

WISCONSIN
PROJECT ID: 6600-00-72
COUNTY: MARATHON

MAY 2019

ORDER OF SHEETS		
Section No.		Title
Section No.	1	Typical Sections and Details
Section No.	2	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 Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections
TOTAL SHEETS =		104



DESIGN DESIGNATION

A.A.D.T.	2010	=	1,300
A.A.D.T.	2039	=	1,500
D.H.V.		=	250
D.D.		=	60/40
T.		=	7.4
DESIGN SPEED		=	60 MPH
ESALS		=	3,292,300

CONVENTIONAL SYMBOLS

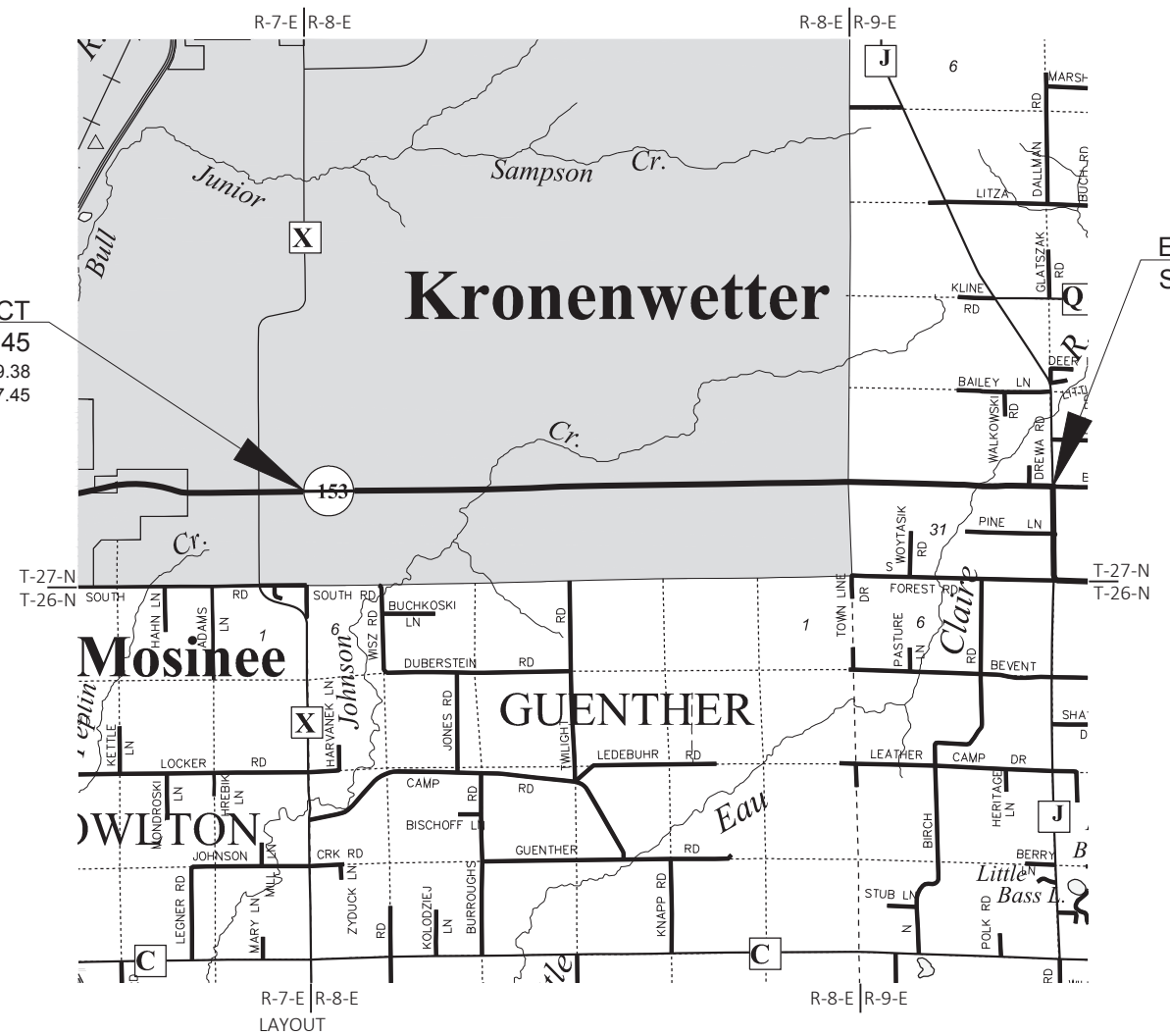
PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
	STORM SEWER
	TELEPHONE
	WATER
MARSH AREA	UTILITY PEDESTAL
	POWER POLE
WOODED OR SHRUB AREA	TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
MOSINEE TO ELDERON
ANDRYS LN - CTH J (N)
STH 153
MARATHON

STATE PROJECT NUMBER
6600-00-72

BEGIN PROJECT
STA 250+37.45
X = 286,039.38
Y=138,787.45

END PROJECT
STA 677+54.20



SCALE 0 2
TOTAL NET LENGTH OF CENTERLINE = 8.090 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MARATHON COUNTY, NAD83 (2014), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.
ELEVATIONS SHOW ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM, NAVD88 (2012).

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6600-00-72	WISC 2019311	1

ORIGINAL PLANS PREPARED BY

ENGINEERING, INC
Consultant Services

BRADLEY R. GROH
E-41411
MADISON
WI
PROFESSIONAL ENGINEER

DATE: 1/29/2019 (Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	JT ENGINEERING
Designer	BRAD GROH
Project Manager	WENDY ARNESON
Regional Examiner	CHERYL SIMON
Regional Supervisor	MICHAEL KRESTCHMER

APPROVED FOR THE DEPARTMENT

DATE: 1/29/2019 (Signature)

E

GENERAL NOTES

EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES, WHETHER SHOWN OR NOT, FROM THE OWNERS OF THE RESPECTIVE UTILITIES. ALL UTILITY OWNERS SHALL BE NOTIFIED BY THE CONTRACTOR 72 HOURS PRIOR TO EXCAVATION.

CURB CALLOUTS ARE GIVEN TO THE FLANGE.

UTILITY CONTACTS

TODD BRISTER
ANR PIPELINE CO. GAS/PETROLEUM
WEST 3925 PIPELINE LANE
EDEN, WI 53019
PHONE: (920) 477-2235
TODD.BRISTER@TRANSCANADA.COM

CHRIS DAILEY
AMERICAN TRANSMISSION COMPANY
PO BOX 47
WAUKESHA, WI 53187
PHONE: (262) 506-6884
CDAILEY@ATCLLC.COM

CHRIS POLLACK
FRONTIER COMMUNICATIONS OF WI LLC
521 NORTH 4TH STREET
WAUSAU, WI 54403
PHONE: (715) 847-1240
CHRISTOPHER.POLLACK@FTR.COM

STEVE JAKUBIEC
TDS TELECOM
10 COLLEGE AVENUE SUITED 218A
APPLETON, WI 54911
PHONE: (920) 882-4166
STEVE.JAKUBIEC@TDSTELECOM.COM

CLAYTON VIRCKS
WISCONSIN PUBLIC SERVICE CORPORTATION-ELECTRICITY
PO BOX 1166
WAUSAU, WI 54402
PHONE: (715) 848-7317
CLAYTON.VIRCKS@WISCONSINPUBLICSERVICE.COM

FRANCIS MARTIN
WISCONSIN PUBLIC SERVICE CORPORTATION-GAS/PETROLEUM
1700 SHERMAN STREET
WAUSAU, WI 54402
PHONE: (715) 848-7387
FRANCIS.MARTIN@WISCONSINPUBLICSERVICE.COM

DIGGERSHOTLINE

Dial  or (800)242-8511

www.DiggersHotline.com

DNR CONTACT

CASEY JONES
DNR WI RAPIDS SERVICE CENTER
473 GRIFFITH AVENUE
WISCONSIN RAPIDS, WI 54494
PHONE: (715) 421-7867
CASEY.JONES@WISCONSIN.GOV

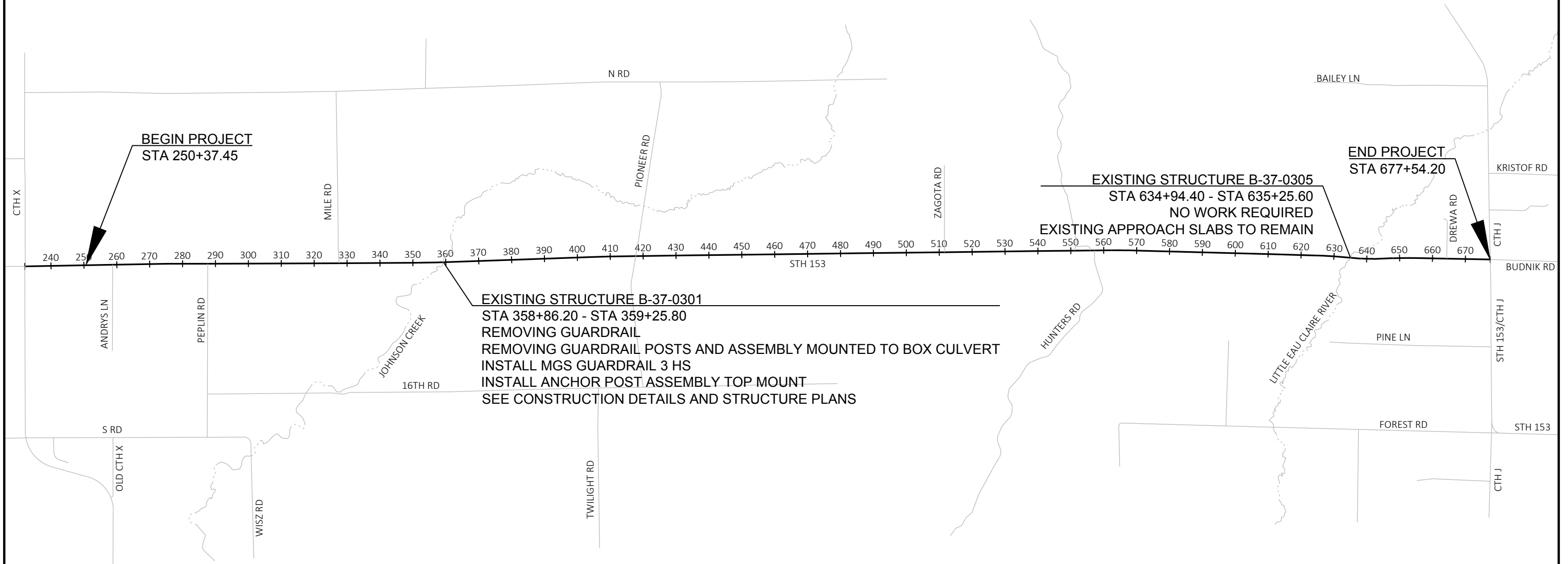
RUNOFF COEFFICIENT TABLE

	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											

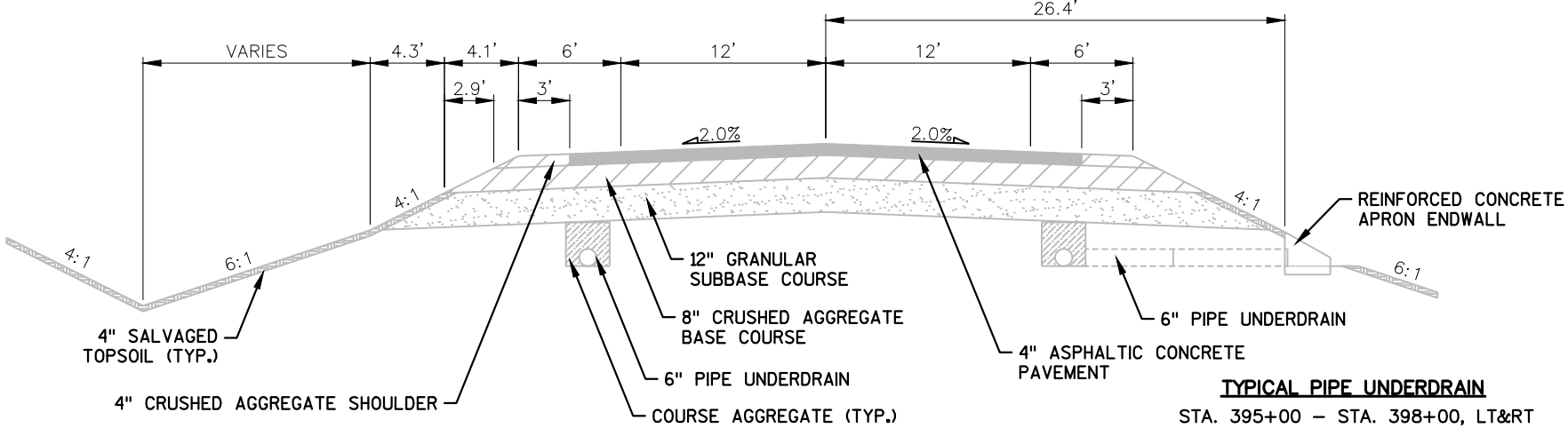
TOTAL PROJECT AREA = 96.32 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.68 ACRES

ORDER OF SECTION 2 SHEETS

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- EROSION CONTROL
- PAVEMENT MARKING
- ALIGNMENT DIAGRAM



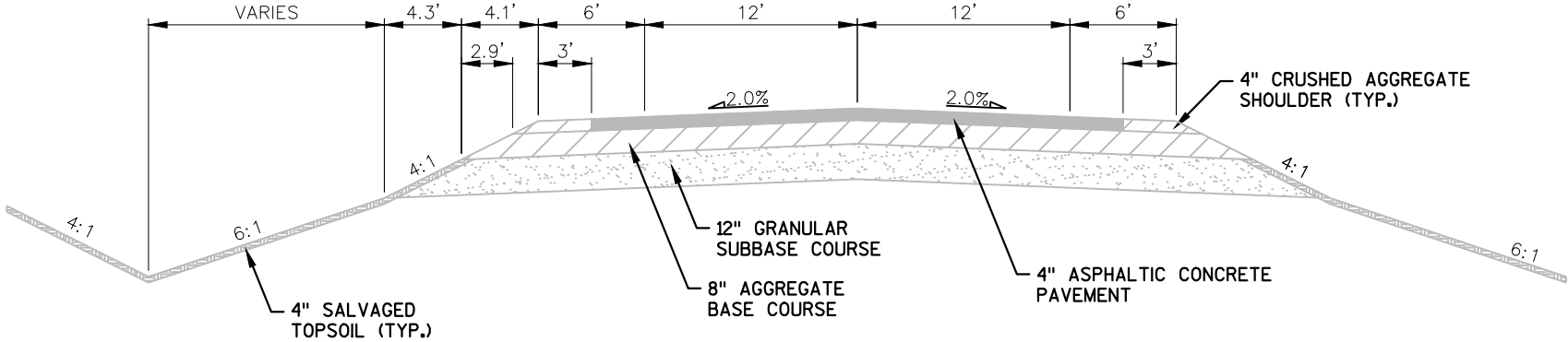
PROJECT NO: 6600-00-72	HWY: STH 153	COUNTY: MARATHON	PROJECT OVERVIEW	SHEET	E
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EXISTING TYPICAL SECTION – STH 153

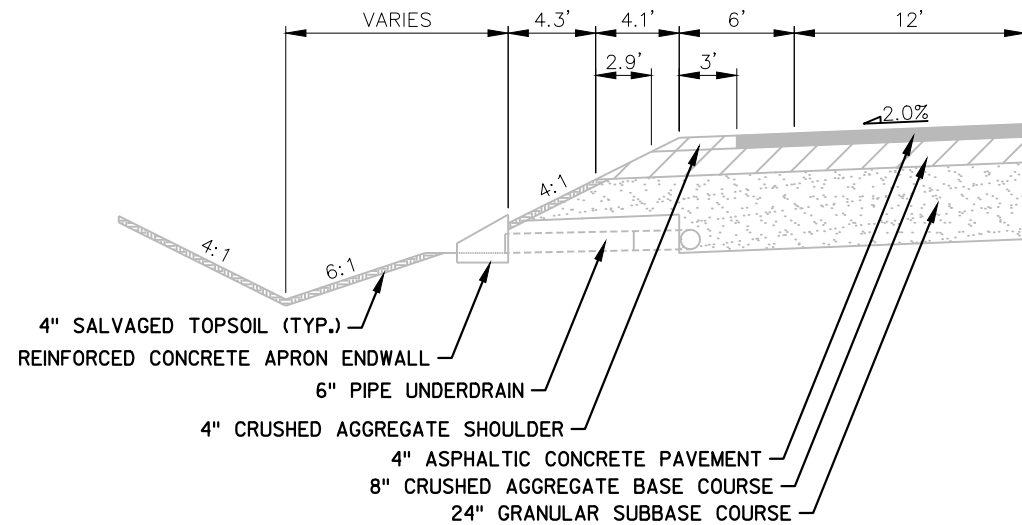
STA. 250+37 – STA. 288+00
STA. 298+00 – STA. 310+00
STA. 332+00 – STA. 340+00
STA. 352+00 – STA. 399+00
STA. 403+00 – STA. 418+50
STA. 422+50 – STA. 437+00

TYPICAL PIPE UNDERDRAIN
STA. 395+00 – STA. 398+00, LT&RT
STA. 280+00 – STA. 288+00, RT
STA. 263+00 – STA. 280+00, RT
STA. 263+66 – STA. 288+00, LT



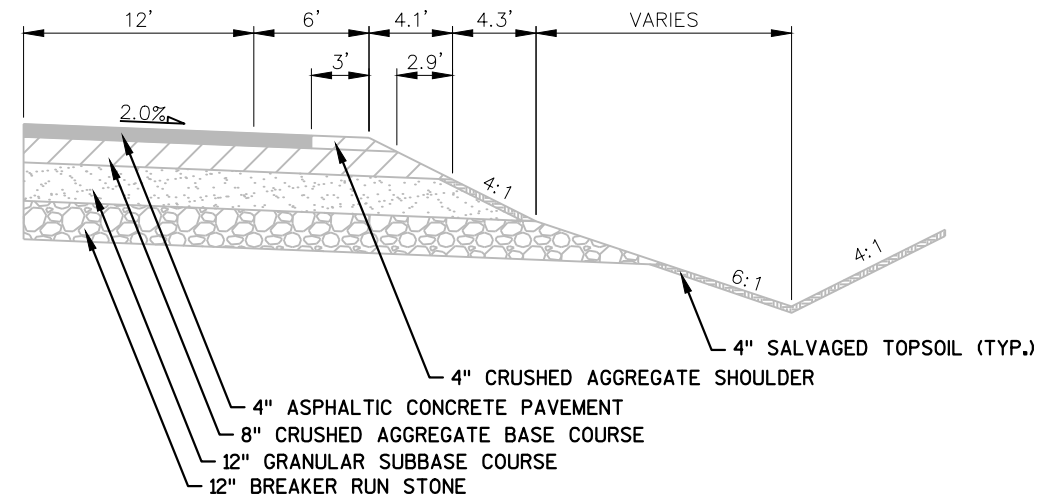
EXISTING TYPICAL SECTION – STH 153

STA. 437+00 – STA. 479+00
STA. 504+00 – STA. 514+00
STA. 590+00 – STA. 605+50
STA. 612+50 – STA. 634+69



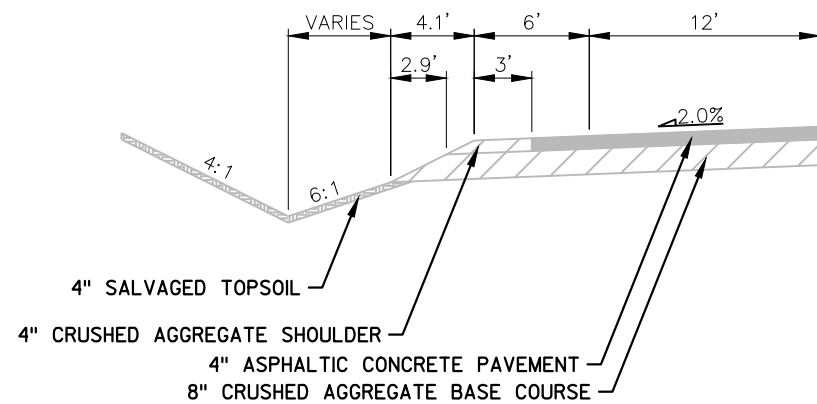
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STA. 288+00 – STA. 298+00
STA. 310+00 – STA. 332+00
STA. 418+50 – STA. 422+50



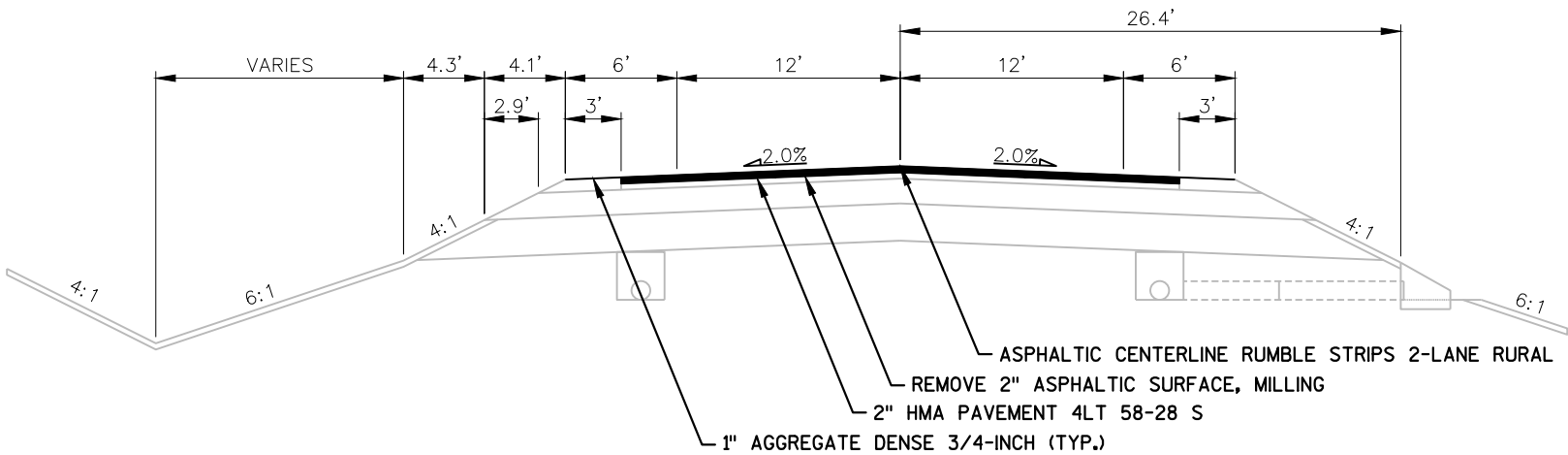
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STA. 340+00 – STA. 352+00
STA. 399+00 – STA. 403+00
STA. 605+50 – STA. 612+50



