

SUP

PROJECT ID: 1560-00-78

WITH: N/A

COUNTY: BAYFIELD

SEPTEMBER 2026

ORDER OF SHEETS

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

TOTAL SHEETS = 174

PROJECT LOCATION



N

DESIGN DESIGNATION

A.A.D.T.	2028	=	2,300
A.A.D.T.	2048	=	2,600
D.H.V.		=	1,890
D.D.		=	50/50
T.		=	13.8%
DESIGN SPEED		=	55 MPH
ESALS		=	680,000

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS

PROPERTY LINE

LOT LINE

LIMITED HIGHWAY EASEMENT

EXISTING RIGHT OF WAY

PROPOSED OR NEW R/W LINE

SLOPE INTERCEPT

REFERENCE LINE

EXISTING CULVERT

PROPOSED CULVERT (Box or Pipe)

COMBUSTIBLE FLUIDS

MARSH AREA

WOODED OR SHRUB AREA

PROFILE

GRADE LINE

ORIGINAL GROUND

MARSH OR ROCK PROFILE (To be noted as such)

SPECIAL DITCH

GRADE ELEVATION

CULVERT (Profile View)

UTILITIES

ELECTRIC

FIBER OPTIC

GAS

SANITARY SEWER

STORM SEWER

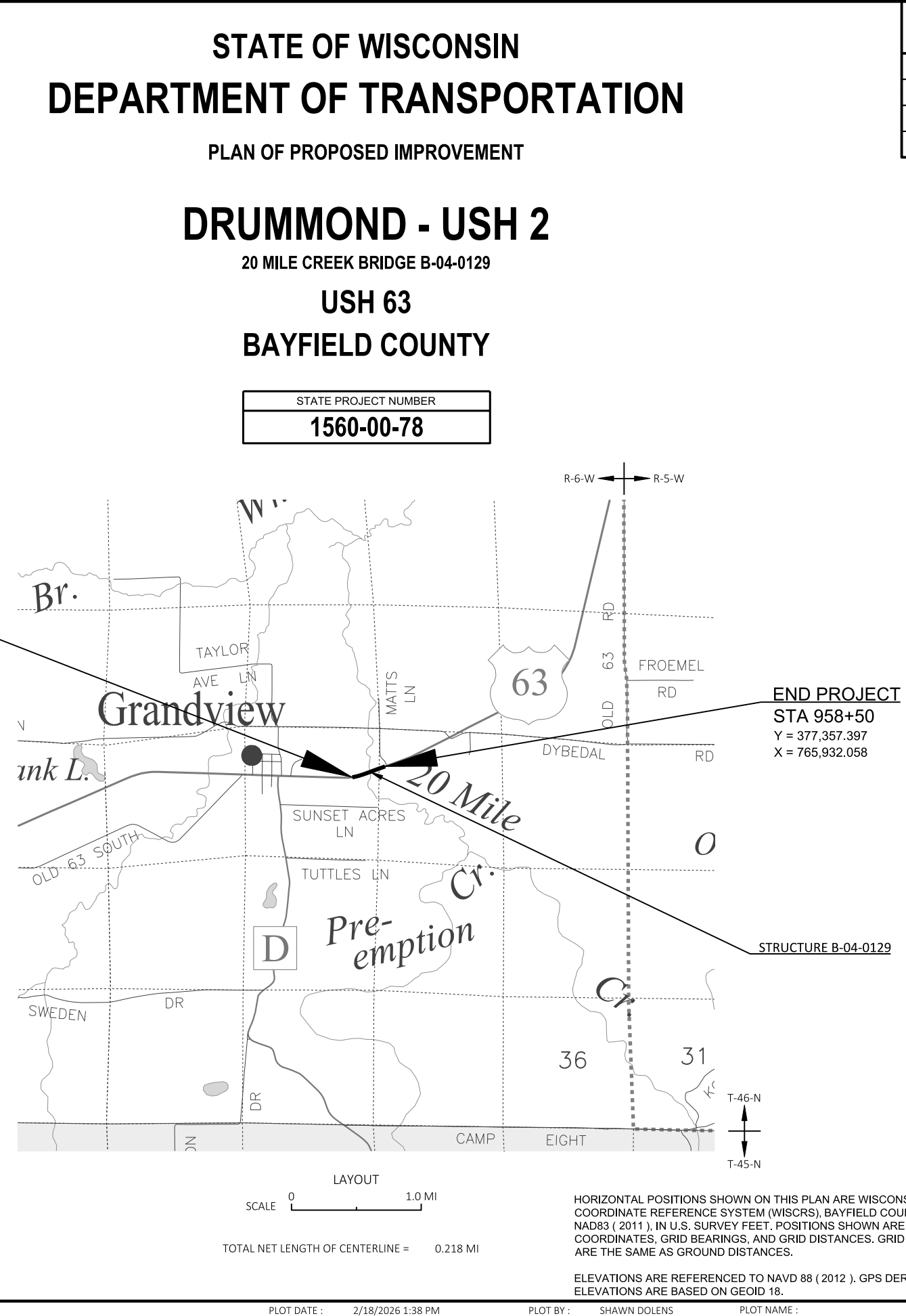
TELEPHONE

WATER

UTILITY PEDESTAL

POWER POLE

TELEPHONE POLE



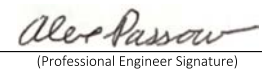
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1560-00-78	WISC 2026430	1

ORIGINAL PLANS PREPARED BY



146 North Central Ave, Marshfield WI 54449
(715) 384-2133 www.msa-ps.com
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DATE: 4/21/2026 
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	MSA PROFESSIONAL SERVICES, INC.
Designer	MSA PROFESSIONAL SERVICES, INC.
Project Manager	MATTHEW DICKENSON
Regional Examiner	NW REGION
Regional Supervisor	MATTHEW VAN NATTA

APPROVED FOR THE DEPARTMENT

DATE: 04/22/2026 
(Signature)

E

UTILITIES CONTACTS

BAYFIELD ELECTRIC COOPERATIVE INC
ELECTRICITY
ROBERT LAHTI
P.O. BOX 68
IRON RIVER, WI 54847
PHONE: 715-372-4287
EMAIL: bob.lahti@bayfieldelectric.com

NORVADO
COMMUNICATIONS
GUY FOLSOM
43705 USH 63
CABLE, WI 54821
PHONE: 715-798-7123
EMAIL: gfolson@norvado.com

* NOT A MEMBER OF DIGGERS HOTLINE



Dial  or (800)242-8511

www.DiggersHotline.com

WISCONSIN DNR LIAISON

SHAWN HASELEU
NW REGION
810 W MAPLE ST
SPOONER, WI 54801
PHONE: 715-416-0478
EMAIL: shawn.haseleu@wisconsin.gov

DESIGN CONTACT

ALEX PASSOW, PE
MSA PROFESSIONAL SERVICES, INC.
146 NORTH CENTRAL AVE
MARSHFIELD, WI 54449
PHONE: 715-304-0401
EMAIL: apassow@msa-ps.com

WISDOT DESIGN CONTACT

MATTHEW DICKENSON, PE
DEPARTMENT OF TRANSPORTATION
1701 NORTH 4TH STREET
SUPERIOR, WI 54880
PHONE: 715-395-3022
EMAIL: matthew.dickenson@dot.wi.gov

PAVEMENT CORING LOG				
BORING NO.	STATION	OFFSET FROM CL	ASPHALT DEPTH (INCHES)	UNDERLYING MATERIAL
B-1	954+00	8' RT	9"	9" GRAVELLY SILTY SAND
B-2	955+40	8' LT	8.5"	19.5" GRAVELLY SILTY SAND

GENERAL NOTES

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE AREA THAT ARE NOT SHOWN.

RIGHT OF WAY LOCATIONS ARE BASED ON AVAILABLE AS-BUILTS AND GIS.

STANDARD ABBREVIATIONS

ABUT	ABUTMENT	LC	LONG CHORD OF CURVE
AC	ACRE	LS	LUMP SUM
AGG	AGGREGATE	MGAL	ONE THOUSAND GALLONS
AH	AHEAD	MH	MANHOLE
∠	ANGLE	ML OR M/L	MATCH LINE
AADT	ANNUAL AVERAGE DAILY TRAFFIC	NOM	NOMINAL
ASPH	ASPHALTIC	NC	NORMAL CROWN
BK	BACK	NB	NORTHBOUND
BC	BACK OF CURB	NO	NUMBER
BAD	BASE AGGREGATE DENSE	OD	OUTSIDE DIAMETER
BL OR B/L	BASE LINE	PAVT	PAVEMENT
BM	BENCH MARK	PLE	PERMANENT LIMITED EASEMENT
CB	CATCH BASIN	PC	POINT OF CURVATURE
CL OR C/L	CENTER LINE	PI	POINT OF INTERSECTION
Δ	CENTRAL ANGLE OR DELTA	PT	POINT OF TANGENCY
CE	COMMERCIAL ENTRANCE	PCC	PORTLAND CEMENT CONCRETE
CONC	CONCRETE	LB	POUND
CONST	CONSTRUCTION	PSI	POUNDS PER SQUARE INCH
CP	CONTROL POINT	PE	PRIVATE ENTRANCE
CO	COUNTY	PROJ	PROJECT
CTH	COUNTY TRUCK HIGHWAY	PL	PROPERTY LINE
CY	CUBIC YARD	PRW	PROPOSED RIGHT OF WAY
CP	CULVERT PIPE	R	RADIUS
CPRC	CULVERT PIPE REINFORCED CONCRETE	RL OR R/L	REFERENCE LINE
C & G	CURB AND GUTTER	REQD	REQUIRED
D	DEGREE OF CURVE	RT	RIGHT
DHV	DESIGN HOUR VOLUME	R/W	RIGHT OF WAY
DIA	DIAMETER	RD	ROAD
DWY	DRIVEWAY	RDWY	ROADWAY
EA	EACH	SHLDR	SHOULDER
EB	EASTBOUND	SW	SIDEWALK
EL OR ELEV	ELEVATION	SB	SOUTHBOUND
EMB	EMBANKMENT	SPECS	SPECIFICATIONS
EW	ENDWALL	SF	SQUARE FEET
EAT	ENERGY ABSORBING TERMINAL	SY	SQUARE YARD
ESALS	EQUIVALENT SINGLE AXLE LOADS	SDD	STANDARD DETAIL DRAWINGS
EXC	EXCAVATION	STH	STATE TRUNK HIGHWAY
EBS	EXCAVATION BELOW SUBGRADE	STA	STATION
EXIST	EXISTING	SE	SUPERELEVATION
FERT	FERTILIZER	SL OR S/L	SURVEY LINE
FE	FIELD ENTRANCE	TEMP	TEMPORARY
FL OR F/L	FLOW LINE	TI	TEMPORARY INTEREST
FT	FOOT	TLE	TEMPORARY LIMITED EASEMENT
FTMS	FREE TRAFFIC MANAGEMENT SYSTEM	TC	TOP OF CURB
HE	HIGHWAY EASEMENT	TL OR T/L	TRANSIT LINE
CWT	HUNDRED WEIGHT	T	TRUCKS (PERCENT OF)
IN DIA	INCH DIAMETER	TYP	TYPICAL
INL	INLET	USH	UNITED STATES HIGHWAY
ID	INSIDE DIAMETER	VAR	VARIABLE
INTERS	INTERSECTION	VC	VERTICAL CURVE
IH	INTERSTATE HIGHWAY	VPC	VERTICAL POINT OF CURVATURE
INV	INVERT	VPI	VERTICAL POINT OF INTERSECTION
JT	JOINT	VPT	VERTICAL POINT OF TANGENCY
LT	LEFT	W	WEST
L	LENGTH OF CURVE	WB	WESTBOUND
LF	LINEAR FOOT		

ORDER OF SECTION 2 DETAIL SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
EROSION CONTROL
STORM SEWER
DETOUR

RUNOFF COEFFICIENT TABLE

LAND USE:	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
	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 STRIPTURF:	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPETURF:			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT:	.70 - .95											
CONCRETE:	.80 - .95											
BRICK:	.70 - .80											
DRIVES, WALKS:	.75 - .85											
ROOFS:	.75 - .95											
GRAVEL ROADS, SHOULDERS:	.40 - .60											

TOTAL PROJECT AREA = 4.61 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 2.33 ACRES

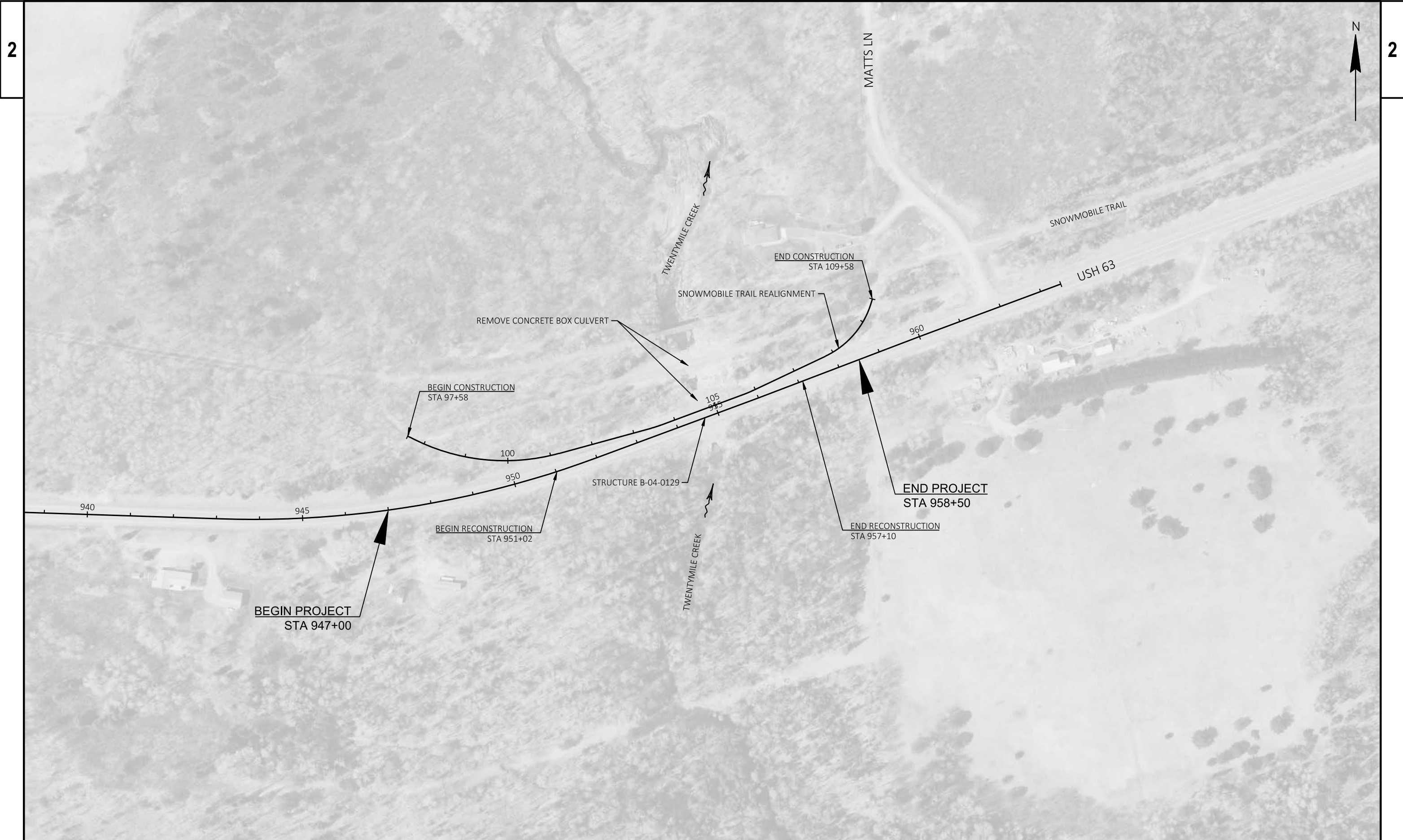
PROJECT NO: 1560-00-78

HWY: USH 63

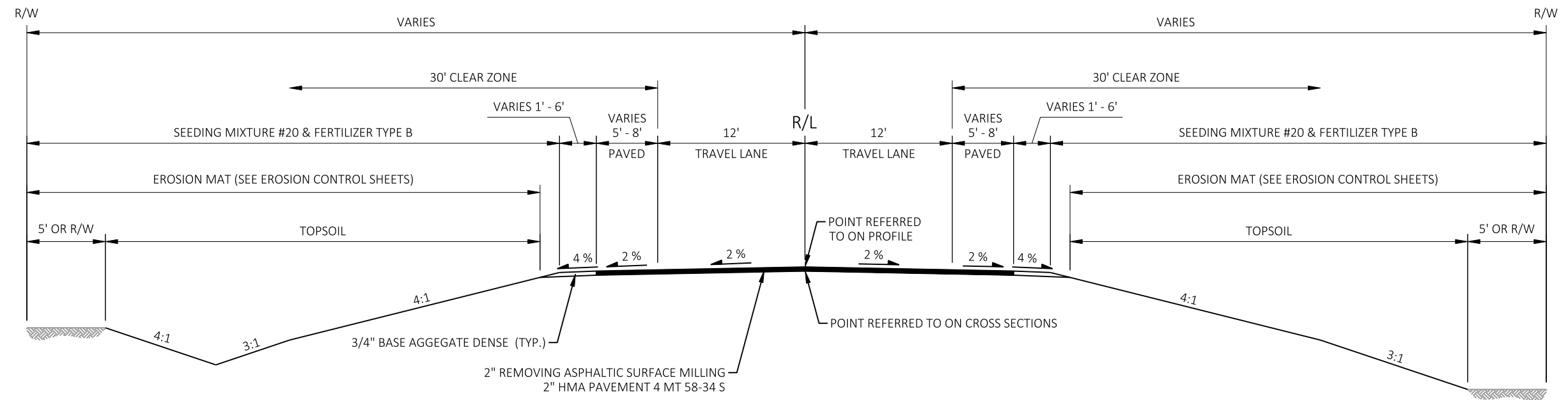
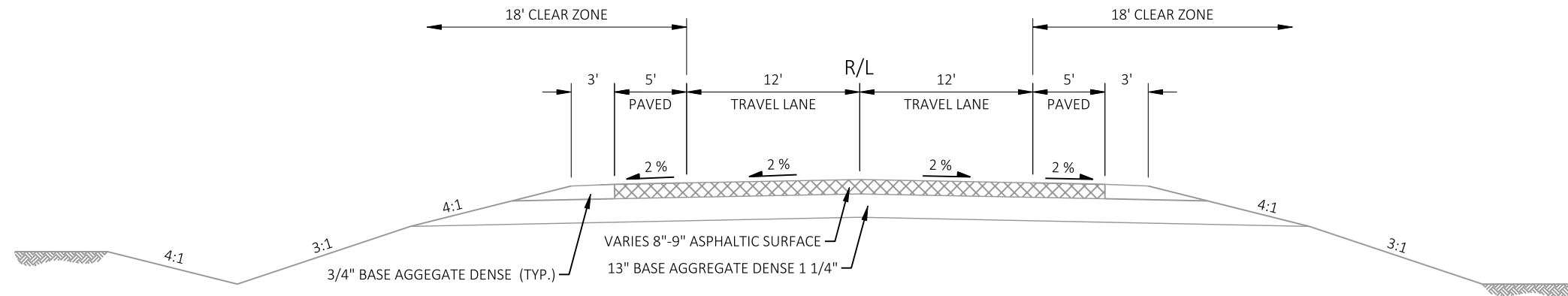
COUNTY: BAYFIELD

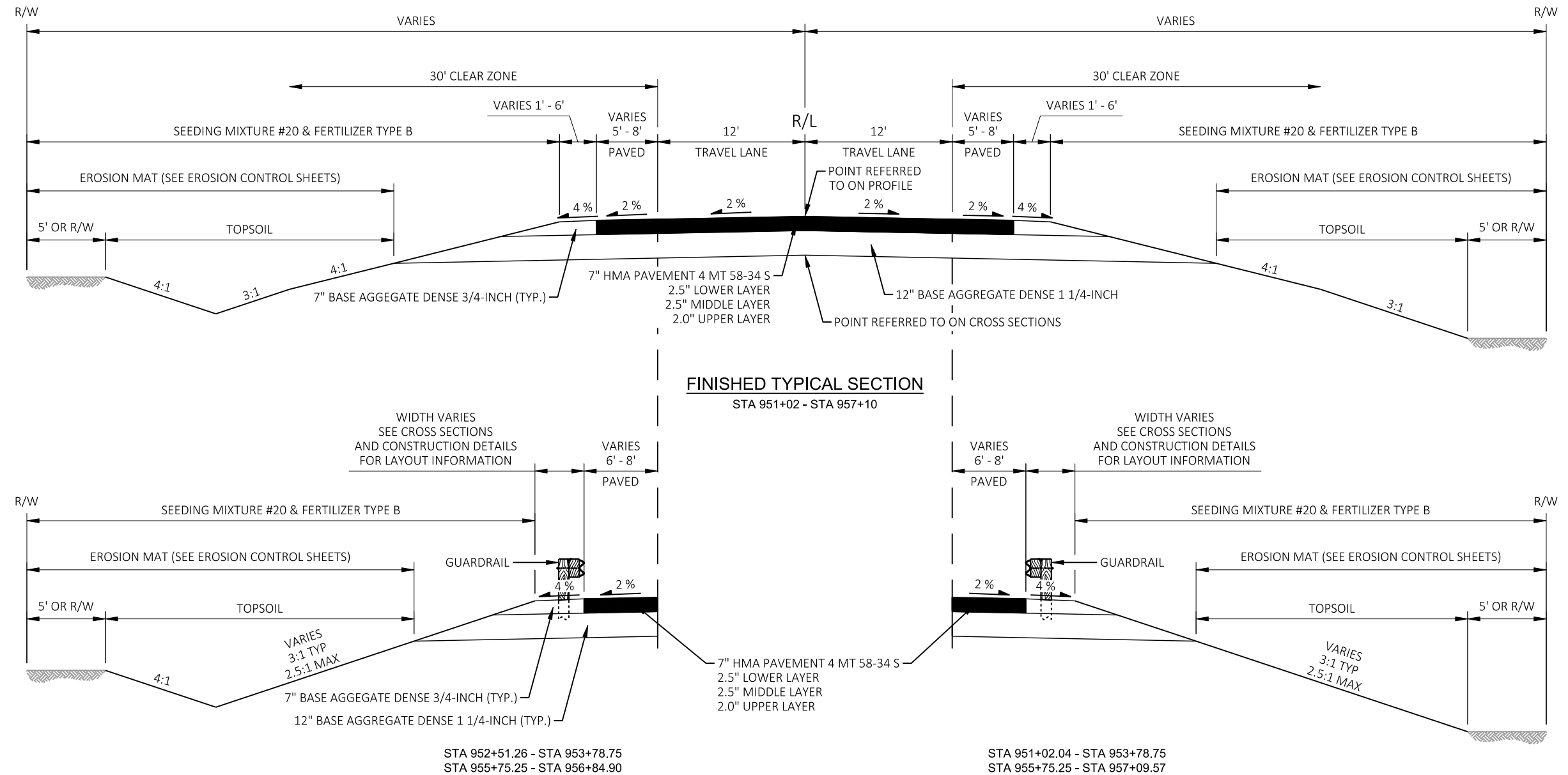
GENERAL NOTES

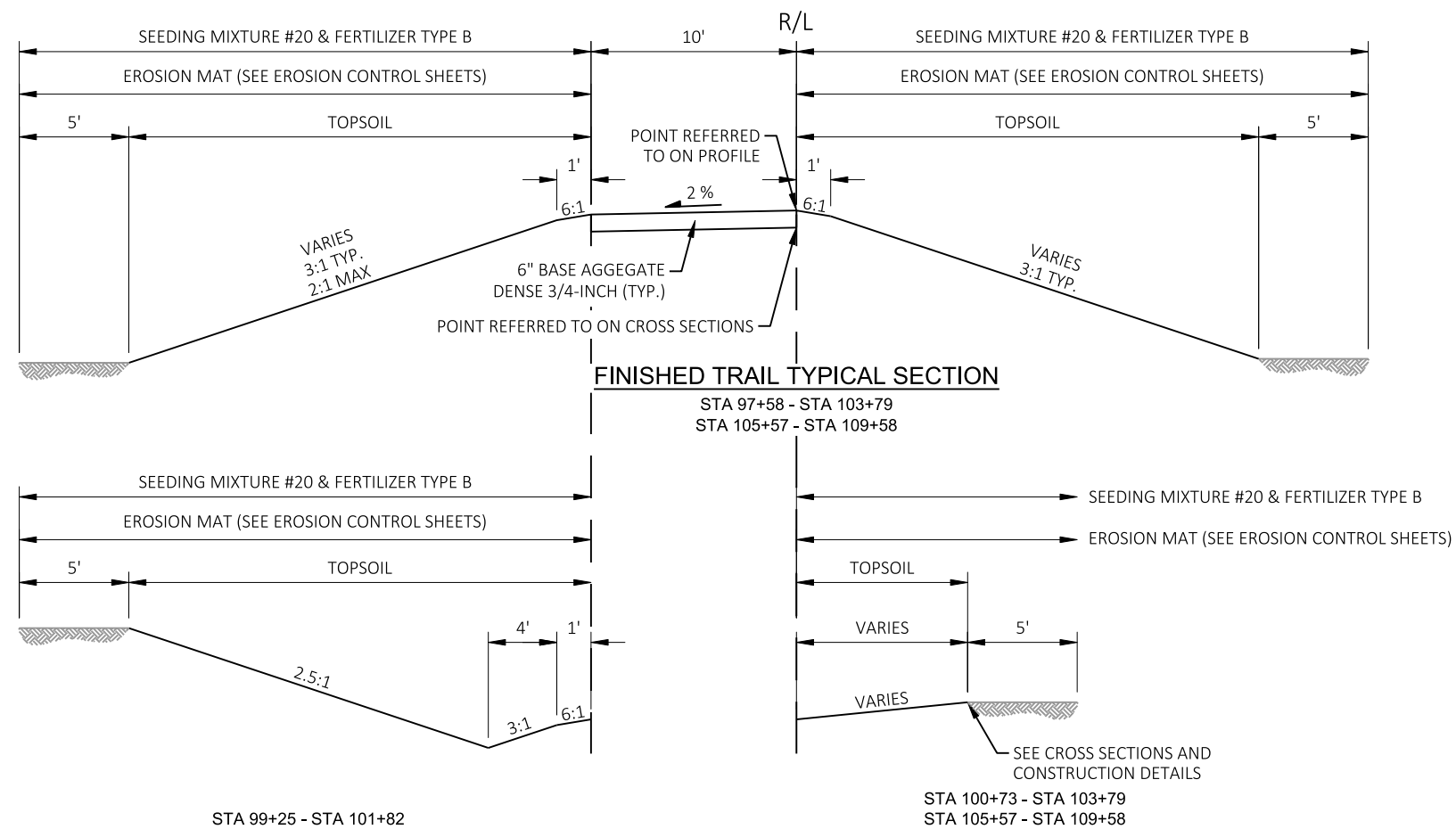
SHEET

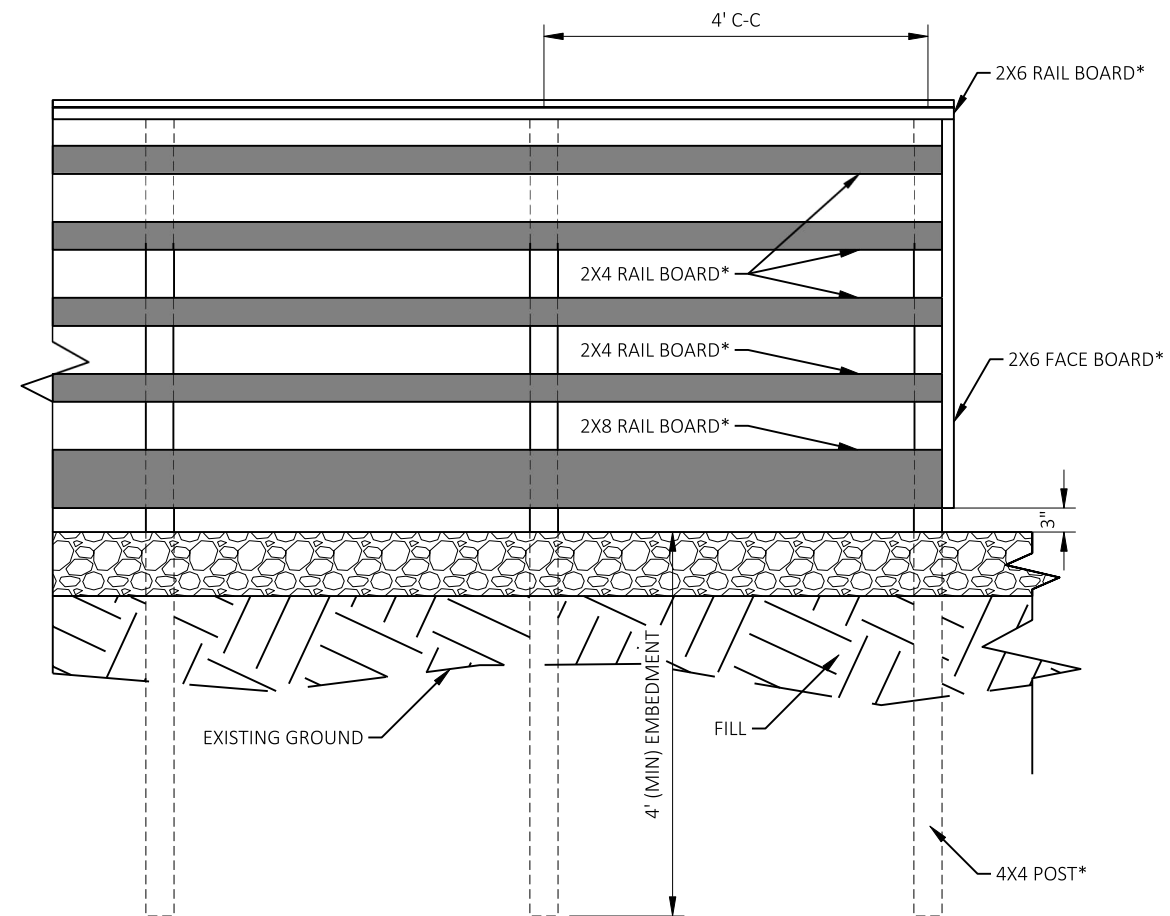


PROJECT NO: 1560-00-78	HWY: USH 63	COUNTY: BAYFIELD	PROJECT OVERVIEW	SHEET 3	E
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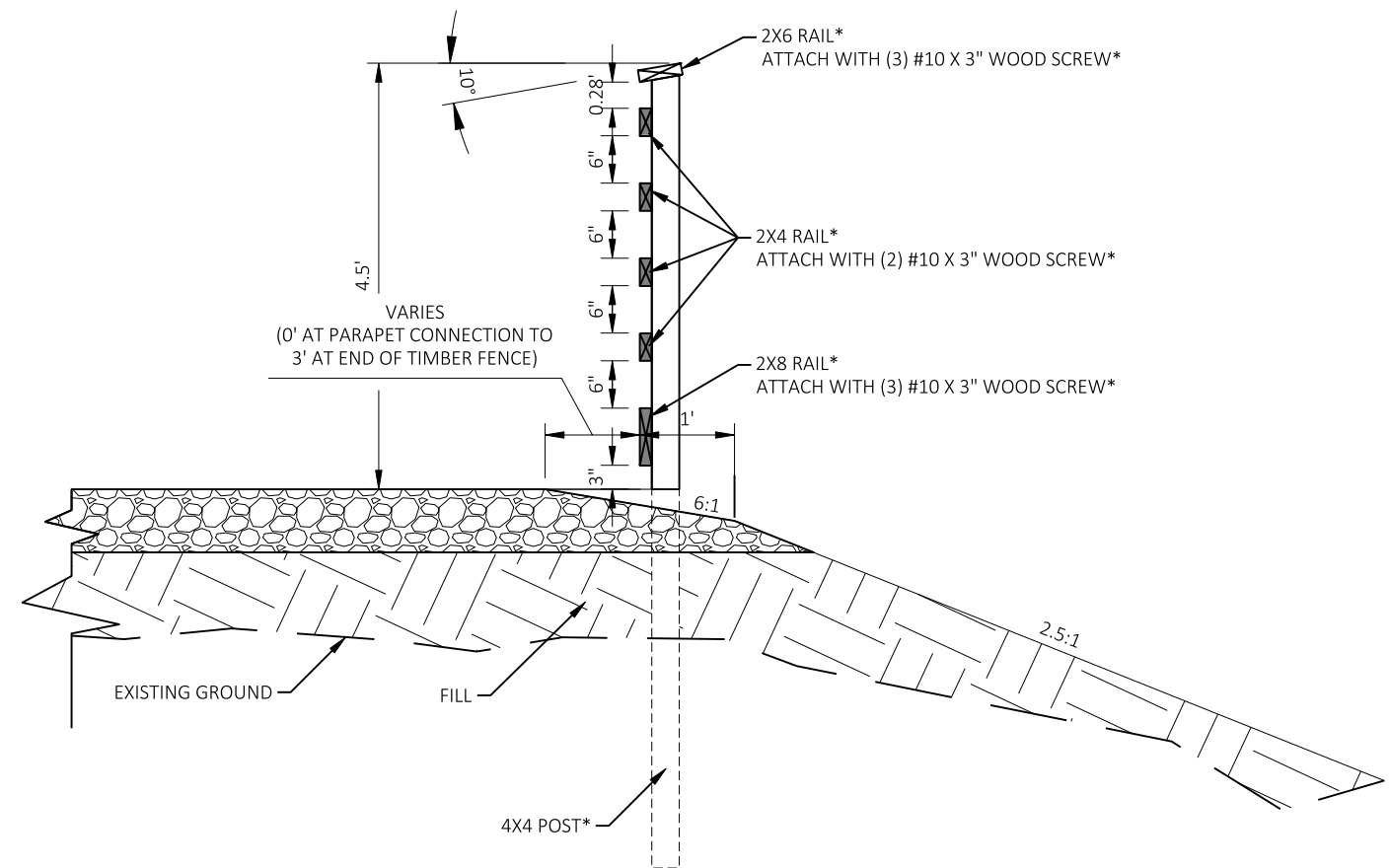








ELEVATION VIEW

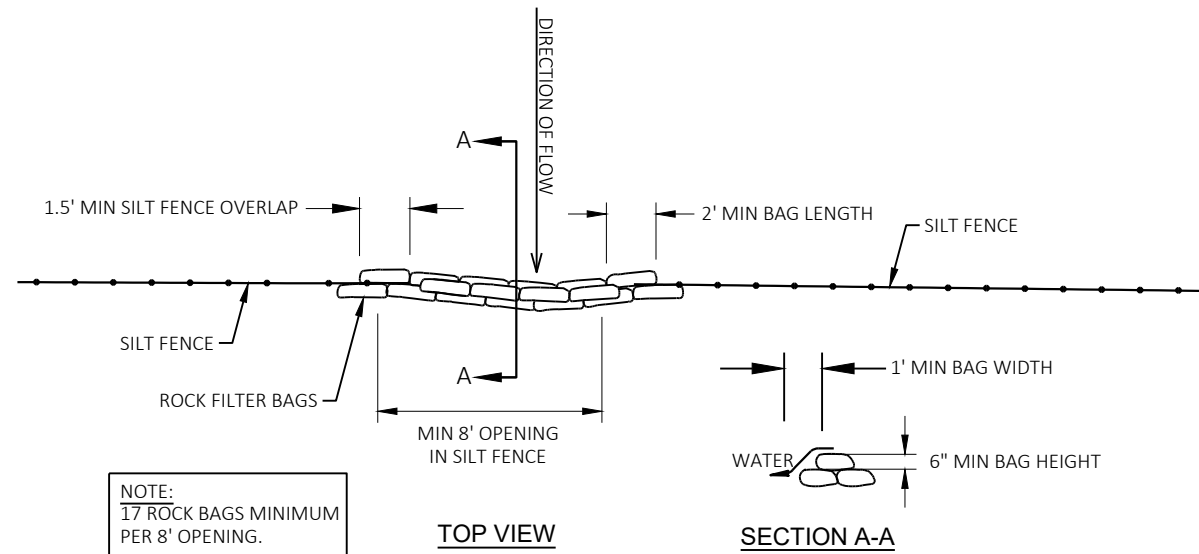


SECTION VIEW

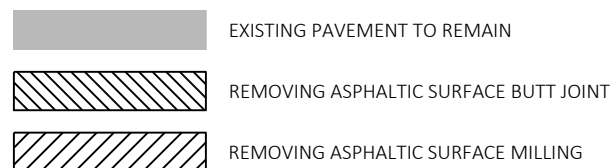
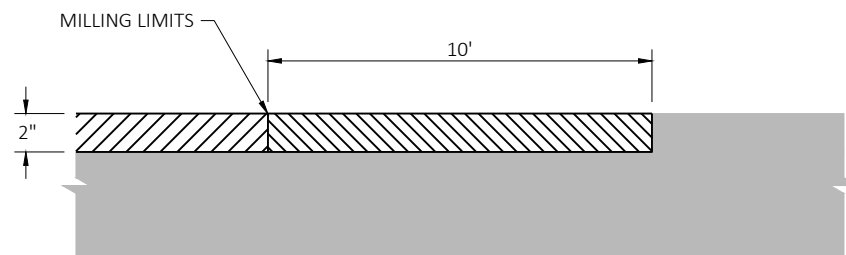
TIMBER FENCE 4.5-FT DETAIL

* INCLUDED WITH THE ITEM "TIMBER FENCE 4.5-FT"

NOT TO SCALE

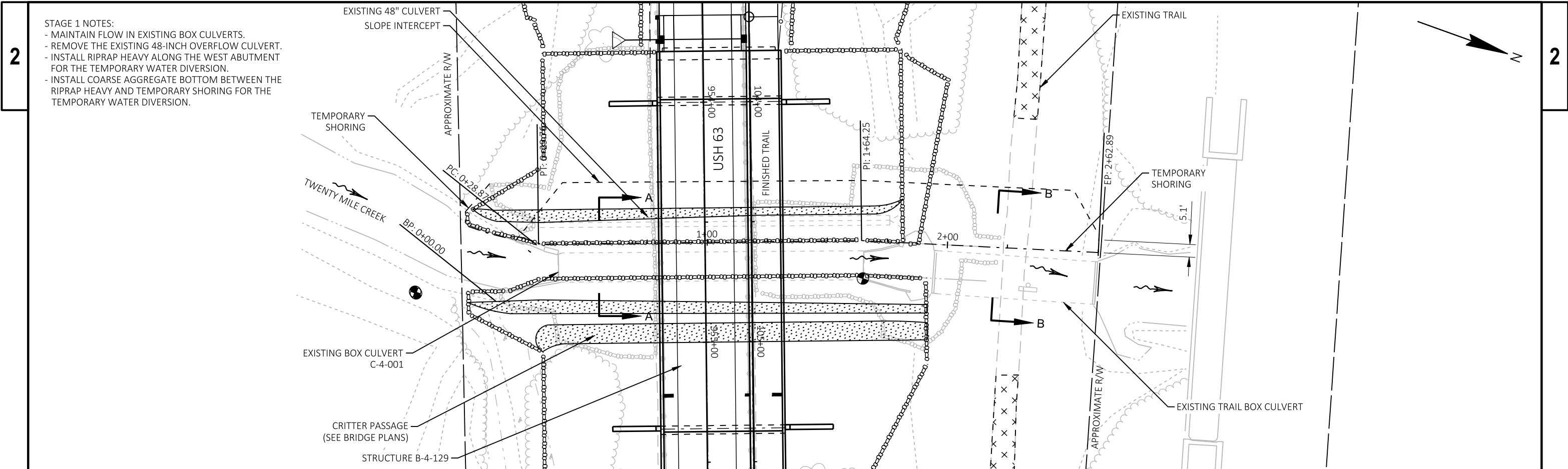


ROCK BAGS USED FOR SILT FENCE RELIEF

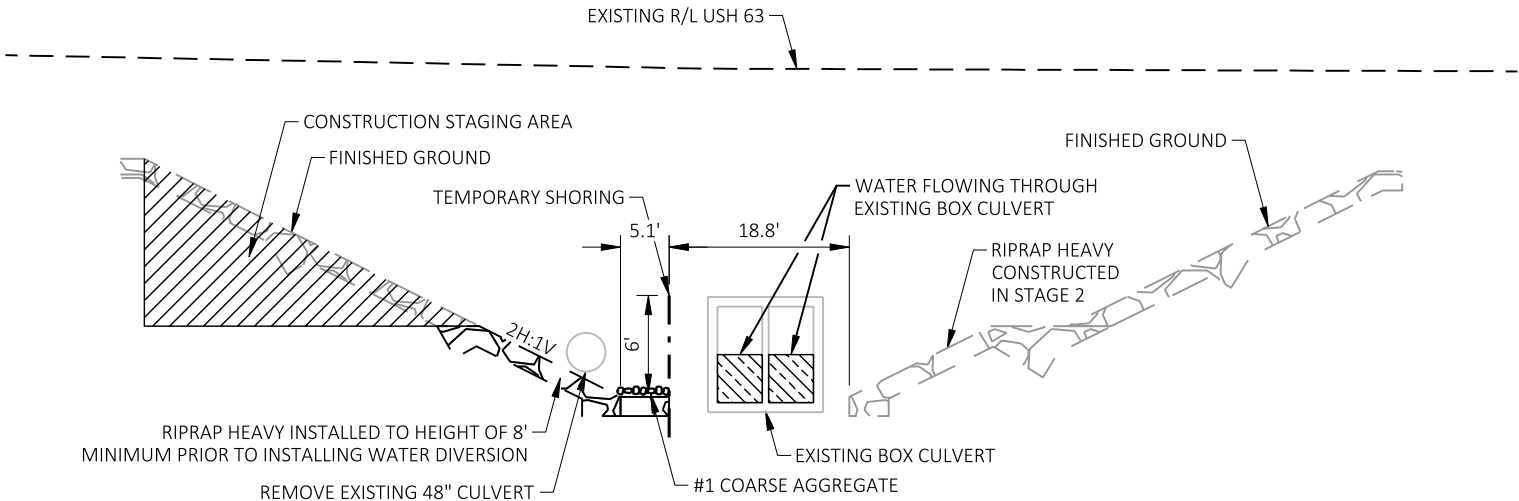


BUTT JOINT DETAIL

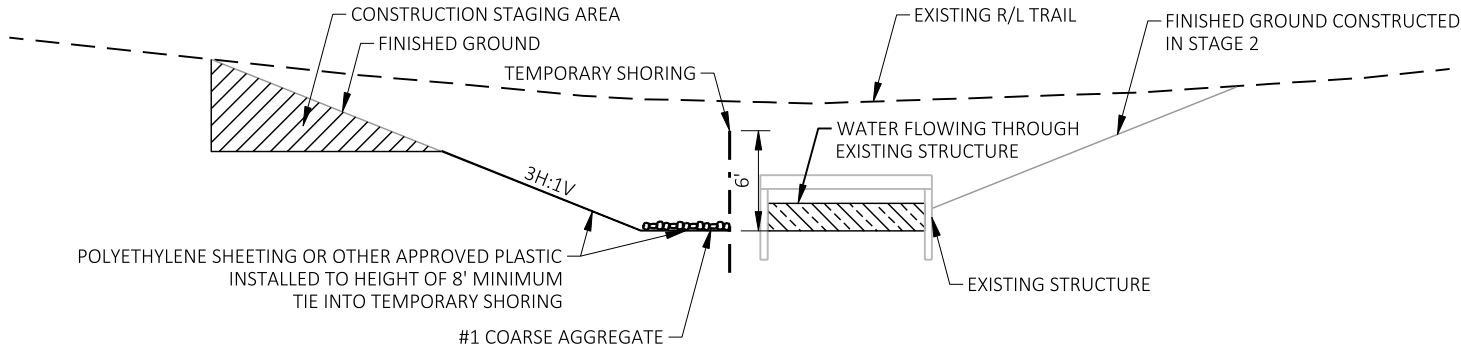
NOT TO SCALE
USE WHERE MILLING ABUTS PAVEMENT TO BE LEFT IN PLACE

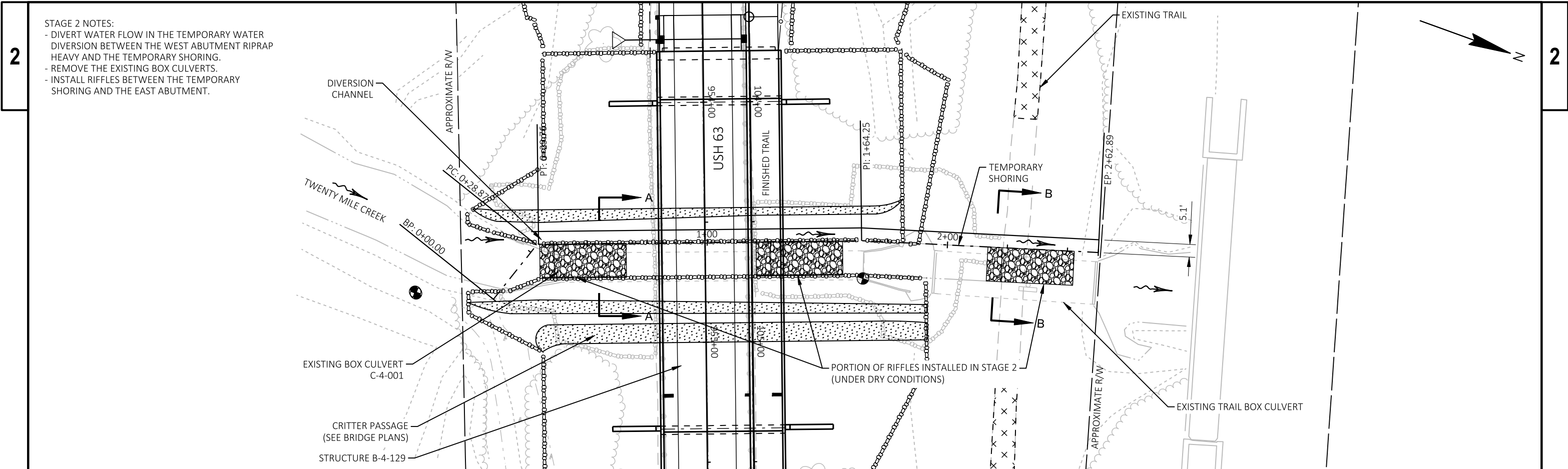


SECTION A-A
NOT TO SCALE

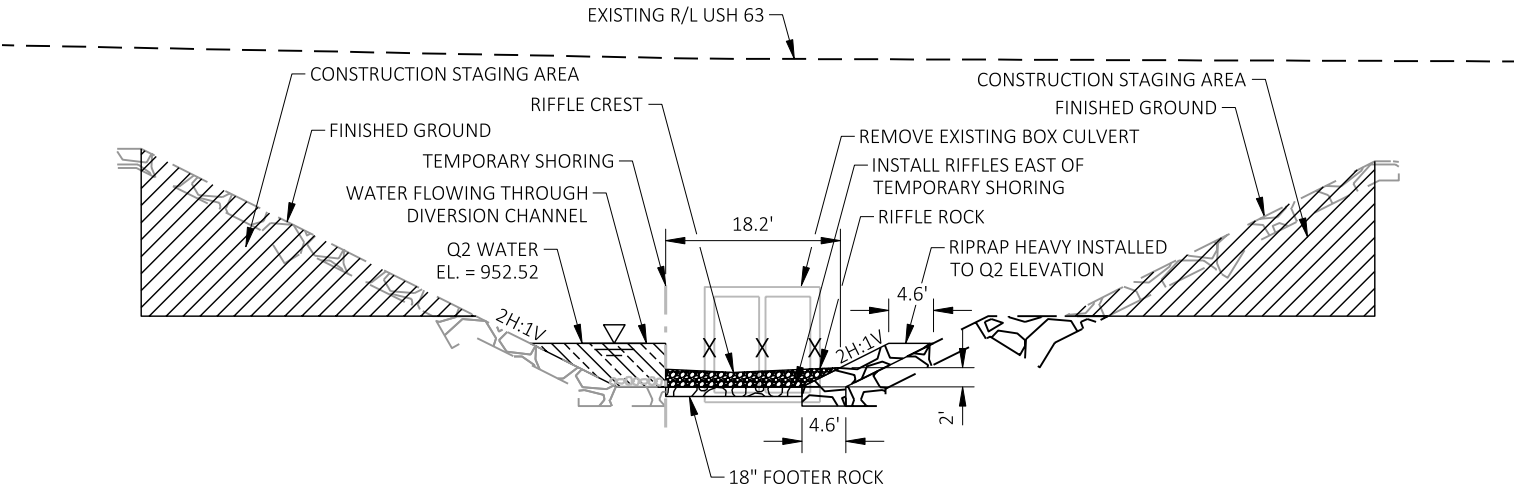


SECTION B-B
NOT TO SCALE

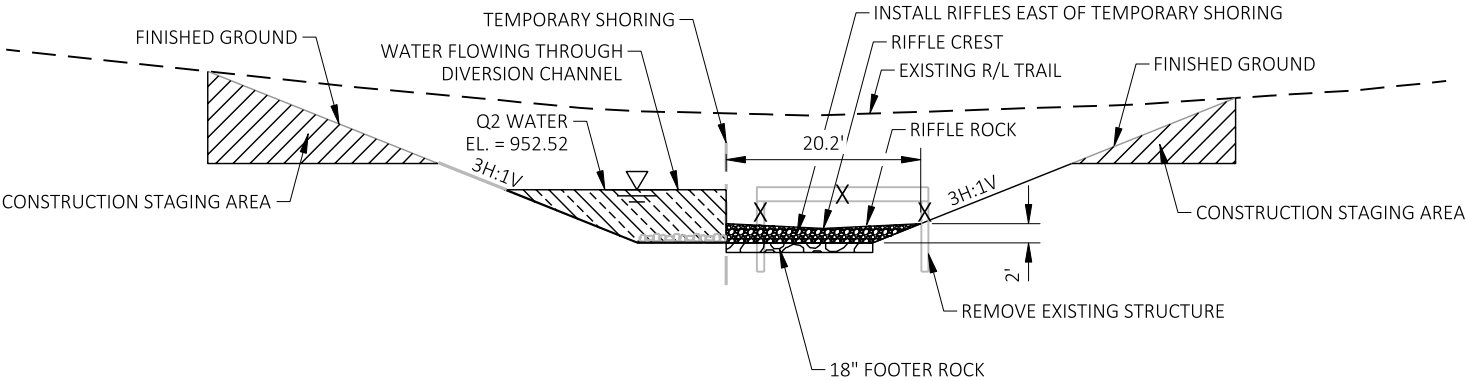


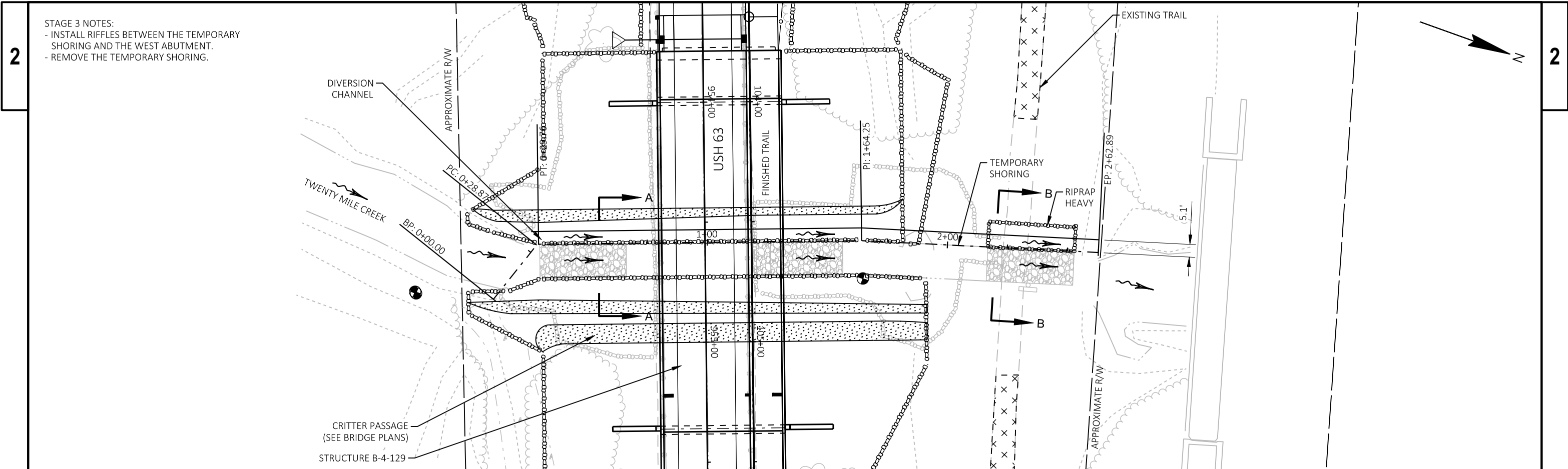


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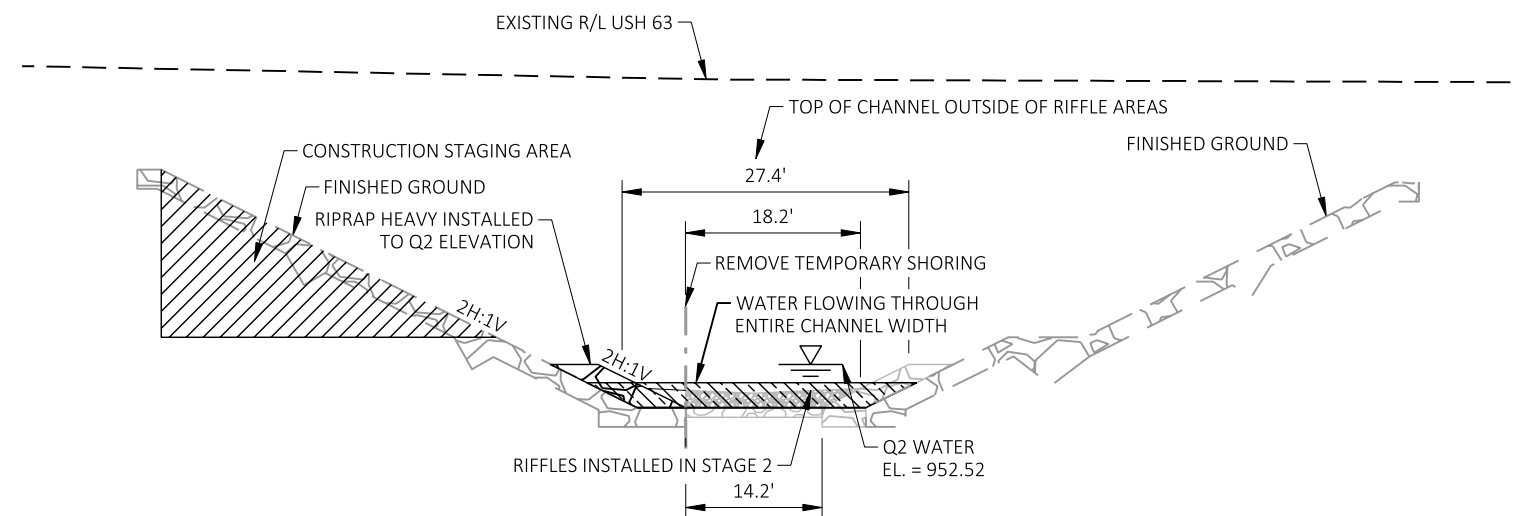


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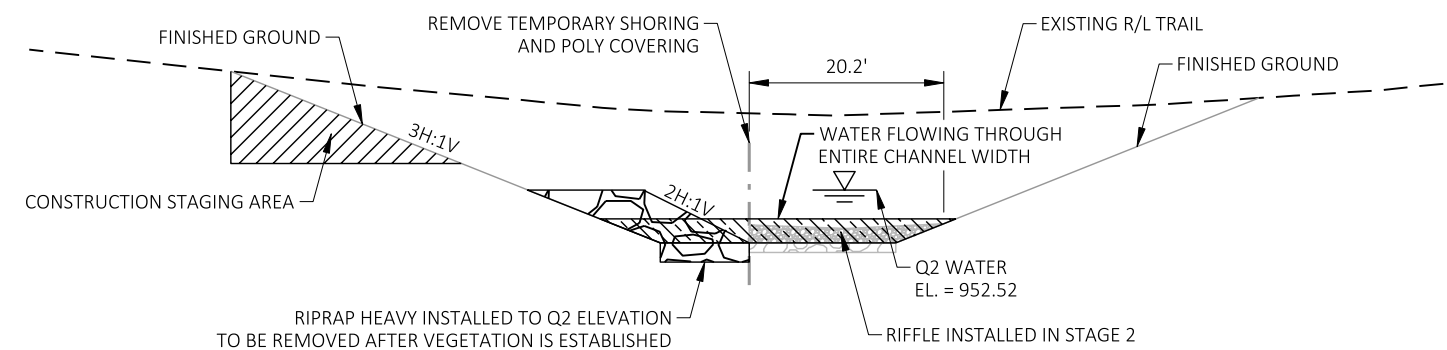


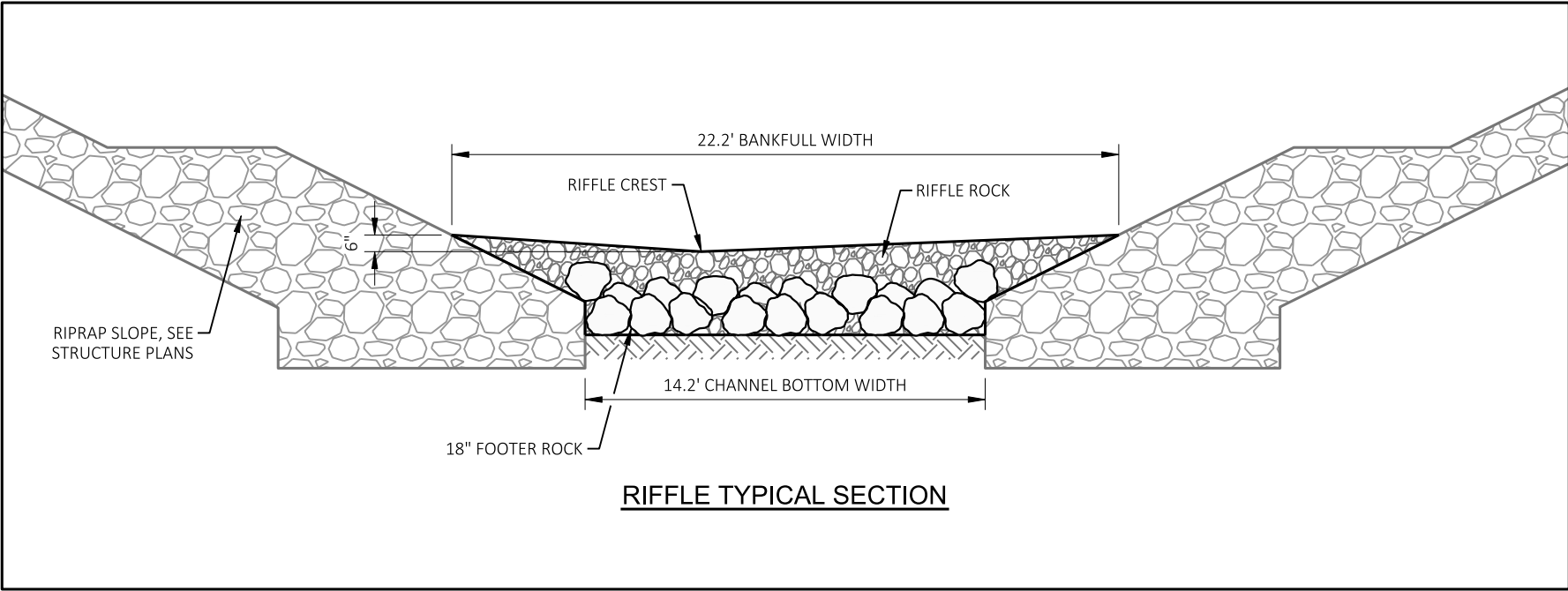
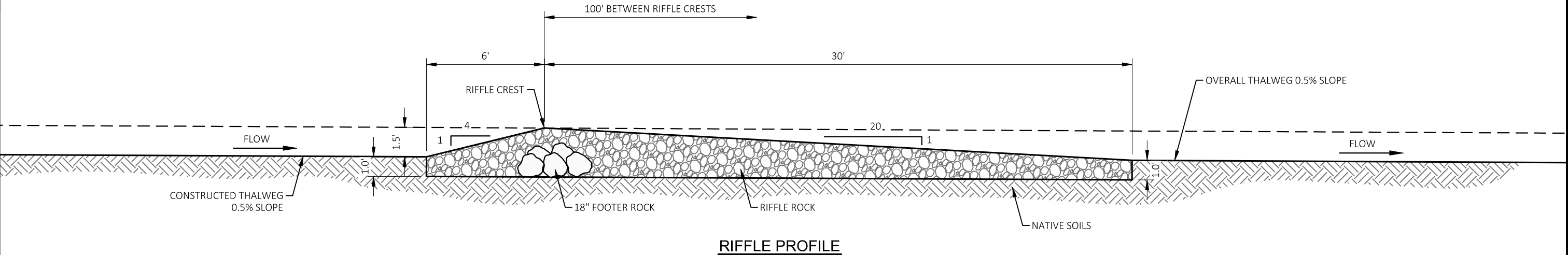


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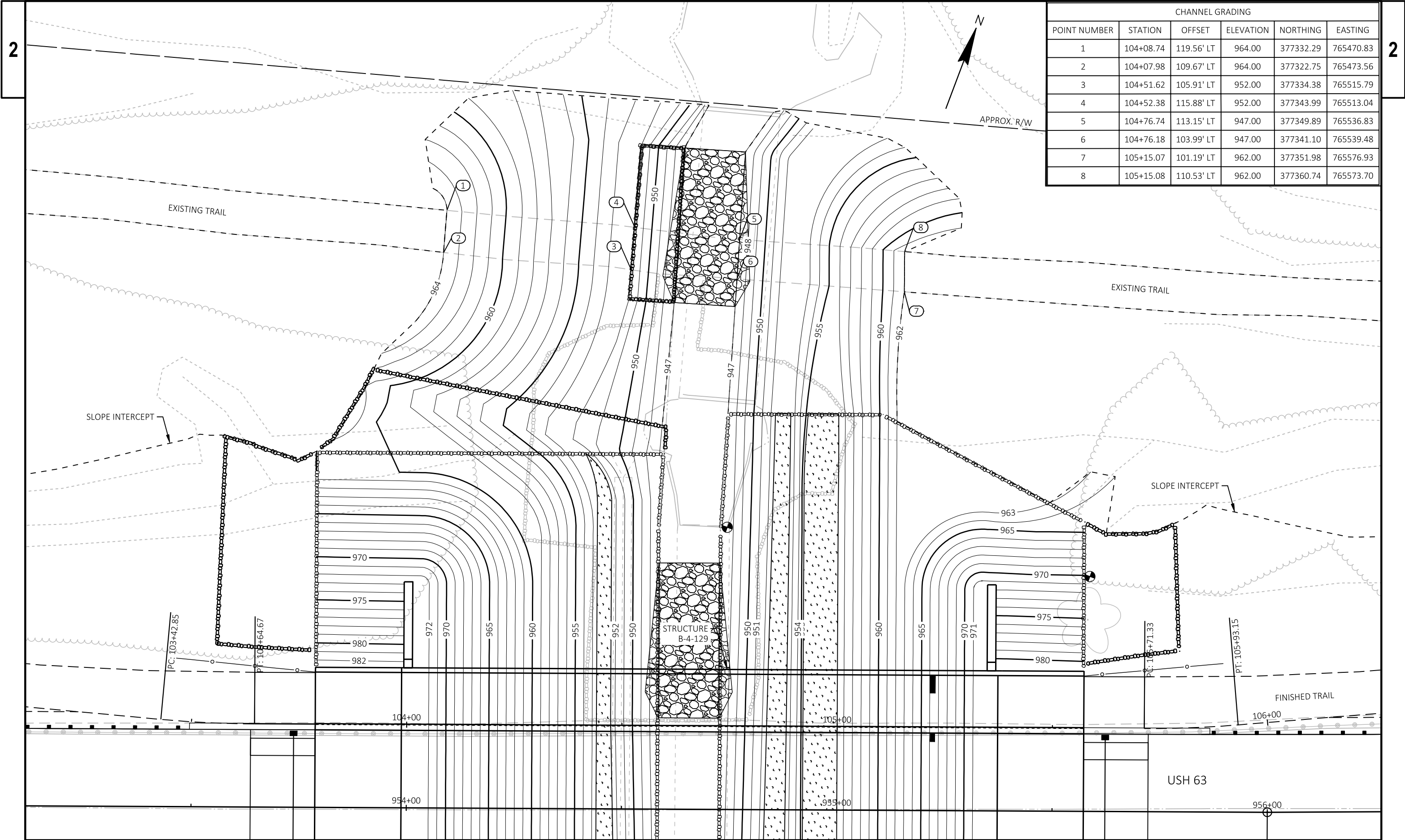


SECTION B-B
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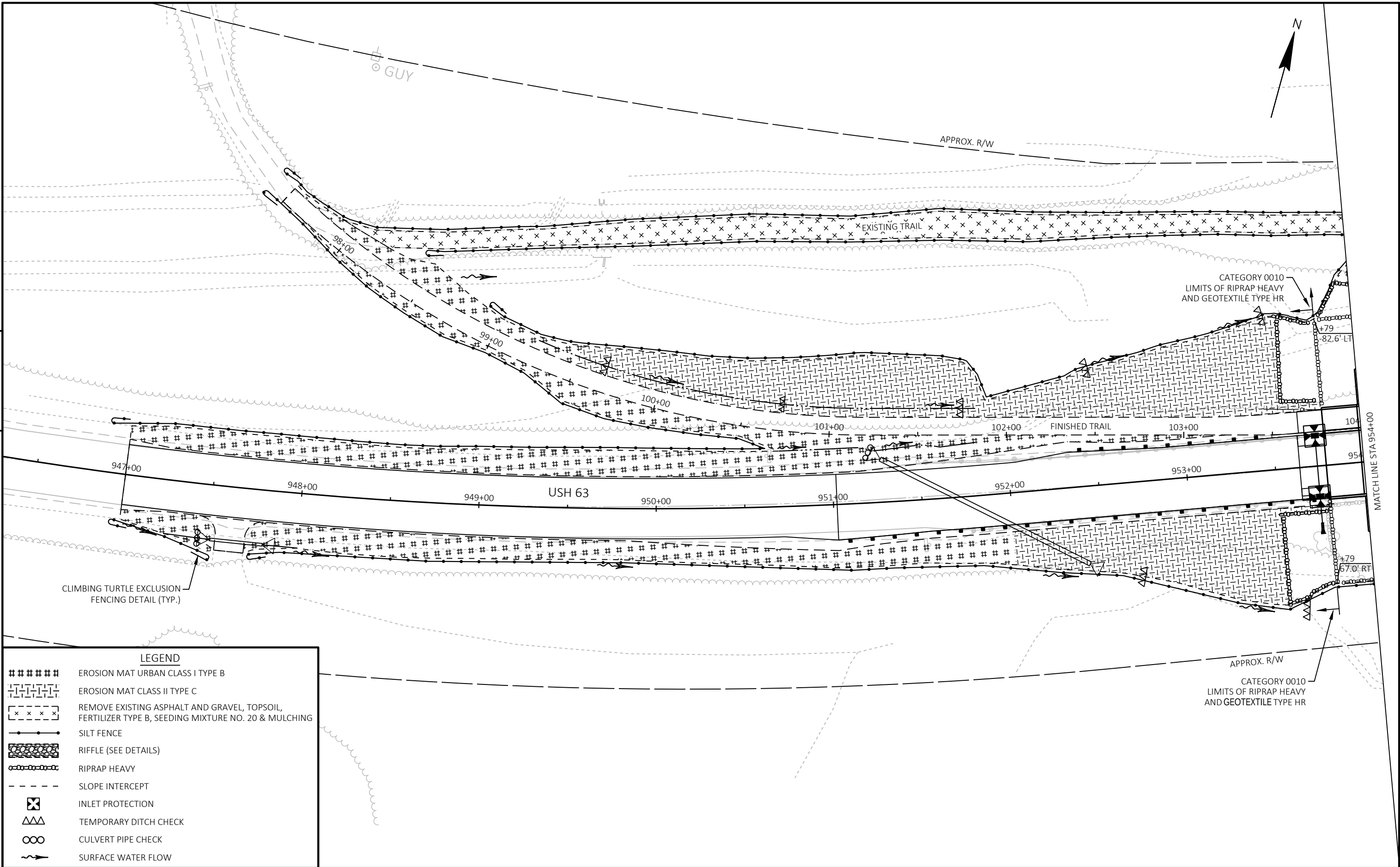


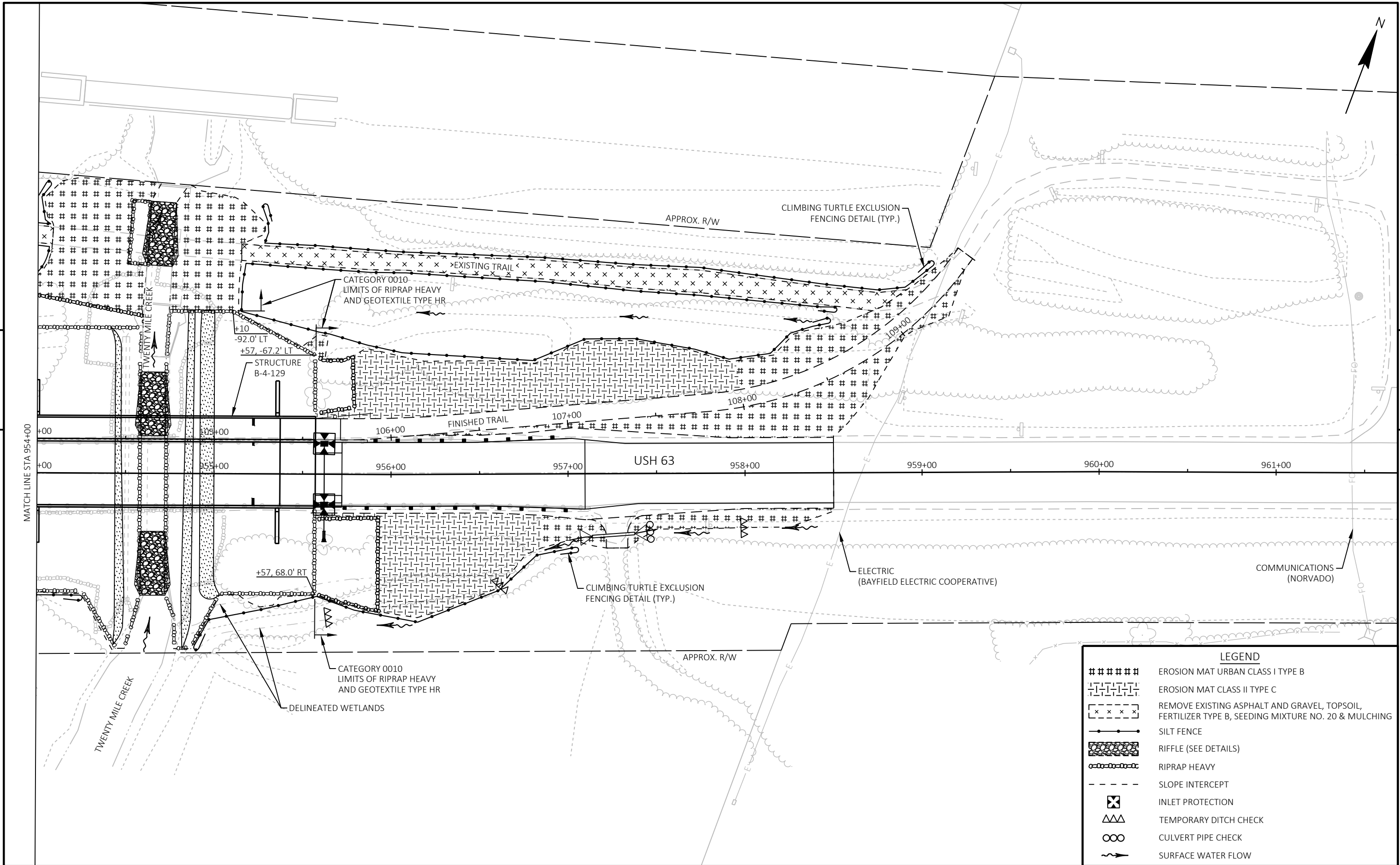


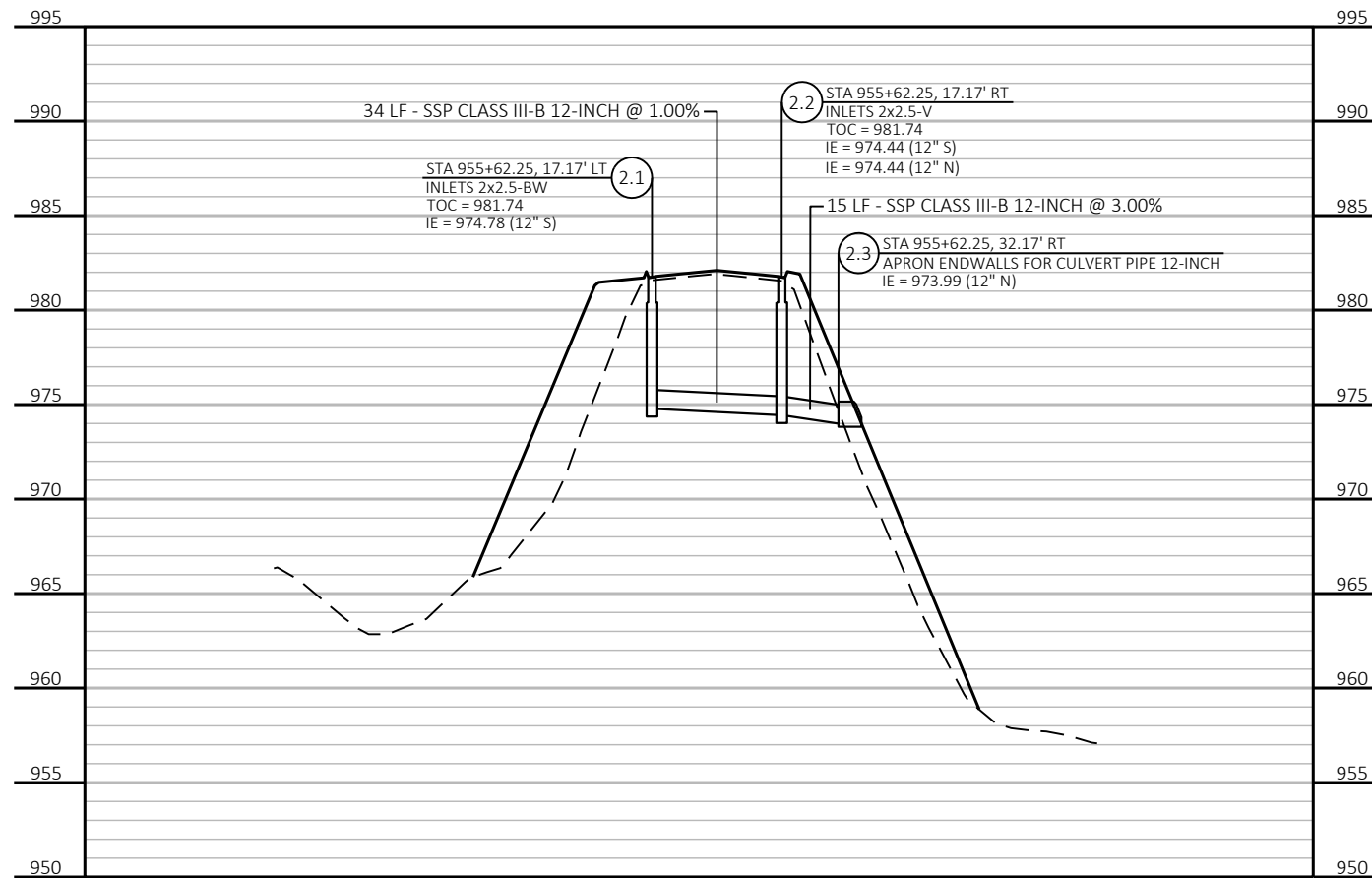
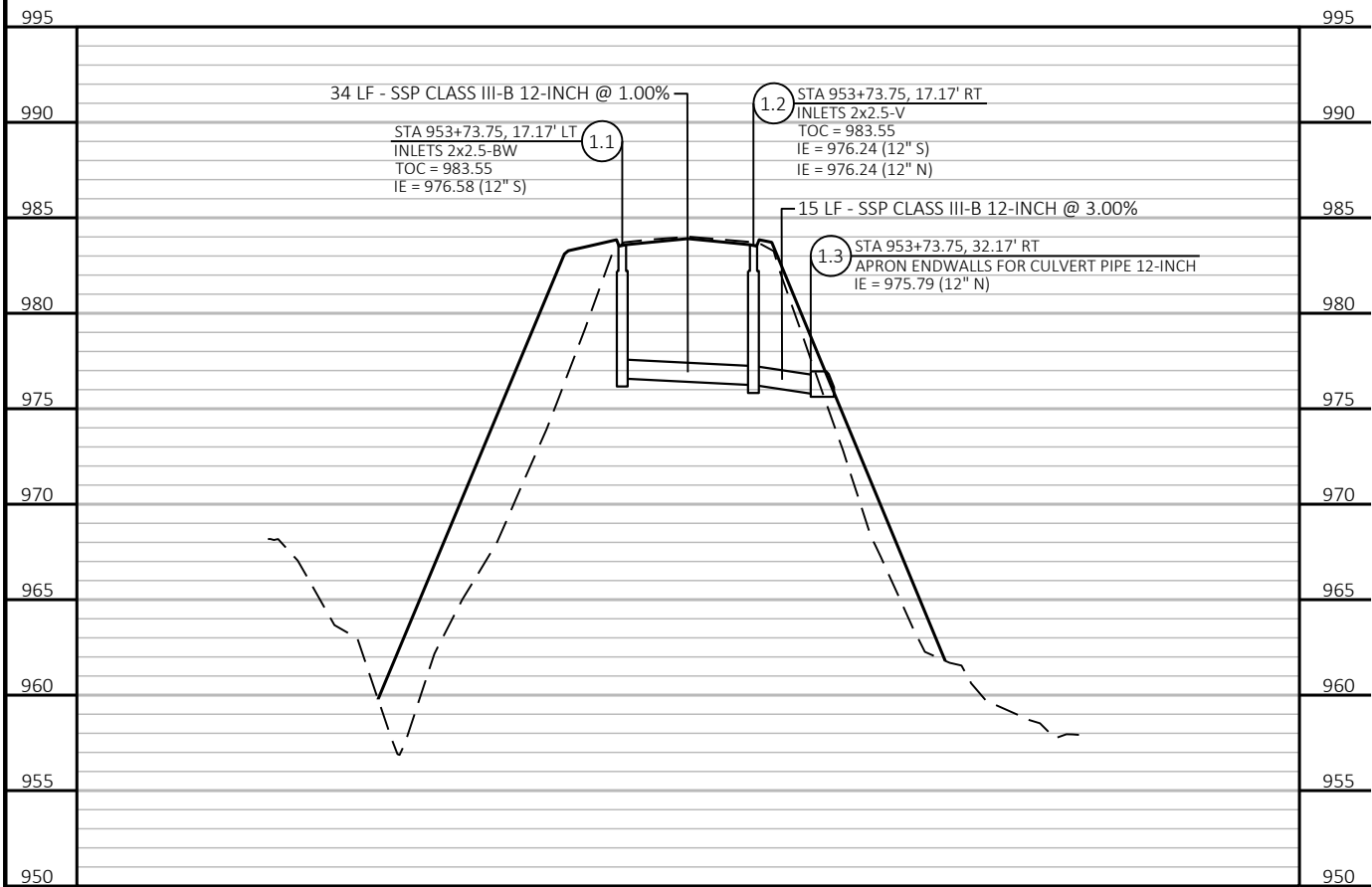
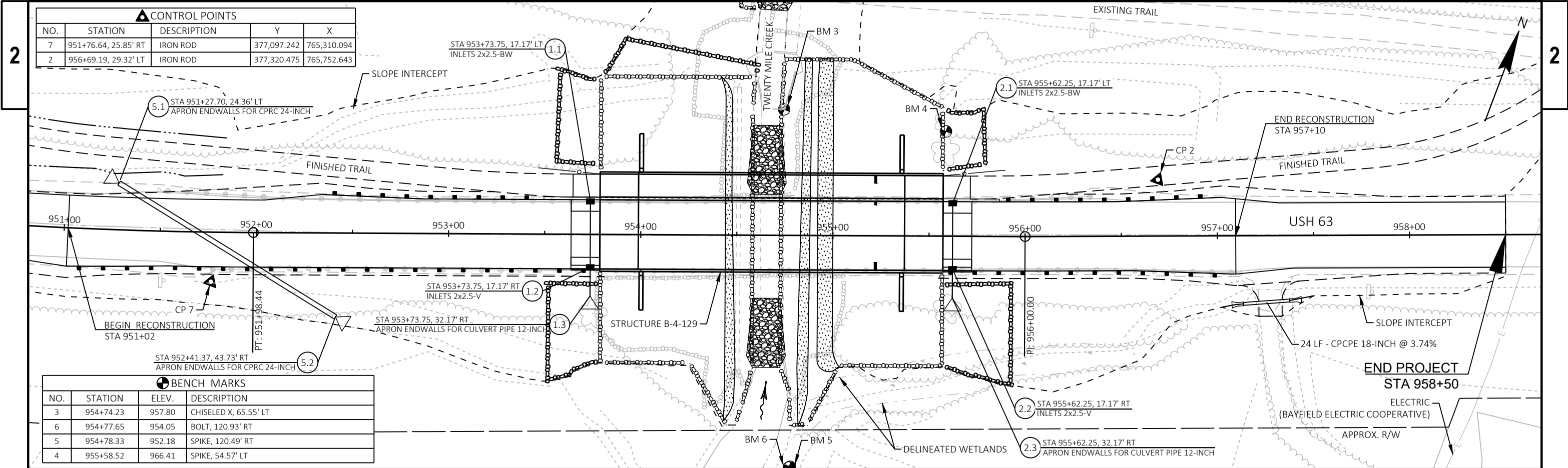
- NOTES**
- 1. OFFSET RIFFLE LOW POINT FROM CHANNEL CENTERLINE AND ALTERNATE LOW POINT SIDE FROM RIFFLE TO RIFFLE.

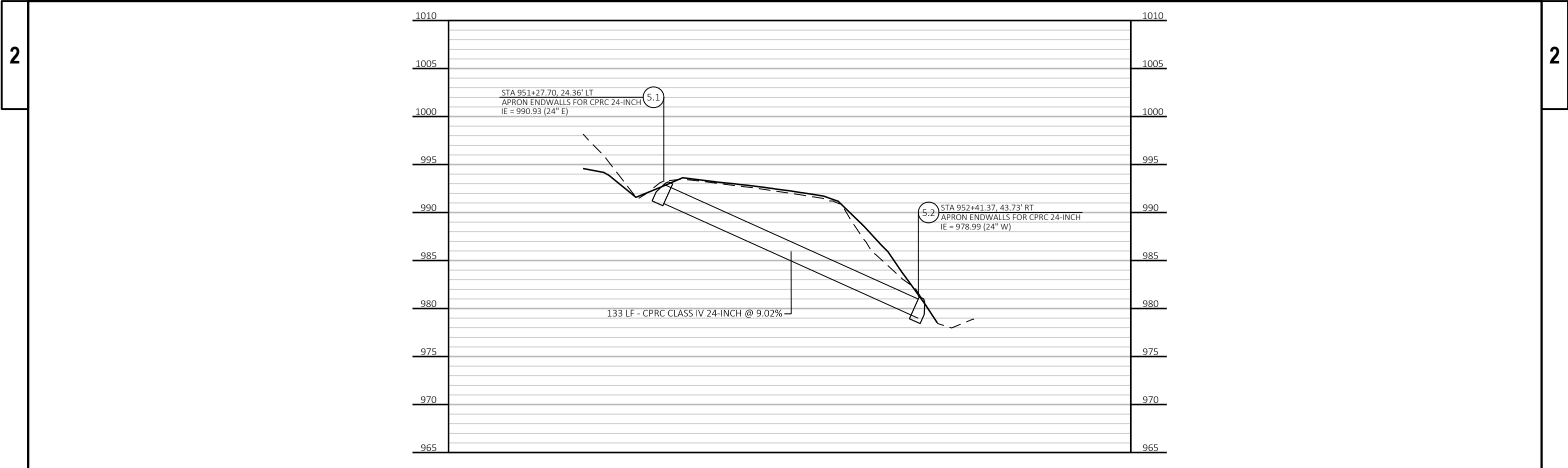


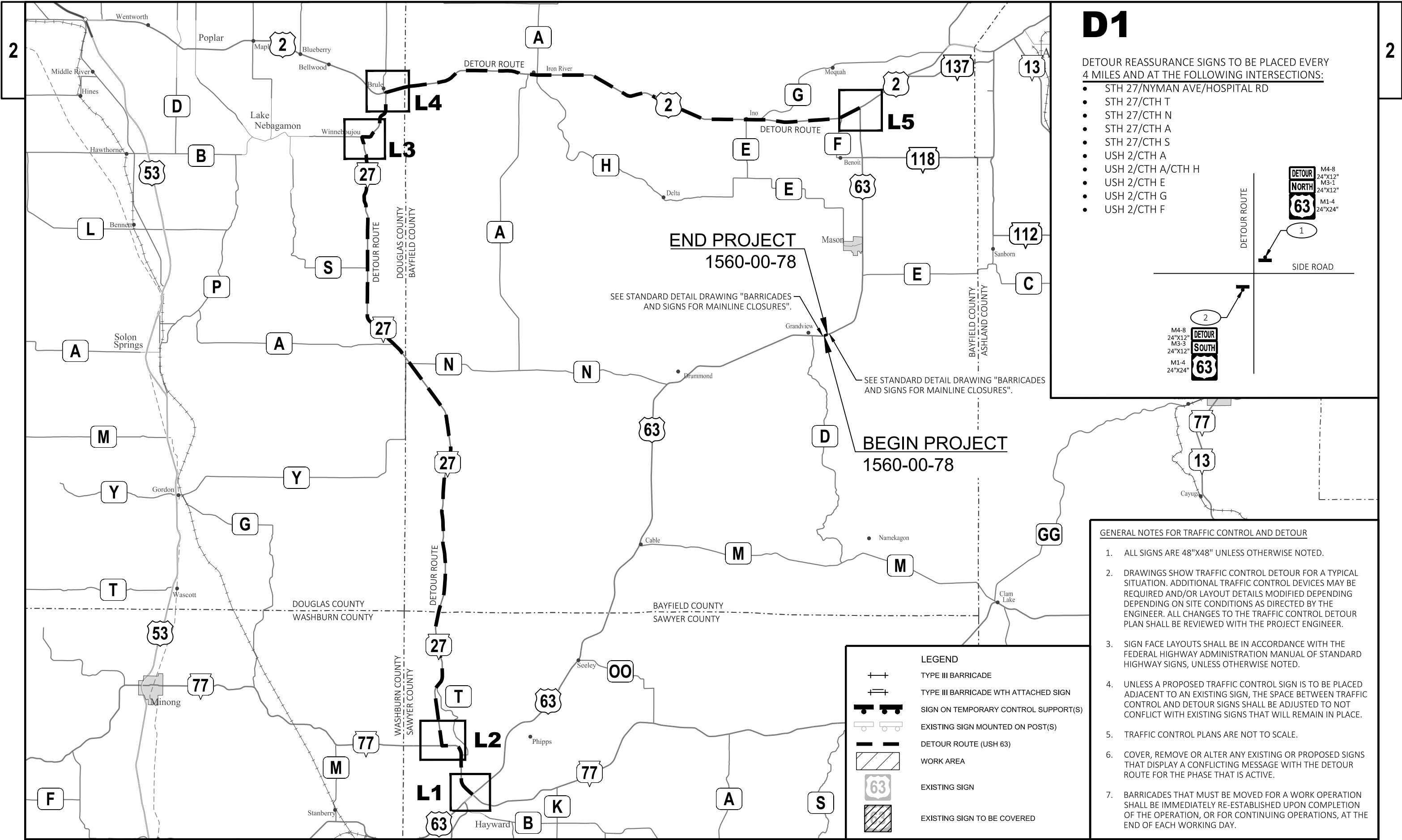
CHANNEL GRADING					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
1	104+08.74	119.56' LT	964.00	377332.29	765470.83
2	104+07.98	109.67' LT	964.00	377322.75	765473.56
3	104+51.62	105.91' LT	952.00	377334.38	765515.79
4	104+52.38	115.88' LT	952.00	377343.99	765513.04
5	104+76.74	113.15' LT	947.00	377349.89	765536.83
6	104+76.18	103.99' LT	947.00	377341.10	765539.48
7	105+15.07	101.19' LT	962.00	377351.98	765576.93
8	105+15.08	110.53' LT	962.00	377360.74	765573.70







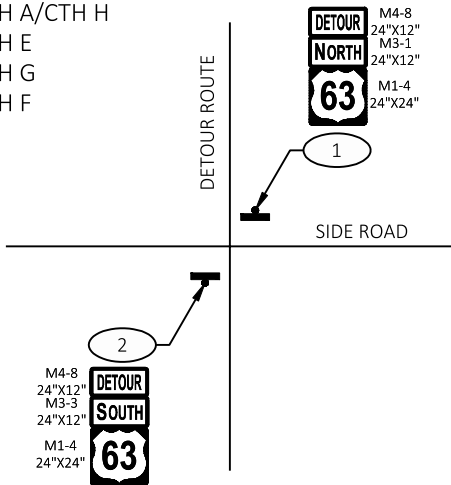




D1

DETOUR REASSURANCE SIGNS TO BE PLACED EVERY 4 MILES AND AT THE FOLLOWING INTERSECTIONS:

- STH 27/NYMAN AVE/HOSPITAL RD
- STH 27/CTH T
- STH 27/CTH N
- STH 27/CTH A
- STH 27/CTH S
- USH 2/CTH A
- USH 2/CTH A/CTH H
- USH 2/CTH E
- USH 2/CTH G
- USH 2/CTH F



GENERAL NOTES FOR TRAFFIC CONTROL AND DETOUR

1. ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.
2. DRAWINGS SHOW TRAFFIC CONTROL DETOUR FOR A TYPICAL SITUATION. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED AND/OR LAYOUT DETAILS MODIFIED DEPENDING DEPENDING ON SITE CONDITIONS AS DIRECTED BY THE ENGINEER. ALL CHANGES TO THE TRAFFIC CONTROL DETOUR PLAN SHALL BE REVIEWED WITH THE PROJECT ENGINEER.
3. SIGN FACE LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS, UNLESS OTHERWISE NOTED.
4. UNLESS A PROPOSED TRAFFIC CONTROL SIGN IS TO BE PLACED ADJACENT TO AN EXISTING SIGN, THE SPACE BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHALL BE ADJUSTED TO NOT CONFLICT WITH EXISTING SIGNS THAT WILL REMAIN IN PLACE.
5. TRAFFIC CONTROL PLANS ARE NOT TO SCALE.
6. COVER, REMOVE OR ALTER ANY EXISTING OR PROPOSED SIGNS THAT DISPLAY A CONFLICTING MESSAGE WITH THE DETOUR ROUTE FOR THE PHASE THAT IS ACTIVE.
7. 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.

PROJECT NO: 1560-00-78

HWY: USH 63

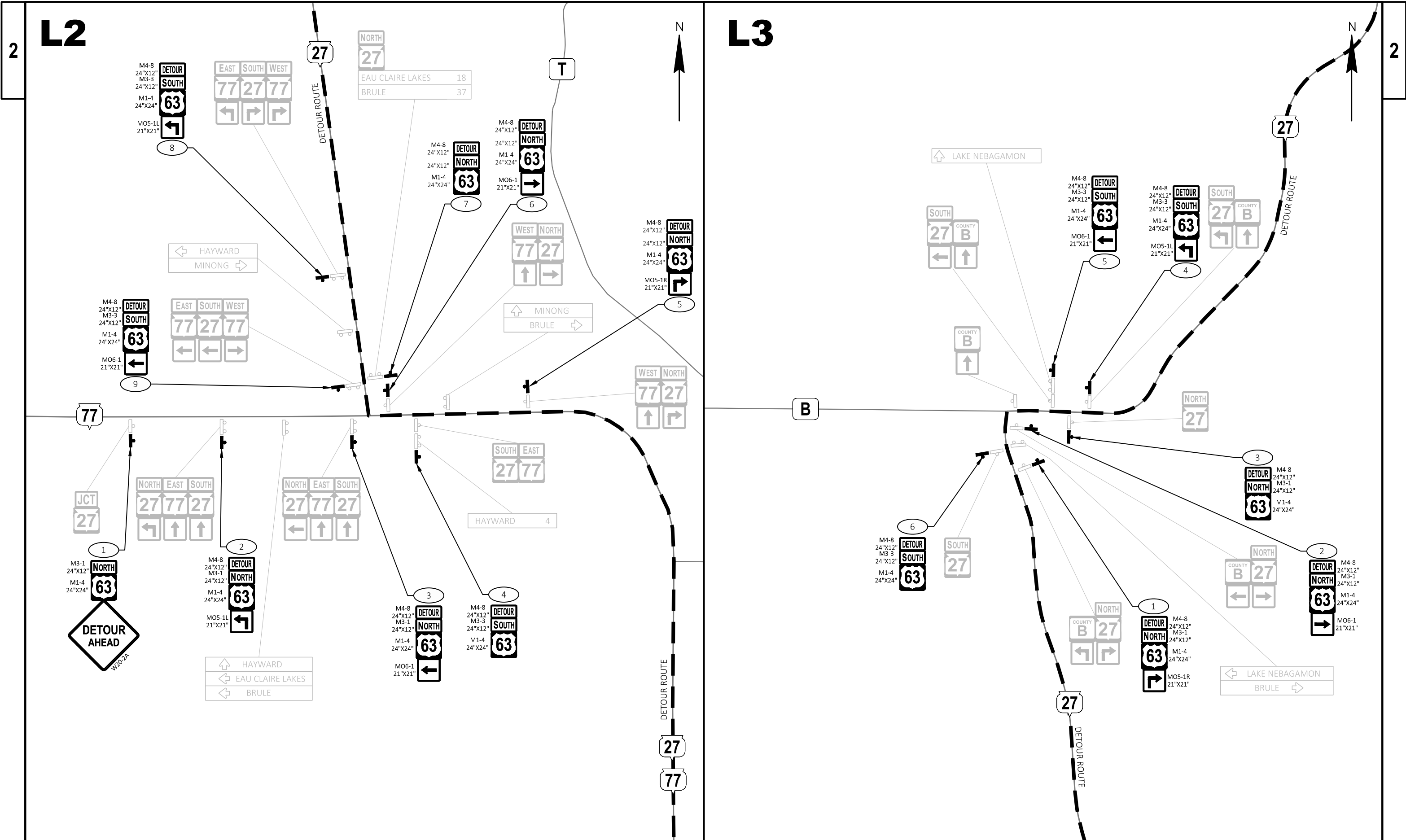
COUNTY: BAYFIELD

DETOUR

SHEET

19

E



L4



L5



2

22

E

Estimate Of Quantities

1560-00-78					
Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	18.000	18.000
0004	201.0205	Grubbing	STA	18.000	18.000
0006	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0008	203.0220	Removing Structure (structure) 01. C-4-1	EACH	1.000	1.000
0010	203.0220	Removing Structure (structure) 02. 10 X 10 Concrete Box Culvert	EACH	1.000	1.000
0012	204.0115	Removing Asphaltic Surface Butt Joints	SY	76.000	76.000
0014	204.0120	Removing Asphaltic Surface Milling	SY	1,980.000	1,980.000
0016	204.0165	Removing Guardrail	LF	1,022.000	1,022.000
0018	205.0100	Excavation Common	CY	4,522.000	4,522.000
0020	206.1001	Excavation for Structures Bridges (structure) 01. B-4-129	EACH	1.000	1.000
0022	210.1500	Backfill Structure Type A	TON	860.000	860.000
0024	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	6.000	6.000
0026	213.0100	Finishing Roadway (project) 01. 1560-00-78	EACH	1.000	1.000
0028	305.0110	Base Aggregate Dense 3/4-Inch	TON	850.000	850.000
0030	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	2,320.000	2,320.000
0032	415.0090	Concrete Pavement 9-Inch	SY	34.000	34.000
0034	415.0410	Concrete Pavement Approach Slab	SY	118.000	118.000
0036	455.0605	Tack Coat	GAL	380.000	380.000
0038	460.2000	Incentive Density HMA Pavement	DOL	570.000	570.000
0040	460.6244	HMA Pavement 4 MT 58-34 S	TON	880.000	880.000
0042	465.0520	Asphaltic Rumble Strips, Shoulder	LF	1,784.000	1,784.000
0044	465.0560	Asphaltic Rumble Strips, Centerline	LF	892.000	892.000
0046	502.0100	Concrete Masonry Bridges	CY	651.000	651.000
0048	502.3200	Protective Surface Treatment	SY	799.000	799.000
0050	502.3210	Pigmented Surface Sealer	SY	321.000	321.000
0052	503.0172	Prestressed Girder Type I 72W-Inch	LF	959.000	959.000
0054	505.0400	Bar Steel Reinforcement HS Structures	LB	8,800.000	8,800.000
0056	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	87,360.000	87,360.000
0058	505.0800.S	Bar Steel Reinforcement HS Stainless Structures	LB	1,800.000	1,800.000
0060	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	14.000	14.000
0062	506.4000	Steel Diaphragms (structure) 01. B-4-129	EACH	12.000	12.000
0064	509.5100.S	Polymer Overlay	SY	187.000	187.000
0066	513.7011	Railing Steel Type C2	LF	177.000	177.000
0068	514.0445	Floor Drains Type GC	EACH	1.000	1.000
0070	514.0450	Floor Drains Type WF	EACH	2.000	2.000
0072	514.2608	Downspout 8-Inch	LF	15.000	15.000
0074	514.2625	Downspout 6-Inch	LF	7.000	7.000
0076	516.0500	Rubberized Membrane Waterproofing	SY	40.000	40.000
0078	520.1012	Apron Endwalls for Culvert Pipe 12-Inch	EACH	2.000	2.000
0080	520.1018	Apron Endwalls for Culvert Pipe 18-Inch	EACH	4.000	4.000
0082	520.4124	Culvert Pipe Class IV 24-Inch	LF	133.000	133.000
0084	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	2.000	2.000
0086	530.0118	Culvert Pipe Corrugated Polyethylene 18-Inch	LF	54.000	54.000
0088	550.0500	Pile Points	EACH	28.000	28.000
0090	550.1120	Piling Steel HP 12-Inch x 53 Lb	LF	1,540.000	1,540.000
0092	601.0586	Concrete Curb & Gutter 4-Inch Sloped 30-Inch Type TBTT	LF	30.000	30.000
0094	603.1342	Concrete Barrier Type S42B	LF	28.000	28.000
0096	603.3655	Concrete Barrier Transition Type V42 to S42	EACH	2.000	2.000
0098	606.0300	Riprap Heavy	CY	3,170.000	3,170.000

Estimate Of Quantities

1560-00-78

Line	Item	Item Description	Unit	Total	Qty
0100	608.3612	Storm Sewer Pipe Class III-B 12-Inch	LF	98.000	98.000
0102	611.0610	Inlet Covers Type BW	EACH	2.000	2.000
0104	611.0654	Inlet Covers Type V	EACH	2.000	2.000
0106	611.3225	Inlets 2x2.5-FT	EACH	4.000	4.000
0108	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	224.000	224.000
0110	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	2.000	2.000
0112	614.2300	MGS Guardrail 3	LF	300.000	300.000
0114	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0116	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0118	618.0100	Maintenance and Repair of Haul Roads (project) 01. 1560-00-78	EACH	1.000	1.000
0120	619.1000	Mobilization	EACH	1.000	1.000
0122	624.0100	Water	MGAL	30.000	30.000
0124	625.0100	Topsoil	SY	9,000.000	9,000.000
0126	627.0200	Mulching	SY	1,300.000	1,300.000
0128	628.1104	Erosion Bales	EACH	50.000	50.000
0130	628.1504	Silt Fence	LF	5,250.000	5,250.000
0132	628.1520	Silt Fence Maintenance	LF	5,250.000	5,250.000
0134	628.1905	Mobilizations Erosion Control	EACH	6.000	6.000
0136	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0138	628.2008	Erosion Mat Urban Class I Type B	SY	4,000.000	4,000.000
0140	628.2027	Erosion Mat Class II Type C	SY	3,700.000	3,700.000
0142	628.7015	Inlet Protection Type C	EACH	4.000	4.000
0144	628.7504	Temporary Ditch Checks	LF	350.000	350.000
0146	628.7555	Culvert Pipe Checks	EACH	15.000	15.000
0148	628.7570	Rock Bags	EACH	158.000	158.000
0150	629.0210	Fertilizer Type B	CWT	6.000	6.000
0152	630.0120	Seeding Mixture No. 20	LB	400.000	400.000
0154	630.0200	Seeding Temporary	LB	250.000	250.000
0156	630.0500	Seed Water	MGAL	210.000	210.000
0158	633.5200	Markers Culvert End	EACH	4.000	4.000
0160	634.0614	Posts Wood 4x6-Inch x 14-FT	EACH	4.000	4.000
0162	638.2102	Moving Signs Type II	EACH	3.000	3.000
0164	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0166	642.5001	Field Office Type B	EACH	1.000	1.000
0168	643.0300	Traffic Control Drums	DAY	2,000.000	2,000.000
0170	643.0420	Traffic Control Barricades Type III	DAY	3,600.000	3,600.000
0172	643.0705	Traffic Control Warning Lights Type A	DAY	6,100.000	6,100.000
0174	643.0900	Traffic Control Signs	DAY	41,000.000	41,000.000
0176	643.0920	Traffic Control Covering Signs Type II	EACH	20.000	20.000
0178	643.1000	Traffic Control Signs Fixed Message	SF	36.000	36.000
0180	643.5000	Traffic Control	EACH	1.000	1.000
0182	645.0111	Geotextile Type DF Schedule A	SY	176.000	176.000
0184	645.0120	Geotextile Type HR	SY	4,730.000	4,730.000
0186	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	4,620.000	4,620.000
0188	650.4000	Construction Staking Storm Sewer	EACH	8.000	8.000
0190	650.4500	Construction Staking Subgrade	LF	1,531.000	1,531.000
0192	650.5000	Construction Staking Base	LF	1,531.000	1,531.000
0194	650.6000	Construction Staking Pipe Culverts	EACH	2.000	2.000
0196	650.6501	Construction Staking Structure Layout (structure) 01. B-4-129	EACH	1.000	1.000

Estimate Of Quantities

1560-00-78					
Line	Item	Item Description	Unit	Total	Qty
0198	650.9911	Construction Staking Supplemental Control (project) 01. 1560-00-78	EACH	1.000	1.000
0200	650.9920	Construction Staking Slope Stakes	LF	2,073.000	2,073.000
0202	690.0150	Sawing Asphalt	LF	68.000	68.000
0204	715.0502	Incentive Strength Concrete Structures	DOL	3,906.000	3,906.000
0206	715.0603	Incentive Strength Concrete Barrier	DOL	15.000	15.000
0208	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0210	999.2100.S	Installing and Maintaining Climbing Turtle Exclusion Fence	LF	900.000	900.000
0212	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	800.000	800.000
0214	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000
0216	SPV.0060	Special 01. Temporary Water Diversion Station 954+68	EACH	1.000	1.000
0218	SPV.0090	Special 01. Fence Timber 4.5-FT	LF	65.000	65.000
0220	SPV.0195	Special 01. Footer Rock	TON	20.000	20.000
0222	SPV.0195	Special 02. Riffle Rock	TON	270.000	270.000
0224	SPV.0195	Special 03. Infill Riprap B-4-129	TON	186.000	186.000

CLEARING AND GRUBBING

				201.0105	201.0205
				CLEARING	GRUBBING
STATION	TO	STATION	LOCATION	STA	STA
97+58	-	109+58	LT & RT	13	13
951+50	-	953+96	RT	3	3
955+03	-	956+86	RT	2	2
TOTAL 0010				18	18

PREPARE FOUNDATION

				211.0400
				PREPARE
				FOUNDATION
				FOR ASPHALTIC
				SHOULDERS
STATION	TO	STATION	LOCATION	STA
949+50	-	951+02	RT	3
957+10	-	957+40	RT	1
956+50	-	957+30	LT	2
TOTAL 0010				6

REMOVALS

				204.0115	204.0120
				REMOVING	REMOVING
				ASPHALTIC	ASPHALTIC
				SURFACE BUTT	SURFACE
				JOINTS	MILLING
STATION	TO	STATION	LOCATION	SY	SY
947+00	-	947+10	USH 63	38	-
947+10	-	951+02	USH 63	-	1,480
957+10	-	958+40	USH 63	-	500
958+40	-	958+50	USH 63	38	-
TOTAL 0010				76	1,980

BASE AGGREGATE

				305.0110	305.0120	624.0100
				BASE	BASE	
				AGGREGATE	AGGREGATE	
				DENSE	DENSE	
				3/4-INCH	1 1/4-INCH	WATER
STATION	TO	STATION	LOCATION	TON	TON	MGAL
947+00	-	953+99	USH 63	220	1,200	15
955+37	-	958+50	USH 63	130	800	10
97+58	-	103+78	TRAIL	300	-	3
105+57	-	109+58	TRAIL	180	-	2
-	-	947+62	RT	10	-	-
-	-	957+27	RT	10	-	-
TOTAL 0010				850	2,000	30

ALL QUANTITIES ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

EXCAVATION										
205.0100										
				(1) EXCAVATION COMMON CY	* EXCAVATION FOR STRUCTURES CY	(2) SALVAGED UNUSABLE MATERIAL/ PAVEMENT MATERIAL CY	FILL CY	(3) EXPANDED FILL CY	(4) MASS ORDINATE CY	* BORROW CY
STATION	TO	STATION	LOCATION							
947+00	-	953+78.75	USH 63	740	--	234	819	1,024	-518	518
953+79	-	955+57	CHANNEL	--	9,639	151	634	793	8,695	-8,695
953+79	-	955+57	CHANNEL	1,263	--	--	38	48	1,215	-1,215
955+57.25	-	958+50	USH 63	457	--	129	641	801	-473	473
97+58	-	103+79	TRAIL REALIGNMENT	1,654	--	--	1,850	2,313	-659	659
105+57.25	-	109+58	TRAIL REALIGNMENT	8	--	--	1,524	1,905	-1,897	1,897
97+58	-	109+58	EXISTING TRAIL	400	--	--	--	--	--	--
TOTAL 0010				4,522						-6,364

*INCLUDED FOR INFORMATION PURPOSES ONLY
(1) SALVAGED/UNUSEABLE PAVEMENT MATERIAL IS INCLUDED IN CUT
(2) NOT SHOWN IN CROSS SECTIONS
(3) EXPANDED FILL FACTOR = 1.25
(4) THE MASS ORDINATE + OR - QUANTITY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION.
MINUS QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

ALL QUANTITIES ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

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APPROACH SLAB

			415.0090 CONCRETE PAVEMENT 9-INCH	415.0410 CONCRETE PAVEMENT APPROACH SLAB	REMARKS
STATION	TO	STATION	SY	SY	
953+64	-	953+79	LT & RT	-	40
953+64	-	953+79	LT	10	-
953+64	-	953+79	RT	7	-
955+57	-	955+72	LT & RT	-	40
955+57	-	955+72	LT	10	-
955+57	-	955+72	RT	7	-
103+65	-	103+79	LT	-	19 TRAIL APPROACH EB
105+57	-	105+71	LT	-	19 TRAIL APPROACH WB
TOTAL 0010			34	118	

HMA PAVEMENT

			455.0605 TACK COAT GAL	460.6244 HMA PAVEMENT 4 MT 58-34 S TON
STATION	TO	STATION	LOCATION	
947+00	-	951+02	USH 63	110
951+02	-	953+64	USH 63	150
955+72	-	957+10	USH 63	80
957+10	-	958+50	USH 63	40
TOTAL 0010			380	880

RUMBLE STRIPS

			465.0520 ASPHALTIC RUMBLE STRIPS, SHOULDER LF	465.0560 ASPHALTIC RUMBLE STRIPS, CENTERLINE LF
STATION	TO	STATION	LOCATION	
947+00	-	953+39	CL	--
955+97	-	958+50	CL	--
947+00	-	953+39	LT & RT	1,278
955+97	-	958+50	LT & RT	506
TOTAL 0010			1,784	892

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CULVERT & STORM SEWER STRUCTURES

			520.1012	520.1018	522.1024	611.0610	611.0654	611.3225	633.5200				
			APRON ENDWALLS FOR CULVERT PIPE 12-INCH EACH	APRON ENDWALLS FOR CULVERT PIPE 18-INCH EACH	ENDWALLS FOR CULVERT PIPE CONCRETE 24-INCH EACH	INLET COVERS TYPE BW EACH	INLET COVERS TYPE V EACH	INLETS 2X2.5-FT EACH	MARKERS CULVERT END EACH	RIM** ELEVATION	INVERT*** ELEVATION	DEPTH**** FT	REMARKS
1.1	953+73.75	17.17' LT	-	-	-	1	-	1	-	983.55	976.58	5.64	
1.2	953+73.75	17.17' RT	-	-	-	-	1	1	-	983.55	976.24	5.98	
1.3	953+73.75	32.17' RT	1	-	-	-	-	-	1	-	975.79	-	
2.1	955+62.25	17.17' LT	-	-	-	1	-	1	-	981.74	974.78	5.63	
2.2	955+62.25	17.17' RT	-	-	-	-	1	1	-	981.74	974.44	5.97	
2.3	955+62.25	32.17' RT	1	-	-	-	-	-	1	-	973.99	-	
3.1	947+50.81	30.75' RT	-	1	-	-	-	-	-	-	1015.85	-	DRIVEWAY CULVERT EOP
3.2	947+80.41	30.78' RT	-	1	-	-	-	-	-	-	1014.18	-	DRIVEWAY CULVERT EOP
4.1	957+13.60	35.53' RT	-	1	-	-	-	-	-	-	982.11	-	DRIVEWAY CULVERT EOP
4.2	957+37.54	33.86' RT	-	1	-	-	-	-	-	-	983.01	-	DRIVEWAY CULVERT EOP
5.1	951+27.70	24.36' LT	-	-	1	-	-	-	1	-	990.93	-	
5.2	952+41.37	43.73' RT	-	-	1	-	-	-	1	-	978.99	-	
TOTAL 0010			2	4	2	2	2	4	4				

REMARKS:
*STATIONS AND OFFSETS ARE TO CENTER OF STRUCTURE
**RIM ELEV IS AT THE INLET COVER FLANGE LOCATION
***FOR STRUCTURES WITH SUMPS, THE INVERT ELEVATION IS THE ELEVATION OF THE SUMP. FOR STRUCTURES WITHOUT SUMPS, THE INVERT ELEVATION IS THE ELEVATION OF THE LOWEST PIPE FLOW LINE
****DEPTH = RIM ELEV - TOP OF STRUCTURE BASE ELEV - COVER HEIGHT - 6-INCH ADJUSTMENT RING HEIGHT

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CULVERT & STORM SEWER PIPES

				520.4124	530.0118	608.3612				
					CULVERT PIPE	STORM SEWER				
					CORRUGATED	PIPE				
				CULVERT PIPE	POLYETHYLENE	CLASS III-B				
				CLASS IV 24-INCH	18-INCH	12-INCH	INLET	DISCHARGE	SLOPE	
FROM	-	TO	LOCATION	LF	LF	LF	ELEVATION	ELEVATION	FT/FT	
1.1	-	1.2	LT & RT	-	-	34	976.58	976.24	0.0100	
1.2	-	1.3	RT	-	-	15	976.24	975.79	0.0300	
2.1	-	2.2	LT & RT	-	-	34	974.78	874.44	0.0100	
2.2	-	2.3	RT	-	-	15	974.44	973.99	0.0300	
3.1	-	3.2	RT	-	30	-	1015.85	1014.18	0.0557	
4.2	-	4.1	RT	-	24	-	983.01	982.11	0.0374	
5.1	-	5.2	LT & RT	133	-	-	990.93	978.99	0.0902	
TOTAL 0010				133	54	98				

CONCRETE CURB AND GUTTER

				601.0586		
				CONCRETE CURB &		
				GUTTER 4-INCH		
				SLOPED 30-INCH		
				TYPE TBTT		
				LF		
STATION	TO	STATION	LOCATION			
953+64	-	953+79	RT	15		
955+57	-	955+72	RT	15		
TOTAL 0010				30		

CONCRETE BARRIER

				603.1342	603.3655
				CONCRETE	CONCRETE
				BARRIER	BARRIER
				TYPE S42B	TRANSITION
STATION	TO	STATION	LOCATION	LF	TYPE V42 TO S42
EACH					
953+49	-	953+64	LT	14	-
953+64	-	953+79	LT	-	1
955+57	-	955+72	LT	-	1
955+72	-	955+87	LT	14	-
TOTAL 0010				28	2

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BEAM GUARD

				204.0165	614.2300	614.2500	614.2610
				REMOVING	MGS GUARDRAIL	MGS THRIE	
				GUARDRAIL	3	BEAM	
				LF	LF	TRANSITION	MGS GUARDRAIL
				LF	LF	LF	TERMINAL EAT
				EACH			
STATION	TO	STATION	LOCATION				
951+48	-	956+34	LT	486	-	-	-
951+77	-	957+13	RT	536	-	-	-
951+02	-	953+81	RT	-	187.5	39.4	1
952+51	-	953+81	LT	-	25.0	39.4	1
955+55	-	956+85	LT	-	25.0	39.4	1
955+55	-	957+10	RT	-	62.5	39.4	1
TOTAL 0010				1,022	300.0	157.6	4

RIPRAP

				606.0300	645.0120		
				RIPRAP	GEOTEXTILE		
				HEAVY	TYPE HR		
STATION	TO	STATION	LOCATION	CY	SY	REMARKS	
953+56	-	953+79	LT	80	151	TEMPORARY WATER DIVERSION - STAGE 3	
953+52	-	953+79	RT	98	180		
954+51	-	954+62	118' LT	26	59		
955+57	-	955+79	LT	50	99		
955+57	-	955+93	RT	136	241		
TOTAL 0010				390	730		

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RESTORATION

				625.0100	627.0200	628.2008	628.2027	629.0210	630.0120	630.0200	630.0500
				EROSION MAT							
						URBAN	EROSION MAT		SEEDING		
				TOPSOIL	MULCHING	CLASS I	CLASS II	FERTILIZER	MIXTURE	SEEDING	
STATION	TO	STATION	LOCATION	SY	SY	TYPE B	TYPE C	TYPE B	NO. 20	TEMPORARY	SEED WATER
						SY	SY	CWT	LB	LB	MGAL
947+00	-	953+24	USH 63, LT	1,110	-	1,110	-	0.70	50	30	25
947+00	-	952+00	USH 63, RT	700	-	700	-	0.45	32	19	16
952+00	-	953+79	USH 63, RT	640	-	-	640	0.40	29	18	15
97+58	-	99+50	TRAIL REALIGNMENT, LT	190	-	190	-	0.12	9	5	5
949+57	-	953+79	USH 63, LT	1,390	-	-	1,390	0.88	63	38	32
953+79	-	954+69	USH 63, LT	450	-	450	-	0.28	20	12	10
954+78	-	955+28	USH 63, LT	320	-	320	-	0.21	15	9	8
955+49	-	955+62	USH 63, LT	20	-	20	-	0.01	1	1	1
955+57	-	957+95	USH 63, LT	780	-	-	780	0.49	35	21	18
108+00	-	109+58	TRAIL REALIGNMENT, LT	210	-	210	-	0.13	10	6	5
955+58	-	956+85	USH 63, RT	520	-	-	520	0.33	24	14	12
956+14	-	959+24	USH 63, LT	410	-	410	-	0.26	19	11	10
956+85	-	958+50	USH 63, RT	190	-	190	-	0.12	9	6	5
97+90	-	104+11	TRAIL REALIGNMENT, LT	740	740	-	-	0.45	32	20	16
105+15	-	109+19	TRAIL REALIGNMENT, LT	460	460	-	-	0.28	20	13	10
UNDISTRIBUTED				870	100	400	370	0.89	32	27	21
TOTAL 0010				9,000	1,300	4,000	3,700	6.00	400	250	210

EROSION CONTROL

				628.1104	628.1504	628.1520	628.1905	628.1910	628.7015	628.7504	628.7555	628.7570	999.2100.S
							MOBILIZATIONS	MOBILIZATIONS	INLET				INSTALLING AND
						SILT FENCE	EROSION	EROSION	PROTECTION	TEMPORARY	CULVERT PIPE	ROCK BAGS	CLIMBING TURTLE
STATION	TO	STATION	LOCATION	EROSION BALES	SILT FENCE	MAINTENANCE	CONTROL	CONTROL	TYPE C	DITCH CHECKS	CHECKS	EACH	EXCLUSION FENCE
				EACH	LF	LF	EACH	EACH	EACH	LF	EACH	EACH	LF
947+00	-	958+50	PROJECT	-	-	-	6	3	-	200	15	108	-
946+88	-	946+99	LT	-	30	30	-	-	-	-	-	-	90
946+94	-	947+52	RT	-	90	90	-	-	-	-	-	-	90
946+98	-	950+62	LT	-	700	700	-	-	-	-	-	-	90
947+72	-	954+07	LT	-	670	670	-	-	-	-	-	-	90
947+72	-	954+26	RT	-	700	700	-	-	-	-	-	-	90
948+62	-	954+09	LT	-	1,100	1,100	-	-	-	-	-	-	90
954+89	-	957+06	RT	-	270	270	-	-	-	-	-	-	90
955+15	-	958+52	LT	-	740	740	-	-	-	-	-	-	90
955+27	-	959+07	LT	-	440	440	-	-	-	-	-	-	90
		953+74	LT & RT	-	-	-	-	-	2	-	-	-	-
		955+62	LT & RT	-	-	-	-	-	2	-	-	-	-
			UNDISTRIBUTED	50	510	510	-	-	-	150	-	50	90
TOTAL 0010				50	5,250	5,250	6	3	4	350	15	158	900

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MOVING SIGNS					
		634.0614	638.2102	638.3000	REMARKS
		POSTS WOOD	MOVING SIGNS	REMOVING	
		4X6-INCH X 14-FT	TYPE II	SMALL SIGN	
STATION	LOCATION	EACH	EACH	SUPPORTS	
950+63	LT	1	1	1	SCHOOL BUS STOP AHEAD (S3-1)
951+52	RT	1	1	1	SCHOOL BUS STOP AHEAD (S3-1)
957+80	RT	2	1	2	MATTS LN
TOTAL 0010		4	3	4	

PAVEMENT MARKINGS					
				646.2040	REMARKS
				MARKING LINE	
				GROOVED WET	
				REF EPOXY	
				6-INCH	
STATION	TO	STATION	LOCATION	LF	
947+00	-	953+64	LT & RT	1,330	
947+00	-	953+64	CL	1,330	
953+64	-	955+72	LT & RT	420	EDGE LINE
953+64	-	955+72	CL	420	CENTER LINE
955+72	-	958+50	LT & RT	560	EDGE LINE
955+72	-	958+50	CL	560	CENTER LINE
TOTAL 0010				4,620	

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TRAFFIC CONTROL													
		643.0300		643.0420		643.0705		643.0900		643.0920		*643.1000	643.5000
		TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL	TRAFFIC CONTROL
		DRUMS	DRUMS	BARRICADES	BARRICADES	WARNING LIGHTS	WARNING LIGHTS	SIGNS	CONTROL SIGNS	COVERING SIGNS	COVERING SIGNS	SIGNS FIXED	CONTROL
DESCRIPTION	DURATION (DAYS)	NO. DEVICES	DAY	TYPE III	TYPE III	TYPE A	TYPE A	NO. DEVICES	DAY	NO. DEVICES	CYCLES	MESSAGE	TYPE II
ADVANCED PROJECT NOTIFICATION	7	-	-	-	-	-	-	-	-	-	-	36	1
DETOUR - SHEET D1	125	-	-	-	-	-	-	162	20,250	-	-	-	-
DETOUR - SHEET L1	125	-	-	2	250	4	500	24	3,000	1	11	-	-
DETOUR - SHEET L2	125	-	-	-	-	-	-	33	4,125	-	-	-	-
DETOUR - SHEET L3	125	-	-	-	-	-	-	22	2,750	-	-	-	-
DETOUR - SHEET L4	125	-	-	-	-	-	-	39	4,875	-	-	-	-
DETOUR - SHEET L5	125	-	-	2	250	4	500	17	2,125	1	7	-	-
EB TRAIL CLOSURE (TRAIL CLOSED SIGN ON BARRICADE)	125	-	-	2	250	4	500	2	250	-	-	-	-
WB TRAIL CLOSURE (TRAIL CLOSED SIGN ON BARRICADE)	125	-	-	2	250	4	500	2	250	-	-	-	-
EB CLOSURE APPROACH	125	-	-	9	1125	14	1,750	7	875	-	-	-	-
WB CLOSURE APPROACH	125	-	-	9	1125	14	1,750	7	875	-	-	-	-
TRAIL BRIDGE POLYMER OVERLAY FLAGGING	2	-	-	-	-	-	-	6	12	-	-	-	-
UNDISTRIBUTED	125		2,000		350		600		1,613	1	2	-	-
TOTAL 0010			2,000		3,600		6,100		41,000		20	36	1

* INSTALL ONE G20-57C SIGN READING "HWY 63 ROAD CLOSED BEGINS XX-XX" AT EACH END OF THE PROJECT 7 DAYS PRIOR TO THE START OF CONSTRUCTION.

