

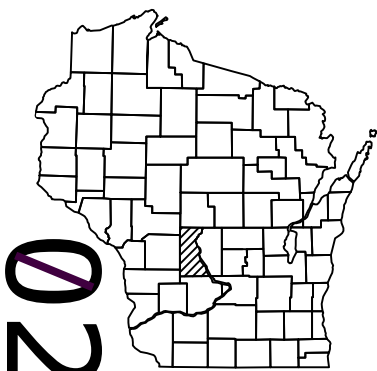
LAX DECEMBER 2014

PROJECT ID: 1016-05-79

COUNTY: JUNEAU

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

TOTAL SHEETS = 110



DESIGN DESIGNATION

A.A.D.T.	=	34,200 (2016)
A.A.D.T.	=	42,300 (2036)
D.H.V.	=	5,922
D.D.	=	53/47
T.	=	32.5%
DESIGN SPEED	=	70 MPH
ESALS	=	36,302,900

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	

ROCK	
LABEL	
95.36	
E	
FO	
G	
SAN	
SS	
T	
W	
Ø	

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

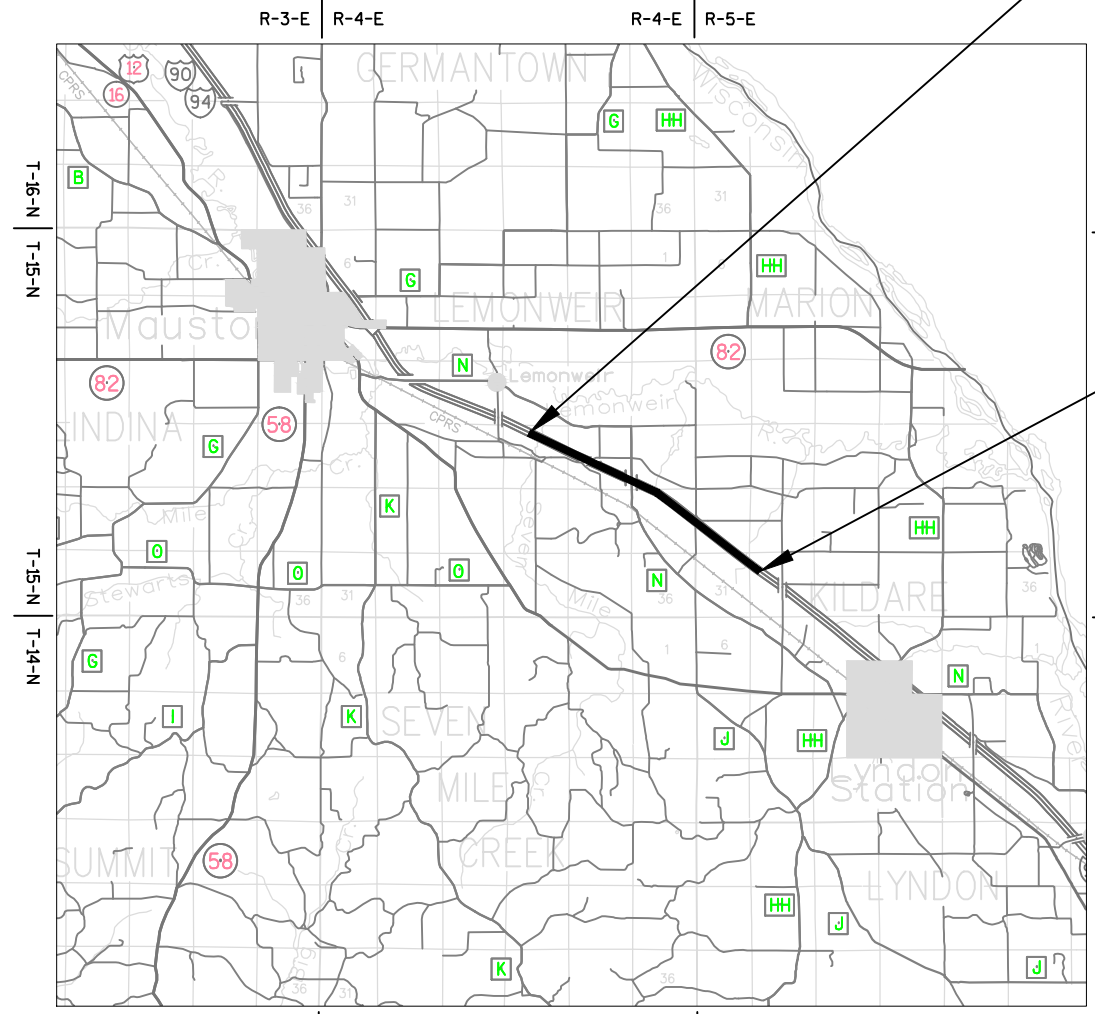
MAUSTON - WISCONSIN DELLS

SEVEN MILE CREEK TO 24TH AVENUE

IH-90

JUNEAU COUNTY

STATE PROJECT NUMBER
1016-05-79



LAYOUT

SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE = 3.986 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, JUNEAU COUNTY, NAD83 (2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

BEGIN PROJECT

STA. 1170+00 E.B.

X = 483,387.512

Y = 146,824.293

STA. 1171+00A W.B.

X = 483,502.369

Y = 147,014.216

END PROJECT

STA. 1380+48 E.B.

X = 501,188.057

Y = 135,821.069

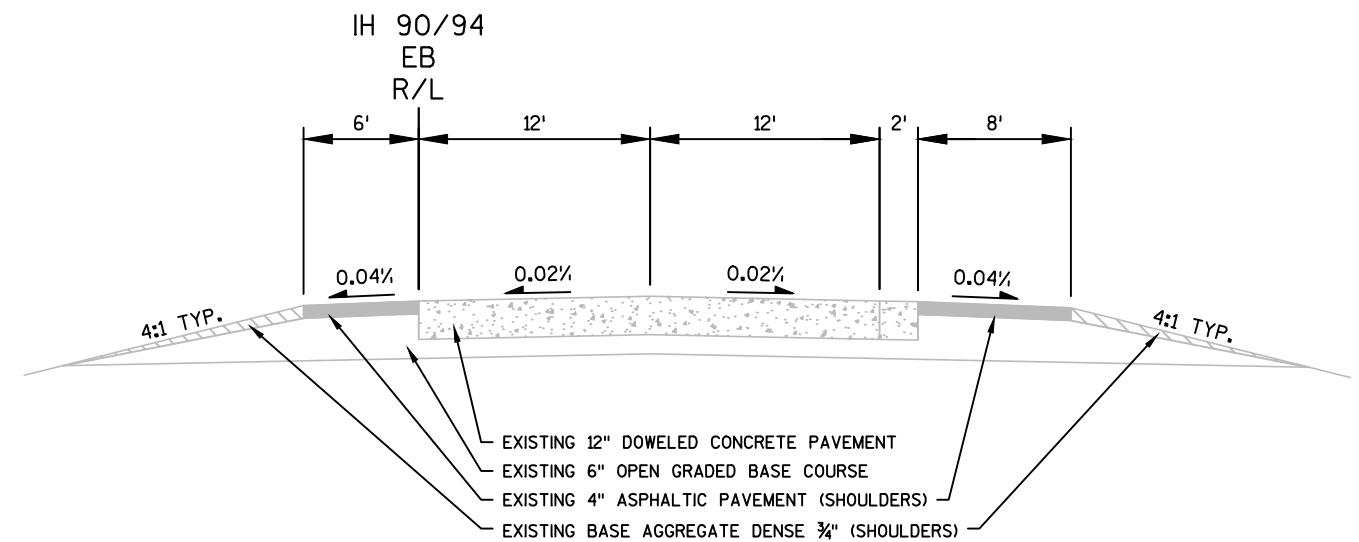
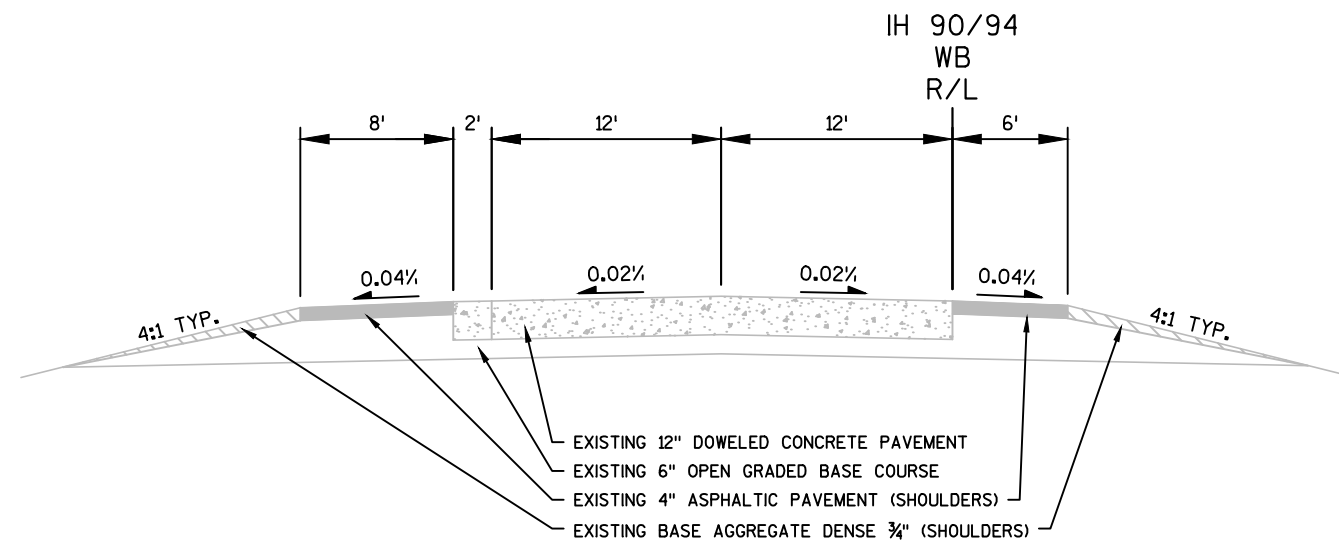
STA. 1381+54A W.B.

X = 501,232.699

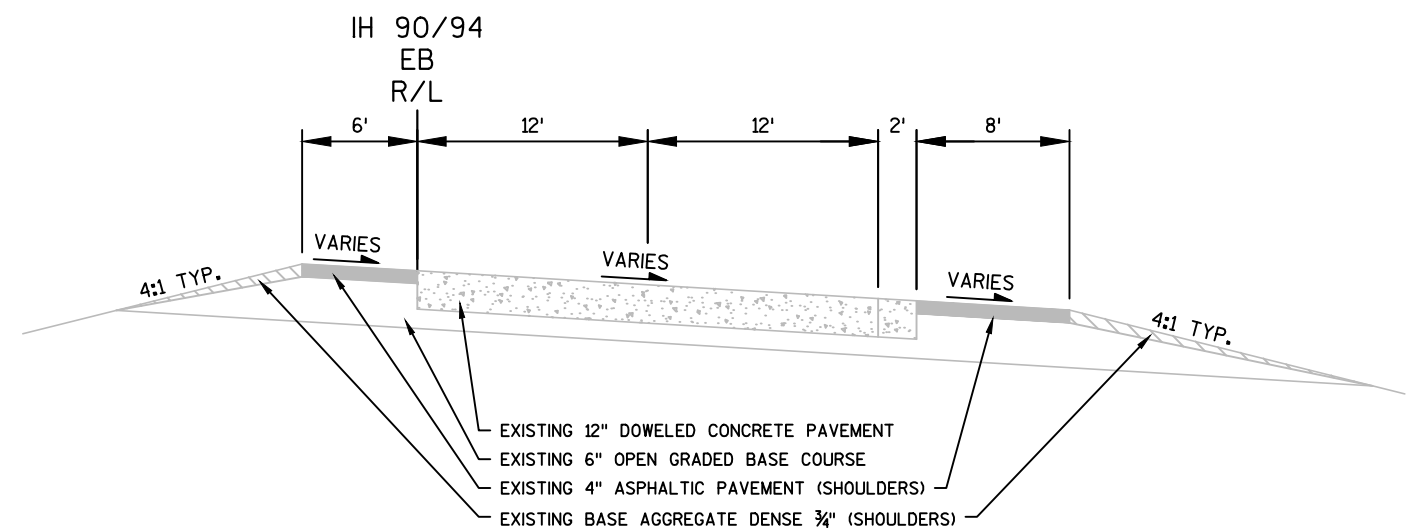
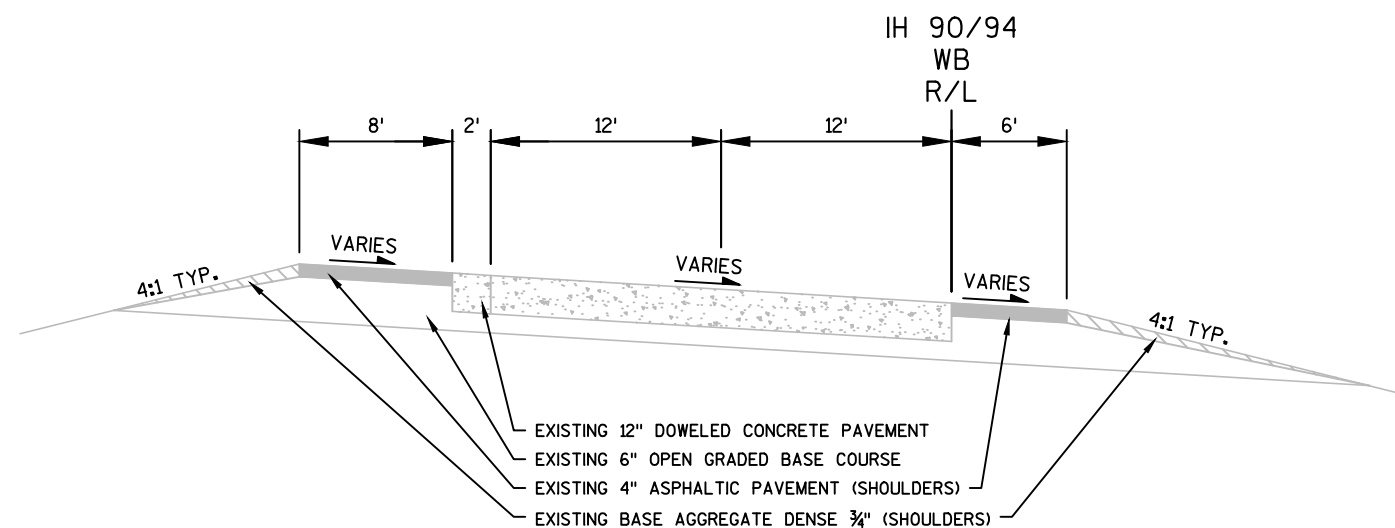
Y = 135,876.013

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	
Surveyor	WISDOT
Designer	MATTHEW THORSEN
Project Manager	ROBERT WINTERTON
Regional Examiner	REGIONAL EXAMINER
Regional Supervisor	JIM SAVOLDELLI
APPROVED FOR THE DEPARTMENT	
DATE: 9/09/14	
(Signature)	

2	UTILITY CONTACTS			STANDARD ABBREVIATIONS		2		
	<u>AT&T Legacy - Communication Line</u> Carl Donahue 866 Rock Creek Rd Plano, IL 60545 (715) 833-2054 cdonahue@att.com	<u>Oakdale Electric Cooperative - Electricity</u> Scott Brookman 489 N Oakwood St P.O. Box 128 Oakdale, WI 54649 (608) 372-4131 sbrookma@oakdalerec.com	<u>Mediacom LLC Wisconsin - Communication Line</u> Tim Orcutt 3033 Asbury Rd Dubuque, WI 52001 (608) 326-0478 torcutt@mediacomllc.com	AC AGG AH < AE, AEW ASPH. A.D.T. A.A.D.T. B.F. BK. BEG. BM C/L Δ CONST. CMCP CMP CO. CTH CR. CABC CY CP C&G D D.H.V. DIA. DISCH. EA E EB ELEC. EL., ELEV. EXC. EXIST F.F. FERT. F.E. F/L, F.L. CWT INL INTER. IH JT. LT L.H.F. L. L.F. LC. LS	ACRE AGGREGATE AHEAD ANGLE APRON ENDWALL ASPHALTIC AVERAGE DAILY TRAFFIC ANNUAL AVERAGE DAILY TRAFFIC BACK FACE BACK BEGIN BENCHMARK CENTER LINE CENTRAL ANGLE OR DELTA CONSTRUCTION CORRUGATED METAL CULVERT PIPE CORRUGATED METAL PIPE COUNTY COUNTY TRUNK HIGHWAY CREEK CRUSHED AGGREGATE BASE COURSE CUBIC YARD CULVERT PIPE CURB AND GUTTER DEGREE OF CURVE DESIGN HOURLY VOLUME DIAMETER DISCHARGE EACH EAST EASTBOUND ELECTRIC(AL), ELEC. CABLE ELEVATION EXCAVATION EXISTING FACE TO FACE FERTILIZER FIELD ENTRANCE FLOW LINE HUNDRED WEIGHT INLET INTERSECTION INTERSTATE HIGHWAY JOINT LEFT LEFT HAND FORWARD LENGTH OF CURVE LINEAR FOOT(FEET) LONG CHORD LUMP SUM		M.P. MAX. MGAL MIN. N.C. N NB NOR NO. PAV'T P.L.E. P.C. P.I. P.T. PCC P.E. P.L. R R/L R.C.C.P. REQ'D RT R.H.F. R/W RD. SHLD. SHR. S SB S.F. SDD STH STA. S.E. S/L T. TEL. TEMP. T.L.E. T.O.C. TYP UNCL. U.G. VAR V.C. V.P.C. V.P.I. V.P.T. W WB	MARKER POST MAXIMUM 1000 GALLONS MINIMUM NORMAL CROWN NORTH NORTHBOUND NORMAL NUMBER PAVEMENT PERMANENT LIMITED EASEMENT POINT OF CURVATURE POINT OF INTERSECTION POINT OF TANGENCY PORTLAND CEMENT CONCRETE PRIVATE ENTRANCE PROPERTY LINE RADIUS OR RANGE REFERENCE LINE REINFORCED CONCRETE CULVERT PIPE REQUIRED RIGHT RIGHT HAND FORWARD RIGHT OF WAY ROAD SHOULDER(S) SHRINKAGE SOUTH SOUTHBOUND SQUARE FOOT (FEET) STANDARD DETAIL DRAWING(S) STATE TRUNK HIGHWAY STATION SUPERELEVATION SURVEY LINE PERCENT TRUCKS TELEPHONE TEMPORARY TEMPORARY LIMITED EASEMENT TOP OF CURB TYPICAL UNCLASSIFIED UNDERGROUND (CABLE) VARIABLE VERTICAL CURVE VERTICAL POINT OF CURVATURE VERTICAL POINT OF INTERSECTION VERTICAL POINT OF TANGENCY WEST WESTBOUND
	<u>Alliant Energy - Electricity</u> Jason Hogan Suite 1000 4902 N Biltmore Lane Madison, WI 53718 (608) 458-4871 jasonhogan@alliantenergy.com	<u>ATC Management, Inc. - Electricity</u> Mike Olsen 801 O'Keefe Rd P.O. Box 6113 De Pere, WI 54115-6113 (920) 338-6582 molsen@atc11c.com	<u>Wisconsin Department of Transportation - Communication Line</u> Jeff Madson Ste. 300 433 W. St. Paul Ave. Milwaukee, WI 53203-3007 (414) 225-3723 Jeffrey.Madson@dot.wi.gov	 Dial 811 or (800) 242-8511 www.DiggersHotline.com				
	<u>Frontier Communications of WI LLC - Communication Line</u> Robert Church 100 Communications Drive Sun Prairie, WI 53590 (608) 837-1881 robert.church@ftr.com						<u>Alliant Energy - Gas/Petroleum</u> Jason Hogan Suite 1000 4902 N Biltmore Lane Madison, WI 53718 (608) 458-4871 jasonhogan@alliantenergy.com	
GENERAL NOTES								
• THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE. • ALL CLOSED LANES MUST BE SWEEPED CLEAN PRIOR TO OPENING TO TRAFFIC. • ALL ROADWAY SPILLS SHALL BE CLEANED UP IMMEDIATELY. • THE LOCATIONS OF UNDISTRIBUTED QUANTITIES WILL BE DETERMINED IN THE FIELD BY THE ENGINEER. • NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER • REMOVE EXISTING OLD CULVERTS AS SHOWN ON THE PLANS. • IN PERFORMANCE OF THE WORK UNDER THE ITEM "REMOVING FENCE", THE FENCE SHALL BE REMOVED TO A PULL OR STRETCHER POST ASSEMBLY AS DETERMINED IN THE FIELD BY THE ENGINEER. • HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN. • ASPHALT MATERIAL FOR PLANT MIXES HAS BEEN ESTIMATED AT 5.5% OF THE HMA PAVEMENT. • 3.5 INCH HMA PAVEMENT TYPE E-0.3, E-30 & SMA, SHALL BE CONSTRUCTED WITH 1.75 INCH UPPER LAYER AND 1.75 INCH LOWER LAYER. USE THE 12.5 MM GRADATION FOR BOTH LAYERS. • CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY HIS OPERATION OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS. • SECTIONS AS SHOWN ON THE CROSS SECTION SHEETS INCLUDE THE THICKNESS OF TOPSOIL. • DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE SALVAGED TOPSOILED, FERTILIZED, SEEDED, AND COVERED WITH E-MAT AS DIRECTED BY THE ENGINEER. • DIMENSIONS OF RIPRAP PLACEMENT SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.								
PROJECT NO: 1016-05-79			HWY: IH-90/94		COUNTY: JUNEAU	GENERAL NOTES		
SHEET:						E		

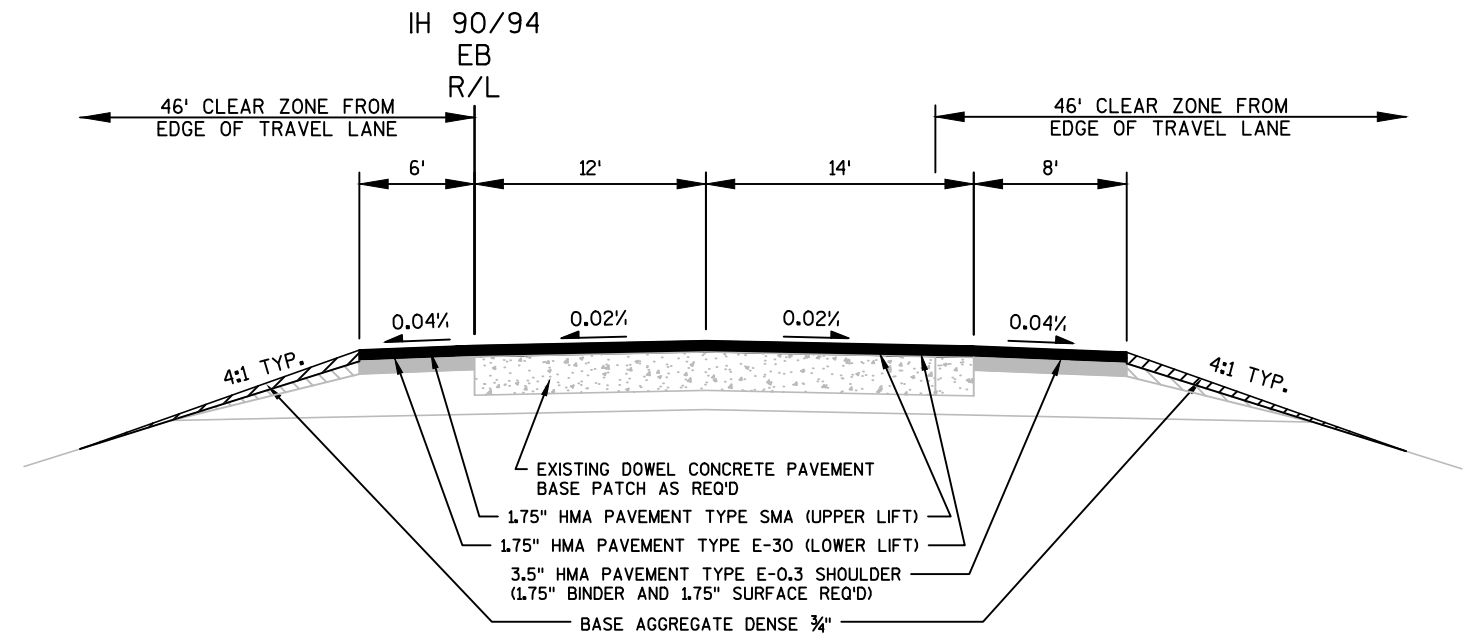
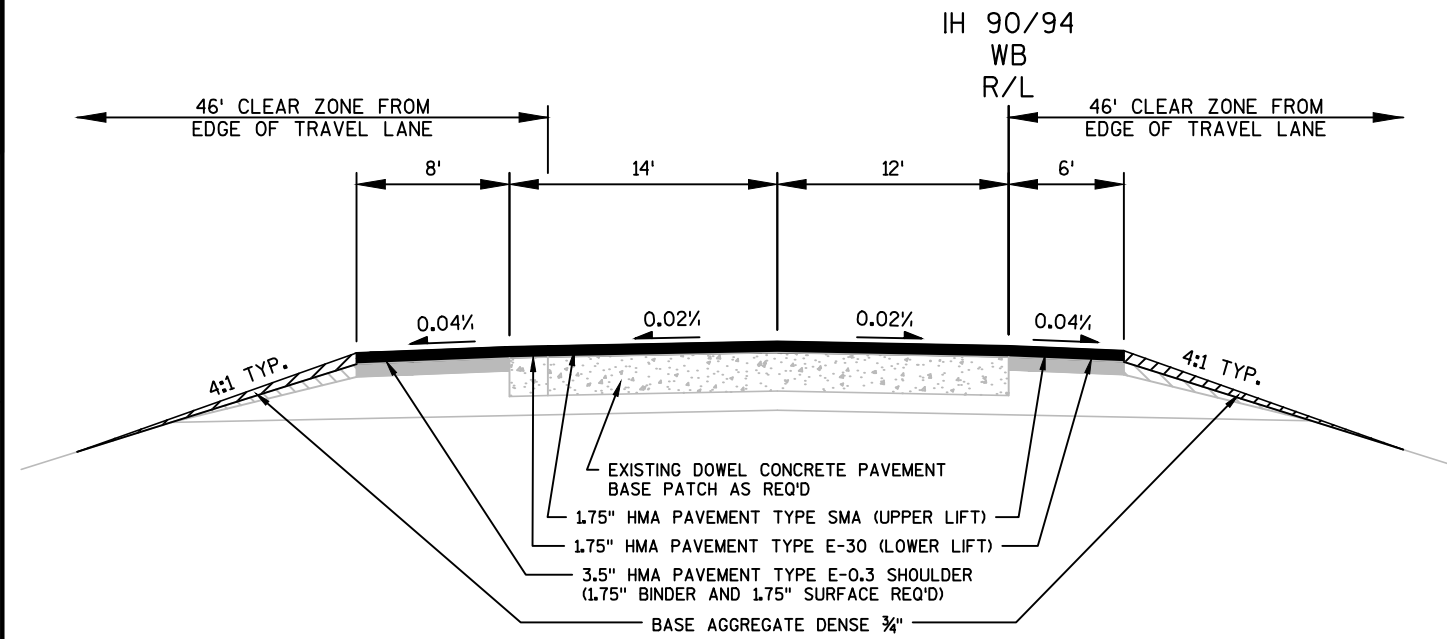


TYPICAL EXISTING MAINLINE TANGENT SECTION
NOTE: EXISTING CONCRETE PAVEMENT VARIES FROM 11.5" TO 13.5" THICK.

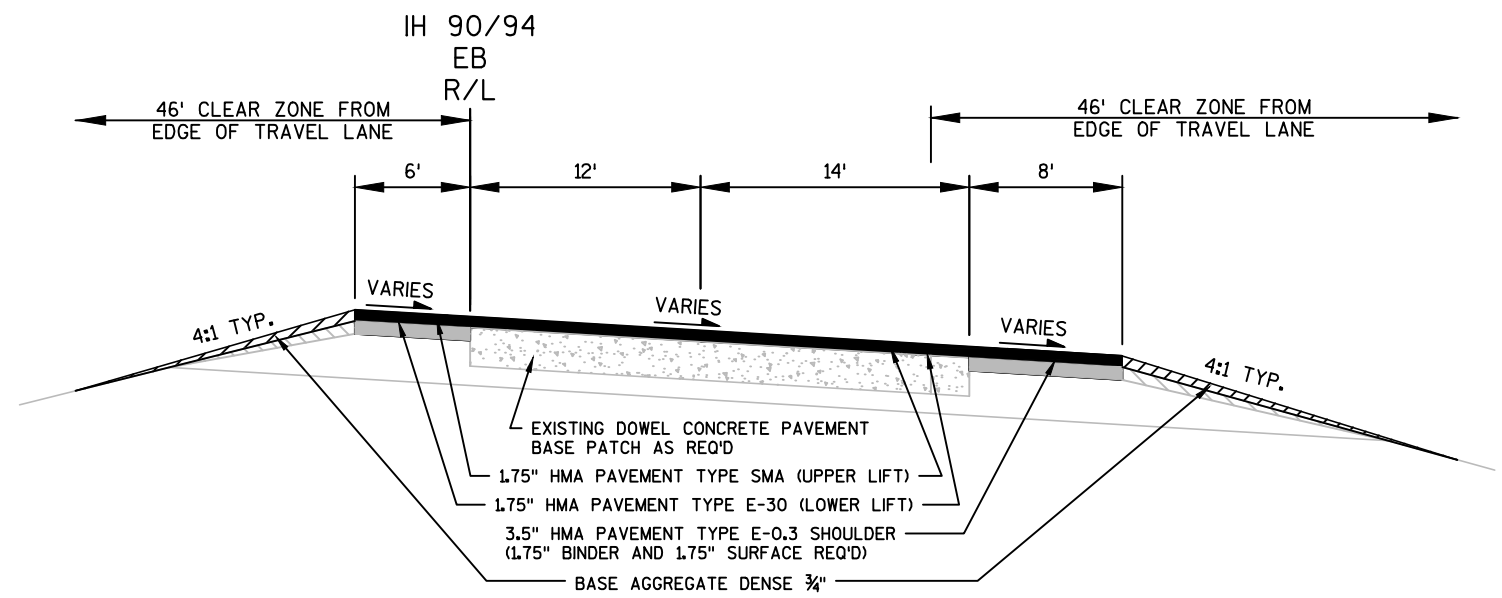
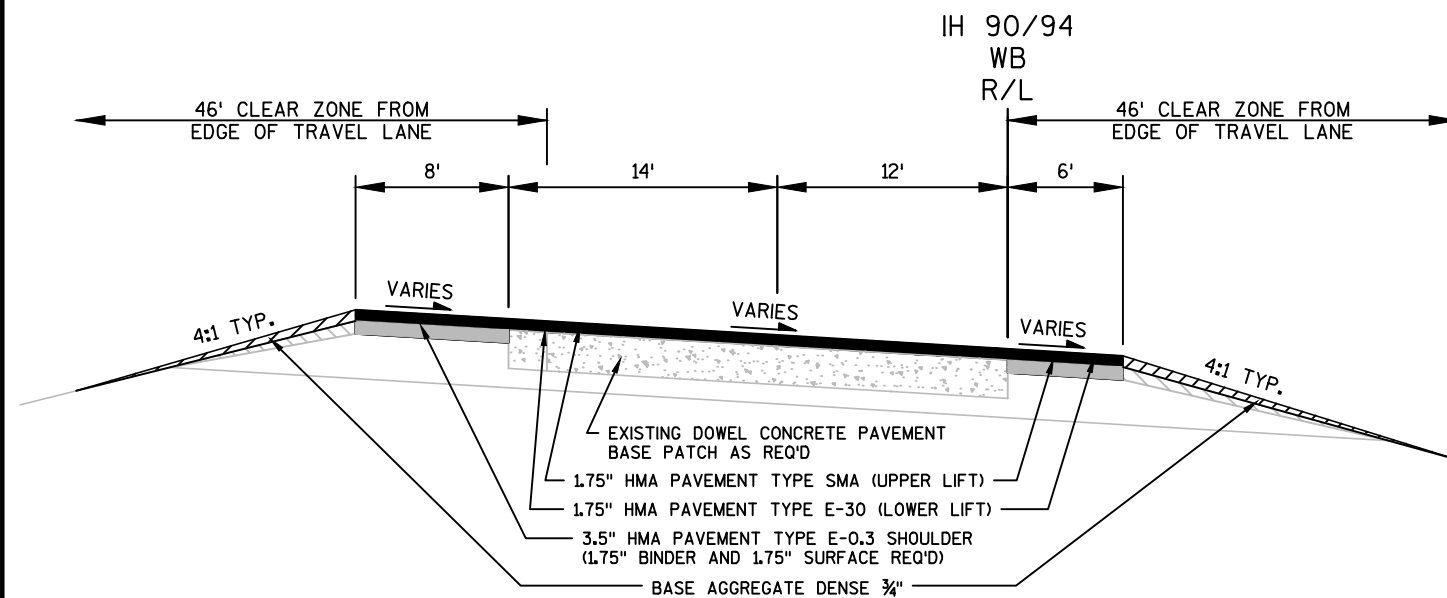


TYPICAL EXISTING MAINLINE SUPERELEVATED SECTION
NOTE: EXISTING CONCRETE PAVEMENT VARIES FROM 11.5" TO 13.5" THICK.

NOT TO SCALE

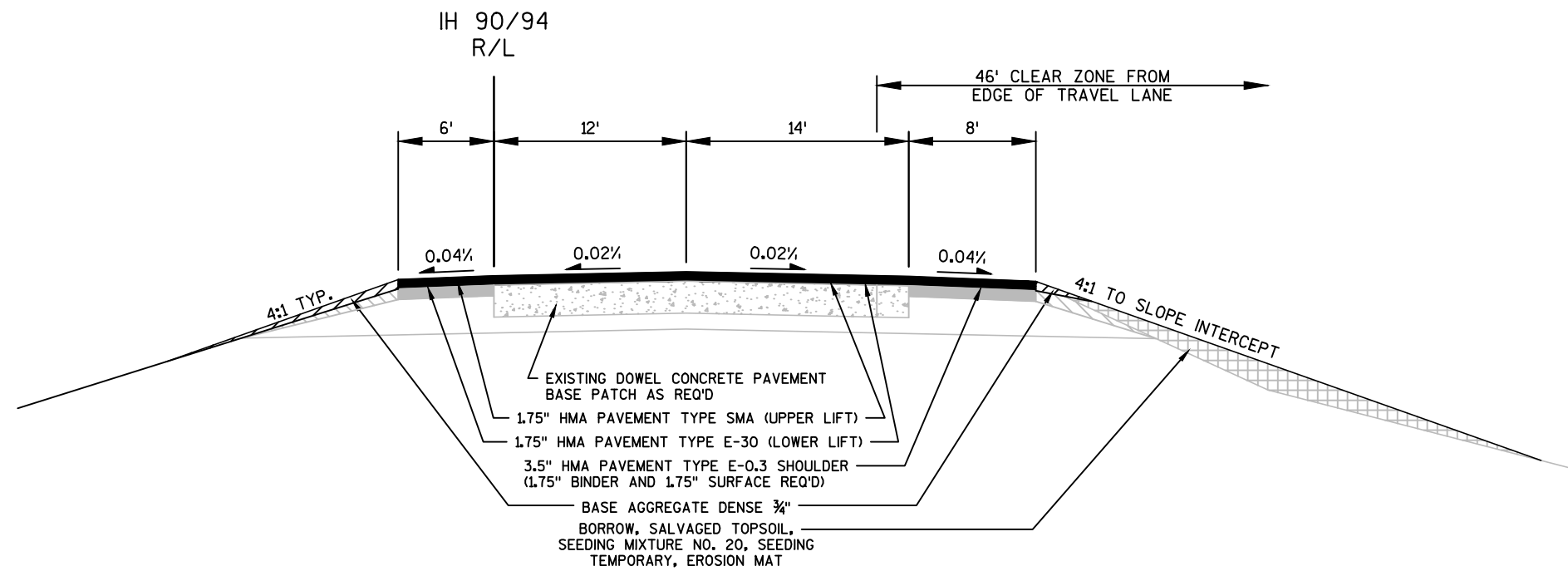


TYPICAL PROPOSED MAINLINE TANGENT SECTION
NOTE: EXISTING CONCRETE PAVEMENT VARIES FROM 11.5" TO 13.5" THICK.



TYPICAL PROPOSED MAINLINE SUPERELEVATED SECTION
NOTE: EXISTING CONCRETE PAVEMENT VARIES FROM 11.5" TO 13.5" THICK.

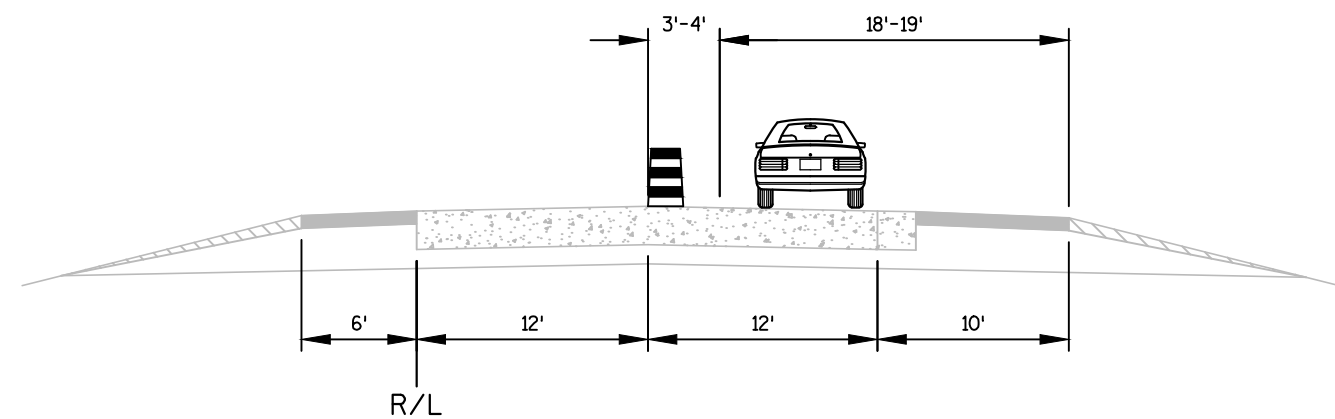
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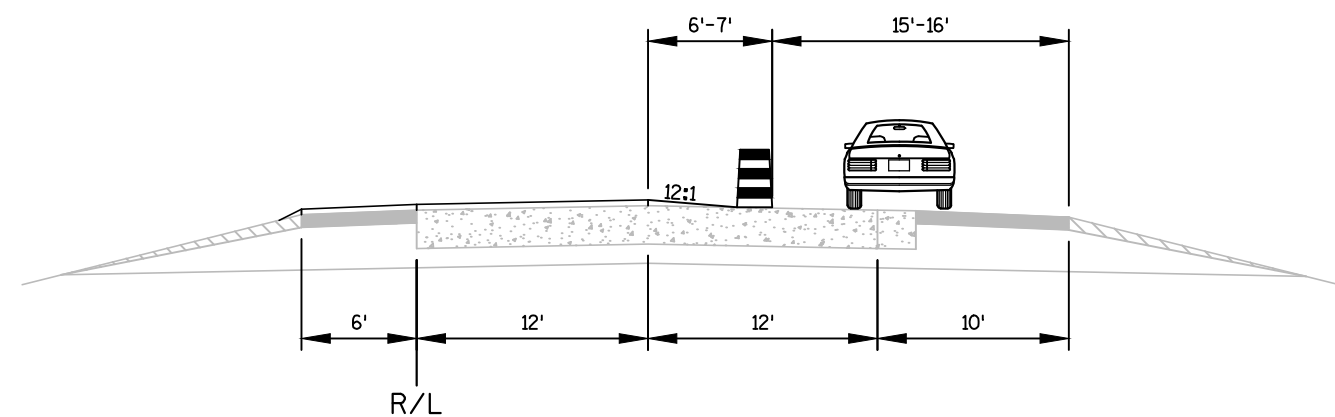
TYPICAL PROPOSED SLOPE CORRECTION SECTION

IH-90/94 EB STA. 1226+50 - STA. 1229+50, RIGHT
IH-90/94 EB STA. 1375+00 - STA. 1379+00, RIGHT

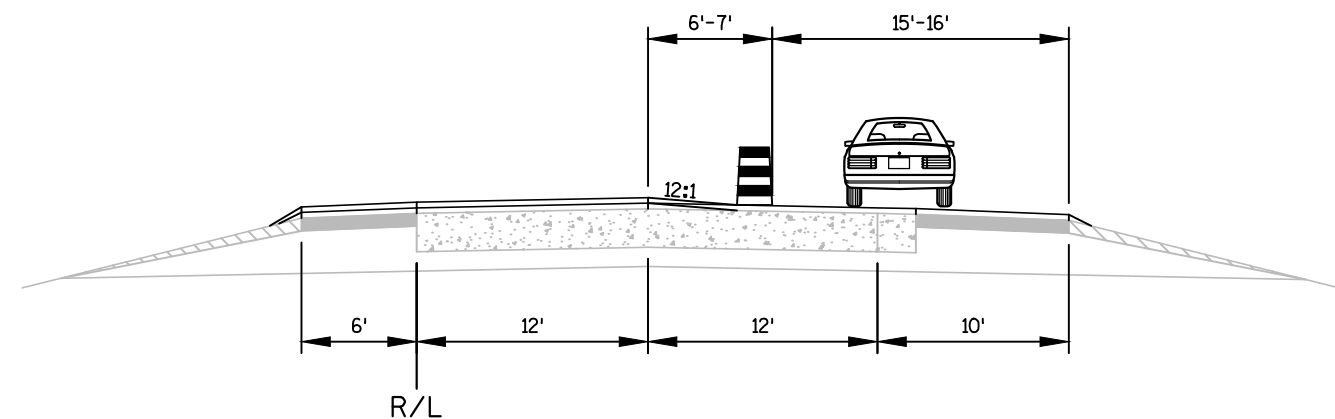
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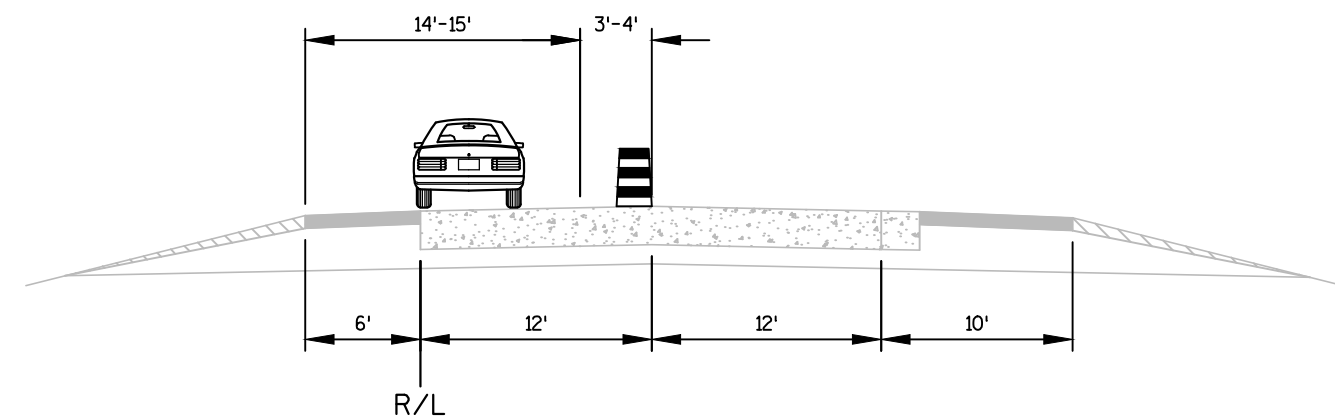
TYPICAL SECTION: MEDIAN LANE CLOSED
STAGE 1: BASE PATCHING



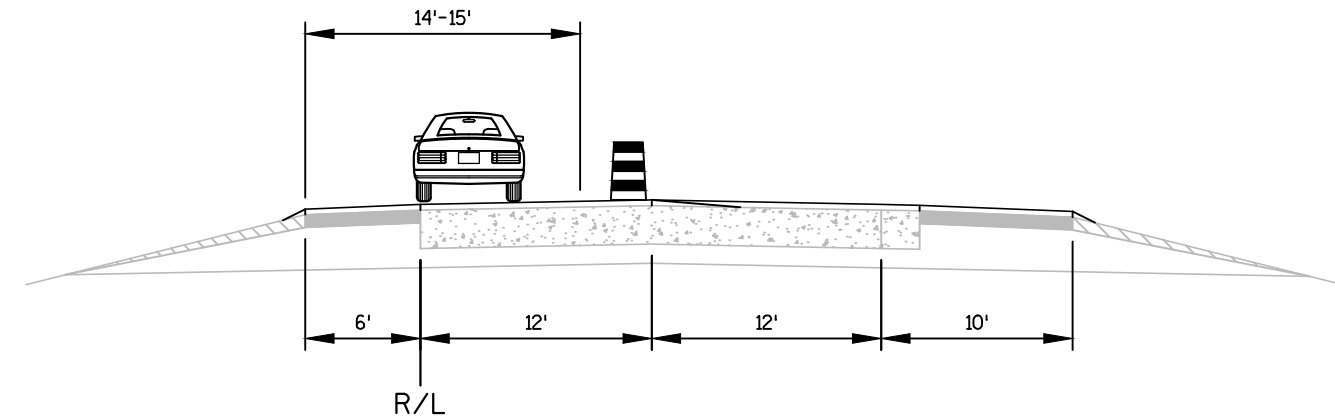
TYPICAL SECTION: MEDIAN LANE CLOSED
STAGE 2A: ASPHALT BINDER



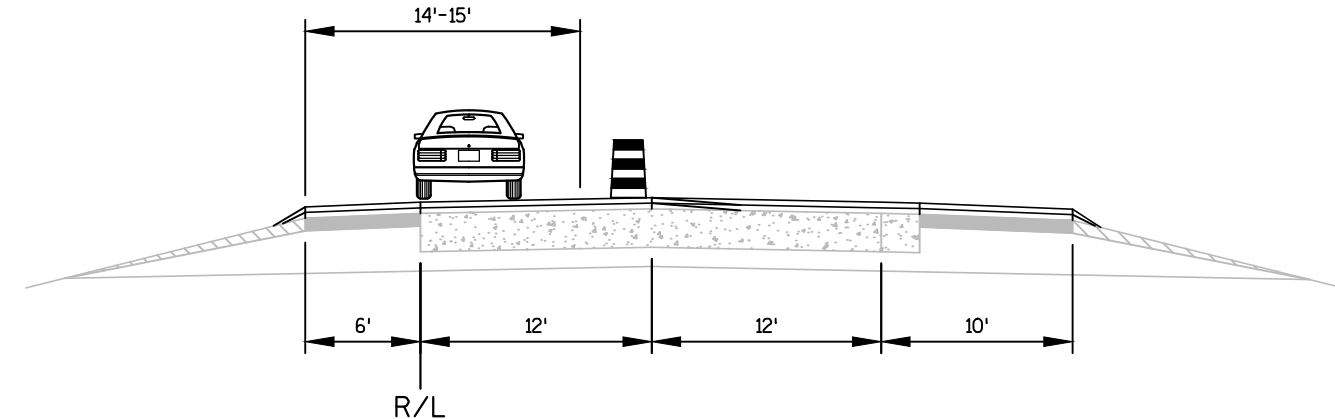
TYPICAL SECTION: MEDIAN LANE CLOSED
STAGE 2C: ASPHALT SURFACE



TYPICAL SECTION: OUTSIDE LANE CLOSED
STAGE 1: BASE PATCHING



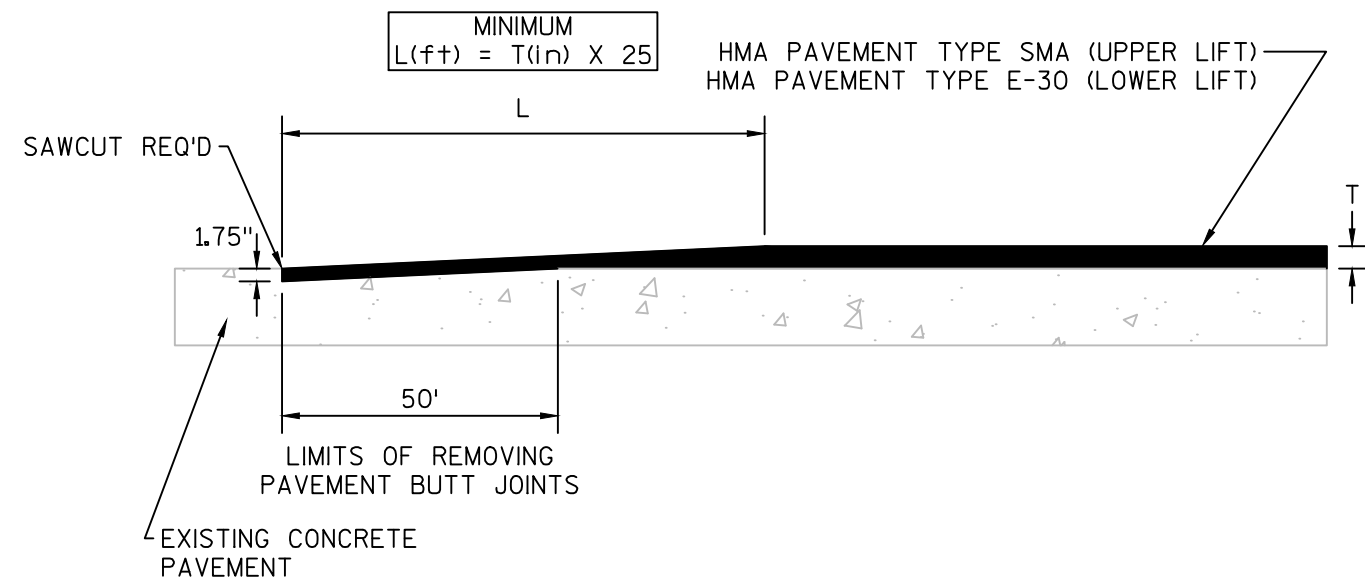
TYPICAL SECTION: OUTSIDE LANE CLOSED
STAGE 2B: ASPHALT BINDER



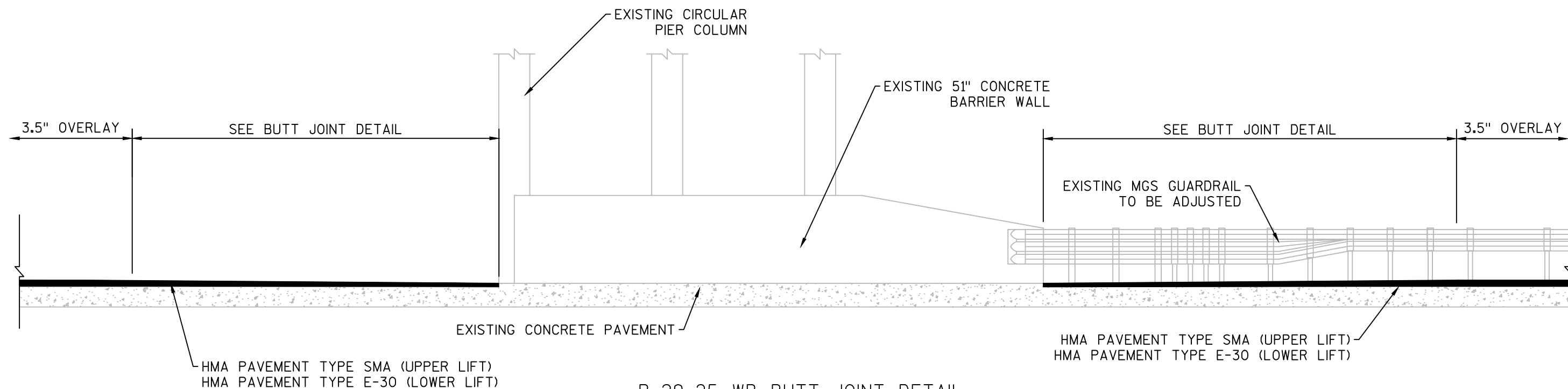
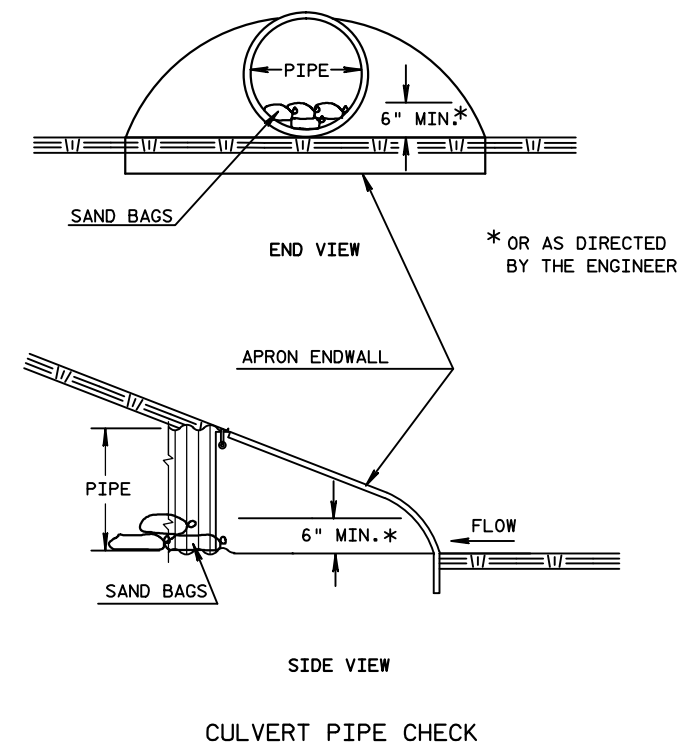
TYPICAL SECTION: OUTSIDE LANE CLOSED
STAGE 2D: ASPHALT SURFACE

TRAFFIC CONTROL AND PAVING OPERATIONS

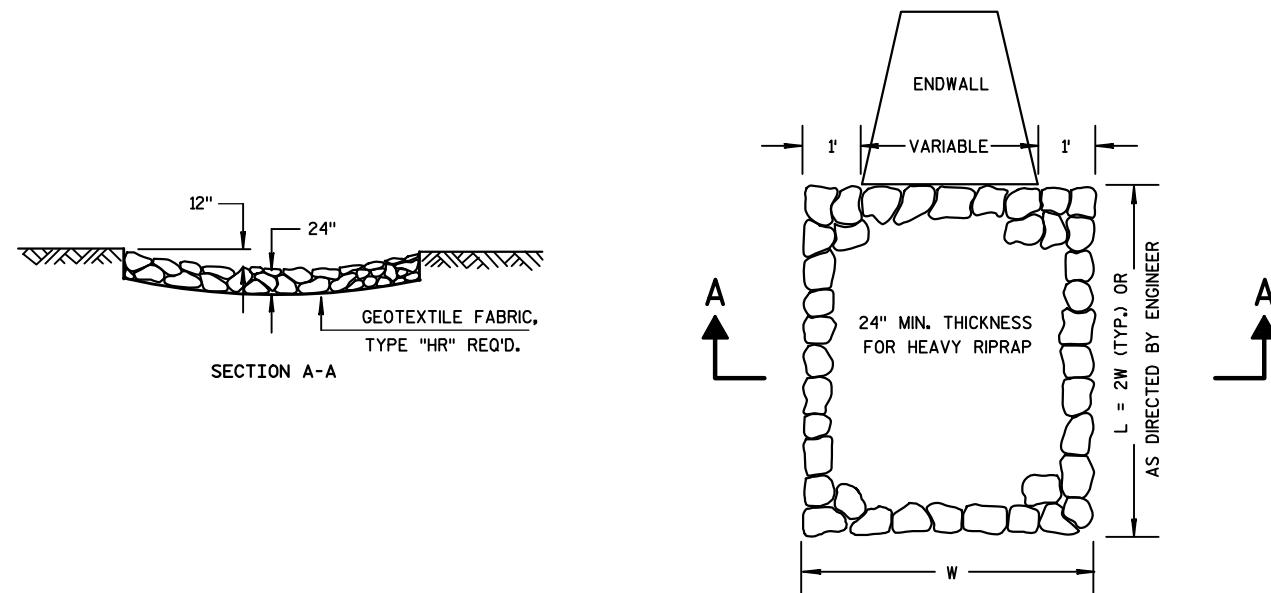
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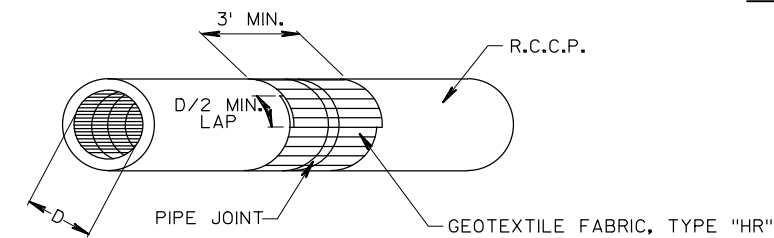
BUTT JOINT DETAIL



B-29-25 WB BUTT JOINT DETAIL



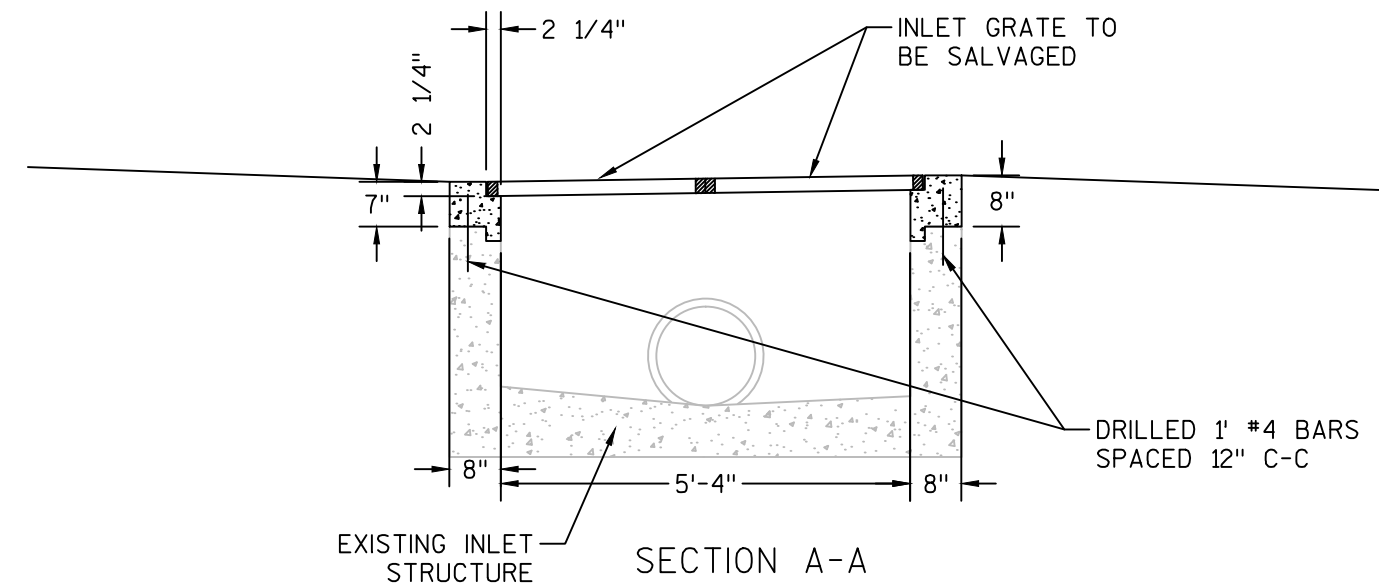
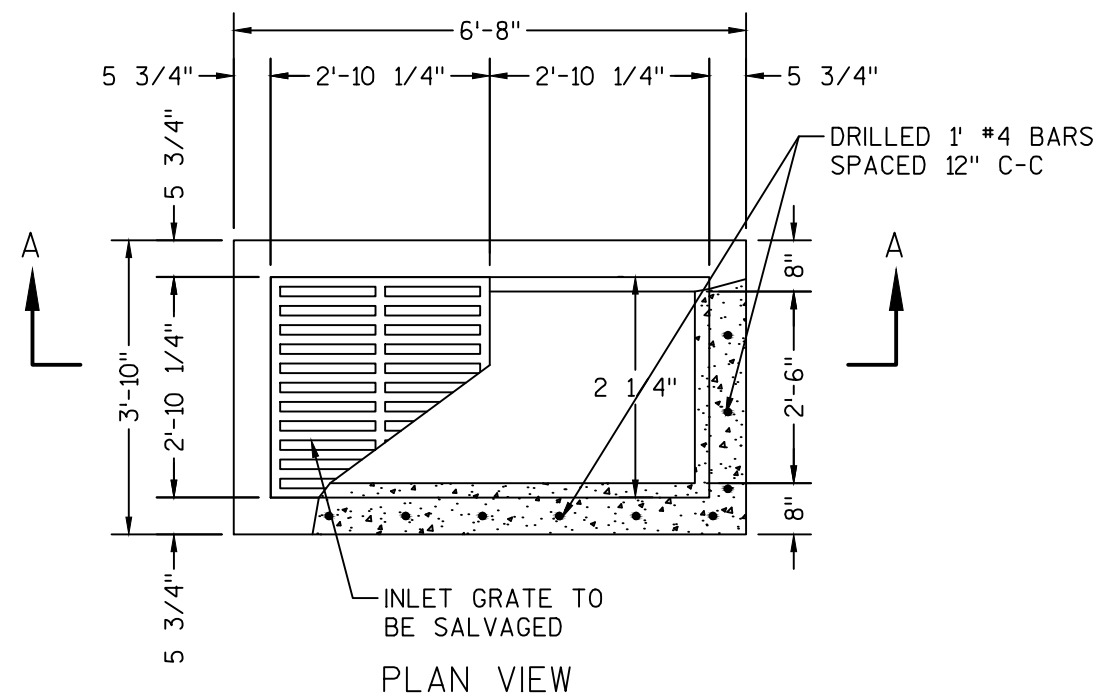
HEAVY RIPRAP TREATMENT AT CULVERTS



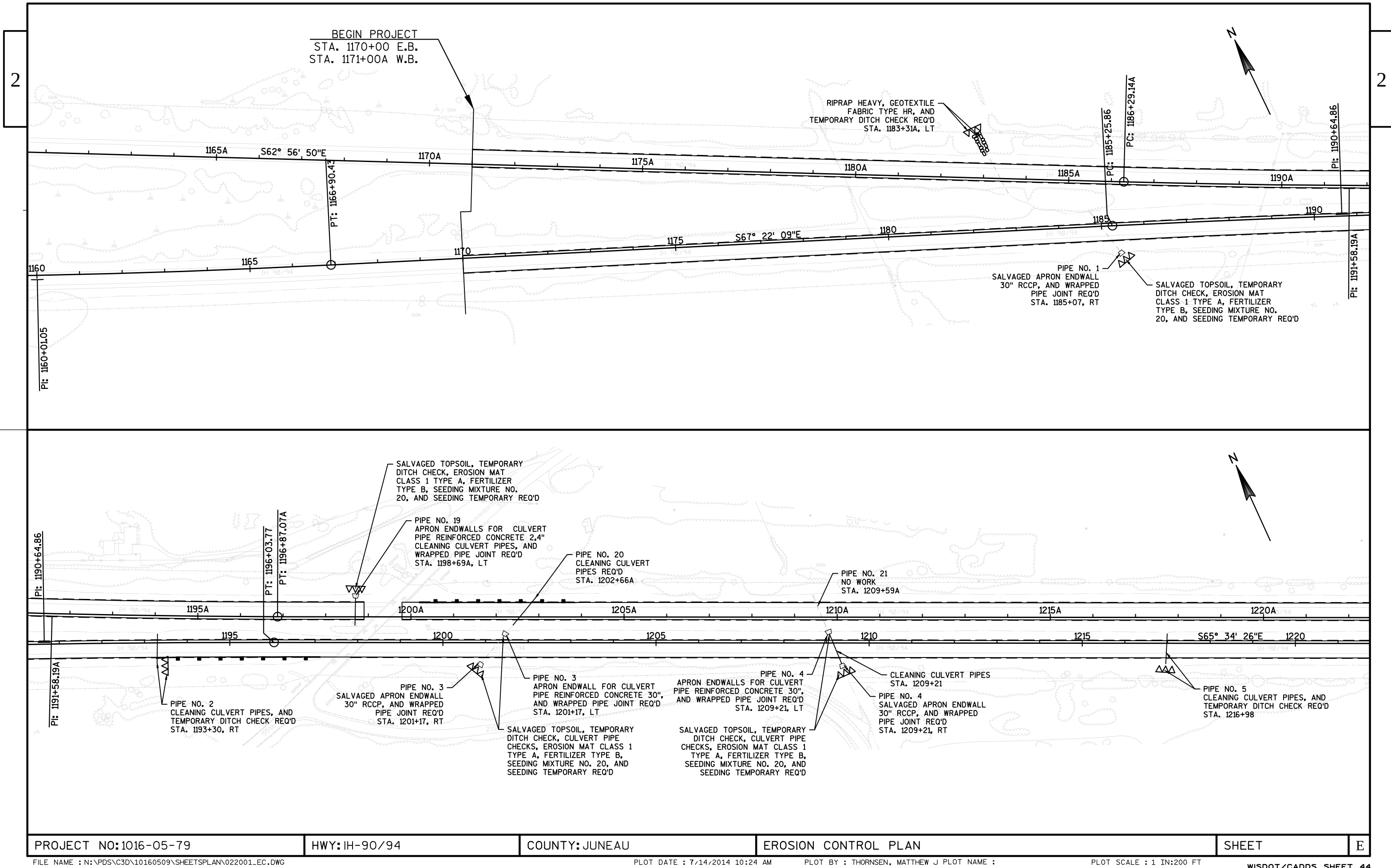
GEOTEXTILE FABRIC REQUIRED FOR PIPE JOINTS

PIPE DIA. (IN.)	PIPE O.D. (IN.)	FABRIC/JOINT (S.Y.)
18	23	2.3
21	26.5	2.6
24	30	3.0
27	33.5	3.3
30	37	3.6
36	44	4.3
42	51	5.0
48	58	5.7
54	65	6.4
60	72	7.1
66	79	7.8
72	86	8.5

DETAIL OF WRAPPED PIPE JOINT
WRAP ALL JOINTS



RECONSTRUCTING INLET SPECIAL



BEGIN PROJECT
STA. 1170+00 E.B.
STA. 1171+00A W.B.

RIPRAP HEAVY, GEOTEXTILE
FABRIC TYPE HR, AND
TEMPORARY DITCH CHECK REQ'D
STA. 1183+31A, LT

PIPE NO. 1
SALVAGED APRON ENDWALL
30" RCCP, AND WRAPPED
PIPE JOINT REQ'D
STA. 1185+07, RT

SALVAGED TOPSOIL, TEMPORARY
DITCH CHECK, EROSION MAT
CLASS 1 TYPE A, FERTILIZER
TYPE B, SEEDING MIXTURE NO.
20, AND SEEDING TEMPORARY REQ'D

SALVAGED TOPSOIL, TEMPORARY
DITCH CHECK, EROSION MAT
CLASS 1 TYPE A, FERTILIZER
TYPE B, SEEDING MIXTURE NO.
20, AND SEEDING TEMPORARY REQ'D

PIPE NO. 19
APRON ENDWALLS FOR CULVERT
PIPE REINFORCED CONCRETE 2.4"
CLEANING CULVERT PIPES, AND
WRAPPED PIPE JOINT REQ'D
STA. 1198+69A, LT

PIPE NO. 20
CLEANING CULVERT
PIPES REQ'D
STA. 1202+66A

PIPE NO. 21
NO WORK
STA. 1209+59A

PIPE NO. 2
CLEANING CULVERT PIPES, AND
TEMPORARY DITCH CHECK REQ'D
STA. 1193+30, RT

PIPE NO. 3
SALVAGED APRON ENDWALL
30" RCCP, AND WRAPPED
PIPE JOINT REQ'D
STA. 1201+17, RT

PIPE NO. 3
APRON ENDWALL FOR CULVERT
PIPE REINFORCED CONCRETE 30",
AND WRAPPED PIPE JOINT REQ'D
STA. 1201+17, LT

SALVAGED TOPSOIL, TEMPORARY
DITCH CHECK, CULVERT PIPE
CHECKS, EROSION MAT CLASS 1
TYPE A, FERTILIZER TYPE B,
SEEDING MIXTURE NO. 20, AND
SEEDING TEMPORARY REQ'D

PIPE NO. 4
APRON ENDWALLS FOR CULVERT
PIPE REINFORCED CONCRETE 30",
AND WRAPPED PIPE JOINT REQ'D
STA. 1209+21, LT

SALVAGED TOPSOIL, TEMPORARY
DITCH CHECK, CULVERT PIPE
CHECKS, EROSION MAT CLASS 1
TYPE A, FERTILIZER TYPE B,
SEEDING MIXTURE NO. 20, AND
SEEDING TEMPORARY REQ'D

CLEANING CULVERT PIPES
STA. 1209+21

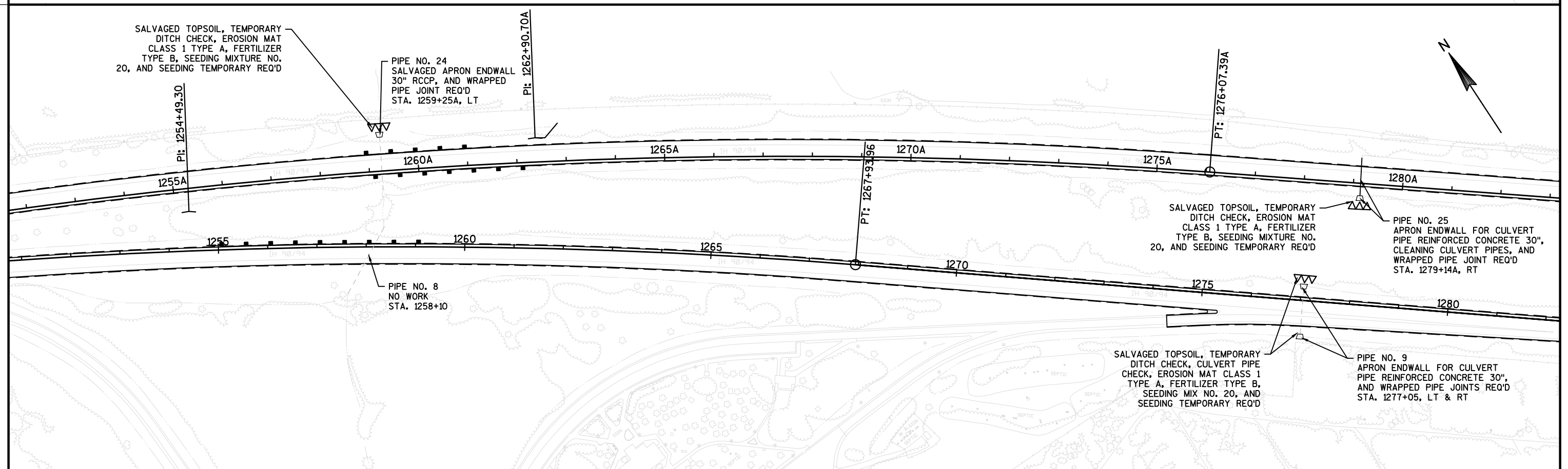
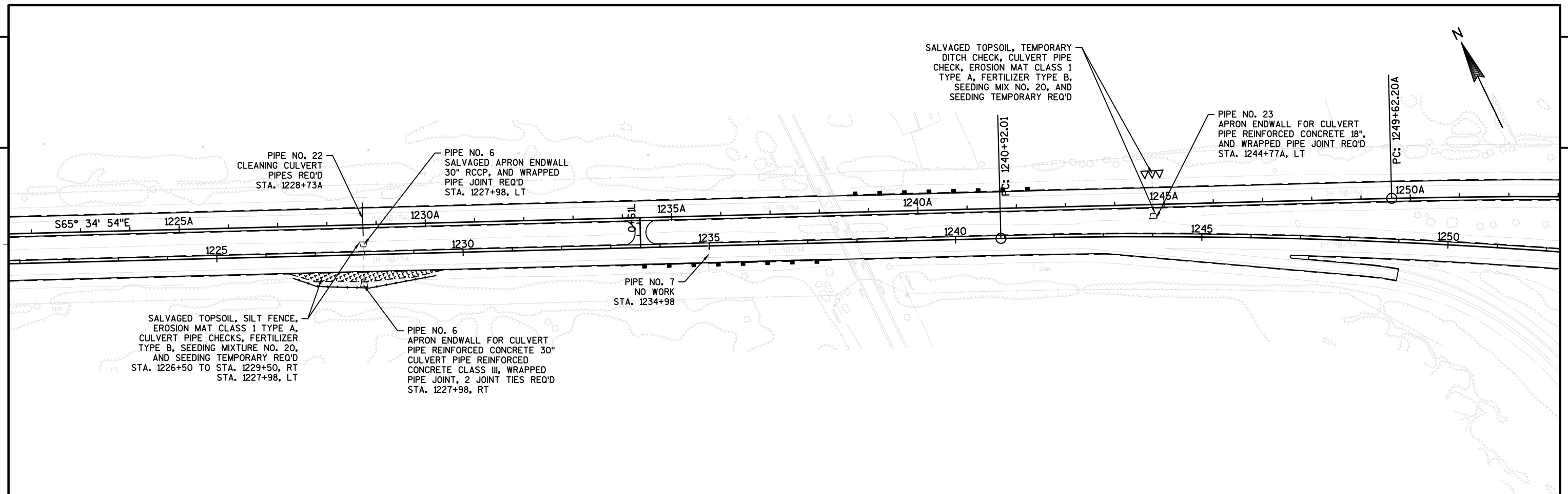
PIPE NO. 4
SALVAGED APRON ENDWALL
30" RCCP, AND WRAPPED
PIPE JOINT REQ'D
STA. 1209+21, RT

PIPE NO. 5
CLEANING CULVERT PIPES, AND
TEMPORARY DITCH CHECK REQ'D
STA. 1216+98

PROJECT NO: 1016-05-79	HWY: IH-90/94	COUNTY: JUNEAU	EROSION CONTROL PLAN	SHEET	E
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2

2



PROJECT NO:1016-05-79

HWY: IH-90/94

COUNTY: JUNEAU

EROSION CONTROL PLAN

SHEET

E

FILE NAME : N:\PDS\C3D\10160509\SHEETS\PLAN\022001_EC.DWG

PLOT DATE : 7/14/2014 10:24 AM

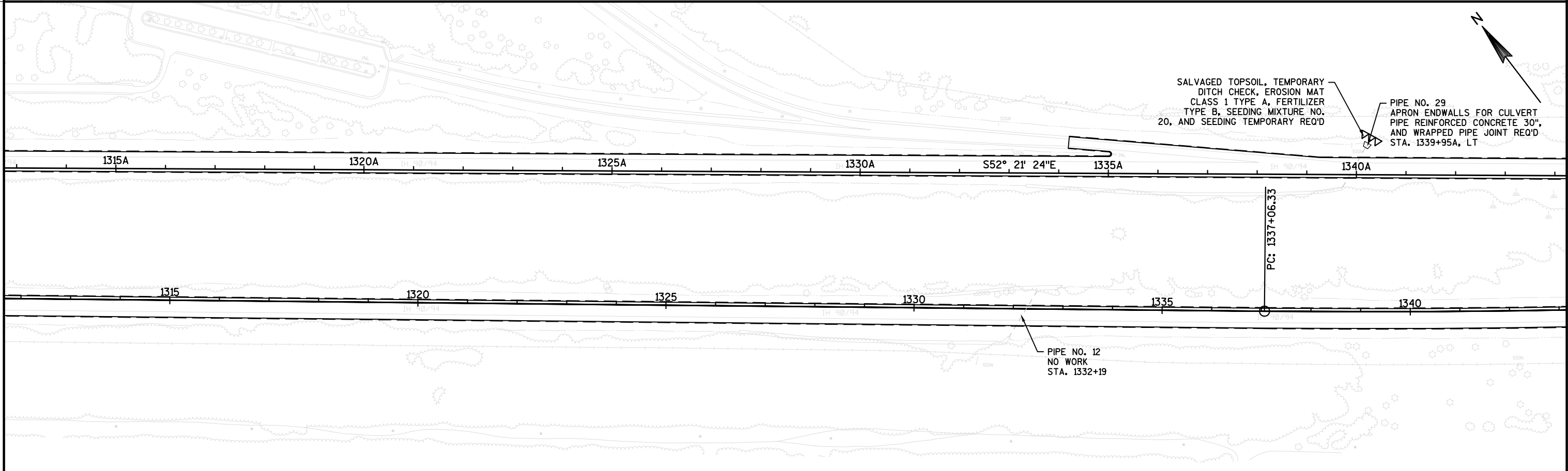
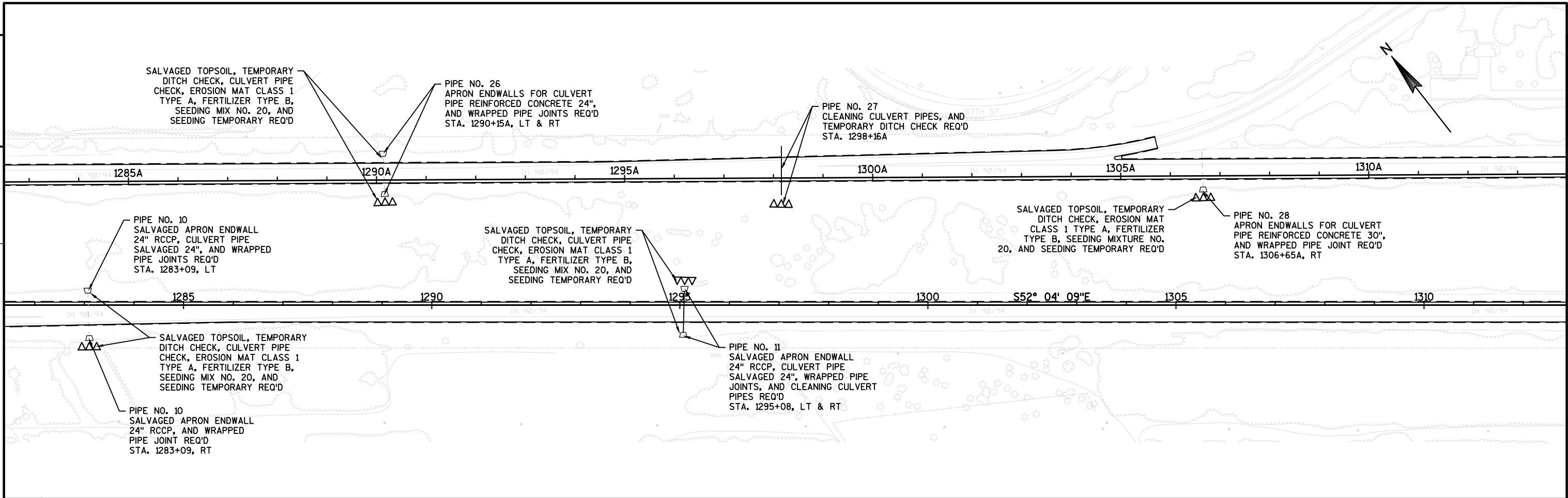
PLOT BY : THORNSSEN, MATTHEW J PLOT NAME :