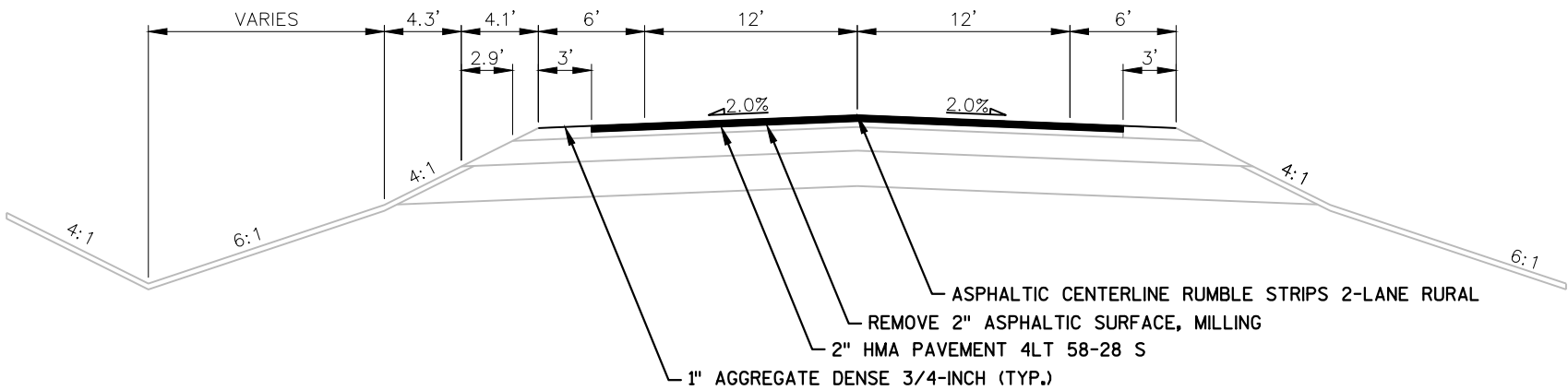
EXISTING TYPICAL SECTION – STH 153

STA. 479+00 – STA. 504+00
STA. 514+00 – STA. 590+00
STA. 635+48 – STA. 677+54.2



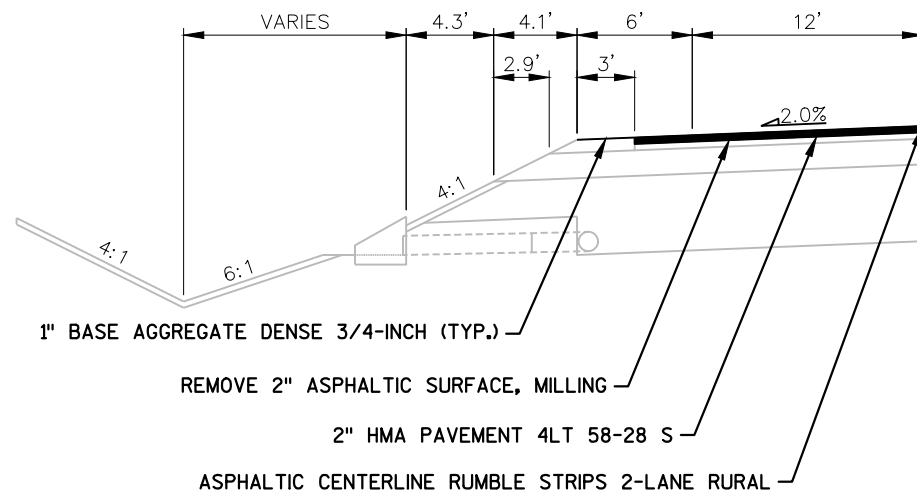
PROPOSED TYPICAL SECTION – STH 153

STA. 250+37 – STA. 288+00
STA. 298+00 – STA. 310+00
STA. 332+00 – STA. 340+00
STA. 352+00 – STA. 399+00
STA. 403+00 – STA. 418+50
STA. 422+50 – STA. 437+00



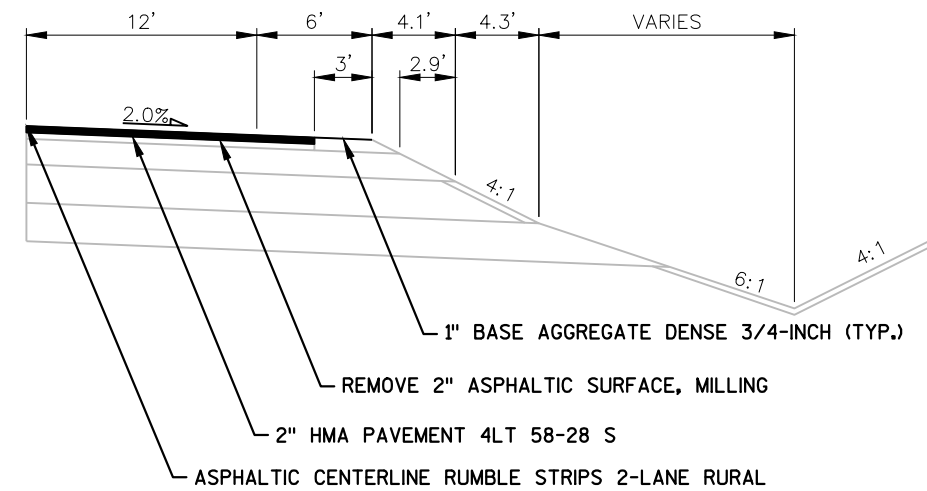
PROPOSED TYPICAL SECTION – STH 153

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STA. 504+00 – STA. 514+00
STA. 590+00 – STA. 605+50
STA. 612+50 – STA. 634+69



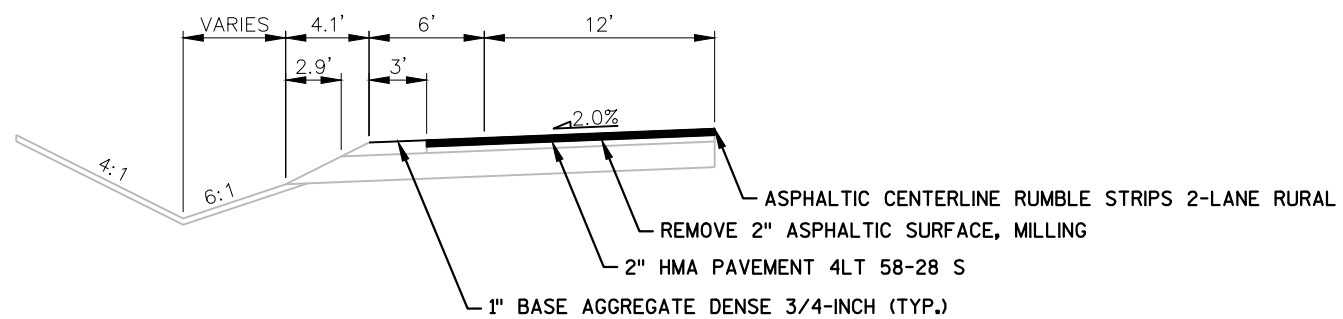
PROPOSED TYPICAL SECTION – STH 153

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STA. 310+00 – STA. 332+00
STA. 418+50 – STA. 422+50



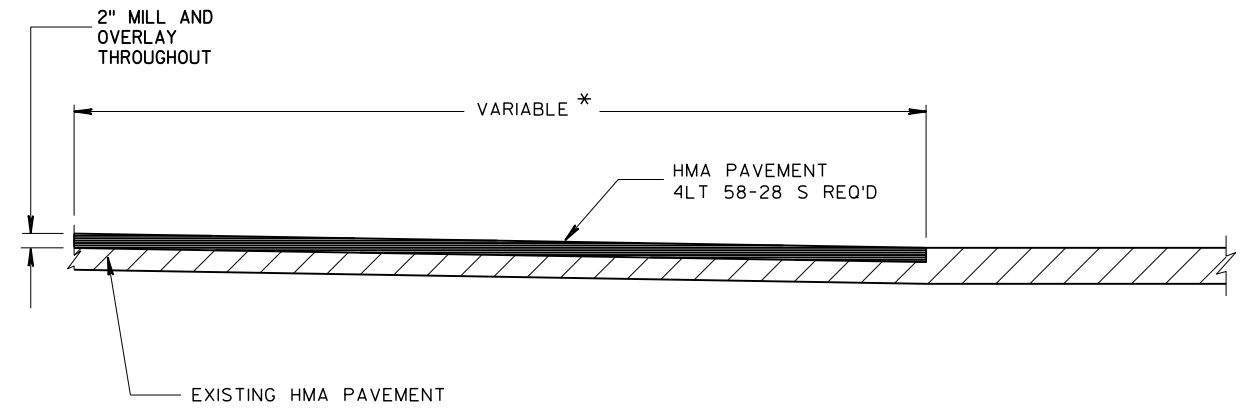
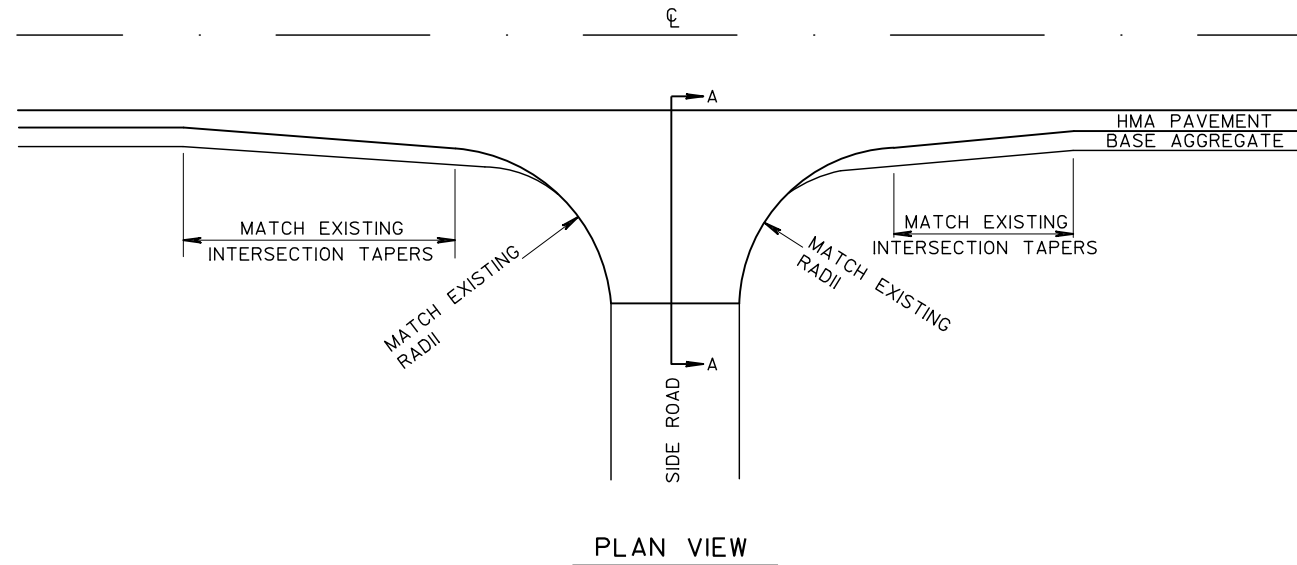
PROPOSED TYPICAL SECTION – STH 153

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STA. 399+00 – STA. 403+00
STA. 605+50 – STA. 612+50



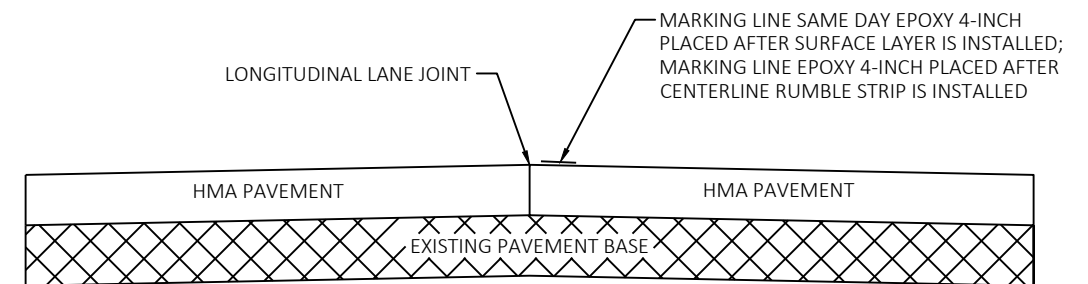
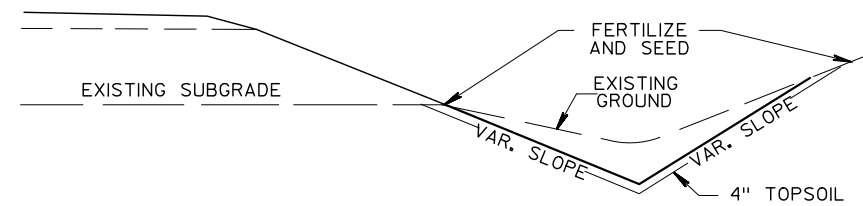
PROPOSED TYPICAL SECTION – STH 153

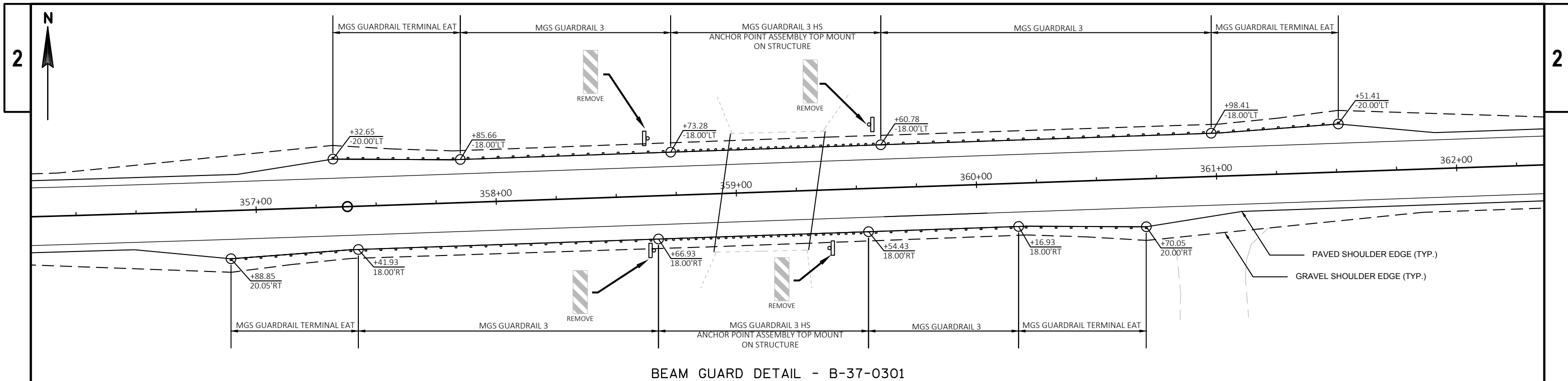
STA. 479+00 – STA. 504+00
STA. 514+00 – STA. 590+00
STA. 635+48 – STA. 677+54.2



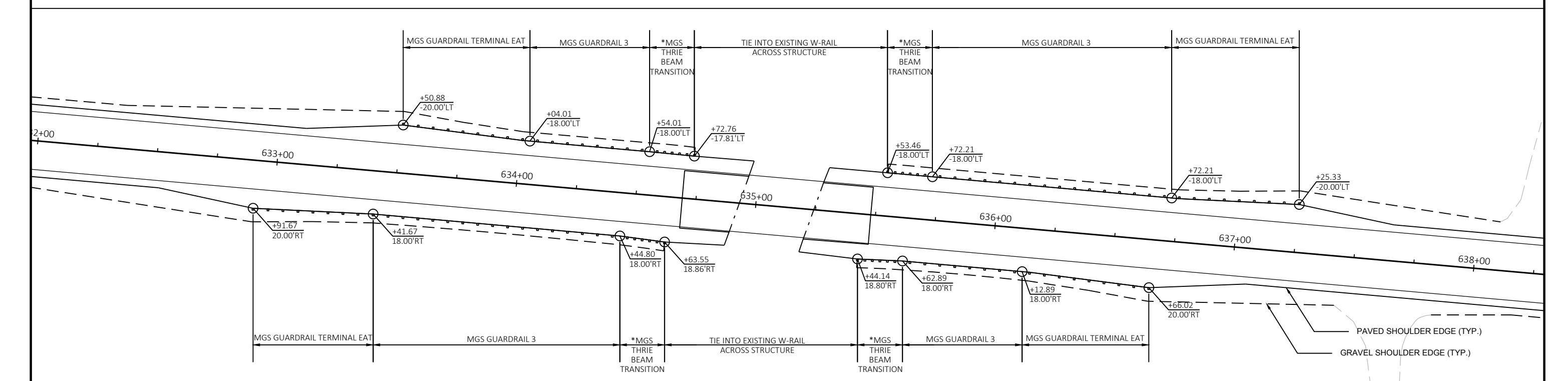
* EXACT DIMENSIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER
NORMAL LIMITS WILL BE TO THE SIDEROAD RADIUS TERMINUS FURTHEST FROM MAINLINE

SIDE ROAD DETAIL, SPECIAL





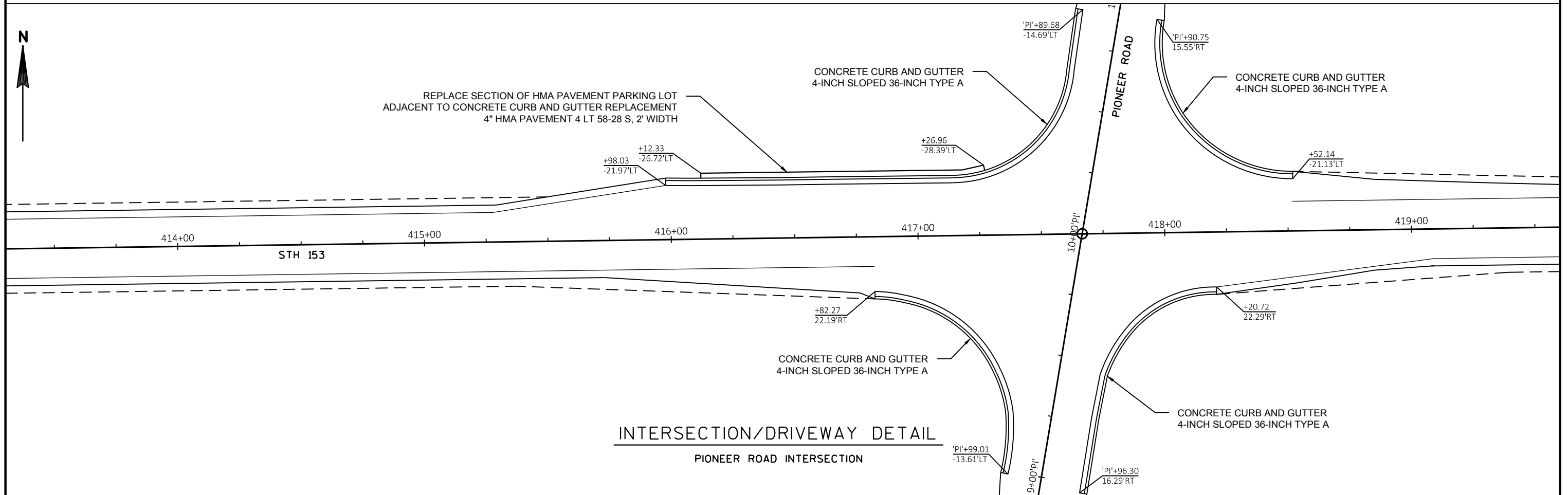
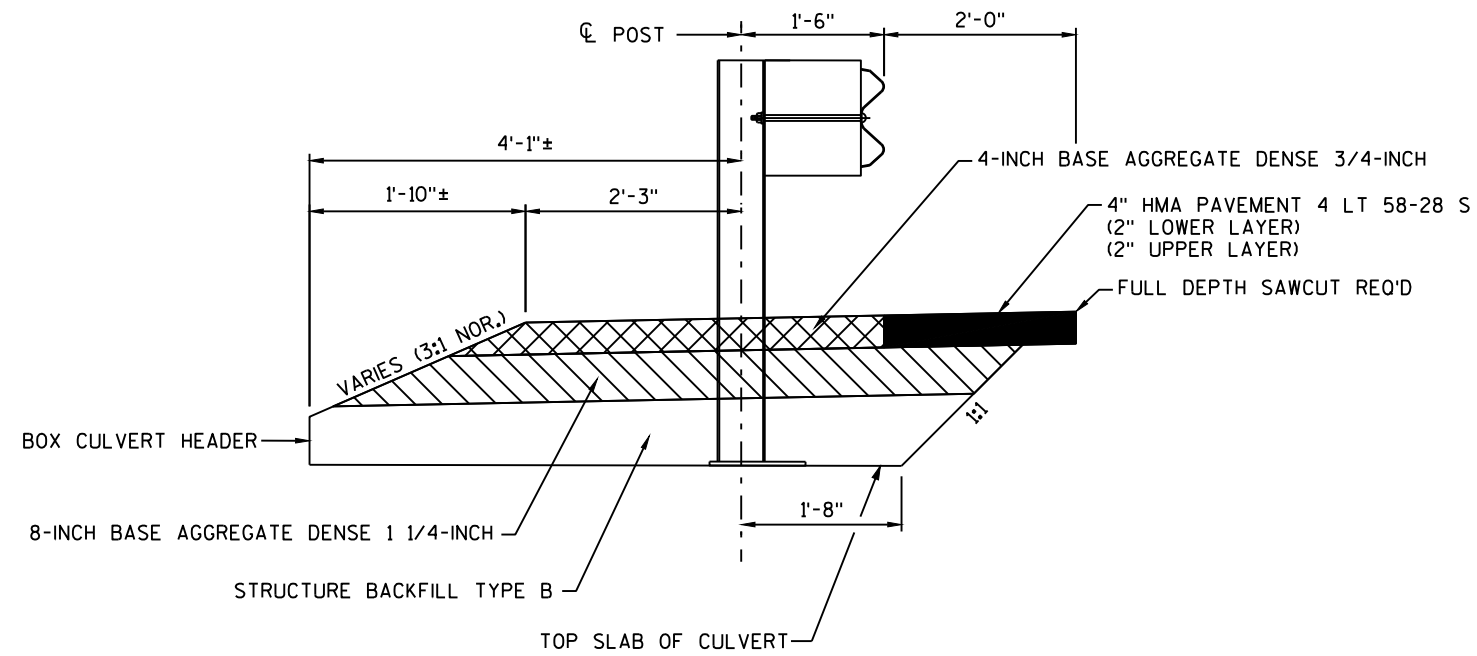
BEAM GUARD DETAIL - B-37-0301