ALL QUANTITIES ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

3

3

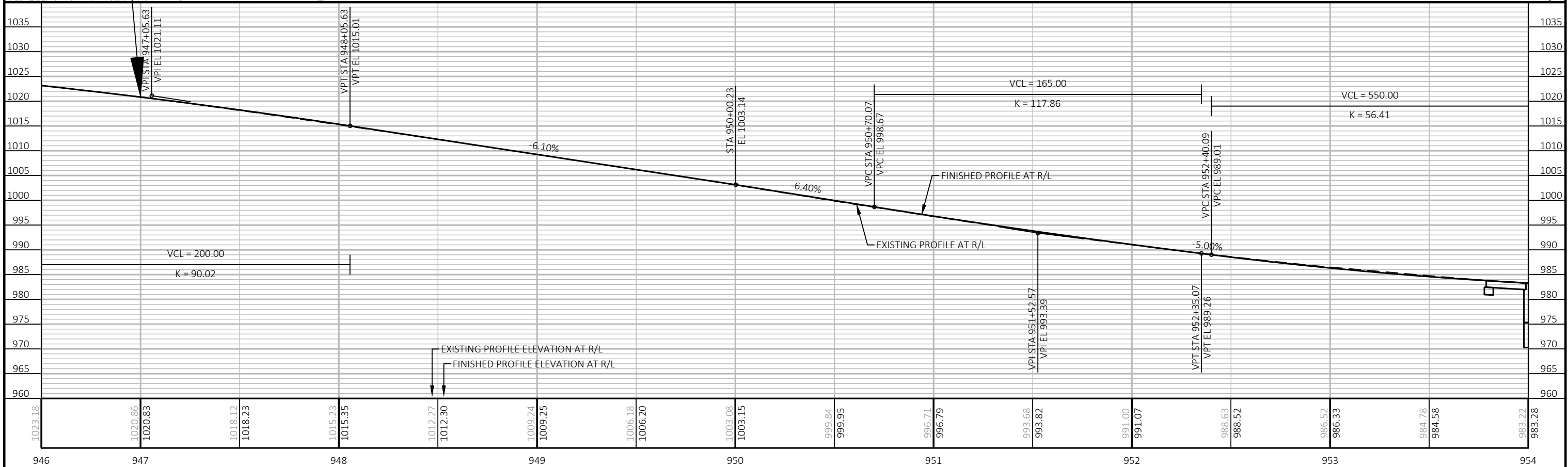
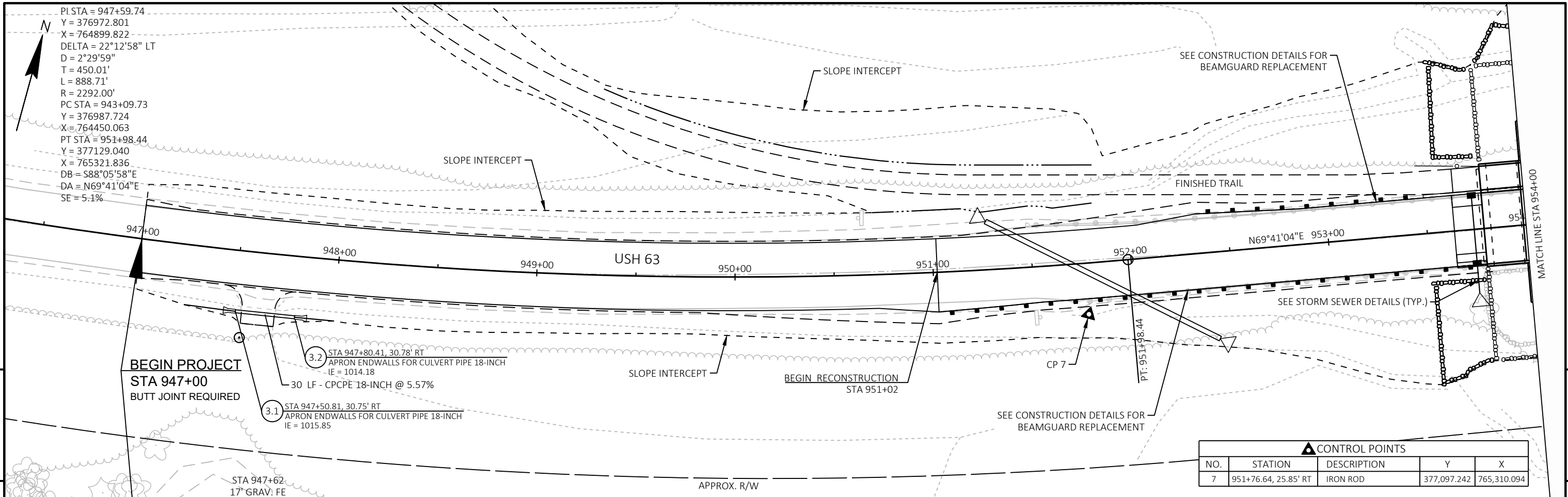
CONSTRUCTION STAKING										
			650.4000	650.4500	650.5000	650.6000	650.6501.01	650.9911.01	650.9920	
			CONSTRUCTION STAKING STORM SEWER EACH		CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING PIPE CULVERTS EACH	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (01. B-4-129) EACH	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 1560-00-78) EACH	CONSTRUCTION STAKING SLOPE STAKES LF
-	-	-	PROJECT	8	-	-	-	1	1	-
947+00	-	953+99	USH 63	-	-	-	-	-	-	699
951+02	-	953+99	USH 63	-	297	297	-	-	-	-
955+37	-	957+10	USH 63	-	173	173	-	-	-	-
955+37	-	958+50	USH 63	-	-	-	-	-	-	313
-	-	947+65	RT	-	-	-	1	-	-	-
-	-	957+26	RT	-	-	-	1	-	-	-
97+58	-	103+98	TRAIL	-	640	640	-	-	-	640
105+37	-	109+58	TRAIL	-	421	421	-	-	-	421
TOTAL 0010				8	1,531	1,531	2	1	1	2,073

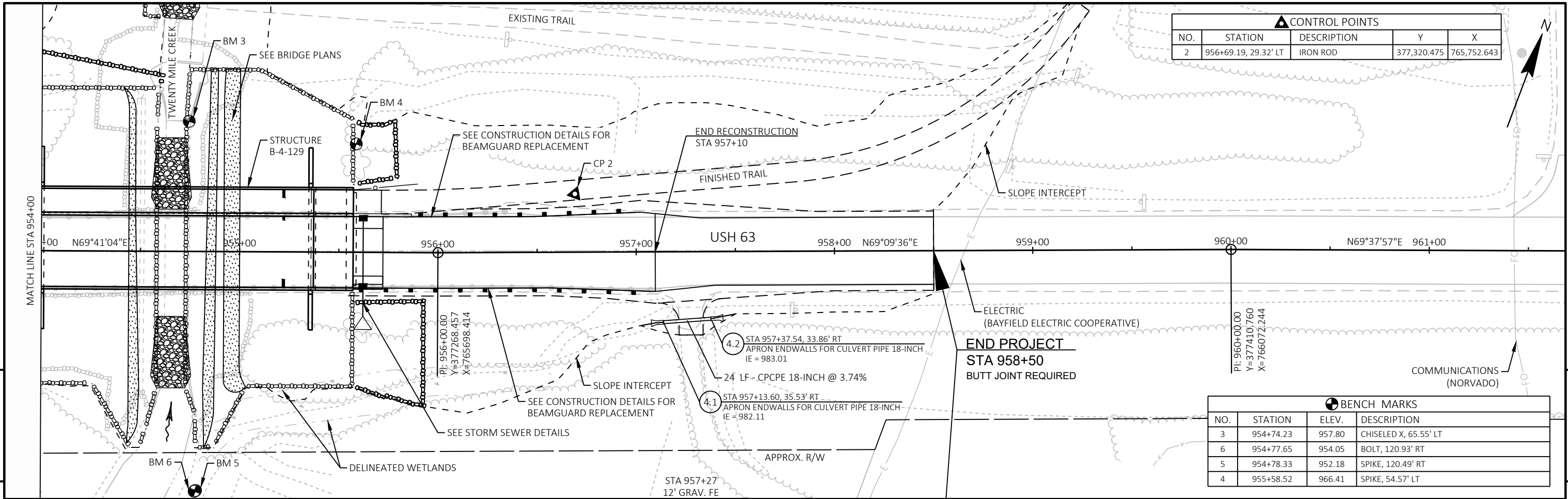
SAWING ASPHALT		
		690.0150
STATION	LOCATION	SAWING ASPHALT LF
951+02	USH 63	34
957+10	USH 63	34
TOTAL 0010		68

RIFFLE			
		SPV.0195.01	SPV.0195.02
		SPECIAL (01. FOOTER ROCK) TON	SPECIAL (02. RIFFLE ROCK) TON
STATION	LOCATION		
954+67	LT & RT	20	270
TOTAL 0010		20	270

FENCE TIMBER			
			SPV.0090.01
			SPECIAL (01. FENCE TIMBER 4.5-FT) LF
STATION	TO	STATION LOCATION	
103+48	-	103+78 LT	32.5
105+57	-	105+88 LT	32.5
TOTAL 0010			65.0

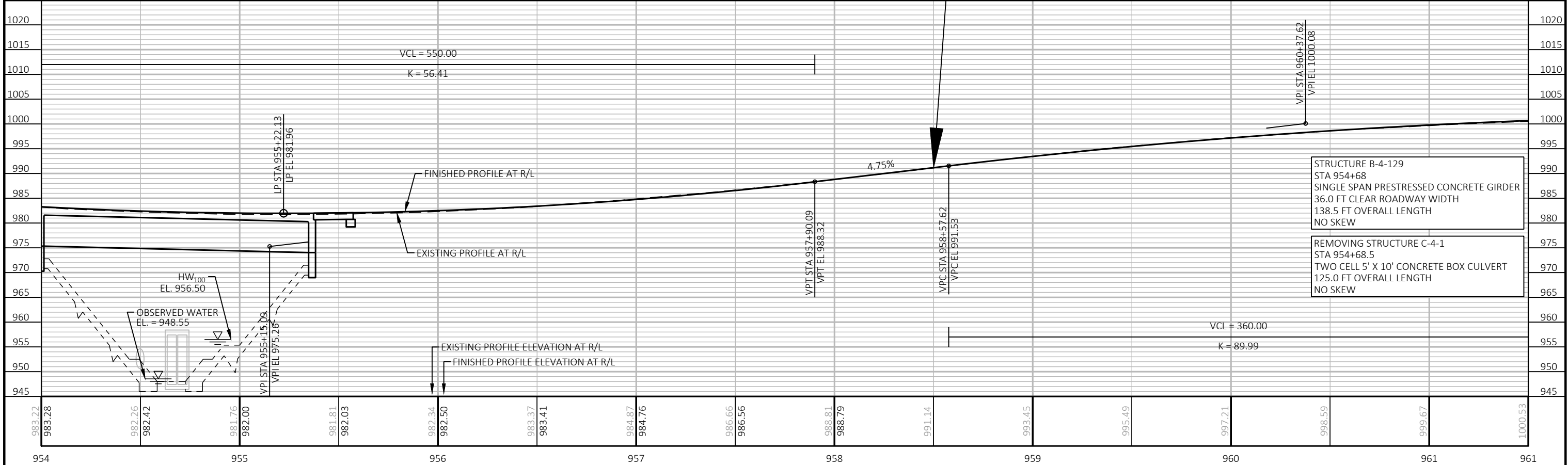
ALL QUANTITIES ARE CATEGORY 0010 UNLESS NOTED OTHERWISE



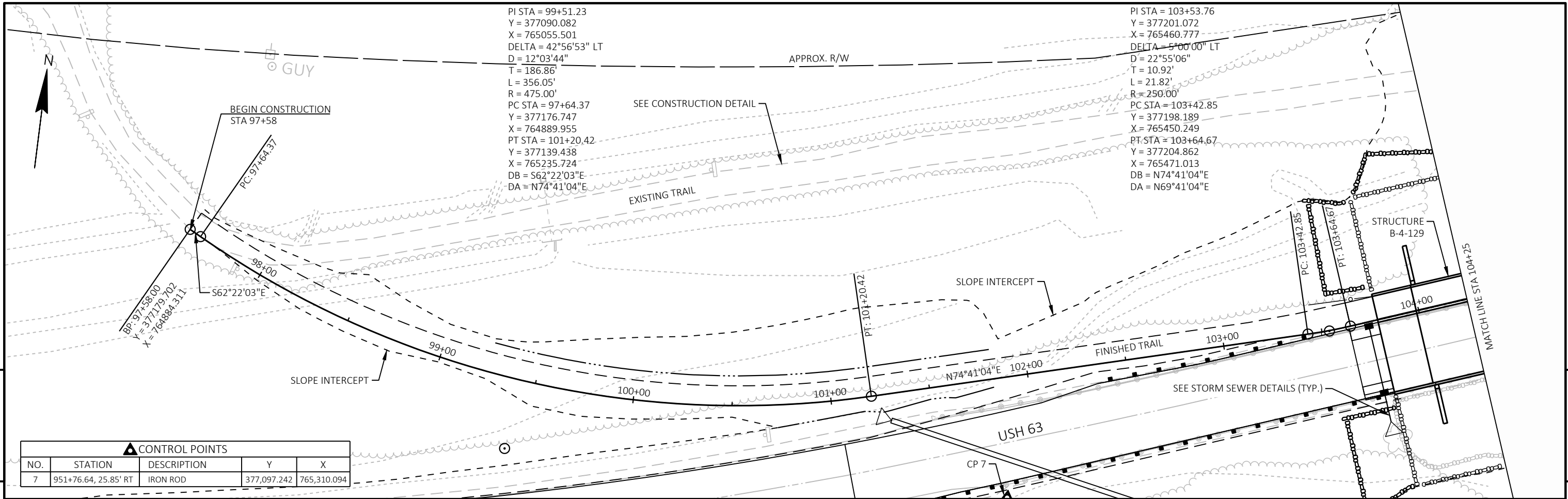


CONTROL POINTS				
NO.	STATION	DESCRIPTION	Y	X
2	956+69.19, 29.32' LT	IRON ROD	377,320.475	765,752.643

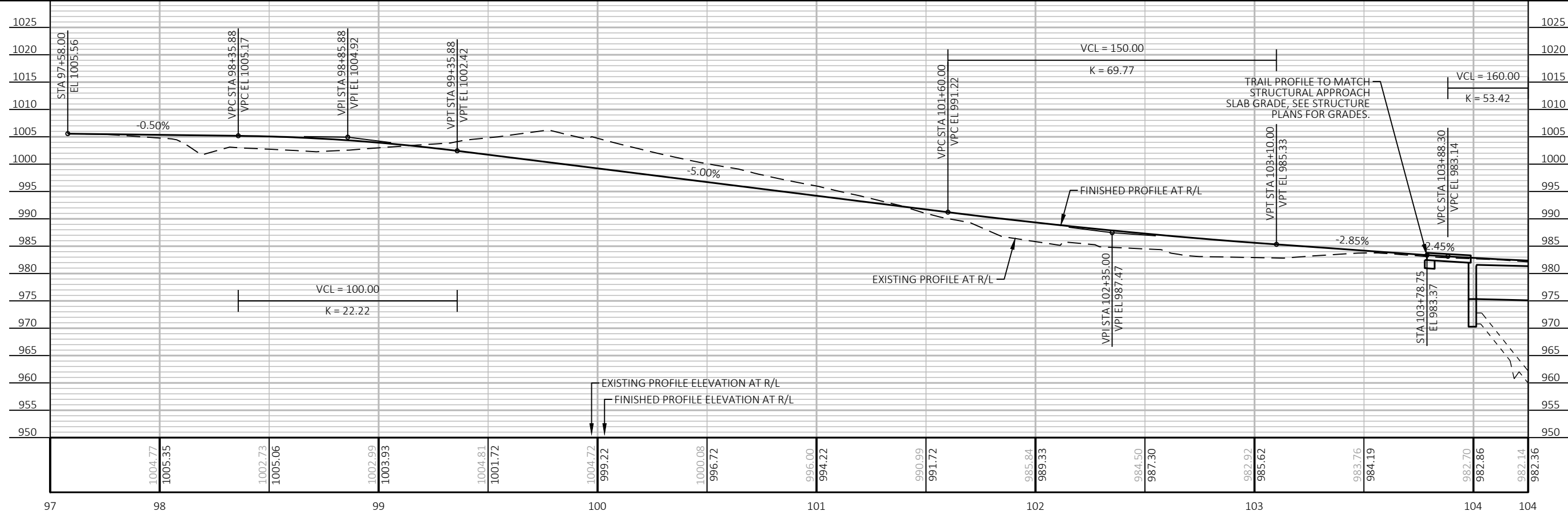
BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
3	954+74.23	957.80	CHISELED X, 65.55' LT
6	954+77.65	954.05	BOLT, 120.93' RT
5	954+78.33	952.18	SPIKE, 120.49' RT
4	955+58.52	966.41	SPIKE, 54.57' LT

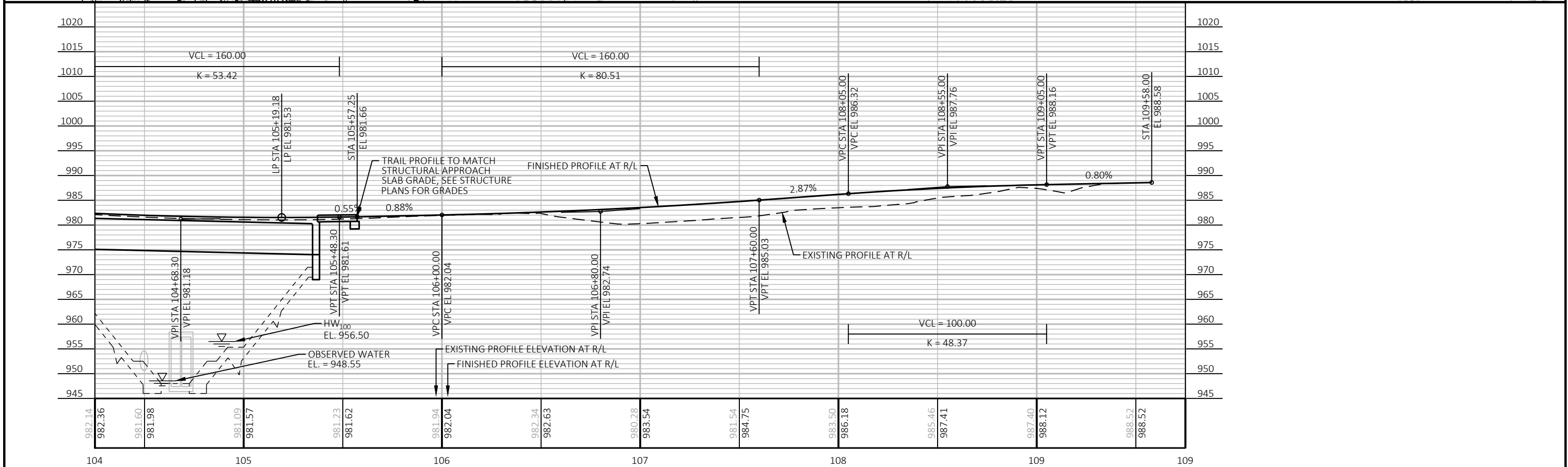
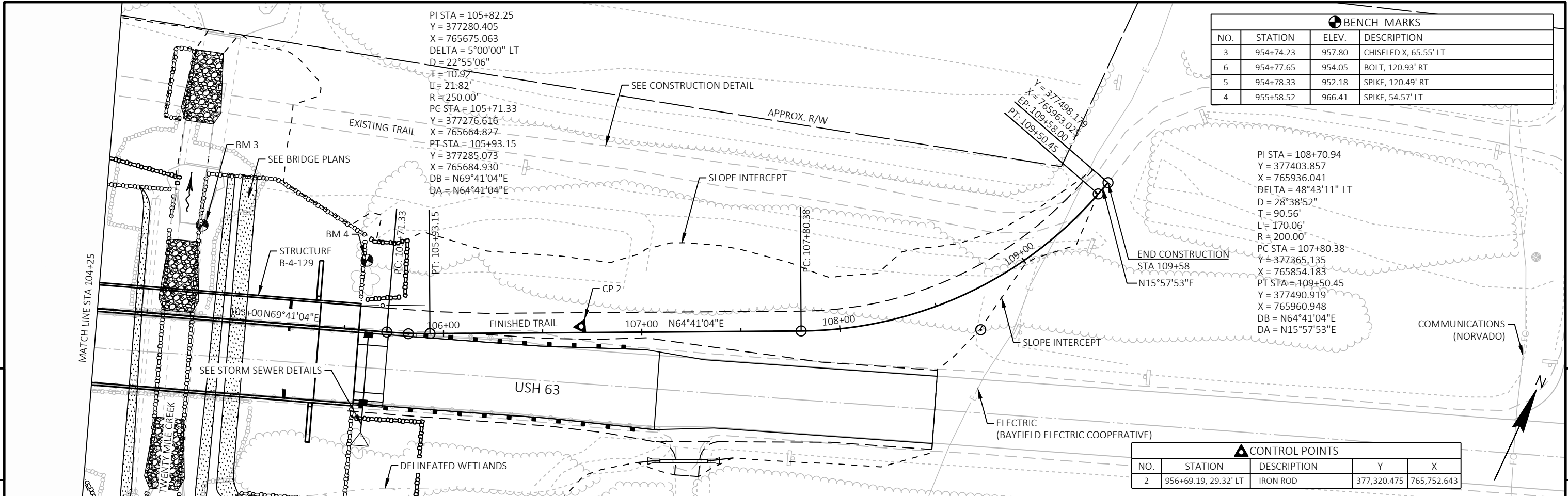


PROJECT NO: 1560-00-78	HWY: USH 63	COUNTY: BAYFIELD	PLAN AND PROFILE: USH 63	SHEET 34	E
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CONTROL POINTS				
NO.	STATION	DESCRIPTION	Y	X
7	951+76.64, 25.85' RT	IRON ROD	377,097.242	765,310.094





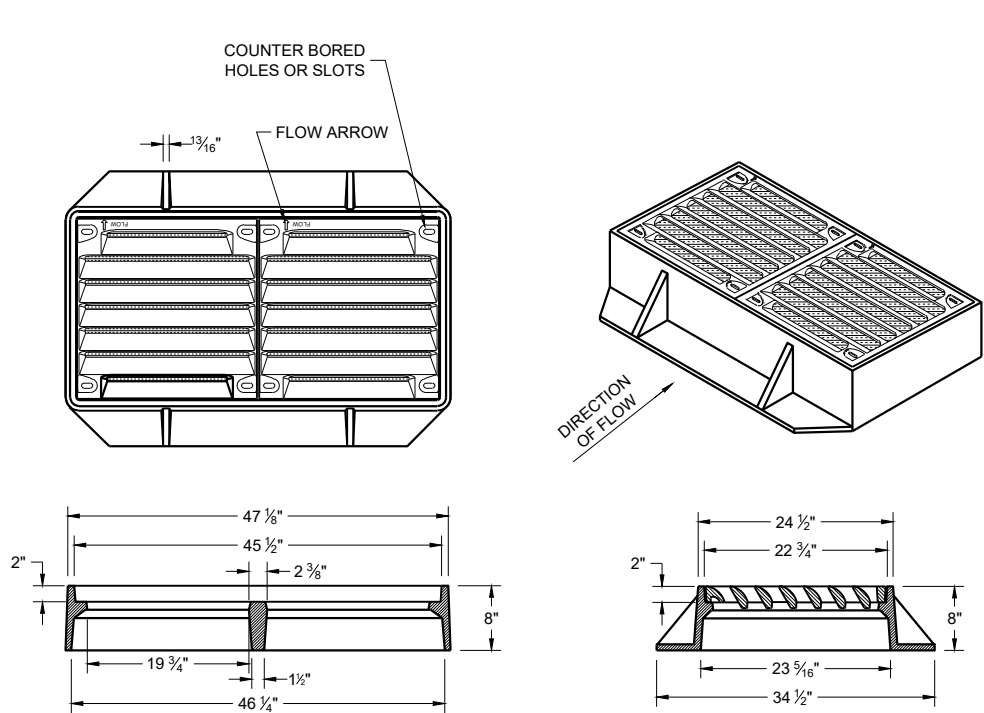
Standard Detail Drawing List

08A05-22D	INLET COVERS TYPE V, V-B, & VV-B
08A05-22E	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08C07-03	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT, 2.5X3-FT & 2X3.5-FT
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
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
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09A14-01	DRIVEWAYS WITHOUT CURB AND GUTTER
09A15-01	DRIVEWAYS WITHOUT CURB AND GUTTER RESURFACING PROJECTS RURAL
12A03-10	NAME PLATE (STRUCTURES)
13A10-03A	SHOULDER RUMBLE STRIPS - ASPHALT
13A10-03G	SHOULDER AND EDGE LINE RUMBLE STRIPS - CROSSINGS, INTERSECTIONS, BRIDGES, DRIVEWAYS
13A10-03H	SHOULDER AND EDGE LINE RUMBLE STRIPS - RAILROAD, PASSING, CLIMBING AND BYPASS LANES
13A11-04A	CENTERLINE RUMBLE STRIPS - ASPHALT
13A11-04D	CENTERLINE RUMBLE STRIPS - INTERSECTIONS, DRIVEWAYS, BRIDGES, RAILROADS
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13B02-09B	STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C18-08A	CONCRETE PAVEMENT JOINTING
13C18-08B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-08C	CONCRETE PAVEMENT JOINT TYPES
13C18-08D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
13C18-08F	CONCRETE PAVEMENT INTERSECTION BOXOUT FOR INTEGRAL CURB AND GUTTER
13C19-03	HMA LONGITUDINAL JOINTS
14B29-01	SAFETY EDGE
14B33-02G	CONCRETE BARRIER SINGLE SLOPE 42" THRIE BEAM ANCHOR
14B33-02H	CONCRETE BARRIER SINGLE SLOPE 42" THRIE BEAM ANCHOR
14B34-02A	32", 36" & 42" CONCRETE BARRIER SINGLE SLOPE CLASS B
14B40-02E	42-INCH VERTICAL SHAPE CONCRETE BARRIER TO 42-INCH SSCB TRANSITION
14B40-02F	42-INCH VERTICAL SHAPE CONCRETE BARRIER TO 42-INCH SSCB TRANSITION
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	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)
14D01-01	TURTLE EXCLUSION FENCE CLIMBING TURTLE
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-10A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-10B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-10C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C11-11B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

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.

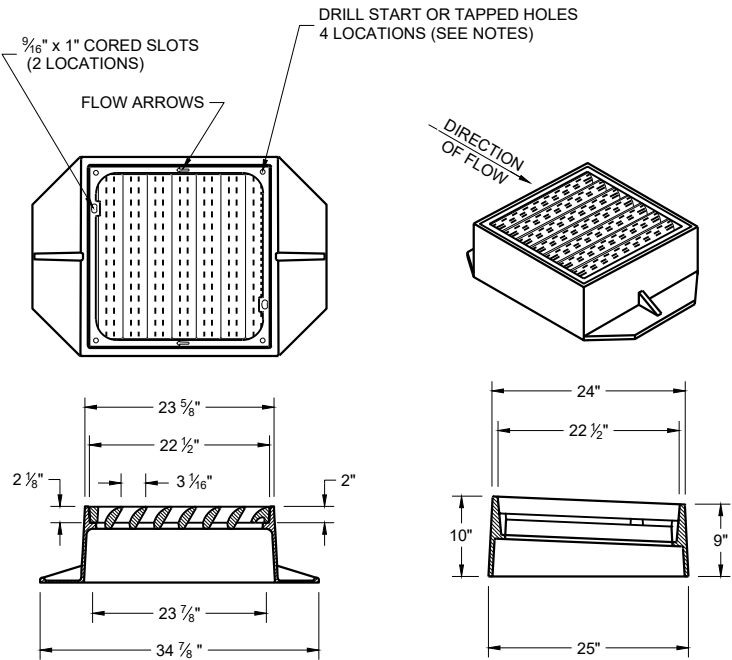
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



TYPE "VV-B"

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER
ALL DRILLING AND TAPPING GRATES AND FRAMES BY CASTING MANUFACTURER

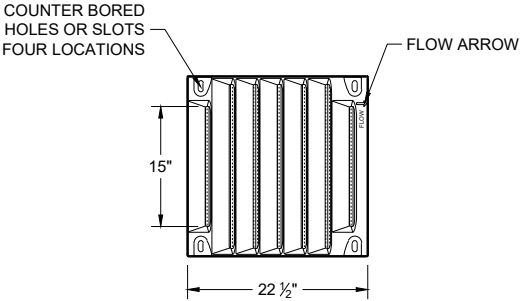
TYPE V
FRAME - CAST GRAY IRON ASTM A48 CLASS 35B
3/8" DIA. X 1/16" DRILL START IN 8 LOCATIONS
GRATE - CAST GRAY IRON ASTM A-48, CLASS 35B



TYPE "V"

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER ALL DRILLING AND TAPPING GRATES AND FRAMES BY CASTING MANUFACTURER

TYPE V
FRAME - CAST GRAY IRON ASTM A48 CLASS 40A
3/8" DIA. X 1/16" DRILL START IN 4 LOCATIONS
GRATE - CAST GRAY IRON ASTM A-48, CLASS 35B



BOLT DOWN GRATE FOR
TYPE "V" AND "VV-B" COVER

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER
NOTED AS TYPE "V-B" OR "VV-B" (FOR DOUBLE GRATE) ON DRAINAGE TABLE

TAP 1/2" -13 HOLES IN FOUR LOCATIONS PER GRATE IN FRAME TO BOLT GRATE(S).
FRAME - CAST GRAY IRON ASTM A48 CLASS 40A

GRATE - CAST DUCTILE IRON ASTM A536, 55+KSI YIELD
BOLTS - 1/2" -13 STAINLESS STEEL BOLTS WITH WASHERS
TORQUE BOLTS TO MANUFACTURER SPECIFICATION DO NOT OVERTIGHTEN.

INLET COVERS
TYPES V, V-B, AND VV-B

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

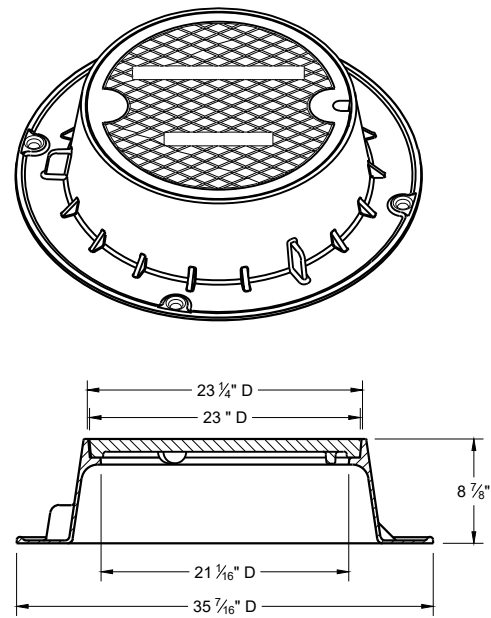
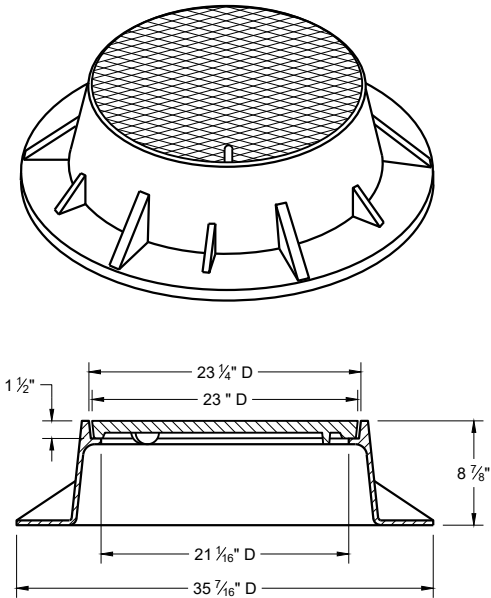
APPROVED
February 2025 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

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.

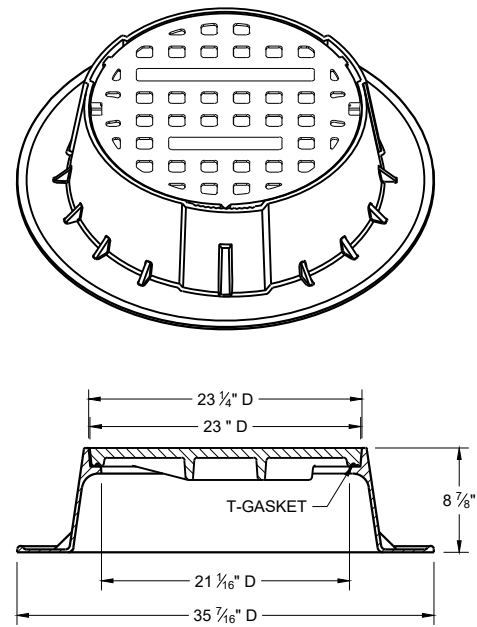
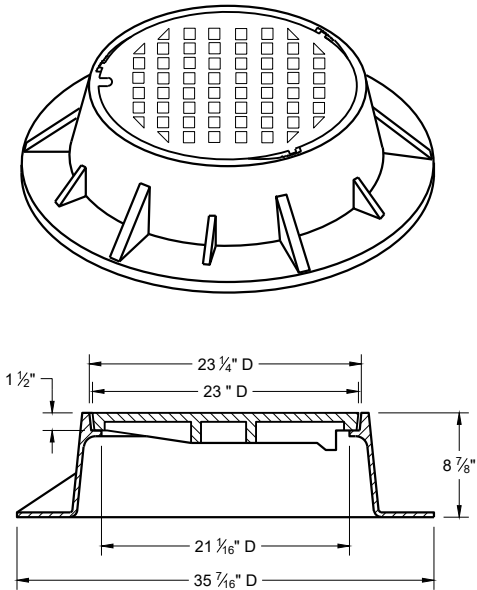
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



TYPE "J"

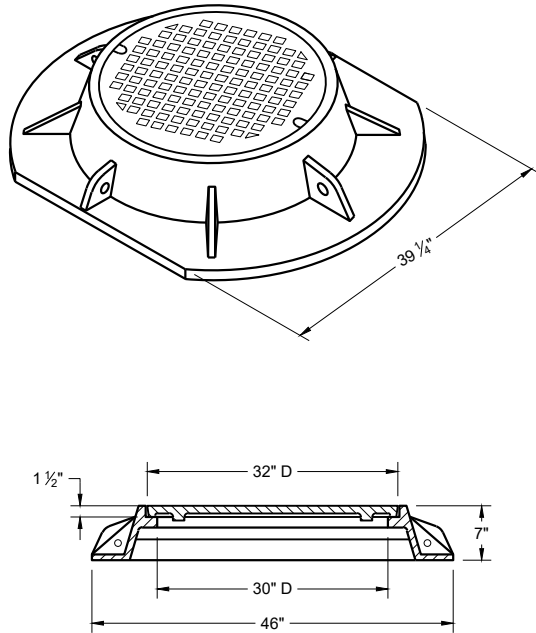
NOTE: EITHER CASTING IS ACCEPTABLE



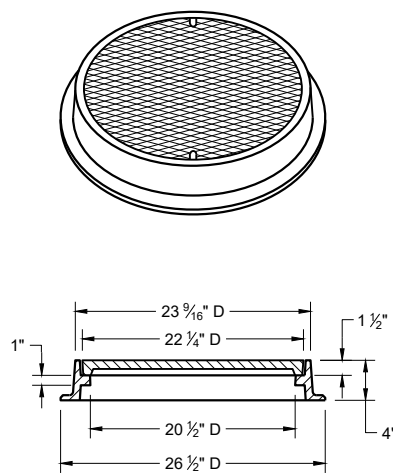
TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

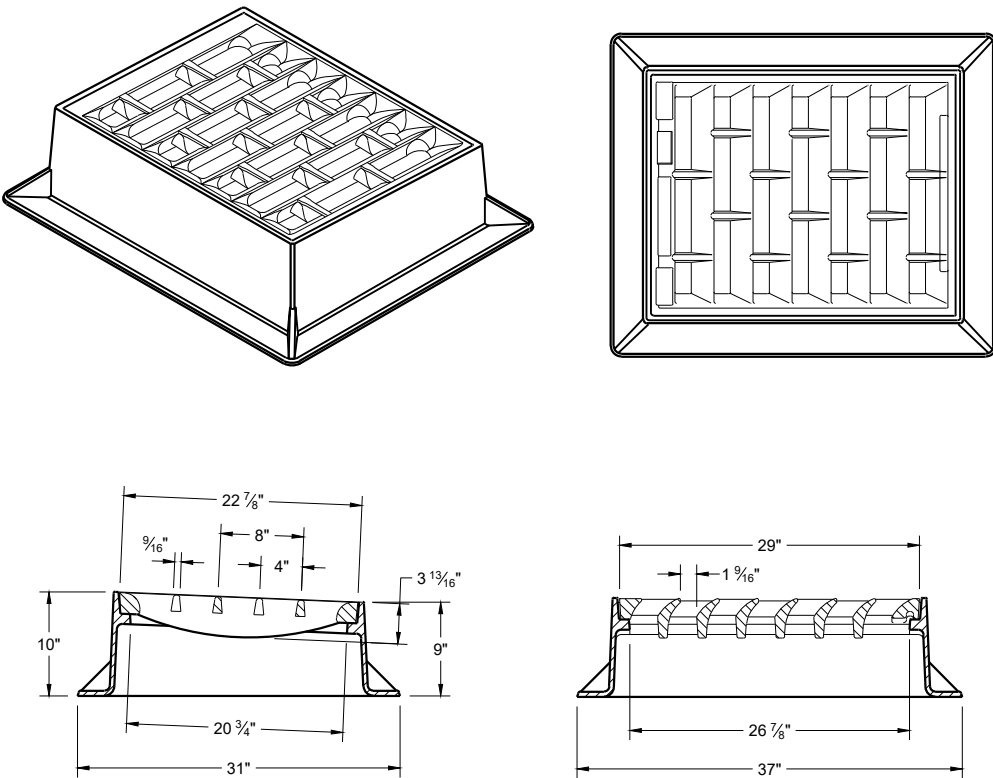
NOTE: EITHER CASTING IS ACCEPTABLE



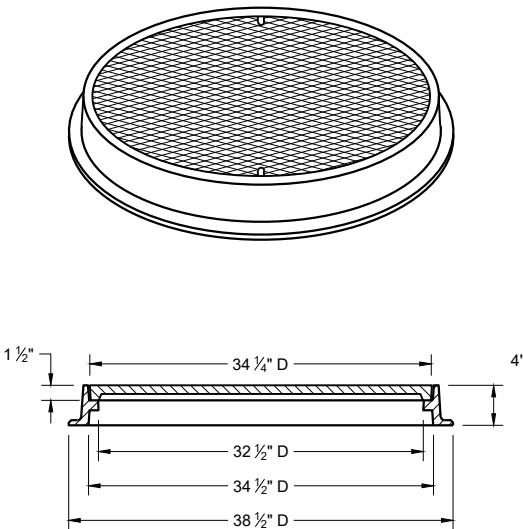
TYPE "K"



TYPE "L"



INLET COVER TYPE "BW"

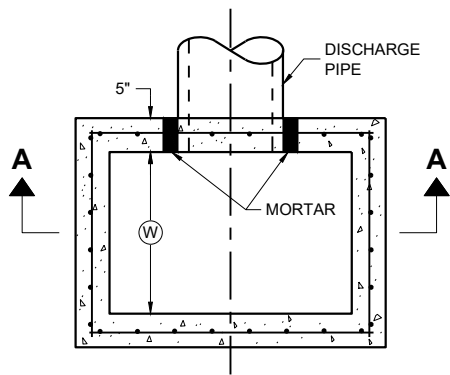


TYPE "M"

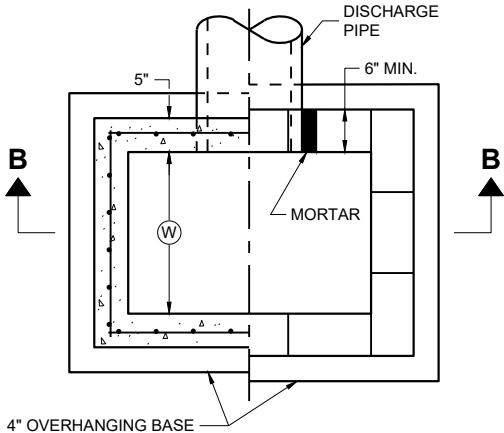
INLET COVERS TYPES BW
MANHOLE COVERS TYPES K,
J, J-S, L, AND M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

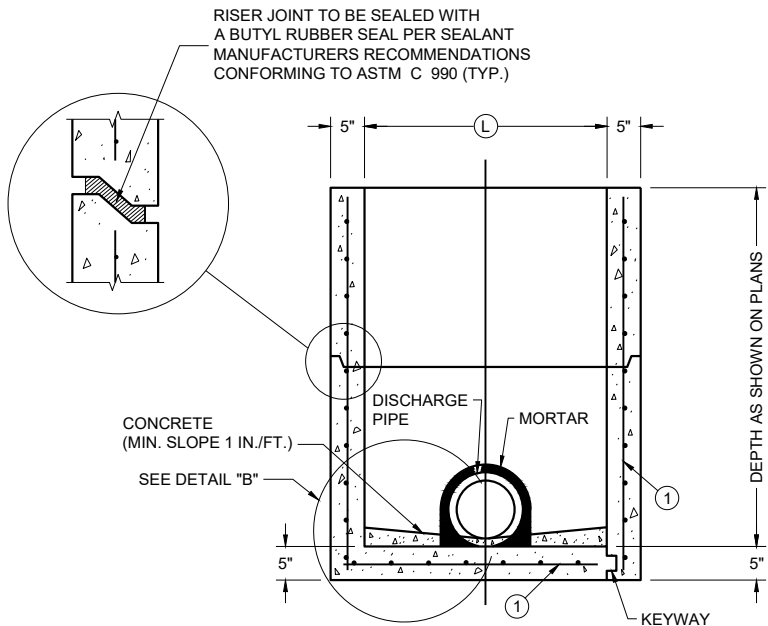
APPROVED
February 2025 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



PLAN VIEW



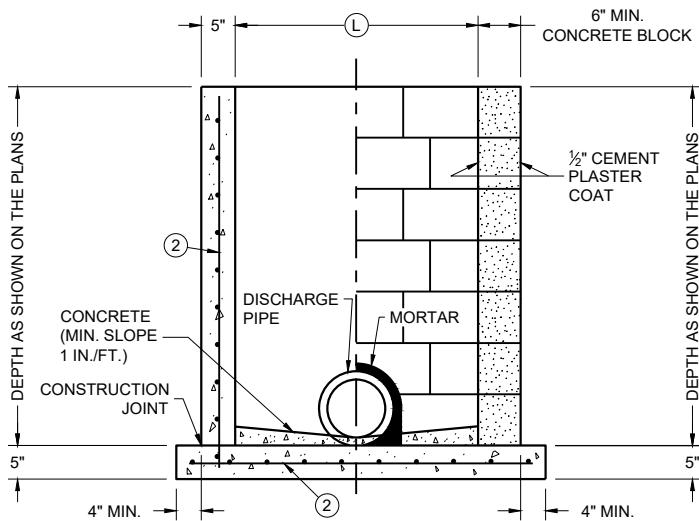
PLAN VIEW



PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

PRECAST REINFORCED
CONCRETE WITH
INTEGRAL BASE

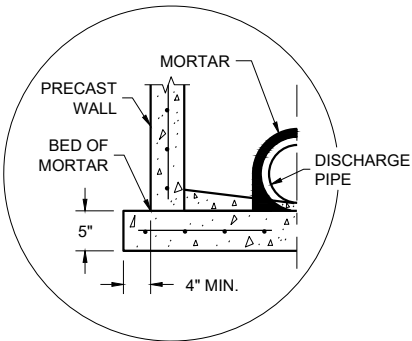
SECTION A - A



CAST IN PLACE
REINFORCED
CONCRETE

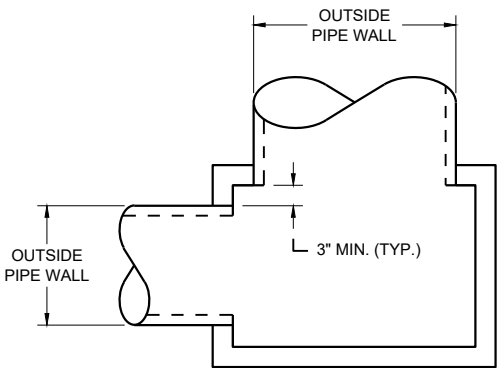
CONCRETE BLOCK WITH
CAST IN PLACE OR
PRECAST REINFORCED
CONCRETE BASE ①

SECTION B - B



SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

DETAIL "B"



DETAIL "A"

INLETS 2 X 2-FT, 2 X 2.5-FT, 2 X 3-FT, 2.5 X 3-FT AND 2X3.5-FT

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" 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 AND REINFORCED CONCRETE BASES 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.

CATCH BASIN COVER MATRIX

INLET SIZE	WIDTH (W) (FT.)	LENGTH (L) (FT.)	INLET COVER TYPE									
			ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM	V V-B
2 X 2-FT	2	2	X	X				X				
2 X 2.5-FT	2	2.5			X			X	X	X	X	
2 X 3-FT	2	3					X					
2.5 X 3-FT	2.5	3				X						
2 X 3.5-FT	2	3.5										X

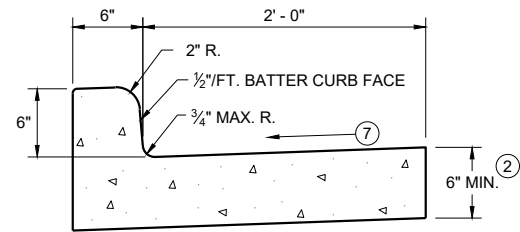
PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	WIDTH (IN)	LENGTH (IN)
2 X 2-FT	12	12
2 X 2.5-FT	12	18
2 X 3-FT	12	24
2.5 X 3-FT	18	24
2 X 3.5-FT	12	30

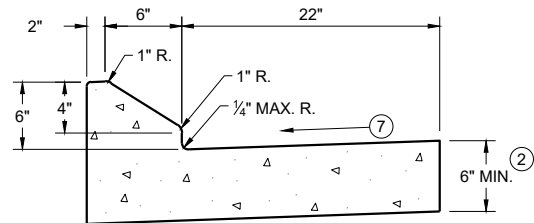
INLETS 2 X 2-FT, 2 X 2.5-FT,
2 X 3-FT, 2.5 X 3-FT
AND 2 X 3.5-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

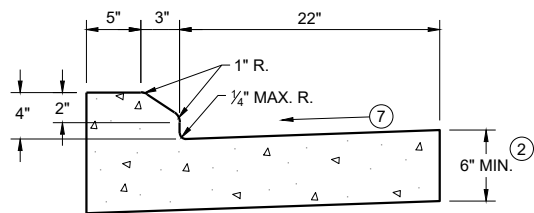
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



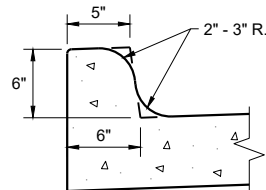
TYPES A^① & D



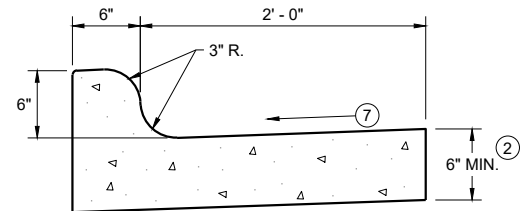
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

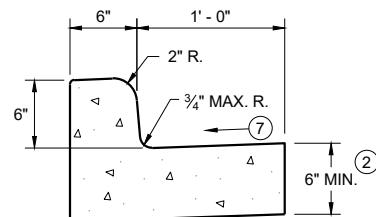


TYPES K^① & L
(OPTIONAL CURB SHAPE)



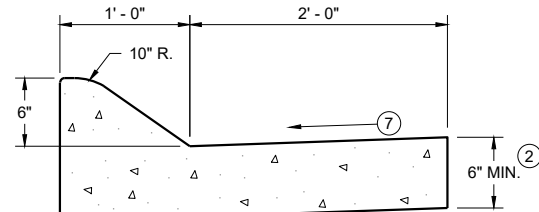
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

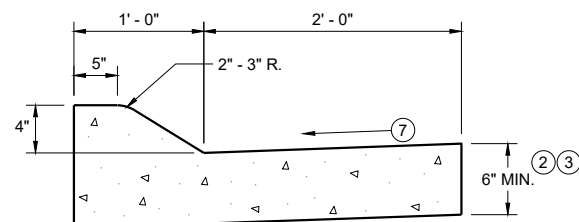


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

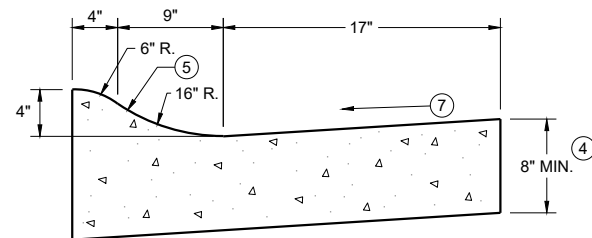


6" SLOPED CURB TYPES A^① & D



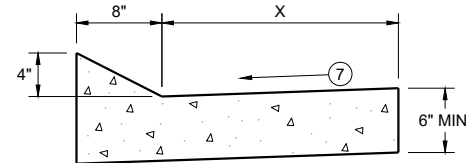
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T
CONCRETE CURB AND GUTTER 30"

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

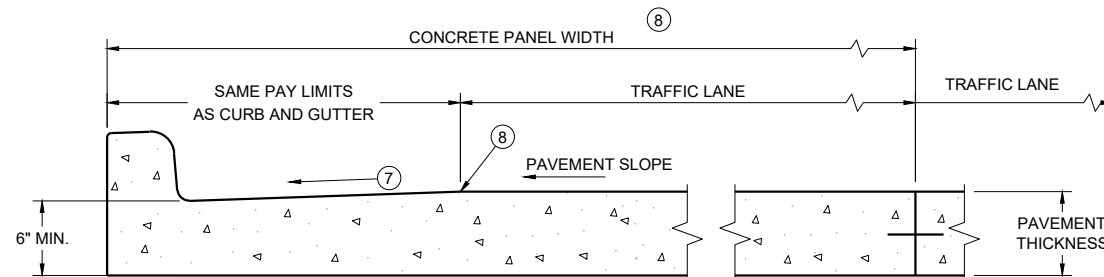


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

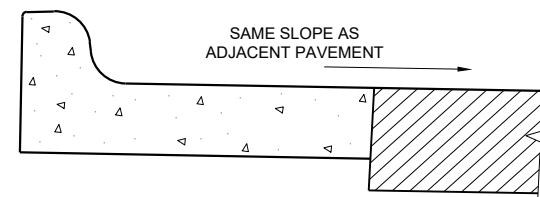
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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

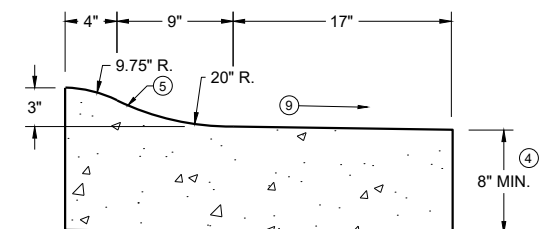


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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



3" SLOPED CURB TYPES R^① & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

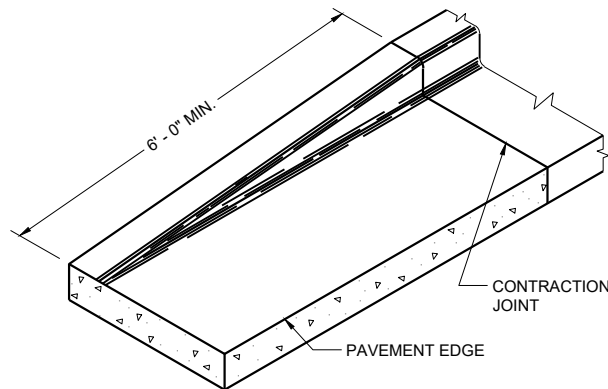
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

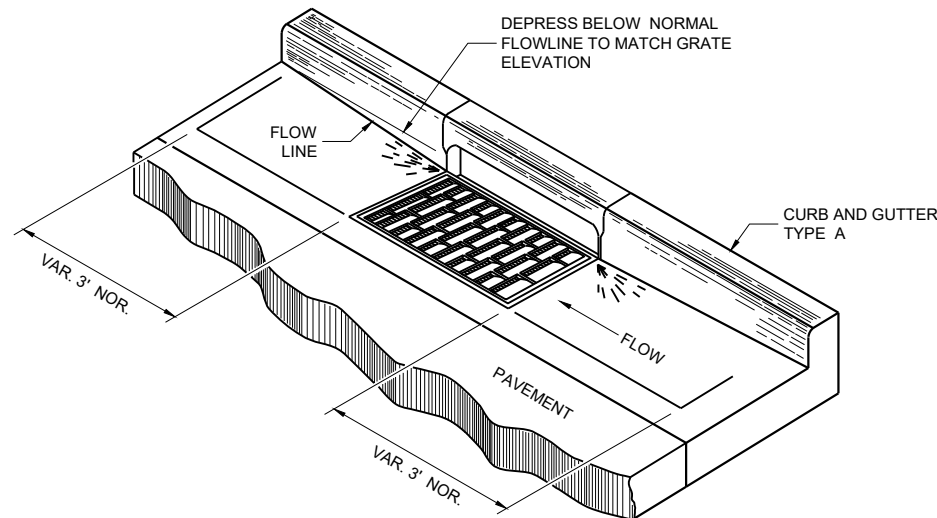
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ SLOPE TO BE REVERSE SLOPE MATCHING THE SLOPE OF THE PAVEMENT AND THE CIRCULATORY ROADWAY

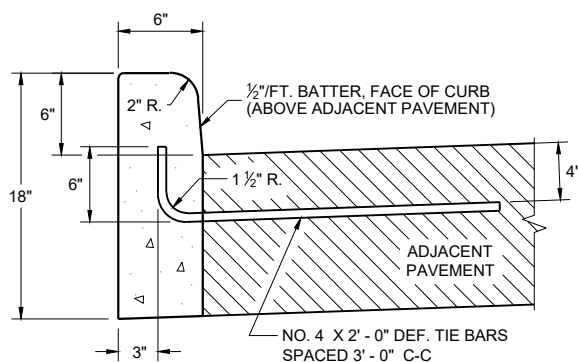


END SECTION CURB AND GUTTER

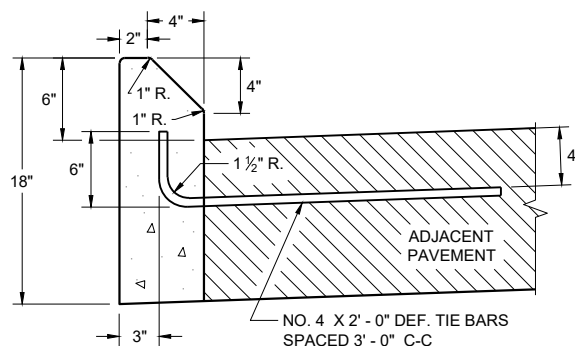


DETAIL OF CURB AND GUTTER AT INLETS

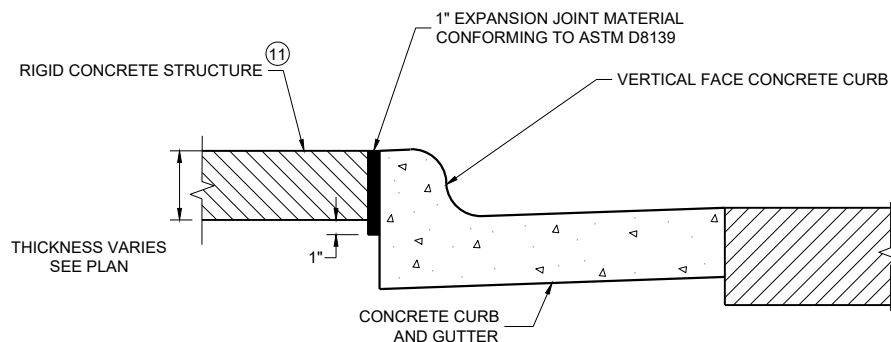
(TYPICAL H INLET COVER SHOWN)



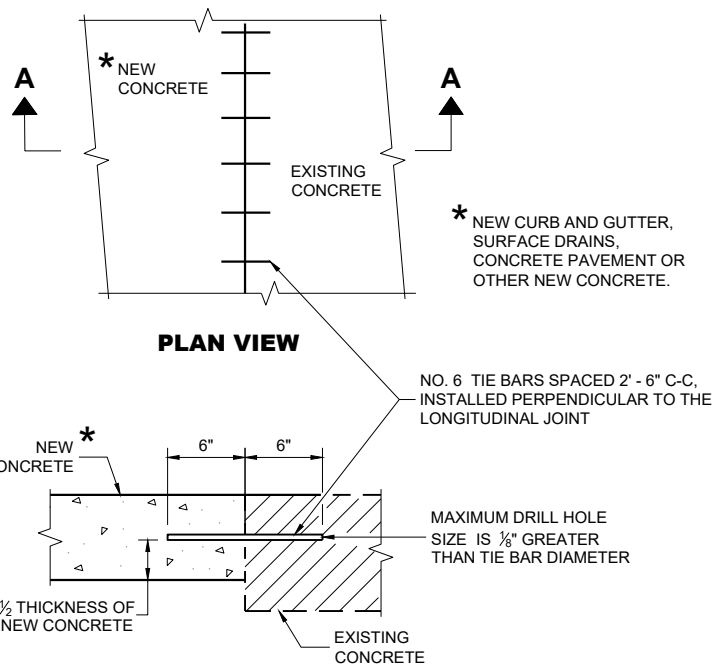
TYPES A^① & D



**TYPES G^① & J
CONCRETE CURB**



EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE^⑪



**SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT**

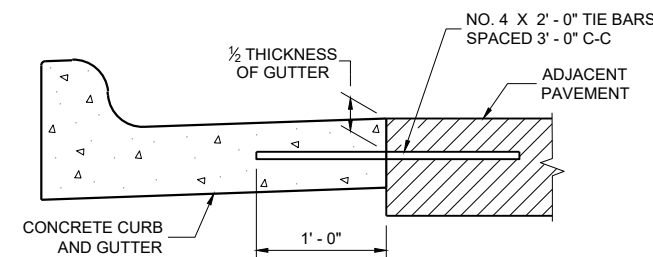
GENERAL NOTES

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

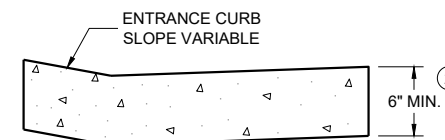
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.
- ⑪ PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.



TYPICAL TIE BAR LOCATION^①



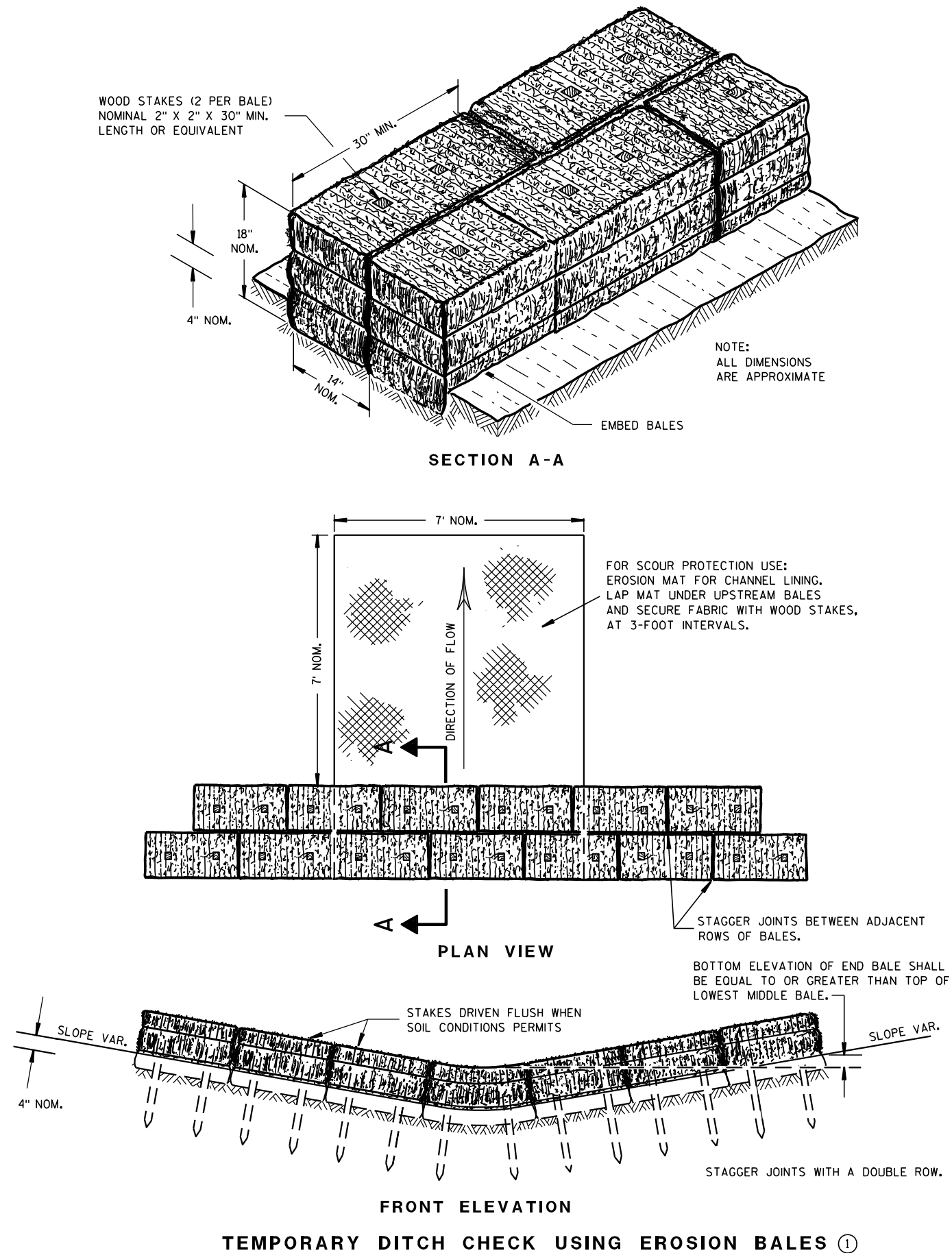
**DRIVEWAY ENTRANCE CURB^⑩
(WHEN DIRECTED BY THE ENGINEER)**

**CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

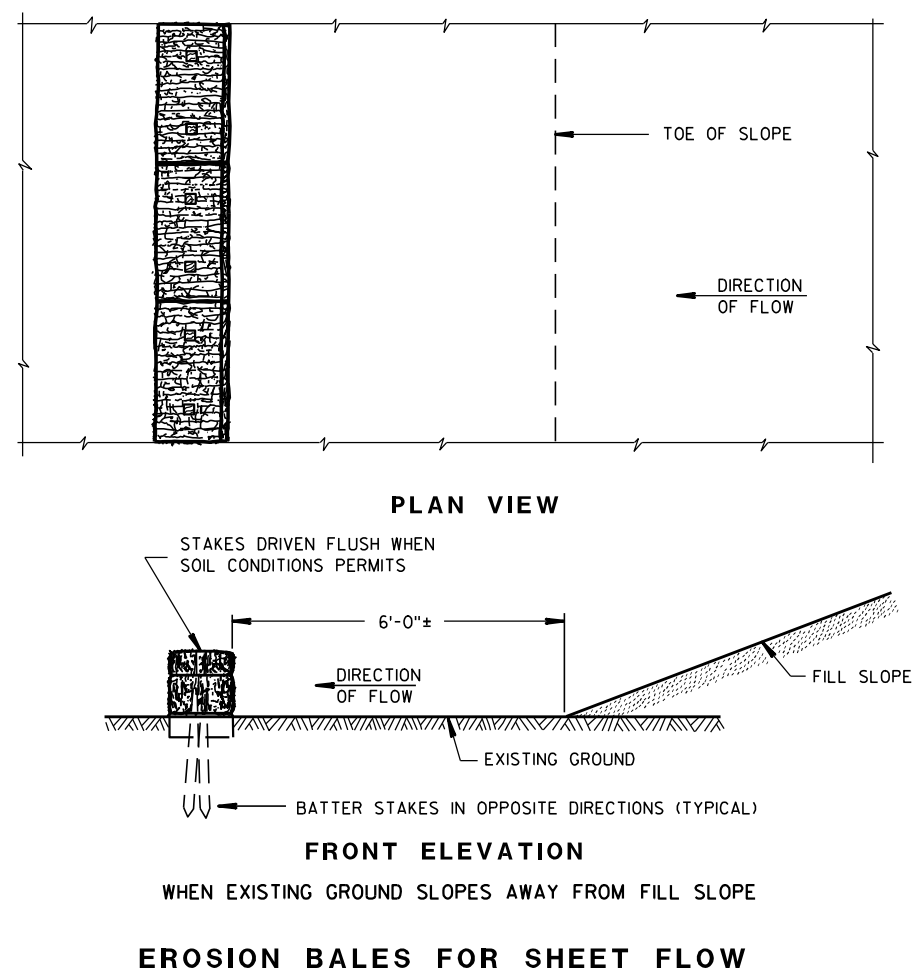
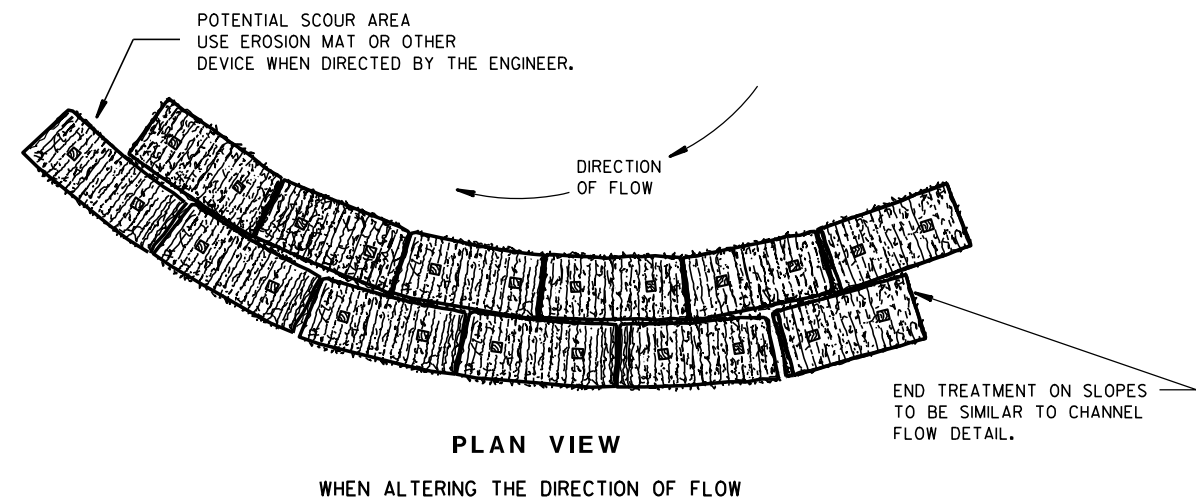
FHWA



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

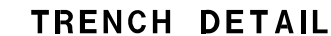
6/04/02
DATE

/S/ Beth Conn-----
CHIEF ROADWAY DEVELOPER 43 ENGINEER

FHWA



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

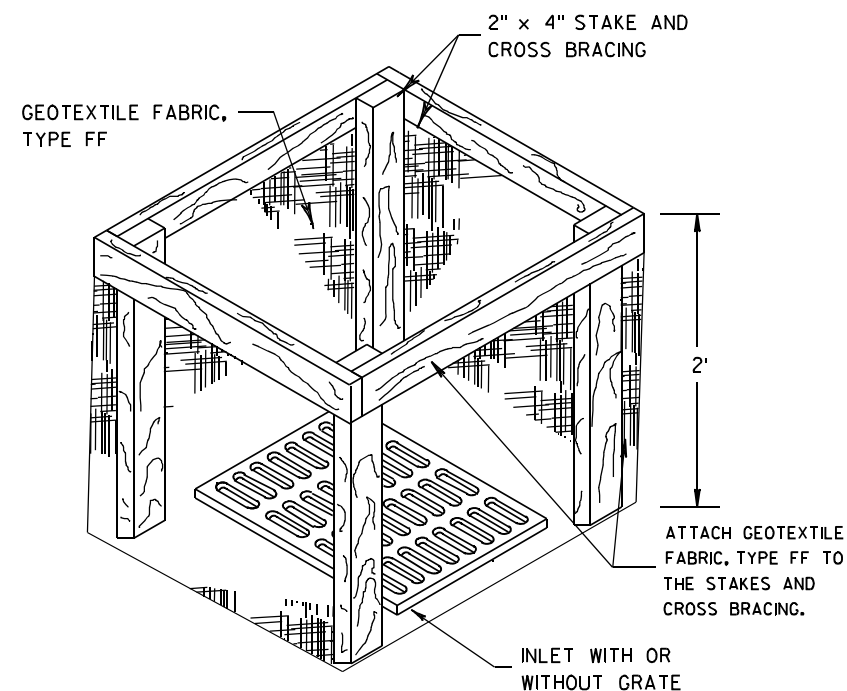
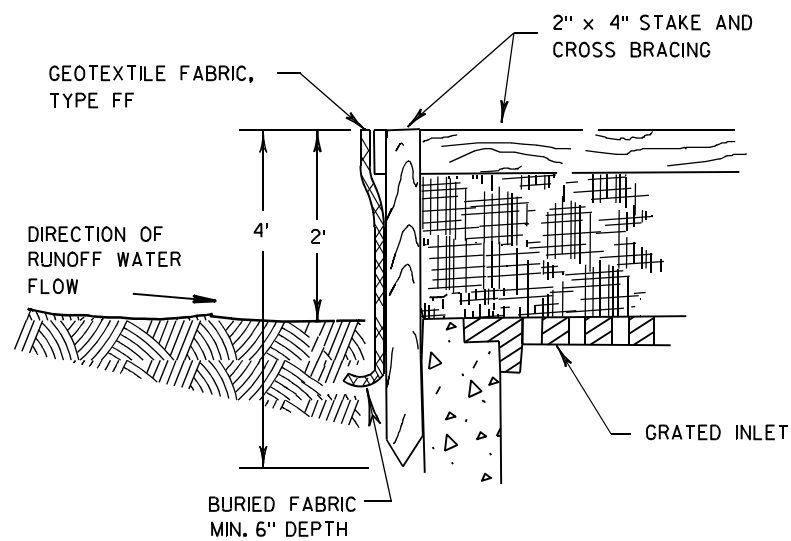


SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05
DATE _____ /S/ Beth Cannata _____
CHIEF ROADWAY DEVELOPMENT 44 INCHES

FHWA



INLET PROTECTION, TYPE A

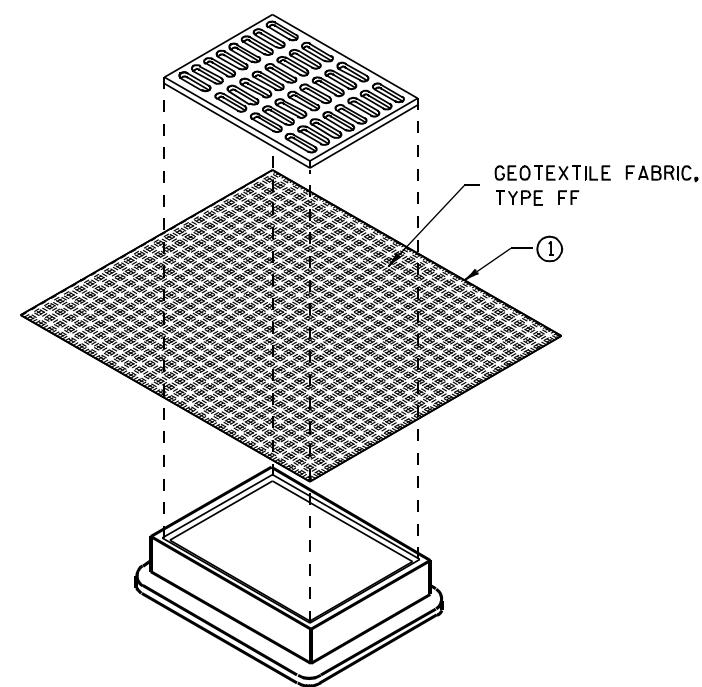
GENERAL NOTES

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

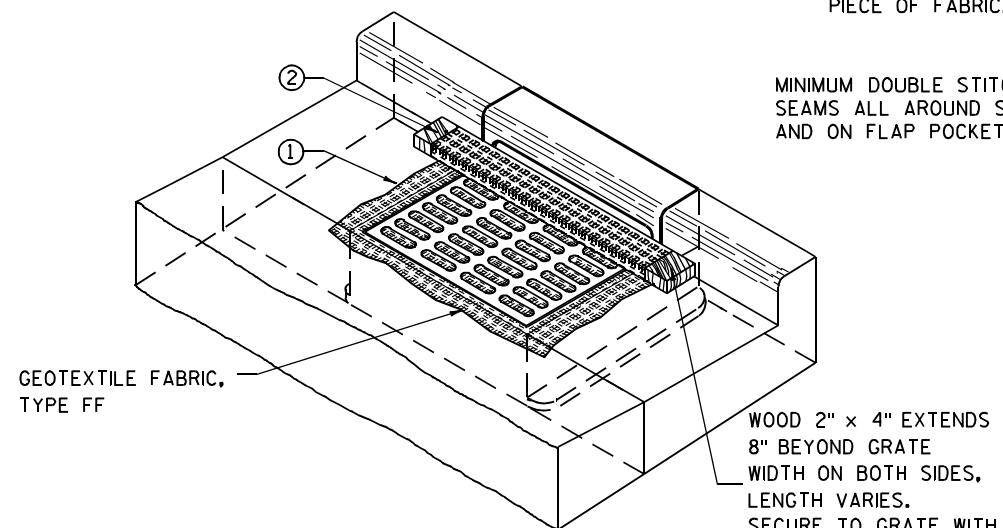
MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

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

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



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**
(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

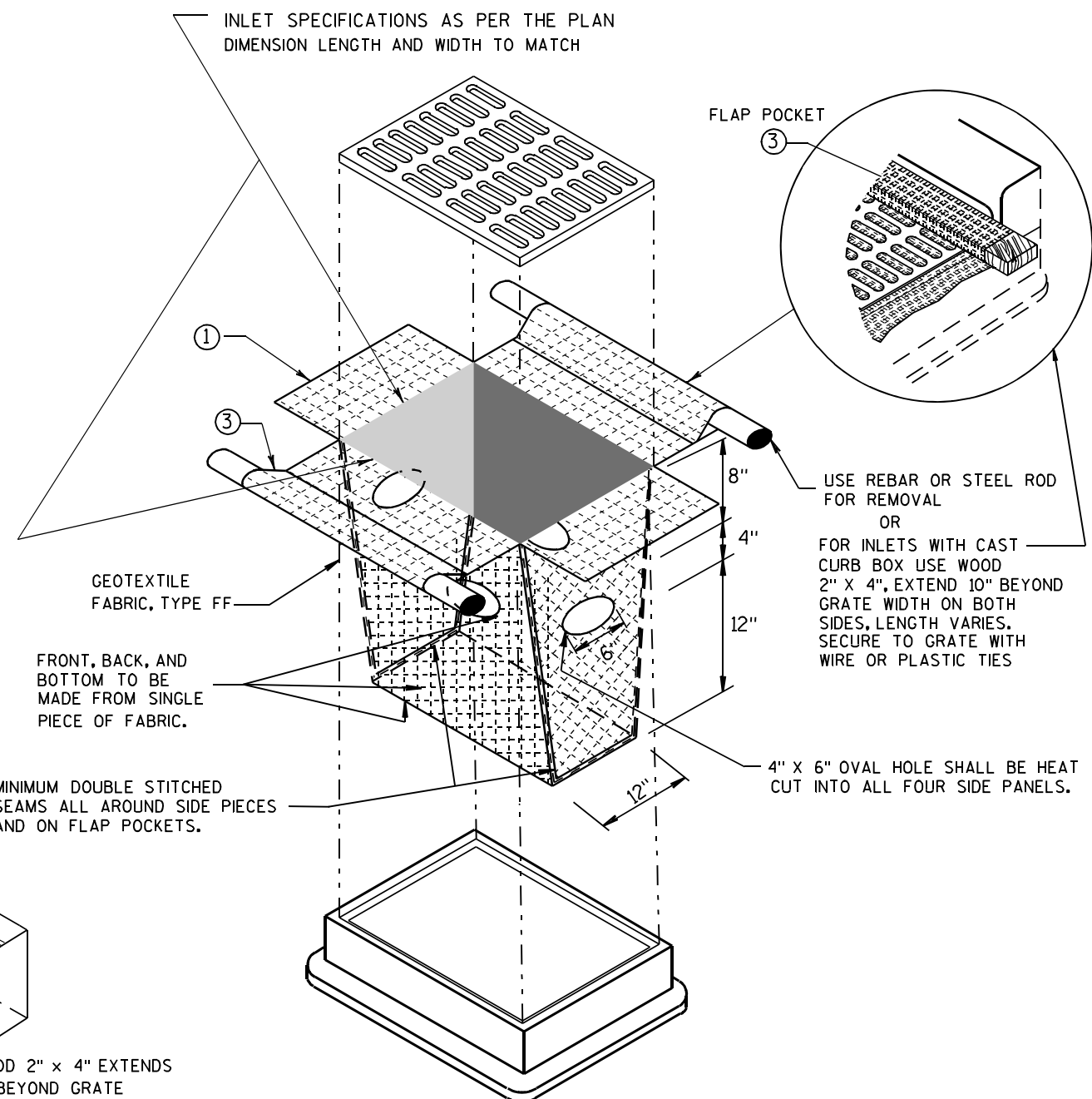
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



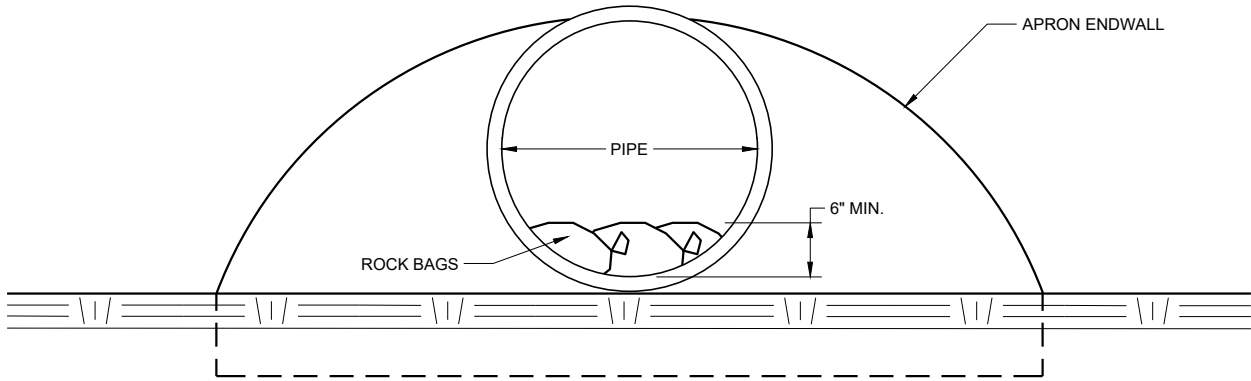
INLET PROTECTION, TYPE D

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

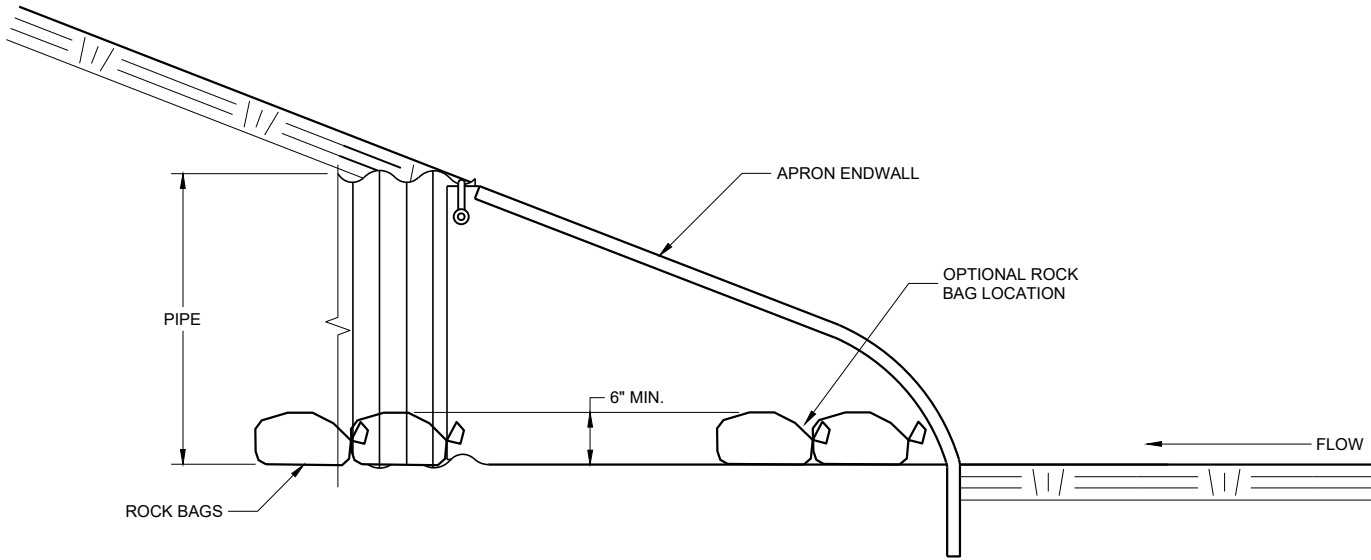
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Connolly
DATE 45
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



END VIEW



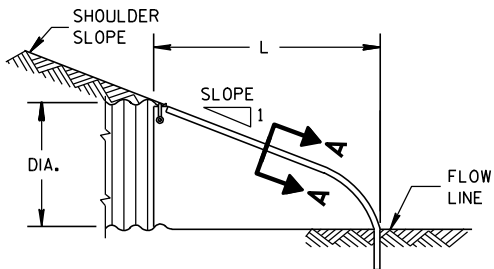
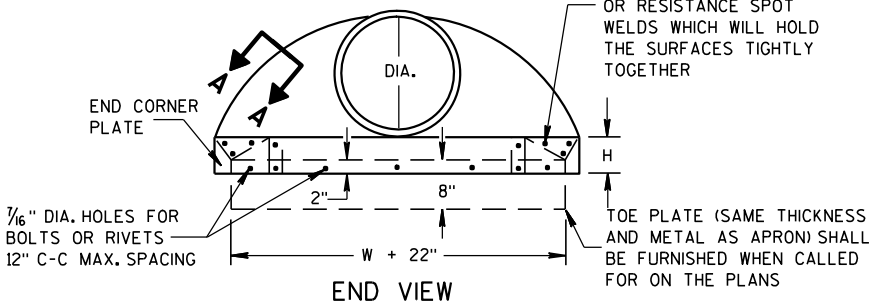
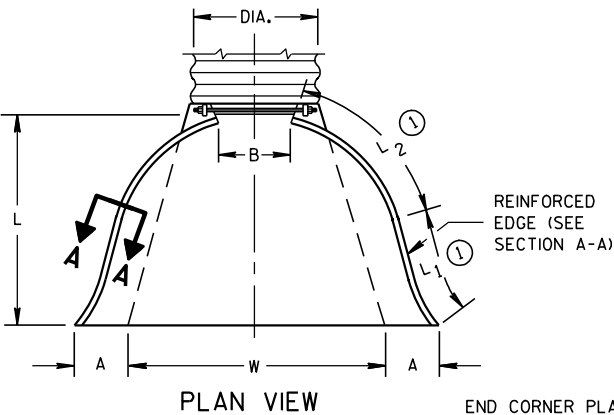
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGI 46
FHWA	

METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L ₁ ①	L ₂ ①	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.	
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.	
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.	
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.	
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.	
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.	
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.	
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.	
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.	
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.	
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.	
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.	
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.	
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.	
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.	
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.	
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.	

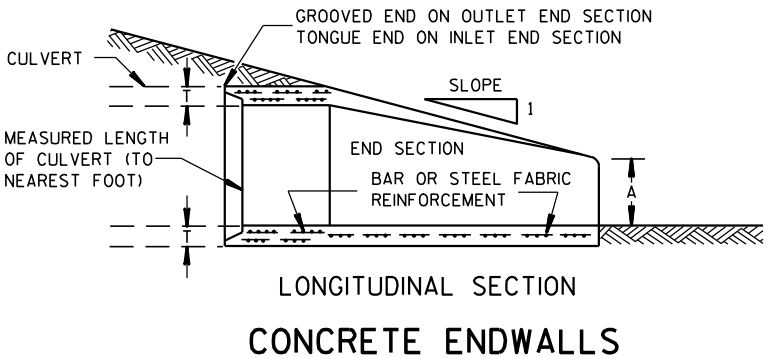
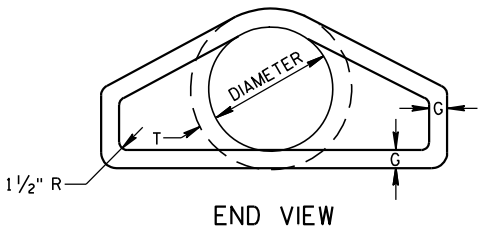
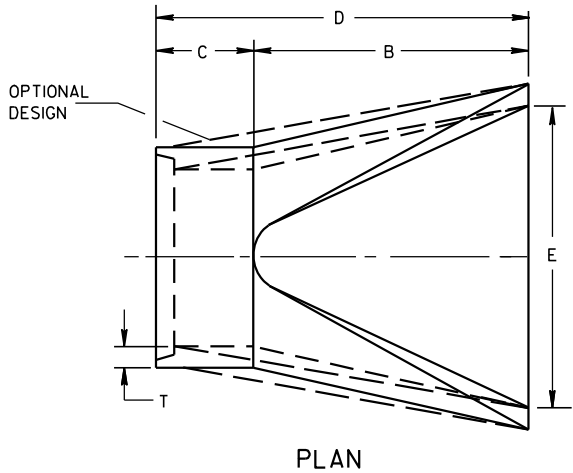
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

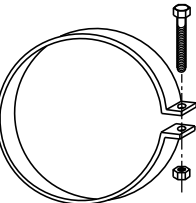
REINFORCED CONCRETE APRON ENDWALLS								
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE
	T	A	B	C	D	E	G	
12	2	4	24	48 ⁷ / ₈	72 ⁷ / ₈	24	2	3 to 1
15	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	3 to 1
18	2 ¹ / ₂	9	27	46	73	36	2 ¹ / ₂	3 to 1
21	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	3 to 1
24	3	9 ¹ / ₂	43 ¹ / ₂	30	73 ¹ / ₂	48	3	3 to 1
27	3 ¹ / ₄	10 ¹ / ₂	49 ¹ / ₂	24	73 ¹ / ₂	54	3 ¹ / ₄	3 to 1
30	3 ¹ / ₂	12	54	19 ³ / ₄	73 ¹ / ₂	60	3 ¹ / ₂	3 to 1
36	4	15	63	34 ³ / ₄	97 ³ / ₄	72	4	3 to 1
42	4 ¹ / ₂	21	63	35	98	78	4 ¹ / ₂	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 ¹ / ₂	27	65	33 ¹ / ₄ -35	98 ¹ / ₄ -100	90	5 ¹ / ₂	2 ¹ / ₂ to 1
60	6	30-35	60	39	99	96	5	2 to 1
66	6 ¹ / ₂	24-30	72-78	21-27	99	102	5 ¹ / ₂	2 to 1
72	7	24-36	78	21	99	108	6	2 to 1
78	7 ¹ / ₂	24-36	78	21	99	114	6 ¹ / ₂	2 to 1
84	8	36	90 ¹ / ₂	21	111 ¹ / ₂	120	6 ¹ / ₂	1 ¹ / ₂ to 1
90	8 ¹ / ₂	41	87 ¹ / ₂	24	111 ¹ / ₂	132	6 ¹ / ₂	1 ¹ / ₂ to 1

* MINIMUM
** MAXIMUM

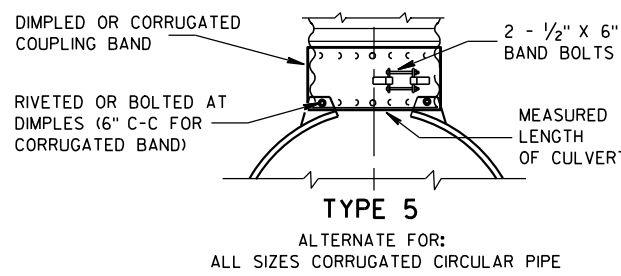
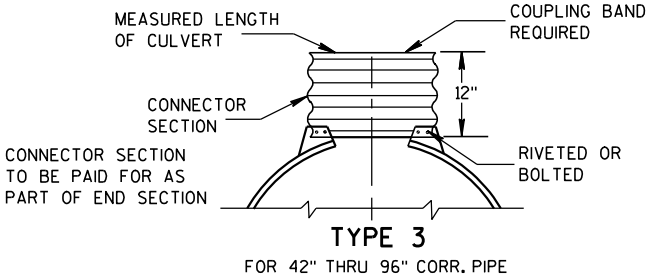
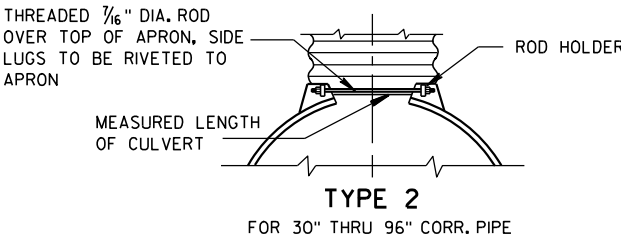
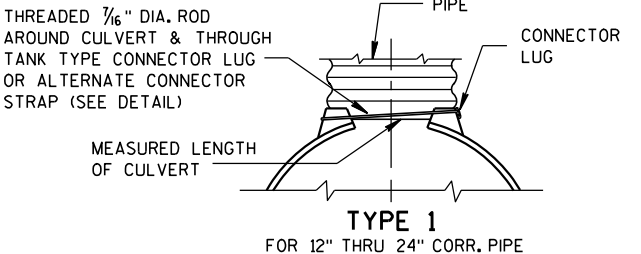


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



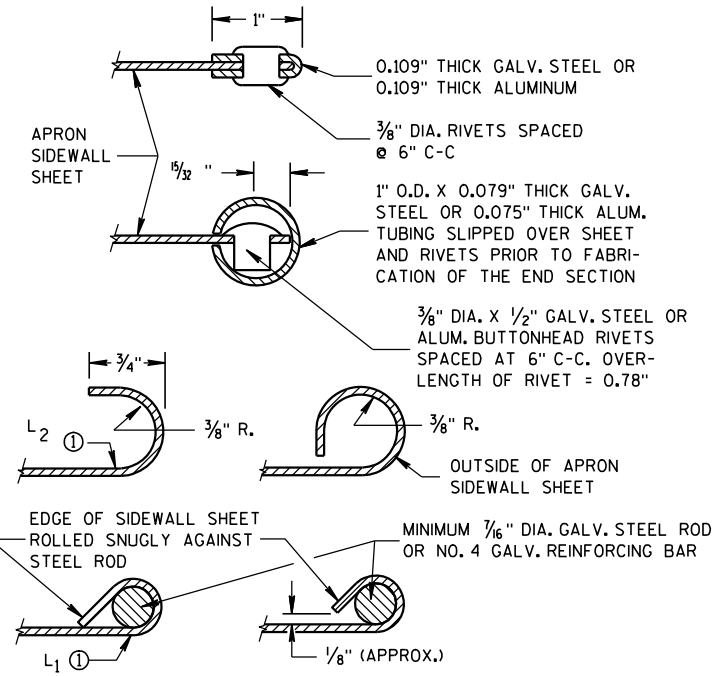
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

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



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.

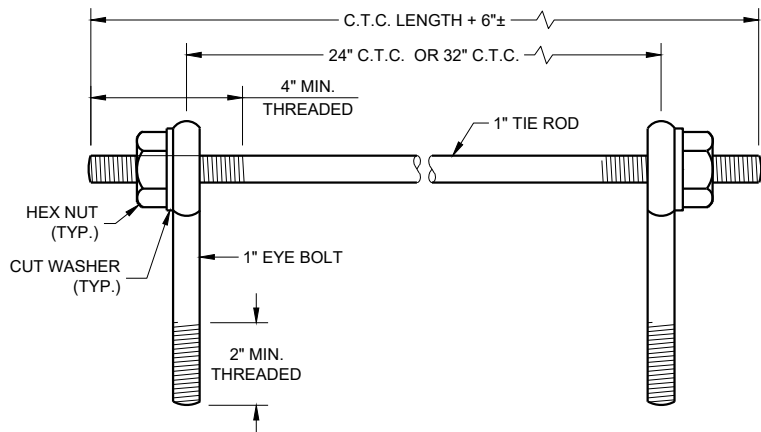
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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.

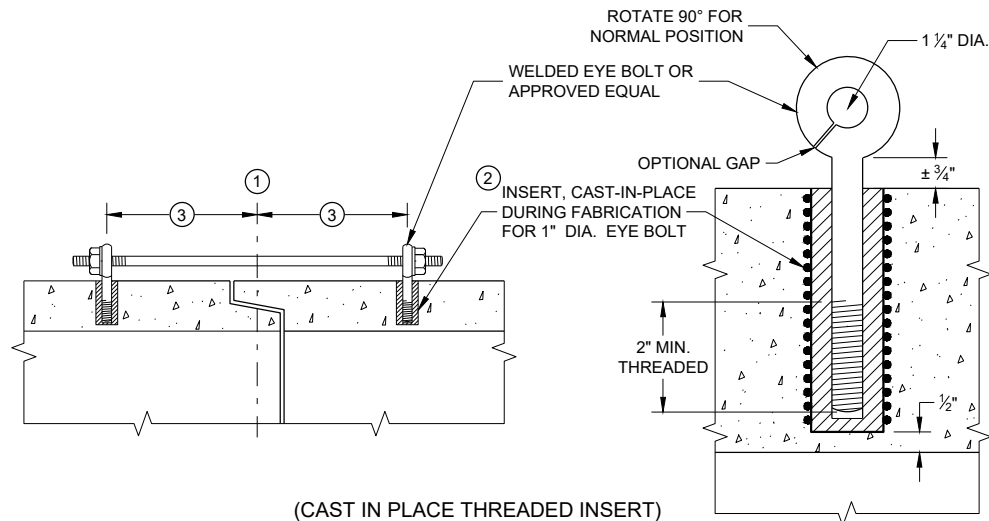
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 11/30/94 DATE	/S/ Rory L. Rhin... CHIEF ROADWAY DEVELOP 47 NEER
FHWA	



EYE BOLTS AND TIE ROD

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

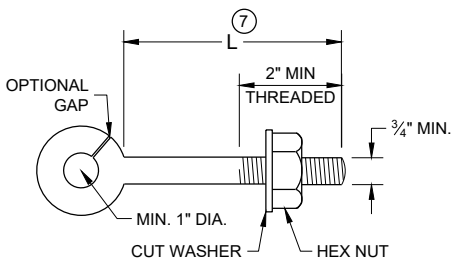
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

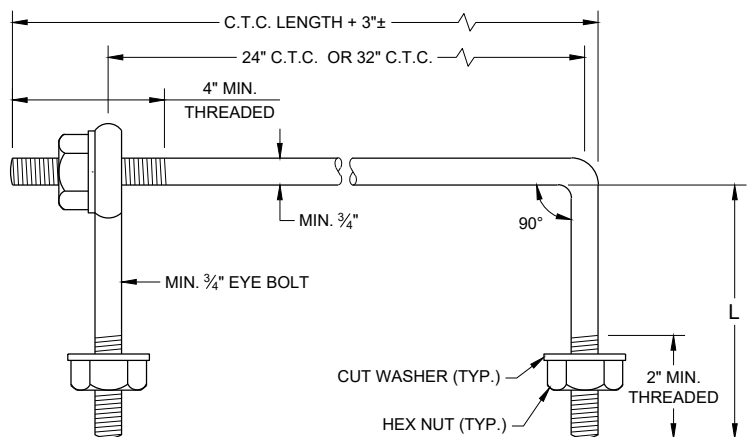
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 1 CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- 2 THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- 3 HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- 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 1/2 INCH OF THE INNER SURFACE OF THE PIPE.
- 7 EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

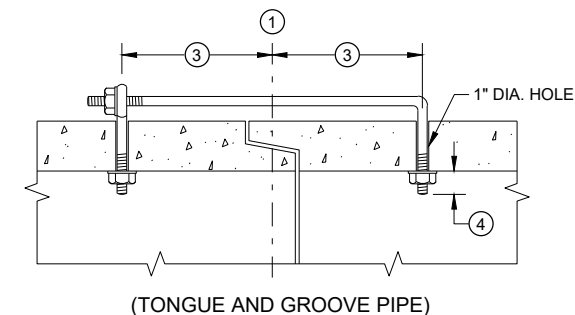


EYE BOLT 7

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

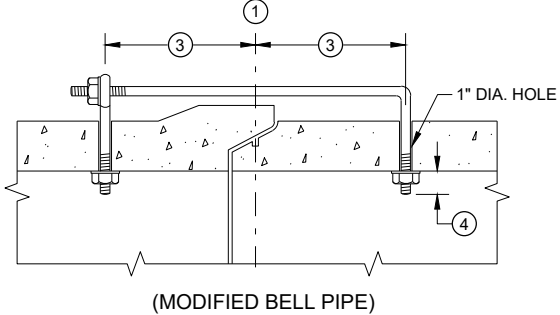


(TONGUE AND GROOVE PIPE)

LONGITUDINAL SECTION

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

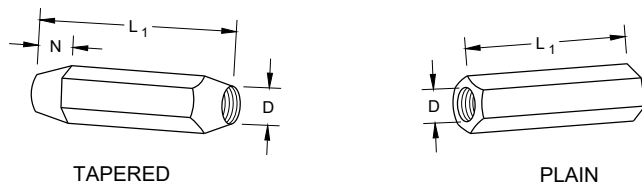


(MODIFIED BELL PIPE)

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12 - 60	5/8	5/8	5	1/2
66 - 84	3/4	3/4	5	1/2
90 - 144	1	1	7	1 1/16

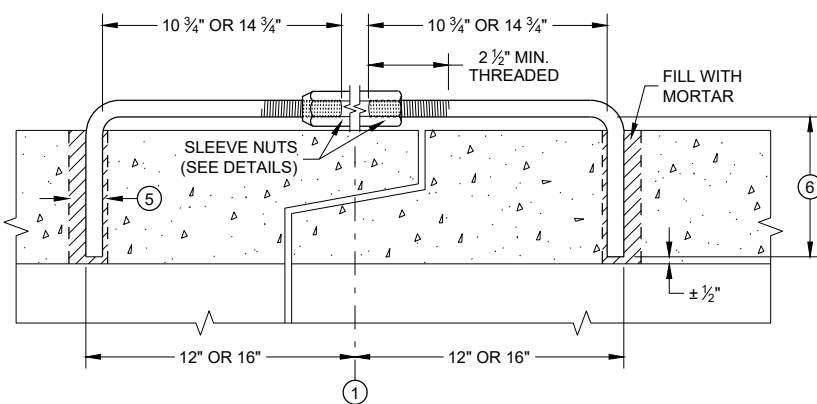
DIMENSIONS SHOWN ARE IN INCHES



TAPERED

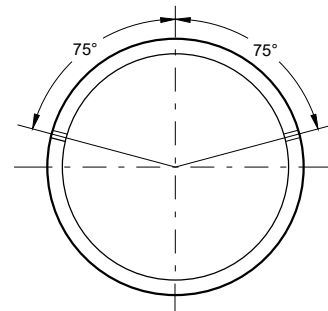
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



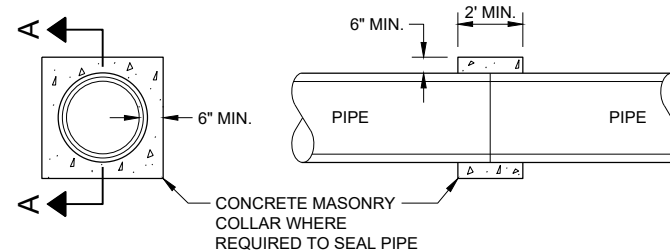
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



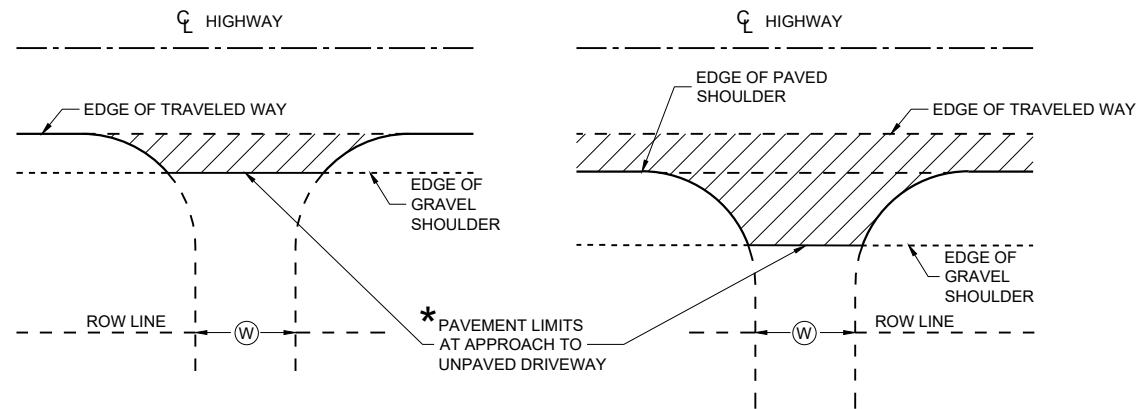
SECTION A - A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 48
FHWA

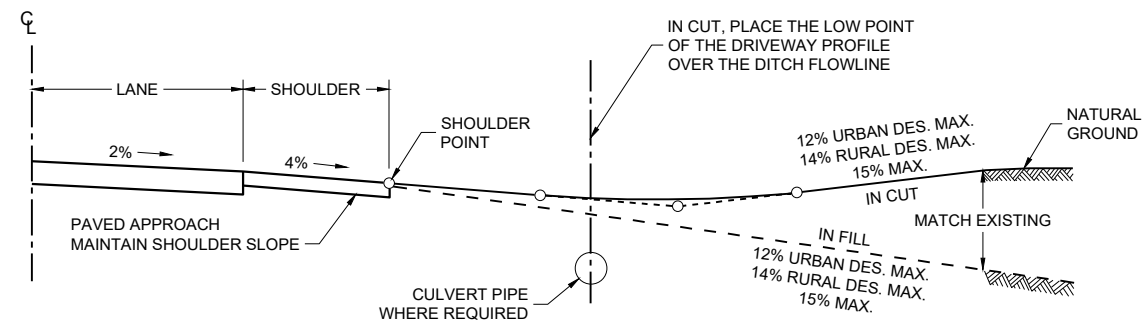


* WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

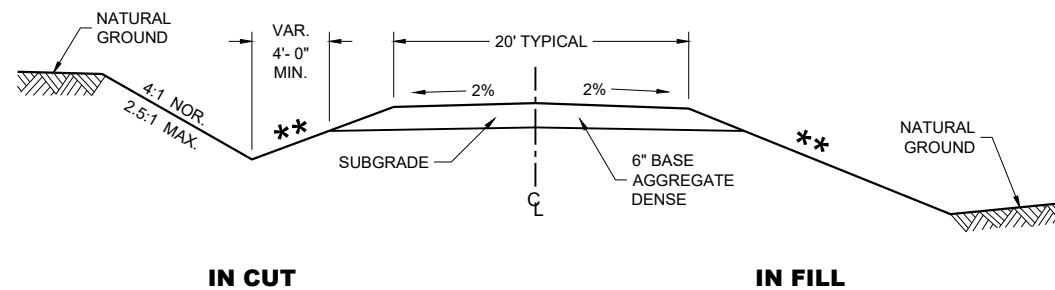
PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

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



TYPICAL DRIVEWAY PROFILES

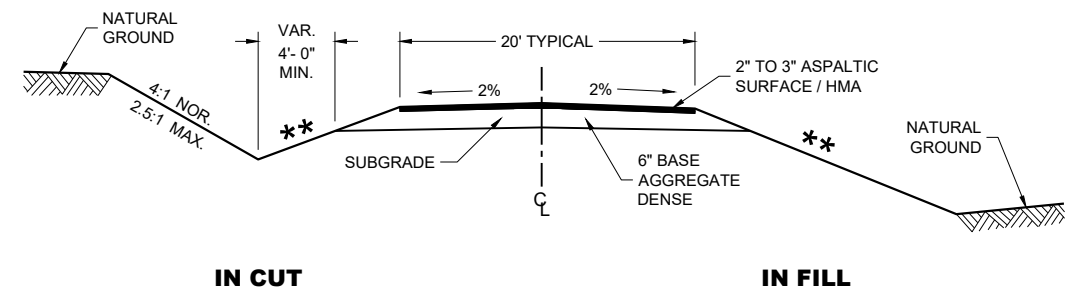
Ⓢ : DRIVEWAY WIDTHS (MEASURED AT ROW LINE)
 ~ COMMERCIAL & INDUSTRIAL 16' MIN. - 35' MAX.
 ~ RESIDENTIAL & AGRICULTURAL 16' MIN. - 24' MAX. (NONCOMMERCIAL)



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

SLOPE CAN VARY WITH SPEED. SEE 11-45-30.6.2

POSTED SPEED MPH	MAX. SLOPE
<35	4:1
≥ 35 TO < 60	6:1
≥60	10:1



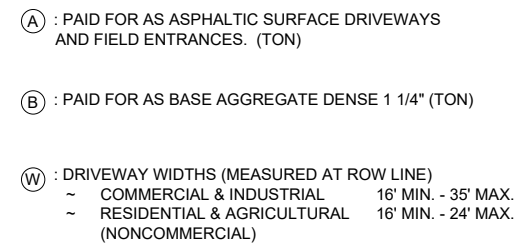
**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
ASPALTIC SURFACE**

**DRIVEWAYS WITHOUT
CURB AND GUTTER**

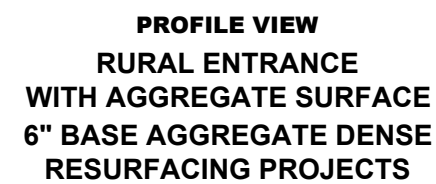
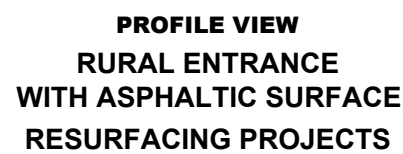
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

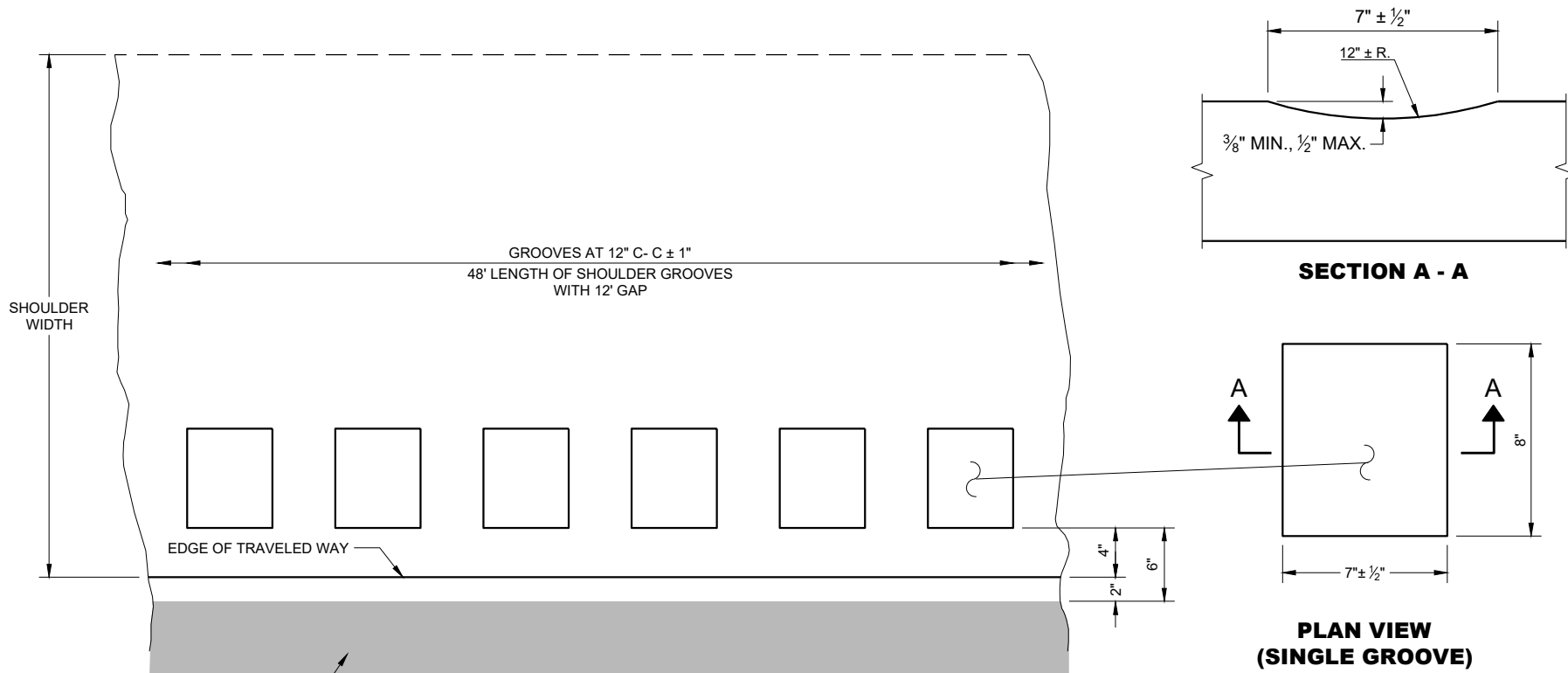
APPROVED
 November 2025 /S/ Rodney Taylor
 DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
 FHWA

① DESIGN WILL DETERMINE FINAL DRIVEWAY ASPHALTIC THICKNESS BASED ON TYPE OF USAGE AND LOADINGS.



