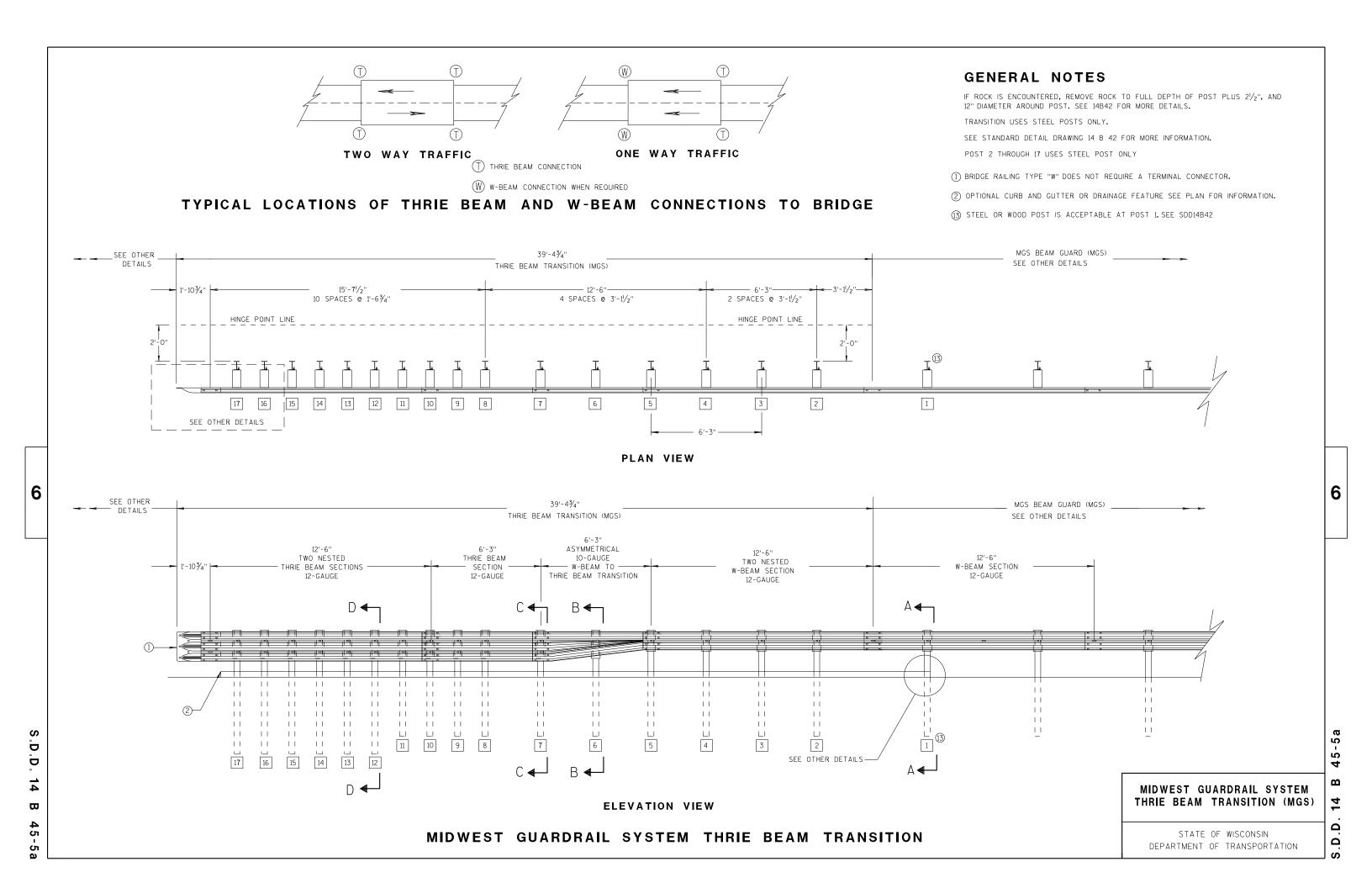
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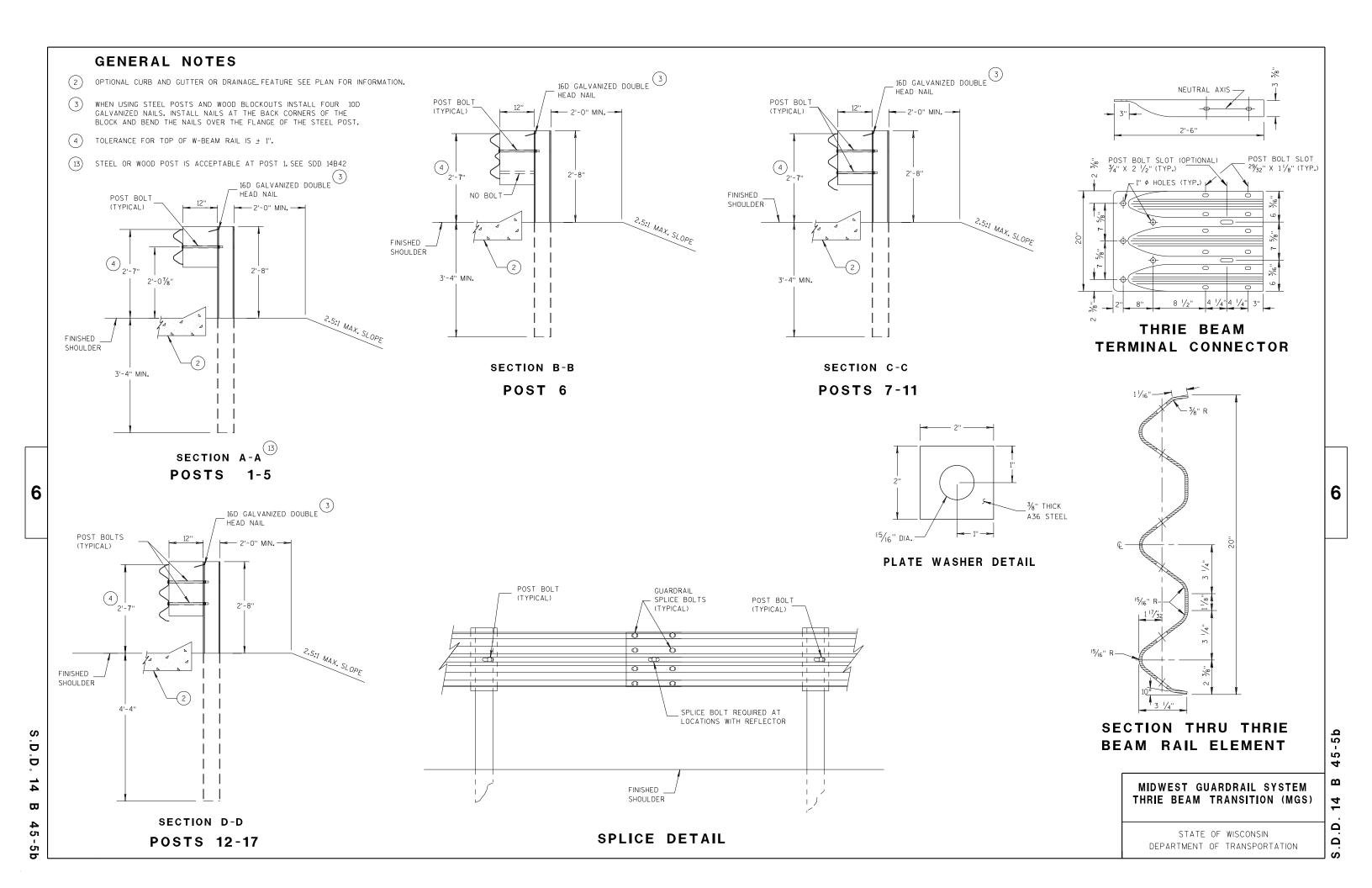
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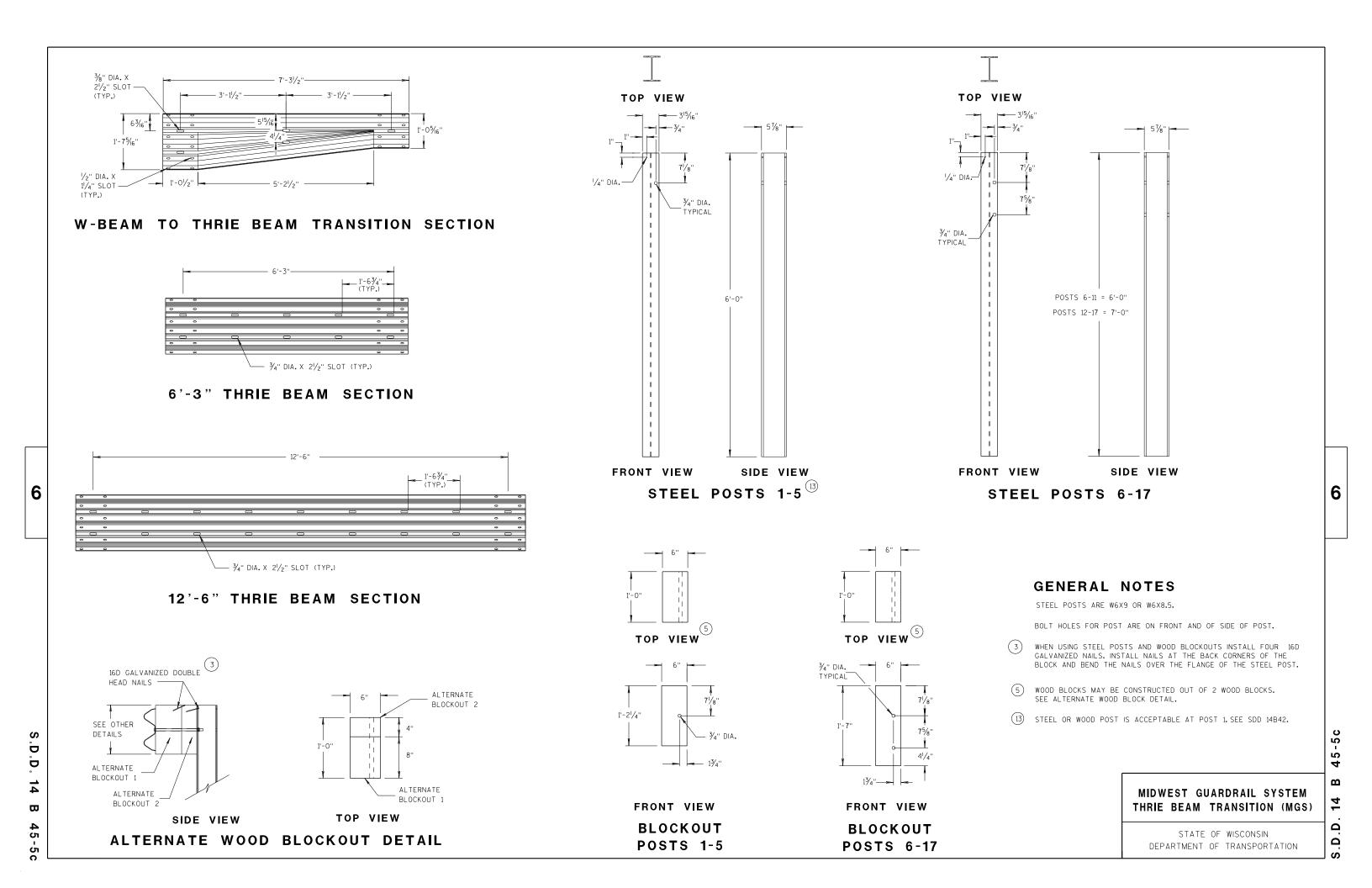
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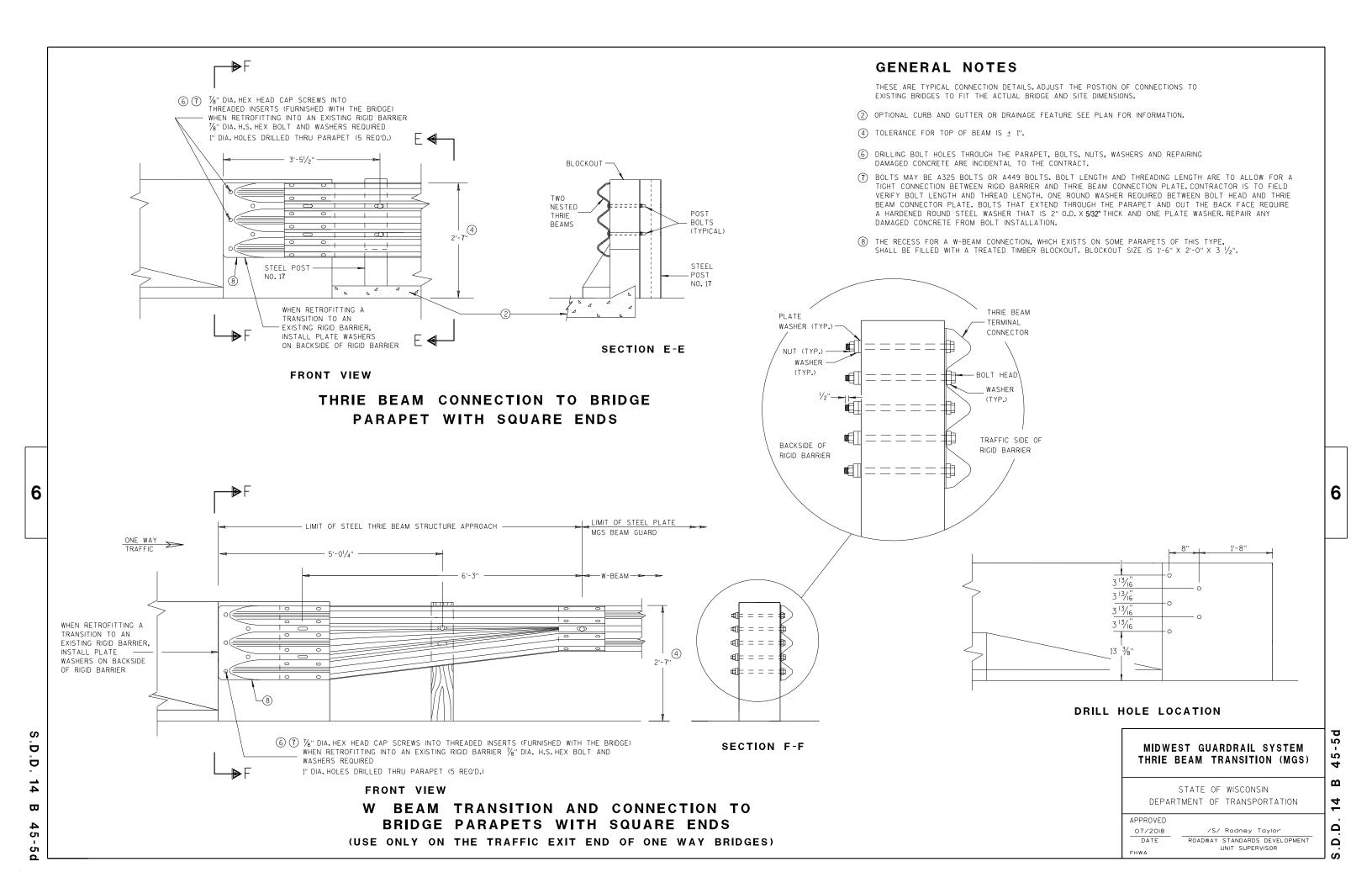
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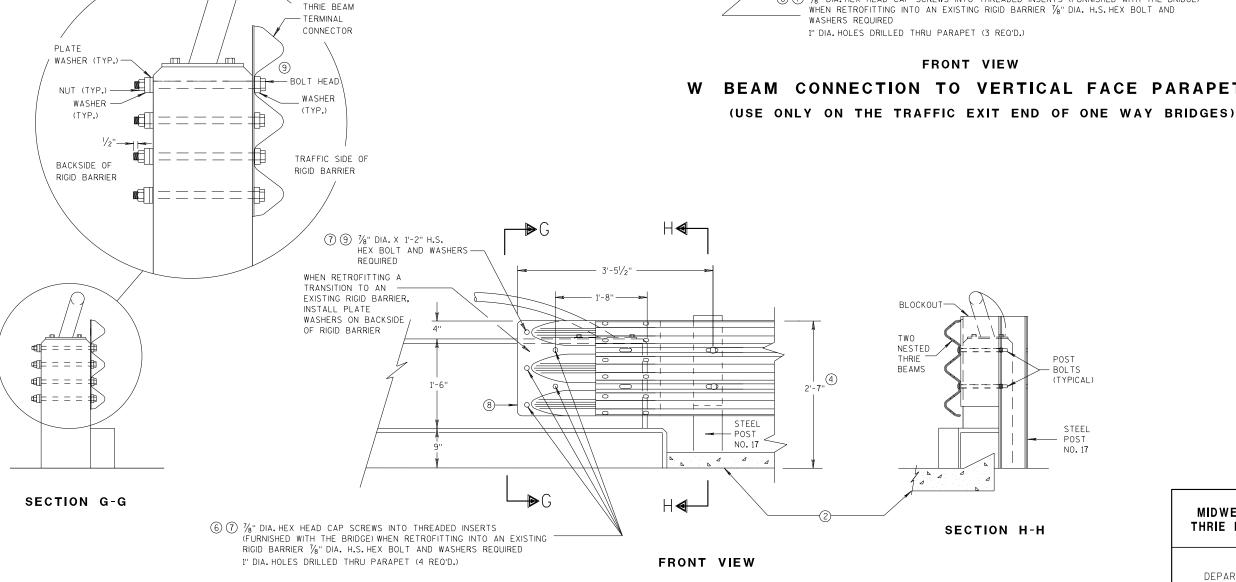








- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- (4) TOLERANCE FOR TOP OF BEAM IS ± 1".
- 6 DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- 7 BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE, BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- (8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- (9) BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.



THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

LIMIT OF STEEL PLATE 7 7/8" DIA. X 1'-2" H.S. MGS BEAM GUARD HEX BOLT AND WASHERS REQUIRED 5'-0 1/4" ONE WAY
TRAFFIC WHEN RETROFITTING A TRANSITION TO AN EXISTING RIGID BARRIER, INSTALL 9 PLATE WASHERS ON BACKSIDE OF RIGID BARRIER W BEAM TERMINAL 8 CONNECTOR (4) 2'-7' 6 7 %" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER 1/8" DIA. H.S. HEX BOLT AND

BEAM CONNECTION TO VERTICAL FACE PARAPET

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED 07/2018 DATE

/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

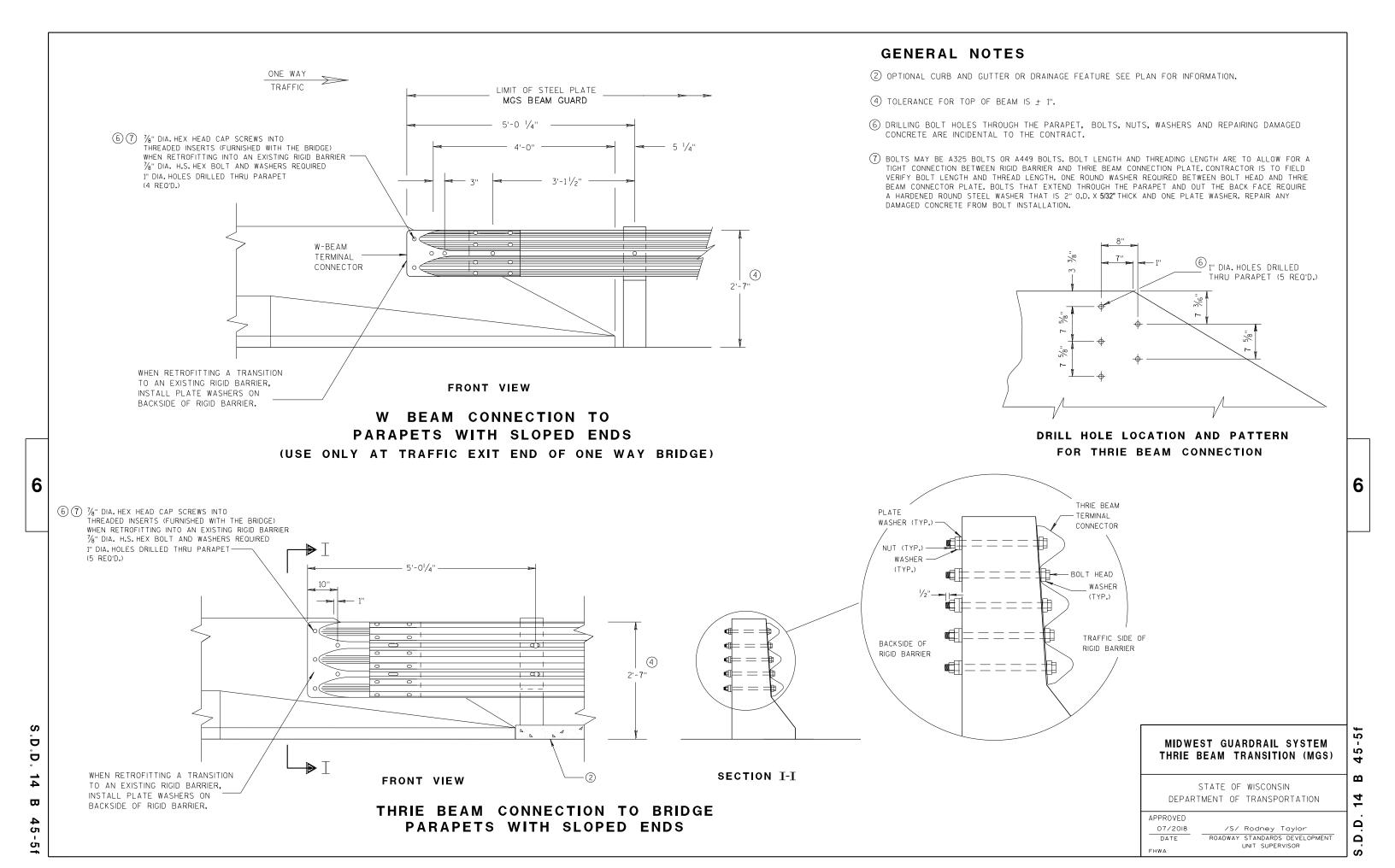
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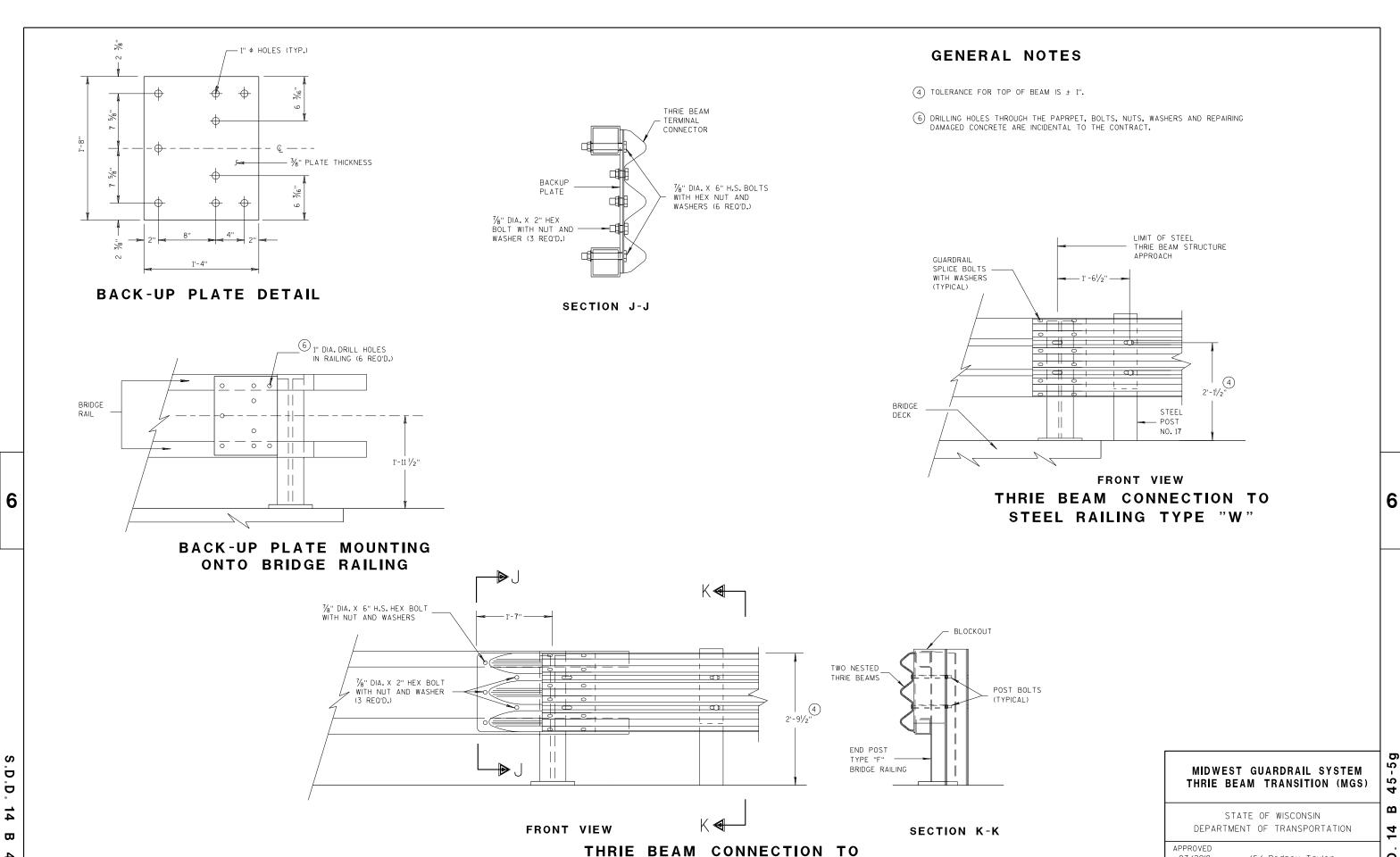
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TUBULAR RAILING TYPE "F"

