

ORDER OF SHEETS

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

TOTAL SHEETS =82



DESIGN DESIGNATION

A.A.D.T.	2016	= 960
A.A.D.T.	2036	= 1100
D.H.V.		= 7.5
D.D.		= 60/40
T.		= 8.9%
DESIGN SPEED		= 55
ESALS		= 190,000

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	CAUTION
MARSH AREA	----
WOODED OR SHRUB AREA	----

PROFILE	
GRADE LINE	----
ORIGINAL GROUND	----
MARSH OR ROCK PROFILE (To be noted as such)	----
SPECIAL DITCH	----
GRADE ELEVATION	95.36
CULVERT (Profile View)	----
UTILITIES	
ELECTRIC	E
FIBER OPTIC	FO
GAS	G
SANITARY SEWER	SAN
STORM SEWER	SS
TELEPHONE	T
WATER	W
UTILITY PEDESTAL	----
POWER POLE	----
TELEPHONE POLE	----

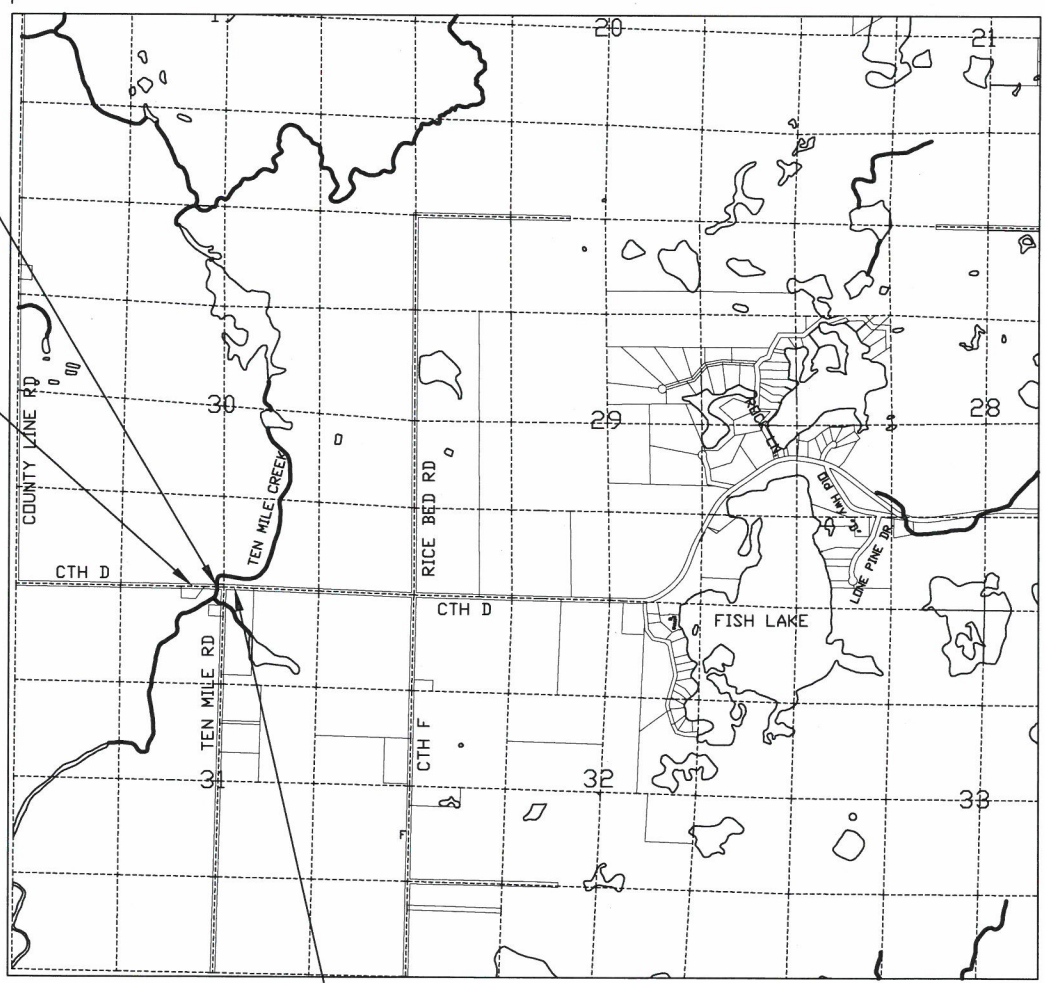
STRUCTURE B-54-0118

BEGIN PROJECT STA. 5+75.00
N 506105.62
E 702292.77

END PROJECT STA. 12+25.00
N 506084.85
E 702942.44

TOTAL NET LENGTH OF CENTERLINE = 0.123 MILES (650')

LAYOUT SCALE 0 1/2 MILE



(BARRON CTY)
R10W
R09W
(RUSK CTY)

STATE PROJECT NUMBER
8798-00-70

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
WEST COUNTY LINE - CTH F
TEN MILE CREEK BRIDGE (B-54-0118)
CTH D
RUSK

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8798-00-70		

ACCEPTED FOR
COUNTY OF RUSK

DATE: 1/5/16
(Signature)

ORIGINAL PLANS PREPARED BY:
MORGAN & PARMLEY, LTD.
PROFESSIONAL CONSULTING ENGINEERS
110 W. 2ND STREET, SUITE 300
LADYSMITH, WI 54648

LARRY F. GOTHAM
E-19463
NEW AUBURN, WI
PROFESSIONAL ENGINEER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor Morgan & Parmley, Ltd.

Designer Morgan & Parmley, Ltd.

Management Consultant Knight E/A Inc.

APPROVED FOR THE DEPARTMENT

DATE: 2/1/16
(Management Consultant Signature)

E

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 PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

HMA PAVEMENT SHALL USE ½" (12.5mm) NOMINAL AGGREGATE IN BOTH THE UPPER AND LOWER LAYERS OF THE PAVED SURFACE.

WETLANDS ARE PRESENT AND MACHINERY SHALL NOT BE OPERATED OUTSIDE OF THE THE SLOPE INTERCEPT.

SEED MIXTURE NO. 20 SHALL BE USED THROUGHOUT THE PROJECT.

ALL DISTURBED AREAS WITHIN THE RIGHT OF WAY OUTSIDE OF THE IMPROVED SURFACES SHALL BE COVERED WITH SALVAGED TOPSOIL, FERTILIZER, SEED, TEMPORARY SEED AND MULCHED/EMAT AS DIRECTED IN BY ON THE PLANS AND THE ENGINEER.

LIST OF STANDARD ABBREVIATIONS

ABUT	ABUTMENT	FF	FACE TO FACE	REM	REMOVE
AC	ACRES	FL, F/L	FLOW LINE	REQD	REQUIRED
AGG	AGGREGATE	G	GARAGE	RDWY	ROADWAY
AH	AHEAD	GN	GRID NORTH	RHF	RIGHT HAND FORWARD
ADT	AVERAGE DAILY TRAFFIC	H	HOUSE	RL, R/L	REFERENCE LINE
AVE	AVENUE	HOR	HORIZONTAL	RR	RAILROAD
AVG	AVERAGE	HWY	HIGHWAY	RT	RIGHT
ASPH	ASPHALTIC	HYD	HYDRANT	R/W	RIGHT-OF-WAY
BK	BACK	I	INTERSECTION ANGLE	S	SOUTH
BM	BENCHMARK	INTERS	INTERSECTION	SAN S	SANITARY SEWER
△	CENTRAL ANGLE	INV	INVERT	SDD	STANDARD DETAIL DRAWING
℄ , C/L	CENTERLINE	IP	IRON PIN OR PIPE	SE	SOUTHEAST , SUPERELEVATION
C & G	CURB AND GUTTER	LC	LONG CHORD OF CURVE	SHLDR	SHOULDER
CABC	CRUSHED AGGREGATE BASE COURSE	LEN	LENGTH	SPECS	SPECIFICATIONS
		LF	LINEAR FOOT	SQ	SQUARE
CONC	CONCRETE	LHF	LEFT HAND FORWARD	SS	STORM SEWER
CONST	CONSTRUCTION	L	LENGTH OF CURVE	STH	STATE TRUNK HIGHWAY
COR	CORNER	LHE	LIMITED HIGHWAY EASEMENT	ST	STREET
CORR	CORRUGATED	LT	LEFT	STA	STATION
CSCP	CORRUGATED STEEL CULVERT PIPE	LS	LUMP SUM	SW	SIDEWALK
		m	METER	TAN	TANGENT
CSPA	CORRUGATED STEEL PIPE ARCH	mm	MILLIMETERS	T	TANGENT LENGTH OF CURVE, TRUCKS
		MH	MANHOLE	TC	TOP OF CURB
CTH	COUNTY TRUNK HIGHWAY	N	NORTH	TL , T/L	TRANSIT LINE
CP	CULVERT PIPE	PAVT	PAVEMENT	TEL	TELEPHONE
CY	CUBIC YARD	PC	POINT OF CURVATURE	TEMP	TEMPORARY
CWT	HUNDRED WEIGHT	PE	PRIVATE ENTRANCE	TLE	TEMPORARY LIMITED EASEMENT
DIA	DIAMETER	PI	POINT OF INTERSECTION	TYP	TYPICAL
D	DEGREE OF CURVE	PL	PROPERTY LINE	UNCL	UNCLASSIFIED
DHV	DESIGN HOURLY VOLUME	PP	POWER POLE	USH	UNITED STATES HIGHWAY
DWY	DRIVEWAY	PROP	PROPOSED	UG	UNDERGROUND
EBS	EXC. BELOW SUBGRADE	PT	POINT OF TANGENCY	V	DESIGN SPEED
ELEV, EL	ELEVATION	R	RANGE , RADIUS	VAR	VARIABLE
ELEC	ELECTRICAL	RCCP	REINFORCED CONCRETE CULVERT PIPE	VERT	VERTICAL
EXC	EXCAVATION			W	WEST
EXIST	EXISTING	RD	ROAD	YD	YARD
E	EAST	REBAR	REINFORCEMENT BAR		
FE	FIELD ENTRANCE				

OTHER CONTACTS

DNR LIASON

AMY CRONK
D.N.R. NORTHWESTERN DISTRICT H.Q.
810 W. MAPLE STREET
SPOONER, WI. 54801 (715) 635-4229
EMAIL: Amy.Cronk@wisconsin.gov

DESIGN CONSULTANT

LARRY GOTHAM, PE
MORGAN & PARMLEY LTD.
115 W. 2ND STREET SOUTH
LADYSMITH WI. 54848 (715) 532-3721
EMAIL:lgotham@centurytel.net

RUSK COUNTY SURVEYOR

JOHN FITZL
RUSK COUNTY SURVEYOR
311 MINER AVE. EAST
LADYSMITH, WI 54848
(715) 532-2165
john@ruskcountywi.us

RUSK COUNTY HIGHWAY DEPARTMENT

SCOTT EMCH
RUSK COUNTY HIGHWAY COMMISSIONER
N4711 STH 27
LADYSMITH, WI 54848
(715) 532-2633
semch@ruskcountywi.us

UTILITIES

ELECTRIC

BARRON ELECTRIC CO-OPERATIVE
P.O. BOX 40
BARRON, WI 54182
ATTN: JEFF NELSON
(715) 537-3171
jnelson@barronelectric.com

TELEPHONE

CENTURYTEL
W5604 MAIN ST.
P.O. BOX 13
SHELDON, WISCONSIN 54766
ATTN: JAMES ARQUETTE
(715) 452-5168
jimarquette@centurytel.com

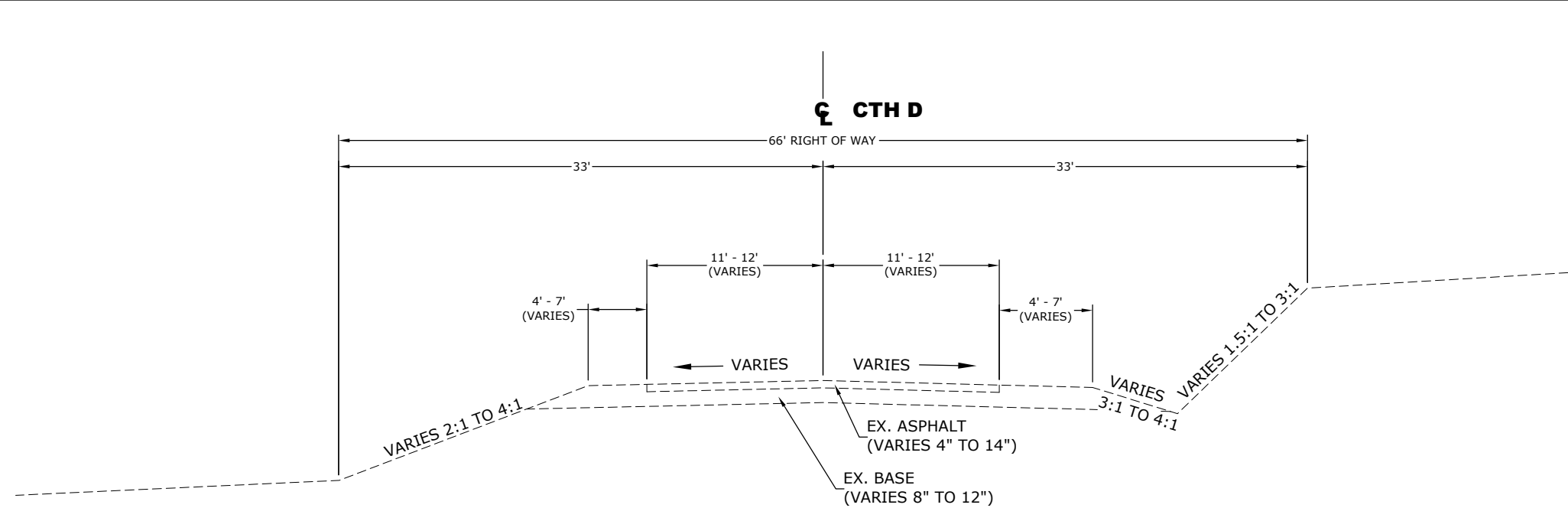


Dial 811 or (800)242-8511

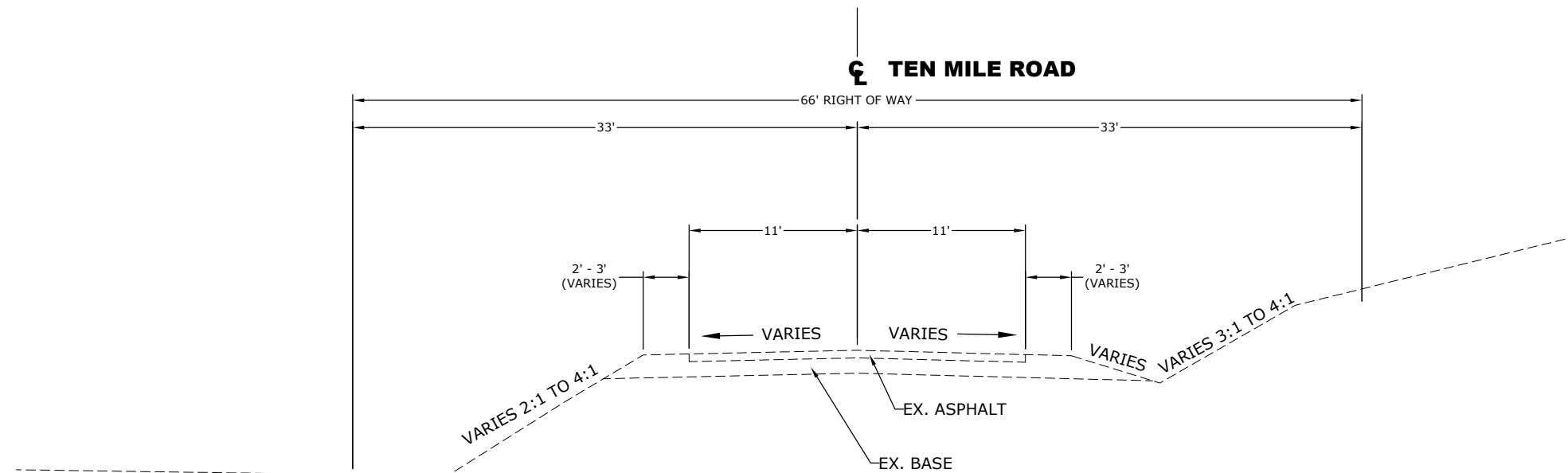
www.DiggersHotline.com

2

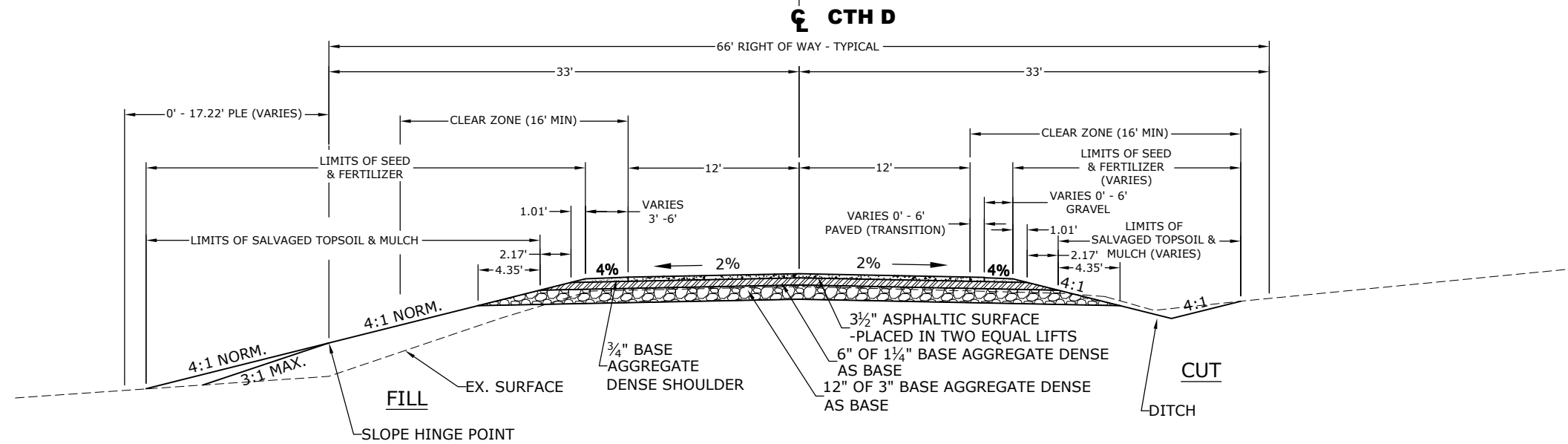
2



-NOT TO SCALE-
-STA. 5+75 TO STA. 12+25-

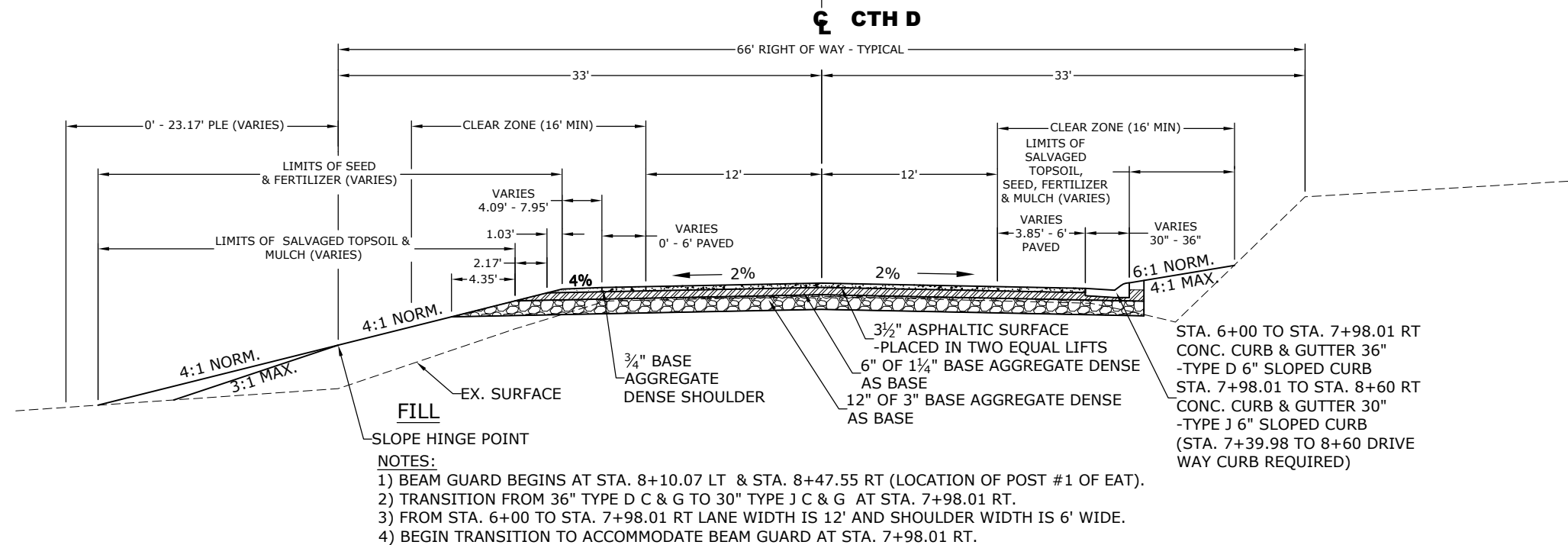


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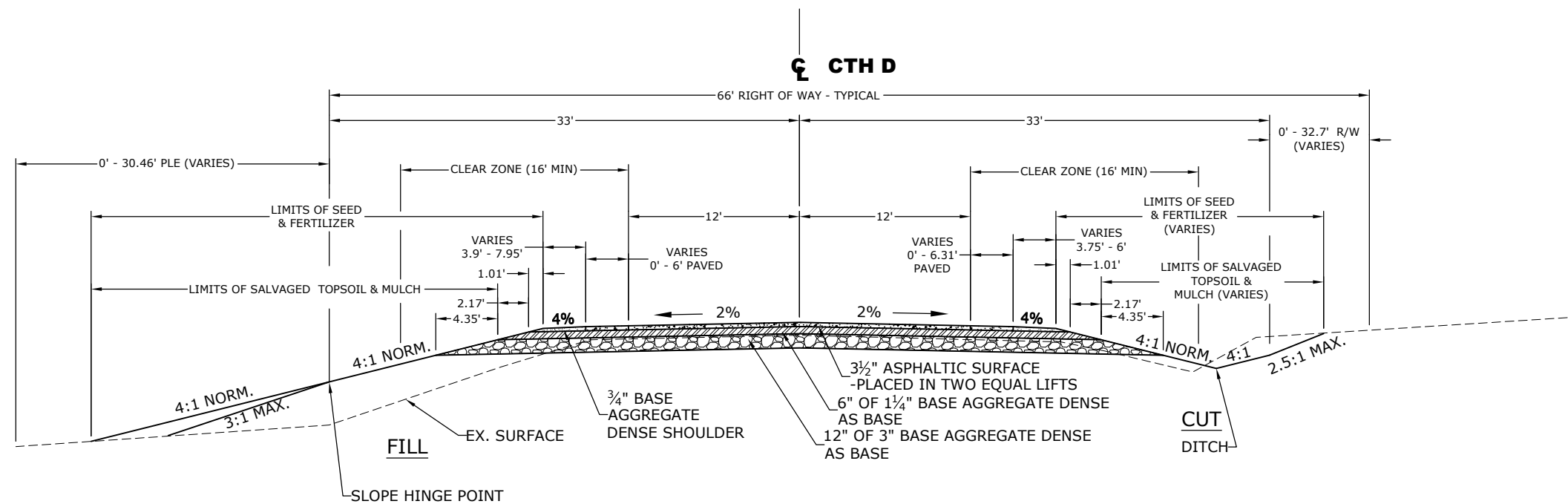
FINISHED TYPICAL SECTION

-NOT TO SCALE-
-STA. 5+75 TO STA. 6+00-



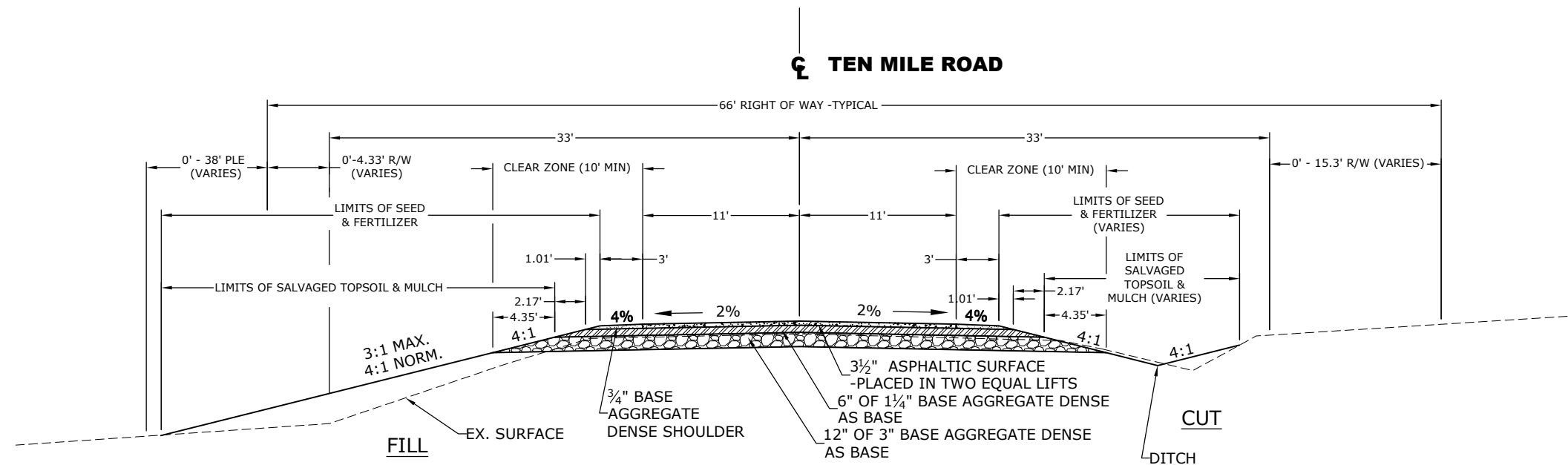
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-NOT TO SCALE-
-STA. 6+00 TO STA. 8+60-



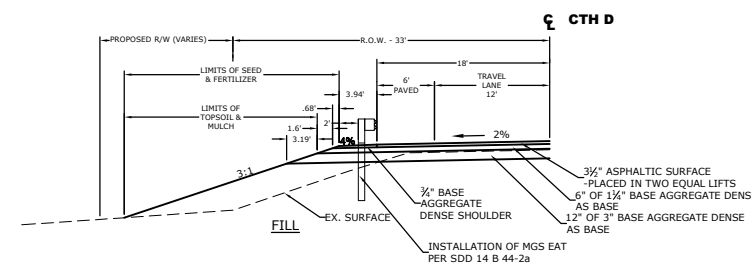
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 -STA. 8+60 TO STA. 9+75-
 -STA. 10+25 TO STA. 12+25-



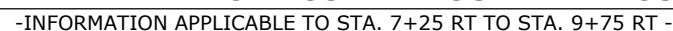
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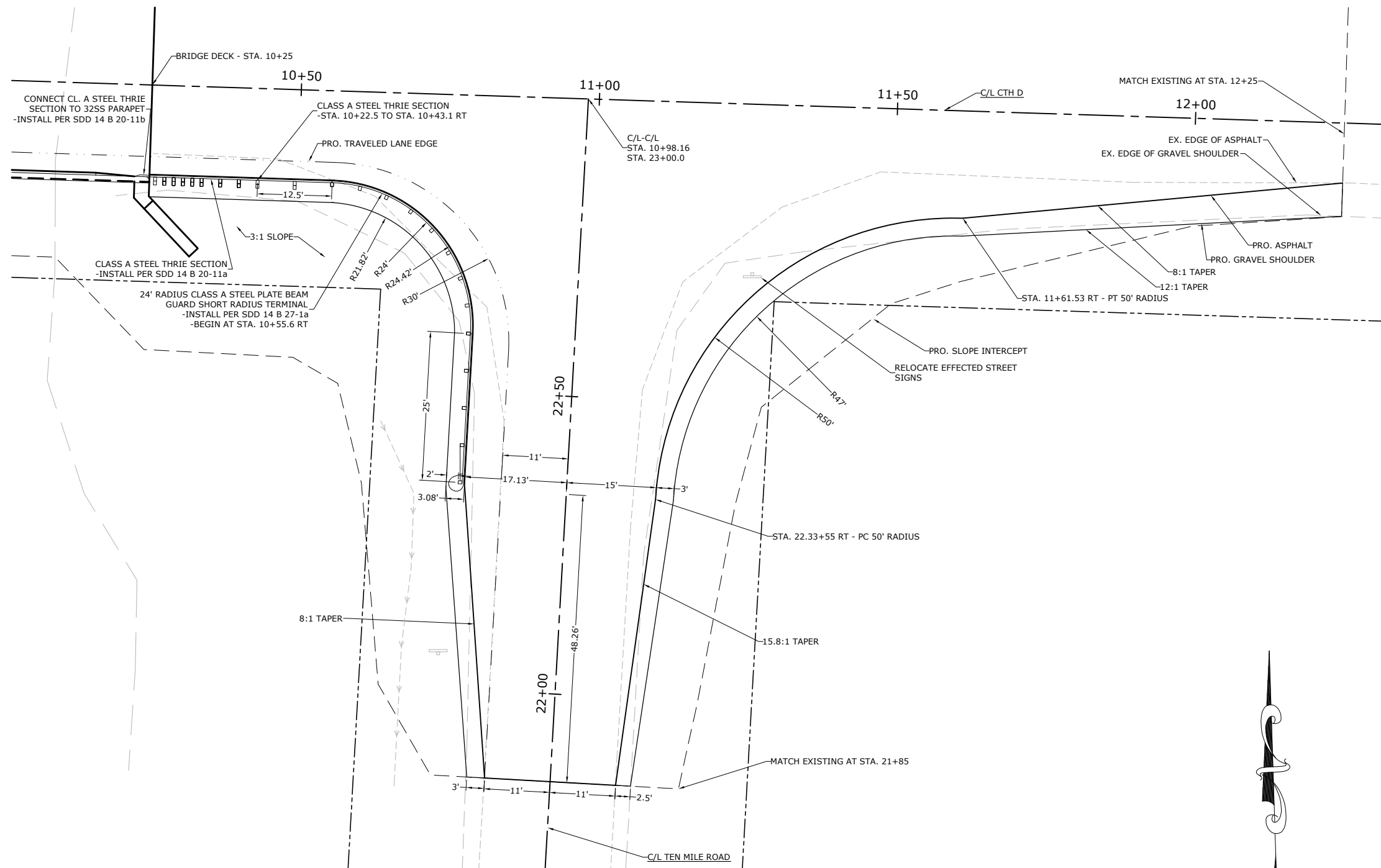
-NOT TO SCALE-
 -STA. 21+85 TO STA. 22+50-



MGS EAT SECTION AT POST #9

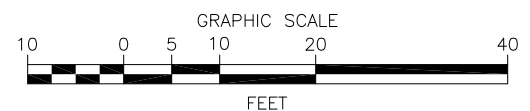
-NOT TO SCALE-
-STA. 8+60.07 LT & STA. 11+39.93 LT-

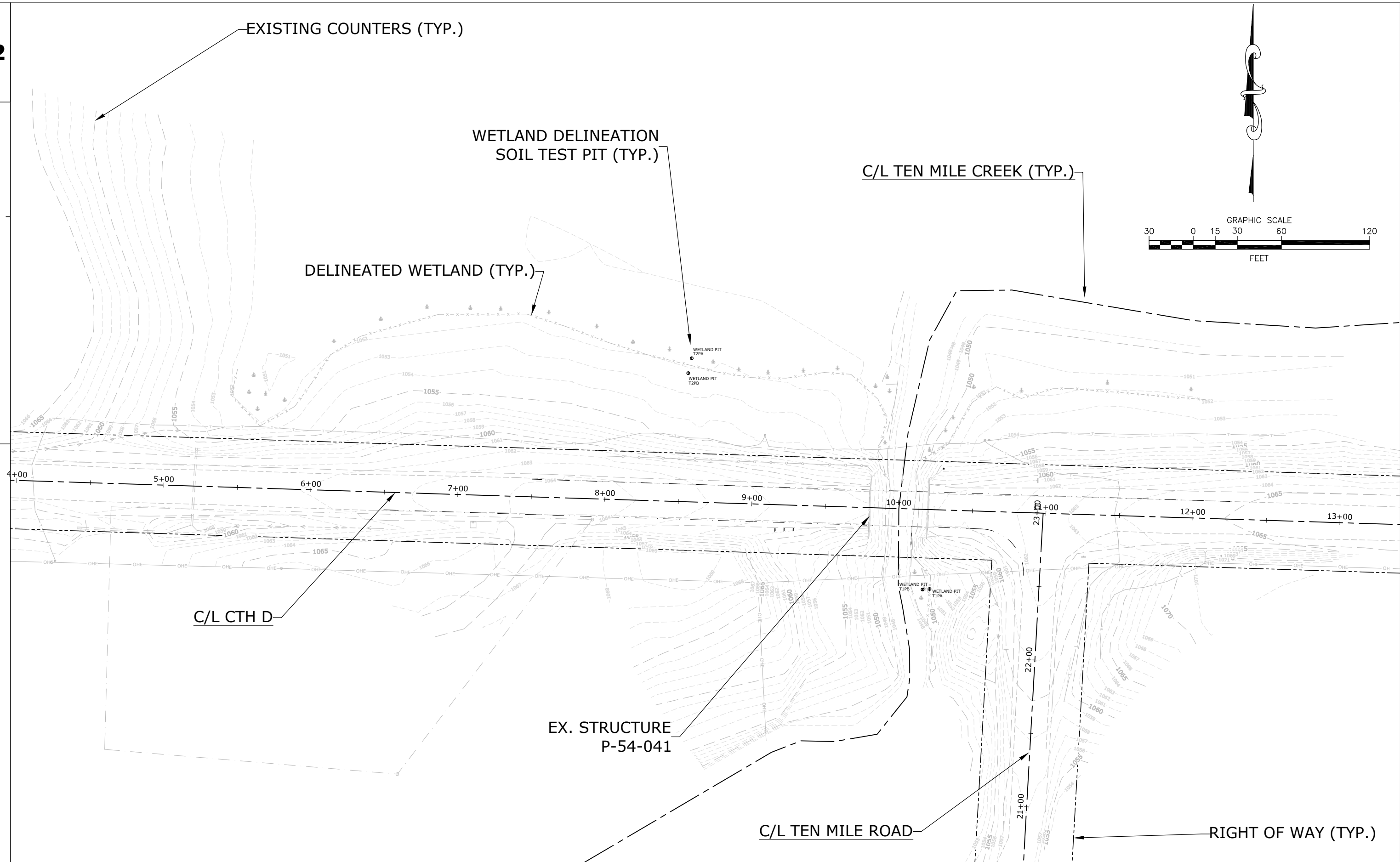




**DETAILED PLAN VIEW OF CLASS A BEAM GUARD SHORT RADIUS TERMINAL
AND TEN MILE ROAD INTERSECTION (MODIFIED TYPE C)**

-INFORMATION APPLICABLE TO STA. 10+25 RT TO STA. 12+25 RT -
-AND STA. 21+85 TO STA. 23+00 (TEN MILE ROAD) -

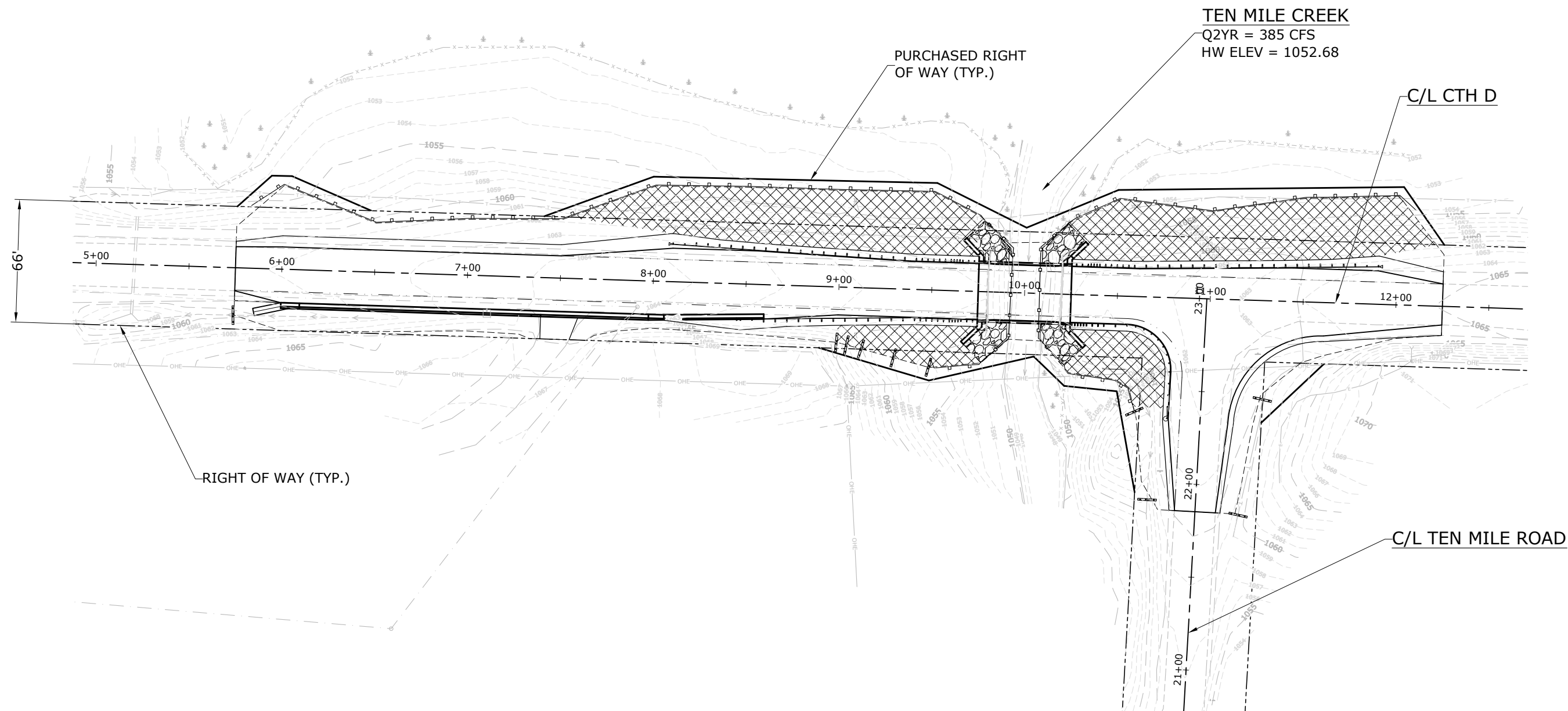
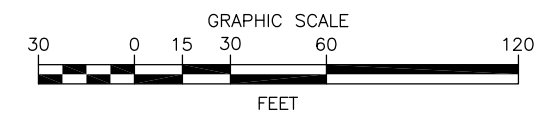




LEGEND



EROSION MAT
RIP RAP
DITCH CHECK (SEDIMENT LOG)
SILT FENCE
SLOPE INTERCEPT
TURBIDITY BARRIER
WETLAND



PROJECT NO: 8798-00-70

HWY: CTH D

COUNTY: RUSK

EROSION CONTROL PLAN

SHEET

E

FILE NAME : M:\M DRIVE\2014\2014-113 TEN MILE CR.BR\2014-113 DWG\2014-113 CTH D - TEN MILE BRIDGE EROSION CONTROL.DWG

PLOT DATE : 12/16/2015 3:56 PM

PLOT BY : ZECH GOTHAM

PLOT NAME :

PLOT SCALE : 1:60

WISDOT/CADDs SHEET 42

DATE 28MAR16		E S T I M A T E O F Q U A N T I T I E S			
LINE					8798-00-70
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0205	Grubbing	STA	3.000	3.000
0020	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 10+00	LS	1.000	1.000
0030	205.0100	Excavation Common	CY	1,250.000	1,250.000
0040	206.1000	Excavation for Structures Bridges (structure) 01. B-54-0118	LS	1.000	1.000
0050	208.1100	Select Borrow	CY	340.000	340.000
0060	210.0100	Backfill Structure	CY	540.000	540.000
0070	213.0100	Finishing Roadway (project) 01. 8798-00-70	EACH	1.000	1.000
0080	305.0110	Base Aggregate Dense 3/4-Inch	TON	160.000	160.000
0090	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,150.000	1,150.000
0100	305.0130	Base Aggregate Dense 3-Inch	TON	2,450.000	2,450.000
0110	455.0605	Tack Coat	GAL	70.000	70.000
0120	465.0105	Asphaltic Surface	TON	505.000	505.000
0130	465.0315	Asphaltic Flumes	SY	8.000	8.000
0140	502.0100	Concrete Masonry Bridges	CY	239.000	239.000
0150	502.3200	Protective Surface Treatment	SY	170.000	170.000
0160	502.3210	Pigmented Surface Sealer	SY	40.000	40.000
0170	505.0400	Bar Steel Reinforcement HS Structures	LB	5,490.000	5,490.000
0180	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	31,450.000	31,450.000
0190	516.0500	Rubberized Membrane Waterproofing	SY	12.000	12.000
0200	550.2124	Piling CIP Concrete 12 3/4 X 0.25-Inch	LF	990.000	990.000
0210	601.0415	Concrete Curb & Gutter 6-Inch Sloped 30-Inch Type J	LF	60.000	60.000
0220	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	200.000	200.000
0230	606.0300	Riprap Heavy	CY	160.000	160.000
0240	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	150.000	150.000
0250	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0260	614.0200	Steel Thrie Beam Structure Approach	LF	21.000	21.000
0270	614.0305	Steel Plate Beam Guard Class A	LF	7.000	7.000
0280	614.0345	Steel Plate Beam Guard Short Radius	LF	57.000	57.000
0290	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	1.000	1.000
0300	614.2300	MGS Guardrail 3	LF	188.000	188.000
0310	614.2500	MGS Thrie Beam Transition	LF	120.000	120.000
0320	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0330	616.0700.S	Fence Safety	LF	140.000	140.000
0340	619.1000	Mobilization	EACH	1.000	1.000
0350	625.0500	Salvaged Topsoil	SY	3,200.000	3,200.000
0360	627.0200	Mulching	SY	950.000	950.000
0370	628.1504	Silt Fence	LF	750.000	750.000
0380	628.1520	Silt Fence Maintenance	LF	750.000	750.000
0390	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0400	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0410	628.2004	Erosion Mat Class I Type B	SY	1,600.000	1,600.000
0420	628.6005	Turbidity Barriers	SY	200.000	200.000
0430	628.7504	Temporary Ditch Checks	LF	120.000	120.000
0440	629.0210	Fertilizer Type B	CWT	3.000	3.000
0450	630.0120	Seeding Mixture No. 20	LB	75.000	75.000
0460	630.0200	Seeding Temporary	LB	75.000	75.000
0470	633.5100	Markers Row	EACH	18.000	18.000

DATE 28MAR16		E S T I M A T E O F Q U A N T I T I E S			
LINE		8798-00-70			
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0480	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0490	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0500	638.2102	Moving Signs Type II	EACH	3.000	3.000
0510	638.4000	Moving Small Sign Supports	EACH	3.000	3.000
0520	642.5001	Field Office Type B	EACH	1.000	1.000
0530	643.0100	Traffic Control (project) 01. 8798-00-70	EACH	1.000	1.000
0540	643.0420	Traffic Control Barricades Type III	DAY	210.000	210.000
0550	643.0705	Traffic Control Warning Lights Type A	DAY	210.000	210.000
0560	643.0900	Traffic Control Signs	DAY	210.000	210.000
0570	645.0120	Geotextile Fabric Type HR	SY	250.000	250.000
0580	650.4500	Construction Staking Subgrade	LF	665.000	665.000
0590	650.5000	Construction Staking Base	LF	665.000	665.000
0600	650.6500	Construction Staking Structure Layout (structure) 01. B-54-0118	LS	1.000	1.000
0610	650.9910	Construction Staking Supplemental Control (project) 01. 8798-00-70	LS	1.000	1.000
0620	650.9920	Construction Staking Slope Stakes	LF	665.000	665.000
0630	690.0150	Sawing Asphalt	LF	70.000	70.000
0640	715.0502	Incentive Strength Concrete Structures	DOL	2,390.000	2,390.000

DETAILED SUMMARY OF MISCELLANEOUS QUANTITIES

GRUBBING

STATION	TO	STATION	LOCATION	GRUBBING 201.0205 (STA.)
8+00	TO	9+00	LT	1
10+25	TO	12+25	LT	2
----	TO	----	--	-
ITEM TOTAL				3

EXCAVATION SUMMARY

Category	Division	From/To Station	Location	Common Excavation (1) (Item 205.0100) (CY)		Available Material (5)	Unexpanded Fill	Expanded Fill (13)	Mass Ordinate +/- (14)	Waste	Borrow (15)	Comment:
				Cut (2)	EBS Excavation (3)			Factor				
								1.30				
0030	1	5+75 TO 8+00	MAINLINE	636	0	636	99	128	508			
0010		8+00 TO 9+75	MAINLINE	113	0	113	660	857	-744			
Division 1 Subtotal				750	0	750	758	986	-236		236	See Note 15
0010	2	10+25 TO 12+25	MAINLINE	354	0	354	431	561	-206			
0010		10+98.16 RT	SIDE ROAD	146	0	146	15	19	127			
Division 2 Subtotal				500	0	500	446	580	-79		79	See Note 15
Grand Total(s)				1250	0	1250	1204	1565	-315	0	315	
Sub-Total Cat.0010 (CY)				614								
Sub-Total Cat.0030 (CY)				636								
Total Common Excavation (CY)				1250								

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100	
2) Salvaged/Unsuable Pavement Material is included in Cut.	
3) EBS Excavation to be backfilled with Select Borrow material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well.	
4) Salvaged/Unusable Pavement Material	
5) Available Material = Cut - Salvaged/Unusuable Pavement Material	
6) Marsh Excavation - to be backfilled with Select Borrow Material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well. Item number 205.0500	
7) Rock Excavation item number 205.0200	
8) Reduced Marsh in Fill - Excavated Marsh material is usable in Fills outside the 1:1 slope. Marsh in Fill Reduction factor = 0.6	
9) Reduced EBS in Fill - Excavated EBS material is usable in Fills outside the 1:1 slope. EBS in Fill Reduction factor = 0.8	
10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item number 208.11	
11) Expanded EBS Backfill - This is to be filled with Select Borrow material. EBS Backfill Factor = 1.3. Item number 208.11	
12) Expanded Rock - Factor = 1.1.	
13) Expanded Fill. Factor = 1.30	
Depending on selections:	_____
Or	
Or	Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh) * Fill Factor
Or	Expanded Fill = (Unexpanded Fill - Rock* Rock Factor) * Fill Factor
14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.	
15) Both Division 1 and 2 require offsite borrow material to be imported. Borrow Excavation item number 208.0100	

SELECT BORROW

						BORROW 208.1100 (CY)
CATEGORY	DIVISION	STATION	TO	STATION	LOCATION	
0030	1	5+75	TO	8+00	CTH D	0
0010	1	8+00	TO	9+75	CTH D	236
0010	2	10+25	TO	12+25	CTH D	79
0010	UNDISTRIBUTED				CTH D	25
ITEM TOTAL						340

MISC. QUANTITIES NOTE:
ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR
ENGINEER ESTIMATE CATEGORY 0010, UNLESS
OTHERWISE NOTED. CATEGORY 0030 INDICATES
NON-PARTICIPATING ITEM AND QUANTITY.

FINISHING ROADWAY (PROJECT)

STATION	TO	STATION	LOCATION	FINISHING 213.0100 (EACH)
5+75	TO	12+25	PROJECT	1
ITEM TOTAL				1

BASE AGGREGATE DENSE

CATEGORY	STATION	TO	STATION	LOCATION	3/4" BAD 305.0110 (TON) ²	1 1/4" BAD 305.0120 (TON) ²	3" BAD 305.0130 (TON) ²
0010	8+00	TO	9+75	CTH D	41	310	665
0010	10+25	TO	12+25	CTH D	64	378	895
0010	21+85	TO	22+50	TEN MILE	12	100	215
SUB-TOTAL CAT.0010					117	788	1775
0030	7+47.6			PE RT	--	34	---
0030	5+75	TO	8+00	CTH D	43	328	675
SUB-TOTAL CAT.0030					43	362	675
ITEM TOTAL					160	1150	2450

NOTES:
1. 3/4" B.A.D. IS TO BE USED AS SHOULDER MATERIAL.
2. UNIT WEIGHT OF 135 LBS/CF WAS UTILIZED IN CALCULATIONS.

TACK COAT

CATEGORY	STATION	TO	STATION	LOCATION	TACK COAT 455.0605 (GAL)
0010	8+00	TO	9+75	CTH D	19
0010	10+25	TO	12+25	CTH D	25
0010	21+85	TO	22+50	TEN MILE	6
SUB-TOTAL CAT.0010					50
0030	5+75	TO	8+00	CTH D	20
SUB-TOTAL CAT.0030					20
ITEM TOTAL					70

APPLICATION RATE: 0.025 GAL/SY

ASPHALTIC SURFACE

CATEGORY	STATION	TO	STATION	LOCATION	ASPHALTIC SURFACE 465.0105 (TON)
0010	8+00	TO	9+75	CTH D	128
0010	10+25	TO	12+25	CTH D	180
0010	21+85	TO	22+50	TEN MILE	45
SUB-TOTAL CAT.0010					353
0030	5+75	TO	8+00	CTH D	152
SUB-TOTAL CAT.0030					152
ITEM TOTAL					505

ASPHALTIC FLUME

STATION	TO	STATION	LOCATION	ASPH. FLUME 465.0315 (SY)
6+00			RT	8
ITEM TOTAL				8

CONCRETE CURB & GUTTER

CATEGORY	STATION	TO	STATION	LOCATION	30" TYPE J 6" SLOPED 601.0415 (LF)	36" TYPE D 6" SLOPED 601.0557 (LF)
0010	8+00	TO	8+60	RT	60	---
SUB-TOTAL CAT.0010					60	---
0030	6+00	TO	8+00	RT	---	200
SUB-TOTAL CAT.0030					---	200
ITEM TOTAL					60	200

DETAILED SUMMARY OF MISCELLANEOUS QUANTITIES

GUARDRAIL SUMMARY

STATION	TO	STATION	LOCATION	STEEL PLATE BG THRIE BEAM 614.0200 (LF)	STEEL PLATE BG CLASS A 614.0305 (LF)	STL. PLATE BG SHORT RADIUS 614.0345 (LF) 1,2	STL. PLATE BG SHORT RADIUS TERMINAL 614.0390 (EACH)	MGS GUARDRAIL 614.2300 (LF)	MGS THRIE BEAM 614.2500 (LF)	MGS TERMINAL EAT 614.2610 (EACH)
8+10.1	TO	9+77.5	LT	---	---	---	---	75	39.4	1
8+47.6	TO	9+77.5	RT	---	---	---	---	75	39.4	1
10+22.5	TO	11+89.9	LT	---	---	---	---	37.5	39.4	1
10+22.5	TO	10+79.9	RT	20.7	6.25	56.25	1	---	---	---
ITEM TOTAL				21	7	57	1	188	120	3

- NOTES:
1. STEEL PLATE BEAM GUARD SHORT RADIUS WITH A RADIUS OF 24'.
2. STEEL PLATE BEAM GUARD SHORT RADIUS HAS 11 CRT POST REQ'D.

MOBILIZATION

CATEGORY	STATION	TO	STATION	LOCATION	MOBILIZATION 619.1000 (EACH)	
0010	5+75	TO	12+25	ROAD	0.25	
SUB-TOTAL CAT.0010					0.25	
0020				10+00	STRUCTURE	0.75
SUB-TOTAL CAT.0020						0.75
ITEM TOTAL						1

SILT FENCE & SILT FENCE MAINTENANCE

					SILT FENCE 628.1504 (LF)	MAINTENANCE 628.1520 (LF)
CATEGORY	STATION	TO	STATION	LOCATION		
0010	8+00		9+75	LT	192	192
0010	9+50		9+75	RT	31	31
0010	10+25		12+20	LT	195	195
0010	10+25		10+61	RT	51	51
0010	UNDISTRIBUTED			--	61	61
SUB-TOTAL CAT.0010					530	530
0030	5+80		8+00	LT	220	220
SUB-TOTAL CAT.0030					220	220
ITEM TOTAL					750	750

MOBILIZATION EROSION CONTROL

STATION	TO	STATION	LOCATION	EC MOBILIZATION 628.1905 (EACH)
5+75	TO	12+25	PROJECT	2
ITEM TOTAL				2

MOBILIZATION EMERGENCY EROSION CONTROL

STATION	TO	STATION	LOCATION	EM. MOBILIZATION 628.1910 (EACH)
5+75	TO	12+25	PROJECT	2
ITEM TOTAL				2

EROSION MAT CLASS 1 TYPE B

					EROSION MAT CL. 1 TYPE B 628.2004 (SY)
CATEGORY	STATION	TO	STATION	LOCATION	
0010	8+00	TO	9+75	LT	570
0010	9+00	TO	9+75	RT	142
0010	10+25	TO	12+20	LT	615
0010	10+25	TO	10+77	RT	159
0010	UNDISTRIBUTED			--	52
SUB-TOTAL CAT.0010					1538
0030	7+55	TO	8+00	LT	62
SUB-TOTAL CAT.0030					62
ITEM TOTAL					1600

TEMPORARY DITCH CHECKS

					TEMPORARY DITCH CHECK 628.7504 (LF)
CATEGORY	STATION	TO	STATION	LOCATION	
0010	8+00	TO	9+75	RT	50
0010	21+85	TO	22+50	LT	20
0010	21+85	TO	22+50	RT	20
0010	UNDISTRIBUTED			--	20
SUB-TOTAL CAT.0010					110
0030	5+75	TO	8+00	RT	10
SUB-TOTAL CAT.0030					10
ITEM TOTAL					120

SITE RESTORATION

					TOPSOIL SALVAGED 625.0500 (SY)	MULCHING 627.0200 (SY)	FERTILIZER TYPE B 629.0210 (CWT)	SEED MIX #20 630.0120 (LBS)	SEED TEMPORARY 630.0200 (LBS)
CATEGORY	STATION	TO	STATION	LOCATION					
0010	8+00	TO	9+75	LT	701	0	0.4	17	17
0010	8+00	TO	9+75	RT	319	54	0.2	6	6
0010	10+25	TO	12+25	LT	736	38	0.5	18	18
0010	10+25	TO	12+25	RT	252	56	0.3	6	6
0010	21+85	TO	22+50	LT	118	99	0.2	3	3
0010	21+85	TO	22+50	RT	89	71	0.2	2	2
0010	UNDISTRIBUTED			---	216	71	0.7	6	6
SUB-TOTAL CAT.0010					2431	389	2.5	58	58
0030	5+75	TO	8+00	LT	460	325	0.3	11	11
0030	5+75	TO	8+00	RT	309	236	0.2	6	6
SUB-TOTAL CAT.0030					769	561	0.5	17	17
ITEM TOTAL					3200	950	3	75	75

MARKERS R.O.W.

CATEGORY	STATION	LOCATION	MARKERS R.O.W. 633.5100 (EACH)
0010	8+90.2	33' RT	1
0010	9+50	48.7' RT	1
0010	9+51.2	57.62' LT	1
0010	10+22.9	49.26' RT	1
0010	10+48.8	57' LT	1
0010	10+51.3	51.25' RT	1
0010	10+62.6	105.2' RT	1
0010	11+29.6	65.69' RT	1
0010	11+62.25	33' RT	1
0010	12+02.4	63.46' LT	1
0010	12.25	33' LT	1
SUB-TOTAL CAT.0010			11
0030	5+75	33' RT	1
0030	5+75	33' LT	1
0030	5+93.1	50.12' LT	1
0030	6+03.9	50.22' LT	1
0030	6+47.1	33' LT	1
0030	7+40.3	33' LT	1
0030	7+98.5	56.17' LT	1
SUB-TOTAL CAT.0030			7
ITEM TOTAL			18

TURBIDITY

STATION	TO	STATION	LOCATION	TURBIDITY BARRIER 628.6005 (SY)
9+90			W.ABUT	90
10+10			E.ABUT	90
UNDISTRIBUTED			---	20
ITEM TOTAL				200

MISC. QUANTITIES NOTE:
ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEER ESTIMATE CATEGORY 0010, UNLESS OTHERWISE NOTED. CATEGORY 0030 INDICATES NON-PARTICIPATING ITEM AND QUANTITY.