PLOT SCALE : 1 IN:200 FT

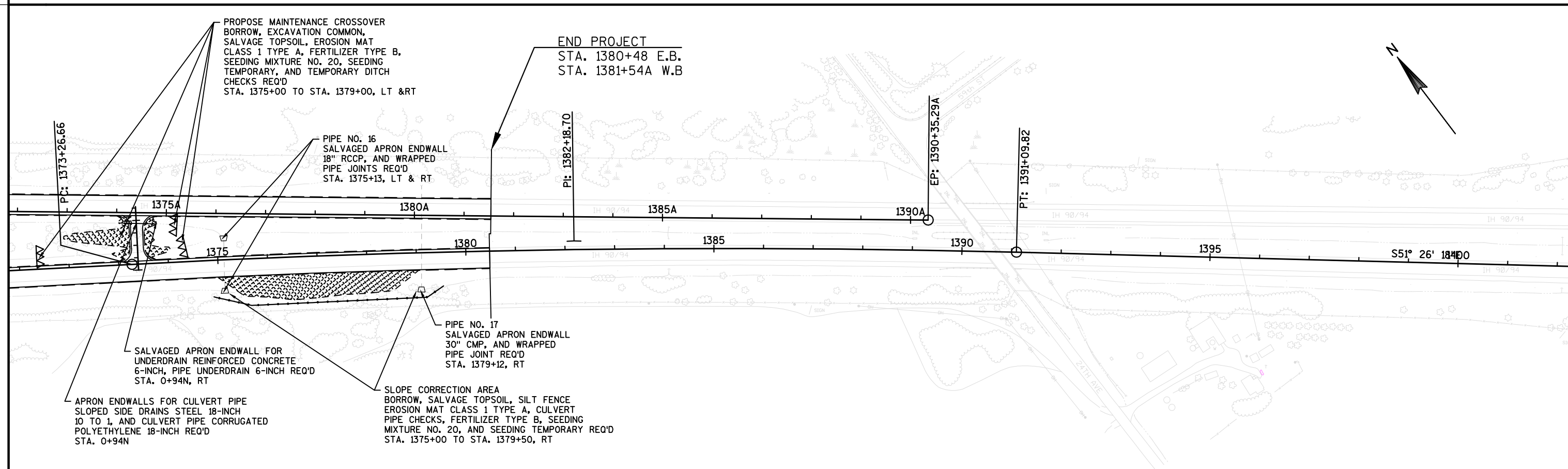
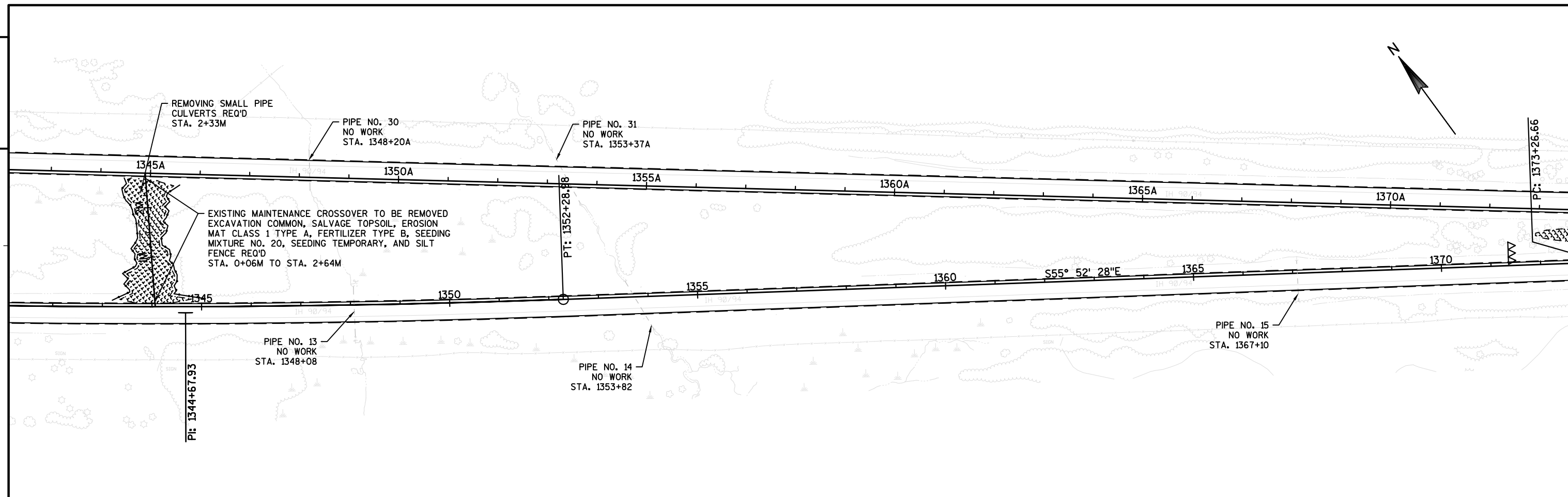
WISDOT/CADDs SHEET 44

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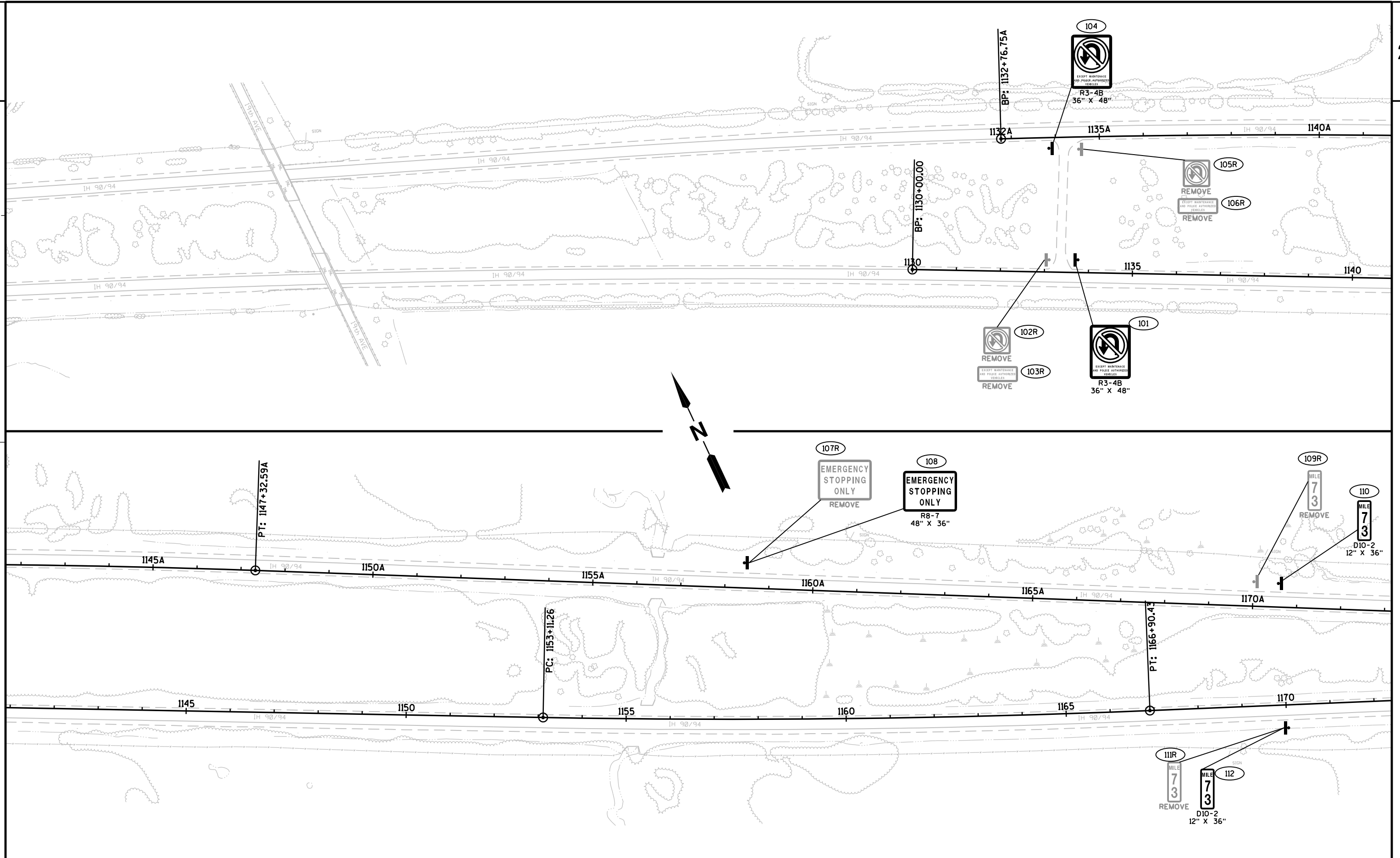


PROJECT NO:1016-05-79	HWY: IH-90/94	COUNTY: JUNEAU	EROSION CONTROL PLAN	SHEET	E
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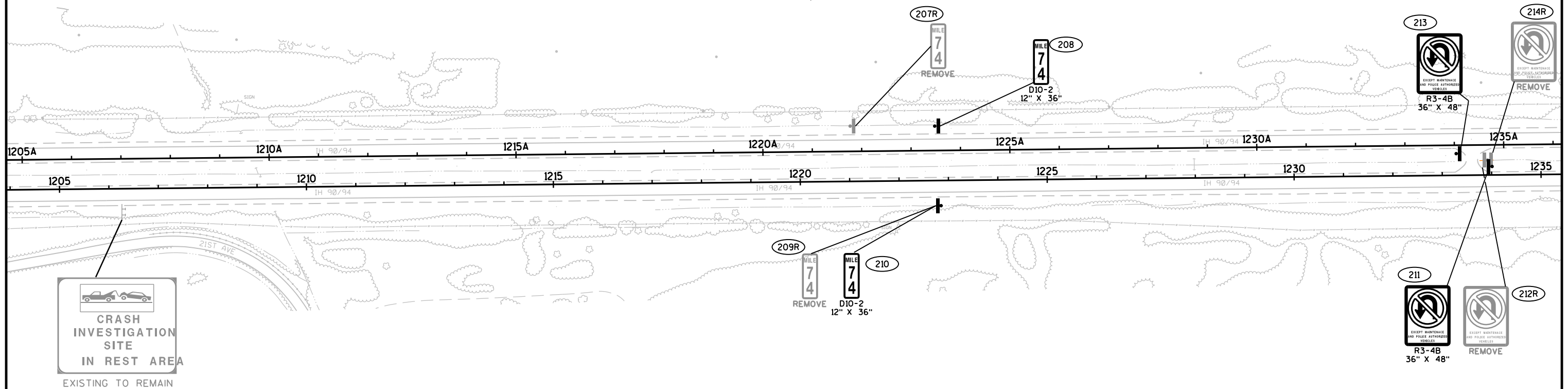
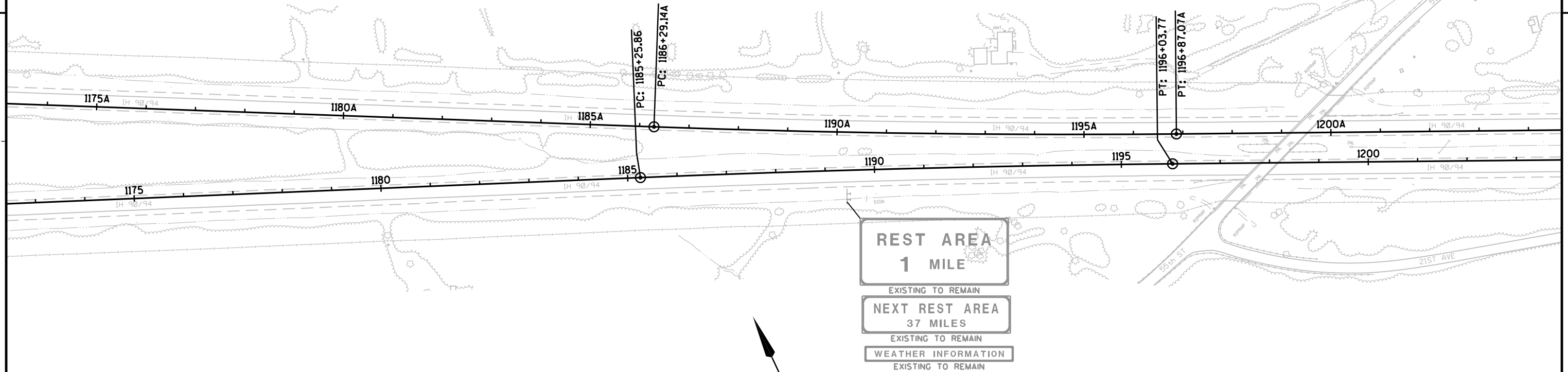
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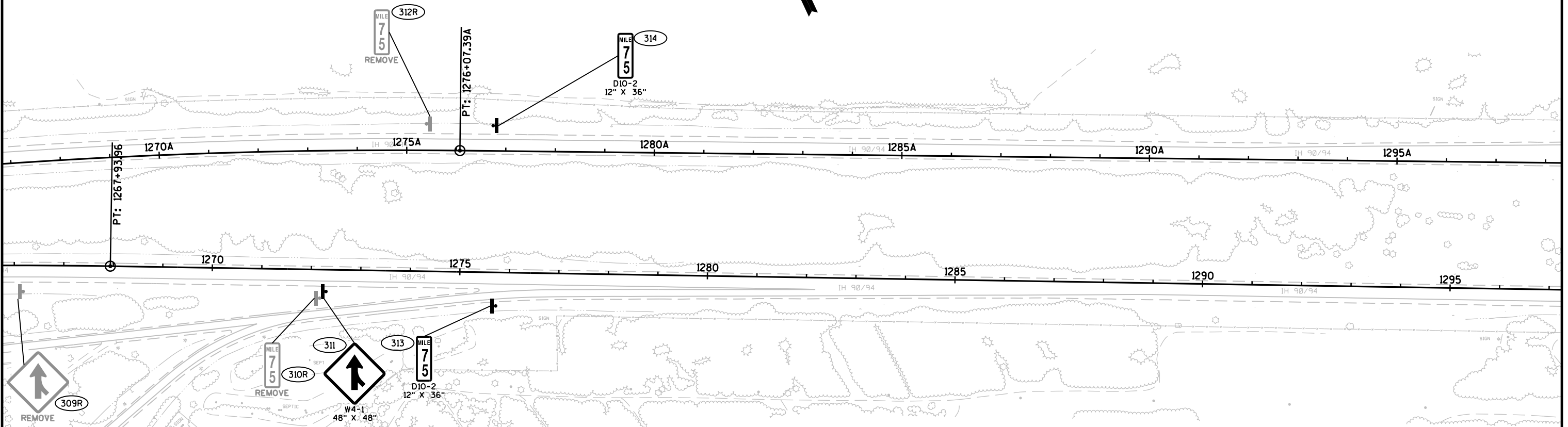
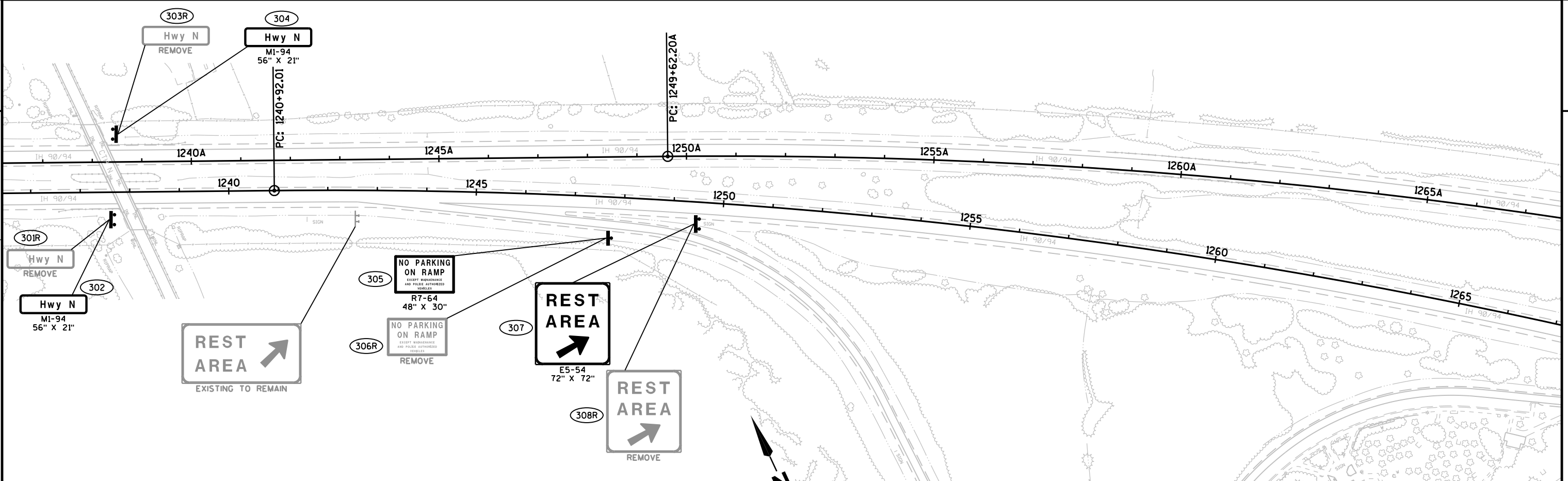
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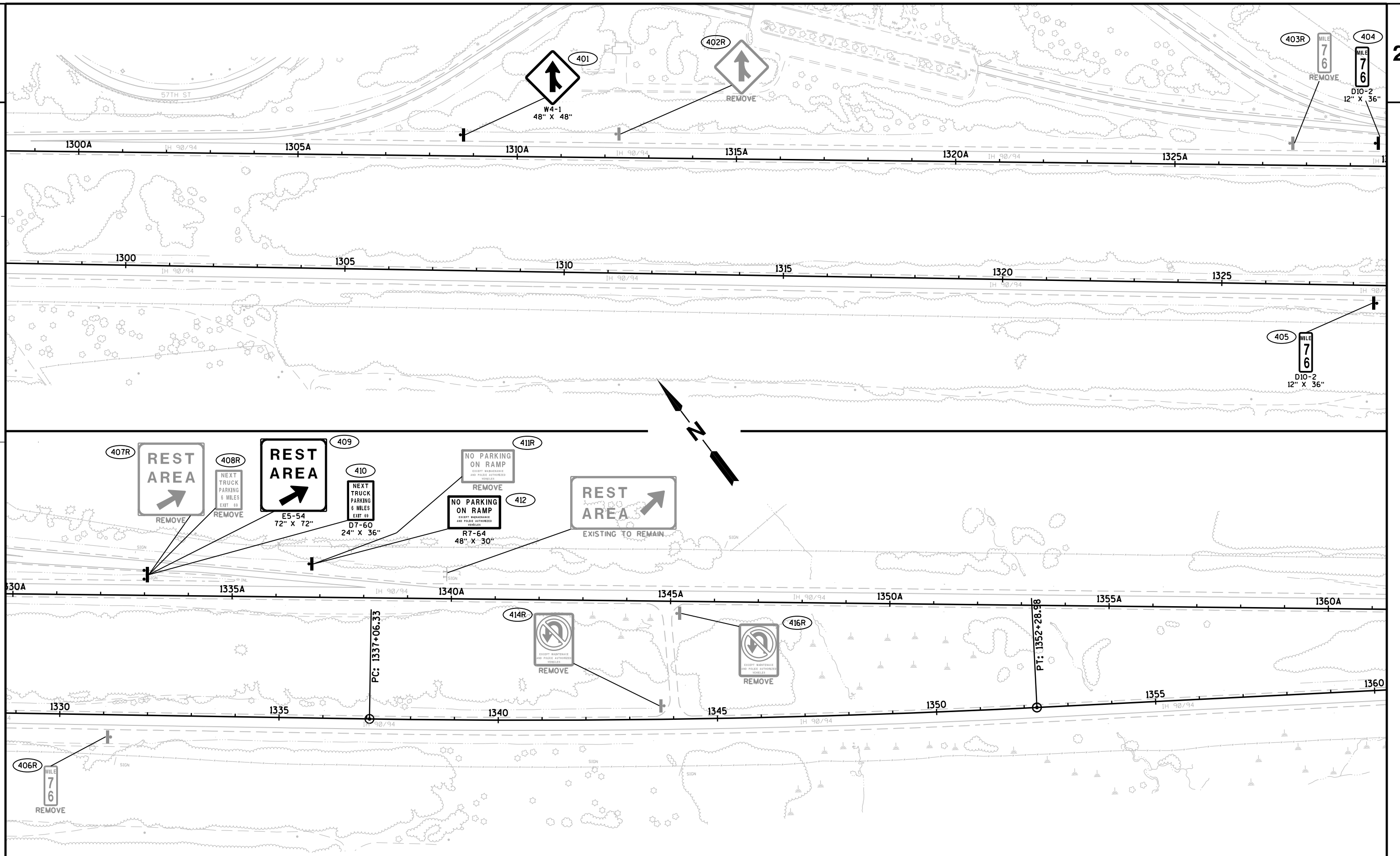


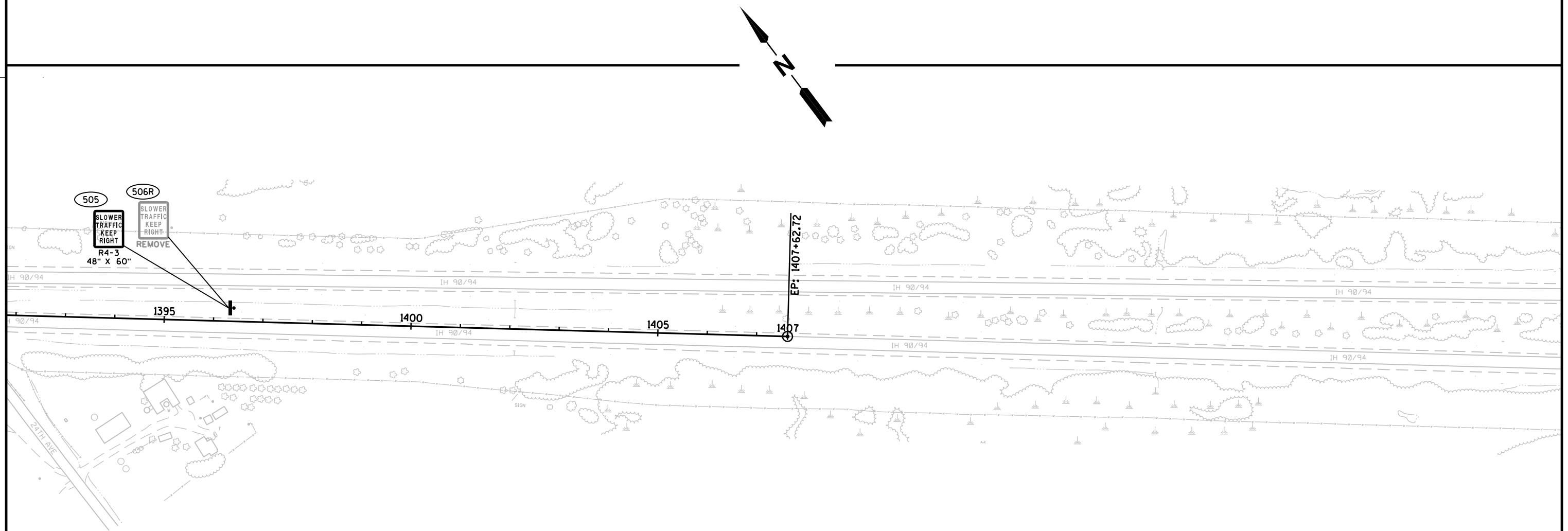
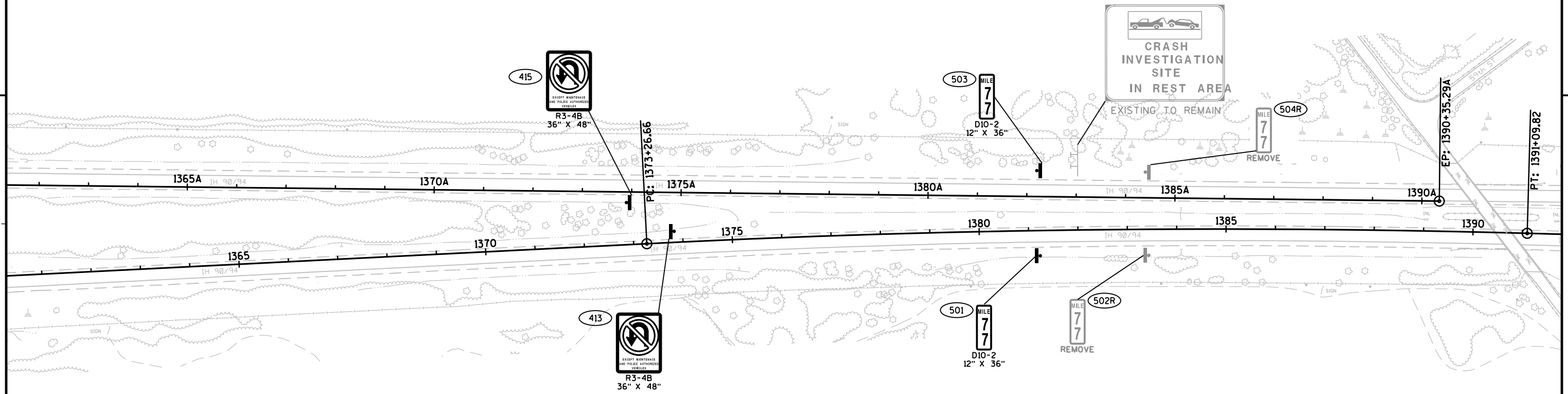
PROJECT NO: 1016-05-79	HWY: IH-90/94	COUNTY: JUNEAU	PERMANENT SIGNING	SHEET	E
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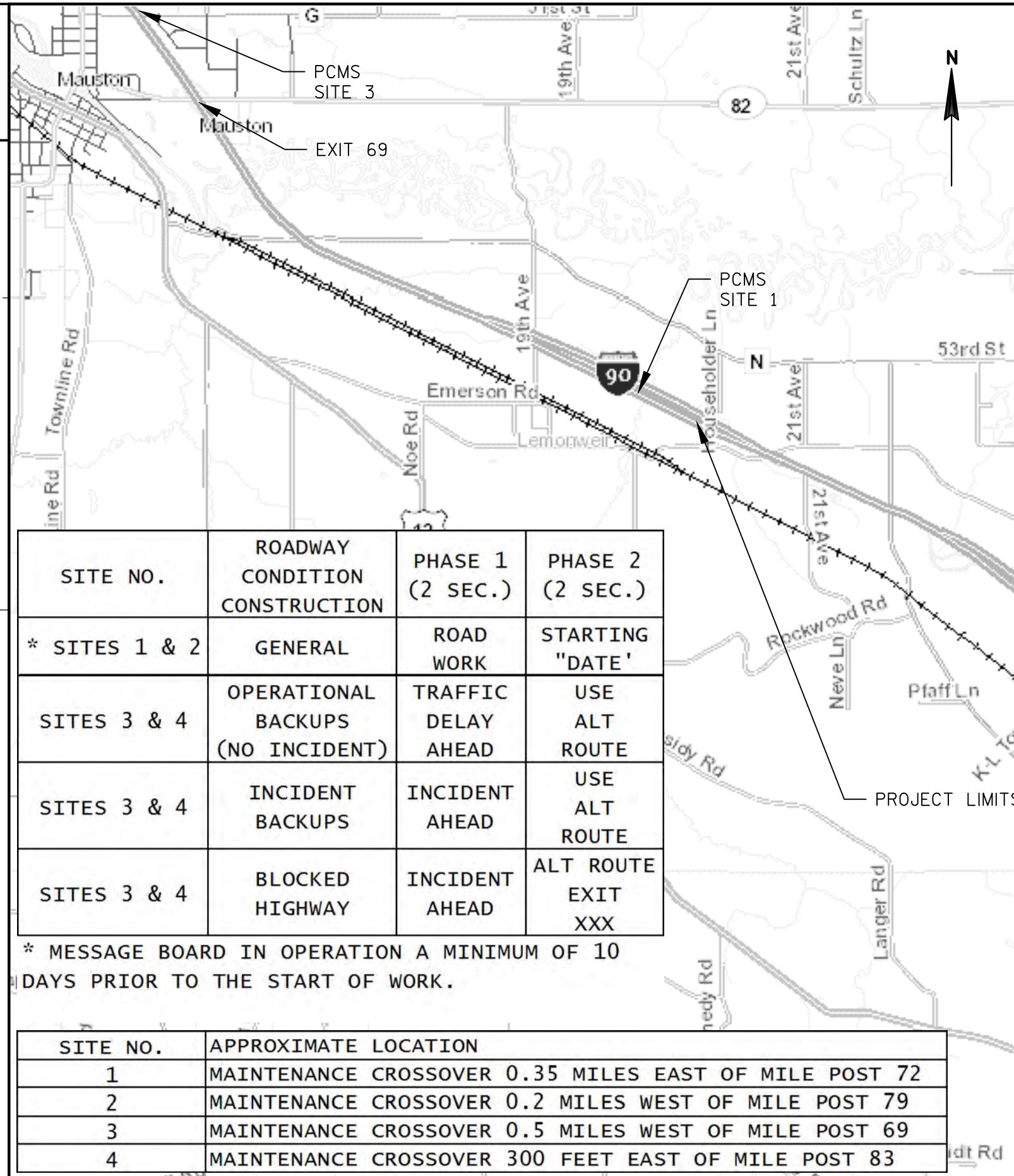
FILE NAME : P:\State\19094\10160509\Cad\ep\ans\023201_ps.dgn PLOT DATE : 04-JUN-2014 09:48 PLOT BY : dotmlt PLOT NAME : PLOT SCALE : 200.000000:1.000000 **WISDOT/CADDs SHEET 42**











SITE NO.	ROADWAY CONDITION CONSTRUCTION	PHASE 1 (2 SEC.)	PHASE 2 (2 SEC.)
* SITES 1 & 2	GENERAL	ROAD WORK	STARTING "DATE"
SITES 3 & 4	OPERATIONAL BACKUPS (NO INCIDENT)	TRAFFIC DELAY AHEAD	USE ALT ROUTE
SITES 3 & 4	INCIDENT BACKUPS	INCIDENT AHEAD	USE ALT ROUTE
SITES 3 & 4	BLOCKED HIGHWAY	INCIDENT AHEAD	ALT ROUTE EXIT XXX

* MESSAGE BOARD IN OPERATION A MINIMUM OF 10 DAYS PRIOR TO THE START OF WORK.

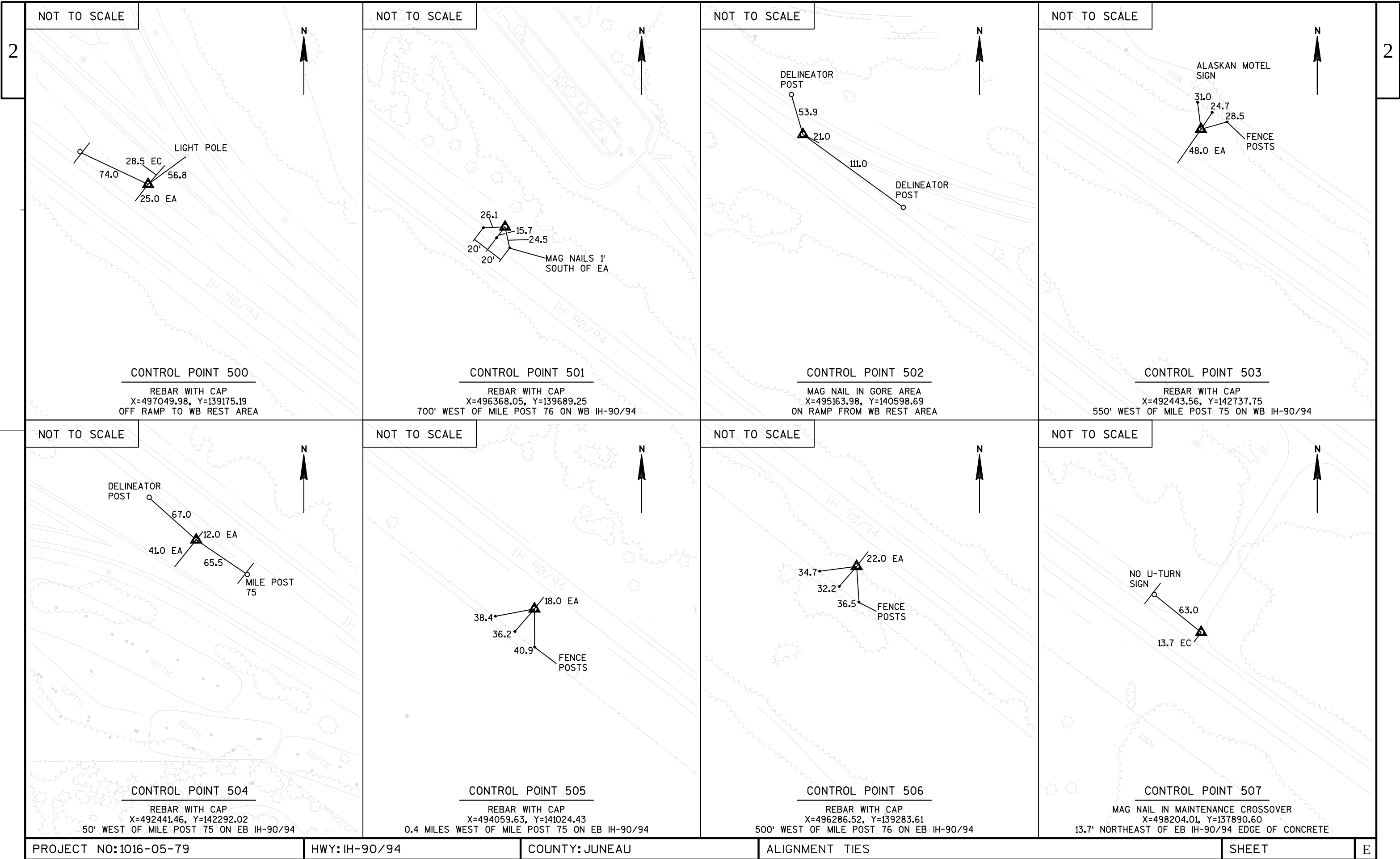
SITE NO.	APPROXIMATE LOCATION
1	MAINTENANCE CROSSOVER 0.35 MILES EAST OF MILE POST 72
2	MAINTENANCE CROSSOVER 0.2 MILES WEST OF MILE POST 79
3	MAINTENANCE CROSSOVER 0.5 MILES WEST OF MILE POST 69
4	MAINTENANCE CROSSOVER 300 FEET EAST OF MILE POST 83

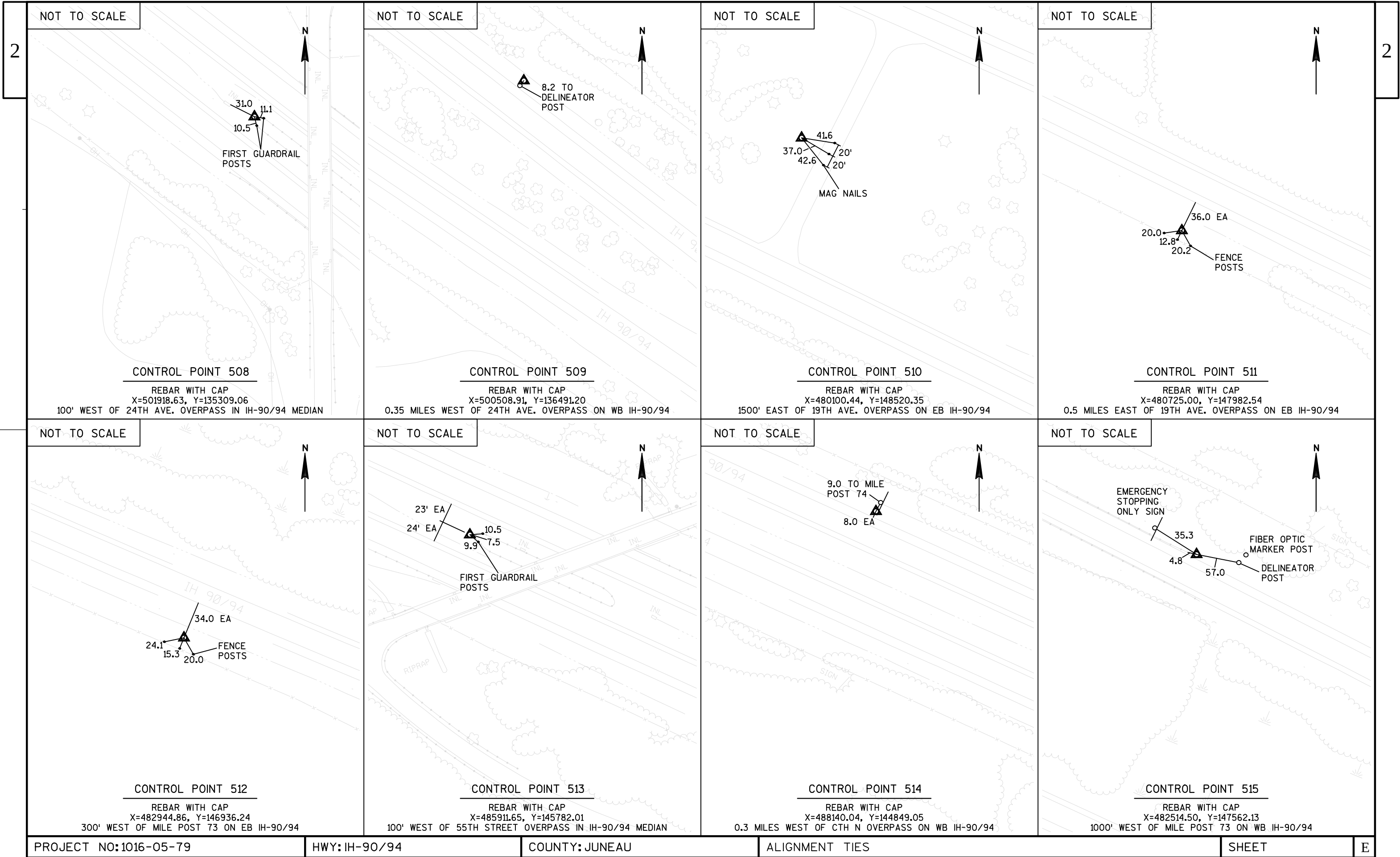
THE FIELD ENGINEER WILL MAKE THE FINAL DETERMINATION TO THE PLACEMENT OF PCMS BOARDS BASED UPON EXISTING CONDITIONS AND STAGING.

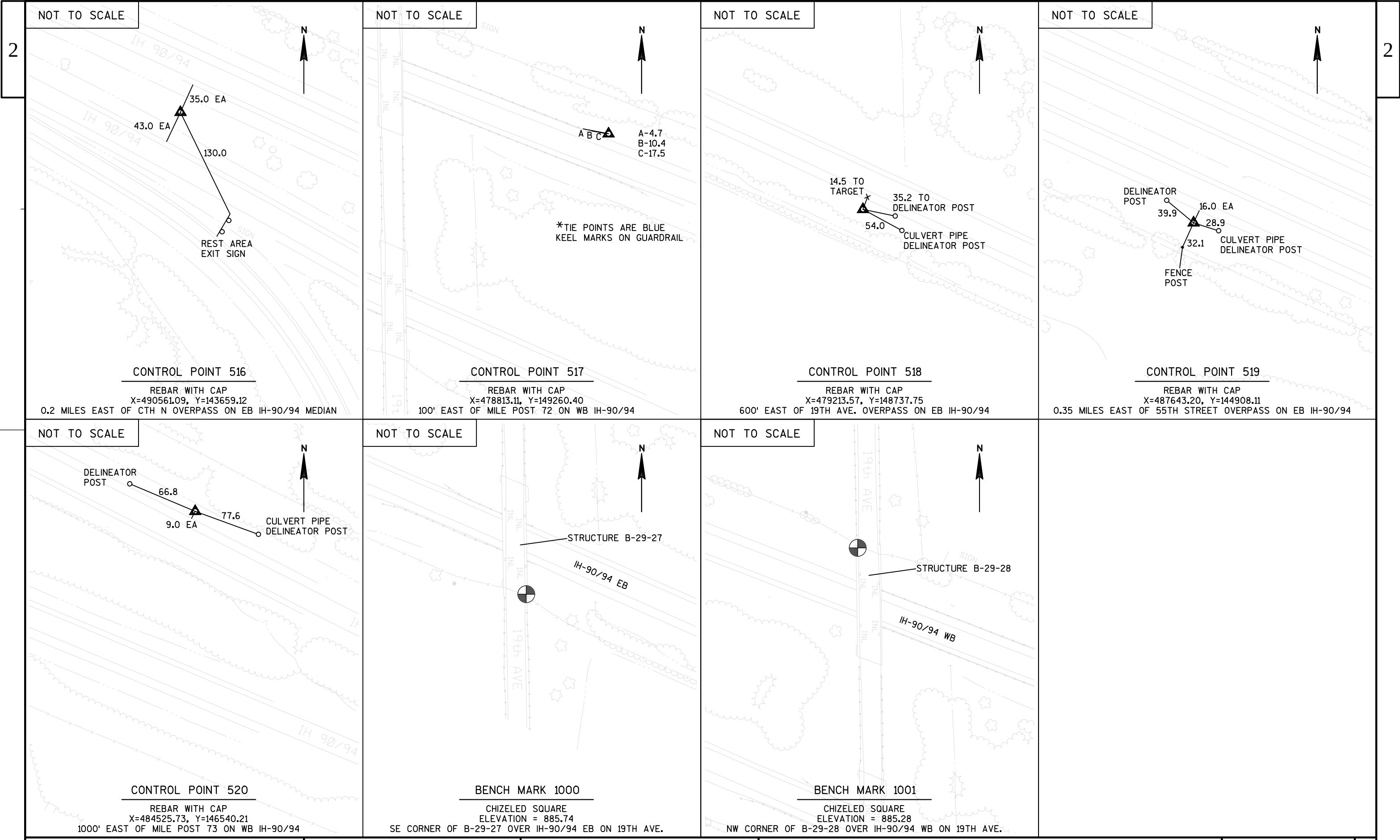
GENERAL NOTES FOR SIGNS PCMS

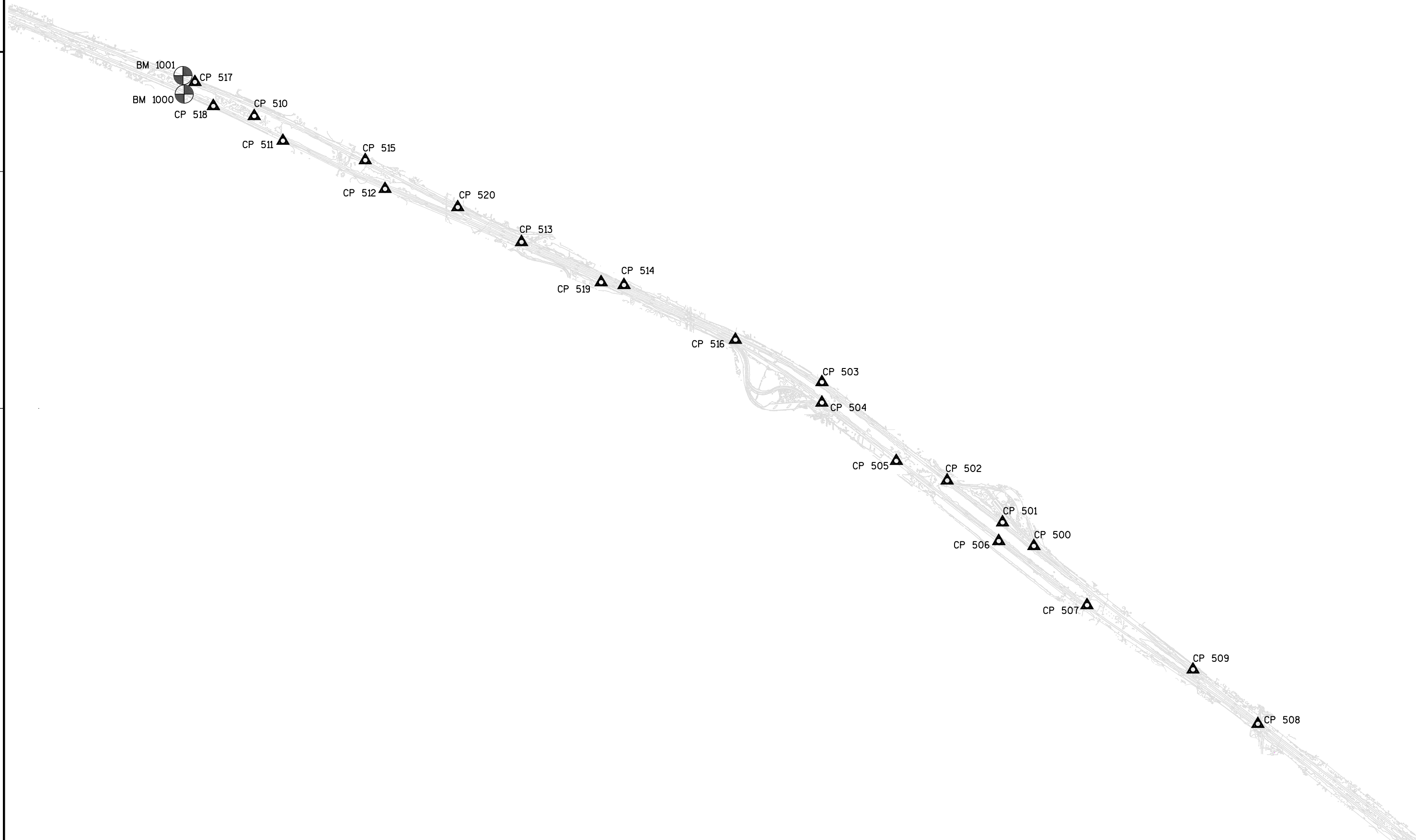
CONSIDER GEOMETRICS WHEN LOCATING PCMS SO THE DRIVER HAS A CLEAR VIEW OF THE BOARD FOR A MINIMUM OF 1000 FEET IN FRONT OF THE PCMS.

PCMS SHOULD BE PLACED AS FAR AWAY FROM LIVE TRAFFIC LANES AS POSSIBLE WITHOUT HAMPERING VISIBILITY. IN ADVANCE OF HIGHWAY CONSTRUCTION PROJECTS, THE SIGNS SHOULD BE PLACED ON THE BACKSLOPE BEYOND THE DITCH. THE LOCATION SELECTED SHOULD BE AT OR SLIGHTLY ABOVE THE ELEVATION OF THE ROADWAY. FOR INTERMITTENT WORK SUCH AS FREEWAY LANE CLOSURE, OR WHERE SITE CONDITIONS DO NOT ALLOW OTHERWISE, THE SIGNS MAY BE PLACED ON THE SHOULDER. THE SITE SHOULD BE VISITED TO ASSURE VISIBILITY, SAFETY, AND MAINTENANCE CONSIDERATIONS. A TAPER OF REFLECTORIZED DRUMS OR BARRICADES SHOULD BE PLACED AHEAD OF PCMS PLACED ON THE SHOULDER IF IT IS NOT SHIELDED BY A BARRIER.









DATE 08SEP14		E S T I M A T E O F Q U A N T I T I E S			
LINE				1016-05-79	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0105	CLEARING	STA	81.000	81.000
0020	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	1.000	1.000
0030	204.0105	REMOVING PAVEMENT BUTT JOINTS	SY	1,844.000	1,844.000
0040	204.0170	REMOVING FENCE	LF	975.000	975.000
0050	204.0180	REMOVING DELINEATORS AND MARKERS	EACH	180.000	180.000
0060	205.0100	EXCAVATION COMMON	CY	1,324.000	1,324.000
0070	208.0100	BORROW	CY	786.000	786.000
0080	211.0100	PREPARE FOUNDATION FOR ASPHALTIC PAVING (PROJECT) 01. 1016-05-79	LS	1.000	1.000
0090	213.0100	FINISHING ROADWAY (PROJECT) 01. 1016-05-79	EACH	1.000	1.000
0100	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	4,343.000	4,343.000
0110	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	208.000	208.000
0120	390.0403	BASE PATCHING CONCRETE SHES	SY	999.320	999.320
0130	416.0610	DRILLED TIE BARS	EACH	10.000	10.000
0140	416.0620	DRILLED DOWEL BARS	EACH	1,848.000	1,848.000
0150	440.4410.S	INCENTIVE IRI RIDE	DOL	32,000.000	32,000.000
0160	455.0105	ASPHALTIC MATERIAL PG58-28	TON	1,279.000	1,279.000
0170	455.0605	TACK COAT	GAL	10,096.000	10,096.000
0180	460.1100	HMA PAVEMENT TYPE E-0.3	TON	6,811.000	6,811.000
0190	460.1130	HMA PAVEMENT TYPE E-30	TON	16,450.000	16,450.000
0200	460.1700	HMA PAVEMENT TYPE SMA	TON	14,639.000	14,639.000
0210	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	25,330.000	25,330.000
0220	460.4110.S	REHEATING HMA PAVEMENT LONGITUDINAL JOINTS	LF	42,013.000	42,013.000
0230	465.0400	ASPHALTIC SHOULDER RUMBLE STRIPS	LF	81,640.000	81,640.000
0240	520.7000	CLEANING CULVERT PIPES	EACH	9.000	9.000
0250	521.1618	APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 18-INCH 10 TO 1	EACH	2.000	2.000
0260	522.0130	CULVERT PIPE REINFORCED CONCRETE CLASS III 30-INCH	LF	8.000	8.000
0270	522.1018	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH	EACH	1.000	1.000
0280	522.1024	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH	EACH	3.000	3.000
0290	522.1030	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH	EACH	8.000	8.000
0300	524.0124	CULVERT PIPE SALVAGED 24-INCH	LF	10.000	10.000
0310	524.0618	APRON ENDWALLS FOR CULVERT PIPE SALVAGED 18-INCH	EACH	2.000	2.000
0320	524.0624	APRON ENDWALLS FOR CULVERT PIPE SALVAGED 24-INCH	EACH	4.000	4.000
0330	524.0630	APRON ENDWALLS FOR CULVERT PIPE SALVAGED 30-INCH	EACH	6.000	6.000
0340	530.0118	CULVERT PIPE CORRUGATED POLYETHYLENE 18-INCH	LF	60.000	60.000
0350	606.0300	RIPRAP HEAVY	CY	50.000	50.000
0360	612.0106	PIPE UNDERDRAIN 6-INCH	LF	10.000	10.000
0370	614.0400	ADJUSTING STEEL PLATE BEAM GUARD	LF	2,562.000	2,562.000
0380	616.0100	FENCE WOVEN WIRE (HEIGHT) 01. 4-FT	LF	975.000	975.000
0390	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 1016-05-79	EACH	1.000	1.000
0400	619.1000	MOBILIZATION	EACH	1.000	1.000
0410	624.0100	WATER	MGAL	1.000	1.000
0420	625.0500	SALVAGED TOPSOIL	SY	5,000.000	5,000.000
0430	628.1504	SILT FENCE	LF	1,500.000	1,500.000

DATE 08SEP14		E S T I M A T E O F Q U A N T I T I E S			
LINE				1016-05-79	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0440	628.1520	SILT FENCE MAINTENANCE	LF	1,500.000	1,500.000
0450	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	4.000	4.000
0460	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	4.000	4.000
0470	628.2002	EROSION MAT CLASS I TYPE A	SY	5,000.000	5,000.000
0480	628.7504	TEMPORARY DITCH CHECKS	LF	450.000	450.000
0490	628.7555	CULVERT PIPE CHECKS	EACH	40.000	40.000
0500	629.0210	FERTILIZER TYPE B	CWT	3.500	3.500
0510	630.0120	SEEDING MIXTURE NO. 20	LB	140.000	140.000
0520	630.0200	SEEDING TEMPORARY	LB	140.000	140.000
0530	633.0100	DELINEATOR POSTS STEEL	EACH	4.000	4.000
0540	633.0200	DELINEATORS FLEXIBLE	EACH	149.000	149.000
0550	633.0500	DELINEATOR REFLECTORS	EACH	8.000	8.000
0560	633.5200	MARKERS CULVERT END	EACH	64.000	64.000
0570	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	18.000	18.000
0580	634.0616	POSTS WOOD 4X6-INCH X 16-FT	EACH	16.000	16.000
0590	634.0618	POSTS WOOD 4X6-INCH X 18-FT	EACH	10.000	10.000
0600	637.2210	SIGNS TYPE II REFLECTIVE H	SF	356.340	356.340
0610	637.2230	SIGNS TYPE II REFLECTIVE F	SF	32.000	32.000
0620	638.2602	REMOVING SIGNS TYPE II	EACH	40.000	40.000
0630	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	38.000	38.000
0640	642.5201	FIELD OFFICE TYPE C	EACH	1.000	1.000
0650	643.0200	TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE (PROJECT) 01. 1016-05-79	DAY	60.000	60.000
0660	643.0300	TRAFFIC CONTROL DRUMS	DAY	16,050.000	16,050.000
0670	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	960.000	960.000
0680	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	1,920.000	1,920.000
0690	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	1,500.000	1,500.000
0700	643.0800	TRAFFIC CONTROL ARROW BOARDS	DAY	120.000	120.000
0710	643.0900	TRAFFIC CONTROL SIGNS	DAY	1,680.000	1,680.000
0720	643.1050	TRAFFIC CONTROL SIGNS PCMS	DAY	224.000	224.000
0730	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	190.300	190.300
0740	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	84,380.000	84,380.000
0750	646.0790.S	REMOVING RAISED PAVEMENT MARKERS	EACH	455.000	455.000
0760	646.0881.S	PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 4-INCH	LF	10,537.500	10,537.500
0770	646.0883.S	PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 8-INCH	LF	3,870.000	3,870.000
0780	649.0200	TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH	LF	98,787.500	98,787.500
0790	650.5000	CONSTRUCTION STAKING BASE	LF	90.000	90.000
0800	650.6000	CONSTRUCTION STAKING PIPE CULVERTS	EACH	2.000	2.000
0810	650.8000	CONSTRUCTION STAKING RESURFACING REFERENCE	LF	42,102.000	42,102.000
0820	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 1016-05-79	LS	1.000	1.000
0830	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	1,046.000	1,046.000
0840	690.0250	SAWING CONCRETE	LF	3,926.000	3,926.000
0850	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR	HRS	1,000.000	1,000.000
0860	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT \$5.00/HR	HRS	660.000	660.000
0870	SPV.0045	SPECIAL 01. PCMS REMOTE COMMUNICATIONS	DAY	224.000	224.000
0880	SPV.0060	SPECIAL 01. APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE SALVAGED 6-INCH	EACH	1.000	1.000
0890	SPV.0060	SPECIAL 02. RECONSTRUCTING INLET SPECIAL	EACH	1.000	1.000

DATE 08SEP14		E S T I M A T E O F Q U A N T I T I E S			
LINE		1016-05-79			
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0900	SPV.0090	SPECIAL 01. REMOVING HMA PAVEMENT	LF	42,013.000	42,013.000
		NOTCHED WEDGE LONGITUDINAL JOINT MILLING			

CLEARING

201.0105					
STATION	TO	STATION	LOCATION	STA	REMARKS
1170+00	-	1196+00	IH-90/94 EB, RT	26	CLEAR TO 60 FEET FROM EDGELINE
1170+00	-	1185+25	IH-90/94 EB, LT	15	CLEAR TO 60 FEET FROM EDGELINE
1228+00	-	1228+60	IH90/94 EB, RT	1	CLEAR DOWNED TREES
1234+00	-	1236+00	IH90/94 EB, RT	2	CLEAR DOWNED TREES
1171+00A	-	1186+00A	IH-90/94 WB, RT	15	CLEAR TO 60 FEET FROM EDGELINE
1171+00A	-	1182+50A	IH-90/94 WB, LT	12	CLEAR TO 60 FEET FROM EDGELINE
1182+50A	-	1183+50A	IH-90/94 WB, LT	1	CLEAR TO R/W FENCE
1183+50A	-	1188+00A	IH-90/94 WB, LT	5	CLEAR TO 60 FEET FROM EDGELINE
1190+00A	-	1194+00A	IH-90/94 WB, LT	4	CLEAR TO 60 FEET FROM EDGELINE
TOTAL 0010				81	

REMOVING SMALL PIPE CULVERTS

203.0100			
STATION TO	STATION	LOCATION	EACH
2+33M		EXISTING MEDIAN CROSSOVER	1
TOTAL 0010			1

FROM/TO STATION	LOCATION	COMMON EXCAVATION (1) CUT (2)	SALVAGED- UNUSABLE PAVEMENT MATERIAL	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL	MASS ORDINATE +/- (14)	WASTE	BORROW	COMMENT
		205.0100 CY				FACTOR 1.25			208.0100 CY	
1226+50 - 1229+50	PIPE EXTENSION STA. 1228+00	1	0	1	119	149	-148	0	148	
1375+00 - 1379+00	SLOPE CORRECTION, RT	3	0	3	513	641	-638	0	638	
0+10M - 2+60M	EXISTING MAINTENANCE CROSSOVER	1,002	86	915	0	0	915	915	0	
0+20N - 1+06N	PROPOSED MAINTENANCE CROSSOVER	319	0	319	62	78	241	241	0	
CATEGORY 0010 SUBTOTAL		1,324	86	1,238	694	868	370	1,156	786	
GRAND TOTAL		1,324							786	

- 1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
- 2) Salvaged/Unsuable Pavement Material is included in Cut.
- 3) EBS Excavation to be backfilled with Select Borrow material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well.
- 4) Salvaged/Unusable Pavement Material
- 5) Available Material = Cut - Salvaged/Unusuable Pavement Material
- 6) Marsh Excavation - to be backfilled with Select Borrow Material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well. Item number 20505
- 7) Rock Excavation item number 205.0200
- 8) Reduced Marsh in Fill - Excavated Marsh material is usable in Fills outside the 1:1 slope. Marsh in Fill Reduction factor = 0.6
- 9) Reduced EBS in Fill - Excavated EBS material is usable in Fills outside the 1:1 slope. EBS in Fill Reduction factor = 0.8
- 10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item number 208.1100
- 11) Expanded EBS Backfill - This is to be filled with Select Borrow material. EBS Backfill Factor = 1.3. Item number 208.1100
- 12) Expanded Rock - Factor = 1.1
- 13) Expanded Fill. Factor = 1.25
- Depending on selections:
- Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh - Reduced EBS) * Fill Factor

Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced EBS) * Fill Factor

Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh) * Fill Factor

Expanded Fill = (Unexpanded Fill - Rock* Rock Factor) * Fill Factor
- 14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.
- 15) Use 111,764 CY of material from Division 1. Borrow Excavation item number 208.0100

REMOVING PAVEMENT BUTT JOINTS

BASE AGGREGATE DENSE 3/4-INCH

				204.0105	
STATION	TO	STATION	LOCATION	SY	REMARKS
1170+00	-	1170+50	IH-90/94 EB	222	
1248+52	-	1249+02	EB REST AREA EXIT RAMP	128	
1274+25	-	1274+75	EB REST AREA ENTRANCE RAMP	128	
1379+98	-	1380+48	IH-90/94 EB	222	
1171+00A	-	1171+50A	IH-90/94 WB	222	
1198+40A	-	1198+90A	IH-90/94 WB	222	
1199+79A	-	1200+29A	IH-90/94 WB	222	
1305+23A	-	1305+72A	WB REST AREA ENTRANCE RAMP	128	
1334+20A	-	1334+70A	WB REST AREA EXIT RAMP	128	
1381+14A	-	1381+54A	IH-90/94 WB	222	
TOTAL 0010				1,844	

				305.0110	
STATION	TO	STATION	LOCATION	TON	REMARKS
1170+00	-	1233+34	IH-90/94 EB LT	80	
1233+87	-	1373+01	IH-90/94 EB LT	176	
1373+75	-	1380+48	IH-90/94 EB LT	9	
1170+00	-	1197+12	IH-90/94 EB RT	34	
1197+84	-	1237+47	IH-90/94 EB RT	50	
1238+14	-	1243+08	IH-90/94 EB RT	6	
1243+08	-	1248+98	EB REST AREA EXIT RAMP	7	RIGHT SHOULDER
1247+20	-	1249+02	EB REST AREA EXIT RAMP	2	LEFT SHOULDER
1246+83	-	1275+31	IH-90/94 EB RT	36	GORE TO GORE
1274+32	-	1275+12	EB REST AREA ENTRANCE RAMP	1	LEFT SHOULDER
1274+35	-	1285+96	EB REST AREA ENTRANCE RAMP	15	RIGHT SHOULDER
1285+96	-	1380+48	IH-90/94 EB RT	120	
1171+00A	-	1234+09A	IH-90/94 WB RT	80	
1234+63A	-	1374+03A	IH-90/94 WB RT	177	
1374+77A	-	1381+54A	IH-90/94 WB RT	9	
1171+00A	-	1198+90A	IH-90/94 WB LT	35	
1200+19A	-	1237+96A	IH-90/94 WB LT	48	
1238+56A	-	1294+60A	IH-90/94 WB LT	71	
1294+60A	-	1305+69A	WB REST AREA ENTRANCE RAMP	14	LEFT SHOULDER
1305+04A	-	1305+75A	WB REST AREA ENTRANCE RAMP	1	RIGHT SHOULDER
1304+88A	-	1335+06A	IH-90/94 WB LT	38	GORE TO GORE
1334+19A	-	1335+01A	WB REST AREA EXIT RAMP	1	RIGHT SHOULDER
1334+21A	-	1339+25A	WB REST AREA EXIT RAMP	6	LEFT SHOULDER
1339+25A	-	1381+54A	IH-90/94 WB LT	54	
0+06L	-	0+55L	WEST MAINTENANCE CROSSOVER	2	LEFT AND RIGHT SHOULDER
0+18N	-	1+10N	PROPOSED MAINTENANCE CROSSOVER	14	LEFT AND RIGHT SHOULDER
UNDISTRIBUTED				3,257	
TOTAL 0010				4,343	

BASE AGGREGATE DENSE 1 1/4-INCH

				305.0120	
STATION	TO	STATION	LOCATION	TON	REMARKS
0+18N	-	1+10N	PROPOSED MAINTENANCE CROSSOVER	208	
TOTAL 0010				208	

3

BASE PATCH SUMMARY

MILE MARKER	PLUS/ MINUS	STATION	LOCATION	BASE PATCHING CONCRETE SHES 390.0403 SY	DRILLED TIE BARS 416.0610 EACH	DRILLED DOWEL BARS 416.0620 EACH	SAWING CONCRETE 690.0250 LF	REMARKS
73	301	1173+01	EB RT	9.33	-	16	34	
73	616	1176+16	EB RT	9.33	-	16	34	
73	1173	1181+73	EB RT	9.33	-	16	34	
73	1725	1187+25	EB RT	9.33	-	16	34	
73	1873	1188+73	EB RT	9.33	-	16	34	
73	1930	1189+30	EB RT	9.33	-	16	34	
73	2877	1198+77	EB RT	9.33	-	16	34	
73	3567	1205+67	EB RT	9.33	-	16	34	
73	4658	1216+58	EB RT	9.33	-	16	34	
74	1737	1240+17	EB RT	9.33	-	16	34	
74	1810	1240+90	EB RT	10.89	-	16	35	
74	3057	1253+37	EB RT	9.33	-	16	34	
75	4204	1314+04	EB RT	9.33	-	16	34	
75	4572	1317+72	EB RT	9.33	-	16	34	
75	4924	1321+24	EB RT	9.33	-	16	34	
75	5351	1325+51	EB RT	9.33	-	16	34	
76	2185	1352+85	EB RT	9.33	-	16	34	
76	2277	1353+77	EB RT	9.33	-	16	34	
76	3556	1366+56	EB RT	9.33	-	16	34	
73	1203	1182+03	EB LT	10.67	-	16	32	
73	1780	1187+80	EB LT	8.00	-	16	30	
73	4880	1218+80	EB LT	8.00	-	16	30	
73	4933	1219+33	EB LT	8.00	-	16	30	
74	1158	1234+38	EB LT	8.00	-	16	30	
74	4387	1266+67	EB LT	8.00	-	16	30	
74	5037	1273+17	EB LT	8.00	-	16	30	
75	1062	1282+62	EB LT	8.00	-	16	30	
75	1084	1282+84	EB LT	8.00	-	16	30	
75	1229	1284+29	EB LT	9.33	-	16	31	
75	1485	1286+85	EB LT	8.00	-	16	30	
75	1565	1287+65	EB LT	8.00	-	16	30	
75	1711	1289+11	EB LT	8.00	-	16	30	
75	1990	1291+90	EB LT	8.00	-	16	30	
75	2530	1297+30	EB LT	8.00	-	16	30	
75	3815	1310+15	EB LT	8.00	-	16	30	
SUBTOTAL 1 =				310.83	0	560	1,130	*

BASE PATCH SUMMARY (CONTINUED)

MILE MARKER	PLUS/ MINUS	STATION	LOCATION	BASE PATCHING CONCRETE SHES 390.0403 SY	DRILLED TIE BARS 416.0610 EACH	DRILLED DOWEL BARS 416.0620 EACH	SAWING CONCRETE 690.0250 LF	REMARKS
76	193	1332+93	EB LT	8.00	-	16	30	
76	417	1335+17	EB LT	8.00	-	16	30	
76	703	1338+03	EB LT	8.00	-	16	30	
76	849	1339+49	EB LT	8.00	-	16	30	
76	2814	1359+14	EB LT	8.00	-	16	30	
76	3298	1363+98	EB LT	8.00	-	16	30	
76	3320	1364+20	EB LT	8.00	-	16	30	
76	3392	1364+92	EB LT	8.00	-	16	30	
76	4004	1371+04	EB LT	8.00	-	16	30	
76	4417	1375+17	EB LT	8.00	-	16	30	
76	5040	1381+40	EB LT	10.67	-	16	32	
77	-186	1382+54A	WB LT	12.44	-	16	36	
77	-392	1380+48A	WB LT	9.33	-	16	34	
77	-1656	1367+84A	WB LT	9.33	-	16	34	
77	-2200	1362+40A	WB LT	40.44	10	16	68	
77	-3207	1352+33A	WB LT	9.33	-	16	34	
77	-3652	1347+88A	WB LT	9.33	-	16	34	
76	-548	1322+22A	WB LT	9.33	-	16	34	
76	-1092	1316+78A	WB LT	9.33	-	16	34	
76	-1323	1314+47A	WB LT	9.33	-	16	34	
76	-1586	1311+84A	WB LT	9.33	-	16	34	
76	-4503	1282+67A	WB LT	9.33	-	16	34	
76	-4636	1281+34A	WB LT	9.33	-	16	34	
76	-4833	1279+37A	WB LT	9.33	-	16	34	
75	-475	1270+70A	WB LT	9.33	-	16	34	
75	-2286	1252+59A	WB LT	9.33	-	16	34	
75	-3047	1244+98A	WB LT	9.33	-	16	34	
75	-3247	1242+98A	WB LT	9.33	-	16	34	
75	-3284	1242+61A	WB LT	9.33	-	16	34	
75	-4249	1232+96A	WB LT	9.33	-	16	34	
75	-4273	1232+72A	WB LT	9.33	-	16	34	
74	-2517	1196+63A	WB LT	9.33	-	16	34	
77	-3531	1349+09A	WB RT	8.00	-	16	30	
76	-375	1323+95A	WB RT	8.00	-	16	30	
76	-996	1317+74A	WB RT	8.00	-	16	30	
SUBTOTAL 2 =				344.82	10	560	1,172	*

*ADDITIONAL SAWING QUANTITIES LOCATED ELSEWARE

3

BASE PATCH SUMMARY (CONTINUED)

MILE MARKER	PLUS/ MINUS	STATION	LOCATION	BASE PATCHING CONCRETE SHES 390.0403	DRILLED TIE BARS 416.0610	DRILLED DOWEL BARS 416.0620	SAWING CONCRETE 690.0250	REMARKS
				SY	EACH	EACH	LF	
76	-2141	1306+29A	WB RT	10.67	-	16	32	
76	-2957	1298+13A	WB RT	8.00	-	16	30	
75	-82	1274+63A	WB RT	8.00	-	16	30	
75	-415	1271+30A	WB RT	8.00	-	16	30	
75	-706	1268+39A	WB RT	8.00	-	16	30	
75	-4249	1232+96A	WB RT	8.00	-	16	30	
75	-4289	1232+56A	WB RT	8.00	-	16	30	
75	-4808	1227+37A	WB RT	8.00	-	16	30	
75	-5136	1224+09A	WB RT	8.00	-	16	30	
74	-80	1221+00A	WB RT	8.00	-	16	30	
74	-2194	1199+86A	WB RT	8.00	-	16	30	
74	-2554	1196+26A	WB RT	8.00	-	16	30	
74	-3501	1186+79A	WB RT	8.00	-	16	30	
74	-4764	1174+16A	WB RT	8.00	-	16	30	
74	-5109	1170+71A	WB RT	8.00	-	16	30	
Undistributed				221.00	-	488	840	
SUBTOTAL 3 =				343.67	0	728	1,292	
SUBTOTAL 1 =				310.83	0	560	1,130	
SUBTOTAL 2 =				344.82	10	560	1,172	
TOTAL 0010				999.32	10	1,848	3,594	*

*ADDITIONAL SAWING QUANTITIES LOCATED ELSEWARE

ASPHALT SUMMARY

				ASPHALTIC MATERIAL PG58-28 455.0105	TACK COAT 455.0605	HMA PAVEMENT TYPE E-0.3 460.1100	HMA PAVEMENT TYPE E-30 460.1130	HMA PAVEMENT TYPE SMA 460.1700	REMARKS
STATION	TO	STATION	LOCATION	TON	GAL	TON	TON	TON	
1170+00	-	1380+48	IH-90/94 EB BINDER	403	1,871	-	7,334	-	26' DRIVING LANES AND 6' MEDIAN SHOULDER
1171+00A	-	1198+90A	IH-90/94 WB BINDER	53	248	-	972	-	26' DRIVING LANES AND 6' MEDIAN SHOULDER
1199+79A	-	1381+54A	IH-90/94 WB BINDER	348	1,616	-	6,333	-	26' DRIVING LANES AND 6' MEDIAN SHOULDER
1170+00	-	1380+48	IH-90/94 EB SURFACE	-	1,871	-	-	7,334	26' DRIVING LANES AND 6' MEDIAN SHOULDER
1171+00A	-	1198+90A	IH-90/94 WB SURFACE	-	248	-	-	972	26' DRIVING LANES AND 6' MEDIAN SHOULDER
1199+79A	-	1381+54A	IH-90/94 WB SURFACE	-	1,616	-	-	6,333	26' DRIVING LANES AND 6' MEDIAN SHOULDER
1170+00	-	1242+61	IH-90/94 EB	70	403	1,265	-	-	8' OUTSIDE SHOULDER (UPPER & LOWER LIFT)
1242+61	-	1246+83	IH-90/94 EB	18	84	-	329	-	REST AREA EXIT RAMP (UPPER & LOWER LIFT)
1246+83	-	1275+23	IH-90/94 EB	27	158	495	-	-	8' OUTSIDE SHOULDER (UPPER & LOWER LIFT)
1275+23	-	1288+40	IH-90/94 EB	33	155	-	606	-	REST AREA ENTRANCE RAMP (UPPER & LOWER LIFT)
1288+40	-	1380+48	IH-90/94 EB	88	512	1,604	-	-	8' OUTSIDE SHOULDER (UPPER & LOWER LIFT)
1171+00A	-	1198+90A	IH-90/94 WB	27	155	486	-	-	8' OUTSIDE SHOULDER (UPPER & LOWER LIFT)
1199+79A	-	1292+12A	IH-90/94 WB	88	513	1,609	-	-	8' OUTSIDE SHOULDER (UPPER & LOWER LIFT)
1292+12A	-	1304+91A	IH-90/94 WB	32	146	-	573	-	REST AREA ENTRANCE RAMP (UPPER & LOWER LIFT)
1304+91A	-	1335+02A	IH-90/94 WB	29	167	525	-	-	8' OUTSIDE SHOULDER (UPPER & LOWER LIFT)
1335+02A	-	1339+87A	IH-90/94 WB	17	77	-	303	-	REST AREA EXIT RAMP (UPPER & LOWER LIFT)
1339+87A	-	1381+54A	IH-90/94 WB	40	232	726	-	-	8' OUTSIDE SHOULDER (UPPER & LOWER LIFT)
0+06L	-	0+55L	WEST MAINTENANCE CROSSOVER	2	9	34	-	-	UPPER AND LOWER LIFT
0+18N	-	1+10N	PROPOSED MAINTENANCE CROSSOVER	4	15	67	-	-	UPPER AND LOWER LIFT
TOTAL 0010				1,279	10,096	6,811	16,450	14,639	

REHEATING HMA PAVEMENT LONGITUDINAL JOINTS

460.4110.S					REMARKS
STATION	TO	STATION	LOCATION	LF	
1170+00	-	1380+48	IH-90/94 EB	21,048	UPPER LIFT ONLY
1171+00A	-	1198+90A	IH-90/94 WB	2,790	UPPER LIFT ONLY
1199+79A	-	1381+54A	IH-90/94 WB	18,175	UPPER LIFT ONLY
TOTAL 0010				42,013	

SPECIAL 01. REMOVING HMA PAVEMENT NOTCHED WEDGE LONGITUDINAL JOINT MILLING

SPV.0090.01					REMARKS
STATION	TO	STATION	LOCATION	LF	
1170+00	-	1380+48	IH-90/94 EB	21,048	UPPER LIFT ONLY
1171+00A	-	1198+90A	IH-90/94 WB	2,790	UPPER LIFT ONLY
1199+79A	-	1381+54A	IH-90/94 WB	18,175	UPPER LIFT ONLY
TOTAL 0010				42,013	

ASPHALTIC SHOULDER RUMBLE STRIP

465.0400					REMARKS
STATION	TO	STATION	LOCATION	LF	
1170+00	-	1242+06	IH-90/94 EB RT	7,205	
1246+80	-	1275+34	IH-90/94 EB RT	2,849	
1282+42	-	1380+48	IH-90/94 EB RT	9,807	
1170+00	-	1380+48	IH-90/94 EB LT	21,048	
1171+00A	-	1198+90A	IH-90/94 WB LT	2,789	
1199+79A	-	1298+05A	IH-90/94 WB LT	9,831	
1304+88A	-	1335+07A	IH-90/94 WB LT	3,019	
1340+27A	-	1381+54A	IH-90/94 WB LT	4,127	
1171+00A	-	1198+90A	IH-90/94 WB RT	2,790	
1199+79A	-	1381+54A	IH-90/94 WB RT	18,175	
TOTAL 0010				81,640	

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CULVERT PIPE SUMMARY

PIPE NO.	STATION	LOCATION	CLEANING	APRON ENDWALLS	CULVERT PIPE	APRON ENDWALLS	APRON ENDWALLS	APRON	CULVERT	APRON	APRON	APRON	CULVERT PIPE	REMARKS
			CULVERT PIPES 520.7000 EACH	FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 18- INCH 10 TO 1 521.1618 EACH	REINFORCED CONCRETE CLASS III 30- INCH 522.0130 LF	FOR CULVERT PIPE REINFORCED CONCRETE 18- INCH 522.1018 EACH	FOR CULVERT PIPE REINFORCED CONCRETE 24- INCH 522.1024 EACH	ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30- INCH 522.1030 EACH		ENDWALLS FOR CULVERT PIPE SALVAGED 18- INCH 524.0124 LF	ENDWALLS FOR CULVERT PIPE SALVAGED 18- INCH 524.0618 EACH	ENDWALLS FOR CULVERT PIPE SALVAGED 24- INCH 524.0624 EACH	ENDWALLS FOR CULVERT PIPE SALVAGED 30- INCH 524.0630 EACH	
1	1185+07	IH-90/94 EB	-	-	-	-	-	-	-	-	-	-	1	RESET RT ENDWALL
2	1193+30	IH-90/94 EB	1	-	-	-	-	-	-	-	-	-	-	CLEAN ONLY
3	1201+17	IH-90/94 EB	-	-	-	-	-	1	-	-	-	-	1	REPLACE RT ENDWALL & RESET LT ENDWALL
4	1209+21	IH-90/94 EB	1	-	-	-	-	1	-	-	-	-	1	REPLACE LT ENDWALL & RESET RT ENDWALL
5	1216+98	IH-90/94 EB	1	-	-	-	-	-	-	-	-	-	-	CLEAN ONLY
6	1227+98	IH-90/94 EB	-	-	8	-	-	1	-	-	-	-	1	REPLACE RT ENDWALL & EXTEND PIPE AND RESET LT ENDWALL
9	1277+05	IH-90/94 EB	-	-	-	-	-	2	-	-	-	-	-	REPLACE LT & RT ENDWALLS
10	1283+09	IH-90/94 EB	-	-	-	-	-	-	2	-	2	-	-	RESET LT ENDWALL & FIRST PIPE AND RESET RT ENDWALL
11	1295+08	IH-90/94 EB	1	-	-	-	-	-	8	-	2	-	-	RESET LT & RT ENDWALL AND FIRST PIPE
16	1375+13	IH-90/94 EB	-	-	-	-	-	-	-	2	-	-	-	RESET LT & RT ENDWALLS
17	1379+12	IH-90/94 EB	-	-	-	-	-	-	-	-	-	-	1	RESET RT ENDWALL
19	1198+69A	IH-90/94 WB	1	-	-	-	1	-	-	-	-	-	-	REPLACE LT ENDWALL
20	1202+66A	IH-90/94 WB	1	-	-	-	-	-	-	-	-	-	-	CLEAN ONLY
22	1228+73A	IH-90/94 WB	1	-	-	-	-	-	-	-	-	-	-	CLEAN ONLY
23	1244+77A	IH-90/94 WB	-	-	-	1	-	-	-	-	-	-	-	ADD RT ENDWALL
24	1259+25A	IH-90/94 WB	-	-	-	-	-	-	-	-	-	-	1	RESET LT ENDWALL
25	1279+14A	IH-90/94 WB	1	-	-	-	-	1	-	-	-	-	-	REPLACE RT ENDWALL
26	1290+15A	IH-90/94 WB	-	-	-	-	2	-	-	-	-	-	-	REPLACE LT & RT ENDWALLS
27	1298+16A	IH-90/94 WB	1	-	-	-	-	-	-	-	-	-	-	CLEAN ONLY
28	1306+65A	IH-90/94 WB	-	-	-	-	-	1	-	-	-	-	-	REPLACE RT ENDWALL
29	1339+95A	IH-90/94 WB	-	-	-	-	-	1	-	-	-	-	-	REPLACE LT ENDWALL
32	0+94N	PROPOSED MAINTENANCE CROSSOVER	-	2	-	-	-	-	-	-	-	-	-	
TOTAL 0010			9	2	8	1	3	8	10	2	4	6	60	

RIPRAP & GEOTEXTILE FABRIC

STATION	LOCATION	RIPRAP	GEOTEXTILE	REMARKS
		HEAVY 606.0300 CY	FABRIC TYPE HR 645.0120 SY	
1183+04A	IH-90/94 WB LT	50	103	PIPE OUTLET
TOTAL 0010		50	103	

*ADDITIONAL GEOTEXTILE FABRIC QUANTITIES LOCATED ELSEWARE

PIPE UNDERDRAIN 6-INCH

STATION TO STATION	LOCATION	612.0106 LF	REMARKS
1374+72 - 1374+80	IH-90/94 WB, RT	10	
TOTAL 0010		10	

SPECIAL 01. APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE SALVAGED 6-INCH

STATION	LOCATION	SPV.0060.01 EACH	REMARKS
0+94N	PROPOSED MAINTENANCE CROSSOVER, RT	1	
TOTAL 0010		1	

SPECIAL 02. RECONSTRUCTING INLET SPECIAL

STATION	LOCATION	SPV.0060.02 EACH	REMARKS
1335+15A	IH-90/94 WB, REST AREA EXIT RAMP	1	
TOTAL 0010		1	

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ADJUSTING STEEL PLATE BEAM GUARD

FENCE SUMMARY

STATION TO STATION		LOCATION	614.0400 LF	REMARKS
1193+31	- 1197+24	IH-90/94 EB RT	393	
1234+16	- 1237+59	IH-90/94 EB RT	343	
1255+75	- 1259+55	IH-90/94 EB LT	380	
1200+10A	- 1204+03A	IH-90/94 WB LT	393	
1238+52A	- 1241+95A	IH-90/94 WB LT	343	
1258+50A	- 1261+55A	IH-90/94 WB LT	305	
1258+50A	- 1262+55A	IH-90/94 WB RT	405	
TOTAL 0010			2,562	