BEAM GUARD DETAIL - B-37-0305

* MGS THRIE BEAM TRANSITIONS SHALL ONLY CONSIST OF THE FOLLOWING COMPONENTS, AS DETAILED IN SDD 14B45-A
-6 FT 3 IN THRIE BEAM SECTION, 12 GAUGE
-6 FT 3 IN ASYMMETRICAL 10-GAUGE W-BEAM TO THRIE BEAM TRANSITION
-12 FT 6 IN TWO NESTED W-BEAM SECTION, 12 GAUGE

PROJECT NO: 6600-00-72	HWY: STH 153	COUNTY: MARATHON	CONSTRUCTION DETAILS	SHEET	E
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PROJECT NO: 6600-00-72

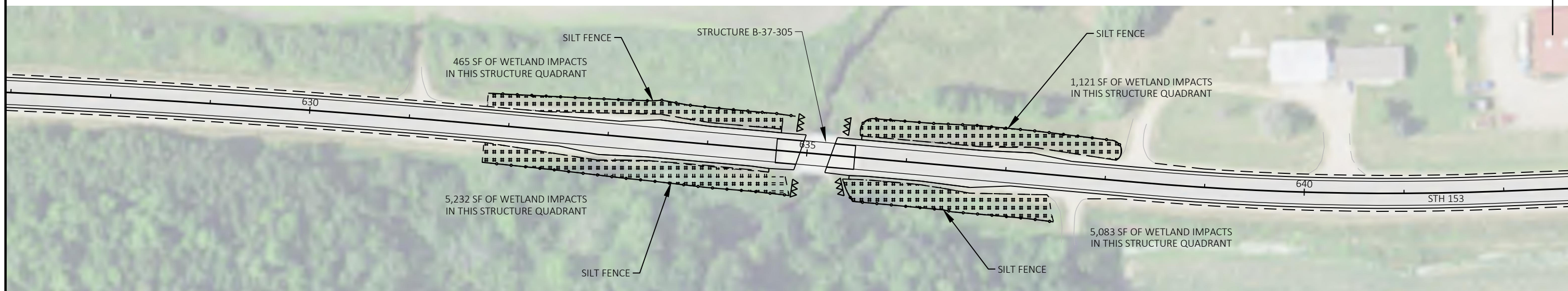
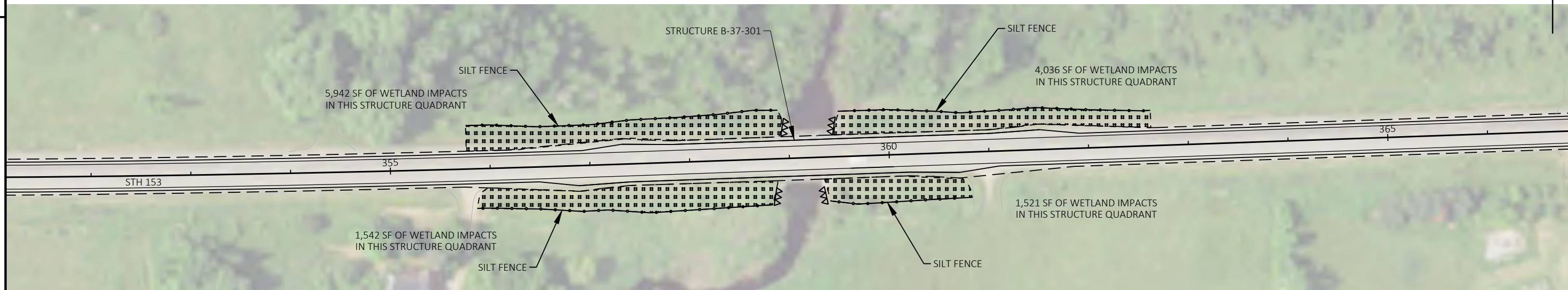
HWY: STH 153

COUNTY: MARATHON

CONSTRUCTION DETAILS

SHEET

E



LEGEND

- ##### EROSION MAT URBAN CLASS I, TYPE A
- SILT FENCE
- △△△ TEMPORARY DITCH CHECK

PROJECT NO: 6600-00-72

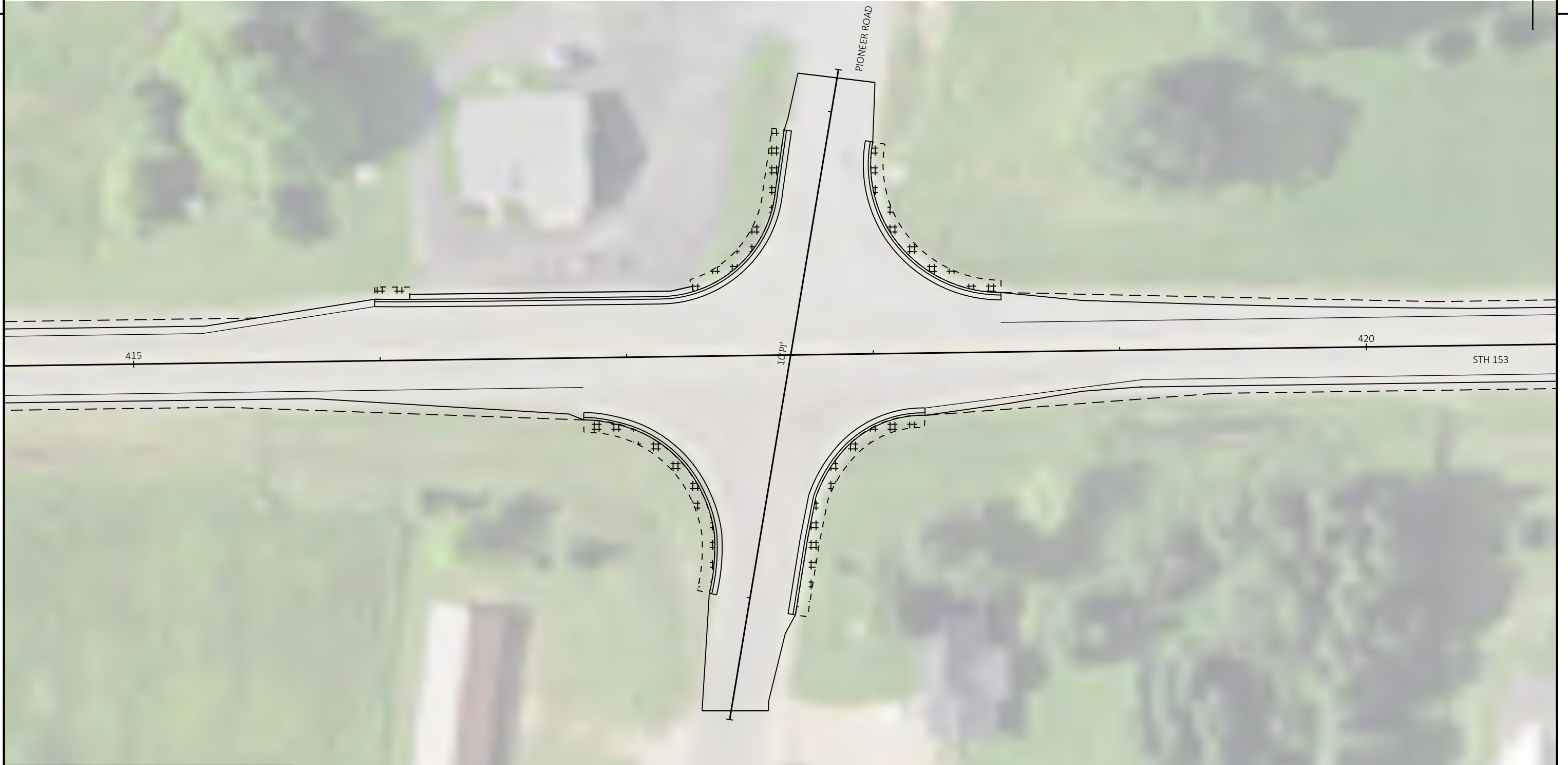
HWY: STH 153

COUNTY: MARATHON

EROSION CONTROL - STRUCTURES

SHEET

E



LEGEND

- ##### EROSION MAT URBAN CLASS I, TYPE A
- SILT FENCE
- △△△△ TEMPORARY DITCH CHECK

PROJECT NO: 6600-00-72

HWY: STH 153

COUNTY: MARATHON

EROSION CONTROL - PIONEER ROAD INTERSECTION

SHEET

E

FILE NAME : X:\PROJECTS\MARATHON\6600-00-02 STH 153\DESIGN\C3D\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - EROSION CONTROL (2)

PLOT DATE : 12/19/2018 9:06 AM

PLOT BY : BRAD GROH

PLOT NAME :

PLOT SCALE : 1 IN:40 FT

WISDOT/CADDs SHEET 42



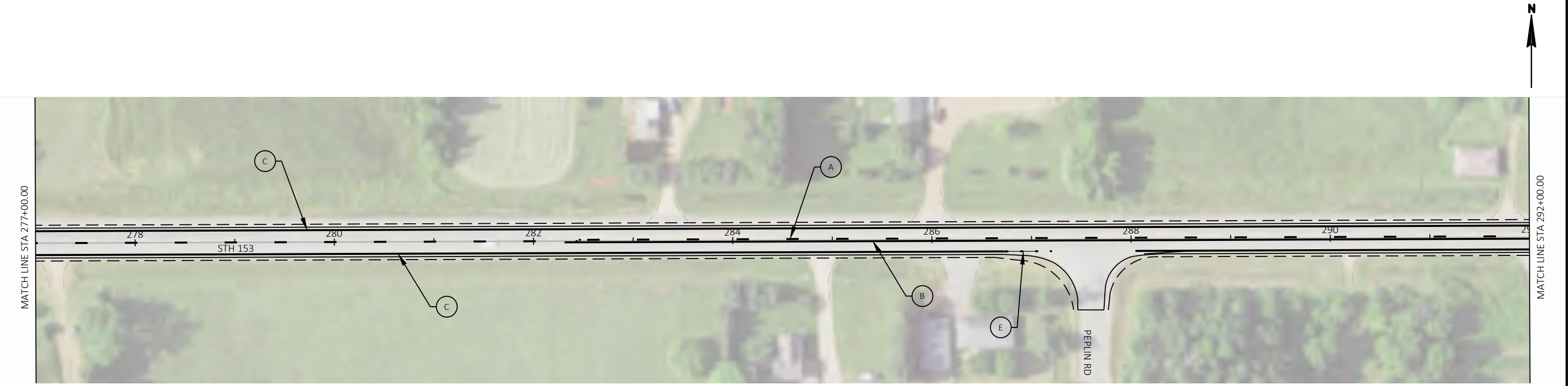
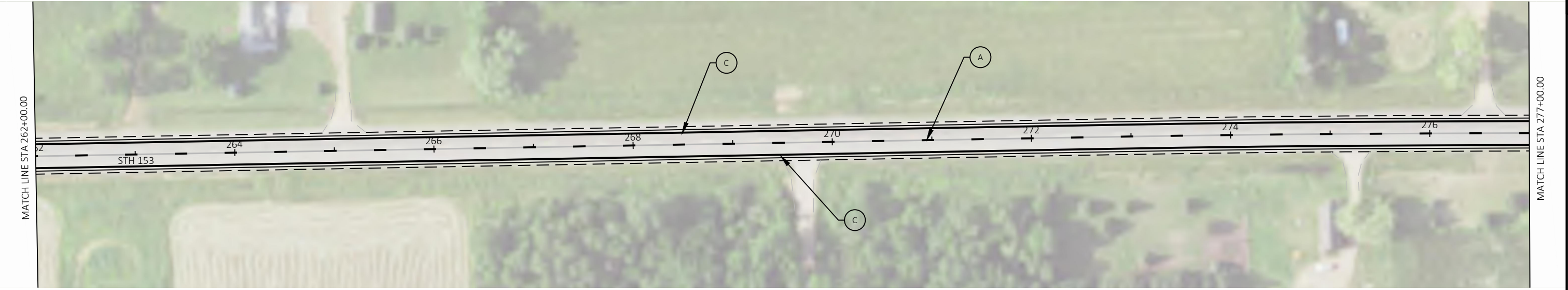
PAVEMENT MARKING LEGEND	
A	MARKING LINE EPOXY 4-INCH (YELLOW SKIP)(12.5'SEG., 37.5'GAP)
B	MARKING LINE EPOXY 4-INCH (YELLOW)
C	MARKING LINE EPOXY 4-INCH (WHITE)
D	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
E	MARKING LINE EPOXY 4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO: 6600-00-72	HWY: STH 153	COUNTY: MARATHON	PAVEMENT MARKING	SHEET	E
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2

2



<u>PAVEMENT MARKING LEGEND</u>		
A	MARKING LINE	EPOXY 4-INCH (YELLOW SKIP)(12.5"SEG., 37.5"GAP)
B	MARKING LINE	EPOXY 4-INCH (YELLOW)
C	MARKING LINE	EPOXY 4-INCH (WHITE)
D	MARKING LINE	EPOXY 4-INCH (DOUBLE YELLOW)
E	MARKING LINE	EPOXY 4-INCH (WHITE SKIP)(3"SEG., 9"GAP)

A MARKING LINE EPOXY 4-INCH (YELLOW SKIP)(12.5'SEG., 37.5'GAP)
B MARKING LINE EPOXY 4-INCH (YELLOW)
C MARKING LINE EPOXY 4-INCH (WHITE)
D MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
E MARKING LINE EPOXY 4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO: 6600-00-72

HWY: STH 153

COUNTY: MARATHON

PAVEMENT MARKING

SHEET

E

FILE NAME : X:\PROJECTS\MARATHON\6600-00-02 STH 153\DESIGN\C3D\SHEETSPLAN\024501-PM.DWG
LAYOUT NAME - 024502-pm

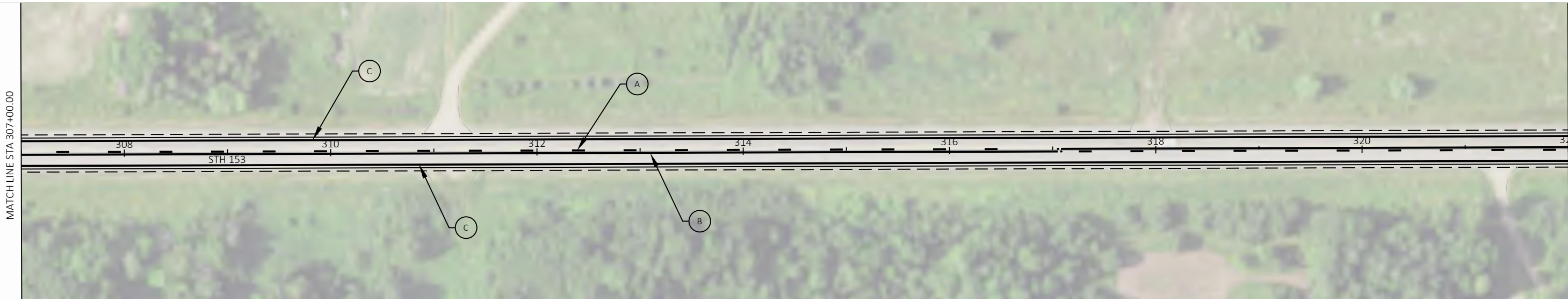
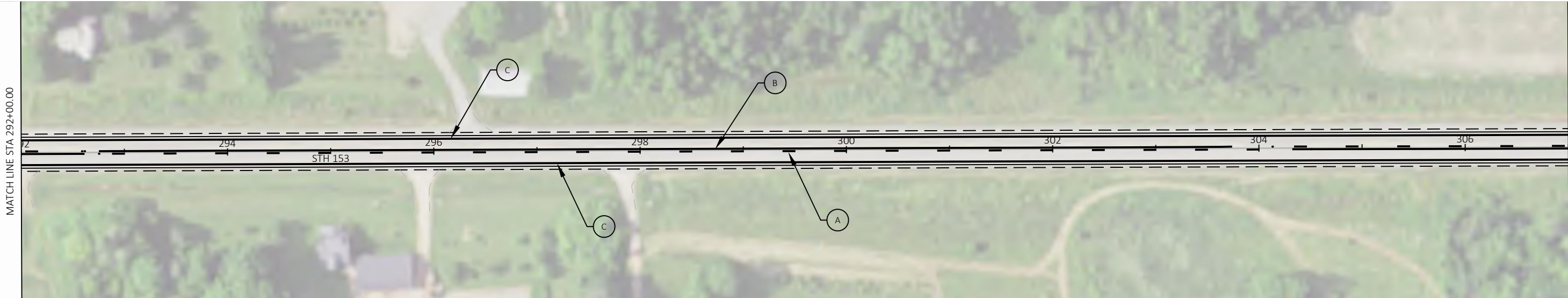
PLOT DATE : 1/31/2019 10:45 AM

PLOT BY : BRAD GROH

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



PAVEMENT MARKING LEGEND

- A MARKING LINE EPOXY 4-INCH (YELLOW SKIP)(12.5'SEG., 37.5'GAP)
- B MARKING LINE EPOXY 4-INCH (YELLOW)
- C MARKING LINE EPOXY 4-INCH (WHITE)
- D MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
- E MARKING LINE EPOXY 4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO: 6600-00-72

HWY: STH 153

COUNTY: MARATHON

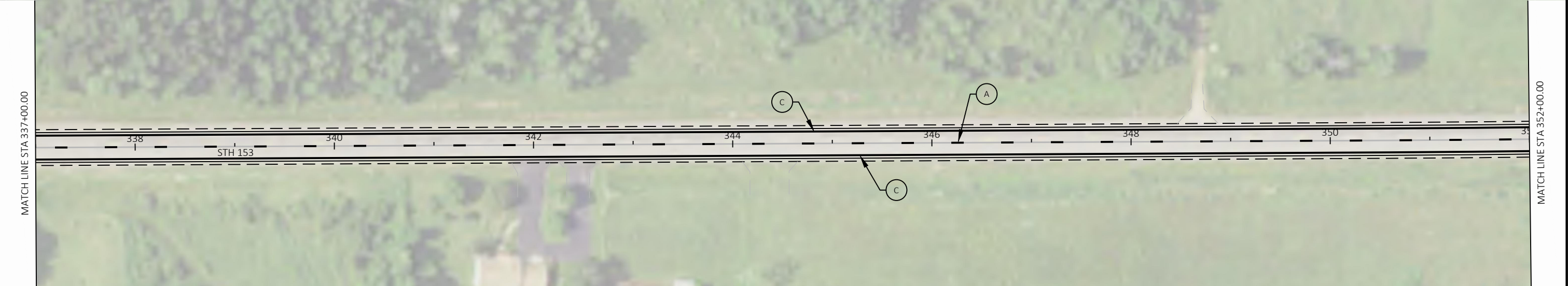
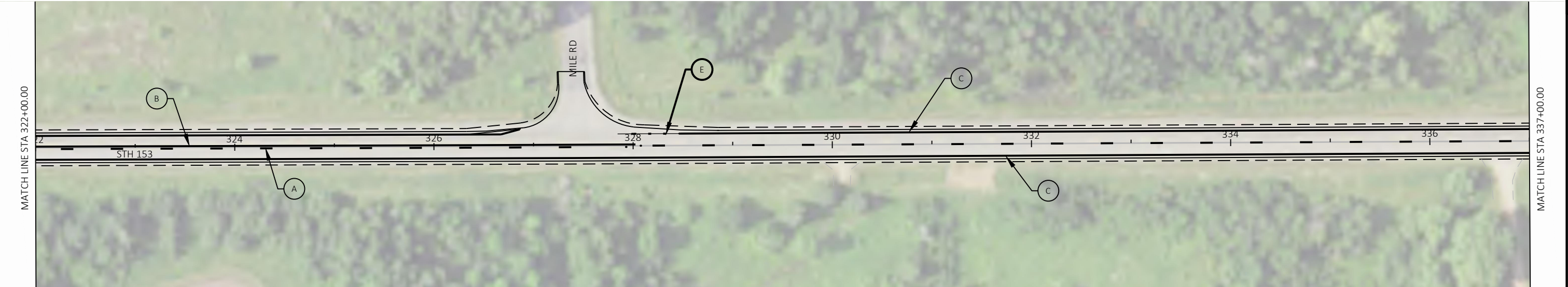
PAVEMENT MARKING

SHEET

E

2

2



PAVEMENT MARKING LEGEND	
A	MARKING LINE EPOXY 4-INCH (YELLOW SKIP)(12.5' SEG., 37.5' GAP)
B	MARKING LINE EPOXY 4-INCH (YELLOW)
C	MARKING LINE EPOXY 4-INCH (WHITE)
D	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
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C MARKING LINE EPOXY 4-INCH (WHITE)
D MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
E MARKING LINE EPOXY 4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO:	6600-00-72
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HWY: STH 153