DETAILED SUMMARY OF MISCELLANEOUS QUANTITIES

OBJECT MARKER (B-54-0118)

STATION	LOCATION	POST-WOOD 4"X6"X14' 634.0614 (EACH)	SIGNS TYPE II REFLECTIVE F 637.2230 (SF)
9+75	LT & RT	2	6
10+25	LT & RT	2	6
ITEM TOTAL		4	12

MOVING SIGN SUPPORTS AND SIGNS

STATION	LOCATION	EXISTING SIGN COMMENTS	MOVING SIGNS TYPE II 638.2102 (EACH)	MOVING SIGN SUPPORT 638.4000 (EACH)
10+93.7	21.8' LT	ROAD NAME	1	1
11+26.6	58.7' RT	STOP SIGN	1	1
22+05.9	19.9' LT	ADVISORY	1	1
--	--	--	--	--
ITEM TOTAL			3	3

FIELD OFFICE

STATION	TO	STATION	LOCATION	FIELD OFFICE (B) 642.5001 (EACH)
5+75	TO	12+25	PROJECT	1
ITEM TOTAL				1

TRAFFIC CONTROL

	LOCATION	BARRICADE TYPE III 643.0420 (DAY)	WARNING LIGHT TYPE A 643.0705 (DAY)	SIGNS 643.0900 (DAY)	TRAFFIC CNTL PROJECT 643.0100 (EACH)
CTH D	PER SDD 15C2-5A & B	210	210	210	1
TEN MILE ROAD	PER SDD 15C3-2	--	--	--	--
ITEM TOTAL		210	210	210	1

CONSTRUCTION STAKING

CATEGORY	STATION	TO	STATION	LOCATION	STAKING SUBGRADE 650.4500 (LF)	STAKING BASE 650.5000 (LF)	STAKING STRUCTURE B-54-0118 650.6500 (LS)	STAKING SUPPLIMENTAL CONTROL 650.9910 (LS)	STAKING SLOPE STAKES 650.9920 (LF)
0010	8+00	TO	12+25	MAINLINE	375	375	--	--	375
0010	5+75	TO	12+25	PROJECT	--	--	--	1	--
0010	21+85	TO	22+50	SIDE ROAD	65	65	--	--	65
SUB-TOTAL CAT.0010					440	440	--	1	440
0020	9+75	TO	10+25	STRUCTURE	--	--	1	--	--
SUB-TOTAL CAT.0020					--	--	1	--	--
0030	5+75	TO	8+00	MAINLINE	225	225	--	--	225
SUB-TOTAL CAT.0030					225	225	--	--	225
ITEM TOTAL					665	665	1	1	665

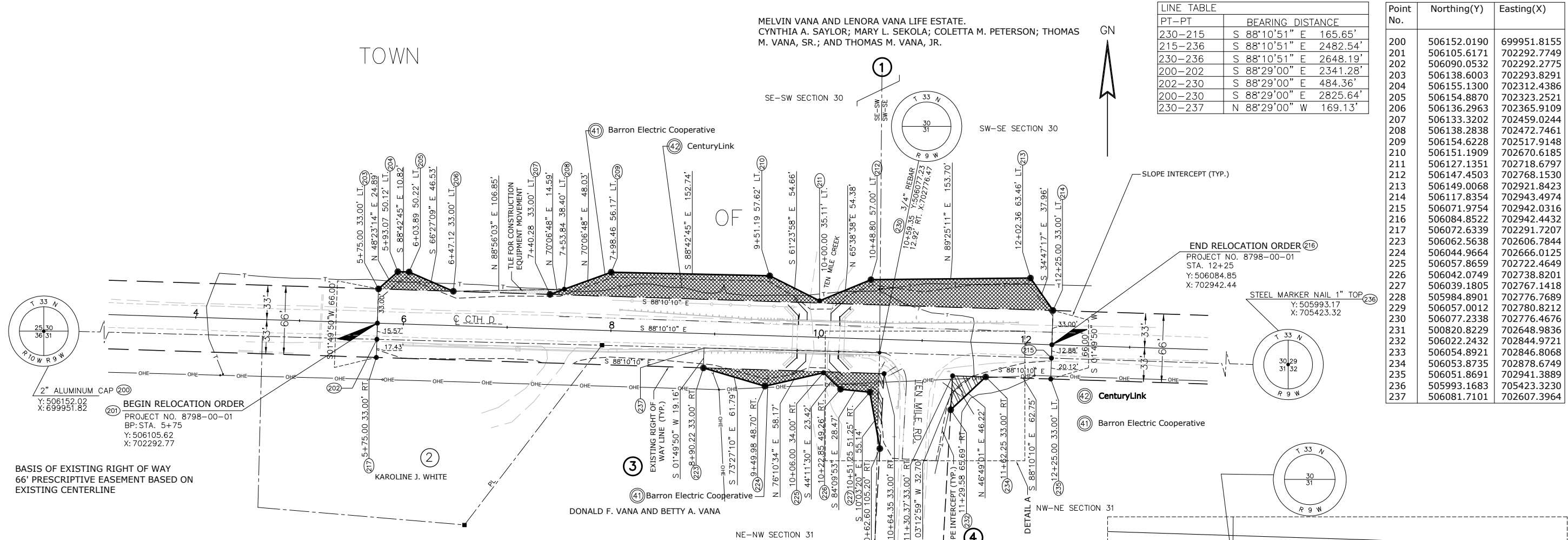
SAWING ASPHALT

STATION	TO	STATION	LOCATION	SAWING ASPHALT 690.0150 (LF)
		5+75	CTH D	24
		12+25	CTH D	24
		21+85	TEN MILE	22
ITEM TOTAL				70

MISC. QUANTITIES NOTE:
ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR
ENGINEER ESTIMATE CATEGORY 0010, UNLESS
OTHERWISE NOTED. CATEGORY 0030 INDICATES
NON-PARTICIPATING ITEM AND QUANTITY.

FENCE SAFETY

STATION	TO	STATION	LOCATION	FENCE SAFETY 616.0700.S (LF)
7+60	TO	9+00	33' RT	140
ITEM TOTAL				140



SCHEDULE OF LANDS & INTERESTS REQUIRED

OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO RUSK COUNTY.

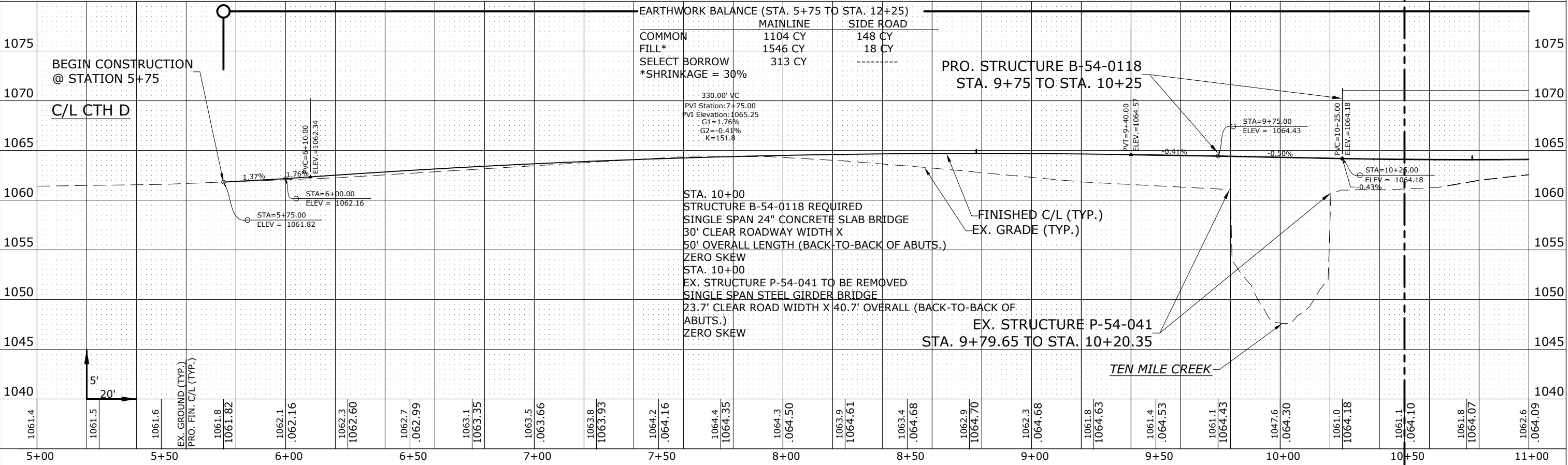
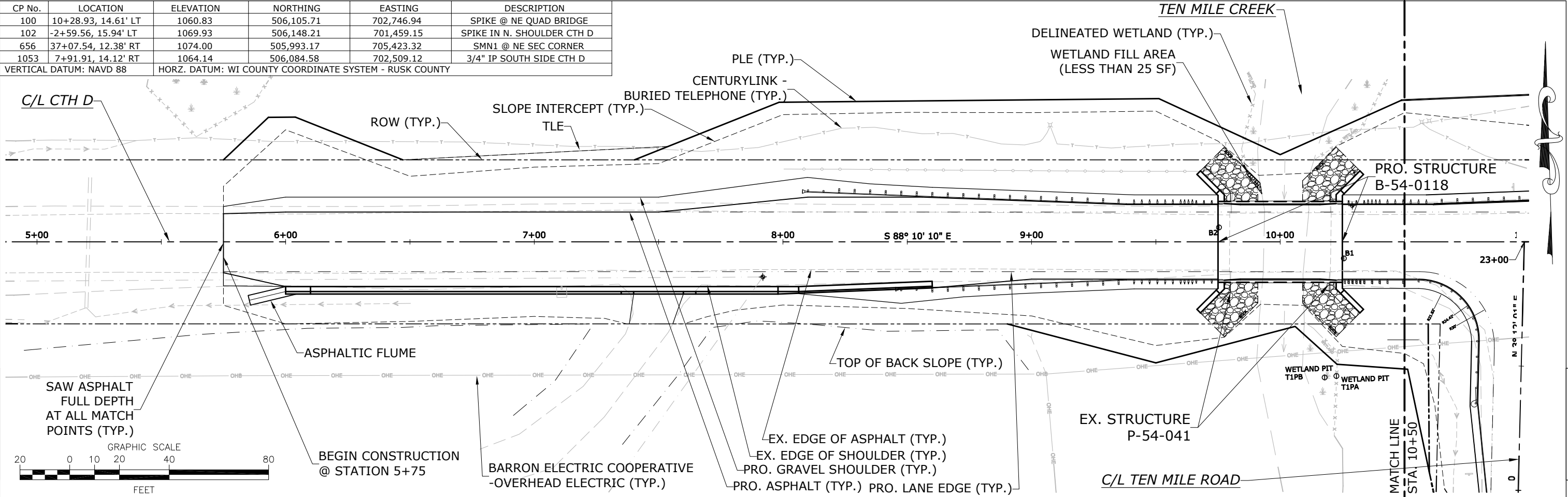
PARCEL NUMBER	SHEET NUMBER	OWNER(S)	INTEREST REQUIRED	NEW R/W	EXISTING R/W	TOTAL R/W	TLE ACRES	PLE ACRES
①	4.2	MELVIN VANA AND LENORA VANA LIFE ESTATE. CYNTHIA A. SAYLOR; MARY L. SEKOLA; COLETTA M. PETERSON; THOMAS M. VANA, SR.; AND THOMAS M. VANA, JR. V.532 P.685	PLE,TLE	----	0.70	0.95	0.01	0.25
②	4.2	KAROLINE J. WHITE V.362 P.494	NONE	----	----	----	----	----
③	4.2	DONALD F. VANA AND BETTY A. VANA V.491 P.876	PLE	----	0.08	0.12	----	0.04
④	4.2	WARREN L. TOWNSEND AND COURTNEY L. TOWNSEND V.493 P.547	FEE	0.02	0.08	0.10	----	----
④①	4.2	BARRON COUNTY ELECTRIC COOPERATIVE	RELEASE OF RIGHTS	----	----	----	----	----
④②	4.2	CENTURYLINK	RELEASE OF RIGHTS	----	----	----	----	----

NOTES:

HORIZONTAL POSITIONS ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, RUSK COUNTY, NAD 83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

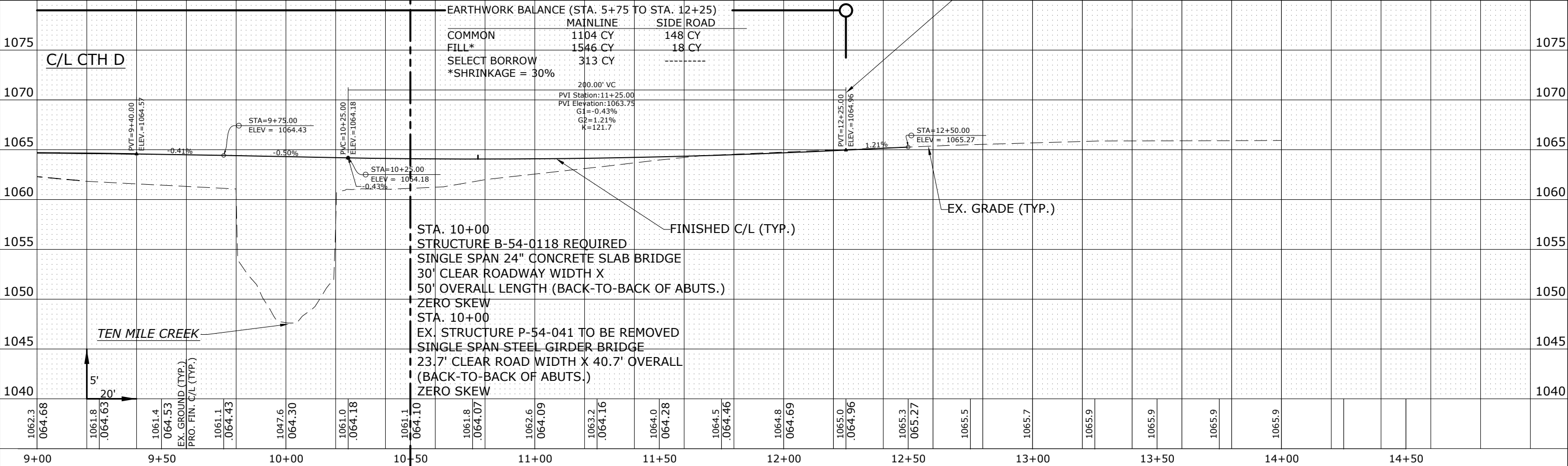
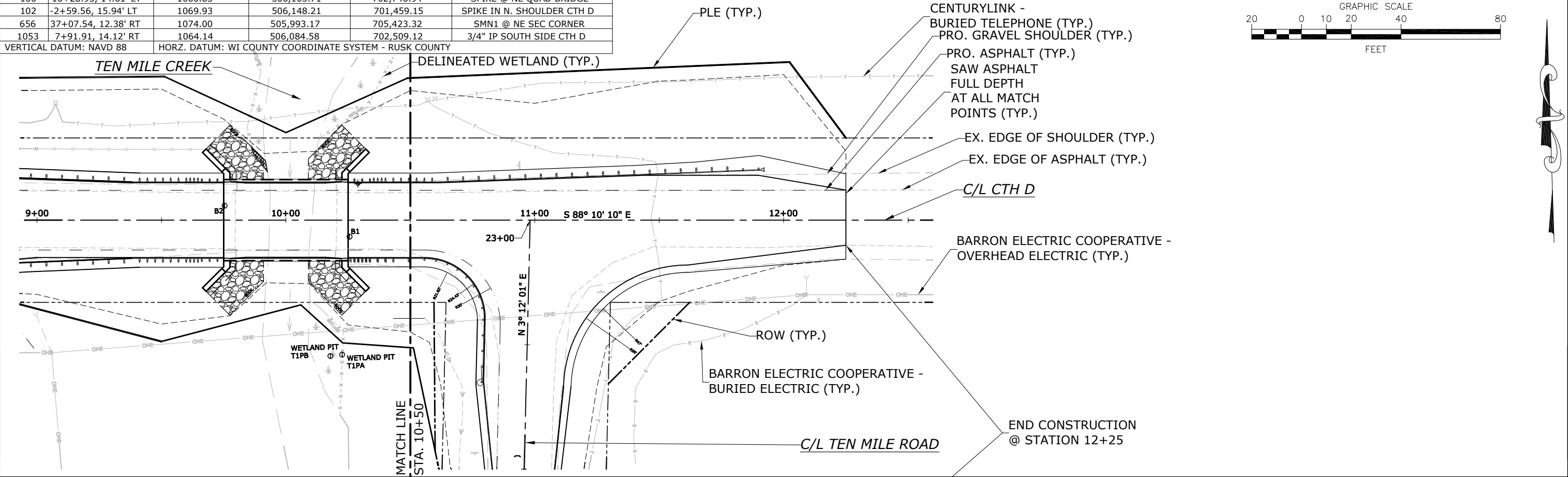
REVISION DATE 12/14/2015	DATE 1/9/2015	0 50 100	HWY: CTH D	PROJECT NUMBER 8798-00-01	SHEET 4.2	E
	GRID FACTOR		COUNTY: RUSK	CONSTRUCTION PROJECT NUMBER 8798-00-70	PS&E SHEET	

CP No.	LOCATION	ELEVATION	NORTHING	EASTING	DESCRIPTION
100	10+28.93, 14.61' LT	1060.83	506,105.71	702,746.94	SPIKE @ NE QUAD BRIDGE
102	-2+59.56, 15.94' LT	1069.93	506,148.21	701,459.15	SPIKE IN N. SHOULDER CTH D
656	37+07.54, 12.38' RT	1074.00	505,993.17	705,423.32	SMN1 @ NE SEC CORNER
1053	7+91.91, 14.12' RT	1064.14	506,084.58	702,509.12	3/4" IP SOUTH SIDE CTH D
VERTICAL DATUM: NAVD 88		HORZ. DATUM: WI COUNTY COORDINATE SYSTEM - RUSK COUNTY			



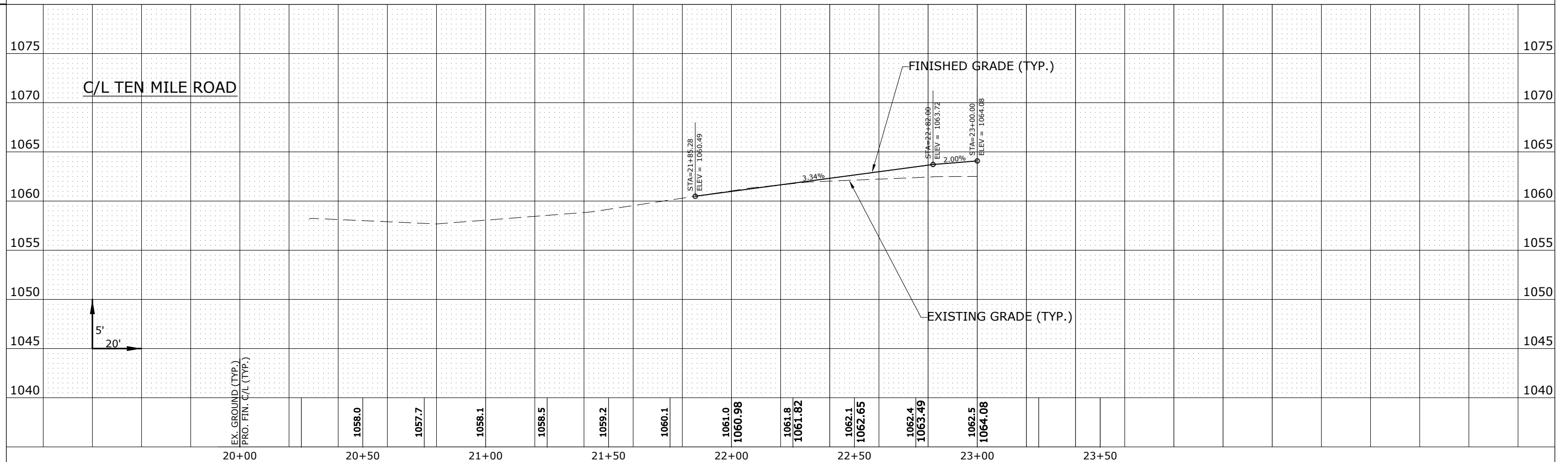
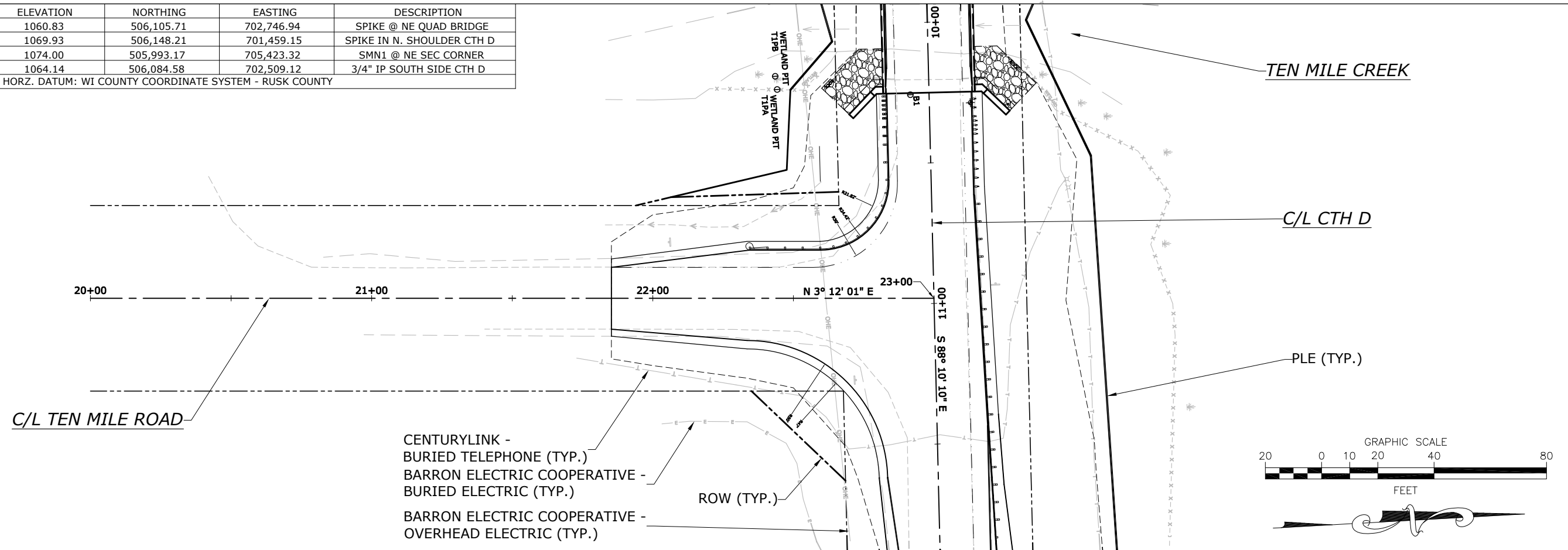
PROJECT NO: 8798-00-70	HWY: CTH D	COUNTY: RUSK	PLAN AND PROFILE: C/L CTH D	SHEET	E
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CP No.	LOCATION	ELEVATION	NORTHING	EASTING	DESCRIPTION
100	10+28.93, 14.61' LT	1060.83	506,105.71	702,746.94	SPIKE @ NE QUAD BRIDGE
102	-2+59.56, 15.94' LT	1069.93	506,148.21	701,459.15	SPIKE IN N. SHOULDER CTH D
656	37+07.54, 12.38' RT	1074.00	505,993.17	705,423.32	SMN1 @ NE SEC CORNER
1053	7+91.91, 14.12' RT	1064.14	506,084.58	702,509.12	3/4" IP SOUTH SIDE CTH D
VERTICAL DATUM: NAVD 88		HORZ. DATUM: WI COUNTY COORDINATE SYSTEM - RUSK COUNTY			



PROJECT NO: 8798-00-70	HWY: CTH D	COUNTY: RUSK	PLAN AND PROFILE: C/L CTH D	SHEET	E
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CP No.	LOCATION	ELEVATION	NORTHING	EASTING	DESCRIPTION
100	10+28.93, 14.61' LT	1060.83	506,105.71	702,746.94	SPIKE @ NE QUAD BRIDGE
102	-2+59.56, 15.94' LT	1069.93	506,148.21	701,459.15	SPIKE IN N. NE SHOULDER CTH D
656	37+07.54, 12.38' RT	1074.00	505,993.17	705,423.32	SMN1 @ NE SEC CORNER
1053	7+91.91, 14.12' RT	1064.14	506,084.58	702,509.12	3/4" IP SOUTH SIDE CTH D
VERTICAL DATUM: NAVD 88		HORZ. DATUM: WI COUNTY COORDINATE SYSTEM - RUSK COUNTY			



PROJECT NO: 8798-00-70

HWY: CTH D

COUNTY: RUSK

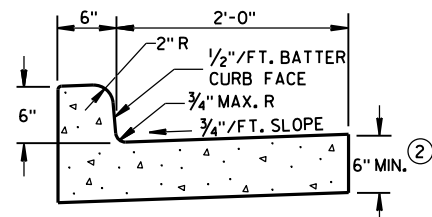
PLAN AND PROFILE: C/L TEN MILE ROAD

SHEET

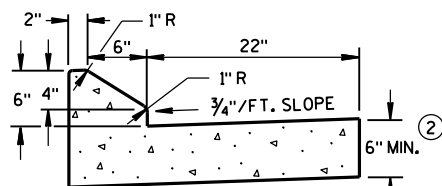
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Standard Detail Drawing List

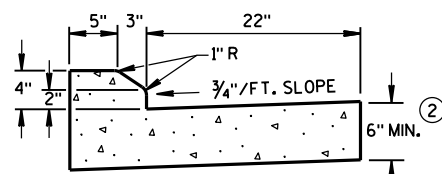
08D01-18	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
09A01-13A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
12A03-10	NAME PLATE (STRUCTURES)
14B15-08A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-08B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-08C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-03A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A01-12A	MARKER POST FOR RIGHT-OF-WAY
15A01-12B	FLEXIBLE MARKER POST FOR RIGHT-OF-WAY
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C03-03	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES



TYPES A & D ①

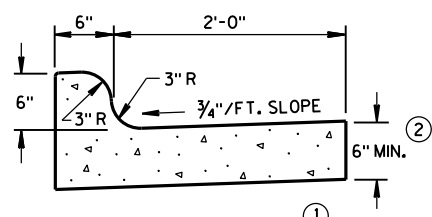


6" SLOPED CURB TYPES G & J ①



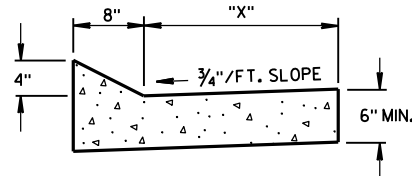
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"



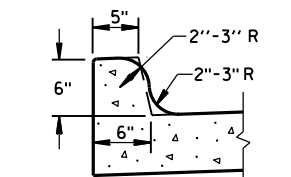
TYPES K & L ①

CONCRETE CURB & GUTTER 30"

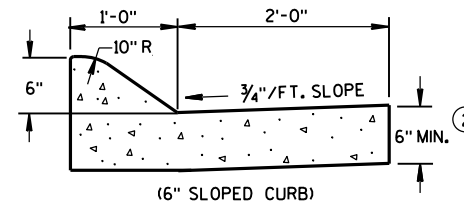


TYPES TBT & TBT ①
CONCRETE CURB & GUTTER

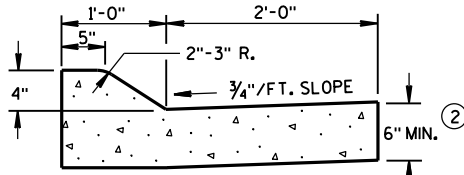
TBT & TBT	"X"
30"	22"
36"	28"



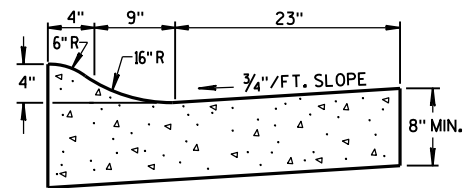
OPTIONAL CURB SHAPE
FOR TYPES K & L ①



(6" SLOPED CURB)

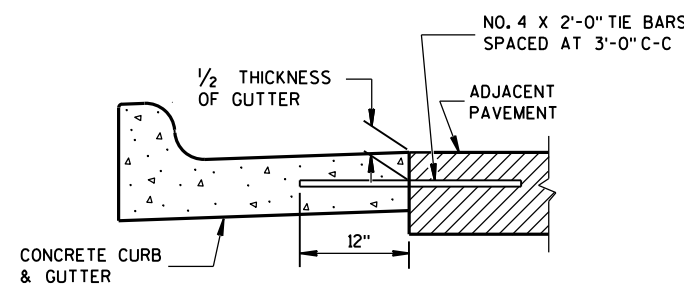


TYPES A & D ①

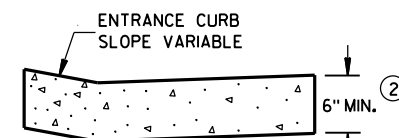


4" SLOPED CURB TYPES R & T ① ④

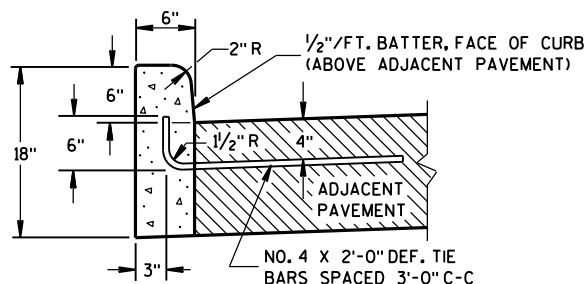
CONCRETE CURB & GUTTER 36"



TYPICAL TIE BAR LOCATION ①

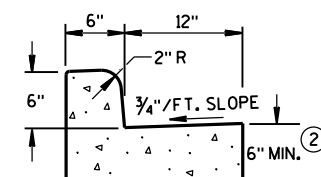


DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

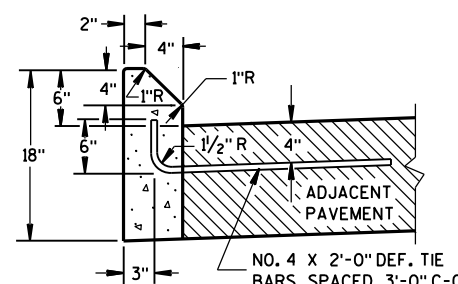


TYPES A & D ①

CONCRETE CURB



TYPES A & D
CONCRETE CURB & GUTTER 18"



TYPES G & J ①

GENERAL NOTES

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

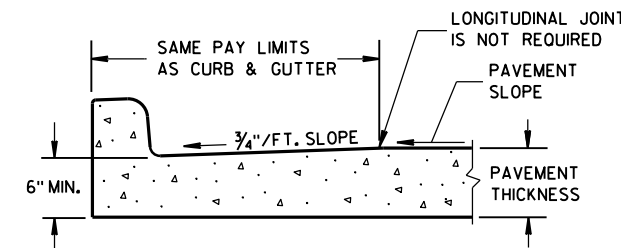
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

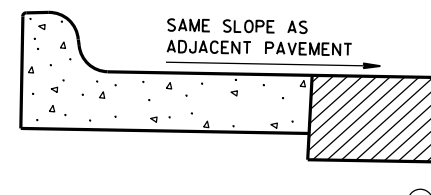
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

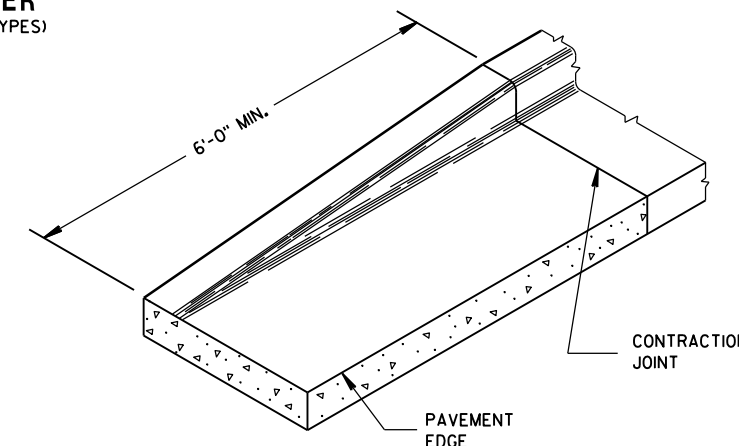
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



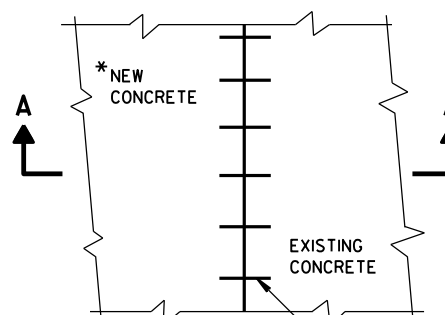
PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



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



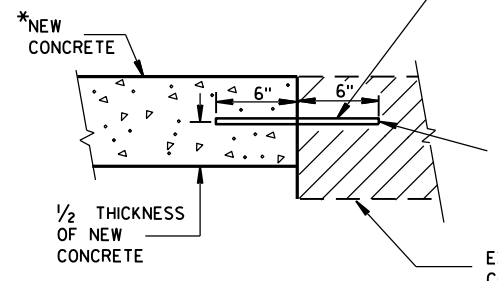
END SECTION CURB & GUTTER



PLAN VIEW

*NEW CURB & GUTTER,
SURFACE DRAINS,
CONCRETE PAVEMENT
OR OTHER NEW CONCRETE.

NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.



SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT

MAXIMUM DRILL HOLE
SIZE IS 1/8" GREATER
THAN TIE BAR DIAMETER

EXISTING
CONCRETE

CONCRETE CURB, CONCRETE
CURB & GUTTER AND TIES

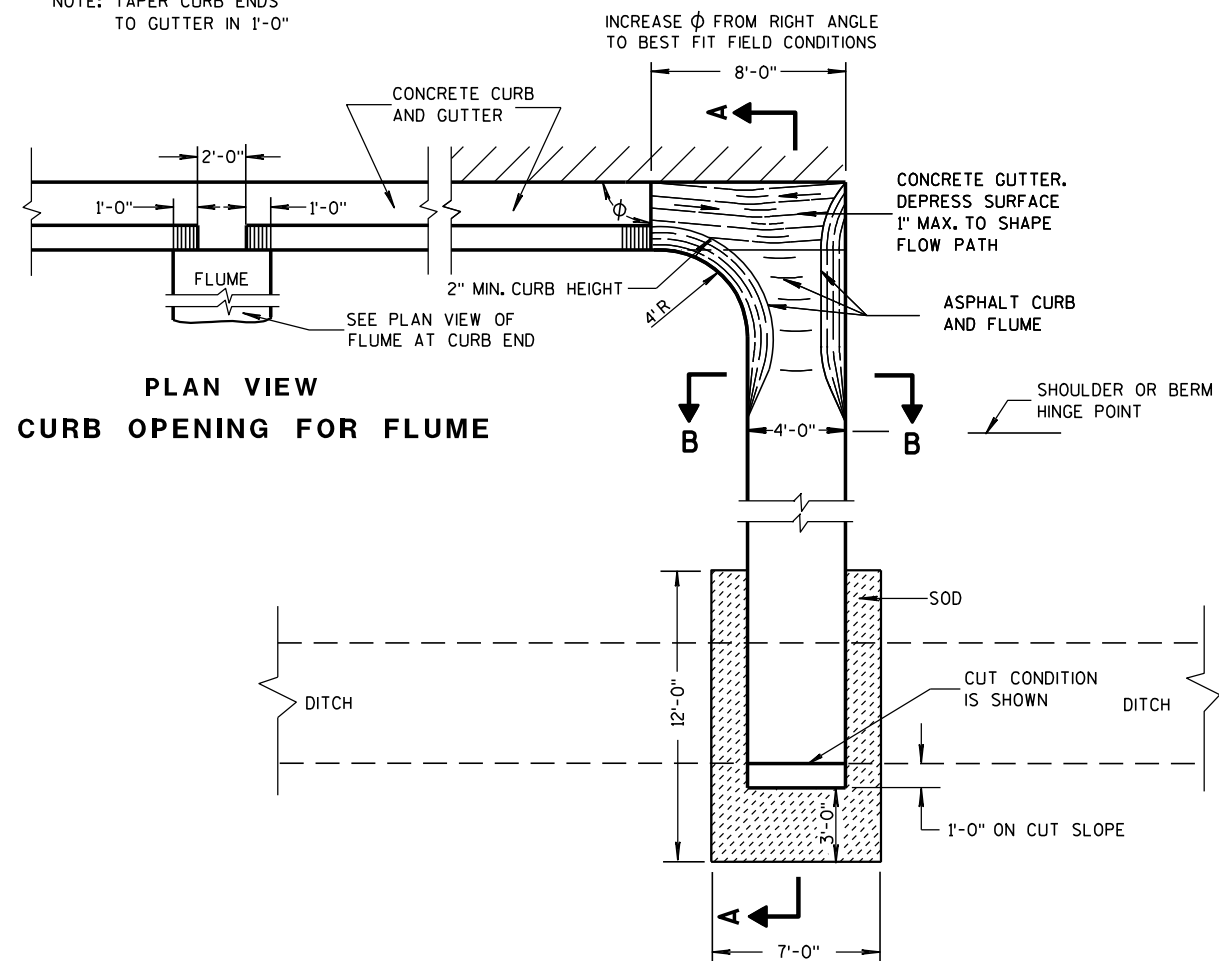
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

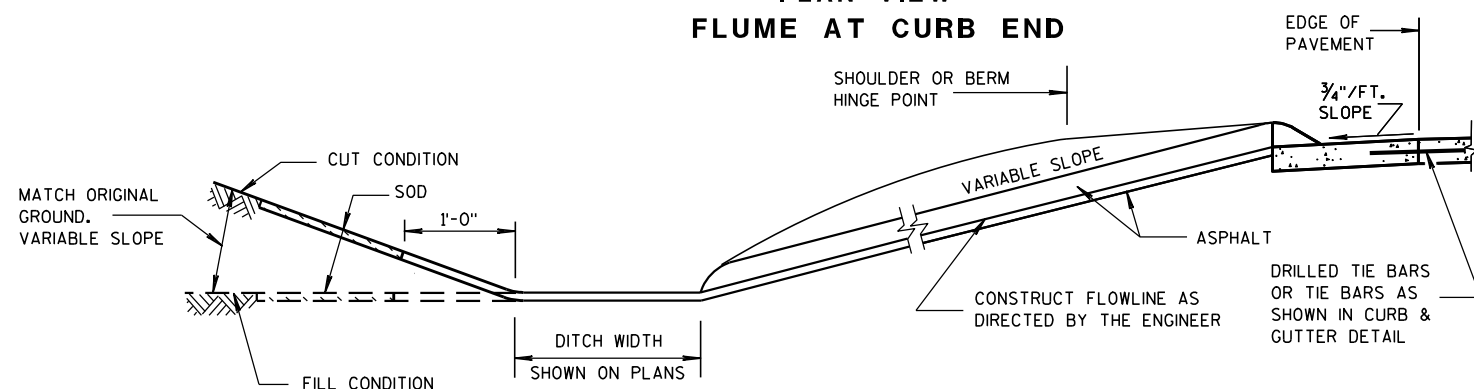
ASPHALTIC FLUME

NOTE: TAPER CURB ENDS
TO GUTTER IN 1'-0"

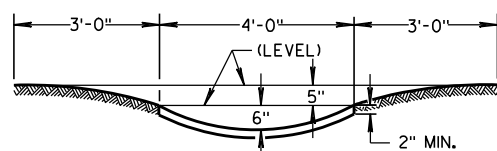


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

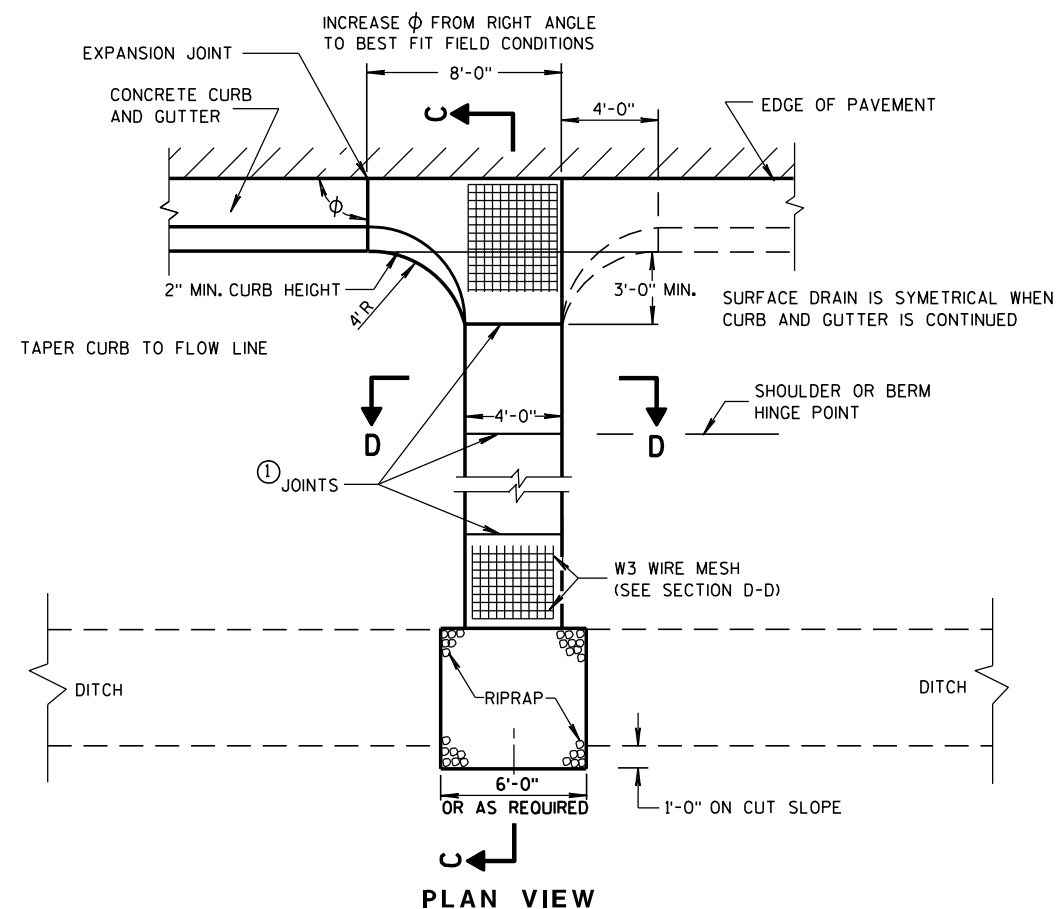
GENERAL NOTES

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

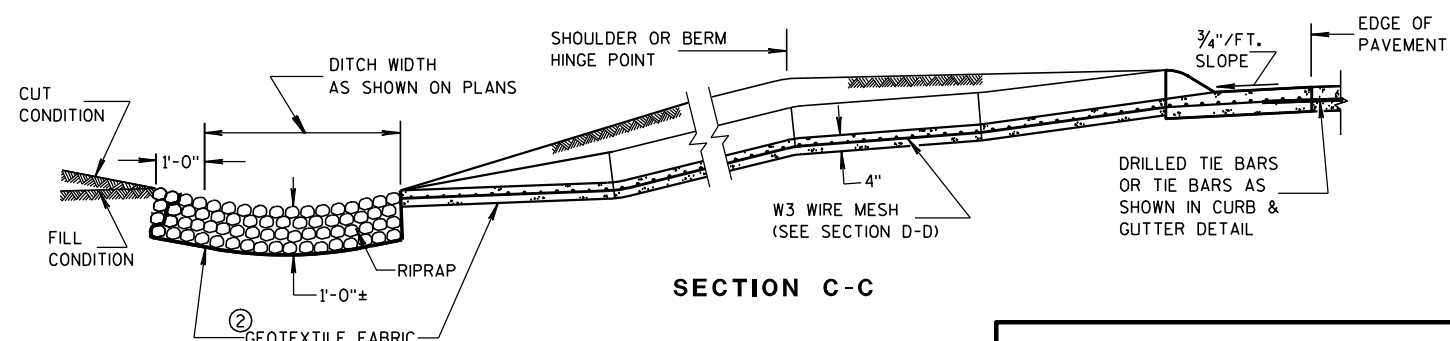
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

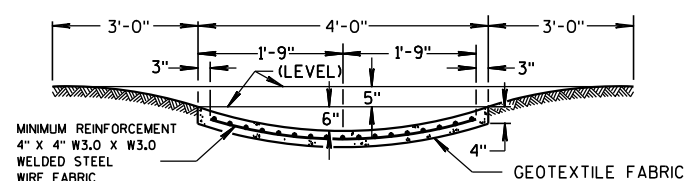
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

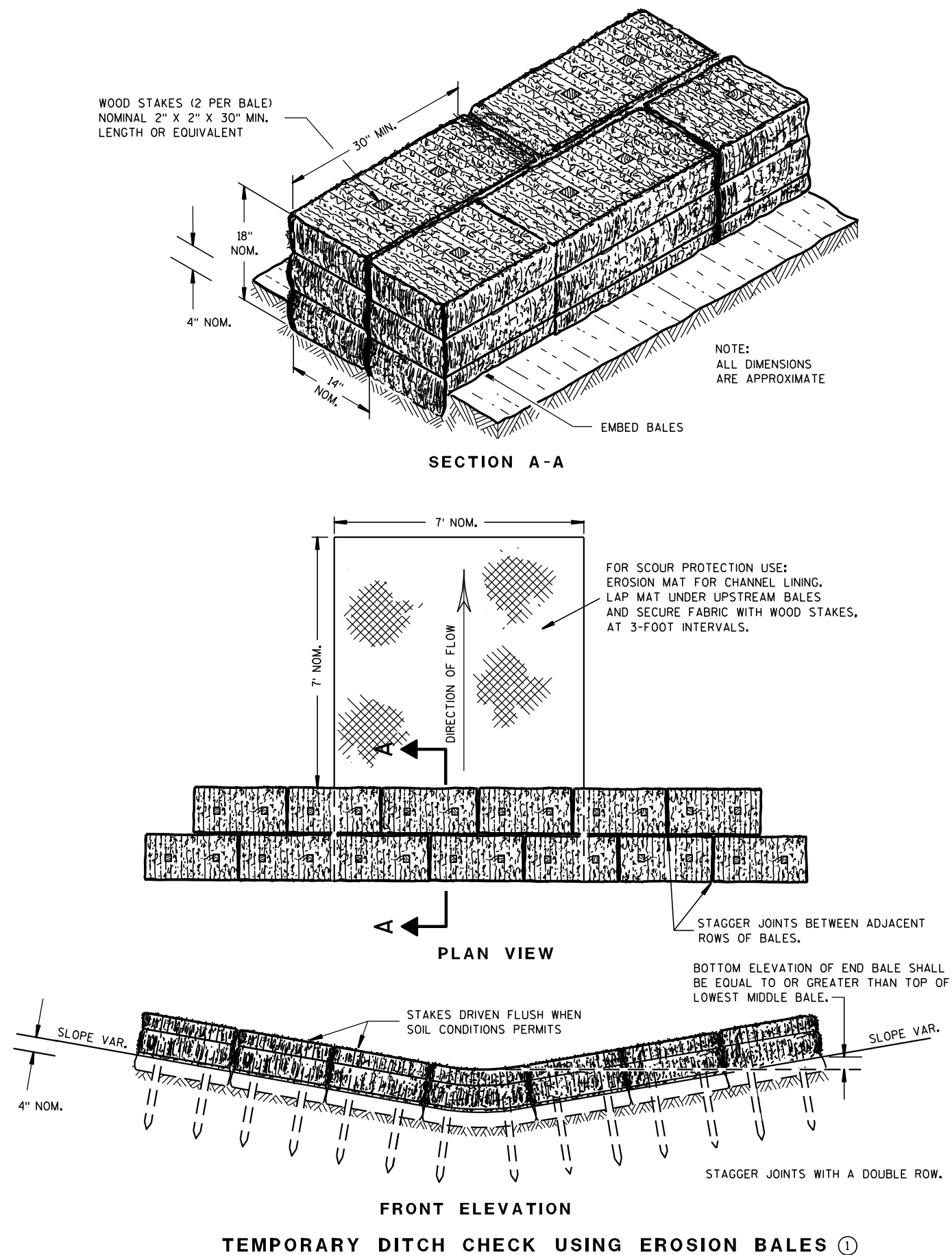
APPROVED

9-4-08

DATE

FHWA

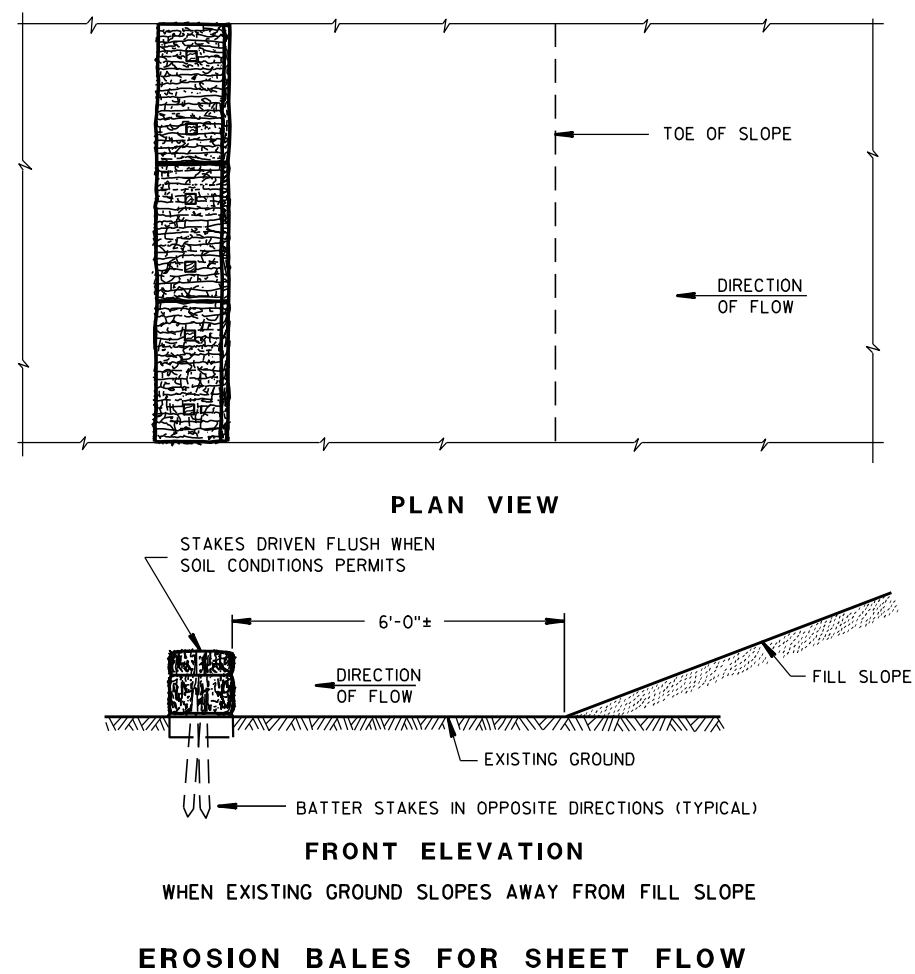
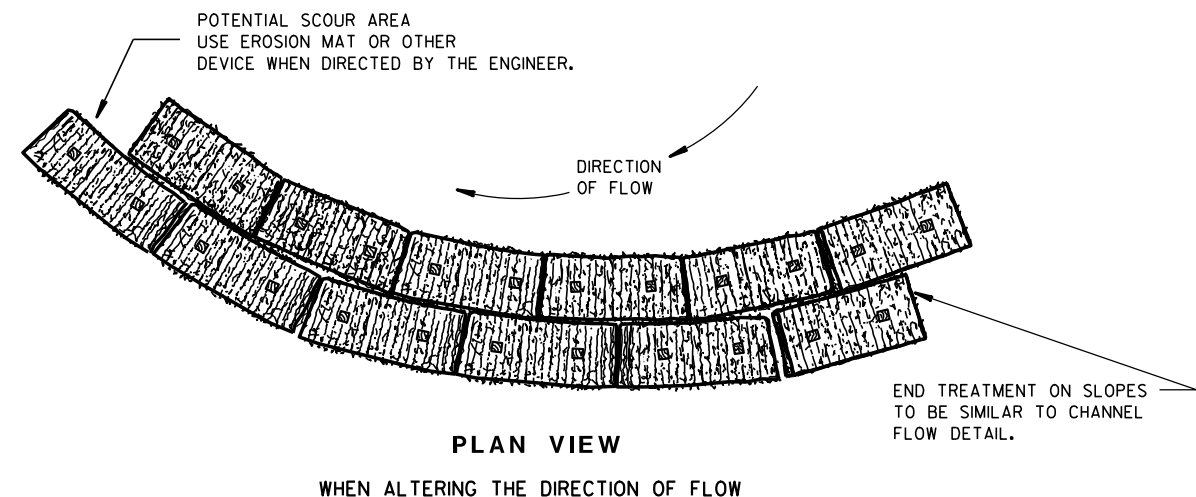
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



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.

