

JUNE 2022
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	Gross Sections

TOTAL SHEETS = 58



15

DESIGN DESIGNATION

A.A.D.T.	2018	=	1,100
A.A.D.T.	2042	=	1,100
D.H.V.		=	
D.D.		=	
T.		=	9.7%
DESIGN SPEED		=	60 MPH
ESALS		=	160,000

NET EXCEPTION TO CL LENGTH
STA 170+29.92 - STA 171+20
B-57-011

BEGIN PROJECT
STA 1+58.88
Y= 453136.7759
X= 611255.9074

END PROJECT
STA 382+99.05

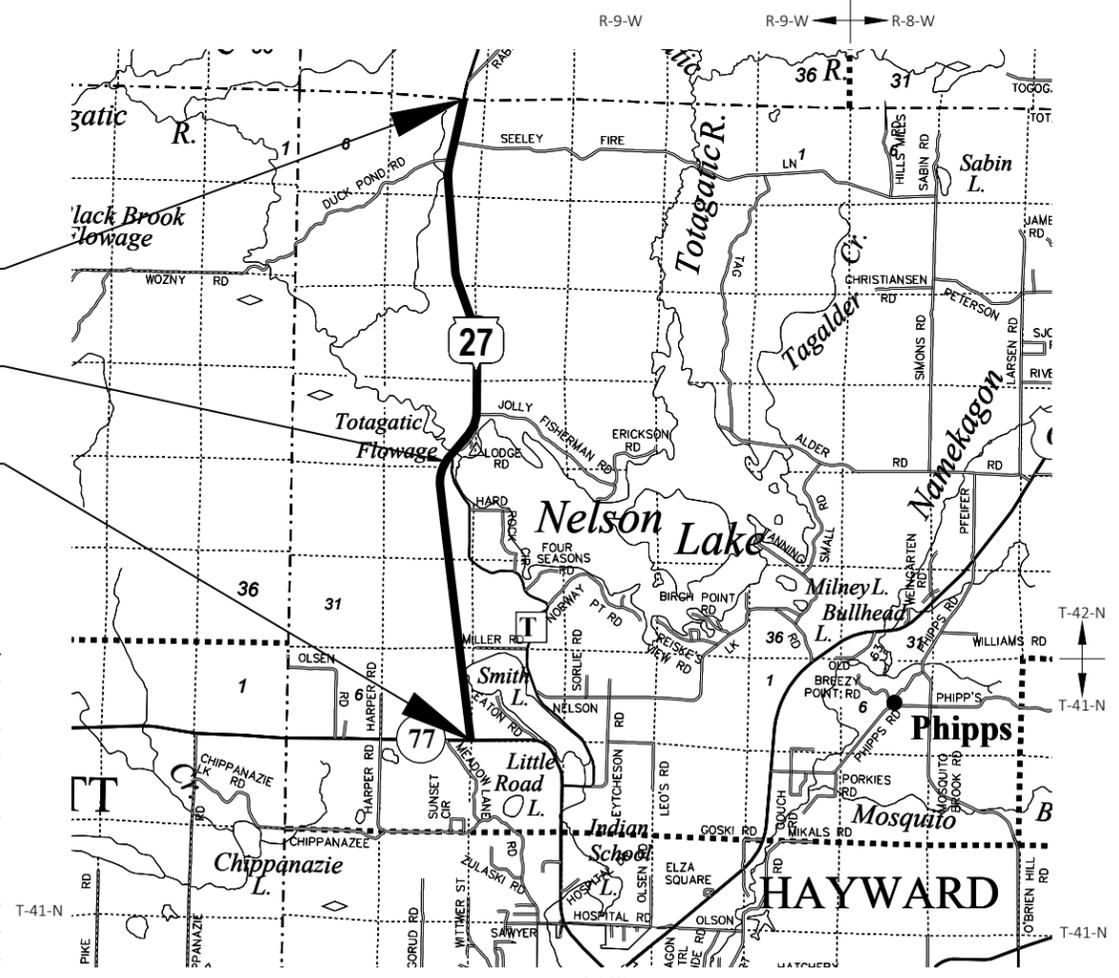
CONVENTIONAL SYMBOLS

PLAN
CORPORATE LIMITS
PROPERTY LINE
LOT LINE
LIMITED HIGHWAY EASEMENT
EXISTING RIGHT OF WAY
PROPOSED OR NEW R/W LINE
SLOPE INTERCEPT
REFERENCE LINE
EXISTING CULVERT
PROPOSED CULVERT (Box or Pipe)
COMBUSTIBLE FLUIDS
MARSH AREA
WOODED OR SHRUB AREA

PROFILE
GRADE LINE
ORIGINAL GROUND
MARSH OR ROCK PROFILE (To be noted as such)
SPECIAL DITCH
GRADE ELEVATION
CULVERT (Profile View)
UTILITIES
ELECTRIC
FIBER OPTIC
GAS
SANITARY SEWER
STORM SEWER
TELEPHONE
WATER
UTILITY PEDESTAL
POWER POLE
TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
HAYWARD - BRULE
STH 77 W TO SAWYER / BAYFIELD CO LN
STH 27
SAWYER COUNTY

STATE PROJECT NUMBER
8150-00-71



LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 7.206 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), SAWYER COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8150-00-71	WISC 2022464	1

ORIGINAL PLANS PREPARED BY

DATE: 7/30/2021

Tammy Tucker

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	CBS SQUARED, INC.
Designer	CBS SQUARED, INC.
Project Manager	DOUG CAIN
Regional Examiner	TOU YANG
Regional Supervisor	BENEDICT ERUCHALU

APPROVED FOR THE DEPARTMENT

DATE: 07/30/2021

Douglas & Co
(Signature)

GENERAL NOTES

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

ALL DISTURBED AREAS WITHIN THE RIGHT OF WAY THAT ARE NOT INCIDENTAL TO CONTRACT WORK ITEMS SHALL BE FERTILIZED SEEDED AND MULCHED AT THE CONTRACTORS EXPENSE.

EXACT LOCATION OF ALL DRIVEWAY ENTRANCES TO BE REVIEWED AND APPROVED BY THE ENGINEER.

THE LOCATION 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 LOCATION OF EXISTING CROSS CULVERTS AS SHOWN ON THE PLAN SHEETS ARE BASED ON AS-BUILTS (ID 8150-14-71) AND HAVE NOT BEEN FIELD VERIFIED.

TACK COAT HAS BEEN ESTIMATED AT AN APPLICATION OF 0.07 GAL./S.Y. AND SHALL BE PLACED BETWEEN ALL LAYERS OF ASPHALTIC PAVEMENT

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN.

THE ALIGNMENT IN THIS PLAN IS BASED ON FIELD SURVEY AND AS BUILTS (ID 8150-14-71).

THE CONTRACTOR IS TO WORK WITH UTMOST CARE AND PROTECT ALL SURVEY MARKERS. SURVEY MARKERS SHALL NOT BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

THE CENTERLINE AS SHOWN IN THE PLANS MAY REQUIRE ADJUSTMENT TO MATCH FIELD CONDITIONS. ANY ADJUSTMENTS SHALL BE INCIDENTAL TO OTHER ITEMS IN THE CONTRACT.

EXISTING SUPERELEVATION RATES AS SHOWN IN THE PLANS REPRESENT THE APPROXIMATE EXISTING RATES. WHERE NO PROPOSED SUPERELEVATION RATE IS SHOWN, THE EXISTING SUPERELEVATION RATE SHALL BE MAINTAINED.

ORDER OF SECTION 2 SHEETS

- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- TRAFFIC CONTROL AND CONSTRUCTION STAGING

STANDARD ABBREVIATIONS

AP	ACCESS POINT	INTERS	INTERSECTION
AC	ACRE	INV	INVERT
AGG	AGGREGATE	JT	JOINT
ASPH	ASPHALTIC	LT	LEFT
BL	BASELINE	LF	LINEAR FOOT
BM	BENCH MARK	MH	MANHOLE
CB	CATCH BASIN	MP	MARKER POST
CL	CENTER LINE	MB	MESSAGE BOARD
CONC	CONCRETE	NOM	NOMINAL
CO	COUNTY	NB	NORTHBOUND
CABC	CRUSHED AGGREGATE BASE COURSE	PAVT	PAVEMENT
CY	CUBIC YARD	PERM	PERMENANT
CULV	CULVERT	PU	PIPE UNDERDRAIN
CP	CULVERT PIPE	PCC	PORTLAND CEMENT CONCRETE
CPCS	CULVERT PIPE CORRUGATED STEEL	PE	PRIVATE ENTRANCE
CPRC	CULVERT PIPE REINFORCED CONCRETE	PROJ	PROJECT
C&G	CURB AND GUTTER	PL	PROPERTY LINE
DIA	DIAMETER	RL	REFERENCE LINE
DWY	DRIVEWAY	RT	RIGHT
EB	EASTBOUND	R/W	RIGHT OF WAY
ELEV	ELEVATION	RDWY	ROADWAY
EW	ENDWALL	SHLDR	SHOULDER
ENT	ENTRANCE	SB	SOUTHBOUND
EXC	EXCAVATION	SS	STORM SEWER
FP	FENCE POST	TEL	TELEPHONE
FERT	FERTILIZE	TEMP	TEMPORARY
F	FILL	TER	TERRACE
FG	FINISHED GRADE	TV	TELEVISION
FL	FLOW LINE	UG	UNDERGROUND
FO	FIBER OPTIC	VOL	VOLUME
FT	FOOT	W	WATER
HYD	HYDRANT	WB	WESTBOUND
INL	INLET		

UTILITIES

COMMUNICATIONS

CENTURYLINK
 KYLE SCHLAMPP
 20 S WILSON AVE
 RICE LAKE, WI 54868
 (715) 475-2029
 KYLE.SCHLAMPP@LUMEN.COM

COMMUNICATIONS

NORVADO
 GUY FOLSOM
 43705 USH 63
 CABLE, WI 54821-0067
 (715) 798-7123
 GFOLSOM@NORVADO.COM

COMMUNICATIONS

CHARTER COMMUNICATIONS
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 RICE LAKE, WI 54868
 (715) 719-0561
 JAMEY.OLDEEN@CHARTER.COM

ELECTRICITY

XCEL ENERGY
 MURRAY SMERER
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 P.O. BOX 8
 EAU CLAIRE, WI 54702-0008
 (715) 682-6928
 MURRAY.J.SMERER@XCELENERGY.COM

OTHER CONTACTS

DESIGN CONTACT

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 TTUCKER@CBSSQUAREDINC.COM

WISCONSIN DNR CONTACT

NORTHERN REGION
 SHAWN HASELEU
 810 W MAPLE ST
 SPOONER, WI 54801
 (715) 635-4228
 SHAWN.HASELEU@WISCONSIN.GOV

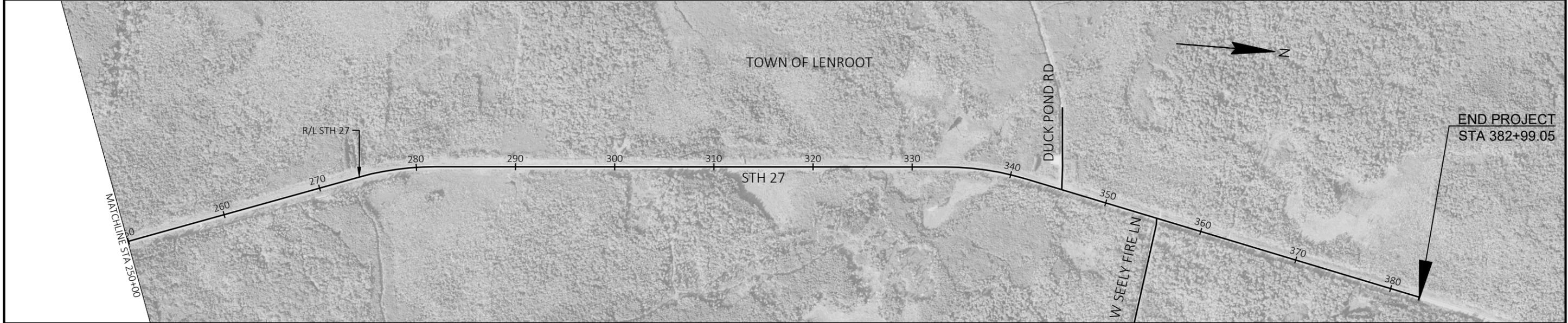
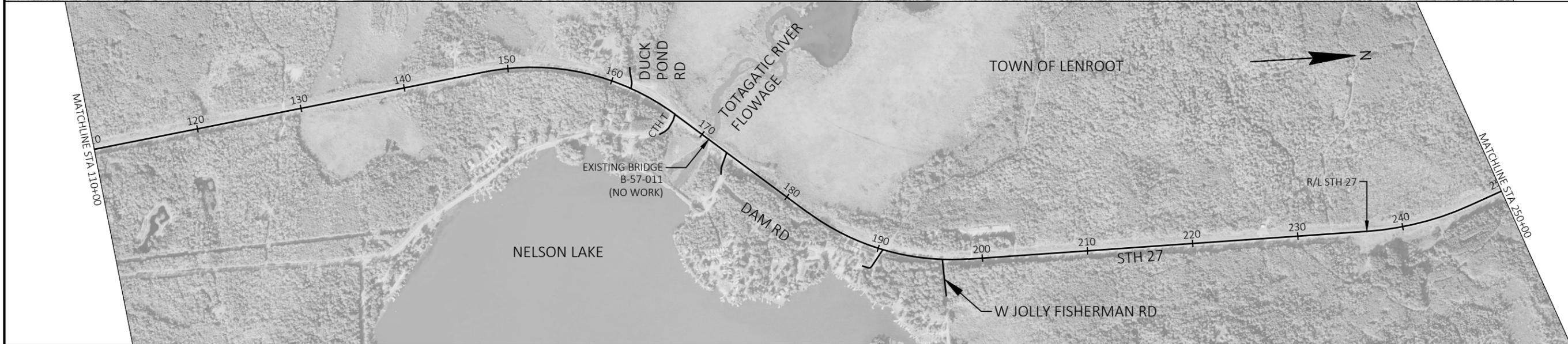
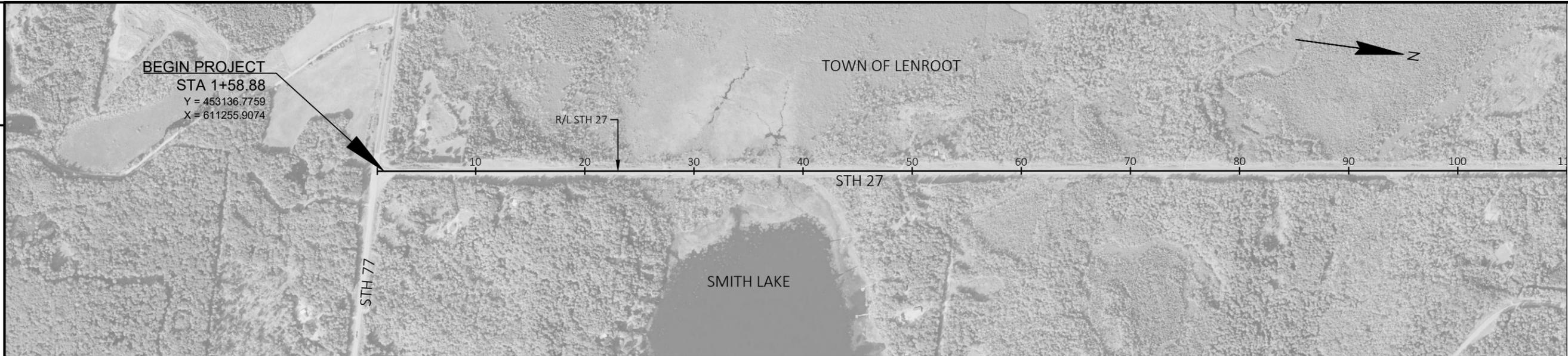
SAWYER COUNTY AIRPORT

MANAGER
 DEREK LESLIE
 10930N AIRPORT RD
 HAYWARD, WI 54843
 (715) 634-4624
 DEREK.LESLIE@SAWYERCOUNTYGOV.ORG

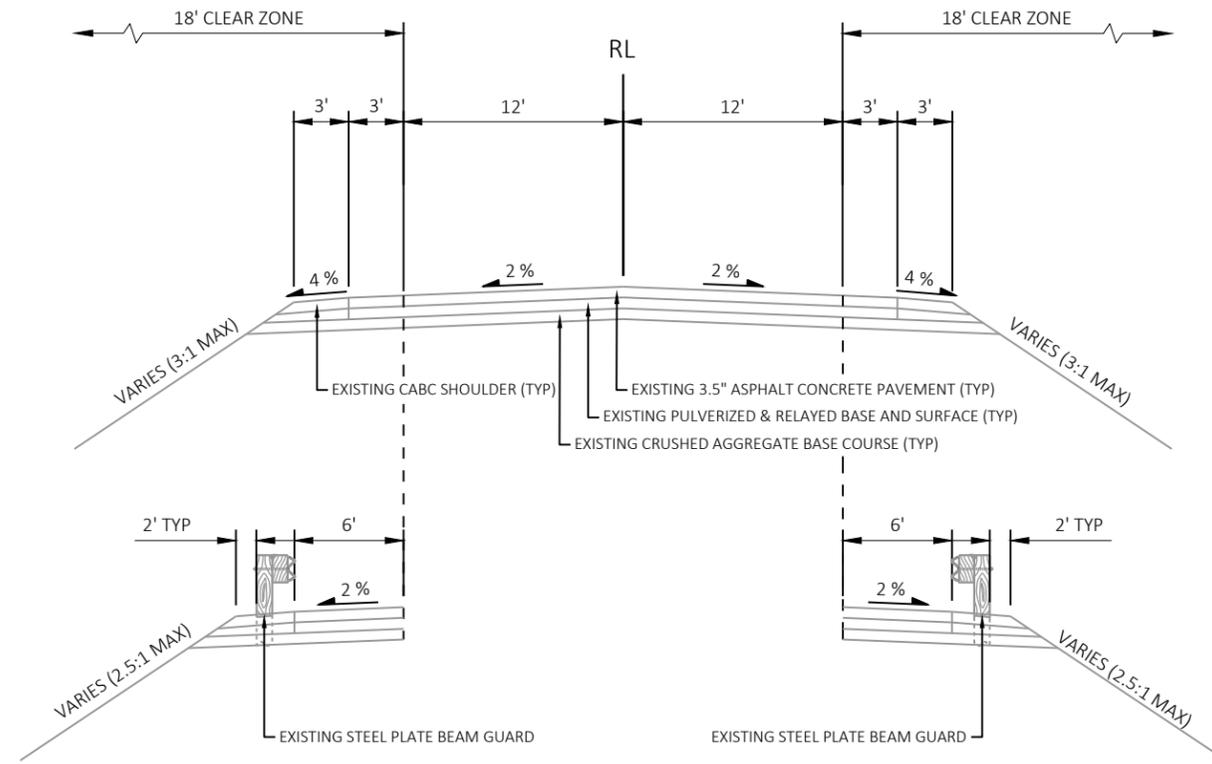
WISDOT CONTACT

DOUG CAIN
 141 N.W. BARSTOW ST
 WAUKESHA, WI 53188-3789
 (608) 548-5603
 DOUGLAS.CAIN@DOT.WI.GOV



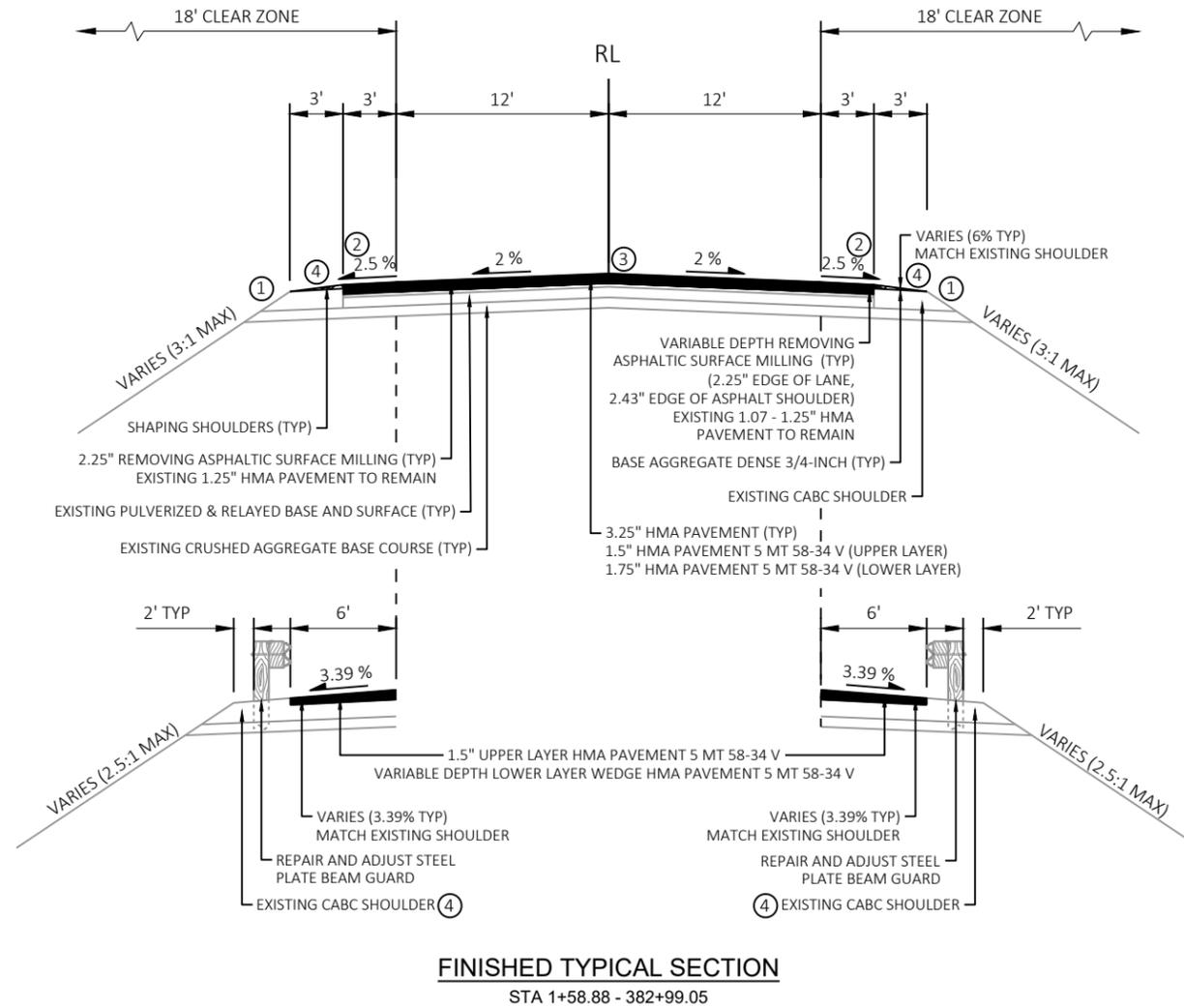


PROJECT NO: 8150-00-71	HWY: STH 27	COUNTY: SAWYER	PROJECT OVERVIEW	SHEET	E
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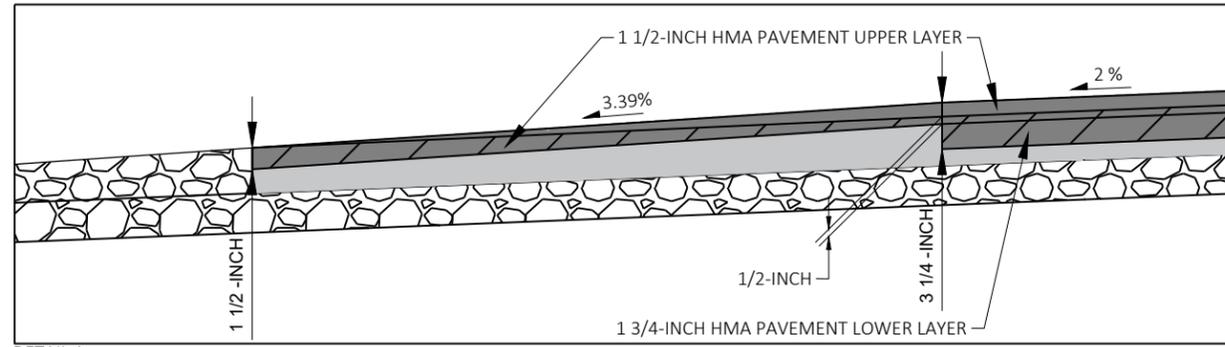
EXISTING TYPICAL SECTION
 STA 1+58.88 - 382+99.05

NOTE:
 ROADWAY IS SUPERELEVATED AT LOCATIONS OF HORIZONTAL CURVES.
 SEE PLAN SHEETS FOR LOCATIONS AND SUPERELEVATION RATES.

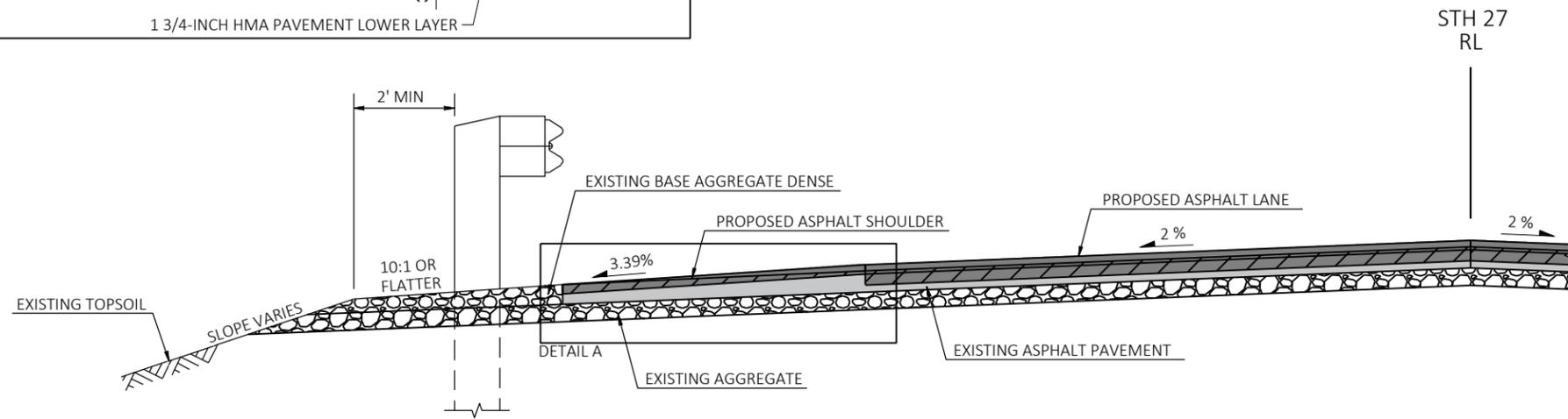


- LEGEND:**
- ① MATCH EXISTING SHOULDER POINT. DO NOT STEEPEN FORESLOPE.
 - ② SAFETY EDGE.
 - ③ ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL. SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS.
 - ④ BASE AGGREGATE DENSE 3/4-INCH FOR TOUCHUP.

NOTE:
 ROADWAY IS SUPERELEVATED AT LOCATIONS OF HORIZONTAL CURVES. SEE PLAN SHEETS FOR LOCATIONS AND SUPERELEVATION RATES.



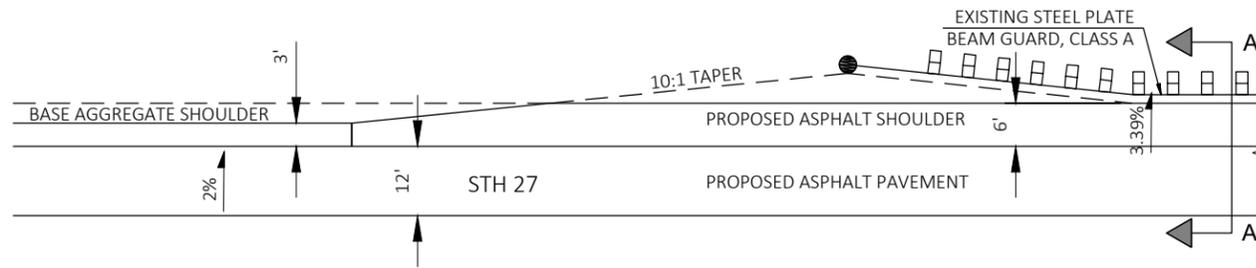
DETAIL A



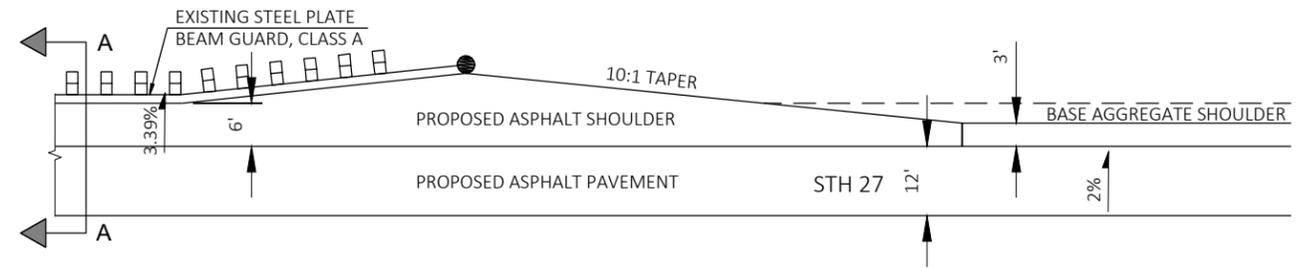
SECTION A-A

LEGEND

- PROPOSED HMA PAVEMENT, 3 1/4-INCH (1 1/2-INCH UPPER LAYER, 1 3/4-INCH LOWER LAYER) MAINLINE AND 1 1/2-INCH (SINGLE LAYER) SHOULDER
- REMOVING ASPHALTIC SURFACE MILLING, 2 1/4-INCH LANE AND VARIABLE DEPTH SHOULDER (1/2-INCH AT EDGE OF LANE AND 1 1/2-INCH AT EDGE OF SHOULDER)



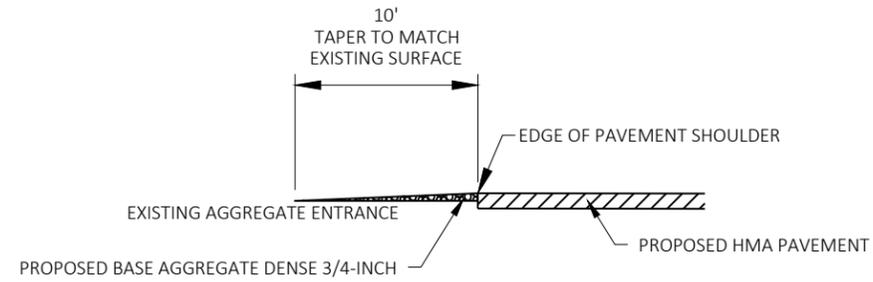
EXAMPLE OF GUARDRAIL IN MAINLINE SECTION*



EXAMPLE OF GUARDRAIL AT BRIDGE APPROACH*

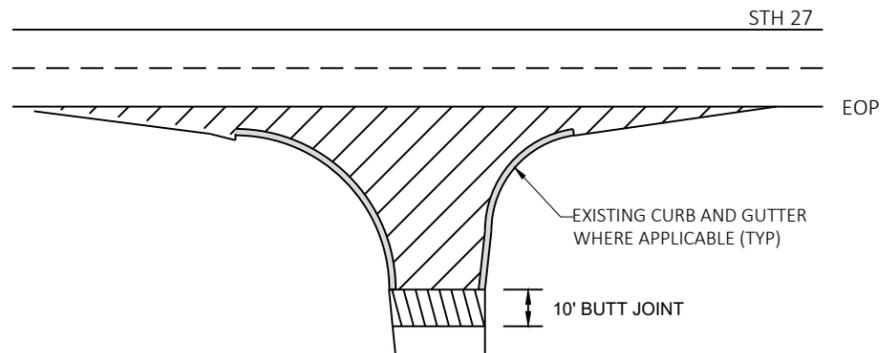
DETAIL FOR ASPHALT SHOULDER AT STEEL PLATE GUARDRAIL

* MATCH EXISTING ASPHALTIC PAVEMENT LIMITS WITH PROPOSED HMA OVERLAY



NOTE: SEE BUTT JOINT DETAIL FOR PAY LIMITS

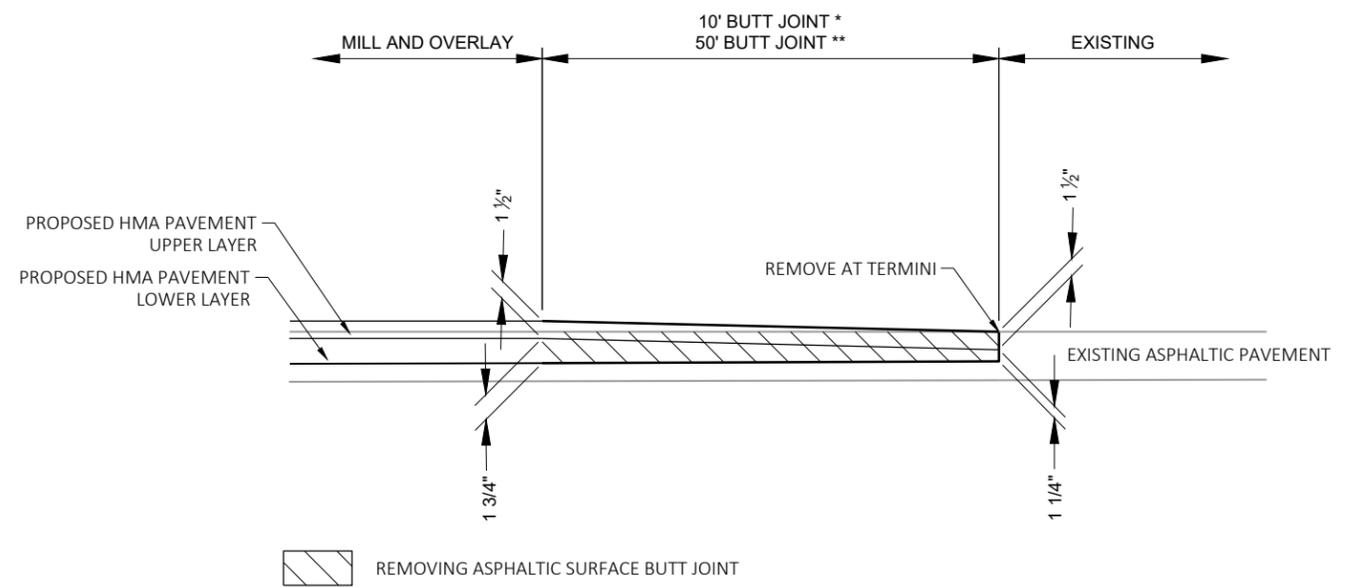
RURAL ENTRANCE WITH AGGREGATE SURFACE



- REMOVING ASPHALTIC SURFACE MILLING
- REMOVING ASPHALTIC SURFACE BUTT JOINTS
SEE BUTT JOINT DETAIL

NOTE: WHEN MATCHING TO AN UNPAVED SURFACE BUTT JOINT IS NOT REQUIRED

SIDE ROAD PLAN VIEW



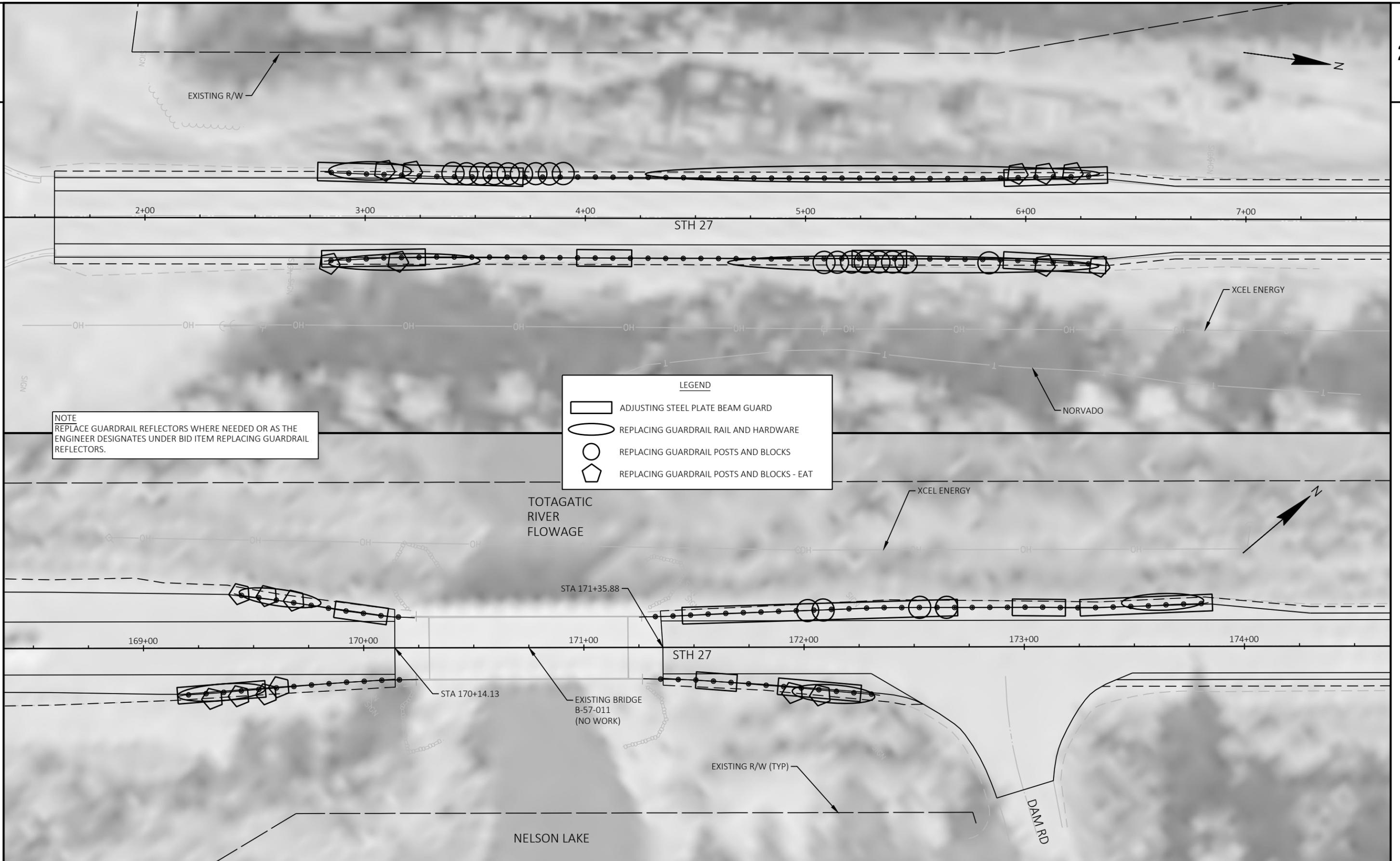
- REMOVING ASPHALTIC SURFACE BUTT JOINT

MAINLINE AND SIDE ROAD PROFILE VIEW

- * SIDE ROADS
- ** MAINLINE (NORTH AND SOUTH PROJECT LIMITS)

DETAIL OF BUTT JOINT - MAINLINE AND SIDE ROADS

- SIDE ROADS
 CTH T
 DAM RD (SOUTH)
 DAM RD (NORTH)
 W JOLLY FISHERMAN RD
 DUCK POND RD
 W SEELEY FIRE LN



NOTE
 REPLACE GUARDRAIL REFLECTORS WHERE NEEDED OR AS THE
 ENGINEER DESIGNATES UNDER BID ITEM REPLACING GUARDRAIL
 REFLECTORS.