COUNTY: MARATHON

PAVEMENT MARKING

SHEET

E

FILE NAME : X:\PROJECTS\MARATHON\6600-00-02 STH 153\DESIGN\C3D\SHEETSPLAN\024501-PM.DWG
LAYOUT NAME - 024504-pm

PLOT DATE : 1/31/2019 10:45 AM

PLOT BY : BRAD GROH

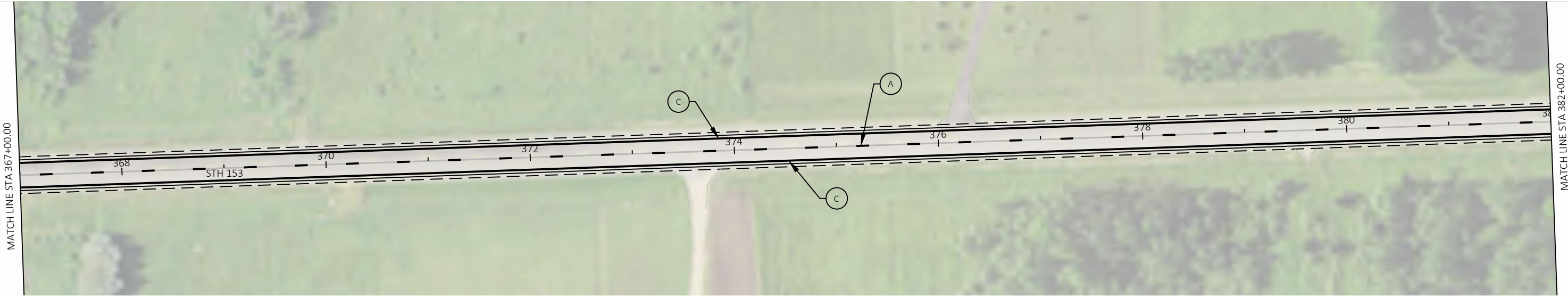
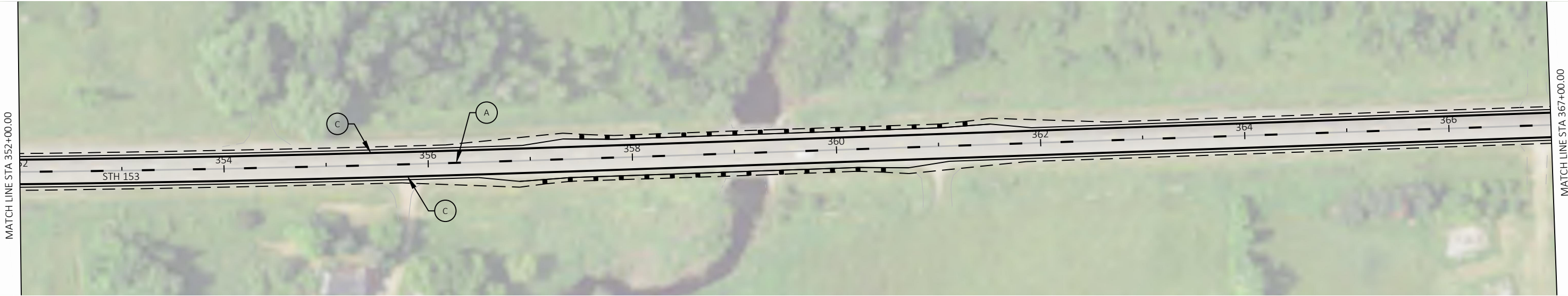
PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44

2

2



PAVEMENT MARKING LEGEND

A	MARKING LINE	EPOXY	4-INCH (YELLOW SKIP)(12.5' SEC., 37.5' GAP)
B	MARKING LINE	EPOXY	4-INCH (YELLOW)
C	MARKING LINE	EPOXY	4-INCH (WHITE)
D	MARKING LINE	EPOXY	4-INCH (DOUBLE YELLOW)
E	MARKING LINE	EPOXY	4-INCH (WHITE SKIP)(3' SEC., 9' GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO: 6600-00-72

HWY: STH 153

COUNTY: MARATHON

PAVEMENT MARKING

SHEET

E

FILE NAME : X:\PROJECTS\MARATHON\6600-00-02 STH 153\DESIGN\C3D\SHEETSPLAN\024501-PM.DWG
LAYOUT NAME - 024505-pm

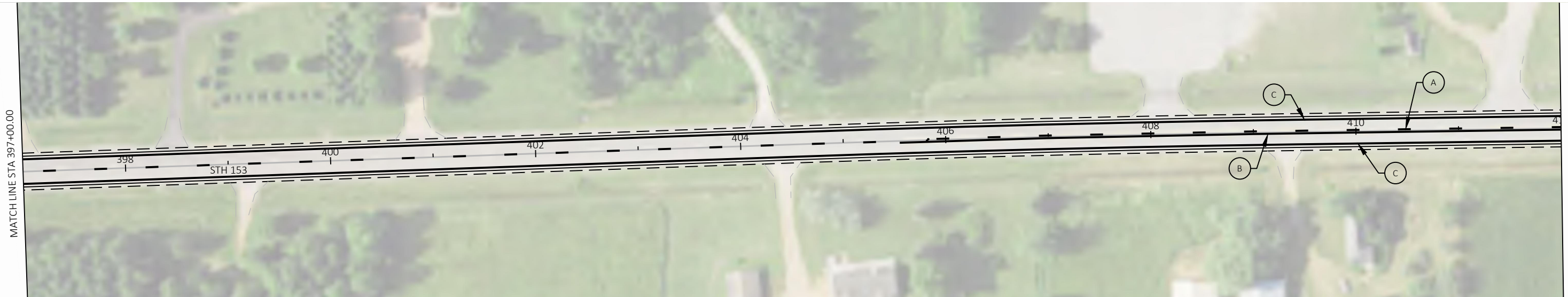
PLOT DATE : 1/31/2019 10:45 AM

PLOT BY : BRAD GROH

PLOT NAME

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



PAVEMENT MARKING LEGEND

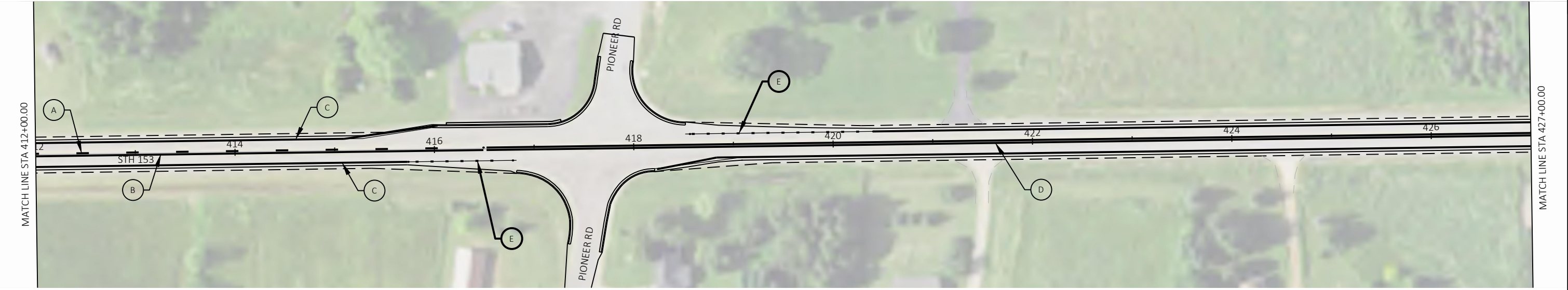
- A MARKING LINE EPOXY 4-INCH (YELLOW SKIP)(12.5'SEG., 37.5'GAP)
- B MARKING LINE EPOXY 4-INCH (YELLOW)
- C MARKING LINE EPOXY 4-INCH (WHITE)
- D MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
- E MARKING LINE EPOXY 4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO: 6600-00-72	HWY: STH 153	COUNTY: MARATHON	PAVEMENT MARKING	SHEET	E
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2

2



PAYEMENT MARKING LEGEND		
A	MARKING LINE EPOXY	4-INCH (YELLOW SKIP)(12.5'SEG., 37.5'GAP)
B	MARKING LINE EPOXY	4-INCH (YELLOW)
C	MARKING LINE EPOXY	4-INCH (WHITE)
D	MARKING LINE EPOXY	4-INCH (DOUBLE YELLOW)
E	MARKING LINE EPOXY	4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

A	MARKING LINE	EPOXY	4-INCH (YELLOW SKIP)(12.5"SEC., 37.5"GAP)
B	MARKING LINE	EPOXY	4-INCH (YELLOW)
C	MARKING LINE	EPOXY	4-INCH (WHITE)
D	MARKING LINE	EPOXY	4-INCH (DOUBLE YELLOW)
E	MARKING LINE	EPOXY	4-INCH (WHITE SKIP)(3"SEC., 9"GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO:	6600-00-72
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HWY: STH 153

COUNTY: MARATHON

PAVEMENT MARKING

SHEET

E

FILE NAME : X:\PROJECTS\MARATHON\6600-00-02 STH 153\DESIGN\C3D\SHEETSPLAN\024501-PM.DWG
LAYOUT NAME - 024507-pm

PLOT DATE : 1/31/2019 10:45 AM

PLOT BY : BRAD GROH

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



PAVEMENT MARKING LEGEND

- A MARKING LINE EPOXY 4-INCH (YELLOW SKIP)(12.5'SEG., 37.5'GAP)
- B MARKING LINE EPOXY 4-INCH (YELLOW)
- C MARKING LINE EPOXY 4-INCH (WHITE)
- D MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
- E MARKING LINE EPOXY 4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO: 6600-00-72

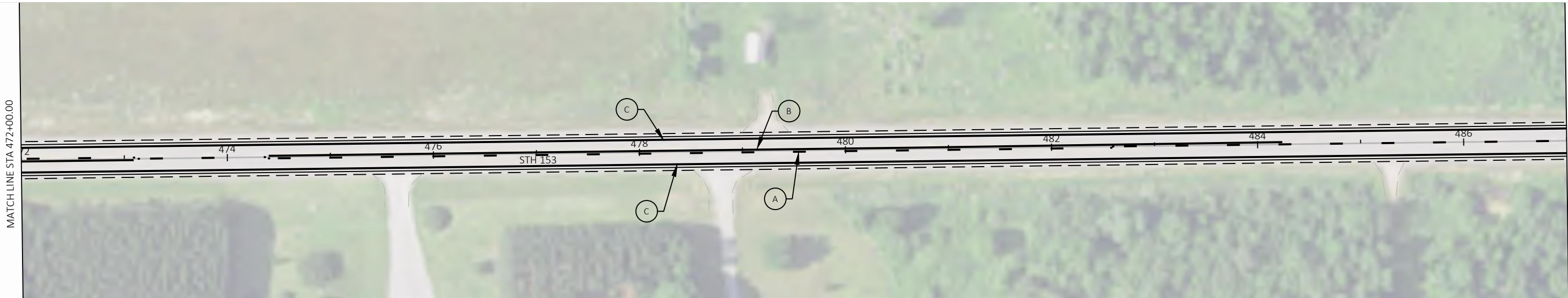
HWY: STH 153

COUNTY: MARATHON

PAVEMENT MARKING

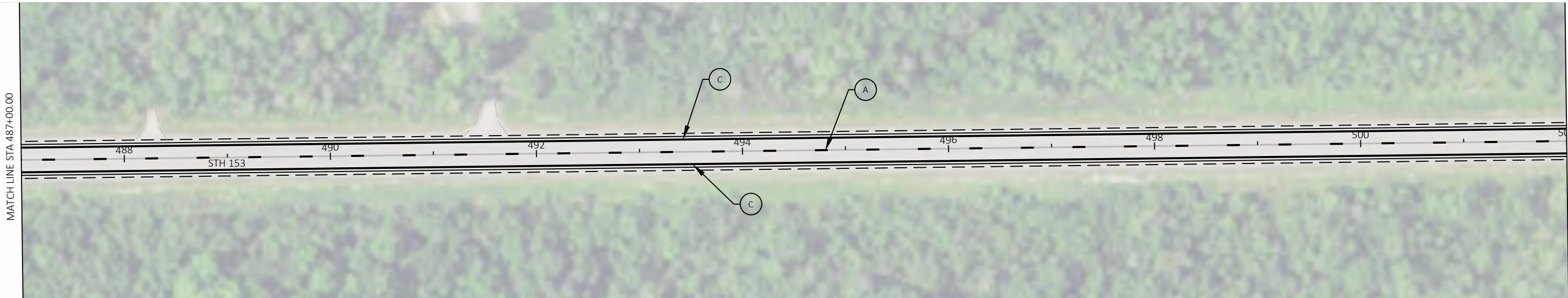
SHEET

E



MATCH LINE STA 487+00.00

MATCH LINE STA 472+00.00



MATCH LINE STA 502+00.00

MATCH LINE STA 487+00.00

PAVEMENT MARKING LEGEND

- A MARKING LINE EPOXY 4-INCH (YELLOW SKIP)(12.5'SEG., 37.5'GAP)
- B MARKING LINE EPOXY 4-INCH (YELLOW)
- C MARKING LINE EPOXY 4-INCH (WHITE)
- D MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
- E MARKING LINE EPOXY 4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO: 6600-00-72

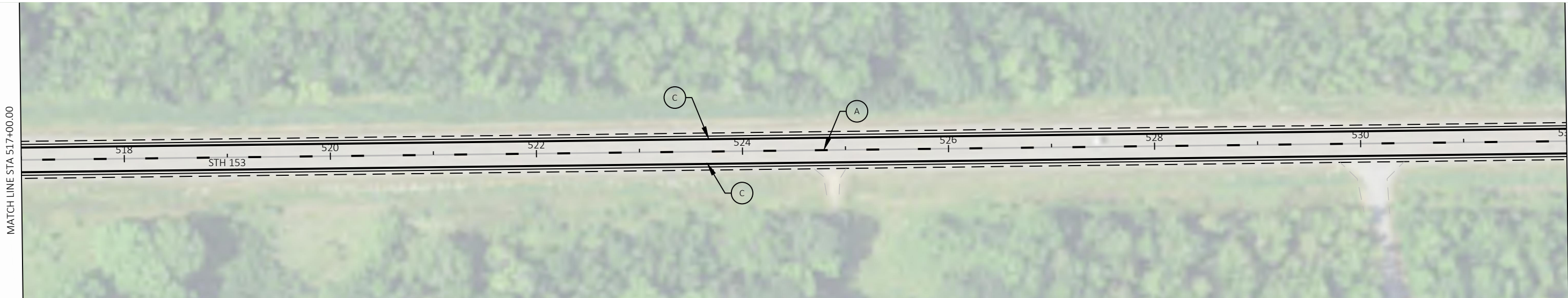
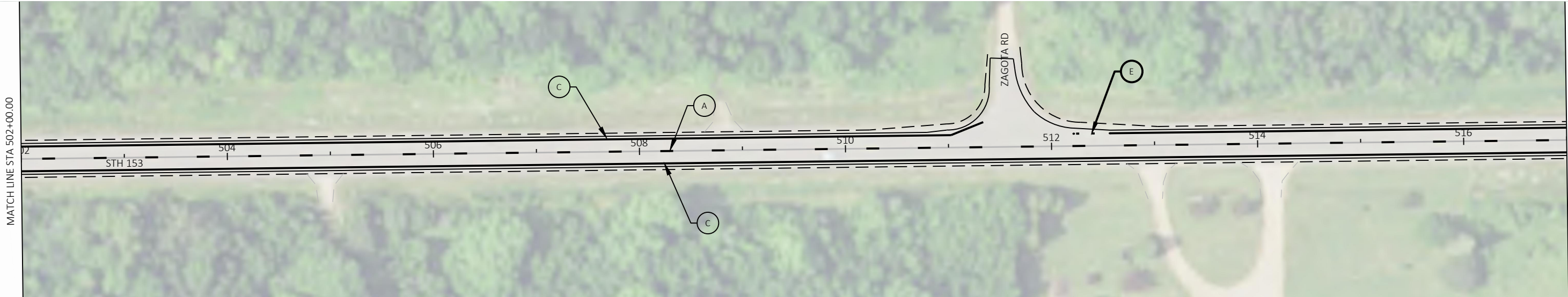
HWY: STH 153

COUNTY: MARATHON

PAVEMENT MARKING

SHEET

E



PAVEMENT MARKING LEGEND

- A MARKING LINE EPOXY 4-INCH (YELLOW SKIP)(12.5'SEG., 37.5'GAP)
- B MARKING LINE EPOXY 4-INCH (YELLOW)
- C MARKING LINE EPOXY 4-INCH (WHITE)
- D MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
- E MARKING LINE EPOXY 4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO: 6600-00-72

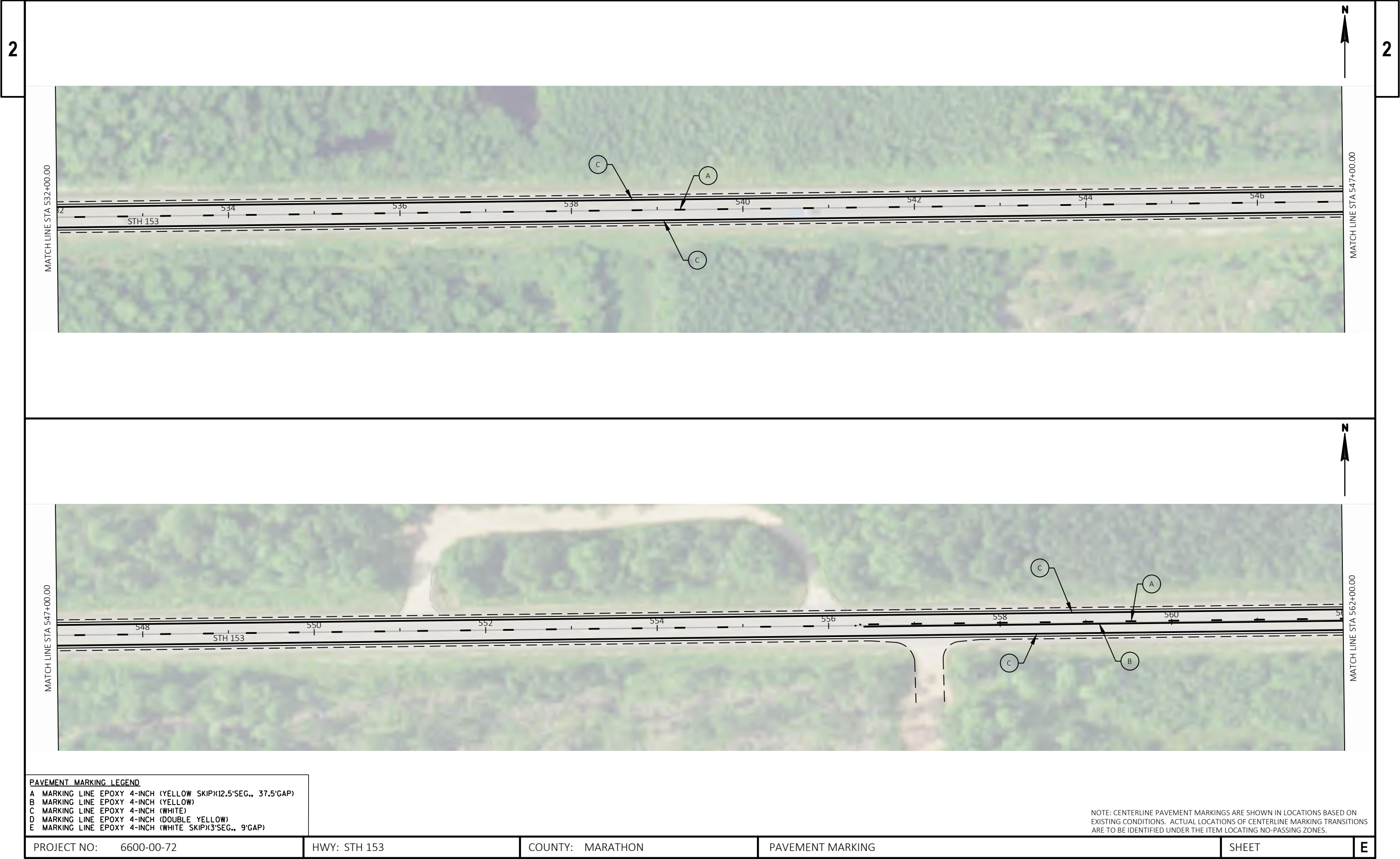
HWY: STH 153

COUNTY: MARATHON

PAVEMENT MARKING

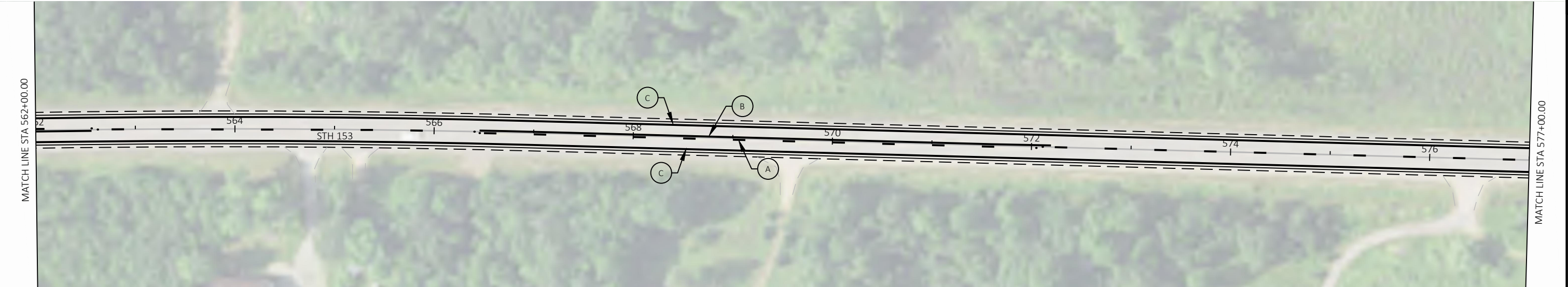
SHEET

2



2

2



<u>PAVEMENT MARKING LEGEND</u>		
A	MARKING LINE	EPOXY 4-INCH (YELLOW SKIP)(12.5' SEG., 37.5' GAP)
B	MARKING LINE	EPOXY 4-INCH (YELLOW)
C	MARKING LINE	EPOXY 4-INCH (WHITE)
D	MARKING LINE	EPOXY 4-INCH (DOUBLE YELLOW)
E	MARKING LINE	EPOXY 4-INCH (WHITE SKIP)(3' SEG., 9' GAP)

A MARKING LINE EPOXY 4-INCH (YELLOW SKIP)(12.5'SEG., 37.5'GAP)
B MARKING LINE EPOXY 4-INCH (YELLOW)
C MARKING LINE EPOXY 4-INCH (WHITE)
D MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
E MARKING LINE EPOXY 4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO: 6600-00-72