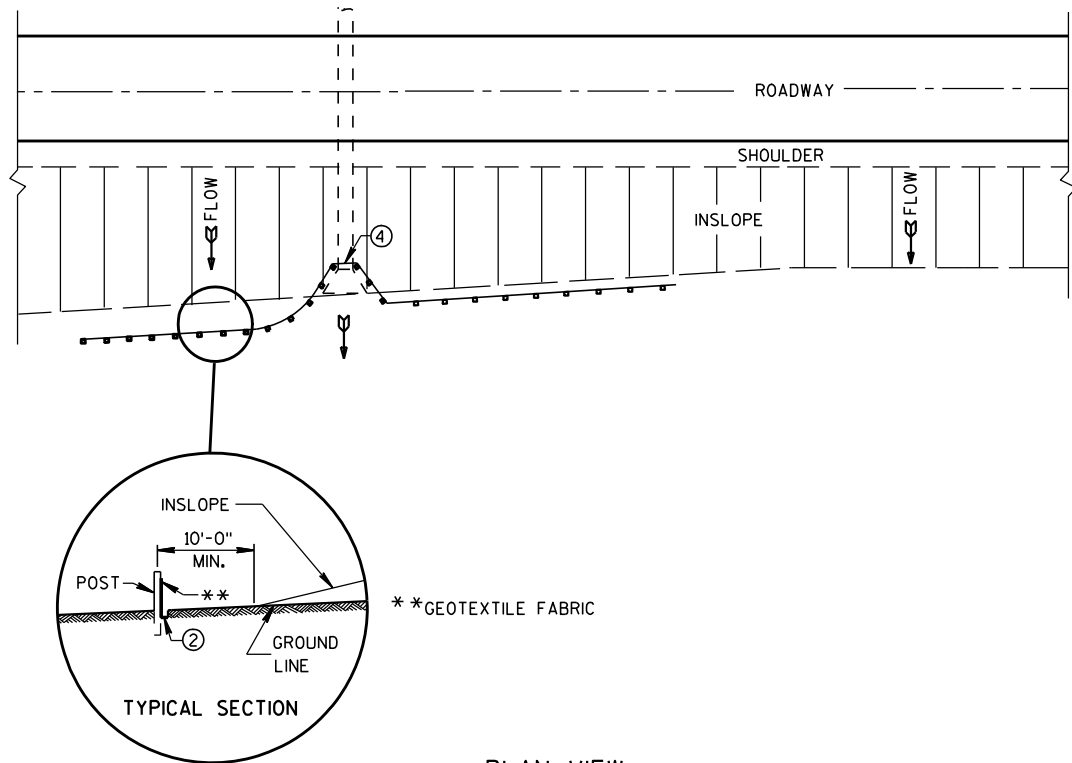
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

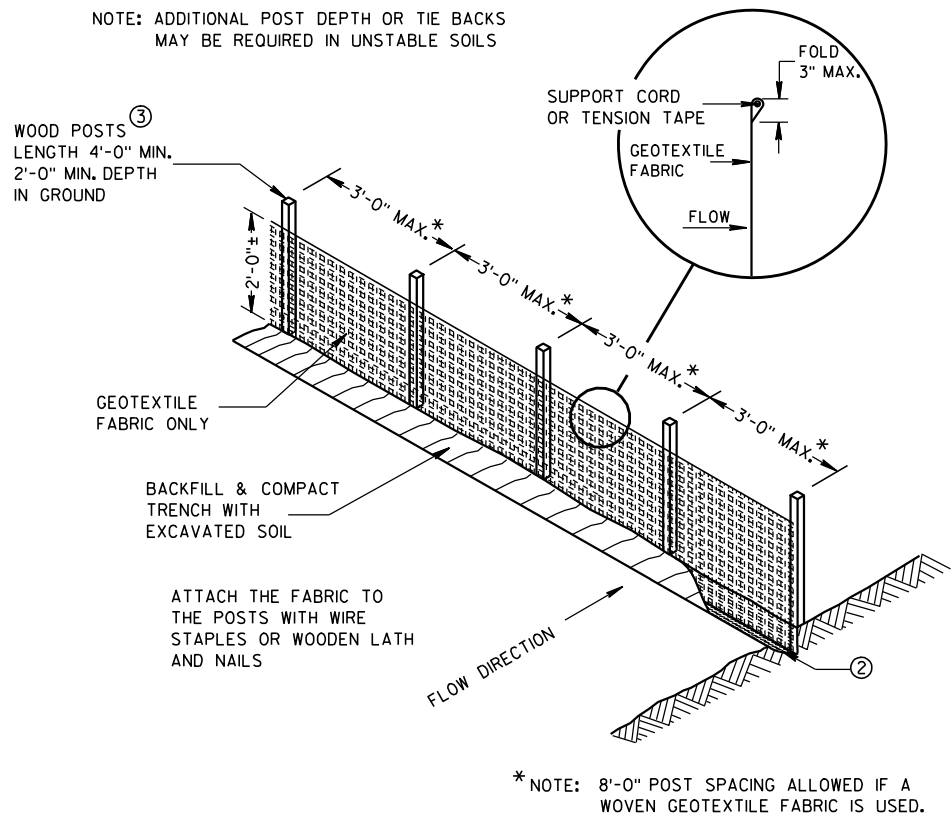
APPROVED

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

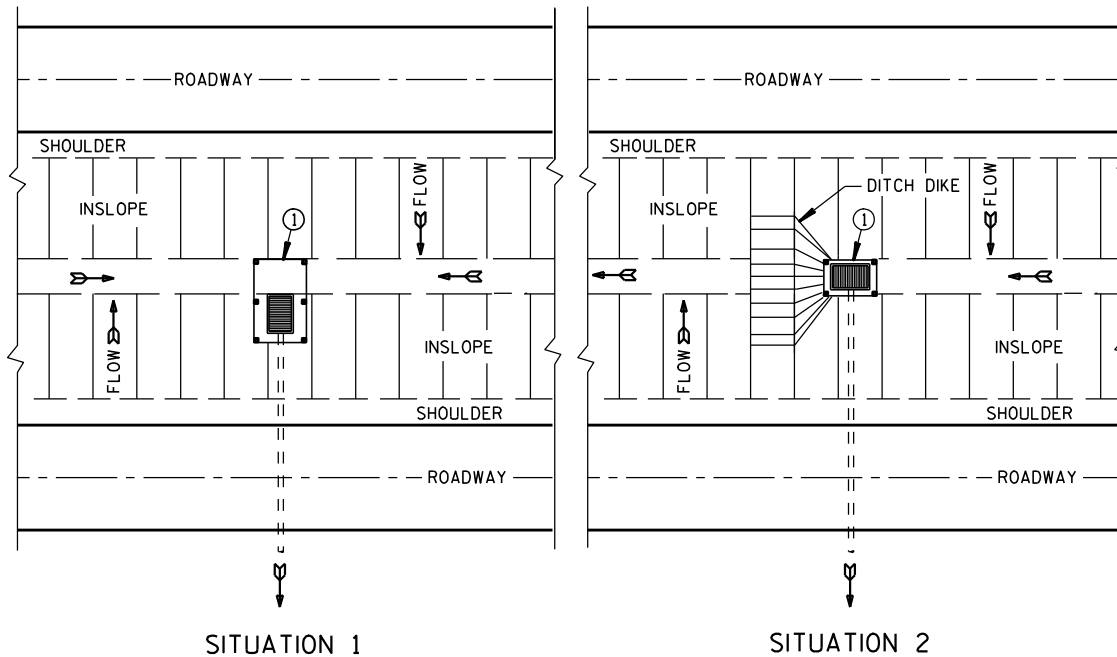
FHWA



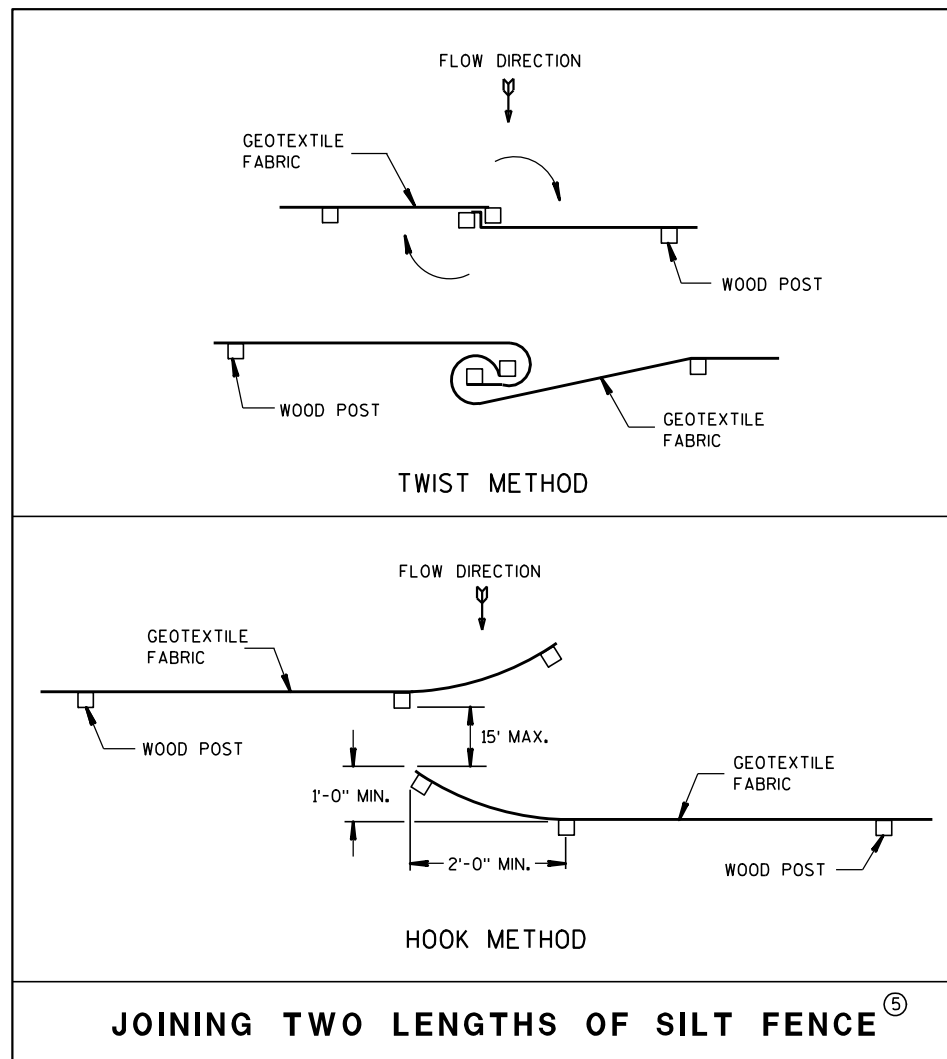
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

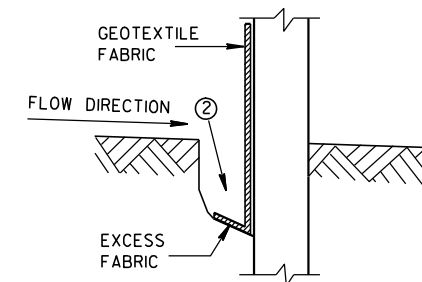


JOINING TWO LENGTHS OF SILT FENCE (5)

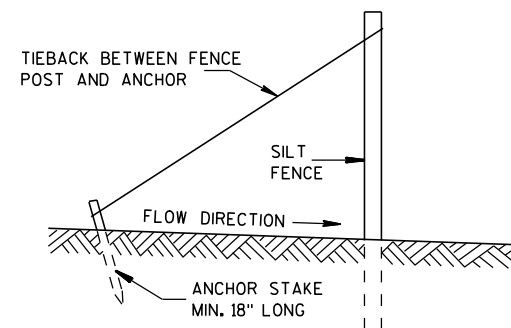
GENERAL NOTES

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

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

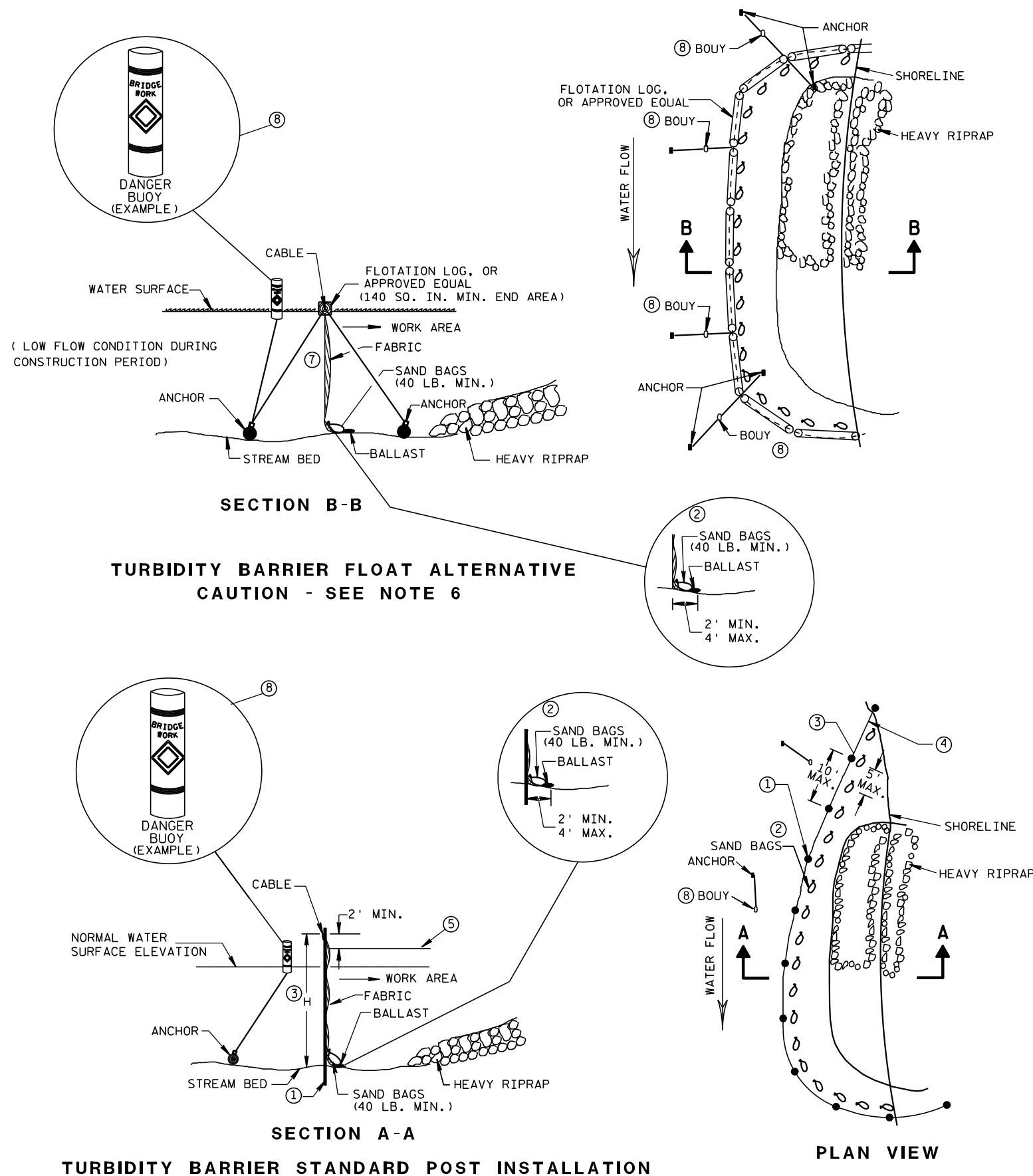


TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

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

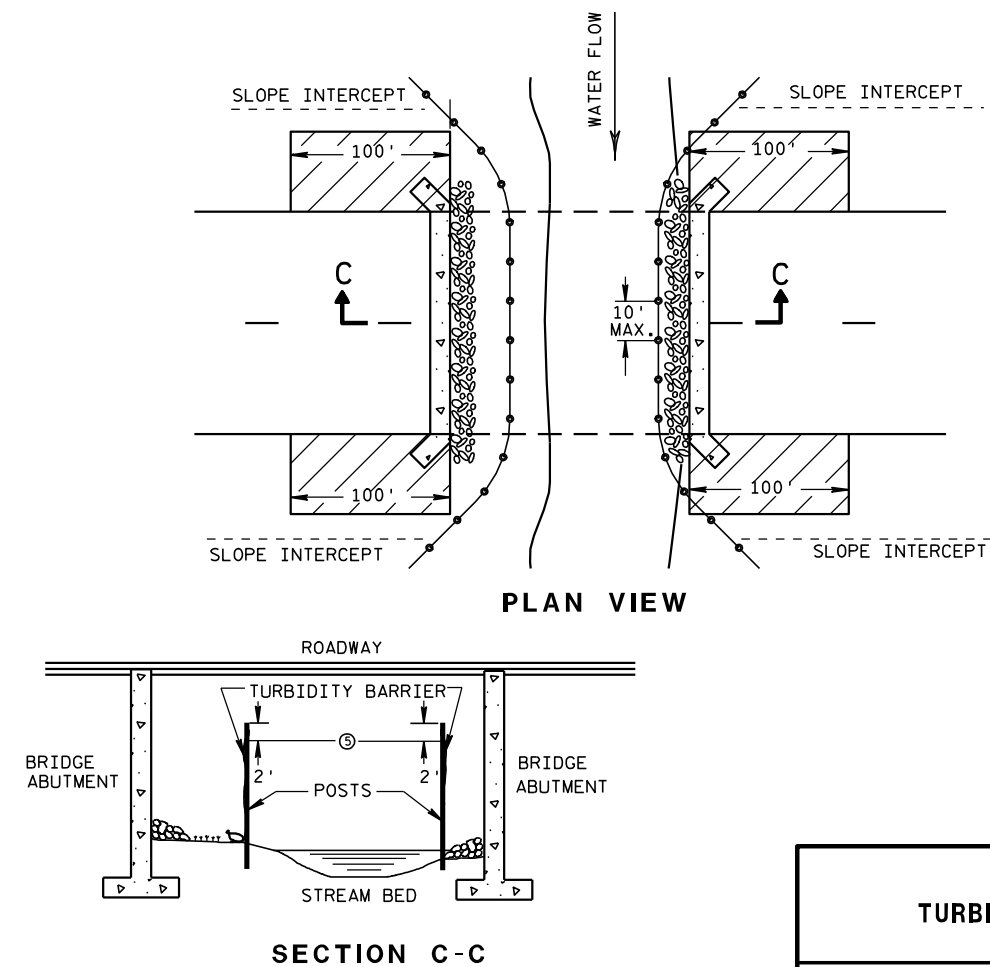


GENERAL NOTES

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

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

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

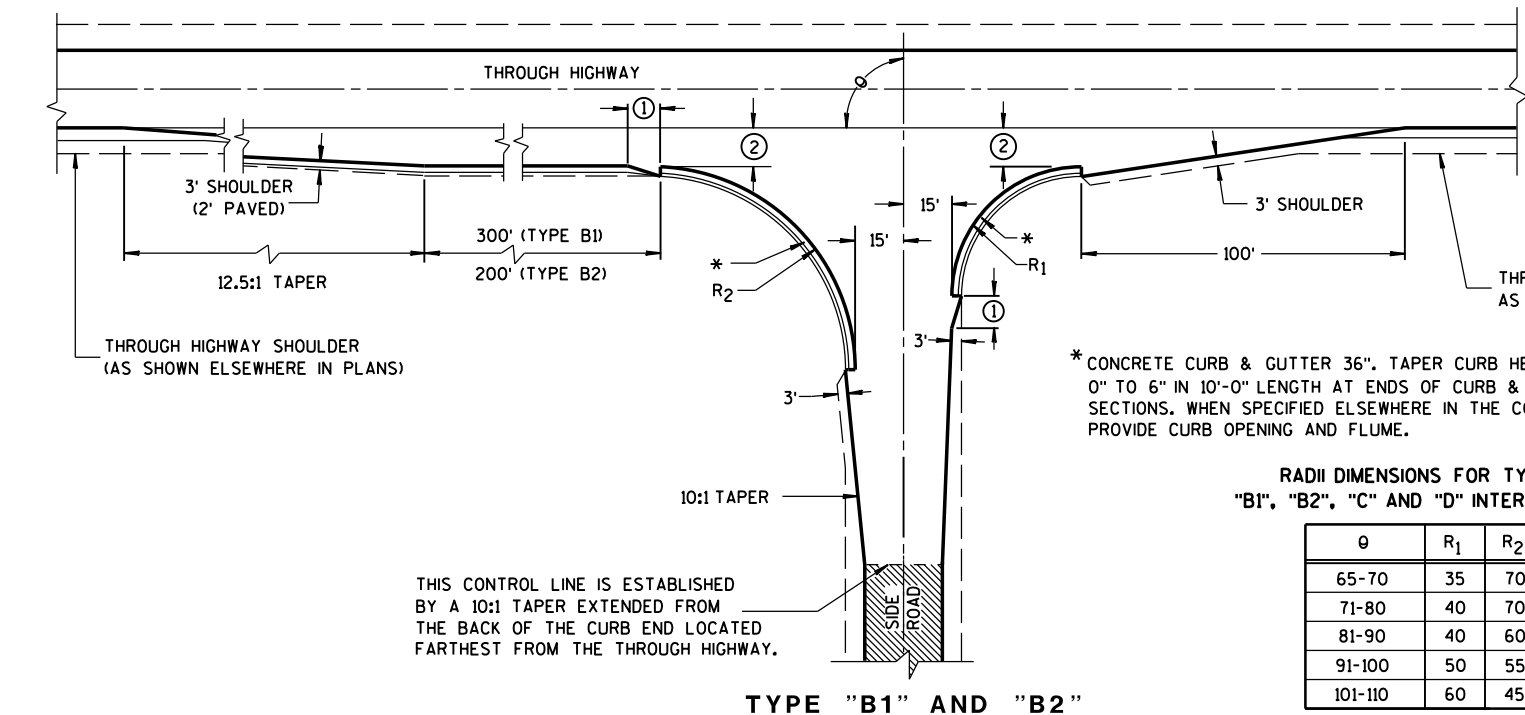
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING PAVED SURFACE

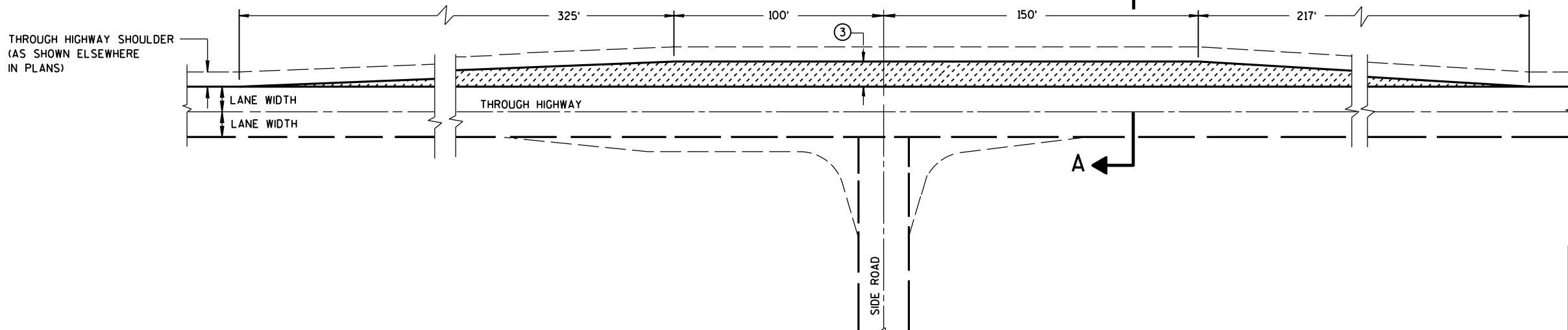
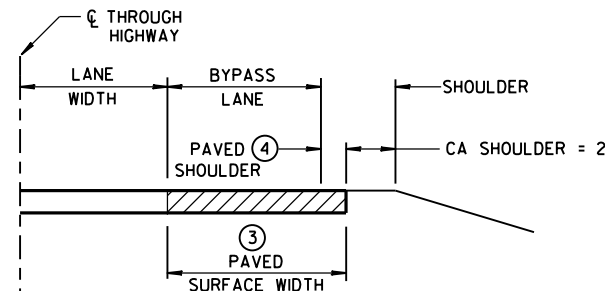
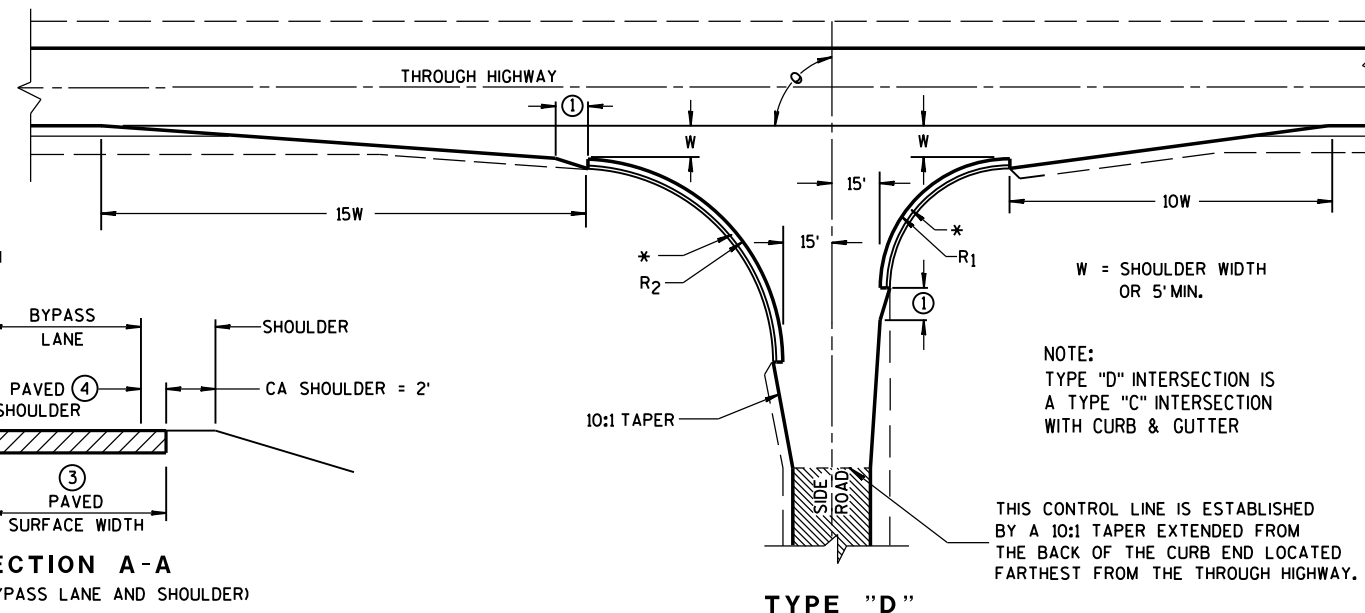
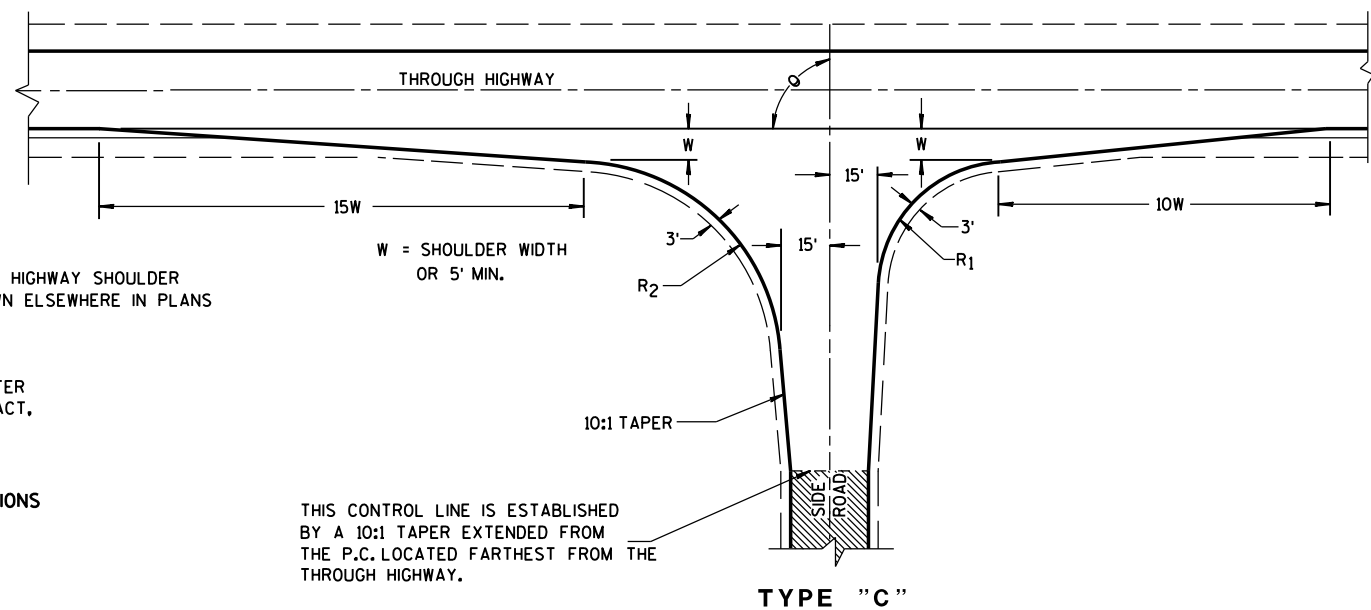
BYPASS LANE

- ① 10-FT TYPICAL.
- ② 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.

**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.
- ③ BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.
- ④ BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.

RADII DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

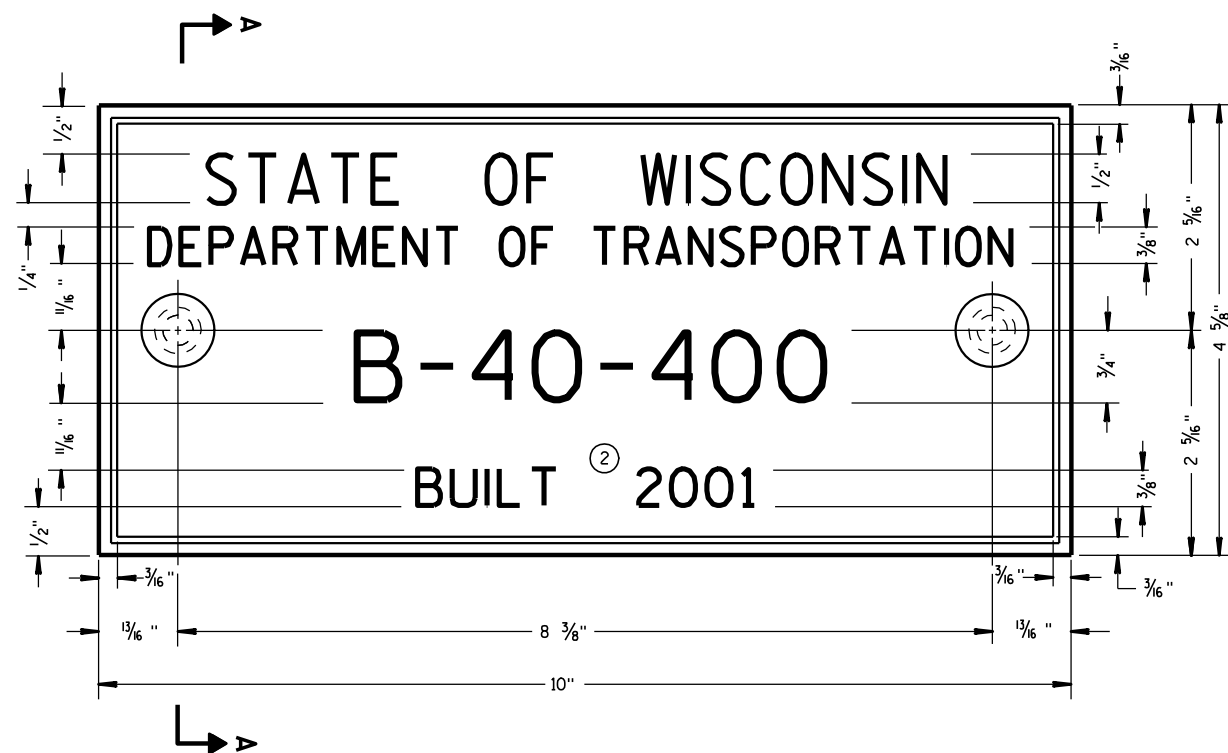
θ	R ₁	R ₂
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45



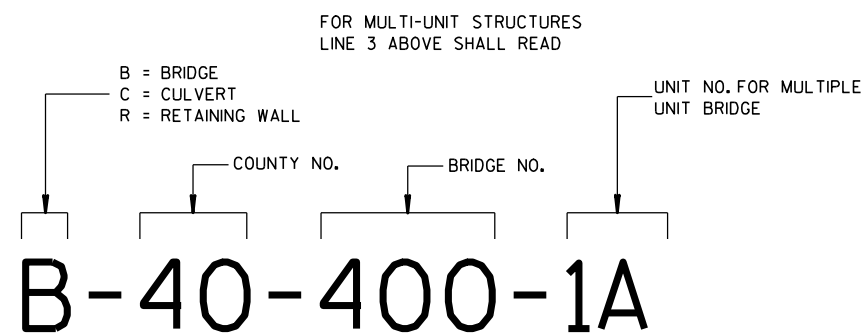
TEE INTERSECTION BYPASS LANE DETAIL

AT-GRADE SIDE ROAD
INTERSECTION, TYPES "B1", "B2",
"C" AND "D" AND TEE
INTERSECTION BYPASS LANE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



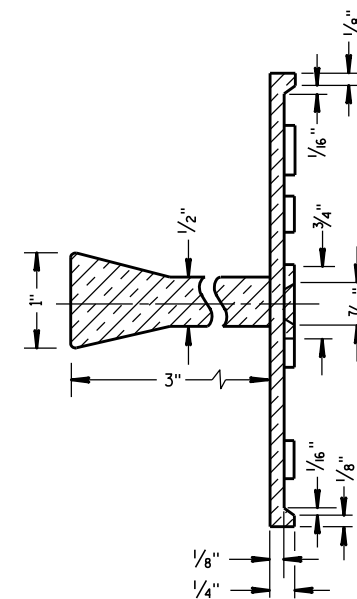
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

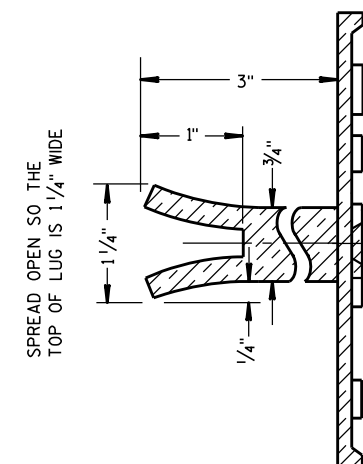
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

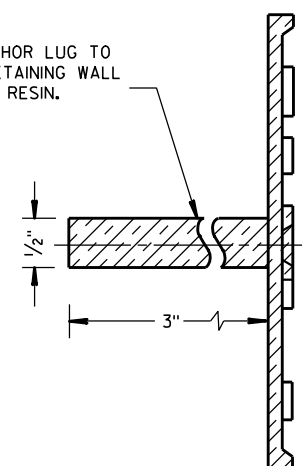


SECTION A-A



ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10
DATE

FHWA

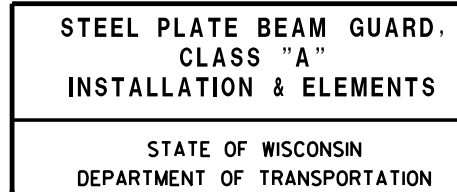
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER

6

S.D.D. 14 B 15-8a

- 6

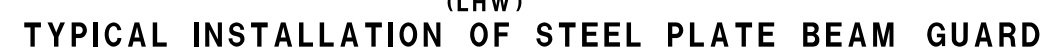
S.D.D. 14 B 15-8a



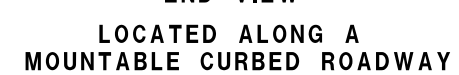
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



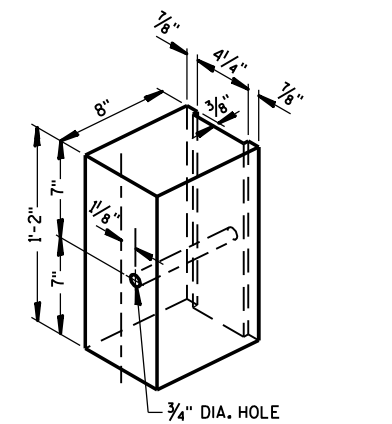
END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)



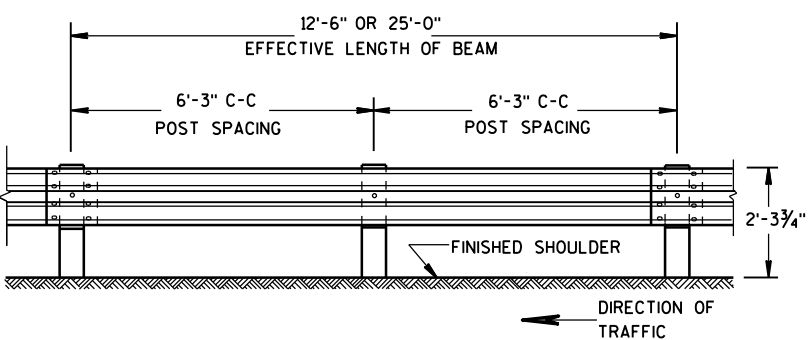
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY



PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM



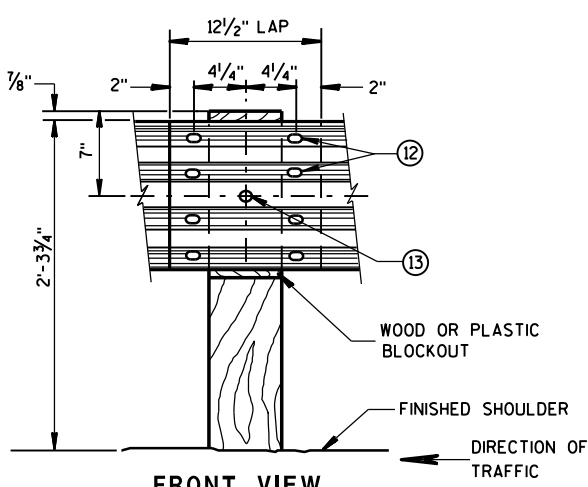
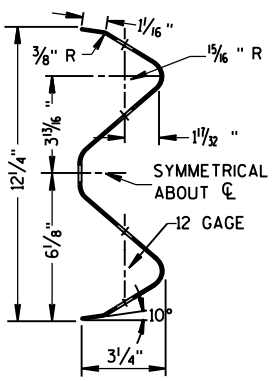
**TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS** ①



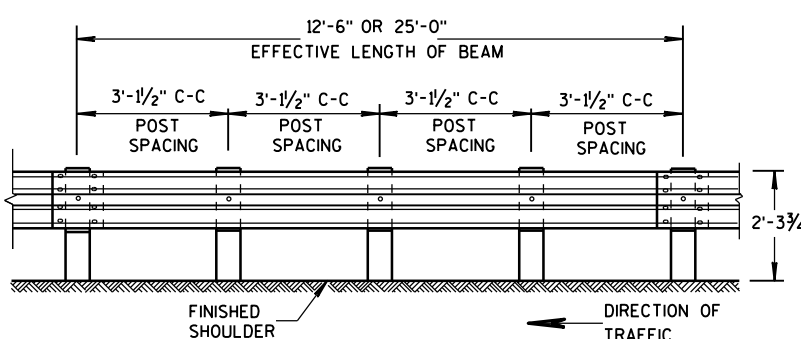
FRONT VIEW

POST SPACING STANDARD INSTALLATION

SECTION THRU W BEAM

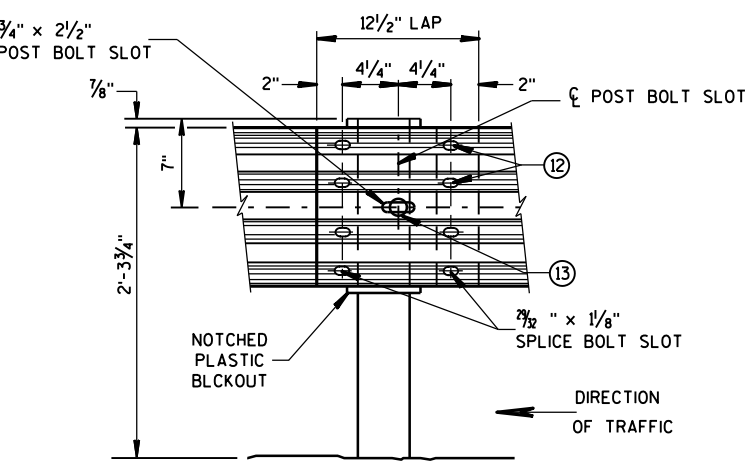


FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL



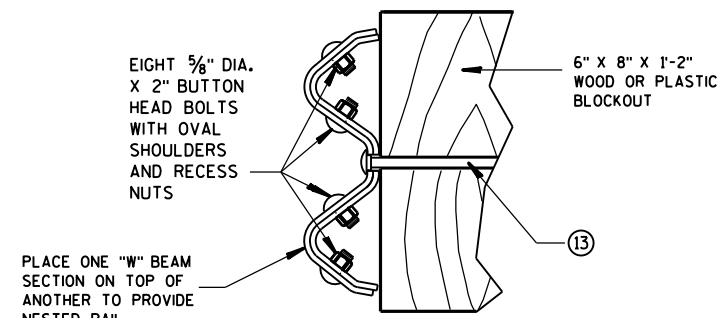
FRONT VIEW

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



FRONT VIEW
BEAM SPLICE AT STEEL POST

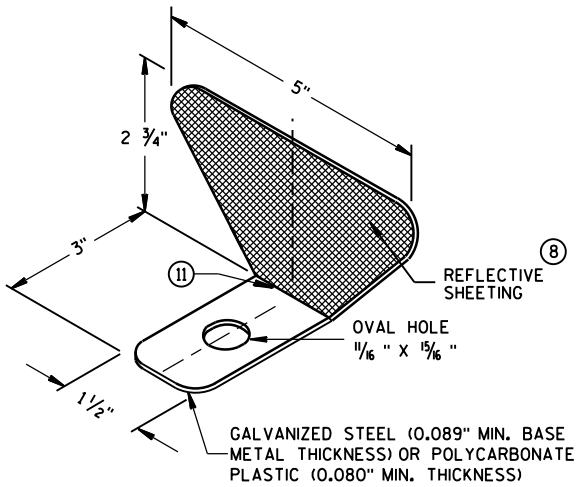
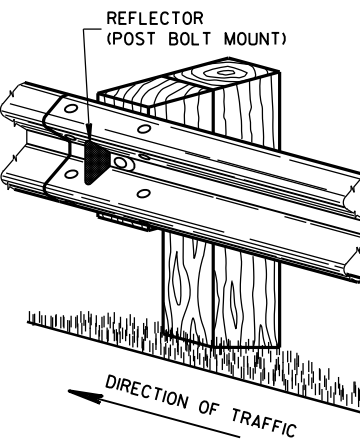
TYPICAL SPLICING DETAILS
OF STEEL PLATE BEAM GUARD



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

REFLECTOR SPACING^⑨

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ^⑩	6
	> 200'	50' C-C	1 ^⑩	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ^⑪	3
	> 200'	100' C-C	2 ^⑪	



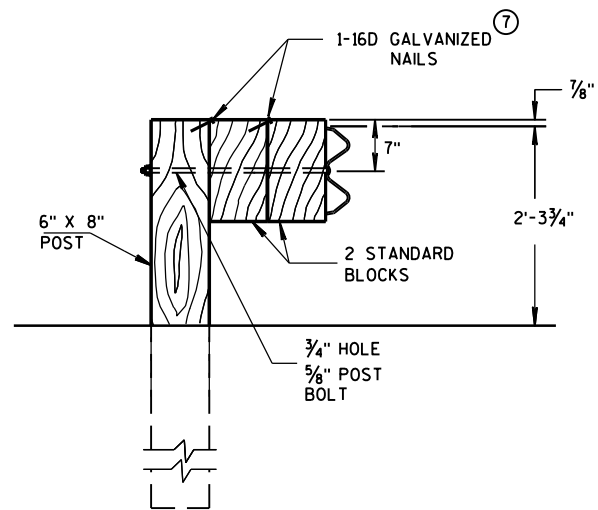
ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

GENERAL NOTES

- ⑧ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- ⑩ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ⑪ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
- ⑫ 8 - 5/8" φ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑬ 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.

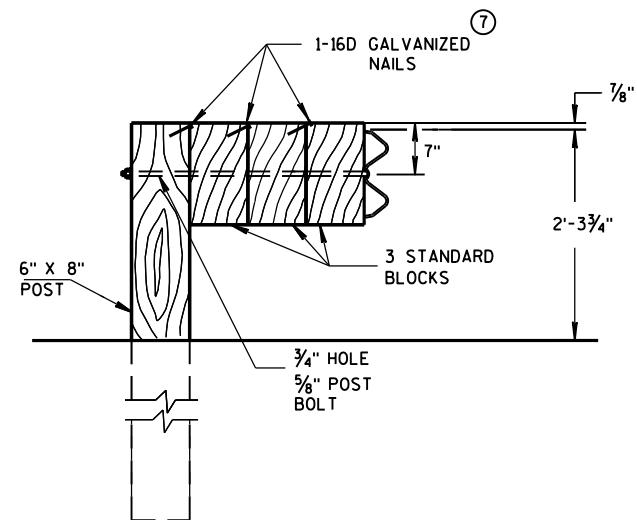
STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

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

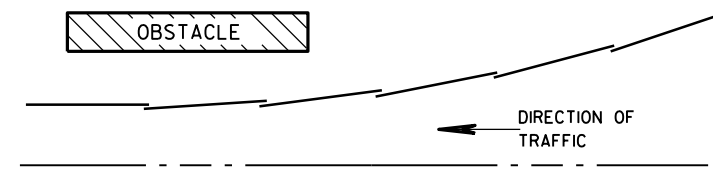


DETAIL FOR TRIPLE BLOCKS

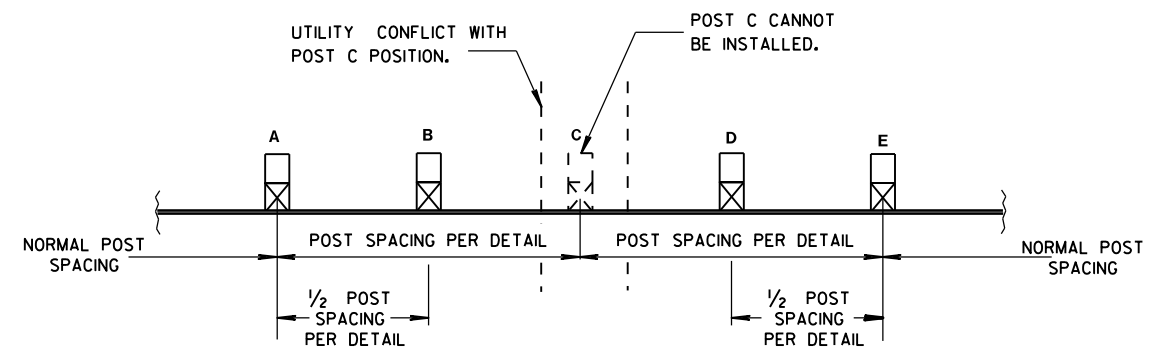
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

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

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



PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

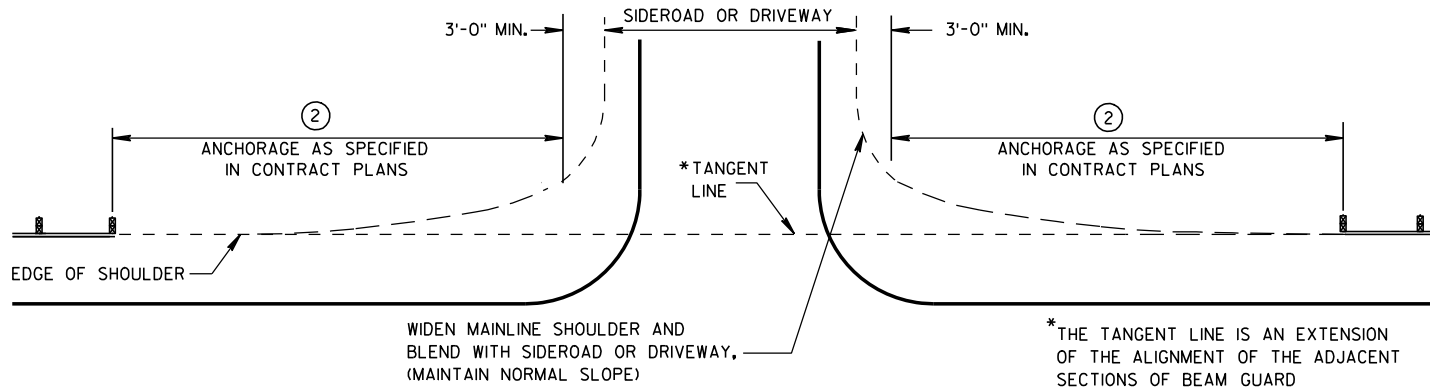
APPROVED

June 2014

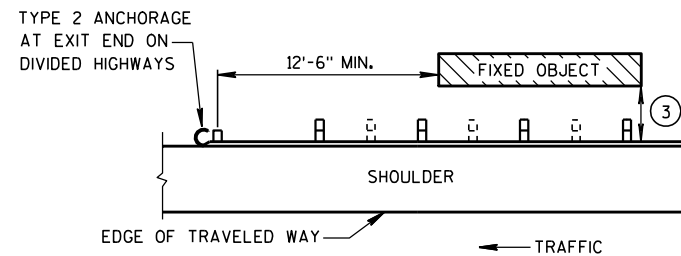
DATE

FHWA

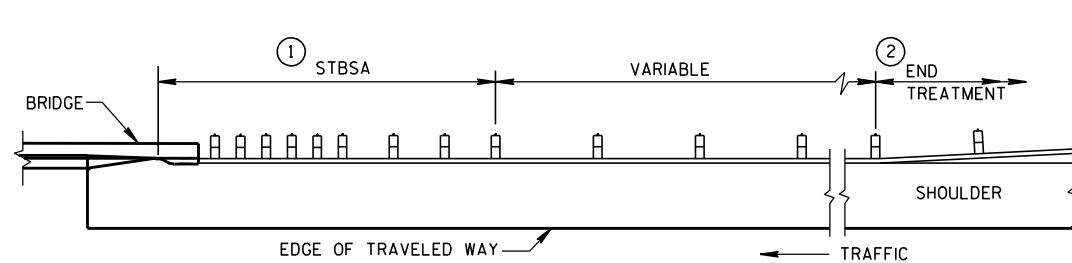
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



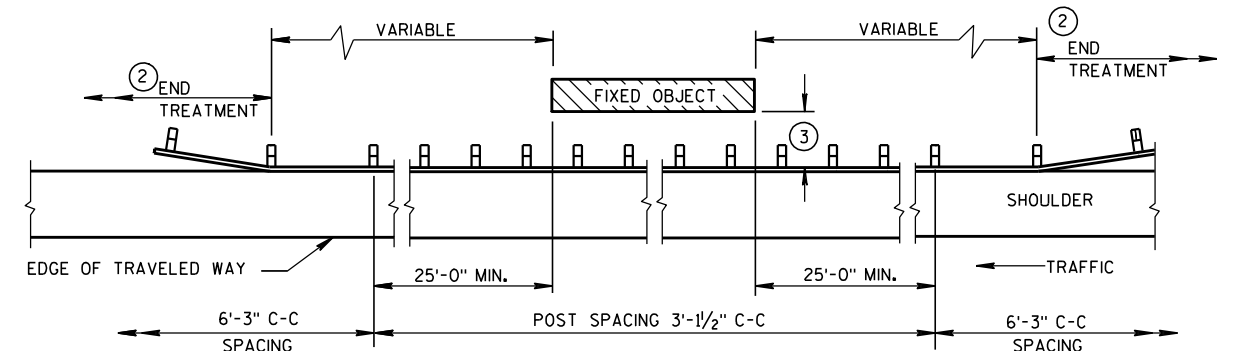
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC



BEAM GUARD AT FULL WIDTH BRIDGES

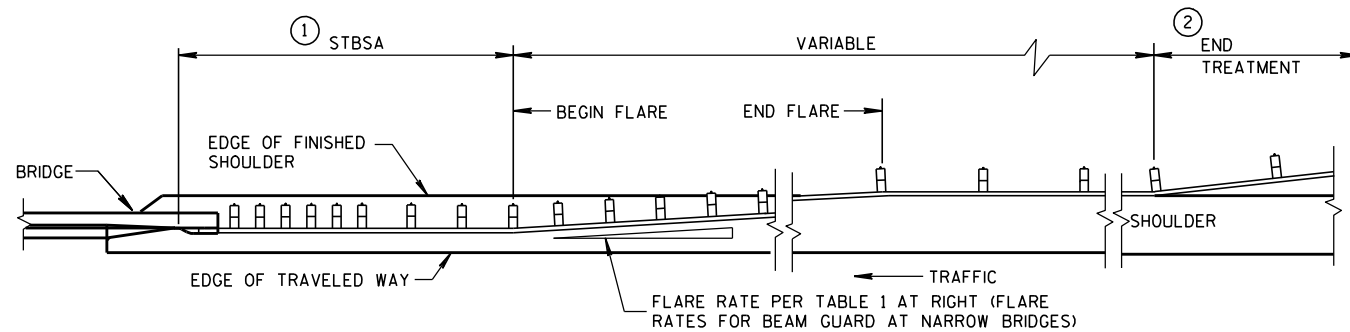


BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

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

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

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



BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

GENERAL NOTES

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

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

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

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

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1 1/2"
4'-6"	6' - 3"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-21-07

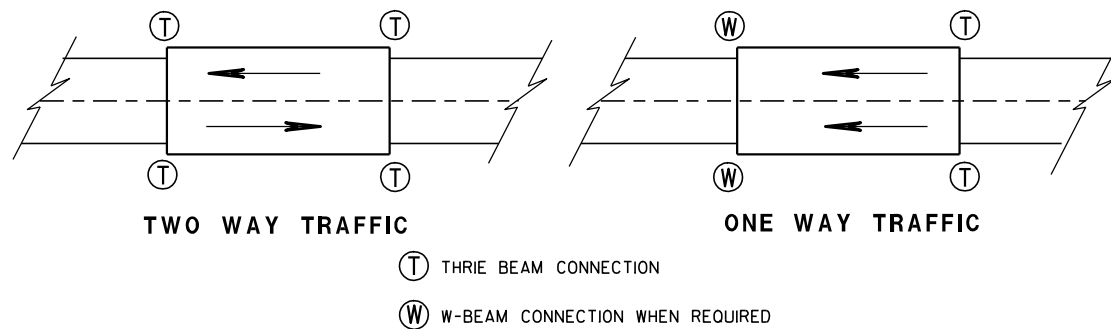
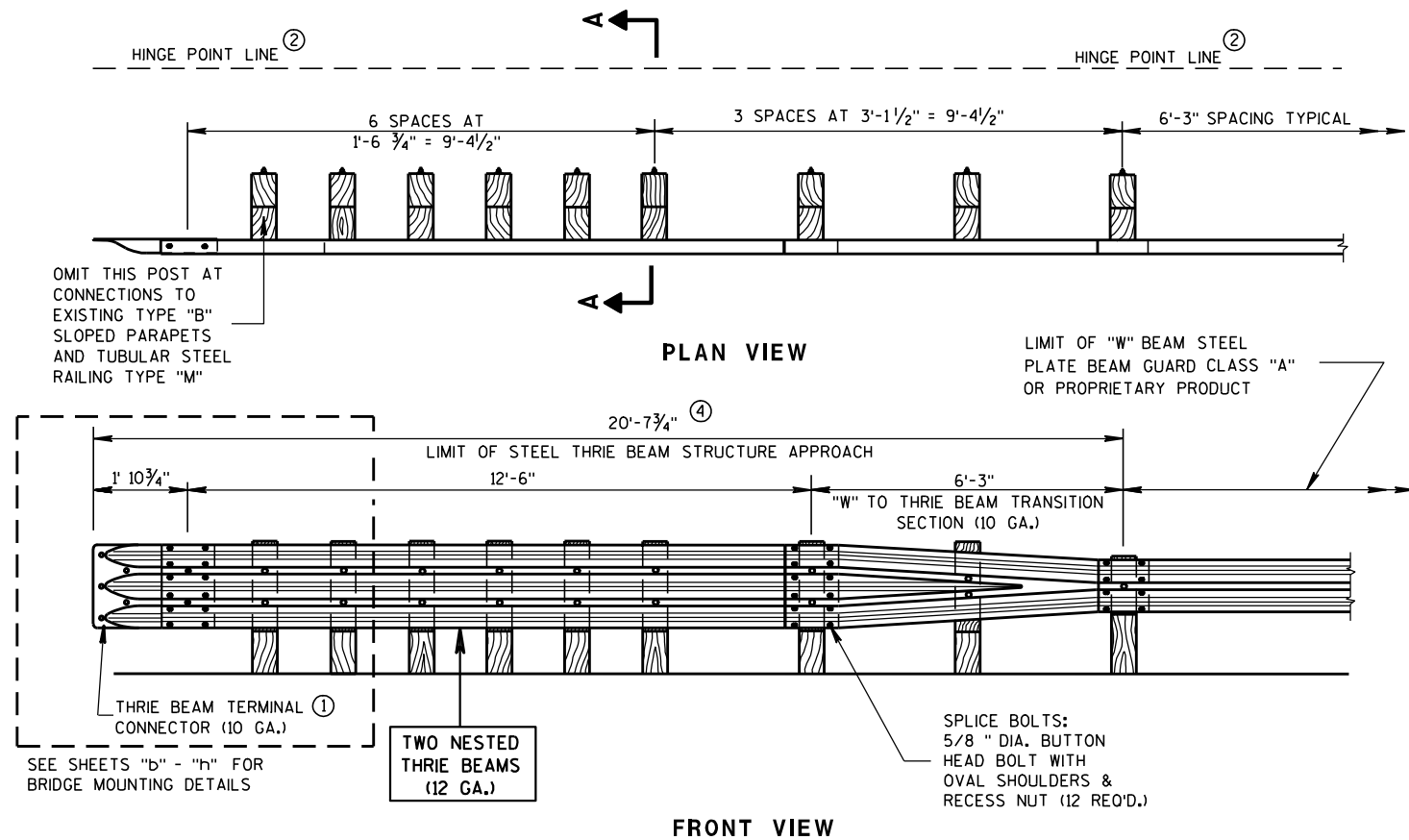
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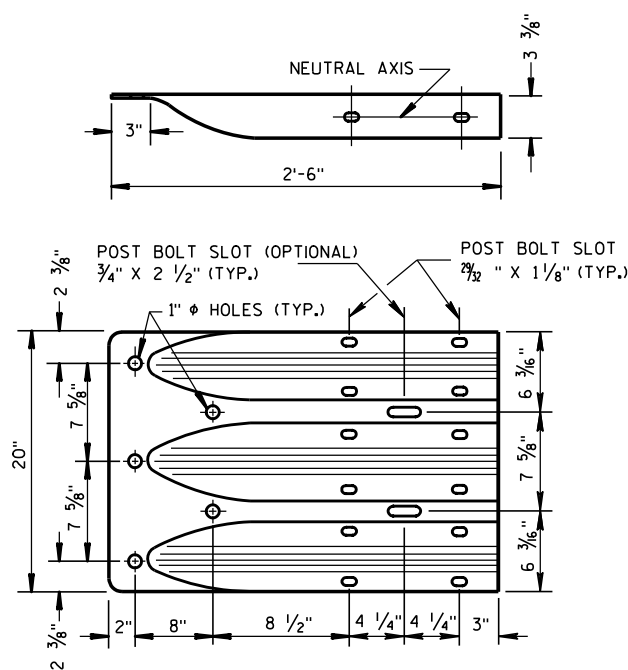
/S/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

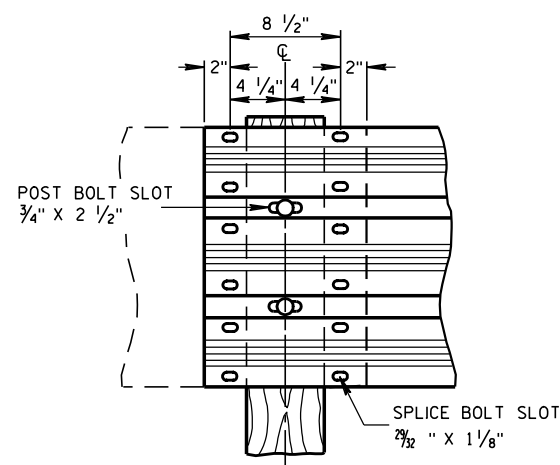
ENGINEER



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



THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

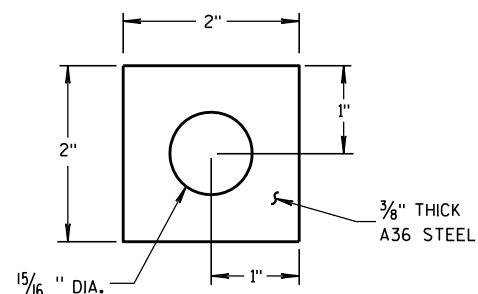
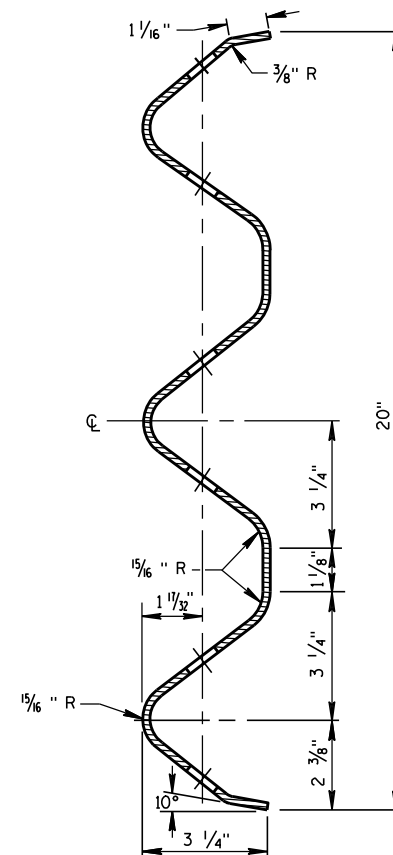


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

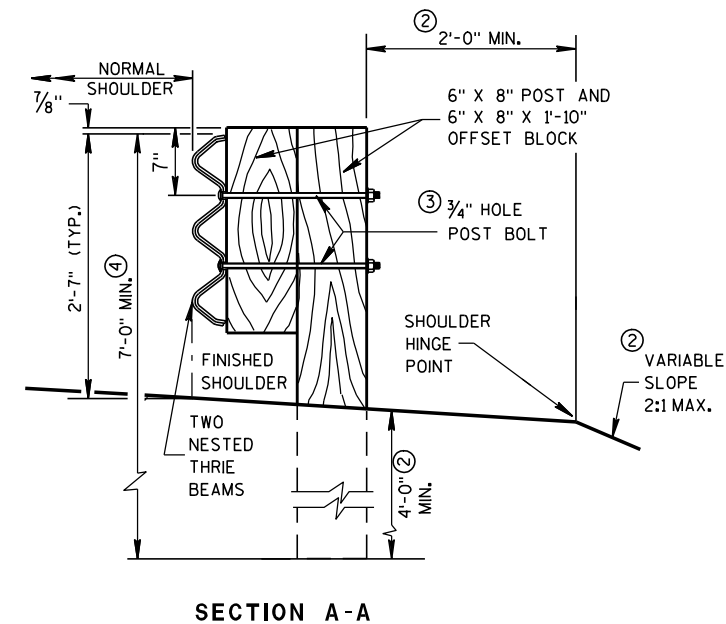
GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