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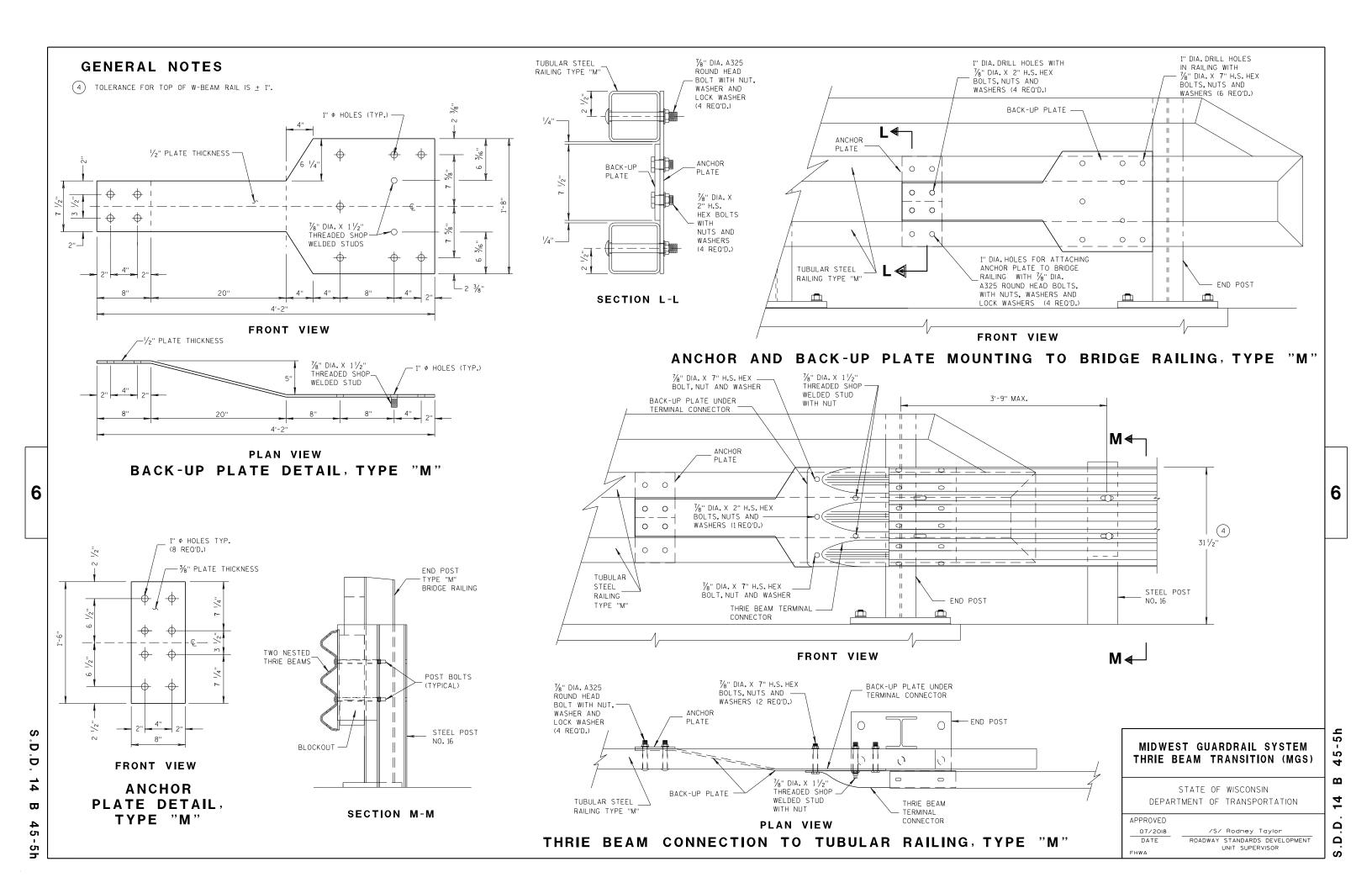
07/2018

DATE

/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT

UNIT SUPERVISOR



WELDING INSTRUCTION

21/2"

101/2"

(VIEWED FROM BACK SIDE OF PLATE)

PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

	CONNE		R PLATE DIMENSI R Assembly)	ION
PLATE	QUANTITY	SHAPE	SIZE (A × B × C × D)	THICKNESS
P1	1	в₫	20" × 20"	3/16"
P2	1	B₽€	20" × 20" × 28%6"	3/16"
Р3	1	BE D	39" × 35/8" × 20" × 195/6"	3/16"
S1	4	B₽	18½" × 3½" × 18¾"	1/4"
S2	1	B O	$10^{1}/_{4}$ " × $2\frac{7}{16}$ " × $10\frac{3}{8}$ " × $\frac{1}{2}$ "	1/4"
S3	1	B☐D	3" × 1½6" × 3½" × ½"	1/4"
S4	1	ВД	6½" × 2½6"	1/4"
S5	1	ВД	6½" × ½"	1/4"
S6	1	B	7¾" × 1¾"	1/4"
S 7	1	A BC	$2\%6" \times 6" \times 3\%" \times 5\%"$	1/4"
S8	1	A BC	$1^{5}/_{32}$ " × $7^{1}/_{2}$ " × $2^{1}/_{2}$ " × $7^{3}/_{8}$ "	1/4"
S9	1	C B	$6\frac{1}{16}$ " × $6\frac{3}{16}$ " × $1\frac{3}{32}$ "	1/4"
S10	1	ğ*	11/8" × 91/8" × 35/8" × 91/16"	1/4"
S11	1	C A	8 ¹ / ₂ " × 8 ³ / ₄ " × 1 ¹³ / ₁₆ "	1/4"

BACK SIDE OF PLATE

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED

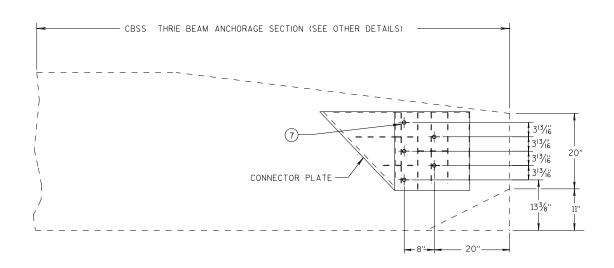
GENERAL NOTES COVER PLATE PANELS ARE 3/16" THICK.

BACK SIDE OF PLATE

/S/ Rodney Taylor 7/2018 DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

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THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER

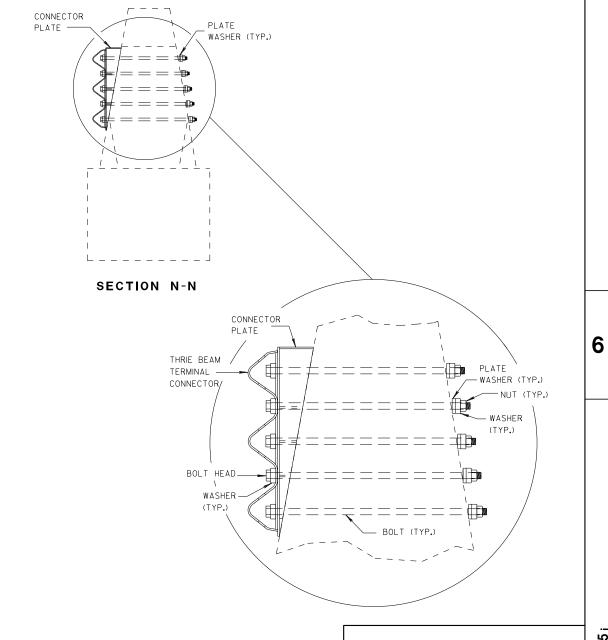


SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018
DATE
ROADWAY

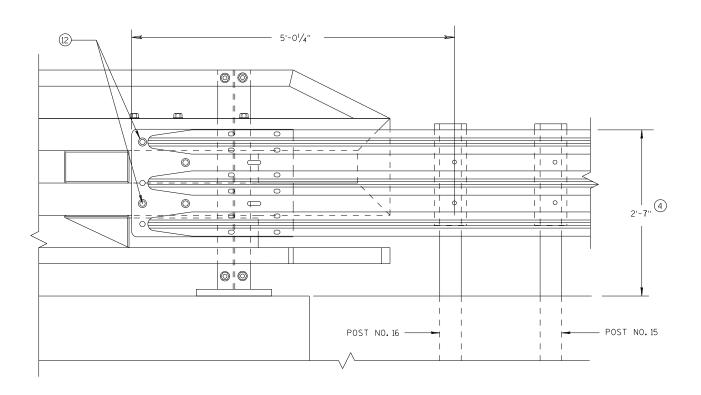
/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT

UNIT SUPERVISOR

D.D. 14 B

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

- 4) TOLERANCE FOR TOP OF BEAM IS ± 1".
- (2) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018 /S/ RODNEY Taylor

DATE ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

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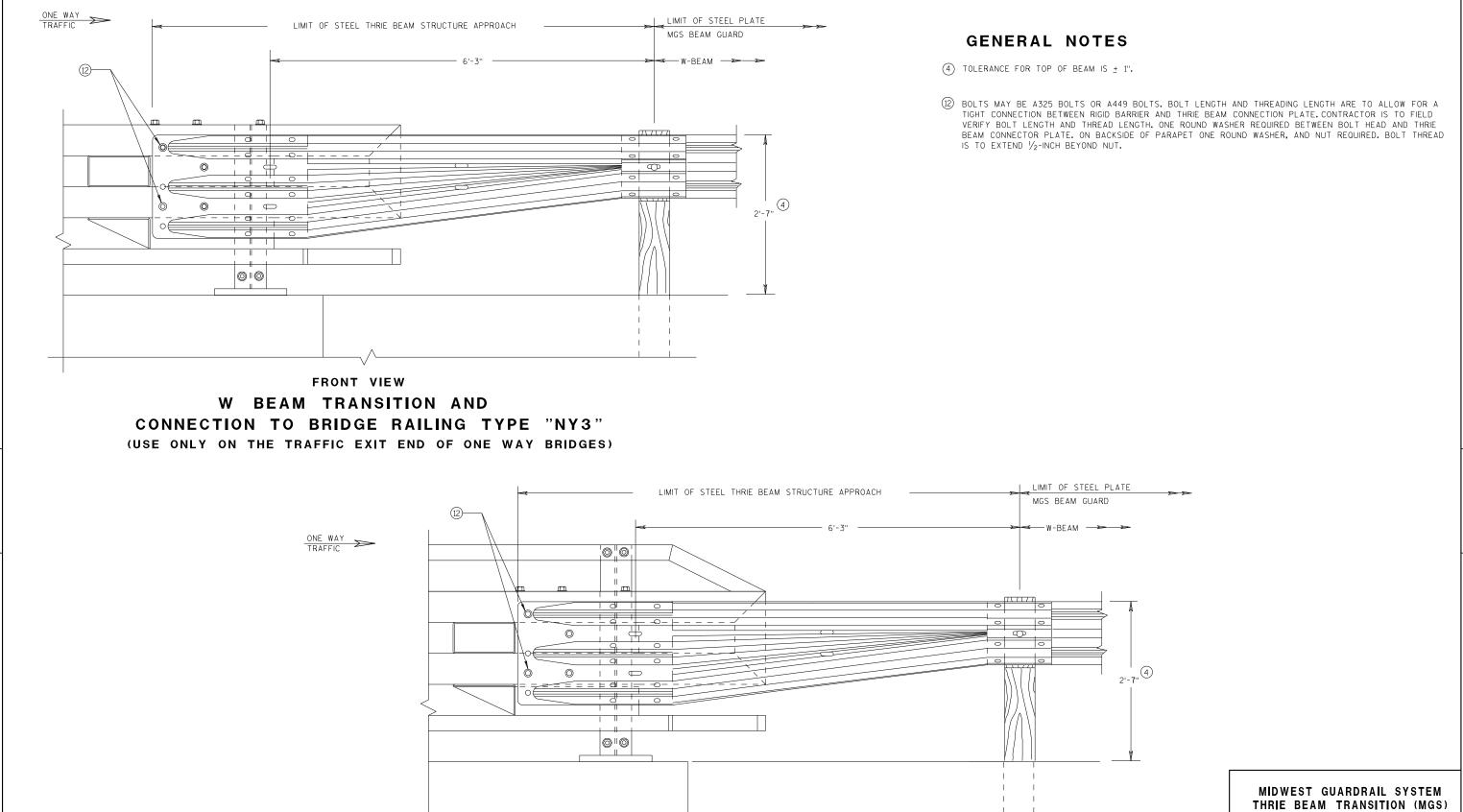
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FRONT VIEW

W BEAM TRANSITION AND

CONNECTION TO BRIDGE RAILING TYPE "NY4"

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

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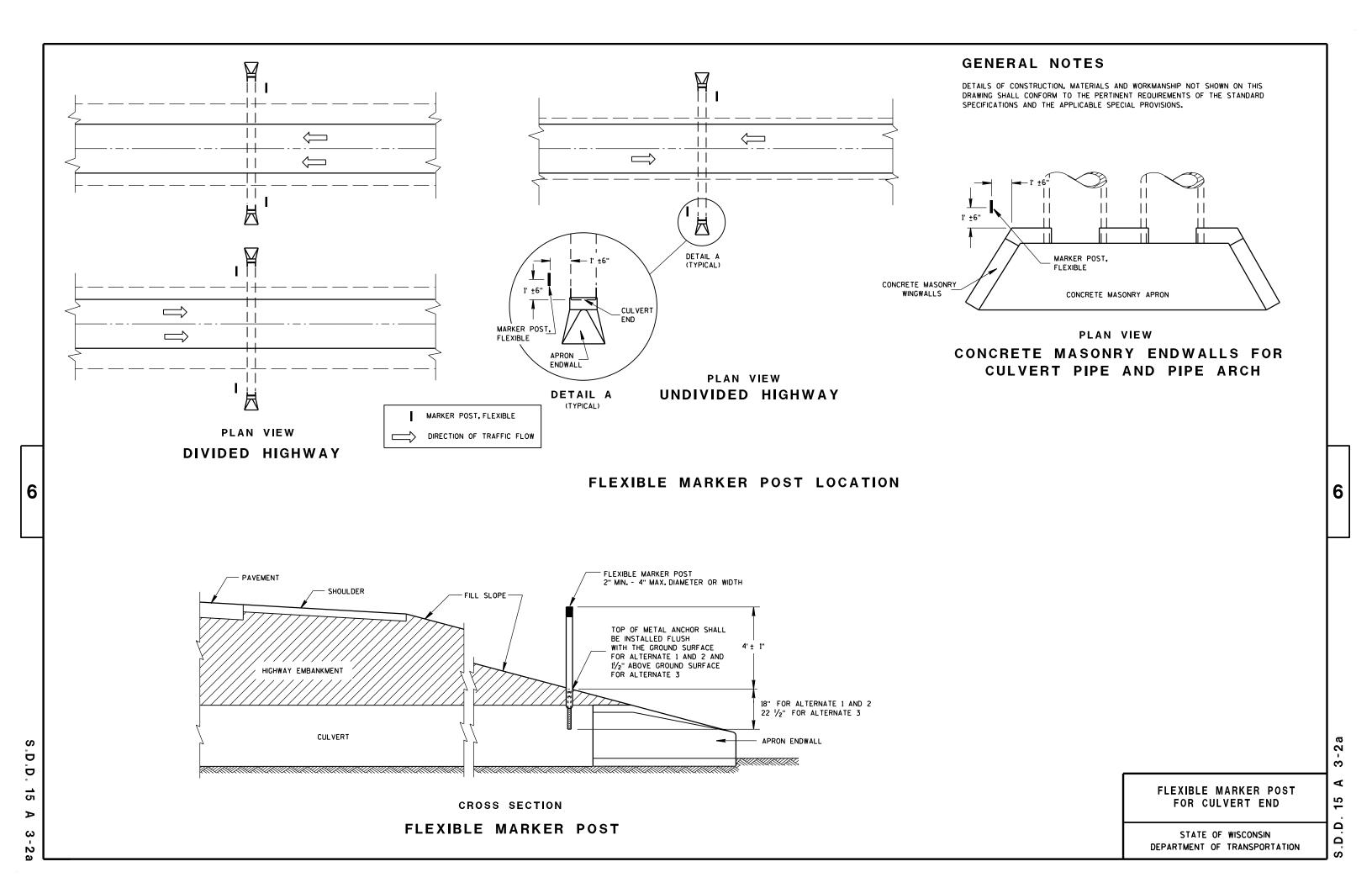
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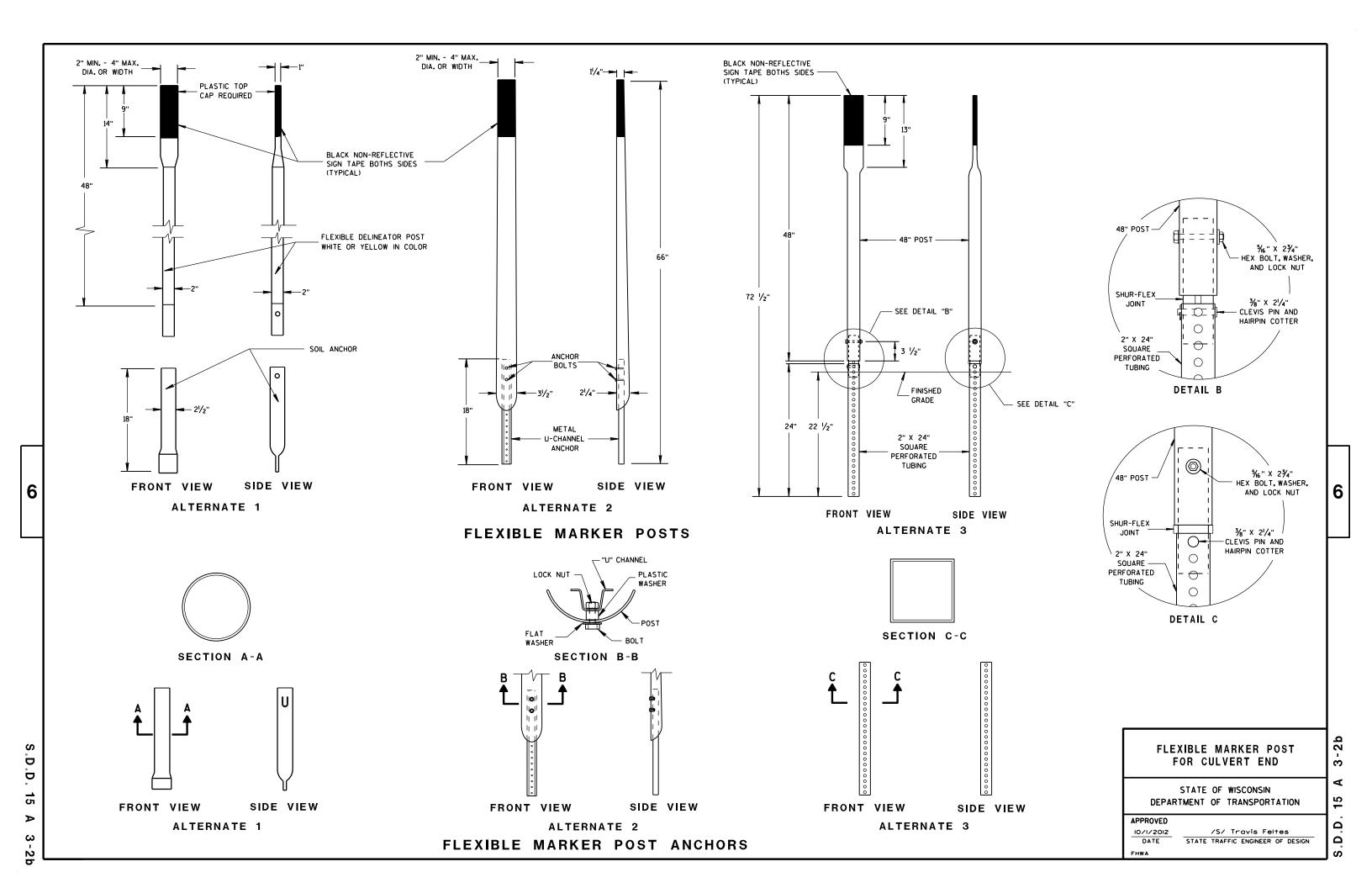
/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