STATION TO STATION		LOCATION	REMOVING FENCE 204.0170 LF	FENCE WOVEN WIRE (HEIGHT) 01. 4-FT 616.0100 LF	REMARKS
1228+00	- 1228+60	IH-90/94 EB, RT	60	60	
1234+00	- 1236+00	IH-90/94 EB, RT	200	200	
1347+35	- 1353+00	IH-90/94 EB, RT	565	565	
1355+50	- 1357+00	IH-90/94 EB, RT	150	150	
TOTAL 0010			975	975	

MOBILIZATION EROSION CONTROL SUMMARY

WATER

STATION	LOCATION	MOBILIZATIONS EROSION CONTROL 628.1905 EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL 628.1910 EACH	REMARKS
		4	4	
PROJECT	IH-90/94	4	4	
TOTAL 0010		4	4	

STATION TO STATION		LOCATION	624.0100 MGAL	REMARKS
0+18N	- 1+10N	PROPOSED MAINTENANCE CROSSOVER	1.0	
TOTAL 0010			1.0	

EROSION CONTROL SUMMARY

STATION TO STATION		LOCATION	SALVAGED TOPSOIL 625.0500 SY	SILT FENCE 628.1504 LF	SILT FENCE MAINTENANCE 628.1520 LF	EROSION MAT CLASS I TYPE A 628.2002 SY	TEMPORARY DITCH CHECKS 628.7504 LF	CULVERT PIPE CHECKS 628.7555 EACH	FERTILIZER TYPE B 629.0210 CWT	SEEDING MIXTURE NO. 20 630.0120 LB	SEEDING TEMPORARY 630.0200 LB	REMARKS
1185+07		IH-90/94 EB, RT	6	-	-	6	20	-	0.01	0.2	0.2	CULVERT REPAIR
1193+30		IH-90/94 EB, LT & RT	-	-	-	-	25	-	-	-	-	CLEANING CULVERT PIPE
1201+17		IH-90/94 EB, LT & RT	13	-	-	13	20	5	0.01	0.4	0.4	CULVERT REPAIR
1209+21		IH-90/94 EB, LT & RT	13	-	-	13	20	5	0.01	0.4	0.4	CULVERT REPAIR
1216+98		IH-90/94 EB, LT & RT	-	-	-	-	15	-	-	-	-	CLEANING CULVERT PIPE
1226+50	- 1229+50	IH-90/94 EB, LT & RT	474	300	300	474	-	5	0.30	13.0	13.0	SLOPE CORRECTION AREA
1277+05		IH-90/94 EB, LT & RT	13	-	-	13	20	5	0.01	0.4	0.4	CULVERT REPAIR
1283+09		IH-90/94 EB, LT & RT	13	-	-	13	20	3	0.01	0.4	0.4	CULVERT REPAIR
1295+08		IH-90/94 EB, LT & RT	15	-	-	15	20	3	0.01	0.4	0.4	CULVERT REPAIR
1375+00	- 1379+50	IH-90/94 EB, LT & RT	1,721	475	475	1,721	-	2	1.08	46.0	46.0	SLOPE CORRECTION AREA
1183+31A		IH-90/94 WB, LT	-	-	-	-	35	-	-	-	-	RIP-RAP AREA
1198+69A		IH-90/94 WB, LT	6	-	-	6	20	-	0.01	0.2	0.2	CULVERT REPAIR
1244+77A		IH-90/94 WB, LT & RT	5	-	-	5	15	2	0.01	0.1	0.1	CULVERT REPAIR
1259+25A		IH-90/94 WB, LT	6	-	-	6	20	-	0.01	0.2	0.2	CULVERT REPAIR
1279+14A		IH-90/94 WB, LT & RT	6	-	-	6	20	-	0.01	0.2	0.2	CULVERT REPAIR
1290+15A		IH-90/94 WB, LT & RT	11	-	-	11	20	3	0.01	0.3	0.3	CULVERT REPAIR
1298+16A		IH-90/94 WB, LT & RT	-	-	-	-	20	-	-	-	-	CLEANING CULVERT PIPE
1306+65A		IH-90/94 WB, RT	6	-	-	6	20	-	0.01	0.2	0.2	CULVERT REPAIR
1339+95A		IH-90/94 WB, LT	6	-	-	6	20	-	0.01	0.2	0.2	CULVERT REPAIR
0+20M	- 2+65M	LT & RT	1,899	655	655	1,899	-	-	1.20	51.0	51.0	EXISTING MAINTENANCE CROSSOVER
0+18N	- 1+10N	LT & RT	654	-	-	654	60	2	0.41	18.0	18.0	PROPOSED MAINTENANCE CROSSOVER
UNDISTRIBUTED			133	70	70	133	40	5	0.38	8.4	8.4	
TOTAL 0010			5,000	1,500	1,500	5,000	450	40	3.50	140.0	140.0	

DELINEATOR SUMMARY

			REMOVING DELINEATORS AND MARKERS 204.0180	DELINEATOR POSTS STEEL 633.0100	DELINEATORS FLEXIBLE 633.0200	DELINEATOR REFLECTORS 633.0500	MARKERS CULVERT END 633.5200	REMARKS
STATION	TO	STATION	LOCATION	EACH	EACH	EACH	EACH	
1170+00	-	1243+06	IH-90/94 EB, RIGHT	19	-	19	-	
1233+25			IH-90/94 EB, LEFT	-	1	-	2	WEST MAINTENANCE CROSSOVER
1243+06	-	1248+98	IH-90/94 EB, RIGHT	10	-	6	-	REST AREA EXIT RAMP
1247+17	-	1275+14	IH-90/94 EB, RIGHT	7	-	14	-	
1274+35	-	1285+94	IH-90/94 EB, RIGHT	4	-	12	-	REST AREA ENTRANCE RAMP
1373+00			IH-90/94 EB, LEFT	-	1	-	2	PROPOSED MAINTENANCE CROSSOVER
1285+94	-	1380+48	IH-90/94 EB, RIGHT	24	-	24	-	
1171+00A	-	1294+51A	IH-90/94 WB, LEFT	31	-	31	-	
1234+75A			IH-90/94 WB RIGHT	-	1	-	2	WEST MAINTENANCE CROSSOVER
1294+51A	-	1305+68A	IH-90/94 WB, LEFT	3	-	12	-	REST AREA ENTRANCE RAMP
1305+02A	-	1335+05A	IH-90/94 WB, LEFT	7	-	15	-	
1334+22A	-	1339+27A	IH-90/94 WB, LEFT	-	-	5	-	REST AREA EXIT RAMP
1374+85A			IH-90/94 WB, RIGHT	-	1	-	2	PROPOSED MAINTENANCE CROSSOVER
1339+27A	-	1381+54A	IH-90/94 WB, LEFT	11	-	11	-	
1185+07			IH-90/94 EB	2	-	-	-	2
1193+30			IH-90/94 EB	2	-	-	-	2
1201+17			IH-90/94 EB	2	-	-	-	2
1209+21			IH-90/94 EB	2	-	-	-	2
1216+98			IH-90/94 EB	2	-	-	-	2
1227+98			IH-90/94 EB	2	-	-	-	2
1234+98			IH-90/94 EB	2	-	-	-	2
1258+10			IH-90/94 EB	2	-	-	-	2
1277+05			IH-90/94 EB	2	-	-	-	2
1283+09			IH-90/94 EB	2	-	-	-	2
1295+08			IH-90/94 EB	2	-	-	-	2
1332+19			IH-90/94 EB	2	-	-	-	2
1348+08			IH-90/94 EB	2	-	-	-	2
1353+82			IH-90/94 EB	2	-	-	-	2
1367+10			IH-90/94 EB	2	-	-	-	2
1375+13			IH-90/94 EB	2	-	-	-	2
1379+12			IH-90/94 EB	2	-	-	-	2
1183+31A			IH-90/94 WB	2	-	-	-	2
1198+69A			IH-90/94 WB	2	-	-	-	2
1202+66A			IH-90/94 WB	2	-	-	-	2
1209+59A			IH-90/94 WB	2	-	-	-	2
1228+73A			IH-90/94 WB	2	-	-	-	2
1244+77A			IH-90/94 WB	2	-	-	-	2
1259+25A			IH-90/94 WB	2	-	-	-	2
1279+14A			IH-90/94 WB	2	-	-	-	2
1290+15A			IH-90/94 WB	2	-	-	-	2
1298+16A			IH-90/94 WB	2	-	-	-	2
1306+65A			IH-90/94 WB	2	-	-	-	2
1339+95A			IH-90/94 WB	2	-	-	-	2
1348+20A			IH-90/94 WB	2	-	-	-	2
1353+37A			IH-90/94 WB	2	-	-	-	2
2+33M			EXISTING MAINTENANCE CROSSOVER	2	-	-	-	-
0+94N			PROPOSED MAINTENANCE CROSSOVER	-	-	-	-	2
TOTAL 0010				180	4	149	8	64

PERMANENT SIGNING SUMMARY														
SIGN NO.	STATION	LOCATION	SIGN CODE	SIZE	DESCRIPTION	POSTS WOOD 4X6-INCH X 14-FT 634.0614 EACH	POSTS WOOD 4X6-INCH X 16-FT 634.0616 EACH	POSTS WOOD 4X6-INCH X 18-FT 634.0618 EACH	SIGNS TYPE II REFLECTIVE H 637.2210 SF	SIGNS TYPE II REFLECTIVE F 637.2230 SF	REMOVING SIGNS TYPE II 638.2602 EACH	REMOVING SMALL SIGN SUPPORTS 638.3000 EACH	REMARKS	
101	1133+75	EB IH 90/94 LT	R3-4B	36" X 48"	NO U-TURN COMBINED WITH MAINT. AND POLICE VEHICLE	-	1	-	12.00	-	-	-		
102R	1133+00	EB IH 90/94 LT	R3-4	-	NO U-TURN SYMBOL	-	-	-	-	-	1	1		
103R	1133+00	EB IH 90/94 LT	R3-4-A	-	EXCEPT MAINTENANCE & POLICE AUTHORIZED VEHICLES	-	-	-	-	-	1	-	MOUNTED WITH SIGN 102R	
104	1134+00	WB IH 90/94 RT	R3-4B	36" X 48"	NO U-TURN COMBINED WITH MAINT. AND POLICE VEHICLE	-	1	-	12.00	-	-	-		
105R	1134+60A	WB IH 90/94 RT	R3-4	-	NO U-TURN SYMBOL	-	-	-	-	-	1	1		
106R	1134+60A	WB IH 90/94 RT	R3-4-A	-	EXCEPT MAINTENANCE & POLICE AUTHORIZED VEHICLES	-	-	-	-	-	1	-	MOUNTED WITH SIGN 105R	
107R	1158+50A	WB IH 90/94 LT	R8-7	-	EMERGENCY STOPPING ONLY	-	-	-	-	-	1	1		
108	1158+50A	WB IH 90/94 LT	R8-7	48" X 36"	EMERGENCY STOPPING ONLY	-	1	-	12.00	-	-	-		
109R	1170+10A	WB IH 90/94 LT	D10-2	-	MILEPOST MARKER [73]	-	-	-	-	-	1	1		
110	1170+60A	WB IH 90/94 LT	D10-2	12" X 36"	MILEPOST MARKER [73]	1	-	-	3.00	-	-	-		
111R	1170+00	EB IH 90/94 RT	D10-2	-	MILEPOST MARKER [73]	-	-	-	-	-	1	1		
112	1170+00	EB IH 90/94 RT	D10-2	12" X 36"	MILEPOST MARKER [73]	1	-	-	3.00	-	-	-		
207R	1221+80A	WB IH 90/94 LT	D10-2	-	MILEPOST MARKER [74]	-	-	-	-	-	1	1		
208	1223+50A	WB IH 90/94 LT	D10-2	12" X 36"	MILEPOST MARKER [74]	1	-	-	3.00	-	-	-		
209R	1222+80	EB IH 90/94 RT	D10-2	-	MILEPOST MARKER [74]	-	-	-	-	-	1	1		
210	1222+80	EB IH 90/94 RT	D10-2	12" X 36"	MILEPOST MARKER [74]	1	-	-	3.00	-	-	-		
211	1233+90	EB IH 90/94 LT	R3-4B	36" X 48'	NO U-TURN COMBINED WITH MAINT. AND POLICE VEHICLE	-	1	-	12.00	-	-	-		
212R	1233+90	EB IH 90/94 LT	R3-4B	-	NO U-TURN COMBINED WITH MAINT. AND POLICE VEHICLE	-	-	-	-	-	1	1		
213	1234+10A	WB IH 90/94 RT	R3-4B	36" X 48'	NO U-TURN COMBINED WITH MAINT. AND POLICE VEHICLE	-	1	-	12.00	-	-	-		
214R	1234+70A	WB IH 90/94 RT	R3-4B	-	NO U-TURN COMBINED WITH MAINT. AND POLICE VEHICLE	-	-	-	-	-	1	-	MOUNTED WITH SIGN 212R	
301R	1237+60	EB IH 90/94 RT	M1-94	-	CROSSROAD NAME [HWY N]	-	-	-	-	-	1	1		
302	1237+60	EB IH 90/94 RT	M1-94	56" X 21"	CROSSROAD NAME [HWY N]	2	-	-	8.17	-	-	-		
303R	1238+50A	WB IH 90/94 LT	M1-94	-	CROSSROAD NAME [HWY N]	-	-	-	-	-	1	1		
304	1238+50A	WB IH 90/94 LT	M1-94	56" X 21"	CROSSROAD NAME [HWY N]	2	-	-	8.17	-	-	-		
305	1247+75	EB IH 90/94 RT	R7-64	48" X 30"	NO PARKING ON RAMP	-	1	-	10.00	-	-	-		
306R	1247+75	EB IH 90/94 RT	R7-64	-	NO PARKING ON RAMP	-	-	-	-	-	1	1		
307	1249+50	EB IH 90/94 RT	E5-54	72" X 72"	REST AREA/ARROW RIGHT	-	-	2	36.00	-	-	-		
308R	1249+50	EB IH 90/94 RT	E5-54	-	REST AREA/ARROW RIGHT	-	-	-	-	-	1	2		
309R	1266+10	EB IH 90/94 RT	W4-1	-	MERGING TRAFFIC SYMBOL (RIGHT)	-	-	-	-	-	1	1		
310R	1272+00	EB IH 90/94 RT	D10-2	-	MILEPOST MARKER [75]	-	-	-	-	-	1	1		
311	1272+10	EB IH 90/94 RT	W4-1	48" X 48"	MERGING TRAFFIC SYMBOL (RIGHT)	-	2	-	-	16.00	-	-		
312R	1275+45A	WB IH 90/94 LT	D10-2	-	MILEPOST MARKER [75]	-	-	-	-	-	1	1		
313	1275+60	EB IH 90/94 RT	D10-2	12" X 36"	MILEPOST MARKER [75]	1	-	-	3.00	-	-	-		
314	1276+80A	WB IH 90/94 LT	D10-2	12" X 36"	MILEPOST MARKER [75]	1	-	-	3.00	-	-	-		
401	1308+75A	WB IH 90/94 LT	W4-1	48" X 48"	MERGING TRAFFIC SYMBOL (RIGHT)	-	2	-	-	16.00	-	-		
SUBTOTAL 1 =						10	10	2	140.34	32	18	16		

3

3

PERMANENT SIGNING SUMMARY (CONTINUED)

SIGN NO.	STATION	LOCATION	SIGN CODE	SIZE	DESCRIPTION	POSTS WOOD	POSTS WOOD	POSTS WOOD	SIGNS TYPE	SIGNS TYPE	REMOVING	REMOVING	REMARKS
						4X6-INCH X	4X6-INCH X	4X6-INCH X	II	II	SIGNS	SMALL SIGN	
						14-FT	16-FT	18-FT	REFLECTIVE H	REFLECTIVE F	TYPE II	SUPPORTS	
						634.0614	634.0616	634.0618	637.2210	637.2230	638.2602	638.3000	
						EACH	EACH	EACH	SF	SF	EACH	EACH	
402R	1312+30A	WB IH 90/94 LT	W4-1	-	MERGING TRAFFIC SYMBOL (RIGHT)	-	-	-	-	-	1	1	
403R	1327+70A	WB IH 90/94 LT	D10-2	-	MILEPOST MARKER [76]	-	-	-	-	-	1	1	
404	1329+60A	WB IH 90/94 LT	D10-2	12" X 36"	MILEPOST MARKER [76]	1	-	-	3.00	-	-	-	
405	1328+40	EB IH 90/94 RT	D10-2	12" X 36"	MILEPOST MARKER [76]	1	-	-	3.00	-	-	-	
406R	1331+00	EB IH 90/94 RT	D10-2	-	MILEPOST MARKER [76]	-	-	-	-	-	1	1	
407R	1333+10A	WB IH 90/94 LT	E5-54	-	REST AREA/ARROW RIGHT	-	-	-	-	-	1	2	
408R	1333+10A	WB IH 90/94 LT	D7-60	-	NEXT TRUCK PARKING [6] MILES EXIT [69]	-	-	-	-	-	1	-	MOUNTED WITH SIGN 407R
409	1333+10A	WB IH 90/94 LT	E5-54	72" X 72"	REST AREA/ARROW RIGHT	-	-	2	36.00	-	-	-	
410		WB IH 90/94 LT	D7-60	24" X 36"	NEXT TRUCK PARKING [6] MILES EXIT [69]	-	-	-	6.00	-	-	-	MOUNT WITH SIGN 409
411R	1336+80A	WB IH 90/94 LT	R7-64	-	NO PARKING ON RAMP	-	-	-	-	-	1	1	
412	1336+80A	WB IH 90/94 LT	R7-64	48" X 30"	NO PARKING ON RAMP	-	1	-	10.00	-	-	-	
413	1373+70	EB IH 90/94 LT	R3-4B	36" X 48"	NO U-TURN COMBINED WITH MAINT. AND POLICE VEHICLE	-	1	-	12.00	-	-	-	PROPOSED MAINTENANCE CROSSOVER
414R	1343+70	EB IH 90/94 LT	R3-4B	-	NO U-TURN COMBINED WITH MAINT. AND POLICE VEHICLE	-	-	-	-	-	1	1	
415	1374+10A	WB IH 90/94 RT	R3-4B	36" X 48"	NO U-TURN COMBINED WITH MAINT. AND POLICE VEHICLE	-	1	-	12.00	-	-	-	PROPOSED MAINTENANCE CROSSOVER
416R	1345+15A	WB IH 90/94 RT	R3-4B	-	NO U-TURN COMBINED WITH MAINT. AND POLICE VEHICLE	-	-	-	-	-	1	1	
501	1381+10	EB IH 90/94 RT	D10-2	12" X 36"	MILEPOST MARKER [77]	1	-	-	3.00	-	-	-	
502R	1383+30	EB IH 90/94 RT	D10-2	-	MILEPOST MARKER [77]	-	-	-	-	-	1	1	
503	1382+20A	WB IH 90/94 LT	D10-2	12" X 36"	MILEPOST MARKER [77]	1	-	-	3.00	-	-	-	
504R	1384+40A	WB IH 90/94 LT	D10-2	-	MILEPOST MARKER [77]	-	-	-	-	-	1	1	
505	1396+30	EB IH 90/94 LT	R4-3	48" X 60"	SLOWER TRAFFIC KEEP RIGHT	-	-	2	20.00	-	-	-	
506R	1396+30	EB IH 90/94 LT	R4-3	-	SLOWER TRAFFIC KEEP RIGHT	-	-	-	-	-	1	1	
SUBTOTAL 2 =						4	3	4	108.00	0.00	11	11	
SUBTOTAL 1 =						10	10	2	140.34	32.00	18	16	
TOTAL 0010						18	16	10	356.34	32.00	40	38	

TRAFFIC CONTROL SUMMARY

										TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE (PROJECT) 01. 1016-05-79 643.0200			TRAFFIC CONTROL DRUMS 643.0300		TRAFFIC CONTROL BARRICADES TYPE III 643.0420			TRAFFIC CONTROL WARNING LIGHTS TYPE A 643.0705			TRAFFIC CONTROL WARNING LIGHTS TYPE C 643.0715			TRAFFIC CONTROL ARROW BOARDS 643.0800			TRAFFIC CONTROL SIGNS 643.0900			
STATION	TO	STATION	LOCATION					SERVICE DAYS	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	DAY	QTY	REMARKS	
1152+00	-	1381+00	IH-90/94	EB	LT	LANE	CLOSURE	15	15	250	3,750	16	240	32	480	16	240	2	30	26	390									
1152+00	-	1381+00	IH-90/94	EB	RT	LANE	CLOSURE	15	15	285	4,275	16	240	32	480	34	510	2	30	30	450									
1170+50A	-	1400+00A	IH-90/94	WB	LT	LANE	CLOSURE	15	15	250	3,750	16	240	32	480	16	240	2	30	26	390									
1170+50A	-	1400+00A	IH-90/94	WB	RT	LANE	CLOSURE	15	15	285	4,275	16	240	32	480	34	510	2	30	30	450									
								TOTAL 0010	60	16,050		960		1,920		1,500		120		1,680										

GEOTEXTILE FABRIC TYPE HR

SAWING CONCRETE

645.0120			
STATION	LOCATION	SY	REMARKS
1185+07	IH-90/94 EB, RIGHT	3.6	1 JOINT ON PIPE NO. 1
1201+17	IH-90/94 EB, LEFT AND RIGHT	7.2	2 JOINTS ON PIPE NO. 3
1209+21	IH-90/94 EB, LEFT AND RIGHT	7.2	2 JOINTS ON PIPE NO. 4
1227+98	IH-90/94 EB, LEFT AND RIGHT	7.2	2 JOINTS ON PIPE NO. 6
1277+05	IH-90/94 EB, LEFT AND RIGHT	7.2	2 JOINTS ON PIPE NO. 9
1283+09	IH-90/94 EB, LEFT AND RIGHT	9.0	3 JOINTS ON PIPE NO. 10
1295+08	IH-90/94 EB, LEFT AND RIGHT	12.0	4 JOINTS ON PIPE NO. 11
1375+13	IH-90/94 EB, LEFT AND RIGHT	4.6	2 JOINTS ON PIPE NO. 16
1379+12	IH-90/94 EB, RIGHT	3.6	1 JOINT ON PIPE NO. 17
1198+69A	IH-90/94 WB, LEFT	3.0	1 JOINT ON PIPE NO. 19
1244+77A	IH-90/94 WB, RIGHT	2.3	1 JOINT ON PIPE NO. 23
1259+25A	IH-90/94 WB, LEFT	3.6	1 JOINT ON PIPE NO. 24
1279+14A	IH-90/94 WB, RIGHT	3.6	1 JOINT ON PIPE NO. 25
1290+15A	IH-90/94 WB, LEFT AND RIGHT	6.0	2 JOINTS ON PIPE NO. 26
1306+65A	IH-90/94 WB, RIGHT	3.6	1 JOINT ON PIPE NO. 28
1339+95A	IH-90/94 WB, LEFT	3.6	1 JOINT ON PIPE NO. 29
TOTAL		87.3	

*ADDITIONAL GEOTEXTILE FABRIC QUANTITIES LOCATED ELSEWARE

690.0250			
STATION	LOCATION	LF	REMARKS
1170+00	IH-90/94 EB	40	BUTT JOINT AT BEGINNING OF PROJECT
1249+02	EB REST AREA EXIT RAMP	23	BUTT JOINT AT RAMP
1274+25	EB REST AREA ENTRANCE RAMP	23	BUTT JOINT AT RAMP
1380+48	IH-90/94 EB	40	BUTT JOINT AT END OF PROJECT
1171+00A	IH-90/94 WB	40	BUTT JOINT AT BEGINNING OF PROJECT
1198+90A	IH-90/94 WB	40	BUTT JOINT AT B-29-26
1199+79A	IH-90/94 WB	40	BUTT JOINT AT B-29-26
1305+72A	WB REST AREA ENTRANCE RAMP	23	BUTT JOINT AT RAMP
1334+20A	WB REST AREA EXIT RAMP	23	BUTT JOINT AT RAMP
1381+54A	IH-90/94 WB	40	BUTT JOINT AT END OF PROJECT
TOTAL		332	
*ADDITIONAL SAWING QUANTITIES LOCATED ELSEWARE			

PAVEMENT MARKING SUMMARY

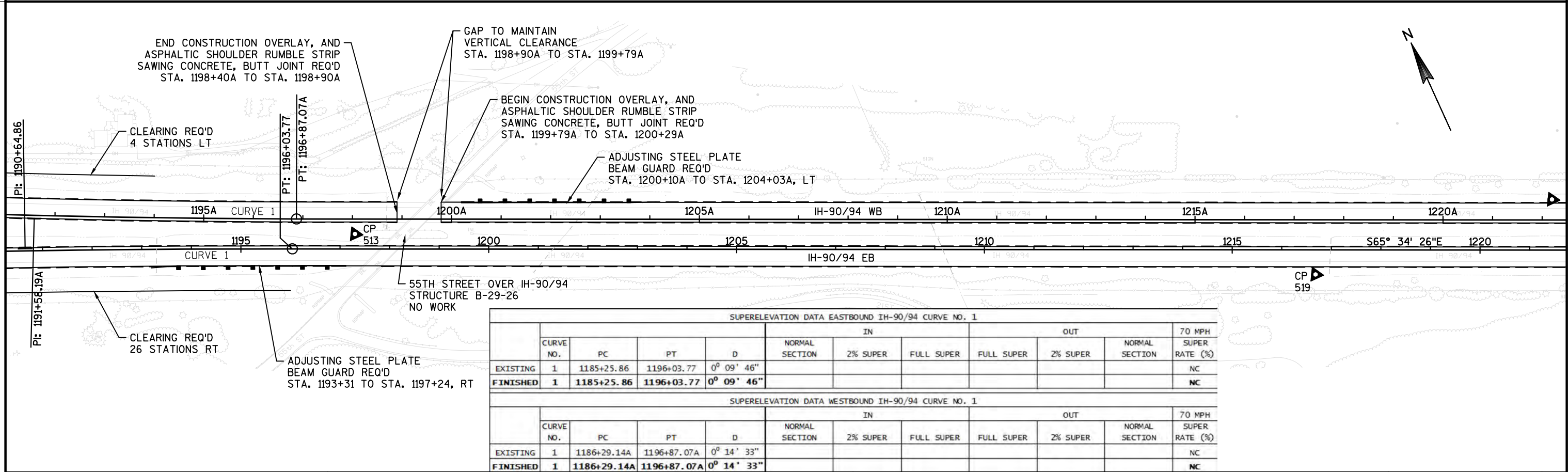
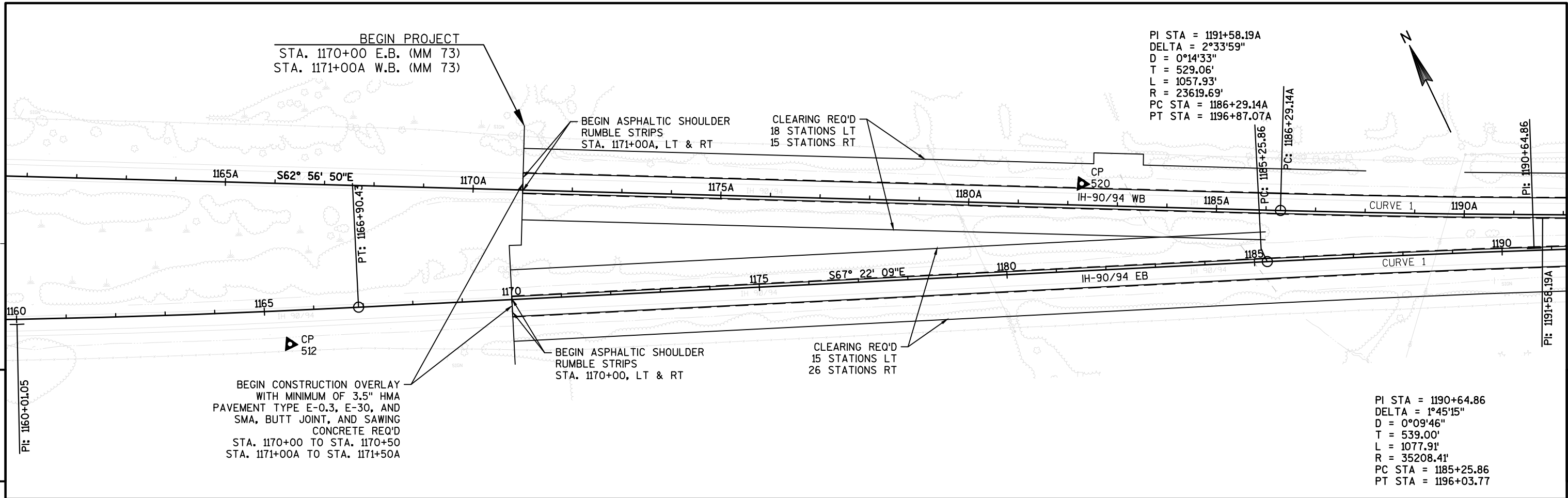
				PAVEMENT MARKING EPOXY 4-INCH 646.0106	REMOVING RAISED PAVEMENT MARKERS 646.0790.S	PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 4-INCH 646.0881.S	PAVEMENT MARKING GROOVED WET REFLECTIVE TAPE 8-INCH 646.0883.S	TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH 649.0200	REMARKS
STATION	TO	STATION	LOCATION	LF	EACH	LF	LF	LF	
1170+00	-	1380+48	IH-90/94 EB LT EDGELINE	21,050	-	-	-	21,050	UPPER & LOWER LIFTS
1170+00	-	1380+48	IH-90/94 EB 12.5' CL SKIPS	-	210	5,262.5	-	5,262.5	UPPER & LOWER LIFTS
1170+00	-	1249+00	IH-90/94 EB RT EDGELINE	7,900	-	-	-	7,900	UPPER & LOWER LIFTS
1244+20	-	1249+00	EB REST AREA EXIT RAMP GORE AREA & LT EDGELINE	170	23	-	630	800	UPPER & LOWER LIFTS
1247+35	-	1274+20	IH-90/94 EB RT EDGELINE	2,690	-	-	-	2,690	UPPER & LOWER LIFTS
1274+20	-	1280+90	EB REST AREA ENTERANCE RAMP GORE AREA	-	-	-	1,335	1,335	UPPER & LOWER LIFTS
1274+26	-	1380+48	IH-90/94 EB RT EDGELINE	10,620	-	-	-	10,620	UPPER & LOWER LIFTS
1171+00A	-	1381+54A	IH-90/94 WB RT EDGELINE	21,055	-	-	-	21,055	UPPER & LOWER LIFTS
1171+00A	-	1381+54A	IH-90/94 WB 12.5' CL SKIPS	-	210	5,275	-	5,275	UPPER & LOWER LIFTS
1171+00A	-	1305+85A	IH-90/94 WB LT EDGELINE	13,495	-	-	-	13,495	UPPER & LOWER LIFTS
1299+45A	-	1305+88A	WB REST AREA ENTERANCE RAMP GORE AREA & LT EDGELINE	55	-	-	1,190	1,245	UPPER & LOWER LIFTS
1305+88A	-	1334+48A	IH-90/94 WB LT EDGELINE	2,910	-	-	-	2,910	UPPER & LOWER LIFTS
1334+48A	-	1338+05A	WB REST AREA EXIT RAMP GORE AREA	-	12	-	715	715	UPPER & LOWER LIFTS
1337+20A	-	1381+54A	IH-90/94 WB LT EDGELINE	4,435	-	-	-	4,435	UPPER & LOWER LIFTS
TOTAL 0010				84,380	455	10,537.5	3,870	98,787.5	

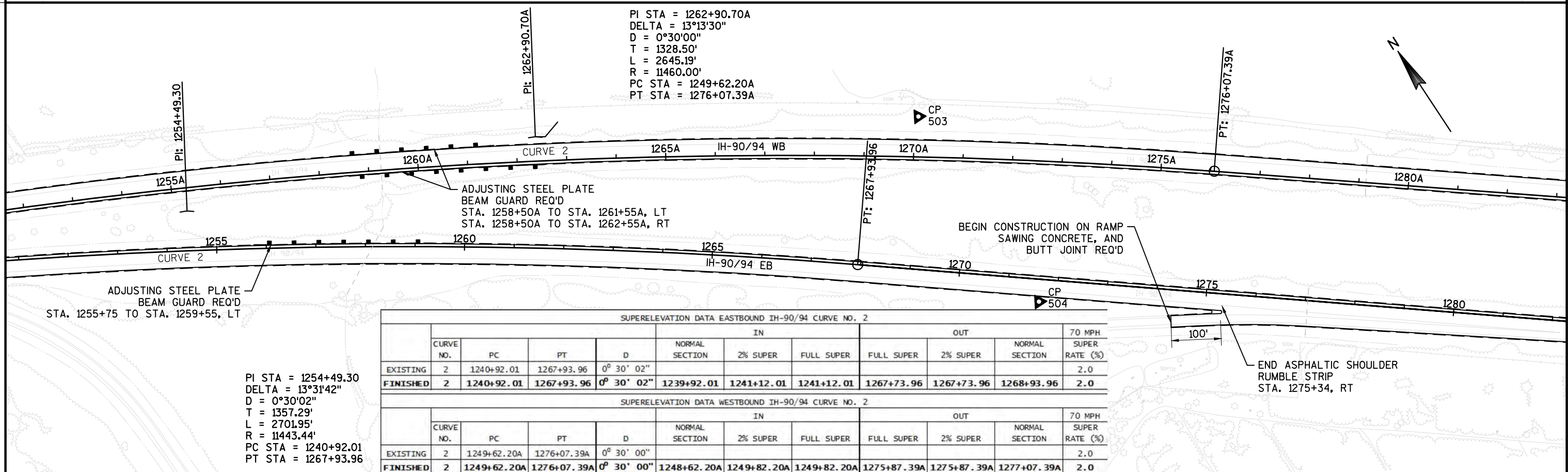
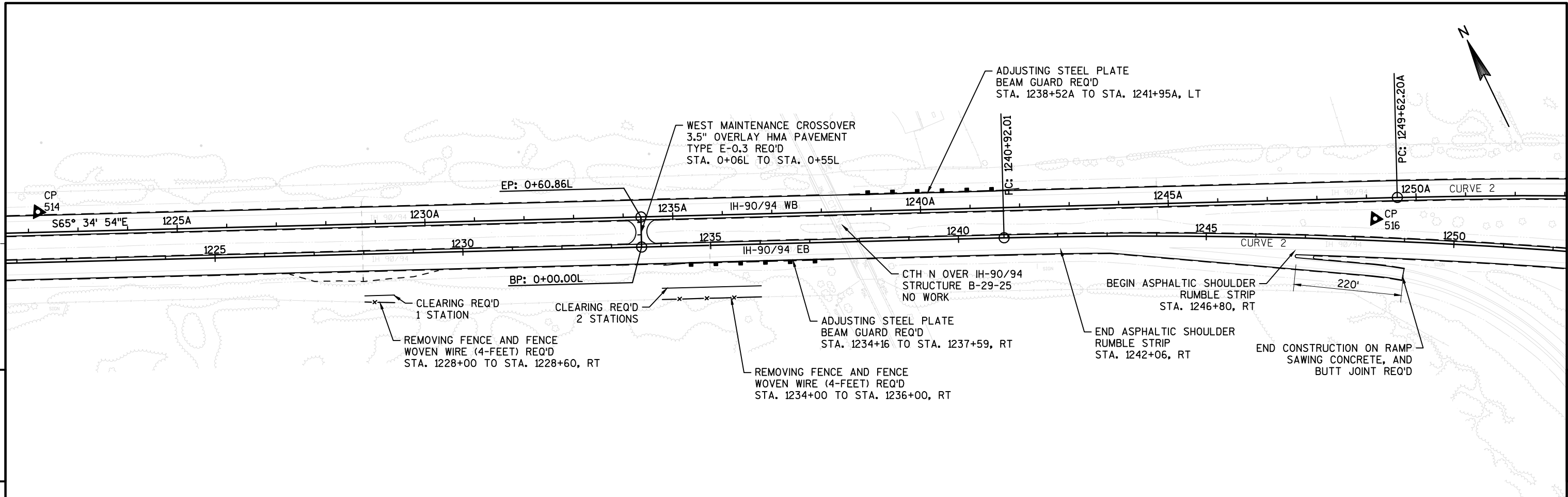
PORTABLE CHANGEABLE MESSAGE SIGNS SUMMARY

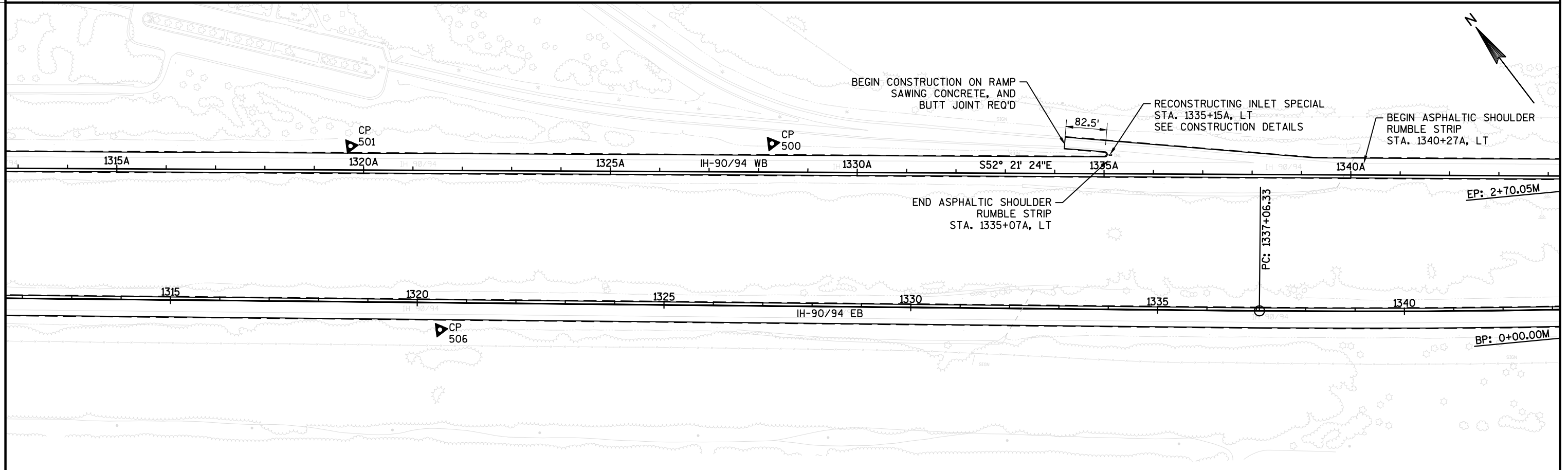
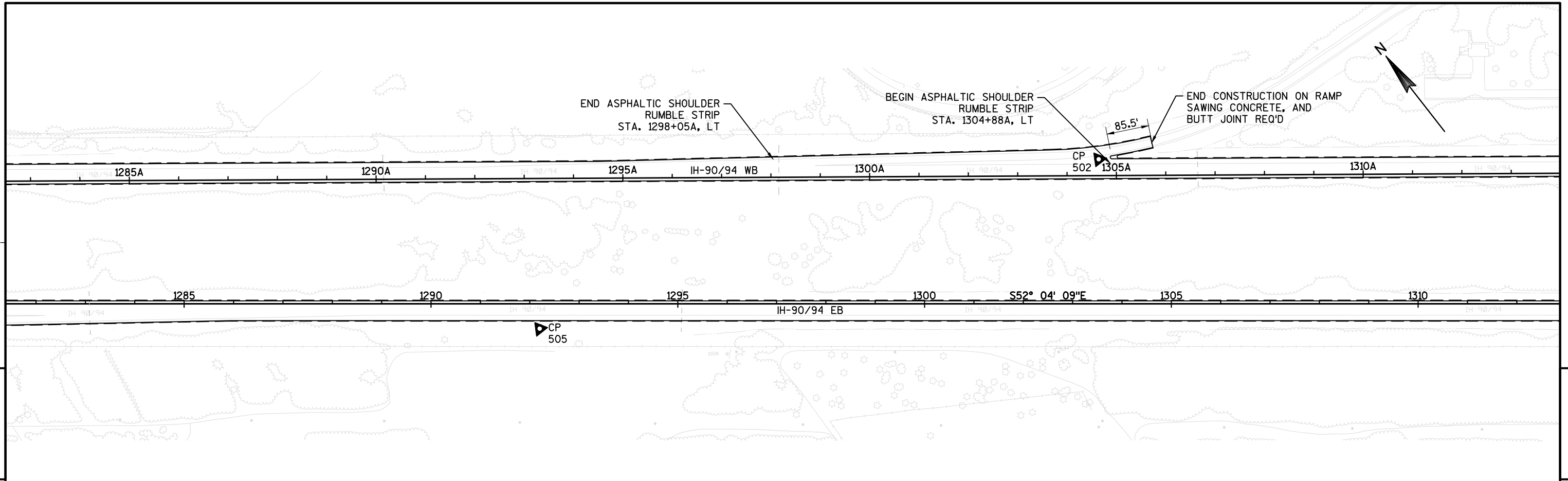
			TRAFFIC CONTROL SIGNS PCMS 643.1050	SPECIAL 01. PCMS REMOTE COMMUNICATIONS SPV.0045.01	
LOCATION	SERVICE DAYS	QTY	DAY	DAY	REMARKS
PCMS SITE NO. 1	10	1	10	10	PRE-CONSTRUCTION WARNING
PCMS SITE NO. 2	10	1	10	10	PRE-CONSTRUCTION WARNING
PCMS SITE NO. 3	102	1	102	102	OPERATIONAL/INCIDENT WARNING
PCMS SITE NO. 4	102	1	102	102	OPERATIONAL/INCIDENT WARNING
TOTAL 0010			224	224	

CONSTRUCTION STAKING SUMMARY

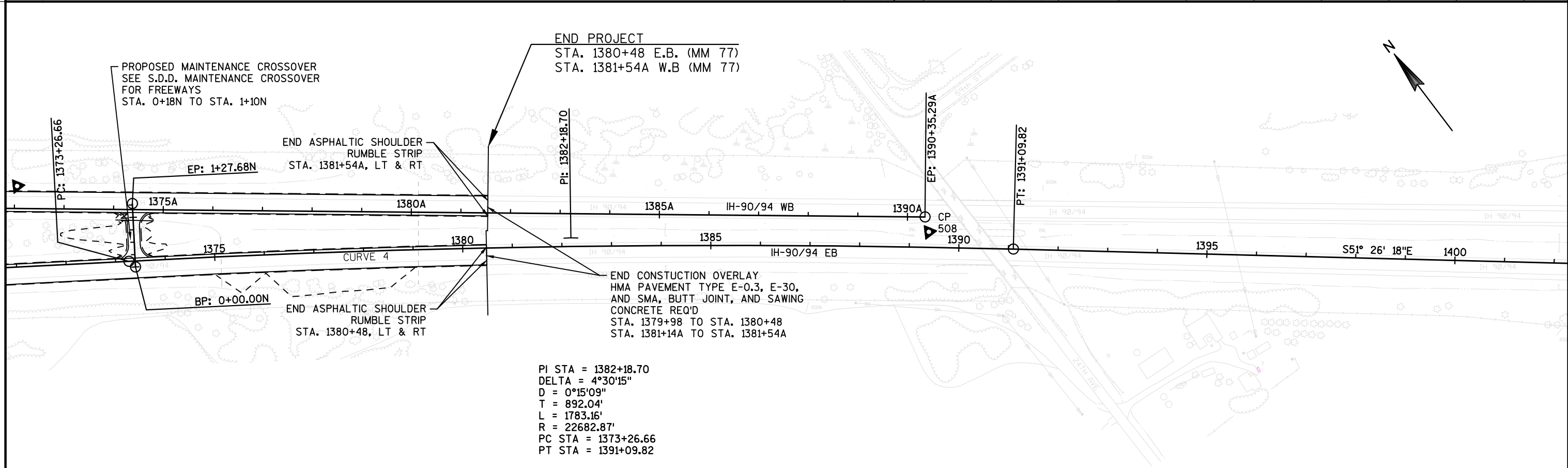
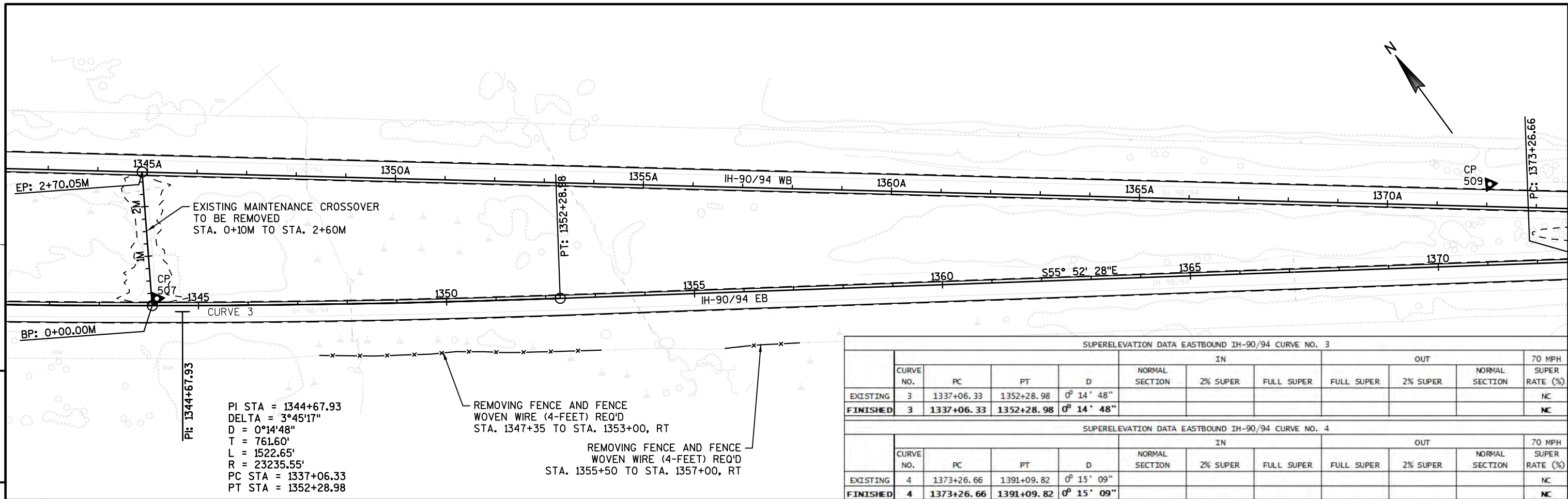
			CONSTRUCTION STAKING BASE	CONSTRUCTION STAKING PIPE CULVERTS	CONSTRUCTION STAKING RESURFACING REFERENCE	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT)	CONSTRUCTION STAKING SLOPE STAKES	REMARKS
			650.5000	650.6000	650.8000	650.9910	650.9920	
STATION TO	STATION	LOCATION	LF	EACH	LF	LS	LF	
PROJECT		IH-90/94	-	-	-	1	-	
1170+00	- 1380+48	IH-90/94 EB	-	-	21,048	-	-	
1171+00A	- 1381+54A	IH-90/94 WB	-	-	21,054	-	-	
1226+50	- 1229+50	IH-90/94 EB, RT	-	1	-	-	300	CULVERT EXTENSION
1375+00	- 1379+00	IH-90/94 EB, RT	-	-	-	-	400	SLOPE CORRECTION
0+06M	- 2+62M	EXISTING MAINTENANCE CROSSOVER	-	-	-	-	256	
0+20N	- 1+10N	PROPOSED MAINTENANCE CROSSOVER	90	1	-	-	90	
TOTAL 0010			90	2	42,102	1	1,046	





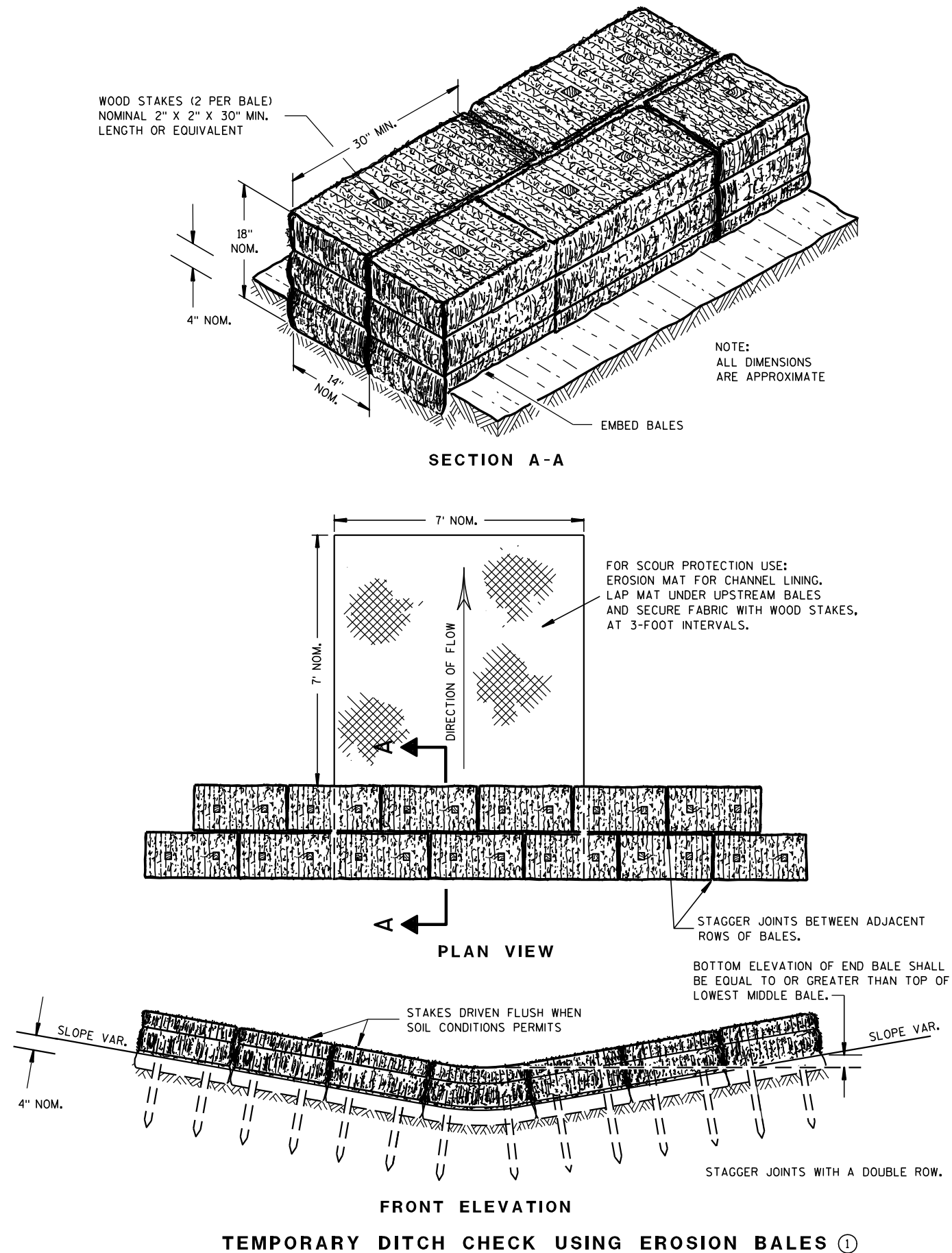


PROJECT NO:1016-05-79	HWY: IH-90/94	COUNTY: JUNEAU	PLAN SHEETS	SHEET	E
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Standard Detail Drawing List

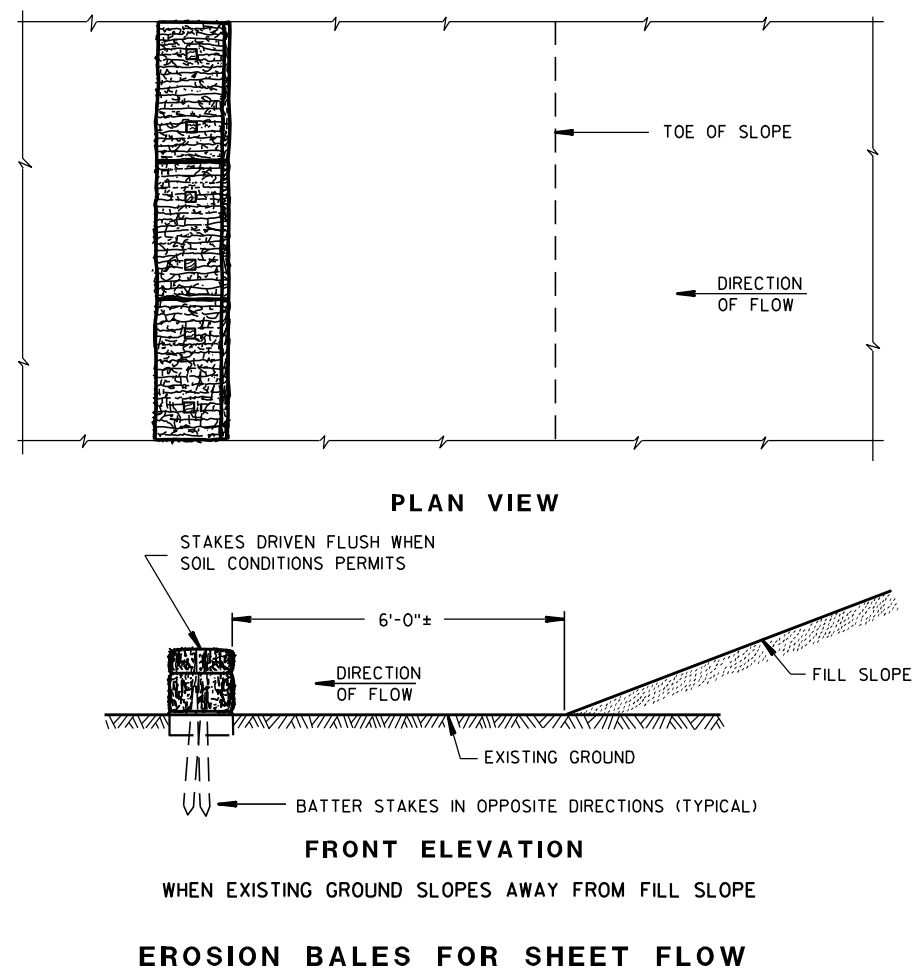
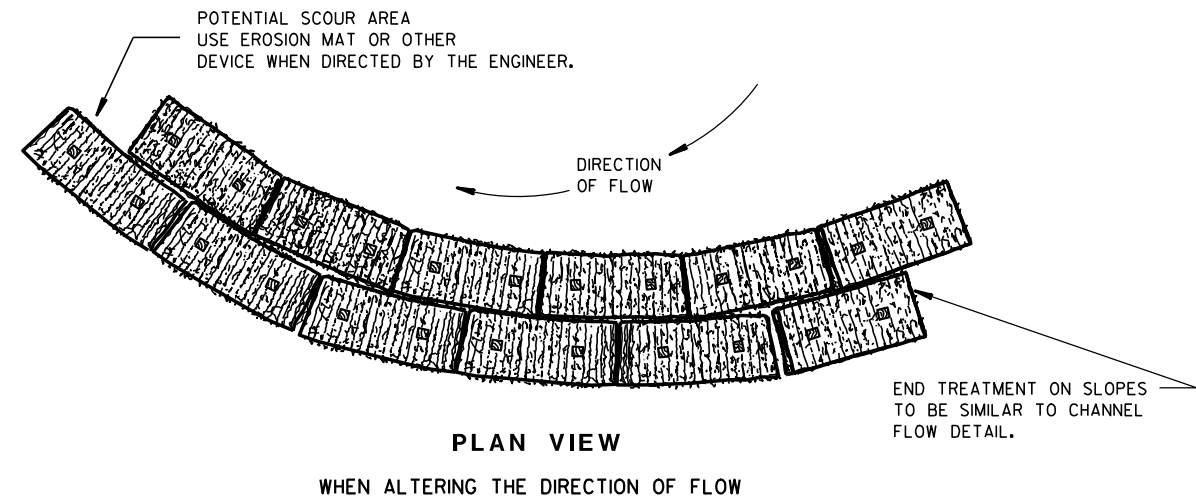
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE FRAINS
08F08-02	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED CROSS DRAINS
11A01-05	MAINTENANCE CROSSOVER FOR FREEWAYS
13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A05-05B	SHOULDER RUMBLE STRIP, MILLING
13C14-04A	BASE PATCHING CONCRETE
13C14-04B	BASE PATCHING CONCRETE
13C14-04C	BASE PATCHING CONCRETE
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B45-03A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A02-08	DELINEATOR POST, DELINEATOR, AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15A04-02	FLEXIBLE DELINEATOR POST
15A06-02	DELINEATOR LAYOUT
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C19-02C	MOVING PAVEMENT MARKING OPERATION MULTI-LANE DIVIDED ROADWAY
15C31-01A	PAVEMENT MARKING (RAMPS AND GORES)
15D12-04	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D15-01	TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE
15D27-02	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH



GENERAL NOTES

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

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

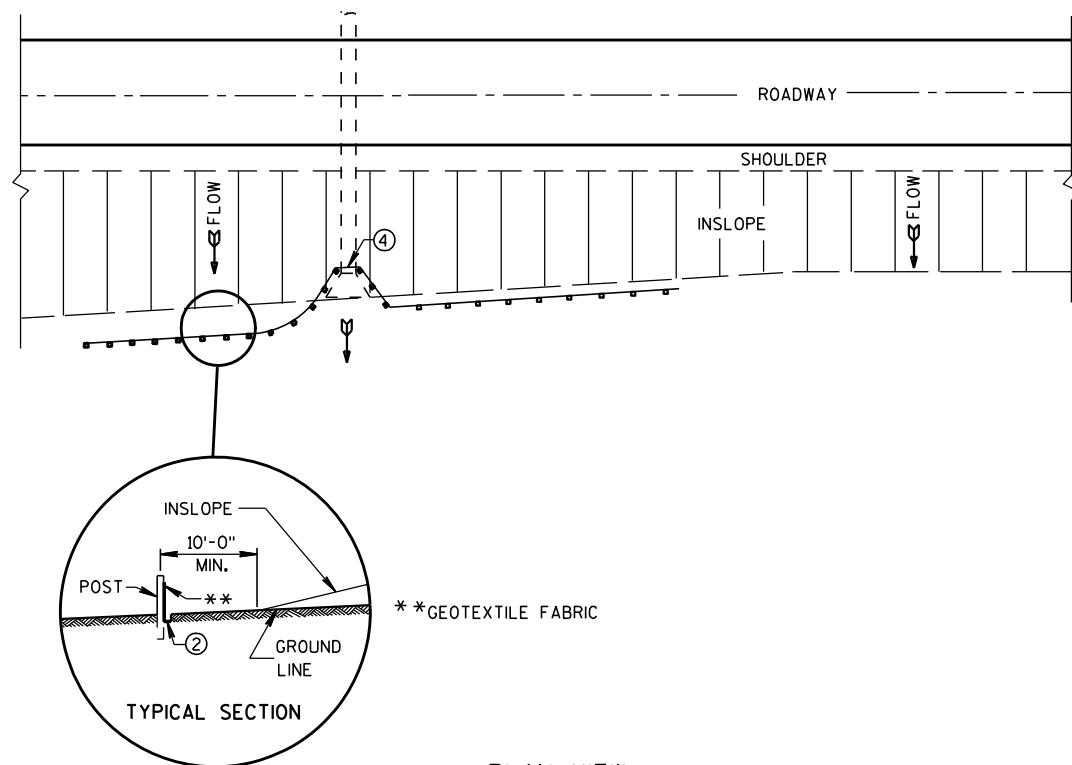
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

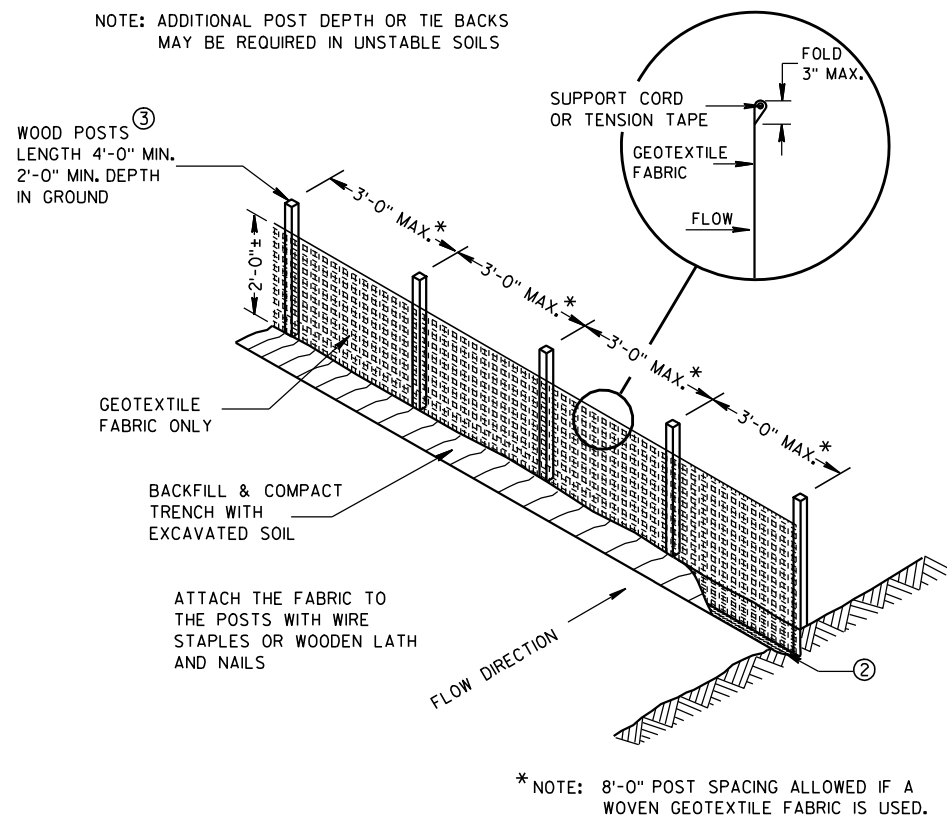
6/04/02
DATE/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



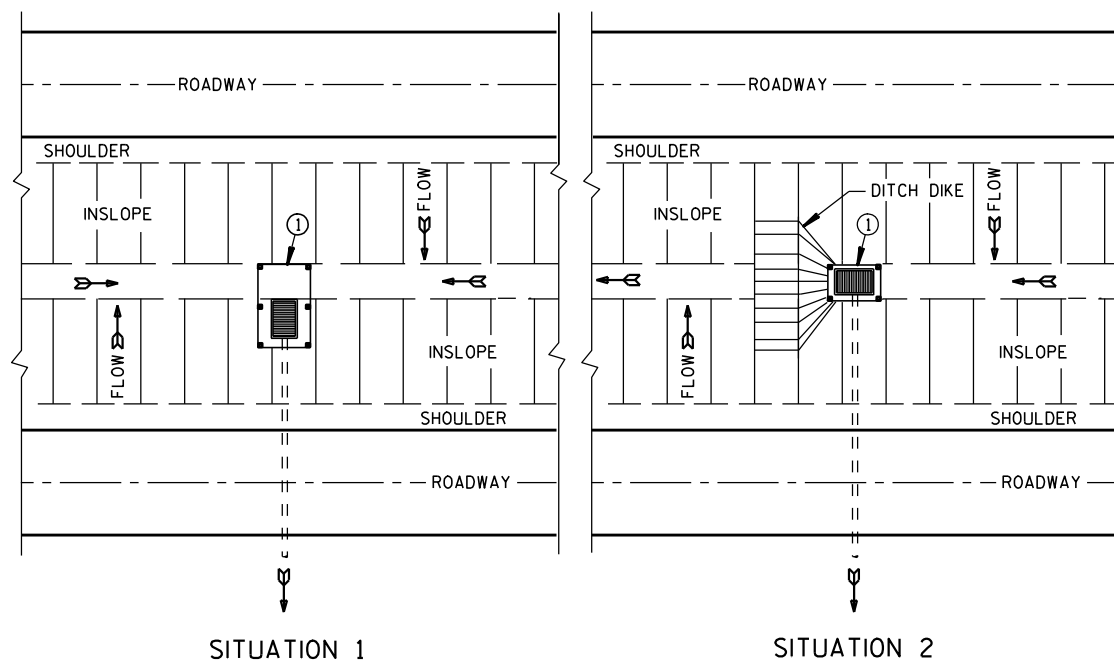
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS
MAY BE REQUIRED IN UNSTABLE SOILS

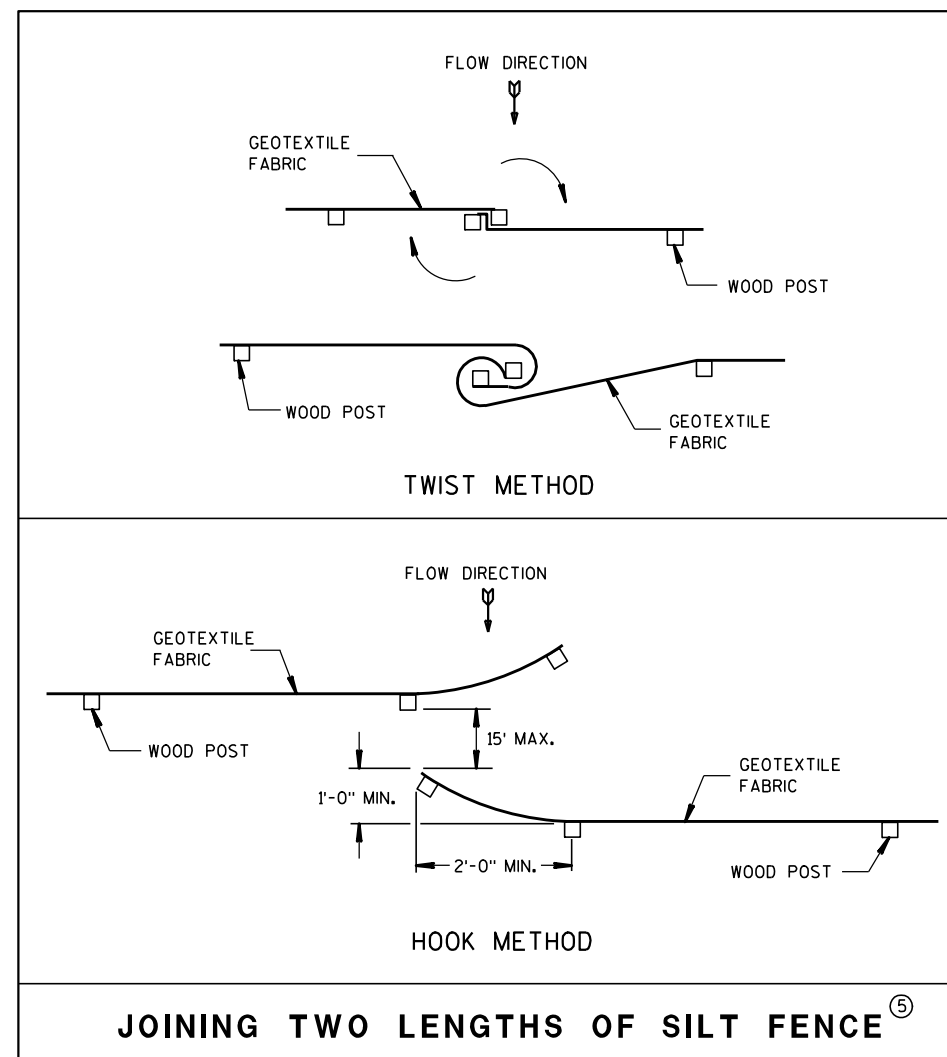


SILT FENCE

* NOTE: 8'-0" POST SPACING ALLOWED IF A
WOVEN GEOTEXTILE FABRIC IS USED.



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

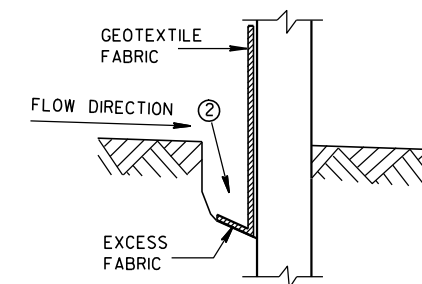


JOINING TWO LENGTHS OF SILT FENCE^⑤

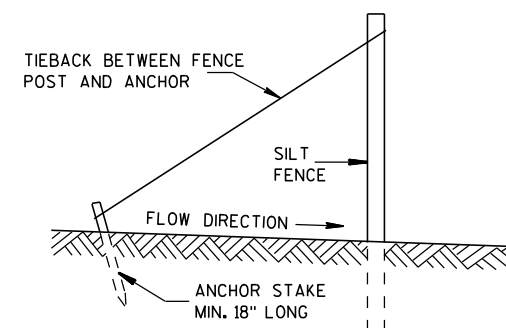
GENERAL NOTES

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

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



TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

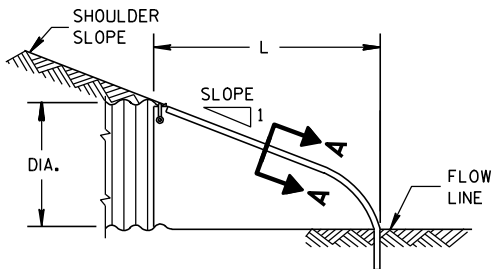
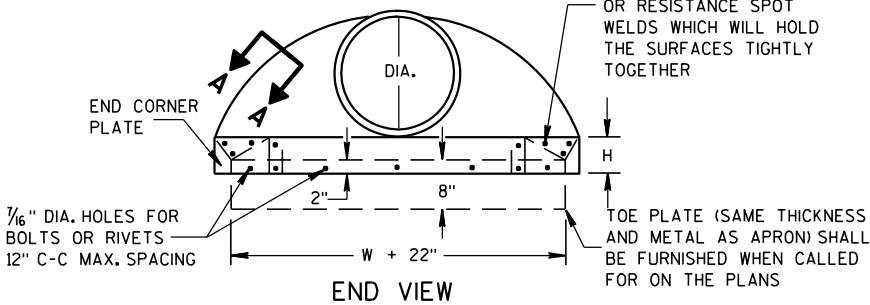
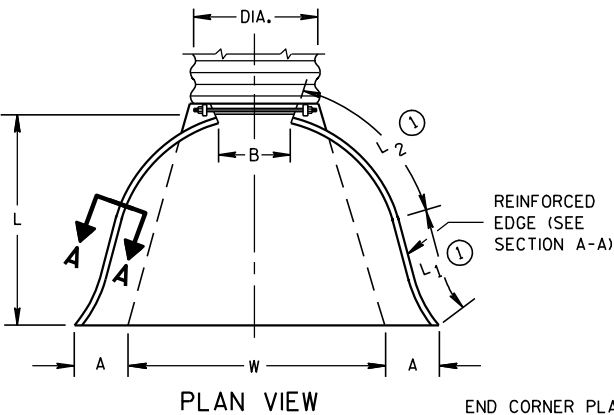
4-29-05
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

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

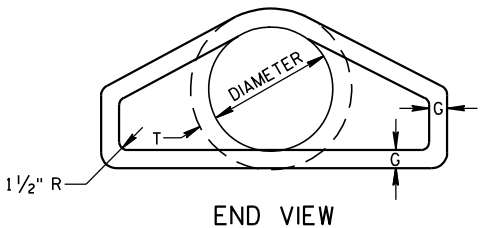
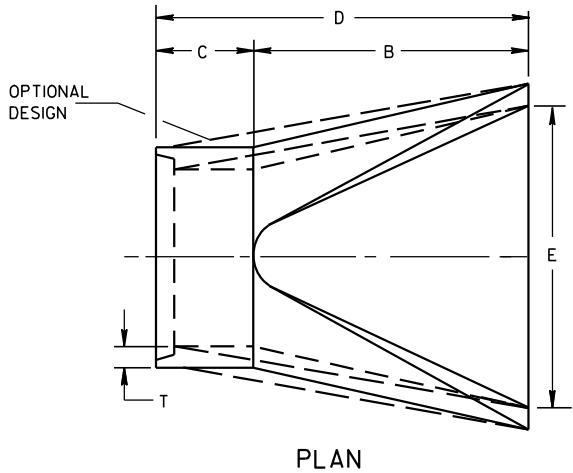
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



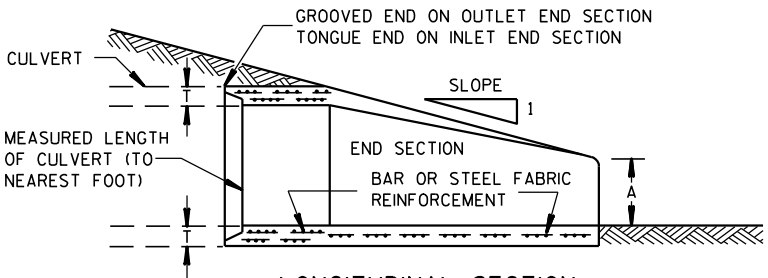
SIDE ELEVATION
METAL ENDWALLS

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

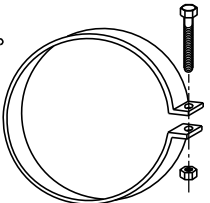
*MINIMUM
**MAXIMUM



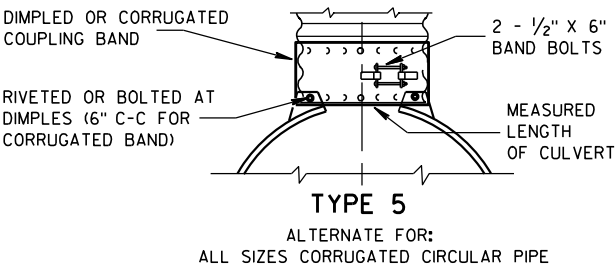
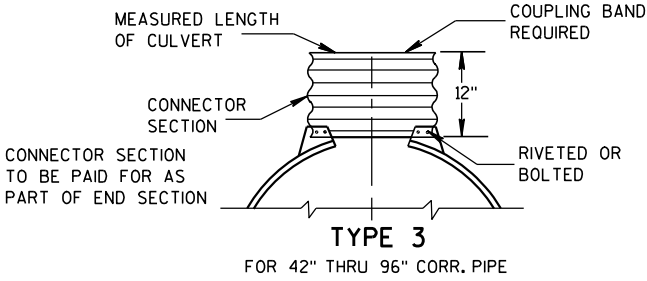
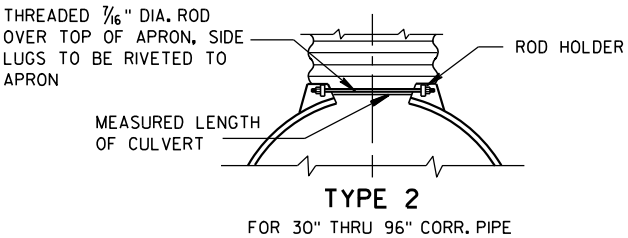
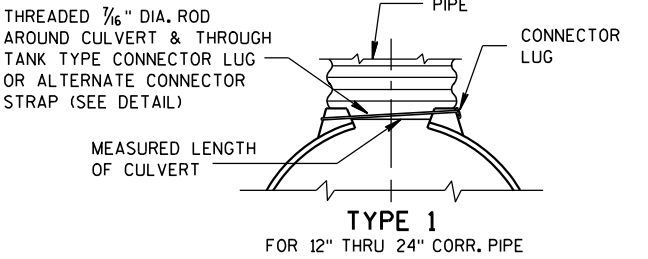
LONGITUDINAL SECTION
CONCRETE ENDWALLS



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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



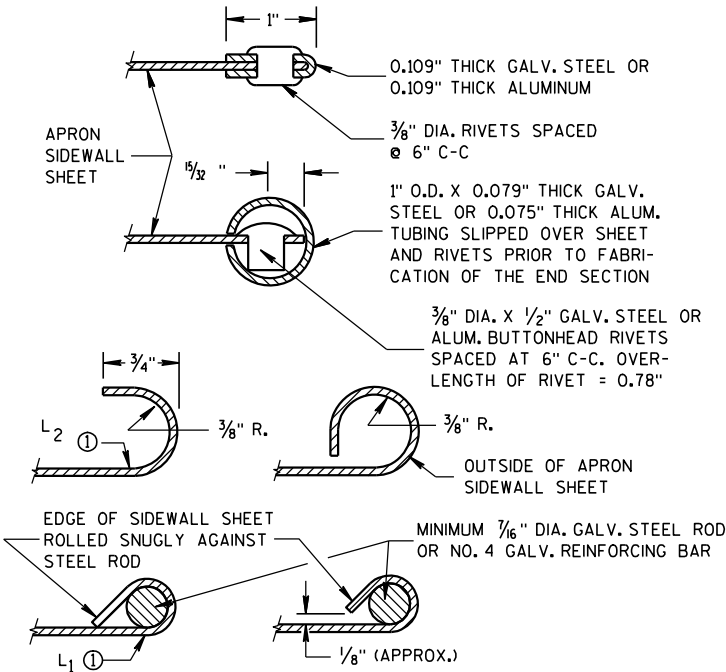
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