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

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



STEEL THRIE BEAM STRUCTURE APPROACH

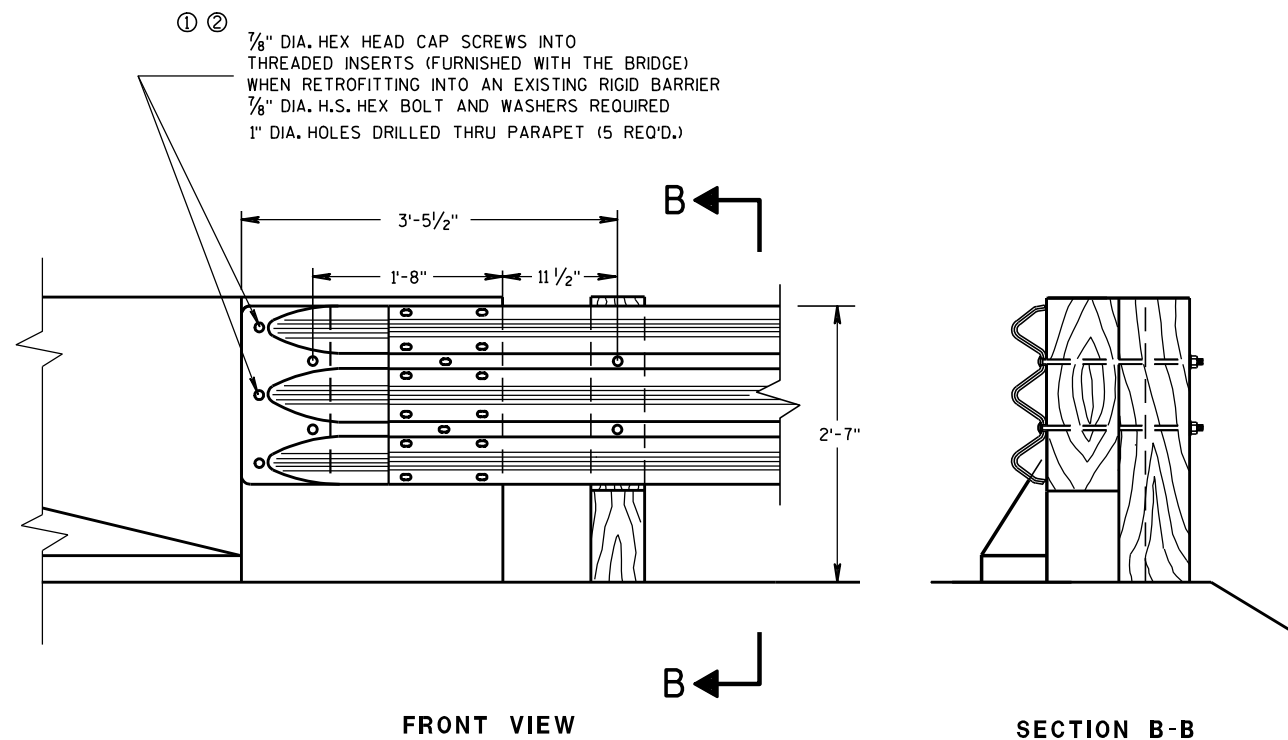
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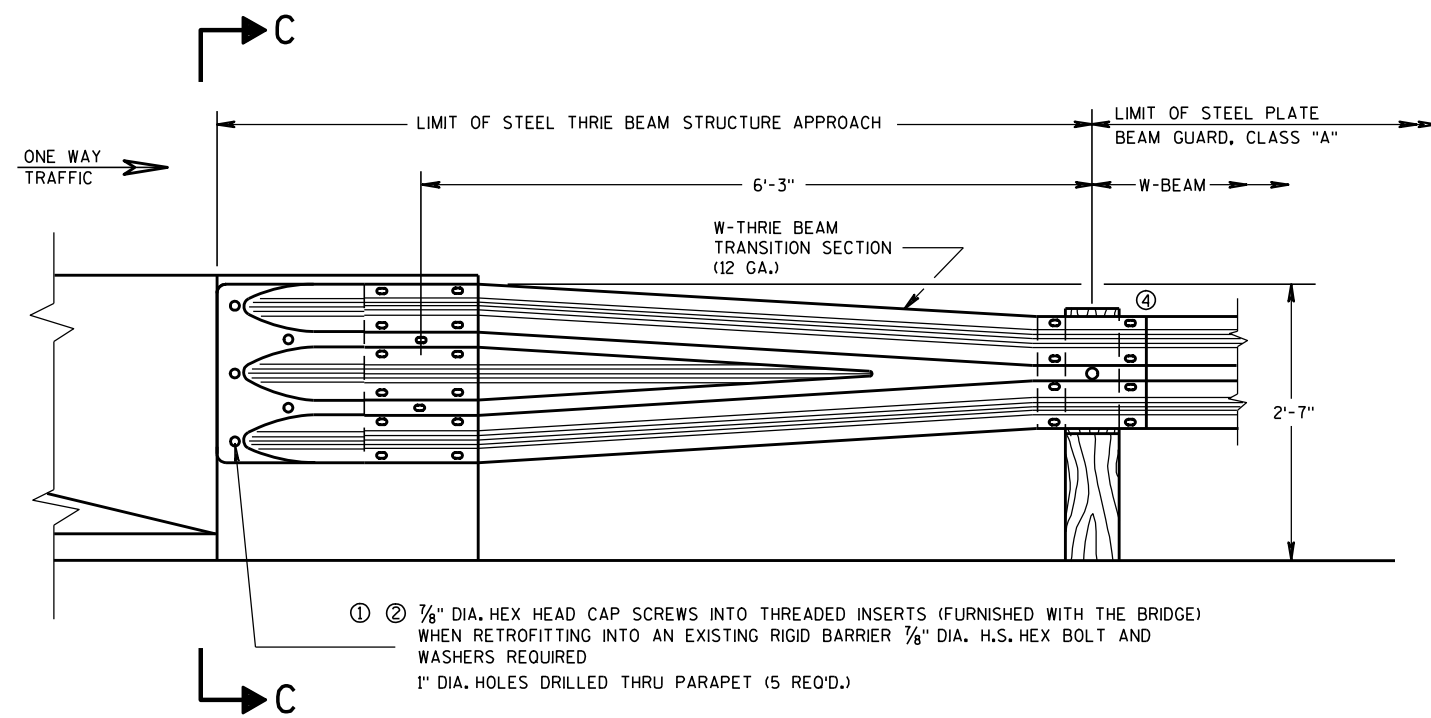
8/31/2012
DATE

FHWA

/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS



W BEAM TRANSITION AND CONNECTION TO
BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

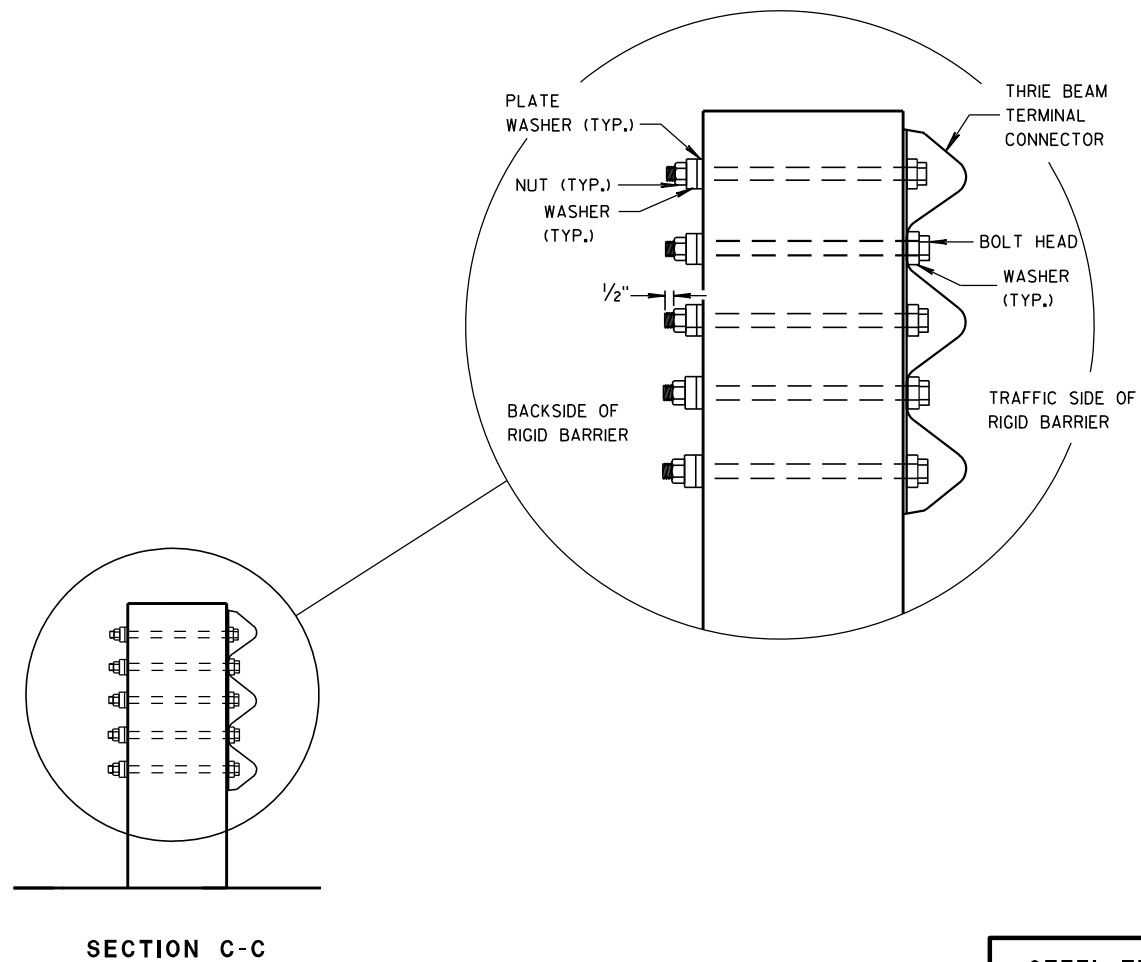
GENERAL NOTES

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

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

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

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



STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

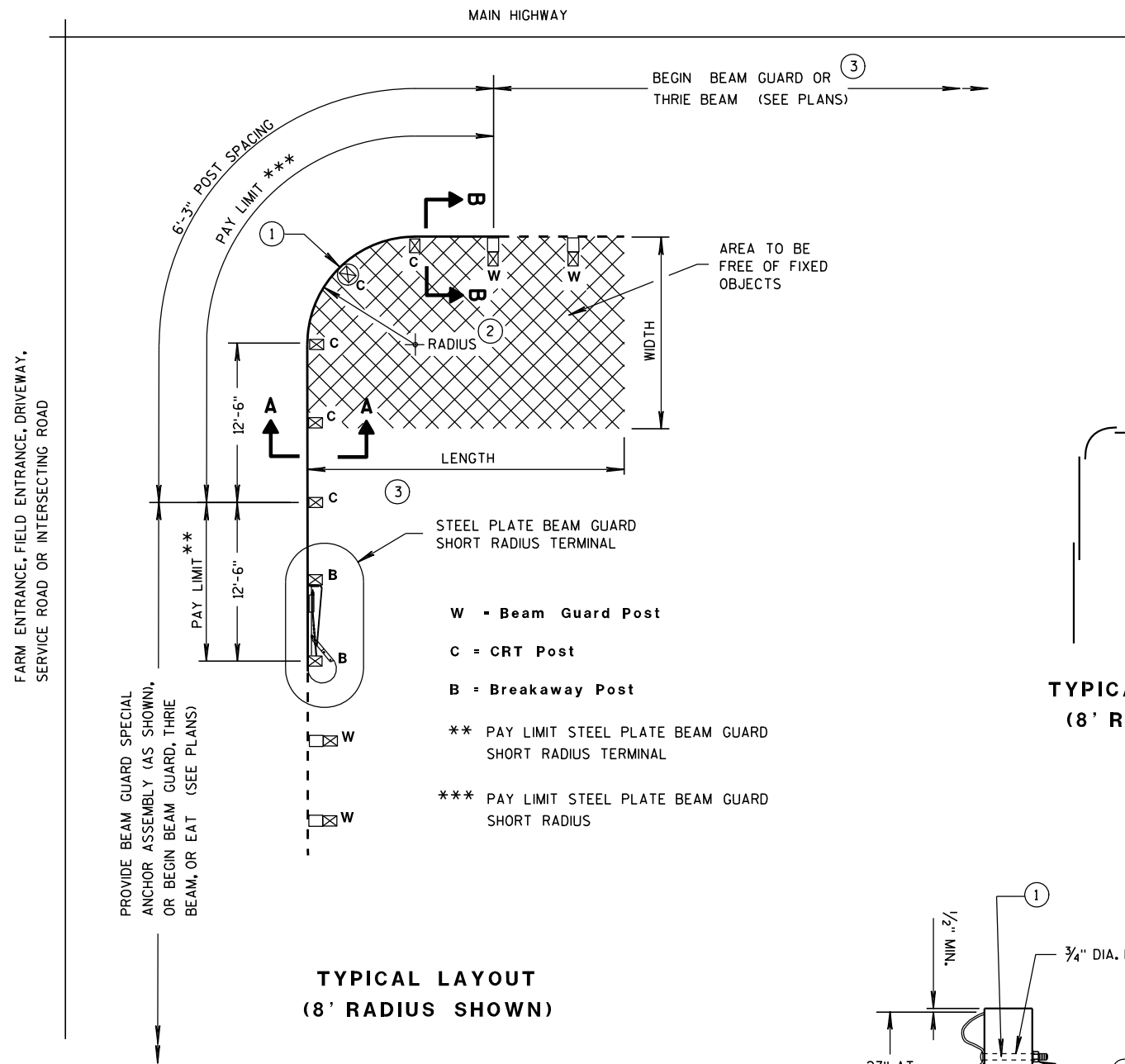
STATE OF WISCONSIN
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8/31/2012
DATE

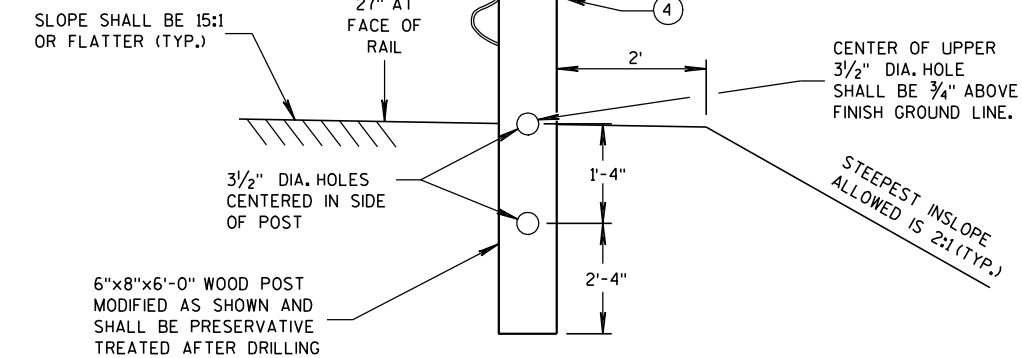
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



TYPICAL LAYOUT
(8' RADIUS SHOWN)

- W - Beam Guard Post
- C = CRT Post
- B = Breakaway Post
- ** PAY LIMIT STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
- *** PAY LIMIT STEEL PLATE BEAM GUARD SHORT RADIUS



SECTION A-A
(CRT POST)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

GENERAL NOTES

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

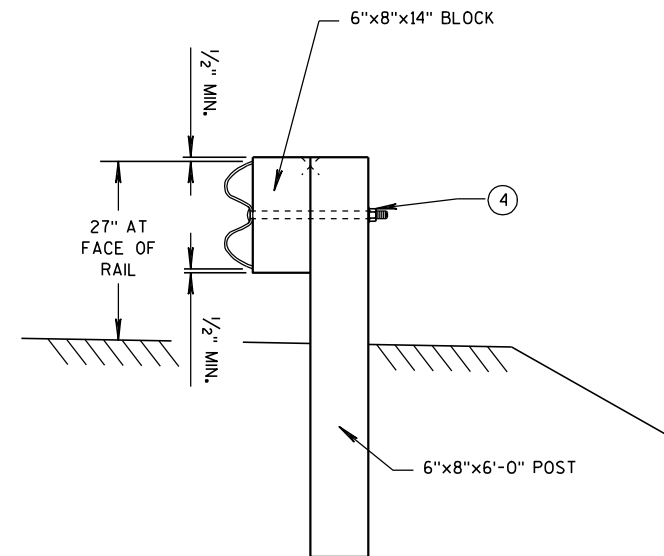
SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

- 1 ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.
- 2 RADIUS FROM 8' - 36'. SEE PLAN.
- 3 HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.
- 4 5/8" Ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

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

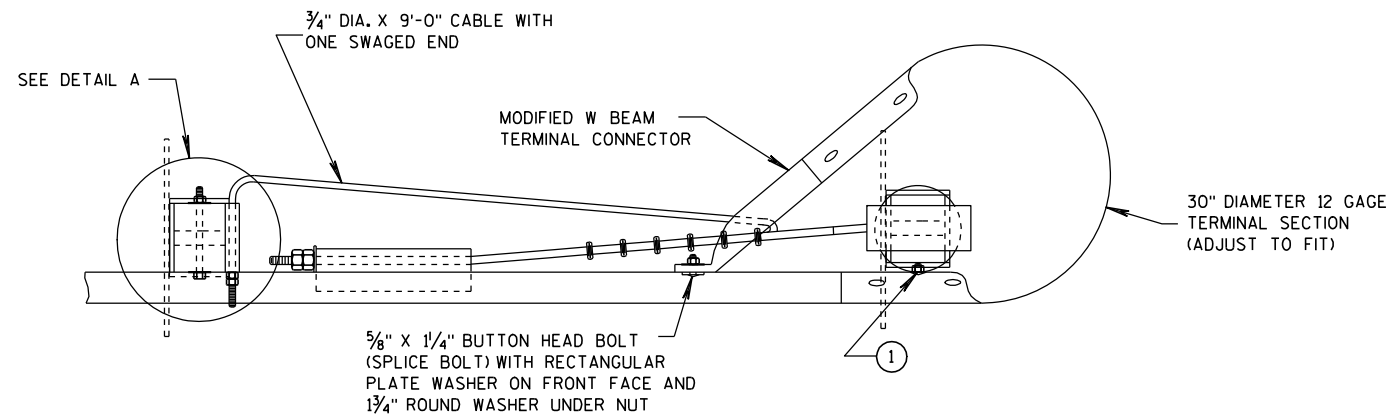
* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



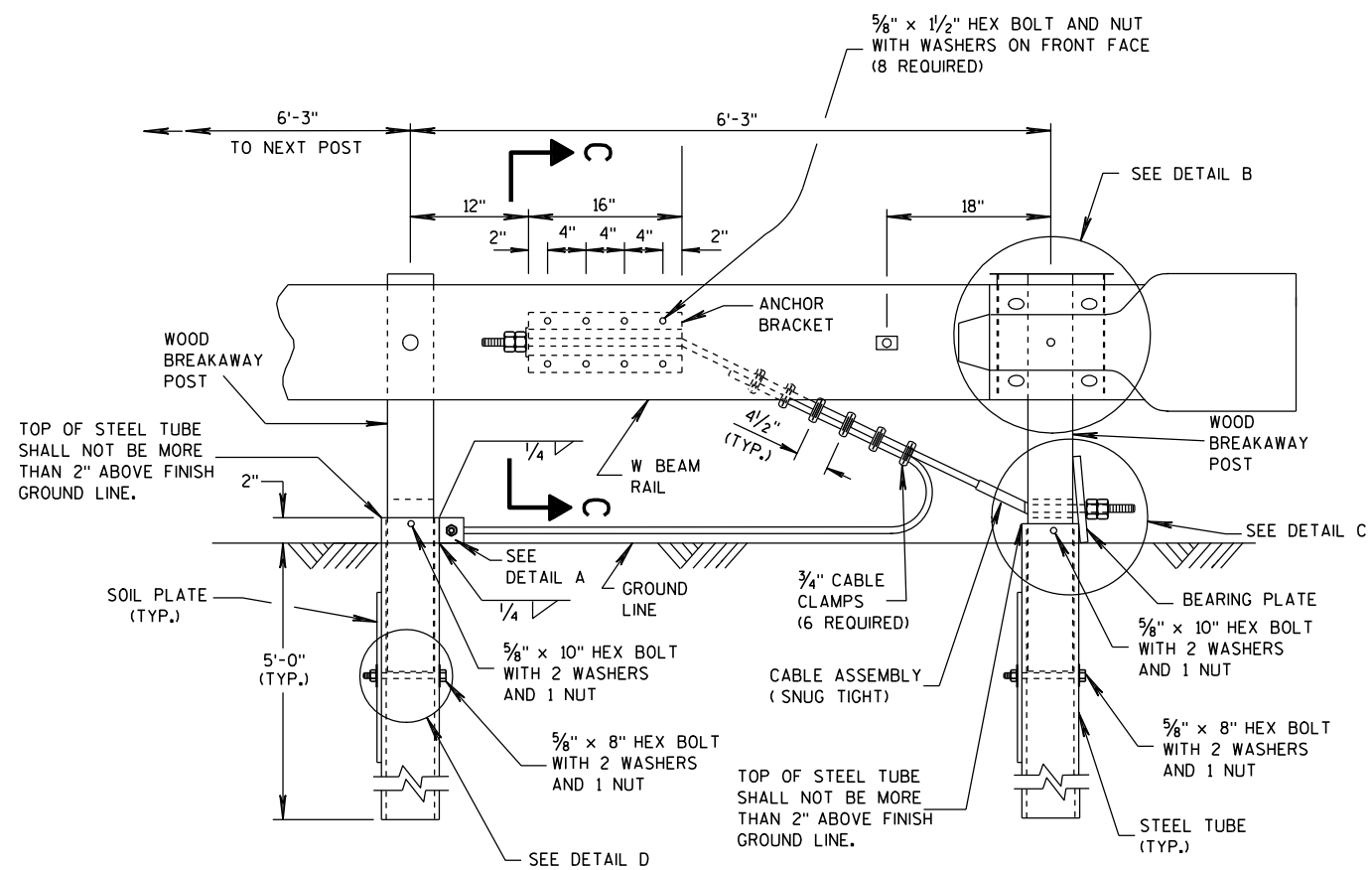
SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

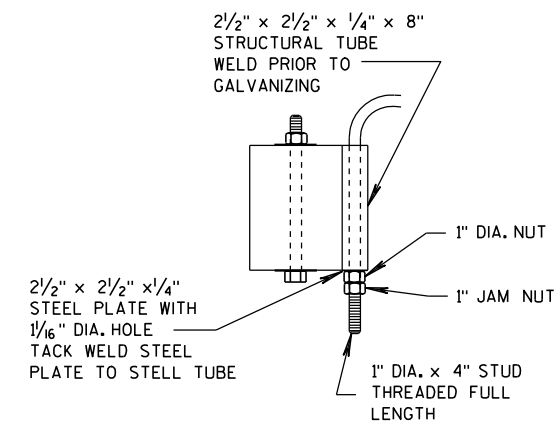


ELEVATION VIEW

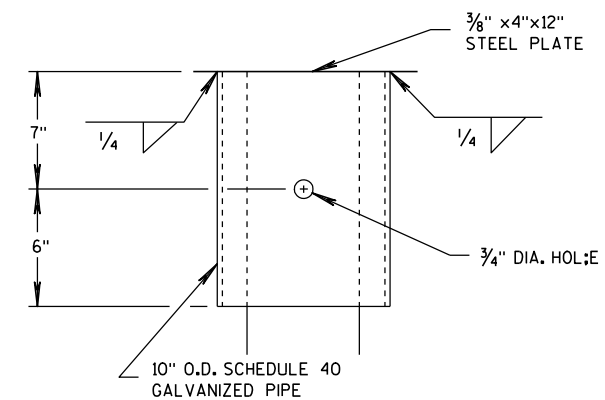
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

GENERAL NOTES

- ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A 5/8" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.
- INSTALL GALVANIZED 3/4" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A

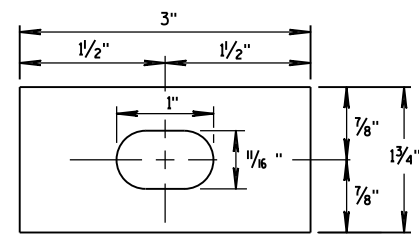


DETAIL B

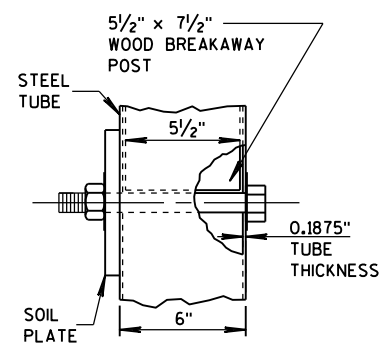
(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

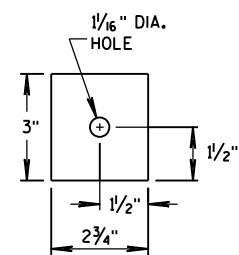
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



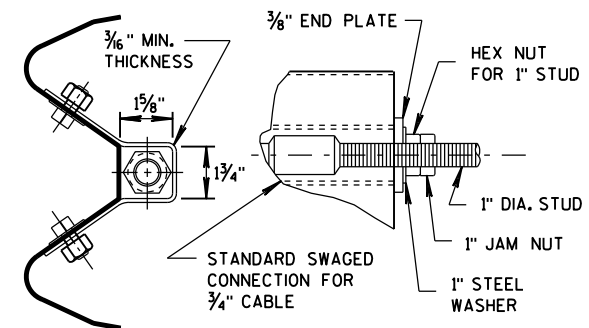
**RECTANGULAR
PLATE WASHER**



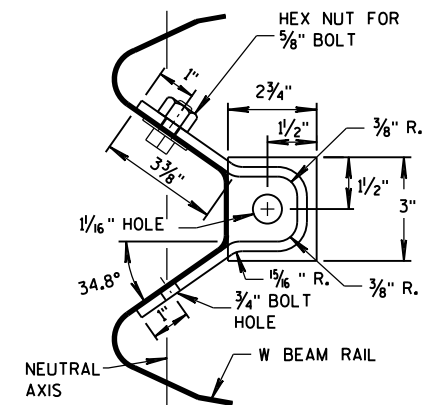
DETAIL D



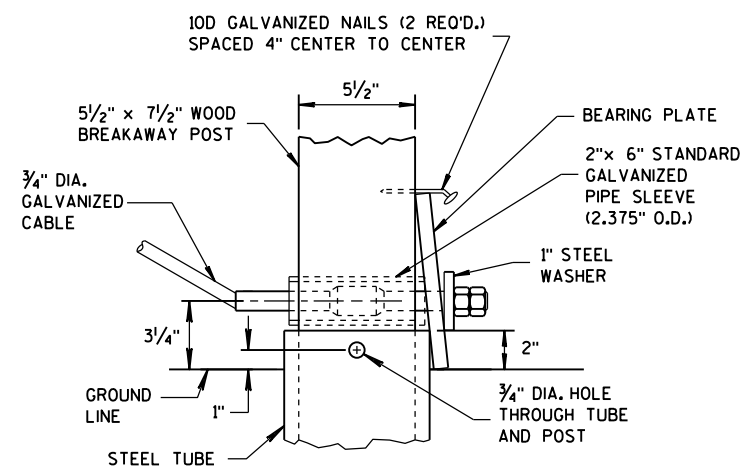
END PLATE



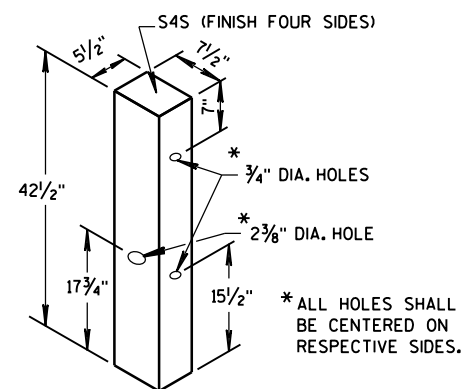
SECTION C-C
(END PLATE REMOVED)



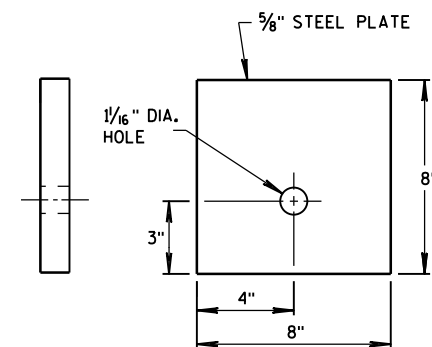
ANCHOR BRACKET



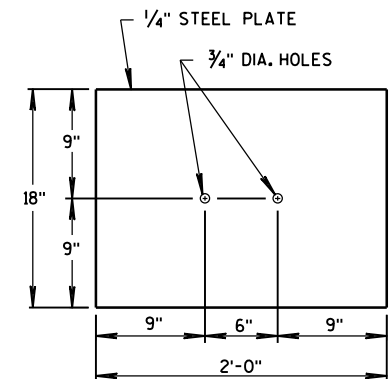
DETAIL C



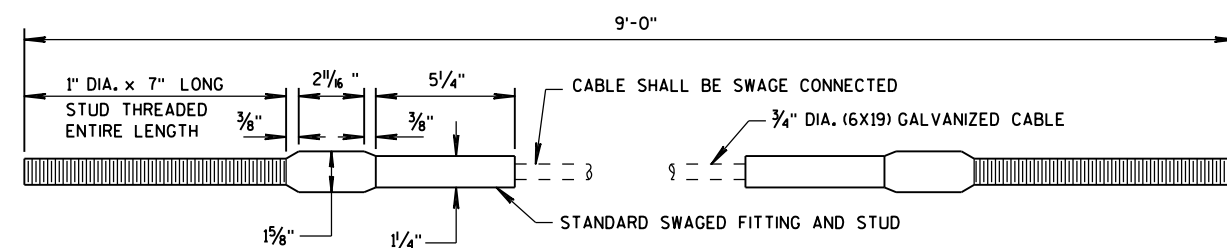
WOOD BREAKAWAY POST



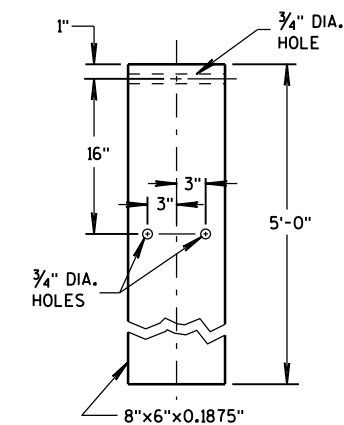
BEARING PLATE



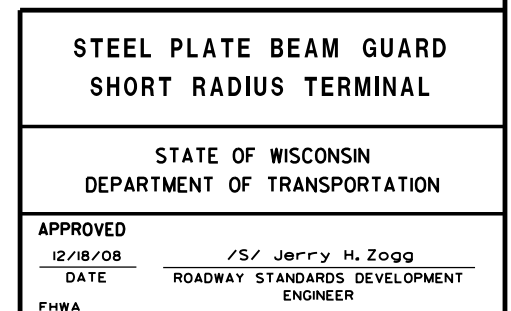
SOIL PLATE



CABLE ASSEMBLY

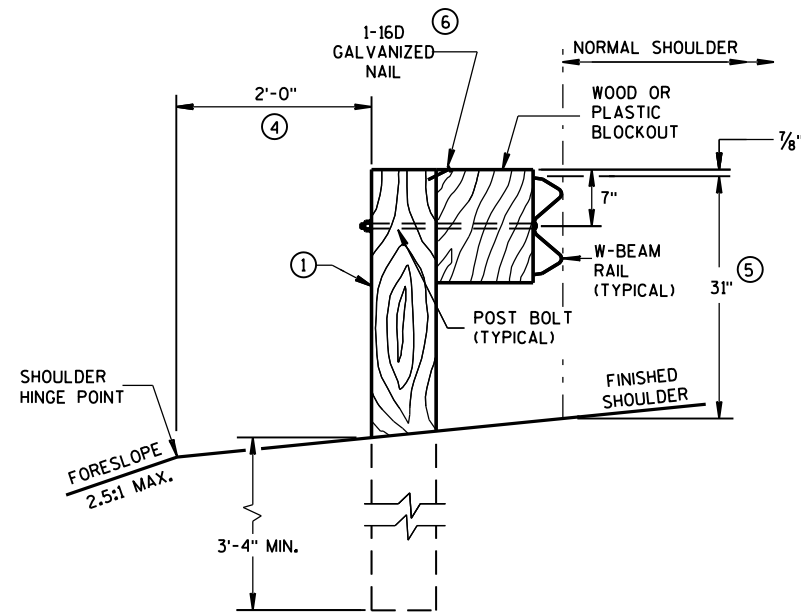


STEEL TUBE

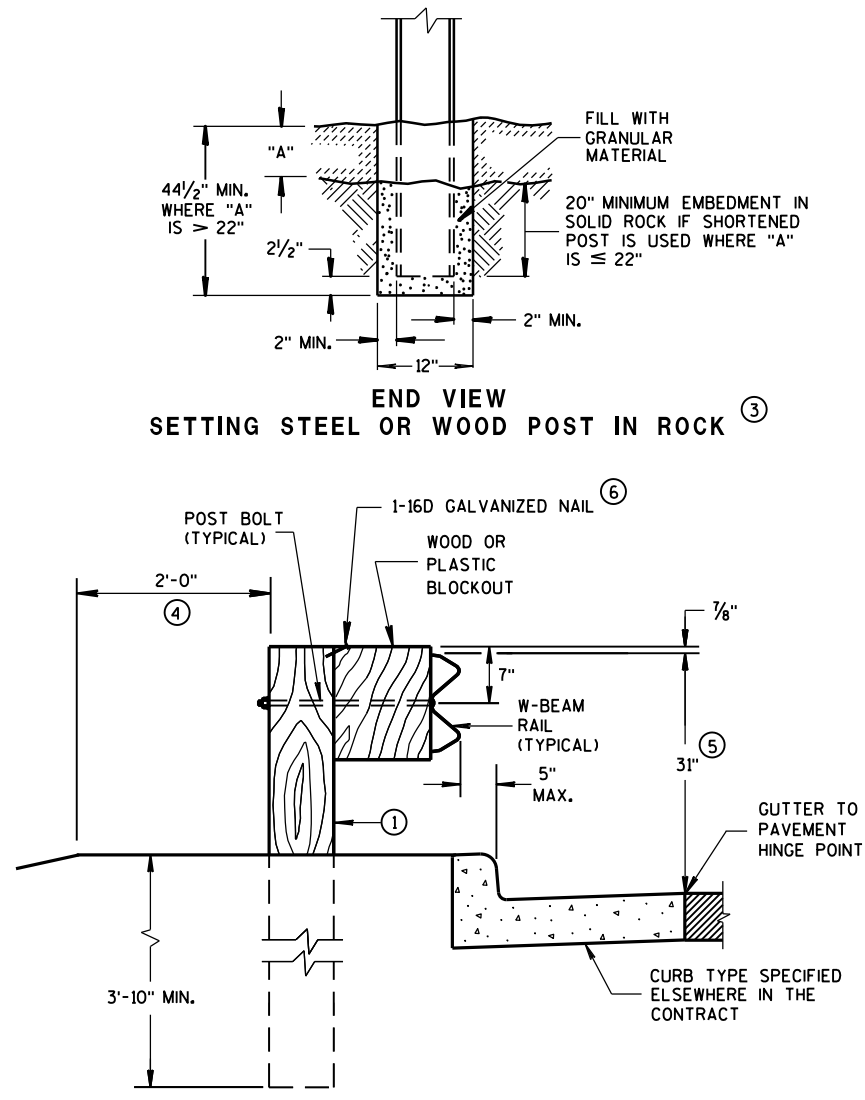


GENERAL NOTES

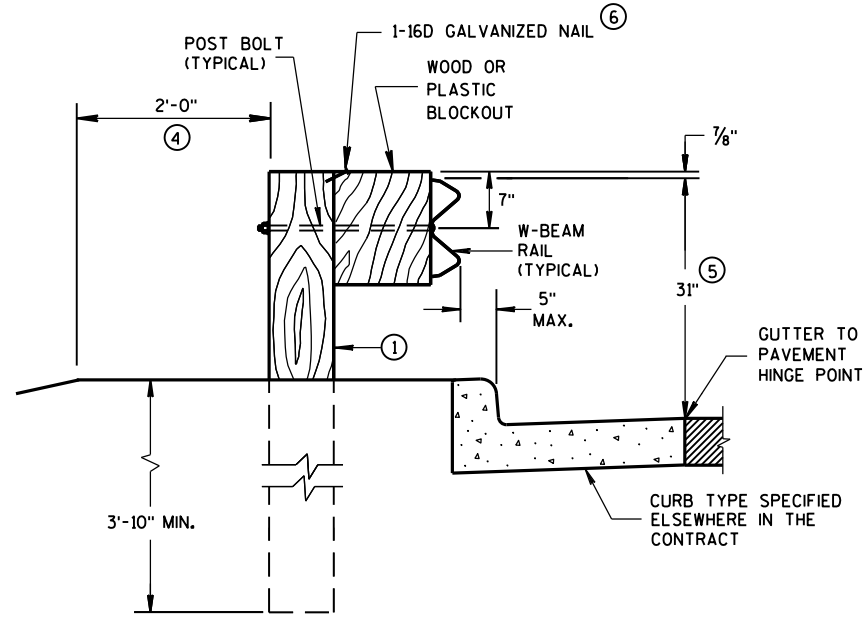
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2 INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



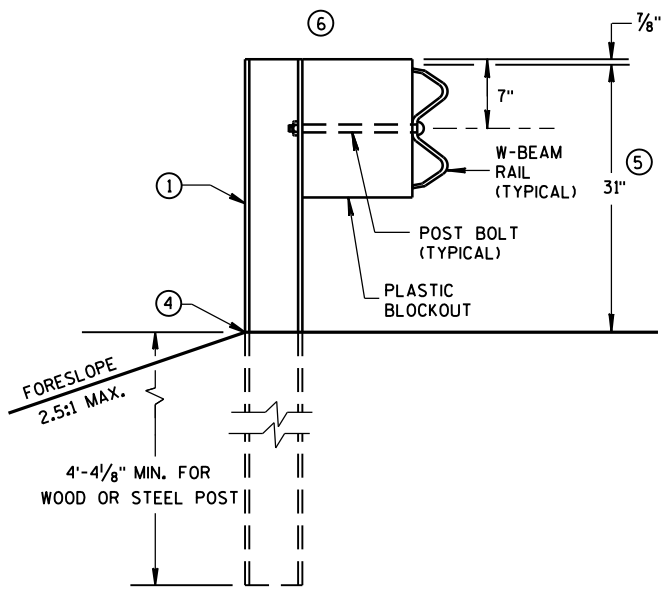
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



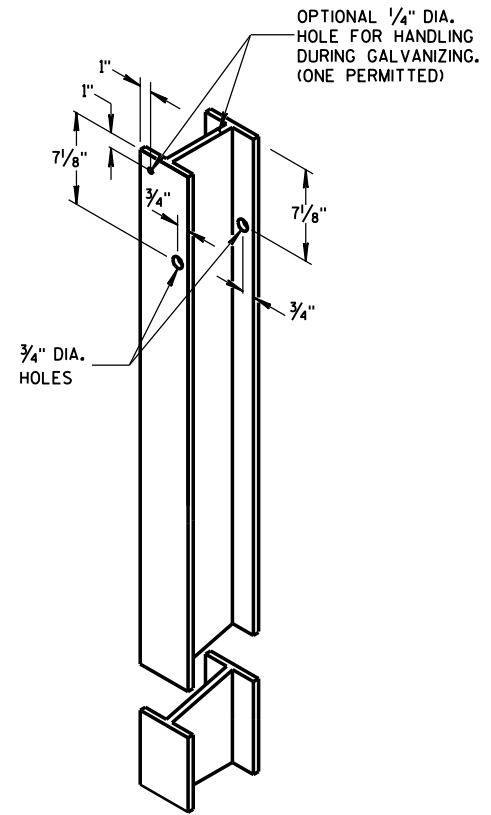
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ③



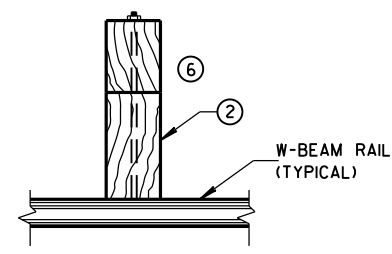
END VIEW
LOCATED ALONG A CURBED ROADWAY



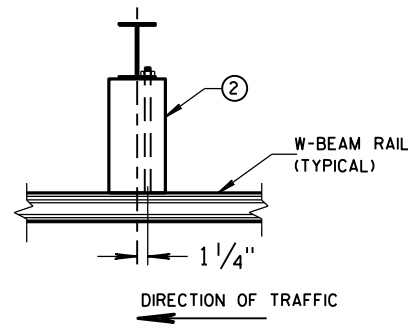
END VIEW
MGS LONGER POST AT HALFPST SPACING W BEAM (K)



STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



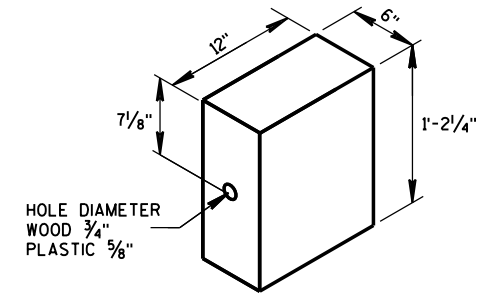
PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



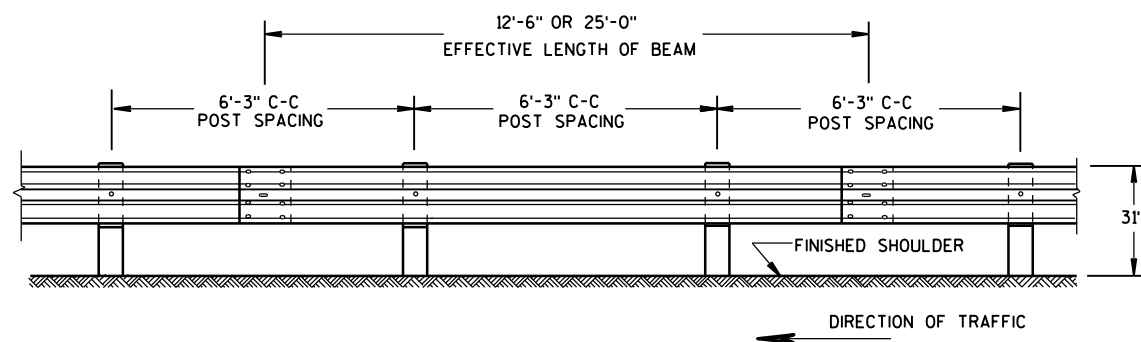
PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM



WOOD POST
(6" X 8") NOMINAL ①

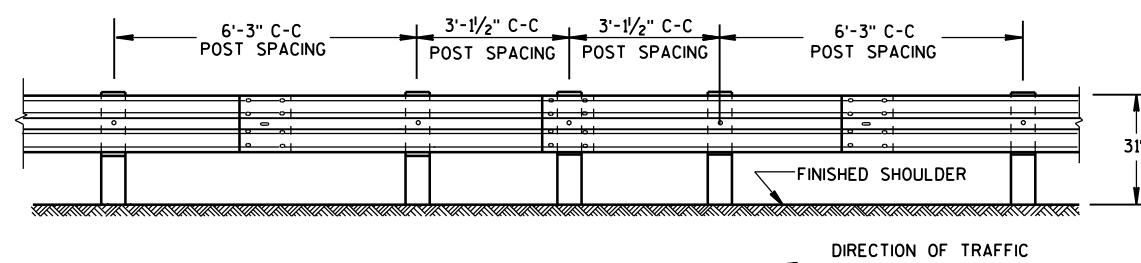


WOOD OR
PLASTIC BLOCKOUT ②



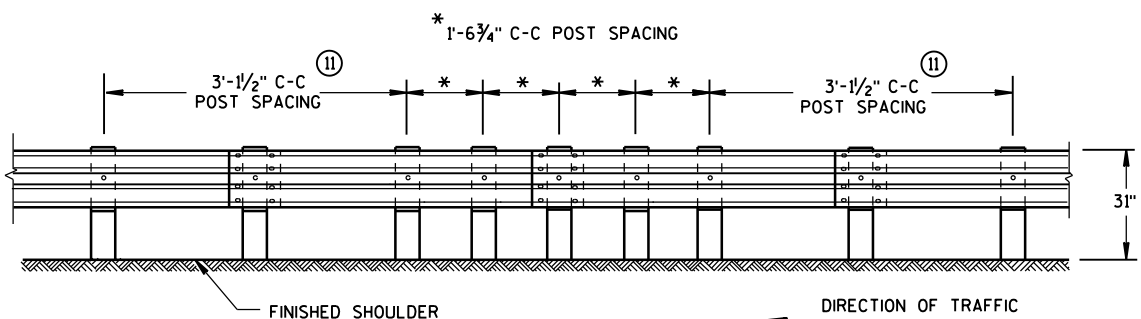
FRONT VIEW

POST SPACING STANDARD INSTALLATION



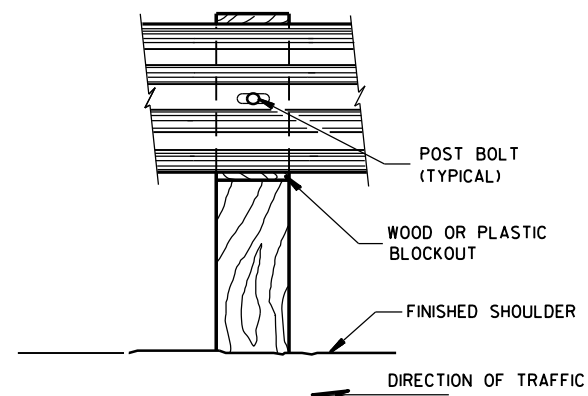
FRONT VIEW

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

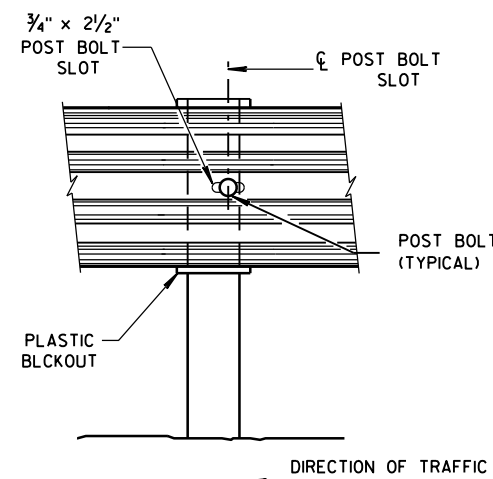


FRONT VIEW

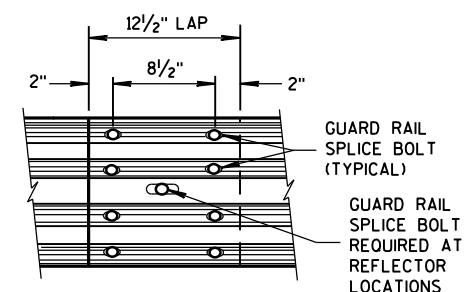
QUARTER POST SPACING (QS)



FRONT VIEW AT WOOD POST

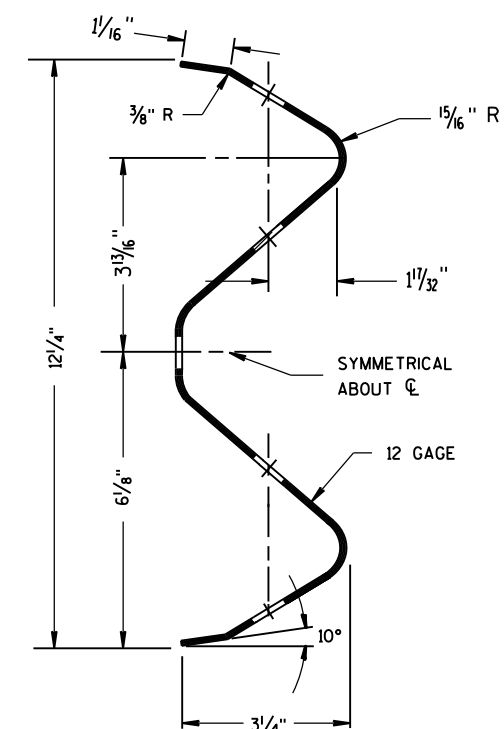


FRONT VIEW AT STEEL POST



FRONT VIEW

MID-SPAN BEAM SPLICE



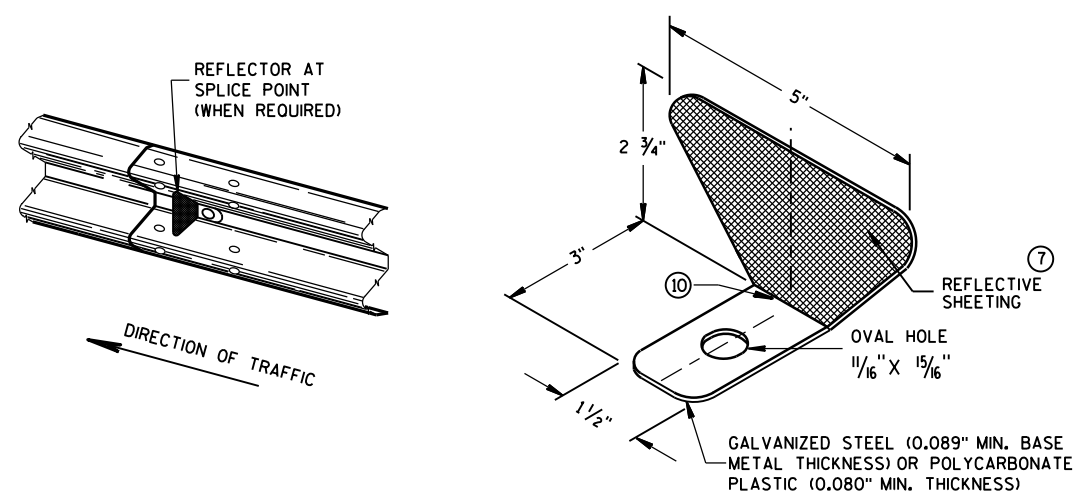
SECTION THRU W-BEAM RAIL

REFLECTOR SPACING

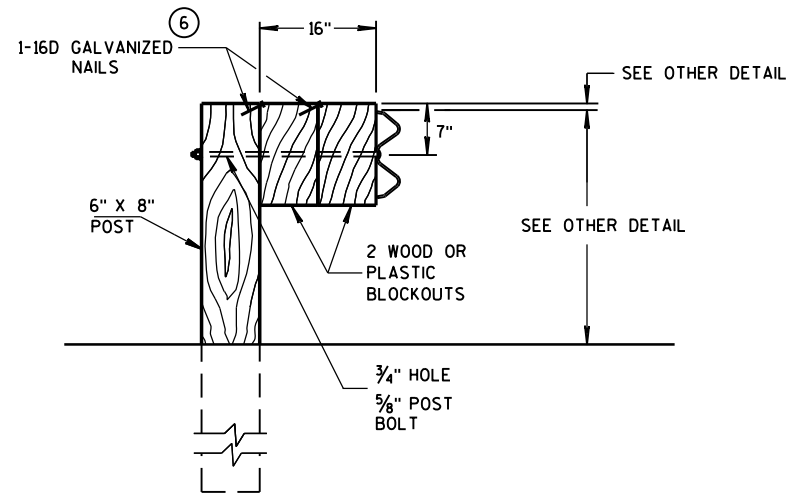
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTOR
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 ⑨ 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 ⑩ 2	3

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

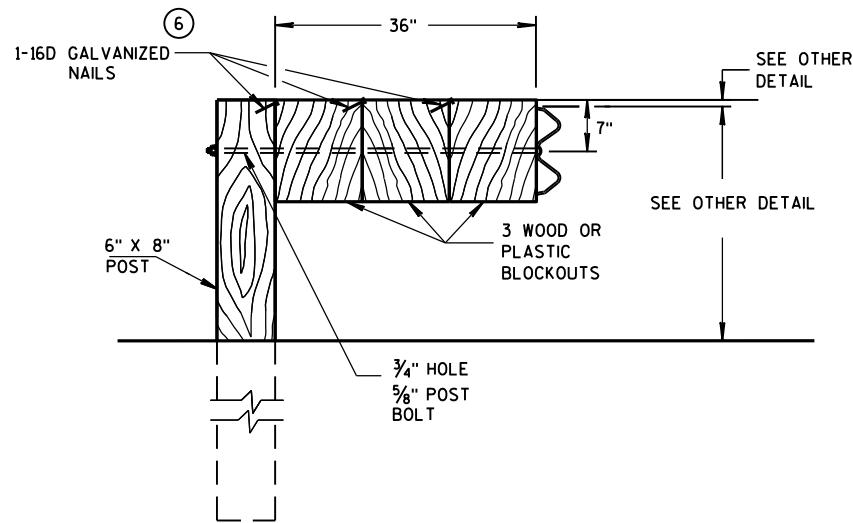


ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION



DETAIL FOR 16" BLOCKOUT DEPTH

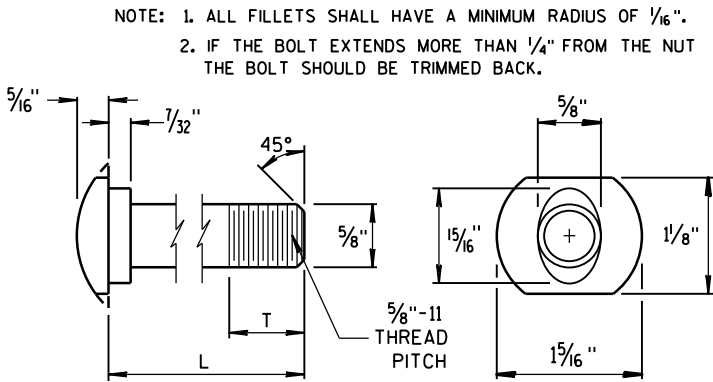
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

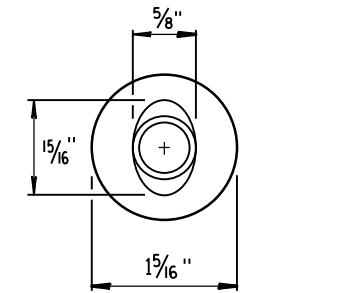
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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

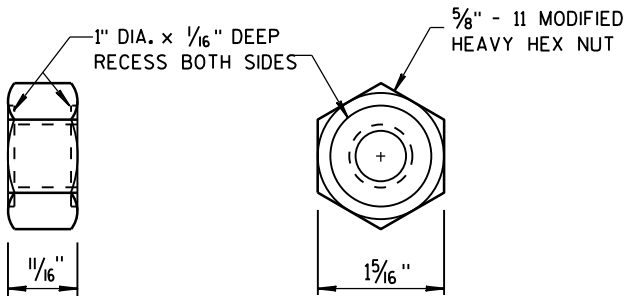


POST BOLT TABLE

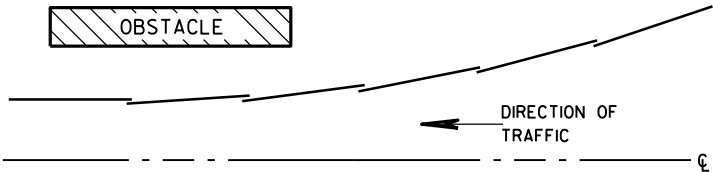
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



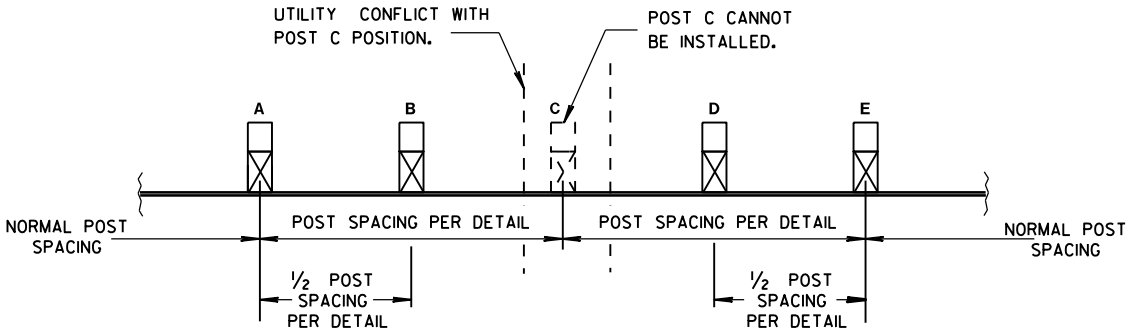
ALTERNATE BOLT HEAD



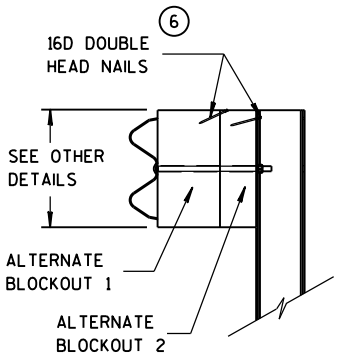
POST BOLT
AND RECESS NUT



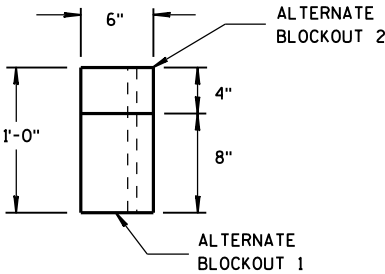
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.
- (G) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.
- (I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