LEGEND

- ADJUSTING STEEL PLATE BEAM GUARD
- REPLACING GUARDRAIL RAIL AND HARDWARE
- REPLACING GUARDRAIL POSTS AND BLOCKS
- EAT
 REPLACING GUARDRAIL POSTS AND BLOCKS - EAT

Estimate Of Quantities

8150-00-71

Line	Item	Item Description	Unit	Total	Qty
0002	204.0115	Removing Asphaltic Surface Butt Joints	SY	870.000	870.000
0004	204.0120	Removing Asphaltic Surface Milling	SY	129,380.000	129,380.000
0006	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 8150-00-71	LS	1.000	1.000
0008	213.0100	Finishing Roadway (project) 01. 8150-00-71	EACH	1.000	1.000
0010	305.0110	Base Aggregate Dense 3/4-Inch	TON	1,480.000	1,480.000
0012	305.0500	Shaping Shoulders	STA	764.000	764.000
0014	450.4000	HMA Cold Weather Paving	TON	3,909.000	3,909.000
0016	455.0605	Tack Coat	GAL	18,120.000	18,120.000
0018	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	1.000	1.000
0020	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	2.000	2.000
0022	460.2005	Incentive Density PWL HMA Pavement	DOL	18,460.000	18,460.000
0024	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	76,140.000	76,140.000
0026	460.2010	Incentive Air Voids HMA Pavement	DOL	23,450.000	23,450.000
0028	460.6645	HMA Pavement 5 MT 58-34 V	TON	23,450.000	23,450.000
0030	465.0105	Asphaltic Surface	TON	500.000	500.000
0032	465.0110	Asphaltic Surface Patching	TON	300.000	300.000
0034	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	35,076.000	35,076.000
0036	614.0400	Adjusting Steel Plate Beam Guard	LF	677.000	677.000
0038	614.0950	Replacing Guardrail Posts and Blocks	EACH	24.000	24.000
0040	614.0951	Replacing Guardrail Rail and Hardware	LF	700.000	700.000
0042	614.0952	Replacing Guardrail Reflectors	EACH	9.000	9.000
0044	618.0100	Maintenance And Repair of Haul Roads (project) 01. 8150-00-71	EACH	1.000	1.000
0046	619.1000	Mobilization	EACH	1.000	1.000
0048	624.0100	Water	MGAL	8.000	8.000
0050	625.0100	Topsoil	SY	100.000	100.000
0052	628.2004	Erosion Mat Class I Type B	SY	100.000	100.000
0054	629.0210	Fertilizer Type B	CWT	0.100	0.100
0056	630.0130	Seeding Mixture No. 30	LB	5.000	5.000
0058	630.0500	Seed Water	MGAL	3.000	3.000
0060	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	24.000	24.000
0062	638.2102	Moving Signs Type II	EACH	24.000	24.000
0064	638.4000	Moving Small Sign Supports	EACH	24.000	24.000
0066	642.5001	Field Office Type B	EACH	1.000	1.000
0068	643.0300	Traffic Control Drums	DAY	85.000	85.000
0070	643.0900	Traffic Control Signs	DAY	1,095.000	1,095.000
0072	643.5000	Traffic Control	EACH	1.000	1.000
0074	646.1020	Marking Line Epoxy 4-Inch	LF	45,338.000	45,338.000
0076	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	76,096.000	76,096.000
0078	646.6120	Marking Stop Line Epoxy 18-Inch	LF	57.000	57.000
0080	648.0100	Locating No-Passing Zones	MI	7.210	7.210
0082	649.0105	Temporary Marking Line Paint 4-Inch	LF	84,340.000	84,340.000
0084	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	45,338.000	45,338.000
0086	650.8000	Construction Staking Resurfacing Reference	LF	38,048.000	38,048.000
0088	650.9910	Construction Staking Supplemental Control (project) 01. 8150-00-71	LS	1.000	1.000
0090	690.0150	Sawing Asphalt	LF	2,400.000	2,400.000
0092	740.0440	Incentive IRI Ride	DOL	28,824.000	28,824.000
0094	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	420.000	420.000
0096	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000
0098	SPV.0060	Special 01. Replacing Guardrail Posts and Blocks - EAT	EACH	20.000	20.000

3

204 REMOVALS

CATEGORY	STATION	TO	STATION	LOCATION	204.0115	204.0120
					REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	REMOVING ASPHALTIC SURFACE MILLING SY
0010	1+59	-	170+14	STH 27	870	57,740
0010	171+36	-	382+99	STH 27	-	71,640
TOTAL 0010					870	129,380

305 BASE AGGREGATE

CATEGORY	STATION	TO	STATION	LOCATION	305.0110	305.0500
					BASE AGGREGATE DENSE 3/4-INCH TON	SHAPING SHOULDERS STA
0010	1+59	-	382+99	STH 27	1,480	764
TOTAL 0010					1,480	764

3

450-465 HMA PAVEMENT

CATEGORY	STATION	TO	STATION	LOCATION	450.4000	455.0605	460.6645	465.0105	465.0110	465.0475
					HMA COLD WEATHER PAVING TON	TACK COAT GAL	HMA PAVEMENT 5 MT 58-34 V TON	ASPHALTIC SURFACE TON	ASPHALTIC SURFACE PATCHING TON	ASPHALT CENTERLINE RUMBLE STRIPS 2-LANE RURAL LF
0010	1+59	-	382+99	STH 27	3,909	18,120	23,450	500	300	35,076
TOTAL 0010					3,909	18,120	23,450	500	300	35,076

NOTES

- 1) ASPHALTIC SURFACE TO BE USED FOR SPOT LANE FAILURES AFTER MILLING AS DIRECTED BY THE ENGINEER
- 2) ASPHALTIC SURFACE PATCHING TO BE USED FOR POT HOLES, POP-OUTS, AND RAMPING AS DIRECTED BY THE ENGINEER

460 - PWL

CATEGORY	STATION	TO	STATION	LOCATION	460.0105.S	460.0110.S
					HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP VOLUMETRICS EACH	HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP DENSITY EACH
0010	1+59	-	382+99	STH 27	1	2
TOTAL 0010					1	2

PWL MIXTURE USE TABLE

LOCATION	STATION	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
							MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
12 FOOT DRIVING LANE	1+59 TO 170+30	UPPER LAYER	MILLED EXISTING HMA SURFACE	5 MT 58-34 V	3,776	1 1/2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
12 FOOT DRIVING LANE	1+59 TO 170+30	LOWER LAYER	MILLED EXISTING HMA SURFACE	5 MT 58-34 V	4,405	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
3 FOOT SHOULDER	1+59 TO 170+30	UPPER LAYER	MILLED EXISTING HMA SURFACE	5 MT 58-34 V	1,008	1 1/2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE OR DISINCENTIVE
12 FOOT DRIVING LANE	171+20 TO 382+99	UPPER LAYER	MILLED EXISTING HMA SURFACE	5 MT 58-34 V	4,741	1 1/2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
12 FOOT DRIVING LANE	171+20 TO 382+99	LOWER LAYER	MILLED EXISTING HMA SURFACE	5 MT 58-34 V	5,531	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
3 FOOT SHOULDER	171+20 TO 382+99	UPPER LAYER	MILLED EXISTING HMA SURFACE	5 MT 58-34 V	1,257	1 1/2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE OR DISINCENTIVE

614 GUARDRAIL

CATEGORY	STATION	TO	STATION	LOCATION	614.0400 ADJUSTING STEEL PLATE BEAM GUARD LF	614.0950 REPLACING GUARDRAIL POSTS AND BLOCKS EACH	614.0951 REPLACING GUARDRAIL RAIL AND HARDWARE LF	614.0952 REPLACING GUARDRAIL REFLECTORS EACH	SPV.0060.01 SPECIAL (01. REPLACING GUARDRAIL POSTS AND BLOCKS - EAT) EACH
0010	2+81	-	6+35	STH 27 RT	144	8	238	2	4
0010	2+81	-	6+35	STH 27 LT	140	9	244	2	5
0010	169+16	-	170+24	STH 27 RT	40	0	40	0	4
0010	169+41	-	170+23	STH 27 LT	25	0	38	0	3
0010	171+25	-	173+84	STH 27 LT	209	4	38	2	0
0010	171+27	-	172+34	STH 27 RT	57	0	38	2	2
				SUBTOTAL	615	21	636	8	18
				UNDISTRIBUTED*	62	3	64	1	2
				TOTAL 0010	677	24	700	9	20

NOTES

1) UNDISTRIBUTED QUANTITY ESTIMATED AT 10% OF SUBTOTAL

624 WATER

CATEGORY	STATION	TO	STATION	LOCATION	624.0100 WATER MGAL
0010	1+59	-	382+99	STH 27	8
				TOTAL 0010	8

629-630 RESTORATION

CATEGORY	STATION	TO	STATION	LOCATION	625.0100 TOPSOIL SY	628.2004 EROSION MAT CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0500 SEED WATER MGAL	REMARKS
0010	UNDISTRIBUTED			STH 27	100	100	0.1	5	3	FOR MISC RESTORATION
				TOTAL 0010	100	100	0.1	5	3	

638 SIGNING

CATEGORY	STATION	TO	STATION	LOCATION	634.0614 POSTS WOOD 4X6- INCH X 14-FT EACH	638.2102 MOVING SIGNS TYPE II EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH	REMARKS
0010	1+59	-	382+99	STH 27 (UNDISTRIBUTED)	20	20	20	NO PASSING ZONE SIGNS
0010	1+59	-	382+99	STH 27 (UNDISTRIBUTED)	2	2	2	ATV ROUTE SIGNS
0010	1+59	-	382+99	STH 27 (UNDISTRIBUTED)	2	2	2	TOTAGATIC RIVER SIGNS
				TOTAL 0010	24	24	24	

3

643 TRAFFIC CONTROL

643.0900* TRAFFIC CONTROL SIGNS							
CATEGORY	STATION	TO	STATION	LOCATION	DAYS**	DAY	REMARKS
0010	1+59	-	382+99	STH 27	57	912	MAINLINE & SIDEROADS - SDD 15C4
0010	1+59	-	382+99	STH 27	9	126	MAINLINE & SIDEROADS - SDD 15D44
0010	1+59	-	382+99	STH 27	3	12	MAINLINE & SIDEROADS - SDD 15C19
TOTAL 0010						1,050	

*ADDITIONAL QUANTITIES LISTED ELSEWHERE
 **FOR INFORMATION ONLY

643 SHOULDER WORK

643.0300 TRAFFIC CONTROL DRUMS								* 643.0900 TRAFFIC CONTROL SIGNS	
CATEGORY	STATION	TO	STATION	LOCATION	DAYS**	DAY	DAY	DAY	
0010	2+81	-	6+35	STH 27 LT/RT	2	24		12	
0010	169+16	-	170+24	STH 27 LT/RT	2	20		12	
0010	171+25	-	173+34	STH 27 LT/RT	2	22		12	
0010	UNDISTRIBUTED					19		9	
TOTAL 0010						85		45	

*ADDITIONAL QUANTITIES LISTED ELSEWHERE
 ** FOR INFORMATION ONLY

646 - 649 PAVEMENT MARKING

CATEGORY	STATION TO	STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH (YELLOW) LF	646.1040 MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE) LF	646.6120 MARKING STOP LINE EPOXY 18- INCH LF	648.0100 LOCATING NO- PASSING ZONES MI	649.0105 TEMPORARY MARKING LINE PAINT 4-INCH (YELLOW) LF	649.0120 TEMPORARY MARKING LINE EPOXY 4-INCH (YELLOW) LF	
0010	158+88	-	382+99	STH 27	45,338	76,096	57	7.21	84,340	45,338
TOTAL 0010					45,338	76,096	57	7.21	84,340	45,338

NOTES

- 1) STOP BAR TO BE PLACED AT THE FOLLOWING LOCATIONS: STH 27 SB AT STH 77W AND CTH T NB AT STH 27
- 2) TEMPORARY MARKING LINE PAINT 4-INCH YELLOW TO BE PLACED ON MILLED SURFACE and LOWER LAYER.
- 3) TEMPORARY MARKING LINE EPOXY 4-INCH YELLOW TO BE PLACED ON FINAL UPPER LAYER BEFORE CENTERLINE RUMBLES.
- 4) MARKING LINE EPOXY 4-INCH YELLOW TO BE PLACED AFTER RUMBLE STRIPS ARE COMPLETED.

650 CONSTRUCTION STAKING

CATEGORY	STATION TO	STATION	LOCATION	650.8000 CONSTRUCTION STAKING RESURFACING REFERENCE LF	650.9910.01 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 8150-00-71) LS	
0010	1+59	-	382+99	STH 27	38,048	1
TOTAL 0010					38,048	1

690 SAWING

CATEGORY	STATION TO	STATION	LOCATION	690.0150 SAWING ASPHALT LF	
0010	1+59	-	382+99	STH 27 (UNDISTRIBUTED)	2,400
TOTAL 0010					2,400

NOTES

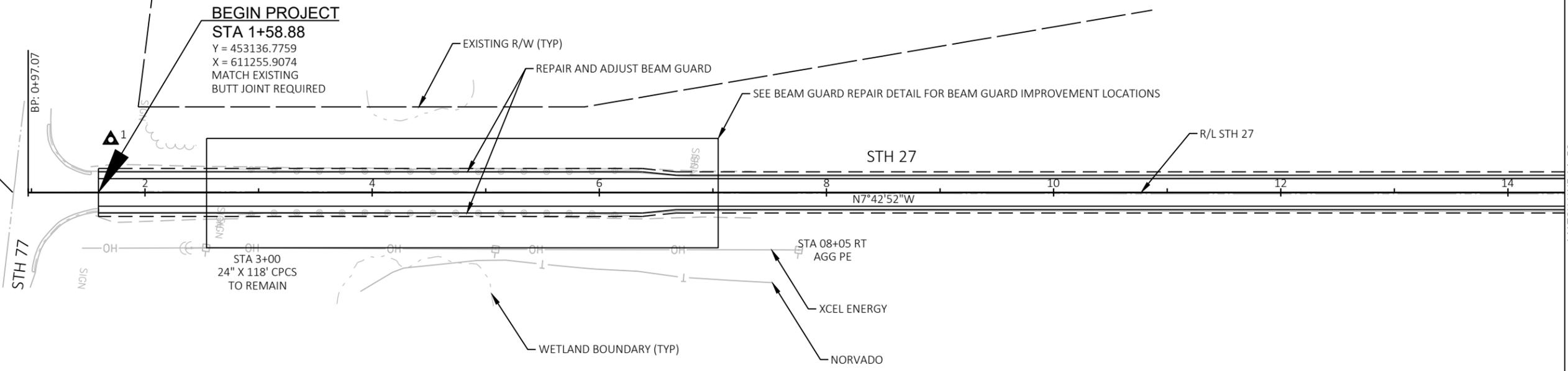
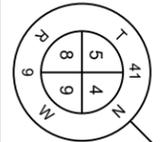
- 1) TO BE USED AT LOCATIONS OF SPOT LANE FAILURES AFTER MILLING AS DIRECTED BY THE ENGINEER

3

BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
1	1+69.74	46.30 LT	453141.331	611208.572	1264.23	3/4 IN REBAR



BEGIN PROJECT
STA 1+58.88
 Y = 453136.7759
 X = 611255.9074
 MATCH EXISTING
 BUTT JOINT REQUIRED



5

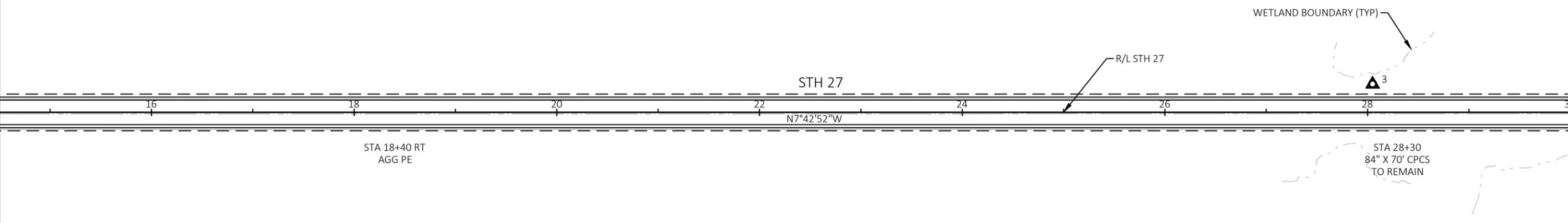
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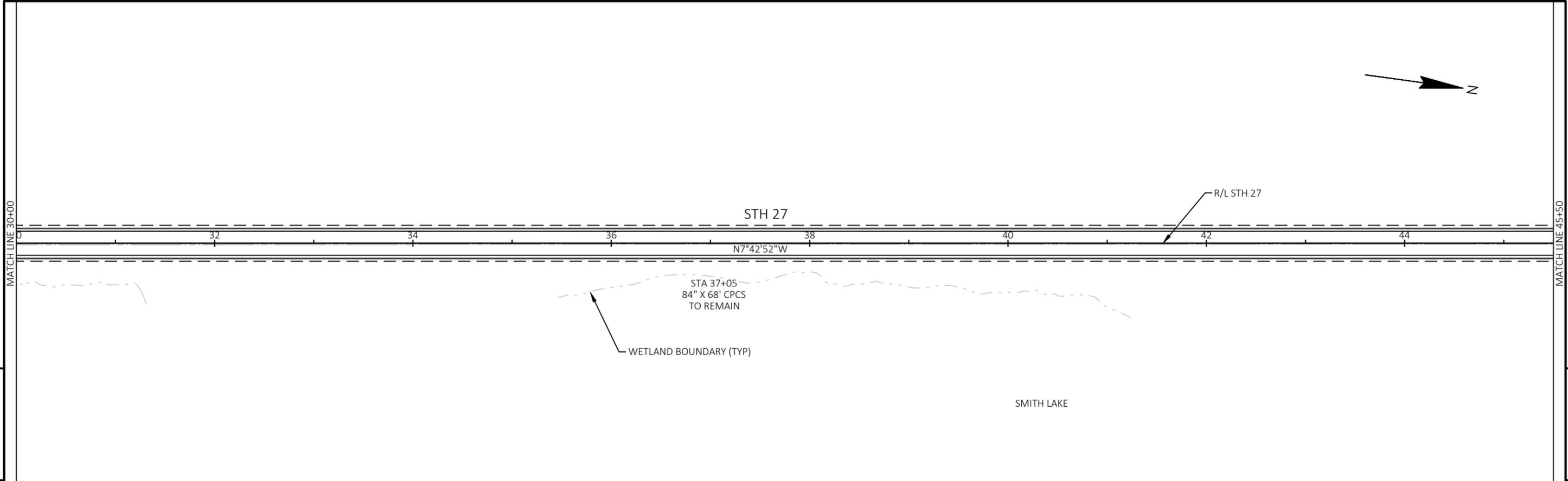
BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
3	28+04.96	27.85 LT	455755.171	610873.112	1233.33	3/4 IN REBAR



MATCH LINE 14+50

MATCH LINE 30+00

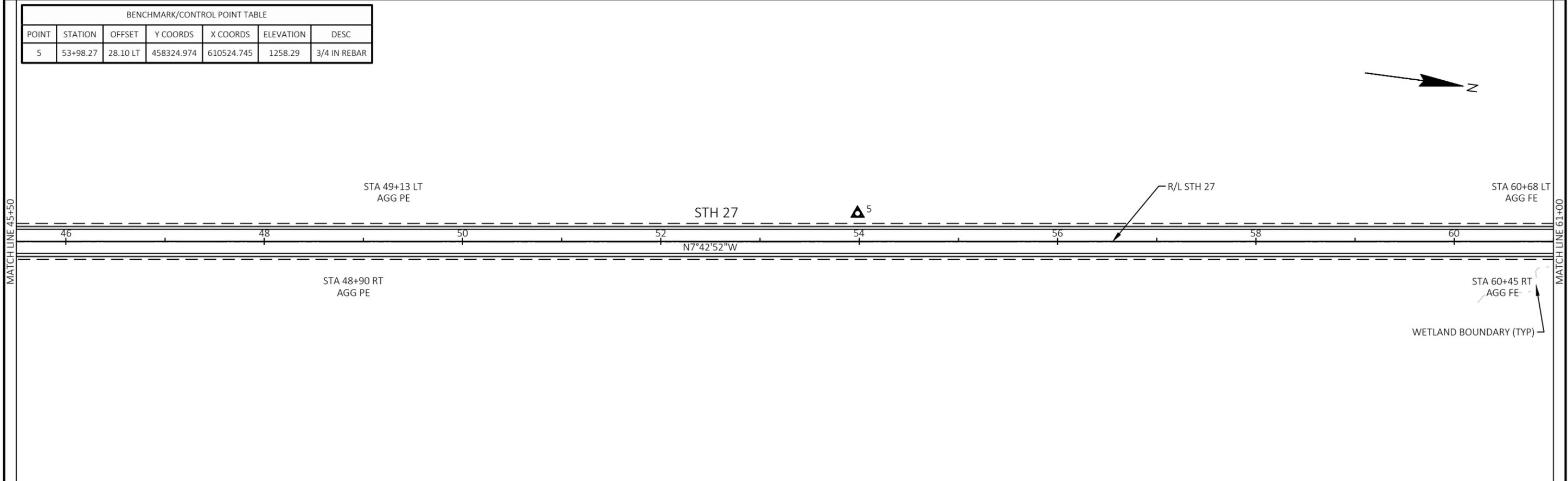


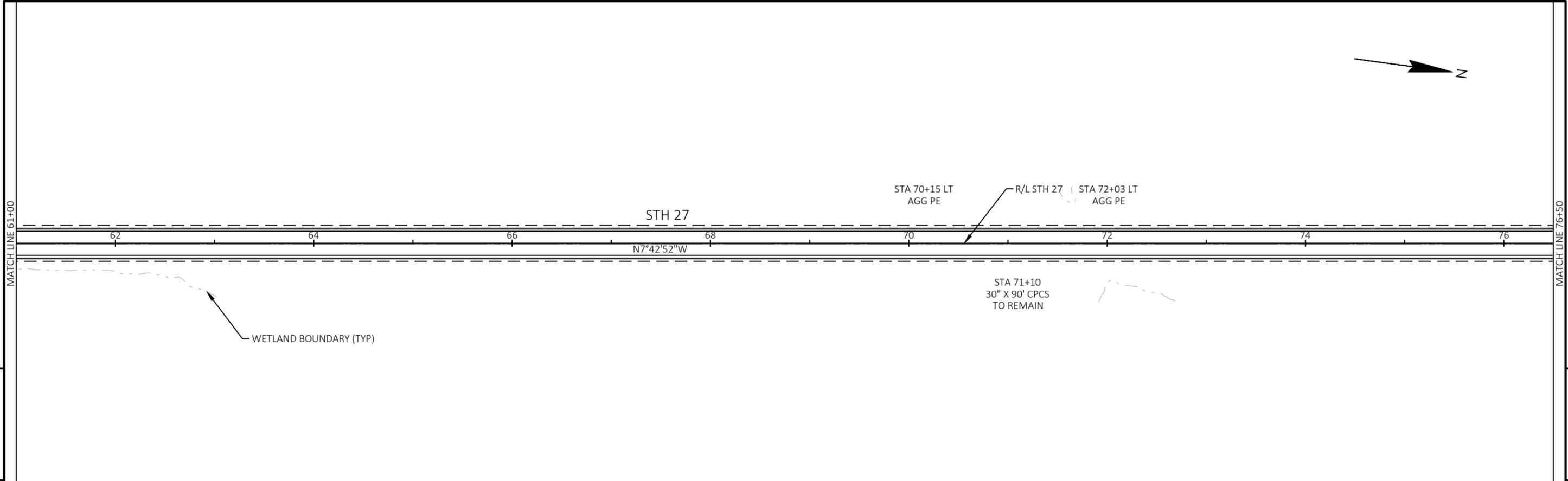


5

5

BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
5	53+98.27	28.10 LT	458324.974	610524.745	1258.29	3/4 IN REBAR

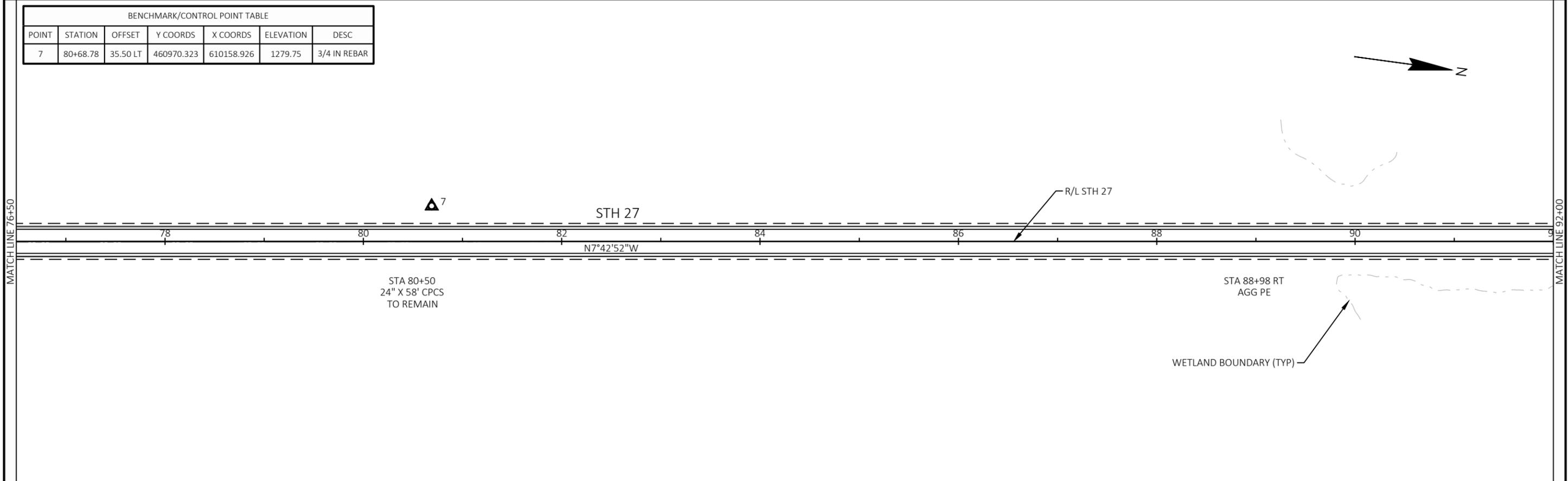




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BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
7	80+68.78	35.50 LT	460970.323	610158.926	1279.75	3/4 IN REBAR



PROJECT NO: 8150-00-71 HWY: STH 27 COUNTY: SAWYER PLAN SHEET E

BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
9	106+10.72	34.48 LT	463489.389	609818.722	1292.86	3/4 IN REBAR

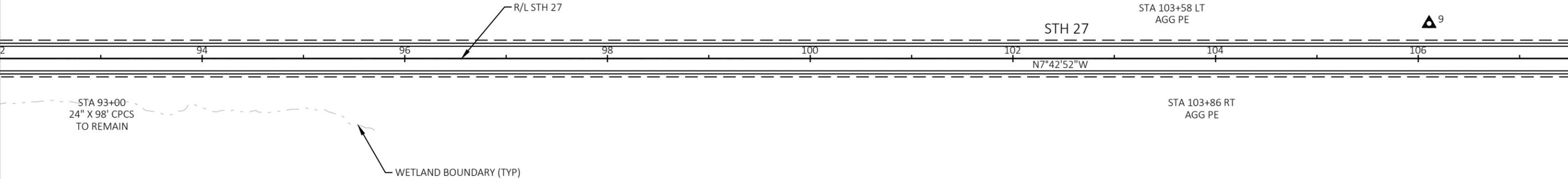


MATCH LINE 92+00

MATCH LINE 107+50

5

5

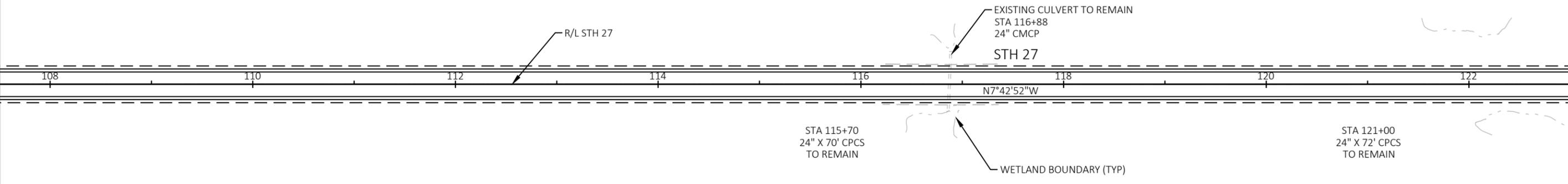


MATCH LINE 107+50

MATCH LINE 123+00

5

5



PROJECT NO: 8150-00-71	HWY: STH 27	COUNTY: SAWYER	PLAN	SHEET	E
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BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
11	132+12.23	25.42 LT	466068.576	609478.484	1273.95	3/4 IN REBAR