6



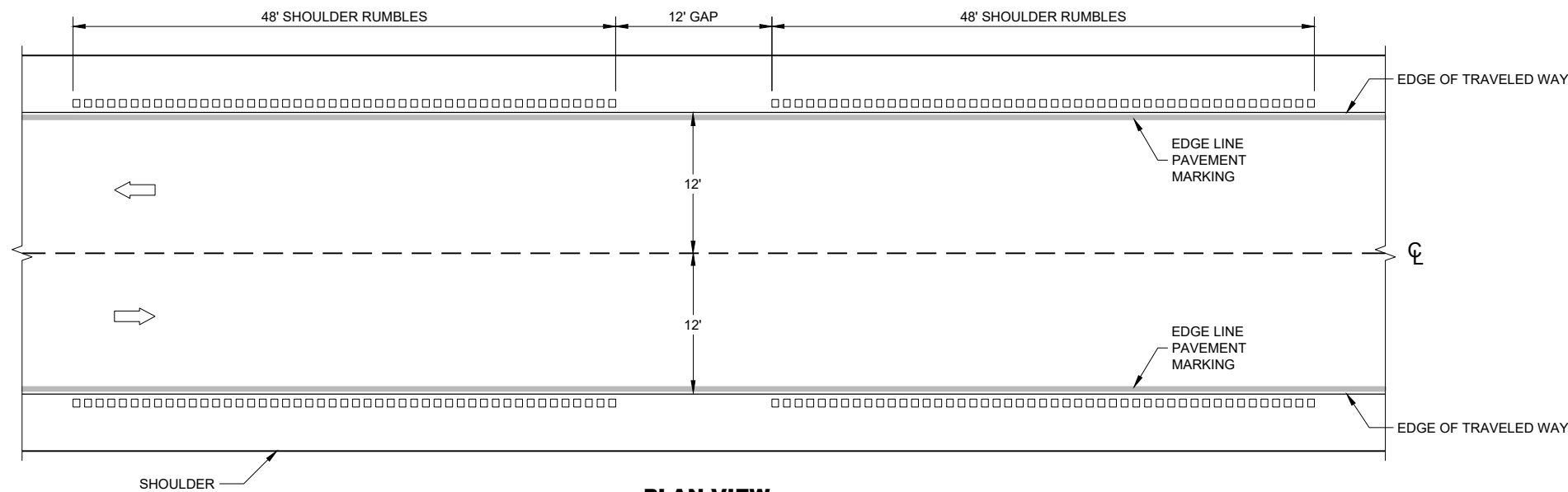
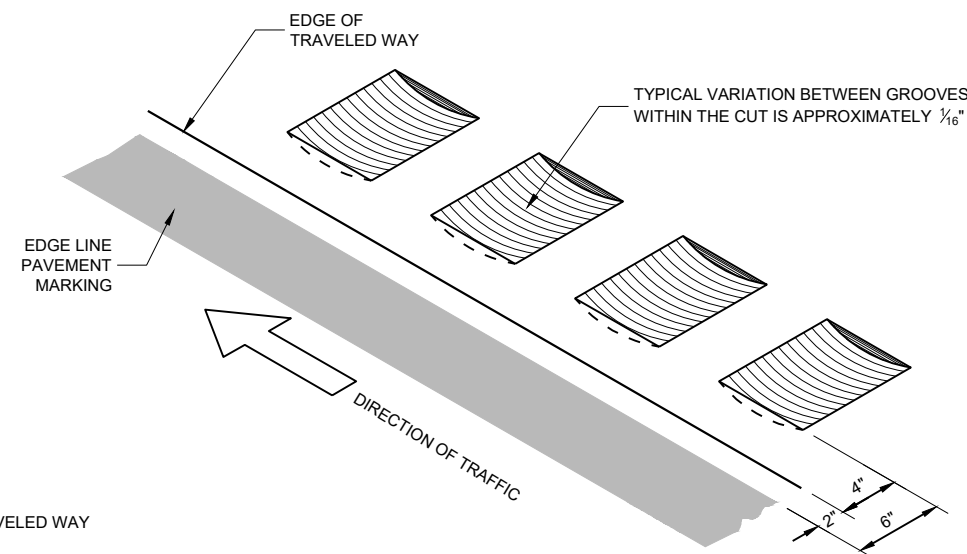


PLAN DETAIL VIEW
SHOULDER WITH GROOVES

GENERAL NOTES

DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A10 SHEETS "g" AND "h".

SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.

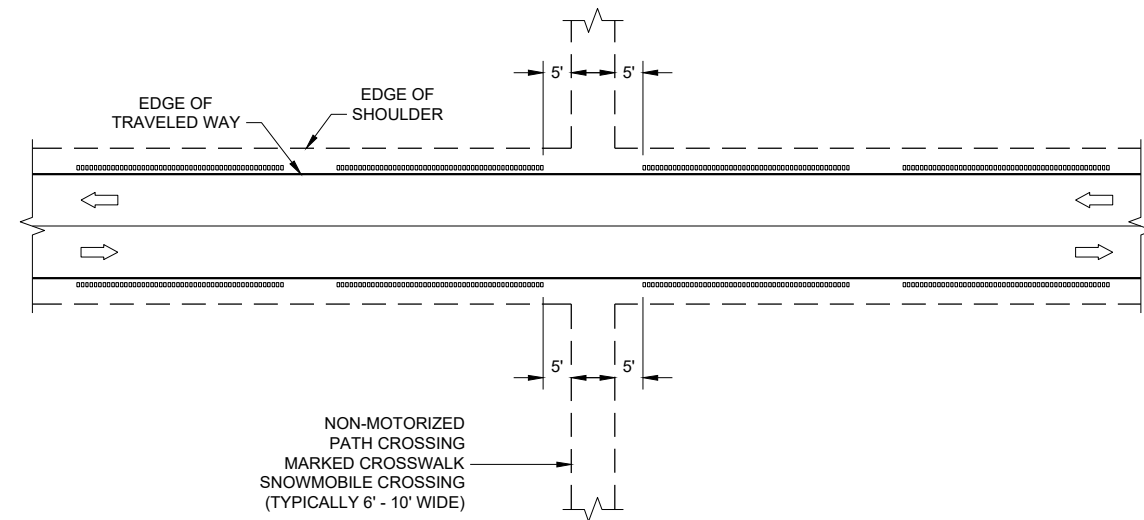


PLAN VIEW

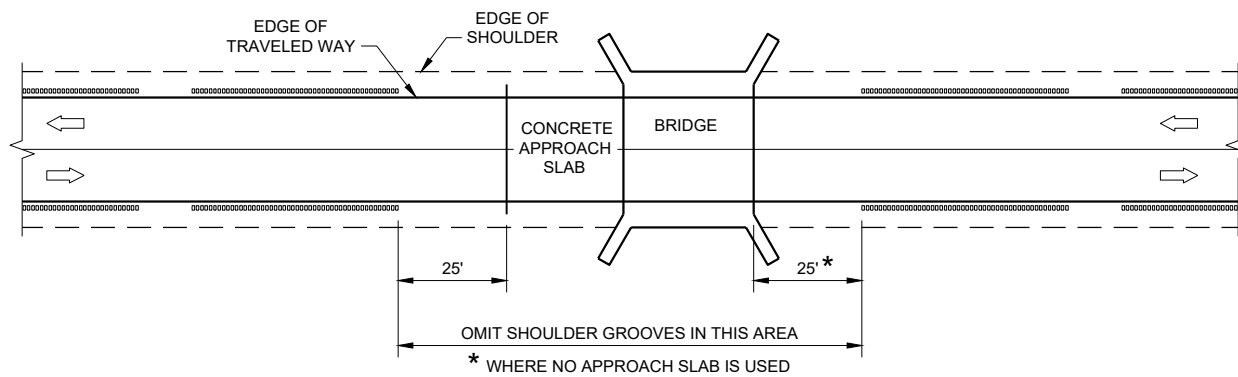
SHOULDER RUMBLE STRIPS - ASPHALT

**SHOULDER RUMBLE
STRIPS ASPHALT**

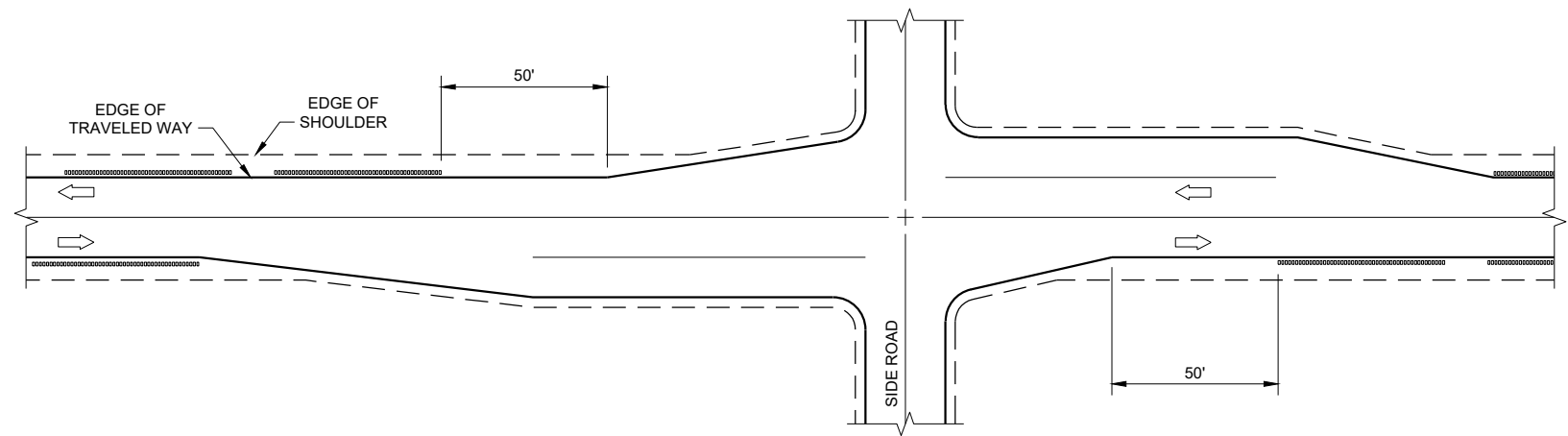
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



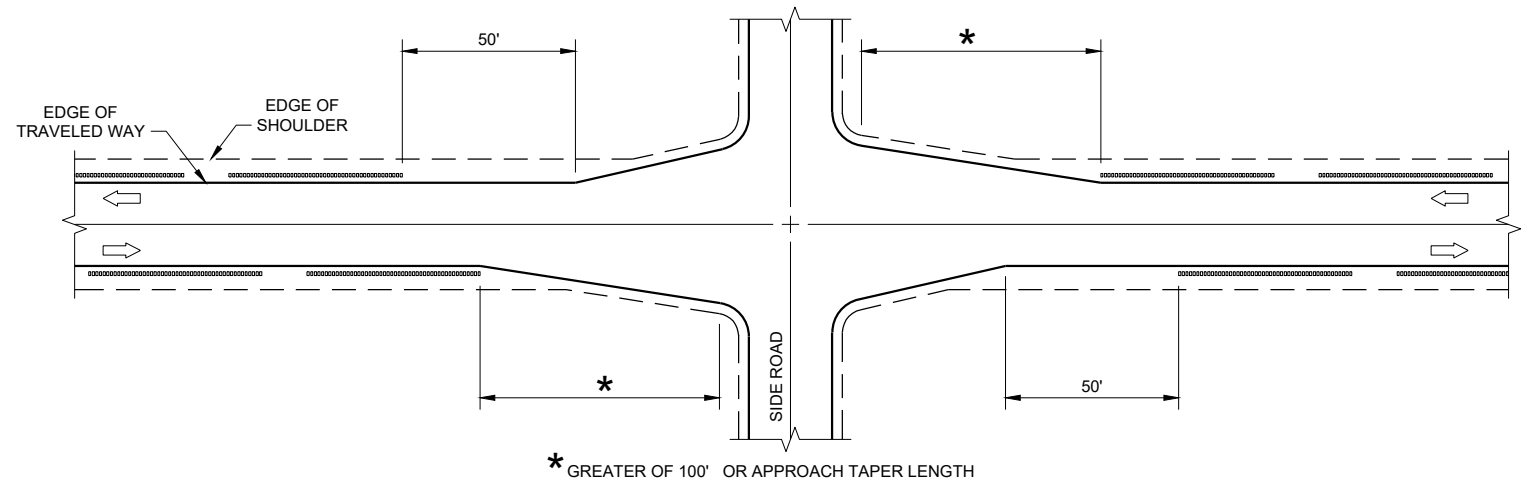
GROOVES AT MISCELLANEOUS CROSSINGS



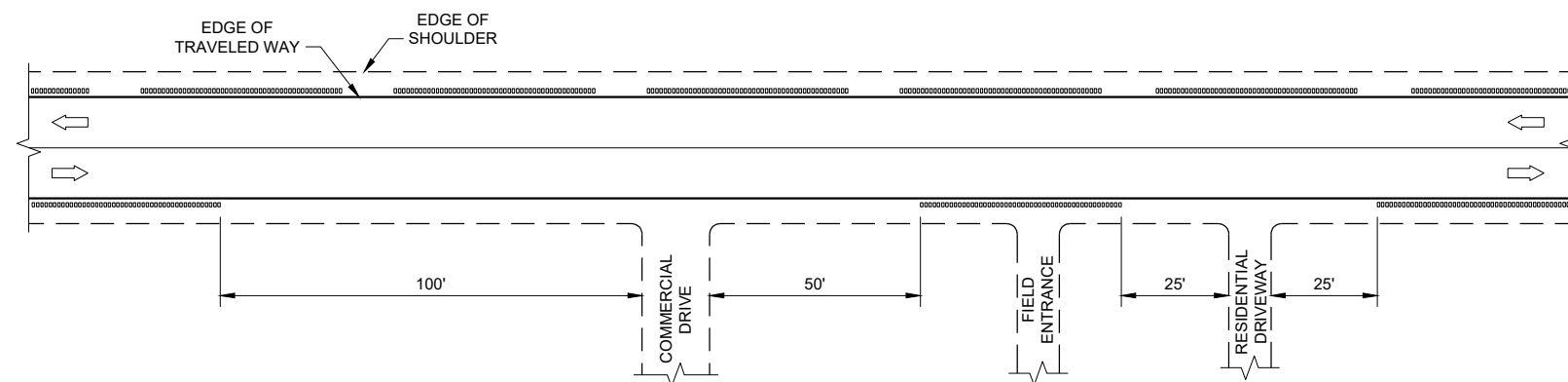
GROOVES AT BRIDGES



GROOVES AT RIGHT TURN LANE



GROOVES AT INTERSECTIONS WITH APPROACH TAPER



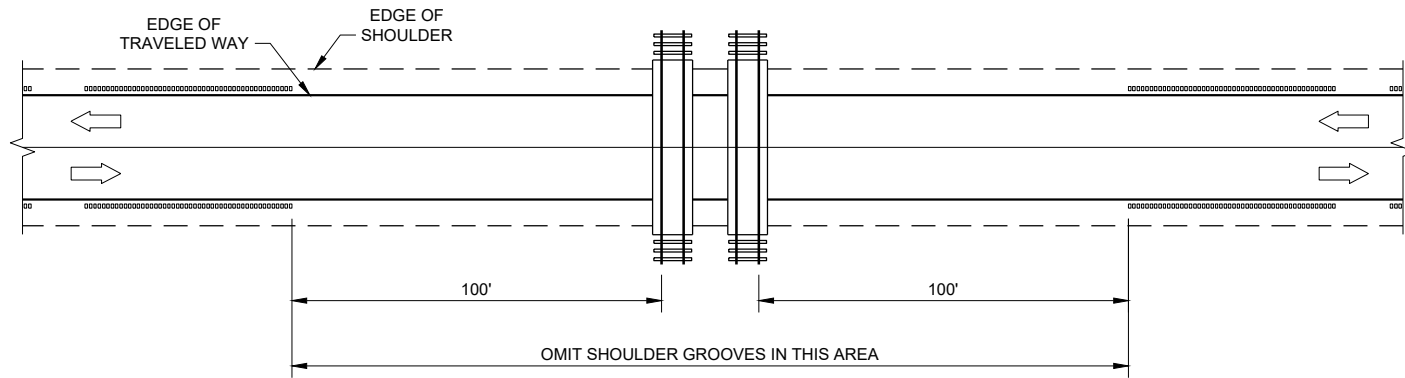
GROOVES AT DRIVEWAYS

GENERAL NOTES

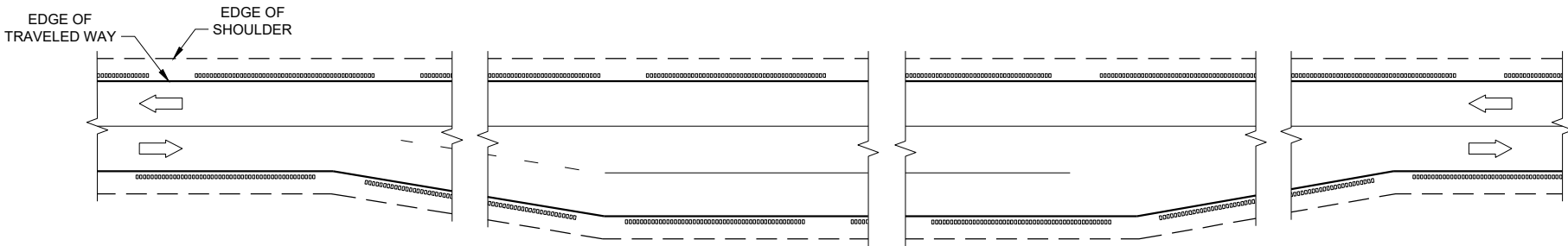
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

**SHOULDER AND EDGE LINE
RUMBLE STRIPS
CROSSINGS, INTERSECTIONS,
BRIDGES, DRIVEWAYS**

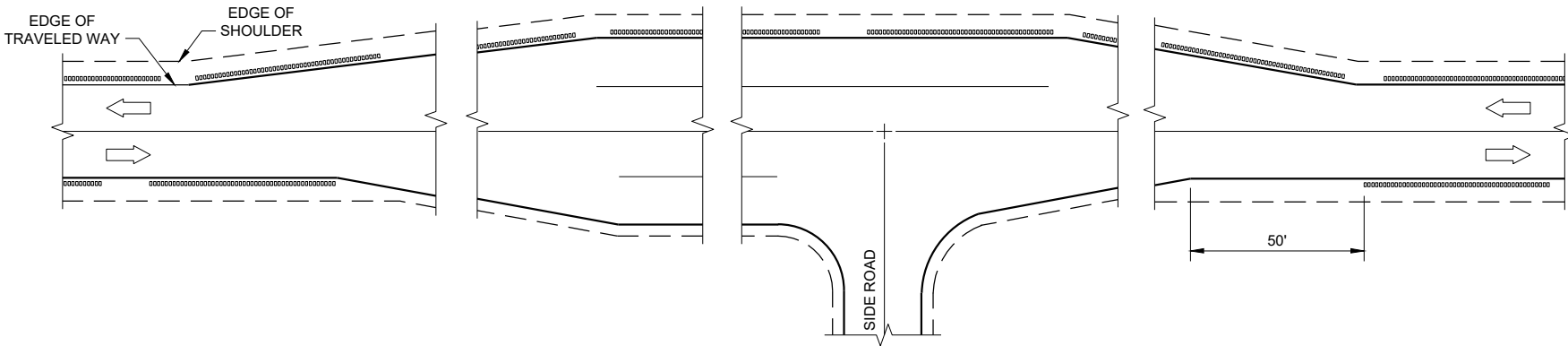
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GROOVES AT RAILROADS



GROOVES AT PASSING AND CLIMBING LANES

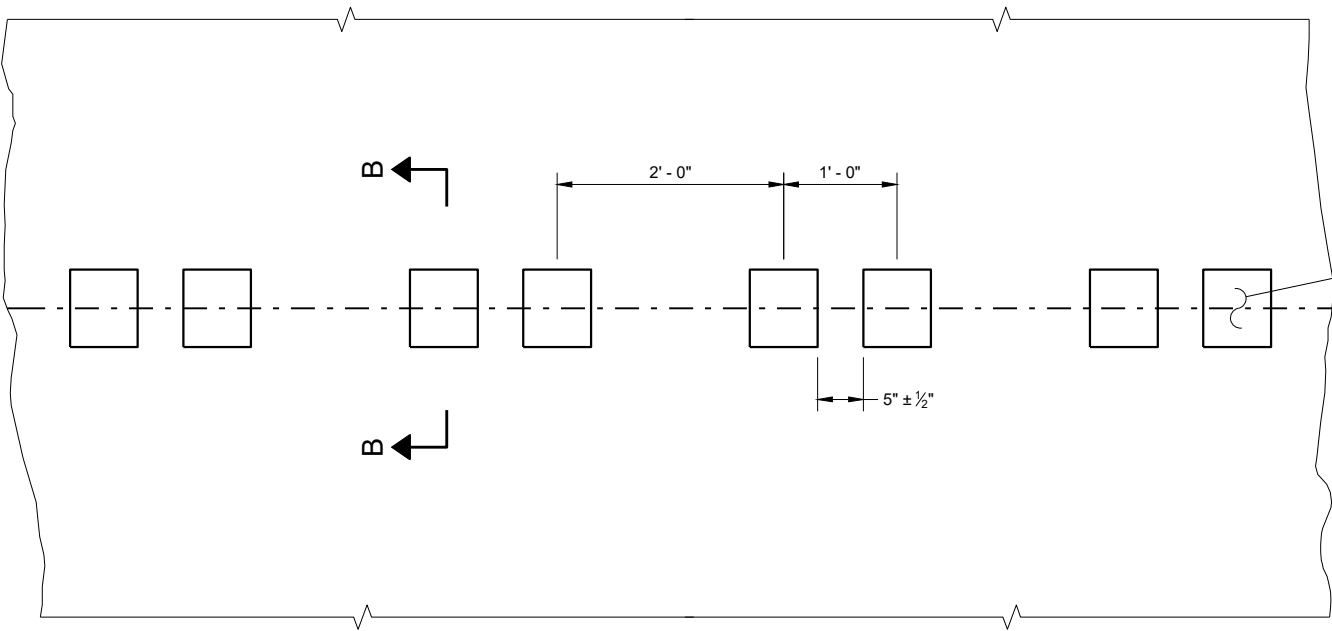


GROOVES AT BYPASS LANES

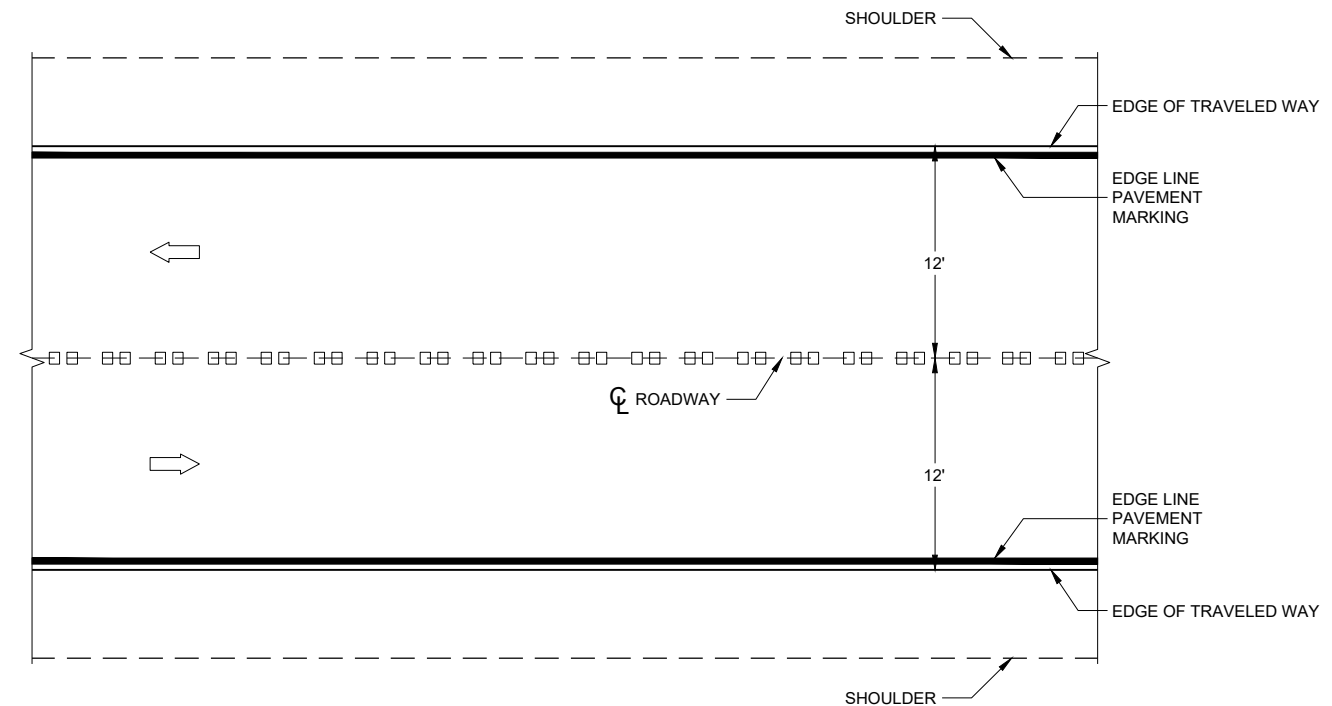
**SHOULDER AND EDGE LINE
RUMBLE STRIPS -
RAILROAD, PASSING,
CLIMBING AND BYPASS LANES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ John Jenkins
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 54
FHWA

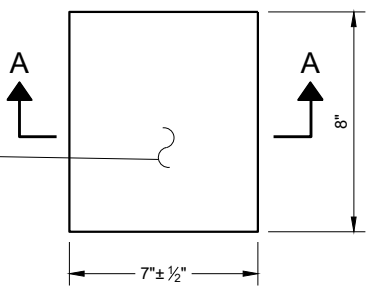


PLAN DETAIL VIEW

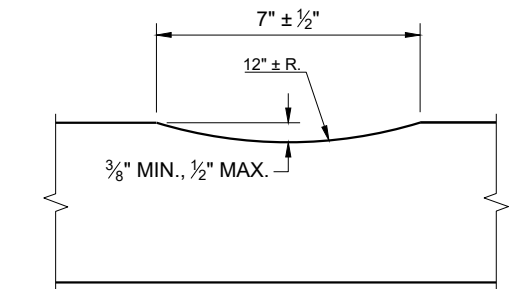


PLAN VIEW

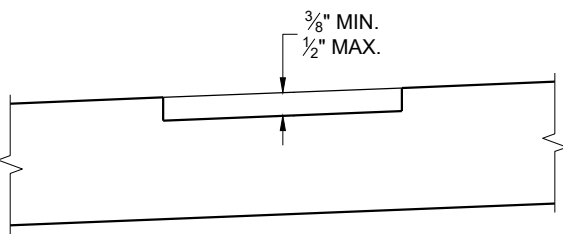
CENTERLINE RUMBLE STRIPS - ASPHALT



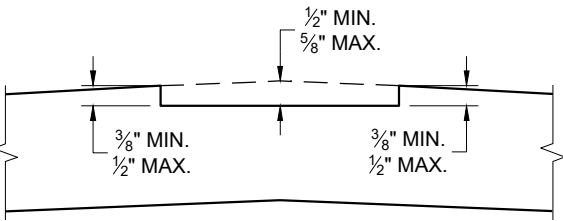
PLAN VIEW
(SINGLE GROOVE)



SECTION A - A



SECTION B - B
SUPERELEVATED ROADWAY

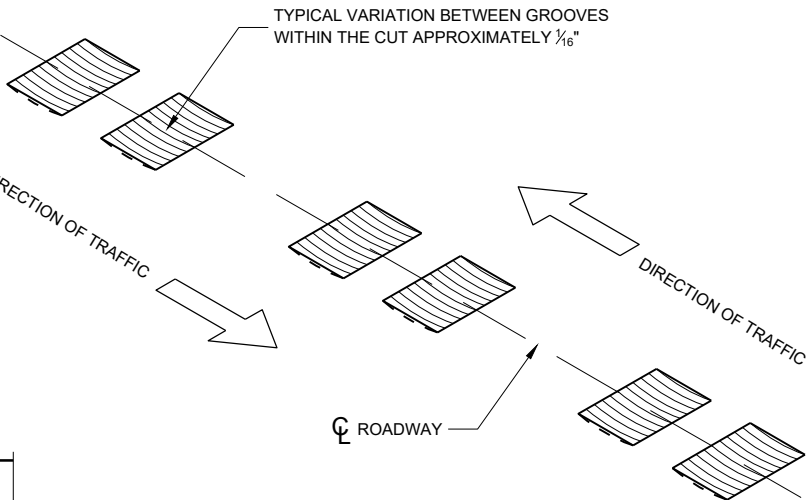


SECTION B - B
CROWNED ROADWAY

GENERAL NOTES

DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A11 SHEETS "d" AND "e".

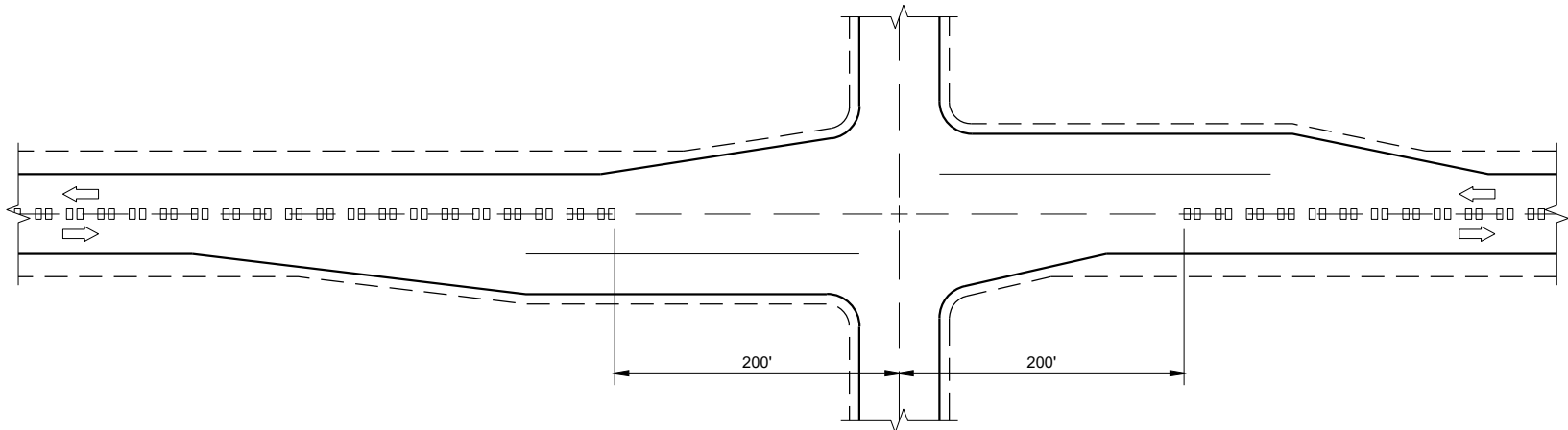
CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.



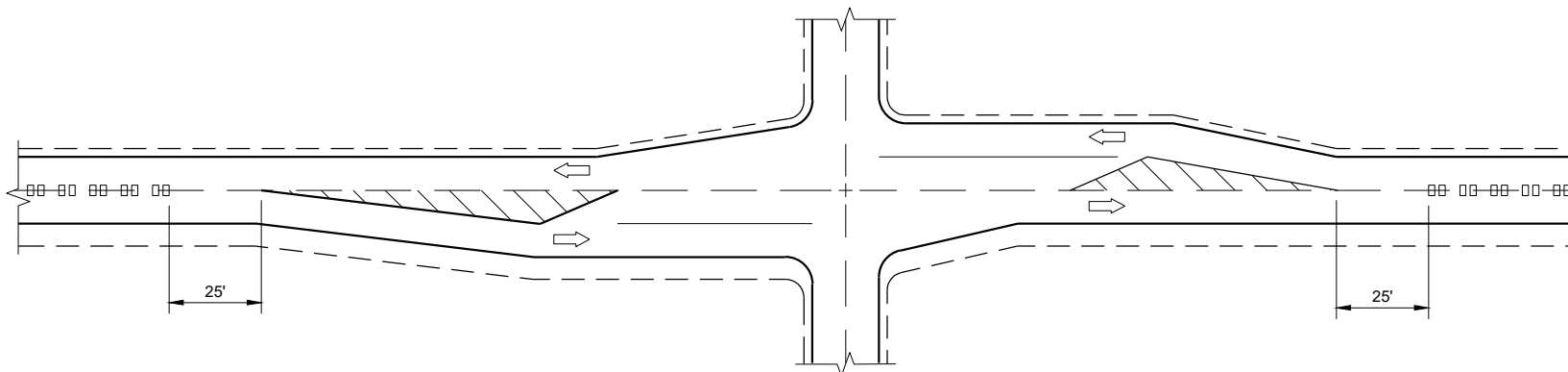
ISOMETRIC

CENTERLINE RUMBLE
STRIPS - ASPHALT

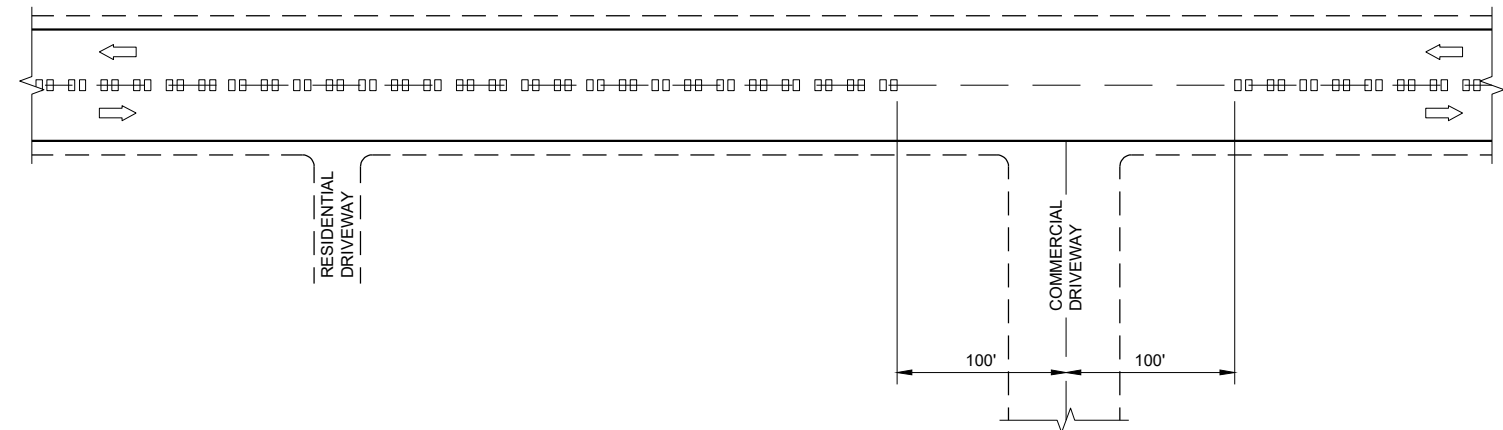
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



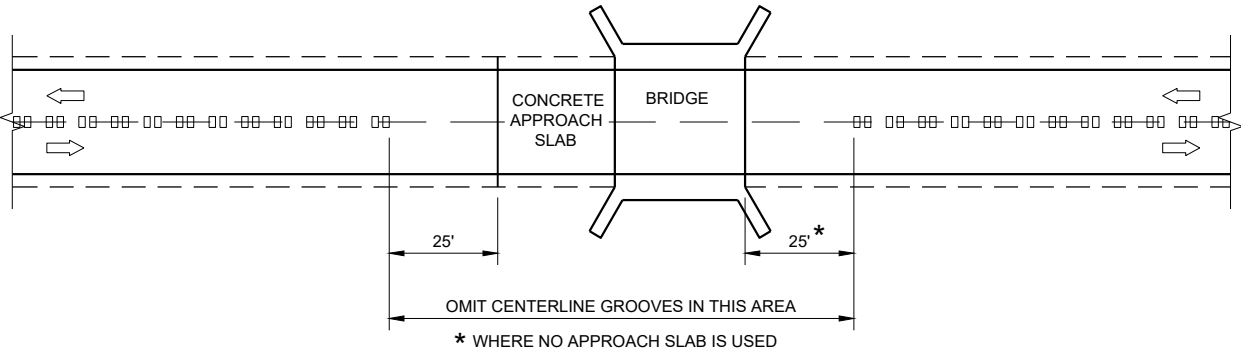
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



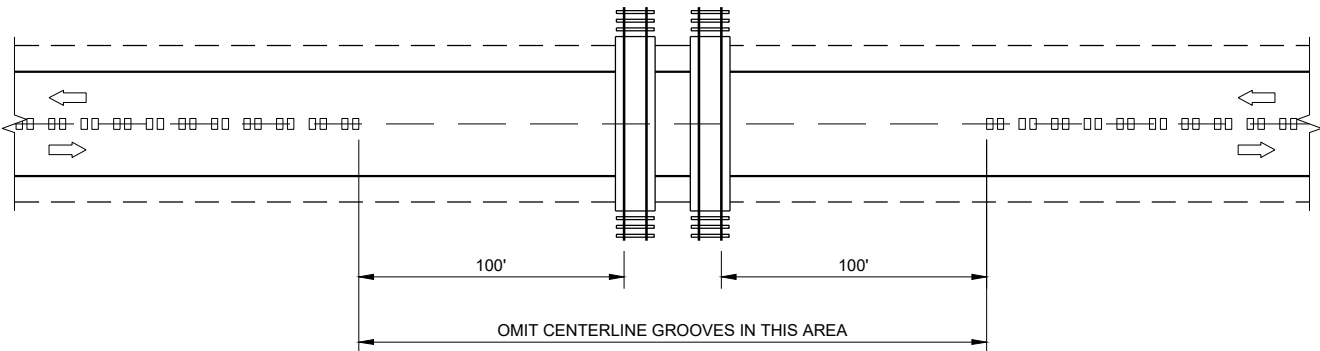
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.



CENTERLINE GROOVES AT BRIDGES

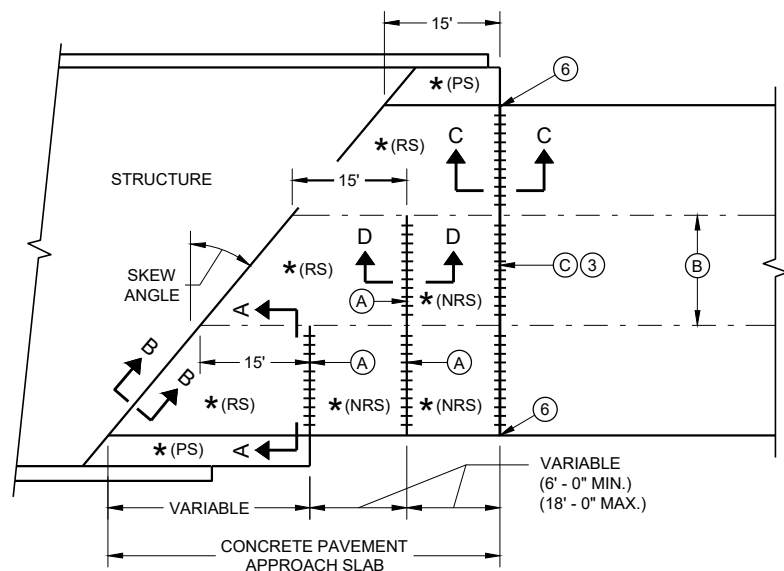


CENTERLINE GROOVES AT RAILROADS

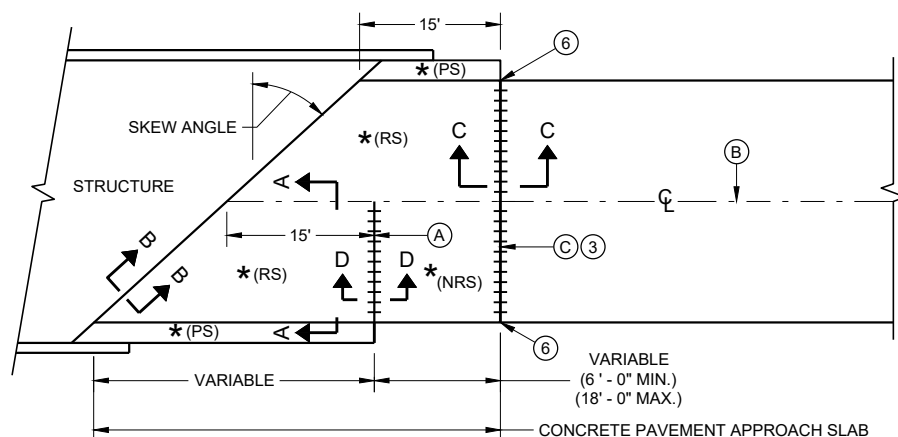
CENTER LINE
RUMBLE STRIPS -
INTERSECTIONS, DRIVEWAYS,
BRIDGES, RAIL ROADS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

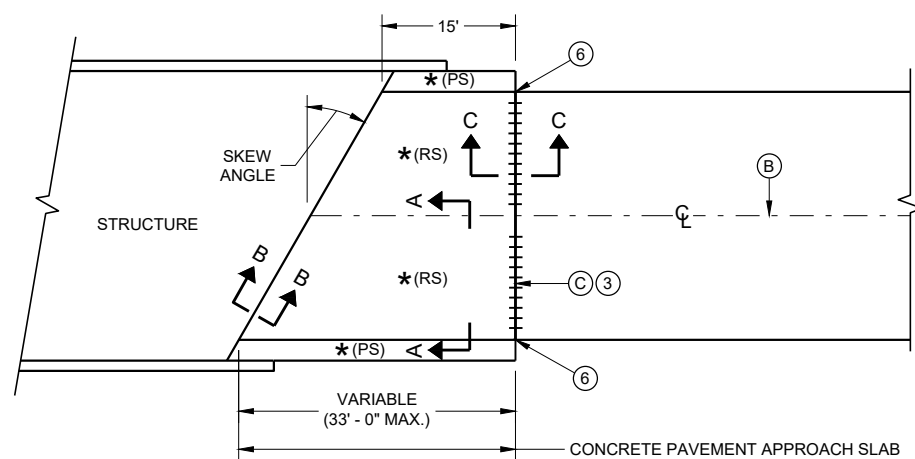
APPROVED
May 2023
DATE
/S/ John Jenkins
ROADWAY STANDARDS DEVELOPMENT ENGINEER
56
FHWA



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



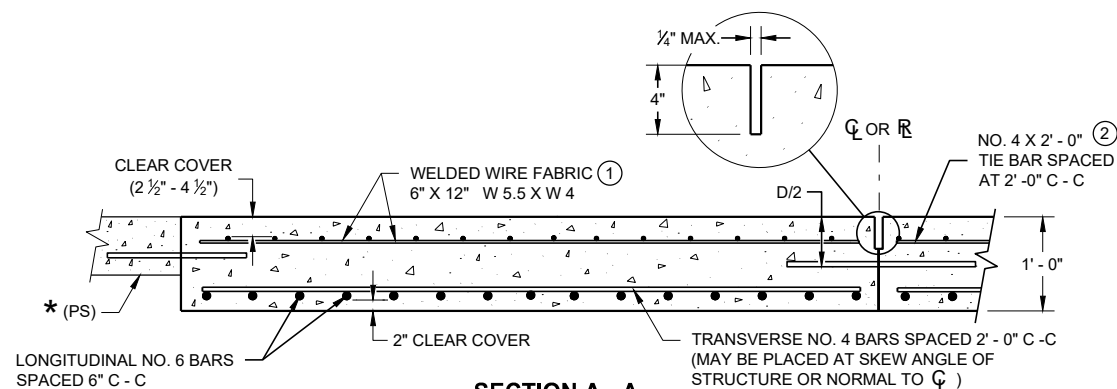
**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**



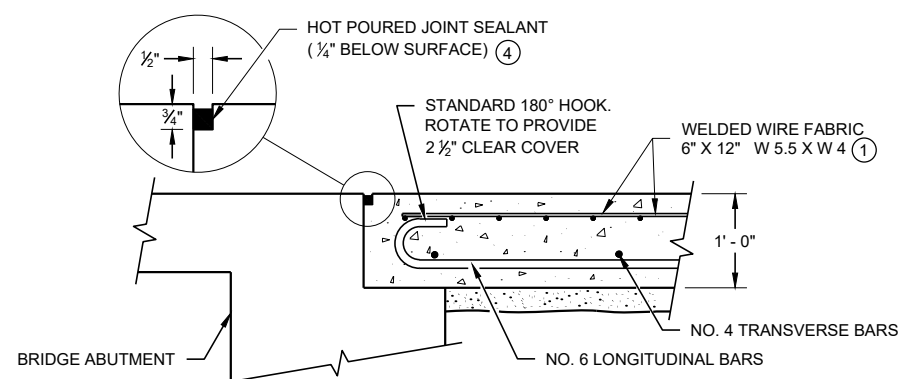
**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**

APPROACH SLAB AND ADJACENT PAVEMENT

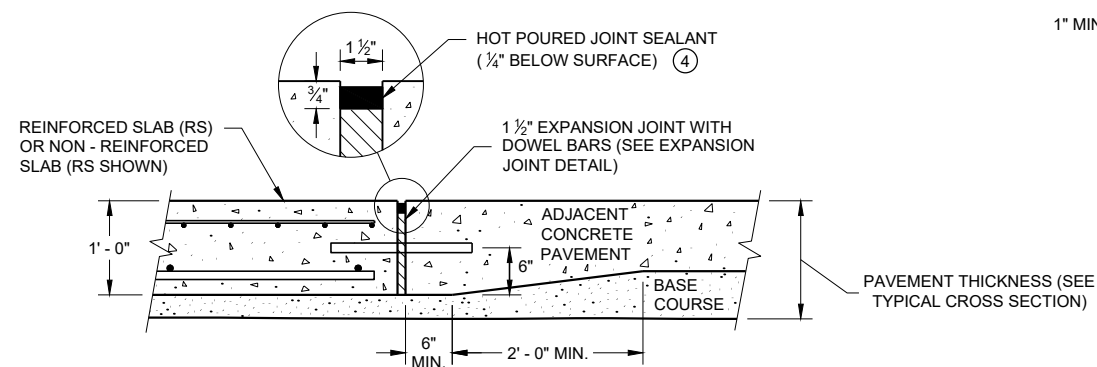
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



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



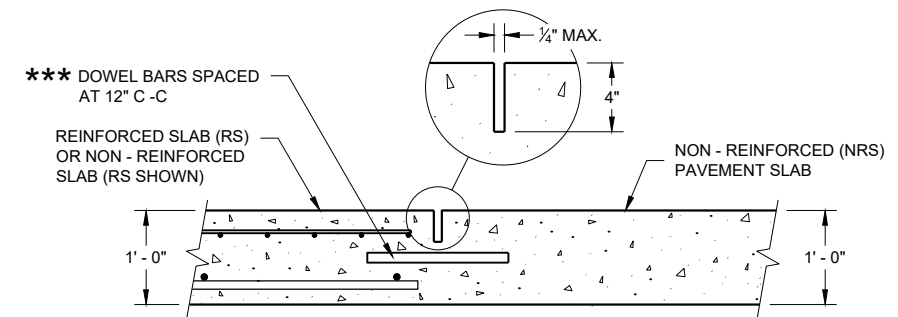
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

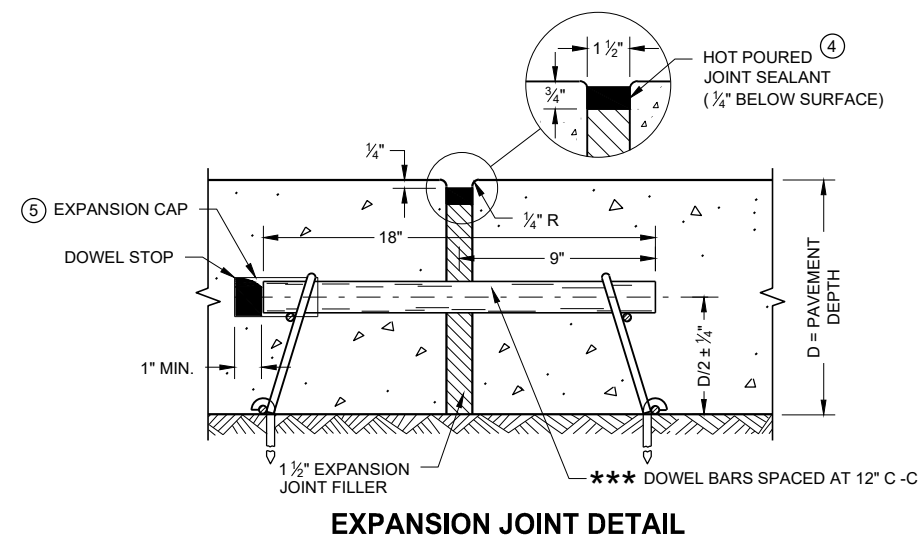
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
- ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- (A) STANDARD CONTRACTION JOINT NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.
- (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.



**SECTION D - D
CONTRACTION JOINT**



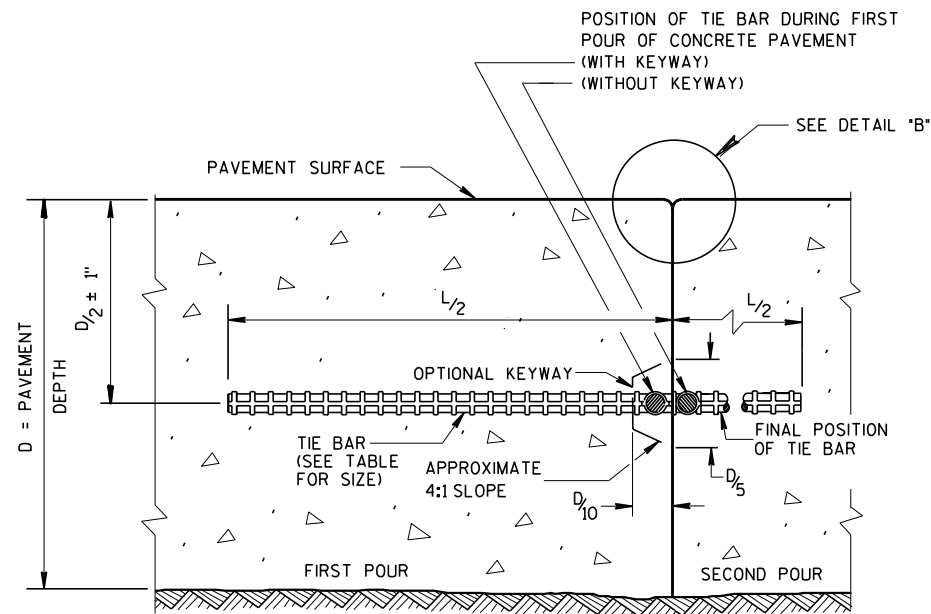
EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

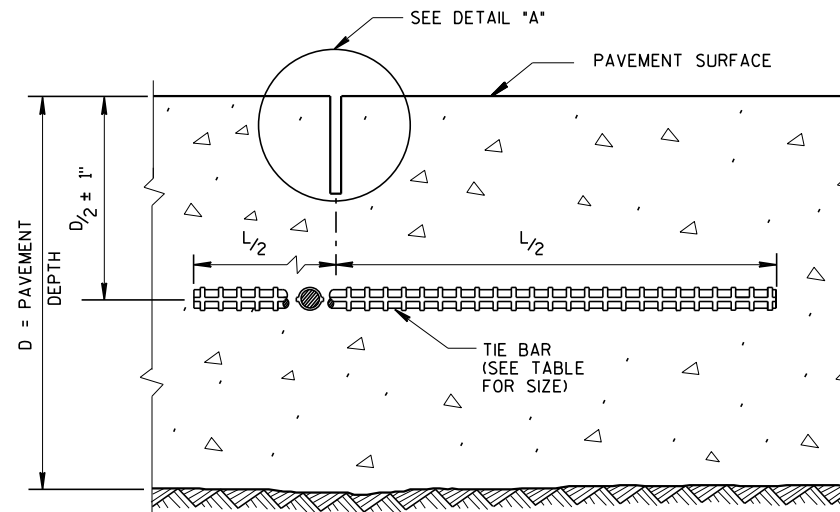
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR 57

FHWA



CONSTRUCTION JOINT



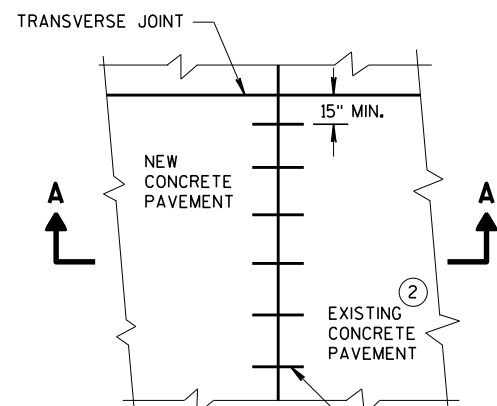
SAWED JOINT

GENERAL NOTES

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

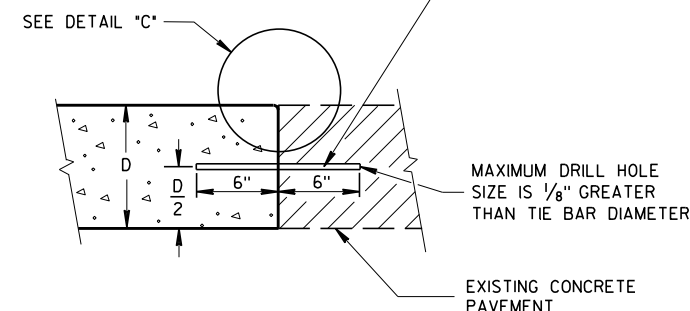
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

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

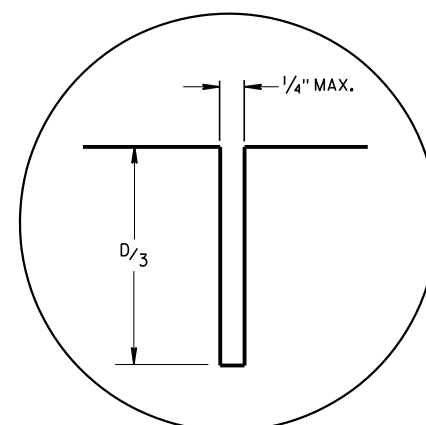


PLAN VIEW

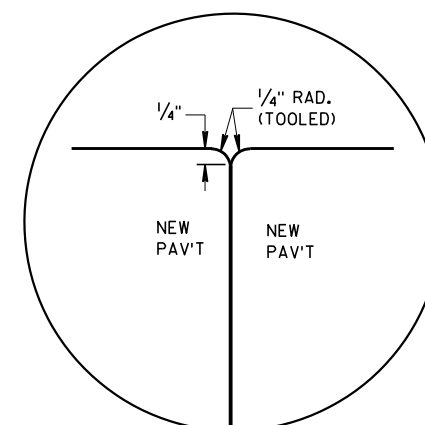
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



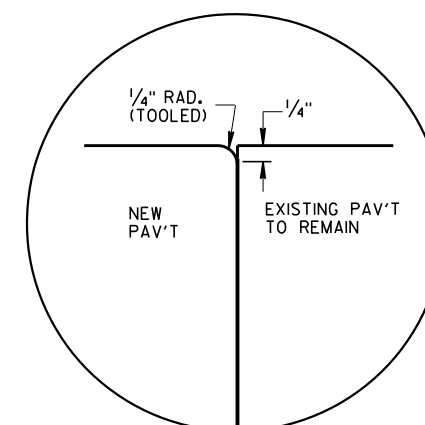
SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT



DETAIL "A"



DETAIL "B"



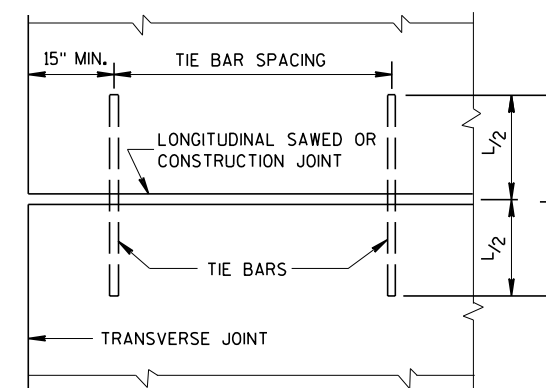
DETAIL "C"

TIE BAR TABLE

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

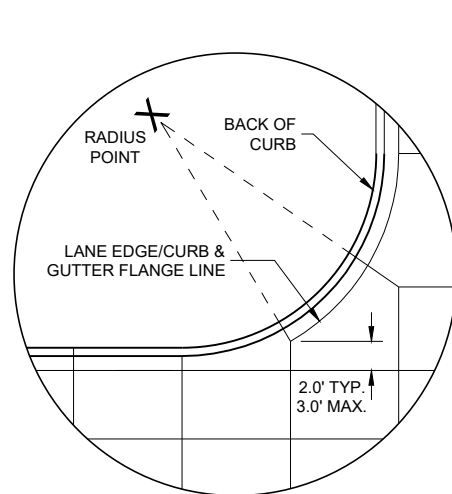
* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

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

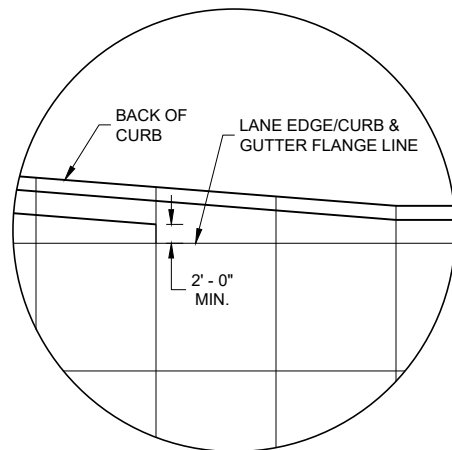


PLAN VIEW
SHOWING LOCATION OF TIE BARS

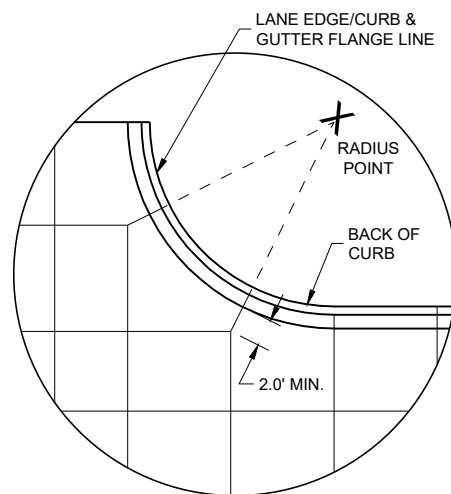
CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2018 DATE	/S/ Peter Kern PAVEMENT SUPE 59
FHWA	



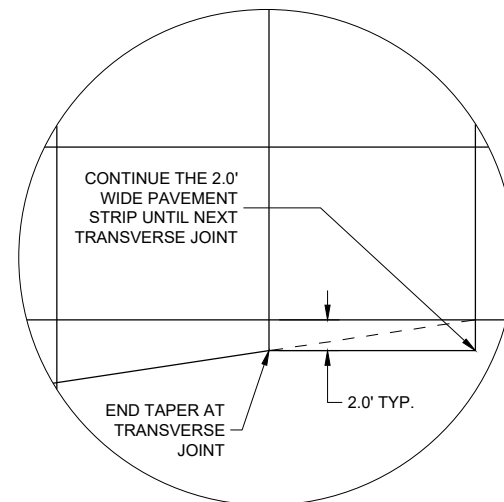
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

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

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

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

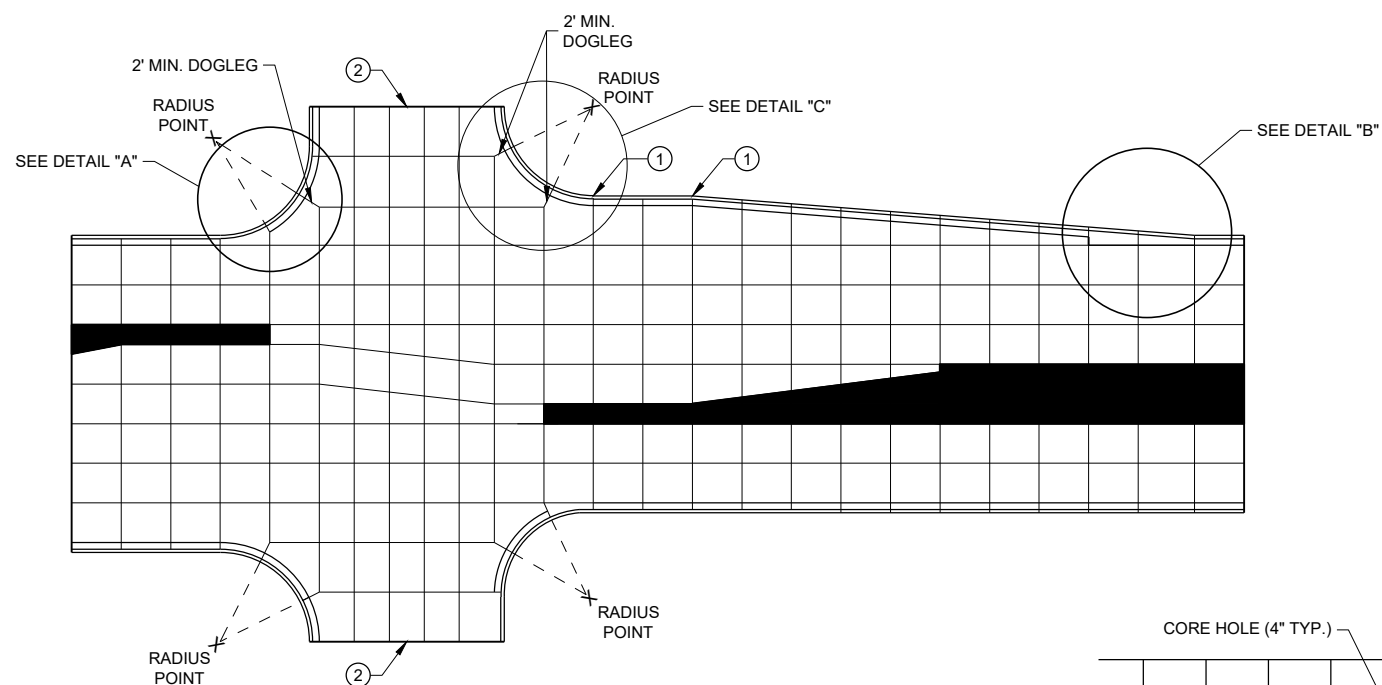
AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

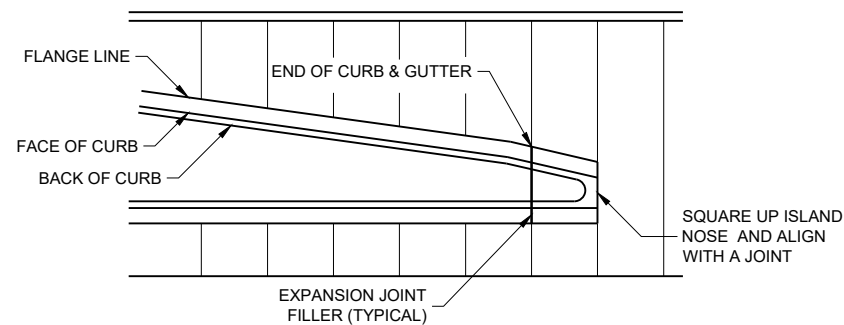
- ① PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
- ② CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
- ③ THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM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

PAVEMENT DEPTH AND JOINT SPACING TABLE

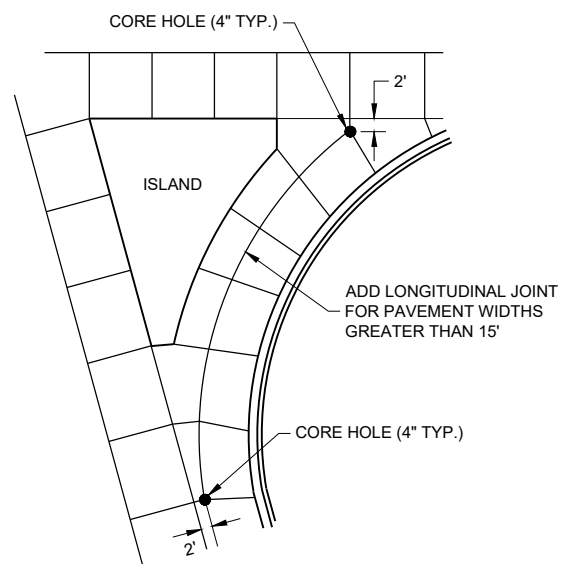
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 ½"	12'
7", 7 ½"	14'
8" & ABOVE	15'



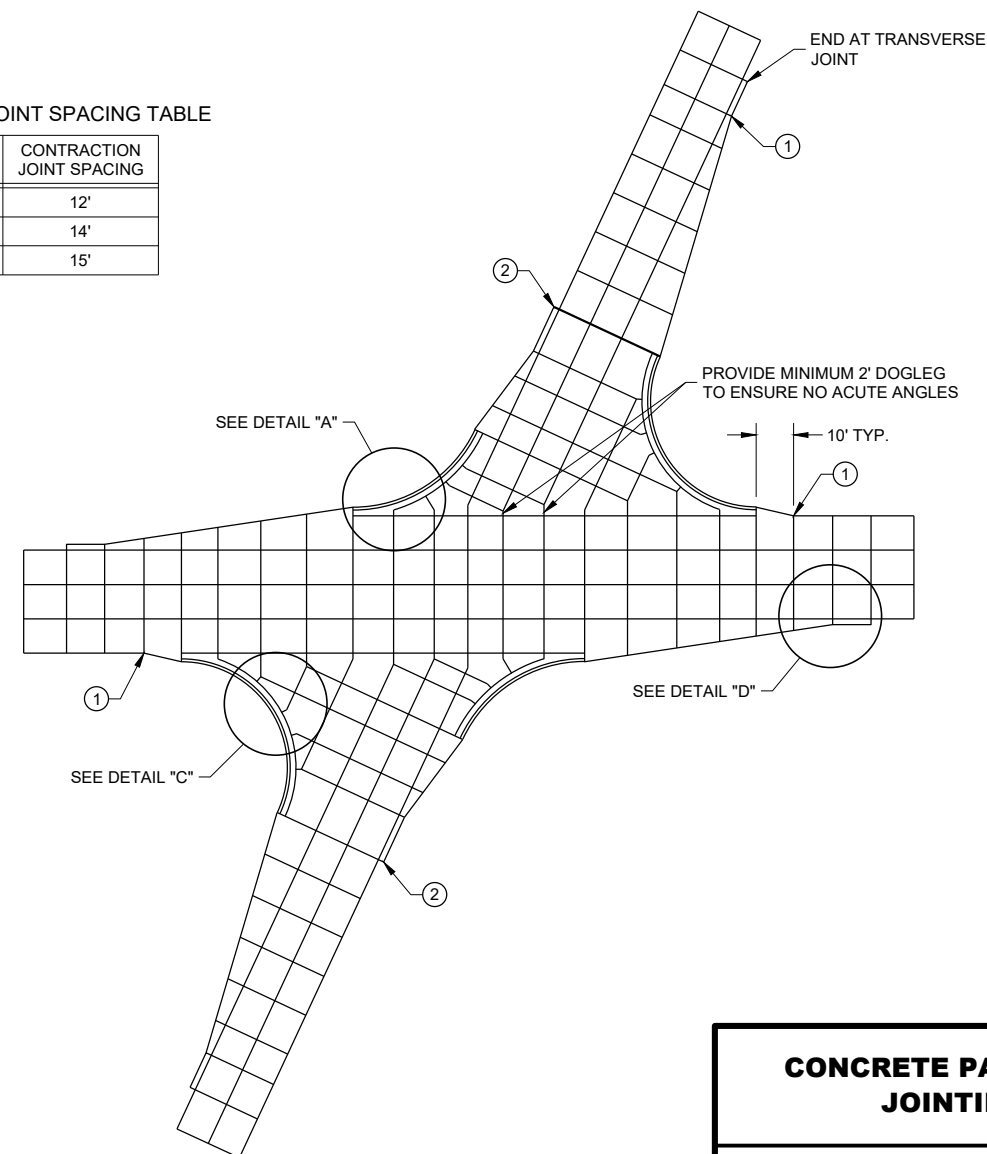
STANDARD INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN



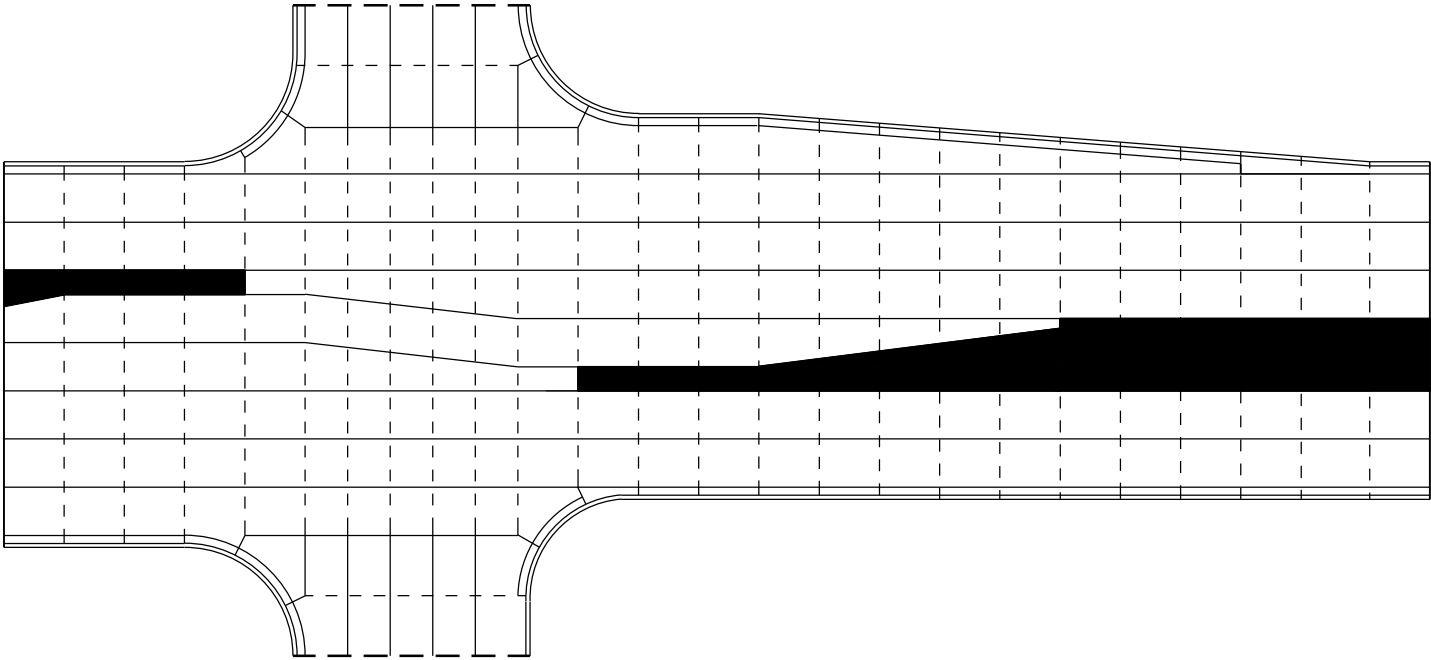
SKEWED INTERSECTION

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

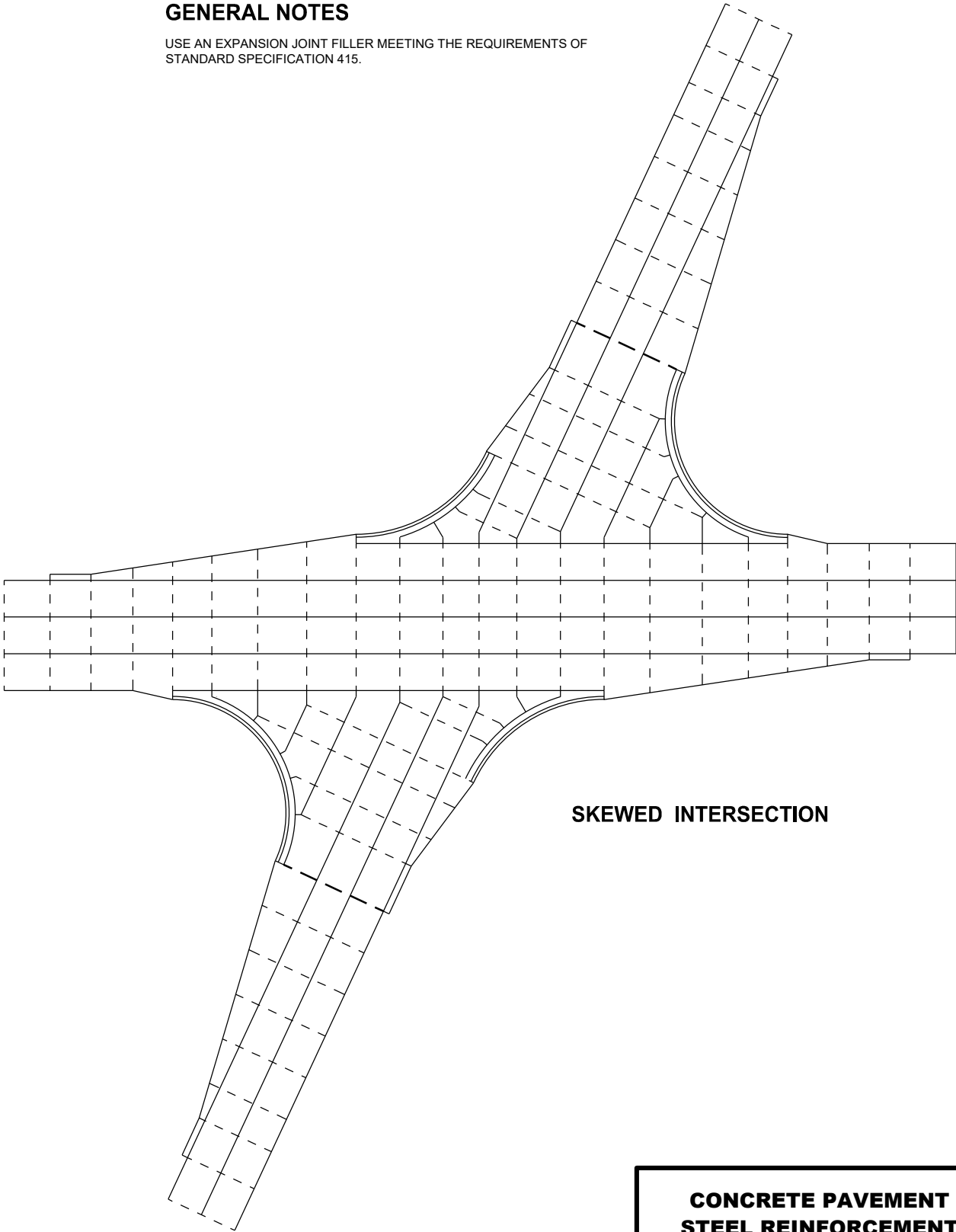
- POTENTIAL DOWELED EXPANSION JOINT
- DOWELED JOINT
- TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

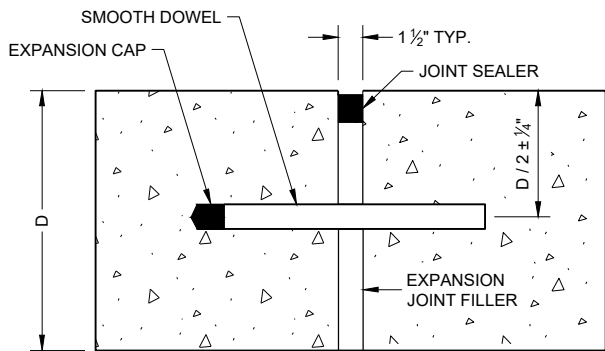
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



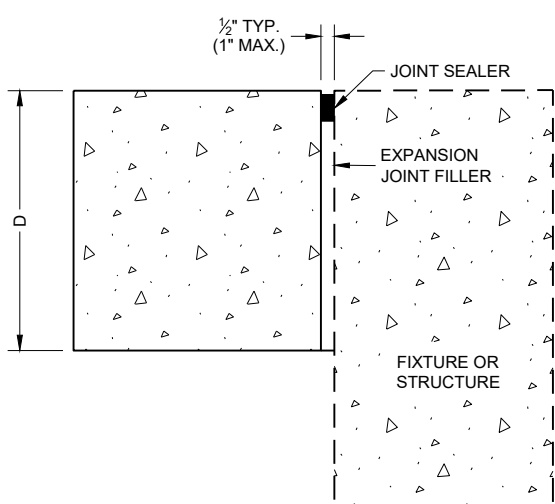
SKEWED INTERSECTION

CONCRETE PAVEMENT
STEEL REINFORCEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

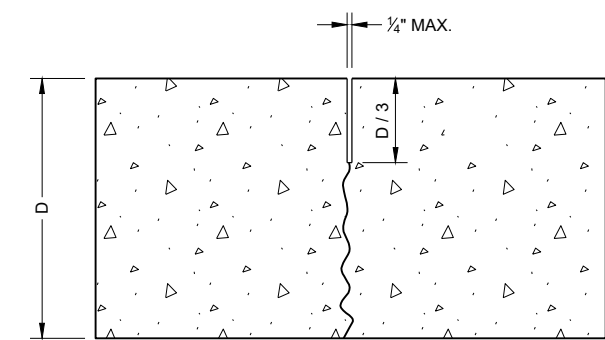


DOWELED TRANSVERSE ①

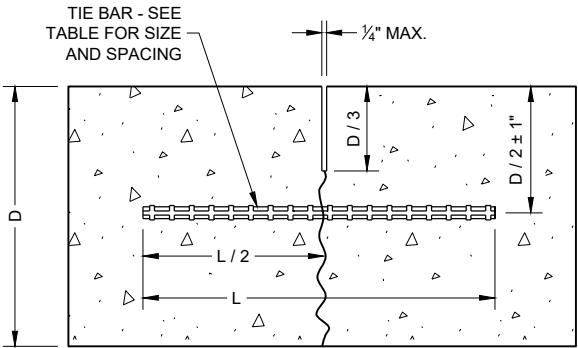


UNTIED - LONGITUDINAL

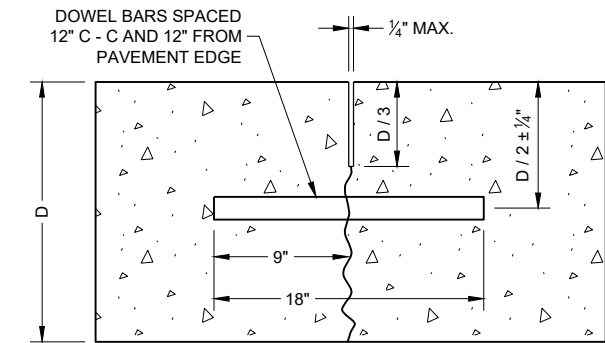
EXPANSION JOINTS



UNDOWELED TRANSVERSE



TIED LONGITUDINAL



DOWELED TRANSVERSE

CONTRACTION JOINTS ②

TIE BAR TABLE

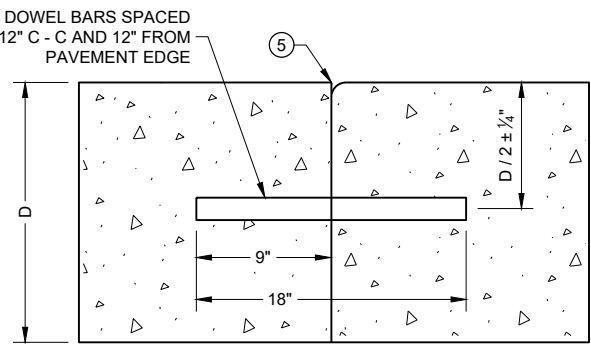
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

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

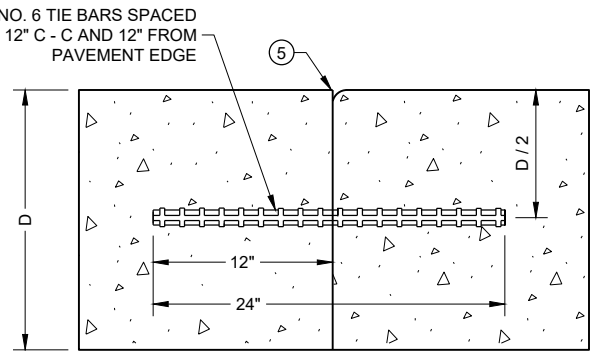
** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

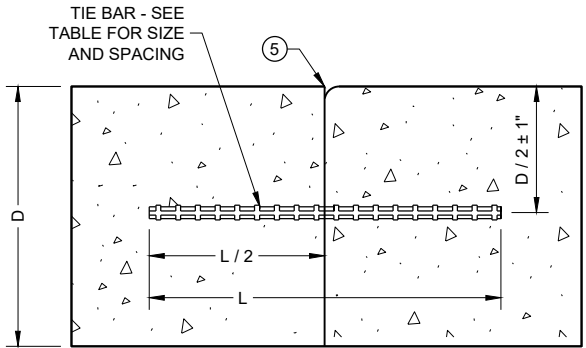
- ① USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- ② SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.
- ③ LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
- ④ CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
- ⑤ IF JOINT IS FORMED, PROVIDE A 1/4" RADIUS.
- ⑥ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



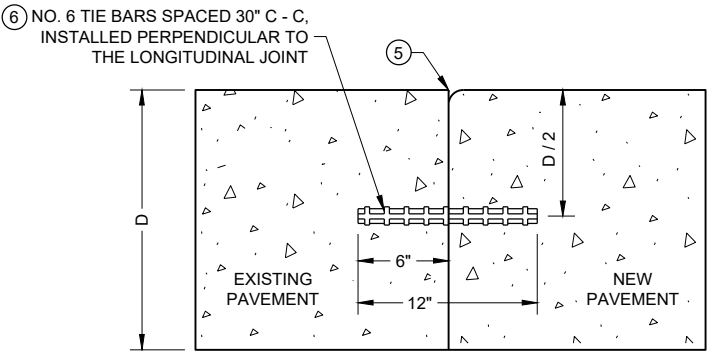
DOWELED TRANSVERSE ③



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



TIED LONGITUDINAL

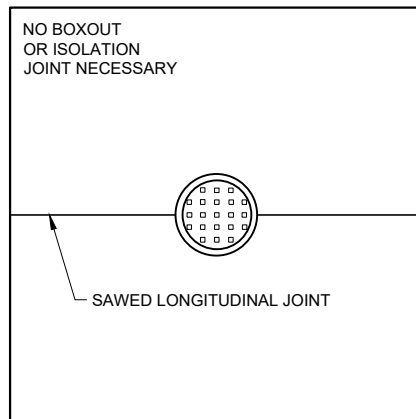


TIED LONGITUDINAL TO EXISTING

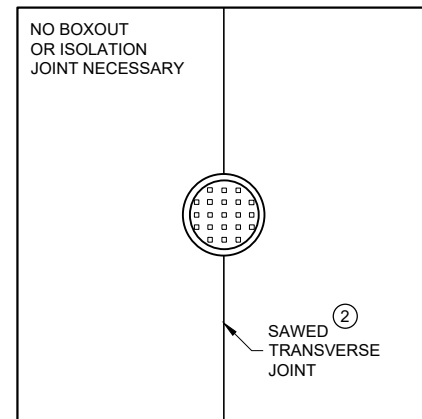
CONSTRUCTION JOINTS ④

CONCRETE PAVEMENT
JOINT TYPES

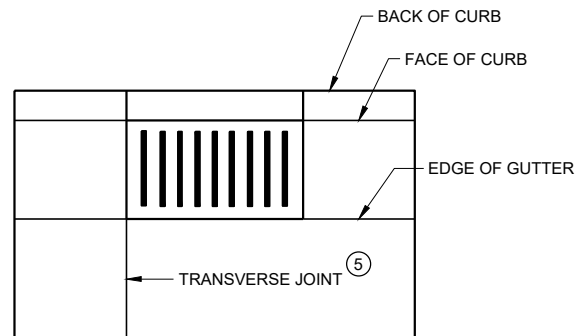
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 62



MANHOLE WITH
LONGITUDINAL JOINT



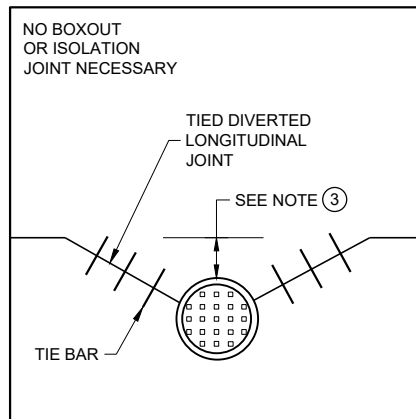
MANHOLE WITH
TRANSVERSE JOINT



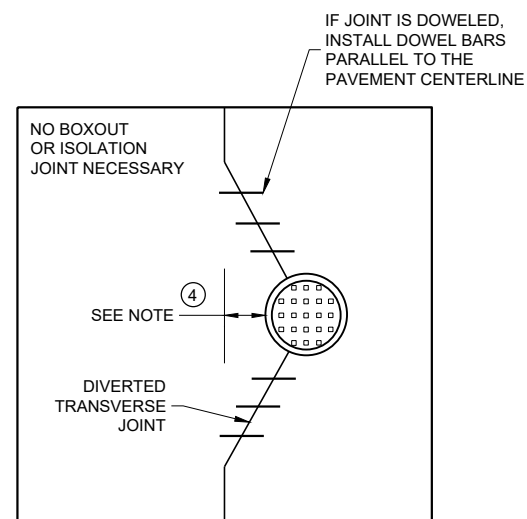
INLET WITH
TRANSVERSE JOINT

GENERAL NOTES

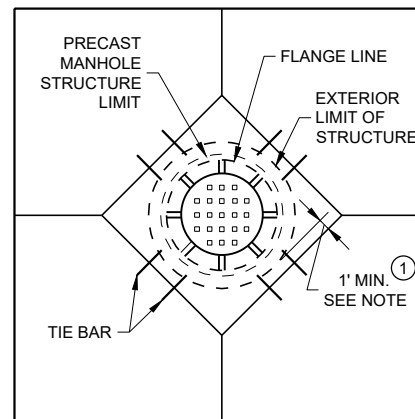
- ① USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
- ② ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
- ③ IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ④ IF THE DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS LESS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ⑤ ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.



MANHOLE WITH DIVERTED
LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED
TRANSVERSE CONTRACTION JOINT



DIAGONAL MANHOLE BOXOUT
FOR CONSTRUCTION JOINTS

CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

May 2023
DATE

/S/ Peter Kemp P.E.
PAVEMENT SUPERVISOR 63

FHWA

LEGEND

DOWELED JOINT

————

TIED JOINT

=====

EXPANSION JOINT

— — — — —

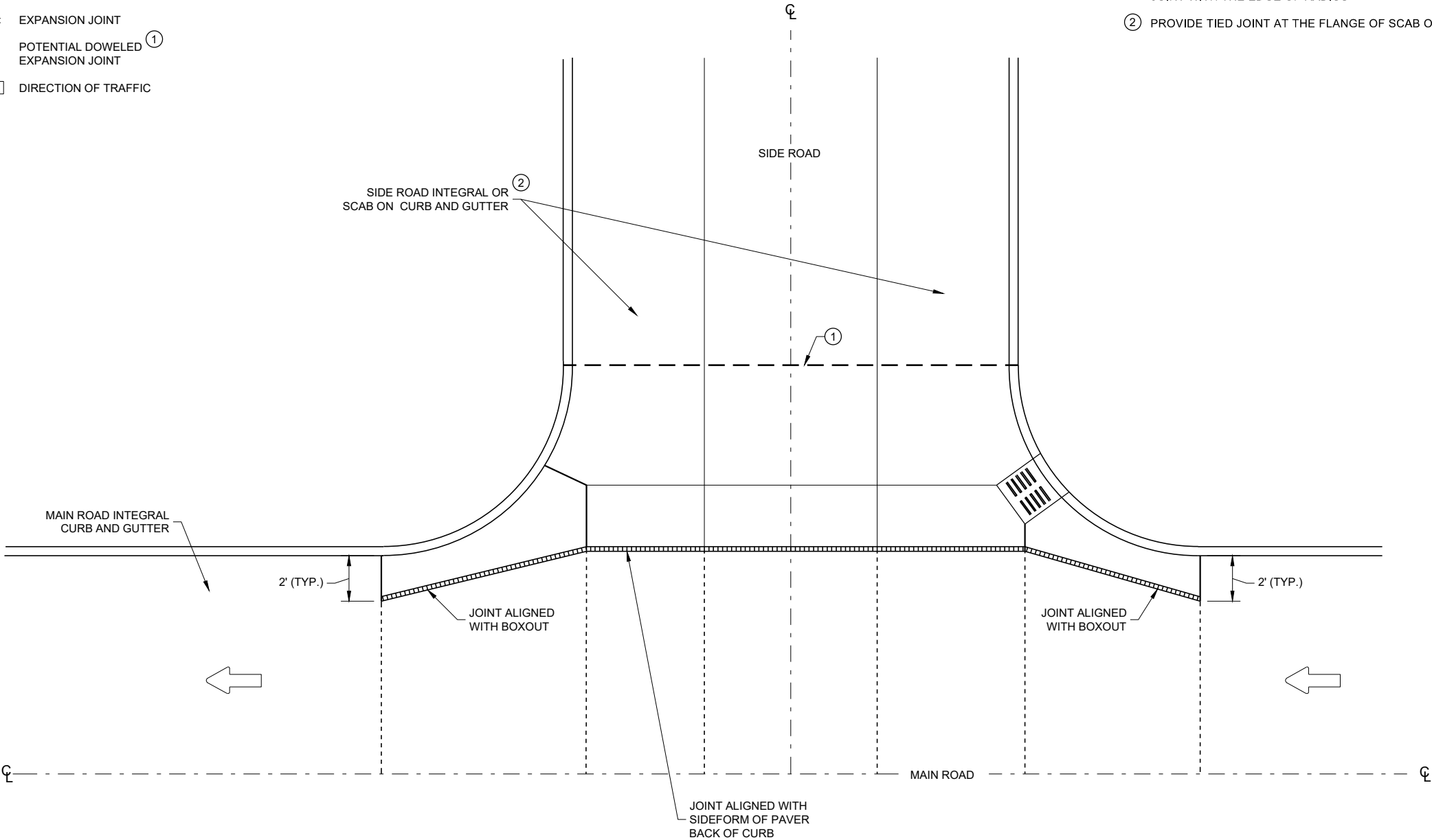
POTENTIAL DOWELED
EXPANSION JOINT ①

←

DIRECTION OF TRAFFIC

GENERAL NOTES

- ① CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH THE EDGE OF RADIUS.
- ② PROVIDE TIED JOINT AT THE FLANGE OF SCAB ON CURB IF SCAB ON CURB AND GUTTER IS USE.

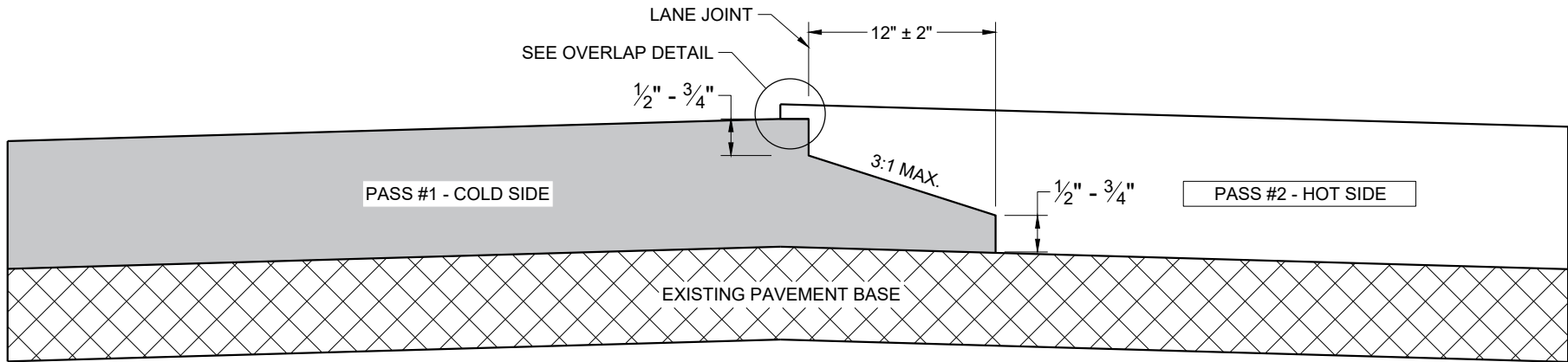


INTERSECTION BOXOUT FOR INTEGRAL CURB AND GUTTER

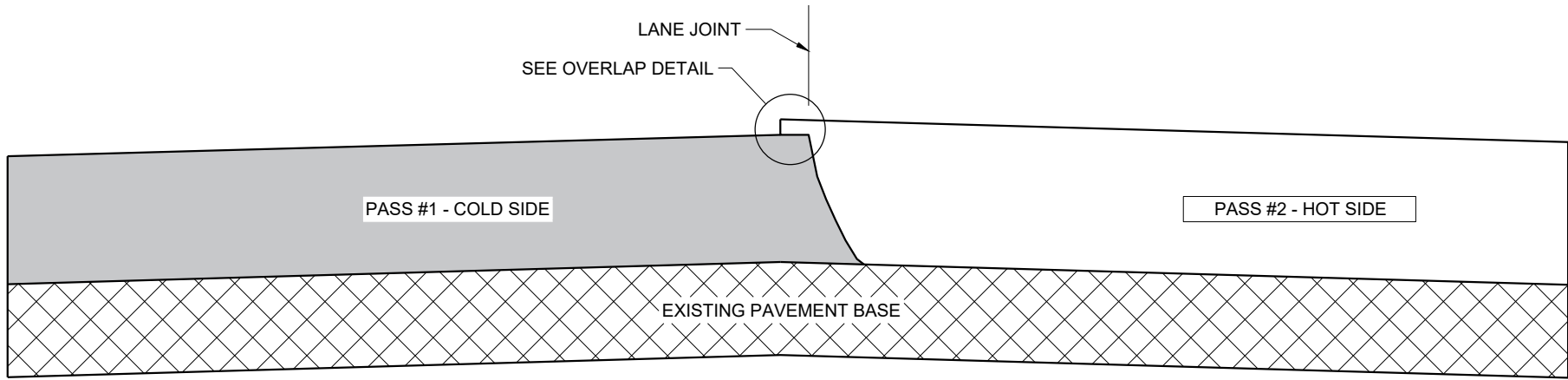
CONCRETE PAVEMENT
INTERSECTION BOXOUT FOR
INTEGRAL CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

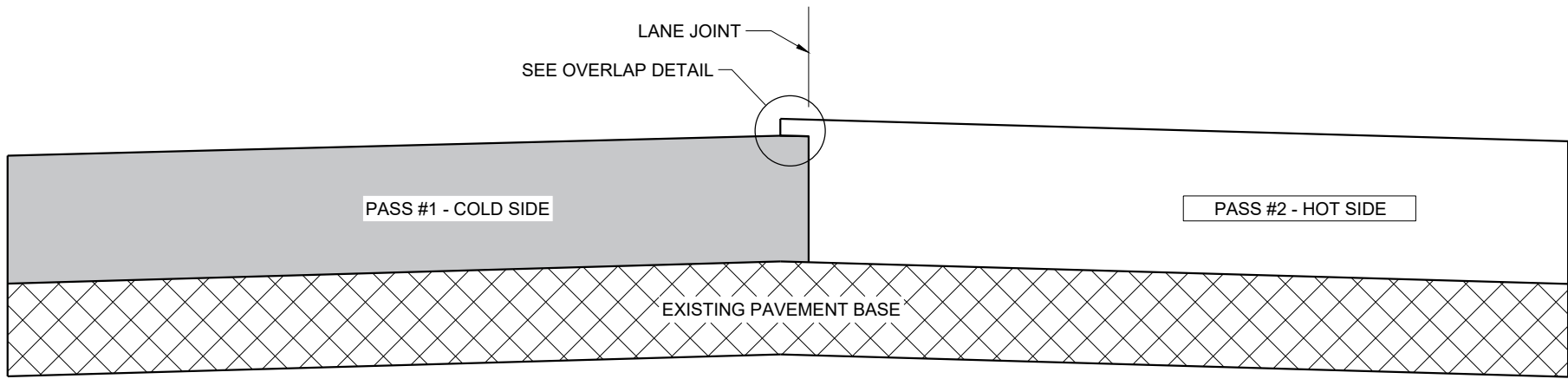
APPROVED
May 2023 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR 64
FHWA



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

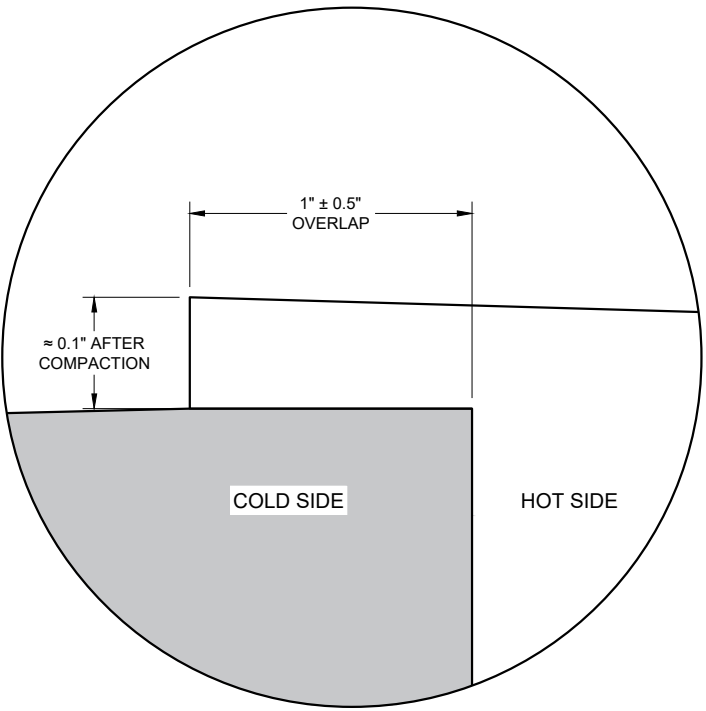
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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

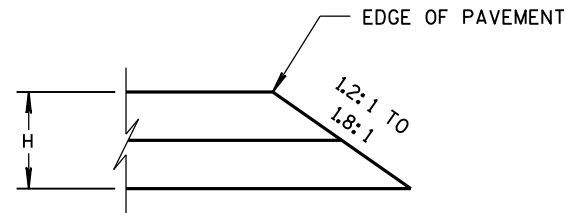


OVERLAP DETAIL (TYPICAL)

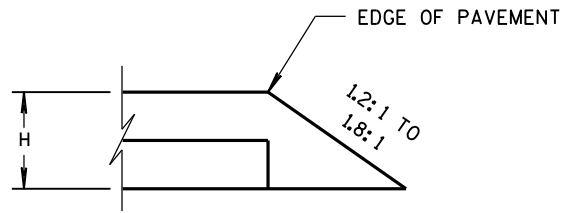
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

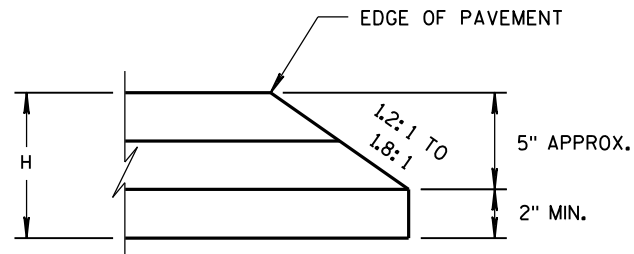
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 65
FHWA



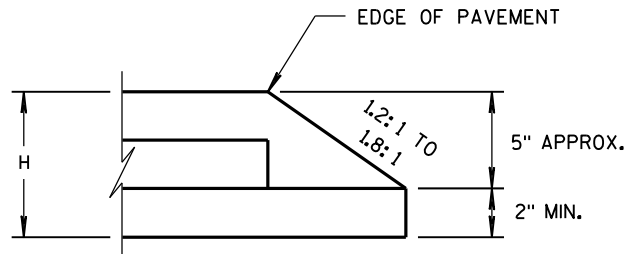
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

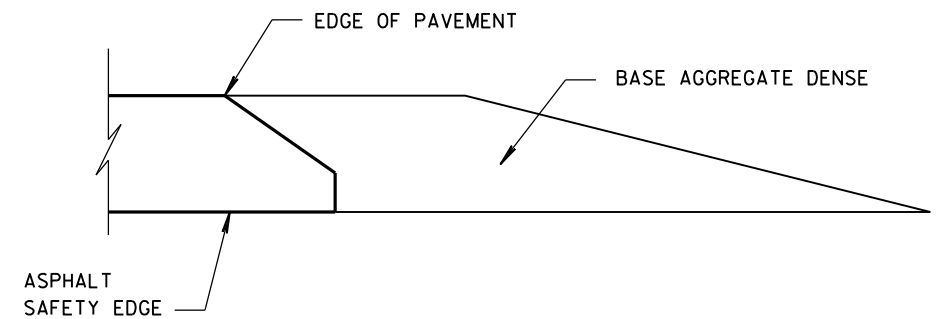


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

SAFETY EDGE_{SM}

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

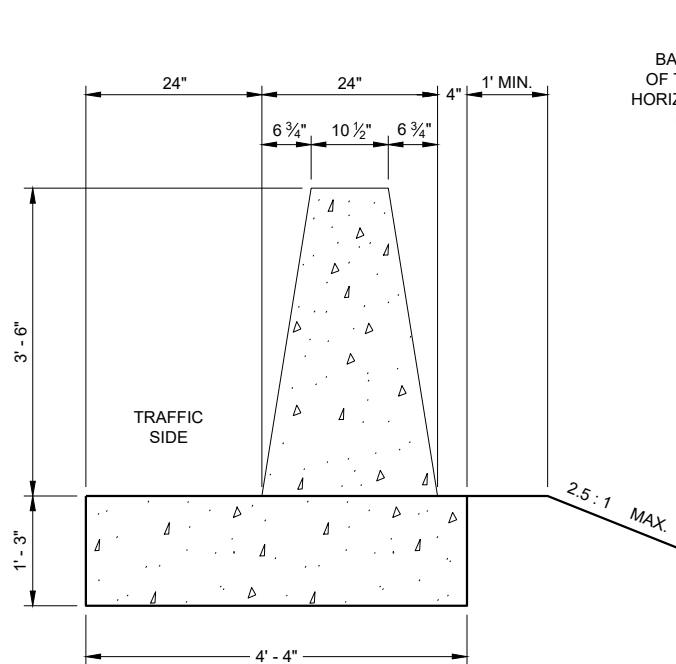
11/30/2012
DATE

FHWA

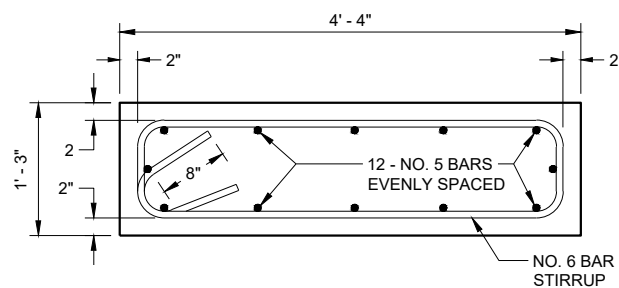
/s/ Jerry H. Zoaga
ROADWAY STANDARDS
ENGINEER

66

INT



SECTION A - A



TYPICAL FOOTING

GENERAL NOTES

CONSTRUCT PER STANDARD SPECIFICATION 603.

SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS OTHERWISE NOTED.

4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS SECTION 501.

USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.

THRIE BEAM ANCHOR INCIDENTAL TO CONCRETE BARRIER ITEM.

INSTALL SCHEDULE 40 PVC PIPE 1" DIAMETER AT LOCATIONS INDICATED.

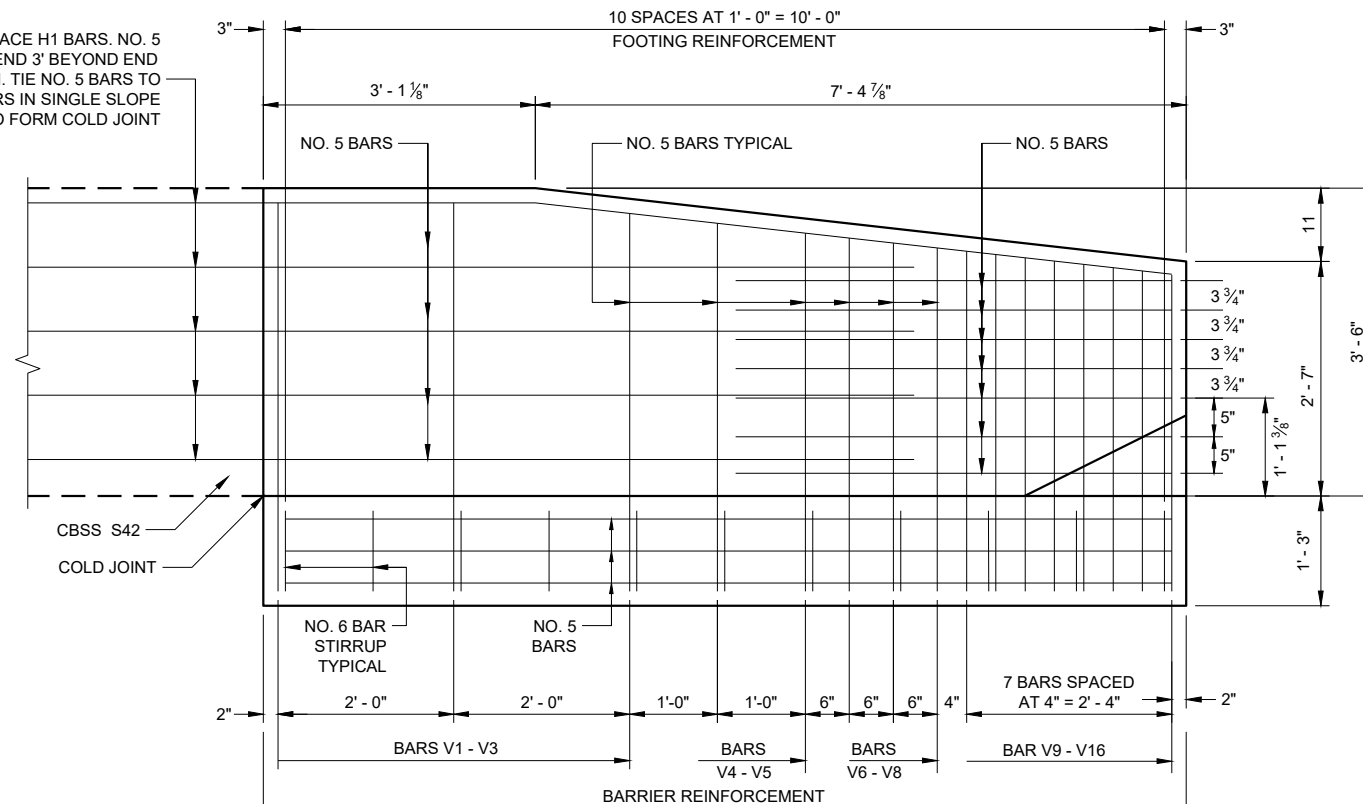
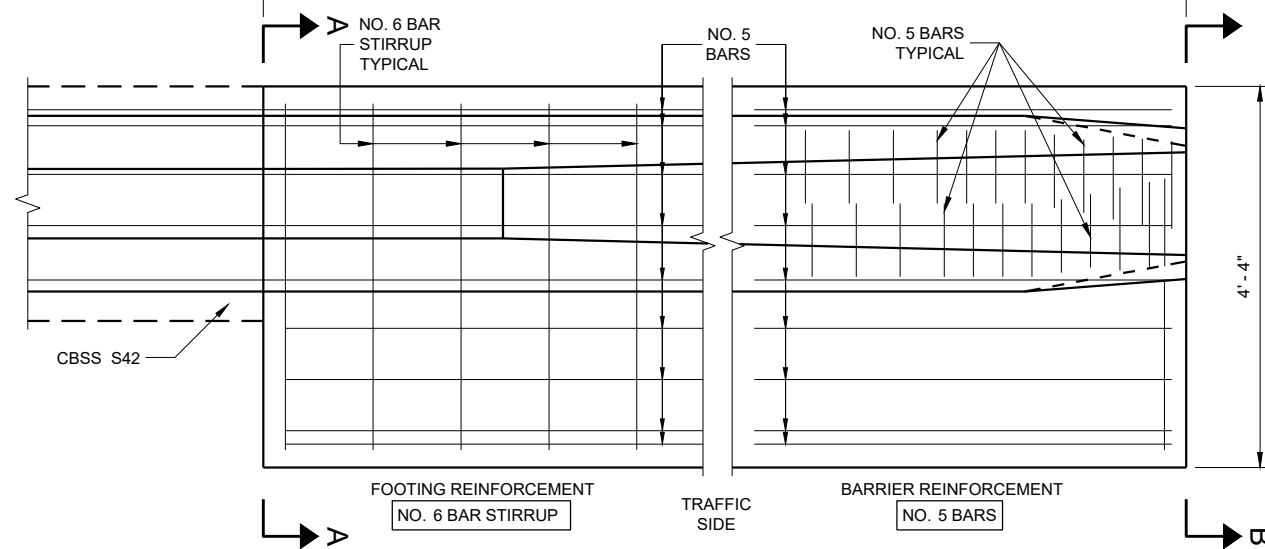
EXTEND PVC PIPE COMPLETELY THROUGH BARRIER.

