

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 Plan
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plans
Section No.	8	Structure Plans
Section No.	8	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 146

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

WENTWORTH - INO

CLEVEDON RD TO SZNAIDER RD

USH 2

DOUGLAS & BAYFIELD COUNTY

BRULE - INO

SZNAIDER ROAD TO CTH A

USH 2

BAYFIELD COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1180-03-76	WISC 2022205	1
1180-05-75	WISC 2022206	1

STATE PROJECT NUMBER
1180-05-75

STATE PROJECT NUMBER
1180-03-76



42

DESIGN DESIGNATION 1180-03-76 AND 1180-05-75

A.A.D.T.	2022	=	5500
A.A.D.T.	2042	=	6000
D.H.V.		=	30
D.D.		=	60/40
T.		=	14.4%
DESIGN SPEED		=	55 MPH
ESALS		=	2,000,000

BEGIN PROJECT 1180-05-75
STA 1036+76
Y= 249572.69
X= 268965.33

EXCEPTION TO NET CENTERLINE LENGTH (STRUCTURE B-16-0019)
STA 1136+56.33 - 1137+86.08

END PROJECT 1180-03-76
STA 1565+49

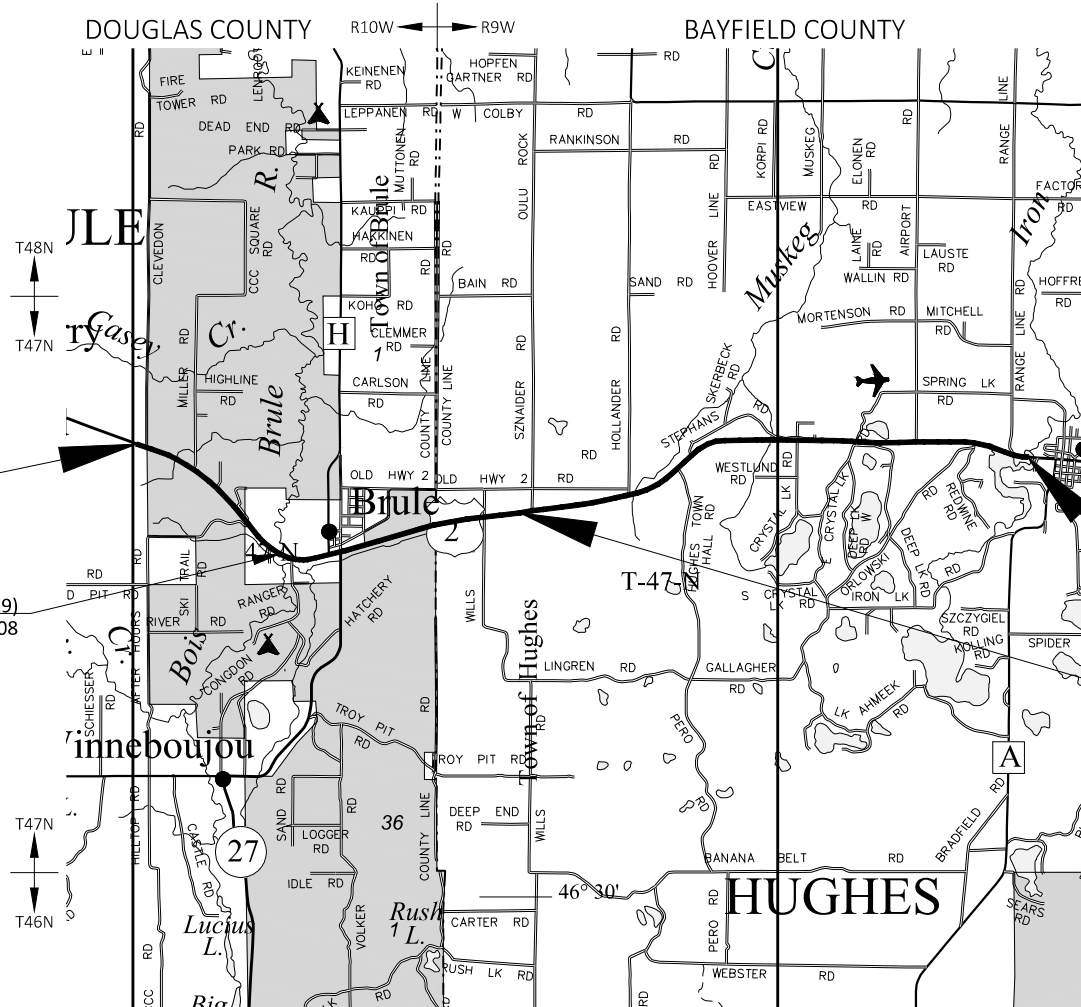
END PROJECT 1180-05-75
BEGIN PROJECT 1180-03-76
STA 1274+50
Y= 446487.45
X= 653923.76

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
	T47N
	T46N



LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 1180-05-75 1180-03-76
4.478 MI. AND 5.511 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), DOUGLAS AND BAYFIELD COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor EMCS / CBS SQUARED / NW REGION
Designer GREG PESOLA / RALPH MEIR
Project Manager NICHOLAS PITTSCH
Regional Examiner TOU YANG
Regional Supervisor DAVE KOEPP

APPROVED FOR THE DEPARTMENT
DATE: Dave Koepp
Digitally signed by Dave Koepp
DN: cn=Dave Koepp, email=dave.koepp@dot.wis.gov, o=WISDOT,
date=2021.10.27 12:32:59-0500
(Signature)

PROJECT ID: 1180-03-76
WITH: 1180-05-75

COUNTY: BAYFIELD & DOUGLAS

UTILITIES

CHARTER COMMUNICATIONS
JAMEY OLDEEN
2016 18 3/4 ST
RICE LAKE, WI 54868
PHONE: (715) 719-0561
PHONE: (715) 651-6471 (MOBILE)
EMAIL: JAMEY.OLDEEN@CHARTER.COM

MERIT NETWORK, INC
DUSTIN LAPOINTE
880 TECHNOLOGY DR. SUITE B
ANN ARBOR, MI 48103
PHONE: (734) 467-6100 (MOBILE)
EMAIL: DLAPOIT@MERIT.EDU

NORVADO
GUY FOLSOM
43705 US HIGHWAY 63
CABLE, WI 54821
PHONE: (715) 798-7123
PHONE: (715) 580-8123 (MOBILE)
EMAIL: GFOLSOM@NORVADO.COM

PENINSULA FIBER NETWORK/BARAGA TELEPHONE CO.
JON FRENCH
204 STATE ST
PO BOX 9
BARAGA, MI 49908
PHONE: (906) 353-6644
PHONE: (906) 370-5995 (MOBILE)
EMAIL: JFRENCH@UP.NET

NORTHERN NATURAL GAS COMPANY
EARL CROTTEAU
1995 NORTHERN NATUAL GAS RD
CARLTON, MN 55718
PHONE: (402) 530-3462
PHONE: (218) 348-3452 (MOBILE)
EMAIL: EARL.CROTTEAU@NNGCO.COM

BRULE SANITARY DISTRICT #1
MARY SMETS
PO BOX 64
BRULE, WI 54820
PHONE: (715) 372-8377
EMAIL: DMESMET@CHEQNET.NET

SUPERIOR WATER, LIGHT & POWER CO
JAMISON J MEHLE
2915 HILL AVENUE
SUPERIOR, WI 54880
PHONE: (715) 395-6288
PHONE: (218) 395-6391 (MOBILE)
EMAIL: JMEHLE@SWLP.COM

BAYFIELD ELECTRIC COOPERATIVE INC
ROBERT LAHTI
PO BOX 68
IRON RIVER, WI 54847
PHONE: (715) 372-4287
PHONE: (715) 292-7678 (MOBILE)
EMAIL: BOB.LAHTI@BAYFIELDELECTRIC.COM

DAHLBERG LIGHT AND POWER COMPANY
JAMES DAHLBERG
PO BOX 300
SOLON SPRINGS, WI 54873
PHONE: (715) 816-4153
EMAIL: JIM.DAHLBERG@DAHLBERGLIGHTANDPOWER.COM

DESIGN CONTACT

WISDOT NORTHWEST REGION
NICHOLAS PITTSCH
718 W. CLAIREMONT AVE.
EAU CLAIRE, WI 54701
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EMAIL: NICHOLAS.PITTSCH@DOT.WI.GOV

WISCONSIN DNR CONTACT

WDNR - NORTHERN REGION HEADQUARTERS
AMY CRONK
810 WEST MAPLE STREET
SPOONER, WI 54801
PHONE: (715) 635-4229
PHONE: (715) 520-3976 (MOBILE)
EMAIL: AMY.CRONK@WISCONSIN.GOV

GENERAL NOTES:

RESTORE SIDEROAD INTERSECTIONS AND PRIVATE ENTRANCES TO EXISTING CONDITIONS UNLESS SHOWN OTHERWISE.

THE EXACT CONSTRUCTION LIMITS OF PRIVATE ENTRANCES SHALL BE COORDINATED WITH THE ENGINEER IN THE FIELD.

WHEN THE QUANTITY OF BASE AGGREGATE IS MEASURED BY THE TON, THE THICKNESS OF THE LAYER SHOWN ON THE PLAN IS APPROXIMATE, AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF MATERIAL AS DIRECTED BY THE ENGINEER.

PRIOR TO THE PLACEMENT OF GUARDRAIL, THE SHOULDERS SHALL BE IN PLACE, SHAPED, AND COMPACTED UNLESS SHOWN OTHERWISE.

IN GUARDRAIL AREAS, EXTEND PAVED SHOULDER OUT TO GUARDRAIL FACE.

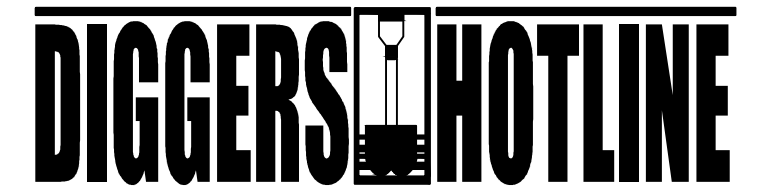
NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED AND COVERED WITH EROSION MAT.

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

STANDARD ABBREVIATIONS

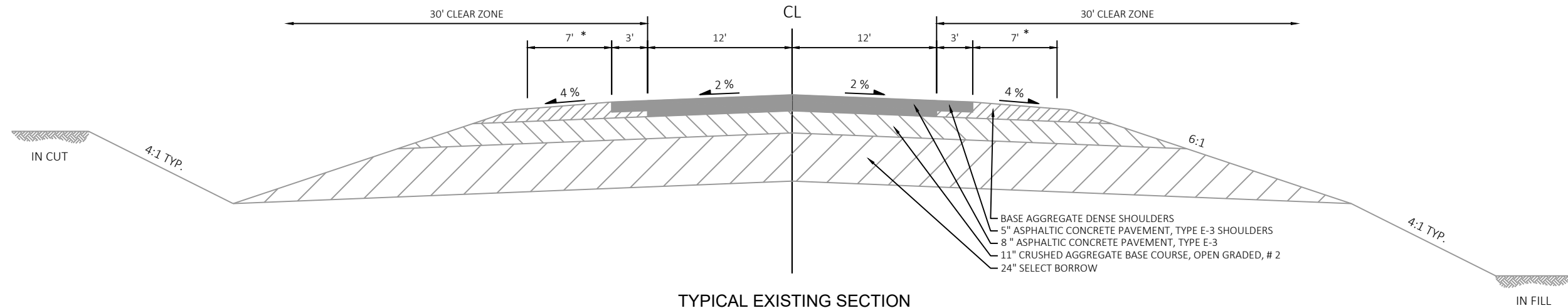
ABUT.	ABUTMENT	ESALS	EQUIVALENT SINGLE AXLE LOADS	REQ'D	REQUIRED
AGG.	AGGREGATE	E.B.S.	EXCAVATION BELOW SUBGRADE	R/L	REFERENCE LINE
AH.	AHEAD	EL.	EXISTING	RT	RIGHT
AADT	ANNUAL AVERAGE DAILY TRAFFIC	FERT.	FERTILIZE	R.H.F.	RIGHT-HAND FORWARD
APPROX.	APPROXIMATE	FE	FIELD ENTRANCE	R/W	RIGHT-OF-WAY
AEW	APRON END WALL	FIN.	FINISHED	RD	ROAD
ASPH.	ASPHALTIC	FL OR ϵ	FLOW LINE	SHLD	SHOULDER
BK.	BACK	HOR.	HORIZONTAL	S.	SOUTH
BEG.	BEGIN	INL.	INLET	SDD	STANDARD DETAIL DRAWINGS
B.M.	BENCH MARK	INTER.	INTERSECTION	SR	SIDE ROAD
C/L OR ϵ	CENTER LINE	INV.	INVERT	SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
C.E.	COMMERCIAL ENTRANCE	LT	LEFT	STH	STATE TRUNK HIGHWAYS
CONC.	CONCRETE	L.H.F.	LEFT-HAND FORWARD	STA.	STATION
CONSTRUT.	CONSTRUCTION	LF	LINEAR FOOT	STRUCT.	STRUCTURE
CO.	COUNTY	LS	LUMP SUM	TEL	TELEPHONE
CTH	COUNTY TRUNK HIGHWAY	MAX.	MAXIMUM	TEMP.	TEMPORARY
X-SEC.	CROSS SECTION	MISC.	MISCELLANEOUS	T	TOWN
CR.	CRUSHED	N.	NORTH	T.	TRUCKS (PERCENT OF)
CULV.	CULVERT	NE	NORTHEAST	TYP.	TYPICAL
DOT	DEPARTMENT OF TRANSPORTATION	NW	NORTHWEST	UG	UNDERGROUND
D.H.V.	DESIGN HOUR VOLUME	PAVT.	PAVEMENT	VAR.	VARIABLE
DIA.	DIAMETER	PC	POINT OF CURVATURE	V	VELOCITY OR DESIGN SPEED
DISCH.	OR DIS. DISCHARGE	PI	POINT OF INTERSECTION	VC	VERTICAL CURVE
E.	EAST	PT	POINT OF TANGENCY	W.	WEST
EB	EASTBOUND	POT	POINT ON TANGENT	WB	WESTBOUND
EA.	EACH	PE	PRIVATE ENTRANCE	WD	WORKING DAY
ELEC.	ELECTRIC	PROJ.	PROJECT	WZ	WORK ZONE
OR ELEV.	ELEVATION	R	RANGE	X	EAST GRID COORDINATE
				Y	NORTH GRID COORDINATE



Dial **811** or (800)242-8511

www.DiggersHotline.com

PROJECT NO: 1180-03-76 & 1180-05-75	HWY: USH 2	COUNTY: BAYFIELD & DOUGLAS	GENERAL NOTES	SHEET	E
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* 10' WIDE PAVED SHOULDER AT THE FOLLOWING LOCATIONS:
 STA 1045+00 - 1050+00 LT
 STA 1132+00 - 1136+56.33 LT & RT
 STA 1137+86.08 - 1139+70 LT & RT

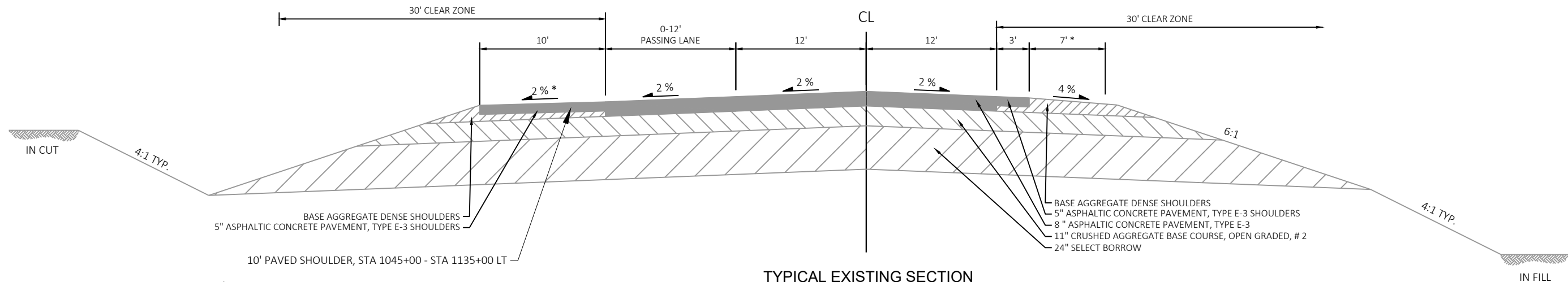
TYPICAL EXISTING SECTION

STA 1036+76 - 1050+00
 STA 1132+00 - 1136+56.33
 STA 1137+86.08 - 1139+70

EXCEPTION TO NET CENTERLINE LENGTH (STRUCTURE B-16-0019):
 STA 1136+56.33 - 1137+86.08

NOTE: 12' WIDE EB PASSING LANE
 STA 1036+76 - 1045+00 RT

EB PASSING LANE TAPER
 STA 1045+00, 24' RT - STA 1052+00, 12' RT



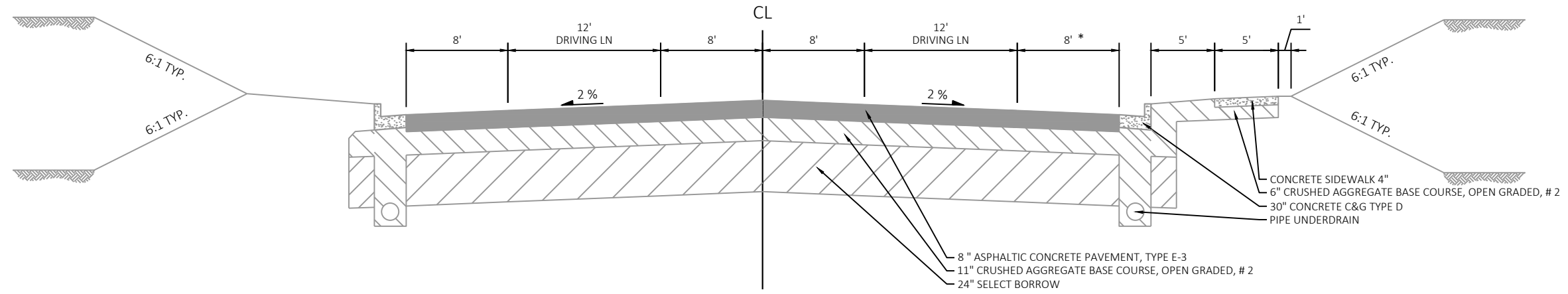
10' PAVED SHOULDER, STA 1045+00 - STA 1135+00 LT

* 2% PAVED SHOULDER CROSS SLOPE IS BASED ON 2% CROSS SLOPE SHOWN ON TEMPORARY WIDENING OF PROPOSED SHOULDER TYPICAL FINISHED SECTION IN THE AS-BUILT PLAN FOR PROJECT 1180-35-71 (2004 CONSTRUCTION). 7' WIDTH OF TEMPORARY PAVEMENT LEFT IN PLACE TO CREATE AS-BUILT 10' PAVED SHOULDER. ACTUAL CROSS SLOPE OF PAVED SHOULDER IS SAME AS ADJACENT PASSING LANE CROSS SLOPE IN HORIZONTAL CURVES SUPERELEVATION WHICH INCLUDES MOST OF THE LENGTH OF THE PAVED SHOULDER.

TYPICAL EXISTING SECTION

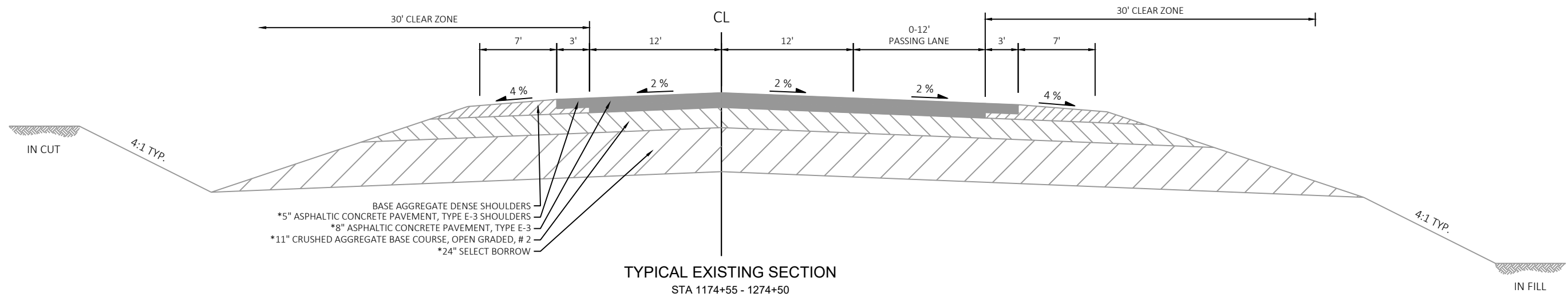
STA 1050+00 - 1132+00

* 10' WIDE PAVED SHOULDER AT THE FOLLOWING LOCATION:
 STA 1122+97 - 1127+40 RT



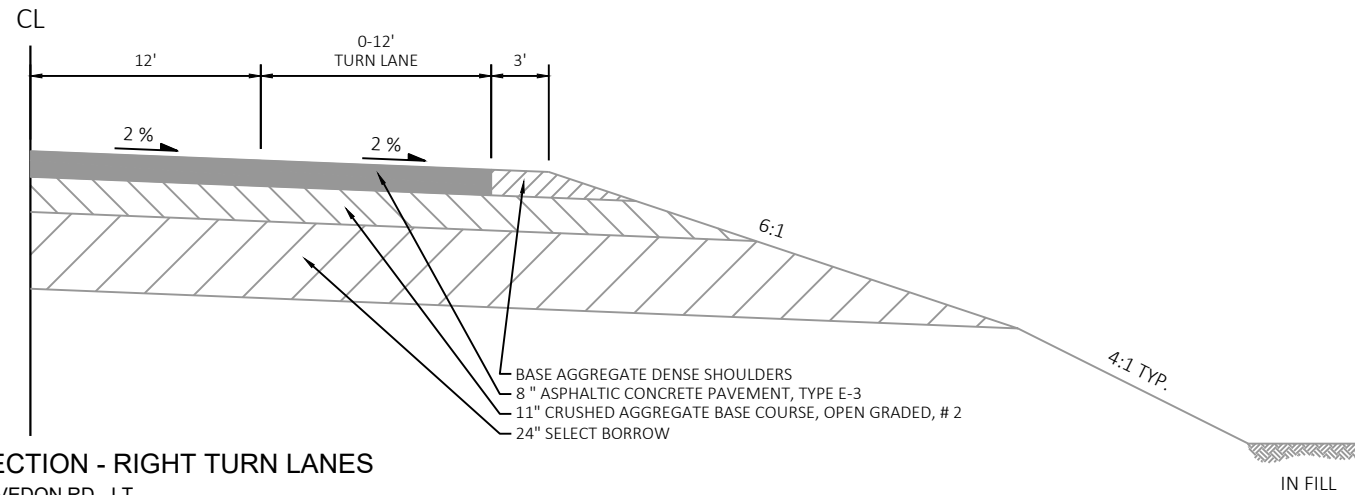
TYPICAL EXISTING SECTION
STA 1139+70 - 1174+55

* 3' WIDE PAVED + 7' WIDE BASE AGGREGATE DENSE SHOULDER AT THE FOLLOWING LOCATION:
STA 1173+09 - 1174+55 RT



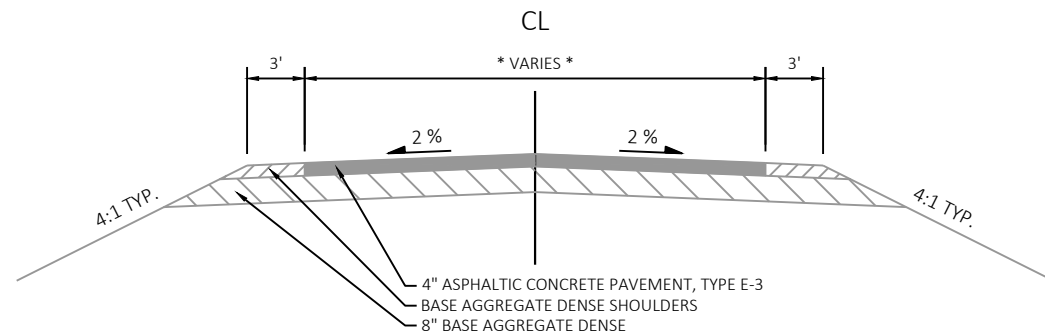
TYPICAL EXISTING SECTION
STA 1174+55 - 1274+50

- *STA 1253+30 - 1274+50
- 4.5" ASPHALTIC CONCRETE PAVEMENT, TYPE E-3 SHOULDERS
- 7.5" ASPHALTIC CONCRETE PAVEMENT, TYPE E-3
- 4" CRUSHED AGGREGATE BASE COURSE, OPEN GRADED, # 2
- 9" BASE AGGREGATE DENSE
- 12" SELECT BORROW



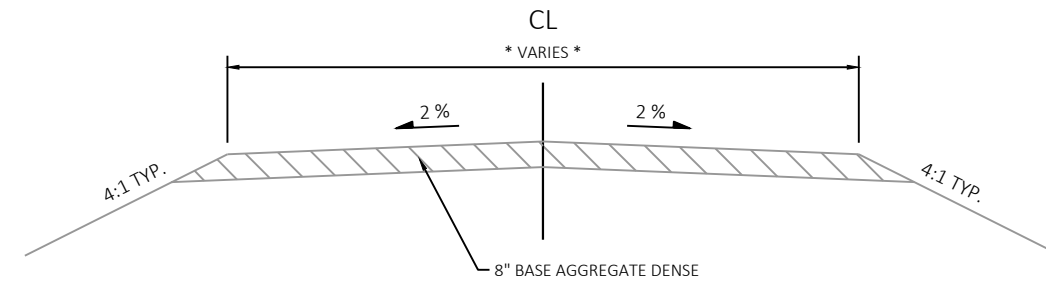
TYPICAL EXISTING SECTION - RIGHT TURN LANES

- CLEVEDON RD - LT
- MILLER RD - LT
- FASTELAND RD - LT
- LAMBERT RD - LT
- AFTER HOURS RD - RT
- LYONS RD - RT
- LAKE ST - LT
- WILLS RD - LT & RT



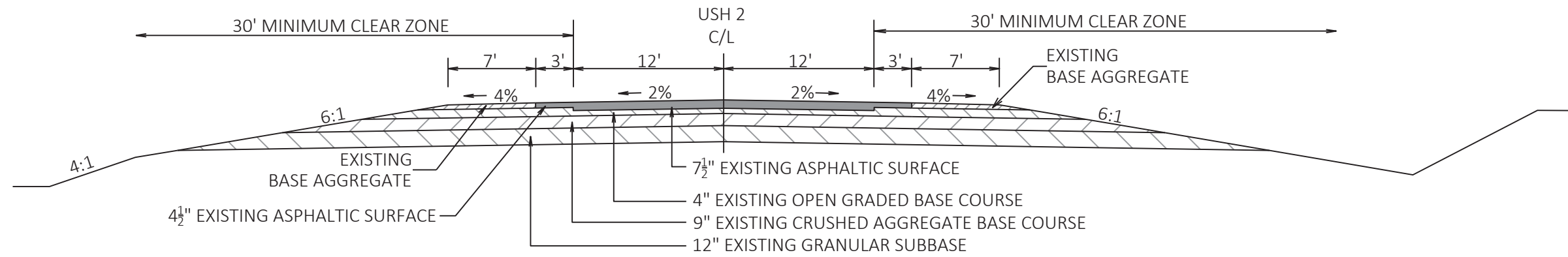
TYPICAL EXISTING SECTION - PAVED SIDEROADS

- * CLEVEDON RD - LT 12'
- * MILLER RD - LT 14'
- * FASTELAND RD - LT 18'
- * LAMBERT RD - LT 14'
- * AFTER HOURS RD - RT 16'
- * LYONS RD - RT 12'
- * RANGER RD - RT 16'
- * CTH H - LT 16'
- * LAKE ST - LT 30'
- * STH 27 - RT 30'
- * WILLS RD - LT & RT 12'



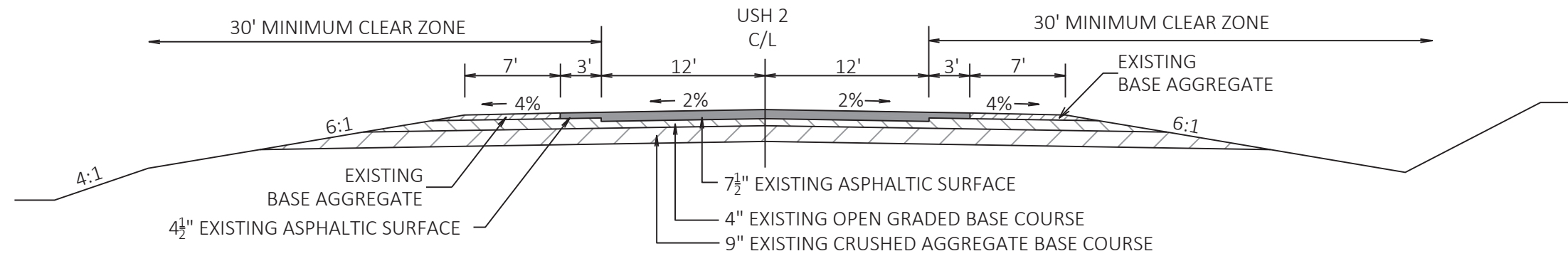
TYPICAL EXISTING SECTION - UNPAVED SIDEROADS

- * CLEVEDON RD - LT 12'
- * MILLER RD - LT 20'
- * FASTELAND RD - LT 24'
- * LAMBERT RD - LT 24'
- * AFTER HOURS RD - RT 24'
- * LYONS RD - RT 18'



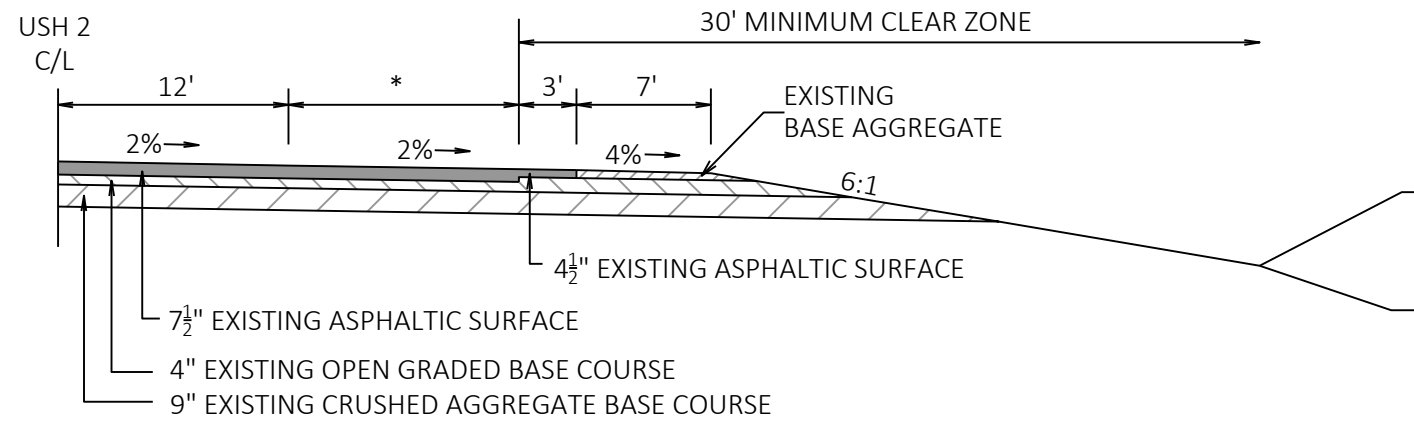
TYPICAL EXISTING SECTION

STA 1274+50 - STA 1334+00 LT & RT



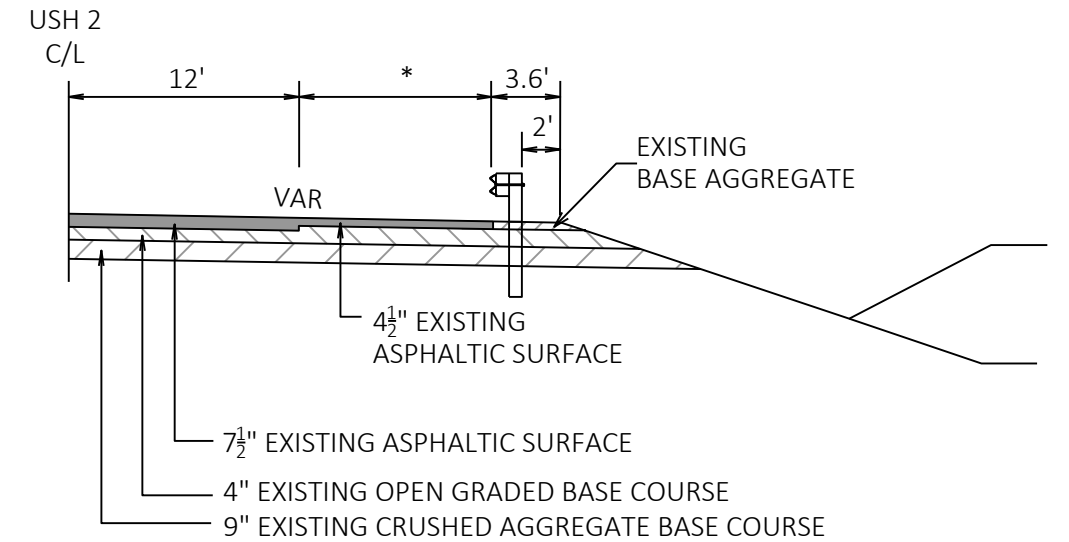
TYPICAL EXISTING SECTION

STA 1334+00 - STA 1409+00 LT & RT
 STA 1409+00 - STA 1486+00 LT
 STA 1486+00 - STA 1539+43 RT
 STA 1550+00 - STA 1557+68 LT
 STA 1557+68 - STA 1561+10 LT & RT
 STA 1561+10 - STA 1563+74 RT



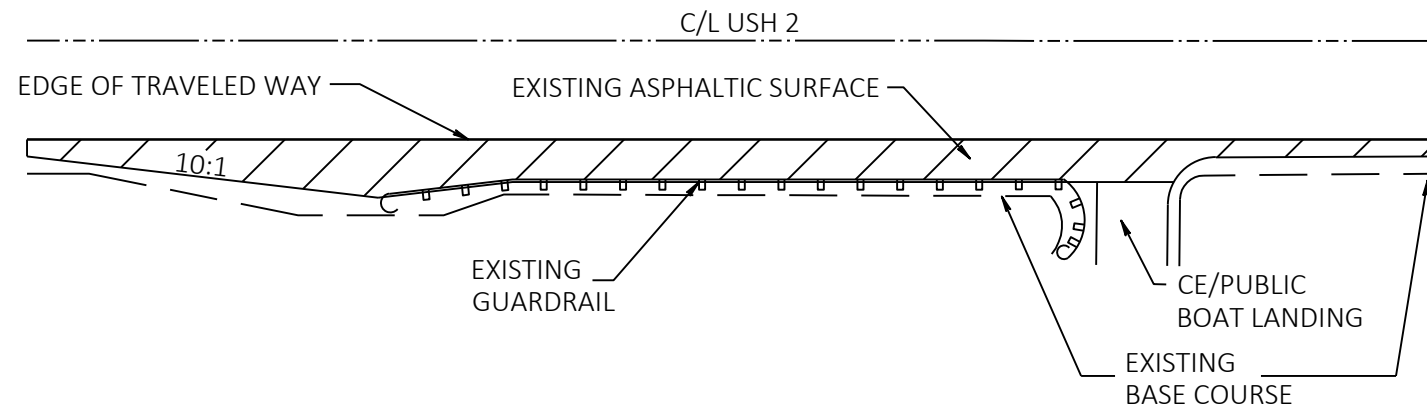
TYPICAL EXISTING PASSING LANE HALF SECTION

STA 1409+00 - STA 1416+00 RT	* 0'-12'	STA 1486+00 - STA 1493+00 LT	* 0'-12'
STA 1416+00 - STA 1479+00 RT	12'	STA 1493+00 - STA 1543+00 LT	12'
STA 1479+00 - STA 1486+00 RT	12'-0'	STA 1543+00 - STA 1550+00 LT	12'-0'

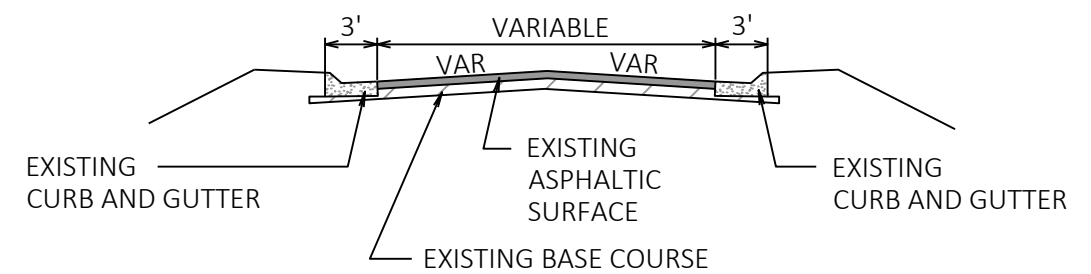


TYPICAL EXISTING HALF SECTION FOR GUARDRAIL

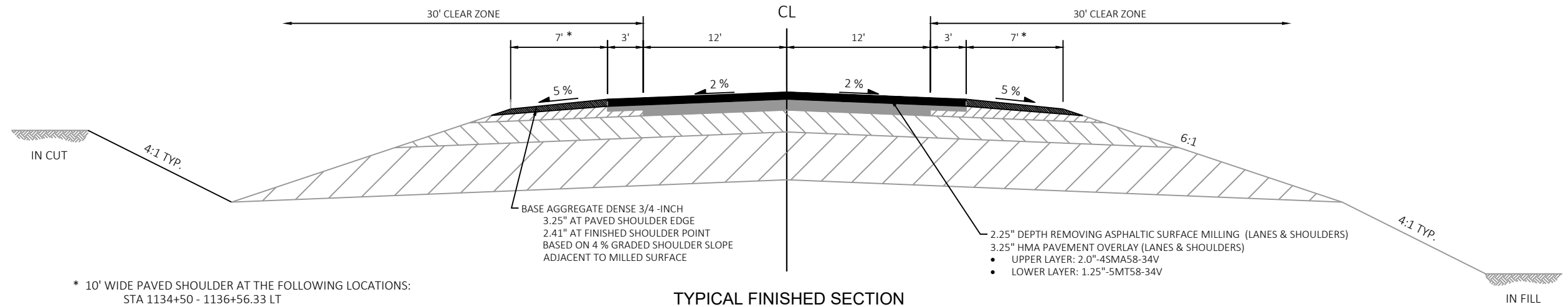
STA 1539+43 - STA 1539+93 RT	* 12'-10'
STA 1539+93 - STA 1557+68 RT	10'
STA 1561+10 - STA 1561+60 LT	12'-10'
STA 1561+60 - STA 1565+49 LT	10'
STA 1563+74 - STA 1564+24 RT	12'-10'
STA 1564+24 - STA 1565+49 RT	10'



TYPICAL EXISTING SHOULDER PAVING FOR GUARDRAIL



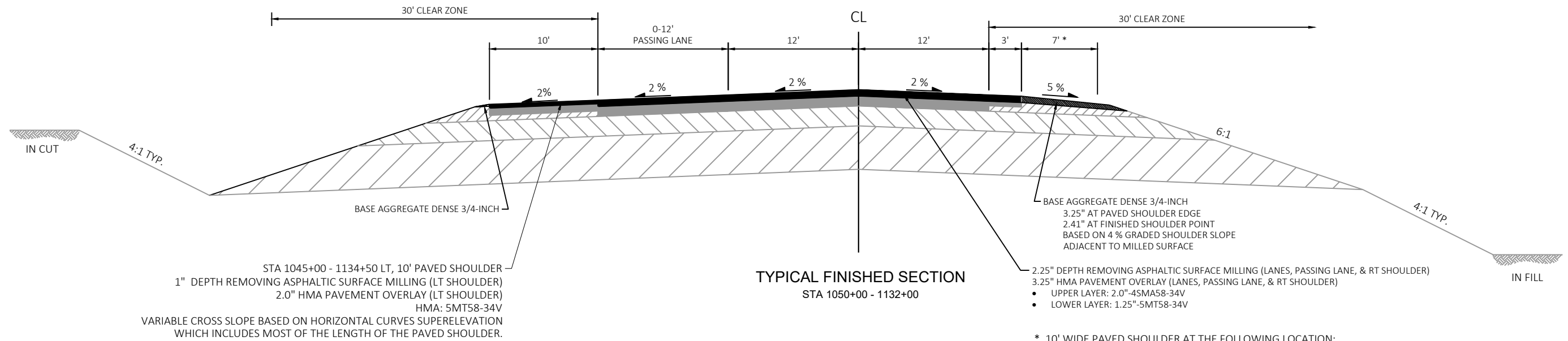
TYPICAL EXISTING SECTION FOR SIDE ROADS WITH CURB AND GUTTER



* 10' WIDE PAVED SHOULDER AT THE FOLLOWING LOCATIONS:
 STA 1134+50 - 1136+56.33 LT
 STA 1132+00 - 1136+56.33 RT
 STA 1137+86.08 - 1139+70 LT & RT
 PROPOSED PAVEMENT TREATMENT AT THESE LOCATIONS:
 1" - 2" DEPTH REMOVING ASPHALTIC SURFACE MILLING
 2" HMA PAVEMENT OVERLAY
 HMA: 5MT58-34V
 MATCH EXISTING BASE AGG. SURFACE AT OUTSIDE
 EDGE OF PAVED SHOULDER.
 VARIABLE CROSS SLOPE.

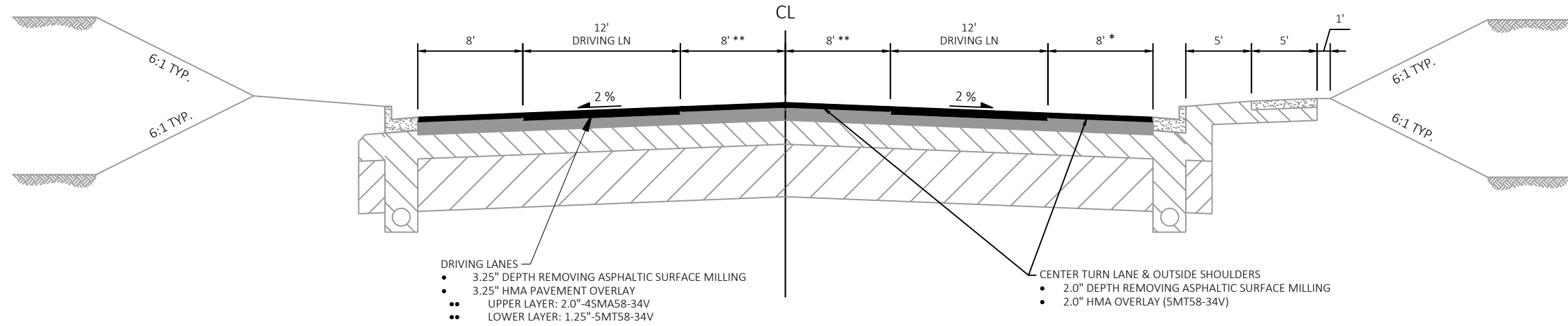
EXCEPTION TO NET CENTERLINE LENGTH (STRUCTURE B-16-0019):
 STA 1136+56.33 - 1137+86.08

NOTE: 12' WIDE EB PASSING LANE
 STA 1036+76 - 1045+00 RT
 EB PASSING LANE TAPER
 STA 1045+00, 24' RT - STA 1052+00, 12' RT



STA 1045+00 - 1134+50 LT, 10' PAVED SHOULDER
 1" DEPTH REMOVING ASPHALTIC SURFACE MILLING (LT SHOULDER)
 2.0" HMA PAVEMENT OVERLAY (LT SHOULDER)
 HMA: 5MT58-34V
 VARIABLE CROSS SLOPE BASED ON HORIZONTAL CURVES SUPERELEVATION
 WHICH INCLUDES MOST OF THE LENGTH OF THE PAVED SHOULDER.

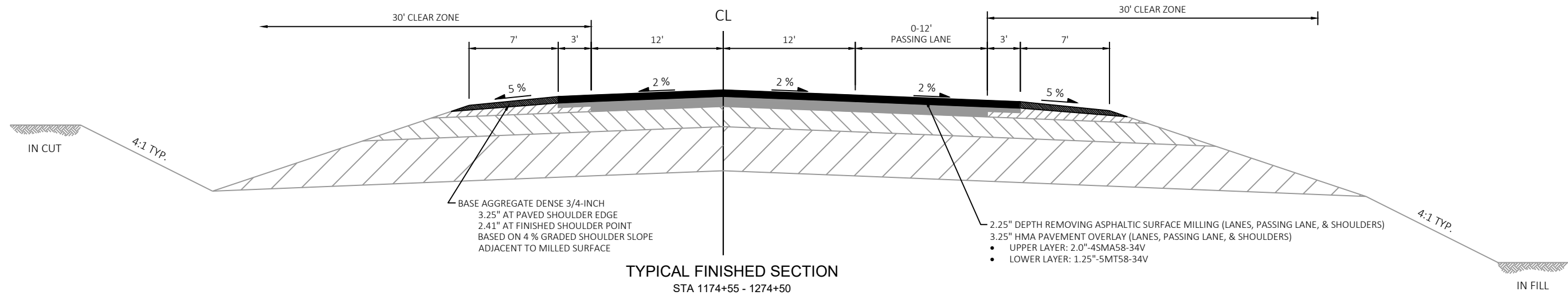
* 10' WIDE PAVED SHOULDER AT THE FOLLOWING LOCATION:
 STA 1122+97 - 1127+40 RT
 PROPOSED PAVEMENT TREATMENT AT THIS LOCATION:
 1" - 2" DEPTH REMOVING ASPHALTIC SURFACE MILLING
 2.0" HMA PAVEMENT OVERLAY
 HMA: 5MT58-34V
 MATCH EXISTING BASE AGG. SURFACE AT OUTSIDE
 EDGE OF PAVED SHOULDER.
 VARIABLE CROSS SLOPE.



TYPICAL FINISHED SECTION
STA 1139+70 - 1174+55

- ** WB LEFT TURN LANE AND FLUSH MEDIAN WIDTH EXTENDED THROUGH TO WEST SIDE OF STH 27/LAKE STREET INTERSECTION STA 1171+25 - 1174+55
- 3.25" DEPTH REMOVING ASPHALTIC SURFACE MILLING
- 3.25" HMA PAVEMENT OVERLAY
- UPPER LAYER: 2.0" -4SMA58-34V
- LOWER LAYER: 1.25" -5MT58-34V

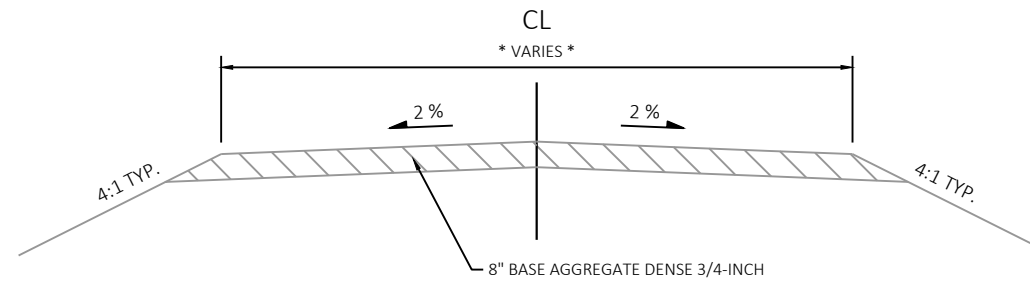
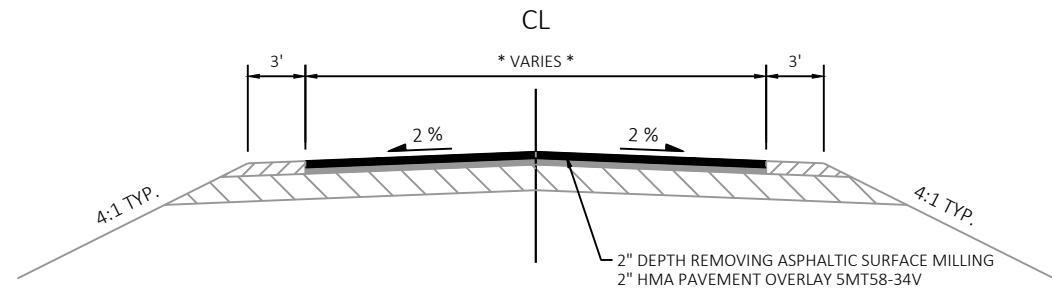
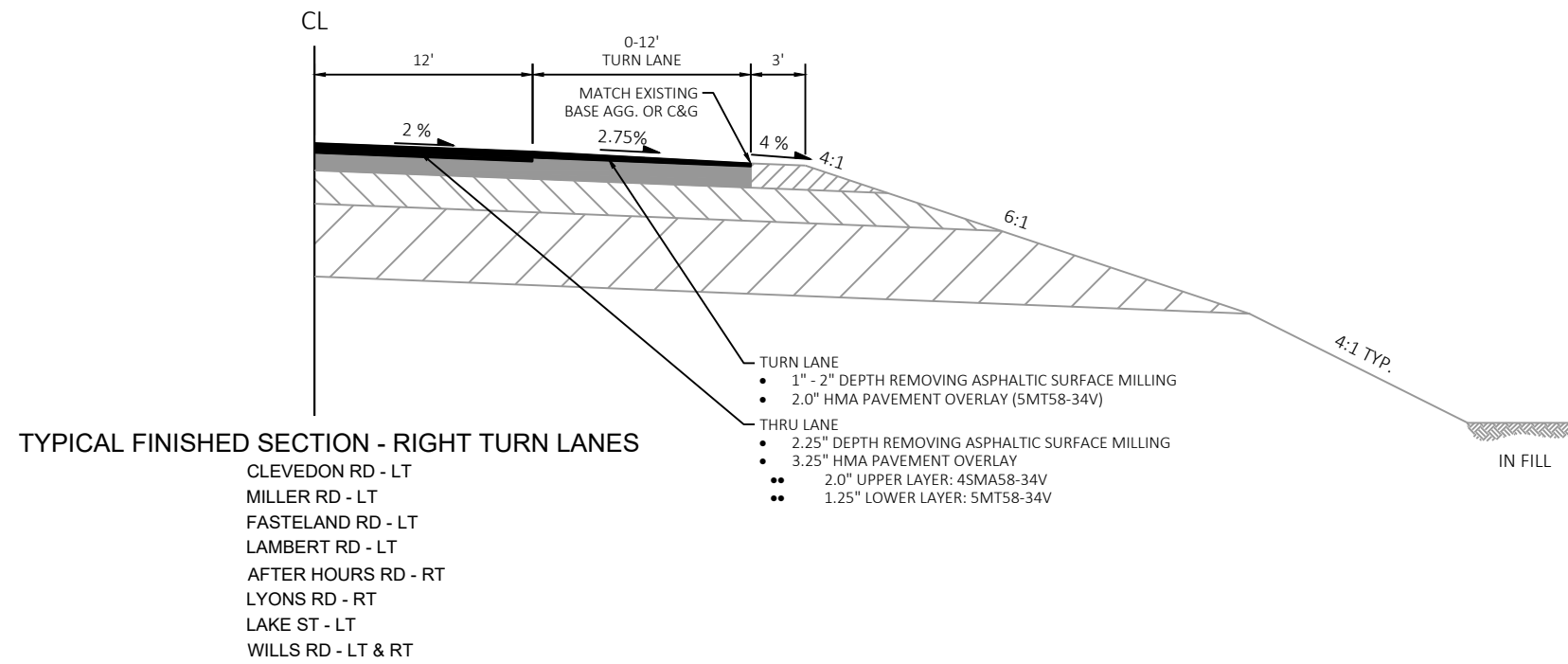
* 3' WIDE PAVED + 7' WIDE BASE AGGREGATE DENSE SHOULDER AT THE FOLLOWING LOCATION:
STA 1173+09 - 1174+55 RT
3' WIDE PAVED SHOULDER SHALL BE MILLED TO THE SAME DEPTH AND OVERLAID TO THE SAME UPPER AND LOWER LAYER THICKNESSES AS THE ADJACENT DRIVING LANE.
SHAPING SHOULDERS REQUIRED TO RECONSTRUCT BASE AGGREGATE DENSE SHOULDER.

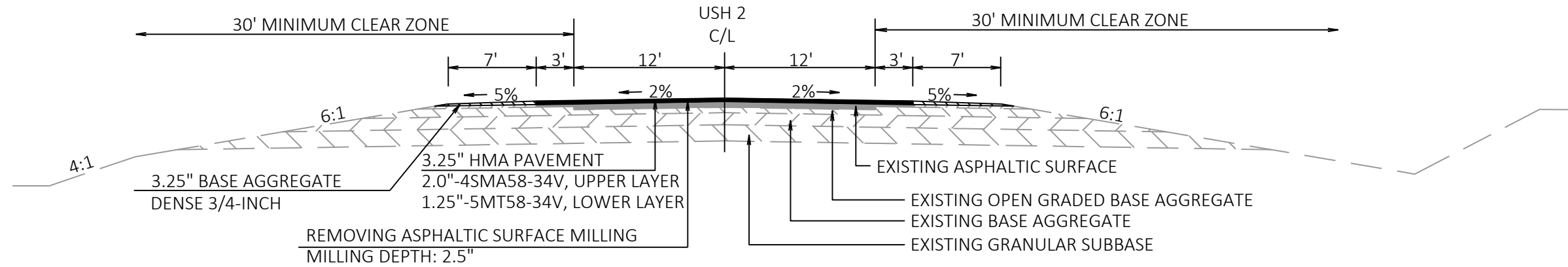


TYPICAL FINISHED SECTION
STA 1174+55 - 1274+50

BASE AGGREGATE DENSE 3/4-INCH
3.25" AT PAVED SHOULDER EDGE
2.41" AT FINISHED SHOULDER POINT
BASED ON 4% GRADED SHOULDER SLOPE
ADJACENT TO MILLED SURFACE

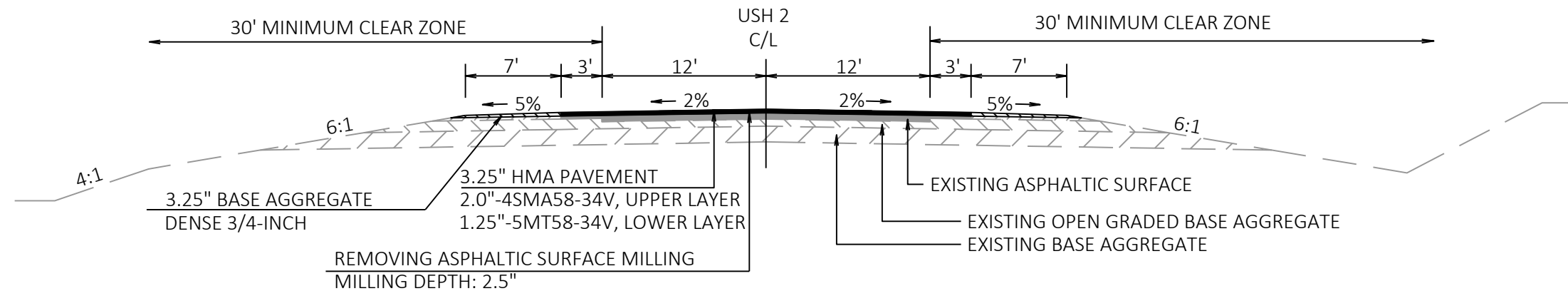
- 2.25" DEPTH REMOVING ASPHALTIC SURFACE MILLING (LANES, PASSING LANE, & SHOULDERS)
- 3.25" HMA PAVEMENT OVERLAY (LANES, PASSING LANE, & SHOULDERS)
- UPPER LAYER: 2.0" -4SMA58-34V
- LOWER LAYER: 1.25" -5MT58-34V





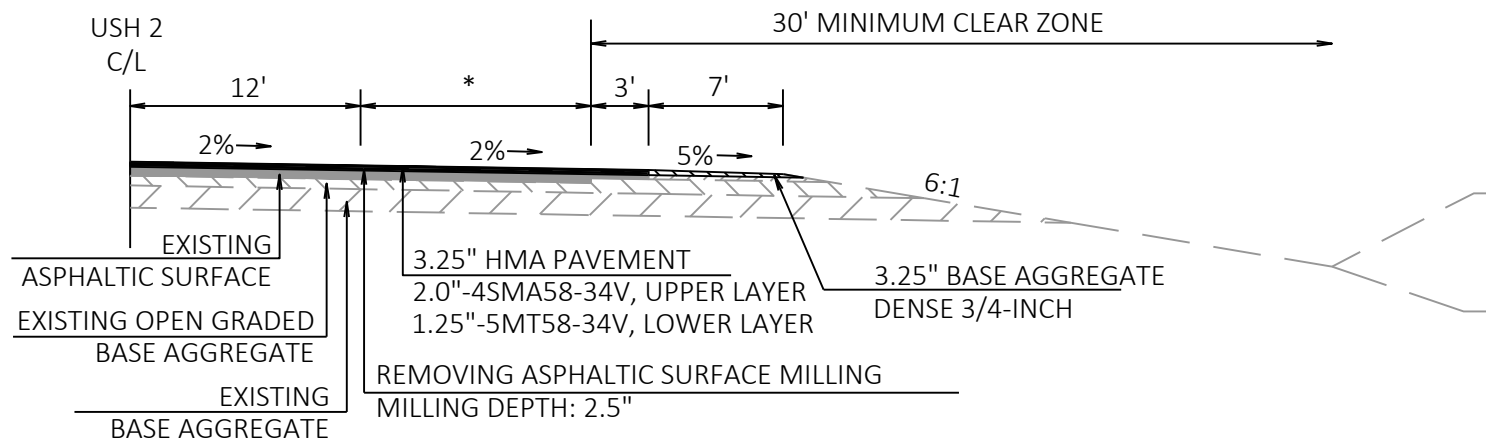
TYPICAL FINISHED SECTION

STA 1274+50 - STA 1334+00 LT & RT



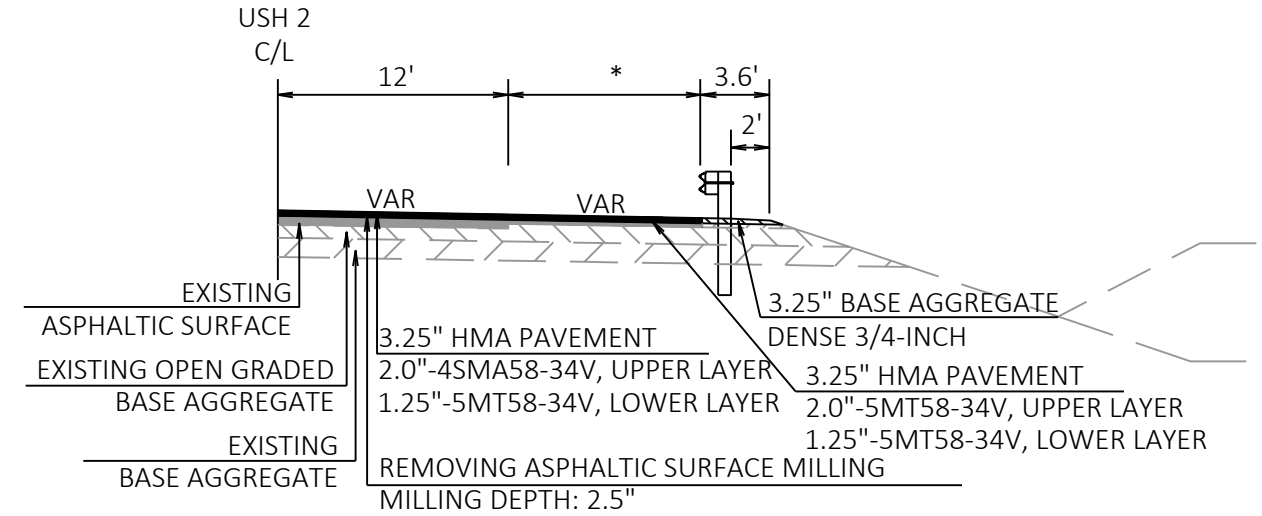
TYPICAL FINISHED SECTION

STA 1334+00 - STA 1409+00 LT & RT
 STA 1409+00 - STA 1486+00 LT
 STA 1486+00 - STA 1539+43 RT
 STA 1550+00 - STA 1557+68 LT
 STA 1557+68 - STA 1561+10 LT & RT
 STA 1561+10 - STA 1563+74 RT



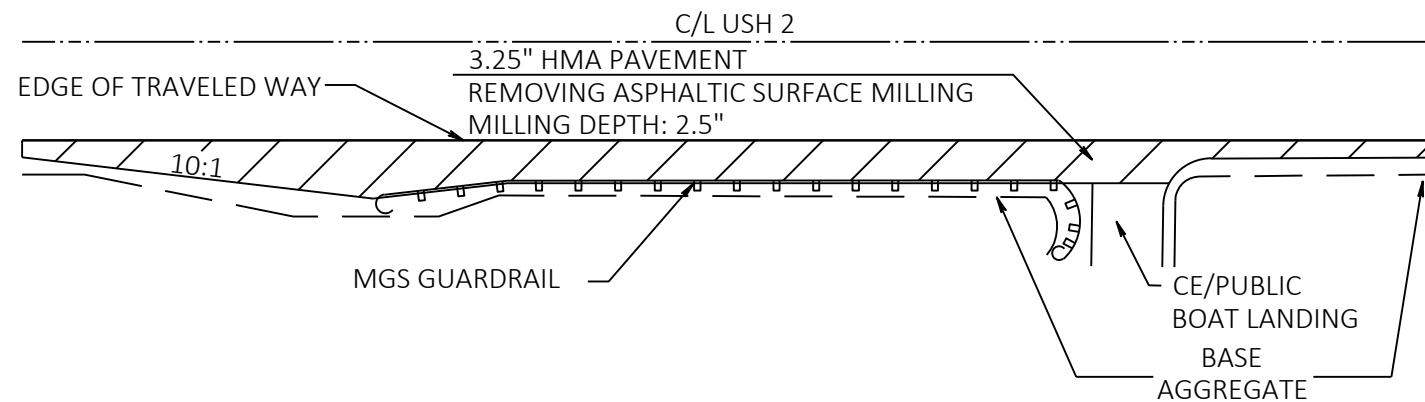
TYPICAL FINISHED PASSING LANE HALF SECTION

	*		*
STA 1409+00 - STA 1416+00 RT	0'-12'	STA 1486+00 - STA 1493+00 LT	0'-12'
STA 1416+00 - STA 1479+00 RT	12'	STA 1493+00 - STA 1543+00 LT	12'
STA 1479+00 - STA 1486+00 RT	12'-0'	STA 1543+00 - STA 1550+00 LT	12'-0'

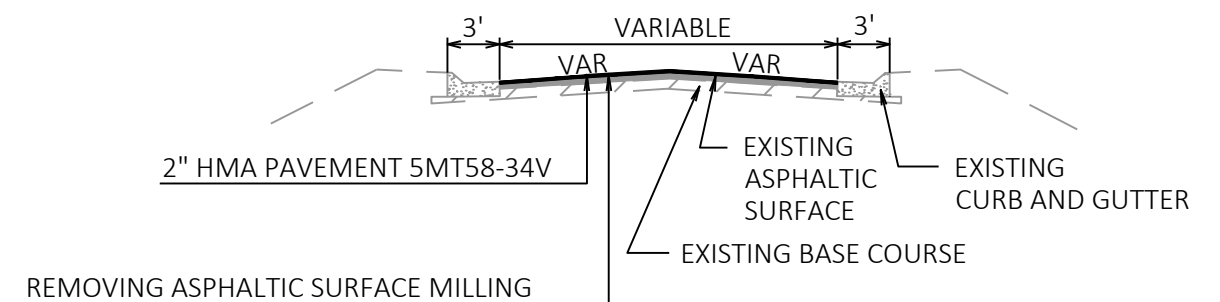


TYPICAL FINISHED HALF SECTION FOR GUARDRAIL

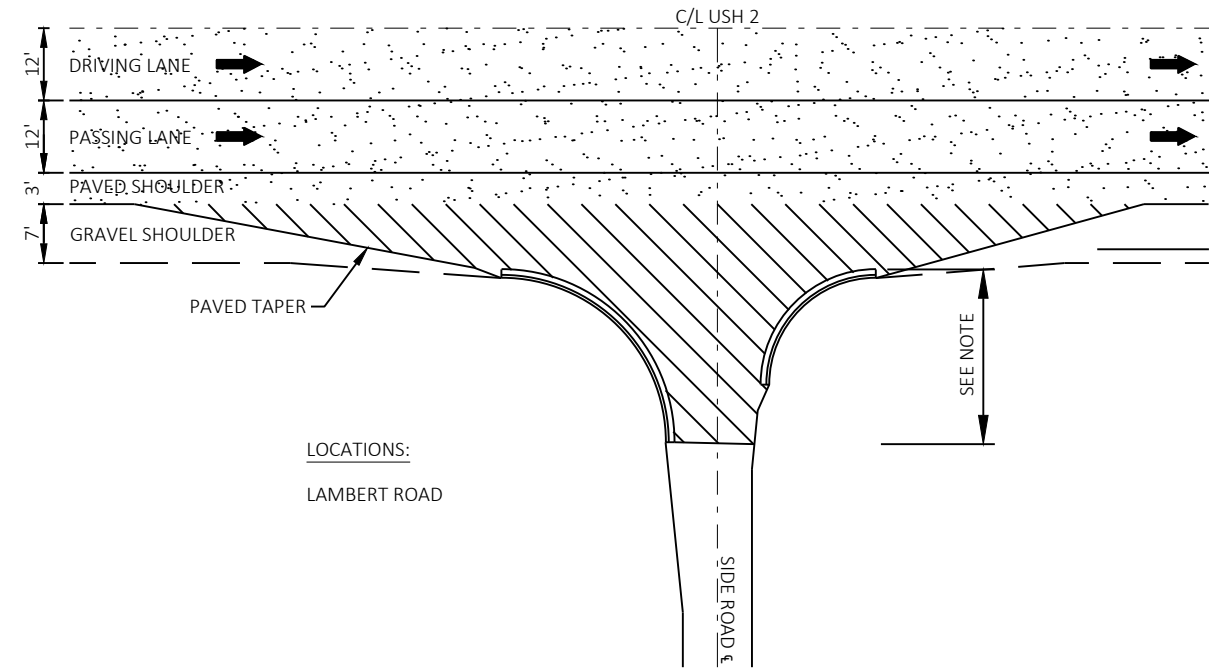
	*
STA 1539+43 - STA 1539+93 RT	12'-10'
STA 1539+93 - STA 1557+68 RT	10'
STA 1561+10 - STA 1561+60 LT	12'-10'
STA 1561+60 - STA 1565+49 LT	10'
STA 1563+74 - STA 1564+24 RT	12'-10'
STA 1564+24 - STA 1565+49 RT	10'



TYPICAL FINISHED SHOULDER PAVING FOR GUARDRAIL

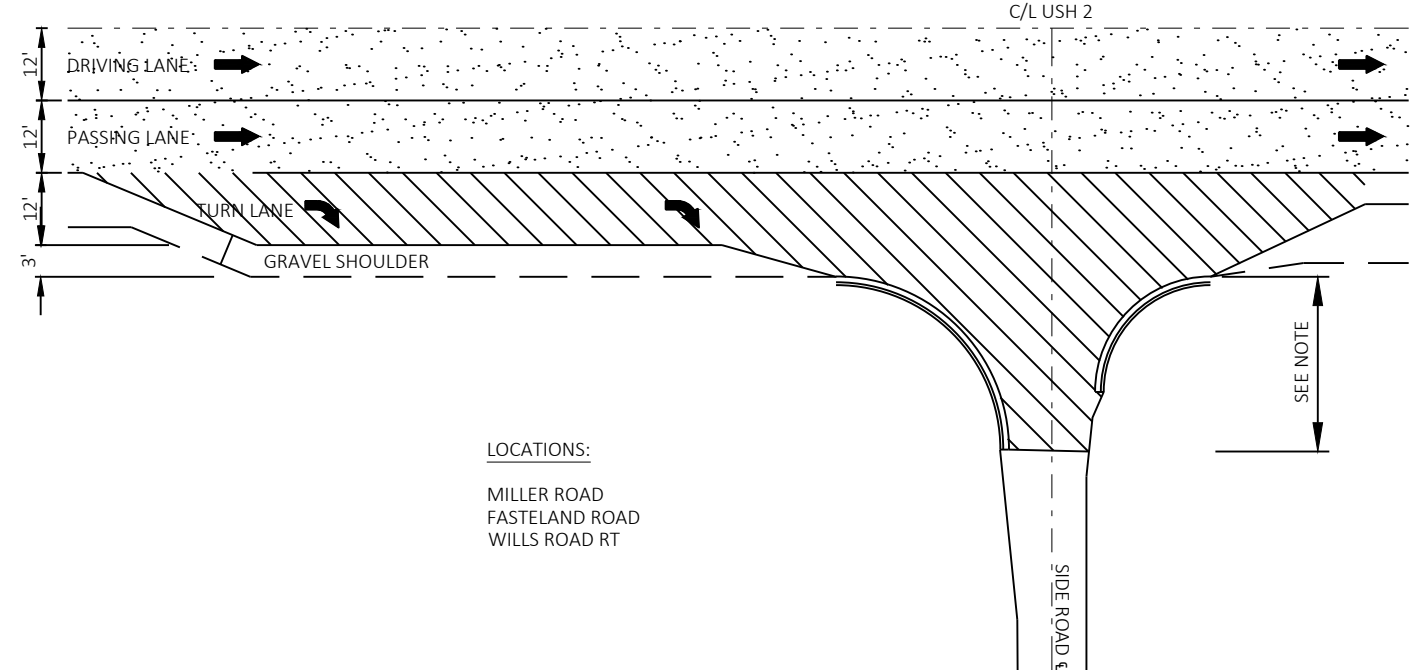


TYPICAL FINISHED SECTION FOR SIDE ROADS WITH CURB AND GUTTER



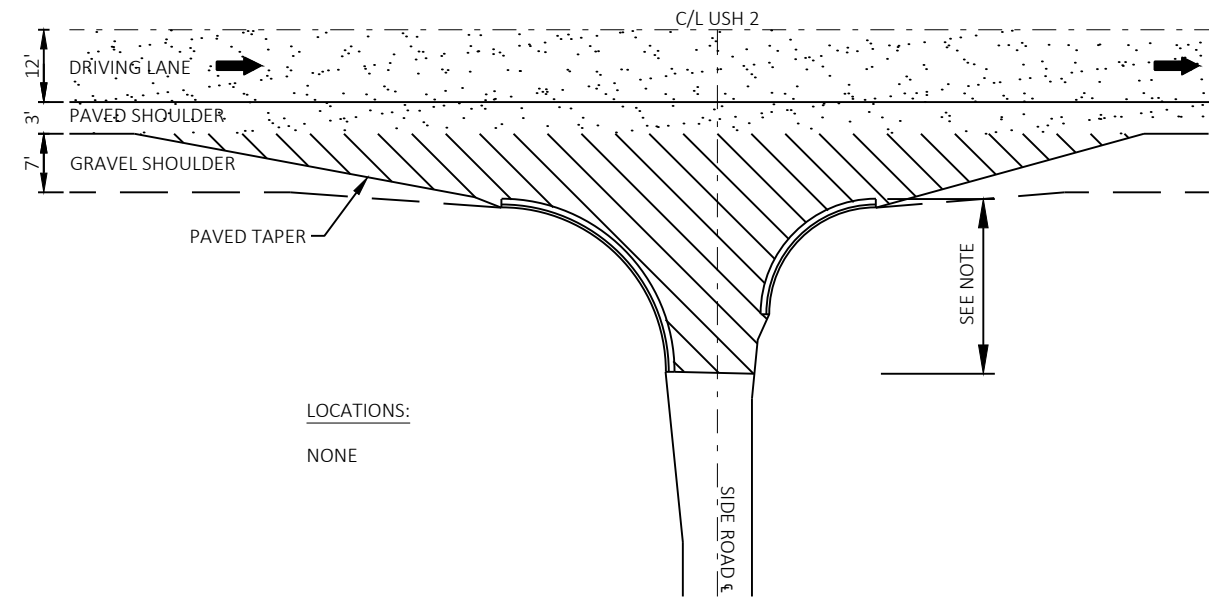
LOCATIONS:
LAMBERT ROAD

PASSING LANE WITH NO TURN LANE



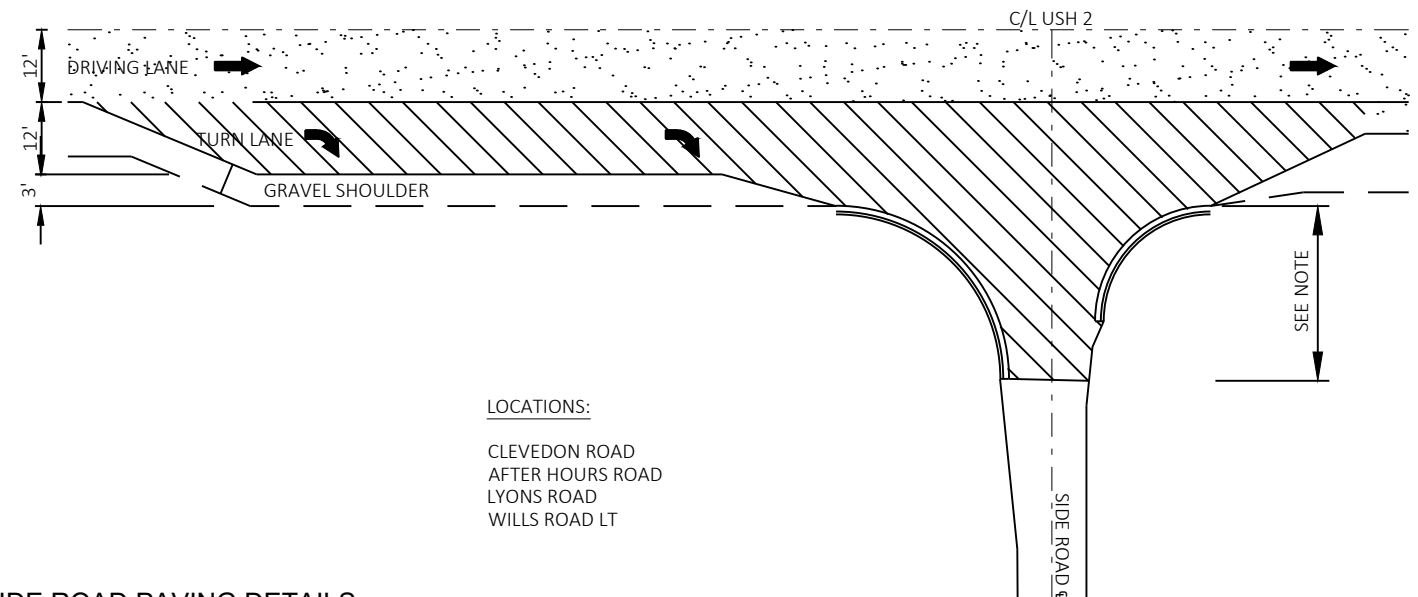
LOCATIONS:
MILLER ROAD
FASTLAND ROAD
WILLS ROAD RT

PASSING LANE WITH TURN LANE



LOCATIONS:
NONE



NO TURN LANE

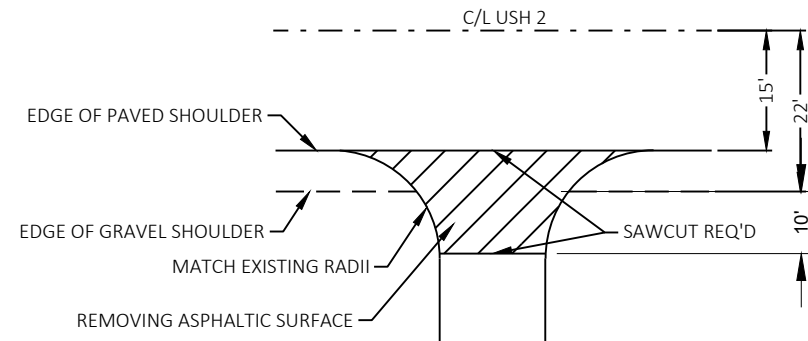


LOCATIONS:
CLEVEDON ROAD
AFTER HOURS ROAD
LYONS ROAD
WILLS ROAD LT

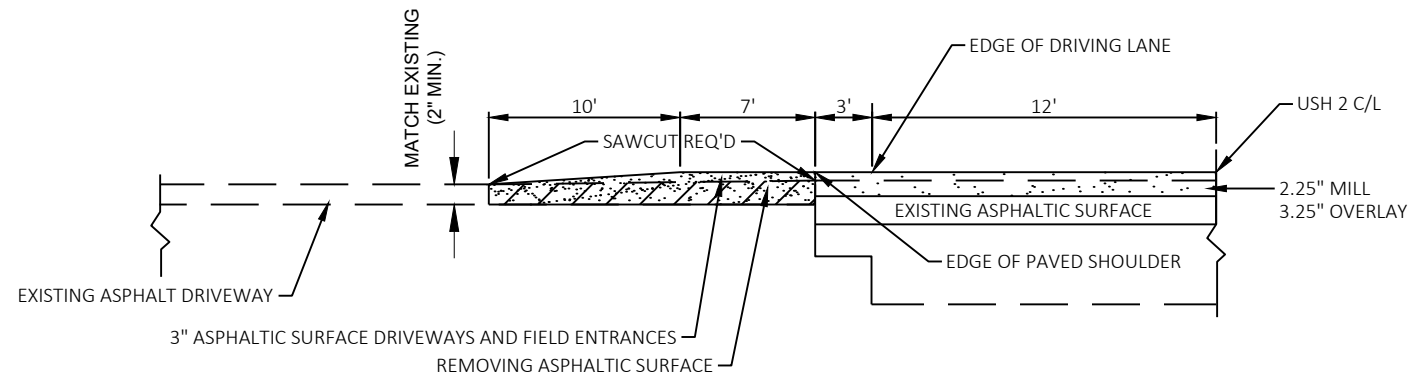
WITH TURN LANE

RURAL SIDE ROAD PAVING DETAILS

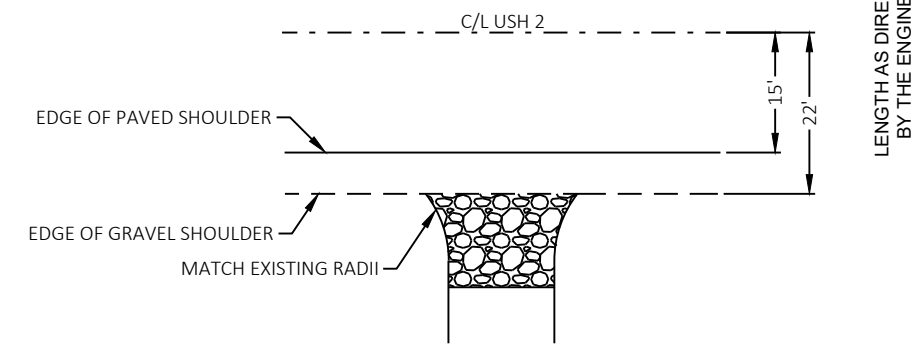
-  1" - 2" HMA MILL & 2" HMA OVERLAY
-  2.25" HMA MILL & 3.25" HMA OVERLAY



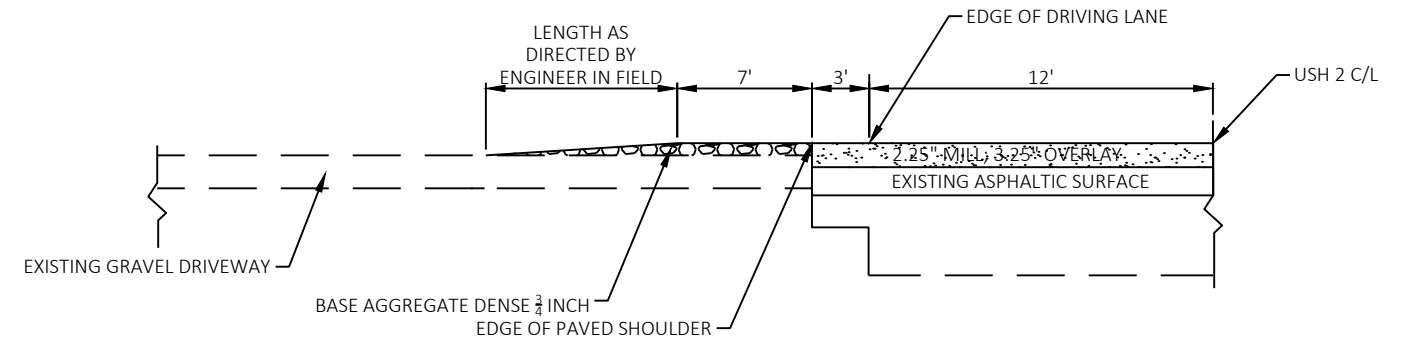
PAVED PRIVATE ENTRANCE PLAN VIEW



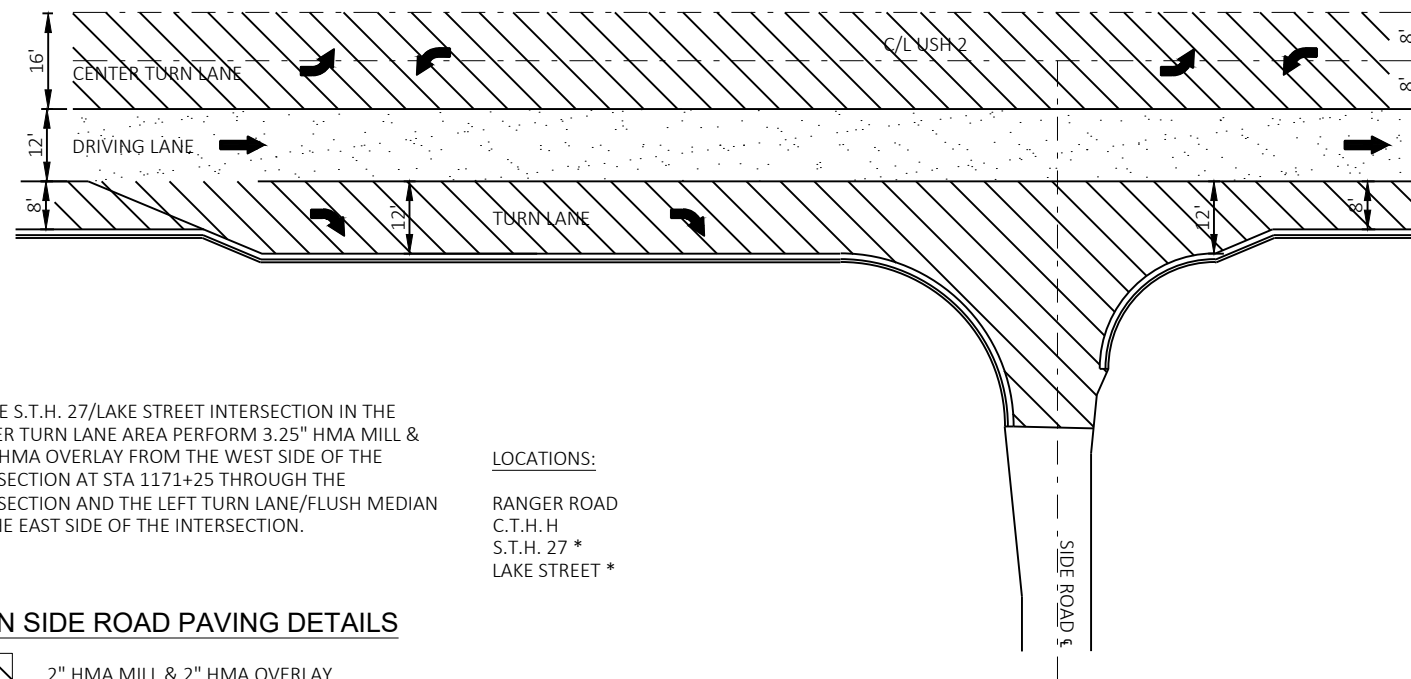
PAVED PRIVATE ENTRANCE PROFILE VIEW



BASE AGGREGATE PRIVATE ENTRANCE PLAN VIEW



BASE AGGREGATE PRIVATE ENTRANCE PROFILE VIEW





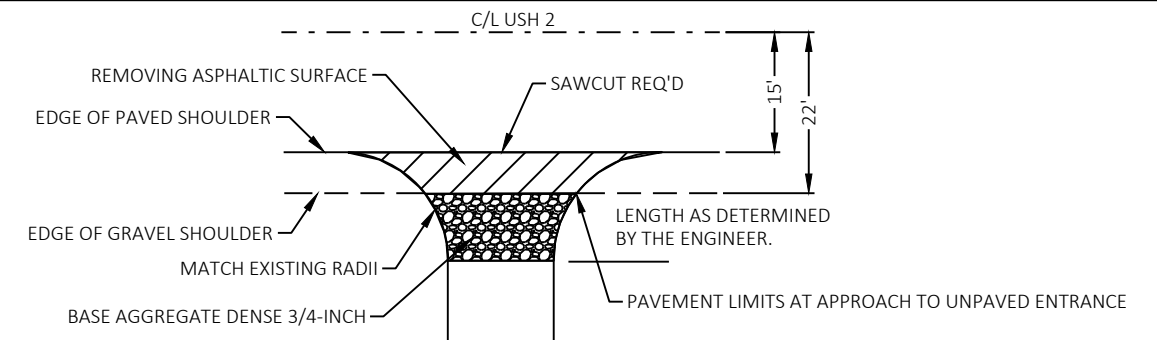
CENTER TURN LANE WITH RIGHT TURN LANE

* AT THE S.T.H. 27/LAKE STREET INTERSECTION IN THE CENTER TURN LANE AREA PERFORM 3.25" HMA MILL & 3.25" HMA OVERLAY FROM THE WEST SIDE OF THE INTERSECTION AT STA 1171+25 THROUGH THE INTERSECTION AND THE LEFT TURN LANE/FLUSH MEDIAN ON THE EAST SIDE OF THE INTERSECTION.

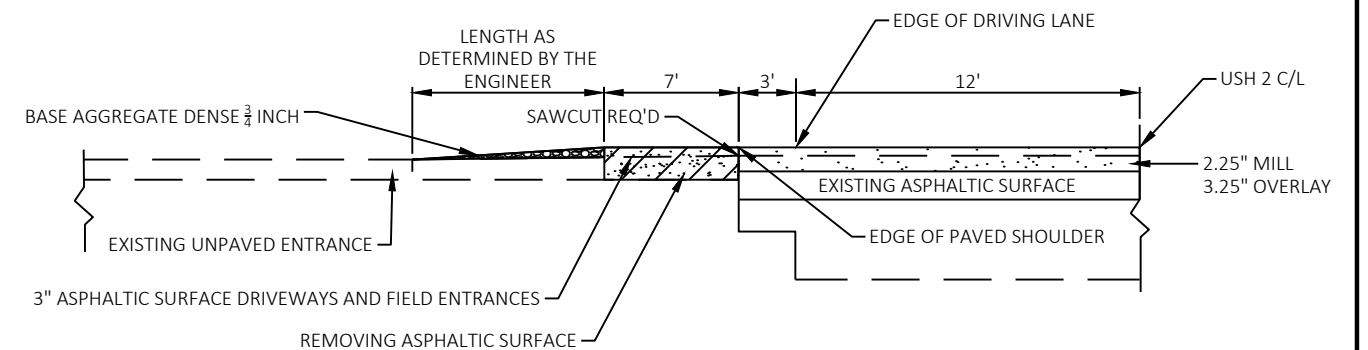
LOCATIONS:
 RANGER ROAD
 C.T.H. H
 S.T.H. 27 *
 LAKE STREET *

URBAN SIDE ROAD PAVING DETAILS

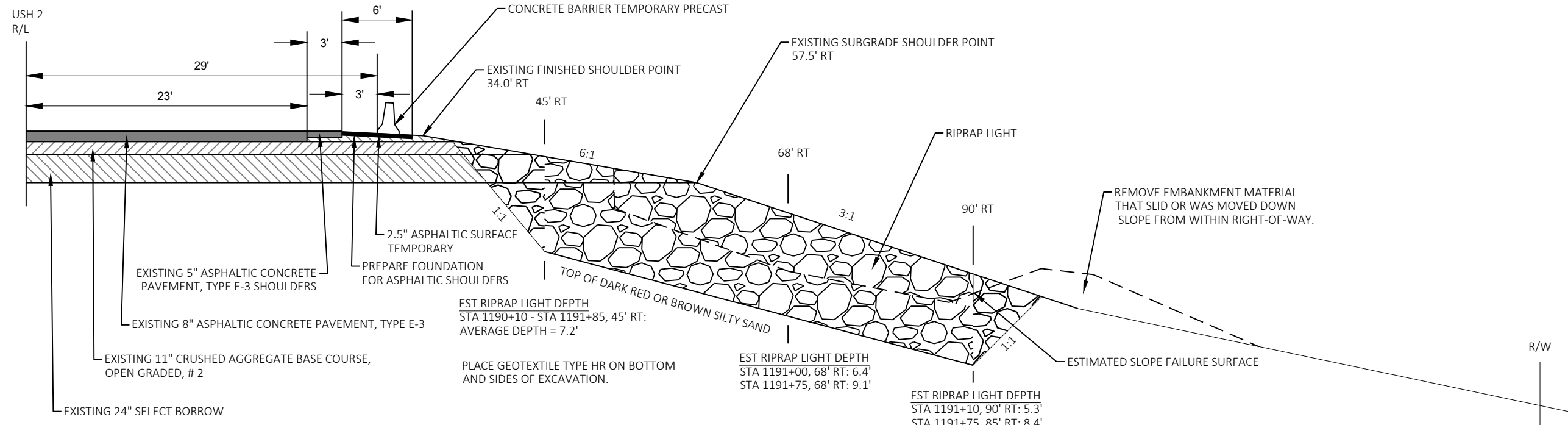
-  2" HMA MILL & 2" HMA OVERLAY
-  3.25" HMA MILL & 3.25" HMA OVERLAY



PAVEMENT LIMITS AT APPROACH TO UNPAVED ENTRANCE PLAN VIEW



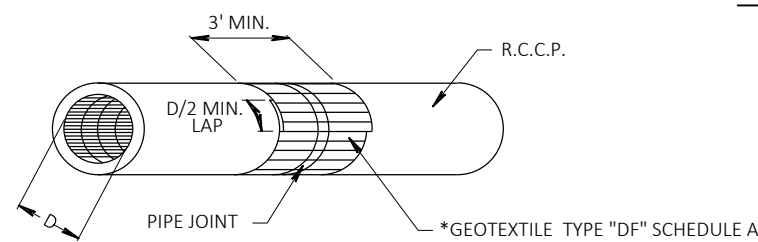
PAVEMENT LIMITS AT APPROACH TO UNPAVED ENTRANCE PROFILE VIEW



EMBAKMENT SLOPE REPAIR DETAIL

STA 1190+10 - STA 1191+85 RT

NOTE: NOT TO SCALE.



* INCIDENTAL TO ITEM SPV.0060.01 RESETTING CULVERT SECTIONS.

DETAIL OF WRAPPED PIPE JOINT

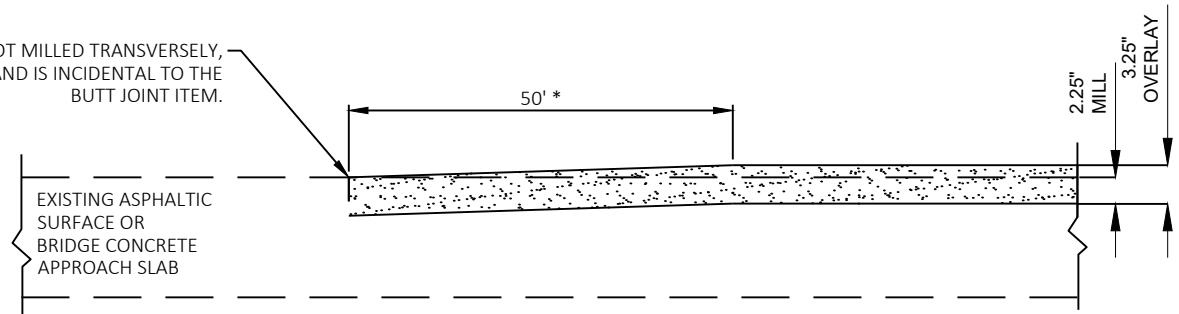
WRAP ALL JOINTS

STA 1181+00 LT

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

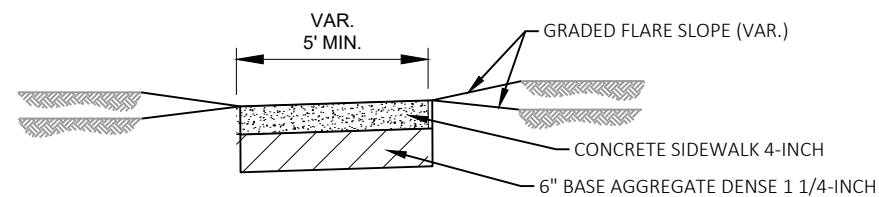
IF BUTT JOINT IS NOT MILLED TRANSVERSELY, SAWCUT IS REQ'D AND IS INCIDENTAL TO THE BUTT JOINT ITEM.



DETAIL FOR MAINLINE CONSTRUCTION JOINT

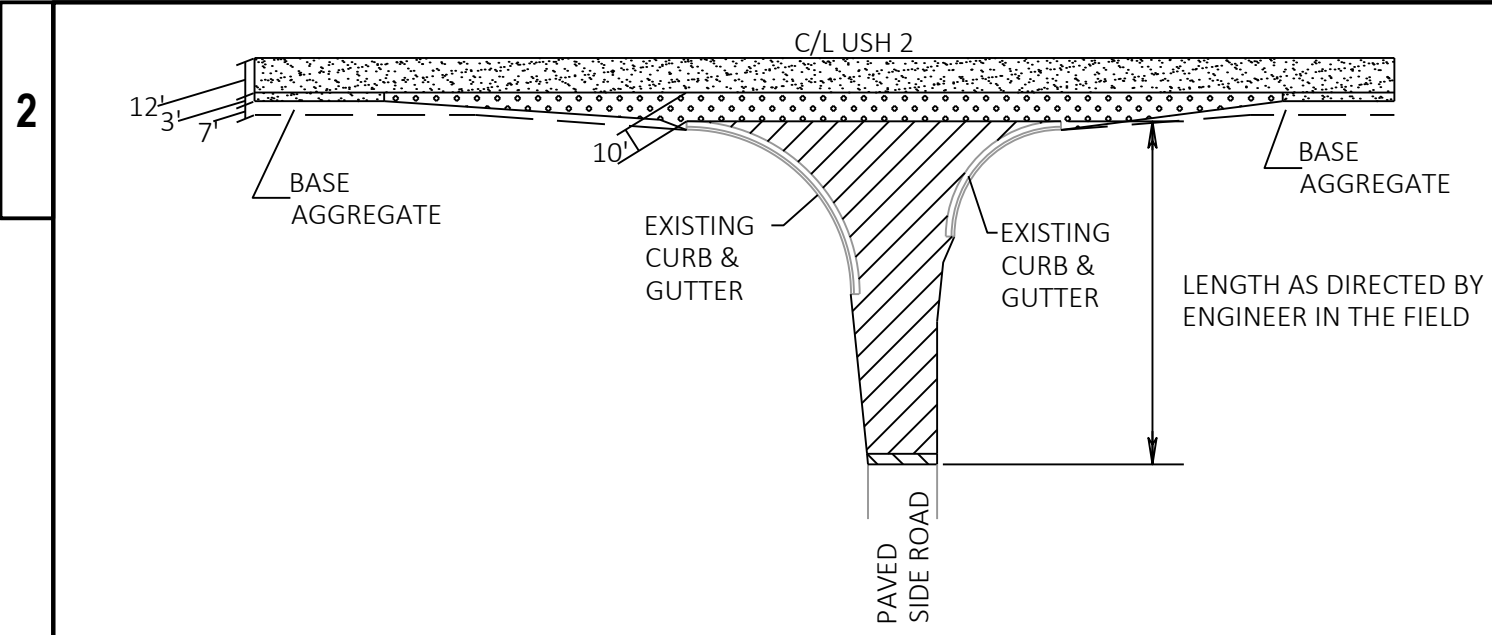
STA 1036+76 - STA 1037+26 USH 2 BEGIN PROJECT
STA 1136+26 - STA 1136+56 USH 2 WEST END BRIDGE CONCRETE APPROACH SLAB
STA 1137+86 - STA 1138+16 USH 2 EAST END BRIDGE CONCRETE APPROACH SLAB

* NOTE: 30' AT ENDS OF BRIDGE CONCRETE APPROACH SLAB.