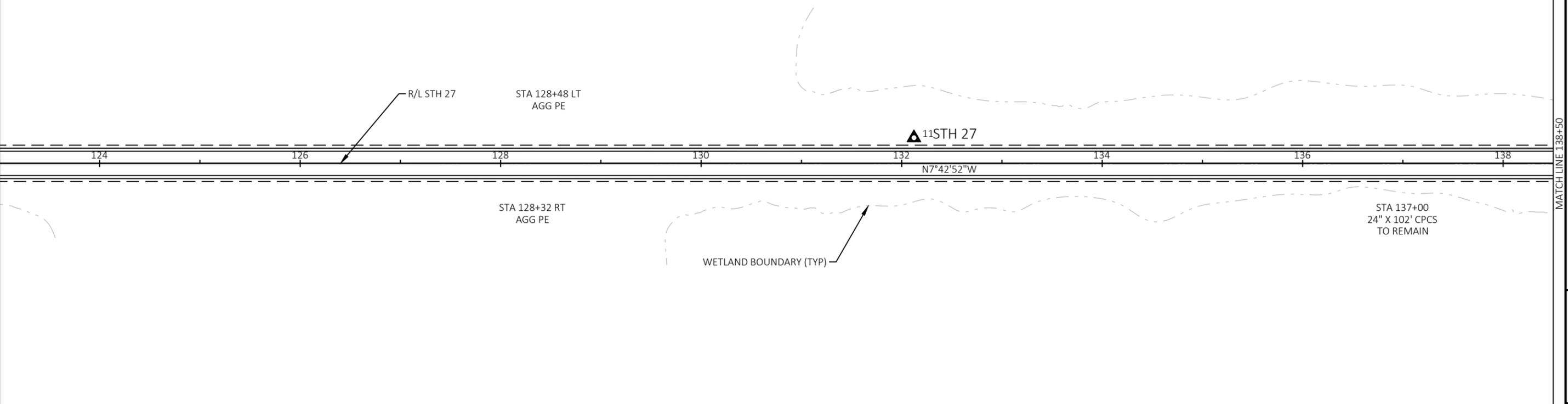


MATCH LINE 123+00

MATCH LINE 138+50

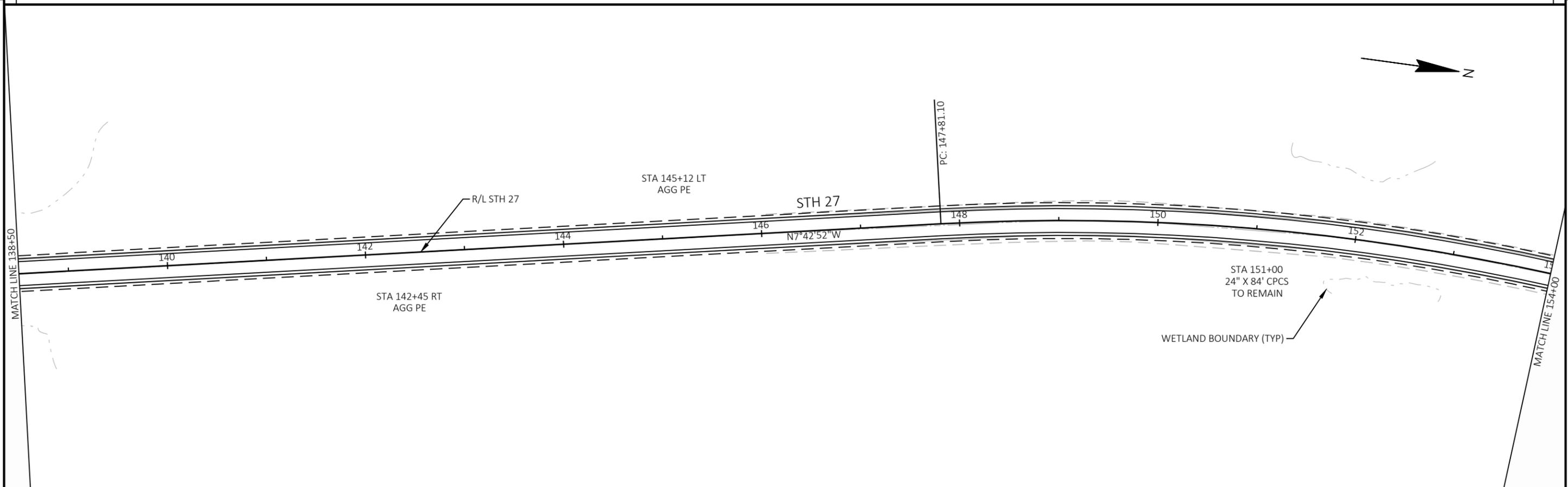
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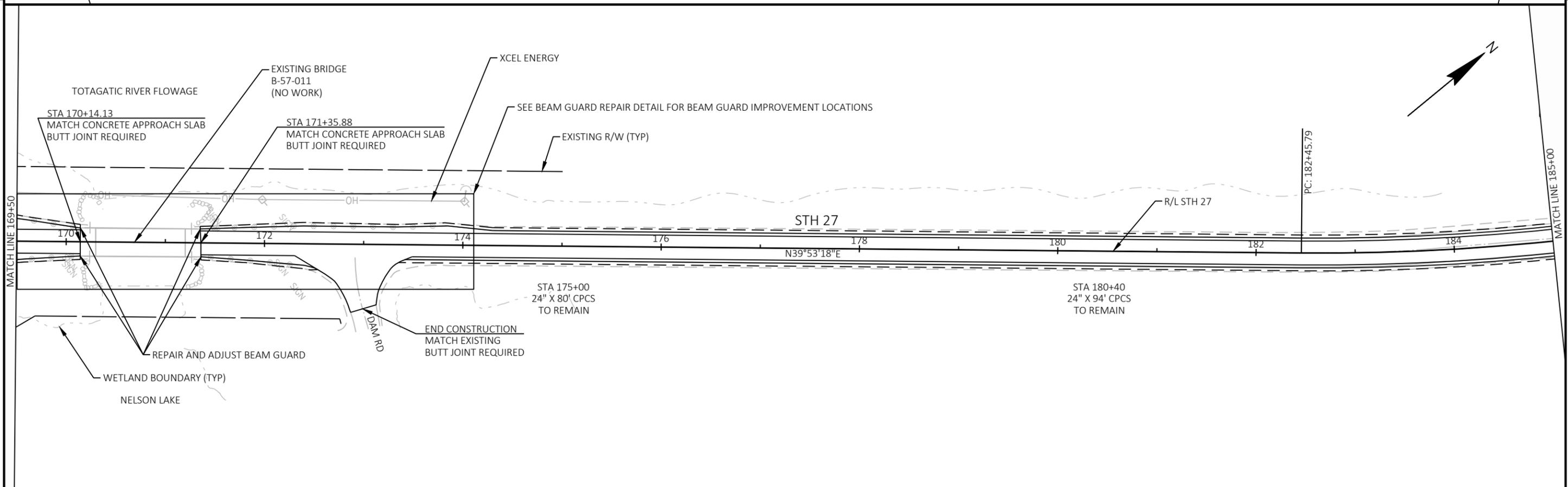
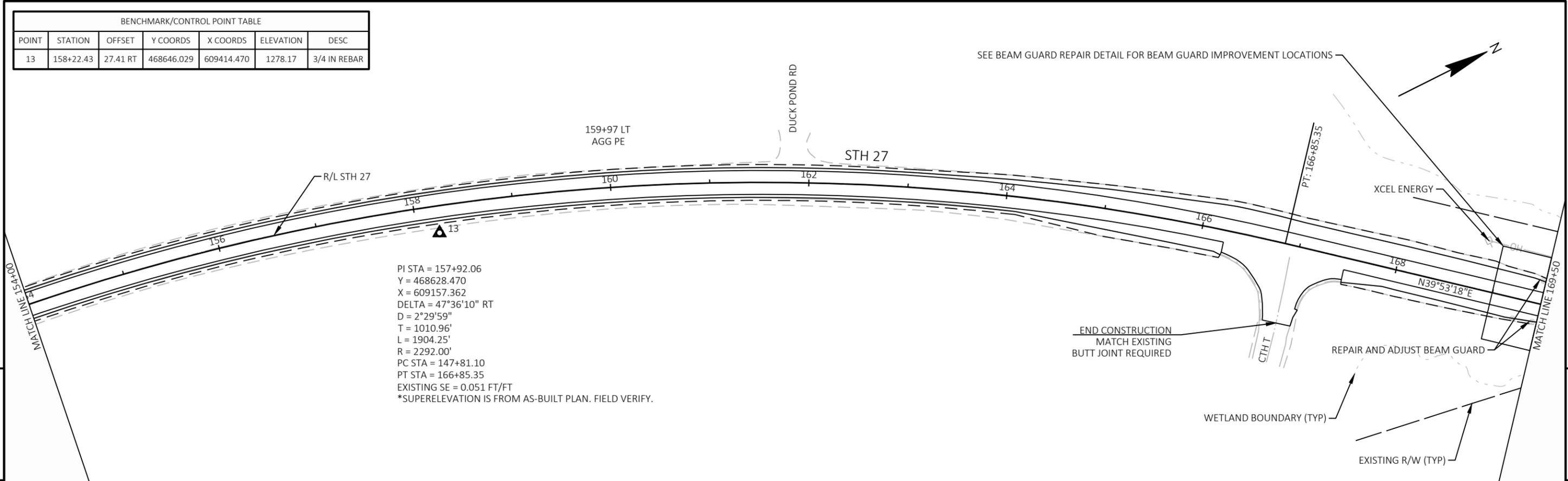
MATCH LINE 138+50

MATCH LINE 154+00



PROJECT NO: 8150-00-71	HWY: STH 27	COUNTY: SAWYER	PLAN	SHEET	E
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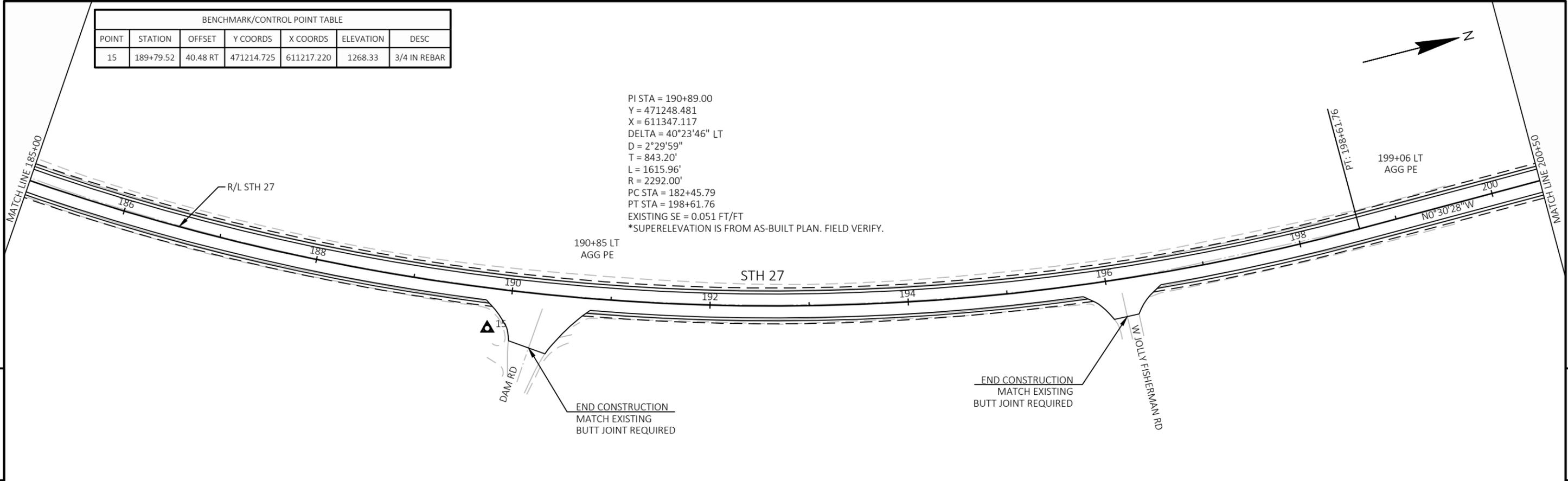
BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
13	158+22.43	27.41 RT	468646.029	609414.470	1278.17	3/4 IN REBAR



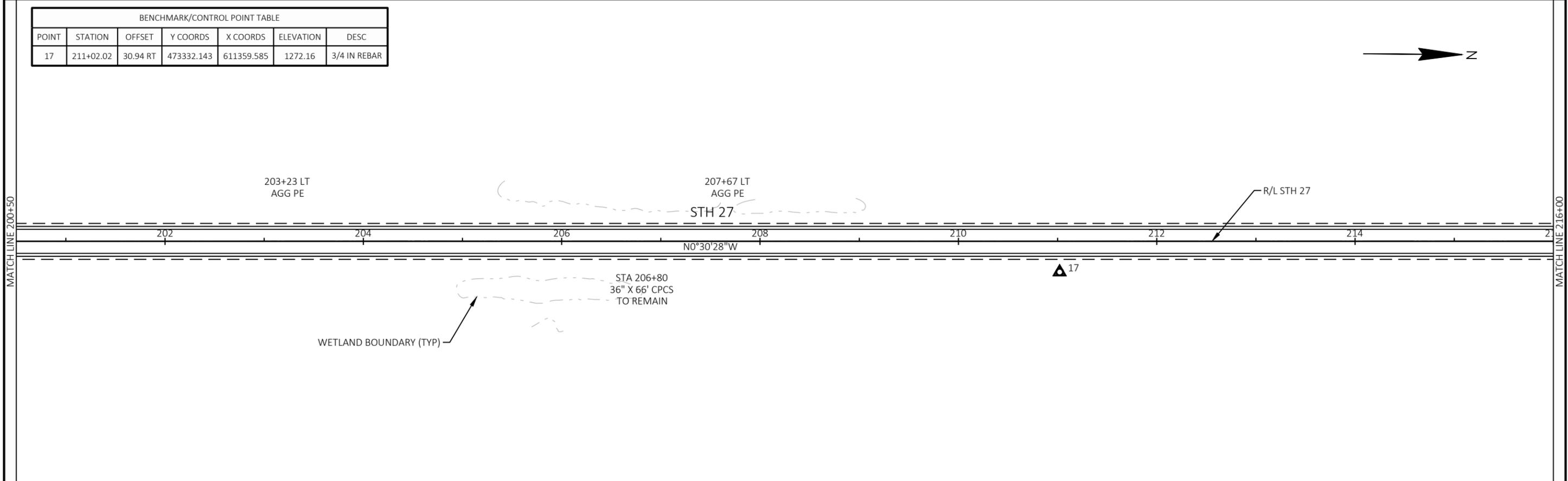
PROJECT NO: 8150-00-71	HWY: STH 27	COUNTY: SAWYER	PLAN	SHEET	E
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BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
15	189+79.52	40.48 RT	471214.725	611217.220	1268.33	3/4 IN REBAR

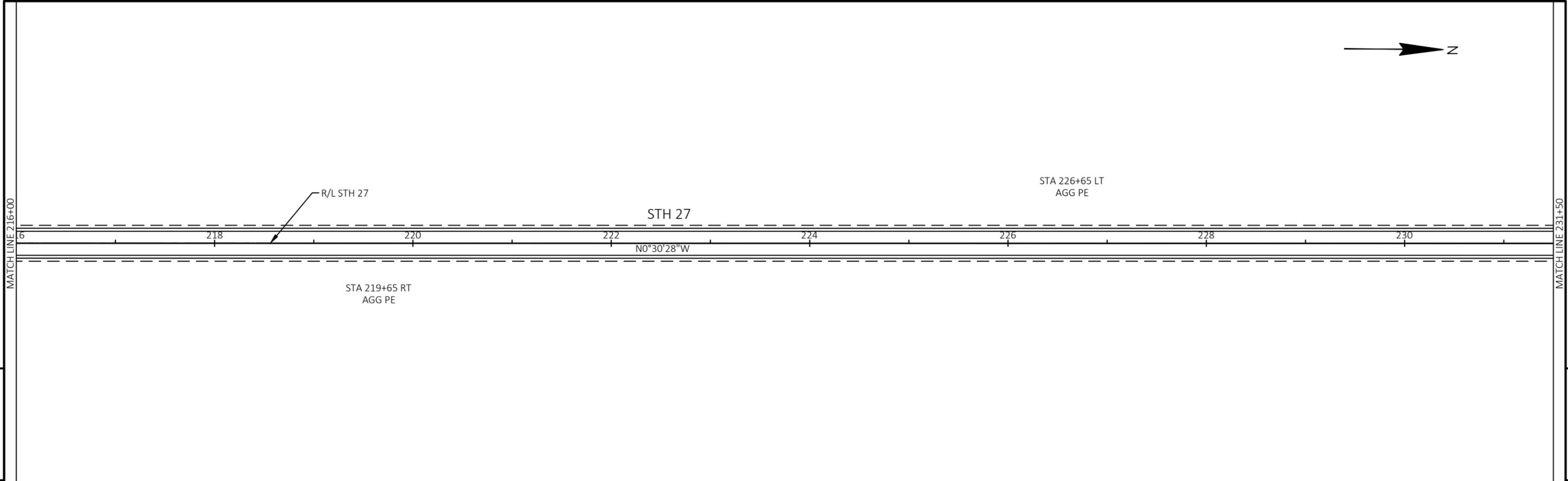
PI STA = 190+89.00
 Y = 471248.481
 X = 611347.117
 DELTA = 40°23'46" LT
 D = 2°29'59"
 T = 843.20'
 L = 1615.96'
 R = 2292.00'
 PC STA = 182+45.79
 PT STA = 198+61.76
 EXISTING SE = 0.051 FT/FT
 *SUPERELEVATION IS FROM AS-BUILT PLAN. FIELD VERIFY.



BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
17	211+02.02	30.94 RT	473332.143	611359.585	1272.16	3/4 IN REBAR



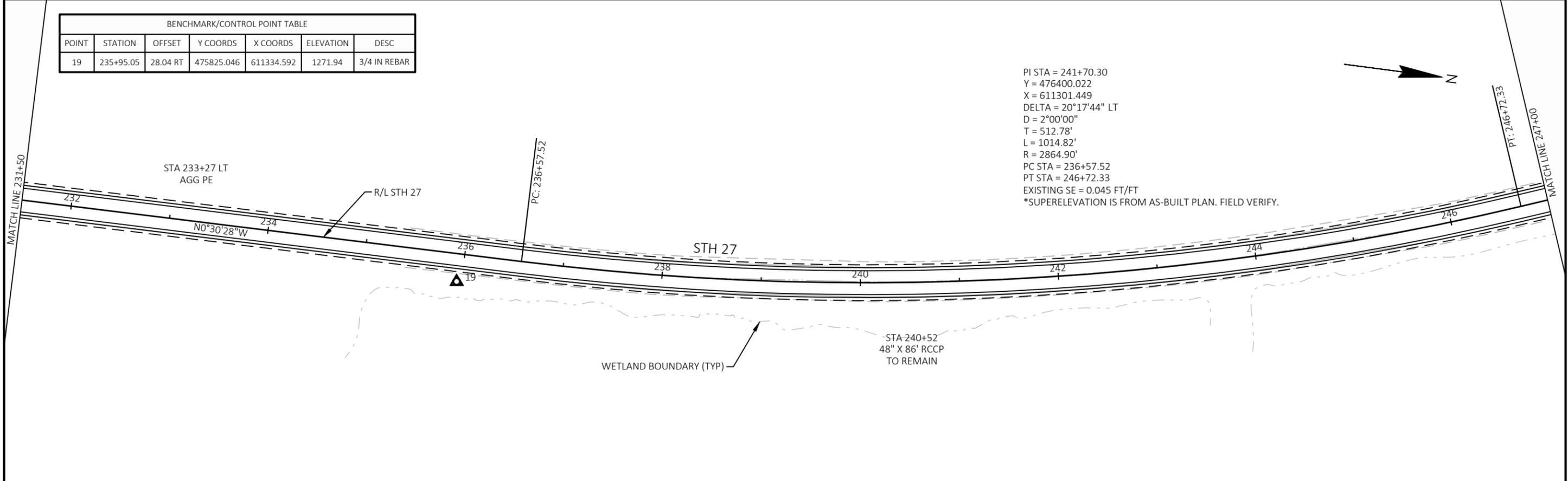
PROJECT NO: 8150-00-71	HWY: STH 27	COUNTY: SAWYER	PLAN	SHEET	E
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BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
19	235+95.05	28.04 RT	475825.046	611334.592	1271.94	3/4 IN REBAR



PI STA = 241+70.30
 Y = 476400.022
 X = 611301.449
 DELTA = 20°17'44" LT
 D = 2°00'00"
 T = 512.78'
 L = 1014.82'
 R = 2864.90'
 PC STA = 236+57.52
 PT STA = 246+72.33
 EXISTING SE = 0.045 FT/FT
 *SUPERELEVATION IS FROM AS-BUILT PLAN. FIELD VERIFY.

PROJECT NO: 8150-00-71	HWY: STH 27	COUNTY: SAWYER	PLAN	SHEET	E
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BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
21	262+44.13	41.67 RT	478363.494	610600.042	1272.78	3/4 IN REBAR

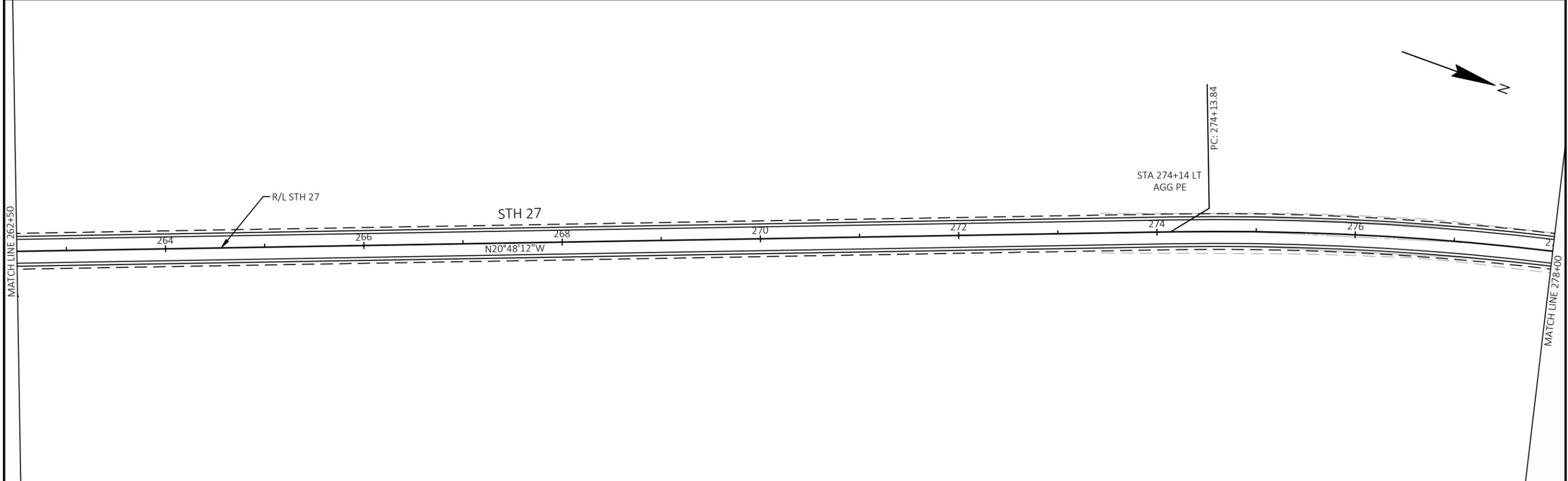
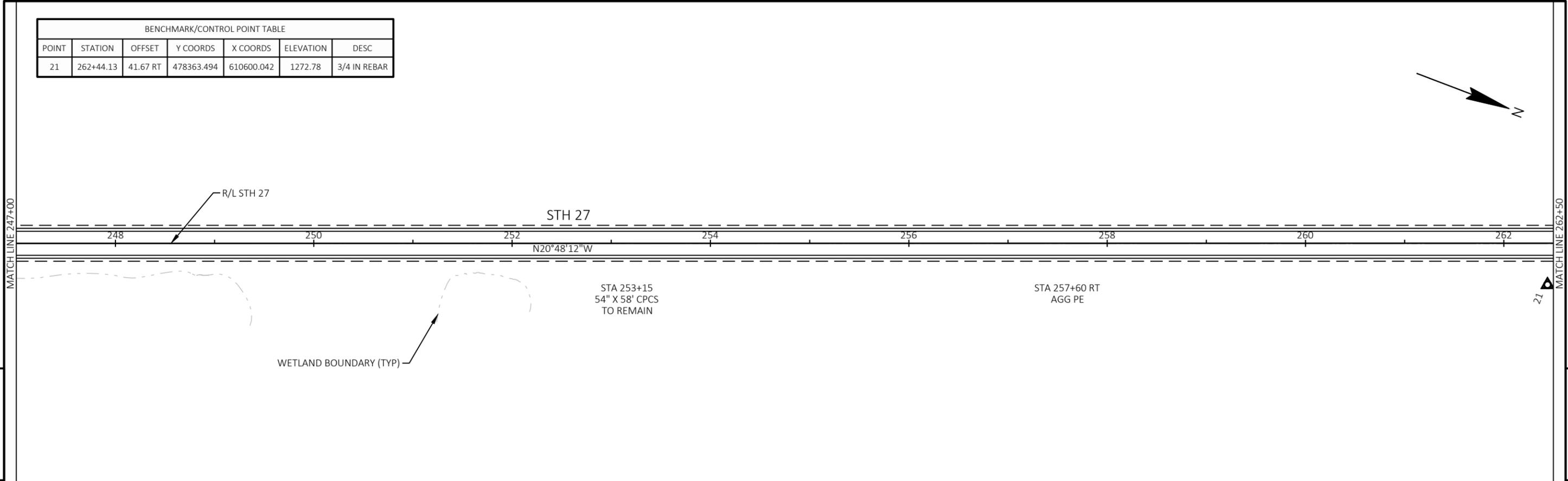


MATCH LINE 247+00

MATCH LINE 262+50

5

5

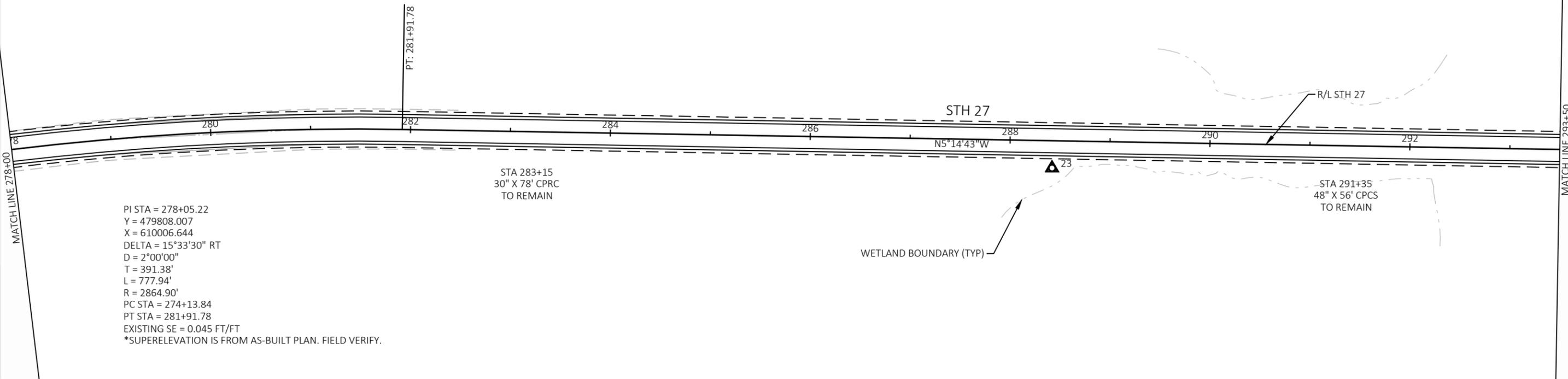


MATCH LINE 262+50

MATCH LINE 278+00

PROJECT NO: 8150-00-71	HWY: STH 27	COUNTY: SAWYER	PLAN	SHEET	E
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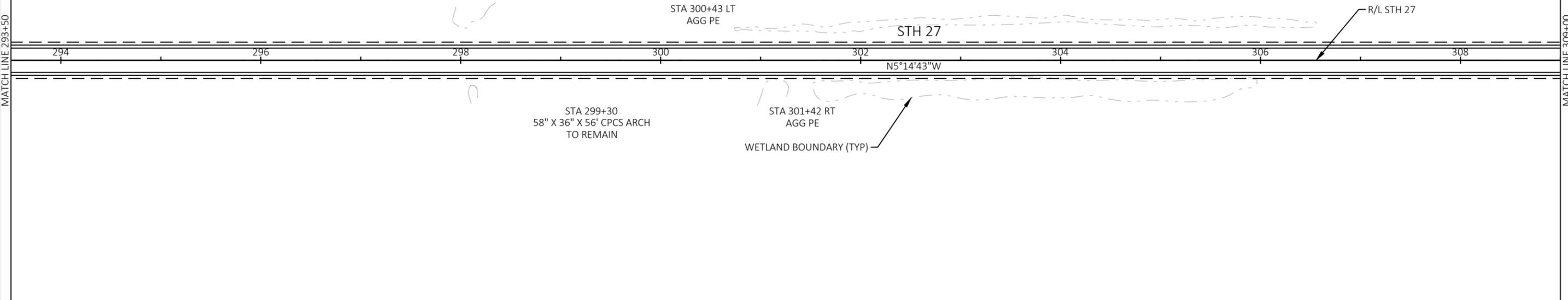
BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
23	288+42.32	27.35 RT	480848.060	609938.624	1273.81	3/4 IN REBAR



5

5

PI STA = 278+05.22
 Y = 479808.007
 X = 610006.644
 DELTA = 15°33'30" RT
 D = 2°00'00"
 T = 391.38'
 L = 777.94'
 R = 2864.90'
 PC STA = 274+13.84
 PT STA = 281+91.78
 EXISTING SE = 0.045 FT/FT
 *SUPERELEVATION IS FROM AS-BUILT PLAN. FIELD VERIFY.



MATCH LINE 293+50

MATCH LINE 309+00

PROJECT NO: 8150-00-71 HWY: STH 27 COUNTY: SAWYER PLAN SHEET E

BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
25	314+27.31	30.45 RT	483422.512	609705.400	1262.99	3/4 IN REBAR

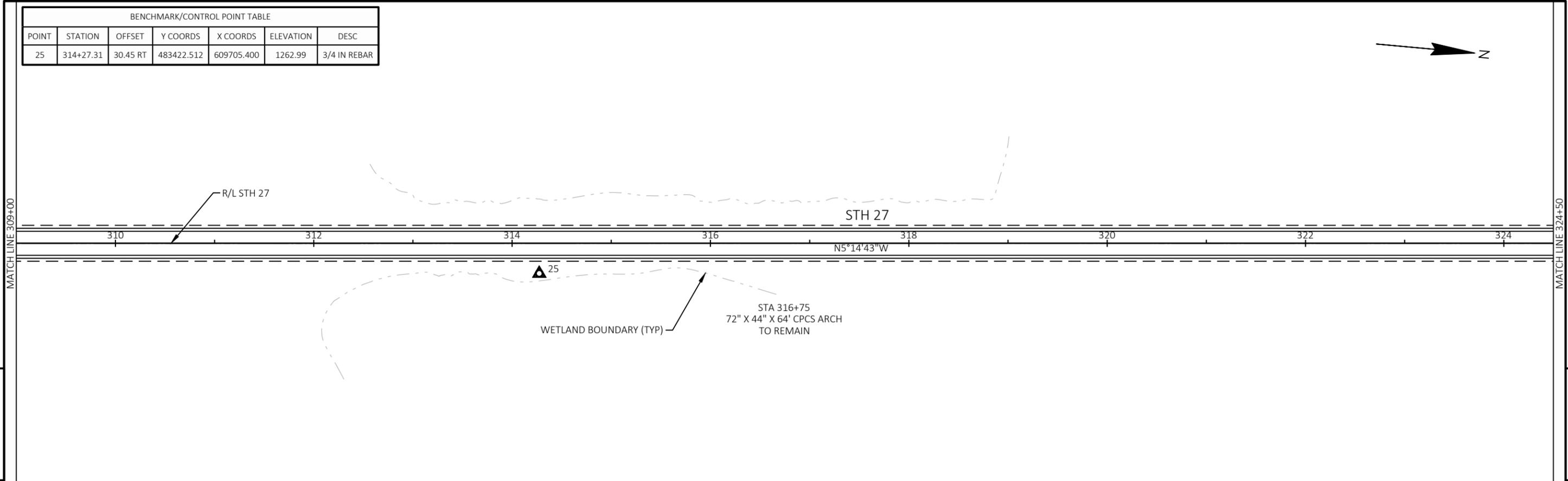


MATCH LINE 309+00

MATCH LINE 324+50

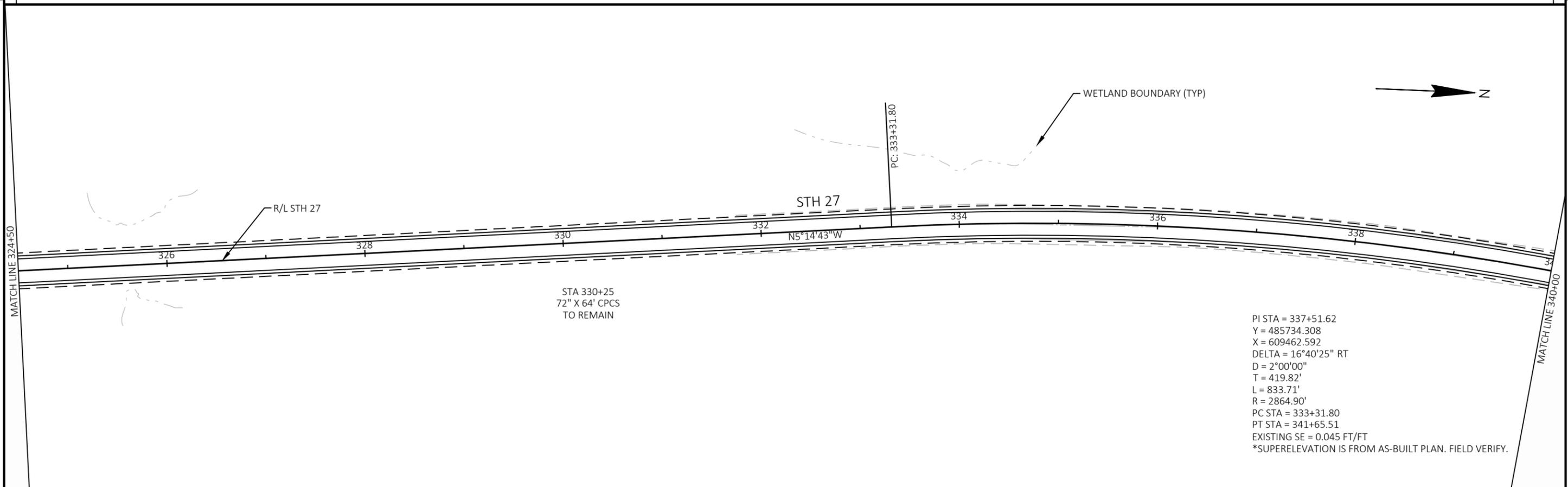
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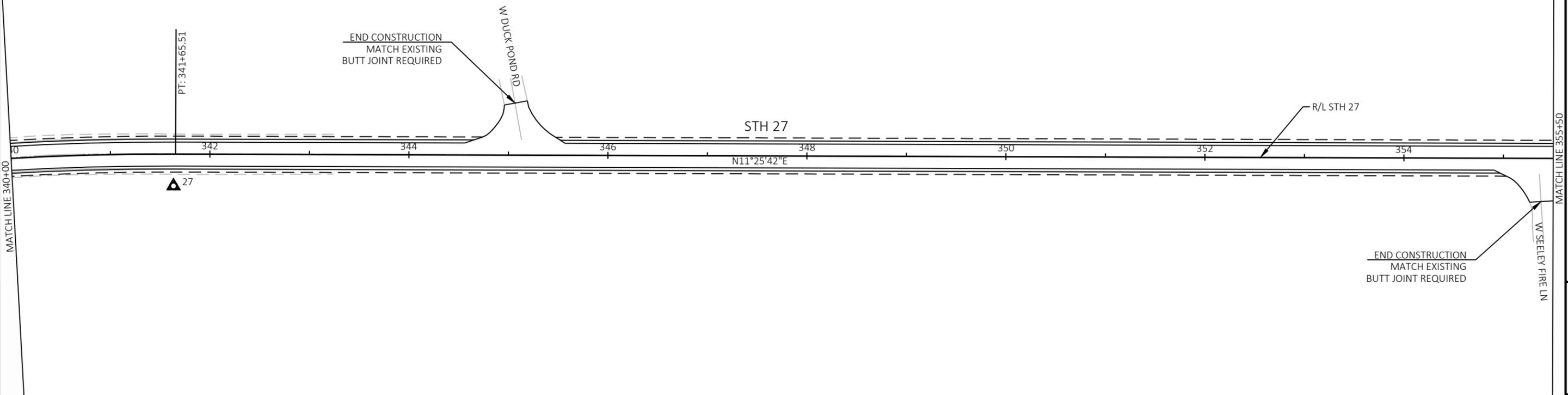
MATCH LINE 324+50

MATCH LINE 340+00



PI STA = 337+51.62
 Y = 485734.308
 X = 609462.592
 DELTA = 16°40'25" RT
 D = 2°00'00"
 T = 419.82'
 L = 833.71'
 R = 2864.90'
 PC STA = 333+31.80
 PT STA = 341+65.51
 EXISTING SE = 0.045 FT/FT
 *SUPERELEVATION IS FROM AS-BUILT PLAN. FIELD VERIFY.