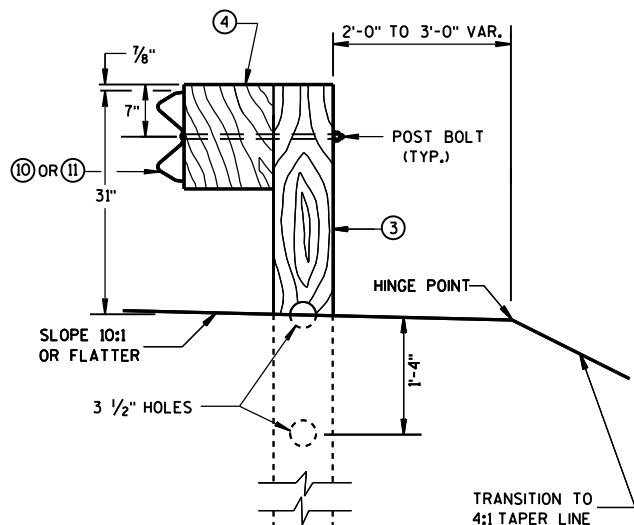
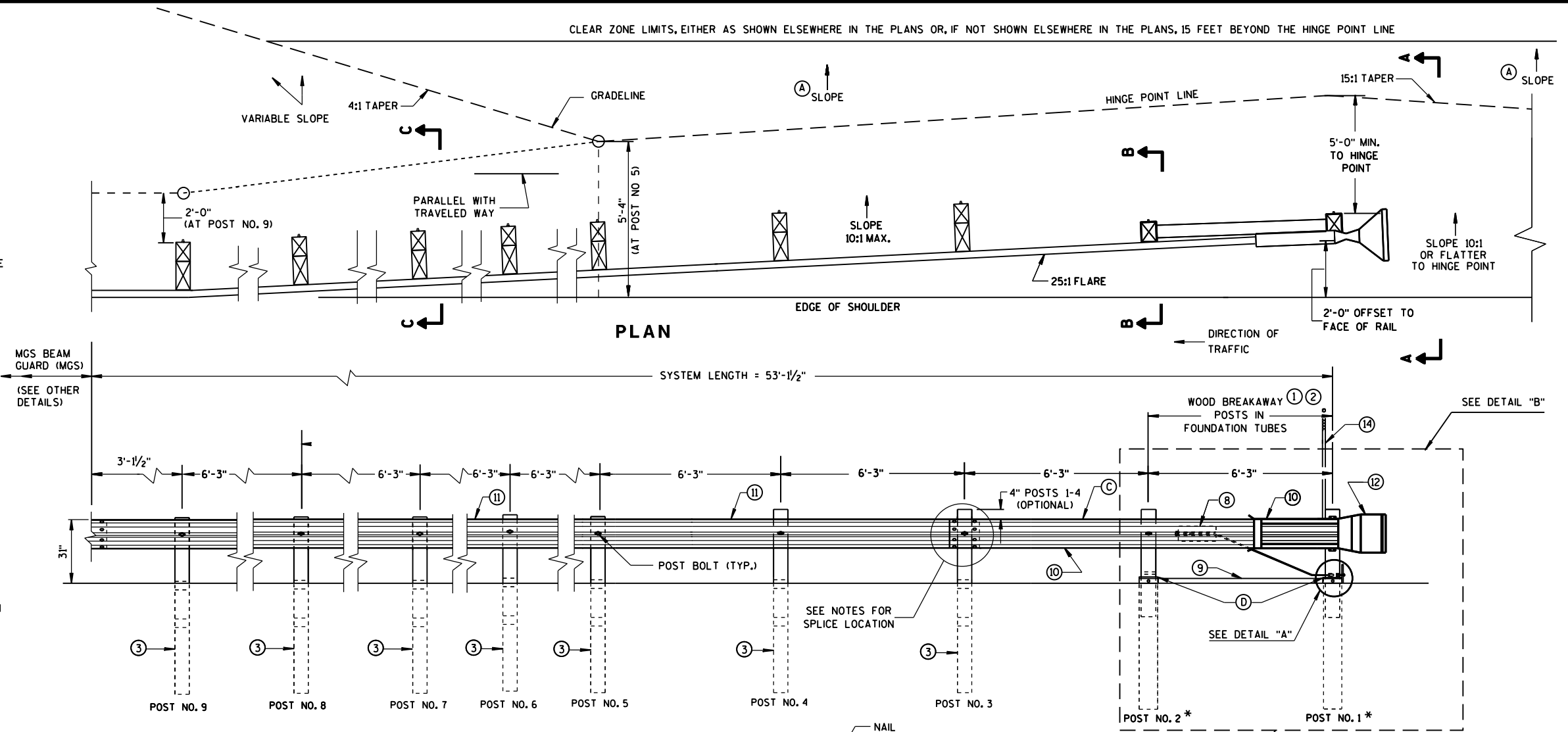
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

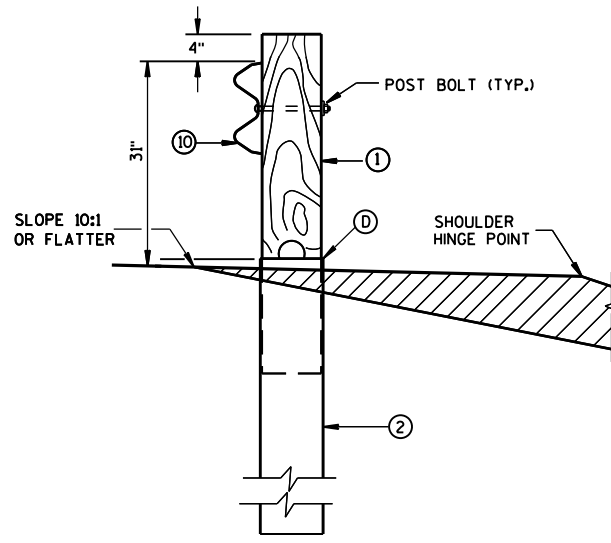
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

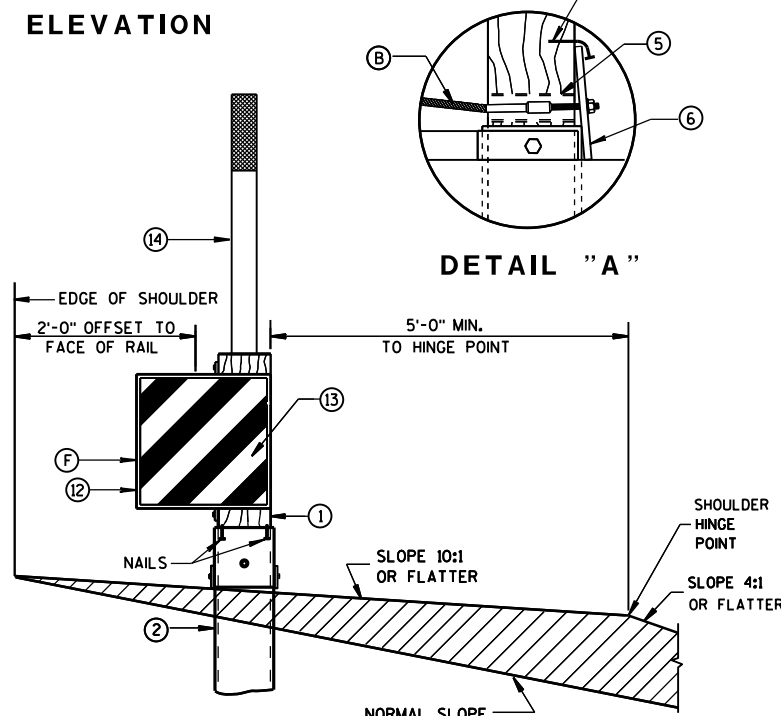
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



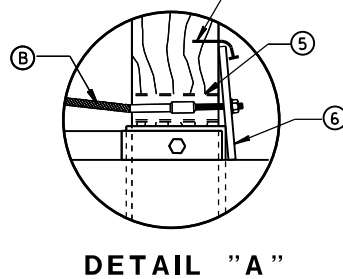
SECTION C-C
TYPICAL AT POST NOS. 3-9



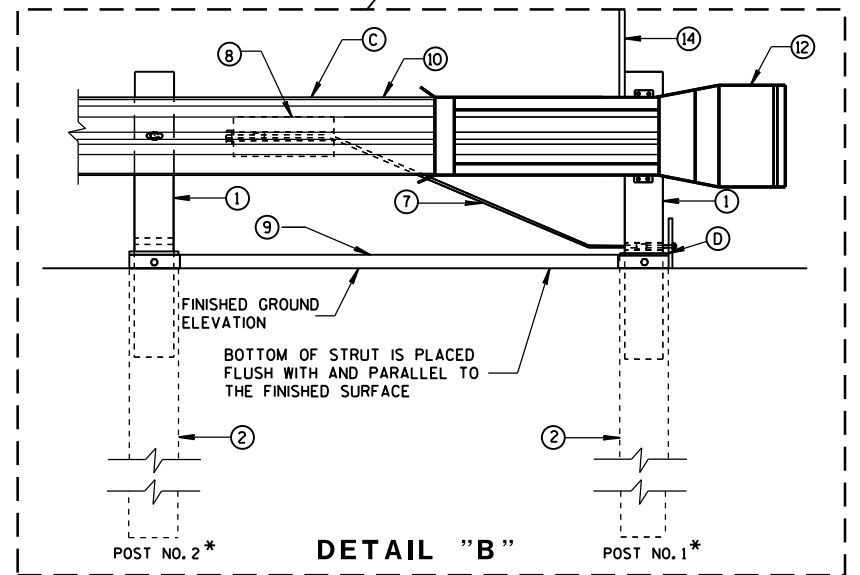
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



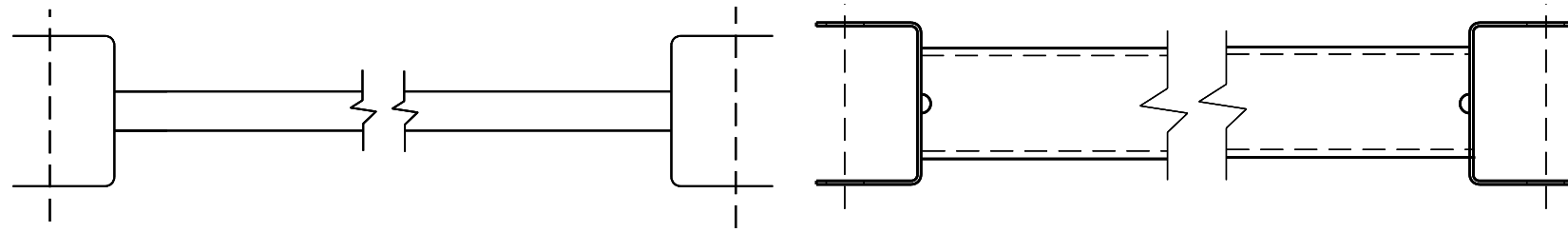
DETAIL "A"



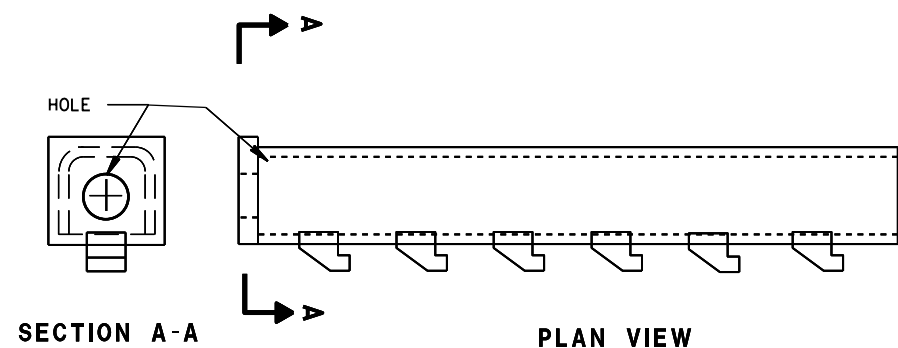
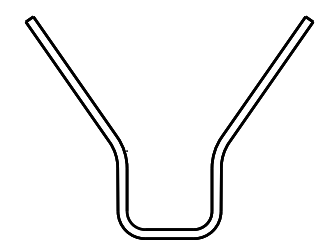
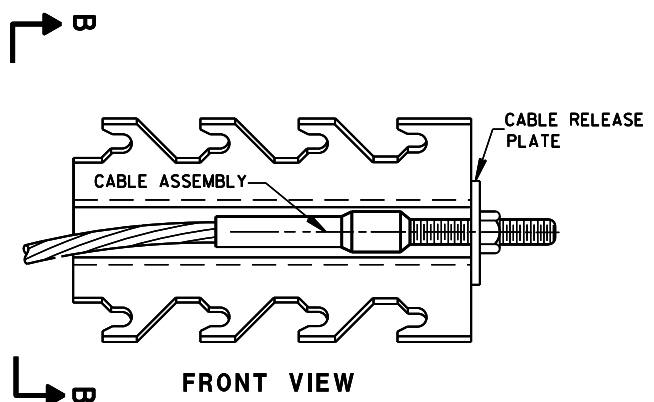
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



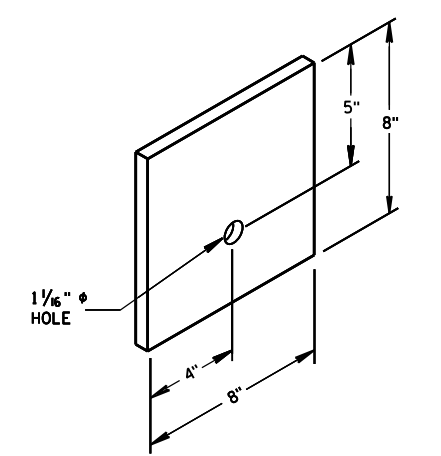
9 H
GENERIC GROUND STRUT



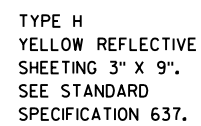
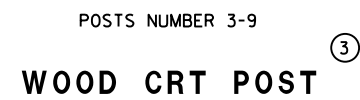
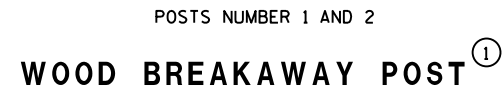
8 H
GENERIC ANCHOR CABLE BOX

BILL OF MATERIALS

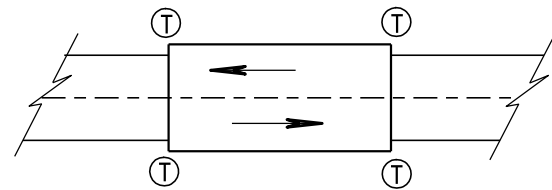
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	END SECTION EAT
⑬	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
⑭	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



6
BEARING PLATE

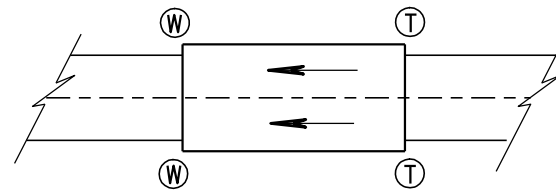


MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2014	<i>/s/ Jerry H. Zogg</i>
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



TWO WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION



ONE WAY TRAFFIC

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

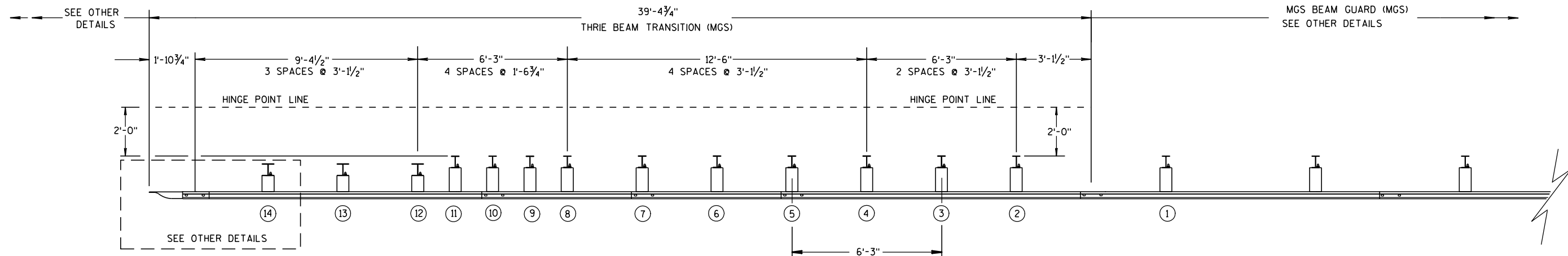
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

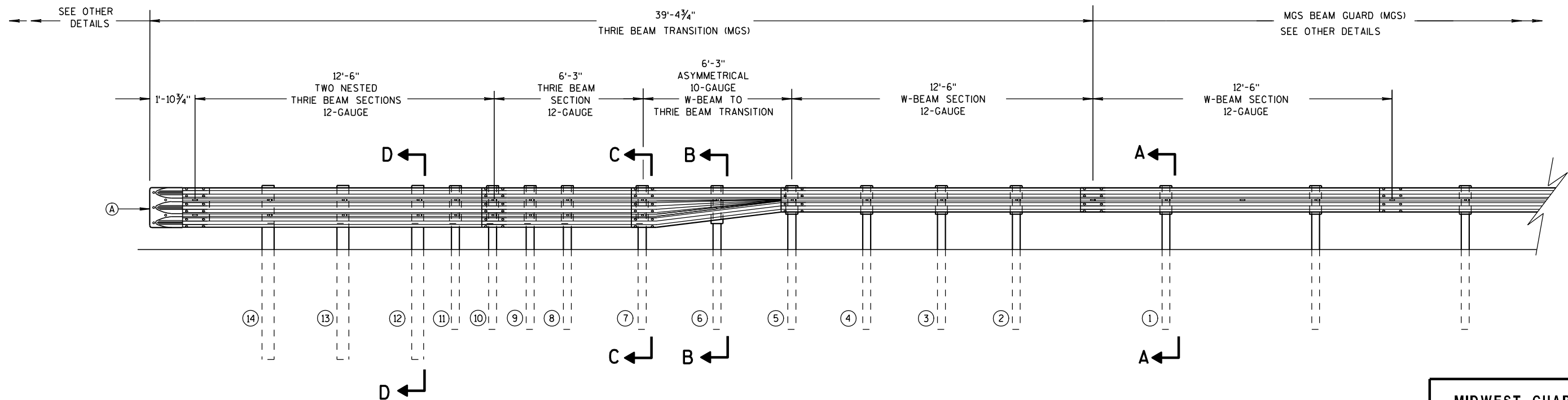
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

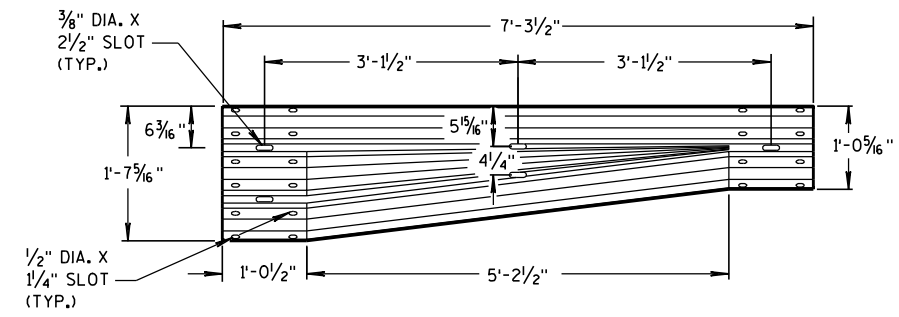
6

S.D.D. 14 B 45-3b

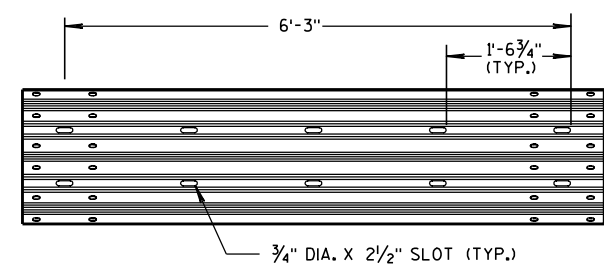


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

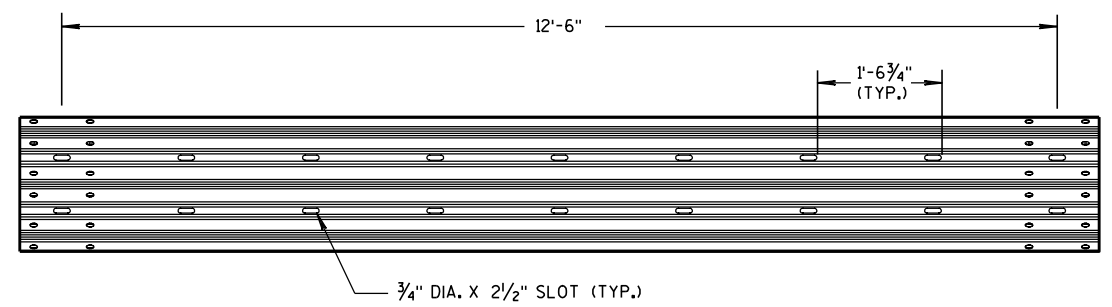
S.D.D. 14 B 45-3b



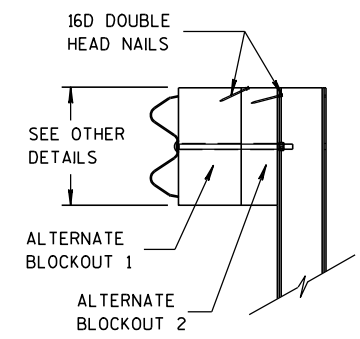
W-BEAM TO THRIE BEAM TRANSITION SECTION



6'-3" THRIE BEAM SECTION

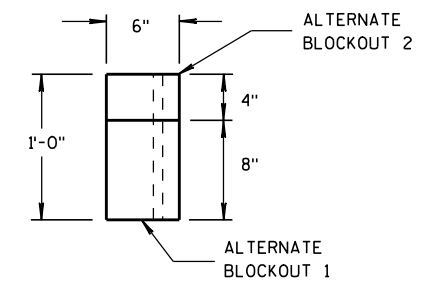


12'-6" THRIE BEAM SECTION

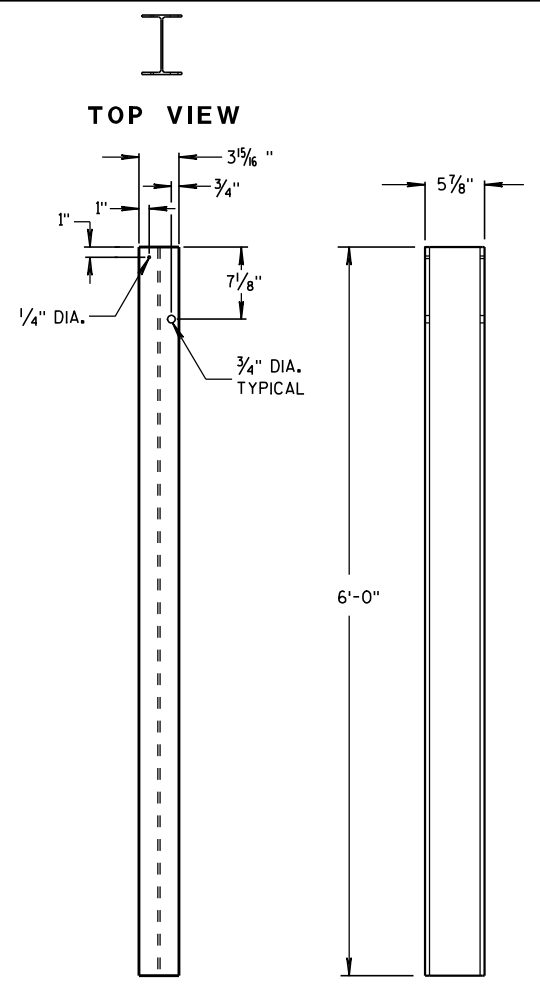


SIDE VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

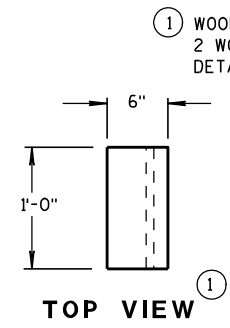


TOP VIEW

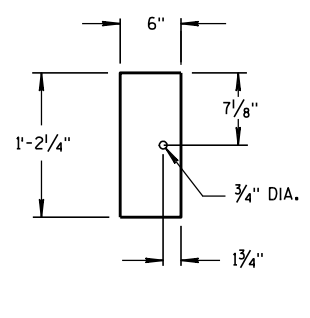


FRONT VIEW SIDE VIEW

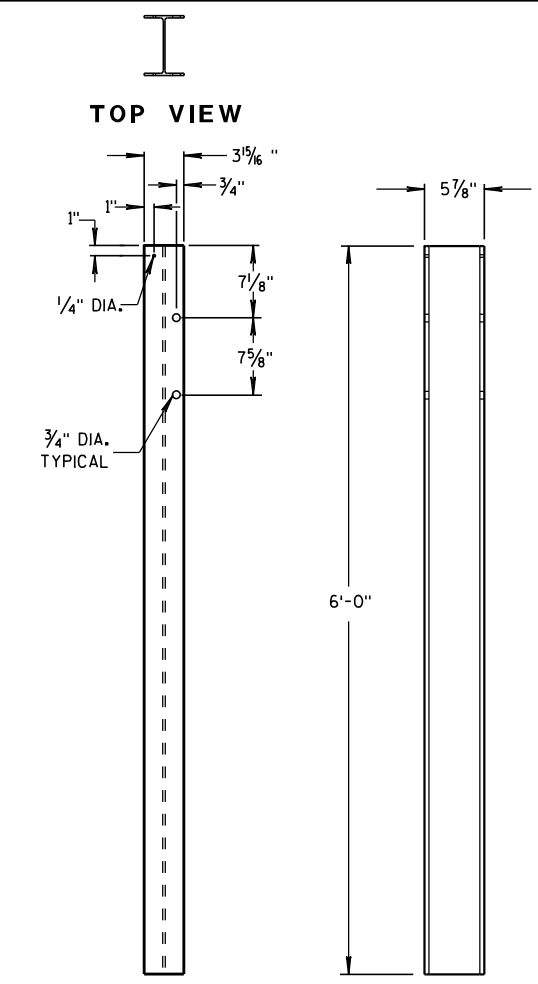
STEEL POSTS 1-5



TOP VIEW

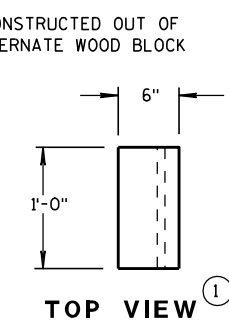


FRONT VIEW
BLOCKOUT
POSTS 1-5

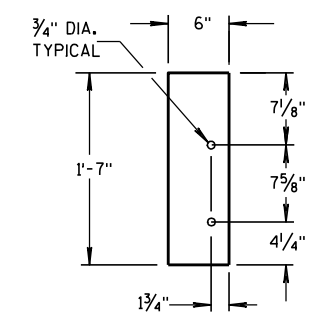


FRONT VIEW SIDE VIEW

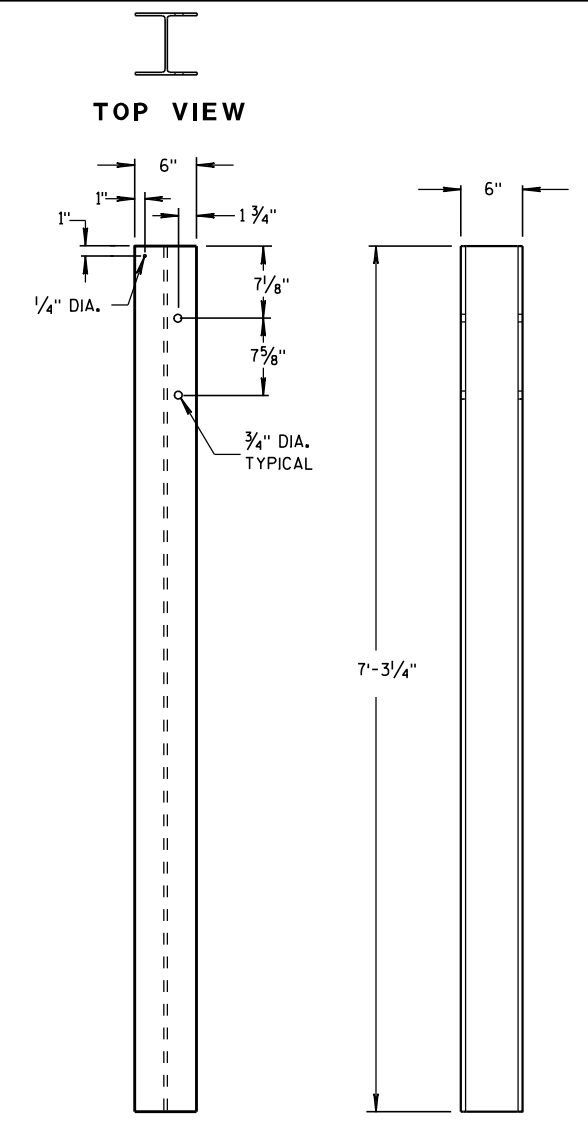
STEEL POSTS 6-11



TOP VIEW

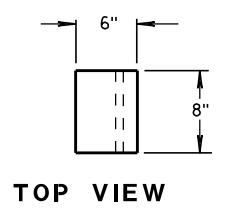


FRONT VIEW
BLOCKOUT
POSTS 6-11

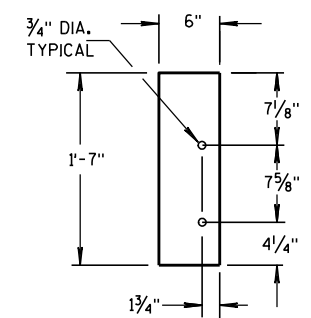


FRONT VIEW SIDE VIEW

STEEL POSTS 12-14



TOP VIEW



FRONT VIEW
BLOCKOUT
POSTS 12-14

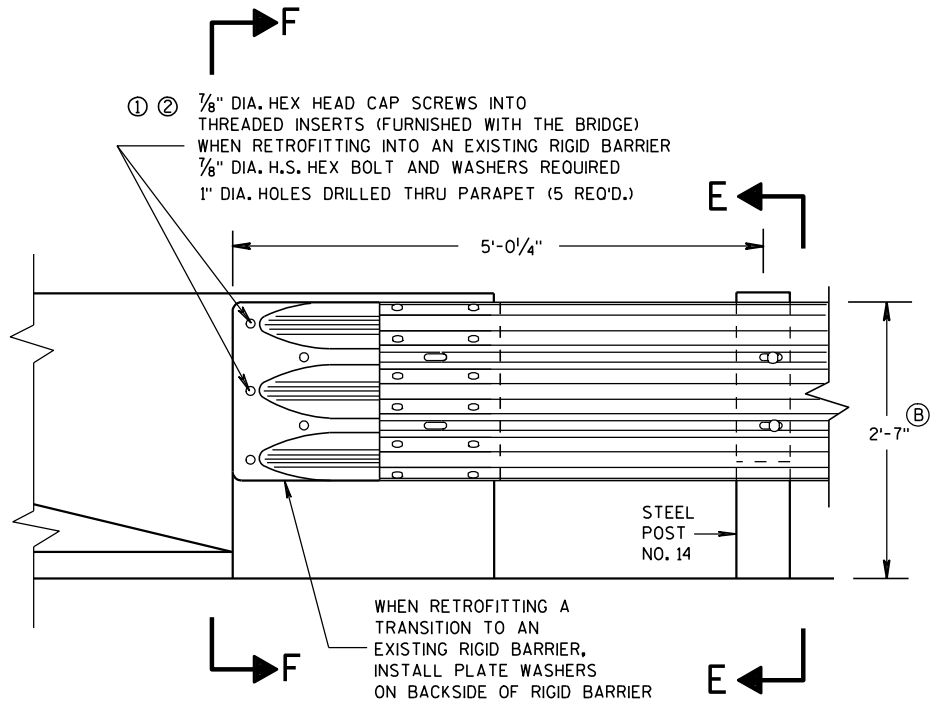
① WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

STEEL POST SIZES

POST NUMBER	SECTION TYPE	LENGTH
①	W6x9	72"
②	W6x9	72"
③	W6x9	72"
④	W6x9	72"
⑤	W6x9	72"
⑥	W6x9	72"
⑦	W6x9	72"
⑧	W6x9	72"
⑨	W6x9	72"
⑩	W6x9	72"
⑪	W6x9	72"
⑫	W6x15	87 1/8"
⑬	W6x15	87 1/8"
⑭	W6x15	87 1/8"

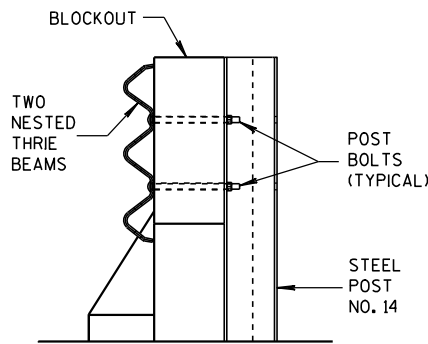
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FRONT VIEW

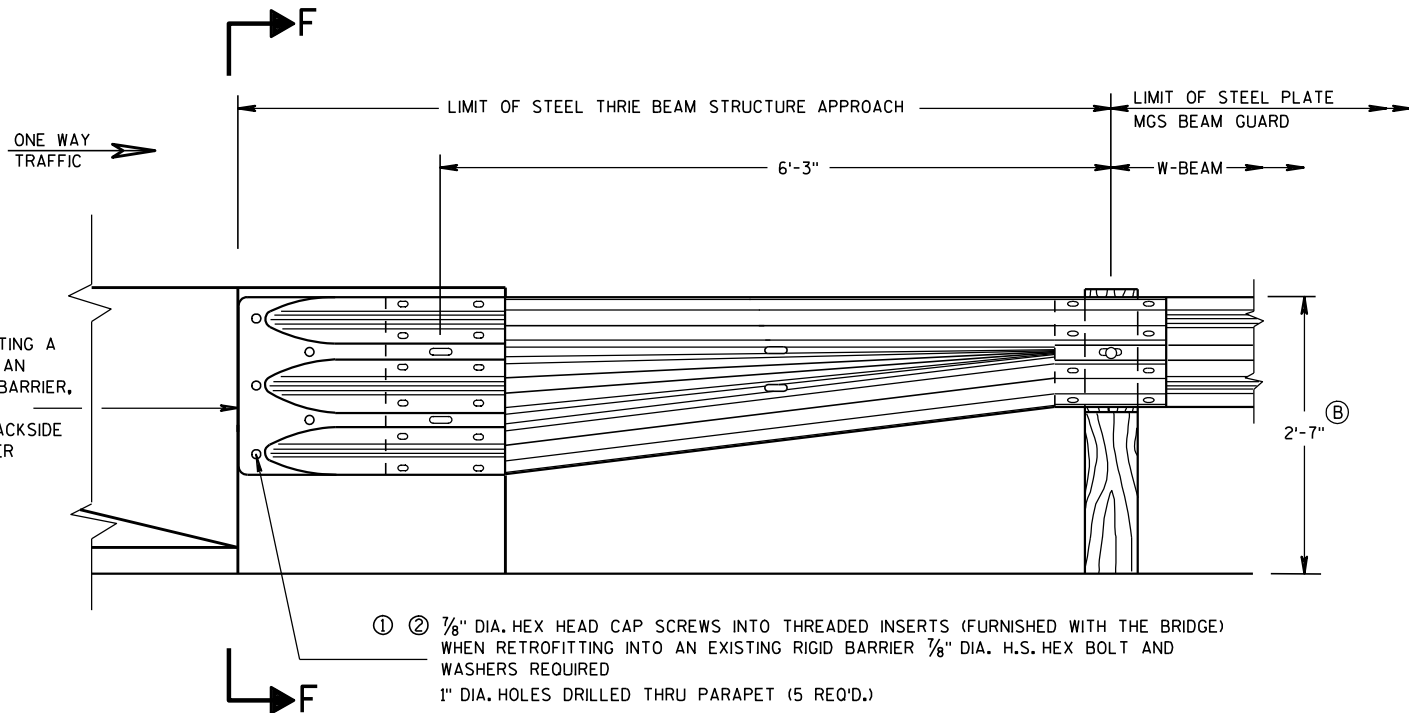
THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS



SECTION E-E

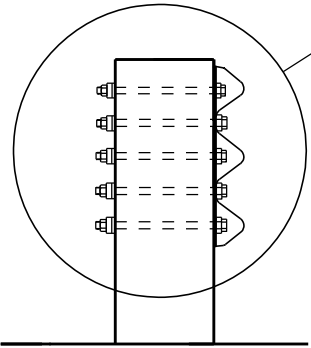
GENERAL NOTES

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
 - ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS, BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM 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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
 - ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

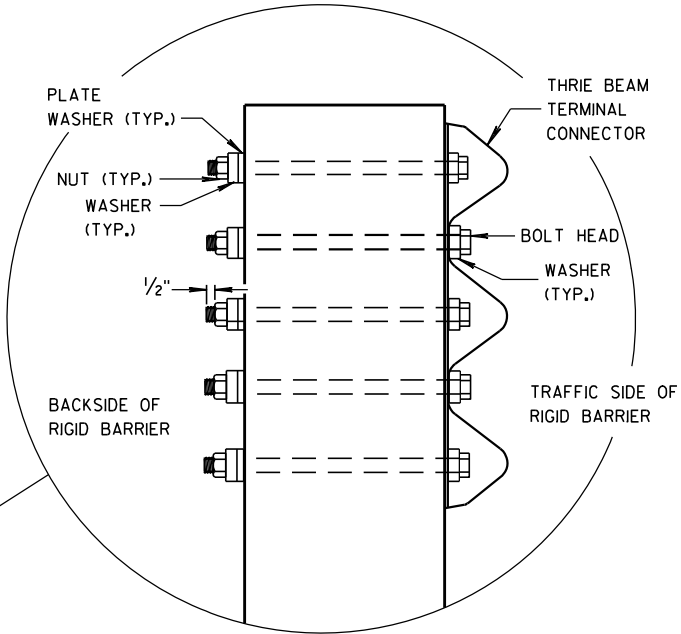


FRONT VIEW

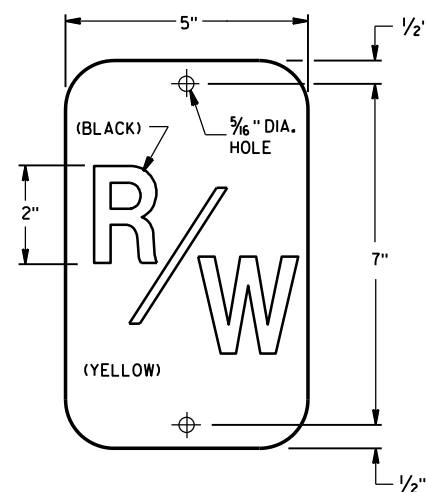
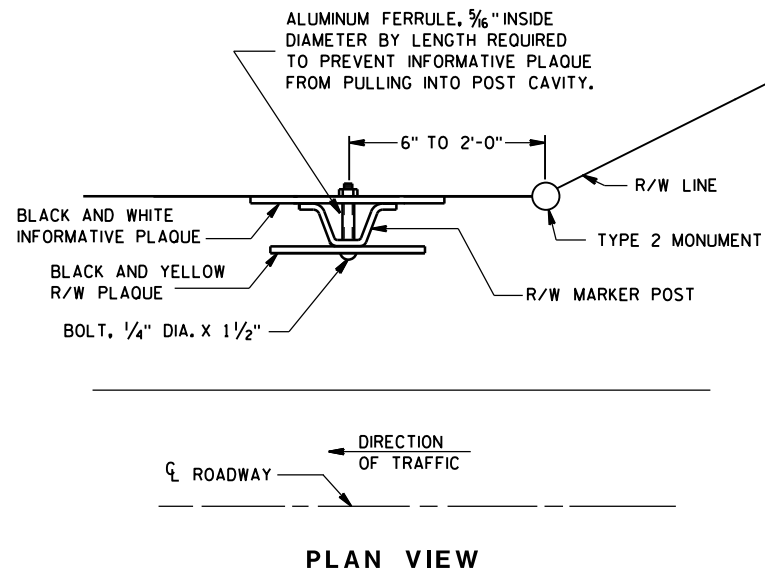
W BEAM TRANSITION AND CONNECTION TO
BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION F-F

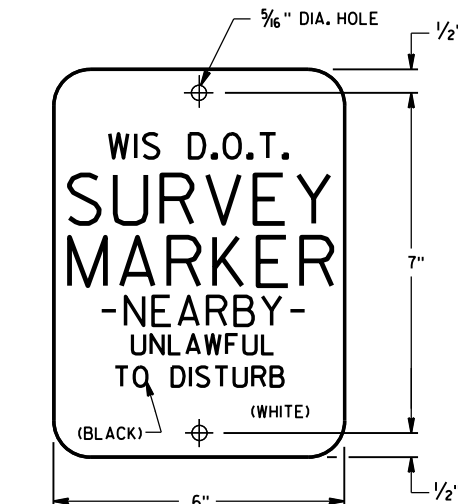


MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/31/2012 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



R/W PLAQUE

THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



INFORMATIVE PLAQUE

GENERAL NOTES

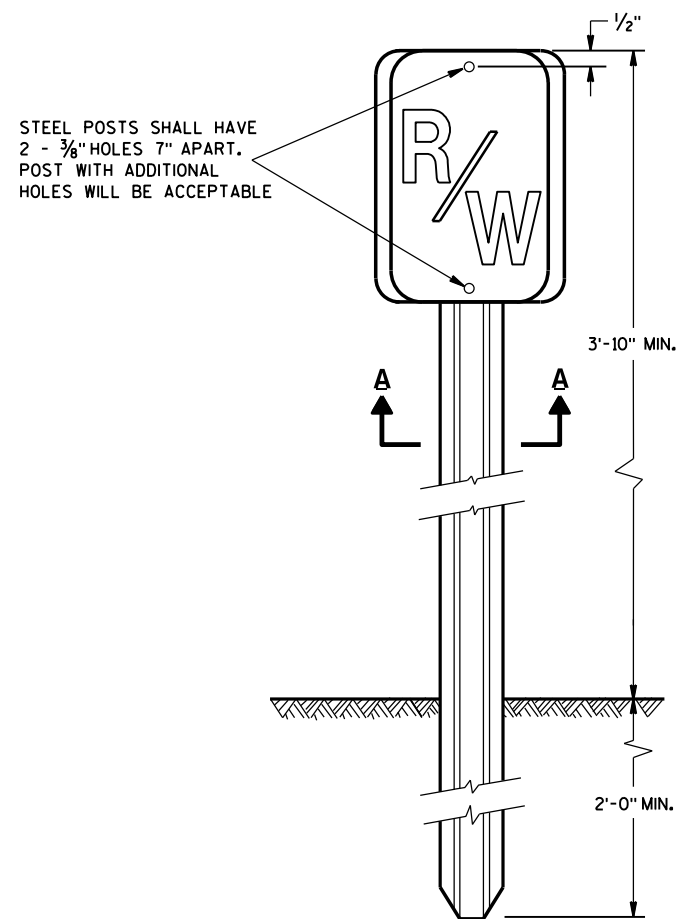
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A STEEL MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

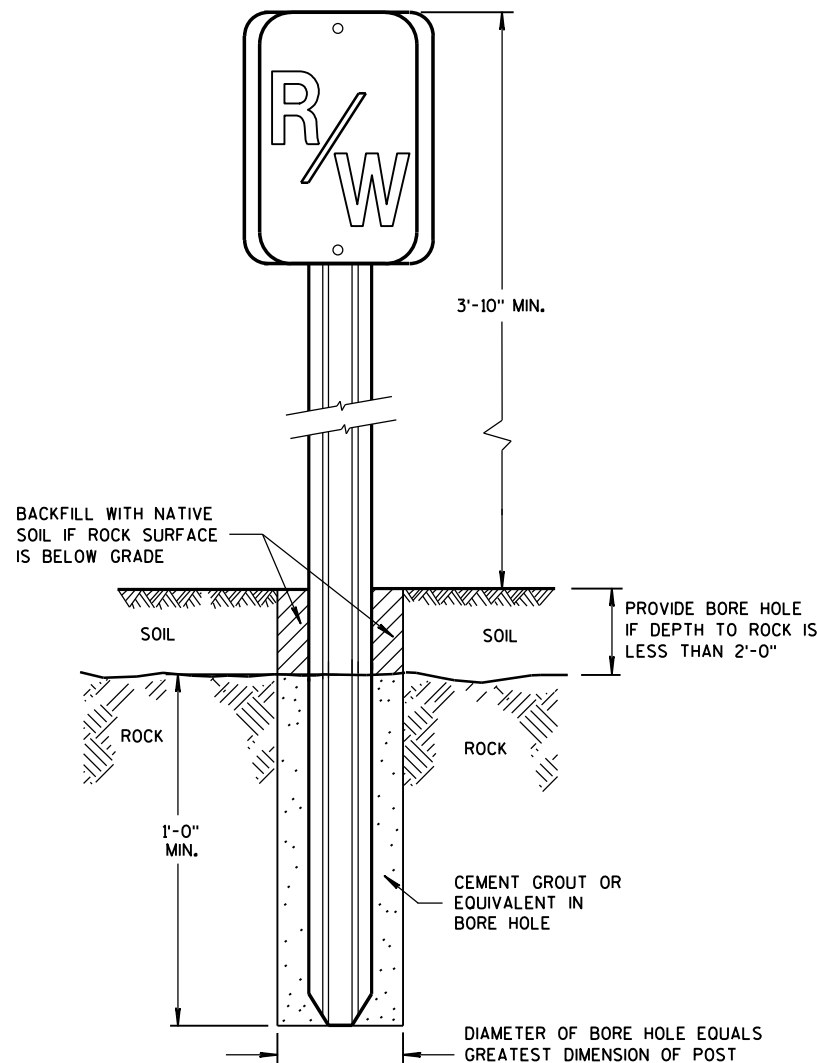
THE 'R/W' PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. R/W AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE DEPARTMENT OF TRANSPORTATION.

STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

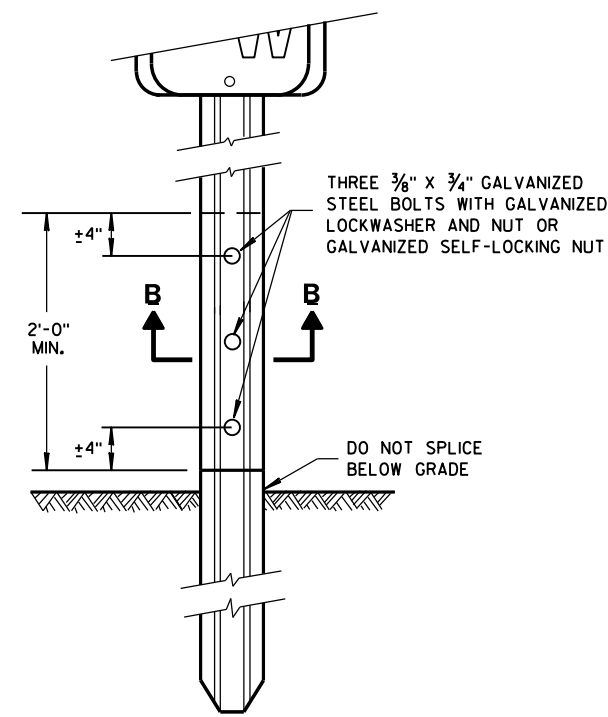
- ① IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3' 10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.



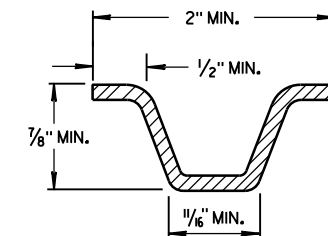
**FRONT VIEW
STEEL MARKER POST**



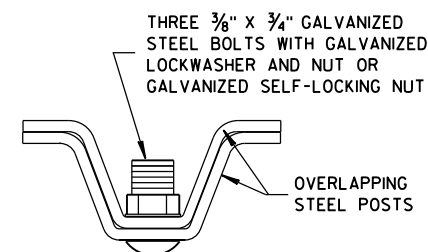
**FRONT VIEW
ROCK INSTALLATION** ①



**FRONT VIEW
SPLICE DETAIL**



MIN. WEIGHT 1.12 LB./FT.
SECTION A-A

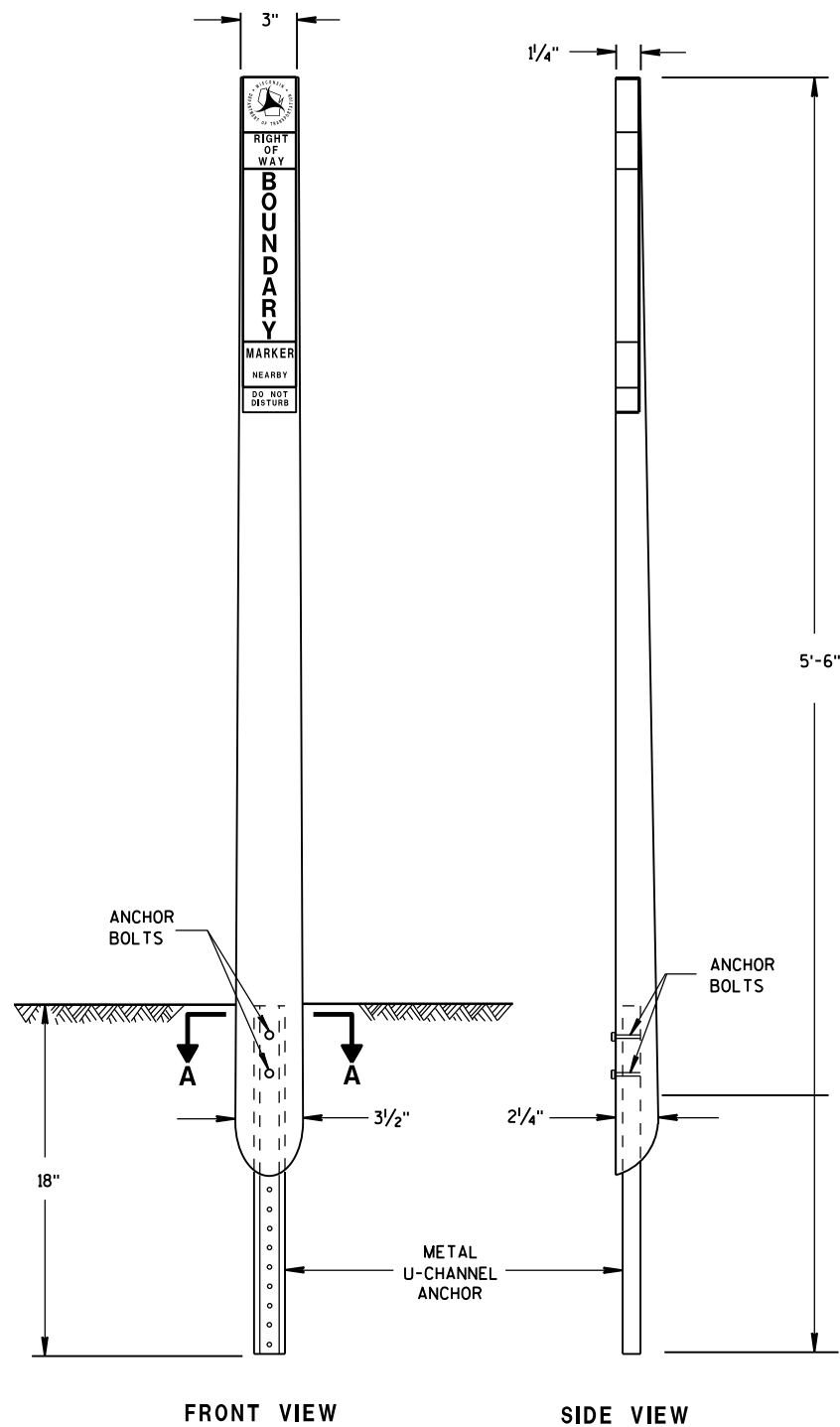


SECTION B-B

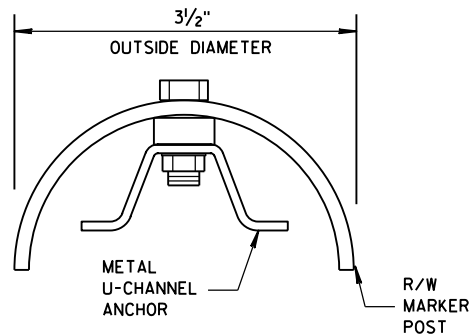
**MARKER POST
FOR RIGHT-OF-WAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

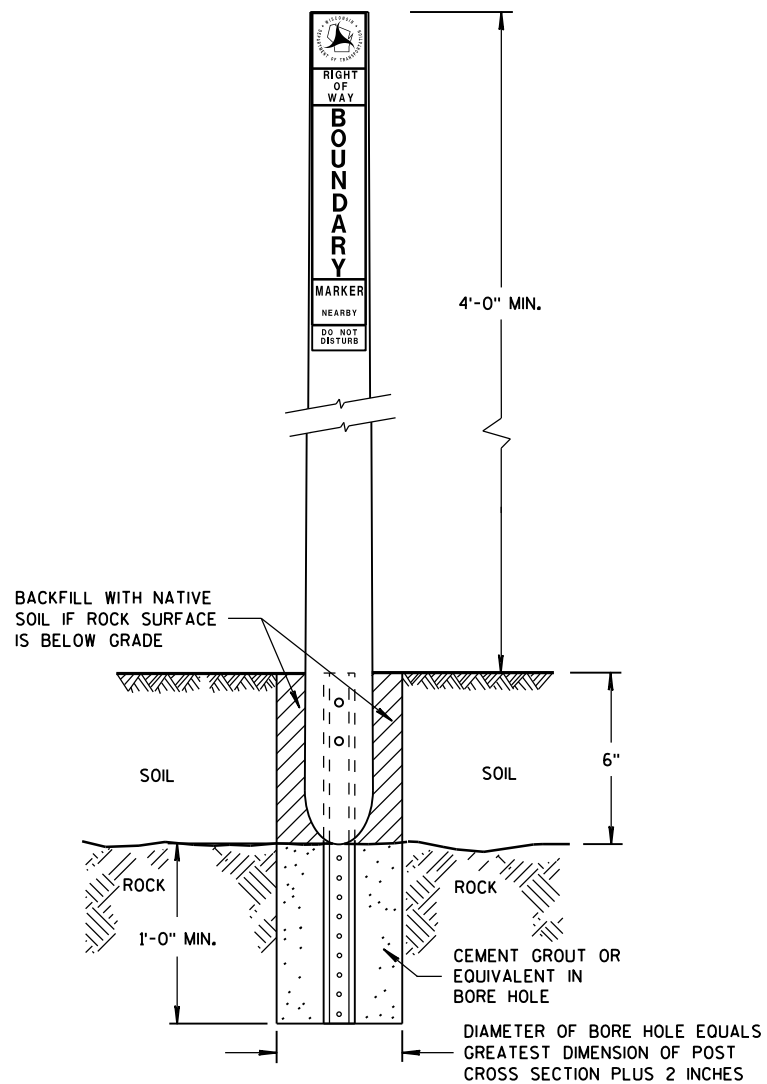
APPROVED
June, 2015 /S/ Ray Kumapayi
DATE CHIEF SURVEYING AND MAPPING ENGINEER
FHWA



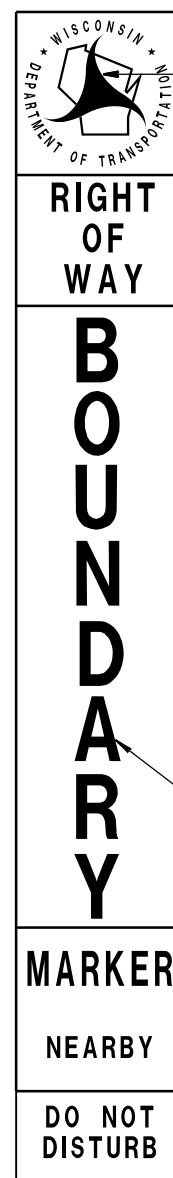
FLEXIBLE MARKER POST ①
FOR RIGHT-OF-WAY



SECTION A-A



FRONT VIEW
ROCK INSTALLATION ① ②



RIGHT-OF-WAY STICKER

THE RIGHT-OF-WAY STICKER WILL BE ATTACHED TO THE RIGHT-OF-WAY POST PRIOR TO DELIVERY.

GENERAL NOTES

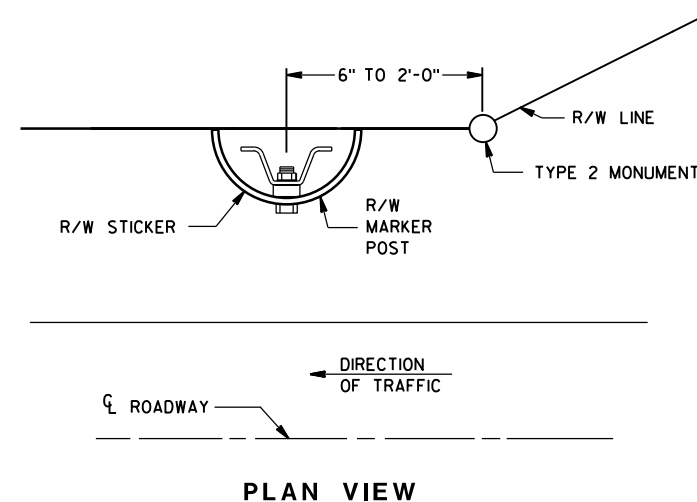
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A FLEXIBLE MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE RIGHT-OF-WAY STICKER SHALL FACE THE ROADWAY.

INSTALL PER DEPTH OF MANUFACTURER'S RECOMMENDATIONS BUT NOT LESS THAN 18 INCHES BELOW GRADE FROM THE BOTTOM OF THE METAL U-CHANNEL ANCHOR.

- ① FLEXIBLE MARKER POSTS SHALL BE INCLUDED IN THE APPROVED PRODUCTS LIST FOR MARKER POSTS AND SHALL BE FEDERAL YELLOW IN COLOR.
- ② IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 4'-0" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.