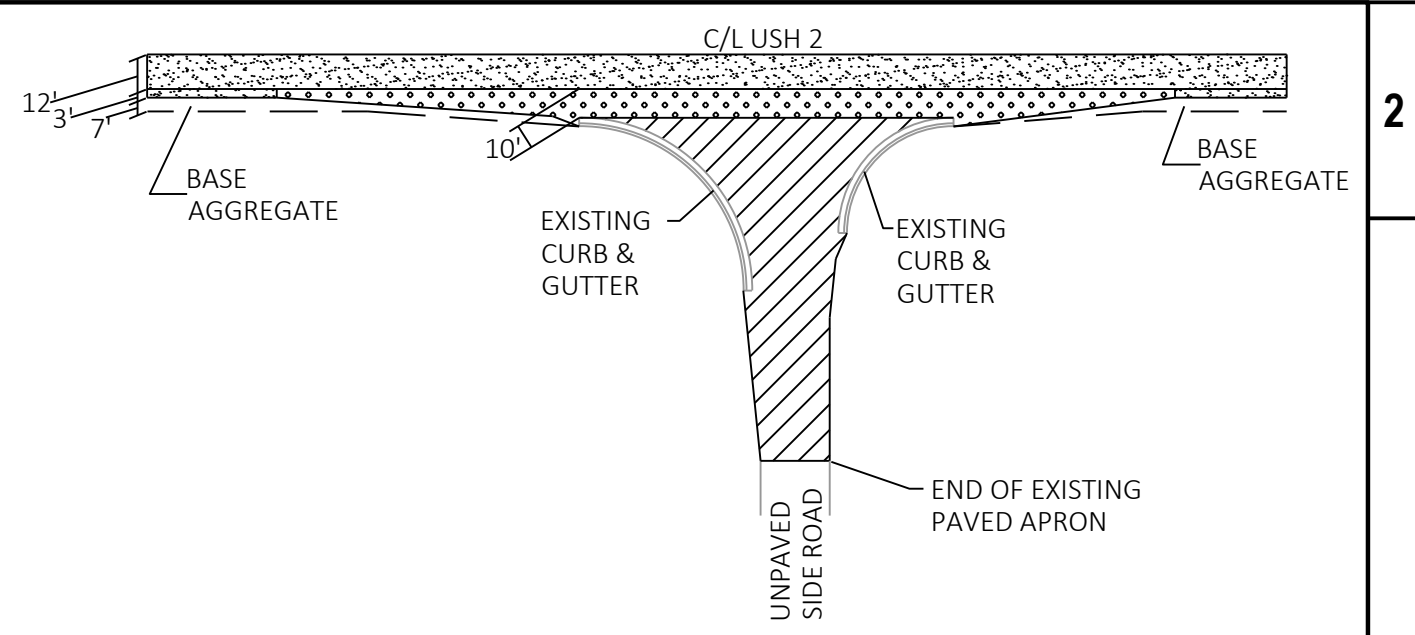
DETAIL FOR CURB RAMP STRUCTURE

RANGER ROAD
STH 27
LAKE STREET



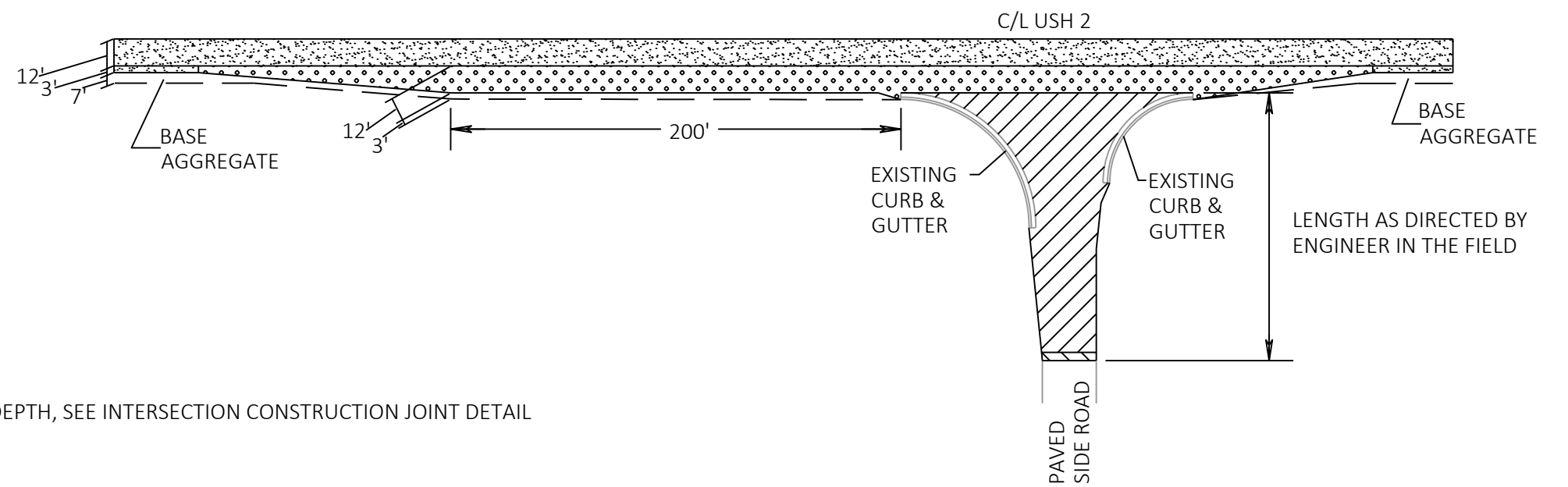
MILLING AND PAVING DETAIL FOR EXISTING PAVED SIDE ROADS

HOLLANDER RD



MILLING AND PAVING DETAIL FOR SIDE ROADS WITH EXISTING PAVED APRON





STEPHENS RD SPRING LAKE RD
BEAR PAW RD REDWINE RD








MILLING AND PAVING DETAIL FOR EXISTING PAVED SIDE ROADS WITH TURN LANE

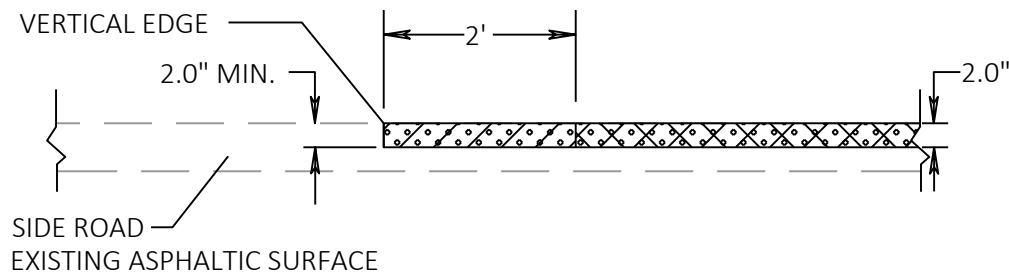
SZNAIDER RD DEEP LAKE RD
HUGHES TOWN HALL RD AIRPORT RD
CRYSTAL LAKE RD RANGE LINE RD

LEGEND

- 
 REMOVING ASPHALTIC SURFACE MILLING, 2.5" DEPTH
 3.25" HMA PAVEMENT
 2.0"-4 SMA 58-34 V, UPPER LAYER
 1.25"-5 MT 58-34 V, LOWER LAYER
- 
 REMOVING ASPHALTIC SURFACE MILLING, 2.5" - 3.25" DEPTH, SEE INTERSECTION CONSTRUCTION JOINT DETAIL
 3.25" HMA PAVEMENT
 2.0"-5 MT 58-34 V, UPPER LAYER
 1.25"-5 MT 58-34 V, LOWER LAYER
- 
 REMOVING ASPHALTIC SURFACE MILLING, 2.0" DEPTH
 2.0" HMA PAVEMENT 5 MT 58-34 V
- 
 REMOVING ASPHALTIC SURFACE BUTT JOINT, 2.0" DEPTH SEE PAVED SIDE ROAD CONSTRUCTION JOINT DETAIL
 2.0" HMA PAVEMENT 5 MT 58-34 V

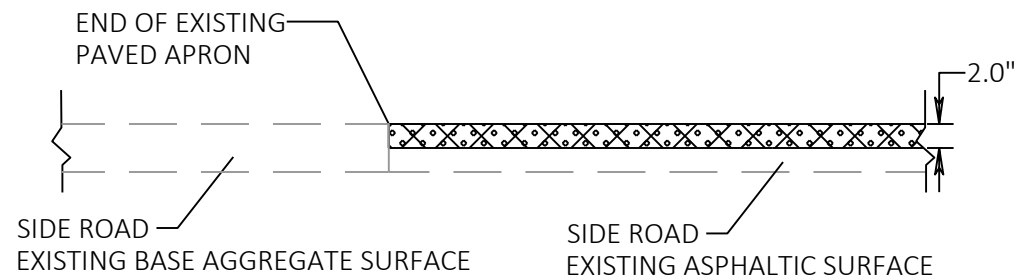
LEGEND

-  REMOVING ASPHALTIC SURFACE MILLING
-  REMOVING ASPHALTIC SURFACE MILLING, 2.0" DEPTH
-  REMOVING ASPHALTIC SURFACE BUTT JOINTS
-  HMA PAVEMENT 5 MT 58-34 V
-  HMA PAVEMENT 4 SMA 58-34 V



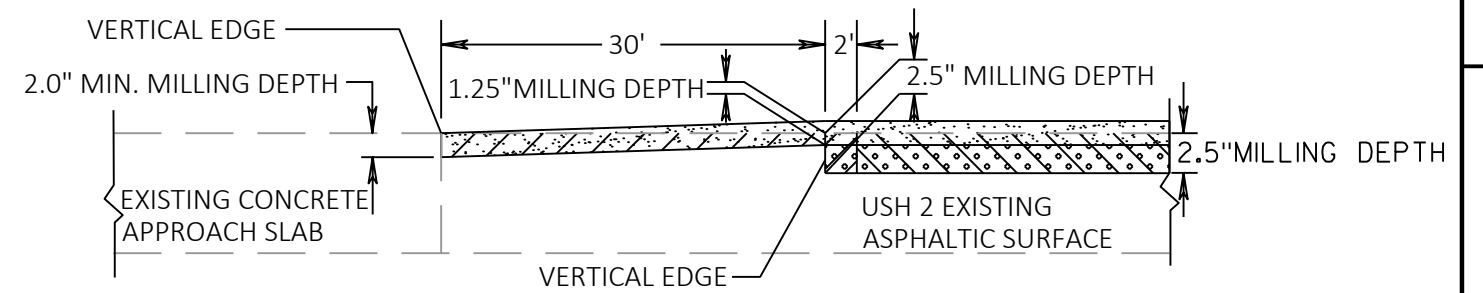
DETAIL FOR PAVED SIDE ROAD CONSTRUCTION JOINT

- | | |
|---------------------|---------------|
| SZNAIDER RD | DEEP LAKE RD |
| HOLLANDER RD | AIRPORT RD |
| HUGHES TOWN HALL RD | RANGE LINE RD |
| CRYSTAL LAKE RD | |



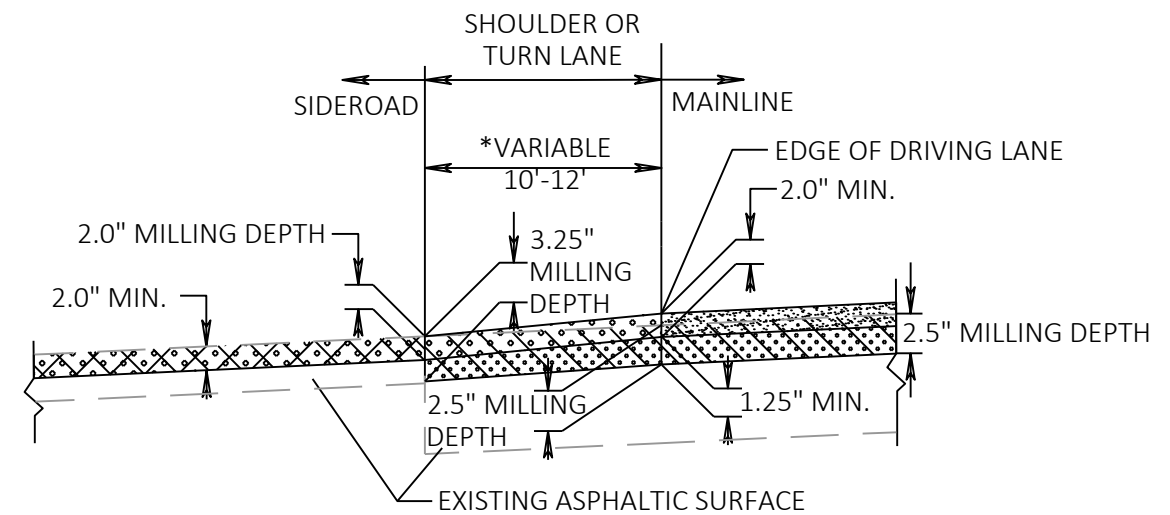
DETAIL FOR UNPAVED SIDE ROAD CONSTRUCTION JOINT

- | | |
|-------------|----------------|
| STEPHENS RD | SPRING LAKE RD |
| BEAR PAW RD | REDWINE RD |



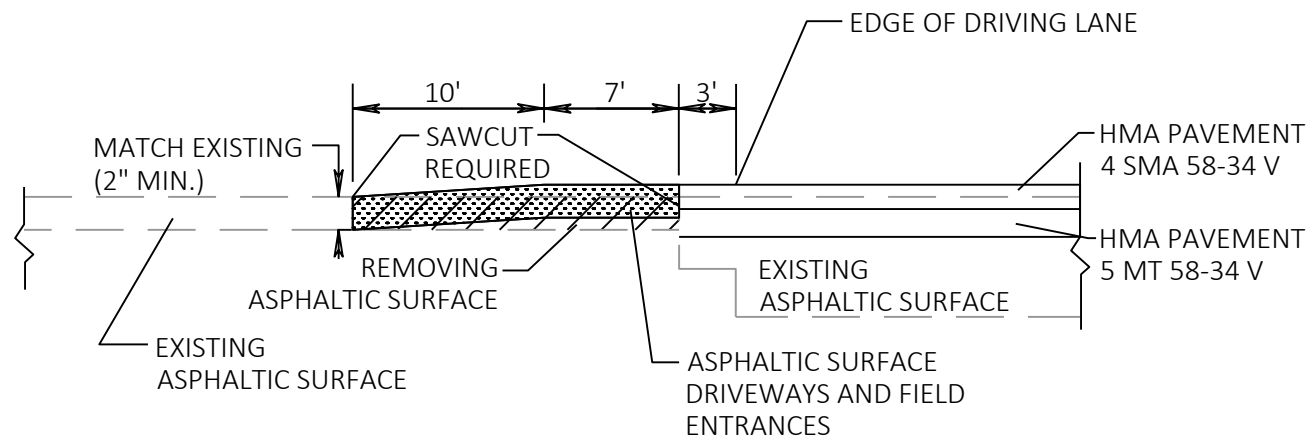
DETAIL FOR MAINLINE CONSTRUCTION JOINT

STA 1565+19 - STA 1565+49

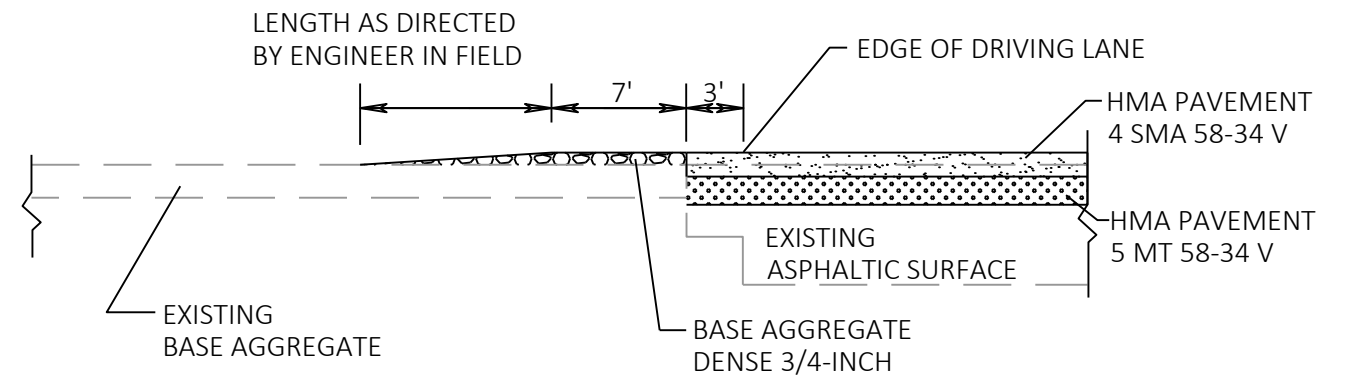


DETAIL FOR INTERSECTION CONSTRUCTION JOINT

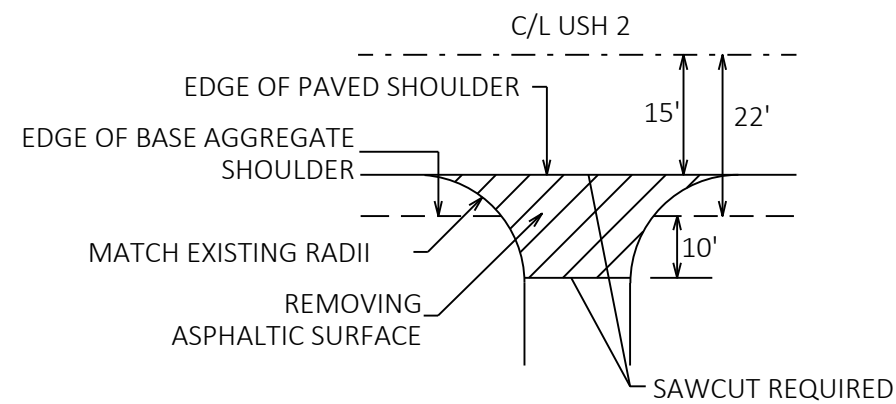
	*		*
SZNAIDER RD	12'	SPRING LAKE RD	10'
HOLLANDER RD	10'	DEEP LAKE RD	12'
HUGHES TOWN HALL RD	12'	AIRPORT RD	12'
STEPHENS RD	10'	REDWINE RD	10'
BEAR PAW RD	10'	RANGE LINE RD	12'
CRYSTAL LAKE RD	12'		



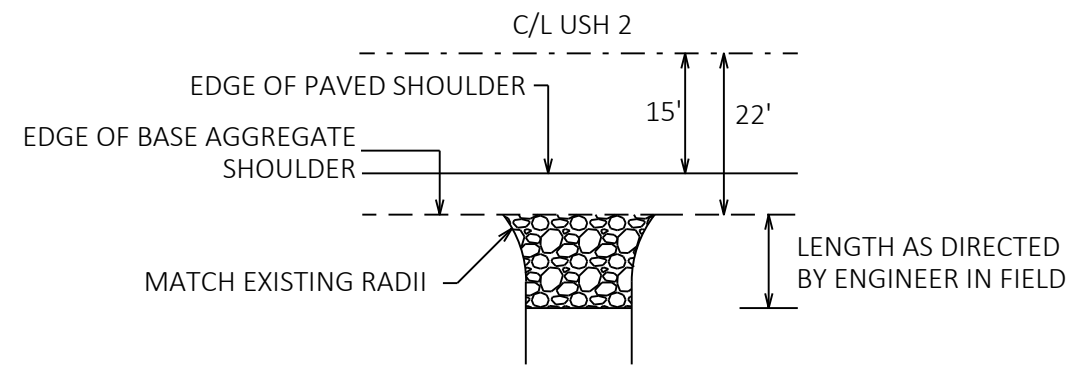
PAVED ENTRANCE DETAIL PROFILE VIEW



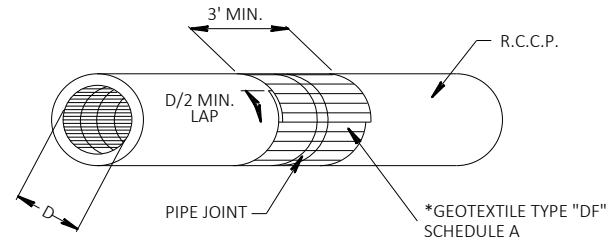
BASE AGGREGATE ENTRANCE DETAIL PROFILE VIEW



PAVED ENTRANCE DETAIL PLAN VIEW



BASE AGGREGATE ENTRANCE DETAIL PLAN VIEW



* INCIDENTAL TO ITEM SPV.0060.01 RESETTING CULVERT SECTIONS

GEOTEXTILE REQUIRED FOR PIPE JOINTS

PIPE DIA. (IN.)	PIPE O.D. (IN.)	GEOTEXTILE/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 FOR WRAPPED PIPE JOINT

WRAP ALL JOINTS

STA 1355+00 LT

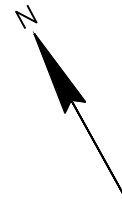
RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP-TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE-TURF			.25 .32			.27 .34			.28 .36			.30 .38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 98 ACRES

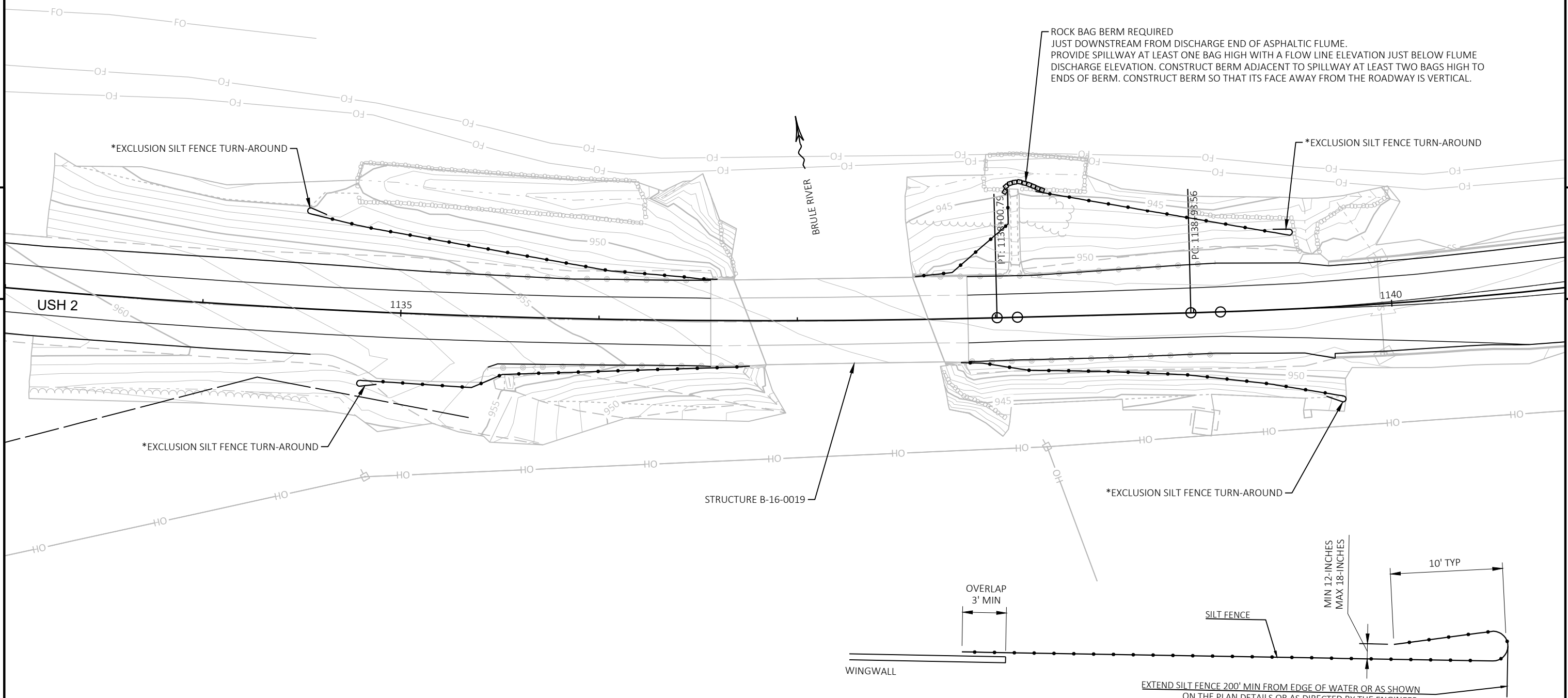
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.3 ACRES

*NOTE: PLACE SILT FENCE AS EXCLUSION FENCING FOR WOOD TURTLES. PLACE SILT FENCE SO RUNOFF WILL FLOW ALONG IT WITHOUT PONDING TO MAXIMUM EXTENT POSSIBLE. OVERLAP SILT FENCE WITH THE END OF THE WINGWALL AT ALL FOUR CORNERS OF THE BRIDGE AND PLACE THE SILT FENCE AS CLOSE AS POSSIBLE TO THE WINGWALL. PROVIDE EXCLUSION FENCING TURN-AROUND AT FENCE END PER DETAIL TO REMAIN FOR DURATION OF PROJECT.



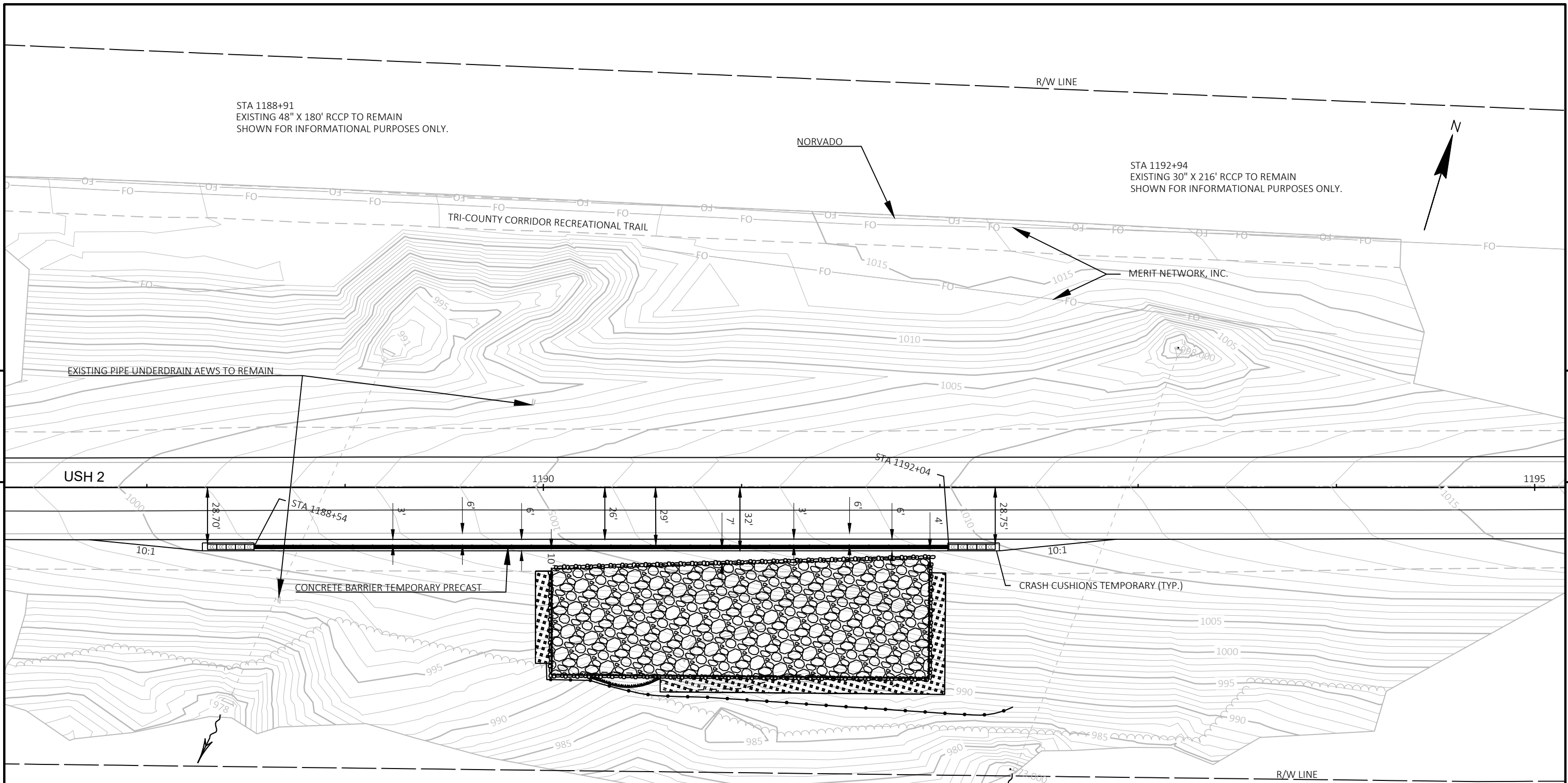
5

5



EXCLUSION FENCING TURN-AROUND

PROJECT NO: 1180-05-75	HWY: USH 2	COUNTY: DOUGLAS & BAYFIELD	PLAN DETAILS - EXCLUSIONARY SILT FENCE AT BRULE RIVER BRIDGE	SHEET	E
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STA 1188+91
EXISTING 48" X 180' RCCP TO REMAIN
SHOWN FOR INFORMATIONAL PURPOSES ONLY.

STA 1192+94
EXISTING 30" X 216' RCCP TO REMAIN
SHOWN FOR INFORMATIONAL PURPOSES ONLY.

EXISTING PIPE UNDERDRAIN AEW'S TO REMAIN

USH 2

CONCRETE BARRIER TEMPORARY PRECAST

CRASH CUSHIONS TEMPORARY (TYP.)

STA 1190+04 - STA 1191+95 RT
REPAIR EMBANKMENT SLOPE FROM 45' TO 90' RT.
EXCAVATION COMMON TO THE DEPTH OF THE DARK RED OR BROWN SILTY SAND.
PLACE GEOTEXTILE TYPE HR ON BOTTOM AND SIDES OF EXCAVATION.
BACKFILL EXCAVATION WITH RIPRAP LIGHT TO THE PRE-FAILURE 6:1 OR 3:1 EMBANKMENT SLOPE SURFACE.

REMOVE EMBANKMENT MATERIAL THAT HAS SLID OR BEEN MOVED DOWN THE SLOPE BEYOND 90' RT
WITHIN THE RIGHT-OF-WAY TO RESTORE THE PRE-FAILURE EMBANKMENT SLOPE SURFACE.
REMOVAL PAID FOR AS EXCAVATION COMMON.

SEE CONSTRUCTION DETAIL AND CROSS SECTIONS.

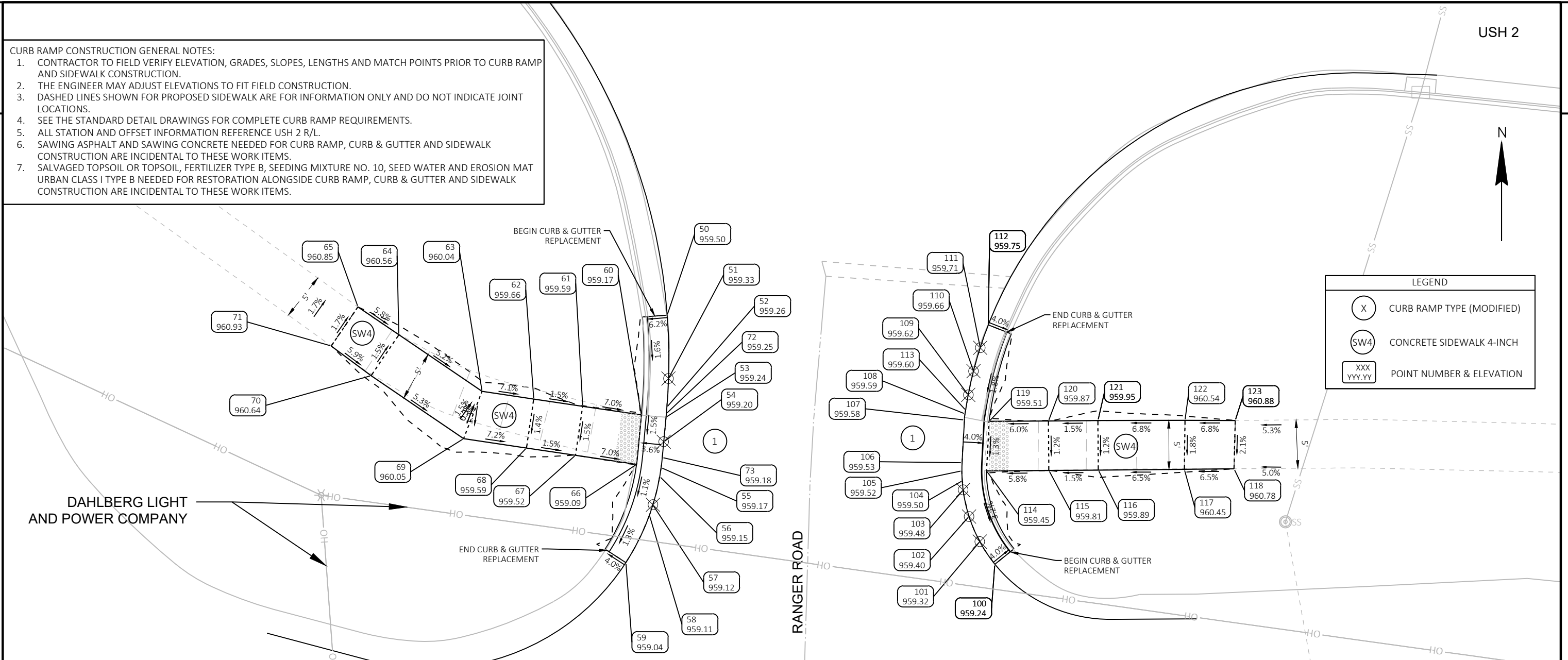
STA 1188+54 - STA 1192+04 RT
INSTALL CONCRETE BARRIER TEMPORARY.

STA 1188+28 - STA 1188+54 RT & STA 1192+04 - STA 1192+30 RT
INSTALL CRASH CUSHIONS TEMPORARY.

STA 1187+71 - STA 1192+89 RT
PAVE 2.5-INCH ASPHALTIC SURFACE TEMPORARY AS BASE FOR CONCRETE BARRIER
TEMPORARY TO DIMENSIONS INDICATED ABOVE AND IN CONSTRUCTION DETAIL. REMOVE
ASPHALTIC SURFACE TEMPORARY AFTER CONCRETE BARRIER TEMPORARY IS REMOVED.
CRASH CUSHION FOUNDATION PADS ARE INCIDENTAL TO THE CRASH CUSHIONS TEMPORARY
BID ITEM.

LEGEND			
#####	EROSION MAT URBAN CLASS I, TYPE B	---	SLOPE INTERCEPT
▣▣▣▣▣	EROSION MAT CLASS II TYPE C	△△△	TEMPORARY DITCH CHECK
—●—●—●—	HEAVY DUTY SILT FENCE (THIS SHEET ONLY)	∞∞	CULVERT PIPE DITCH CHECK
—○—○—○—	RIP RAP LIGHT	→	SURFACE WATER FLOW

- CURB RAMP CONSTRUCTION GENERAL NOTES:**
1. CONTRACTOR TO FIELD VERIFY ELEVATION, GRADES, SLOPES, LENGTHS AND MATCH POINTS PRIOR TO CURB RAMP AND SIDEWALK CONSTRUCTION.
 2. THE ENGINEER MAY ADJUST ELEVATIONS TO FIT FIELD CONSTRUCTION.
 3. DASHED LINES SHOWN FOR PROPOSED SIDEWALK ARE FOR INFORMATION ONLY AND DO NOT INDICATE JOINT LOCATIONS.
 4. SEE THE STANDARD DETAIL DRAWINGS FOR COMPLETE CURB RAMP REQUIREMENTS.
 5. ALL STATION AND OFFSET INFORMATION REFERENCE USH 2 R/L.
 6. SAWING ASPHALT AND SAWING CONCRETE NEEDED FOR CURB RAMP, CURB & GUTTER AND SIDEWALK CONSTRUCTION ARE INCIDENTAL TO THESE WORK ITEMS.
 7. SALVAGED TOPSOIL OR TOPSOIL, FERTILIZER TYPE B, SEEDING MIXTURE NO. 10, SEED WATER AND EROSION MAT URBAN CLASS I TYPE B NEEDED FOR RESTORATION ALONGSIDE CURB RAMP, CURB & GUTTER AND SIDEWALK CONSTRUCTION ARE INCIDENTAL TO THESE WORK ITEMS.

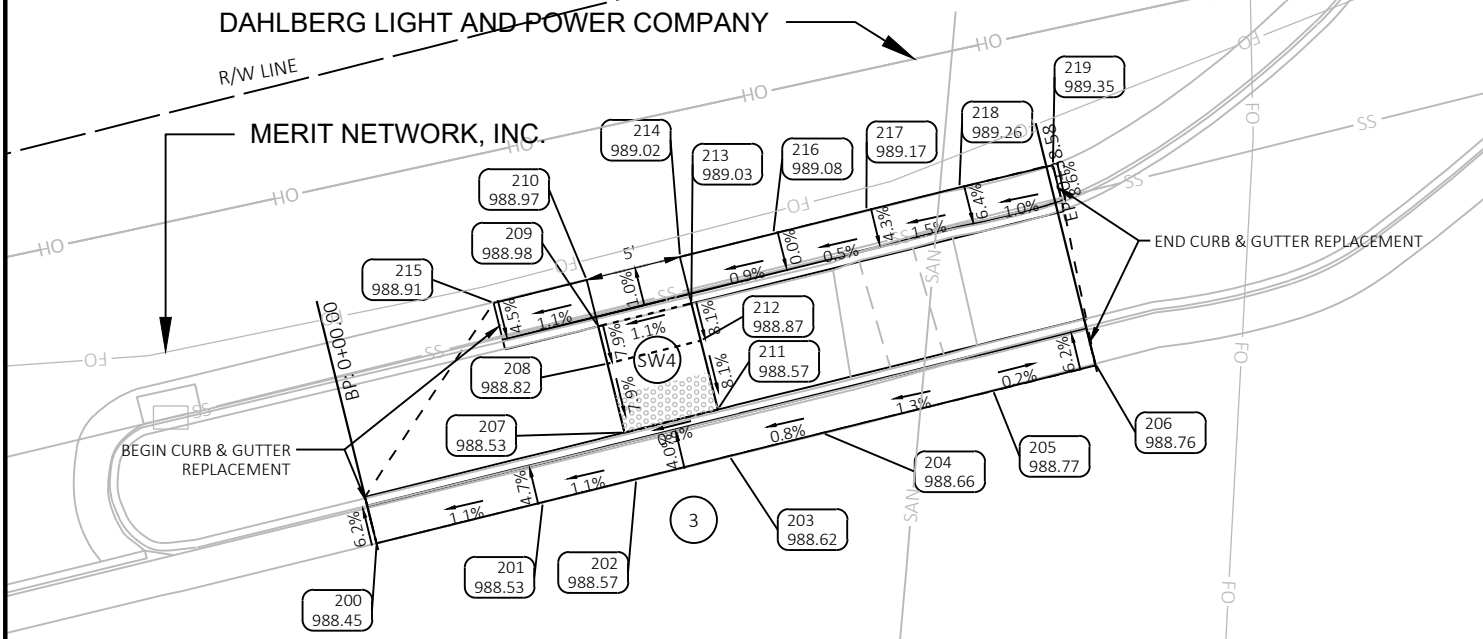


LEGEND	
(X)	CURB RAMP TYPE (MODIFIED)
(SW4)	CONCRETE SIDEWALK 4-INCH
XXX YYY.YY	POINT NUMBER & ELEVATION

Ranger Rd - SW						Ranger Rd - SW						Ranger Rd - SE						Ranger Rd - SE					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING	POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING	POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING	POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
50	1144+41.53	72.85' RT	959.50	243200.73	277420.84	62	1144+30.85	84.34' RT	959.66	243192.26	277407.35	100	1144+78.28	89.66' RT	959.24	243175.55	277453.95	112	1144+72.37	66.23' RT	959.75	243199.75	277453.29
51	1144+43.13	79.04' RT	959.33	243194.33	277420.96	63	1144+25.79	84.88' RT	960.04	243193.03	277402.12	101	1144+76.37	87.75' RT	959.32	243177.86	277452.45	113	1144+72.11	75.15' RT	959.60	243191.13	277451.00
52	1144+43.64	81.91' RT	959.26	243191.42	277420.80	64	1144+16.56	81.43' RT	960.56	243198.75	277393.71	102	1144+74.78	85.54' RT	959.40	243180.38	277451.34	114	1144+75.44	80.65' RT	959.45	243185.00	277453.11
53	1144+43.80	82.90' RT	959.24	243190.42	277420.72	65	1144+12.01	79.75' RT	960.85	243201.56	277389.58	103	1144+73.65	83.06' RT	959.48	243183.07	277450.76	115	1144+81.36	79.19' RT	959.81	243185.04	277459.41
54	1144+44.15	85.36' RT	959.20	243187.94	277420.48	66	1144+42.12	88.23' RT	959.09	243185.66	277417.75	104	1144+73.37	82.17' RT	959.50	243184.00	277450.68	116	1144+86.06	78.04' RT	959.89	243185.08	277464.41
55	1144+44.51	87.96' RT	959.17	243185.32	277420.22	67	1144+36.13	88.83' RT	959.52	243186.58	277411.57	105	1144+73.09	81.21' RT	959.52	243185.00	277450.61	117	1144+94.26	76.05' RT	960.45	243185.16	277473.11
56	1144+44.58	88.87' RT	959.15	243184.43	277420.08	68	1144+31.33	89.32' RT	959.59	243187.31	277406.61	106	1144+72.94	80.40' RT	959.53	243185.82	277450.65	118	1144+98.99	74.92' RT	960.78	243185.21	277478.13
57	1144+44.58	91.80' RT	959.12	243181.58	277419.37	69	1144+25.18	89.97' RT	960.05	243188.26	277400.26	107	1144+72.21	76.14' RT	959.58	243190.14	277450.88	119	1144+74.59	75.71' RT	959.51	243190.00	277453.37
58	1144+44.51	92.90' RT	959.11	243180.53	277419.04	70	1144+14.93	86.13' RT	960.64	243194.62	277390.90	108	1144+72.13	75.52' RT	959.59	243190.76	277450.94	120	1144+80.24	74.32' RT	959.87	243190.04	277459.37
59	1144+43.39	98.14' RT	959.04	243175.72	277416.66	71	1144+10.46	84.25' RT	960.93	243197.61	277386.89	109	1144+72.02	73.58' RT	959.62	243192.68	277451.26	121	1144+84.96	73.17' RT	959.95	243190.08	277464.37
60	1144+41.41	83.27' RT	959.17	243190.65	277418.23	72	1144+43.74	82.53' RT	959.25	243190.79	277420.75	110	1144+71.99	71.13' RT	959.66	243195.08	277451.79	122	1144+93.28	71.22' RT	960.54	243190.10	277473.18
61	1144+35.65	83.85' RT	959.59	243191.53	277412.29	73	1144+44.38	86.93' RT	959.18	243186.36	277420.34	111	1144+72.11	68.67' RT	959.71	243197.44	277452.48	123	1144+98.09	70.13' RT	960.88	243190.09	277478.26

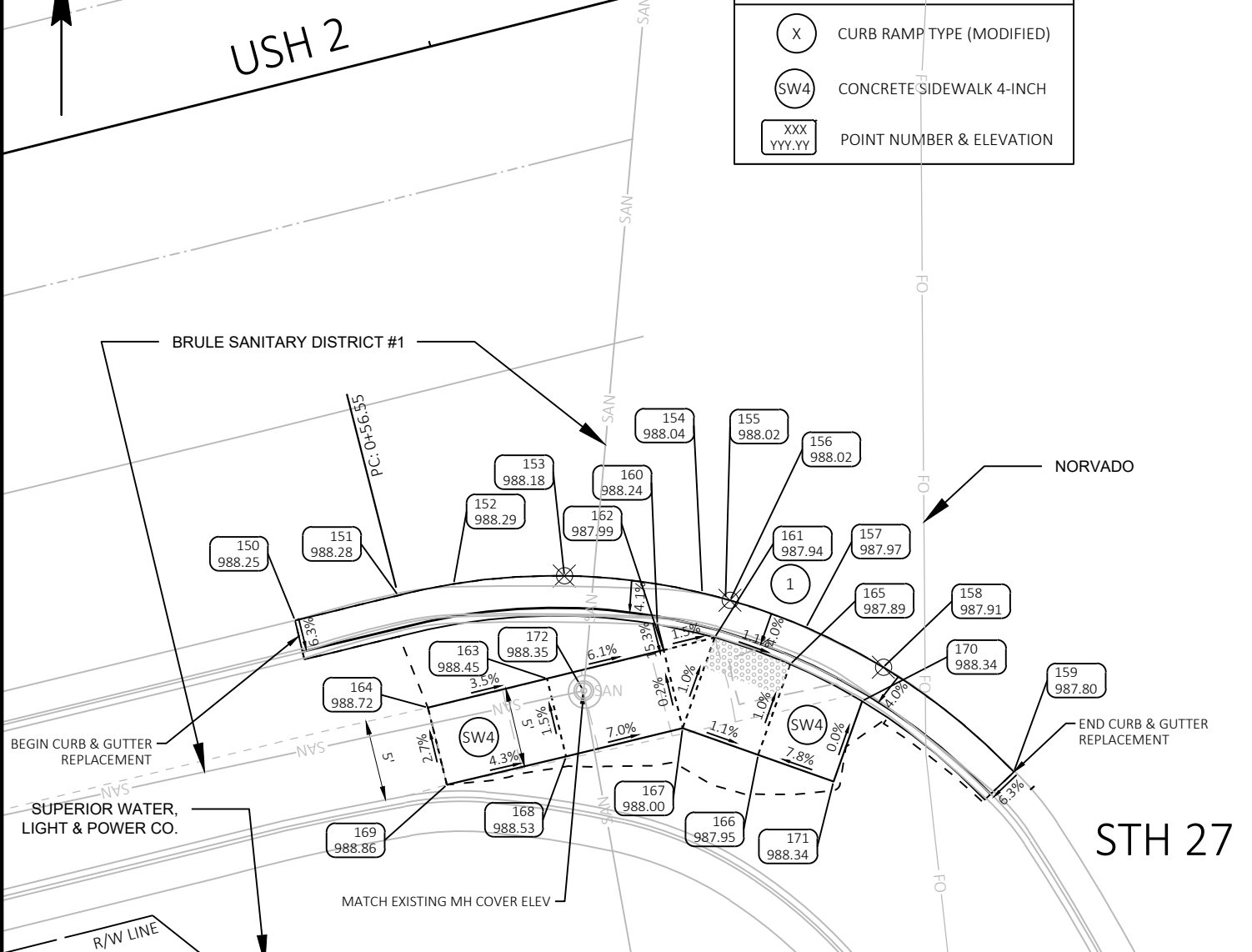
LAKE STREET

Lake St - NW						Lake St - NW					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING	POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
200	1170+94.18	27.46' LT	988.45	243663.23	280029.58	210	1171+08.18	38.09' LT	988.97	243676.95	280040.53
201	1171+03.12	27.42' LT	988.53	243665.37	280038.24	211	1171+13.15	29.87' LT	988.57	243670.20	280047.35
202	1171+08.13	27.40' LT	988.57	243666.57	280043.10	212	1171+13.17	33.57' LT	988.87	243673.79	280046.46
203	1171+13.14	27.37' LT	988.62	243667.77	280047.95	213	1171+13.18	35.57' LT	989.03	243675.73	280045.98
204	1171+18.14	27.35' LT	988.66	243668.98	280052.80	214	1171+13.19	38.07' LT	989.02	243678.15	280045.38
205	1171+27.31	27.34' LT	988.77	243671.21	280061.67	215	1171+03.17	38.12' LT	988.91	243675.75	280035.68
206	1171+32.82	27.36' LT	988.76	243672.59	280067.00	216	1171+18.20	38.04' LT	989.08	243679.36	280050.23
207	1171+08.14	29.90' LT	988.53	243669.00	280042.50	217	1171+23.21	38.02' LT	989.17	243680.56	280055.09
208	1171+08.16	33.59' LT	988.82	243672.58	280041.61	218	1171+28.22	37.99' LT	989.26	243681.76	280059.94
209	1171+08.17	35.59' LT	988.98	243674.53	280041.13	219	1171+33.23	37.93' LT	989.35	243682.94	280064.80



LEGEND

- (X) CURB RAMP TYPE (MODIFIED)
- (SW4) CONCRETE SIDEWALK 4-INCH
- XXX.YYY.YY POINT NUMBER & ELEVATION



Lake St - SW						Lake St - SW					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING	POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
150	1170+83.06	32.71' RT	988.25	243602.16	280033.46	162	1171+04.90	40.13' RT	987.99	243600.31	280056.49
151	1170+89.69	32.77' RT	988.28	243603.72	280039.91	163	1170+97.42	40.07' RT	988.45	243598.53	280049.21
152	1170+93.21	32.91' RT	988.29	243604.44	280043.37	164	1170+89.78	40.02' RT	988.72	243596.71	280041.77
153	1171+00.03	34.12' RT	988.18	243604.94	280050.30	165	1171+12.33	42.92' RT	987.89	243599.42	280064.40
154	1171+08.10	37.27' RT	988.04	243603.87	280058.91	166	1171+09.02	47.92' RT	987.95	243593.77	280062.40
155	1171+09.42	37.98' RT	988.02	243603.50	280060.36	167	1171+04.87	45.15' RT	988.00	243595.43	280057.69
156	1171+09.67	38.13' RT	988.02	243603.42	280060.64	168	1170+97.39	45.08' RT	988.53	243593.66	280050.40
157	1171+13.85	40.94' RT	987.97	243601.72	280065.39	169	1170+89.75	44.98' RT	988.86	243591.89	280042.95
158	1171+17.92	44.53' RT	987.91	243599.24	280070.23	170	1171+16.11	46.26' RT	988.34	243597.12	280068.89
159	1171+24.20	52.88' RT	987.80	243592.69	280078.38	171	1171+13.17	50.69' RT	988.34	243592.10	280067.11
160	1171+04.91	38.49' RT	988.24	243601.90	280056.11	172	1170+99.44	41.37' RT	988.35	243597.76	280051.49
161	1171+08.18	40.15' RT	987.94	243601.09	280059.69						





2

2

PROJECT NO: 1180-05-75	HWY: USH 2	COUNTY: DOUGLAS & BAYFIELD	TEMPORARY PEDESTRIAN DETAILS - STH 27 / LAKE STREET	SHEET	E
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FILE NAME : N:\PDS\C3D\11800505\SHEETSPLAN\11800505_PEDTRAFFICCONTROL.DWG
LAYOUT NAME - STH27-PEDPN

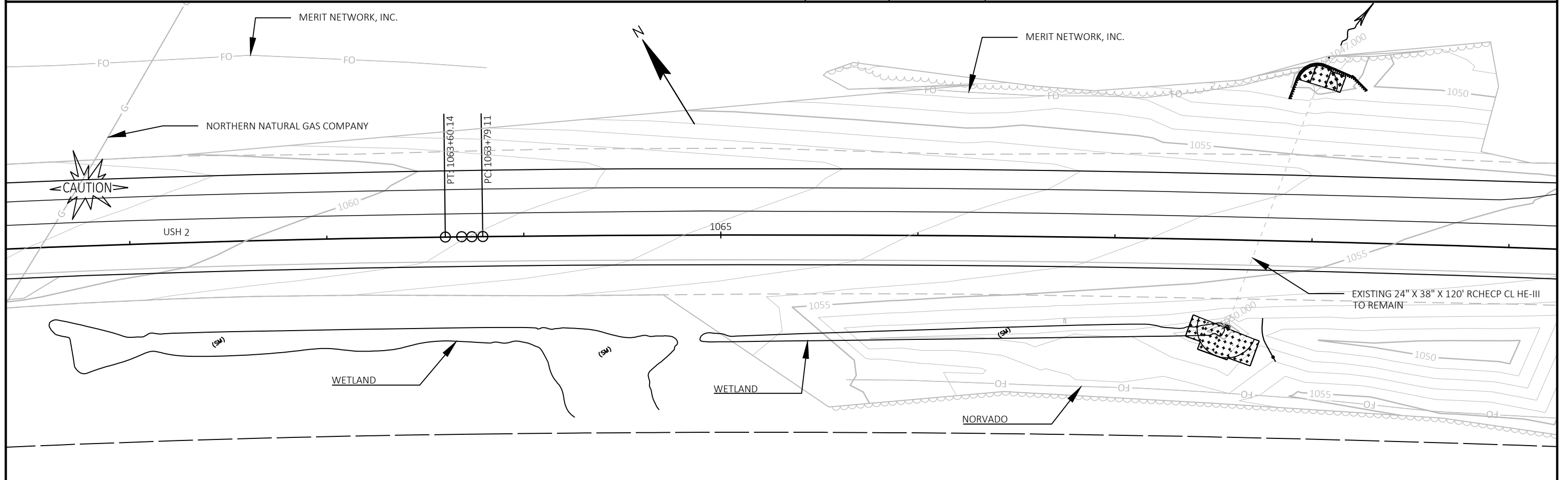
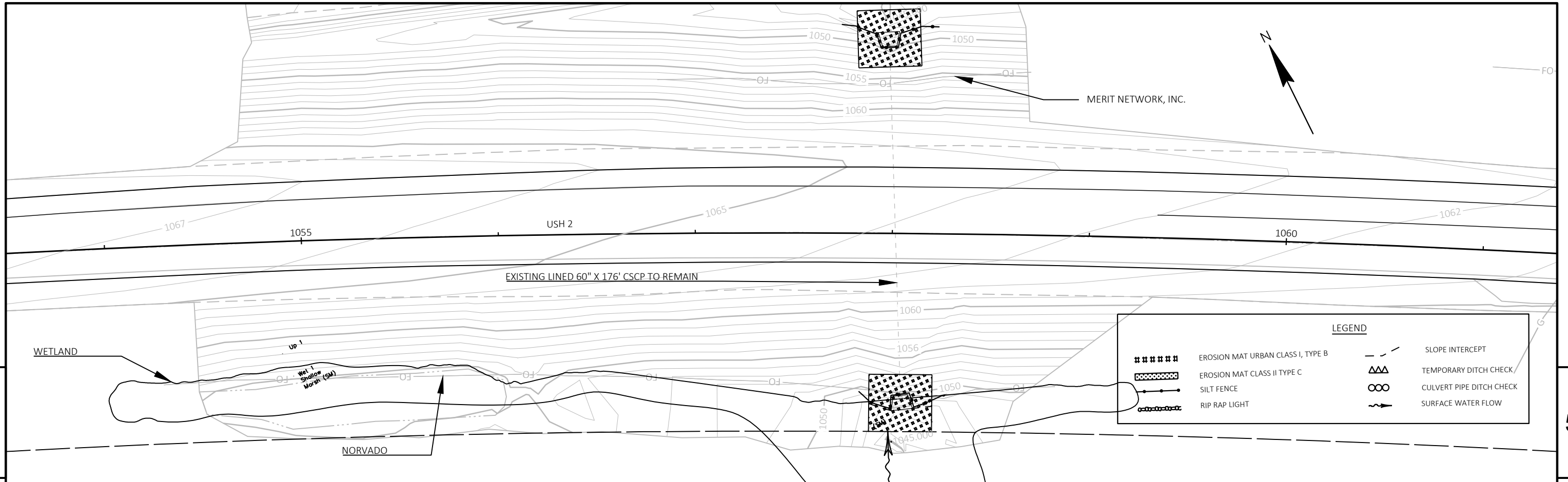
PLOT DATE : 11/18/2021 8:16 PM

PLOT BY : PESOLA, GREGORY B

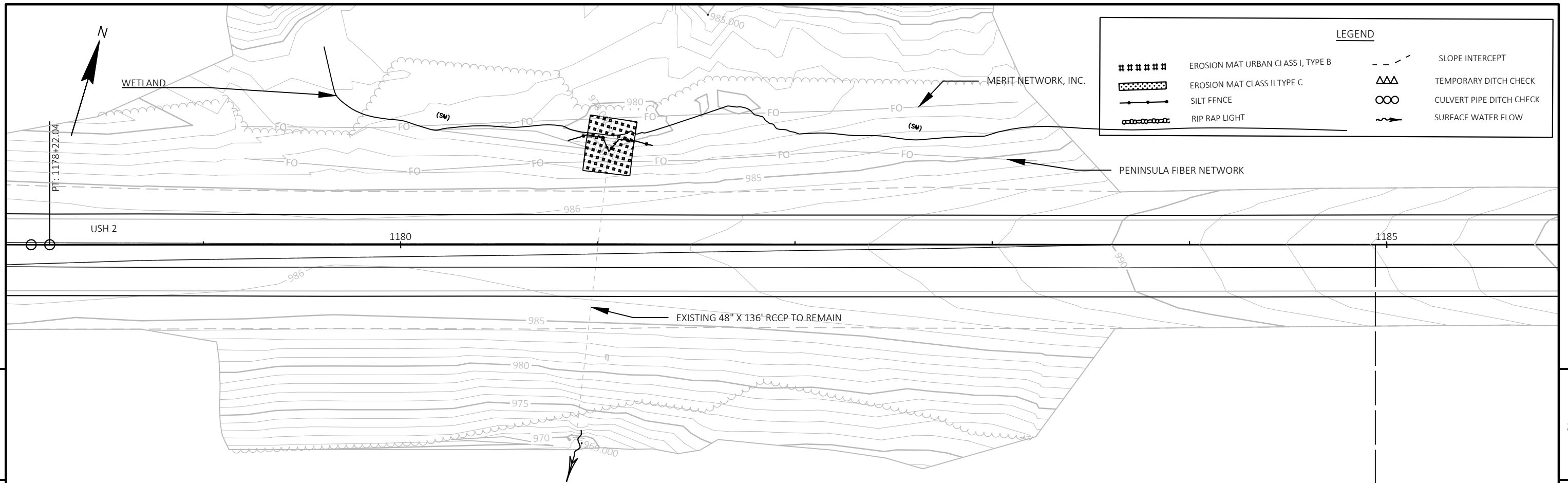
PLOT NAME :

PLOT SCALE : 1 IN:20 FT

WISDOT/CADD SHEET 42



PROJECT NO: 1180-05-75	HWY: USH 2	COUNTY: DOUGLAS & BAYFIELD	EROSION CONTROL	SHEET	E
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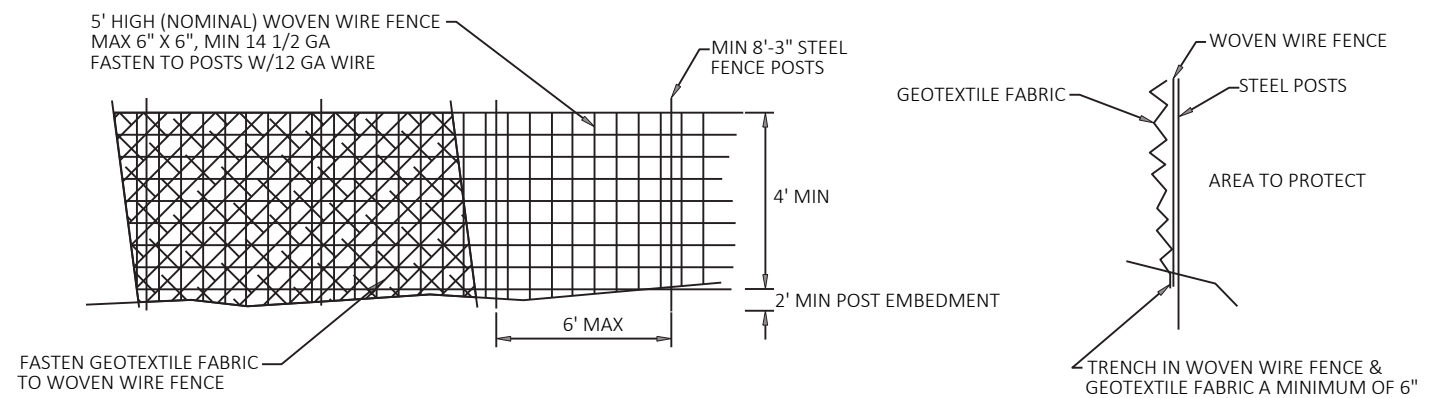
5

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RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 105.51 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.58 ACRES

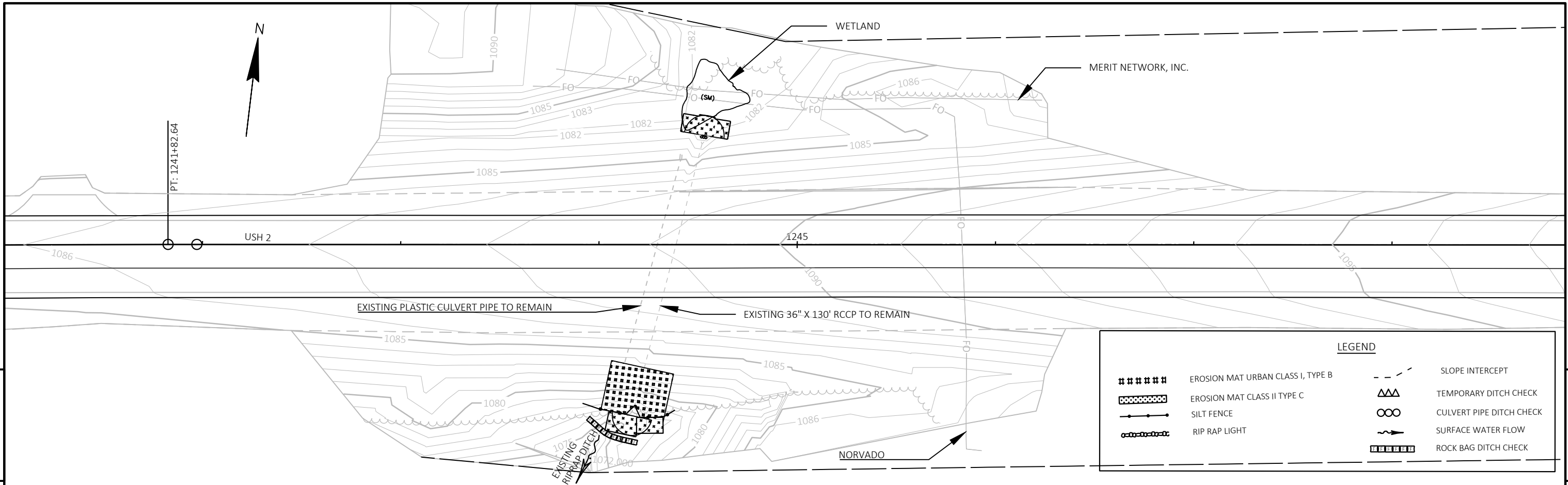


HEAVY DUTY SILT FENCE

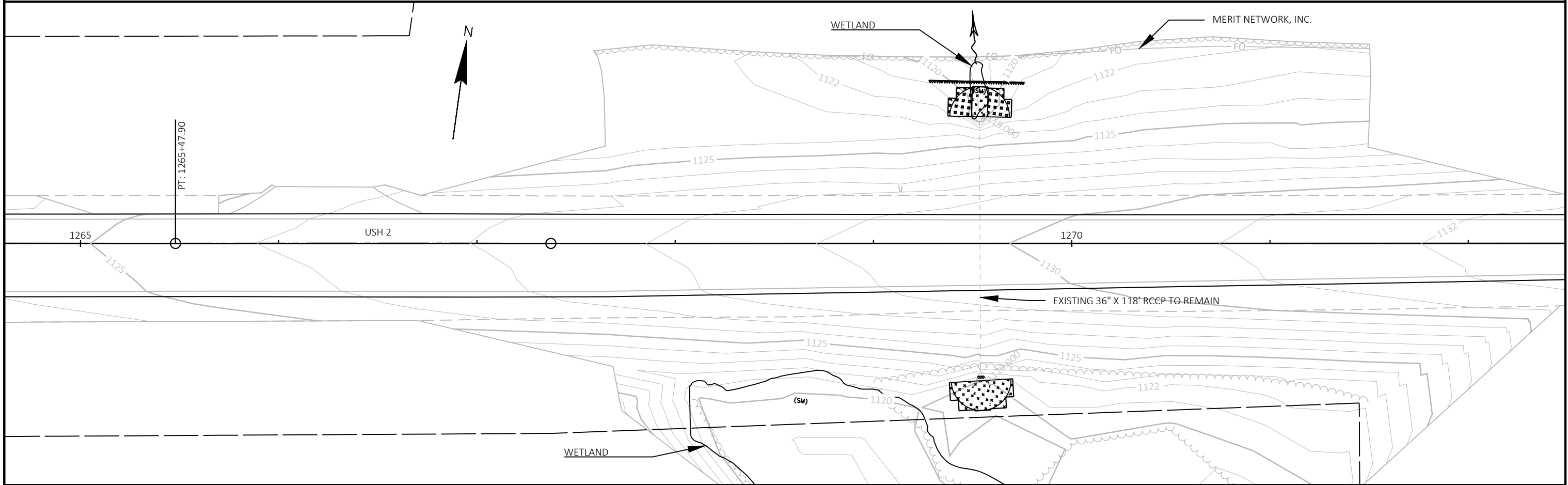
NOTE: FASTEN THE GEOTEXTILE FABRIC TO WOVEN WIRE FENCE EVERY 2- FEET
 ADJUST POST EMBEDMENT AND/OR SPACING BASED ON EXISTING SOILS

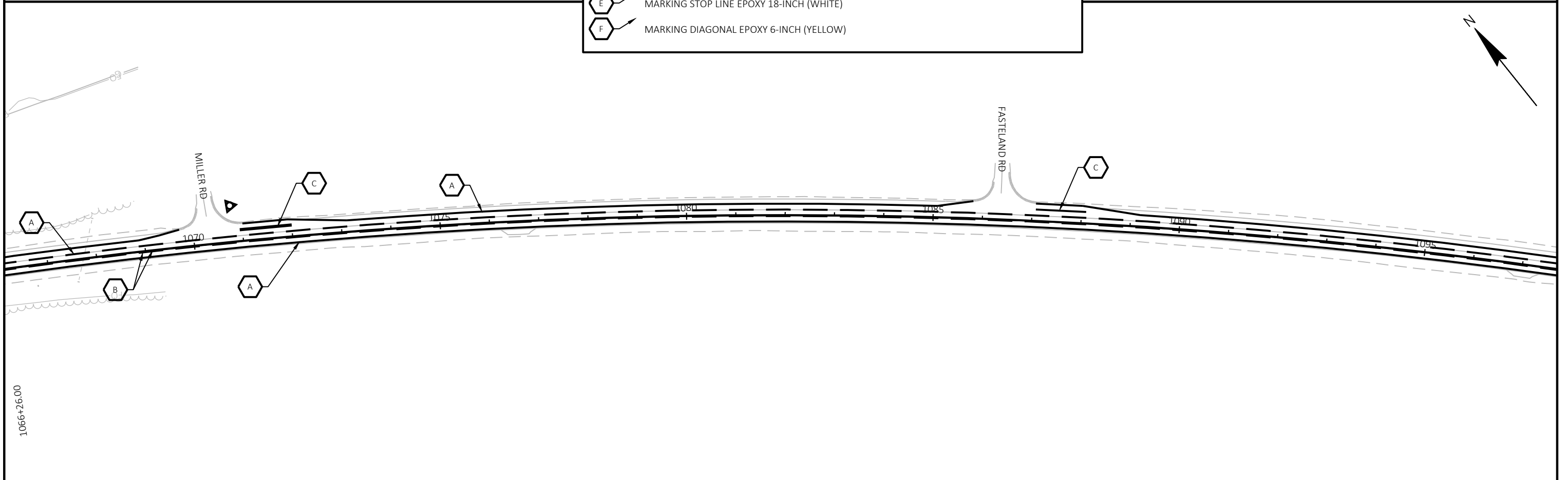
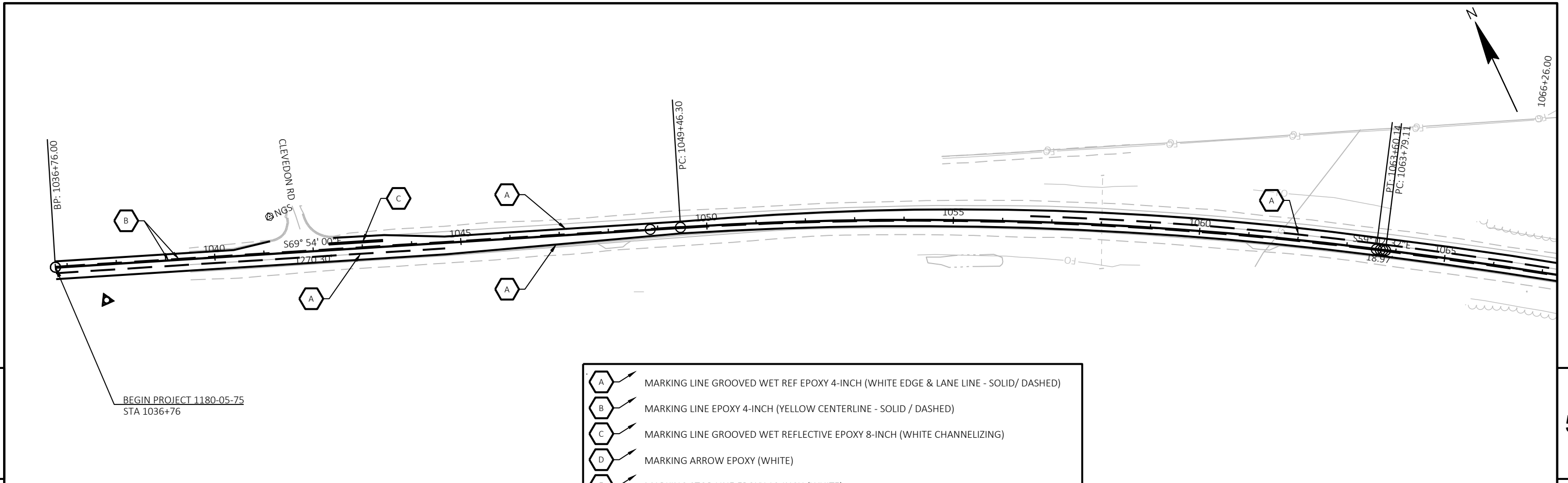
LOCATION SHOWN ON EMBANKMENT SLOPE REPAIR AREA DETAIL

TRENCH INSTALLATION FOR HEAVY DUTY SILT FENCE
 (DRY CONDITION)

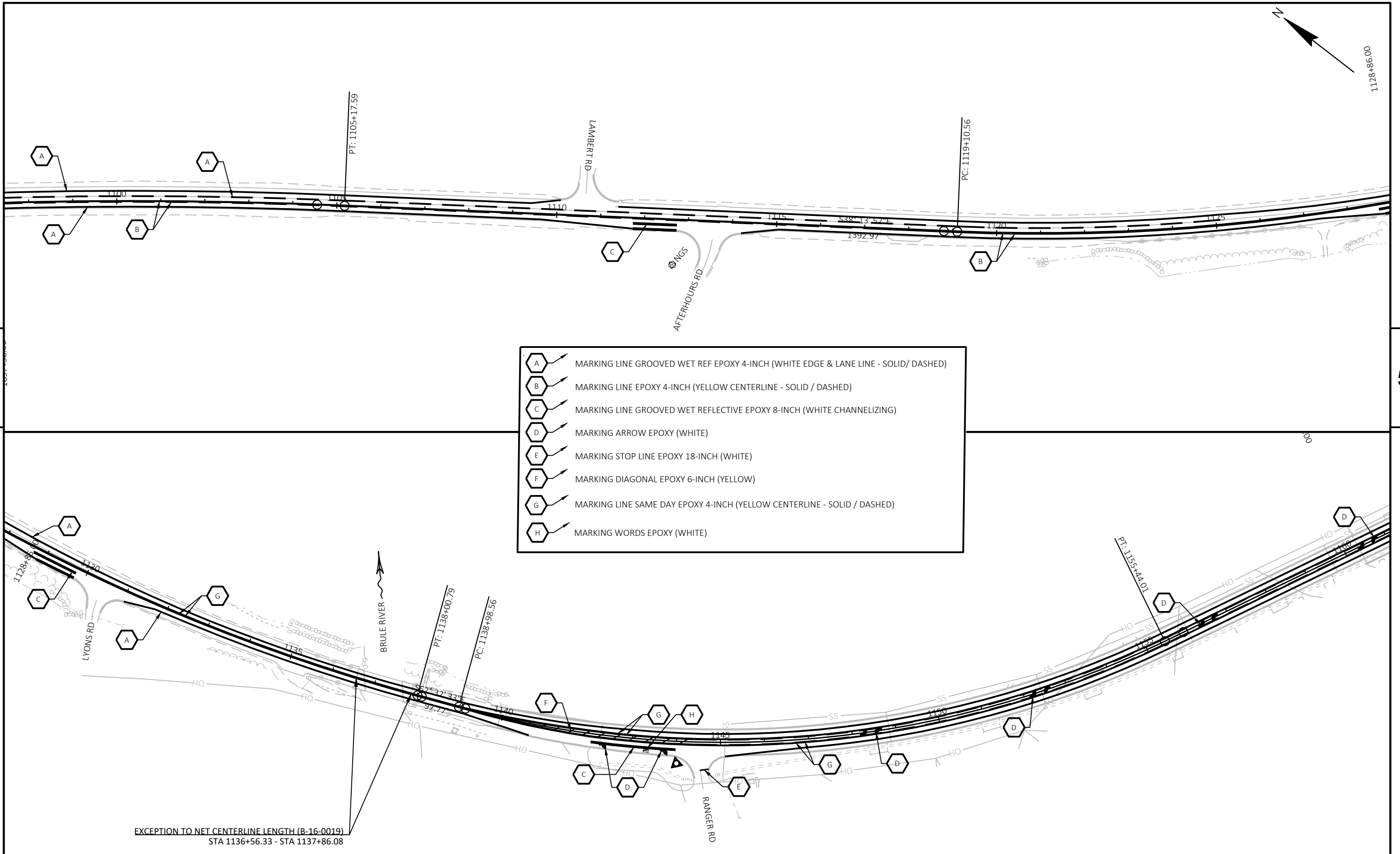


LEGEND			
#####	EROSION MAT URBAN CLASS I, TYPE B	- - - - -	SLOPE INTERCEPT
	EROSION MAT CLASS II TYPE C	△△△	TEMPORARY DITCH CHECK
—●—●—●—	SILT FENCE	∞∞	CULVERT PIPE DITCH CHECK
—○—○—○—	RIP RAP LIGHT	~	SURFACE WATER FLOW
			ROCK BAG DITCH CHECK



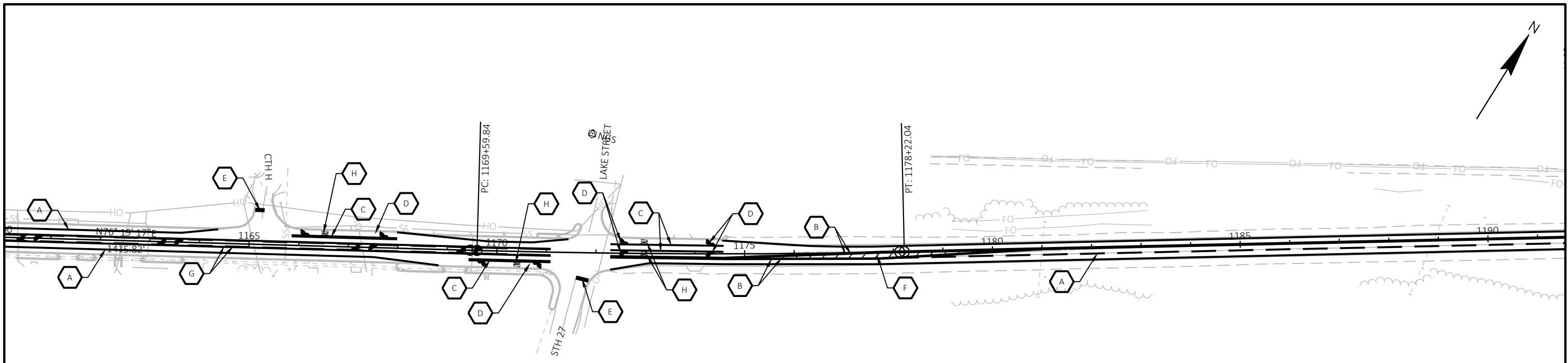
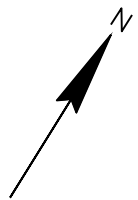


PROJECT NO: 1180-05-75	HWY: USH 2	COUNTY: DOUGLAS & BAYFIELD	PAVEMENT MARKING	SHEET	E
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- | | |
|---|--|
| A | MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE EDGE & LANE LINE - SOLID/ DASHED) |
| B | MARKING LINE EPOXY 4-INCH (YELLOW CENTERLINE - SOLID / DASHED) |
| C | MARKING LINE GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE CHANNELIZING) |
| D | MARKING ARROW EPOXY (WHITE) |
| E | MARKING STOP LINE EPOXY 18-INCH (WHITE) |
| F | MARKING DIAGONAL EPOXY 6-INCH (YELLOW) |
| G | MARKING LINE SAME DAY EPOXY 4-INCH (YELLOW CENTERLINE - SOLID / DASHED) |
| H | MARKING WORDS EPOXY (WHITE) |

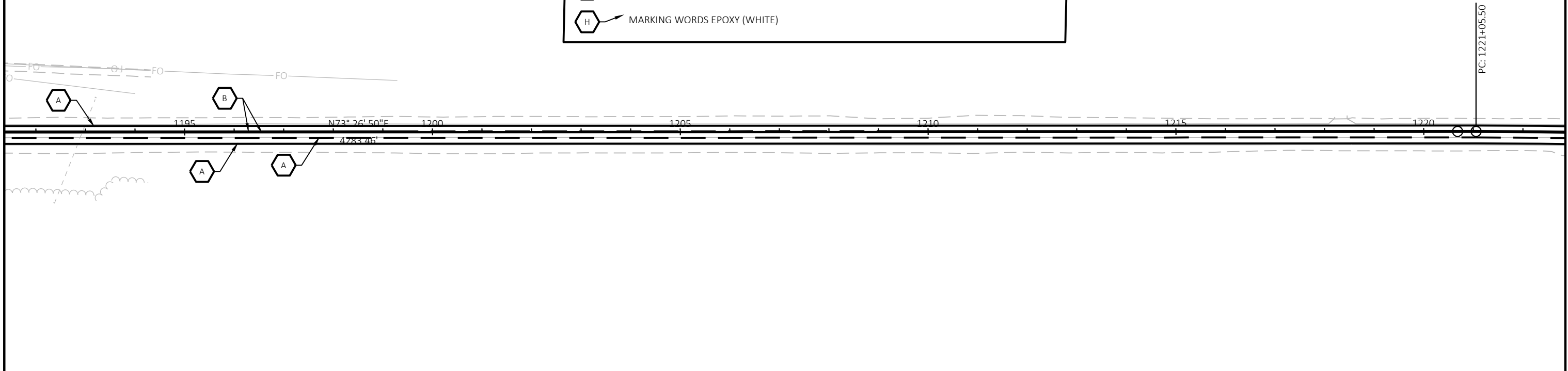
EXCEPTION TO NET CENTERLINE LENGTH (B-16-0019)
 STA 1136+56.33 - STA 1137+86.08



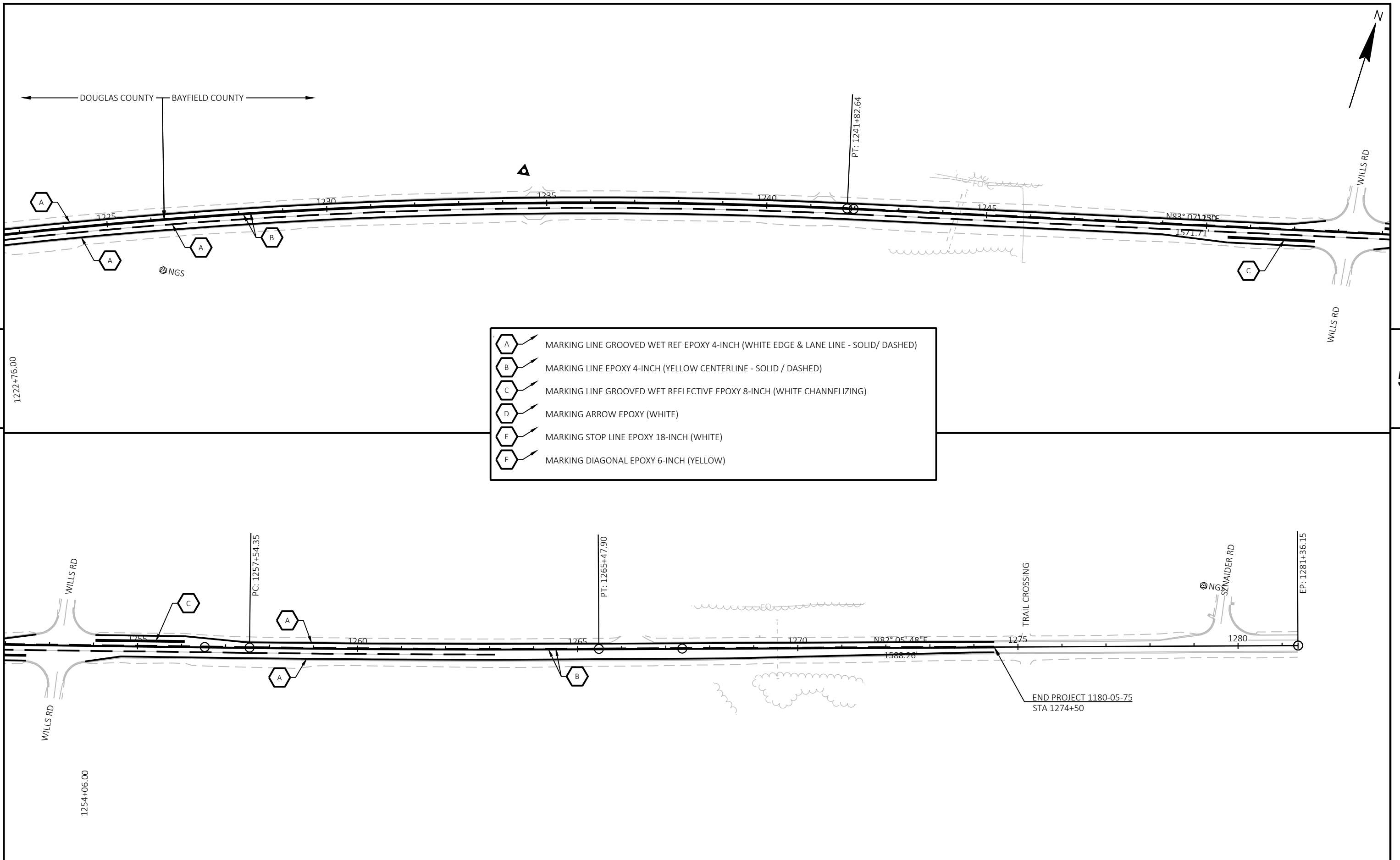
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	MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE EDGE & LANE LINE - SOLID/ DASHED)
	MARKING LINE EPOXY 4-INCH (YELLOW CENTERLINE - SOLID / DASHED)
	MARKING LINE GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE CHANNELIZING)
	MARKING ARROW EPOXY (WHITE)
	MARKING STOP LINE EPOXY 18-INCH (WHITE)
	MARKING DIAGONAL EPOXY 6-INCH (YELLOW)
	MARKING LINE SAME DAY EPOXY 4-INCH (YELLOW CENTERLINE - SOLID / DASHED)
	MARKING WORDS EPOXY (WHITE)



PROJECT NO: 1180-05-75	HWY: USH 2	COUNTY: DOUGLAS & BAYFIELD	PAVEMENT MARKING	SHEET	E
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	MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE EDGE & LANE LINE - SOLID/ DASHED)
	MARKING LINE EPOXY 4-INCH (YELLOW CENTERLINE - SOLID / DASHED)
	MARKING LINE GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE CHANNELIZING)
	MARKING ARROW EPOXY (WHITE)
	MARKING STOP LINE EPOXY 18-INCH (WHITE)
	MARKING DIAGONAL EPOXY 6-INCH (YELLOW)

PROJECT NO: 1180-05-75

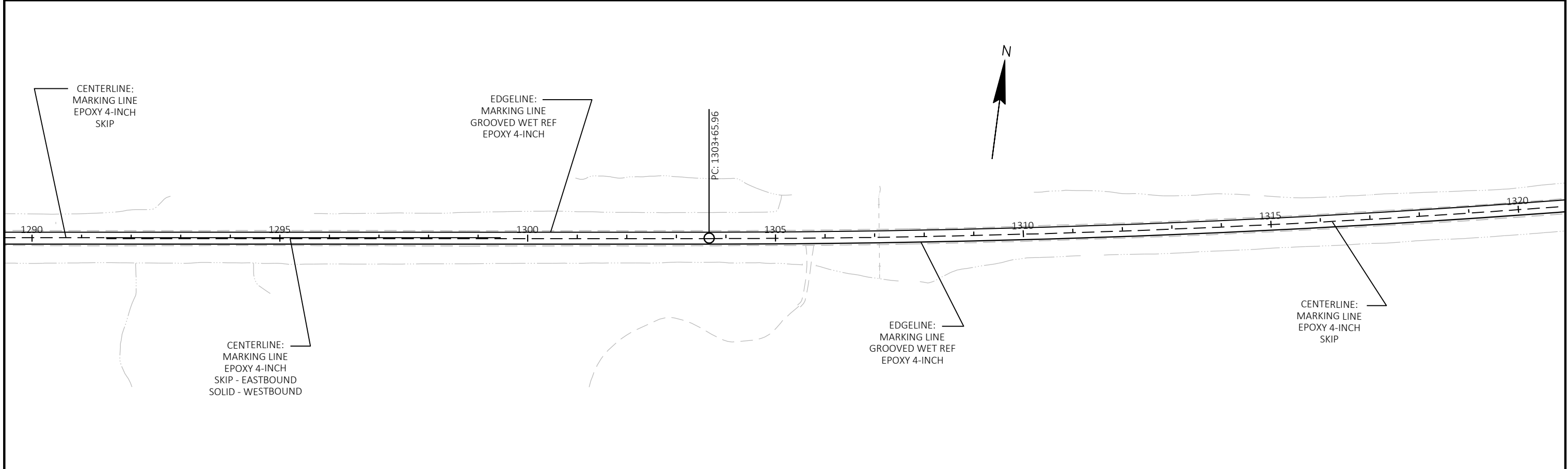
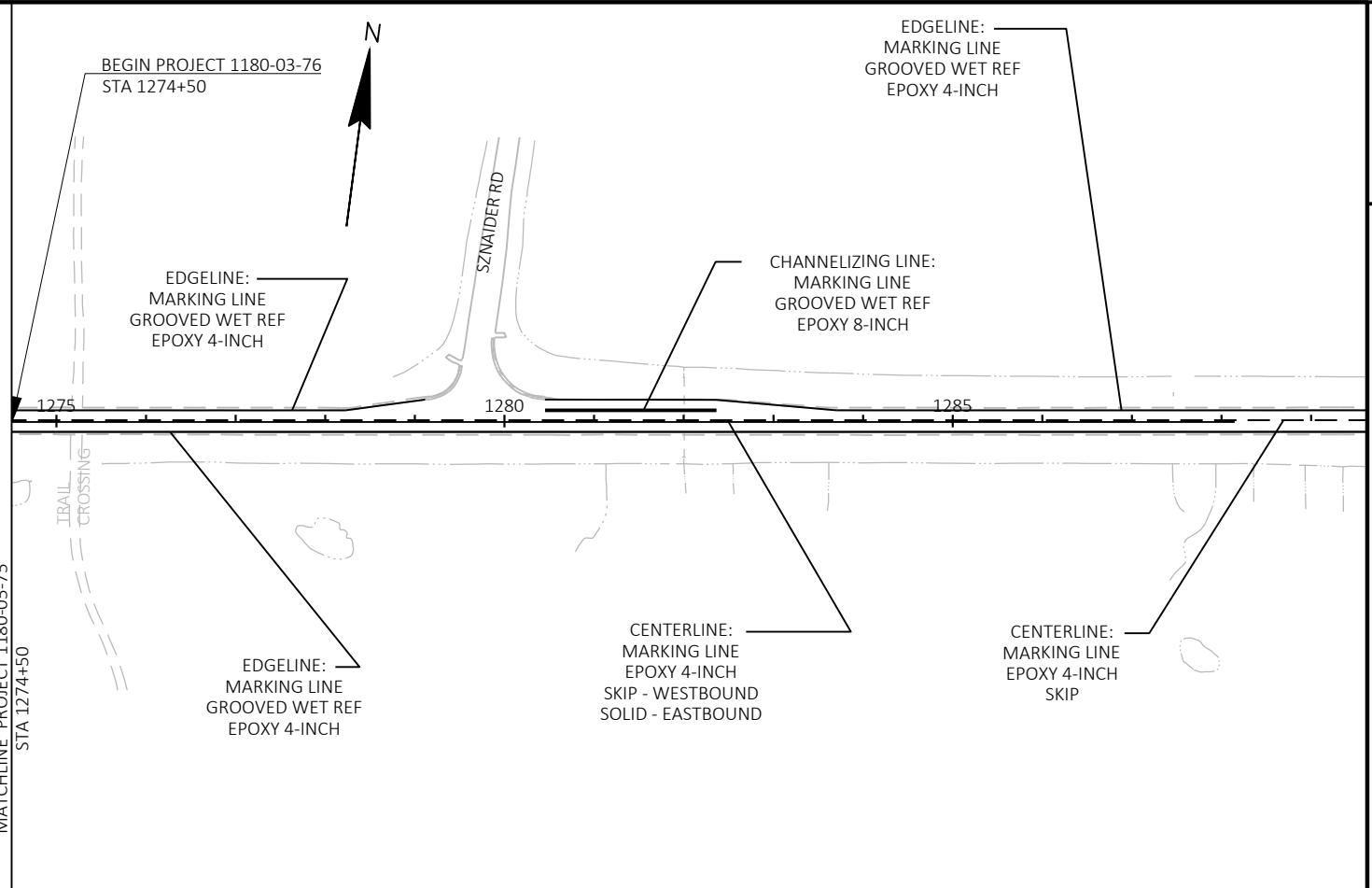
HWY: USH 2

COUNTY: DOUGLAS & BAYFIELD

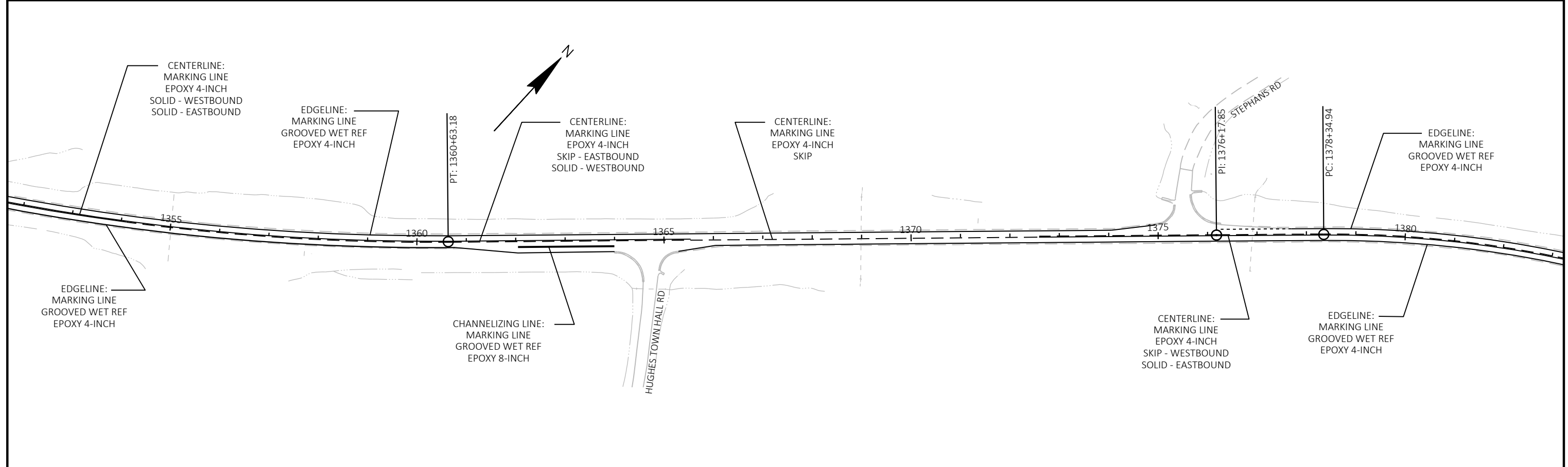
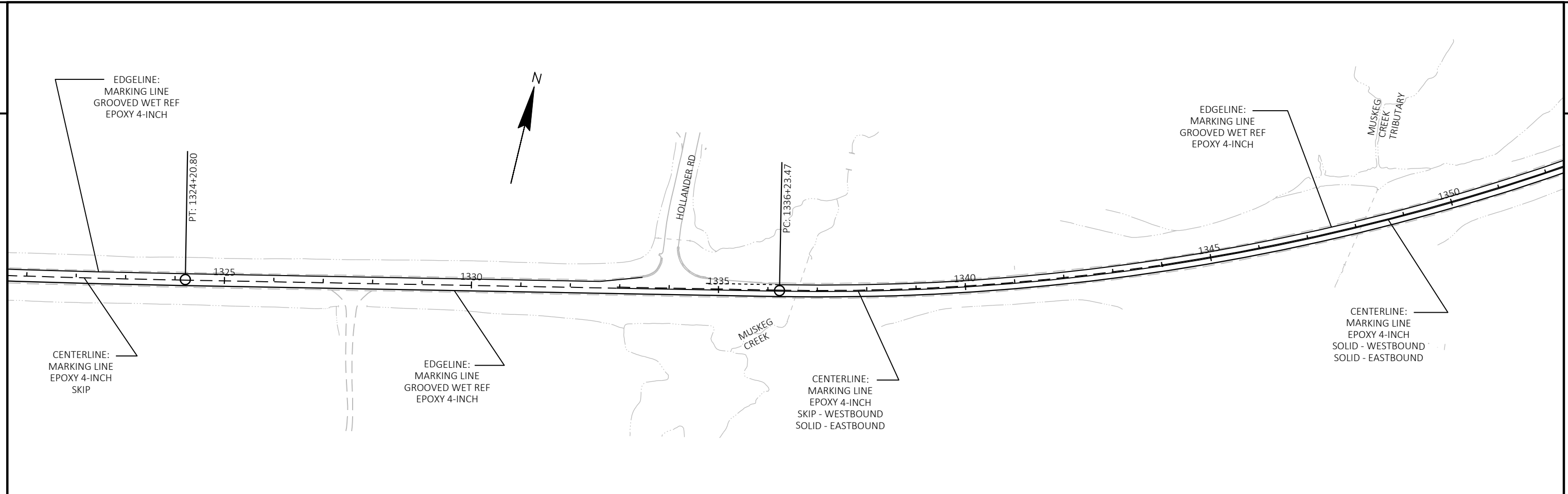
PAVEMENT MARKING

SHEET

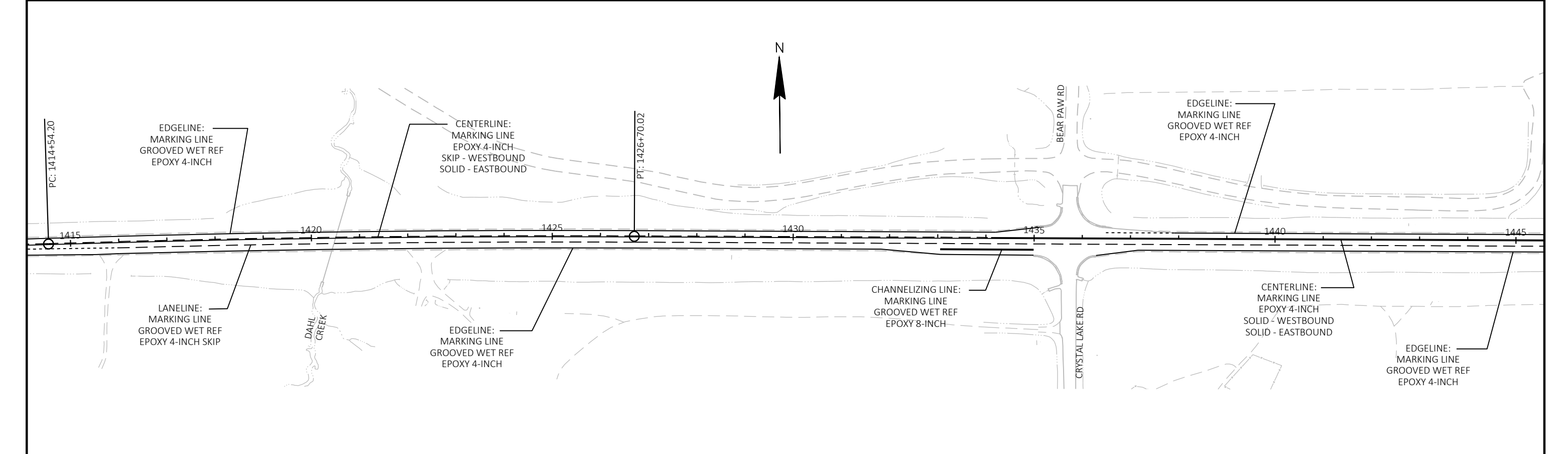
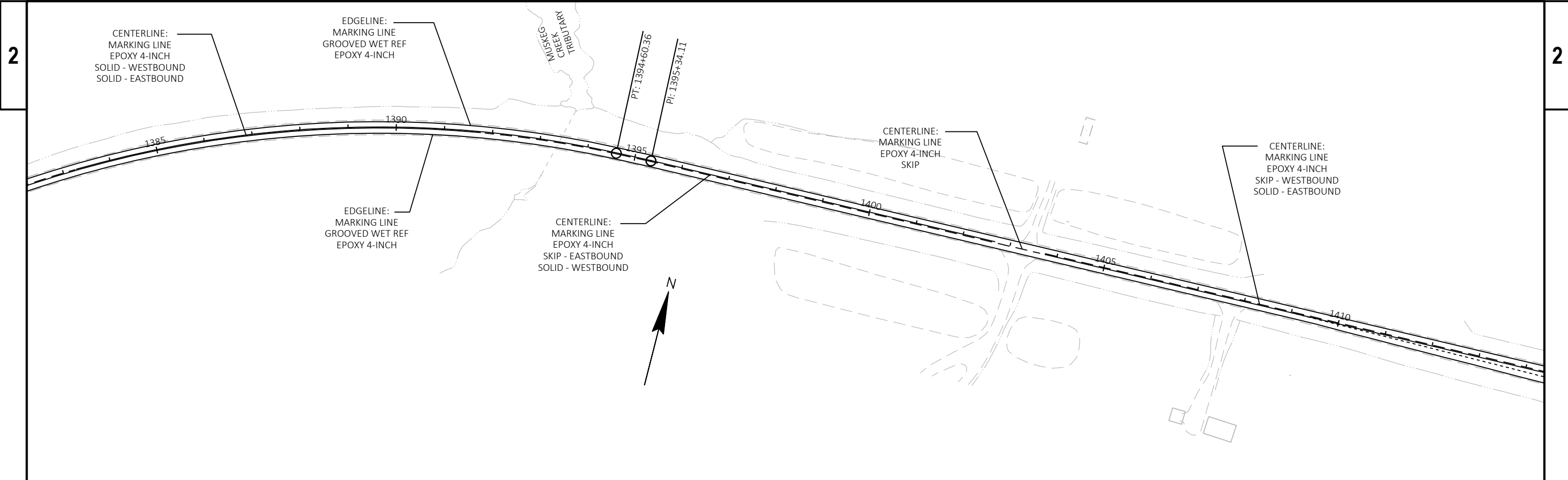
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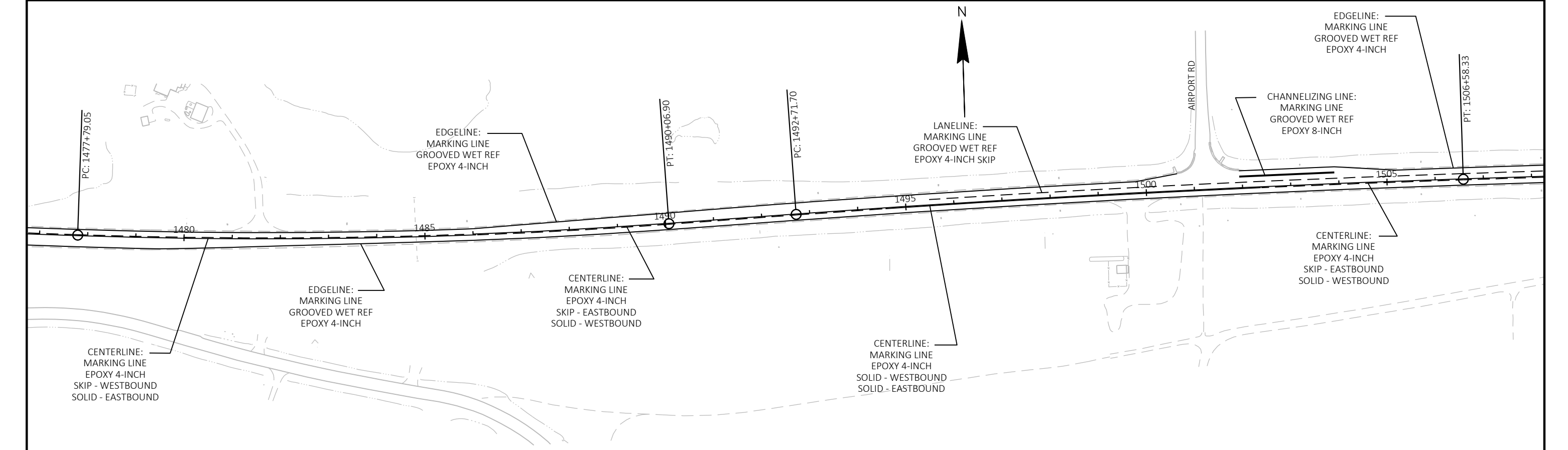
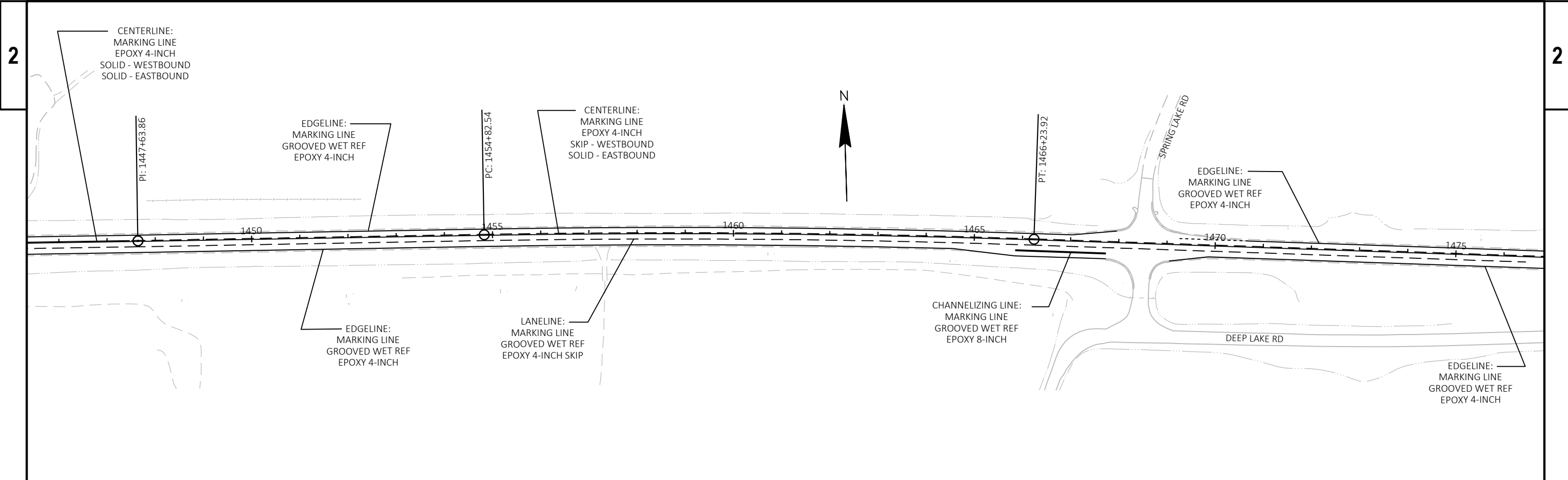
PROJECT NO: 1180-03-76	HWY: USH 2	COUNTY: BAYFIELD	PAVEMENT MARKING	SHEET	E
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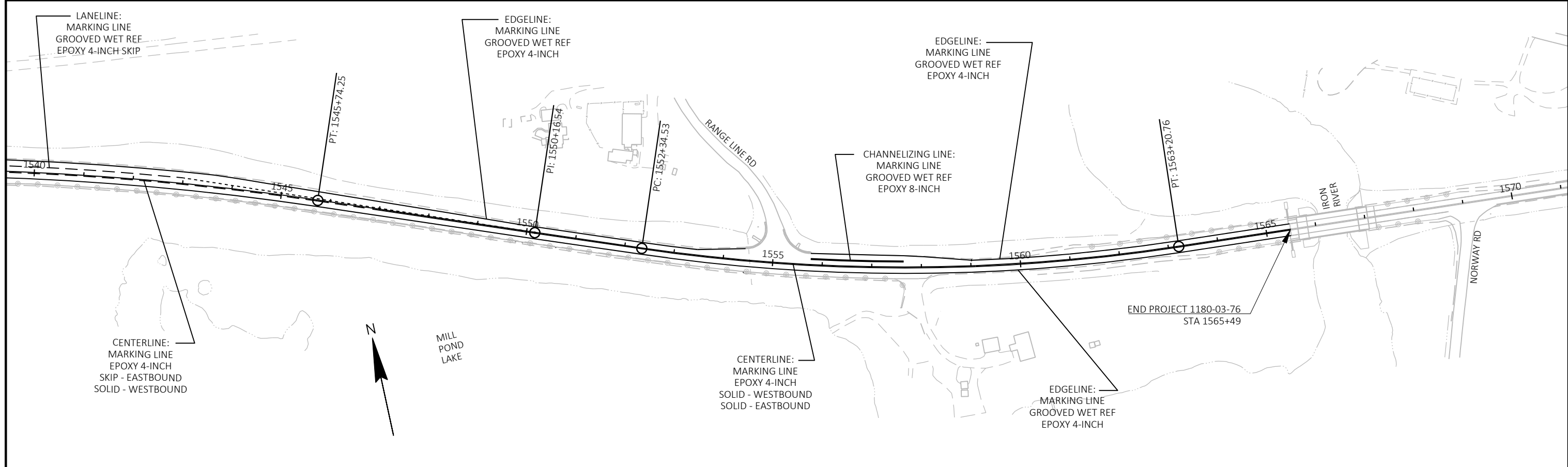
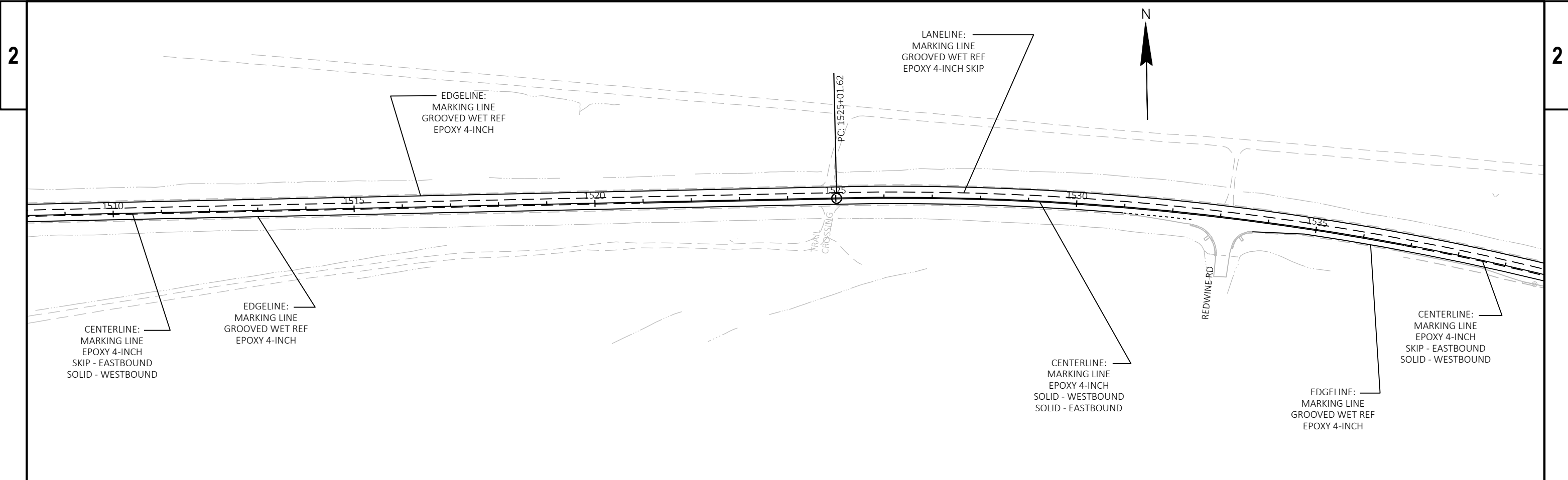
PROJECT NO: 1180-03-76	HWY: USH 2	COUNTY: BAYFIELD	PAVEMENT MARKING	SHEET	E
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PROJECT NO: 1180-03-76	HWY: USH 2	COUNTY: BAYFIELD	PAVEMENT MARKING	SHEET	E
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PROJECT NO: 1180-03-76	HWY: USH 2	COUNTY: BAYFIELD	PAVEMENT MARKING	SHEET	E
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PROJECT NO: 1180-03-76	HWY: USH 2	COUNTY: BAYFIELD	PAVEMENT MARKING	SHEET	E
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Estimate Of Quantities

1180-03-76 1180-05-75

Line	Item	Item Description	Unit	Total	Qty	Qty
0002	202.0105	Roadside Clearing	STA	107.000	107.000	
0004	204.0110	Removing Asphaltic Surface	SY	1,060.000	240.000	820.000
0006	204.0115	Removing Asphaltic Surface Butt Joints	SY	702.000	203.000	499.000
0008	204.0120	Removing Asphaltic Surface Milling	SY	255,686.000	127,124.000	128,562.000
0010	204.0126.S	Removing Asphaltic Longitudinal Notched Wedge Joint Milling	LF	56,132.000	29,099.000	27,033.000
0012	204.0150	Removing Curb & Gutter	LF	1,227.000	1,057.000	170.000
0014	204.0155	Removing Concrete Sidewalk	SY	48.000		48.000
0016	204.0165	Removing Guardrail	LF	2,232.000	1,862.000	370.000
0018	204.9060.S	Removing (item description) 01. Removing Apron Endwalls	EACH	2.000		2.000
0020	205.0100	Excavation Common	CY	1,893.000		1,893.000
0022	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 1180-03-76	LS	1.000	1.000	
0024	211.0100	Prepare Foundation for Asphaltic Paving (project) 02. 1180-05-75	LS	1.000		1.000
0026	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	5.000		5.000
0028	213.0100	Finishing Roadway (project) 01. 1180-03-76	EACH	1.000	1.000	
0030	213.0100	Finishing Roadway (project) 02. 1180-05-75	EACH	1.000		1.000
0032	305.0110	Base Aggregate Dense 3/4-Inch	TON	13,088.000	8,497.000	4,591.000
0034	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	17.000		17.000
0036	305.0500	Shaping Shoulders	STA	966.000	559.000	407.000
0038	455.0605	Tack Coat	GAL	30,816.000	15,000.000	15,816.000
0040	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	2.000	1.000	1.000
0042	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	2.000	1.000	1.000
0044	460.0115.S	HMA Pavement Test Strips Volumetrics	EACH	2.000	1.000	1.000
0046	460.0120.S	HMA Pavement Test Strips Density	EACH	2.000	1.000	1.000
0048	460.2000	Incentive Density HMA Pavement	DOL	18,340.000	9,120.000	9,220.000
0050	460.2005	Incentive Density PWL HMA Pavement	DOL	12,810.000	6,620.000	6,190.000
0052	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	26,380.000	14,550.000	11,830.000
0054	460.2010	Incentive Air Voids HMA Pavement	DOL	15,370.000	8,540.000	6,830.000
0056	460.6645	HMA Pavement 5 MT 58-34 V	TON	20,343.000	10,030.000	10,313.000
0058	460.8644	HMA Pavement 4 SMA 58-34 V	TON	23,659.000	12,750.000	10,909.000
0060	460.9000.S	Material Transfer Vehicle 01. Project 1180-03-76	EACH	1.000	1.000	
0062	460.9000.S	Material Transfer Vehicle 02. Project 1180-05-75	EACH	1.000		1.000
0064	465.0105	Asphaltic Surface	TON	1,000.000	500.000	500.000
0066	465.0110	Asphaltic Surface Patching	TON	300.000	150.000	150.000
0068	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	187.000	50.000	137.000
0070	465.0125	Asphaltic Surface Temporary	TON	39.000		39.000
0072	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	41,230.000	25,675.000	15,555.000
0074	520.1060	Apron Endwalls for Culvert Pipe 60-Inch	EACH	2.000		2.000
0076	520.8700	Cleaning Culvert Pipes	EACH	1.000	1.000	
0078	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	170.000		170.000
0080	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	1,057.000	1,057.000	
0082	602.0405	Concrete Sidewalk 4-Inch	SF	468.000		468.000
0084	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	32.000		32.000
0086	603.8000	Concrete Barrier Temporary Precast Delivered	LF	350.000		350.000
0088	603.8125	Concrete Barrier Temporary Precast Installed	LF	350.000		350.000
0090	606.0100	Riprap Light	CY	2,216.000		2,216.000
0092	614.0905	Crash Cushions Temporary	EACH	2.000		2.000
0094	614.2300	MGS Guardrail 3	LF	1,990.500	1,778.000	212.500
0096	614.2350	MGS Guardrail Short Radius	LF	42.000	42.000	
0098	614.2500	MGS Thrie Beam Transition	LF	157.600		157.600

Estimate Of Quantities

		1180-03-76	1180-05-75			
Line	Item	Item Description	Unit	Total	Qty	Qty
0100	614.2610	MGS Guardrail Terminal EAT	EACH	1.000	1.000	
0102	614.2630	MGS Guardrail Short Radius Terminal	EACH	1.000	1.000	
0104	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1180-03-76	EACH	1.000	1.000	
0106	618.0100	Maintenance And Repair of Haul Roads (project) 02. 1180-05-75	EACH	1.000		1.000
0108	619.1000	Mobilization	EACH	1.000	0.500	0.500
0110	624.0100	Water	MGAL	172.000	79.000	93.000
0112	625.0500	Salvaged Topsoil	SY	1,224.000	650.000	574.000
0114	628.1504	Silt Fence	LF	2,394.000	1,000.000	1,394.000
0116	628.1520	Silt Fence Maintenance	LF	2,700.000	1,000.000	1,700.000
0118	628.1905	Mobilizations Erosion Control	EACH	5.000	2.000	3.000
0120	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	2.000	2.000
0122	628.2008	Erosion Mat Urban Class I Type B	SY	3,696.000	2,900.000	796.000
0124	628.2027	Erosion Mat Class II Type C	SY	224.000		224.000
0126	628.7504	Temporary Ditch Checks	LF	172.000		172.000
0128	628.7555	Culvert Pipe Checks	EACH	4.000		4.000
0130	628.7570	Rock Bags	EACH	572.000	250.000	322.000
0132	629.0205	Fertilizer Type A	CWT	1.800	1.800	
0134	629.0210	Fertilizer Type B	CWT	0.580		0.580
0136	630.0110	Seeding Mixture No. 10	LB	12.600		12.600
0138	630.0120	Seeding Mixture No. 20	LB	80.000	80.000	
0140	630.0500	Seed Water	MGAL	89.000	65.000	24.000
0142	633.5200	Markers Culvert End	EACH	4.000	4.000	
0144	642.5201	Field Office Type C	EACH	1.000	0.500	0.500
0146	643.0300	Traffic Control Drums	DAY	2,090.000	1,621.000	469.000
0148	643.0900	Traffic Control Signs	DAY	5,744.000	3,010.000	2,734.000
0150	643.5000	Traffic Control	EACH	1.000	0.500	0.500
0152	644.1420	Temporary Pedestrian Surface Plywood	SF	771.000		771.000
0154	644.1601	Temporary Pedestrian Curb Ramp	DAY	40.000		40.000
0156	644.1810	Temporary Pedestrian Barricade	LF	281.000		281.000
0158	645.0120	Geotextile Type HR	SY	1,343.000		1,343.000
0160	646.1020	Marking Line Epoxy 4-Inch	LF	61,997.000	37,383.000	24,614.000
0162	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	112,230.000	59,772.000	52,458.000
0164	646.3040	Marking Line Grooved Wet Ref Epoxy 8-Inch	LF	2,918.000	1,200.000	1,718.000
0166	646.4520	Marking Line Same Day Epoxy 4-Inch	LF	9,237.000		9,237.000
0168	646.5020	Marking Arrow Epoxy	EACH	24.000		24.000
0170	646.5120	Marking Word Epoxy	EACH	5.000		5.000
0172	646.6120	Marking Stop Line Epoxy 18-Inch	LF	65.000		65.000
0174	646.7020	Marking Diagonal Epoxy 6-Inch	LF	415.000		415.000
0176	649.0105	Temporary Marking Line Paint 4-Inch	LF	138,996.000	72,179.000	66,817.000
0178	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	61,997.000	37,383.000	24,614.000
0180	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	112.000		112.000
0182	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	1,057.000	1,057.000	
0184	650.8000	Construction Staking Resurfacing Reference	LF	52,743.000	29,099.000	23,644.000
0186	650.9000	Construction Staking Curb Ramps	EACH	4.000		4.000
0188	650.9910	Construction Staking Supplemental Control (project) 01. 1180-03-76	LS	1.000	1.000	
0190	650.9910	Construction Staking Supplemental Control (project) 02. 1180-05-75	LS	1.000		1.000
0192	650.9920	Construction Staking Slope Stakes	LF	191.000		191.000
0194	690.0150	Sawing Asphalt	LF	1,240.000	322.000	918.000
0196	740.0440	Incentive IRI Ride	DOL	50,000.000	26,300.000	23,700.000

Estimate Of Quantities

1180-03-76 1180-05-75

Line	Item	Item Description	Unit	Total	Qty	Qty
0198	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,400.000	1,200.000	1,200.000
0200	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	2,000.000	1,000.000	1,000.000
0202	SPV.0060	Special 01. Resetting Culvert Sections	EACH	5.000	4.000	1.000
0204	SPV.0060	Special 02. Cleaning Culvert Pipes Minimal	EACH	21.000	15.000	6.000
0206	SPV.0060	Special 03. Cleaning Culvert Pipes Full	EACH	1.000	1.000	
0208	SPV.0090	Special 01. Concrete Curb and Gutter Cure and Seal Treatment	LF	1,227.000	1,057.000	170.000
0210	SPV.0090	Special 02. Heavy Duty Silt Fence	LF	306.000		306.000