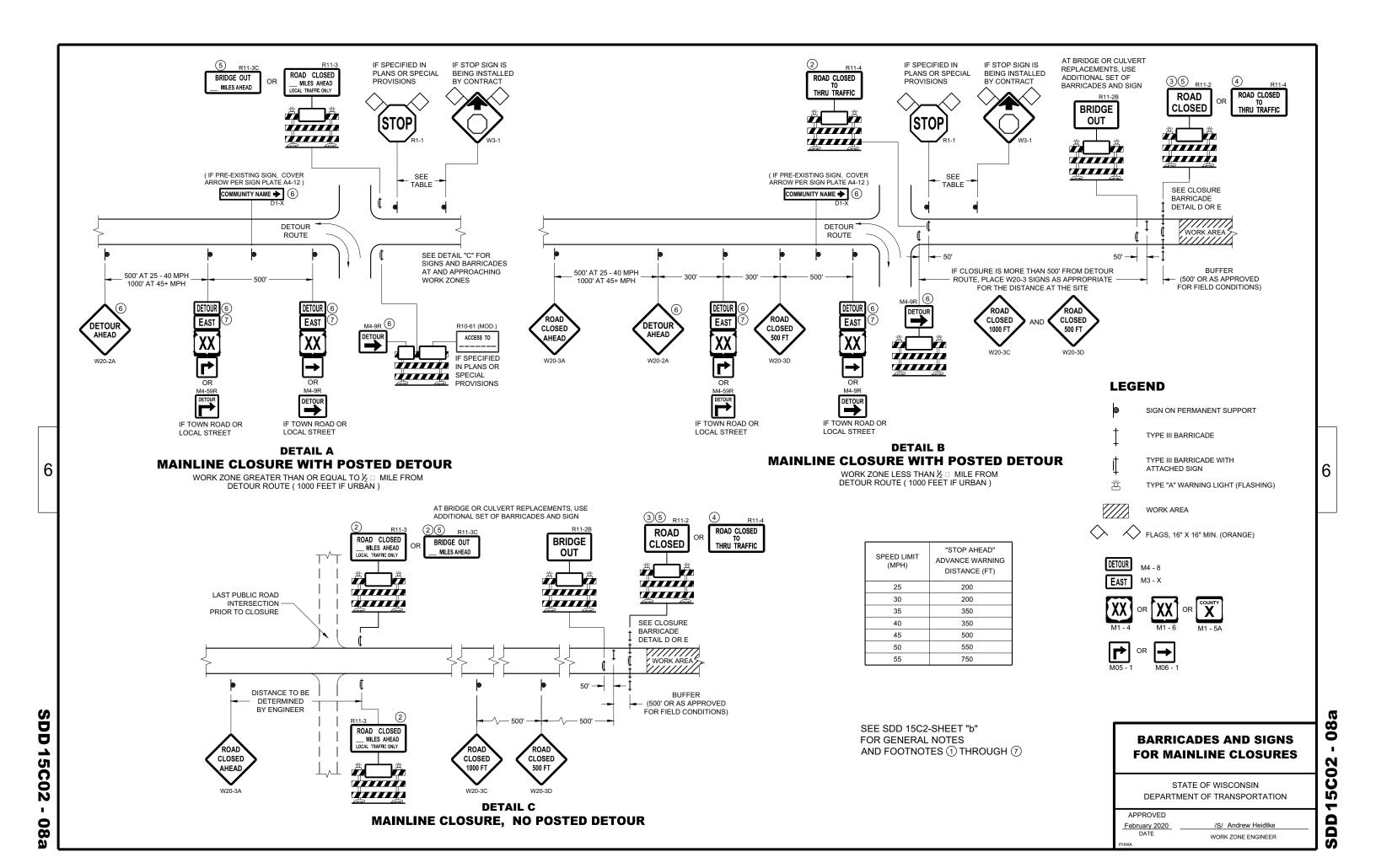
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

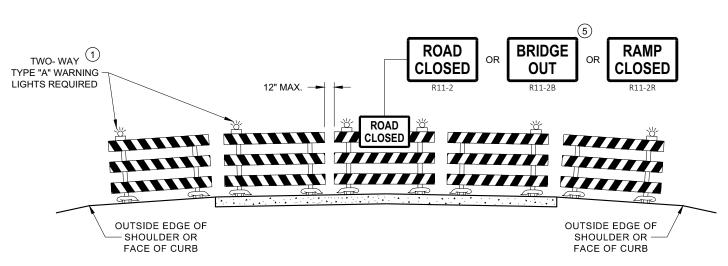
APPROVED

DATE

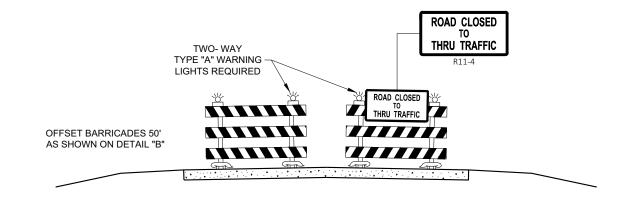








DETAIL D ROAD CLOSURE BARRICADE DETAIL APPROACH VIEW



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.
- 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

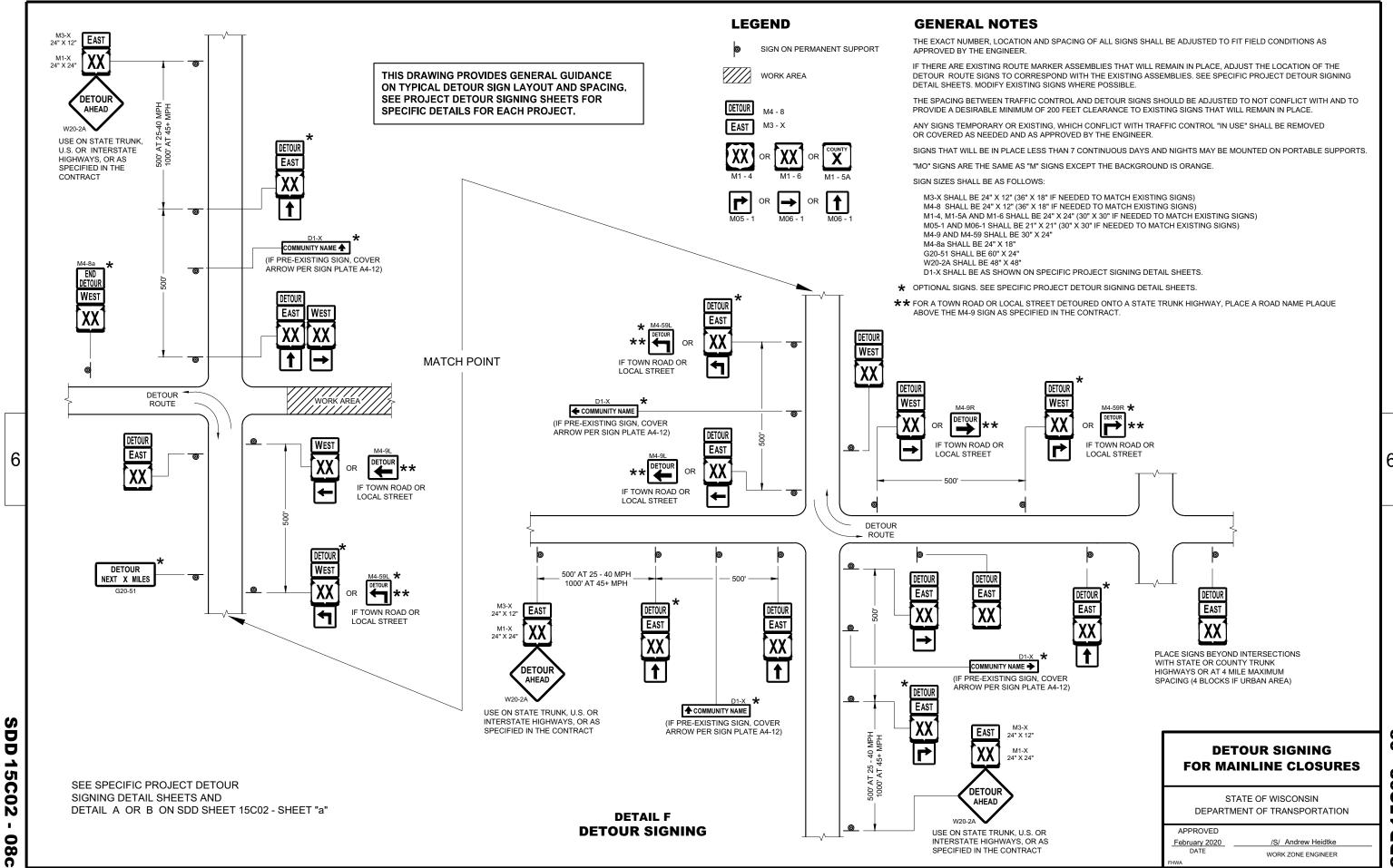
APPROVED

February 2020 ____

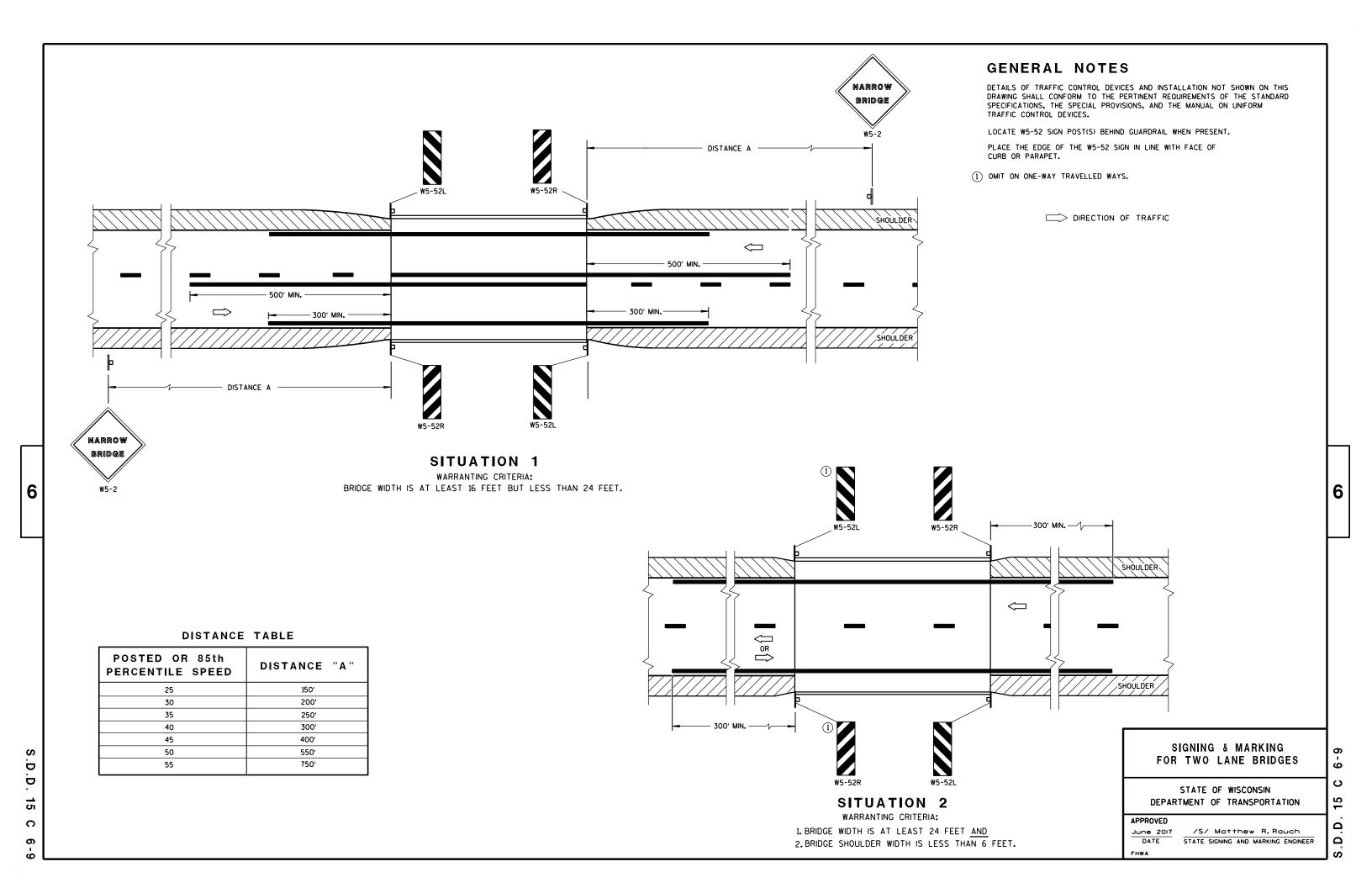
/S/ Andrew Heidtke
WORK ZONE ENGINEER

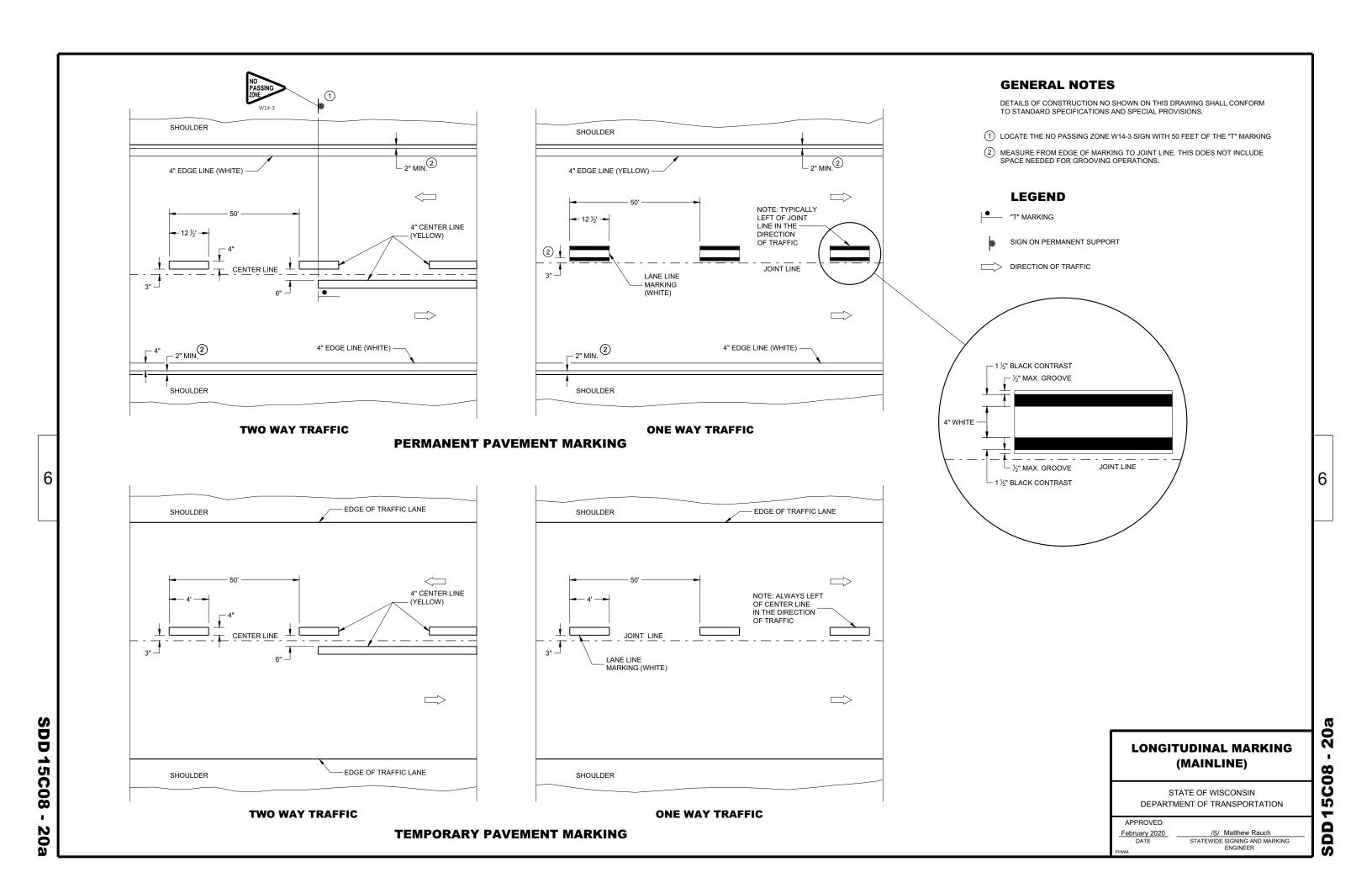
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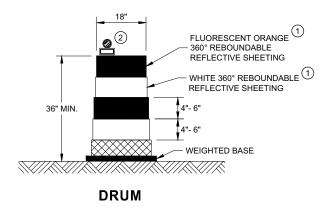
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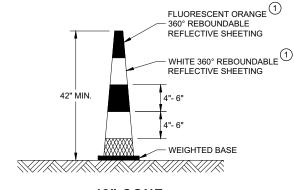




GENERAL NOTES

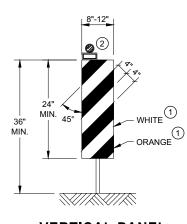
- (1) REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- (2) LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



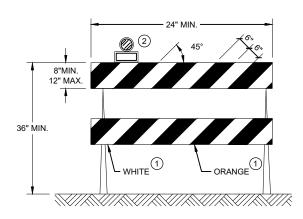


42" CONE DO NOT USE IN TAPERS

½ SPACING OF DRUMS

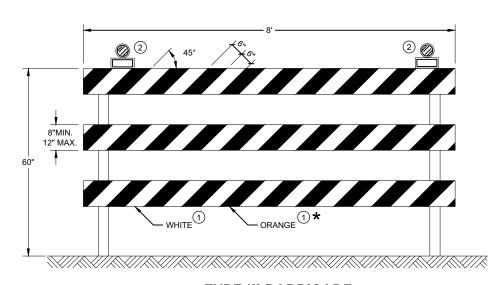


VERTICAL PANEL THE STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.



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.

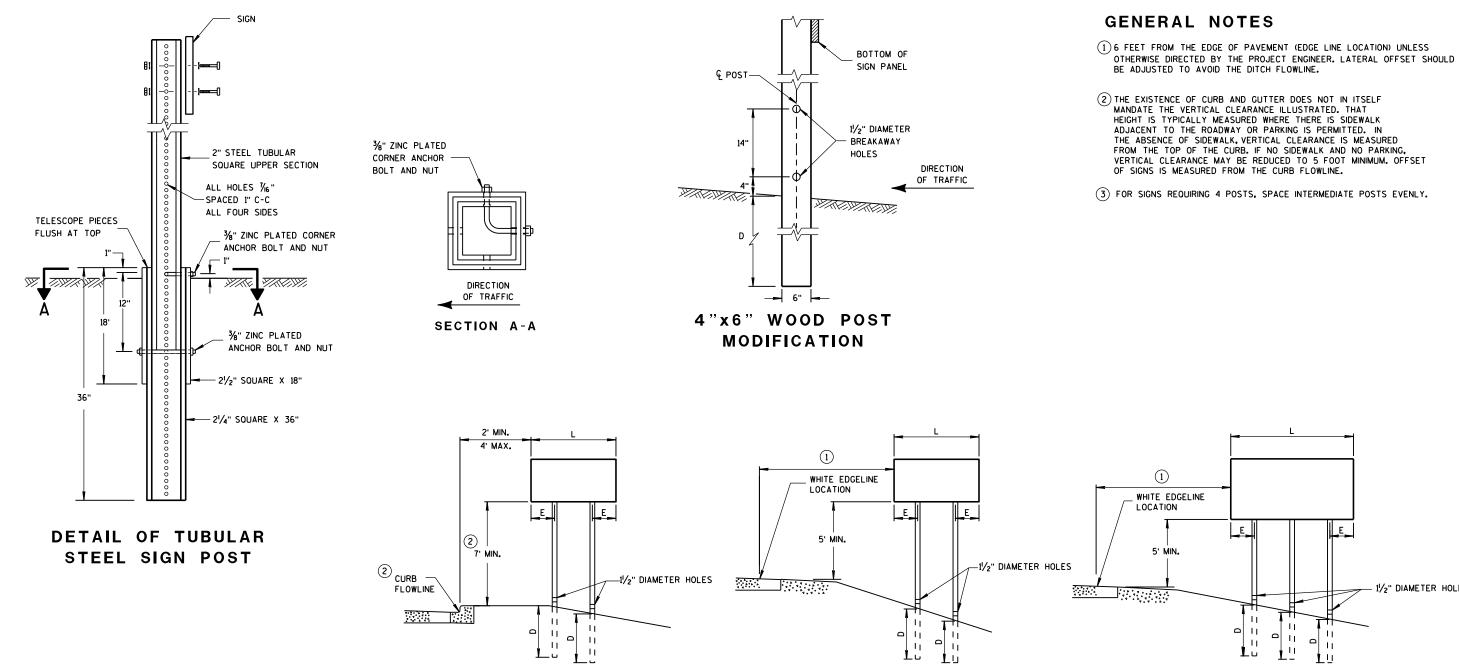
CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS

08

15C

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED	
November 2020	/S/ Andrew Heidtke
DATE	WORK ZONE ENGINEER



TUBULAR STEEL POSTS

6

D

D

15

D

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

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SO.FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE). SIGNS LARGER THAN 27 SO.FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

URBAN AREA

RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST **EMBEDMENT DEPTH**

AREA OF SIGN INSTALLATION (SO. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'

4" X 6" WOOD POST

POST SPACING REQUIREM	NUMBER OF WOOD POSTS			
L	L E			
48" OR LESS AND LESS THAN 20 SO.FT.	-	1		
LESS THAN 60"	12"	2	٤	
60" TO 120"	L/5	2		
GREATER THAN 120" LESS THAN 168"	12"	3		
168" AND GREATER	12"	4		

SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

-11

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- 11/2" DIAMETER HOLES

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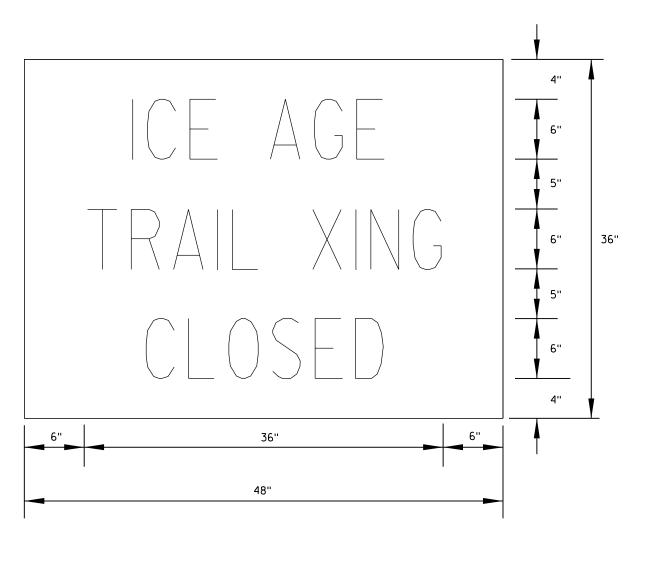
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DEPARTMENT OF TRANSPORTATION

/S/ Andrew Heidtke WORK ZONE ENGINEER

APPROVED

June 2017 DATE



NOTES:

- 1. FIXED MESSAGE SIGN TYPE II TYPE F REFLECTIVE
- 2. COLOR:

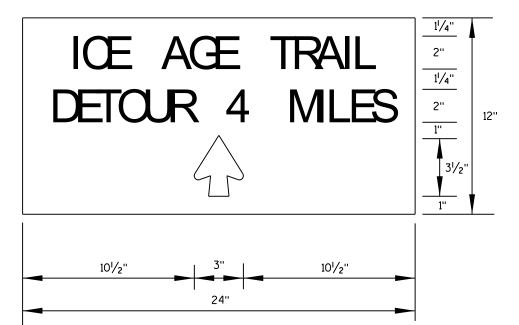
BACKGROUND - ORANGE MESSAGE - BLACK

3. MESSAGE SERIES - C

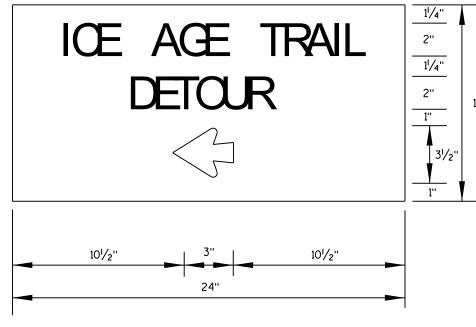
PROJECT NO: 4867-01-70 HWY: CTH H COUNTY: WASHINGTON TEMPORARY SIGNING SHEET

NOTES:

4. UPPERCASE LETTER HEIGHT - 2 INCHES



LOCATED NEAR AT ICE AGE TRAIL AND EISENBAHN TRAIL INTERSECTION (SOUTH OF CTH H)

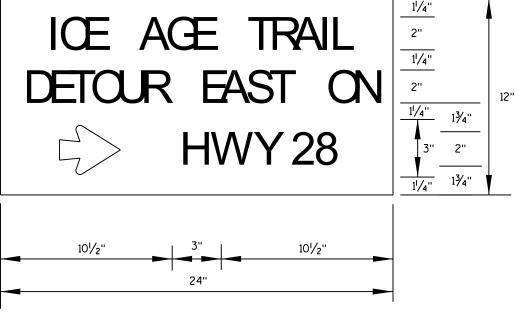


LOCATED AT EISENBAHN TRAIL AND STH 28 INTERSECTION

11/4'' IŒ AŒ TRAIL 11/4" DETOUR 4 MLES 11/4" 3" 11/4" 101/4"

HWY: CTH H

LOCATED AT PARKING AREA NEAR OAK DRIVE



PLOT NAME :

LOCATED AT EISENBAHN TRAIL AND STH 28 INTERSECTION

PROJECT NO: 4867-01-70

COUNTY: WASHINGTON

TEMPORARY SIGNING

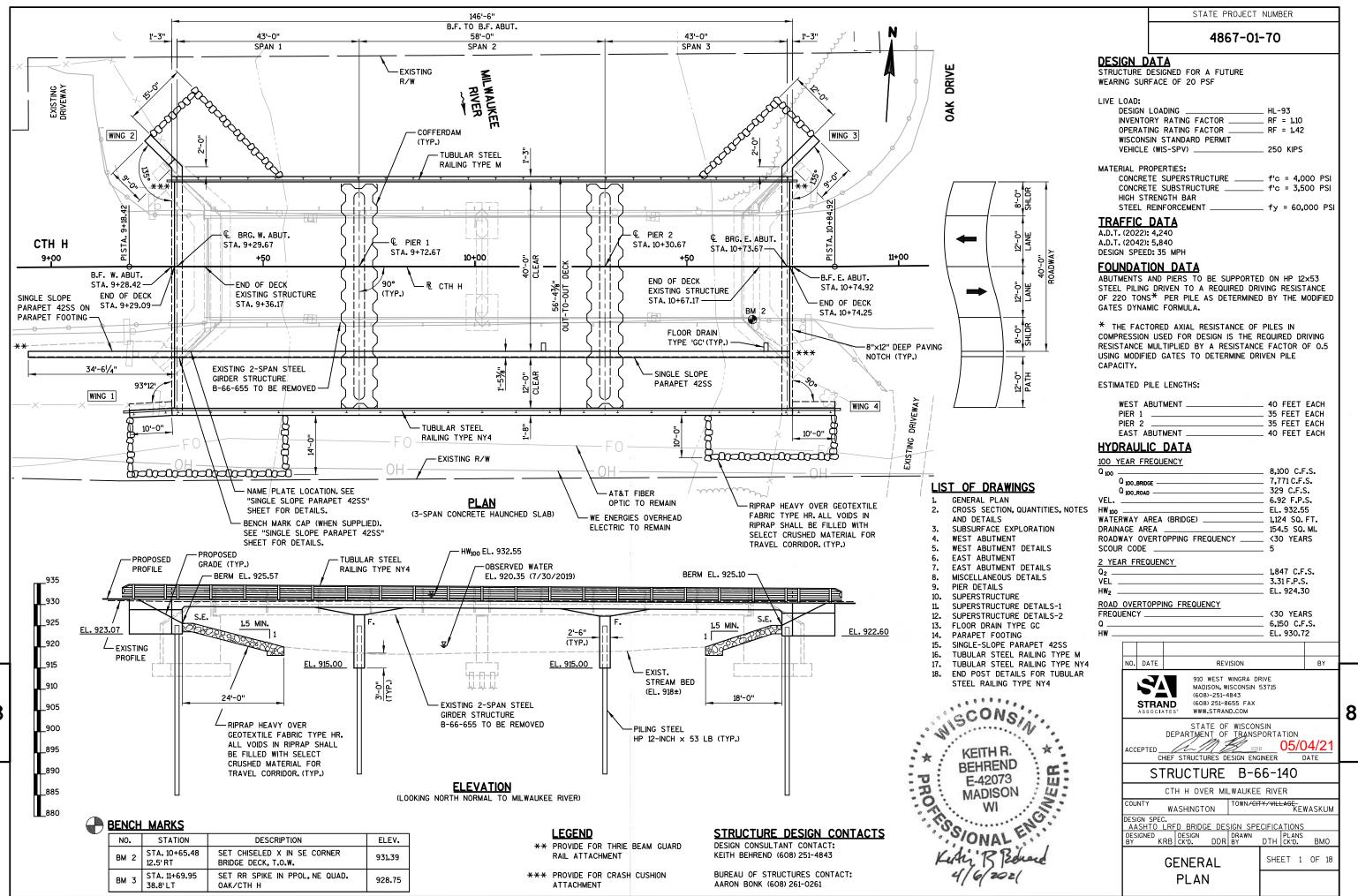
SHEET

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PLOT DATE : 5/11/2021

PLOT BY: _username_

PLOT SCALE: \$\$.....plotscale.....\$\$ wisdot/CADDS SHEET 47



NOTES

DRAWINGS SHALL NOT BE SCALED.

4867-01-70

ALL STATIONS AND ELEVATIONS ARE IN FEET.

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.

BAR DIMENSIONS FOR BENDING ARE OUT-TO-OUT OF BARS.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-66-140" SHALL BE THE EXISTING GROUND LINE.

"GEOTEXTILE TYPE DF SCHEDULE THE EXISTING STREAMBED SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION

ENTIRE ABUTMENT BODY LENGTH. THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

> ALL VOIDS IN RIPRAP HEAVY SHALL BE FILLED USING SELECT CRUSHED MATERIAL. WORK SHALL BE PAID FOR AS "SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR".

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

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-O" ABOVE BOTTOM OF ABUTMENT.

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

THE EXISTING STRUCTURE B-66-655, A TWO-SPAN STEEL GIRDER BRIDGE, IS TO BE REMOVED.

BEVEL EXPOSED EDGES OF CONCRETE 34" UNLESS OTHERWISE NOTED.

COFFERDAMS ARE REQUIRED TO CONSTRUCT PIERS. CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502,3,5,3 OF THE STANDARD SPECIFICATIONS, CONCRETE POURED UNDER WATER SHALL NOT EXCEED 10.0 FEET IN DEPTH. UNLESS APPROVED OTHERWISE.

POLYMER OVERLAY SHALL BE APPLIED TO A DECK WITH A MINIMUM AGE OF 28 DAYS AND A MAXIMUM AGE OF 2 YEARS.

LEGEND

- ¾" V-GROOVE REQ'D. EXTEND TO 6" FROM F.F. OF ABUT.
- ☑ PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP, SIDE AND UNDERSIDE OF DECK AS SHOWN, THE TOP AND EXTERIOR EXPOSED FACE OF WINGS, THE END 1'-O" OF THE FRONT FACE OF ABUTMENTS, AND VERTICAL AND HORIZONTAL SURFACES OF PAVING NOTCHES.
- ▲ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES, LIMITS OF EXCAVATION SHALL BE DETERMINED BY
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL SHEET 8.
- ☐ PIGMENTED SURFACE SEALER SHALL BE APPLIED TO THE INSIDE FACE, TOP AND BACK FACE OF THE PARAPET AT SHOWN.
- A POLYMER OVERLAY SHALL BE PLACED FROM BACK FACE OF CONCRETE PARAPET TO
 - FACE OF NY4 RAILING.



STRUCTURE B-66-140 DTH PLANS BMO

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

CROSS SECTION, QUANTITIES, NOTES & DETAILS

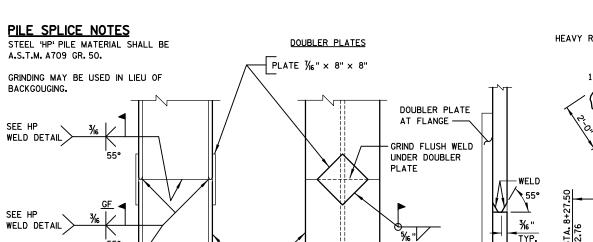
-BRIDGE -ROADWAY STRUCTURE PAVEMENT 12'-0" 1'-5%'_ SINGLE SLOPE \Box -PARAPET 42SS -ABUTMENT TUBULAR STEEL BACKFACE POINT REFERRED TO ON RAILING TYPE NY4 1.5% PAY LIMITS OF BACKFILL A -EDGE OF DECK BACKFILL STRUCTURE FLASHING, SEE 3'-0" SHEET 8 (TYP.) REQ'D A" LIMITS. EXTEND 2'-0" ABOVE PILE-ENCASED BOTTOM OF ABUTMENT FOR THE PIER CROSS SECTION THRU SUPERSTRUCTURE

TUBULAR

PL STA. 8+90.00

STEEL RAILING -

TYPICAL SECTION THRU ABUTMENT



STEEL 'HP' PILING, 12"

PILE SPLICE DETAILS

20'-0"

€ CTH H AND

STRUCTURE R -

-TUBULAR STEEL

RAILING TYPE M

(TYP.)

3'-9"

TYP.)

-PLACE HEAVY RIPRAP EVEN WITH TOP OF WING, 2 FEET FROM WING TIP. HEAVY RIPRAP 1.5 (MIN.) WALL **GEOTEXTILE** - FND OF TYPE HR ABUTMENT WING FILL VOIDS BETWEEN RIPRAP HEAVY WITH GEOTEXTILE, TYPE HR (TYP.) SELECT CRUSHED MATERIAL TYPICAL FILL SECTION FOR TRAVEL CORRIDOR AT WING TIPS -RIPRAP HEAVY L = 125' RIPRAP HEAVY DETAIL -2.40% Q -0.30%

PROFILE GRADE LINE

TOTAL ESTIMATED QUANTITIES

PLATE IS

PLACED FIRST

	BID NUMBER	BID ITEM	UNIT	W. ABUT.	PIER 1	PIER 2	E. ABUT.	SUPER.	TOTAL
	203.0700.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM STA. 10+00	LS						1
	206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-66-140	LS						1
	206.5000	COFFERDAMS B-66-140	LS						1
	210.1500	BACKFILL STRUCTURE TYPE A	TON	274			274		548
	502,0100	CONCRETE MASONRY BRIDGES	CY	52	59	58	43	586	798
	502.3200	PROTECTIVE SURFACE TREATMENT	SY	12			12	776	800
	502.3210	PIGMENTED SURFACE SEALER	SY					160	160
	502 . 9000 . S	UNDERWATER SUBSTRUCTURE INSPECTION B-66-140	EACH		1	1			2
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	4,290	2,690	2,690	4,290		13,960
٠l	505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2,690	100	100	1,280	114,360	118,530
3	509 . 5100 . S	POLYMER OVERLAY	SY					196	196
	513.4061	RAILING TUBULAR TYPE M	LF					149	149
	513.7084	RAILING STEEL TYPE NY4	LF					170	170
	514.0445	FLOOR DRAINS TYPE GC	EACH					2	2
┥	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	14			14		28
	550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	360	420	420	360		1,560
	606.0300	RIPRAP HEAVY	CY	205			152		357
	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	100			100		200
	614.0150	ANCHOR ASSEMBLES FOR STEEL PLATE BEAM GUARD	EACH					2	2
	645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	65			65		130
	645.0120	GEOTEXTILE TYPE HR	SY	347			263		610
	SPV.0090.03	FLASHING STAINLESS STEEL	LF					293	293
	SPV.0195.02	SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR	TON	81			59		140
		NON-BID ITEMS							
		FILLER	SIZE	1/2" & 3/4"	3/4"	3/4"	1/2" & 3/4"		1/2" & 3/4"

HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

56'-43/8"

OUT-TO-OUT DECK

PROFILE GRADE LINE

20'-0"

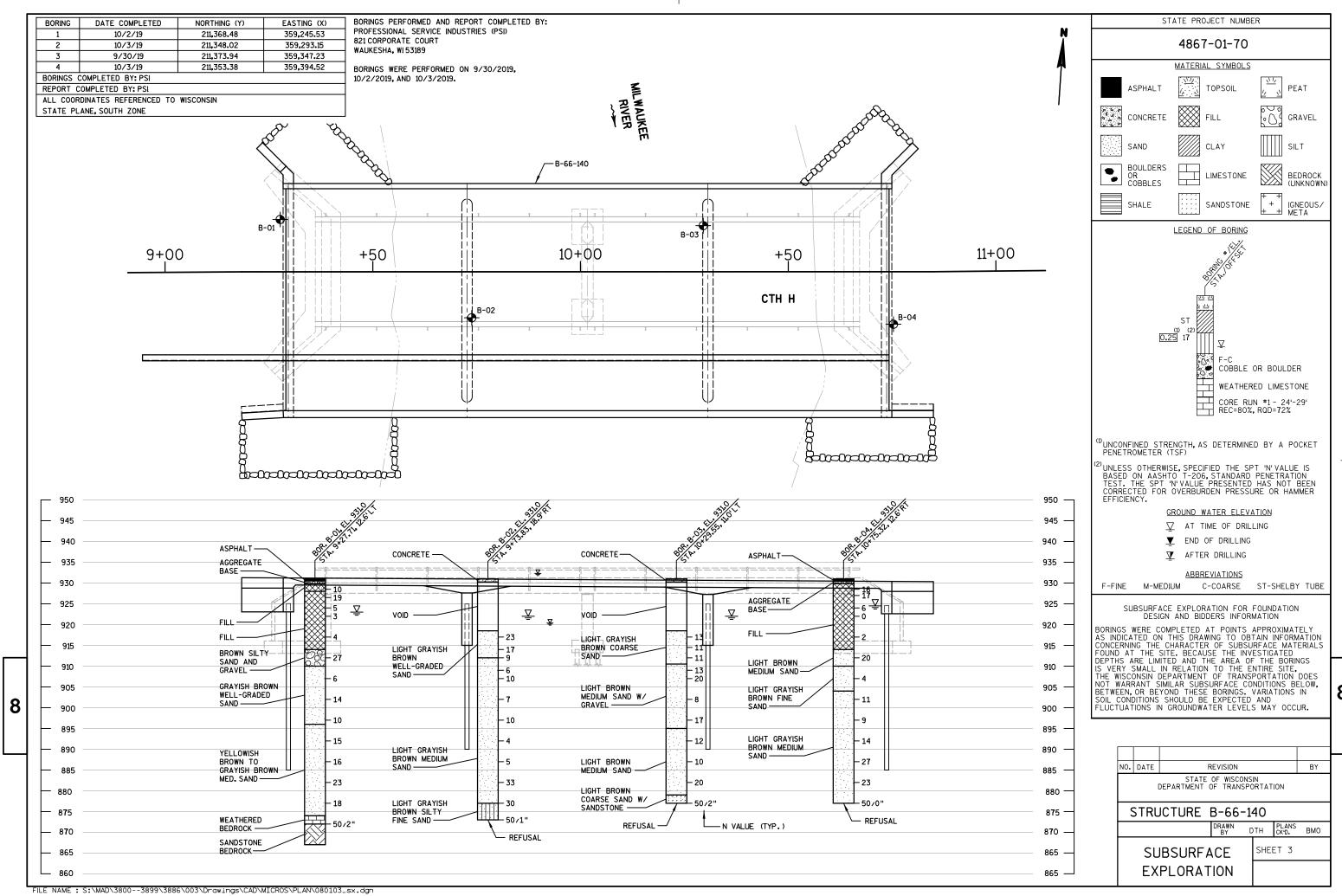
ABUTMENT BACKFILL DIAGRAM FOR WINGS PARALLEL TO ROADWAY

= OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT) = AVERAGE ABUTMENT FILL HEIGHT (FT)

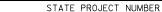
= EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID (TEMS)

= (L)(3.0')(H1) + (L)(0.5)(1.5H1)(H1) + (W1)(3.0')(1.5)(H1+H2)= V_{cF} (EF)/27 = V_{cy} (2.0)

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4867-01-70

NOTES

WING 2

SEE SHEET 2 FOR PILE SPLICE DETAILS.

SEE SHEET 5 FOR REINFORCING DETAILS.

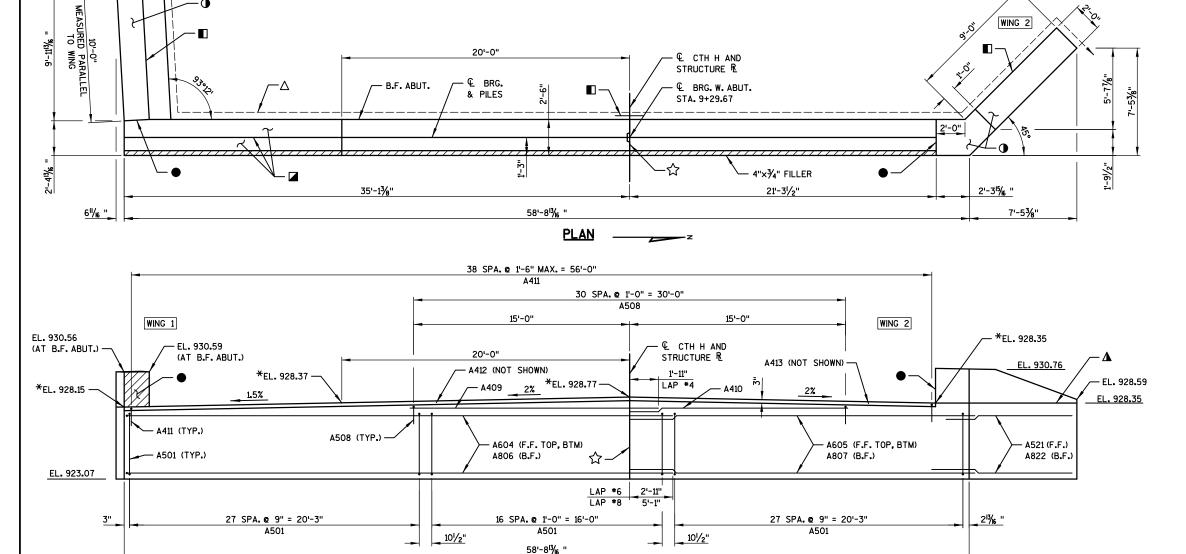
ADJUST A501 BARS INTERFERING WITH PILES.

WEST ABUTMENT TO BE SUPPORTED ON HP 12X53 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 40 FEET LONG EACH.

SEE SHEET 2 FOR TYPICAL FILL SECTION AT WING TIPS.

LEGEND

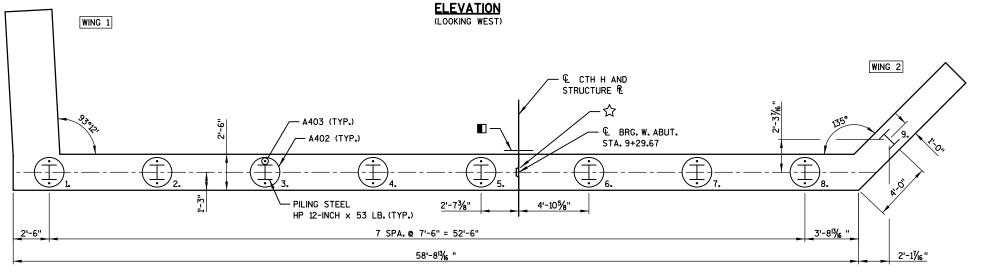
- 1/2" FILLER TO EXTEND FROM ABUT. SEAT TO TOP OF DECK. FILLER INCLUDED IN WING LENGTH. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW FINISHED ROADWAY SURFACE AT INNER FACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- ▲ OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"X6".
- \triangle PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON SHEET 8.
- ☑ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHELENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE, TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- * TOP OF ABUTMENT ELEVATION GIVEN AT B.F. ABUT.
- VERT. CONST. JOINT KEYWAY FORMED BY BEVELED 2"x8". SEE SHEET 8 FOR ALT. CONST. JOINT DETAIL.
- ① COAT TOP OF WING WITH "PROTECTIVE SURFACE TREATMENT".



€ CTH H AND

STRUCTURE &

20'-0"



PILE PLAN ___

NO. DATE REVISION BY STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION STRUCTURE B-66-140 DTH PLANS BMO SHEET 4 WEST ABUTMENT

3'-3" 1'-9"

WING 1



WEST ABUTMENT BILL OF BARS

UNCOATED: 4.290 LBS COATED: 1.280 LBS

BAR MARK	NO. REQ'D	LENGTH	BENT	COAT	BAR SERIES	LOCATION
A501	73	13'-10"	×			BODY - VERT.
A402	8	28'-0"	Х			BODY - PILES - SPIRAL
A403	16	2'-3"				BODY - PILES - VERT.
A604	11	38'-1"				BODY - TOP, BOT., & F.F HORIZ.
A605	11	23'-6"				BODY - TOP, BOT., & F.F HORIZ.
A806	9	41'-5"	×			BODY - B.F HORIZ.
A807	9	26'-11"	×			BODY - B.F HORIZ.
A508	31	5'-3"	×			BODY - VERT TOP
A409	3	17'-2"				BODY - TOP, HORIZ.
A410	3	15'-0"				BODY - TOP, HORIZ.
A411	39	3'-3"	х			BODY - VERT TOP
A412	2	37'-6"				BODY - TOP, HORIZ.
A413	2	21'-6"				BODY - TOP, HORIZ.
A514	11	15'-10"	X	X		LOWER WING 1 - VERT.
A515	6	12'-2"		x		LOWER WING 1 - F.F HORIZ.
A616	8	12'-2"		x		LOWER WING 1 - B.F HORIZ.
A617	14	10'-1"	×	X		UPPER WING 1 - VERT.
A418	5	9'-7"		X		UPPER WING 1 - HORIZ.
A619	2	9'-7"		X		UPPER WING 1 - HORIZ TOP
A420	2	4'-5"				BODY - SOUTH END - VERT.
A521	9	11'-9"	X	X		LOWER WING 2 - F.F HORIZ.
A822	9	13'-3"	×	Х		LOWER WING 2 - B.F HORIZ.
A423	28	5'-8"	×	Х		WING 2 - VERT.
A424	4	7'-11"	×	Х	Х	UPPER WING 2 - F.F HORIZ.
A425	4	6'-6"	×	Х	Х	UPPER WING 2 - B.F HORIZ.
A426	2	9'-3"	×	Х		UPPER WING 2 - TOP - HORIZ.
A427	3	11'-0"	×	Х		WING 2 - VERT.