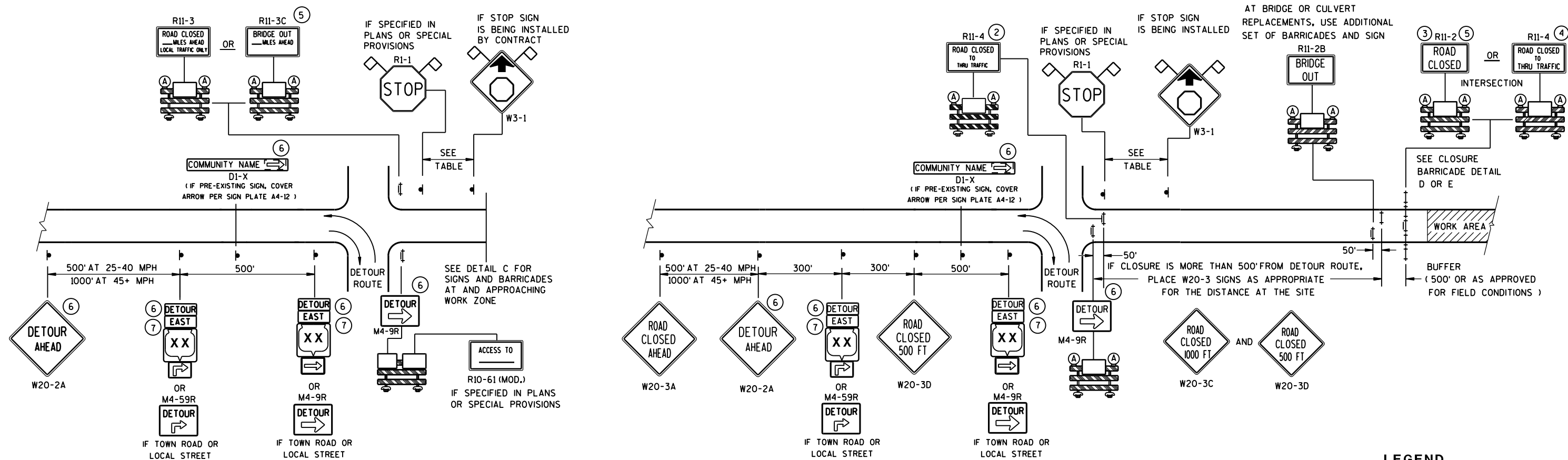


BLACK LETTERING AND LINE WORK ON WHITE BACKGROUND

FLEXIBLE MARKER POST FOR RIGHT-OF-WAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

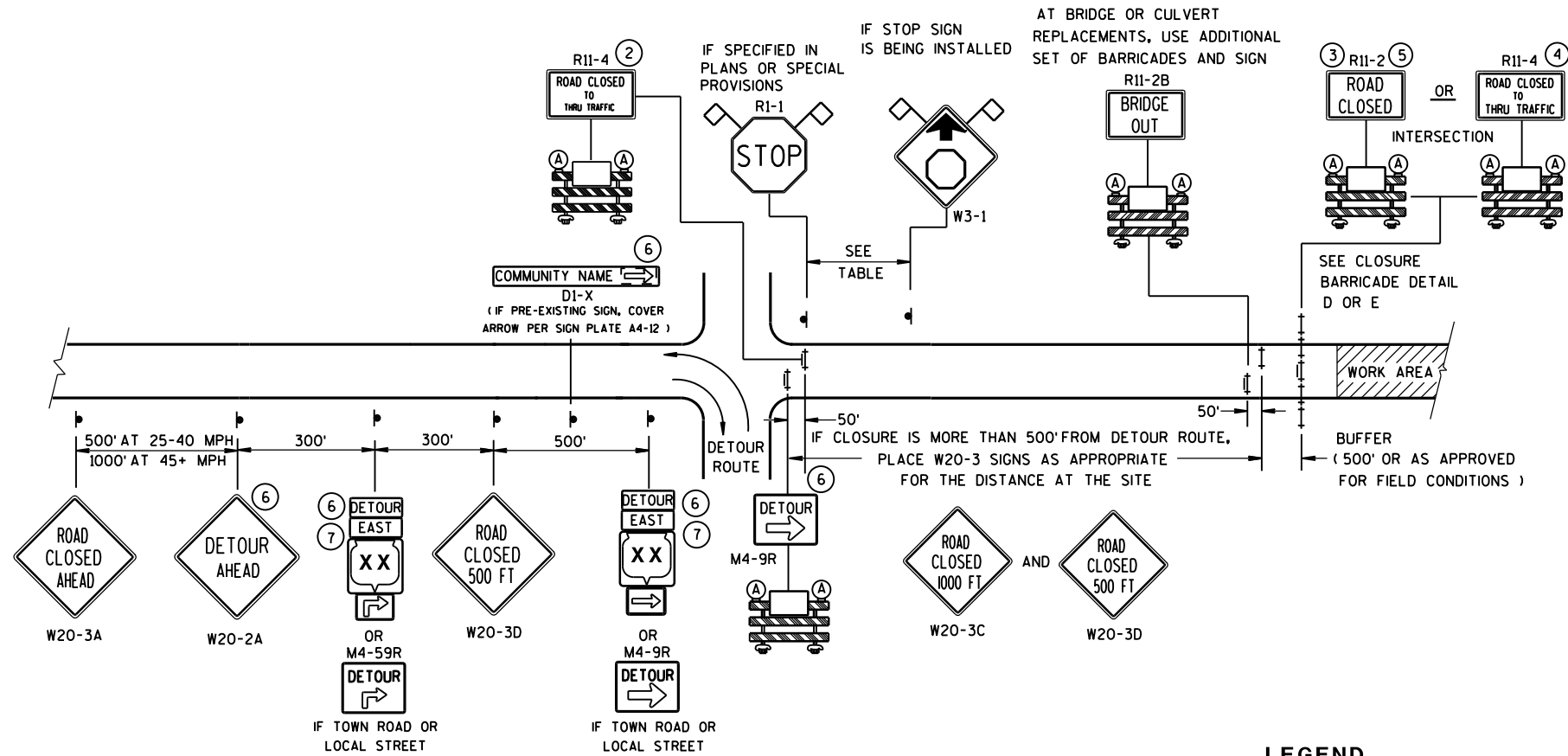
APPROVED
June, 2015 /S/ Ray Kumapayi
DATE CHIEF SURVEYING AND MAPPING ENGINEER
FHWA



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

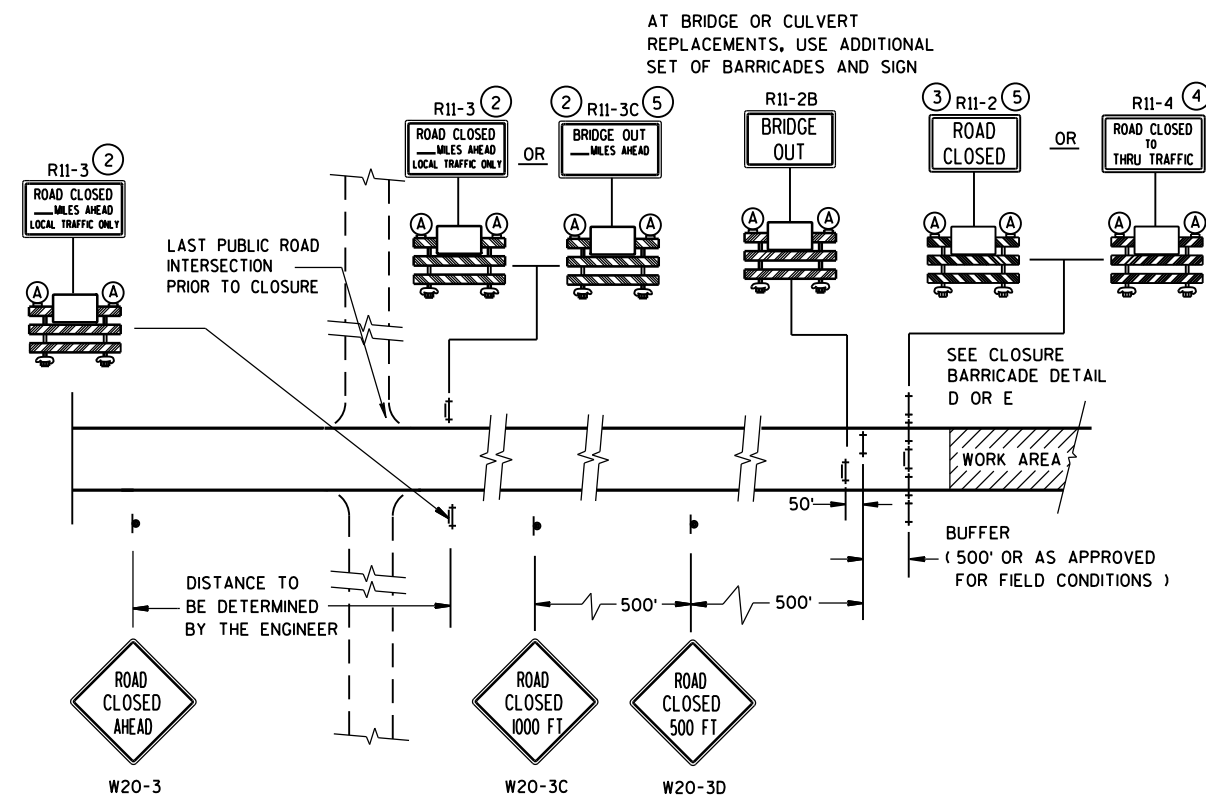
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

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



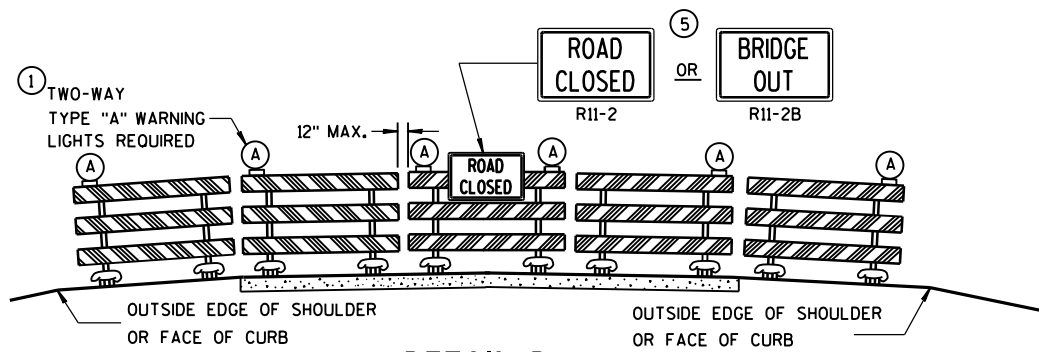
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

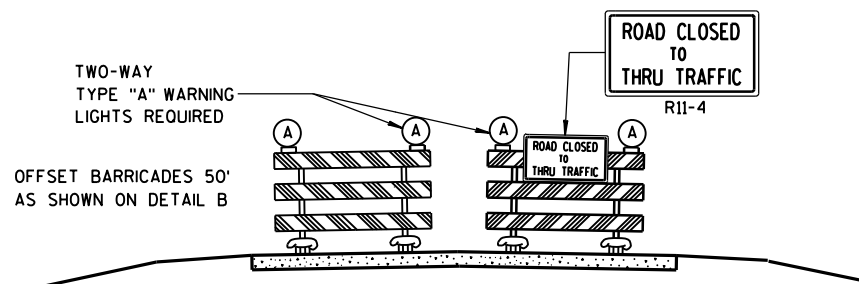
- ## LEGEND
-  SIGN ON PERMANENT SUPPORT
-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  WORK AREA
-  M4-8
M3-X
-  OR  OR 
M1-4 M1-5A M1-6
-  OR 
M05-1 M06-1
-  FLAGS, 16" X 16" MIN., (ORANGE)

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
<u>Sept. 2015</u> DATE	<u>/S/ Peter Amakobe Atepe</u> STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

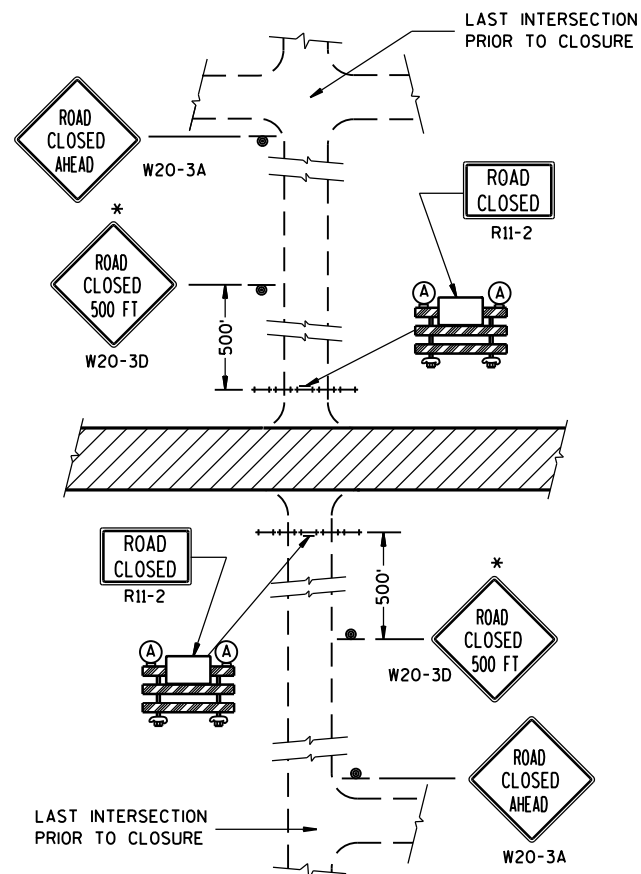
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" 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.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).
- 2 THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT 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 LANE 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.

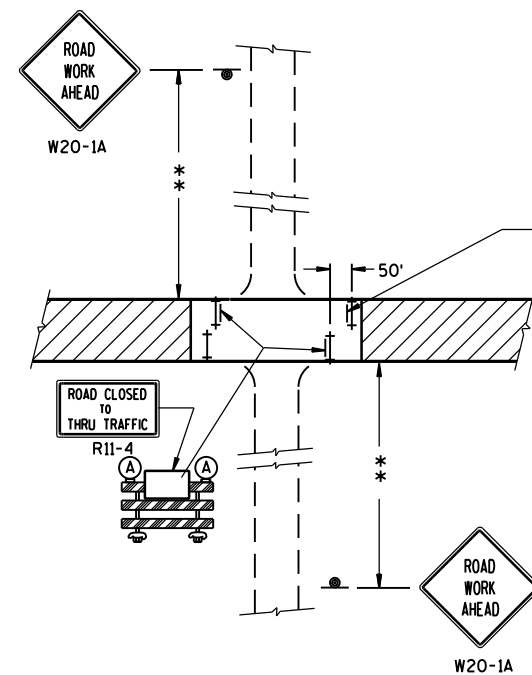
**BARRICADES AND SIGNS
FOR
MAINLINE CLOSURES**

**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**

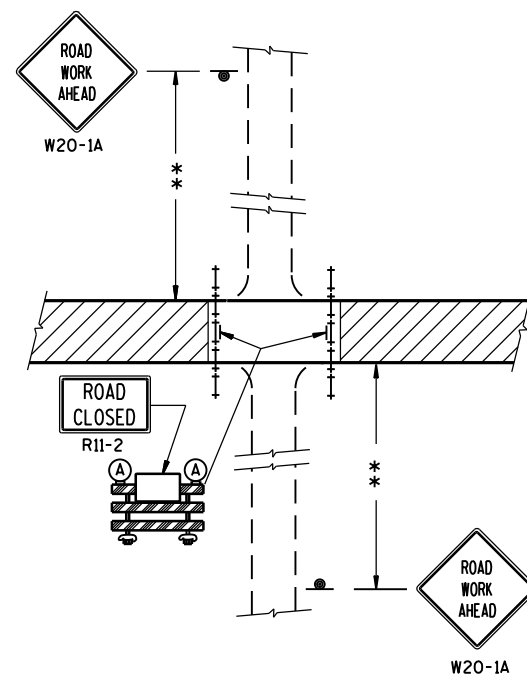
Sept. 2015 /S/ Peter Amokobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER



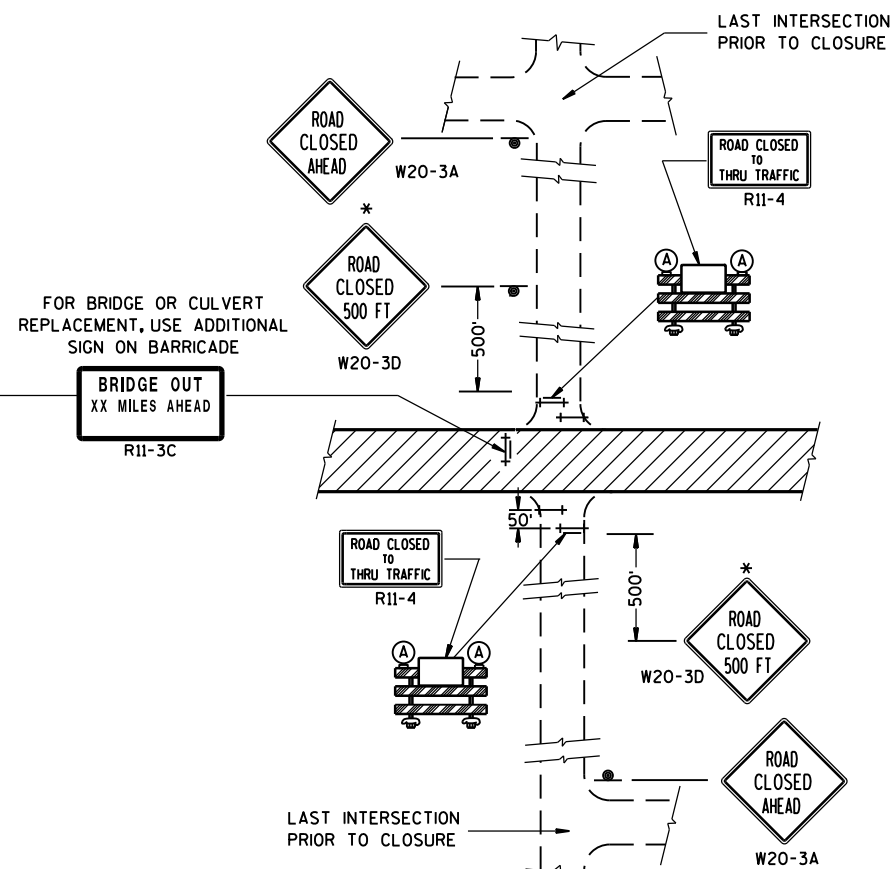
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

R11-2 SHALL BE 48" X 30".

R11-4 AND R11-3 SHALL BE 60" X 30".

*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

**500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2015

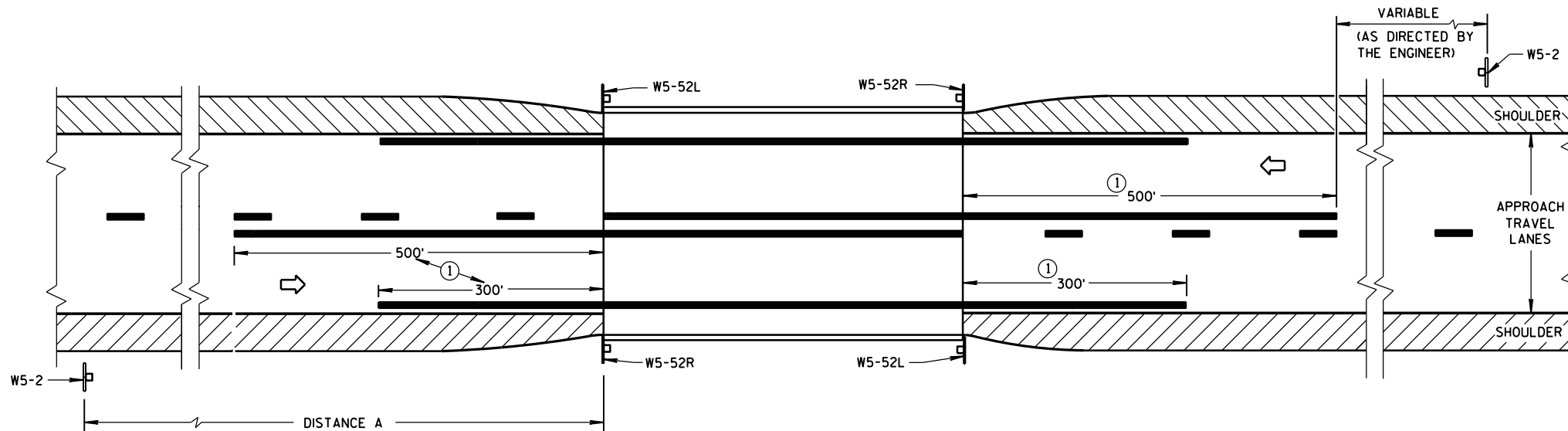
DATE

FHWA

/S/ Peter Amakobe Atepe

STATEWIDE WORK ZONE TRAFFIC

SAFETY ENGINEER



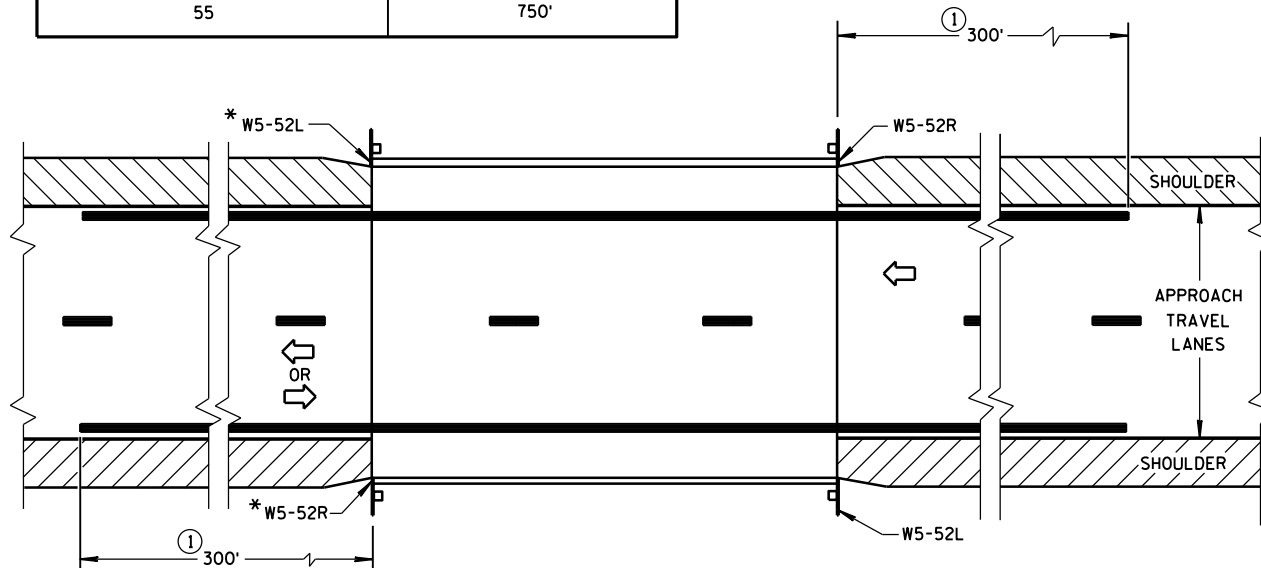
SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

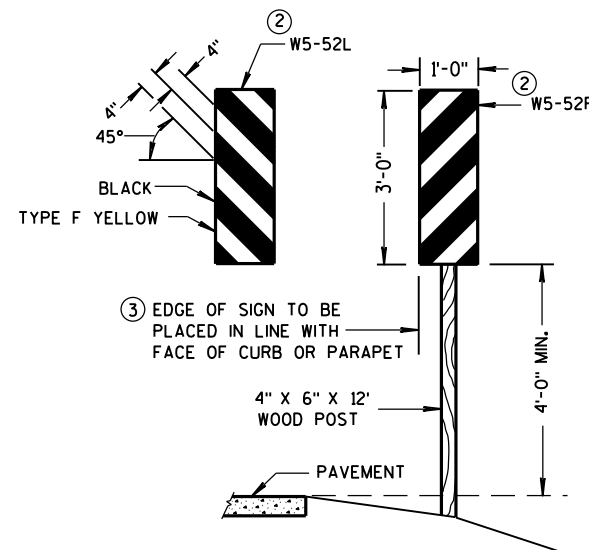


*OMIT ON ONE-WAY TRAVELLED WAYS

SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.



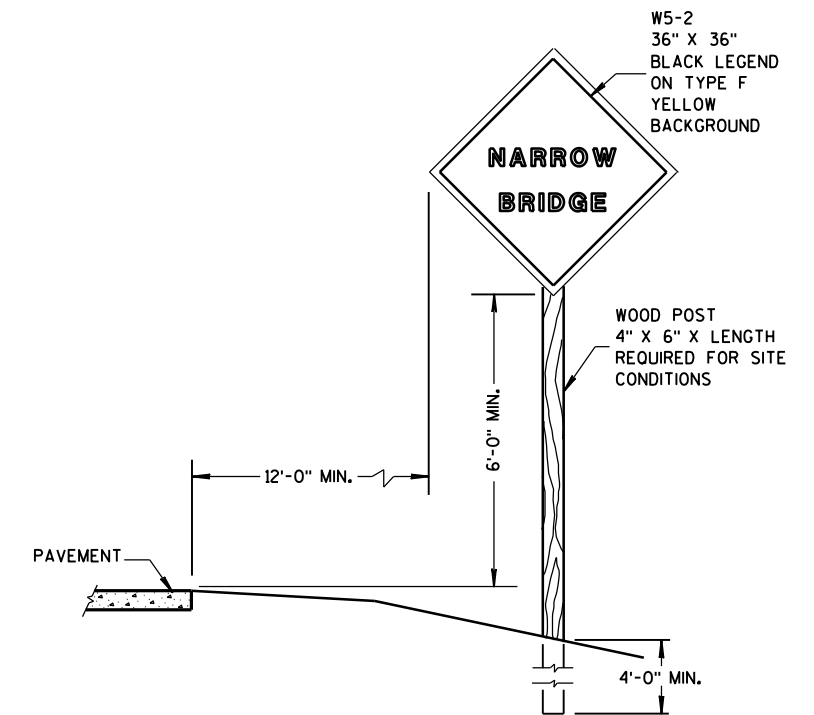
OBJECT MARKER PLACEMENT

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.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

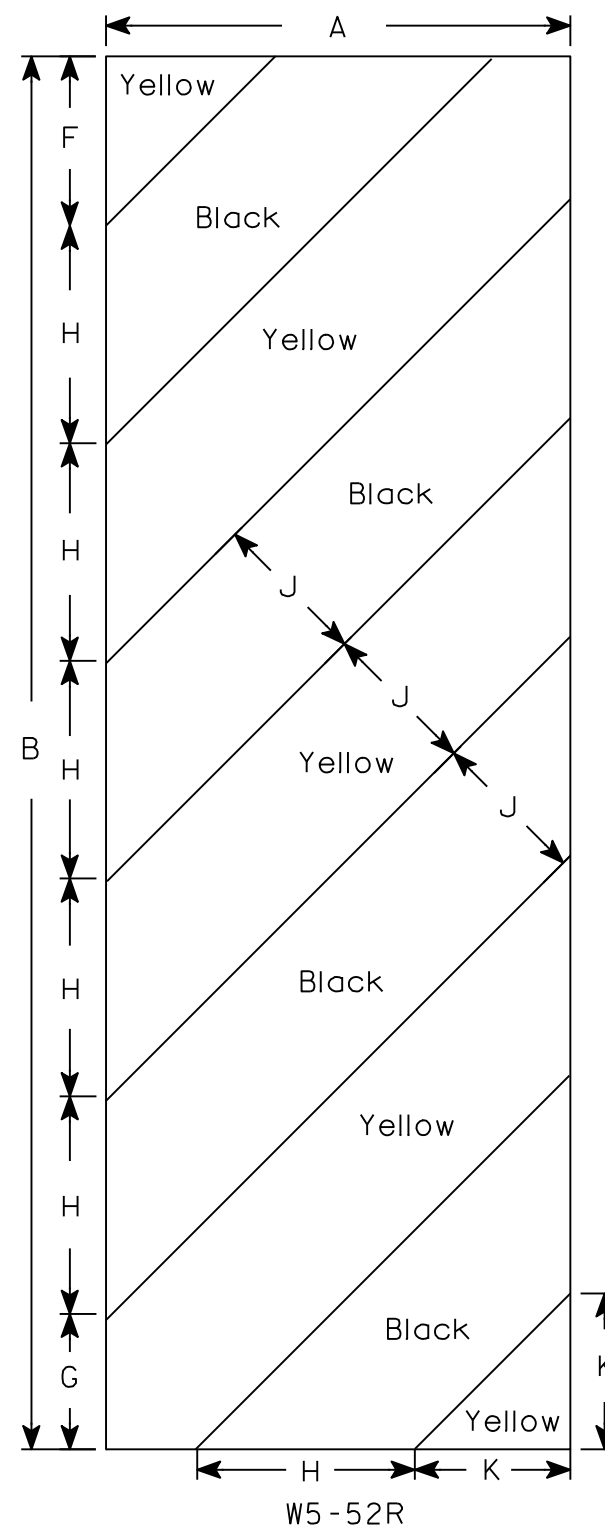
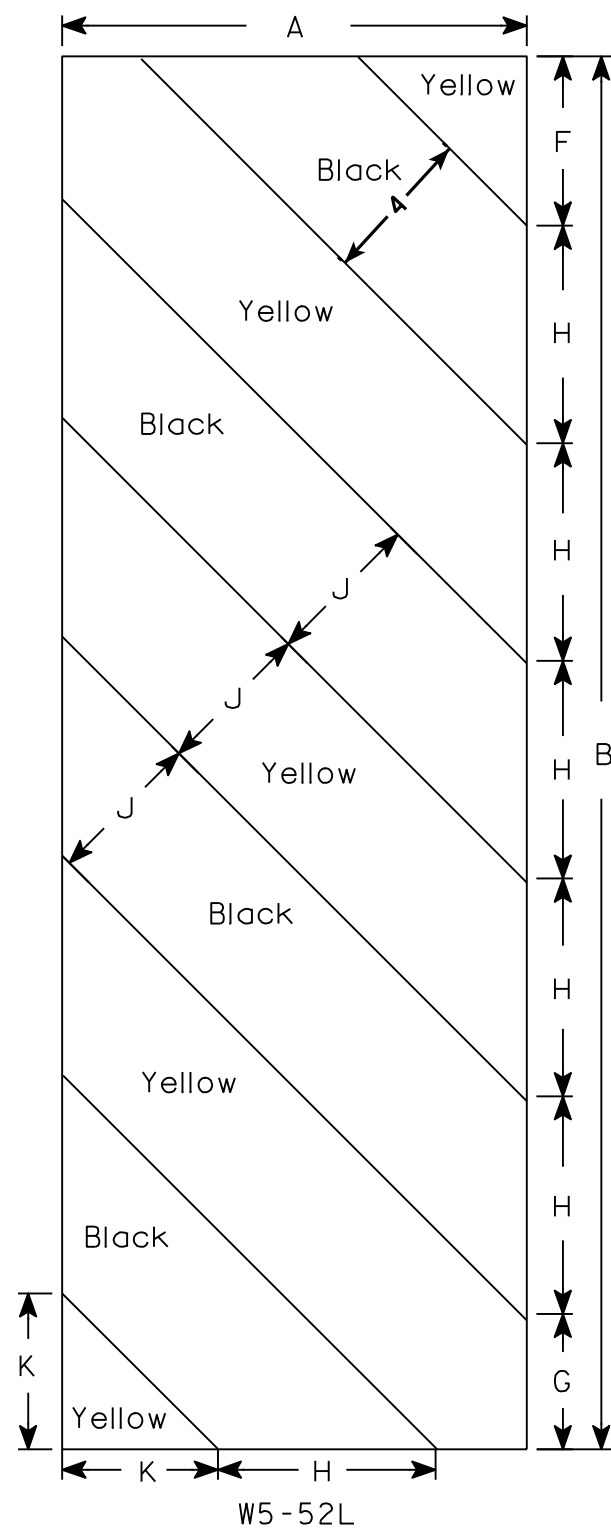
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3-2014
DATE

FHWA

/S/ Travis Fettes
STATE TRAFFIC ENGINEER OF DESIGN



NOTES

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

[illegible]

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO: 8798-00-70

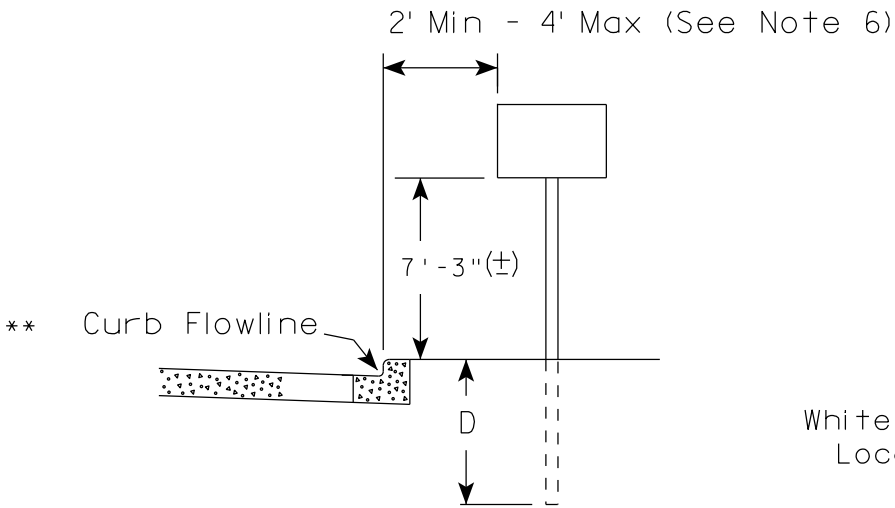
HWY:	CTH D
------	-------

COUNTY: RUSK

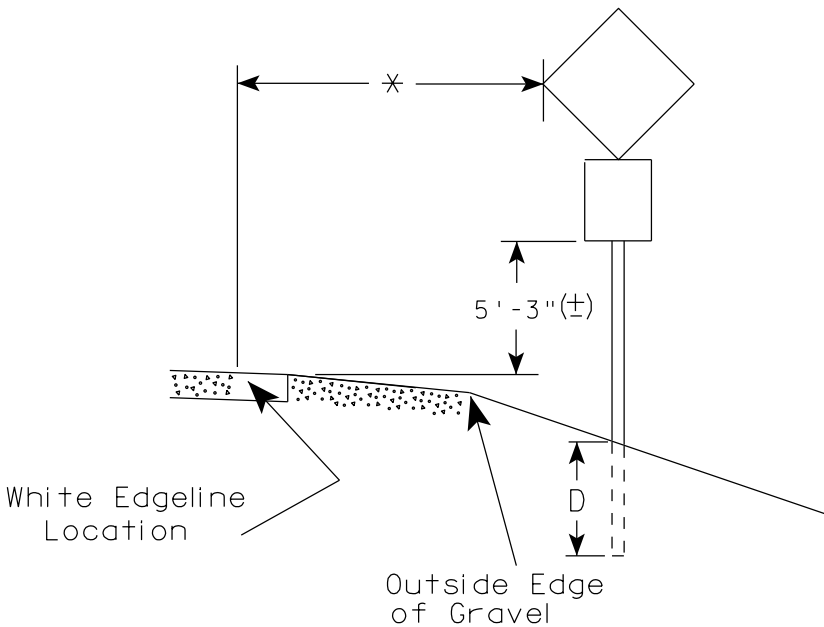
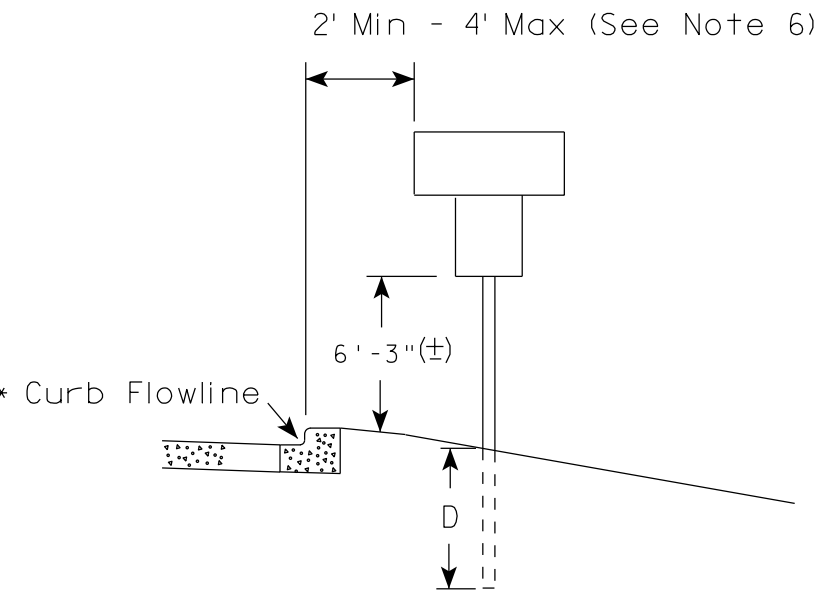
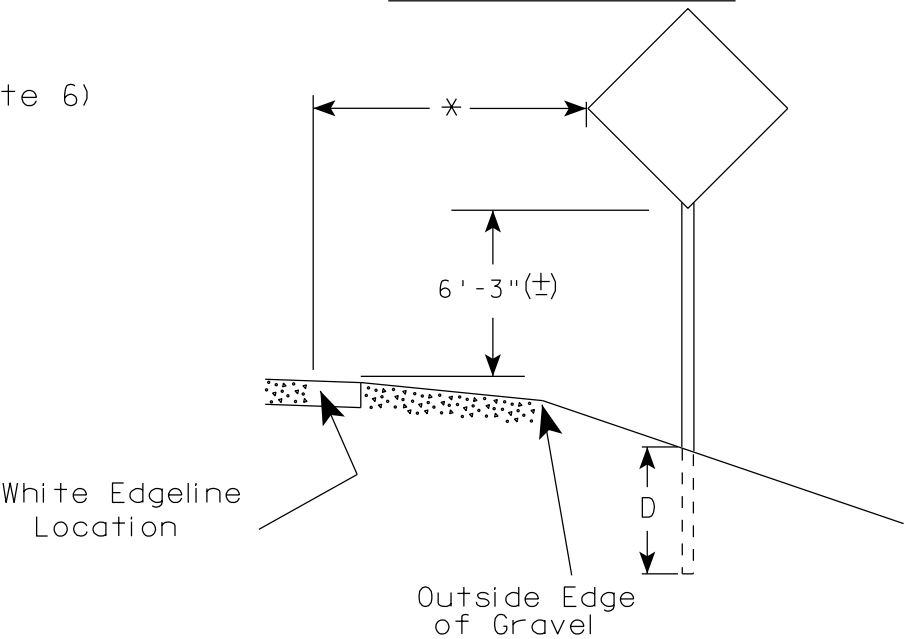
SHEET NO:

1

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

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

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

GENERAL NOTES

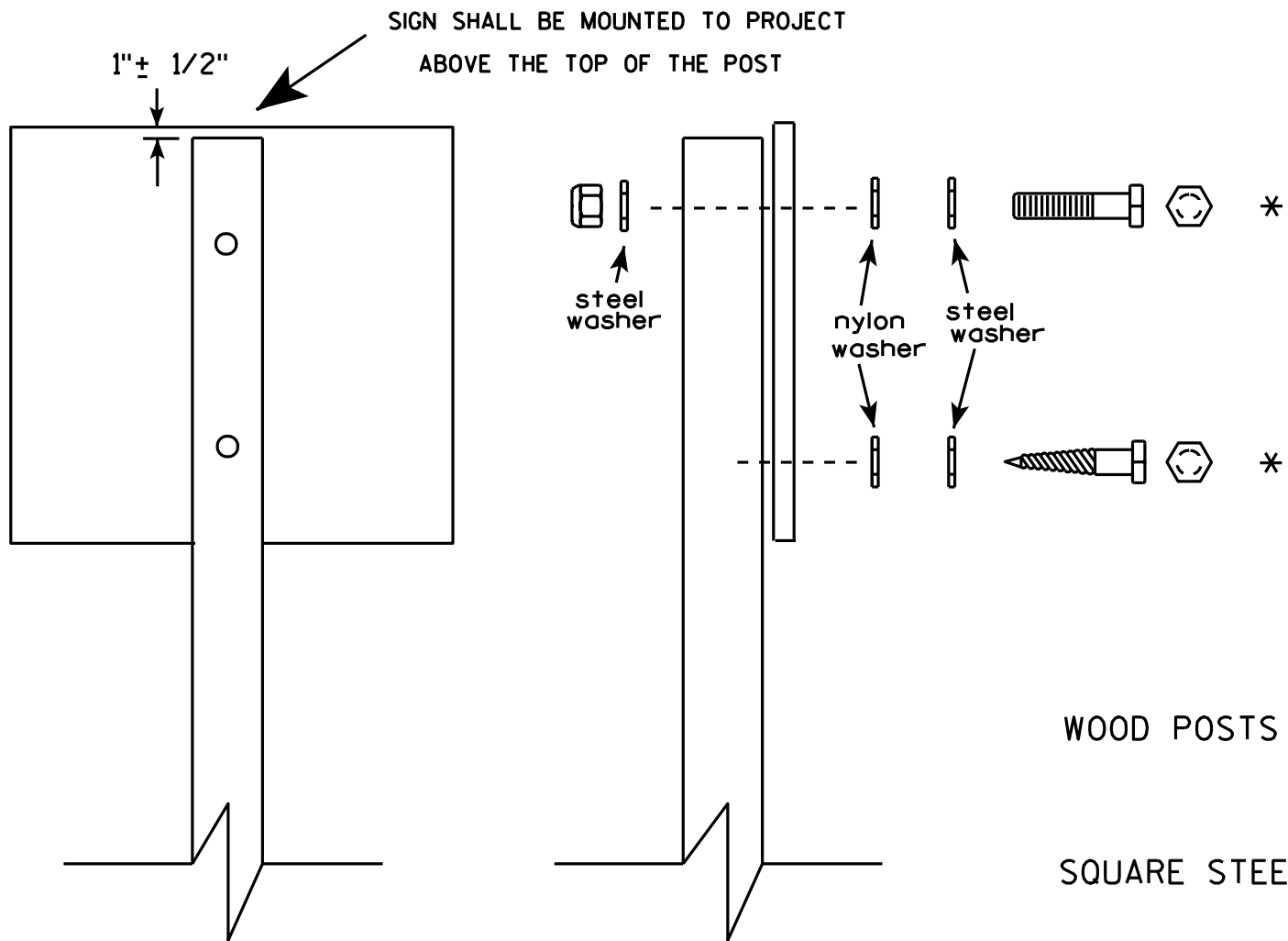
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

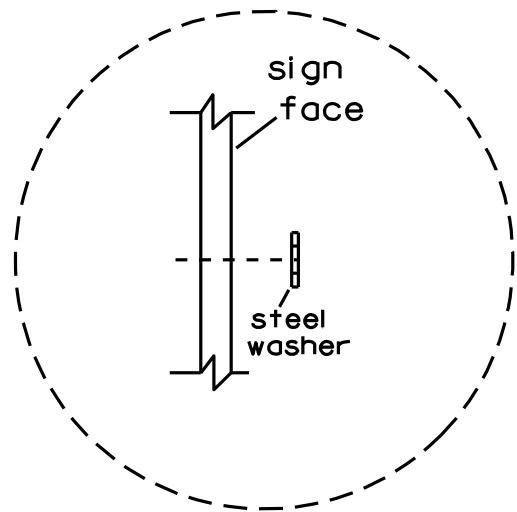


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

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

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

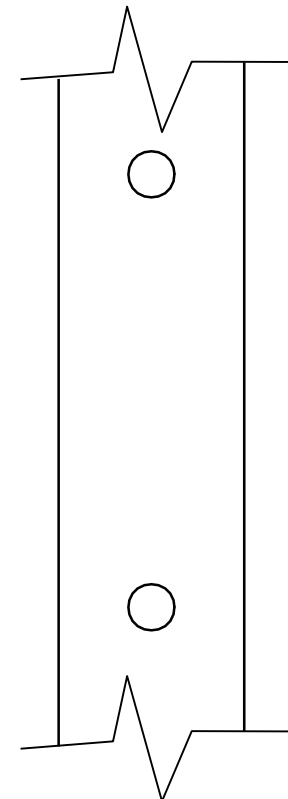
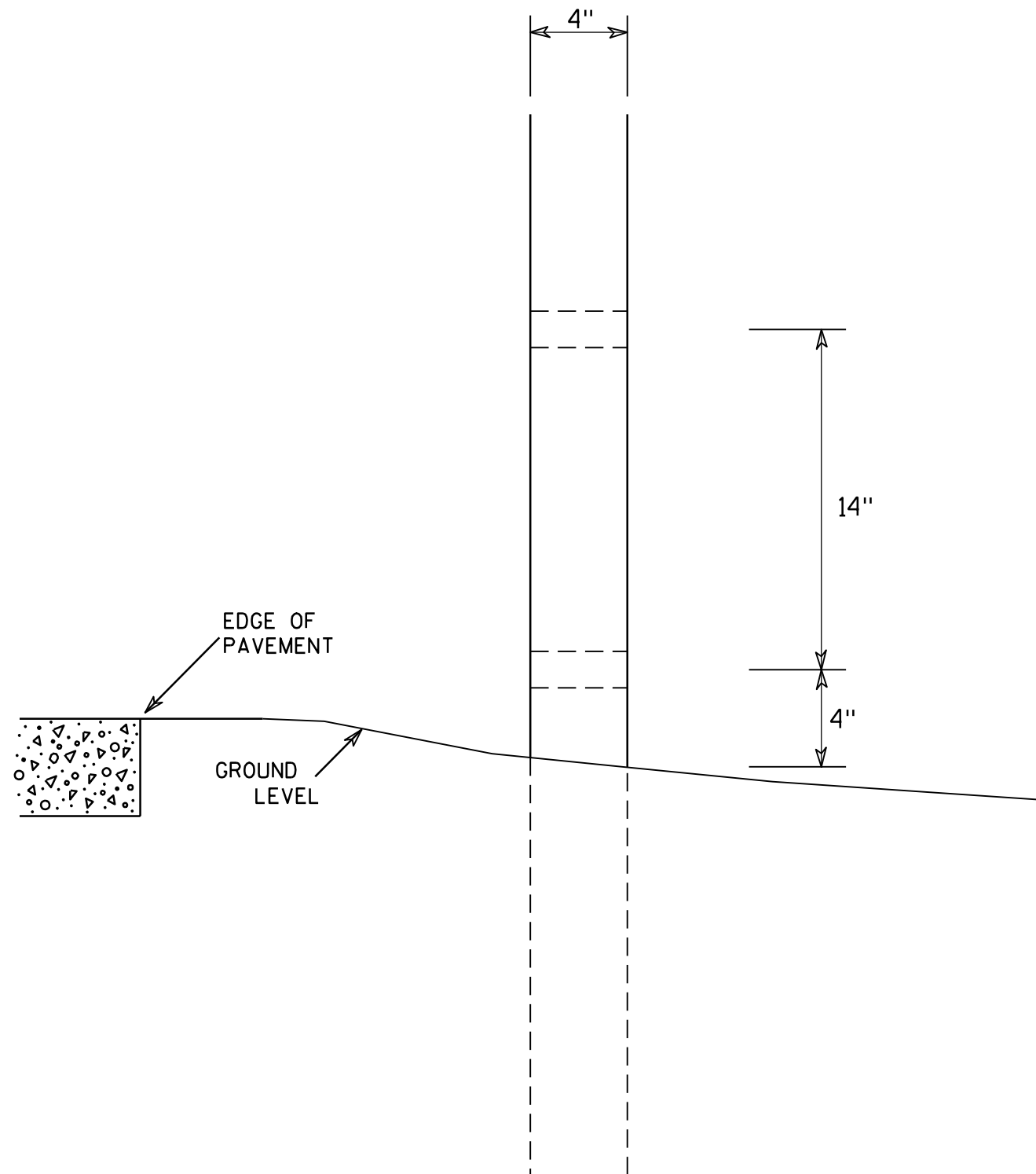
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3"
- MACHINE BOLTS - $\frac{5}{16}$ " X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- 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 for all Type H signs.



Washer Placement when Sign Has Other Than Type H or Type F Face

* 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 3/23/10	PLATE NO. A4-8.7



SIDE VIEW

GENERAL NOTES

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

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: 8798-00-70

HWY: CTH D

COUNTY: RUSK

SHEET NO:

E

* LOCATION OF ATTACHMENT
INSERT FOR THRIE BEAM

INDICATES WING NUMBER

STATE PROJECT NUMBER

8798-00-70

DESIGN DATA

LIVE LOADS:

DESIGN LOADING = HL-93
INVENTORY RATING FACTOR = 1.02
OPERATING RATING FACTOR = 1.32
WI STANDARD PERMIT VEHICLE LOAD = 250 KIPS

STRUCTURE IS DESIGNED FOR FUTURE WEARING SURFACE
OF 20 POUNDS PER SQUARE FOOT

MATERIAL PROPERTIES:

CONCRETE MASONRY SLAB & PARAPETS----- F'C = 4,000 PSI
BAR STEEL REINFORCEMENT (GRADE 60) ----- F_y = 60,000 PSI
CONCRETE MASONRY OTHER ----- F'C = 3,500 PSI

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING CIP CONCRETE 12 $\frac{3}{4}$ X
0.25-INCH DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 100 TONS*
(MIN) PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC
FORMULA. ESTIMATED 55'-0" LONG.

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

TRAFFIC DATA

A.D.T. (2016) = 720 A.D.T. (2036) = 930
R.D.S. = 55 MPH

HYDRAULIC DATA

100 YEAR FREQUENCY

Q100 = 1400 CFS Q100 BRIDGE = 1400 CFS
VEL. = 3.6 FPS HW ELEV. = 1056.6
WATERWAY AREA = 510 SF DRAINAGE AREA = 18.2 SQ.MI.
SCOUR CODE = 8

2 YEAR FREQUENCY

Q2 = 385 CFS
HW ELEV. = 1052.63

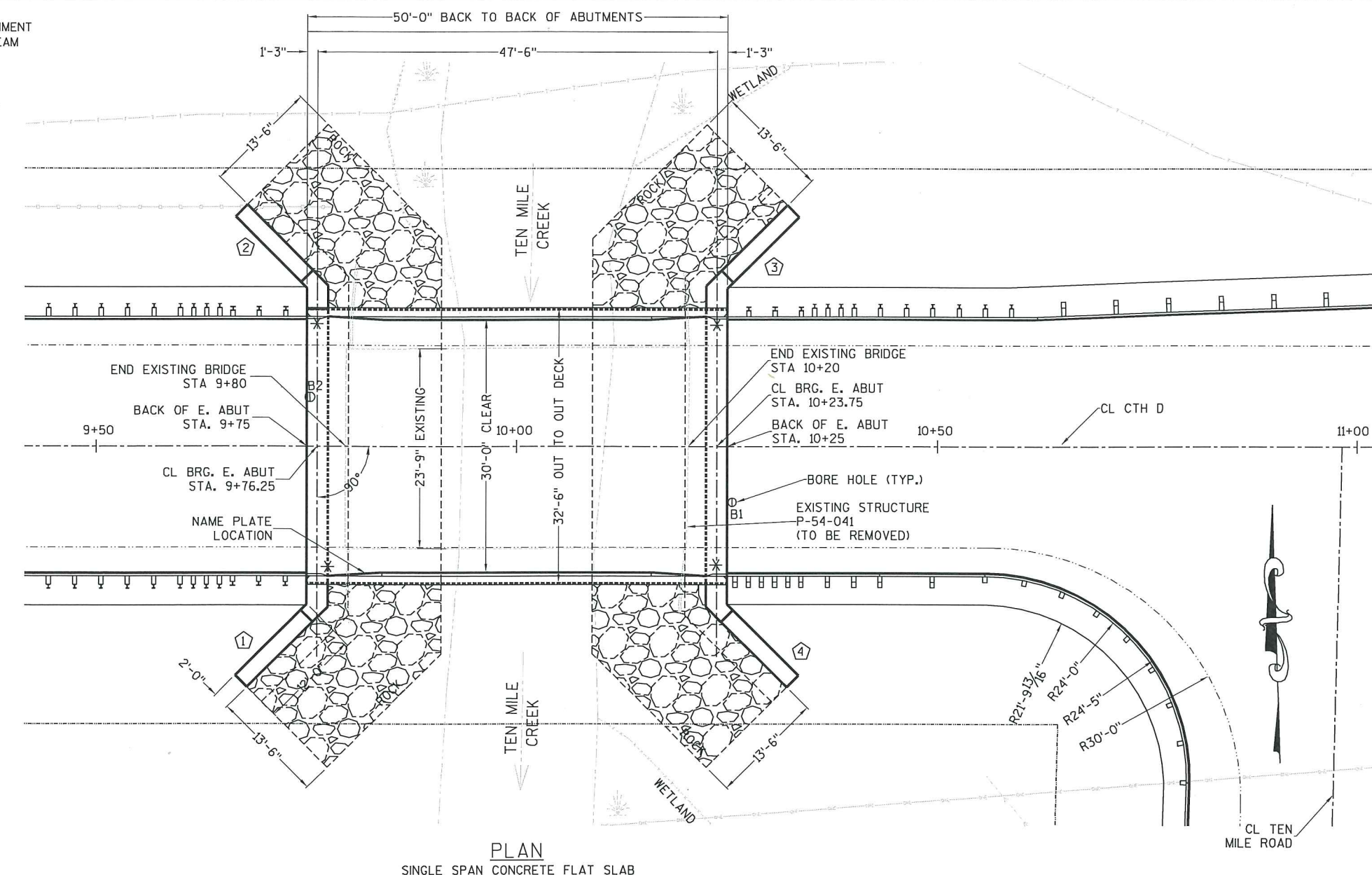
CONTACTS

BRIDGE OFFICE:
CONTACT: WILLIAM DREHER
PHONE: (608) 266-8489

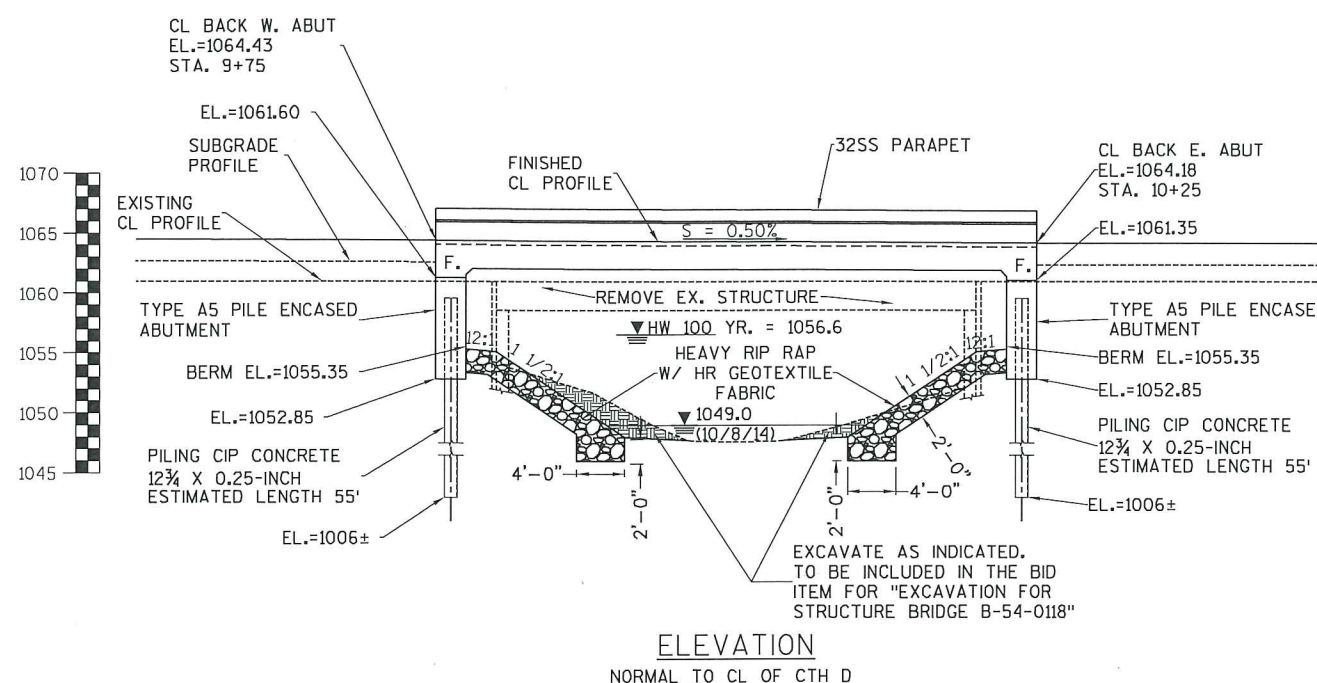
CONSULTANT:
MORGAN & PARMLEY, LTD.
(715) 532-3721

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT DETAILS
6. EAST ABUTMENT
7. EAST ABUTMENT DETAILS
8. SUPERSTRUCTURE
9. SINGLE SLOPE PARAPET 32SS



PLAN
SINGLE SPAN CONCRETE FLAT SLAB



ELEVATION
NORMAL TO CL OF CTH D



NO.	DATE	REVISION	BY
MORGAN & PARMLEY, LTD.			
PROFESSIONAL CONSULTING ENGINEERS			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	<i>William C. Dreher</i>	SDR	02/08/16
CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-54-0118			
CTH D BRIDGE OVER TEN MILE CREEK			
COUNTY	RUSK	TOWN/CITY/VILLAGE	RUSK
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	JF	DESIGN CK'D.	SP
DRAWN BY	ZG	PLANS CK'D.	LG
GENERAL PLAN			SHEET 1 OF 9

DRAWINGS SHALL NOTE BE SCALED.

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

THE SLOPE OF FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIP RAP AND GEOTEXTILE FABRIC TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.

AT THE BACKFACE OF THE ABUTMENT ALL VOLUME WHICH CANNOT BE
PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE
NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURAL BACKFILL.

THE EXISTING STRUCTURE IS A 40.7' LONG BY 23.8' WIDE (CLEAR ROADWAY) SINGLE SPAN ASPHALT OVERLAY CONCRETE DECK STEEL GIRDER STRUCTURE WITH TIMBER ABUTMENTS (P-54-041).

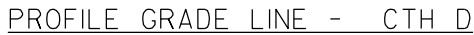
PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP SURFACE OF THE SLAB.