REMOVING ASPHALTIC SURFACE

CATEGORY	STATION	TO	STATION	LOCATION	204.0110 REMOVING ASPHALTIC SURFACE SY	REMARKS
0010	-	1037+55	RT		59	BASE AGGREGATE DENSE FIELD ENTRANCE
0010	-	1048+09	RT		60	BASE AGGREGATE DENSE PRIVATE ENTRANCE
0010	-	1061+32	RT		59	BASE AGGREGATE DENSE FIELD ENTRANCE
0010	-	1076+58	RT		66	BASE AGGREGATE DENSE FIELD ENTRANCE
0010	-	1097+00	RT		56	BASE AGGREGATE DENSE FIELD ENTRANCE
0010	-	1117+94	RT		91	BASE AGGREGATE DENSE COMMERCIAL ENTRANCE
0010	-	1135+06	RT		76	BASE AGGREGATE DENSE COMMERCIAL ENTRANCE
0010	-	1174+01	RT		32	BASE AGGREGATE DENSE FIELD ENTRANCE
0010	-	1218+32	LT		46	BASE AGGREGATE DENSE FIELD ENTRANCE
0010	-	1234+74	RT		48	BASE AGGREGATE DENSE PRIVATE ENTRANCE
0010	-	1234+77	LT		48	BASE AGGREGATE DENSE FIELD ENTRANCE
0010	-	1241+30	LT		50	BASE AGGREGATE DENSE PRIVATE ENTRANCE
0010	-	1266+21	LT		129	ASPHALTIC SURFACE PRIVATE ENTRANCE
TOTAL 0010					820	

REMOVING ASPHALTIC SURFACE BUTT JOINTS

CATEGORY	STATION	TO	STATION	LOCATION	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	REMARKS
0010	1036+76	-	1037+26	USH 2 - BEGIN PROJECT	233	
0010	1136+26	-	1136+56	USH 2 - BEGIN BRIDGE	133	
0010	1137+86	-	1138+16	USH 2 - END BRIDGE	133	
TOTAL 0010					499	

BASE AGGREGATE DENSE 3/4-INCH & SHAPING SHOULDERS

REMOVING ASPHALTIC LONGITUDINAL NOTCHED WEDGE JOINT MILLING

CATEGORY	STATION	TO	STATION	LOCATION	204.0126.S REMOVING ASPHALTIC LONGITUDINAL NOTCHED WEDGE JOINT MILLING LF	REMARKS
0010	1036+76	-	1136+56	C/L	9,980	UPPER LAYER
0010	1137+86	-	1171+75	LT & RT	6,778	CENTER TURN LANE EDGES
0010	1171+75	-	1274+50	C/L	10,275	UPPER LAYER
TOTAL 0010					27,033	

CATEGORY	STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0500 SHAPING SHOULDERS STA	624.0100 WATER MGAL	REMARKS
0010	103676	-	1041+73	USH 2	140	10	3	
0010		-	1041+73	CLEVEDON RD	10			
0010	1041+73	-	1070+28	USH 2	428	57	9	
0010		-	1070+28	MILLER RD	10			
0010	1070+28	-	1086+37	USH 2	241	32	5	
0010		-	1086+37	FASTELAND RD	10			
0010	1086+37	-	1110+65	USH 2	364	49	7	
0010		-	1110+65	LAMBERT RD	10			
0010	1110+65	-	1113+60	USH 2	44	6	1	
0010		-	1113+60	AFTERHOURS RD	10			
0010	1113+60	-	1130+42	USH 2	252	34	5	
0010		-	1130+42	LYONS RD	10			
0010	1130+42	-	1136+53	USH 2	92	12	2	
0010	1136+56	-	1137+86	BRULE RIVER BRIDGE	--			
0010	1137+86	-	1144+51	USH 2	--			
0010		-	1144+51	RANGER RD	10			
0010	1144+51	-	1165+27	USH 2	--			
0010		-	1165+27	CTH H	10			
0010	1165+27	-	1171+75	USH 2	--			
0010		-	1171+25	STH 27 / LAKE ST	10			
0010	1171+25	-	1253+25	USH 2	2,311	164	46	
0010		-	1253+25	WILLS RD	--			
0010	1253+25	-	1274+50	USH 2	599	43	12	
				GRAVEL DRIVEWAYS SIDEROADS	30		1 2	LISTED ABOVE
TOTAL 0010					4,591	407	93	

SLOPE REPAIR AREA SUMMARY

CATEGORY	STATION	TO	STATION	LOCATION	205.0100 EXCAVATION COMMON CY	606.0100 RIPRAP LIGHT CY	645.0120 GEOTEXTILE TYPE HR SY	REMARKS
0010	1190+10	-	1191+85	RT	1,893	2,216	1,343	EMBANKMENT SLOPE REPAIR AREA
TOTAL 0010					1,893	2,216	1,343	

HMA PAVEMENT

CATEGORY	STATION	TO	STATION	LOCATION	REMOVING ASPHALTIC SURFACE MILLING SY	TACK COAT GAL	460.6645		460.8644	REMARKS
							HMA PAVEMENT 5 MT 58-34 V		HMA PAVEMENT 4	
							LOWER LAYER	UPPER LAYER	SMA 58-34 V	
						TON	TON	TON		
0010	103676	-	1041+73	USH 2	2,275	319	159	0	254	
0010		-	1041+73	CLEVEDON RD	722	51	0	81	0	INCLUDES RT TURN LN
0010	1041+73	-	1070+28	USH 2	14,479	1,832	820	312	1,311	
0010		-	1070+28	MILLER RD	803	56	0	90	0	INCLUDES RT TURN LN
0010	1070+28	-	1086+37	USH 2	8,378	1,075	488	157	781	
0010		-	1086+37	FASTELAND RD	796	56	0	89	0	
0010	1086+37	-	1110+65	USH 2	12,834	1,634	736	261	1,177	
0010		-	1110+65	LAMBERT RD	587	41	0	66	0	
0010	1110+65	-	1113+60	USH 2	1,379	179	83	22	132	
0010		-	1113+60	AFTERHOURS RD	1,069	75	0	120	0	INCLUDES RT TURN LN
0010	1113+60	-	1130+42	USH 2	9,190	1,111	468	281	748	
0010		-	1130+42	LYONS RD	798	56	0	89	0	INCLUDES RT TURN LN
0010	1130+42	-	1136+56	USH 2	2,472	289	117	91	186	
0010	1136+56	-	1137+86	BRULE RIVER BRIDGE	--	--	0	--	--	
0010	1137+86	-	1144+51	USH 2	3,173	346	124	157	199	
0010		-	1144+51	RANGER RD	1,092	76	0	122	0	INCLUDES RT TURN LN
0010	1144+51	-	1165+27	USH 2	12,681	1,275	388	800	620	
0010		-	1165+27	CTH H	1,066	75	0	119	0	INCLUDES RT TURN LN
0010	1165+27	-	1171+75	USH 2	3,307	352	121	177	194	
0010		-	1171+25	STH 27 / LAKE ST	2,105	147	0	236	0	INCLUDES RT TURN LNS
0010	1171+25	-	1253+25	USH 2	38,031	5,324	2,663	0	4,260	
0010		-	1253+25	WILLS RD	1,977	138	0	221	0	INCLUDES RT TURN LNS
0010	1253+25	-	1274+50	USH 2	9,348	1,309	655	0	1,047	
				PROJECT						
							SUBTOTAL	SUBTOTAL		
							6,822	3,491		
				TOTAL 0010	128,562	15,816	10,313		10,909	

HMA TEST STRIPS

CATEGORY	STATION	TO	STATION	LOCATION	460.0105.S	460.0110.S	460.0115.S	460.0120.S	REMARKS
					HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP VOLUMETRICS EACH	HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP DENSITY EACH	HMA PAVEMENT TEST STRIPS VOLUMETRICS EACH	HMA PAVEMENT TEST STRIPS DENSITY EACH	
0010	1036+76	-	1274+50	PROJECT			1	1	UPPER LAYER
0010	1036+76	-	1274+50	PROJECT	1	1			LOWER LAYER
				TOTAL 0010	1	1	1	1	

Project 1180-05-75 PWL Mixture Use Table								
The following acceptance criteria are applicable for this project:								
Location	Station	Mixture Use	Underlying Surface	Bid Item	Tons	Thickness	Quality Management Program to be used for:	
							Mixture Acceptance	Density Acceptance
12' Driving Lanes	1036+76 - 1136+56 1137+86 - 1274+50	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	4424	1.25"	Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
12' Driving Lanes	1036+76 - 1136+56 1137+86 - 1274+50	Upper Layer	5 MT 58-34 V	4 SMA 58-34 V	7077	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
3' Shoulders	1036+76 - 1040+39 LT 1036+76 - 1122+22 RT	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	198	1.25"	Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by department; Not eligible for incentive or disincentive
3' Shoulders	1036+76 - 1040+39 LT 1036+76 - 1122+22 RT	Upper Layer	5 MT 58-34 V	4 SMA 58-34 V	315	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
3' Shoulders	1175+97 - 1274+50 LT 1173+09 - 1274+50 RT	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	442	1.25"	Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by department; Not eligible for incentive or disincentive
3' Shoulders	1175+97 - 1274+50 LT 1173+09 - 1274+50 RT	Upper Layer	5 MT 58-34 V	4 SMA 58-34 V	707	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
12' Passing Lane	1036+76 - 1052+00	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	108	1.25"	Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
12' Passing Lanes	1036+76 - 1052+00	Upper Layer	5 MT 58-34 V	4 SMA 58-34 V	173	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
12' Passing Lane	1050+00 - 1132+00	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	702	1.25"	Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
12' Passing Lane	1050+00 - 1132+00	Upper Layer	5 MT 58-34 V	4 SMA 58-34 V	1121	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
12' Passing Lane	1177+00 - 1274+00	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	851	1.25"	Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
12' Passing Lane	1177+00 - 1274+00	Upper Layer	5 MT 58-34 V	4 SMA 58-34 V	1361	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
WB Left Turn Lane/Flush Median Extended Through STH 27/Lake St Intersection	1171+25 - 1183+63	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	97	1.25"	Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
WB Left Turn Lane/Flush Median Extended Through STH 27/Lake St Intersection	1171+25 - 1183+63	Upper Layer	5 MT 58-34 V	4 SMA 58-34 V	155	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000

Project 1180-05-75 PWL Mixture Use Table (CONTINUED)								
The following acceptance criteria are applicable for this project:								
Location	Station	Mixture Use	Underlying Surface	Bid Item	Tons	Thickness	Quality Management Program to be used for:	
							Mixture Acceptance	Density Acceptance
Center Turn Lane	1139+70 - 1171+25	Upper Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	601	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
Wide Shoulder	1139+70 - 1171+25	Upper Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	497	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
Wide Shoulder	1043+59 - 1135+14 LT	Upper Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	1021	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
Wide Shoulder	Guardrail Locations	Upper Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	139	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
Wide Shoulder/ RT Turn Lanes/ Side Roads	Intersections	Upper Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	1233	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
Mainline	1274+50 - 1565+49	Wedging and leveling	Milled Existing Asphaltic Surface	Asphaltic Surface	500	Varies	QMP as Per SS 465	Acceptance by ordinary compaction

ASPHALTIC SURFACE

CENTERLINE RUMBLE STRIPS

CATEGORY	STATION	TO	STATION	LOCATION	465.0105 ASPHALTIC SURFACE TON	465.0110 ASPHALTIC SURFACE PATCHING TON	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TON	465.0125 ASPHALTIC SURFACE TEMPORARY TON	REMARKS	CATEGORY	STATION	TO	STATION	LOCATION	465.0475 ASPHALT CENTERLINE RUMBLE STRIPS 2- LANE RURAL LF	REMARKS
0010	1036+76	-	1274+50	PROJECT	500				WEDGING - MISC REPAIRS	0010	1036+76	-	1039+73		297	
0010	1036+76	-	1274+50	PROJECT		150			FILL POT HOLES & TRAFFIC POPOUTS; BUTT JOINT RAMPS	0010	1043+73	-	1068+28		2,455	
0010	1187+71	-	1192+89	RT				39	TEMP PAVED SHOULDER AT SLOPE REPAIR AREA	0010	1072+28	-	1084+37		1,209	
0010			1037+55	RT			10		BASE AGGREGATE DENSE FIELD ENTRANCE	0010	1088+37	-	1108+65		2,028	
0010			1048+09	RT			10		BASE AGGREGATE DENSE PRIVATE ENTRANCE	0010	1119+01	-	1128+42		941	
0010			1061+32	RT			10		BASE AGGREGATE DENSE FIELD ENTRANCE	0010	1184+25	-	1251+25		6,700	
0010			1076+58	RT			11		BASE AGGREGATE DENSE FIELD ENTRANCE	0010	1255+25	-	1274+50		1,925	
0010			1097+00	RT			9		BASE AGGREGATE DENSE FIELD ENTRANCE					TOTAL0010	15,555	
0010			1117+94	RT			15		BASE AGGREGATE DENSE COMMERCIAL ENTRANCE							
0010			1135+06	RT			13		BASE AGGREGATE DENSE COMMERCIAL ENTRANCE							
0010			1174+01	RT			5		BASE AGGREGATE DENSE TRAIL ENTRANCE							
0010			1218+32	LT			8		BASE AGGREGATE DENSE FIELD ENTRANCE							
0010			1234+74	RT			8		BASE AGGREGATE DENSE PRIVATE ENTRANCE							
0010			1234+77	LT			8		BASE AGGREGATE DENSE PRIVATE ENTRANCE							
0010			1241+30	LT			8		BASE AGGREGATE DENSE PRIVATE ENTRANCE							
0010			1266+21	LT			22		ASPHALTIC SURFACE PRIVATE ENTRANCE							
				TOTAL0010	500	150	137	39								

CULVERT WORK SUMMARY

CATEGORY	STATION	TO	STATION	LOCATION	204.9060.S.01 REMOVING (ITEM DESCRIPTION) (01. REMOVING APRON ENDWALLS) EACH	520.1060 APRON ENDWALLS FOR CULVERT PIPE 60-INCH EACH	SPV.0060.01 SPECIAL (01. RESETTING CULVERT SECTIONS) EACH	SPV.0060.02 SPECIAL (02. CLEANING CULVERT PIPES MINIMAL) EACH	REMARKS
0010	1058+02	-		LT & RT	2	2			EXISTING LINED 60" X 176' CSCP TO REMAIN
0010	1067+73	-		LT & RT				2	EXISTING 24" X 38" X 120' RCHECP CL HE-III
0010	1181+00	-		LT			1		EXISTING 48" X 136' RCCP
0010	1244+39	-		LT & RT				2	EXISTING 36" X 130' RCCP
0010	1269+54	-		LT & RT				2	EXISTING 36" X 118' RCCP
				TOTAL 0010	2	2	1	6	

CURB RAMPS

CATEGORY	LOCATION	204.0150 REMOVING CURB & GUTTER LF	204.0155 REMOVING CONCRETE SIDEWALK SY	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	601.0411 CONCRETE CURB & GUTTER 30- INCH TYPE D LF	602.0405 CONCRETE SIDEWALK 4-INCH SF	602.0505 CURB RAMP DETECTABLE WARNING FIELD YELLOW SF	650.9000 CONSTRUCTION STAKING CURB RAMPS EACH	SPV.0090.01 SPECIAL (01. CONCRETE CURB AND GUTTER CURE AND SEAL TREATMENT) LF	REMARKS
0010	RANGER RD - W	26	17	6	26	163	8	1	26	
0010	RANGER RD - E	26	14	5	26	125	8	1	26	
0010	STH 27	49	13	5	49	145	8	1	49	
0010	LAKE ST	69	4	1	69	35	8	1	69	
	TOTAL 0010	170	48	17	170	468	32	4	170	

CONCRETE BARRIER TEMPORARY

CATEGORY	STATION	TO	STATION	LOCATION	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	REMARKS
0010	1188+54	-	1192+04	RT	350	350	EMBANKMENT SLOPE REPAIR AREA
				TOTAL 0010	350	350	

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CRASH CUSHIONS TEMPORARY

CATEGORY	STATION	TO	STATION	LOCATION	614.0905		OBJECT MARKING	CRASH TEST	TRAFFIC	TRAFFIC	CRASH CUSHION SHIELDS
					CRASH CUSHIONS TEMPORARY EACH	BACK WIDTH FT					
0010	1188+28	-	1188+54	RT	1	2	OM-3R (W05-58R)	TL-3	BIDIRECTIONAL	RT	CONCRETE BARRIER TEMPORARY ON SHOULDER
0010	1192+04	-	1192+30	RT	1	2	OM-3L (W05-58L)	TL-3	BIDIRECTIONAL	LT	CONCRETE BARRIER TEMPORARY ON SHOULDER
TOTAL 0010					2						

MGS GUARDRAIL SUMMARY

CATEGORY	STATION	TO	STATION	LOCATION	204.0165	614.2300	614.2500	REMARKS
					REMOVING GUARDRAIL LF	MGS GUARDRAIL 3 LF	MGS THRIE BEAM TRANSITION LF	
0010	1135+69.56	-	1136+59.63	LT	89			BRULE RIVER BRIDGE - NW QUAD
0010	1135+69.56	-	1136+20.22	LT		50.0		BRULE RIVER BRIDGE - NW QUAD
0010	1136+20.22	-	1136+59.63	LT			39.4	BRULE RIVER BRIDGE - NW QUAD
0010	1135+99.20	-	1136+76.10	RT	77			BRULE RIVER BRIDGE - SW QUAD
0010	1135+99.20	-	1136+36.70	RT		37.5		BRULE RIVER BRIDGE - SW QUAD
0010	1136+36.70	-	1136+76.10	RT			39.4	BRULE RIVER BRIDGE - SW QUAD
0010	1137+66.66	-	1138+56.06	LT	89			BRULE RIVER BRIDGE - NE QUAD
0010	1137+66.66	-	1138+06.06	LT			39.4	BRULE RIVER BRIDGE - NE QUAD
0010	1138+06.06	-	1138+56.06	LT		50.0		BRULE RIVER BRIDGE - NE QUAD
0010	1137+82.30	-	1138+96.70	RT	115			BRULE RIVER BRIDGE - SE QUAD
0010	1137+82.30	-	1138+21.70	RT			39.4	BRULE RIVER BRIDGE - SE QUAD
0010	1138+21.70	-	1138+96.70	RT				BRULE RIVER BRIDGE - SE QUAD
TOTAL 0010					370	212.5	157.6	

TEMPORARY DITCH CHECKS

MOBILIZATIONS EROSION CONTROL

CATEGORY	STATION	TO	STATION	LOCATION	628.1905	628.1910	REMARKS
					MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	
0010	1036+76	-	1274+50	PROJECT	3	2	
TOTAL 0010					3	2	

CATEGORY	STATION	TO	STATION	LOCATION	628.7504		REMARKS
					TEMPORARY DITCH CHECKS LF		
0010	1067+87	-	1068+26	LT	54		DOWNSTREAM FROM CLEANING CULVERT PIPES MINIMAL
0010	1190+24	-	1190+59	RT	36		SWALE DOWNSLOPE FROM SLOPE REPAIR AREA
0010	1269+28	-	1269+76	LT	47		DOWNSTREAM FROM CLEANING CULVERT PIPES MINIMAL
0010				UNDISTRIBUTED	35		
TOTAL 0010					172		

CULVERT PIPE CHECKS

CATEGORY	STATION	LOCATION	628.7555 CULVERT PIPE CHECKS EACH	REMARKS
0010	1067+58	RT	1	CLEANING CULVERT PIPES MINIMAL
0010	1244+52	LT	1	CLEANING CULVERT PIPES MINIMAL
0010	1269+54	RT	1	CLEANING CULVERT PIPES MINIMAL
0010	UNDISTRIBUTED		1	
TOTAL 0010			4	

ROCK BAGS

CATEGORY	STATION	TO	STATION	LOCATION	628.7570 ROCK BAGS EACH	REMARKS
0010	1138+05	-	1138+27	RT	34	EXCLUSION BARRIER - DISCHARGE END FLUME
0010	1243+94		1244+19	RT	38	TEMP DITCH CHECK - DWNSTRM CLEANING AREA
0010			UNDISTRIBUTED		250	
TOTAL 0010					322	

SALVAGED TOPSOIL, EROSION MAT, FERTILIZER, SEED

CATEGORY	STATION	TO	STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.2027 EROSION MAT CLASS II TYPE C SY	629.0210 FERTILIZER TYPE B CWT	630.0110 SEEDING MIXTURE NO. 10 LB	630.0500 SEED WATER MGAL	REMARKS
0010		-	1058+02	LT	55	103		0.06	1.4	2.0	AEW REPLACEMENT
0010		-	1058+02	RT	56	103		0.06	1.4	2.0	AEW REPLACEMENT
0010		-	1067+58	RT		0	55	0.02	0.5	1.0	CLEANING CULVERT PIPES MINIMAL
0010		-	1068+00	LT		16	9	0.01	0.2	1.0	CLEANING CULVERT PIPES MINIMAL
0010		-	1181+07	LT	43	75		0.05	1.0	2.0	CONCRETE AEW RESET
0010	1189+96	-	1190+04	RT	41	41		0.03	0.6	1.0	EMBANKMENT SLOPE REPAIR AREA
0010	1190+59	-	1192+03	RT	175	175		0.11	2.4	4.0	EMBANKMENT SLOPE REPAIR AREA
0010			1244+53	LT		0	25	0.01	0.2	1.0	CLEANING CULVERT PIPES MINIMAL
0010			1244+17	RT		0	30	0.01	0.2	1.0	CLEANING CULVERT PIPES MINIMAL
0010			1244+18	RT	89	89		0.06	1.2	2.0	EMBANKMENT SLOPE REPAIR AREA
0010			1269+54	LT		34	13	0.02	0.5	1.0	CLEANING CULVERT PIPES MINIMAL
0010			1269+54	RT		0	47	0.02	0.5	1.0	CLEANING CULVERT PIPES MINIMAL
0010		-			115	160	45	0.12	2.5	5.0	UNDISTRIBUTED
TOTAL 0010					574	796	224	0.58	12.6	24.0	

SILT FENCE

CATEGORY	STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	SPV.0090.02 SPECIAL (02. HEAVY DUTY SILT FENCE) LF	REMARKS
0010	1057+74	-	1058+23	LT	62	62		AEW REPLACEMENT - TOE OF FILL SLOPE
0010	1057+83	-	1058+30	RT	62	62		AEW REPLACEMENT - TOE OF FILL SLOPE
0010	1067+76	-	1067+83	RT	24	24		CLEANING CULVERT PIPES MINIMAL
0010	1134+50	-	1136+60	LT	224	224		TURTLE EXCLUSIONARY FENCING
0010	1134+79	-	1136+76	RT	212	212		TURTLE EXCLUSIONARY FENCING
0010	1137+61	-	1138+08	LT	73	73		TURTLE EXCLUSIONARY FENCING
0010	1138+22	-	1139+51	LT	143	143		TURTLE EXCLUSIONARY FENCING
0010	1137+82	-	1139+74	RT	208	208		TURTLE EXCLUSIONARY FENCING
0010	1180+85	-	1181+28	LT	52	52		CONCRETE AEW RESET - TOE OF FILL SLOPE
0010	1190+02	-	1192+37	RT		244	244	EMBANKMENT SLOPE REPAIR AREA
0010	1243+92	-	1244+38	RT	54	54		EMBANKMENT SLOPE REPAIR AREA
0010		-	PROJECT		280	342	62	UNDISTRIBUTED
TOTAL 0010					1,394	1,700	306	

TRAFFIC CONTROL

CATEGORY	STATION	TO	STATION	LOCATION	643.0300	643.0900	643.5000	REMARKS
					TRAFFIC CONTROL DRUMS DAY	TRAFFIC CONTROL SIGNS DAY	TRAFFIC CONTROL EACH	
0010	-			PROJECT			0.5	
0010	-		1016+76	RT		99		W20-1, ROAD WORK AHEAD
0010	-		1026+76	RT		99		W20-1C, ROAD WORK 1000 FT
0010	-		1031+76	RT		99		W20-1D, ROAD WORK 500 FT
0010	-		1031+76	LT		99		G20-2A, END ROAD WORK
0010			1034+26	RT		99		G20-1, ROAD WORK NEXT 10 MILES
0010			CLEVEDON ROAD	LT		99		W20-1, ROAD WORK AHEAD
0010			MILLER ROAD	LT		99		W20-1, ROAD WORK AHEAD
0010			FASTELAND ROAD	LT		99		W20-1, ROAD WORK AHEAD
0010			LAMBERT ROAD	LT		99		W20-1, ROAD WORK AHEAD
0010			AFTER HOURS ROAD	RT		99		W20-1, ROAD WORK AHEAD
0010			LYONS ROAD	RT		99		W20-1, ROAD WORK AHEAD
0010			RANGER ROAD	RT	100	99		W20-1, ROAD WORK AHEAD
0010			CTH H	LT		99		W20-1, ROAD WORK AHEAD
0010			LAKE STREET	LT	50	99		W20-1, ROAD WORK AHEAD
0010			STH 27	RT	50	99		W20-1, ROAD WORK AHEAD
0010			WILLS ROAD	LT		99		W20-1, ROAD WORK AHEAD
0010			WILLS ROAD	RT		99		W20-1, ROAD WORK AHEAD
0010			PROJECT	LT & RT		1,038		GROOVED PAVEMENT, ETC.
0010			CULVERT WORK LOCATIONS	LT & RT	135	9		SEE TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY SDD
0010	1135+16	-	1136+60	LT	36			GUARDRAIL REPLACEMENT WEST OF BRULE RIVER BRIDGE
0010	1135+46	-	1136+76	RT	36	2		GUARDRAIL REPLACEMENT WEST OF BRULE RIVER BRIDGE
0010	1137+66	-	1139+10	LT	30	2		GUARDRAIL REPLACEMENT EAST OF BRULE RIVER BRIDGE
0010	1137+82	-	1139+50	RT	32			GUARDRAIL REPLACEMENT EAST OF BRULE RIVER BRIDGE
			TOTAL 0010		469	2,734	0.5	

TEMP PED TRAFFIC CONTROL

CATEGORY	DAYS	TEMP CURB RAMP	LOCATION	644.1420	644.1601	644.1810	649.0150	REMARKS
				TEMPORARY PEDESTRIAN SURFACE PLYWOOD SF	TEMPORARY PEDESTRIAN CURB RAMP DAY	TEMPORARY PEDESTRIAN BARRICADE LF	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH LF	
0010	10	1	RANGER RD - W	228	10	91		
0010	10	1	RANGER RD - E	273	10	104		
0010	10	1	STH 27	50	10	48		
0010	10	1	LAKE ST	220	10	38		
0010			USH 2				112	TEMP CROSSWALK AT STA 1169+80
			TOTAL 0010	771	40	281	112	

PAVEMENT MARKING

CATEGORY	STATION	TO	STATION	LOCATION	646.1020	646.1040		646.3040	646.4520	646.5020	646.5120	646.6120	646.7020	649.0105	649.0120	
					MARKING LINE EPOXY 4-INCH LF	MARKING LINE GROOVED LF	WET REF EPOXY 4-INCH LF	MARKING LINE SAME DAY EPOXY 4-INCH LF	MARKING ARROW EPOXY EACH	MARKING WORD EPOXY EACH	MARKING STOP LINE EPOXY 18- INCH LF	MARKING DIAGONAL EPOXY 6-INCH LF	TEMPORARY MARKING LINE PAINT 4-INCH LF	TEMPORARY MARKING LINE EPOXY 4-INCH LF		
0010	103676	-	1041+73	USH 2	621	994	124	--	YELLOW CENTERLINE	--	--	--	--	1,074	204	621
0010		-	1041+73	CLEVEDON RD	--	--	--	110	--	--	--	--	--	--	--	--
0010	1041+73	-	1070+28	USH 2	3,569	5,710	714	--	--	--	--	--	--	6,167	1,171	3,569
0010		-	1070+28	MILLER RD	--	--	--	105	--	--	--	--	--	--	--	--
0010	1070+28	-	1086+37	USH 2	2,011	3,218	402	--	--	--	--	--	--	3,475	660	2,011
0010		-	1086+37	FASTELAND RD	--	--	--	105	--	--	--	--	--	--	--	--
0010	1086+37	-	1110+65	USH 2	3,035	4,856	607	--	--	--	--	--	--	5,244	995	3,035
0010		-	1110+65	LAMBERT RD	--	--	--	--	--	--	--	--	--	--	--	--
0010	1110+65	-	1113+60	USH 2	369	590	74	--	--	--	--	--	--	637	121	369
0010		-	1113+60	AFTERHOURS RD	--	--	--	100	--	--	--	--	--	--	--	--
0010	1113+60	-	1130+42	USH 2	2,103	3,364	421	--	--	--	--	--	--	3,633	690	2,103
0010		-	1130+42	LYONS RD	--	--	--	105	--	--	--	--	--	--	--	--
0010	1130+42	-	1136+53	USH 2	--	1,222	153	--	764	--	--	--	--	1,320	251	--
0010	1136+56	-	1137+86	BRULE RIVER BRIDGE	--	--	--	--	--	--	--	--	--	--	--	--
0010	1137+86	-	1144+51	USH 2	--	1,330	--	--	1,663	--	--	--	247	2,873	--	--
0010		-	1144+51	RANGER RD	--	--	--	190	--	2	1	20	--	--	--	--
0010	1144+51	-	1165+27	USH 2	--	4,152	--	--	5,190	10	--	--	--	8,968	--	--
0010		-	1165+27	CTH H	--	--	--	210	--	2	1	20	--	--	--	--
0010	1165+27	-	1171+75	USH 2	--	1,296	--	--	1,620	4	--	--	--	2,799	--	--
0010		-	1171+25	STH 27 / LAKE ST	--	--	--	393	--	6	3	25	--	--	--	--
0010	1171+25	-	1253+25	USH 2	10,250	16,400	2,050	--	--	--	--	--	168	17,712	3,362	10,250
0010		-	1253+25	WILLS RD	--	--	--	400	--	--	--	--	--	--	--	--
0010	1253+25	-	1274+50	USH 2	2,656	4,250	531	--	--	--	--	--	--	4,590	871	2,656
				PROJECT	--	--	--	--	--	--	--	--	--	--	--	--
						SUBTOTAL	SUBTOTAL							SUBTOTAL	SUBTOTAL	
						47,382	5,076							58,492	8,325	
TOTAL 0010					24,614	52,458		1,718	9,237	24	5	65	415	66,817		24,614

NOTE: APPLY TEMPORARY MARKING LINE PAINT 4-INCH ON THE CENTERLINE AND LANE LINES OF THE MILLED SURFACE AND THE LOWER LAYER AND ON THE LANE LINES OF THE UPPER LAYER.
APPLY TEMPORARY MARKING LINE PAINT 4-INCH ON THE LANE LINES OF THE UPPER LAYER AT THE SAME LOCATIONS WHERE AND TO THE SAME LENGTHS THAT THE PERMANENT LANE LINE GROOVED PAVEMENT MARKING WILL BE APPLIED.

SAWING ASPHALT

CONSTRUCTION STAKING

CATEGORY	STATION	TO	STATION	LOCATION	650.8000	650.9920	REMARKS
					CONSTRUCTION STAKING RESURFACING REFERENCE LF	CONSTRUCTION STAKING STAKES LF	
0010	1036+76	-	1136+56	PROJECT	9,980		WEST OF BRULE RIVER BRIDGE
0010	1137+86	-	1274+50	PROJECT	13,664		EAST OF BRULE RIVER BRIDGE
0010	1190+04	-	1191+95	RT		191	SLOPE REPAIR AREA
TOTAL 0010					23,644	191	

CATEGORY	STATION	TO	STATION	LOCATION	690.0150	REMARKS
					SAWING ASPHALT LF	
0010		-	1037+55	RT	68	BASE AGGREGATE DENSE FIELD ENTRANCE
0010		-	1048+09	RT	68	BASE AGGREGATE DENSE PRIVATE ENTRANCE
0010		-	1061+32	RT	68	BASE AGGREGATE DENSE FIELD ENTRANCE
0010		-	1076+58	RT	71	BASE AGGREGATE DENSE FIELD ENTRANCE
0010		-	1097+00	RT	64	BASE AGGREGATE DENSE FIELD ENTRANCE
0010		-	1117+94	RT	93	BASE AGGREGATE DENSE COMMERCIAL ENTRANCE
0010		-	1135+06	RT	84	BASE AGGREGATE DENSE COMMERCIAL ENTRANCE
0010		-	1174+01	RT	36	BASE AGGREGATE DENSE FIELD ENTRANCE
0010		-	1218+32	LT	54	BASE AGGREGATE DENSE FIELD ENTRANCE
0010		-	1234+74	RT	53	BASE AGGREGATE DENSE PRIVATE ENTRANCE
0010		-	1234+77	LT	56	BASE AGGREGATE DENSE FIELD ENTRANCE
0010		-	1241+30	LT	55	BASE AGGREGATE DENSE PRIVATE ENTRANCE
0010		-	1266+21	LT	148	ASPHALTIC SURFACE PRIVATE ENTRANCE
TOTAL 0010					918	

ROADSIDE CLEARING

CLEAR 30' FROM EDGE OF DRIVING LANE WITH APPROVAL OF THE ENGINEER

Table with columns: CATEGORY, STATION TO, STATION, LOCATION, STA. Lists clearing items with stationing and locations.

PROJECT 1180-03-76 TOTAL 107

REMOVING ASPHALTIC SURFACE

Table with columns: CATEGORY, STATION, LOCATION, SY. Lists asphaltic surface removal items.

PROJECT 1180-03-76 TOTAL 240

REMOVING ASPHALTIC SURFACE BUTT JOINTS

Table with columns: CATEGORY, STATION TO, STATION, LOCATION, SY. Lists butt joint removal items.

PROJECT 1180-03-76 TOTAL 203

REMOVING ASPHALTIC SURFACE MILLING

Table with columns: CATEGORY, STATION TO, STATION, LOCATION, SY. Lists milling items.

PROJECT 1180-03-76 TOTAL 127124

REMOVING CURB & GUTTER

Table with columns: CATEGORY, STATION TO, STATION, LOCATION, LF, REMARKS. Lists curb and gutter removal items.

PROJECT 1180-03-76 TOTAL 1057

REMOVING GUARDRAIL

Table with columns: CATEGORY, STATION TO, STATION, LOCATION, LF. Lists guardrail removal items.

PROJECT 1180-03-76 TOTAL 1862

BASE AGGREGATE DENSE 3/4-INCH

Table with columns: CATEGORY, STATION TO, STATION, LOCATION, TON, WATER MGAL. Lists base aggregate items.

PROJECT 1180-03-76 TOTALS 8497 79

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SHAPING SHOULDERS

CATEGORY	STATION TO	STATION	LOCATION	305.0500 STA
0010	1274+50 -	1561+00	LT	287
0010	1274+50 -	1539+43	RT	265
0010	1557+43 -	1564+00	RT	7
PROJECT 1180-03-76 TOTAL				<u>559</u>

ASPHALTIC SURFACE

CATEGORY	LOCATION	465.0105 TON
0010	WEDGING AND LEVELING	500
PROJECT 1180-03-76 TOTAL		<u>500</u>

ASPHALTIC SURFACE PATCHING

CATEGORY	LOCATION	465.0110 TON
0010	PREPARE FOUNDATION	150
PROJECT 1180-03-76 TOTAL		<u>150</u>

ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES

CATEGORY	STATION	LOCATION	465.0120 TON
0010	1481+55	PE LT	20
0010	1499+75	CE RT	30
PROJECT 1180-03-76 TOTAL			<u>50</u>

HMA PAVEMENT AND TACK COAT

CATEGORY	STATION TO	STATION	LOCATION	HMA PAVEMENT	HMA PAVEMENT	TACK
				5 MI 58-34 V 460.6645 TON	4 SMA 58-34 V 460.8644 TON	COAT 455.061 GAL
0010	1274+50 -	1334+00	MAINLINE	1389	2222	2381
0010	1334+00 -	1409+00	MAINLINE	1750	2800	3000
0010	1409+00 -	1416+00	MAINLINE	196	314	336
0010	1416+00 -	1479+00	MAINLINE	2058	3293	3528
0010	1479+00 -	1486+00	MAINLINE	196	314	336
0010	1486+00 -	1493+00	MAINLINE	196	314	336
0010	1493+00 -	1543+00	MAINLINE	1633	2613	2800
0010	1543+00 -	1550+00	MAINLINE	196	314	336
0010	1550+00 -	1565+49	MAINLINE	354	566	607
0010			SZNAIDER RD	177		115
0010			HOLLANDER RD	111		71
0010			HUGHES TOWN HALL RD	162		105
0010			STEPHANS RD	108		69
0010			BEAR PAW RD	104		67
0010			CRYSTAL LAKE RD	157		102
0010			SPRING LAKE RD	111		72
0010			DEEP LAKE RD	144		93
0010			AIRPORT RD	174		113
0010			REDWINE RD	109		70
0010			RANGE LINE RD	160		103
0010	1539+00	1558+40	GUARDRAIL RT	394		260
0010	1561+10	1565+49	GUARDRAIL LT	101		67
0010	1562+82	1565+49	GUARDRAIL RT	50		33
PROJECT 1180-03-76 TOTALS				<u>10030</u>	<u>12750</u>	<u>15000</u>

REMOVING ASPHALTIC LONGITUDINAL NOTCHED WEDGE JOINT MILLING

CATEGORY	STATION TO	STATION	LOCATION	204.0126.S LF	REMARKS
0010	1274+50 -	1565+49	CENTERLINE	29099	SMA LAYER
PROJECT 1180-03-76 TOTAL				<u>29099</u>	

ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL

CATEGORY	STATION TO	STATION	465.0475 LF
0010	1274+50 -	1565+49	25675
PROJECT 1180-03-76 TOTAL			<u>25675</u>

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Project 1180-03-76 PWL Mixture Use Table

The following acceptance criteria are applicable for this project:

Location	Station	Mixture Use	Underlying Surface	Bid Item	Tons	Thickness	Quality Management Program to be used for:	
							Mixture Acceptance	Density Acceptance
12' Driving Lanes	1274+50 - 1565+49	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	5432	1.25"	Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
12' Driving Lanes	1274+50 - 1565+49	Upper Layer	5 MT 58-34 V	4 SMA 58-34 V	8691	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
3' Shoulders	1274+50 - 1565+49	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	1351	1.25"	Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by department; Not eligible for incentive or disincentive
3' Shoulders	1274+50 - 1565+49	Upper Layer	5 MT 58-34 V	4 SMA 58-34 V	2163	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
12' Passing Lane	1409+00 - 1486+00	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	653	1.25"	Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
12' Passing Lanes	1409+00 - 1486+00	Upper Layer	5 MT 58-34 V	4 SMA 58-34 V	1045	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
12' Passing Lane	1486+00 - 1550+00	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	532	1.25"	Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
12' Passing Lanes	1486+00 - 1550+00	Upper Layer	5 MT 58-34 V	4 SMA 58-34 V	851	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
Wide Shoulder/ Turn Lanes	Intersections	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	357	1.25"	Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by department; Not eligible for incentive or disincentive
Wide Shoulder/ Turn Lanes	Intersections	Upper Layer	5 MT 58-34 V	5 MT 58-34 V	571	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
Wide Shoulder	Guardrail Locations	Lower Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	210	1.25"	Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by department; Not eligible for incentive or disincentive
Wide Shoulder	Guardrail Locations	Upper Layer	5 MT 58-34 V	5 MT 58-34 V	335	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
Side Roads		Upper Layer	Milled Existing Asphaltic Surface	5 MT 58-34 V	589	2.00"	QMP as Per SS 460	Incentive Density HMA Pavement 460.2000
Mainline	1274+50 - 1565+49	Wedging and leveling	Milled Existing Asphaltic Surface	Asphaltic Surface	500	Varies	QMP as Per SS 465	Acceptance by ordinary compaction

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MGS GUARDRAIL 3

CATEGORY	STATION TO	STATION LOCATION	614. 2300 LF
0010	1539+93 - 1557+43	RT	1750
0010	1557+43	RT	28
PROJECT 1180-03-76 TOTAL			1778

MGS GUARDRAIL TERMINAL EAT

CATEGORY	STATION TO	STATION LOCATION	614. 2610 EACH
0010	1539+40 - 1539+93	RT	1
PROJECT 1180-03-76 TOTAL			1

MGS GUARDRAIL SHORT RADIUS TERMINAL

CATEGORY	STATION	LOCATION	614. 2630 EACH
0010	1557+43	RT	1
PROJECT 1180-03-76 TOTAL			1

MGS GUARDRAIL SHORT RADIUS

CATEGORY	STATION	LOCATION	614. 2350 LF	REMARKS
0010	1557+43	RT	42	24 ft Radius, 7 CRT Posts
PROJECT 1180-03-76 TOTAL			42	

SALVAGED TOPSOIL, EROSION MAT, FERTILIZER, SEED, SEED WATER

CATEGORY	STATION TO	STATION LOCATION	EROSION MAT					REMARKS
			SALVAGED TOPSOIL 625. 0500 SY	URBAN CLASS I TYPE B 628. 2008 SY	FERTILIZER TYPE A 629. 0205 CWT	SEEDING MIX #20 630. 0120 LB	SEED WATER 630. 0500 MGAL	
0010	1279+12 - 1279+52	LT	35	70	0.04	2	1.6	SZNAIDER RD C&G REPLACEMENT
0010	1282+00	LT		50	0.03	1	1.1	CLEANING CULVERT PIPES MINIMAL
0010	1282+00	RT		65	0.04	2	1.5	CLEANING CULVERT PIPES MINIMAL
0010	1307+00	LT		75	0.05	2	1.7	CLEANING CULVERT PIPES
0010	1307+00	RT		65	0.04	2	1.5	CLEANING CULVERT PIPES
0010	1336+62	LT		90	0.06	2	2.0	CLEANING CULVERT PIPES MINIMAL
0010	1336+62	RT		85	0.05	2	1.9	CLEANING CULVERT PIPES MINIMAL
0010	1348+06	LT		85	0.05	2	1.9	CLEANING CULVERT PIPES MINIMAL
0010	1348+06	RT		95	0.06	3	2.1	CLEANING CULVERT PIPES MINIMAL
0010	1355+00	LT	50	130	0.09	4	2.9	RESETTING CULVERT SECTIONS
0010	1355+00	RT		115	0.07	3	2.6	CLEANING CULVERT PIPES MINIMAL
0010	1364+00 - 1364+59	RT	50	100	0.06	3	2.2	HUGHES TOWN HALL RD C&G REPLACEMENT
0010	1364+89 - 1365+29	RT	35	70	0.04	2	1.6	HUGHES TOWN HALL RD C&G REPLACEMENT
0010	1369+00	LT		120	0.08	3	2.7	CLEANING CULVERT PIPES MINIMAL
0010	1369+00	RT		120	0.08	3	2.7	CLEANING CULVERT PIPES MINIMAL
0010	1374+94 - 1375+35	LT	35	70	0.04	2	1.6	STEPHENS RD C&G REPLACEMENT
0010	1377+00	LT		110	0.07	3	2.4	CLEANING CULVERT PIPES MINIMAL
0010	1377+00	RT		105	0.07	3	2.4	CLEANING CULVERT PIPES MINIMAL
0010	1393+41	LT		100	0.06	3	2.2	CLEANING CULVERT PIPES MINIMAL
0010	1393+41	RT		105	0.07	3	2.4	CLEANING CULVERT PIPES MINIMAL
0010	1434+99 - 1435+58	RT	50	100	0.06	3	2.2	CRYSTAL LAKE RD C&G REPLACEMENT
0010	1467+74 - 1468+35	RT	50	100	0.06	3	2.2	DEEP LAKE RD C&G REPLACEMENT
0010	1467+96 - 1468+35	LT	35	70	0.04	2	1.6	SPRING LAKE RD C&G REPLACEMENT
0010	1468+65 - 1469+05	RT	35	70	0.04	2	1.6	DEEP LAKE RD C&G REPLACEMENT
0010	1468+65 - 1469+25	LT	50	100	0.06	3	2.2	SPRING LAKE RD C&G REPLACEMENT
0010	1500+66 - 1501+05	LT	35	70	0.04	2	1.6	AIRPORT RD C&G REPLACEMENT
0010	1501+35 - 1501+94	LT	50	100	0.06	3	2.2	AIRPORT RD C&G REPLACEMENT
0010	1532+40 - 1533+00	RT	50	100	0.06	3	2.2	REDWINE RD C&G REPLACEMENT
0010	1554+43 - 1554+80	LT	45	90	0.06	2	2.0	RANGE LINE RD C&G REPLACEMENT
0010	1555+17 - 1555+76	LT	45	90	0.06	2	2.0	RANGE LINE RD C&G REPLACEMENT
PROJECT 1180-03-76 TOTALS			650	2900	1.80	80	65	
			625. 0500	628. 2008	629. 0205	630. 0120	630. 0500	

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SILT FENCE

CATEGORY	LOCATION	628.1504 LF
0010	UNDISTRIBUTED	1000
PROJECT 1180-03-76 TOTAL		<u>1000</u>

SILT FENCE MAINTENANCE

CATEGORY	LOCATION	628.1520 LF
0010	UNDISTRIBUTED	1000
PROJECT 1180-03-76 TOTAL		<u>1000</u>

ROCK BAGS

CATEGORY	LOCATION	628.7570 EACH
0010	UNDISTRIBUTED	250
PROJECT 1180-03-76 TOTAL		<u>250</u>

MARKERS CULVERT END

CATEGORY	STATION	LOCATION	633.5200 EACH
0010	1355+00	LT	1
0010	1420+54	LT & RT	2
0010	1554+54	LT	1
PROJECT 1180-03-76 TOTAL			<u>4</u>

CLEANING CULVERT PIPES

CATEGORY	STATION	LOCATION	520.8700 EACH
0010	1307+00	MAINLINE	1
PROJECT 1180-03-76 TOTAL			<u>1</u>

SPECIAL 01. RESETTING CULVERT SECTIONS

CATEGORY	STATION	LOCATION	SPV. 0060. 01 EACH
0010	1355+00	LT	4
PROJECT 1180-03-76 TOTAL			<u>4</u>

SPECIAL 02. CLEANING CULVERT PIPES MINIMAL

CATEGORY	STATION	LOCATION	SPV. 0060. 02 EACH
0010	1282+00	LT	1
0010	1282+00	RT	1
0010	1336+62	LT	1
0010	1336+62	RT	1
0010	1348+06	LT	1
0010	1348+06	RT	1
0010	1355+00	RT	1
0010	1369+00	LT	1
0010	1369+00	RT	1
0010	1377+00	LT	1
0010	1377+00	RT	1
0010	1393+41	LT	1
0010	1393+41	RT	1
0010	1484+85	LT	1
0010	1484+85	RT	1
PROJECT 1180-03-76 TOTAL			<u>15</u>

SPECIAL 03. CLEANING CULVERT PIPES FULL

CATEGORY	STATION	LOCATION	SPV. 0060. 03 EACH
0010	1355+00	LT	1
PROJECT 1180-03-76 TOTAL			<u>1</u>

CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D

CATEGORY	STATION TO	STATION	LOCATION	601.0557 LF	REMARKS
0010	1279+12 -	1279+52	LT	58	SZNAIDER RD
0010	1364+00 -	1364+59	RT	93	HUGHES TOWN HALL RD
0010	1364+89 -	1365+29	RT	58	HUGHES TOWN HALL RD
0010	1374+94 -	1375+35	LT	60	STEPHENS RD
0010	1434+99 -	1435+58	RT	90	CRYSTAL LAKE RD
0010	1467+74 -	1468+35	RT	93	DEEP LAKE RD
0010	1467+96 -	1468+35	LT	58	SPRING LAKE RD
0010	1468+65 -	1469+05	RT	58	DEEP LAKE RD
0010	1468+65 -	1469+25	LT	94	SPRING LAKE RD
0010	1500+66 -	1501+05	LT	59	AIRPORT RD
0010	1501+35 -	1501+94	LT	92	AIRPORT RD
0010	1532+40 -	1533+00	RT	91	REDWINE RD
0010	1554+43 -	1554+80	LT	76	RANGE LINE RD
0010	1555+17 -	1555+76	LT	77	RANGE LINE RD
PROJECT 1180-03-76 TOTAL				<u>1057</u>	

SPECIAL 01. CONCRETE CURB AND GUTTER CURE AND SEAL TREATMENT

CATEGORY	STATION TO	STATION	LOCATION	SPV. 0090. 01 LF	REMARKS
0010	1279+12 -	1279+52	LT	58	SZNAIDER RD
0010	1364+00 -	1364+59	RT	93	HUGHES TOWN HALL RD
0010	1364+89 -	1365+29	RT	58	HUGHES TOWN HALL RD
0010	1374+94 -	1375+35	LT	60	STEPHENS RD
0010	1434+99 -	1435+58	RT	90	CRYSTAL LAKE RD
0010	1467+74 -	1468+35	RT	93	DEEP LAKE RD
0010	1467+96 -	1468+35	LT	58	SPRING LAKE RD
0010	1468+65 -	1469+05	RT	58	DEEP LAKE RD
0010	1468+65 -	1469+25	LT	94	SPRING LAKE RD
0010	1500+66 -	1501+05	LT	59	AIRPORT RD
0010	1501+35 -	1501+94	LT	92	AIRPORT RD
0010	1532+40 -	1533+00	RT	91	REDWINE RD
0010	1554+43 -	1554+80	LT	76	RANGE LINE RD
0010	1555+17 -	1555+76	LT	77	RANGE LINE RD
PROJECT 1180-03-76 TOTAL				<u>1057</u>	

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TRAFFIC CONTROL DRUMS

CATEGORY	STATION TO	STATION	LOCATION	NUMBER OF DRUMS	643. 0300 DAY	REMARKS
0010	1279+12	- 1279+52	LT	5	70	SZNAIDER RD C&G REPLACEMENT
0010	1364+00	- 1364+59	RT	7	98	HUGHES TOWN HALL RD C&G REPLACEMENT
0010	1364+89	- 1365+29	RT	5	70	HUGHES TOWN HALL RD C&G REPLACEMENT
0010	1374+94	- 1375+35	LT	5	70	STEPHENS RD C&G REPLACEMENT
0010	1434+99	- 1435+58	RT	7	98	CRYSTAL LAKE RD C&G REPLACEMENT
0010	1467+74	- 1468+35	RT	7	98	DEEP LAKE RD C&G REPLACEMENT
0010	1467+96	- 1468+35	LT	5	70	SPRING LAKE RD C&G REPLACEMENT
0010	1468+65	- 1469+05	RT	5	70	DEEP LAKE RD C&G REPLACEMENT
0010	1468+65	- 1469+25	LT	7	98	SPRING LAKE RD C&G REPLACEMENT
0010	1500+66	- 1501+05	LT	5	70	AIRPORT RD C&G REPLACEMENT
0010	1501+35	- 1501+94	LT	7	98	AIRPORT RD C&G REPLACEMENT
0010	1532+40	- 1533+00	RT	7	98	REDWINE RD C&G REPLACEMENT
0010	1539+00	- 1557+50	RT	38	190	BEAM GUARD REPLACEMENT
0010	1554+43	- 1554+80	LT	6	84	RANGE LINE RD C&G REPLACEMENT
0010	1555+17	- 1555+76	LT	6	84	RANGE LINE RD C&G REPLACEMENT
0010	CULVERT CLEANING LOCATIONS			15	255	SEE SDD TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

PROJECT 1180-03-76 TOTAL 1621

CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER

CATEGORY	STATION TO	STATION	LOCATION	650. 5500 LF	REMARKS
0010	1279+12	- 1279+52	LT	58	SZNAIDER RD
0010	1364+00	- 1364+59	RT	93	HUGHES TOWN HALL RD
0010	1364+89	- 1365+29	RT	58	HUGHES TOWN HALL RD
0010	1374+94	- 1375+35	LT	60	STEPHENS RD
0010	1434+99	- 1435+58	RT	90	CRYSTAL LAKE RD
0010	1467+74	- 1468+35	RT	93	DEEP LAKE RD
0010	1467+96	- 1468+35	LT	58	SPRING LAKE RD
0010	1468+65	- 1469+05	RT	58	DEEP LAKE RD
0010	1468+65	- 1469+25	LT	94	SPRING LAKE RD
0010	1500+66	- 1501+05	LT	59	AIRPORT RD
0010	1501+35	- 1501+94	LT	92	AIRPORT RD
0010	1532+40	- 1533+00	RT	91	REDWINE RD
0010	1554+43	- 1554+80	LT	76	RANGE LINE RD
0010	1555+17	- 1555+76	LT	77	RANGE LINE RD

PROJECT 1180-03-76 TOTAL 1057

TRAFFIC CONTROL SIGNS

CATEGORY	STATION	LOCATION	SIGN CODE	SIGN MESSAGE	SIZE	643. 0900 DAY	REMARKS
0010	Sznaider Rd	LT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	Hollander Rd	LT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	Hughes Town Hall Rd	RT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	Stephans Rd	LT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	Bear Paw Rd	LT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	Cyrstal Lake Rd	RT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	Spring Lake Rd	LT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	Deep Lake Rd	RT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	Airport Rd	LT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	Redwine Rd	RT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	Range Line Rd	LT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	1568+00	LT	G20- 1	ROAD WORK NEXT 10 MILES	60x24	121	
0010	1568+00	RT	G20- 2A	END ROAD WORK	42x24	121	
0010	1570+50	LT	W20- 1D	ROAD WORK 500 FT	48x48	121	
0010	Norway Rd	RT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	1575+50	LT	W20- 1C	ROAD WORK 1000 FT	48x48	121	
0010	1580+50	LT	W20- 1	ROAD WORK AHEAD	48x48	121	
0010	PROJECT	LT & RT		GROOVED PAVEMENT, ETC.		896	SEE SDD TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES
0010	SHOULDER WORK LOCATIONS		W021- 5	SHOULDER WORK	48x48	17	SEE SDD TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
0010	USH 2 WEST OF PROJECT		W012- 52	MAX XX' WIDTH	48x48	10	SEE SDD ADVANCED WIDTH RESTRICTION SIGNING
0010	USH 2 WEST OF PROJECT		W057- 52	XX MILES AHEAD	48x36	10	SEE SDD ADVANCED WIDTH RESTRICTION SIGNING
0010	USH 2 EAST OF PROJECT		W012- 52	MAX XX' WIDTH	48x48	10	SEE SDD ADVANCED WIDTH RESTRICTION SIGNING
0010	USH 2 EAST OF PROJECT		W057- 52	XX MILES AHEAD	48x36	10	SEE SDD ADVANCED WIDTH RESTRICTION SIGNING

PROJECT 1180-03-76 TOTAL 3010

CONSTRUCTION STAKING RESURFACING REFERENCE

CATEGORY	STATION TO	STATION	LOCATION	650. 8000 LF
0010	1274+50	- 1565+49	PROJECT	29099
PROJECT 1180-03-76 TOTAL				<u>29099</u>

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MARKING LINE

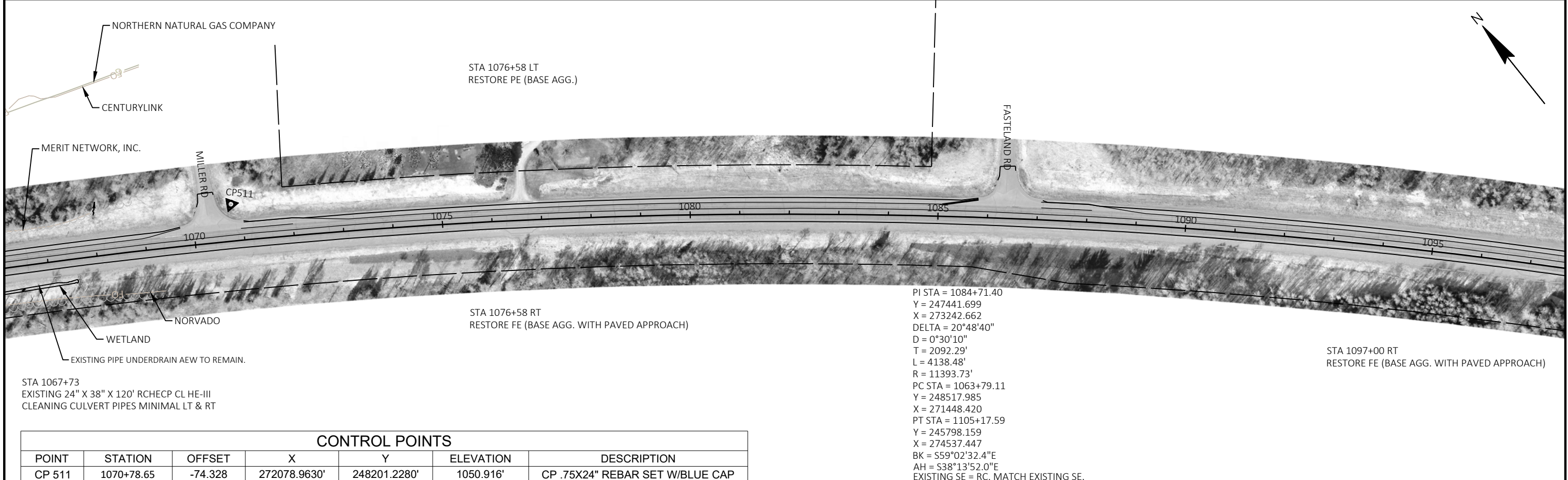
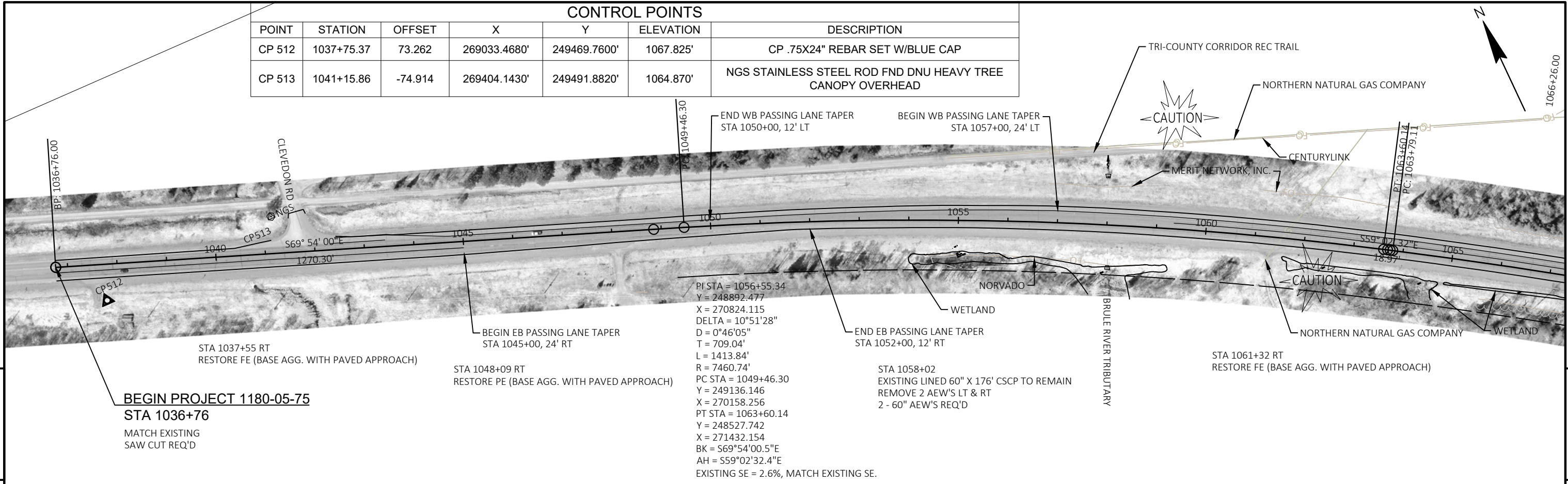
CATEGORY	STATION TO STATION	LOCATION	GROOVED WET		TEMPORARY MARKING LINE		TEMPORARY MARKING LINE		REMARKS
			EPOXY 4-INCH 646.1020 LF	REF EPOXY 4-INCH 646.1040 LF	REF EPOXY 8-INCH 646.3040 LF	PAINT 4-INCH 649.0105 LF	EPOXY 4-INCH 649.0120 LF		
0010	1274+50 - 1565+49	MAINLINE						37383	CENTERLINE HMA UPPER LAYER
0010	1274+50 - 1565+49	MAINLINE	37383						CENTERLINE AFTER RUMBLE STRIP INSTALLATION
0010	1274+50 - 1565+49	MAINLINE				33685			CENTERLINE MILLED SURFACE
0010	1274+50 - 1565+49	MAINLINE				33685			CENTERLINE HMA LOWER LAYER
0010	1409+00 - 1416+00	PASSING LANE TAPER		175					LANELINE TAPER
0010	1409+00 - 1416+00	PASSING LANE TAPER				175			TEMPORARY LANELINE TAPER HMA UPPER LAYER
0010	1416+00 - 1475+00	PASSING LANE		1544					LANELINE
0010	1416+00 - 1475+00	PASSING LANE				1544			TEMPORARY LANELINE HMA UPPER LAYER
0010	1416+00 - 1475+00	PASSING LANE				494			LANELINE MILLED SURFACE
0010	1416+00 - 1475+00	PASSING LANE				494			LANELINE HMA LOWER LAYER
0010	1493+00 - 1543+00	PASSING LANE		1175					LANELINE
0010	1493+00 - 1543+00	PASSING LANE				1175			TEMPORARY LANELINE HMA UPPER LAYER
0010	1493+00 - 1543+00	PASSING LANE				376			LANELINE MILLED SURFACE
0010	1493+00 - 1543+00	PASSING LANE				376			LANELINE HMA LOWER LAYER
0010	1543+00 - 1550+00	PASSING LANE TAPER		175					LANELINE TAPER
0010	1543+00 - 1550+00	PASSING LANE TAPER				175			TEMPORARY LANELINE TAPER HMA UPPER LAYER
0010	1274+50 - 1565+49	MAINLINE		56703					EDGE LINE
0010		RIGHT TURN LANE AT SZNAIDER RD				200			TURN LANE
0010		RIGHT TURN LANE AT HUGHES TOWN HALL RD				200			TURN LANE
0010		RIGHT TURN LANE AT CRYSTAL LAKE RD				200			TURN LANE
0010		RIGHT TURN LANE AT DEEP LAKE RD				200			TURN LANE
0010		RIGHT TURN LANE AT AIRPORT RD				200			TURN LANE
0010		RIGHT TURN LANE AT RANGELINE RD				200			TURN LANE
PROJECT 1180-03-76 TOTALS			37383	59772	1200	72179	37383		

NOTE: IN AREAS OF CENTERLINE RUMBLE STRIPS, ONE APPLICATION OF TEMPORARY MARKING LINE EPOXY IS INCLUDED FOR USE PRIOR TO INSTALLING RUMBLE STRIPS AND ONE APPLICATION OF MARKING LINE EPOXY IS INCLUDED FOR USE AFTER INSTALLING RUMBLE STRIPS. MARKING LINE EPOXY SHALL BE APPLIED WITHIN 24 HOURS OF INSTALLATION OF CENTERLINE RUMBLE STRIPS.

SAWING ASPHALT

CATEGORY	STATION TO STATION	LOCATION	690.0150 LF
0010	1481+55	PE LT	112
0010	1481+55	PE LT	41
0010	1499+75	CE RT	108
0010	1499+75	CE RT	61
PROJECT 1180-03-76 TOTAL			322

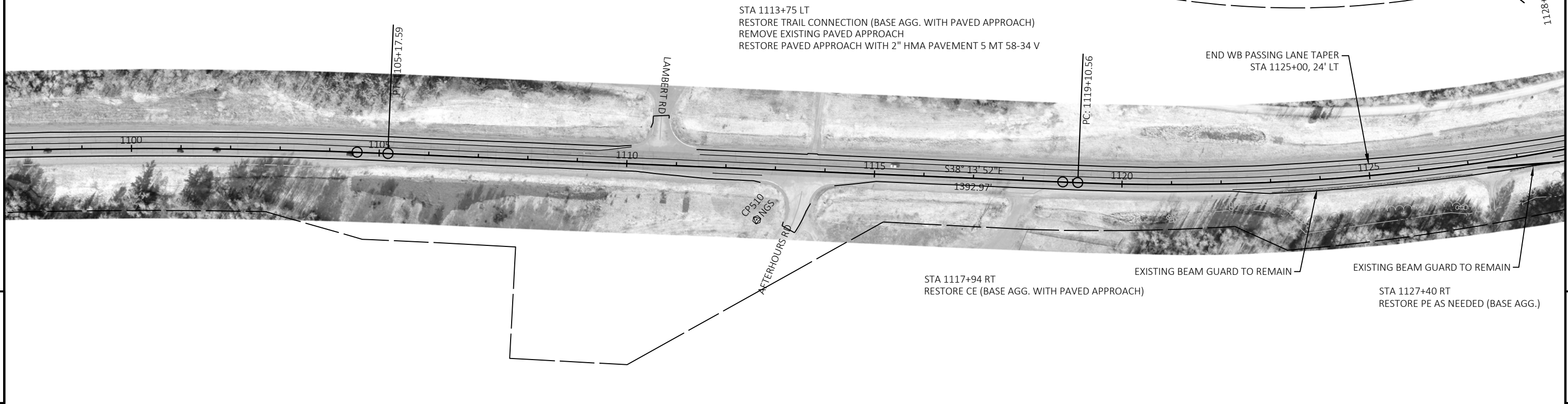
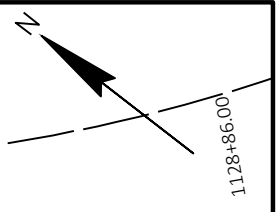
CONTROL POINTS						
POINT	STATION	OFFSET	X	Y	ELEVATION	DESCRIPTION
CP 512	1037+75.37	73.262	269033.4680'	249469.7600'	1067.825'	CP .75X24" REBAR SET W/BLUE CAP
CP 513	1041+15.86	-74.914	269404.1430'	249491.8820'	1064.870'	NGS STAINLESS STEEL ROD FND DNU HEAVY TREE CANOPY OVERHEAD



CONTROL POINTS						
POINT	STATION	OFFSET	X	Y	ELEVATION	DESCRIPTION
CP 511	1070+78.65	-74.328	272078.9630'	248201.2280'	1050.916'	CP .75X24" REBAR SET W/BLUE CAP

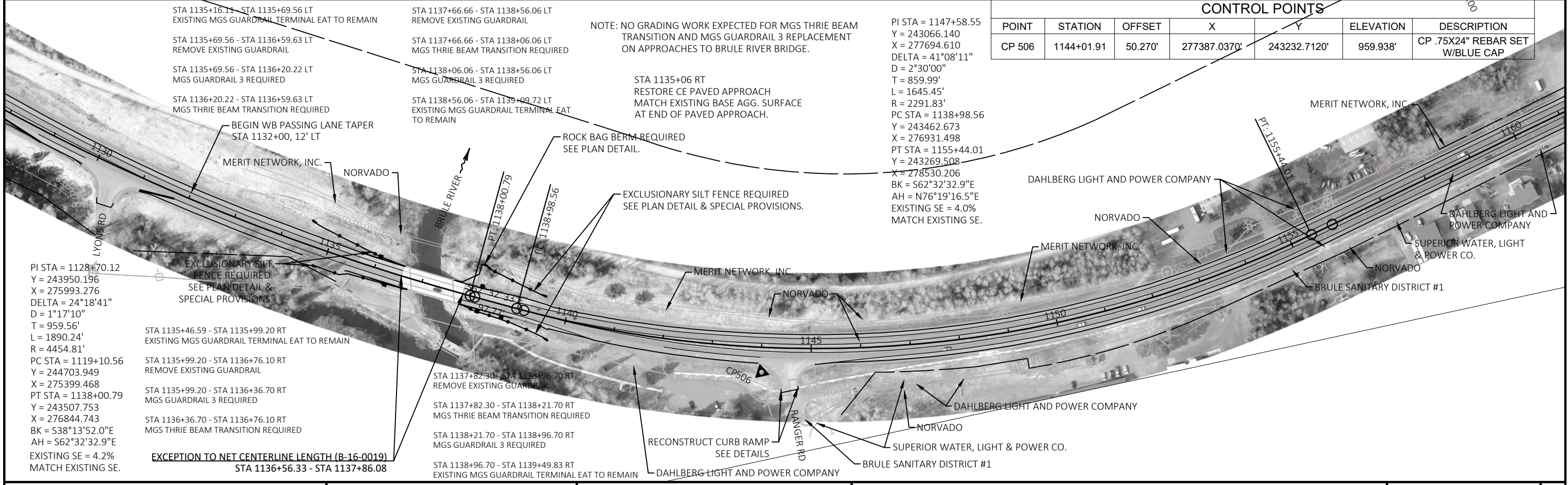
PROJECT NO:	1180-05-75	HWY:	USH 2	COUNTY:	DOUGLAS & BAYFIELD	PLAN	SHEET	E
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CONTROL POINTS						
POINT	STATION	OFFSET	X	Y	ELEVATION	DESCRIPTION
CP 510	1112+66.70	102.259	274920.6960'	245146.4360'	1005.065'	NGS 9G26 BRASS CAP IN CONC. FND



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CONTROL POINTS						
POINT	STATION	OFFSET	X	Y	ELEVATION	DESCRIPTION
CP 506	1144+01.91	50.270'	277387.0370'	243232.7120'	959.938'	CP .75X24" REBAR SET W/BLUE CAP

PI STA = 1128+70.12
 Y = 243950.196
 X = 275993.276
 DELTA = 24°18'41"
 D = 1°17'10"
 T = 959.56'
 L = 1890.24'
 R = 4454.81'
 PC STA = 1119+10.56
 Y = 244703.949
 X = 275399.468
 PT STA = 1138+00.79
 Y = 243507.753
 X = 276844.743
 BK = S38°13'52.0"E
 AH = S62°32'32.9"E
 EXISTING SE = 4.2%
 MATCH EXISTING SE.

PI STA = 1147+58.55
 Y = 243066.140
 X = 277694.610
 DELTA = 41°08'11"
 D = 2°30'00"
 T = 859.99'
 L = 1645.45'
 R = 2291.83'
 PC STA = 1138+98.56
 Y = 243462.673
 X = 276931.498
 PT STA = 1155+44.01
 Y = 243269.508
 X = 278530.206
 BK = S62°32'32.9"E
 AH = N76°19'16.5"E
 EXISTING SE = 4.0%
 MATCH EXISTING SE.

STA 1135+46.59 - STA 1135+99.20 RT
 EXISTING MGS GUARDRAIL TERMINAL EAT TO REMAIN

STA 1135+99.20 - STA 1136+76.10 RT
 REMOVE EXISTING GUARDRAIL

STA 1135+99.20 - STA 1136+36.70 RT
 MGS GUARDRAIL 3 REQUIRED

STA 1136+36.70 - STA 1136+76.10 RT
 MGS THRIE BEAM TRANSITION REQUIRED

EXCEPTION TO NET CENTERLINE LENGTH (B-16-0019)
 STA 1136+56.33 - STA 1137+86.08

STA 1137+82.30 - STA 1138+96.70 RT
 REMOVE EXISTING GUARDRAIL

STA 1137+82.30 - STA 1138+21.70 RT
 MGS THRIE BEAM TRANSITION REQUIRED

STA 1138+21.70 - STA 1138+96.70 RT
 MGS GUARDRAIL 3 REQUIRED

STA 1138+96.70 - STA 1139+49.83 RT
 EXISTING MGS GUARDRAIL TERMINAL EAT TO REMAIN

NOTE: NO GRADING WORK EXPECTED FOR MGS THRIE BEAM TRANSITION AND MGS GUARDRAIL 3 REPLACEMENT ON APPROACHES TO BRULE RIVER BRIDGE.

STA 1135+06 RT
 RESTORE CE PAVED APPROACH
 MATCH EXISTING BASE AGG. SURFACE AT END OF PAVED APPROACH.

STA 1137+66.66 - STA 1138+06.06 LT
 MGS THRIE BEAM TRANSITION REQUIRED

STA 1138+06.06 - STA 1138+56.06 LT
 MGS GUARDRAIL 3 REQUIRED

STA 1138+56.06 - STA 1139+09.72 LT
 EXISTING MGS GUARDRAIL TERMINAL EAT TO REMAIN

STA 1137+66.66 - STA 1138+56.06 LT
 REMOVE EXISTING GUARDRAIL

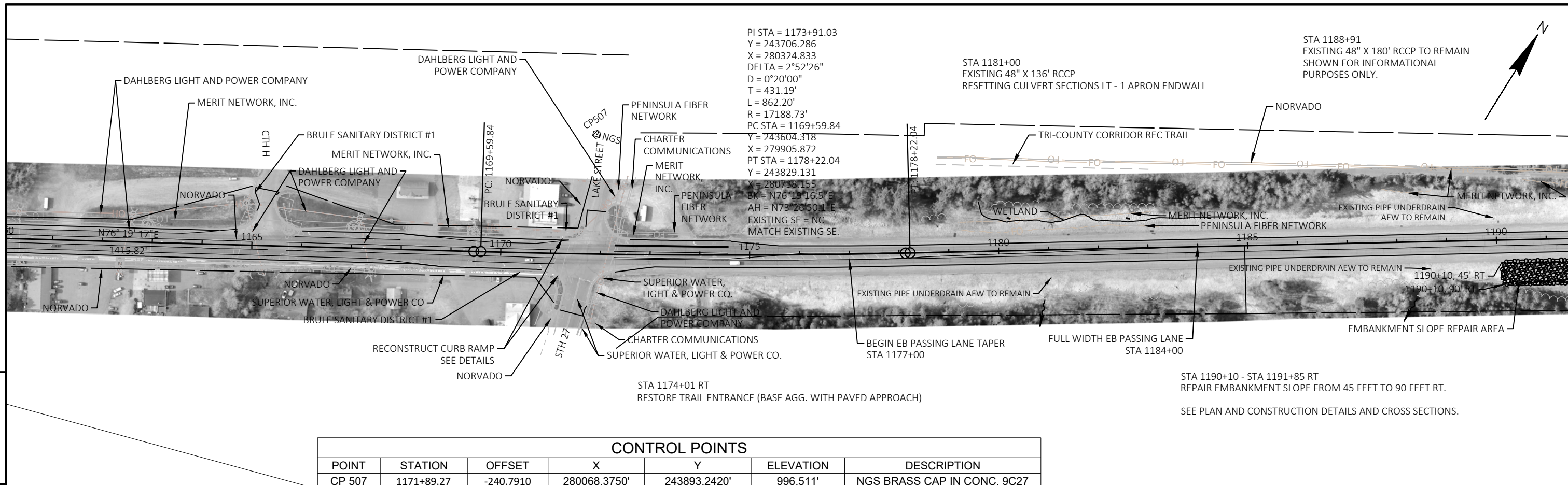
STA 1138+06.06 - STA 1138+56.06 LT
 MGS GUARDRAIL 3 REQUIRED

STA 1138+56.06 - STA 1139+09.72 LT
 EXISTING MGS GUARDRAIL TERMINAL EAT TO REMAIN

ROCK BAG BERM REQUIRED
 SEE PLAN DETAIL.

EXCLUSIONARY SILT FENCE REQUIRED
 SEE PLAN DETAIL & SPECIAL PROVISIONS.

RECONSTRUCT CURB RAMP
 SEE DETAILS

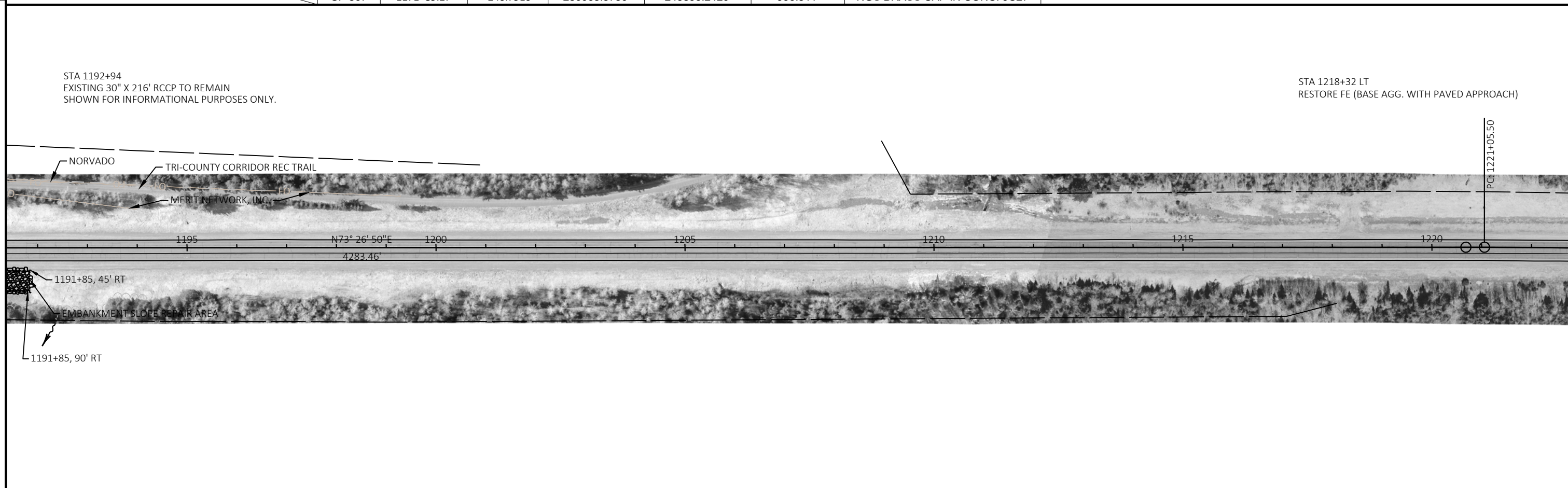


PI STA = 1173+91.03
 Y = 243706.286
 X = 280324.833
 DELTA = 2°52'26"
 D = 0°20'00"
 T = 431.19'
 L = 862.20'
 R = 17188.73'
 PC STA = 1169+59.84
 Y = 243604.318
 X = 279905.872
 PT STA = 1178+22.04
 Y = 243829.131
 X = 280738.155
 BK = N76°19'16.5"E
 AH = N73°26'50.1"E
 EXISTING SE = NC
 MATCH EXISTING SE.

STA 1181+00
 EXISTING 48" X 136' RCCP
 RESETTling CULVERT SECTIONS LT - 1 APRON ENDWALL

STA 1188+91
 EXISTING 48" X 180' RCCP TO REMAIN
 SHOWN FOR INFORMATIONAL
 PURPOSES ONLY.

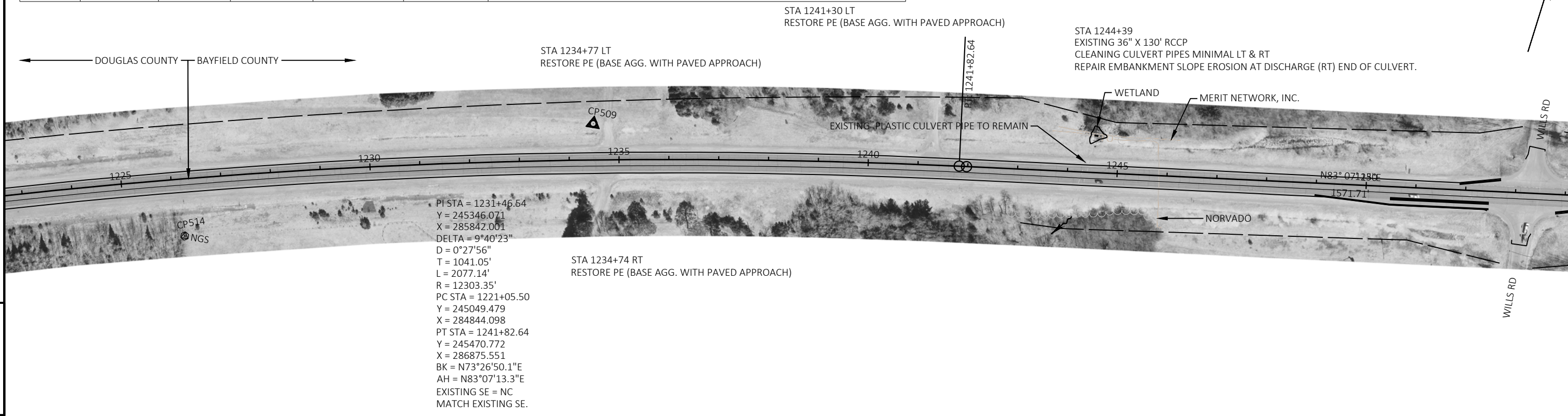
CONTROL POINTS						
POINT	STATION	OFFSET	X	Y	ELEVATION	DESCRIPTION
CP 507	1171+89.27	-240.7910	280068.3750'	243893.2420'	996.511'	NGS BRASS CAP IN CONC. 9C27



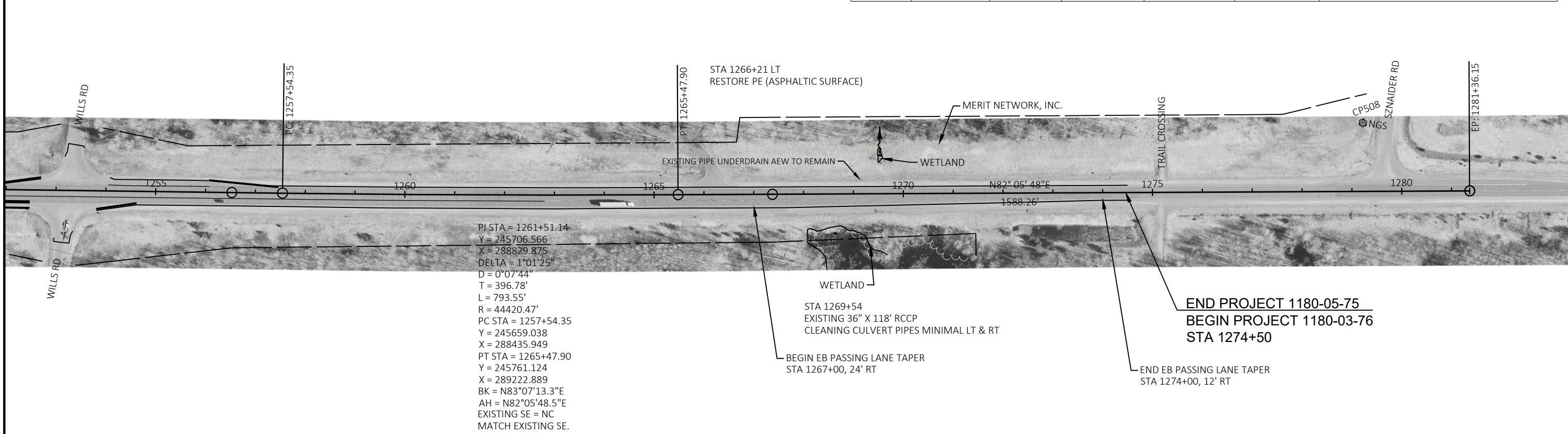
STA 1192+94
 EXISTING 30" X 216' RCCP TO REMAIN
 SHOWN FOR INFORMATIONAL PURPOSES ONLY.

STA 1218+32 LT
 RESTORE FE (BASE AGG. WITH PAVED APPROACH)

CONTROL POINTS						
POINT	STATION	OFFSET	X	Y	ELEVATION	DESCRIPTION
CP 514	1226+18.47	114.5310	285366.7460'	245074.2850'	1071.709'	NGS STAINLESS STEEL ROD FND DNU HEAVY TREE CANOPY OVERHEAD
CP 509	1234+48.93	-72.630	286137.1920'	245432.6840'	1082.280'	CP .75X24" REBAR SET W/BLUE CAP

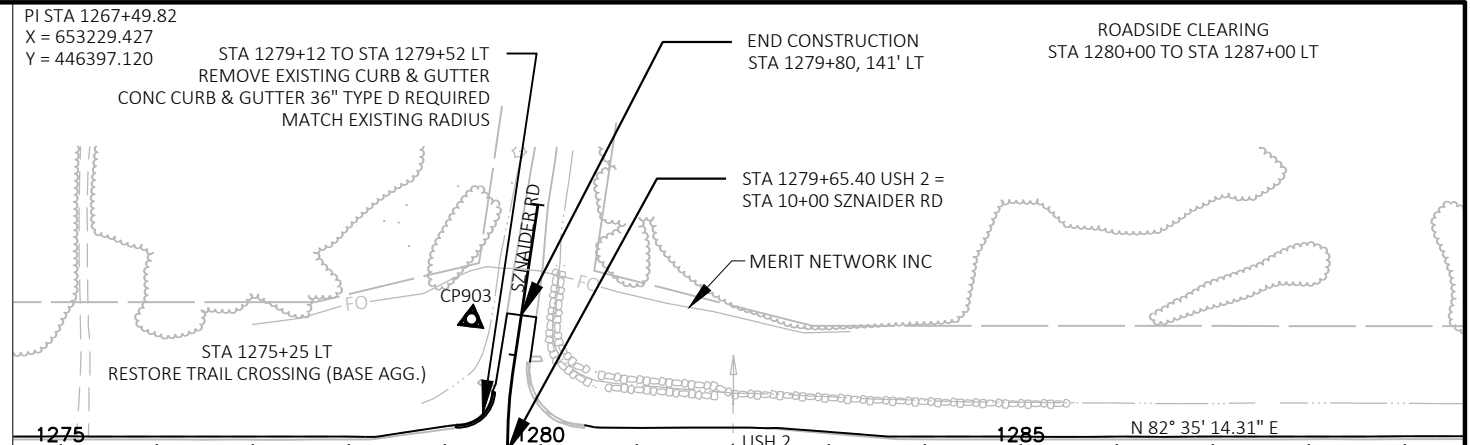


CONTROL POINTS						
POINT	STATION	OFFSET	X	Y	ELEVATION	DESCRIPTION
CP 508	1279+22.59	-137.336	290565.6440'	246086.1760'	1133.332'	NGS A210 STAINLESS STEEL ROD FND



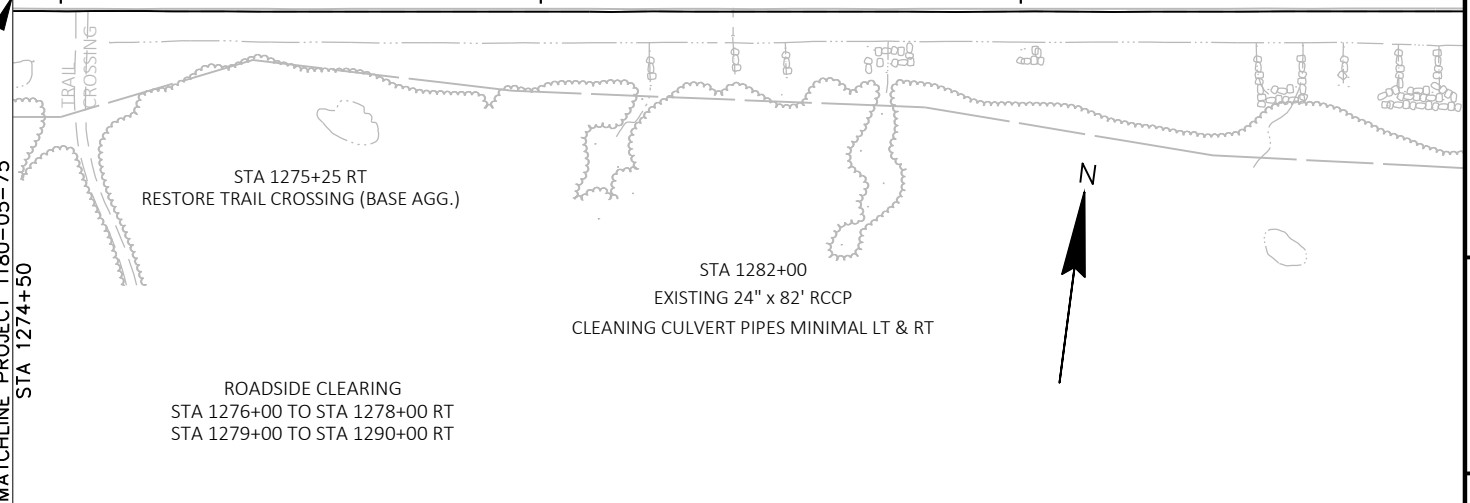
PROJECT NO: 1180-05-75	HWY: USH 2	COUNTY: DOUGLAS & BAYFIELD	PLAN	SHEET	E
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Control Points						
Point	Station	Offset	X	Y	Elevation	Description
CP903	1279+27.90	-137.191'	654379.963	446685.155	1133.334	CP NOAA SURVEY MARKER STEEL ROD ROUNDED TIP

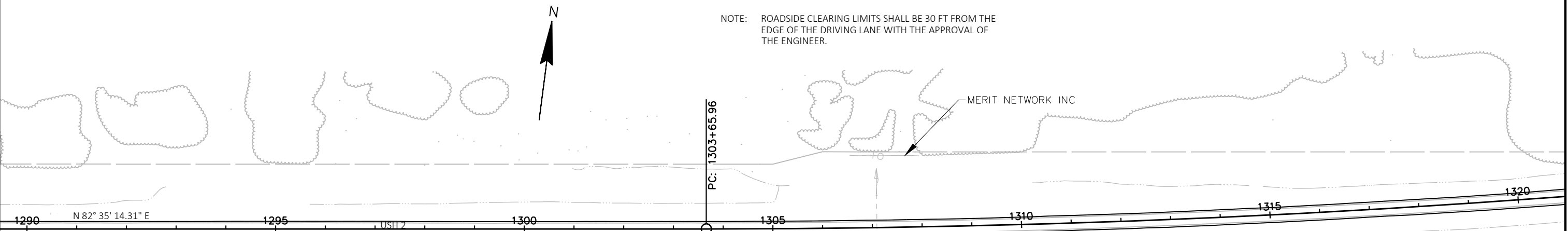


BEGIN PROJECT 1180-03-76
STA 1274+50

MATCHLINE PROJECT 1180-05-75
STA 1274+50



NOTE: ROADSIDE CLEARING LIMITS SHALL BE 30 FT FROM THE
EDGE OF THE DRIVING LANE WITH THE APPROVAL OF
THE ENGINEER.



MAINLINE CURVE DATA
 PI STA = 1313+94.07
 X = 657834.863
 Y = 446996.299
 DELTA = 5° 8' 13.58"
 D = 0° 15' 0"
 T = 1028.109'
 L = 2054.841'
 R = 22918.300'
 PC STA = 1303+65.96
 PT STA = 1324+20.80
 EXISTING SE = NC
 MATCH EXISTING SE

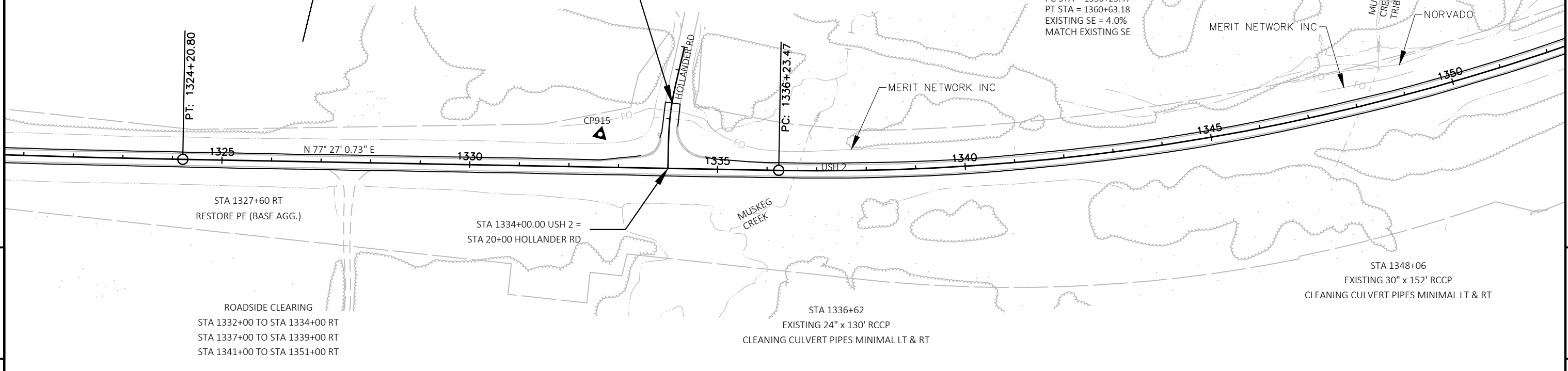
NOTE: ROADSIDE CLEARING LIMITS SHALL BE 30 FT FROM THE EDGE OF THE DRIVING LANE WITH THE APPROVAL OF THE ENGINEER.

Control Points						
Point	Station	Offset	X	Y	Elevation	Description
CP915	1332+62.06	-66.372'	659645.148	447467.277	1115.212	CP IIP W/CONTROL CAP SET

MAINLINE CURVE DATA
 PI STA = 1348+72.59
 X = 661231.614
 Y = 447752.439
 DELTA = 30° 18' 20.8"
 D = 1° 14' 31.87"
 T = 1249.117'
 L = 2439.715'
 R = 4612.500'
 PC STA = 1336+23.47
 PT STA = 1360+63.18
 EXISTING SE = 4.0%
 MATCH EXISTING SE

ROADSIDE CLEARING
 STA 1331+00 TO STA 1332+00 LT
 STA 1336+00 TO STA 1340+00 LT

END CONSTRUCTION
 STA 1334+06, 132' LT



5

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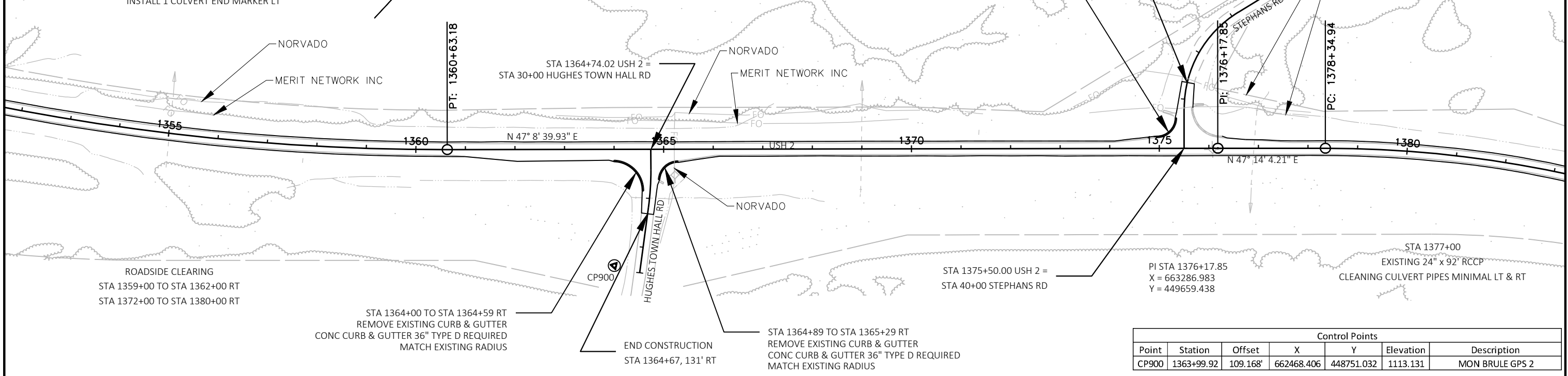
STA 1355+00
 EXISTING 24" x 120' RCCP
 RESETTING CULVERT SECTIONS LT - 3 SECTIONS AND APRON ENDWALL
 CLEANING CULVERT PIPES FULL LT
 CLEANING CULVERT PIPES MINIMAL RT
 INSTALL 1 CULVERT END MARKER LT

ROADSIDE CLEARING
 STA 1360+00 TO STA 1364+00 LT
 STA 1373+00 TO STA 1376+00 LT

STA 1369+00
 EXISTING 24" x 132' RCCP
 CLEANING CULVERT PIPES MINIMAL LT & RT

STA 1374+94 TO STA 1375+35 LT
 REMOVE EXISTING CURB & GUTTER
 CONC CURB & GUTTER 36" TYPE D REQUIRED
 MATCH EXISTING RADIUS

END CONSTRUCTION
 STA 1375+56, 134' LT



ROADSIDE CLEARING
 STA 1359+00 TO STA 1362+00 RT
 STA 1372+00 TO STA 1380+00 RT

STA 1364+00 TO STA 1364+59 RT
 REMOVE EXISTING CURB & GUTTER
 CONC CURB & GUTTER 36" TYPE D REQUIRED
 MATCH EXISTING RADIUS

END CONSTRUCTION
 STA 1364+67, 131' RT

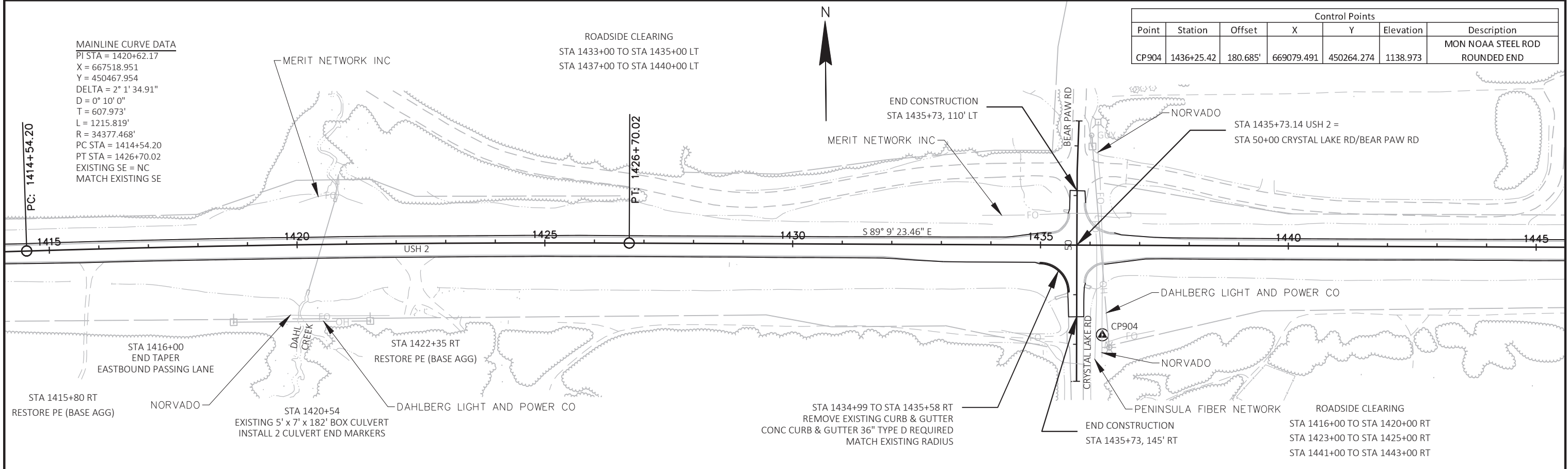
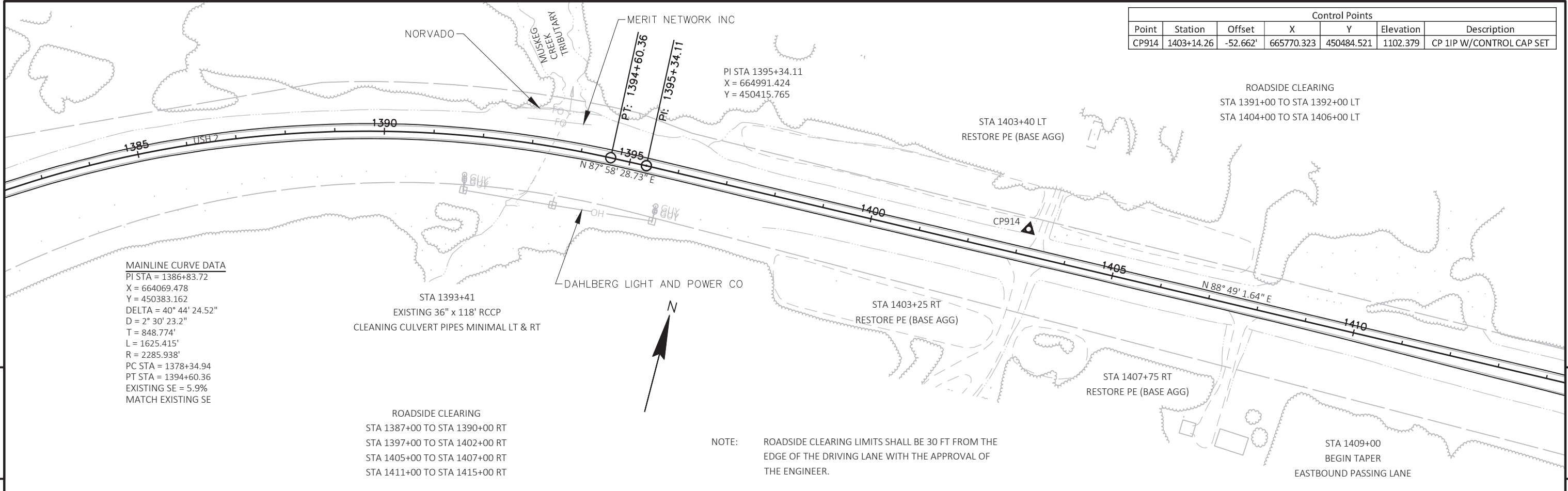
STA 1364+89 TO STA 1365+29 RT
 REMOVE EXISTING CURB & GUTTER
 CONC CURB & GUTTER 36" TYPE D REQUIRED
 MATCH EXISTING RADIUS

STA 1375+50.00 USH 2 =
 STA 40+00 STEPHANS RD

PI STA 1376+17.85
 X = 663286.983
 Y = 449659.438

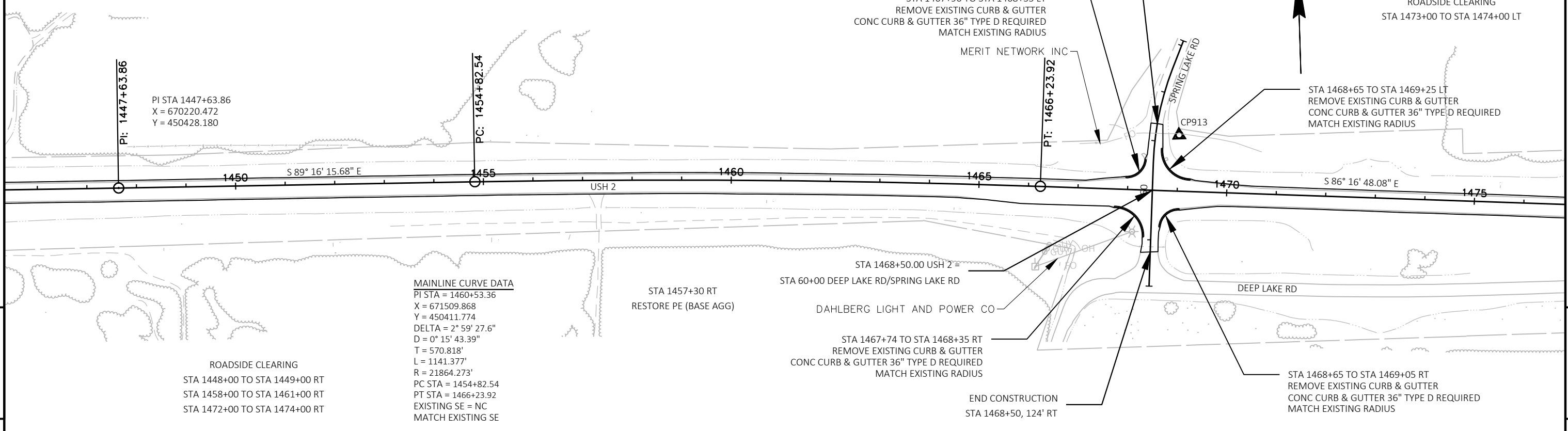
STA 1377+00
 EXISTING 24" x 92' RCCP
 CLEANING CULVERT PIPES MINIMAL LT & RT

Control Points						
Point	Station	Offset	X	Y	Elevation	Description
CP900	1363+99.92	109.168'	662468.406	448751.032	1113.131	MON BRULE GPS 2



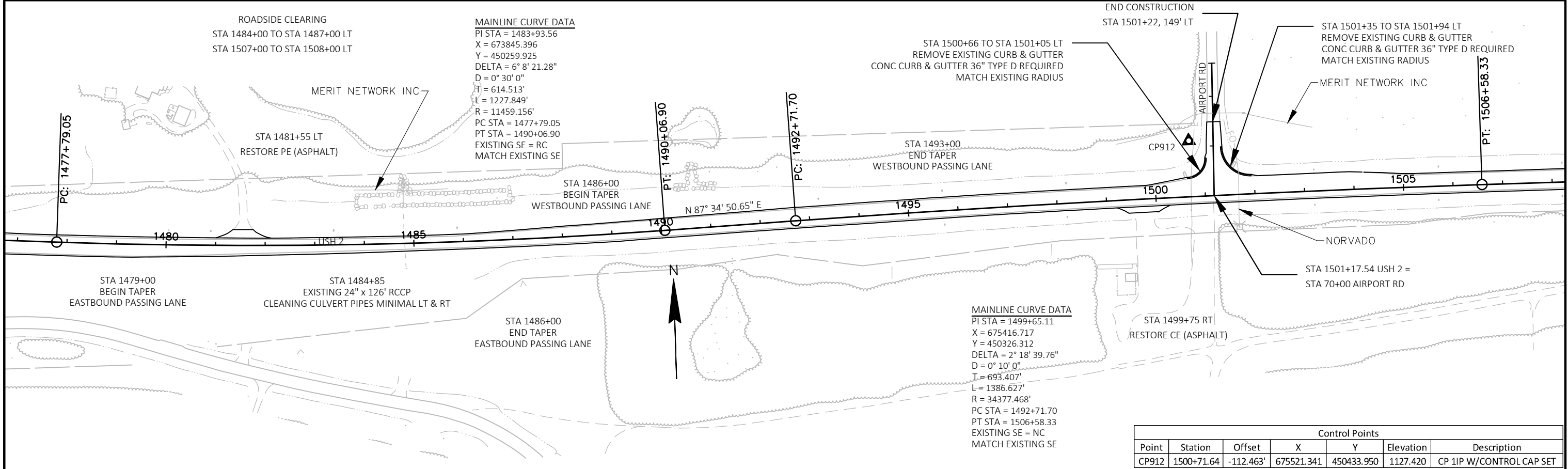
NOTE: ROADSIDE CLEARING LIMITS SHALL BE 30 FT FROM THE EDGE OF THE DRIVING LANE WITH THE APPROVAL OF THE ENGINEER.

Control Points						
Point	Station	Offset	X	Y	Elevation	Description
CP913	1469+00.08	-113.102'	672362.405	450469.686	1126.178	CP 1/P W/CONTROL CAP SET



5

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Control Points						
Point	Station	Offset	X	Y	Elevation	Description
CP912	1500+71.64	-112.463'	675521.341	450433.950	1127.420	CP 1/P W/CONTROL CAP SET

Control Points						
Point	Station	Offset	X	Y	Elevation	Description
CP905	1533+66.41	147.478'	678793.086	450121.618	1118.022	MON NOAA STEEL ROD ROUNDED END

ROADSIDE CLEARING
 STA 1509+00 TO STA 1511+00 LT
 STA 1514+00 TO STA 1516+00 LT

ROADSIDE CLEARING
 STA 1521+00 TO STA 1522+00 RT
 STA 1526+00 TO STA 1530+00 RT
 STA 1534+00 TO STA 1539+00 RT

NOTE: ROADSIDE CLEARING LIMITS SHALL BE 30 FT FROM THE
 EDGE OF THE DRIVING LANE WITH THE APPROVAL OF
 THE ENGINEER.