HWY: STH 153

COUNTY: MARATHON

PAVEMENT MARKING

SHEET

E

FILE NAME : X:\PROJECTS\MARATHON\6600-00-02 STH 153\DESIGN\C3D\SHEETSPLAN\024501-PM.DWG
LAYOUT NAME - 024512-pm

PLOT DATE : 1/31/2019 10:45 AM

PLOT BY : BRAD GROH

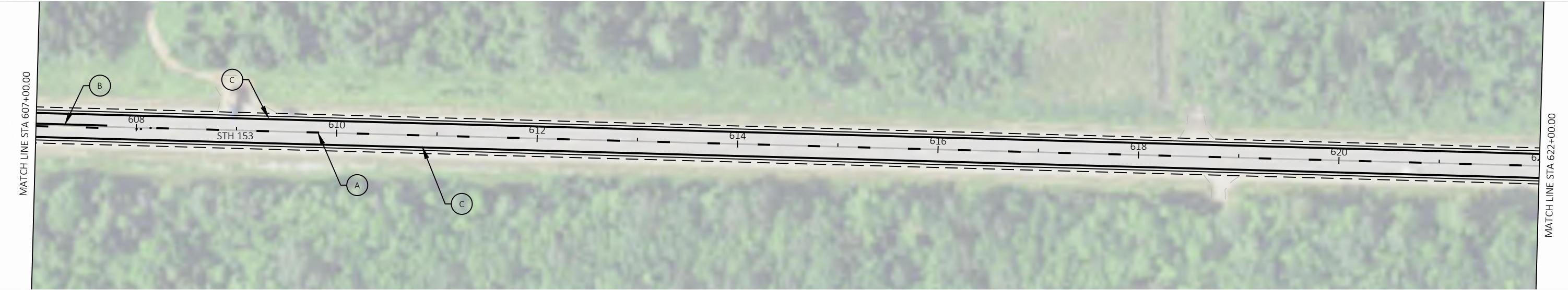
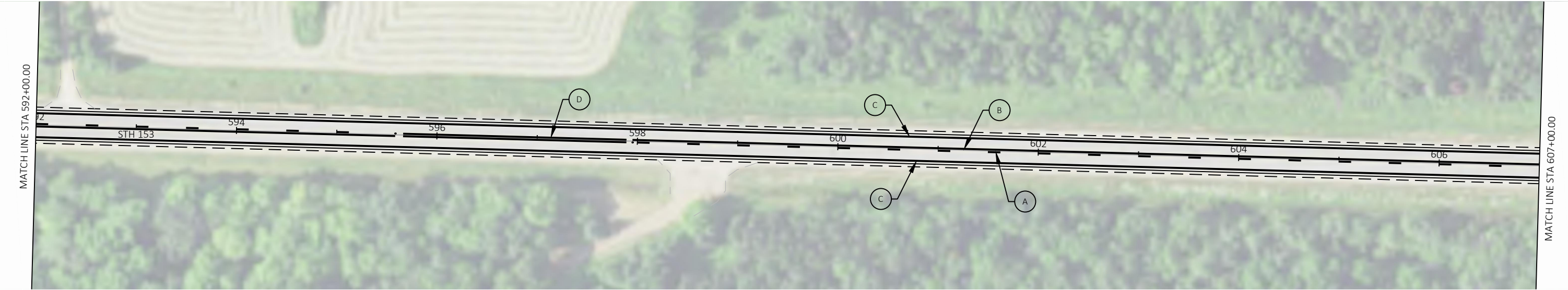
PLOT NAME

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44

2

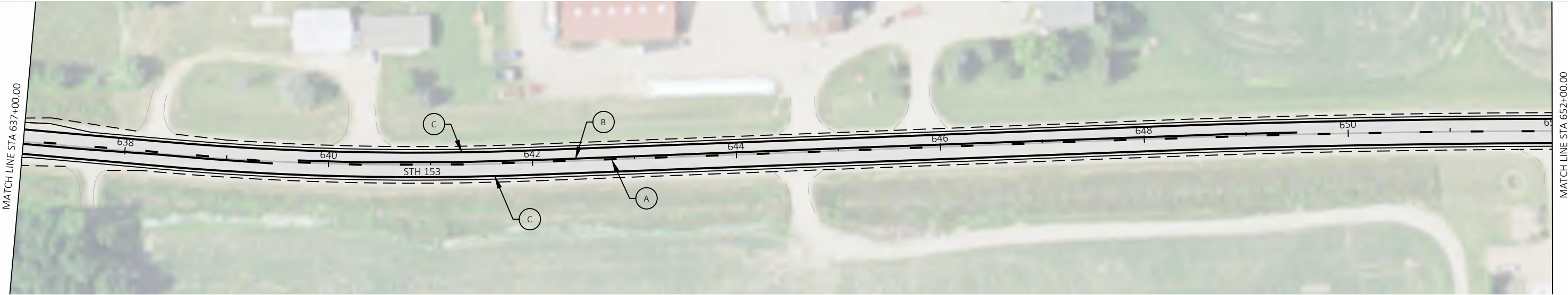
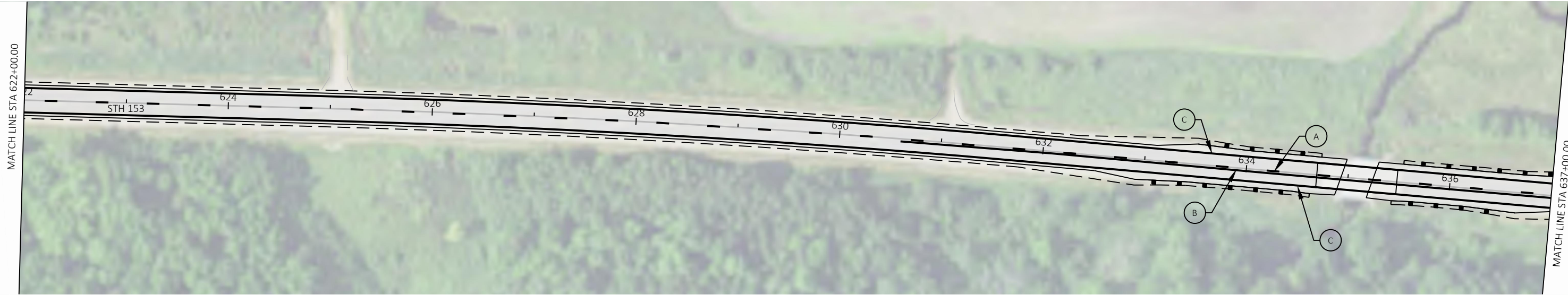
2



<u>PAVEMENT MARKING LEGEND</u>		
A	MARKING LINE	EPOXY 4-INCH (YELLOW SKIP)(12.5'SEG., 37.5'GAP)
B	MARKING LINE	EPOXY 4-INCH (YELLOW)
C	MARKING LINE	EPOXY 4-INCH (WHITE)
D	MARKING LINE	EPOXY 4-INCH (DOUBLE YELLOW)
E	MARKING LINE	EPOXY 4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO: 6600-00-72	HWY: STH 153	COUNTY: MARATHON	PAVEMENT MARKING	SHEET	E
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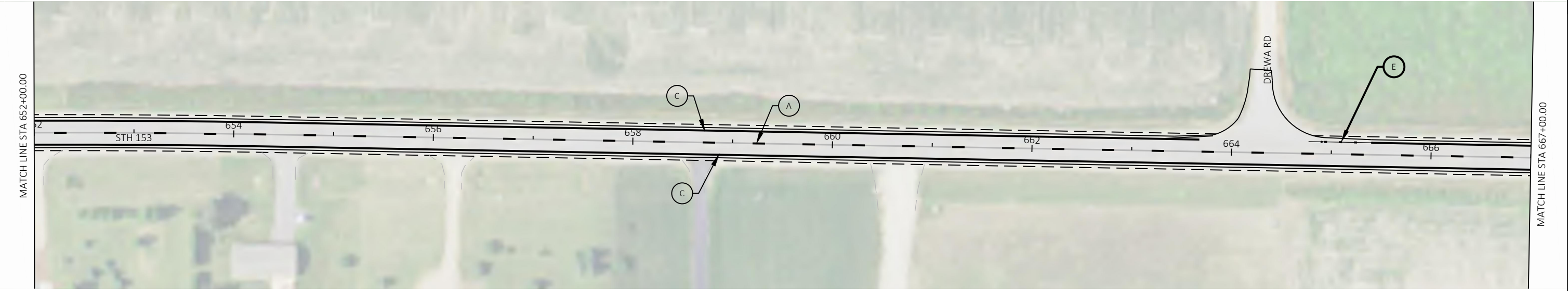
PAVEMENT MARKING LEGEND	
A	MARKING LINE EPOXY 4-INCH (YELLOW SKIP)(12.5'SEG., 37.5'GAP)
B	MARKING LINE EPOXY 4-INCH (YELLOW)
C	MARKING LINE EPOXY 4-INCH (WHITE)
D	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
E	MARKING LINE EPOXY 4-INCH (WHITE SKIP)(3'SEG., 9'GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO: 6600-00-72	HWY: STH 153	COUNTY: MARATHON	PAVEMENT MARKING	SHEET	E
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2

2



PAVEMENT MARKING LEGEND		
A	MARKING LINE	EPOXY 4-INCH (YELLOW SKIP)(12.5"SEG., 37.5"GAP)
B	MARKING LINE	EPOXY 4-INCH (YELLOW)
C	MARKING LINE	EPOXY 4-INCH (WHITE)
D	MARKING LINE	EPOXY 4-INCH (DOUBLE YELLOW)
E	MARKING LINE	EPOXY 4-INCH (WHITE SKIP)(3"SEG., 9"GAP)

A	MARKING LINE EPOXY 4-INCH (YELLOW SKIP)(12.5"SEC., 37.5"GAP)
B	MARKING LINE EPOXY 4-INCH (YELLOW)
C	MARKING LINE EPOXY 4-INCH (WHITE)
D	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
E	MARKING LINE EPOXY 4-INCH (WHITE SKIP)(3"SEC., 9"GAP)

NOTE: CENTERLINE PAVEMENT MARKINGS ARE SHOWN IN LOCATIONS BASED ON EXISTING CONDITIONS. ACTUAL LOCATIONS OF CENTERLINE MARKING TRANSITIONS ARE TO BE IDENTIFIED UNDER THE ITEM LOCATING NO-PASSING ZONES.

PROJECT NO:	6600-00-72
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HWY: STH 153

COUNTY: MARATHON

PAVEMENT MARKING

SHEET

E

FILE NAME : X:\PROJECTS\MARATHON\6600-00-02 STH 153\DESIGN\C3D\SHEETSPLAN\024501-PM.DWG
LAYOUT NAME - 024515-pm

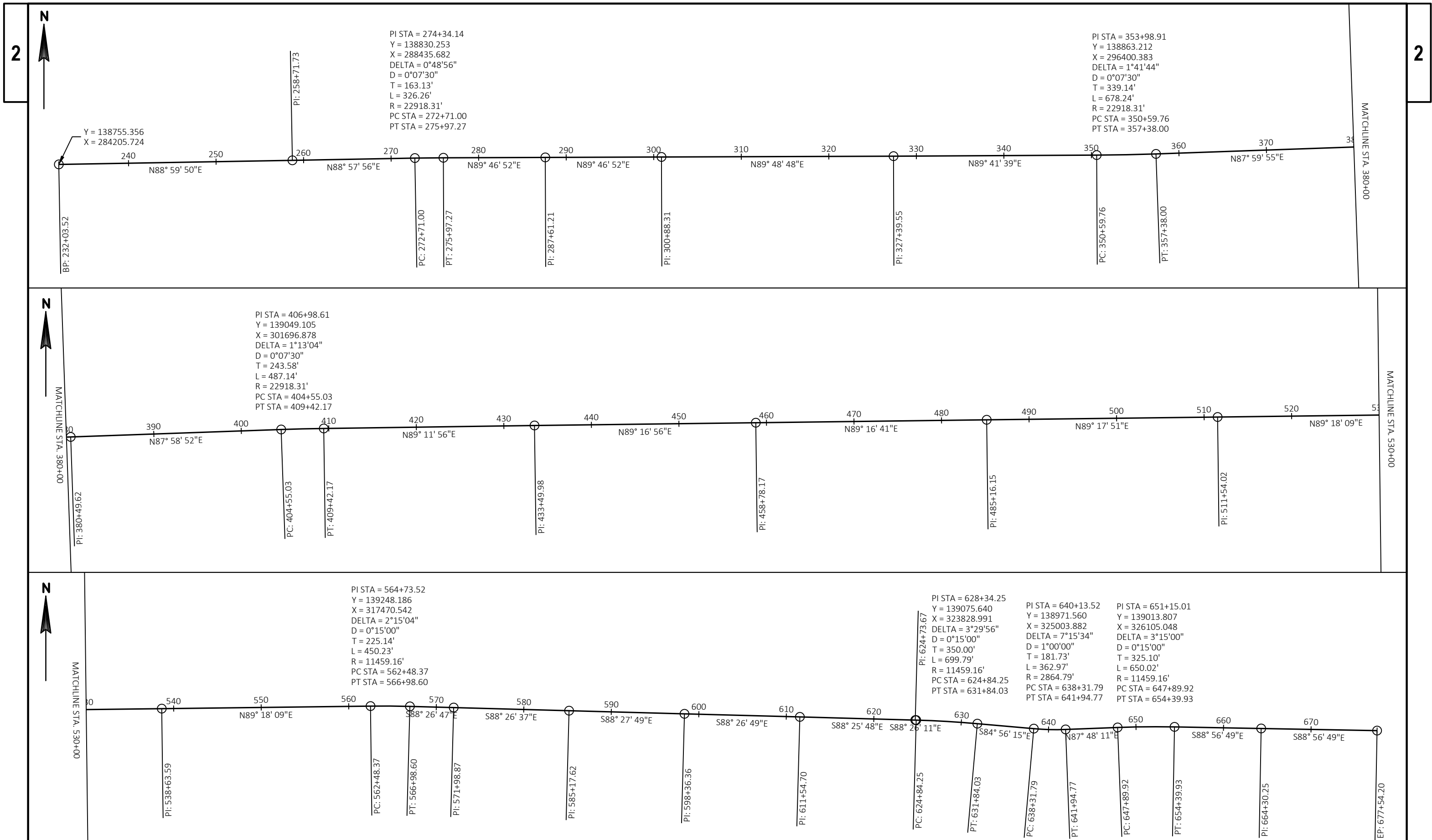
PLOT DATE : 1/31/2019 10:46 AM

PLOT BY : BRAD GROH

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



Estimate Of Quantities

6600-00-72					
Line	Item	Item Description	Unit	Total	Qty
0002	204.0120	Removing Asphaltic Surface Milling	SY	146,484.000	146,484.000
0004	204.0150	Removing Curb & Gutter	LF	530.000	530.000
0006	204.0165	Removing Guardrail	LF	848.000	848.000
0008	206.2000	Excavation for Structures Culverts (structure) 01. B-37-0301	LS	1.000	1.000
0010	210.2500	Backfill Structure Type B	TON	23.000	23.000
0012	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 6600-00-72	LS	1.000	1.000
0014	213.0100	Finishing Roadway (project) 01. 6600-00-72	EACH	1.000	1.000
0016	305.0110	Base Aggregate Dense 3/4-Inch	TON	2,145.000	2,145.000
0018	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	30.000	30.000
0020	390.0201	Base Patching Asphaltic	TON	100.000	100.000
0022	455.0605	Tack Coat	GAL	10,254.000	10,254.000
0024	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	2.000	2.000
0026	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	2.000	2.000
0028	460.2005	Incentive Density PWL HMA Pavement	DOL	12,410.000	12,410.000
0030	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	33,840.000	33,840.000
0032	460.2010	Incentive Air Voids HMA Pavement	DOL	15,510.000	15,510.000
0034	460.5224	HMA Pavement 4 LT 58-28 S	TON	16,113.000	16,113.000
0036	465.0110	Asphaltic Surface Patching	TON	100.000	100.000
0038	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	39,978.000	39,978.000
0040	601.0501	Concrete Curb & Gutter Integral 4-Inch Sloped 36-Inch	LF	530.000	530.000
0042	614.0010	Barrier System Grading Shaping Finishing	EACH	8.000	8.000
0044	614.2300	MGS Guardrail 3	LF	713.000	713.000
0046	614.2310	MGS Guardrail 3 HS	LF	175.000	175.000
0048	614.2500	MGS Thrie Beam Transition	LF	75.000	75.000
0050	614.2610	MGS Guardrail Terminal EAT	EACH	8.000	8.000
0052	614.8010	Anchor Post Assembly Top Mount	EACH	26.000	26.000
0054	618.0100	Maintenance And Repair of Haul Roads (project) 01. 6600-00-72	EACH	1.000	1.000
0056	619.1000	Mobilization	EACH	1.000	1.000
0058	624.0100	Water	MGAL	21.000	21.000
0060	625.0100	Topsoil	SY	101.000	101.000
0062	628.1504	Silt Fence	LF	1,856.000	1,856.000
0064	628.1520	Silt Fence Maintenance	LF	1,856.000	1,856.000
0066	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0068	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0070	628.2006	Erosion Mat Urban Class I Type A	SY	3,396.000	3,396.000
0072	628.7504	Temporary Ditch Checks	LF	80.000	80.000
0074	629.0210	Fertilizer Type B	CWT	0.100	0.100

Estimate Of Quantities

6600-00-72					
Line	Item	Item Description	Unit	Total	Qty
0076	630.0120	Seeding Mixture No. 20	LB	3.000	3.000
0078	638.2602	Removing Signs Type II	EACH	4.000	4.000
0080	642.5201	Field Office Type C	EACH	1.000	1.000
0082	643.0310.S	Temporary Portable Rumble Strips	LS	1.000	1.000
0084	643.0900	Traffic Control Signs	DAY	1,640.000	1,640.000
0086	643.1000	Traffic Control Signs Fixed Message	SF	36.000	36.000
0088	643.5000	Traffic Control	EACH	1.000	1.000
0090	646.1020	Marking Line Epoxy 4-Inch	LF	113,755.000	113,755.000
0092	646.4520	Marking Line Same Day Epoxy 4-Inch	LF	29,567.000	29,567.000
0094	648.0100	Locating No-Passing Zones	MI	8.090	8.090
0096	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	1,060.000	1,060.000
0098	650.8000	Construction Staking Resurfacing Reference	LF	42,367.000	42,367.000
0100	650.9910	Construction Staking Supplemental Control (project) 01.	LS	1.000	1.000
6600-00-72					
0102	690.0150	Sawing Asphalt	LF	130.000	130.000
0104	740.0440	Incentive IRI Ride	DOL	32,338.000	32,338.000
0106	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	600.000	600.000
0108	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,200.000	1,200.000
0110	SPV.0060	Special 01. Removing Guardrail Posts and Assembly Mounted to Box Culvert	EACH	12.000	12.000

PREPARING ROADWAY

				204.0120	211.0100	390.0201	465.0110		
				REMOVING	PREPARE	BASE	ASPHALTIC		
				ASPHALTIC	FOUNDATION	PAVING	ASPHALTIC		
				SURFACE	FOR ASPHALTIC	(6600-00-72)	PATCHING		
				MILLING	ASPHALTIC		PATCHING		
STATION	STATION	LOCATION		SY	LS	TON	TON	REMARKS	
250+37	-	258+67	STH 153	2,767	--	--	--		
258+67	-	287+61	STH 153	9,647	--	--	--		
287+61	-	298+00	STH 153	3,463	--	--	--		
298+00	-	327+40	STH 153	9,800	--	--	--		
327+40	-	417+69	STH 153	30,097	--	--	--		
417+69	-	511+54	STH 153	31,283	--	--	--		
511+54	-	557+19	STH 153	15,217	--	--	--		
557+19	-	634+69	STH 153	25,833	--	--	--		
635+48	-	664+30	STH 153	9,607	--	--	--		
664+30	-	674+04	STH 153	3,247	--	--	--		
257+67	-	259+43	ANDRYS LN INTERSECTION	340	--	--	--	STAGE 1	
286+72	-	288+31	PEPLIN RD INTERSECTION	278	--	--	--	STAGE 1	
326+33	-	328+47	MILE RD INTERSECTION	323	--	--	--	STAGE 2	
415+29	-	420+43	PIONEER RD INTERSECTION	1,425	--	--	--	STAGES 1&2	
510+79	-	512+57	ZOGATA RD INTERSECTION	351	--	--	--	STAGE 2	
663+43	-	665+40	DREWA RD INTERSECTION	325	--	--	--	STAGE 2	
674+04	-	BUDNICK RD	CTH J INTERSECTION	2,482	--	--	--	STAGES 1&2	
		UNDISTRIBUTED			1	100	100		
		TOTAL		146,484	1	100	100		

CONCRETE REMOVAL SUMMARY

				204.0150		
				REMOVING		
				CURB &		
				GUTTER		
STATION	STATION	LOCATION		LF		
415+98	-	417+70	LT	216		
418+04	-	418+55	LT	94		
416+82	-	417+27	RT	107		
417+70	-	418+22	RT	113		
		TOTAL		530		

REMOVING GUARDRAIL

				204.0165	SPV.0060.01		
				REMOVING	REMOVING		
				GUARDRAIL	GUARDRAIL POSTS		
					AND ASSEMBLY		
					MOUNTED TO BOX		
					CULVERT		
STATION	STATION	LOCATION		LF	EACH	REMARKS	
357+95	-	360+07	RT	212	6		
358+21	-	360+33	LT	212	6		
633+45	-	634+64	RT	119	--		
635+44	-	636+37	RT	93	--		
633+80	-	634+73	LT	93	--		
635+53	-	636+72	LT	119	--		
		TOTAL		848	12		

BASE AGGREGATE SUMMARY

				305.0110	305.0120		
				BASE	BASE		
				AGGREGATE	AGGREGATE		
				DENSE	DENSE		
				3/4-INCH	1 1/4-INCH		
STATION	STATION	LOCATION		TON	TON	REMARKS	
250+37	-	258+67	STH 153	32	--		
258+67	-	287+61	STH 153	113	--		
287+61	-	298+00	STH 153	40	--		
298+00	-	327+40	STH 153	114	--		
327+40	-	417+69	STH 153	351	--		
417+69	-	511+54	STH 153	365	--		
511+54	-	557+19	STH 153	178	--		
557+19	-	634+69	STH 153	301	--		
635+48	-	664+30	STH 153	112	--		
664+30	-	674+04	STH 153	38	--		
		STRUCTURE B-37-0301		--	23		
		UNDISTRIBUTED		500	7		
		TOTAL		2,145	30		