LENGTH SHOWN FOR A BAR SERIES IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

MARK	NO. REQ'D	LENGTH
A424	1 SERIES OF 4	4'-4" TO 11'-5"
A425	1 SERIES OF 4	2'-11" TO 10'-0"

BUNDLE AND TAG EACH SERIES SEPARATELY

LEGEND

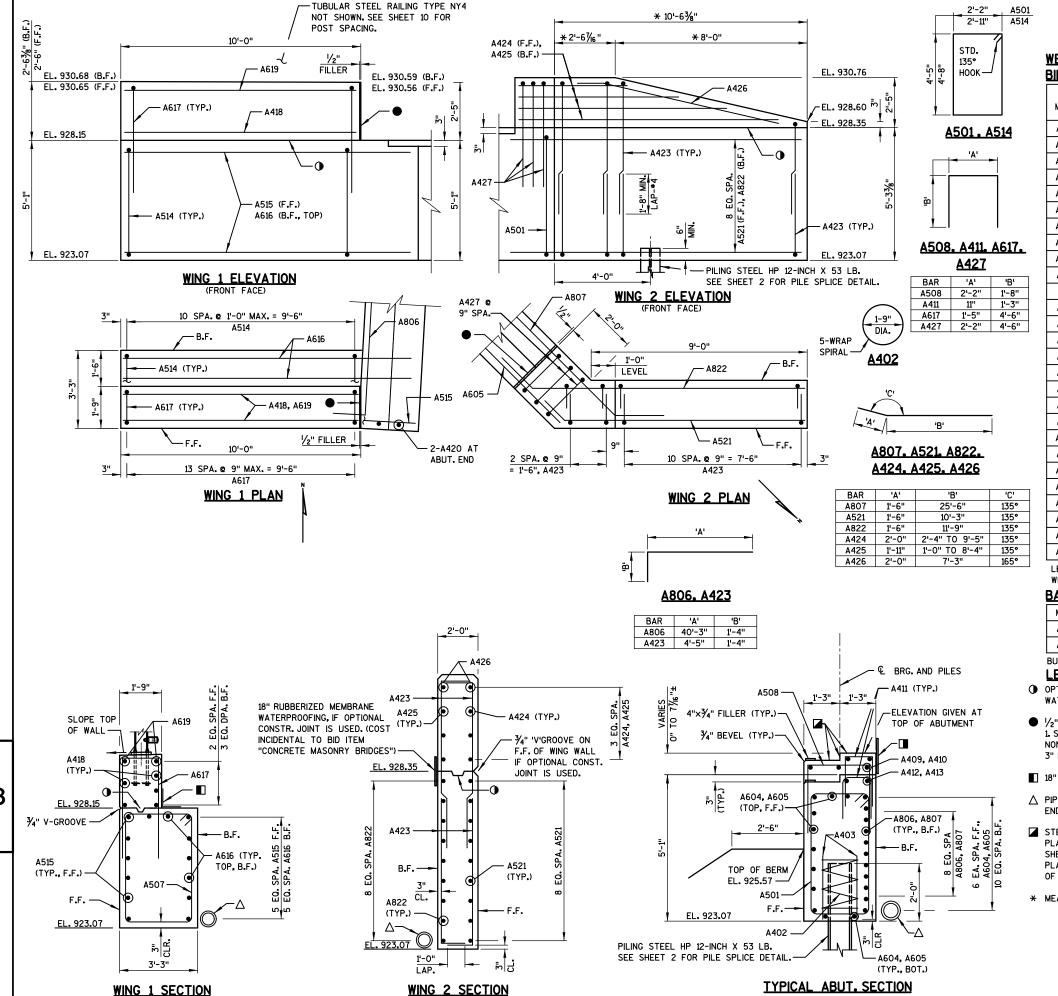
- OPTIONAL CONSTRUCTION JOINT FORMED BY BEVELED 2"X6" KEYWAY WITH RUBBERIZED MEMBRANE WATERPROOFING ON BACKFACE.
- ₱ ½" FILLER TO EXTEND FROM ABUT. SEAT TO TOP OF DECK. FILLER INCLUDED IN WING LENGTH AT WING

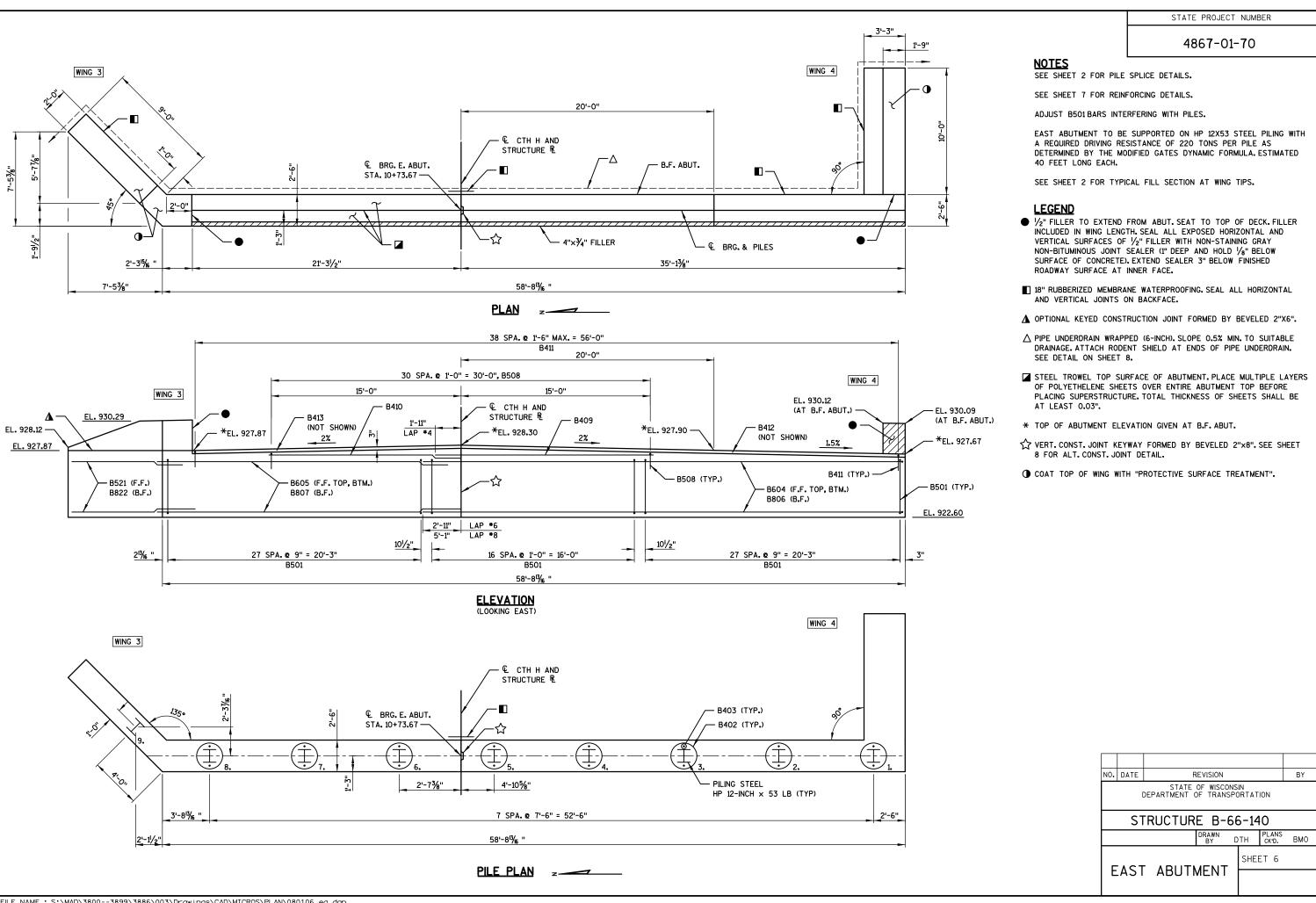
 1. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY

 NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD ½" BELOW SURFACE OF CONCRETE). EXTEND SEALER

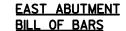
 3" BELOW FINISHED ROADWAY SURFACE AT INNER FACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- A PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT 8 END OF PIPE UNDERDRAIN PER DETAIL ON SHEET 8.
- ✓ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHELENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- * MEASURED ALONG F.F. WING.

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	W	/EST	ABUTI	SHE	ET 5		
		1	DETAILS				
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4867-01-70



UNCOATED: 4.290 LBS COATED: 1.280 LBS

BAR MARK	NO. REQ'D	LENGTH	BENT	COAT	BAR SERIES	LOCATION
B501	73	13'-10"	Х			BODY - VERT.
B402	8	28'-0"	×			BODY - PILES - SPIRAL
B403	16	2'-3"				BODY - PILES - VERT.
B604	11	38'-1"				BODY - TOP, BOT., & F.F HORIZ.
B605	11	23'-6"				BODY - TOP, BOT., & F.F HORIZ.
B806	9	41'-5"	Х			BODY - B.F HORIZ.
B807	9	26'-11"	Х			BODY - B.F HORIZ.
B508	31	5'-3"	Х			BODY - VERT TOP
B409	3	17'-2"				BODY - TOP, HORIZ.
B410	3	15'-0"				BODY - TOP, HORIZ.
B411	39	3'-3"	Х			BODY - VERT TOP
B412	2	37'-6"				BODY - TOP, HORIZ.
B413	2	21'-6"				BODY - TOP, HORIZ.
B514	11	15'-10"	Х	Х		LOWER WING 4 - VERT.
B515	6	12'-2"		Х		LOWER WING 4 - F.F HORIZ.
B616	8	12'-2"		Х		LOWER WING 4 - B.F HORIZ.
B617	14	10'-1"	Х	Х		UPPER WING 4 - VERT.
B418	5	9'-7"		Х		UPPER WING 4 - HORIZ.
B619	2	9'-7"		Х		UPPER WING 4 - HORIZ TOP
B420	2	4'-5"				BODY - SOUTH END - VERT.
B521	9	11'-9"	Х	Х		LOWER WING 3 - F.F HORIZ.
B822	9	13'-3"	Х	Х		LOWER WING 3 - B.F HORIZ.
B423	28	5'-8"	×	×		WING 3 - VERT.
B424	4	7'-11"	Х	Х	Х	UPPER WING 3 - F.F HORIZ.
B425	4	6'-6"	х	х	Х	UPPER WING 3 - B.F HORIZ.
B426	2	9'-3"	Х	Х		UPPER WING 3 - TOP - HORIZ.
B427	3	11'-0"	Х	X		WING 3 - VERT.

LENGTH SHOWN FOR A BAR SERIES IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

MARK	NO. REQ'D	LENGTH
B424	1 SERIES OF 4	4'-4" TO 11'-5"
B425	1 SERIES OF 4	2'-11" TO 10'-0"

BUNDLE AND TAG EACH SERIES SEPARATELY

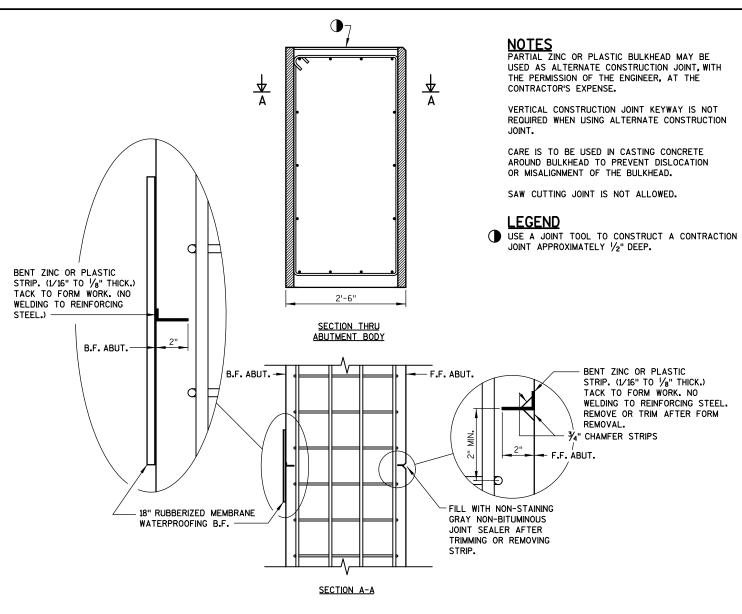
LEGEND

- OPTIONAL CONSTRUCTION JOINT FORMED BY BEVELED 2"X6" KEYWAY WITH RUBBERIZED MEMBRANE WATERPROOFING ON BACKFACE.
- 1/2" FILLER TO EXTEND FROM ABUT. SEAT TO TOP OF DECK, FILLER INCLUDED IN WING LENGTH AT WING 1. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW FINISHED ROADWAY SURFACE AT INNER FACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- △ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN PER DETAIL ON SHEET 8.
- ✓ STEEL TROWEL TOP SURFACE OF ABUTMENT.
 PLACE MULTIPLE LAYERS OF POLYETHELENE
 SHEETS OVER ENTIRE ABUTMENT TOP BEFORE
 PLACING SUPERSTRUCTURE. TOTAL THICKNESS
 OF SHEETS SHALL BE AT LEAST 0.03".
- flux MEASURED ALONG F.F. WING.

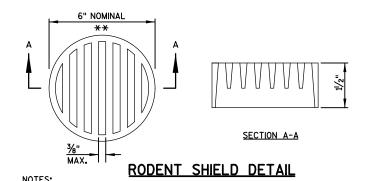
NO.	DATE	REVISION				BY
	STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURE B-66-140					
	DRAWN PLANS BY DTH CK'D.					вмо
Ε	EAST ABUTMENT			SHEET 7		
		DETAILS				

### SECTION 10 10 10 10 10 10 10 1	## 150 P P P P P P P P P P P P P P P P P P P	Γ	10'-6¾" *		/—TUBULAR STEEL RAILIN	
## SECURITACION SEC	## PAGE 1 PLAN ## PAGE 1 PLAN		EL. 930.29 EL. 928.12 B426 B423 (TYP.) B423 (TYP.)	B424 (F.F.), B425 (B.F.) EL. 930.12 (B.F.) EL. 930.09 (F.F.)	B515 (F.F.) B616 (B.F., TOP) B514 (TYP.) B514 (TYP.) B514 (TYP.) B514 (TYP.)	7.67 POST SPACING. 2'-2" B50 2'-11" STD. 135° HOOK 7.67 B501 B514
## PART 10 SPA, 0 SPA 10 S	BSG. PS. P.		WING 3 ELEVATION		(FRONT FACE)	<u>B508. B411. B617.</u>
BOS. B423 BAG. B423 BAG. B424 BAG. B425 BAG. B426 BAG. B425 BAG. B426 BAG. BAG. B426 BAG. BAG. B426 BAG. BAG. B426 BAG. BAG. BAG. BAG. BAG. BAG. BAG. BAG.	B806, B423 B806 B423 B806 B423 B807 B807 B807 B807 B807 B808 B808 B807 B808 B8		B521 F.F. 9" = 7'-6" B423	B427 @ 9" SPA. B806 B806 B515 B605 B515 F.F. ABUT. END	B514 B.F. B514 (TYP.) B418, B619 B617 (TYP.) B617 B617	BAR 'A' 'B' B508 2'-2" 1'-8" B411 11" 1'-3" B617 1'-5" 4'-6" B427 2'-2" 4'-6"
BAR N B' B' C' BBOT 1-6' 10'-3' 135' BBOS 10'-5' 10'-3' 135' BBSC 10'-5' 10'-5' 135' BBSC 10'-5' 10'-5	BAR W B' C' BBOT 1-6' 10-3' 135' BBOS. B423 BAR W B' C' BBOT 1-6' 10-3' 135' BBC2 1-6' 10-3'		WING 3 PLAN	'A'	WING 4 PLAN	
SLOPE TOP OF WALL TO PIONAL B423 B423 B424 (TYP.) B425 (TYP.) B426 (TYP.) B426 (TYP.) B427 (TYP.) B428 (TYP.) B429 (TYP.) B420 (TYP.) B421 (TYP.) B422 (TYP.) B423 (TYP.) B424 (TYP.) B424 (TYP.) B424 (TYP.) B425 (TYP.) B426 (TYP.) B427 (TYP.) B428 (TYP.) B429 (TYP.) B429 (TYP.) B429 (TYP.) B420 (TYP.) B421 (TYP.) B421 (TYP.) B421 (TYP.) B422 (TYP.) B423 (TYP.) B424 (TYP.) B424 (TYP.) B424 (TYP.) B424 (TYP.) B424 (TYP.) B425 (TYP.) B426 (TYP.) B427 (TYP.) B428 (TYP.) B429	SLOPE TOP B619 6 6 7 MALL PLANE B423 B423 B424 (TYP.) B424 (TYP.) B424 (TYP.) B425 AND PILES B426 AND PILES B427 AND PILES B428 AND PILES B428 AND PILES B429 AND PILES B429 AND PILES B420 AND PILES B420 AND PILES B420 AND PILES B421 (TYP.) B420 AND PILES B421 (TYP.) B421 (TYP.) B422 AND PILES B423 AND PILES B423 AND PILES B424 (TYP.) B425 AND PILES B426 AND PILES B427 AND PILES B428 AND PILES B428 AND PILES B429 AND PILES B429 AND PILES B420 AND PILES B420 AND PILES B420 AND PILES B421 (TYP.) B420 AND PILES B421 (TYP.) B421 (TYP.) B424 (TYP.) B425 AND PILES B426 AND PILES B427 AND PILES B428 AND PILES B428 AND PILES B429 AND PILES B42			BAR 'A' 'B' B806 40'-3" 1'-4" B423 4'-5" 1'-4"	SPIRAL B4 1-9" DIA. B4 B4 B4	AR 'A' 'B' 'C' 07 1'-6" 25'-6" 135° 21 1'-6" 10'-3" 135° 22 1'-6" 11'-9" 135° 24 2'-0" 2'-4" T0 9'-5" 135° 25 1'-11" 1'-0" T0 8'-4" 135°
WING 3 SECTION ITYPICAL ABUT. SECTION		8	B418 (TYP.) B515 (TYP., F.F.) B514 F.F. EL. 922.60 CONSTR. JOINT IS INCIDENTAL TO BID "CONCRETE MASON" B617 B616 (TYP. § 99 99 99 99 99 99 99 99 99 99 99 99 9	B423 EMBRANE OPTIONAL USED. (COST O ITEM RY BRIDGES") EL. 927.87 B424 (TYP.) F.F. OF WING IF OPTIONAL JOINT IS USEI CL. F.F. F.F.	WALL CONST. D. B604, B605 (TOP, F.F.) TOP OF BERM EL. 925.10 B501 F.F. B402 PILING STEEL HP 12-INCH X 53 LB. SEE SHEET 2 FOR PILE SPLICE DETAIL.	B806, B807 (TYP., B.F.) B806, B807 (TYP., B.F.) B806, B806, B807 (TYP., B.F.) B604, B605 (TYP., BOT.)

4867-01-70



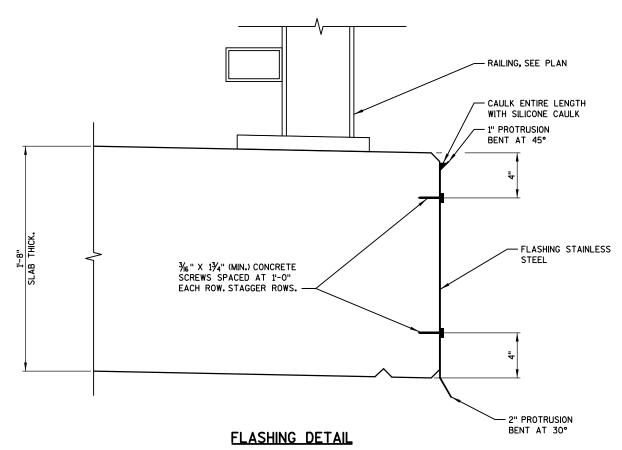
ALTERNATE CONSTRUCTION JOINT AT ABUTMENT



**DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SHIELD 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 COMMERCIALLY 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 \times 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK, 3/6" CONCRETE SCREWS AND CLEANING THE EDGE OF DECK PRIOR TO ATTACHMENT OF THE FLASHING.

FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.

CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.

EXTEND FLASHING TO B.F. OF ABUTMENT DIAPHRAGM.

TOP OF FLASHING TO BEGIN APPROX. 1-INCH BELOW TOP OF DECK/SLAB SURFACE.

THE FLASHING IS TO BE A CONSTANT HEIGHT BASED ON THE THINNEST SLAB DEPTH OVER THE BRIDGE LENGTH.

NO. DATE REVISION BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

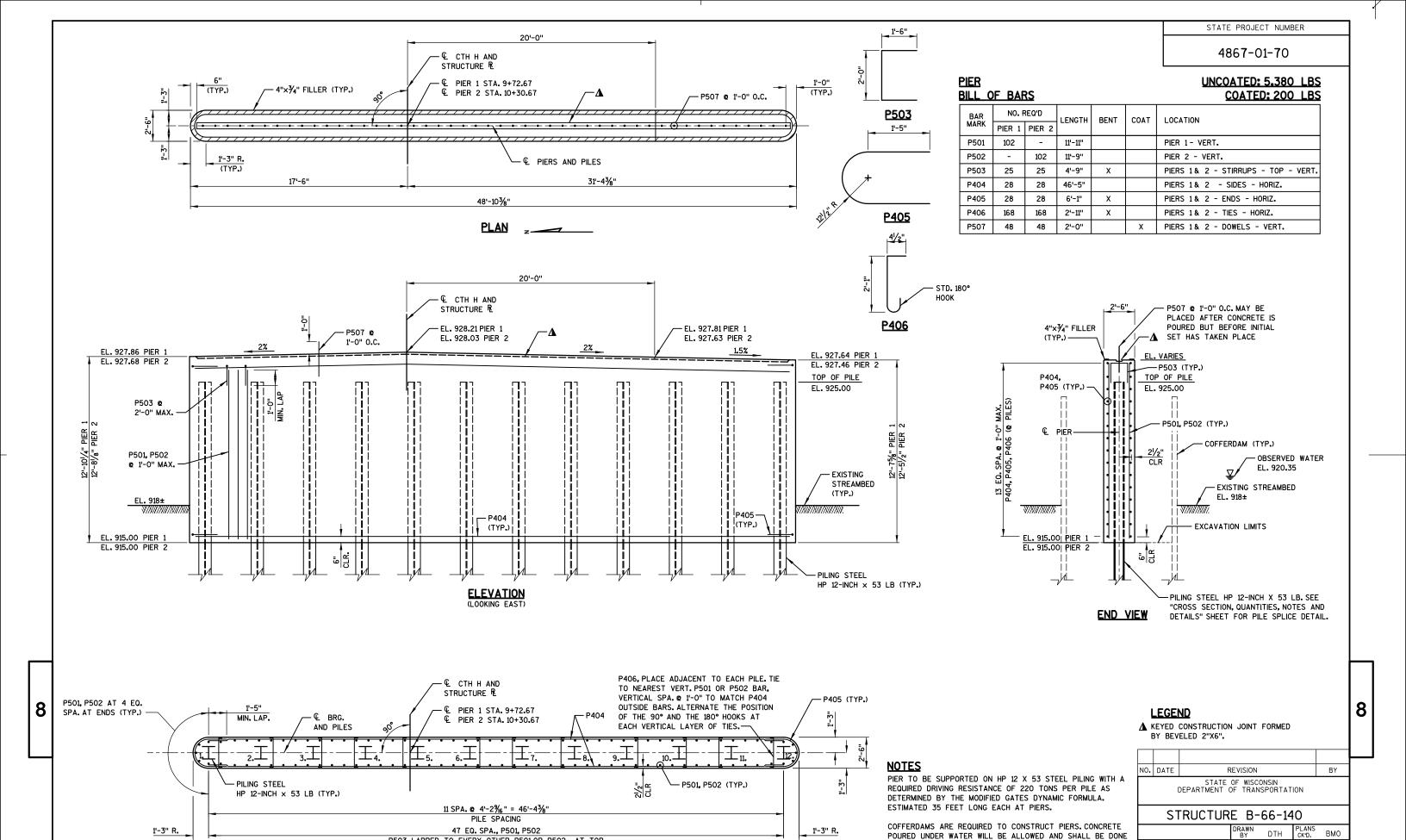
STRUCTURE B-66-140

DRAWN
BY DTH PLANS
CKD. BMO

MISCELLANEOUS
DETAILS

SHEET 8

8



IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD

SPECIFICATIONS. CONCRETE POURED UNDER WATER SHALL NOT

EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.