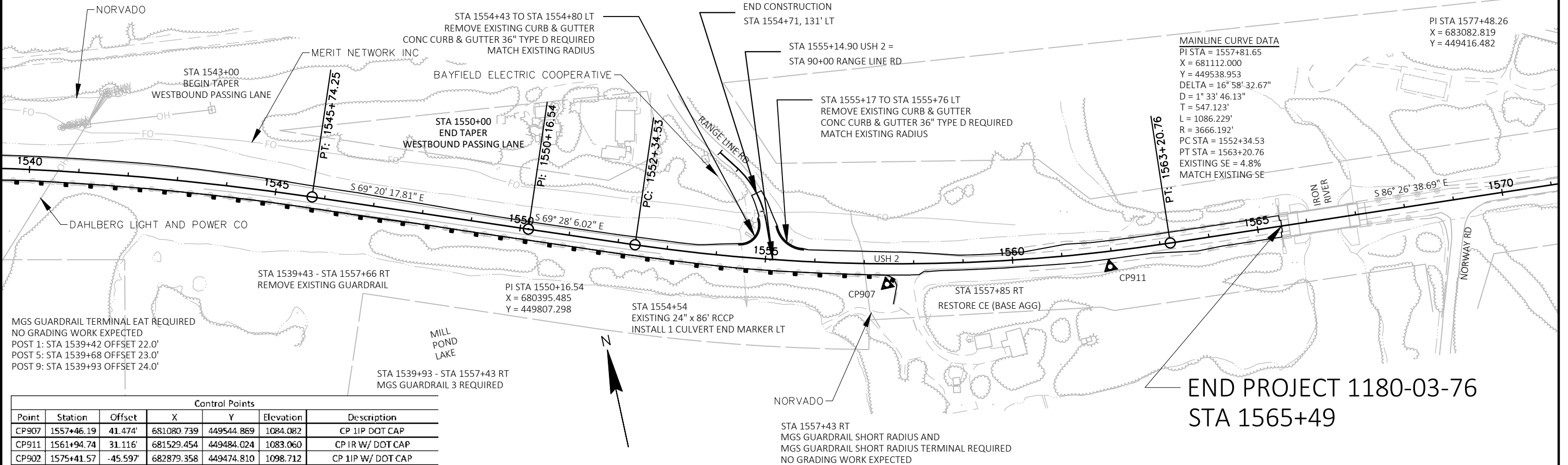
STA 1532+40 TO STA 1533+00 RT
 REMOVE EXISTING CURB & GUTTER
 CONC CURB & GUTTER 36" TYPE D REQUIRED
 MATCH EXISTING RADIUS

END CONSTRUCTION
 STA 1533+16, 123' RT

MAINLINE CURVE DATA
 PI STA = 1535+49.43
 X = 679001.222
 Y = 450333.082
 DELTA = 20° 46' 11.79"
 D = 1° 0' 7.58"
 T = 1047.814'
 L = 2072.629'
 R = 5717.537'
 PC STA = 1525+01.62
 PT STA = 1545+74.25
 EXISTING SE = 3.3%
 MATCH EXISTING SE

5

5



MAINLINE CURVE DATA
 PI STA = 1557+81.65
 X = 681112.000
 Y = 449538.953
 DELTA = 16° 58' 32.67"
 D = 1° 33' 46.13"
 T = 547.123'
 L = 1086.229'
 R = 3666.192'
 PC STA = 1552+34.53
 PT STA = 1563+20.76
 EXISTING SE = 4.8%
 MATCH EXISTING SE

PI STA 1577+48.26
 X = 683082.819
 Y = 449416.482

MGS GUARDRAIL TERMINAL EAT REQUIRED
 NO GRADING WORK EXPECTED
 POST 1: STA 1539+42 OFFSET 22.0'
 POST 5: STA 1539+68 OFFSET 23.0'
 POST 9: STA 1539+93 OFFSET 24.0'

Control Points						
Point	Station	Offset	X	Y	Elevation	Description
CP907	1557+46.19	41.474'	681080.739	449544.869	1084.082	CP 1IP DOT CAP
CP911	1561+94.74	31.116'	681529.454	449484.024	1083.060	CP 1R W/ DOT CAP
CP902	1575+41.57	-45.597'	682879.358	449474.810	1098.712	CP 1IP W/ DOT CAP

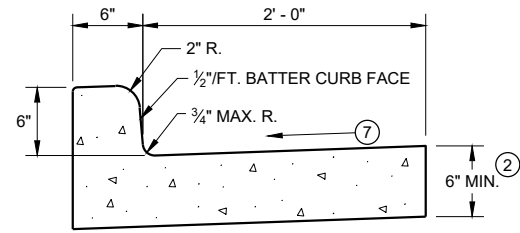
END PROJECT 1180-03-76
 STA 1565+49

Standard Detail Drawing List

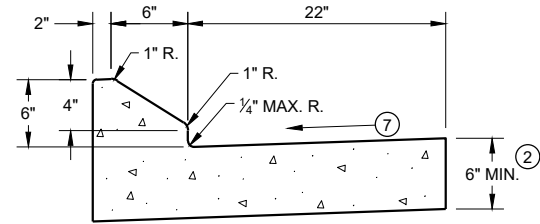
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D05-20A	CURB RAMPS TYPES 1 AND 1-A
08D05-20B	CURB RAMPS TYPES 2 AND 3
08D05-20C	CURB RAMPS TYPES 4A AND 4A1
08D05-20D	CURB RAMPS TYPE 4B AND 4B1
08D05-20E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D05-20F	CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS
08D05-20G	CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13C19-03	HMA LONGITUDINAL JOINTS
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15E	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15F	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15G	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15H	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15I	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B53-01A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-08F	ADVANCED WIDTH RESTRICTION SIGNING
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C08-20B	PAVEMENT MARKING (TURN LANES)
15C08-20C	PAVEMENT MARKING (TURN LANES)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-06A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C19-06B	MOVING PAVEMENT MARKING OPERATION MULTI-LANE UNDIVIDED ROADWAY
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-04A	PAVEMENT MARKING (INTERSECTIONS)
15C35-04B	PAVEMENT MARKING AND SIGNING (CLIMBING LANE & PASSING LANE)
15C35-04C	PAVEMENT MARKING AND SIGNING (CLIMBING LANE & PASSING LANE)
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

Standard Detail Drawing List

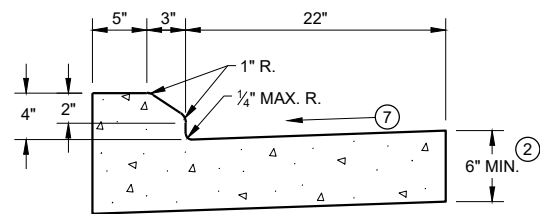
15D30-06A	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-06B	TRAFFIC CONTROL, TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION
15D30-06C	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING
15D44-02	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES
15D51-01	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY



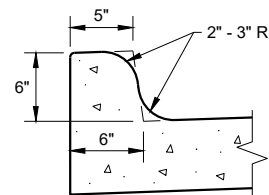
TYPES A^① & D



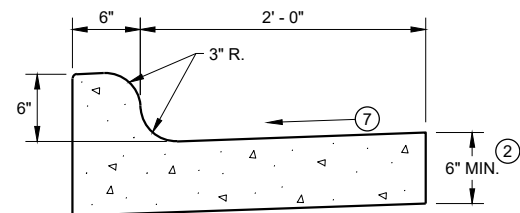
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

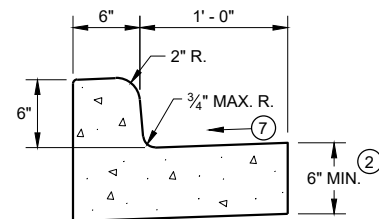


TYPES K^① & L
(OPTIONAL CURB SHAPE)



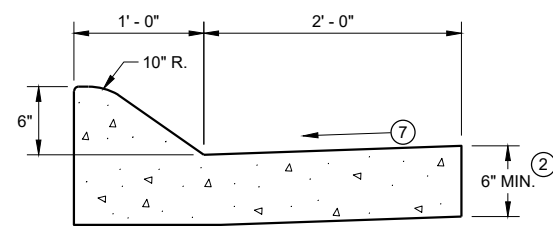
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

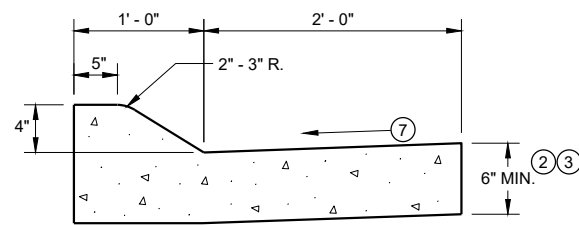


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

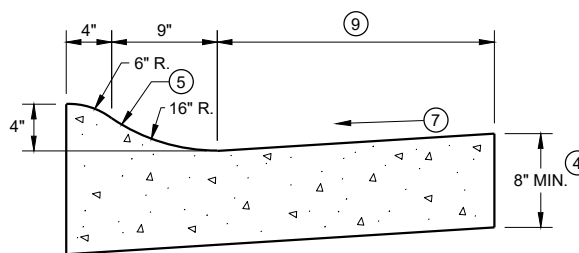


6" SLOPED CURB TYPES A^① & D



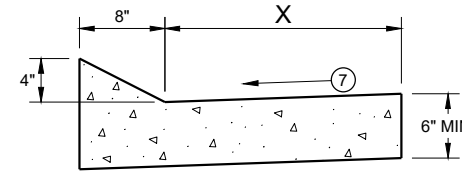
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

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

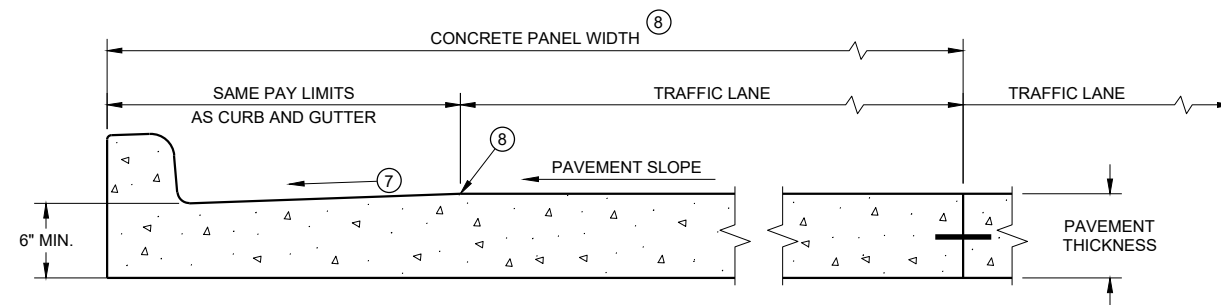


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

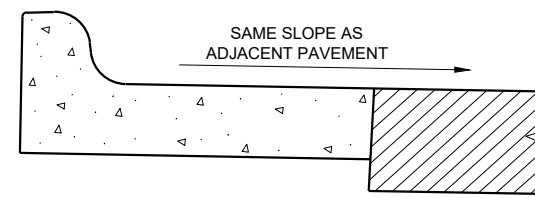
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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

GENERAL NOTES

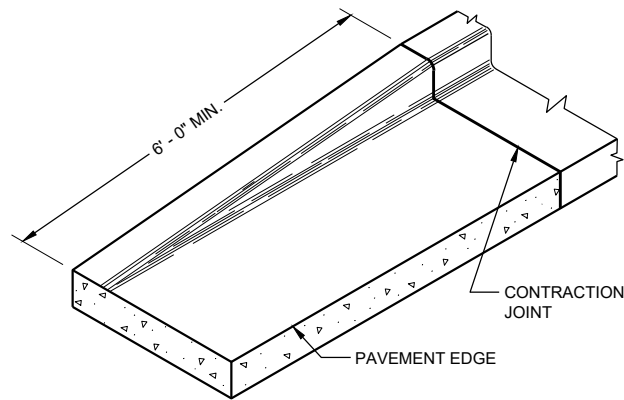
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

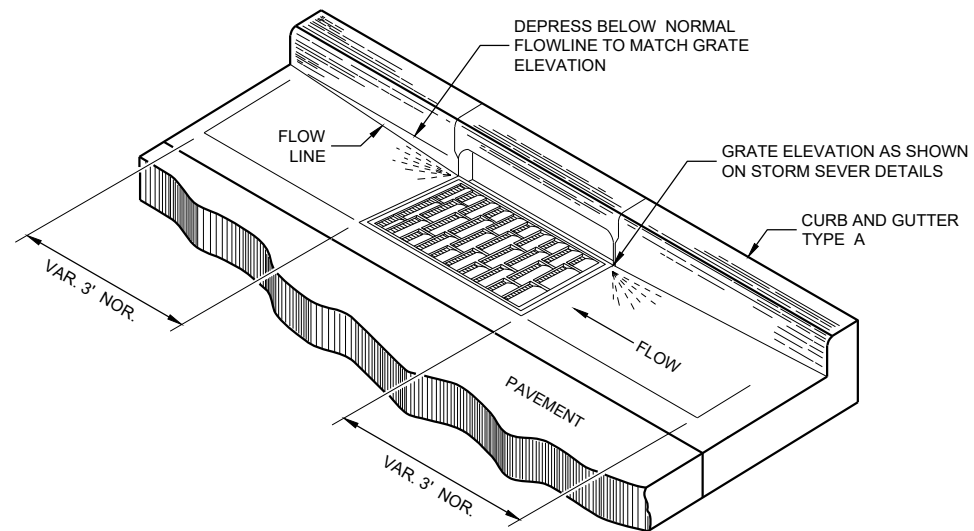
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES



END SECTION CURB AND GUTTER



DETAIL OF CURB AND GUTTER AT INLETS
(TYPICAL H INLET COVER SHOWN)

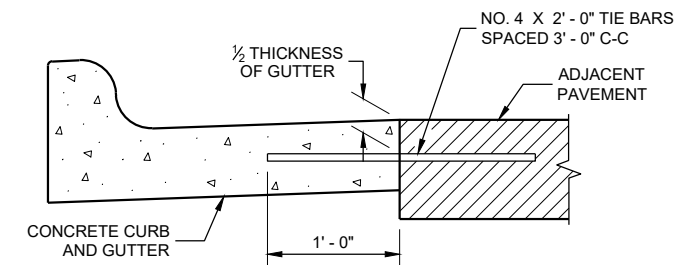
GENERAL NOTES

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

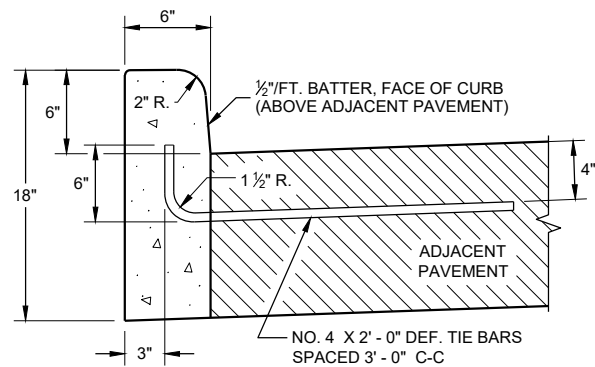
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

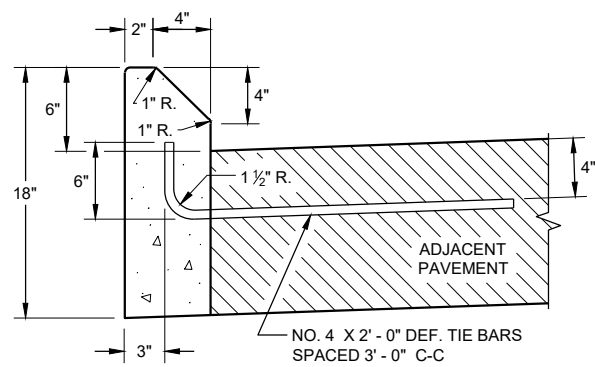
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.



TYPICAL TIE BAR LOCATION ①

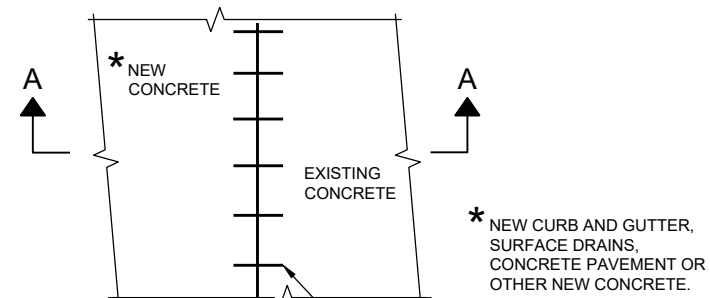


TYPES A ① & D

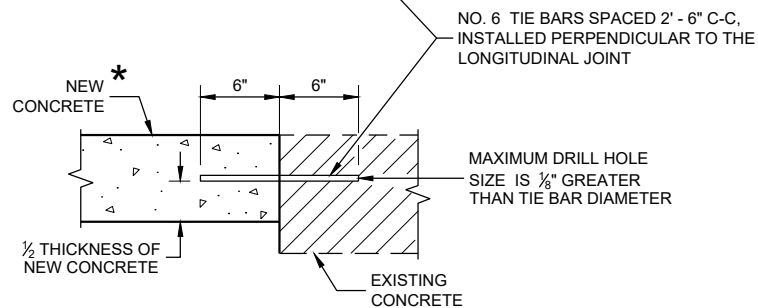


TYPES G ① & J

CONCRETE CURB

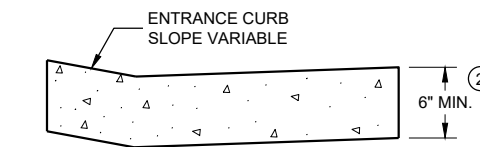


PLAN VIEW



SECTION A - A

TIE BARS DRILLED INTO EXISTING PAVEMENT



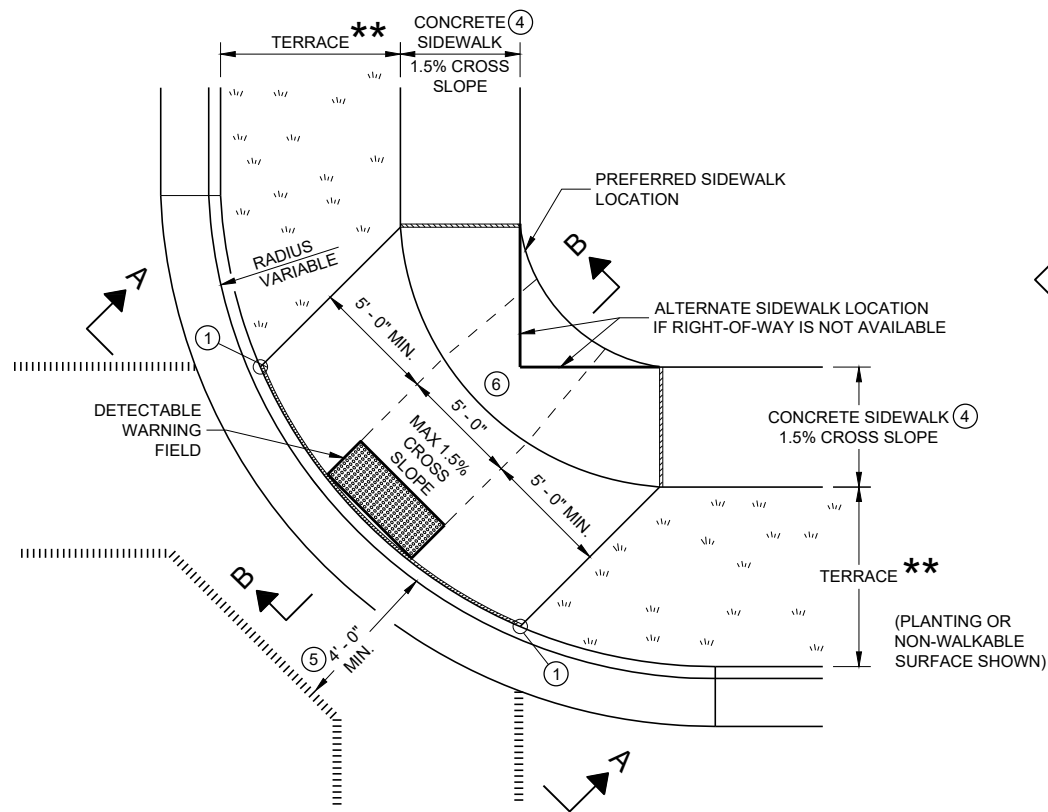
DRIVEWAY ENTRANCE CURB ⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

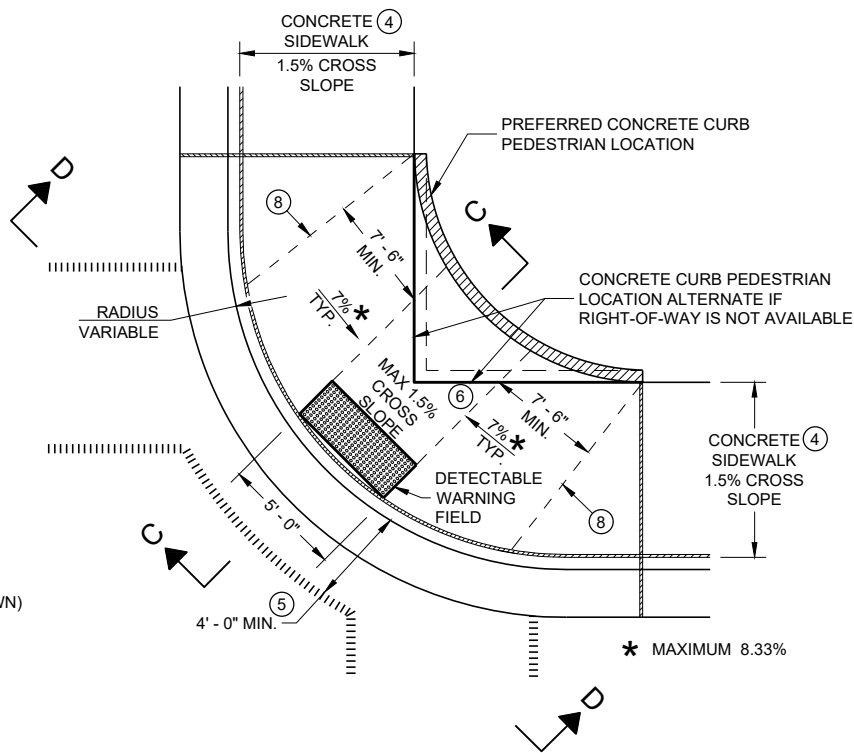
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

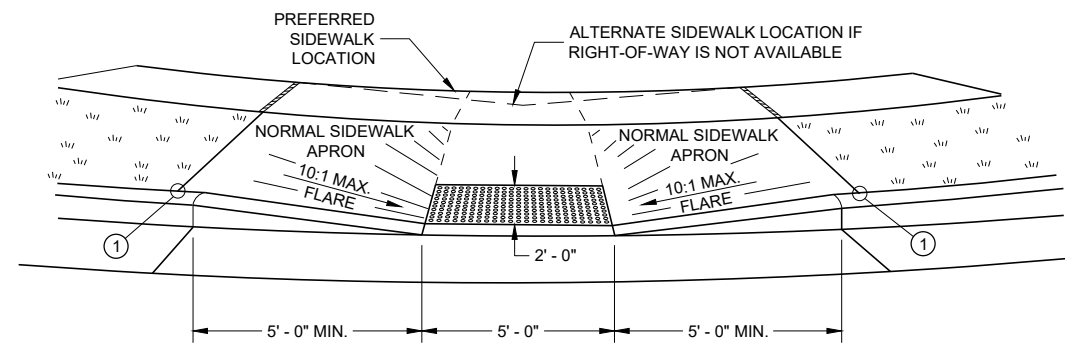
FHWA



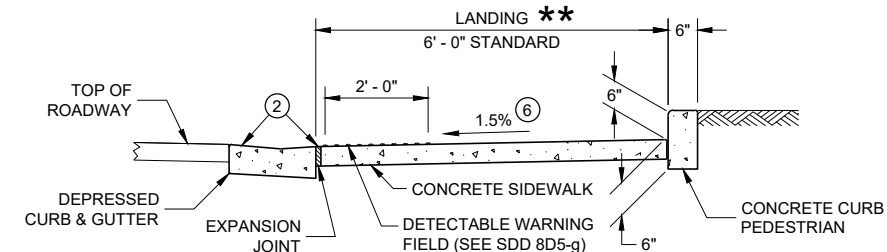
**PLAN VIEW
CURB RAMP TYPE 1
(CENTER OF CORNER RADIUS)**



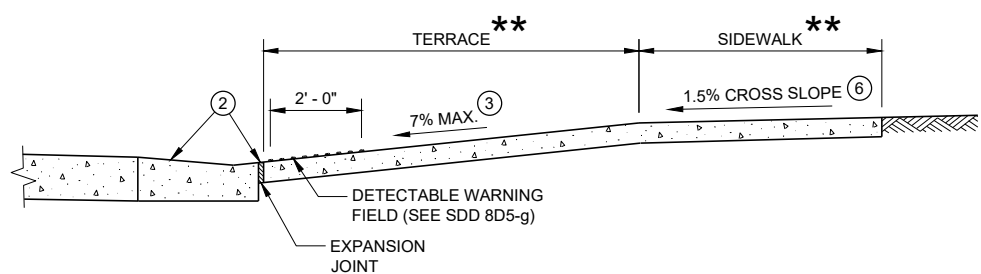
**PLAN VIEW
CURB RAMP TYPE 1 - A
(NO TERRACE)**



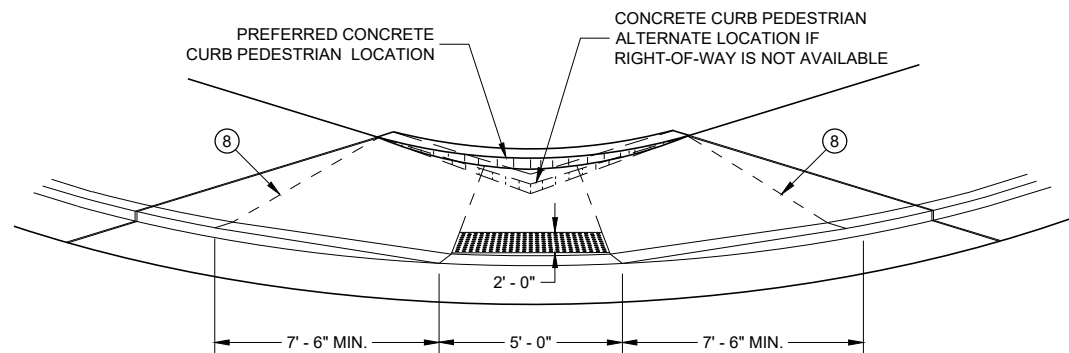
VIEW A - A FOR TYPE 1



SECTION C - C FOR TYPE 1 - A



SECTION B - B FOR TYPE 1



VIEW D - D FOR TYPE 1 - A

GENERAL NOTES

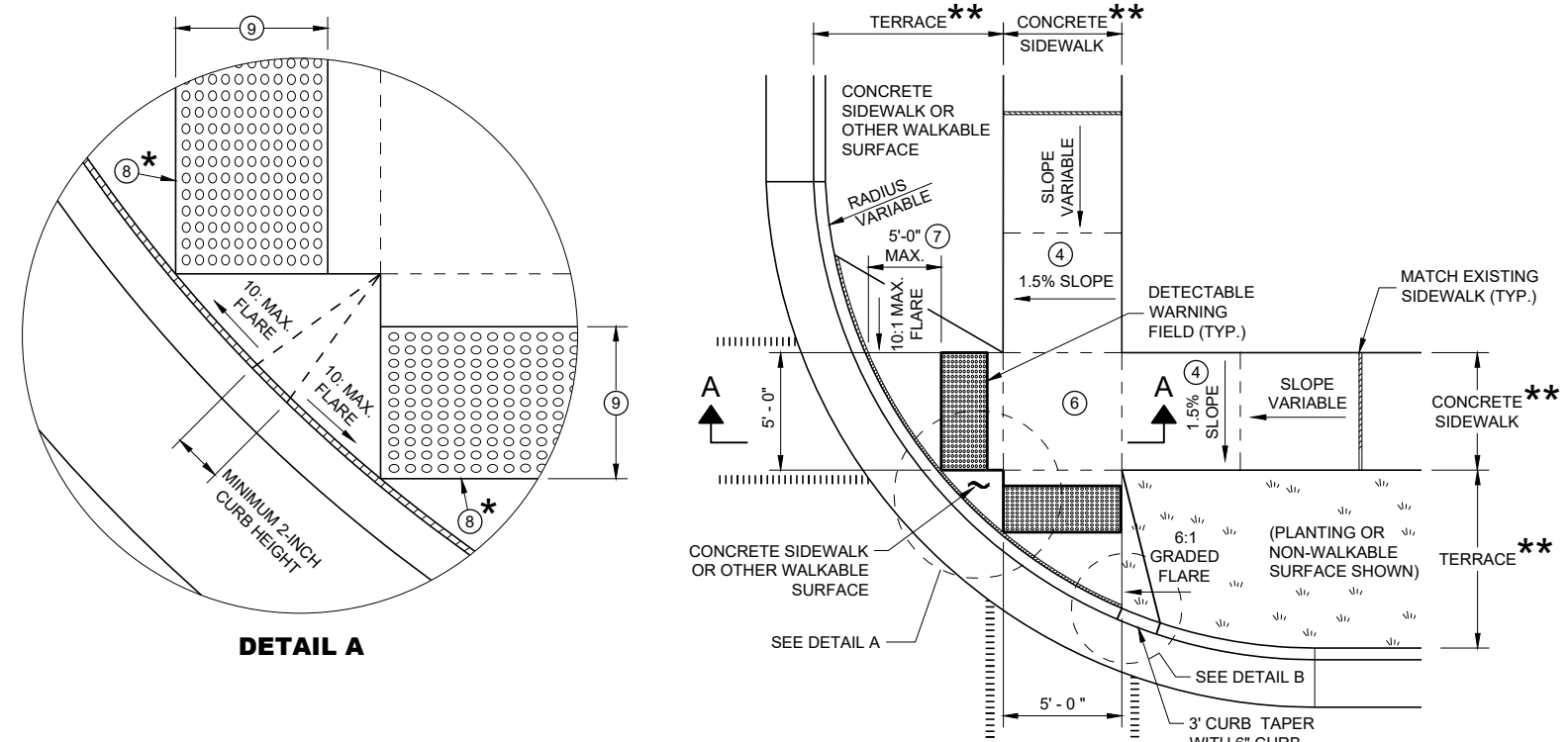
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.
- TYPE 1 CURB RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.
- DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAR FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.
- SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD"
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ MAXIMUM 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

LEGEND

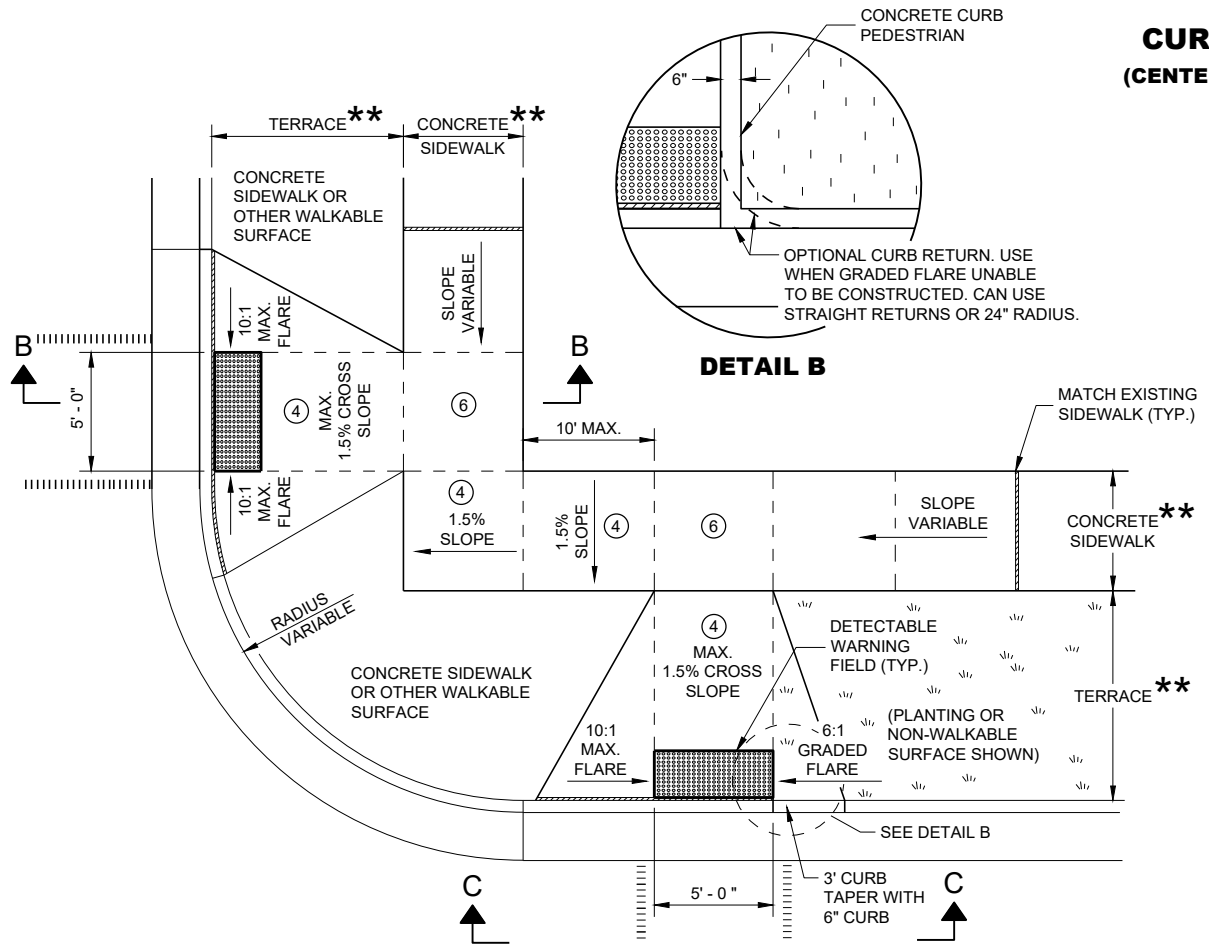
- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

**CURB RAMPS
TYPE 1 AND 1-A**

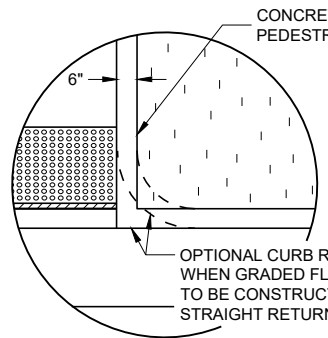
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW CURB RAMP TYPE 2 (CENTER OF CORNER RADIUS)



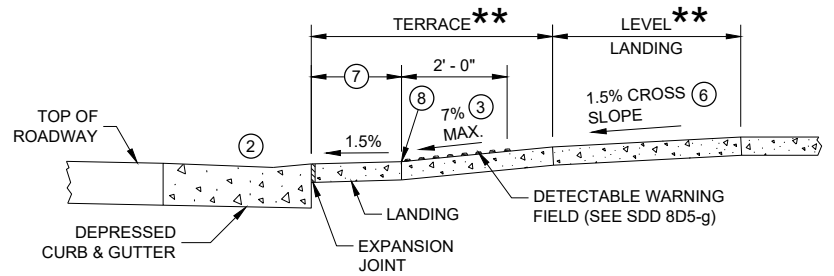
PLAN VIEW CURB RAMP TYPE 3 (OUTSIDE OF CROSSWALK AREA)



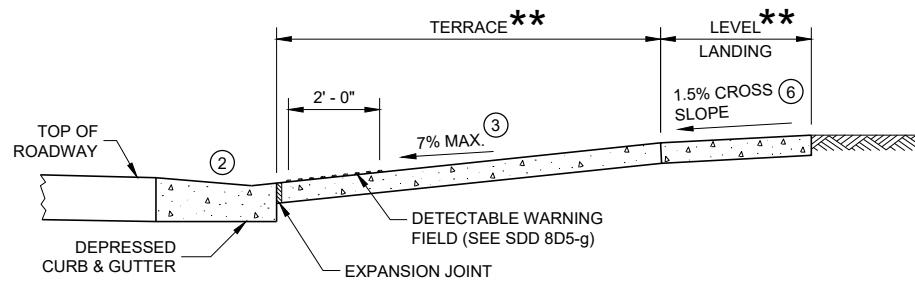
DETAIL B

GENERAL NOTES

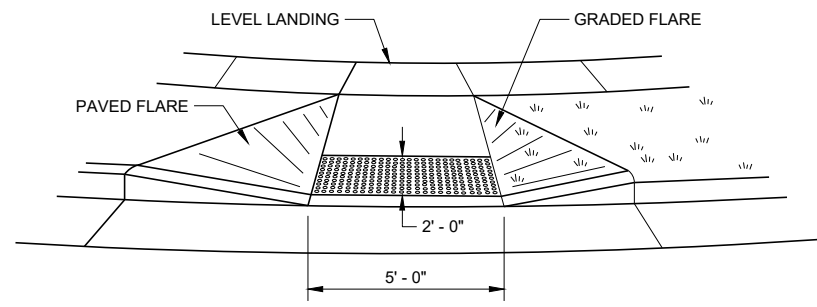
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE (2.67% OR LESS) AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET X 5 FEET.
- ⑦ WHEN GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑨ WHEN DISTANCE IS LESS THAN 6' - 0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.



SECTION A - A FOR TYPE 2



SECTION B - B FOR TYPE 3



VIEW C - C FOR TYPE 3

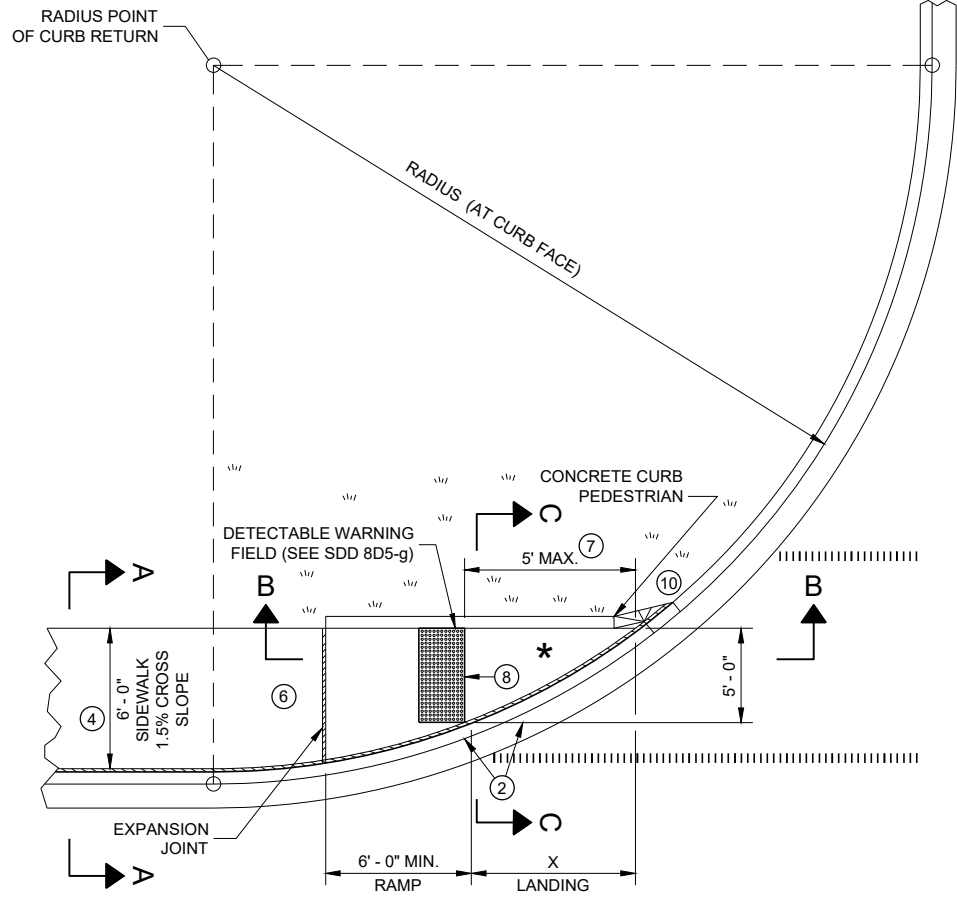
- * MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK
- ** WIDTH SHOWN ELSEWHERE IN THE PLANS

LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- - - - - CONTRACTION JOINT SIDEWALK
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)

**CURB RAMPS
TYPE 2 AND 3**

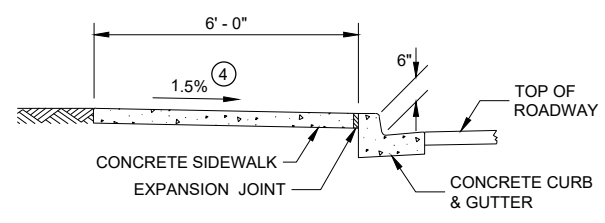
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**PLAN VIEW
CURB RAMP TYPE 4A**

RADIUS (AT CURB FACE)	X
10 FEET	4' - 7"
15 FEET	6' - 5 1/2"

INTERMEDIATE RADII CAN BE INTERPOLATED



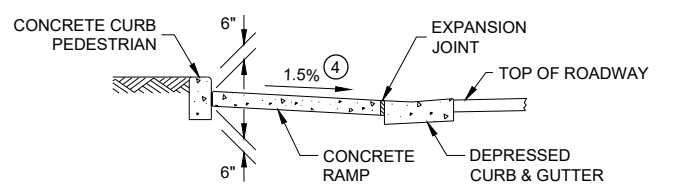
SECTION A - A FOR TYPE 4A

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- 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.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑩ INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.

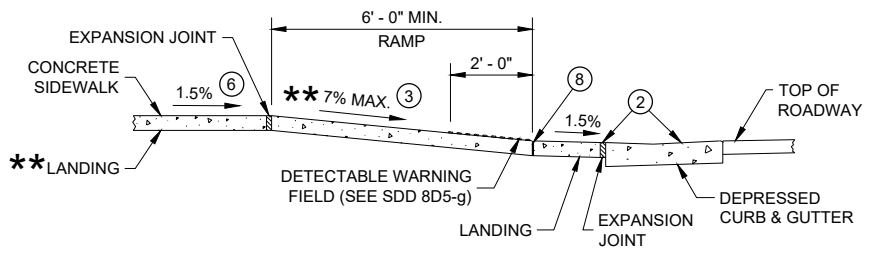
LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT SIDEWALK
- PAVEMENT MARKING CROSSWALK (WHITE)



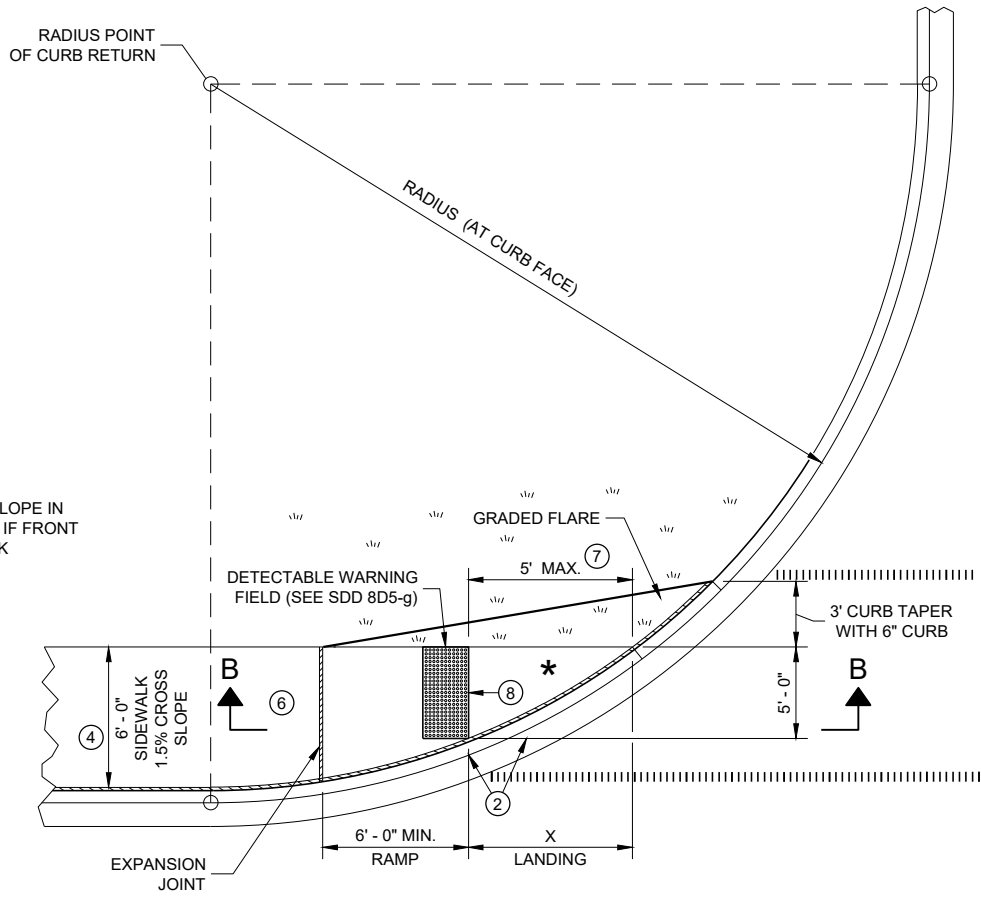
SECTION C - C FOR TYPE 4A

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK

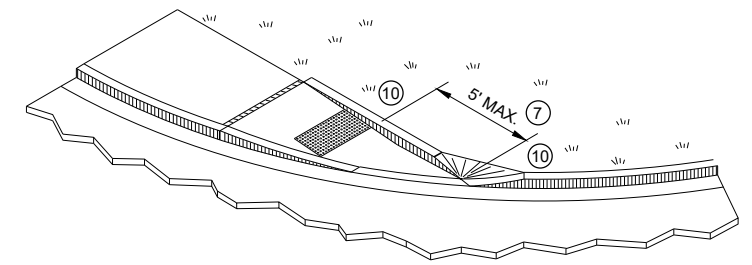


**SECTION B - B FOR
TYPE 4A AND TYPE 4A1**

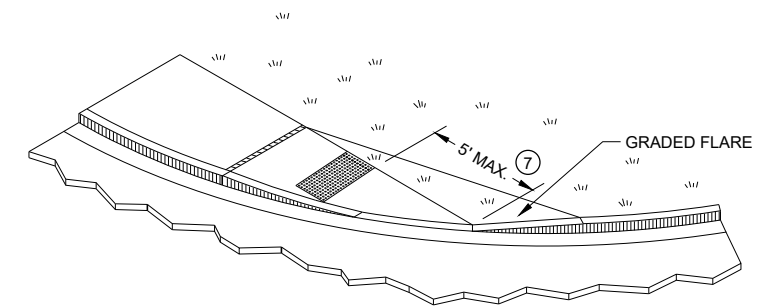
** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED



**PLAN VIEW
CURB RAMP TYPE 4A1**



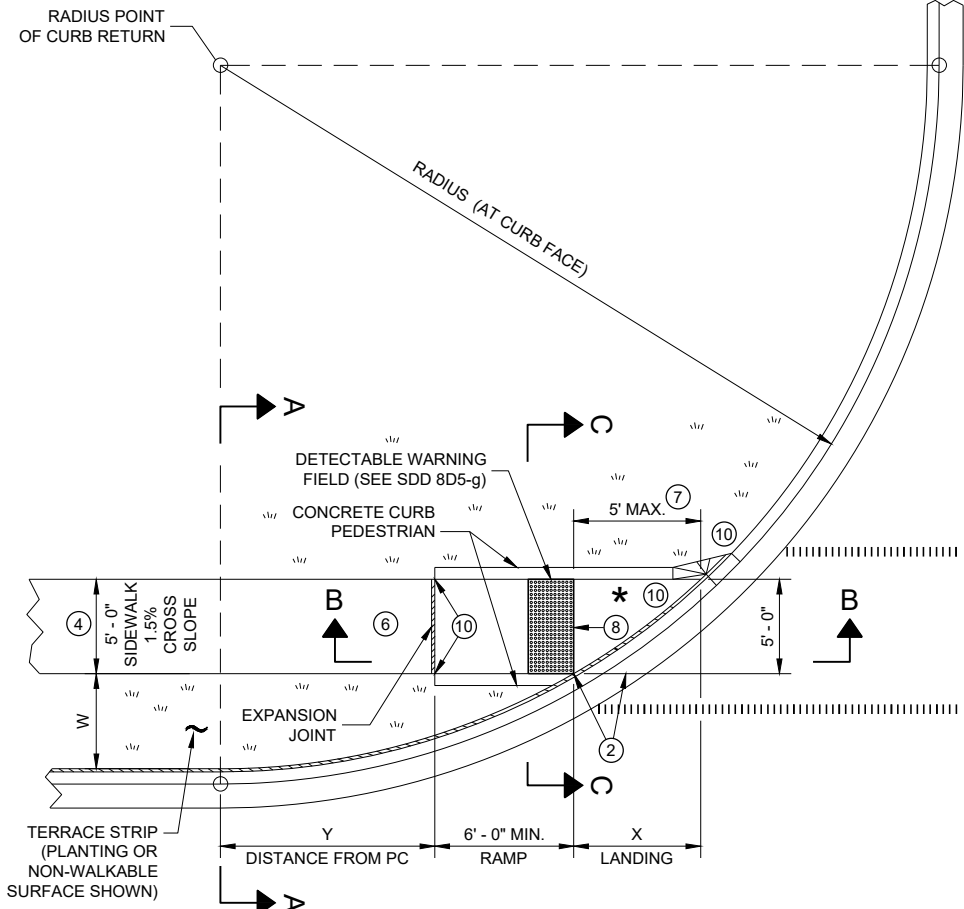
ISOMETRIC VIEW FOR TYPE 4A



ISOMETRIC VIEW FOR TYPE 4A1

**CURB RAMPS
TYPE 4A AND 4A1**

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PLAN VIEW CURB RAMP TYPE 4B

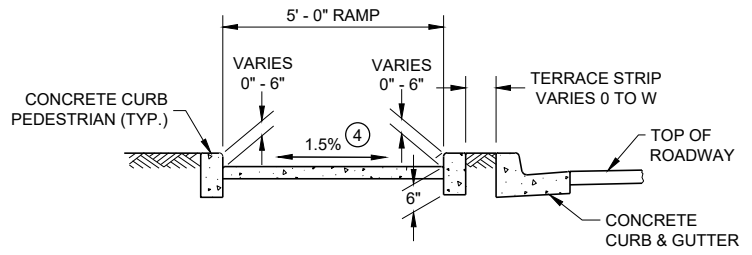
RADIUS (AT CURB FACE)	W = 3' - 0"		W = 4' - 0"		W = 5' - 0"		W = 6' - 0"		W = 7' - 0"		W = 8' - 0"		W = 9' - 0"		W = 10' - 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
10 FEET	2' - 10 1/4"	0' - 5"	2' - 1"	1' - 4 1/2"	1' - 5"	2' - 1"	0' - 10"	2' - 7 1/2"	0' - 3 1/4"	3' - 0 1/4"						
15 FEET	4' - 6 3/4"	2' - 1 3/4"	3' - 9"	3' - 5 3/4"	3' - 1 1/4"	4' - 6"	2' - 6 3/4"	5' - 4 1/2"	2' - 1"	6' - 1"	1' - 8"	6' - 8 1/2"	1' - 3 1/4"	7' - 2 1/2"	0' - 10 3/4"	7' - 7 1/4"
20 FEET	5' - 9 3/4"	3' - 6 1/2"	4' - 11 1/2"	5' - 1 3/4"	4' - 3 1/4"	6' - 5 1/2"	3' - 8 3/4"	7' - 7"	3' - 3"	8' - 6 1/2"	2' - 10"	9' - 4 1/2"	2' - 5 1/2"	10' - 1 1/4"	2' - 1 1/4"	10' - 9"
30 FEET			6' - 9 1/4"	7' - 11 1/4"	6' - 0 1/4"	9' - 8"	5' - 5"	11' - 1 3/4"	4' - 10 3/4"	12' - 5 3/4"	4' - 5 1/2"	13' - 7 3/4"	4' - 0 3/4"	14' - 8 1/2"	3' - 8 1/2"	15' - 8 1/4"
40 FEET									6' - 1 3/4"	15' - 8 1/2"	5' - 8"	17' - 2"	5' - 3"	18' - 5 3/4"	4' - 10 3/4"	19' - 8 1/4"
50 FEET															5' - 10 1/4"	23' - 2"

INTERMEDIATE RADII CAN BE INTERPOLATED
 DIMENSION "Y" IS CALCULATED BASED ON 6'-0" RAMP LENGTH
 DIMENSION "X" IS CALCULATED BASED ON 5'-0" SIDEWALK WIDTH

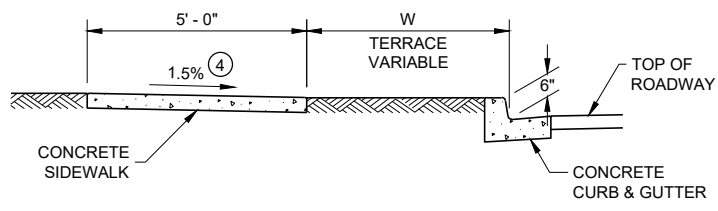
- LEGEND**
- 1/2" EXPANSION JOINT SIDEWALK
 - CONTRACTION JOINT SIDEWALK
 - PAVEMENT MARKING CROSSWALK (WHITE)

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- 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.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/8" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑩ INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.

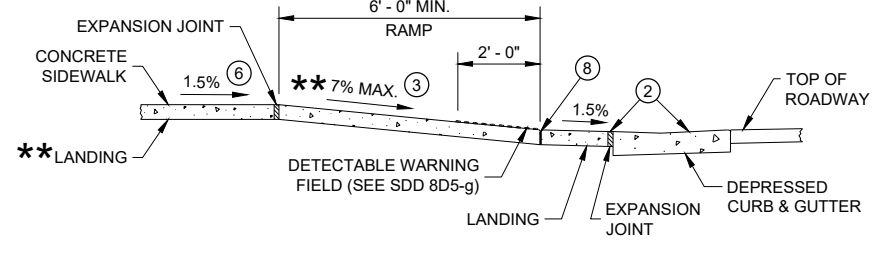


SECTION C - C FOR TYPE 4B



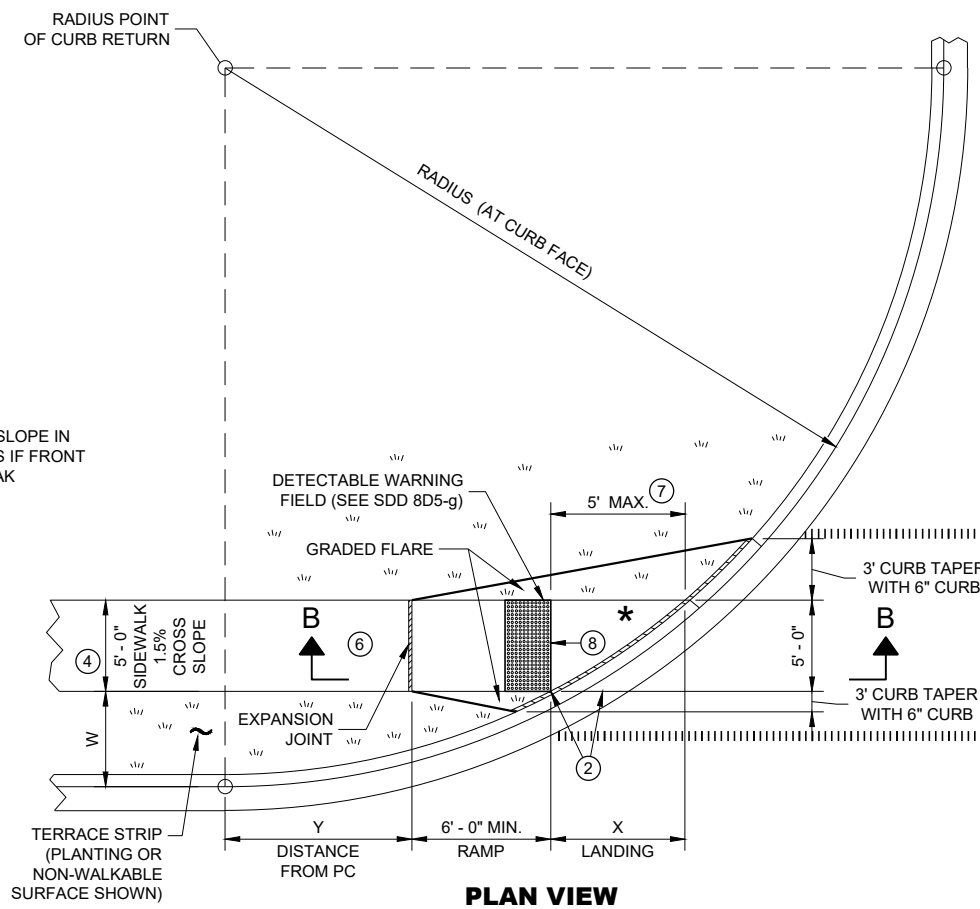
SECTION A - A FOR TYPE 4B

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK

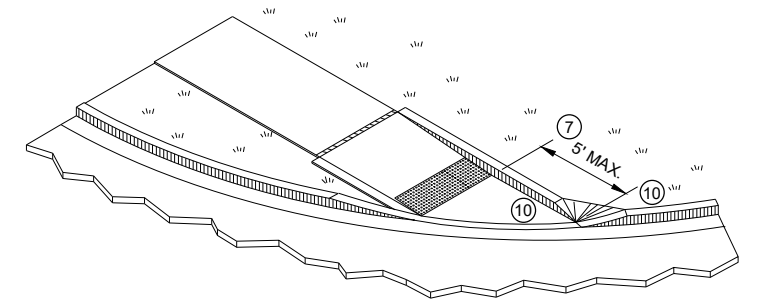


SECTION B - B FOR TYPE 4B AND TYPE 4B1

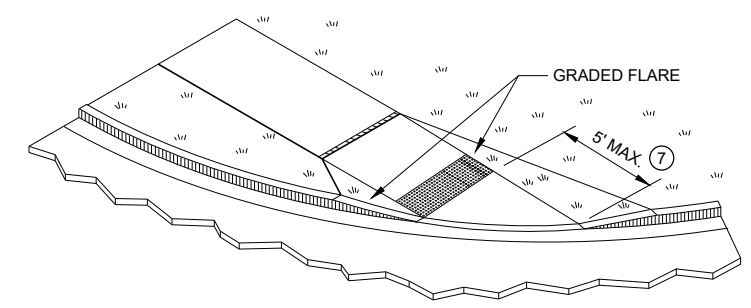
** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED



PLAN VIEW CURB RAMP TYPE 4B1



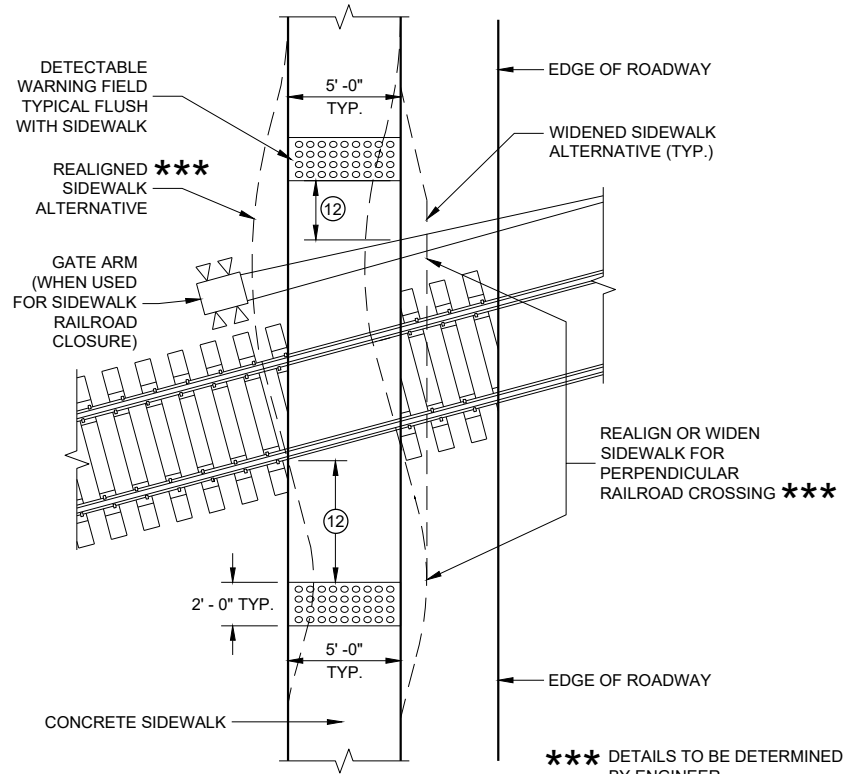
ISOMETRIC VIEW FOR TYPE 4B



ISOMETRIC VIEW FOR TYPE 4B1

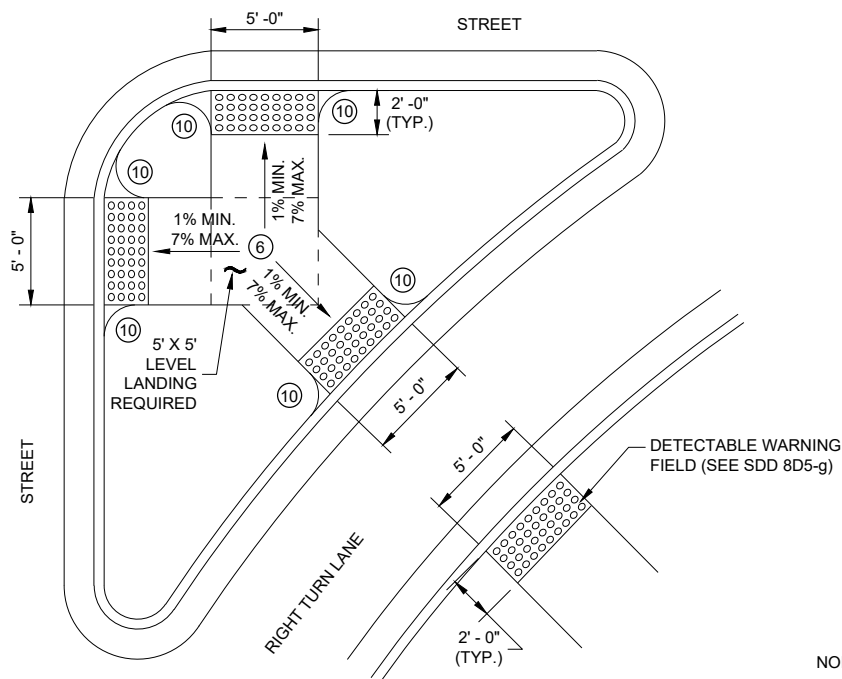
CURB RAMPS TYPE 4B AND 4B1

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION



CURB RAMP TYPE 8

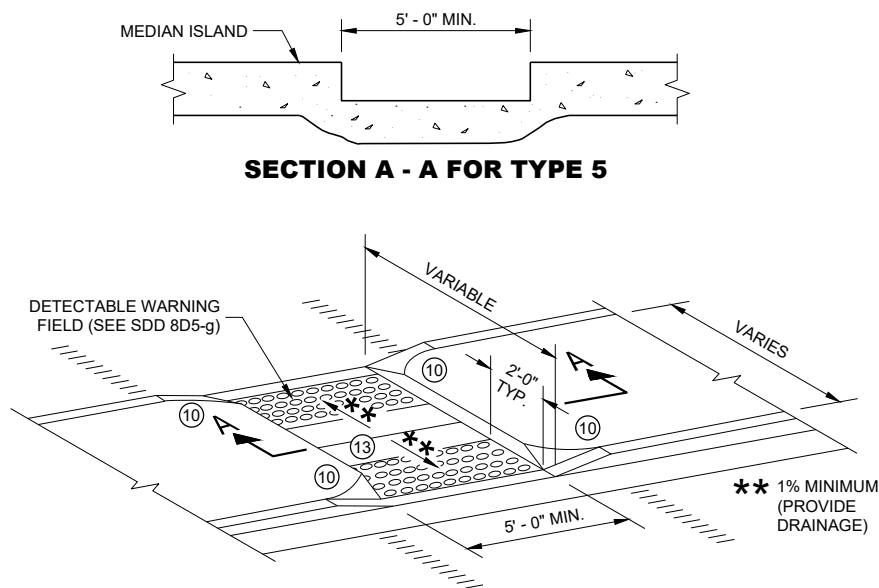
DETECTABLE WARNINGS AT RAILROAD CROSSING



CURB RAMP TYPE 6

DETECTABLE WARNING AT ISLANDS

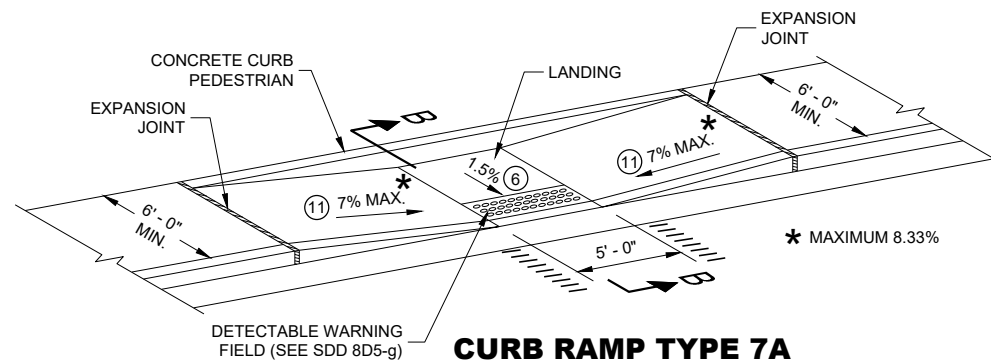
REFER TO GENERAL NOTES (2) AND (3) FOR ALL ISLAND CURB RAMPS



SECTION A - A FOR TYPE 5

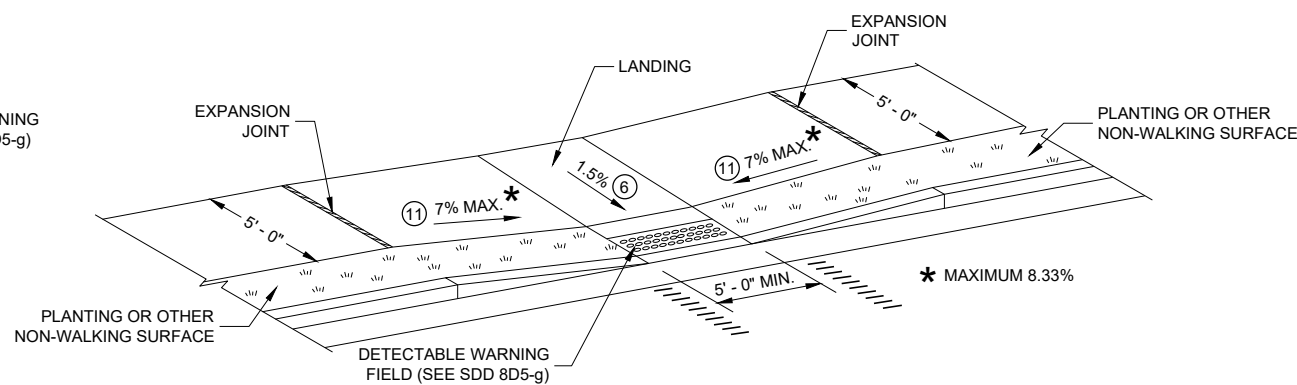
CURB RAMP TYPE 5

MEDIAN ISLAND NON-ELEVATED PEDESTRIAN CROSSING



CURB RAMP TYPE 7A

MID BLOCK CROSSING



CURB RAMP TYPE 7B

MID BLOCK CROSSING

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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.

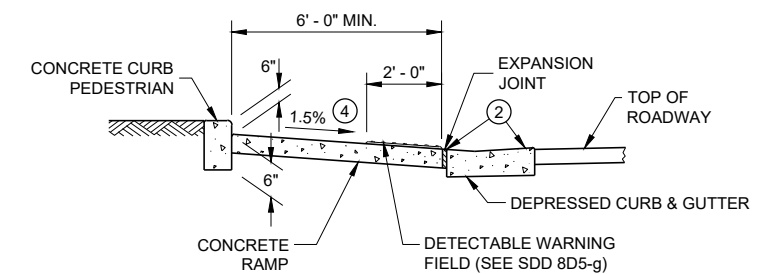
SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- (2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- (3) AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- (4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- (6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- (10) INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- (11) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- (12) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ±0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.
- (13) DO NOT INSTALL DETECTABLE WARNING FIELDS AT THE EDGES OF STREET-LEVEL PEDESTRIAN REFUGE ISLANDS IF A MINIMUM 2 FOOT CONCRETE SURFACE WITHOUT DETECTABLE WARNINGS (MEASURED IN THE DIRECTION OF PEDESTRIAN TRAVEL) CANNOT BE ACHIEVED.

LEGEND

- ===== 1/2" EXPANSION JOINT SIDEWALK
- - - - - CONTRACTION JOINT FIELD LOCATED
- ||||||| PAVEMENT MARKING CROSSWALK (WHITE)

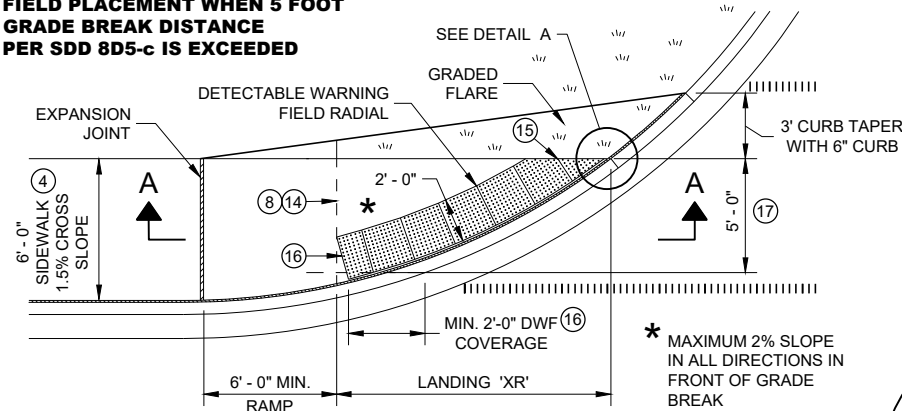


SECTION B - B FOR TYPE 7A

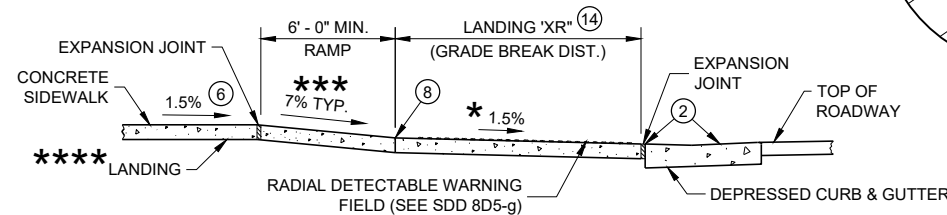
CURB RAMPS TYPE 5, 6, 7A, 7B & 8

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-c IS EXCEEDED



PLAN VIEW CURB RAMP TYPE 4A1 (GRADE BREAK DISTANCE GREATER THAN 5 FEET)

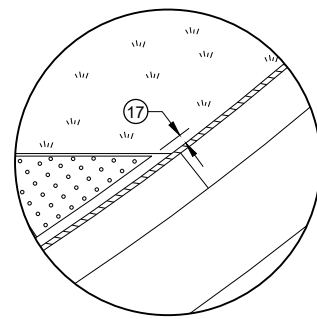


SECTION A - A FOR TYPE 4A1

**** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

*** MAXIMUM 8.33%

- LEGEND**
- 1/2" EXPANSION JOINT SIDEWALK
 - - - - - CONTRACTION JOINT SIDEWALK
 - ||||| PAVEMENT MARKING CROSSWALK (WHITE)



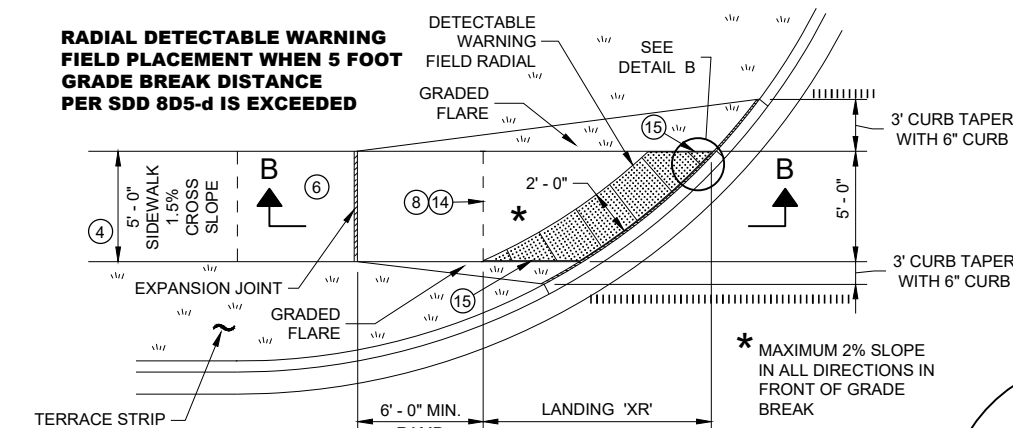
DETAIL A

GENERAL NOTES

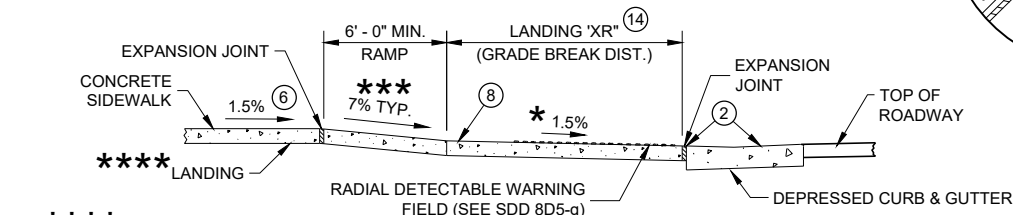
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- APPLY RADIAL DETECTABLE WARNING PLACEMENT SIMILARLY FOR TYPE 4A AND 4A1 CURB RAMPS AND SIMILARLY FOR TYPE 4B AND 4B1 CURB RAMPS. TYPE 4A AND 4B RAMPS ARE NOT SHOWN.
- REFER TO SDD 8D5-g FOR ADDITIONAL RADIAL PLATE REQUIREMENTS.
- FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FILED ARE PROHIBITED.
- DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.
- 2 GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
 - 3 AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
 - 4 ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
 - 6 PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET BY 5 FEET.
 - 8 PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
 - 14 CONSULT ENGINEER IF GRADE BREAK LOCATION (END OF LANDING DIMENSION "XR") REQUIRES FIELD ADJUSTMENT WHEN ESTABLISHING FINAL RADIAL DETECTABLE WARNING FIELD LOCATION.
 - 15 FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.
 - 16 USE 1' X 2" RECTANGULAR END PLATE AT END OF TYPE 4A1 RAMP AND PROVIDE MINIMUM 2' - 0" DETECTABLE WARNING FIELD COVERAGE (IN DIRECTION OF PEDESTRIAN TRAVEL) ALONG THE ENTIRE CURB RAMP WIDTH.
 - 17 A MAXIMUM 3 INCH CONCRETE BORDER WITH IS ALLOWABLE IN FROM OF RADIAL DETECTABLE WARNING FIELD FOR CONSTRUCTABILITY PURPOSES. CONCRETE BORDER WIDTH MAY VARY UP TO 1 INCH.

6

RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-d IS EXCEEDED



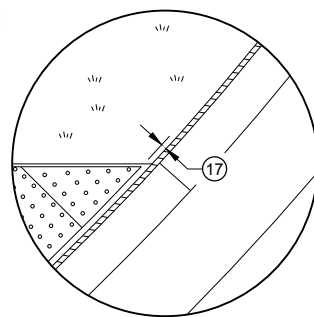
PLAN VIEW CURB RAMP TYPE 4B1 (GRADE BREAK DISTANCE GREATER THAN 5 FEET)



SECTION B - B FOR TYPE 4B1

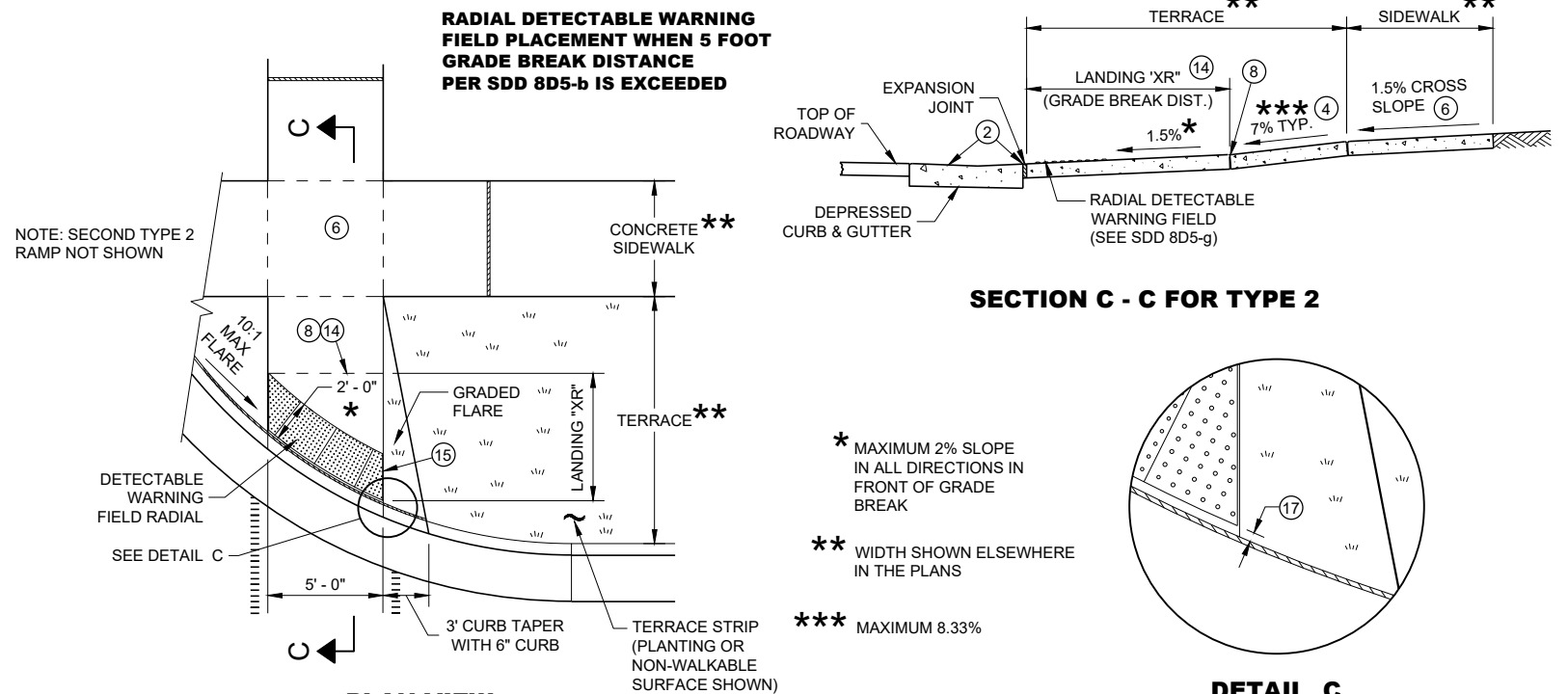
**** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

*** MAXIMUM 8.33%



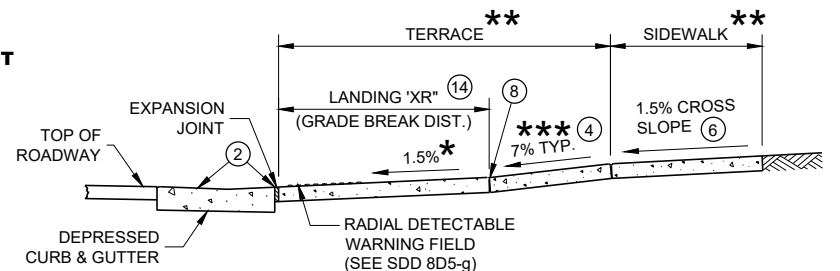
DETAIL B

RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-b IS EXCEEDED



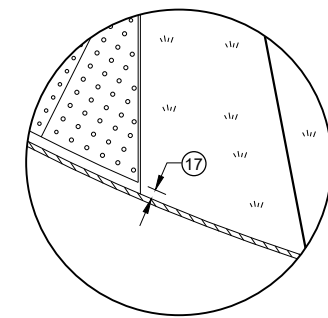
PLAN VIEW CURB RAMP TYPE 2 (GRADE BREAK DISTANCE GREATER THAN 5 FEET) (ON LINE WITH SIDEWALK)

NOTE: SECOND TYPE 2 RAMP NOT SHOWN



SECTION C - C FOR TYPE 2

- * MAXIMUM 2% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK
- ** WIDTH SHOWN ELSEWHERE IN THE PLANS
- *** MAXIMUM 8.33%



DETAIL C

CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS

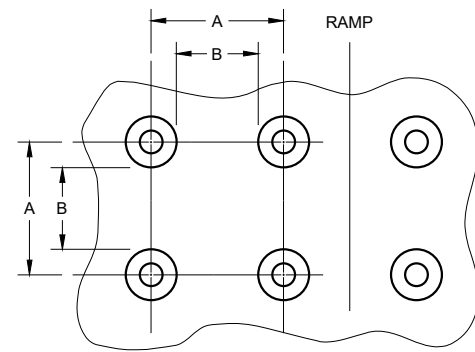
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

SDD 08D05 - 20f

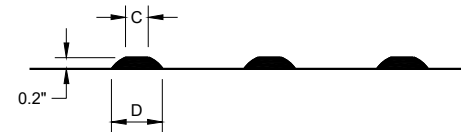
SDD 08D05 - 20f

	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.

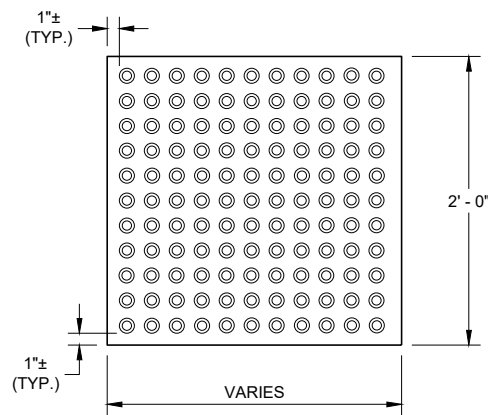


PLAN VIEW

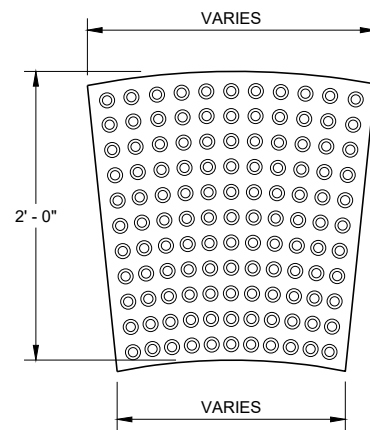


ELEVATION VIEW

**TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL**

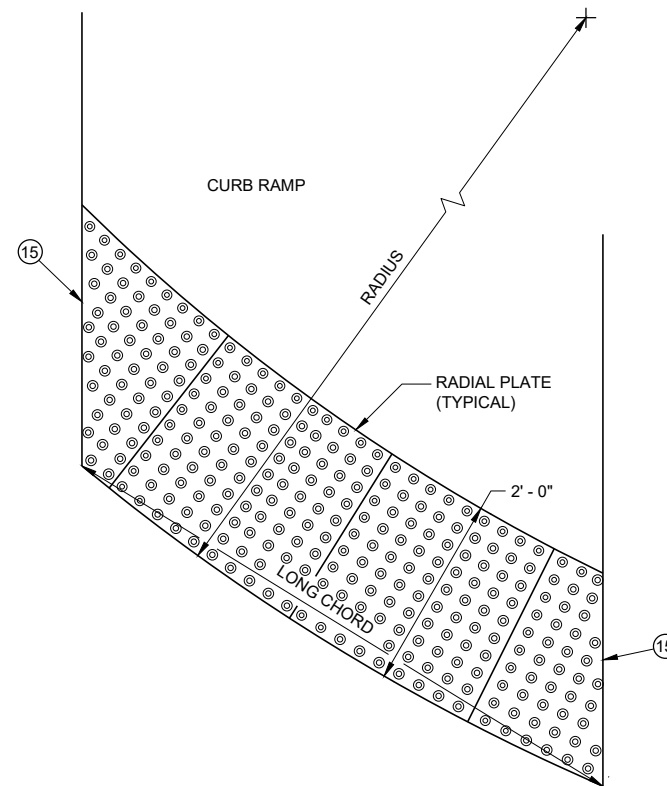


**RECTANGULAR
PLATES**

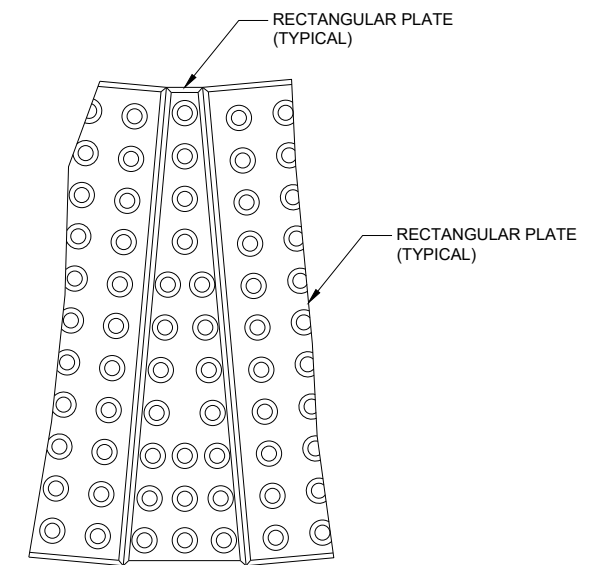


**RADIAL
PLATES**

**PLAN VIEW
DETECTABLE WARNING FIELDS (TYPICAL)**



**PLAN VIEW
RADIAL DETECTABLE
WARNING FIELD ATTRIBUTES**



**PLAN VIEW
RADIAL WEDGE PLATE
CONNECTION DETAIL**

GENERAL NOTES

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AT A CURB RAMP SHALL BE FROM THE SAME MANUFACTURER.

PLACE ALL DETECTABLE WARNING FIELD SYSTEMS IN ACCORDANCE TO THE MANUFACTURER'S RECOMMENDATION.

FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FIELD ARE PROHIBITED.

DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.

FOR RADIAL DETECTABLE WARNING FIELD APPLICATIONS WHERE STANDARD RADIAL PLATES ARE NOT AVAILABLE AT AN INTERSECTION CURB RADIUS, A COMBINATION OF SQUARE OR RECTANGULAR PLATES AND RADIAL PLATES MAY BE USED TO FORM RADIAL CONFIGURATION. RADIAL WEDGE PLATES IN COMBINATION WITH SQUARE PLATES ARE ALSO ACCEPTABLE. FOLLOW MANUFACTURER'S RECOMMENDATIONS.

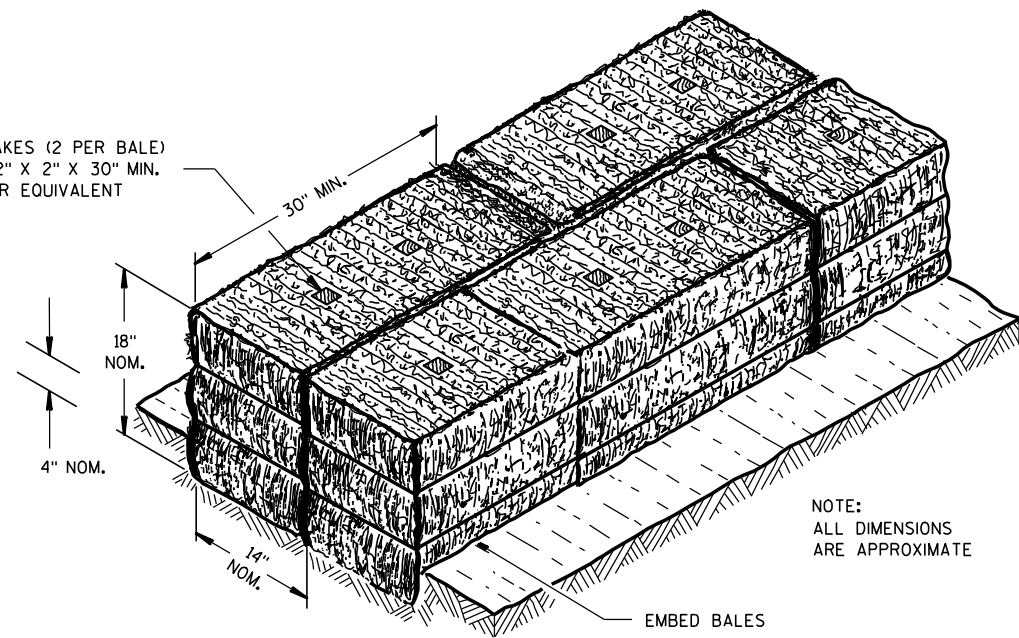
REFER TO CONTRACT AND STANDARD SPECIFICATIONS FOR FIELD CUTTING REQUIREMENTS.

DO NOT EMBED IN CONCRETE ANY FIELD-CUT PLATES WITH CUT EDGES SHORTER THAN 6 INCHES. CONSULT WITH MANUFACTURER FOR RE-DRILLING AND ANCHORING REQUIREMENTS OF FIELD-CUT PLATES.

15 FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.

CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	

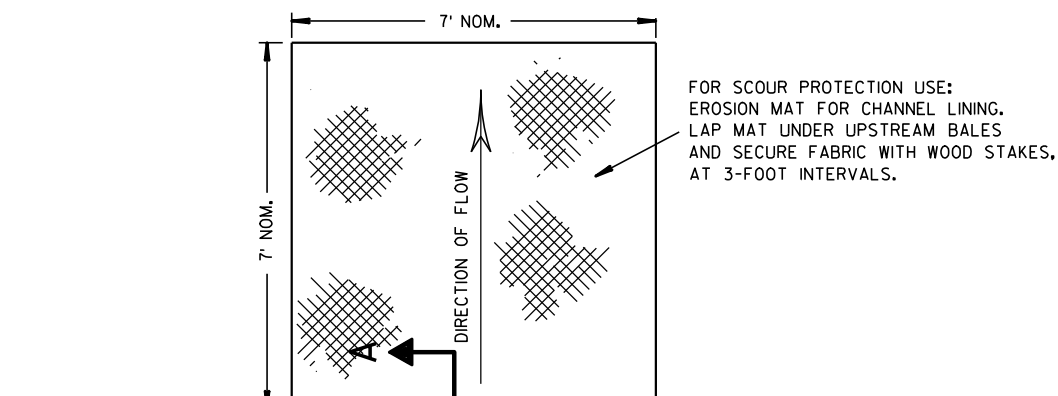
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

EMBED BALES

SECTION A-A

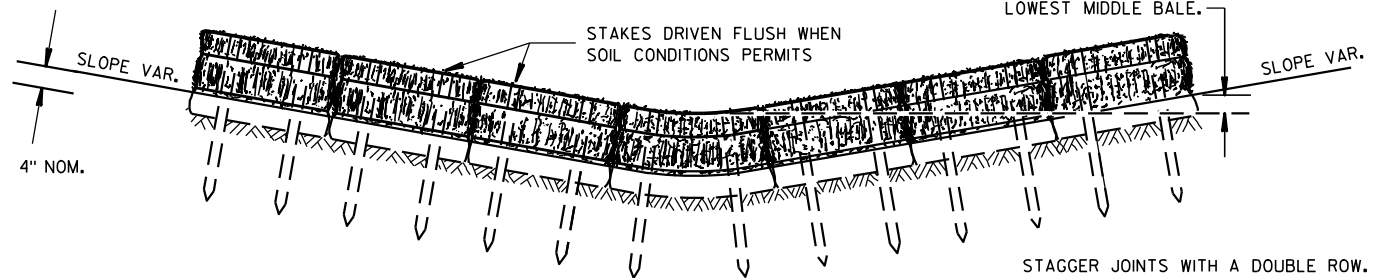


FOR SCOUR PROTECTION USE:
EROSION MAT FOR CHANNEL LINING.
LAP MAT UNDER UPSTREAM BALES
AND SECURE FABRIC WITH WOOD STAKES,
AT 3-FOOT INTERVALS.

PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

BOTTOM ELEVATION OF END BALE SHALL
BE EQUAL TO OR GREATER THAN TOP OF
LOWEST MIDDLE BALE.



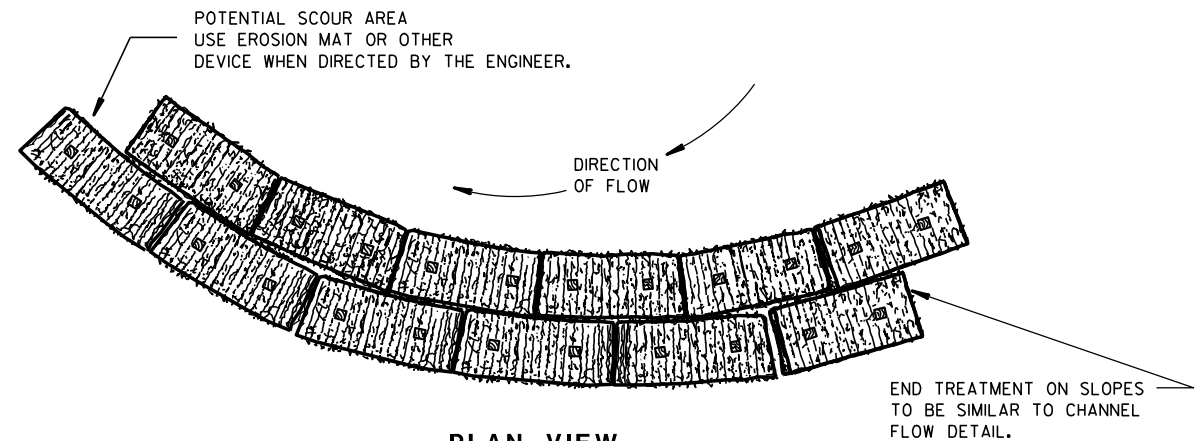
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

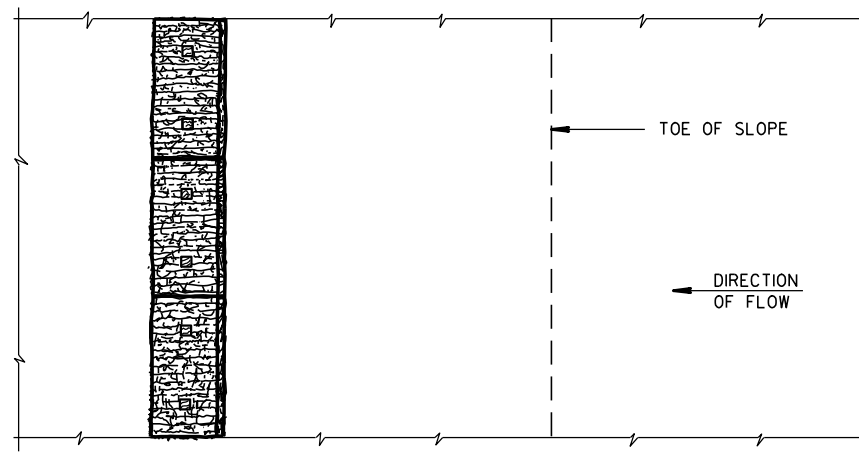
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- 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.

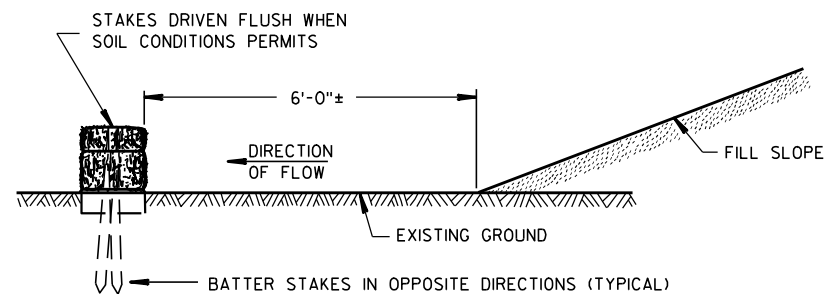


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

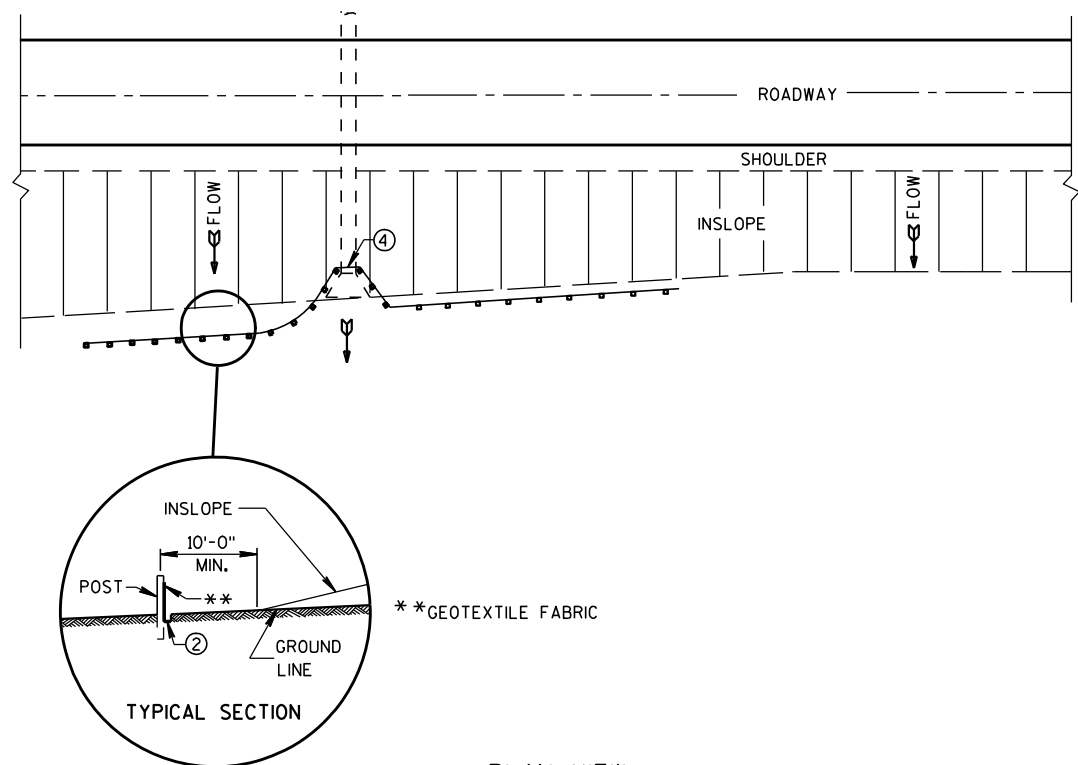
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

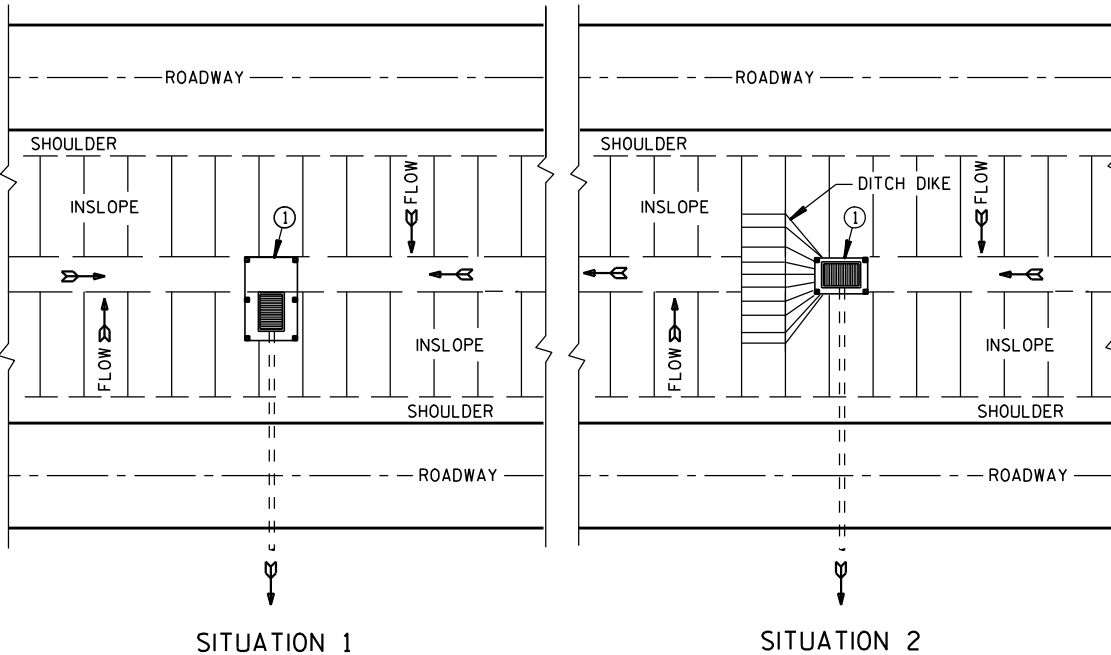
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

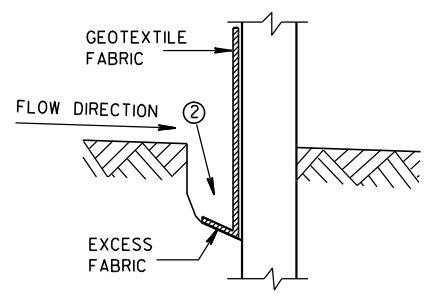


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

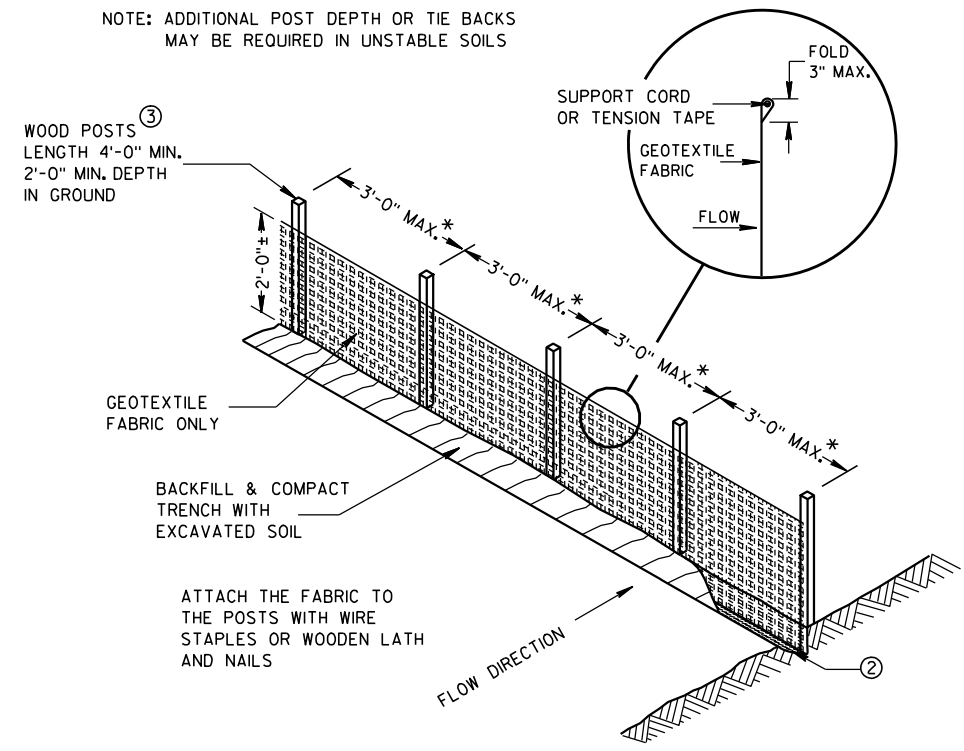
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- 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.



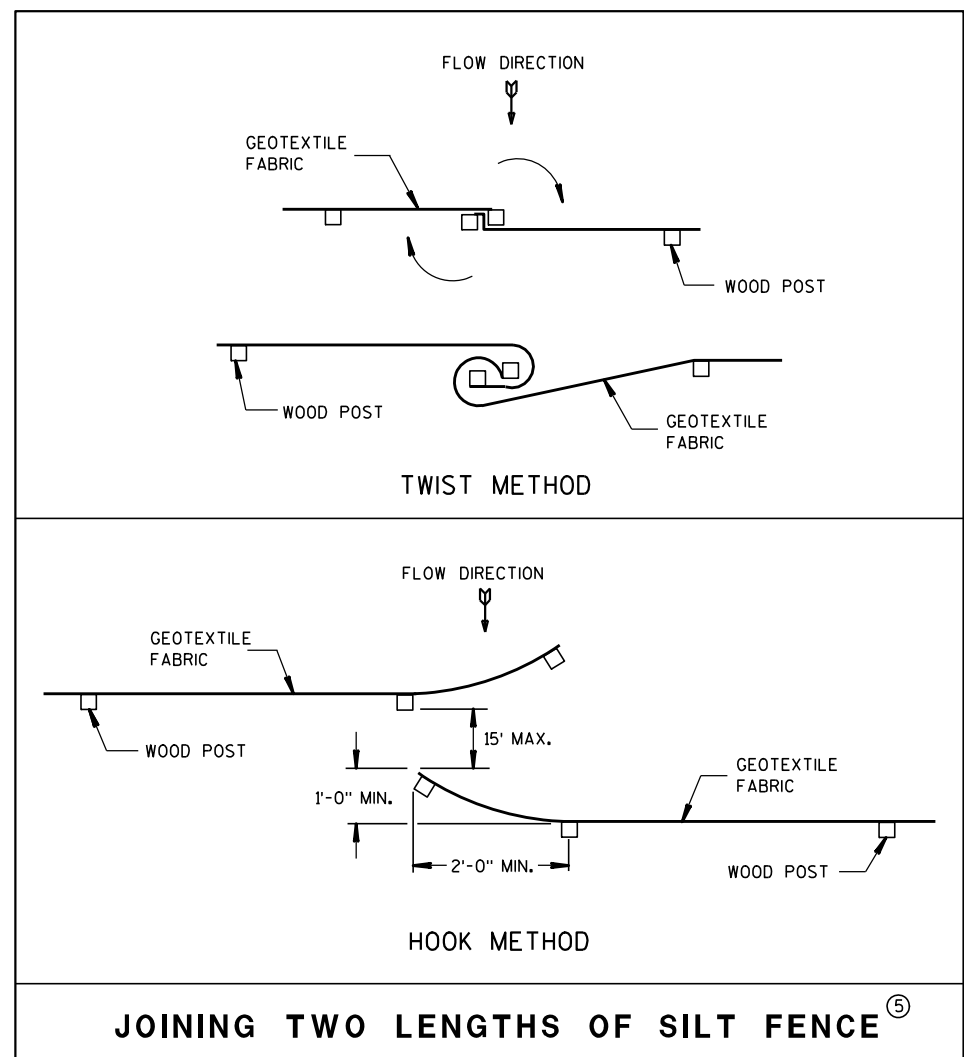
TRENCH DETAIL

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

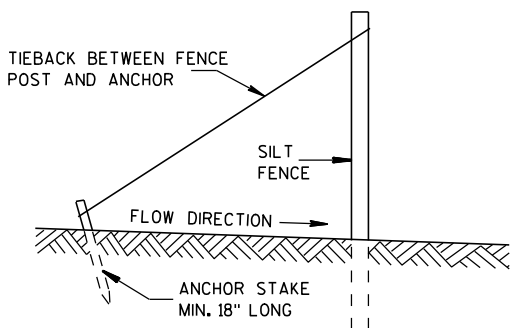


SILT FENCE

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

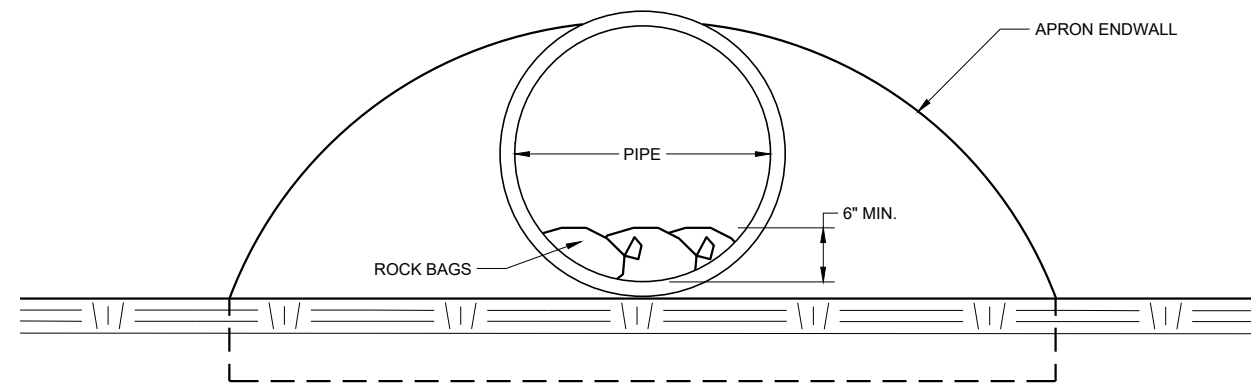


JOINING TWO LENGTHS OF SILT FENCE ⑤

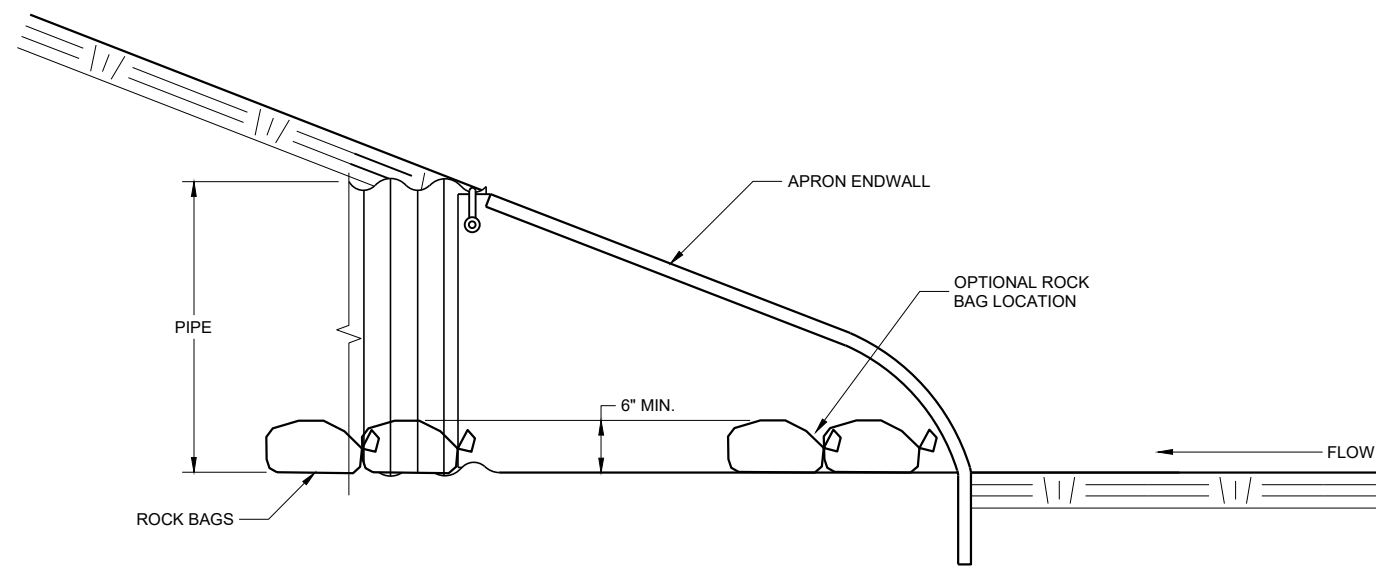


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

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



END VIEW



SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Daniel Schave
DATE EROSION CONTROL ENGINEER

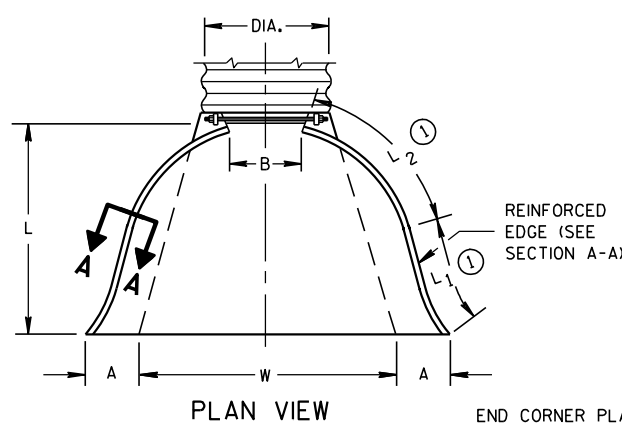
FHWA

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1	L2	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.