3

3

ASPHALT PAVEMENT SUMMARY											
			455.0605		460.5224		ELIGIBLE TONNAGE		ELIGIBLE LF	465.0475	
					HMA		INCENTIVE		INCENTIVE	ASPHALTIC	
					PAVEMENT		DENSITY		AIR VOIDS	HMA PAVEMENT	
			TACK		4 LT		PWL HMA		HMA	LONGITUDINAL	
			COAT		58-28 S		PAVEMENT*		PAVEMENT*	JOINT	
			AREA		SY		GAL		TON	DENSITY**	
										LF	
STATION	STATION	LOCATION	SY	GAL	TON						REMARKS
STAGE 1 EASTBOUND											
250+37	-	258+67	STH 153	1,383	97	152	122	152	830	630	
258+67	-	287+61	STH 153	4,823	338	531	424	531	2,894	2,494	
287+61	-	298+00	STH 153	1,732	121	190	152	190	1,039	839	
298+00	-	327+40	STH 153	4,900	343	539	431	539	2,940	2,740	
327+40	-	417+69	STH 153	15,048	1,053	1,655	1,324	1,655	9,029	8,579	
417+69	-	511+54	STH 153	15,642	1,095	1,721	1,376	1,721	9,385	8,985	
511+54	-	557+19	STH 153	7,608	533	837	670	837	4,565	4,365	
557+19	-	634+69	STH 153	12,917	904	1,421	1,137	1,421	7,750	7,645	
635+48	-	664+30	STH 153	4,803	336	528	423	528	2,882	2,577	
664+30	-	674+04	STH 153	1,623	114	179	143	179	974	974	
257+67	-	259+43	ANDRYS LN INTERSECTION	340	24	37	--	--	--	--	
286+72	-	288+31	PEPLIN RD INTERSECTION	278	19	31	--	--	--	--	
415+29	-	420+43	PIONEER RD INTERSECTION	765	54	84	--	--	--	--	
674+04	-	BUDNICK RD	CTH J INTERSECTION	1,374	96	151	--	--	--	150	
STAGE 1 SUBTOTAL			73,237	5,127	8,056	6,202	7,753	42,288	39,978		
STAGE 2 WESTBOUND											
250+37	-	258+67	STH 153	1,383	97	152	122	152	830	--	
258+67	-	287+61	STH 153	4,823	338	531	424	531	2,894	--	
287+61	-	298+00	STH 153	1,732	121	190	152	190	1,039	--	
298+00	-	327+40	STH 153	4,900	343	539	431	539	2,940	--	
327+40	-	417+69	STH 153	15,048	1,053	1,655	1,324	1,655	9,029	--	
417+69	-	511+54	STH 153	15,642	1,095	1,721	1,376	1,721	9,385	--	
511+54	-	557+19	STH 153	7,608	533	837	670	837	4,565	--	
557+19	-	634+69	STH 153	12,917	904	1,421	1,137	1,421	7,750	--	
635+48	-	664+30	STH 153	4,803	336	528	423	528	2,882	--	
664+30	-	674+04	STH 153	1,623	114	179	143	179	974	--	
326+33	-	328+47	MILE RD INTERSECTION	323	23	36	--	--	--	--	
415+29	-	420+43	PIONEER RD INTERSECTION	660	46	73	--	--	--	--	
510+79	-	512+57	ZOGATA RD INTERSECTION	351	25	39	--	--	--	--	
663+43	-	665+40	DREWA RD INTERSECTION	325	23	36	--	--	--	--	
674+04	-	BUDNICK RD	CTH J INTERSECTION	1,108	78	122	--	--	--	--	
STAGE 2 SUBTOTAL			73,247	5,127	8,057	6,202	7,753	42,288			
UNDISTRIBUTED			--	--	1				--		DRIVEWAY AT PIONEER RD
TOTAL			146,484	10,254	16,113	12,404	15,506	84,576	39,978		
*NOTE: THIS IS THE ELIGIBLE TONNAGE FOR CALCULATING THE ASSOCIATED INCENTIVE ITEMS. THE FINAL INCENTIVE ITEM QUANTITIES ARE BASED ON A PREDETERMINED AMOUNT OF \$1.00/TON OF ELIGIBLE PAVEMENT ROUNDED UP TO THE NEXT \$10.											
** NOTE: THIS IS THE ELIGIBLE LINEAR FOOTAGE FOR CALCULATING THE LONGITUDINAL JOINT DENSITY INCENTIVE. THE FINAL INCENTIVE ITEM QUANTITY IS BASED ON A PREDETERMINED AMOUNT OF \$1.00/LF APPLIED TO 40% OF THE ELIGIBLE LINEAR FOOTAGE, ROUNDED UP TO THE NEXT \$10.											
PROJECT NO: 6600-00-72			HWY: STH 153		COUNTY: MARATHON		MISCELLANEOUS QUANTITIES			SHEET:	E

PWL MIXTURE USE TABLE

THE FOLLOWING ACCEPTANCE CRITERIA ARE APPLICABLE FOR THIS PROJECT:

LOCATION	STATION	MIXTURE USE	UNDERLYING SURFACE	BID ITEMS	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
							MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
STAGE 1								
WB 3' SHOULDER	250+37 TO 677+04	SURFACE LAYER	MILLED EXISTING HMA SURFACE	4 LT 58-28 S	1,564	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
WB 12' DRIVING LANE	250+37 TO 677+04	SURFACE LAYER	MILLED EXISTING HMA SURFACE	4 LT 58-28 S	6,258	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
EB 12' DRIVING LANE	250+37 TO 677+04	SURFACE LAYER	MILLED EXISTING HMA SURFACE	4 LT 58-28 S	6,258	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
EB 3' SHOULDER	250+37 TO 677+04	SURFACE LAYER	MILLED EXISTING HMA SURFACE	4 LT 58-28 S	1,564	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE

HMA PAVEMENT PWL, TEST STRIP

				460.0105.S	460.0110.S
				VOLUMETRICS	DENSITY
STATION	TO	STATION		EACH	EACH
WESTBOUND					
250 + 37	-	677 + 04		1	1
EASTBOUND					
250 + 37	-	677 + 04		1	1
TOTAL				2	2

MGS GUARDRAIL SUMMARY

			614.2300	614.2310	614.2500	614.2610	614.0010	614.8010	FOR INFORMATION ONLY					REMARKS
			MGS	MGS	MGS	MGS	BARRIER SYSTEM	ANCHOR POINT						
			GUARDRAIL 3	GUARDRAIL 3	THRIE BEAM	GUARDRAIL	GRADING SHAPING	ASSEMBLY						
				HS	TRANSITION	TERMINAL EAT	FINISHING	TOP MOUNT	BORROW	TOPSOIL	FERTILIZER	SEEDING		
STATION	STATION	LOCATION	LF	LF	LF	EACH	EACH	EACH	CY	SY	TYPE B	MIXTURE NO. 20		
											CWT	LB		
356+89	-	358+67	RT	125	--	--	1	1	--					
358+67	-	359+54	RT	--	88	--	--	--	13					
359+54	-	360+70	RT	63	--	--	1	1	--					
357+33	-	358+73	LT	88	--	--	1	1	--					
358+73	-	359+61	LT	--	88	--	--	--	13					
359+61	-	361+51	LT	138	--	--	1	1	--					
B-37-0301 SUBTOTAL									301	1,722	1.08	47		
632+92	-	634+64	RT	100	--	19	1	1	--					
635+44	-	636+66	RT	50	--	19	1	1	--					
633+51	-	634+73	LT	50	--	19	1	1	--					
635+53	-	637+25	LT	100	--	19	1	1	--					
B-37-0305 SUBTOTAL									166	1,573	0.99	42		
TOTAL			713	175	75	8	8	26	467	3,295	2.08	89		

ANCILLARY CONCRETE SUMMARY

601.0501 CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE A				
STATION		LOCATION	LF	REMARKS
415+98	-	417+70	LT	216
418+04	-	418+55	LT	94
416+82	-	417+27	RT	107
417+70	-	418+22	RT	113
TOTAL			530	

WATER SUMMARY

624.0100 WATER		REMARKS
LOCATION	MGAL	
UNDISTRIBUTED	21	
TOTAL	21	

SAWING SUMMARY

690.0150 SAWING ASPHALT			
STATION	STATION	LF	REMARKS
416+12 LT	- 417+28 LT	120	
UNDISTRIBUTED		10	
TOTAL		130	

LANDSCAPING SUMMARY

625.0100 TOPSOIL		629.0210 FERTILIZER TYPE B	630.0120 SEEDING MIXTURE NO. 20	REMARKS
LOCATION	SY	CWT	LB	
415+98 - 417+70	22	0.01	0.6	
418+04 - 418+55	21	0.01	0.6	
416+82 - 417+27	24	0.01	0.6	
417+70 - 418+22	25	0.02	0.7	
UNDISTRIBUTED	9	0.05	0.5	
TOTAL	101	0.1	3.0	

EROSION CONTROL SUMMARY

628.1504 SILT FENCE		628.1520 SILT FENCE MAINTENANCE	628.1905 MOBILIZATIONS EROSION CONTROL	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL	628.2006 EROSION MAT URBAN CLASS I TYPE A	628.7504 TEMPORARY DITCH CHECKS	REMARKS
LOCATION	LF	LF	EACH	EACH	SY	LF	
B-37-0301	870	870	1	1	1,722	40	JOHNSON CREEK
B-37-0305	986	986	1	1	1,573	40	LITTLE EAU CLAIRE RIVER
PIONEER RD INTERSECTION	--	--	--	--	101	--	
TOTAL	1,856	1,856	2	2	3,396	80	

TRAFFIC CONTROL SUMMARY

DURATION		643.5000		643.0900		643.1000		643.0310.S	
		TRAFFIC CONTROL		TRAFFIC CONTROL SIGNS		TRAFFIC CONTROL SIGNS FIXED MESSAGE		TEMPORARY PORTABLE RUMBLE STRIPS	
		PROJECT		NO. IN		(G20-57)			
STAGE	DAYS	LOCATION	EACH	SERVICE	DAYS	SF	LS	REMARKS	
1	20	EB DIRECTION	--	30	600	18	--	PROJECT DURATION	
1	20	EB DIRECTION	--	11	220	--	--	FLAGGING	
2	20	WB DIRECTION	--	30	600	18	--	PROJECT DURATION	
2	20	WB DIRECTION	--	11	220	--	--	FLAGGING	
TOTAL			1	1, 640		36	1		

CONSTRUCTION STAKING SUMMARY

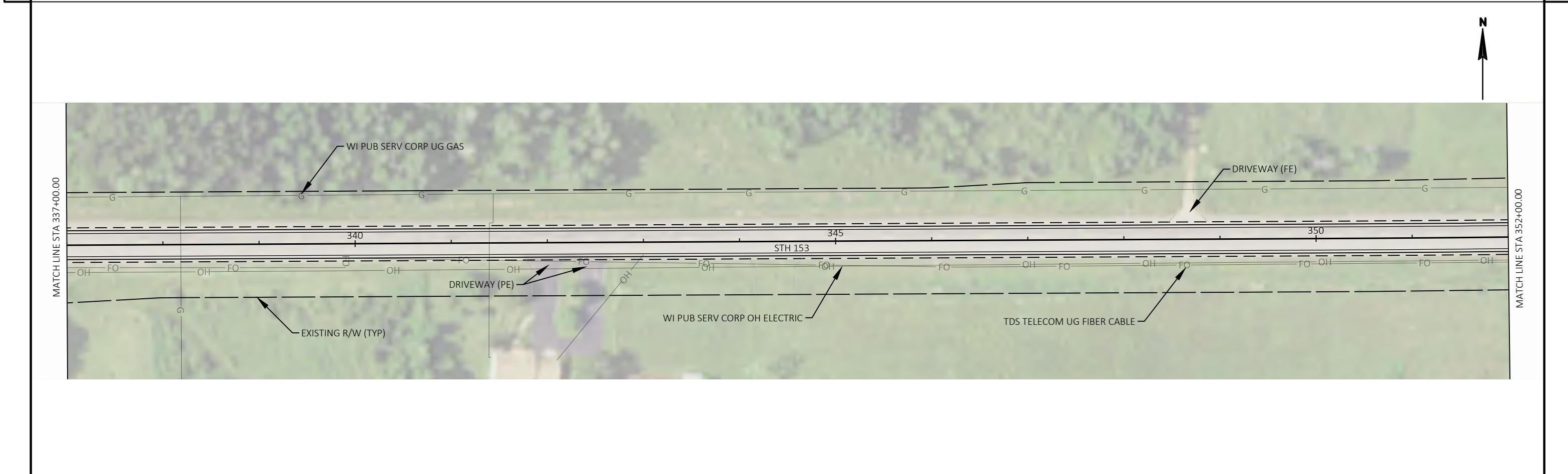
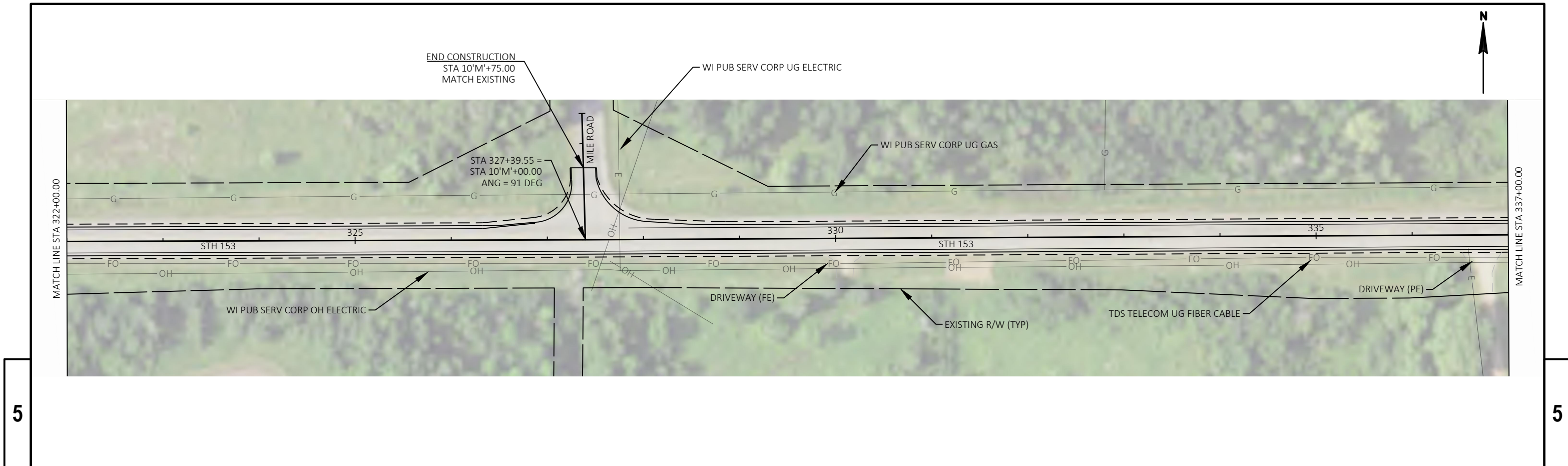
		650.5500	650.8000	650.9910	
		CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	
		STAKING	STAKING	STAKING	
		CURB GUTTER	RESURFACE	SUPPLEMENTAL	
		AND CURB & GUTTER	REFERENCE	CONTROL (6600-00-72)	
STATION	STATION	LF	LF	LS	REMARKS
250+37	674+04	1,060	42,367	1	
TOTAL		1,060	42,367	1	

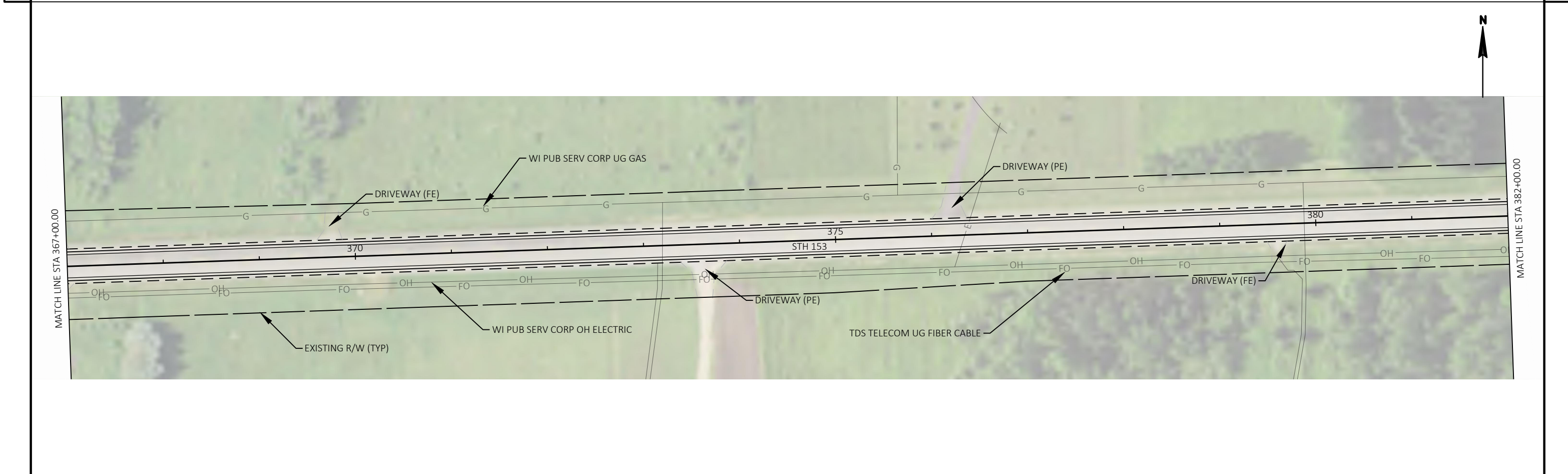
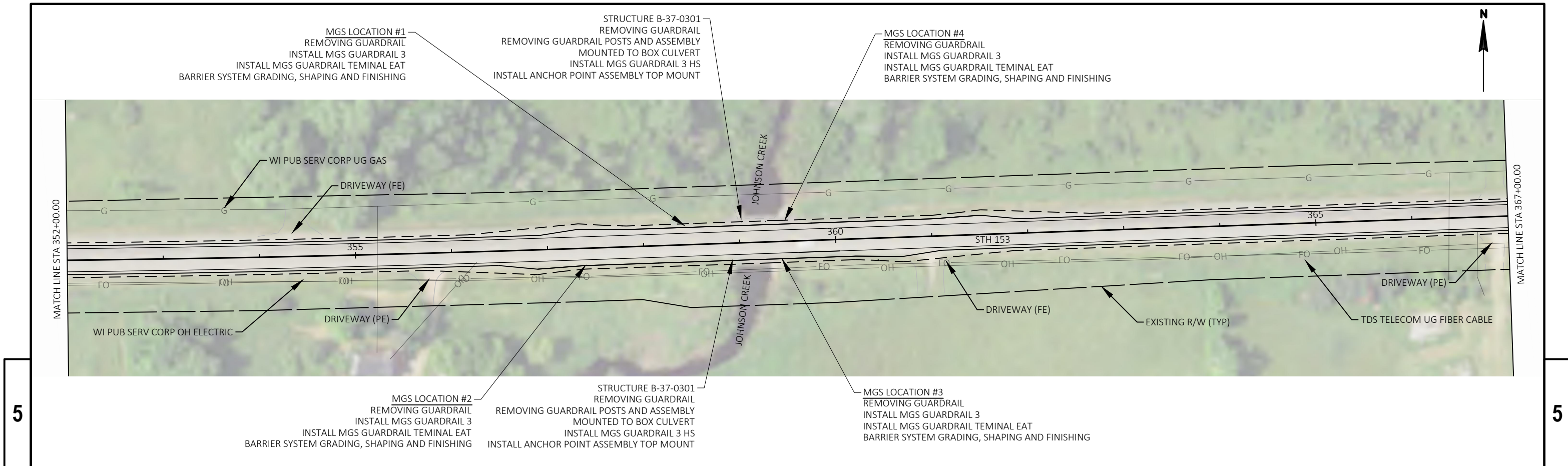
PERMANENT SIGNS SUMMARY

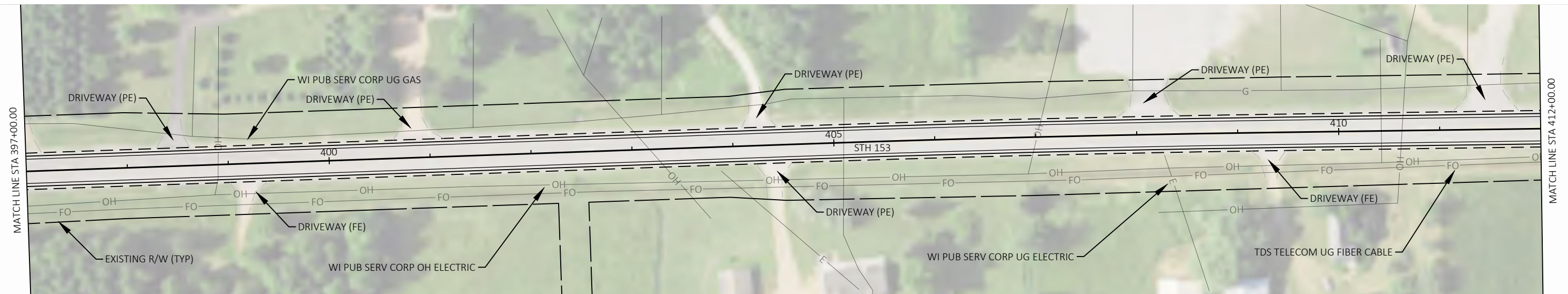
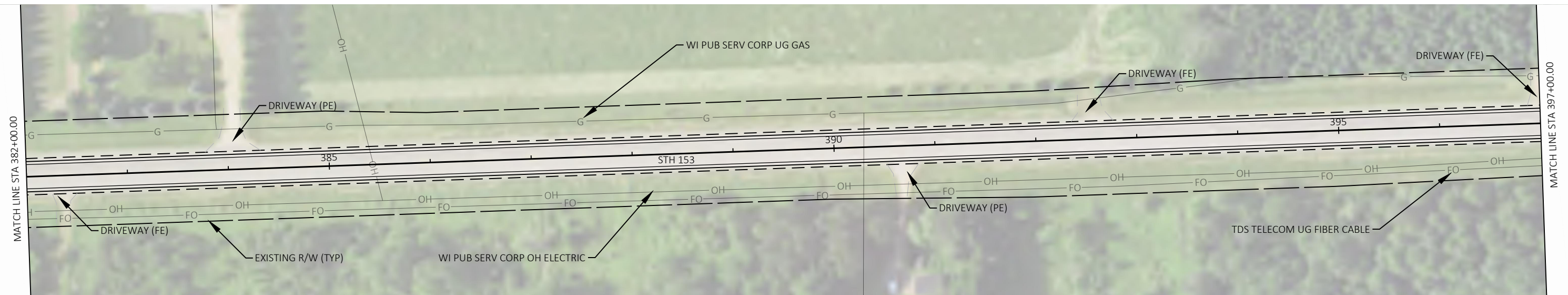
								638.2602	
		SIGN				SIGN	SIGN	REMOVING	
STATION	OFFSET	FACES	SIGN WORDING & PICTORIALS			CODE	WIDTH (IN)	HEIGHT (IN)	SIGNS TYPE
									II EACH
358+77	LT	EB	BRIDGE CHEVRON			W5-52L	12	36	1
359+57	LT	WB	BRIDGE CHEVRON			W5-52L	12	36	1
358+77	RT	EB	BRIDGE CHEVRON			W5-52L	12	36	1
359+38	RT	WB	BRIDGE CHEVRON			W5-52L	12	36	1
TOTAL									4