CUT ENDS OF PVC PIPE FLUSH WITH FINISHED FACE OF BARRIER.

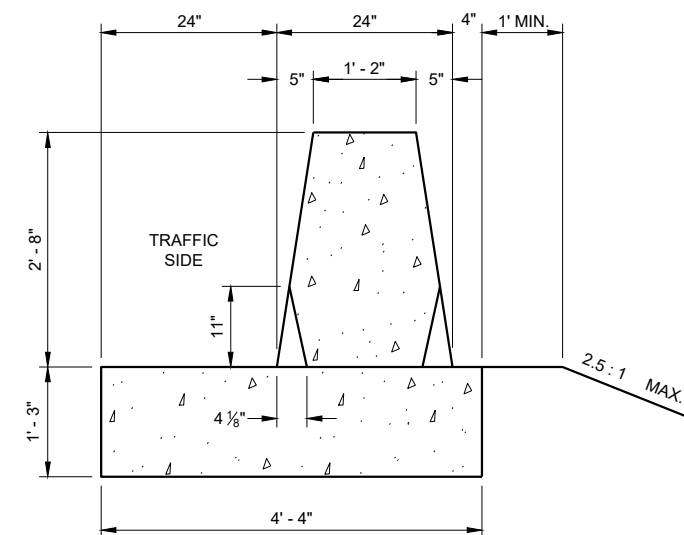
THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.

2" CLEAR COVER TYPICAL.

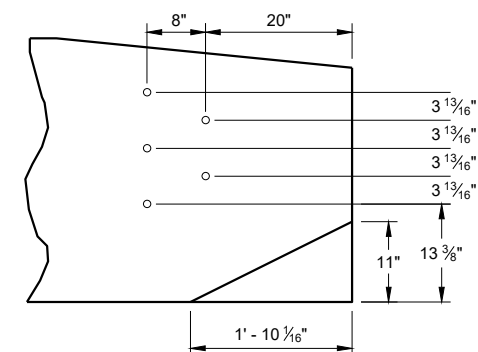
EVENLY SPACE H1 BARS. NO. 5 BARS TO EXTEND 3' BEYOND END OF TRANSITION. TIE NO. 5 BARS TO HORIZONTAL BARS IN SINGLE SLOPE BARRIER TO FORM COLD JOINT

SEE SECTIONS ① THRU ⑩
ELEVATION VIEW

PLAN VIEW



SECTION B - B



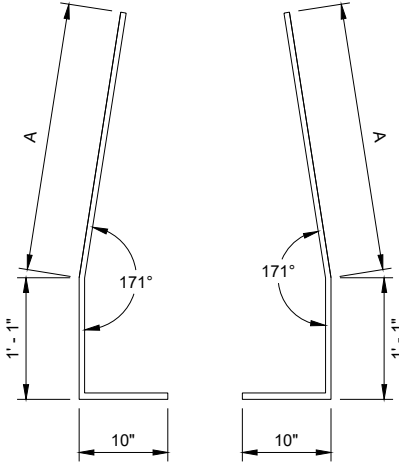
PVC PIPE LOCATIONS

**CONCRETE BARRIER
SINGLE SLOPE 42"
THRIE BEAM ANCHOR**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 67

**BAR CHART
BAR POSITIONS
1 - 11**

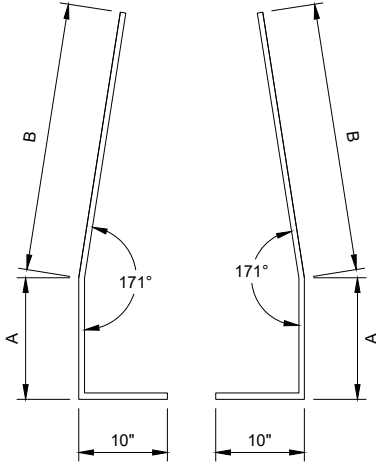
BAR	A
V1	3' - 4 ½"
V2	3' - 4 ½"
V3	3' - 2 ½"
V4	3' - 1"
V5	2' - 11 ½"
V6	2' - 11"
V7	2' - 10 ½"
V8	2' - 9 ½"
V9	2' - 9"
V10	2' - 8 ½"
V11	2' - 8"



**BAR BENDING DETAIL
SECTIONS V1 - V4**

**BAR CHART
BAR POSITIONS
12 - 13**

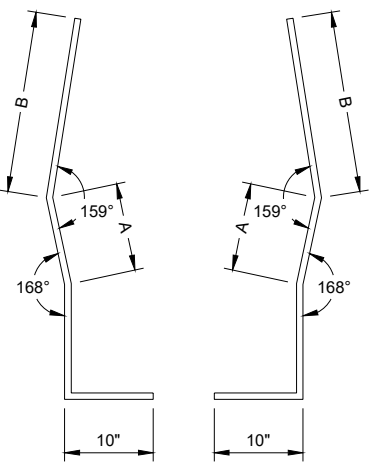
BAR	A	B
V12	1' - 3"	2' - 6"
V13	1' - 8"	2' - 1 ½"



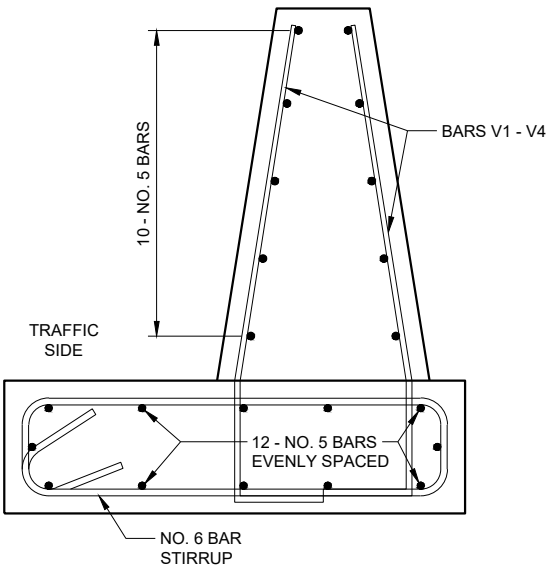
**BAR BENDING DETAIL
SECTIONS V12 - V13**

**BAR CHART
BAR POSITIONS
14 - 16**

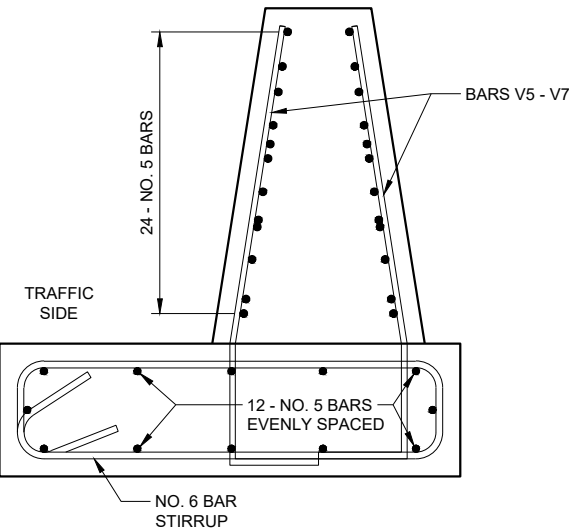
BAR	A	B
V14	6"	2' - 1"
V15	8"	1' - 11"
V16	10"	1' - 8 ½"



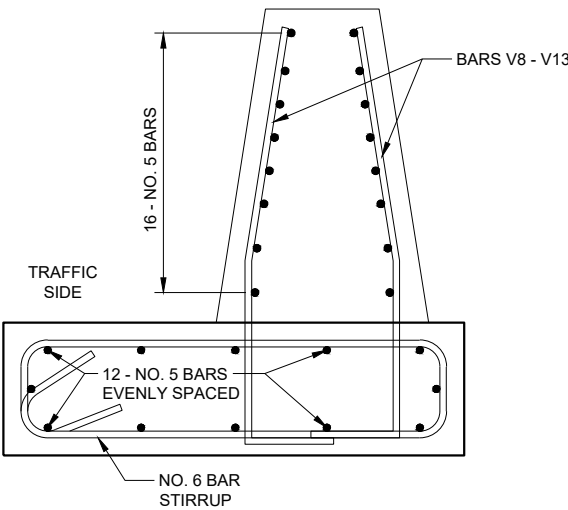
**BAR BENDING DETAIL
SECTIONS V14 - V16**



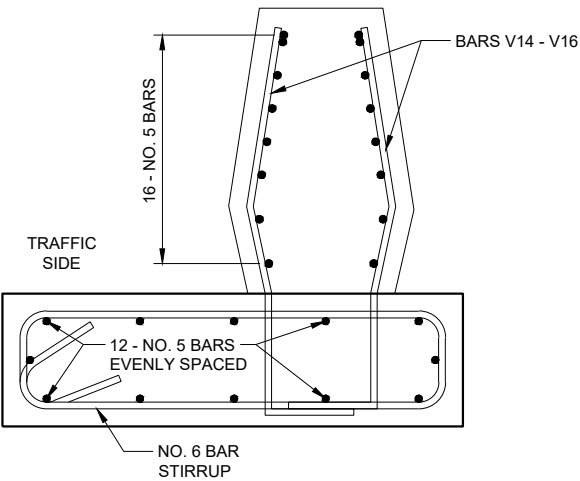
**BAR DETAIL
SECTIONS 1 - 4**



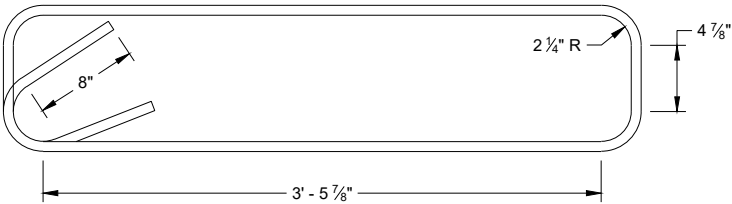
**BAR DETAIL
SECTIONS 5 - 7**



**BAR DETAIL
SECTIONS 8 - 13**



**BAR DETAIL
SECTIONS 14 - 16**



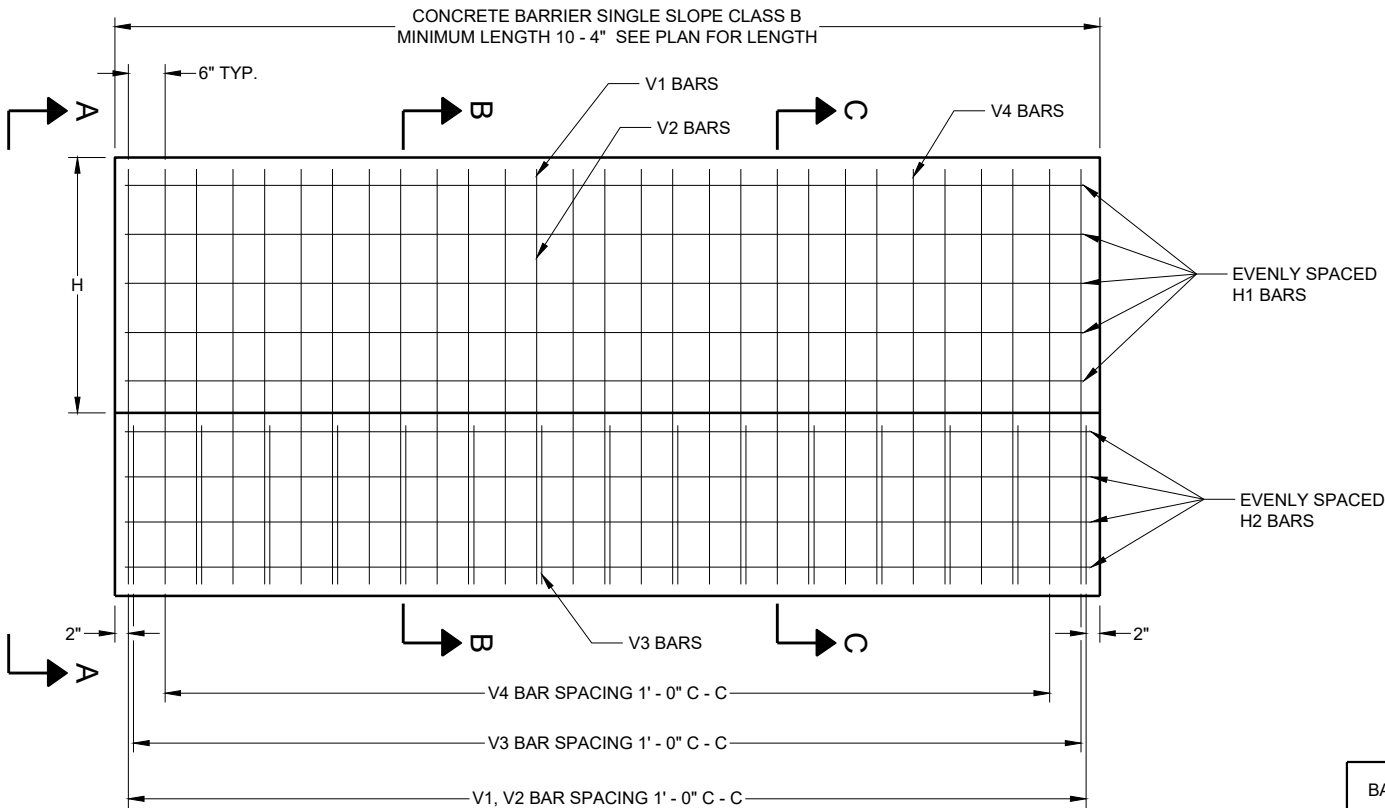
**STIRRUP BAR
BENDING DETAIL**

**CONCRETE BARRIER
SINGLE SLOPE 42"
THRIE BEAM ANCHOR**

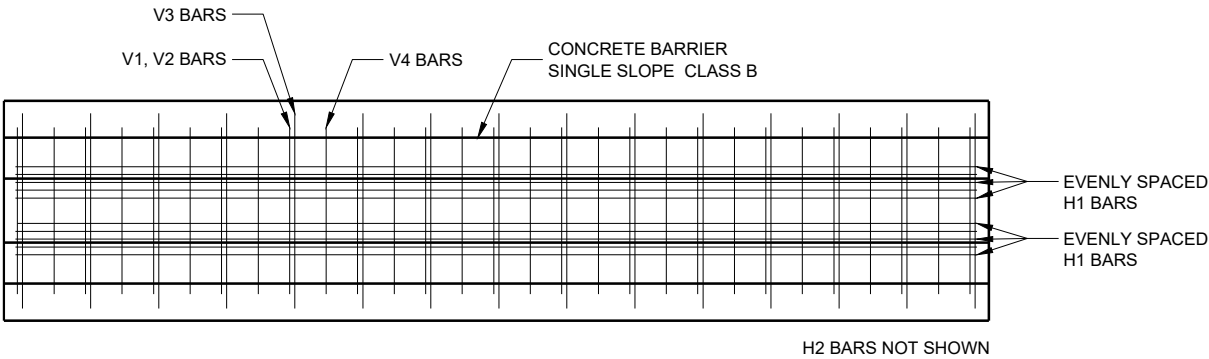
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



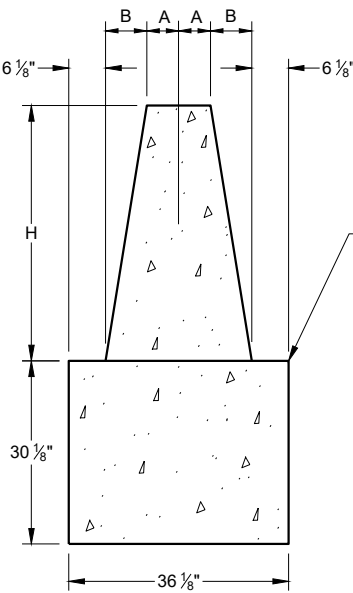
ELEVATION VIEW



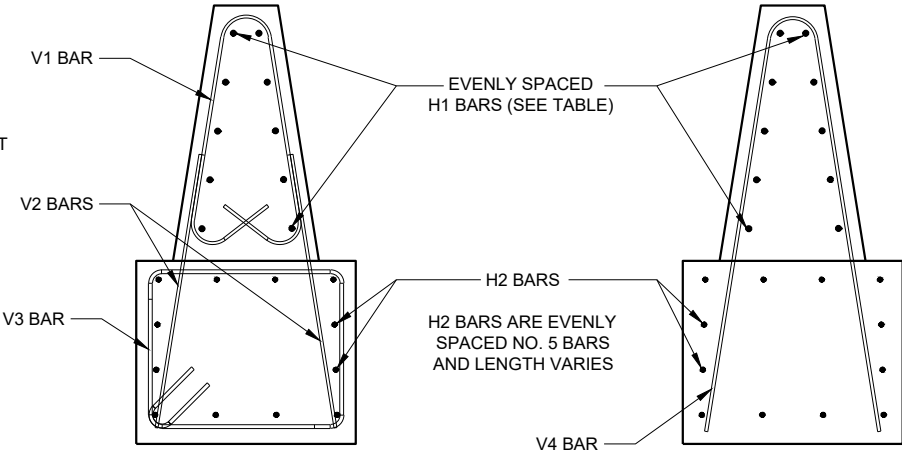
PLAN VIEW

GENERAL NOTES

- CONSTRUCT PER STANDARD SPECIFICATION 603.
- SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS NOTED OTHERWISE.
- 4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS 501.
- USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS NOTED OTHERWISE.
- THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.
- 2" CLEAR COVER TYPICAL.
- WHERE THE CONCRETE BARRIER IS ADDED TO THE FACE OF EXISTING CONCRETE STRUCTURE, MATCH EXISTING WEEP HOLES.
- PAVEMENT AND PRINCIPAL WALL JOINTS. EXPANSION JOINT FILLER MATERIAL.
- PLACE BARRIER PERPENDICULAR TO SHOULDER GRADE, UNLESS INDICATED IN PLAN.
- WHEN SWITCHING BETWEEN SLIP FORM AND CAST-IN-PLACE OPERATIONS, EXTEND LONGITUDINAL STEEL 3 FEET BEYOND SLIP-FORMING CUT OFF POINT. EXPOSED STEEL INTO NEXT POURS REINFORCEMENT. LAPS TO BE FIRMLY TIED.
- IF REQUIRED USE THRIE BEAM ANCHOR. NO OTHER ANCHOR REQUIRED.



SECTION A - A

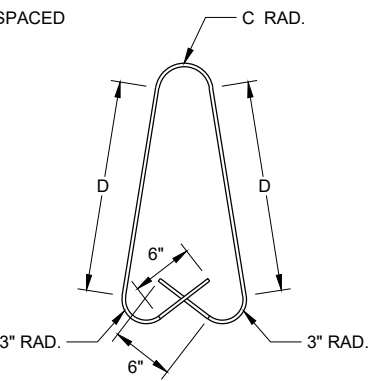


SECTION B - B

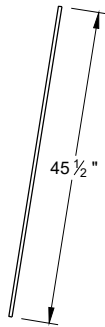
SECTION C - C

BARRIER HEIGHT H INCHES	A INCHES	B INCHES	NUMBER OF H1 BARS EACH
32	7	5	8
36	6 1/4	5 3/4	8
42	5 1/4	6 3/4	10

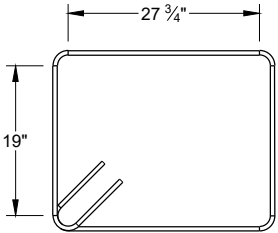
BARRIER HEIGHT H INCHES	V1 BAR		V4 BAR	
	C RAD. INCHES	D INCHES	E RAD. INCHES	F INCHES
32	5 5/8	18 3/4	5 1/2	53 3/4
36	4 3/4	23 3/4	4 7/8	58 3/8
42	3 5/8	30 1/2	3 5/8	65 3/8



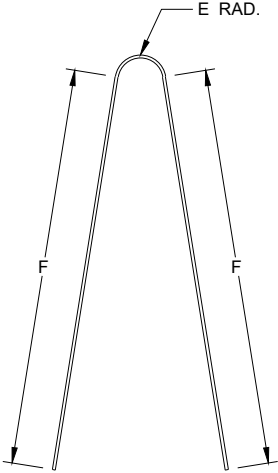
V1 BAR BENDING DETAIL
V1 BARS ARE NO. 4 BARS



V2 BAR DETAIL
V2 BARS ARE NO. 5 BARS



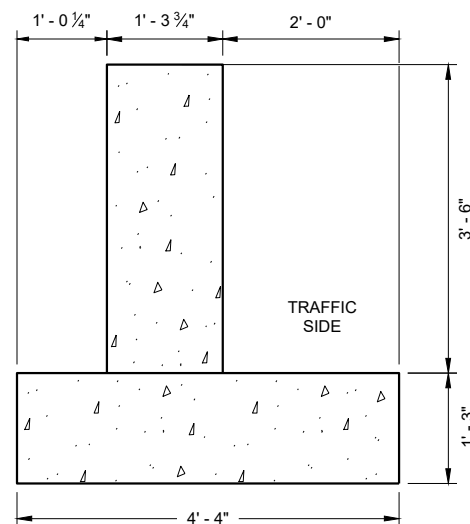
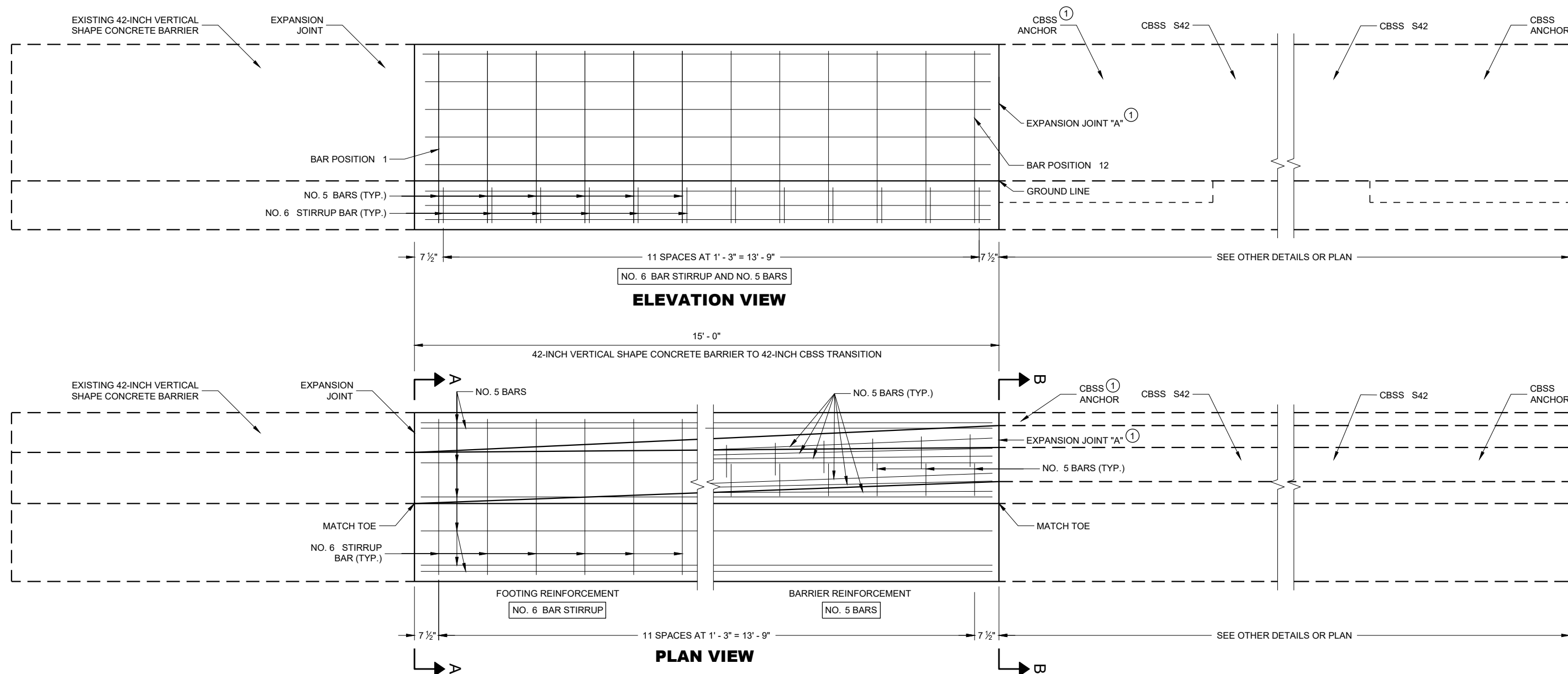
V3 BAR BENDING DETAIL
V3 BARS ARE NO. 6 BARS



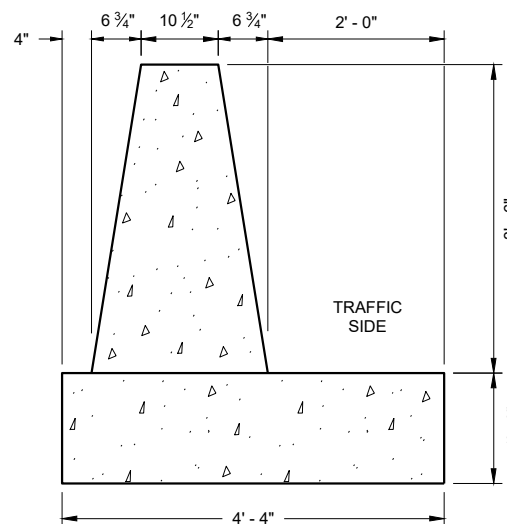
V4 BAR BENDING DETAIL
V4 BARS ARE NO. 6 BARS

32", 36", & 42"
CONCRETE BARRIER
SINGLE SLOPE CLASS B

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SECTION A - A



SECTION B - B

GENERAL NOTES

CONSTRUCT PER STANDARD SPECIFICATION 603.

SPICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS OTHERWISE NOTED.

4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS SECTION 501.

USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.

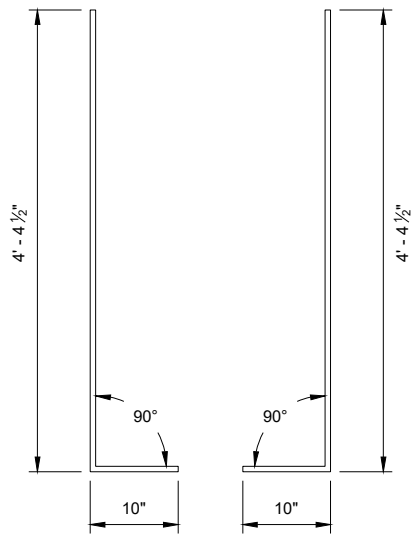
THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.

2" CLEAR COVER TYPICAL.

- ① EXPANSION JOINT "A" MAY BE REPLACED WITH A COLD JOINT PROVIDED THAT 3 FEET OF LAP OF LONGITUDINAL STEEL IS PROVIDED. IF COLD JOINT IS USED, ANCHOR IS NOT REQUIRED.

**42-INCH VERTICAL SHAPE
CONCRETE BARRIER TO
42-INCH SINGLE SLOPE
CONCRETE BARRIER TRANSITION**

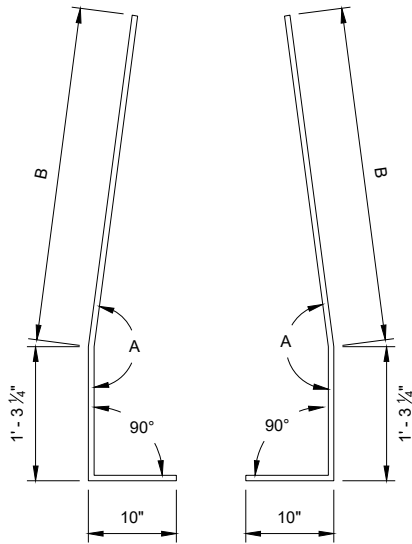
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 70



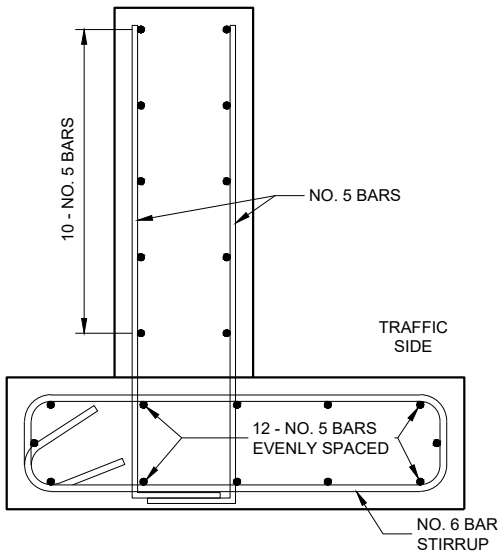
BENDING DETAIL
BAR 1

BAR CHART
BAR POSITIONS
2 - 12

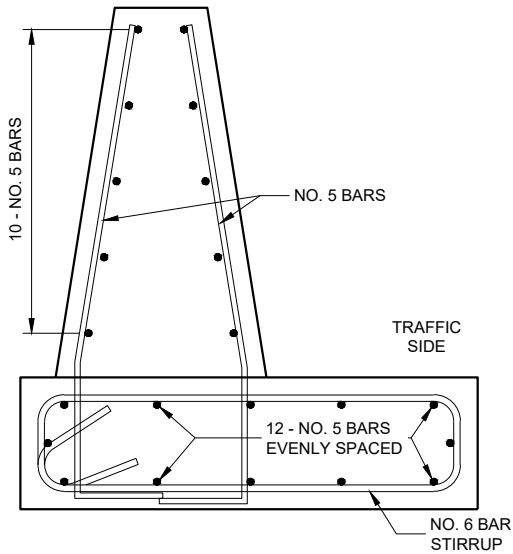
BAR	A	B
2	179°	3' - 1 3/4"
3	178°	3' - 1 3/4"
4	177°	3' - 1 3/4"
5	176°	3' - 2"
6	175°	3' - 1 3/4"
7	175°	3' - 1 3/4"
8	174°	3' - 1 3/4"
9	173°	3' - 2"
10	172°	3' - 2"
11	172°	3' - 2"
12	170°	3' - 2 1/4"



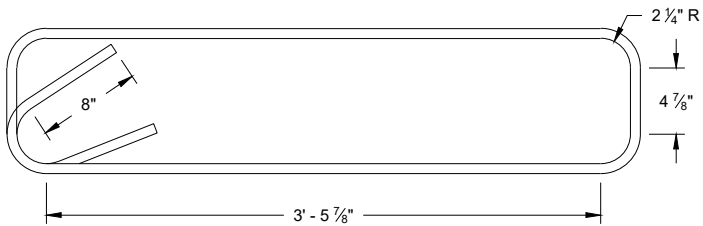
BENDING DETAIL
BAR 2 - 12



BAR DETAIL
BAR POSITION 1



BAR DETAIL
BAR POSITIONS 2 - 12



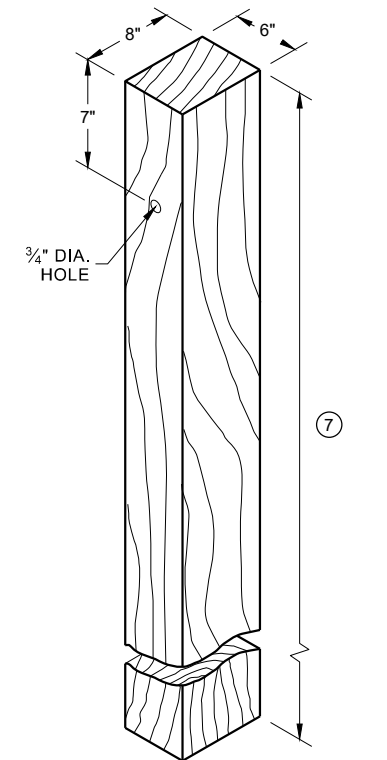
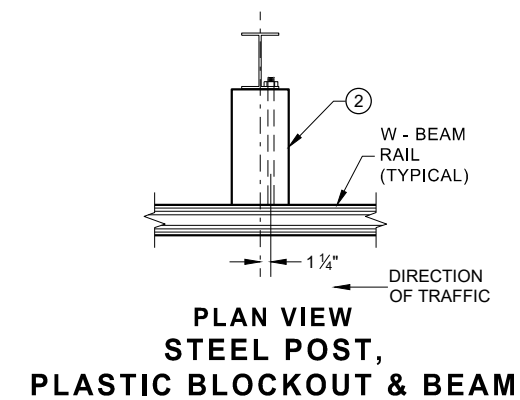
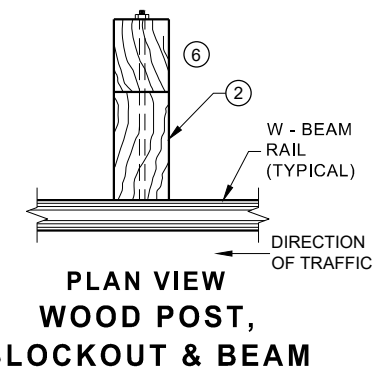
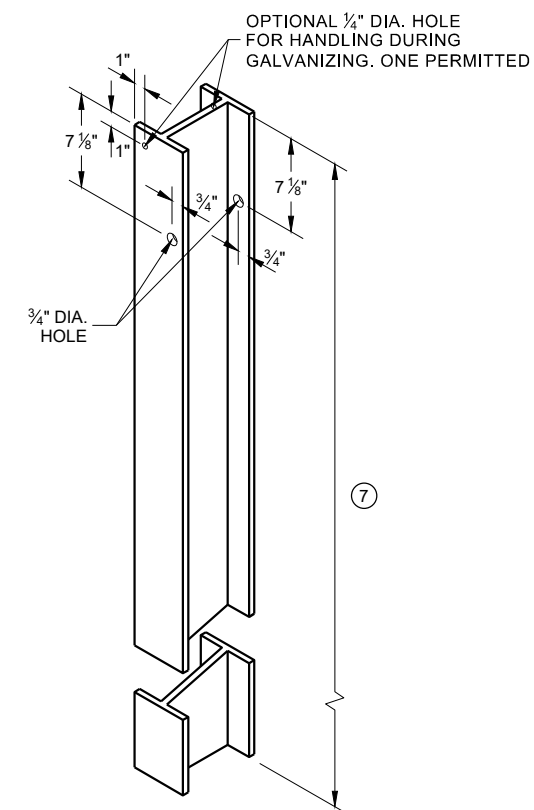
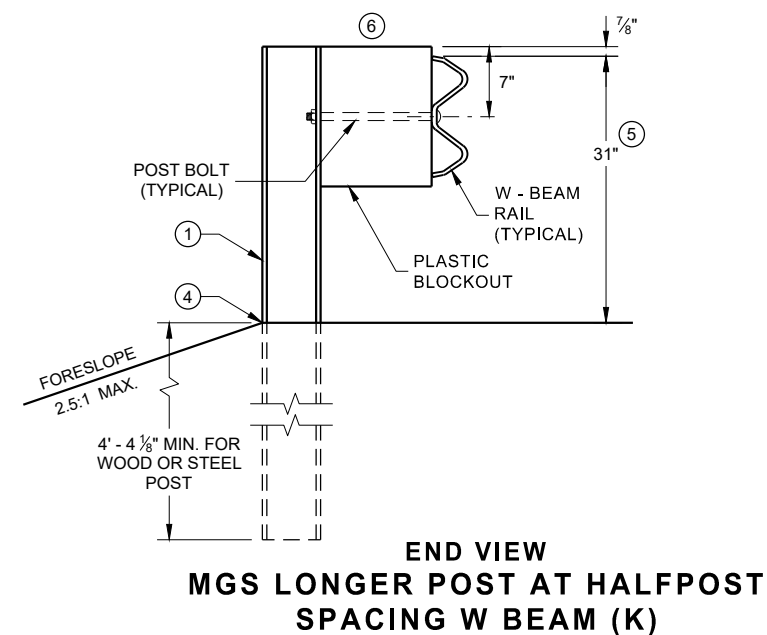
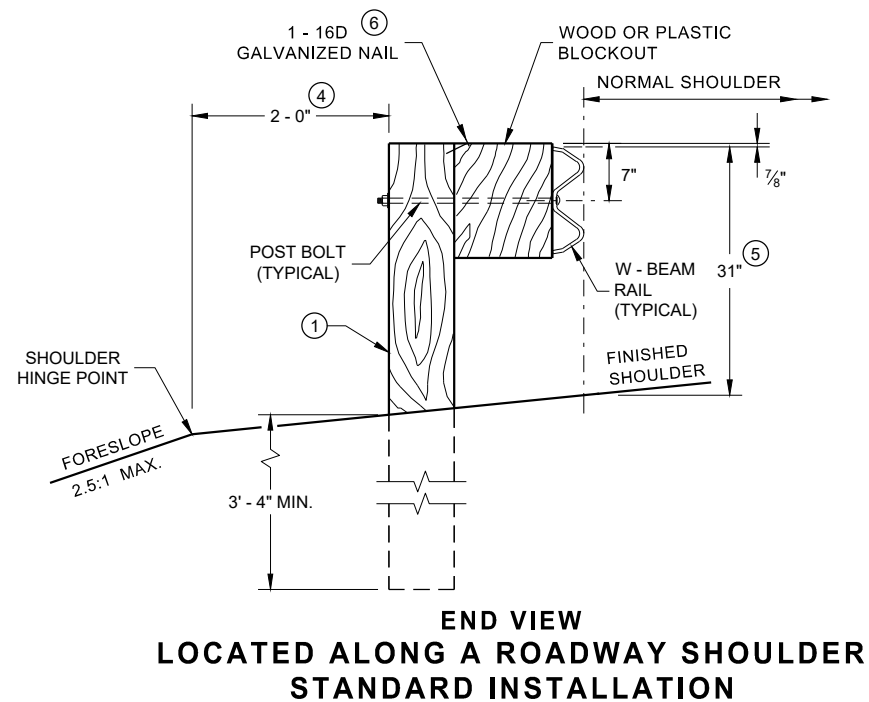
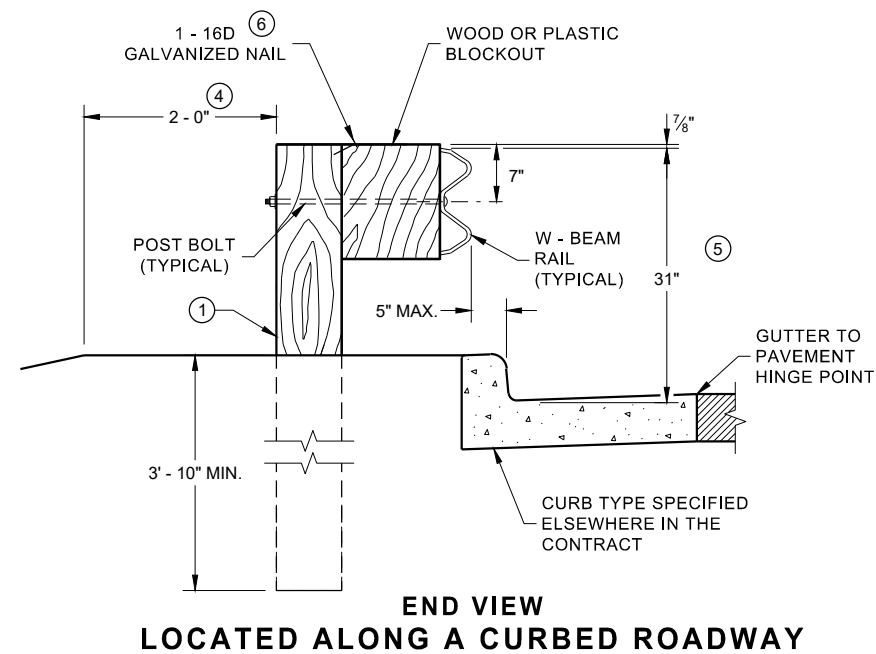
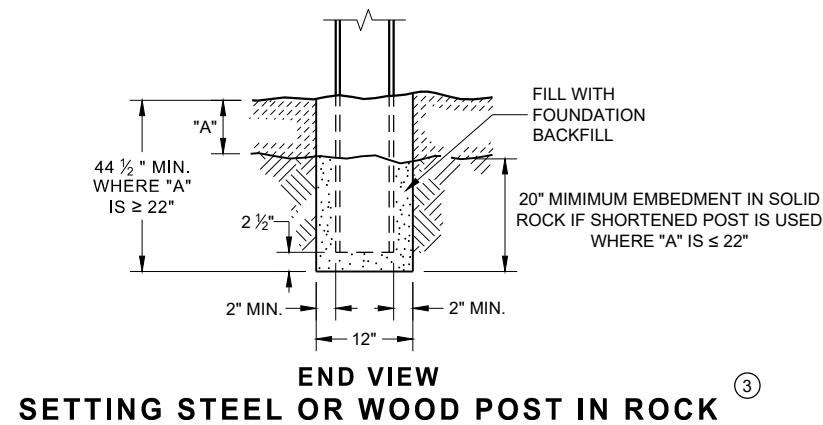
STIRRUP BAR
BENDING DETAIL

42-INCH VERTICAL SHAPE
CONCRETE BARRIER TO
42-INCH SINGLE SLOPE
CONCRETE BARRIER TRANSITION

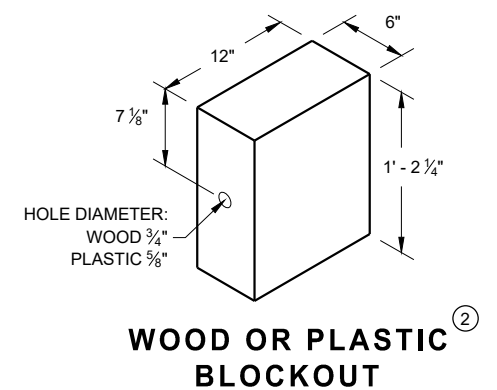
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

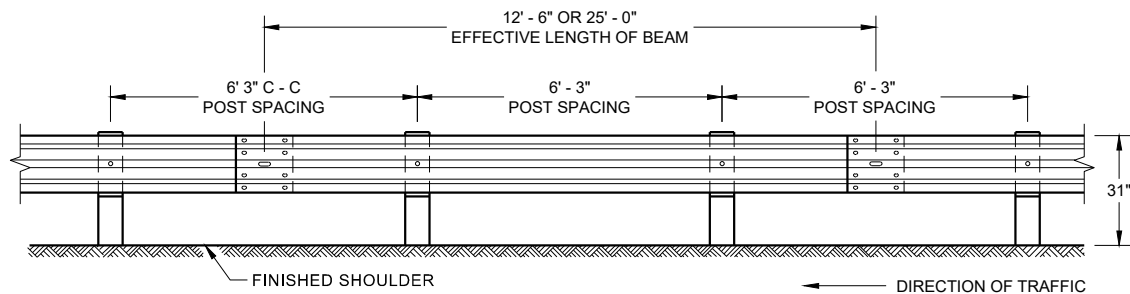
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN $27 \frac{3}{4}"$ 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.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS $7' - 0"$.
TOTAL POST LENGTH FOR OTHER MGS TYPES IS $6' - 0"$.



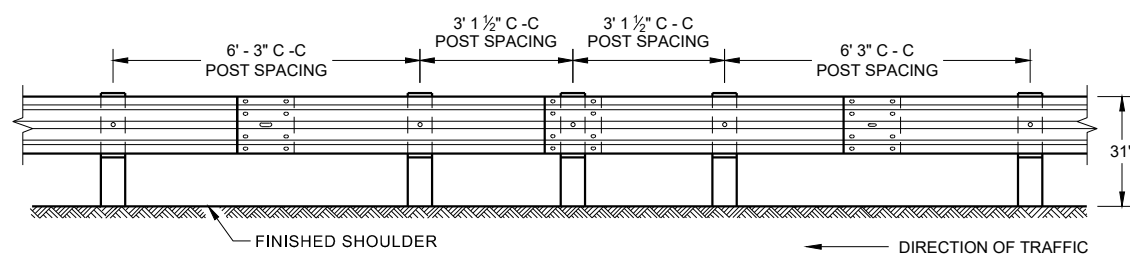
WOOD POST (6" X 8") NOMINAL ⁽¹⁾



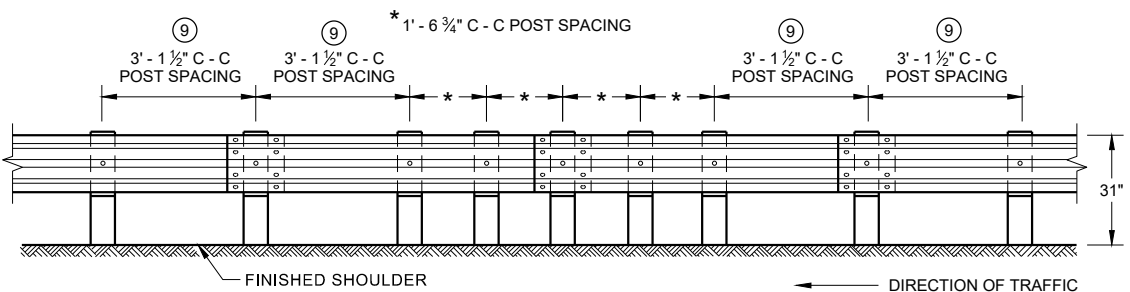
**WOOD OR PLASTIC
BLOCKOUT**



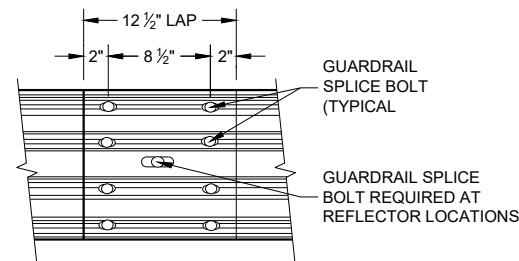
FRONT VIEW
POST SPACING STANDARD INSTALLATION



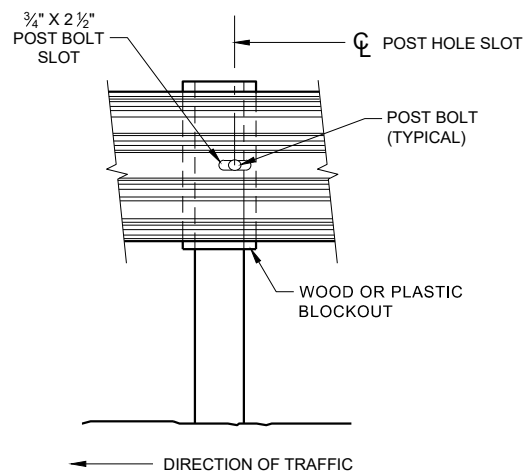
FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)



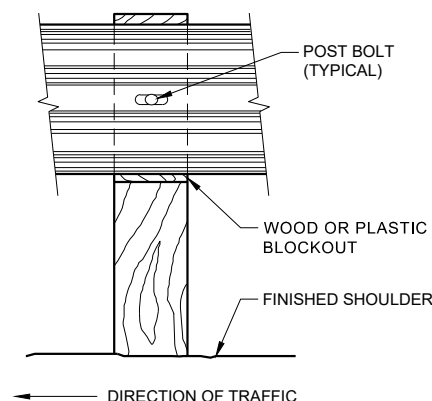
FRONT VIEW
QUARTER POST SPACING (QS)



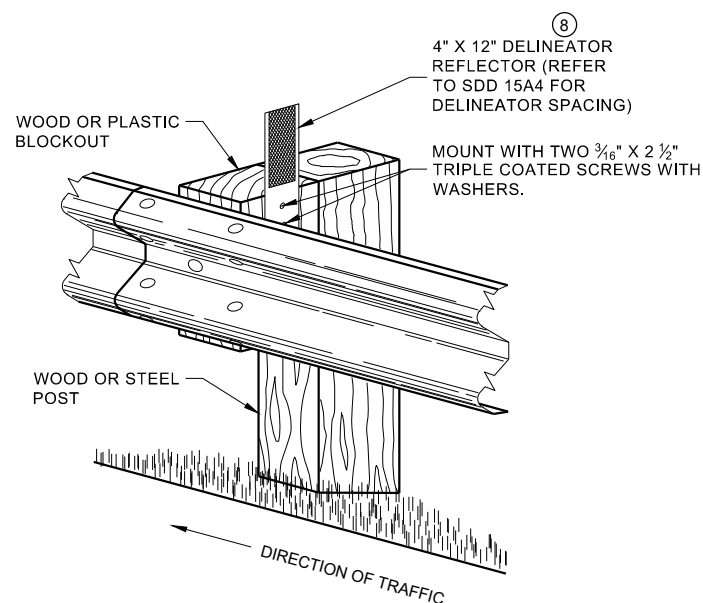
FRONT VIEW
MID-SPAN BEAM SPLICE



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



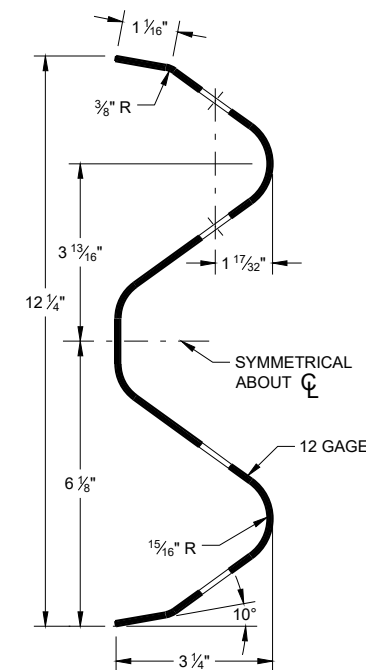
ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

GENERAL NOTES

- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

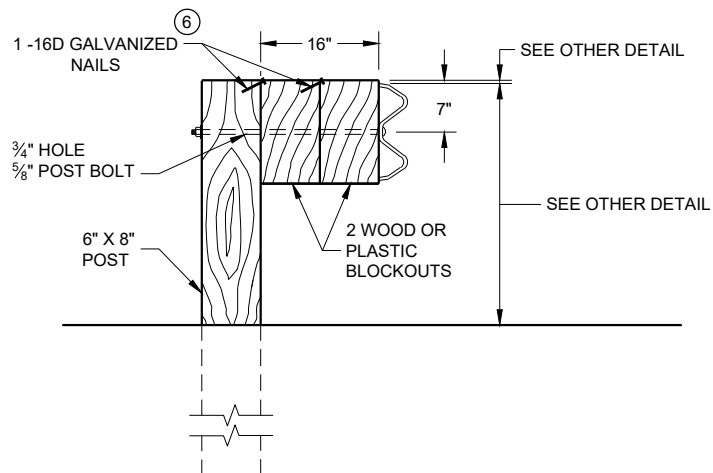
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

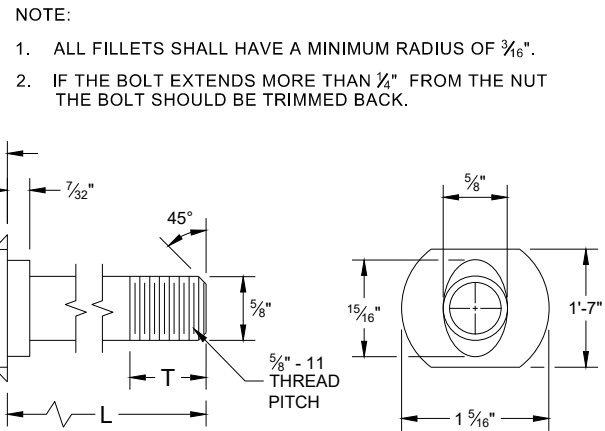
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
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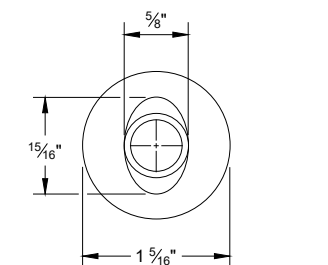
DETAIL FOR 16" BLOCKOUT DEPTH

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.

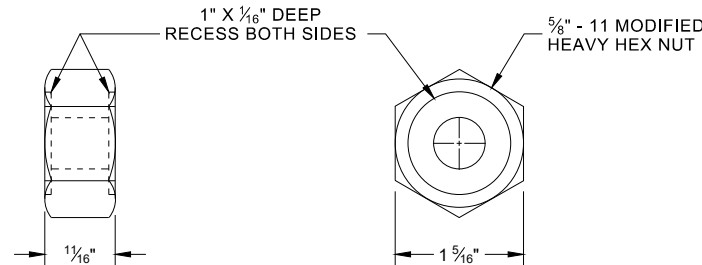


POST BOLT TABLE

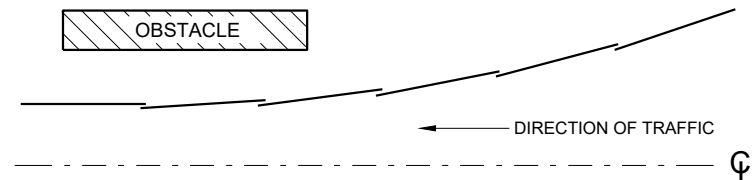
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



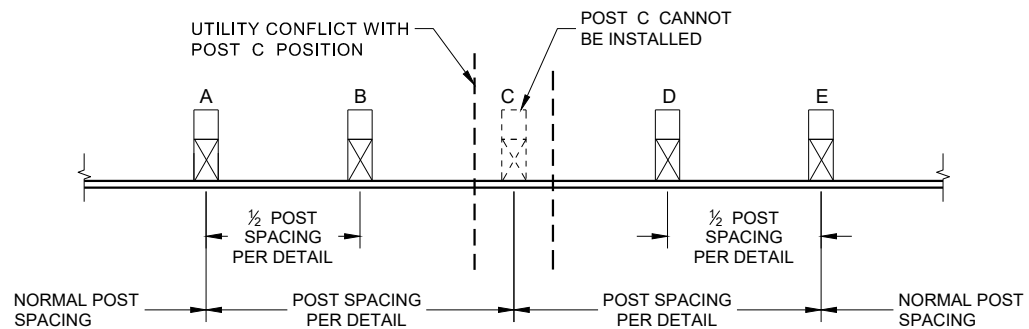
ALTERNATE BOLT HEAD



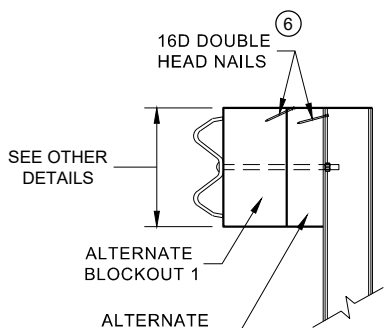
POST BOLT, SPLICE BOLT AND RECESS NUT



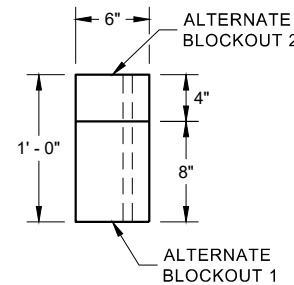
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



PLAN VIEW

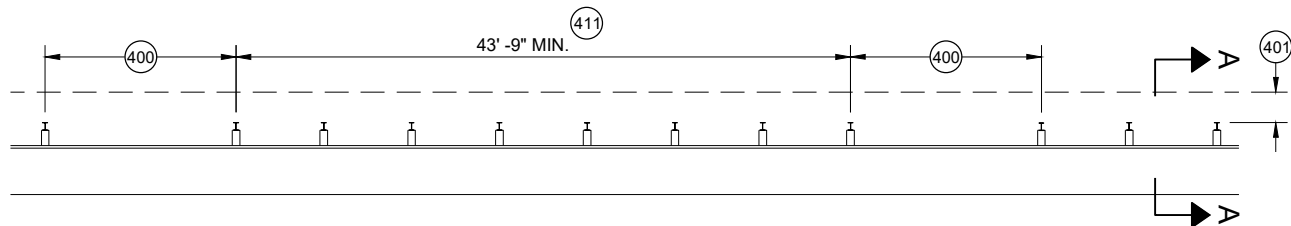
ALTERNATE WOOD
BLOCKOUT DETAIL

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.

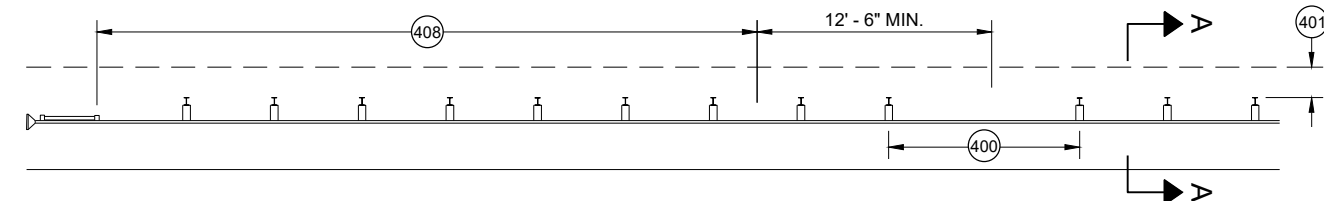
6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

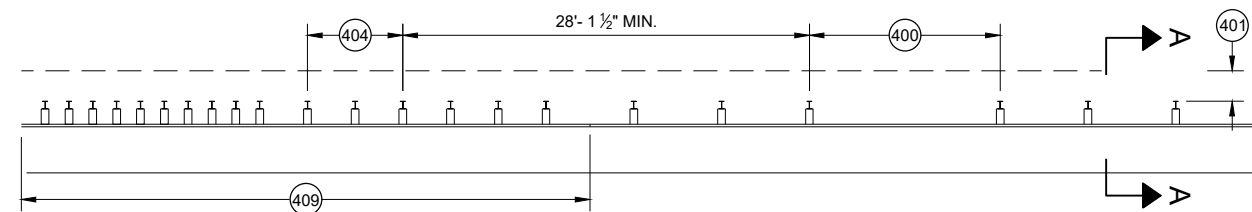
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 74



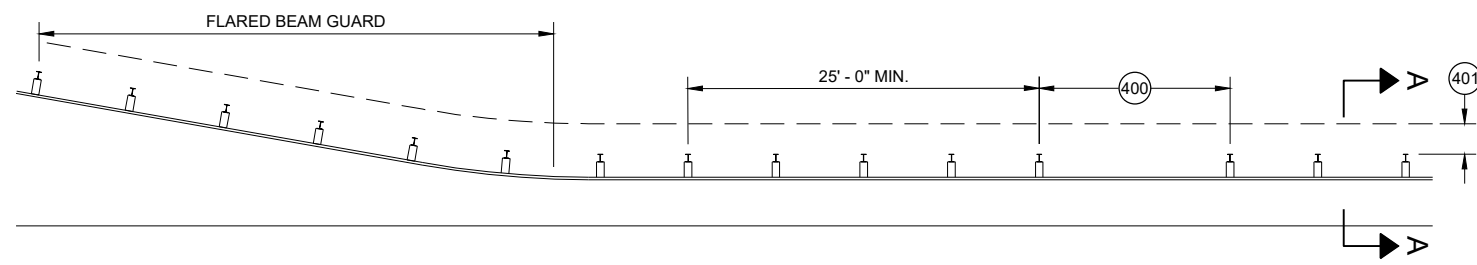
MISSING POST IN MGS GUARDRAIL



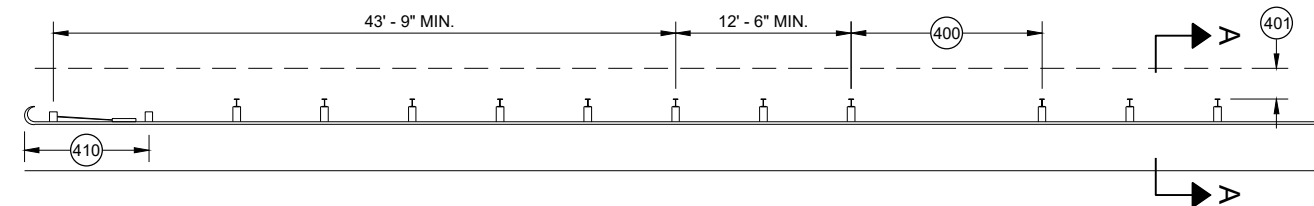
MISSING POST IN MGS GUARDRAIL NEAR EAT



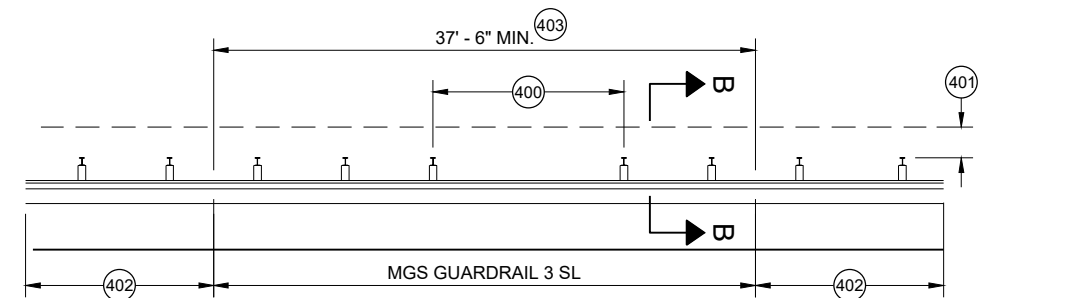
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

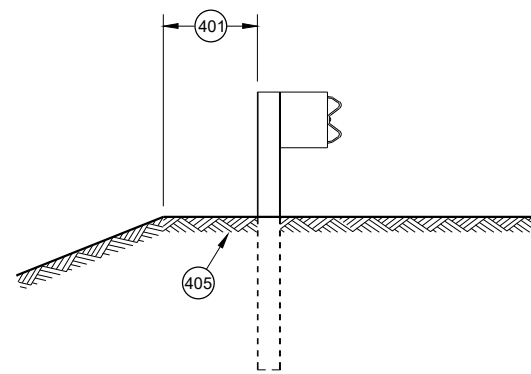


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

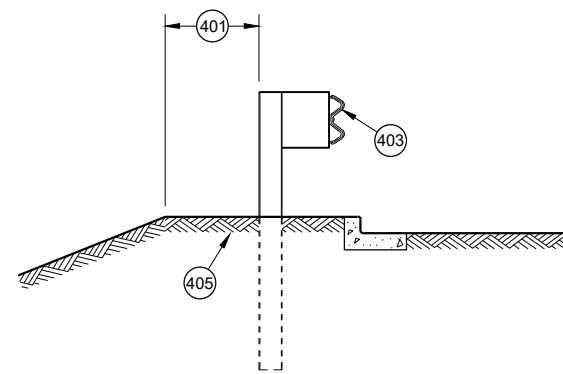


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (400) MAX SPAN 12' - 6"
- (401) 2' MIN.
- (402) MGS GUARDRAIL 3
- (403) NESTING BEAM GUARD
- (404) ASYMMETRIC TRANSITION
- (405) SOIL WELL DRAINED AND COMPACTED
- (406) SEE OTHER DRAWINGS IN THIS SDD
- (407) SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- (408) SEE SDD 14B44
- (409) SEE SDD 14B45
- (410) SEE SDD 14B47
- (411) MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



SECTION A - A



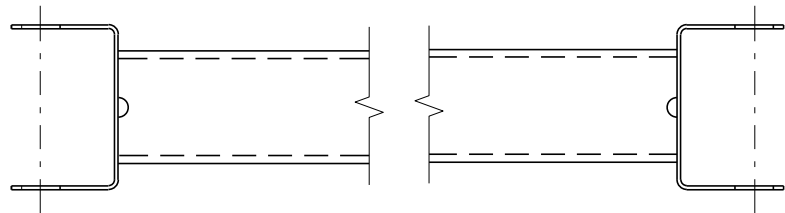
SECTION B - B

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

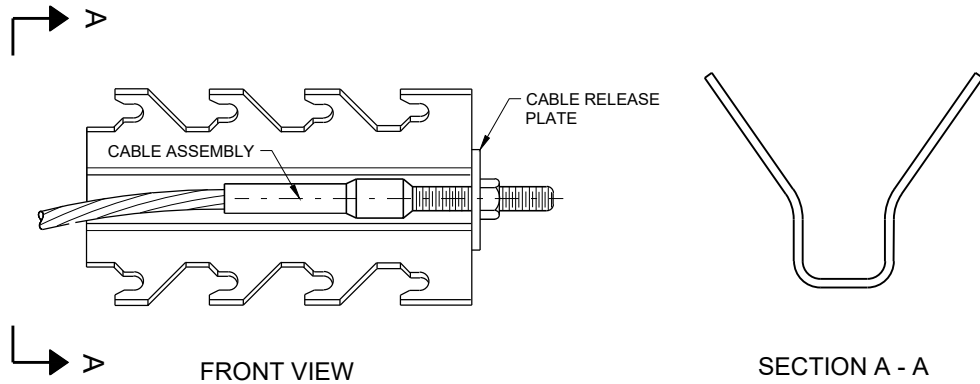
APPROVED
May 2021
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

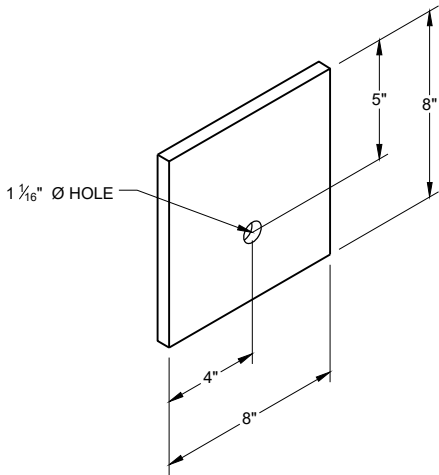


GENERIC GROUND STRUT⁹ E

BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



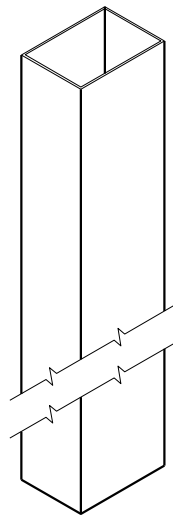
GENERIC ANCHOR CABLE BOX⁹ E



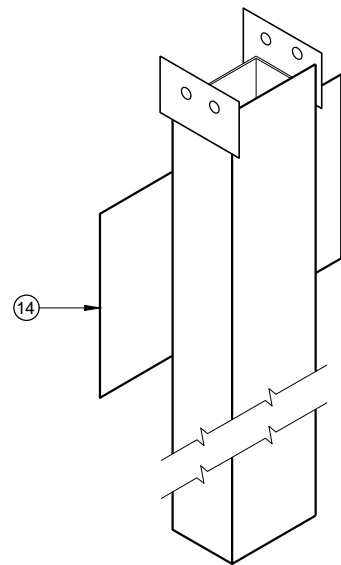
BEARING PLATE⁶ E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

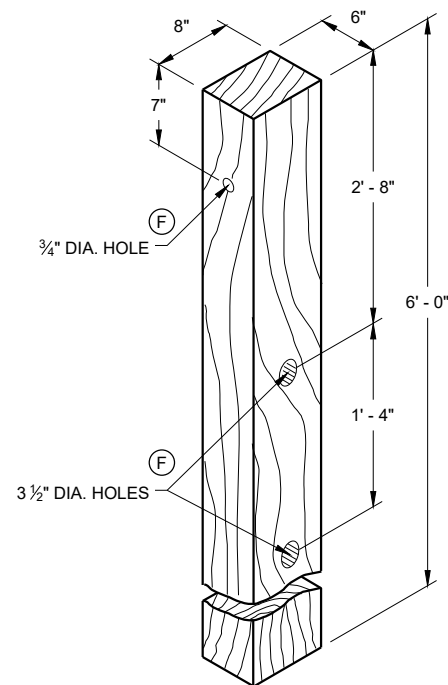
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



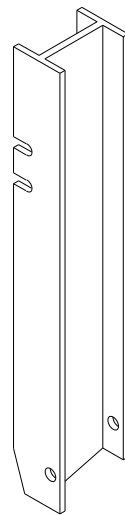
UPPER POST NO. 1 ⁽¹⁾ (E)



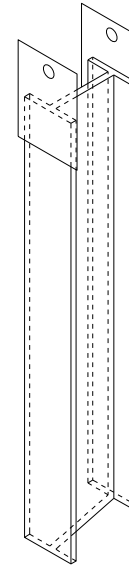
LOWER POST NO. 1 ⁽²⁾ (E)



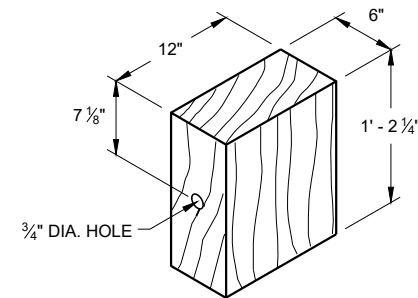
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



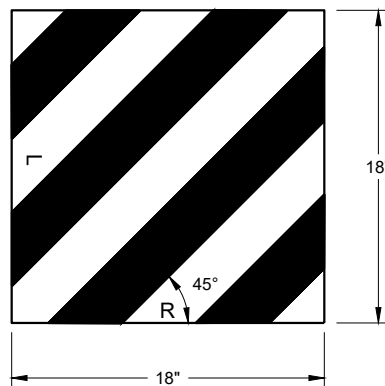
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



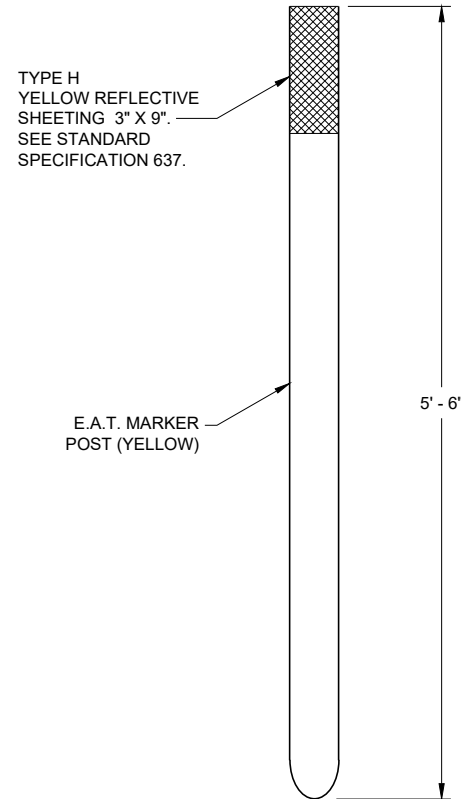
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



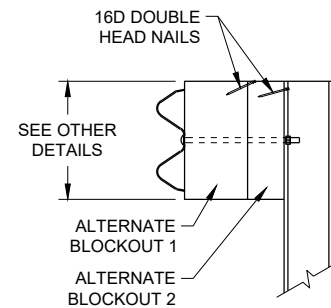
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



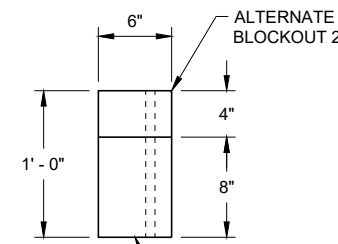
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



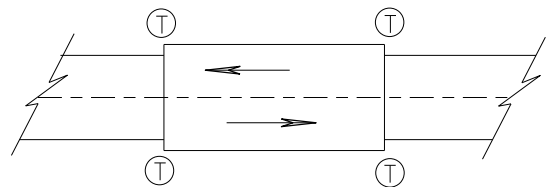
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

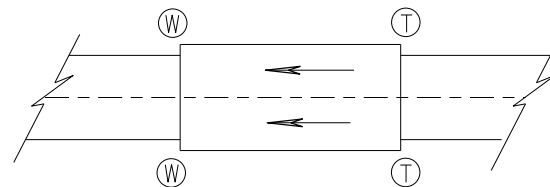
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

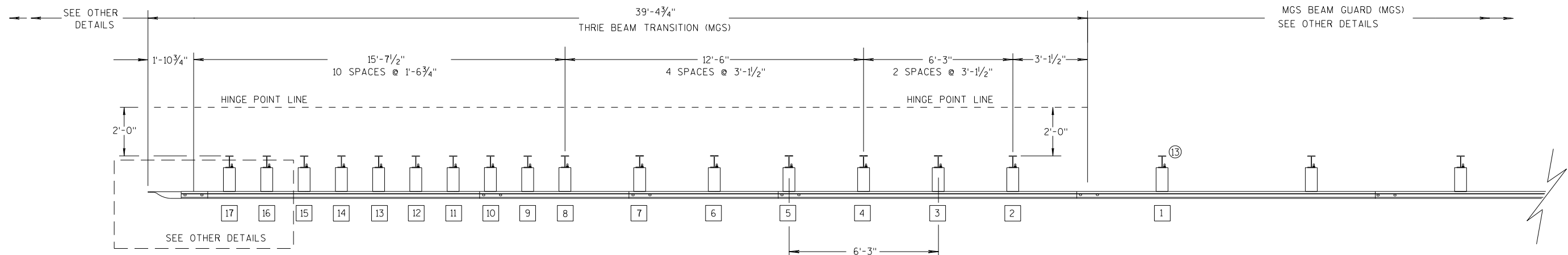
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

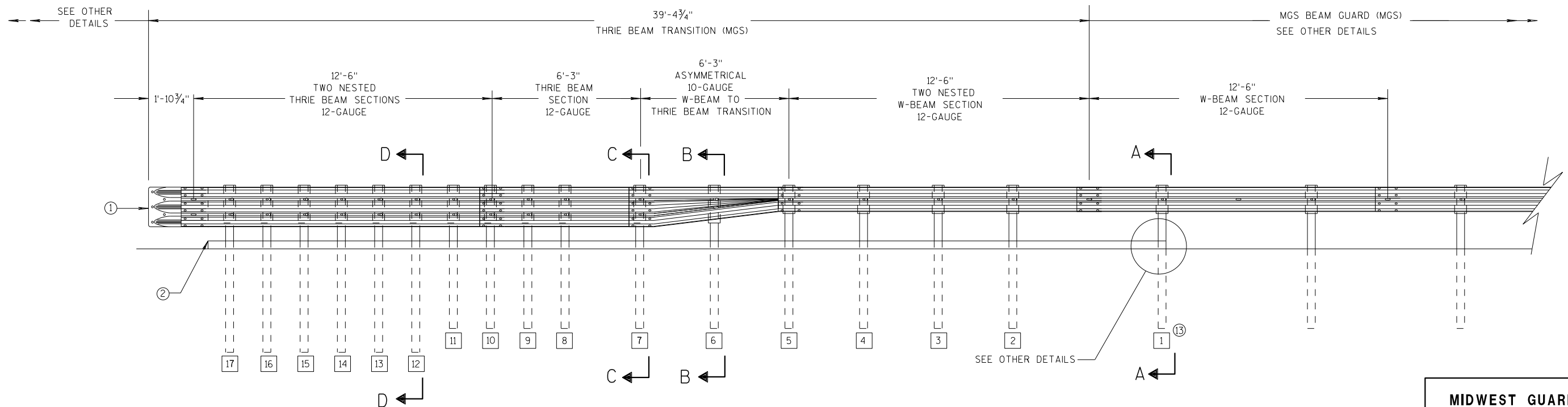
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

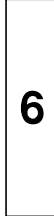
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

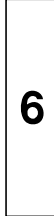
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 79

6

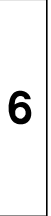
- S.D.D. 14 B 45-5b**

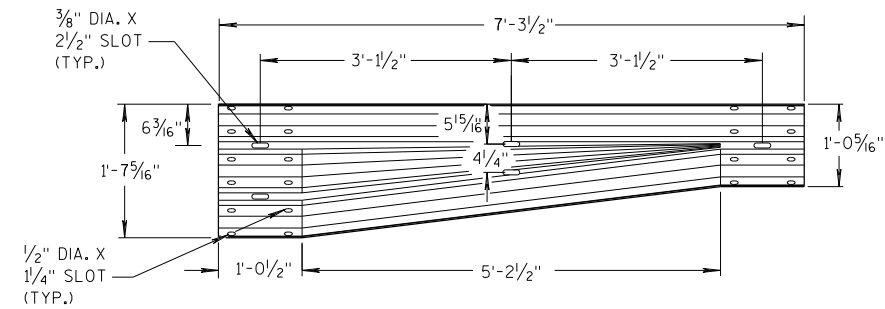


S.D.D. 14 B 45-5b

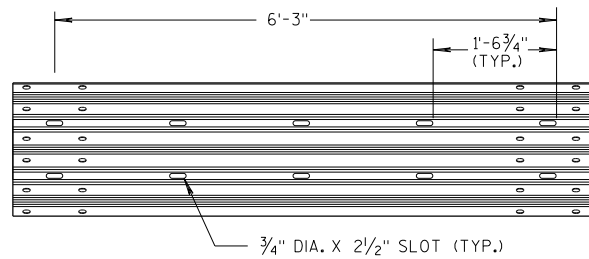


S.D.D. 14 B 45-5b

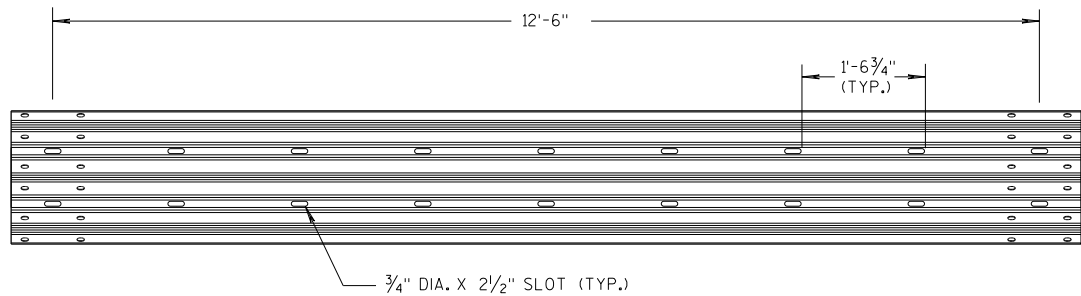




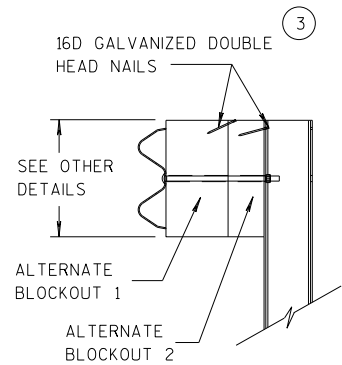
W-BEAM TO THRIE BEAM TRANSITION SECTION



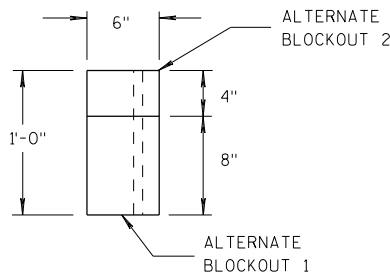
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

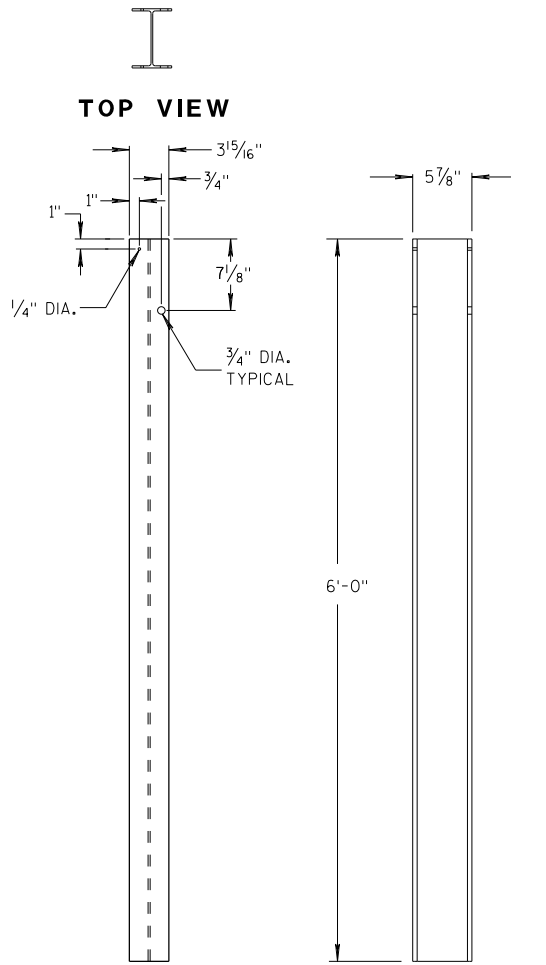


SIDE VIEW



TOP VIEW

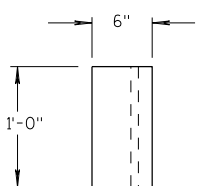
ALTERNATE WOOD BLOCKOUT DETAIL



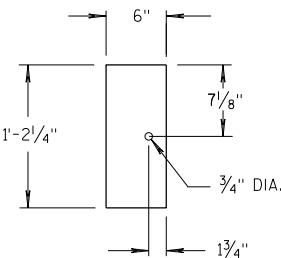
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

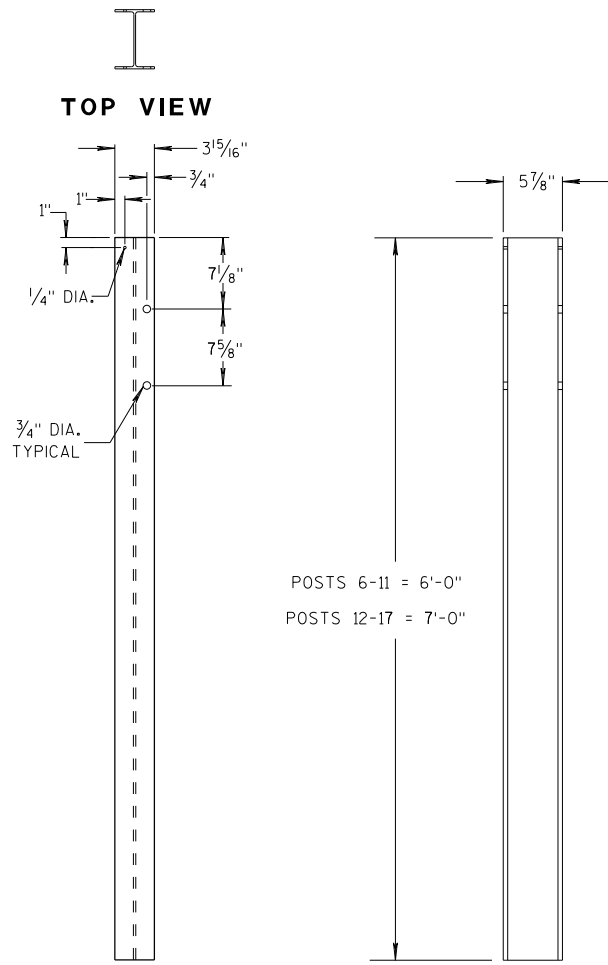


TOP VIEW



FRONT VIEW

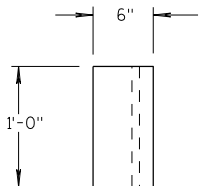
BLOCKOUT POSTS 1-5



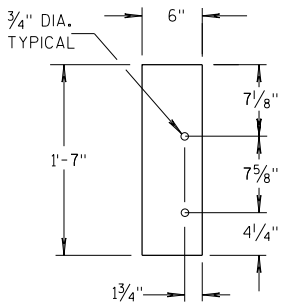
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

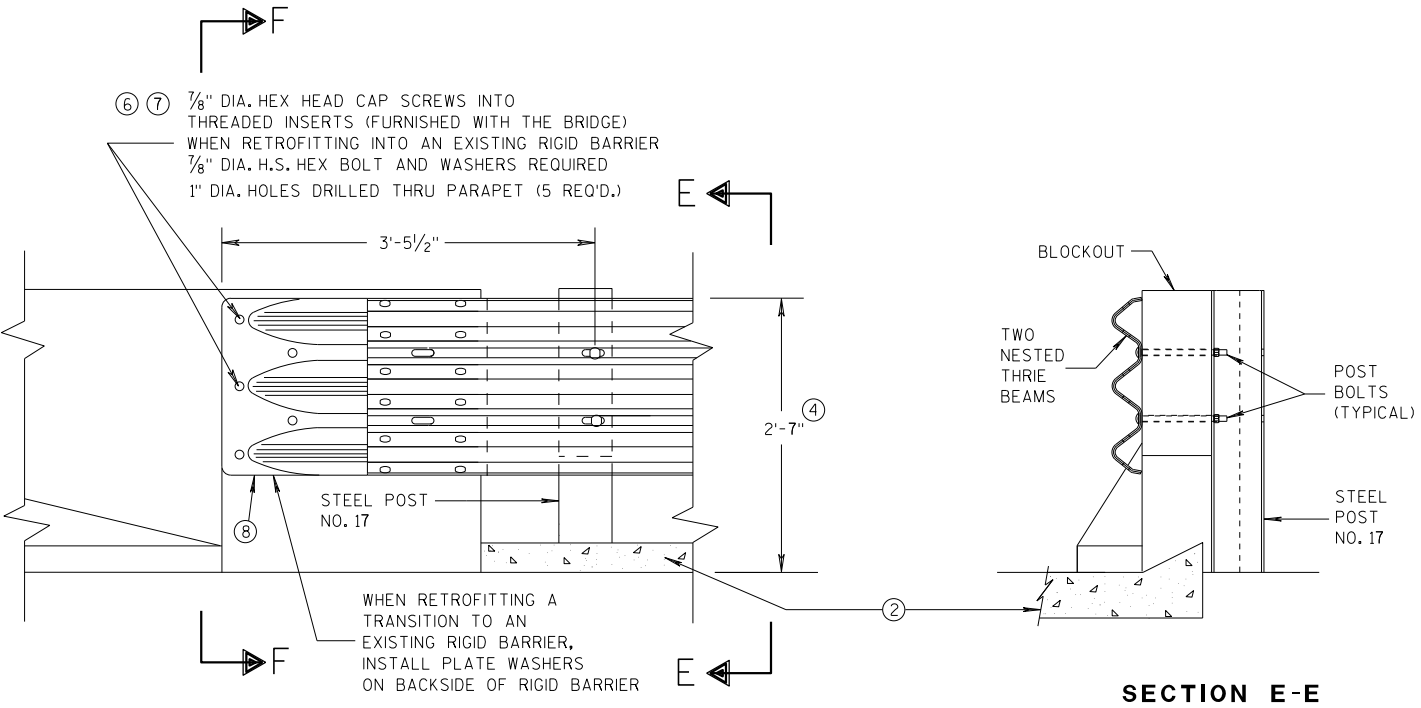
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

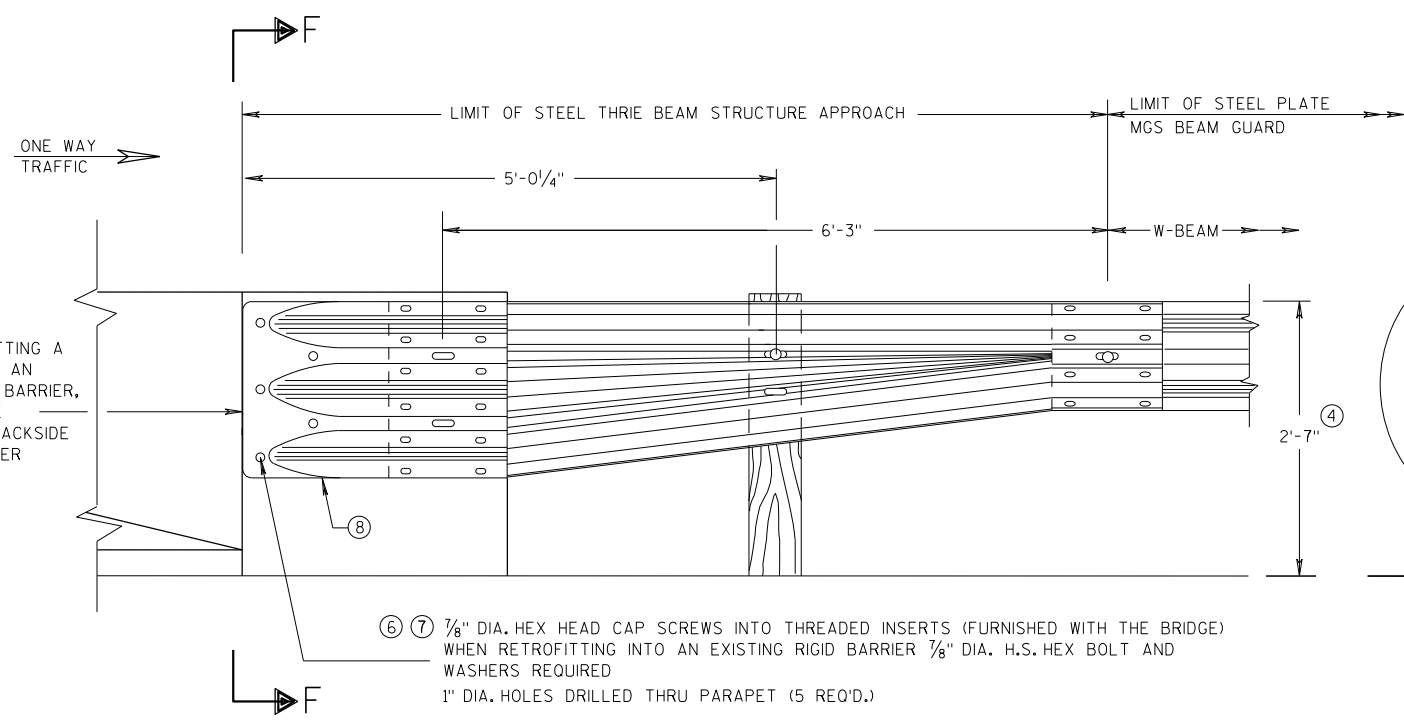
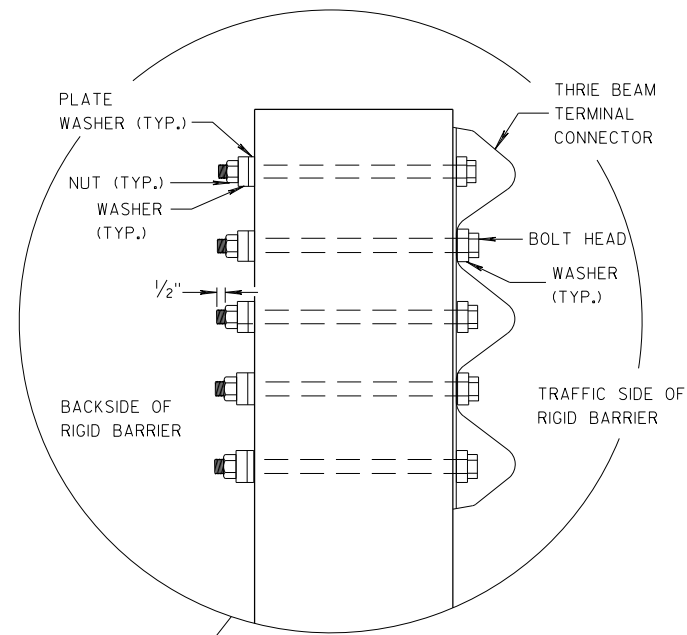
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

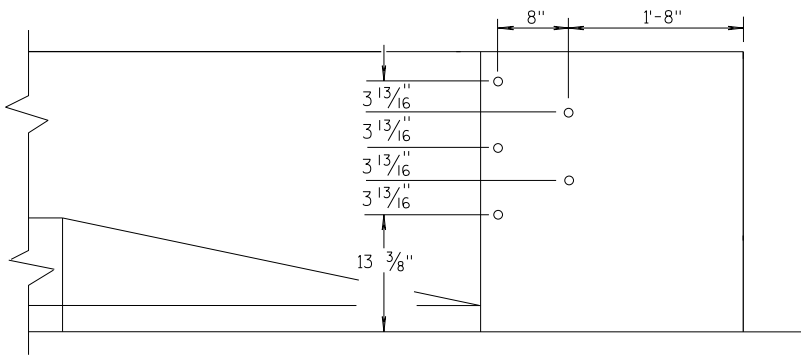


GENERAL NOTES

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 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".



SECTION F-F

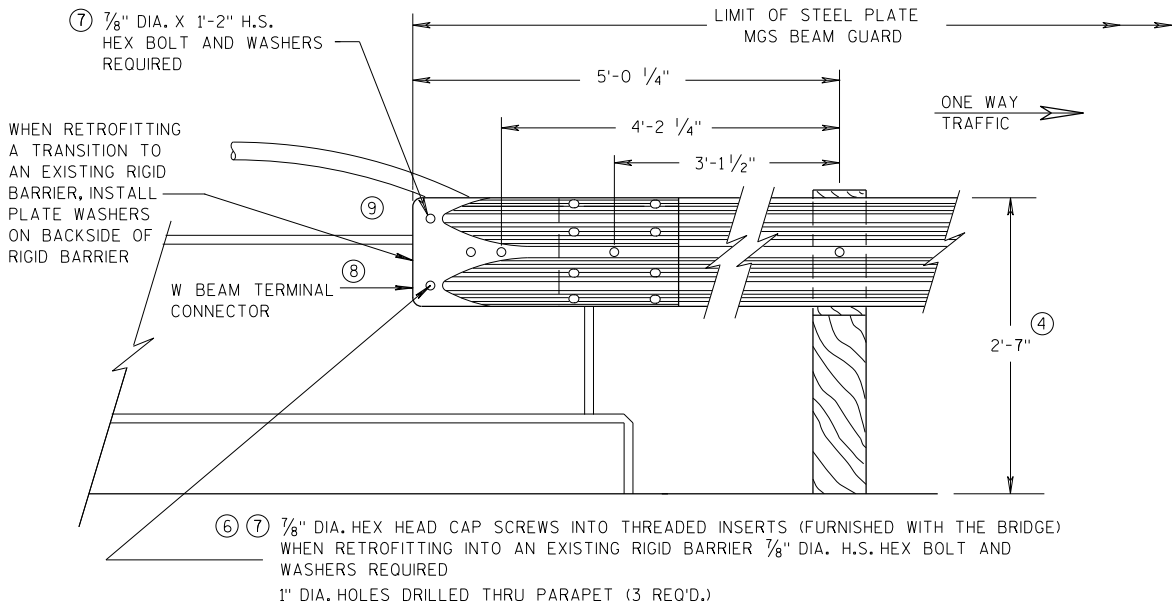


MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS UNIT SUPERVISOR		
FHWA	82	NT	

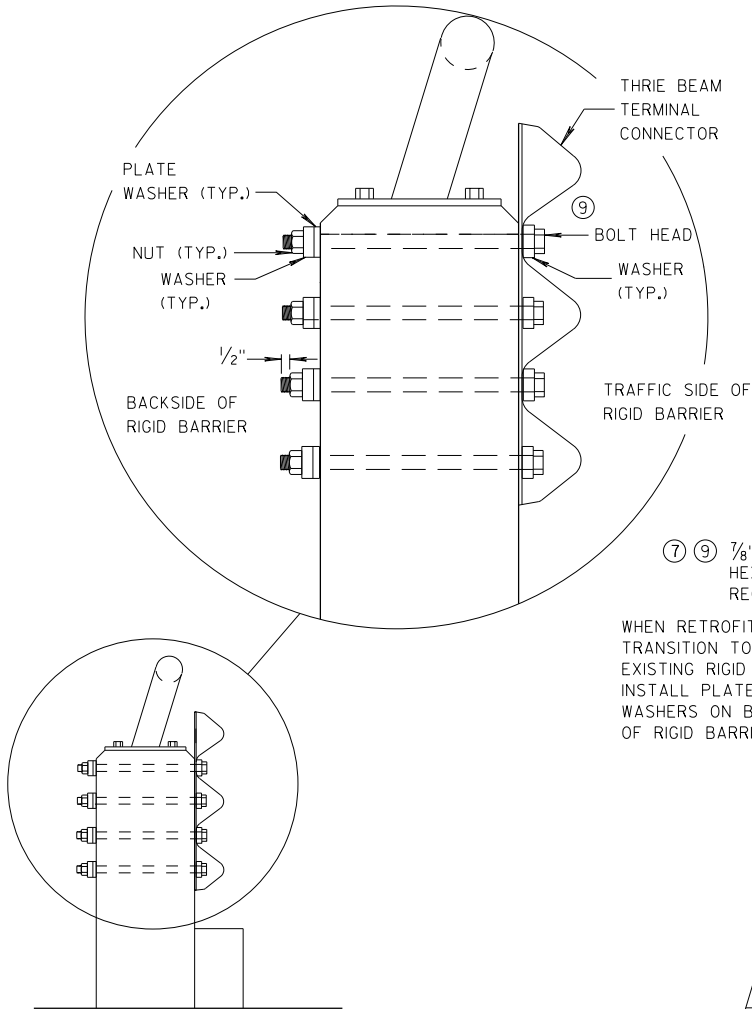
GENERAL NOTES

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

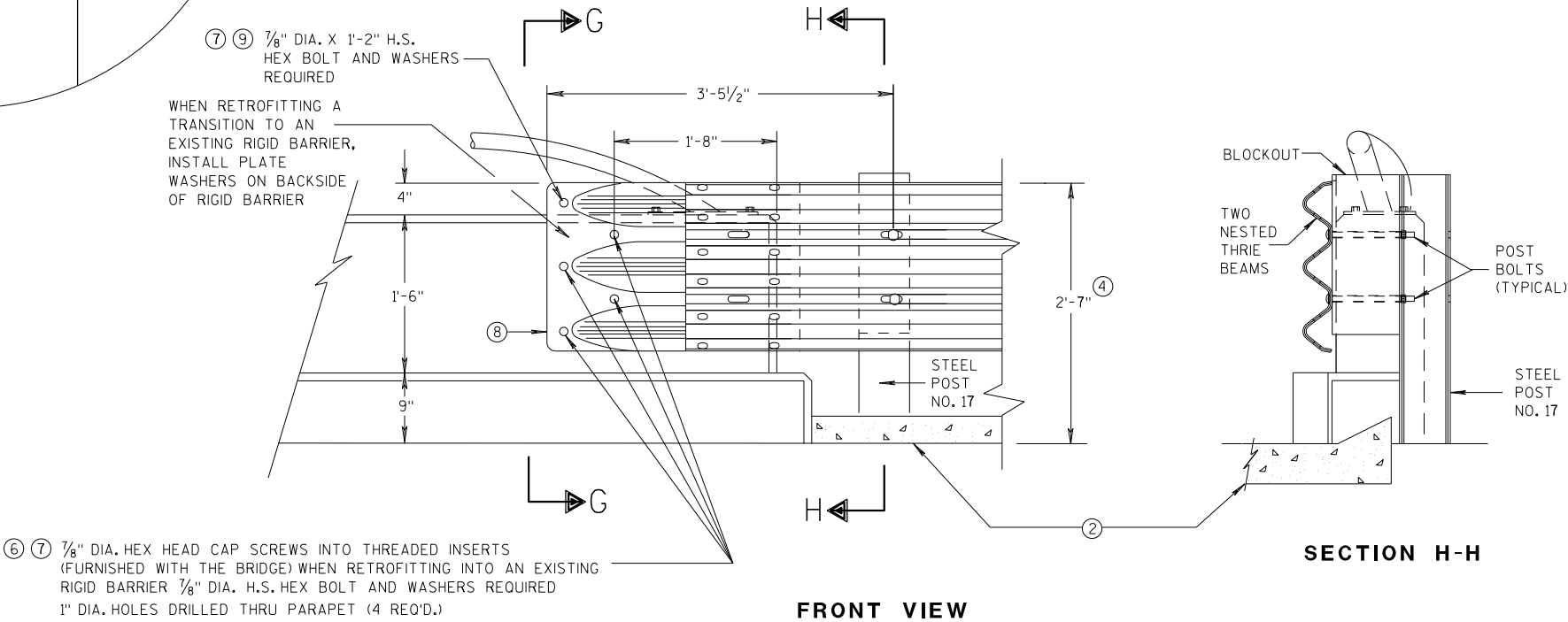
- ②
- OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④
- TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑥
- DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦
- BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH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



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



SECTION G-G



FRONT VIEW

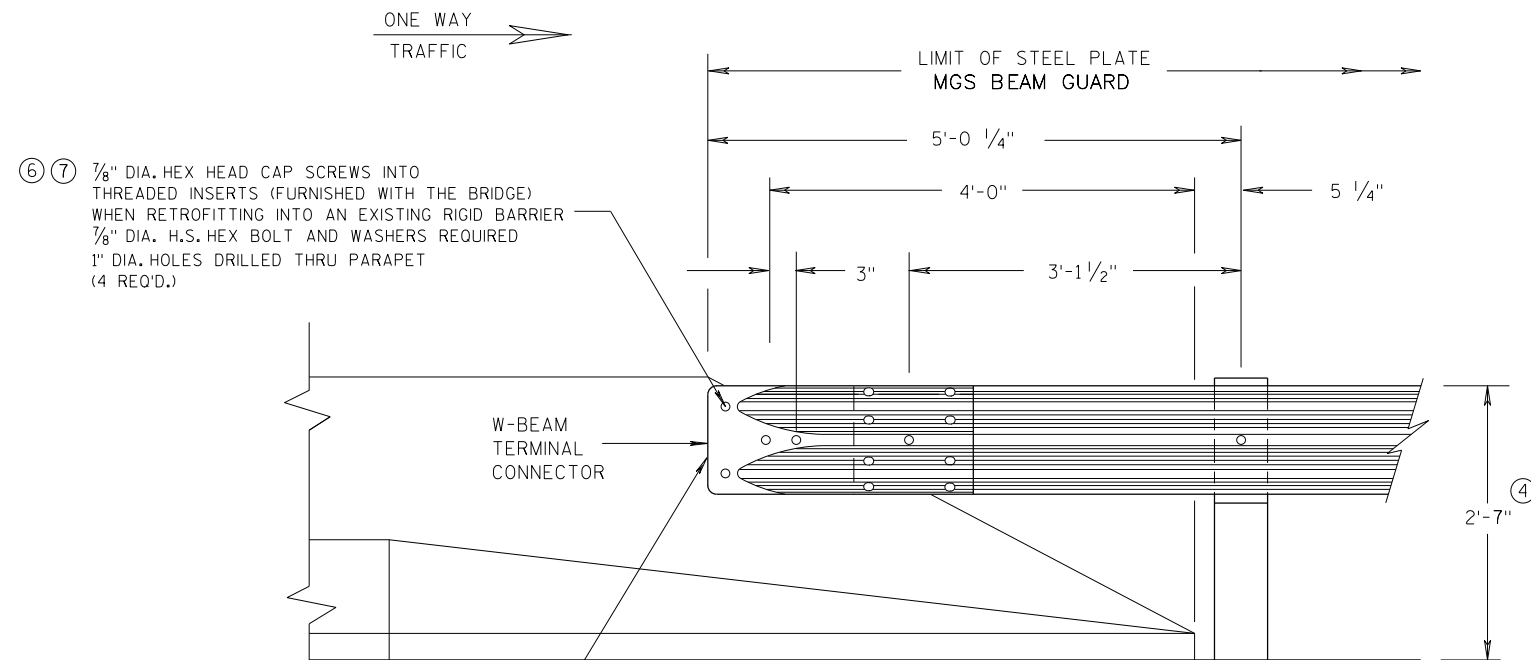
SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

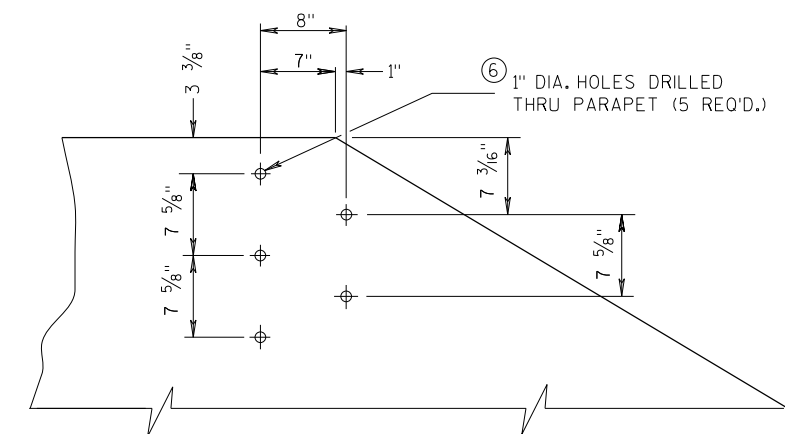
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 83

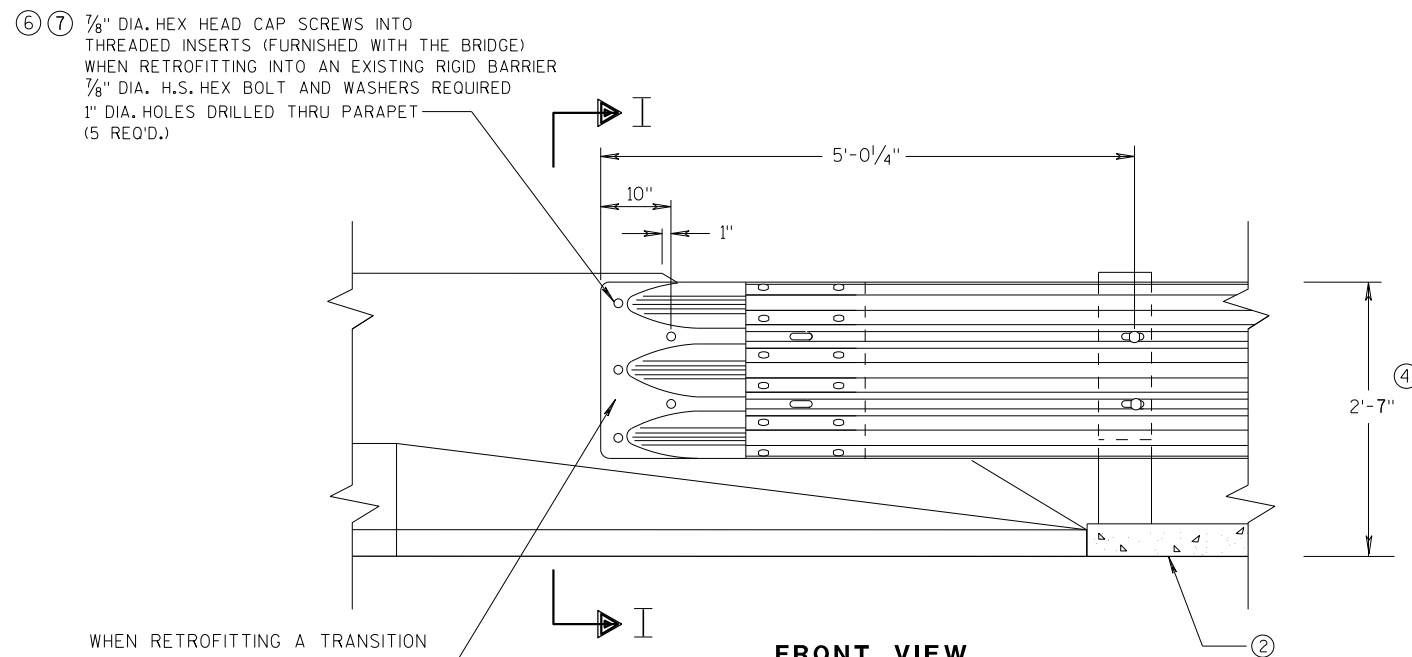


FRONT VIEW

**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)**

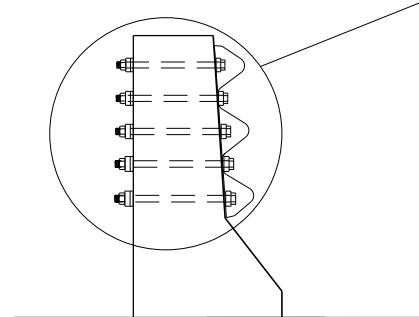


**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**

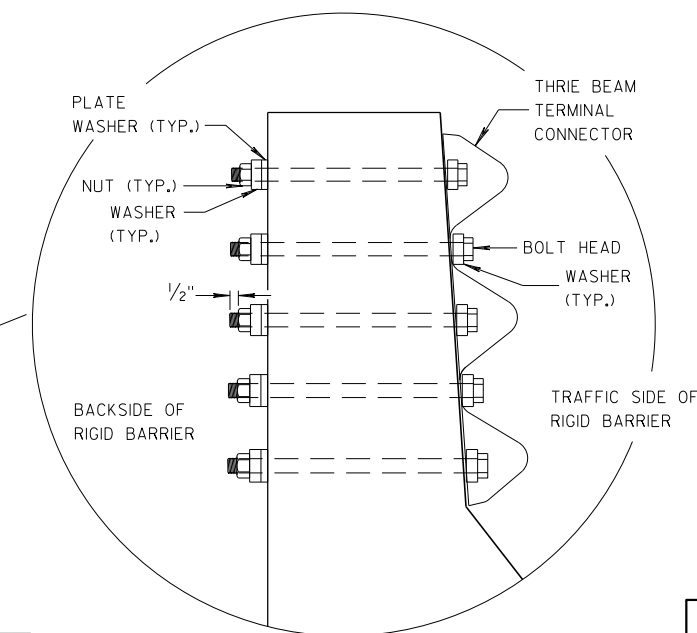


FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



SECTION I-I



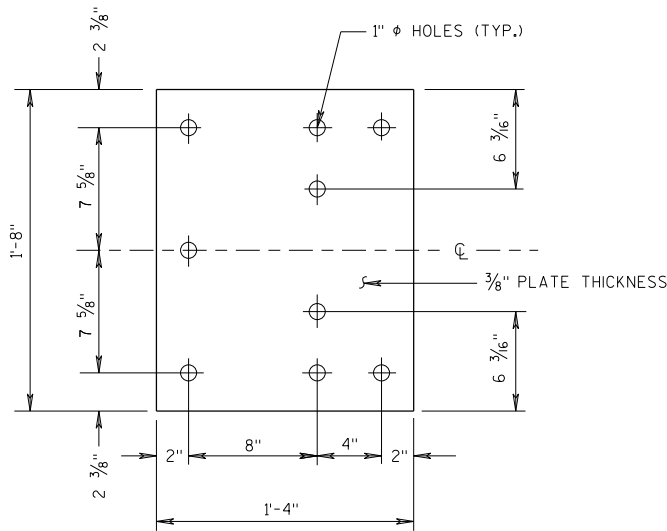
GENERAL NOTES

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

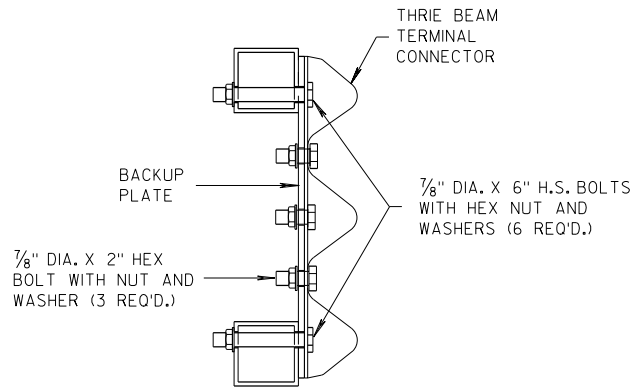
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

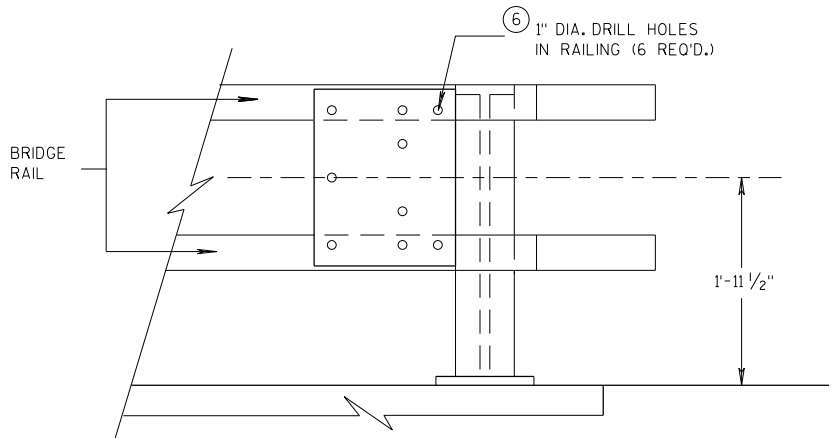
APPROVED
DATE 07/2018 /S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR 84
FHWA



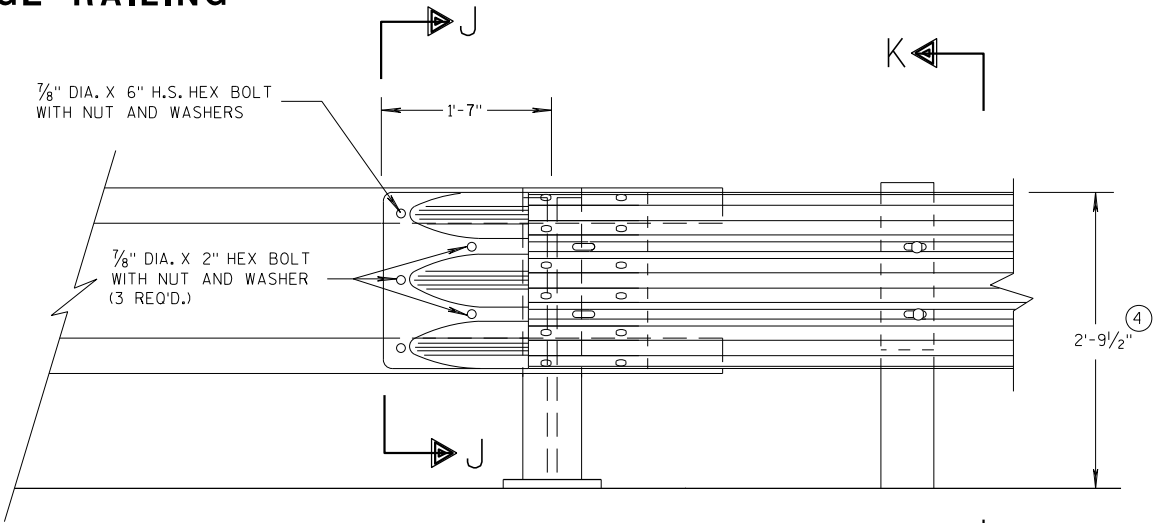
BACK-UP PLATE DETAIL



SECTION J-J

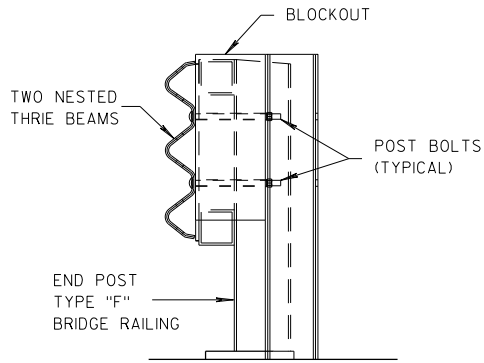


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

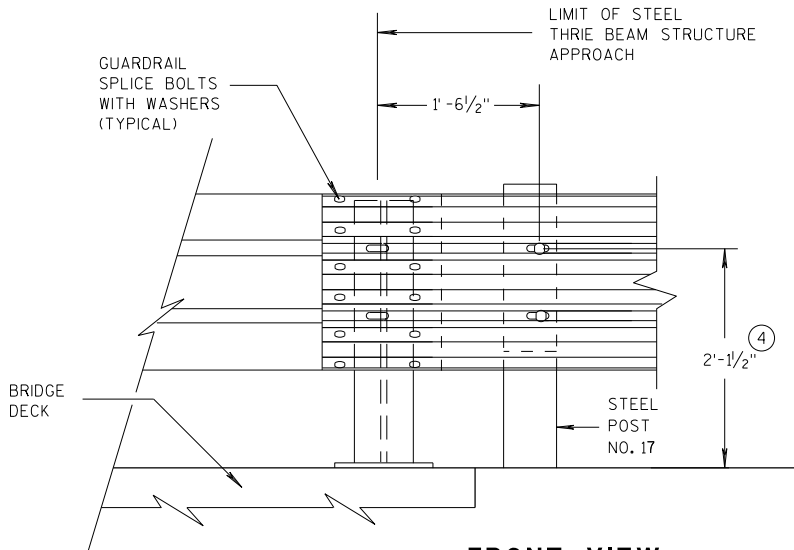
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.