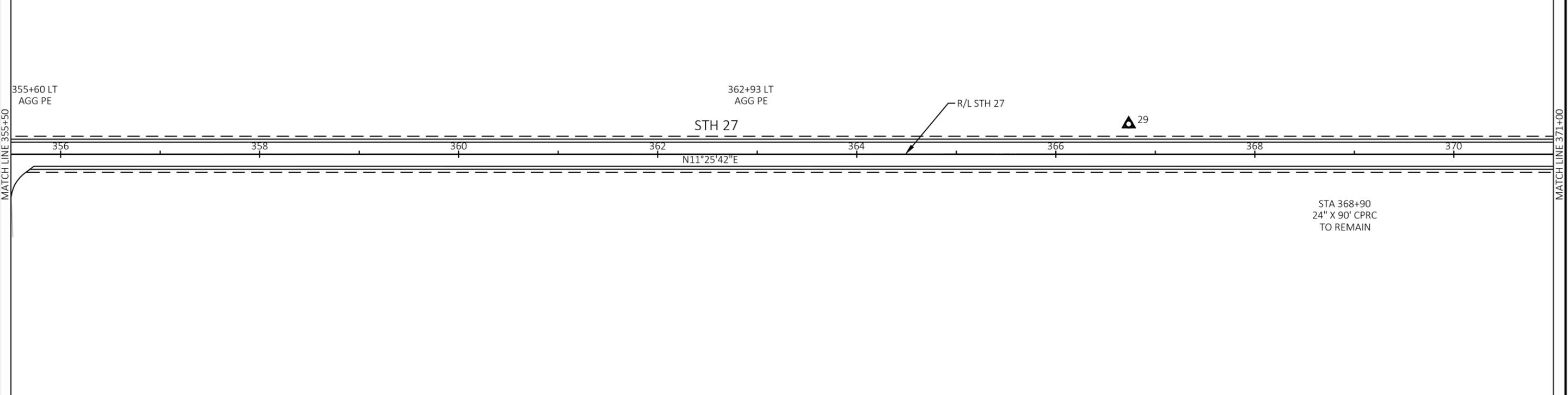
BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
27	341+63.37	31.99 RT	486137.398	609576.715	1276.88	3/4 IN REBAR



5

5

BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
29	366+73.30	30.21 LT	488609.866	610013.066	1329.34	3/4 IN REBAR



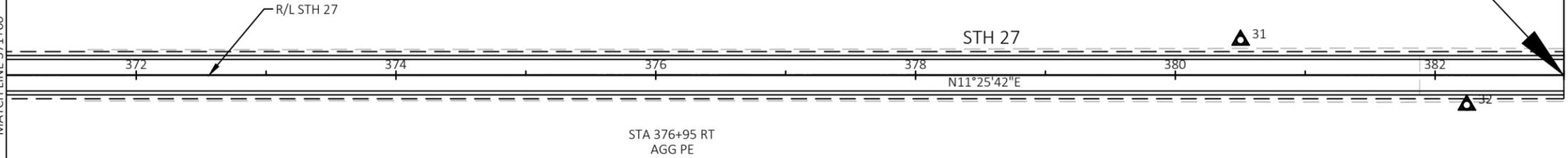
PROJECT NO: 8150-00-71 HWY: STH 27 COUNTY: SAWYER PLAN SHEET E

BENCHMARK/CONTROL POINT TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESC
31	380+50.18	26.98 LT	489958.806	610289.050	1319.37	3/4 IN REBAR
32	382+24.30	22.90 RT	490119.585	610372.442	1321.41	3/4 IN REBAR



END PROJECT
 STA 382+99.05
 MATCH EXISTING
 BUTT JOINT REQUIRED

MATCH LINE 371+00



5

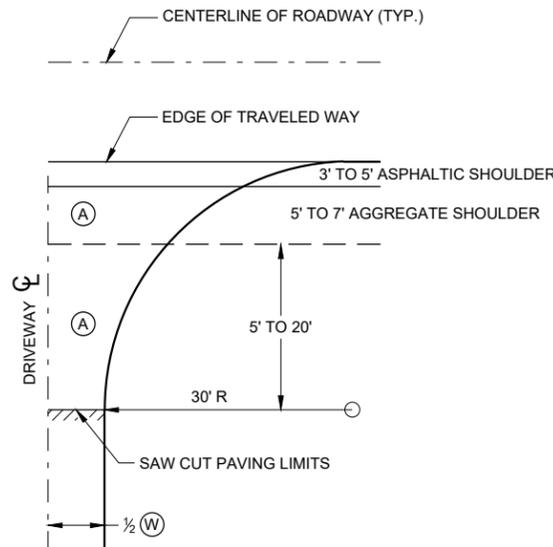
5

Standard Detail Drawing List

08D22-01	DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13C19-03	HMA LONGITUDINAL JOINTS
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B20-11G	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B24-09A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B29-01	SAFETY EDGE
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-08	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-06A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-04A	PAVEMENT MARKING (INTERSECTIONS)
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D44-02	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES

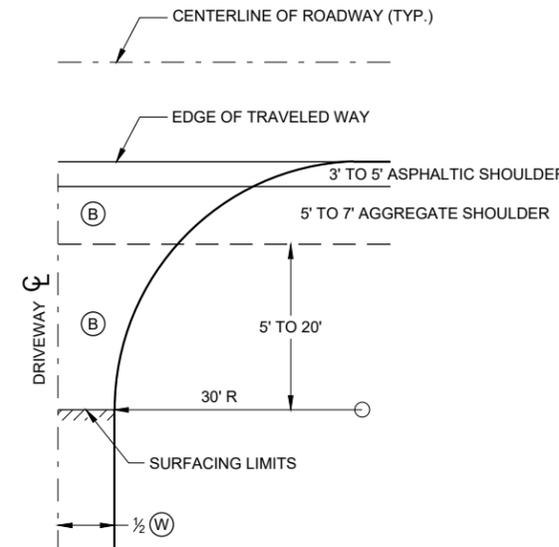
GENERAL NOTES

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

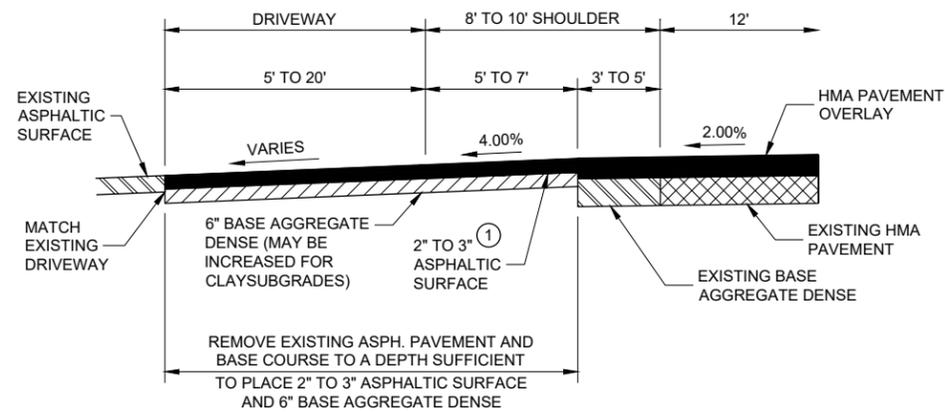


- (A) : PAID FOR AS ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES. (TON)
- (B) : PAID FOR AS BASE AGGREGATE DENSE 1 1/4" (TON)
- (W) : DRIVEWAY WIDTH 16' MIN. - 24' MAX.

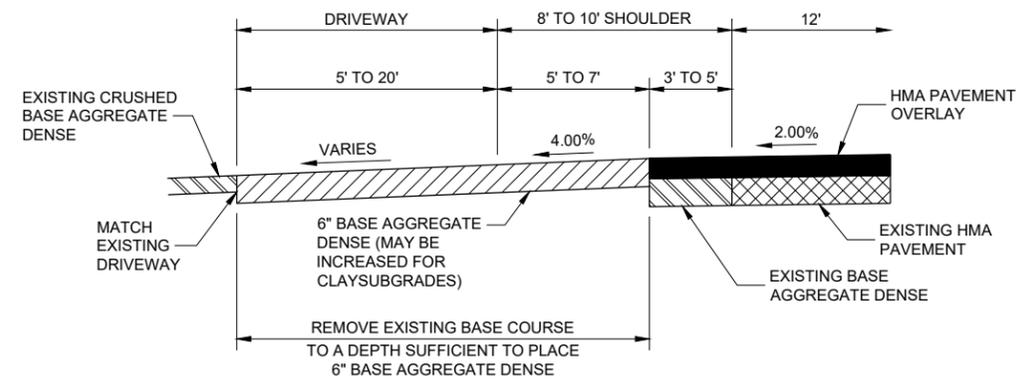
**PLAN VIEW
HALF SECTION**



**PLAN VIEW
HALF SECTION**



**PROFILE VIEW
RURAL ENTRANCE
WITH ASPHALTIC SURFACE
RESURFACING PROJECTS**



**PROFILE VIEW
RURAL ENTRANCE
WITH AGGREGATE SURFACE
6" BASE AGGREGATE DENSE
RESURFACING PROJECTS**

**DRIVEWAYS WITHOUT CURB
AND GUTTER RESURFACING
PROJECTS RURAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA

GENERAL NOTES

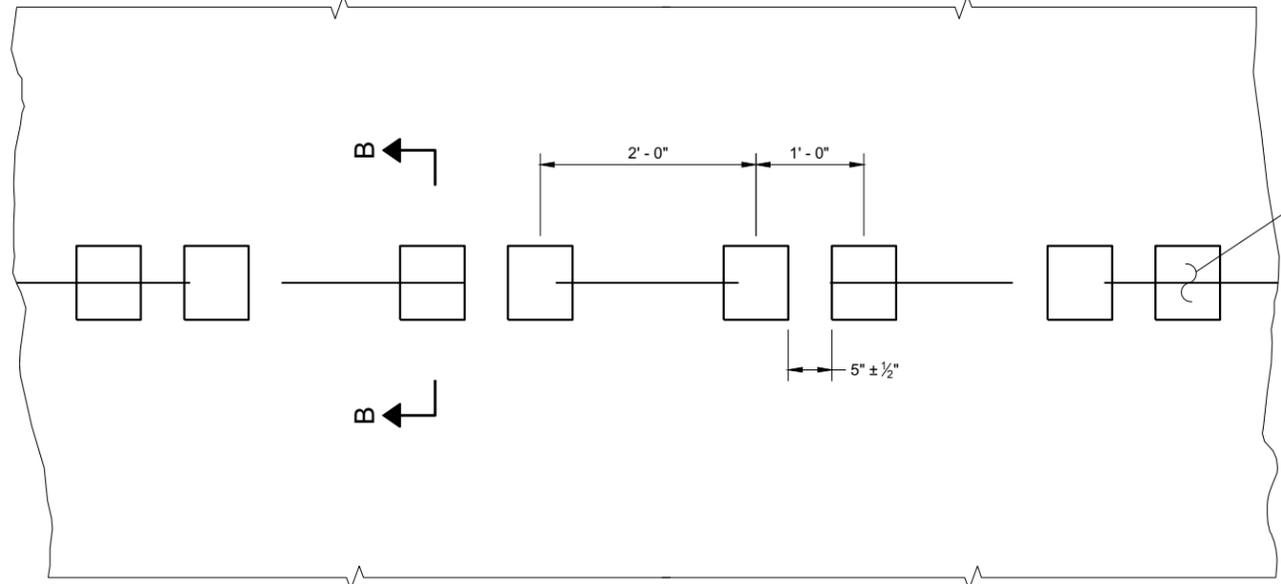
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL CENTERLINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

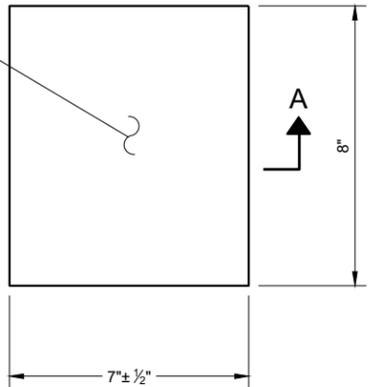
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

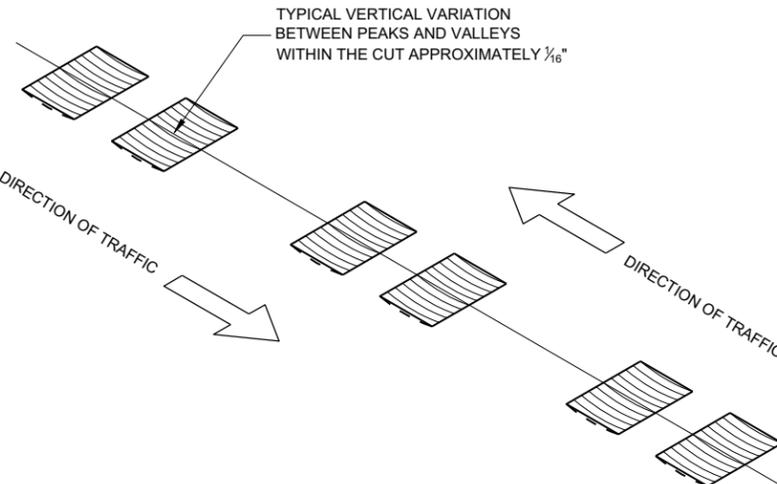
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



**PLAN VIEW
SHOULDER WITH GROOVES**

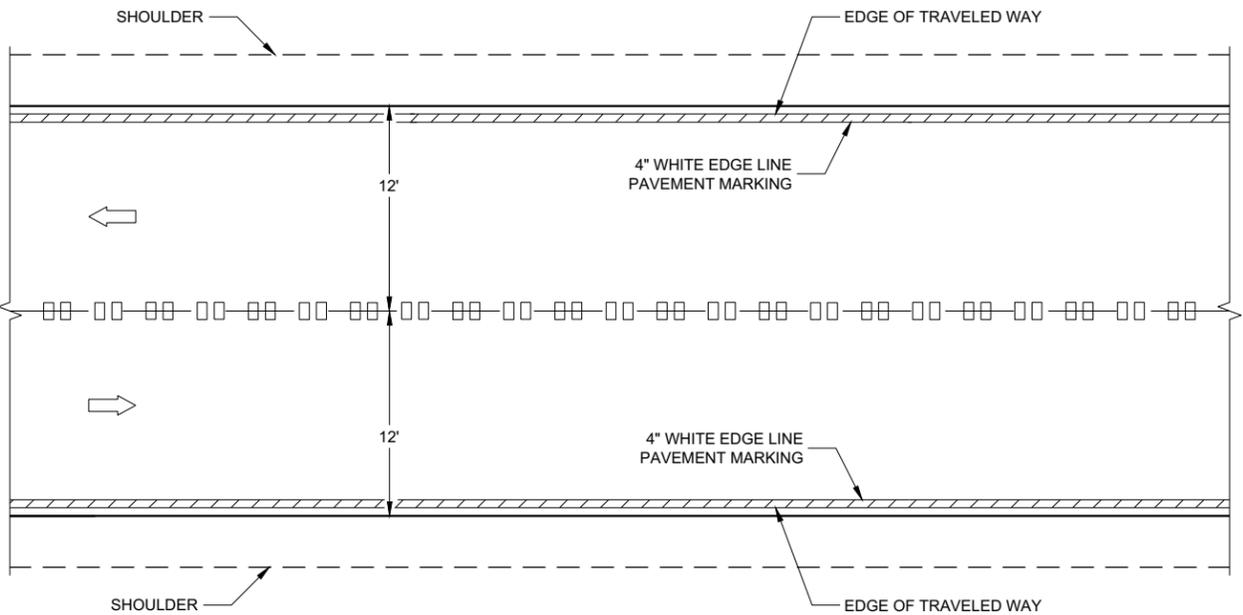


**PLAN VIEW
(SINGLE GROOVE)**

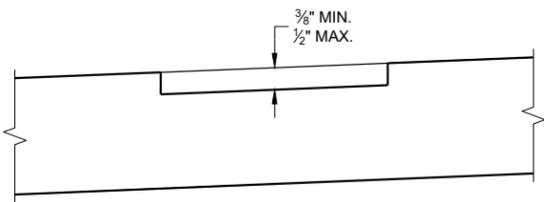


ISOMETRIC

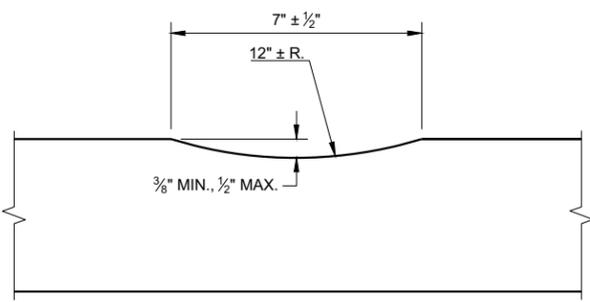
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



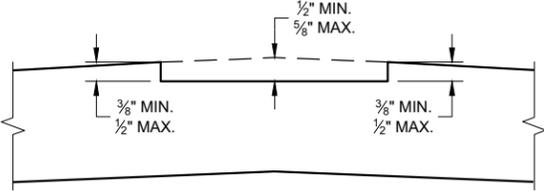
CENTERLINE GROOVES ON TWO-WAY ROADWAYS



**SECTION B - B
SUPERELEVATED ROADWAY**



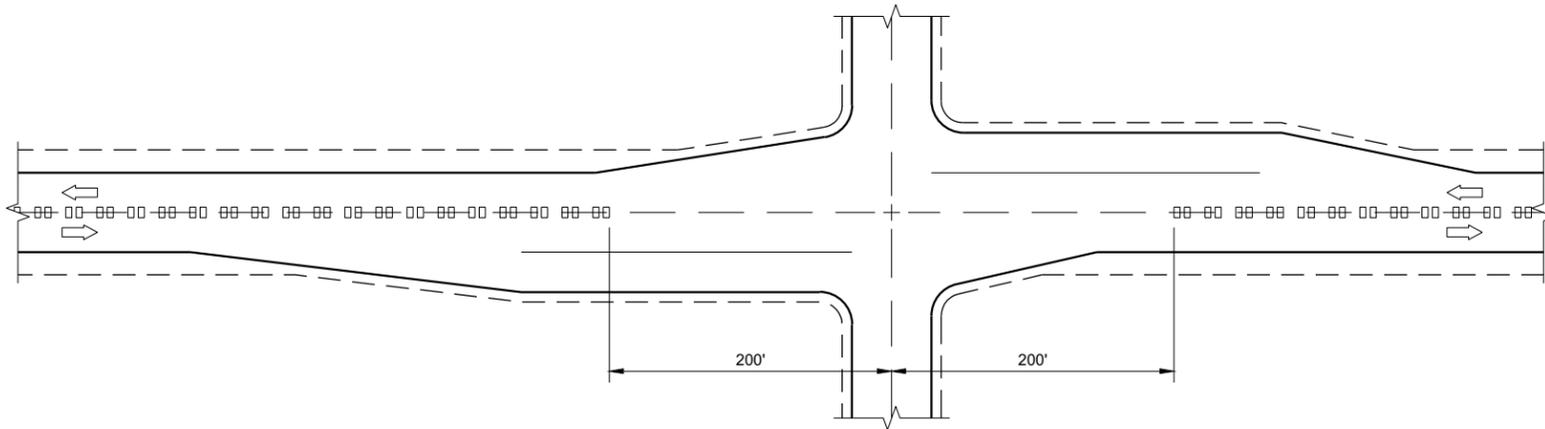
SECTION A - A



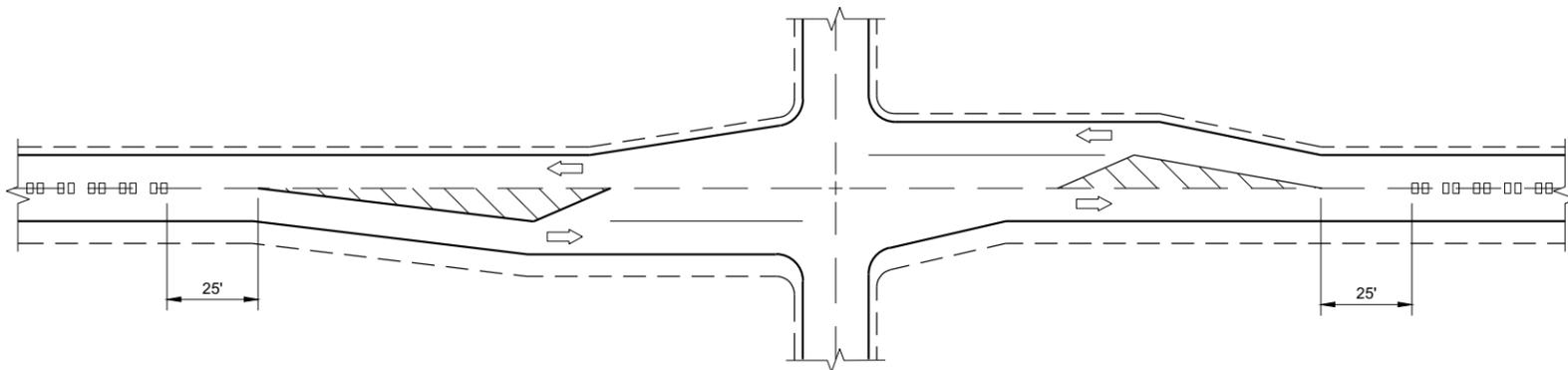
**SECTION B - B
CROWNED ROADWAY**

**2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING**

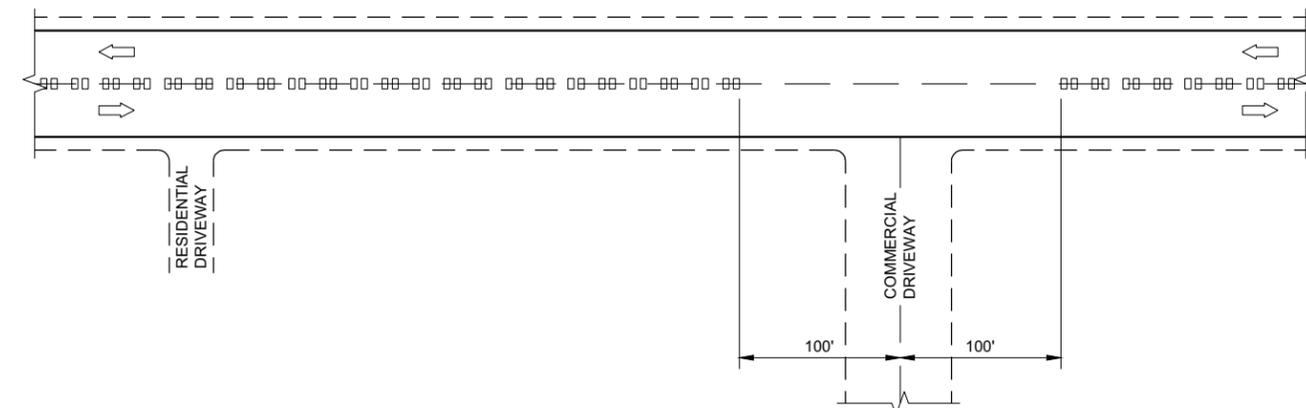
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



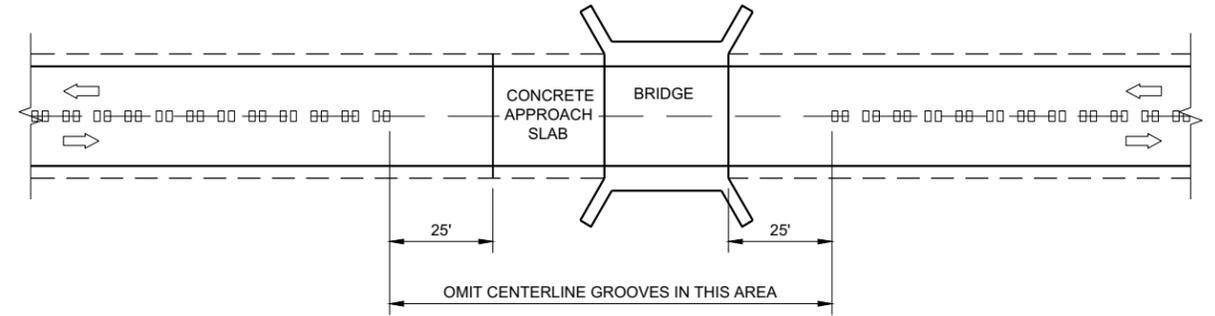
**CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)**



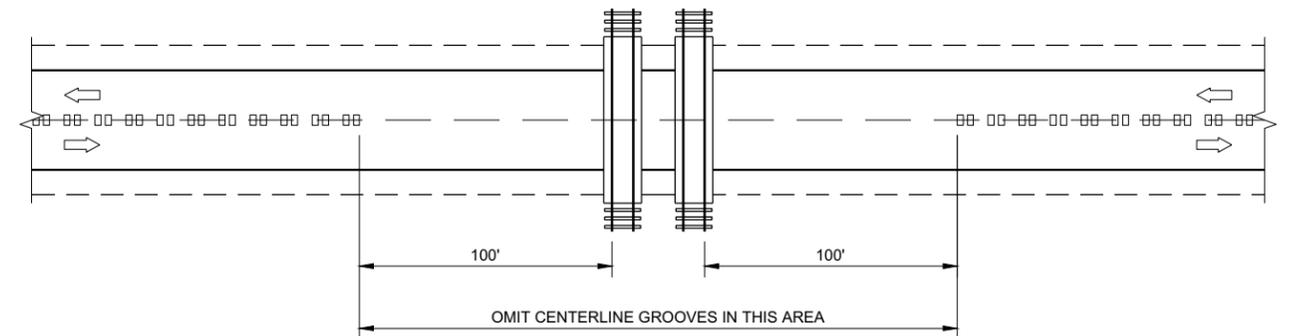
CENTERLINE GROOVES AT DRIVEWAYS ①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES



CENTERLINE GROOVES AT RAILROADS

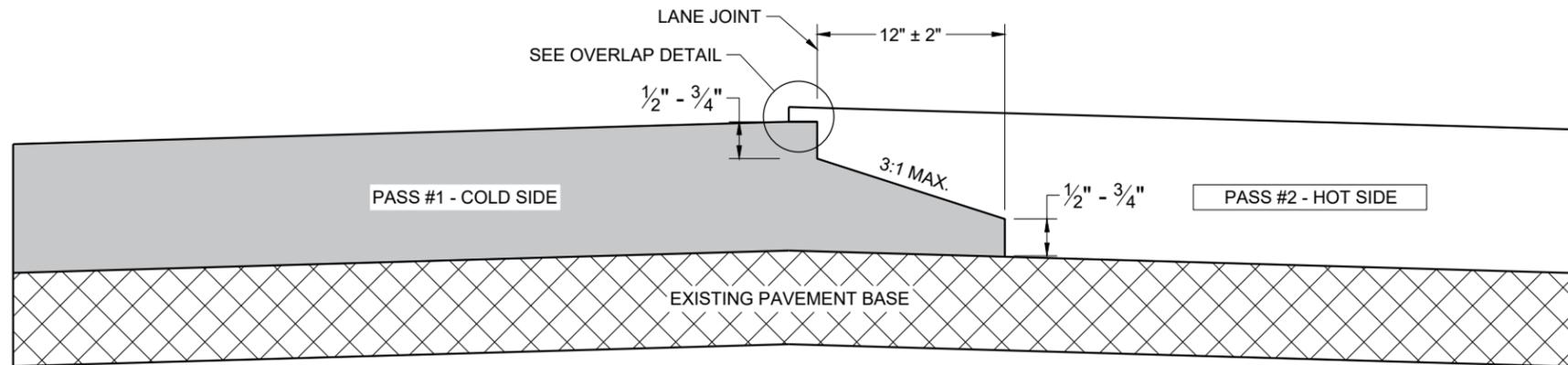
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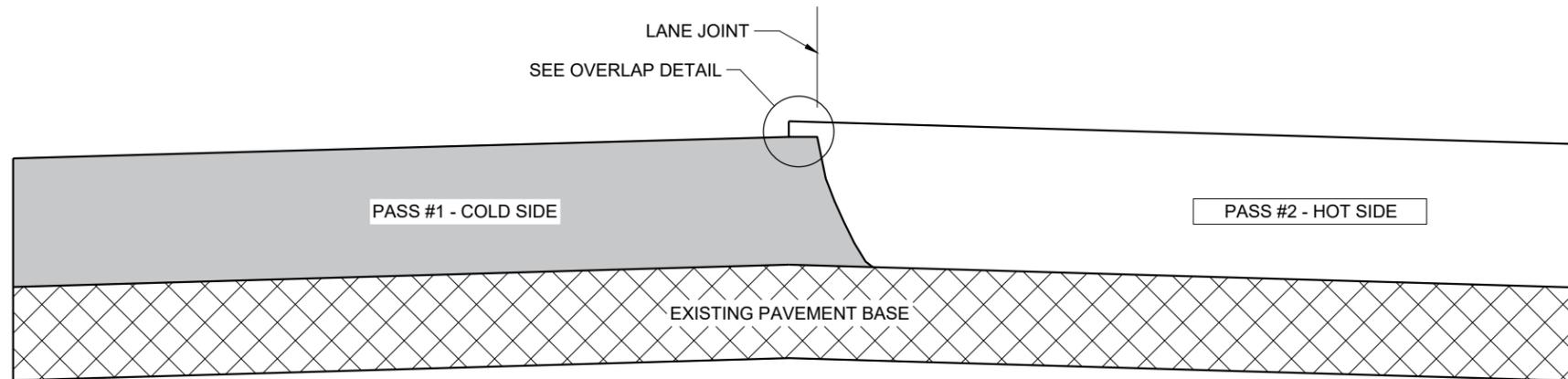
SDD 13A11 - 03b

SDD 13A11 - 03b

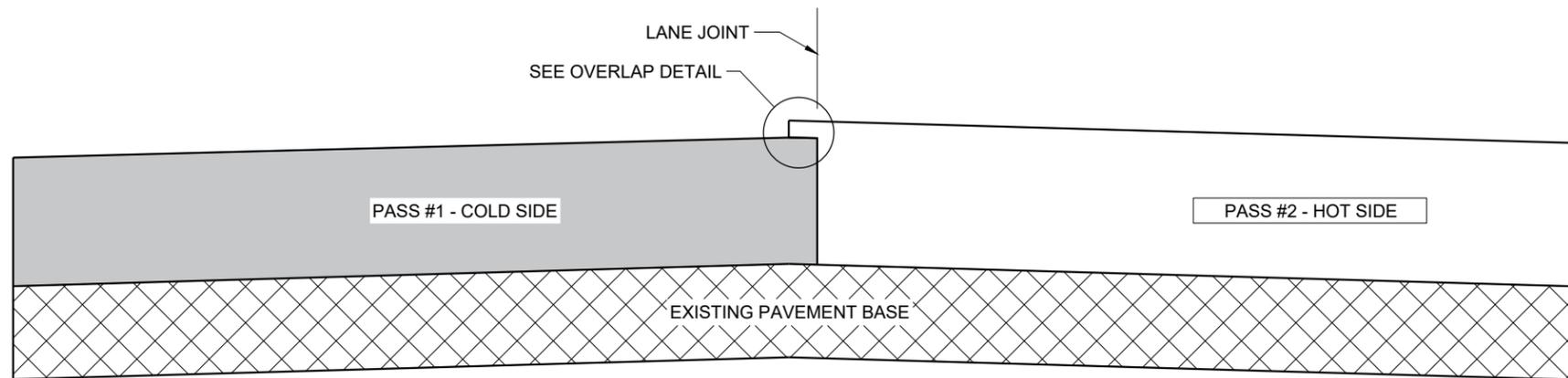
2-LANE RURAL CENTERLINE RUMBLE STRIP, MILLING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 7/2018	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



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

GENERAL NOTES

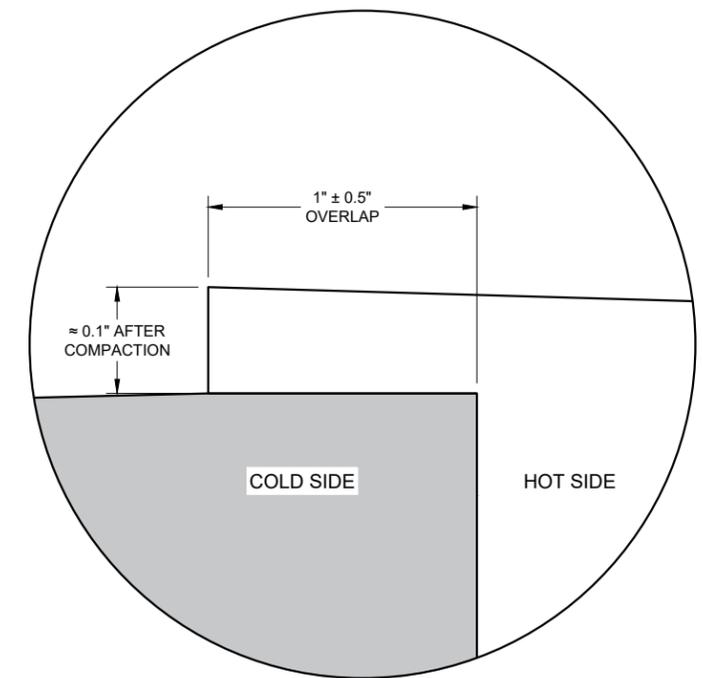
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



OVERLAP DETAIL (TYPICAL)

6

6

SDD 13C19 - 03

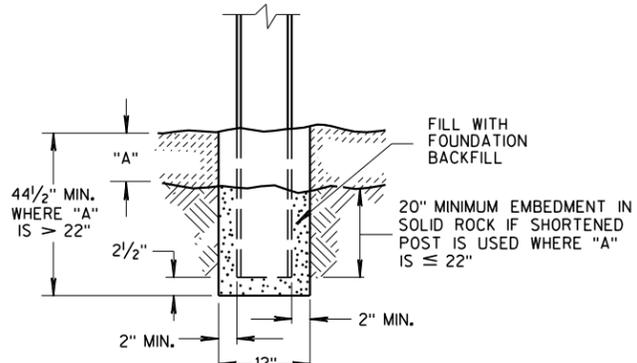
SDD 13C19 - 03

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

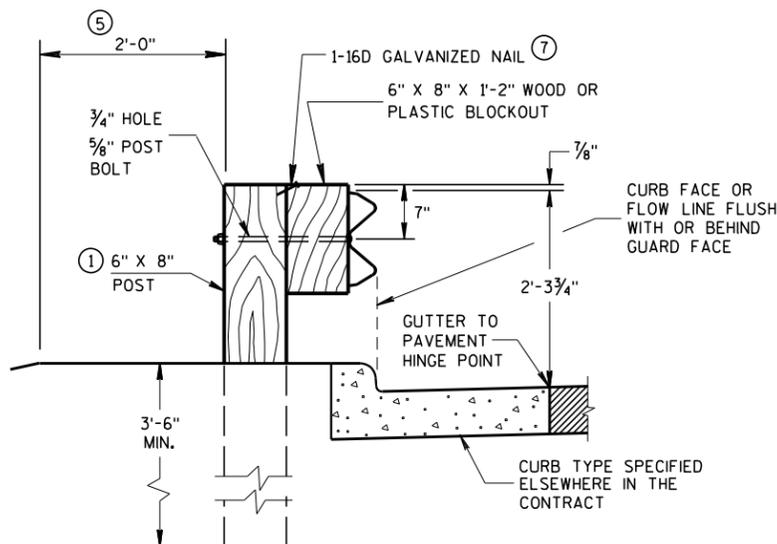
GENERAL NOTES

- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND 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. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- ② USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.
- ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- ⑤ IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
- ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.
- ⑦ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

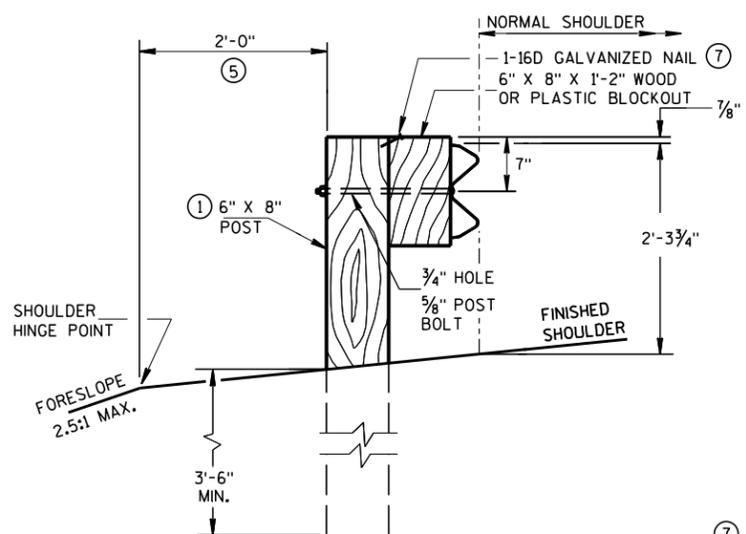
INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