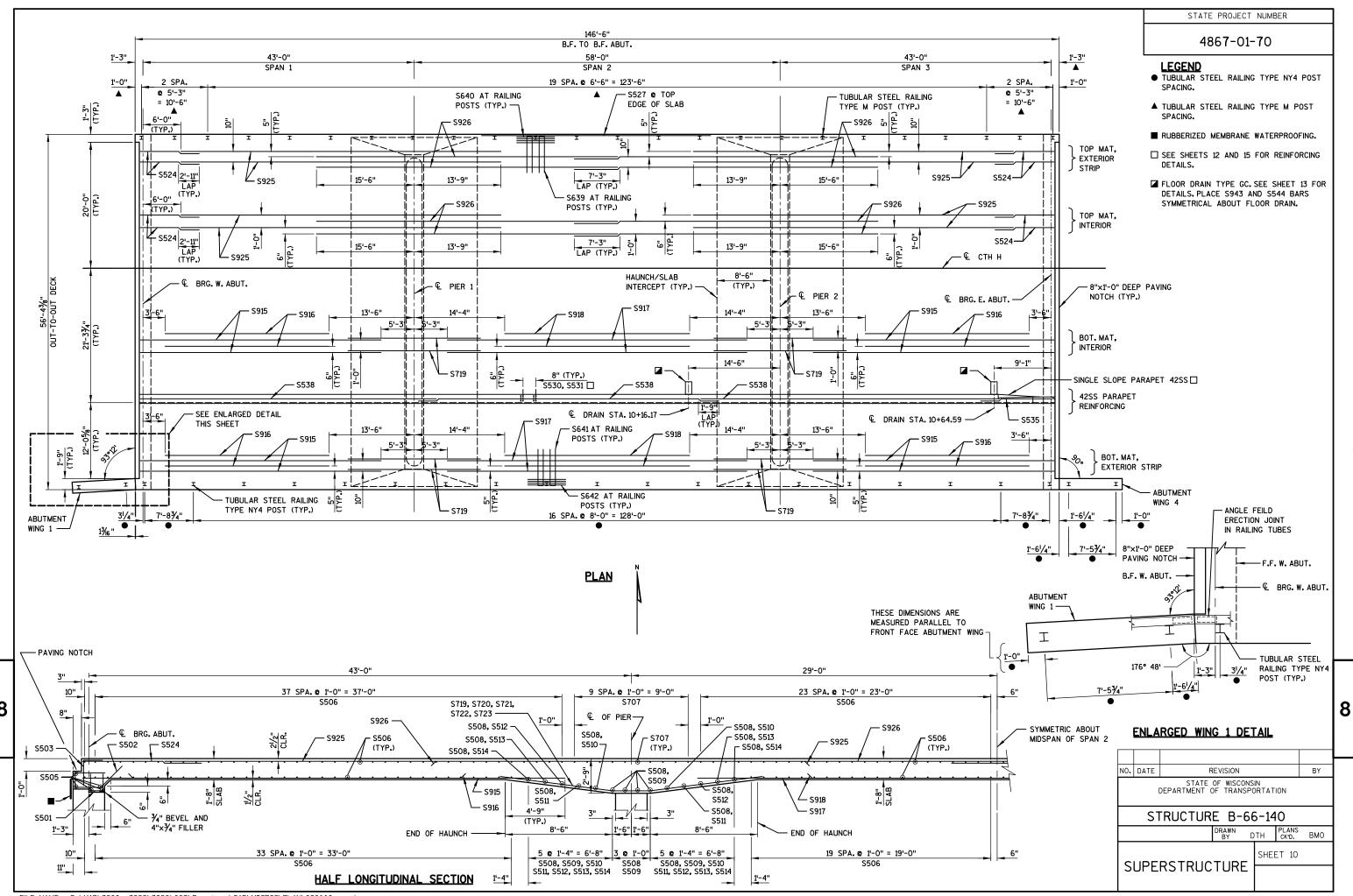
SHEET 9

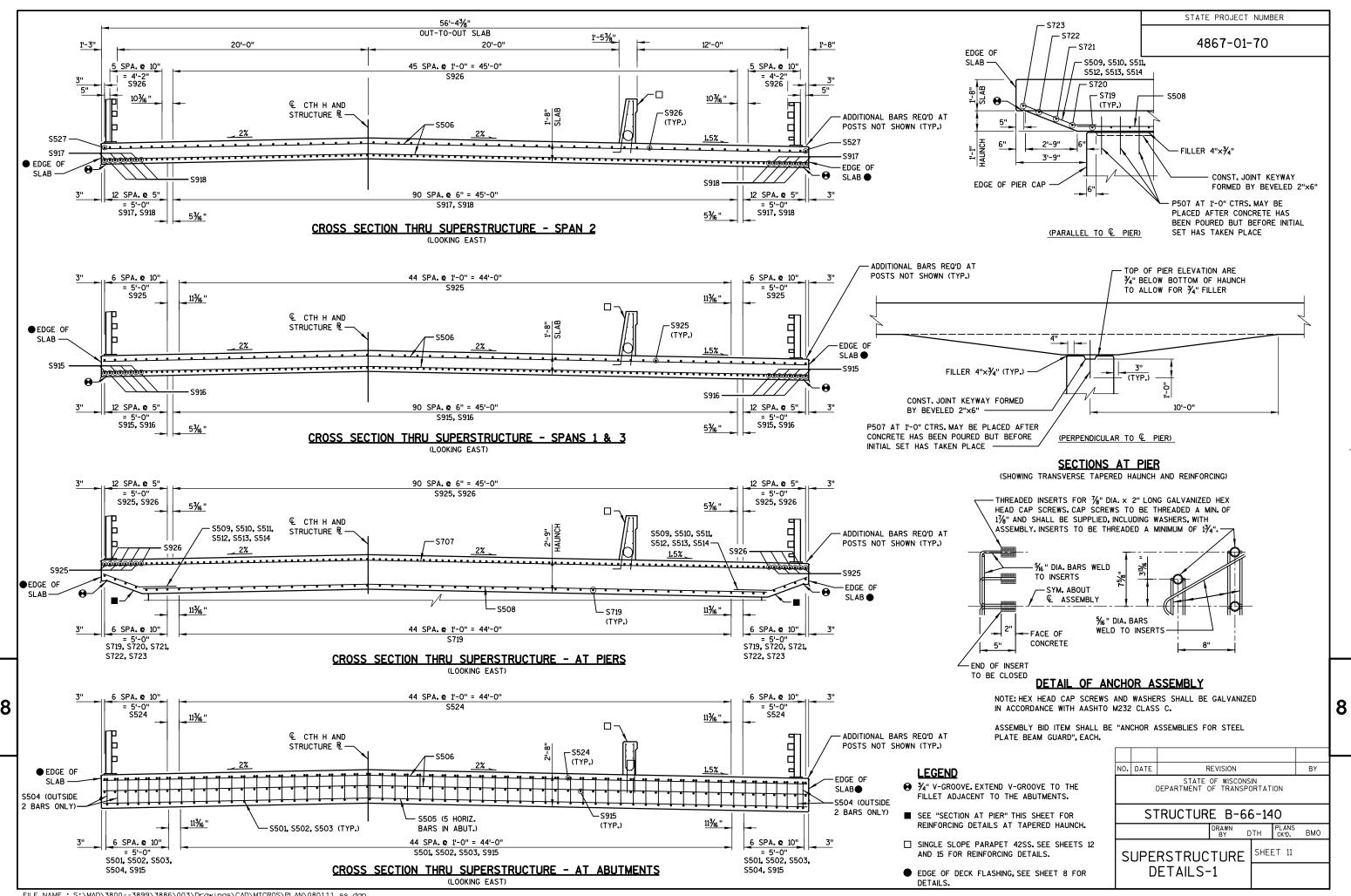
PIER

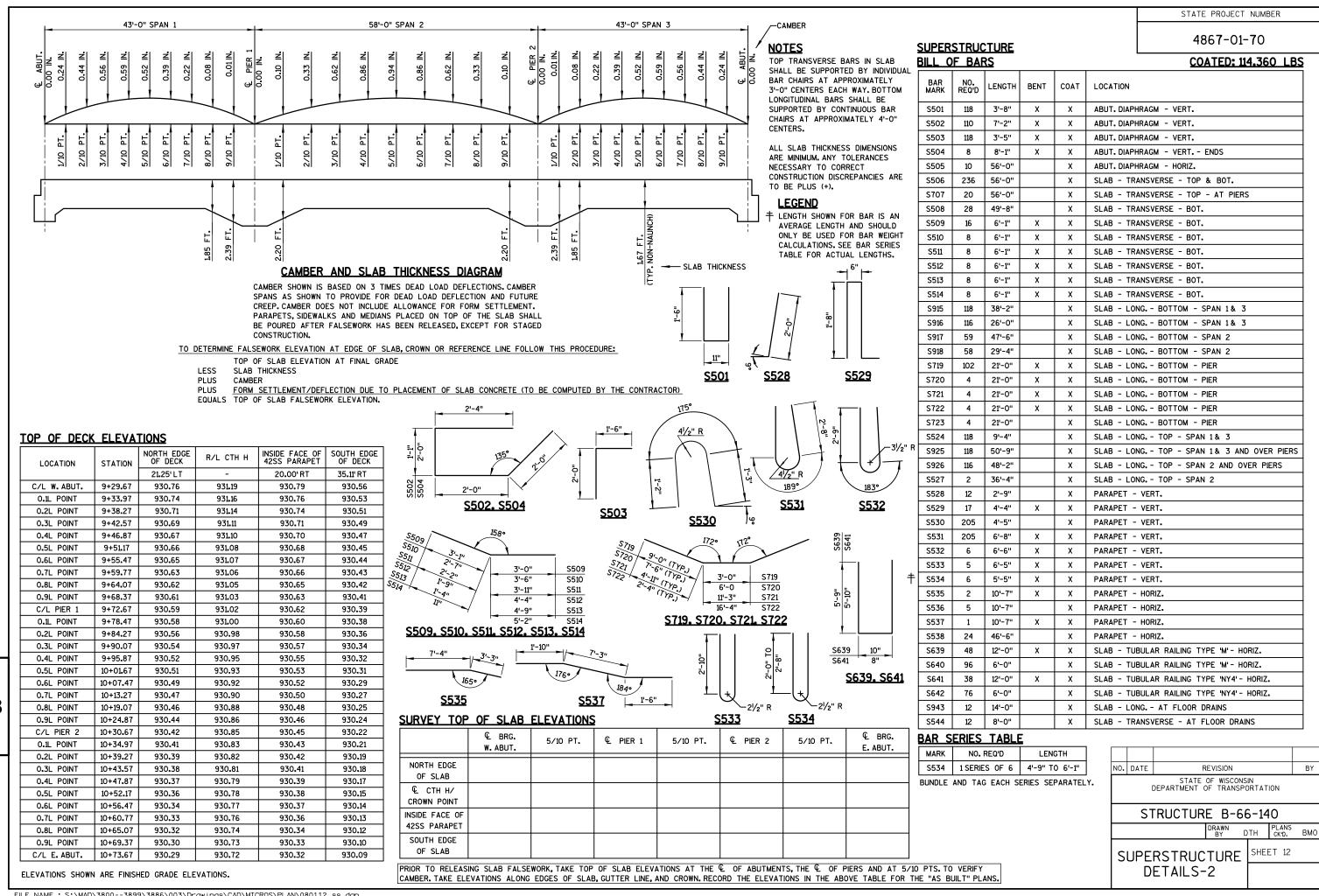
DETAILS

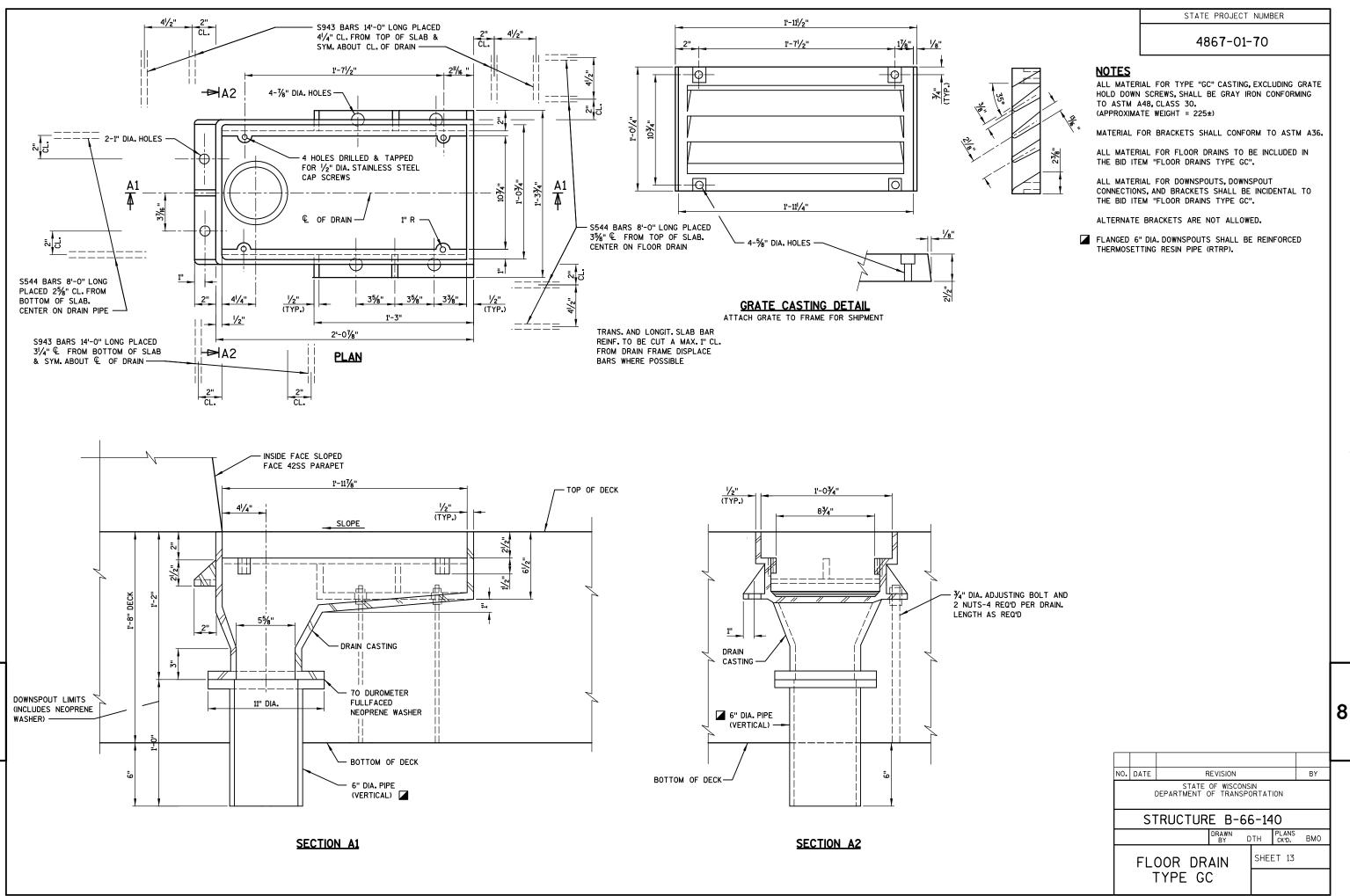
P503 LAPPED TO EVERY OTHER P501 OR P502 AT TOP

PILE AND REINFORCING PLAN z



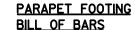






STATE PROJECT NUMBER

4867-01-70



COATED: 360 LBS

8

BAR MARK	NO. OF BARS	LENGTH	BENT	COAT	LOCATION
F401	4	33'-6"		х	FOOTING - BOTTOM - HORIZ.
F402	4	34'-1"		Х	FOOTING - TOP - HORIZ.
F403	35	7'-6"	X	Х	FOOTING - VERT.

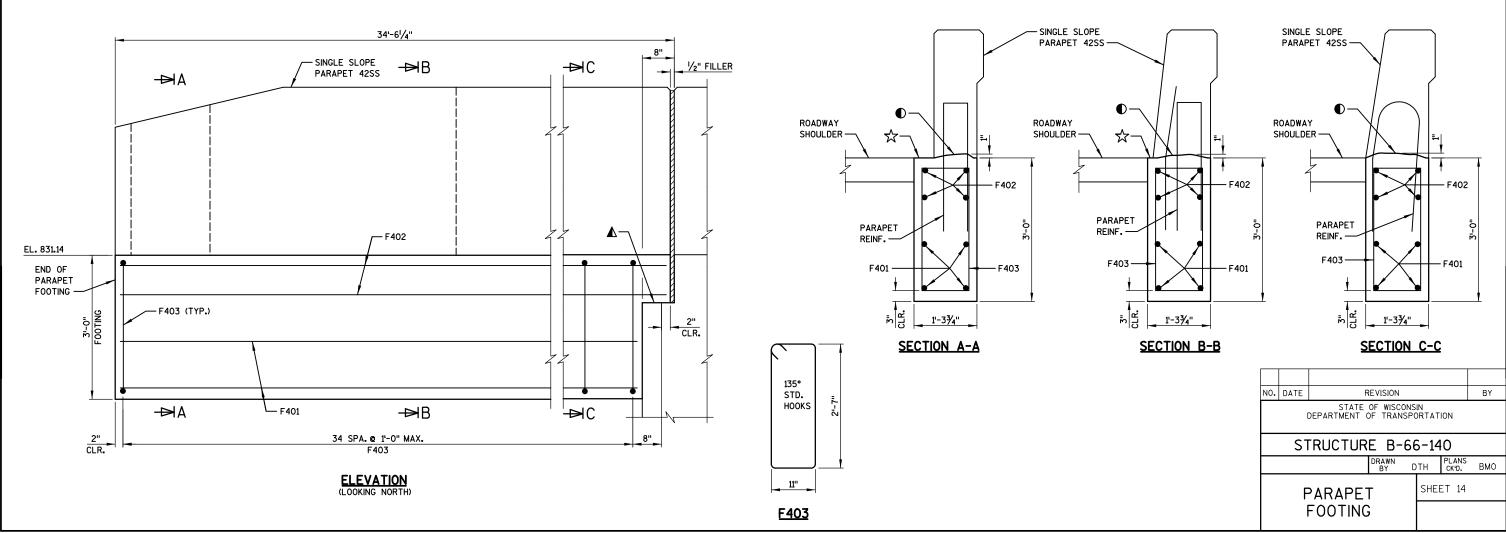
NOTES

PARAPET SHOWN FOR INFORMATION ONLY. SEE PARAPET SHEETS FOR PARAPET DETAILS AND REINFORCEMENT.

PARAPET AND PARAPET FOOTING CONCRETE AND REINFORCING QUANTITY SHOWN ON THIS SHEET ARE INCLUDED IN THE WEST ABUTMENT QUANTITY TOTALS.

LEGEND

- ▲ STEEL TROWEL HORIZ. SURFACE OF ABUTMENT PAVING NOTCH. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS BETWEEN PARAPET FOOTING AND HORIZ. SURFACE OF PAVING NOTCH. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- OCONST. JOINT STRIKE OFF AS SHOWN AND LEAVE ROUGH.
- FINISH SURFACE NOT COVERED BY PARAPET SAME AS ROADWAY.



-€ cth h

·1/2" FILLER

B.F. ABUT.

PAVING NOTCH -

€ BRG. W. ABUT.

- F.F. ABUT.