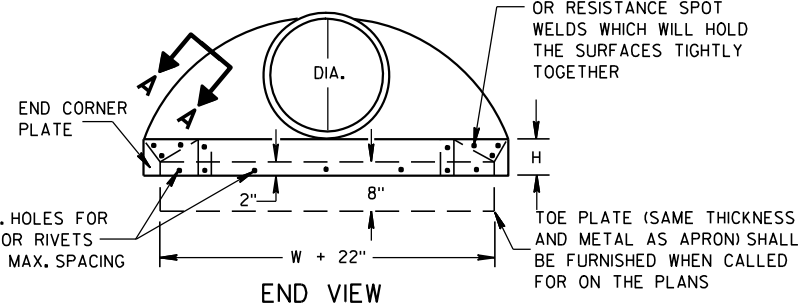
* EXCEPT CENTER PANEL SEE GENERAL NOTES

REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 1/8	72 1/8	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	

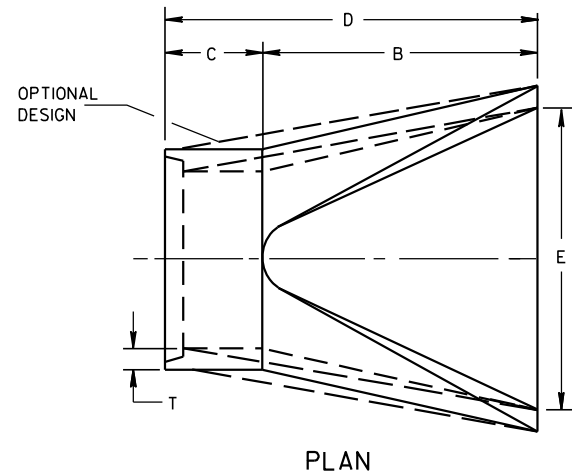
* MINIMUM
** MAXIMUM



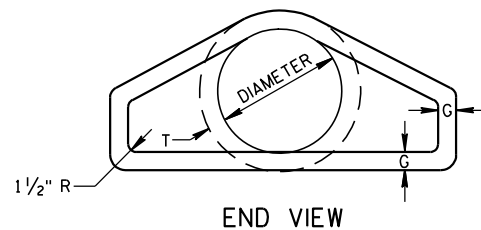
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



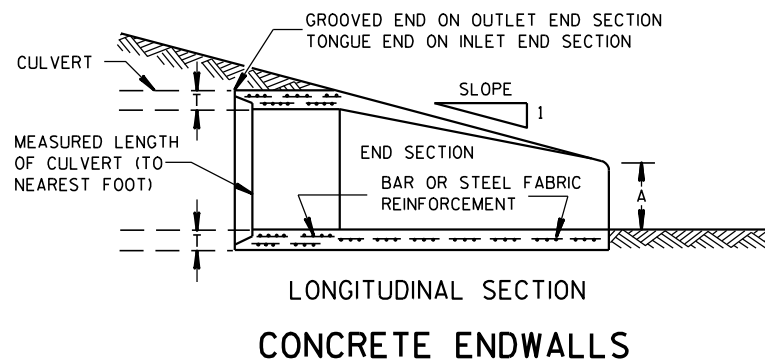
SIDE ELEVATION
METAL ENDWALLS



PLAN

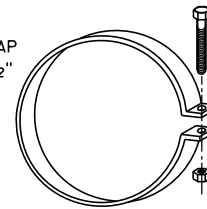


END VIEW

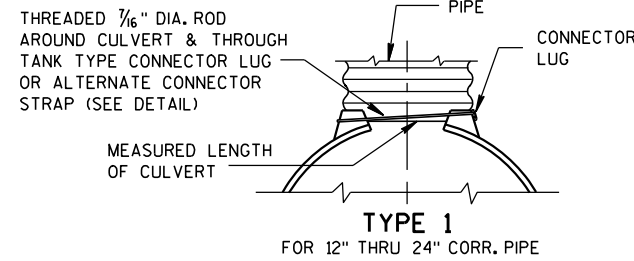


LONGITUDINAL SECTION
CONCRETE ENDWALLS

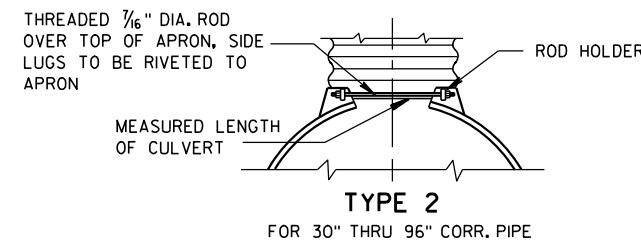
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



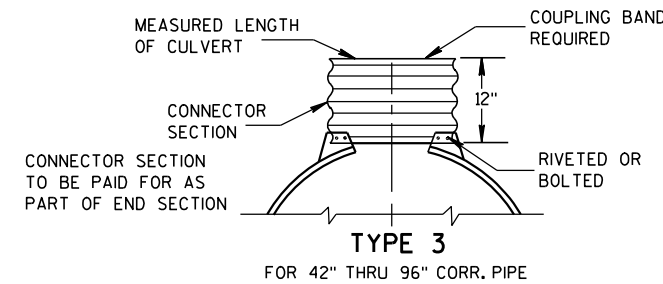
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



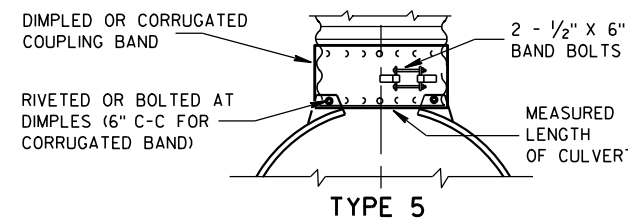
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

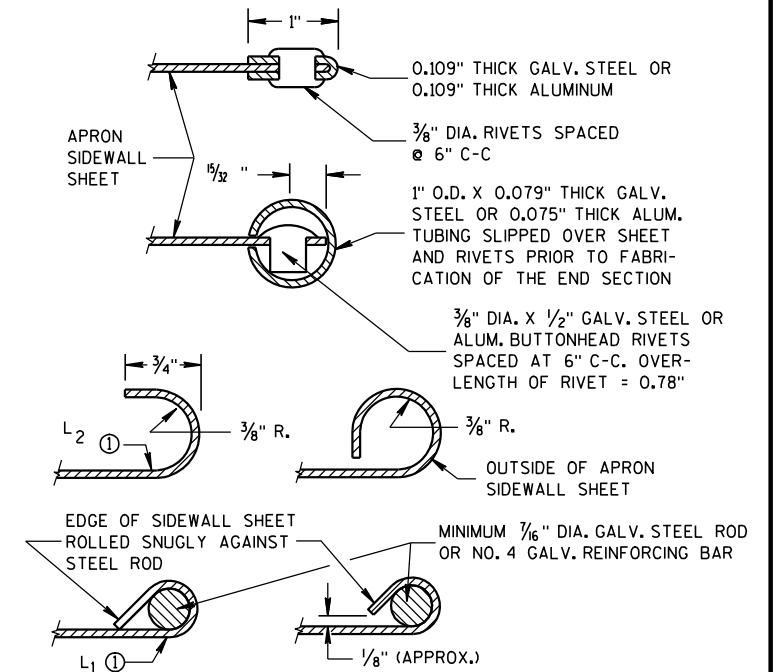
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

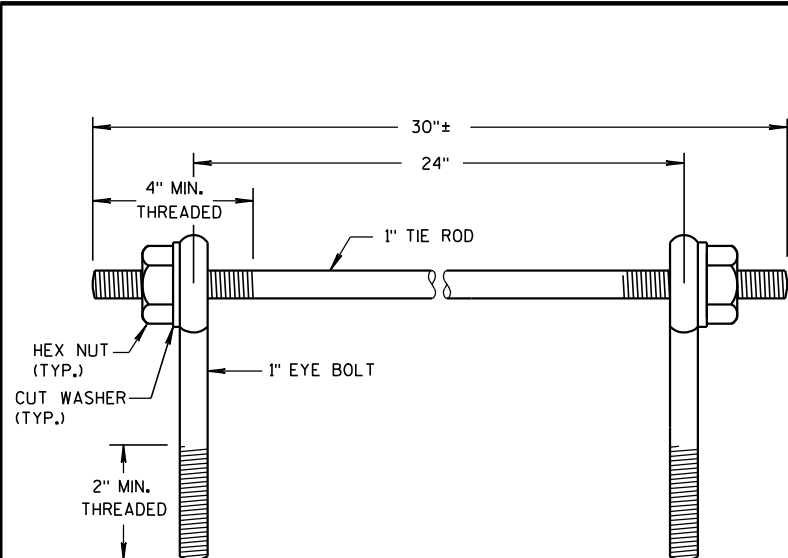
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

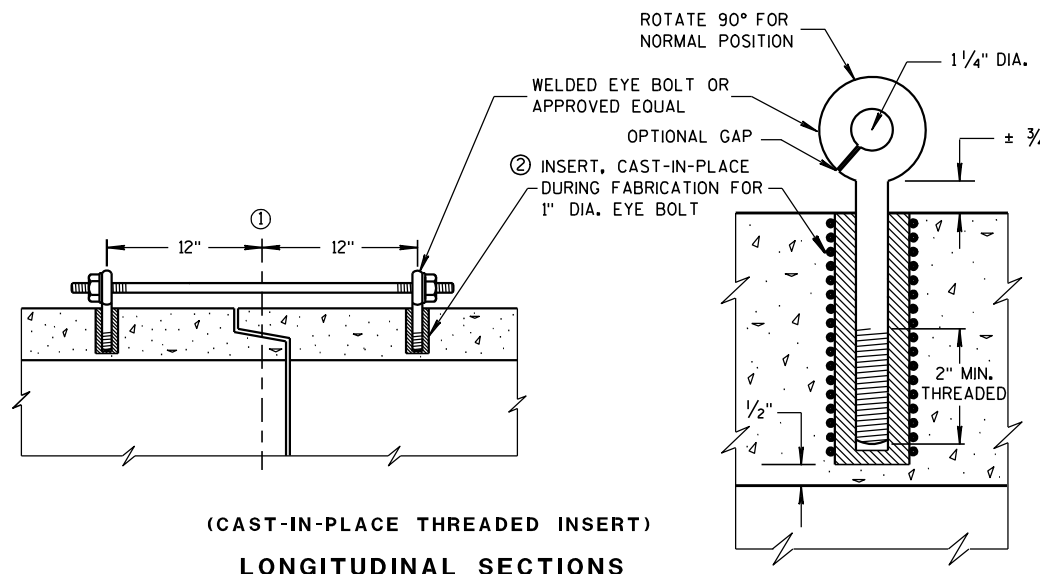
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



EYE BOLTS AND TIE ROD

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



(CAST-IN-PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

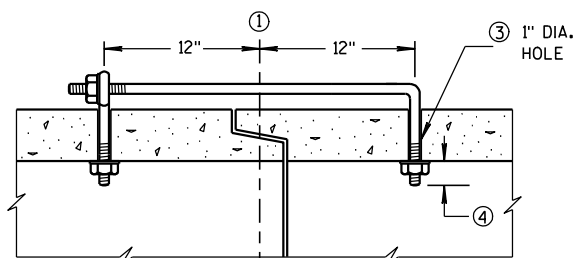
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

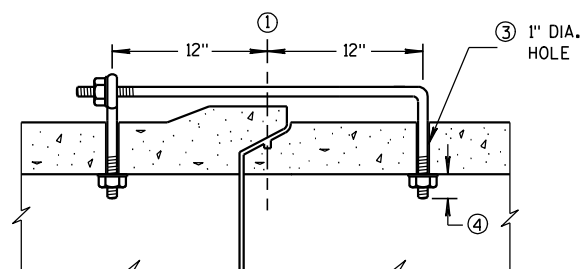
DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

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

- ① ϕ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ϕ OF TONGUE AND GROOVE.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN $\frac{1}{2}$ INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE)
LONGITUDINAL SECTION

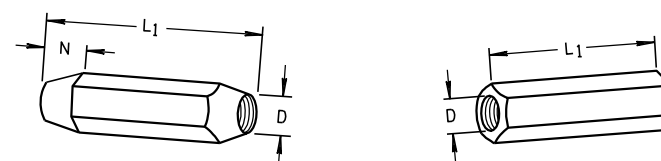
EYE BOLT DIMENSION TABLE

PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	

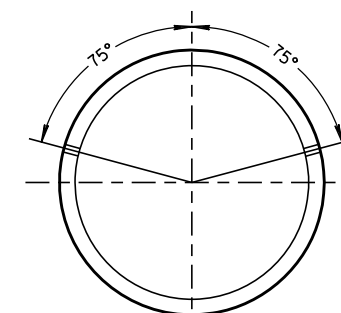
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/6

DIMENSIONS SHOWN ARE IN INCHES

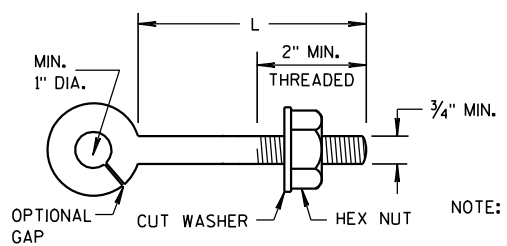


TAPERED PLAIN
RIGHT AND LEFT THREADS
SLEEVE NUTS



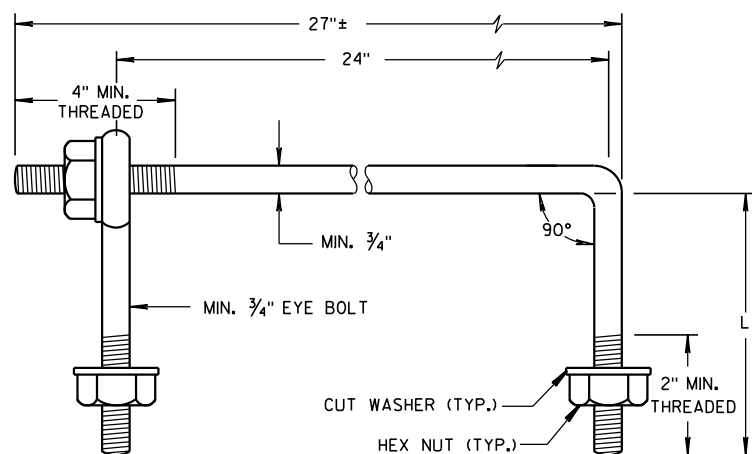
PLACEMENT OF (2) CAST-IN-PLACE
INSERTS OR HOLES DURING FABRICATION
FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



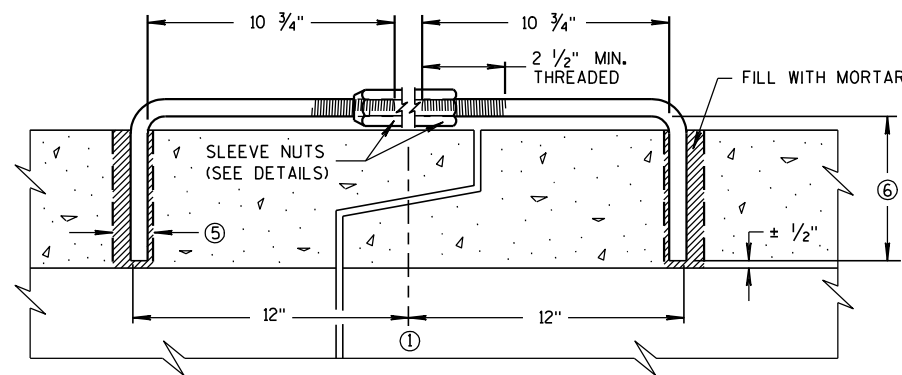
EYE BOLT

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



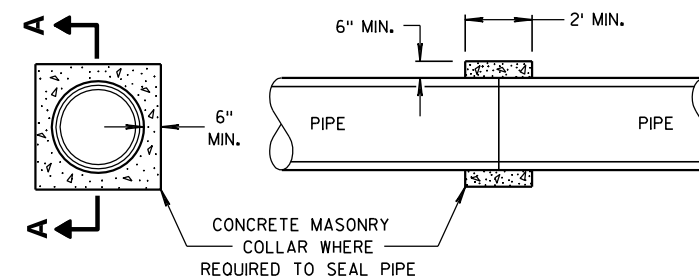
EYE BOLT AND TIE ROD

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)
EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



LONGITUDINAL SECTION

(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)
ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE
PIPE AND CONCRETE
COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

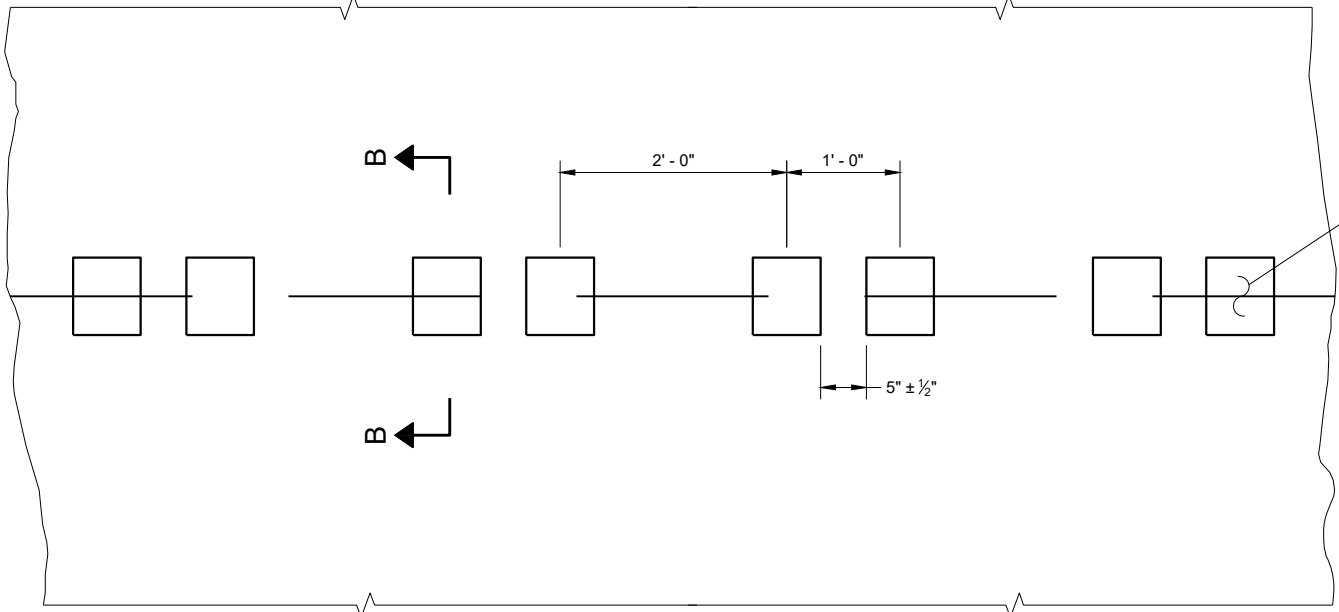
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

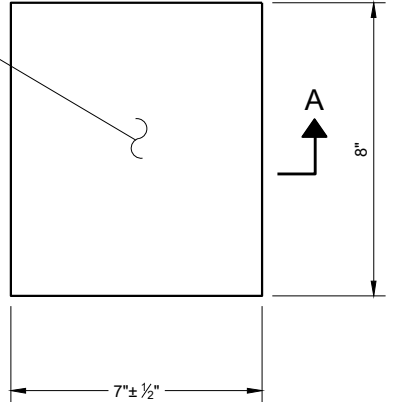
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

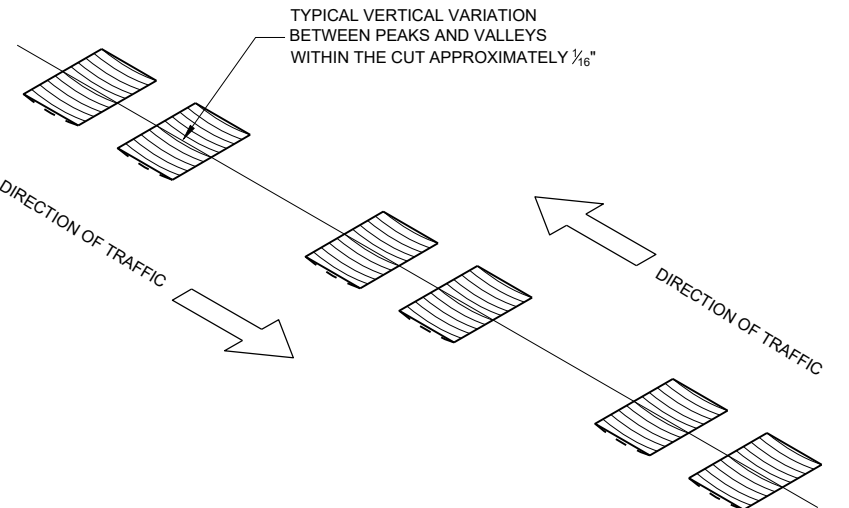
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



**PLAN VIEW
SHOULDER WITH GROOVES**

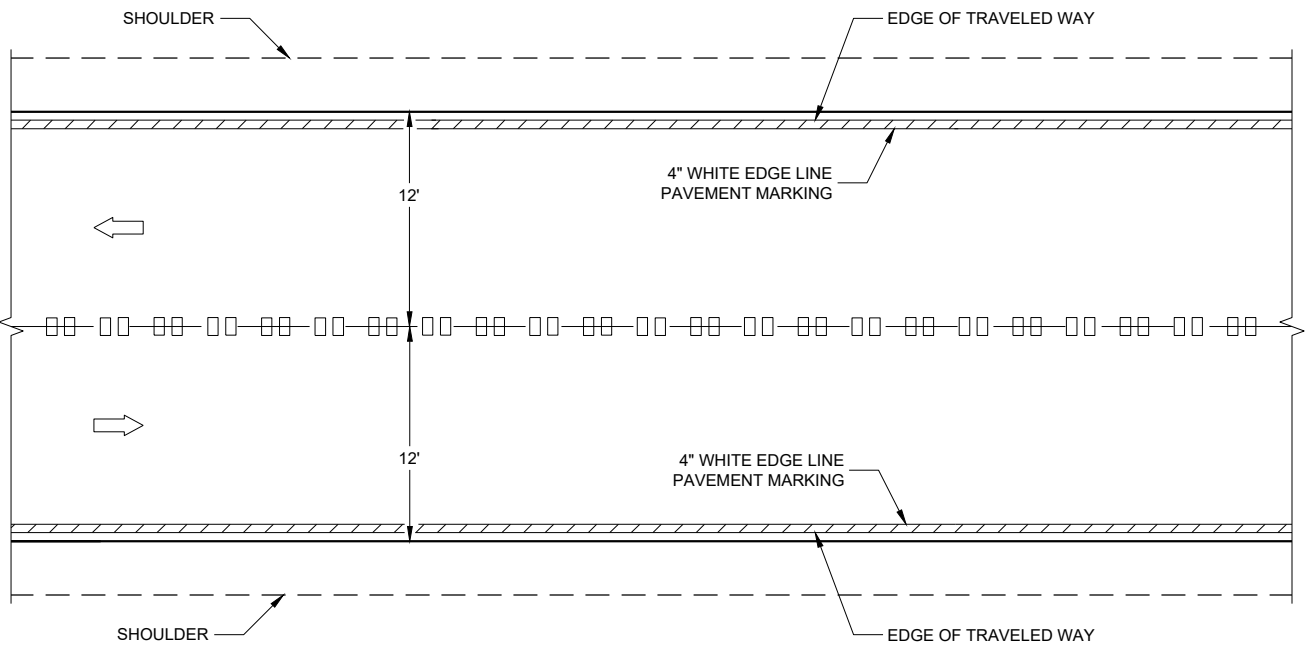


**PLAN VIEW
(SINGLE GROOVE)**

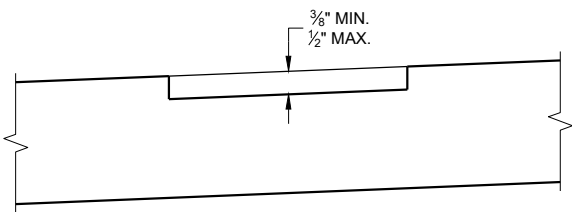


ISOMETRIC

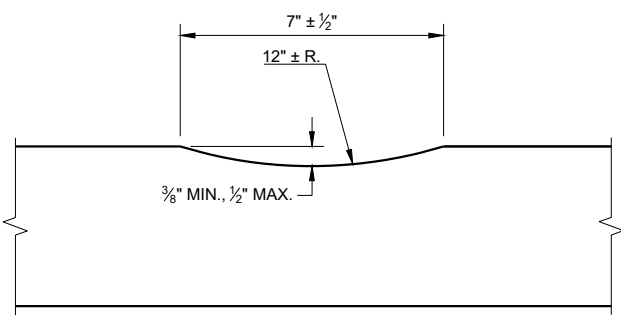
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



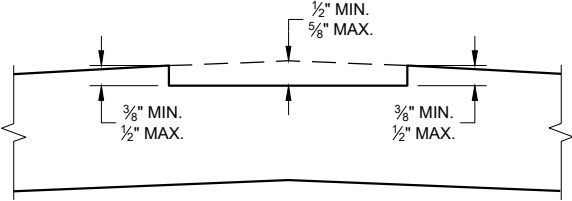
CENTERLINE GROOVES ON TWO-WAY ROADWAYS



**SECTION B - B
SUPERELEVATED ROADWAY**



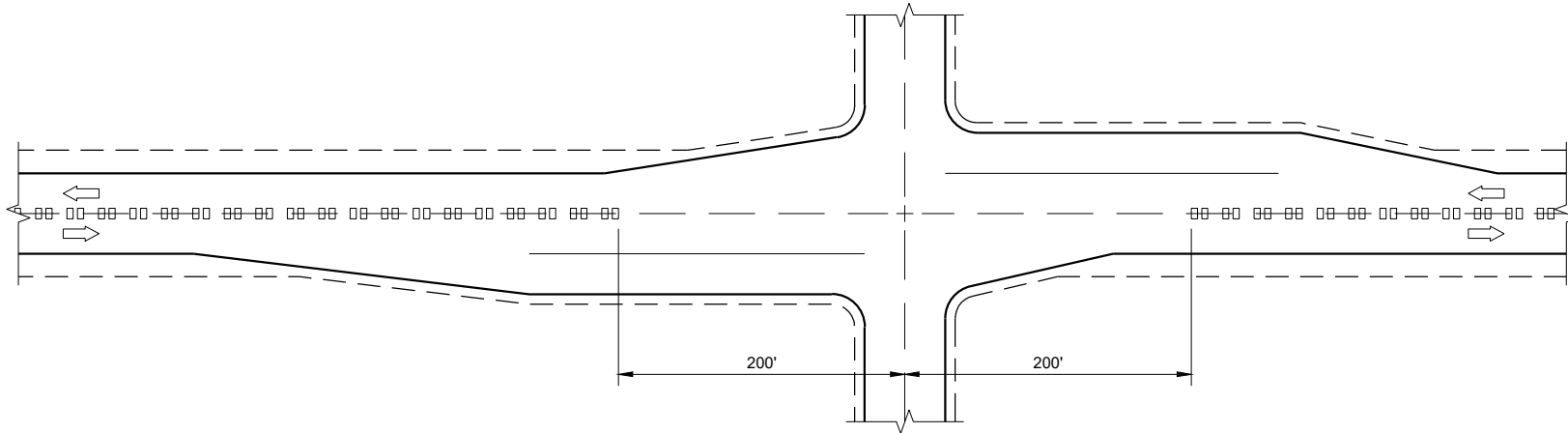
SECTION A - A



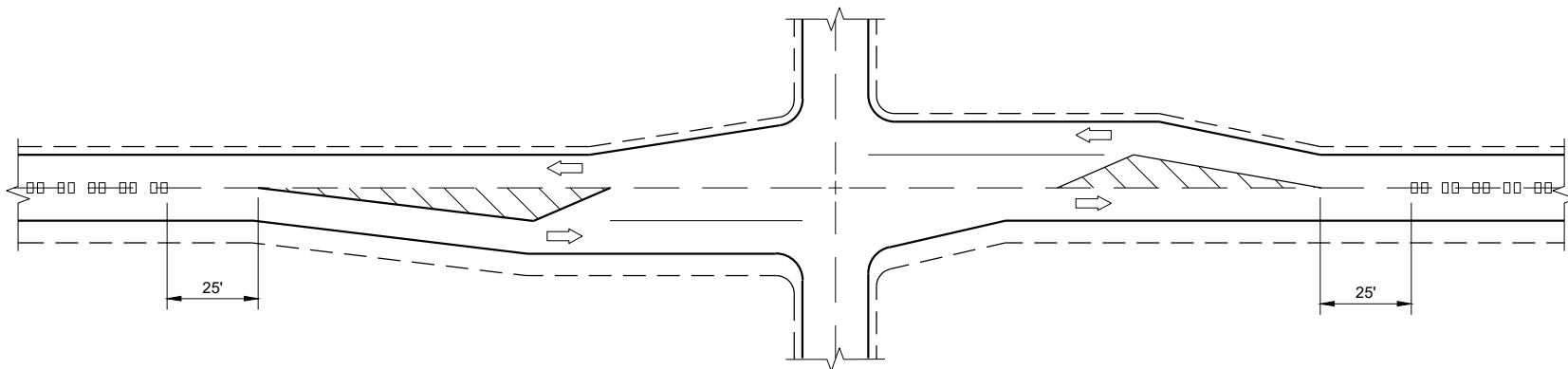
**SECTION B - B
CROWNED ROADWAY**

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

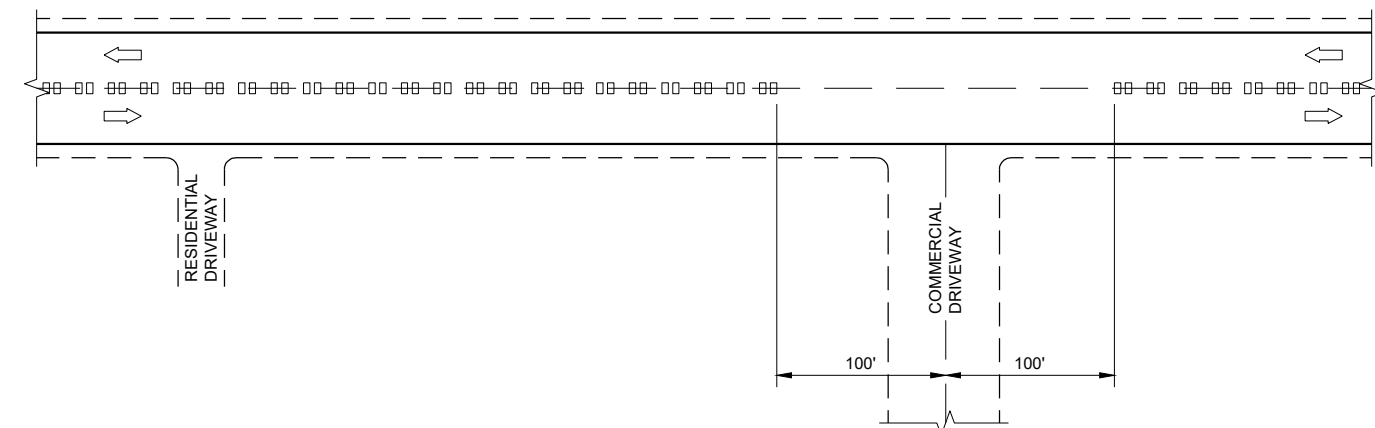
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



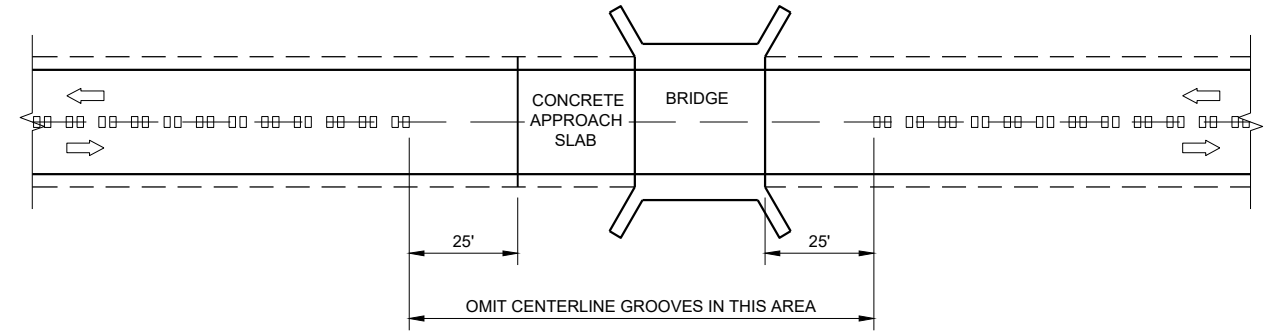
**CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)**



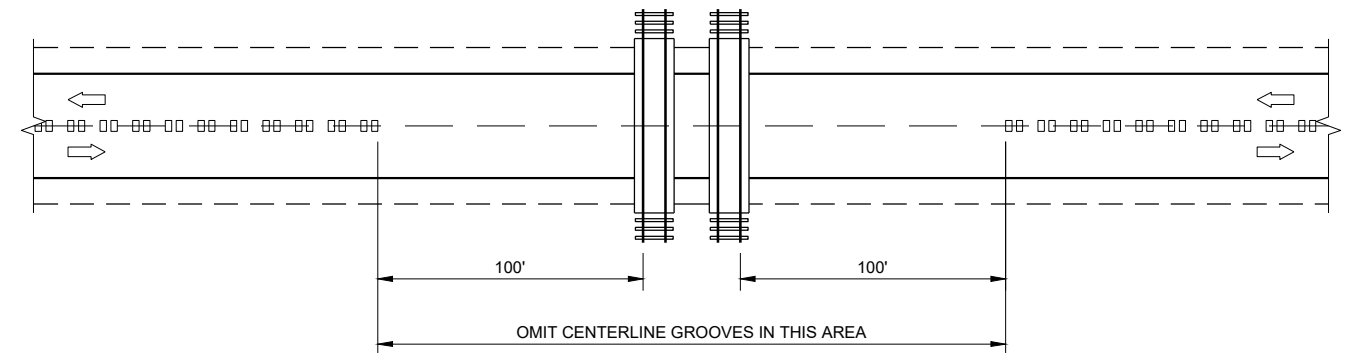
CENTERLINE GROOVES AT DRIVEWAYS ①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES



CENTERLINE GROOVES AT RAILROADS

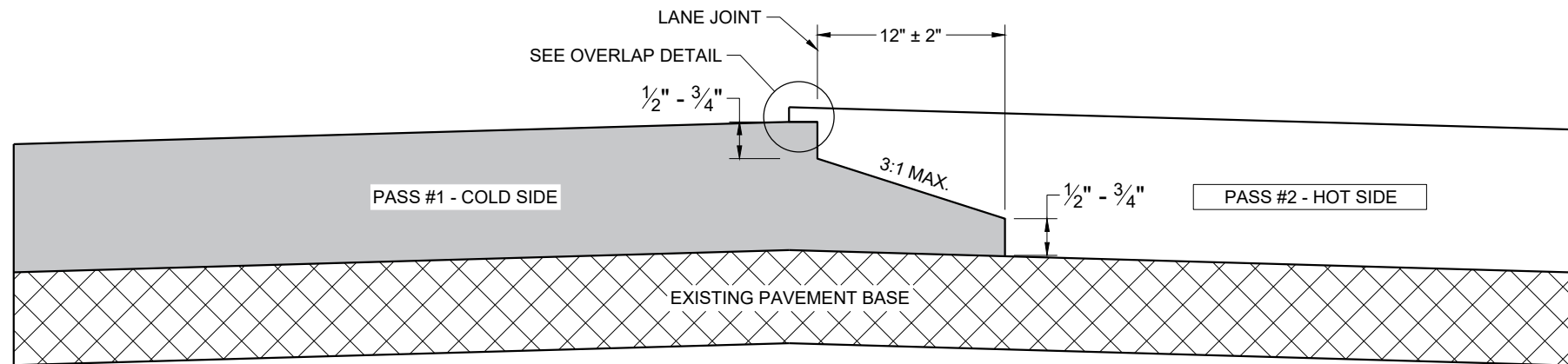
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6

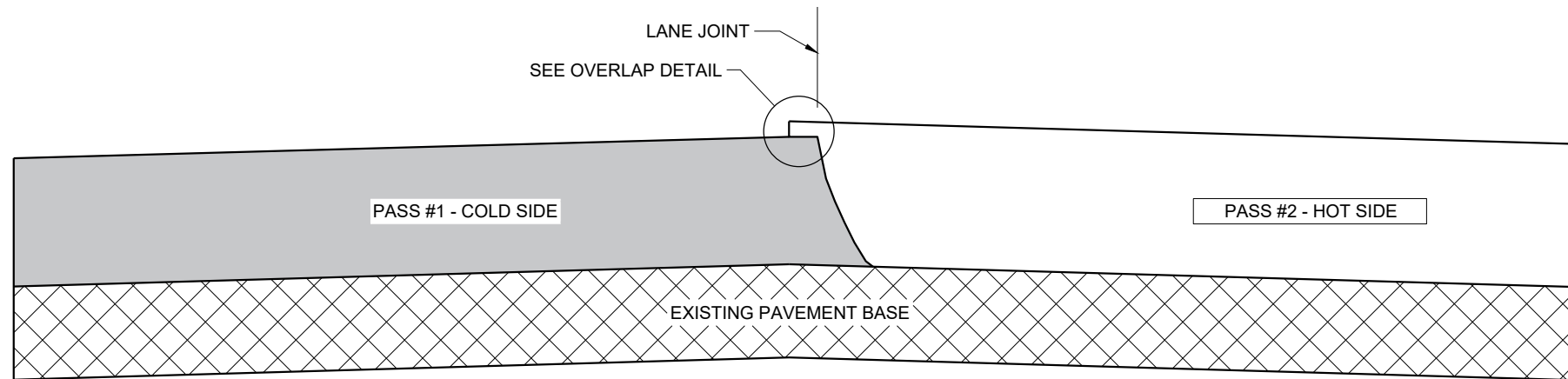
SDD 13A11 - 03b

SDD 13A11 - 03b

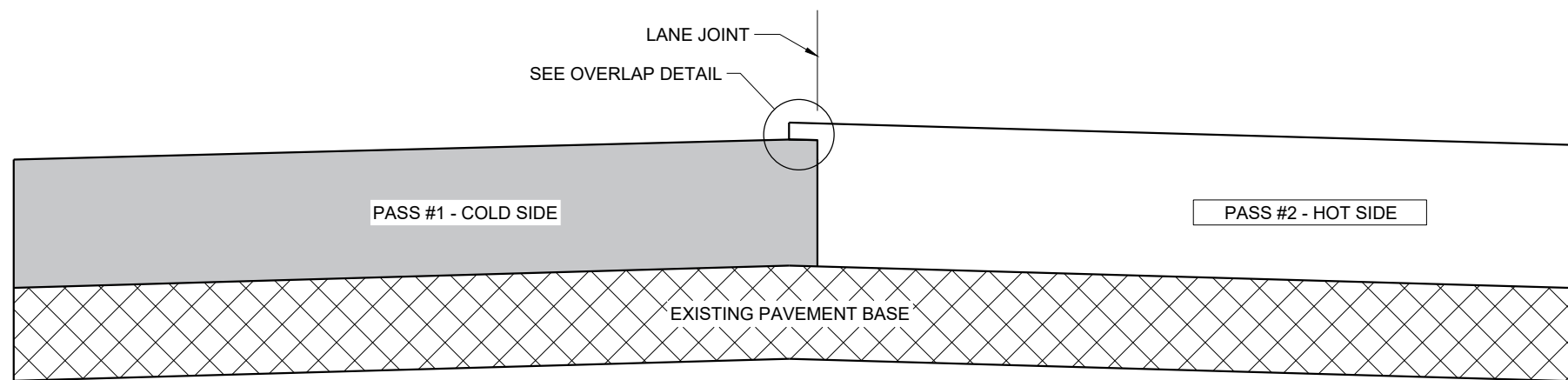
2-LANE RURAL CENTERLINE RUMBLE STRIP, MILLING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



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

GENERAL NOTES

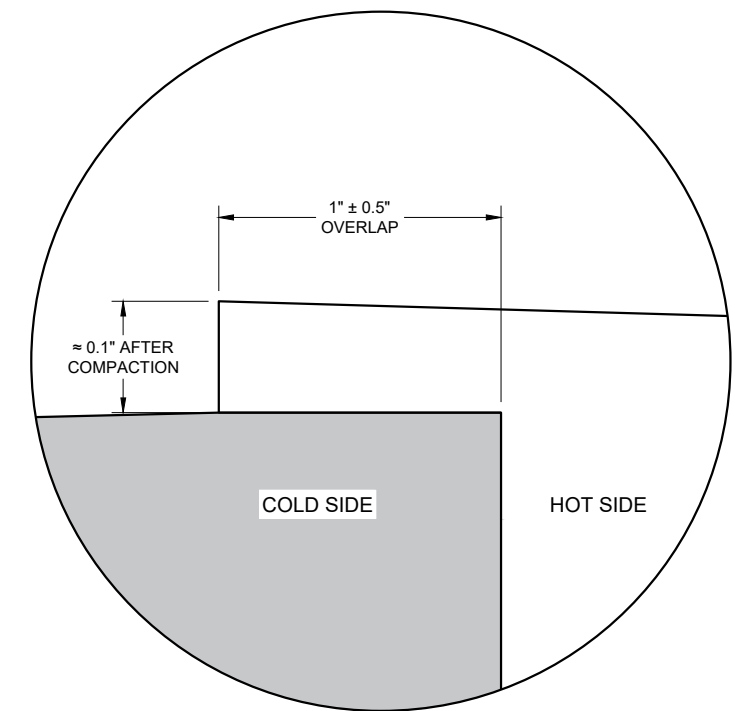
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



OVERLAP DETAIL (TYPICAL)

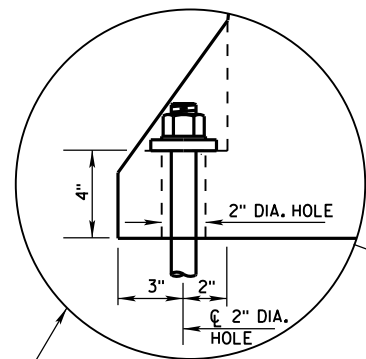
6

6

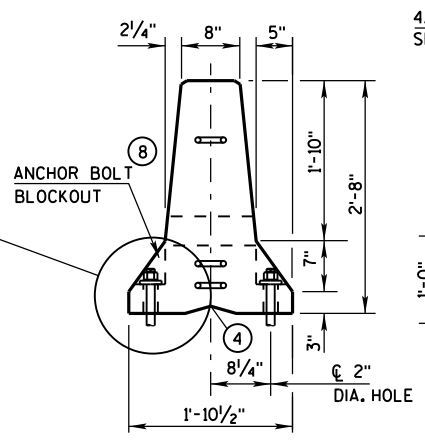
SDD 13C19 - 03

SDD 13C19 - 03

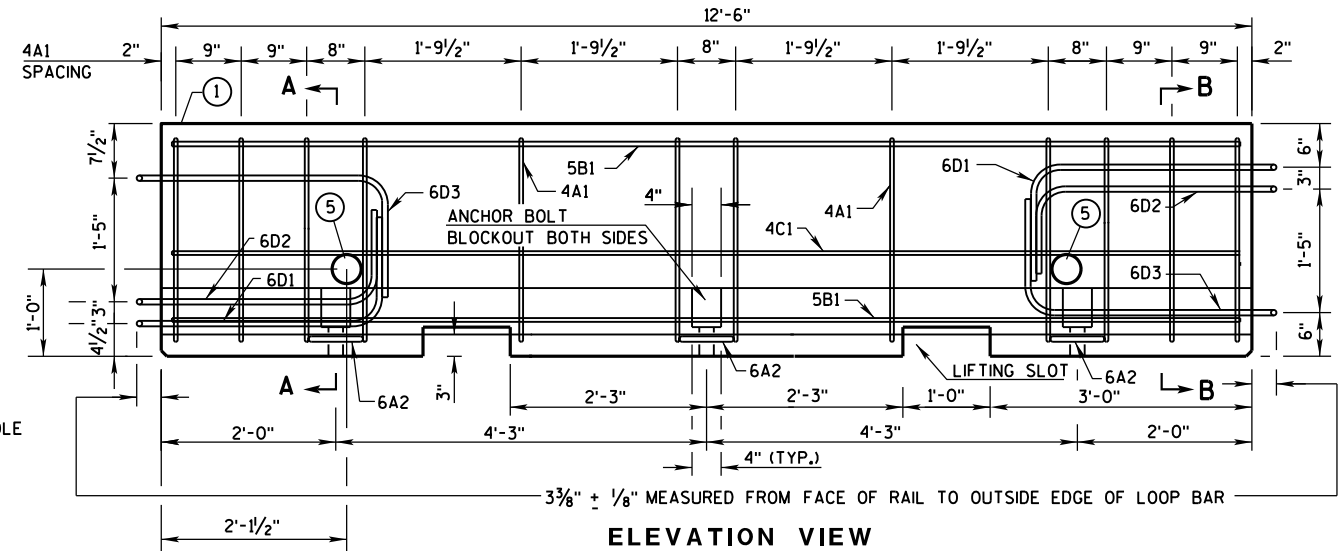
HMA LONGITUDINAL JOINTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2020 DATE	/S/ Steven Hefel HMA PAVEMENT ENGINEER
FHWA	



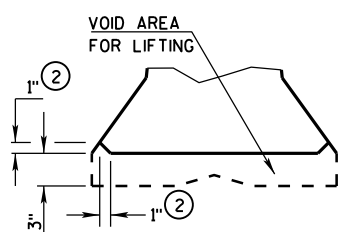
ANCHOR ON TRAFFIC SIDE (8) ONLY WHEN REQUIRED (SEE SHEET D FOR ADDITIONAL ANCHOR DETAIL)



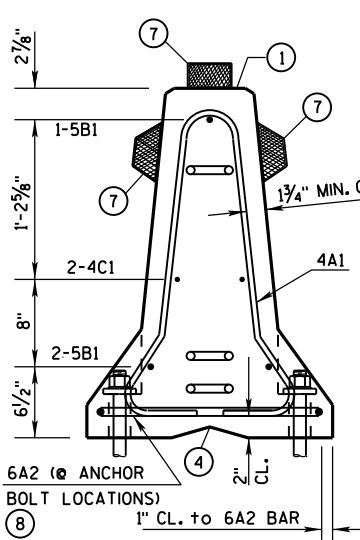
END VIEW



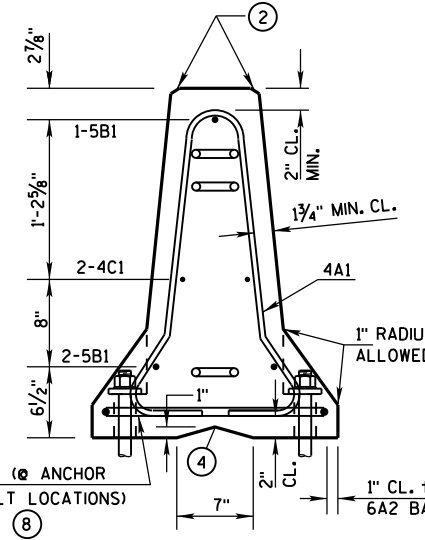
ELEVATION VIEW



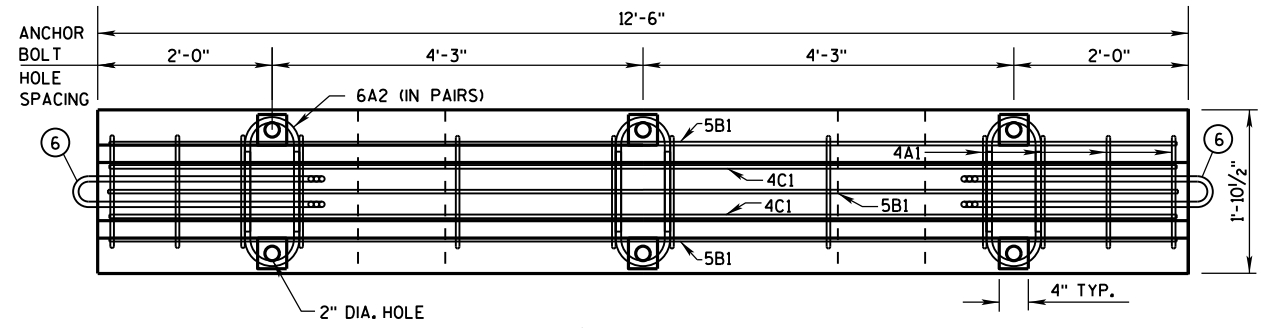
DETAIL "B" LIFTING SLOT DETAIL



SECTION A-A (STIRRUP PLACEMENT)



SECTION B-B (STIRRUP PLACEMENT)



PLAN VIEW

DETAILS OF BARRIER SECTION

GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(d) THRU 14B7-15(i).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.

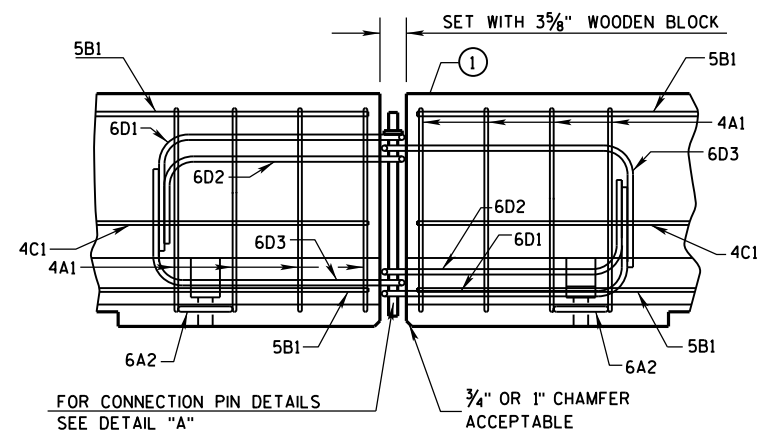
CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

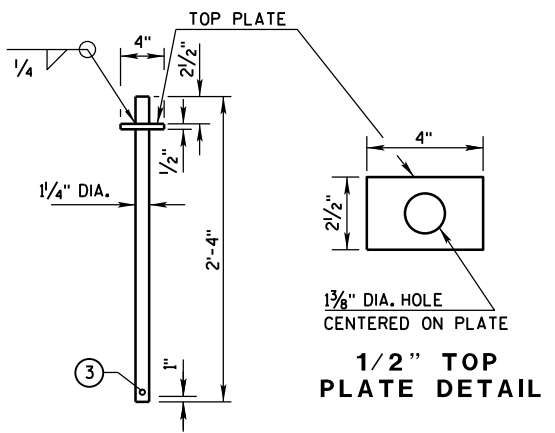
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- 1 MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE: WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- 2 1" CHAMFER TO PREVENT SPALLING.
- 3 A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- 4 "V" NOTCH IS OPTIONAL.
- 5 THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- 6 NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- 7 USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURER'S INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- 8 SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.
- 9 1" CHAMFER OPTIONAL.

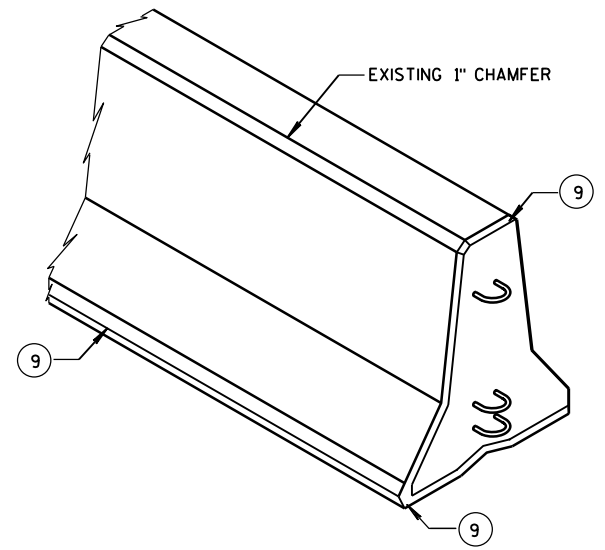
f'c = 4,000 psi



DETAILS OF BARRIER CONNECTION



DETAIL "A" CONNECTION PIN (A36 STEEL (10.9 LB EACH))



CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

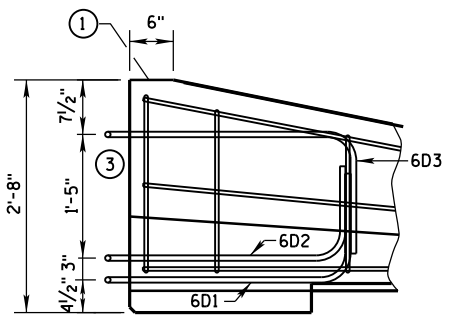
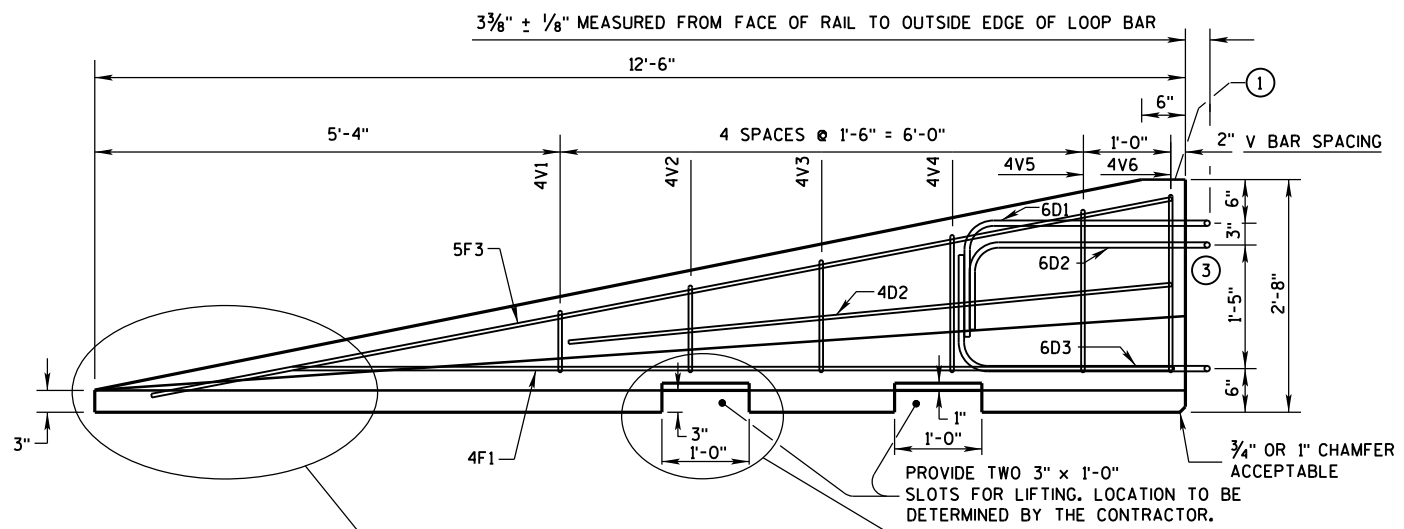
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

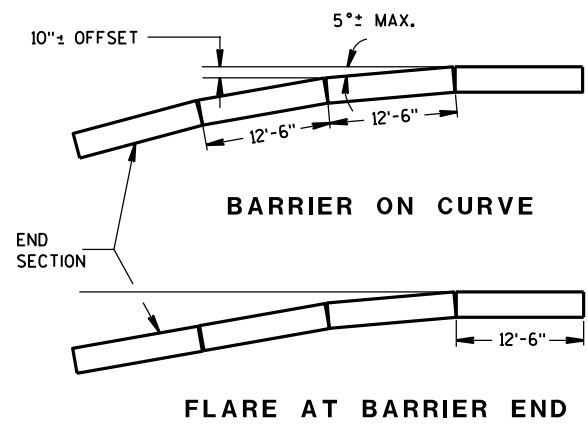
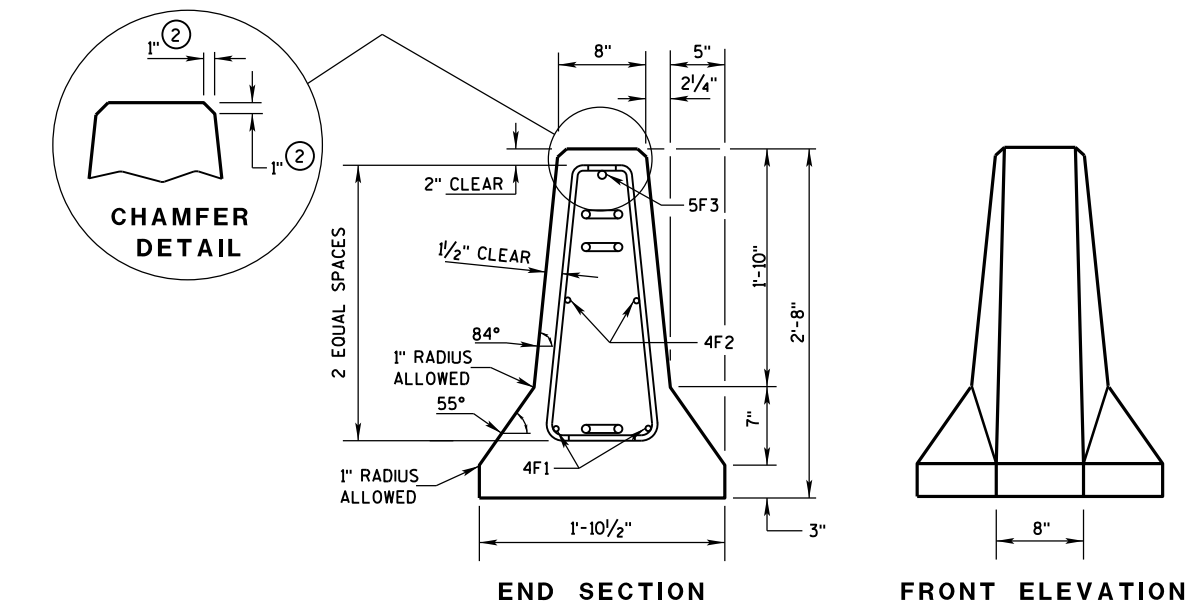
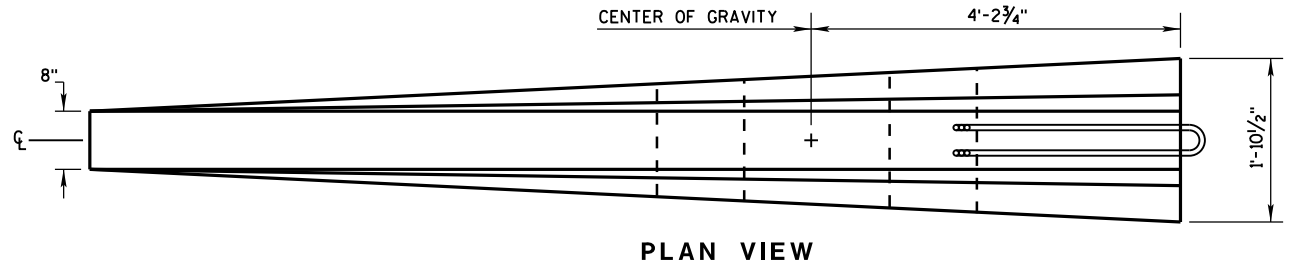
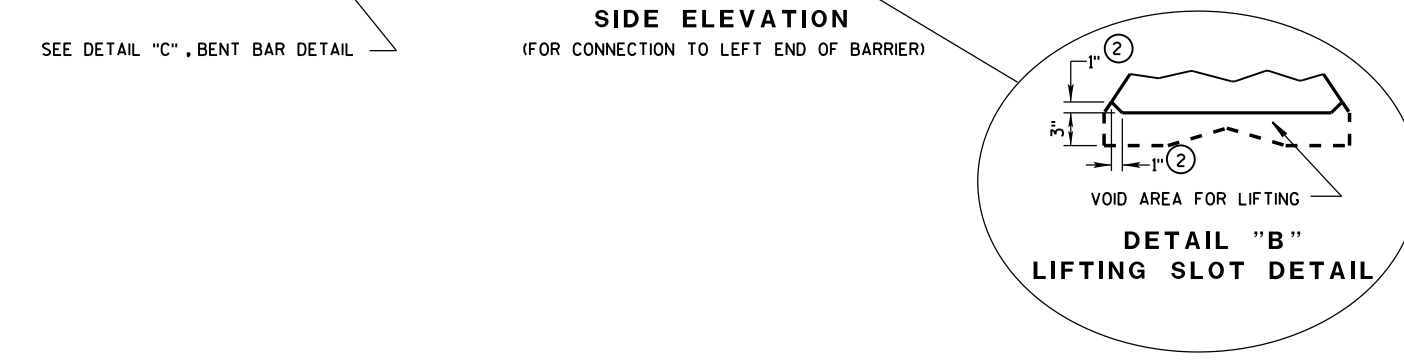
S.D.D. 14 B 7-15a

S.D.D. 14 B 7-15a



GENERAL NOTES

- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

DETAILS OF BARRIER TAPER SECTION

CONCRETE BARRIER
 TEMPORARY PRECAST, 12'-6"
 STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

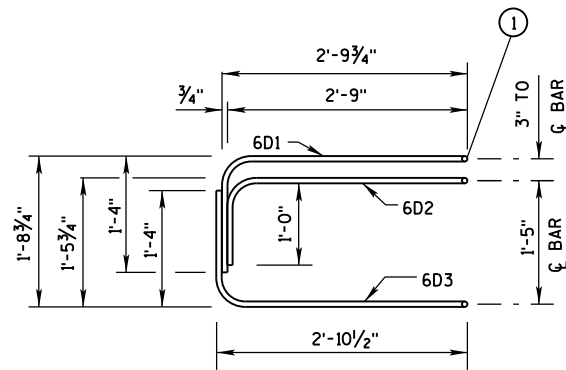
① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

BARRIER TAPER SECTION BILL OF MATERIALS

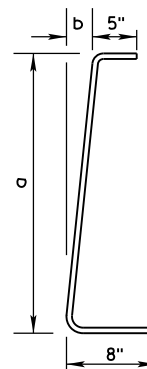
(PER 12'-6" BARRIER TAPER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"

LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"

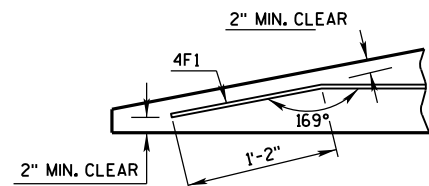


ELEVATION
LOOP BAR ASSEMBLY



BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY



DETAIL "C"
BENT BAR DETAIL

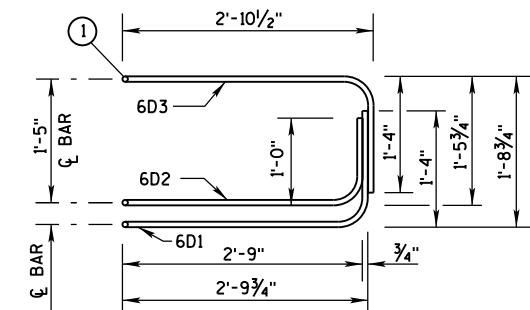
TAPER BARRIER SECTION

BARRIER SECTION BILL OF MATERIALS

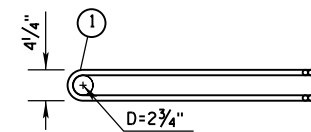
(PER 12'-6" BARRIER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"

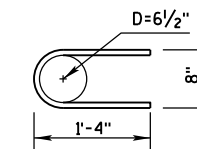
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



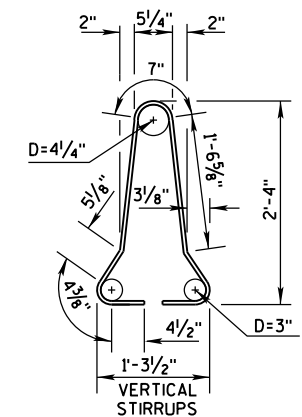
ELEVATION VIEW



PLAN VIEW
LOOP BAR ASSEMBLY
(MARKED END SHOWN, INVERT FOR OTHER END)



6A2

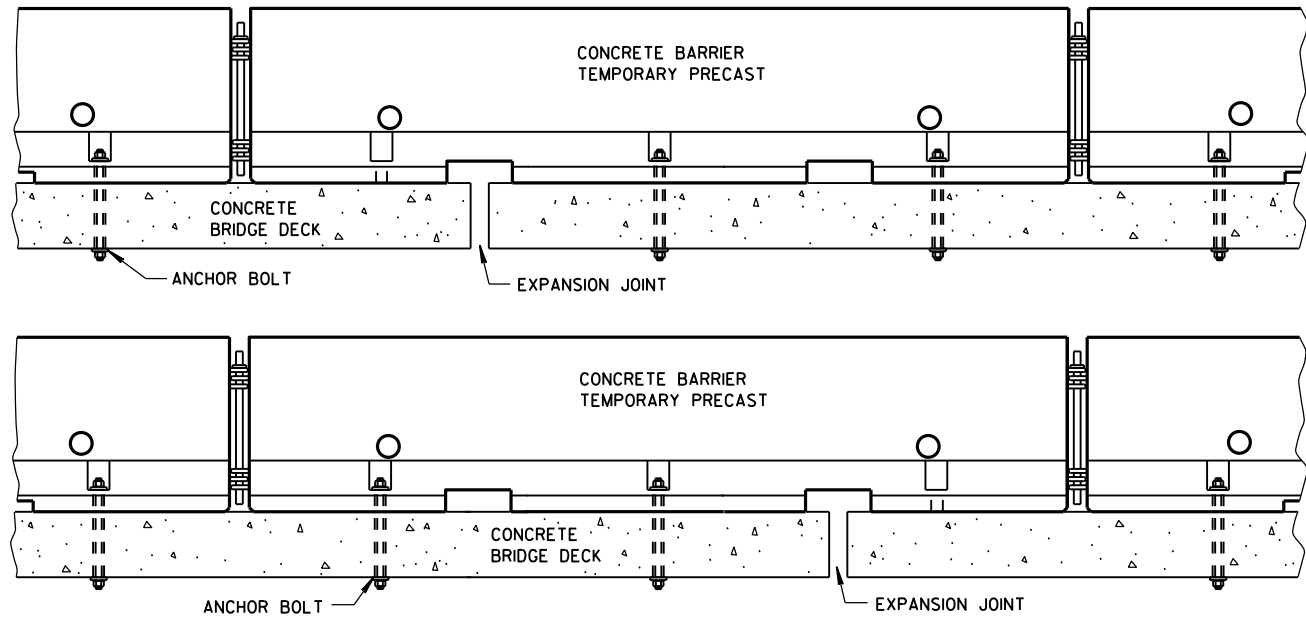


4A1

BARRIER SECTION

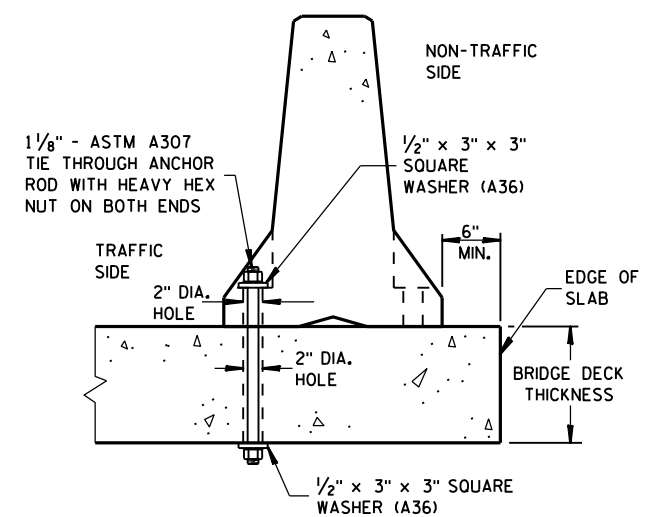
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



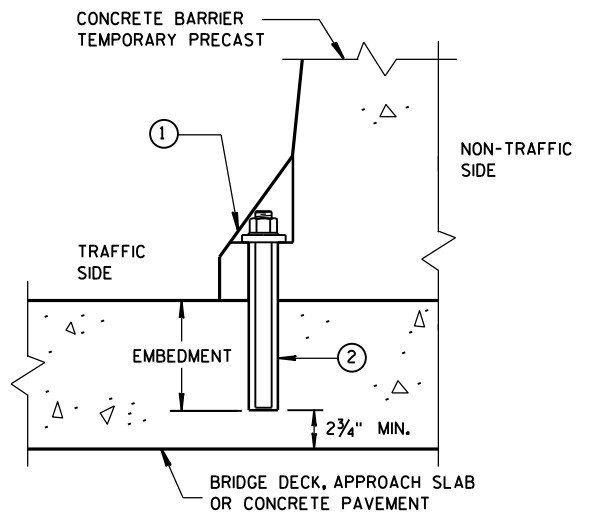
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

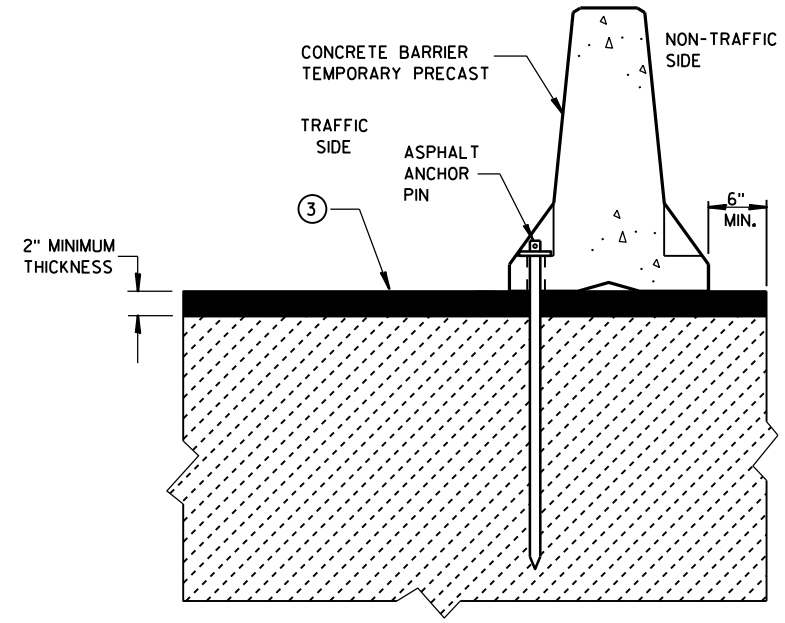
(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

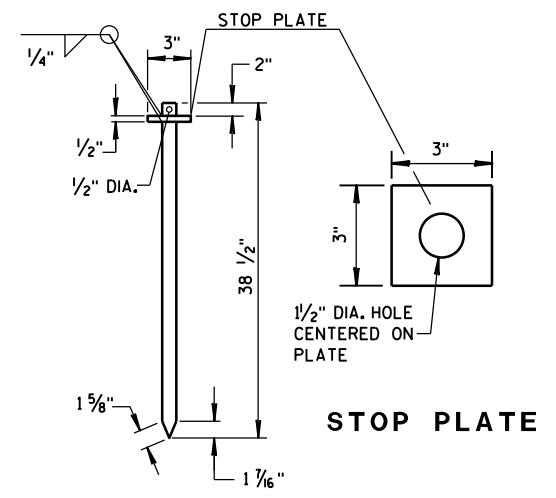
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

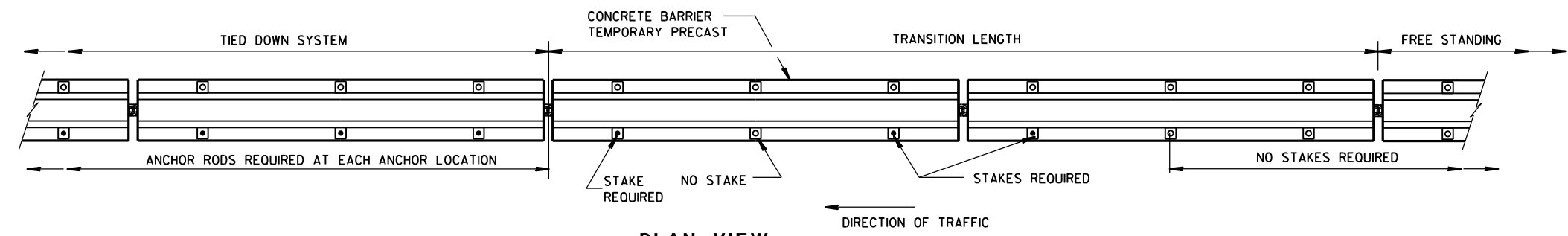
- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.



STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE



ASPHALT ANCHOR PIN (ASTM A36 STEEL)



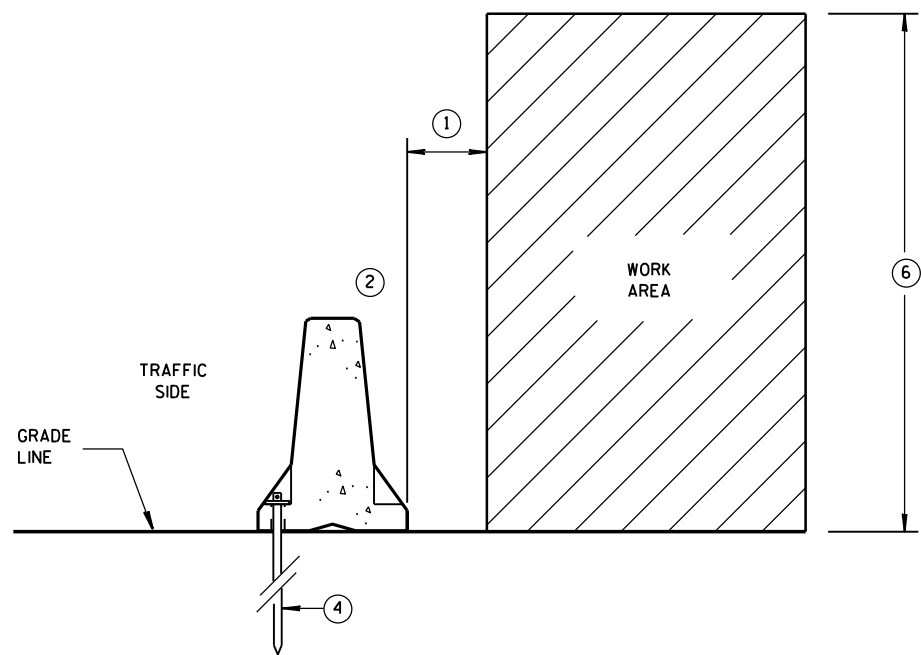
FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

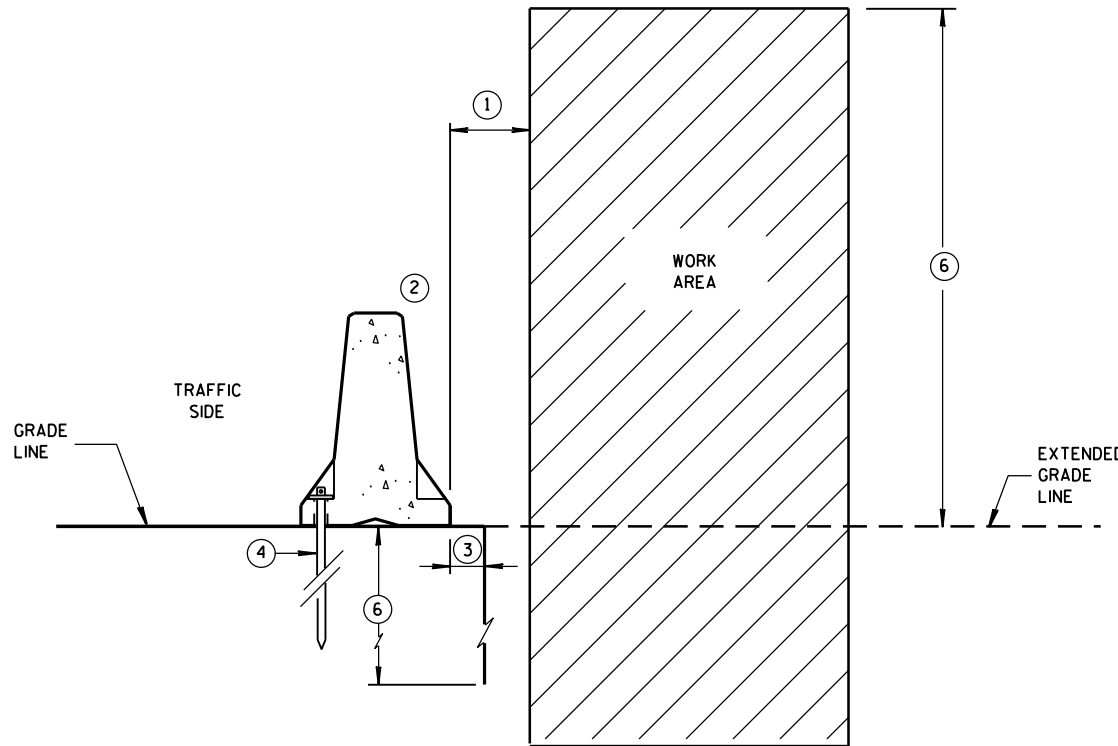
CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

- ① WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- ② OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- ③ SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- ④ SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- ⑤ DEPTH OF 3 FEET OR MORE.
- ⑥ Y = 6'-6".

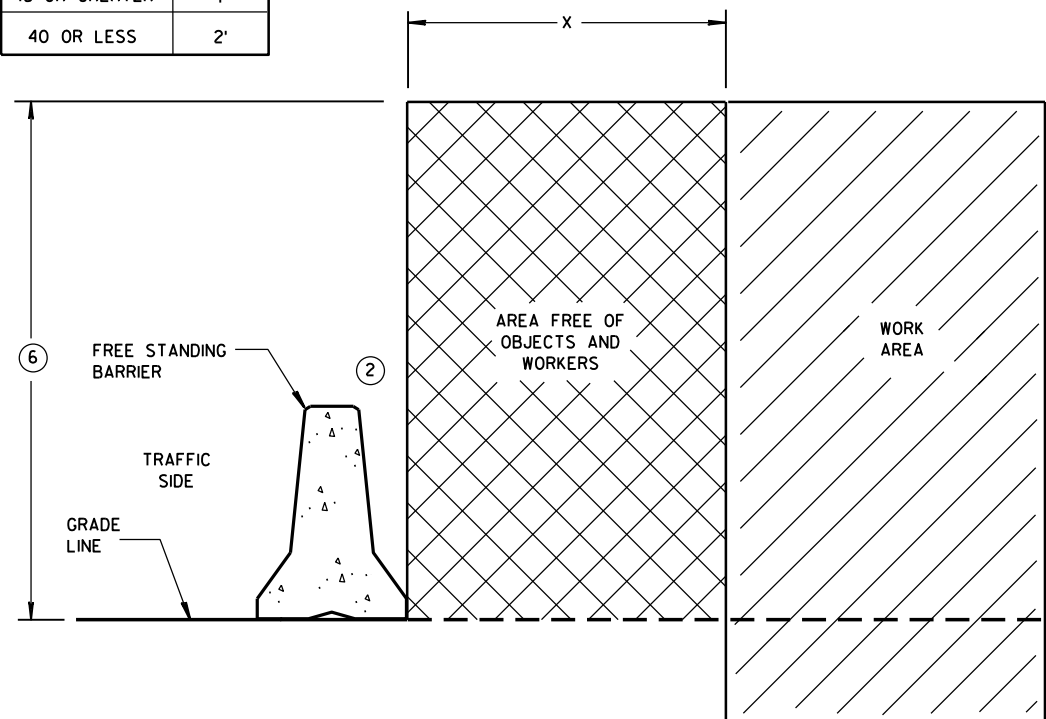


ANCHORED BARRIER SPACE REQUIREMENTS FOR HAZARDS EXTENDED ABOVE THE GRADE LINE

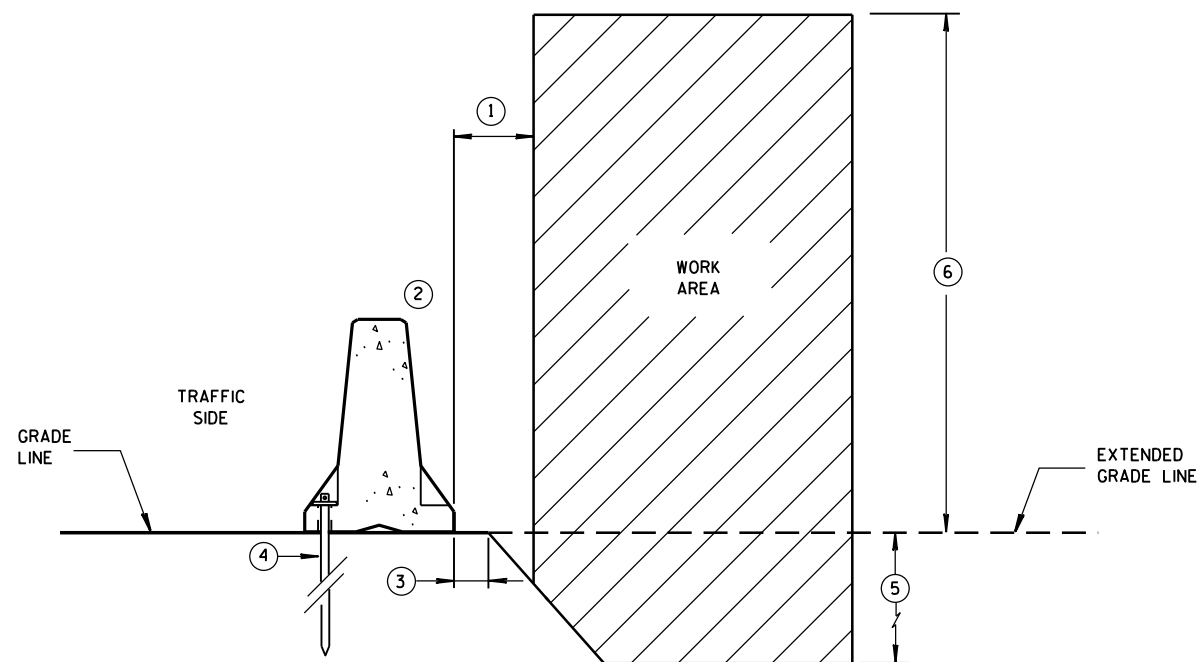


ANCHORED BARRIER SPACE REQUIREMENTS ON VERTICAL DROP OFFS

POSTED SPEED MPH	X
45 OR GREATER	4'
40 OR LESS	2'



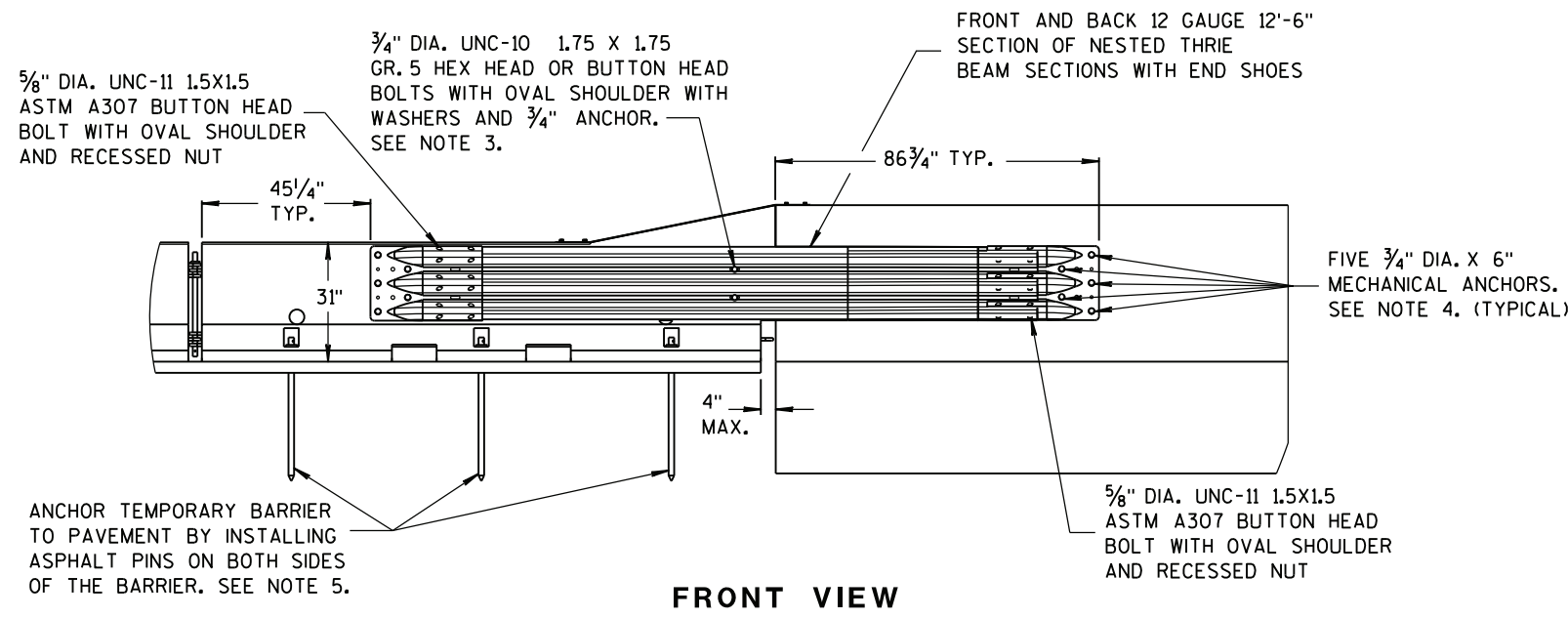
FREE STANDING BARRIER SPACE REQUIREMENTS



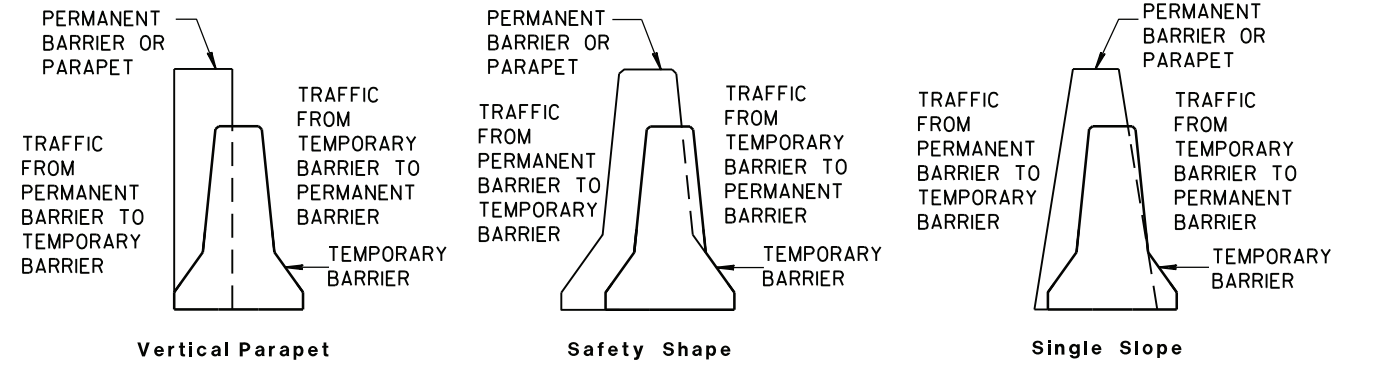
ANCHORED BARRIER SPACE REQUIREMENTS ON SLOPES

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

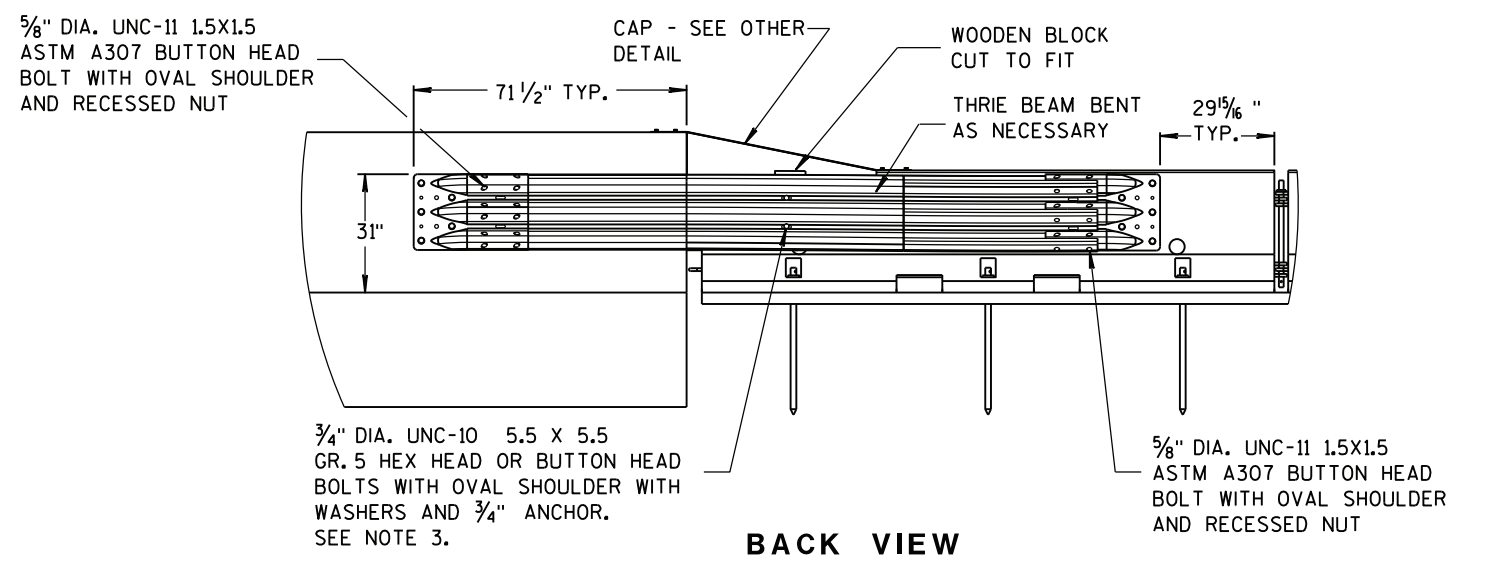


FRONT VIEW

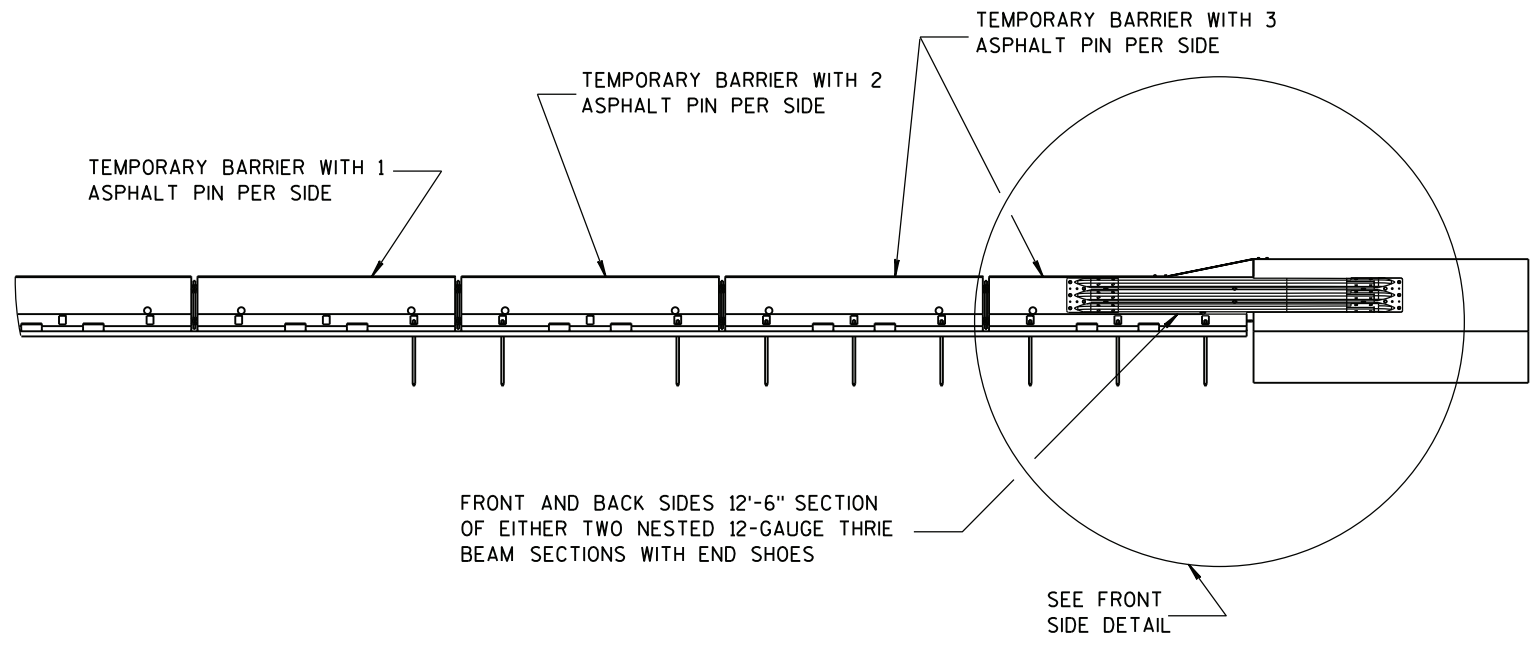


TEMPORARY BARRIER PLACEMENT FOR TRANSITION TO TIED DOWN SYSTEM

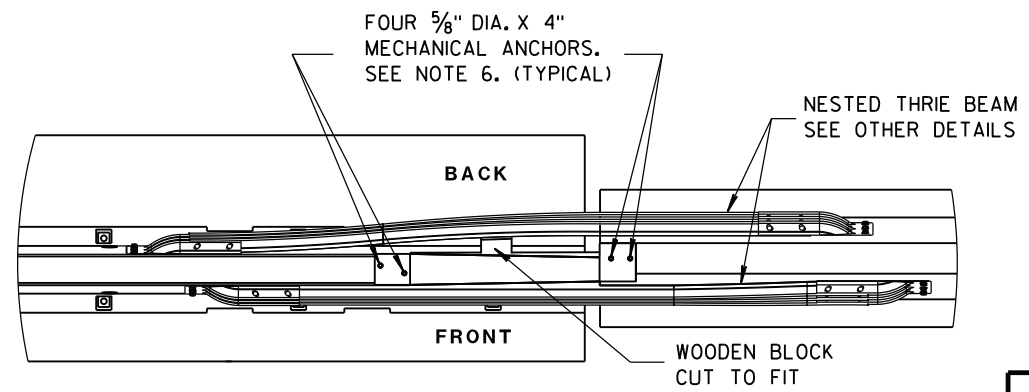
- NOTES**
- NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS REGARDLESS OF TRAFFIC.
- CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
 - THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
 - MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
 - MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
 - MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
 - MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW

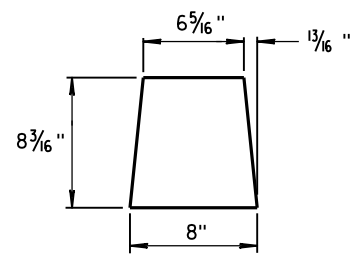


PLAN VIEW

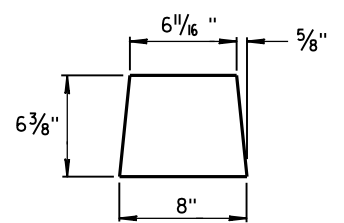
**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

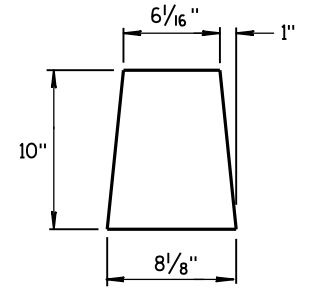
TRANSITION TO TIED DOWN SYSTEM



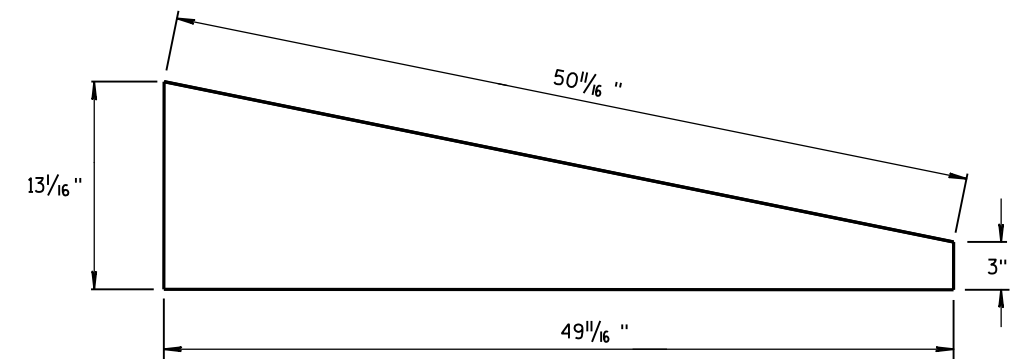
GUSSET 1



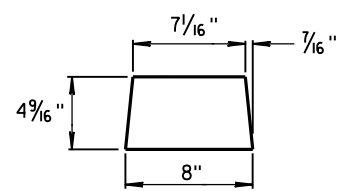
GUSSET 2



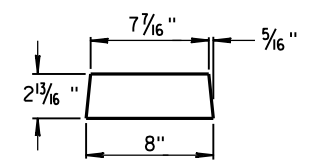
END PLATE



SIDE PLATE

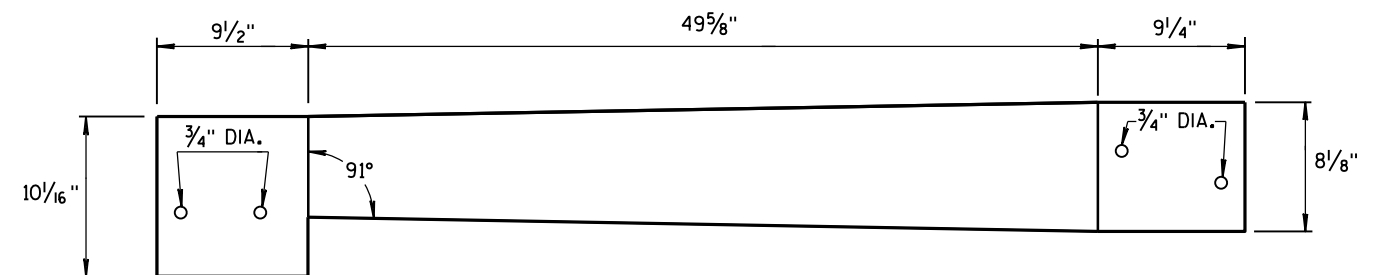


GUSSET 3

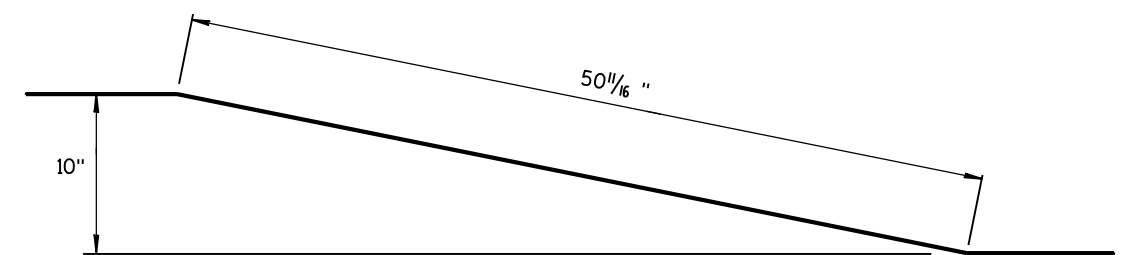


GUSSET 4

GUSSETS

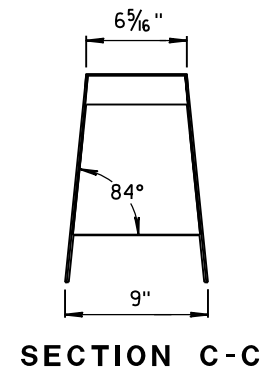
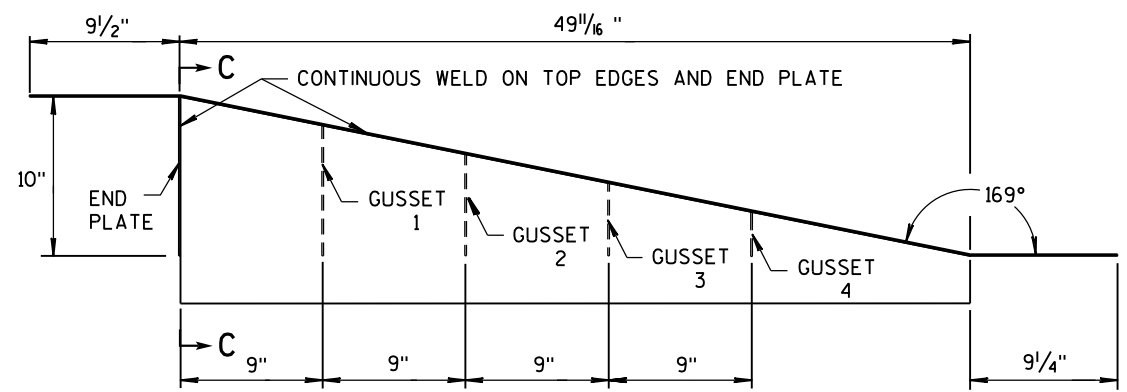
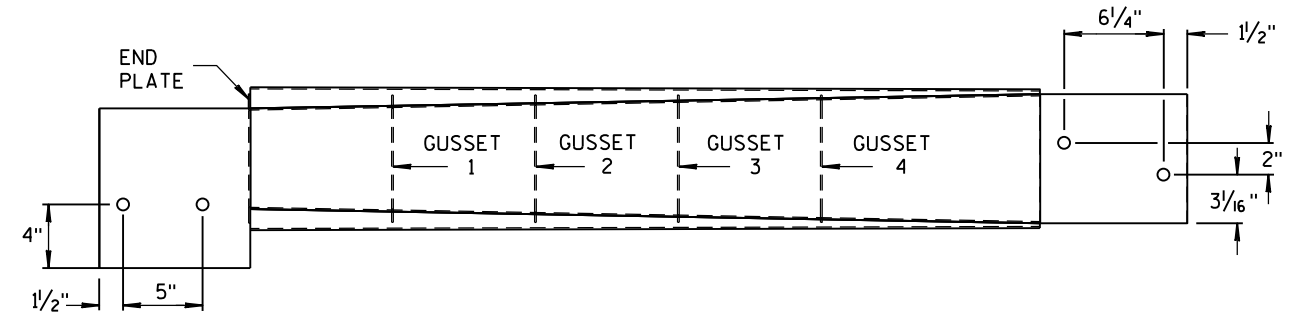


TOP PLATE



SIDE, TOP AND END PLATES FOR CAP FROM TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C

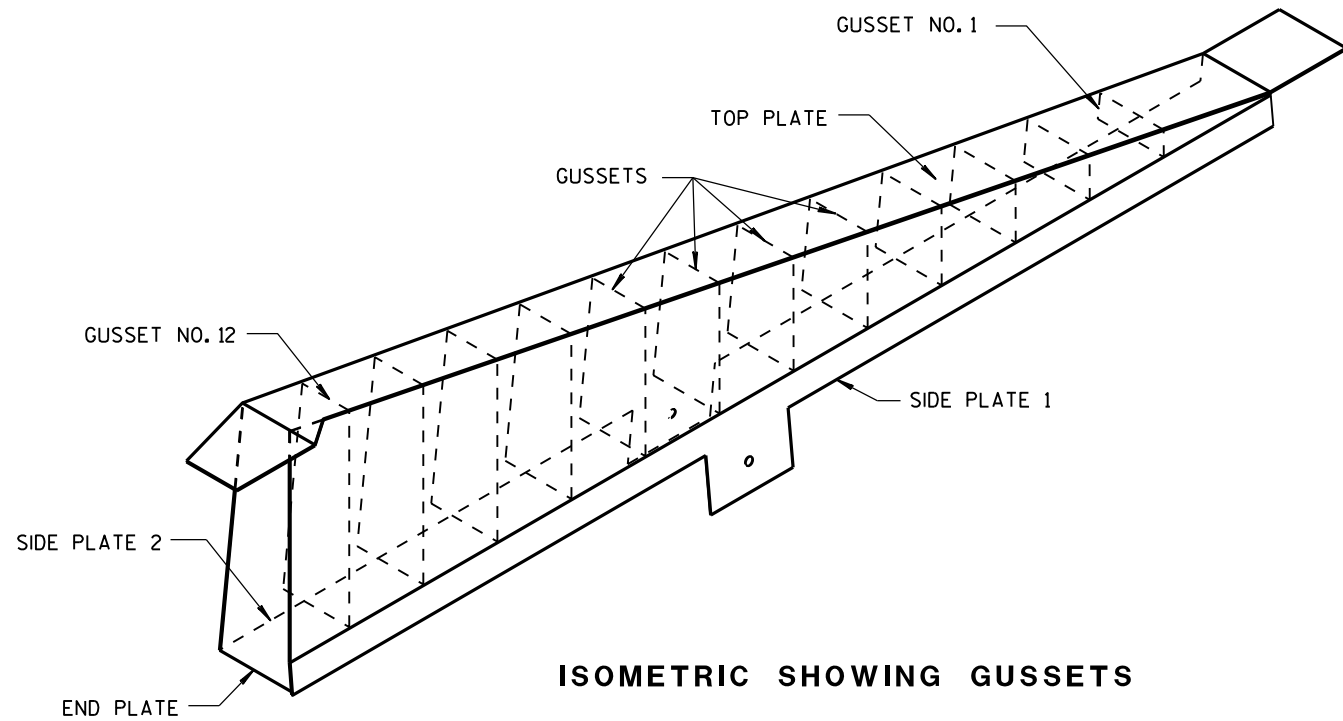
NOTES

- FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
- TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

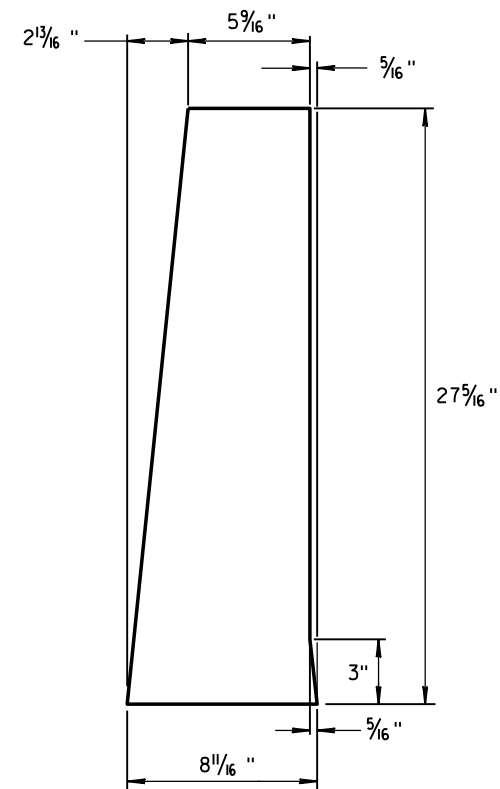
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

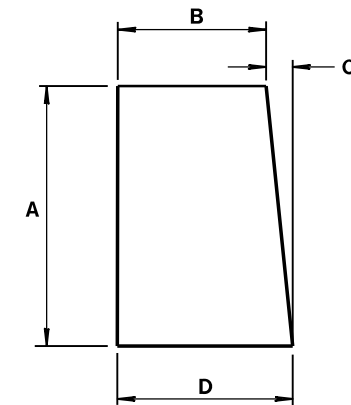


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



GUSSETS 1 - 12

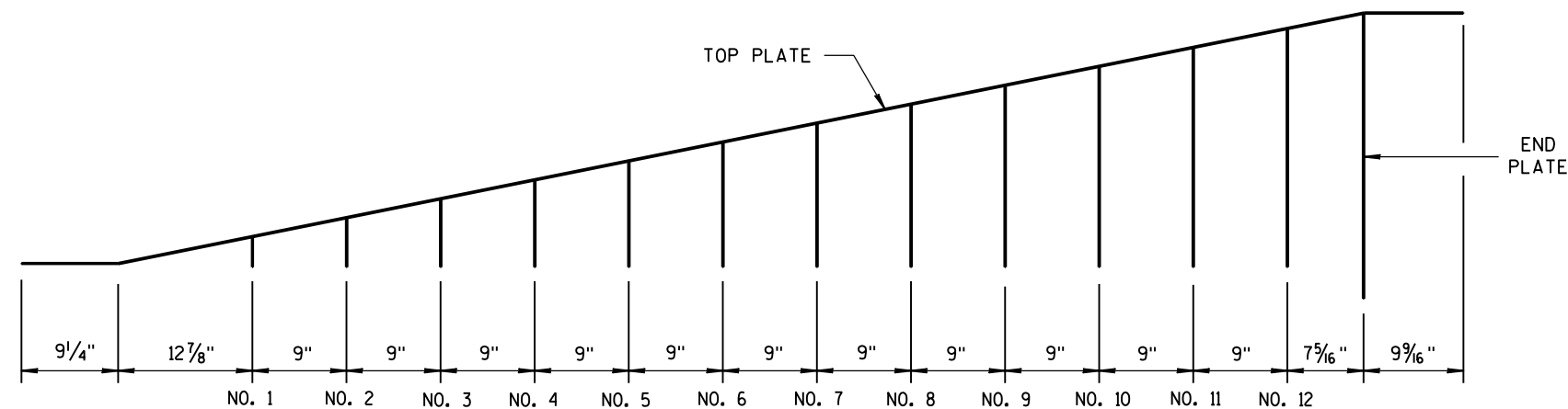
ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS

GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 1/16"	7 7/16"	1/2"	8
3	6 1/2"	7 3/8"	1 1/16"	8 1/16"
4	8 5/16"	7 3/16"	7/8"	8 1/16"
5	10 1/8"	7"	1 1/16"	8 1/16"
6	11 5/16"	6 13/16"	1 1/4"	8 1/16"
7	13 3/4"	6 5/8"	1 7/16"	8 1/16"
8	15 3/16"	6 7/16"	1 9/16"	8 1/16"
9	17 3/8"	6 1/4"	1 13/16"	8 1/16"
10	19 3/16"	6 1/16"	1 15/16"	8 1/16"
11	21"	5 7/8"	2 3/16"	8 1/16"
12	22 13/16"	5 11/16"	2 5/16"	8 1/16"

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.