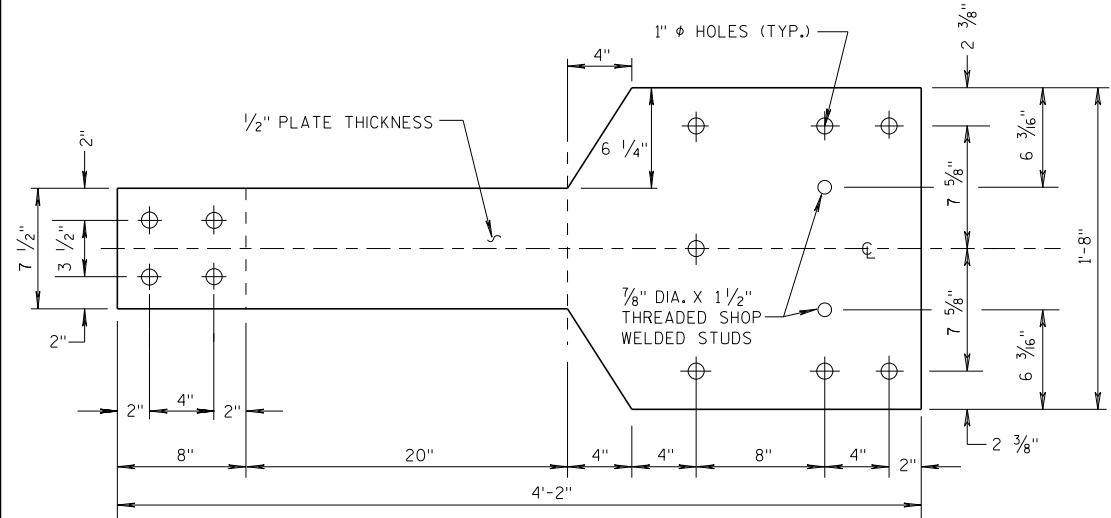
FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

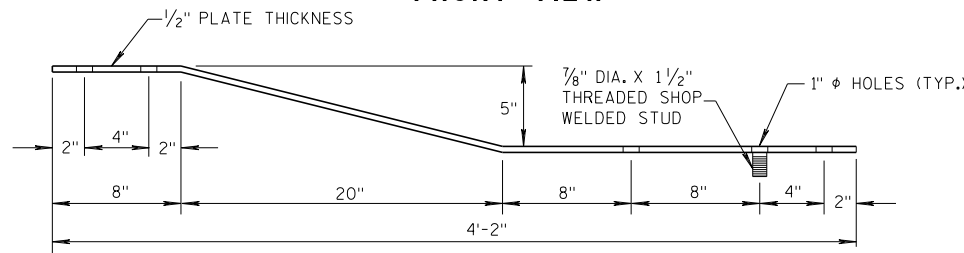
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED 07/2018	/S/ Rodney Taylor	85
DATE	ROADWAY STANDARDS DEVELOPMENT	UNIT SUPERVISOR
FHWA		

GENERAL NOTES

④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.

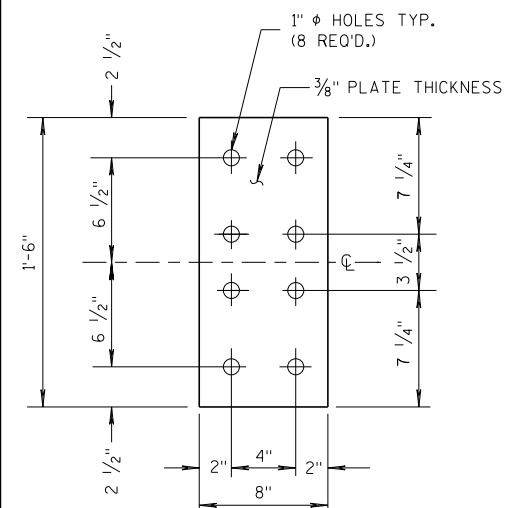


FRONT VIEW



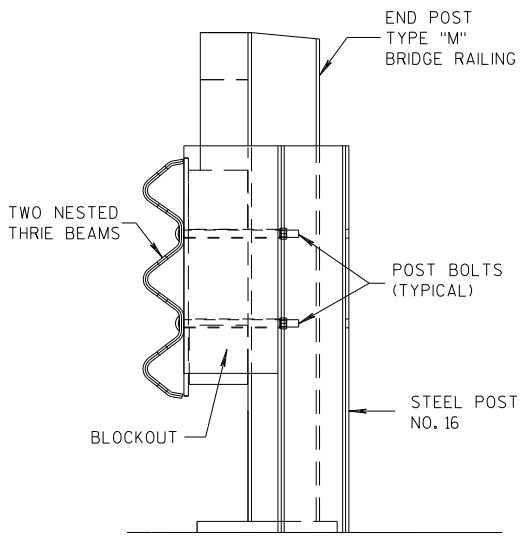
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

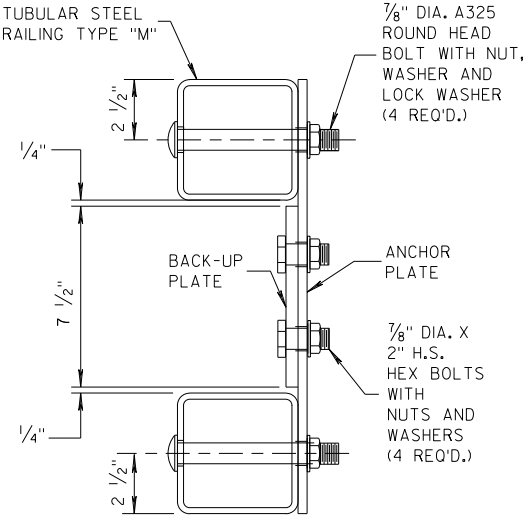


FRONT VIEW

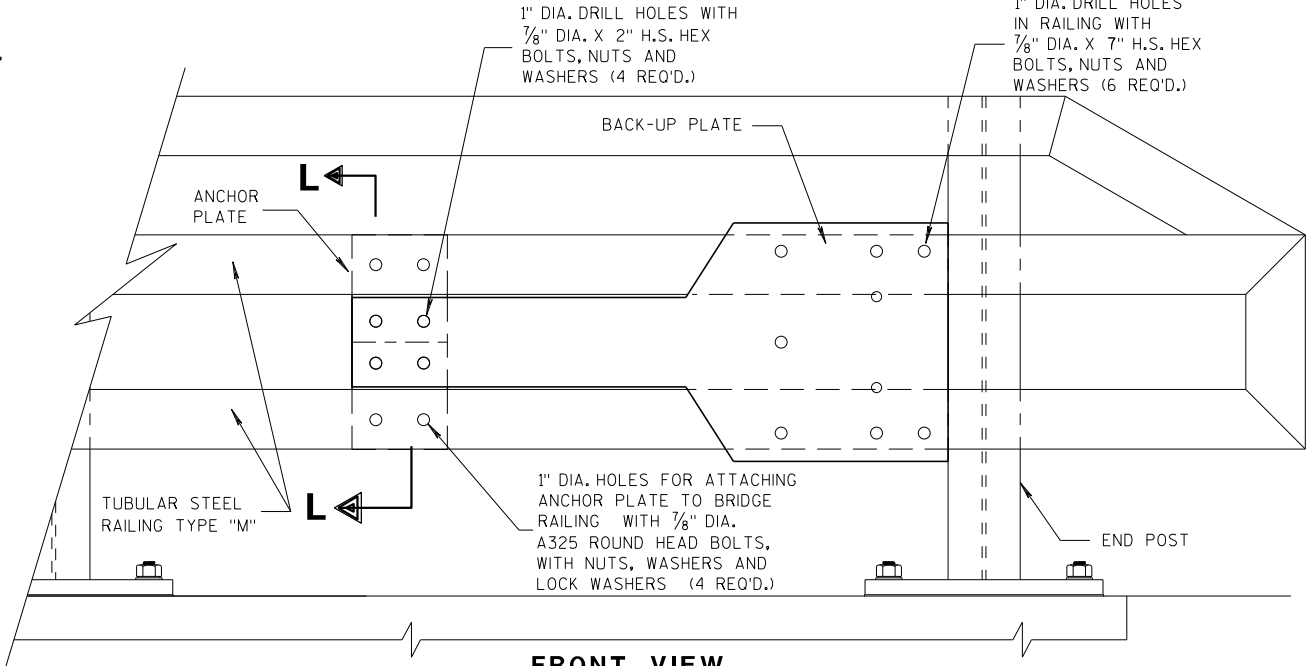
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

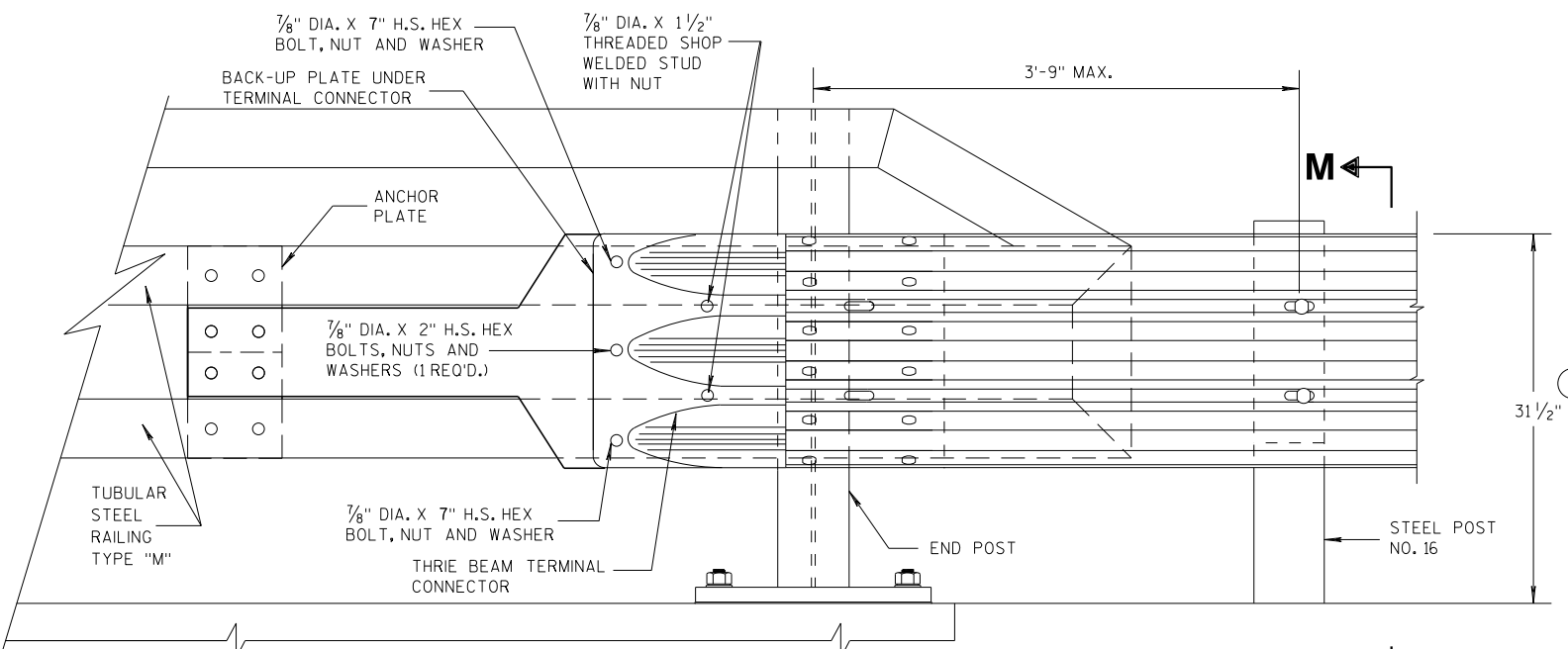


SECTION L-L

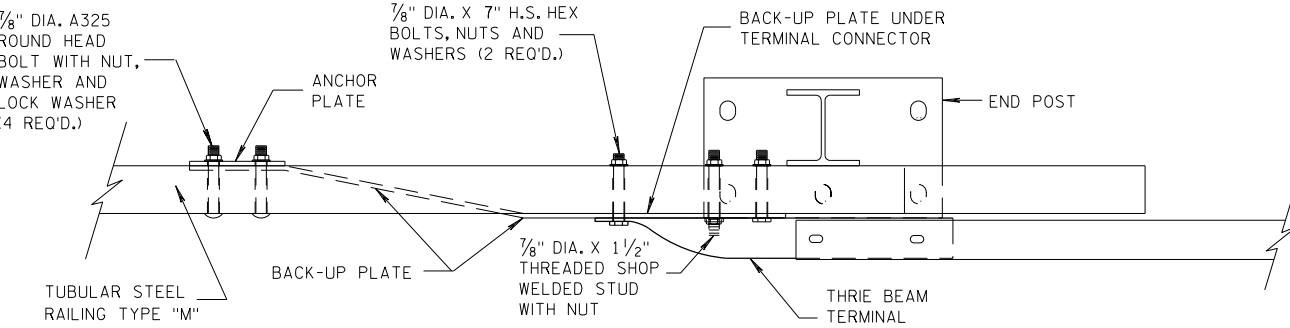


FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW



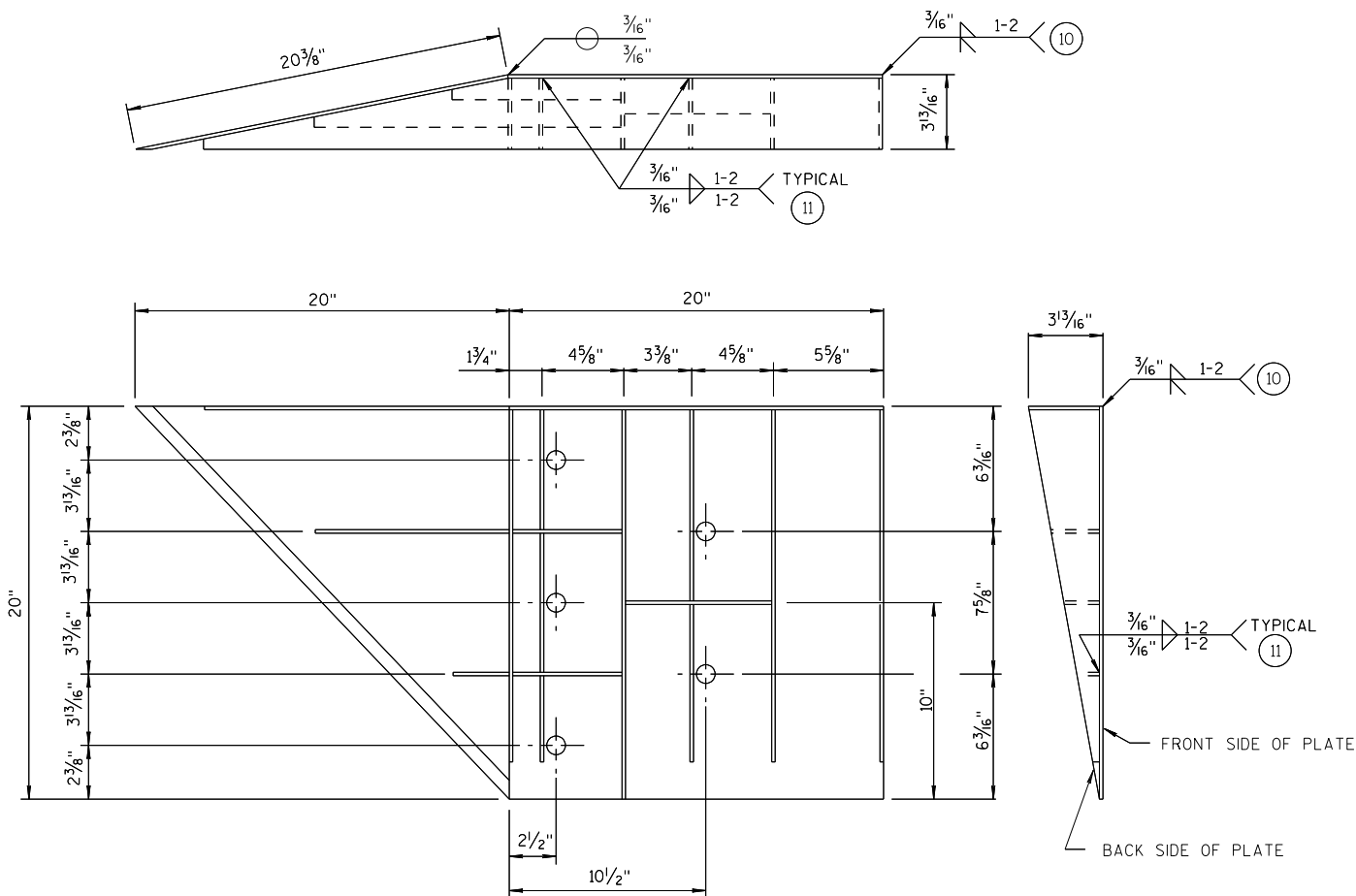
PLAN VIEW

THREE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THREE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 86 ENT

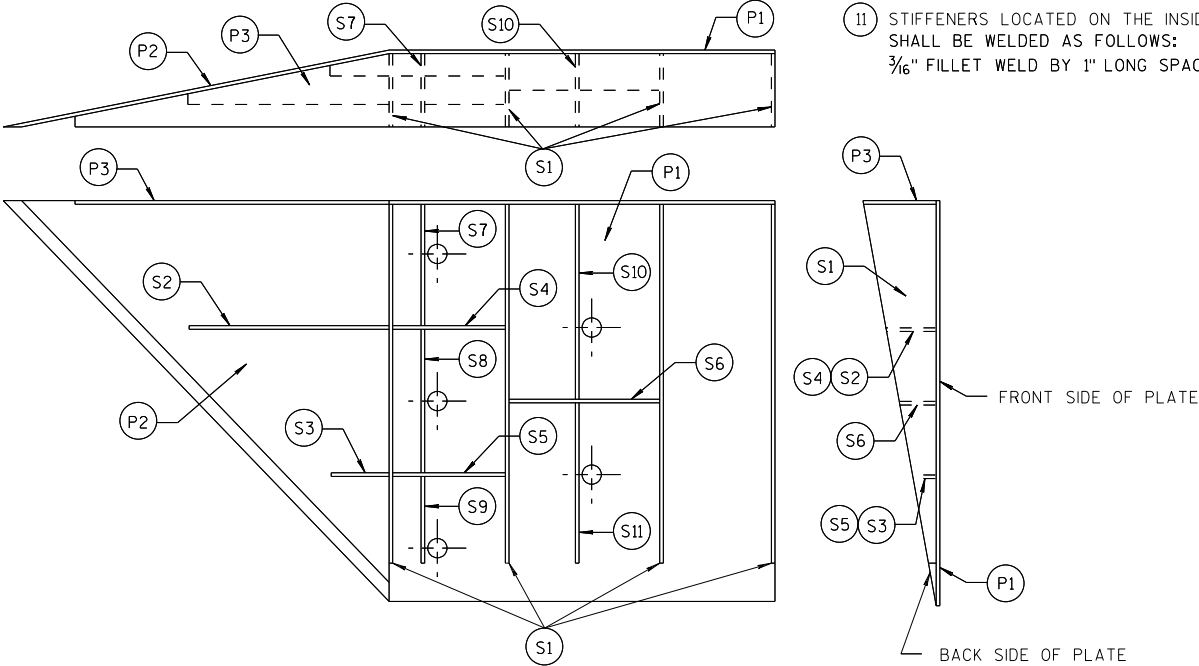


WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

SINGLE SLOPE CONNECTION PLATE

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)



GENERAL NOTES

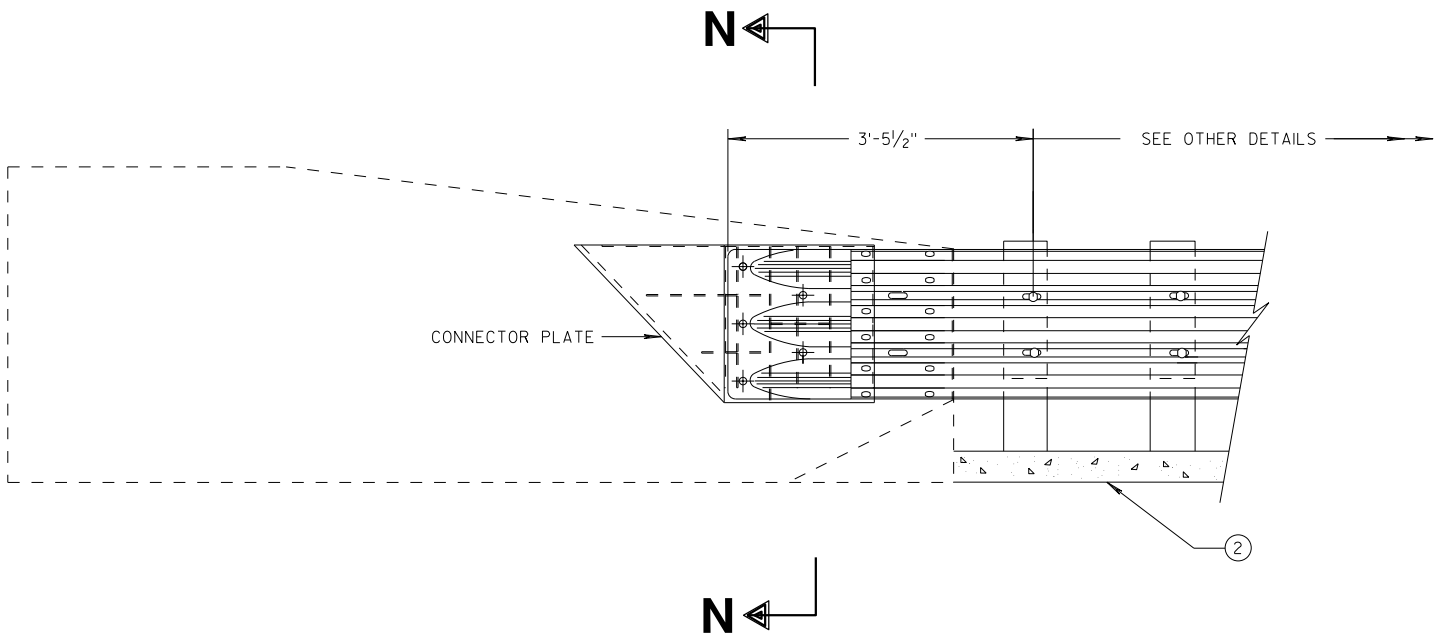
- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- 10 STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- 11 STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

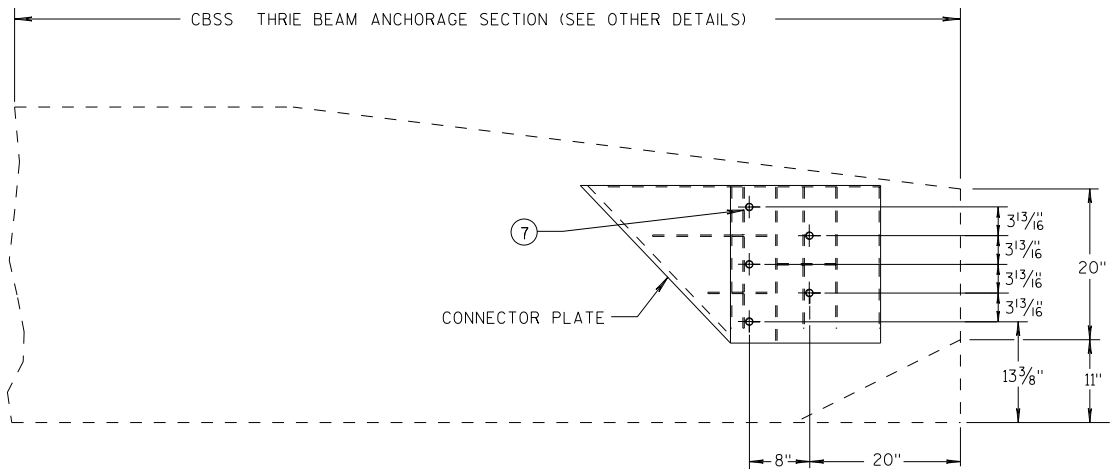
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR
187
ENT
FHWA



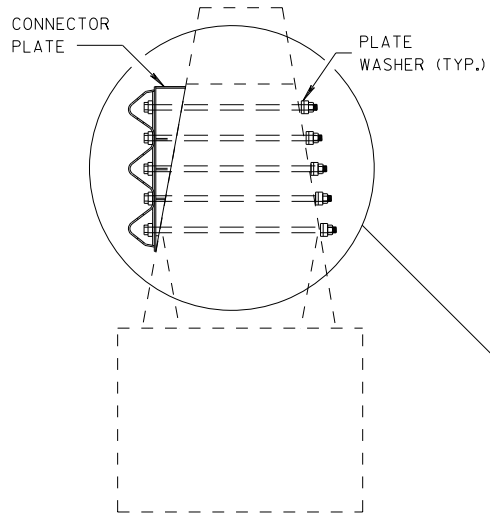
THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



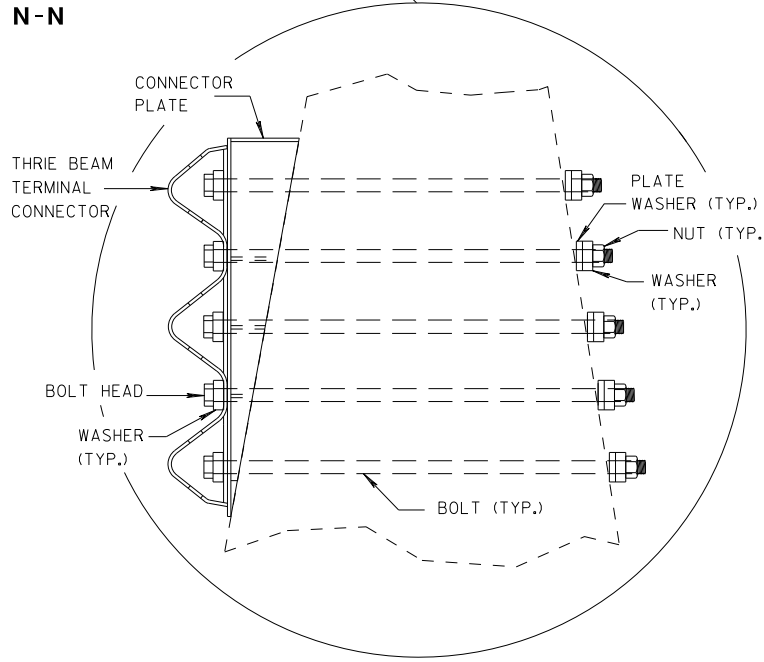
SINGLE SLOPE CONNECTION PLATE PLACEMENT

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.
- (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 CONNECTION 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.



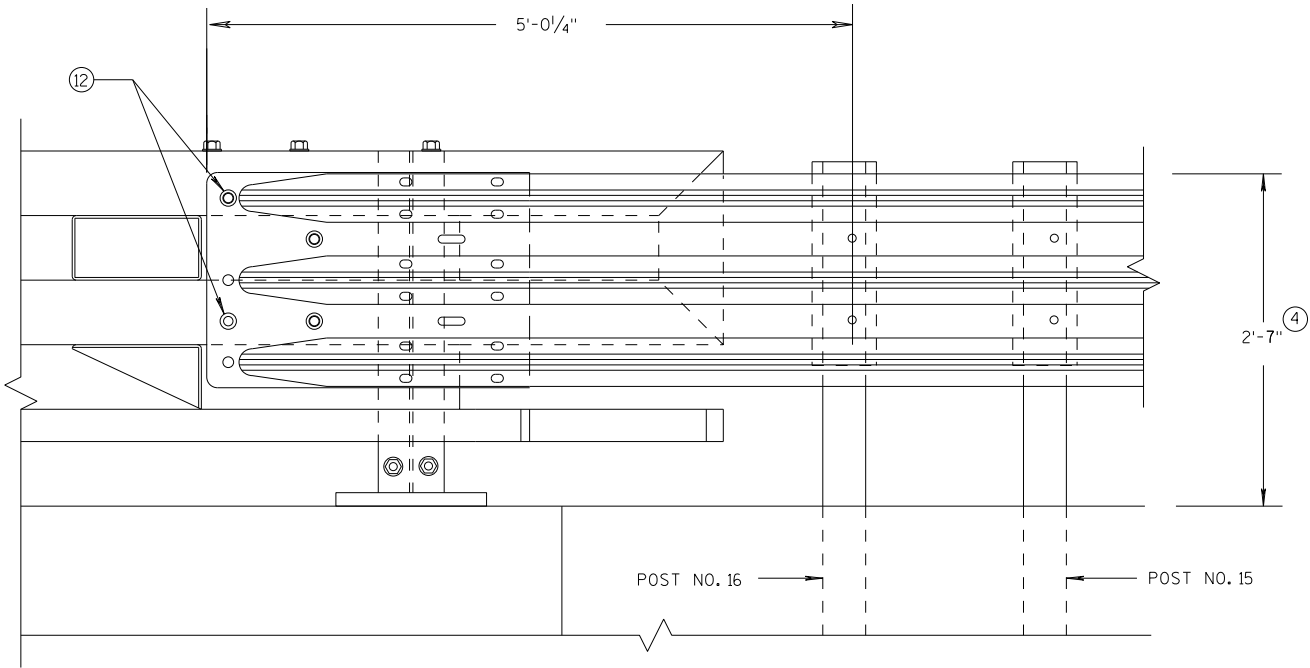
SECTION N-N



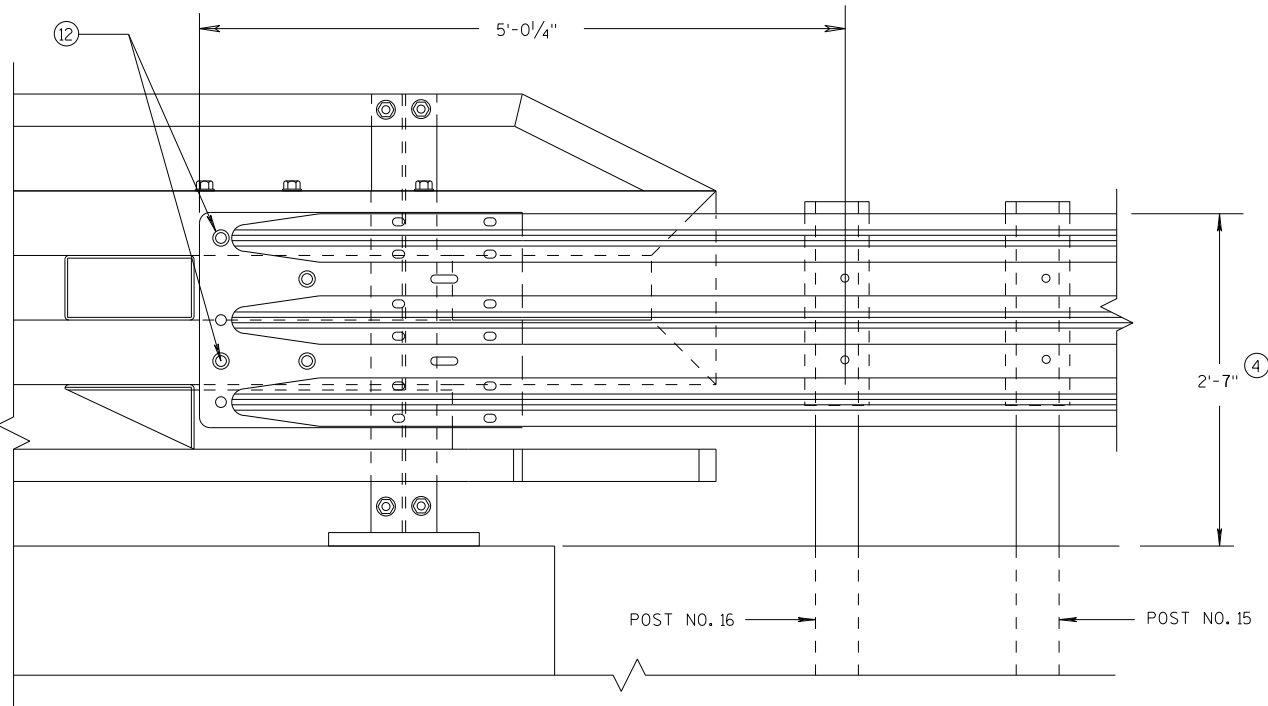
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DISTRICT 88 UNIT SUPERVISOR		
FHWA			

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ 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 $\frac{1}{2}$ -INCH BEYOND NUT.



ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT

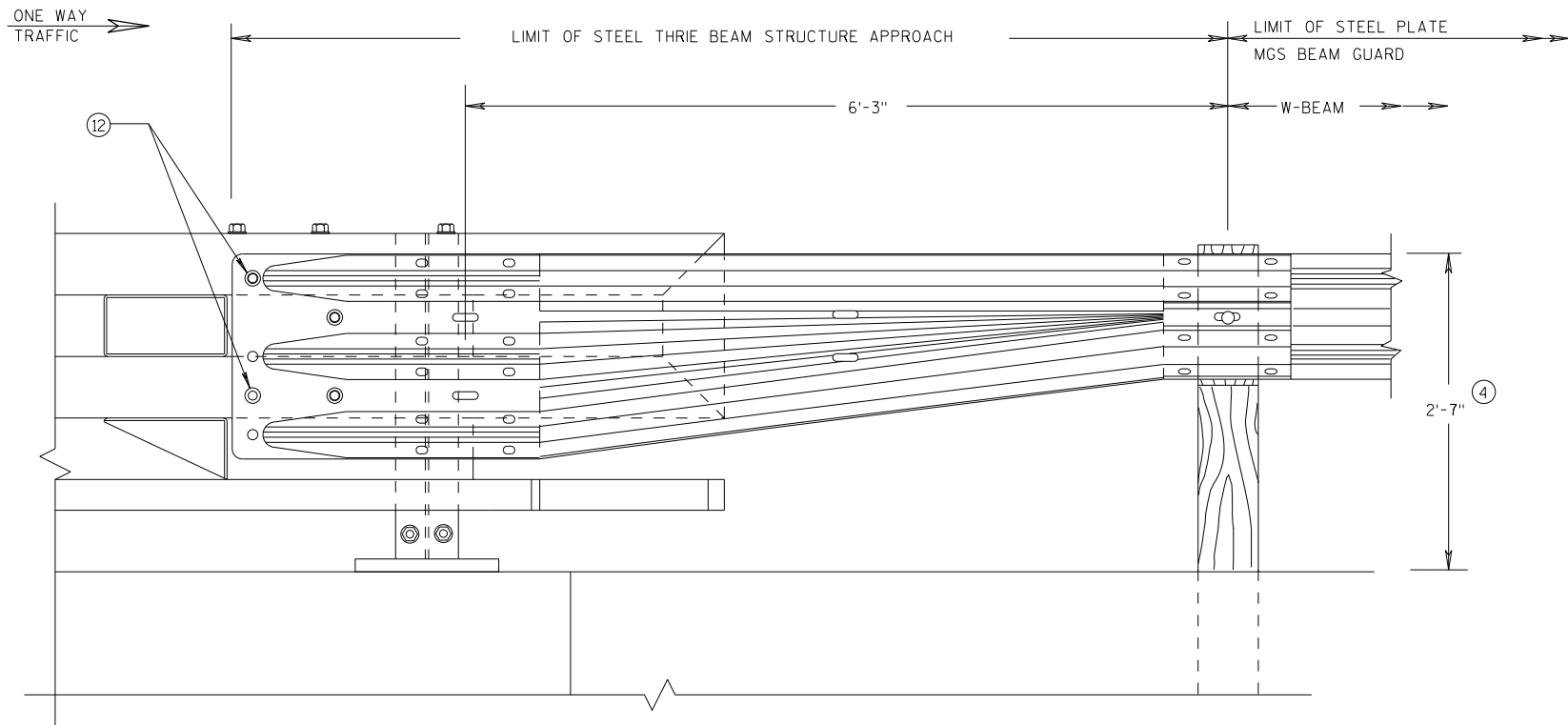


ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	/S/ Rodney Taylor
DATE	7/2018
FHWA	ROADWAY STANDARDS UNIT SUPERVISOR 89 NT



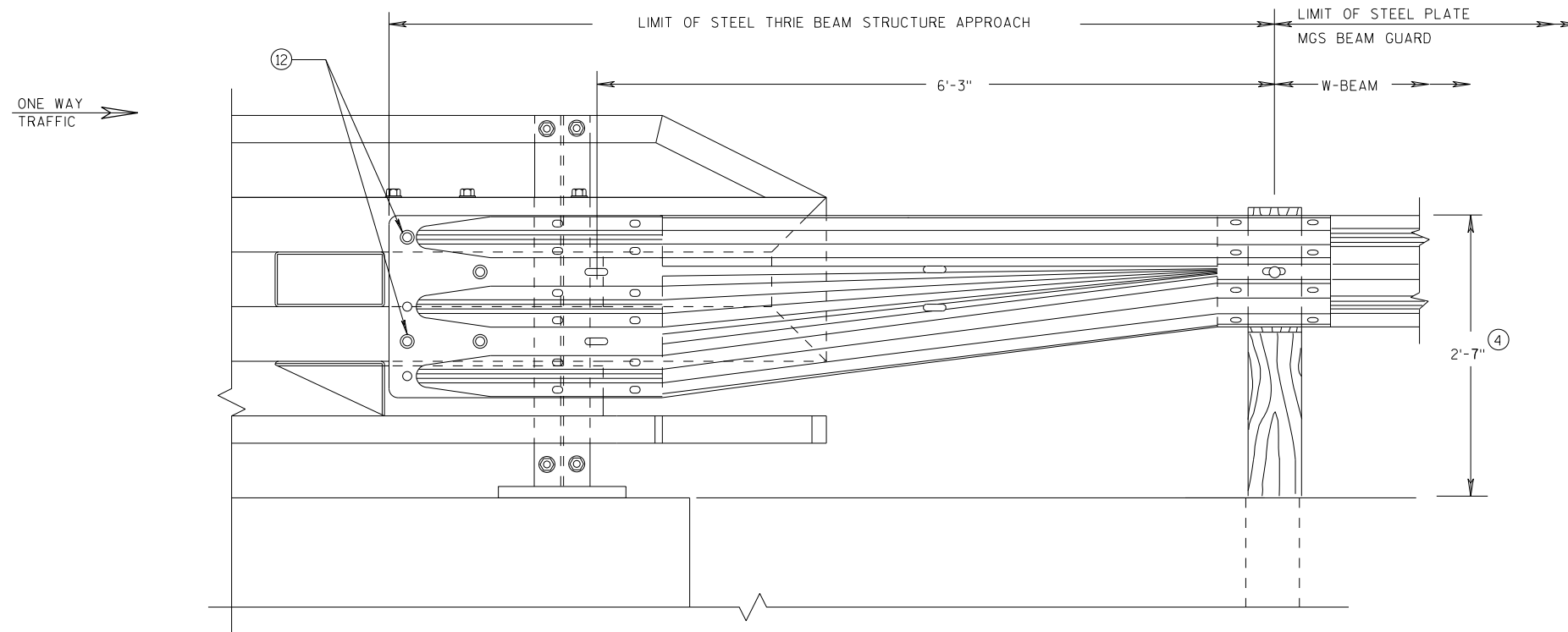
GENERAL NOTES

④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.

⑫ 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 $\frac{1}{2}$ -INCH BEYOND NUT.

FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3" (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4" (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018
DATE

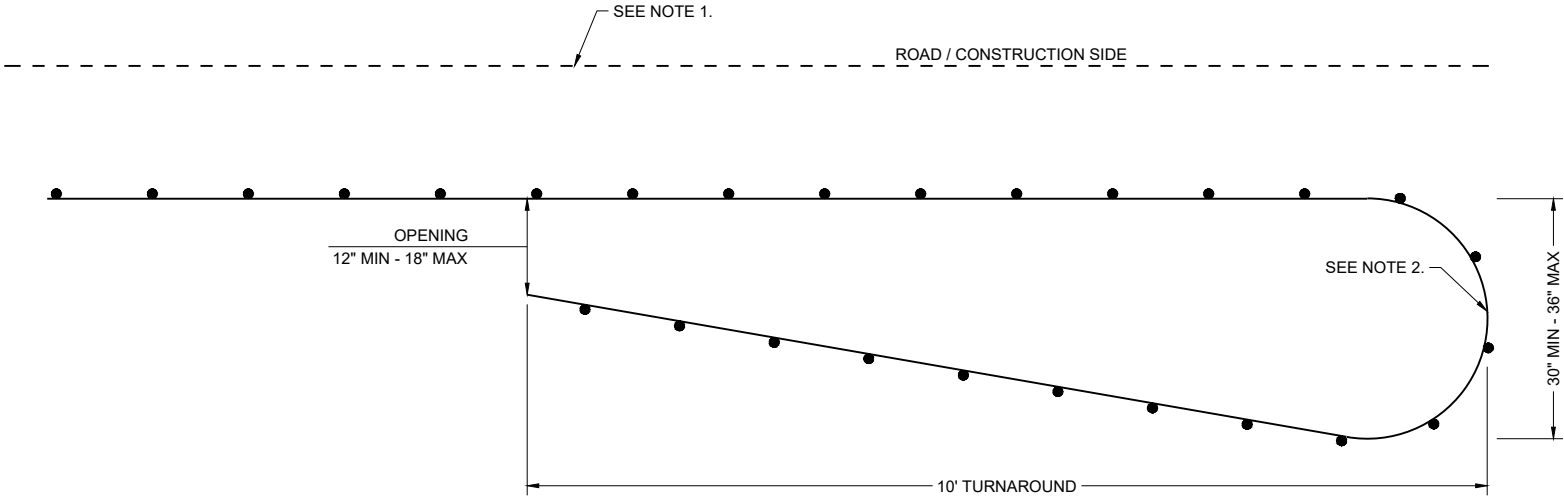
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS C 90
UNIT SUPERVISOR

S.D.D. 14 B 45-5L

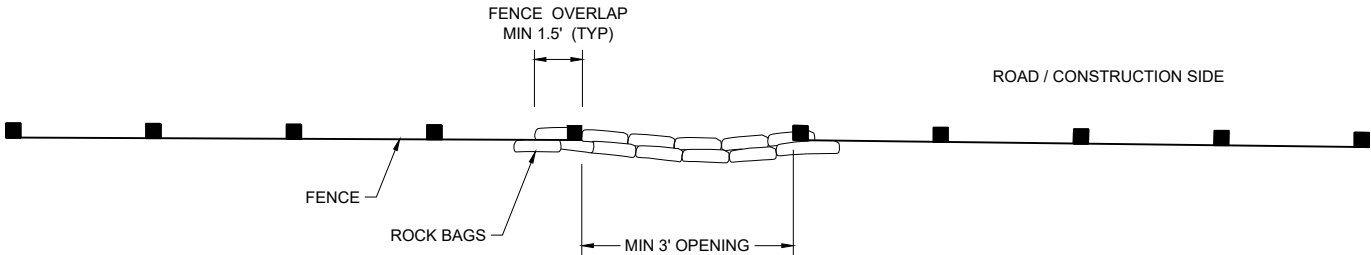
GENERAL NOTES:

- 1. WHERE SILT FENCE IS REQUIRED, IT SHALL BE PLACED ON THE CONSTRUCTION SIDE OF THE EXCLUSION FENCING, OR COMBINED WITH THE EXCLUSION FENCING AS ALLOWED IN THE SPECIFICATIONS. STAKES ON THIS DETAIL ARE OPPOSITE OF STANDARD SILT FENCE FOR SEDIMENT CONTROL.
 - 2. PLACE TURNAROUNDS AT ALL TERMINI ENDS OF THE EXCLUSION FENCING.
 - 3. IF TEMPORARY ACCESS POINTS ARE NEEDED DURING CONSTRUCTION THAT REQUIRE OPENINGS IN THE EXCLUSION FENCING, ACCESS OPENINGS SHOULD BE TIGHTLY SECURED WITH BALES OF HAY OR STRAW WHENEVER CONSTRUCTION RELATED ACTIVITIES ARE NOT OCCURRING. REINSTALL EXCLUSION FENCING WHEN THE WORK REQUIRING THE TEMPORARY ACCESS OPENING IS COMPLETED.
 - 4. THE FENCE CAP MAY BE A 6" UNDER DRAIN PIPE, SLIT DOWN THE CENTER AND PLACED OVER THE FENCE. COMMERCIALY AVAILABLE SAFETY CAPS WITH A LIP MAY BE USED. OTHER DNR APPROVED METHODS TO PREVENT TURTLES FROM PASSING OVER THE TOP OF THE FENCE MAY BE USED.
- SECURELY FASTEN THE CAP TO PREVENT IT FROM BEING DISLODGED.

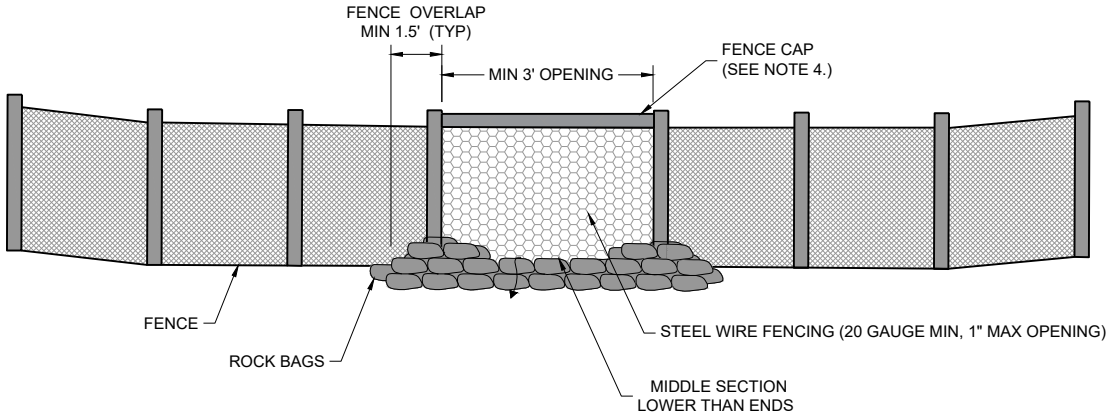


PLAN VIEW

CLIMBING TURTLE EXCLUSION FENCE DETAIL



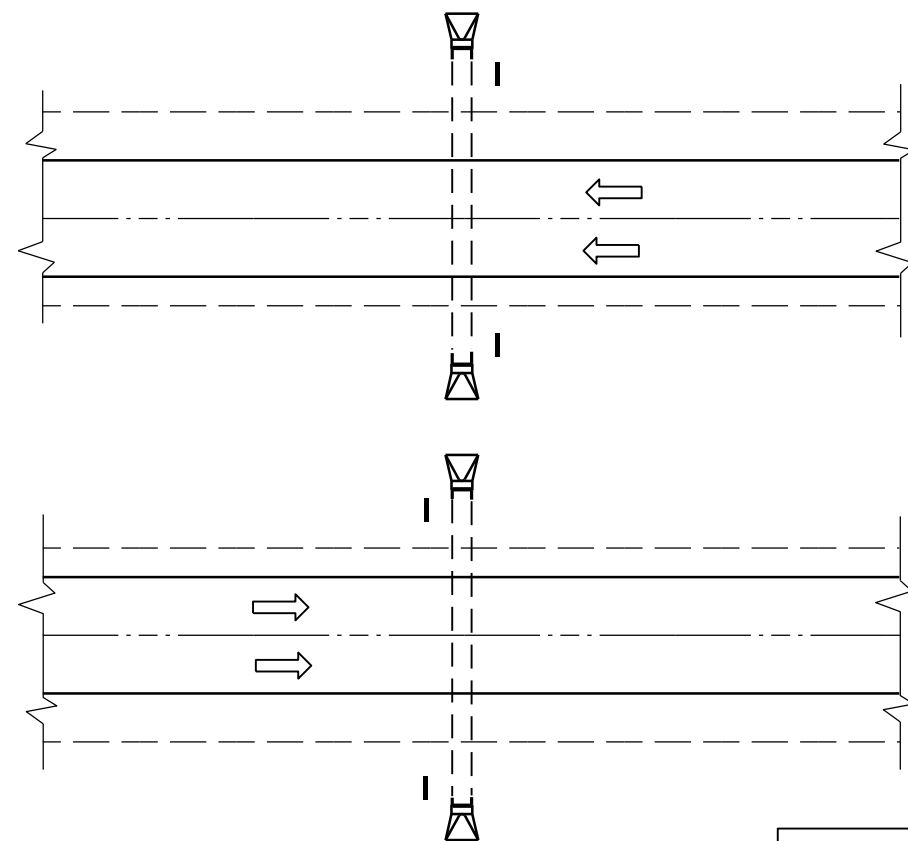
PLAN VIEW



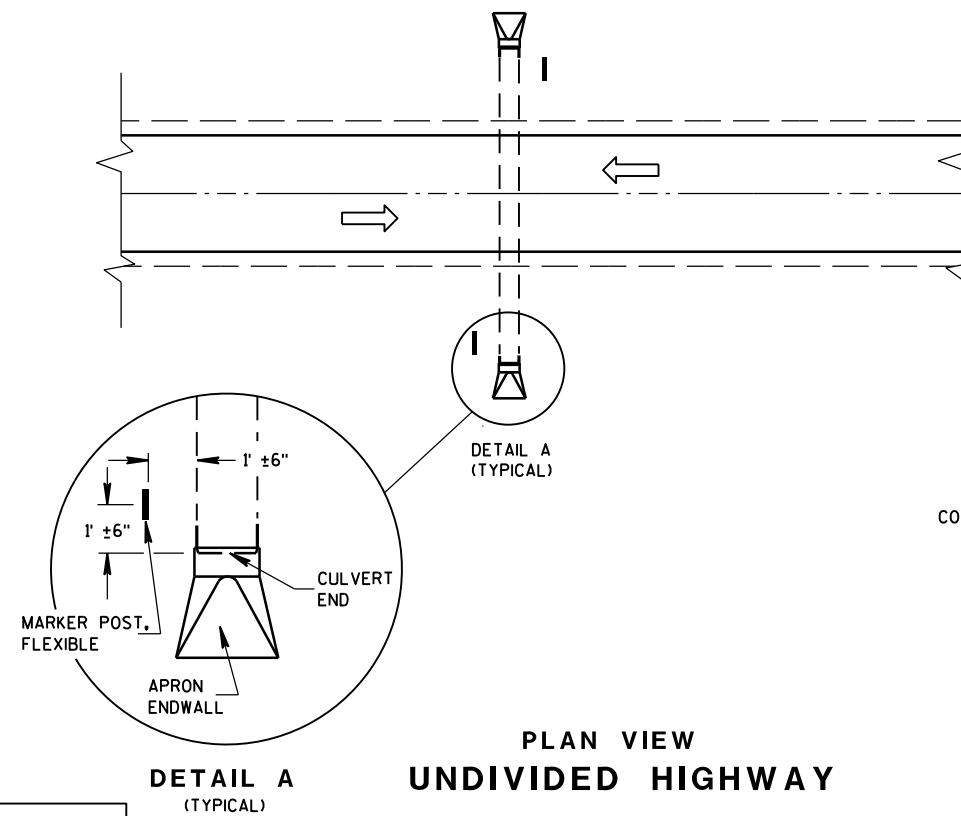
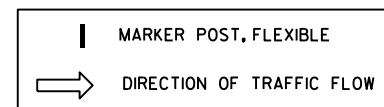
FRONT VIEW

CLIMBING TURTLE FENCE RELIEF DETAIL

TURTLE EXCLUSION FENCE CLIMBING TURTLE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED AUGUST 2025 DATE	/S/ ALYSSA BARRETTE CHIEF STATEWIDE ENVIRONMENTAL SERVICES BUREAU OF TECHNICAL SER
FHWA 91	



PLAN VIEW
DIVIDED HIGHWAY

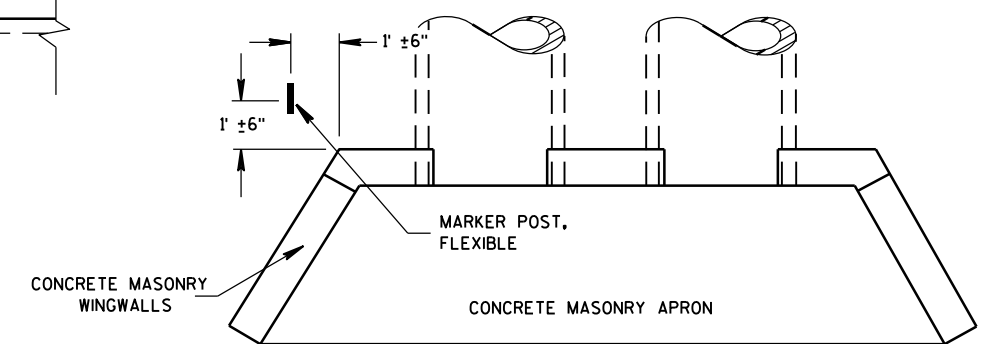


PLAN VIEW
UNDIVIDED HIGHWAY

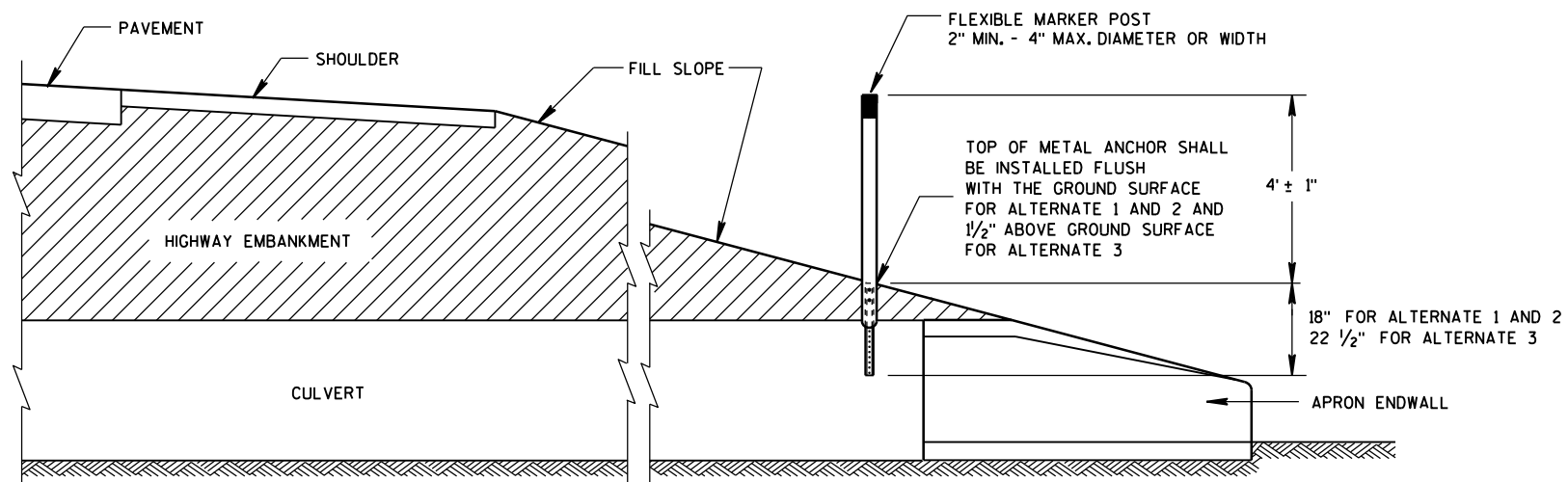
FLEXIBLE MARKER POST LOCATION

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.



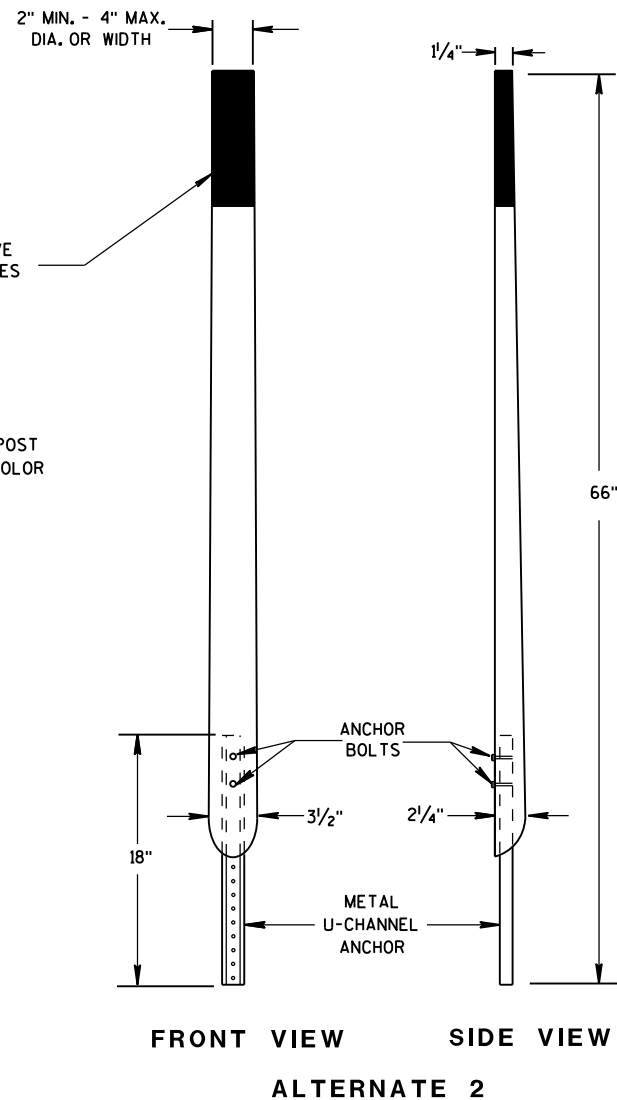
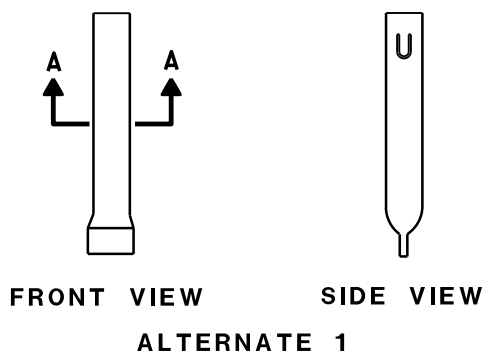
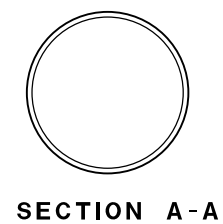
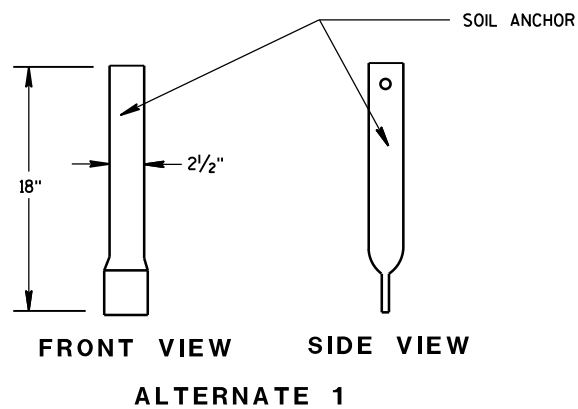
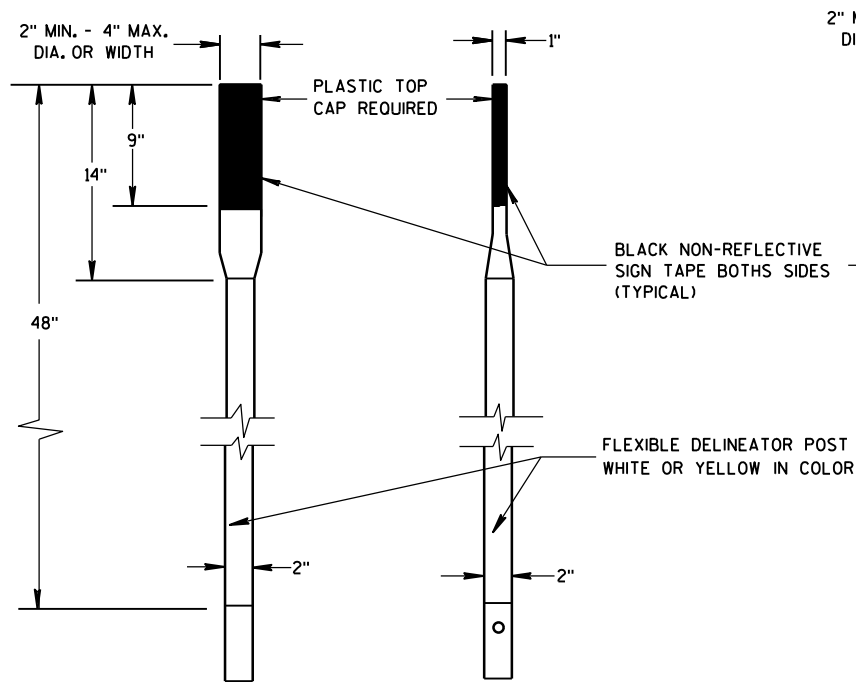
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



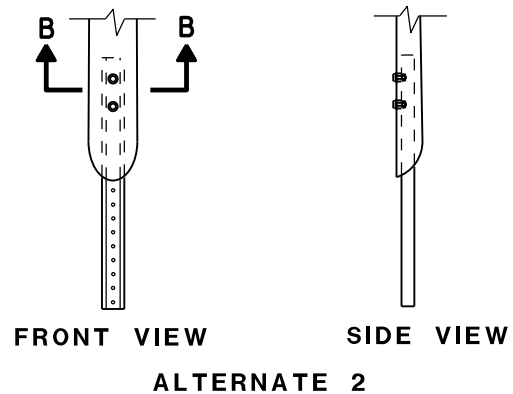
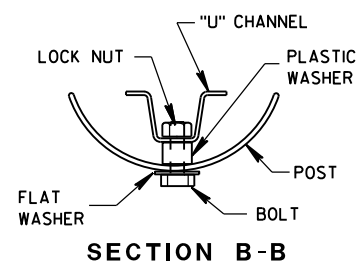
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

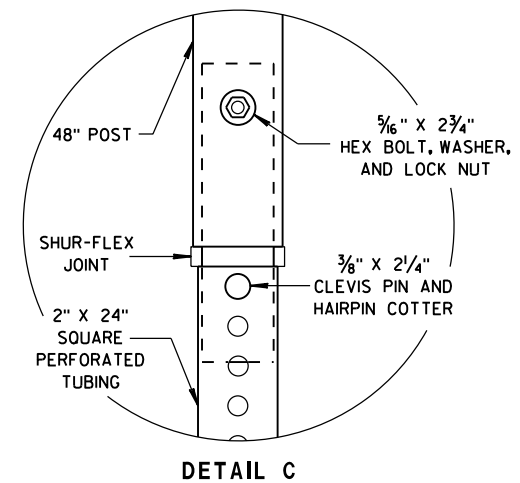
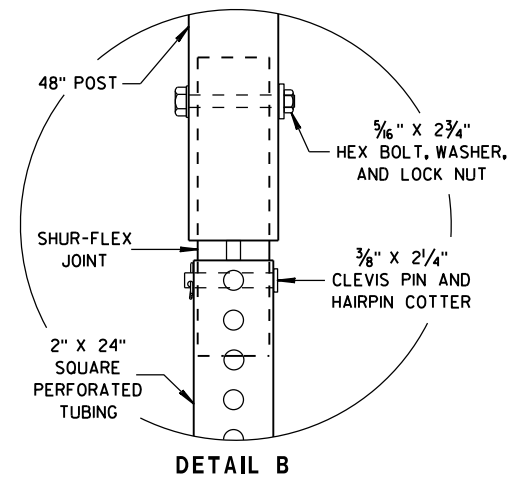
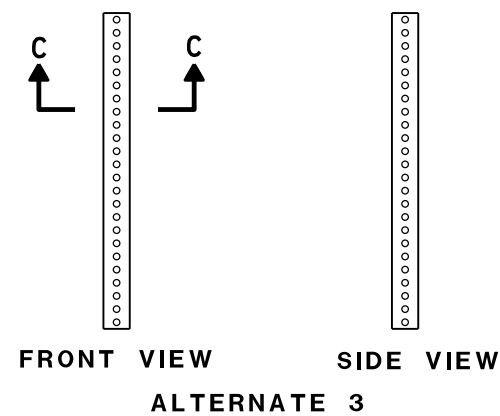
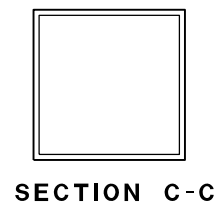
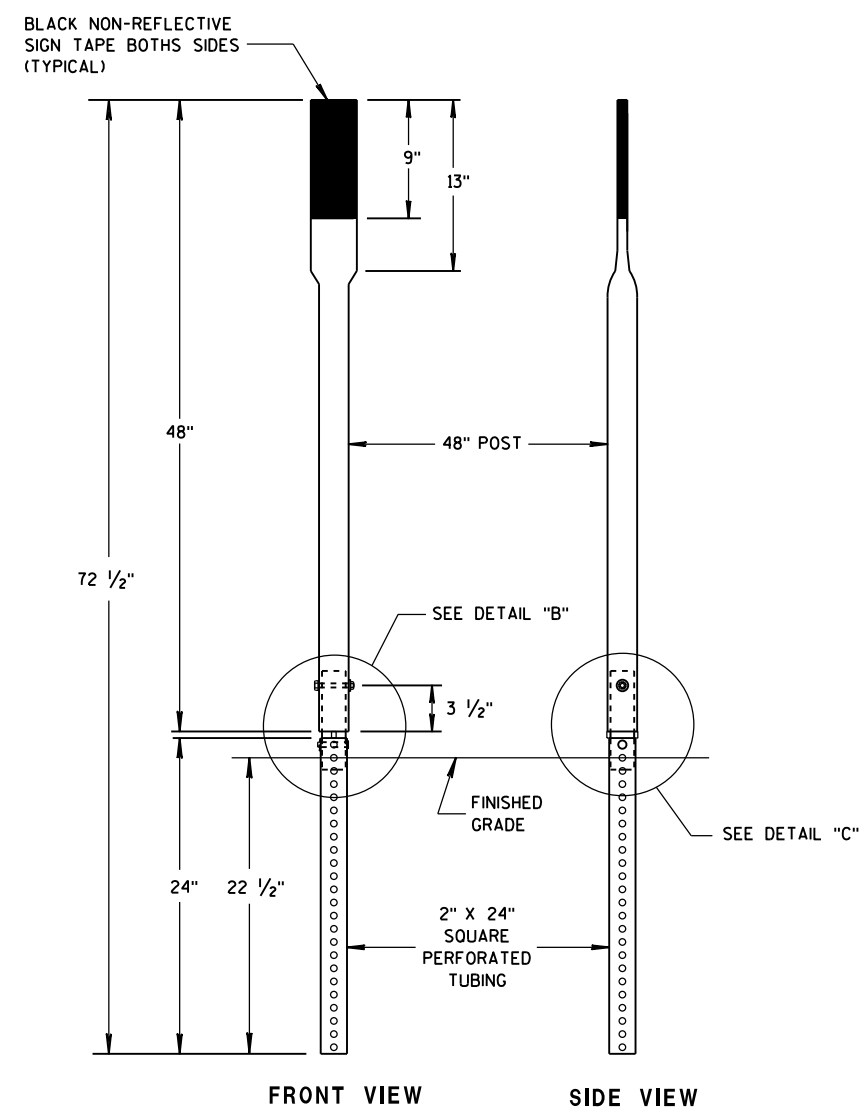
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FLEXIBLE MARKER POSTS



FLEXIBLE MARKER POST ANCHORS



FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

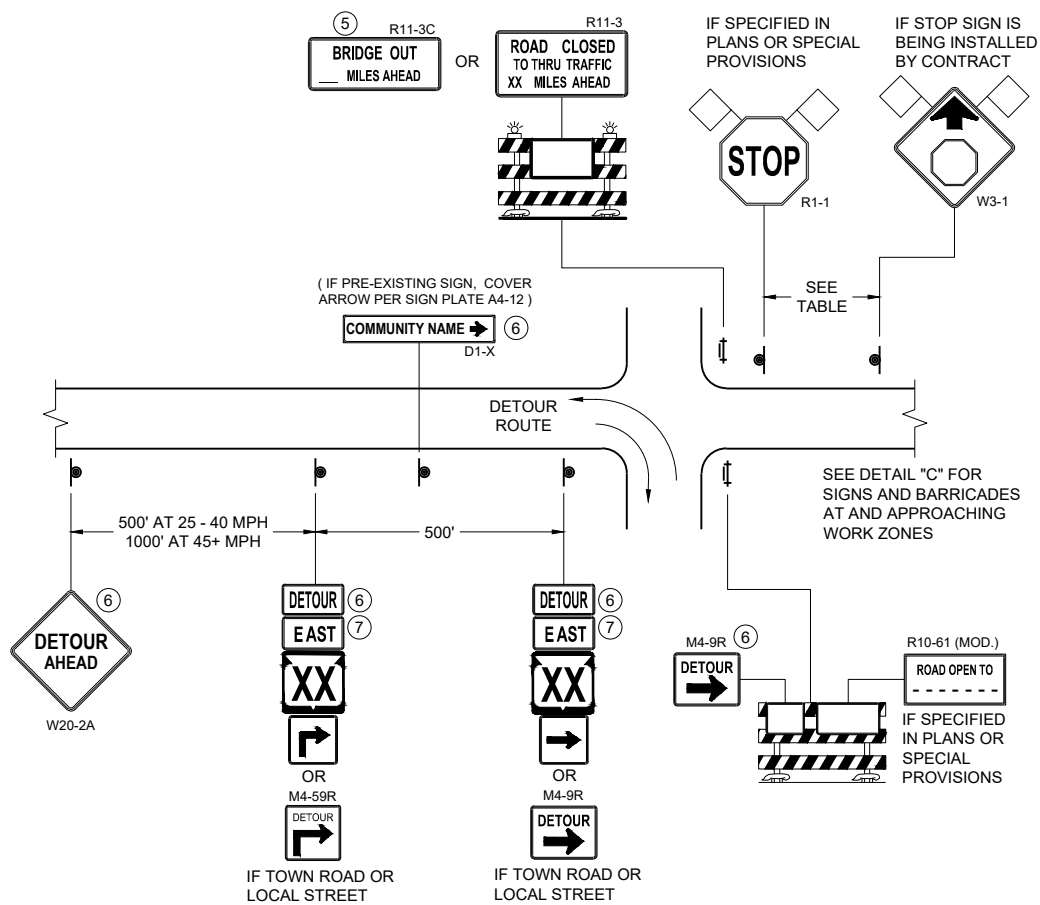
APPROVED

10/1/2012
DATE

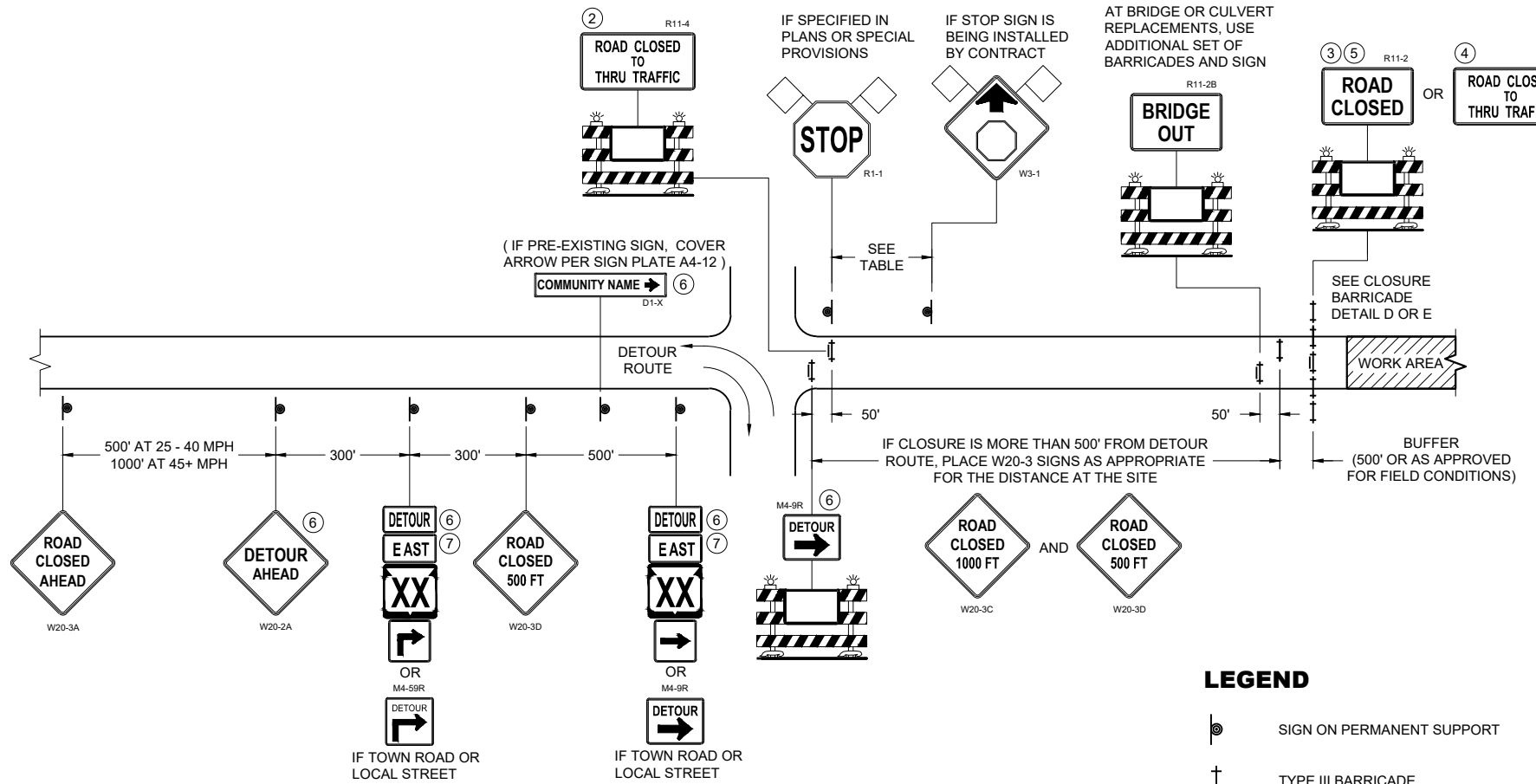
FHWA

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

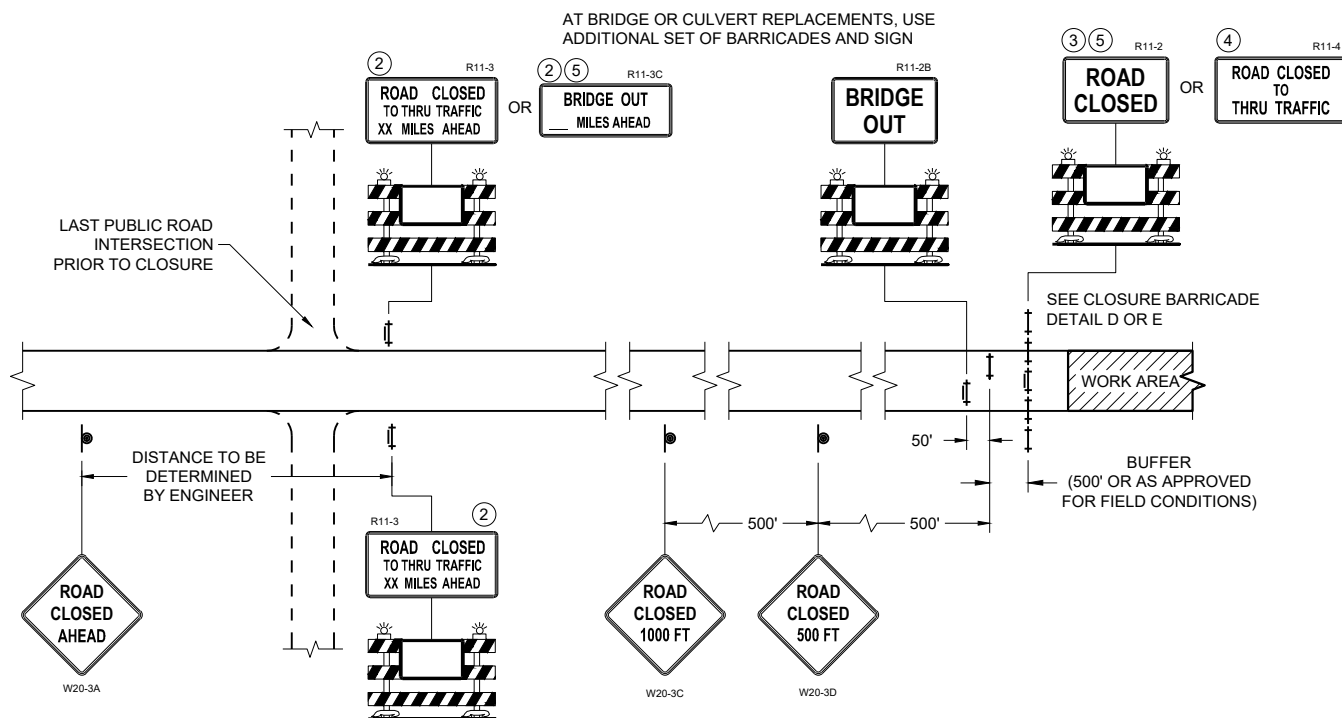
IGN



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

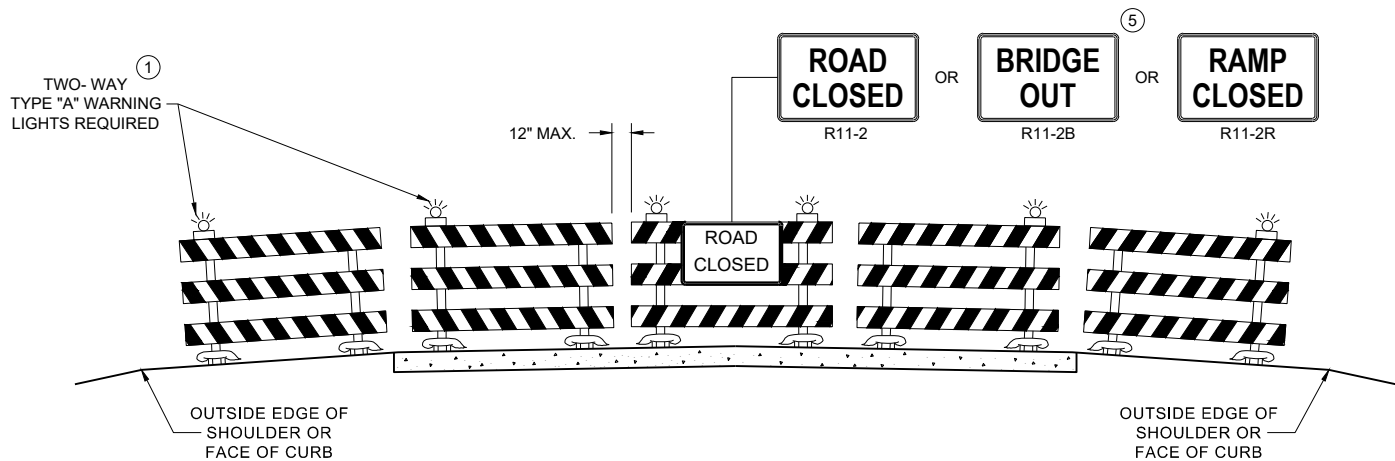
- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)
- DETOUR M4 - 8
- EAST M3 - X
- XX M1 - 4 OR XX M1 - 6 OR COUNTY M1 - 5A
- M05 - 1 OR M06 - 1

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

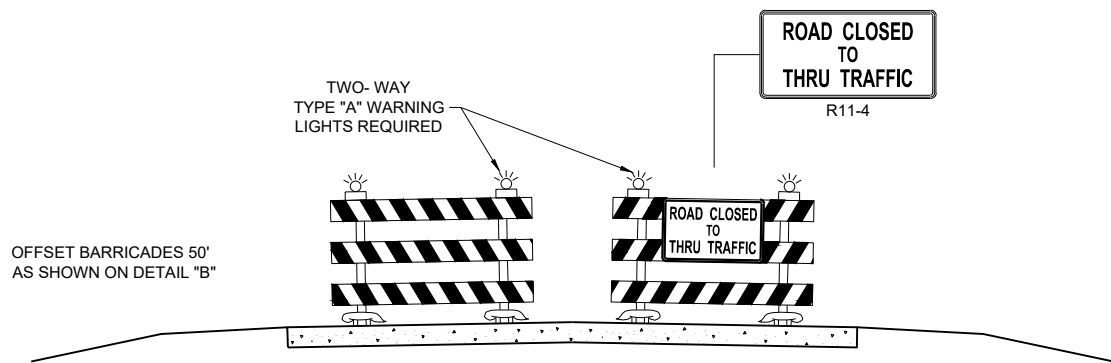
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



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.

PARTIAL NUMBERS ON SIGNS SHALL BE DISPLAYED AS A WHOLE NUMBER(AS NEEDED) FOLLOWED BY A FRACTION. SIGNS SHALL NOT DISPLAY NUMBERS IN DECIMAL FORM.

"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"

SIGNS PLACED ON TYPE III BARRICADES THAT ARE SIZES OTHER THAN 48"X30" SHALL HAVE A CORRUGATED POLYPROPYLENE OR POLYETHYLENE PLASTIC SIGN BASE.

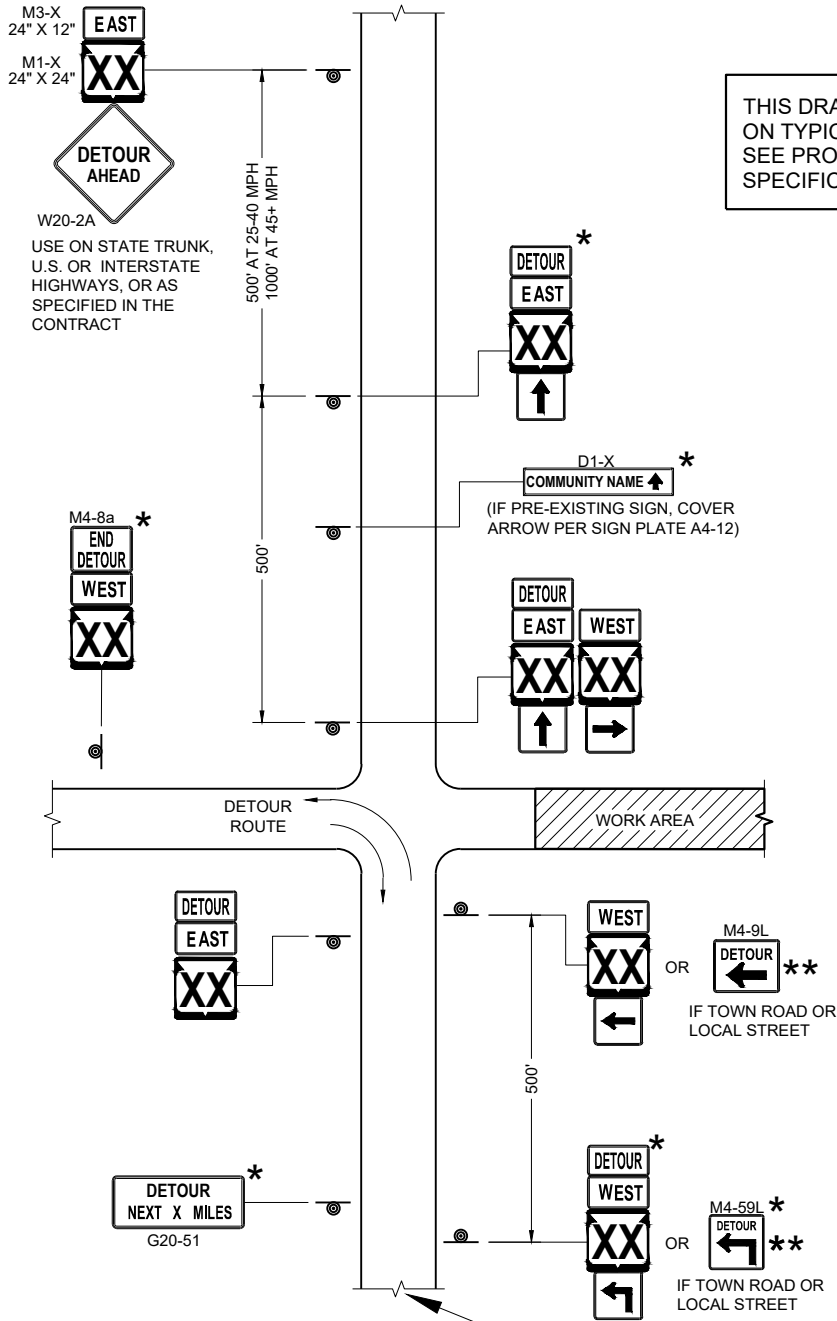
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS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

**BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

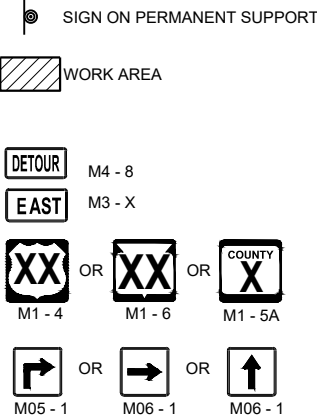
FHWA



SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

**DETAIL F
DETOUR SIGNING**

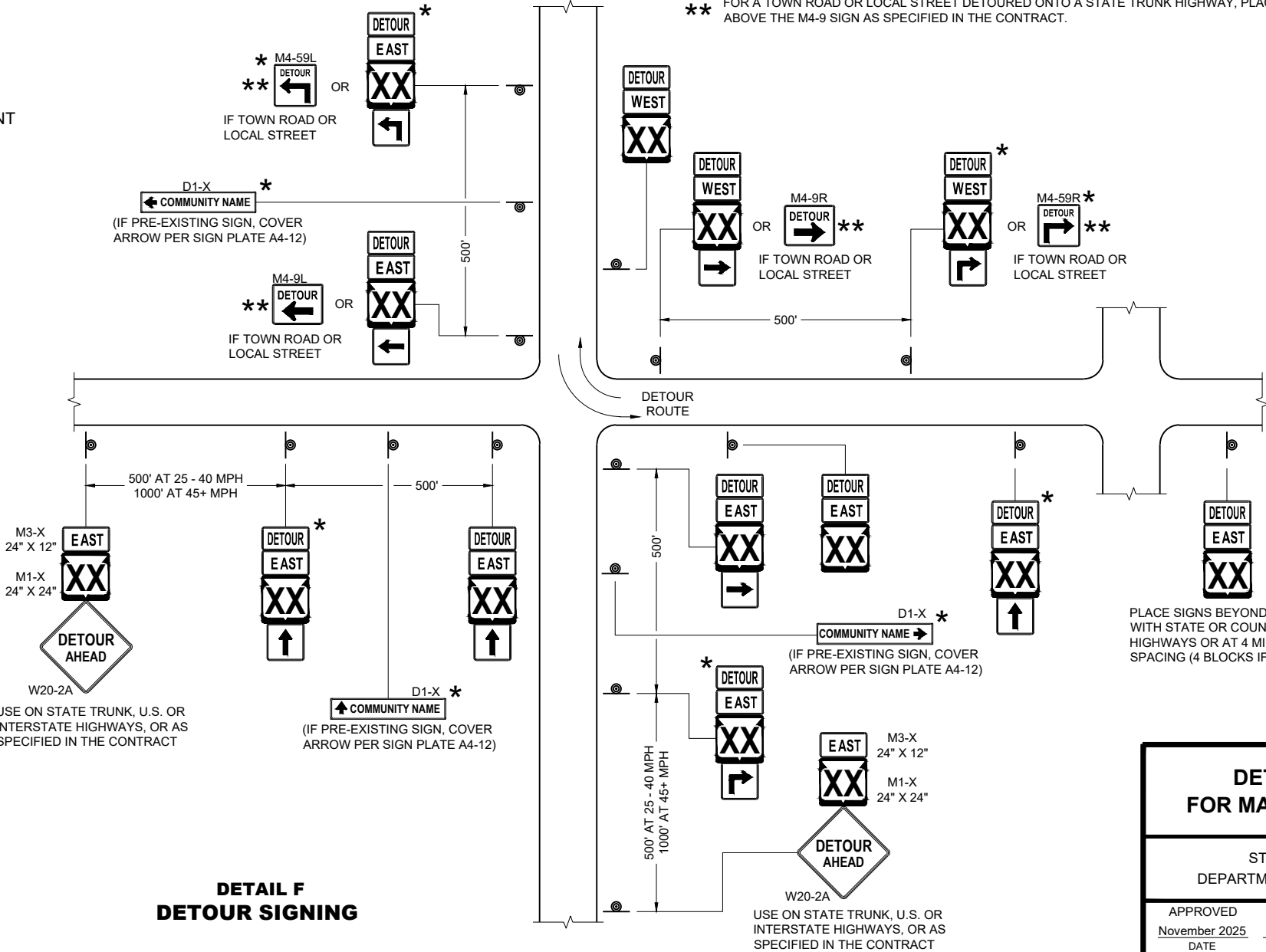
LEGEND



GENERAL NOTES

- THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- 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. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.
- THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.
- SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- SIGN SIZES SHALL BE AS FOLLOWS:
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)
M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
M4-9 AND M4-59 SHALL BE 30" X 24"
M4-8a SHALL BE 24" X 18"
G20-51 SHALL BE 60" X 24"
W20-2A SHALL BE 48" X 48"
D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

MATCH POINT



DETOUR SIGNING
FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

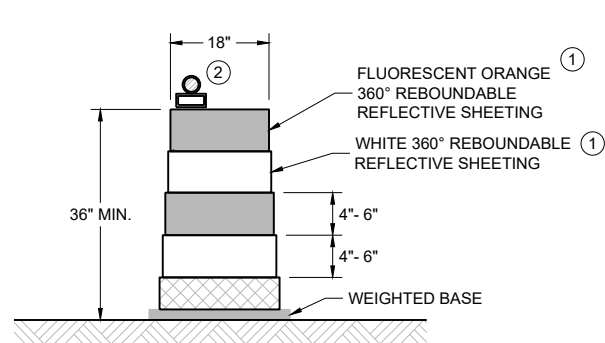
APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

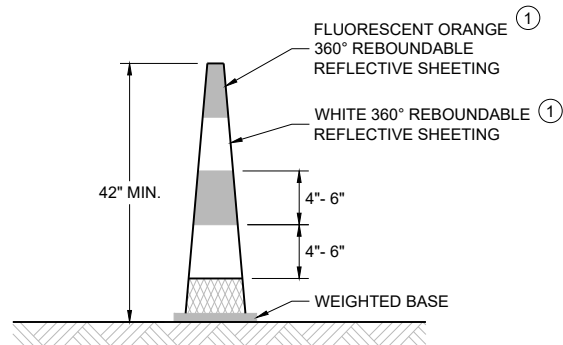
SDD 15C08-24a



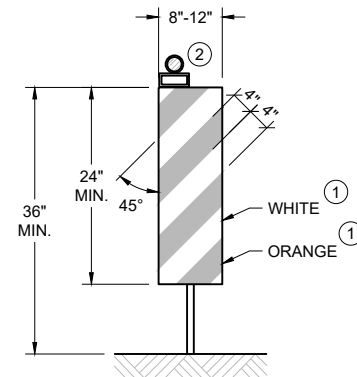
SDD 1EC08 24a



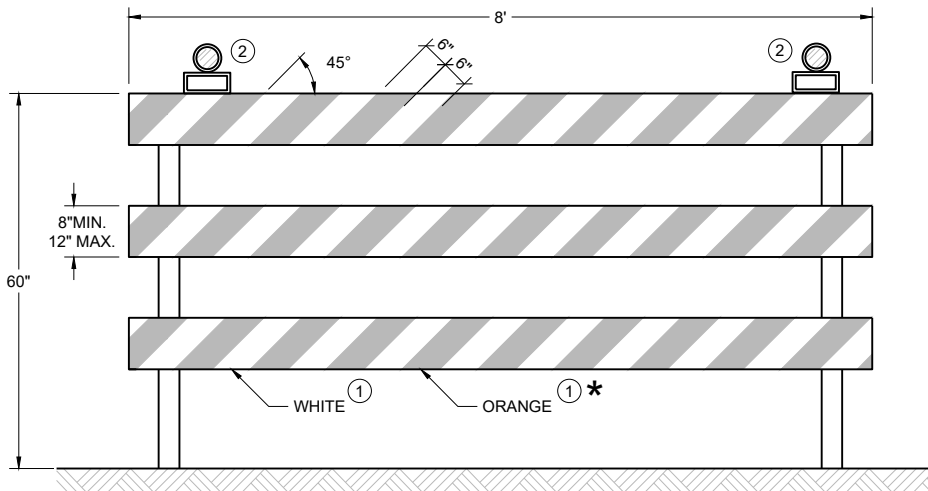
DRUM
BALLAST WIDTHS
RANGE FROM 24"-36"



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



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



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.

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.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2026 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

FLAGGING

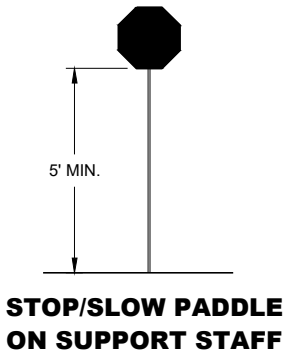
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

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

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

TEMPORARY PORTABLE RUMBLE STRIPS

- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

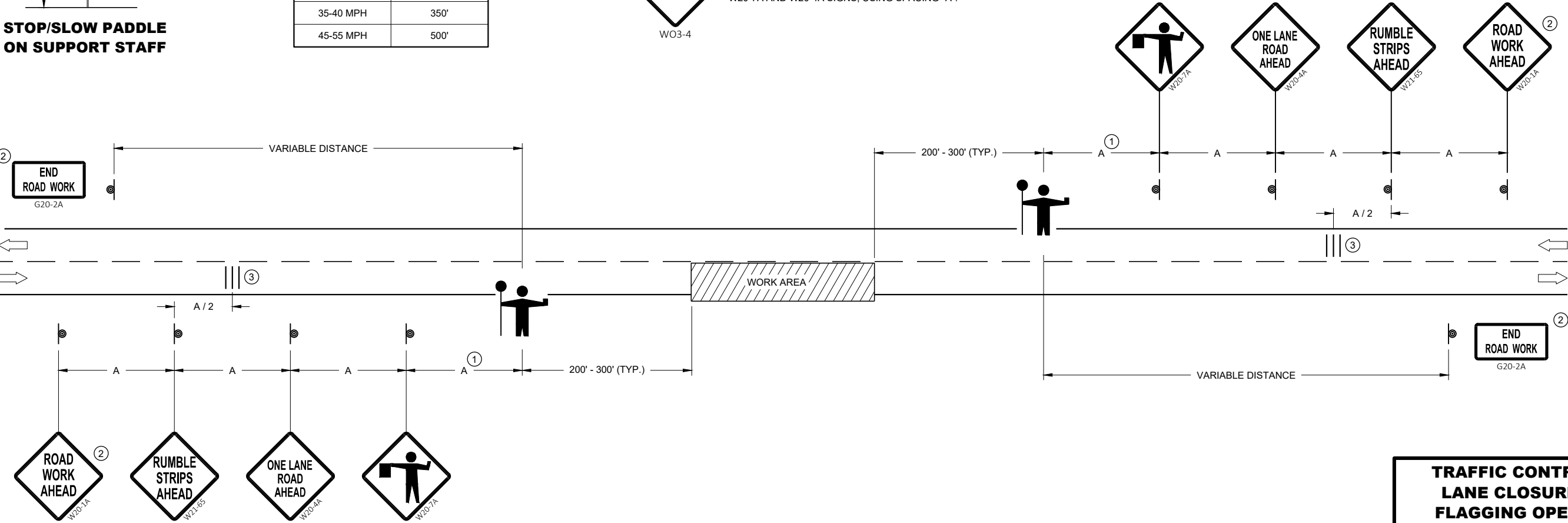


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



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



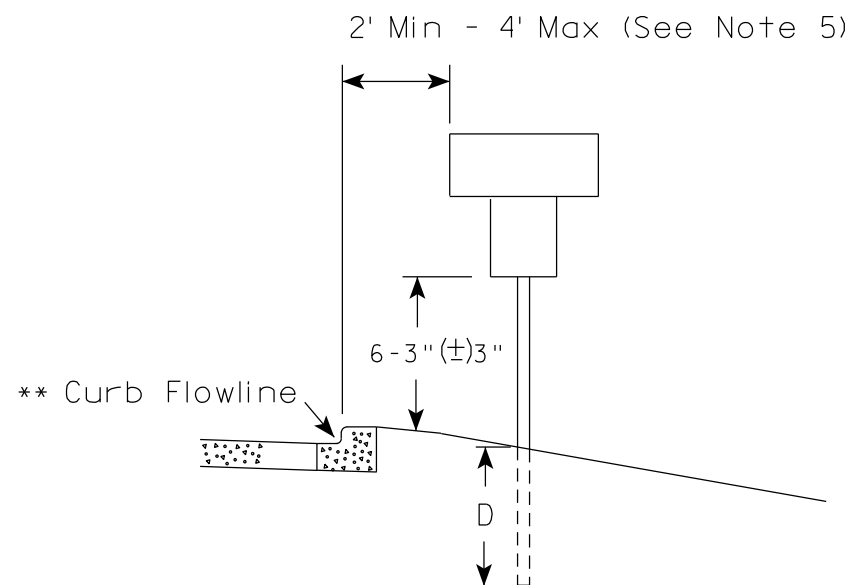
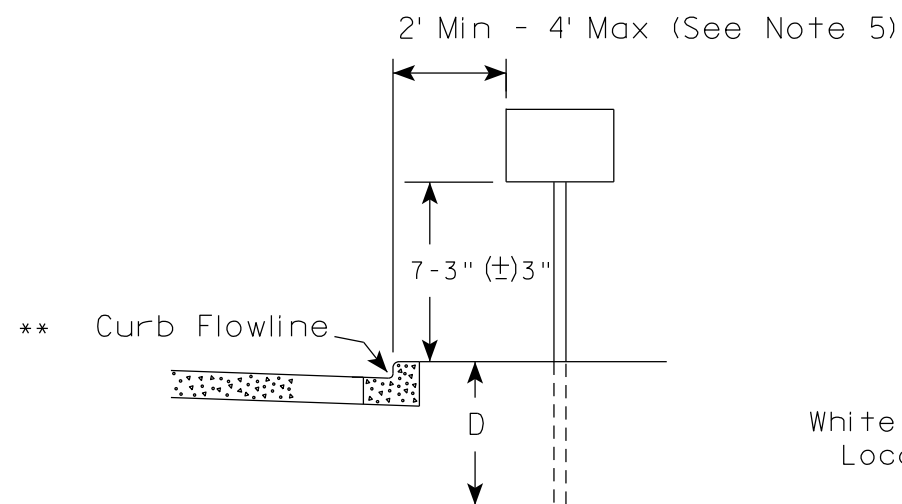
**TRAFFIC CONTROL FOR
LANE CLOSURE WITH
FLAGGING OPERATION**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 99

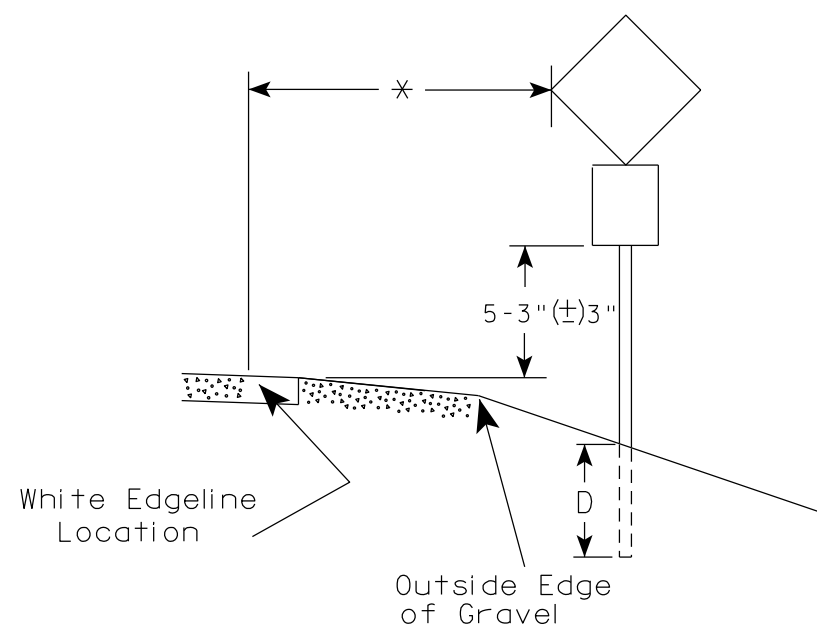
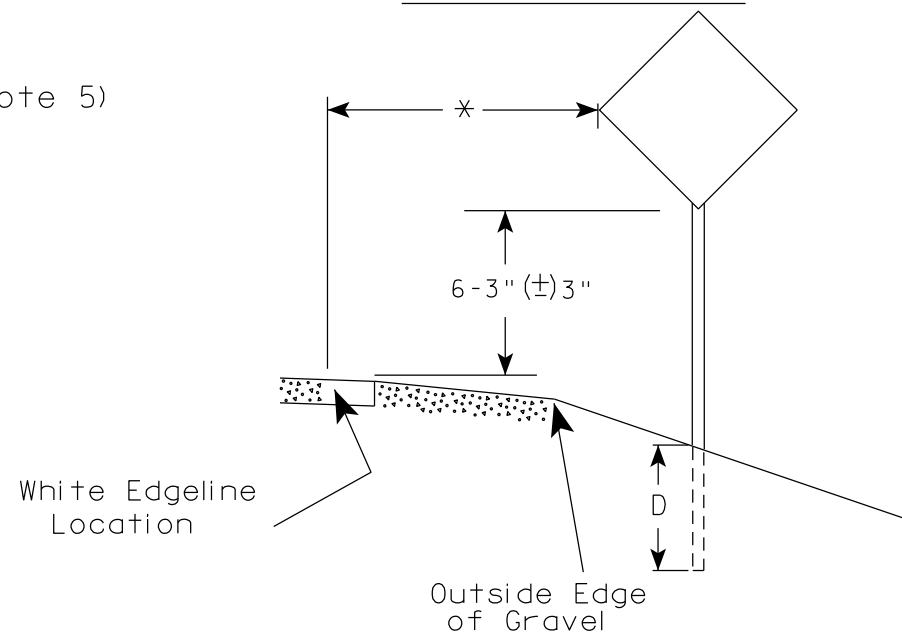
FHWA

URBAN AREA



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

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

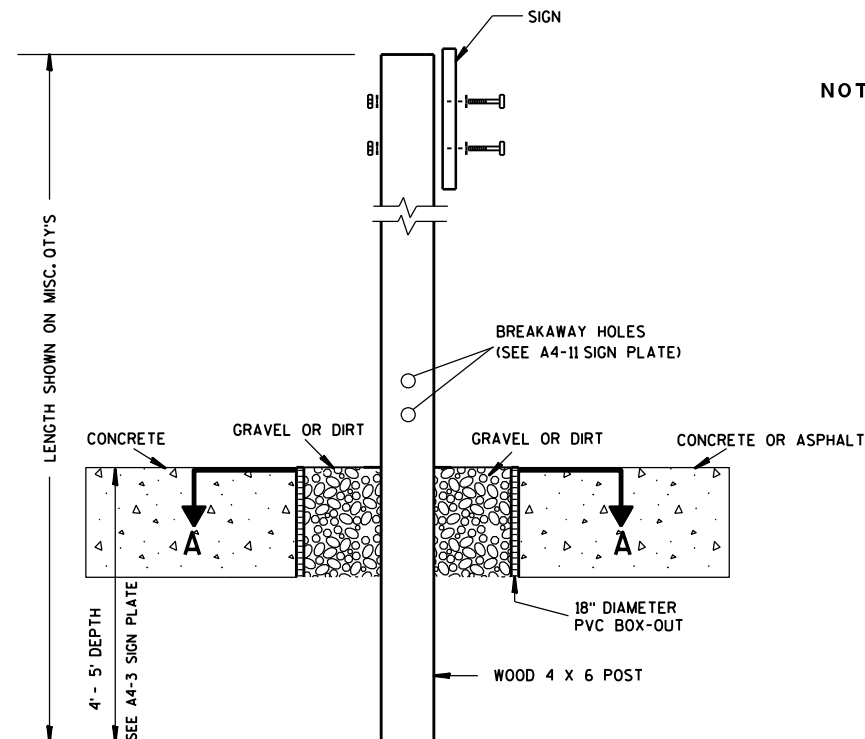
- Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
- If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

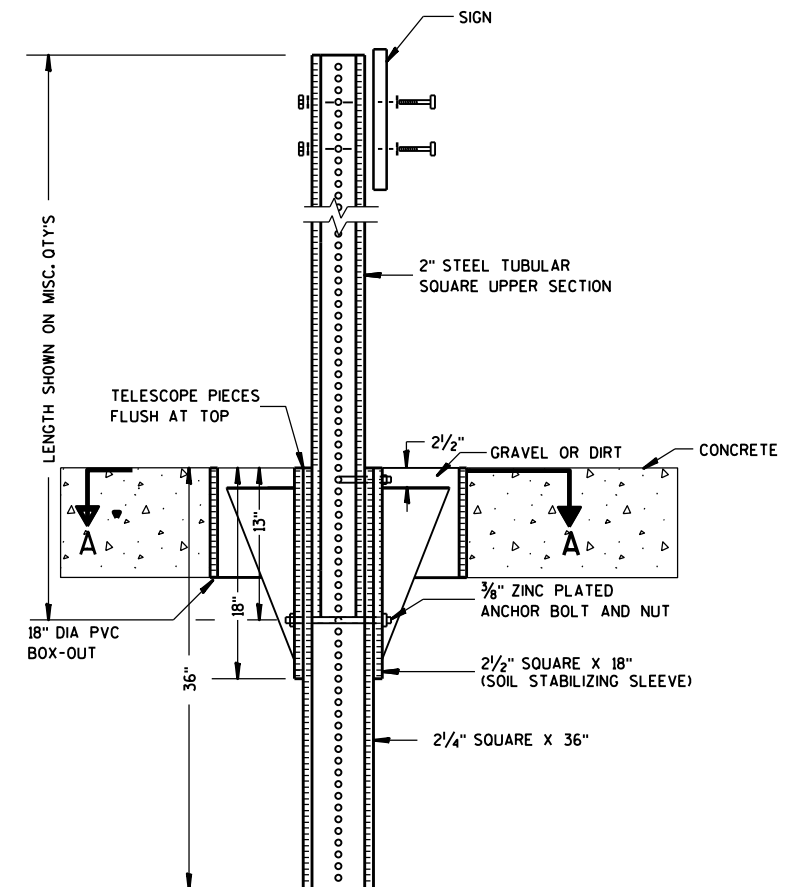
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

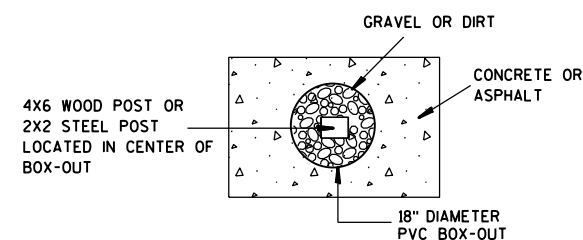
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 101 A4-3B.1

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

GENERAL NOTES

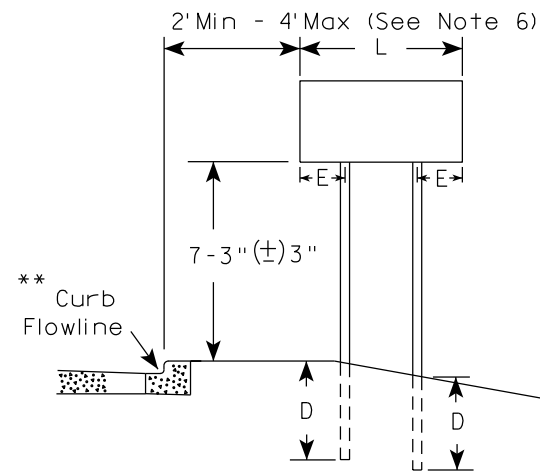
- For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
- See tables below for required number of posts.
- For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
- The (±) tolerance for mounting height is 3 inches.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

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

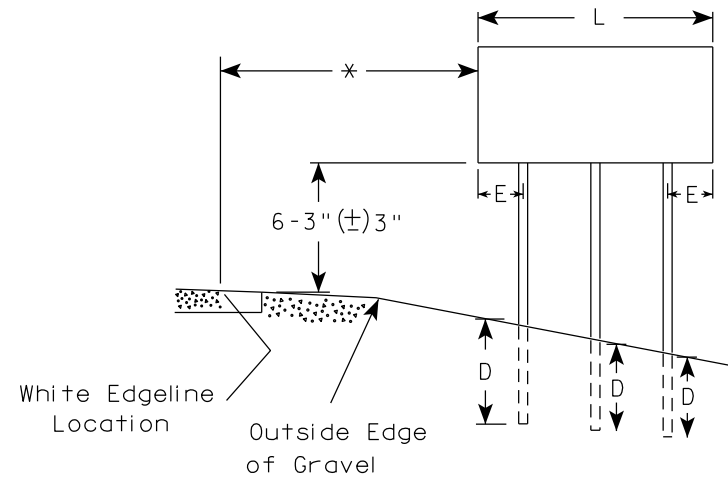
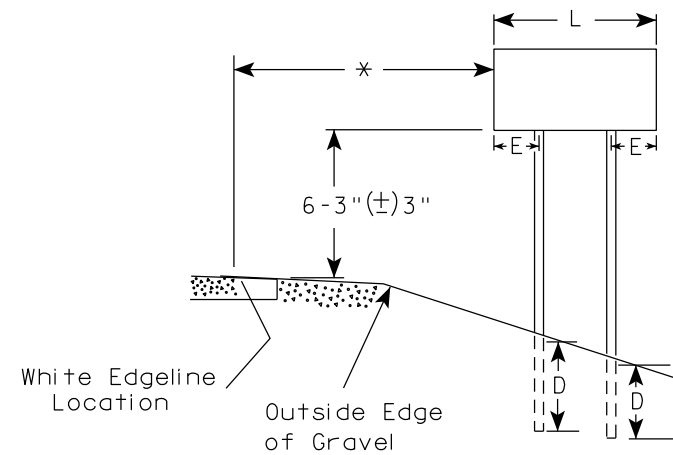
** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs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