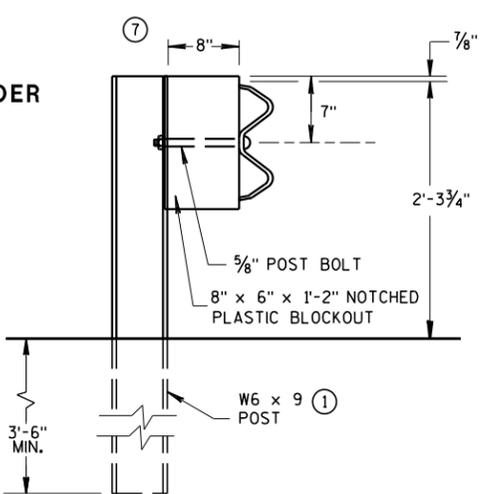
END VIEW SETTING STEEL OR WOOD POST IN ROCK ⑥



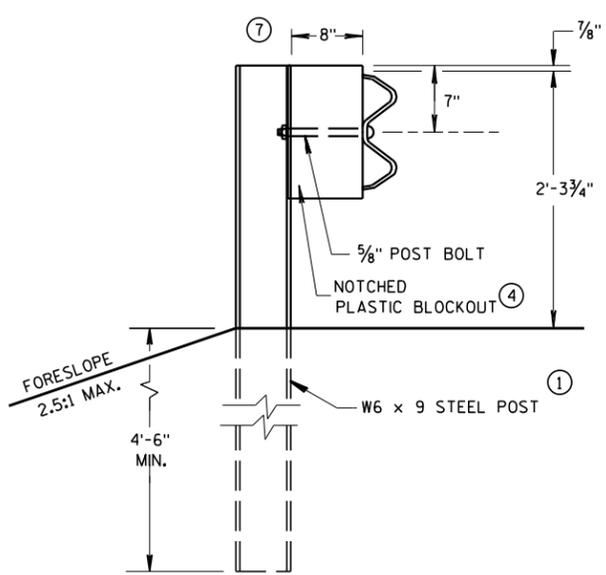
END VIEW LOCATED ALONG A CURBED ROADWAY



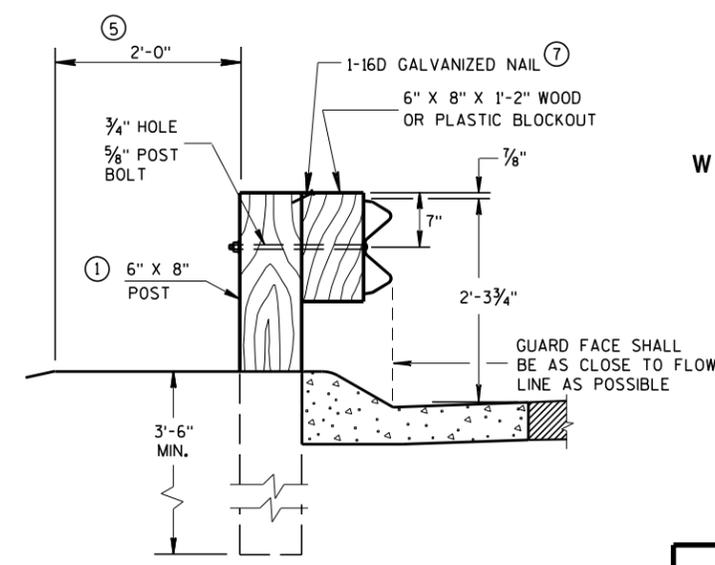
END VIEW LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



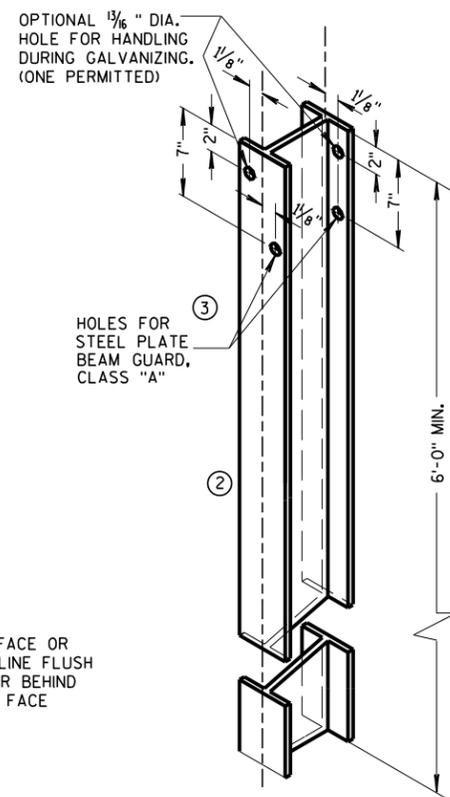
END VIEW STEEL POST & NOTCHED PLASTIC BLOCKOUT ALTERNATIVE STANDARD INSTALLATION



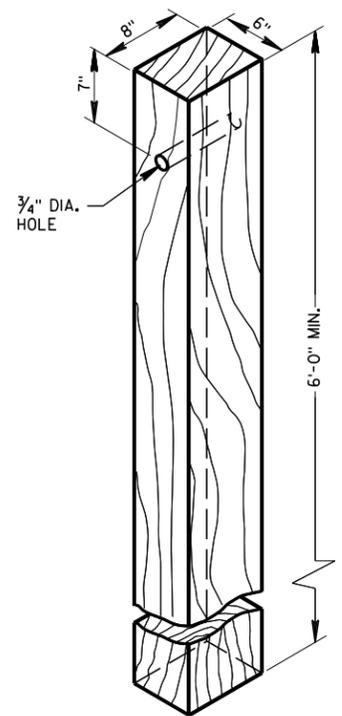
END VIEW LONGER POST AT HALF POST SPACING W BEAM (LHW)



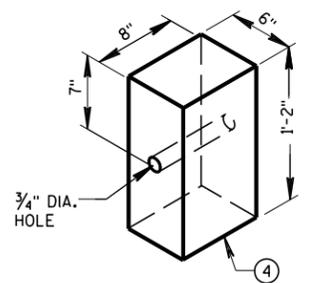
END VIEW LOCATED ALONG A MOUNTABLE CURBED ROADWAY



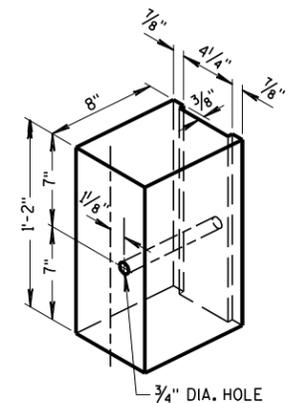
STEEL POST & HOLE PUNCHING DETAIL (W6 X 9) ①
ALL HOLES 3/16" DIAMETER EXCEPT AS NOTED



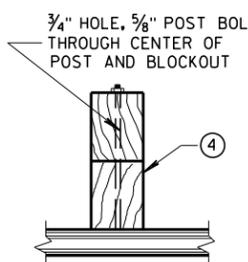
WOOD POST (6" X 8") NOMINAL



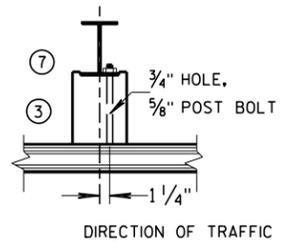
WOOD OR PLASTIC BLOCKOUT FOR WOOD POSTS



TYPICAL NOTCHED PLASTIC BLOCKOUT FOR STEEL POSTS ①



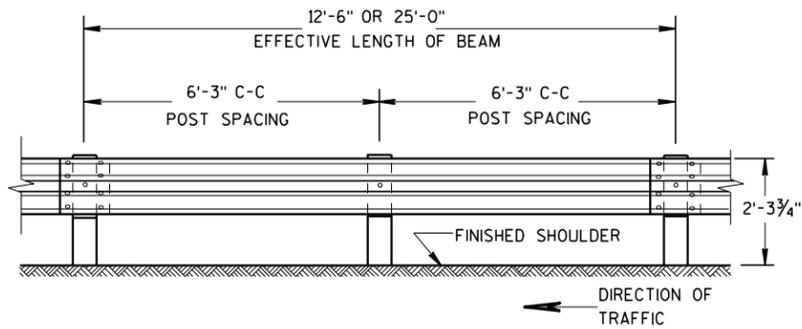
PLAN VIEW WOOD POST, BLOCKOUT & BEAM



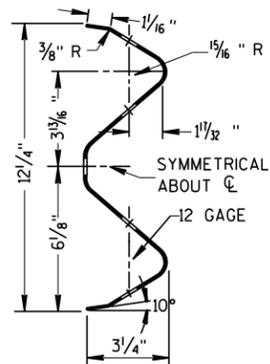
PLAN VIEW STEEL POST, NOTCHED PLASTIC BLOCKOUT & BEAM

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

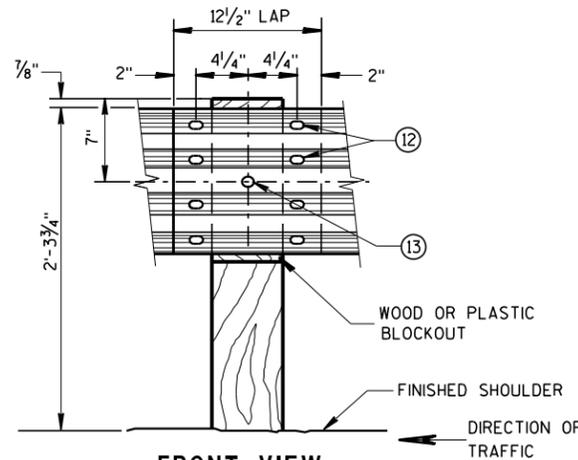
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



SECTION THRU W BEAM

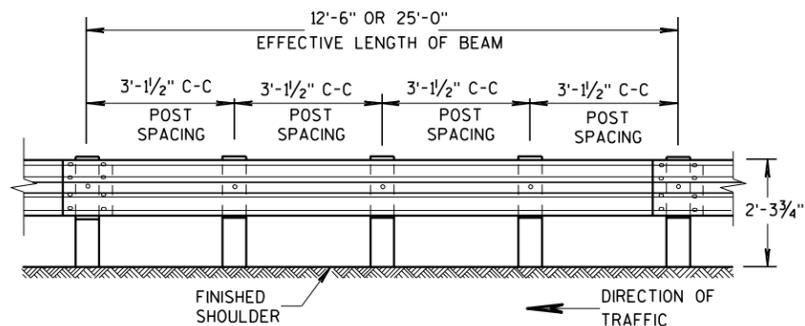


**FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL**

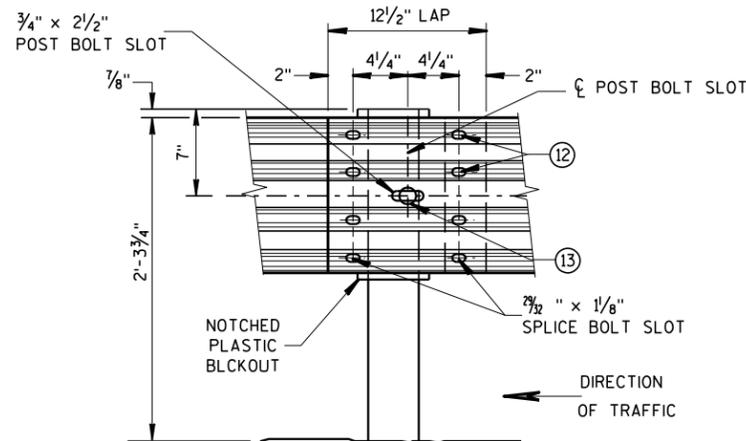
GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

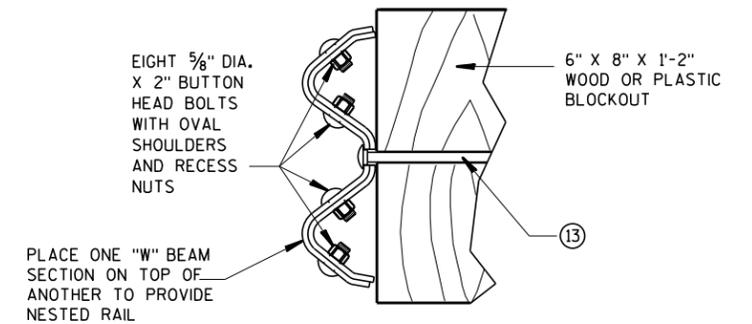
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.
- ⑫ 8 - 5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.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



**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**

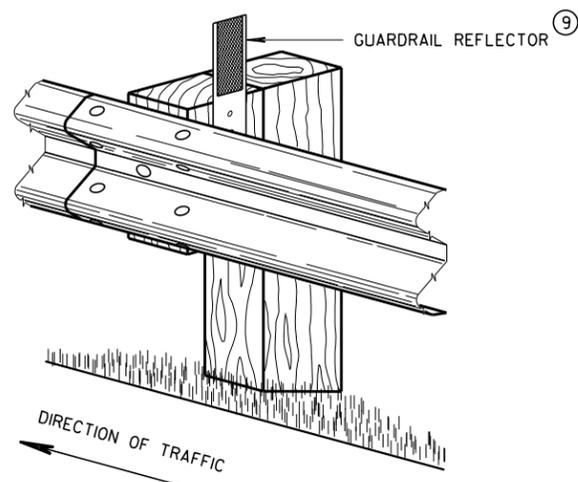


NESTED W BEAM (NW)
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)

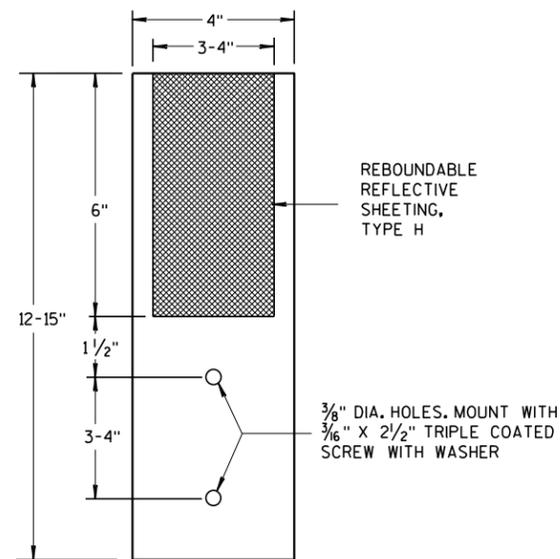
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* USE DOUBLE SIDED WHITE GUARDRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



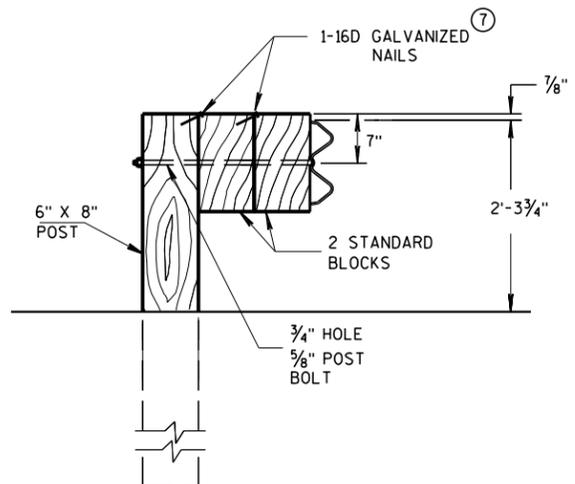
**4" X 12" GUARDRAIL REFLECTOR DETAIL
AND TYPICAL INSTALLATION ***



4" x 12" GUARDRAIL REFLECTOR

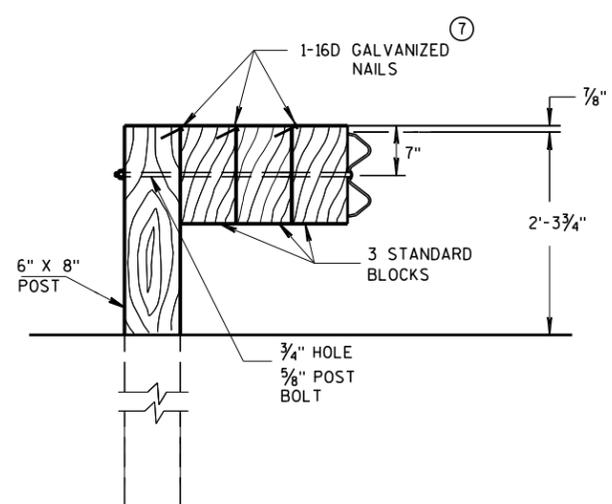
**STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

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

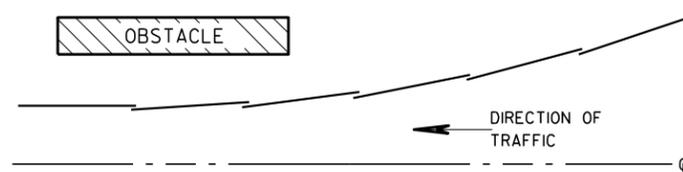


DETAIL FOR TRIPLE BLOCKS

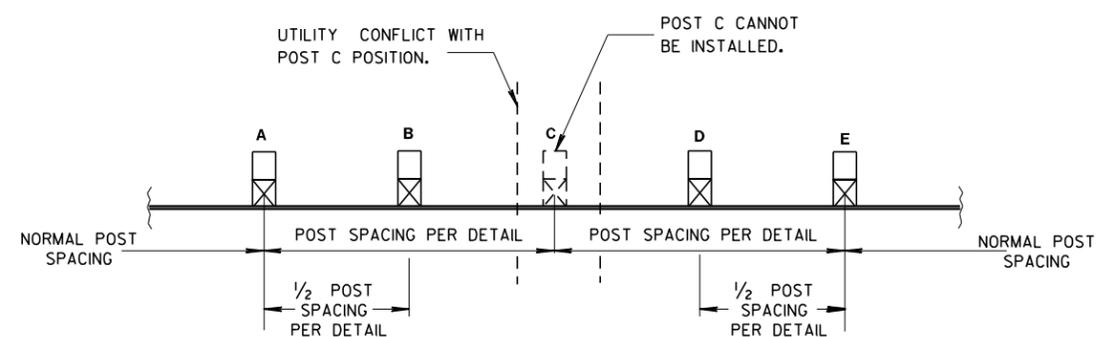
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

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.

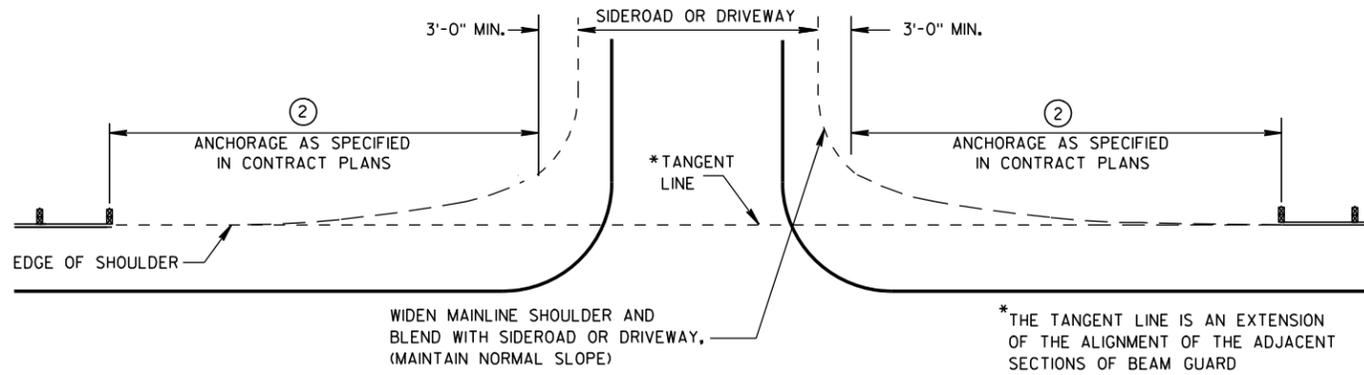


**PLAN VIEW
BEAM LAPPING DETAIL**

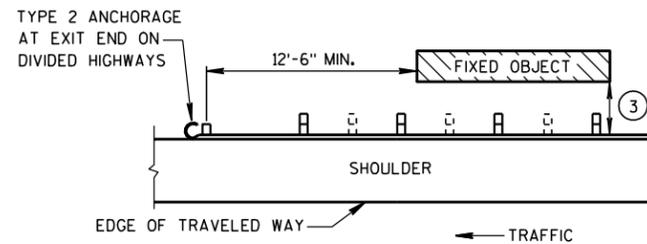


**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017	/s/ Rodney Taylor
DATE	ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	



BEAM GUARD AT SIDEROADS OR DRIVEWAYS



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

GENERAL NOTES

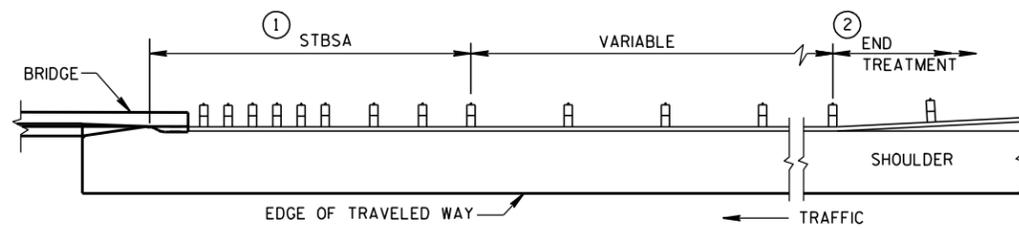
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

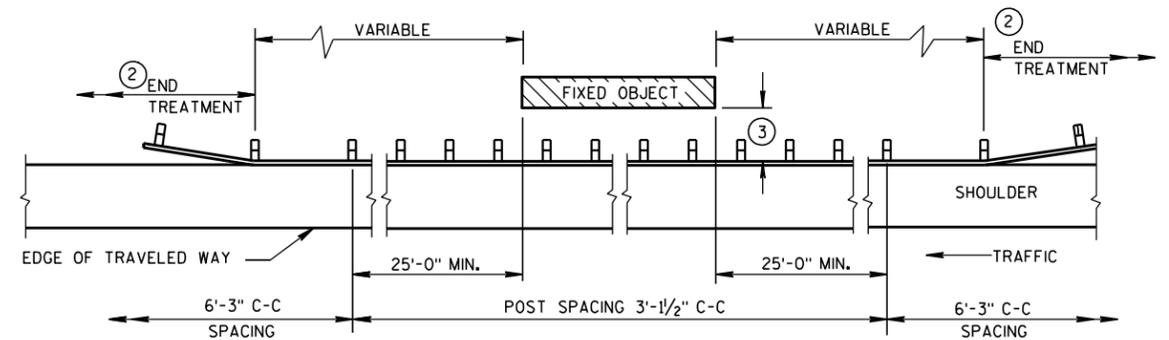
THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

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

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



BEAM GUARD AT FULL WIDTH BRIDGES

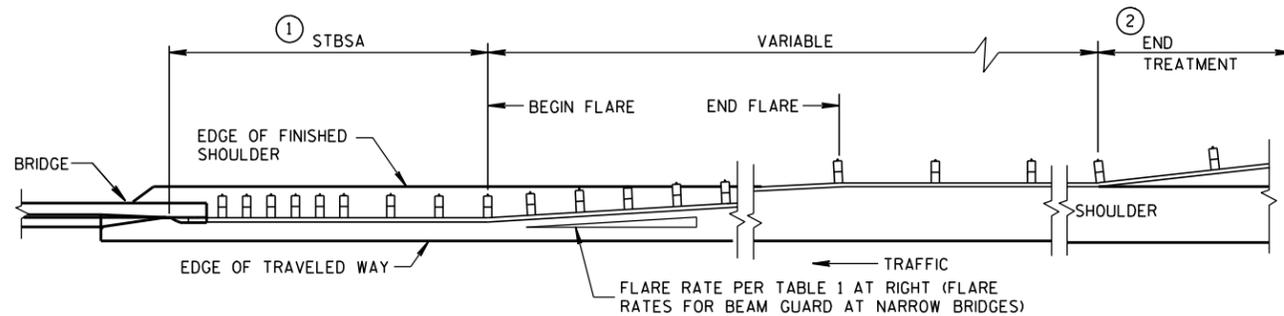


BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(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

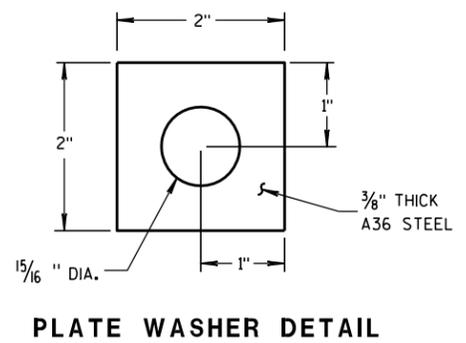
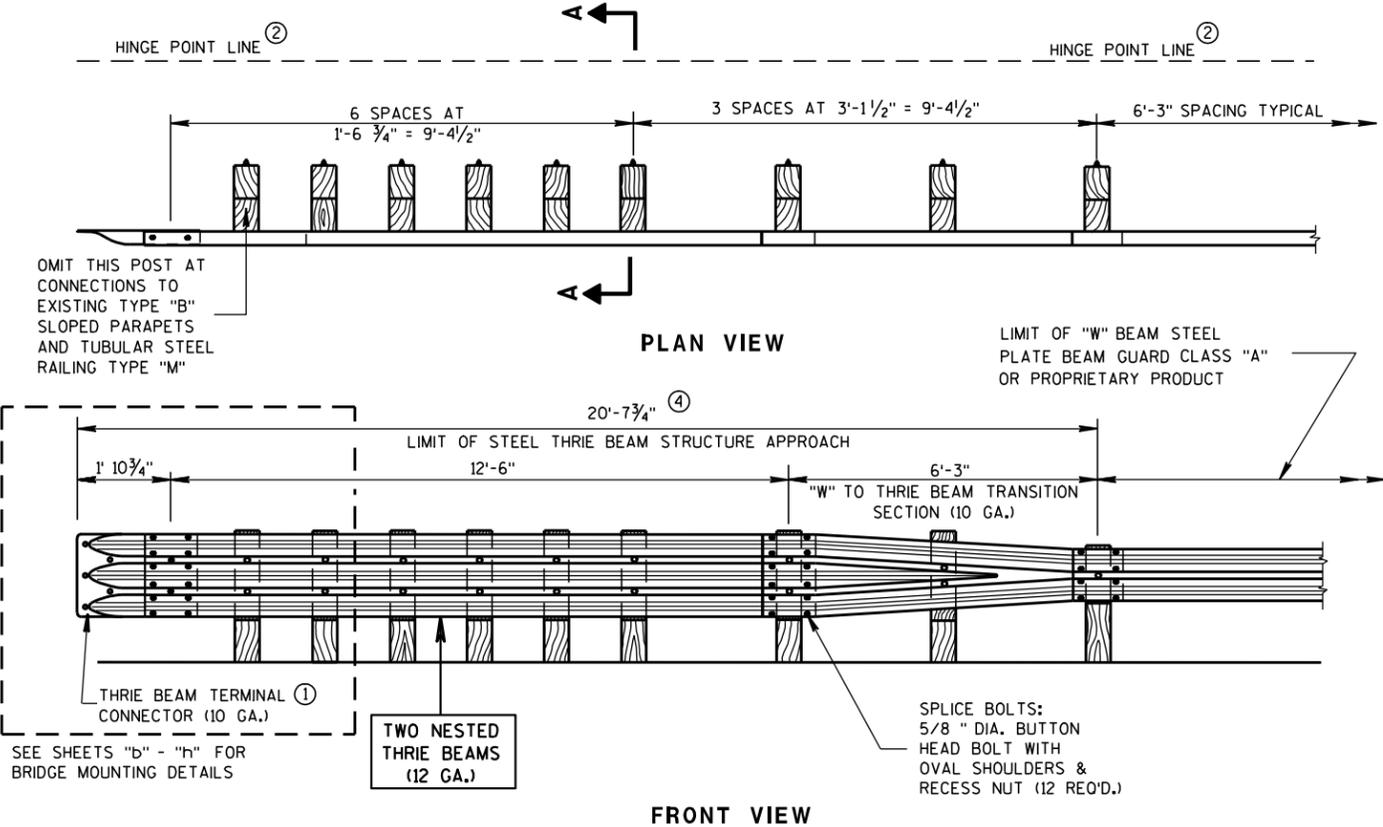


**BEAM GUARD AT NARROW BRIDGES
(FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)**

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

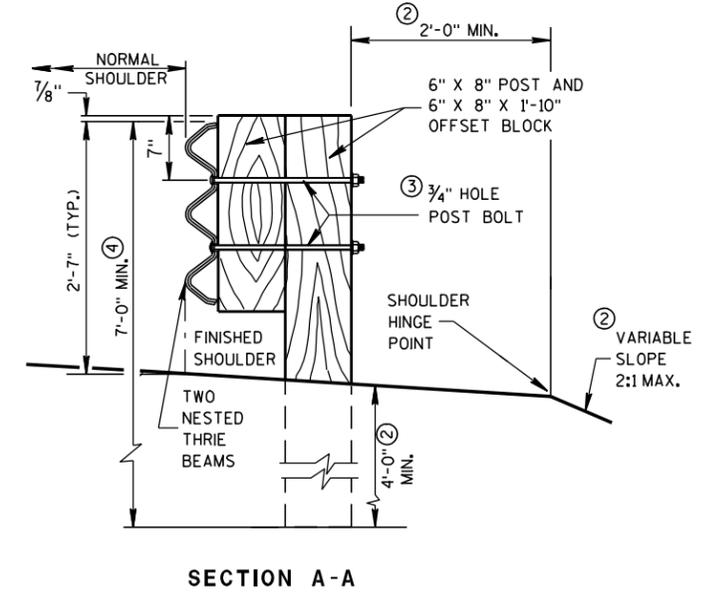
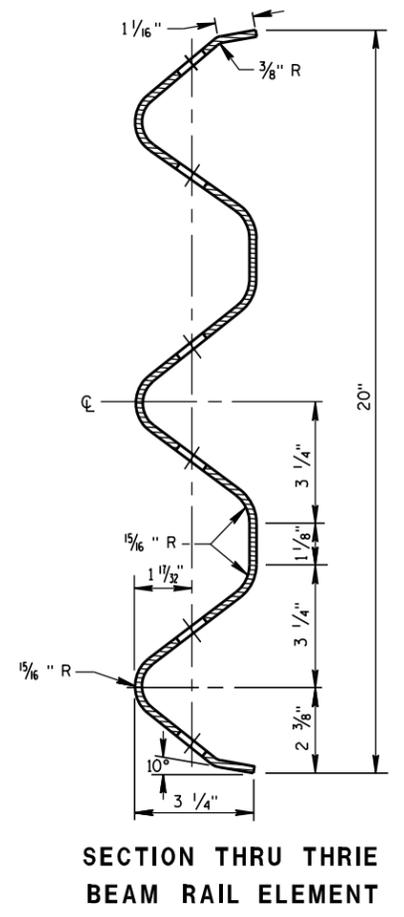
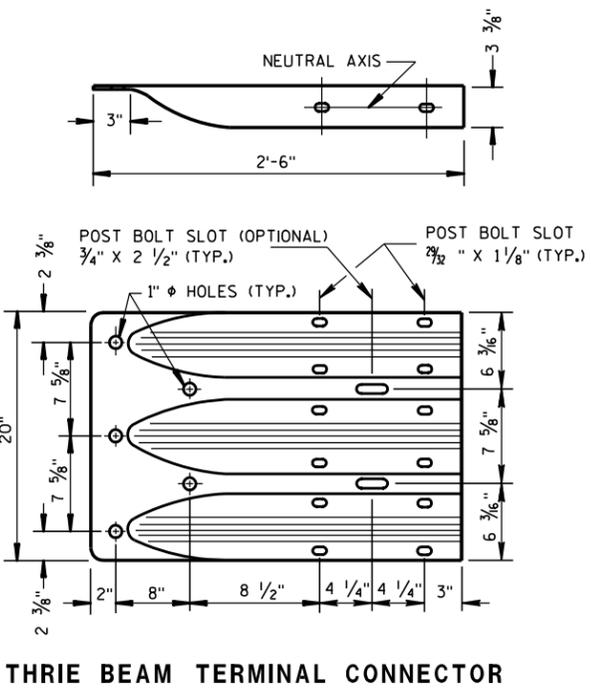
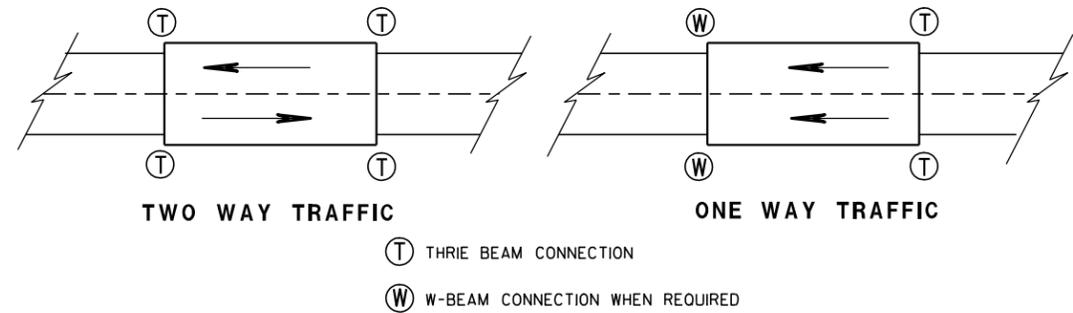
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-21-07 /s/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



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.
- BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
 - 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.
 - 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.
 - ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



STEEL THRIE BEAM STRUCTURE APPROACH

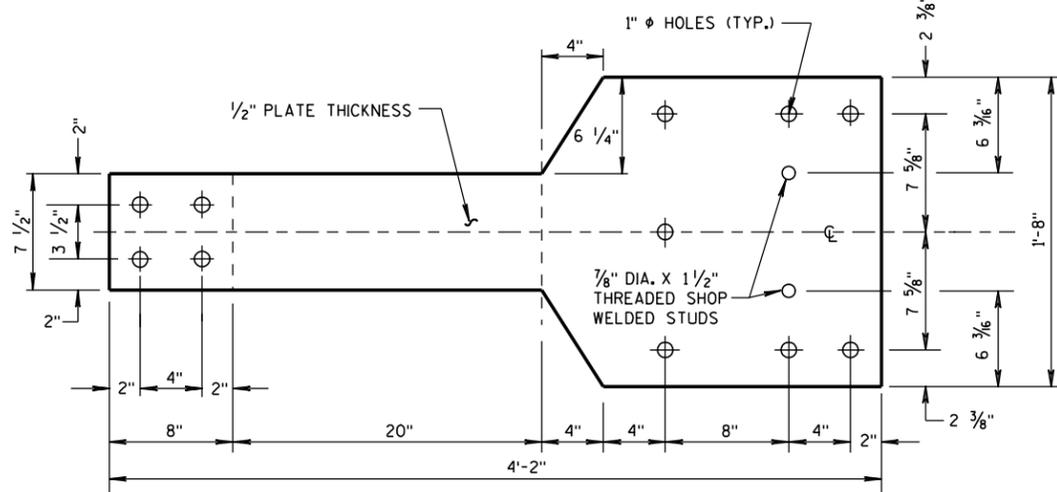
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

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

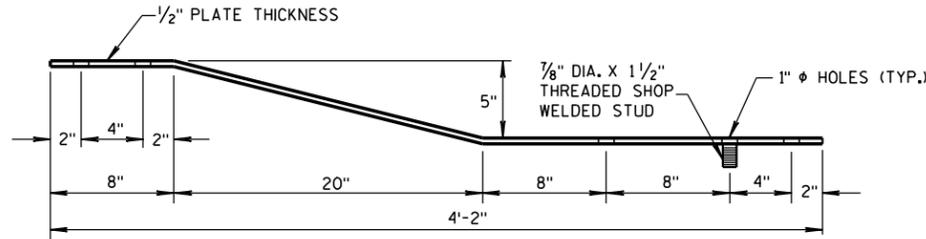
FHWA

GENERAL NOTES

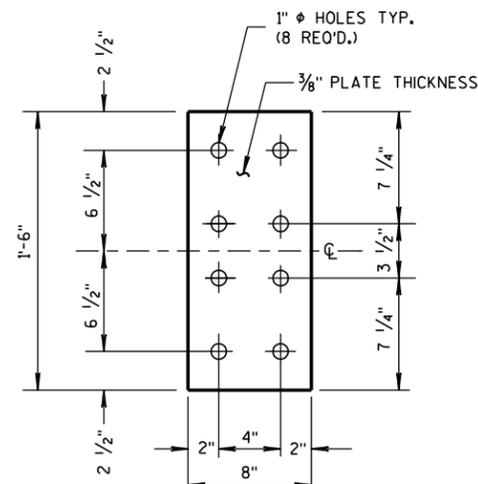
① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.