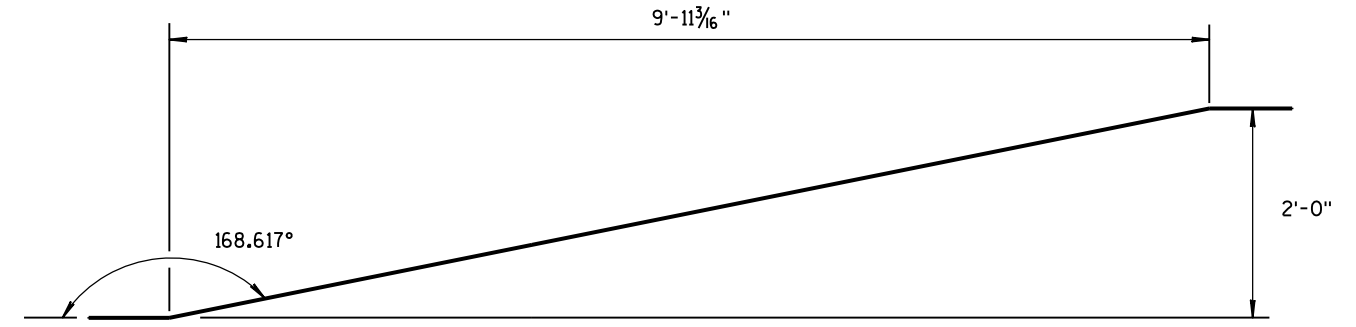
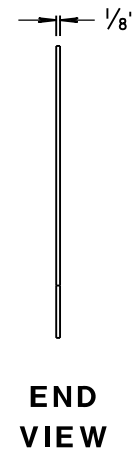
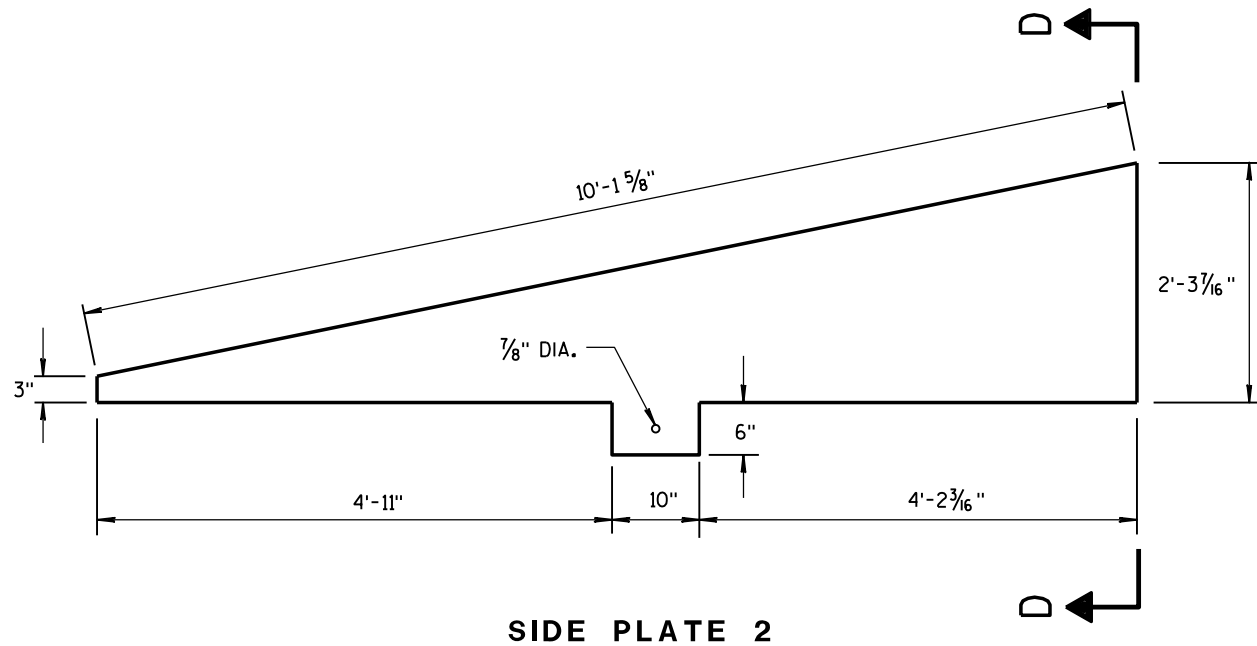


GUSSET LOCATION

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

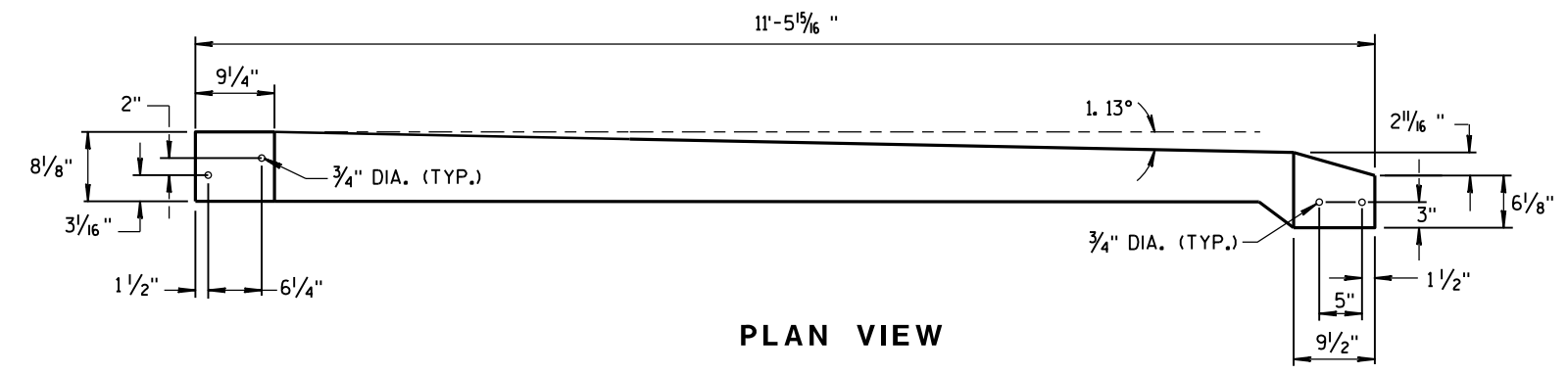
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

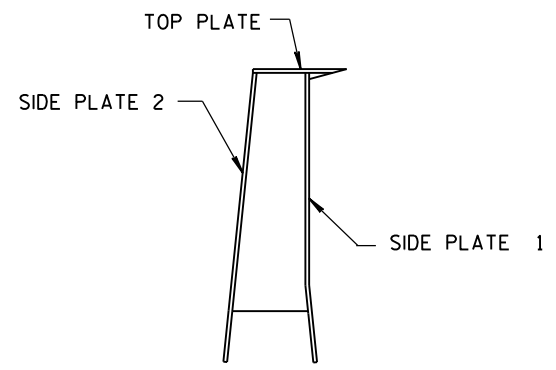
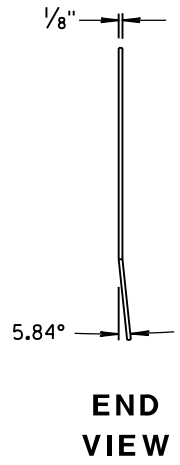
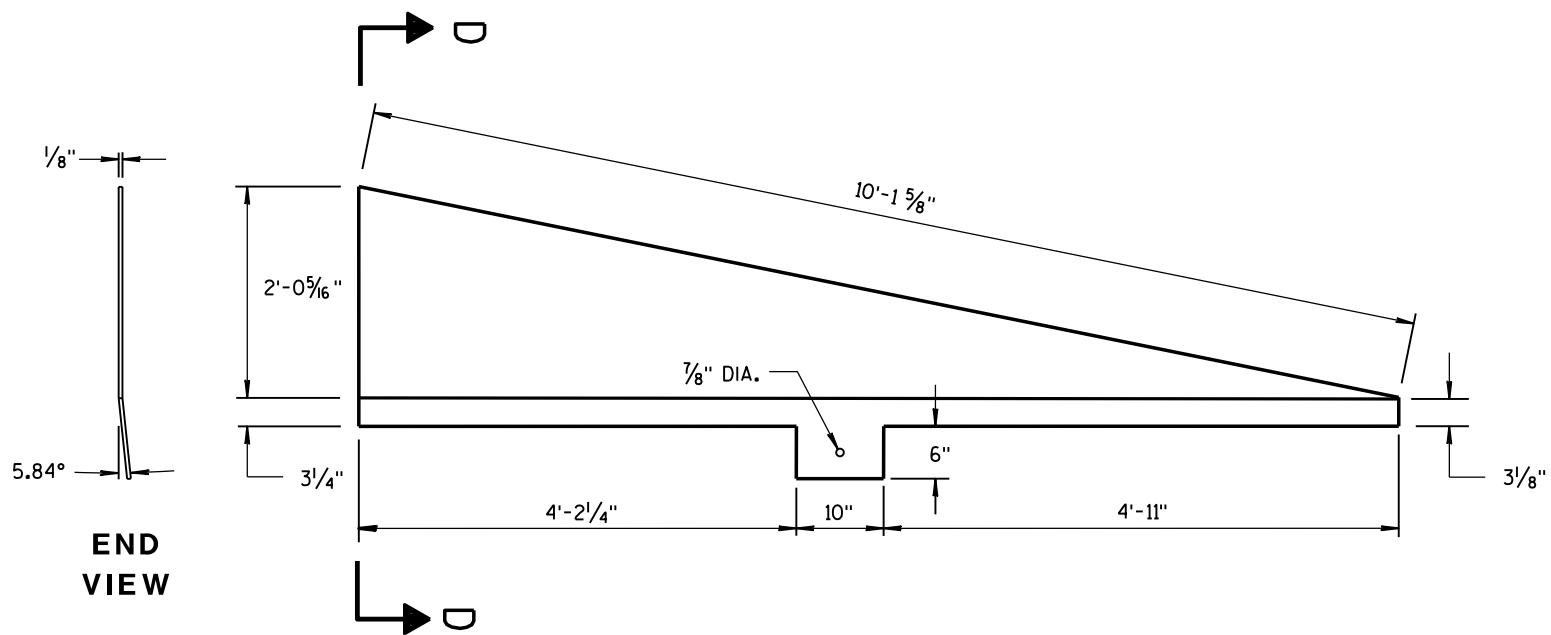


**SIDE VIEW
TOP PLATE**

SIDE PLATE 2



**PLAN VIEW
TOP PLATE**



SECTION D-D

SIDE PLATE 1

**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

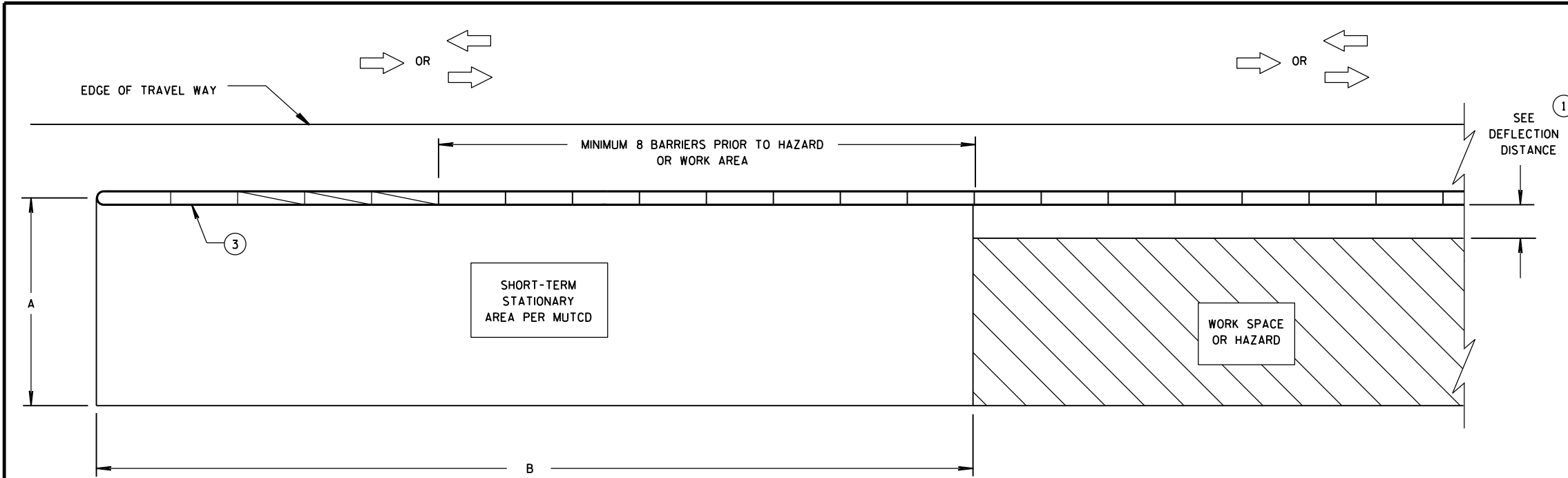
CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/s/ Rodney Taylor ROADWAY STANDARD DEVELOPMENT UNIT SUPERVISOR
FHWA	

6

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S.D.D. 14 B 7-15i

S.D.D. 14 B 7-15i



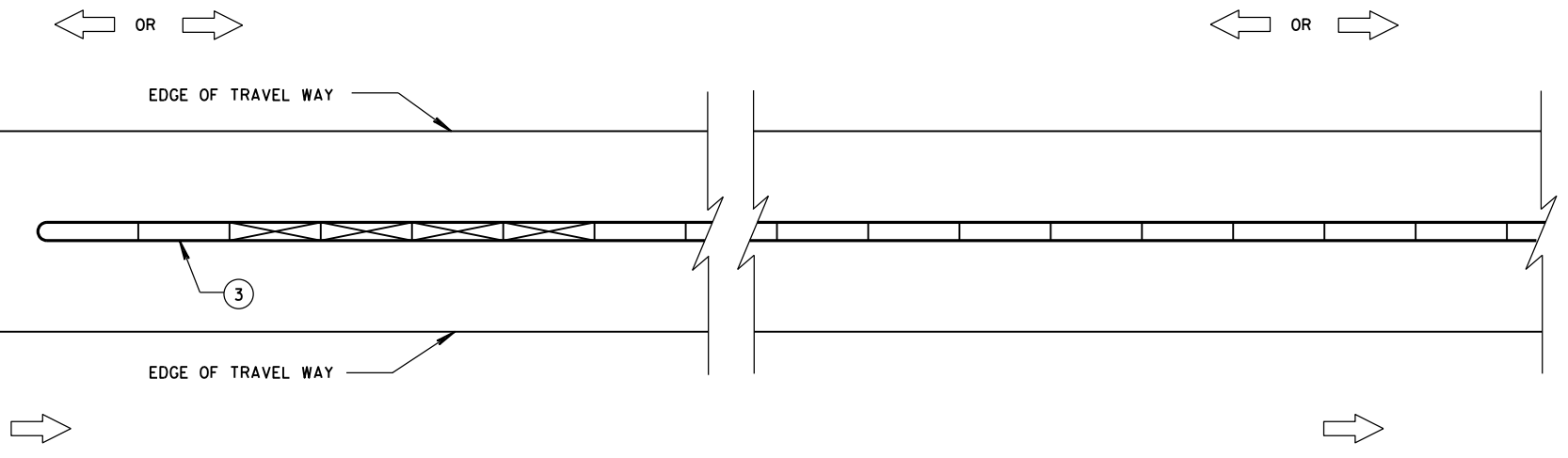
DIMENSION A TABLE ^②

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER**

DIMENSION B TABLE ^②

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



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

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

- ① FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ② VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ③ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

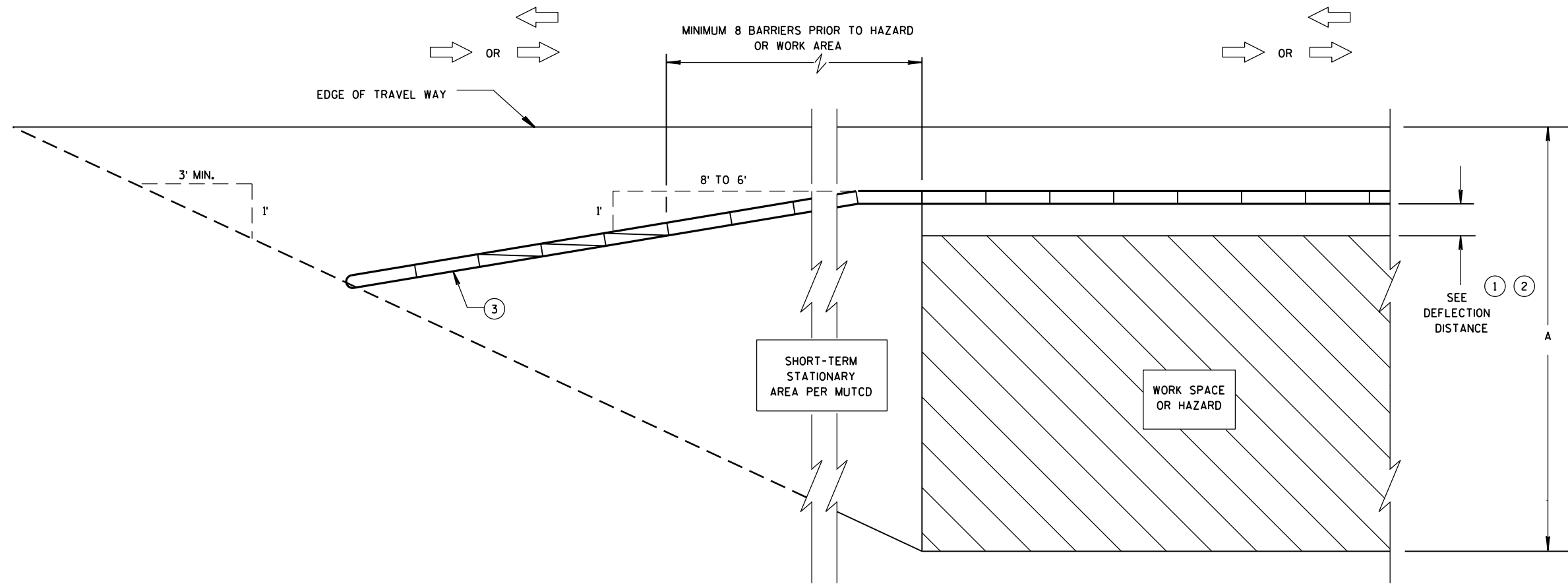
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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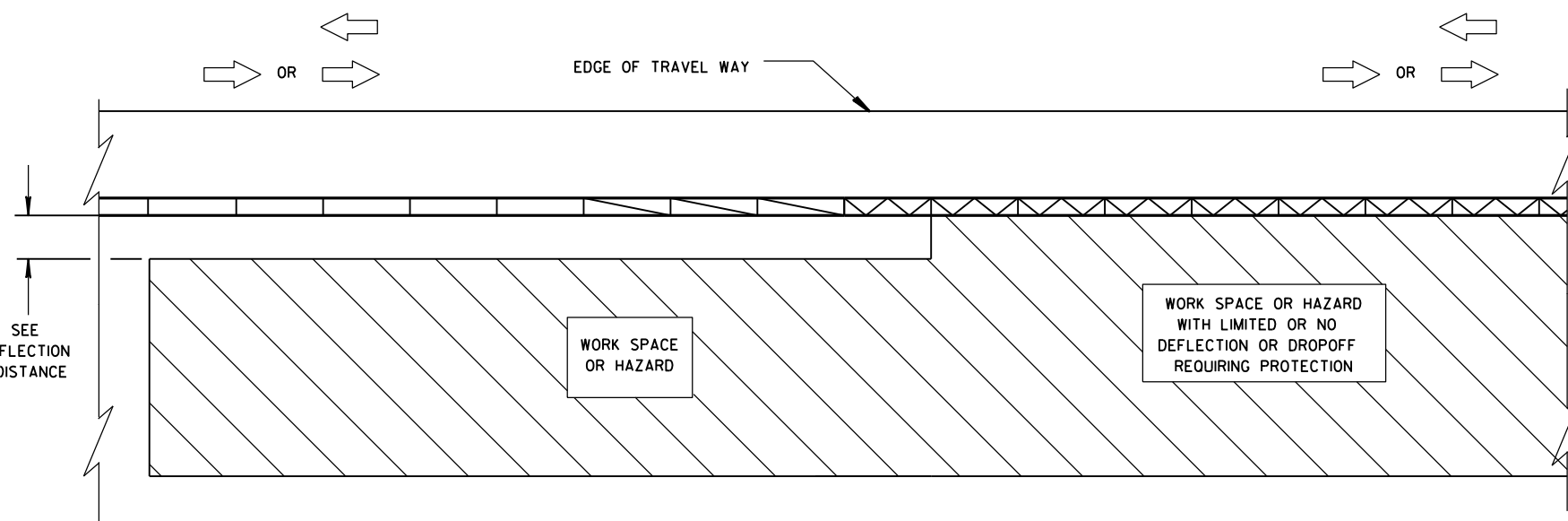
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S.D.D. 14 B 8-2a

S.D.D. 14 B 8-2a



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



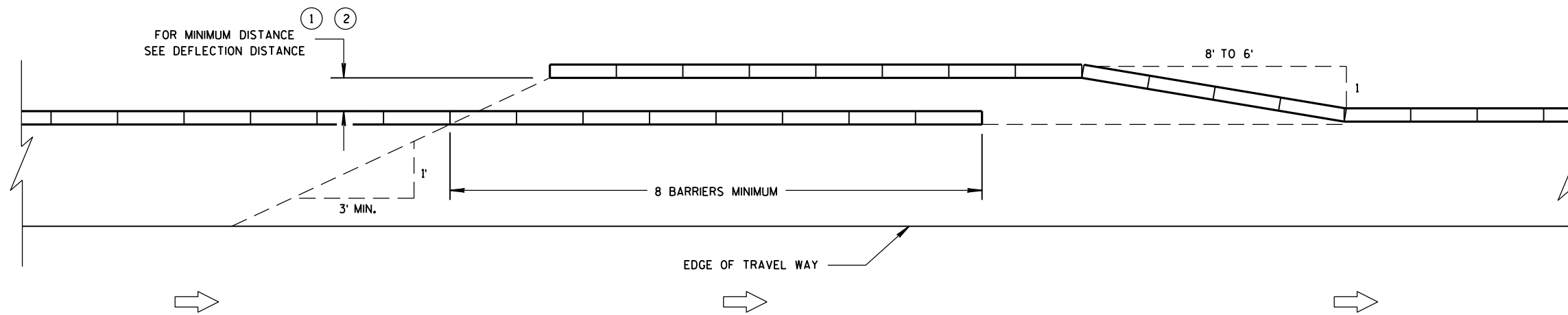
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

LEGEND

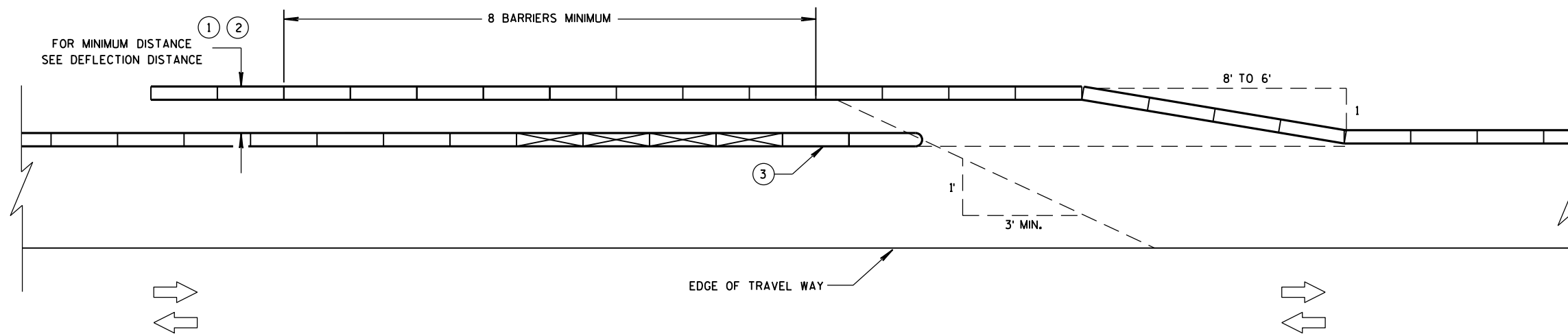
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

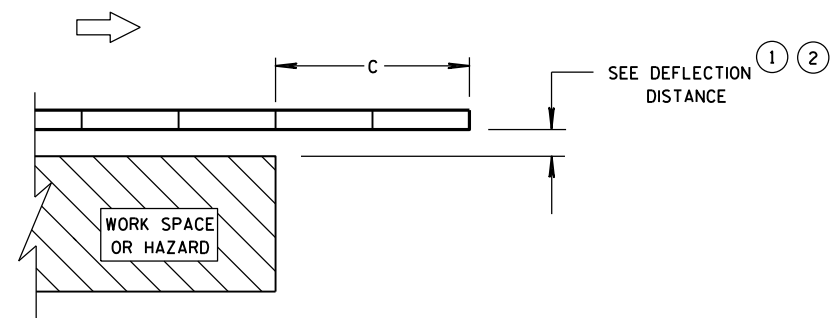
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



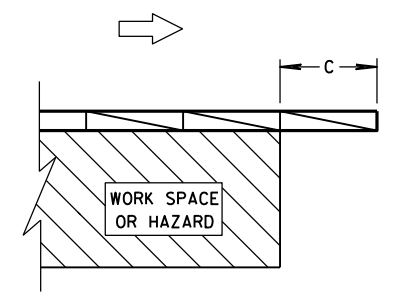
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



**ENDING TEMPORARY BARRIER
DOWNSTREAM - UNANCHORED**



**ENDING TEMPORARY BARRIER
DOWNSTREAM - ANCHORED**

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

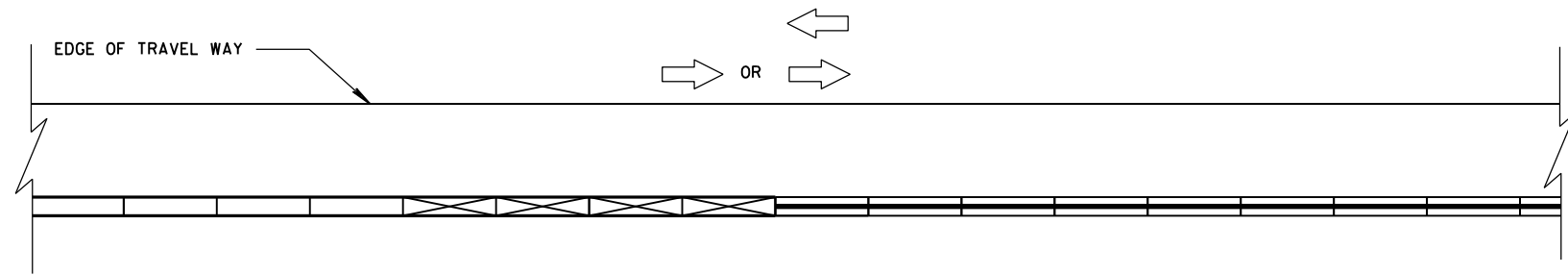
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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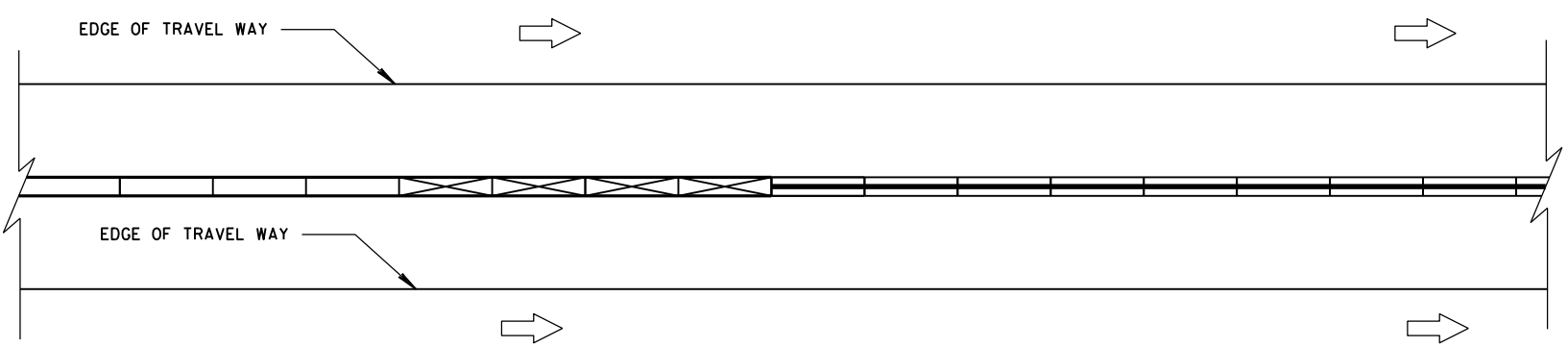
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S.D.D. 14 B 8-2c

S.D.D. 14 B 8-2c



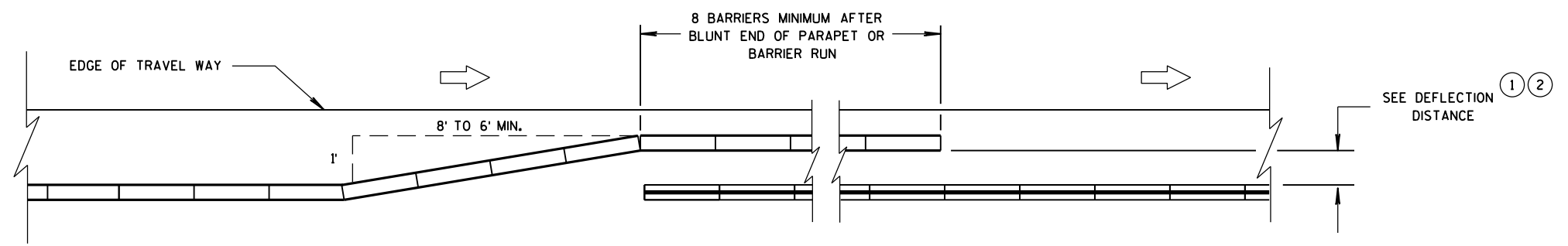
CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON ONE SIDE



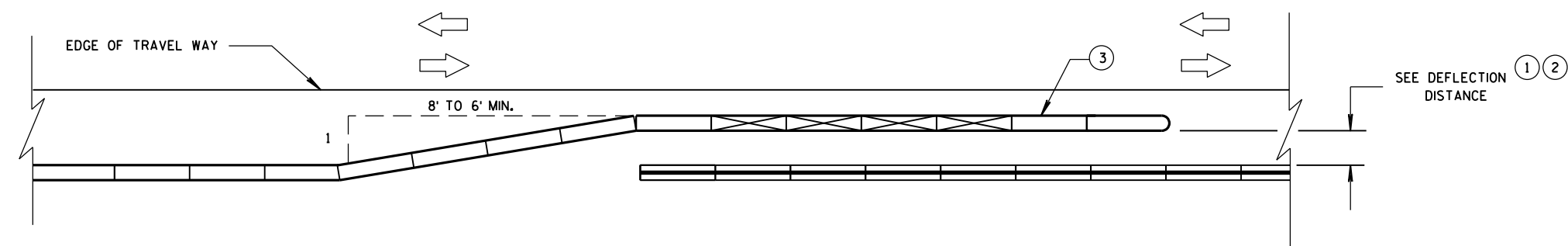
CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - TWO WAY TRAFFIC

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

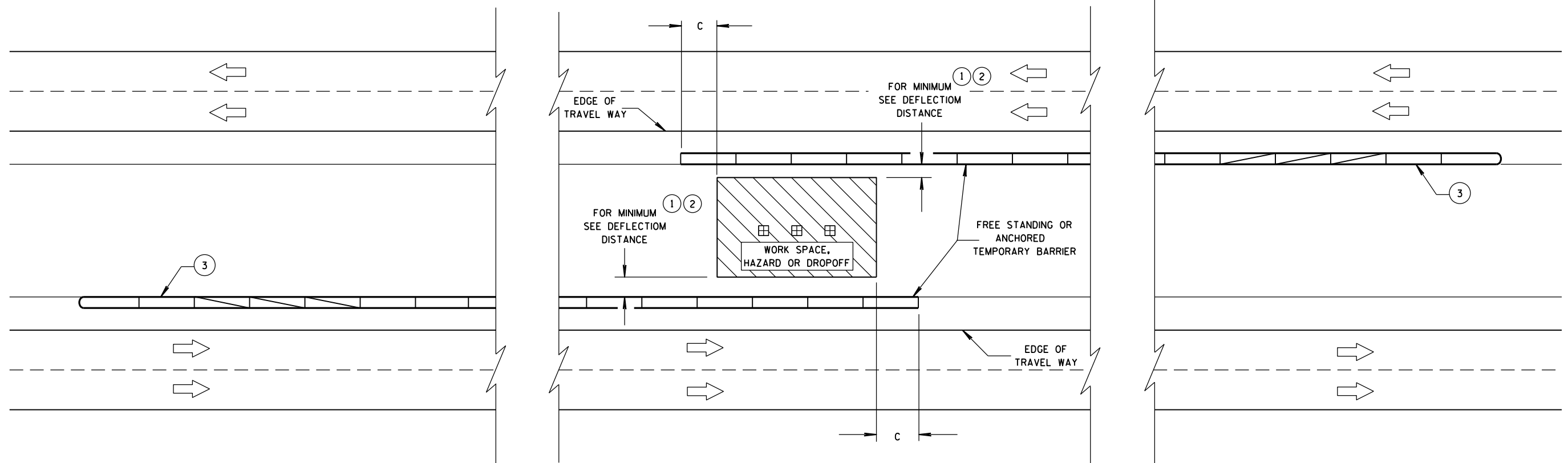
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE ²

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100



6

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S.D.D. 14 B 8-2e

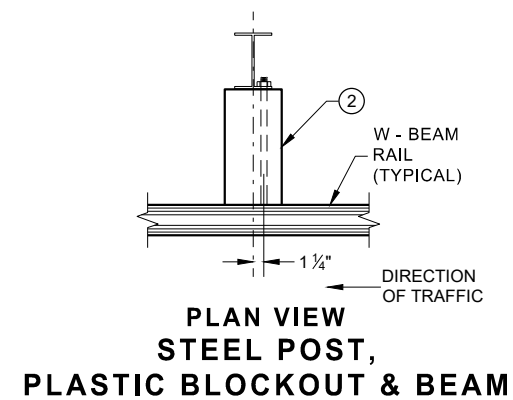
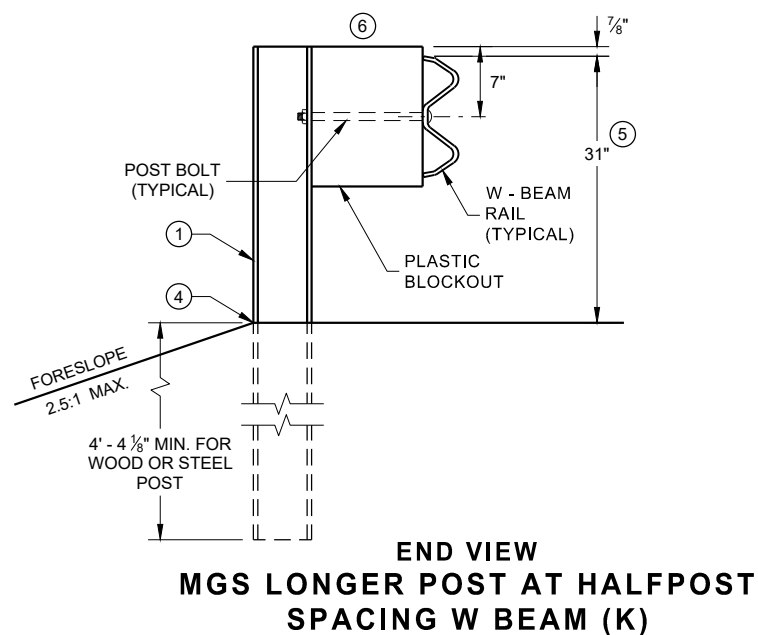
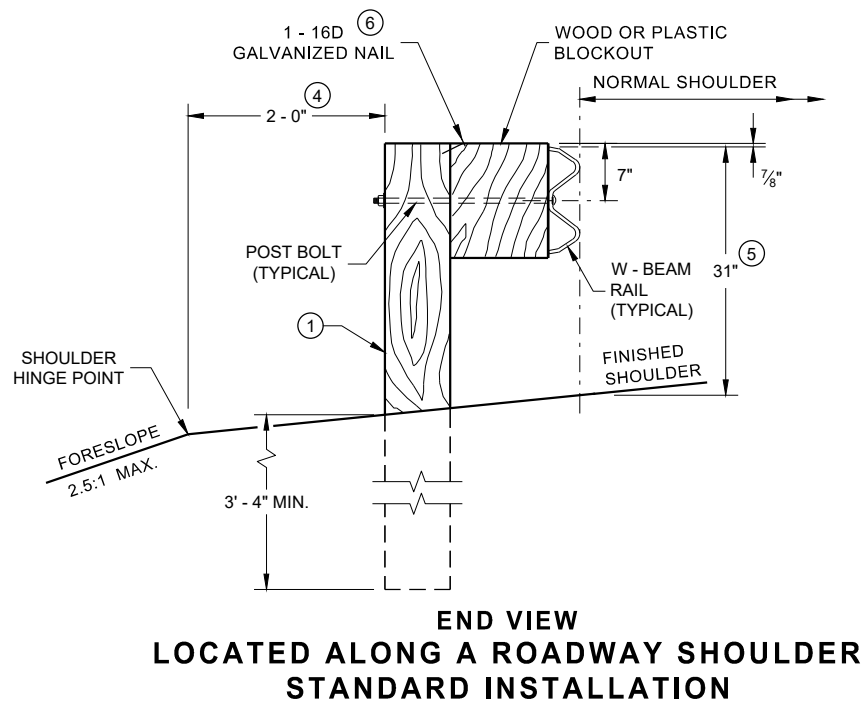
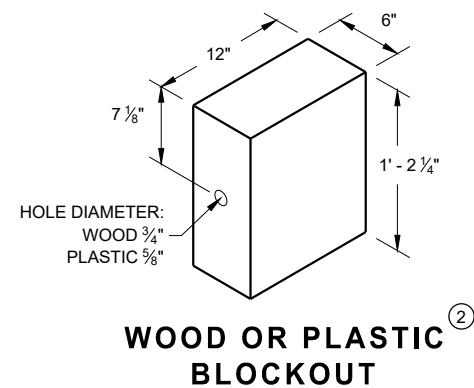
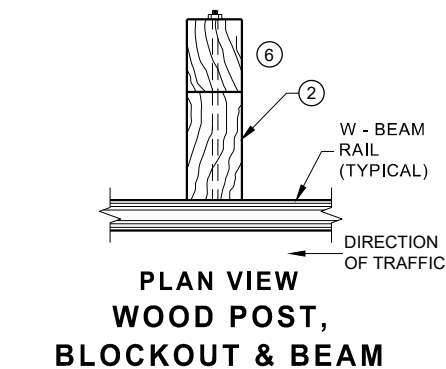
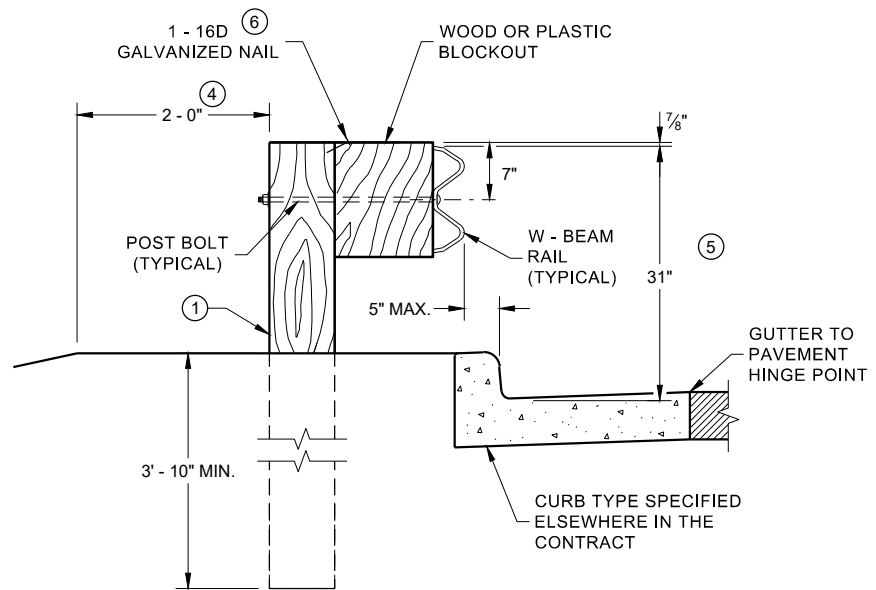
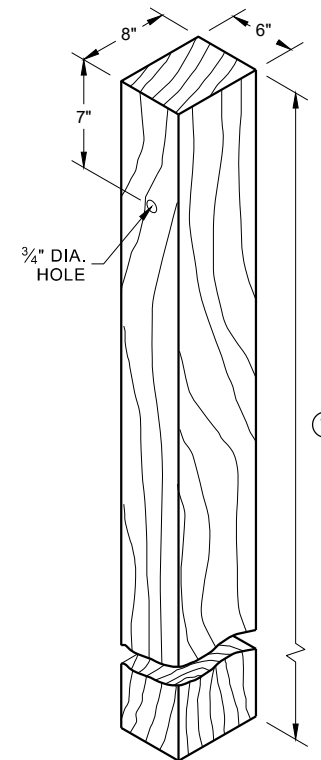
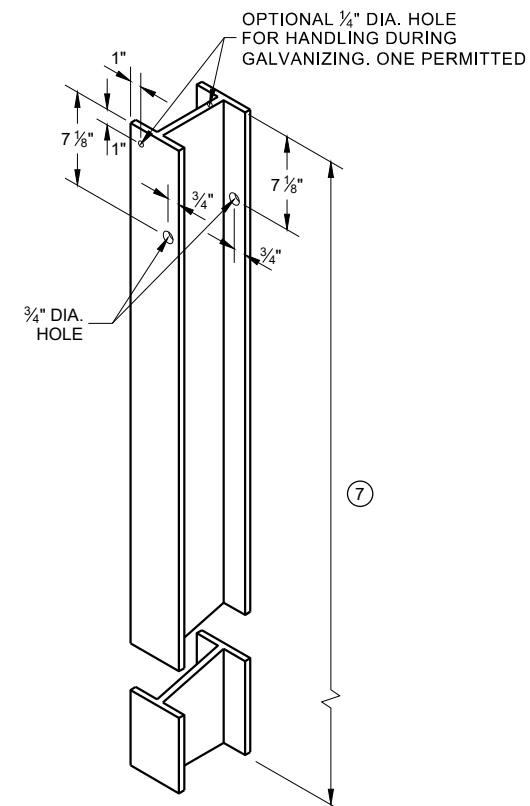
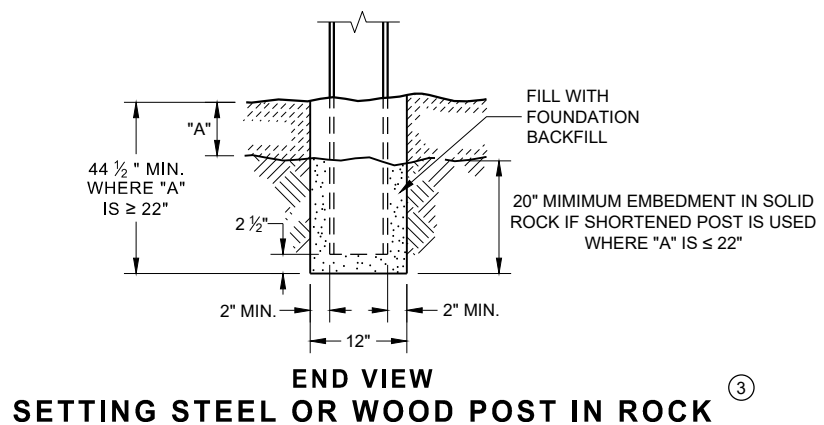
S.D.D. 14 B 8-2e

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

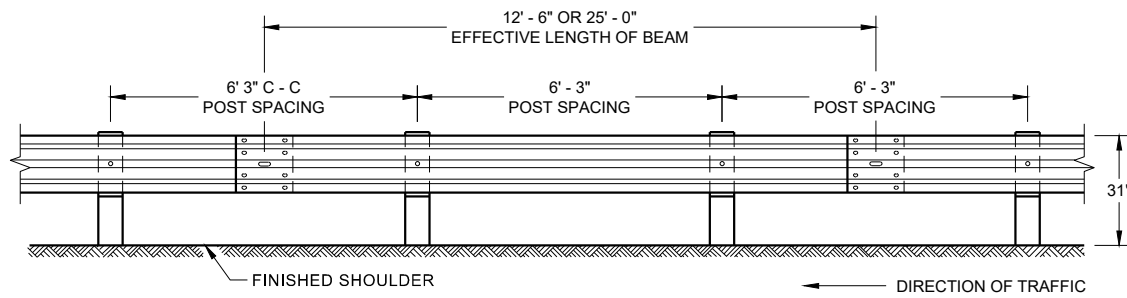
APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA ENGINEER

- 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.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".

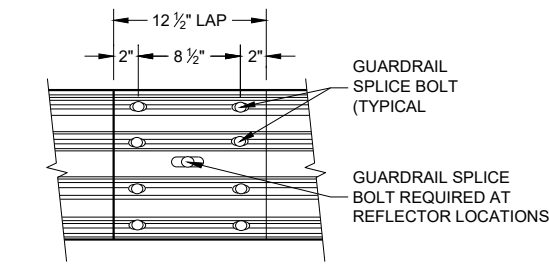


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



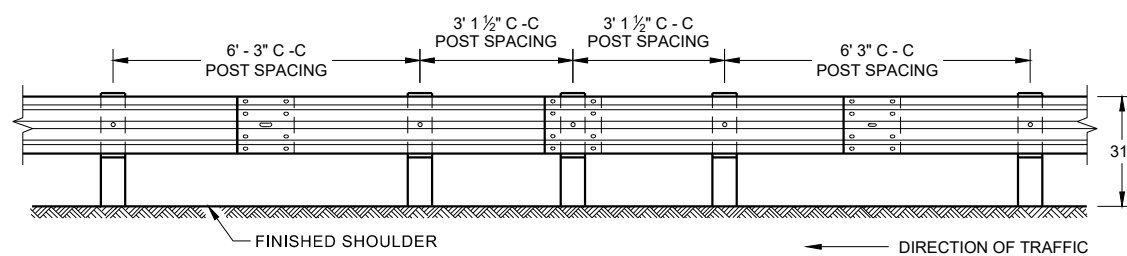
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



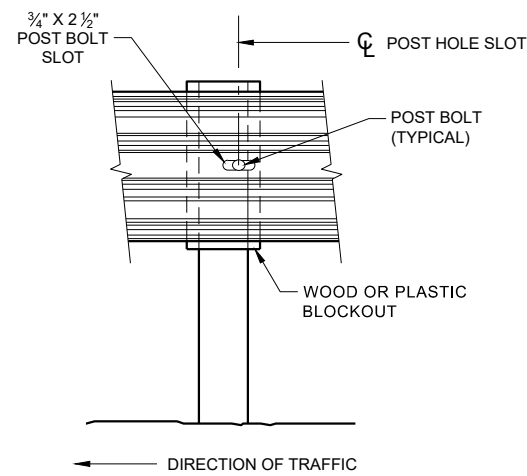
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

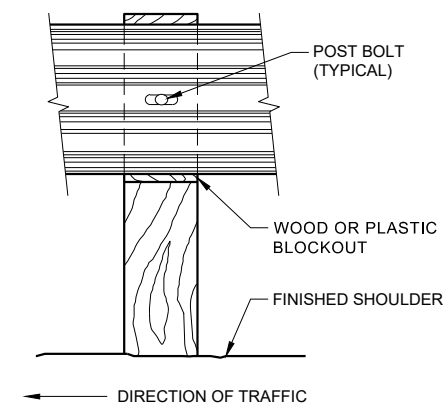
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



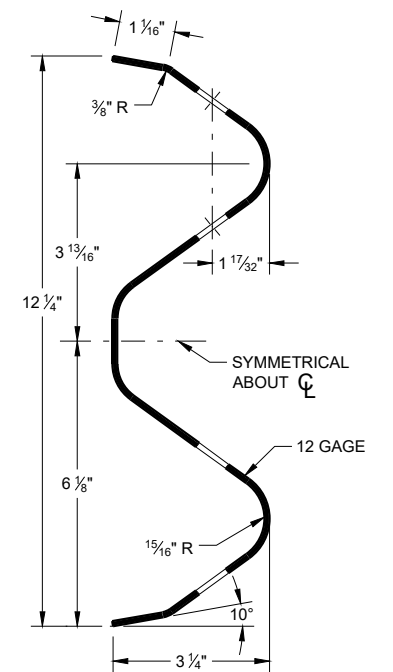
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



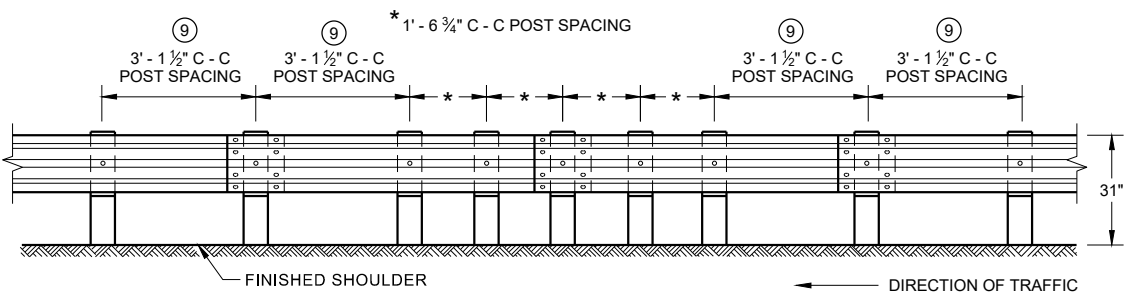
FRONT VIEW AT STEEL POST



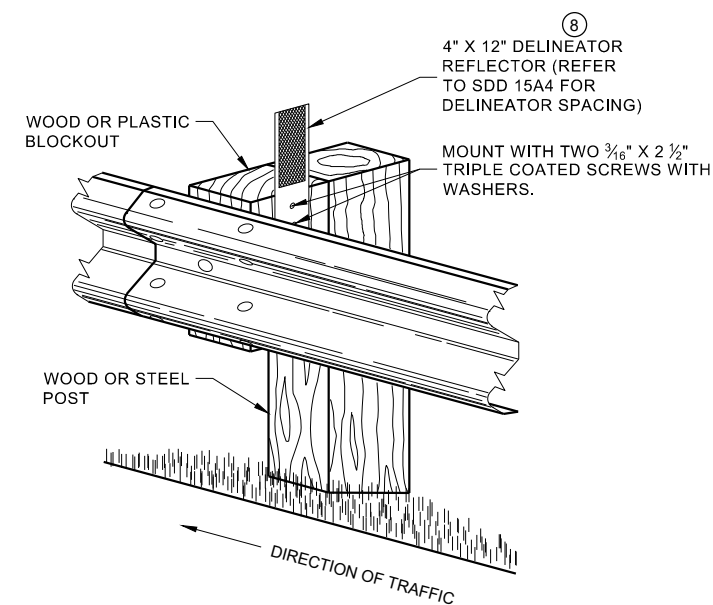
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



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



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

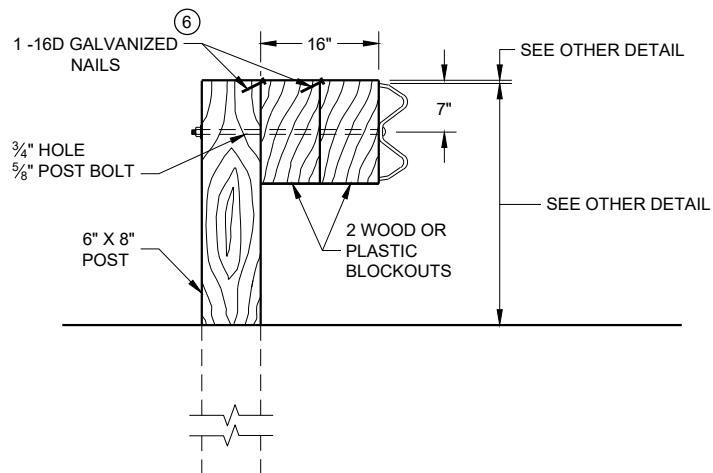
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 14B42 - 07b

SDD 14B42 - 07b

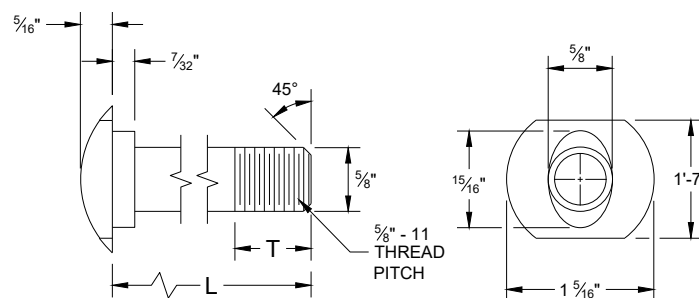


DETAIL FOR 16" BLOCKOUT DEPTH

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.

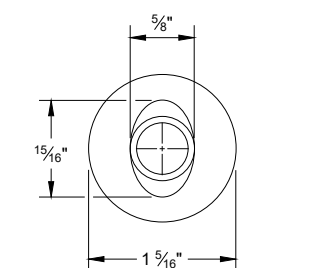
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

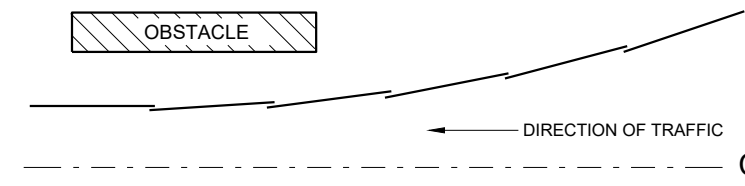


POST BOLT TABLE

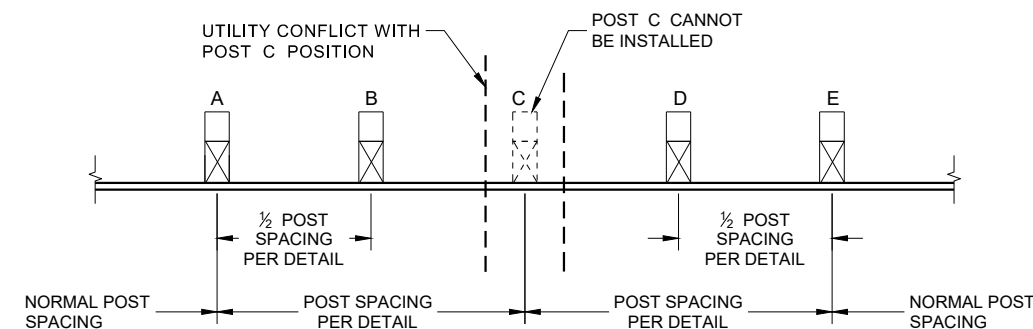
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



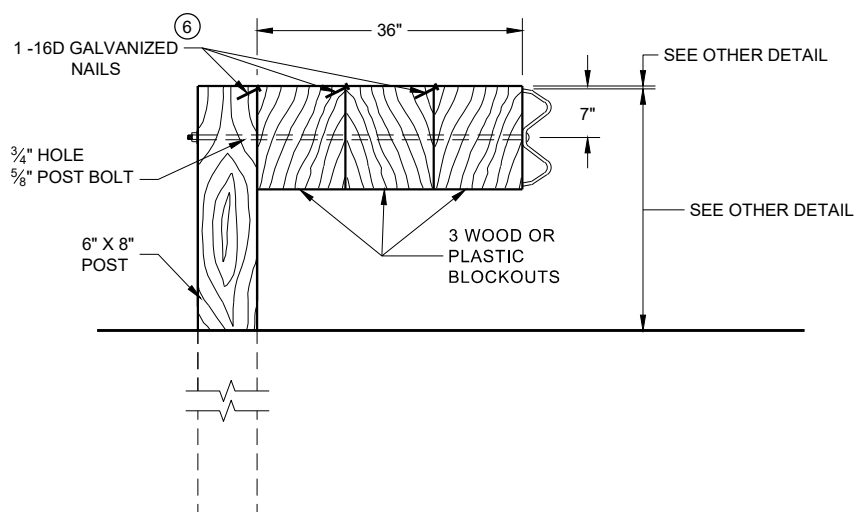
ALTERNATE BOLT HEAD



**PLAN VIEW
BEAM LAPPING DETAIL**

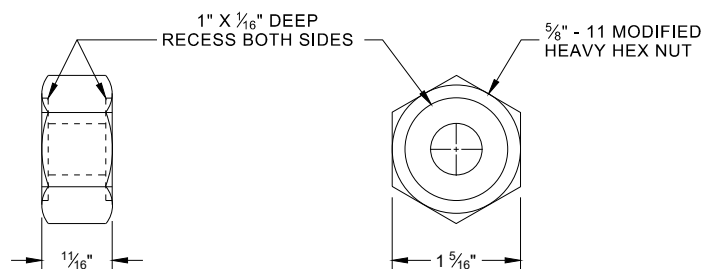


**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

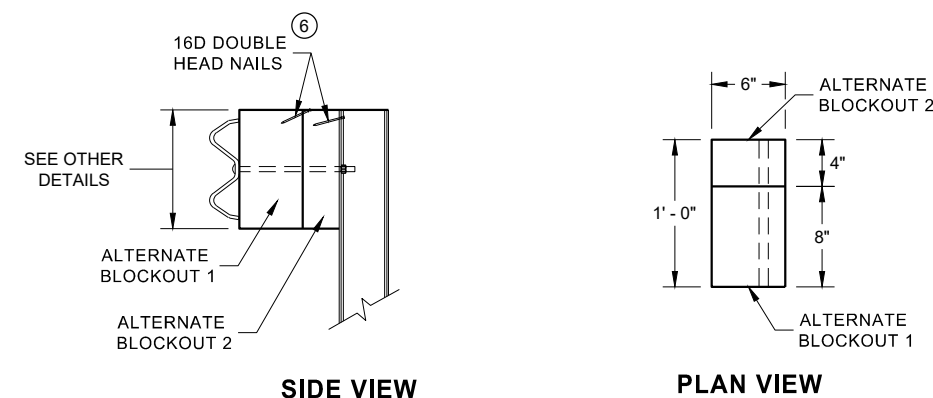


DETAIL FOR 36" BLOCKOUT DEPTH

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, SPLICE BOLT
AND RECESS NUT**

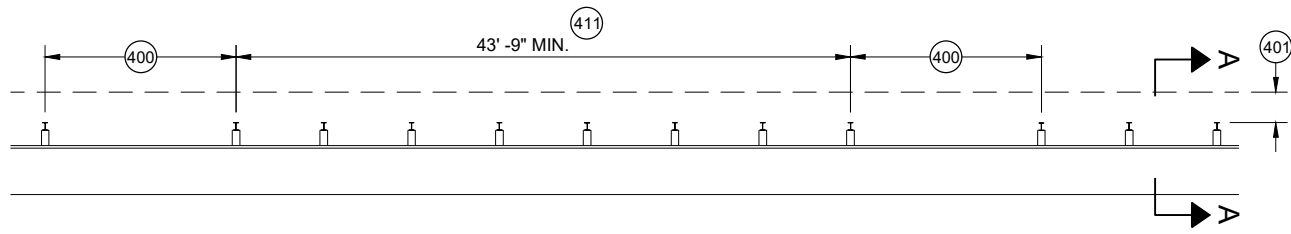


**ALTERNATE WOOD
BLOCKOUT DETAIL**

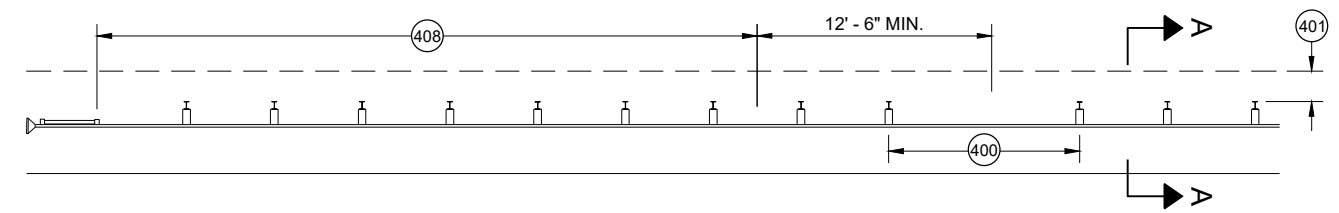
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

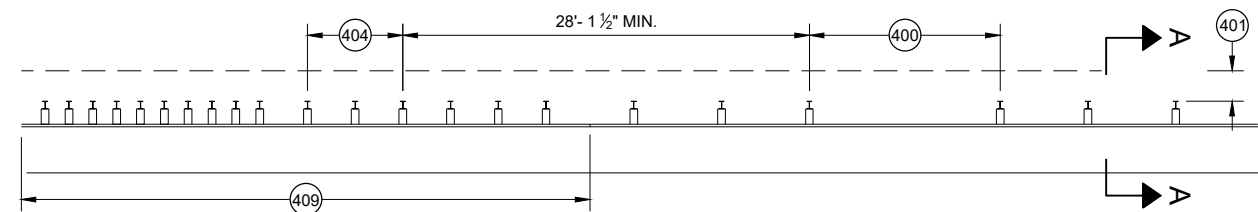
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



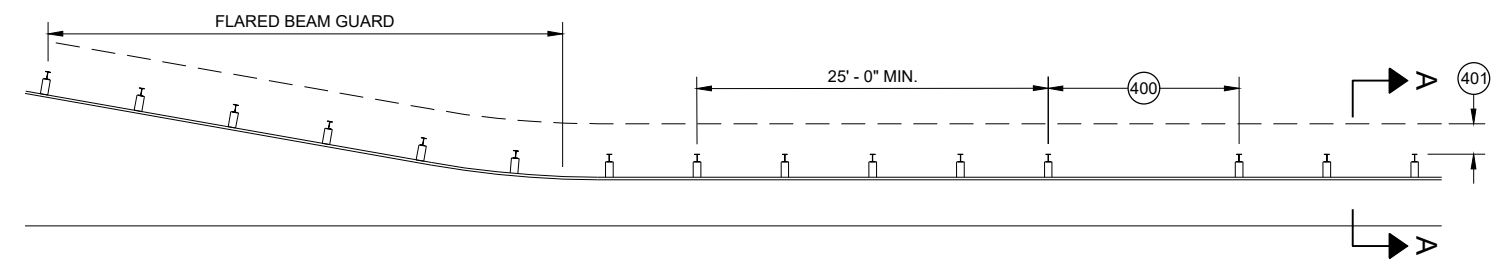
MISSING POST IN MGS GUARDRAIL



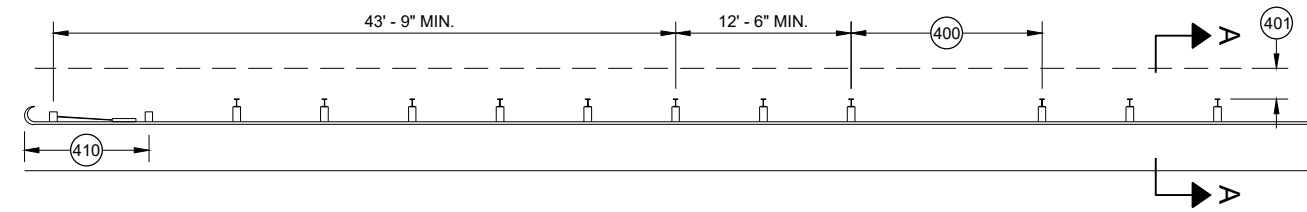
MISSING POST IN MGS GUARDRAIL NEAR EAT



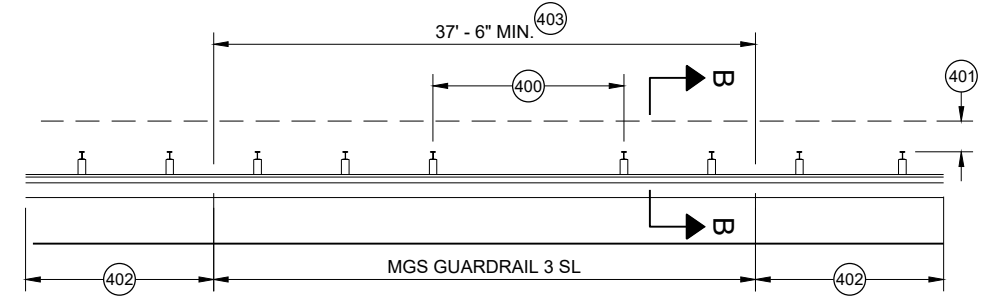
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

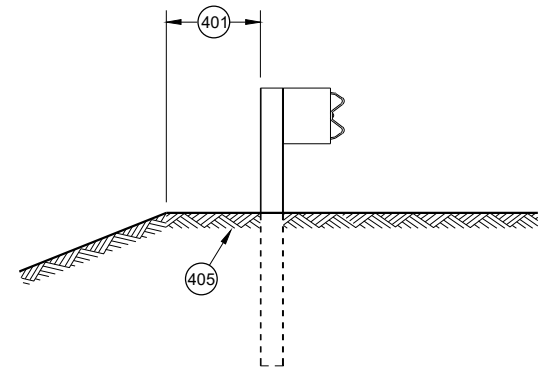


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

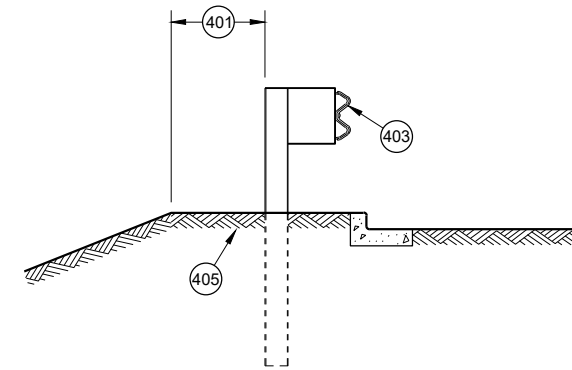


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
 - (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
 - (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
 - (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
 - (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.
- DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

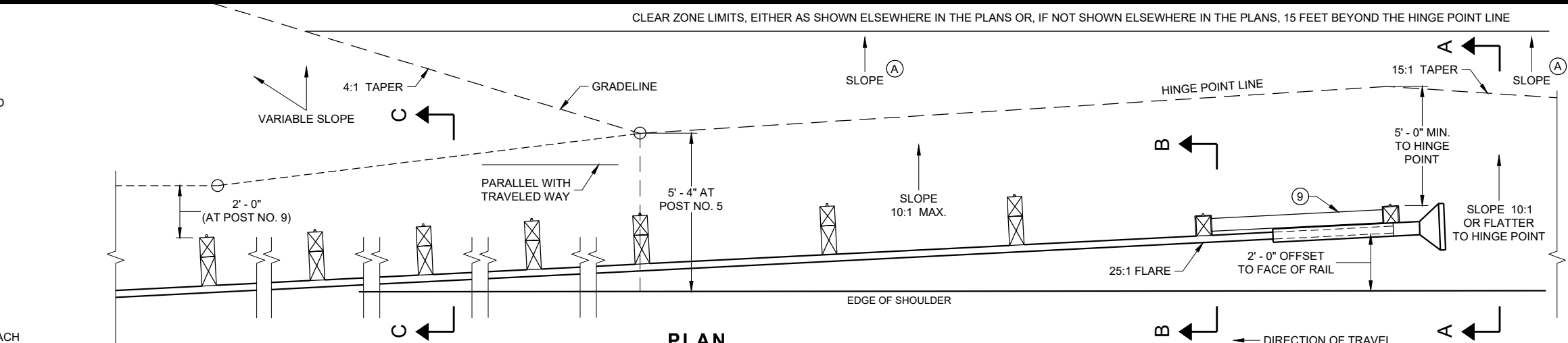
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

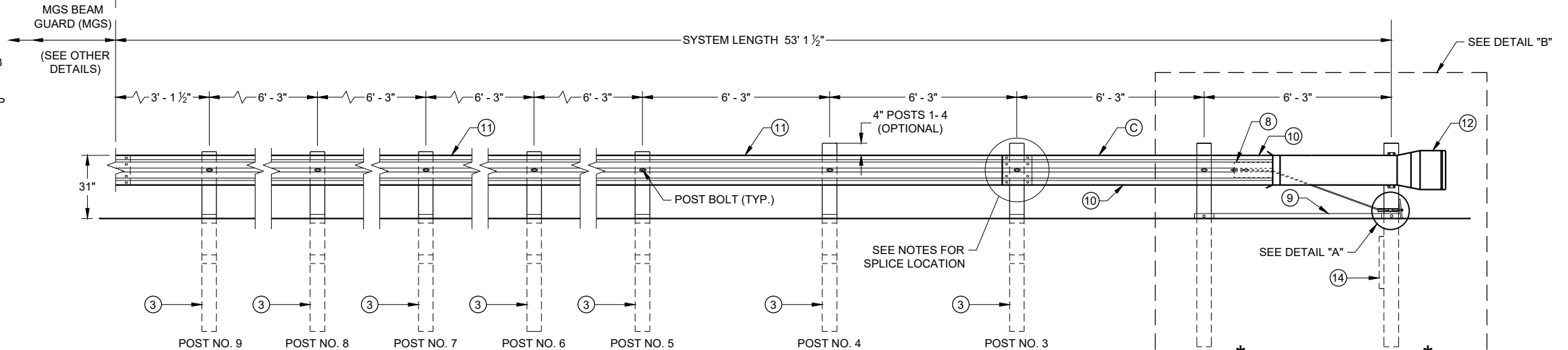
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

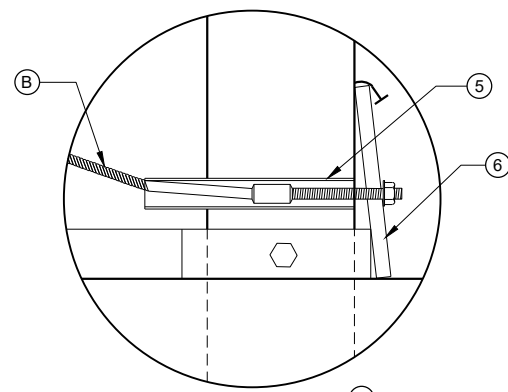
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



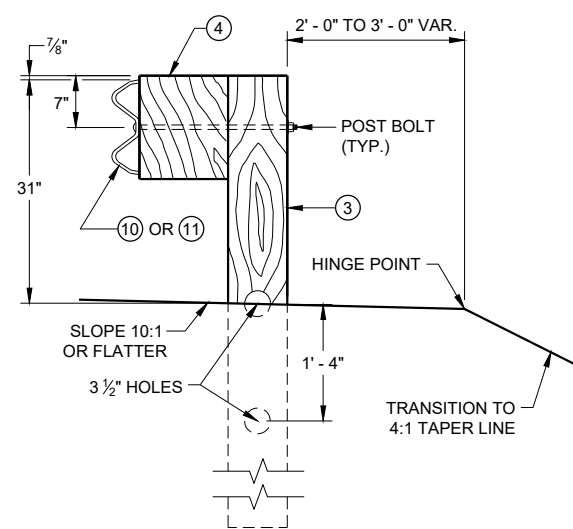
PLAN



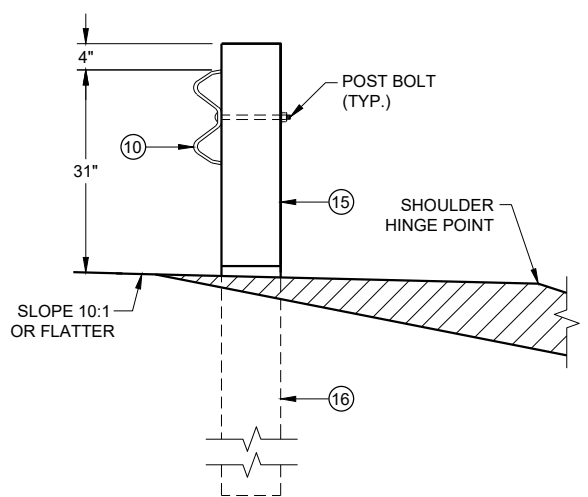
ELEVATION



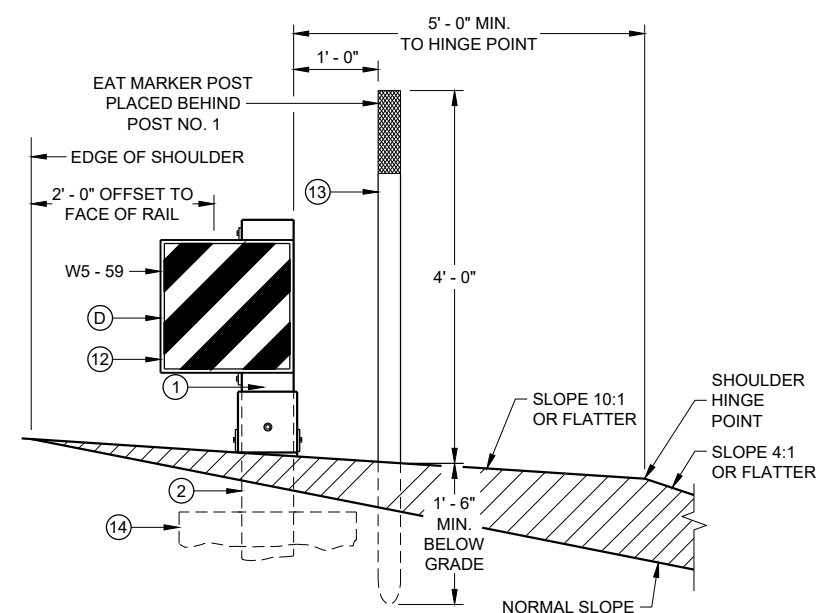
DETAIL "A"



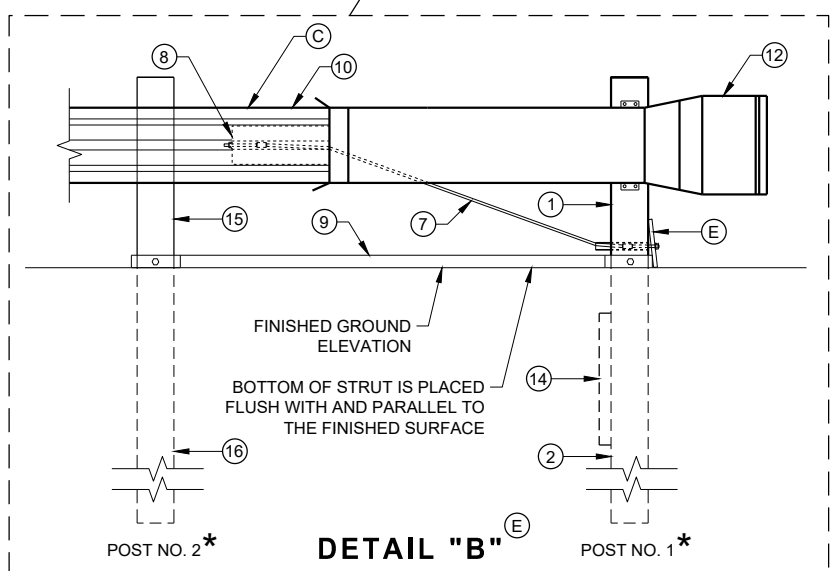
**SECTION C - C
TYPICAL AT POST NOS. 3 - 9**



**SECTION B - B
TYPICAL AT POST NO. 2***



**SECTION A - A
TYPICAL AT POST NO. 1***



DETAIL "B"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

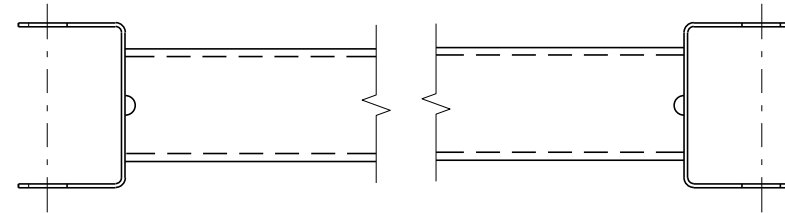
6

SDD 14B44 - 04a

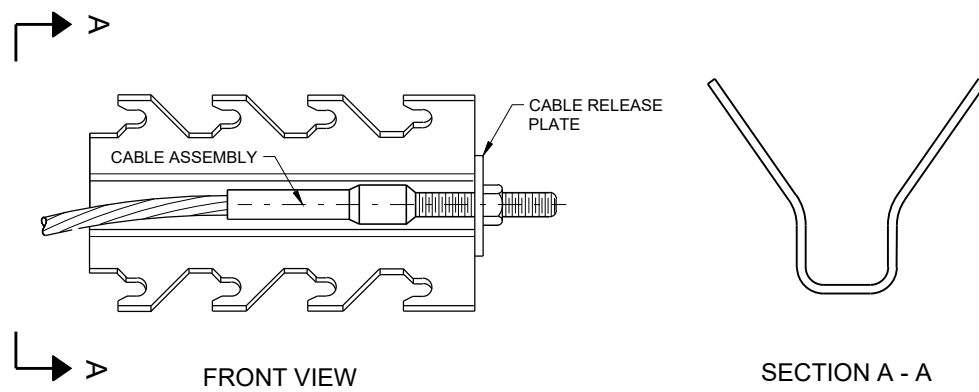
SDD 14B44 - 04a

BILL OF MATERIALS

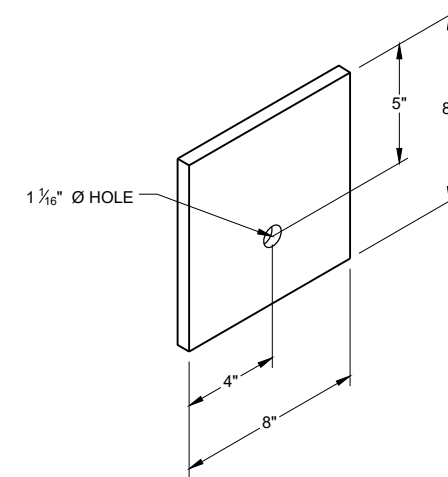
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



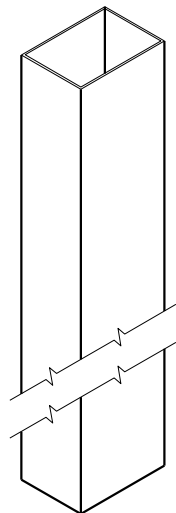
GENERIC GROUND STRUT ⑨ ⑤



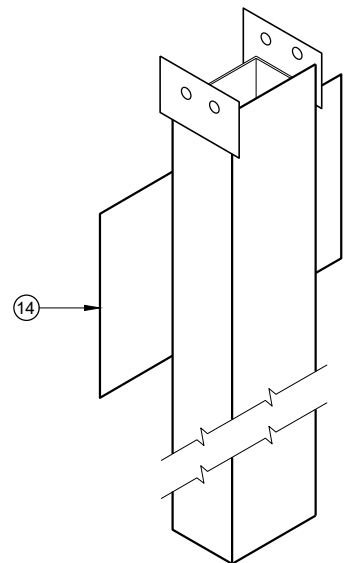
GENERIC ANCHOR CABLE BOX ⑨ ⑤



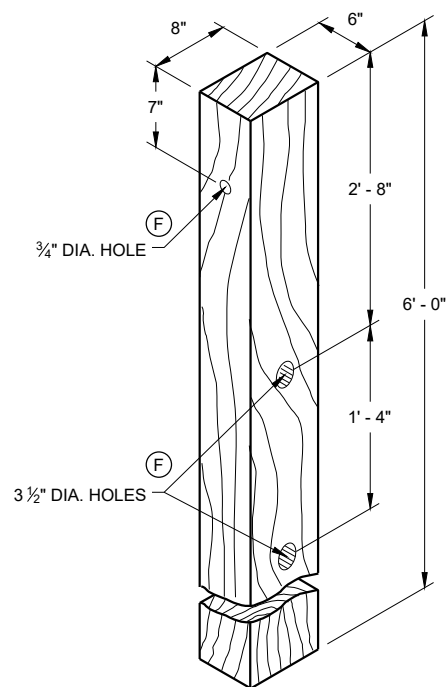
BEARING PLATE ⑥ ⑤



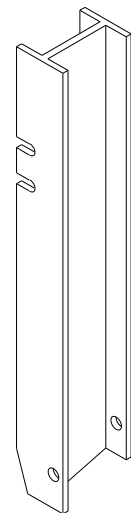
UPPER POST NO. 1 ⁽¹⁾ (E)



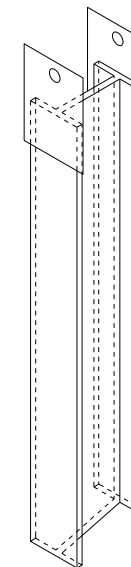
LOWER POST NO. 1 ⁽²⁾ (E)



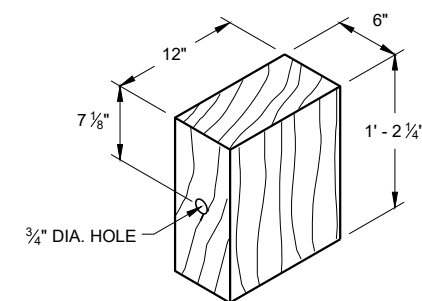
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

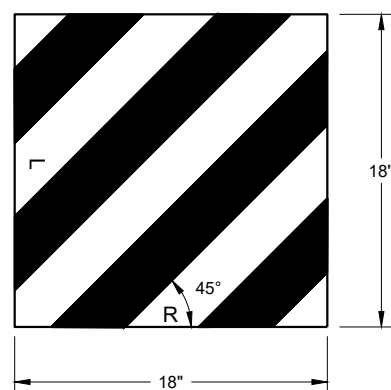


LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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

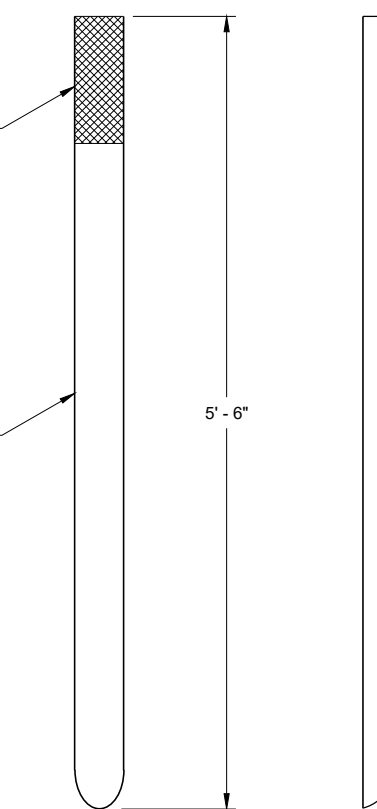
6



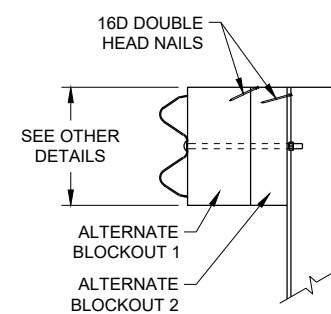
W5 - 59
REFLECTIVE SHEETING DETAIL ^(E)

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

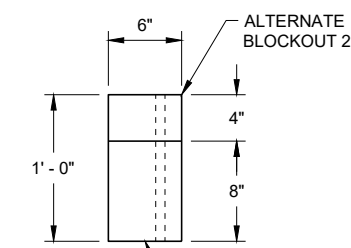
E.A.T. MARKER
POST (YELLOW)



FRONT VIEW SIDE VIEW
E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

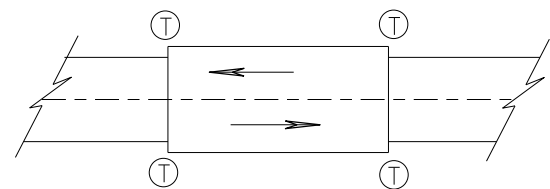
SDD 14B44 - 04c

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

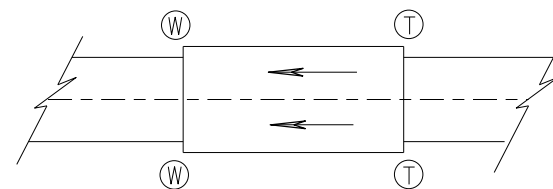
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

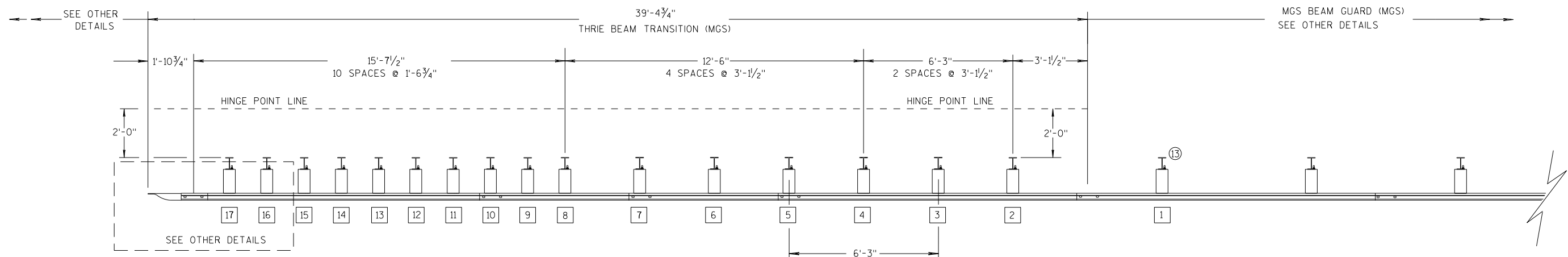
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

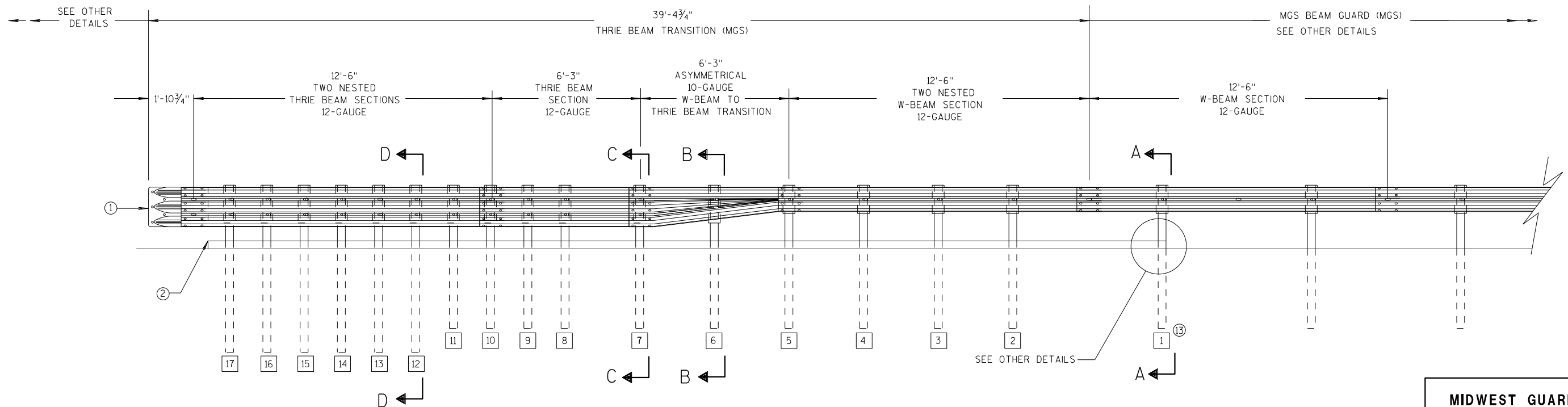
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

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



PLAN VIEW



ELEVATION VIEW

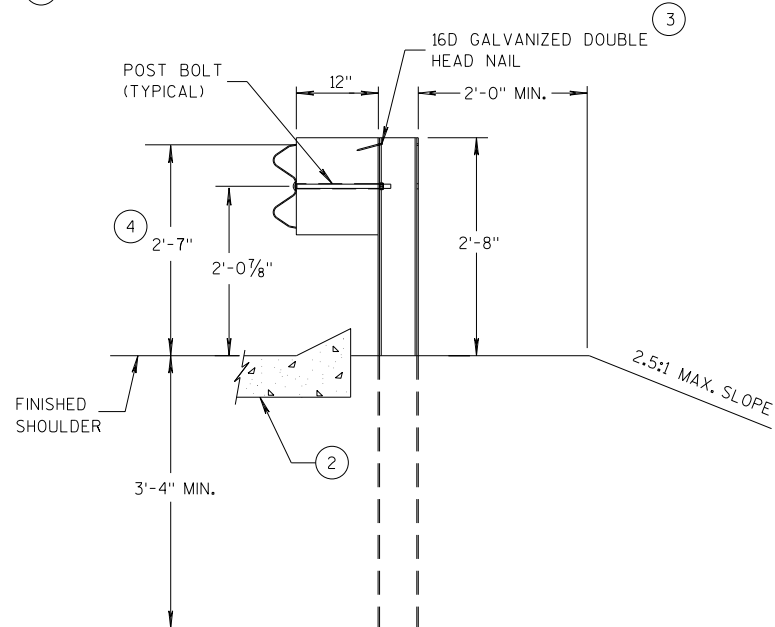
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

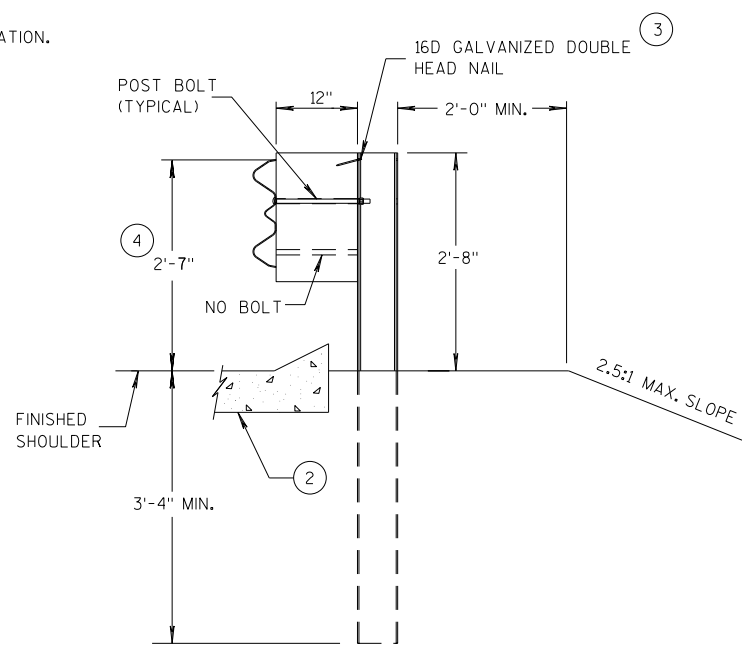
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

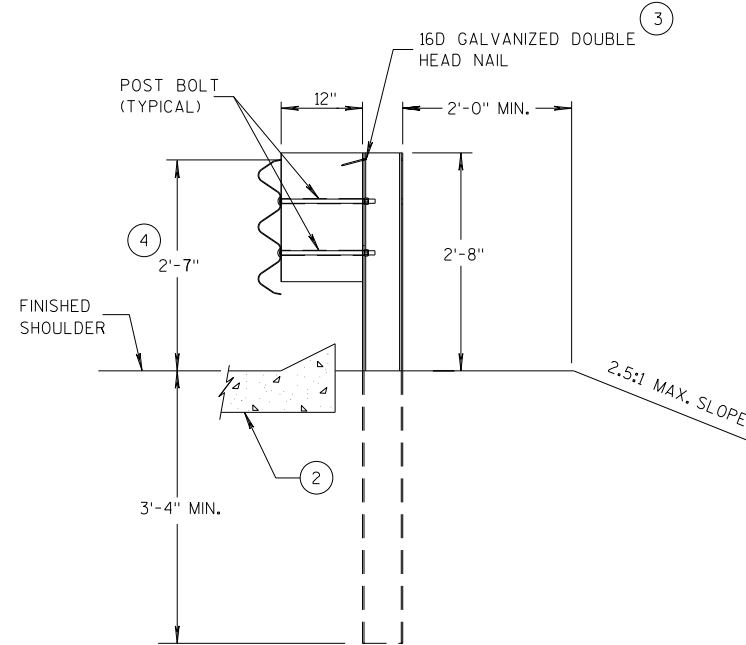
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



**SECTION A-A
POSTS 1-5**



**SECTION B-B
POST 6**



**SECTION C-C
POSTS 7-11**

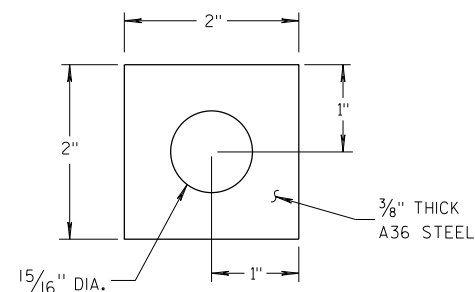
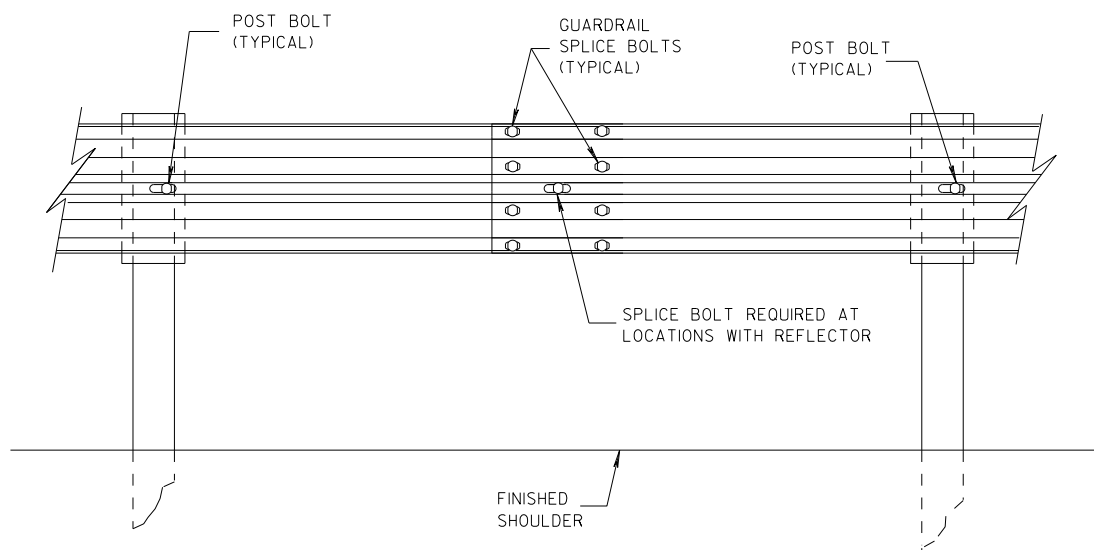
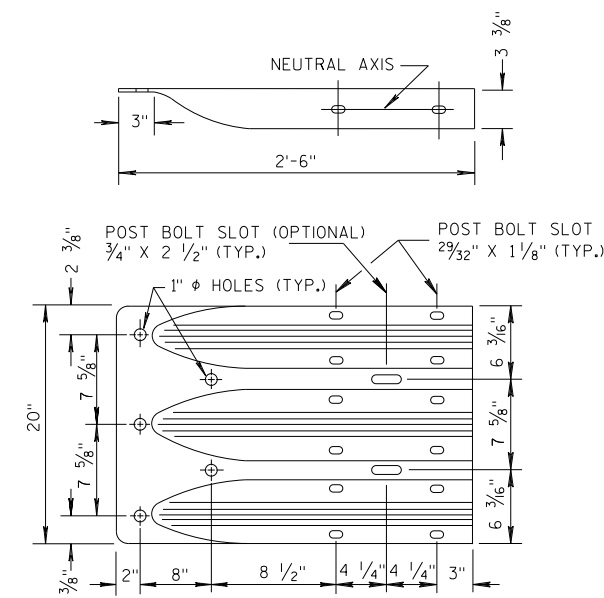


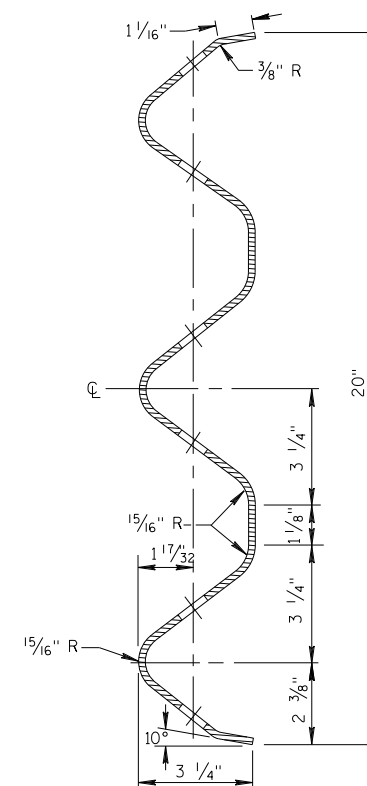
PLATE WASHER DETAIL



SPLICE DETAIL



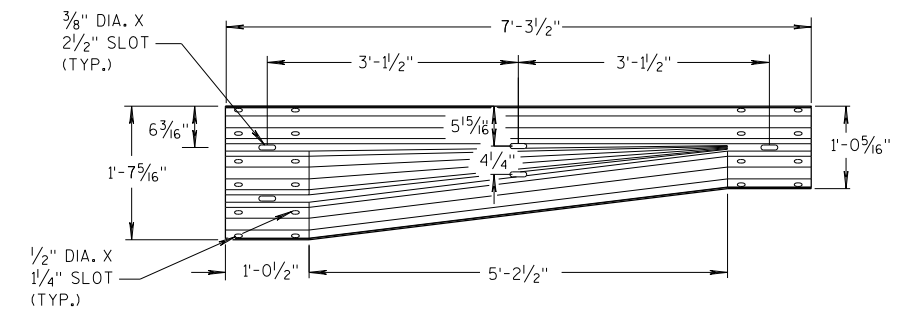
**THRIE BEAM
TERMINAL CONNECTOR**



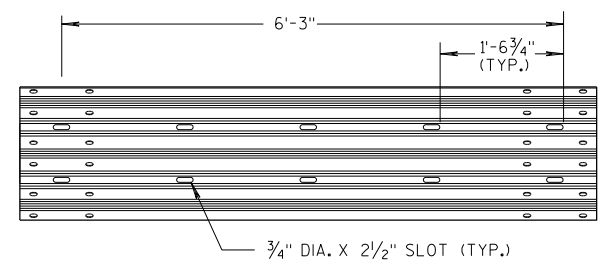
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

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

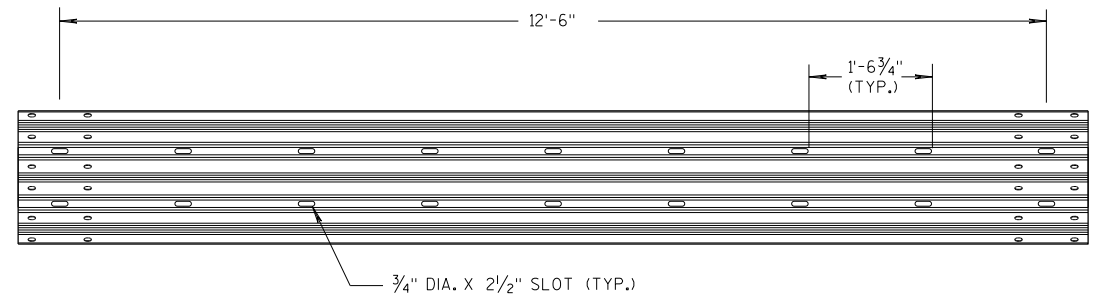
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