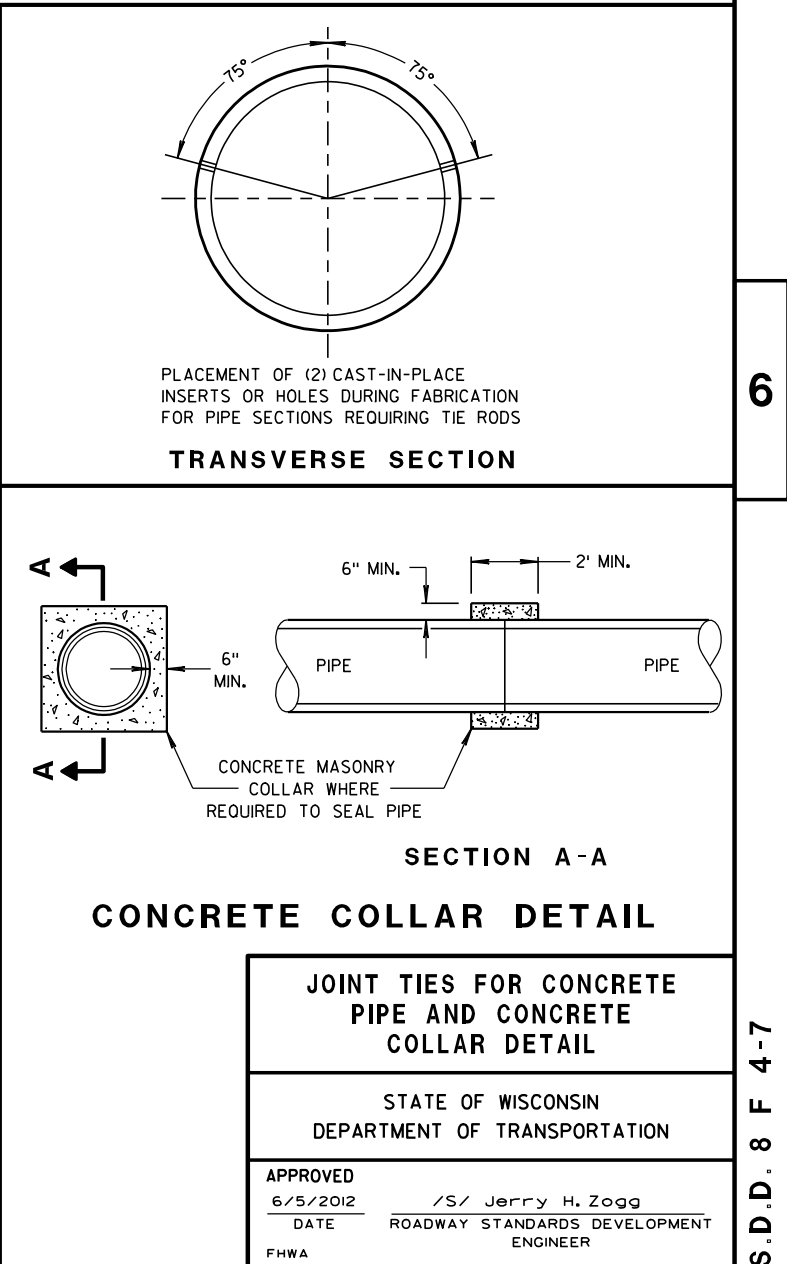
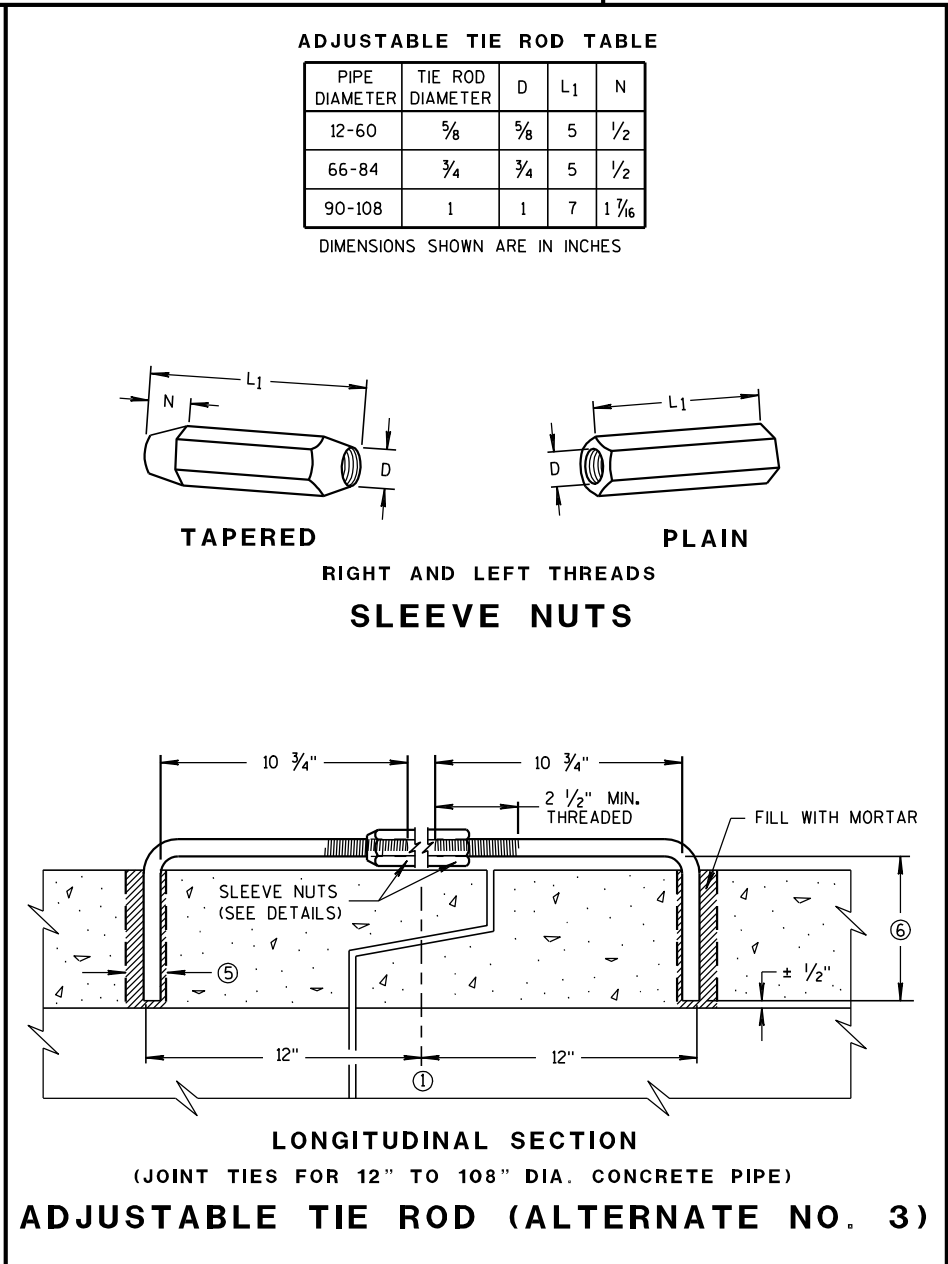
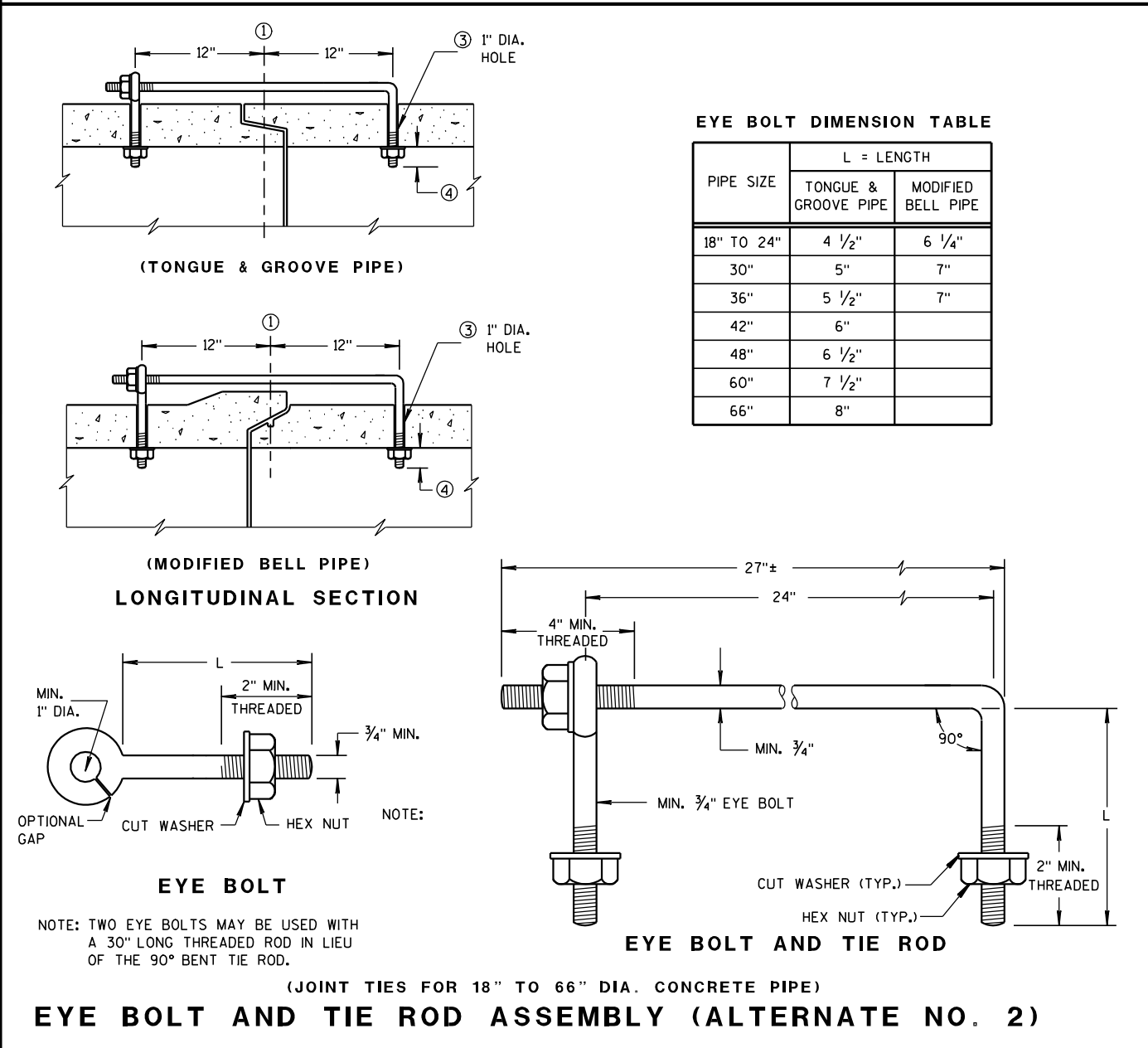
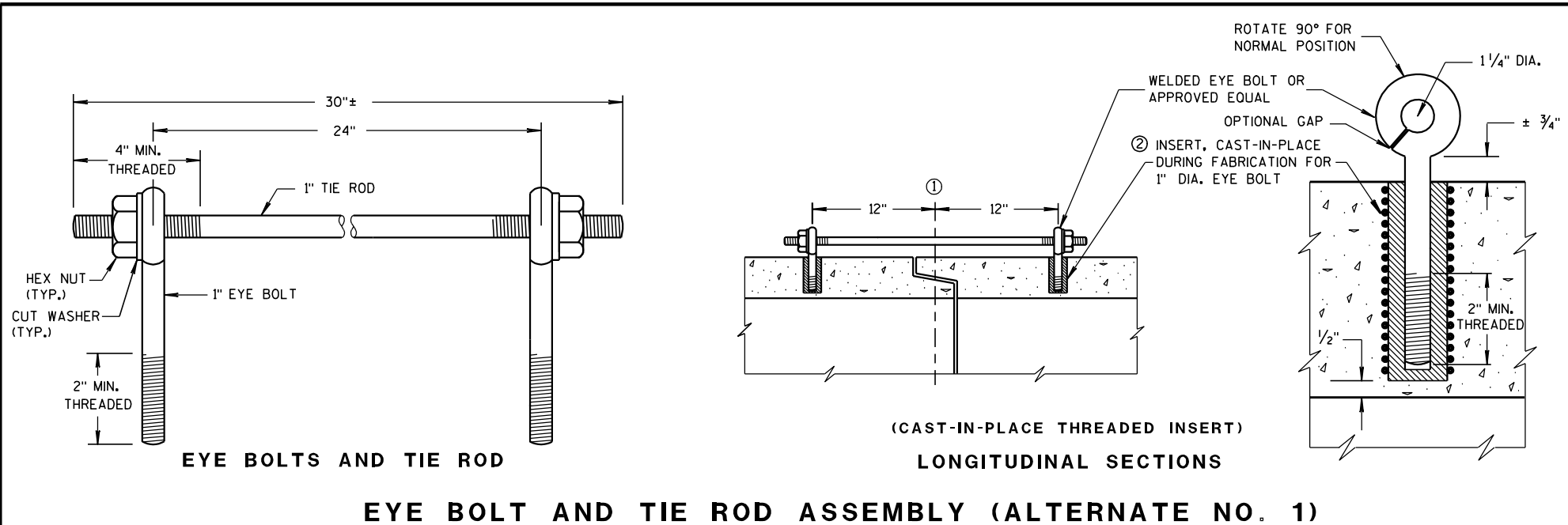
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

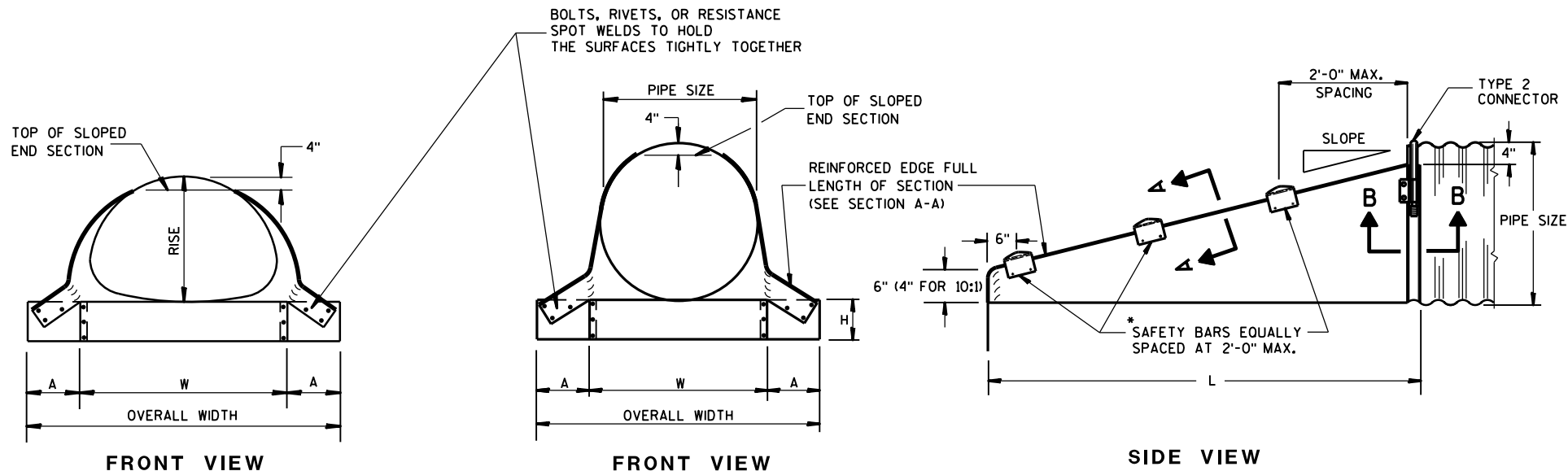
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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





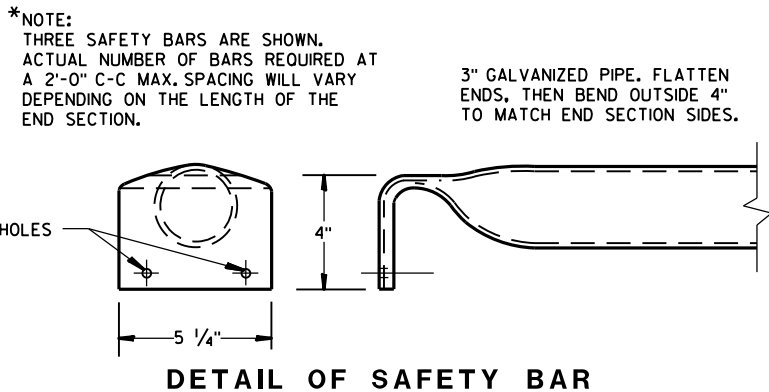
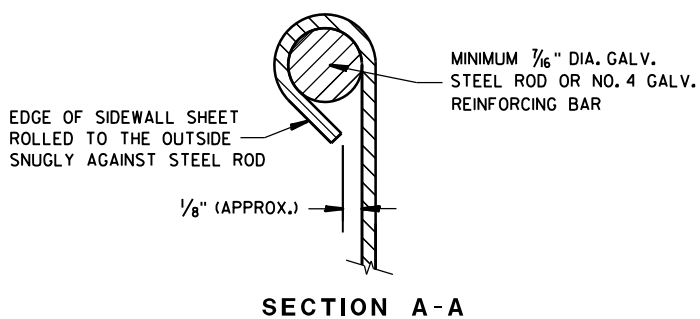
GENERAL NOTES

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

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

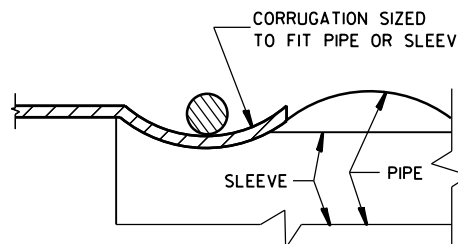
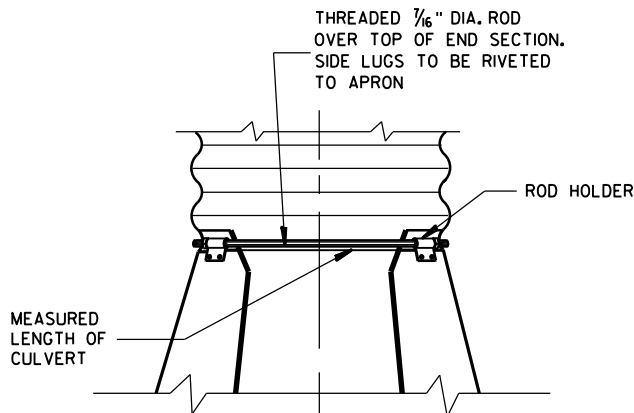
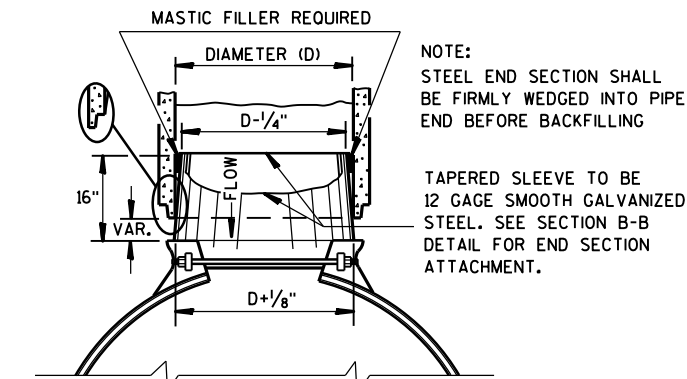
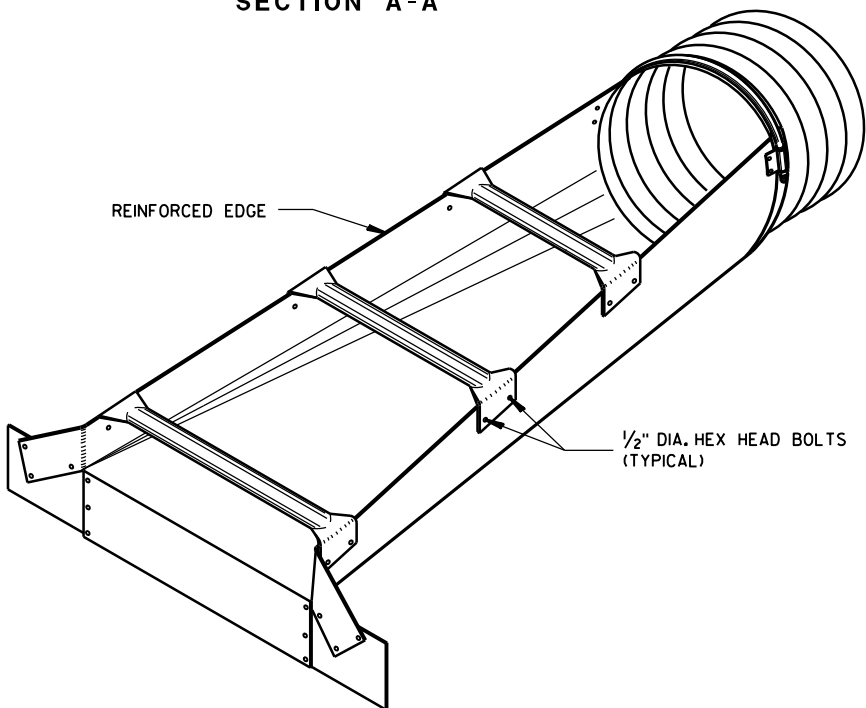
STEEL APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS					
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	16	12	48	80	4:1	128	6:1	192	—	—
48	.109	16	12	54	86	4:1	152	6:1	228	—	—
54	.109	16	12	60	92	4:1	176	6:1	264	—	—
60	.109	16	12	66	98	4:1	200	6:1	300	—	—



STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS													
EQUIV. DIA. (inches)	(inches)		MIN. THICK. (inches) ①	DIMENSIONS (inches)				L DIMENSIONS					
	SPAN	RISE		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	17	13	.064 *	7	6	30	44	4:1	19	6:1	30	10:1 ②	70
18	21	15	.064 *	8	6	27	43	4:1	20	6:1	30	10:1	70
21	24	18	.064 *	8	6	30	46	4:1	32	6:1	48	10:1	100
24	28	20	.064 *	8	6	34	50	4:1	40	6:1	60	10:1	120
30	35	24	.079 *	12	9	41	65	4:1	56	6:1	84	10:1	160
36	42	29	.109 *	12	9	48	72	4:1	76	6:1	114	10:1	210
42	49	33	.109	16	12	55	87	4:1	92	6:1	138	—	—
48	57	38	.109	16	12	63	95	4:1	112	6:1	168	—	—
54	64	43	.109	16	12	70	102	4:1	132	6:1	198	—	—

① * MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".

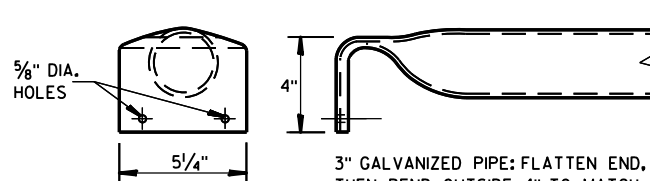
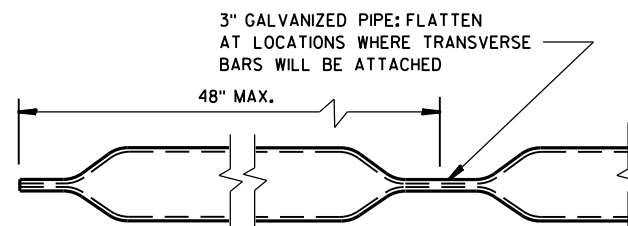
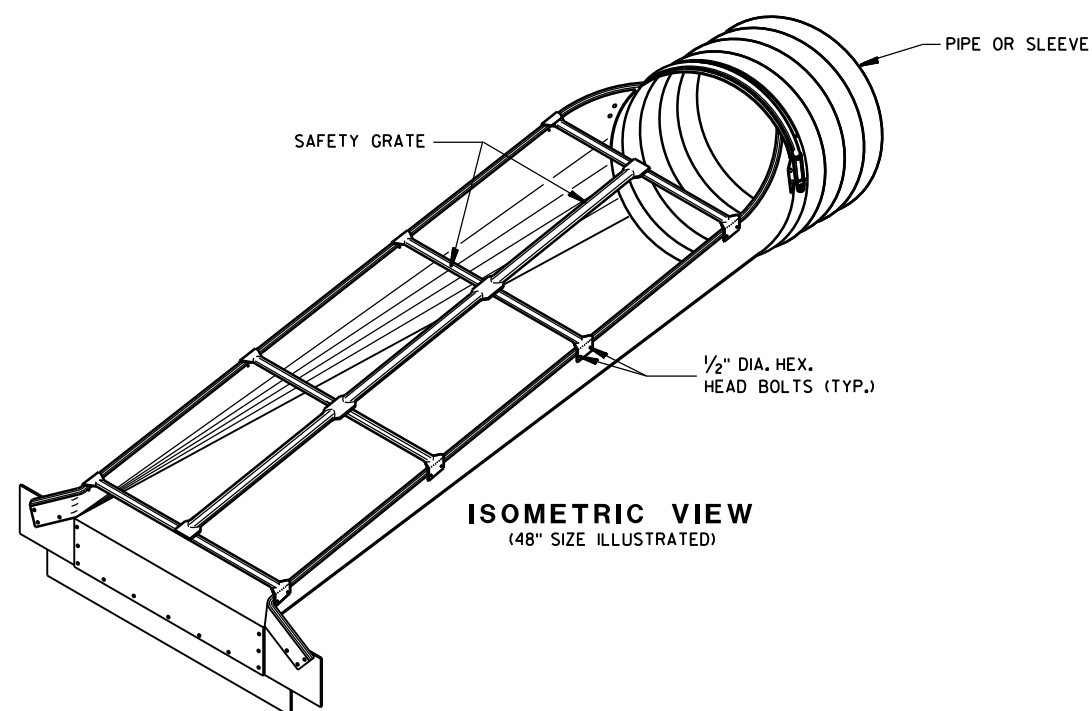
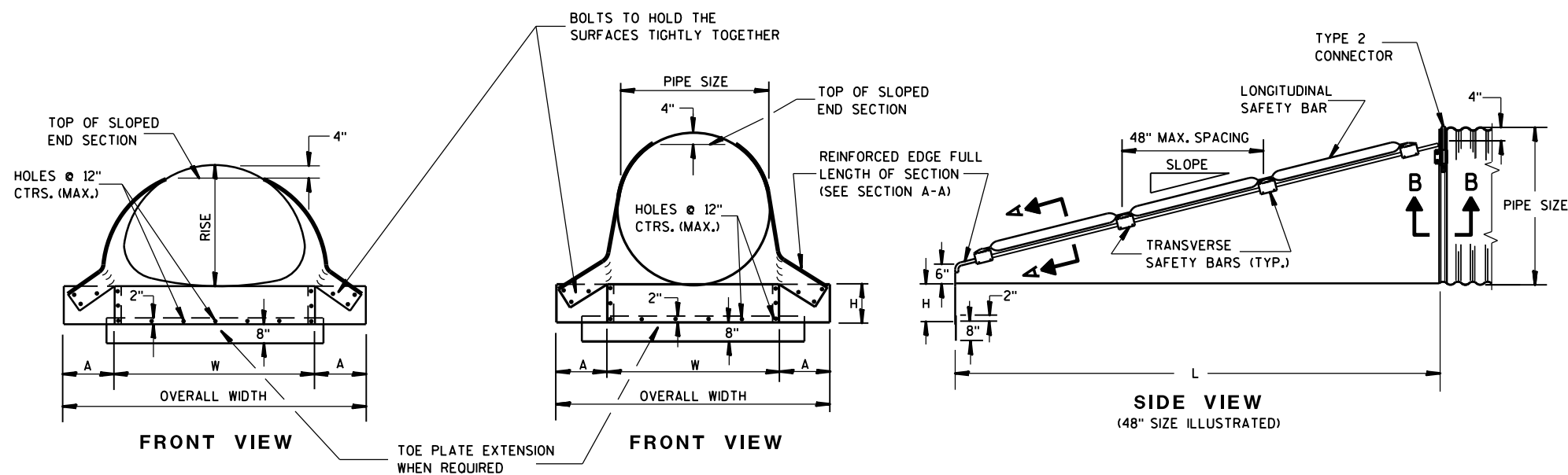
② ACTUAL SLOPE GREATER THAN 10:1.



STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/14/2012
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



GENERAL NOTES

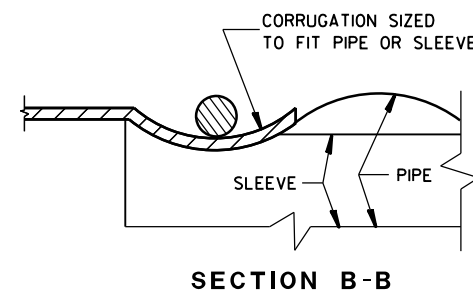
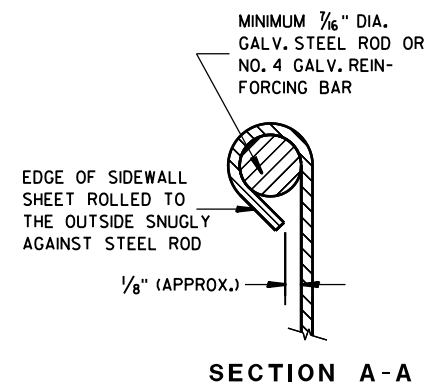
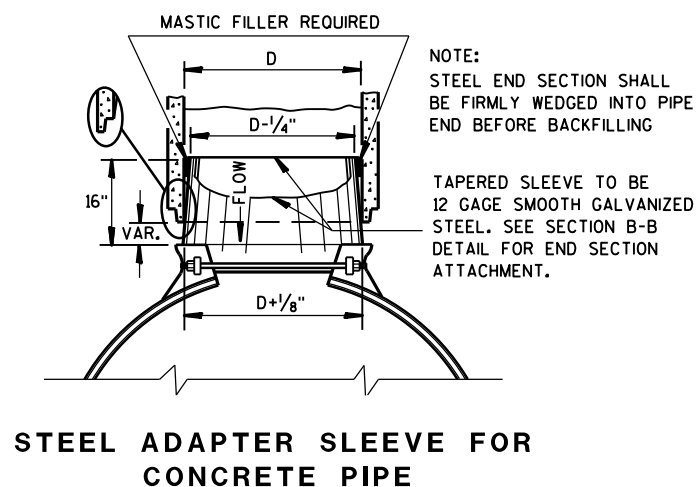
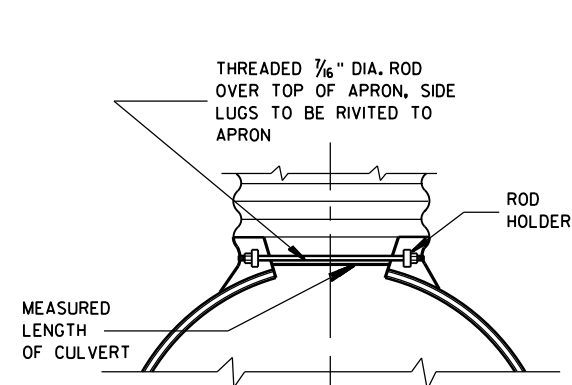
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

SAFETY GRATES SHALL BE FABRICATED FROM 3-INCH DIAMETER GALVANIZED PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL. THE LONGITUDINAL BAR SHALL BE WELDED TO THE TRANSVERSE BARS WHERE THE BARS CROSS. THE NUMBER OF TRANSVERSE BARS REQUIRED WILL VARY DEPENDING ON THE LENGTH OF THE END SECTION.

SLOPED STEEL ENDWALLS LOCATED AT THE ENDS OF CONCRETE CULVERT PIPE SHALL BE FURNISHED WITH STEEL ADAPTER SLEEVES.

STEEL APRON ENDWALLS FOR CULVERT PIPE CROSS DRAINS										
PIPE DIA. (IN.)	MIN. THICK. IN.	GAGE	DIMENSIONS (inches)				L DIMENSIONS			
			A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
36	.109	12	12	9	42	66	4:1	104	6:1	156
42	.109	12	16	12	48	80	4:1	128	6:1	192
48	.109	12	16	12	54	86	4:1	152	6:1	228
54	.109	12	16	12	60	92	4:1	176	6:1	264
60	.109	12	16	12	66	98	4:1	200	6:1	300

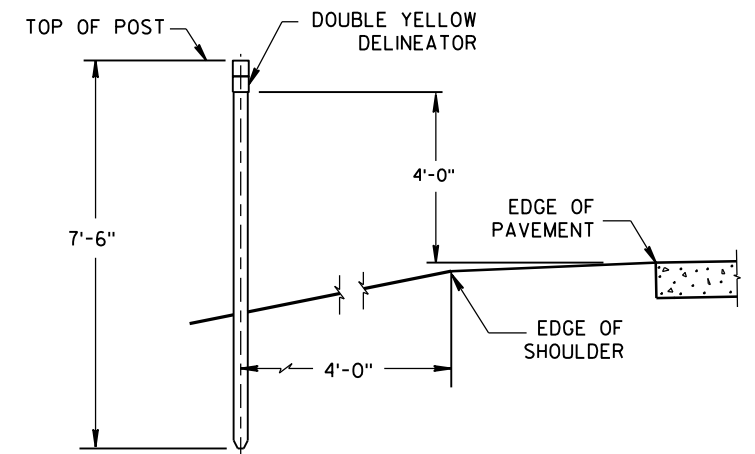
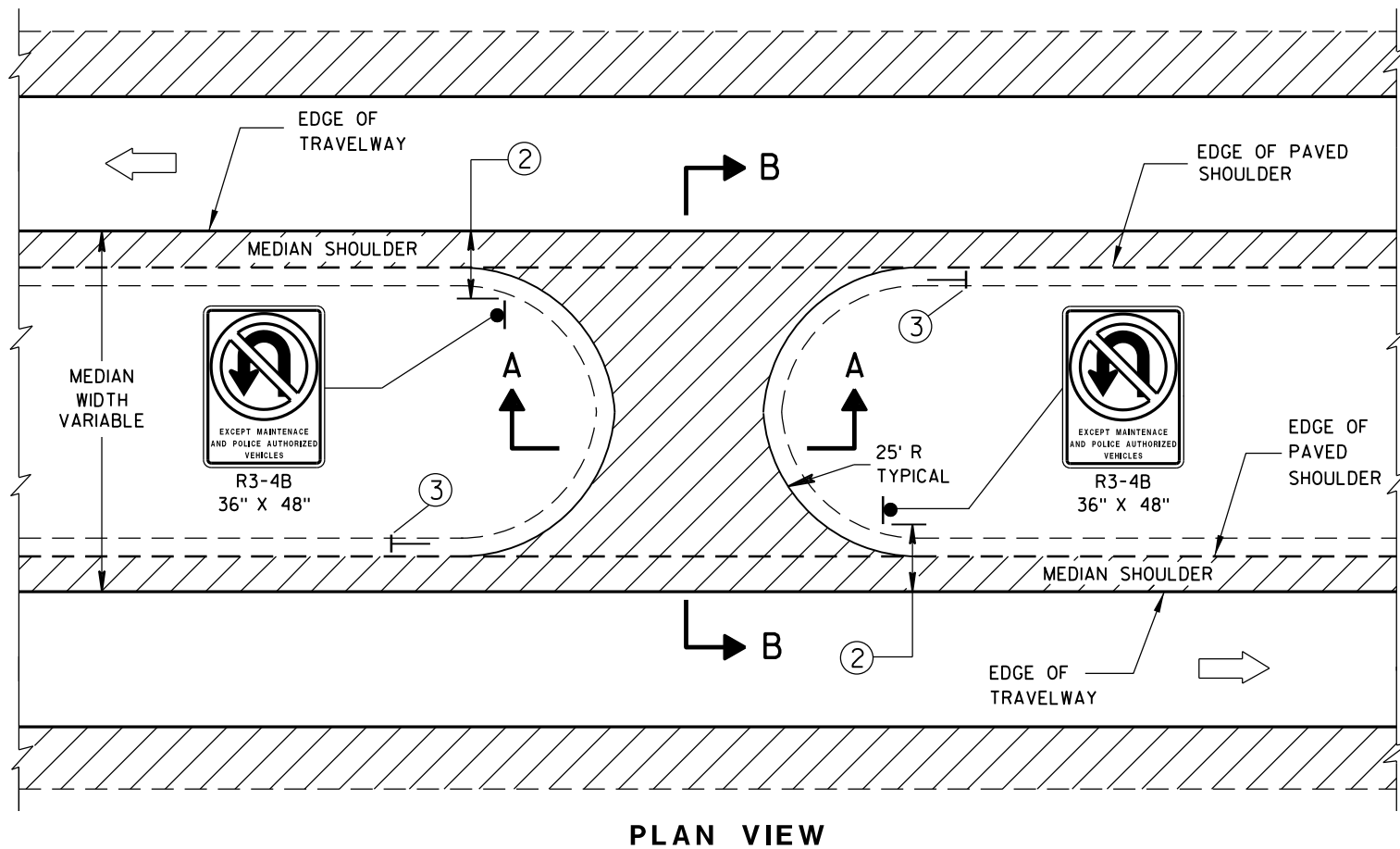
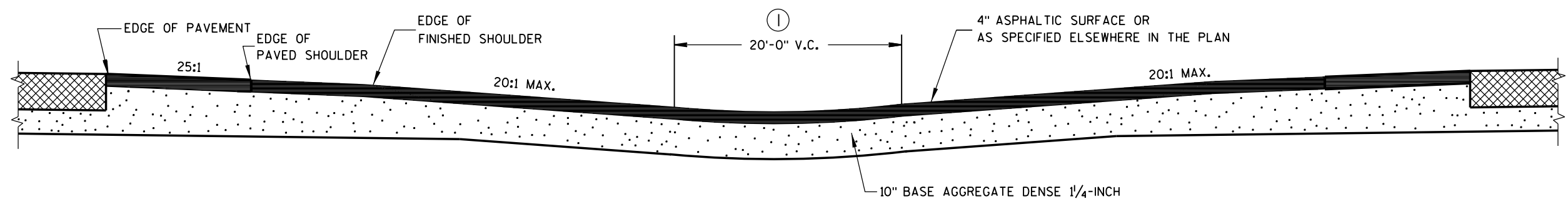
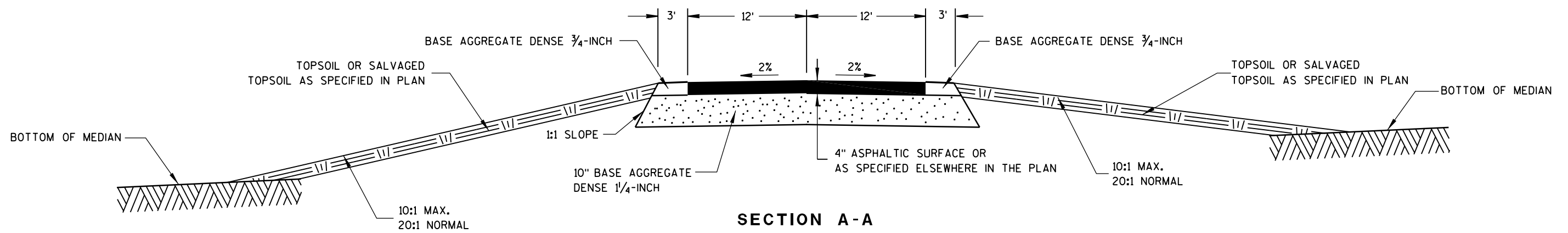
STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED CROSS DRAINS												
EQUIV. DIA. (IN.)	INCHES		MIN. THICK.		DIMENSIONS (Inches)				L DIMENSIONS			
	SPAN	RISE	IN.	GAGE	A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
30	35	24	.079	14	12	9	41	65	4:1	56	6:1	84
36	42	29	.109	12	12	9	48	72	4:1	76	6:1	114
42	49	33	.109	12	16	12	55	87	4:1	92	6:1	138
48	57	38	.109	12	16	12	63	95	4:1	112	6:1	168
54	64	43	.109	12	16	12	70	102	4:1	132	6:1	198
60	71	47	.109	12	16	12	77	109	4:1	148	6:1	222



STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED CROSS DRAINS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



GENERAL NOTES

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

- ① ADJUST VERTICAL CURVE LOCATION LATERALLY TO MAINTAIN 20:1 MAX.
- ② SIGNING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.
- ③ INSTALL DOUBLE YELLOW DELINEATOR. SEE STANDARD DETAIL DRAWING 15A2.

MAINTENANCE CROSSOVER
FOR FREEWAYS

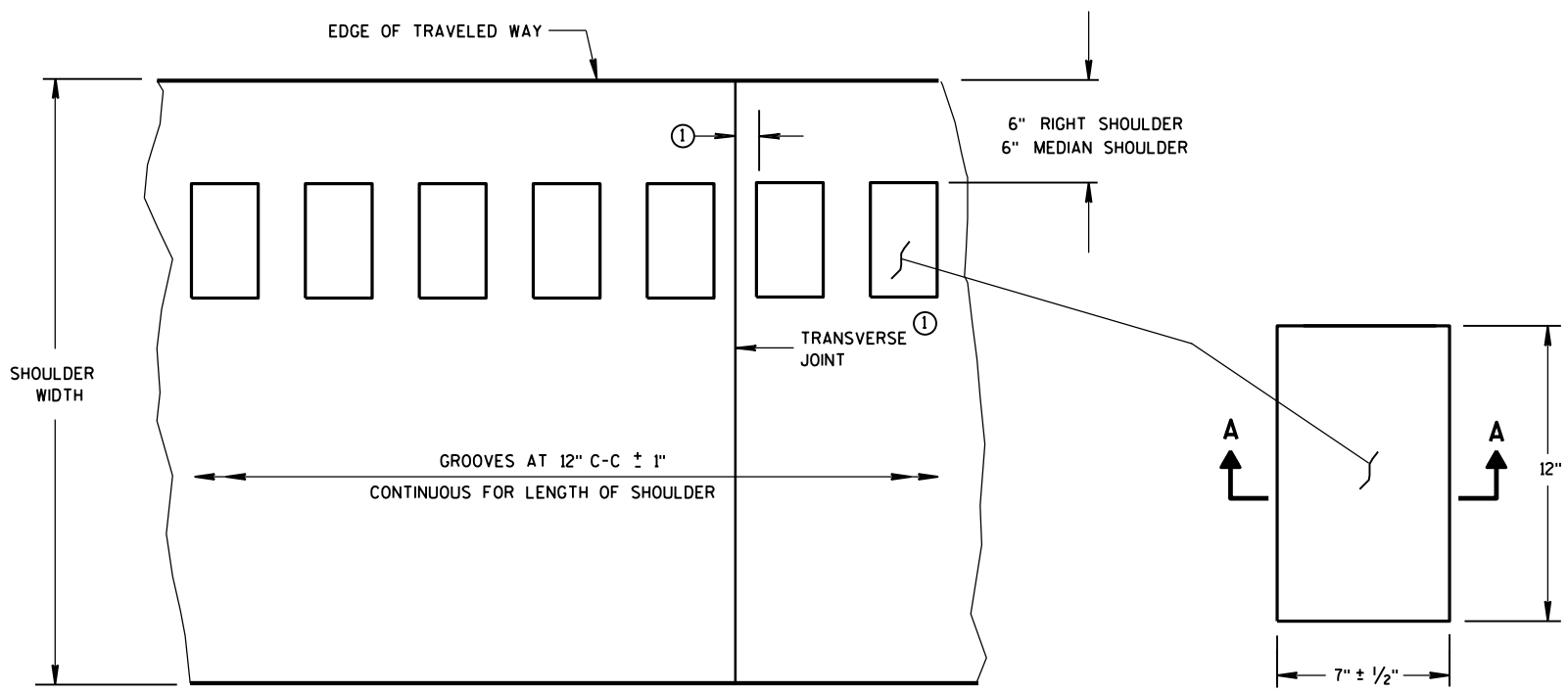
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

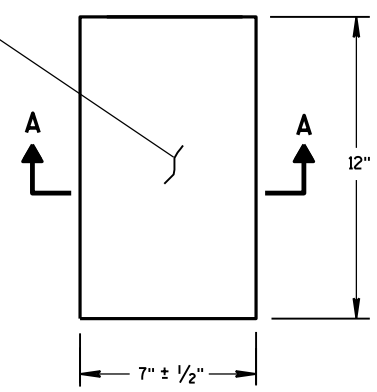
8/2013
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



PLAN VIEW
SHOULDER WITH GROOVES



PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

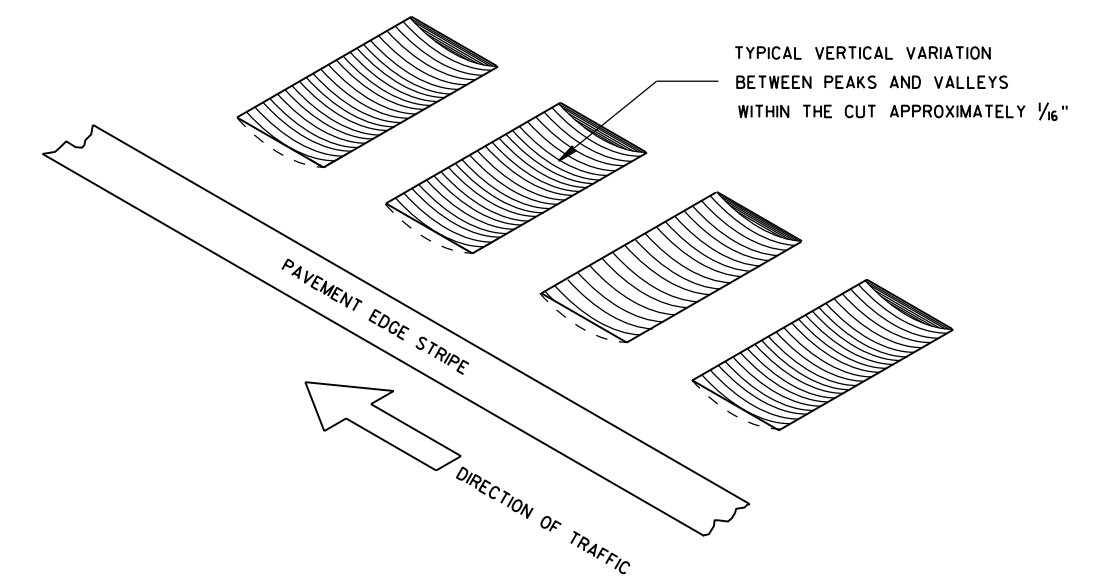
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

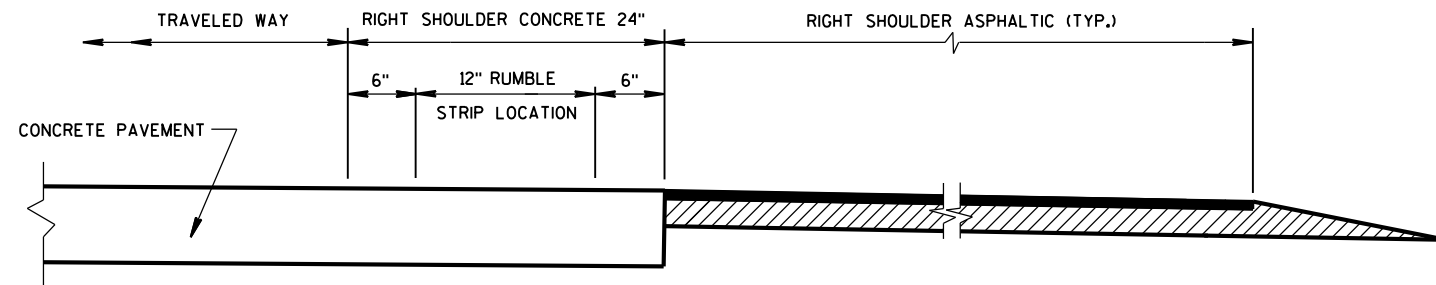
RUMBLE STRIPS ON EXPRESSWAYS

DO NOT INSTALL RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL DRIVEWAYS, PRIVATE DRIVEWAYS OR ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, BRIDGE DECKS, BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSING. THE ATTACHED STANDARD DETAIL DRAWING SHOWS THE LOCATION OF THE RUMBLE STRIPS AT INTERCHANGE AREAS.

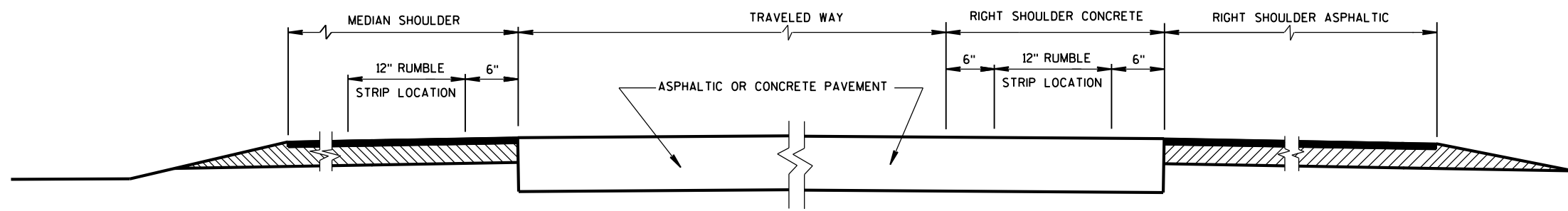
① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



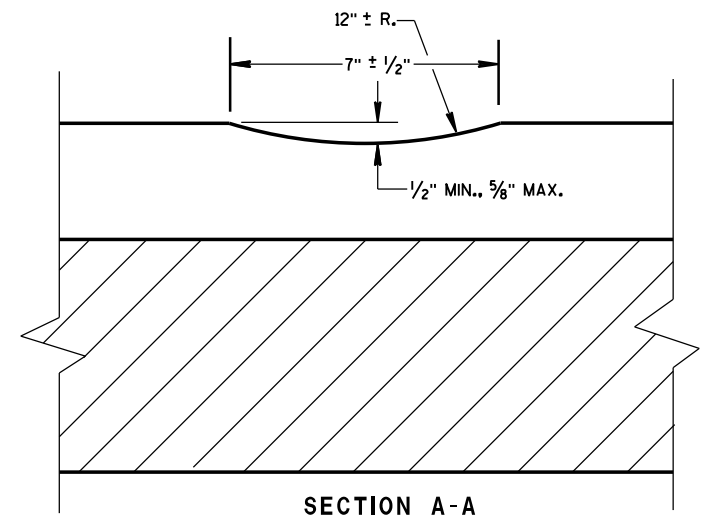
ISOMETRIC



SECTION VIEW
CONCRETE PAVEMENT EXTENDS INTO RIGHT SHOULDER)



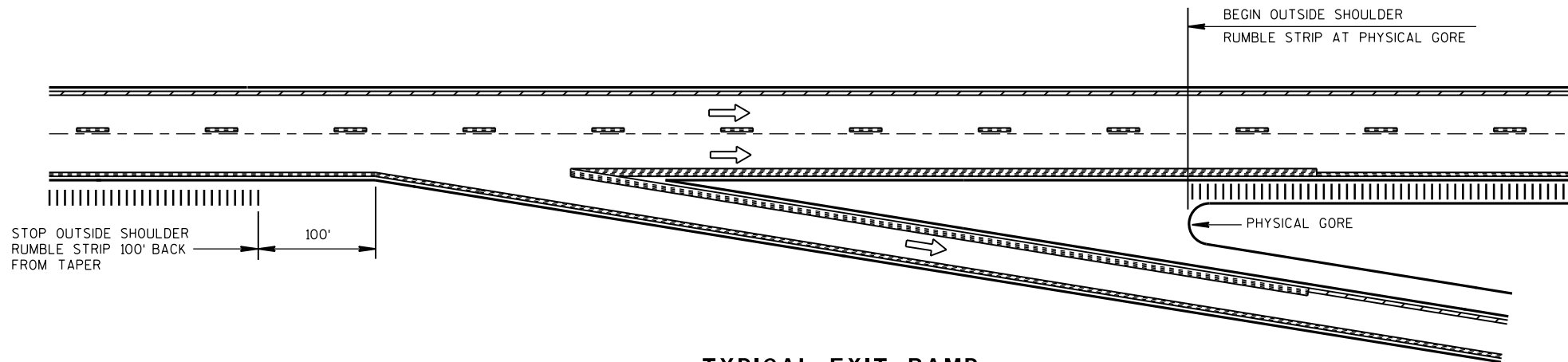
SECTION VIEW
TYPICAL LOCATIONS OF SHOULDER RUMBLE STRIPS
IN RURAL DIVIDED HIGHWAYS
(ONE ROADWAY IS SHOWN)



SECTION A-A

SHOULDER RUMBLE STRIP,
MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



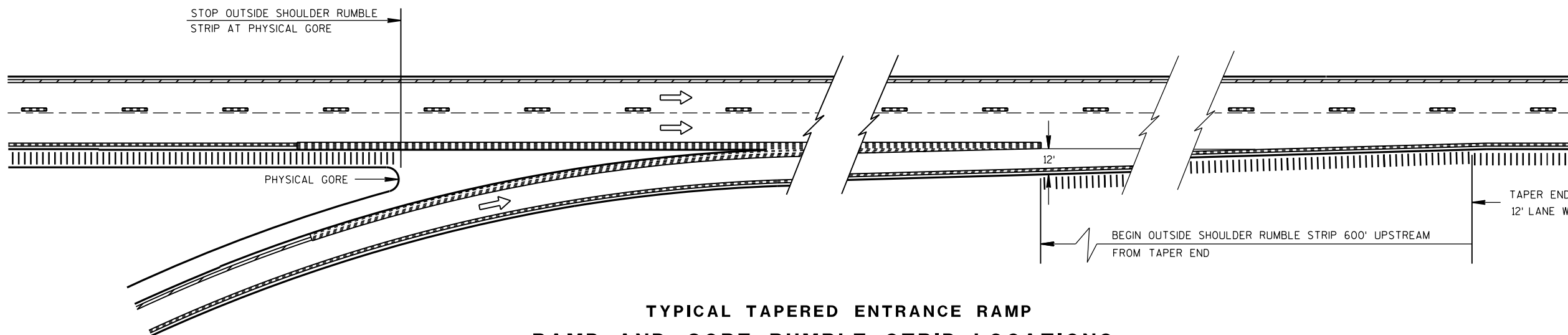
TYPICAL EXIT RAMP

NOTES:

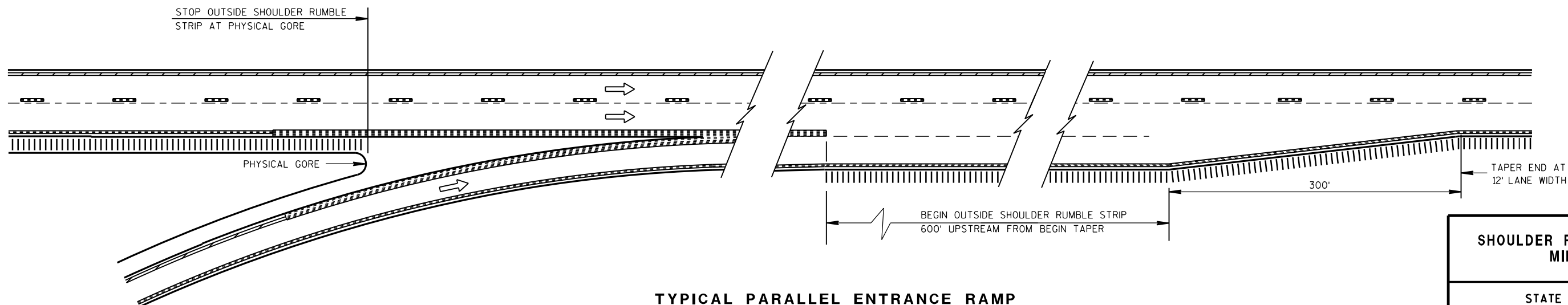
NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

NOTE:
ARROW SYMBOL (→)
SHOWS DIRECTION OF TRAVEL



**TYPICAL TAPERED ENTRANCE RAMP
RAMP AND GORE RUMBLE STRIP LOCATIONS**



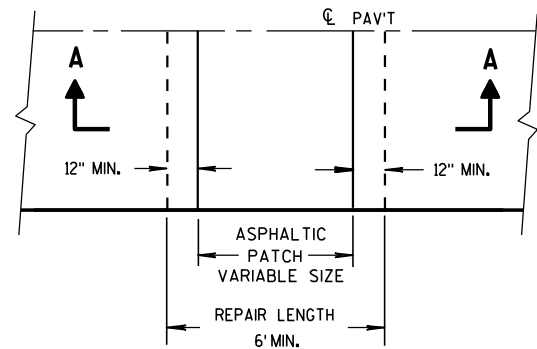
**TYPICAL PARALLEL ENTRANCE RAMP
RAMP AND GORE RUMBLE STRIP LOCATIONS**

**SHOULDER RUMBLE STRIP,
MILLING**

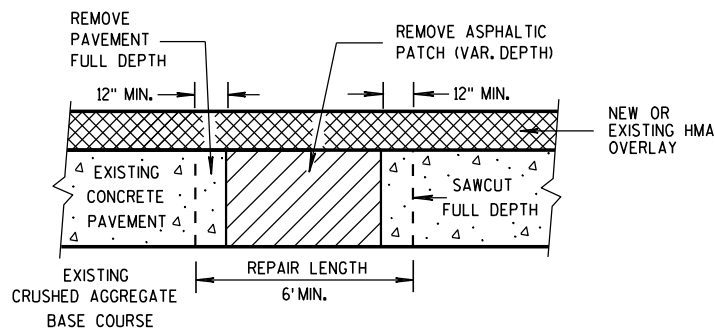
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/17/2012
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

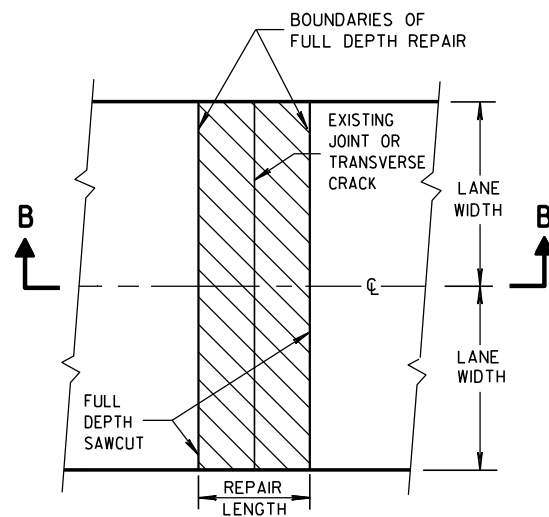


PLAN VIEW

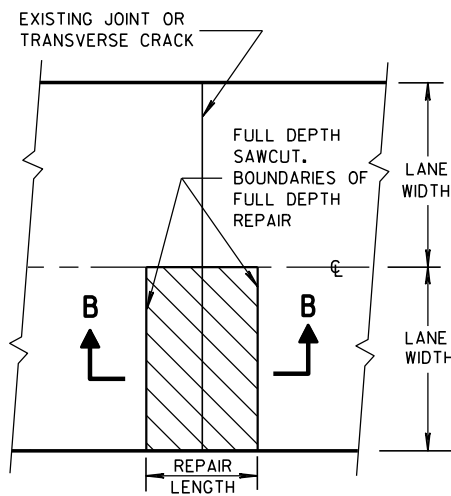


SECTION A-A

HMA PATCH REMOVAL



PLAN VIEW
(DOUBLE LANE REPAIR)



PLAN VIEW
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL

(SEE NOTE)

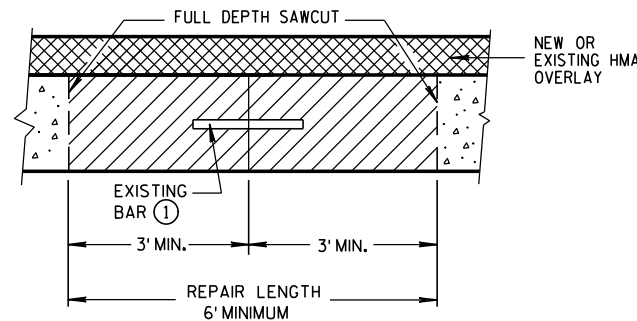
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES. ADDITIONAL SAW CUTS ARE NOT PAID FOR BY THE DEPARTMENT.

PROVIDE 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NONDOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

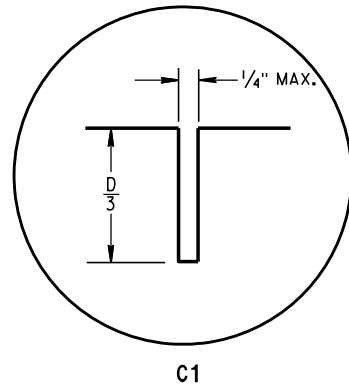
① DOWEL BARS MIGHT NOT EXIST.



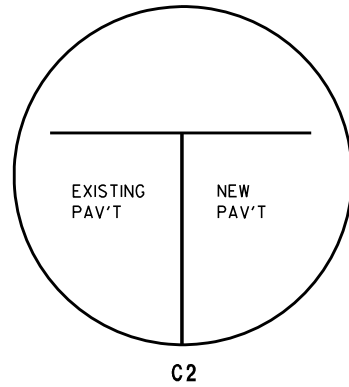
SECTION B-B
CONCRETE REMOVAL

BASE PATCHING CONCRETE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

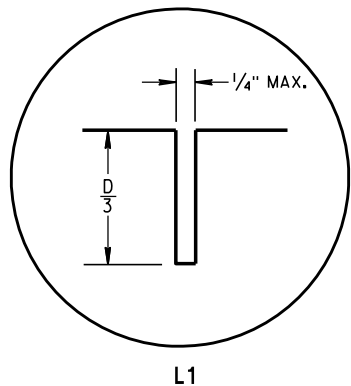


C1

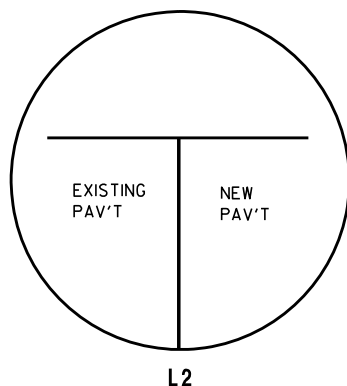


C2

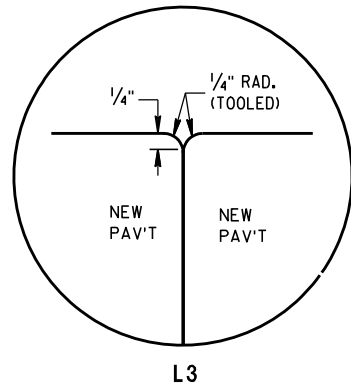
TRANSVERSE JOINTS



L1

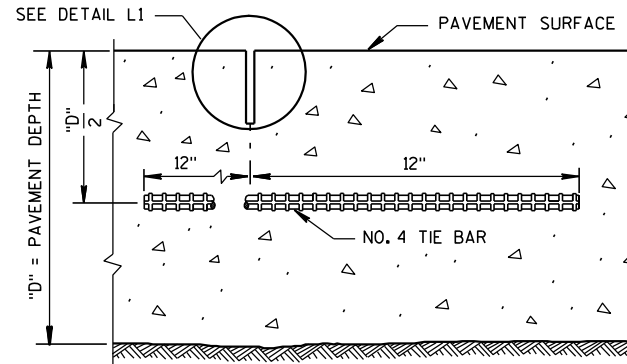


L2

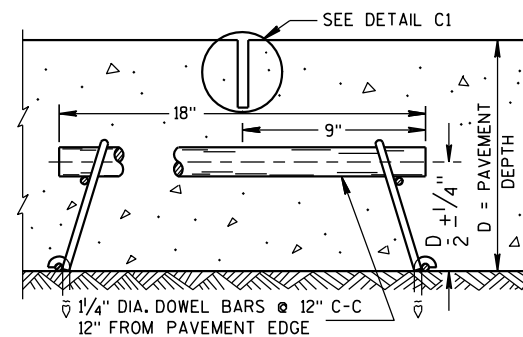


L3

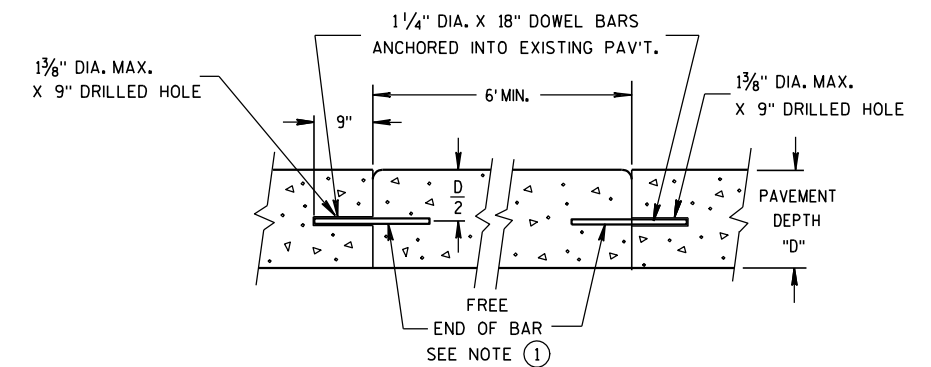
LONGITUDINAL JOINTS



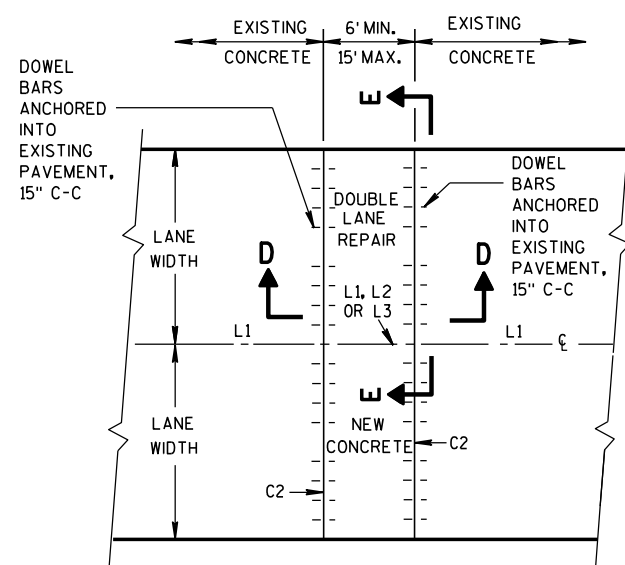
SECTION C-C
SAWED LONGITUDINAL JOINT



SECTION F-F
CONTRACTION JOINT

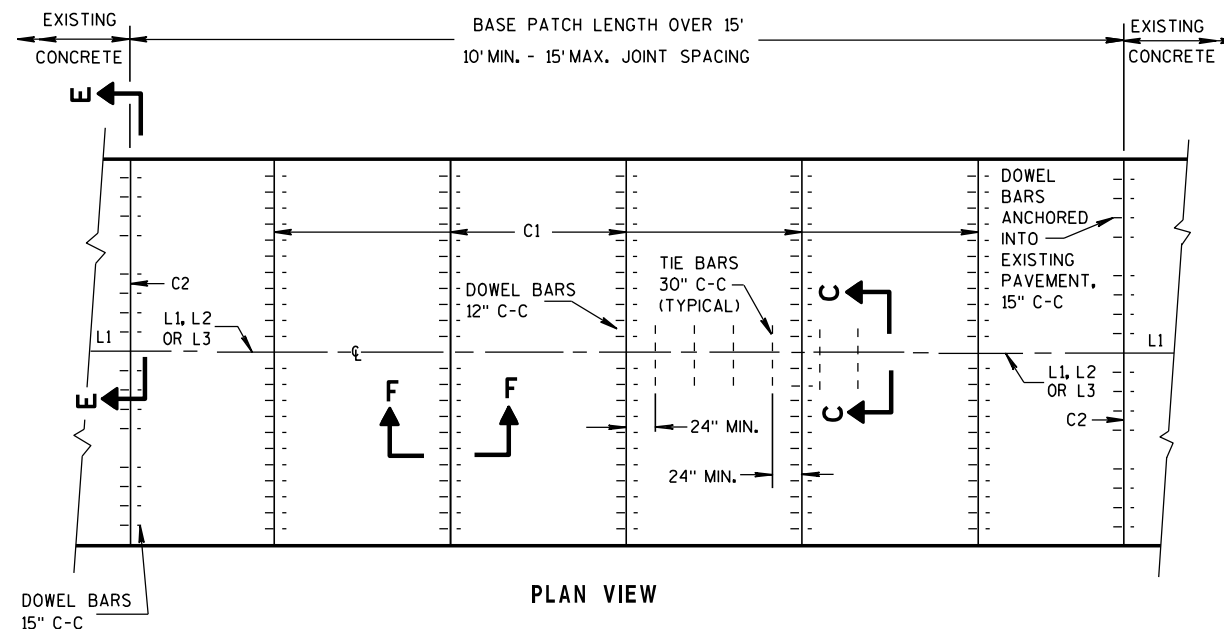


SECTION D-D



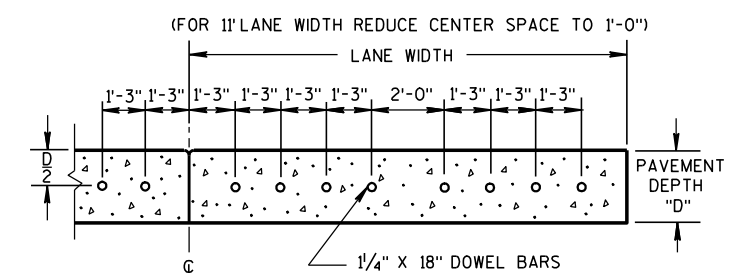
PLAN VIEW

MULTI-LANE CONCRETE BASE PATCH
15' MAXIMUM LENGTH



PLAN VIEW

MULTI-LANE CONCRETE BASE PATCH
GREATER THAN 15' IN LENGTH



SECTION E-E
SPACING OF DOWEL BARS
ANCHORED INTO EXISTING PAVEMENT

GENERAL NOTES

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

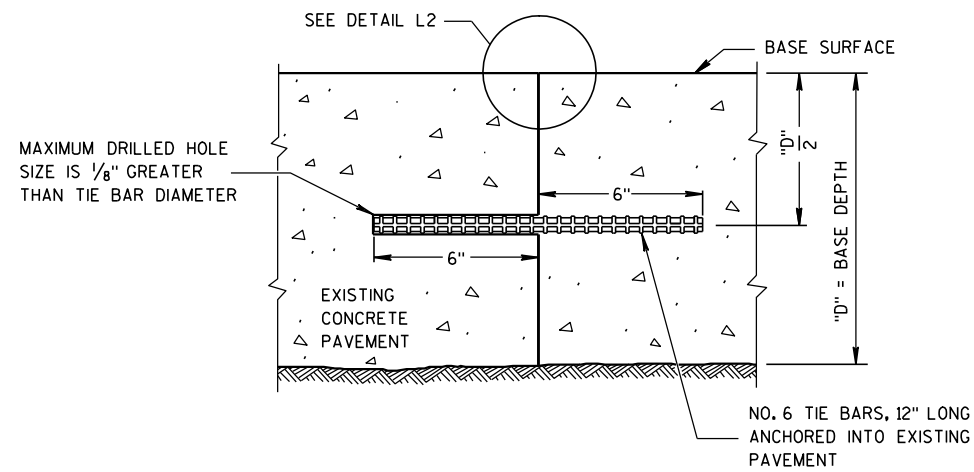
CONCRETE BASE PATCHES OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

DO NOT SEAL OR FILL JOINTS.

ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

PROVIDE A MINIMUM DISTANCE OF 24 INCHES FROM AN EXISTING TRANSVERSE JOINT OR THE EDGE OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

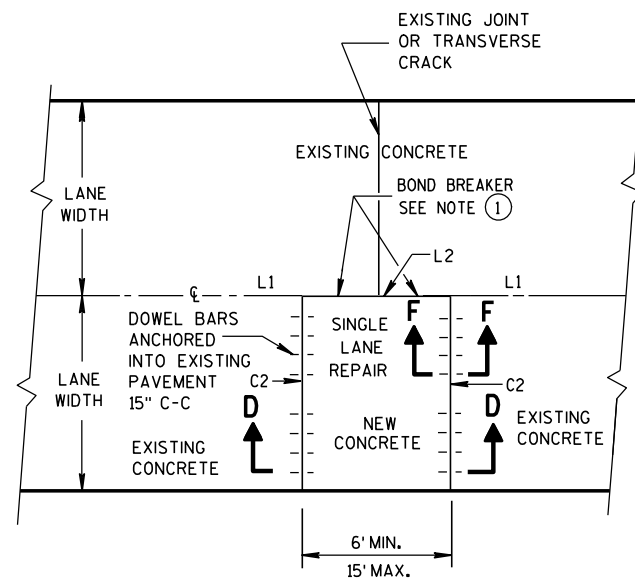
- APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



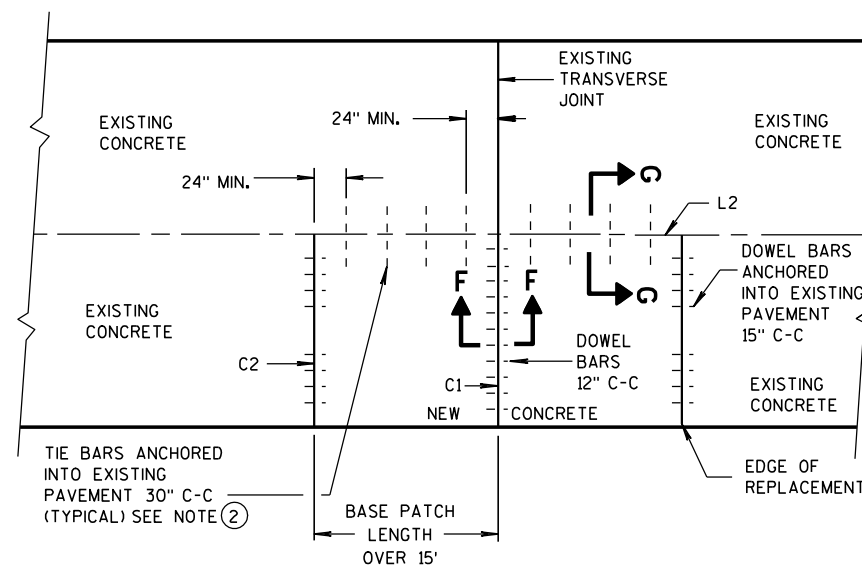
SECTION G-G
TIE BARS ANCHORED
INTO EXISTING PAVEMENT

GENERAL NOTES

- ① USE AN ENGINEER-APPROVED BOND BREAKER FOR SINGLE LANE BASE PATCHES UP TO 15 FEET IN LENGTH.
- ② WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, DRILLED TIE BARS MAY BE INSTALLED ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES AND TO SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.