FRONT VIEW

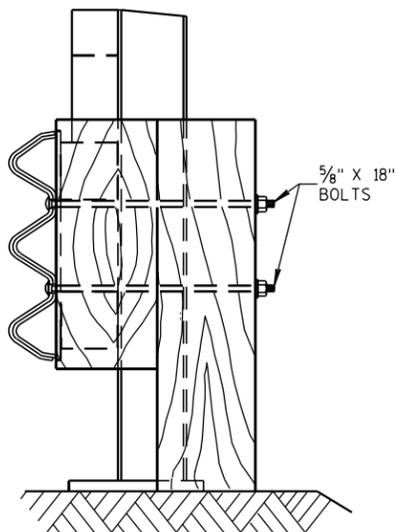


**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**

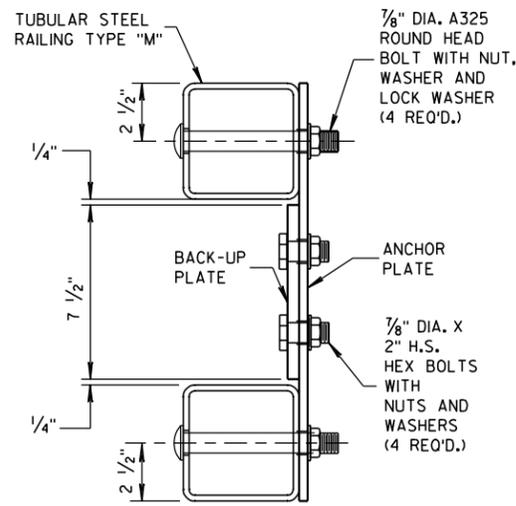


FRONT VIEW

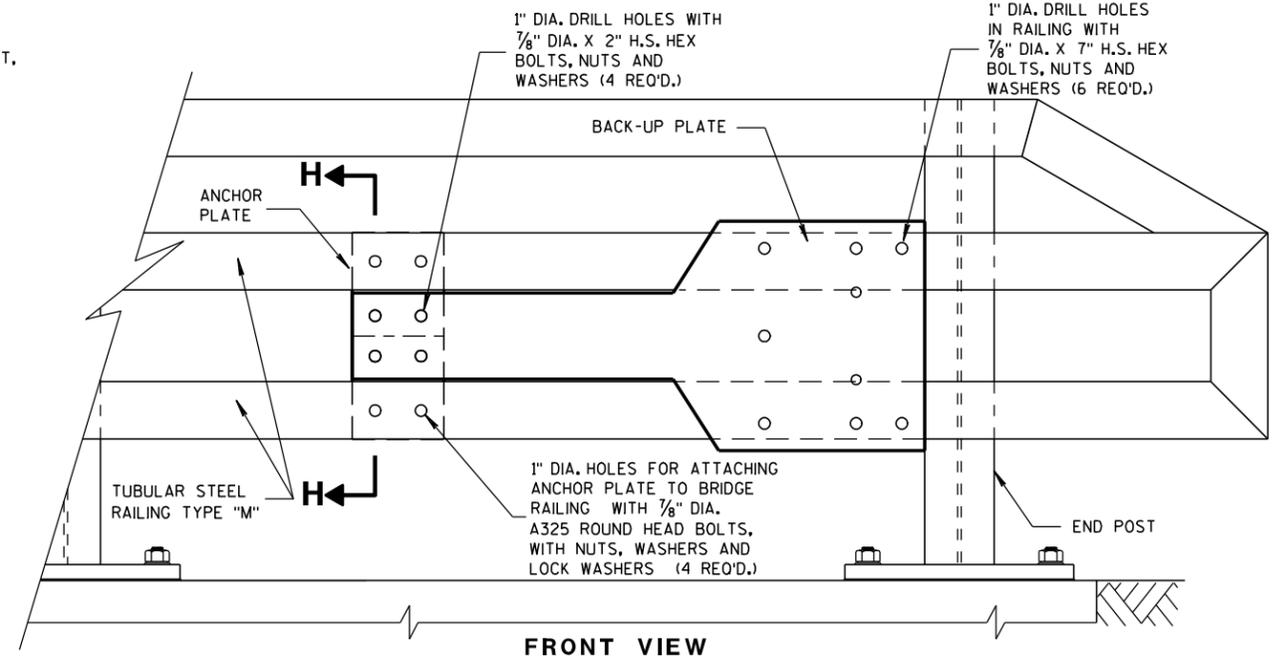
**ANCHOR
PLATE DETAIL,
TYPE "M"**



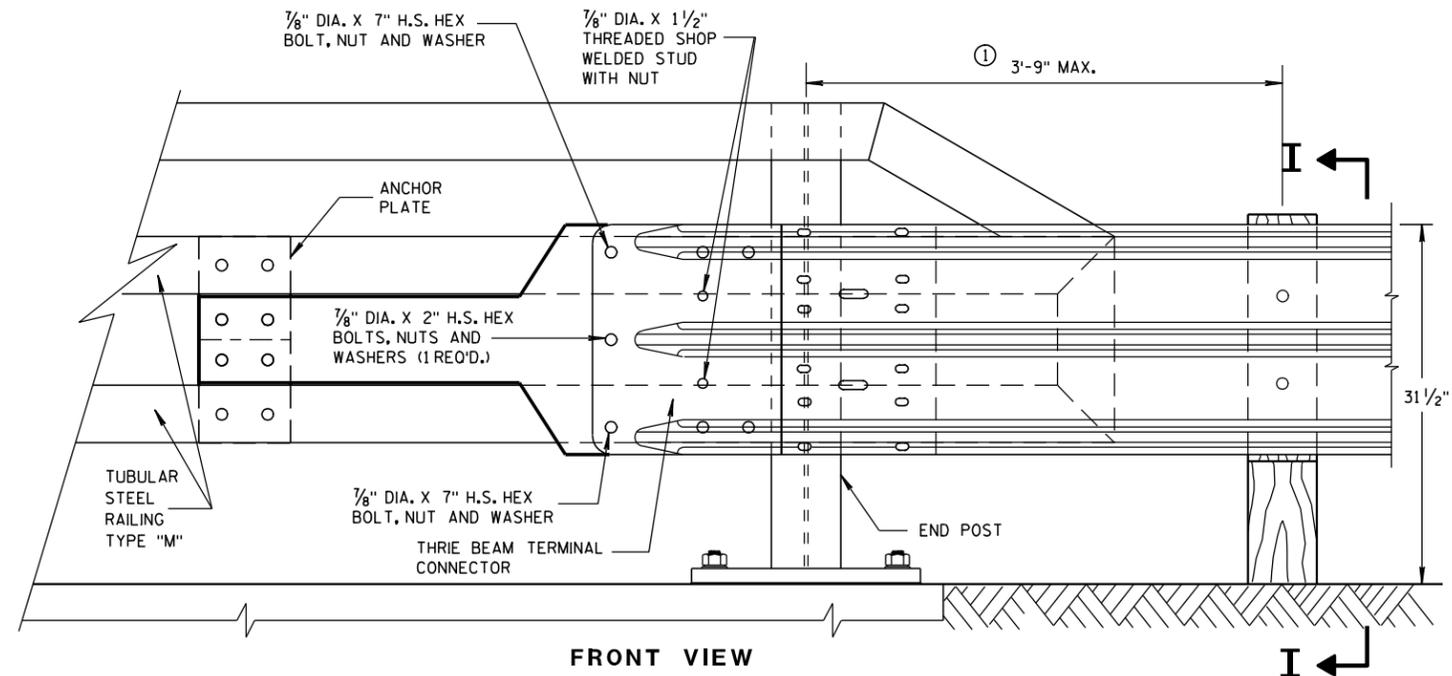
SECTION I-I



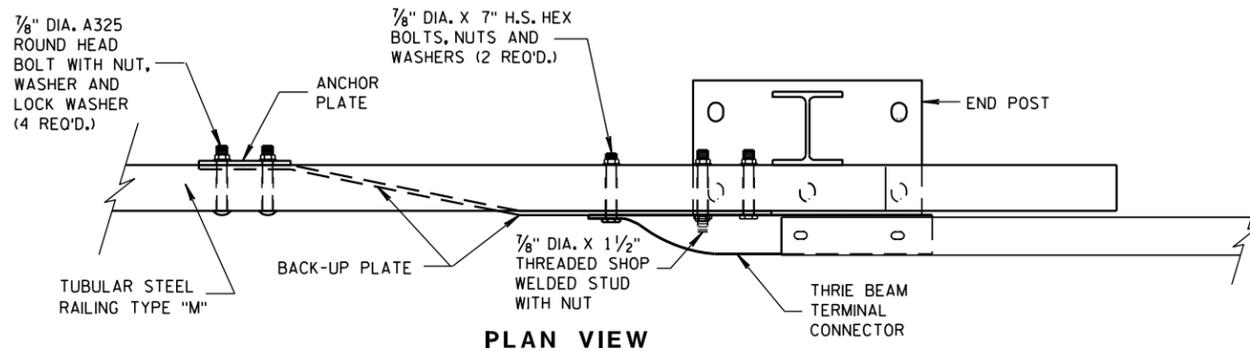
SECTION H-H



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



FRONT VIEW



PLAN VIEW

THREE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

**STEEL THREE BEAM STRUCTURE
APPROACH CONNECTION TO
BRIDGE RAILING TYPE "M"**

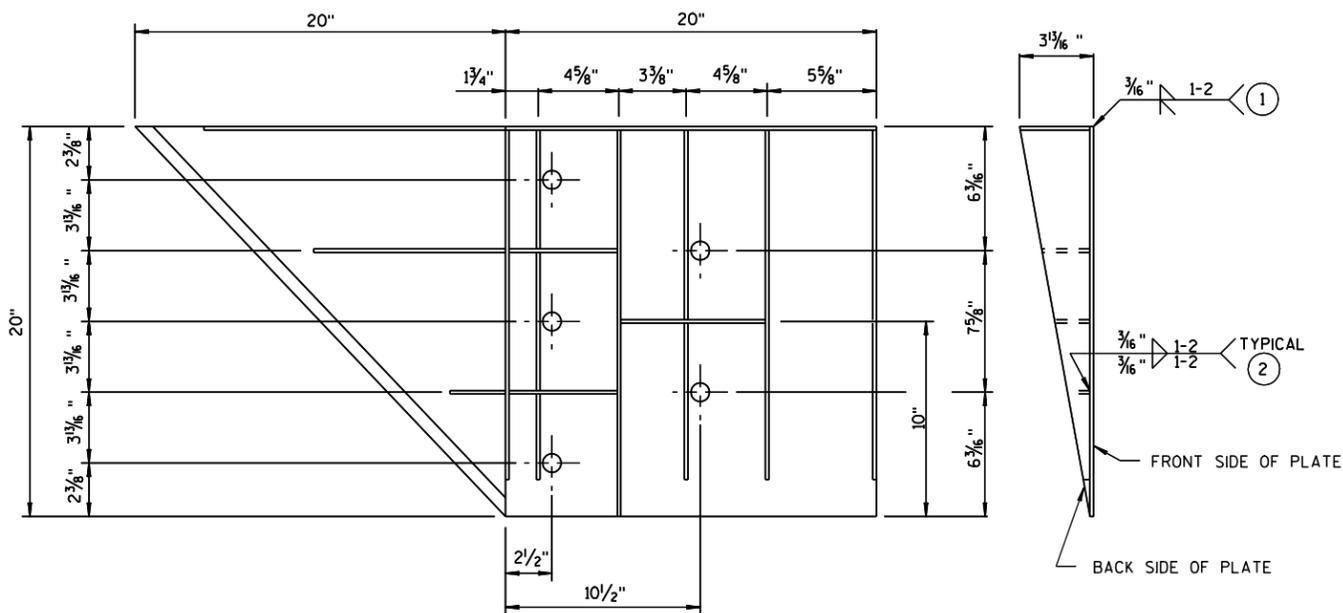
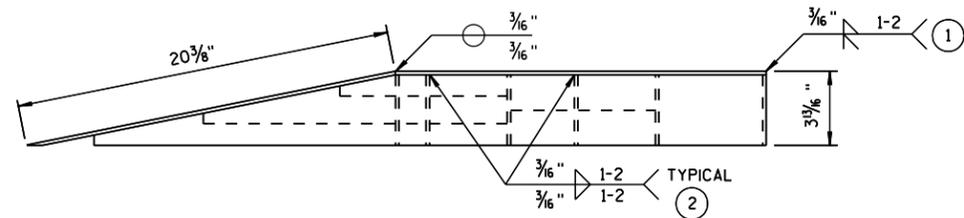
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

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

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



WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

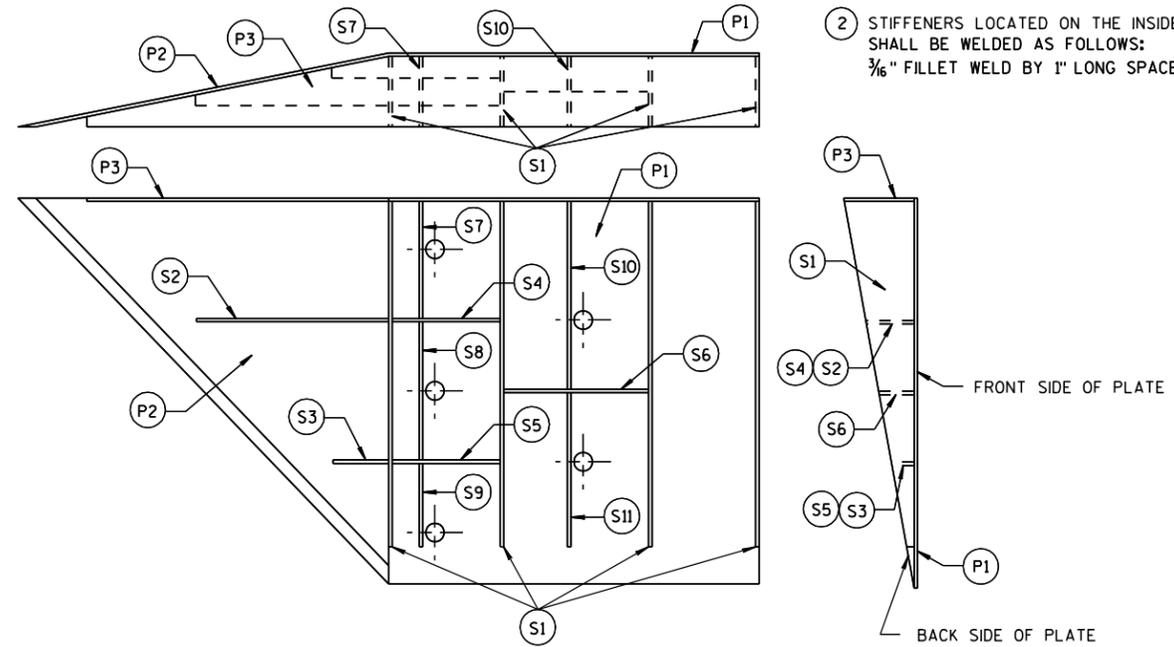


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

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

STEEL THRIE BEAM STRUCTURE APPROACH

**STEEL THRIE BEAM
STRUCTURE APPROACH,
CONNECTOR PLATE DETAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

BILL OF MATERIALS

NOTE NO.	DESCRIPTION
①	WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" X 3'-9"
②	STEEL TUBE TS 8" X 6" X 0.188", 6'-0"
④	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE
⑦	BEARING PLATE
⑧	BCT CABLE ASSEMBLY
⑨	CABLE ANCHOR BOX
⑩	STRUT & YOKE
⑪	STEEL PLATE BEAM, END PANEL 12 GA.
⑫	STEEL PLATE BEAM: 12 GA. 13'-6 1/2"
⑬	IMPACT HEAD
⑭	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS

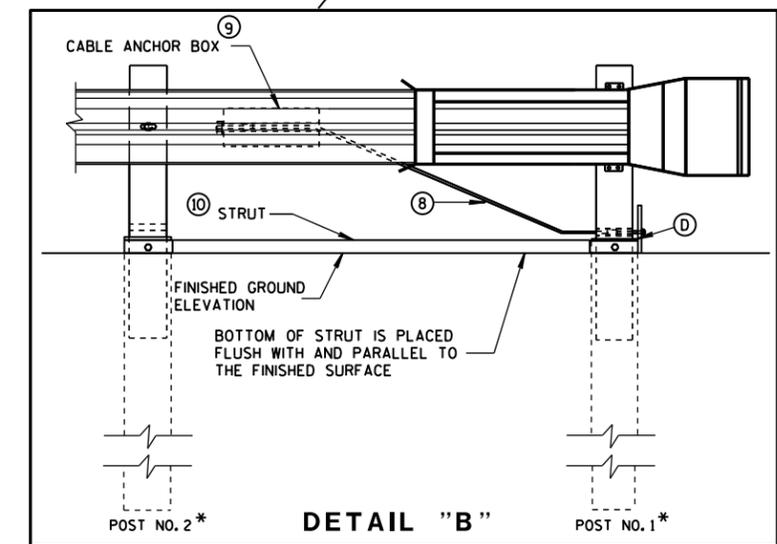
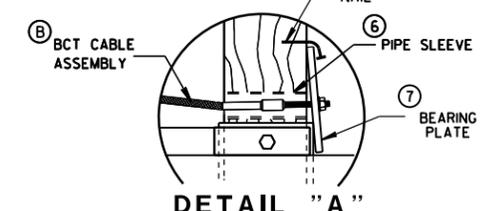
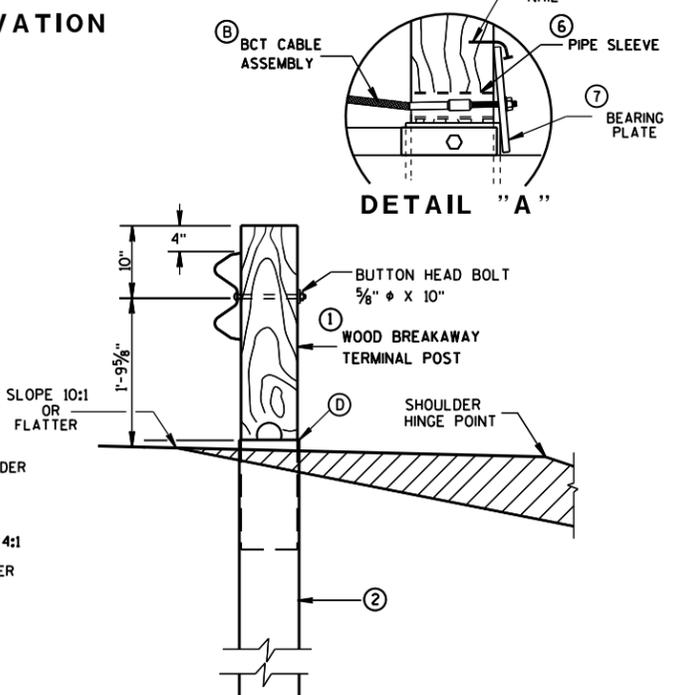
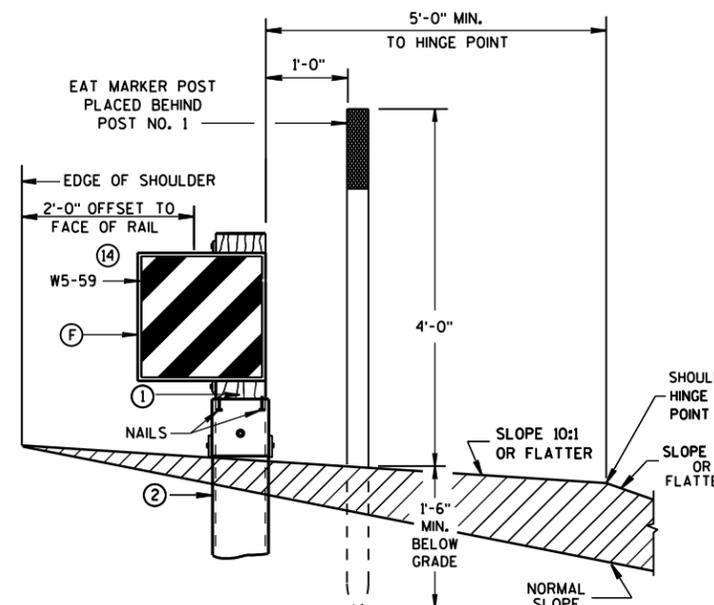
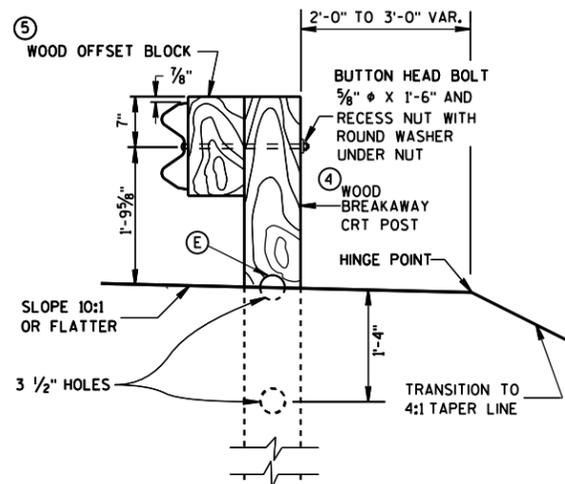
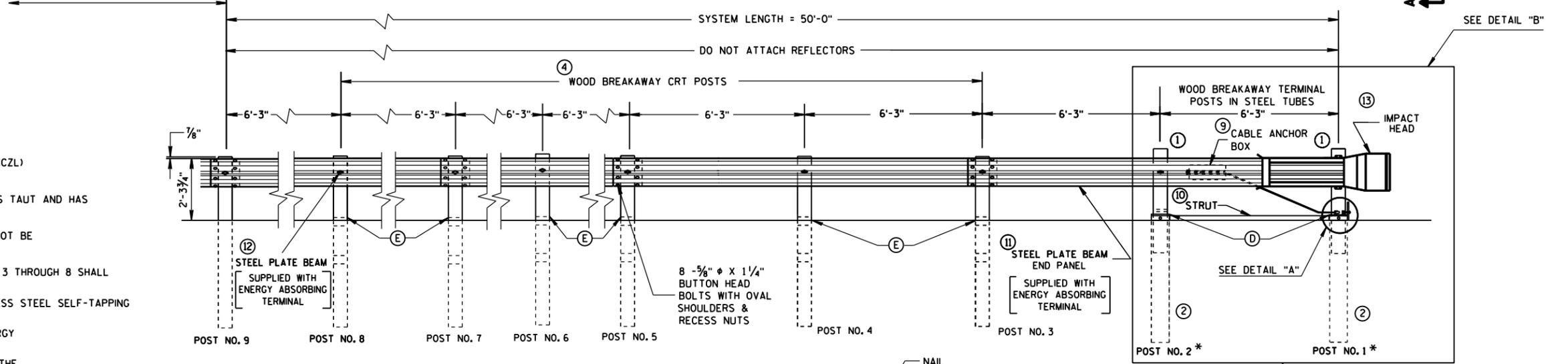
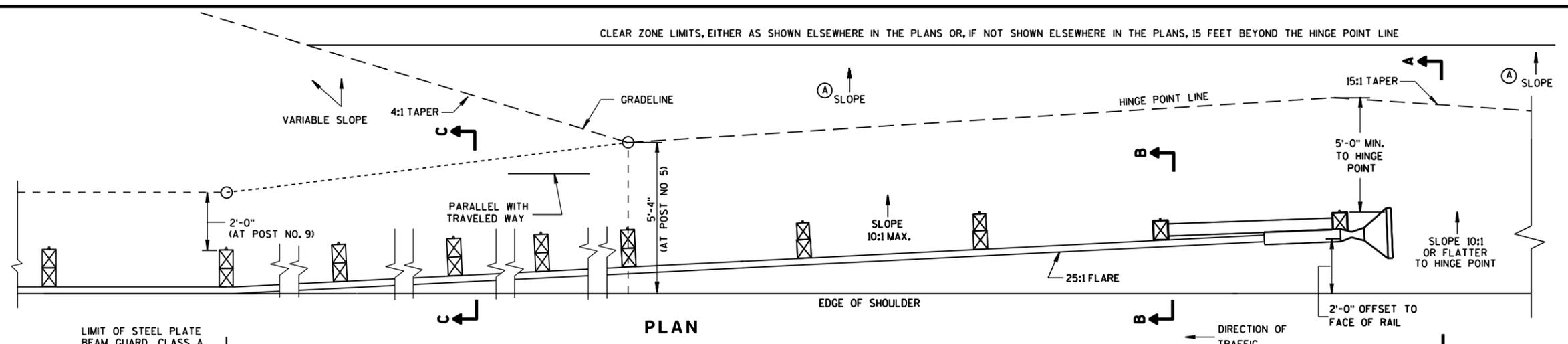
GENERAL NOTES

FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

- (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.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 AND 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST 3 THROUGH 8 SHALL BE 3/4" ABOVE THE FINISHED GROUND LINE.
- (F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.

STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

*DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

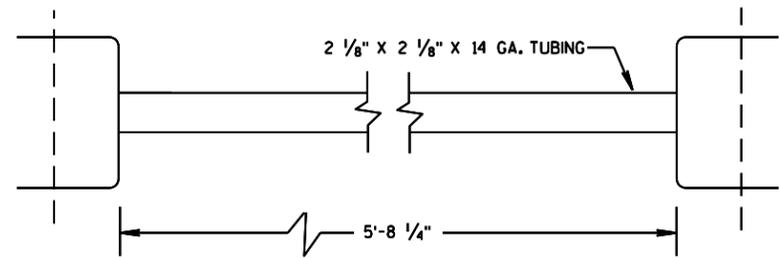
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

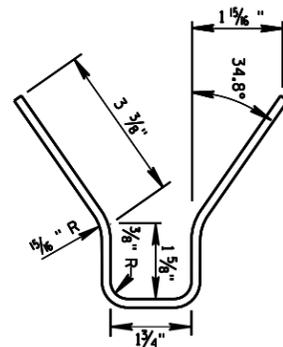
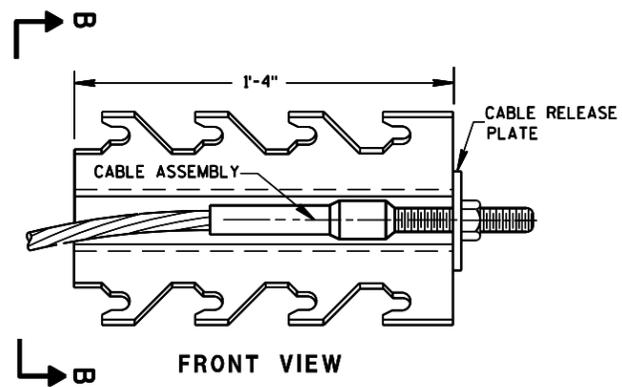
6

S.D.D. 14 B 24-9a

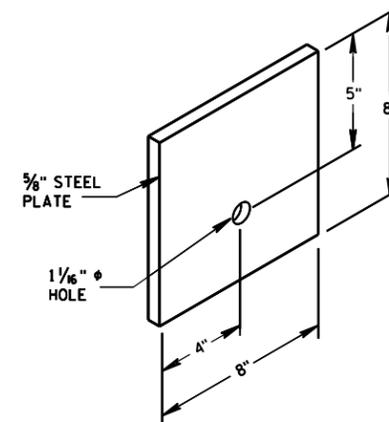
S.D.D. 14 B 24-9a



⑩ STRUT DETAIL



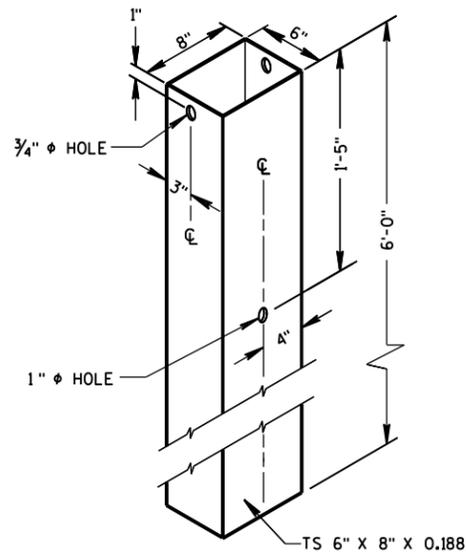
⑨ CABLE ANCHOR BOX



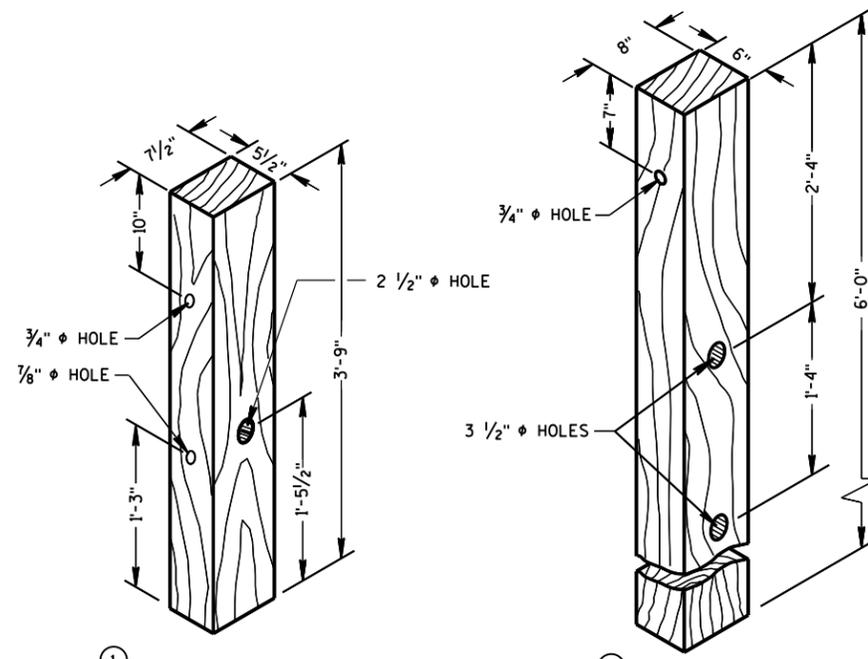
⑦ STEEL BEARING PLATE

6

6



② 72" STEEL TUBE
(POSTS NO. 1-2)



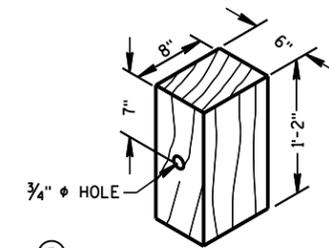
① TERMINAL POST

④ CRT POST
(POSTS NO'S 5-8)

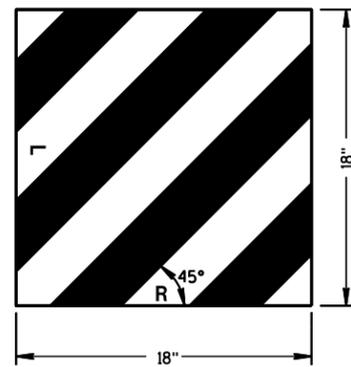
WOOD BREAKAWAY POSTS

GENERAL NOTES

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

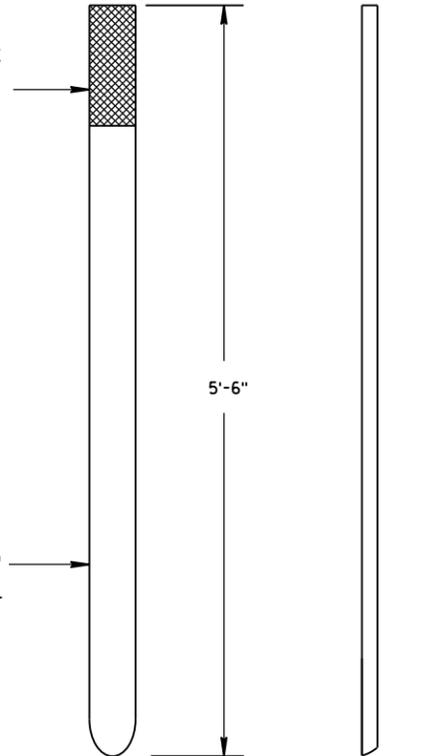


⑤ WOOD OFFSET BLOCK
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



⑭ REFLECTIVE SHEETING DETAILS

TYPE H
YELLOW REFLECTIVE
SHEETING 3" X 9".
SEE STANDARD
SPECIFICATION 637.