1-3¾" PPT FOOTING 1-0¾" PPT

END OF

PARAPET

FOOTING -

8

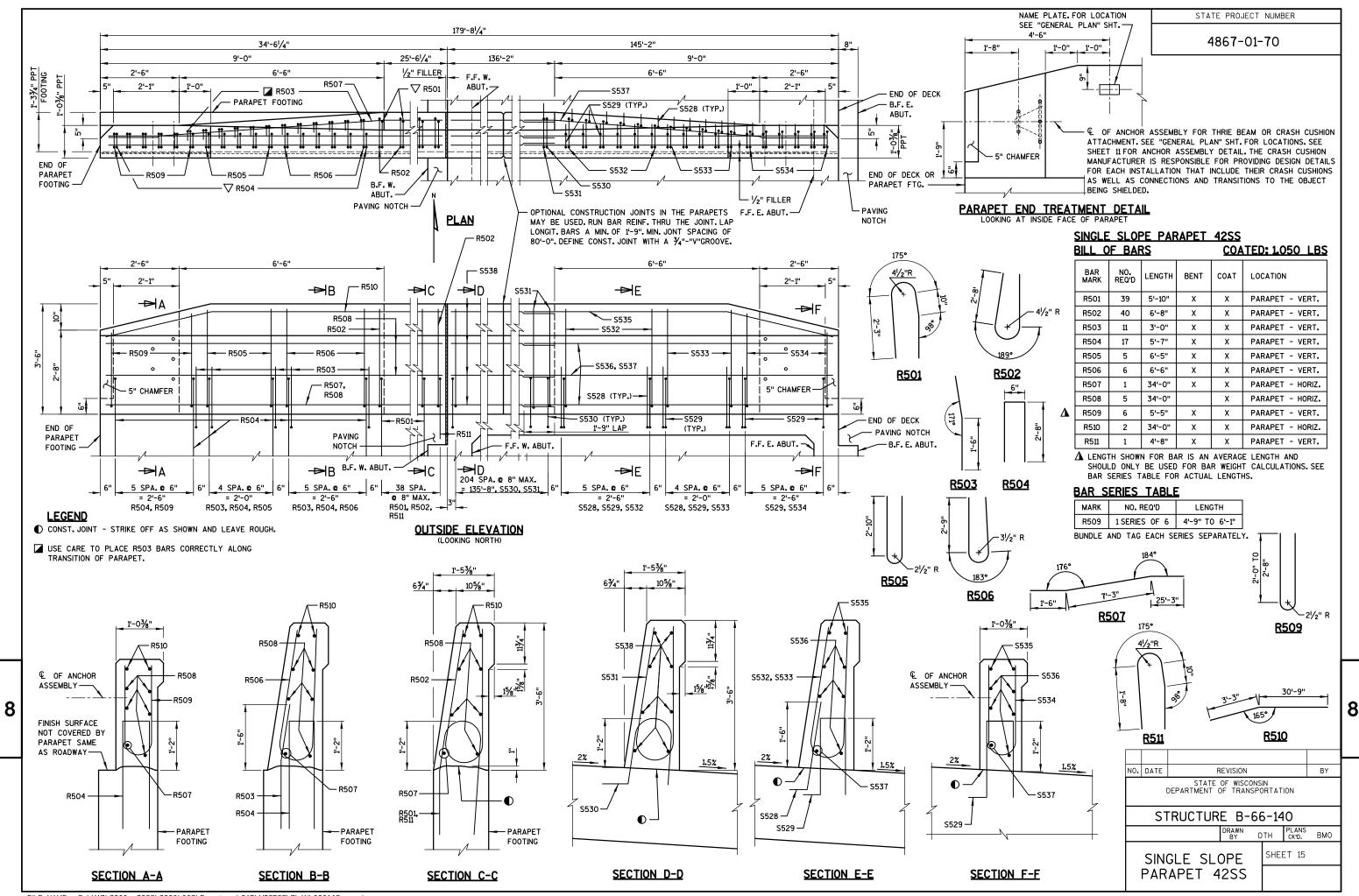
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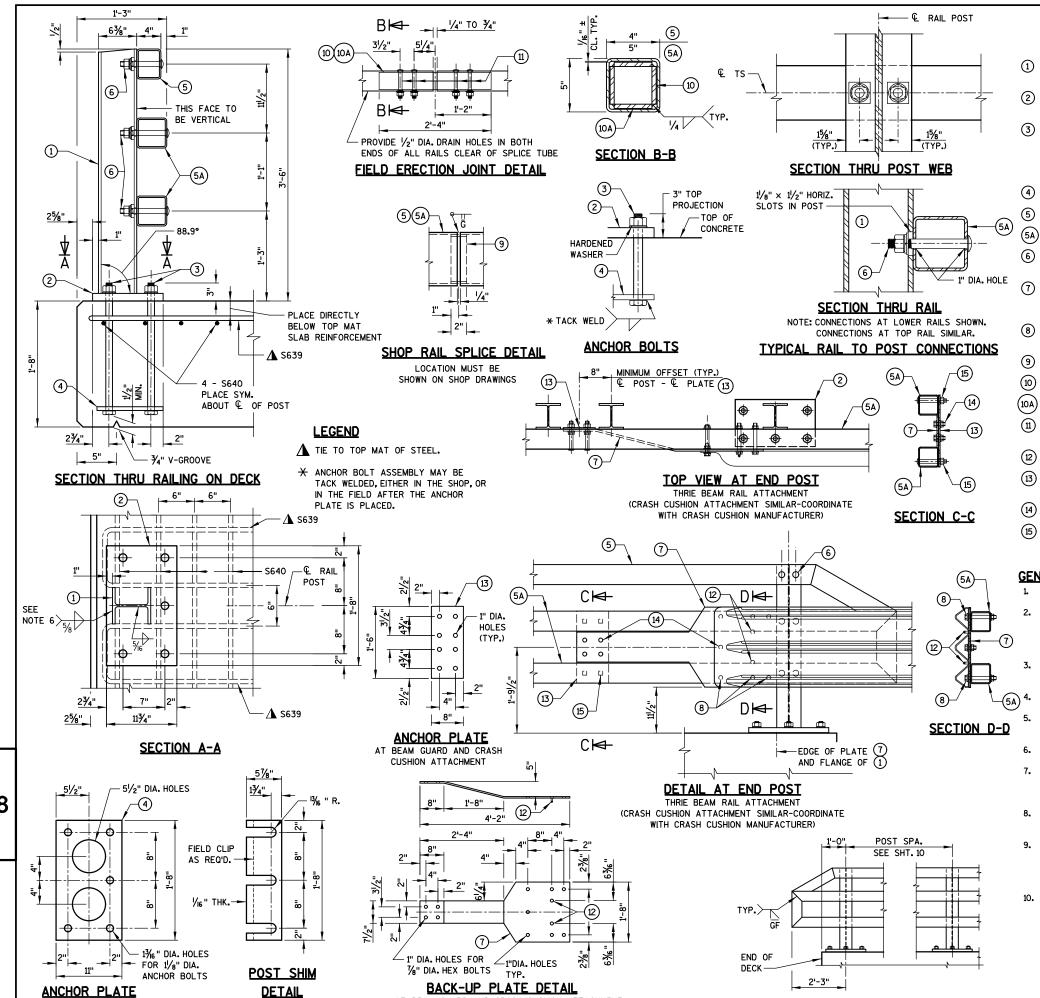
- SINGLE-SLOPE PARAPET 42SS

34'-61/4"

PLAN

- F401, F402





AT BEAM GUARD AND CRASH CUSHION ATTACHMENT

- (1) W6 X 25 WITH $1\frac{1}{8}$ " X $1\frac{1}{2}$ " HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO.6. CUT BOTTOM OF POST TO
- PLATE $1^1/4^{"}$ X $11^3/4^{"}$ X $1^1-8^{"}$ WITH $1^1/6^{"}$ DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS
- ASTM A449 1/8" DIA, ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED), 5 REQ'D PER POST, THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING, USE 1'-9" LONG IN ABUTMENT WINGS. AT POST ON CONCRETE SLAB SUPERSTRUCTURES USE 1'-3" LONG. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY).
- 4 %" X 11" X 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1%" DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- TS 5 X 4 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- (5A) TS 5 X 5 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- 1/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 1/8" X 1/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- $\frac{1}{2}$ " THK. BACK-UP PLATE WITH 2 $\frac{7}{8}$ " X $\frac{1}{2}$ " THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL REQUIRED AT THRIE BEAM GUARD AND CRUSH CUSHION RAIL ATTACHMENTS ONLY PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- I" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 78" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- 9 SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- (10) 3/8" X 35/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- (10A) 38" X 258" X 2'-4" PLATE USED IN NO. 5, 38" X 358" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- 1/4" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER, USE 1/4" LONGIT. SLOTTED
- (12) 1/8" DIA. X 11/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- (13) 3/8" X 8" X 1'-6" PLATE, BOLT TO RAIL AS SHOWN IN DETAIL, REQ'D AT THRIE BEAM GUARD AND CRASH CUSHION RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- (14) 1/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- (15) 1" DIA. HOLES IN TUBES NO. 5A FOR 1/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

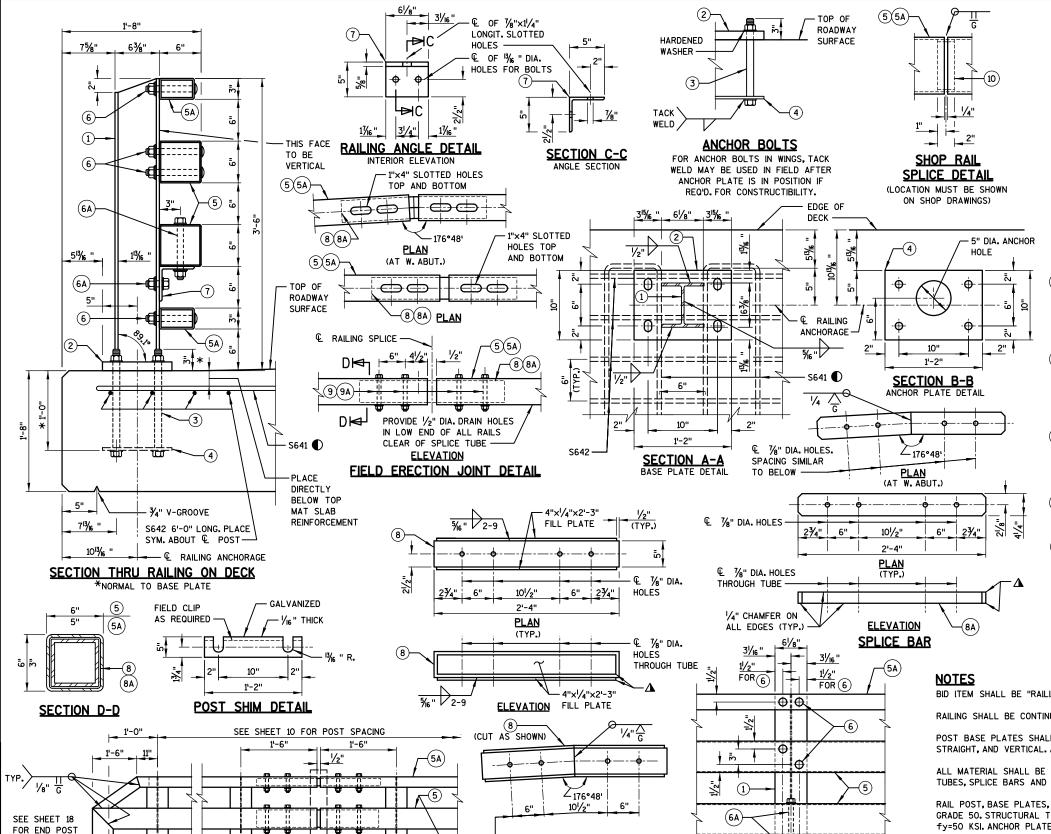
GENERAL NOTES

PART ELEVATION OF RAILING

- BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
- RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
- THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL $\frac{1}{8}$ TURN.
- RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
- ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
- WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
- FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER, STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
- 8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES
- 9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION, PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
- COORDINATE CONNECTION DETAILS FOR CRASH CUSHION ATTACHMENT WITH CRASH CUSHION MANUFACTURER, THE CRASH CUSHION MANUFACTURER IS RESPONSIBLE FOR PROVIDING DESIGN DETAILS FOR EACH INSTALLATION THAT INCLUDE THEIR CRASH CUSHIONS AS WELL AS CONNECTIONS AND TRANSITIONS TO THE OBJECT BEING SHIELDED.

TUBULAR STEEL RAILING TYPE M

AT RAIL TO DECK CONNECTION



- & 1/8" DIA. HOLES. SPACING

(AT W. ABUT.)

SPLICE TUBE

(5A)

SIMILAR TO ABOVE

(5A)

SUPERSTRUCTURE

FILLER

PART ELEVATION OF RAILING

INTERIOR ELEVATION

LEGEND

- (1) W6x25 WITH 11/g"x13/g" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT TOP TWO RAILS. USE 1" DIA. HOLES FOR BOLTS NO. 6 AT BOTTOM NO. 5A & FOR BOLT NO. 6A AT NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POST NORMAL TO GRADE LINE.
- 2 PLATE 1/4"×10"×1'-2" WITH 1/8"×11/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- (3) ASTM A449 1" DIA. ANCHOR BOLTS WITH HEAVY HEX NUT AND 2" O.D. HARDENED WASHER (ALL GALVANIZED). 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-3" LONG BOLT FOR SLAB. USE 1'-9" LONG IN ABUTMENT WINGS, (AN EQUIVALENT THREADED ROD WITH HEAVY HEX NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQUIRED FOR CONSTRUCTABILITY.)
- (4) 3/8"×10"×1'-2" ANCHOR PLATE (GALVANIZED) WITH 11/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- (5) TS $6\times6\times\%_6$ " STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) & $\%_6$ " DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).
- (5A) TS 5x3x1/4" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 IN TOP RAIL (FRONT & BACK). USE 11/8"x13/8" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.
- (6) 1/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 1/4"×1/4" WASHER, AND SPRING LOCK WASHER (2 REQUIRED AT RAIL TO POST LOCATIONS SHOWN).
- (6A) 34" DIA. A325 BOLT WITH HEX NUT AND SPRING LOCK WASHER (1 REQUIRED AT RAIL TO ANGLE AND 2 REQUIRED AT ANGLE TO POST LOCATIONS SHOWN WITH 36"x134"x134" WASHER).
- (7) L 5x5x5%" STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.
- (8) TS 5x5x\%6"x2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.
- (8A) 41/4"x21/8"x2'-4" LONG SPLICE BAR. 1 PER RAIL. USED IN NO. 5A.
- (9) 3/4" DIA. A325 FULLY THREADED BOLTS, 71/2" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1"x4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5.
- (9A) 3/4" DIA. A325 FULLY THREADED BOLTS, 4/2" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1"x4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.
- (10) SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- ⚠ PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE RAILS, SPLICE TUBES AND FILL PLATES.
- TIE TO UNDERSIDE OF TOP MAT OF STEEL.
- FIELD ERECTION JOINT IN RAILING AT BACK FACE OF WEST ABUTMENT TO BE ANGLED. MODIFY RAILING TUBES, SPLICE TUBES, AND SPLICE BARS AS NEEDED.

BID ITEM SHALL BE "RAILING STEEL TYPE NY4", WHICH INCLUDES ALL ITEMS SHOWN.

RAILING SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.

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

ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS, ANGLES, SPLICE TUBES, SPLICE BARS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

RAIL POST, BASE PLATES, SPLICE BAR, ANGLES AND SPLICE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED Fy=50 KSI. ANCHOR PLATES & SHIMS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.

THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ${\it V}_{\rm 8}$ TURN.

(7)

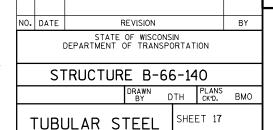
PART ELEVATION OF RAILING AT POST

INTERIOR ELEVATION

FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SFAIFR.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER PLATE NO. 2 WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

WORK THIS SHEET WITH "END POST DETAILS FOR TUBULAR STEEL RAILING TYPE NY4" SHEET.



RAILING TYPE NY4

FILE NAME: S:\MAD\3800--3899\3886\003\Drawings\CAD\MICROS\PLAN\080117_ts.dgn

ABUTMENT WINGWAL

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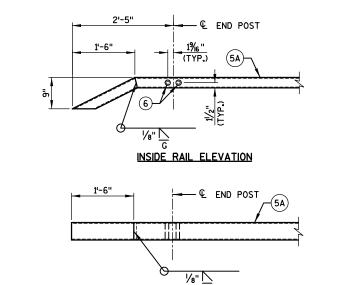
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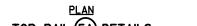
DETAILS AND

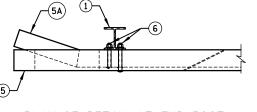
TRANSITION

RAILING

DETAILS







PLAN OF DETAIL AT END POST

4867-01-70

STATE PROJECT NUMBER

LEGEND

- 1 W6x25 WITH 11/8"x13/8" HORIZONTAL SLOTTED HOLES ON SIDE OF POST FOR BOLT NO. 6 AT NO. 5 AND AT TOP RAIL NO. 5A. USE 1" DIA. HOLE FOR BOLT NO. 6 AT NO. 5A BOTTOM RAIL. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- 2 PLATE 1/4"x10"x1'-2". SEE SHEET "TUBULAR STEEL RAILING NY4" FOR MORE INFORMATION.
- $\begin{picture}(60,0)\put(0,0){\line(1,0){10}}\put(0,0){\line(1,0){10}$ IN ELEVATION DETAILS.
- (5A) TS 5x3x1/4" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 IN TOP RAIL NO. 5A (FRONT AND BACK). USE 11/8"×13/8" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT AND BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.
- $\begin{picture}(6)\end{picture} 7/6"$ Dia. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, $3/6"\times17/4"\times17/4"$ WASHER, AND SPRING LOCK WASHER (1 REQUIRED AT RAIL NO. 5 TO POST NO. 1 CONNECTION LOCATIONS SHOWN. 2 REQUIRED AT RAIL NO. 5A TO POST NO. 1 CONNECTION LOCATIONS SHOWN).

NOTES

STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED fy=50 KSI.

WORK THIS SHEET WITH "TUBULAR STEEL RAILING TYPE NY4" SHEET.

BID ITEM SHALL BE "RAILING STEEL TYPE NY4", WHICH INCLUDES ALL ITEMS SHOWN.

TOP RAIL (5A) DETAILS

NO. DATE REVISION BY STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION STRUCTURE B-66-140 DTH PLANS CK'D. BMO END POST DETAILS SHEET 18 TUBULAR STEEL RAILING TYPE NY4

8

BOTTOM RAIL (5A) DETAILS

1/4" CLOSURE PLATE.

PLAN

WELD & GRIND SMOOTH

- & END POST

(5A)

· & END POST

(TYP.)

INSIDE RAIL ELEVATION

EARTHWORK SUMMARY											
											1
			L		ı	T			T		
				CALVACED (UNUCADI E			CALLYAGED (UNUSARIE	UNEVENDED	CUT	FILL	MASS
CTATTON	DEAL STATION	DICTANCE	CUT	SALVAGED/UNUSABLE	ET	CUT	SALVAGED/UNUSABLE	UNEXPANDED			
STATION	REAL STATION	DISTANCE	CUT	PAVEMENT MATERIAL	FILL	CUT	PAVEMENT MATERIAL	FILL	1.00	1.25	ORDINATE
7+26.16	726.16		13	15	0						_
7+50.00	750.00	23.84	48	15	0	27	13	0	27	0	-14
7+58.00	758.00	8.00	52	15	0	15	4	0	42	0	-25
7+90.00	790.00	32.00	57	15	22	64	18	13	106	16	-55
8+00.00	800.00	10.00	55	15	14	21	6	6	127	24	-62
8+05.35	805.35	5.35	43	15	17	10	3	3	137	28	-66
8+25.00	825.00	19.65	63	15	38	38	11	20	175	53	-68
8+30.35	830.35	5.35	59	15	46	12	3	8	187	63	-67
8+50.00	850.00	19.65	64	15	56	45	11	37	232	109	-54
8+55.00	855.00	5.00	69	15	58	12	3	11	244	123	-50
8+79.00	879.00	24.00	55	15	58	55	13	51	299	186	-28
8+80.00	880.00	1.00	56	15	63	2	1	2	301	189	-26
8+94.00	894.00	14.00	44	15	48	26	8	29	327	225	-8
9+00.00	900.00	6.00	45	15	49	10	3	11	337	239	-1
9+25.00	925.00	25.00	39	15	96	39	14	67	376	323	58
9+29.09	929.09	49.09	67	15	96	8	2	15	384	341	70
BRIDGE											
10+74.26	1074.26		67	15	0				384	341	70
11+00.00	1100.00	25.74	67	15	0	63	14	0	447	341	21
11+10.00	1110.00	10.00	66	15	0	24	6	0	471	341	3

- NOTES:
 1 CUT: CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
 2 SALVAGED/UNUSABLE PAVEMENT MATERIAL: ALL EXCAVATED PAVEMENT
 3 FILL: DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME

4 -	MASS	ORDINATE:	EXPANDED	FILL	-	AVAILABLE	MATERIAL

EARTHWORK SUMMARY - OAK DRIVE											
											1
				SALVAGED/UNUSABLE			SALVAGED/UNUSABLE	UNEXPANDED	CUT	FILL	MASS
STATION	REAL STATION	DISTANCE	CUT	PAVEMENT MATERIAL	FILL	CUT	PAVEMENT MATERIAL	FILL	1.00	1.25	ORDINATE
20+28.50	2028.50		36	0	0						
20+50.00	2050.00	21.50	19	0	1	22	0	0	22	0	-22
20+53.95	2053.95	3.95	20	0	1	3	0	0	25	0	-25
20+78.99	2078.99	25.04	14	0	5	15	0	2	40	3	-38

- NOTES:
 1 CUT: CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
 2 SALVAGED/UNUSABLE PAVEMENT MATERIAL: ALL EXCAVATED PAVEMENT
 3 FILL: DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
 4 MASS ORDINATE: EXPANDED FILL AVAILABLE MATERIAL