PIGMENTED SURFACE SEALER SHALL BE APPLIED TO THE FRONT FACE AND TOP SURFACES OF THE PARAPETS.

ALL STATIONS AND ELEVATIONS ARE IN FEET.

ELEVATIONS SHOWN ON THE PLANS ARE REFERENCES TO THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).

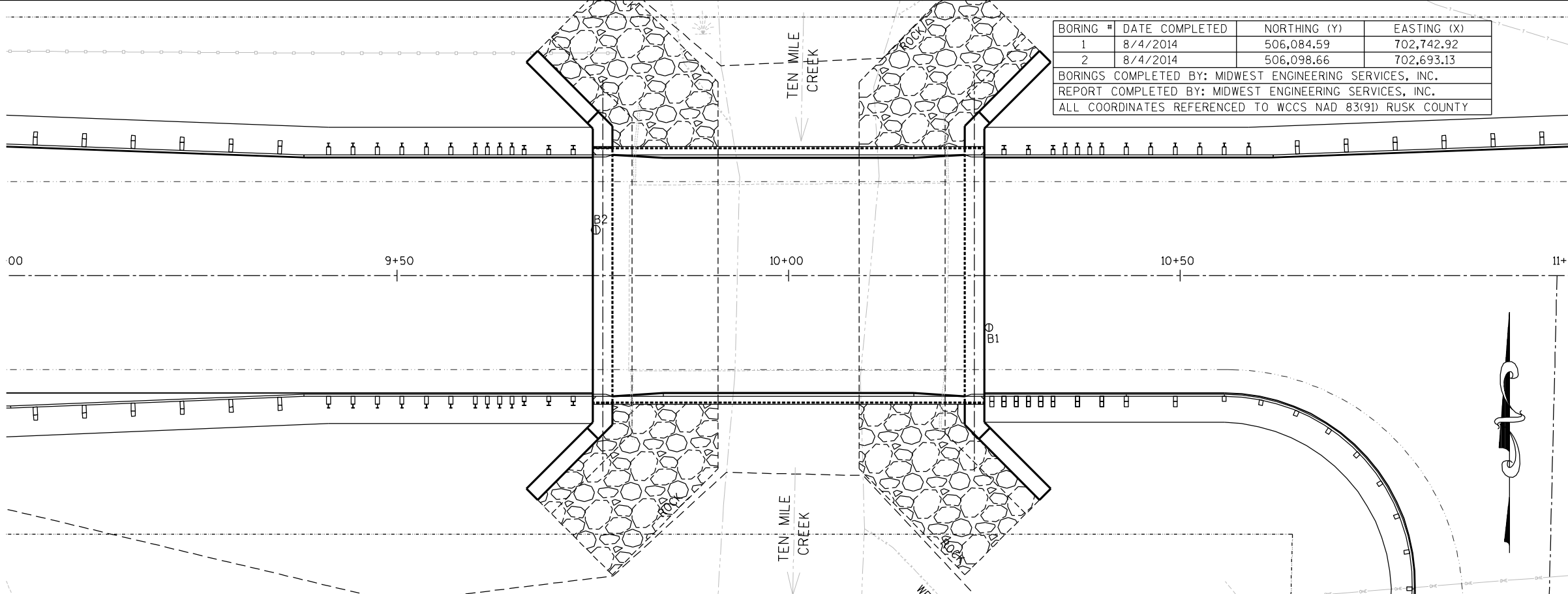
THE COORDINATE SYSTEM FOR THIS PROJECT IS WISCONSIN COUNTY
COORDINATE SYSTEM (WCCS) - RUSK COUNTY.



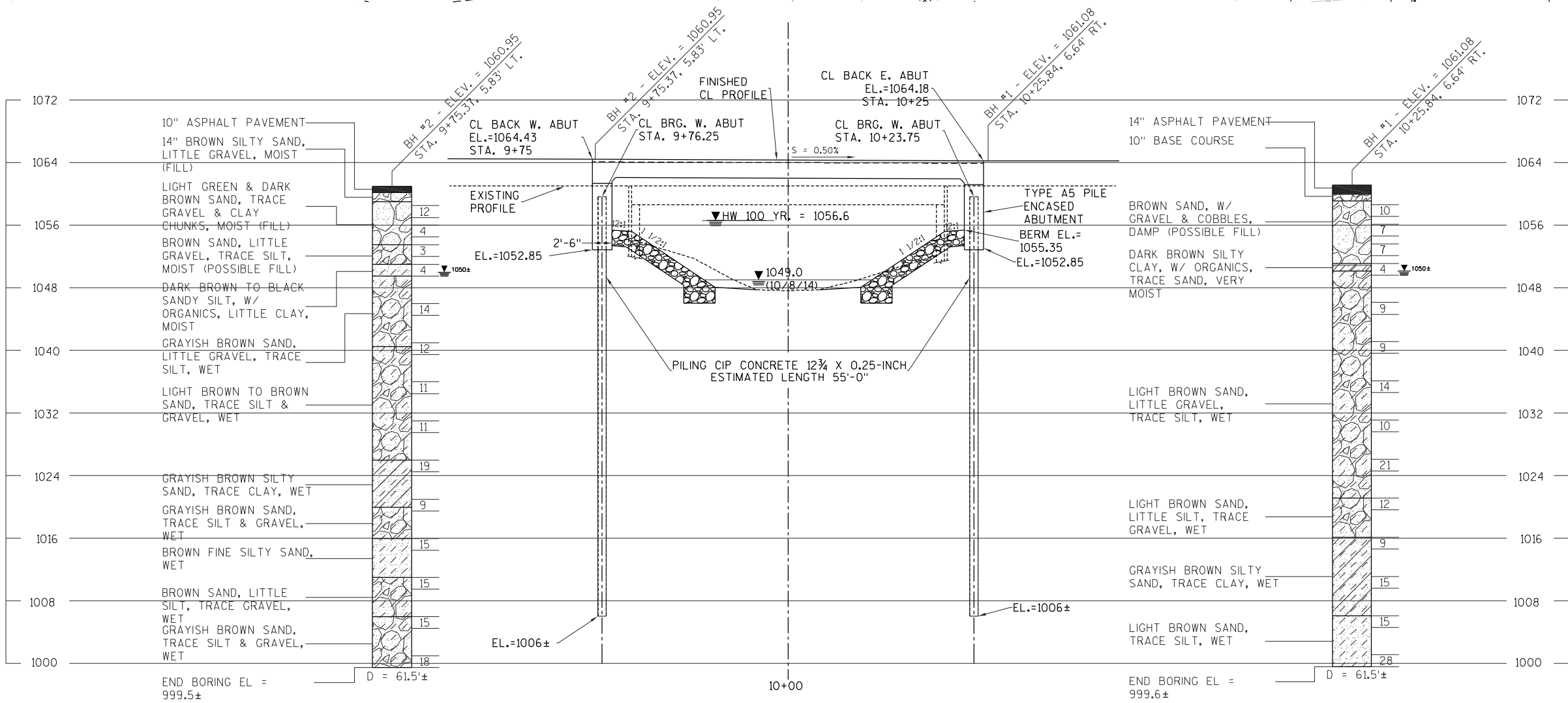
-DO NOT SCALE-

* OSHA MINIMUM REQUIREMENT, A SLOPE OF 1.5:1 WAS USED FOR QUANTITY CALCS.

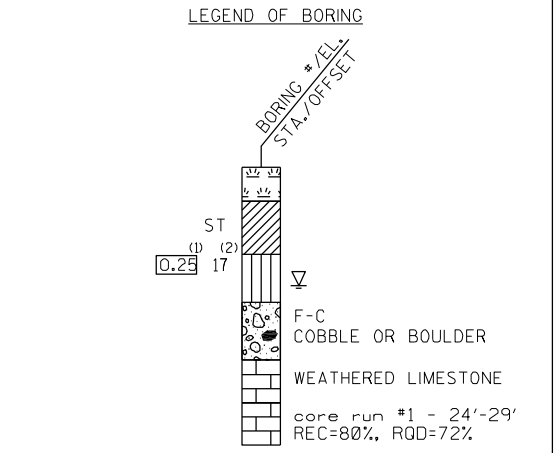
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-54-0118			
DRAWN BY ZG		PLANS CK'D.	
CROSS SECTION & QUANTITIES		SHEET 2 OF 9	



BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	8/4/2014	506,084.59	702,742.92
2	8/4/2014	506,098.66	702,693.13
BORINGS COMPLETED BY: MIDWEST ENGINEERING SERVICES, INC.			
REPORT COMPLETED BY: MIDWEST ENGINEERING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) RUSK COUNTY			



STATE PROJECT NUMBER			
8798-00-70			
MATERIAL SYMBOLS			
	ASPHALT	 TOPSOIL	 PEAT
	CONCRETE	 FILL	 GRAVEL
	SAND	 CLAY	 SILT
	boulders or cobbles	 LIMESTONE	 BEDROCK (unknown)
	shale	 SANDSTONE	 IGNEOUS/ meta



(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.

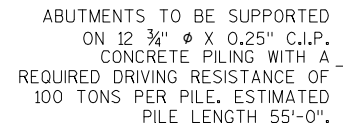
<u>GROUND WATER ELEVATION</u>	
	AT TIME OF DRILLING
	END OF DRILLING
	AFTER DRILLING
<u>ABBREVIATIONS</u>	
F-FINE	M-MEDIUM
C-COARSE	ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

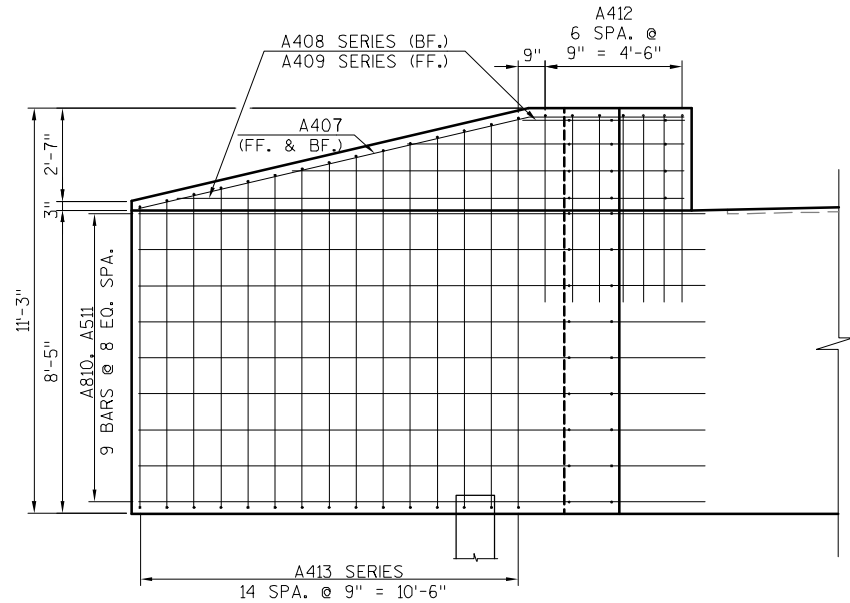
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT 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 STRUCTURES DESIGN SECTION			
STRUCTURE B-54-0118			
DRAWN BY ZG		PLANS CK'D. LG	
SUBSURFACE EXPLORATION		SHEET 3 OF 9	

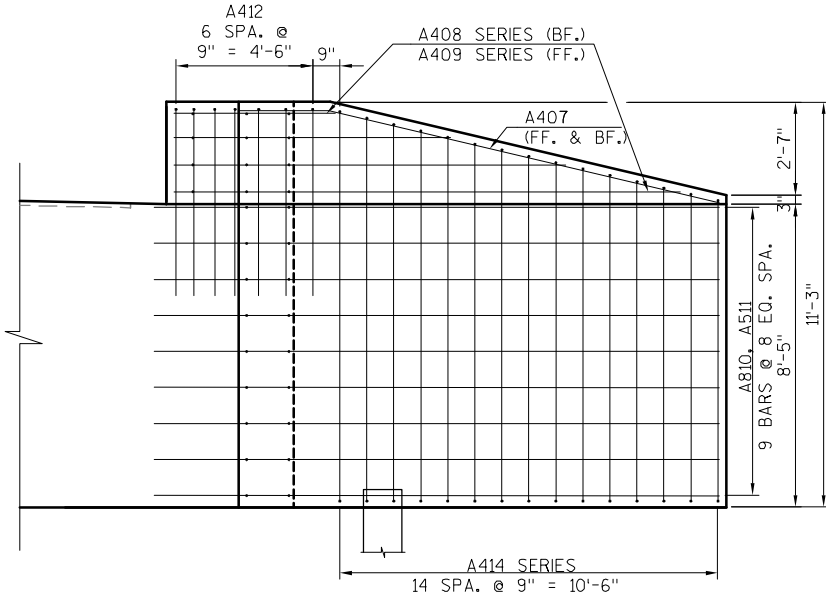
SCALE =



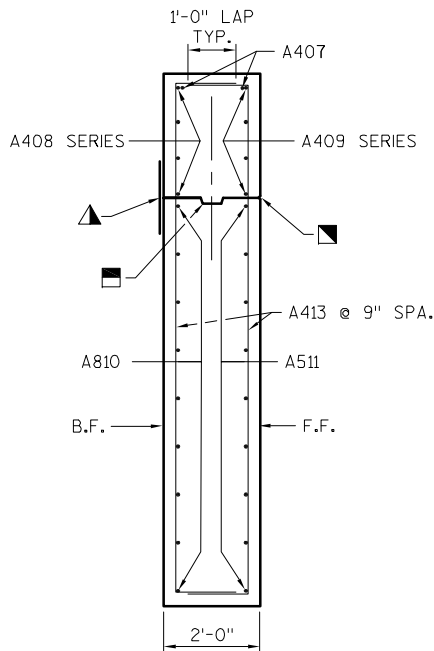
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-54-0118			
DRAWN BY JMM		PLANS CK'D. LG	
WEST ABUTMENT		SHEET 4 OF 9	



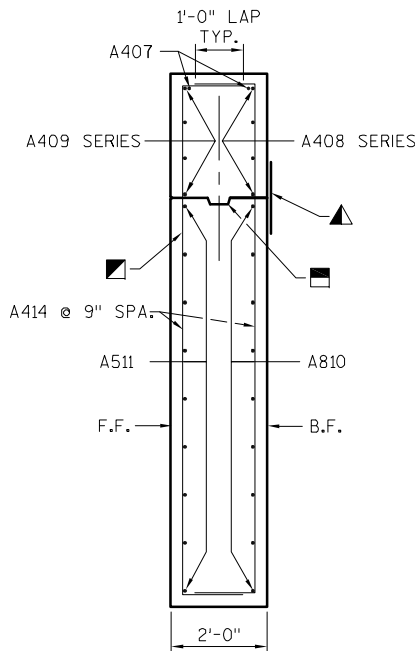
ELEVATION - WING 1
(LOOKING AT FF. OF WING)



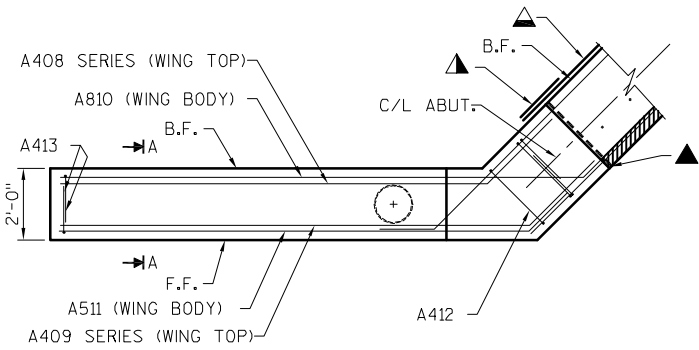
ELEVATION - WING 2
(LOOKING AT FF. OF WING)



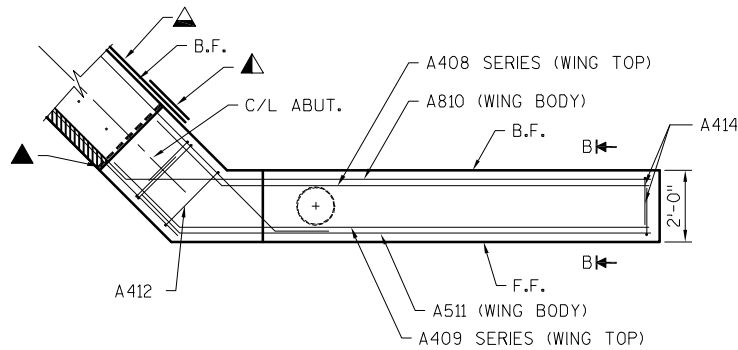
SECTION A-A THRU WING 1



SECTION B-B THRU WING 2



PLAN - WING 1



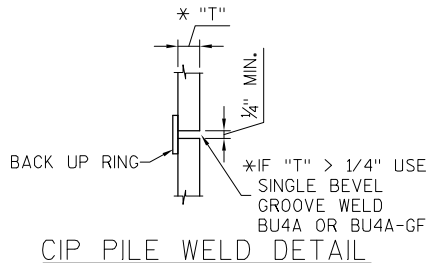
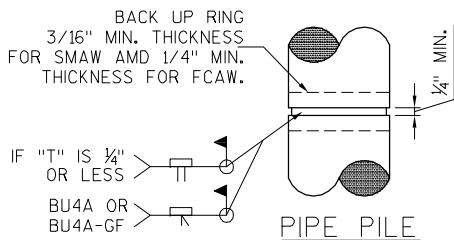
PLAN - WING 2

BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
A801		18	25'-2"	X		ABUT. BODY - BF. HORIZ.
A502		9	38'-2"			ABUT. BODY - FF. HORIZ.
A503		80	9'-6"	X		ABUT. BODY - FF. & BF. VERT.
A404		33	2'-9"	X		ABUT. BODY - TIES HORIZ.
A505		40	8'-0"	X		ABUT. BODY - TOP VERT.
A506	X	33	2'-0"			ABUT. BODY - TOP DOWEL VERT.
A407	X	4	13'-3"	X		WINGS - FF. & BF. - TOP HORIZ.
A408	X	8	8'-0"	X	X	WINGS 1 & 2 - BF. - HORIZ.
A409	X	8	9'-6"	X	X	WINGS 1 & 2 - FF. - HORIZ.
A810	X	18	16'-2"	X		WINGS - BF. - HORIZ.
A511	X	18	14'-8"	X		WINGS - FF. - HORIZ.
A412	X	28	12'-4"	X		WINGS @ ABUT. CORNER - VERT.
A413	X	30	12'-1"	X	X	WING 1 - FF. & BF. - VERT.
A414	X	30	12'-1"	X	X	WING 2 - FF. & BF. - VERT.

NOTES:
1. BAR TABLE APPLIES TO WEST ABUTMENT ONLY.
2. THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.
BAR DIMENSIONS ARE OUT TO OUT OF BAR.
LENGTH SHOWN IS AN AVERAGE LENGTH TO BE USED FOR BAR WT. CALCULATIONS.
SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

SEE LEGEND ON SHEET 4 FOR DESCRIPTION OF SYMBOLS BELOW

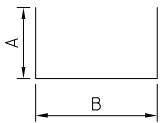
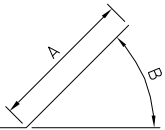


CIP PILE SPlice DETAIL
CAST IN PLACE PILE SHELL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. GRINDING MAY BE USED IN LIEU OF BACK GOUGING

BAR SERIES TABLE

MARK	NO. REQ'D.	LENGTH
A408	2 SERIES OF 4	2'-10" TO 13'-2"
A409	2 SERIES OF 4	4'-5" TO 14'-7"
A413	2 SERIES OF 15	10'-10" TO 13'-3"
A414	2 SERIES OF 15	10'-10" TO 13'-3"

BUNDLE AND TAG EACH SERIES SEPERATELY



MARK	A	B
A801	1'-6"	45°
A407	2'-5"	13°
A408	1'-10"	45°
A409	2'-0"	45°
A810	1'-6"	45°
A511	1'-6"	45°

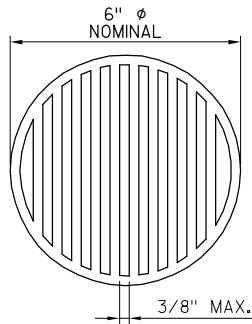
MARK	A	B
A404	4 1/2"	2'-2"
A505	3'-0"	2'-2"
A412	5'-2"	2'-2"
A413	1'-4"	VARIES
A414	1'-4"	VARIES

MARK	A
A503	8'-0"

RODENT SHIELD NOTES:

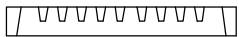
ORIENT SHIELD SO SLOTS ARE VERTICAL.

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABILE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO 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. THE RODENT SHIELD SHALL BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".



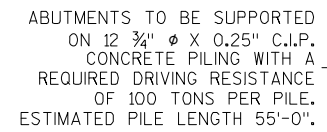
RODENT SHIELD

DIMENSIONS ARE APPROX.. THE GRATE IS SIZED TO FIT INTO PIPE COUPLING.



SECTION R-R

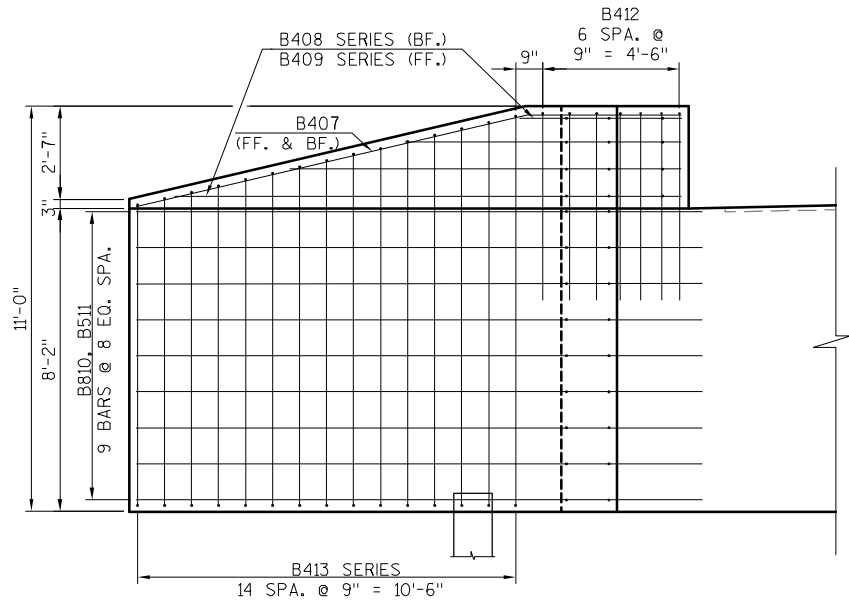
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-54-0118			
DRAWN BY JMM		PLANS CKD. LG	
WEST ABUTMENT DETAILS		SHEET 5 OF 9	



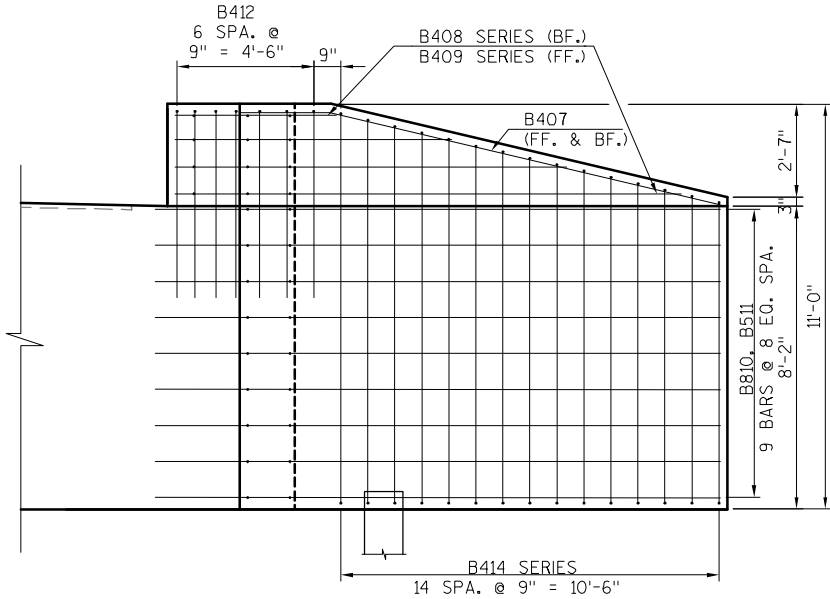
LEGEND

- F.F. = FRONT FACE B.F. = BACK FACE

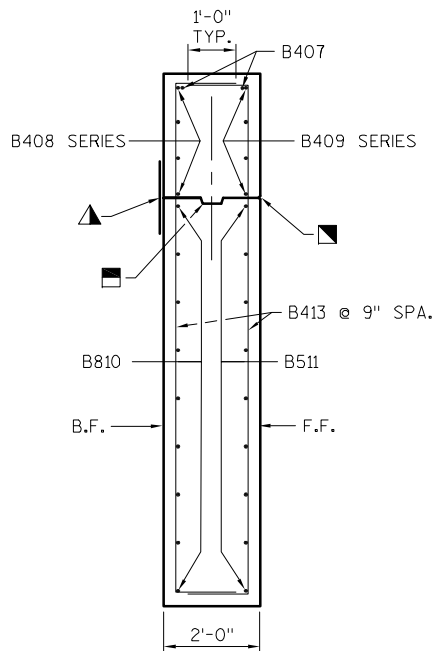
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-54-0118			
DRAWN BY JMM		PLANS CK'D. LG	
EAST ABUTMENT		SHEET 6 OF 9	



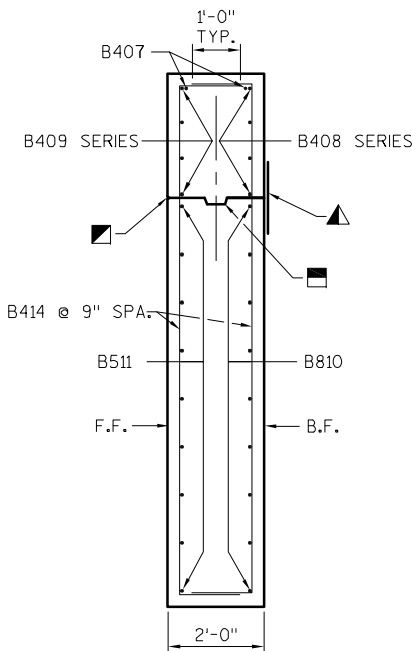
ELEVATION - WING 3
(LOOKING AT FF. OF WING)



ELEVATION - WING 4
(LOOKING AT FF. OF WING)



SECTION A-A THRU WING 3



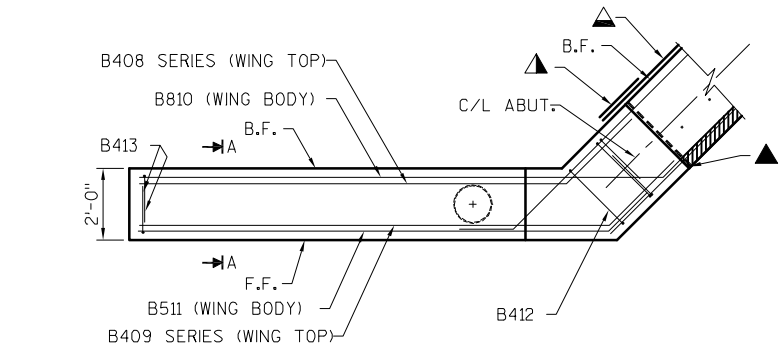
SECTION B-B THRU WING 4

BILL OF BARS

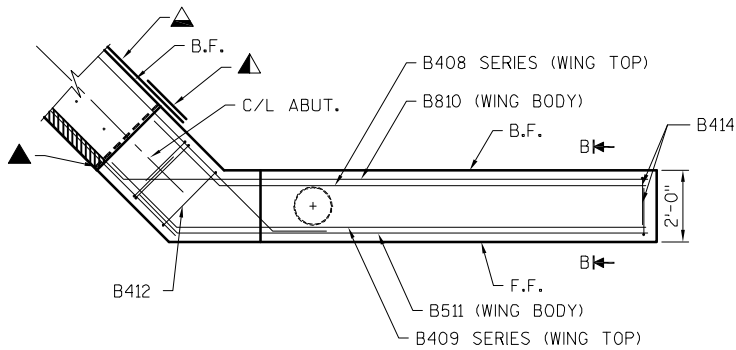
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
B801		18	25'-2"	X		ABUT. BODY - BF. HORIZ.
B502		9	38'-2"			ABUT. BODY - FF. HORIZ.
B503		80	9'-3"	X		ABUT. BODY - FF. & BF. VERT.
B404		33	2'-9"	X		ABUT. BODY - TIES HORIZ.
B505		40	8'-0"	X		ABUT. BODY - TOP VERT.
B506	X	33	2'-0"			ABUT. BODY - TOP DOWEL VERT.
B407	X	4	13'-3"	X		WINGS - FF. & BF. - TOP HORIZ.
B408	X	8	8'-0"	X	X	WINGS 3 & 4 - BF. - HORIZ.
B409	X	8	9'-6"	X	X	WINGS 3 & 4 - FF. - HORIZ.
B810	X	18	16'-2"	X		WINGS - BF. - HORIZ.
B511	X	18	14'-8"	X		WINGS - FF. - HORIZ.
B412	X	28	12'-4"	X		WINGS @ ABUT. CORNER - VERT.
B413	X	30	11'-10"	X	X	WING 3 - FF. & BF. - VERT.
B414	X	30	11'-10"	X	X	WING 4 - FF. & BF. - VERT.

- NOTES:
- BAR TABLE APPLIES TO EAST ABUTMENT ONLY.
 - THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT TO OUT OF BAR.
- LENGTH SHOWN IS AN AVERAGE LENGTH TO BE USED FOR BAR WT. CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

SEE LEGEND ON SHEET 4 FOR DESCRIPTION OF SYMBOLS BELOW



PLAN - WING 3

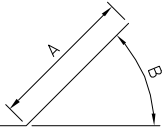


PLAN - WING 4

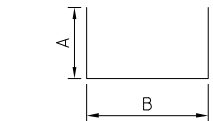
BAR SERIES TABLE

MARK	NO. REQ'D.	LENGTH
B408	2 SERIES OF 4	2'-10" TO 13'-2"
B409	2 SERIES OF 4	4'-5" TO 14'-7"
B413	2 SERIES OF 15	10'-7" TO 13'-0"
B414	2 SERIES OF 15	10'-7" TO 13'-0"

BUNDLE AND TAG EACH SERIES SEPERATELY

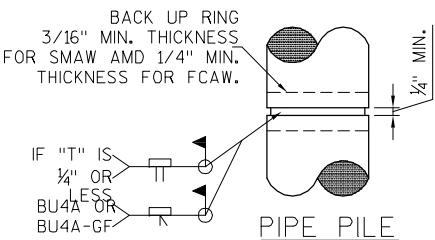


MARK	A	B
B801	1'-6"	45°
B407	2'-5"	13°
B408	1'-10"	45°
B409	2'-0"	45°
B810	1'-6"	45°
B511	1'-6"	45°



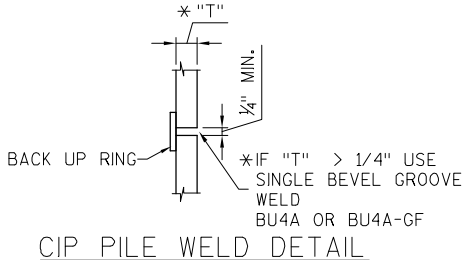
MARK	A	B
B404	4 1/2"	2'-2"
B505	3'-0"	2'-2"
B412	5'-2"	2'-2"
B413	1'-4"	VARIES
B414	1'-4"	VARIES

MARK	A
B503	7'-9"

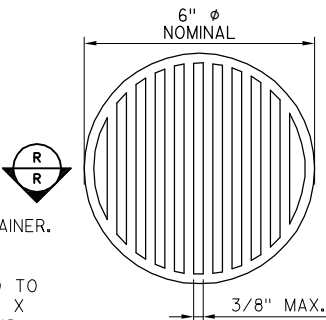


CIP PILE SPLICE DETAIL

CAST IN PLACE PILE SHELL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. GRINDING MAY BE USED IN LIEU OF BACK GOUGING

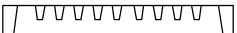


CIP PILE WELD DETAIL



RODENT SHIELD

DIMENSIONS ARE APPROX.. THE GRATE IS SIZED TO FIT INTO PIPE COUPLING.



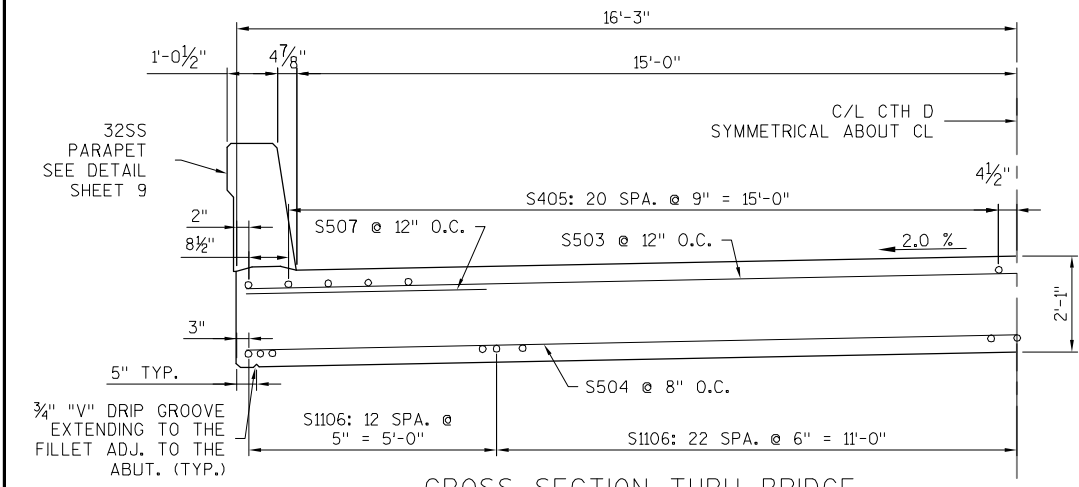
SECTION R-R

RODENT SHIELD NOTES:

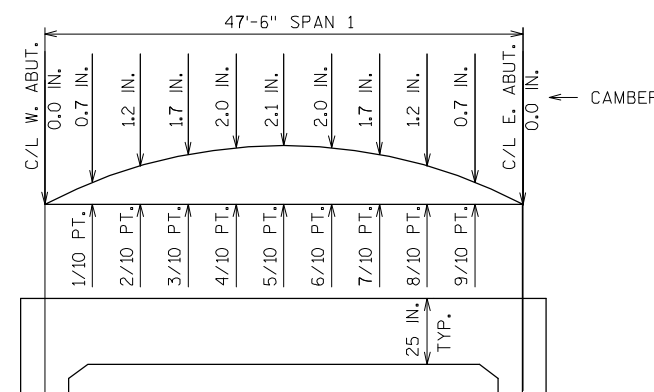
ORIENT SHIELD SO SLOTS ARE VERTICAL.

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE 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. THE RODENT SHIELD SHALL BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-54-0118			
DRAWN BY JMM		PLANS CKD. LG	
EAST ABUTMENT DETAILS		SHEET 7 OF 9	



CROSS SECTION THRU BRIDGE
LOOKING EAST



CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS. CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

GENERAL NOTES

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" $\varnothing$. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" $\varnothing$.

TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE $\varnothing$ OF SUBSTRUCTURE UNITS.

THE SLAB THICKNESS DIMENSION IS MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF ABUTMENTS, AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND C/L.

BILL OF BARS

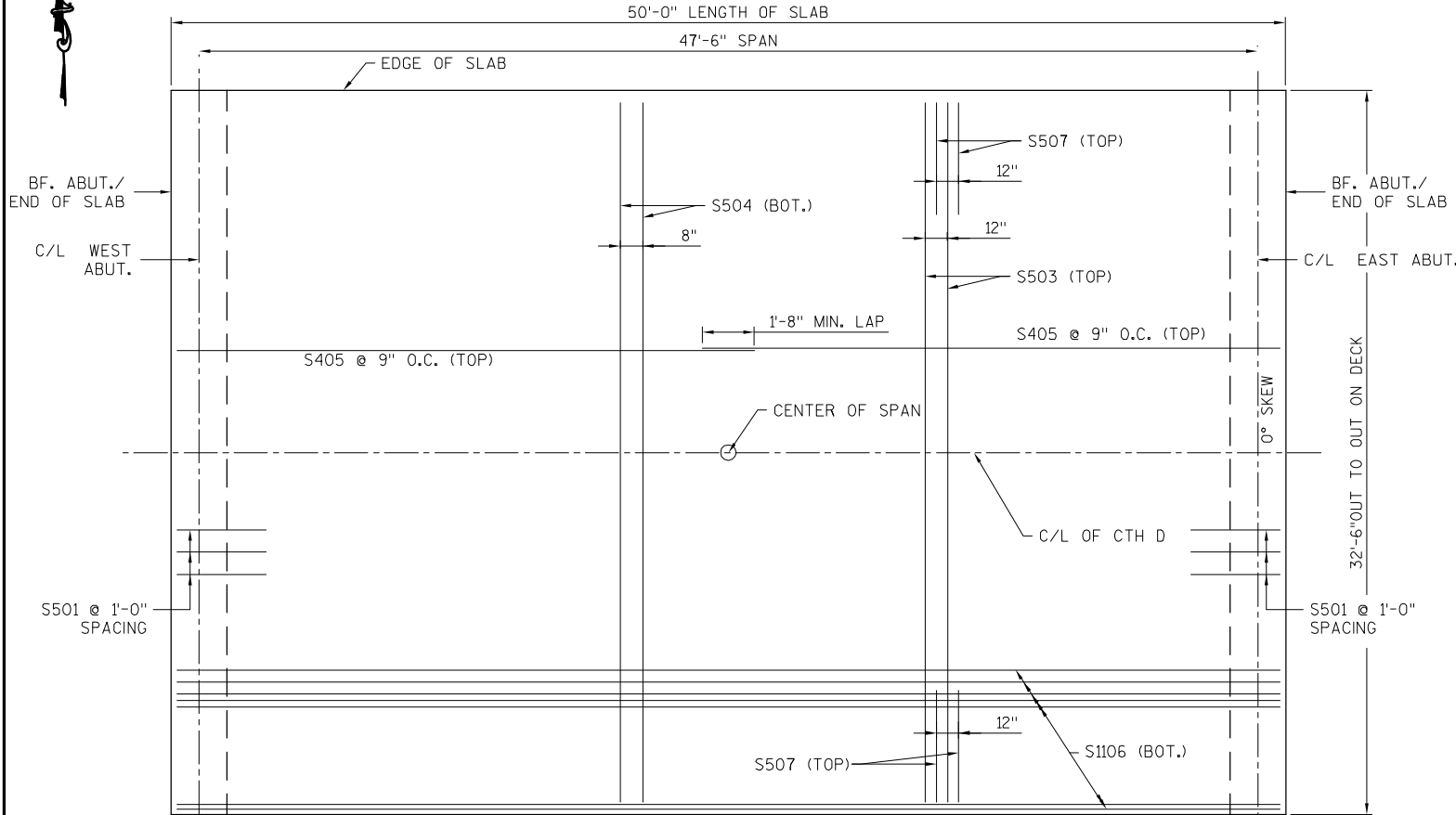
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	LOCATION
S501	X	66	7'-7"	X	DIAPHRAGM @ ABUTS. - LONGIT.
S502	X	4	32'-3"		DIAPHRAGM @ ABUTS. - TRANS.
S503	X	51	32'-3"		SLAB, TOP, TRANSVERSE
S504	X	75	32'-3"		SLAB, BOTTOM, TRANSVERSE
S405	X	88	25'-8"		SLAB, TOP, LONGIT.
S1106	X	69	49'-8"		SLAB, BOTTOM, LONGIT.
S507	X	96	5'-0"		SLAB, TOP, TRANSVERSE

NOTES:
-THE FIRST OR FIRST TWO DIGITS THE OF A BAR MARK SIGNIFIES BAR SIZE.
-DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
-EPOXY COAT ALL SUPERSTRUCTURE BAR STEEL REINFORCEMENT.

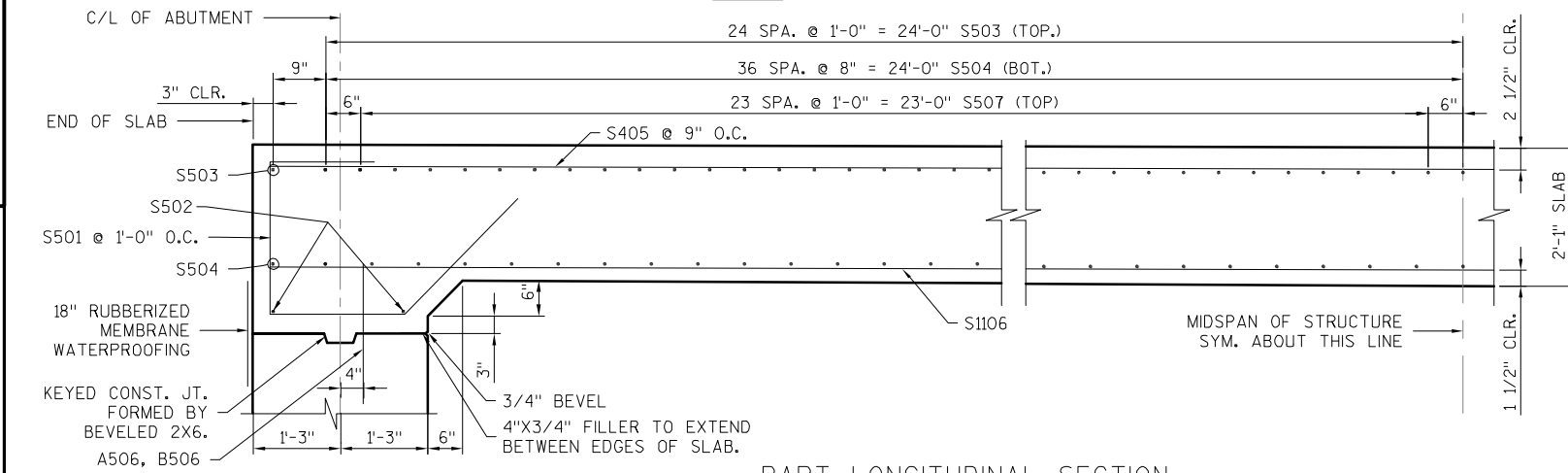
TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:
TOP OF SLAB ELEVATION AT FINAL GRADE
LESS SLAB THICKNESS
PLUS CAMBER
PLUS FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONC. (TO BE COMPUTED BY THE CONTRACTOR)
EQUALS TOP OF SLAB FALSEWORK ELEVATION.

TOP OF DECK ELEVATIONS

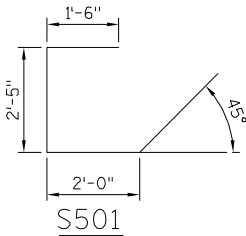
	C/L BRG. W. ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	E BRG. E ABUT.
N. EDGE OF DECK	1064.09	1064.07	1064.04	1064.02	1064.00	1063.98	1063.95	1063.93	1063.91	1063.88	1063.86
CROWN OR C/L	1064.42	1064.40	1064.37	1064.35	1064.33	1064.31	1064.28	1064.26	1064.24	1064.21	1064.19
S. EDGE OF DECK	1064.09	1064.07	1064.04	1064.02	1064.00	1063.98	1063.95	1063.93	1063.91	1063.88	1063.86



PLAN



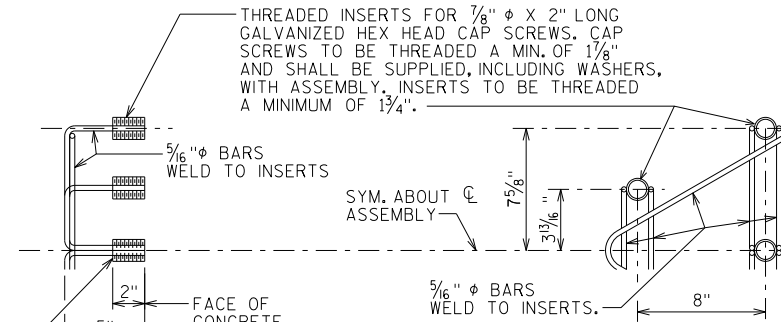
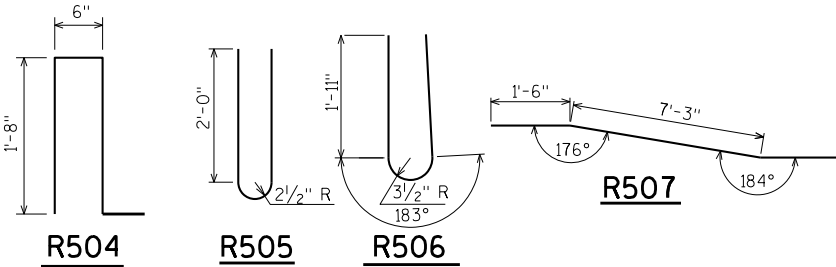
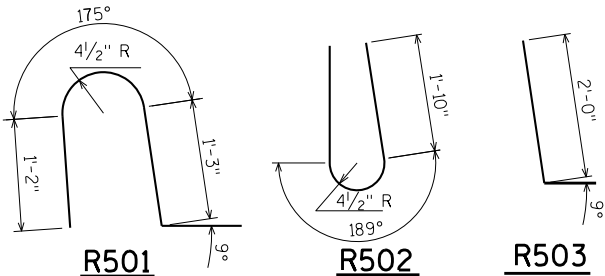
PART LONGITUDINAL SECTION



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-54-0118			
DRAWN BY JMM		PLANS CKD.	
SUPERSTRUCTURE		SHEET 8 OF 9	

BILL OF BARS

BAR MARK	COAT	N. PAR.	S. PAR.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	49	49	4-5	X		PARAPET VERT.
R502	X	49	49	5-0	X		PARAPET VERT.
R503	X	24	24	2-9	X		PARAPET-VERT.
R504	X	34	34	4-4	X		PARAPET-VERT.
R505	X	22	22	4-9	X		PARAPET-VERT.
R506	X	12	12	4-10	X		PARAPET-VERT.
R507	X	2	2	12-3	X		PARAPET-HORIZ.
R508	X	10	10	12-6			PARAPET HORIZ.
R509	X	6	6	28-6			PARAPET HORIZ.



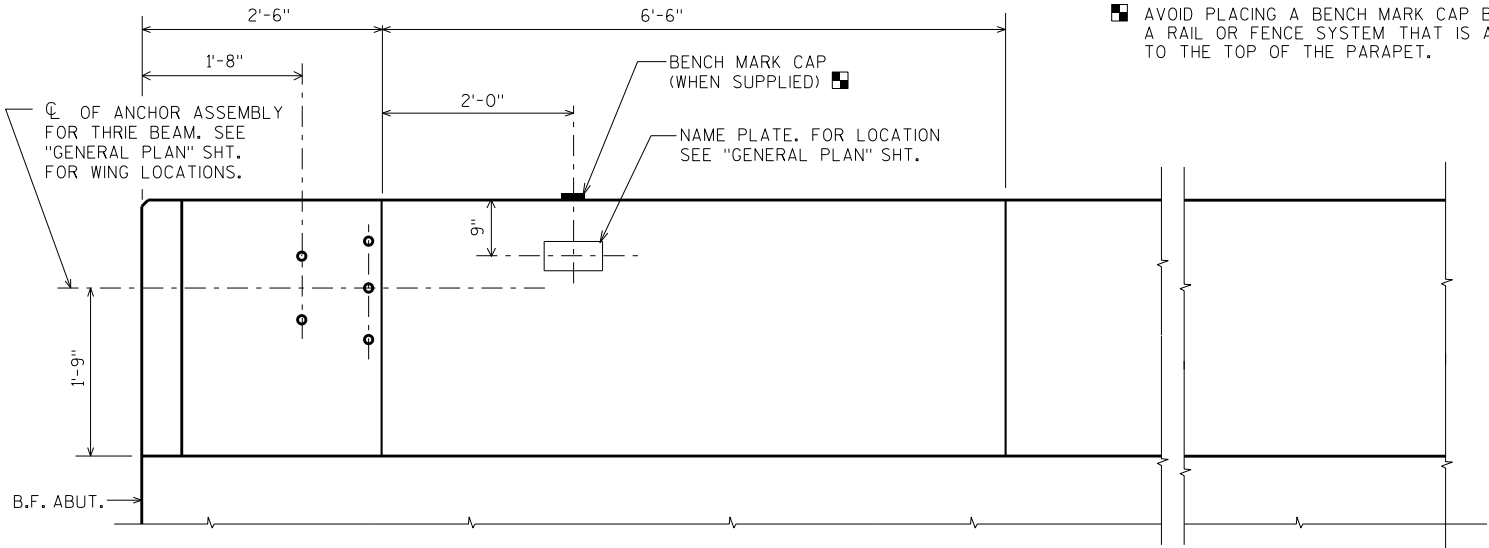
DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

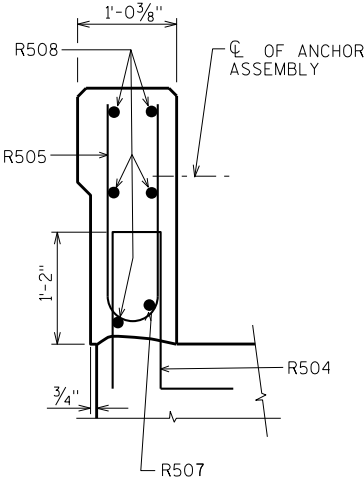
ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-54-0118			
DRAWN BY J.A.F.		PLANS CK'D.	
SINGLE SLOPE PARAPET 32SS			SHEET 9 OF 9

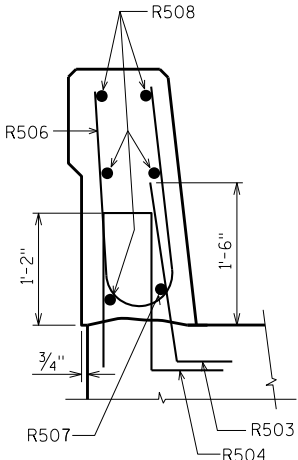
AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.



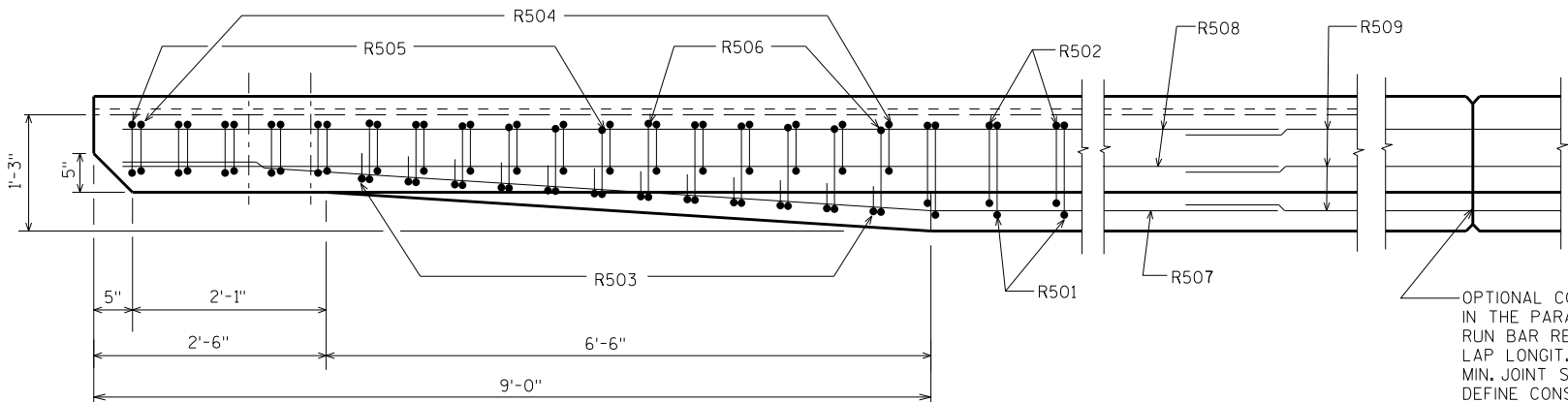
INSIDE ELEVATION



SECTION A

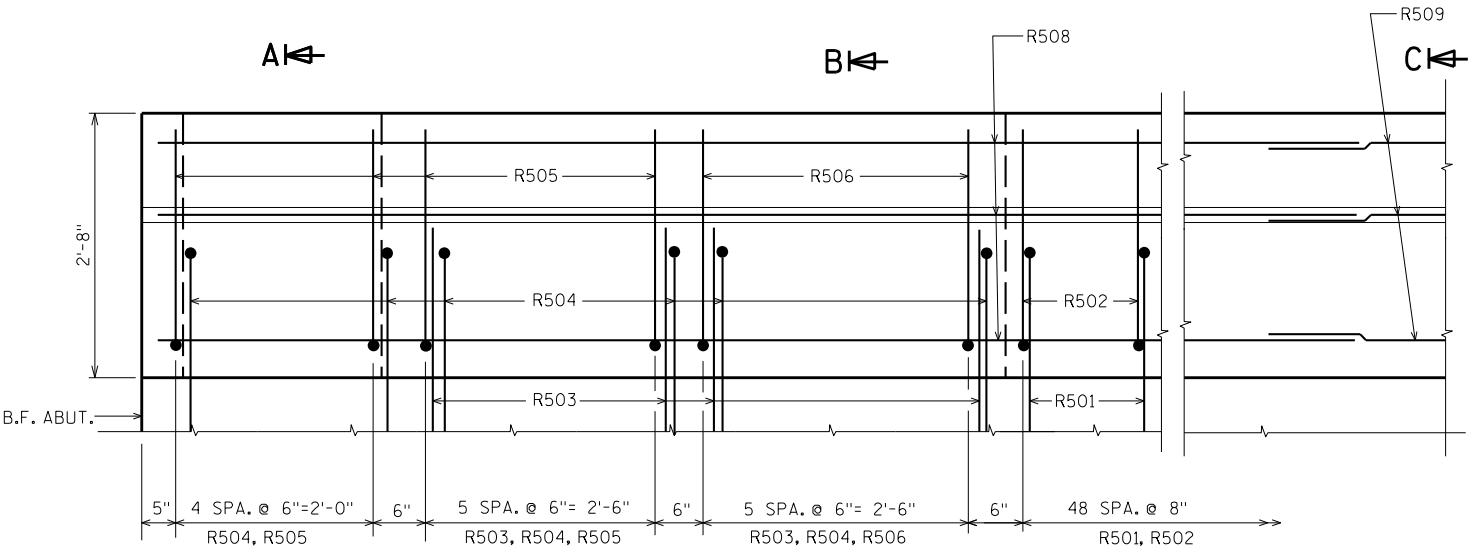


SECTION B

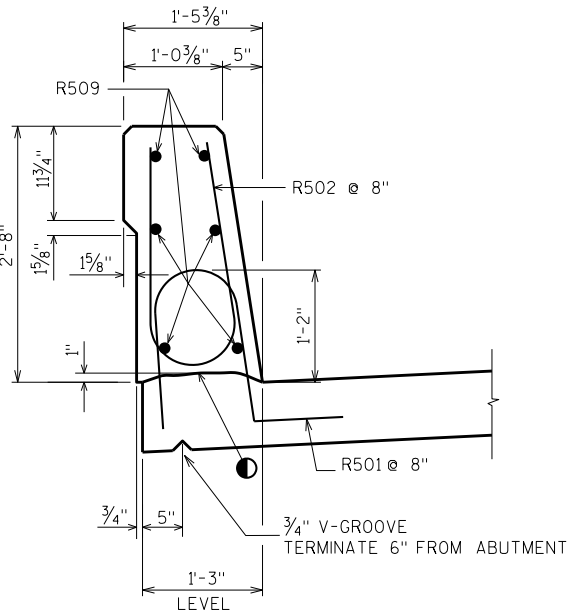


PLAN

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS 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.



OUTSIDE ELEVATION



SECTION C

CONST. JOINT - STRIKE OFF AS SHOWN.