PLAN VIEW
SINGLE LANE CONCRETE BASE PATCH
15' MAXIMUM LENGTH



PLAN VIEW
SINGLE LANE CONCRETE BASE PATCH
GREATER THAN 15' IN LENGTH

BASE PATCHING CONCRETE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

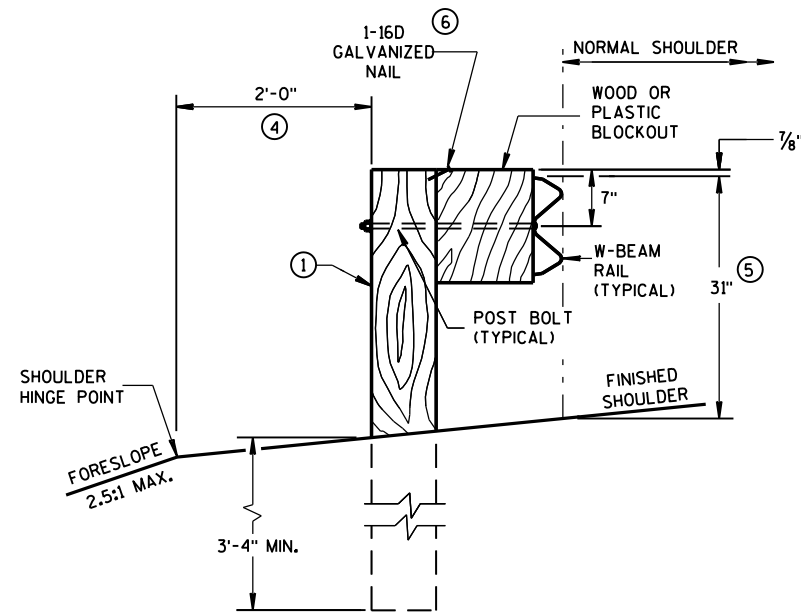
12-11-2009
DATE

FHWA

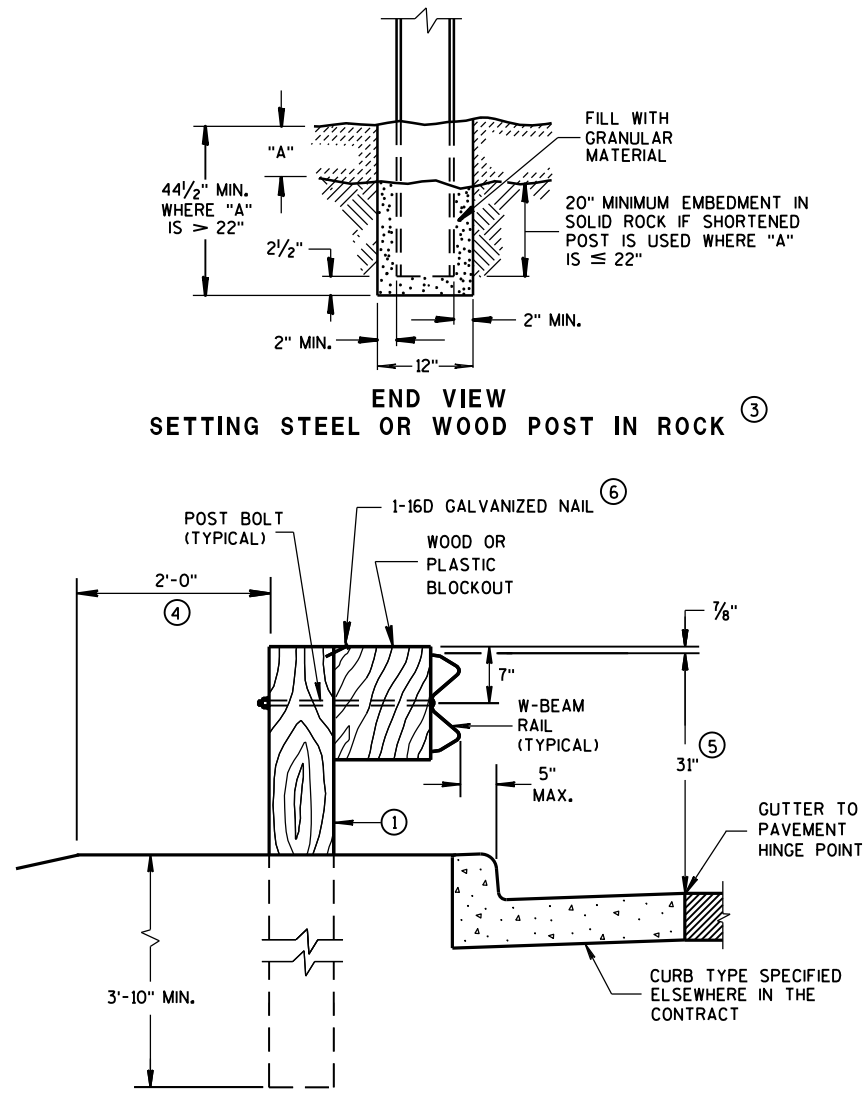
/S/ Deb Bischoff
PAVEMENT POLICY & DESIGN ENGINEER

GENERAL NOTES

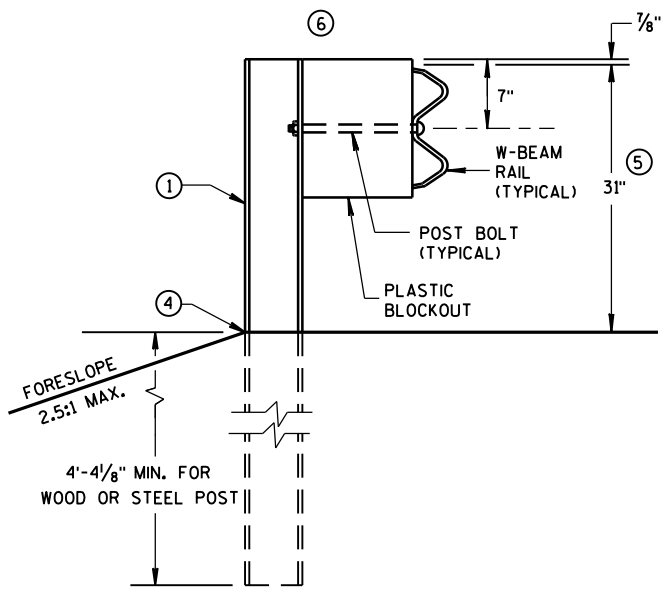
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL.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



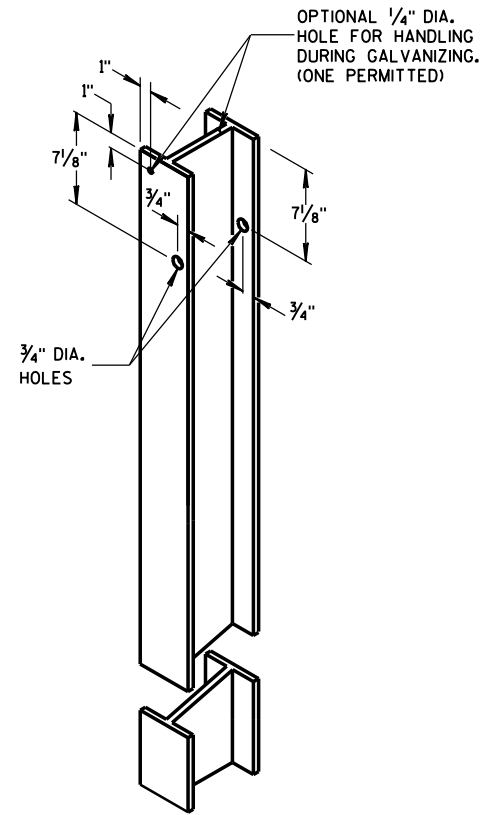
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



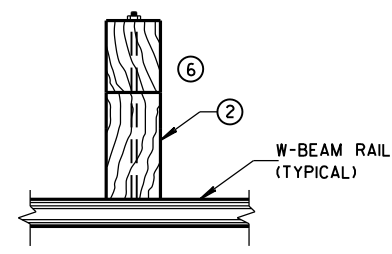
END VIEW
LOCATED ALONG A CURBED ROADWAY



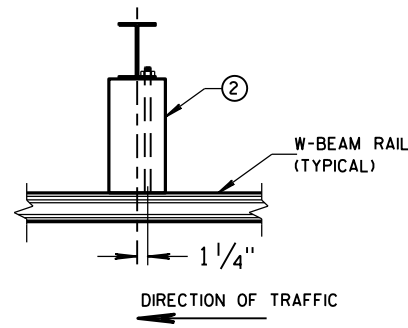
END VIEW
MGS LONGER POST AT HALFPST SPACING W BEAM (K)



STEEL POST &
HOLE PUNCHING DETAIL
(w6X9)



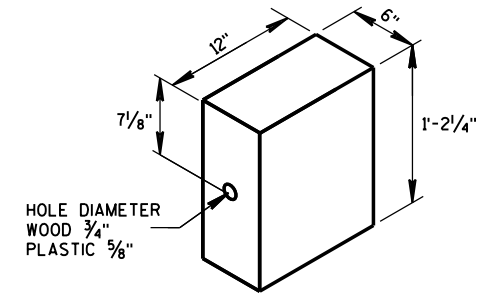
PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



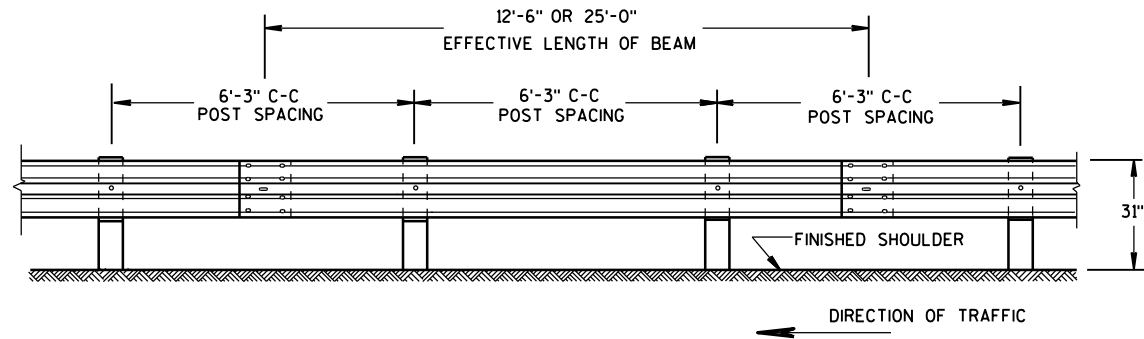
PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM



WOOD POST
(6" X 8") NOMINAL

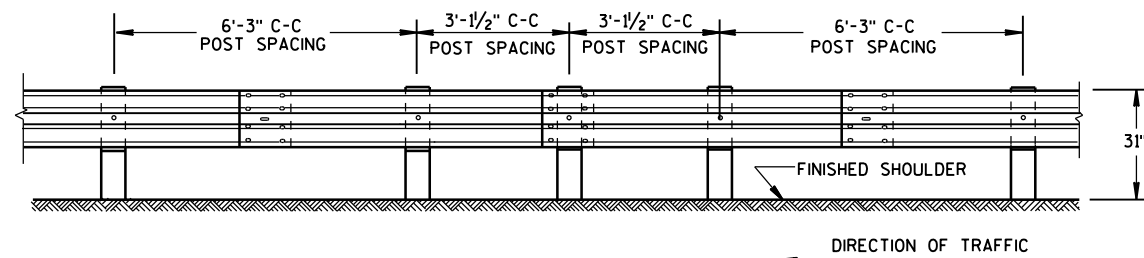


WOOD OR
PLASTIC BLOCKOUT



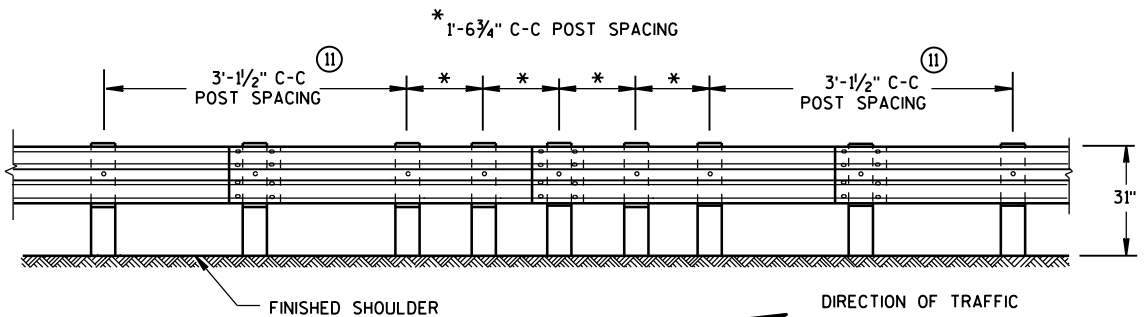
FRONT VIEW

POST SPACING STANDARD INSTALLATION



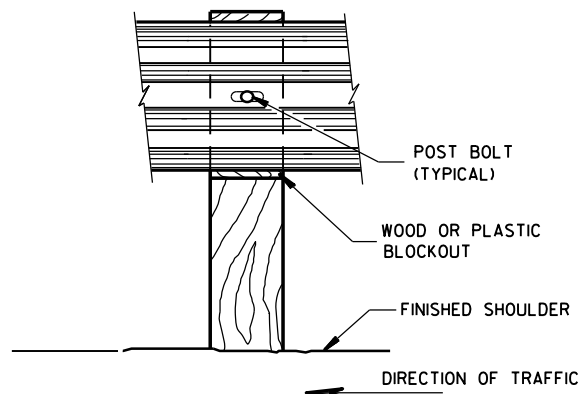
FRONT VIEW

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

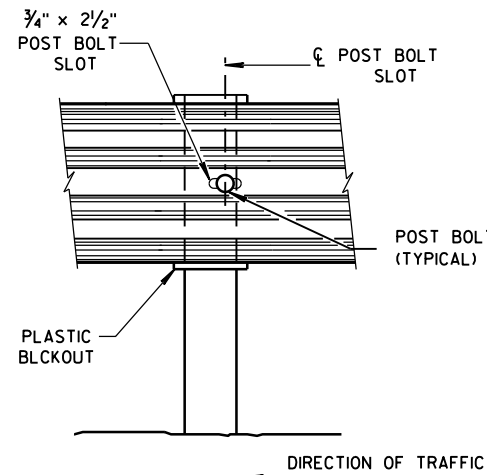


FRONT VIEW

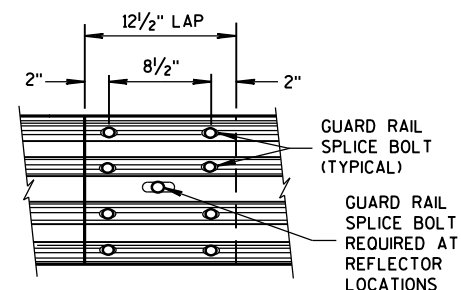
QUARTER POST SPACING (QS)



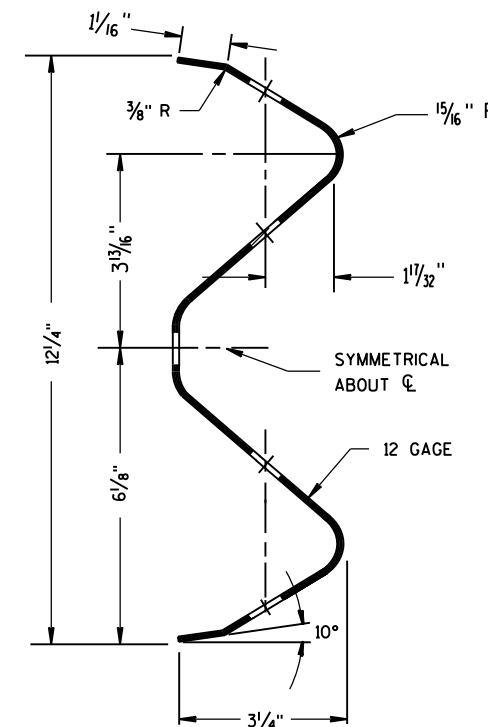
FRONT VIEW AT WOOD POST



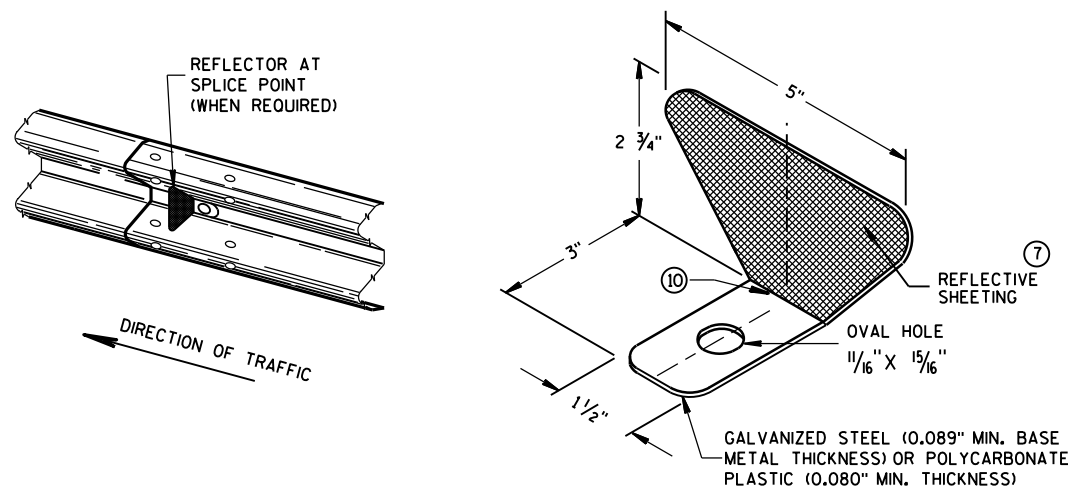
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

GENERAL NOTES

- ⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
- ⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ⑩ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
- ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND $\frac{5}{8}$ " DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

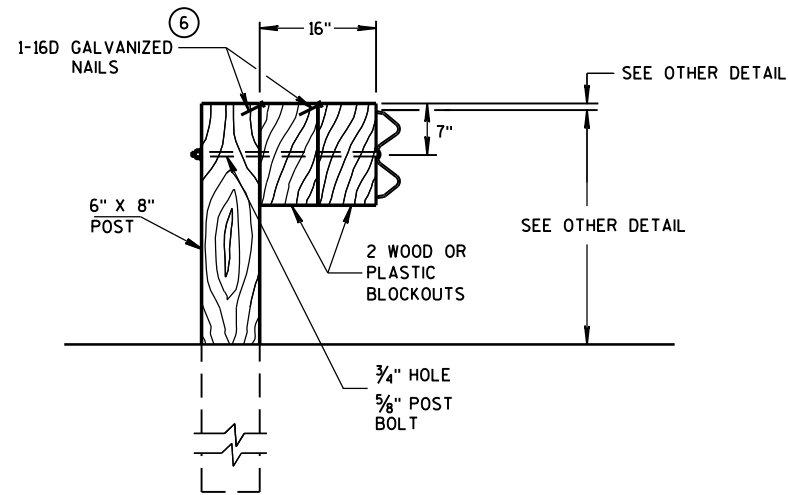
GUARD RAIL SPLICE BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING

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

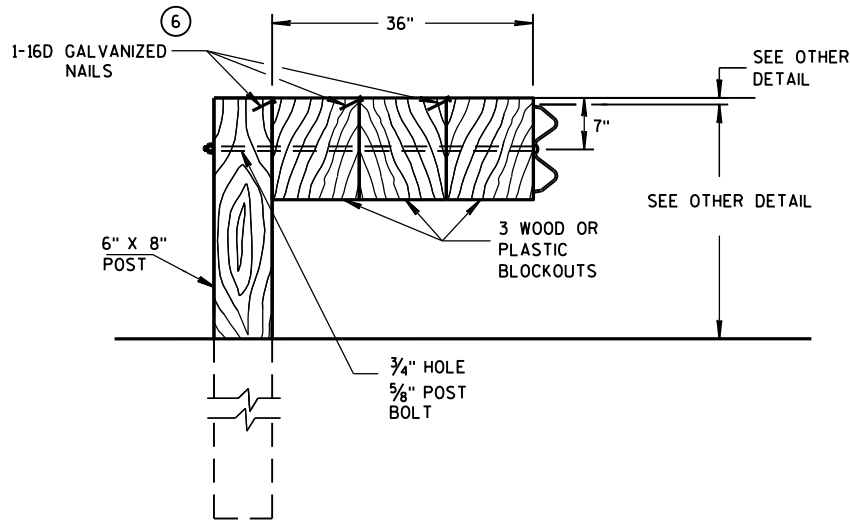
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

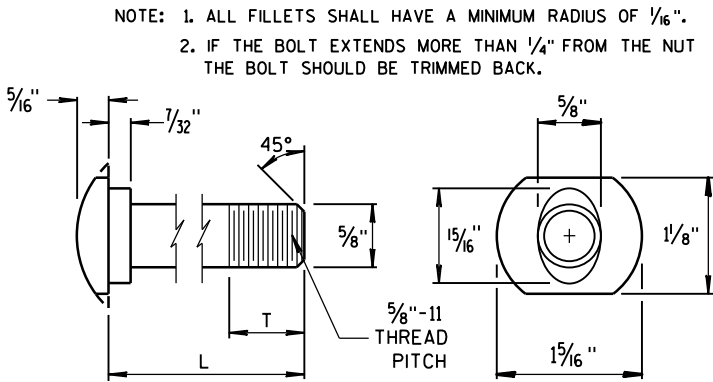
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



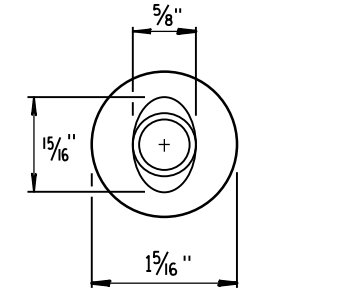
DETAIL FOR 36" BLOCKOUT DEPTH

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

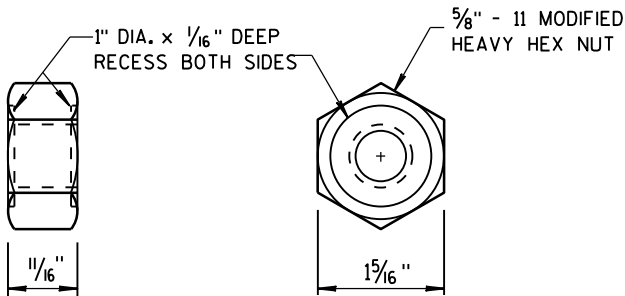
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



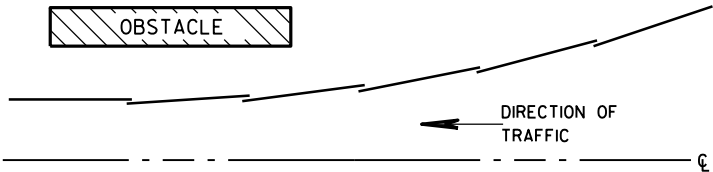
POST BOLT TABLE



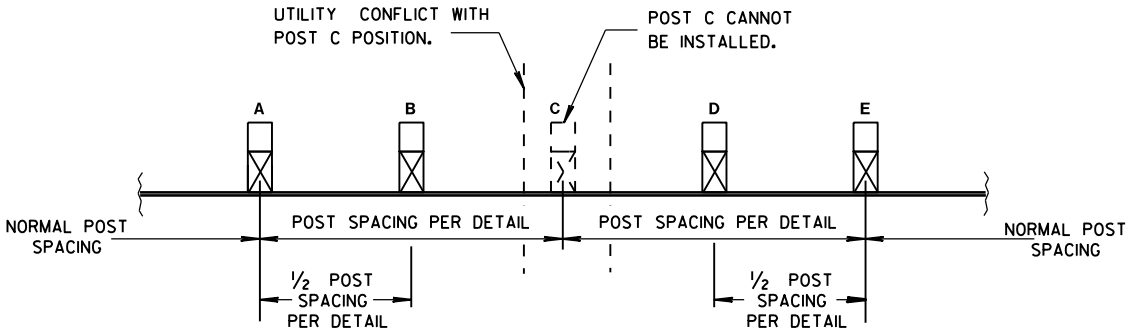
ALTERNATE BOLT HEAD



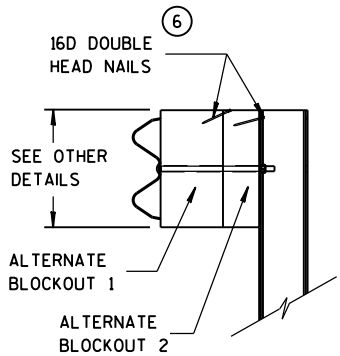
POST BOLT AND RECESS NUT



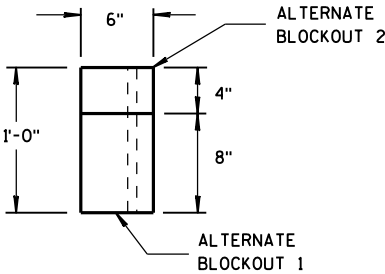
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



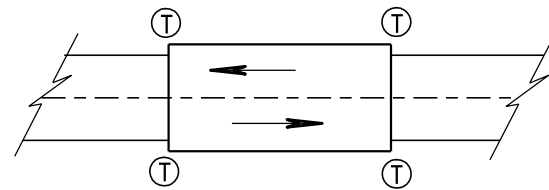
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

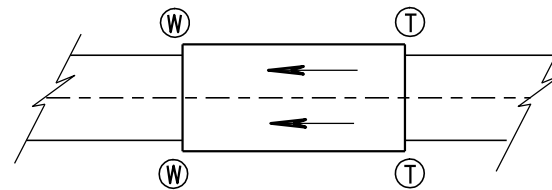
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION



ONE WAY TRAFFIC

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

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

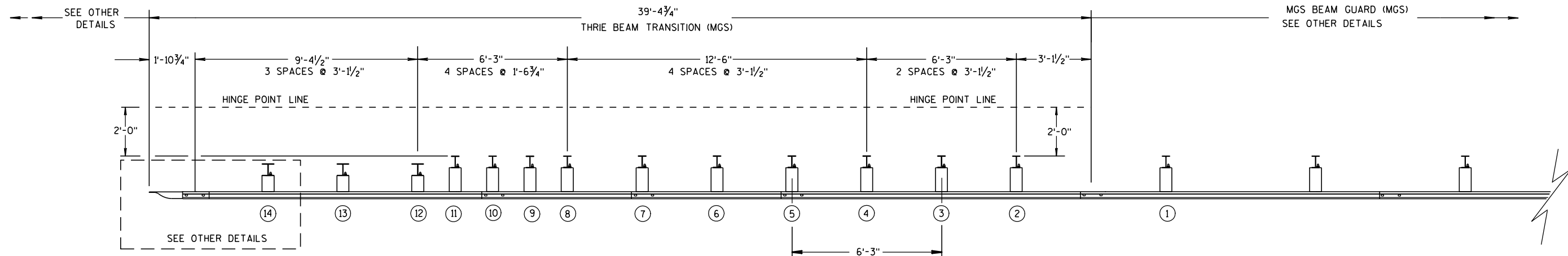
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

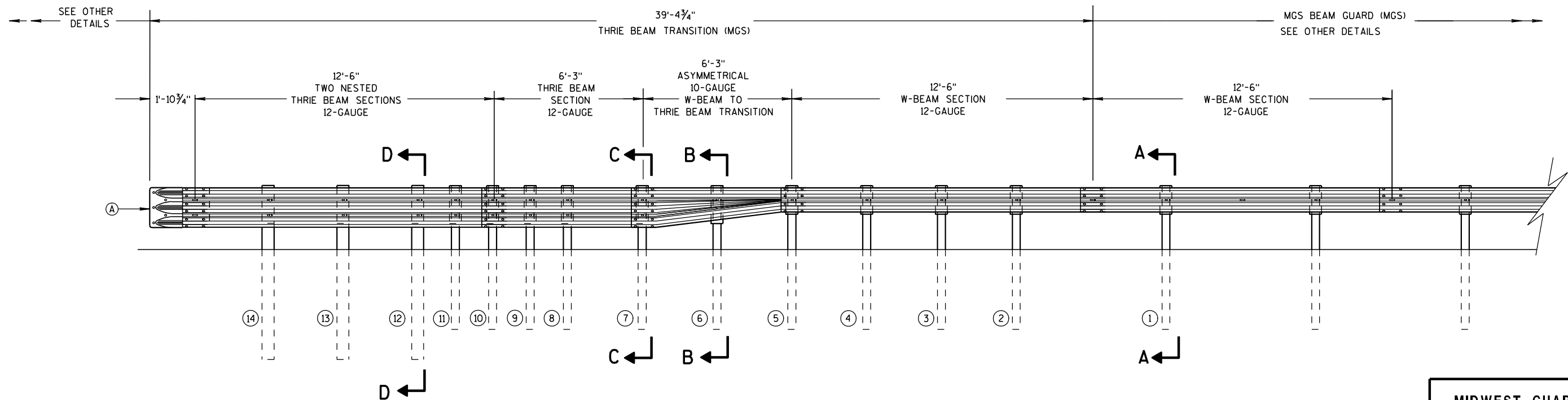
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

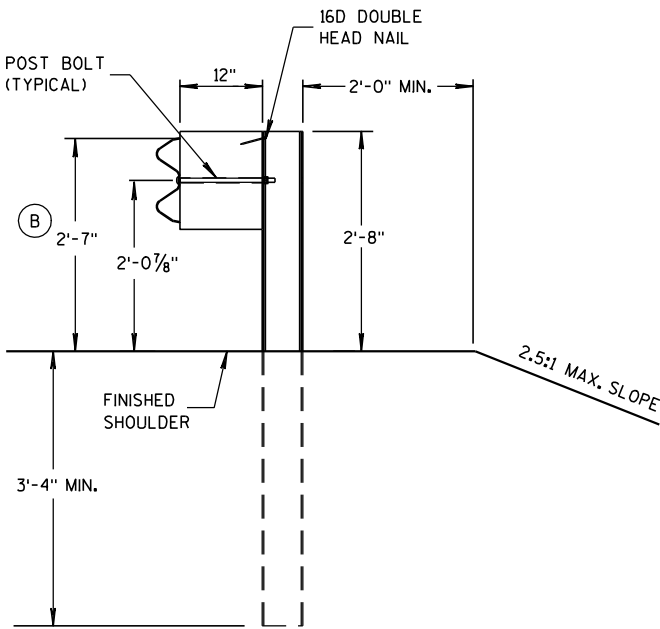
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

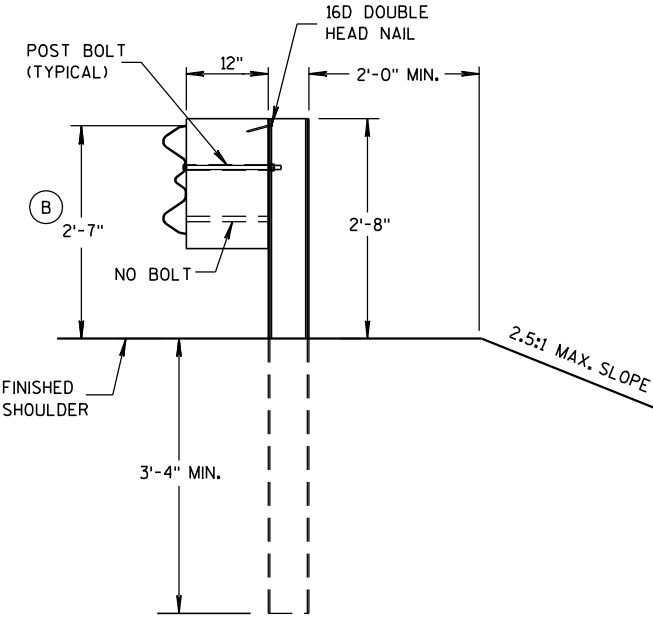
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

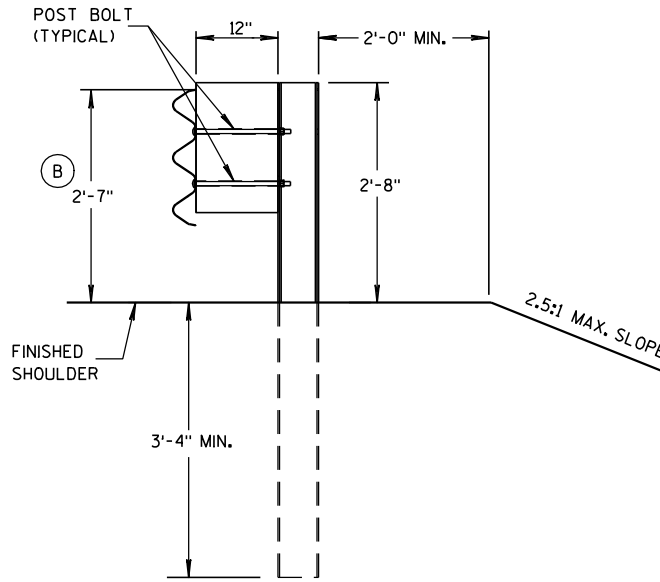
(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



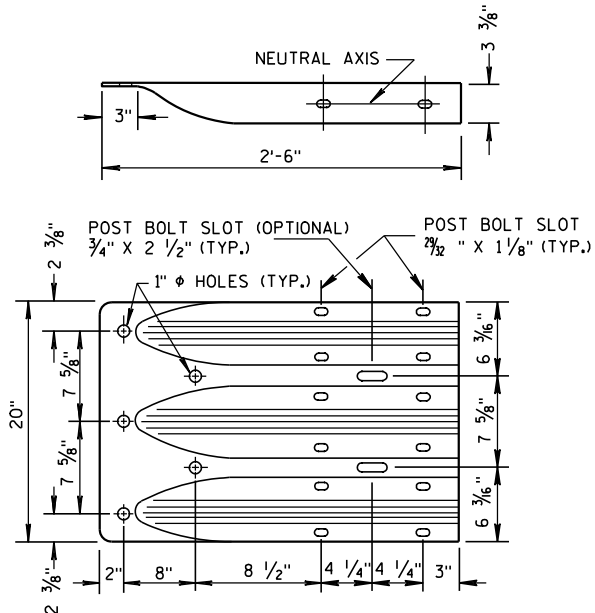
SECTION A-A
POSTS 1-5



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11



THRIE BEAM
TERMINAL CONNECTOR

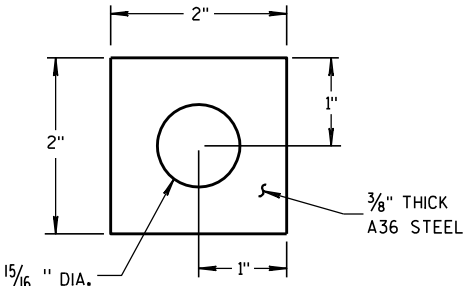
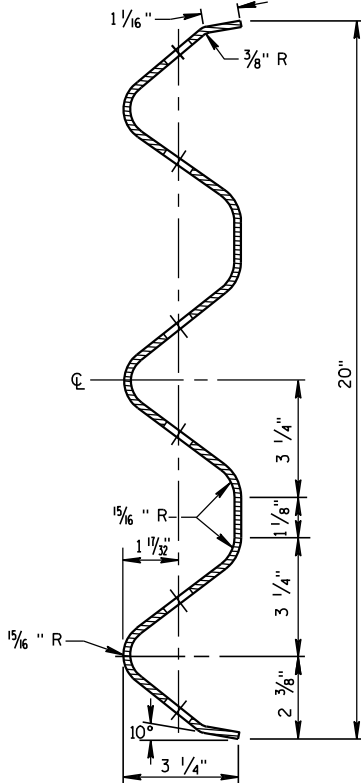
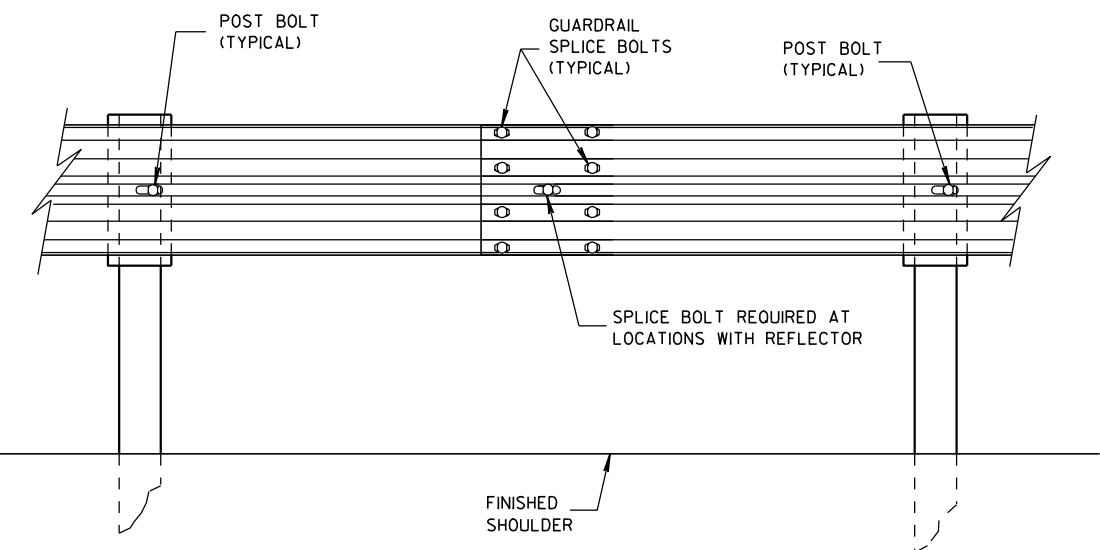


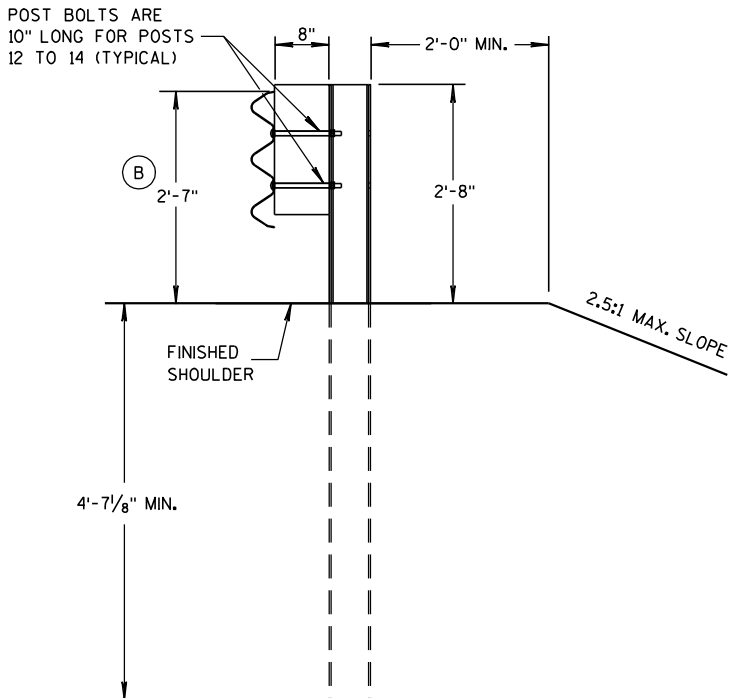
PLATE WASHER DETAIL



SECTION THRU THRIE
BEAM RAIL ELEMENT



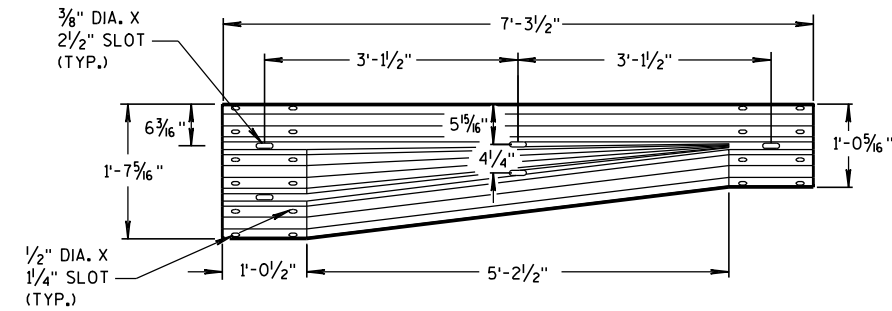
SPLICE DETAIL



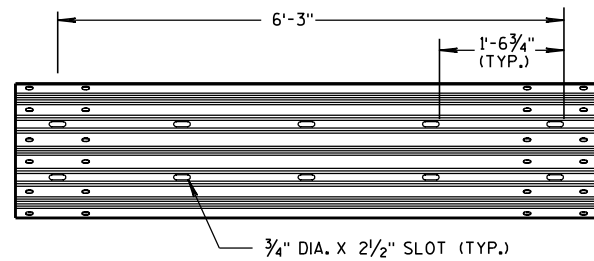
SECTION D-D
POSTS 12-14

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

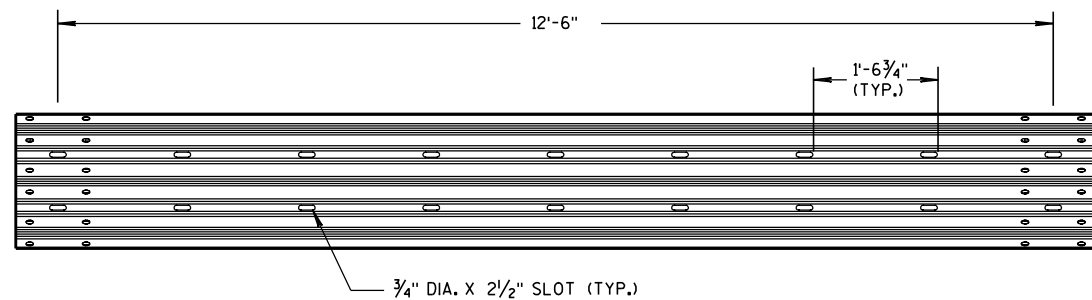
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



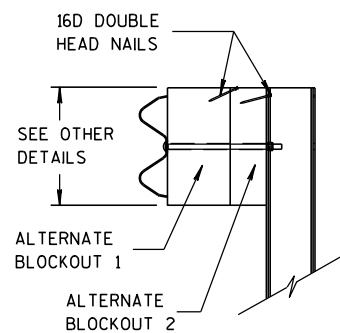
W-BEAM TO THRIE BEAM TRANSITION SECTION



6'-3" THRIE BEAM SECTION

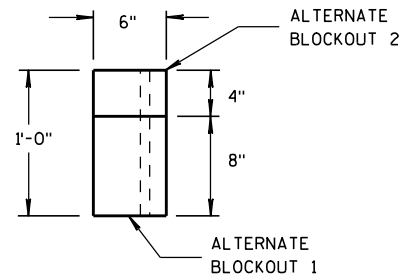


12'-6" THRIE BEAM SECTION

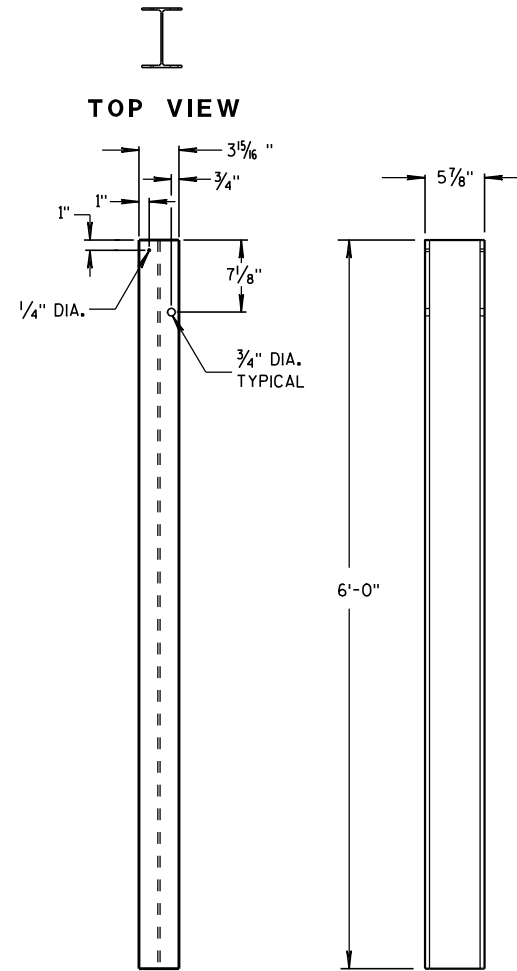


SIDE VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



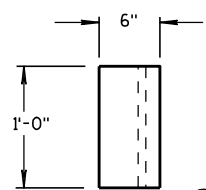
TOP VIEW



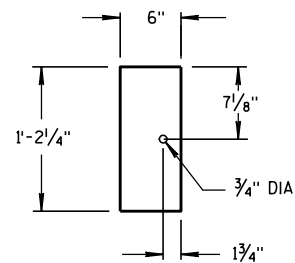
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

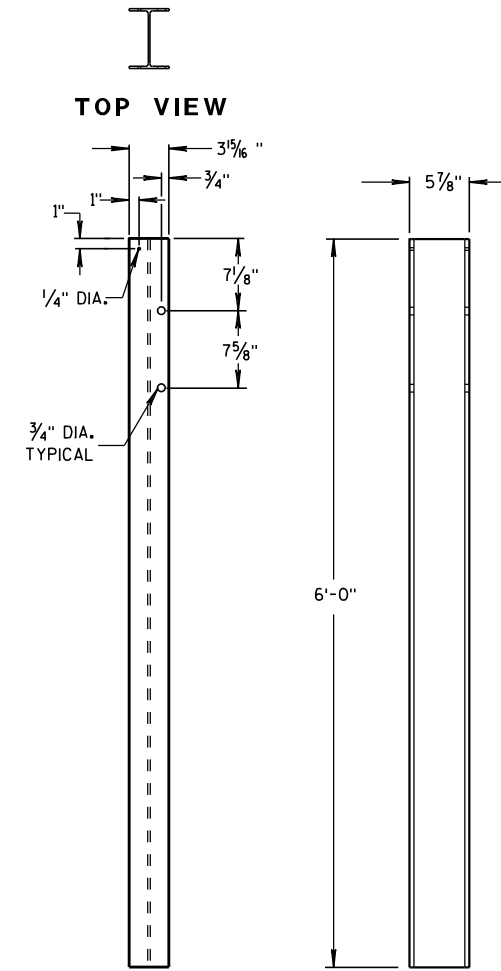


TOP VIEW



FRONT VIEW

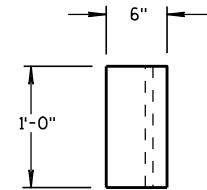
BLOCKOUT POSTS 1-5



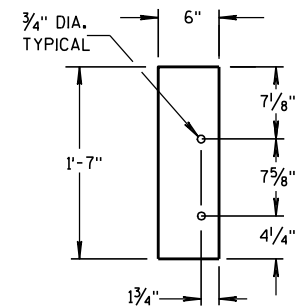
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-11

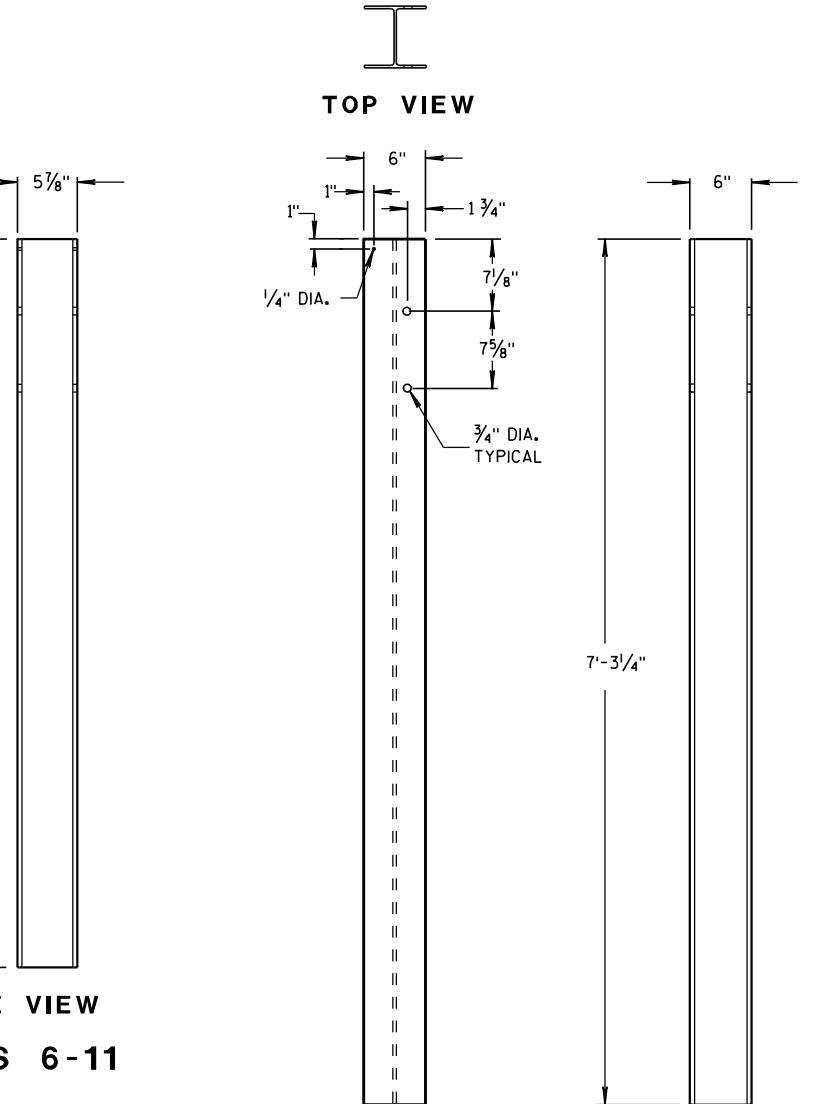


TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-11



FRONT VIEW

SIDE VIEW

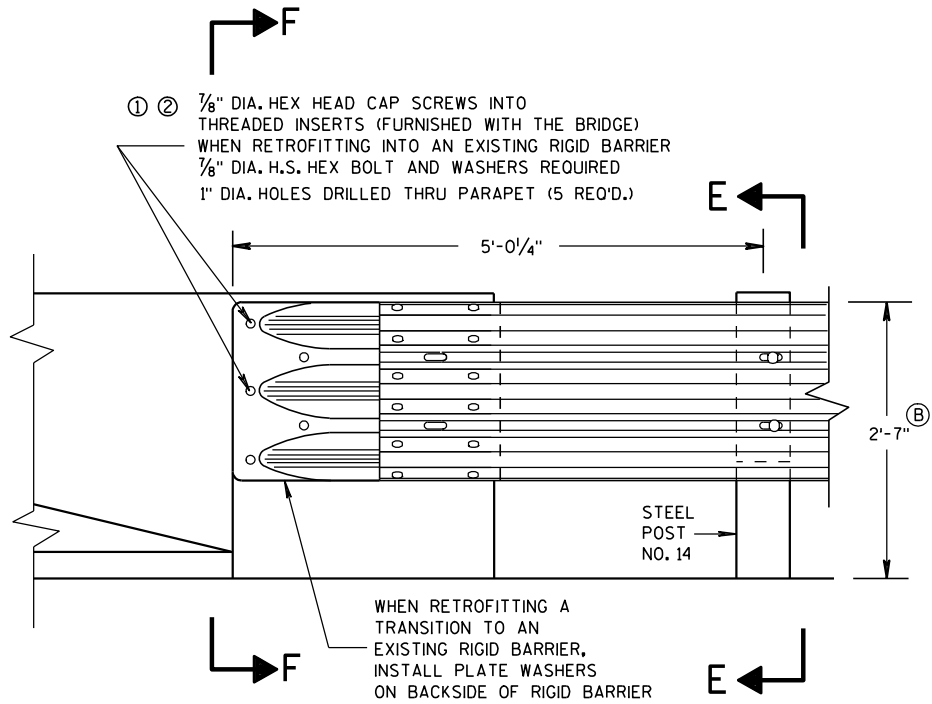
STEEL POSTS 12-14

STEEL POST SIZES

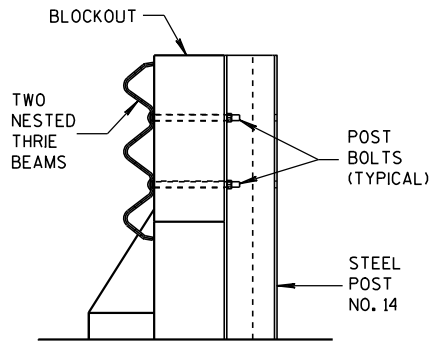
POST NUMBER	SECTION TYPE	LENGTH
①	W6x9	72"
②	W6x9	72"
③	W6x9	72"
④	W6x9	72"
⑤	W6x9	72"
⑥	W6x9	72"
⑦	W6x9	72"
⑧	W6x9	72"
⑨	W6x9	72"
⑩	W6x9	72"
⑪	W6x9	72"
⑫	W6x15	87 1/8"
⑬	W6x15	87 1/8"
⑭	W6x15	87 1/8"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



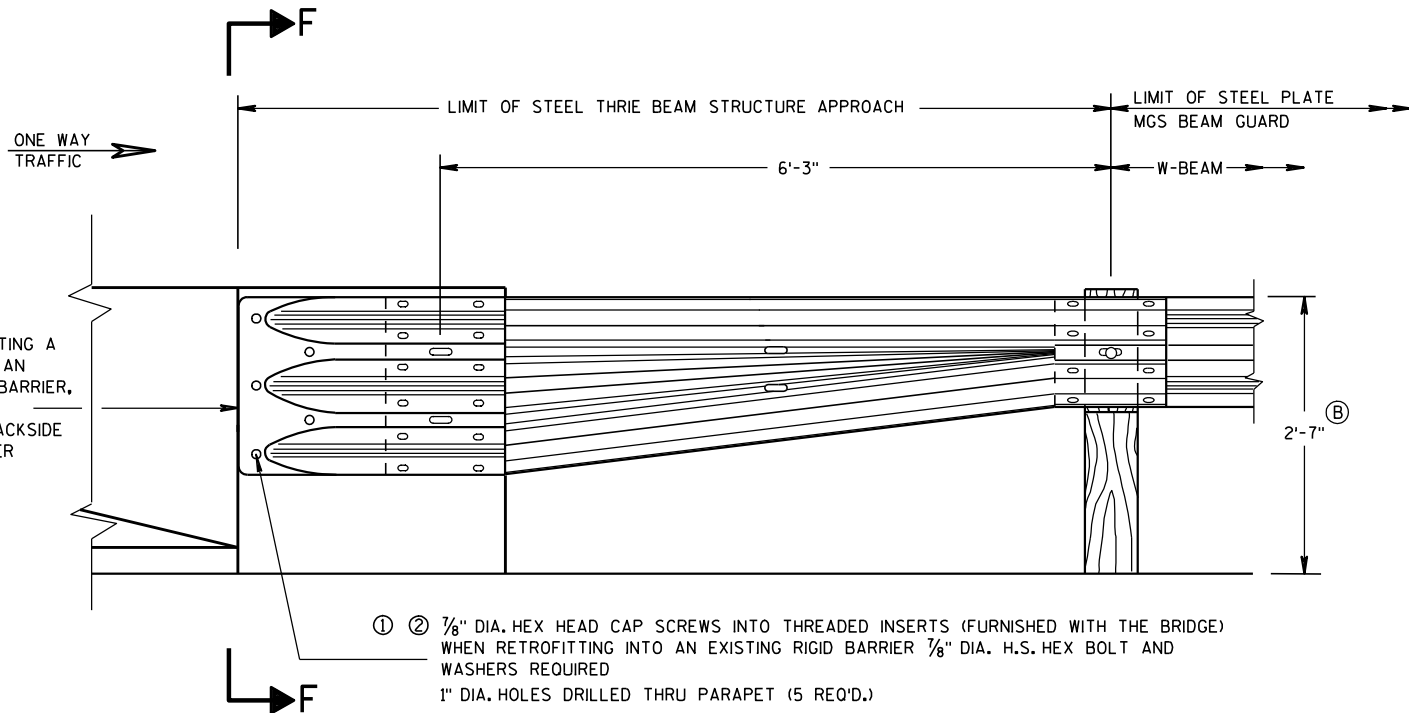
FRONT VIEW
THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS



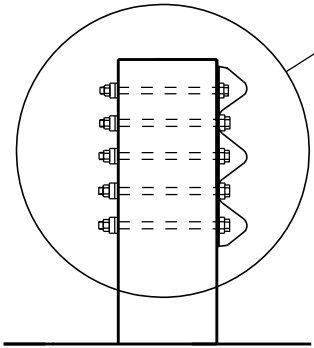
SECTION E-E

GENERAL NOTES

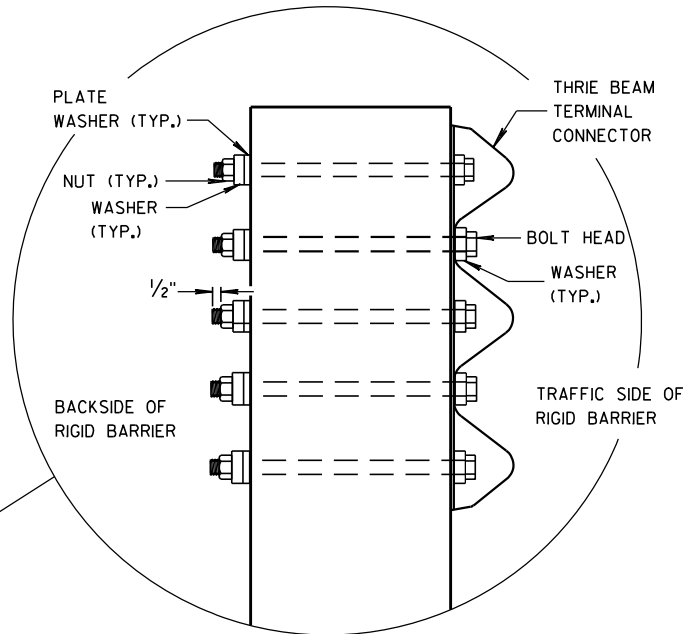
- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
 - ② BOLTS MAY BE A325 BOLTS OR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



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



SECTION F-F

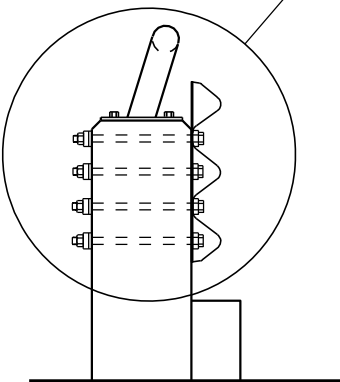
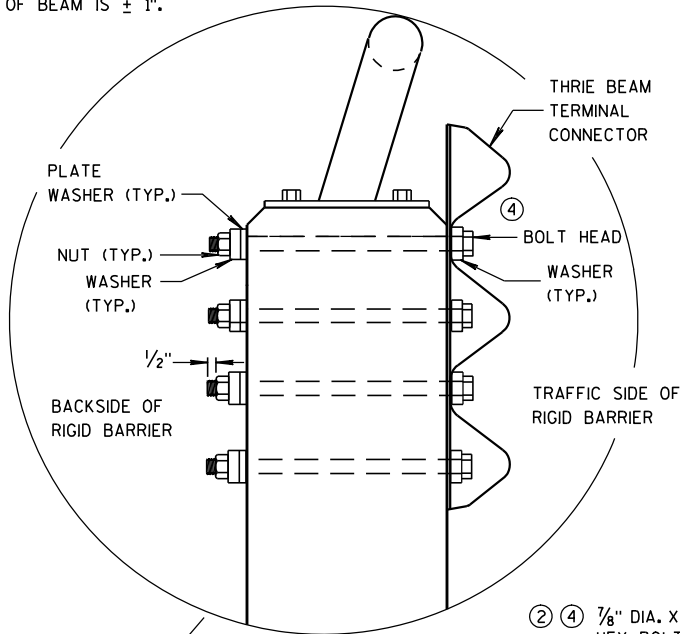


MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/31/2012 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

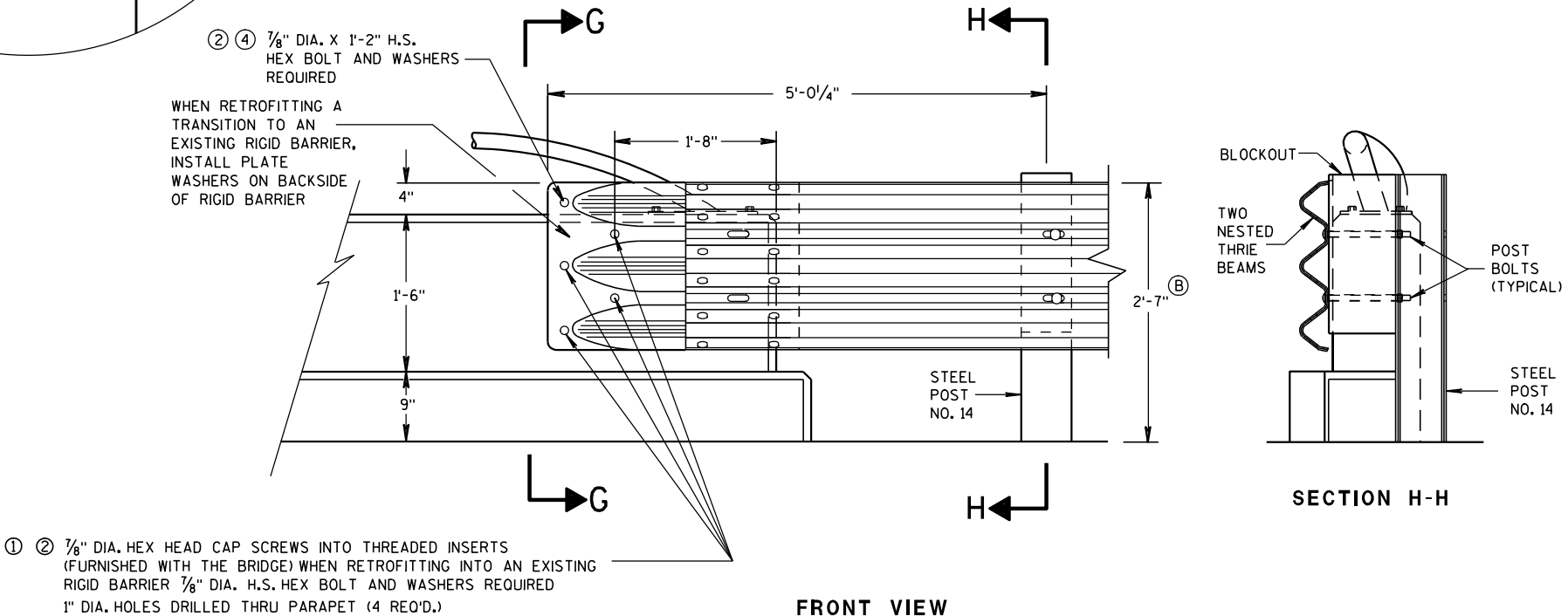
GENERAL NOTES

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

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

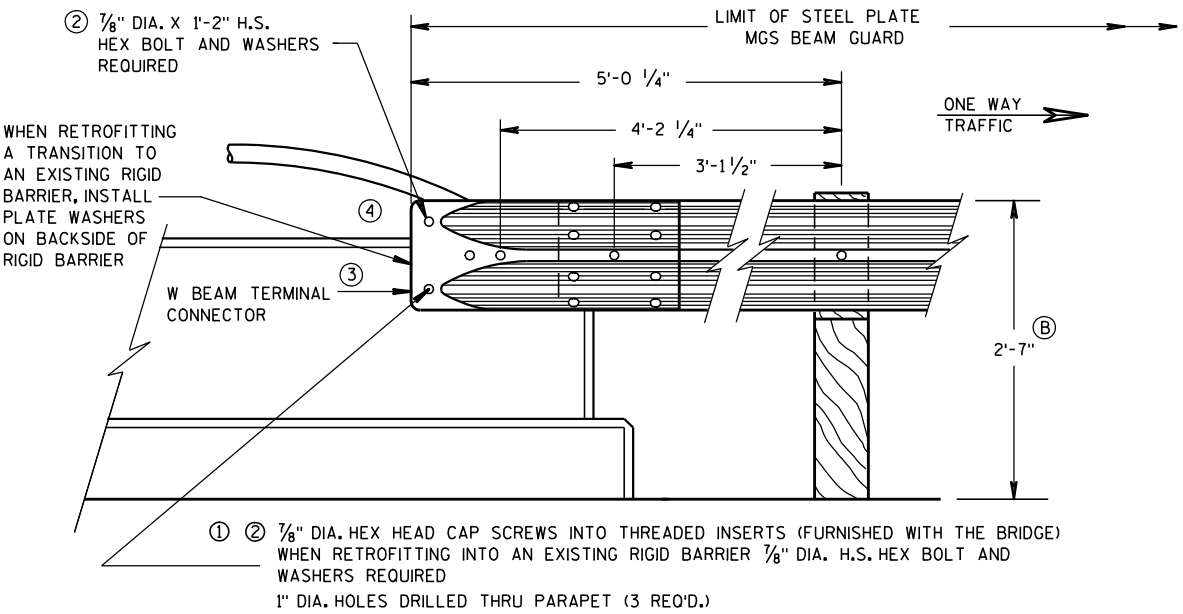


SECTION G-G



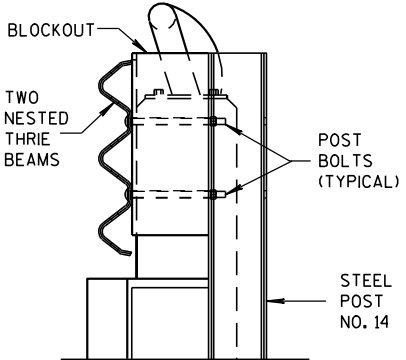
FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

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

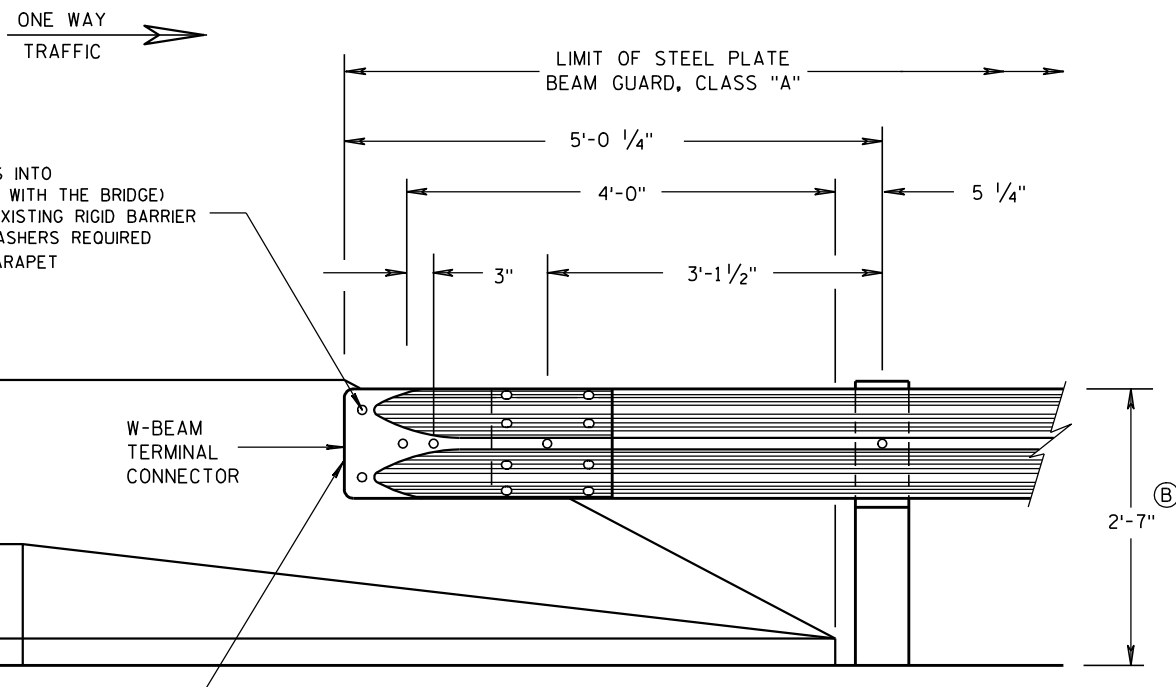


SECTION H-H

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



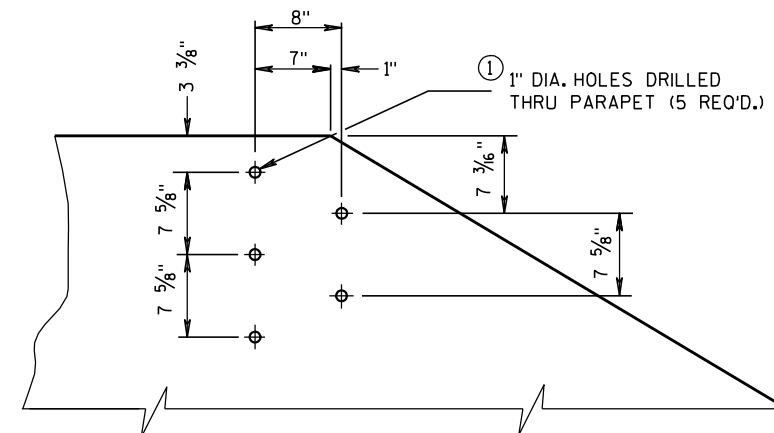
FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

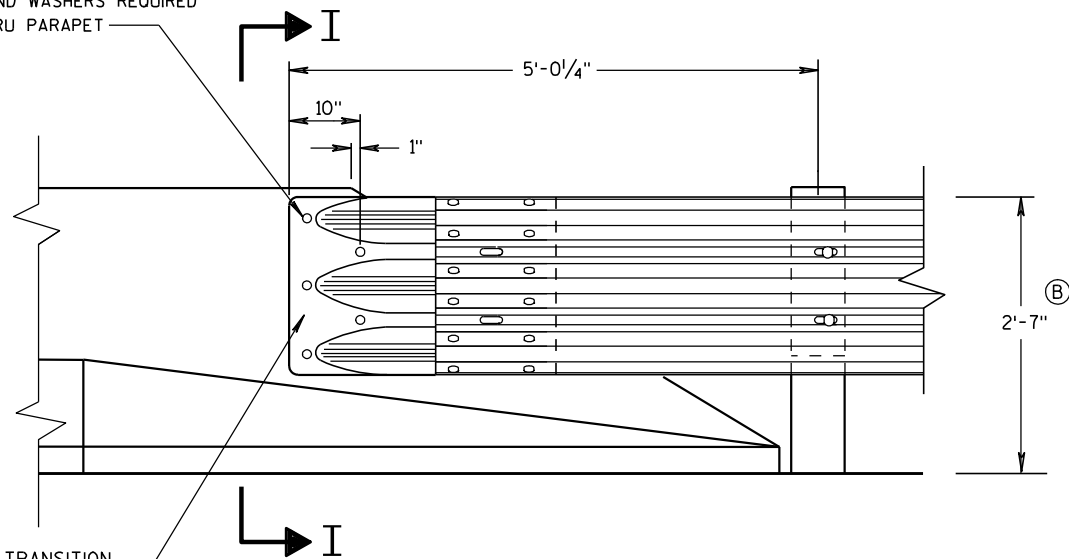
GENERAL NOTES

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.



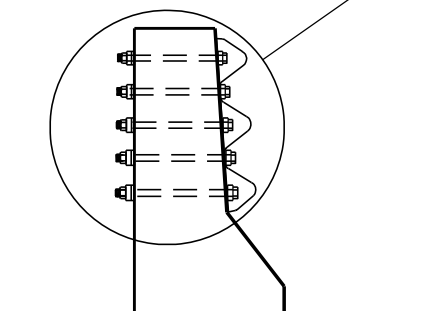
DRILL HOLE LOCATION AND PATTERN FOR THRIE BEAM CONNECTION

- ① ② 1/8" DIA. HEX HEAD CAP SCREWS INTO
THREADED INSERTS (FURNISHED WITH THE BRIDGE)
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
1/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET
(5 REQ'D.)

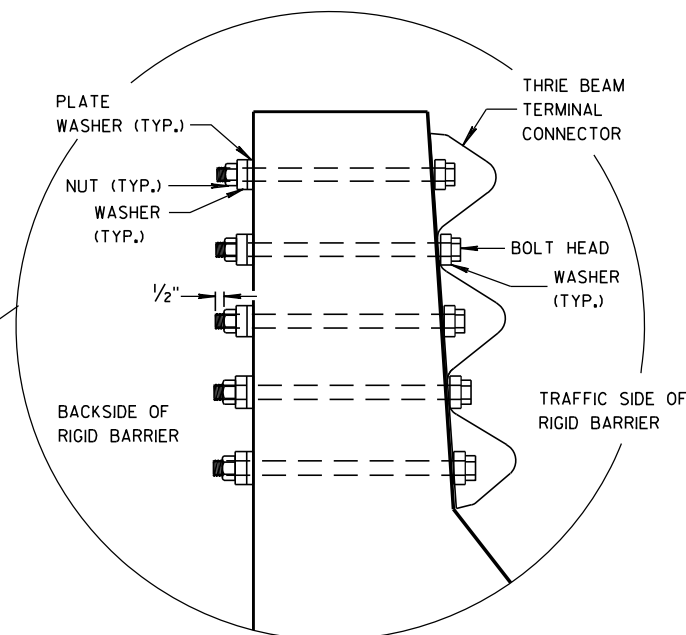


FRONT VIEW

THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS



SECTION I-I

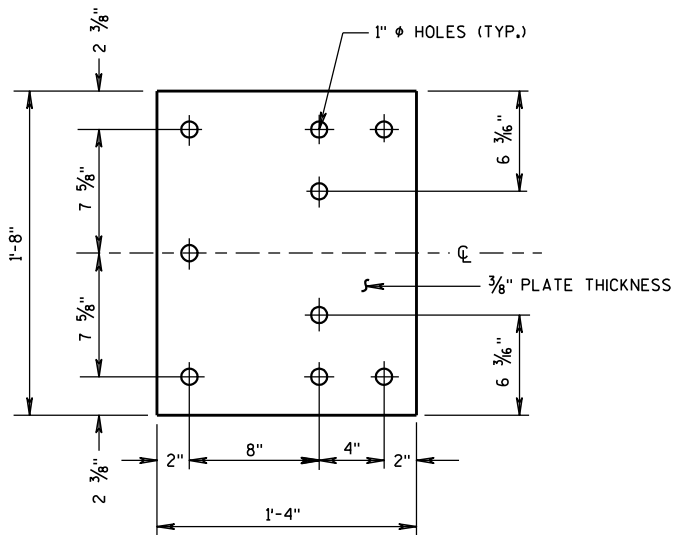


MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

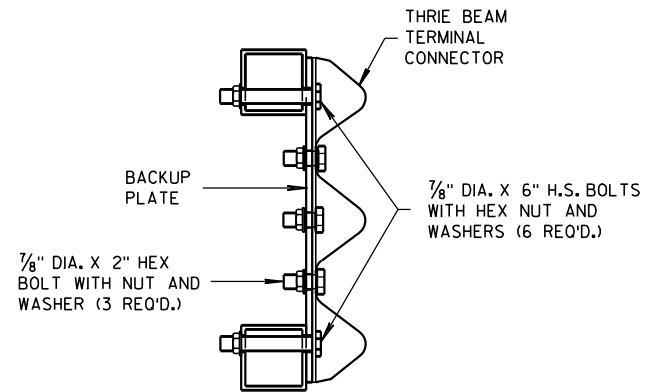
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012
DATE
FHWA

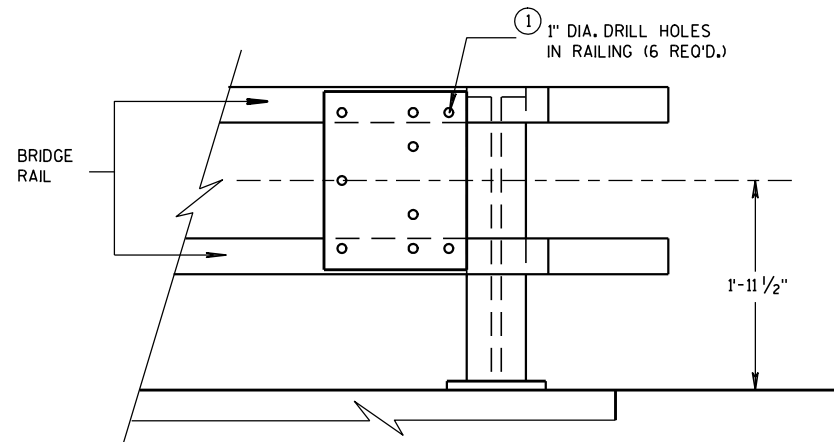
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



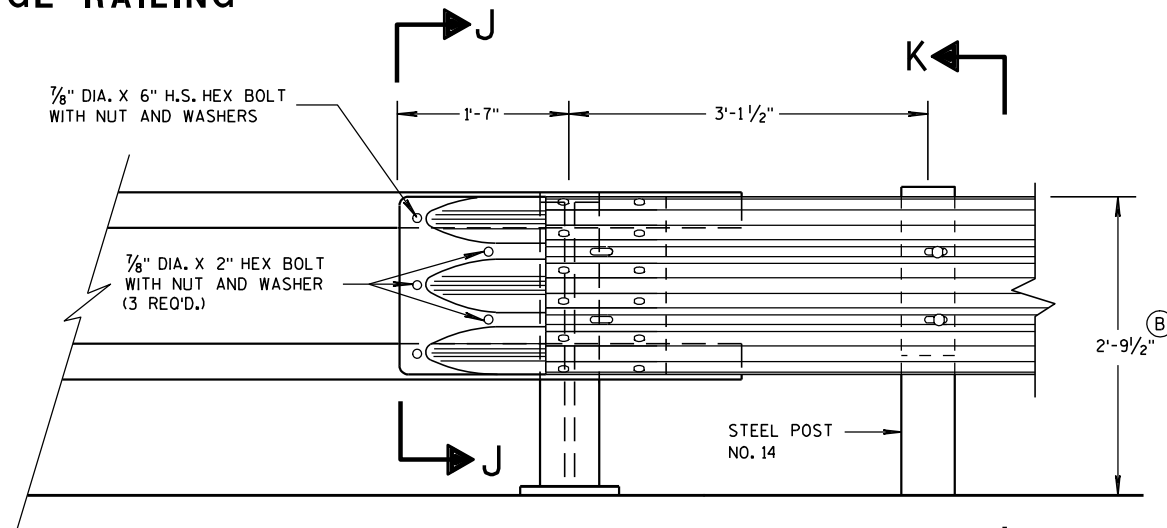
BACK-UP PLATE DETAIL



SECTION J-J

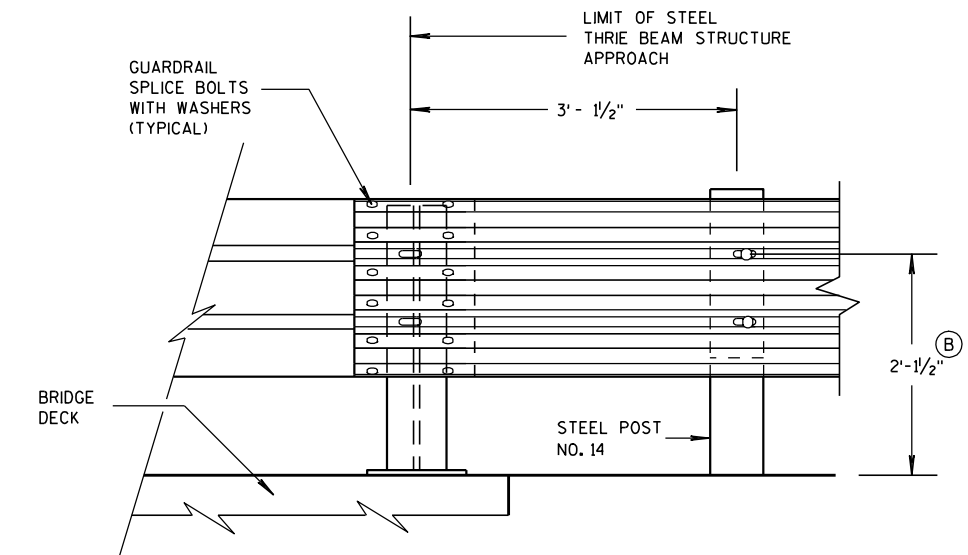


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



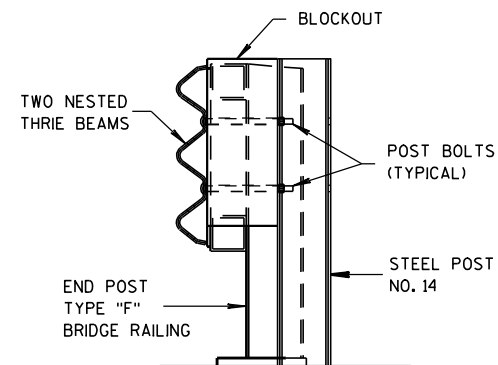
FRONT VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



SECTION K-K

GENERAL NOTES

- ① DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012

DATE

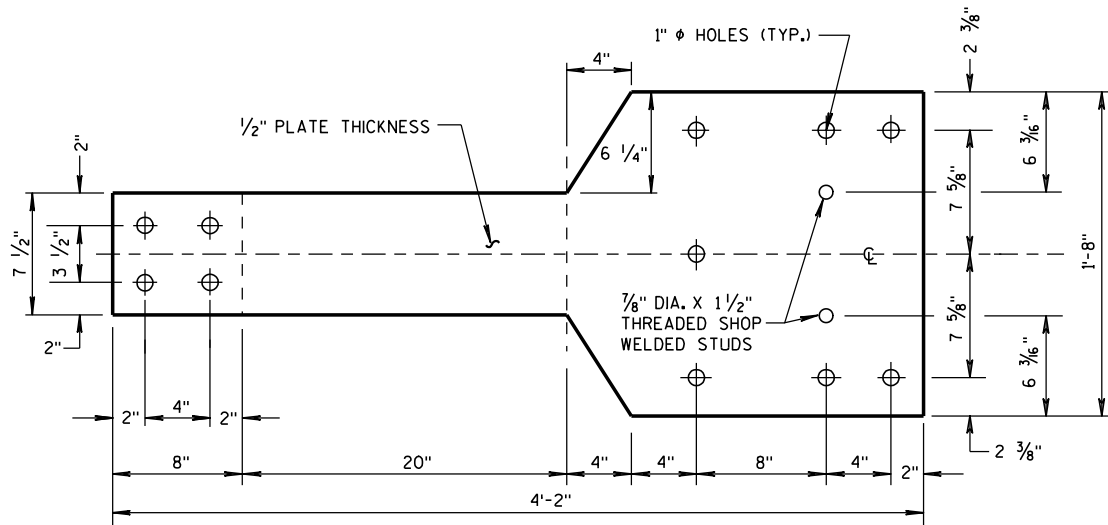
FHWA

/S/ Jerry H. Zogg

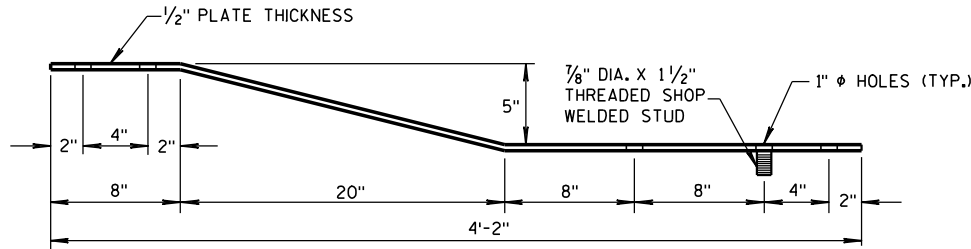
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

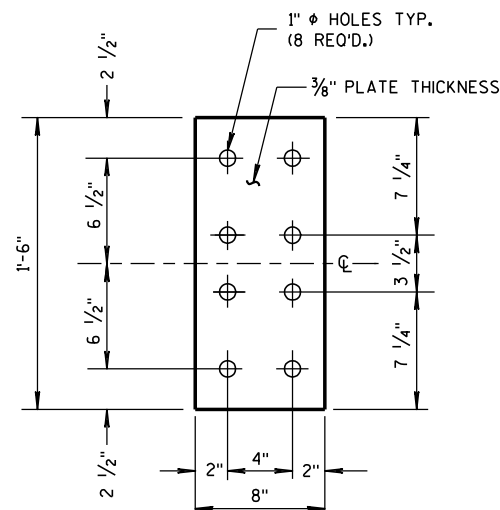
(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



FRONT VIEW

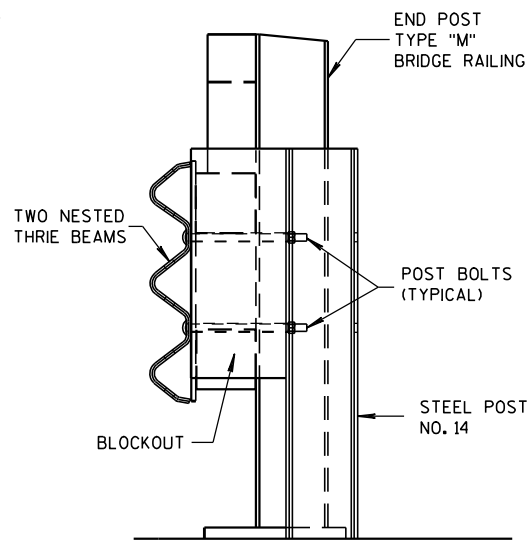


PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"