E.A.T. MARKER
POST (YELLOW)
SEE APPROVED
PRODUCTS LIST

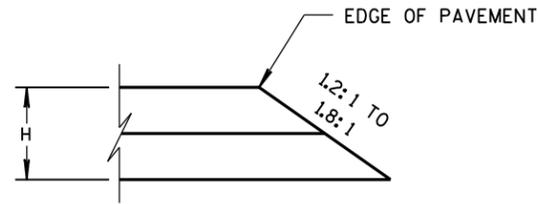
FRONT VIEW SIDE VIEW

E.A.T. MARKER POST

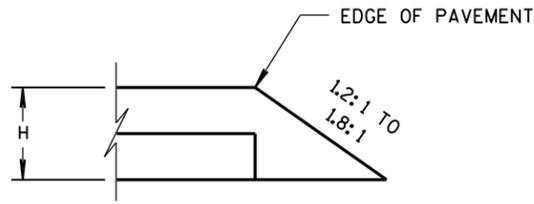
STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

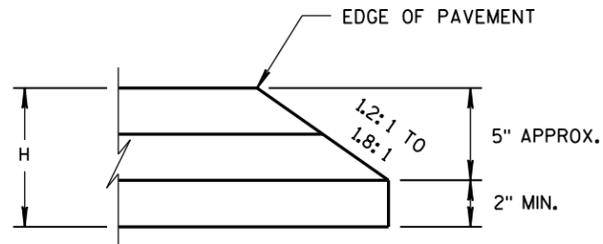
APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



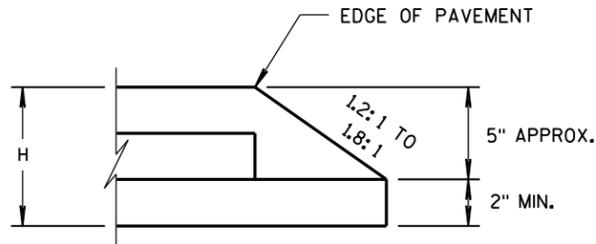
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

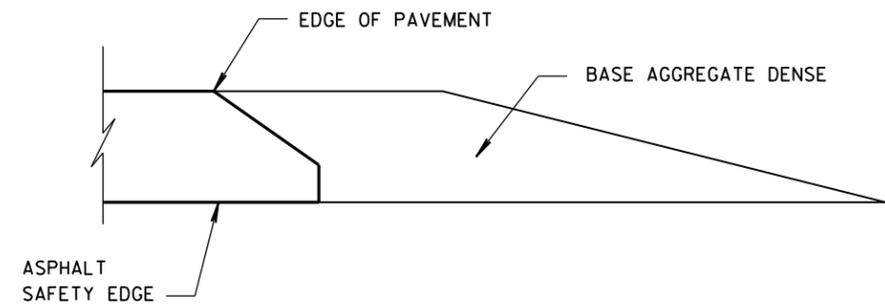


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

6

S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

SAFETY EDGE _{SM}	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 11/30/2012	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

GENERAL NOTES

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

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

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

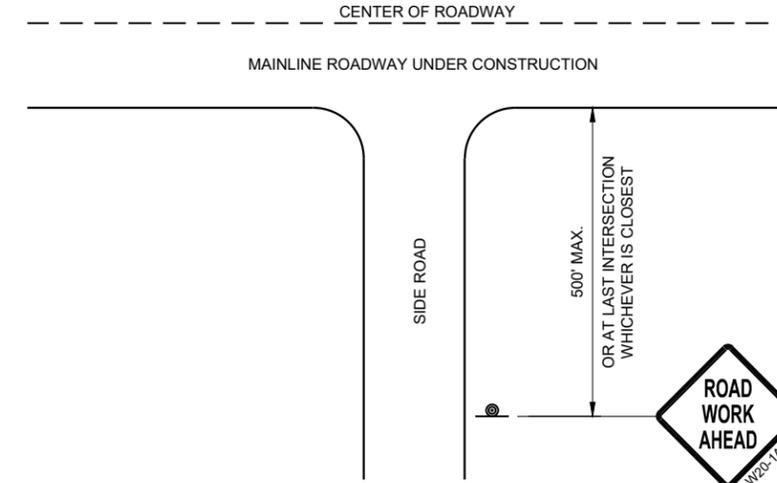
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

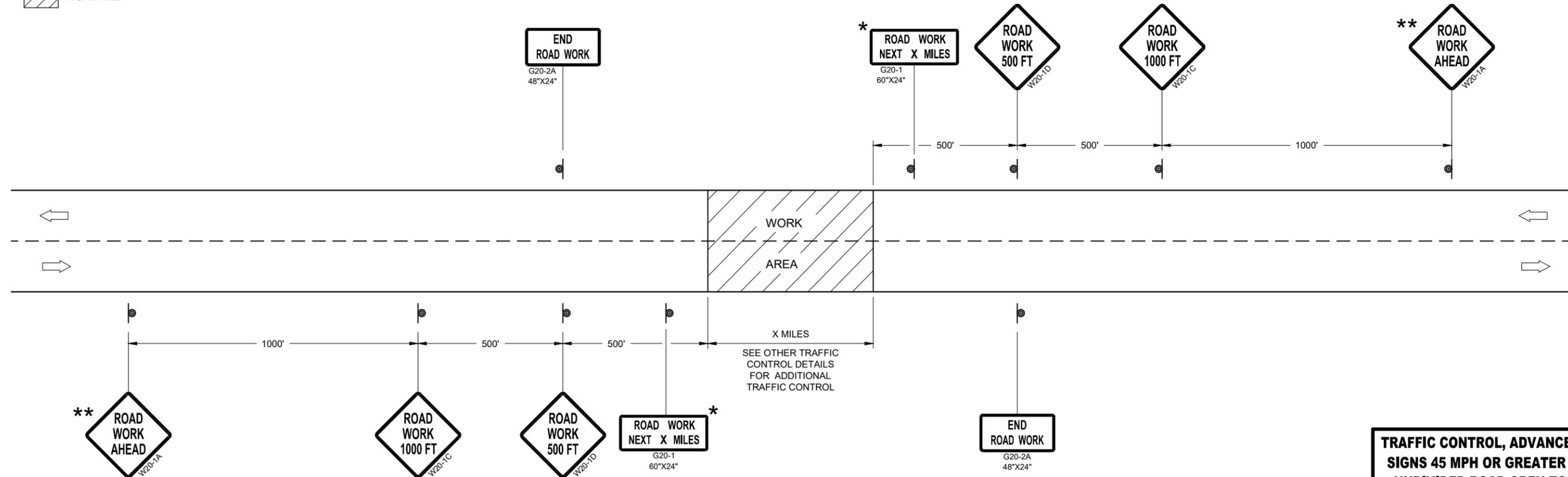
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



**TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL**



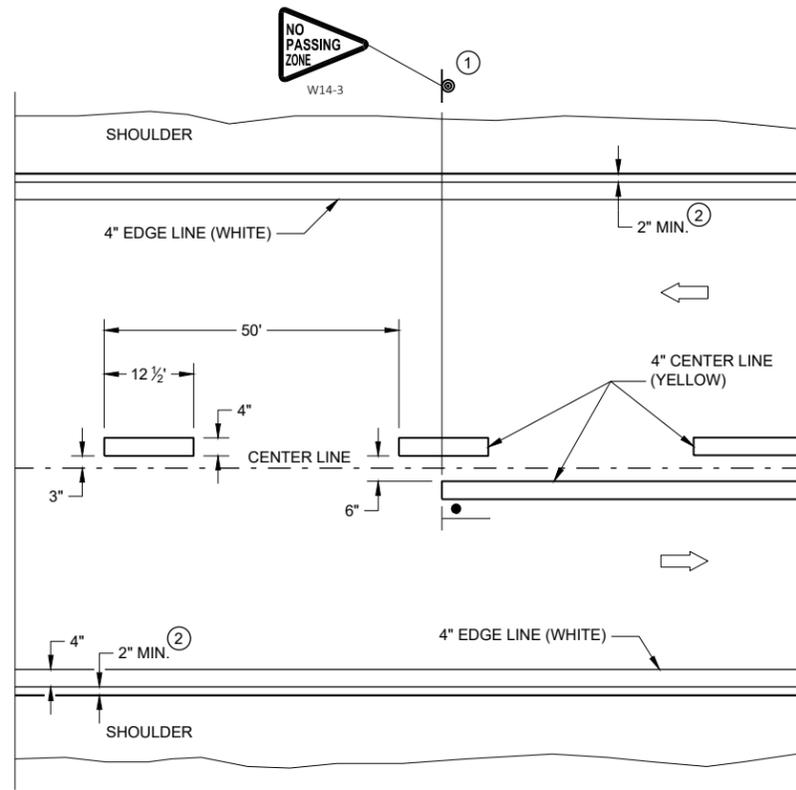
TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

**TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC**

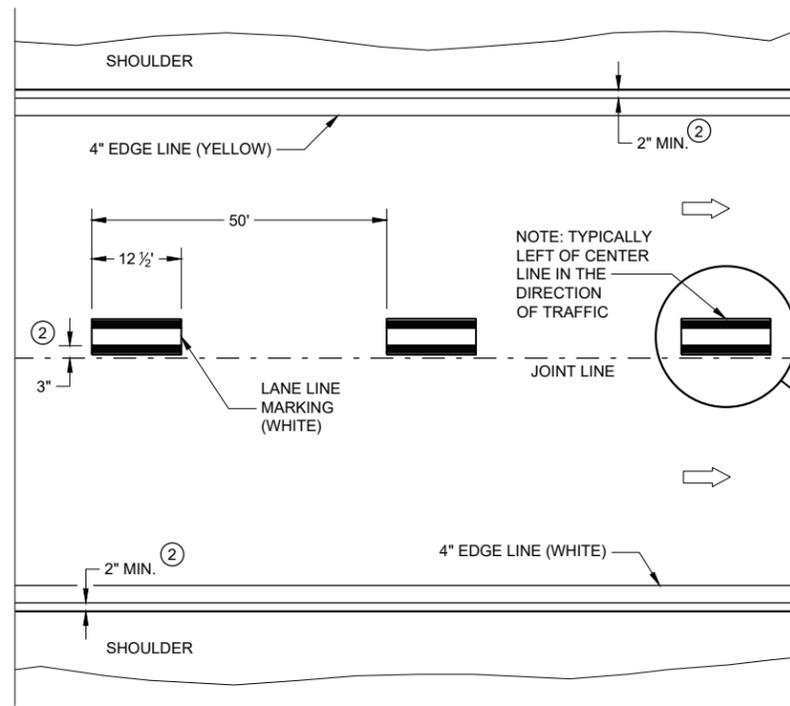
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

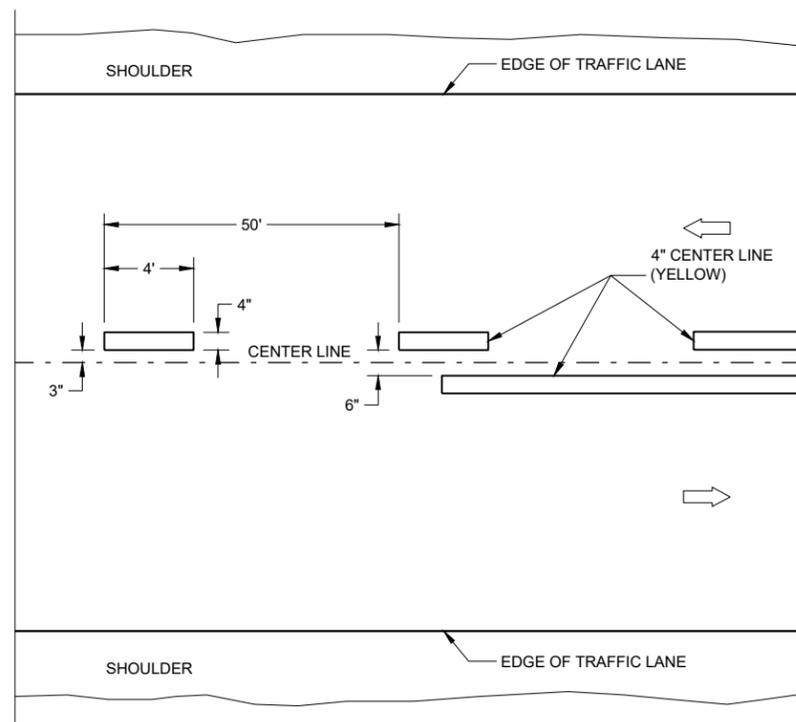


TWO WAY TRAFFIC

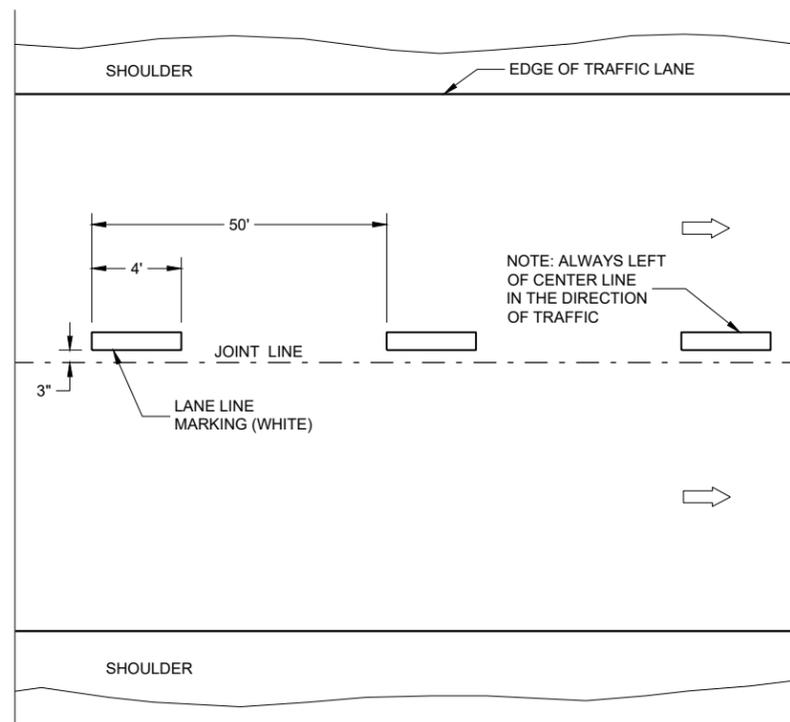


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

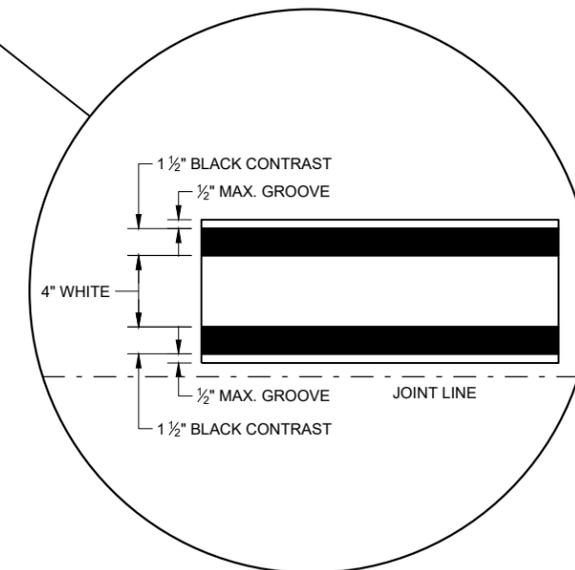
GENERAL NOTES

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

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

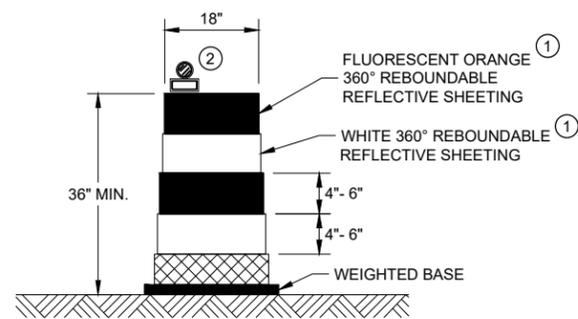
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC



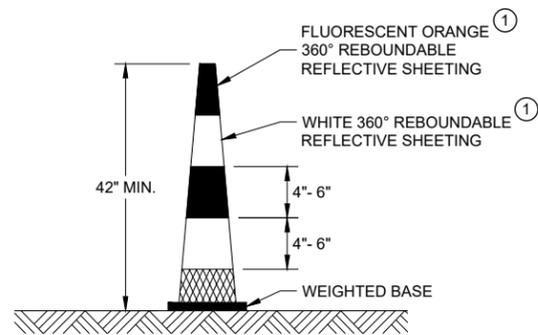
**LONGITUDINAL MARKING
(MAINLINE)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Matthew Rauch
DATE STATEWIDE SIGNING AND MARKING
ENGINEER

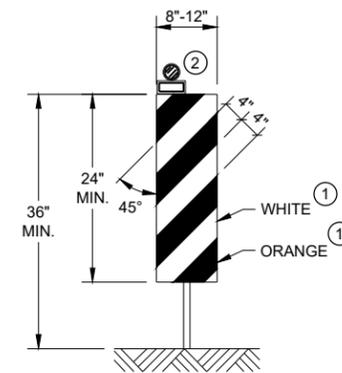


DRUM



42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

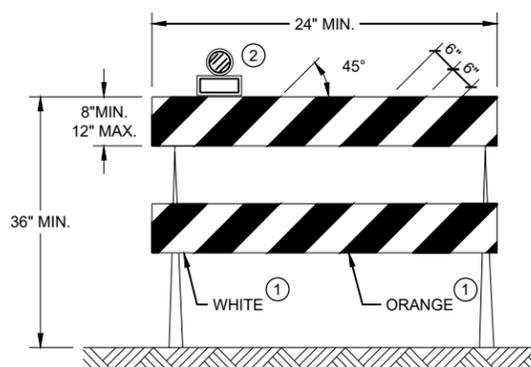


VERTICAL PANEL

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

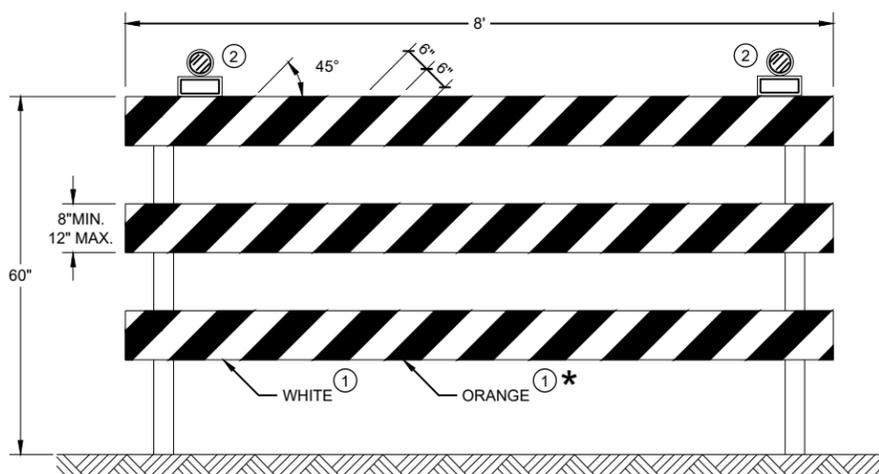
GENERAL NOTES

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

FLAGGING

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

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

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

TEMPORARY PORTABLE RUMBLE STRIPS

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

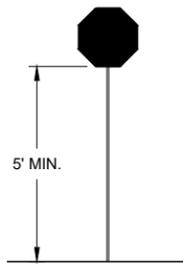
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER

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

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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



STOP/SLOW PADDLE ON SUPPORT STAFF

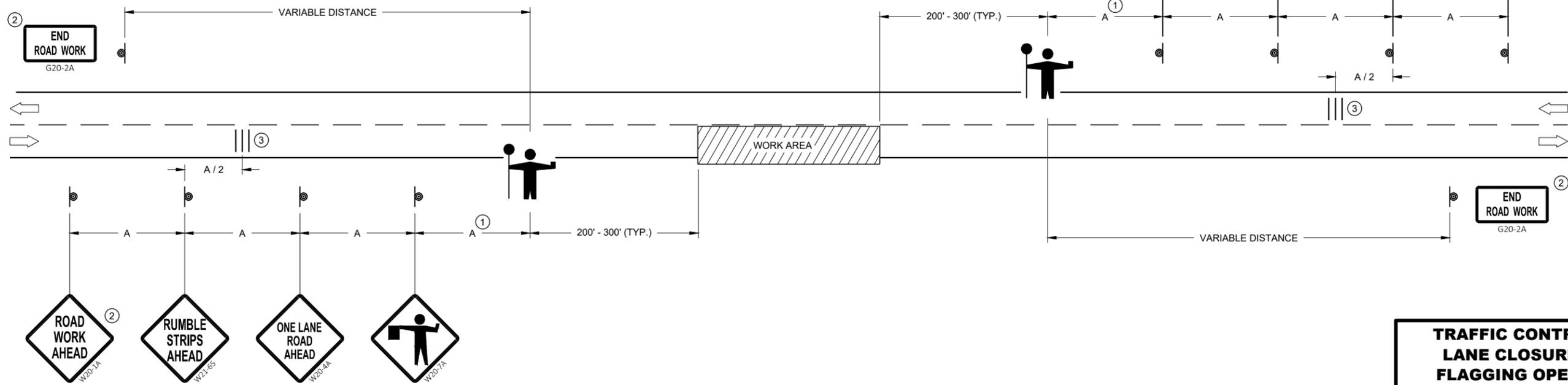
SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



W03-4

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



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

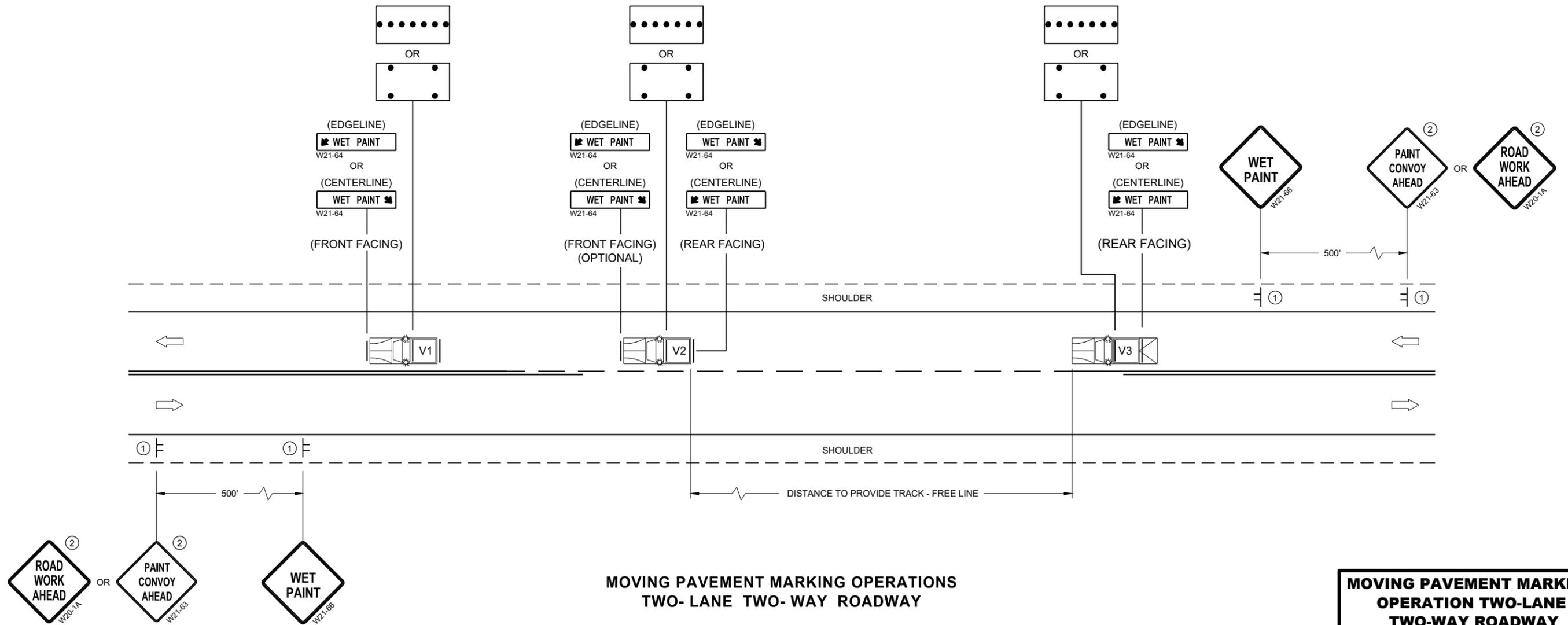
CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

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

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.

6

6



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

SDD 15C19 - 06a

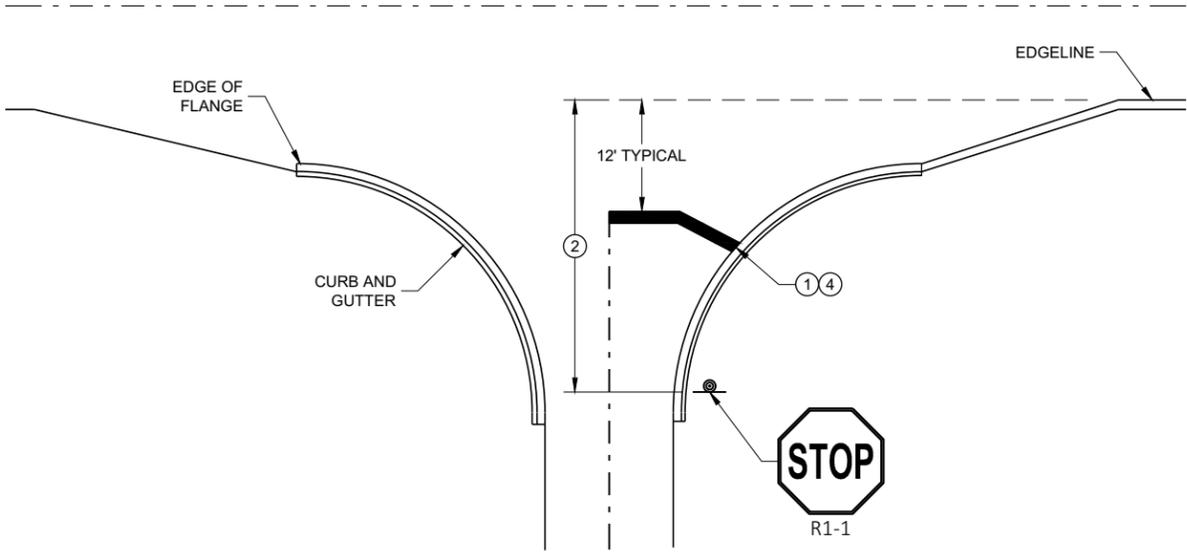
SDD 15C19 - 06a

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2019 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

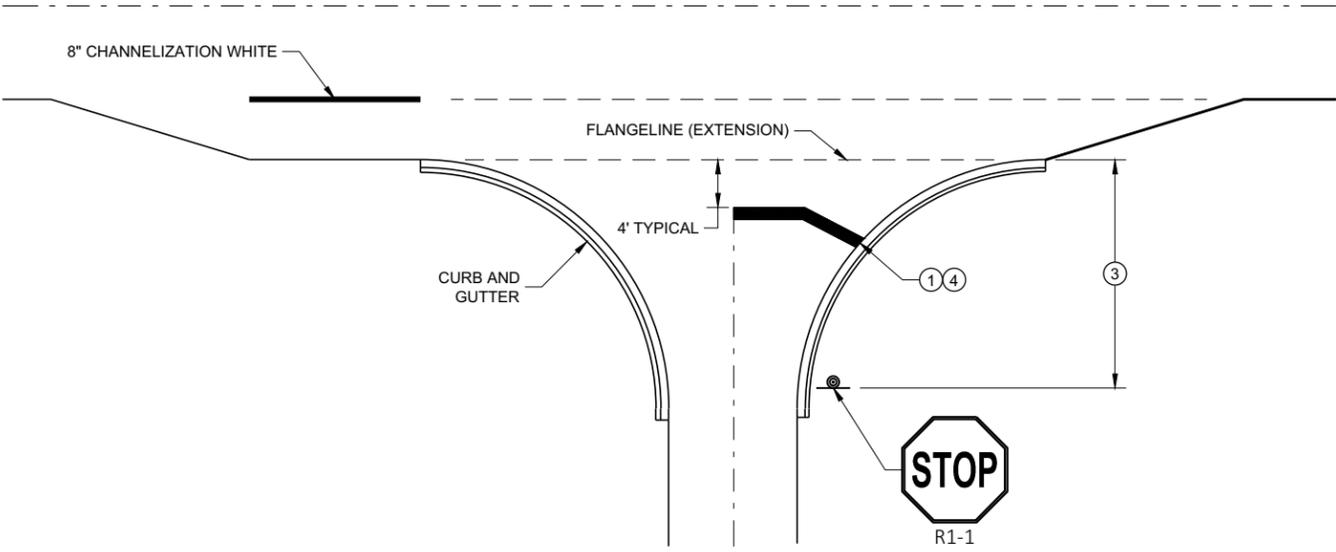
GENERAL NOTES

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

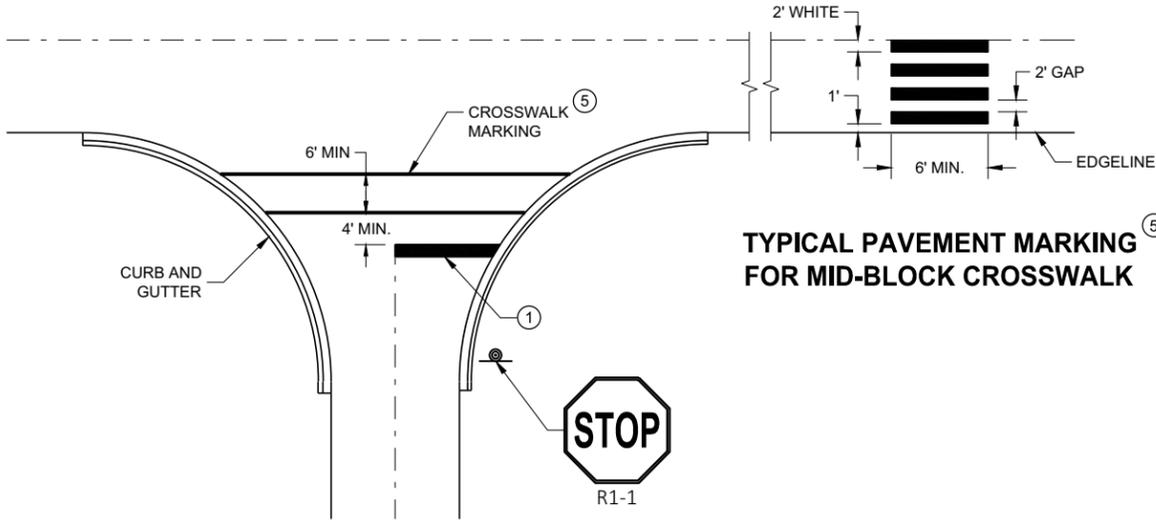
- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION.
- ④ MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- ⑤ LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES INSTEAD.



TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER

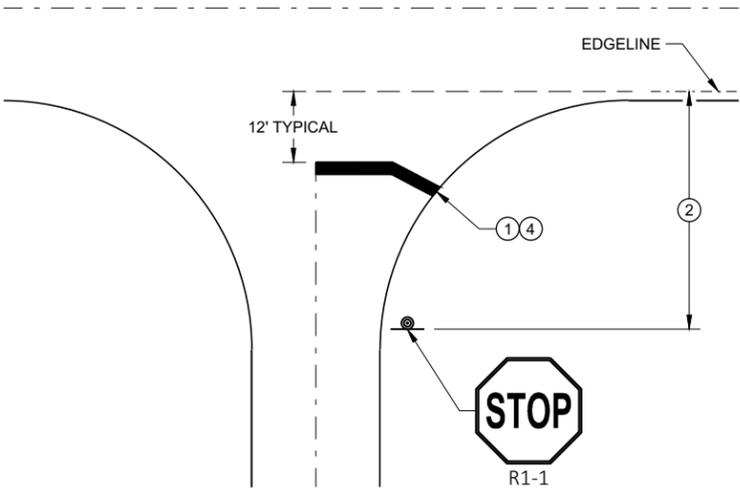


TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING

TYPICAL PAVEMENT MARKING FOR MID-BLOCK CROSSWALK



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 /S/ Matthew Rauch
DATE STATE SIGNING AND MARKING ENGINEER

FHWA

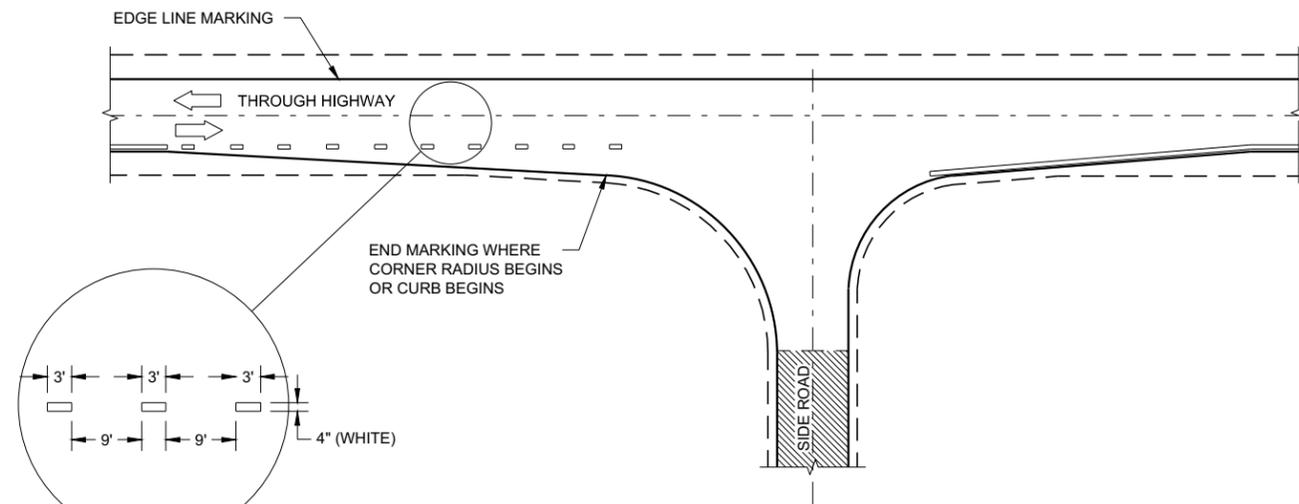
GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES THROUGH DRIVEWAYS.

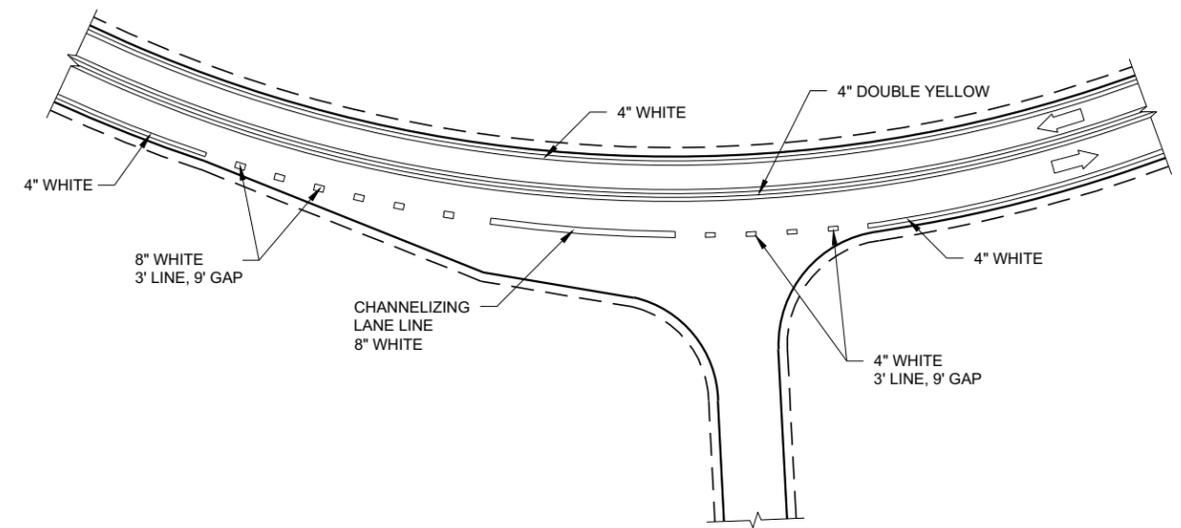
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

LEGEND

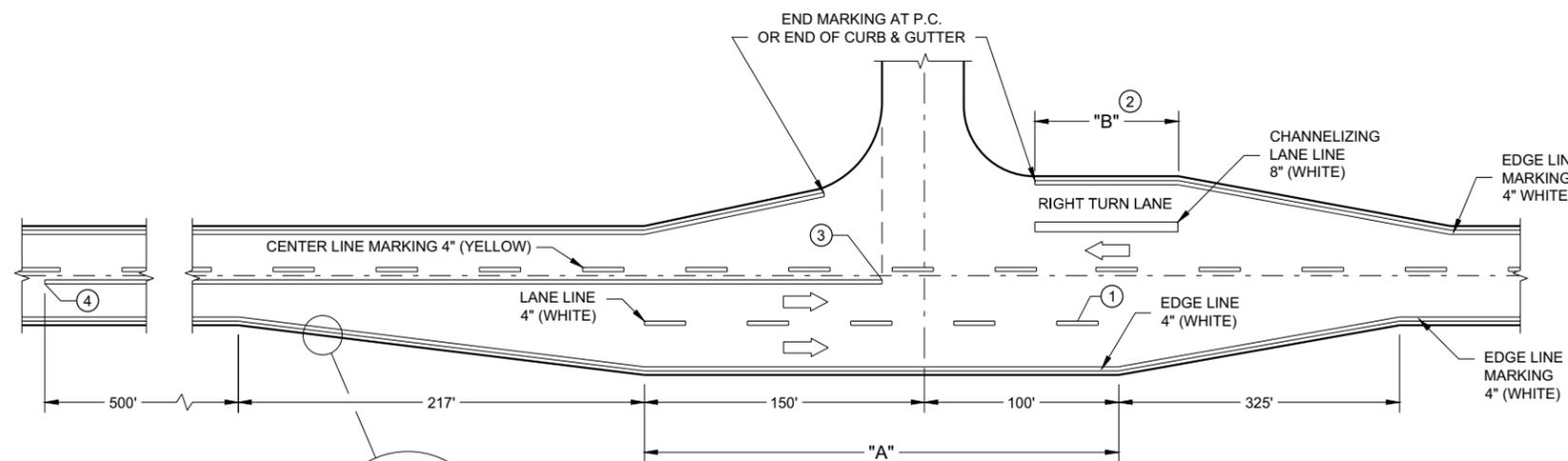
➡ DIRECTION OF TRAVEL



MINOR INTERSECTION



INTERSECTION ON OUTSIDE OF CURVE



**MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)**

**PAVEMENT MARKING
(INTERSECTIONS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  WORK ZONE

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

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

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

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

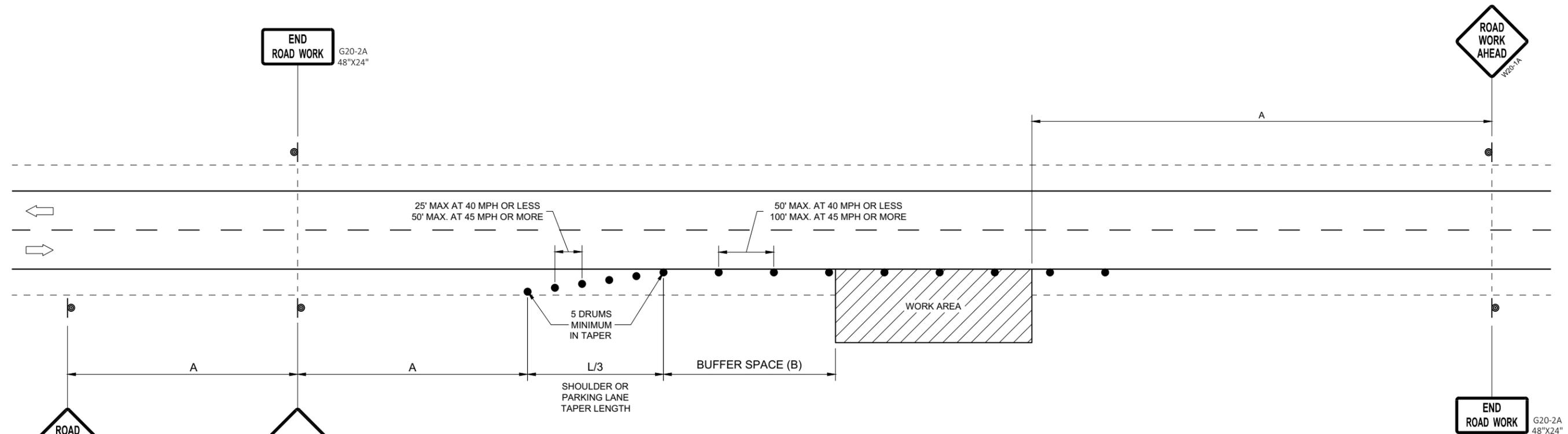
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

6

6



OR
IF TRAFFIC CONTROL DEVICES
ENCROACH ONTO TRAVELED WAY, USE

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT)						BUFFER SPACE (B) FEET
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	55
30	200'	15	20	25	30	35	40	85
35	350'	20	27	34	40	47	54	120
40	350'	26	35	44	53	62	70	170
45	500'	45	59	74	89	104	119	220
50	500'	50	66	83	99	116	132	280
55	500'	54	73	91	109	127	145	335'

**TRAFFIC CONTROL, WORK ON
SHOULDER OR PARKING LANE,
UNDIVIDED ROADWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2020 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER

FHWA

SDD 15D28 - 04

SDD 15D28 - 04

GENERAL NOTES

DRAWING NOT TO SCALE. ALL SIGNS AND POSTS ON THIS SHEET SHALL BE PAID FOR WITH 'TRAFFIC CONTROL SIGNS' BID ITEM. ALL SIDE ROADS WHICH ARE UNDER CONSTRUCTION OF CURB AND GUTTER AND/OR GRADING SHALL BE ADEQUATELY SIGNED.