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

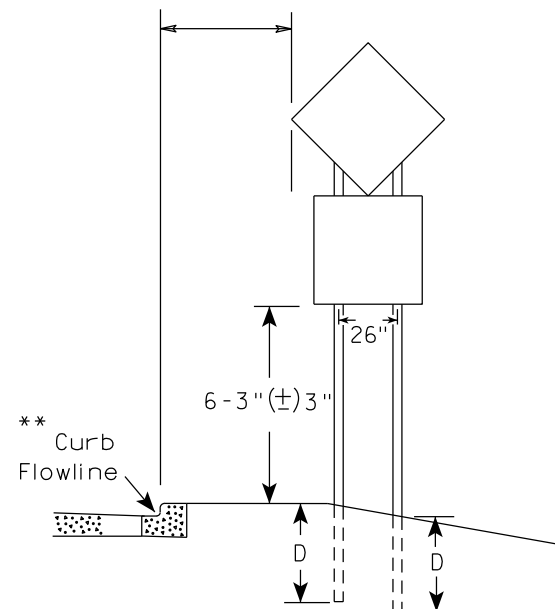
URBAN AREA



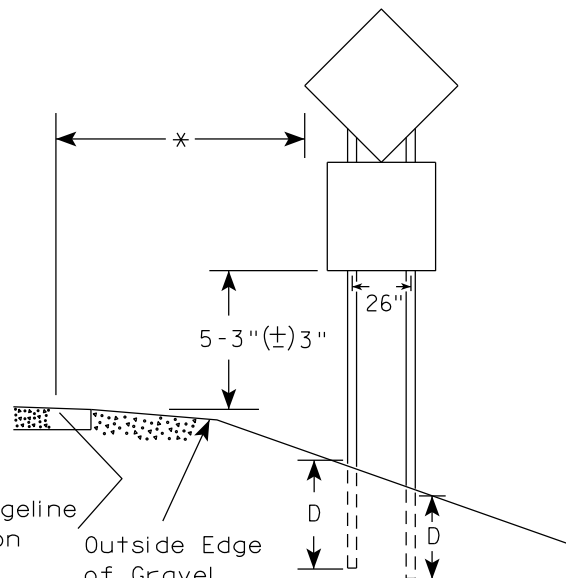
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

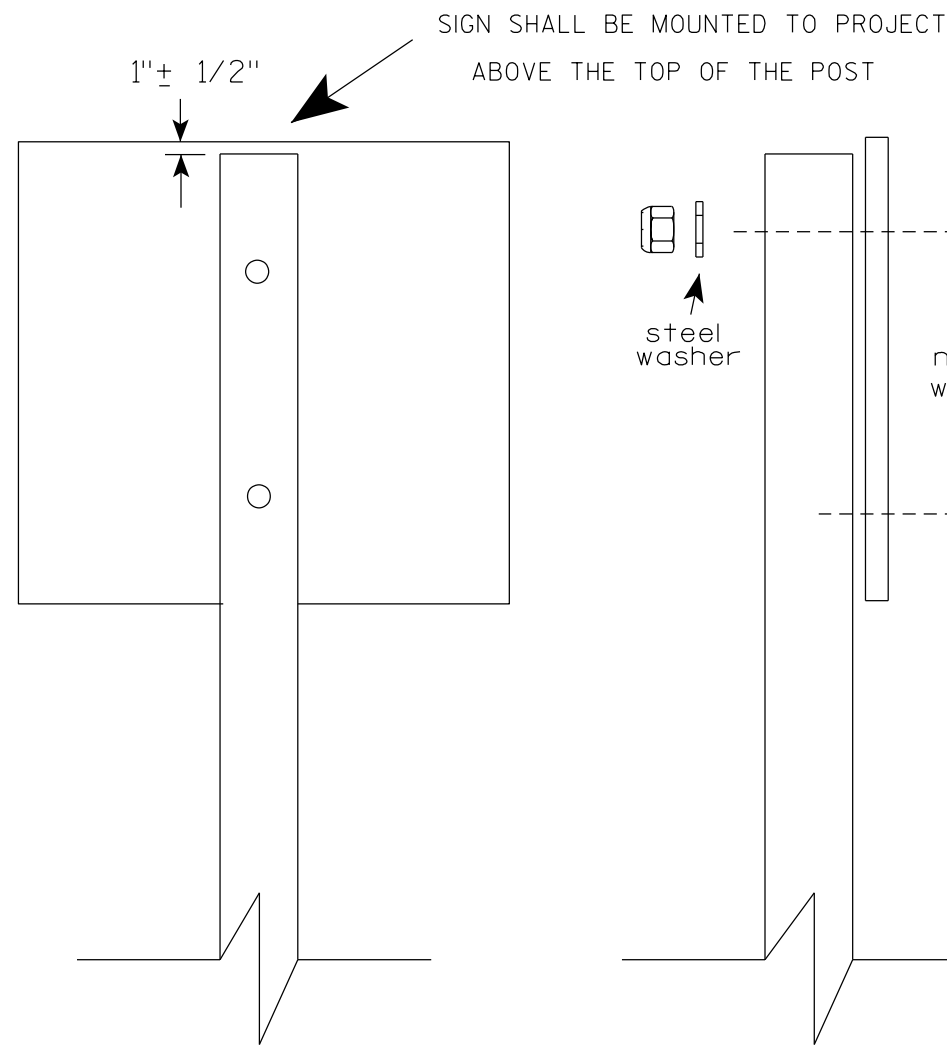
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 102

E



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

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

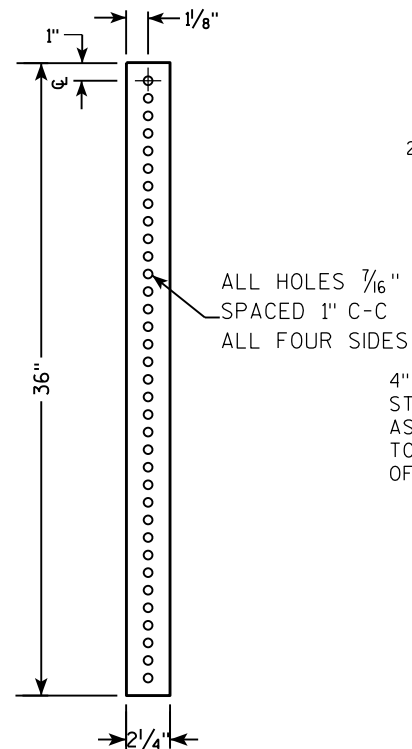
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

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

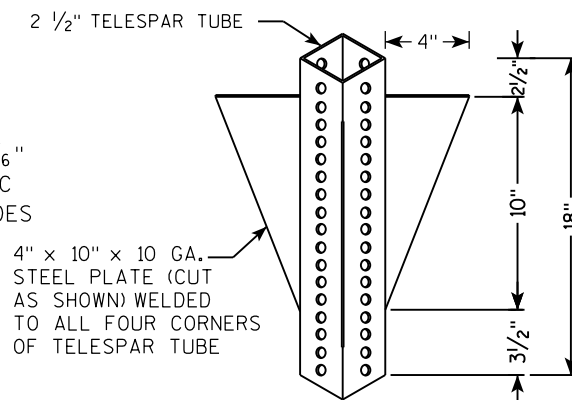
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

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

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



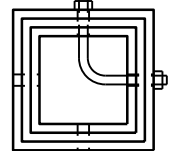
**2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH**



SIGN
 SEE SIGN PLATE
 A4-8 FOR BOLT
 WASHER, & NUT
 MATERIAL
 2" STEEL TUBULAR
 SQUARE UPPER SECTION
 ALL HOLES $\frac{7}{16}$ "
 SPACED 1" C-C
 ALL FOUR SIDES
 $\frac{3}{8}$ " ZINC PLATED CORNER
 ANCHOR BOLT AND NUT
 2 1/2" GRAVEL OR DIRT
 TELESCOPE PIECES
 FLUSH AT TOP
 18" DIA SCHEDULE
 40 PVC
 BOX-OUT
 36"
 18"
 13"
 2 1/2" SQUARE X 18"
 (SOIL STABILIZING SLEEVE)
 2 1/4" SQUARE X 36"
 3/8" ZINC PLATED
 ANCHOR BOLT AND NUT

LENGTH SHOWN ON MISC. QTY'S
 81"
 81"
 SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
 2" STEEL TUBULAR SQUARE UPPER SECTION
 ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES
 $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
 1"
 TELESCOPE PIECES FLUSH AT TOP
 A
 18"
 12"
 36"
 B
 $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
 2 1/4" SQUARE X 36"

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



DIRECTION
OF TRAFFIC

SECTION A-A

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

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch

for State Traffic Engineer

DATE 2/05/15 PLATI 104 14-9.9

SHEET NO: E

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A49.DGN

PLOT DATE : 05-FEB-2015 17:09

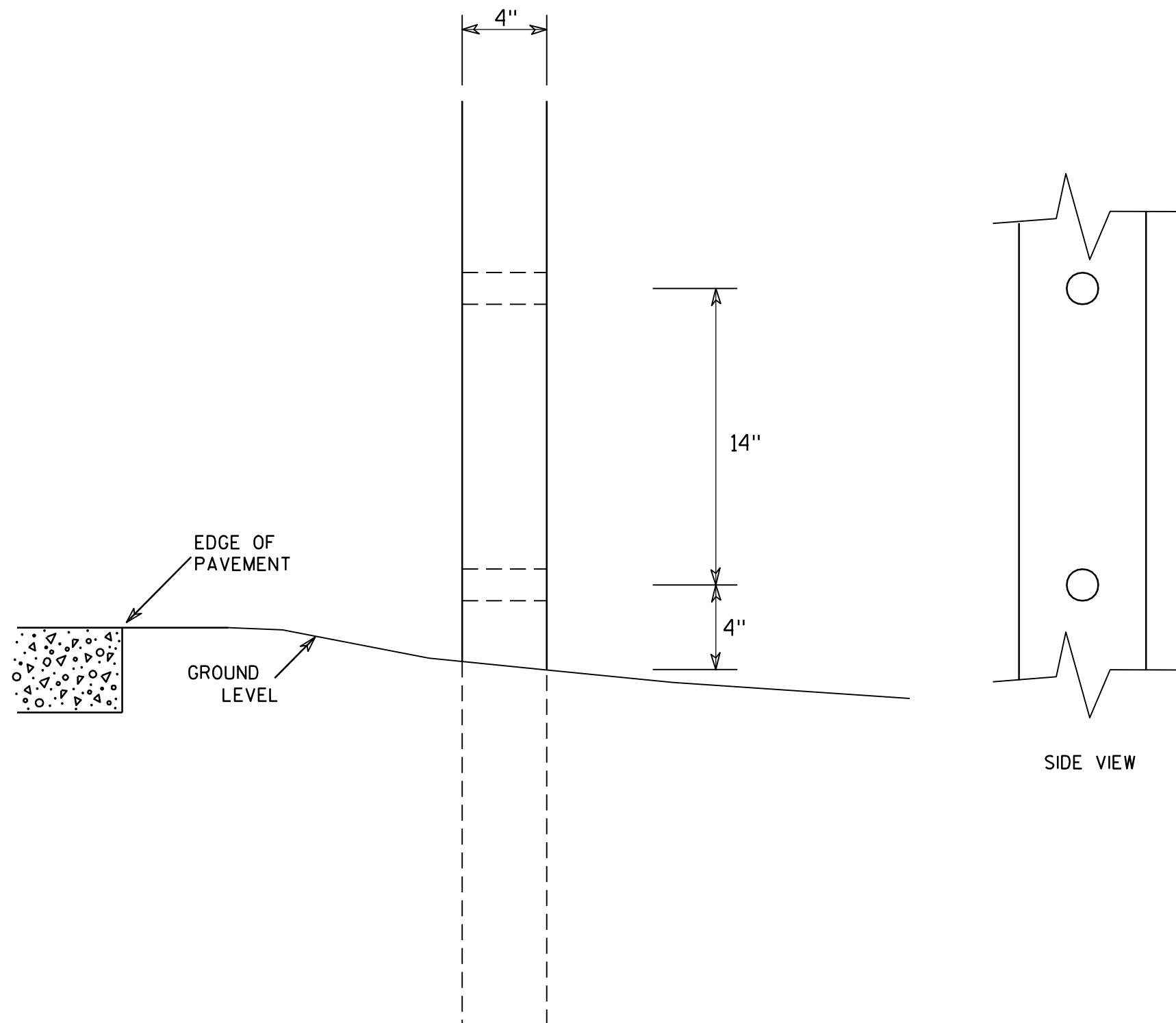
PLOT BY : mscs_ja

PLOT NAME :

PLOT SCALE : 13.659812:1.000000

WISDOT/CADDS SHEET 42

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

COUNTY:

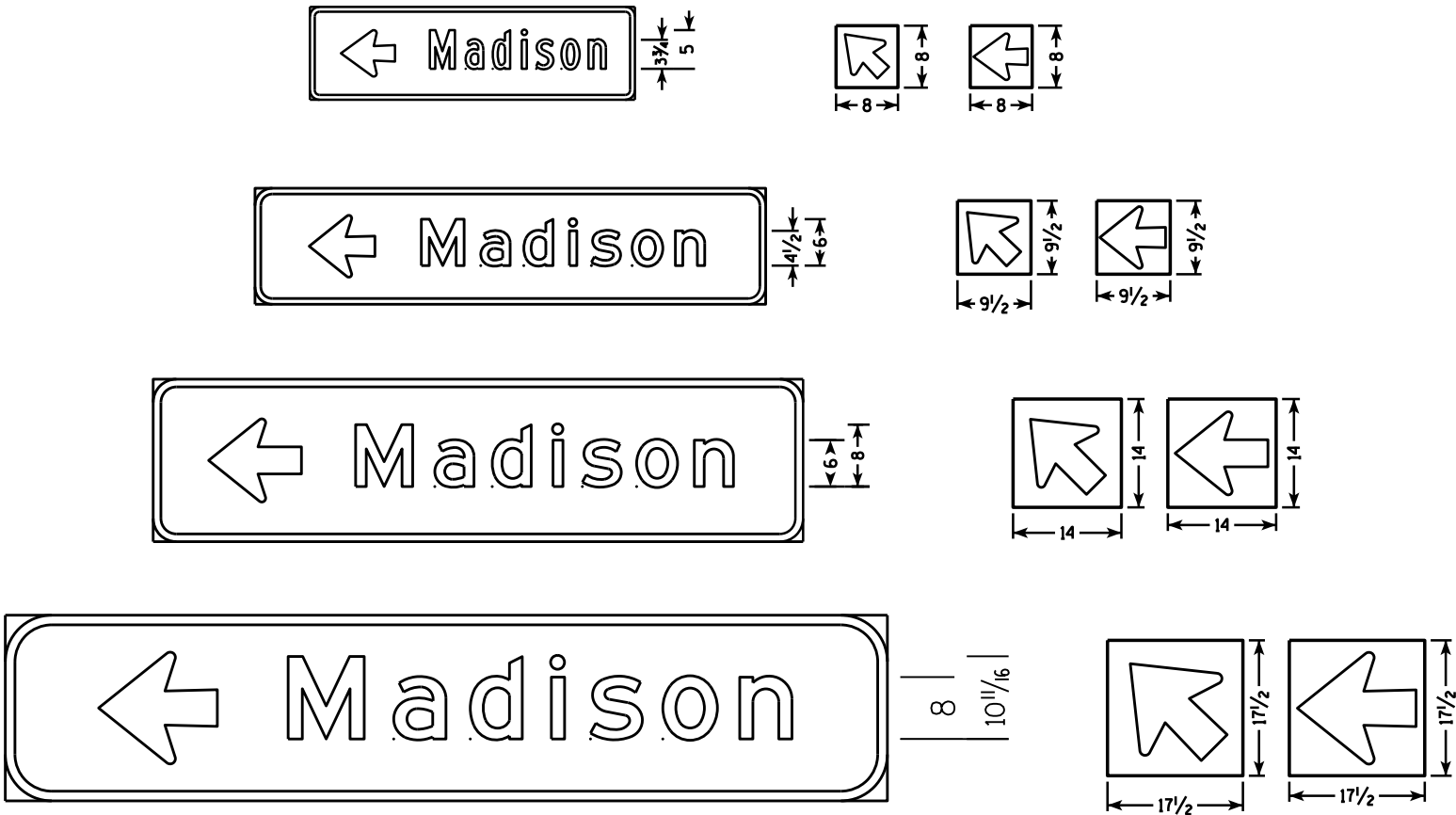
SHEET NO: 105

E

SIGN LAYOUT WITH VARIOUS SIZED MESSAGES

GENERAL NOTES

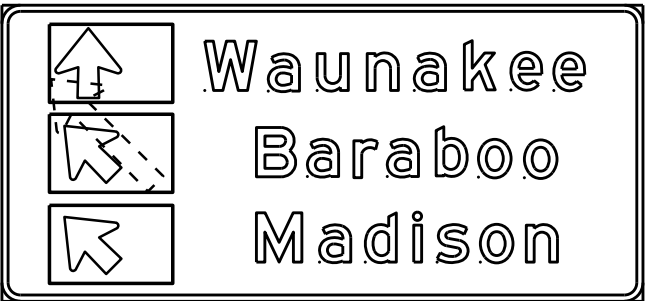
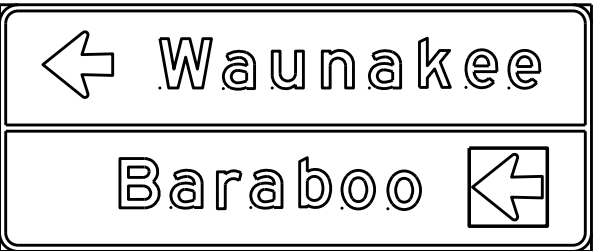
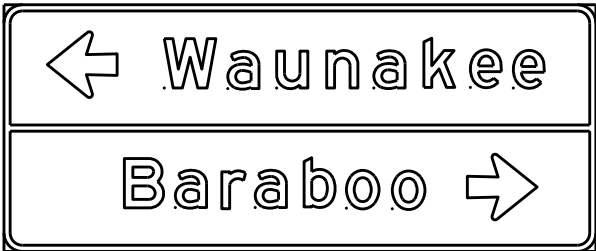
- 1. Materials shall conform to Standard Specification Section 637.
Base - Sheet Aluminum 0.040" Thickness
Sheeting - Orange Type F Reflective
Arrow - Black Non-Reflective
- 2. Arrow signs shall be fastened to permanent sign by either aluminum rivets or aluminum self-tapping sheet metal screws.
There shall be a minmum of 2 fasteners used per arrow sign.
- 3. There shall be a spacer consisting of a 0.08" nylon washer between the back of the arrow sign and the face of the permanent sign.
- 4. Arrows are per standard plate A1-2
- 5. Use separate arrow sign for each destination
- 6. Tilt arrow is always at 45 degrees
- 7. Arrow is centered on arrow sign



Lower Case Copy Size	Standard Width (Single Arrow)	2 Line Tilt Arrow Cover Width	3 Line Tilt Arrow Cover Width	Height
3 3/4" Series C	8	9 1/2	14 1/2	8
4 1/2" Series D & E	9 1/2	10	15	9 1/2
6" Series D & E	14	16	20 1/2	14
8" Series E	17 1/2	20 1/2	25	17 1/2

BEFORE

AFTER



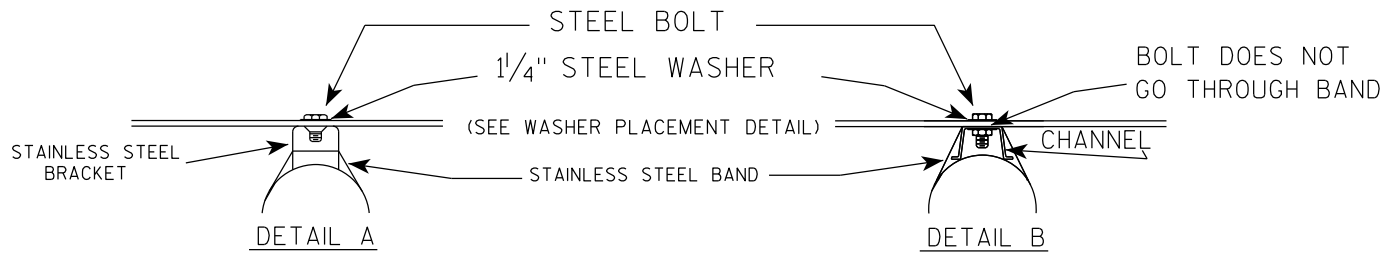
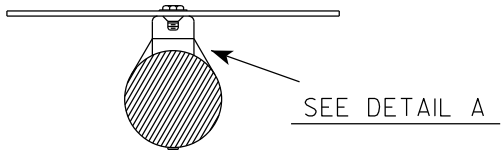
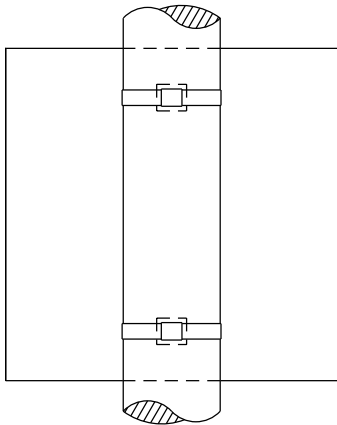
DESTINATION DIRECTIONAL ARROW FOR DETOUR SIGNS

WISCONSIN DEPT OF TRANSPORTATION

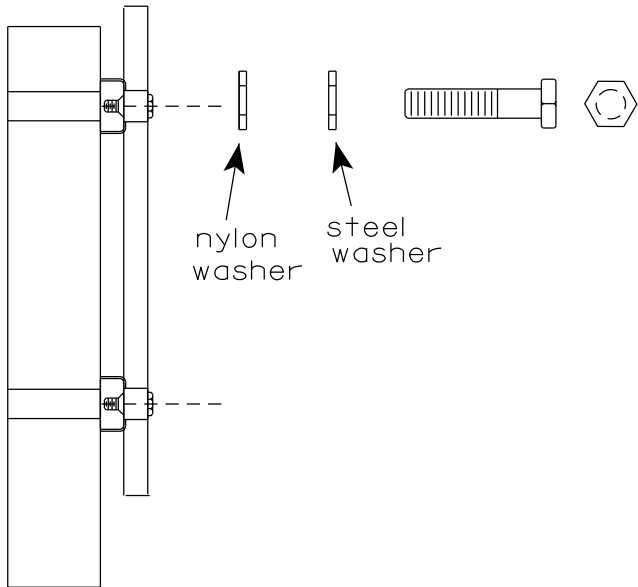
APPROVED *Matthew R. Rauch*
For State Traffic Engineer
DATE 10/08/14

BANDING

SINGLE SIGN



WASHER PLACEMENT

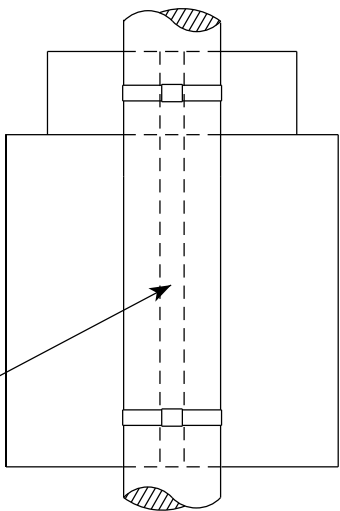


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

GENERAL NOTES

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

"J" ASSEMBLY



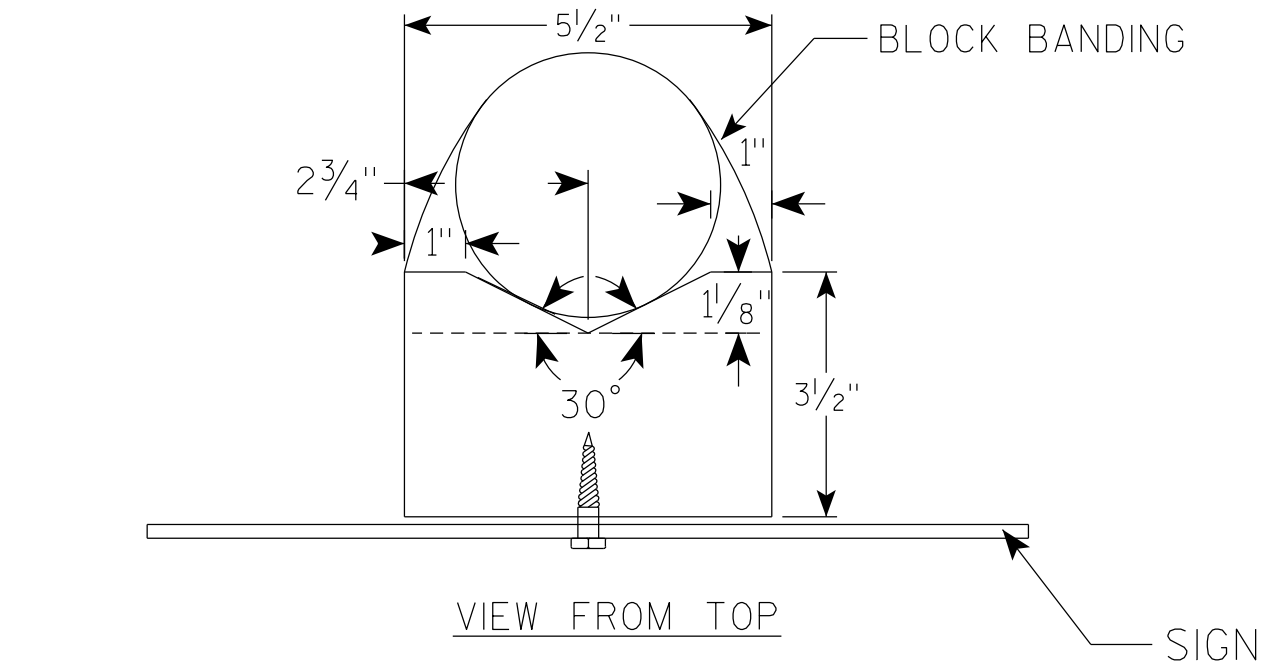
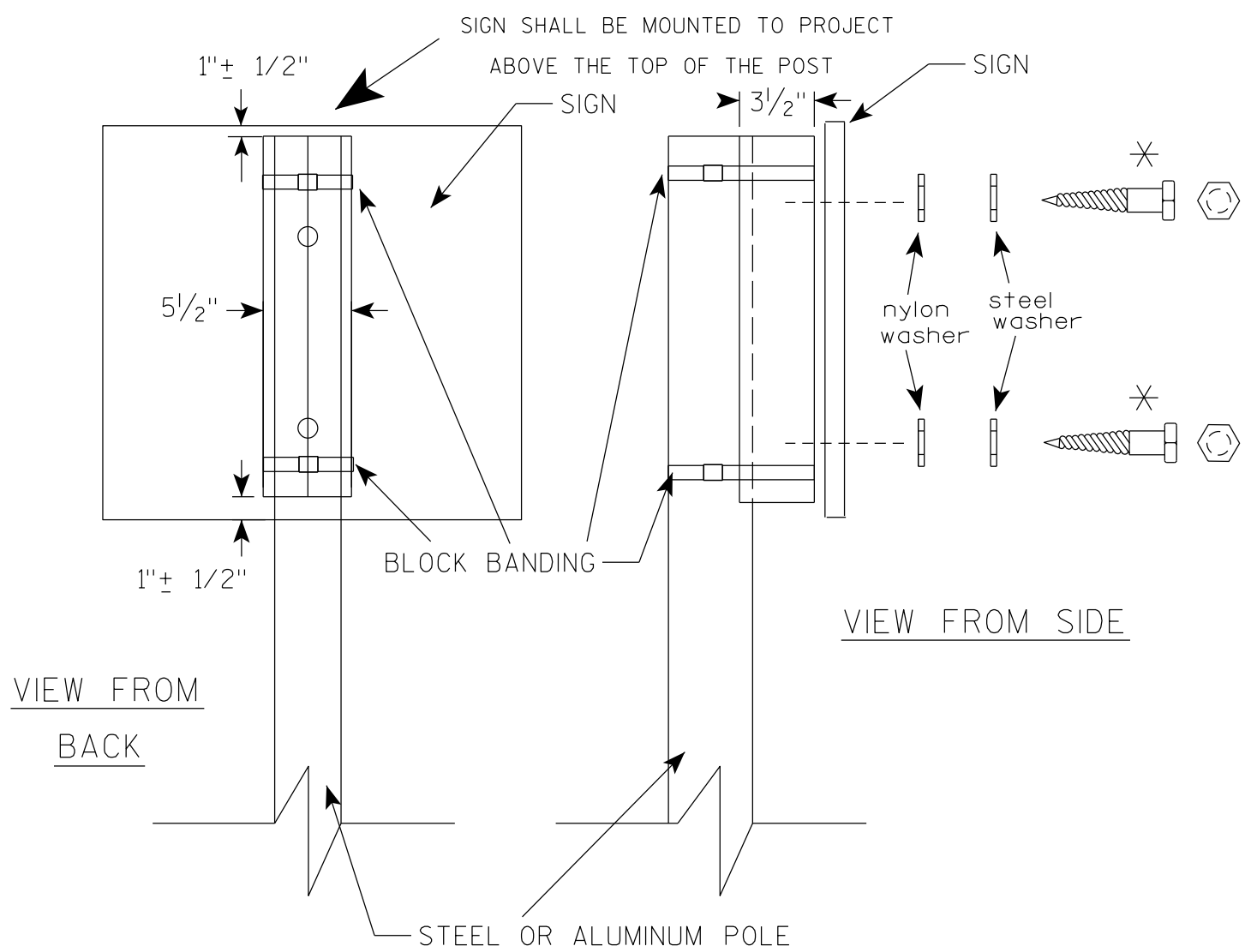
SEE DETAIL B

STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



GENERAL NOTES

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

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

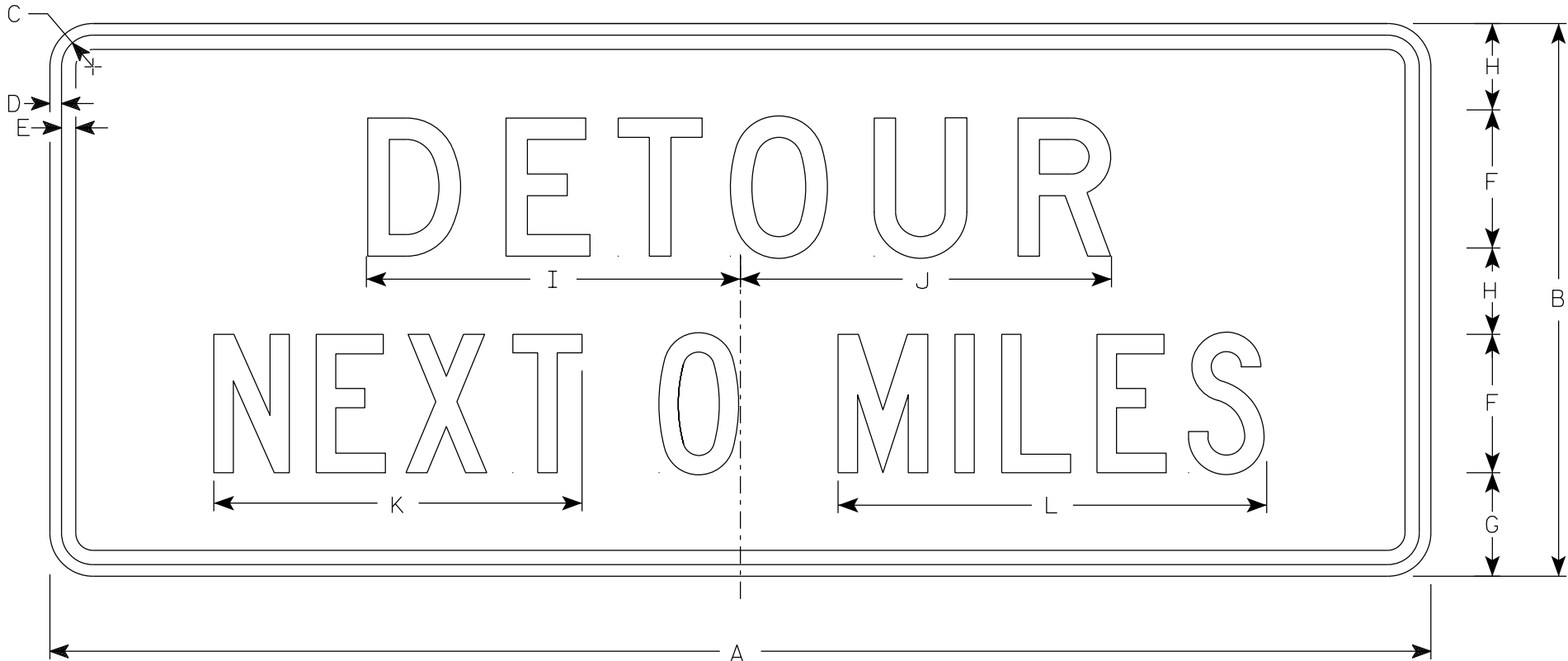
BLOCK BANDING DETAIL (V-BLOCK OPTION)	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 4/19/2022	PLATE NO. A5-10.3

7

7

NOTES

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



G20-51

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4	16 1⁄4	16 1⁄8	16	18 5⁄8															10.0
2M	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4	16 1⁄4	16 1⁄8	16	18 5⁄8															10.0
3	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4	16 1⁄4	16 1⁄8	16	18 5⁄8															10.0
4	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4	16 1⁄4	16 1⁄8	16	18 5⁄8															10.0
5	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4	16 1⁄4	16 1⁄8	16	18 5⁄8															10.0

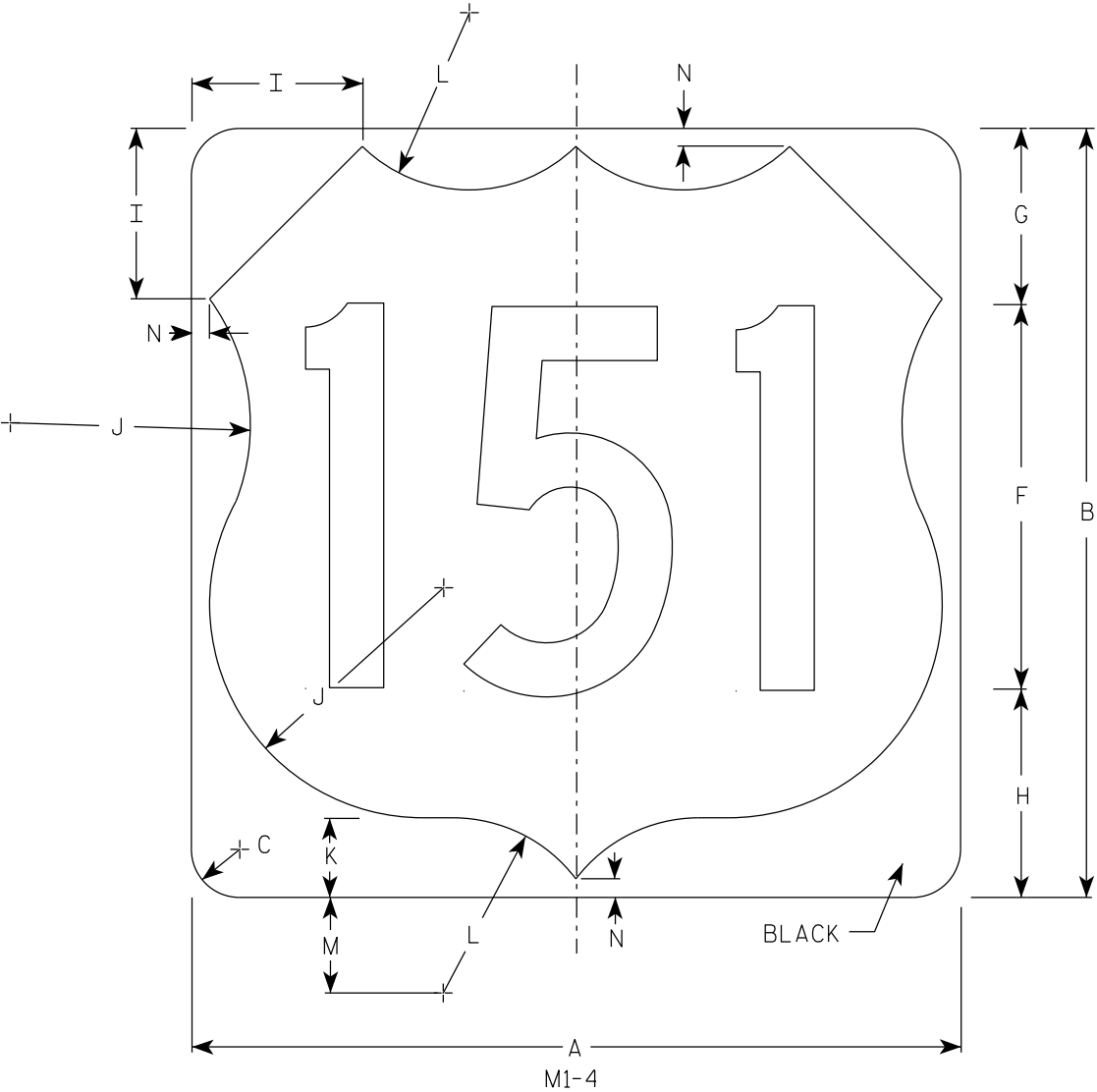
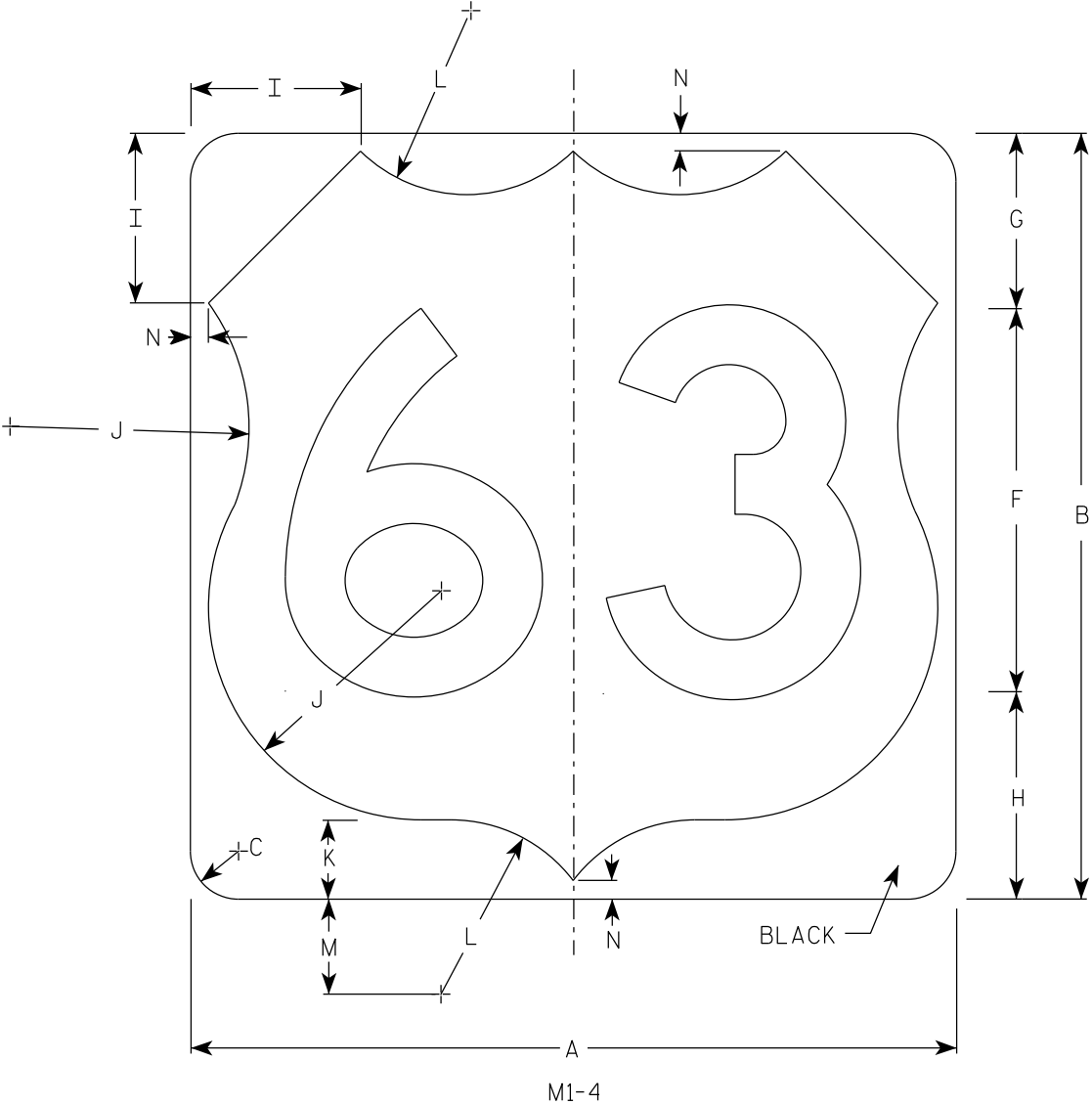
STANDARD SIGN
G20-51

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
State Traffic Engineer

DATE 1/26/2023 PLATE NO. G20-51.3

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - D except 3 number signs Series C

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

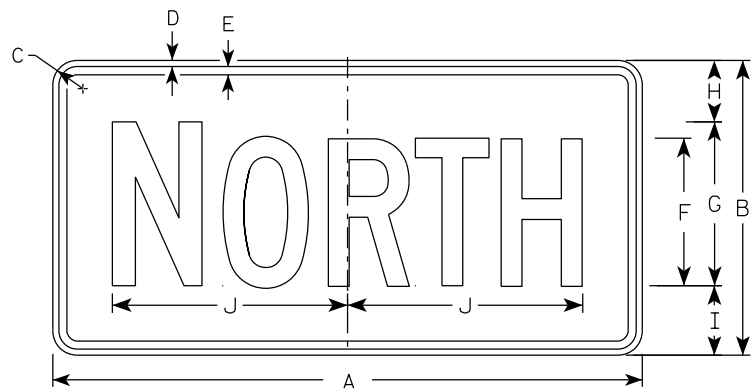
USH MARKER
M1-4 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

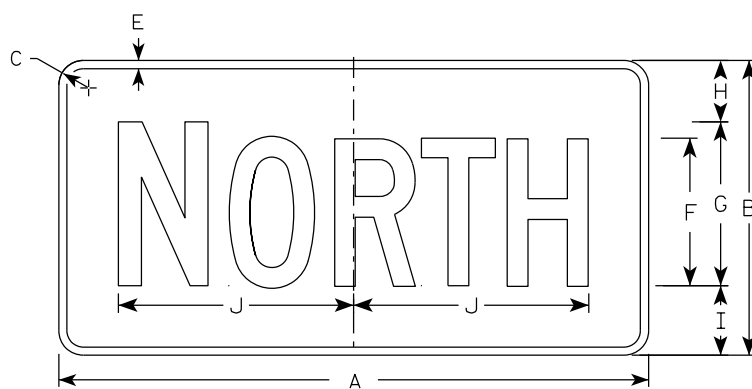
APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 12/20/22 PLATE NO. M1-4.11

7



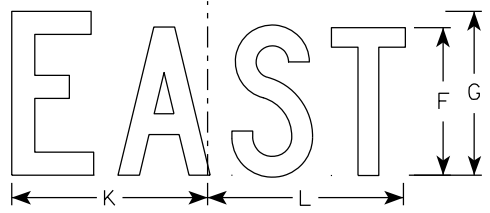
M3-1
MM3-1
MP3-1



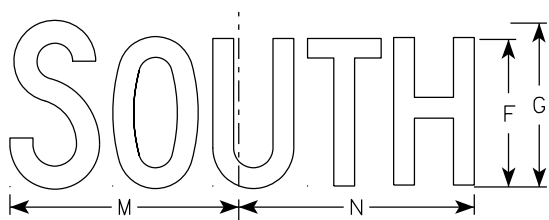
MB3-1
MK3-1
MN3-1



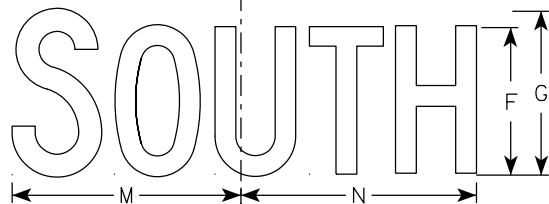
M3-2
MM3-2
MP3-2



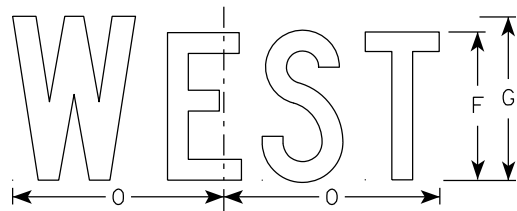
MB3-2
MK3-2
MN3-2



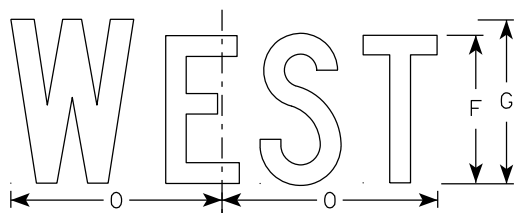
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

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

7

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

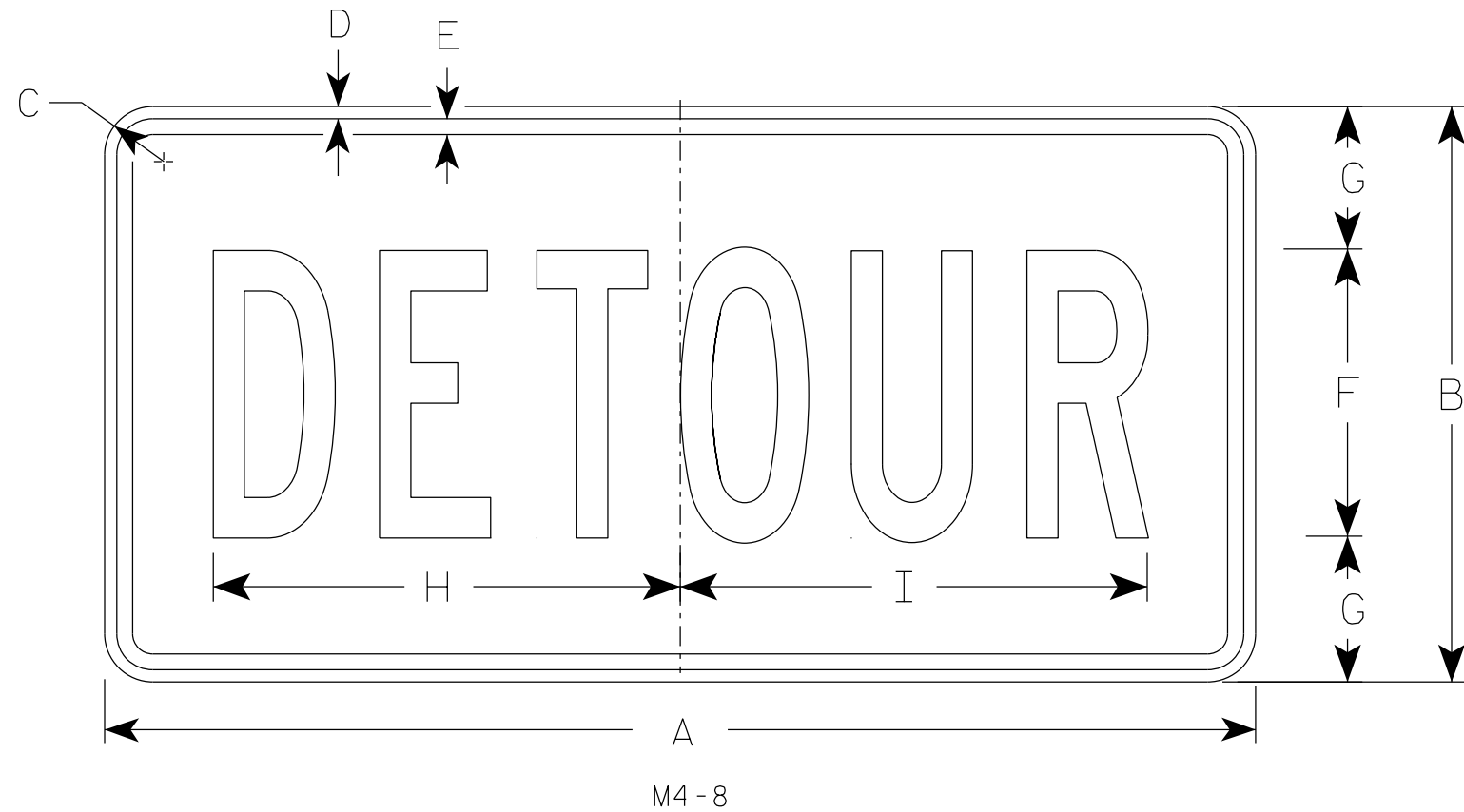
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 111	E
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7

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NOTES

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



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
2M	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5

STANDARD SIGN

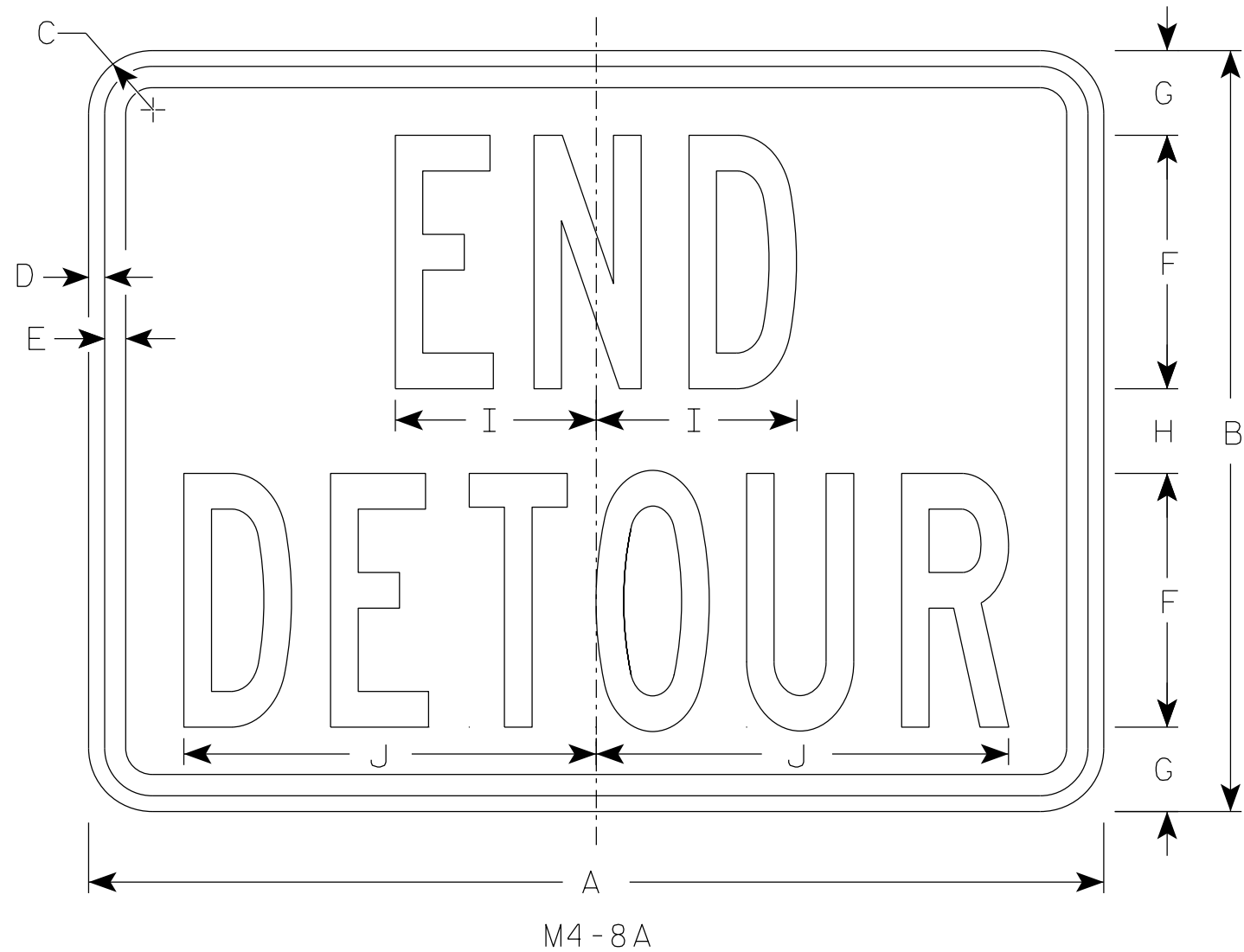
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8.4

7



NOTES

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

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SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
2M	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
5	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0

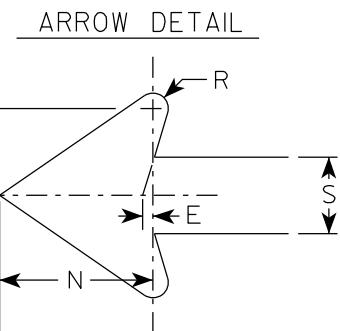
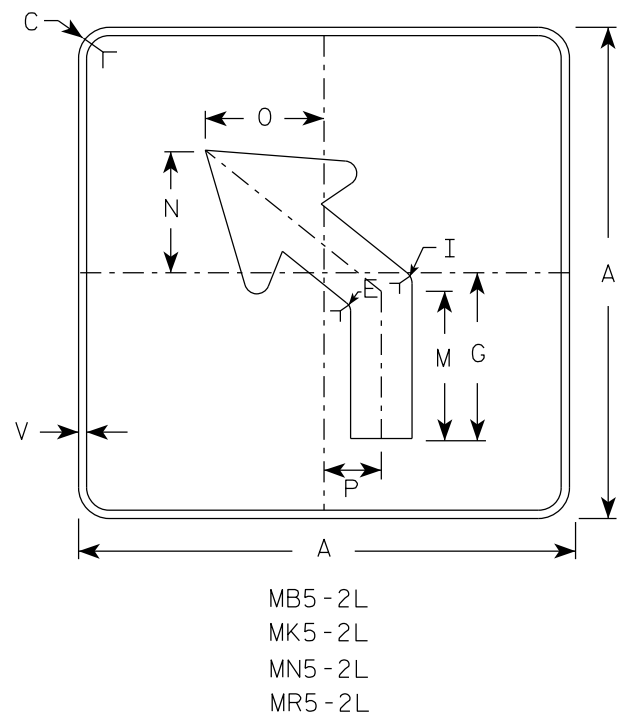
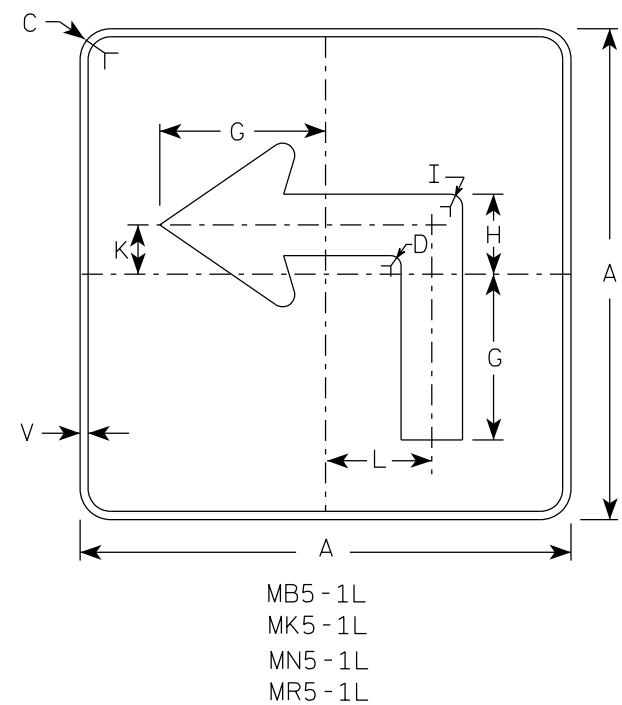
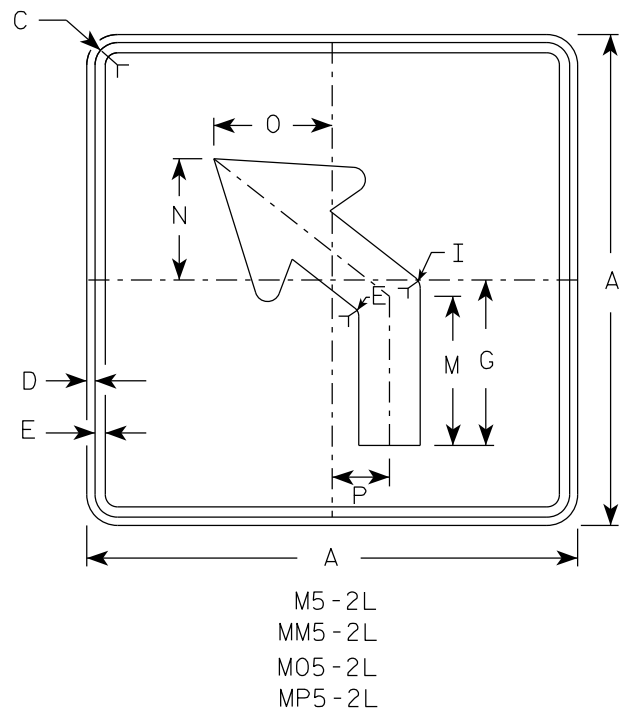
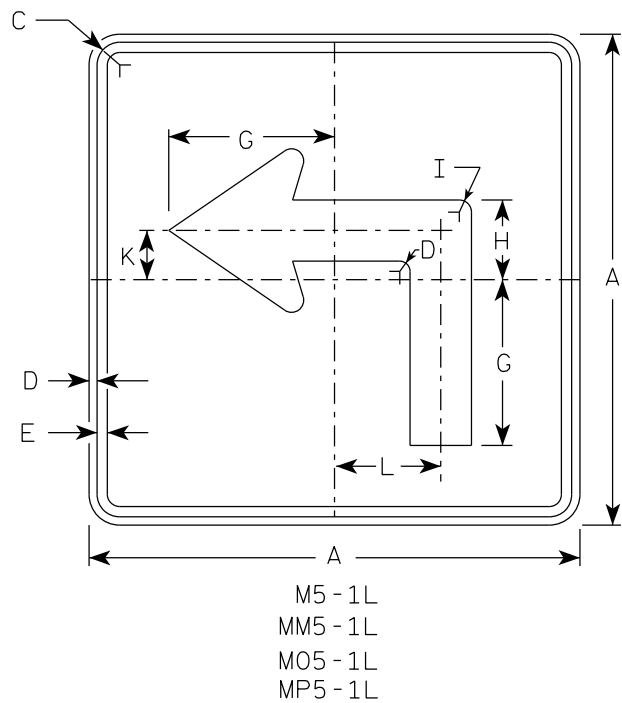
STANDARD SIGN

M4-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8A.4

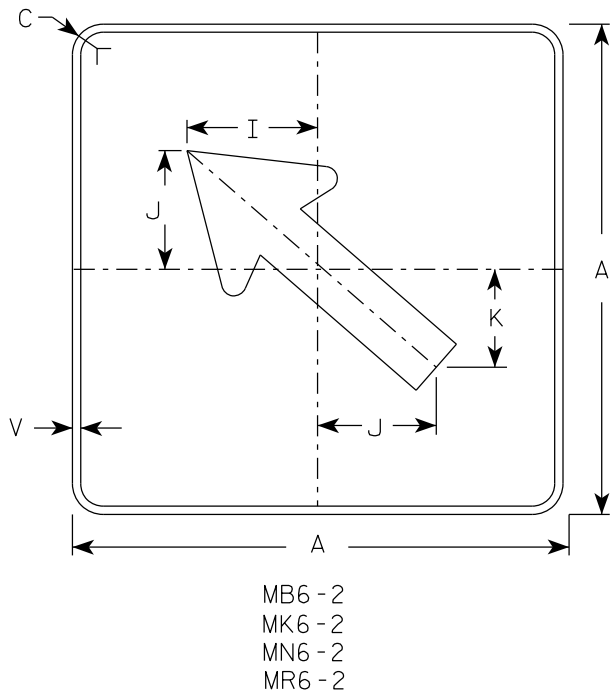
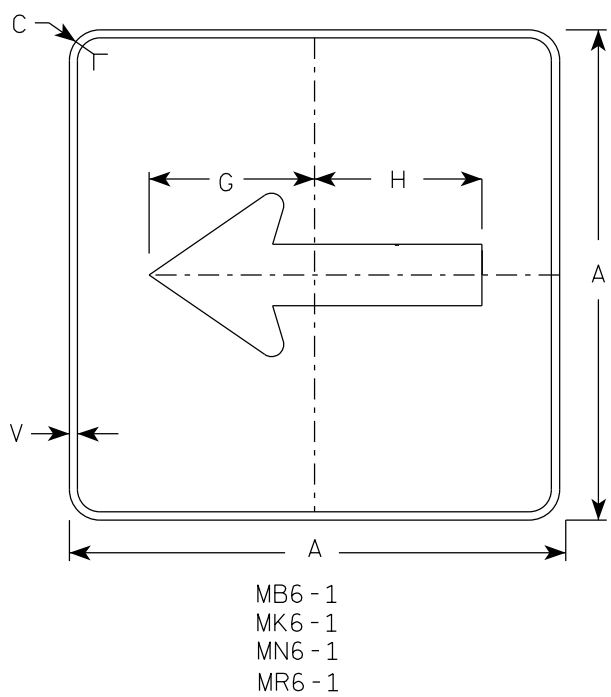
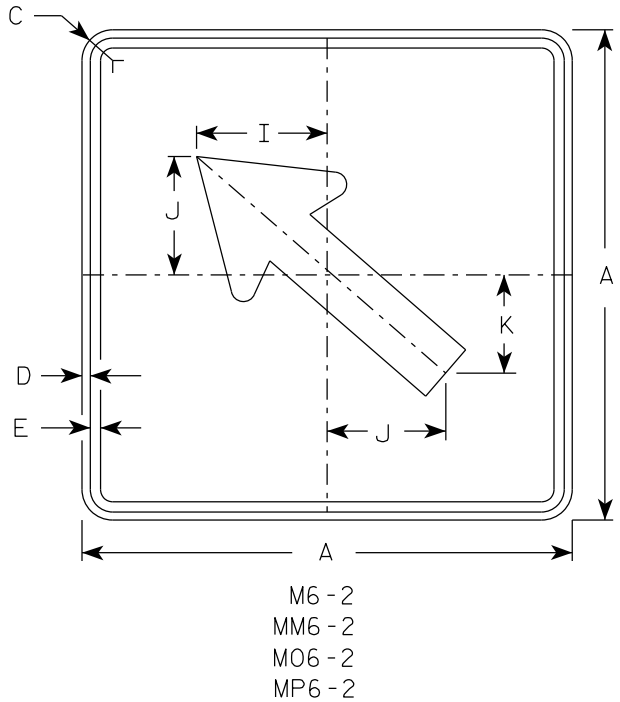
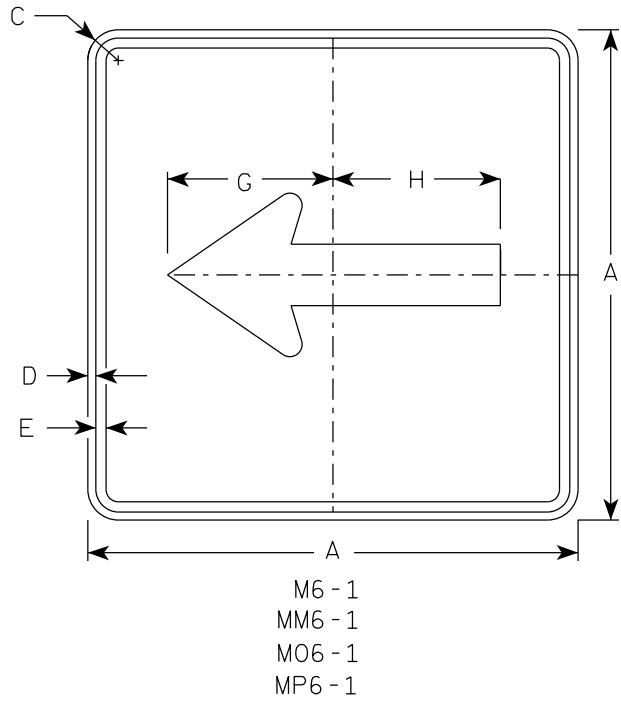


NOTES

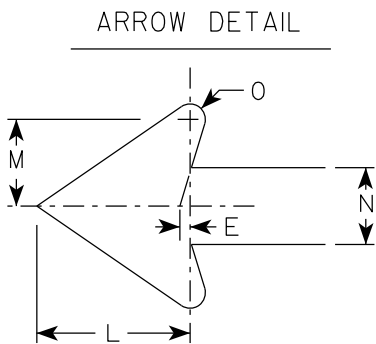
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | |
|-----------------|---|
| M5-1 and M5-2 | Background - White |
| | Message - Black |
| MB5-1 and MB5-2 | Background - Blue |
| | Message - White |
| MK5-1 and MK5-2 | Background - Green |
| | Message - White |
| MM5-1 and MM5-2 | Background - White |
| | Message - Green |
| MN5-1 and MN5-2 | Background - Brown |
| | Message - White |
| M05-1 and M05-2 | Background - Orange - Type F Reflective |
| | Message - Black |
| MP5-1 and MP5-2 | Background - White |
| | Message - Blue |
| MR5-1 and MR5-2 | Background - Brown |
| | Message - Yellow |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
4	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
5	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 114	E
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- NOTES**
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	
1																												
2S	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2						3.06
2M	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2						3.06
3	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2						6.25
4	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2						6.25
5	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2						6.25

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 115

E

STANDARD SIGN
M6-1 & M6-2
SERIES

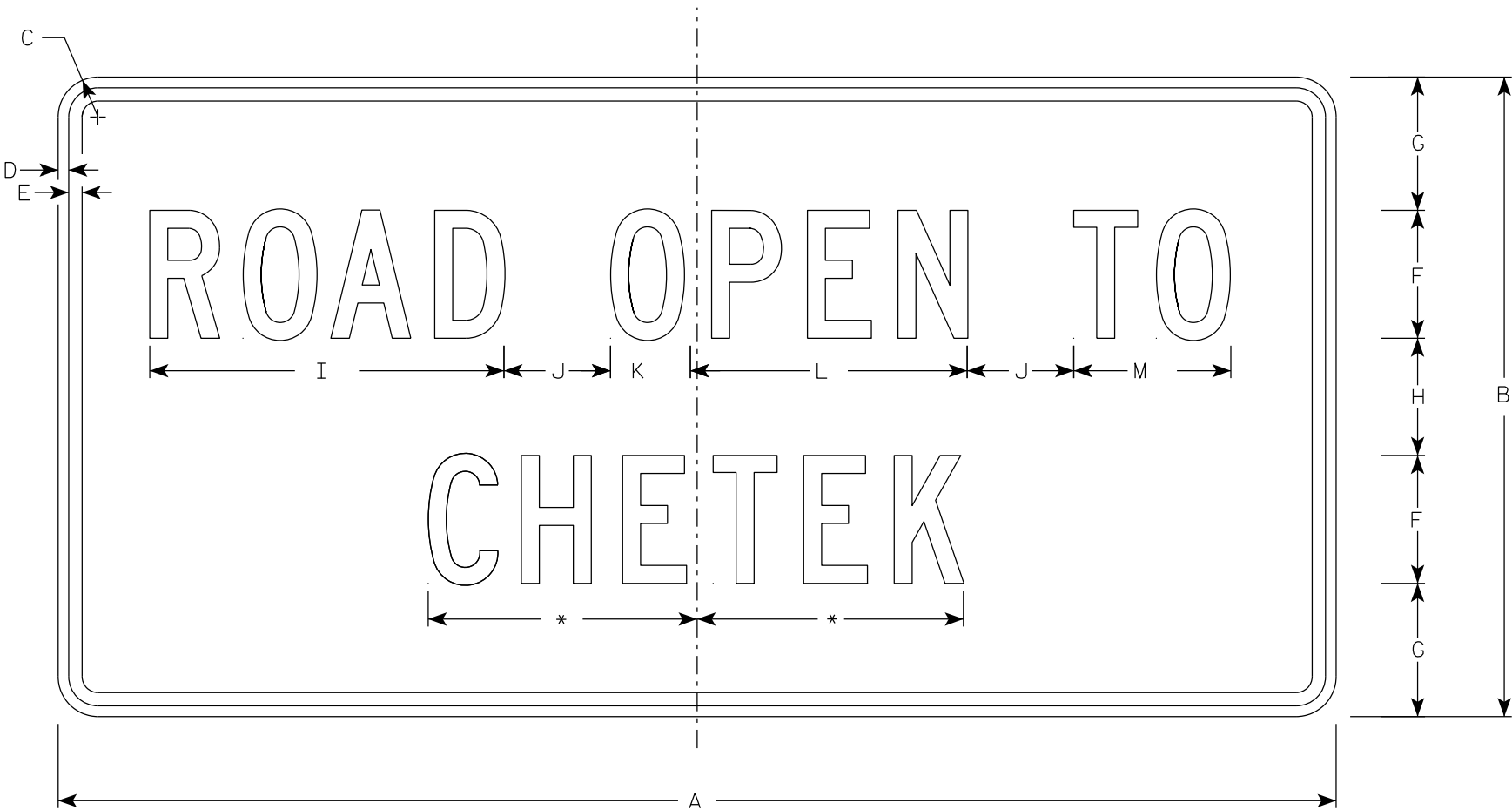
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/13/2023 PLATE NO. M6-1.16

7

7



R10-61

*See note 5

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	24	1 1/2	1/2	5/8	4	5 1/2	5	10 3/4	2	2 1/8	8 3/8	4 5/8														6.0
2S	60	30	1 7/8	1/2	5/8	6	6 1/4	5 1/2	16 5/8	5	3 3/4	13	7 3/8														12.5
2M	60	30	1 7/8	1/2	5/8	6	6 1/4	5 1/2	16 5/8	5	3 3/4	13	7 3/8														12.5
3																											
4																											
5																											

STANDARD SIGN

R10-61

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

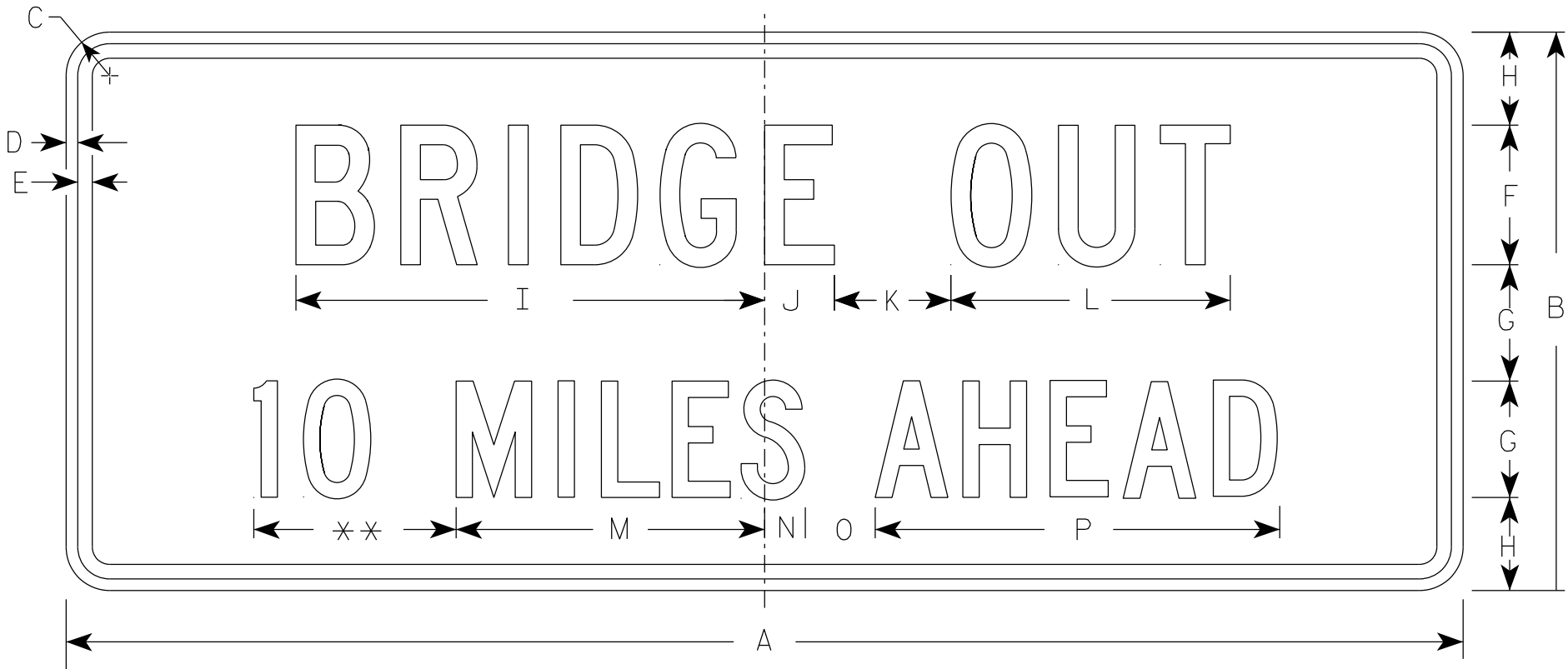
DATE 2/5/24 PLATE NO. R10-61.6

NOTES

1. Sign is Type II - Type H Reflective
2. Color:

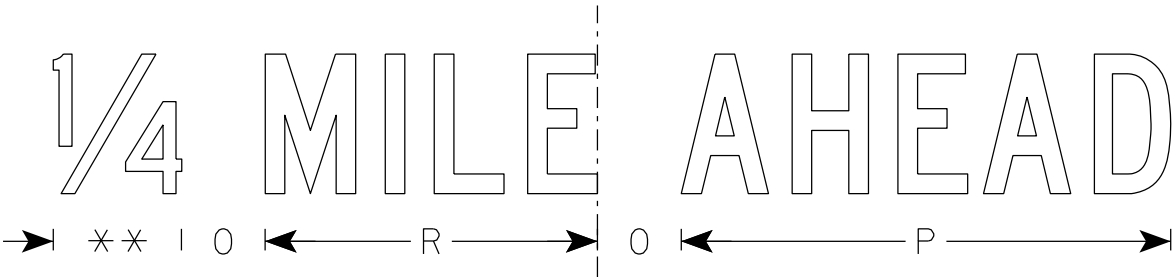
Background - White

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



R11-3C

** See Note 5



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	15	1 1/2	1/2	5/8	4	3	2 1/2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4		7 1/8									3.75
2S	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
2M	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
3																											
4																											
5																											

STANDARD SIGN
R11-3C

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

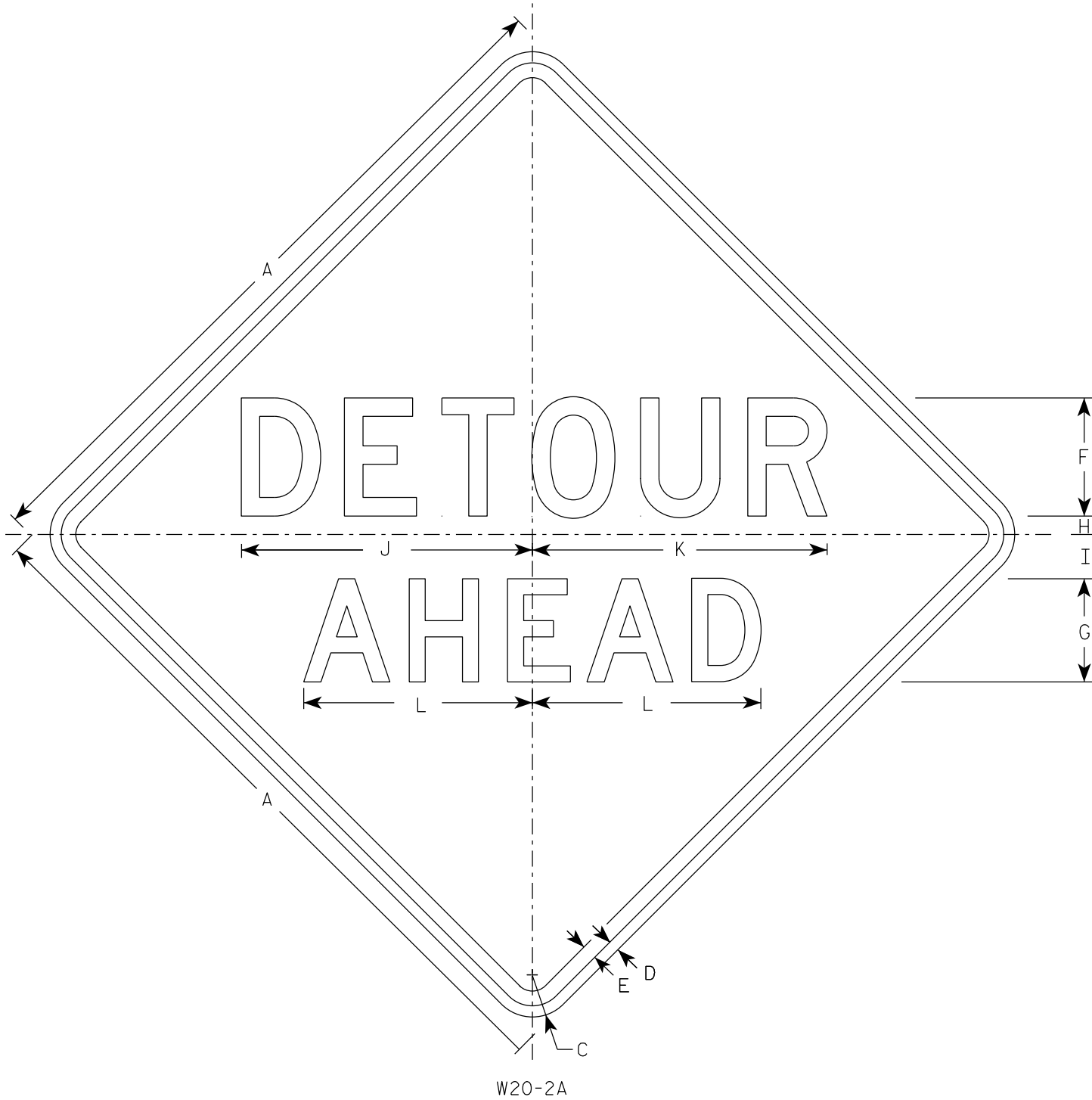
DATE 2/5/24 PLATE NO. R11-3C.4

PROJECT NO:

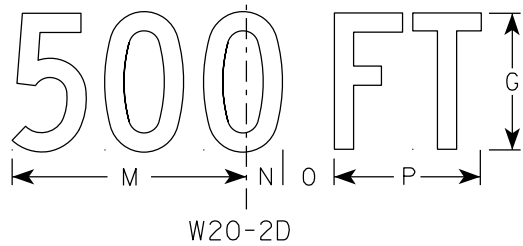
SHEET NO:

117

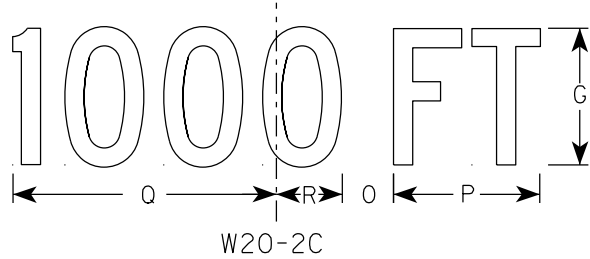
E



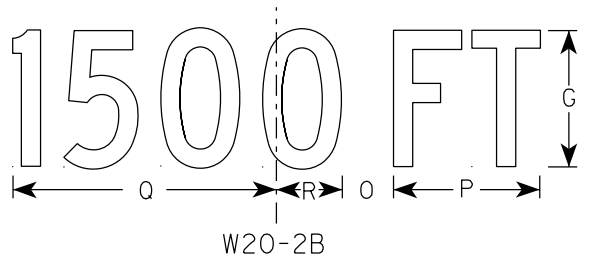
W20-2A



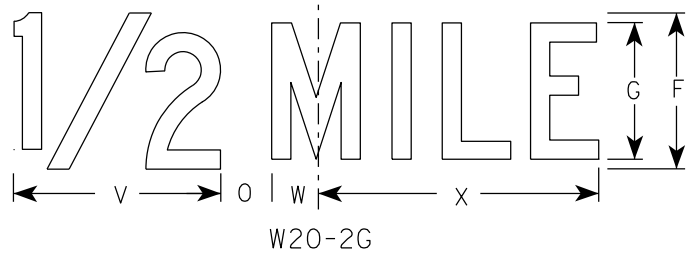
W20-2D



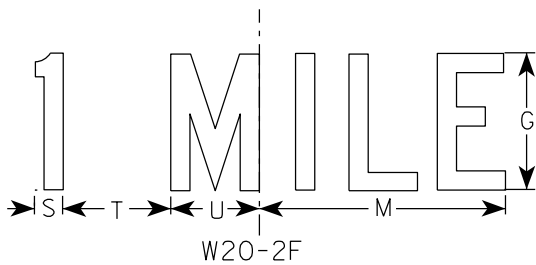
W20-2C



W20-2B



W20-2G



W20-2F

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

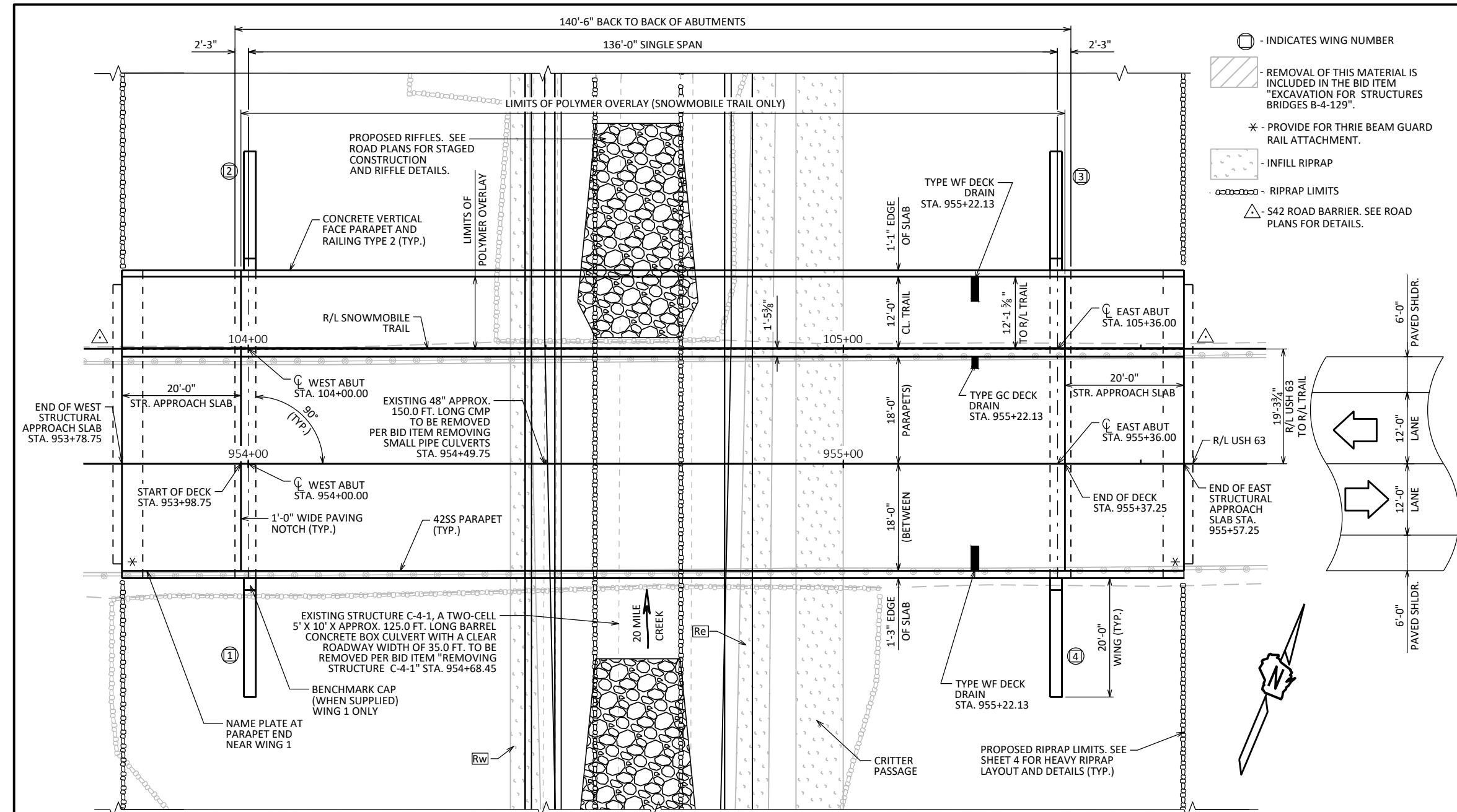
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN
W20-2A,B,C,D,F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-2.7



DESIGN DATA		STATE PROJECT NUMBER
LIVE LOAD:		1560-00-78
DESIGN LOADING:	HL-93	
INVENTORY RATING:	RF = 1.07	
OPERATING RATING:	RF = 1.98	
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 KIPS		
STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.		
MATERIAL PROPERTIES:		
CONCRETE MASONRY:		
SUPERSTRUCTURE & STRUCTURAL APPROACH SLAB	$f'_c = 4,000$ PSI	
ALL OTHER	$f'_c = 3,500$ PSI	
BAR STEEL REINFORCEMENT		
GRADE 60	$f_y = 60,000$ PSI	
STAINLESS, GRADE 60	$f_y = 60,000$ PSI	
72W" PRESTRESSED GIRDERS:		
CONCRETE MASONRY	$f'_c = 8,000$ PSI	
STRANDS: 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.		

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON STEEL HP 12-INCH X 53 LB PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 220 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

ESTIMATED 55' - 0" LONG WITH PILE POINTS AT WEST ABUTMENT BODY AND 55'-0" LONG WITH PILE POINTS AT WEST ABUTMENT WINGS.

ESTIMATED 55'-0" LONG WITH PILE POINTS AT EAST ABUTMENT BODY AND 55'-0" LONG WITH PILE POINTS AT EAST ABUTMENT WINGS.

****THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE PILE CAPACITY.**

HYDRAULIC DATA

100-YEAR FREQUENCY:

$Q_{100} = 1,800$ C.F.S.

$V_{100} = 5.68$ F.P.S.

$HW_{100} = EL. 956.50$

WATERWAY AREA = 2190 SQ. FT.

DRAINAGE AREA = 16.98 SQ. MI.

ROADWAY OVERTOPPING = N/A

SCOUR CRITICAL CODE = 8

2-YEAR FREQUENCY:

$Q_2 = 385$ C.F.S.

$V_2 = 4.30$ F.P.S.

$HW_2 = EL. 952.52$

TRAFFIC DATA

FEATURE ON:

A.A.D.T (2028) = 2,300

A.A.D.T (2048) = 2,600

R.D.S. = 55 MPH

WISCONSIN

NATHAN J KINDT

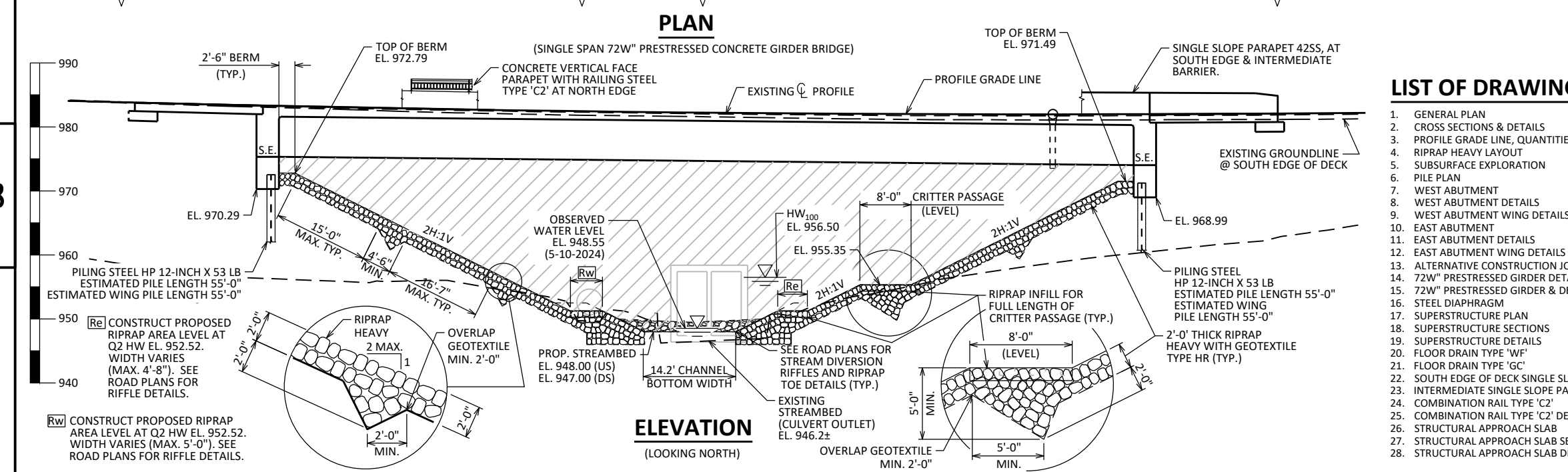
E-48663

SUAMICO WIS.

PROFESSIONAL ENGINEER

Nathan J. Kindt

5-7-2026



CONSULTANT DESIGN CONTACT:

NATHAN KINDT

(920) 392-5155

BRIDGE OFFICE CONTACT:

AARON BONK

(608) 261-0261

NO.	DATE	REVISION	BY



ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
2901 E ENTERPRISE AVE, APPLETON, WI 54913
(920) 545-2083 www.msa-ps.com
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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED



JLR

05/27/26

CHIEF STRUCTURES DESIGN ENGINEER

DATE

STRUCTURE

B-4-129

USH 63 OVER 20 MILE CREEK

COUNTY

BAYFIELD

TOWN/CITY/VILLAGE

GRAND VIEW

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATION

DESIGNED

DS

DESIGNED

CK'D

NJK

DRAWN

BY

EKK

PLANS

CK'D

NJK

GENERAL PLAN

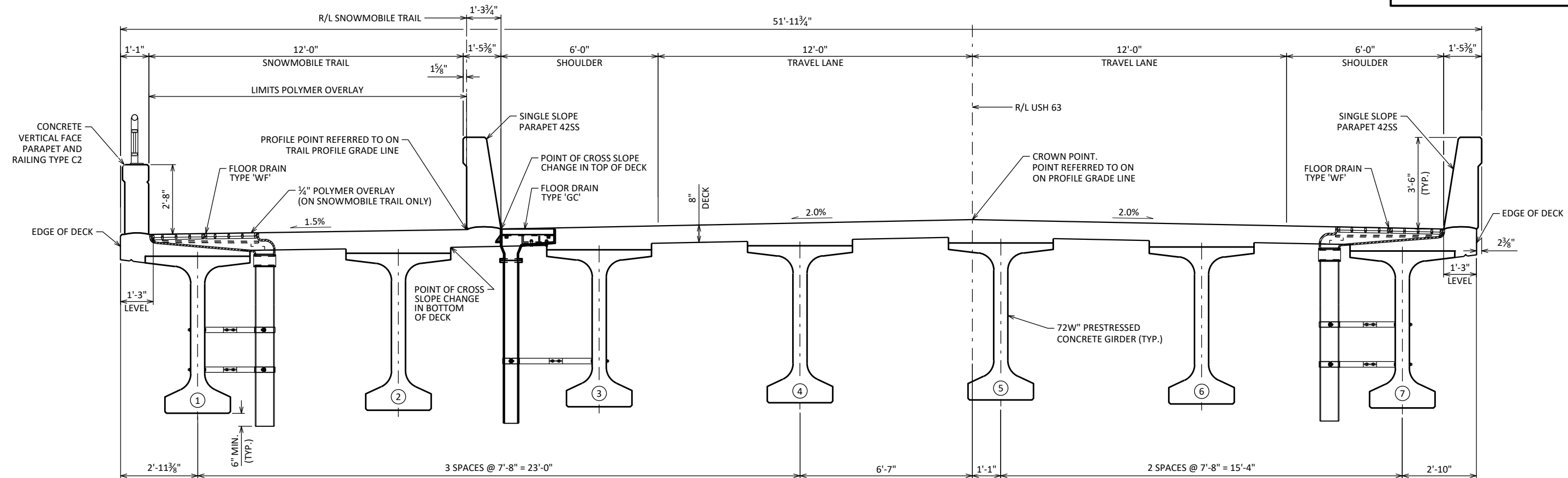
SHEET 1 OF 28

119

DETAILS

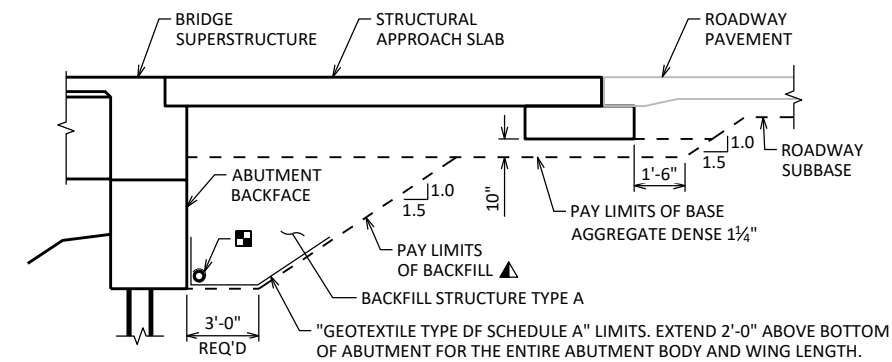
SECTIONS

DETAILS



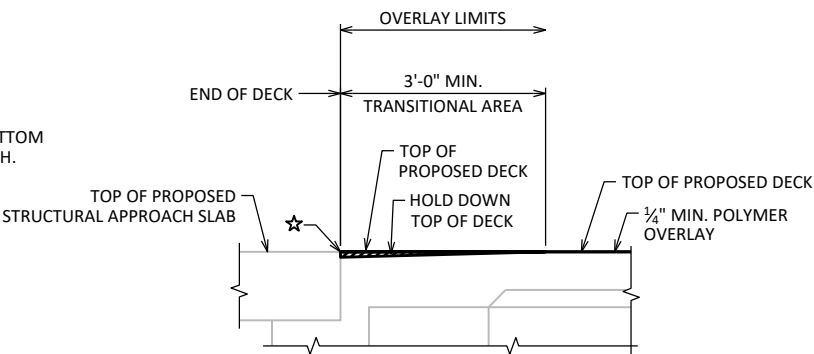
FINISHED CROSS SECTION THRU BRIDGE

(LOOKING EAST)



TYPICAL SECTION THRU ABUTMENT

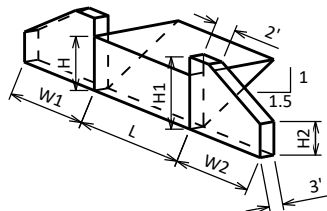
- ▲ BACKFILL PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.



**POLYMER OVERLAY TRANSITION AREA DETAILS
AT END OF DECK UNDER SNOWMOBILE TRAIL**

(NOT TO SCALE)

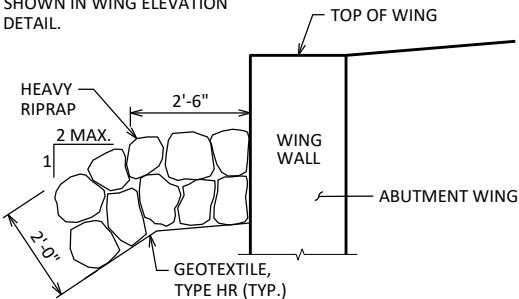
- ☆ HOLD TOP OF PROPOSED DECK DOWN 1/4" AT END OF TRANSITION AS SHOWN WHEN POURING DECK.



ABUTMENT BACKFILL DIAGRAM

- L = OUT TO OUT OF ABUTMENT BODY (FT)
- H = AVERAGE ABUTMENT FILL HEIGHT (FT)
- H1 = AVERAGE WING HEIGHT AT ABUTMENT BODY (FT)
- H2 = AVERAGE WING TIP HEIGHT (FT)
- W1 = WING 1 LENGTH (FT)
- W2 = WING 2 LENGTH (FT)
- EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
- $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H) + (3')(2')(H1) + (3')(0.5)(W1 - 2') + (W2 - 2'))(H1+H2)$
- $V_{CY} = V_{CF}(EF)/27$
- $V_{TON} = V_{CY}(2.0)$

NOTE: PLACE HEAVY RIPRAP AS SHOWN IN WING ELEVATION DETAIL.



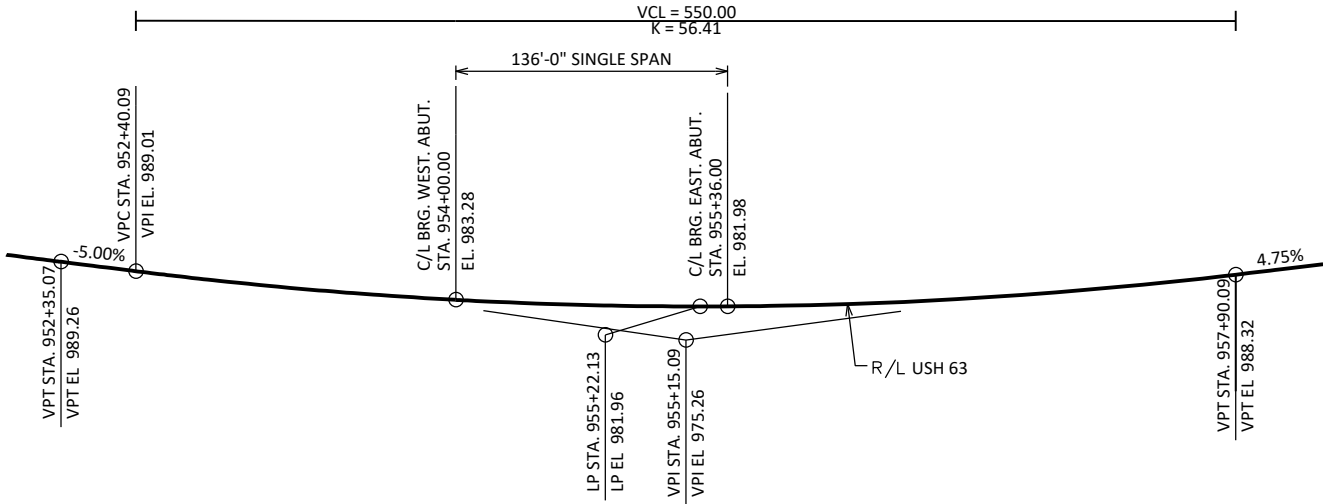
TYPICAL FILL SECTION AT WING

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		EKK	PLANS CK'D NJK
CROSS SECTION & DETAILS		SHEET 2 120	

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	W STRUCT. APP. SLAB	WEST ABUT.	EAST ABUT.	E STRUCT. APP. SLAB	SUPER	TOTAL
203.0100	REMOVING SMALL PIPE CULVERTS	EACH	---	---	---	---	---	1
203.0220	REMOVING STRUCTURE C-4-1	EACH	---	---	---	---	---	1
203.0220	REMOVING STRUCTURE 10 X 10 CONCRETE BOX CULVERT	EACH	---	---	---	---	---	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-4-126	EACH	---	---	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	---	430	430	---	---	860
305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	160	---	---	160	---	320
502.0100	CONCRETE MASONRY BRIDGES	CY	72.3	62.7	62.7	72.3	380.7	651
502.3200	PROTECTIVE SURFACE TREATMENT	SY	109	---	---	109	581	799
502.3210	PIGMENTED SURFACE SEALER	SY	37	---	---	37	247	321
503.0172	PRESTRESSED GIRDER TYPE I 72W-INCH	LF	---	---	---	---	959	959
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	---	4,400	4,400	---	---	8,800
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	10,250	2,820	2,820	10,250	61,220	87,360
505.0800.S	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES	LB	---	---	---	---	1,800	1,800
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	---	---	---	---	14	14
506.4000	STEEL DIAPHRAGMS B-4-129	EACH	---	---	---	---	12	12
509.5100.S	POLYMER OVERLAY	SY	---	---	---	---	187	187
513.7011	RAILING STEEL TYPE C2	LF	19	---	---	19	139	177
514.0445	FLOOR DRAINS TYPE GC	EACH	---	---	---	---	1	1
514.0450	FLOOR DRAINS TYPE WF	EACH	---	---	---	---	2	2
514.2608	DOWNSPOUT 8-INCH	LF	---	---	---	---	15	15
514.2625	DOWNSPOUT 6-INCH	LF	---	---	---	---	7	7
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	---	20	20	---	---	40
550.0500	PILE POINTS	EACH	---	14	14	---	---	28
550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	---	770	770	---	---	1,540
606.0300	RIPRAP HEAVY	CY	---	1,270	1,510	---	---	2,780
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	---	112	112	---	---	224
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	---	---	---	---	2	2
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	---	88	88	---	---	176
645.0120	GEOTEXTILE TYPE HR	SY	---	1,900	2,100	---	---	4,000
SPV.0195	INFILL RIPRAP B-4-129	TON	---	46	140	---	---	186
	NON-BID ITEMS							
	PREFORMED FILLER	SIZE						1/2", 3/4", 1-1/2"
	POLYETHYLENE SHEETS							

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
		DRAWN BY	PLANS CK'D
		EKK	NJK
PROFILE GRADE LINE, QUANTITIES, & NOTES		SHEET 3 121	



PROFILE GRADE LINE - R/L USH 63

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS NOTED OTHERWISE.

A SINGLE CELL 10' X 10' X 68' FT. LONG CONCRETE BOX CULVERT IS LOCATED UNDER THE EXISTING SNOWMOBILE TRAIL DOWNSTREAM OF C-4-1. THE EXISTING CONCRETE BOX CULVERT HAS AN APPROXIMATE OVERBURDEN DEPTH OF 8.0 FT. SEE SHEET 4 FOR LOCATION OF THE STRUCTURE. THE STRUCTURE IS TO BE REMOVED PER BID ITEM "REMOVING STRUCTURE 10 X 10 CONCRETE BOX CULVERT".

THE SLOPE IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE LIMITS SHOWN ON SHEET 1 , RIPRAP HEAVY LAYOUT SHEET, AND IN THE ABUTMENT DETAILS.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-4-129" SHALL BE THE EXISTING GROUNDLINE.

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

THE QUANTITY FOR BACKFILL STRUCTURES IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO "EXCAVATION FOR STRUCTURES BRIDGES B-4-129".

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRE ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP OF DECK BETWEEN THE TRAFFIC BARRIERS, THE ENTIRE TOP OF APPROACH SLAB SURFACES, AND TO THE VERTICAL AND HORIZONTAL SURFACES OF PAVING NOTCH AT ABUTMENT DIAPHRAGMS.

PIGMENTED SURFACE SEALER SHALL BE APPLIED TO THE INSIDE FACES, TOP FACES, AND THE VERTICAL ENDS OF THE OUTSIDE PARAPETS AND TO ALL FACES OF THE INTERMEDIATE PARAPET.

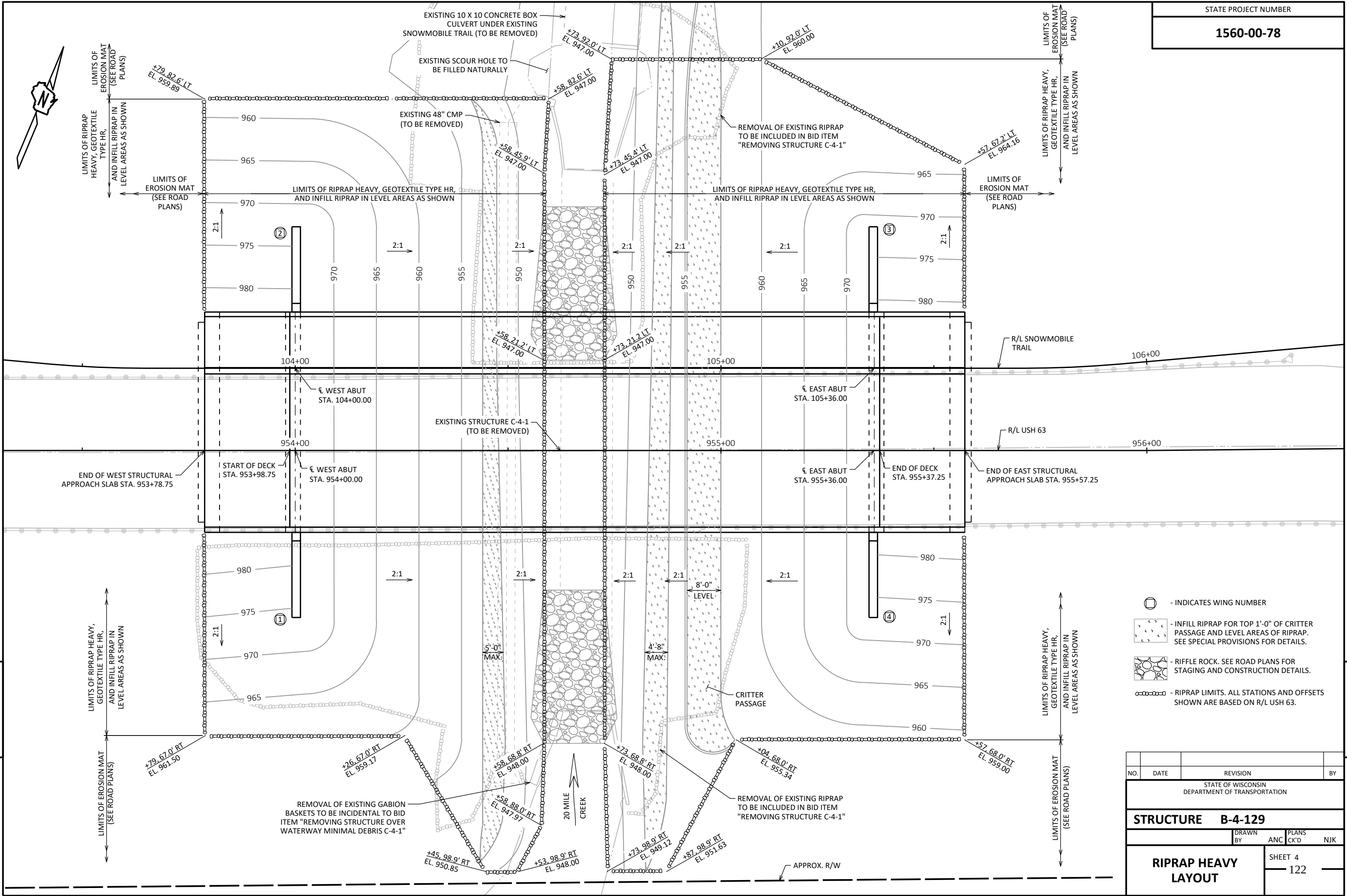
ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO USGS NAVD 88 (2012 ADJUSTED). BENCHMARK REFERENCES AT THE PROJECT SITE WERE SET BY THE CONSULTANT USING GPS TECHNOLOGY. SEE ROAD PLANS FOR DETAILS.

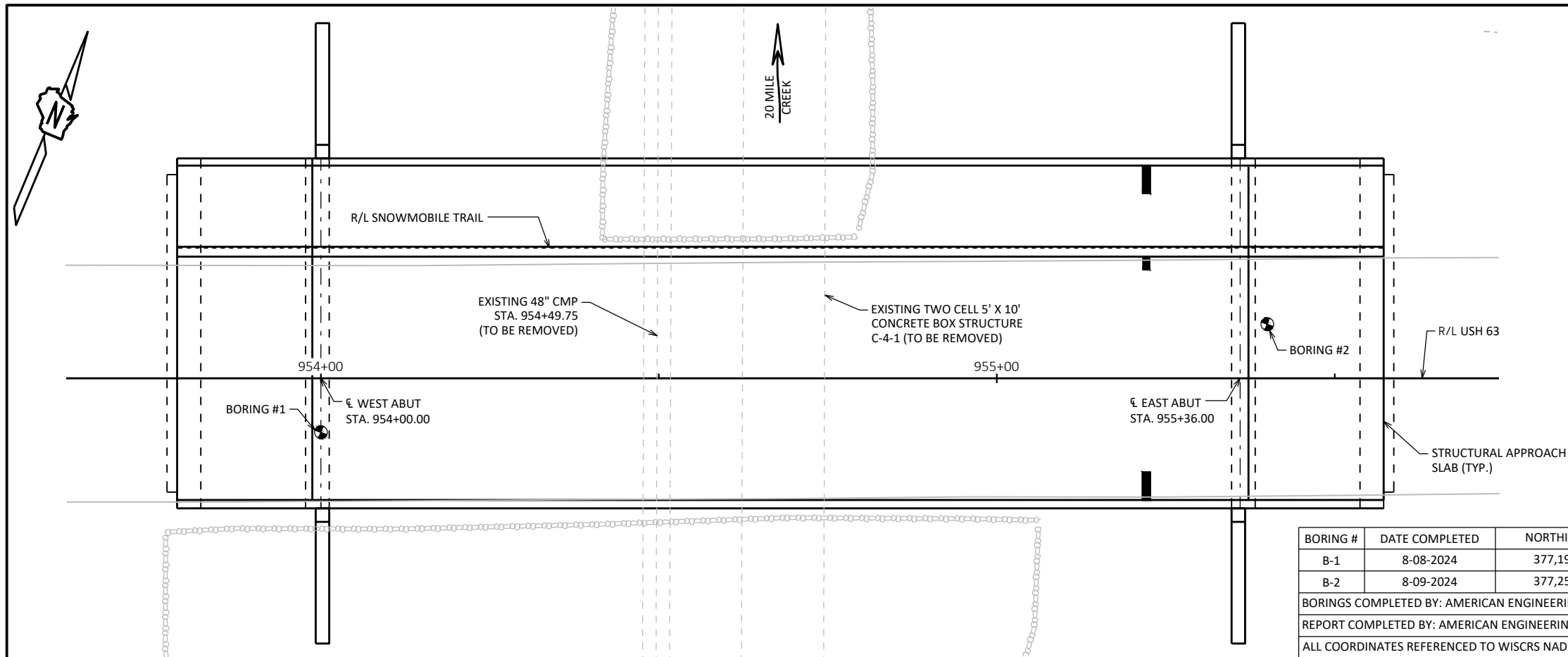
THE MINIMUM CONCRETE HAUNCH AT THE EDGE OF THE NEW GIRDER FLANGES SHALL BE 1¼" AND THE HAUNCH QUANTITY IS BASED ON THE AVERAGE HAUNCH DEPTH SHOWN ON SHEETS SHEETS 14 & 15.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE 72W" PRESTRESSED GIRDER DETAILS SHEET. GIRDER HAUNCHES ARE EXPECTED TO BE GREATER THAN 8" IN SOME AREAS, TRADITIONAL DECK FORMING SYSTEMS MAY NOT BE SUITABLE.

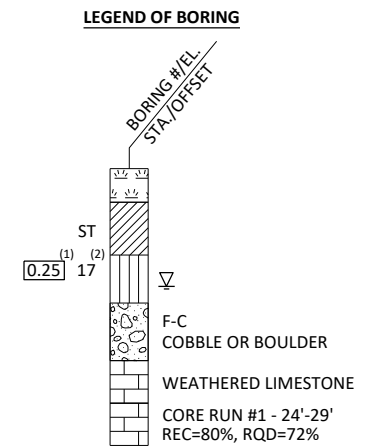
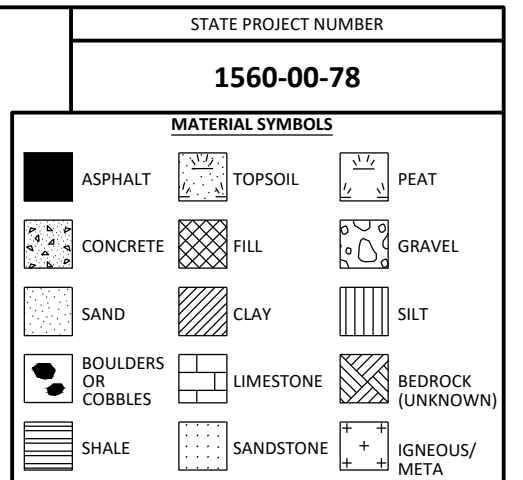
SHOT BLASTING, DECK SURFACE PREPARATIONS, AND TRANSITIONAL AREAS ARE INCLUDED IN THE BID ITEM "POLYMER OVERLAY".

SEE ROAD PLANS FOR TEMPORARY WATER DIVERSION DETAILS REQUIRED TO REMOVE EXISTING BOX CULVERT C-4-1 AND EXISTING 10' X 10' CONCRETE BOX CULVERT UNDER EXISTING SNOWMOBILE TRAIL, TO INSTALL RIPRAP, AND IN-STREAM RIFFLES.





BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-1	8-08-2024	377,191.52	765,513.63
B-2	8-09-2024	377,255.13	765,639.37
BORINGS COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.			
REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.			
ALL COORDINATES REFERENCED TO WISCRS NAD 83(2011) BAYFIELD COUNTY			



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

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

GROUND WATER ELEVATION

▽ AT TIME OF DRILLING

▼ END OF DRILLING

AFTER DRILLING

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

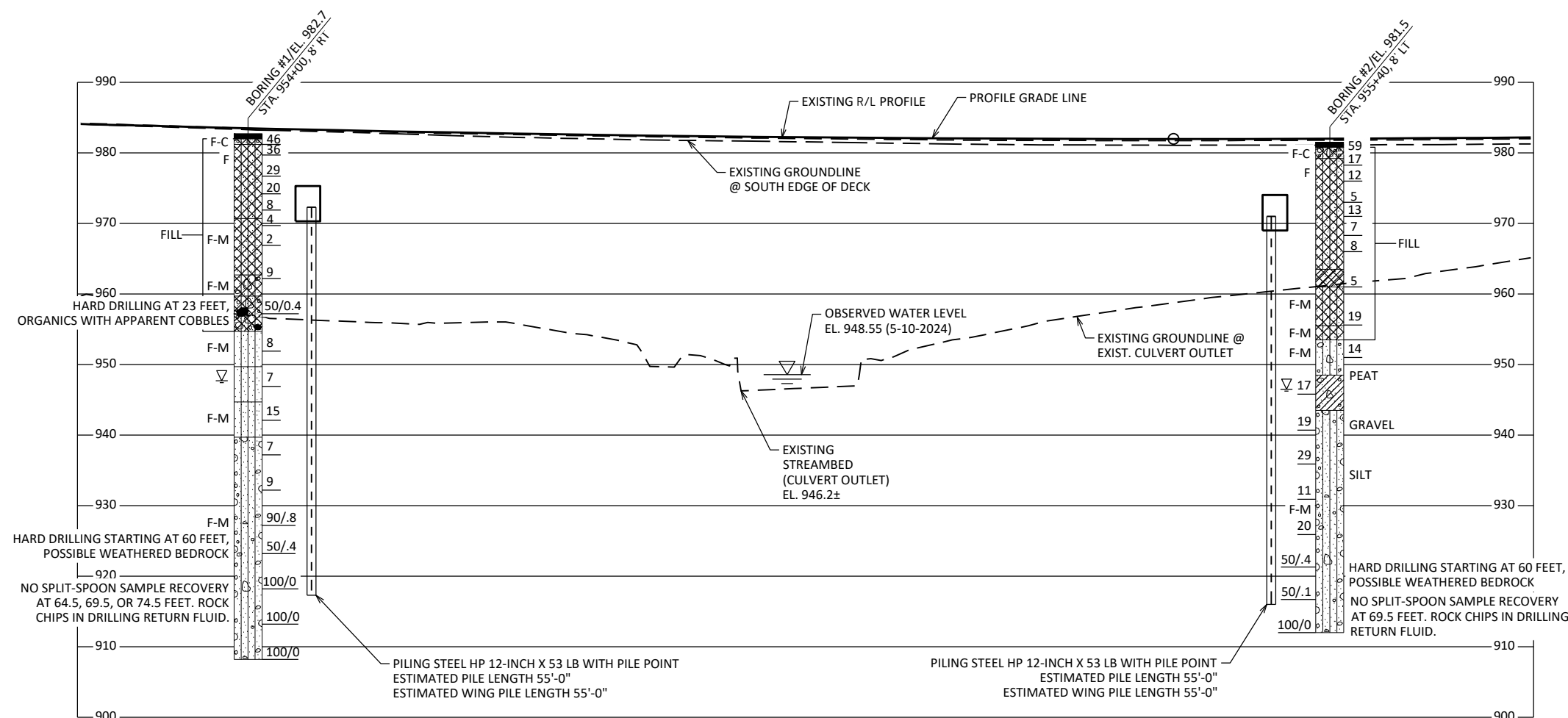
NO.	DATE	REVISION	BY

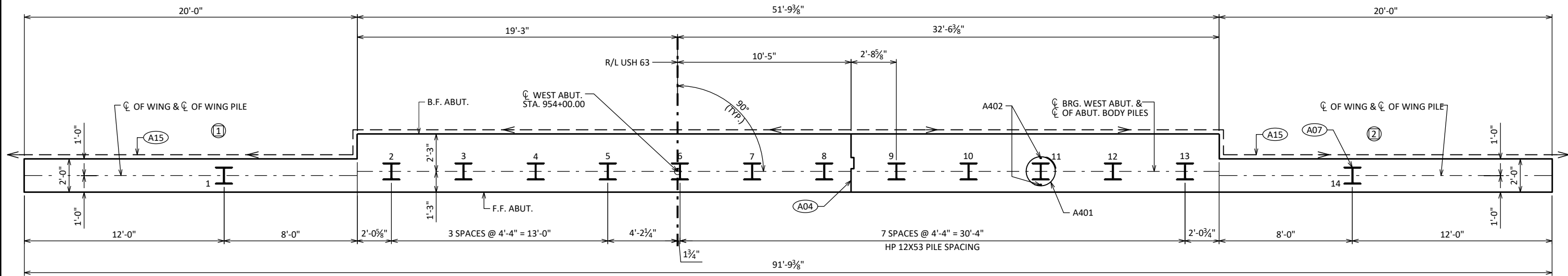
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-4-129

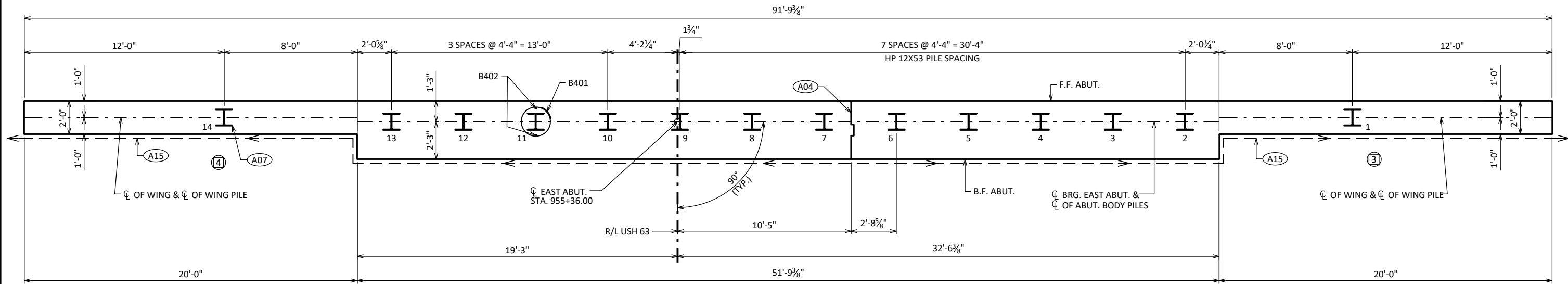
SUBSURFACE EXPLORATION

SHEET 5
123

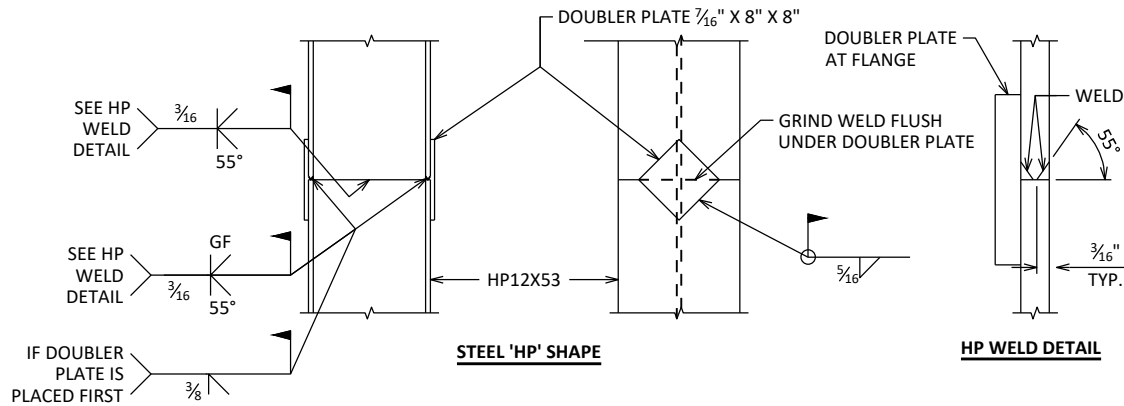




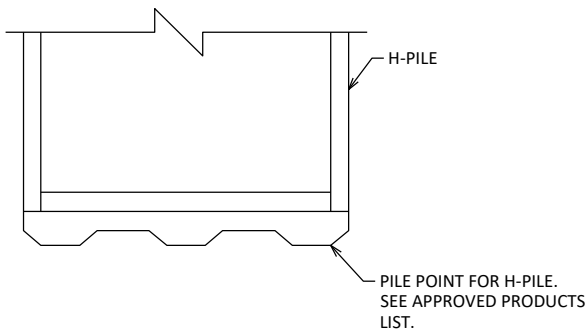
WEST ABUTMENT PILE PLAN



EAST ABUTMENT PILE PLAN



'HP' PILE DETAILS

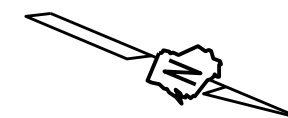


PILE POINT FOR H-PILING

PILE POINT SHALL BE INSTALLED ACCORDING TO THE PILE POINT MANUFACTURE'S INSTRUCTIONS

SEE SHEET 7 LEGEND FOR DESCRIPTION OF
A04 A07 A15
F.F. B.F. CL.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D NJK
PILE PLAN		SHEET 6 124	



5/1/2026 2:06 PM

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A401		12	28'-0"	X		ABUT. BODY PILES - 1 PER PILE 5 SPIRAL WRAPS
A402		24	2'-3"			ABUT. BODY PILES - 2 PER PILE - VERT.
A603		22	27'-3"			ABUT. BODY - F.F. & B.F., TOP & BOTTOM - HORIZ.
A504		88	15'-8"	X		ABUT. BODY - STIRRUPS - VERT.
A905		16	20'-0"			ABUT. BODY - B.F. @ WINGS - HORIZ.
A606		8	17'-4"			ABUT. BODY - B.F. - CENTER - HORIZ.
A607		8	4'-0"	X		ABUT. BODY - ENDS - HORIZ.
A408		4	4'-7"			ABUT. BODY - ENDS - VERT.
A509		24	6'-11"	X		ABUT. TOP - TIES - BEAM SEATS 4, 5, 6 & POCKETS - VERT.
A410		5	22'-6"			ABUT. TOP - UNDER BEAM SEATS 4, 5 & 6 - HORIZ.
A411		6	3'-2"			ABUT. TOP - F.F. - BEAM SEATS 4, 5 & 6 - HORIZ.
A412		6	23'-3"			ABUT. TOP - B.F. SEMI-EXP. POCKET BACKWALL - HORIZ.
A413		24	5'-9"	X		ABUT. TOP - TIES - B.F. SEMI-EXP. POCKET BACKWALL - VERT.
A914	X	20	24'-5"			WINGS 1 & 2 - BASE - B.F. & TOP - HORIZ.
A515	X	10	21'-7"			WINGS 1 & 2 - BASE - F.F. - HORIZ.
A416	X	36	11'-4"	X	S	WING 1 - STIRRUPS - VERT.
A417	X	6	15'-0"	X		WING 1 - STIRRUPS - VERT.
A418	X	28	11'-9"		S	WINGS 1 & 2 - TOP - F.F. & B.F. - HORIZ.
A419	X	4	20'-11"	X		WINGS 1 & 2 - TOP - F.F. & B.F. - TOP - HORIZ.
A420	X	36	11'-2"	X	S	WING 2 - STIRRUPS - VERT.
A421	X	6	14'-10"	X		WING 2 - STIRRUPS - VERT.

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

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.	LENGTH
A416	2 SERIES OF 18	7'-11" TO 14'-8"
A418	4 SERIES OF 7	4'-3" TO 19'-3"
A420	2 SERIES OF 18	7'-9" TO 14'-6"

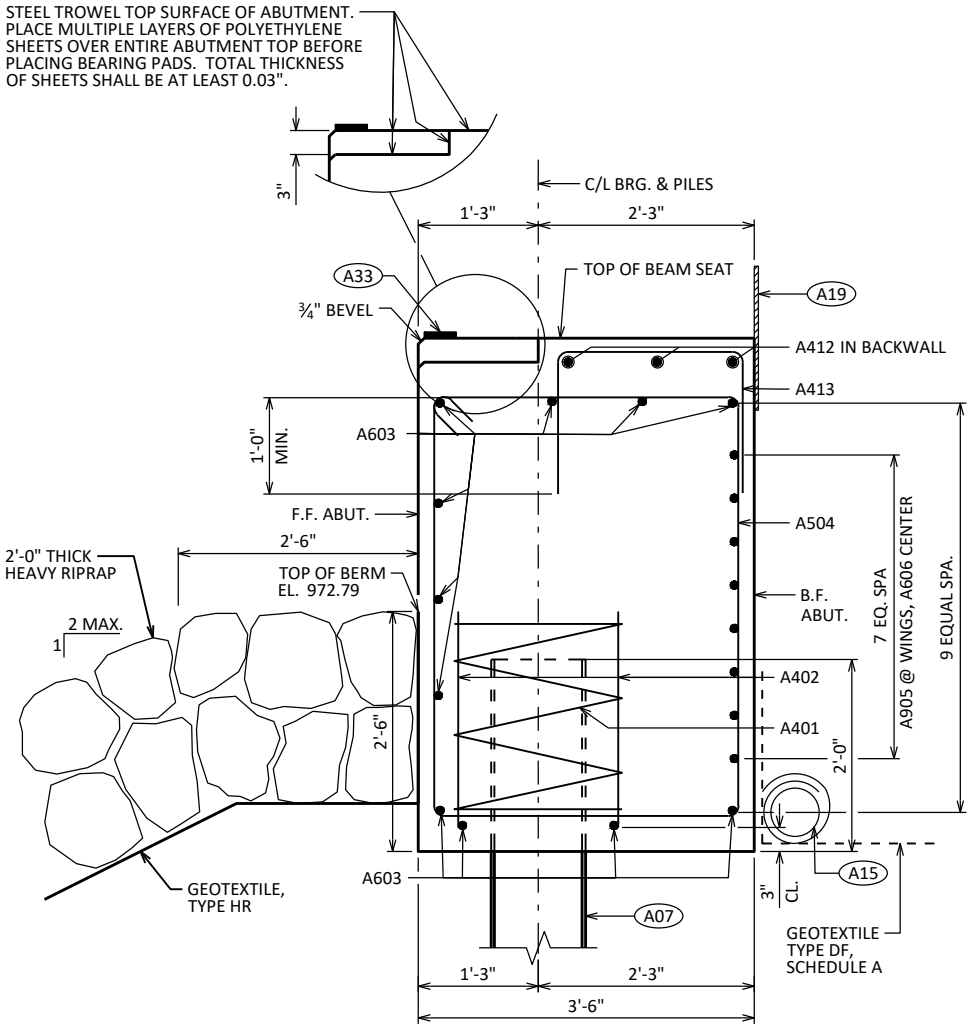
SEE SHEET 7 LEGEND FOR DESCRIPTION OF

A04 A07 A15
A17 A18 A19 A33

F.F. B.F. CL. S.E.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D NJK
WEST ABUTMENT DETAILS		SHEET 8 126	

STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".



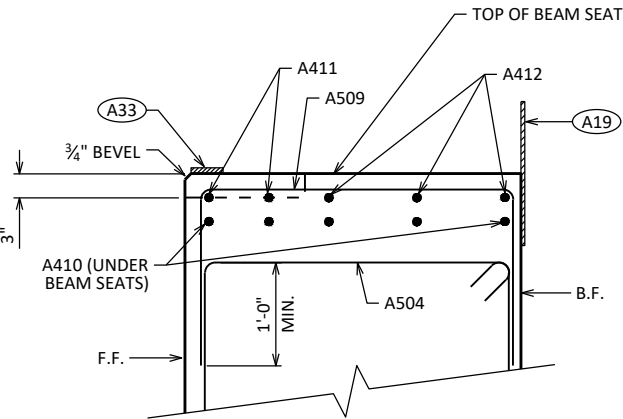
SECTION THRU BODY

NOTES:

FOR PILE PLAN, SEE SHEET 6.

FOR ADDITIONAL WEST ABUTMENT DETAILS, SEE SHEET 7.

FOR WEST ABUTMENT WING DETAILS, SEE SHEET 9.

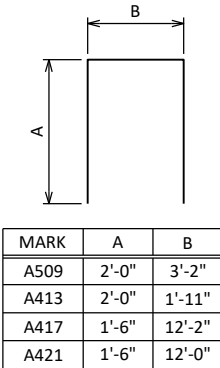


TOP OF ABUTMENT @ BEAM SEATS 4, 5 & 6

SEE PLAN BELOW FOR REINF. SPACING

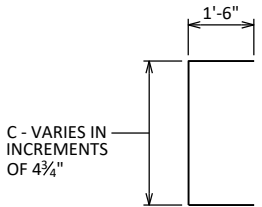
A607

A419

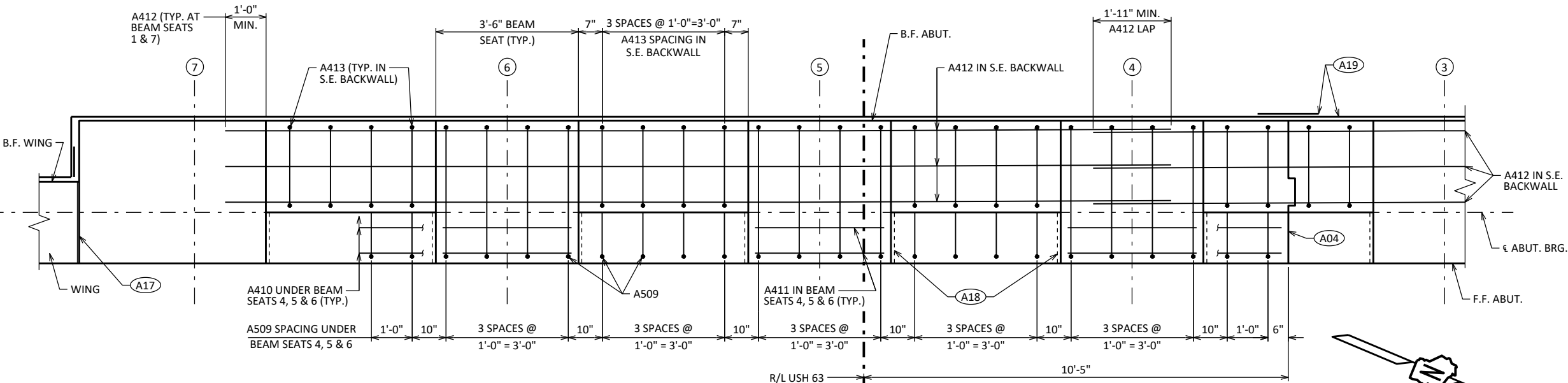


A504

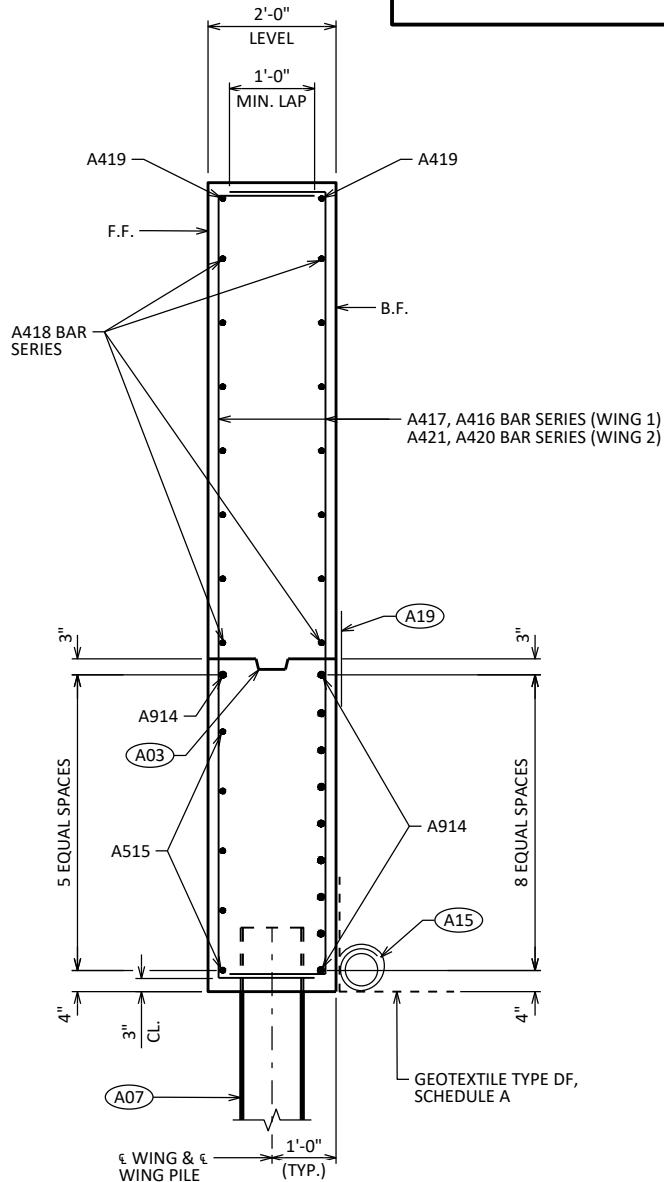
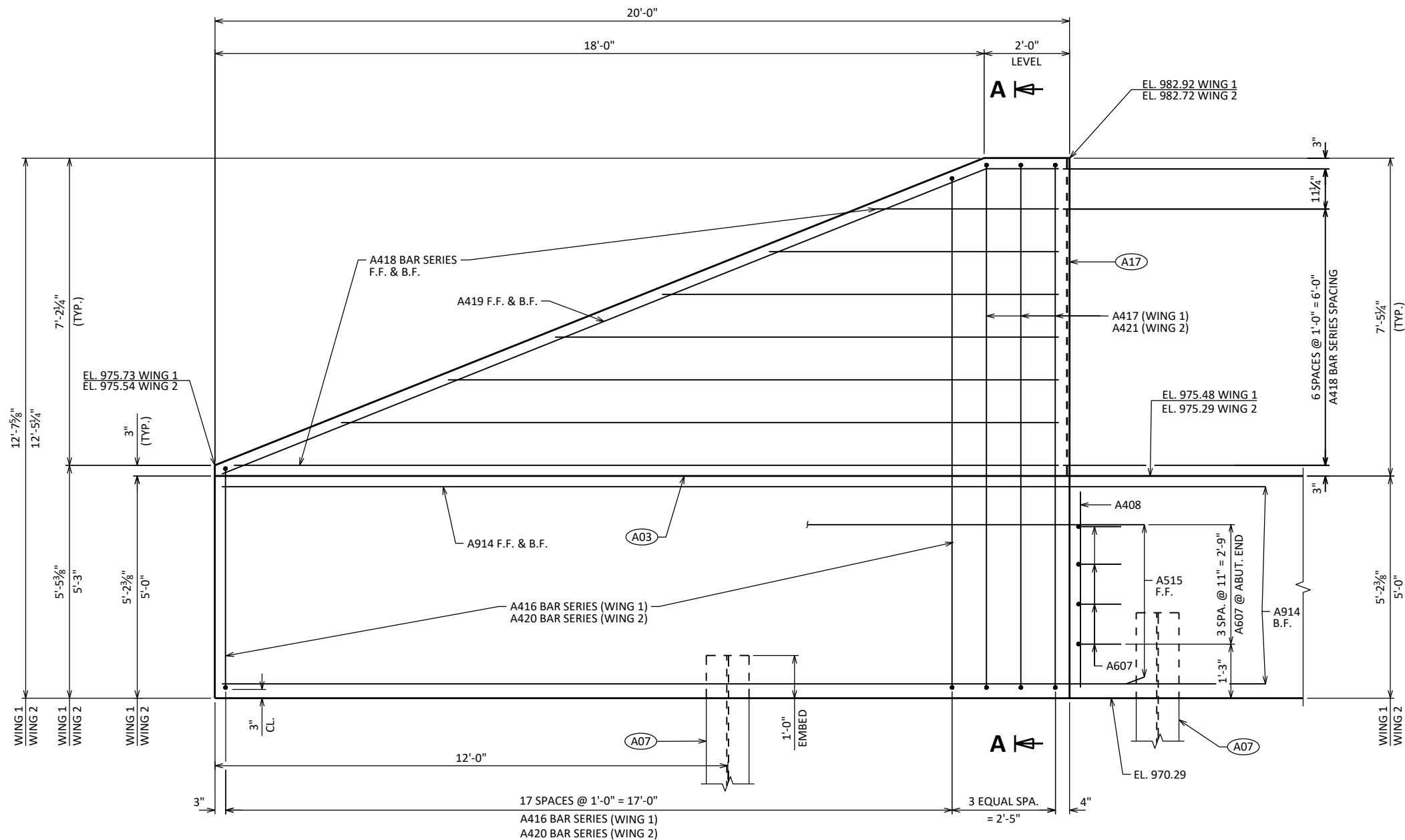
A401



BAR MARK	C
A416	5'-1" TO 11'-10"
A420	4'-11" TO 11'-8"



WEST ABUTMENT TOP PLAN



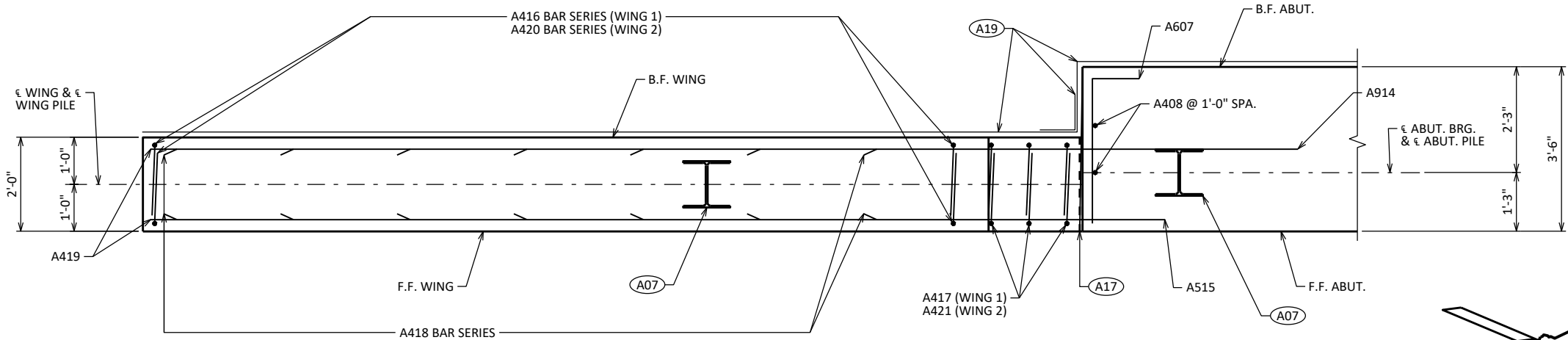
NOTES:

FOR PILE PLAN, SEE SHEET 6.

FOR ADDITIONAL WEST ABUTMENT DETAILS
AND BILL OF BARS, SEE SHEETS 7 & 8.

WING ELEVATION

(LOOKING AT F.F.)
WING 1 SHOWN, WING 2 SIMILAR



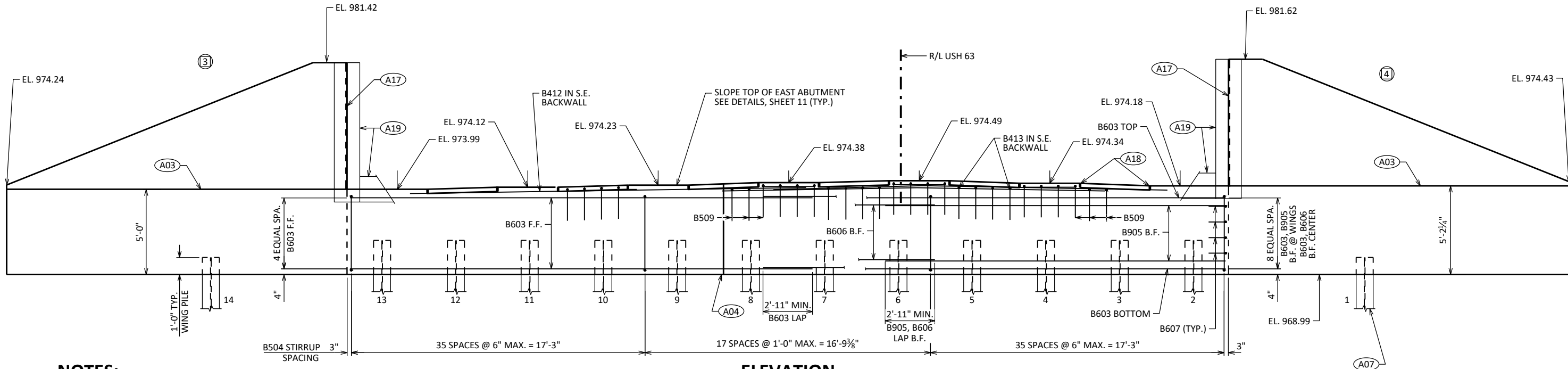
WING PLAN

WING 1 SHOWN, WING 2 SIMILAR

SEE SHEET 7 FOR
LEGEND OF

A03 A07
A15 A17 A19
F.F. B.F. CL.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY RLR		PLANS CK'D NJK	
WEST ABUTMENT WING DETAILS		SHEET 9 127	



ELEVATION

(LOOKING EAST)

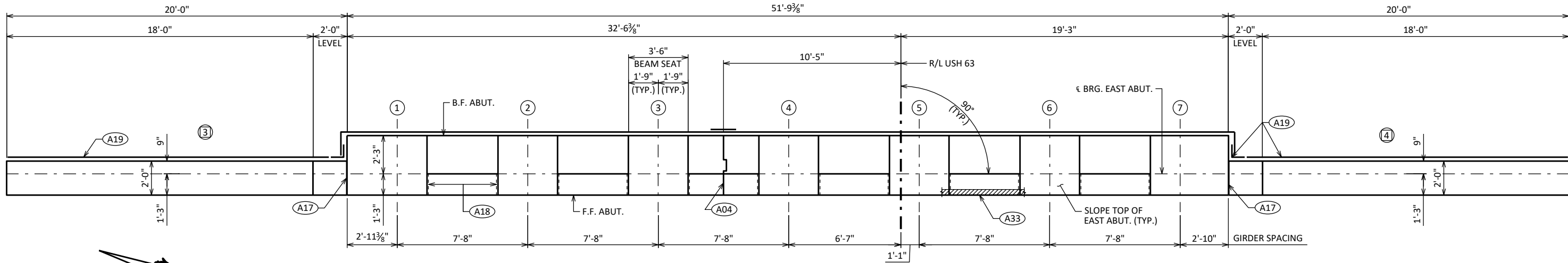
NOTES:

BEAM SEAT ELEVATIONS ARE GIVEN AT ϵ OF BEARINGS. SLOPE TOP OF EAST ABUTMENT. SEE SHEET 11 FOR DETAILS.

FOR PILE PLAN, SEE SHEET 6.

FOR ADDITIONAL EAST ABUTMENT DETAILS AND BILL OF BARS, SEE SHEET 11.

FOR EAST ABUTMENT WING DETAILS, SEE SHEET 12.



PLAN

SEE SHEET 7 LEGEND FOR DESCRIPTION OF			
A03	A04	A07	A15
A17	A18	A19	A33
○	F.F.	B.F.	CL. S.E.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D NJK
EAST ABUTMENT		SHEET 10 128	

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B401		12	28'-0"	X		ABUT. BODY PILES - 1 PER PILE 5 SPIRAL WRAPS
B402		24	2'-3"			ABUT. BODY PILES - 2 PER PILE - VERT.
B603		22	27'-3"			ABUT. BODY - F.F. & B.F., TOP & BOTTOM - HORIZ.
B504		88	15'-8"	X		ABUT. BODY - STIRRUPS - VERT.
B905		16	20'-0"			ABUT. BODY - B.F. @ WINGS - HORIZ.
B606		8	17'-4"			ABUT. BODY - B.F. - CENTER - HORIZ.
B607		8	4'-0"	X		ABUT. BODY - ENDS - HORIZ.
B408		4	4'-7"			ABUT. BODY - ENDS - VERT.
B509		24	6'-11"	X		ABUT. TOP - TIES - BEAM SEATS 4, 5, 6 & POCKETS - VERT.
B410		5	22'-6"			ABUT. TOP - UNDER BEAM SEATS 4, 5 & 6 - HORIZ.
B411		6	3'-2"			ABUT. TOP - F.F. - BEAM SEATS 4, 5 & 6 - HORIZ.
B412		6	23'-3"			ABUT. TOP - B.F. SEMI-EXP. POCKET BACKWALL - HORIZ.
B413		24	5'-9"	X		ABUT. TOP - TIES - B.F. SEMI-EXP. POCKET BACKWALL - VERT.
B914	X	20	24'-5"			WINGS 3 & 4 - BASE - B.F. & TOP - HORIZ.
B515	X	10	21'-7"			WINGS 3 & 4 - BASE - F.F. - HORIZ.
B416	X	36	11'-2"	X	S	WING 3 - STIRRUPS - VERT.
B417	X	6	14'-10"	X		WING 3 - STIRRUPS - VERT.
B418	X	28	11'-9"		S	WINGS 3 & 4 - TOP - F.F. & B.F. - HORIZ.
B419	X	4	20'-11"	X		WINGS 3 & 4 - TOP - F.F. & B.F. - TOP - HORIZ.
B420	X	36	11'-4"	X	S	WING 4 - STIRRUPS - VERT.
B421	X	6	15'-0"	X		WING 4 - STIRRUPS - VERT.

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

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.	LENGTH
B416	2 SERIES OF 18	7'-9" TO 14'-6"
B418	4 SERIES OF 7	4'-3" TO 19'-3"
B420	2 SERIES OF 18	7'-11" TO 14'-8"

SEE SHEET 7 LEGEND FOR DESCRIPTION OF

A04

A07

A15

A17

A18

A19

A33

F.F. B.F. CL. S.E.

NOTES:

FOR PILE PLAN, SEE SHEET 6.

FOR ADDITIONAL EAST ABUTMENT DETAILS, SEE SHEET 10.

FOR EAST ABUTMENT WING DETAILS, SEE SHEET 12.

SECTION THRU BODY

TOP OF ABUTMENT @ BEAM SEATS 4, 5 & 6

SEE PLAN BELOW FOR REINF. SPACING

MARK	A	B
B509	2'-0"	3'-2"
B413	2'-0"	1'-11"
B417	1'-6"	12'-0"
B421	1'-6"	12'-2"

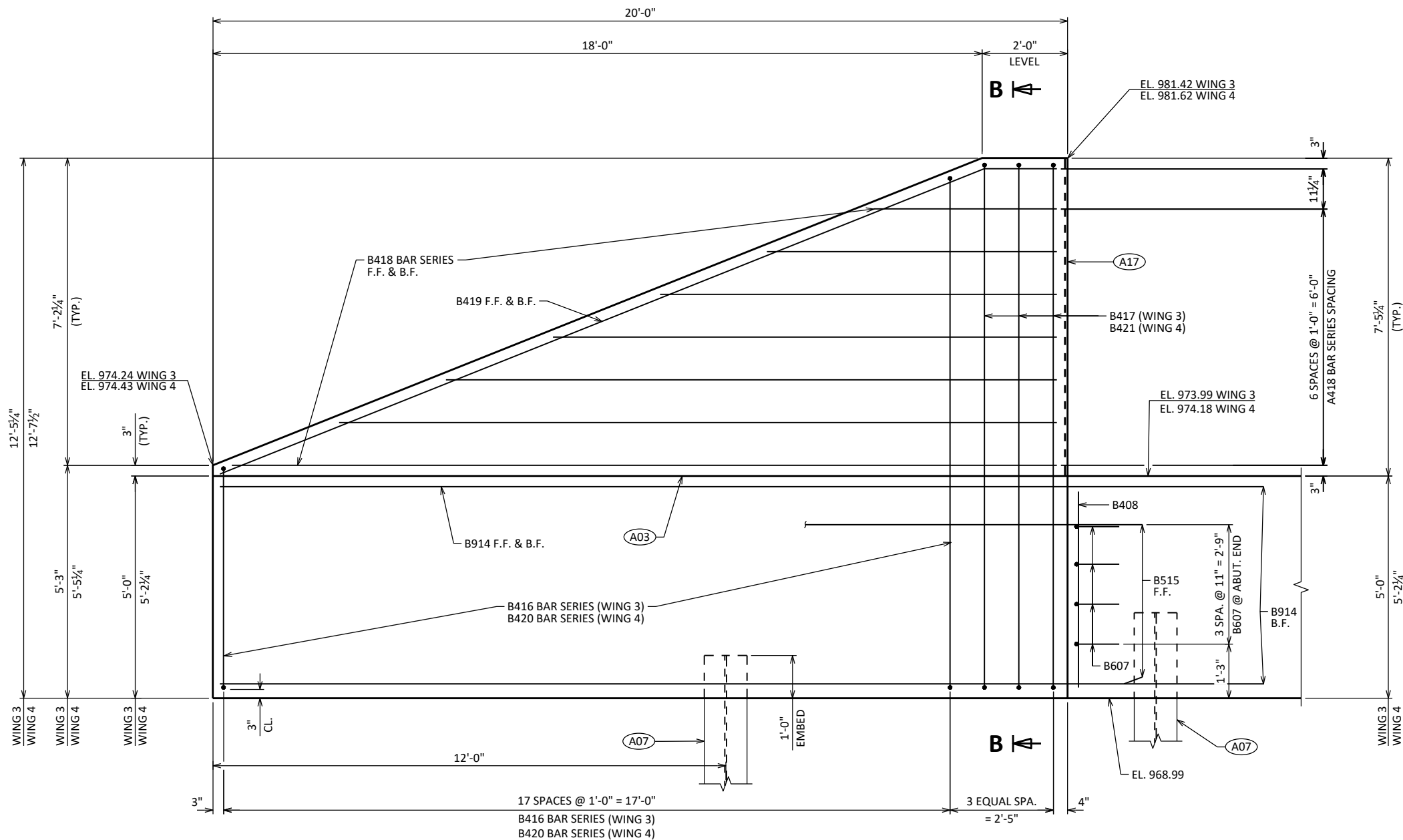
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D NJK
EAST ABUTMENT DETAILS		SHEET 11 129	

8

8

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NOTES:

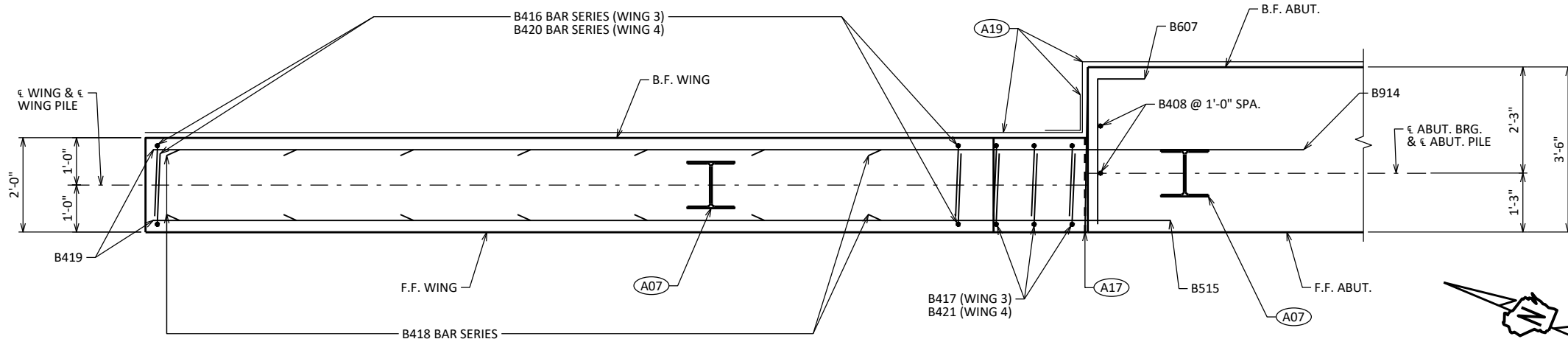
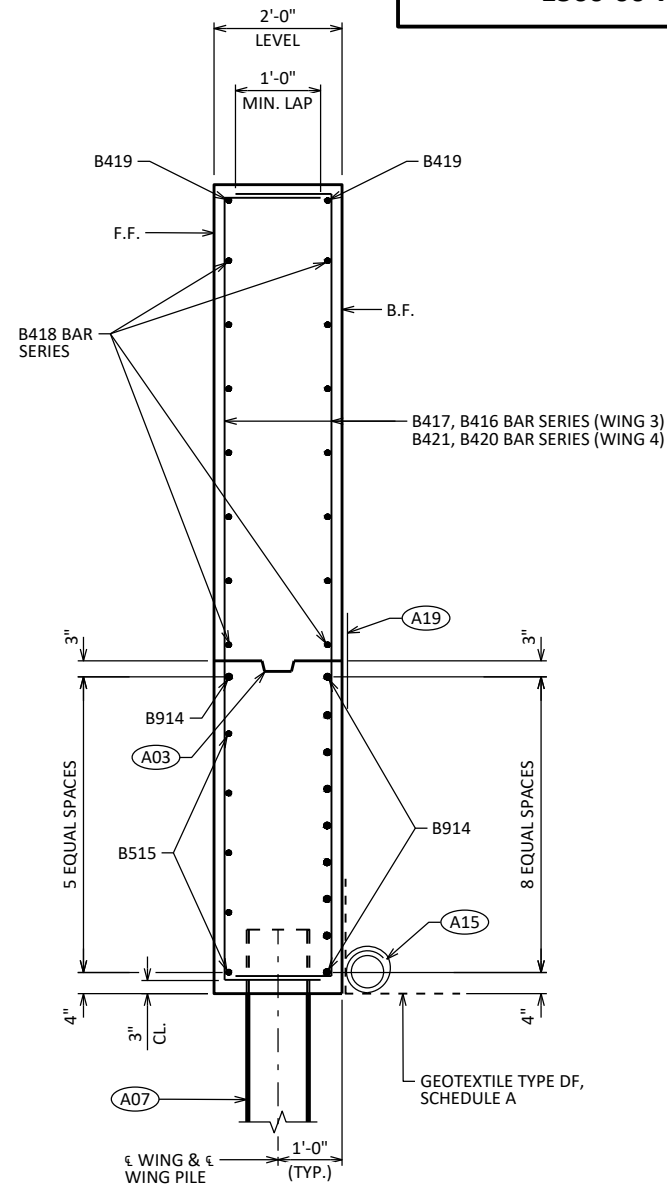
FOR PILE PLAN, SEE SHEET 6.

FOR ADDITIONAL EAST ABUTMENT DETAILS
AND BILL OF BARS, SEE SHEETS 10 & 11.

WING ELEVATION

(LOOKING AT F.F.)
WING 3 SHOWN, WING 4 SIMILAR

SECTION B-B THRU WING



WING PLAN

WING 3 SHOWN, WING 4 SIMILAR

SEE SHEET 7 FOR
LEGEND OF

A03 A07

A15 A17 A19

F.F. B.F. CL.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D NJK
EAST ABUTMENT WING DETAILS		SHEET 12 130	

NOTES

PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATIVE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.

CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

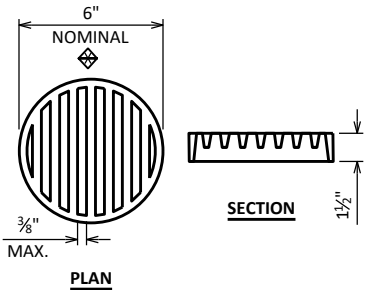
SAW CUTTING JOINT IS NOT ALLOWED.

USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY 1/2" DEEP.

FOR PILE PLAN, SEE SHEET 6.

FOR WEST ABUTMENT DETAILS AND WEST ABUTMENT WING DETAILS, SEE SHEETS 7, 8, & 9.

FOR EAST ABUTMENT DETAILS AND EAST ABUTMENT WING DETAILS, SEE SHEETS 10, 11, & 12.



RODENT SHIELD DETAIL

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

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

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

BENT ZINC OR PLASTIC STRIP (1/16" TO 1/8" THICK.) TACK TO FORM WORK. (NO WELDING TO REINFORCING STEEL.)

B.F. ABUT

2"

18" RUBBERIZED MEMBRANE WATERPROOFING B.F.

B.F. ABUT.

F.F. ABUT.

ABUT. WIDTH

SECTION THRU ABUTMENT BODY

B.F. ABUT.

F.F. ABUT.

SECTION A-A

BENT ZINC OR PLASTIC STRIP (1/16" TO 1/8" THICK.) TACK TO FORM WORK. NO WELDING TO REINFORCING STEEL. REMOVE OR TRIM AFTER FORM REMOVAL

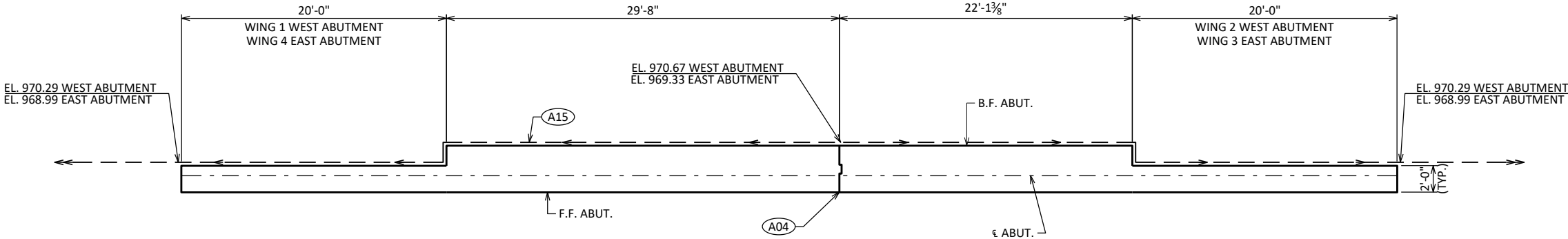
3/4" CHAMFER STRIPS

F.F. ABUT.

2" MIN.

FILL WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER AFTER TRIMMING OR REMOVING STRIP

ALTERNATE CONSTRUCTION JOINT AT ABUTMENT



PIPE UNDERDRAIN DETAIL AT ABUTMENTS

WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR

SEE SHEET 7 LEGEND FOR DESCRIPTION OF

A04

A15

F.F. B.F.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D NJK
ALTERNATE CONSTRUCTION JOINT & ABUTMENT DETAILS		SHEET 13 131	

SCALE = 2.00

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 15" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 15" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

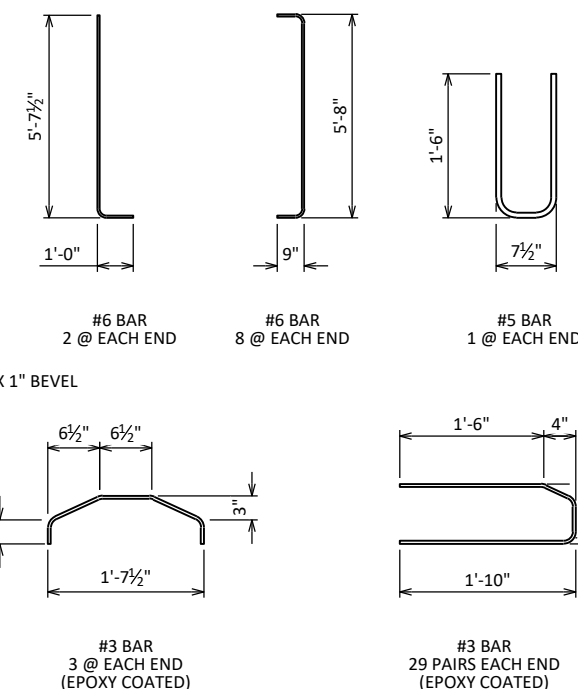
AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DESIGN SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

PRESTRESSING STRANDS SHALL BE (0.6" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE SHEET 16 "STEEL DIAPHRAGM".

SEE SHEET 15 FOR GIRDER HAUNCH DETAILS.

SEE SHEET 17 FOR DIAPHRAGM SPACING.

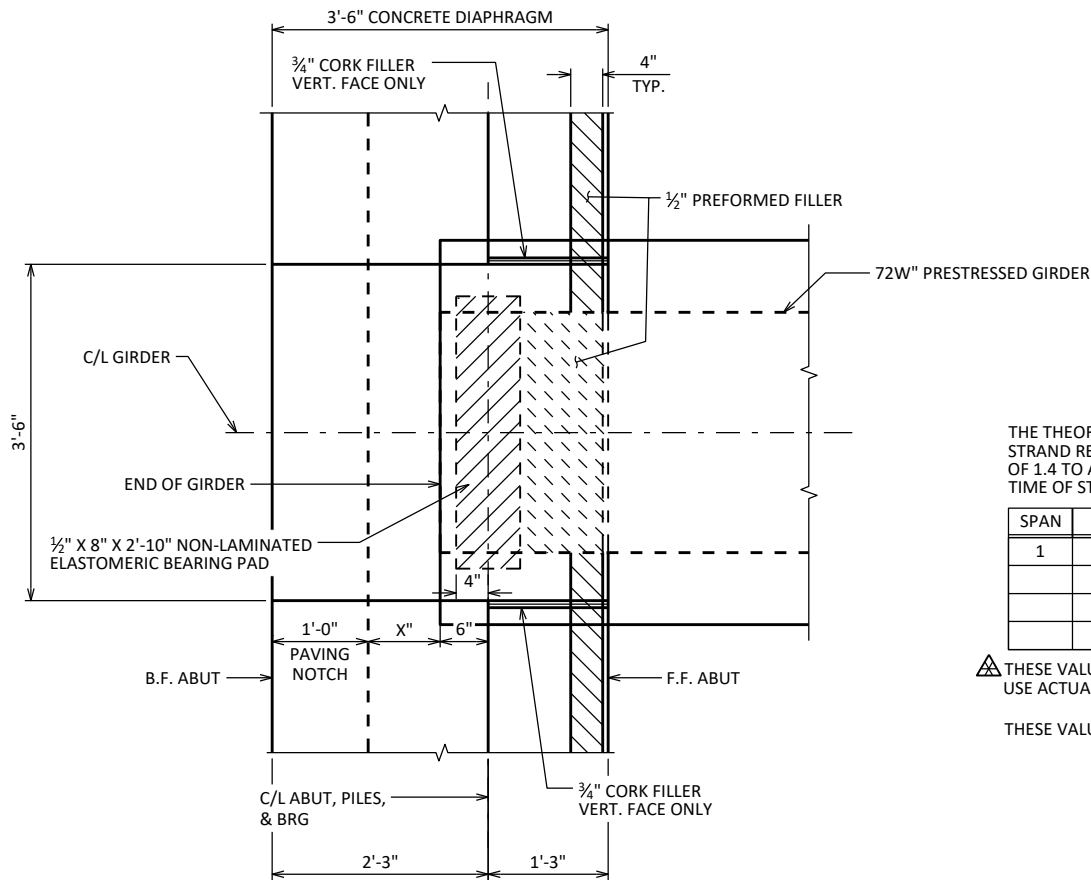


 DETAIL TYP. AT EACH END
 6 #4 BARS, FULL LENGTH, MIN. LAP = 1'-11"

* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

GIRDER DATA																										
SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f _c (P.S.I.)	"P" (IN.)			DIA. OF STRAND (IN.)	DRAPED PATTERN								UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10		1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER		TOTAL NO. OF STRANDS	f _{ci} (P.S.I.) ✱	(IN.)				TOTAL NO. OF STRANDS	f _{ci} (P.S.I.) ✱		
																		"A"	"B" MIN.	"B" MAX.	"C"					
1	1	137'-0"	0.7	1.4	2.0	2.3	2.5	2.3	2.0	1.4	0.7	8,000	13	7	13	0.600	46	6,800	67	20.5	23.5	5	-	-		
1	2	137'-0"	0.8	1.5	2.0	2.4	2.5	2.4	2.0	1.5	0.8	8,000	13	7	13	0.600	46	6,800	67	20.5	23.5	5	-	-		
1	3	137'-0"	0.8	1.5	2.1	2.4	2.5	2.4	2.1	1.5	0.8	8,000	13	7	13	0.600	46	6,800	67	20.5	23.5	5	-	-		
1	4-6	137'-0"	0.8	1.5	2.1	2.4	2.5	2.4	2.1	1.5	0.8	8,000	13	7	13	0.600	46	6,800	67	20.5	23.5	5	-	-		
1	7	137'-0"	0.7	1.4	2.0	2.3	2.4	2.3	2.0	1.4	0.7	8,000	13	7	13	0.600	46	6,800	67	20.5	23.5	5	-	-		

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-4-129	
		DRAWN BY	PLANS CK'D NJK
72W" PRESTRESSED GIRDER DETAILS		SHEET 14 132	



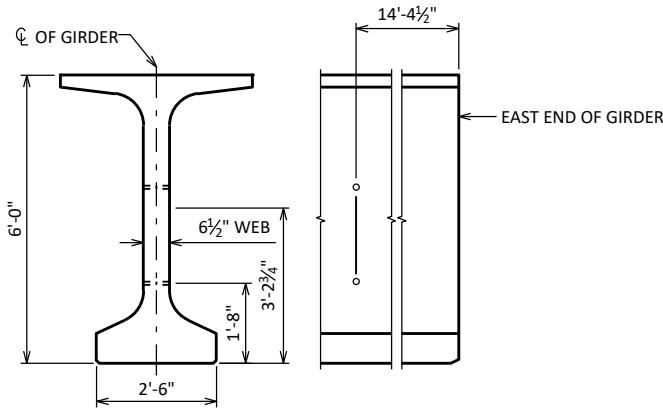
ABUTMENT BEARING PAD DETAIL
WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR

THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

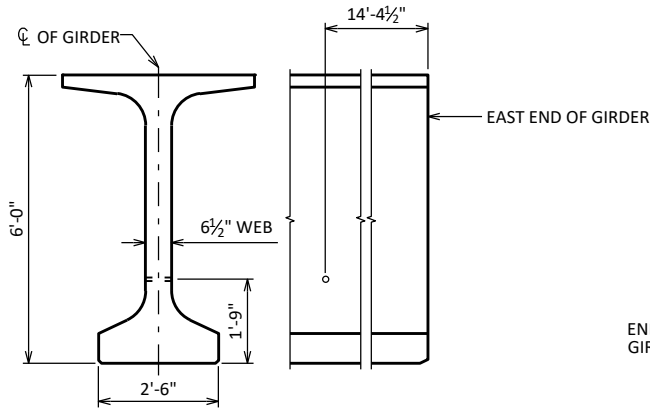
SPAN	GIRDER #	CAMBER (IN.)
1	ALL	4.21

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.

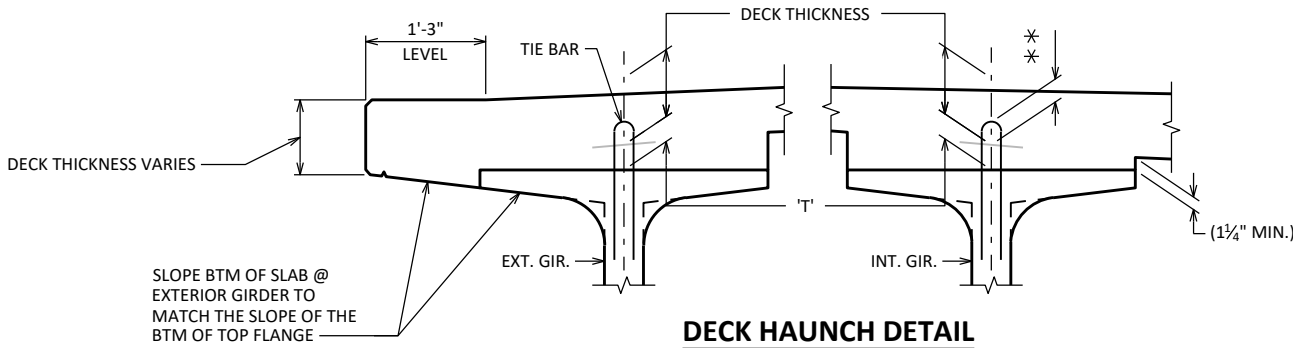
THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.



TYPE WF DOWNSPOUT
ANCHOR INSERT DETAIL
(GIRDERS 1 & 7)



TYPE GC DOWNSPOUT
ANCHOR INSERT DETAIL
(GIRDER 3)



DECK HAUNCH DETAIL

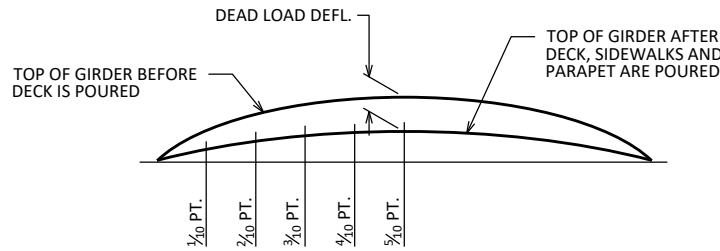
IF 1 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT C/L OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

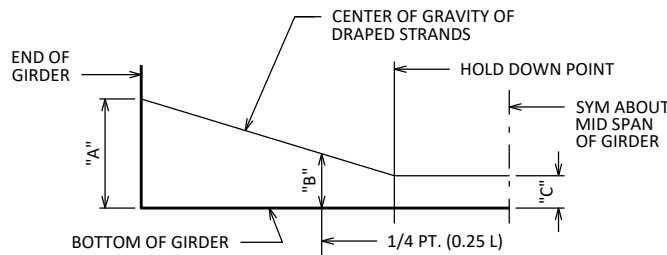
- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- DECK THICKNESS
- = HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

- 5.66 IN - GIRDER 1
- 5.54 IN - GIRDER 2
- 5.75 IN - GIRDERS 3-6
- 5.81 IN - GIRDER 7



DEAD LOAD DEFLECTION DIAGRAM

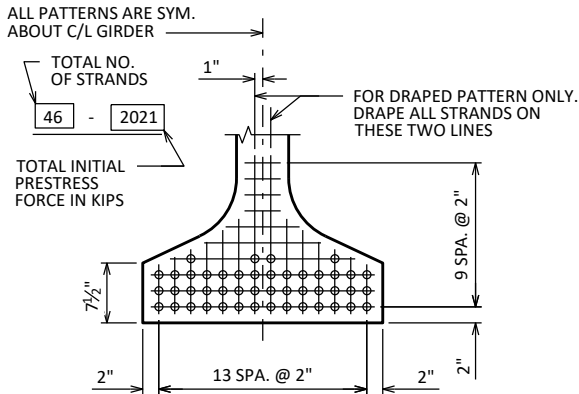


DRAPED STRAND PROFILE

TOP OF DECK ELEVATIONS

LOCATION	SPAN POINT	NORTH ** PARAPET FACE	GIRDER 1	GIRDER 2	TRAFFIC FACE INTERMEDIATE BARRIER	GIRDER 3	GIRDER 4	R/L USH 63	GIRDER 5	GIRDER 6	GIRDER 7	SOUTH ** PARAPET FACE
W. ABUT.	1	982.72	982.75	982.86	982.92	983.00	983.15	983.28	983.26	983.11	982.95	982.92
	1.1	982.44	982.48	982.61	982.64	982.72	982.87	983.00	982.98	982.83	982.67	982.64
	1.2	982.20	982.23	982.36	982.40	982.47	982.63	982.76	982.74	982.58	982.43	982.40
	1.3	981.99	982.02	982.15	982.19	982.26	982.41	982.55	982.52	982.37	982.22	982.19
	1.4	981.81	981.84	981.97	982.01	982.08	982.23	982.37	982.34	982.19	982.04	982.01
	1.5	981.66	981.69	981.83	981.86	981.93	982.09	982.22	982.20	982.04	981.89	981.86
	1.6	981.55	981.58	981.71	981.74	981.82	981.97	982.10	982.08	981.93	981.78	981.74
	1.7	981.46	981.50	981.63	981.66	981.74	981.89	982.02	982.00	981.85	981.70	981.66
	1.8	981.42	981.45	981.58	981.61	981.69	981.84	981.97	981.95	981.80	981.65	981.61
	1.9	981.40	981.43	981.57	981.60	981.67	981.83	981.96	981.94	981.78	981.63	981.60
E. ABUT.	2	981.42	981.44	981.56	981.62	981.69	981.84	981.98	981.95	981.80	981.65	981.62

** EDGE OF DECK ELEVATION IS THE SAME AS THE INSIDE FACE OF THE PARAPET



TYP. STRAND PATTERN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		DS	PLANS CK'D NJK
72W" PRESTRESSED GIRDER & DECK FORMING DETAILS		SHEET 15 133	

NOTES

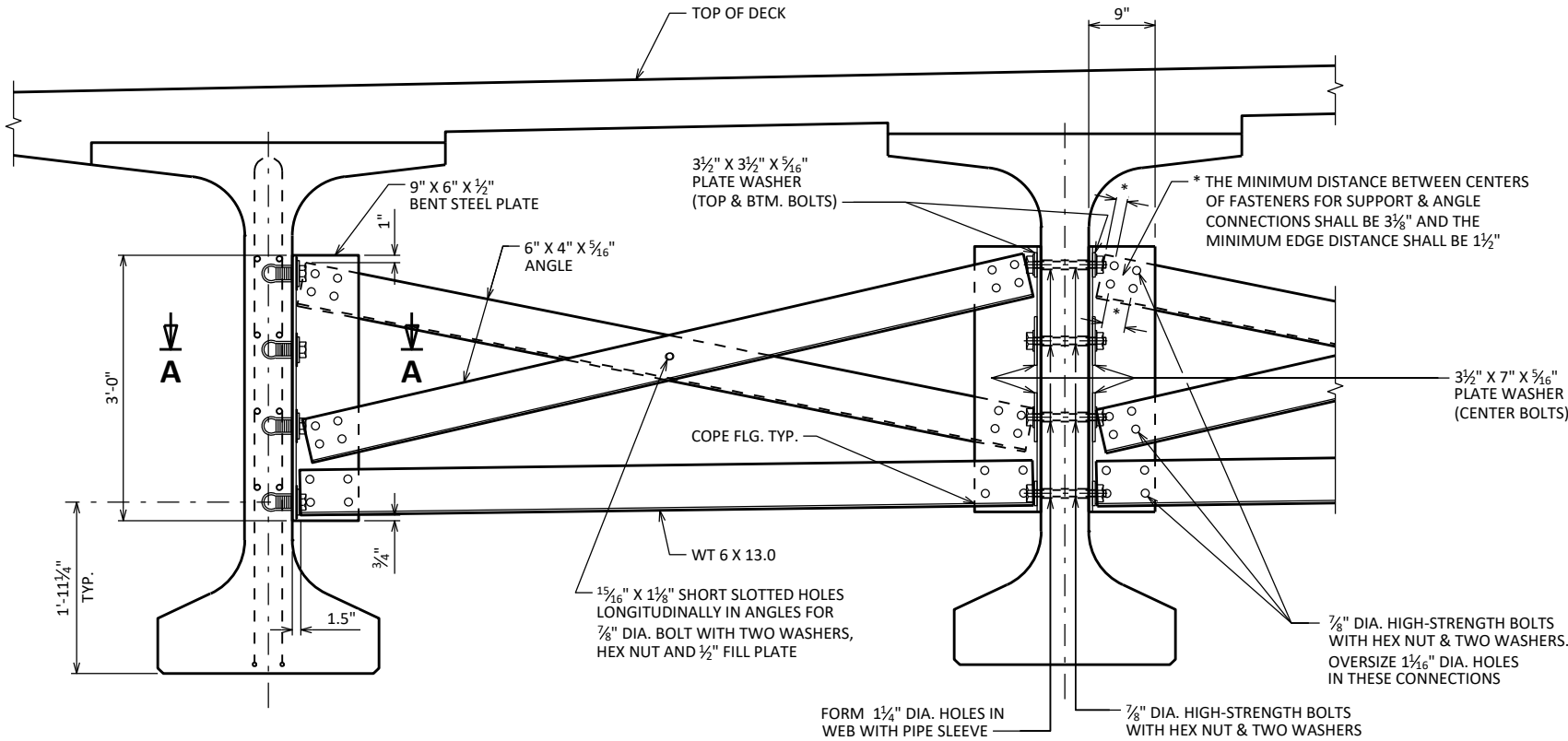
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-4-0129", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS $\frac{1}{4}$ TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.
SEE SHEETS 14 & 15 FOR 72W" PRESTRESSED GIRDER DETAILS.

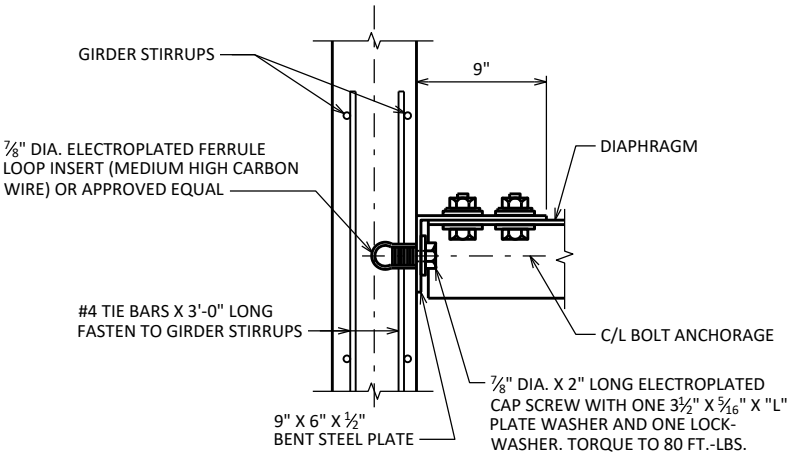


EXTERIOR GIRDER

INTERIOR GIRDER
(FOR CONTINUOUS LINE DIAPHS.)

PART TRANSVERSE SECTION AT DIAPHRAGM

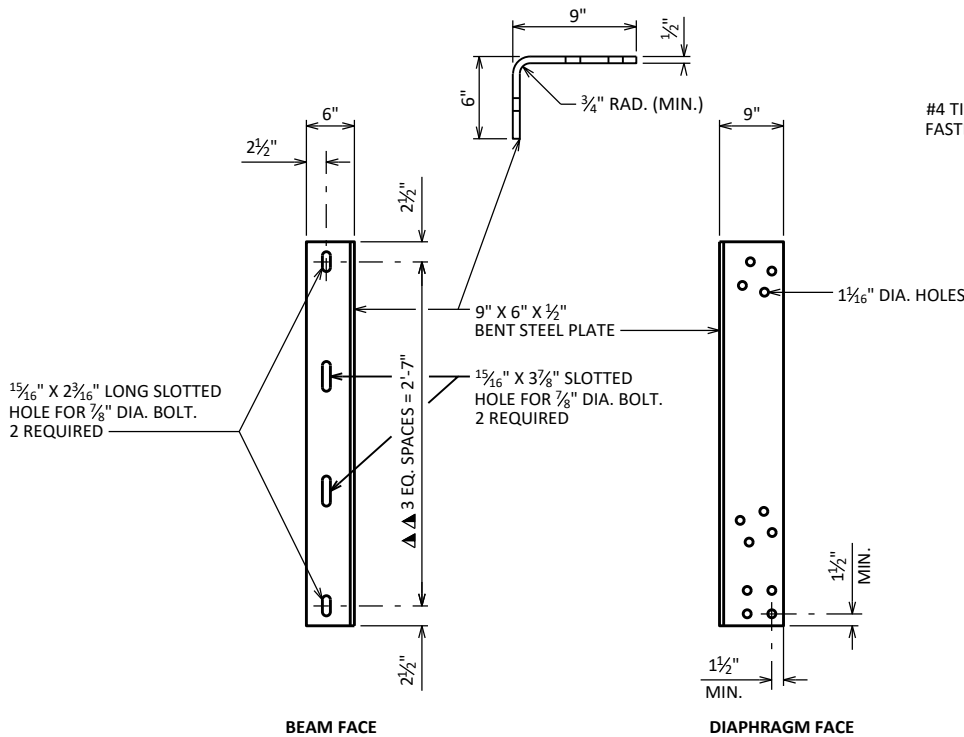
(72W" PRESTRESSED GIRDER)



SECTION A-A

(FOR EXTERIOR ATTACHMENT)

"L" = 3 1/2"; TOP AND BOTTOM BOLTS
"L" = 7"; CENTER BOLTS



DIAPHRAGM SUPPORT

▲▲ BOLT HOLES SHALL BE SPACED SO AS TO MISS PRESTRESSED STRANDS IN CONCRETE BEAMS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D JDH
STEEL DIAPHRAGM		SHEET 16	134

SCALE = 2.00



SOUTH EDGE OF DECK SHOWN
NORTH EDGE OF DECK SIMILAR.
SEE SECTION THRU PARAPET (SHEET 24) ON BRIDGE,
COMBINATION RAILING TYPE 'C2' SHEET,
FOR OVERHANG DETAILS.

- ◇ - OPTIONAL CONSTRUCTION JOINT 1'-2" BELOW TOP OF GIRDER. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.
- HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING SHALL BE PLACED ALONG JOINT AT BACK FACE IF CONSTRUCTION JOINT IS USED (COST INCLUDED IN BID ITEM "CONCRETE MASONRY BRIDGES").
- - CONSTRUCTION JOINT. STRIKE OFF AND LEAVE ROUGH.
- ☒ - FOR DETAILS OF STEEL DIAPHRAGMS AND DIAPHRAGM INSERTS, SEE STEEL DIAPHRAGM SHEET. FOR LAYOUT OF STEEL DIAPHRAGMS, SEE PLAN, SUPERSTRUCTURE PLAN SHEET.
- ① - INDICATES GIRDER NUMBER.

F.F. - FRONT FACE

B.F. - BACK FACE

CL. - CLEAR

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION					
STRUCTURE B-4-129					
		DRAWN BY	RLR	PLANS CK'D	JDH
SUPERSTRUCTURE SECTIONS			SHEET 18		
			136		

MARK	A	B
S401	1'-6"	11"
S610	2'-1"	3'-0"
S513	2'-7"	2'-2"

MARK	C
S503	5'-9"
S504	4'-3"

MARK	D
S414	10"
S415	7"
S416	6"

S422
STD. 180° HOOKS

S523
STD. 180° HOOK

SS901
★ BAR STEEL REINFORCEMENT
HS STAINLESS STRUCTURES

S524

S525

S527

S528

BILL OF BARS

NOTE: THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
S401	X	60	3'-9"	X	DIAPH. @ ABUT. - SEMI-EXP. NOTCH - STIRRUP - VERT.
S402	X	24	3'-10"		DIAPH. @ ABUT. - SEMI-EXP. NOTCH - HORIZ.
S503	X	68	18'-6"	X	DIAPH. @ ABUT. - STIRRUP - VERT.
S504	X	56	15'-6"	X	DIAPH. @ ABUT. - STIRRUP - VERT.
S605	X	48	27'-4"		DIAPH. @ ABUT. - B.F. & TOP - HORIZ.
S606	X	12	4'-10"		DIAPH. @ ABUT. - F.F. - INTERIOR BAYS - HORIZ.
S607	X	144	4'-5"		DIAPH. @ ABUT. - F.F. - INTERIOR BAYS - HORIZ.
S608	X	12	3'-4"		DIAPH. @ ABUT. - F.F. - INTERIOR BAYS - HORIZ.
S609	X	4	1'-3"		DIAPH. @ ABUT. - END - F.F. - HORIZ.
S610	X	24	6'-10"	X	DIAPH. @ ABUT. - END - HORIZ.
S411	X	8	7'-0"		DIAPH. @ ABUT. - END - VERT.
S512	X	28	6'-0"		DIAPH. @ ABUT. - THRU GIRDER WEB - TRANS.
S513	X	68	7'-1"	X	DIAPH. @ ABUT. - TOP STIRRUP - VERT.
S414	X	196	6'-4"	X	DECK - HAT BAR ABOVE GIRDER - VERT.
S415	X	196	5'-10"	X	DECK - HAT BAR ABOVE GIRDER - VERT.
S416	X	196	5'-8"	X	DECK - HAT BAR ABOVE GIRDER - VERT.
S417	X	56	41'-3"		DECK - THRU HAT BAR ABOVE GIRDER - LONGIT.
S518	X	830	27'-2"		DECK - TOP & BOTTOM - TRANS.
S419	X	312	35'-10"		DECK - BOTTOM - LONGIT.
S420	X	225	34'-5"		DECK - TOP - LONGIT.
S421	X	75	40'-0"		DECK - TOP - LONGIT.
S422	X	416	2'-1"	X	DECK - TIE BAR AT EDGES - VERT.
S523	X	416	4'-9"	X	DECK - TOP BAR AT EDGES - TRANS.
S524	X	416	4'-5"	X	42SS PARAPET & INTO DECK - STIRRUP - VERT.
S525	X	416	6'-8"	X	42SS PARAPET - STIRRUP - VERT.
S526	X	96	35'-11"		PARAPETS - LONGIT.
S527	X	167	4'-4"	X	COMBINATION RAIL PARAPET & INTO DECK - STIRRUP - VERT.
S528	X	167	4'-9"	X	COMBINATION RAIL PARAPET - STIRRUP - VERT.
S529	X	16	5'-0"		DECK DRAIN - LONGIT.
SS901		106	5'-0"	X	DIAPH. @ ABUT. & INTO APPROACH SLAB - LONGIT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D JDH
SUPERSTRUCTURE DETAILS		SHEET 19 137	

NOTES

ALL MATERIAL FOR TYPE "WF" CASTING AND 8" DIA. CONNECTION PIPE, EXCLUDING GRATE HOLD DOWN SCREWS, SHALL BE GRAY IRON CONFORMING TO ASTM A48, CLASS 30.

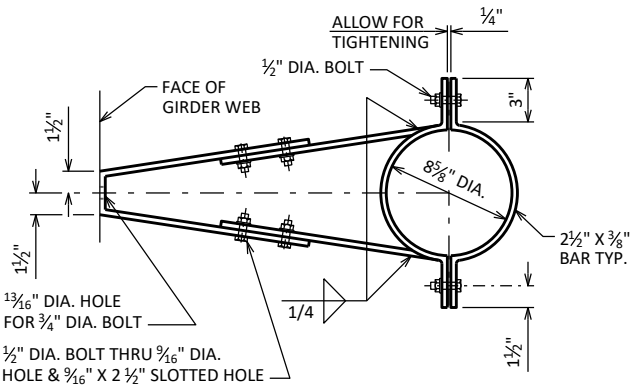
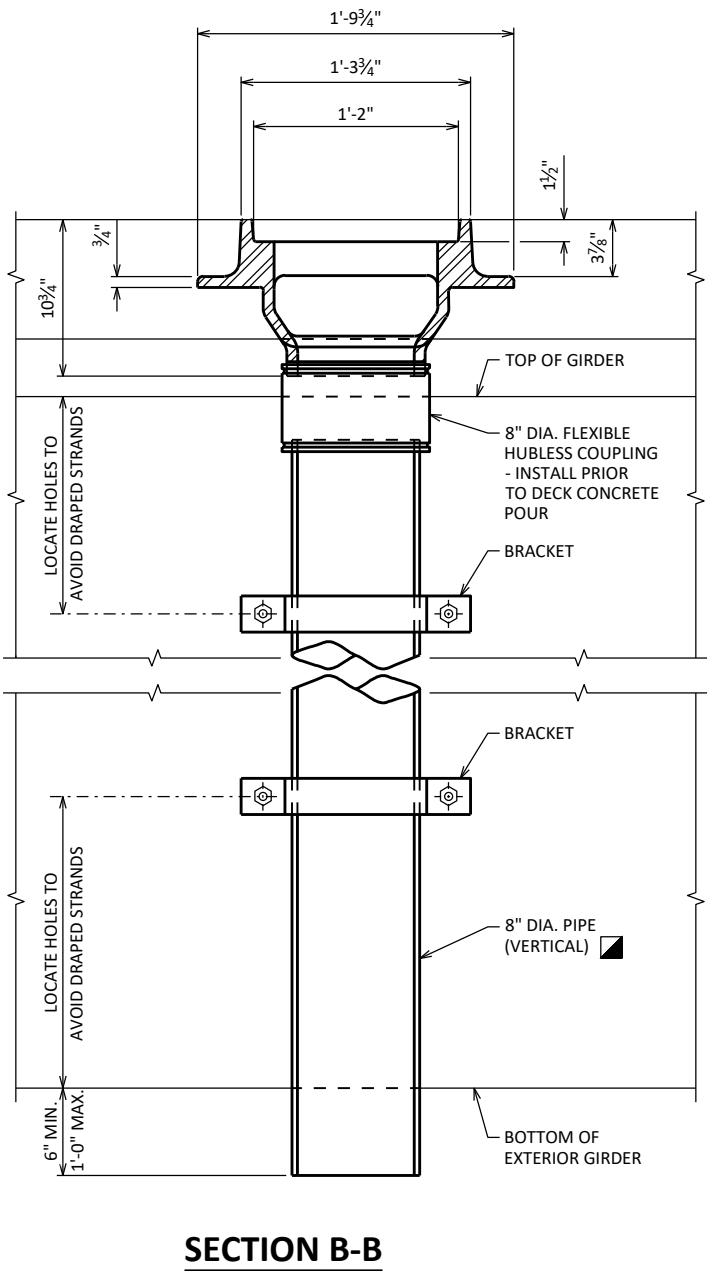
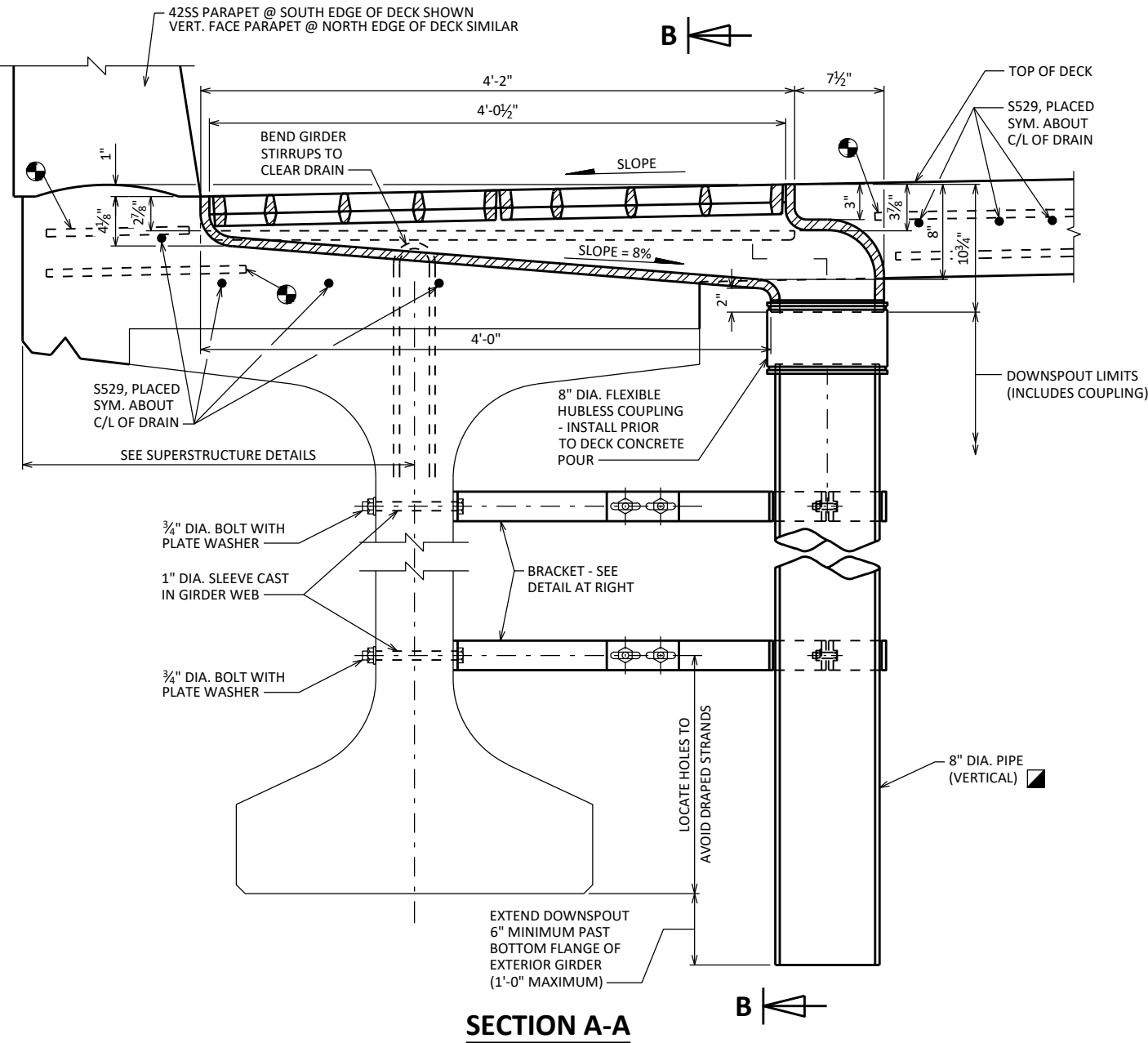
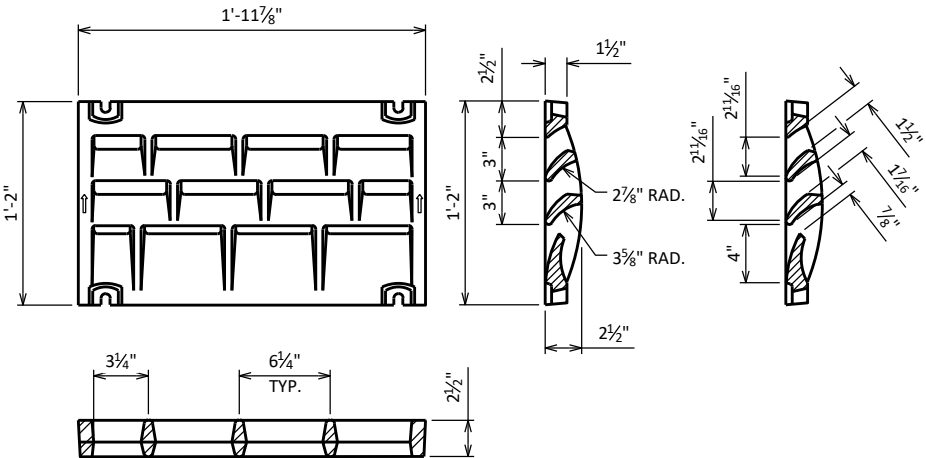
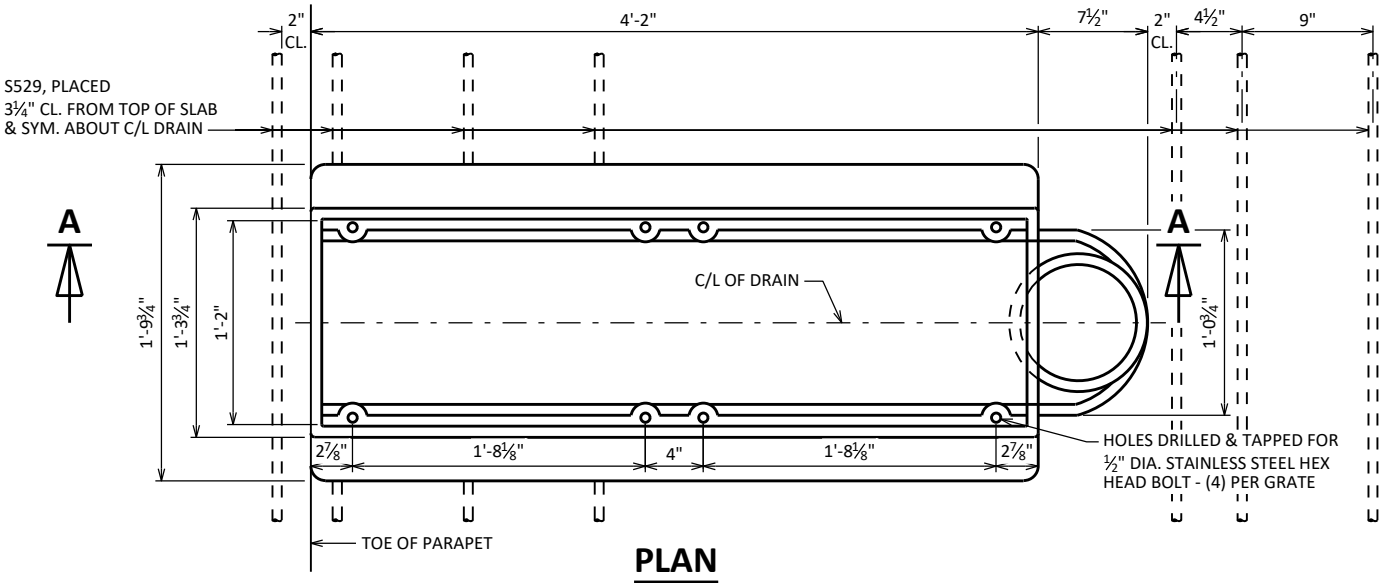
MATERIAL FOR BRACKETS SHALL CONFORM TO ASTM A36.

ALTERNATE BRACKETS ARE NOT ALLOWED.

ALL MATERIAL FOR FLOOR DRAINS TO BE INCLUDED IN THE BID ITEM "FLOOR DRAINS TYPE WF".

ALL MATERIAL FOR DOWNSPOUTS, DOWNSPOUT CONNECTIONS, AND BRACKETS TO BE INCLUDED IN THE BID ITEM "DOWNSPOUT 8-INCH".

- 8" DIA. DOWNSPOUTS SHALL BE REINFORCED THERMOSETTING RESIN PIPE (RTRP).
- TRANSVERSE & LONGITUDINAL SLAB BAR REINFORCEMENT TO BE CUT A MAXIMUM OF 1" CLEAR FROM DRAIN FRAME. DISPLACE BARS WHERE POSSIBLE.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D NJK
FLOOR DRAIN TYPE 'WF'		SHEET 20 138	

NOTES

ALL MATERIAL FOR TYPE "GC" CASTING, EXCLUDING GRATE HOLD DOWN SCREWS, SHALL BE GRAY IRON CONFORMING TO ASTM A48, CLASS 30. (APPROXIMATE WEIGHT = 225#)

MATERIAL FOR BRACKETS SHALL CONFORM TO ASTM A36.

ALL MATERIAL FOR FLOOR DRAINS TO BE INCLUDED IN THE BID ITEM "FLOOR DRAINS TYPE GC".

ALL MATERIAL FOR DOWNSPOUTS, DOWNSPOUT CONNECTIONS, AND BRACKETS TO BE INCLUDED IN THE BID ITEM "DOWNSPOUT 6-INCH".

ALTERNATE BRACKETS ARE NOT ALLOWED.

FLANGED 6" DIA. DOWNSPOUTS SHALL BE REINFORCED THERMOSETTING RESIN PIPE (RTRP) OR GALVANIZED STANDARD PIPE CONFORMING TO ASTM A53.

GRATE CASTING DETAIL

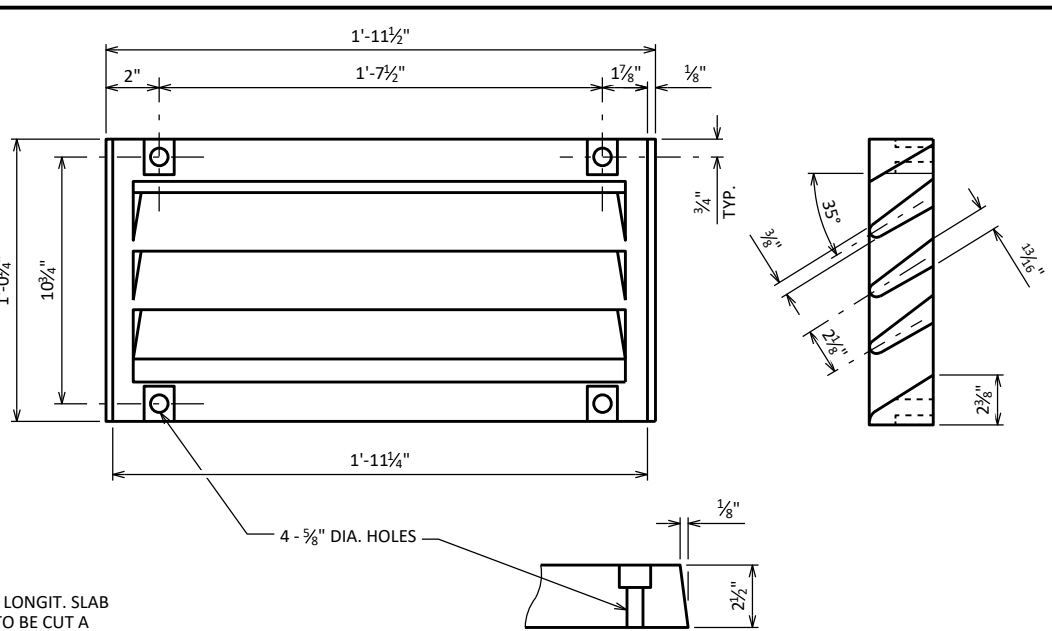
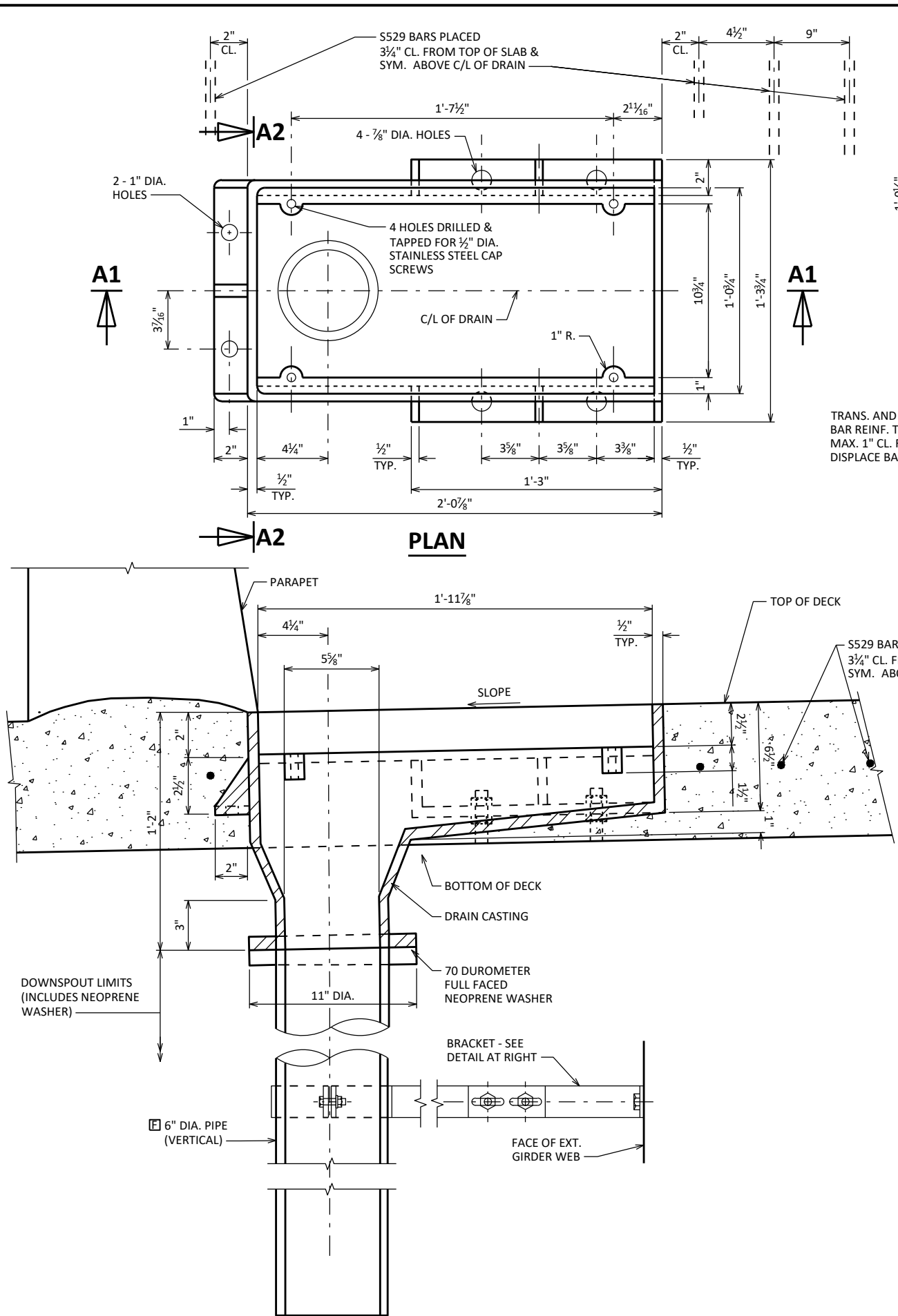
ATTACH GRATE TO FRAME FOR SHIPMENT

BRACKET DETAIL

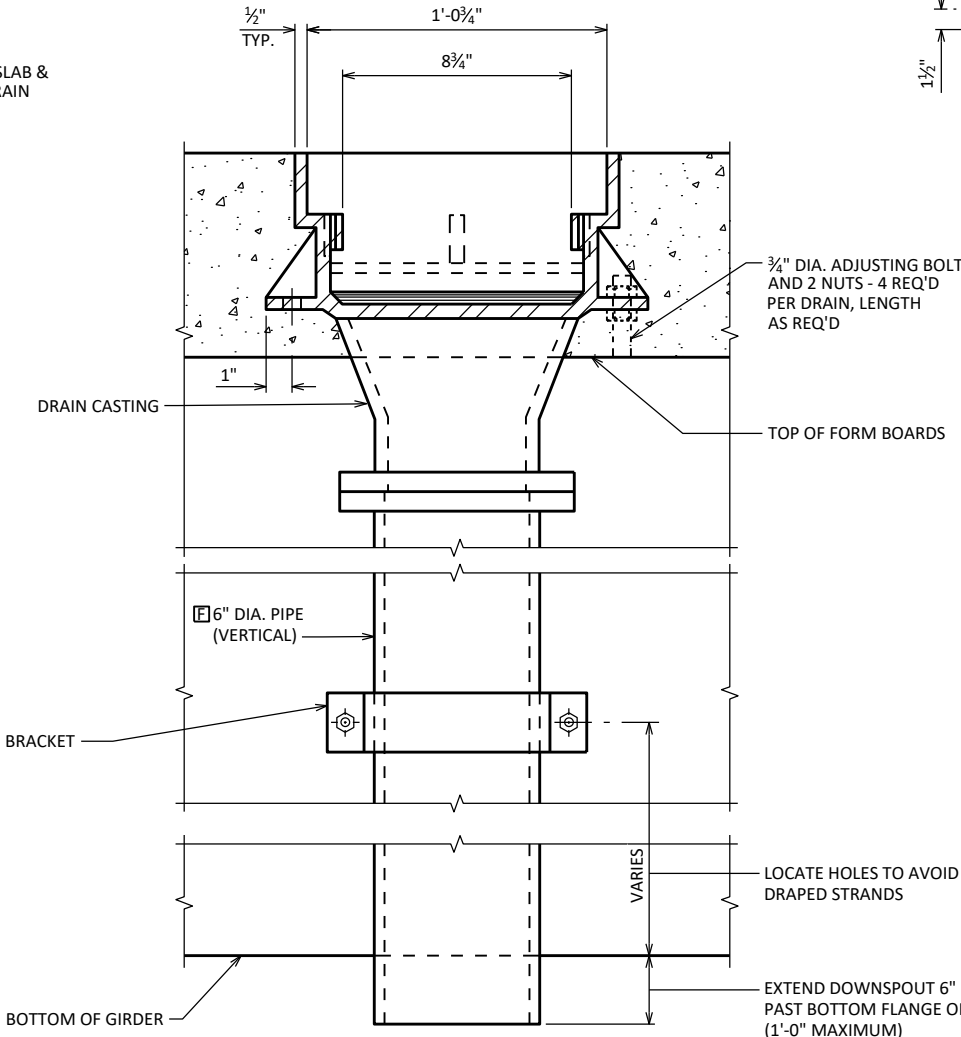
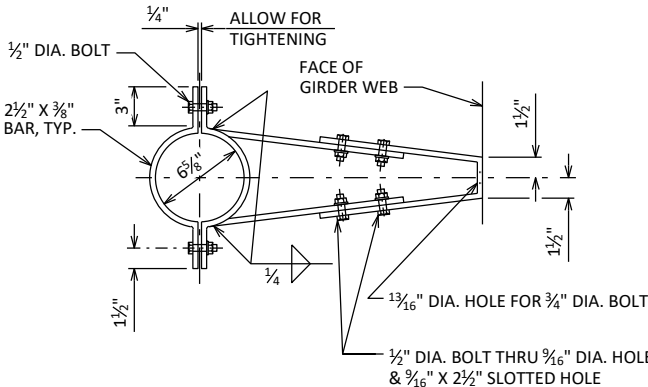
SECTION A1

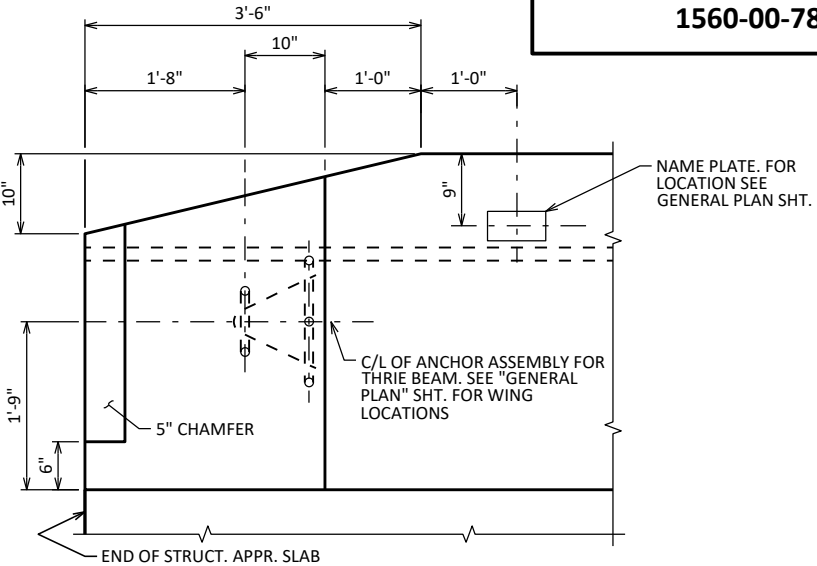
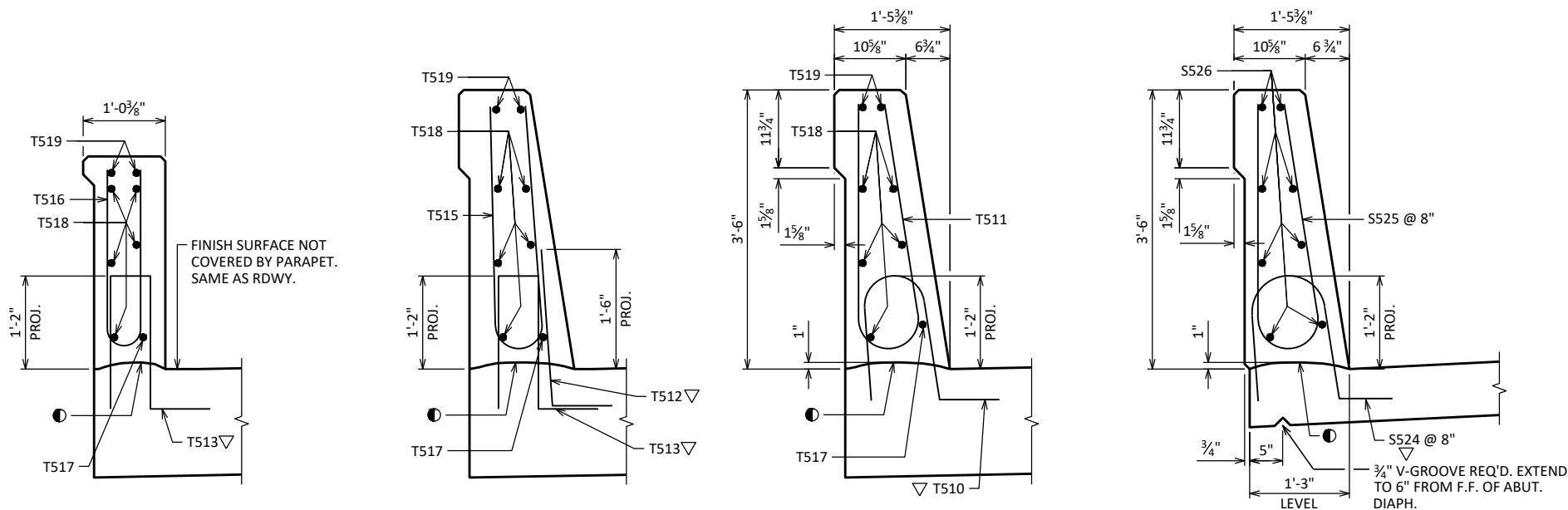
SECTION A2

PLAN



TRANS. AND LONGIT. SLAB BAR REINF. TO BE CUT A MAX. 1" CL. FROM DRAIN FRAME DISPLACE BARS WHERE POSSIBLE





SECTION F-F

SECTION G-G

SECTION H-H

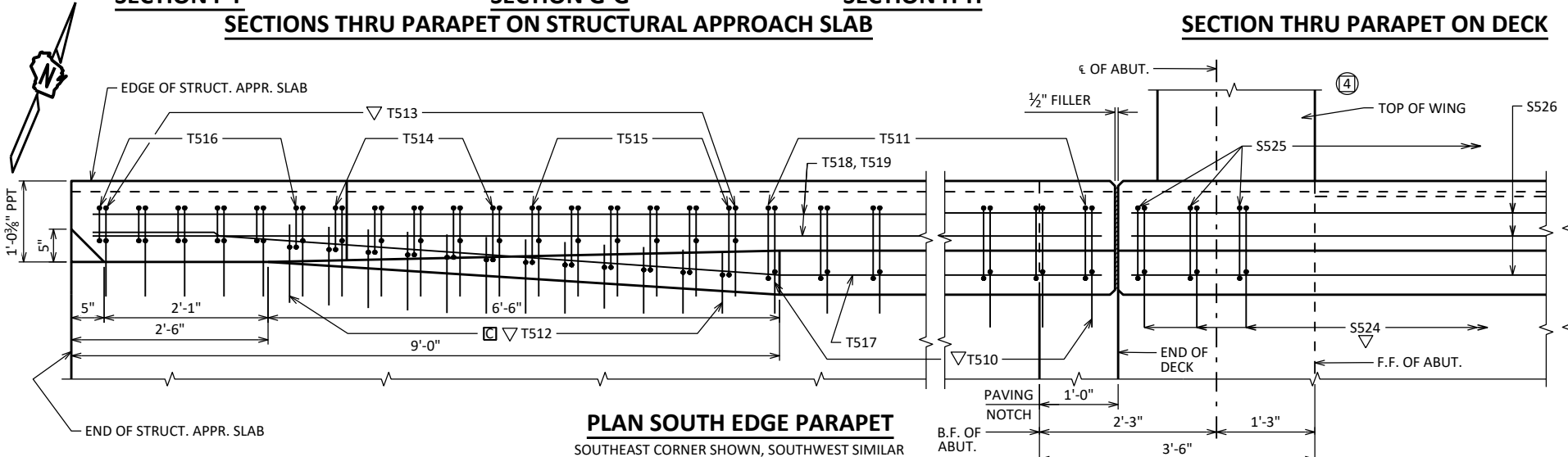
SECTION THRU PARAPET ON DECK

PARAPET END TREATMENT DETAIL

LOOKING AT INSIDE FACE OF PARAPET

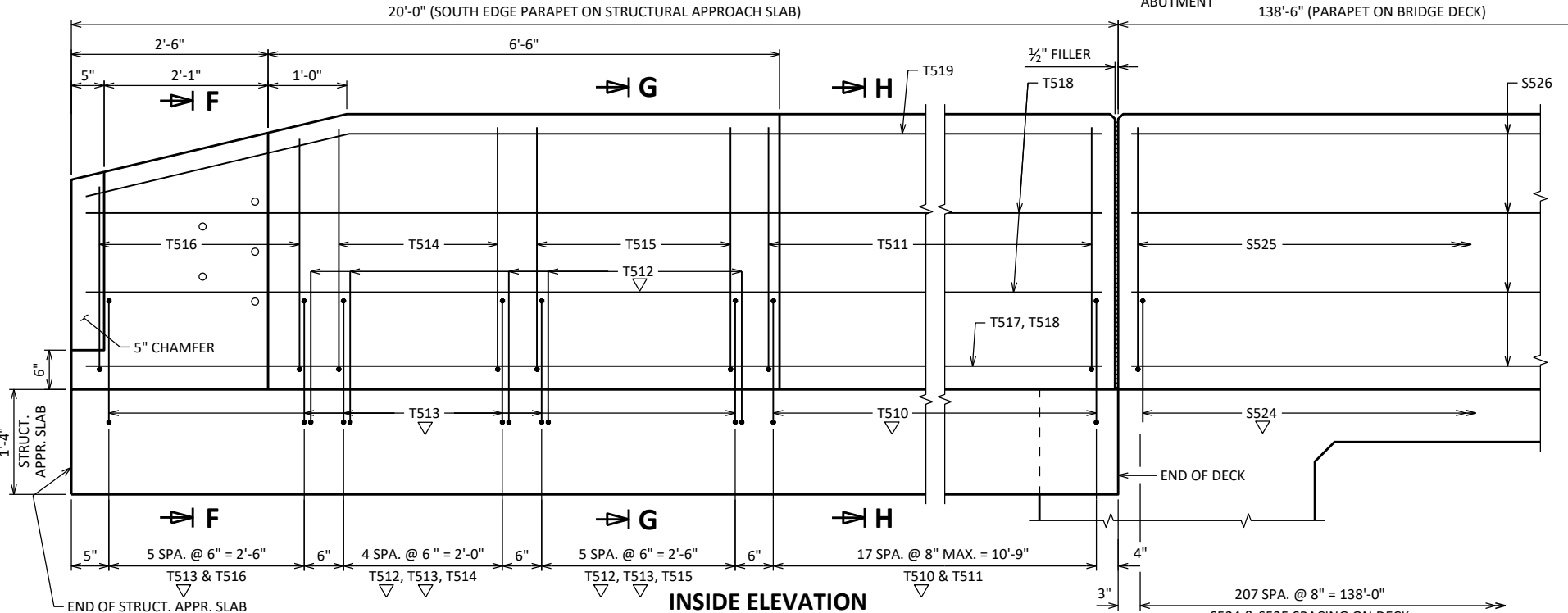
LEGEND

- CONST. JOINT - STRIKE OFF AND LEAVE ROUGH.
- ☐ USE CARE TO PLACE T512 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- ▽ T510, T512, T513, AND T520 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED. S524, AND S527 BARS TO BE TIED TO DECK STEEL BEFORE DECK IS POURED.
- ⊖ INDICATES WING NUMBER.
- F.F. - FRONT FACE B.F. - BACK FACE



PLAN SOUTH EDGE PARAPET

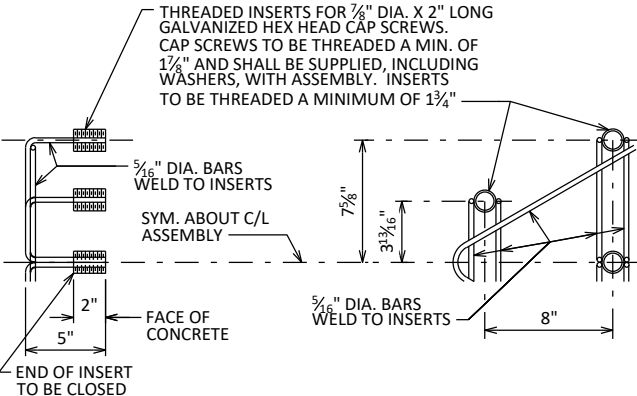
SOUTHEAST CORNER SHOWN, SOUTHWEST SIMILAR



INSIDE ELEVATION

LOOKING SOUTH
STRUCTURAL APPROACH SLAB FOOTING NOT SHOWN FOR CLARITY

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPET MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MINIMUM JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH ASTM F2329.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

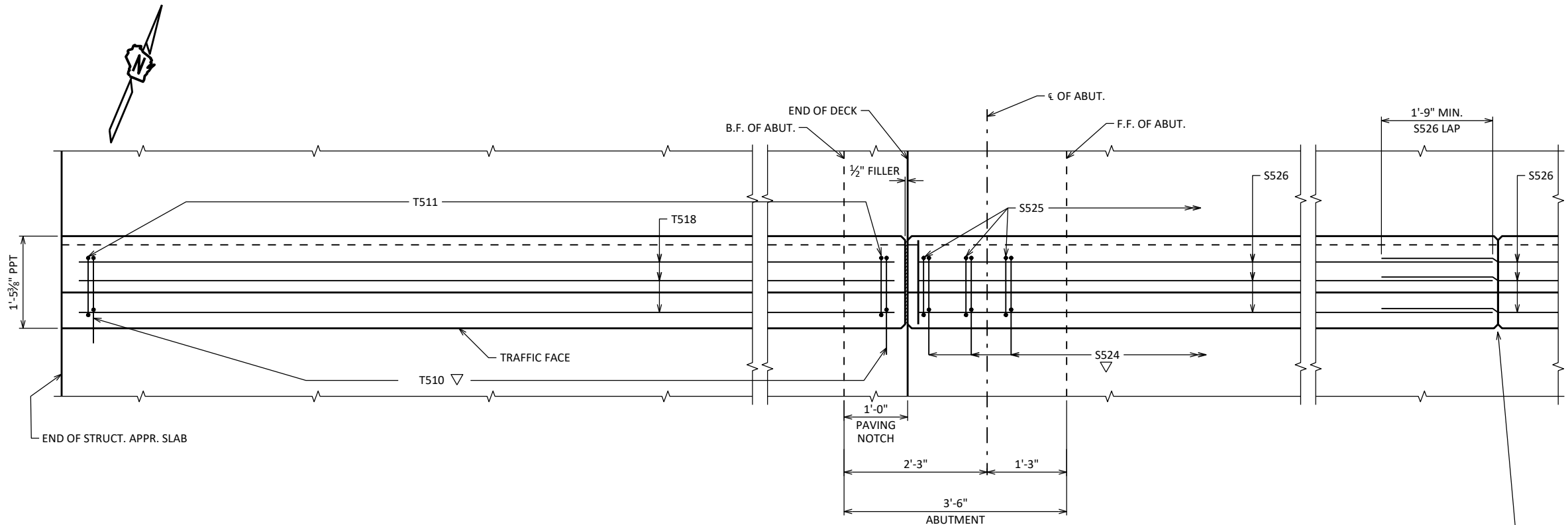
NOTES:

SEE SHEET 19 FOR 42SS SOUTH EDGE PARAPET ON BRIDGE DECK BILL OF BARS AND BAR STEEL REINFORCEMENT DETAILS.

SEE SHEET 28 FOR 42SS SOUTH EDGE PARAPET ON STRUCTURAL APPROACH SLAB BILL OF BARS AND BAR STEEL REINFORCEMENT DETAILS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D JDH
SOUTH EDGE OF DECK SINGLE SLOPE PARAPET 42SS		SHEET 22 140	

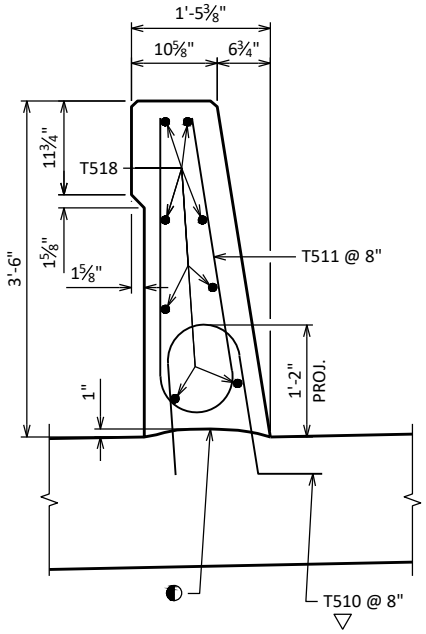
SCALE = 2.00



PLAN - INTERMEDIATE PARAPET

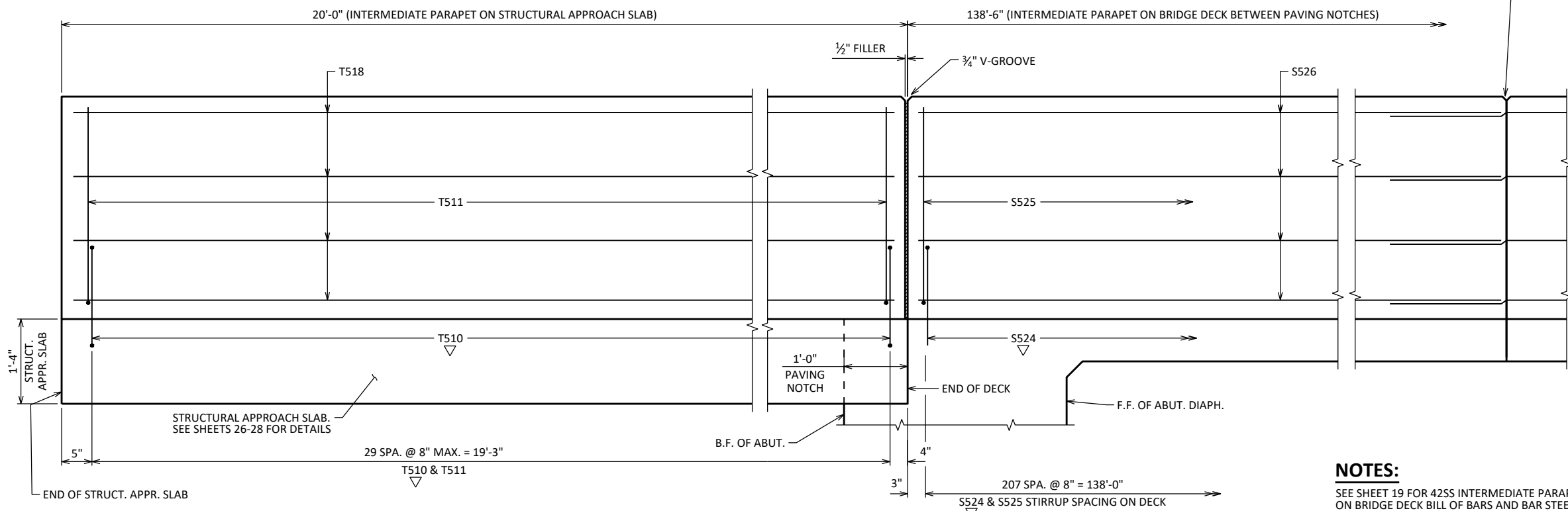
NORTHWEST CORNER SHOWN, NORTHEAST SIMILAR

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPET MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE



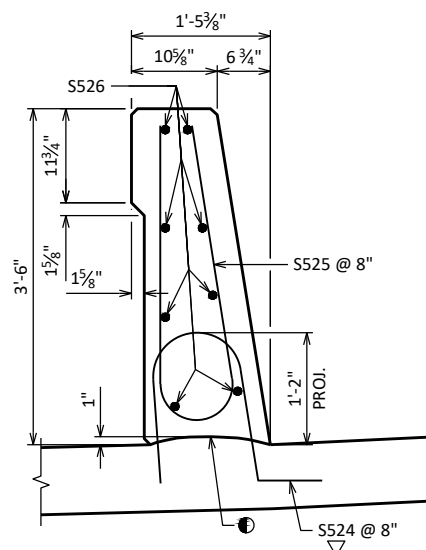
TYPICAL SECTION THRU INTERMEDIATE PARAPET ON STRUCTURAL APPROACH SLAB

SEE SHEET 22 FOR LEGEND OF



INSIDE ELEVATION

NORTHWEST CORNER SHOWN, NORTHEAST SIMILAR
STRUCTURAL APPROACH SLAB FOOTING NOT SHOWN FOR CLARITY



TYPICAL SECTION THRU INTERMEDIATE PARAPET ON BRIDGE DECK

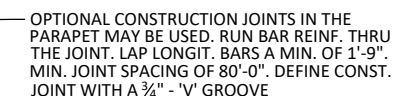
NOTES:

SEE SHEET 19 FOR 42SS INTERMEDIATE PARAPET ON BRIDGE DECK BILL OF BARS AND BAR STEEL REINFORCEMENT DETAILS.