PAVEMENT MARKING SUMMARY

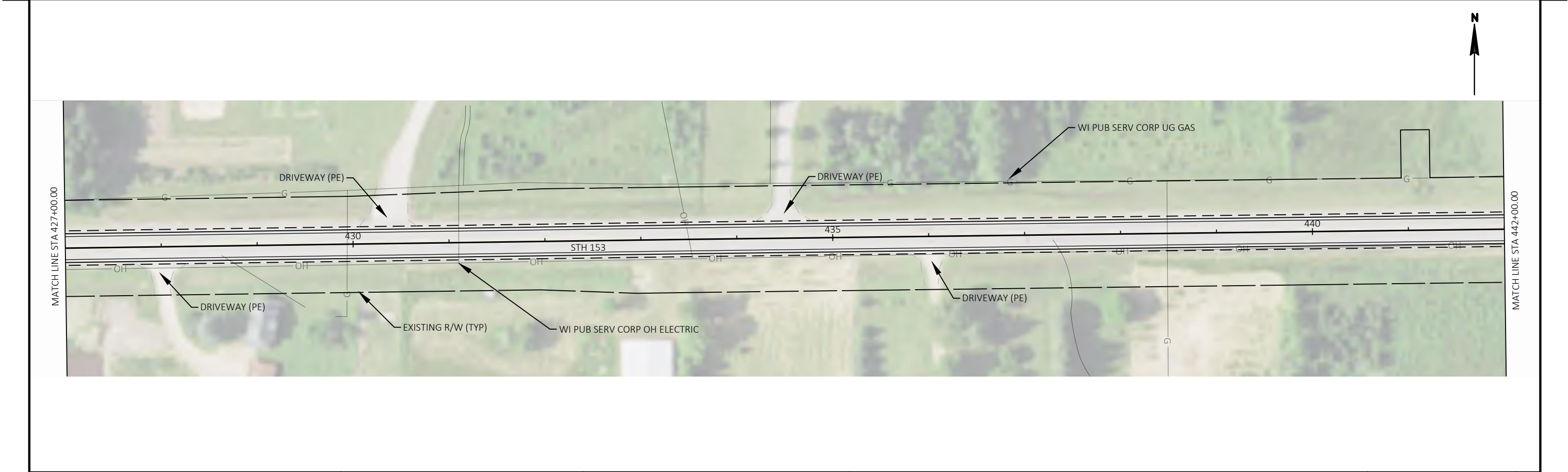
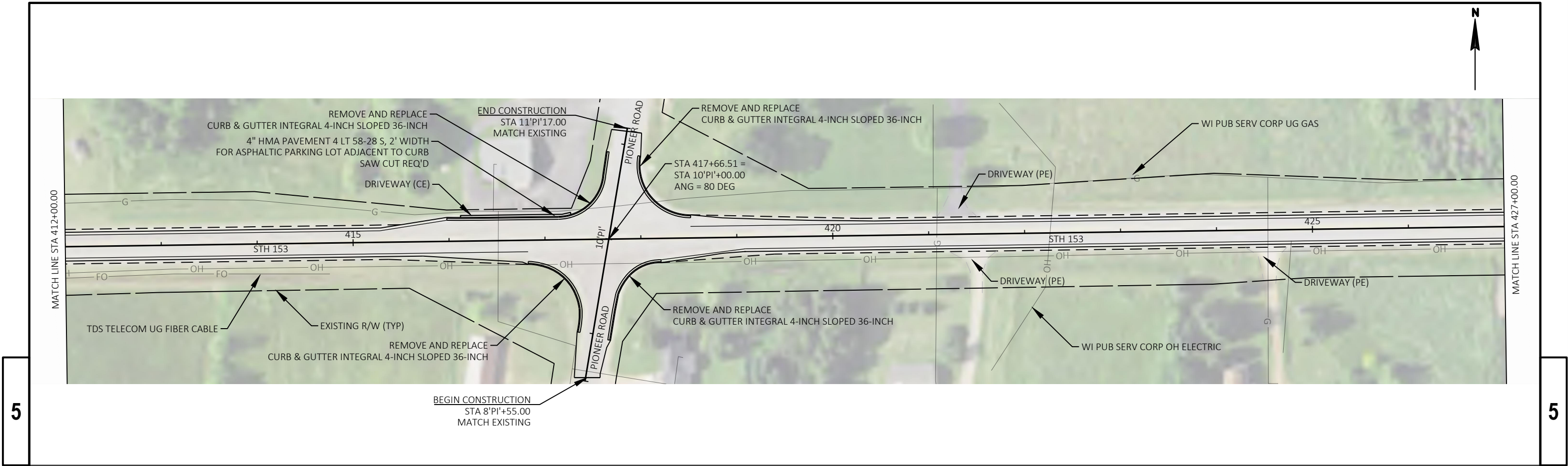
				646.1020	646.1020	646.4520	648.0100	REMARKS
				MARKING LINE	MARKING LINE	MARKING LINE	LOCATING	
				EPOXY	EPOXY	SAME DAY EPOXY	NO PASSING	
				4-INCH	4-INCH	4-INCH	ZONES	
				(YELLOW)	(WHITE)	(YELLOW)		
STATION		STATION	LOCATION	LF	LF	LF	MI	
250+37	-	258+19	STH 153	1004	1536	1004	--	
258+19	-	282+31	STH 153	603	4720	603	--	
282+31	-	292+70	STH 153	1299	1956	1299	--	
292+70	-	304+32	STH 153	1395	2324	1395	--	
304+32	-	317+07	STH 153	1594	2550	1594	--	
317+07	-	328+02	STH 153	1369	2076	1369	--	
328+02	-	405+55	STH 153	1938	15506	1938	--	
405+55	-	416+51	STH 153	1370	2102	1370	--	
416+51	-	433+60	STH 153	3418	2906	3418	--	
433+60	-	444+13	STH 153	1316	2106	1316	--	
444+13	-	463+38	STH 153	481	3850	481	--	
463+38	-	473+10	STH 153	1215	1944	1215	--	
473+10	-	474+40	STH 153	33	260	33	--	
474+40	-	484+25	STH 153	1231	1970	1231	--	
484+25	-	556+40	STH 153	1804	14316	1804	--	
556+40	-	562+56	STH 153	770	1232	770	--	
562+56	-	566+46	STH 153	98	780	98	--	
566+46	-	572+20	STH 153	718	1148	718	--	
572+20	-	585+22	STH 153	326	2604	326	--	
585+22	-	595+63	STH 153	1301	2082	1301	--	
595+63	-	597+93	STH 153	460	460	460	--	
597+93	-	607+71	STH 153	1223	1956	1223	--	
607+71	-	630+60	STH 153	572	4578	572	--	
630+60	-	639+57	STH 153	1121	1794	1121	--	
639+57	-	649+50	STH 153	1241	1986	1241	--	
649+50	-	672+05	STH 153	564	4350	564	--	
672+05	-	677+23	STH 153	648	780	648	--	
677+24	-	677+54	CTH J INTERSECTION	458	317	458	--	
SUBTOTALS				29,567	84,188			
TOTAL					113,755	29,567	8.09	

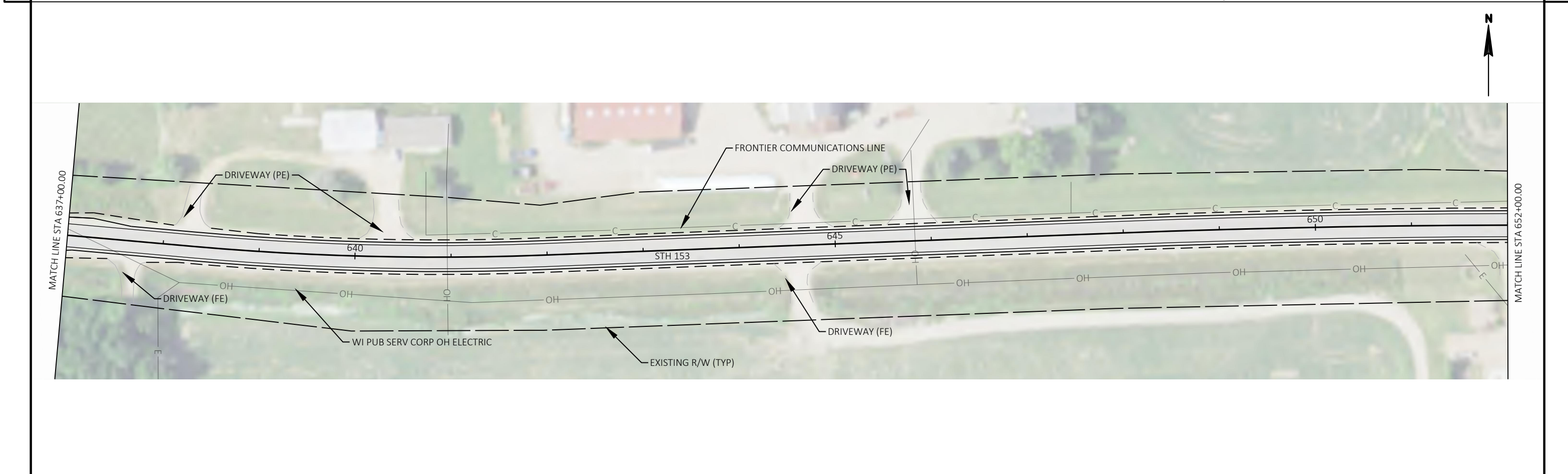
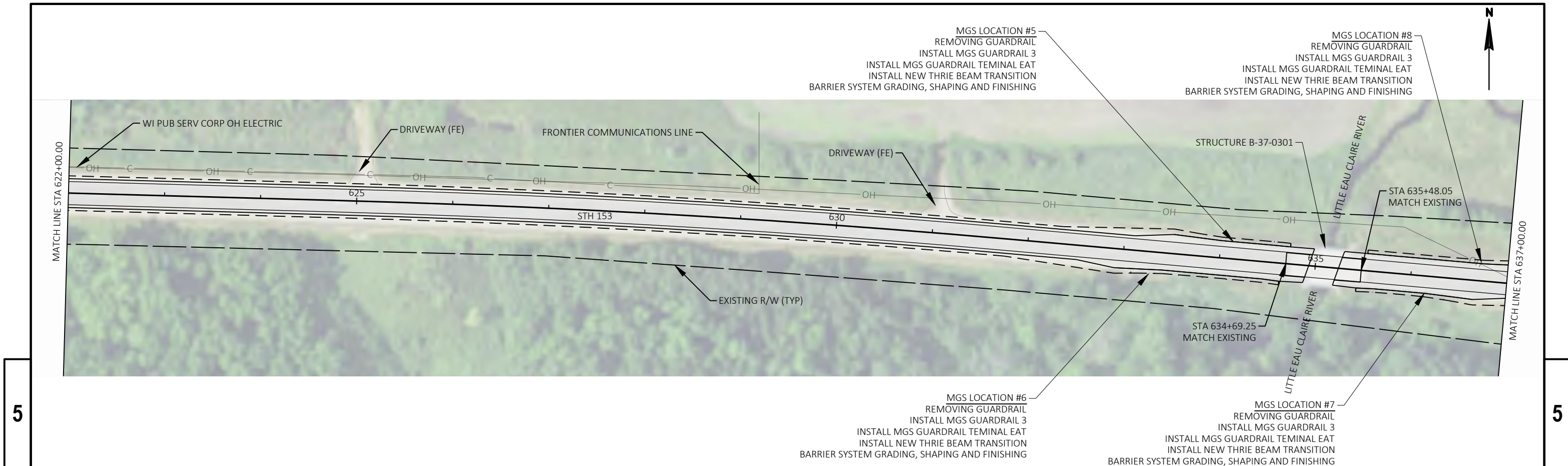




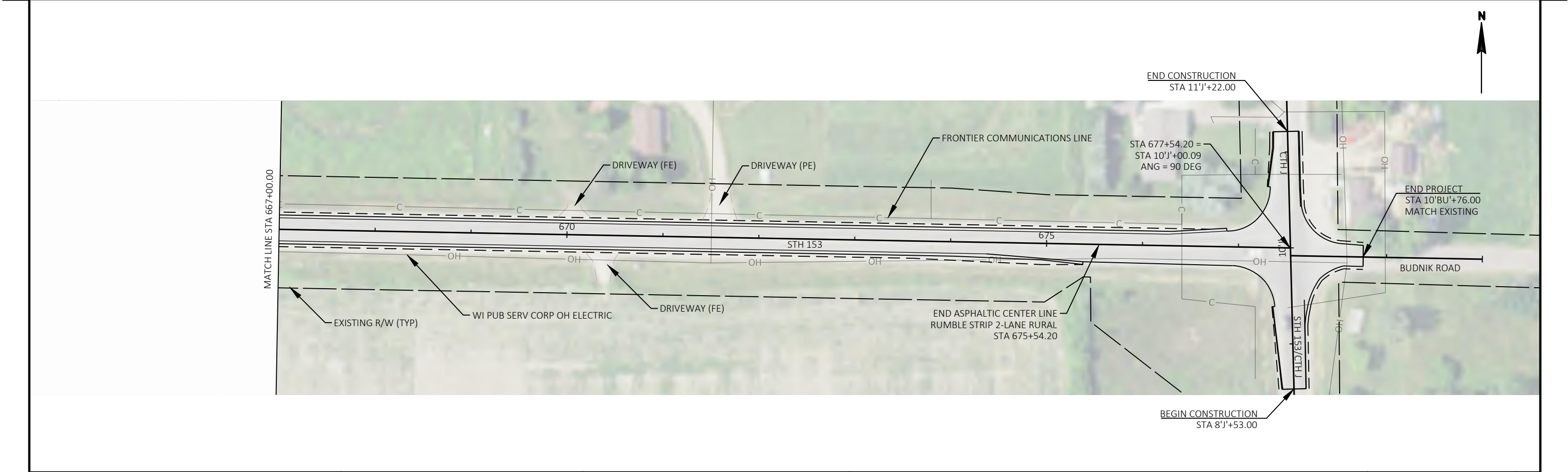
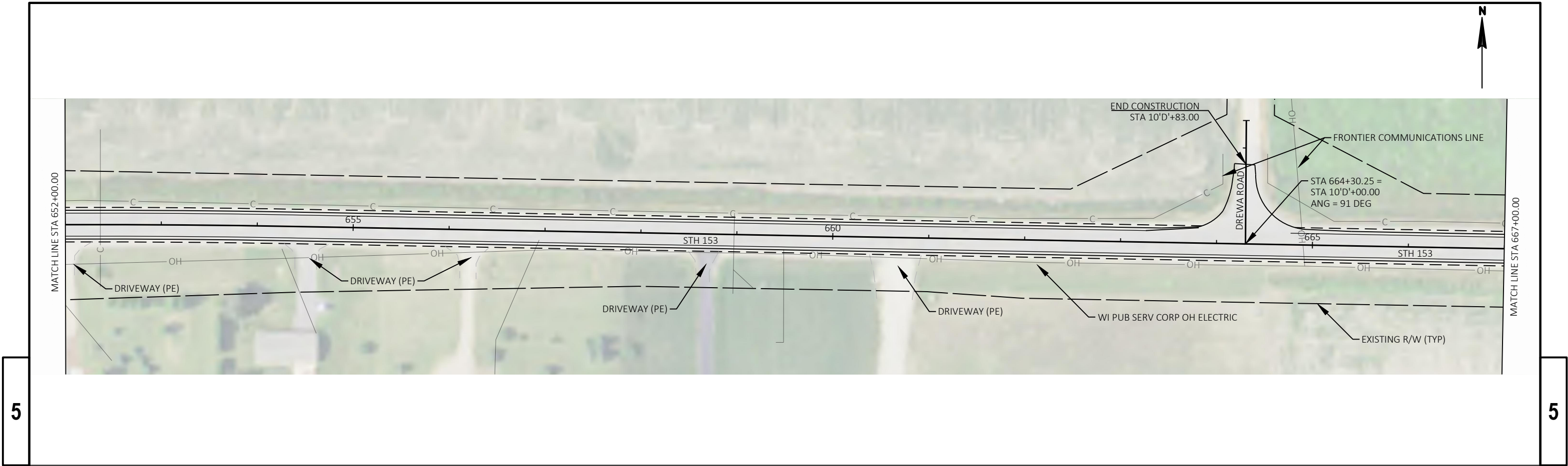


PROJECT NO: 6600-00-72		HWY: STH 153		COUNTY: MARATHON		PLAN DETAILS				SHEET		E
FILE NAME : X:\PROJECTS\MARATHON\6600-00-02 STH 153\DESIGN\C3D\SHEETS\PLAN\050201-PN.DWG		PLOT DATE : 12/19/2018 10:22 AM		PLOT BY : BRAD GROH		PLOT NAME :		PLOT SCALE : 1 IN:100 FT		WISDOT/CADD'S SHEET 44		
LAYOUT NAME - 050206-pn												



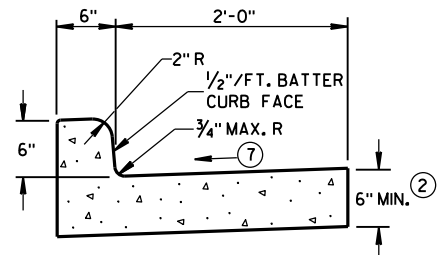


PROJECT NO: 6600-00-72	HWY: STH 153	COUNTY: MARATHON	PLAN DETAILS	SHEET	E
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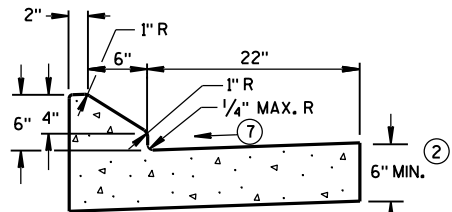


Standard Detail Drawing List

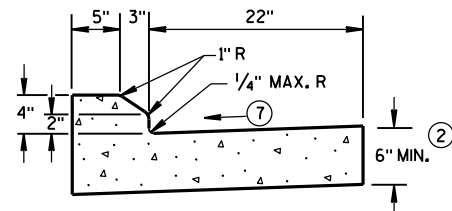
08D01-20A	CONCRETE CURB & GUTTER
08D01-20B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	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)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B51-01A	ANCHOR POST ASSEMBLY TOP-MOUNTED
14B51-01B	ANCHOR POST ASSEMBLY TOP-MOUNTED
14B51-01C	ANCHOR POST ASSEMBLY TOP-MOUNTED
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C08-19B	PAVEMENT MARKING (TURN LANES)
15C08-19C	PAVEMENT MARKING (TURN LANES)
15C11-07A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-06	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-05A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C35-03A	PAVEMENT MARKING (INTERSECTIONS)
15D28-03	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING



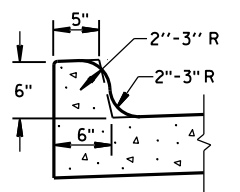
TYPES A^① & D



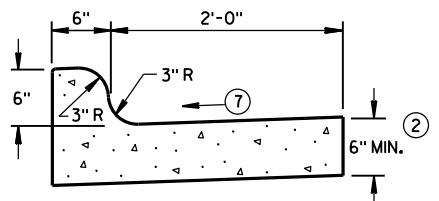
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

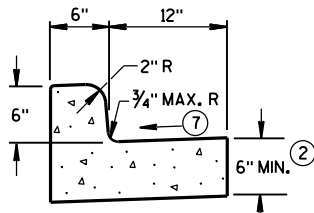


TYPES K^① & L
(OPTIONAL CURB SHAPE)



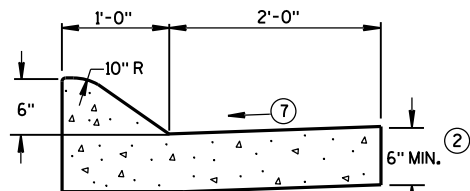
TYPES K^① & L

CONCRETE CURB & GUTTER 30"

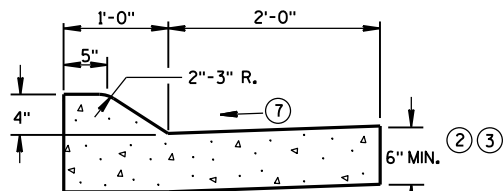


TYPES A^① & D

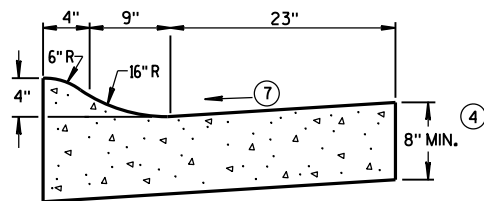
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A^① & D

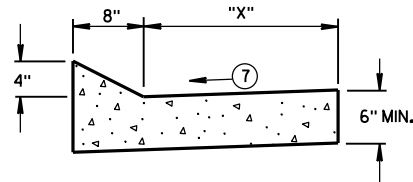


4" SLOPED CURB TYPES A^① & D



4" SLOPED CURB TYPES R^① & T^⑤

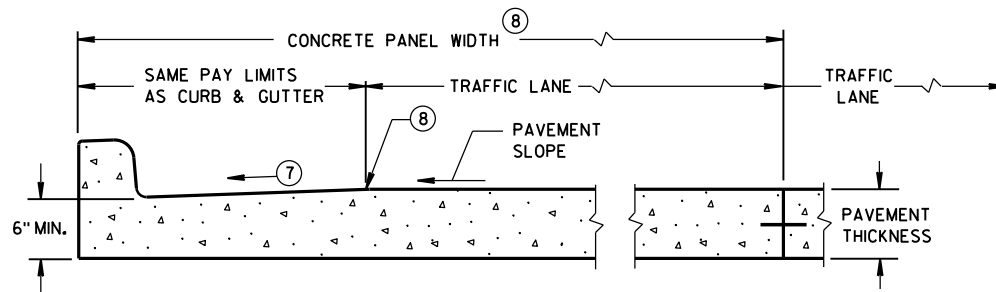
CONCRETE CURB & GUTTER 36"



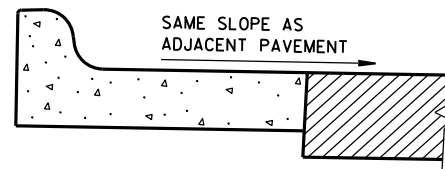
TYPES TBT & TBTT^①

CONCRETE CURB & GUTTER

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



PARTIAL SECTION OF PAVEMENT^{*}
WITH INTEGRAL CURB & GUTTER



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

GENERAL NOTES

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

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

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

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

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND 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 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.