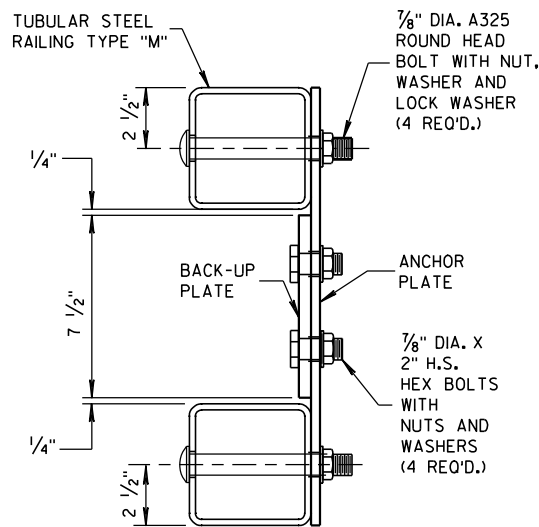


FRONT VIEW

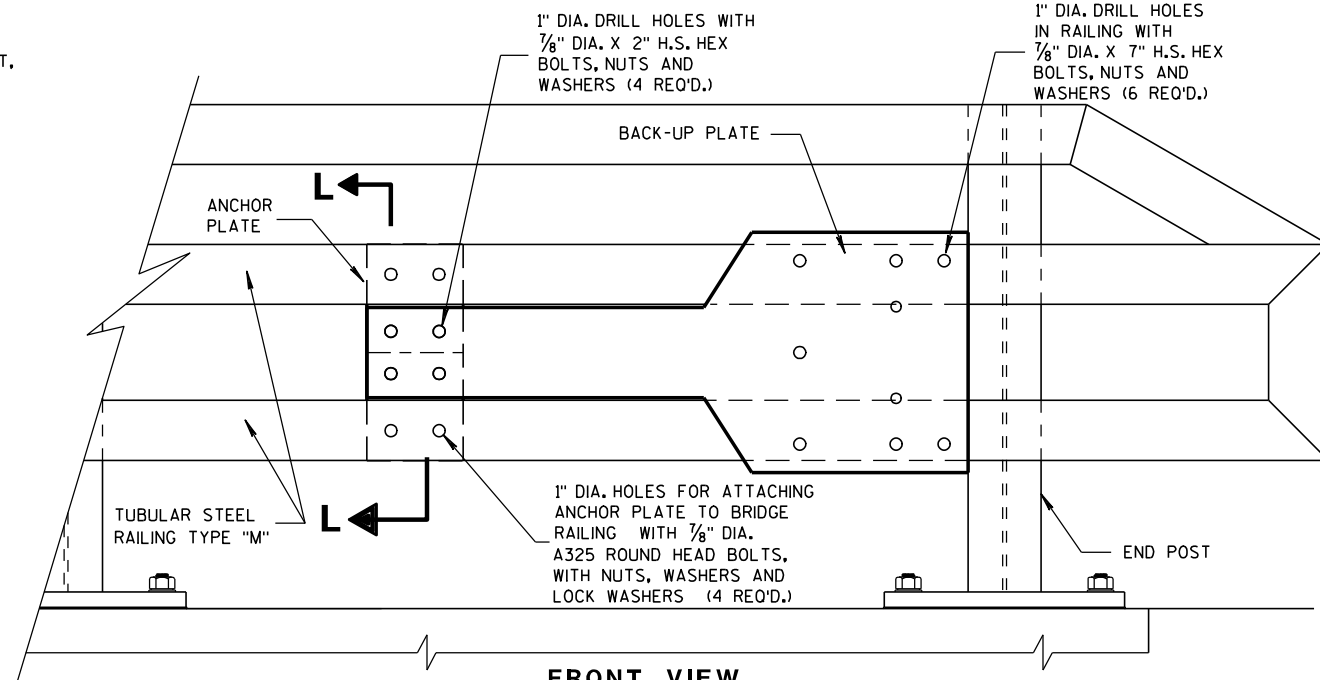
ANCHOR
PLATE DETAIL,
TYPE "M"



SECTION M-M

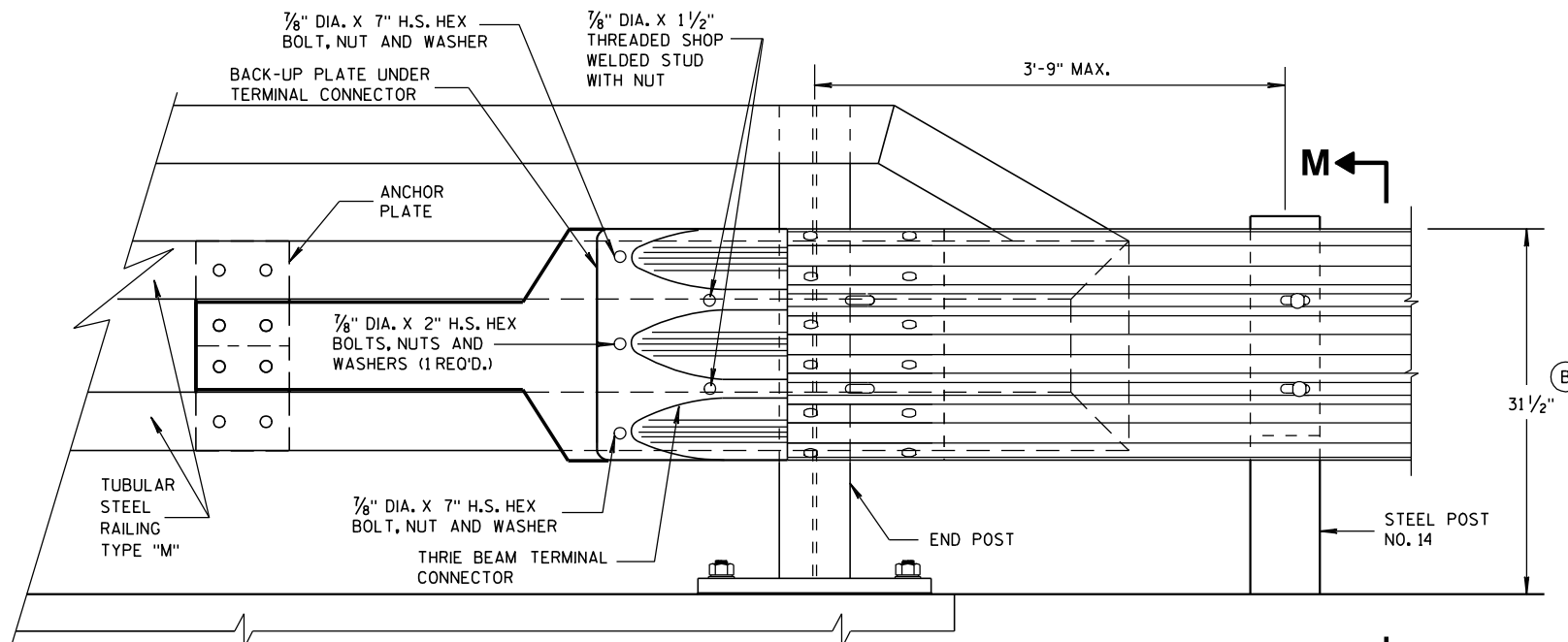


SECTION L-L

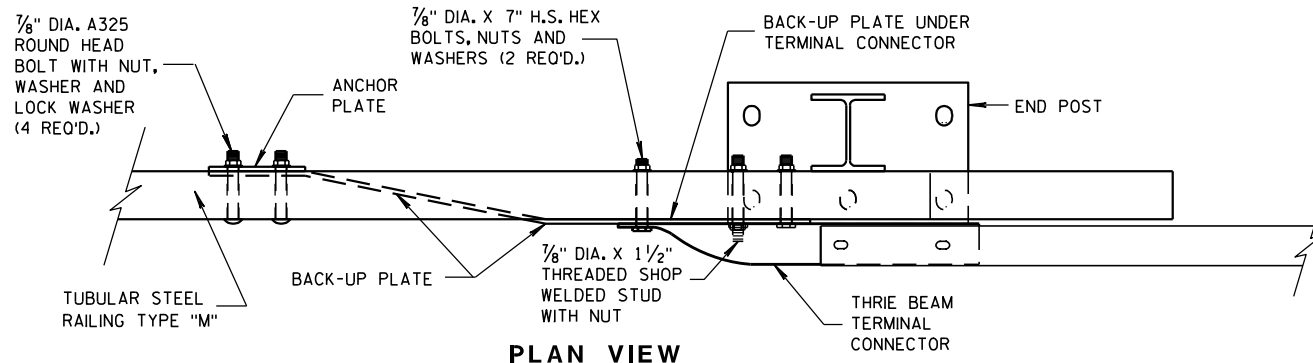


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

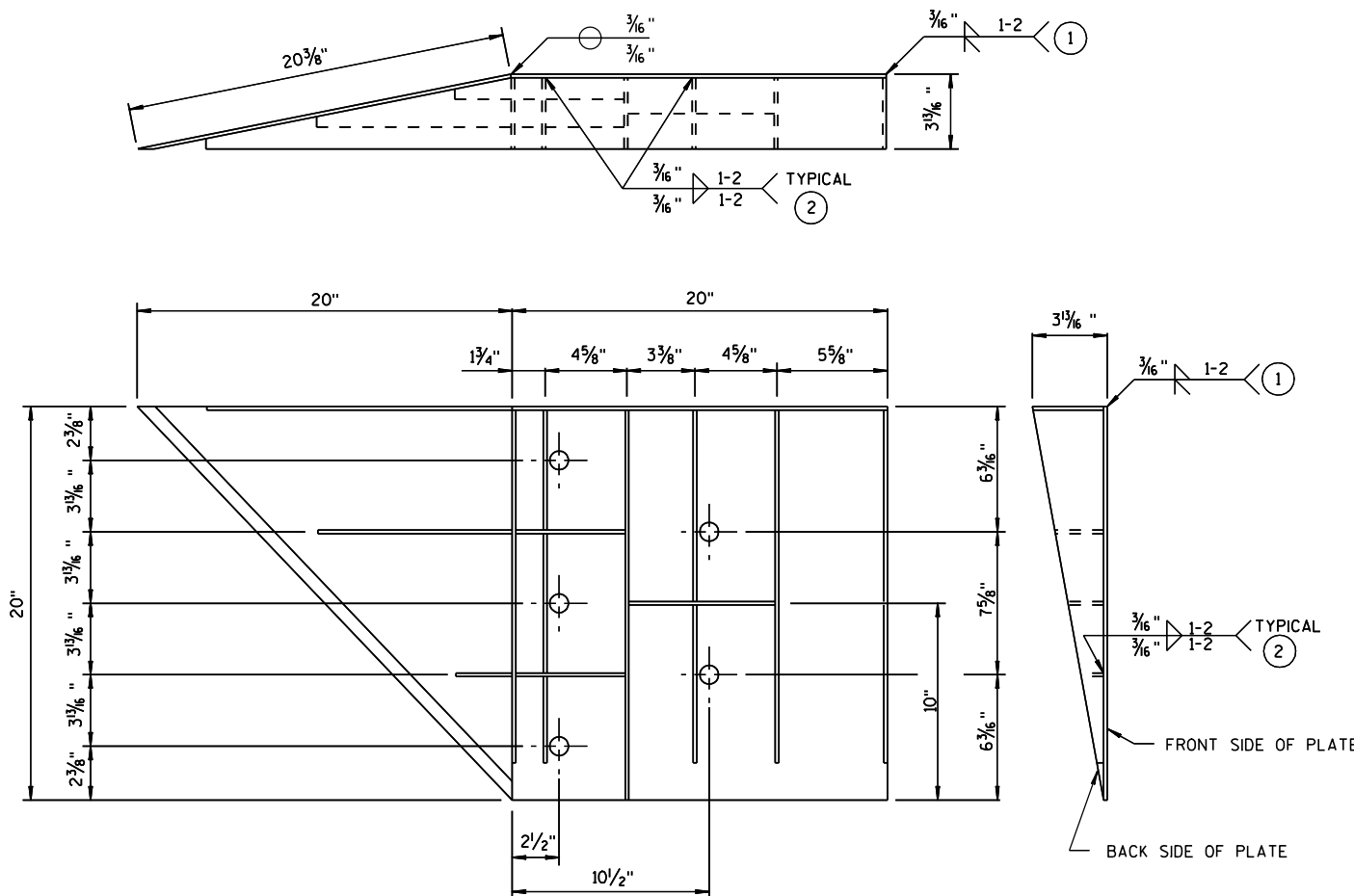
APPROVED

8-31-2012

DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

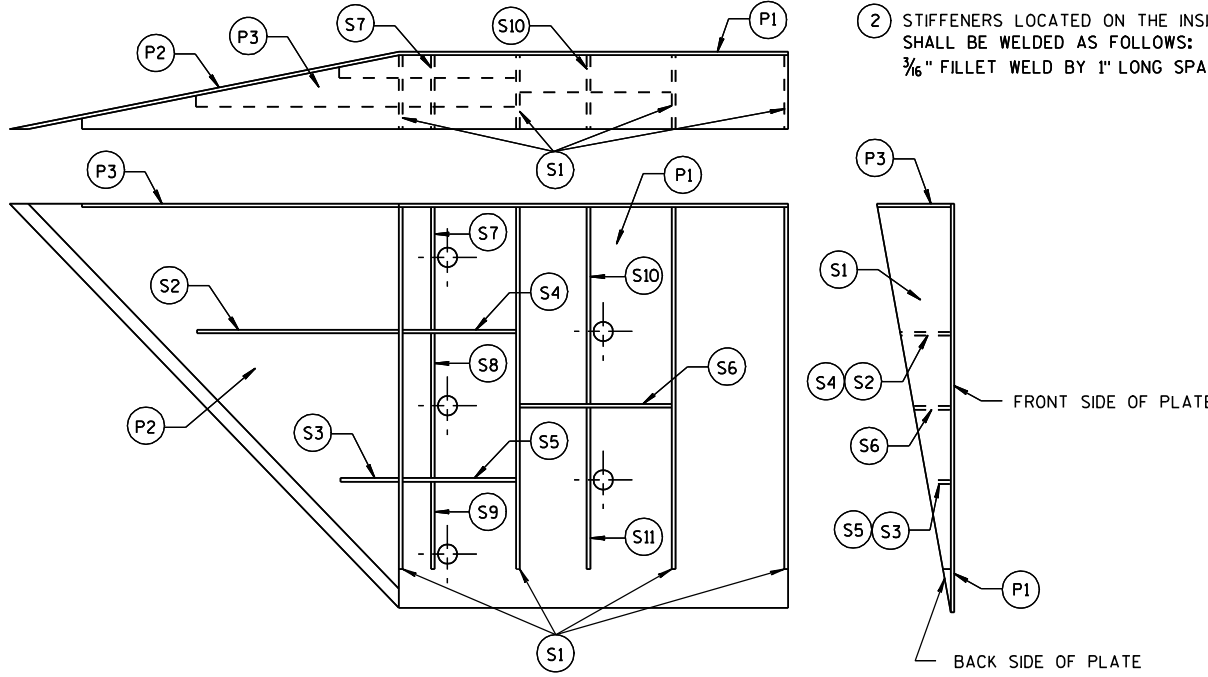


WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

SINGLE SLOPE CONNECTION PLATE

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

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



GENERAL NOTES

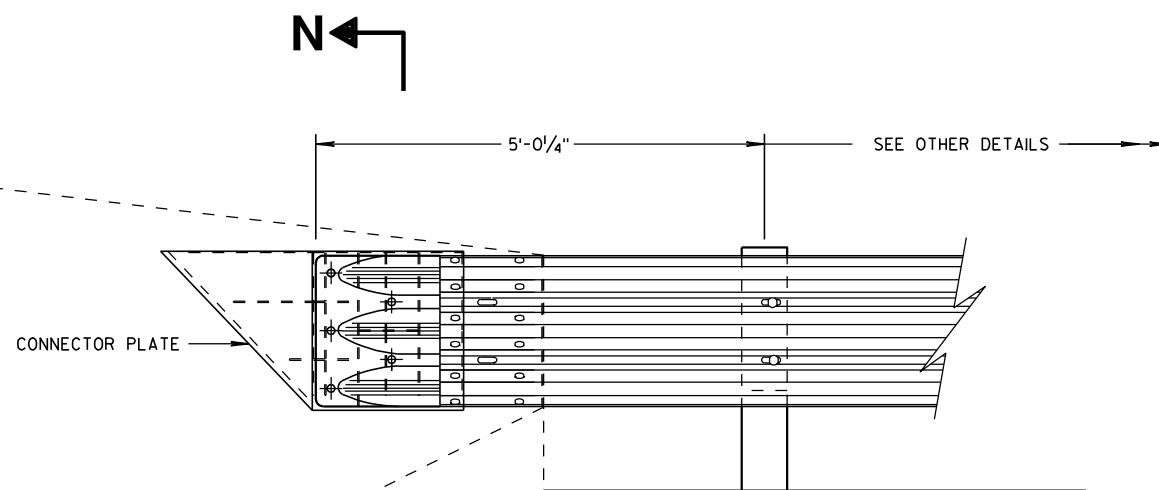
- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR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

- 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".

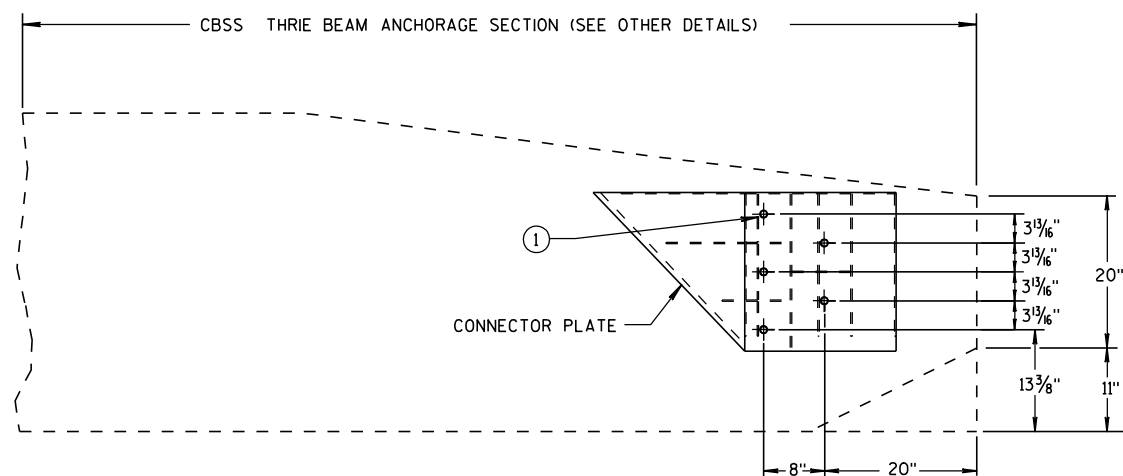
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER

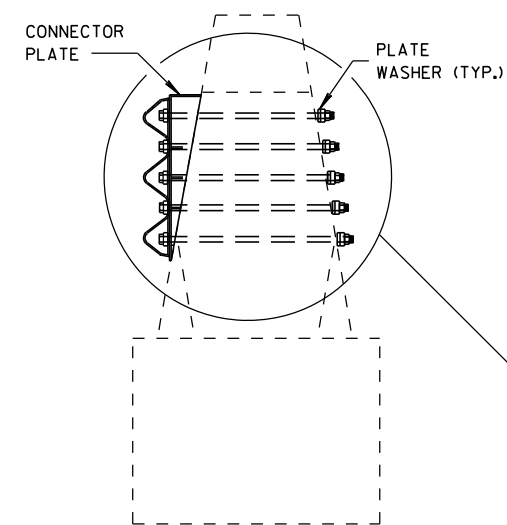


SINGLE SLOPE CONNECTION PLATE PLACEMENT

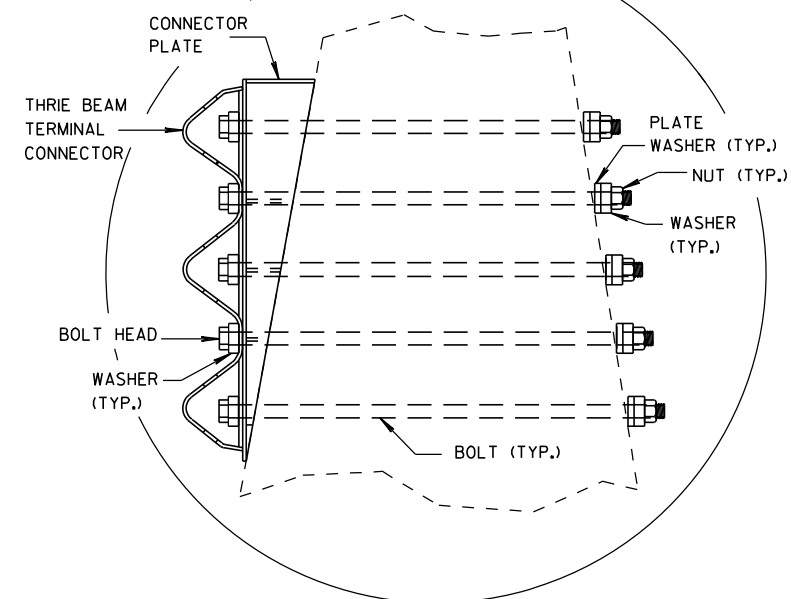
GENERAL NOTES

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

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



SECTION N-N



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

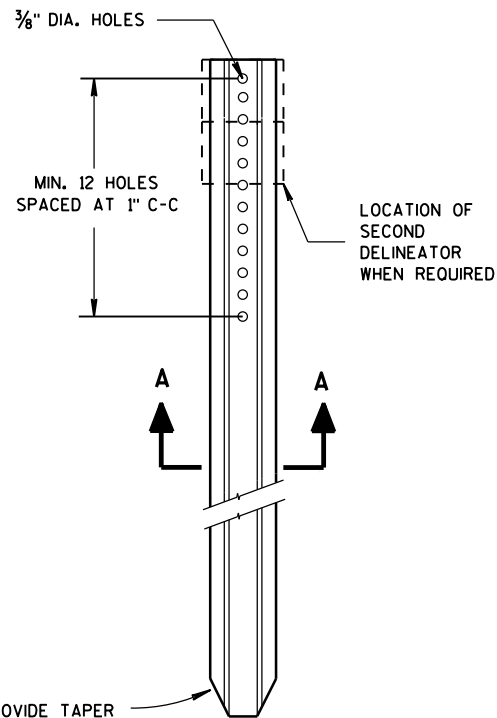
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

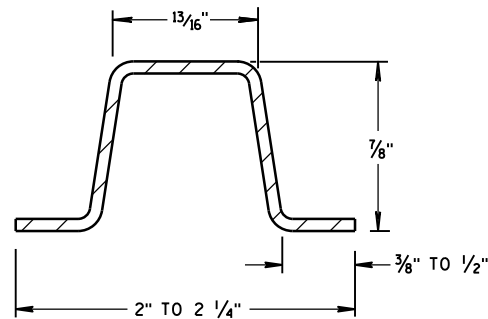
8/31/2012
DATE

FHWA

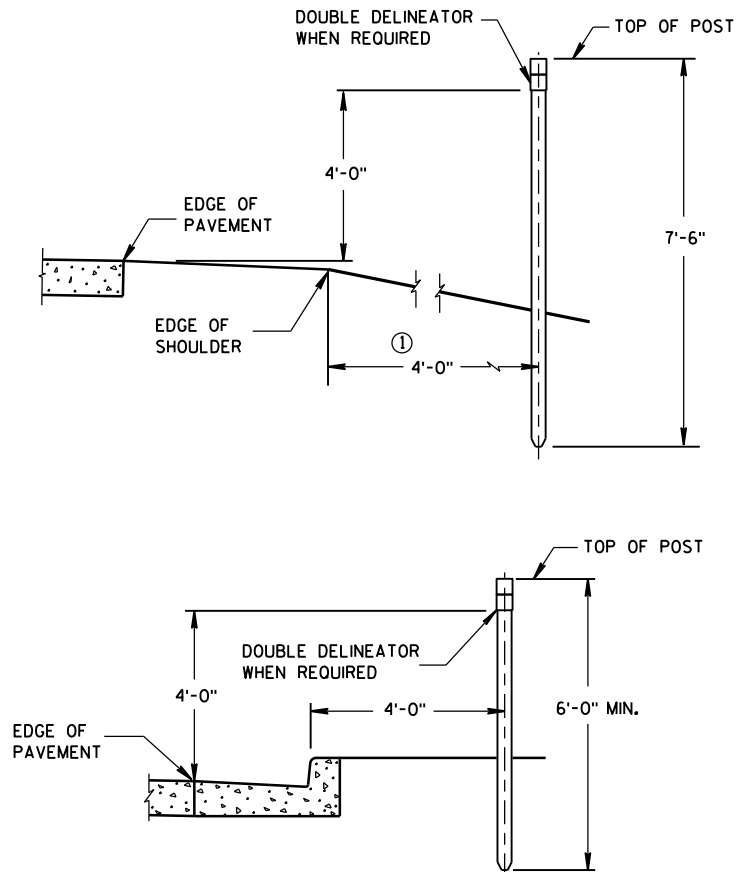
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



DELINEATOR POST



SECTION A-A
WEIGHT 1.12 LBS PER FT. ± 0.1 LB.

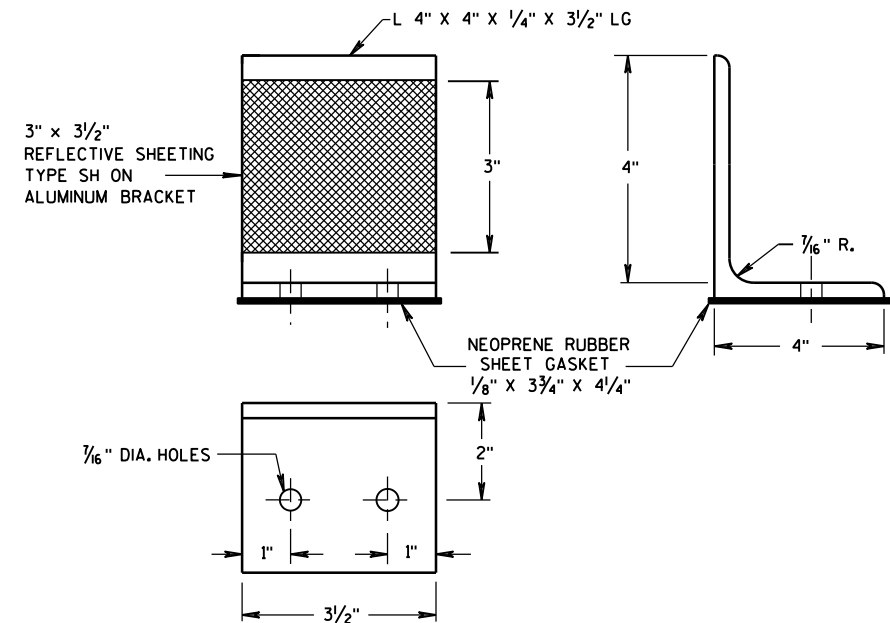


TYPICAL INSTALLATIONS OF DELINEATOR POSTS

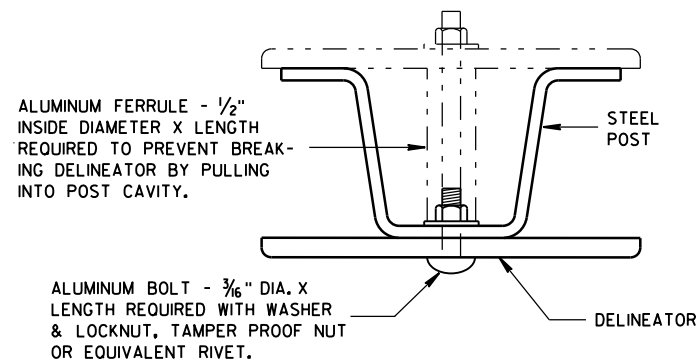
GENERAL NOTES

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

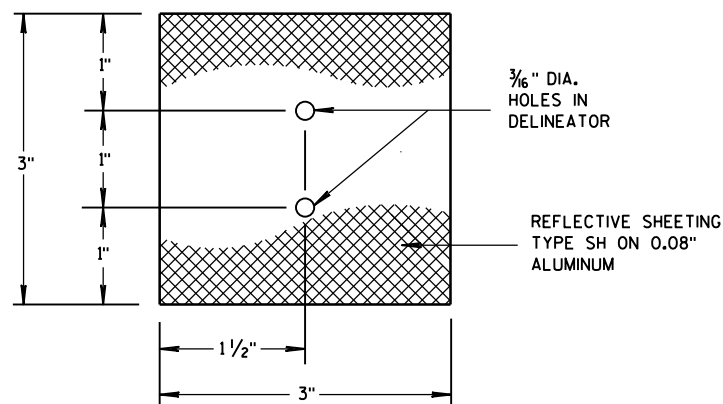
- ① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.



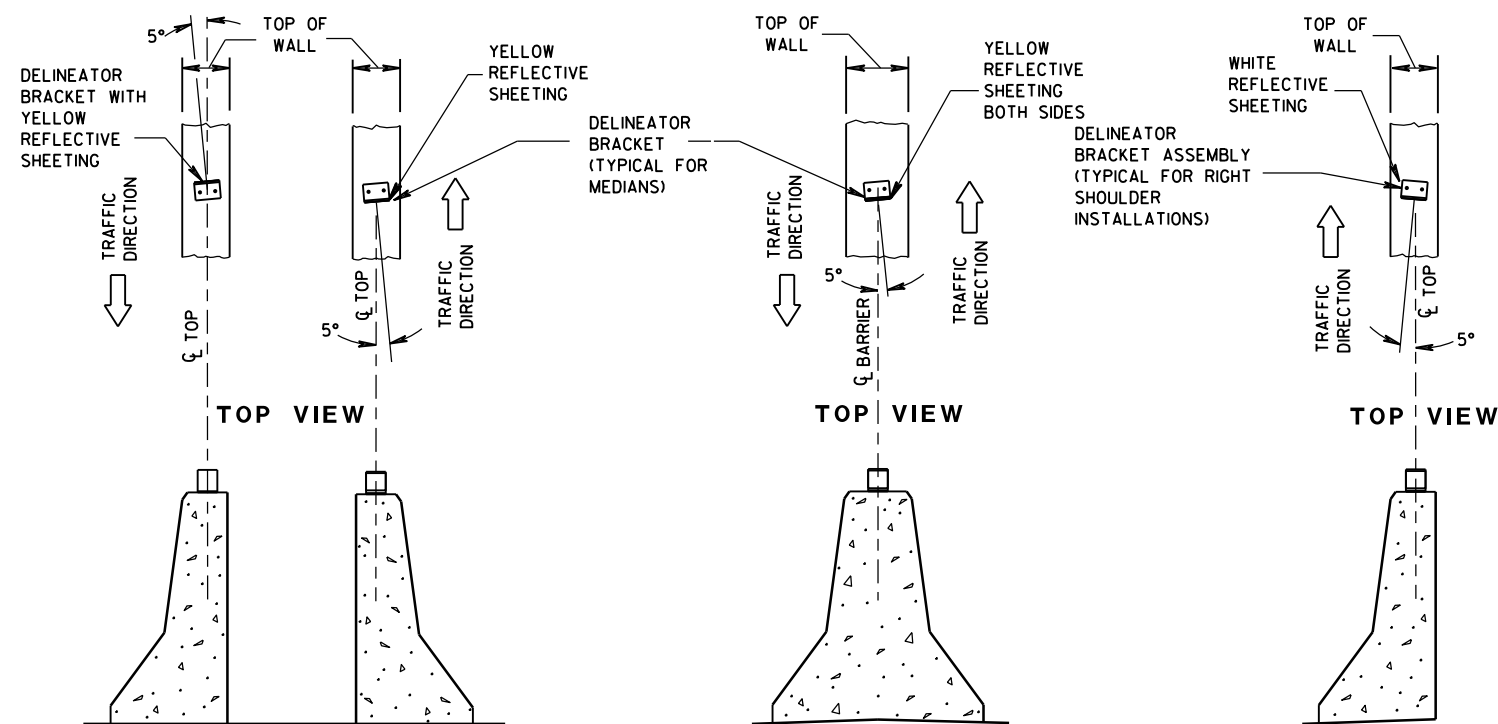
DELINEATOR BRACKET



MOUNTING DETAIL FOR DELINEATOR



3" x 3" DELINEATOR

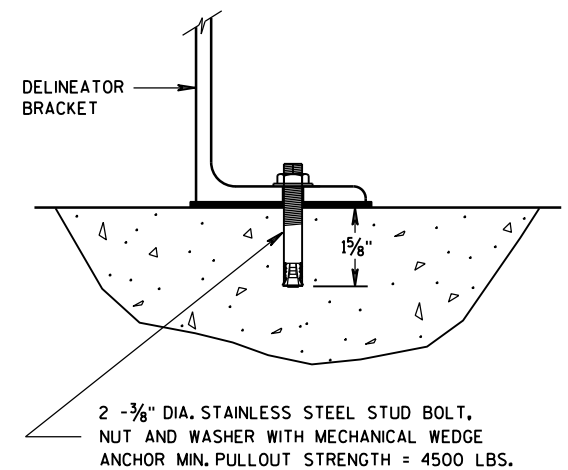


DOUBLE BARRIERS IN MEDIAN

MEDIAN BARRIER

BARRIER LOCATED
TO RT. OF TRAFFIC FLOW

LOCATION AND AIMING DETAILS FOR DELINEATOR BRACKETS MOUNTED ON CONCRETE BARRIERS



DELINEATOR BRACKET
MOUNTING DETAIL

DELINEATOR POST, DELINEATOR,
AND DELINEATOR BRACKET
WITH REFLECTIVE SHEETING

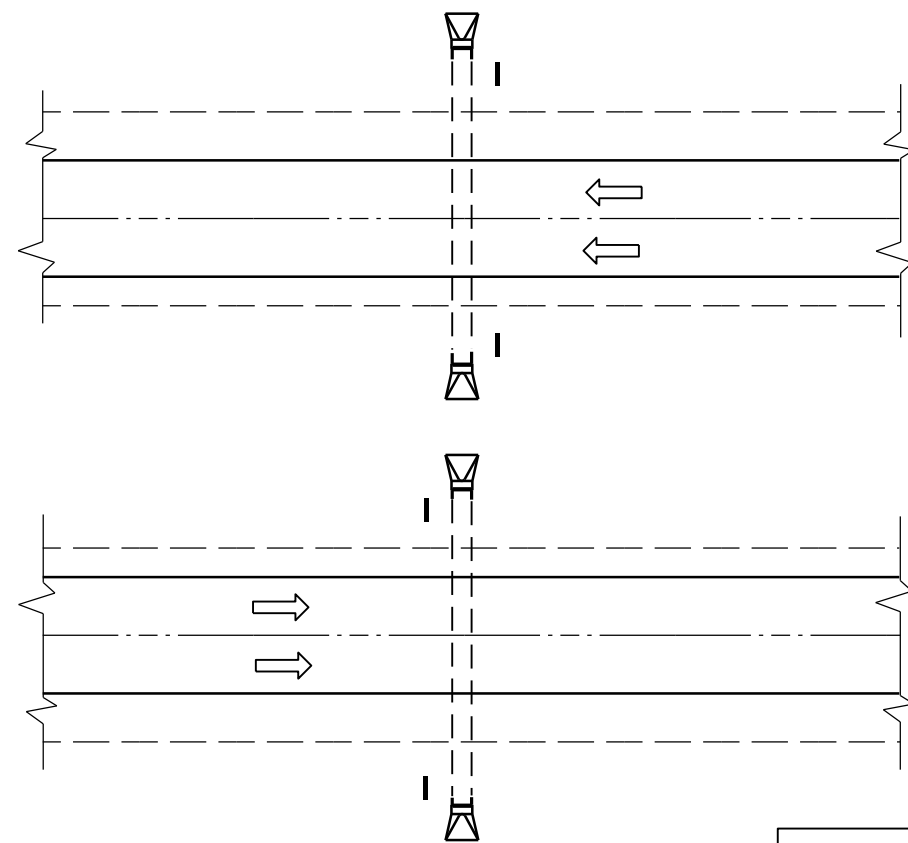
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

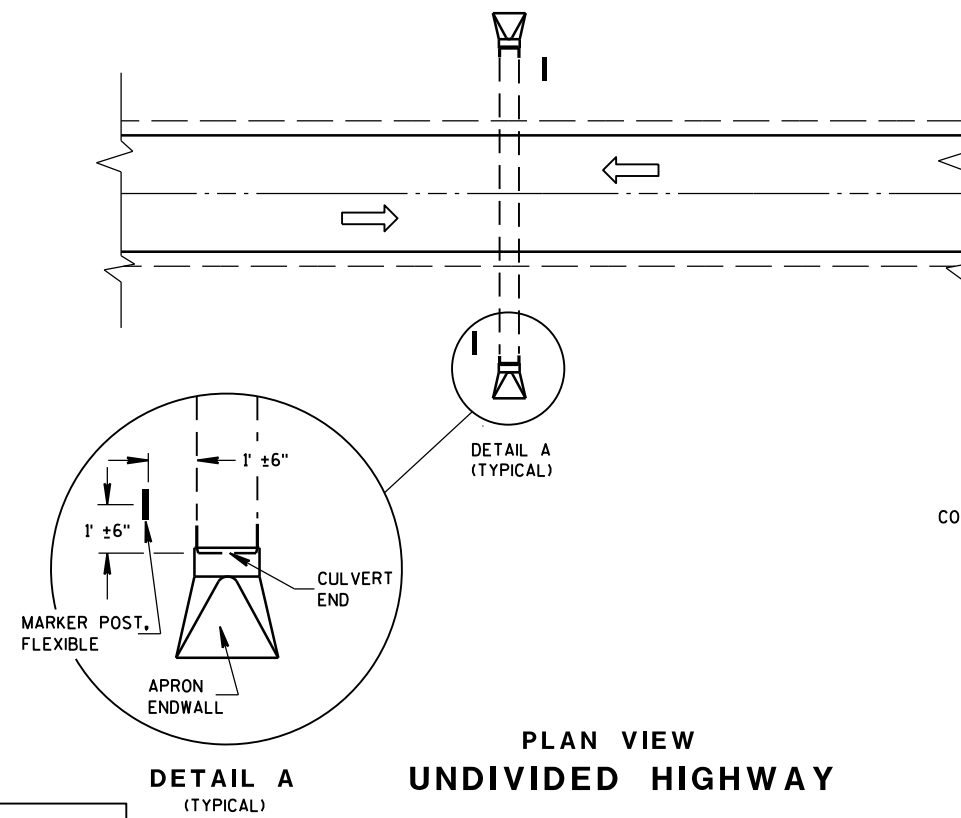
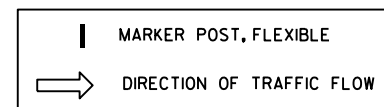
7/2013
DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA



PLAN VIEW
DIVIDED HIGHWAY



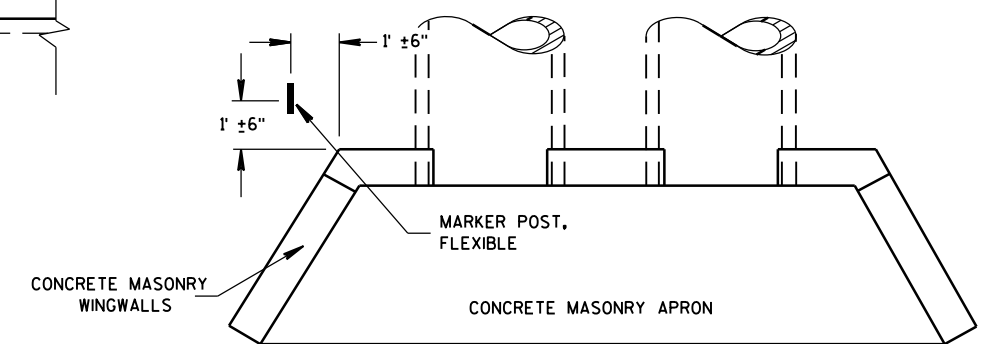
DETAIL A
(TYPICAL)

PLAN VIEW
UNDIVIDED HIGHWAY

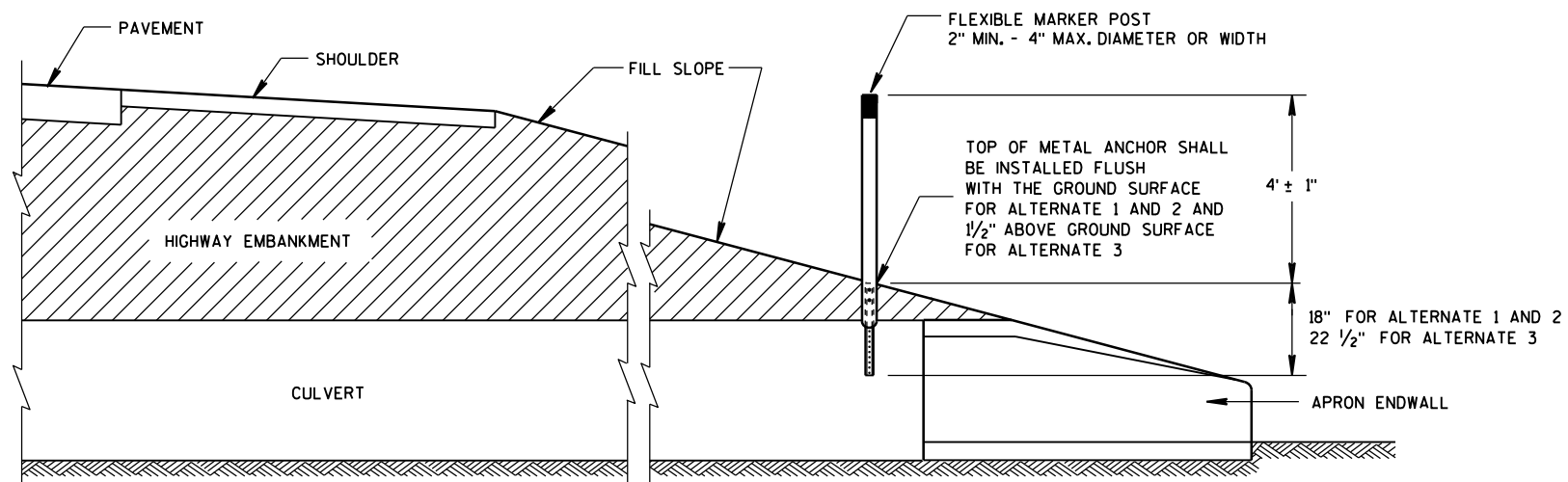
FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

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



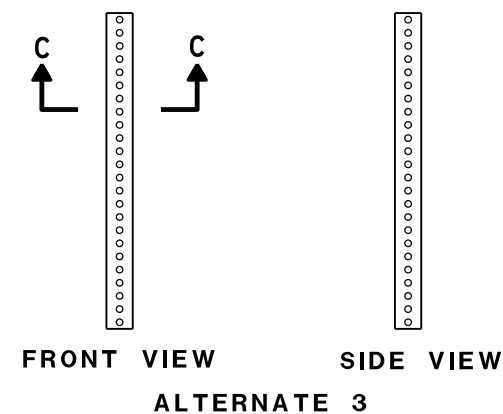
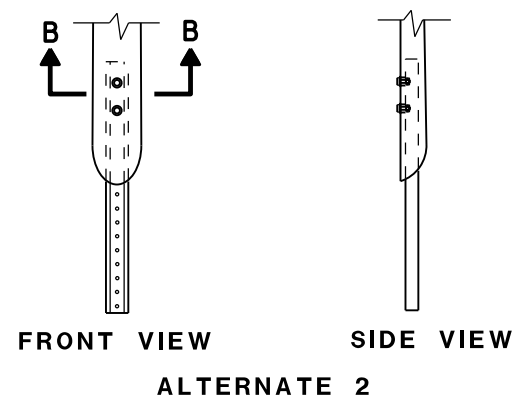
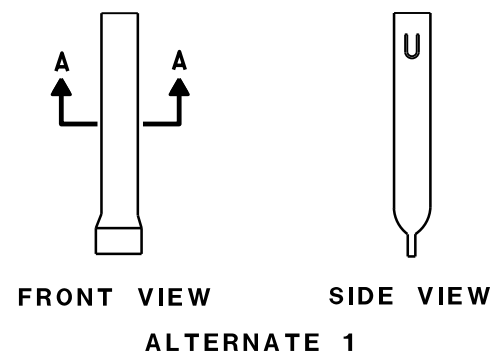
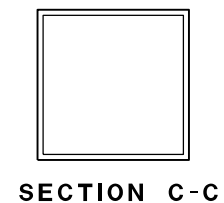
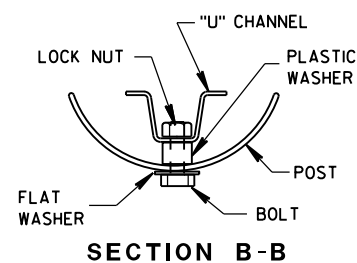
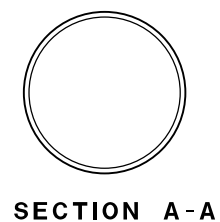
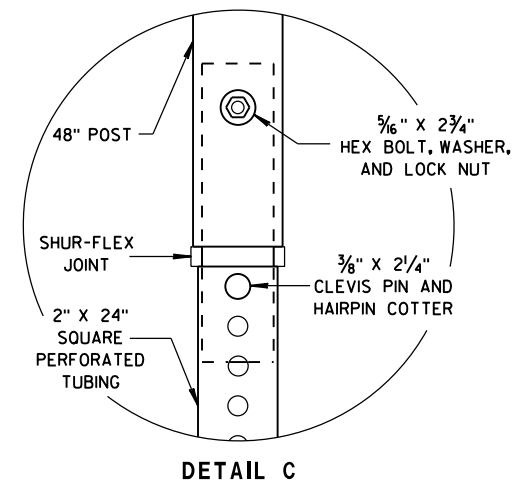
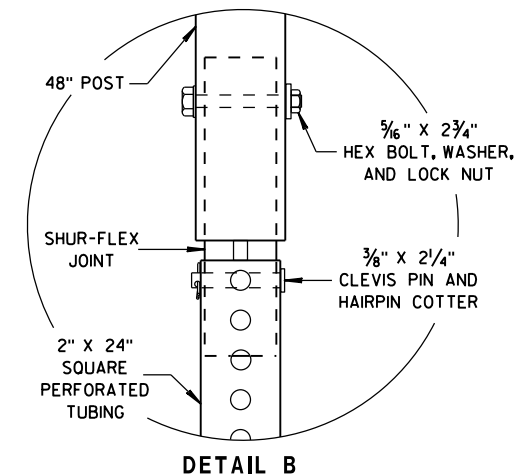
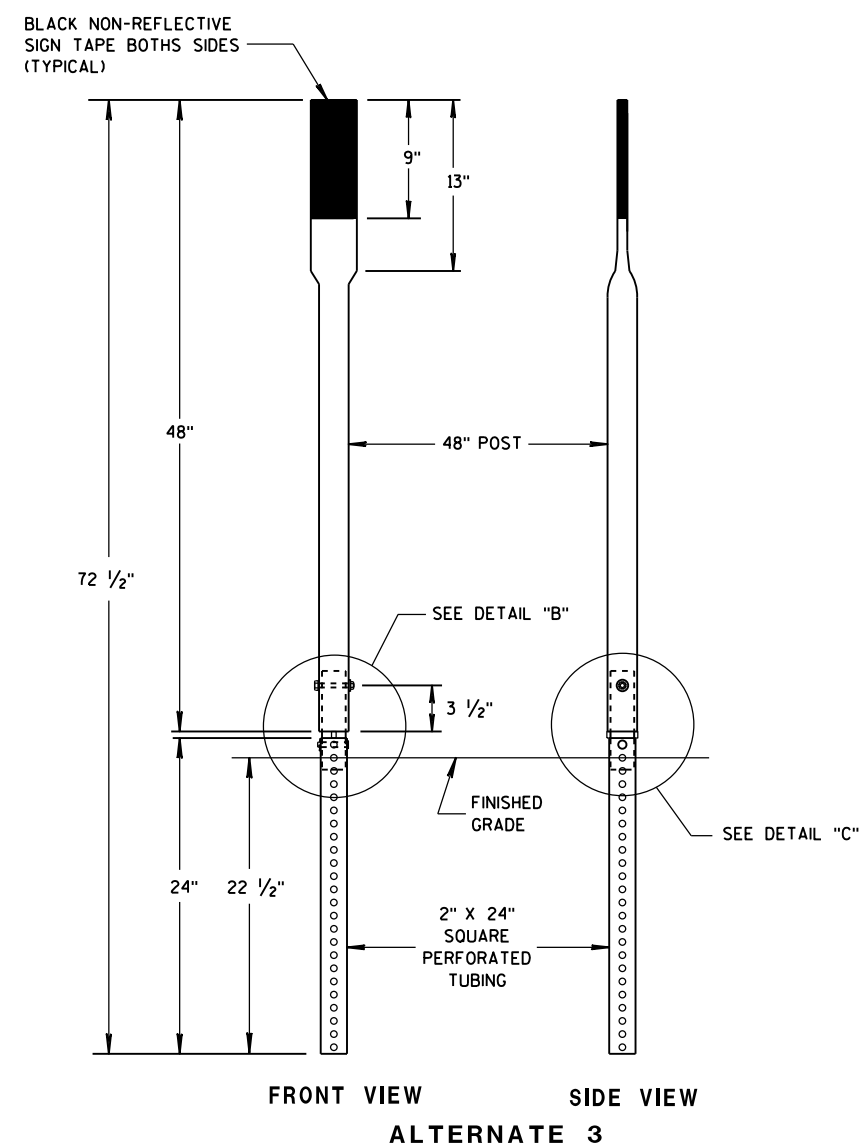
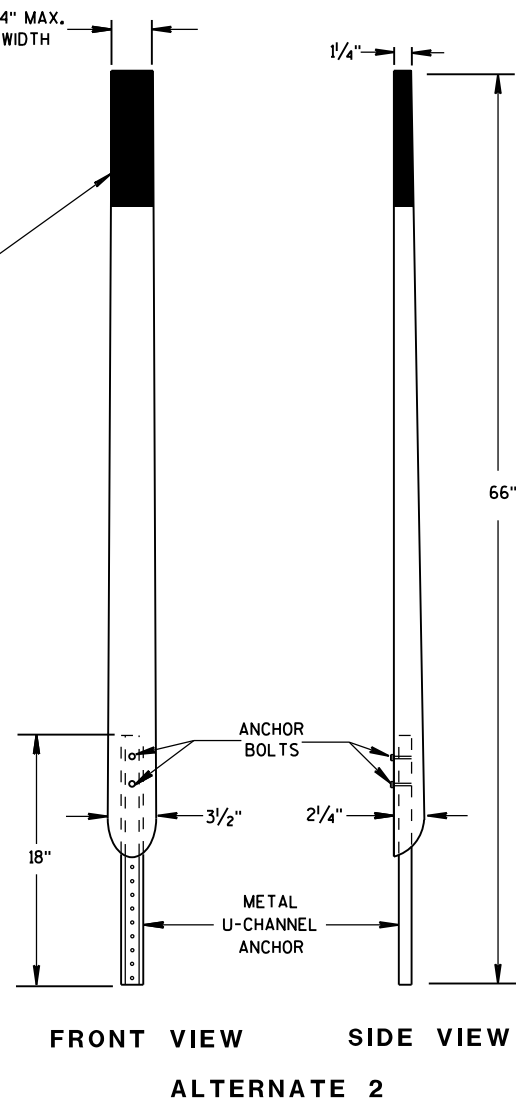
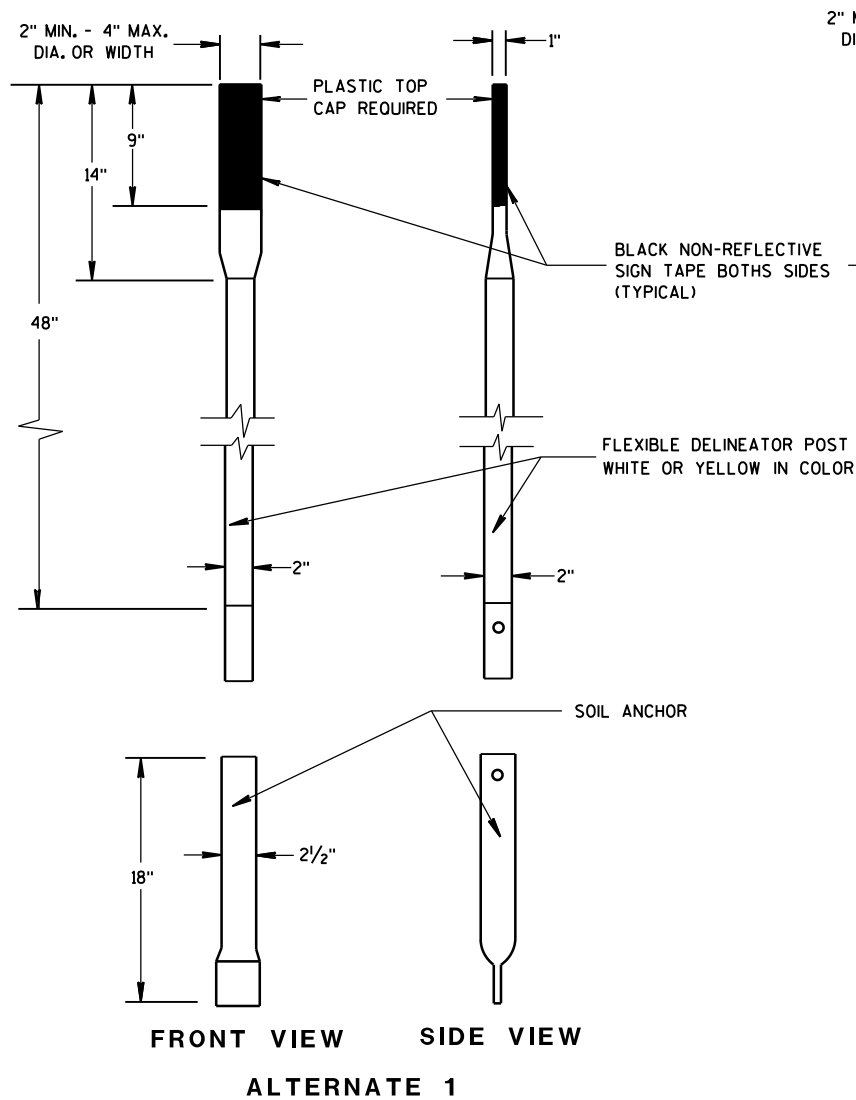
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

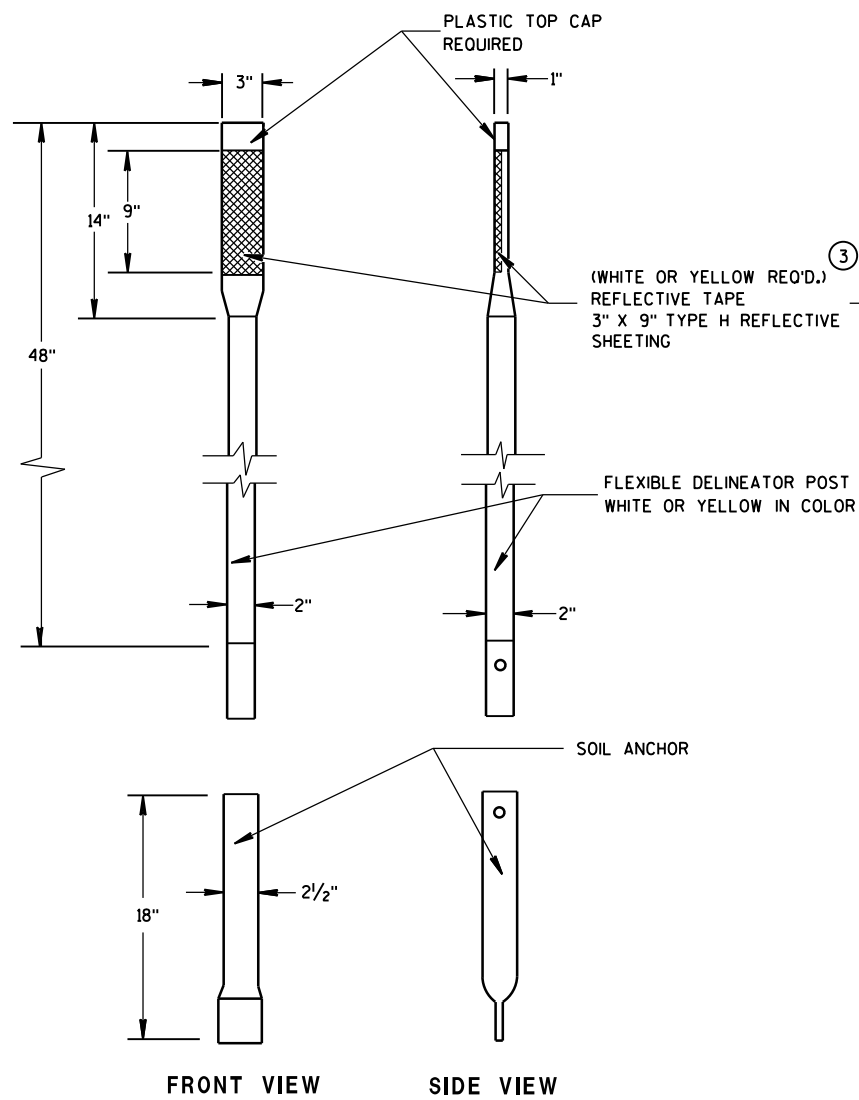


FLEXIBLE MARKER POST FOR CULVERT END

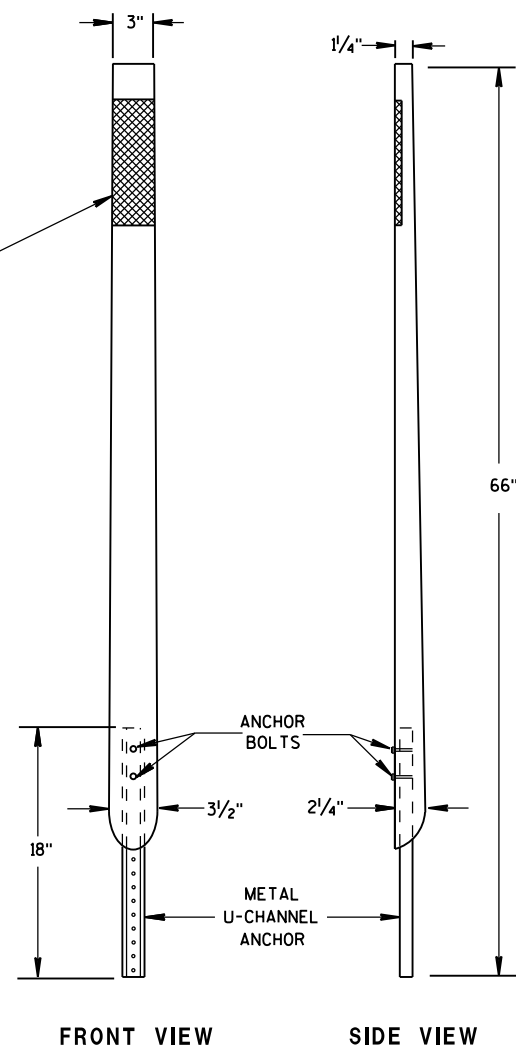
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012
DATE
FHWA

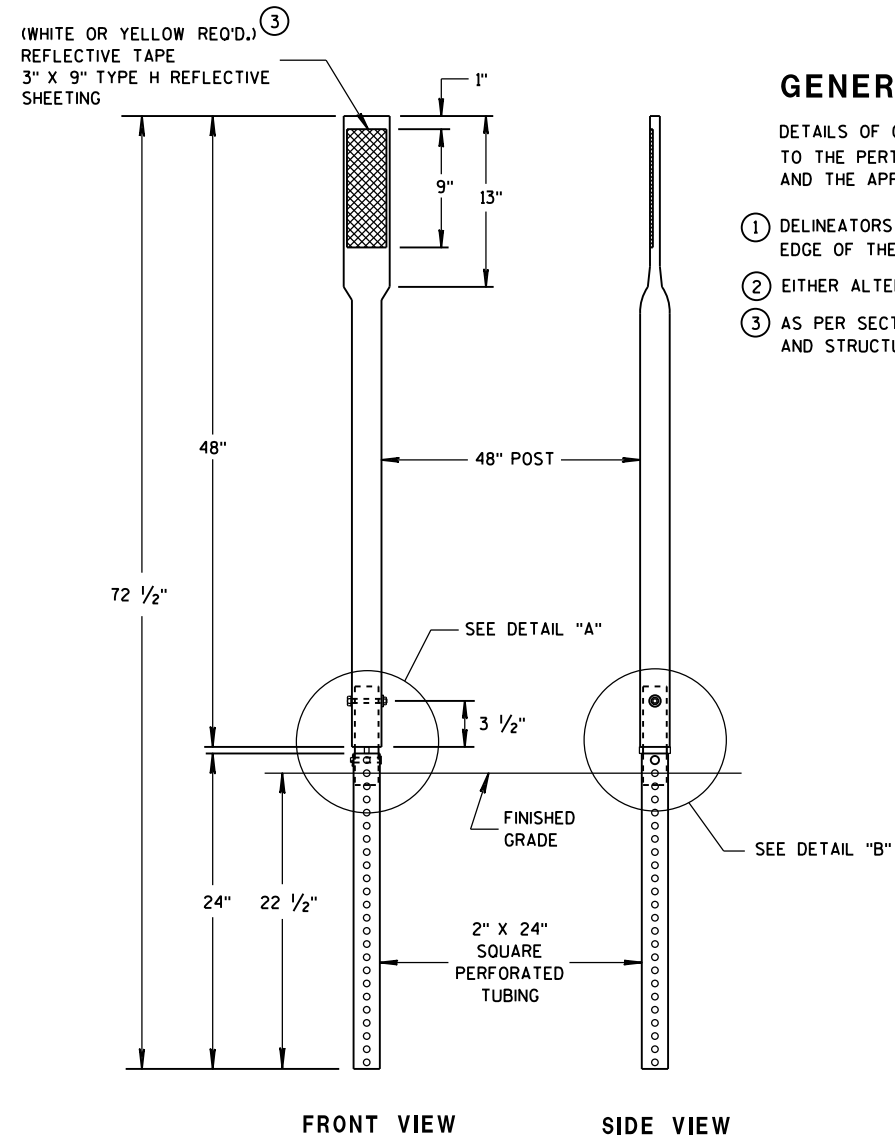
/S/ Travis Feltes
STATE TRAFFIC ENGINEER OF DESIGN



ALTERNATE 1



ALTERNATE 2

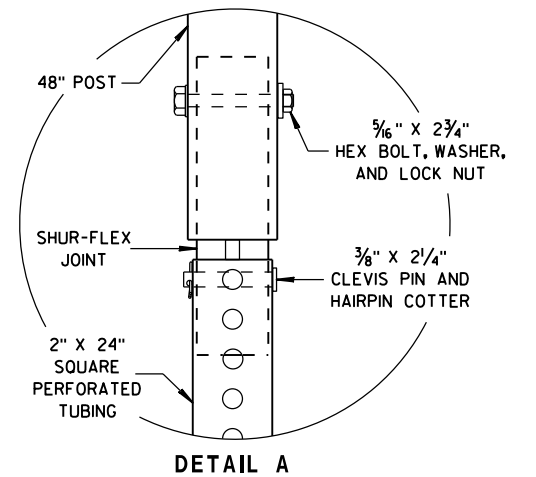


ALTERNATE 3

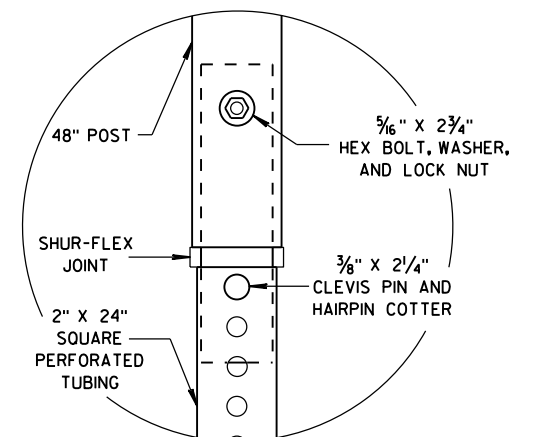
GENERAL NOTES

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

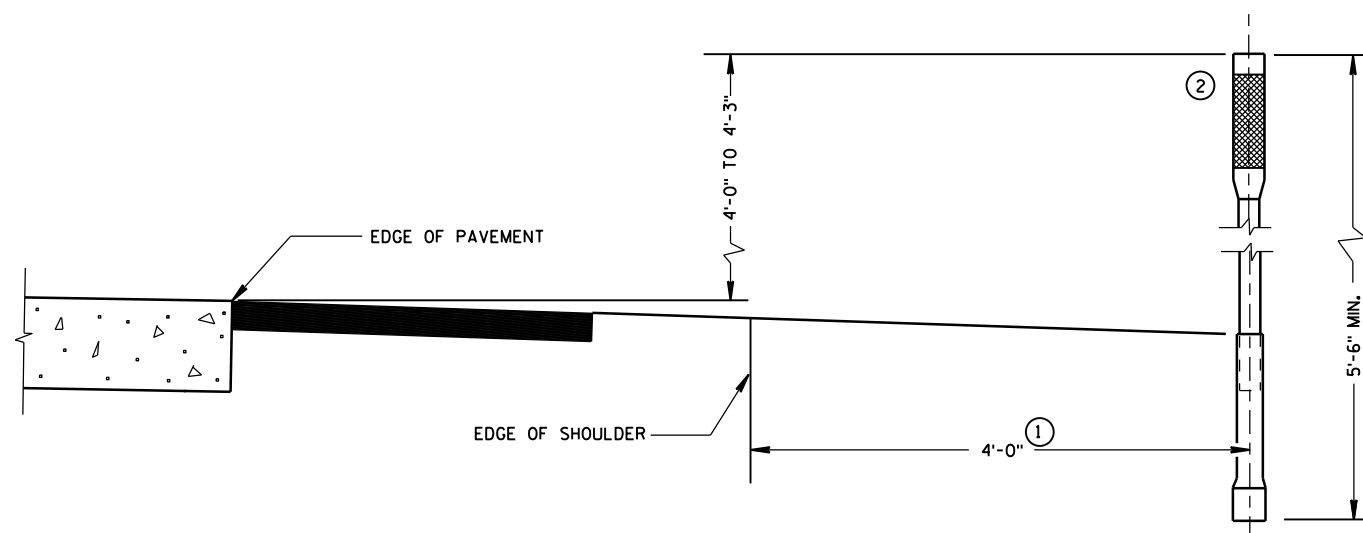
- ① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.
- ② EITHER ALTERNATE NO. 1, NO. 2 OR NO. 3 MAY BE FURNISHED.
- ③ AS PER SECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.



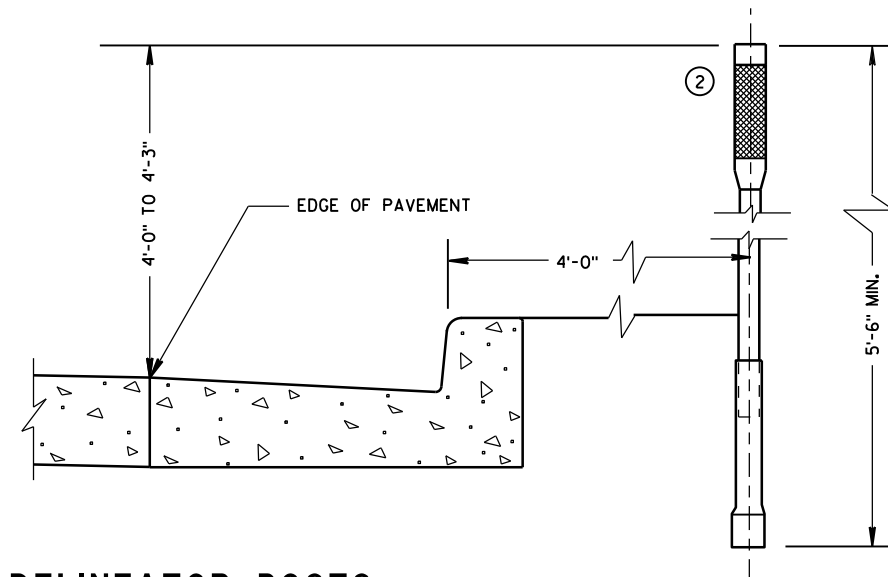
DETAIL A



DETAIL B



TYPICAL INSTALLATIONS OF FLEXIBLE DELINEATOR POSTS

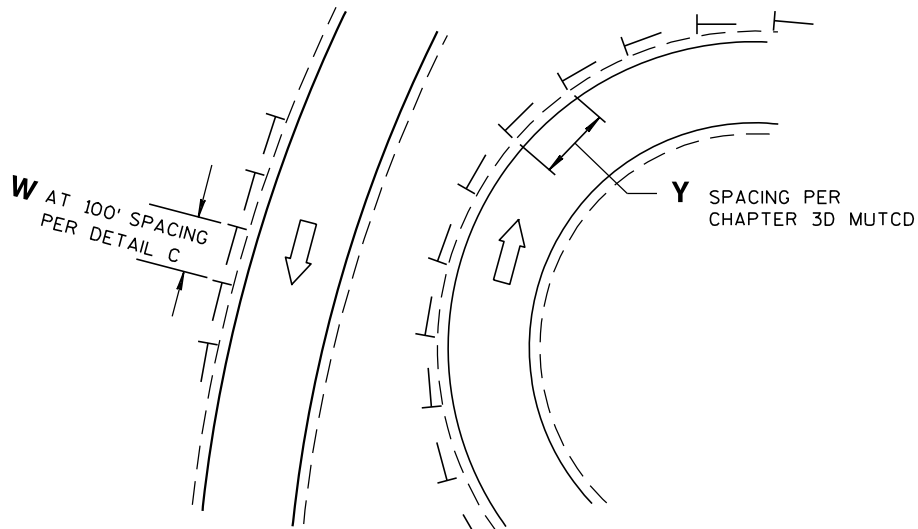


FLEXIBLE DELINEATOR POST

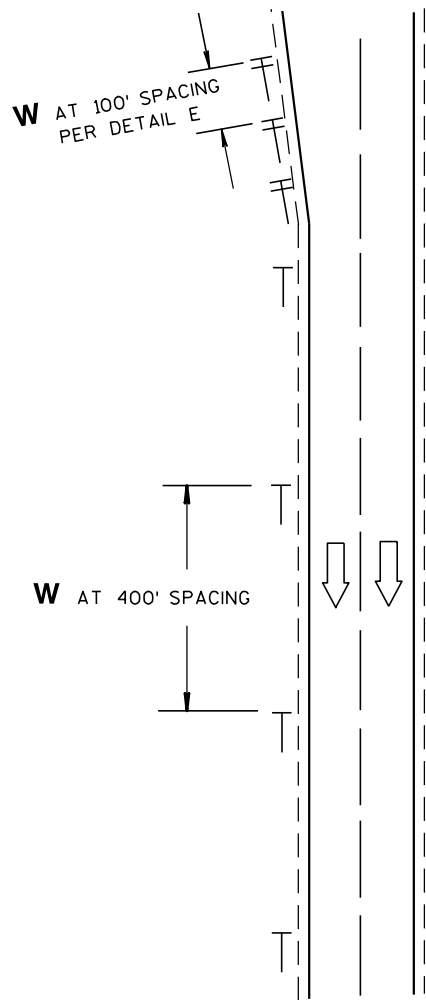
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9-26-2012
DATE
FHWA

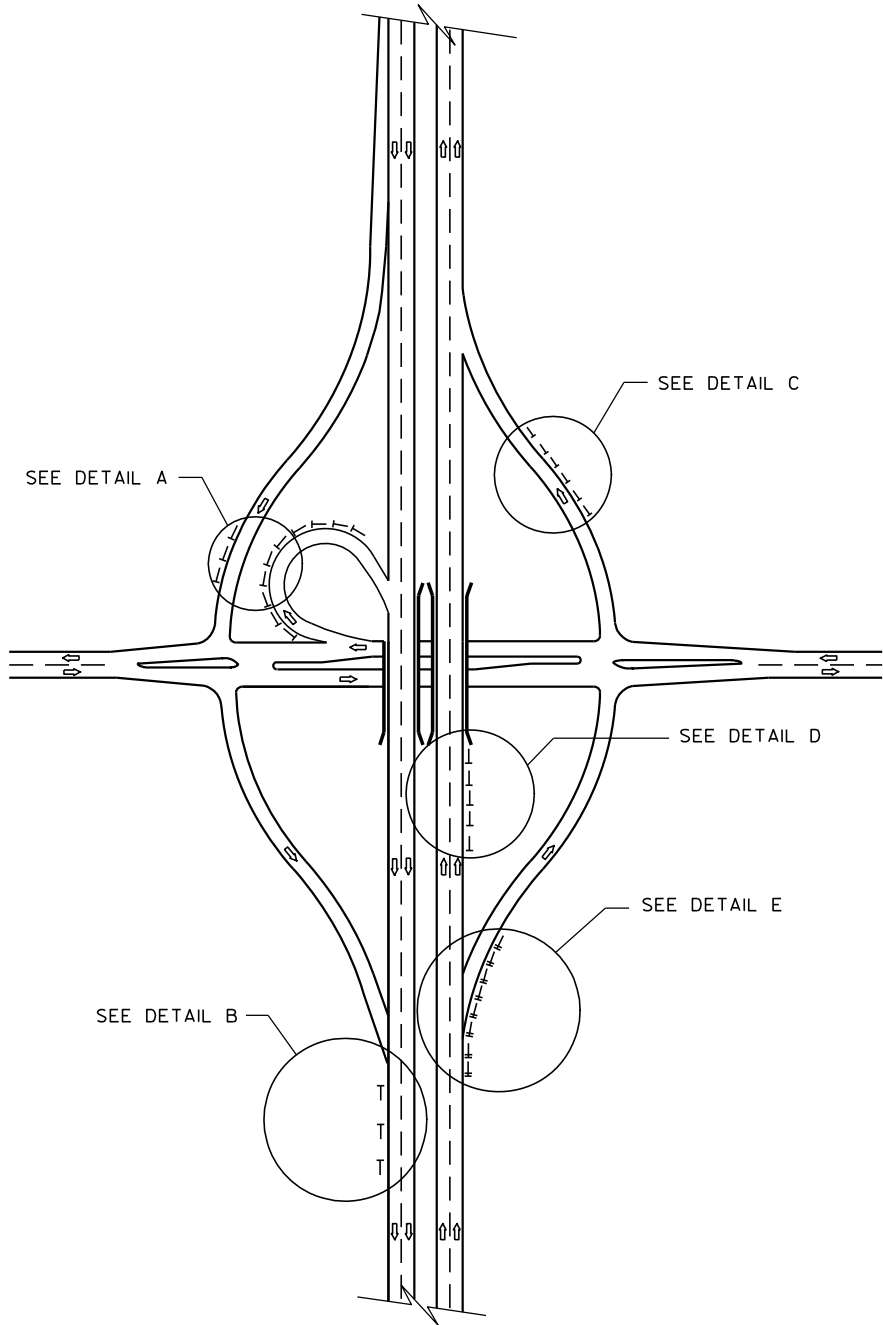
/S/ Travis Feltes
STATE TRAFFIC ENGINEER OF DESIGN



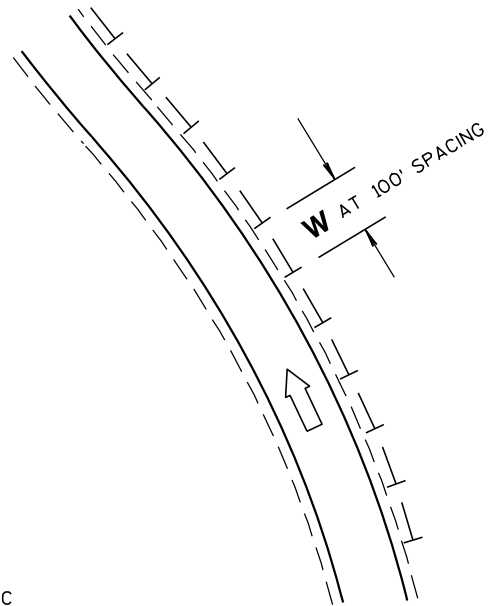
DETAIL A
DELINEATOR LAYOUT AT CURVED RAMP



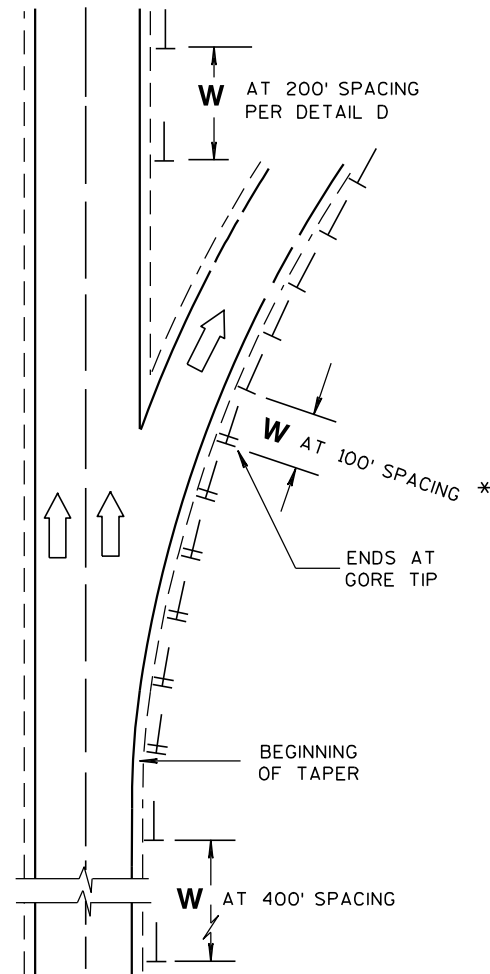
DETAIL B
DELINEATOR LAYOUT
ALONG MAINLINE



DELINEATOR LAYOUT



DETAIL C
DELINEATOR LAYOUT ALONG RAMP



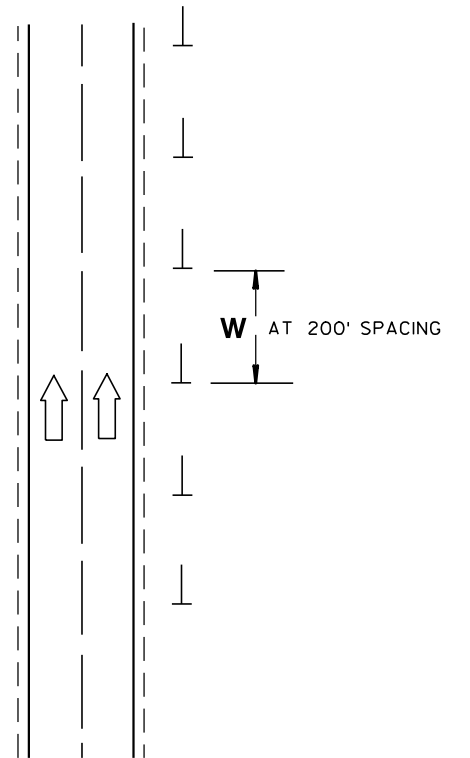
DETAIL E
DELINEATOR LAYOUT FOR ACCELERATION
- DECELERATION LANES AND TAPERS AT RAMPS

GENERAL NOTES

* USE DOUBLE DELINEATOR ALONG ACCELERATION-DECELERATION LANES AND TAPERS.
USE SINGLE DELINEATOR WHEN RAMP PAVEMENT IS FULL WIDTH.