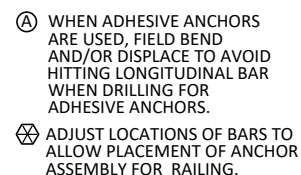
SEE SHEET 28 FOR 42SS INTERMEDIATE PARAPET ON STRUCTURAL APPROACH SLAB BILL OF BARS AND BAR STEEL REINFORCEMENT DETAILS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		NRT	PLANS CK'D NJK
INTERMEDIATE SINGLE SLOPE PARAPET 42SS		SHEET 23 141	

SCALE = 2.00



WEST STR. APPR. SLAB SHOWN. EAST STR. APPR. SLAB SIMILAR



(LOOKING NORTH)

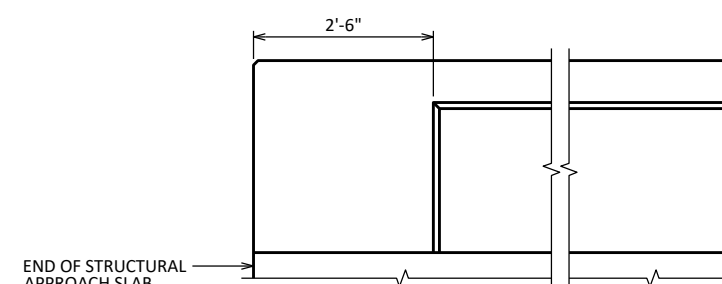


Diagram illustrating the location of the outside edge of the structural approach slab, indicated by a dashed line and a label.

1

2/24/2026 4:47 PM



LEGEND

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

RAILING NOTES

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

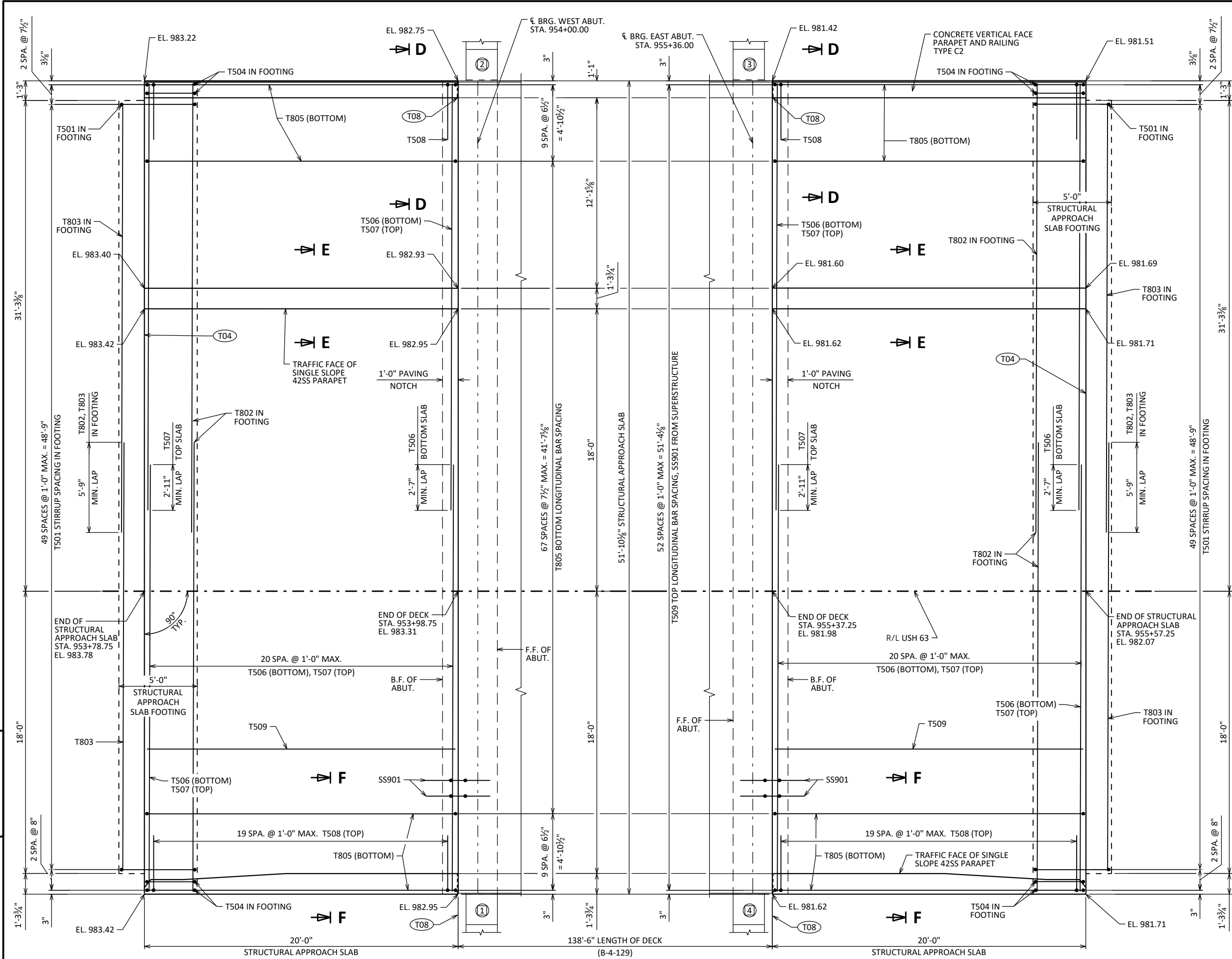


SHOP RAIL SPLICE DETAIL

FIELD ERECTION JOINT DETAIL

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
	DRAWN BY	RLR	PLANS CK'D JDH
COMBINATION RAIL TYPE 'C2' DETAILS		SHEET 25	
		143	



PLAN - WEST STRUCTURAL APPROACH SLAB

PLAN - EAST STRUCTURAL APPROACH SLAB

STATE PROJECT NUMBER

1560-00-78

NOTES

BAR MARKS FOR THE STRUCTURAL APPROACH SLABS AND PARAPET ON THE STRUCTURAL APPROACH SLAB ARE SHOWN WITH A "T" MARK.

ELEVATIONS GIVEN ARE AT TOP OF STRUCTURAL APPROACH SLAB.

ELEVATIONS GIVEN AT EDGE OF STRUCTURAL APPROACH SLAB ARE SAME AS ELEVATIONS AT CORRESPONDING TRAFFIC FACE OF PARAPET.

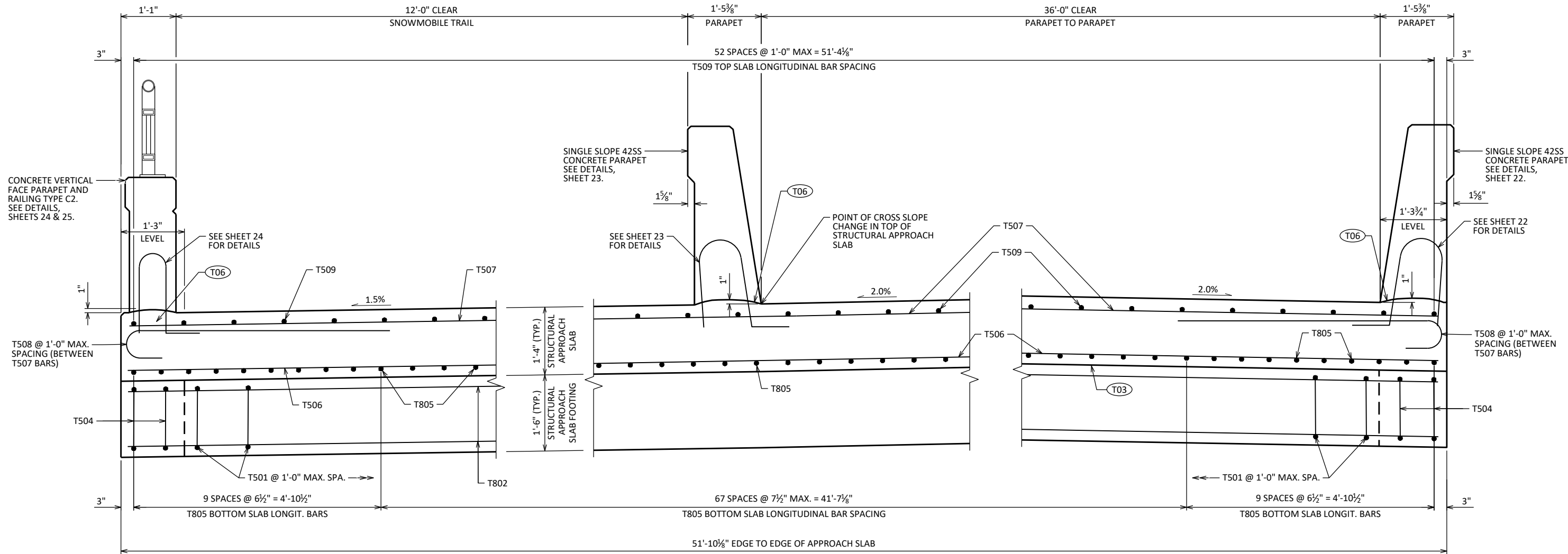
FOR DETAILS OF SINGLE SLOPE PARAPET 42SS ON THE STRUCTURAL APPROACH SLAB, SEE SHEETS 19 AND 20.

LEGEND

- INDICATES WING NUMBER.
- F.F. - FRONT FACE B.F. - BACK FACE
- T01 APPLY PROTECTIVE SURFACE TREATMENT TO PAVING NOTCH SURFACES PRIOR TO POURING STRUCTURAL APPROACH SLAB.
- T02 STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE LENGTH OF THE FOOTING.
- T03 PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE BENEATH SLAB.
- T04 1½" EXPANSION FILLER.
- T06 CONSTRUCTION JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH.
- T08 ½" FILLER BENEATH ELASTOMERIC COMPRESSION JOINT SEAL, EXTEND TO BOTTOM OF APPROACH SLAB.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D NJK
STRUCTURAL APPROACH SLAB		SHEET 26 144	



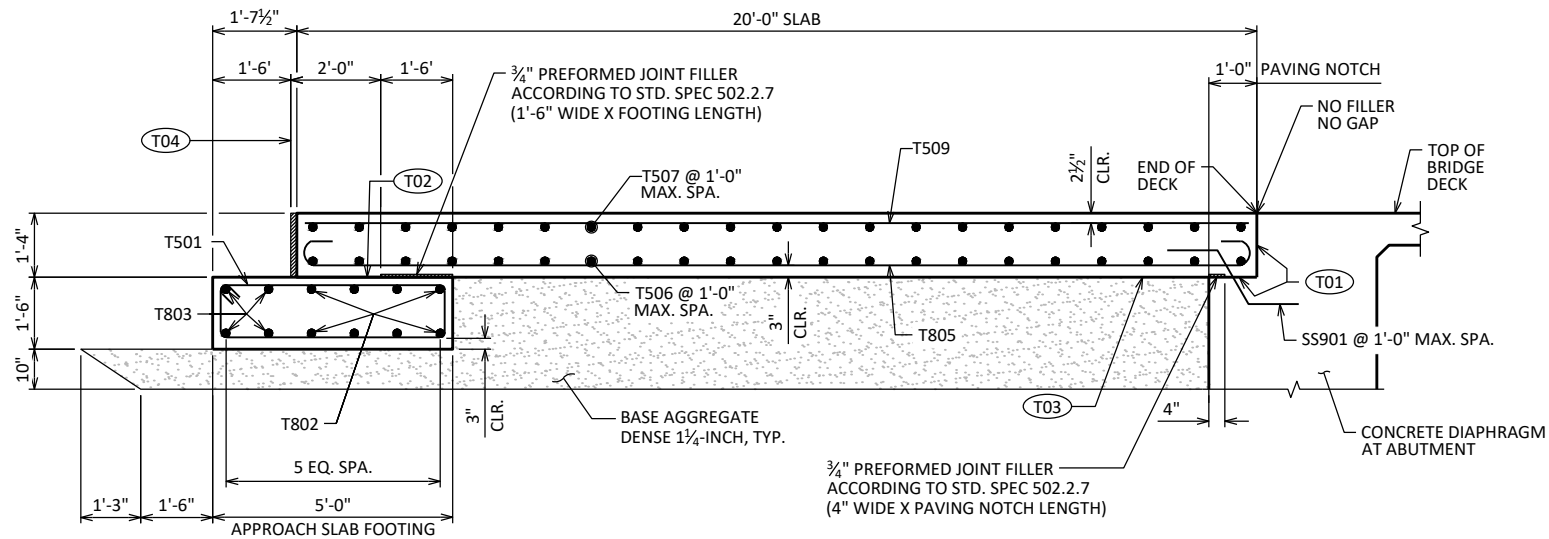
SECTION D-D

SECTION E-E

SECTION F-F

CROSS SECTION THRU STRUCTURAL APPROACH SLAB

(LOOKING EAST)



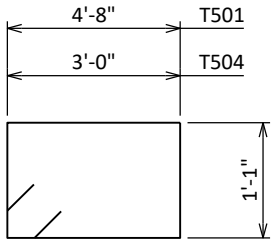
LONGITUDINAL SECTION THRU STRUCTURAL APPROACH SLAB

(LOOKING NORTH)
WEST SLAB SHOWN, EAST SLAB SIMILAR

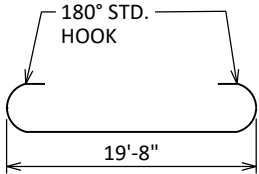
SEE SHEET 26 LEGEND
FOR DESCRIPTION OF

T01 T02 T03
T04 T06

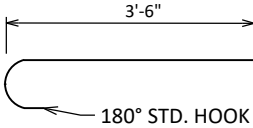
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D NJK
STRUCTURAL APPROACH SLAB SECTIONS		SHEET 27 145	



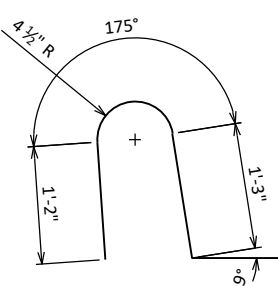
T501, T504



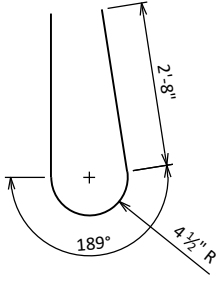
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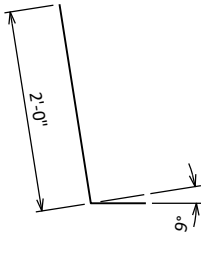
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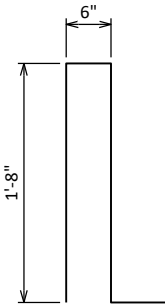
T510



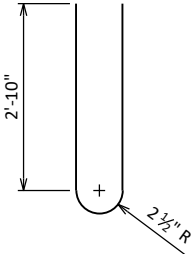
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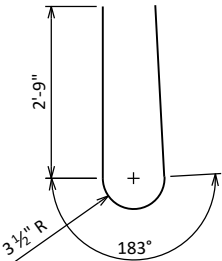
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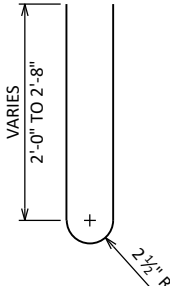
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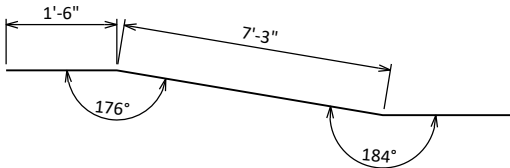
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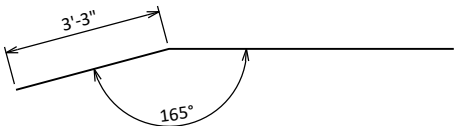
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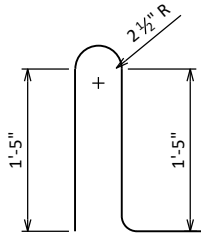
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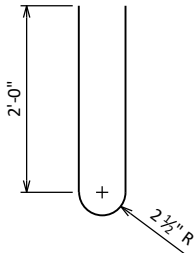
T517



T519



T520



T521

BILL OF BARS

NOTE: THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	WEST APPR. SLAB	EAST APPR. SLAB	LENGTH	BENT	BAR SERIES	LOCATION
T501	X	50	50	12'-2"	X		APPROACH SLAB FOOTING - STIRRUP - VERT.
T802	X	8	8	28'-8"			APPROACH SLAB FOOTING - TRANS.
T803	X	4	4	27'-5"			APPROACH SLAB - FOOTING - NOTCHES - TRANS.
T504	X	4	4	9'-2"	X		APPROACH SLAB - FOOTING - STIRRUP - NOTCHES - VERT.
T805	X	61	61	21'-5"	X		APPROACH SLAB - BOT. - LONGIT.
T506	X	42	42	27'-1"			APPROACH SLAB - BOTTOM - TRANS.
T507	X	42	42	27'-3"			APPROACH SLAB - TOP - TRANS.
T508	X	42	42	4'-1"	X		APPROACH SLAB - TOP @ EDGES - TRANS.
T509	X	53	53	19'-7"			APPROACH SLAB - TOP - LONGIT.
T510	X	48	48	4'-5"	X		42SS INTERMEDIATE & SOUTH EDGE PARAPET - STIRRUP INTO SLAB - VERT.
T511	X	48	48	6'-8"	X		42SS INTERMEDIATE & SOUTH EDGE PARAPET - STIRRUP - TOP - VERT.
T512	X	12	12	2'-9"	X		42SS SOUTH EDGE PARAPET - INTO SLAB - VERT.
T513	X	17	17	4'-4"	X		42SS SOUTH EDGE PARAPET - END - STIRRUP INTO SLAB - VERT.
T514	X	5	5	6'-5"	X		42SS SOUTH EDGE PARAPET - STIRRUP - TOP - VERT.
T515	X	6	6	6'-6"	X		42SS SOUTH EDGE PARAPET - STIRRUP - TOP - VERT.
T516	X	6	6	5'-5"	X	S	42SS SOUTH EDGE PARAPET - END - STIRRUP - TOP - VERT.
T517	X	1	1	19'-7"	X		42SS SOUTH EDGE PARAPET - BOTTOM - TRAFFIC FACE - LONGIT.
T518	X	13	13	19'-7"			42SS INTERMEDIATE & SOUTH EDGE - LONGIT.
T519	X	2	2	19'-8"	X		42SS SOUTH EDGE PARAPET -TOP - LONGIT.
T520	X	29	29	4'-4"	X		COMBINATION RAIL PARAPET - STIRRUP INTO SLAB - VERT.
T521	X	29	29	4'-9"	X		COMBINATION RAIL PARAPET - STIRRUP - TOP - VERT.
T522	X	8	8	19'-7"			COMBINATION RAIL PARAPET - LONGIT.

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

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.	LENGTH
T516	2 SERIES OF 6	4'-9" TO 6'-1"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-4-129			
DRAWN BY		RLR	PLANS CK'D NJK
STRUCTURAL APPROACH SLAB DETAILS		SHEET 28	146

USH63 WEST

STATION	REAL STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)				
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT 1.00	EXPANDED FILL 1.25	EXPANDED MARSH BACKFILL 1.00	REDUCED MARSH IN FILL 1.00	MASS ORDNATE
							NOTE 1	NOTE 2	NOTE 3		NOTE 1		NOTE 4	NOTE 6	NOTE 8
947+00.00	94700.00	0.00	5.01	9.32	2.96	0.00	0	0	0	0	0	0	0	0	0
947+50.00	94750.00	50.00	1.30	9.32	13.11	0.00	6	17	15	0	6	19	0	0	-30
948+00.00	94800.00	50.00	0.83	9.32	17.45	0.00	2	17	28	0	8	54	0	0	-80
948+50.00	94850.00	50.00	3.60	9.32	14.96	0.00	4	17	30	0	12	91	0	0	-130
949+00.00	94900.00	50.00	4.96	9.32	12.50	0.00	8	17	25	0	20	123	0	0	-171
949+50.00	94950.00	50.00	4.63	9.32	15.59	0.00	9	17	26	0	29	155	0	0	-211
949+82.90	94982.90	32.90	3.86	9.32	17.21	0.00	5	11	20	0	34	180	0	0	-242
950+00.00	95000.00	17.10	2.83	9.32	16.57	0.00	2	6	11	0	36	194	0	0	-260
950+50.00	95050.00	50.00	3.88	9.32	13.10	0.00	6	17	27	0	42	228	0	0	-305
950+72.04	95072.04	22.04	6.40	9.32	15.81	0.00	4	8	12	0	46	243	0	0	-324
951+00.00	95100.00	27.96	5.74	9.32	23.89	0.00	6	10	21	0	52	269	0	0	-354
951+02.04	95102.04	2.04	51.03	9.32	21.15	0.00	2	1	2	0	54	271	0	0	-355
951+14.95	95114.95	12.91	62.64	9.32	14.01	0.00	27	4	8	0	81	281	0	0	-342
951+26.81	95126.81	11.86	63.68	9.32	11.85	0.00	28	4	6	0	109	289	0	0	-326
951+50.00	95150.00	23.19	66.92	9.32	2.31	0.00	56	8	6	0	165	296	0	0	-285
951+51.59	95151.59	1.59	66.66	9.32	1.76	0.00	4	1	0	0	169	296	0	0	-282
952+00.00	95200.00	48.41	64.48	9.32	8.03	0.00	118	17	9	0	287	308	0	0	-193
952+04.06	95204.06	4.06	63.26	9.32	11.84	0.00	10	1	1	0	297	309	0	0	-185
952+34.06	95234.06	30.00	63.49	9.32	22.48	0.00	70	10	19	0	367	333	0	0	-149
952+50.00	95250.00	15.94	66.17	9.32	24.28	0.00	38	6	14	0	405	350	0	0	-134
952+59.04	95259.04	9.04	67.45	9.32	31.69	0.00	22	3	9	0	427	361	0	0	-126
952+84.02	95284.02	24.98	68.77	9.32	85.12	0.00	63	9	54	0	490	429	0	0	-140
953+00.00	95300.00	15.98	70.25	9.32	127.90	0.00	41	6	63	0	531	508	0	0	-184
953+50.00	95350.00	50.00	74.38	9.32	181.44	0.00	134	17	286	0	665	865	0	0	-424
953+78.75	95378.75	28.75	66.63	9.32	57.88	0.00	75	10	127	0	740	1024	0	0	-518

NOTES:

- 1 - CUT
- 2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL
- 3 - FILL
- 4 - EXPANDED MARSH BACKFILL
- 6 - REDUCED MARSH IN FILL
- 8 - MASS ORDNATE

CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL

THIS DOES NOT SHOW UP IN CROSS SECTIONS

DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME

WILL BE BACKFILLED WITH GRANULAR BACKFILL (OR CUT, OR BORROW)

REDUCED MARSH EXCAVATION THAT CAN BE USED IN FILL

IF MARSH OR EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]

PROJECT NO: 1560-00-78

HWY: USH 63

COUNTY: BAYFIELD

EARTHWORK DATA

SHEET

147

E

USH63 EAST

STATION	REAL STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)				
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	EXPANDED FILL	EXPANDED MARSH BACKFILL	REDUCED MARSH IN FILL	MASS ORDINATE
											1.00	1.25	1.00	1.00	
							NOTE 1	NOTE 2	NOTE 3		NOTE 1		NOTE 4	NOTE 6	NOTE 8
955+57.25	95557.25	0.00	53.74	12.00	83.22	0.00	0	0	0	0	0	0	0	0	0
956+00.00	95600.00	42.75	59.53	12.00	192.73	0.00	90	19	218	0	90	273	0	0	-202
956+50.00	95650.00	50.00	66.41	12.00	105.06	0.00	117	22	276	0	207	618	0	0	-452
956+52.26	95652.26	2.26	67.15	12.00	97.07	0.00	6	1	8	0	213	628	0	0	-457
956+59.61	95659.61	7.35	69.36	12.00	88.58	0.00	19	3	25	0	232	659	0	0	-472
956+77.24	95677.24	17.63	73.13	12.00	43.13	0.00	47	8	43	0	279	713	0	0	-487
956+84.59	95684.59	7.35	75.62	12.00	40.65	0.00	20	3	11	0	299	726	0	0	-483
957+00.00	95700.00	15.41	78.97	12.00	11.48	0.00	44	7	15	0	343	745	0	0	-465
957+02.22	95702.22	2.22	78.44	12.00	11.23	0.00	6	1	1	0	349	746	0	0	-461
957+09.57	95709.57	7.35	75.94	12.00	16.86	0.00	21	3	4	0	370	751	0	0	-448
957+27.00	95727.00	17.43	40.53	12.00	4.73	0.00	38	8	7	0	408	760	0	0	-427
957+32.22	95732.22	5.22	38.66	12.00	3.93	0.00	8	2	1	0	416	761	0	0	-422
957+39.57	95739.57	7.35	13.38	12.00	12.86	0.00	7	3	2	0	423	764	0	0	-421
957+50.00	95750.00	10.43	11.35	12.00	12.35	0.00	5	5	5	0	428	770	0	0	-427
957+91.32	95791.32	41.32	7.71	12.00	8.76	0.00	15	18	16	0	443	790	0	0	-450
957+98.67	95798.67	7.35	7.31	12.00	7.44	0.00	2	3	2	0	445	793	0	0	-454
958+00.00	95800.00	1.33	7.24	12.00	7.39	0.00	0	1	0	0	445	793	0	0	-455
958+50.00	95850.00	50.00	5.89	12.00	0.56	0.00	12	22	7	0	457	801	0	0	-473

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - EXPANDED MARSH BACKFILL	WILL BE BACKFILLED WITH GRANULAR BACKFILL (OR CUT, OR BORROW)
6 - REDUCED MARSH IN FILL	REDUCED MARSH EXCAVATION THAT CAN BE USED IN FILL
8 - MASS ORDINATE	IF MARSH OR EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]

TRAIL REALIGNMENT WEST

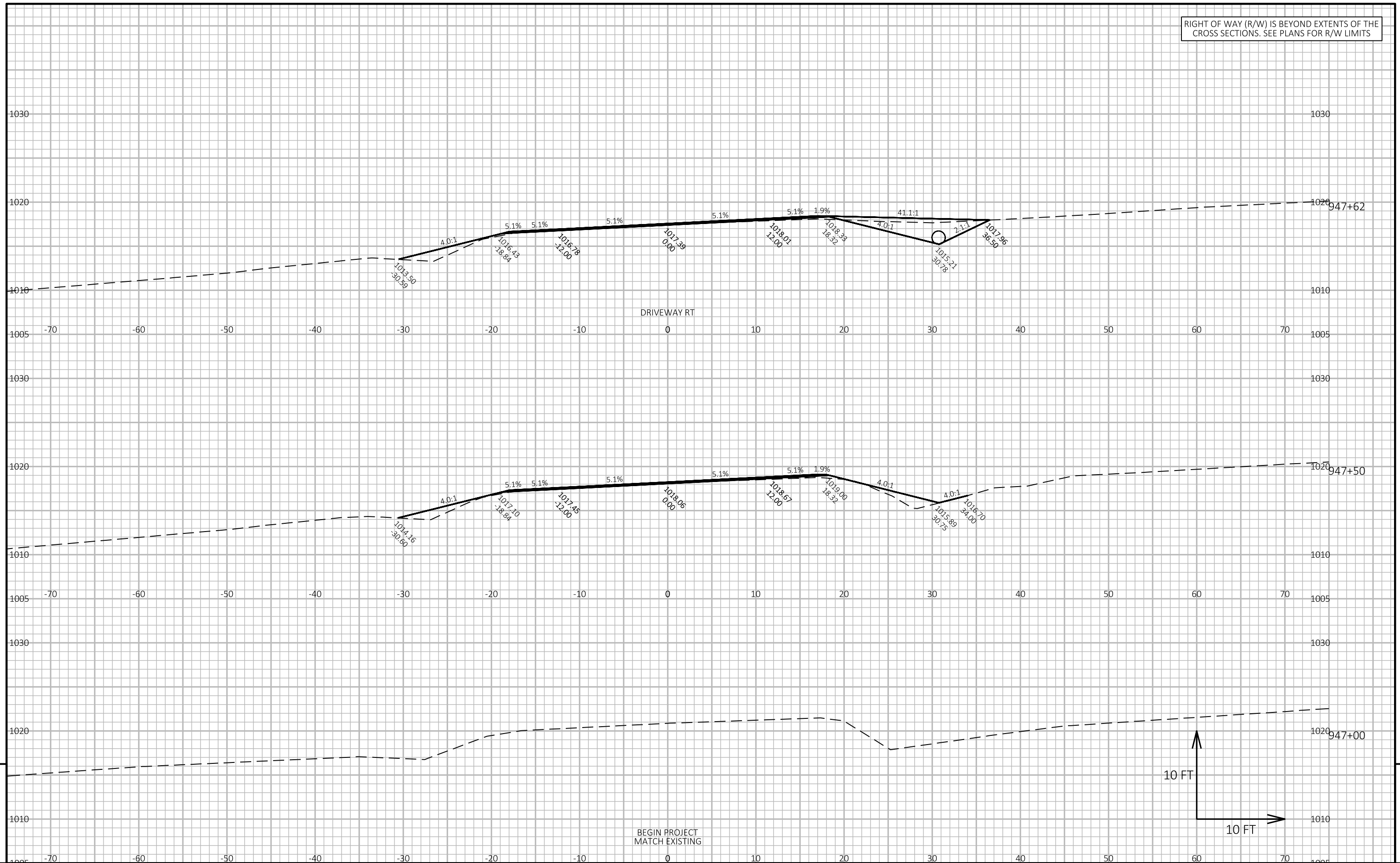
STATION	REAL STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)				
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT 1.00	EXPANDED FILL 1.25	EXPANDED MARSH BACKFILL 1.00	REDUCED MARSH IN FILL 1.00	MASS ORDNATE
			NOTE 1	NOTE 2	NOTE 3		NOTE 1	NOTE 2	NOTE 3		NOTE 1	1.25	NOTE 4	NOTE 6	NOTE 8
97+58.00	9758.00	0.00	1.88	0.00	0.83	0.00	0	0	0	0	0	0	0	0	0
98+00.00	9800.00	42.00	0.00	0.00	8.53	0.00	1	0	7	0	1	9	0	0	-8
98+50.00	9850.00	50.00	0.00	0.00	57.99	0.00	0	0	62	0	1	86	0	0	-85
99+00.00	9900.00	50.00	0.00	0.00	15.32	0.00	0	0	68	0	1	171	0	0	-170
99+50.00	9950.00	50.00	78.08	0.00	0.00	0.00	72	0	14	0	73	189	0	0	-116
100+00.00	10000.00	50.00	206.42	0.00	0.00	0.00	263	0	0	0	336	189	0	0	147
100+50.00	10050.00	50.00	235.23	0.00	0.00	0.00	409	0	0	0	745	189	0	0	556
101+00.00	10100.00	50.00	235.39	0.00	0.00	0.00	436	0	0	0	1181	189	0	0	992
101+50.00	10150.00	50.00	136.63	0.00	4.50	0.00	344	0	4	0	1525	194	0	0	1331
102+00.00	10200.00	50.00	0.00	0.00	36.79	0.00	127	0	38	0	1652	241	0	0	1411
102+50.00	10250.00	50.00	0.00	0.00	175.28	0.00	0	0	196	0	1652	486	0	0	1166
103+00.00	10300.00	50.00	0.00	0.00	293.25	0.00	0	0	434	0	1652	1029	0	0	623
103+50.00	10350.00	50.00	1.33	0.00	414.46	0.00	1	0	655	0	1653	1848	0	0	-195
103+78.75	10378.75	28.75	1.25	0.00	284.36	0.00	1	0	372	0	1654	2313	0	0	-659

TRAIL REALIGNMENT EAST

STATION	REAL STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)				
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT 1.00	EXPANDED FILL 1.25	EXPANDED MARSH BACKFILL 1.00	REDUCED MARSH IN FILL 1.00	MASS ORDNATE
			NOTE 1	NOTE 2	NOTE 3		NOTE 1	NOTE 2	NOTE 3		NOTE 1	1.25	NOTE 4	NOTE 6	NOTE 8
105+57.25	10557.25	0.00	1.56	0.00	176.13	0.00	0	0	0	0	0	0	0	0	0
106+00.00	10600.00	42.75	2.76	0.00	150.31	0.00	3	0	258	0	3	323	0	0	-320
106+50.00	10650.00	50.00	1.03	0.00	108.78	0.00	4	0	240	0	7	623	0	0	-616
107+00.00	10700.00	50.00	0.00	0.00	148.89	0.00	1	0	239	0	8	921	0	0	-913
107+50.00	10750.00	50.00	0.00	0.00	134.67	0.00	0	0	263	0	8	1250	0	0	-1242
108+00.00	10800.00	50.00	0.00	0.00	88.54	0.00	0	0	207	0	8	1509	0	0	-1501
108+50.00	10850.00	50.00	0.00	0.00	73.35	0.00	0	0	150	0	8	1696	0	0	-1688
109+00.00	10900.00	50.00	0.00	0.00	31.41	0.00	0	0	97	0	8	1818	0	0	-1810
109+50.00	10950.00	50.00	0.00	0.00	4.23	0.00	0	0	33	0	8	1859	0	0	-1851
109+58.00	10958.00	8.00	1.43	0.00	0.13	0.00	0	0	1	0	8	1860	0	0	-1852

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - EXPANDED MARSH BACKFILL	WILL BE BACKFILLED WITH GRANULAR BACKFILL (OR CUT, OR BORROW)
6 - REDUCED MARSH IN FILL	REDUCED MARSH EXCAVATION THAT CAN BE USED IN FILL
8 - MASS ORDNATE	IF MARSH OR EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]

RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
CROSS SECTIONS. SEE PLANS FOR R/W LIMITS



PROJECT NO:	1560-00-78
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HWY: USH 63

COUNTY: BAYFIELD

CROSS SECTIONS: USH 63

SHEET	150
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E	

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LAYOUT NAME - 01

PLOT DATE : 4/24/2026 8:22 AM

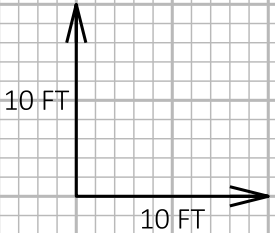
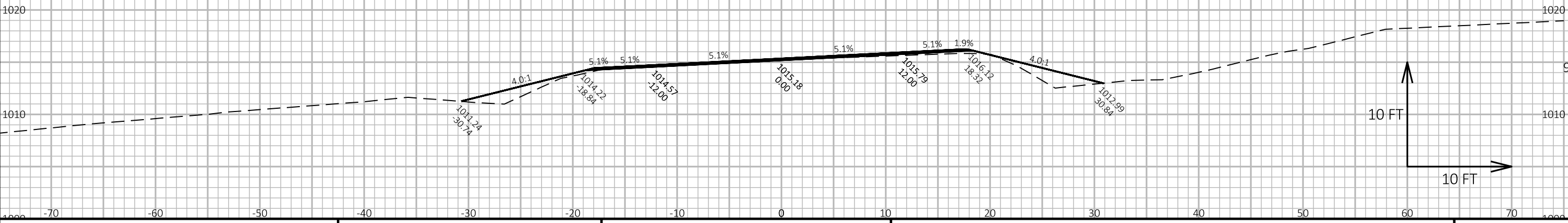
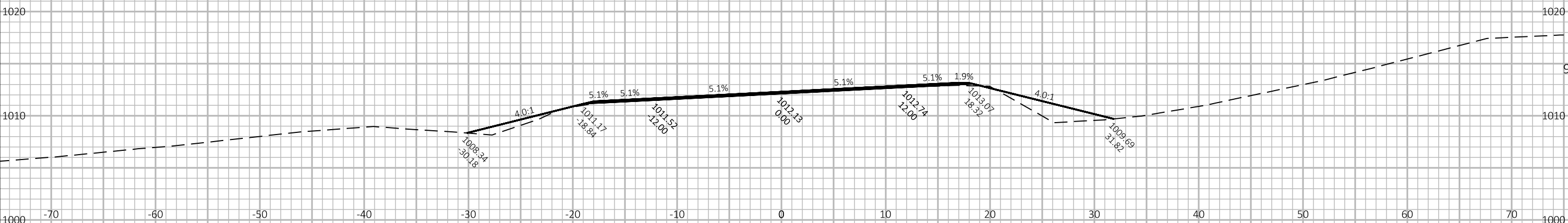
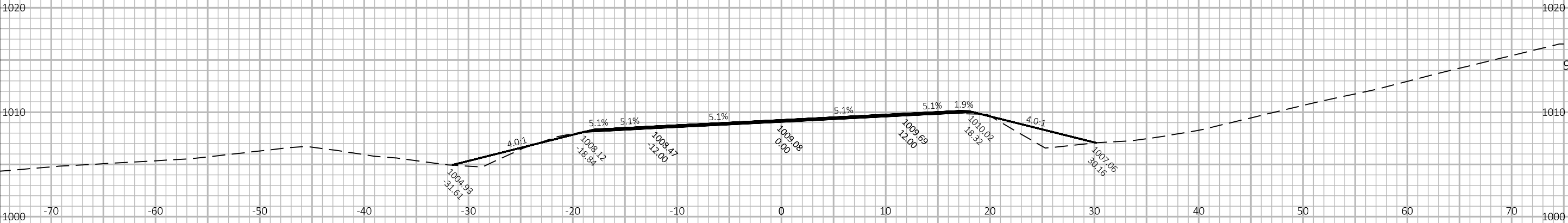
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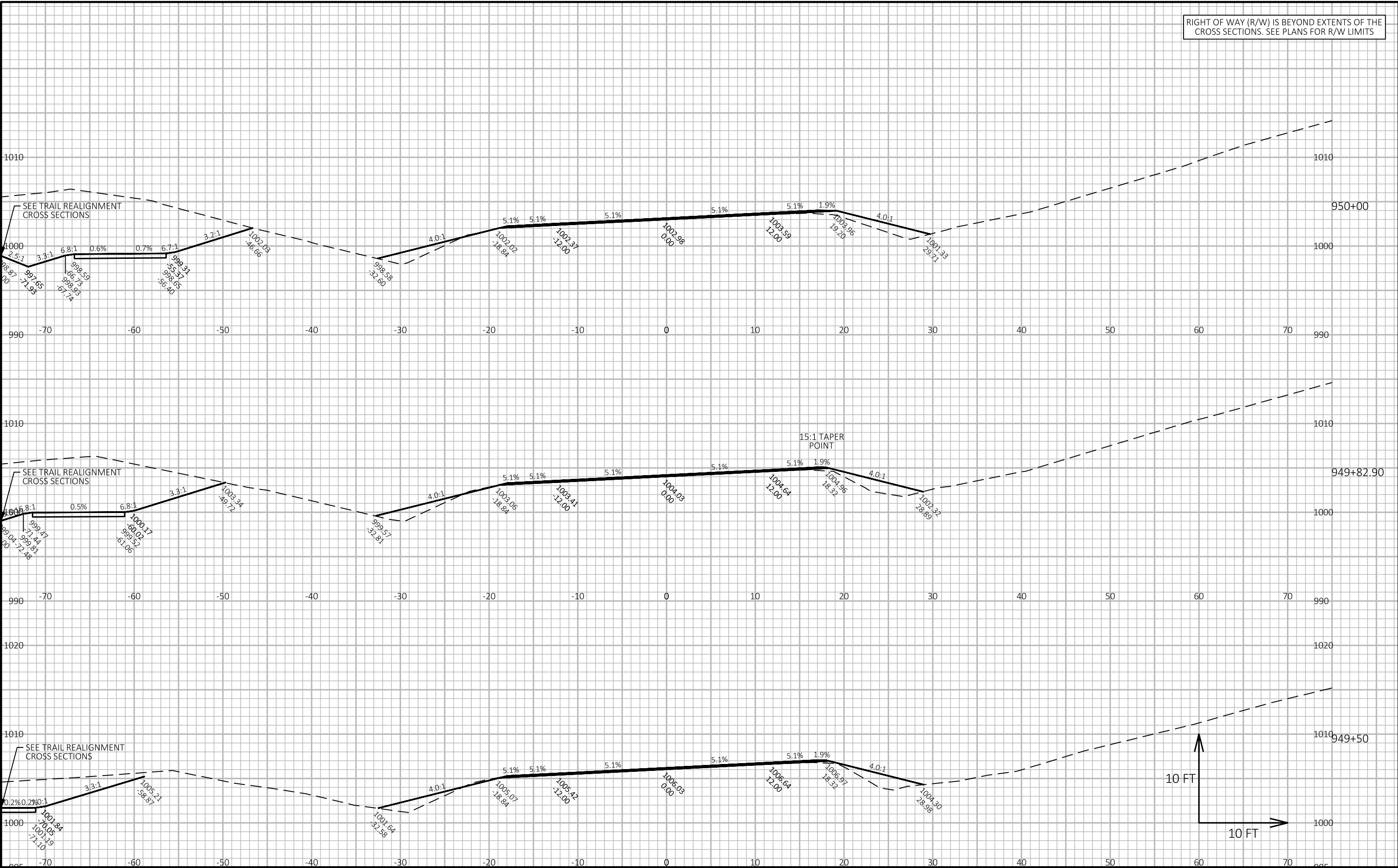
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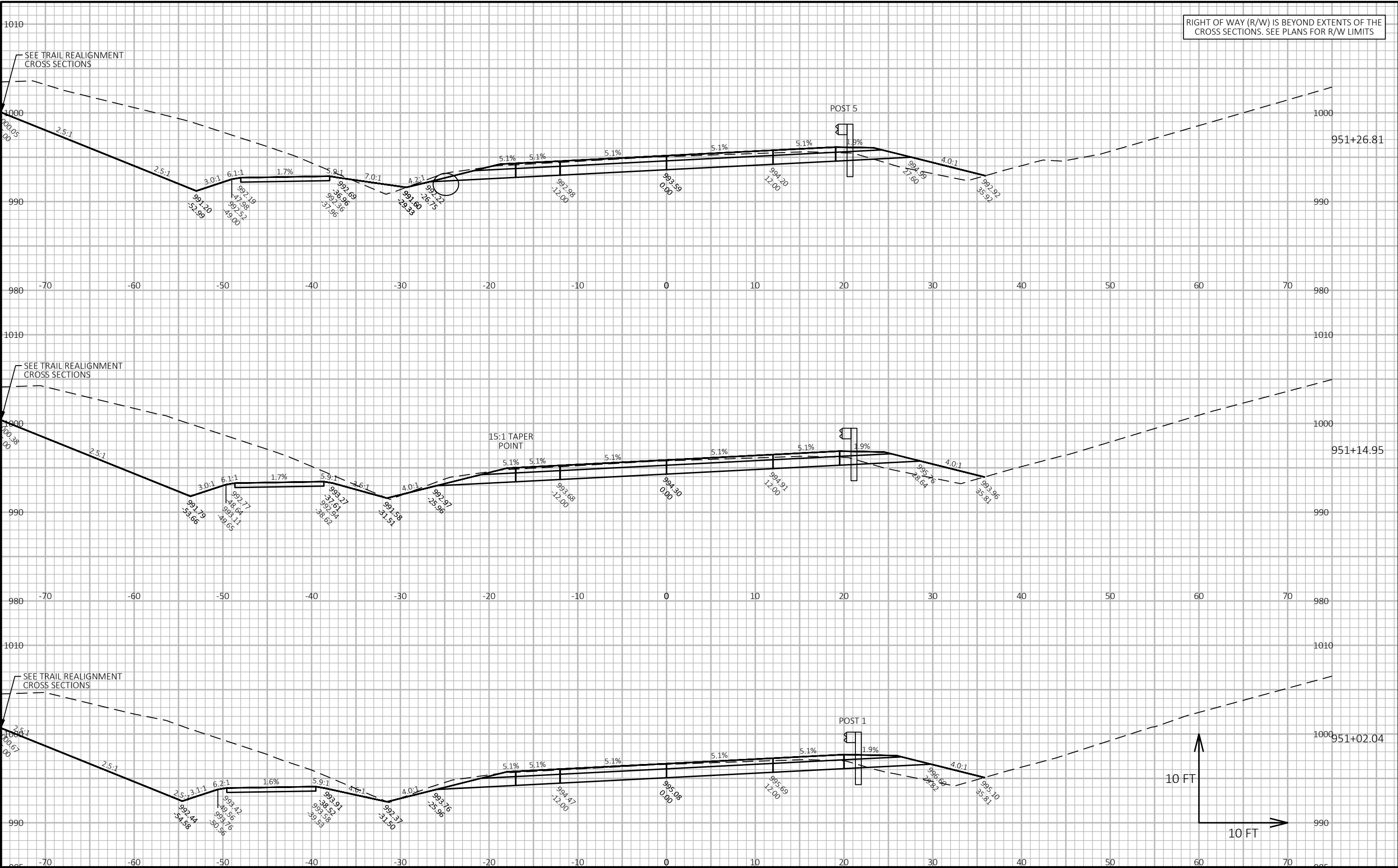
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WISDOT/CADDS SHEET 49

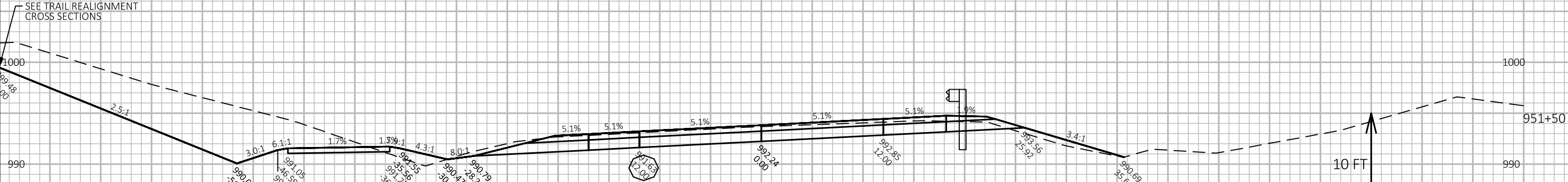
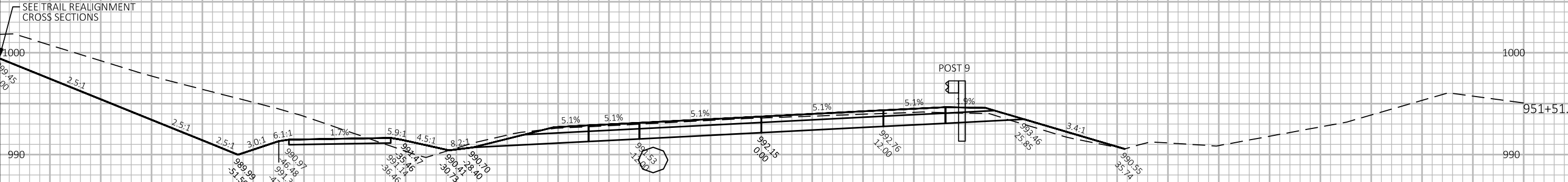
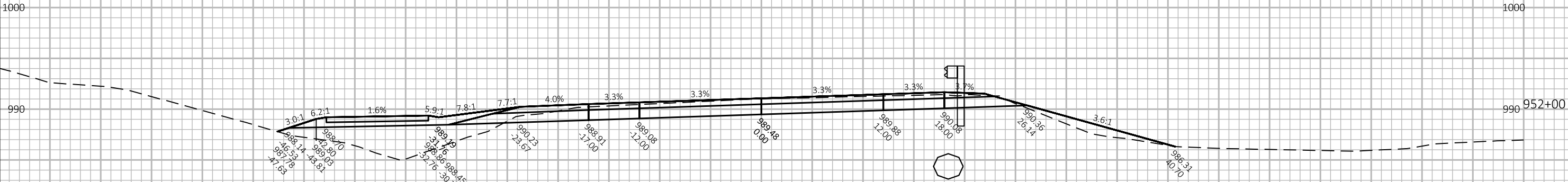
RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
CROSS SECTIONS. SEE PLANS FOR R/W LIMITS



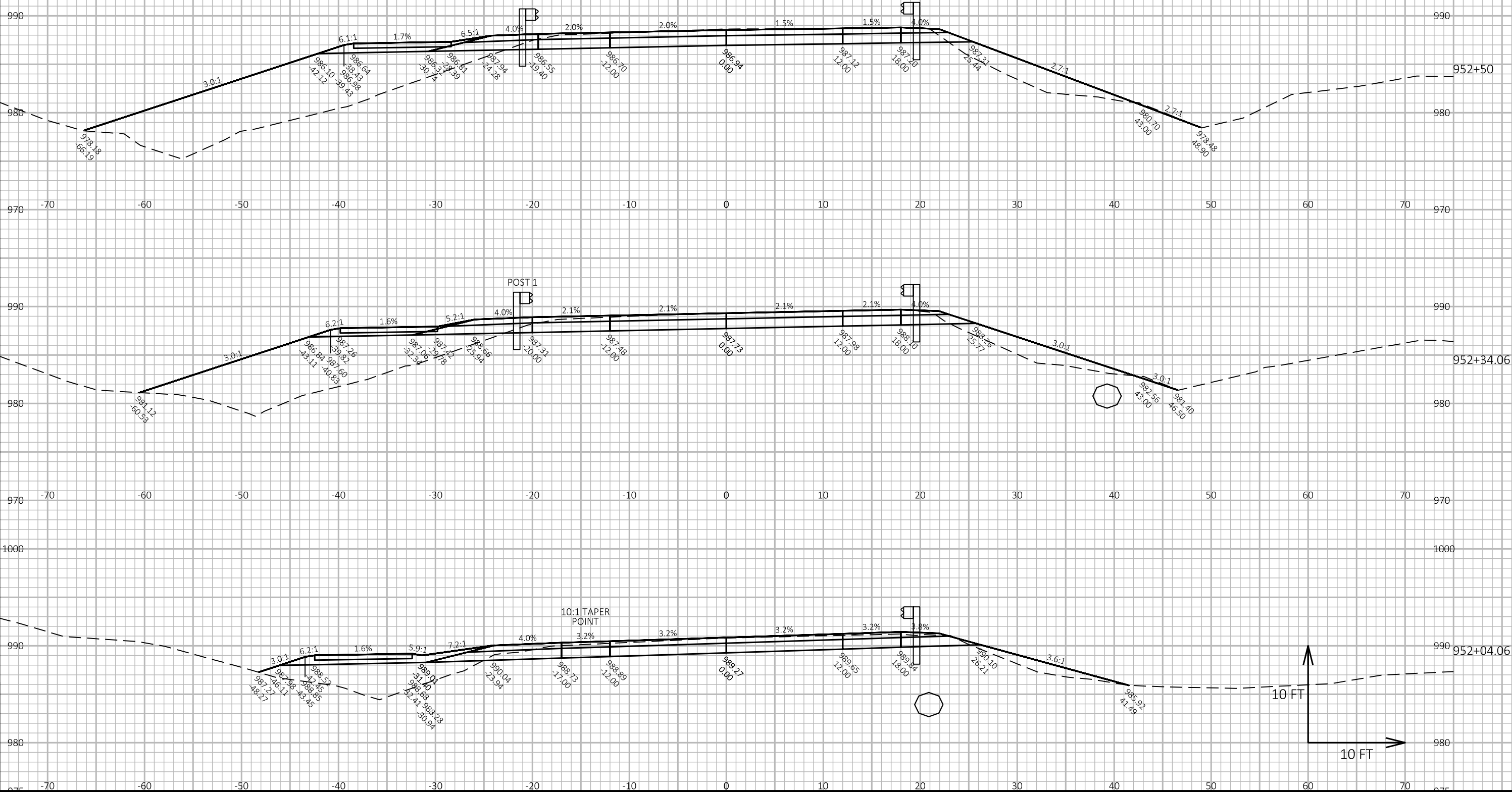




RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE CROSS SECTIONS. SEE PLANS FOR R/W LIMITS



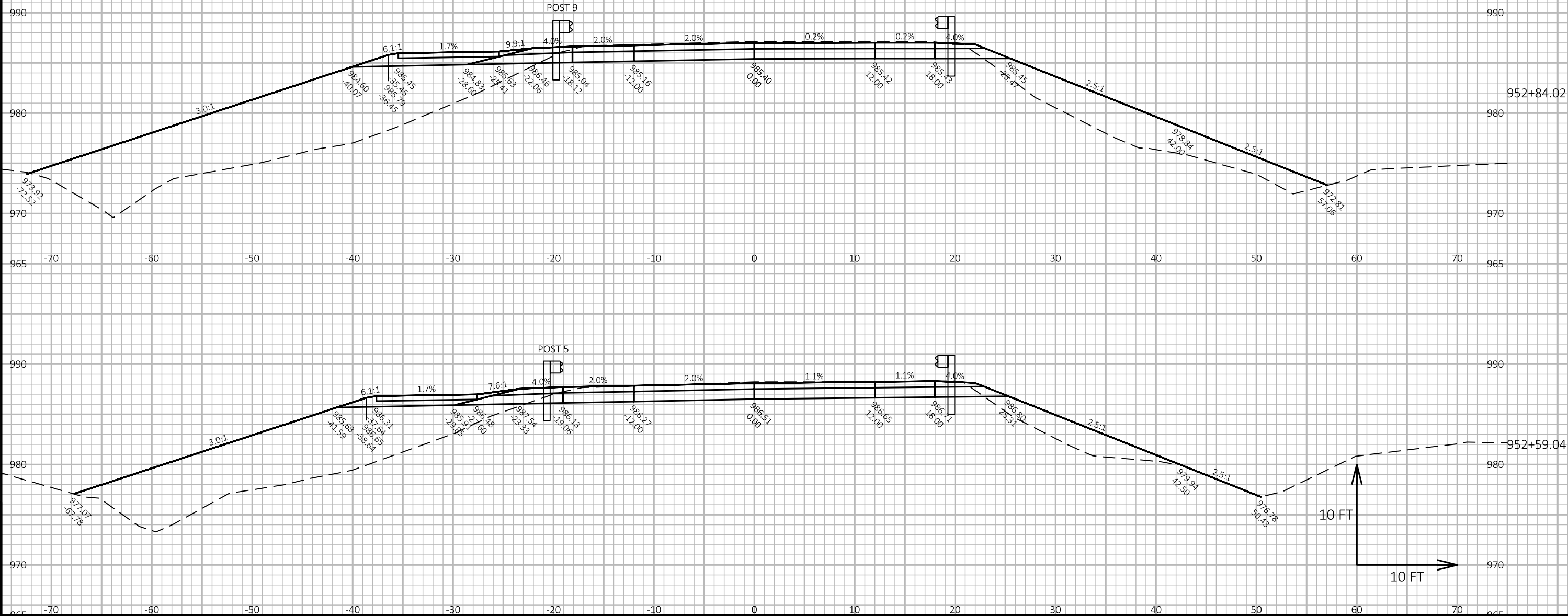
RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
CROSS SECTIONS. SEE PLANS FOR R/W LIMITS



9

9

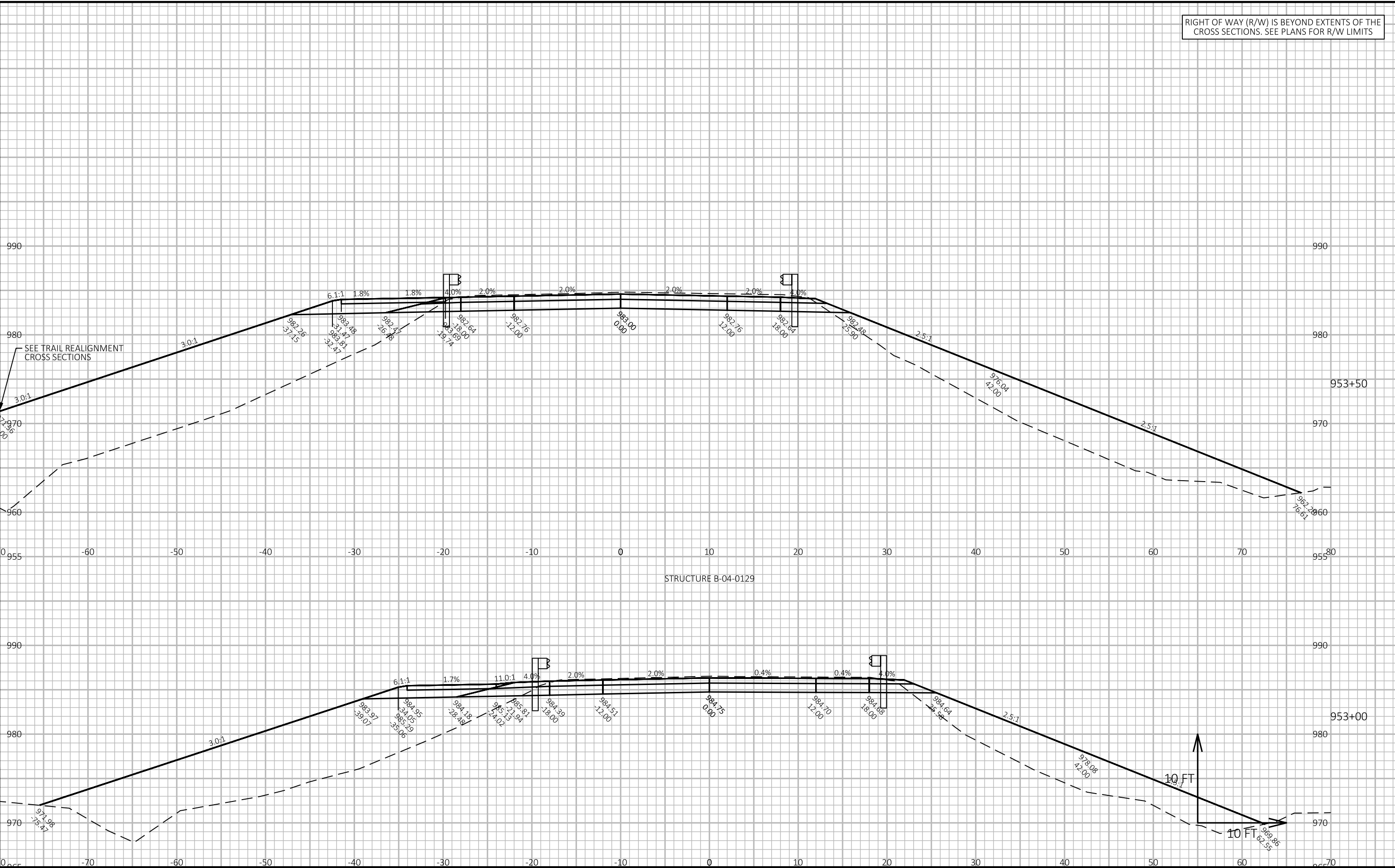
RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
CROSS SECTIONS. SEE PLANS FOR R/W LIMITS



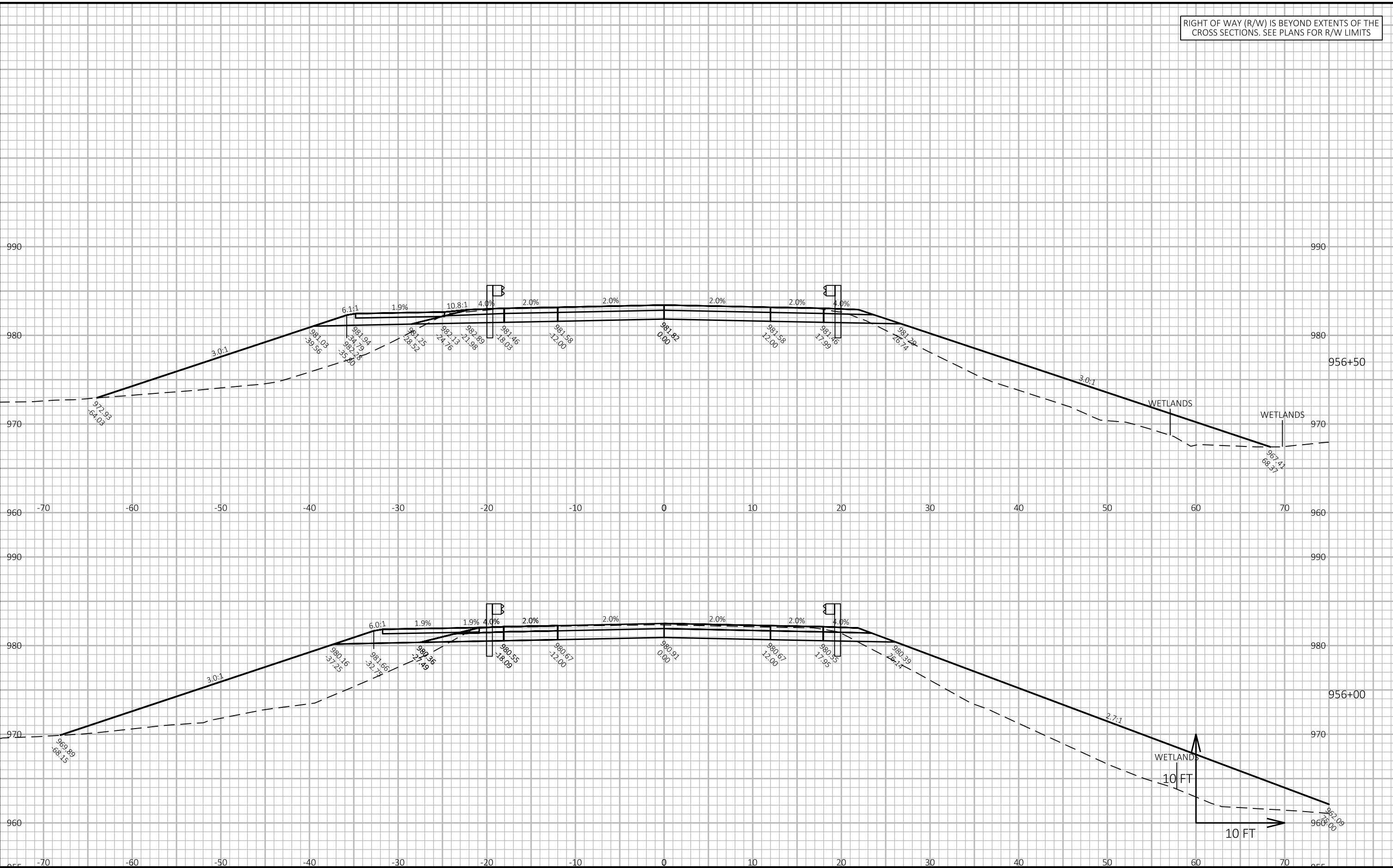
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RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE CROSS SECTIONS. SEE PLANS FOR R/W LIMITS



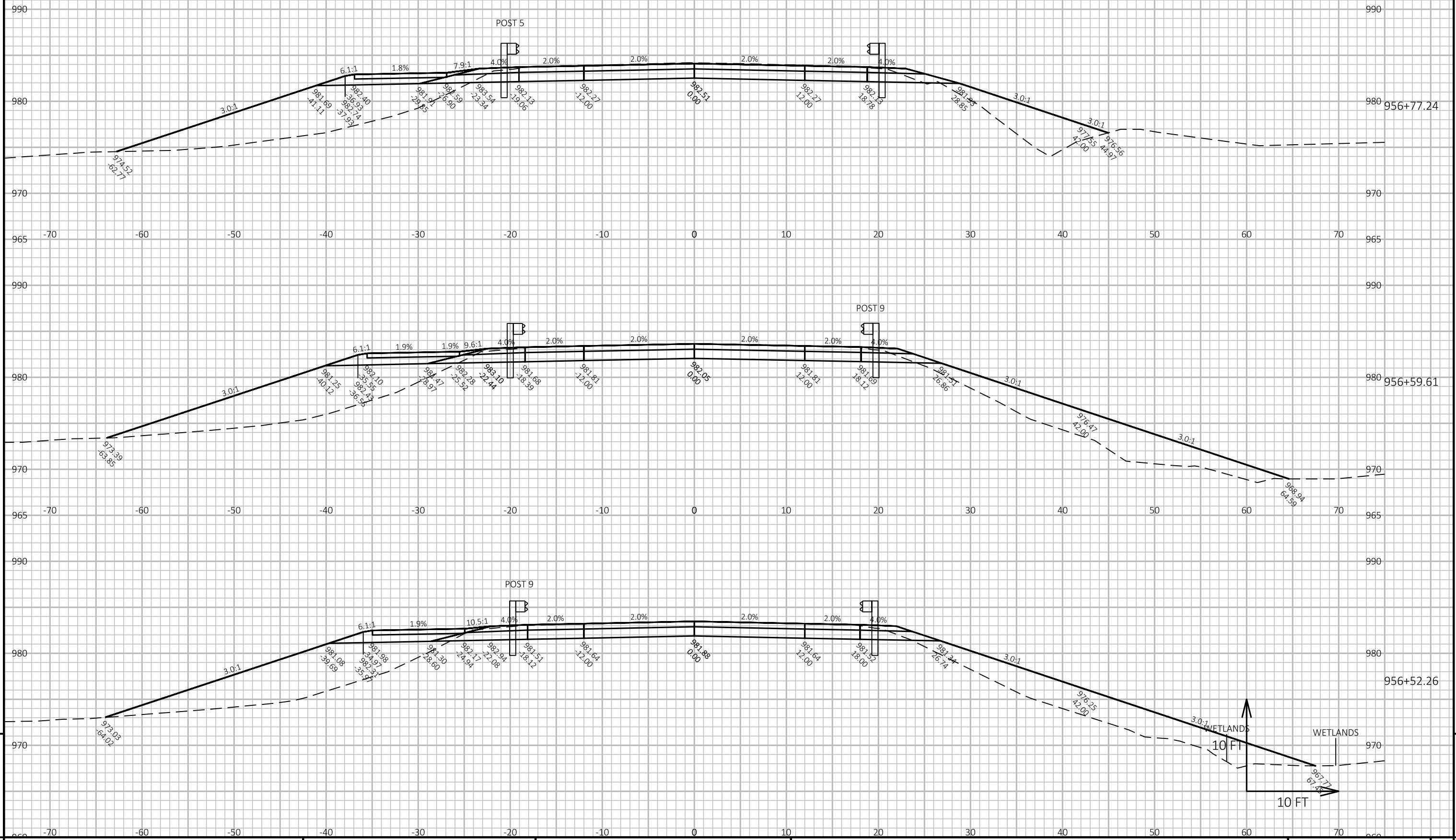
RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
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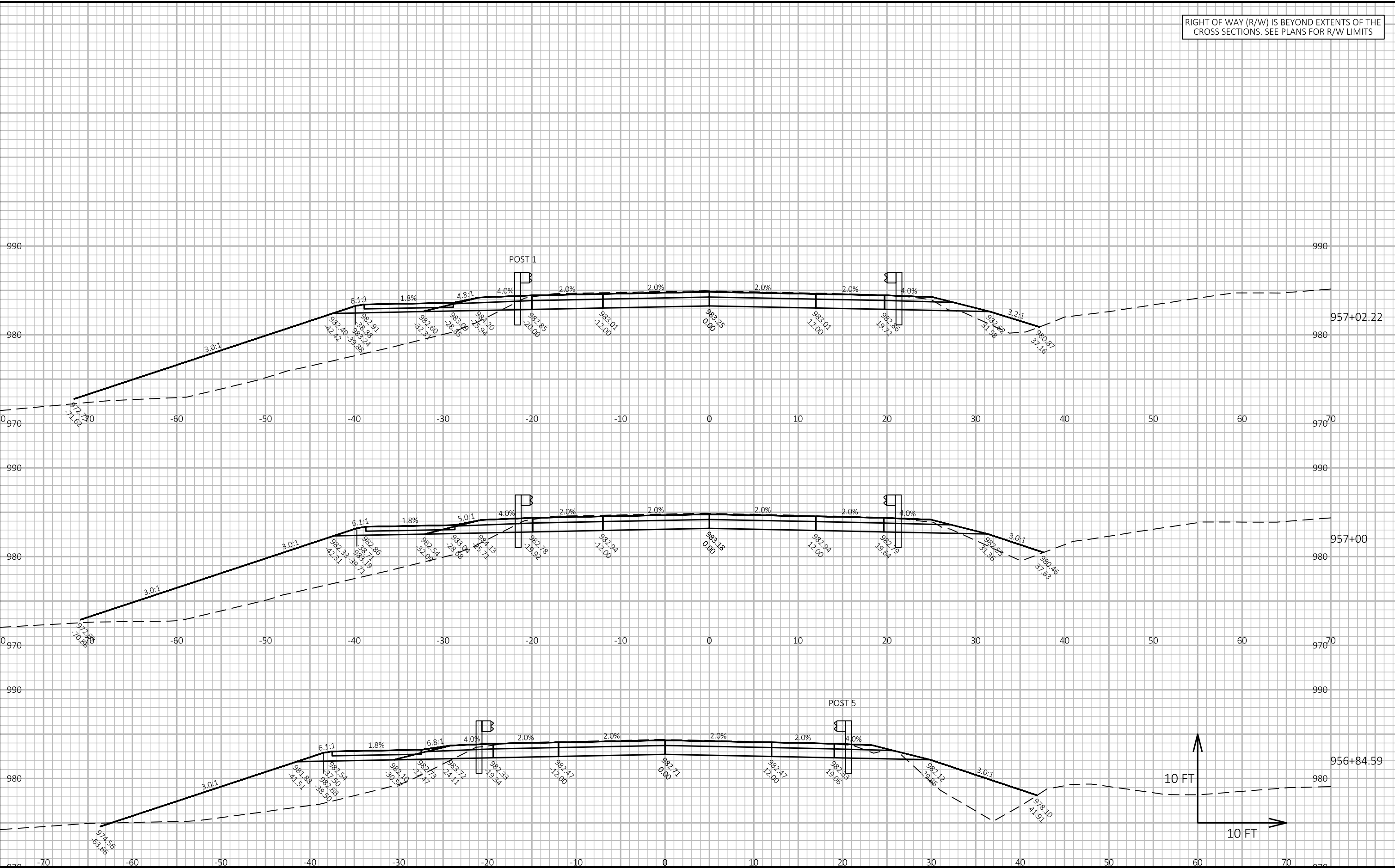
RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
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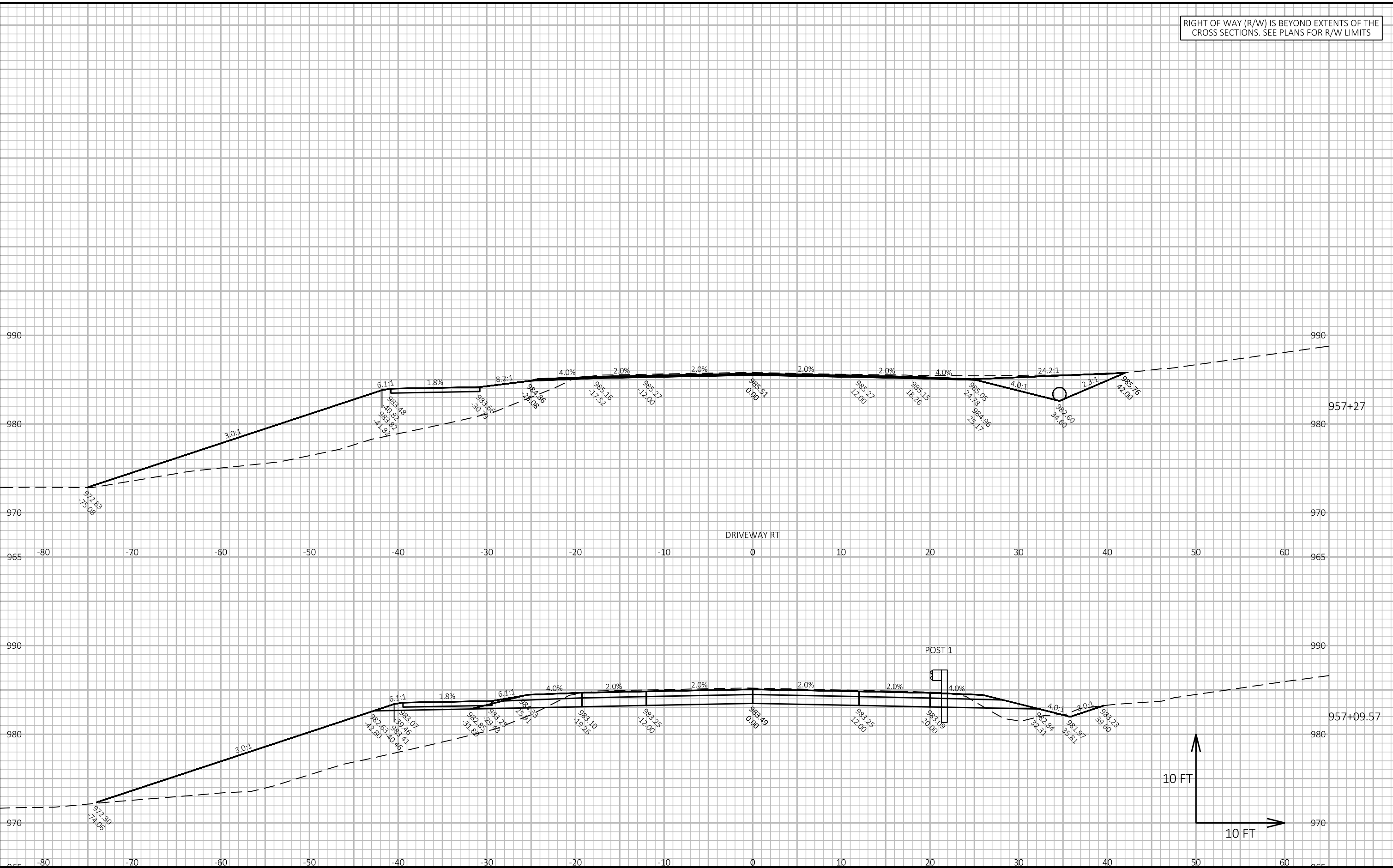
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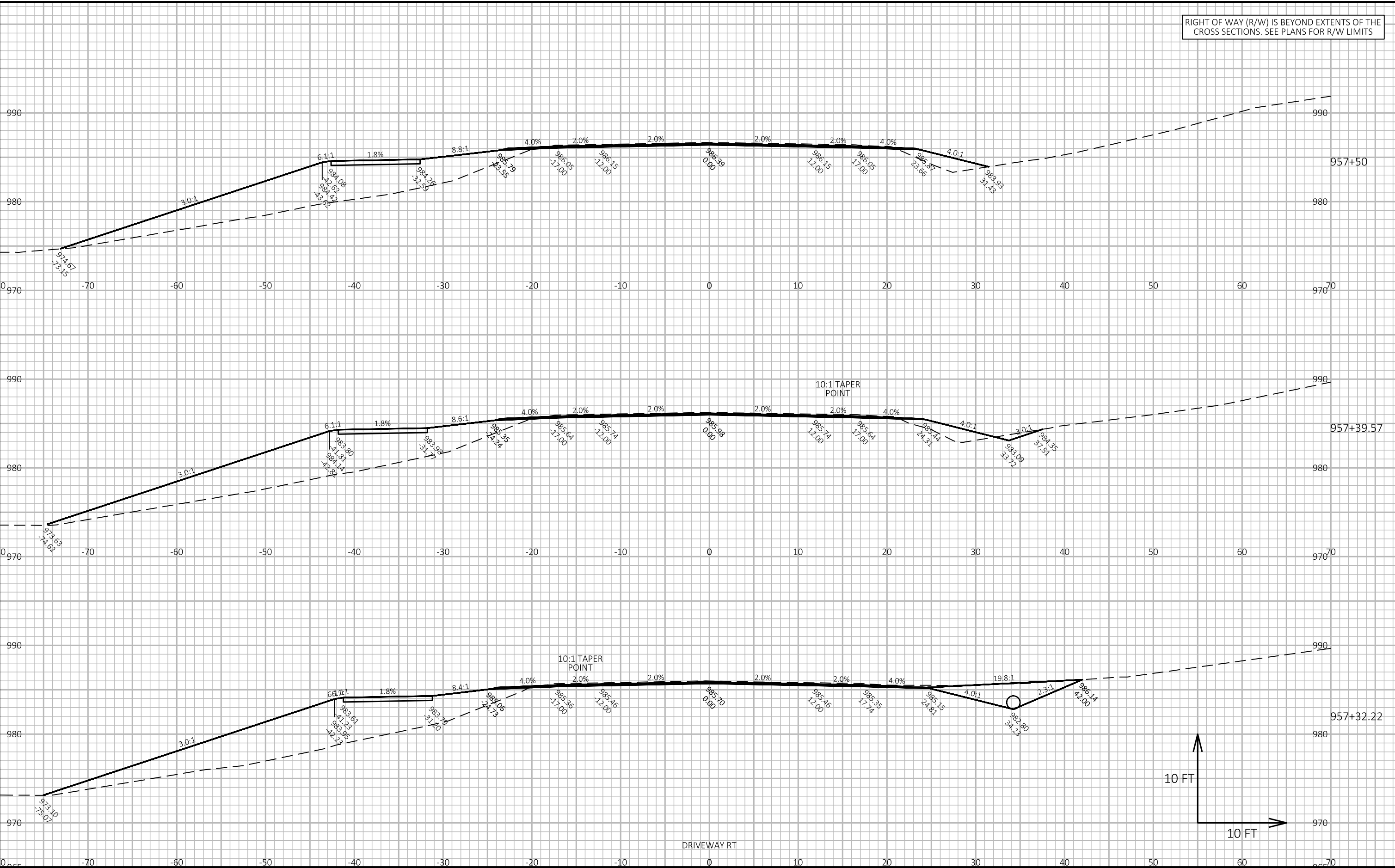
RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
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RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
CROSS SECTIONS. SEE PLANS FOR R/W LIMITS

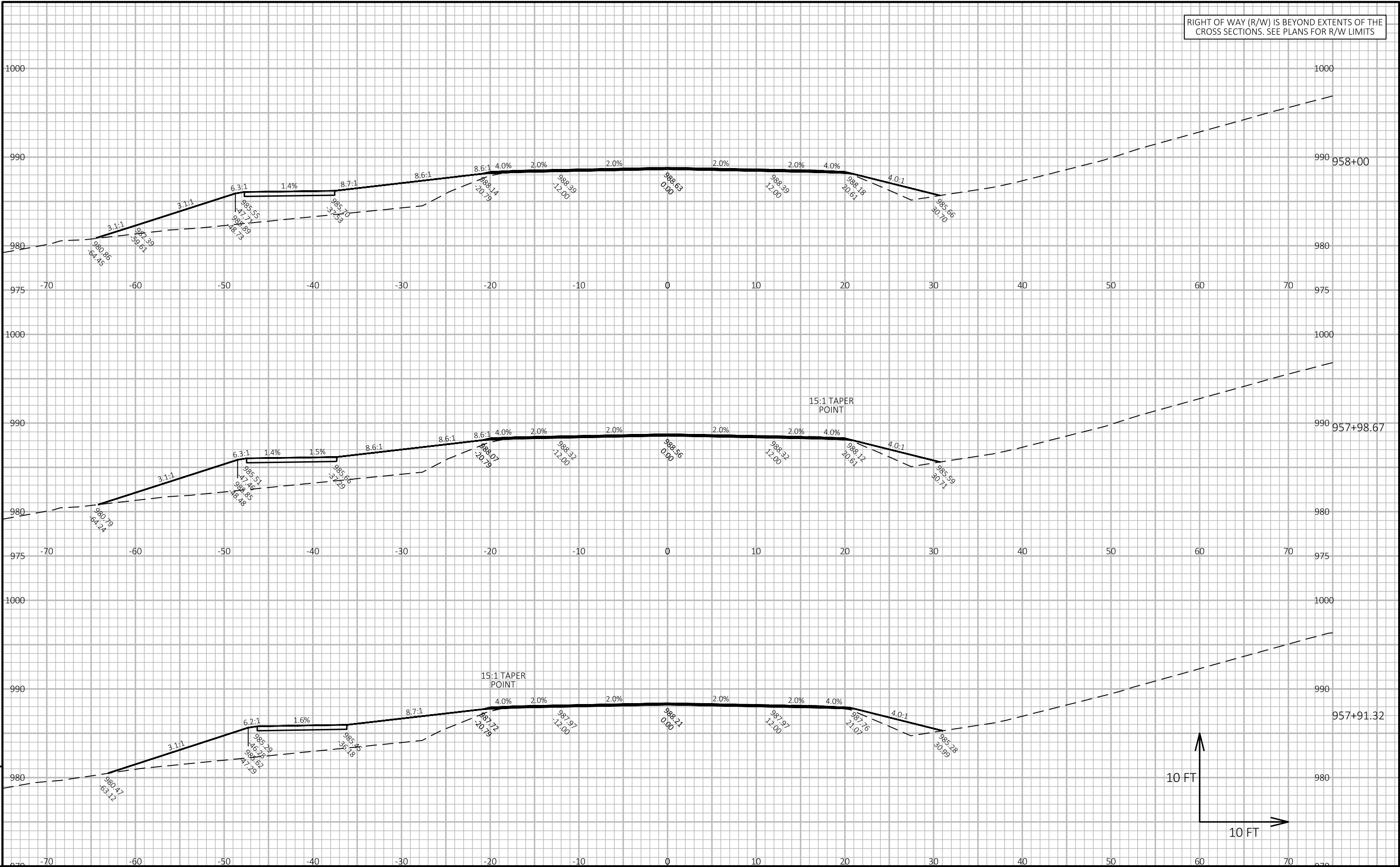


RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
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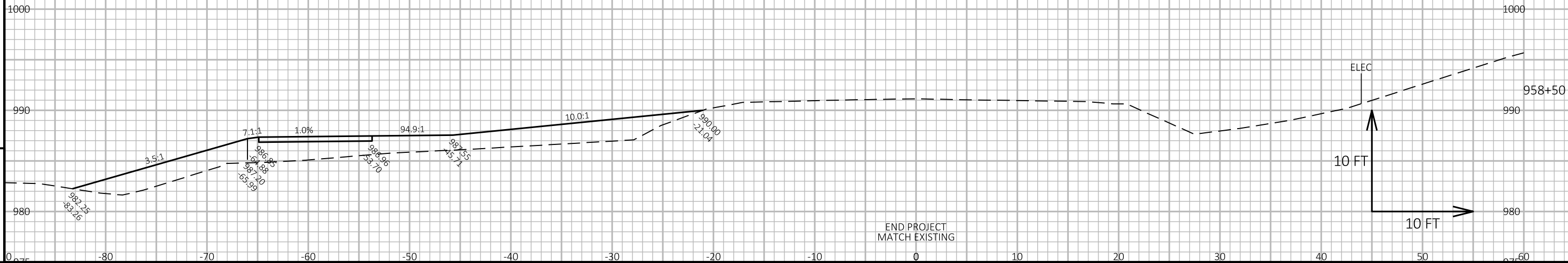


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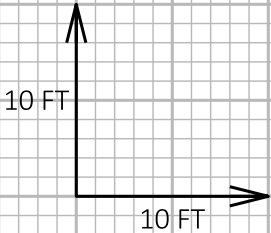
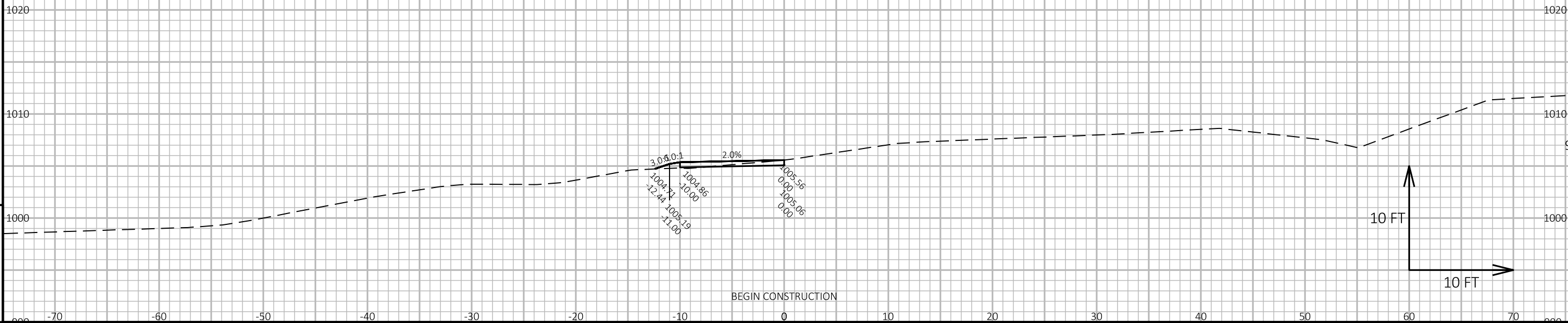
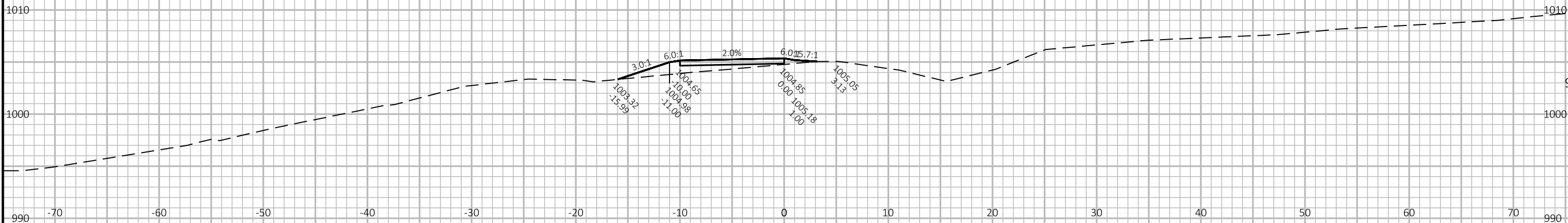
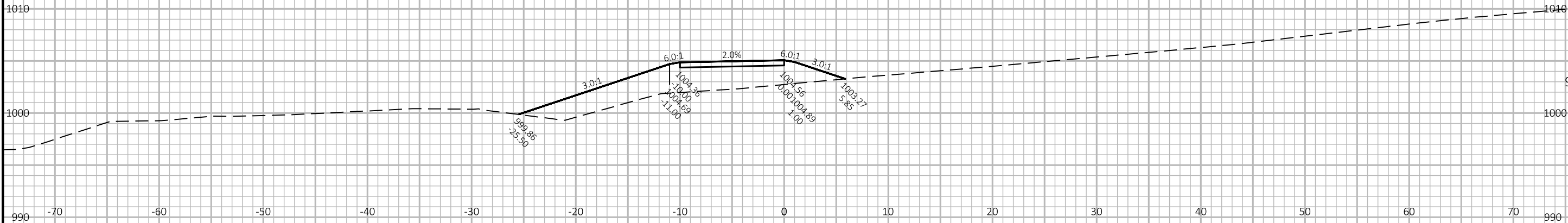
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RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
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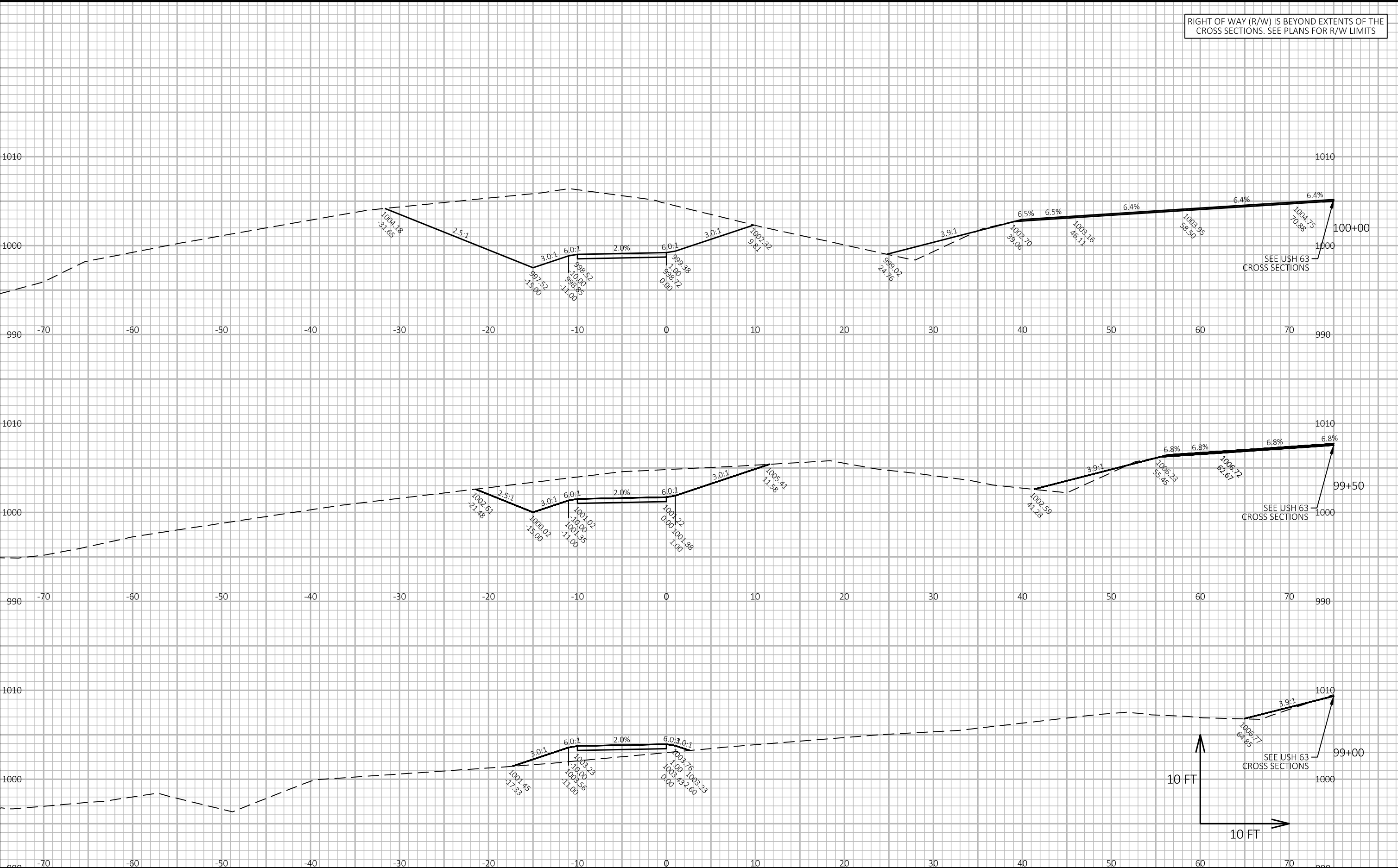
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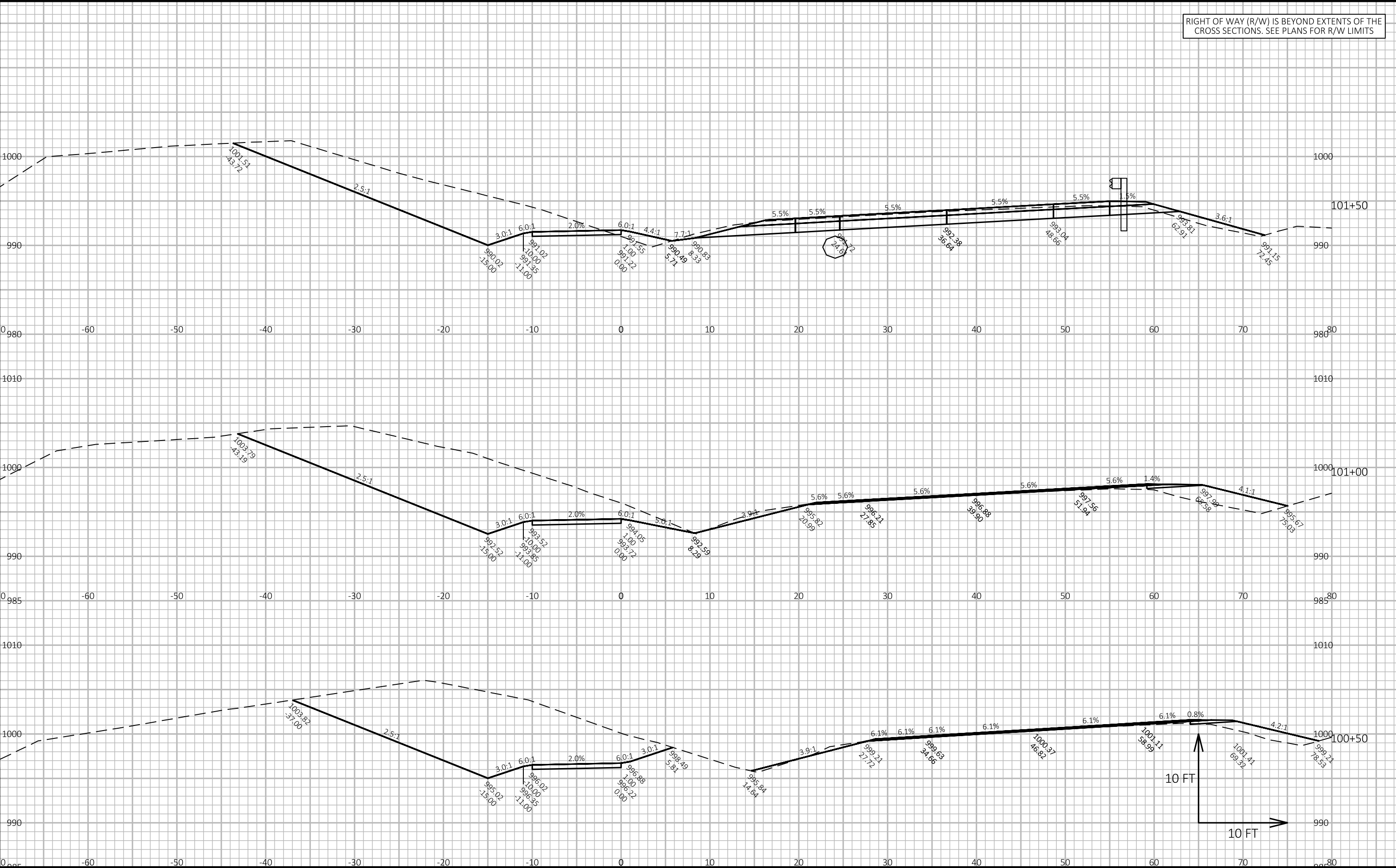
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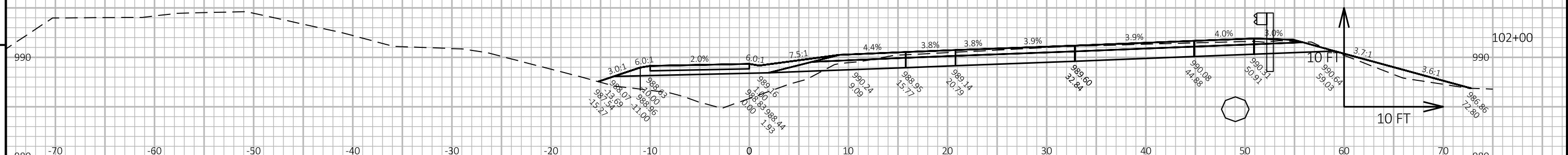
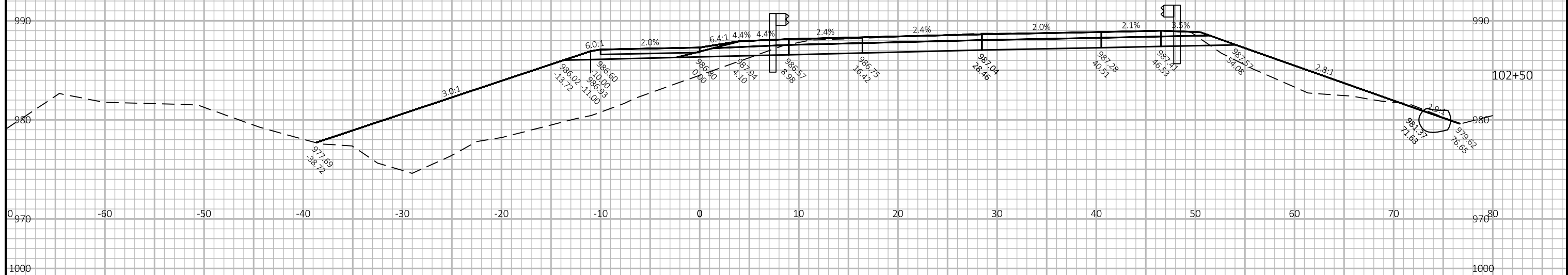
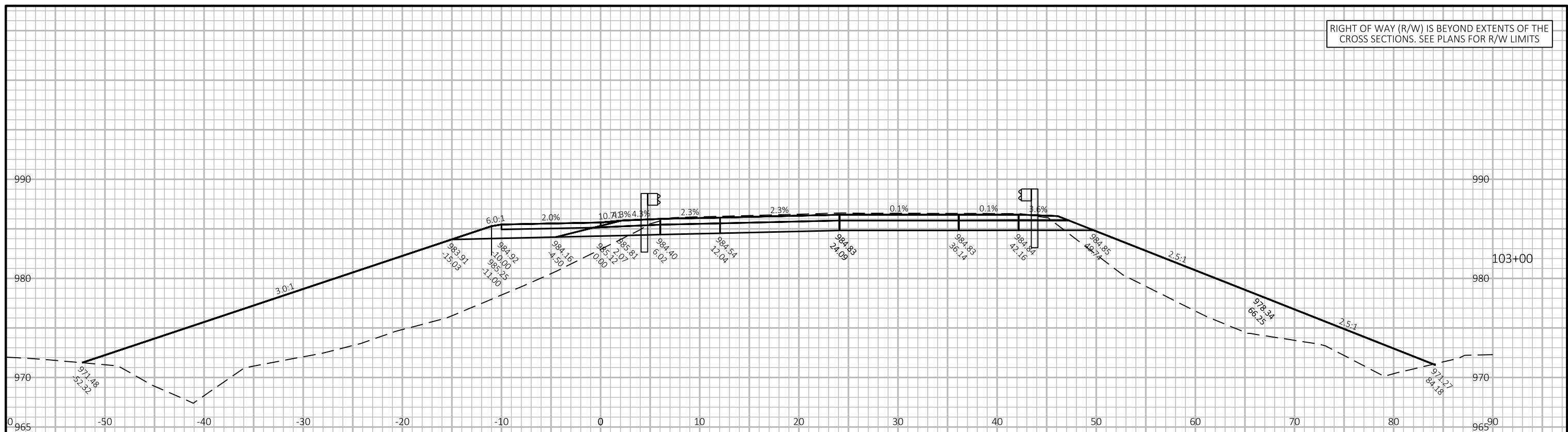
RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE CROSS SECTIONS. SEE PLANS FOR R/W LIMITS



RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE CROSS SECTIONS. SEE PLANS FOR R/W LIMITS



RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
CROSS SECTIONS. SEE PLANS FOR R/W LIMITS



PROJECT NO:	1560-00-78
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HWY: USH 63

COUNTY: BAYFIELD

CROSS SECTIONS:	TRAIL REALIGNMENT
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SHEET	169
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LAYOUT NAME - 23

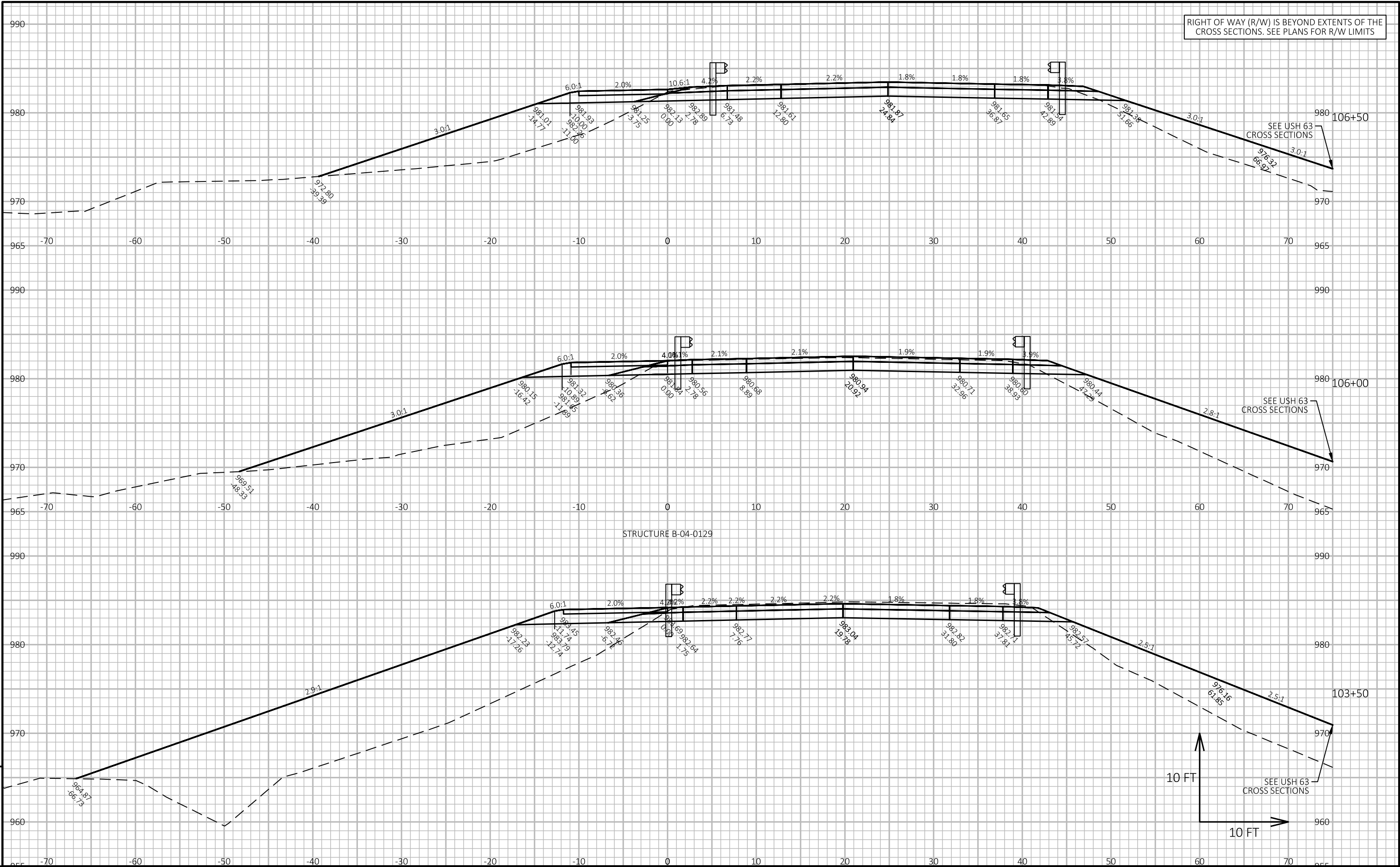
PLOT DATE : 4/24/2026 8:25 AM

PLOT BY : SHAWN DOLENS

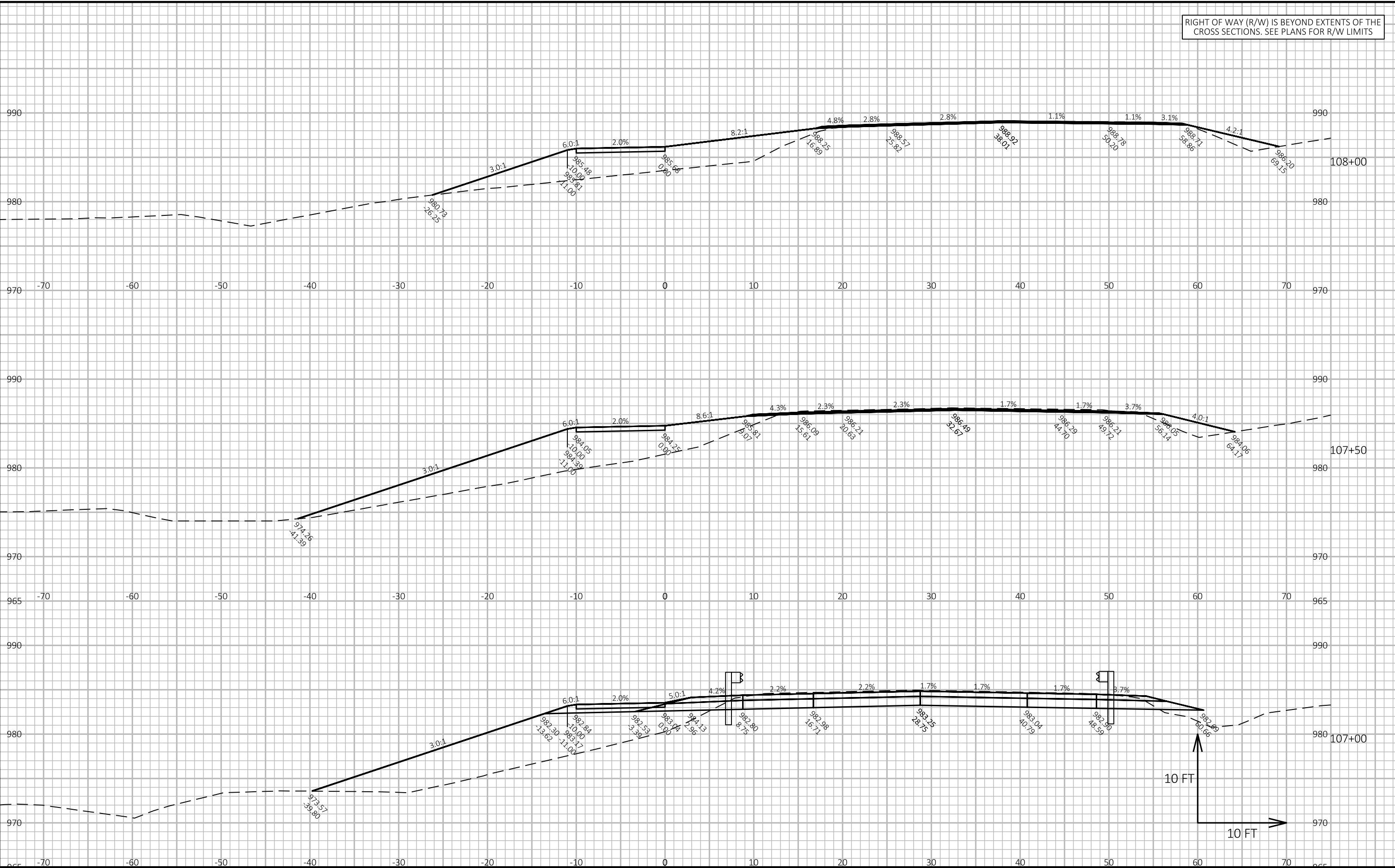
PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



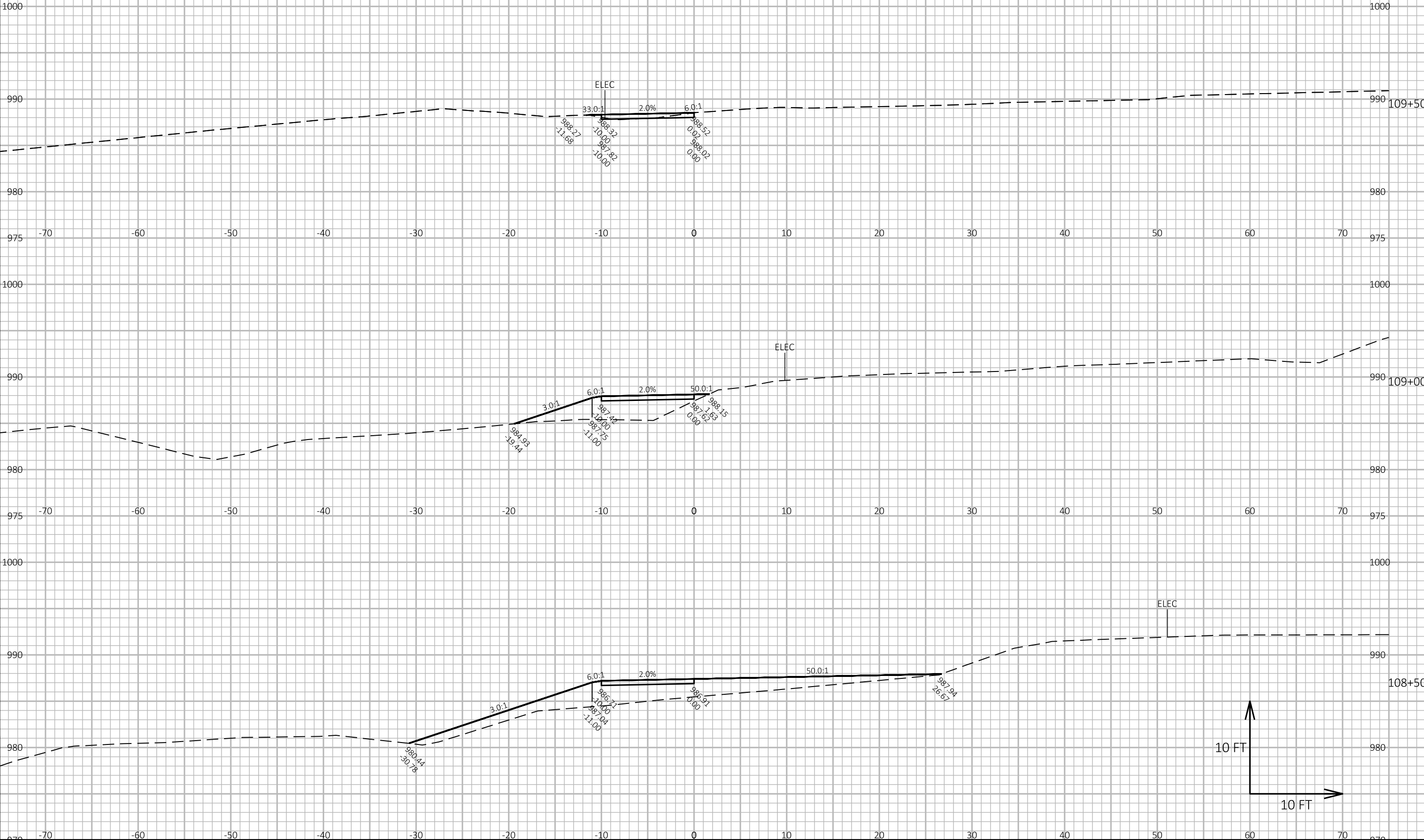
RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
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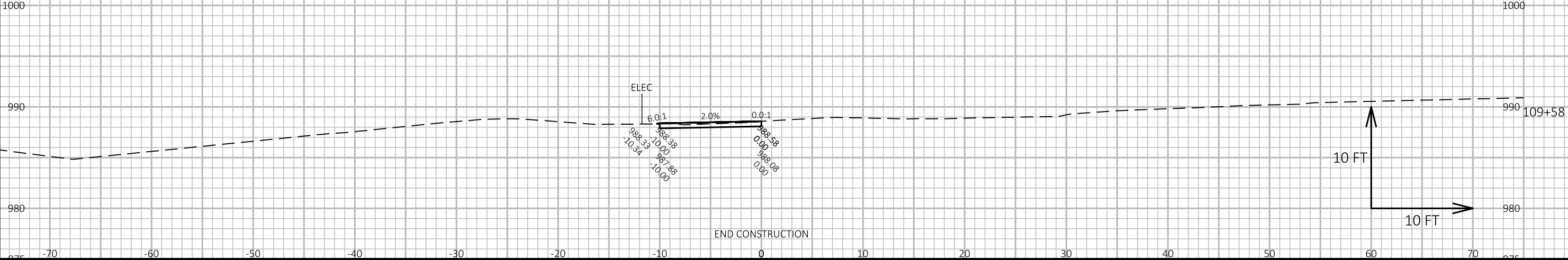
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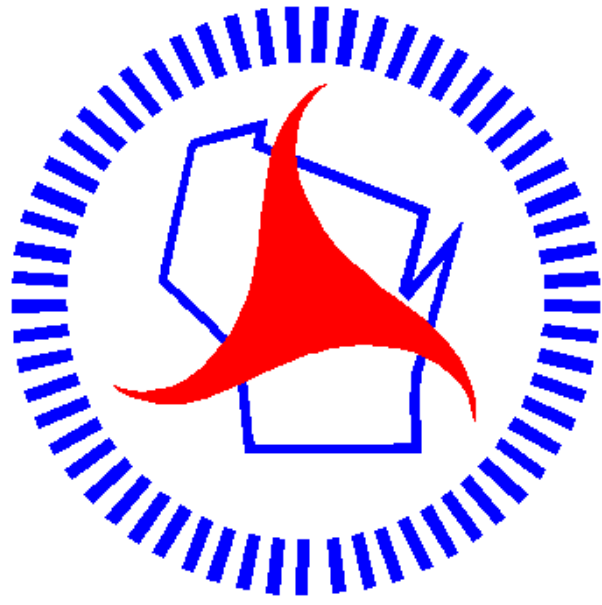


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RIGHT OF WAY (R/W) IS BEYOND EXTENTS OF THE
CROSS SECTIONS. SEE PLANS FOR R/W LIMITS





Wisconsin Department of Transportation

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