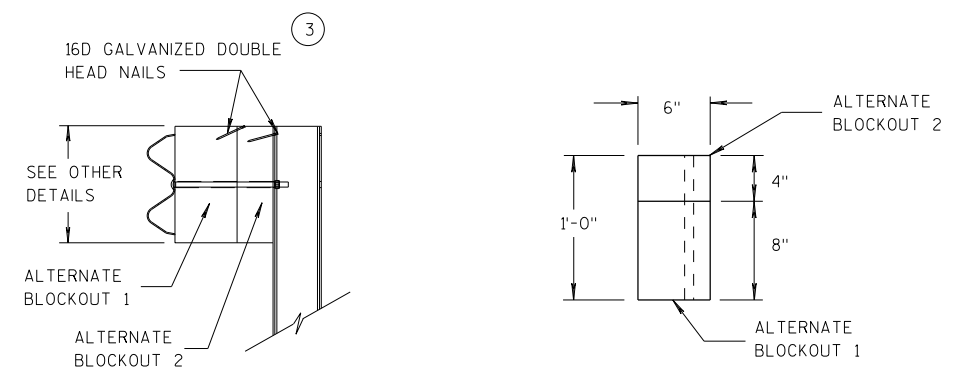
W-BEAM TO THRIE BEAM TRANSITION SECTION



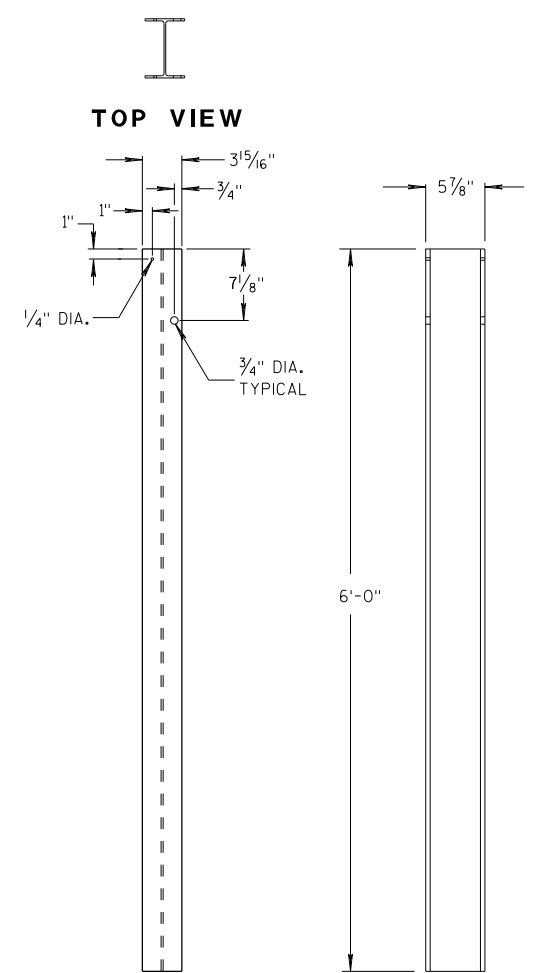
6'-3\"/>



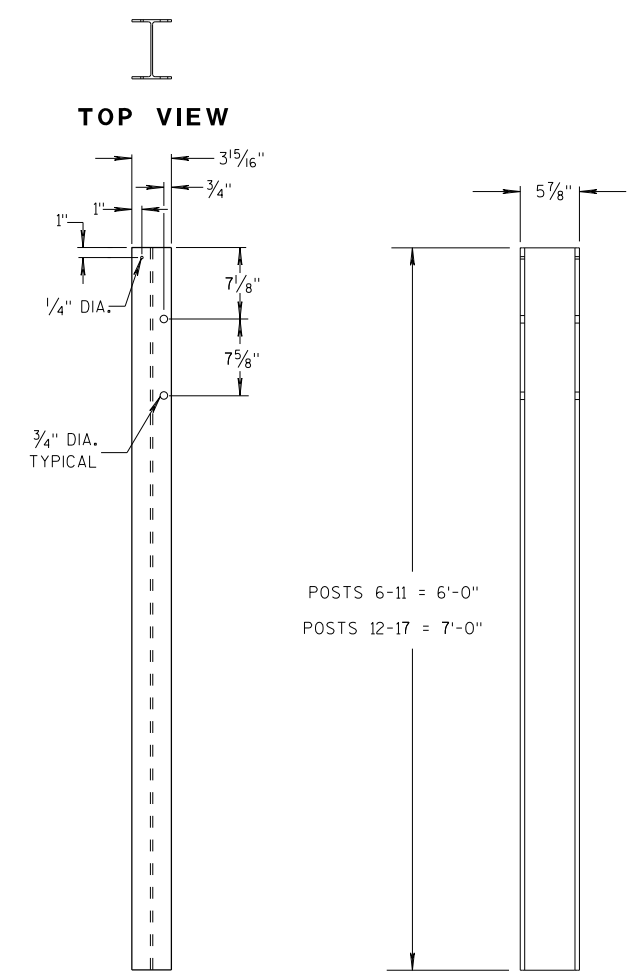
12'-6\"/>



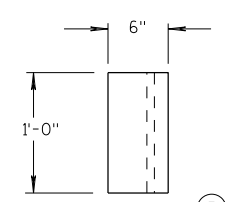
ALTERNATE WOOD BLOCKOUT DETAIL



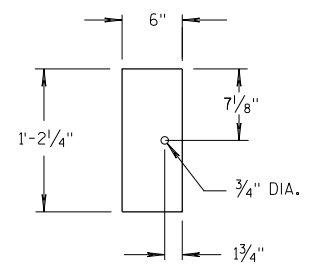
STEEL POSTS 1-5



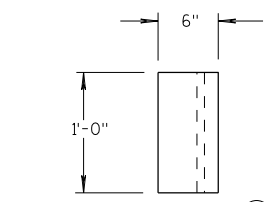
STEEL POSTS 6-17



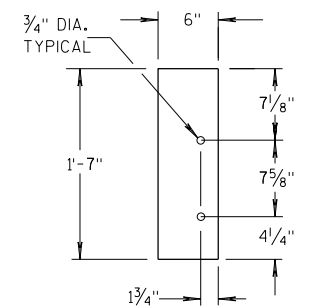
TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 1-5**



TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 6-17**

GENERAL NOTES

- STEEL POSTS ARE W6X9 OR W6X8.5.
- BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.
- (3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- (5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

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

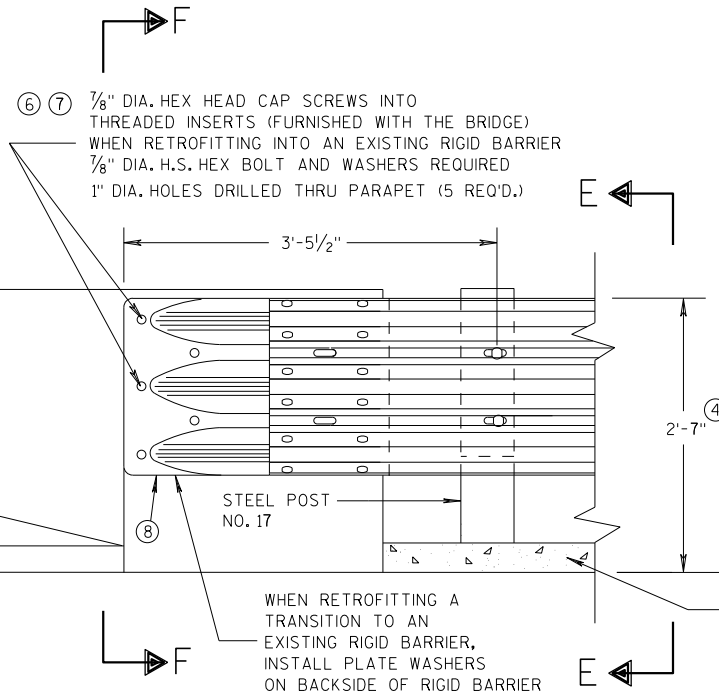
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

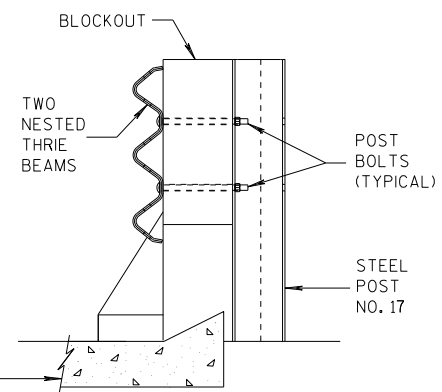
S.D.D. 14 B 45-5c

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



FRONT VIEW

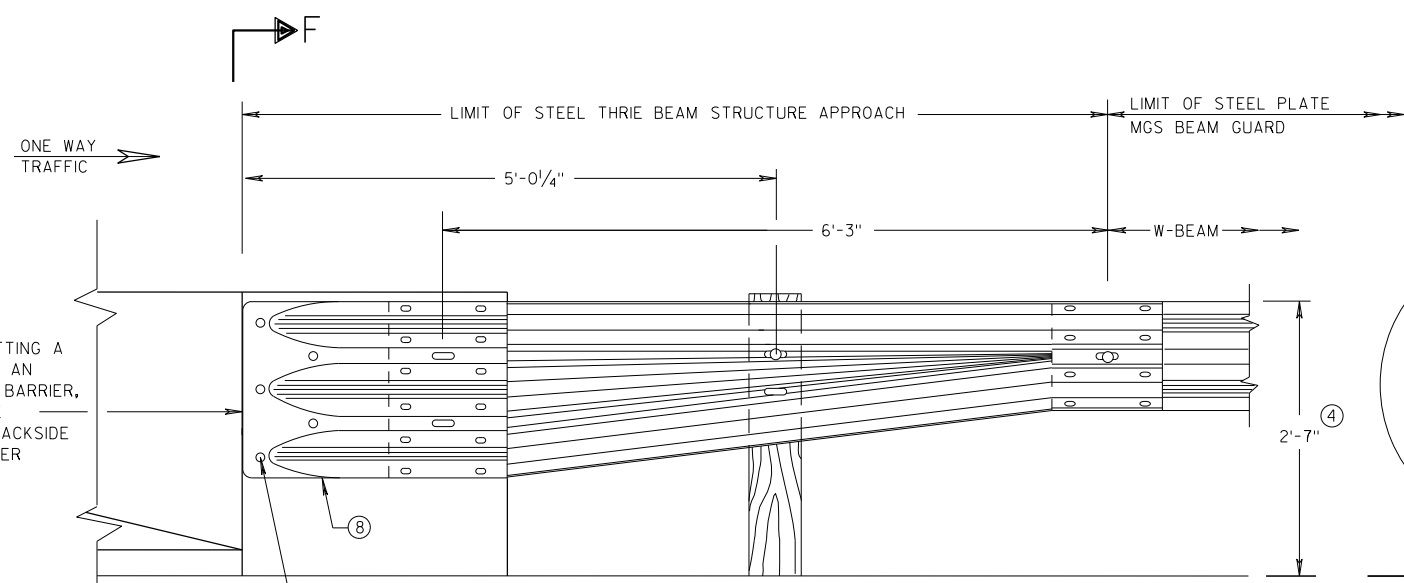
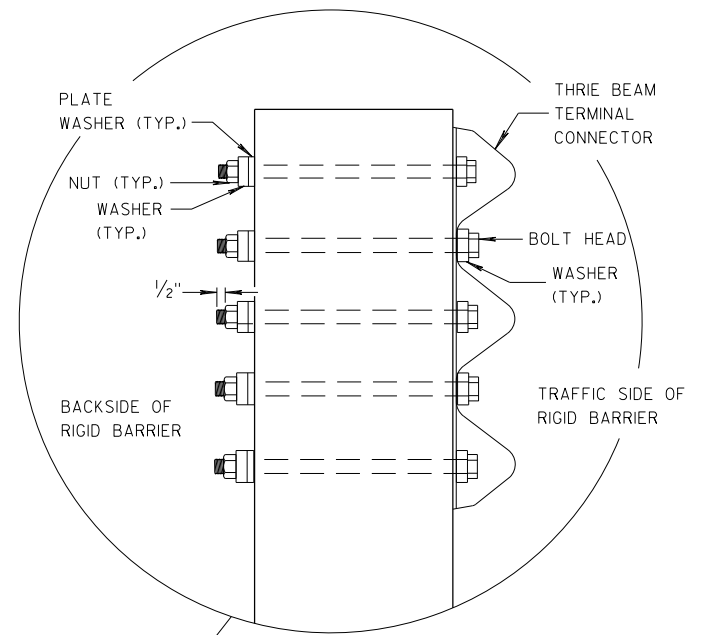
THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



SECTION E-E

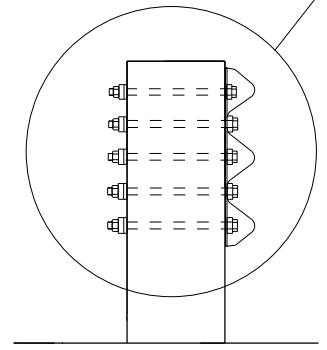
GENERAL NOTES

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
 - (4) TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
 - (6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
 - (7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
 - (8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

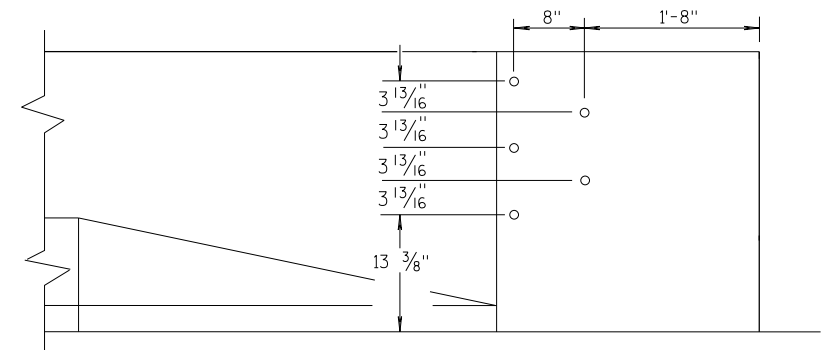


FRONT VIEW

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



DRILL HOLE LOCATION

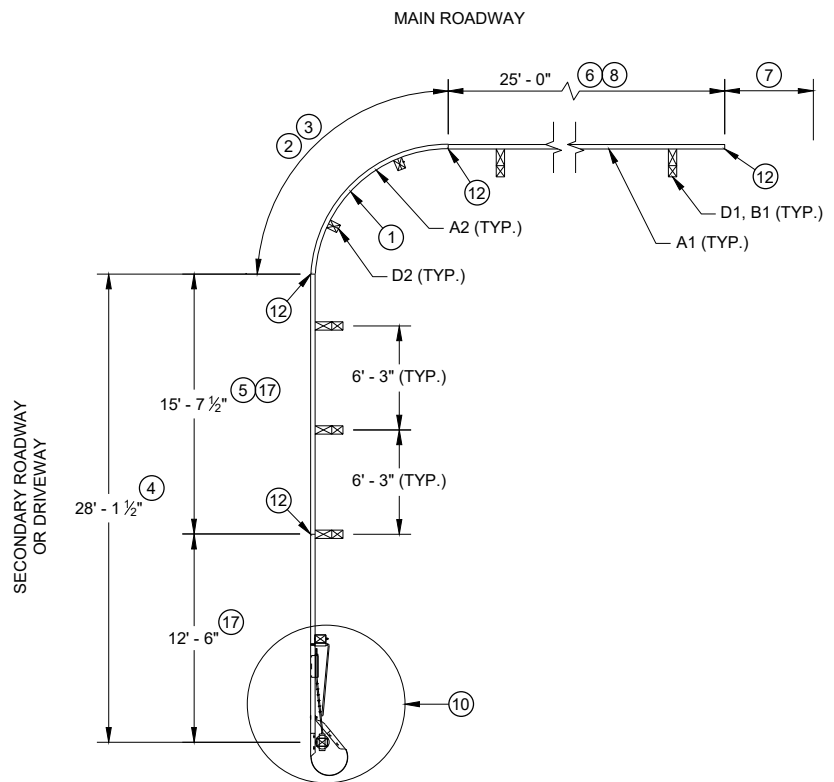
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

6

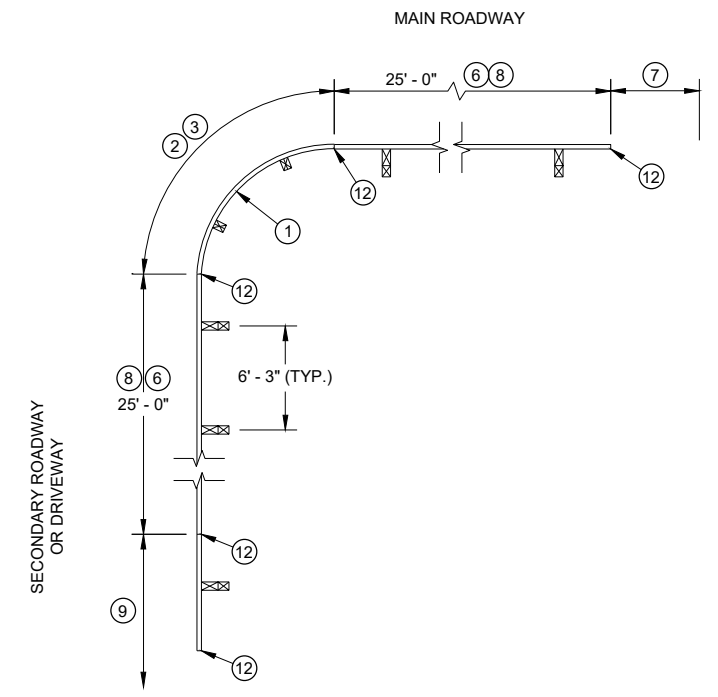
6

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

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



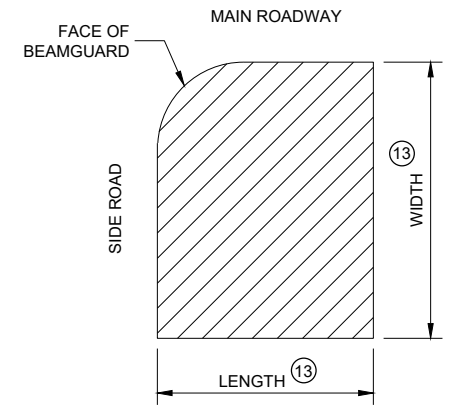
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
SHORT RADIUS TERMINAL ON
SECONDARY ROAD OR DRIVEWAY



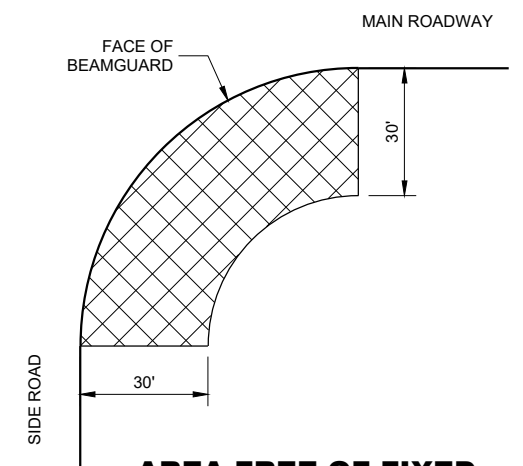
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER ON
SECONDARY ROAD OR DRIVEWAY

TABLE FOR RADIUS OF 32' AND LESS

RADIUS (FT)	LENGTH (FT)	WIDTH (FT)
8	25	15
16	30	15
24	40	20
32	50	30



AREA FREE OF FIXED
OBJECTS FOR RADIUS
32' AND LESS

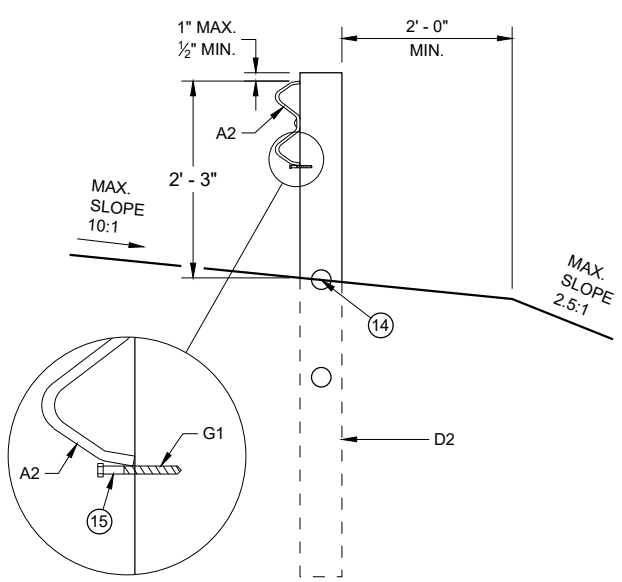


AREA FREE OF FIXED
OBJECTS FOR RADIUS
GREATER THAN 32'

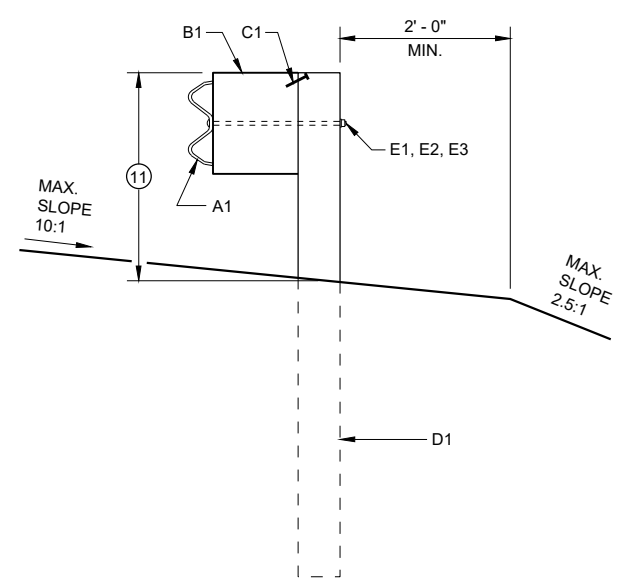
GENERAL NOTES

- SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.
- SEE SDD 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.
- GALVANIZE PARTS AFTER FABRICATION.
- WELDING TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI / AWS D1.1.
- UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.
- UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERTICAL.
- ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUT.
- UNLESS NOTED OTHERWISE, CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT.
- DRAWINGS ARE NOT TO SCALE.

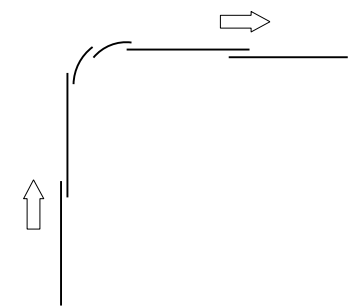
- ① RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- ② CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
- ③ WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
- ④ MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
- ⑤ ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- ⑥ MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- ⑦ BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- ⑧ TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- ⑨ ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- ⑩ SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
- ⑪ HEIGHT VARIES. SEE NOTE ⑧ AND ⑧.
- ⑫ BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- ⑬ SEE TABLE FOR VALUES.
- ⑭ MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- ⑮ DRILL POST 1 5/8" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- ⑯ SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- ⑰ TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).



CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS



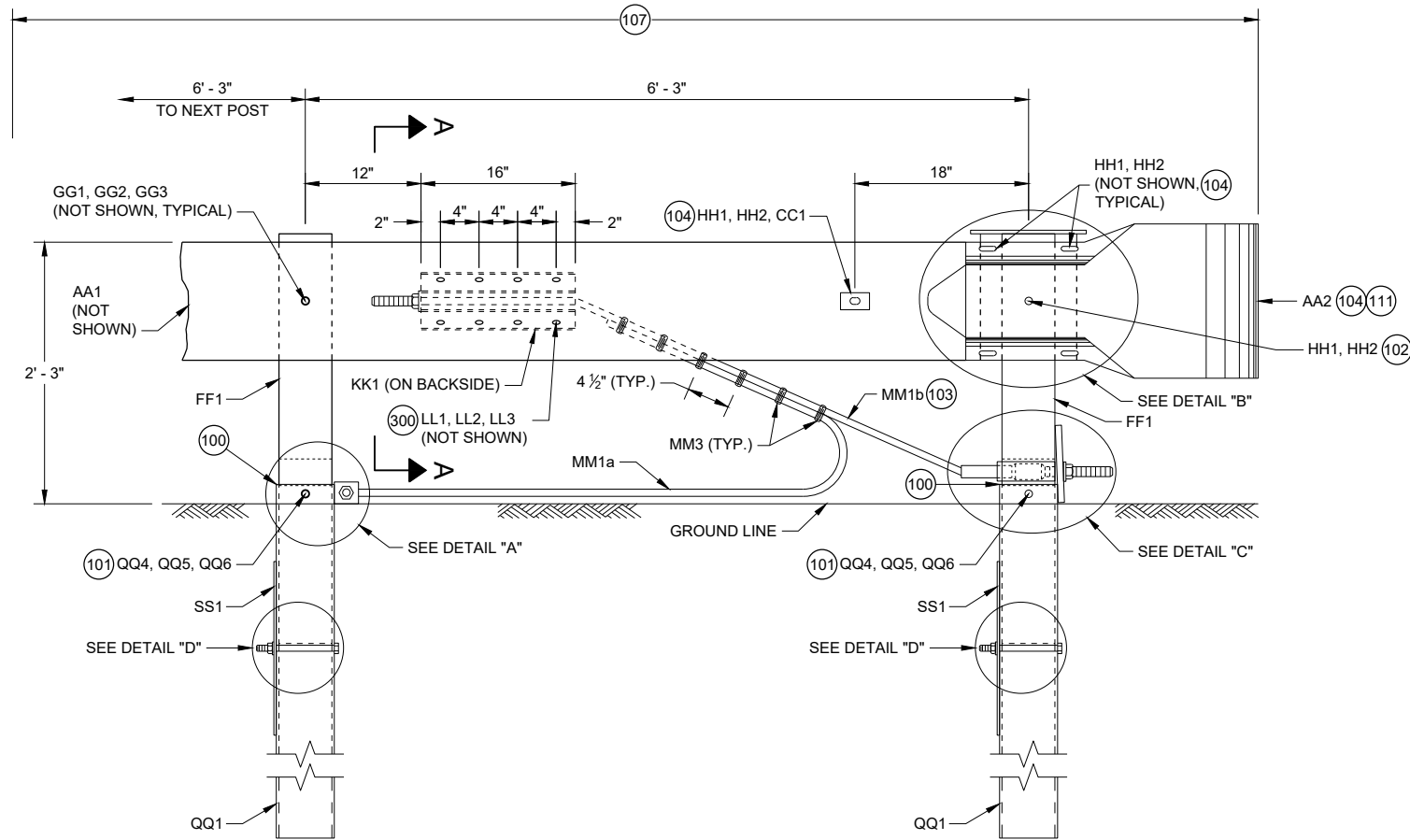
BEAM GUARD POSTS
IN HEIGHT TRANSITION



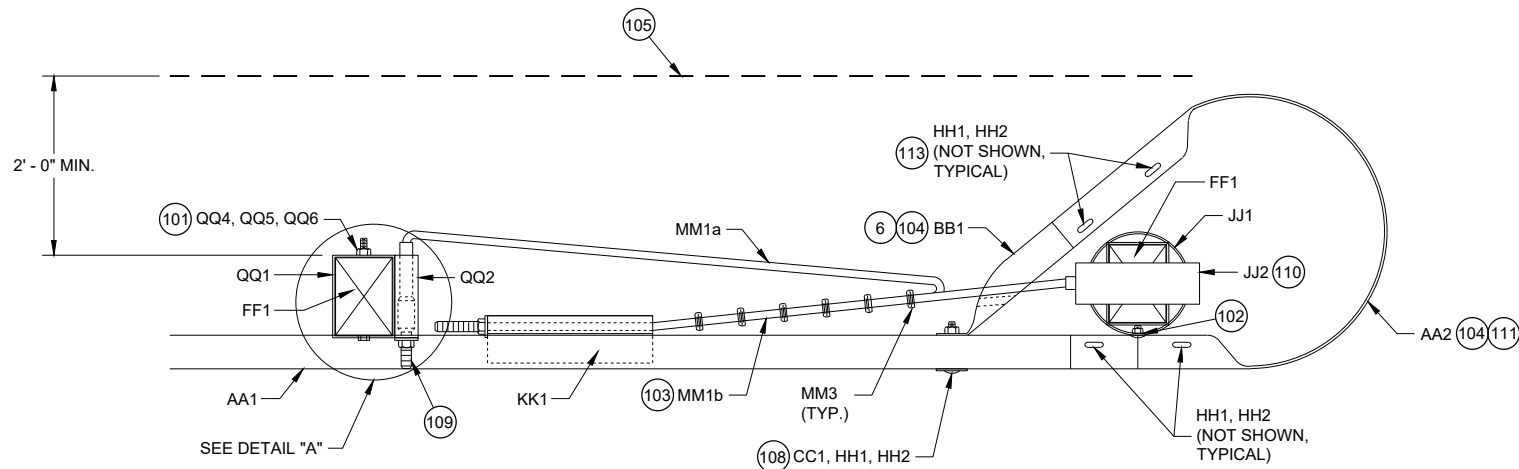
LAP SPLICE DETAIL

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

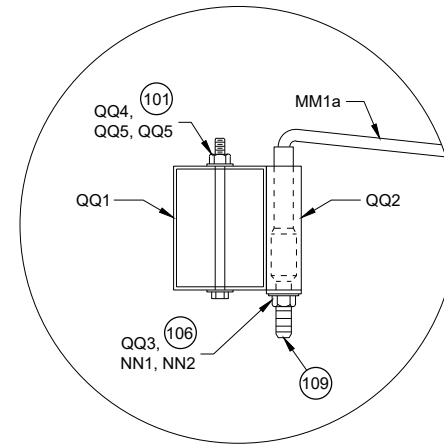
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION



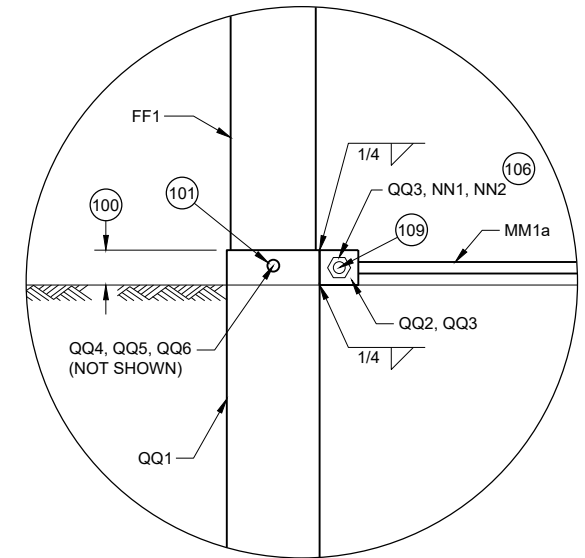
**PROFILE VIEW
SHORT RADIUS TERMINAL**



**TOP VIEW
SHORT RADIUS TERMINAL**



**TOP VIEW
DETAIL "A"
(WOOD BREAKAWAY AND BEAM
GUARD RAIL POSTS NOT SHOWN)**



**PROFILE VIEW
DETAIL "A"**

GENERAL NOTES

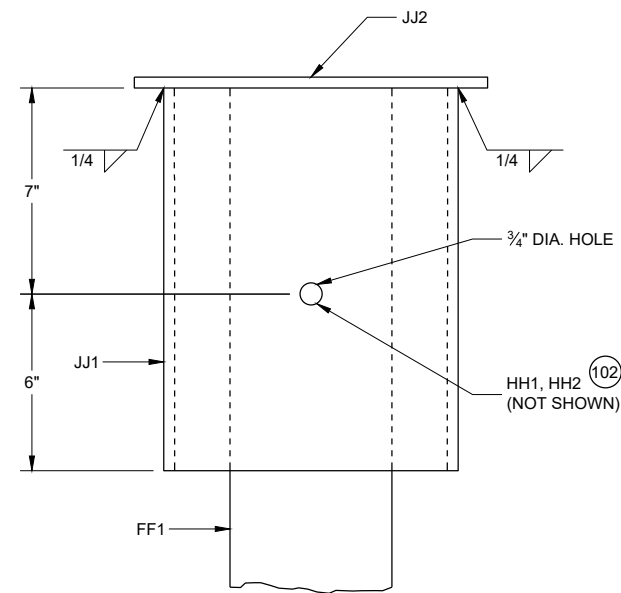
- 100 TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- 101 WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- 102 SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL "B".
- 103 CABLE IS TAUT.
- 104 ADJUST AA2 AND BB1 TO FIT.
- 105 BREAK POINT OF SHOULDER.
- 106 TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL "A" PROFILE VIEW.
- 107 PAY LIMIT FOR BEAM GUARD.
- 108 SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
- 109 CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
- 110 SEE STEEL PIPE ASSEMBLY DETAILS.
- 111 ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
- 112 FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
- 113 FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

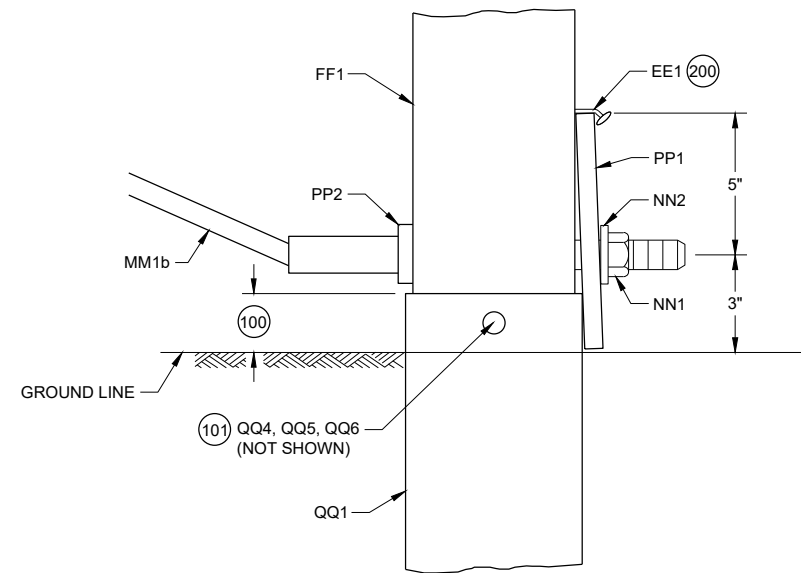
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

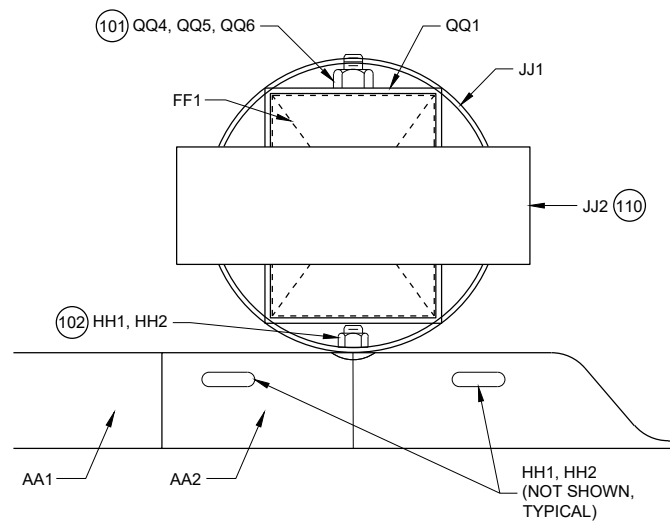
(200) TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.



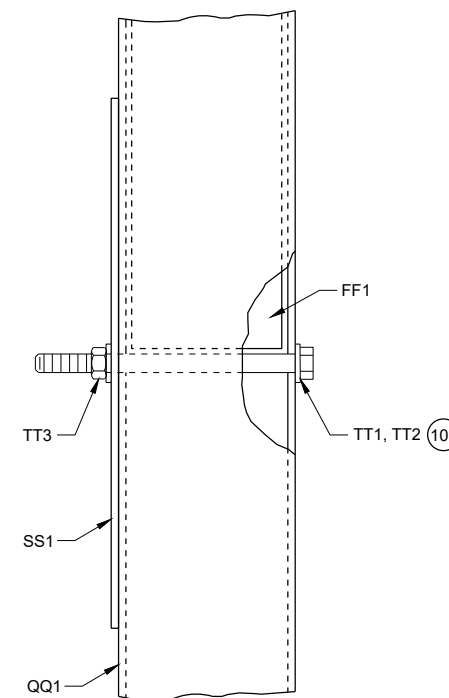
**PROFILE VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY
(BEAM GUARD AND W BEAM
END SECTION NOT SHOWN)**



**PROFILE VIEW
DETAIL "C"**



**PLAN VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY**



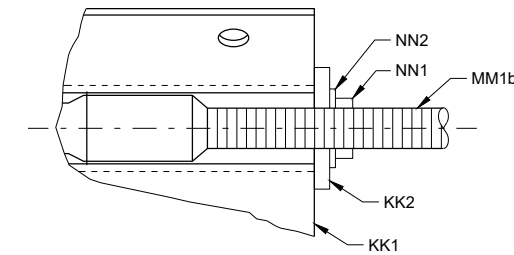
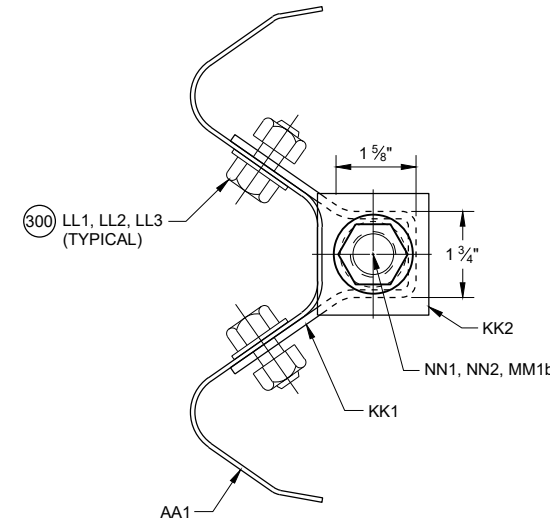
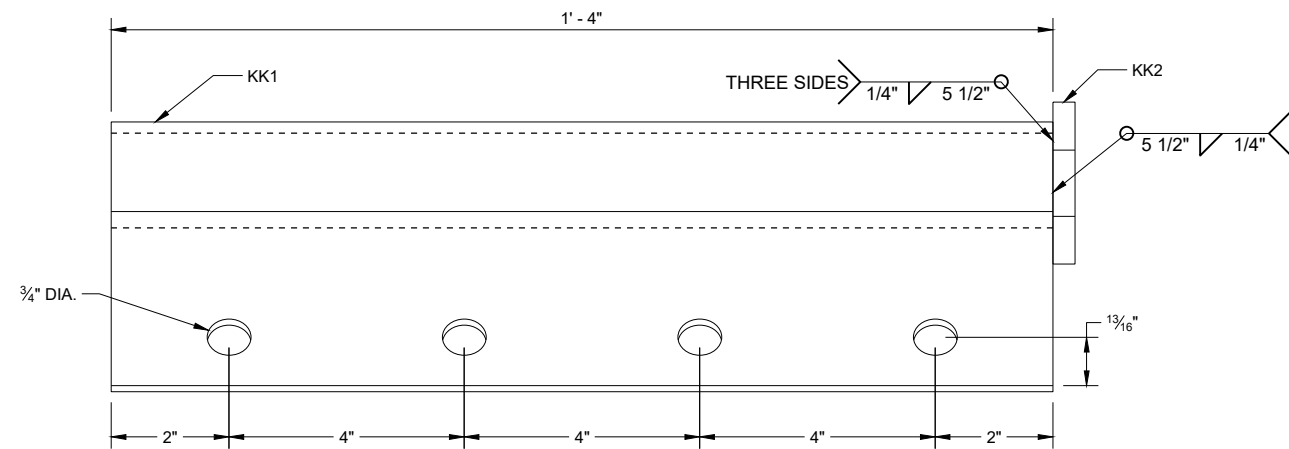
**PROFILE VIEW
DETAIL "D"**

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

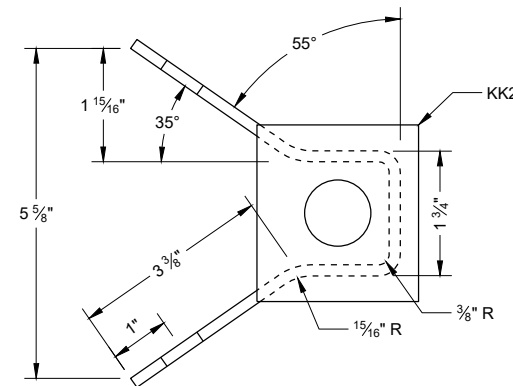
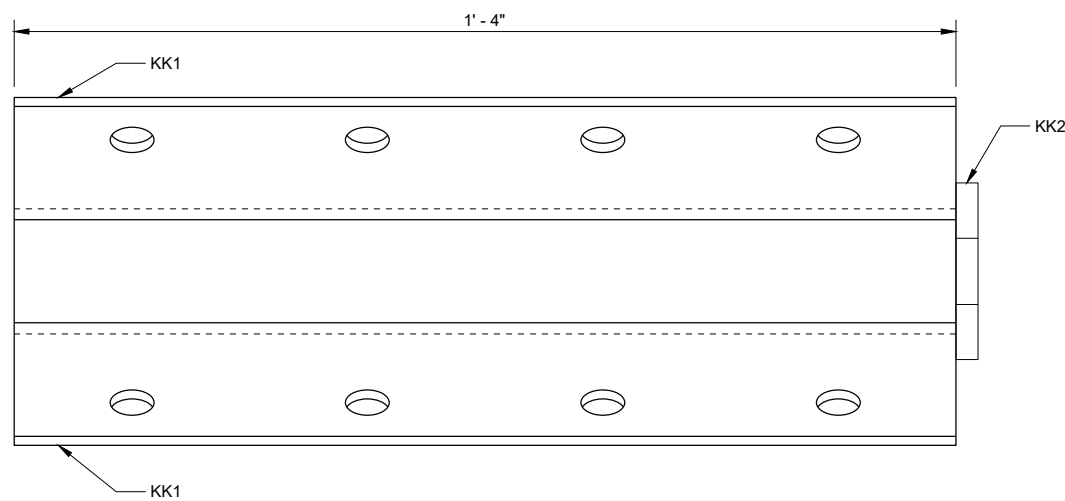
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

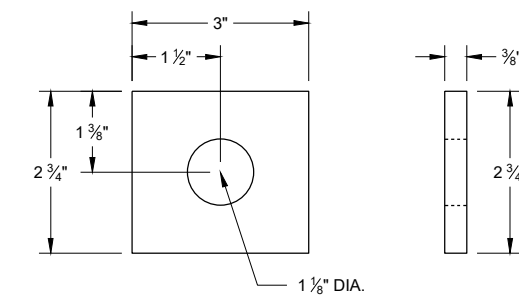
300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.



SECTION A - A



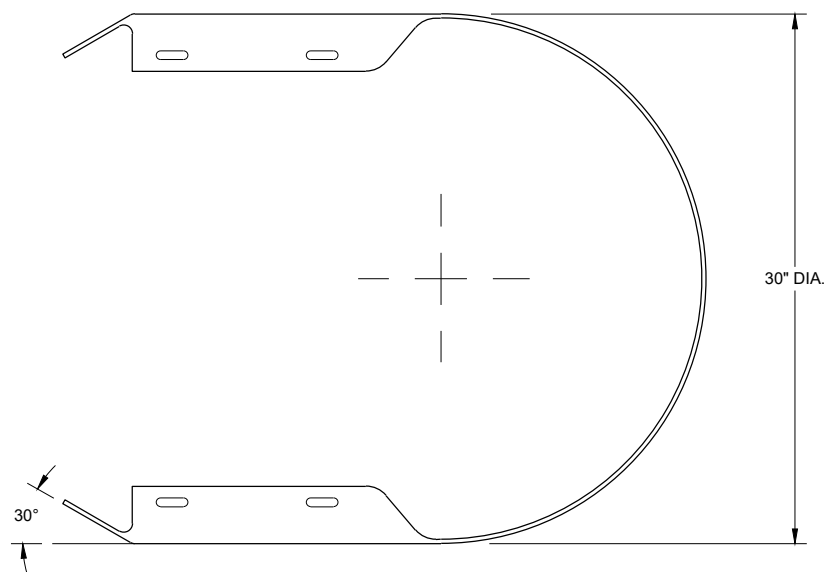
ANCHOR BRACKET BEARING PLATE (KK2)



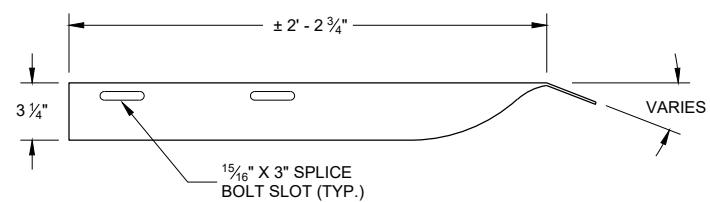
ANCHOR BRACKET (KK1, KK2)

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



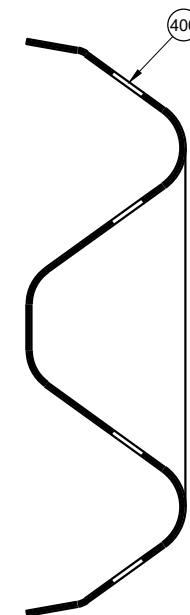
TOP VIEW



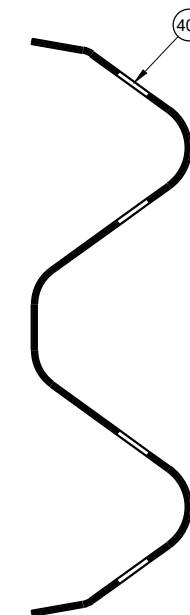
TOP VIEW

GENERAL NOTES

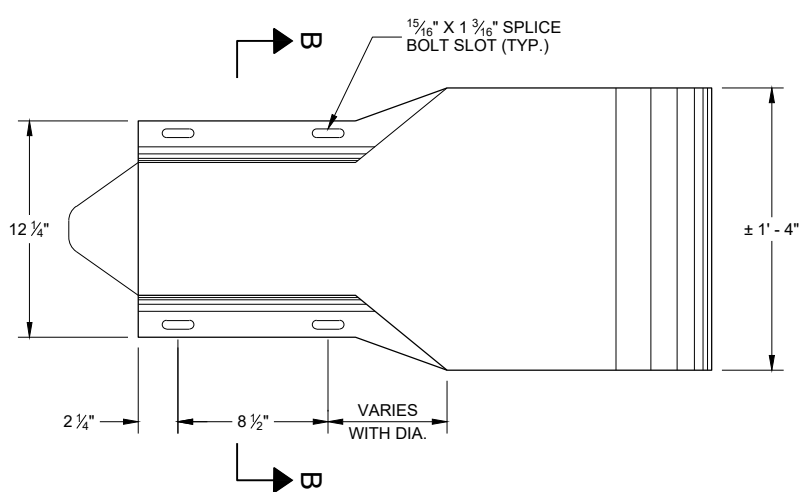
- (400) CROSS SECTION OF PART IS TO FIT OVER AA1 .
- (401) CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



SECTION B - B

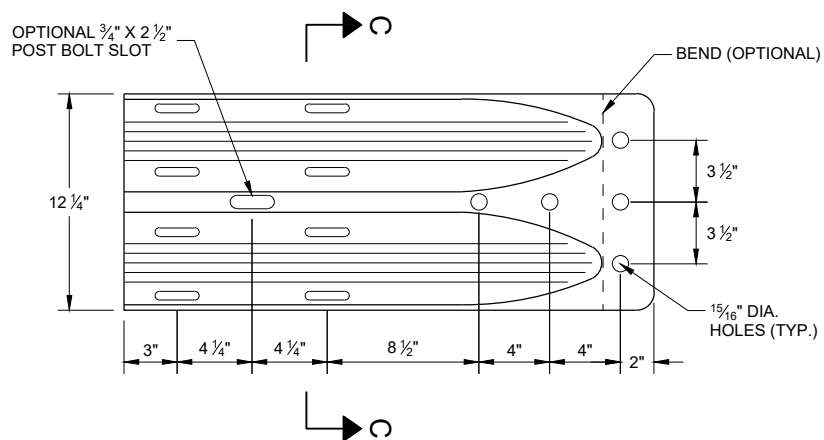


SECTION C - C



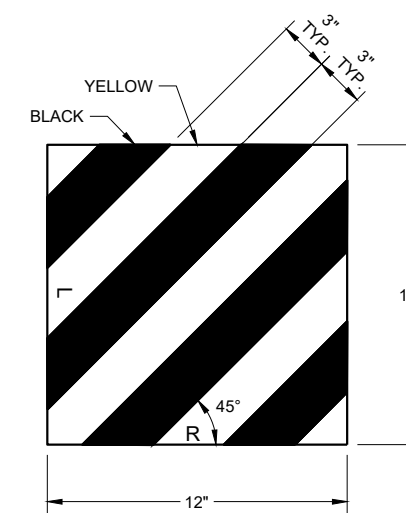
PROFILE VIEW

**W BEAM
END SECTION BUFFER (AA2)**



PROFILE VIEW

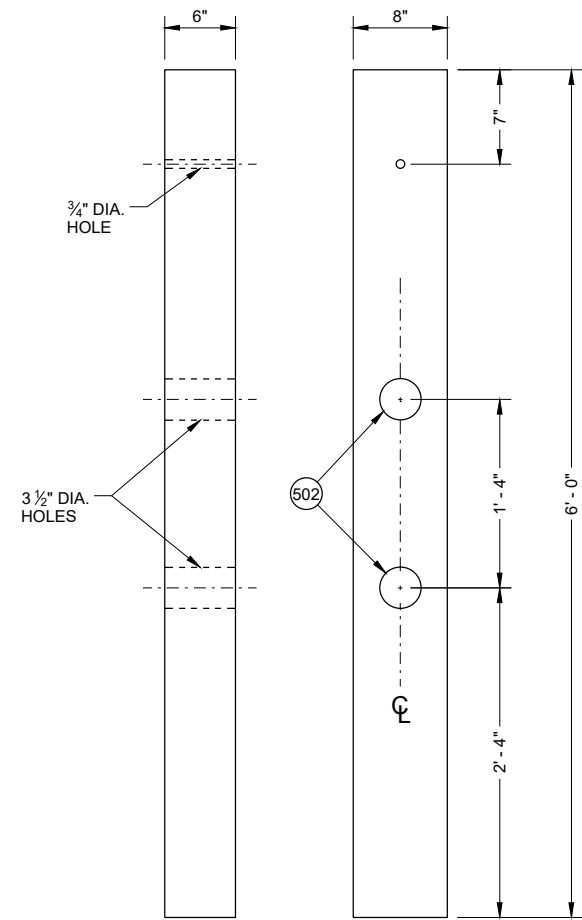
**W BEAM
TERMINAL CONNECTOR (BB1)**



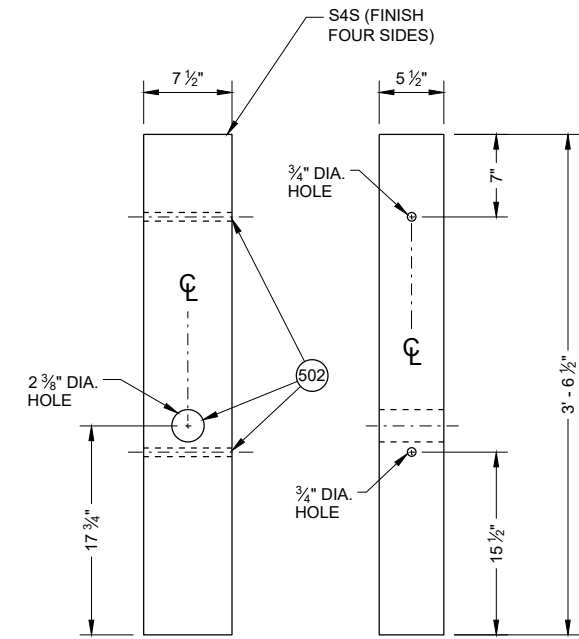
REFLECTIVE SHEETING (UU1, UU2)

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

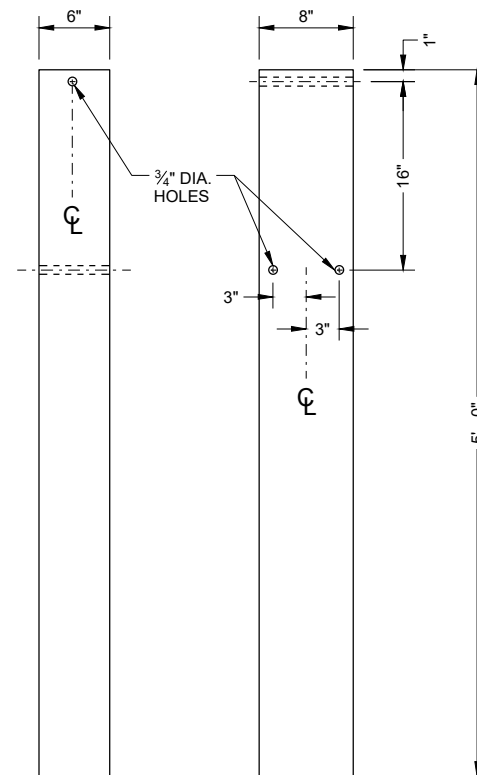
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



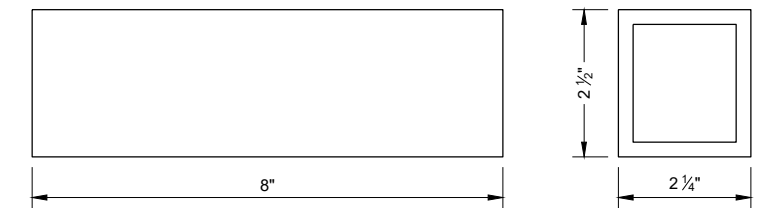
**FRONT VIEW SIDE VIEW
CONTROLLED RELEASE
POST (CRT) (DD2)**



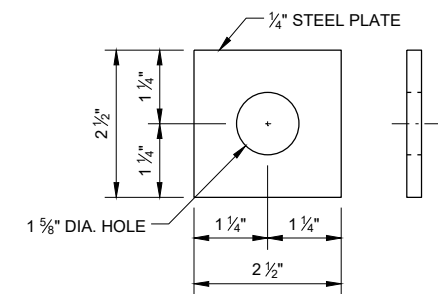
**FRONT VIEW SIDE VIEW
WOOD BREAKAWAY POST (FF1)**



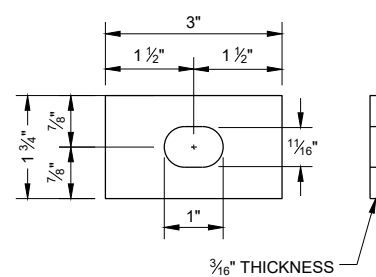
**FRONT VIEW SIDE VIEW
FOUNDATION TUBE (QQ1)**



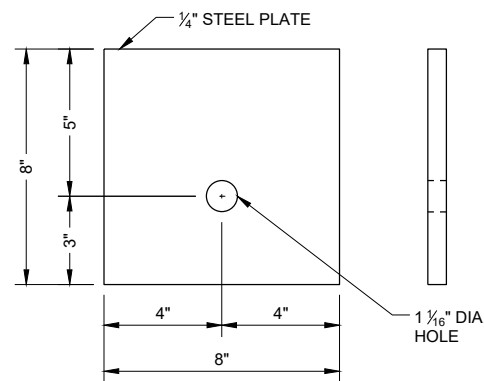
**FOUNDATION TUBE -
ANCHOR CABLE TUBE (QQ2)**



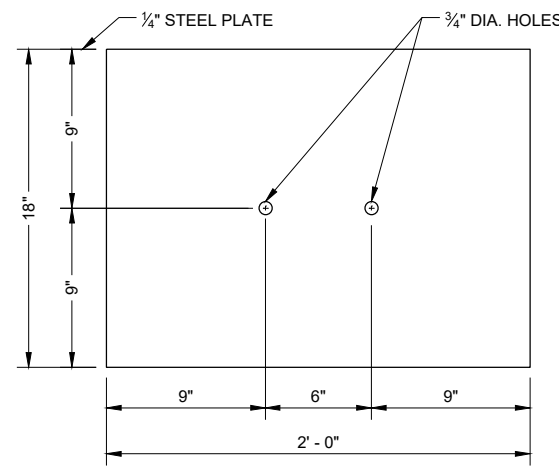
**ANCHOR CABLE TUBE
END PLATE (QQ3)**



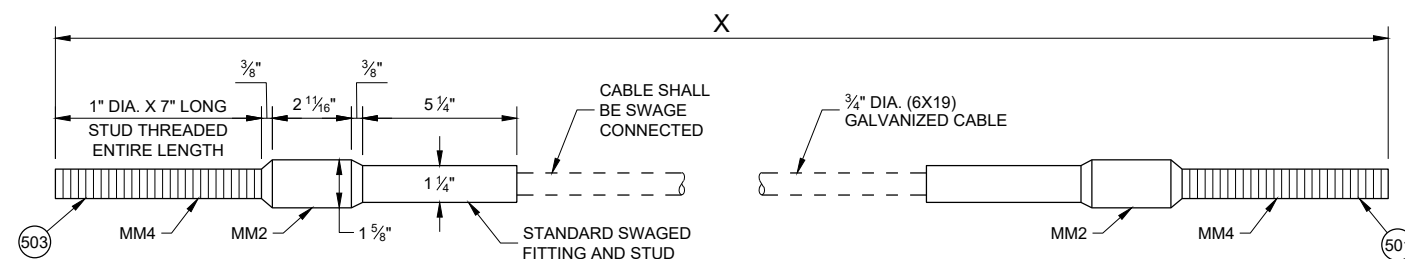
**RECTANGULAR PLATE
WASHER (CC1)**



BEARING PLATE (PP1)



SOIL PLATE (SS1)



CABLE ASSEMBLY (MM1a, MM1b)

"X" LENGTH

MM1b	9' - 0"
MM1b	6' - 8"

- GENERAL NOTES**
- (500) SEE DETAIL "D" FOR LOCATION AND ATTACHMENT OF SS1.
 - (501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
 - (502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
 - (503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL THE RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
E3	POST BOLT - NUT	AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

6

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SDD 14B53 - 019

SDD 14B53 - 019

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA. SEE 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
ASTM A563 GRADE A HEAVY HEX HEAD			
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	$\frac{3}{8}$ " DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS $\frac{3}{8}$ " X 4" X 1' - 0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	$\frac{3}{8}$ " DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{3}{8}$ " DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	$\frac{3}{4}$ "
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

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SDD 14B53 - 01h

SDD 14B53 - 01h

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3/8"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 1/4" X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 1/2" X 2 1/2" X 1/4"
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	5/8 DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
SS1	SOIL PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8 DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING. SHEETING TYPE FOR MARKER.
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

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SDD 14B53 - 01i

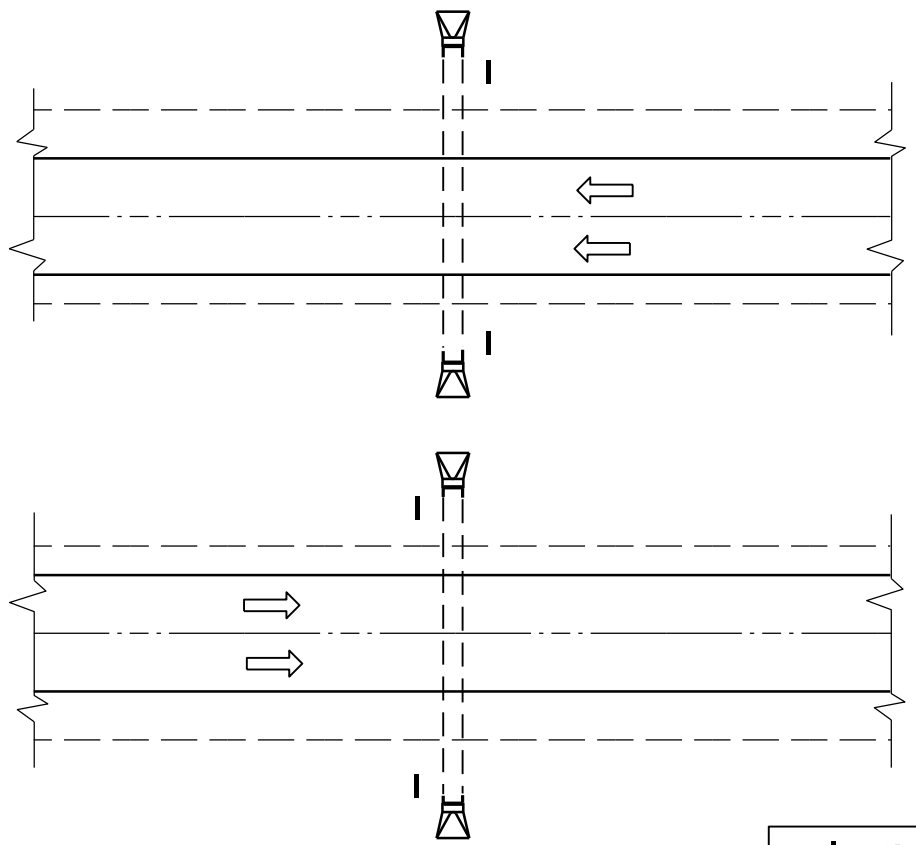
SDD 14B53 - 01i

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

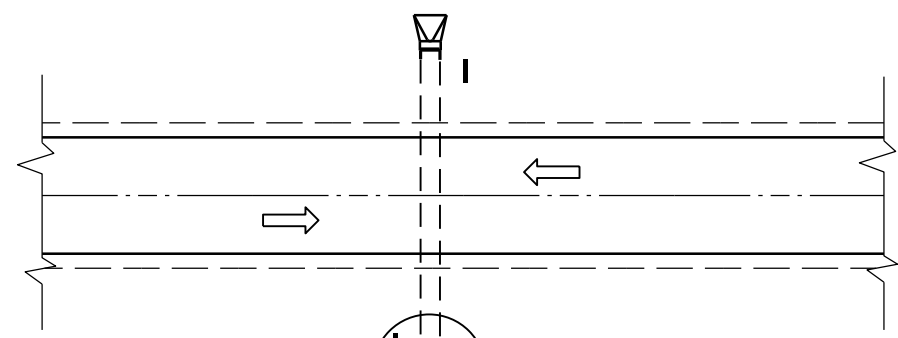
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

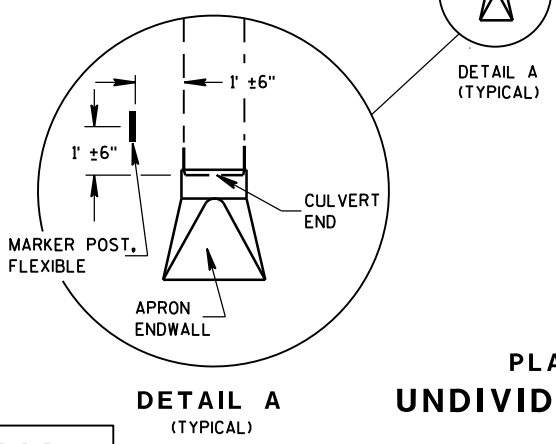
FHWA



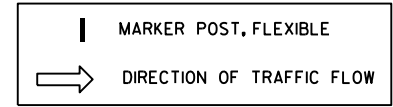
PLAN VIEW
DIVIDED HIGHWAY



PLAN VIEW
UNDIVIDED HIGHWAY

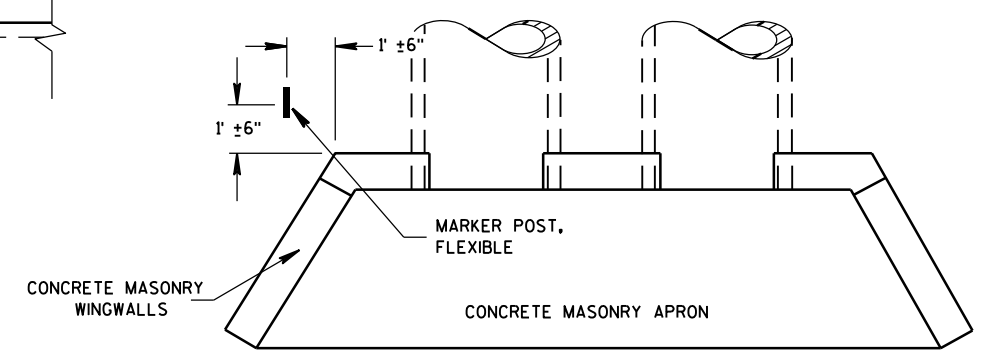


DETAIL A
(TYPICAL)



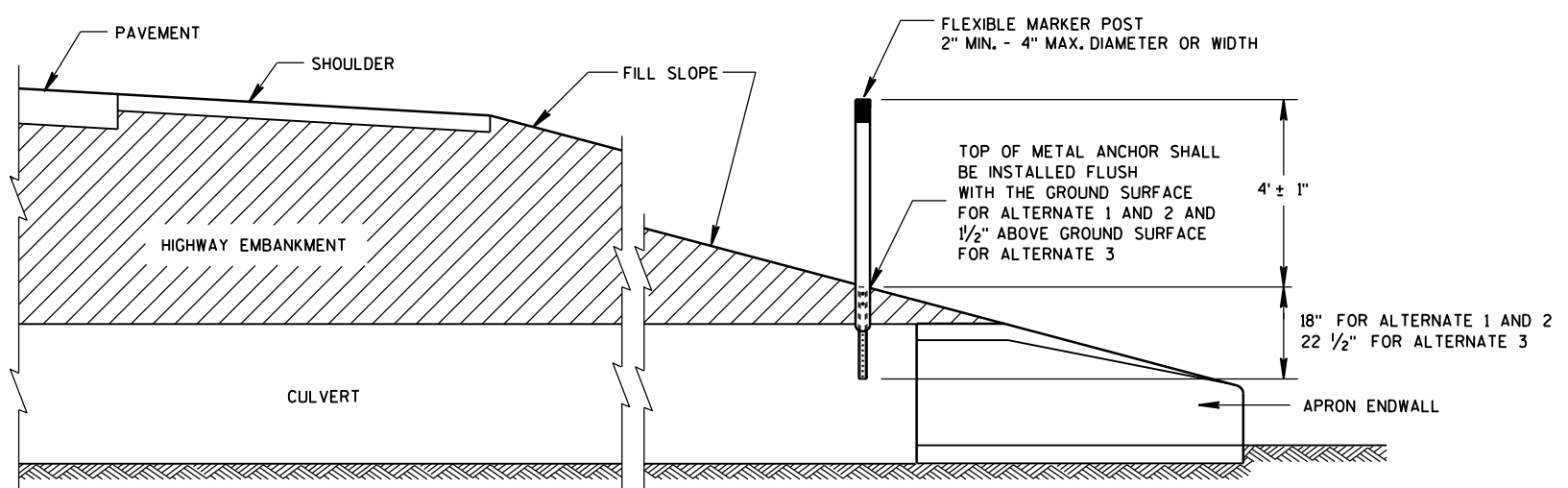
GENERAL NOTES

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

FLEXIBLE MARKER POST LOCATION



CROSS SECTION
FLEXIBLE MARKER POST

**FLEXIBLE MARKER POST
FOR CULVERT END**

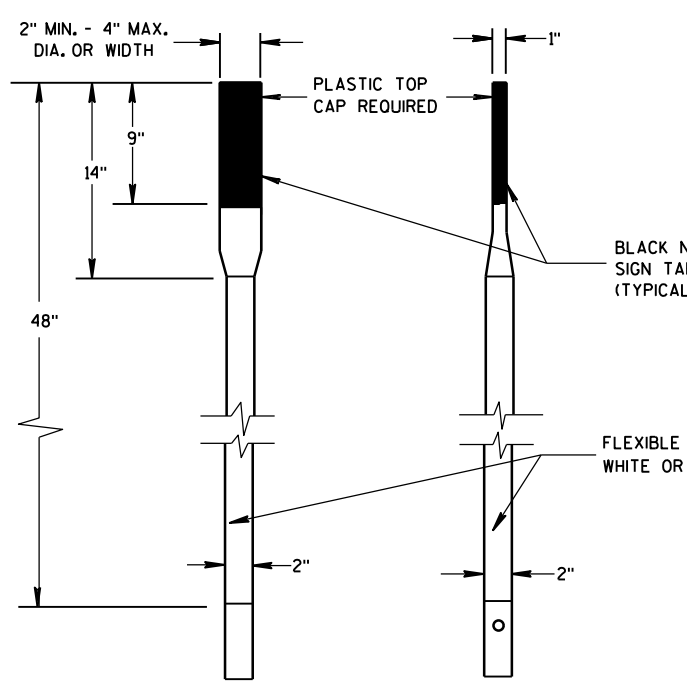
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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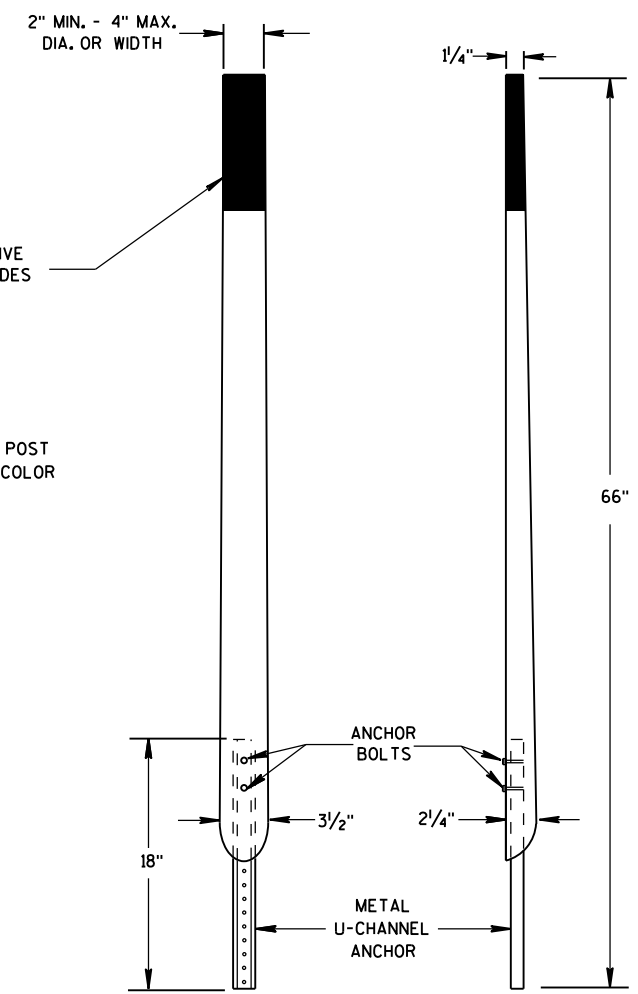
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S.D.D. 15 A 3-2a

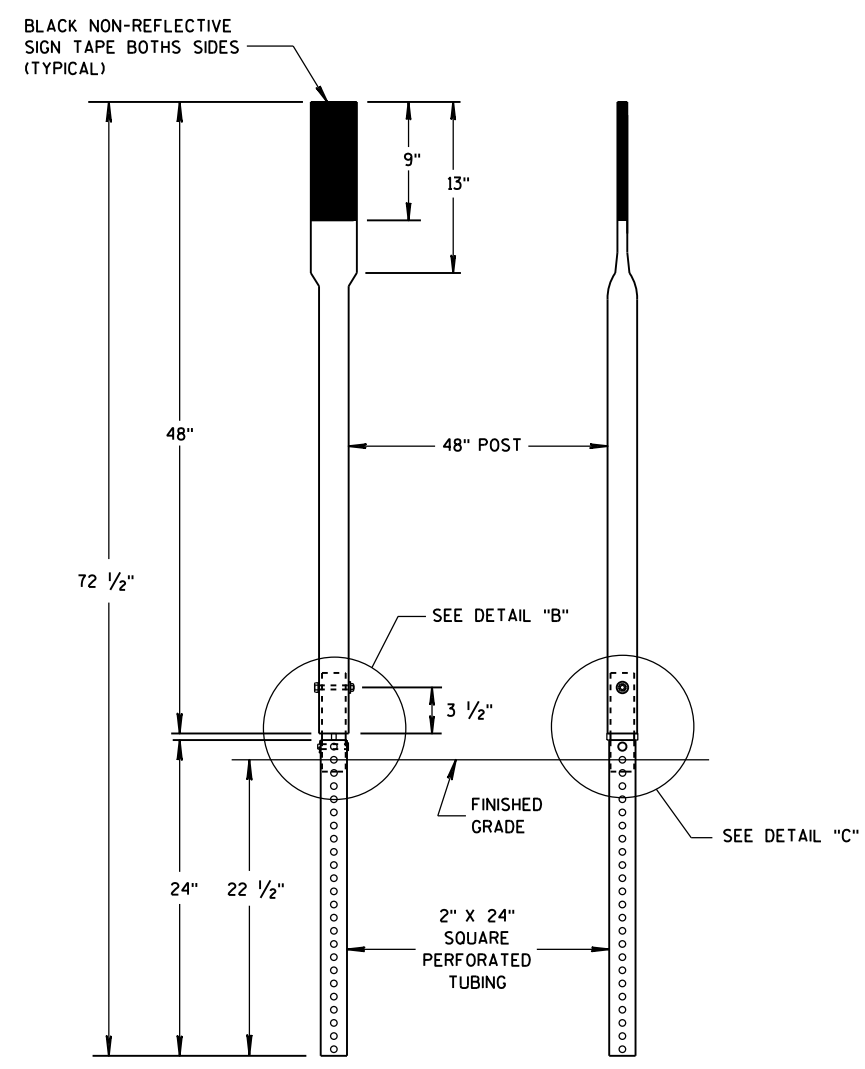
S.D.D. 15 A 3-2a



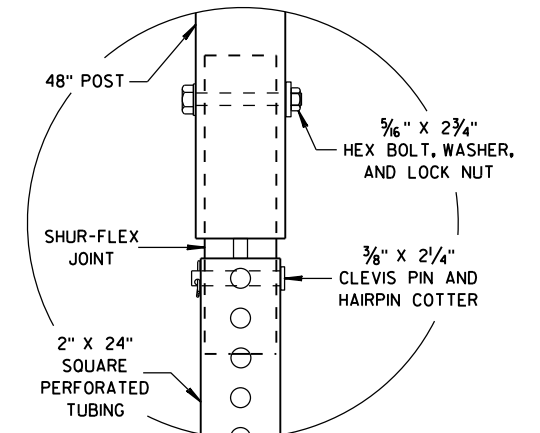
FRONT VIEW SIDE VIEW
ALTERNATE 1



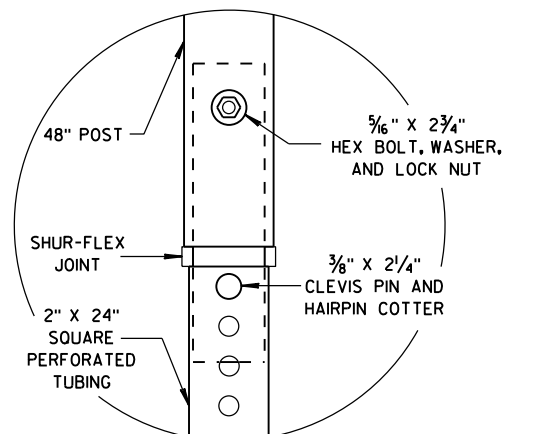
FRONT VIEW SIDE VIEW
ALTERNATE 2



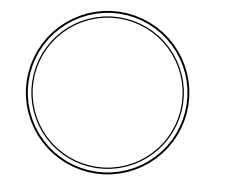
FRONT VIEW SIDE VIEW
ALTERNATE 3



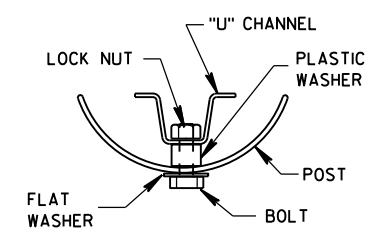
DETAIL B



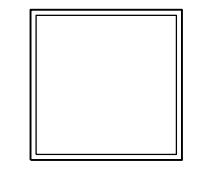
DETAIL C



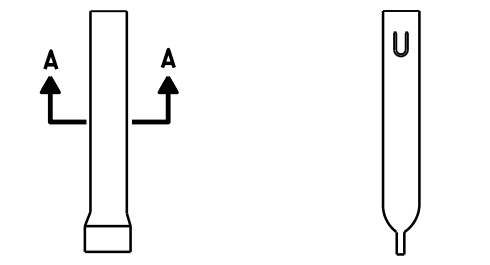
SECTION A-A



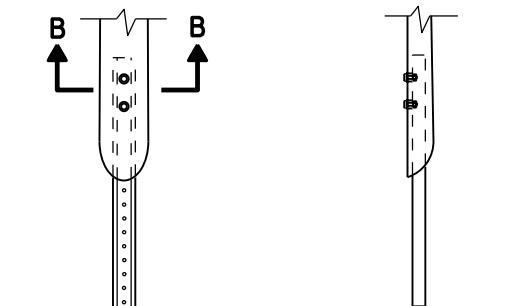
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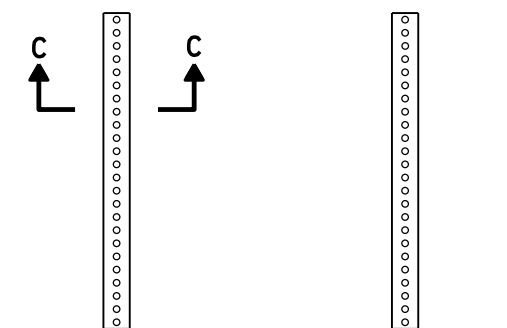
SECTION C-C



FRONT VIEW SIDE VIEW
ALTERNATE 1



FRONT VIEW SIDE VIEW
ALTERNATE 2



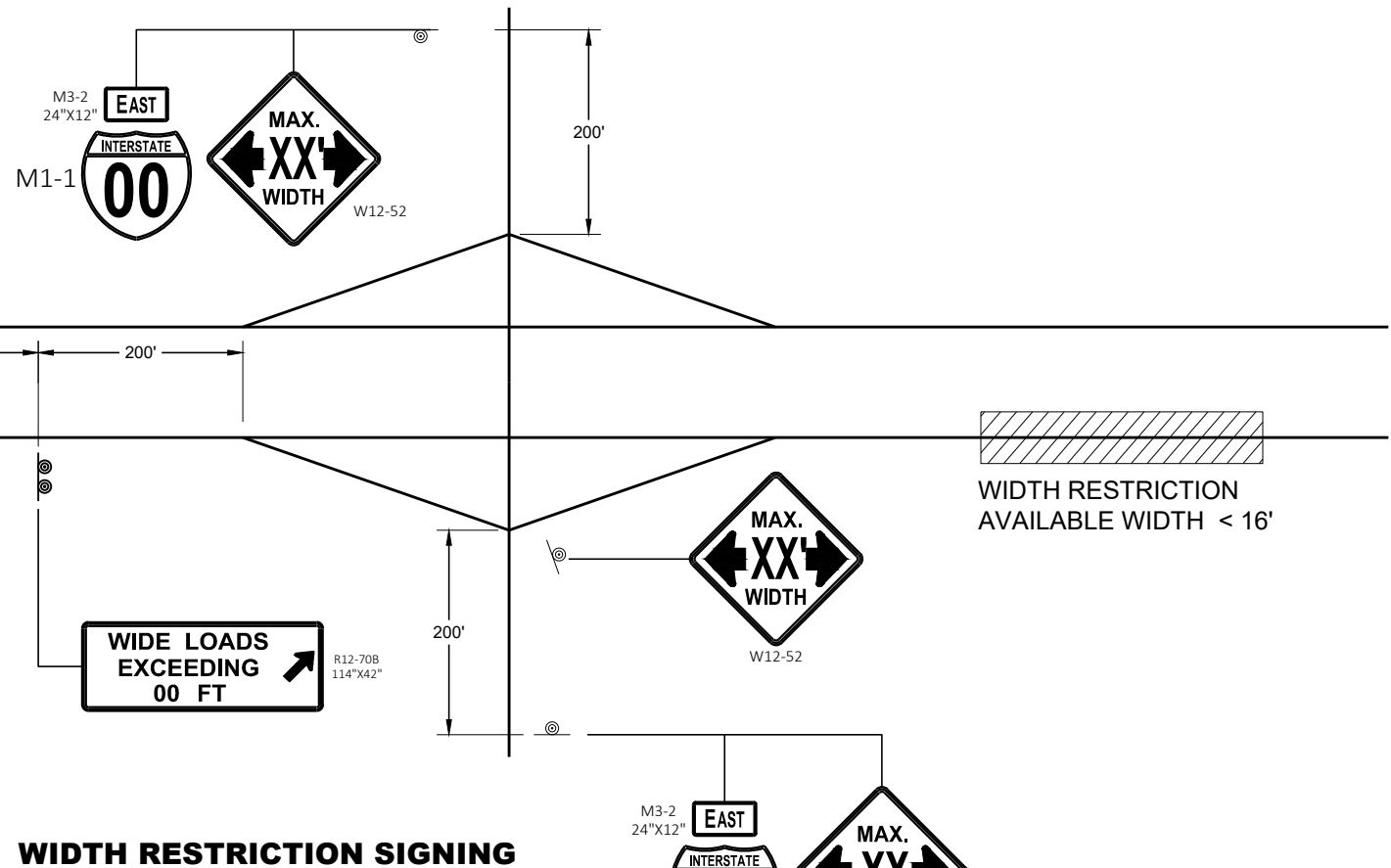
FRONT VIEW SIDE VIEW
ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS

FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012 DATE /S/ Travis Feltes
STATE TRAFFIC ENGINEER OF DESIGN
FHWA



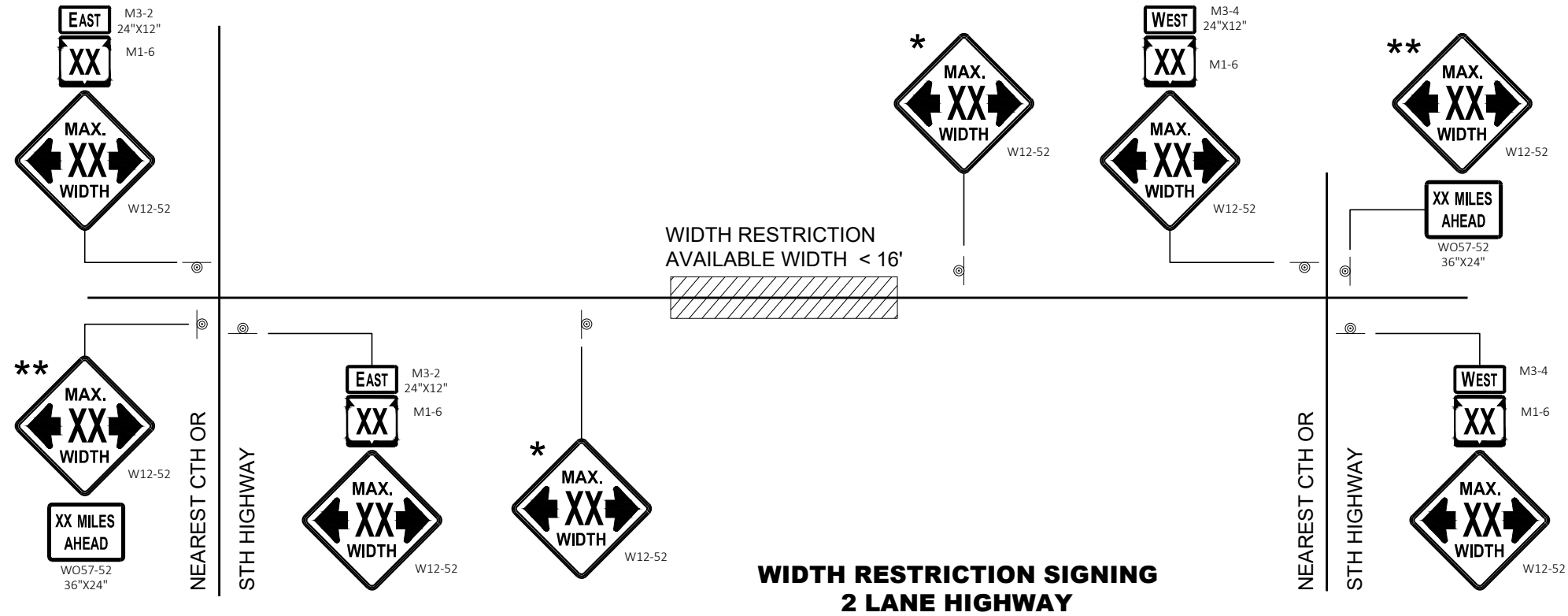
WIDTH RESTRICTION SIGNING

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

- THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS 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 DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.
- * PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.
- ** SIGN SHALL BE VISIBLE FROM ROADWAY.
- *** ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.



**WIDTH RESTRICTION SIGNING
2 LANE HIGHWAY**

ADVANCED WIDTH RESTRICTION SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

GENERAL NOTES

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

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




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

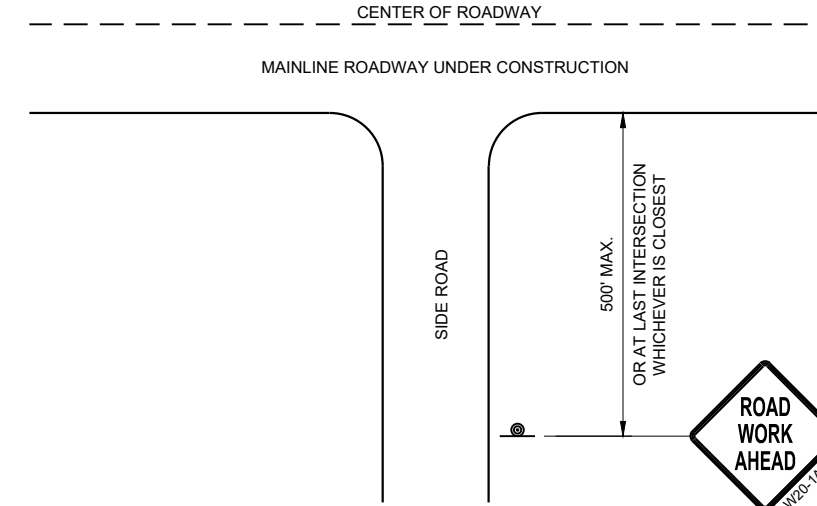
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

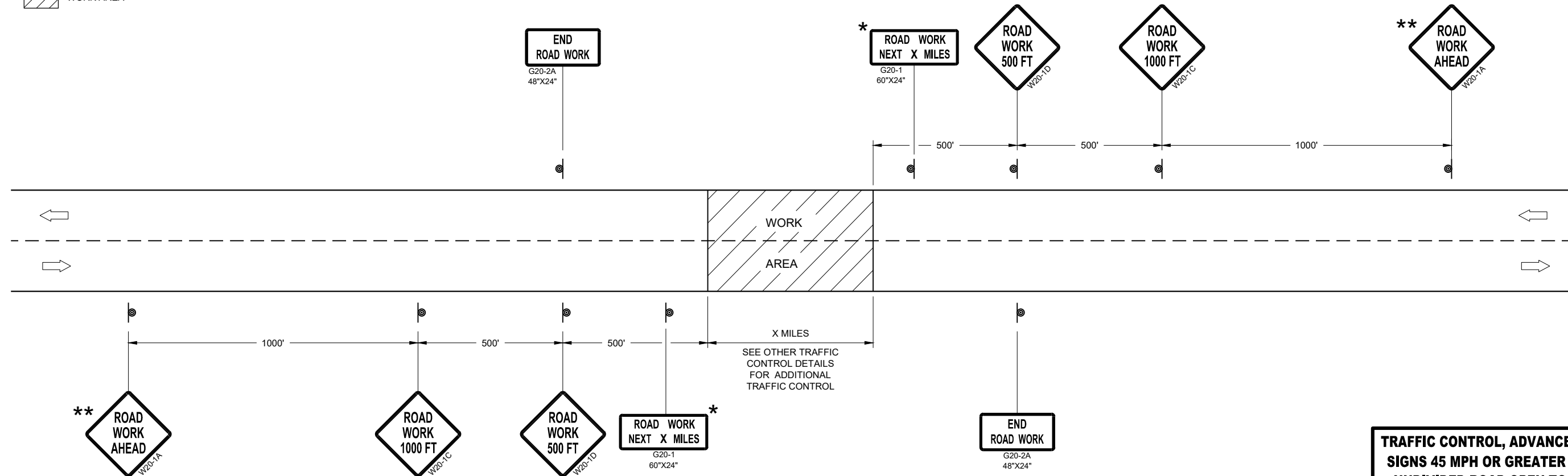
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



TYPICAL SIDE ROAD APPROACH WARNING SIGN DETAIL



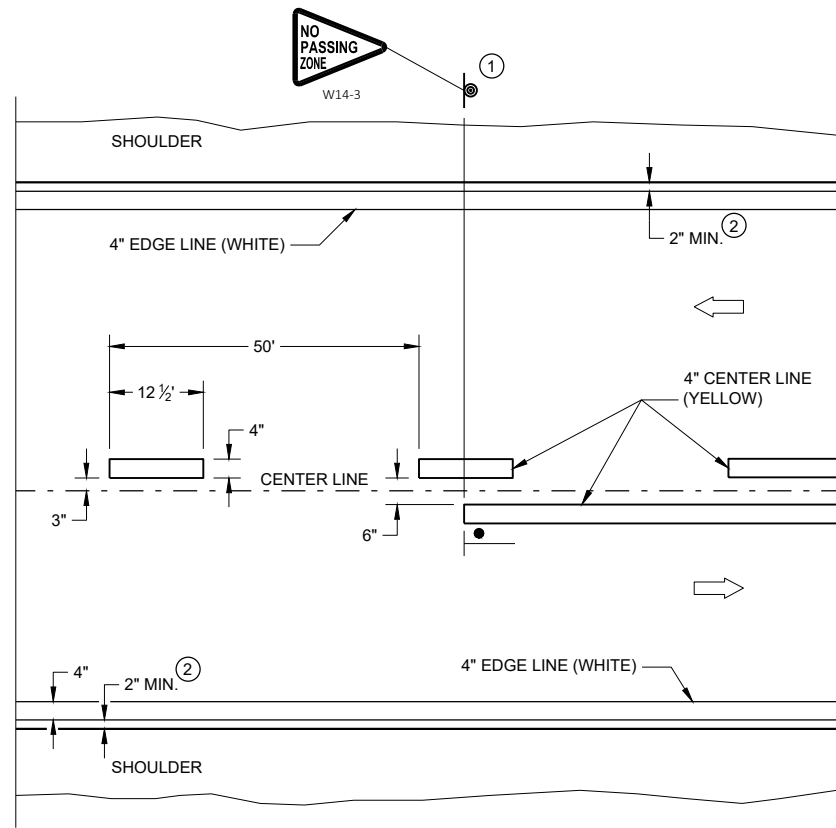
TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

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

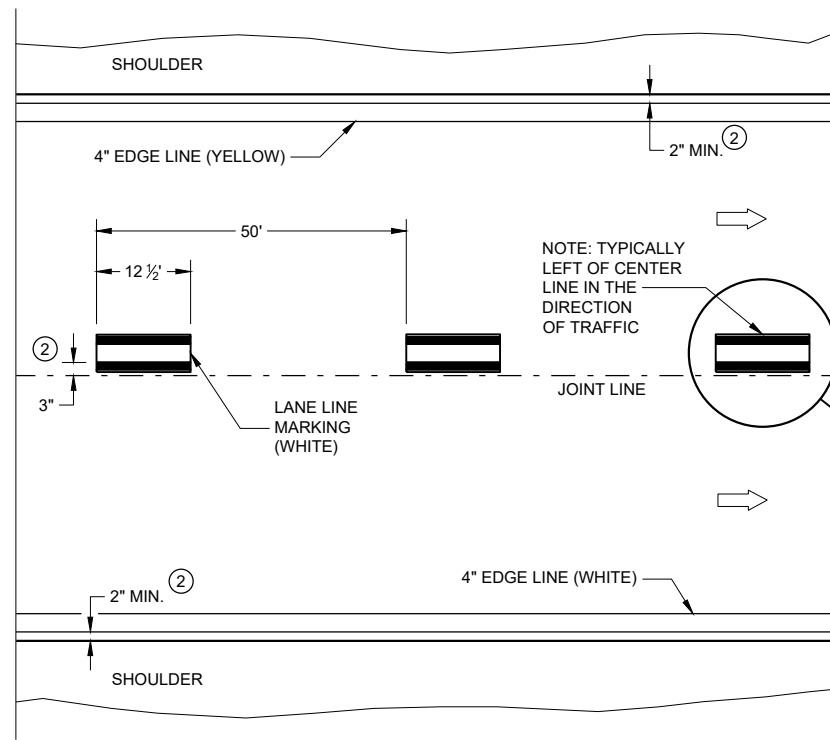
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

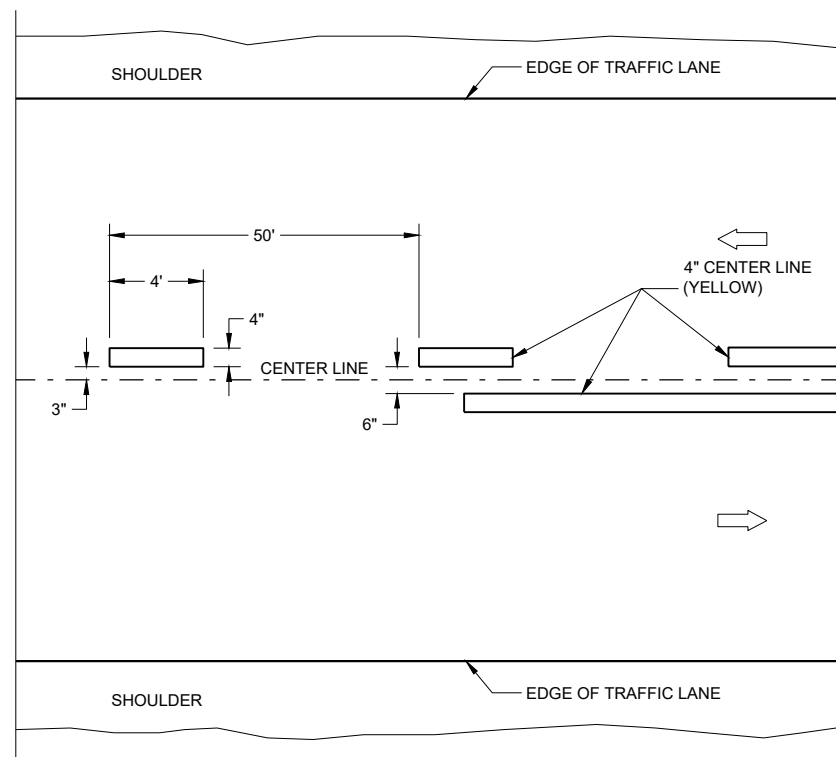


TWO WAY TRAFFIC

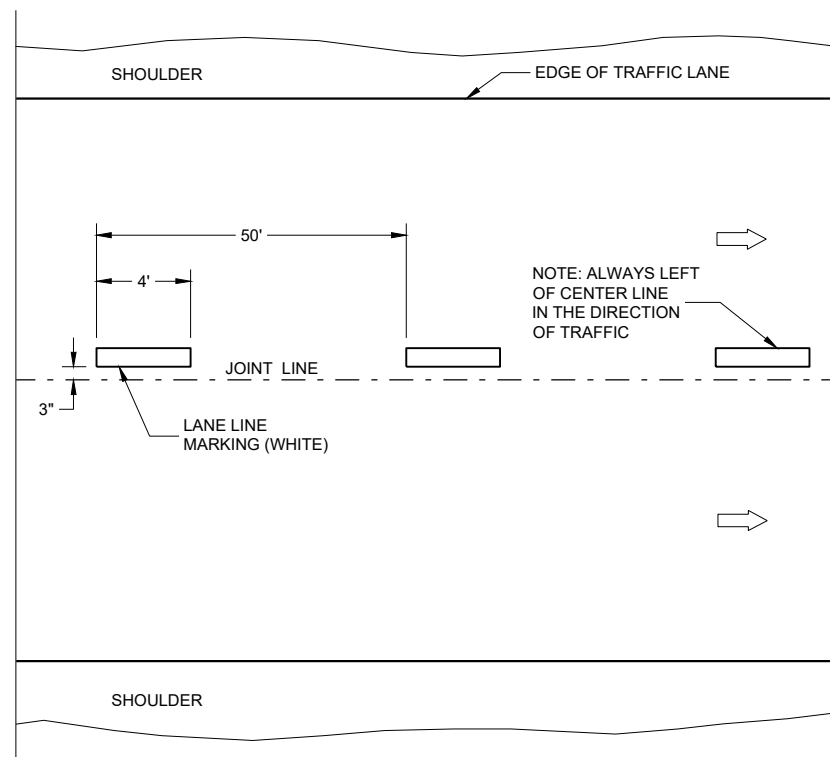


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

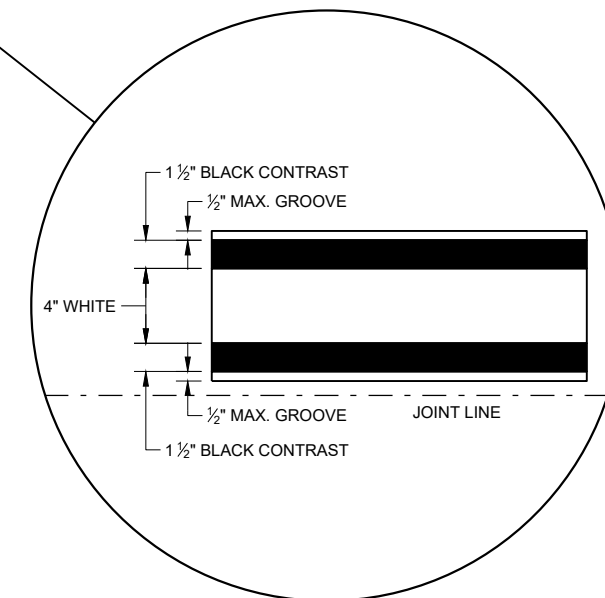
GENERAL NOTES

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

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

LEGEND

- |• "T" MARKING
- ⊙ SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC



**LONGITUDINAL MARKING
(MAINLINE)**

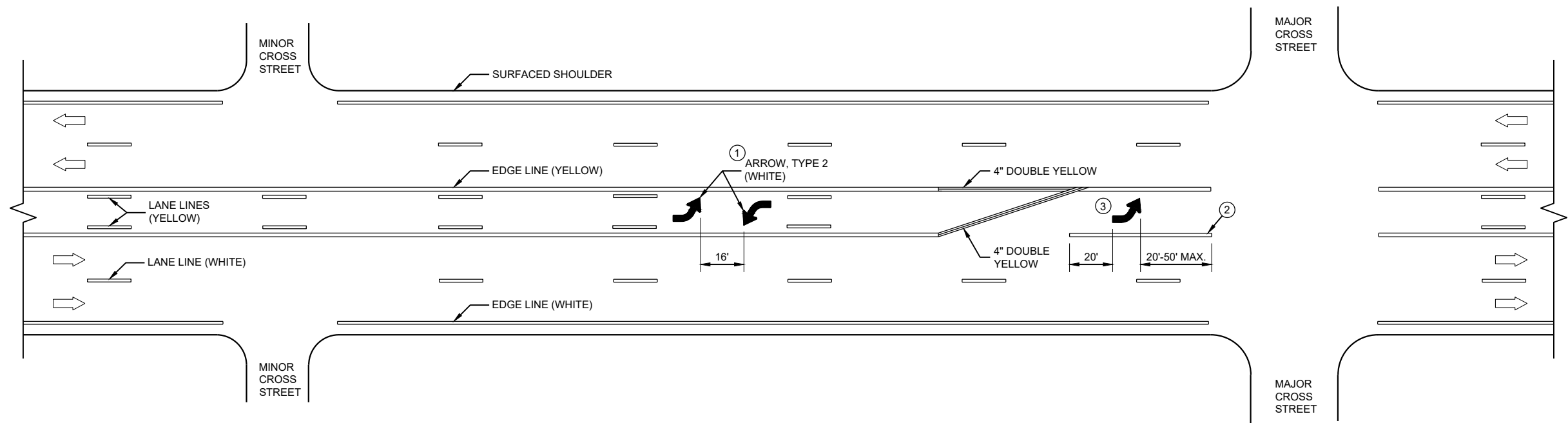
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

- ① A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- ② 8" WHITE
- ③ TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT.

➡ DIRECTION OF TRAFFIC



TWO WAY LEFT TURN LANE

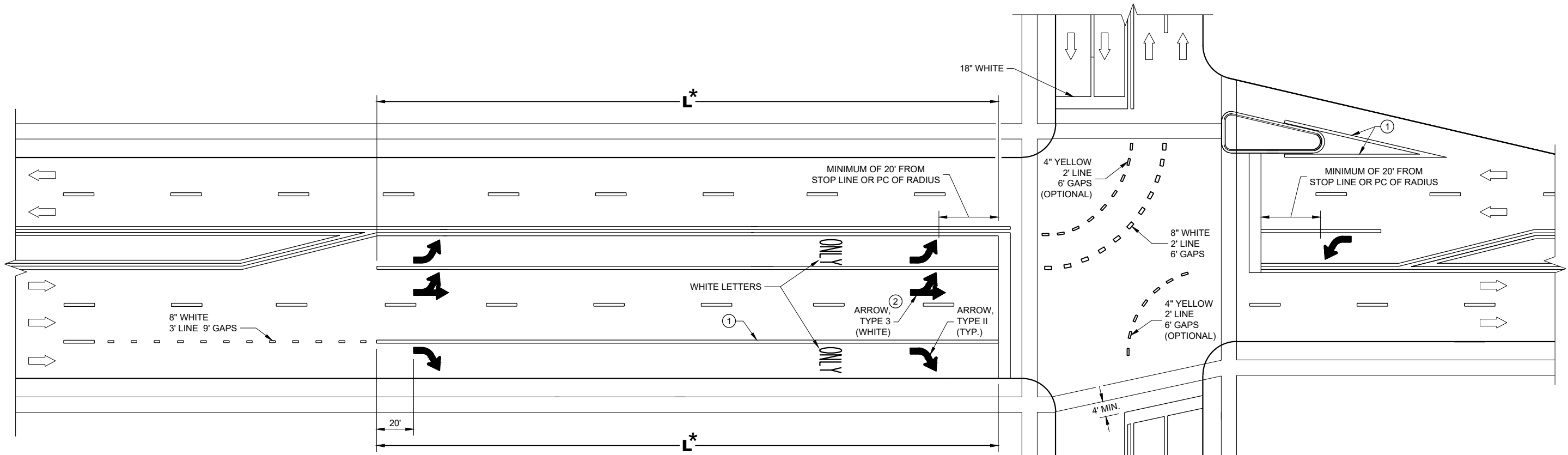
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SDD 15C08 - 20b

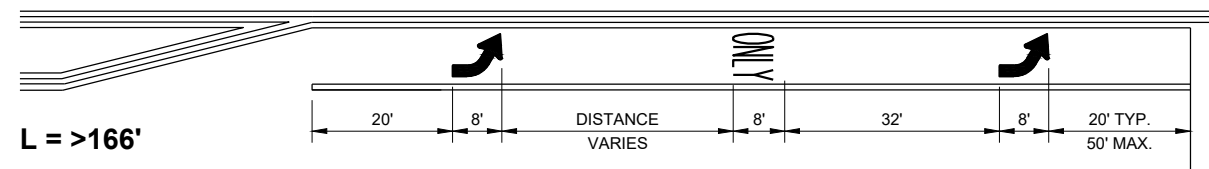
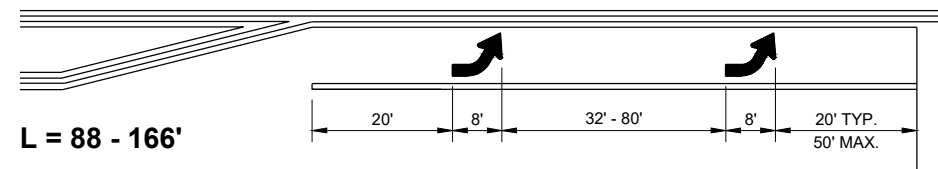
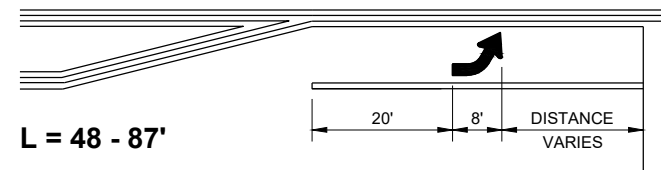
SDD 15C08 - 20b

<p>PAVEMENT MARKING (TURN LANES)</p>
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>



TURN LANE OPTIONS

LENGTH OF TURN BAY (L) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



*(SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

GENERAL NOTES

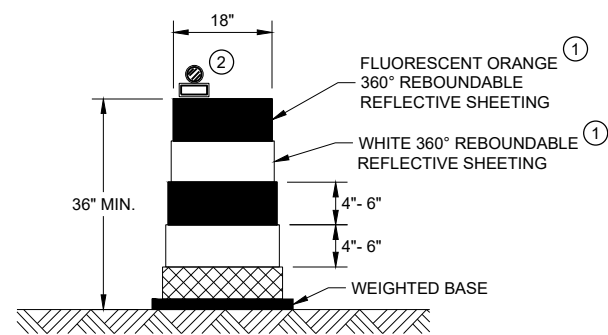
- ① 8" WHITE
- ② QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

➡ DIRECTION OF TRAFFIC

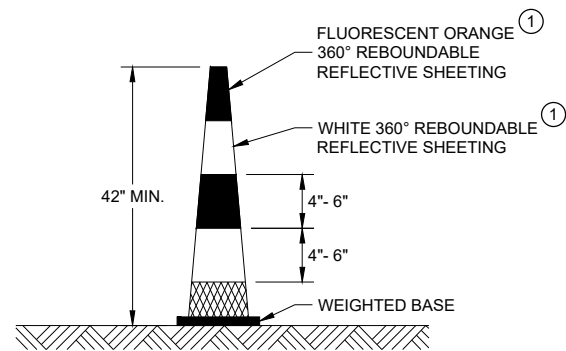
L = LENGTH OF TURN BAY

**PAVEMENT MARKING
(TURN LANES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DRUM

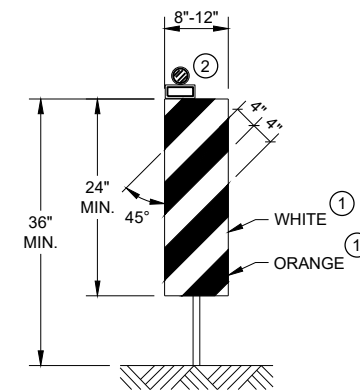


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

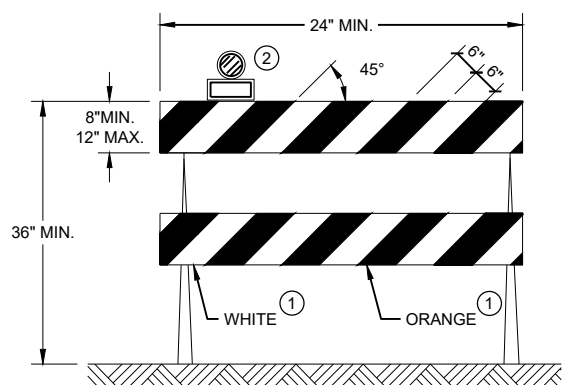
GENERAL NOTES

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



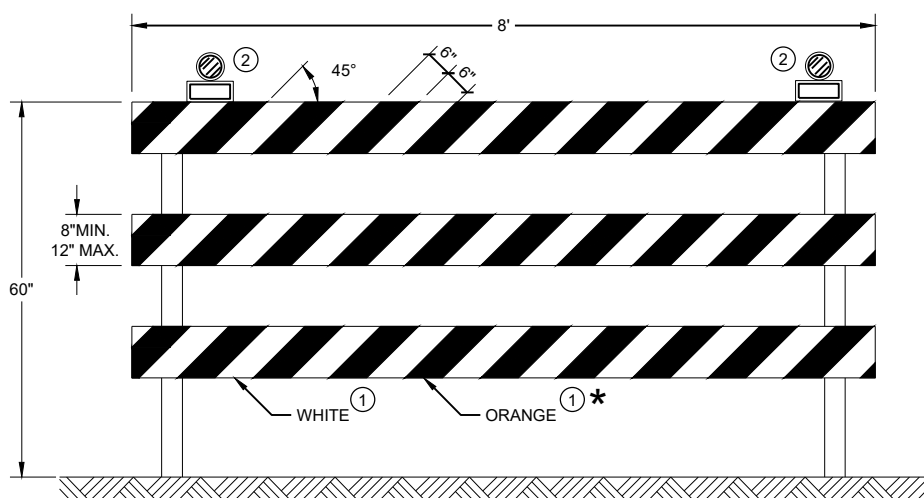
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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






* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

LEGEND

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

GENERAL NOTES

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

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

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

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

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

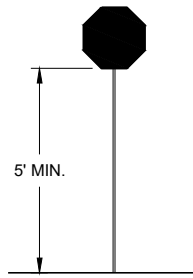
WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

- FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.
- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
 - ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

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



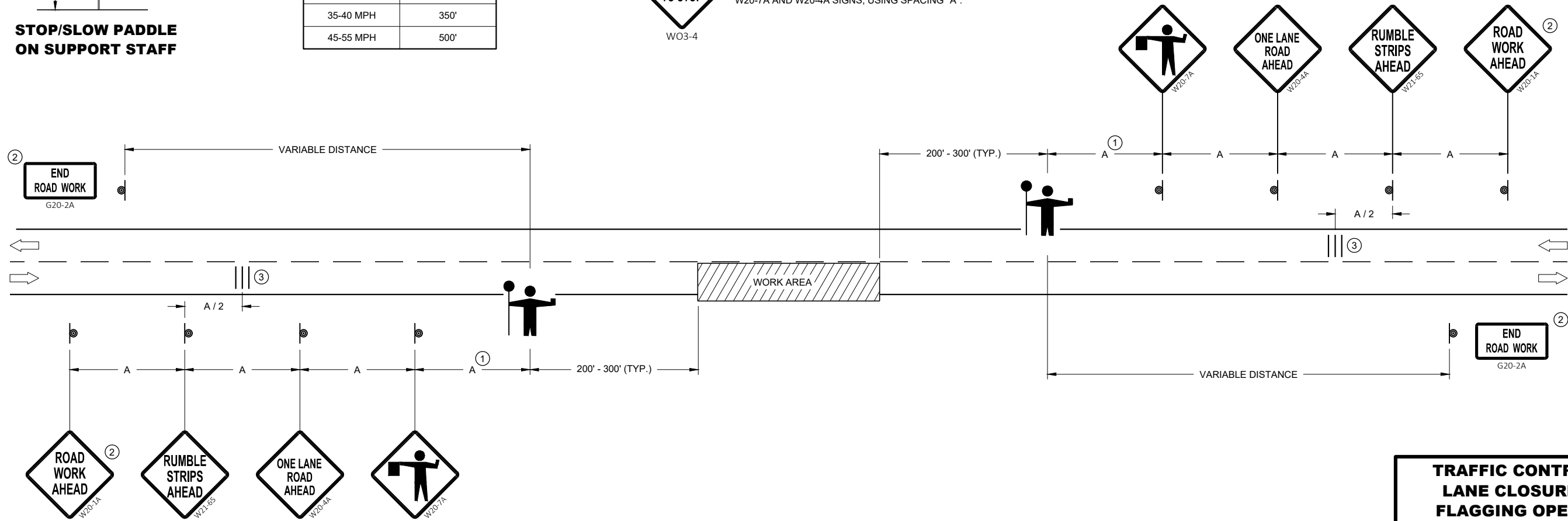
STOP/SLOW PADDLE ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



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



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION





TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: May 2019 /S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

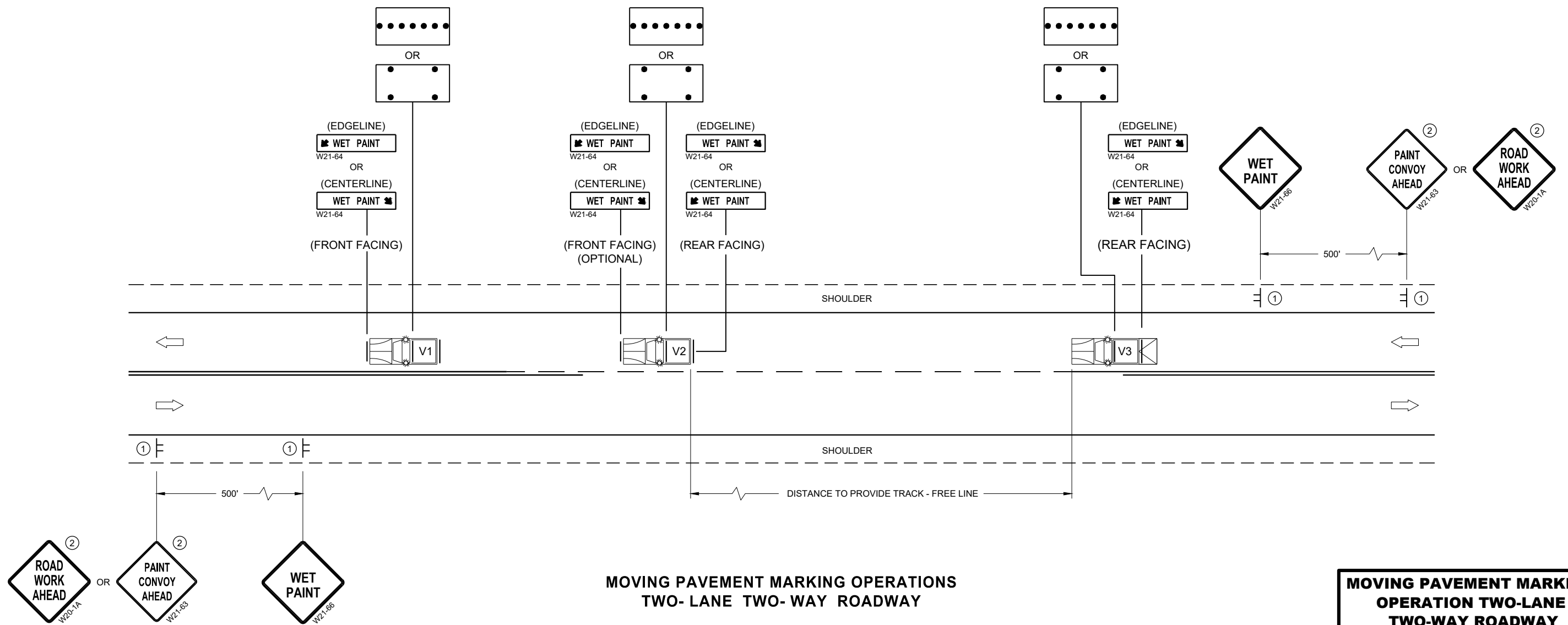
CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

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

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

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



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

SDD 15C19 - 06a

SDD 15C19 - 06a

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

LEGEND

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

GENERAL NOTES

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

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

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

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

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.