LEGEND

- DIRECTION OF TRAFFIC FLOW
- SINGLE DELINEATOR
- DOUBLE DELINEATOR
- W** WHITE
- Y** YELLOW



DETAIL D
DELINEATOR LAYOUT
BETWEEN INTERCHANGE RAMPS

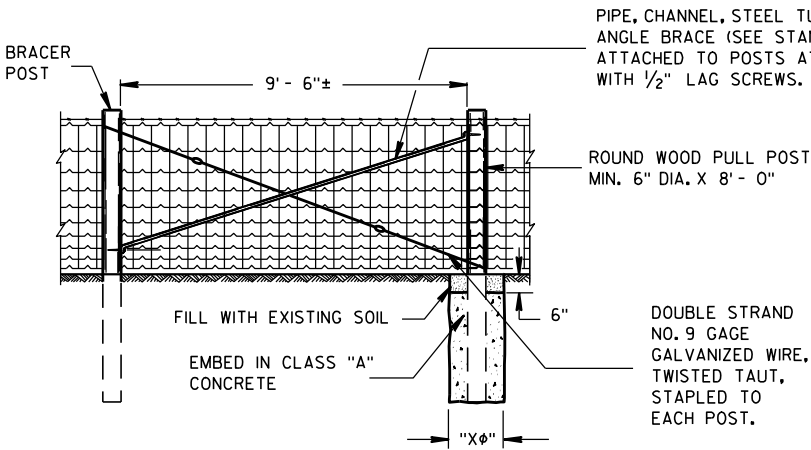
DELINEATOR LAYOUT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

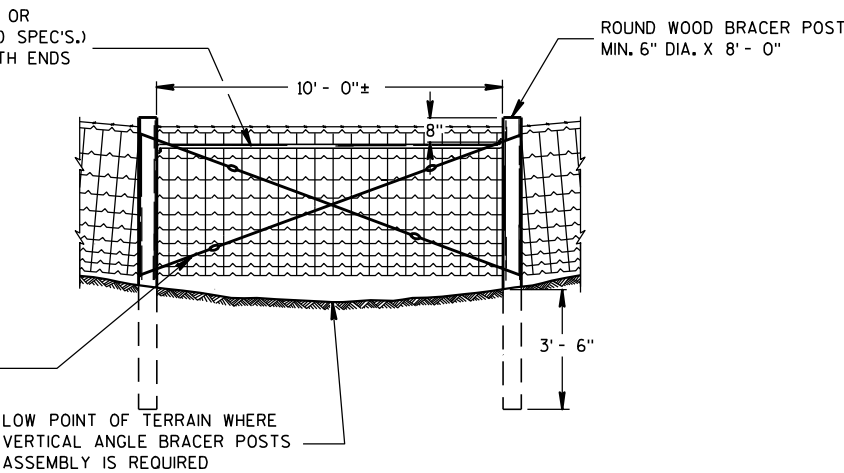
APPROVED
2/5/09 /S/ Thomas N. Notbohm
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



PULL OR STRETCHER POSTS ASSEMBLY



VERTICAL ANGLE BRACER POSTS ASSEMBLY

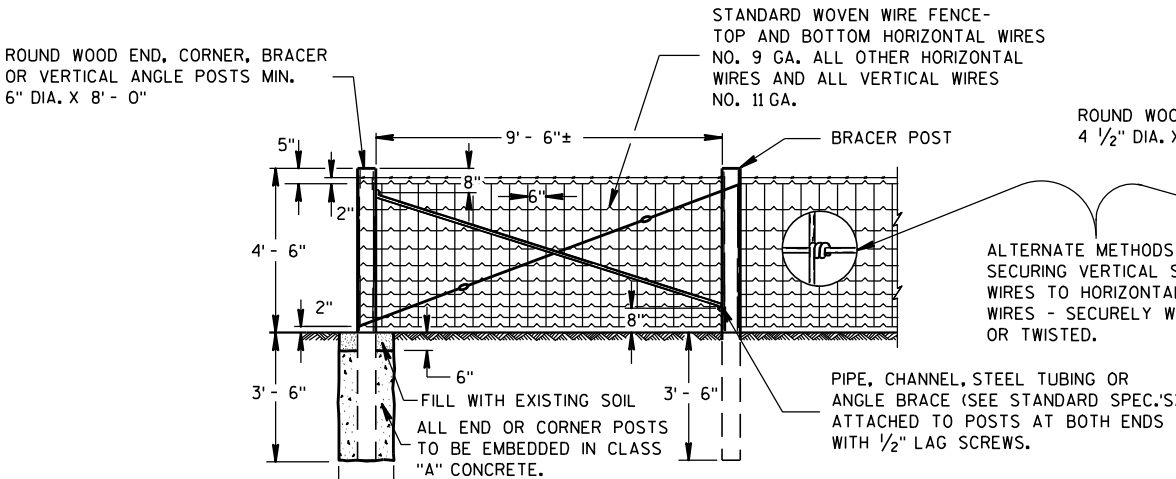
GENERAL NOTES

"Xφ" = DIAMETER OF THE POST PLUS 12".

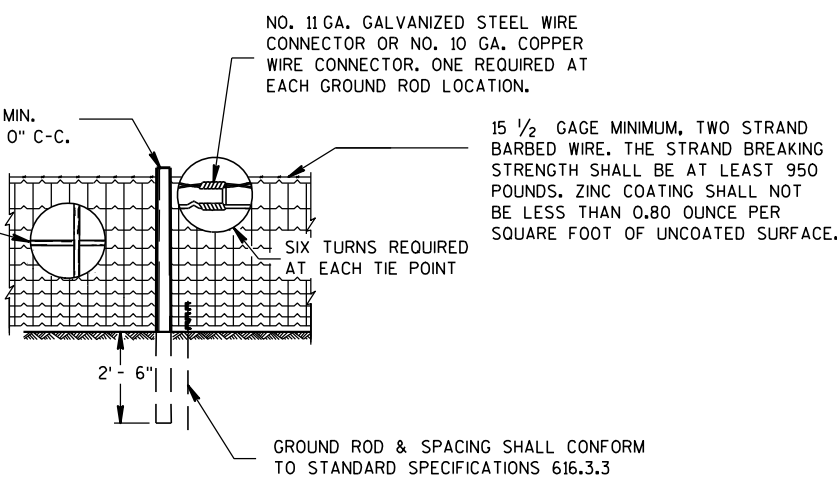
FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.

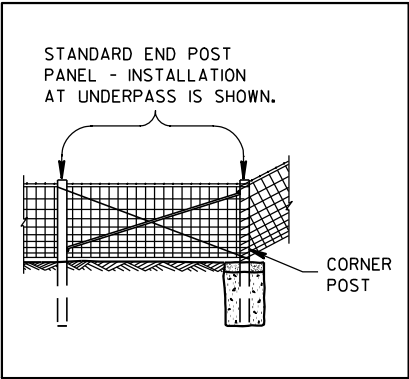


END OR CORNER POSTS ASSEMBLY

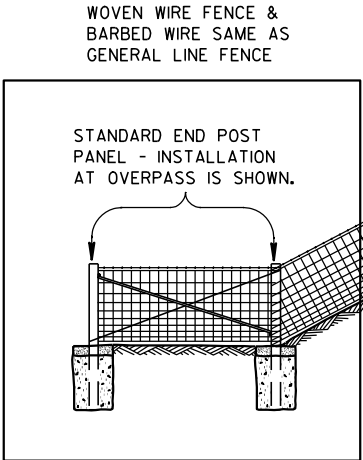


LINE FENCE CONSTRUCTION

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



ALTERNATE FENCE DESIGN AT STRUCTURE



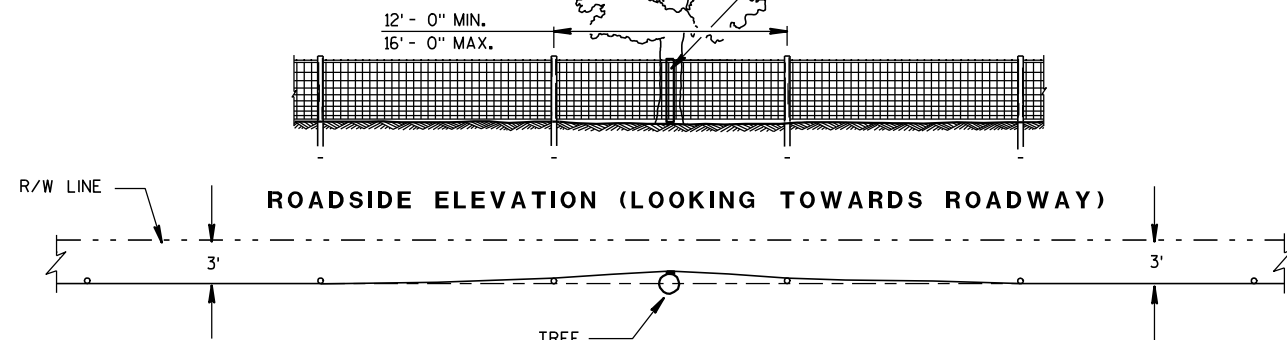
FENCE DESIGN AT STRUCTURE APPROACH

FENCE WOVEN WIRE

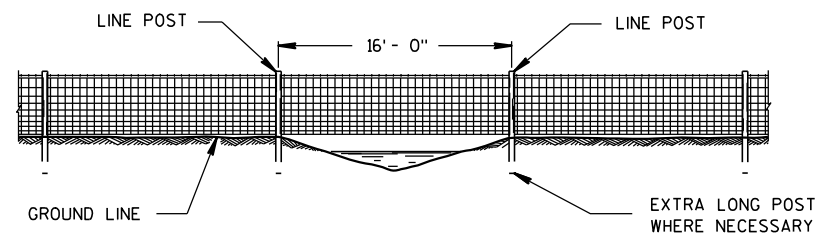
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

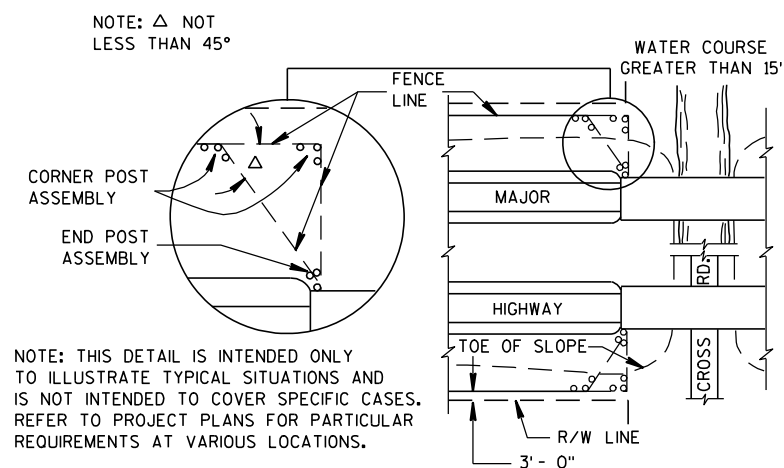
2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



PLAN VIEW
FENCE DESIGN AT TREES REMAINING
IN NORMAL FENCE LINE

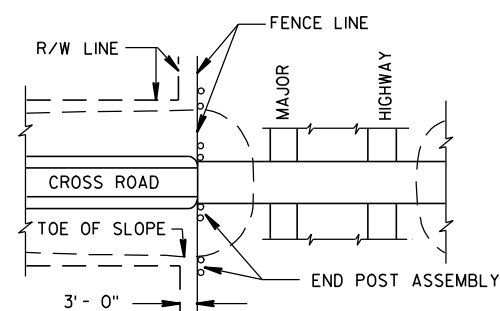


FENCE CONSTRUCTION OVER STREAM
COURSES OF 15 FT. OR LESS IN WIDTH

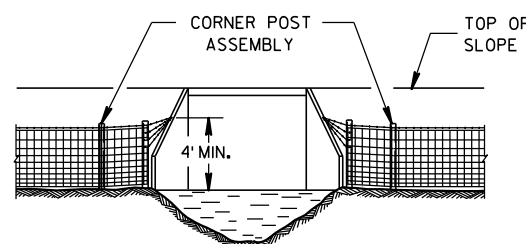


PLAN VIEW
MAJOR HIGHWAY OVERPASS OR STREAM COURSE
CROSSING OF GREATER THAN 15 FT. IN WIDTH

FENCE LOCATION AT STRUCTURES

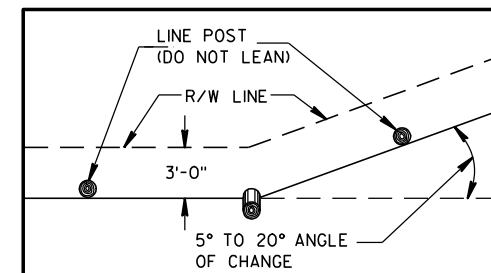
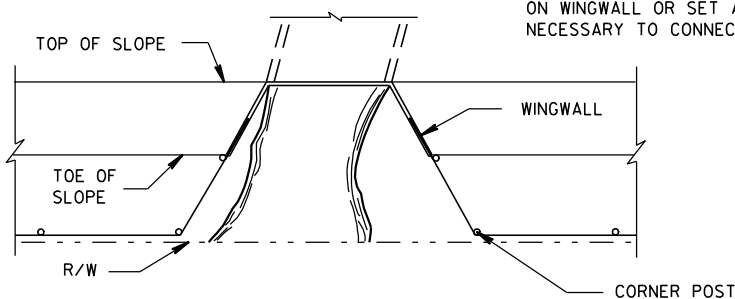


PLAN VIEW
MAJOR HIGHWAY UNDERPASS

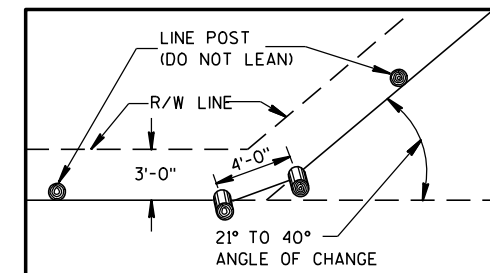


FENCE INSTALLATION TO WINGWALLS

NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



PLAN VIEW
SINGLE POST CORNER

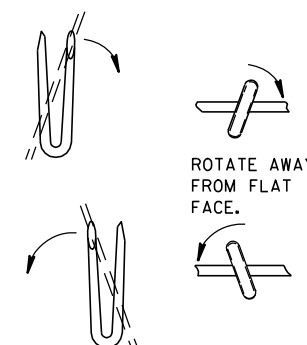


PLAN VIEW
DOUBLE POST CORNER

RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



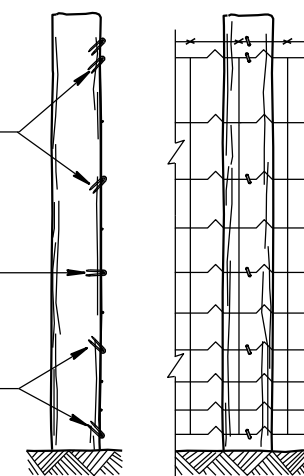
LINE POST

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.

STAPLES SLOPED DOWNWARD FOR SUSTAINED GRADES AND OVER KNOLLS.

STAPLES LEVEL FOR LEVEL GROUND.

SLOPE UPWARDS WHEN FENCE TENDS TO LIFT.



END ELEVATION
FARM SIDE ELEVATION
FENCE MOUNTING DETAIL

FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

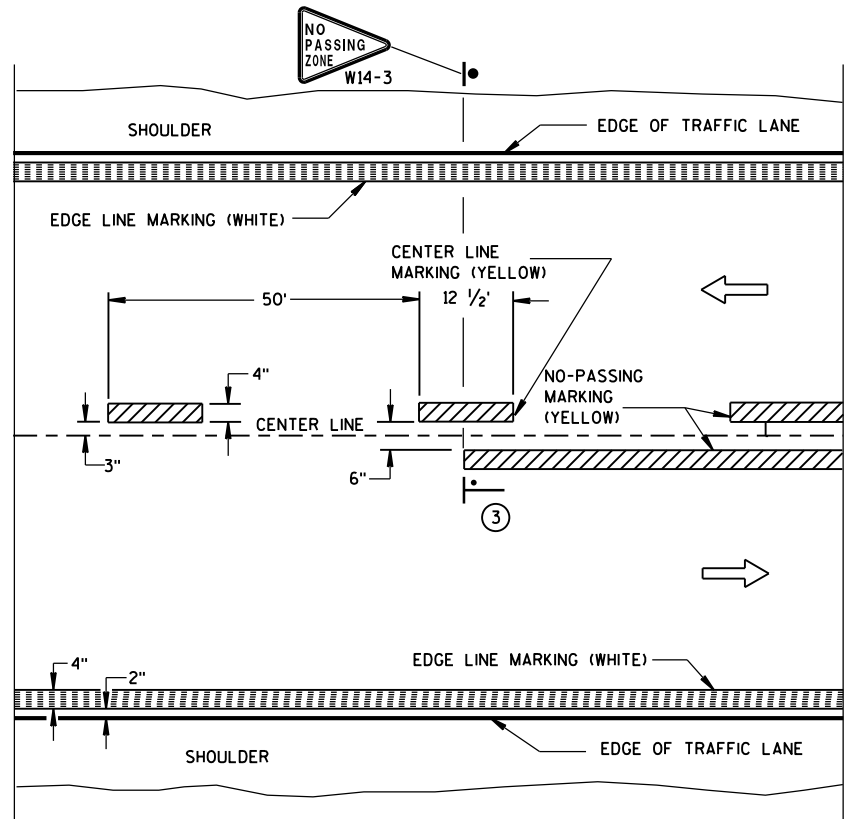
APPROVED

4/4/2008

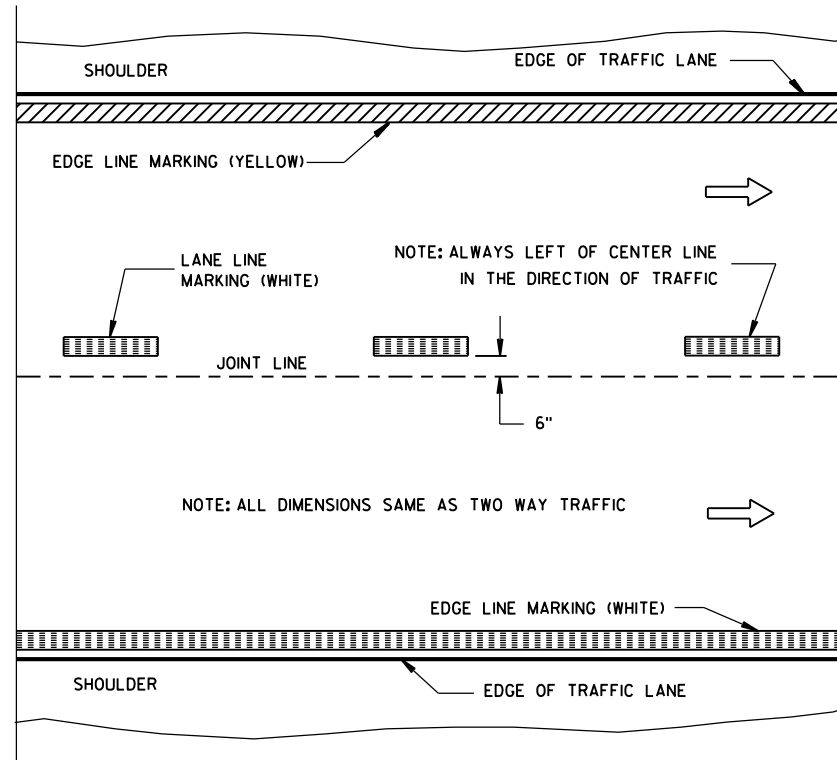
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

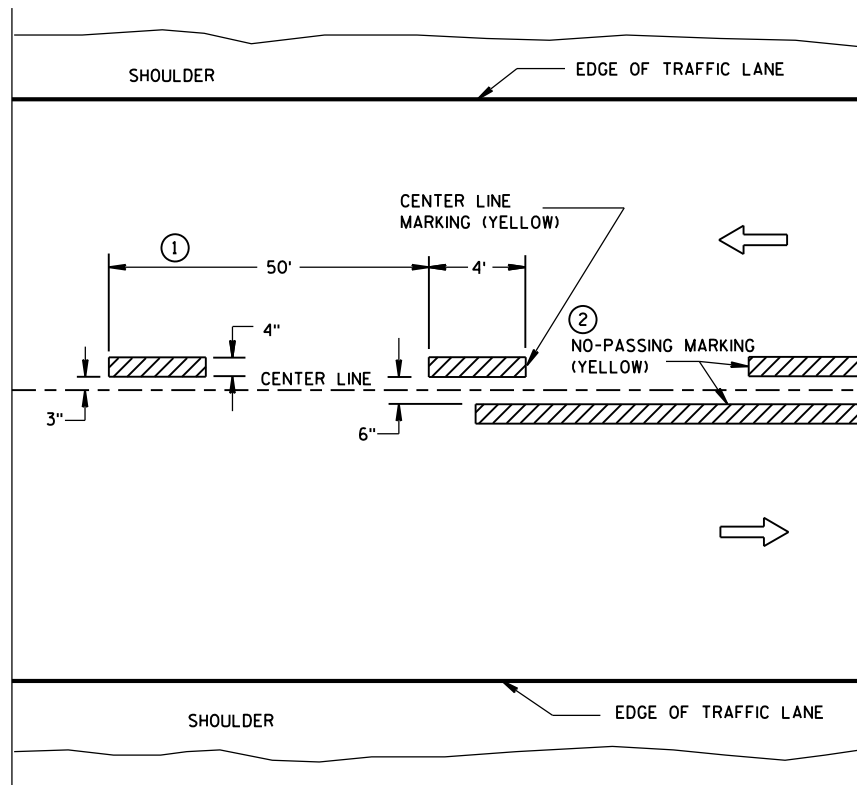


TWO WAY TRAFFIC

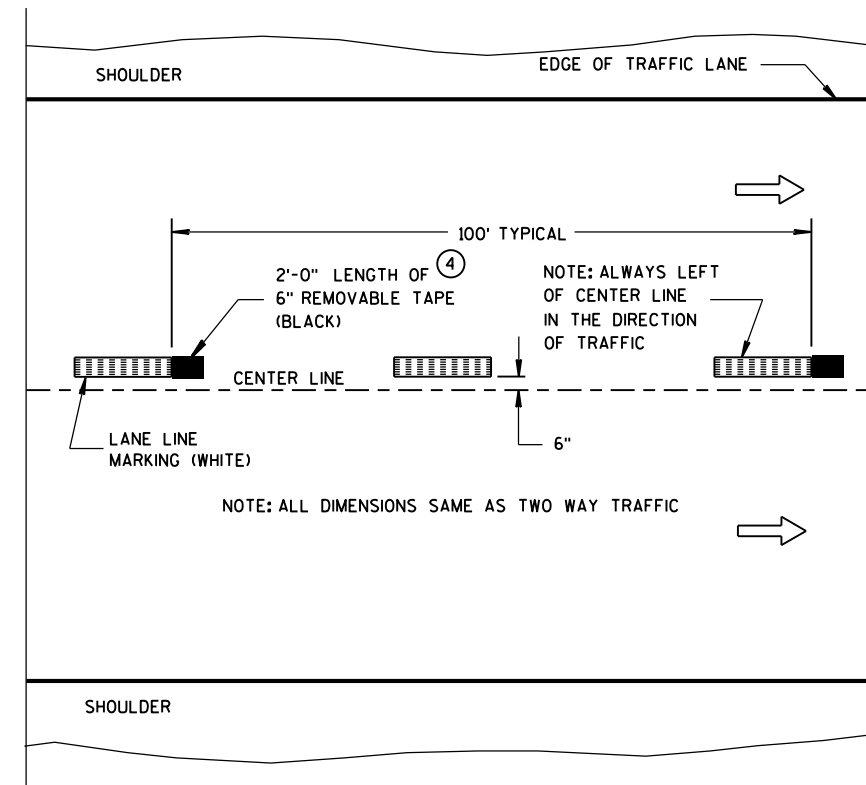


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

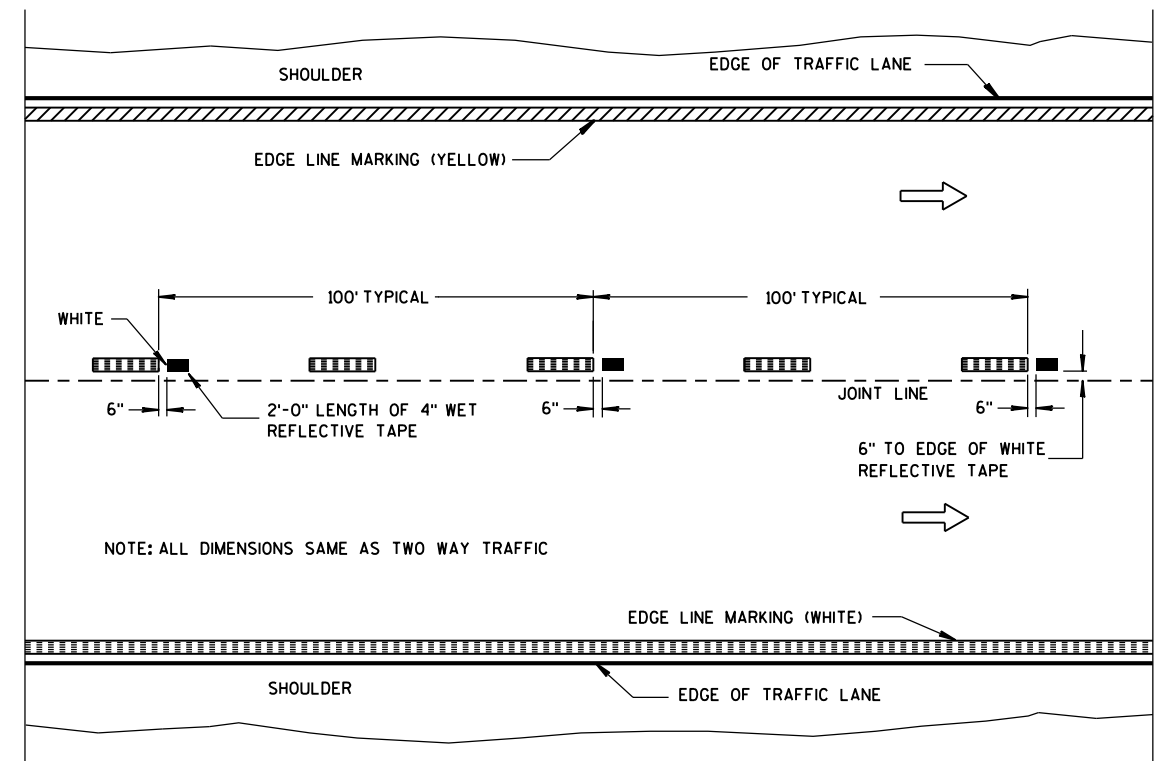
GENERAL NOTES

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

- 1 HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- 2 NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- 3 NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
- 4 CONCRETE ONLY.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

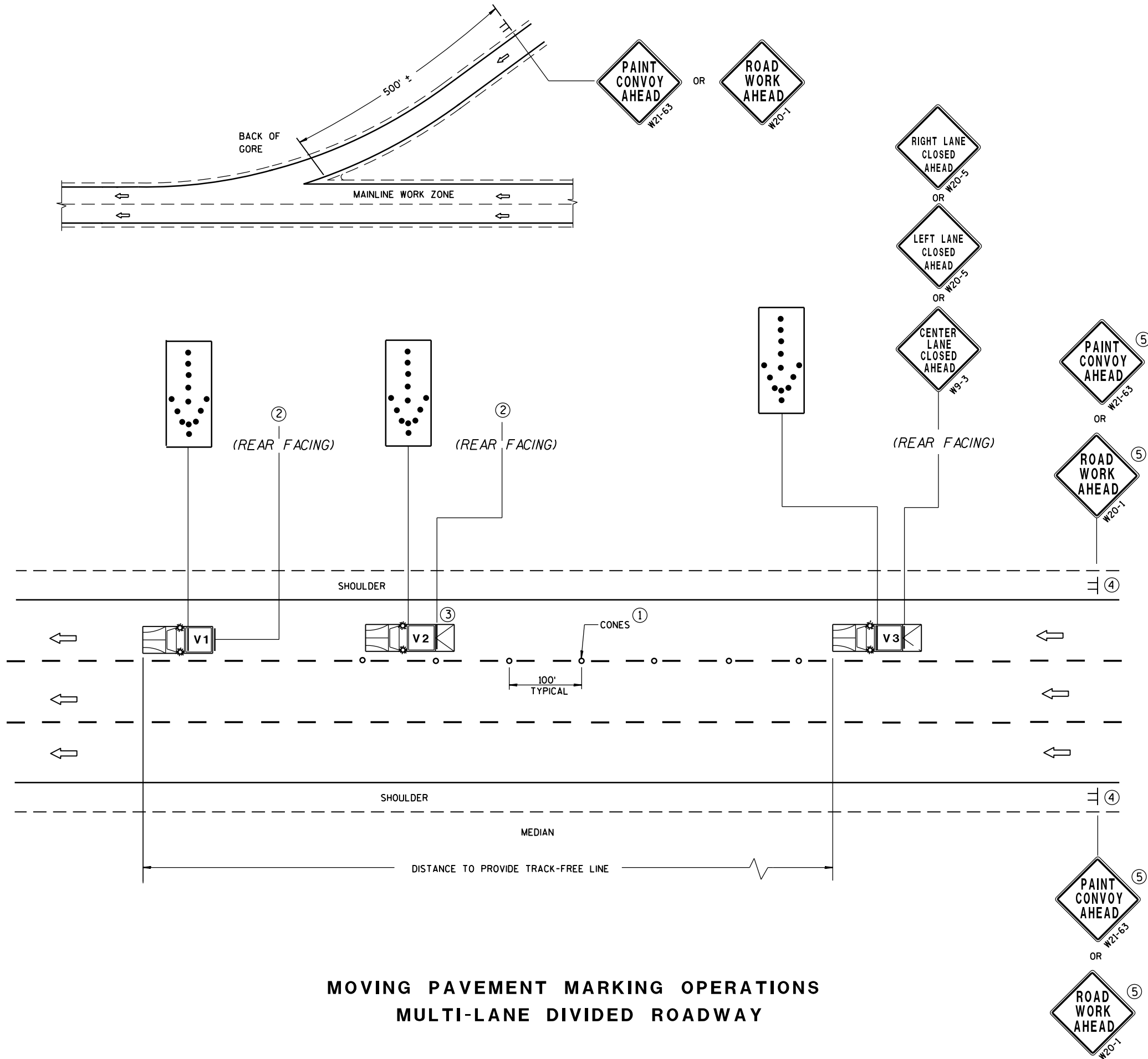
LEGEND

- "T" MARKING
- POST MOUNTED SIGN

PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-13-2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER
FHWA



MOVING PAVEMENT MARKING OPERATIONS
MULTI-LANE DIVIDED ROADWAY

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. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.

ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

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 OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

WHEN WORK ACTIVITY BLOCKS THE LEFT LANE, REVERSE TRAFFIC CONTROL.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

FOR EDGE LINE MARKING OR IF CONES ARE NOT USED, POSITION THE REARMOST SHADOW VEHICLE ON THE SHOULDER AS SHOWN IN THE MUTCD IF THE SHOULDER HAS ADEQUATE WIDTH. USE DOUBLE ARROWS WHEN CONVOY IS IN CENTER LANE ONLY.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

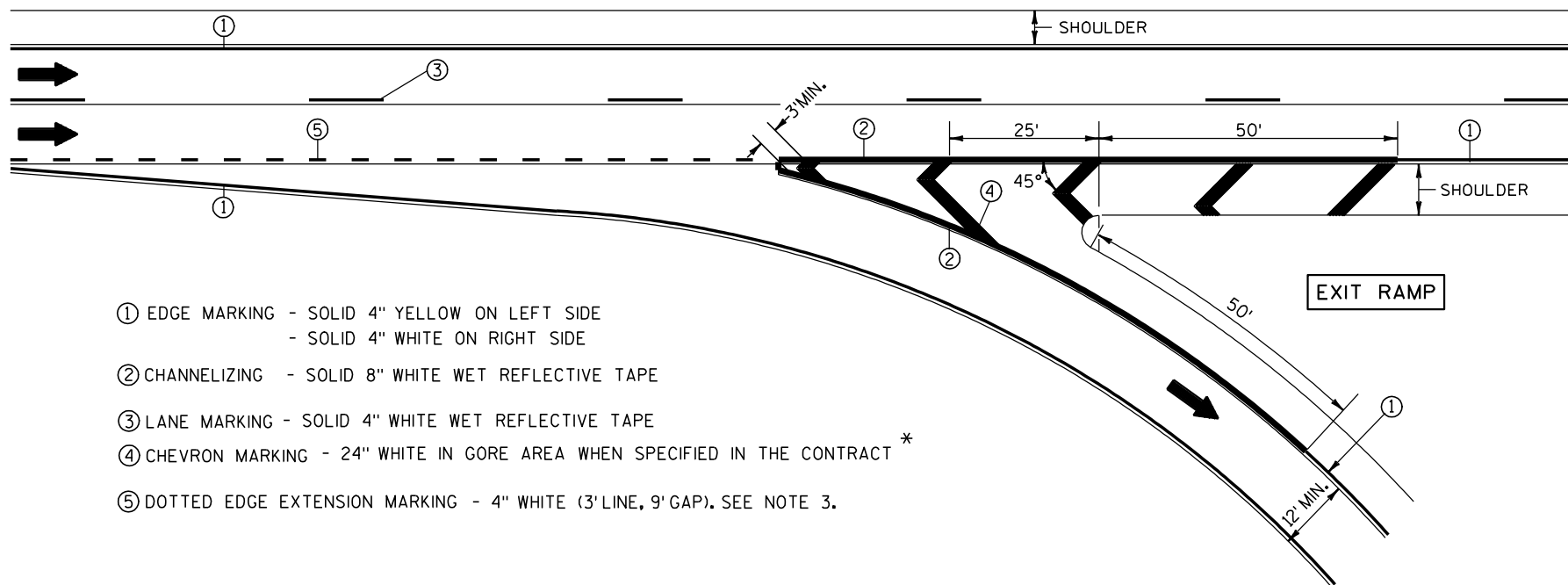
THIS DRAWING SHALL BE USED FOR EDGE LINE OR LANELINE MARKING FOR MULTILANE DIVIDED ROADWAYS.

- ① CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.
- ② USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.
- ③ OPTIONAL TRUCK-MOUNTED ATTENUATOR.
- ④ SIGNS SHALL BE REPEATED AFTER EVERY ON RAMP OR EVERY THREE MILES.
- ⑤ IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

LEGEND

- V1 LEAD VEHICLE
- V2 SHADOW VEHICLE
- V3 TRAIL VEHICLE WITH TMA
- TMA TRUCK-MOUNTED ATTENUATOR
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- CONES
- FLASHING ARROW PANEL (MERGE)

MOVING PAVEMENT MARKING OPERATION MULTI-LANE DIVIDED ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5/3/2013 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER
FHWA	

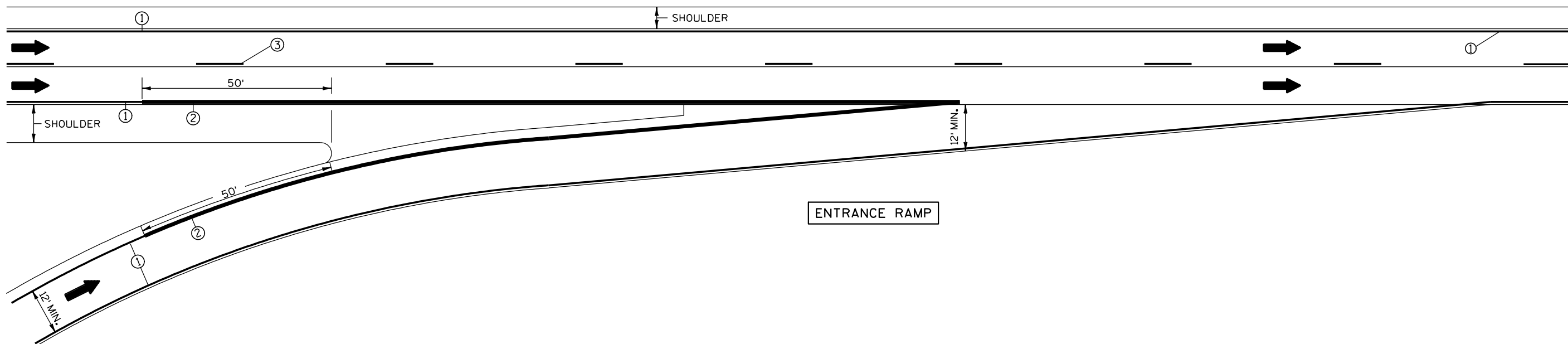


- ① EDGE MARKING - SOLID 4" YELLOW ON LEFT SIDE
- SOLID 4" WHITE ON RIGHT SIDE
- ② CHANNELIZING - SOLID 8" WHITE WET REFLECTIVE TAPE
- ③ LANE MARKING - SOLID 4" WHITE WET REFLECTIVE TAPE
- ④ CHEVRON MARKING - 24" WHITE IN GORE AREA WHEN SPECIFIED IN THE CONTRACT *
- ⑤ DOTTED EDGE EXTENSION MARKING - 4" WHITE (3' LINE, 9' GAP). SEE NOTE 3.

NOTES:

- 1. ARROWS SHOWN ON THIS MARKING PLAN DESIGNATE TRAFFIC FLOW, AND SHALL NOT BE TAKEN AS PROPOSED PAVEMENT MARKINGS.
- 2. PLACE WHITE EDGE OF TAPE 6" LEFT FROM JOINT.
- 3. 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE-GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
- 4. RETRACE EXISTING DIAGONAL MARKINGS.

* REFER TO DESIGN NOTES.



PAVEMENT MARKING
(RAMPS AND GORES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

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

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

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"W0" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

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

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

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

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

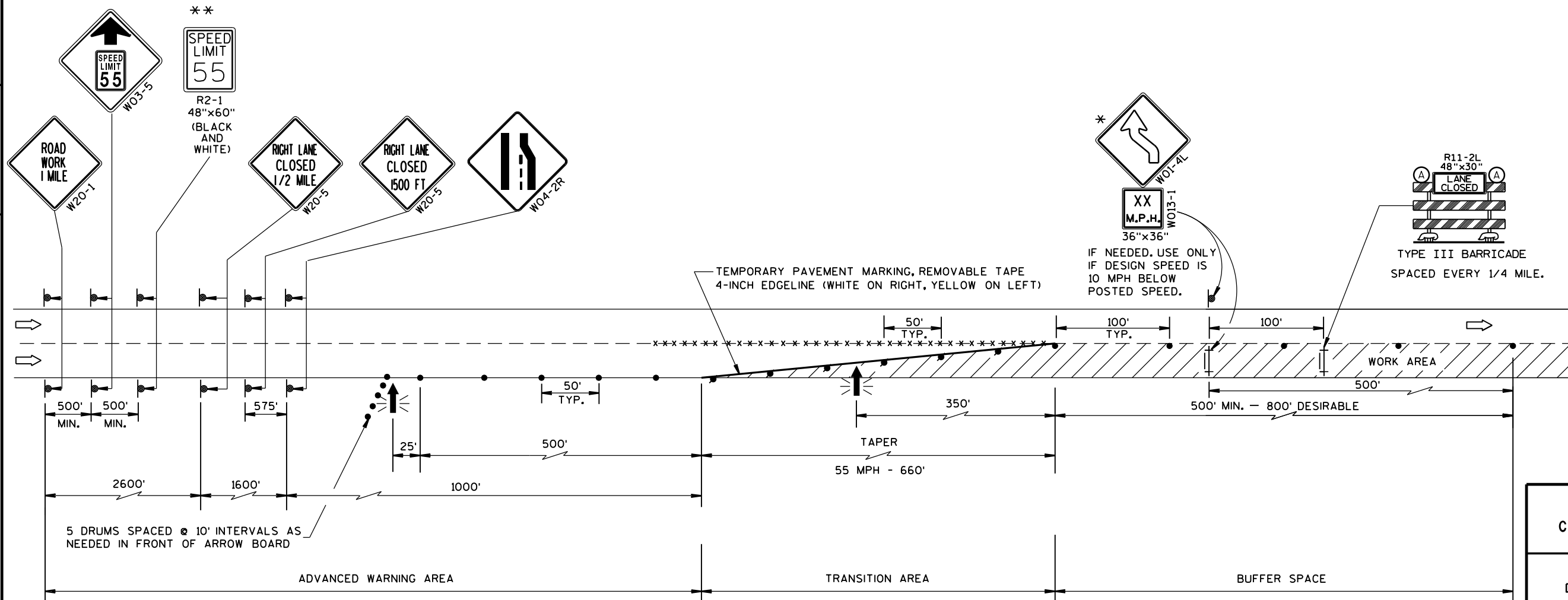
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

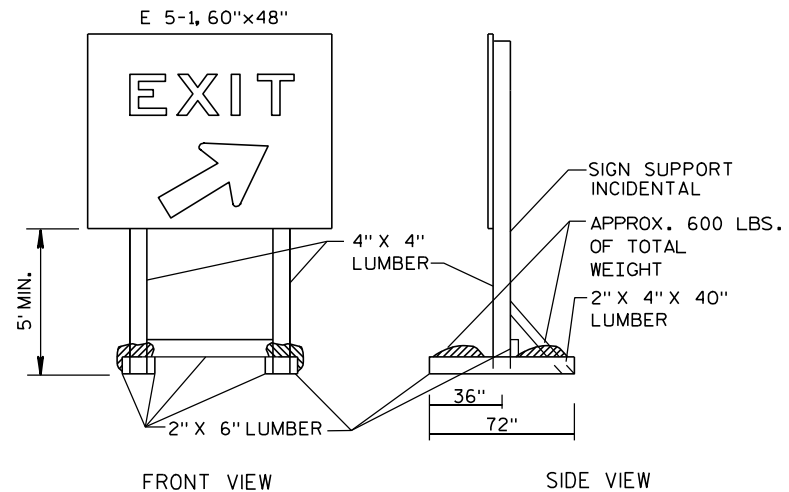
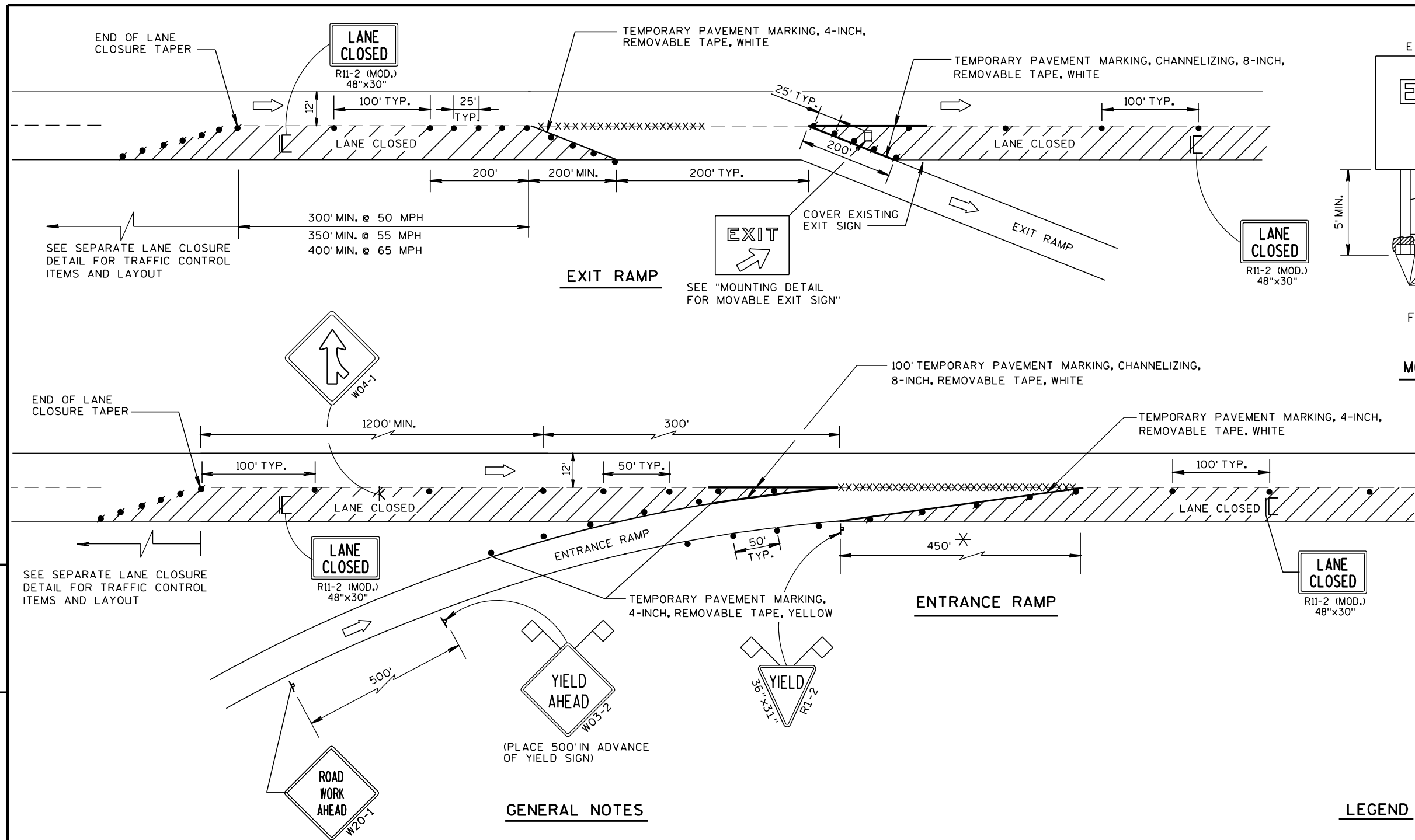
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN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

* THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.

** A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES. INCLUDE A 65 MPH RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIREABLE) BEYOND THE "END OF ROADWORK" SIGN.



TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3-2014 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



NOTE: ALL LUMBER DIMENSIONS ARE NOMINAL
MOUNTING DETAIL FOR MOVABLE EXIT SIGN

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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

THE SPACING BETWEEN 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"x48" UNLESS OTHERWISE NOTED.

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2 (MOD.) "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 7 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

* LENGTH OF OPENING MAY BE REDUCED TO 150 FEET DURING STAGING OF WORK IN IMMEDIATE AREA OF RAMP TAPER.

LEGEND

- POST MOUNTED SIGN
- SIGN ON PORTABLE SUPPORT
- TRAFFIC CONTROL, DRUM
- TRAFFIC CONTROL, DRUM WITH WARNING LIGHT, TYPE C (STEADY-BURN)
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE (8' EQUIVALENT) WITH SIGN
- FLAGS, 16"x16" MIN., ORANGE
- DIRECTION OF TRAFFIC FLOW

TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/24/2000 DATE /S/ Chester J. Spang
CHIEF SIGNS AND MARKING ENGINEER
FHWA

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

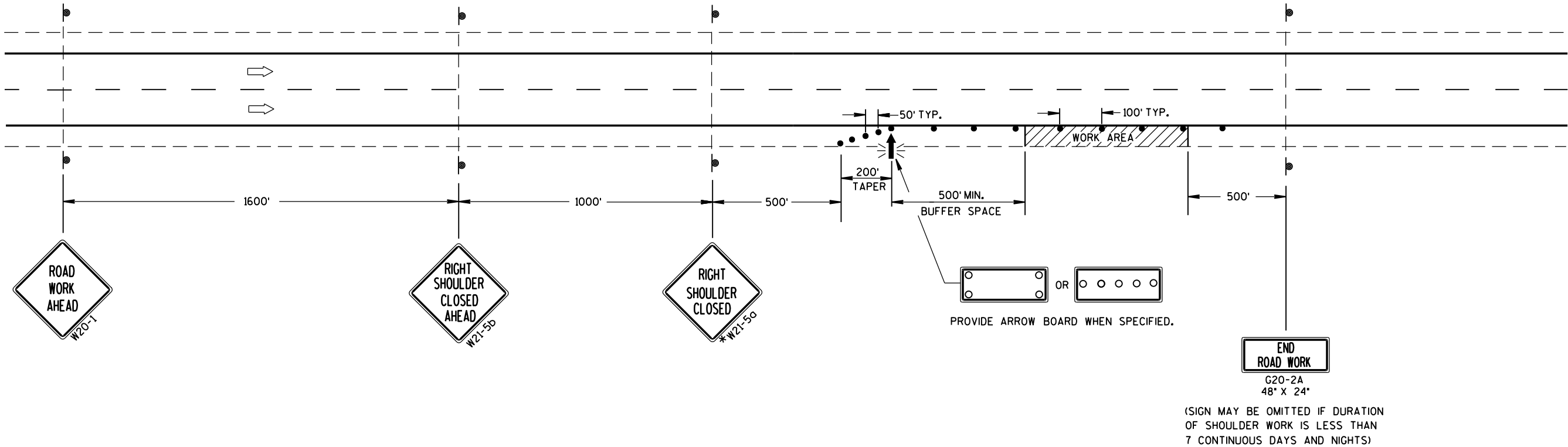
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

WHEN A 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.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



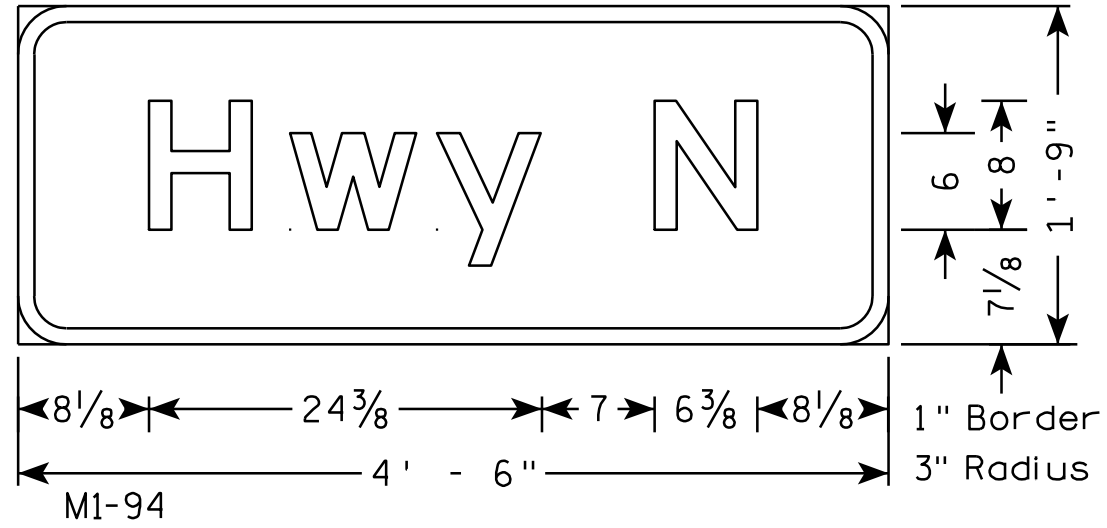
TRAFFIC CONTROL
SHOULDER CLOSURE ON DIVIDED
ROADWAY, SPEEDS GREATER
THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

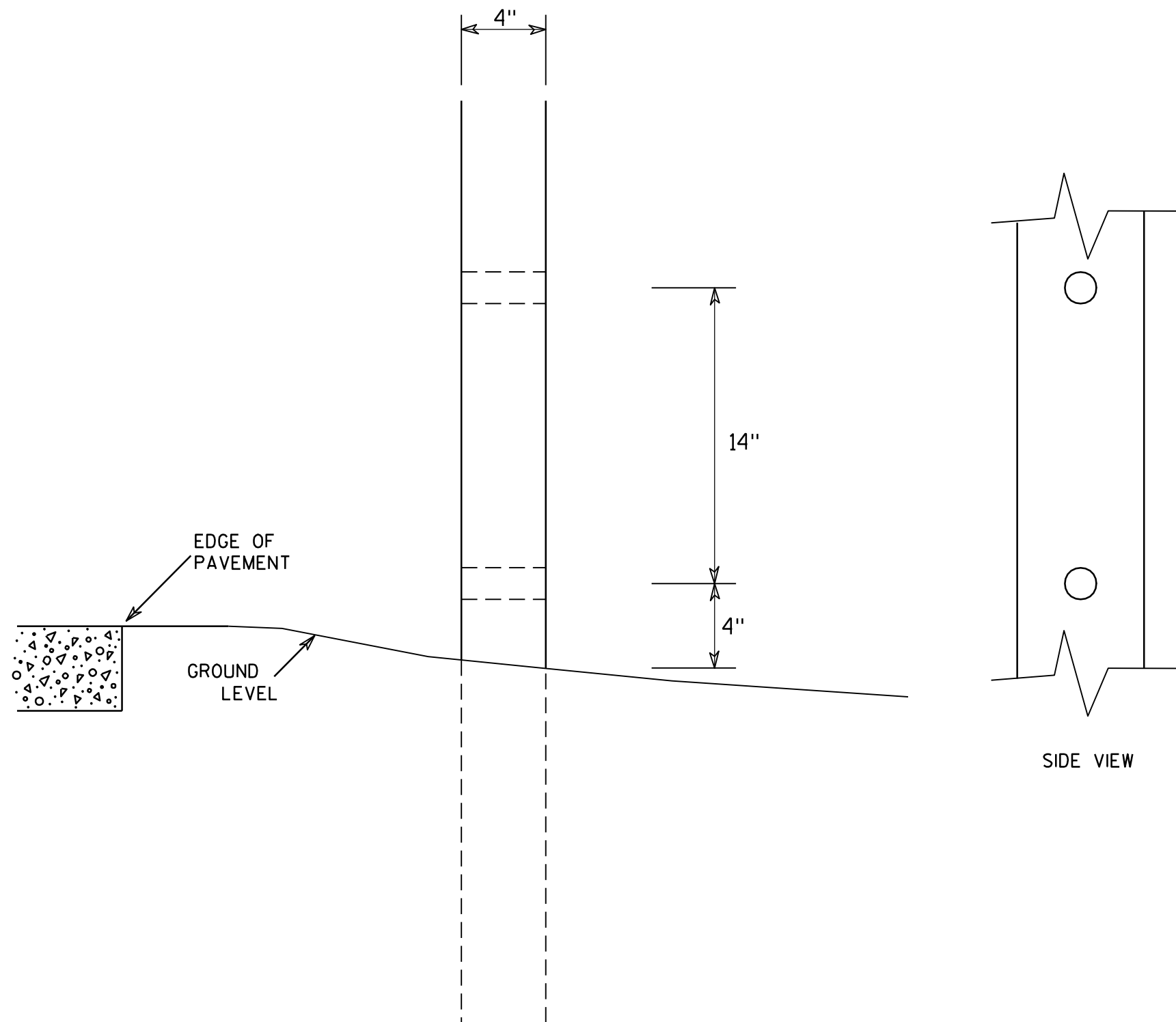
APPROVED
8/2013 /S/ Travis Feltz
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - GREEN
Message - WHITE
3. Message Series - E



7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

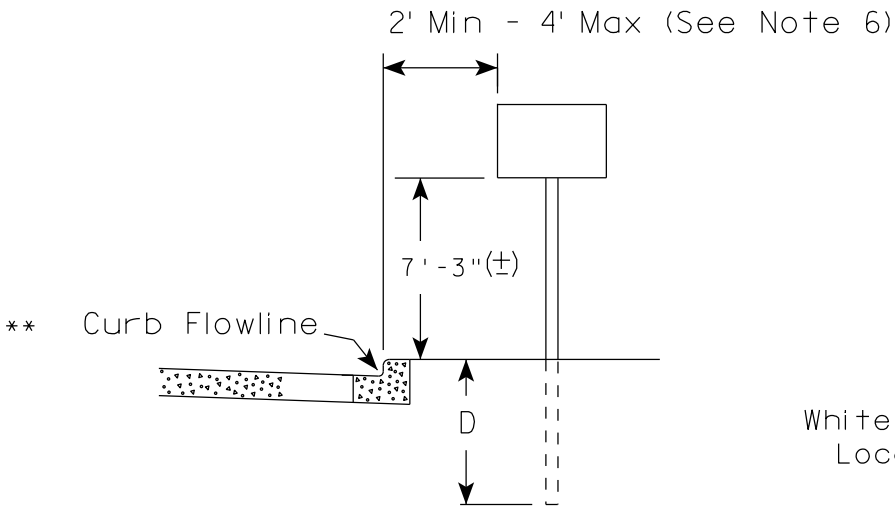
HWY:

COUNTY:

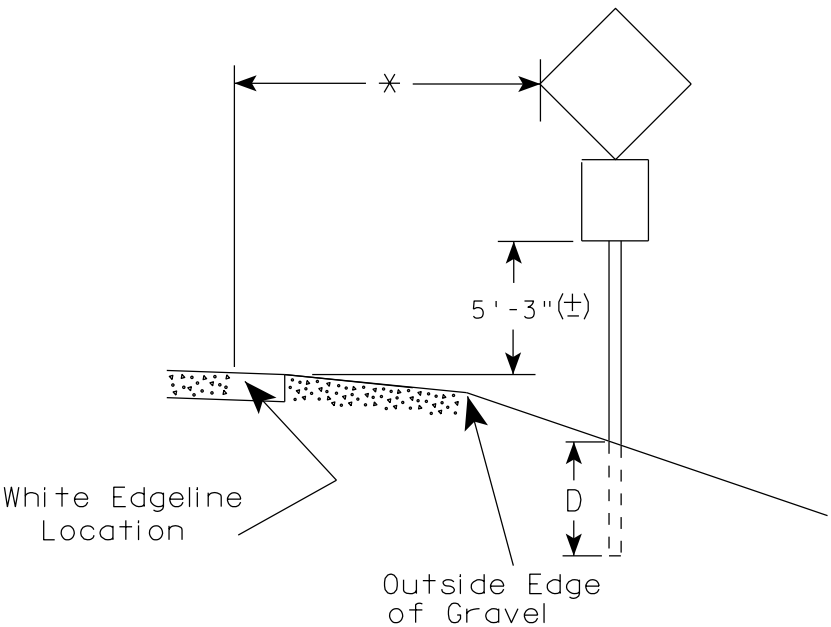
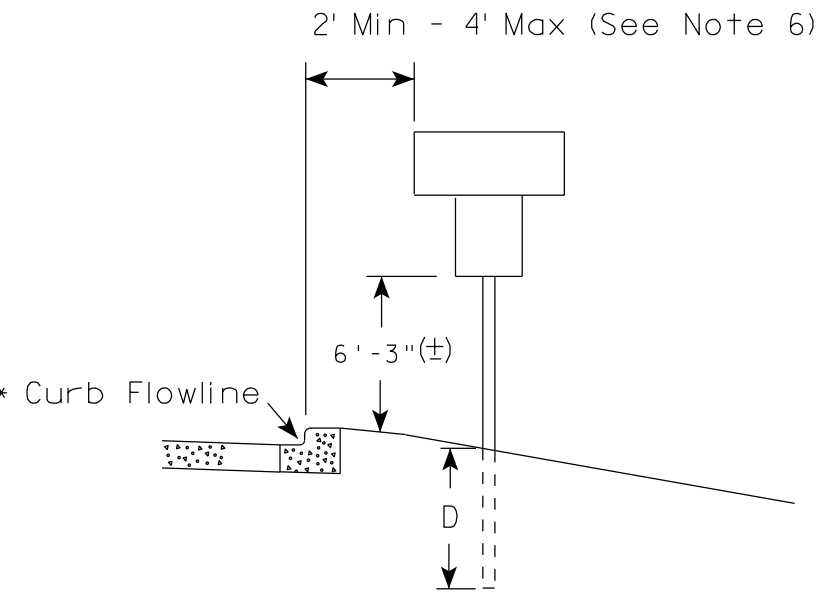
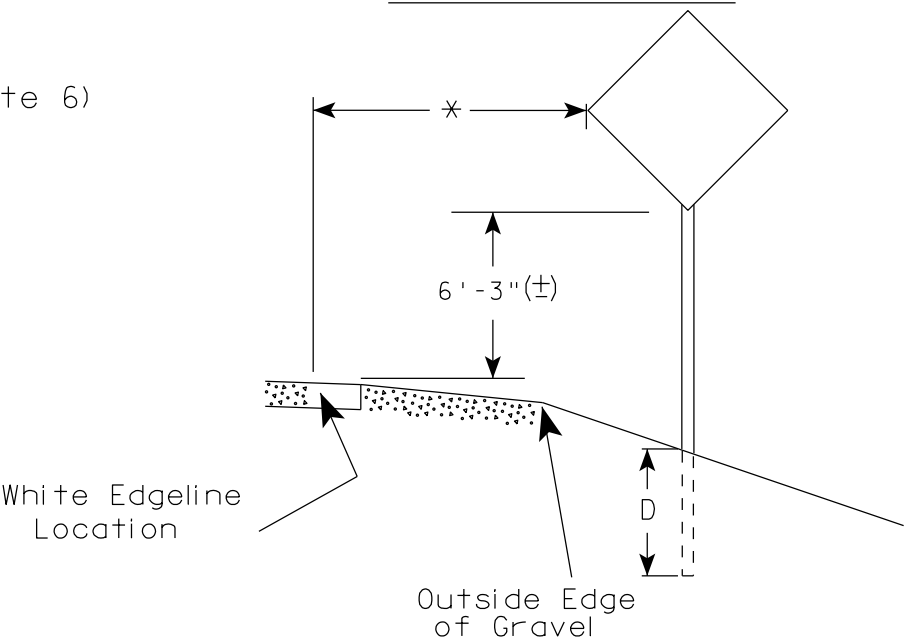
SHEET NO:

E

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series) & End of Rod Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (+).

POST EMBEDMENT DEPTH

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

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

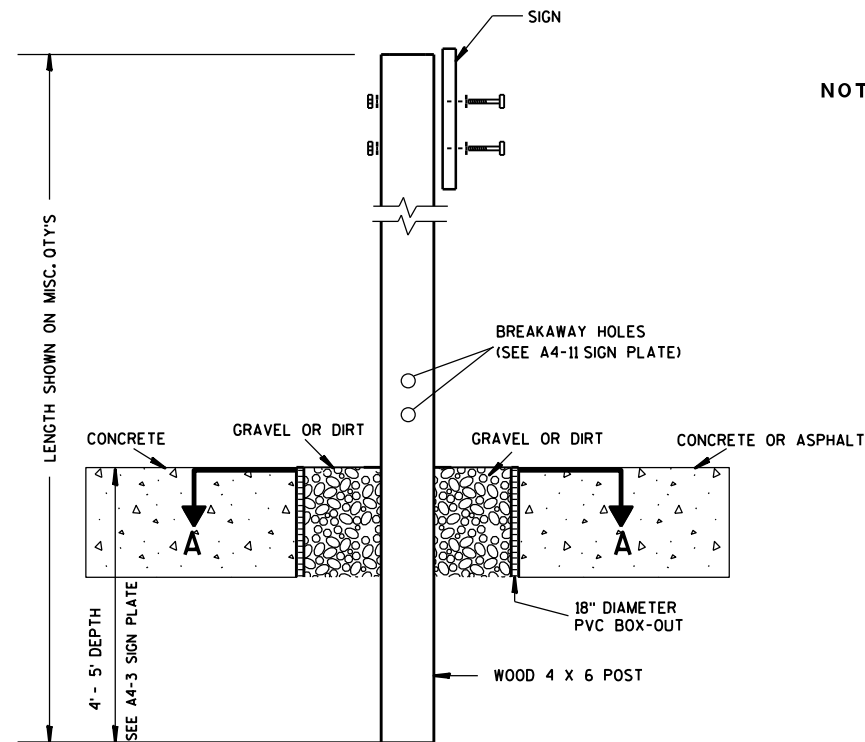
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

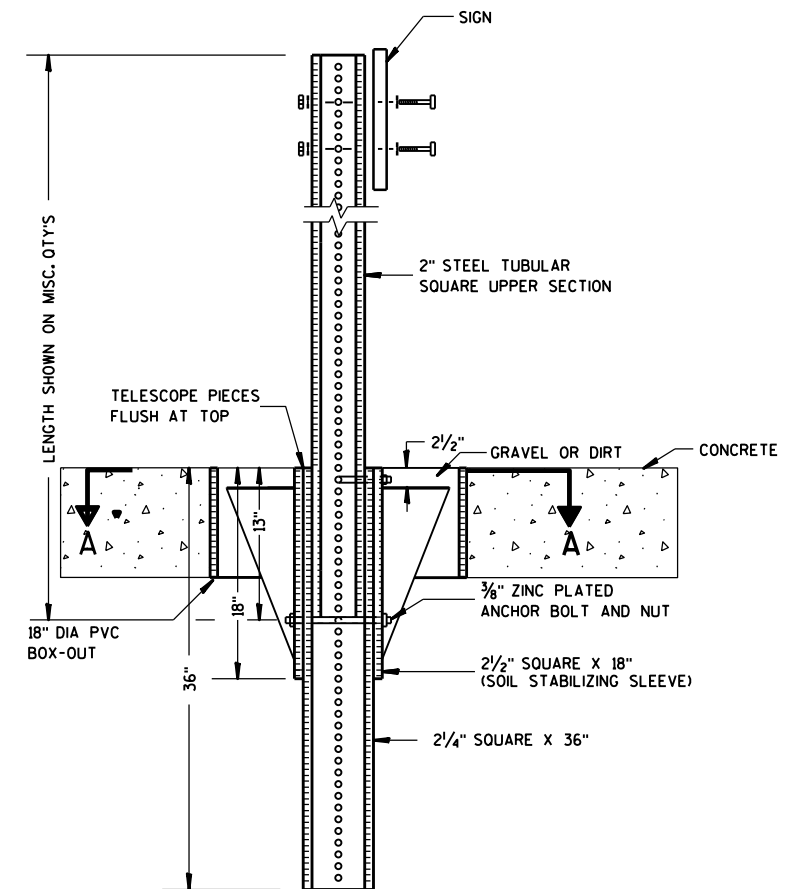
DATE 9/30/13 PLATE NO. A4-3.18



ELEVATION VIEW

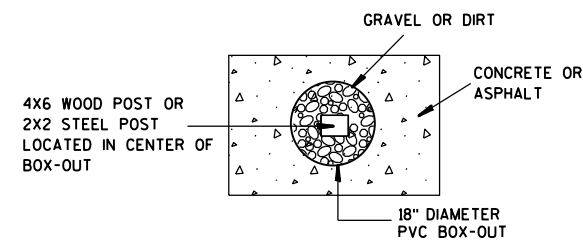
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

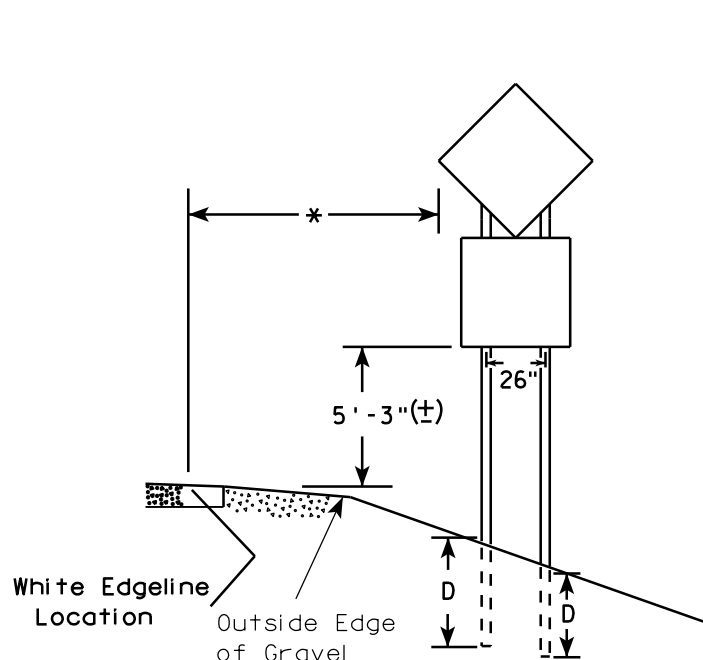
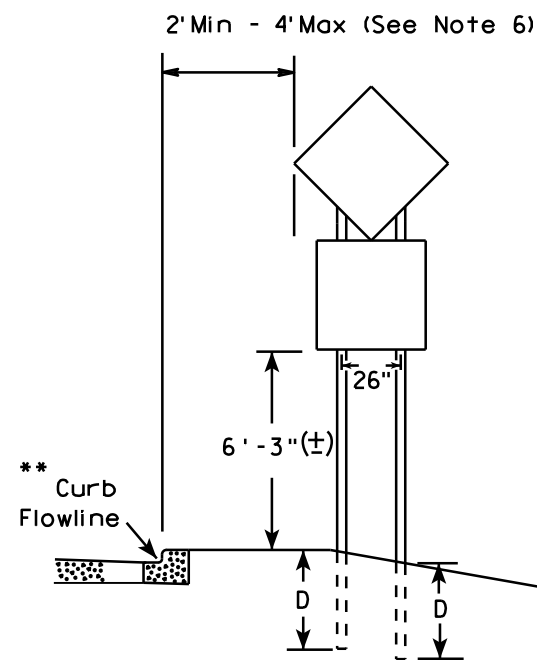
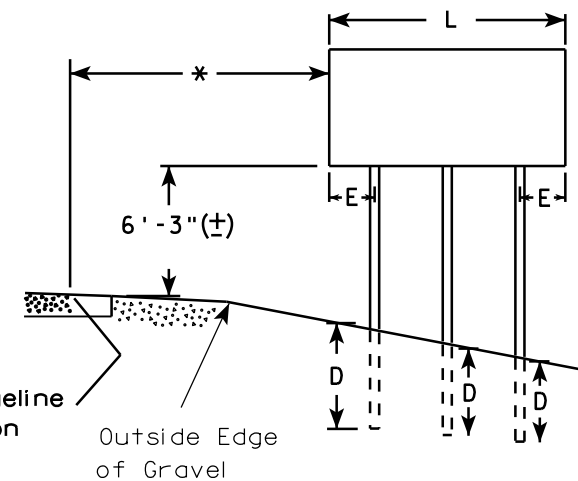
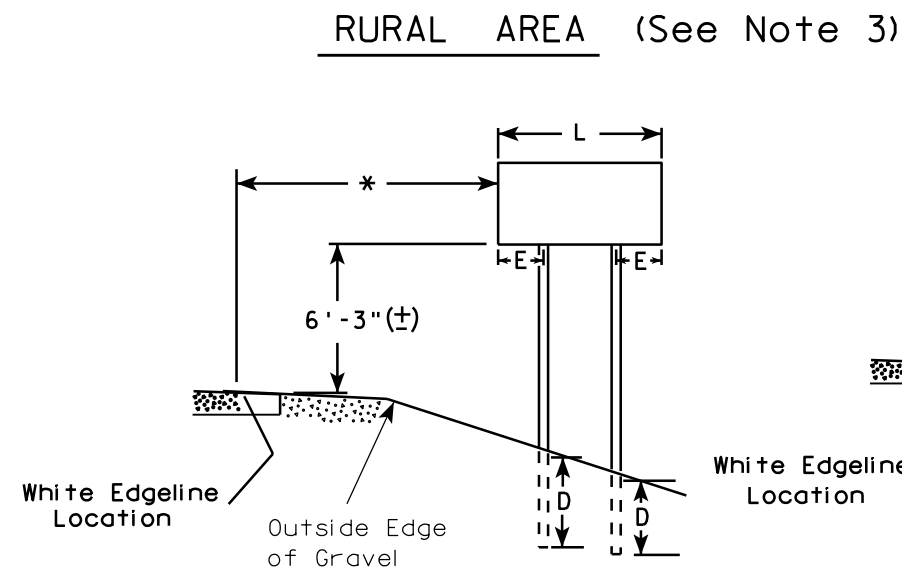
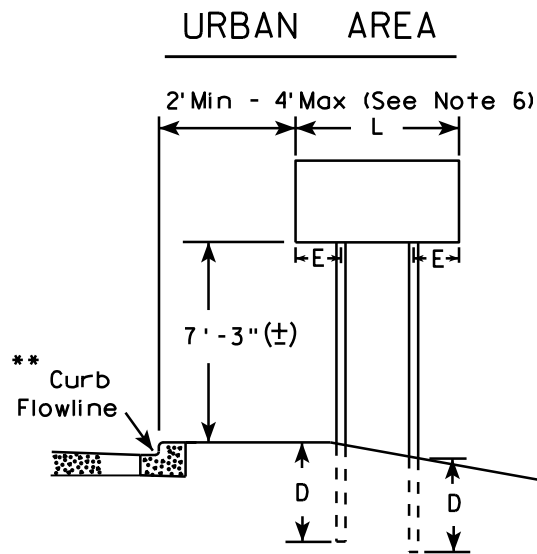
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



48" DIAMOND WARNING SIGN

48" DIAMOND WARNING SIGN

- 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. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. Folding stop signs (R1-1F) 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) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).

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

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

*** See A4-3 sign plate for signs 4' or less in width or 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 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	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 4/29/14 PLATE NO. A4-4.13

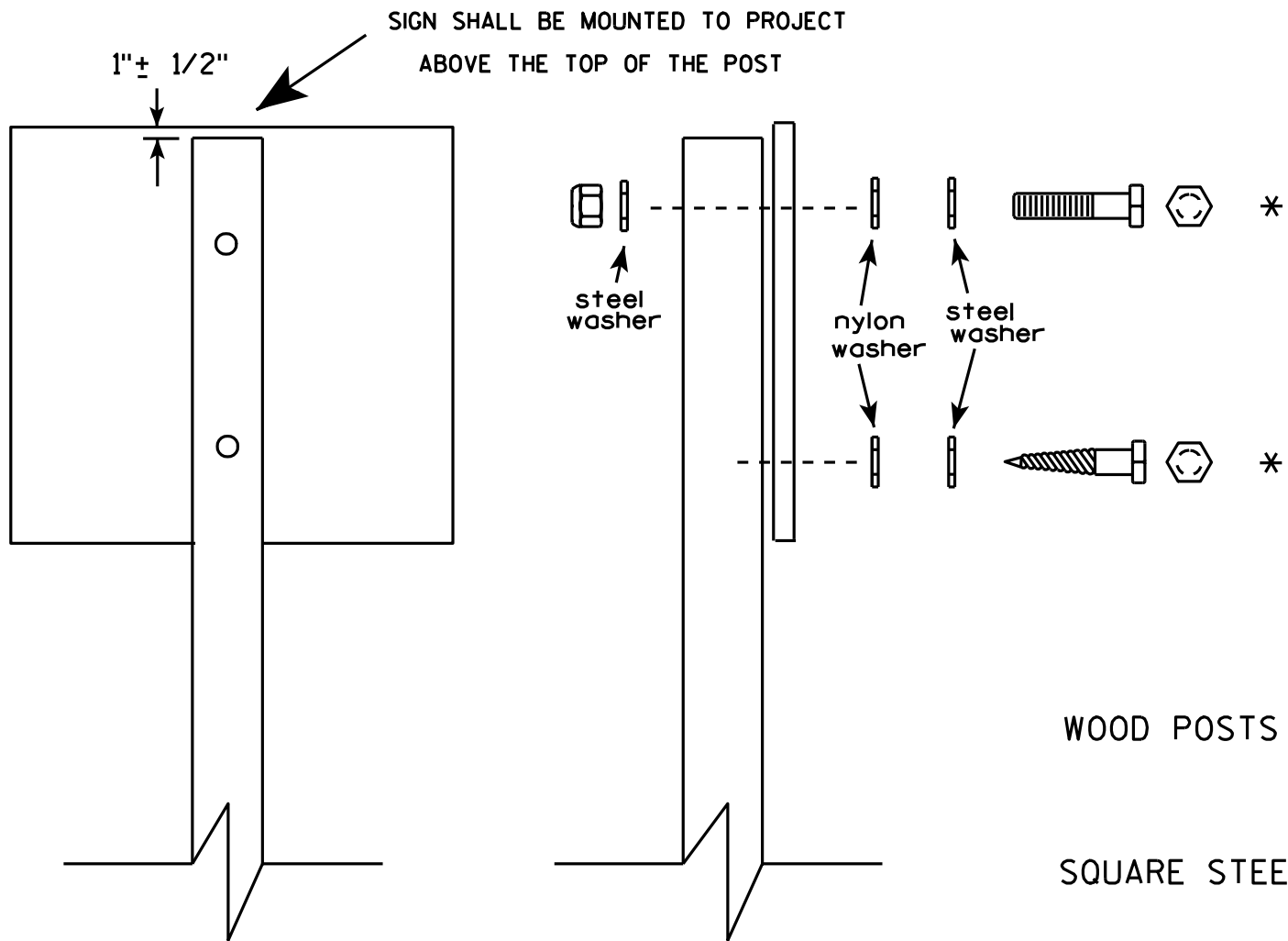
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

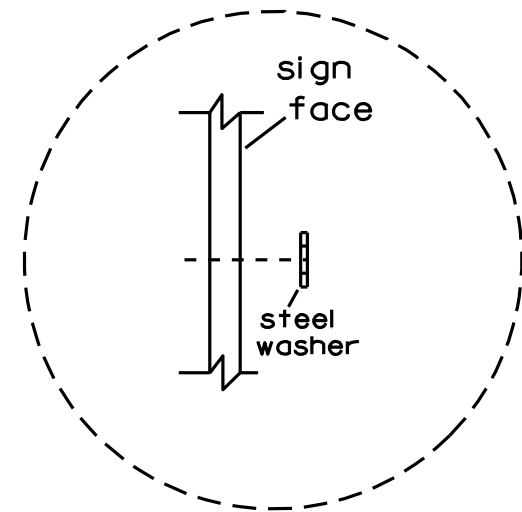


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

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

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

- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3"
- MACHINE BOLTS - $\frac{5}{16}$ " X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON for all Type H signs.

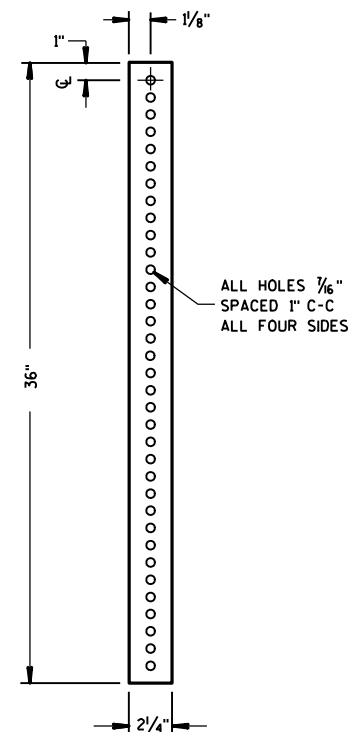


Washer Placement when Sign Has Other Than Type H or Type F Face

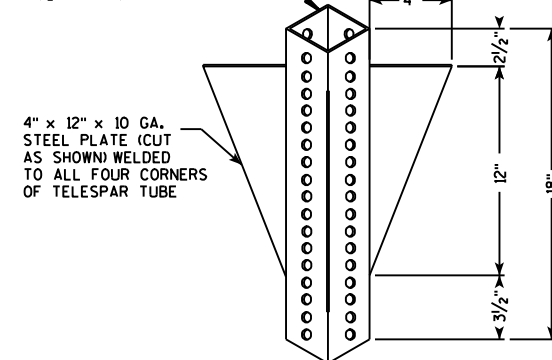
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7

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



2 1/2" or 2 1/4" TELESAR TUBE



LENGTH SHOWN ON MISC. QTY'S

SIGN

SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES

TELESCOPE PIECES FLUSH AT TOP

$\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT

$2\frac{1}{2}$ " GRAVEL OR DIRT

18" DIA PVC BOX-OUT

13"

18"

36"

$\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT

$2\frac{1}{2}$ " SQUARE X 18" (SOIL STABILIZING SLEEVE)

$2\frac{1}{4}$ " SQUARE X 36"

LENGTH SHOWN ON MISC. QTY'S

SIGN

SEE SIGN PLATE A4-B FOR BOLT WASHER, & NUT MATERIAL

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES

TELESCOPE PIECES FLUSH AT TOP

1"

12"

18"

36"

$\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT

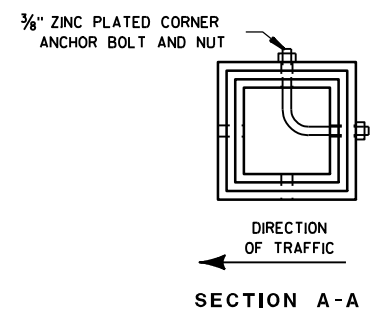
1"

$\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT

2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)

2 1/4" SQUARE X 36"

A



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

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

DATE 5/30/12 PLATE NO. A4-9.7

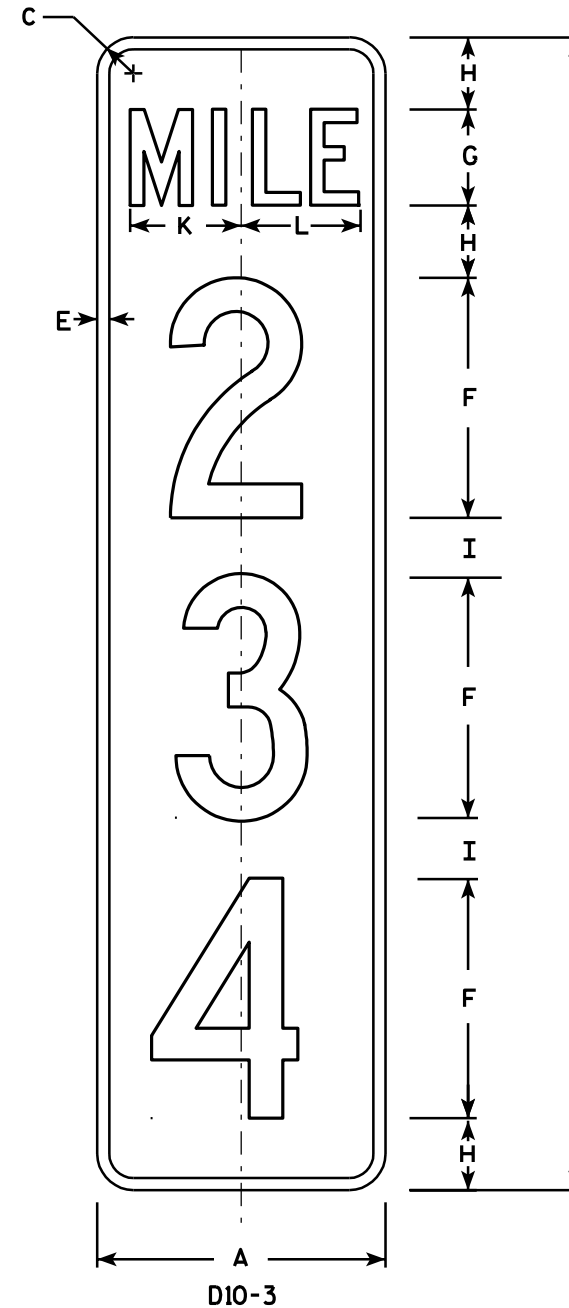
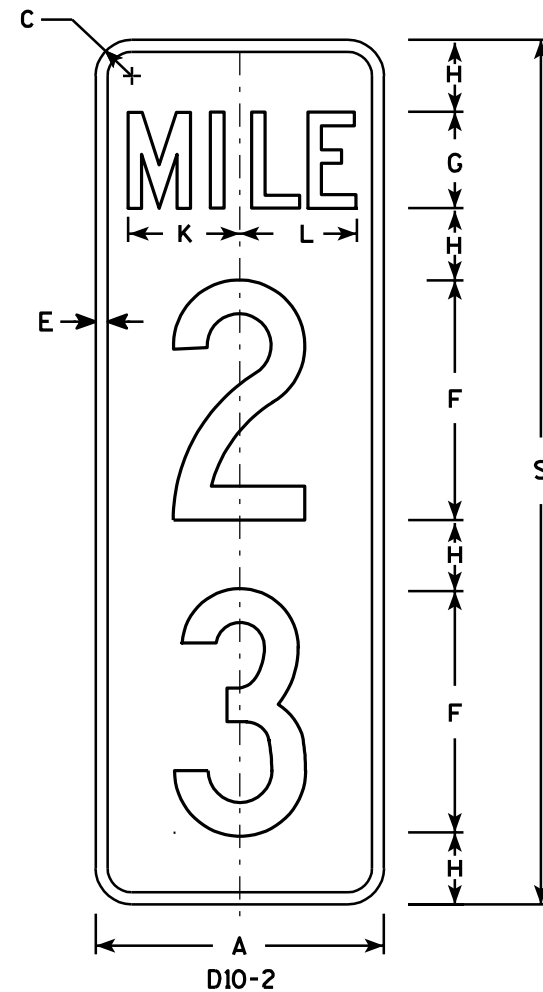
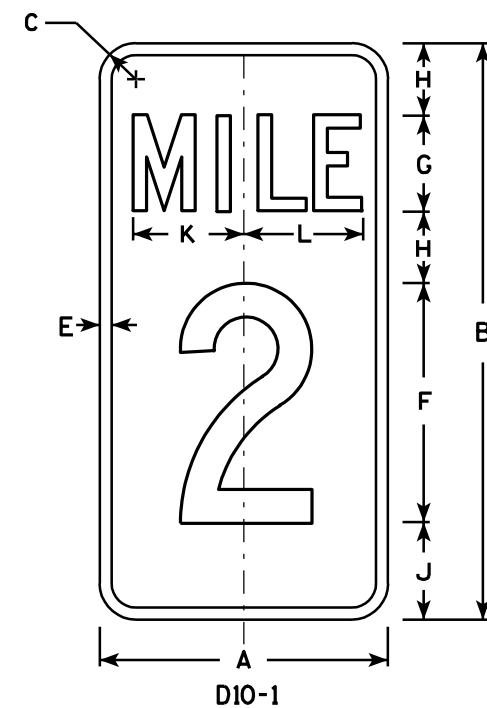
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
 - Background - Green
 - Message - White - Type H Reflective
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Optically adjust numerals about the centerline of the sign to achieve proper balance.