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD). SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISDOT STANDARD SIGN PLATES.

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

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

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

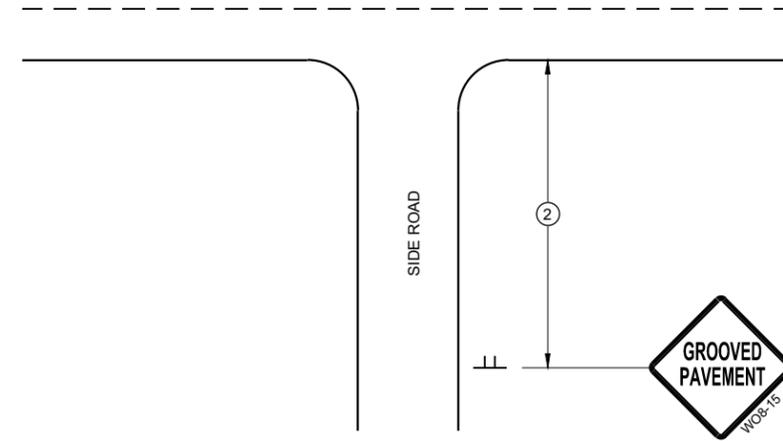
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

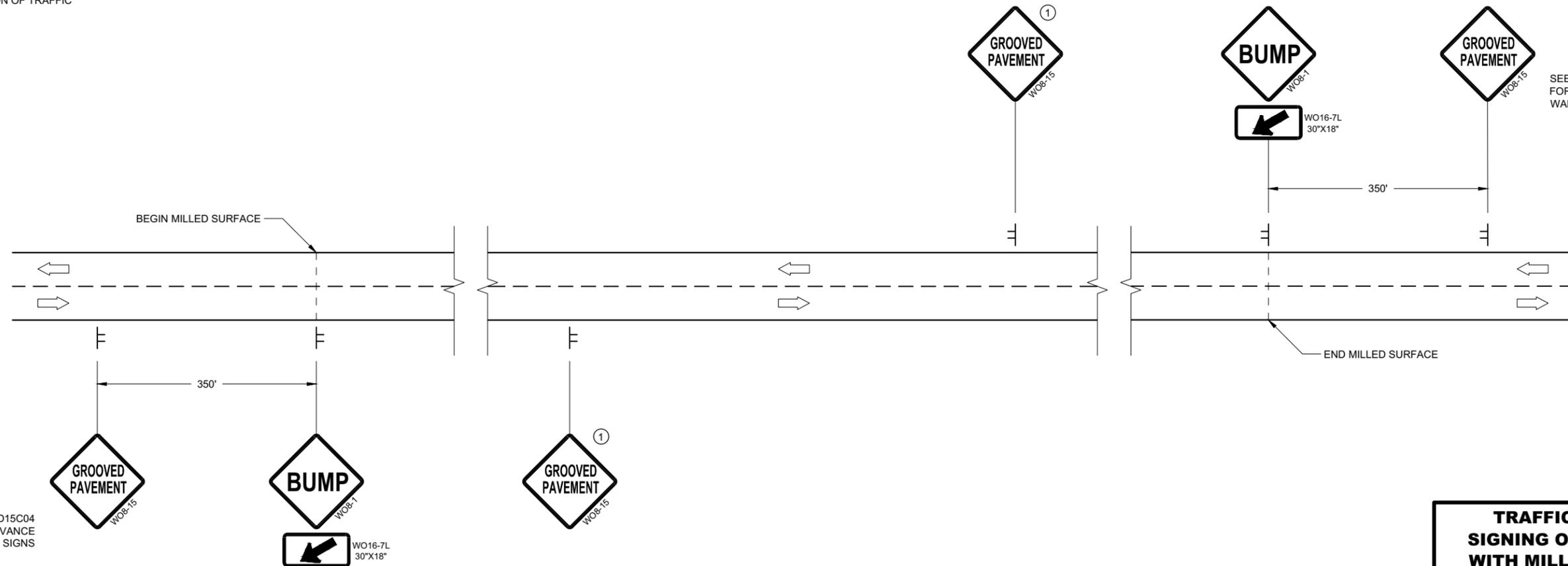
- ① PLACE SIGNS 350' IN ADVANCE OF MILLED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- ② PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH SIGN DETAIL



SEE SDD15C04 FOR ADVANCE WARNING SIGNS

SEE SDD15C04 FOR ADVANCE WARNING SIGNS

DETAIL FOR SIGNING ON MILLED SURFACES

TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES

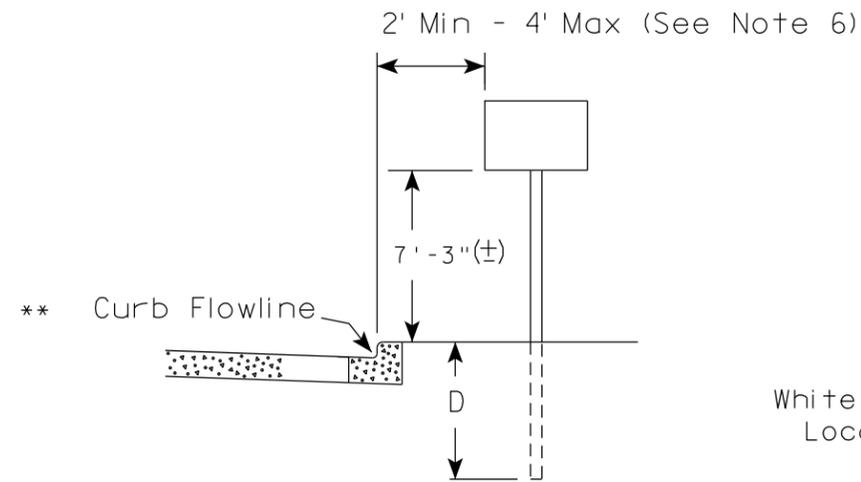
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

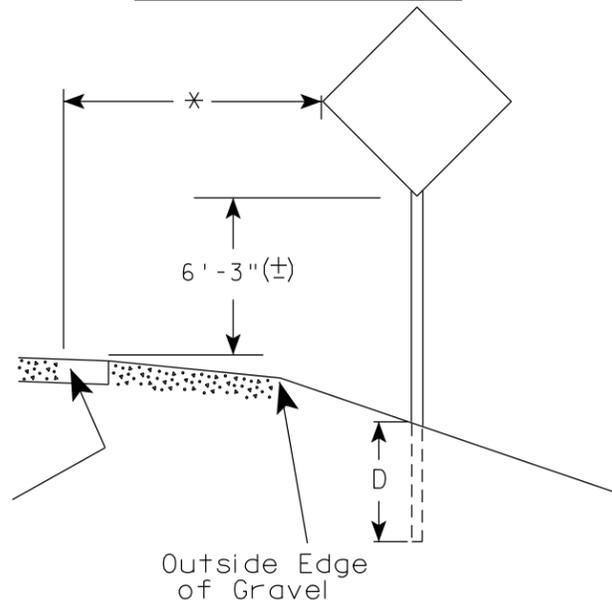
FHWA

URBAN AREA

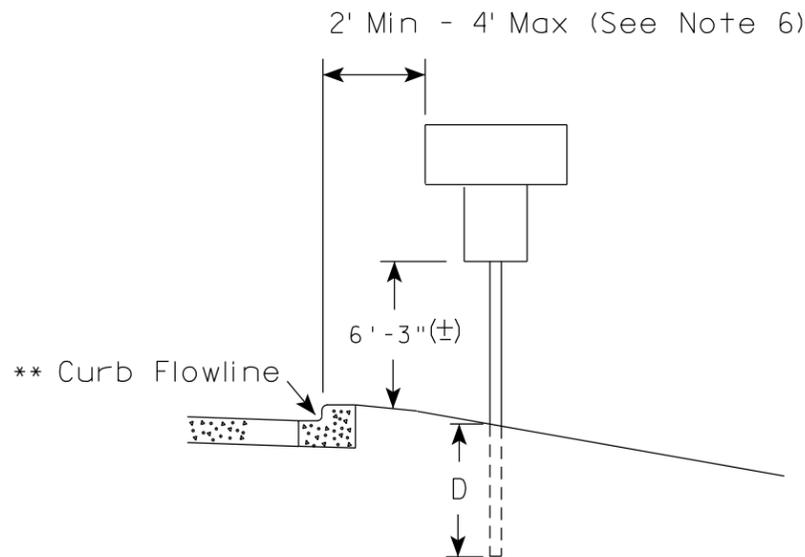
RURAL AREA (See Note 2)



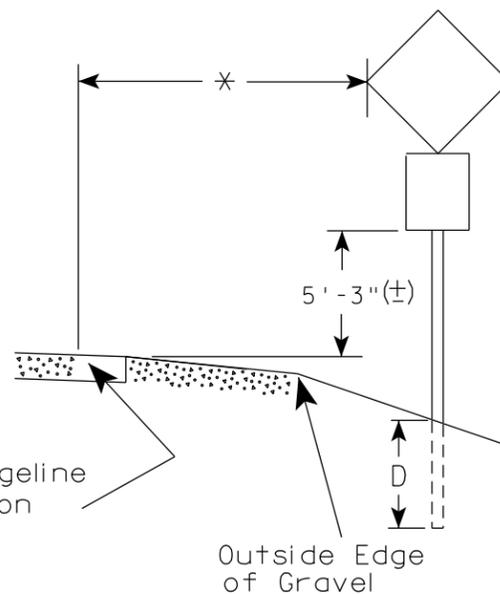
White Edgeline Location



Outside Edge of Gravel



White Edgeline Location



Outside Edge of Gravel

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

7

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

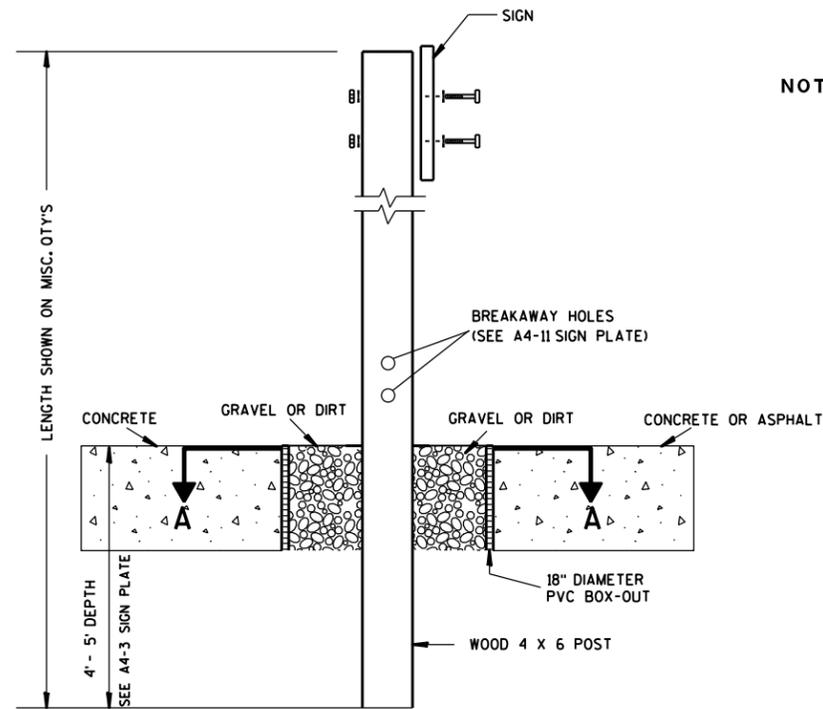
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

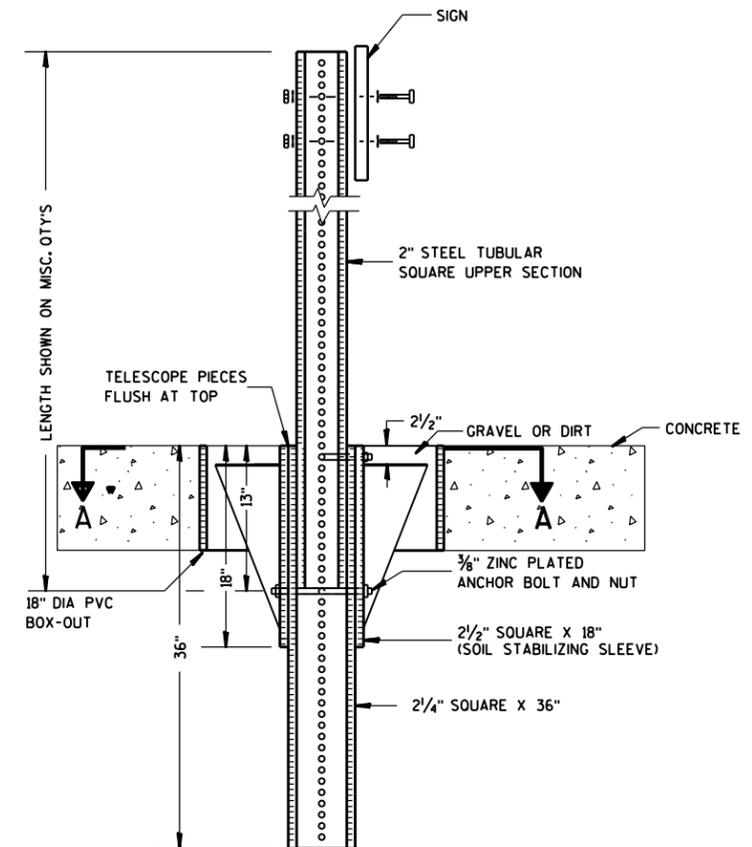
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

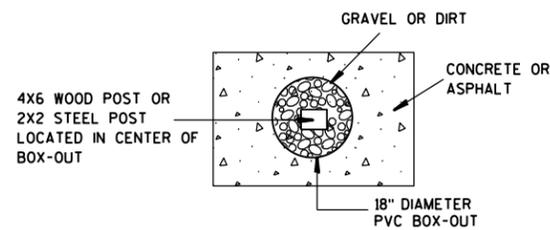
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

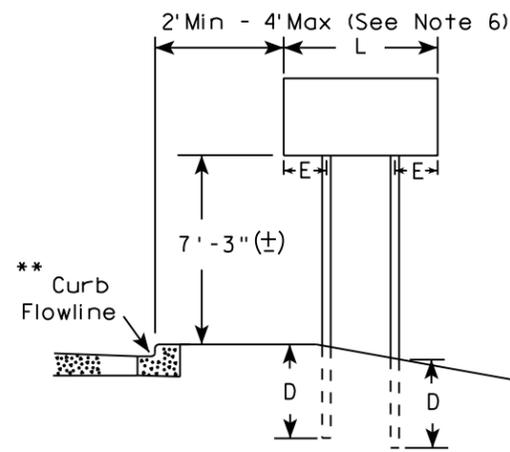
FOR NEW CONCRETE/ ASPHALT INSTALLATIONS

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

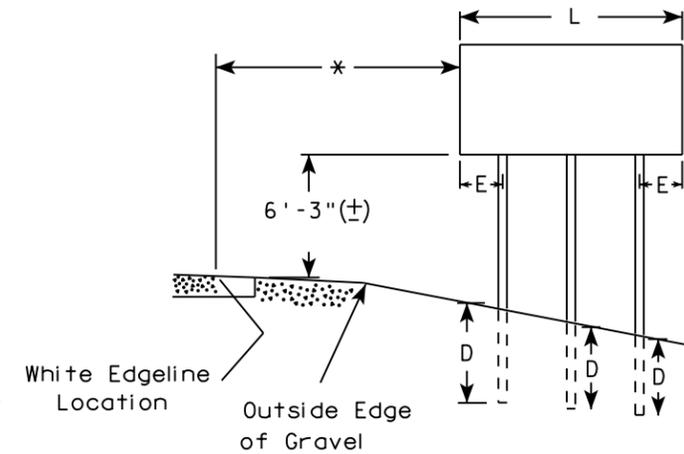
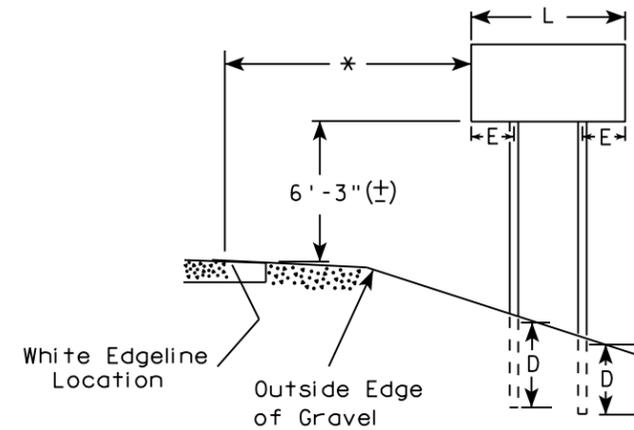
GENERAL NOTES

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

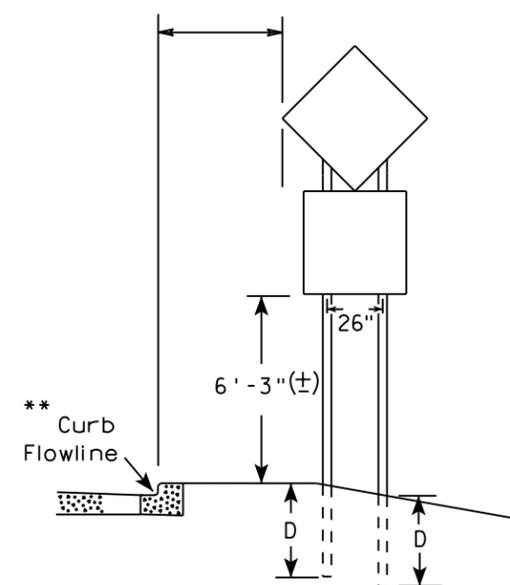
URBAN AREA



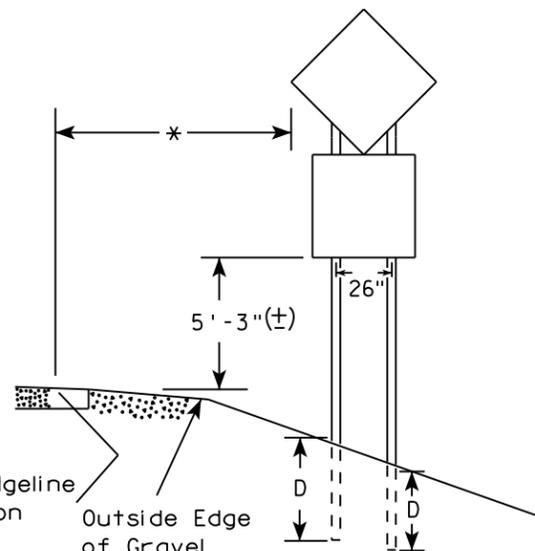
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

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

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

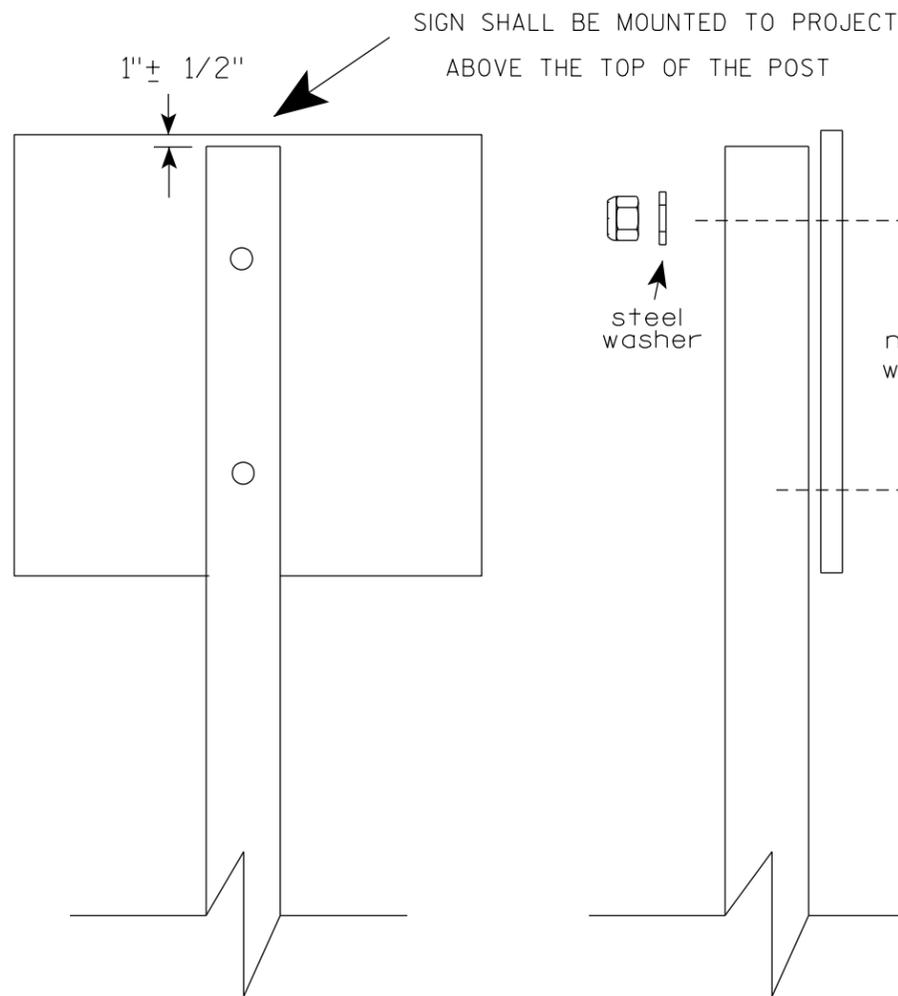
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION
 APPROVED *Matthew R. Rauch*
 For State Traffic Engineer
 DATE 8/21/17 PLATE NO. A4-4.15



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

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

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

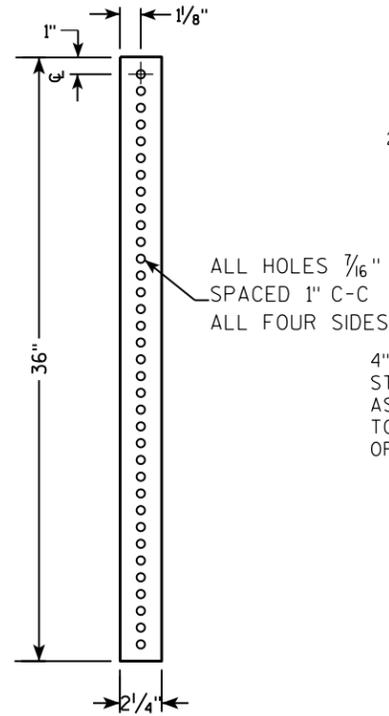
- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE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

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

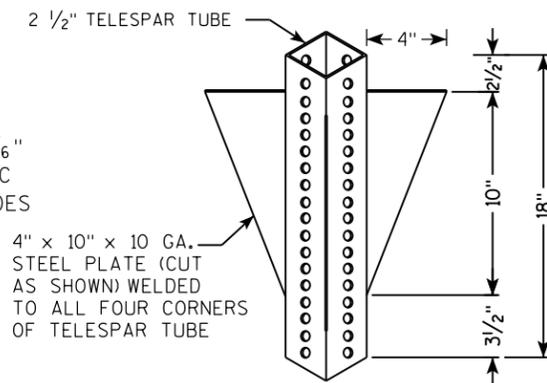
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

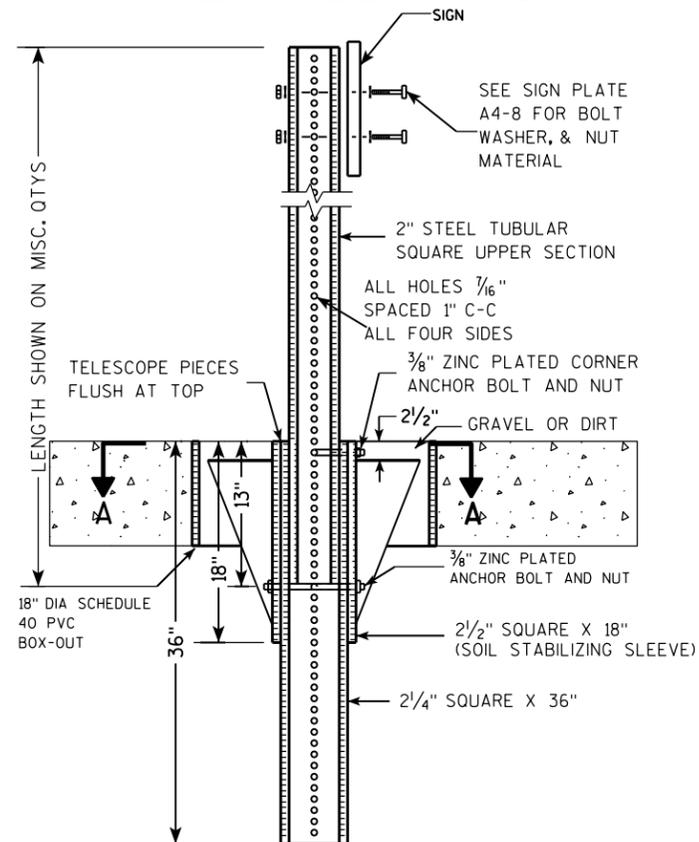
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



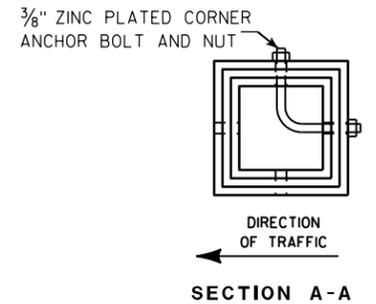
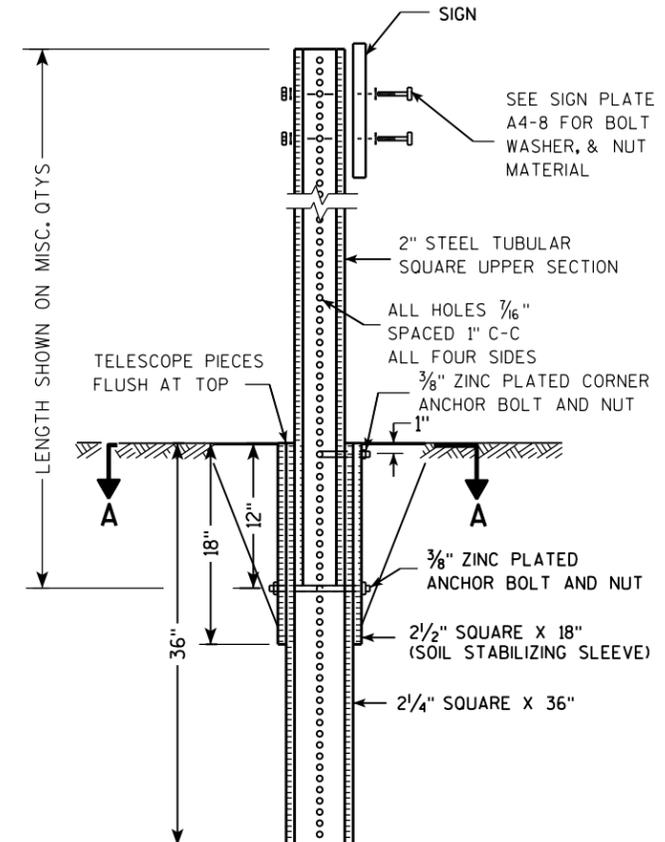
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



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



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



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

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

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

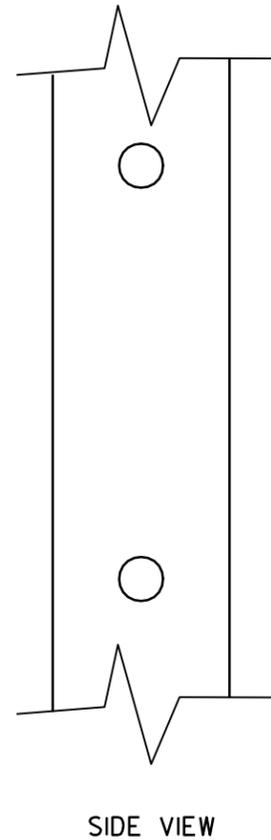
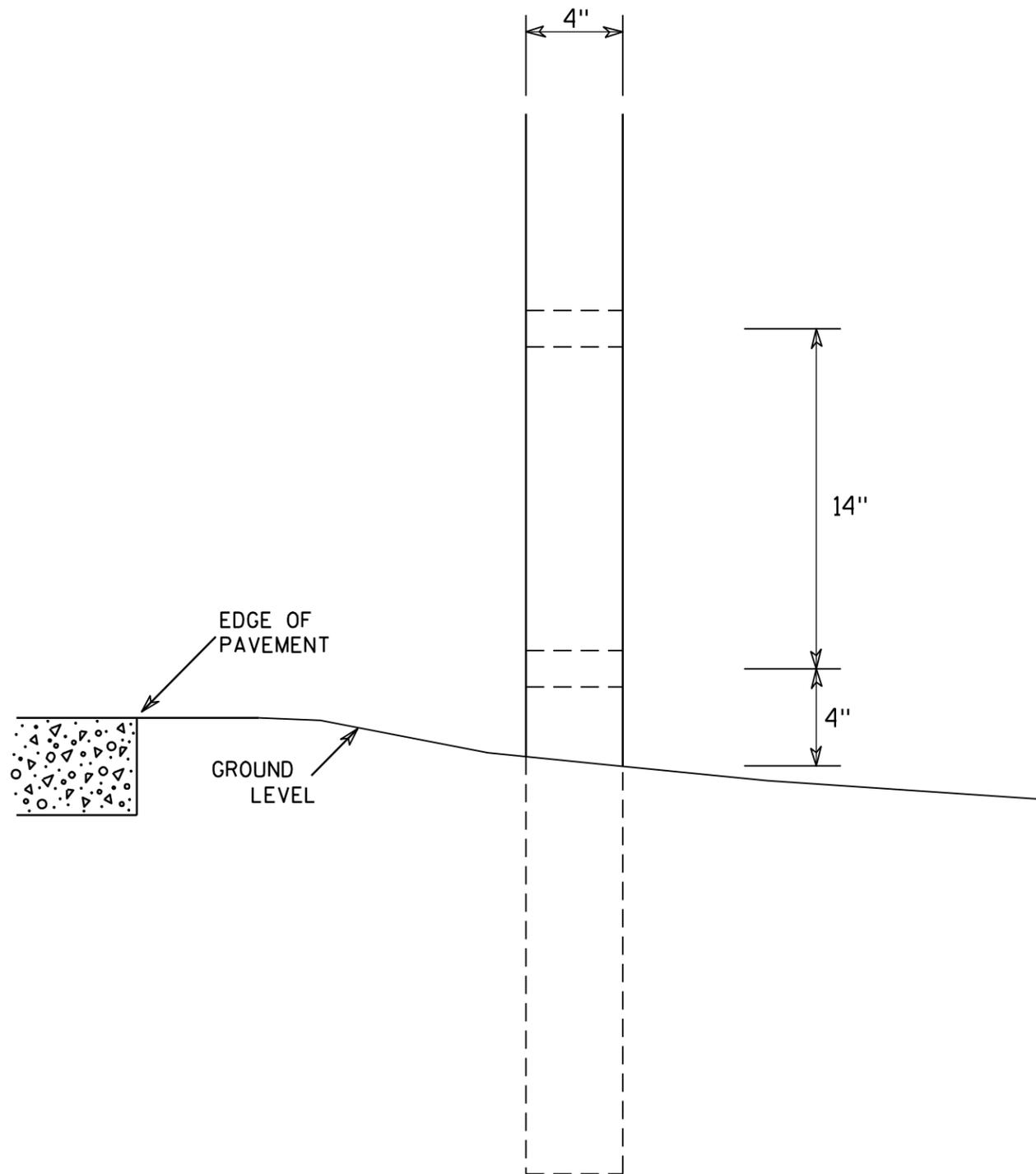
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

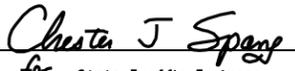


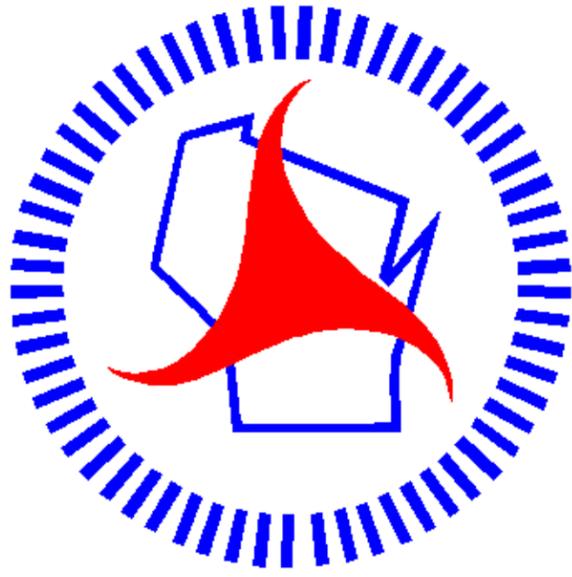
GENERAL NOTES

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

7

7

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



Wisconsin Department of Transportation

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