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

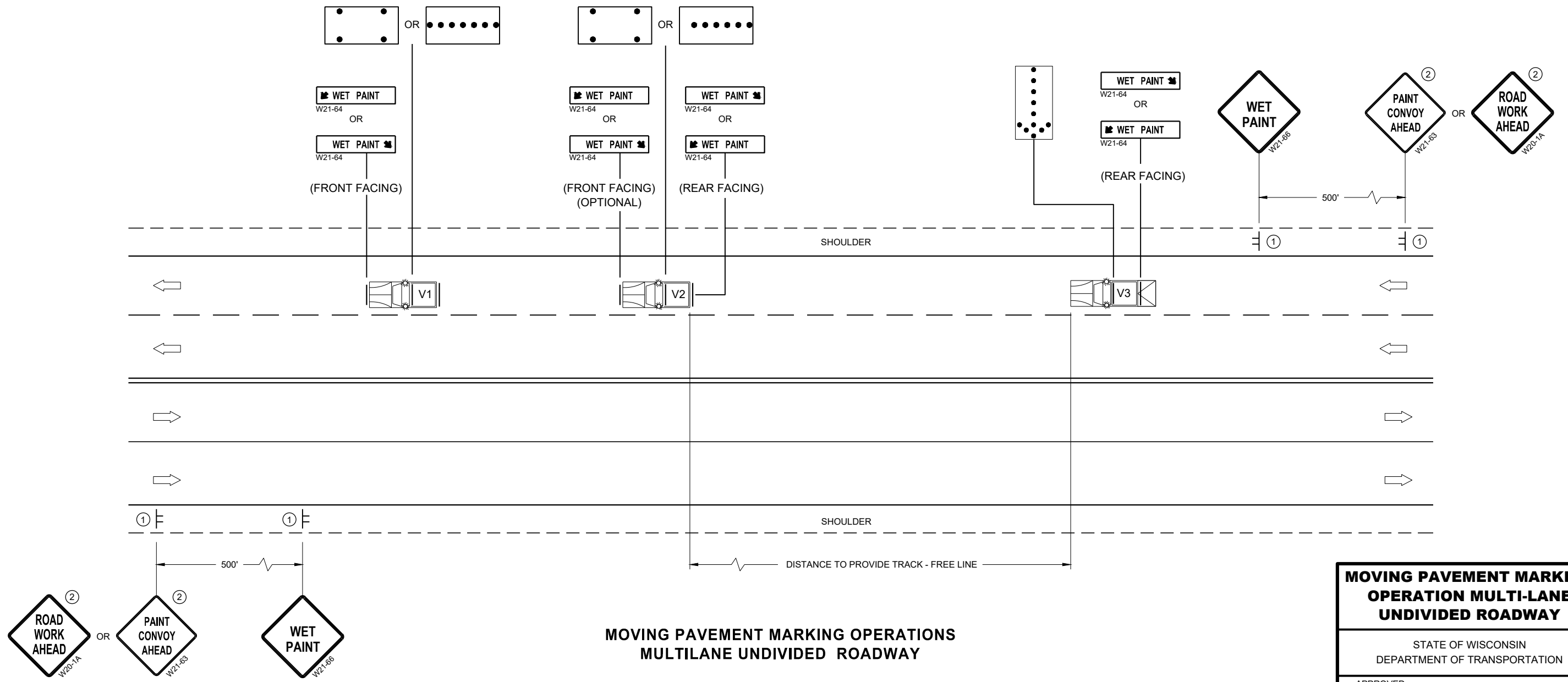
CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLES AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL HAVE A MINIMUM HEIGHT OF 28" FOR WET PAVEMENT MARKINGS.

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

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**MOVING PAVEMENT MARKING OPERATIONS
MULTILANE UNDIVIDED ROADWAY**

SDD 15C19 - 06b

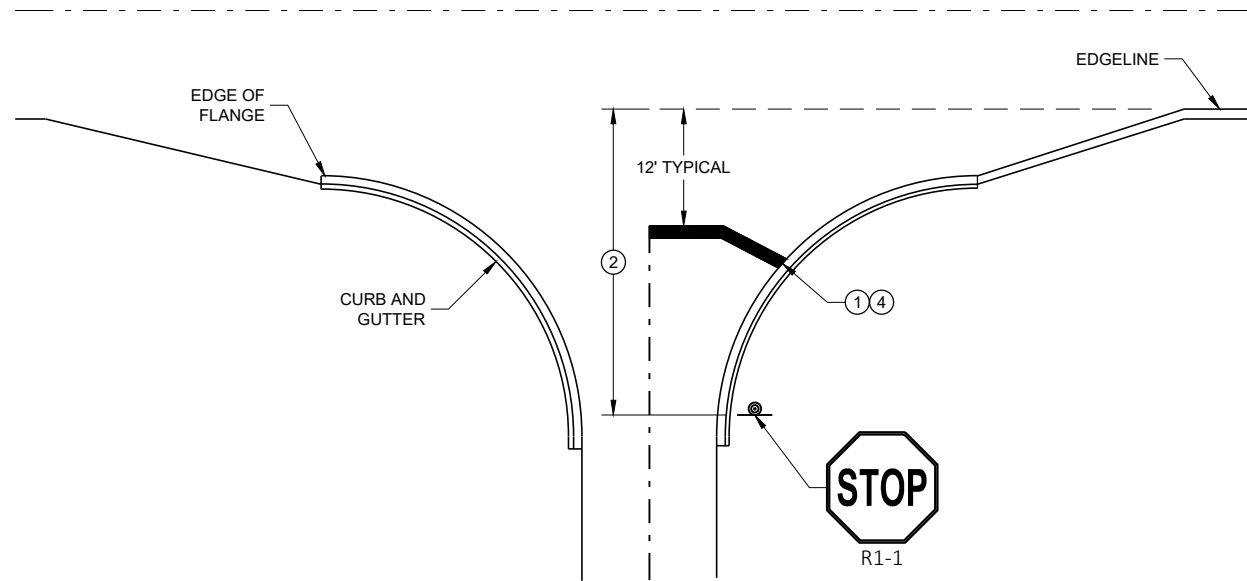
SDD 15C19 - 06b

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

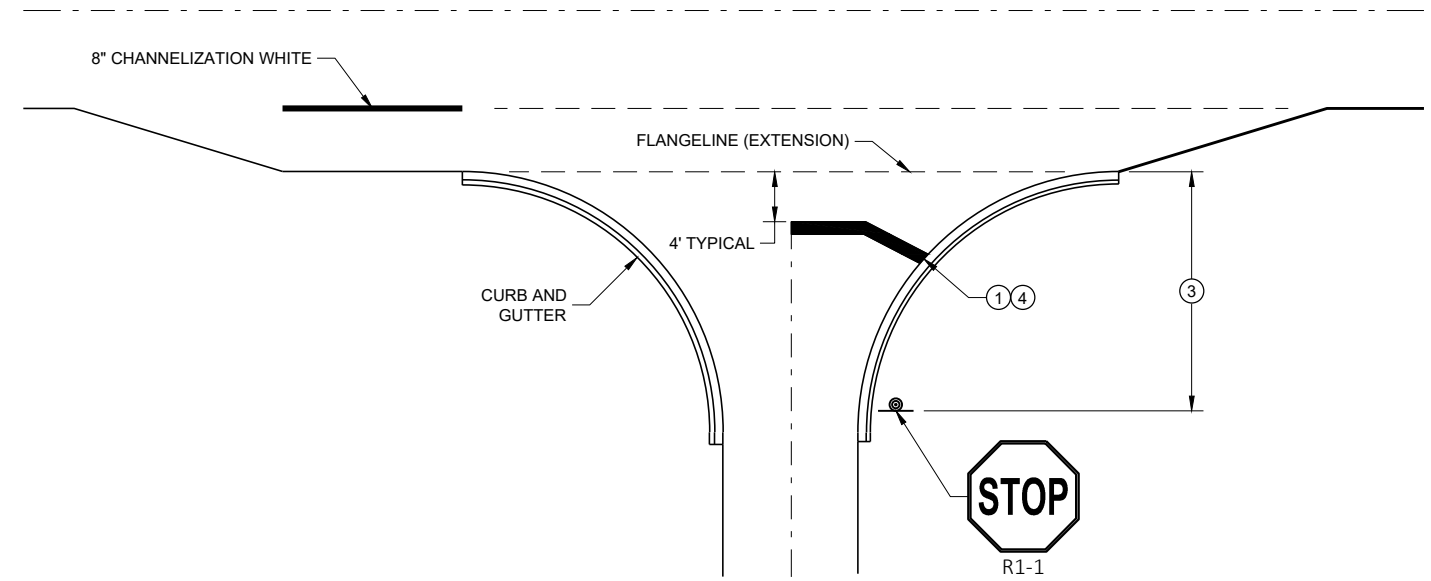
GENERAL NOTES

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

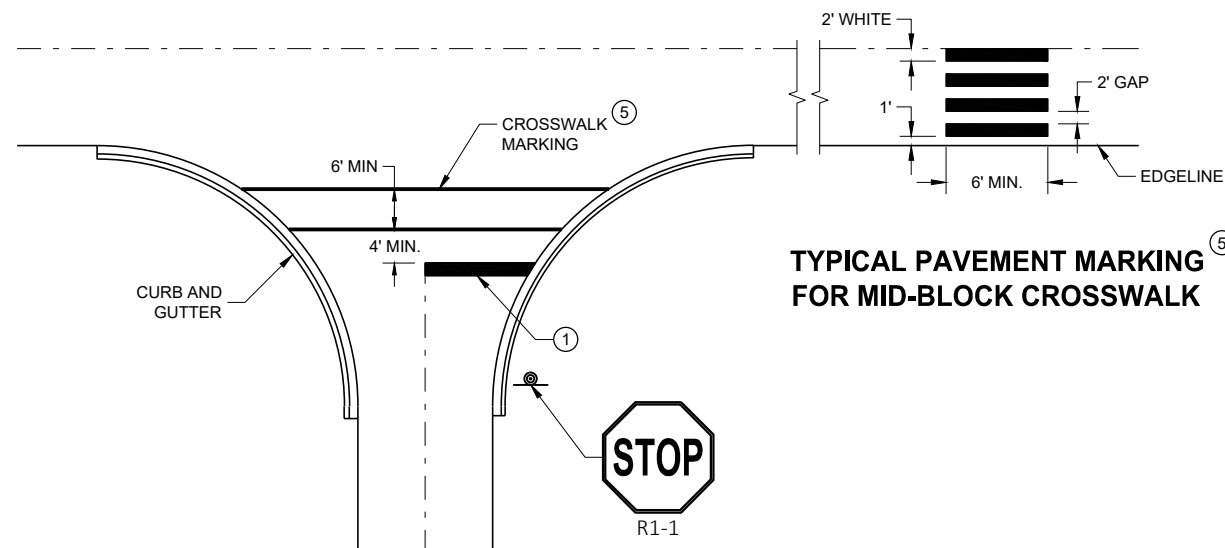
- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE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



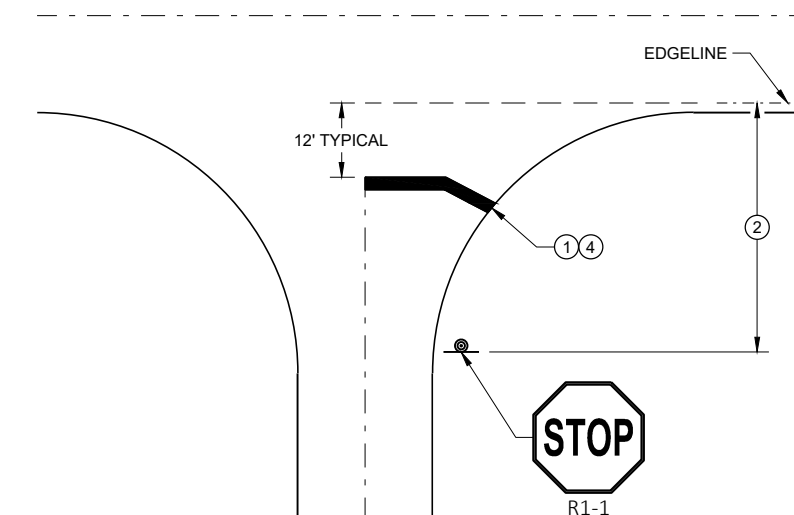
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

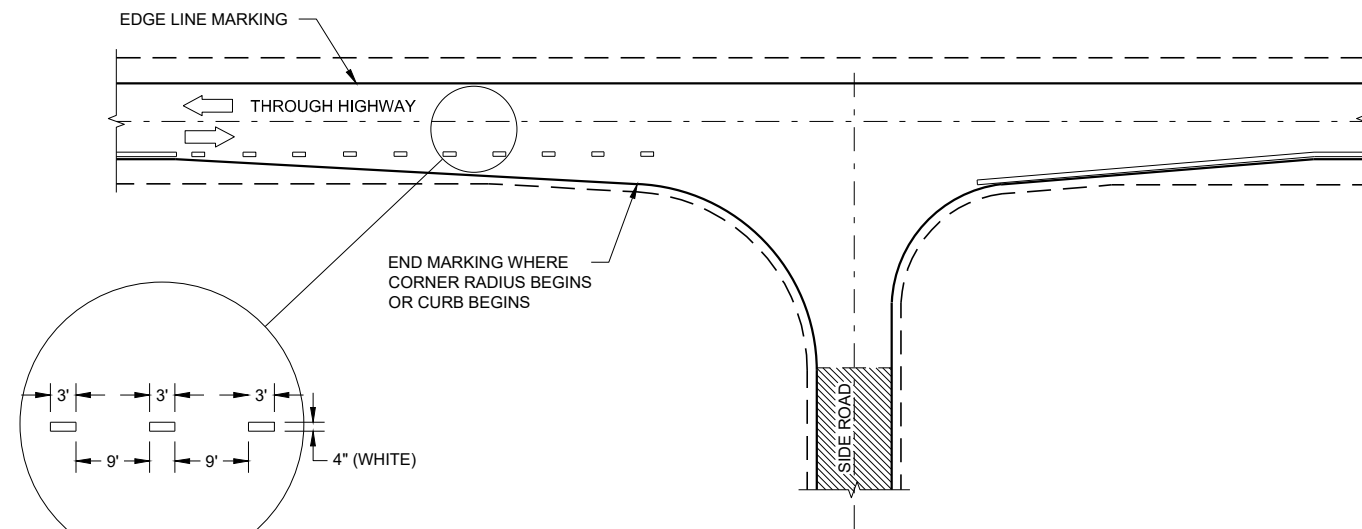
GENERAL NOTES

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

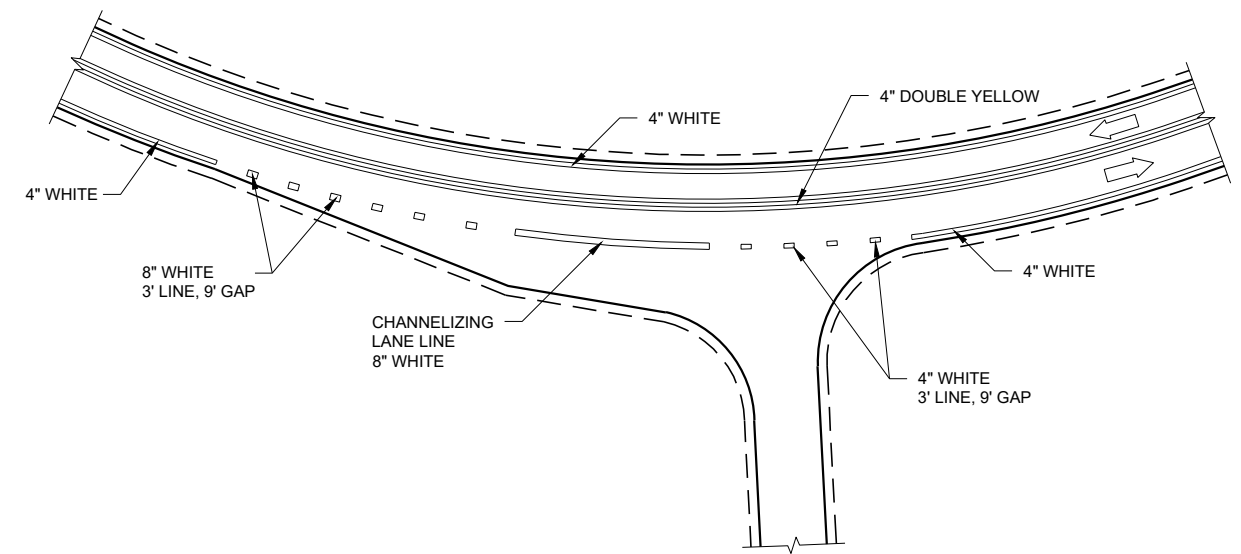
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

LEGEND

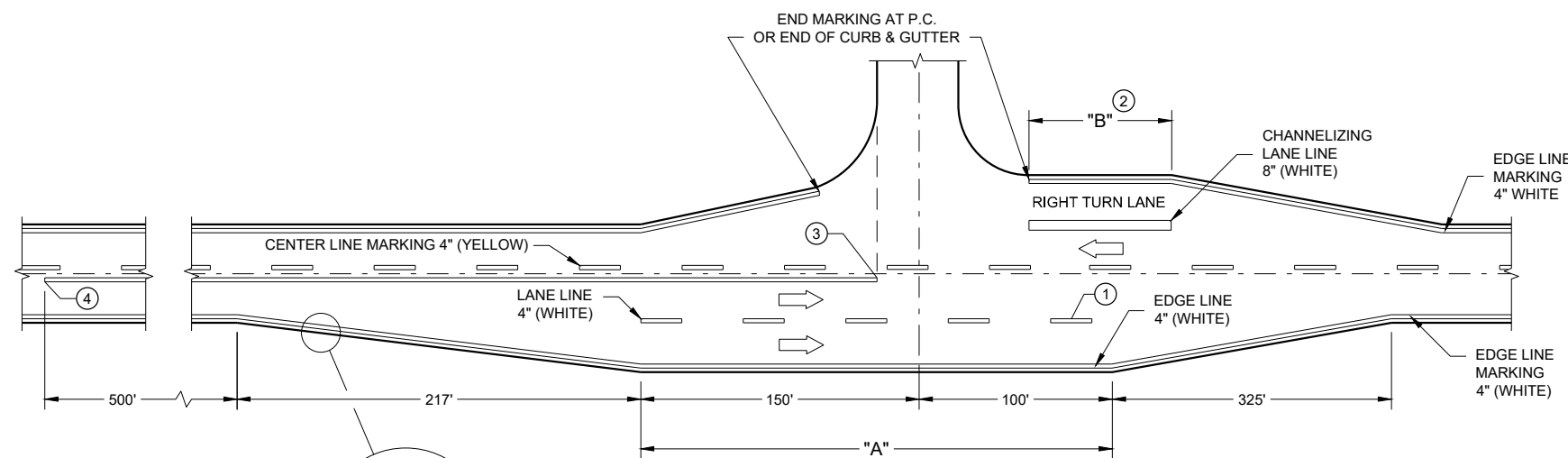
➡ DIRECTION OF TRAVEL



MINOR INTERSECTION



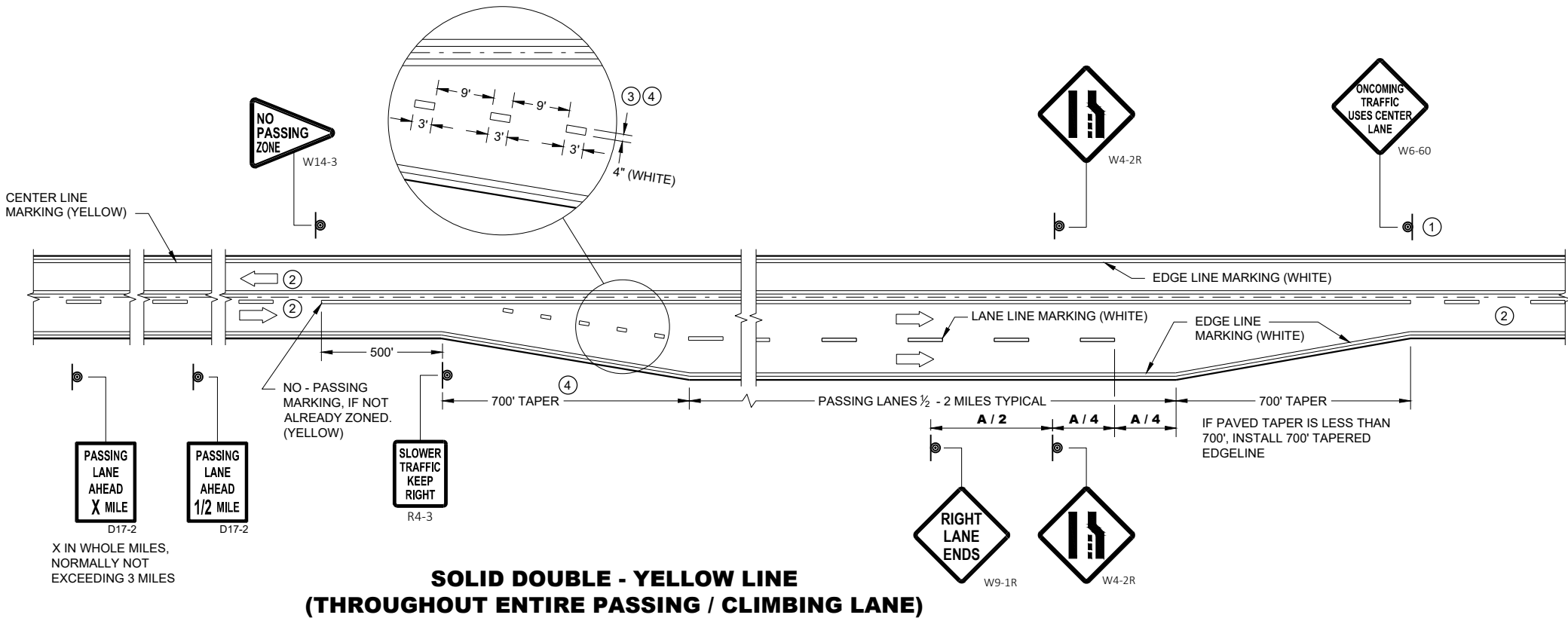
INTERSECTION ON OUTSIDE OF CURVE



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

**PAVEMENT MARKING
(INTERSECTIONS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



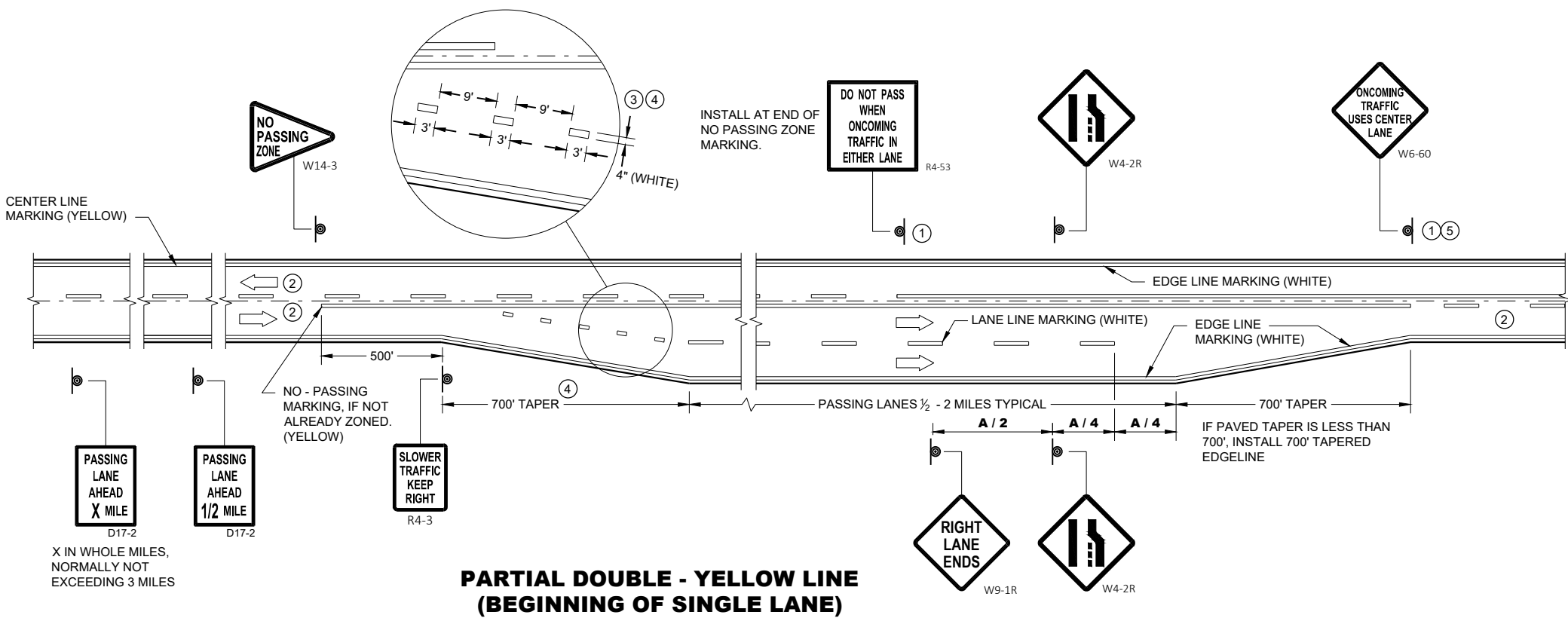
GENERAL NOTES

- SIGN SHALL BE REPEATED AT 1 MILE INCREMENTS OR AT THE DISCRETION OF THE REGIONAL TRAFFIC ENGINEER.
- THERE MAY BE SOLID YELLOW ON THE CENTERLINE DUE TO SIGHT CONDITIONS.
- THE TAPER LENGTH OF THE DOTTED LINE PAVEMENT MARKING SHALL BE 700 FEET, 3' LINE, 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
- WHEN THE ENTRANCE TAPER IS LESS THAN 700 FEET OR THE SHOULDER WIDTH IN THE PASSING / CLIMBING LANE IS LESS THAN THE ADJACENT HIGHWAY, DO NOT INSTALL DOTTED LINE PAVEMENT MARKING.
- REPEAT EVERY 1 MILE UP UNTIL R4-53.

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

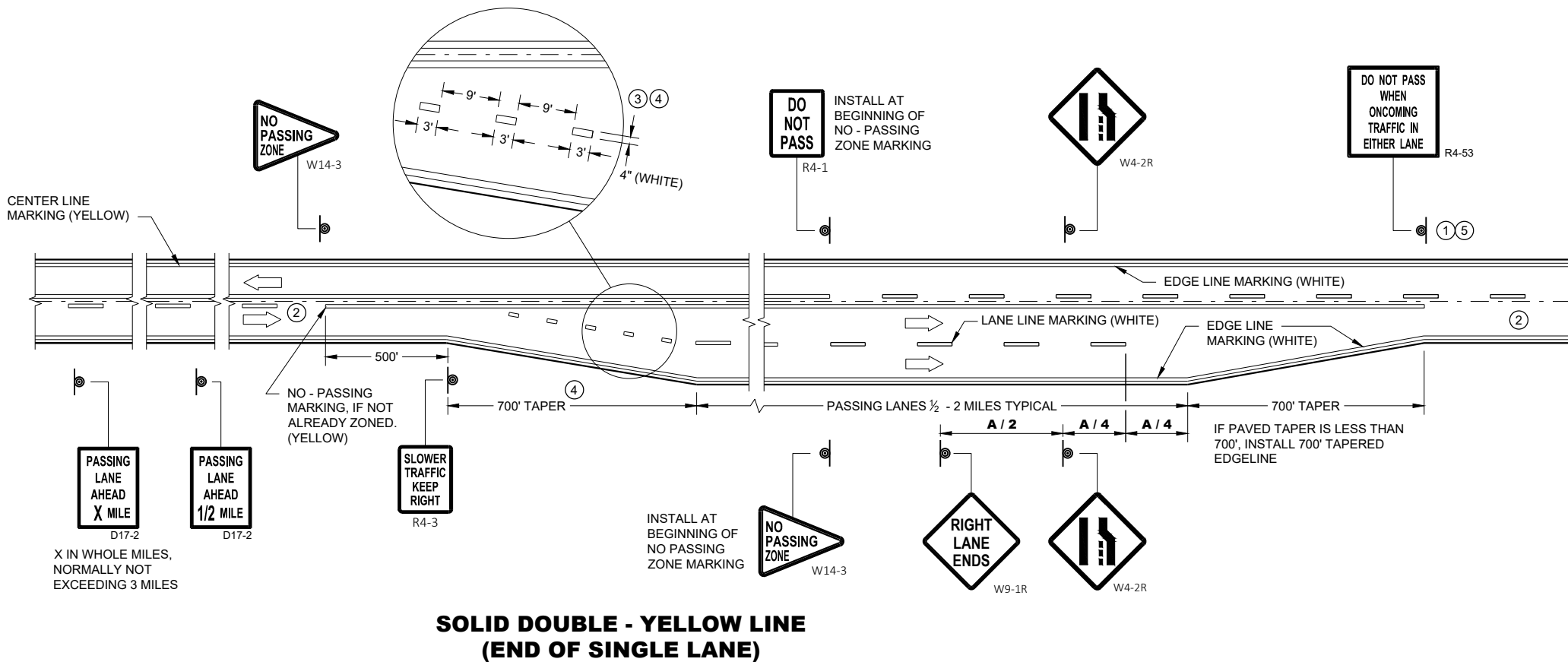
DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
45	775
50	885
55	990



**PAVEMENT MARKING & SIGNING
(CLIMBING LANE & PASSING LANE)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



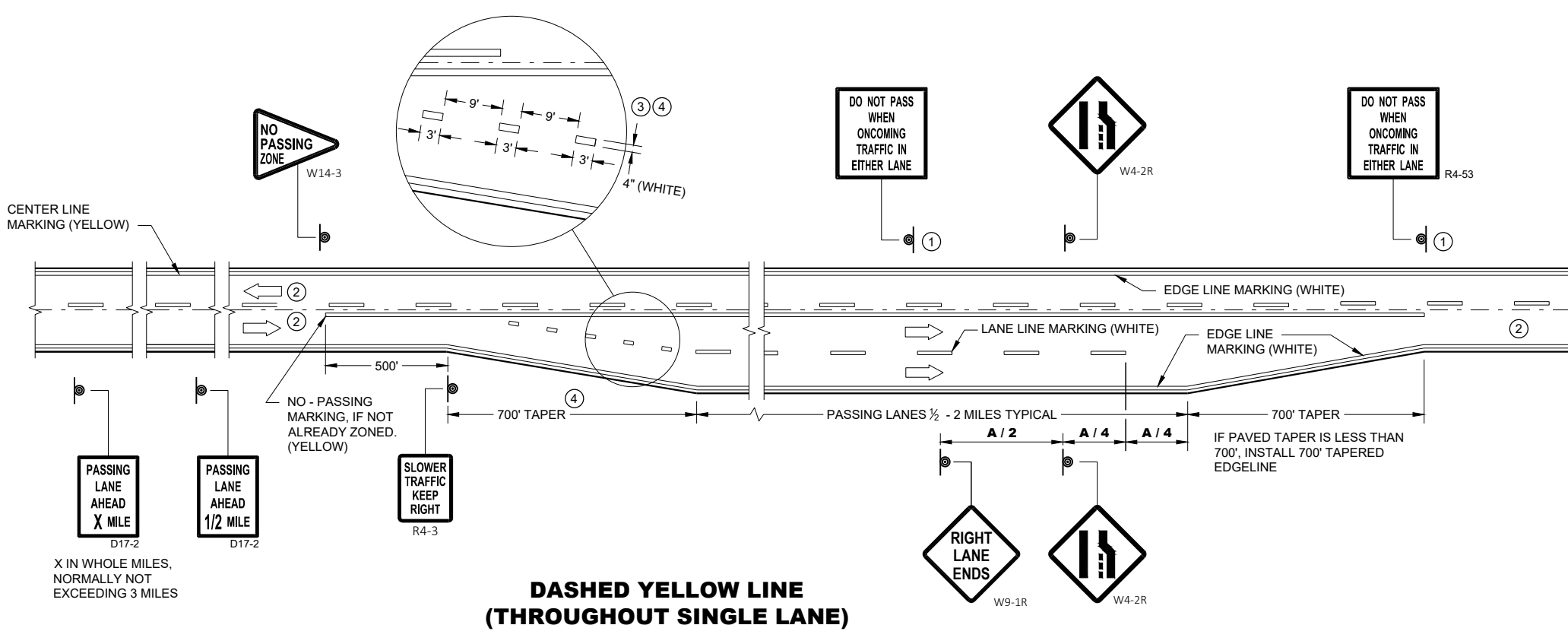
GENERAL NOTES

- 1 SIGN SHALL BE REPEATED AT 1 MILE INCREMENTS OR AT THE DISCRETION OF THE REGIONAL TRAFFIC ENGINEER.
- 2 THERE MAY BE SOLID YELLOW ON THE CENTERLINE DUE TO SIGHT CONDITIONS.
- 3 THE TAPER LENGTH OF THE DOTTED LINE PAVEMENT MARKING SHALL BE 700 FEET, 3' LINE, 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
- 4 WHEN THE ENTRANCE TAPER IS LESS THAN 700 FEET OR THE SHOULDER WIDTH IN THE PASSING / CLIMBING LANE IS LESS THAN THE ADJACENT HIGHWAY, DO NOT INSTALL DOTTED LINE PAVEMENT MARKING.
- 5 REPEAT EVERY ONE MILE UP UNTIL NO PASSING ZONE.

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
45	775
50	885
55	990







PAVEMNET MARKING & SIGNING (CLIMBING LANE & PASSING LANE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

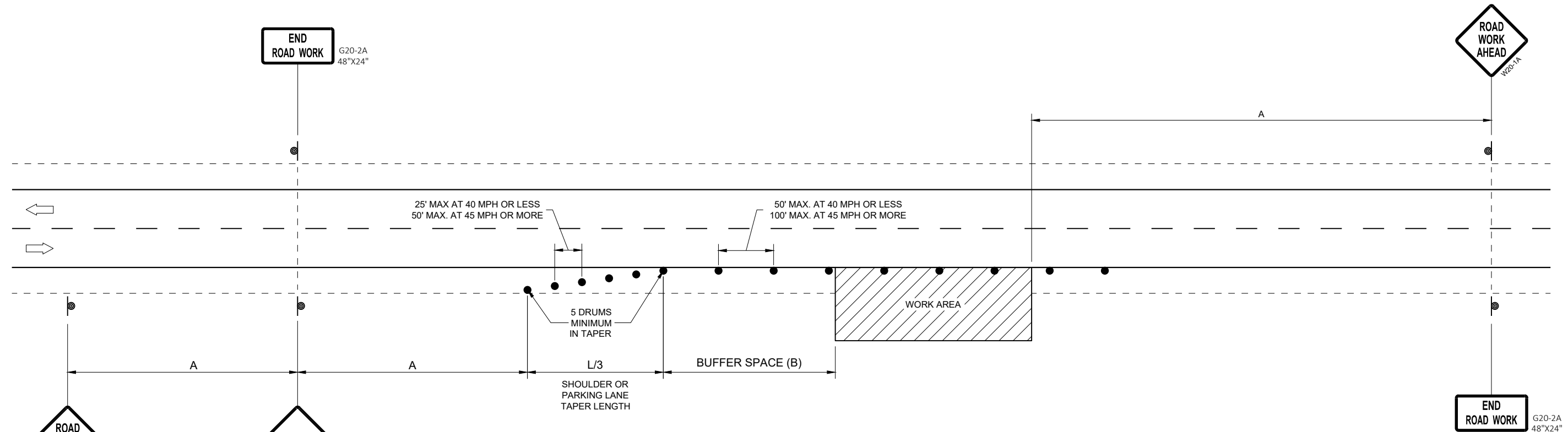
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

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

OR
IF TRAFFIC CONTROL DEVICES
ENCROACH ONTO TRAVELED WAY, USE



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

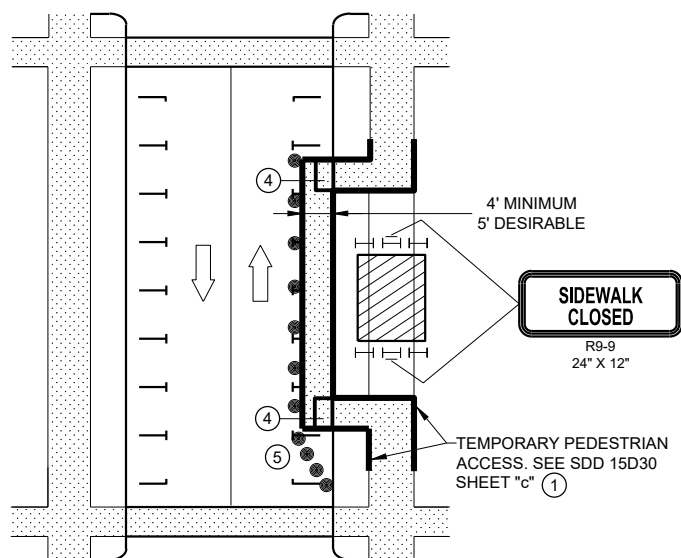
APPROVED
May 2020 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA

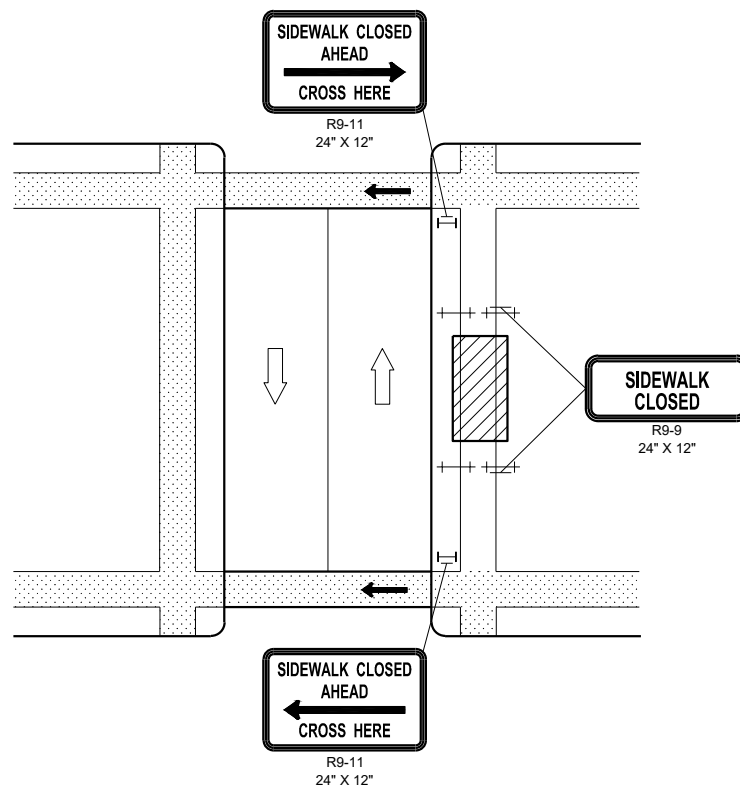
SDD 15D28 - 04

SDD 15D28 - 04

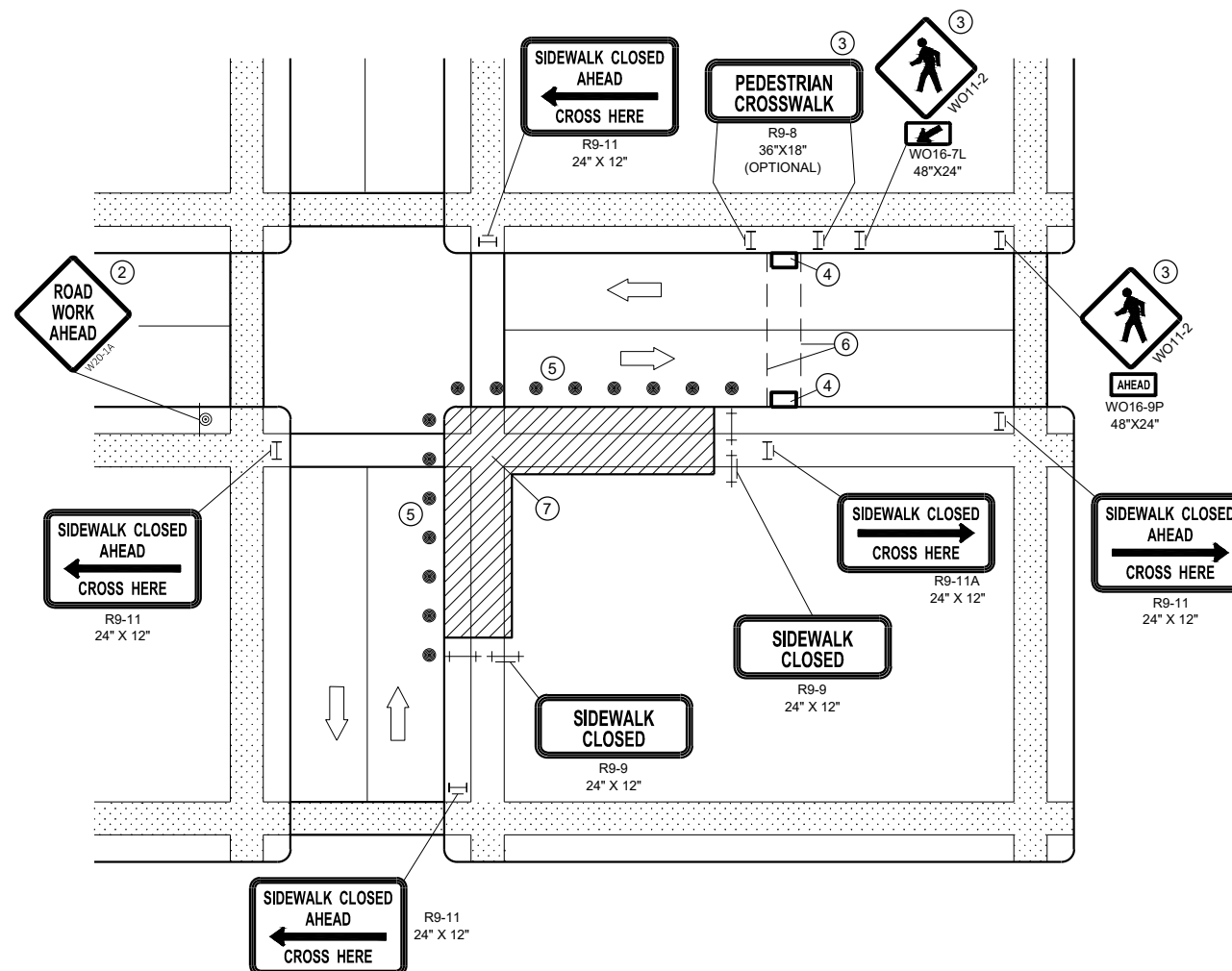
NOTE: MAY BE USED ON ROADWAY WITH POSTED SPEED OF LESS THAN 40 MPH.



MID-BLOCK SIDEWALK CLOSURE IN PARKING LANE

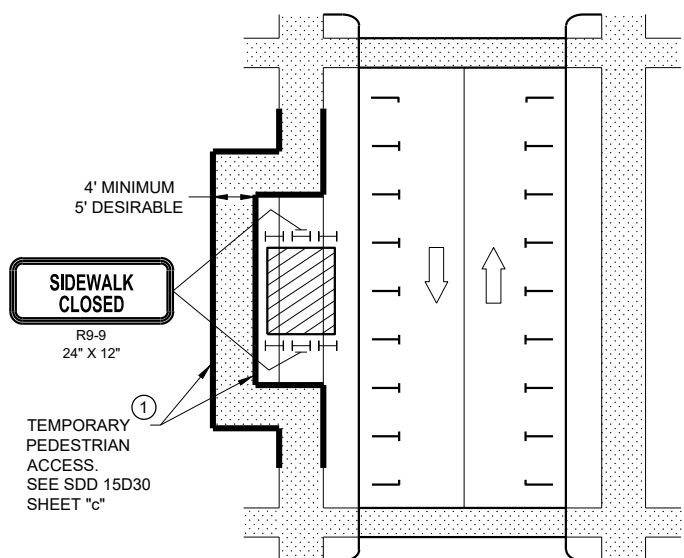


MID-BLOCK SIDEWALK CLOSURE



CORNER SIDEWALK CLOSURE WITH TEMPORARY CROSSWALK

NOTE: LAYOUT SAME AS ABOVE.



SIDEWALK DIVERSION

GENERAL NOTES

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, PROVIDE DETECABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER DEVICES MAY BE NECESSARY TO CONTROL VEHICULAR TRAFFIC. STAGE WORK AS NECESSARY, TO PROVIDE A TEMPORARY PEDESTRIAN ACCESS ROUTE AT ALL TIMES. FOR ROADWAYS WITH NO AVAILABLE DETOURS, MAINTAIN ONE OPEN SIDEWALK AT ALL TIMES.

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

FOR NIGHTTIME CLOSURE, USE TYPE "A" FLASHING WARNING LIGHTS ON BARRICADES, SUPPORTING SIGNS AND CLOSING SIDEWALK. USE TYPE "C" STEADY BURN LIGHTS ON CHANNELIZING DEVICES SEPARATING THE WORK AREA FROM VEHICULAR TRAFFIC.

PEDESTRIAN TRAFFIC SIGNAL DISPLAY CONTROLLING CLOSED CROSSWALK SHALL BE COVERED OR DEACTIVATED.

POST MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7 FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK SURFACE.

ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.

- ① IF SIDEWALK CLOSURE AFFECTS AN ACCESSIBLE AND DETECTABLE FACILITY, MAINTAIN ACCESSIBILITY AND DETECTABILITY ALONG THE ALTERNATE PEDESTRIAN ROUTE
- ② "ROAD WORK AHEAD" SIGNS ARE NOT REQUIRED IF THE SIDEWALK CLOSURE OCCURS WITHIN A LARGER WORK ZONE WHERE ADVANCE WARNING SIGNS ARE ALREADY PRESENT, OR IF THE WORK AREA AND EQUIPMENT ARE MORE THAN 2 FEET BEHIND THE CURB.
- ③ IF TEMPORARY PEDESTRIAN CROSSWALK IS NOT PROVIDED, OMIT R9-8 AND WO11-2 SIGN ASSEMBLIES. IF PROVIDED INCLUDE ON BOTH SIDES OF THE CROSSWALK.
- ④ TEMPORARY CURB RAMPS. SEE SDD 15D30 SHEET "b".
- ⑤ DRUMS OR BARRICADES AT 25 FOOT SPACING. STREET PARKING SHALL BE PROHIBITED FOR AT LEAST 50 FEET IN ADVANCE OF THE MID-BLOCK CROSSWALK.
- ⑥ TEMPORARY PAVEMENT MARKING FOR CROSSWALK LINES.
- ⑦ LIMIT WORK TO ONE QUADRANT AT A TIME TO MINIMIZE PEDESTRIAN DISRUPTION.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW INTENSITY FLASHING)
- TYPE III BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW INTENSITY FLASHING)
- UNDER PEDESTRIAN TRAFFIC
- WORK AREA
- PEDESTRIAN CHANNELIZATION DEVICE
- DIRECTION OF TRAFFIC

**TRAFFIC CONTROL,
PEDESTRIAN ACCOMMODATION**

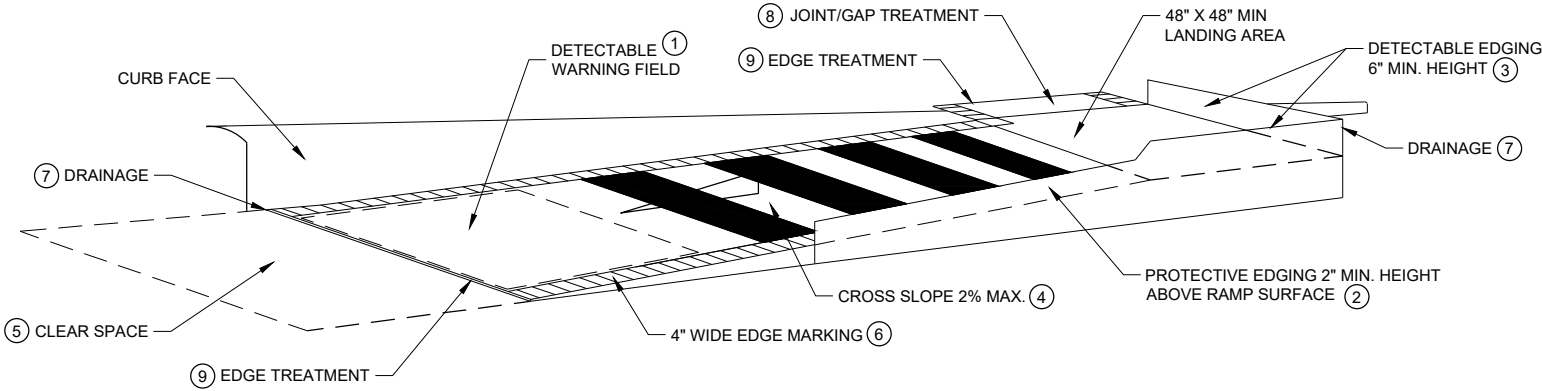
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

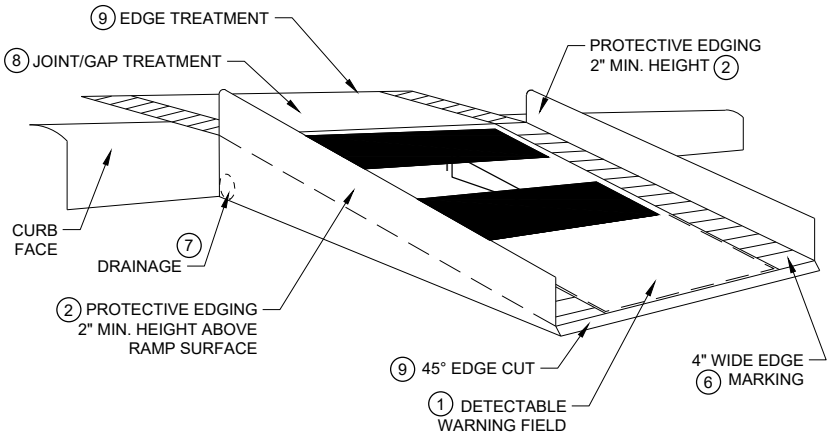
NOTIFY THE BUS COMPANY 7 DAYS IN ADVANCE OF THE BUS STOP RELOCATION.

ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.

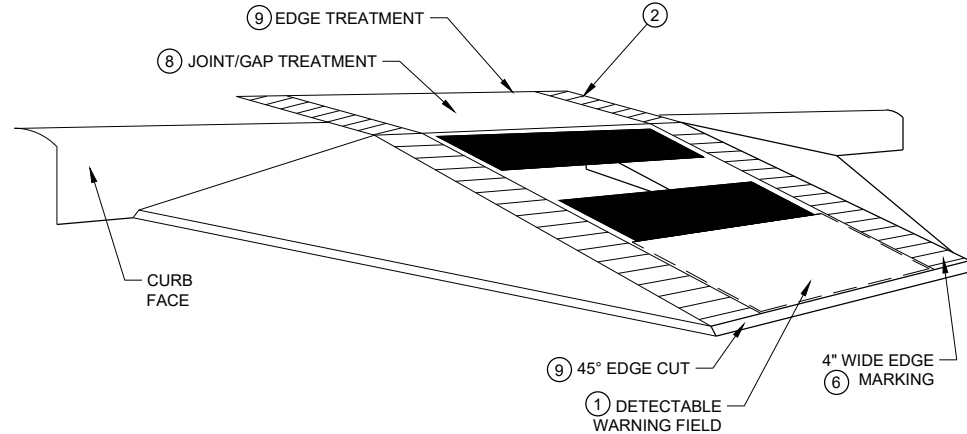
- ① CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE. INSTALL CONTRASTING DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS. REFER TO SDD 08D05, SHEET "e".
- ② PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
- ③ DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- ④ CURB RAMPS AND LANDINGS SHALL HAVE A 1:50 (2%) MAX. CROSS-SLOPE.
- ⑤ CLEAR SPACE OF 48" X 48" SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
- ⑥ THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A YELLOW COLOR, 4" WIDE MARKING, UNLESS A CONTRASTING DETECTABLE WARNING FIELD IS PROVIDED.
- ⑦ DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
- ⑧ LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.
- ⑨ CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES SHALL BE VERTICAL UP TO 1/4" HIGH AND BEVELED AT 1:2 BETWEEN 1/4" AND 1/2".
- ⑩ 5" WIDE MIN. WITH PEDESTRIAN SAFETY BARRICADE, 10' WIDE MIN. WITHOUT PEDESTRIAN SAFETY BARRICADE.



TEMPORARY CURB RAMP PARALLEL TO CURB

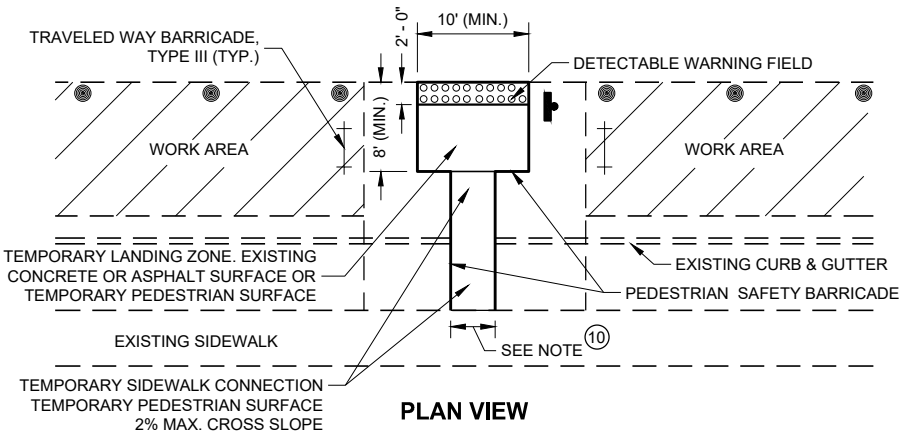


WITH PROTECTIVE EDGE

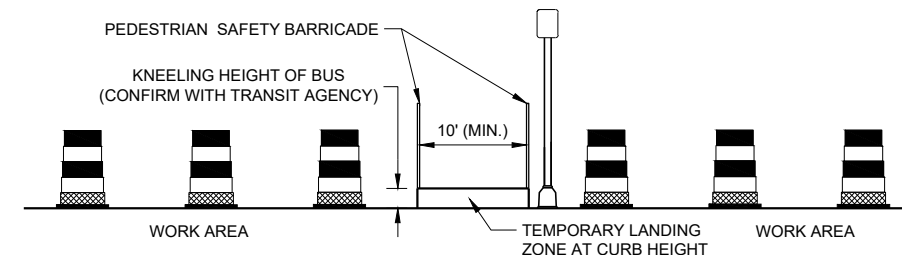


WITH SIDE APRON

TEMPORARY CURB RAMP PERPENDICULAR TO CURB



PLAN VIEW



PROFILE VIEW

TEMPORARY BUS STOP PAD

LEGEND

- TRAFFIC CONTROL DRUM
- ⊥ TYPE III BARRICADE
- ▨ WORK AREA

**TRAFFIC CONTROL,
PEDESTRIAN ACCOMMODATION**

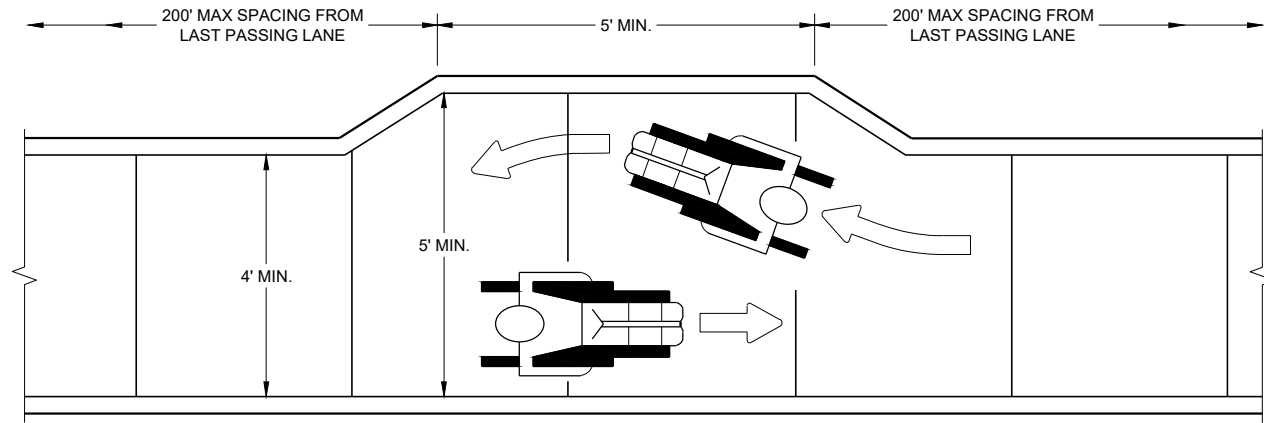
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

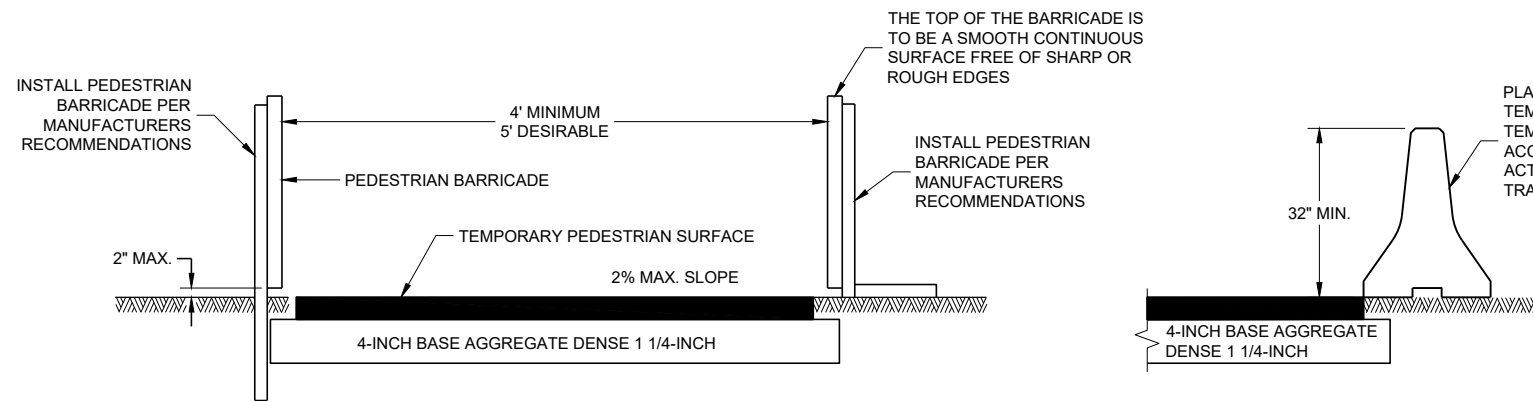
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SDD 15D30 - 06b

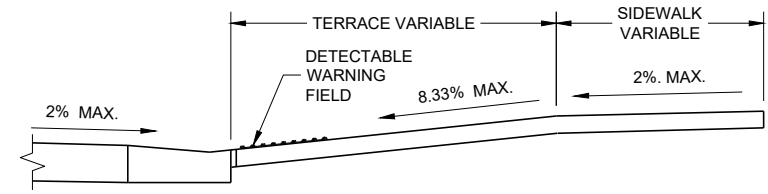
SDD 15D30 - 06b



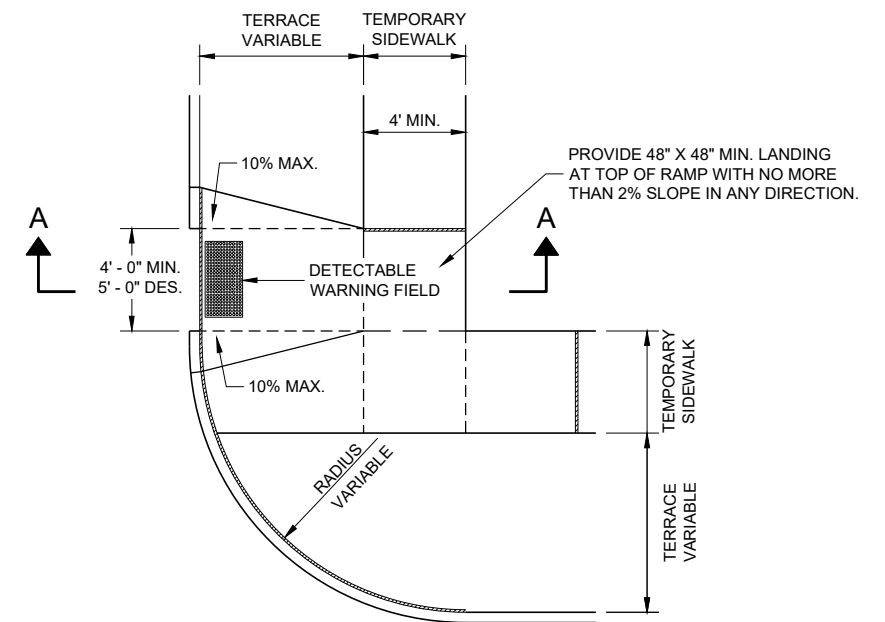
NARROW SIDEWALK PASSING DETAIL



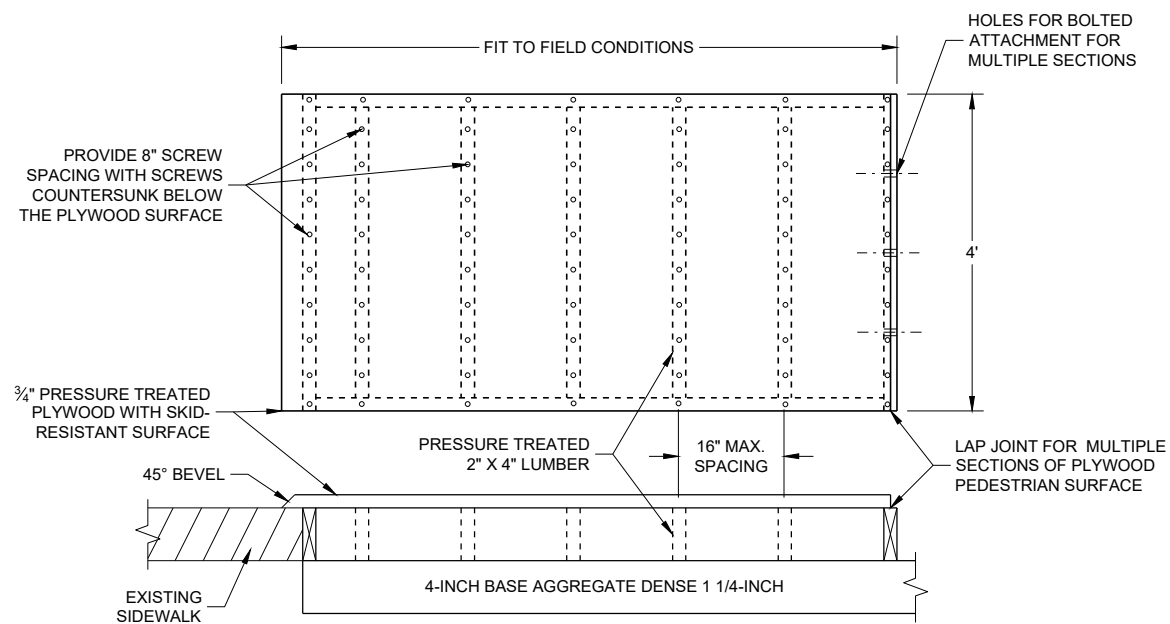
TEMPORARY PEDESTRIAN ACCESS



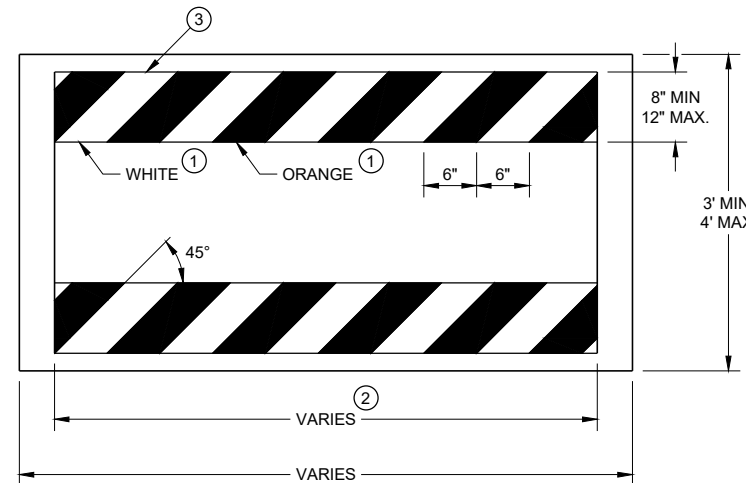
SECTION A - A



**PLAN VIEW
TEMPORARY TYPE 3 RAMP
(OUTSIDE OF CROSSWALK AREA)**



TEMPORARY PEDESTRIAN SURFACE PLYWOOD



TEMPORARY PEDESTRIAN BARRICADE *

GENERAL NOTES

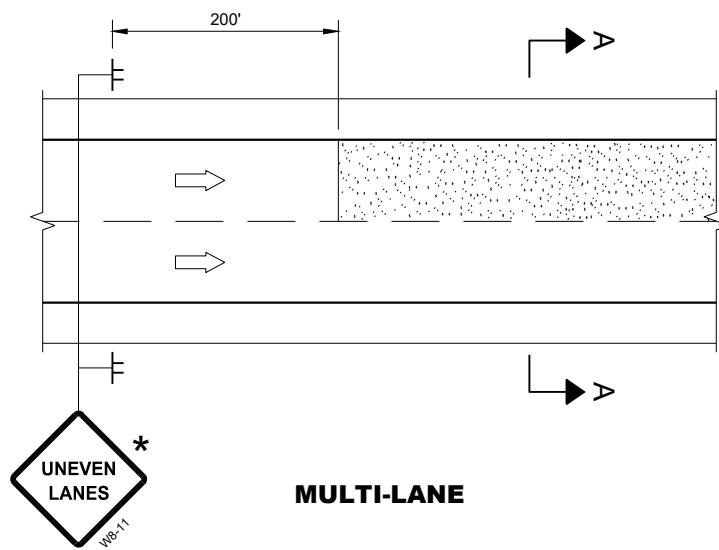
- BARRICADE DEVICE SELECTED FROM APPROVED PRODUCT LIST
- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② SHEETING REQUIRED ON MORE THAN 50% OF BARRICADE WIDTH.
- ③ PLACE SHEETING ON BOTH SIDES OF THE BARRICADE.
- * USE THIS DETAIL FOR SHEETING PLACEMENT REFERENCE.

**TRAFFIC CONTROL,
PEDESTRIAN ACCOMMODATION**

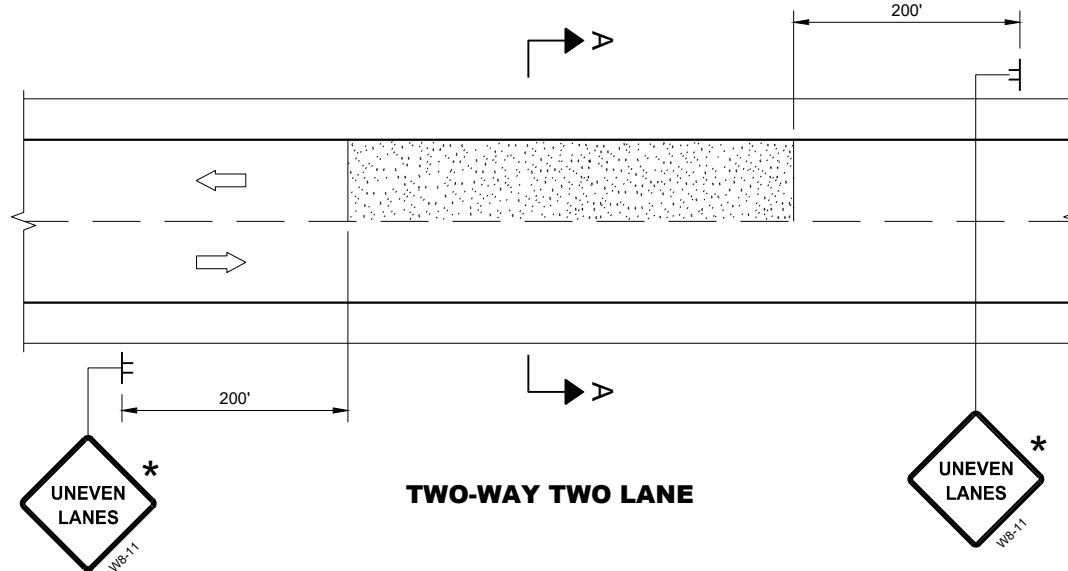
STATE OF WISCONSIN
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APPROVED
November 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

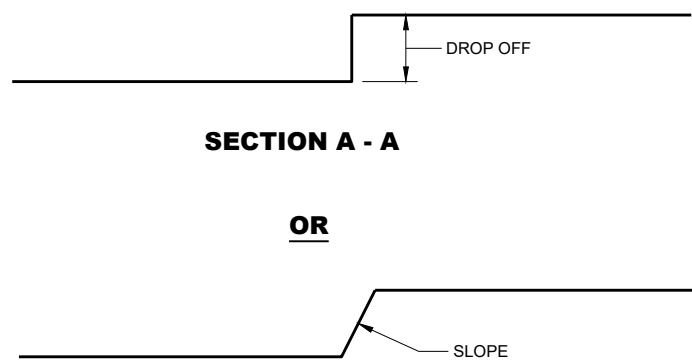
FHWA



MULTI-LANE



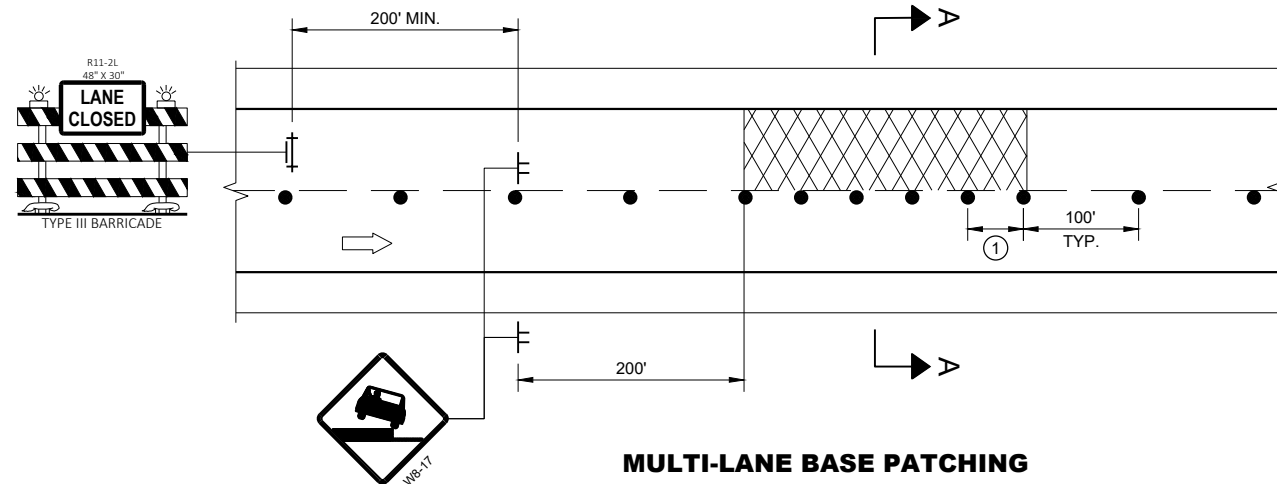
TWO-WAY TWO LANE



SECTION A - A

OR

SECTION A - A



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS

GENERAL NOTES

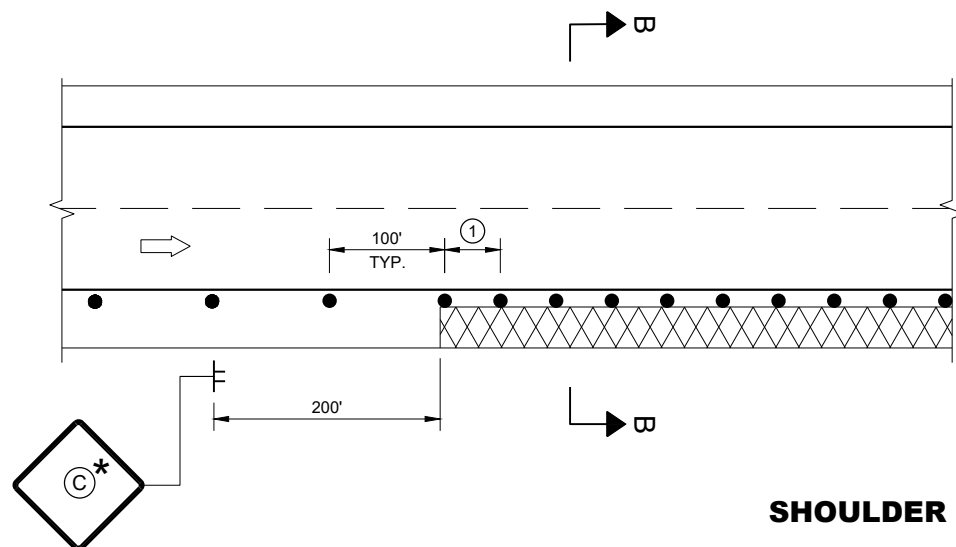
- FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.
- * IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.
- ① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

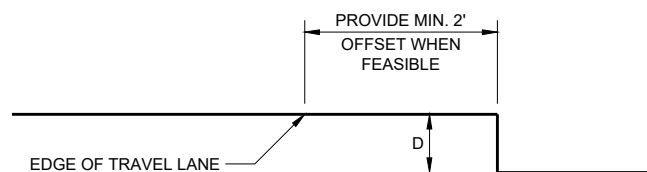
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

6

6



SHOULDER DROP-OFFS



SECTION B - B

D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	 W08-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	 W8-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

SDD 15D39 - 02

SDD 15D39 - 02

**TRAFFIC CONTROL,
DROP-OFF SIGNING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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DATE WORK ZONE ENGINEER

FHWA

GENERAL NOTES

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

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

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

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

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

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

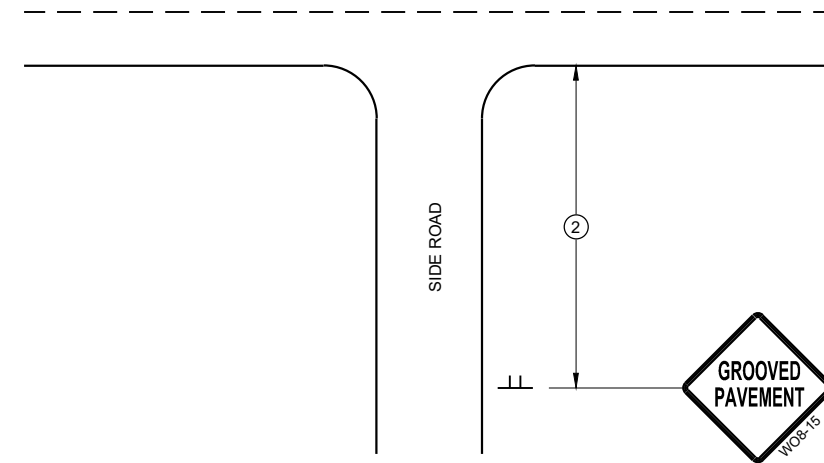
SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

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

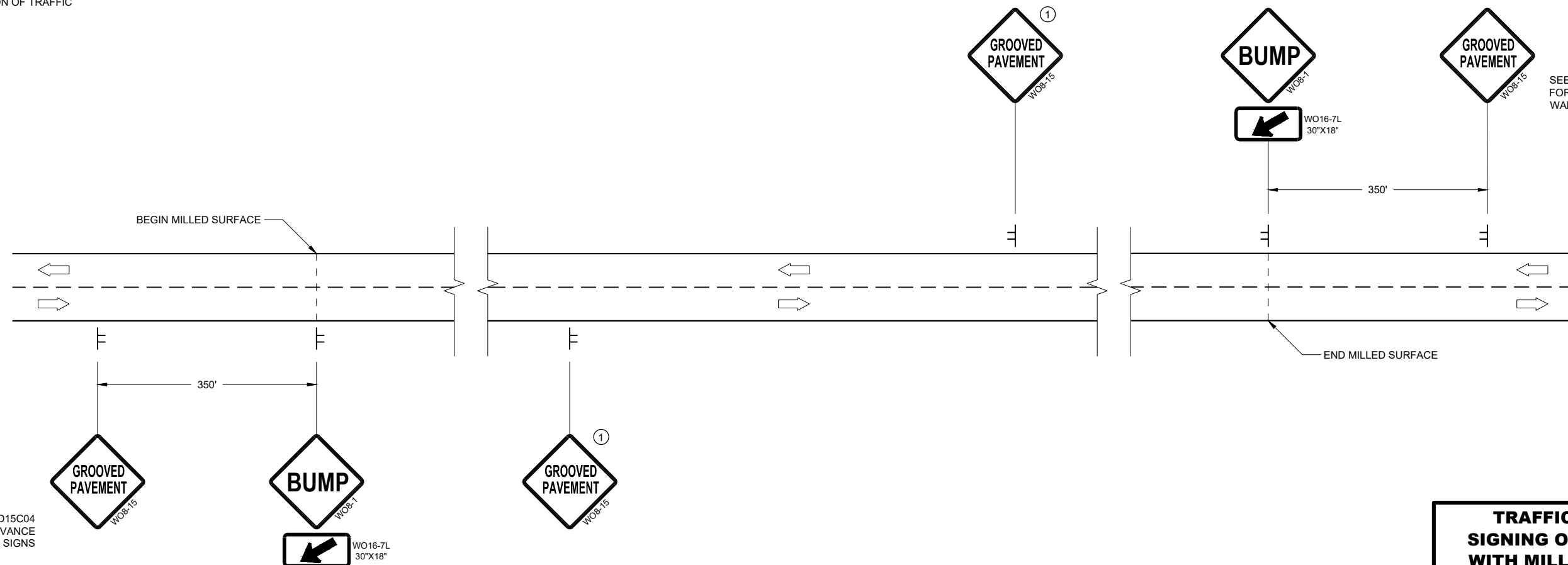
LEGEND

⊥ SIGN ON TEMPORARY SUPPORT

➡ DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH SIGN DETAIL



SEE SDD15C04 FOR ADVANCE WARNING SIGNS

SEE SDD15C04 FOR ADVANCE WARNING SIGNS

DETAIL FOR SIGNING ON MILLED SURFACES





TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

LEGEND

- V1 WORK VEHICLE
- V2 SHADOW VEHICLE
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  FLASHING ARROW PANEL (CAUTION)
-  WORK AREA
-  DIRECTION OF TRAFFIC

POSTED SPEED PRIOR TO WORK STARTING (MPH)	DECISION SIGHT DISTANCE (D)
0 - 25	550'
30	550'
35	700'
40	700'
45	900'
50	900'
55	1200'

GENERAL NOTES

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

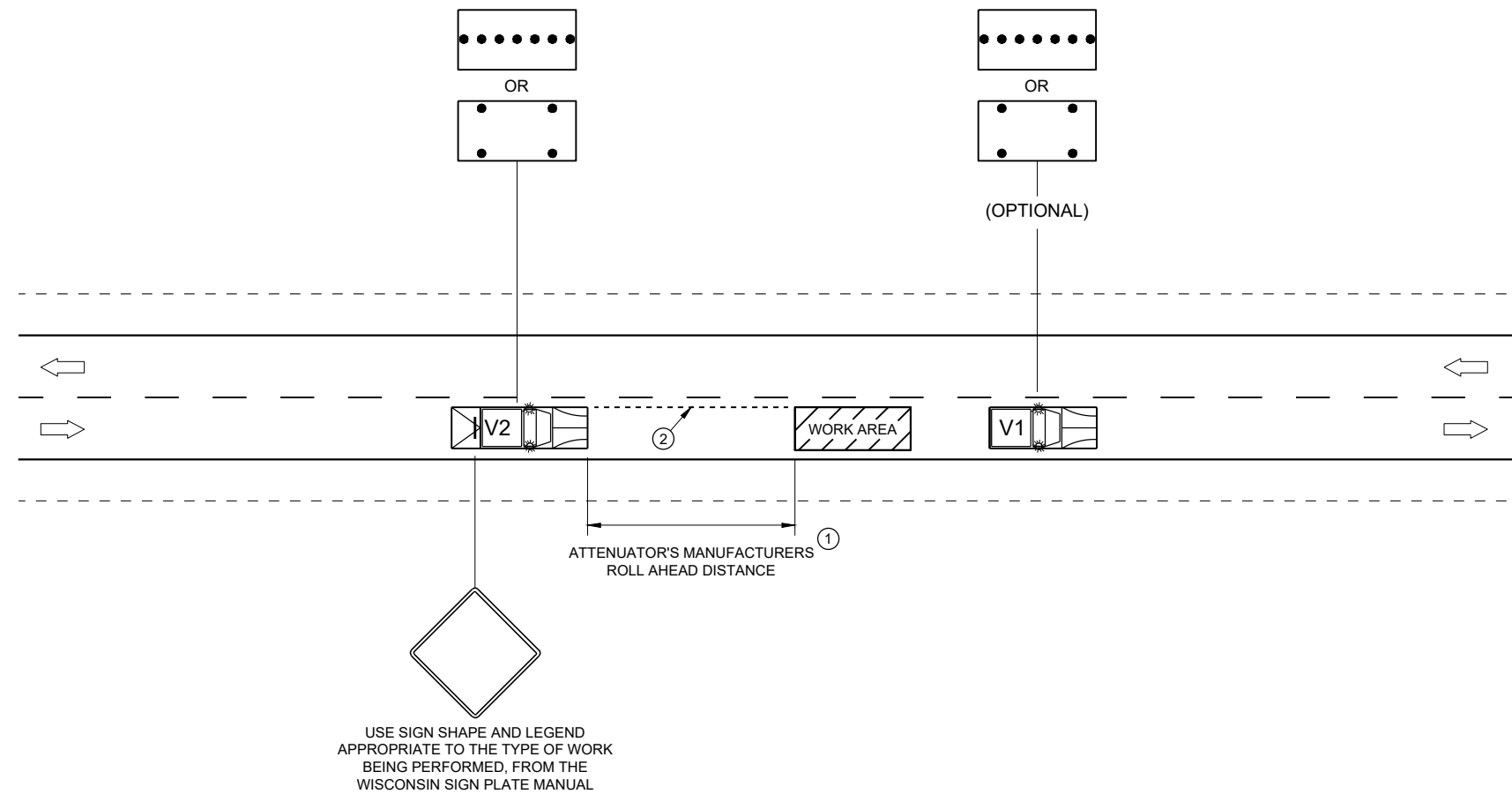
MOBILE IS WORK THAT MOVES CONTINUOUSLY OR MOVES AT LEAST THE DECISION SIGHT DISTANCE EVERY 15 MINUTES.

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

ALL ARROW PANELS SHALL BE REAR FACING, TYPE "B" OR "C", AND DISPLAYING THE FLASHING CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

- ① DISTANCE BETWEEN VEHICLES MAY INCREASE FROM THE ATTENUATOR'S ROLL AHEAD BASED ON TERRAIN, SIGHT DISTANCE, 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.
- ② ALIGN LEFT SIDE OF SHADOW VEHICLE WITH EDGE OF WORK AREA.



6

6

SDD 15D51 - 01

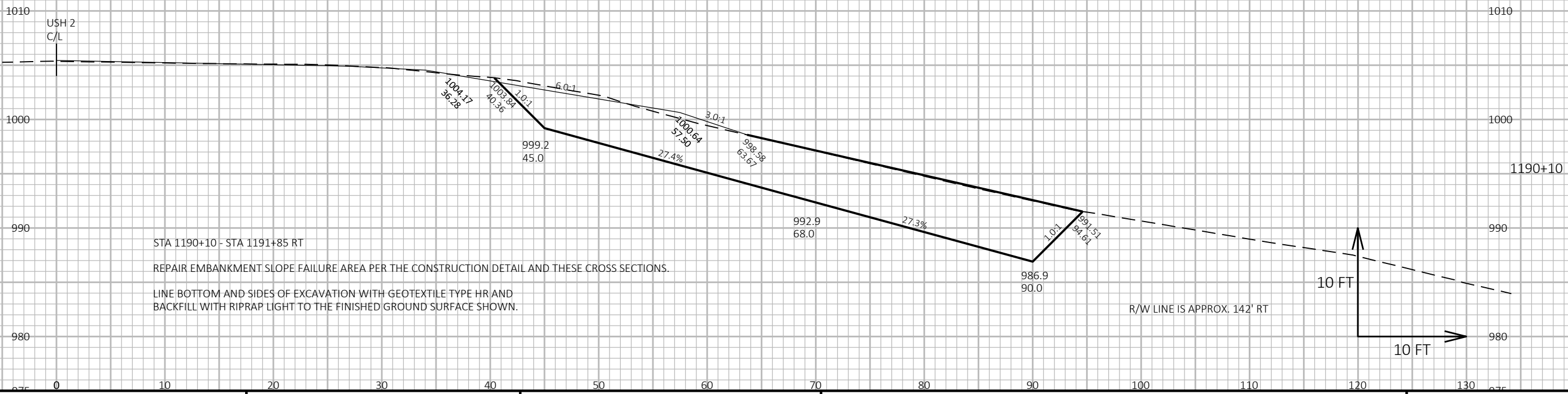
SDD 15D51 - 01

**TRAFFIC CONTROL,
MOBILE OPERATIONS ON
AN UNDIVIDED ROADWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

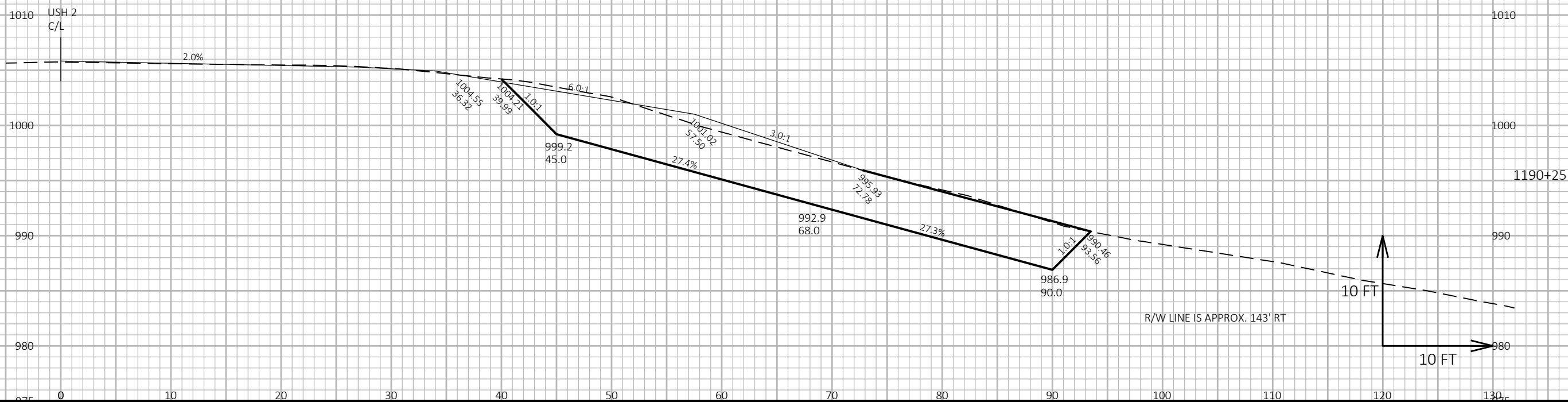
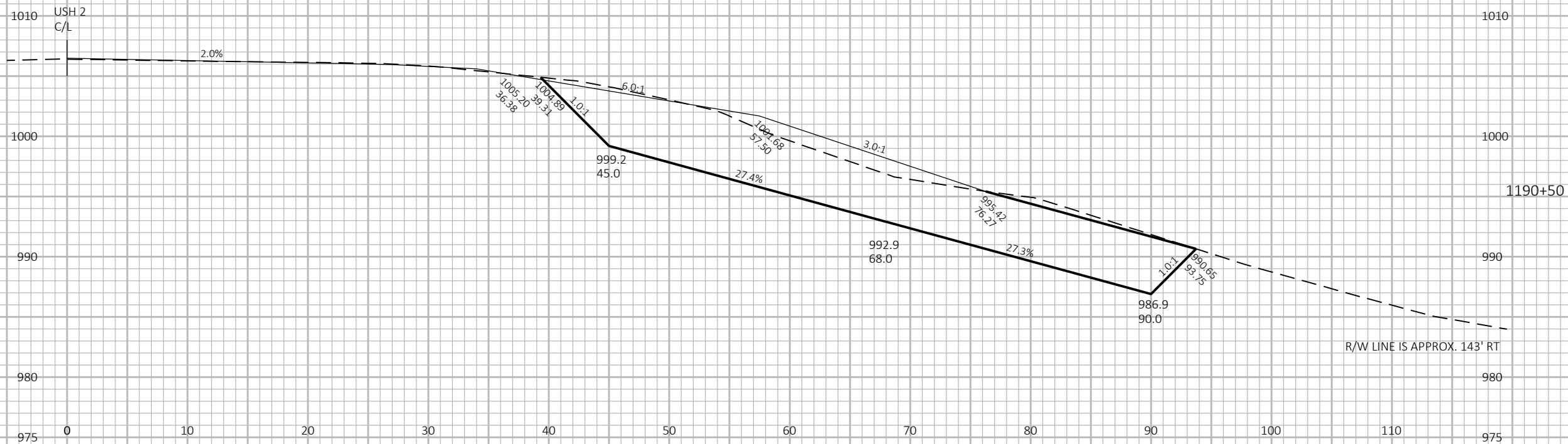
APPROVED
February 2021 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA



STA 1190+10 - STA 1191+85 RT
 REPAIR EMBANKMENT SLOPE FAILURE AREA PER THE CONSTRUCTION DETAIL AND THESE CROSS SECTIONS.
 LINE BOTTOM AND SIDES OF EXCAVATION WITH GEOTEXTILE TYPE HR AND
 BACKFILL WITH RIPRAP LIGHT TO THE FINISHED GROUND SURFACE SHOWN.

R/W LINE IS APPROX. 142' RT



PROJECT NO: 1180-05-75

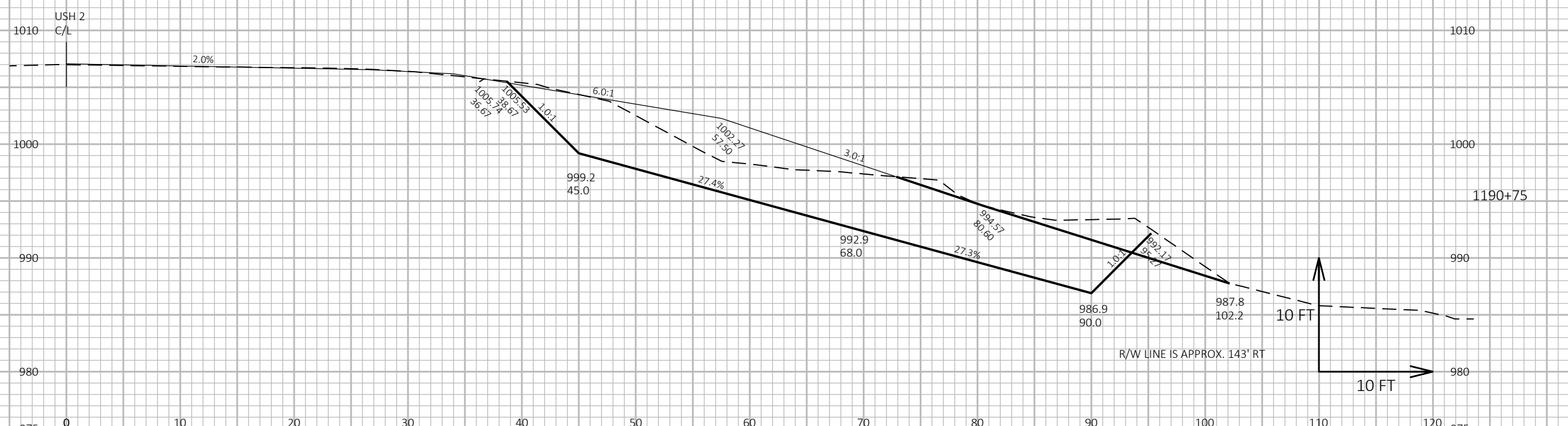
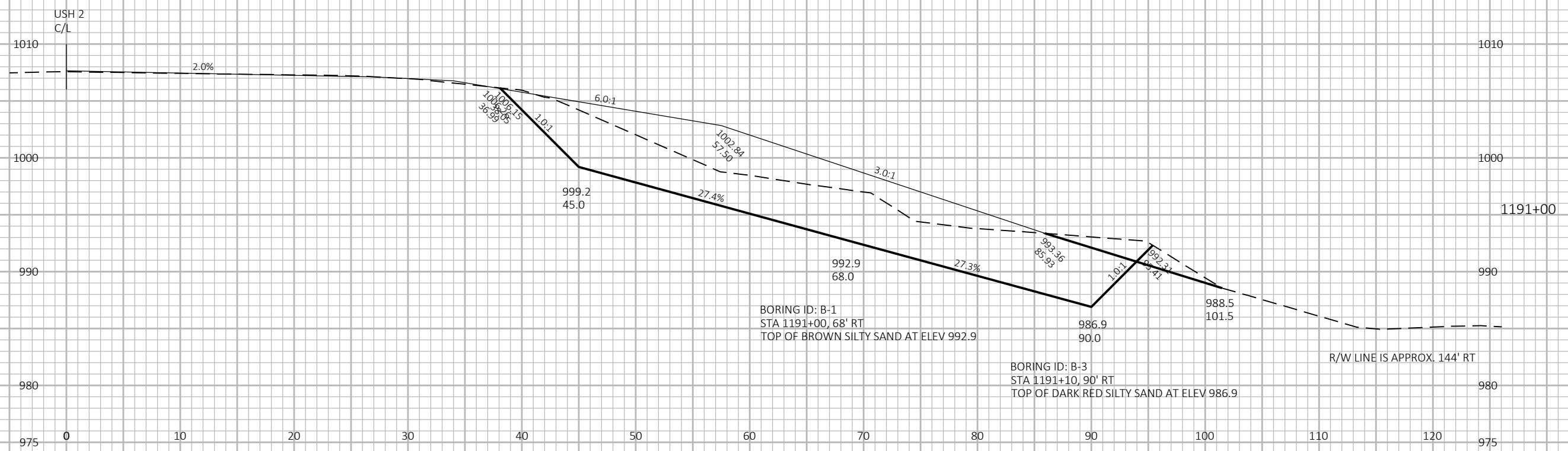
HWY: USH 002

COUNTY: DOUGLAS AND BAYFIELD

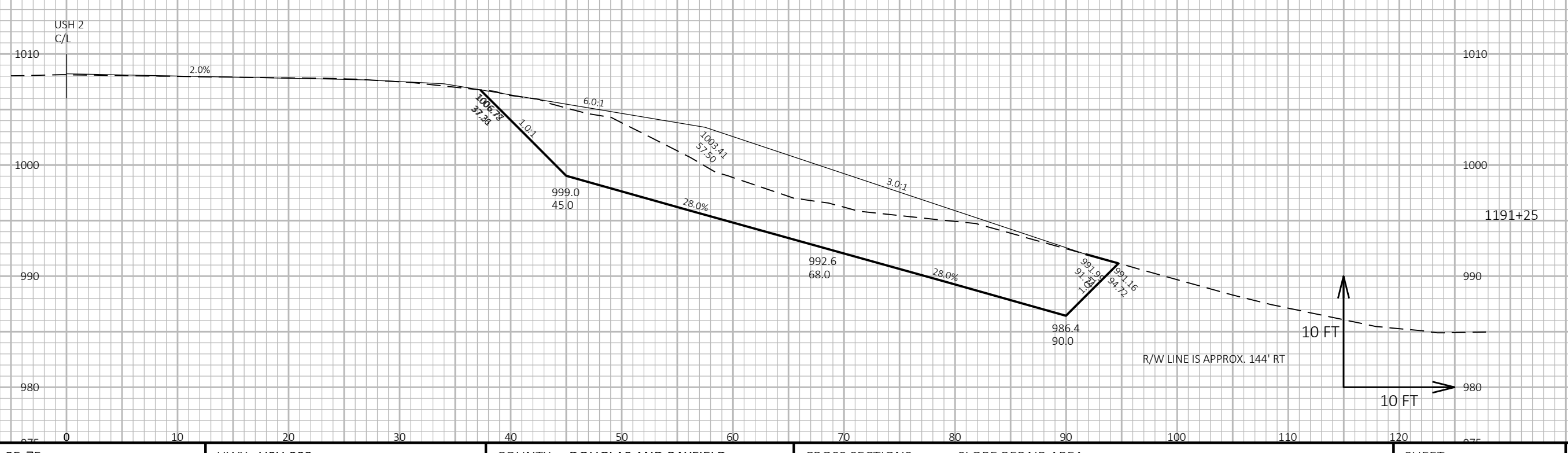
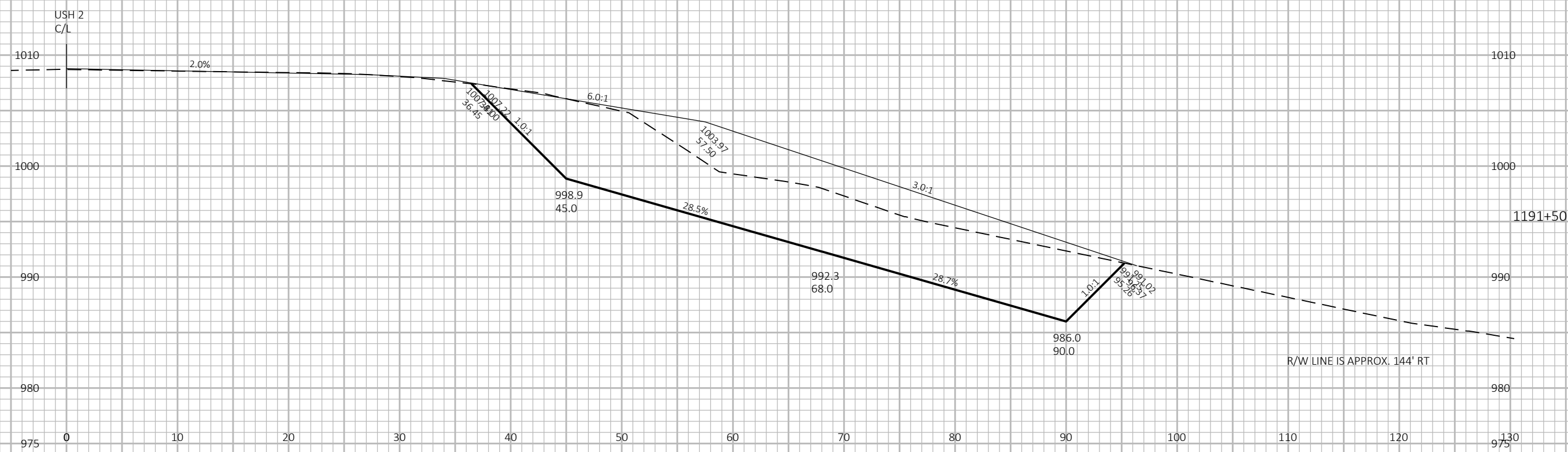
CROSS SECTIONS: SLOPE REPAIR AREA

SHEET

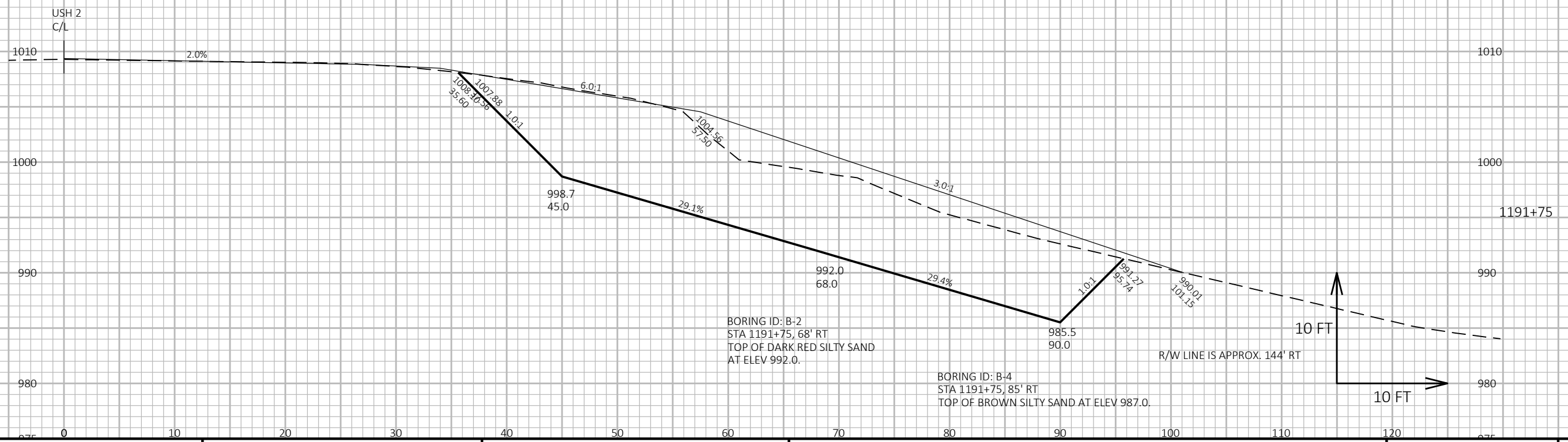
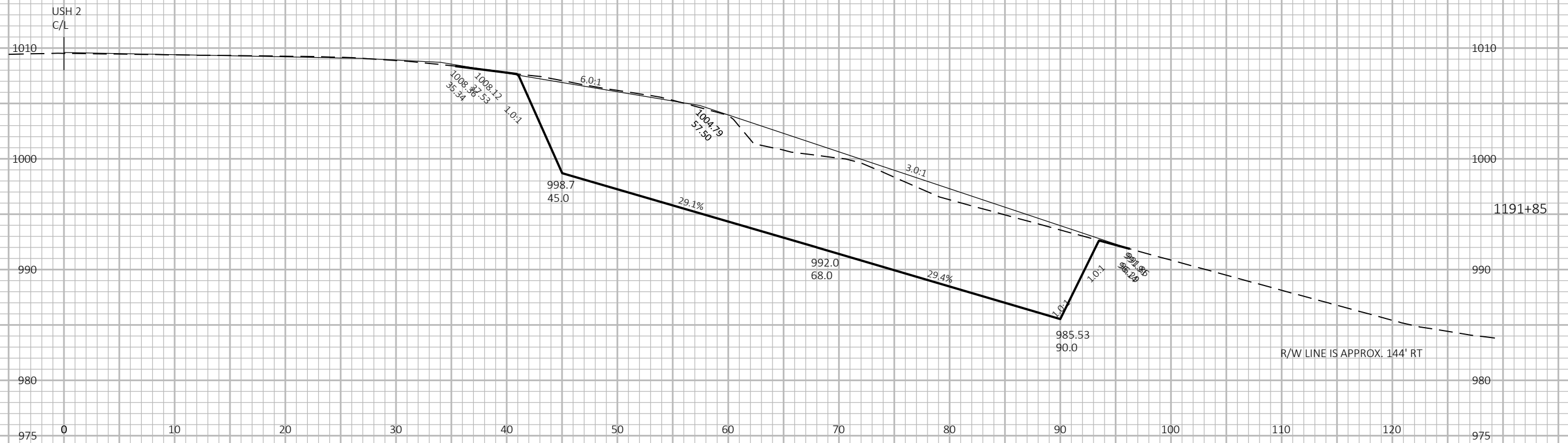
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PROJECT NO: 1180-05-75	HWY: USH 002	COUNTY: DOUGLAS AND BAYFIELD	CROSS SECTIONS: SLOPE REPAIR AREA	SHEET	E
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PROJECT NO: 1180-05-75 HWY: USH 002 COUNTY: DOUGLAS AND BAYFIELD CROSS SECTIONS: SLOPE REPAIR AREA SHEET 9



PROJECT NO: 1180-05-75

HWY: USH 002

COUNTY: DOUGLAS AND BAYFIELD

CROSS SECTIONS: SLOPE REPAIR AREA

SHEET

E



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