7

Metric equivalent
for this sign is:

PHY. SIZE	
12 X 24	300 mm X 600 mm
12 X 36	300 mm X 900 mm
12 X 48	300 mm X 1200 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1																										
2																										
3																										
4	12	24	1 1/2		1/2	10	4	3	2 1/2	4	4 5/8	4 7/8							36	48						
5	12	24	1 1/2		1/2	10	4	3	2 1/2	4	4 5/8	4 7/8							36	48						

D10-1	D10-2	D10-3
Area sq. ft.	Area sq. ft.	Area sq. ft.
2.0	3.0	4.0
Area m ²	Area m ²	Area m ²
.19	.28	.38

STANDARD SIGN
D10-1 , D10-2 & D10-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang
for Director, Office of Traffic

DATE 1/16/02 PLATE NO. D10-3.2

PROJECT NO:				SHEET NO:	E
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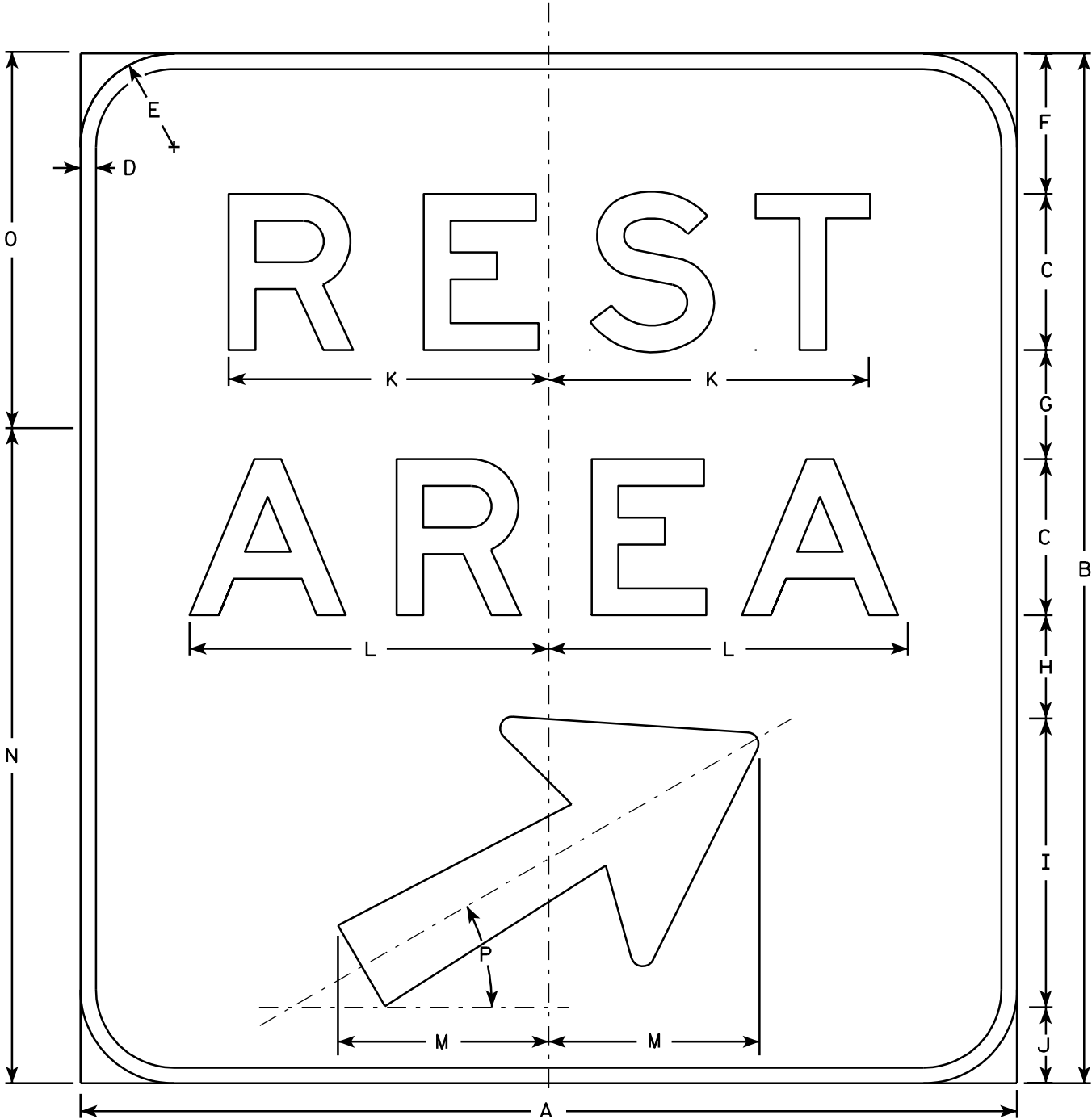
7

Metric equivalent
for this sign is:

SIZE	
1	
2	
3	
4	1500 mm X 1650 mm
5	1800 mm X 1800 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m ²
1																												
2																												
3																												
4	60	66	10	1	6	9	7	6 5/8	18 1/2	4 7/8	21	23	13 1/2	42	24	30°	18 1/4	29 1/4	14	6	1 1/2	4 1/2	3/4				27.5	2.47
5	72	72	12	1	9	9	7	8	18 1/2	5 1/2	25	27	13 1/2	48	24	30°	18 1/4	29 1/4	14	6	1 1/2	4 1/2	3/4				36.0	3.24

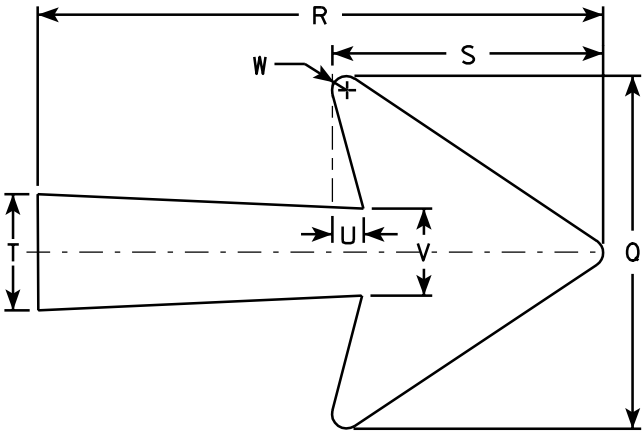
PROJECT NO:				HWY:				COUNTY:														SHEET NO:				E
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E5-54

NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
 - Background - Blue
 - Message - White
- 3. Message Series - E
- 4. Corners may be square or rounded but borders shall be rounded as shown. Base material for this sign shall be plywood.
- 5. Arrow is Type A as per A1-1 standard
- 6. Dimensions N & O Indicate cutting lines for plywood panels.



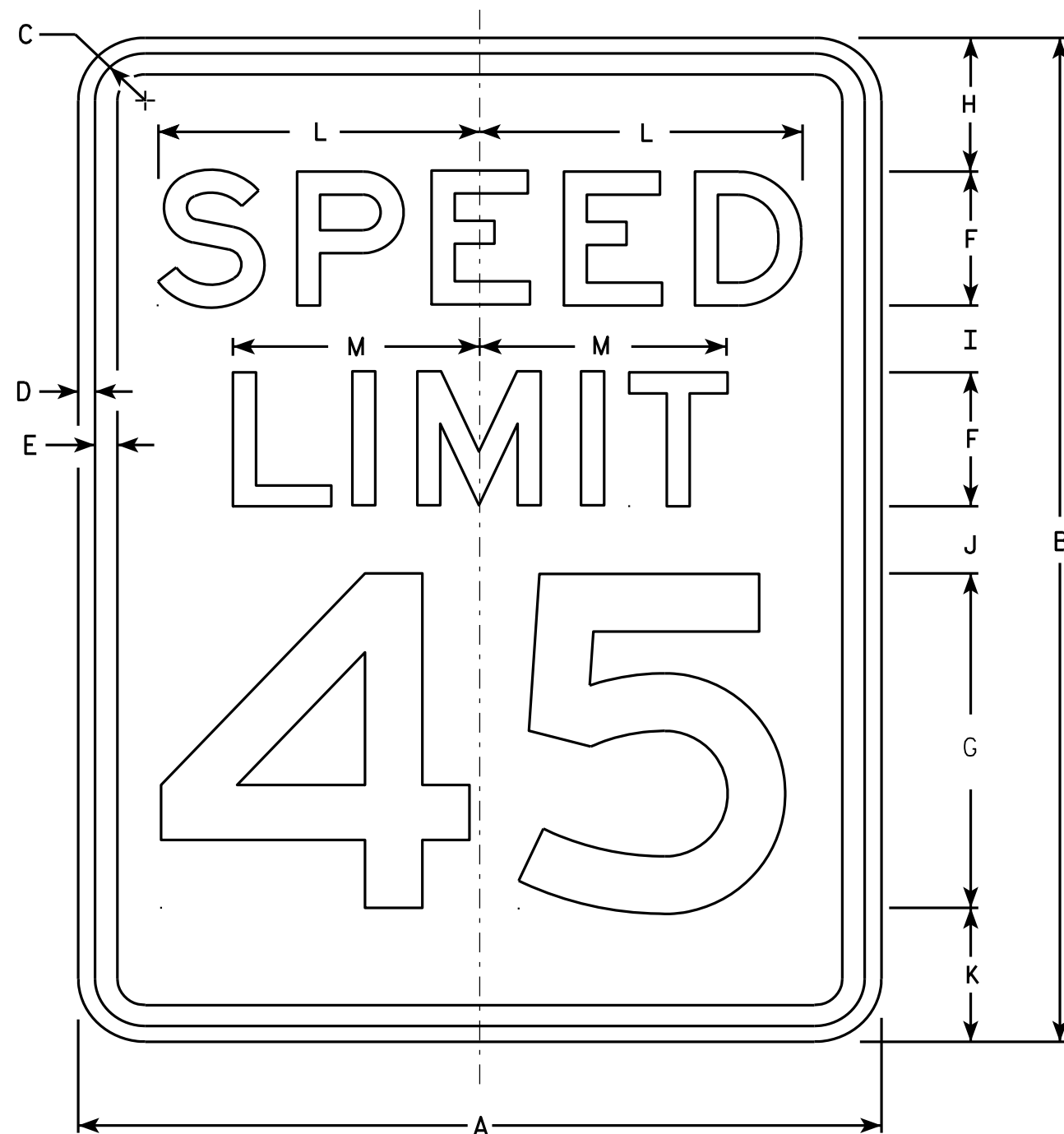
Arrow Detail

STANDARD SIGN
E5-54

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Chester J. Spang
for State Traffic Engineer

DATE 2/11/97 PLATE NO. E5-54.7



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

STANDARD SIGN R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

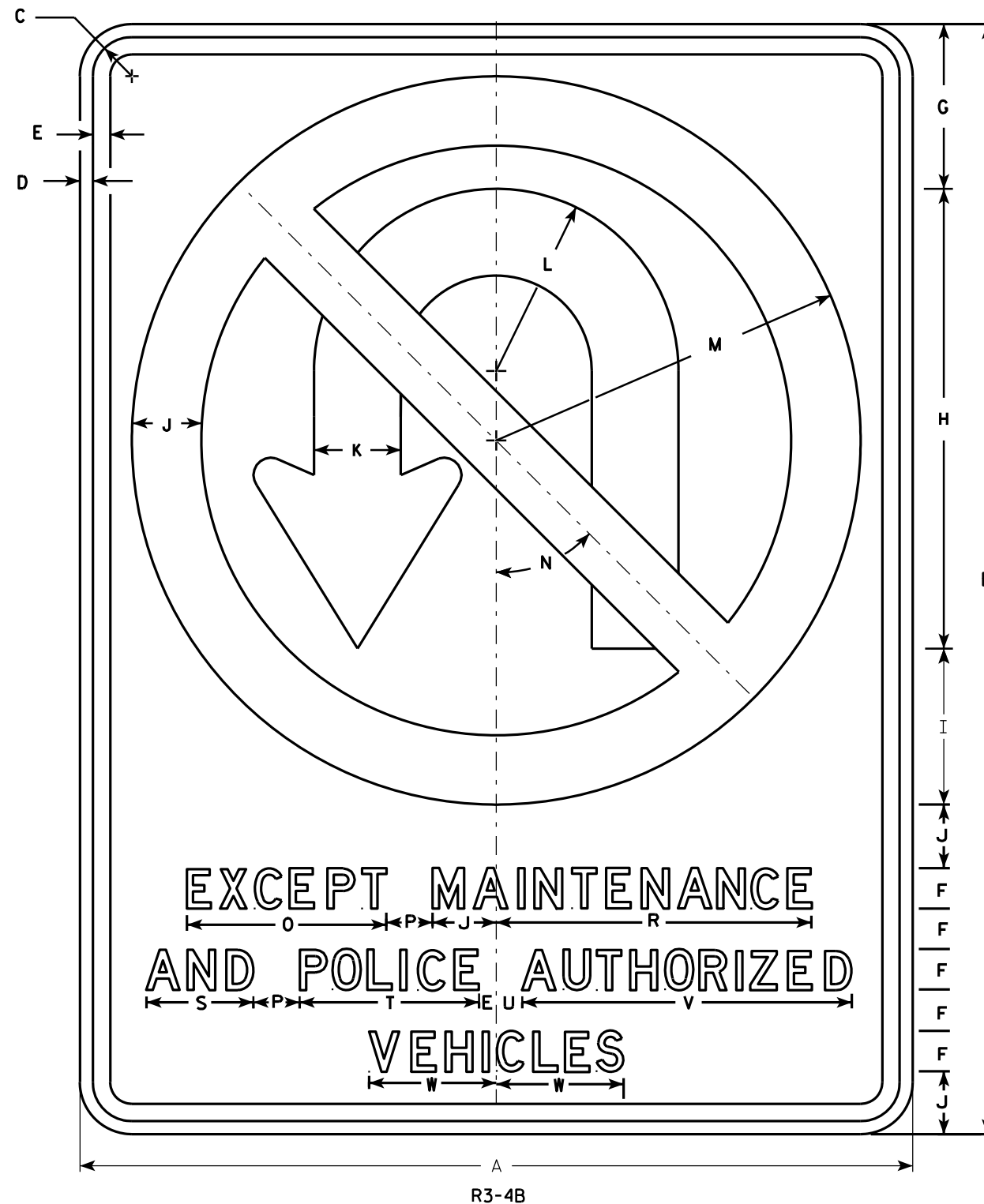
PROJECT NO:

HWY:

COUNTY:

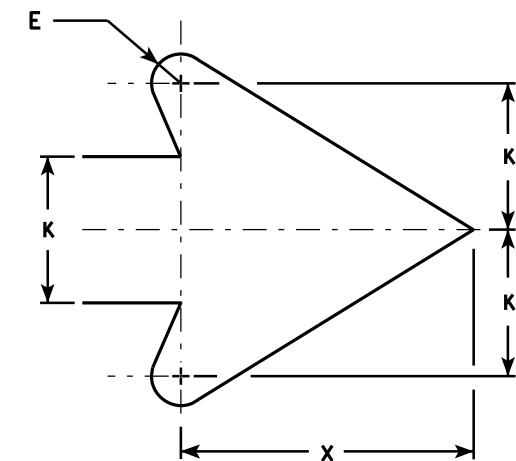
SHEET NO:

E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S																											
2M																											
3																											
4	36	48	1 5⁄8	5⁄8	¾	1 ¾	7 1⁄8	19 7⁄8	6 ¾	2 ¾	3 ¾	7 7⁄8	15 ¾	45°	8 5⁄8	2		13 5⁄8	4 5⁄8	7 ¾	1 1⁄8	14 1⁄4	5 1⁄2	7 5⁄8			12.0
5	36	48	1 5⁄8	5⁄8	¾	1 ¾	7 1⁄8	19 7⁄8	6 ¾	2 ¾	3 ¾	7 7⁄8	15 ¾	45°	8 5⁄8	2		13 5⁄8	4 5⁄8	7 ¾	1 1⁄8	14 1⁄4	5 1⁄2	7 5⁄8			12.0

STANDARD SIGN R3-4B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/17/2011 PLATE NO. R3-4B.2

PROJECT NO: HWY: COUNTY: SHEET NO: E



R4-3

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	30	1 1/8	3/8	1/2	4	3 5/8	2 1/4	9 3/4	10	6 1/4	6 3/4	7 1/8	7 5/8													5.0
2M	24	30	1 1/8	3/8	1/2	4	3 5/8	2 1/4	9 3/4	10	6 1/4	6 3/4	7 1/8	7 5/8													5.0
3	36	48	1 5/8	5/8	3/4	6	6	4	14 5/8	15	9 3/8	10	10 3/4	11 3/8													12.0
4	36	48	1 5/8	5/8	3/4	6	6	4	14 5/8	15	9 3/8	10	10 3/4	11 3/8													12.0
5	48	60	2 1/4	3/4	1	8	7 1/4	4 1/2	19 1/2	20	12 1/2	13 1/2	14 1/4	15 1/4													20.0

STANDARD SIGN

R4-3

WISCONSIN DEPT OF TRANSPORTATION

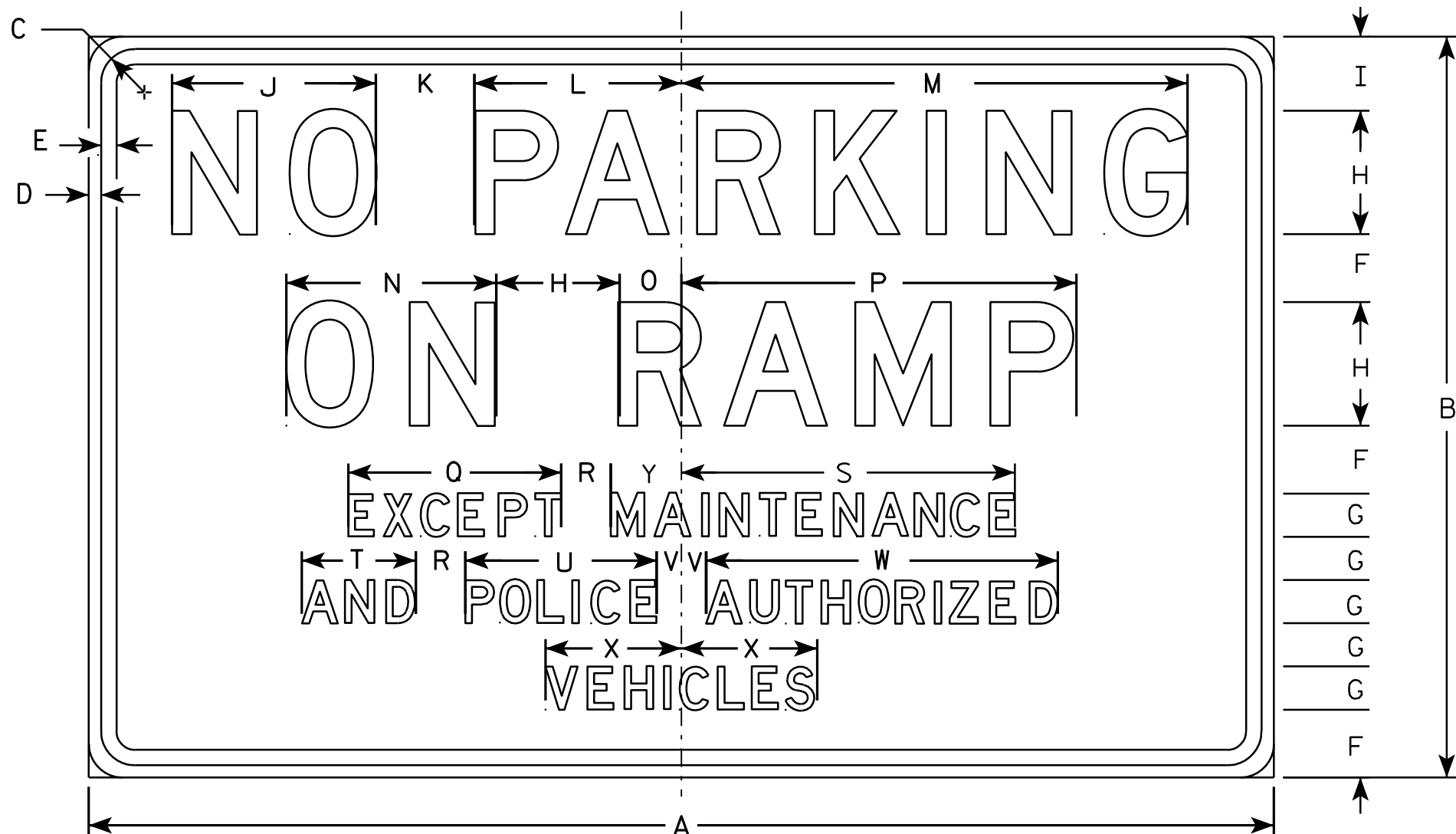
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-3.8

PROJECT NO:

SHEET NO:

E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - WHITE
Message - Lines 1 & 2 and Border are RED
Lines 3, 4, & 5 are BLACK
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

R7-64

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S																											
2M																											
3	48	30	1 3⁄8	1⁄2	5⁄8	2 3⁄4	1 3⁄4	5	3	8 1⁄4	4	8 3⁄8	20 1⁄2	8 1⁄2	2 1⁄2	16	8 5⁄8	2	13 5⁄8	4 5⁄8	7 3⁄4	1	14 1⁄4	5 1⁄2			10.0
4																											
5																											

STANDARD SIGN
R7-64

WISCONSIN DEPT OF TRANSPORTATION

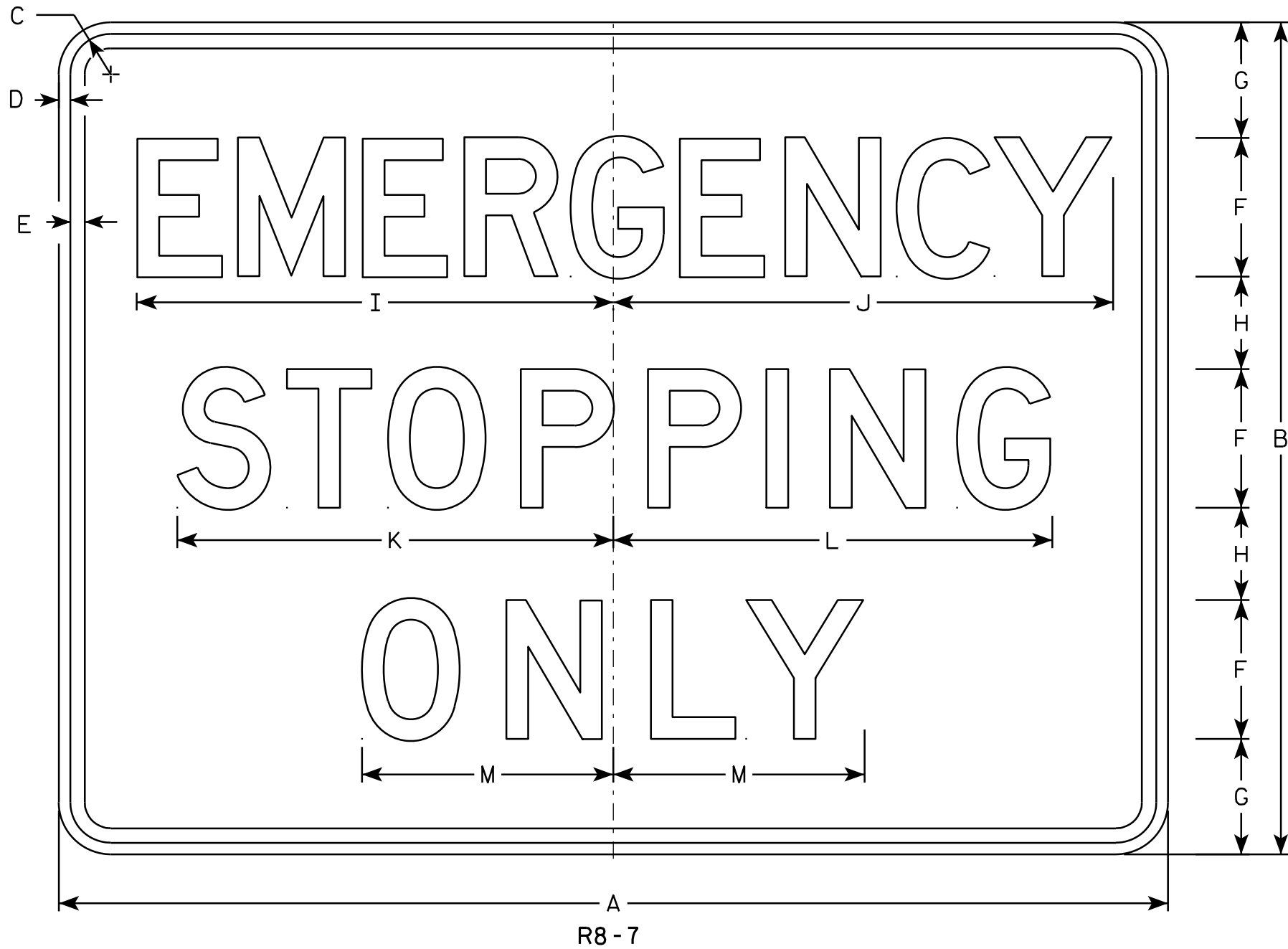
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/31/2011 PLATE NO. R7-64.3

PROJECT NO:

SHEET NO:

E



NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S																											
2M																											
3																											
4	48	36	1 ¾	½	⅝	6	5	4	20 ⅝	21 ⅝	18 ⅞	19	10 ⅞														12.0
5	48	36	1 ¾	½	⅝	6	5	4	20 ⅝	21 ⅝	18 ⅞	19	10 ⅞														12.0

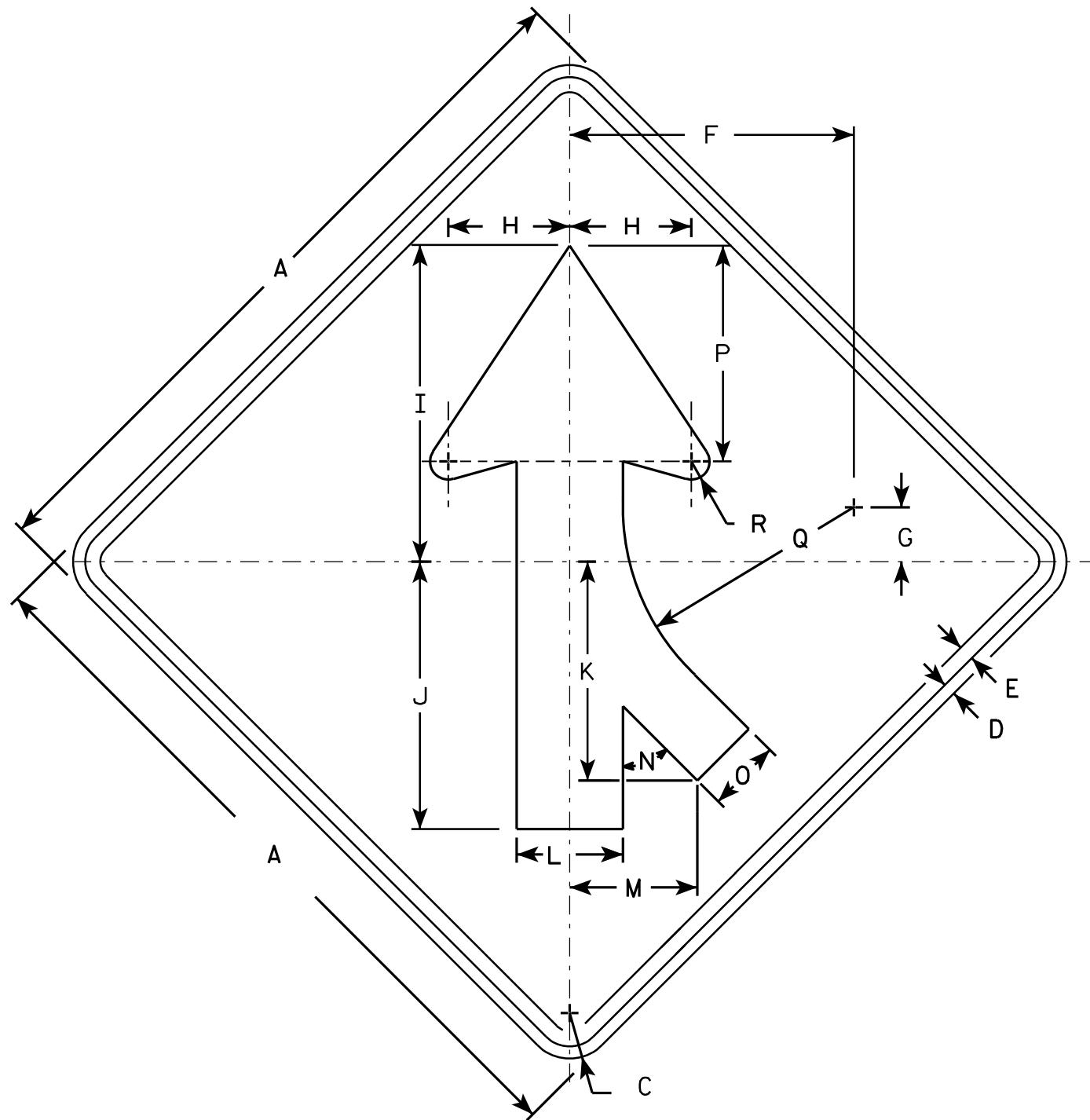
STANDARD SIGN
R8 - 7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/31/2011 PLATE NO. R8-7.6

PROJECT NO: HWY: COUNTY: SHEET NO: E



W4-1 R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W4-1L is the same as W4-1R except the arrow is reversed along the vertical centerline.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	11 5/8	2 1/2	5	13	11	9	4 3/8	5 1/4	45°	3	8 7/8	9 1/2	3/4									6.25
2S	36		1 5/8	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	10 1/4	5 1/4	6 3/8	45°	3 5/8	10 5/8	11 3/8	7/8									9.0
2M	36		1 5/8	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	10 1/4	5 1/4	6 3/8	45°	3 5/8	10 5/8	11 3/8	7/8									9.0
3	36		1 5/8	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	10 1/4	5 1/4	6 3/8	45°	3 5/8	10 5/8	11 3/8	7/8									9.0
4	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
5	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0

STANDARD SIGN W4-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 03/12/13 PLATE NO. W4-1.14

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

IH-90/94 EB PIPE EXTENSION AT STA. 1228+00, RT									
STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut Note 1	Fill Note 3	Cut 1.00 Note 1	Expanded Fill 1.25	
1226+50	122650.00	0.00	0.42	1.85	0.00	0.00	0.00	0.00	0.00
1227+00	122700.00	50.00	0.04	8.17	0.43	9.28	0.43	11.60	-11.17
1227+50	122750.00	50.00	0.01	12.16	0.04	18.83	0.47	35.13	-34.66
1228+00	122800.00	50.00	0.01	20.08	0.02	29.85	0.49	72.45	-71.96
1228+50	122850.00	50.00	0.02	13.12	0.03	30.74	0.52	110.87	-110.36
1229+00	122900.00	50.00	0.02	8.24	0.03	19.78	0.55	135.60	-135.05
1229+49.65	122949.65	49.65	0.02	3.20	0.03	10.52	0.58	148.75	-148.17
			TOTAL		0.58	119.00			

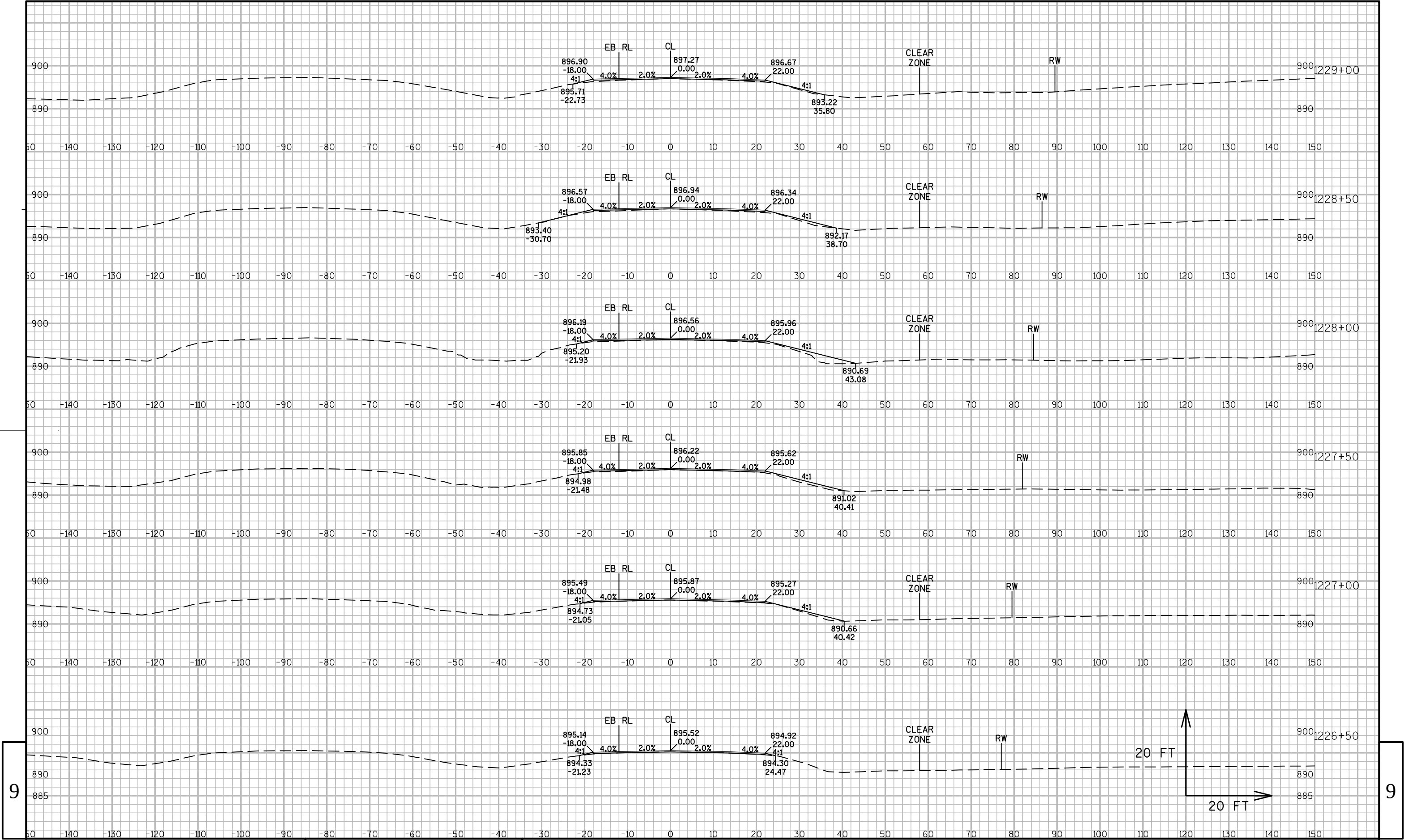
IH-90/94 EB SLOPE CORRECTION STA. 1375+00 TO STA. 1379+00, RT									
STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut Note 1	Fill Note 3	Cut 1.00 Note 1	Expanded Fill 1.25	
1375+00	137500.00	0.00	0.08	6.29	0.00	0.00	0.00	0.00	0.00
1375+50	137550.00	50.00	0.05	33.44	0.12	36.79	0.12	45.98	-45.86
1376+00	137600.00	50.00	0.14	5.82	0.18	36.35	0.30	91.42	-91.12
1376+50	137650.00	50.00	0.31	75.53	0.42	75.32	0.71	185.57	-184.86
1377+00	137700.00	50.00	0.57	55.86	0.81	121.66	1.52	337.64	-336.12
1377+50	137750.00	50.00	0.06	40.68	0.58	89.38	2.11	449.38	-447.27
1378+00	137800.00	50.00	0.03	37.38	0.08	72.27	2.19	539.72	-537.53
1378+50	137850.00	50.00	0.11	23.27	0.13	56.15	2.32	609.91	-607.59
1379+00	137900.00	50.00	0.74	3.54	0.79	24.82	3.11	640.93	-637.82
			TOTAL		3.11	512.75			

EXISTING MAINTENANCE CROSSOVER (TO BE REMOVED)									
STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut	Fill	Cut	Expanded Fill	
					Note 1	Note 3	Note 1		Note 8
0+10M	10.00	0.00	25.49	0.00	0.00	0.00	0.00	0.00	0.00
0+20M	20.00	10.00	65.12	0.00	16.78	0.00	16.78	0.00	16.78
0+30M	30.00	10.00	138.84	0.00	37.77	0.00	54.55	0.00	54.55
0+40M	40.00	10.00	124.63	0.00	48.79	0.00	103.34	0.00	103.34
0+50M	50.00	10.00	124.26	0.00	46.09	0.00	149.43	0.00	149.43
0+60M	60.00	10.00	124.51	0.00	46.07	0.00	195.50	0.00	195.50
0+70M	70.00	10.00	108.53	0.00	43.15	0.00	238.65	0.00	238.65
0+80M	80.00	10.00	98.48	0.00	38.34	0.00	276.99	0.00	276.99
0+90M	90.00	10.00	77.41	0.00	32.57	0.00	309.56	0.00	309.56
1+00M	100.00	10.00	94.10	0.00	31.76	0.00	341.32	0.00	341.32
1+10M	110.00	10.00	87.44	0.00	33.62	0.00	374.94	0.00	374.94
1+20M	120.00	10.00	88.79	0.00	32.64	0.00	407.58	0.00	407.58
1+30M	130.00	10.00	88.56	0.00	32.84	0.00	440.42	0.00	440.42
1+40M	140.00	10.00	83.56	0.00	31.87	0.00	472.29	0.00	472.29
1+50M	150.00	10.00	97.23	0.00	33.48	0.00	505.77	0.00	505.77
1+60M	160.00	10.00	109.01	0.00	38.19	0.00	543.97	0.00	543.97
1+70M	170.00	10.00	108.76	0.00	40.33	0.00	584.30	0.00	584.30
1+80M	180.00	10.00	111.45	0.00	40.78	0.00	625.08	0.00	625.08
1+90M	190.00	10.00	112.97	0.00	41.56	0.00	666.64	0.00	666.64
2+00M	200.00	10.00	113.84	0.00	42.00	0.00	708.64	0.00	708.64
2+10M	210.00	10.00	126.85	0.00	44.57	0.00	753.21	0.00	753.21
2+20M	220.00	10.00	160.25	0.00	53.17	0.00	806.37	0.00	806.37
2+30M	230.00	10.00	189.92	0.00	64.85	0.00	871.22	0.00	871.22
2+40M	240.00	10.00	204.14	0.00	72.97	0.00	944.20	0.00	944.20
2+50M	250.00	10.00	48.12	0.00	46.71	0.00	990.91	0.00	990.91
2+60M	260.00	10.00	9.19	0.00	10.61	0.00	1001.52	0.00	1001.52

TOTAL	1001.52	0.00
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PROPOSED MAINTENANCE CROSSOVER									
STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut	Fill	Cut 1.00 Note 1	Expanded Fill 1.25	
0+20N	20.00	0.00	66.42	0.00	0.00	0.00	0.00	0.00	0.00
0+30N	30.00	10.00	0.08	36.82	12.31	6.82	12.31	8.52	3.79
0+40N	40.00	10.00	0.08	60.05	0.03	17.94	12.34	30.95	-18.60
0+50N	50.00	10.00	64.67	0.00	11.99	11.12	24.33	44.85	-20.52
0+60N	60.00	10.00	229.60	0.00	54.49	0.00	78.82	44.85	33.98
0+70N	70.00	10.00	349.64	0.00	107.27	0.00	186.09	44.85	141.24
0+80N	80.00	10.00	168.60	0.00	95.97	0.00	282.06	44.85	237.21
0+90N	90.00	10.00	0.01	42.28	31.22	7.83	313.29	54.64	258.65
1+00N	100.00	10.00	0.06	35.51	0.01	14.41	313.30	72.64	240.66
1+06.26N	106.26	6.26	48.05	0.57	5.58	4.18	318.88	77.87	241.01

TOTAL	318.88	62.30
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PROJECT NO:1016-05-79

HWY: IH-90/94

COUNTY: JUNEAU

CROSS SECTIONS: CULVERT PIPE EXTENSION STA. 1228+00, RT

SHEET

E

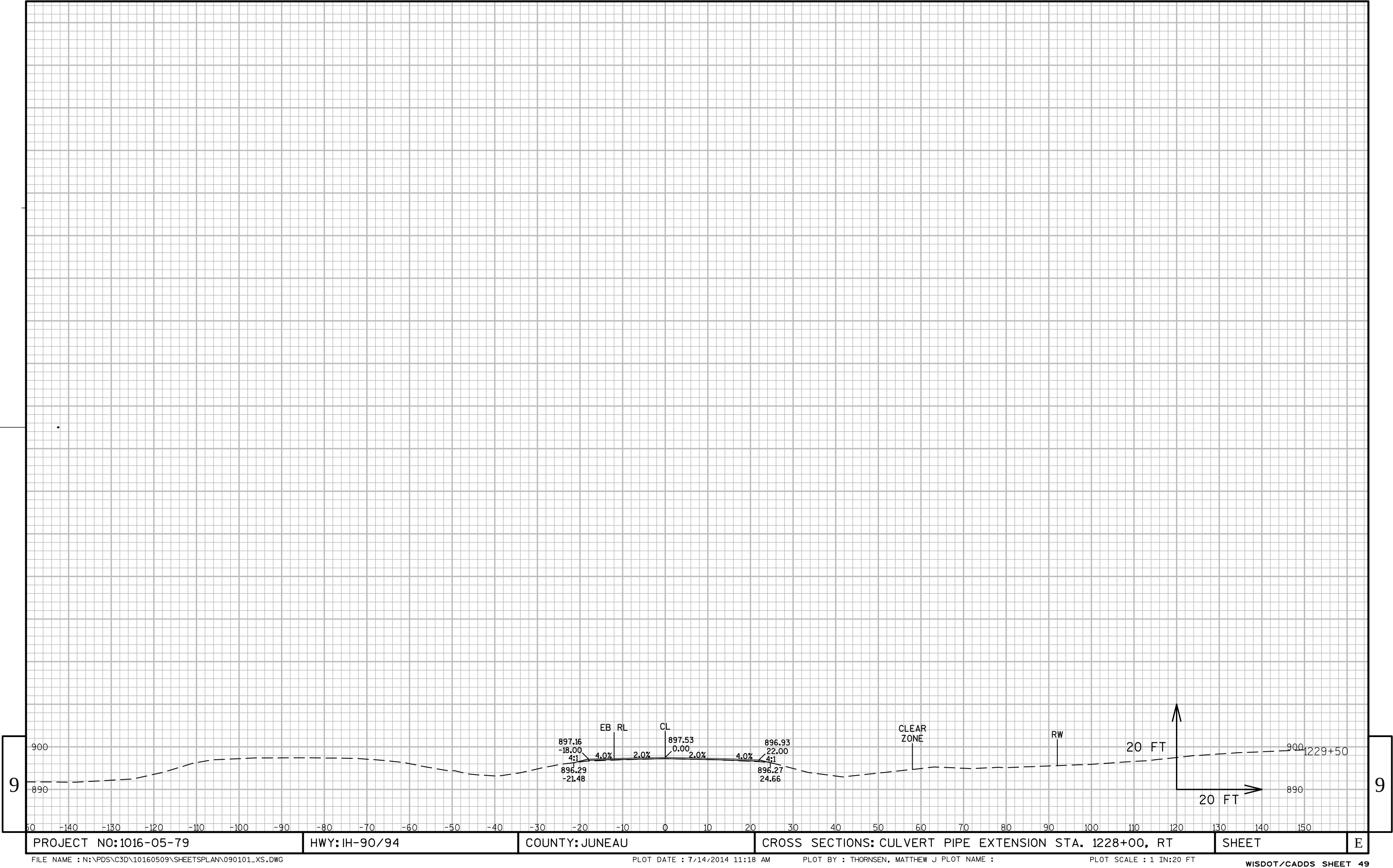
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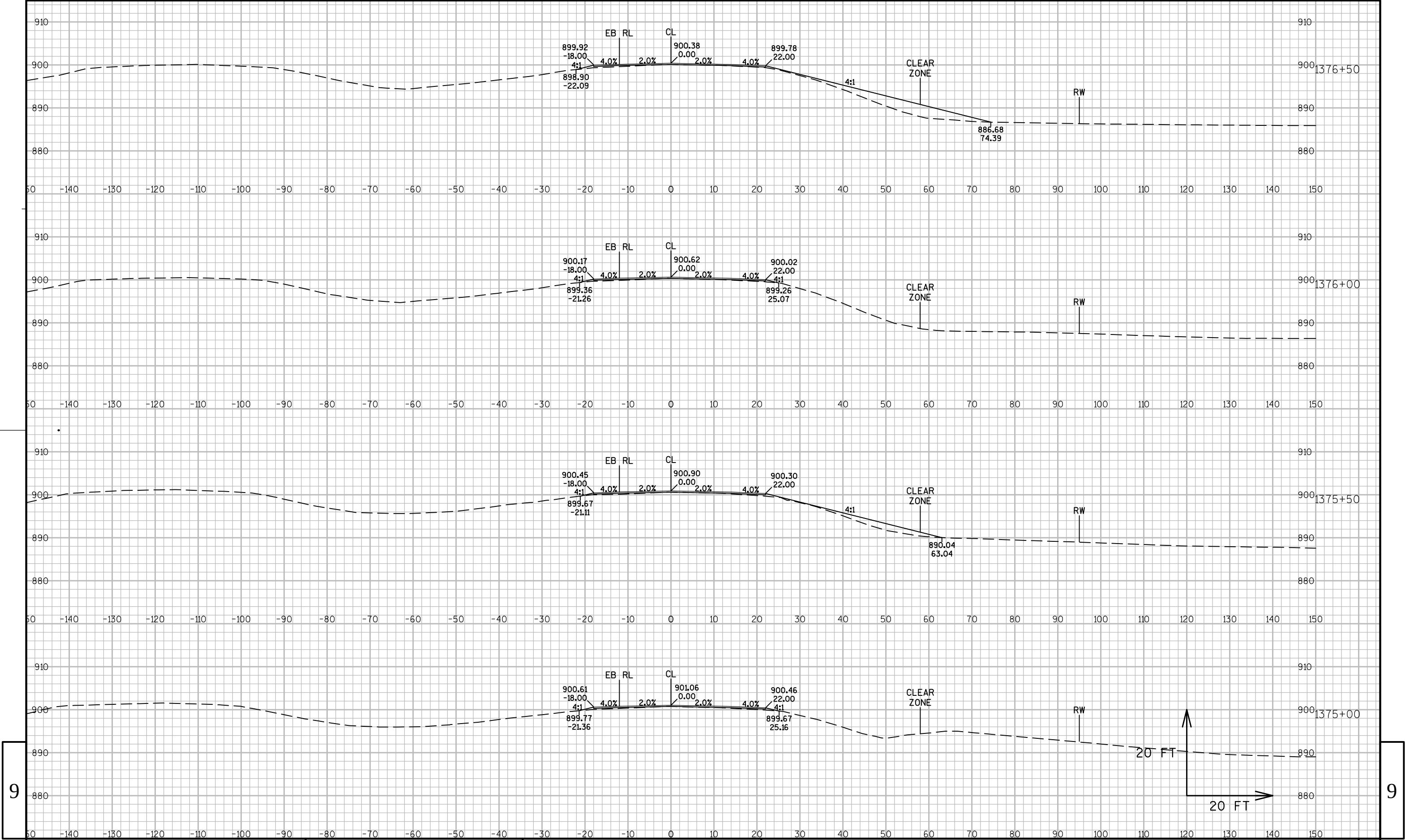
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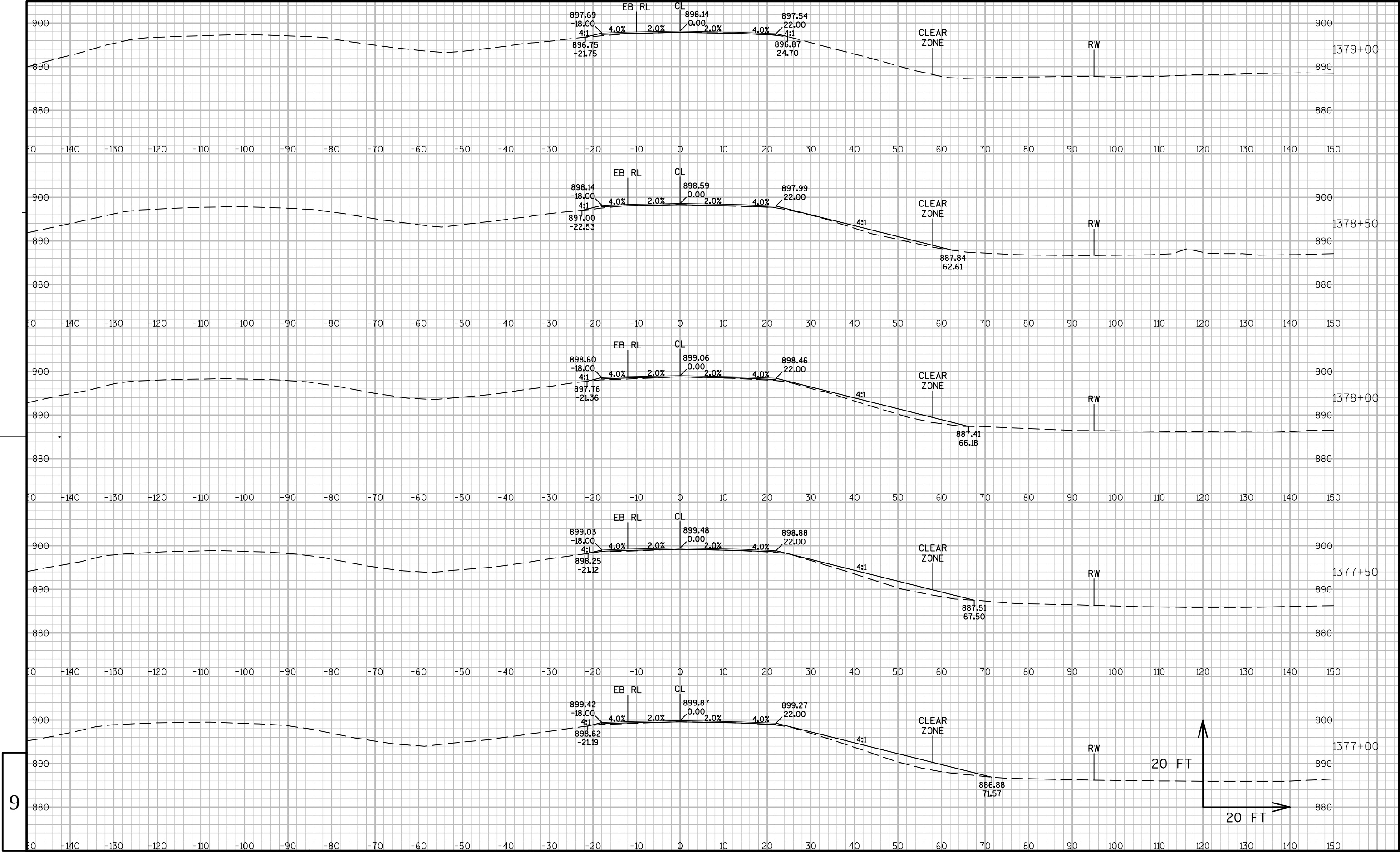
WISDOT/CADDs SHEET 49





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PROJECT NO:1016-05-79

HWY: IH-90/94

COUNTY: JUNEAU

CROSS SECTIONS: SLOPE CORRECTION STA. 1375+00-STA. 1379+00

SHEET

E

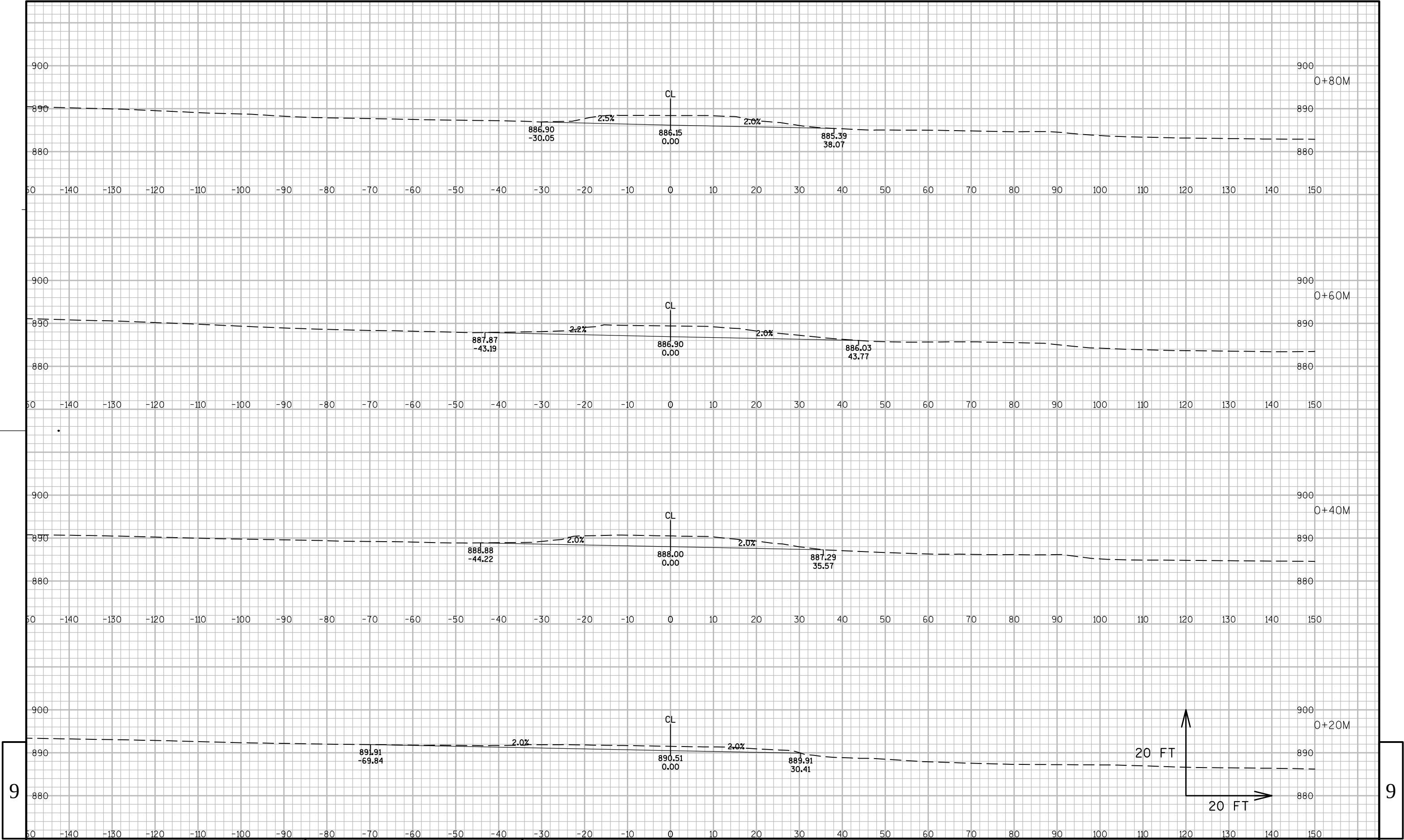
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PLOT BY : THORNSEN, MATTHEW J PLOT NAME :

PLOT SCALE : 1 IN:20 FT

WISDOT/CADDs SHEET 49



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PROJECT NO:1016-05-79

HWY: IH-90/94

COUNTY: JUNEAU

CROSS SECTIONS: EXISTING CROSSOVER REMOVAL

SHEET

E

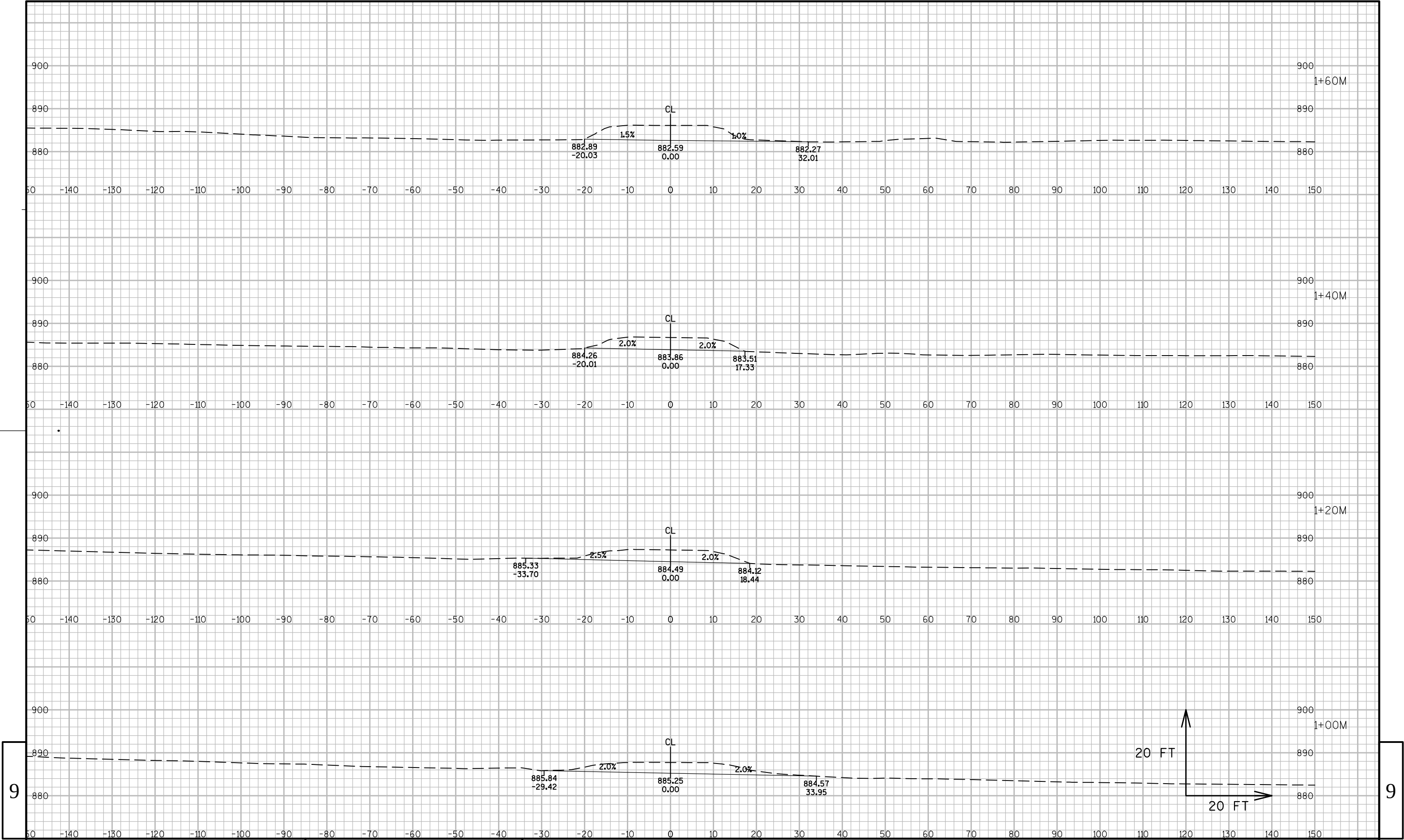
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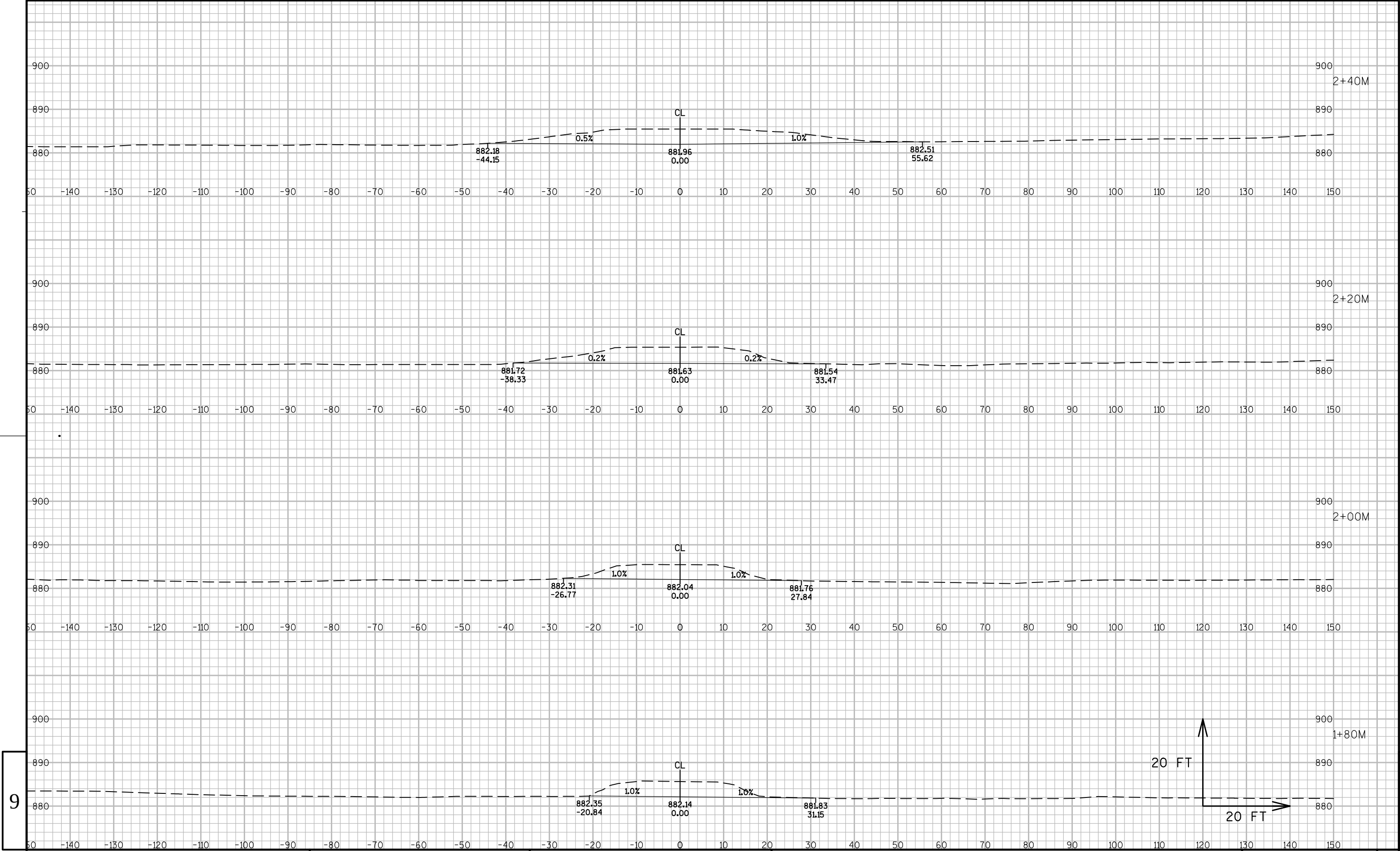
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WISDOT/CADDs SHEET 49



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PROJECT NO:1016-05-79

HWY: IH-90/94

COUNTY: JUNEAU

CROSS SECTIONS: EXISTING CROSSOVER REMOVAL

SHEET

E

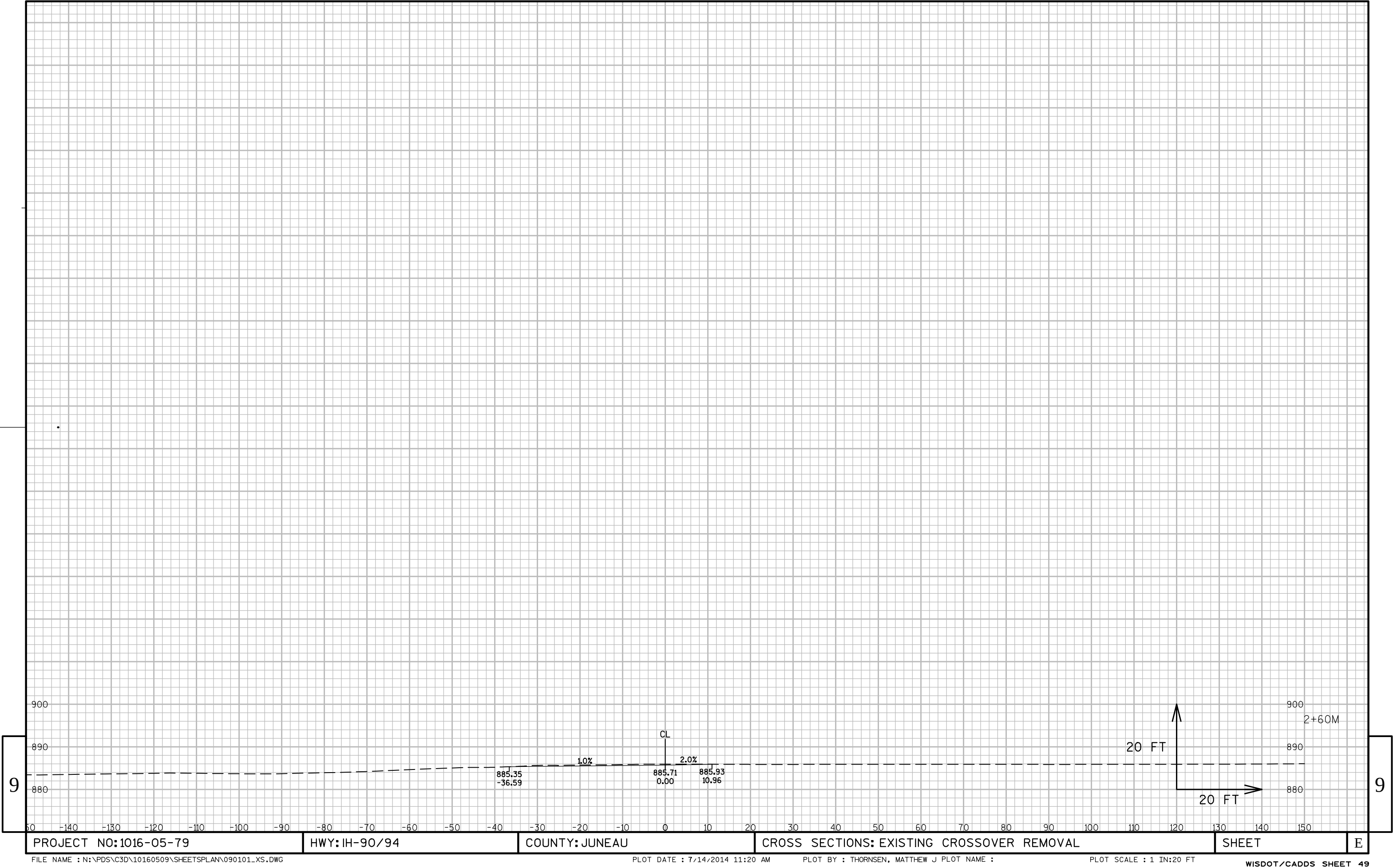
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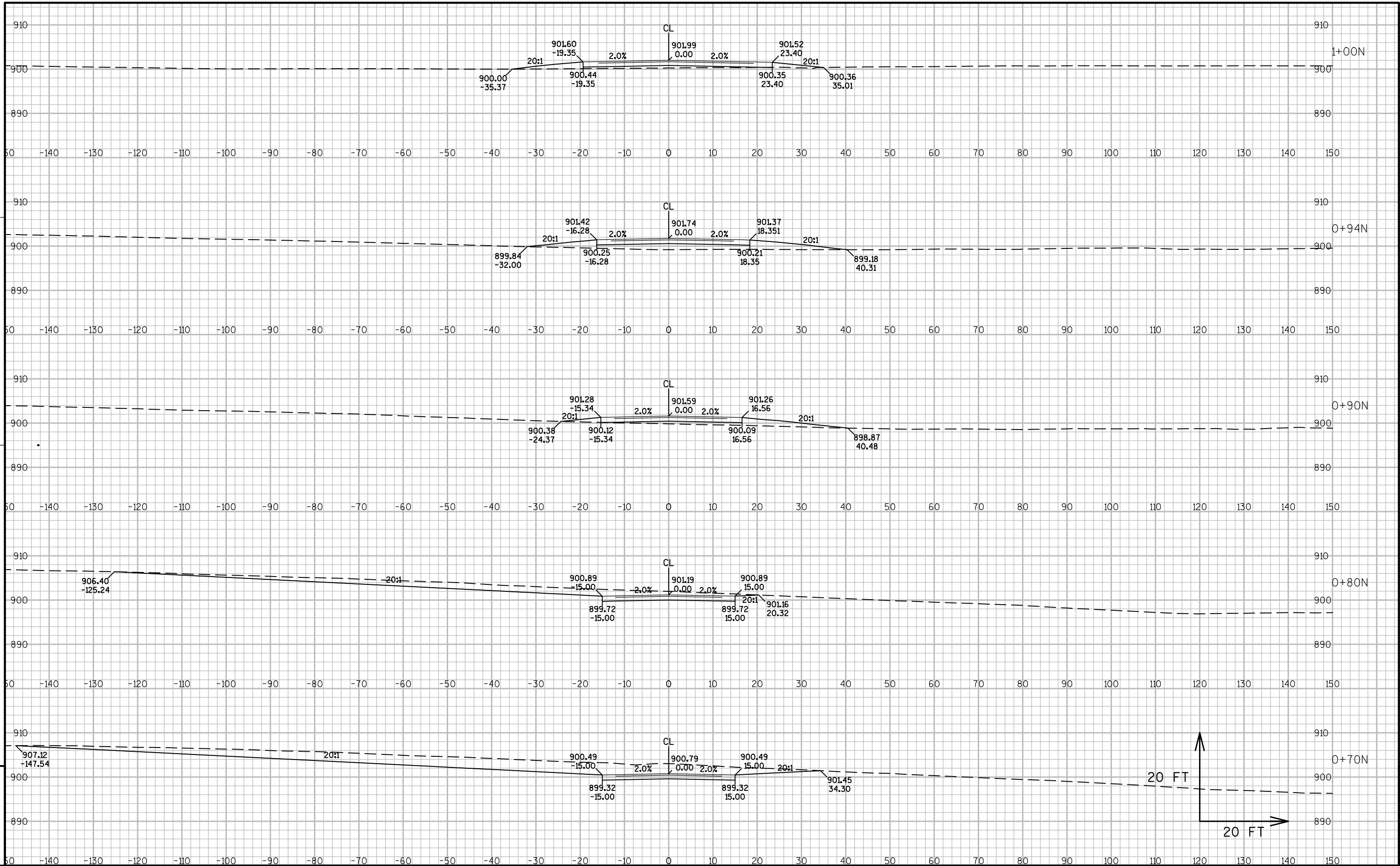
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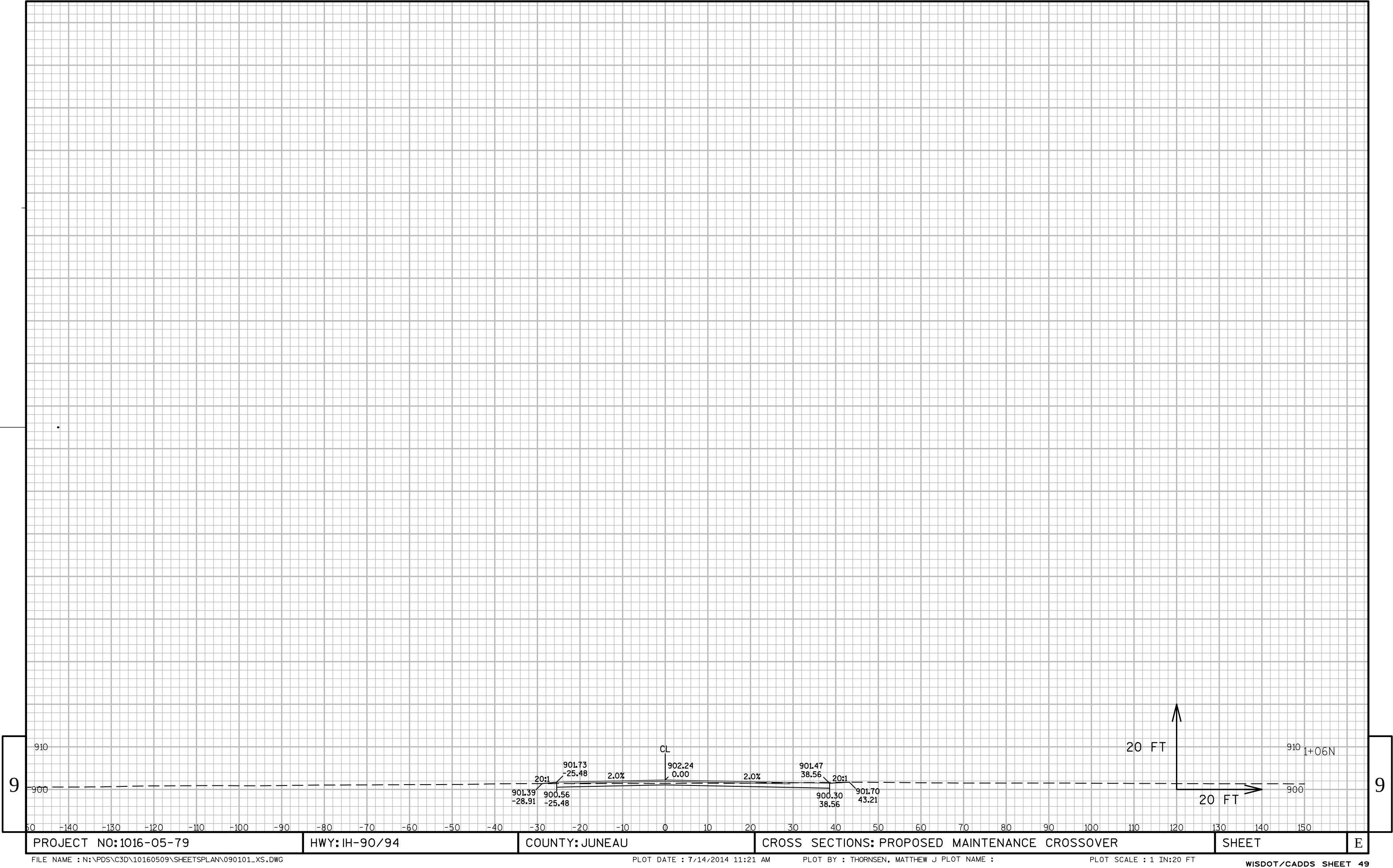
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PLOT SCALE : 1 IN:20 FT

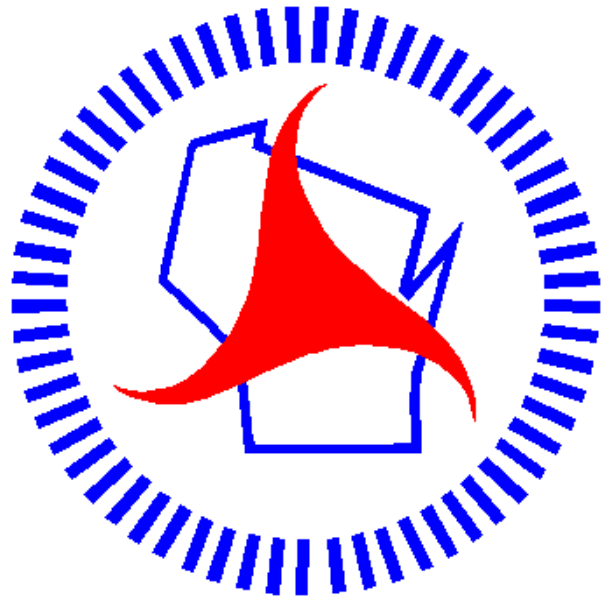
WISDOT/CADDs SHEET 49







Notes



Wisconsin Department of Transportation

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through innovation and exceptional service.

<http://www.dot.wisconsin.gov>