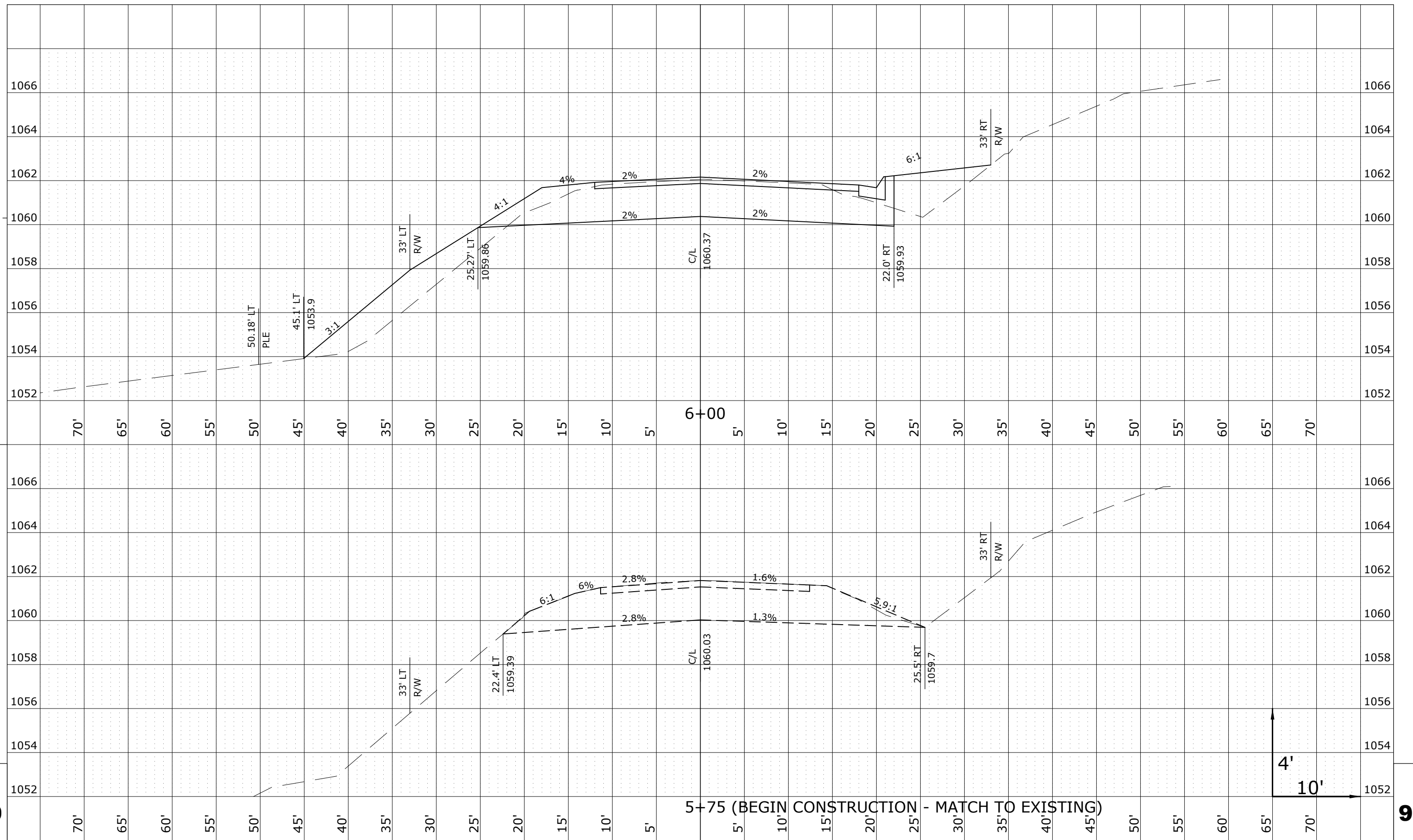
DIVISION 1 - CTH D (STA. 5+75 TO 9+75) EARTHWORK CALCULATIONS										
CATEGORY	REAL DISTANCE (LF)	STATION	CROSS SECTIONAL AREA		INCREMENTAL VOLUME (UNADJUSTED)		CUMULATIVE VOLUME			
			CUT(1) (SF)	FILL(3) (SF)	CUT(1) (CY)	FILL(3) (CY)	CUT (CY)	FILL UNADJ. (CY)	FILL ADJUSTED (CY)	MASS (8) ORDINATE + OR - (CY)
0030	575	5+75	68	0						
0030	600	6+00	64	41	61	19	61	19	24	36
0030	650	6+50	58	11	113	48	174	67	87	87
0030	700	7+00	73	4	121	14	295	81	106	190
0030	750	7+50	115	0	173	4	469	85	111	358
0030	800	8+00	66	14	168	13	636	99	128	508
0010	850	8+50	17	60	77	69	714	168	218	496
0010	900	9+00	0	110	16	158	729	325	423	306
0010	950	9+50	0	238	0	323	729	648	842	-113
0010	975	9+75	44	0	21	110	750	758	986	-236
TOTAL CUT (INPLACE VOLUME) (C.Y.)										750
TOTAL FILL REQUIRED (INPLACE VOLUME) (C.Y.)										758
*SURPLUS MATERIAL TO WASTE ((CUT+EBS) -(FILL*1.3)) =(CY)										-236
* IF VALUE IS NEGATIVE THEN BORROW IS REQUIRED *										

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)	NOTE 4 - SELECT ONE BASED ON INPUT DIALOG SELECTIONS
5 - EXPANDED EBS	WILL BE BACKFILLED WITH GRANULAR BACKFILL (OR CUT OR BORROW)	NOTE 5 - SELECT ONE BASED ON INPUT DIALOG SELECTIONS
6 - REDUCED MARSH IN FILL	REDUCED MARSH EXCAVATION THAT CAN BE USED IN FILL	NOTE 6 - IF EXCAVATED MARSH CAN BE USED IN FILL
7 - REDUCED EBS IN FILL	REDUCED EBS EXCAVATION THAT CAN BE USED IN FILL	NOTE 7 - IF EXCAVATED EBS CAN BE USED IN FILL
8 - MASS ORDINATE	IF MARSH OR EBS TO BE BACKFILLED WITH CUT OR BORROW: 2(CUT + MARSH EXC.+EBS) - ((FILL-REDUCED MARSH IN FILL - REDUCED EBS FILL - EXPANDED ROCK)*FILL FACTOR)3	NOTE 8 -SELECT ONE BASED ON MASS HAUL INPUT DIALOG SELECTION. EBS AND MARSH EXC USED OUTSIDE 1:1 IN FILL SLOPES
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: 2(CUT + MARSH EXC.+EBS) - ((FILL-REDUCED MARSH IN FILL - REDUCED EBS FILL - EXPANDED ROCK)*FILL FACTOR)3	EBS AND MARSH EXC USED OUTSIDE 1:1 IN FILL SLOPES
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: 2(CUT) - ((FILL - EXPANDED ROCK)*FILL FACTOR)3	MARSH AND EBS ARE NOT USABLE OUTSIDE 1:1 SLOPES
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH CUT OR BORROW: 2(CUT) - ((FILL - EXPANDED ROCK)*FILL FACTOR)3	MARSH AND EBS ARE NOT USABLE OUTSIDE 1:1 SLOPES

DIVISION 2 - CTH D (STA. 10+25 TO 12+25) EARTHWORK CALCULATIONS									
REAL DISTANCE (LF)	STATION	CROSS SECTIONAL AREA		INCREMENTAL VOLUME (UNADJUSTED)		CUMULATIVE VOLUME			
		CUT(1) (SF)	FILL(3) (SF)	CUT(1) (CY)	FILL(3) (CY)	CUT (CY)	FILL UNADJ. (CY)	FILL ADJUSTED (CY)	MASS (8) ORDINATE + OR - (CY)
1025	10+25	65	0						
1050	10+50	0	168	30	78	30	78	101	-71
1100	11+00	40	32	37	186	67	263	343	-275
1150	11+50	58	48	91	75	158	338	439	-282
1162	11+62	69	40	28	20	186	358	465	-279
1200	12+00	76	39	102	56	288	413	537	-249
1225	12+25	67	0	66	18	354	431	561	-206
TOTAL CUT (INPLACE VOLUME) (C.Y.)									354
TOTAL FILL REQUIRED (INPLACE VOLUME) (C.Y.)									431
*SURPLUS MATERIAL TO WASTE ((CUT+EBS) -(FILL*1.3)) =(CY)									-206
* IF VALUE IS NEGATIVE THEN BORROW IS REQUIRED *									

TEN MILE RD. (STA 21+85 TO 22+50) EARTHWORK CALCULATIONS									
REAL DISTANCE (LF)	STATION	CROSS SECTIONAL AREA		INCREMENTAL VOLUME (UNADJUSTED)		CUMULATIVE VOLUME			
		CUT(1) (SF)	FILL(3) (SF)	CUT(1) (CY)	FILL(3) (CY)	CUT (CY)	FILL UNADJ. (CY)	FILL ADJUSTED (CY)	MASS (8) ORDINATE + OR - (CY)
2185	21+85	62	0						
2200	22+00	65	6	35	2	35	2	2	33
2234	22+34	59	10	78	10	113	12	15	98
2250	22+50	52	0	33	3	146	15	19	127
TOTAL CUT (INPLACE VOLUME) (C.Y.)									146
TOTAL FILL REQUIRED (INPLACE VOLUME) (C.Y.)									15
*SURPLUS MATERIAL TO WASTE ((CUT+EBS) -(FILL*1.3)) =(CY)									127
* IF VALUE IS NEGATIVE THEN BORROW IS REQUIRED *									

NOTE:
ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEER ESTIMATE CATEGORY 0010, UNLESS OTHERWISE NOTED. CATEGORY 0030 INDICATES NON-PARTICIPATING ITEM AND QUANTITY.



PROJECT NO:8798-00-70

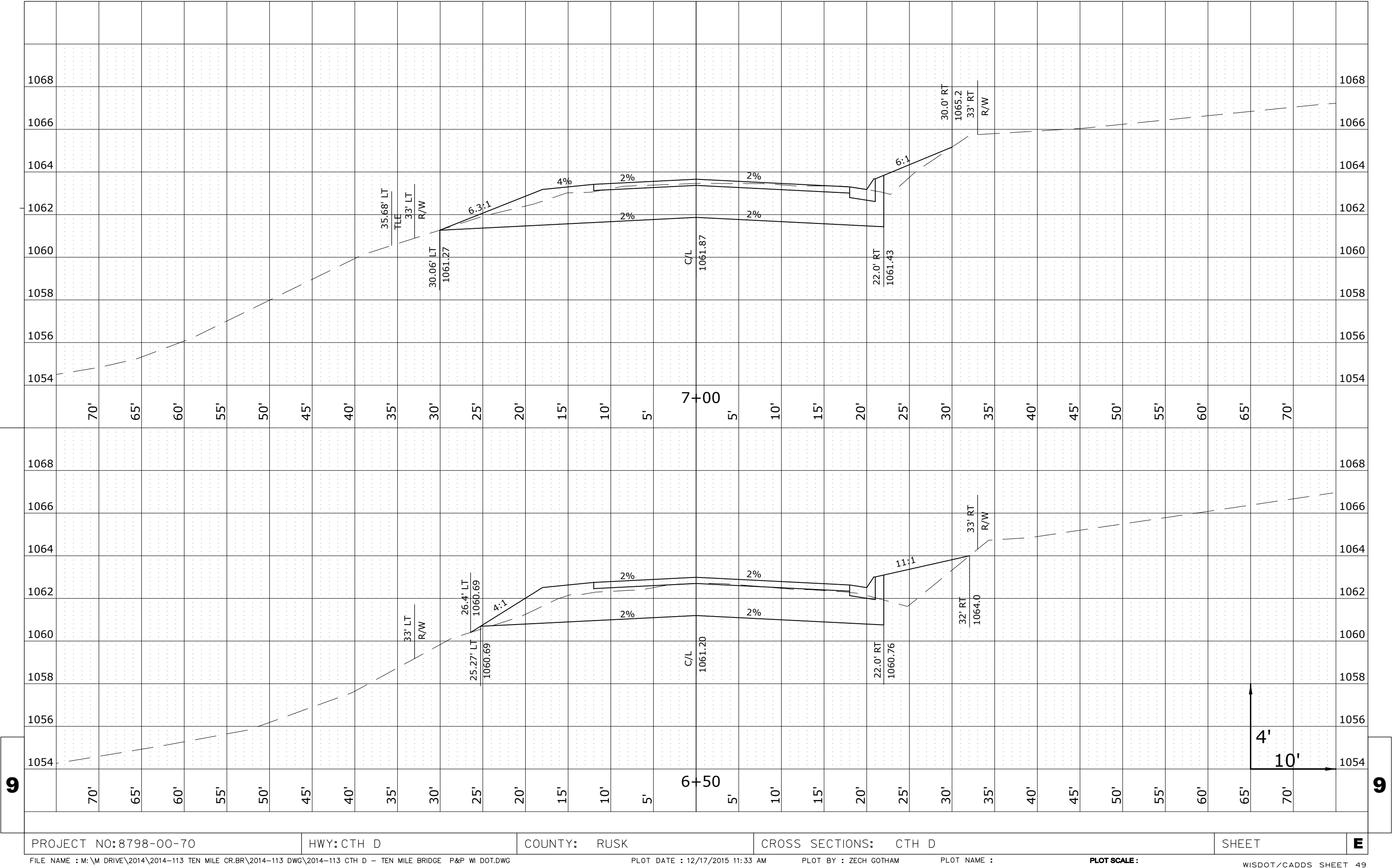
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COUNTY: RUSK

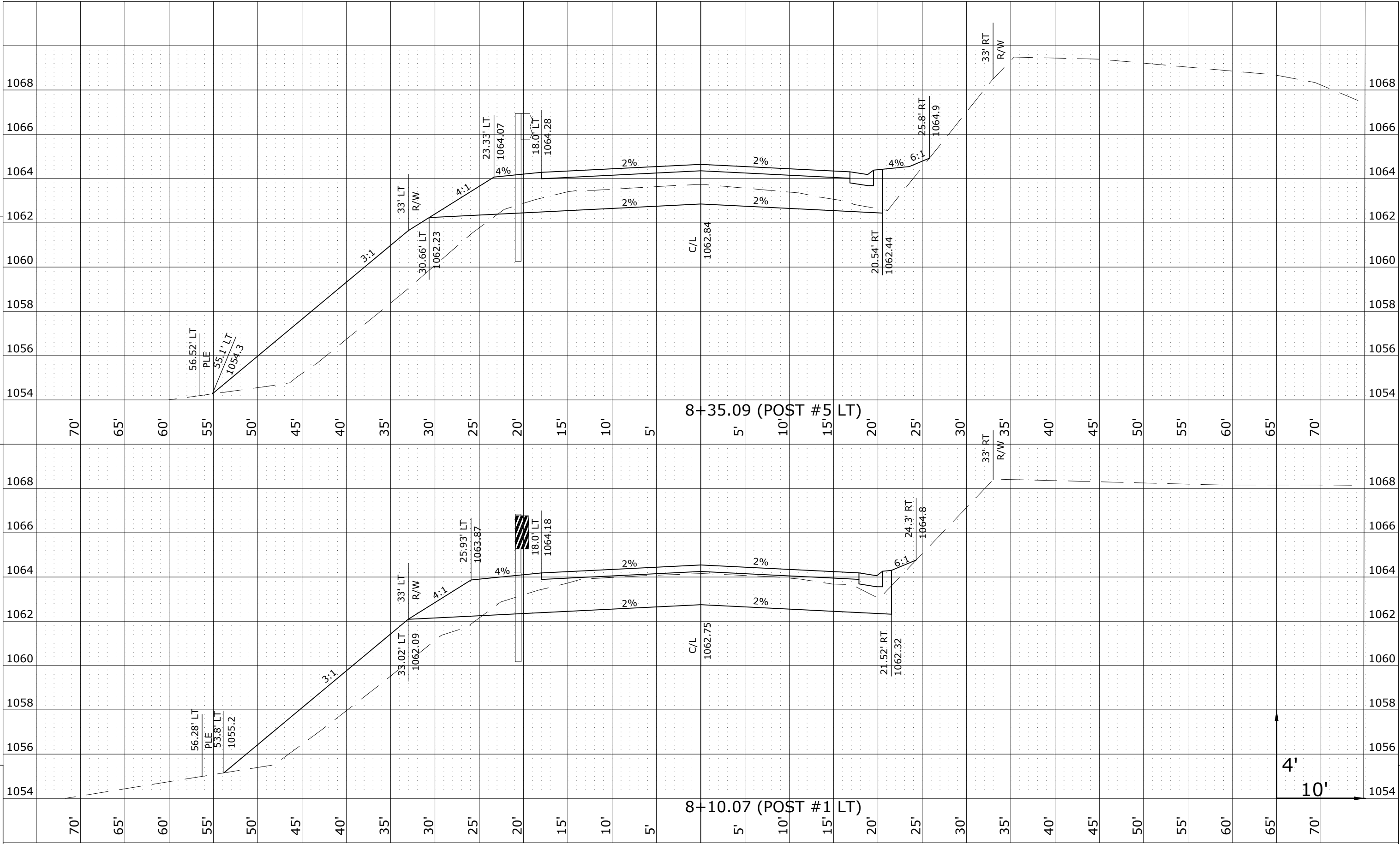
CROSS SECTIONS:	CTH D
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SHEET

3

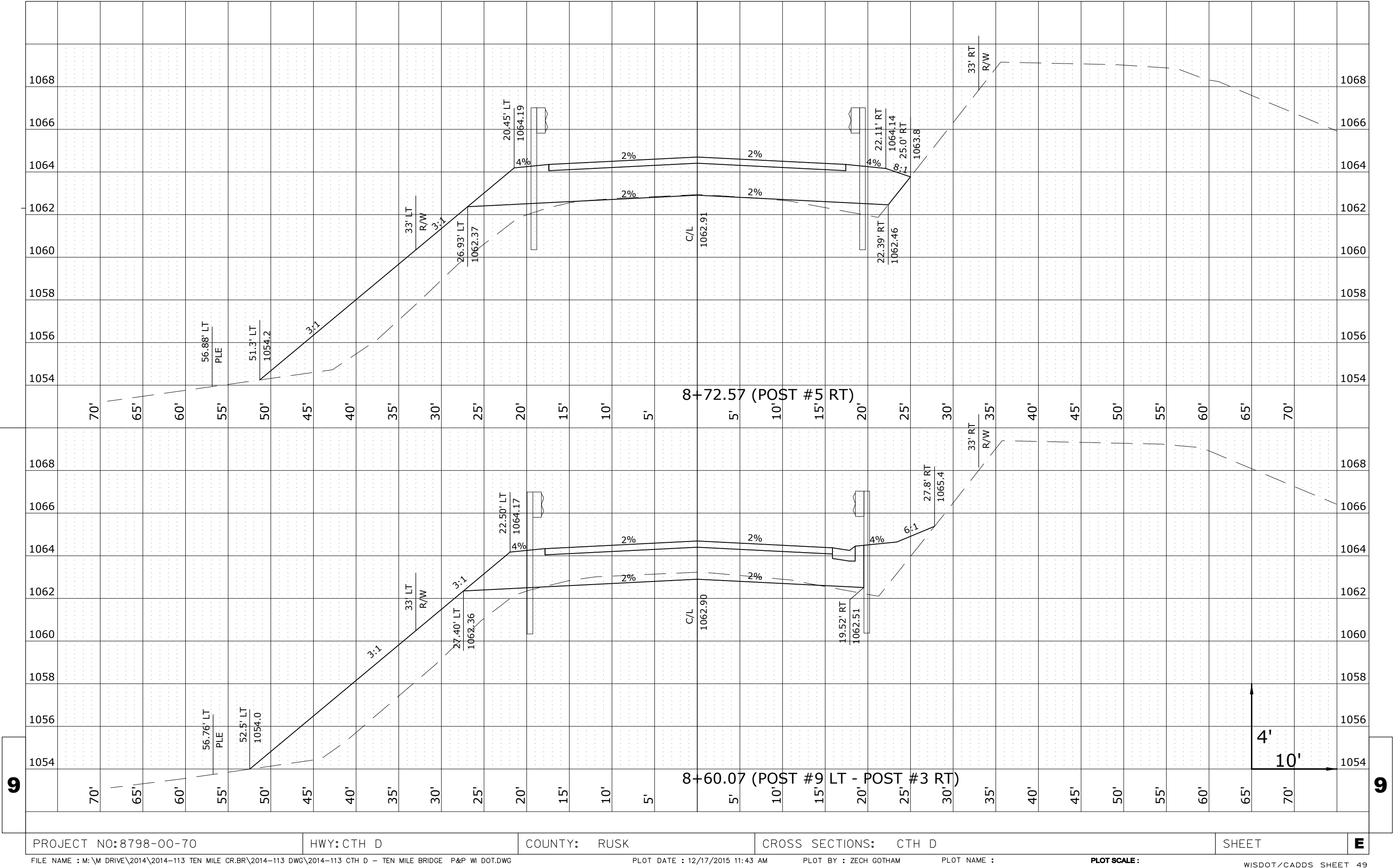


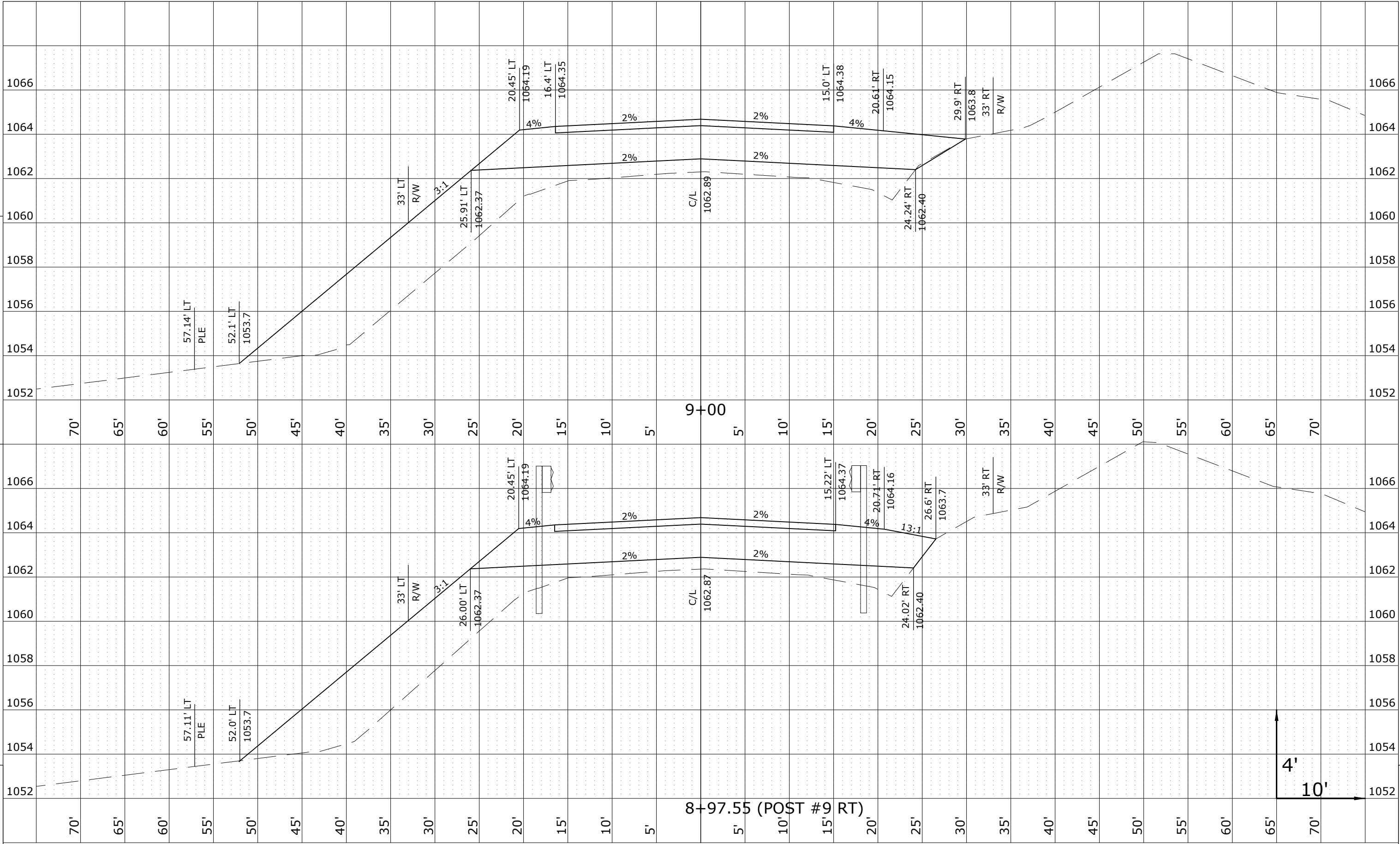
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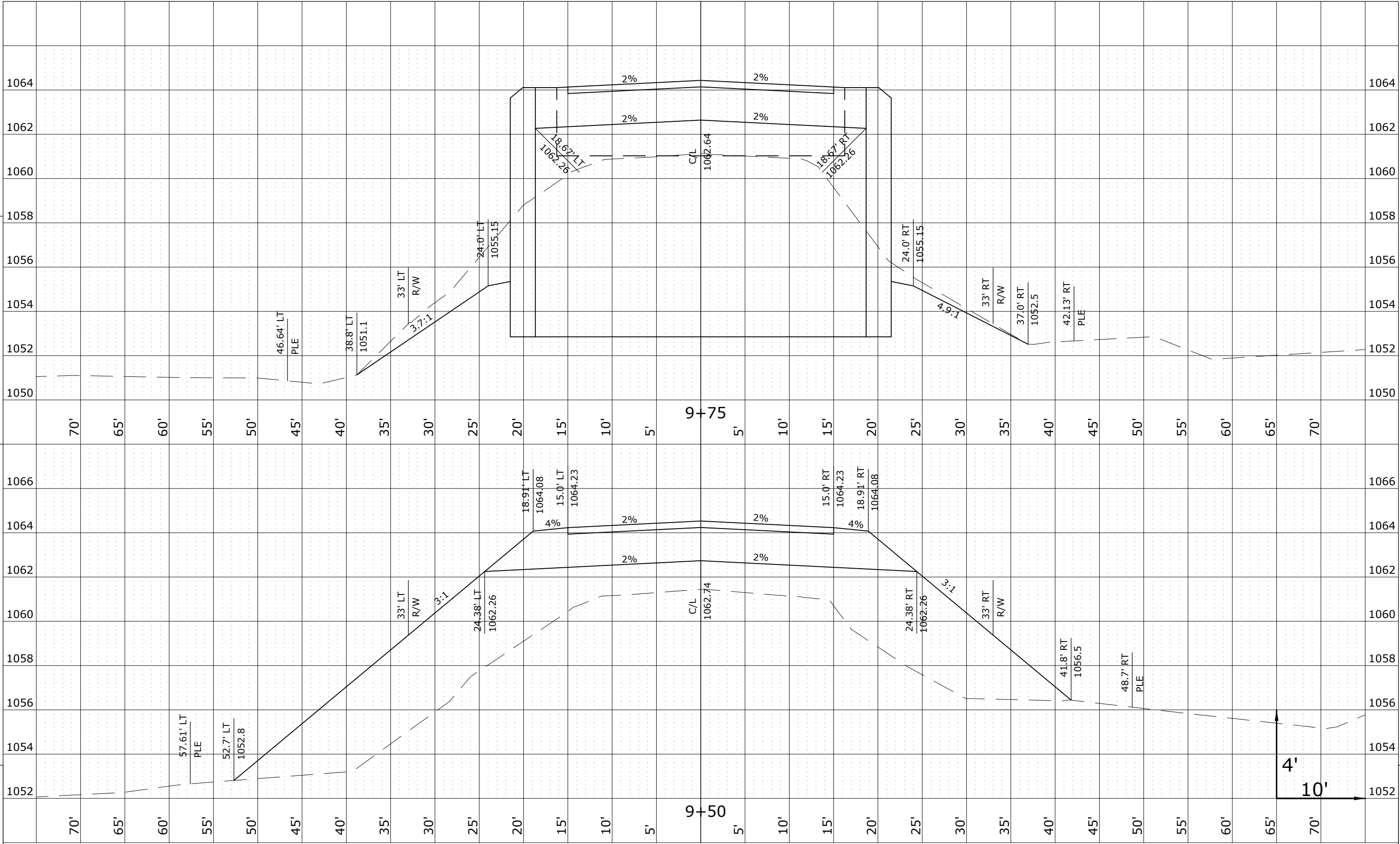
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PROJECT NO: 8798-00-70	HWY: CTH D	COUNTY: RUSK	CROSS SECTIONS: CTH D	SHEET	E
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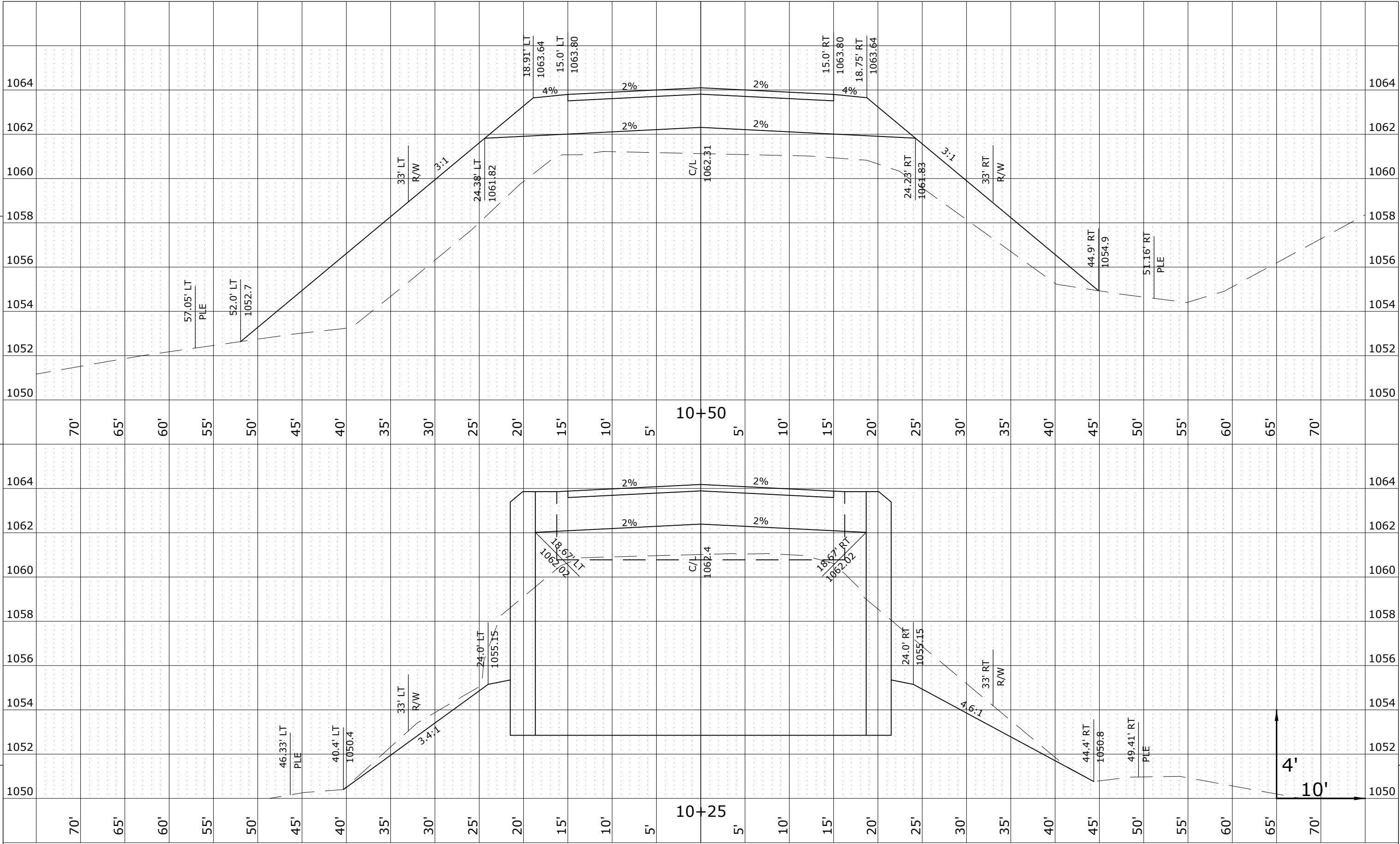


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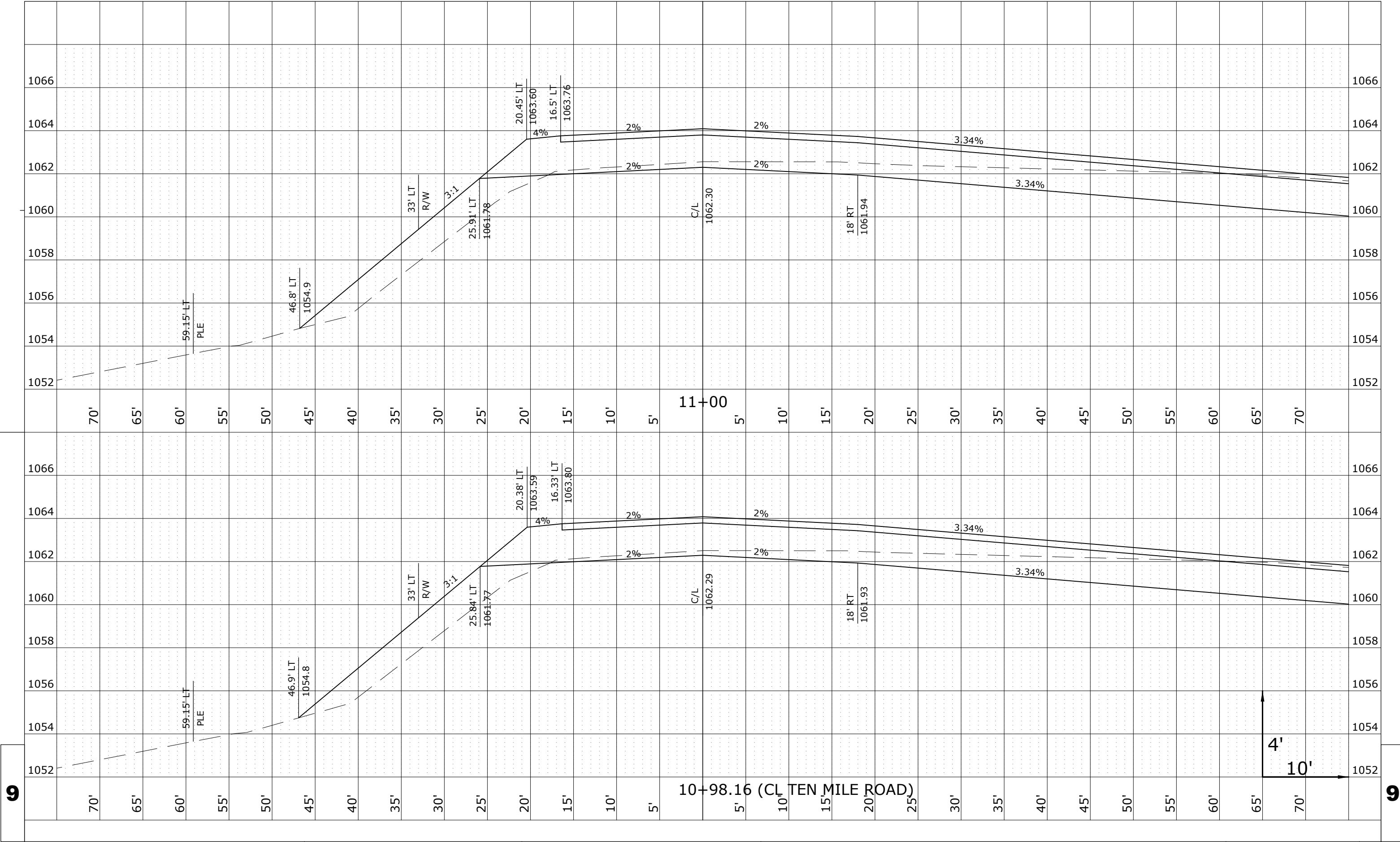
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9

PROJECT NO: 8798-00-70	HWY: CTH D	COUNTY: RUSK	CROSS SECTIONS: CTH D	SHEET	E
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PROJECT NO: 8798-00-70

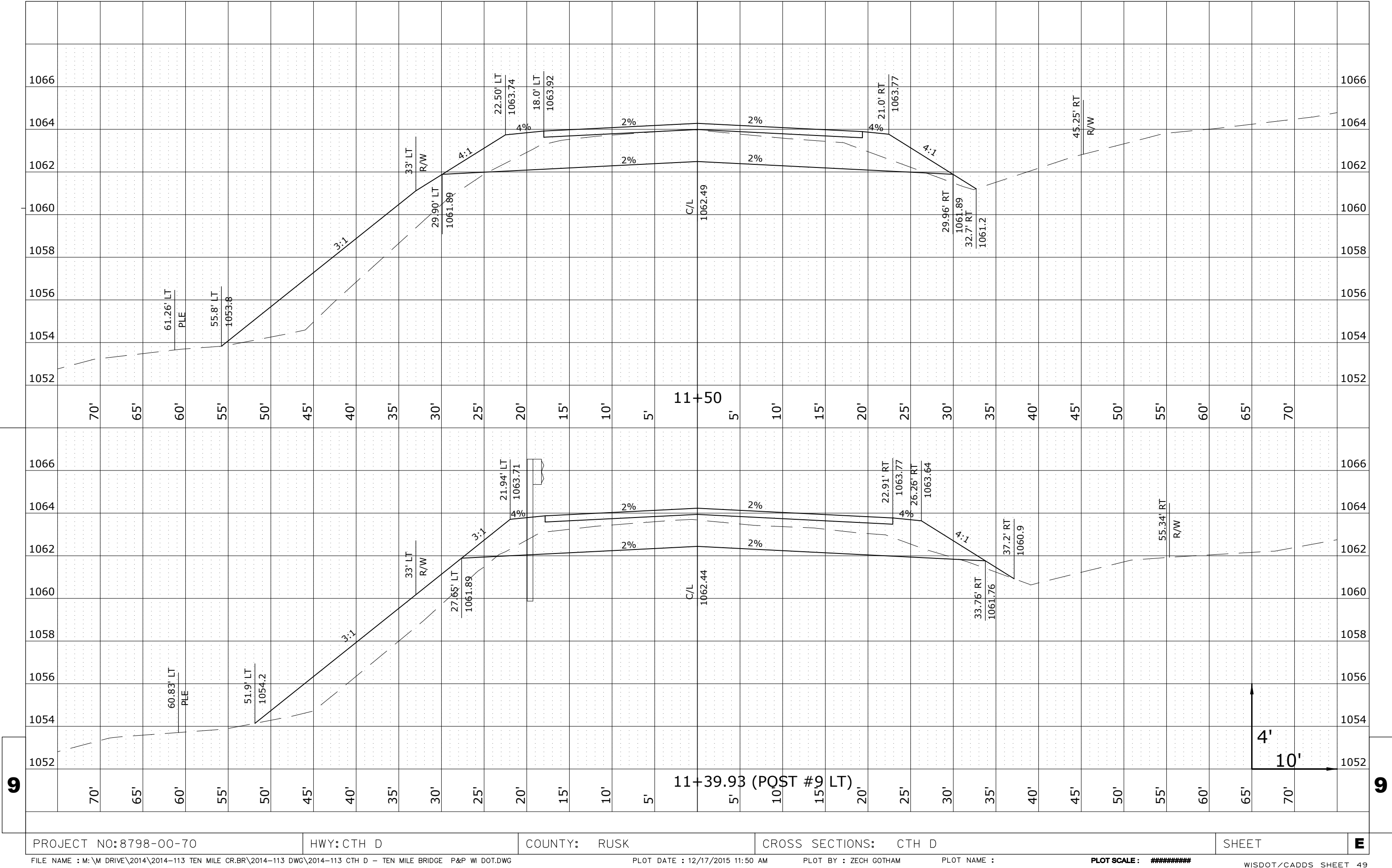
HWY: CTH D

COUNTY: RUSK

CROSS SECTIONS: CTH D

SHEET

E



PROJECT NO: 8798-00-70

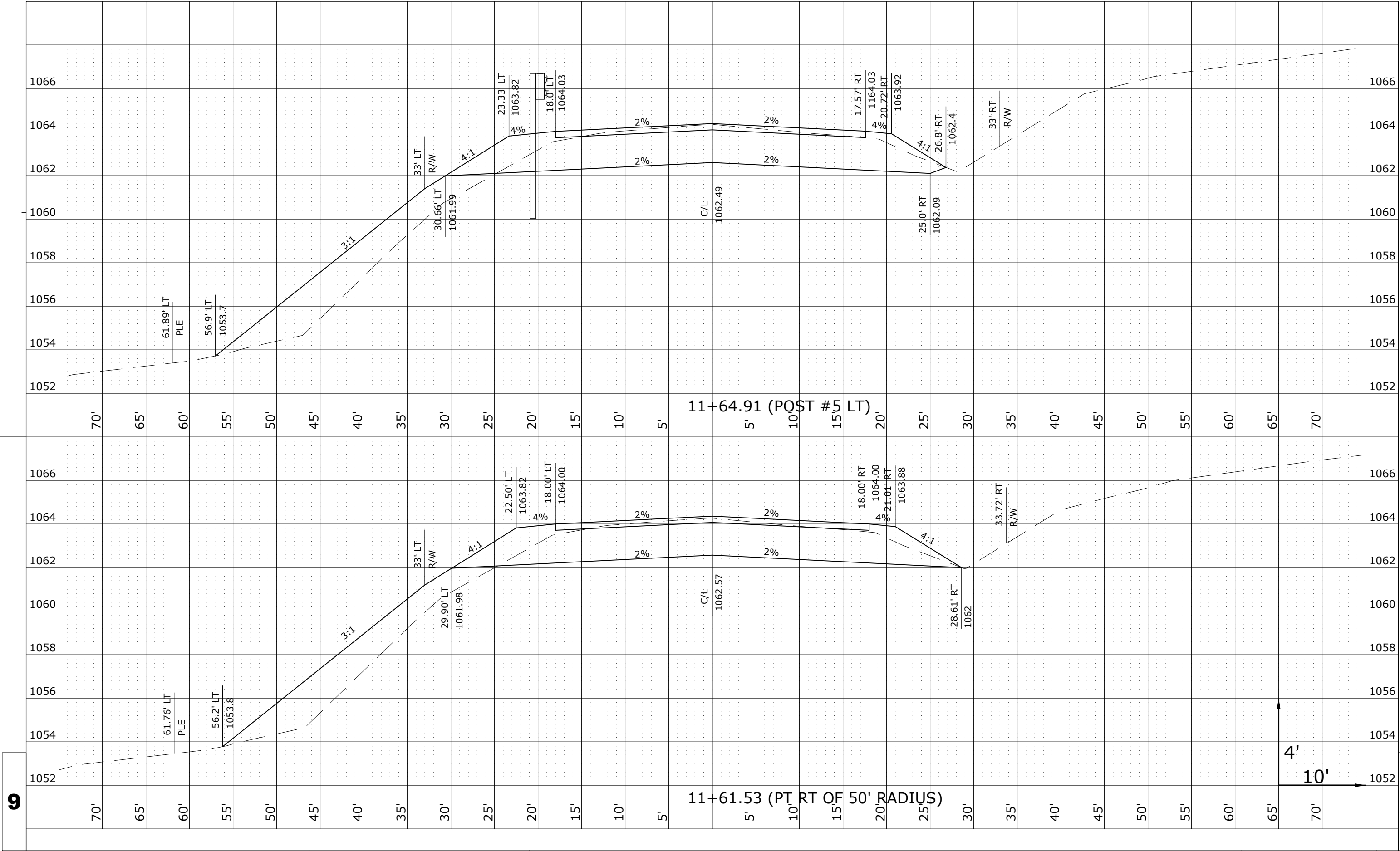
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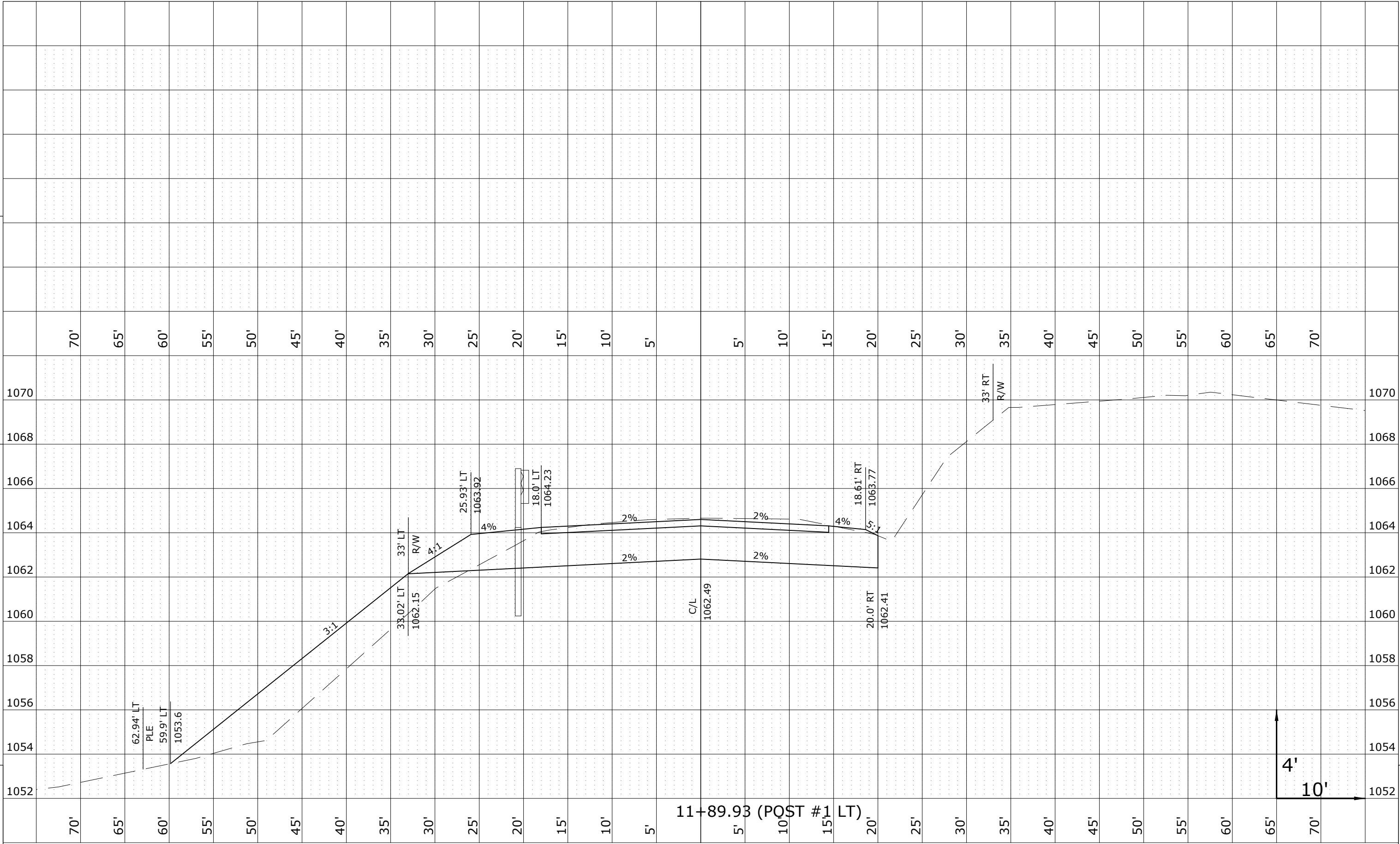
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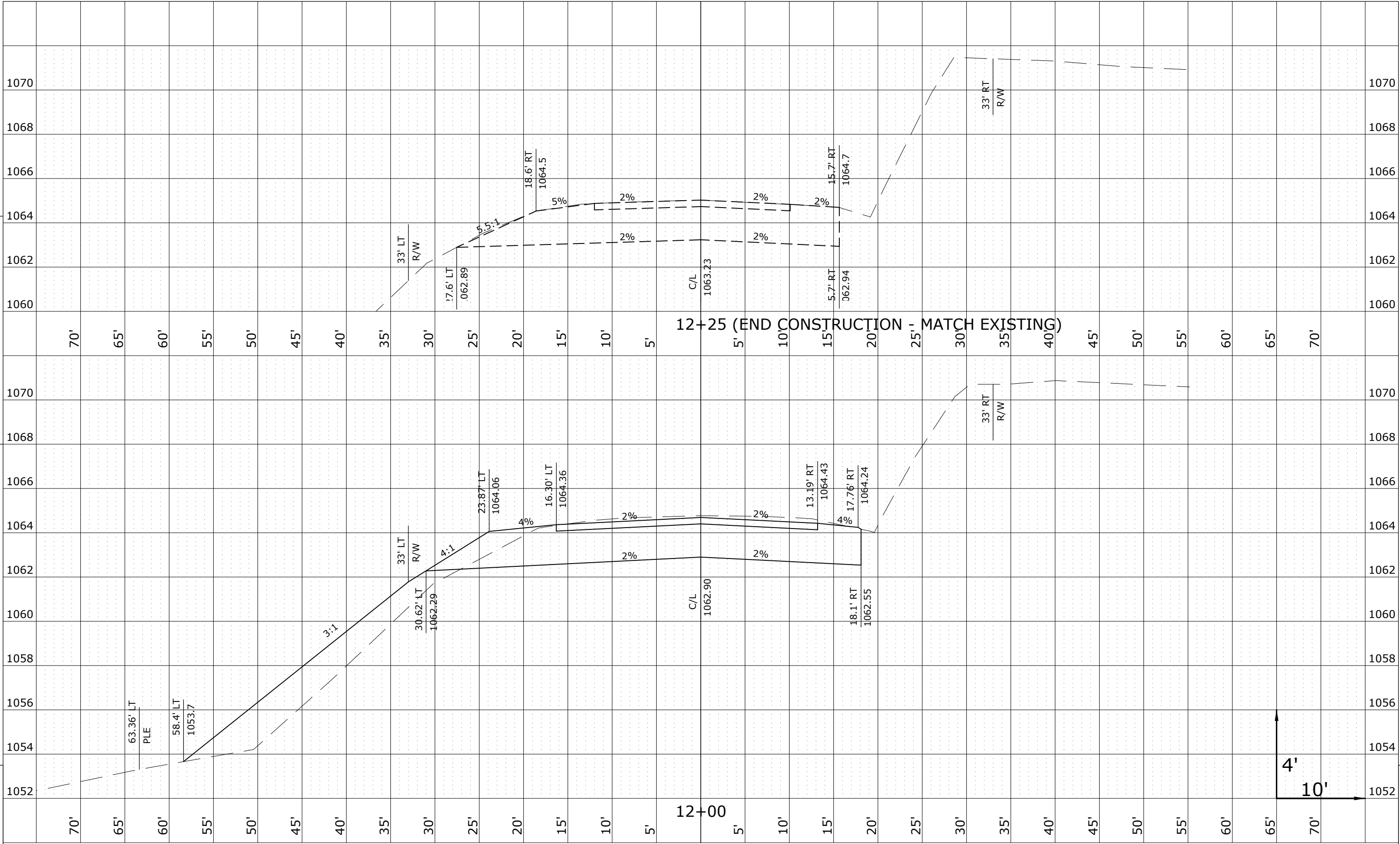
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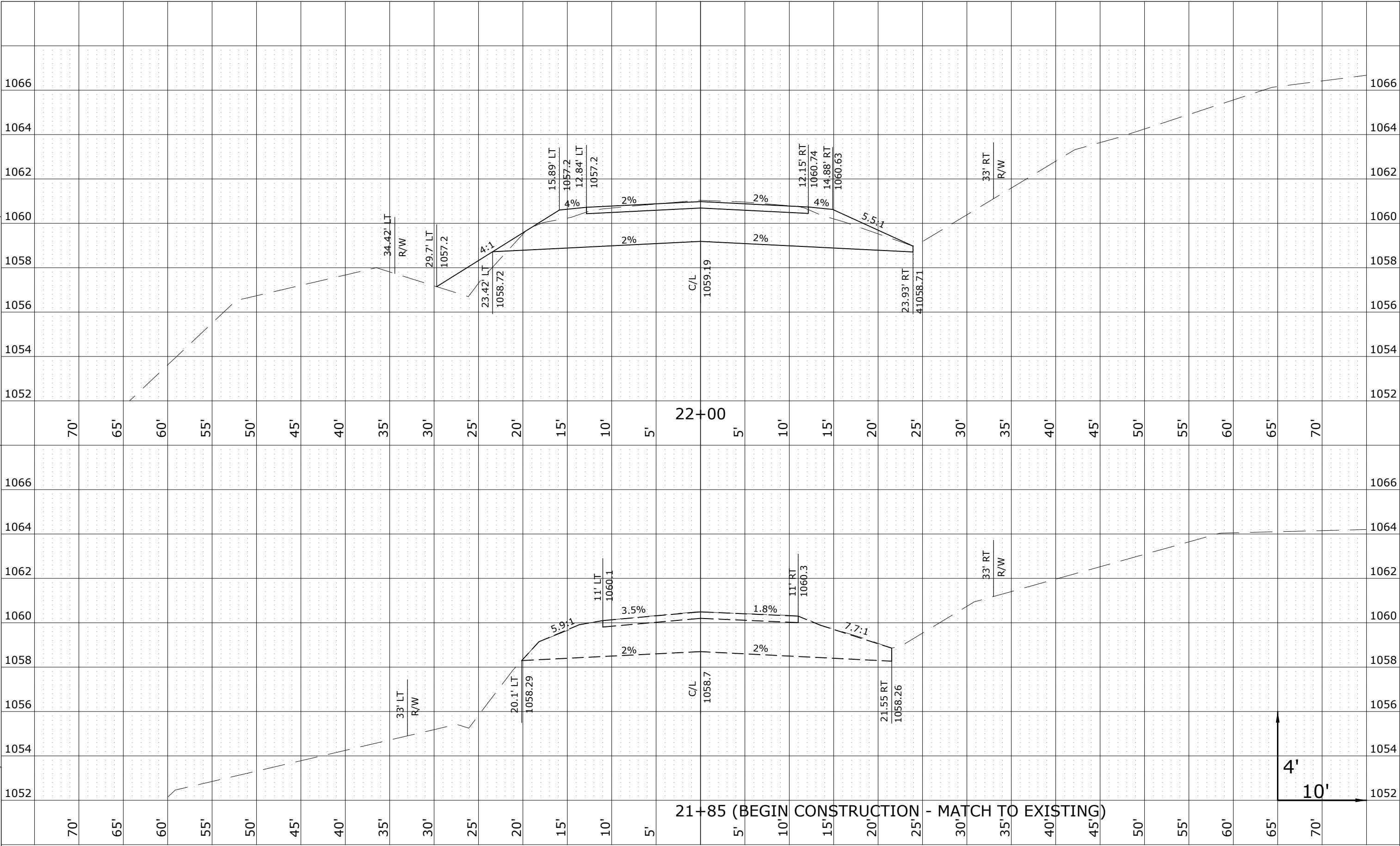
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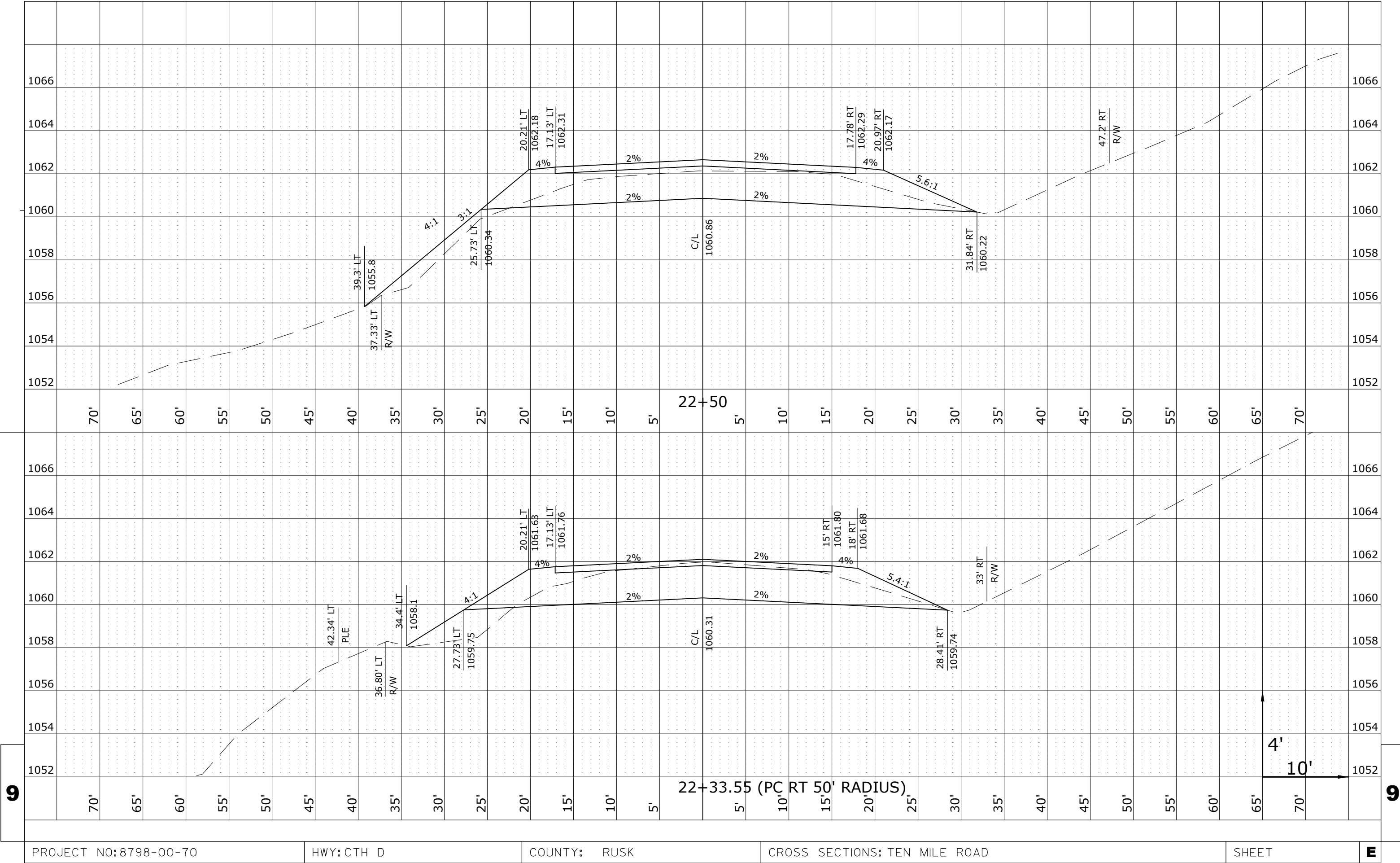
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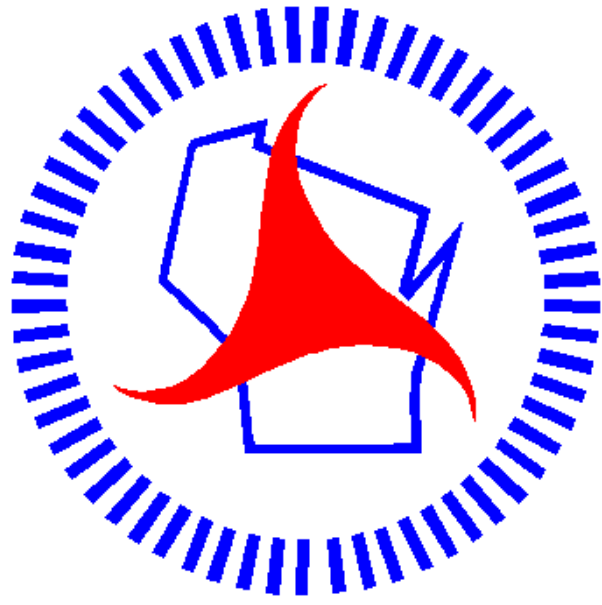








9																																	9			
	PROJECT NO:8798-00-70								HWY:CTH D								COUNTY: RUSK								CROSS SECTIONS: TEN MILE ROAD									SHEET		



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