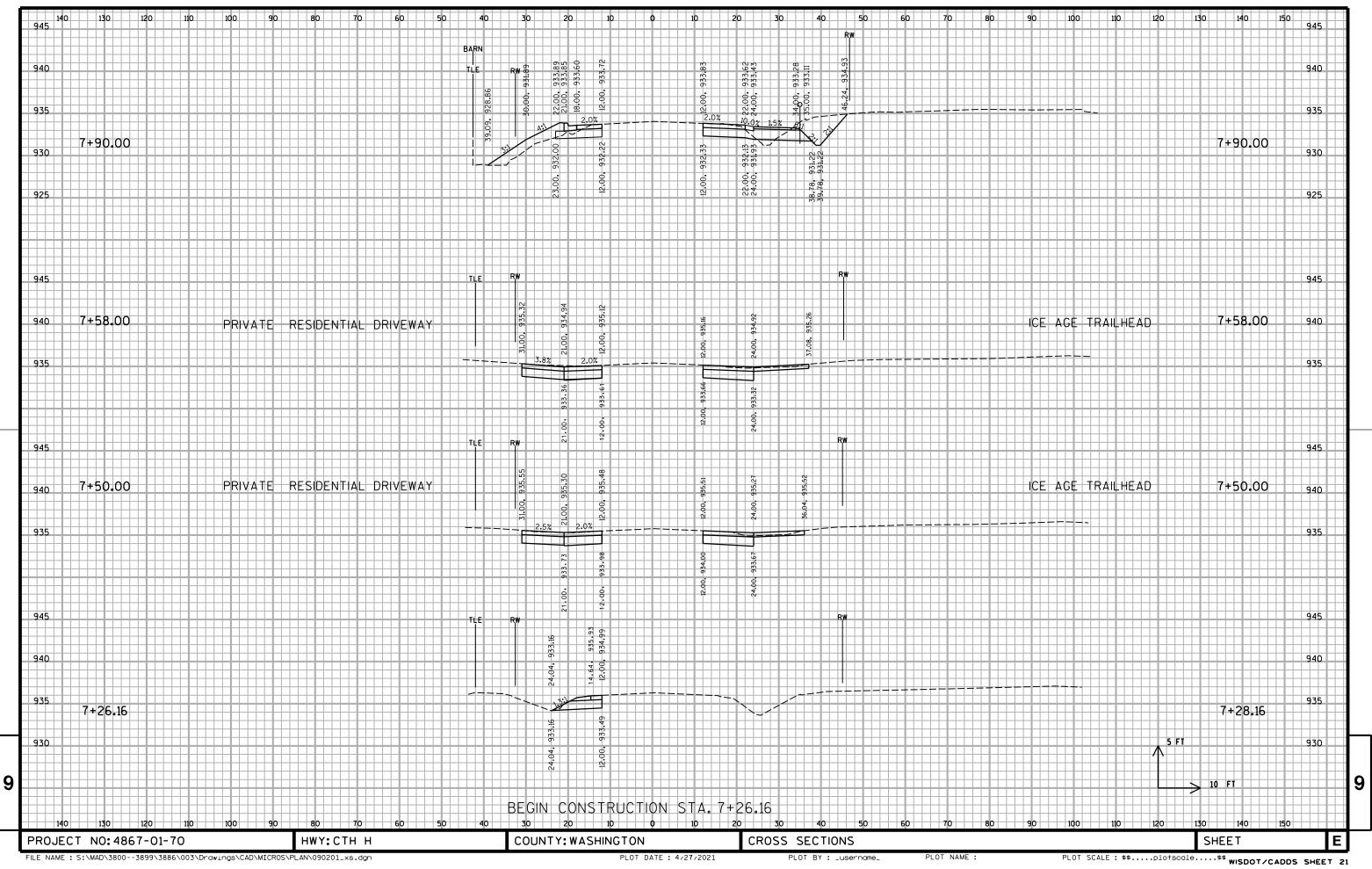
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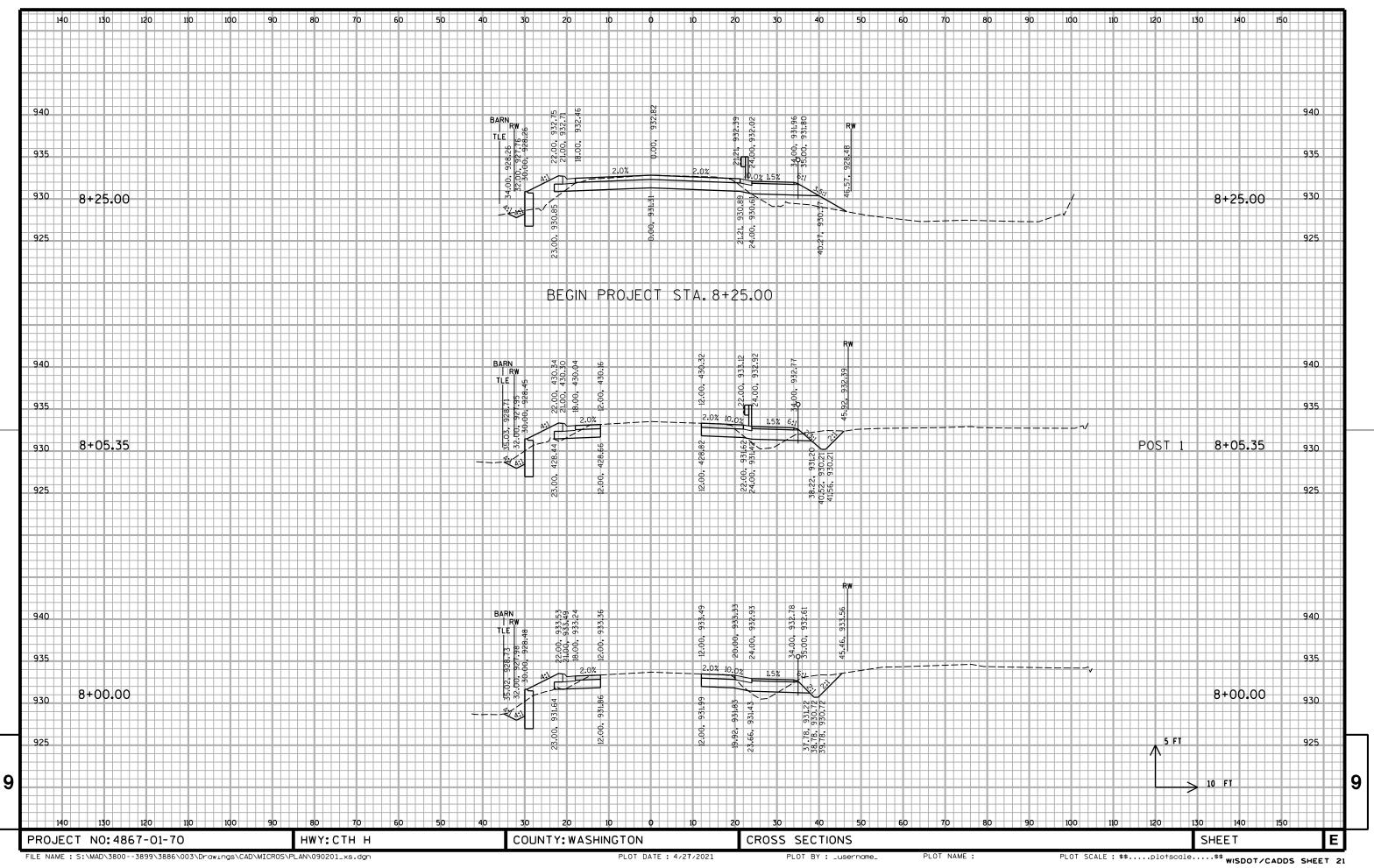
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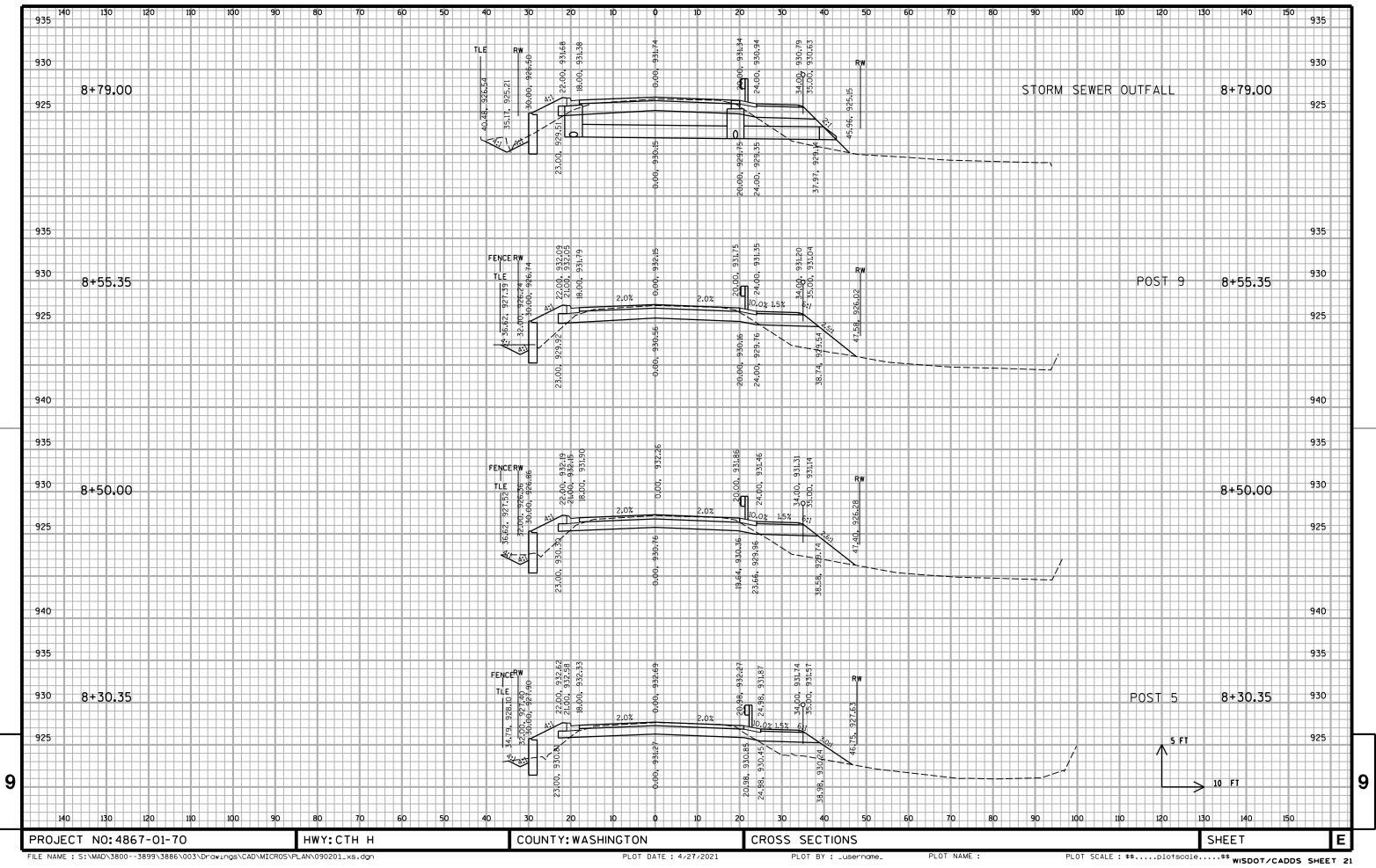
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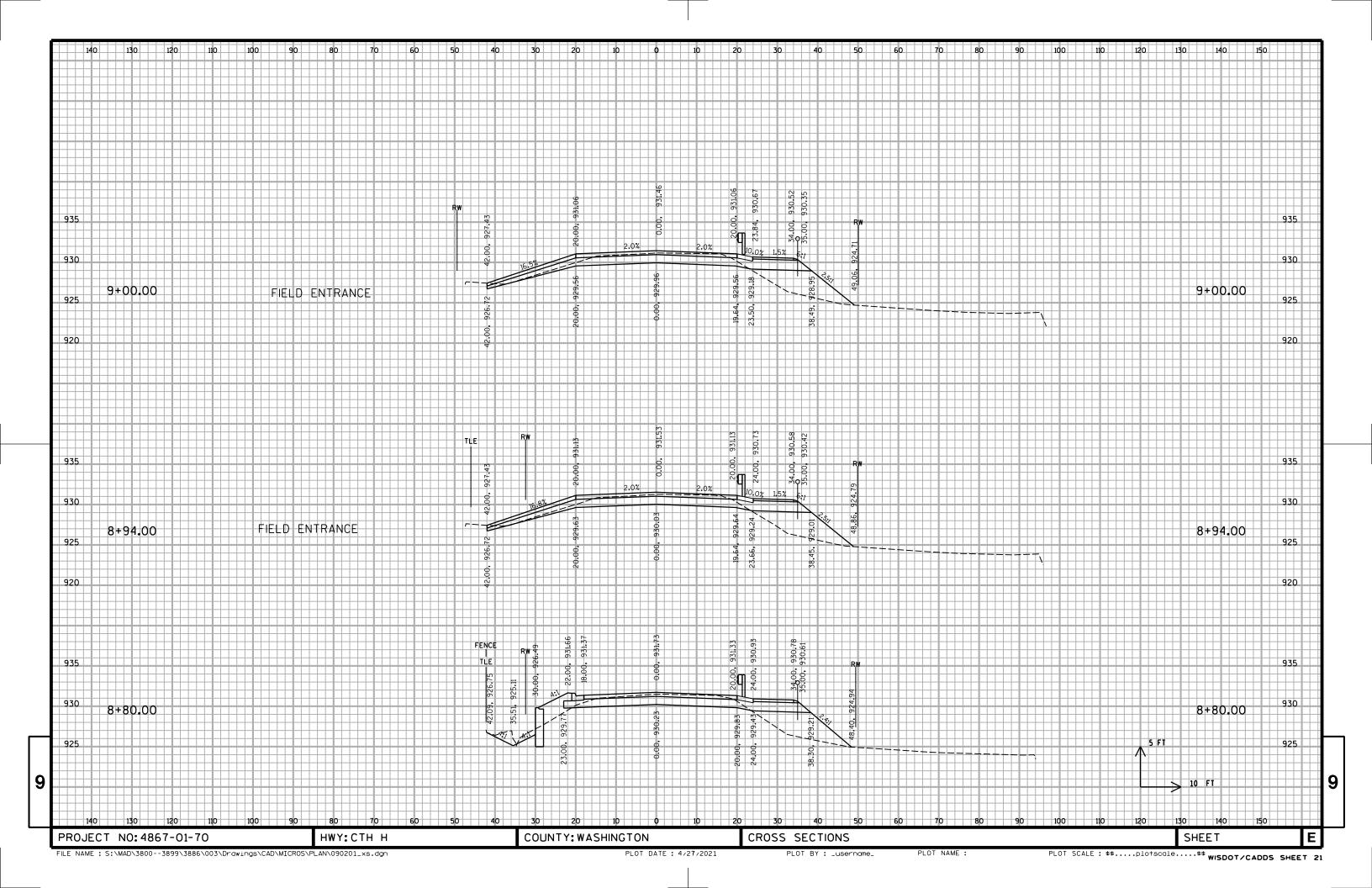
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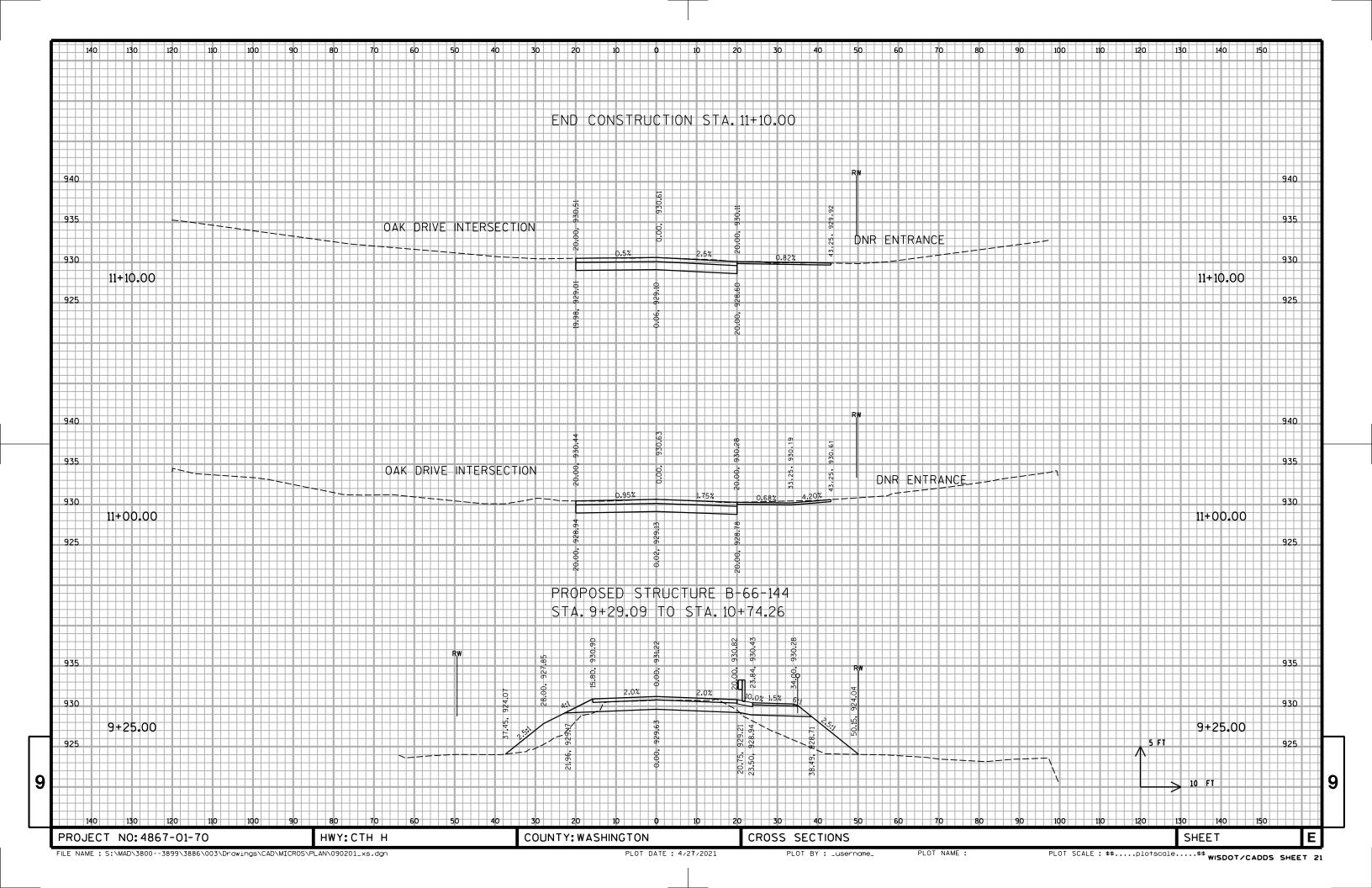
SHEET

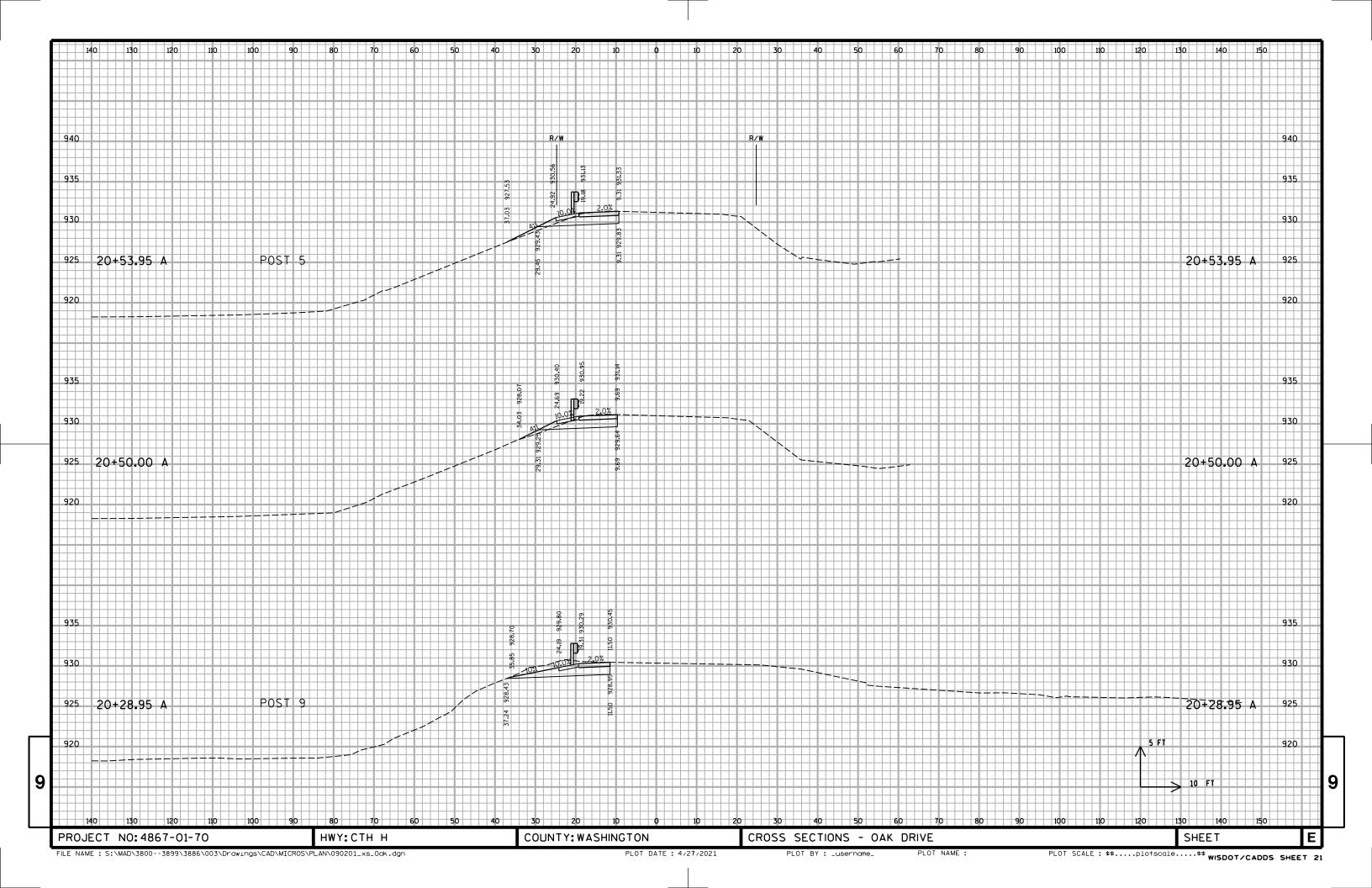


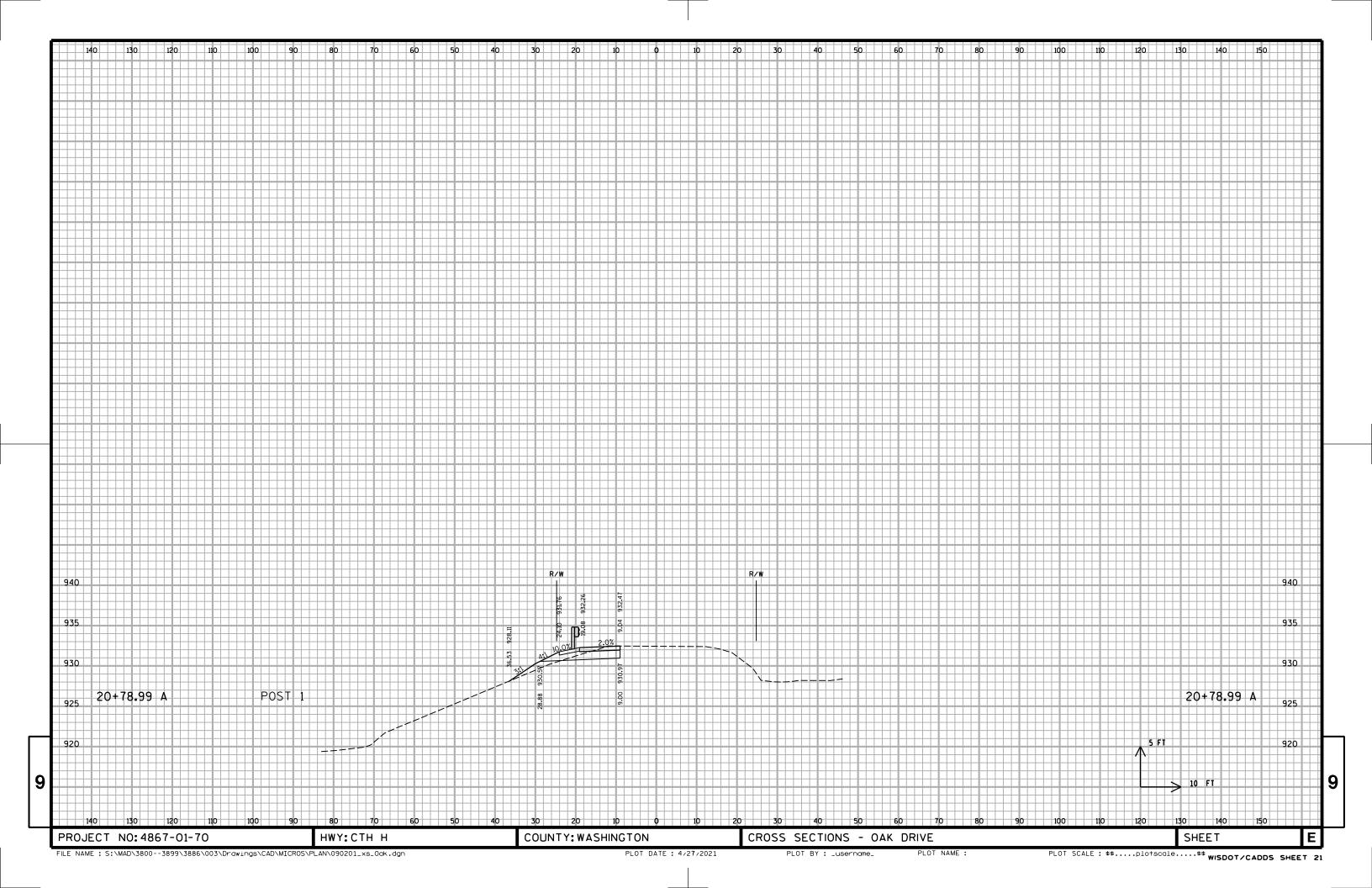


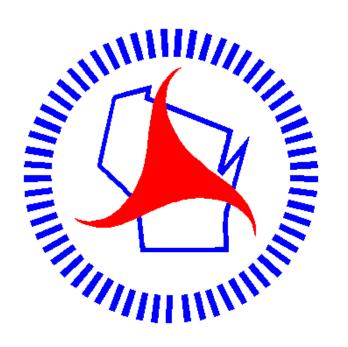












Wisconsin Department of Transportation

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