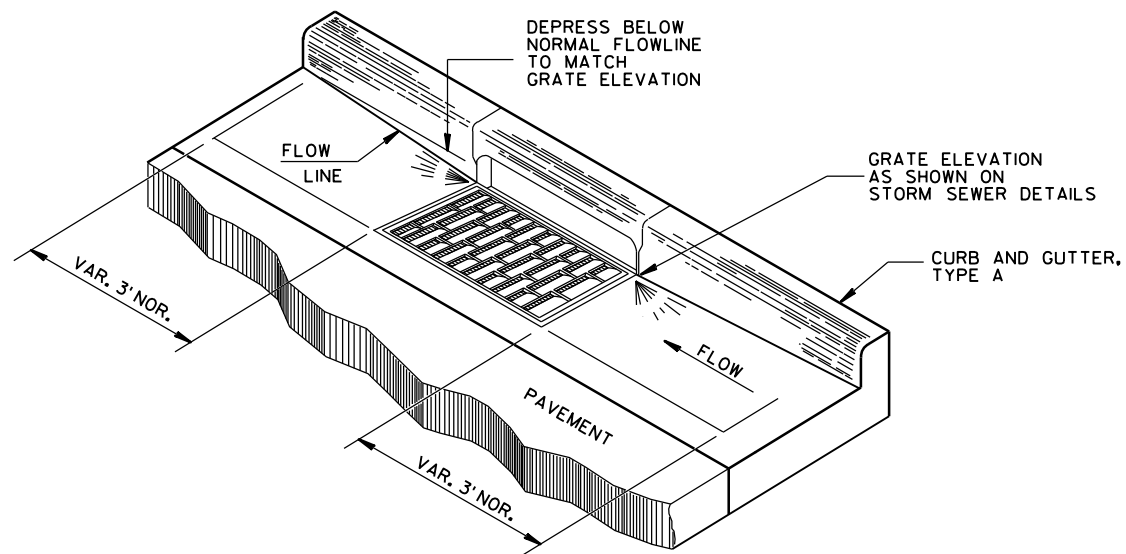
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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

* BIKE LANE IS NOT SHOWN.

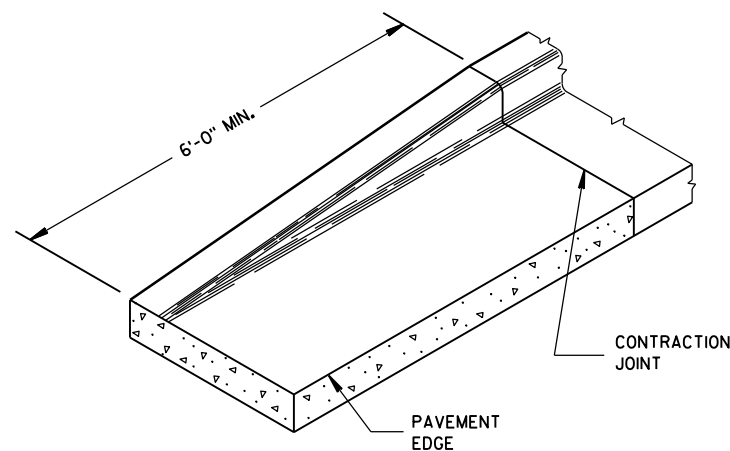
CONCRETE CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

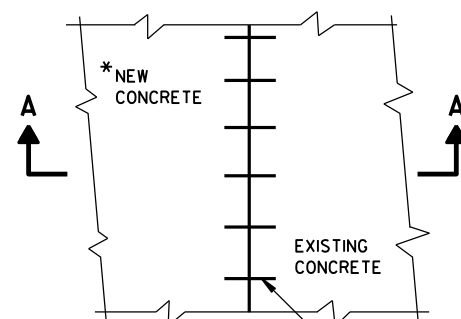


DETAIL OF CURB AND GUTTER AT INLETS

(TYPE H INLET COVER SHOWN)

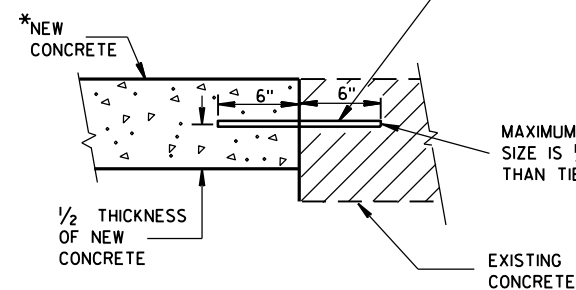


END SECTION CURB & GUTTER



PLAN VIEW

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



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

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

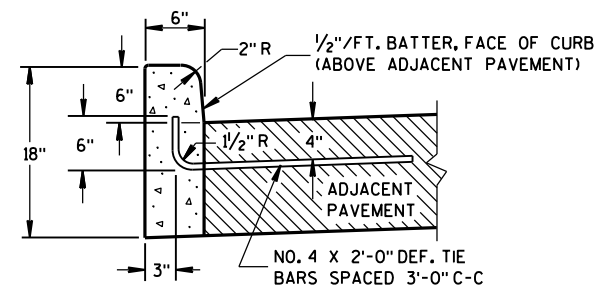
GENERAL NOTES

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

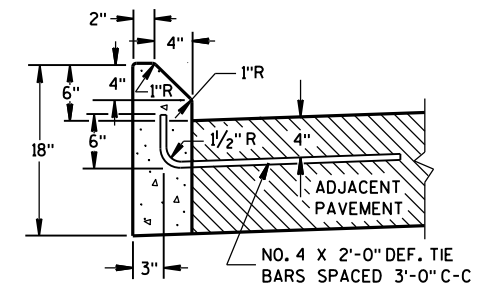
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND 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 8D18 AND SDD 8D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.

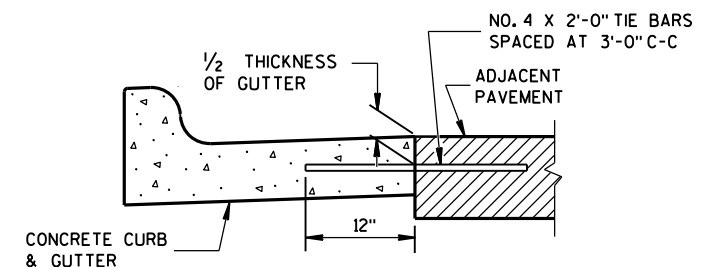


TYPES A^① & D

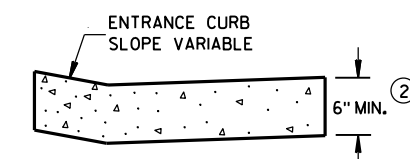


TYPES G^① & J

CONCRETE CURB



TYPICAL TIE BAR LOCATION^①



DRIVEWAY ENTRANCE CURB^⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2017

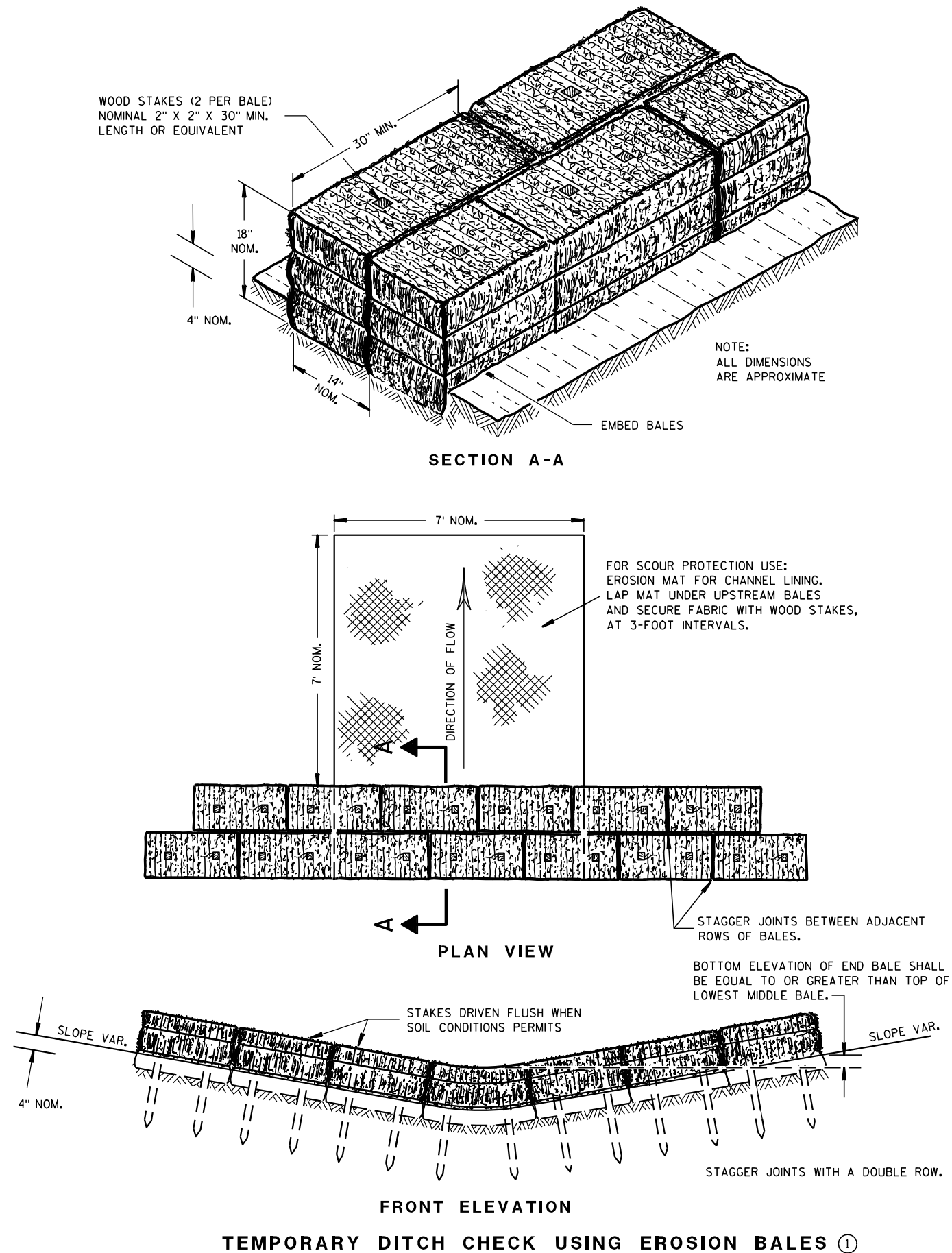
DATE

FHWA

/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT

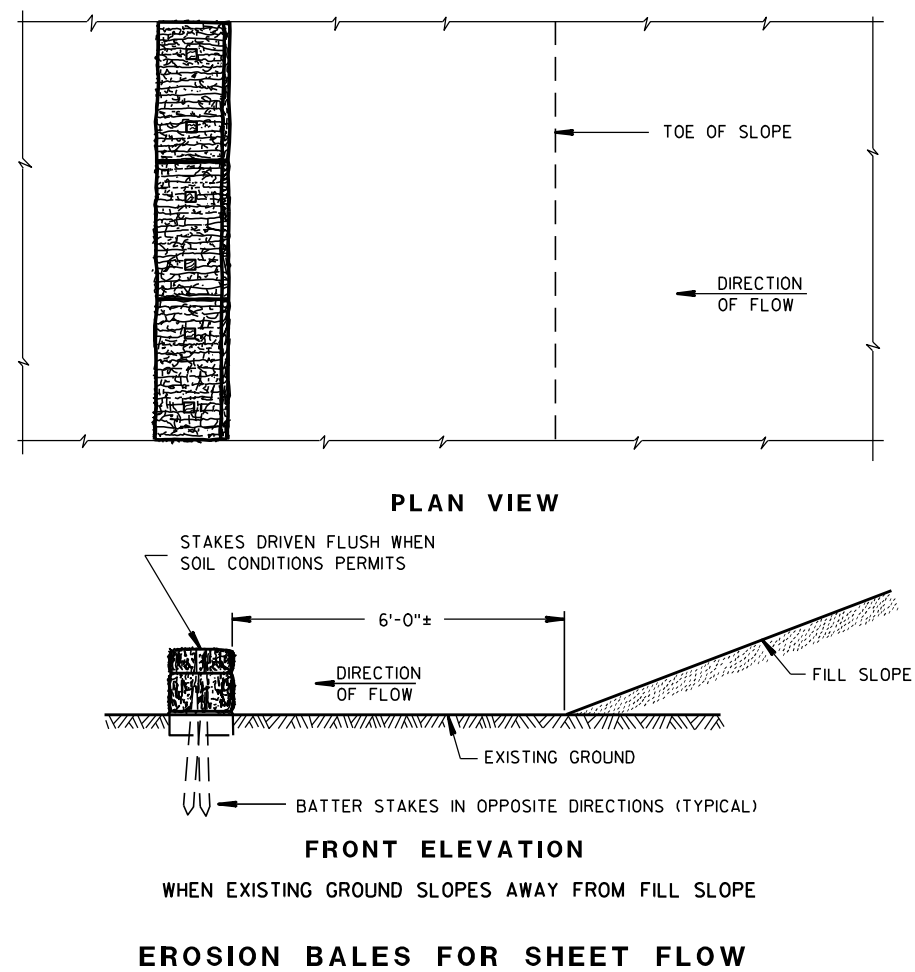
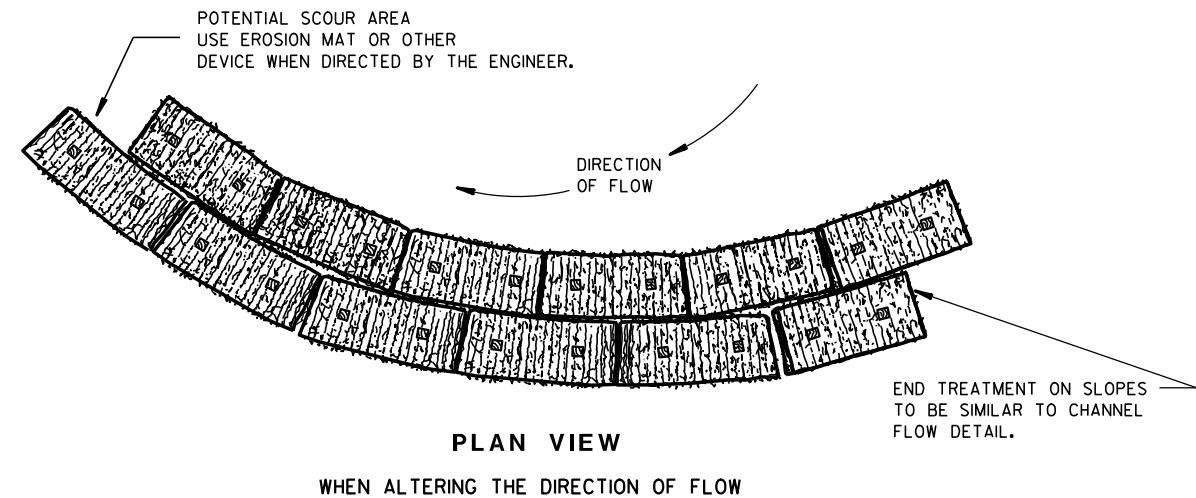
UNIT SUPERVISOR



GENERAL NOTES

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

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

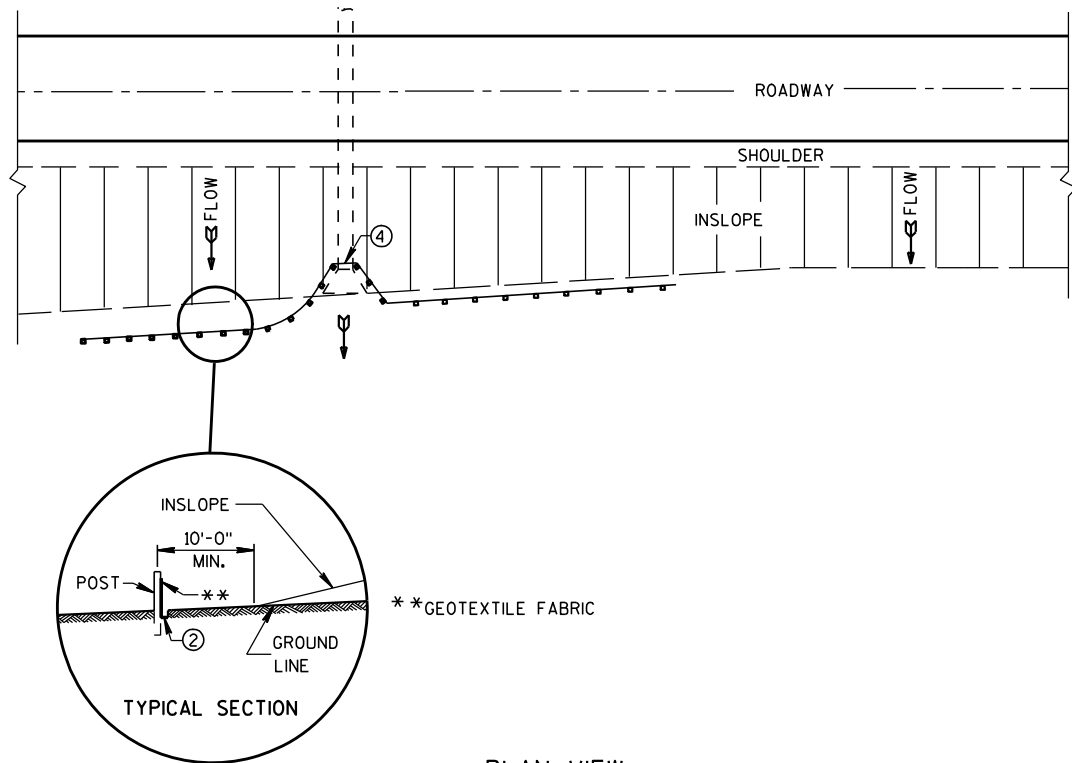
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

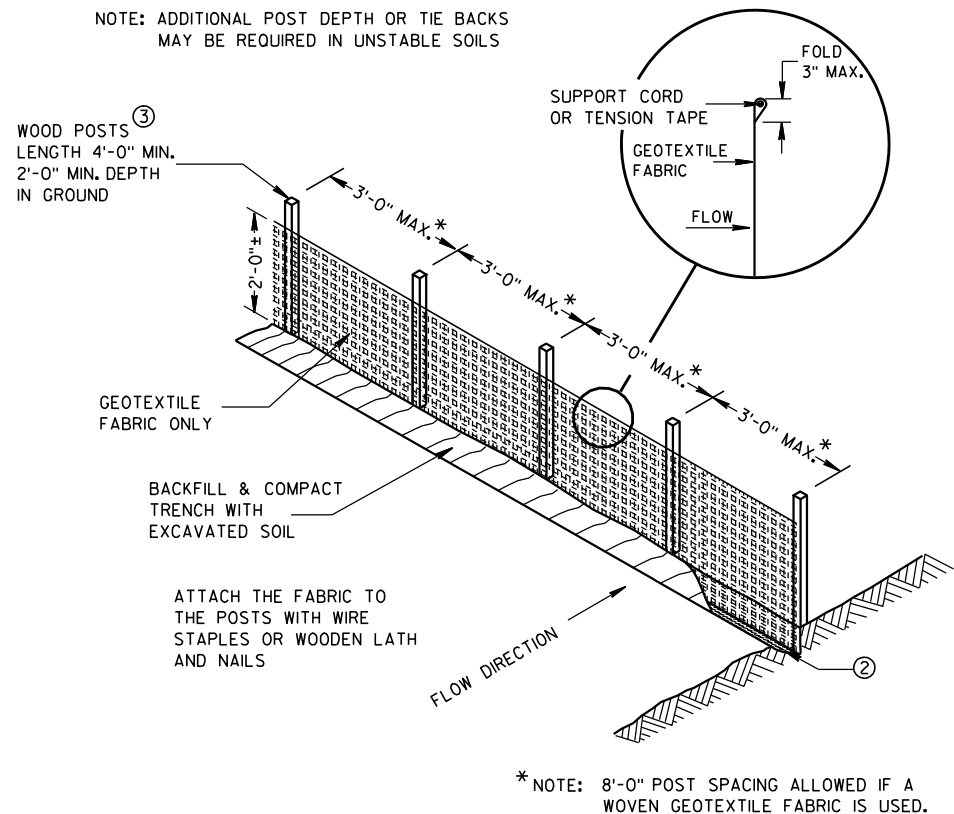
APPROVED

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

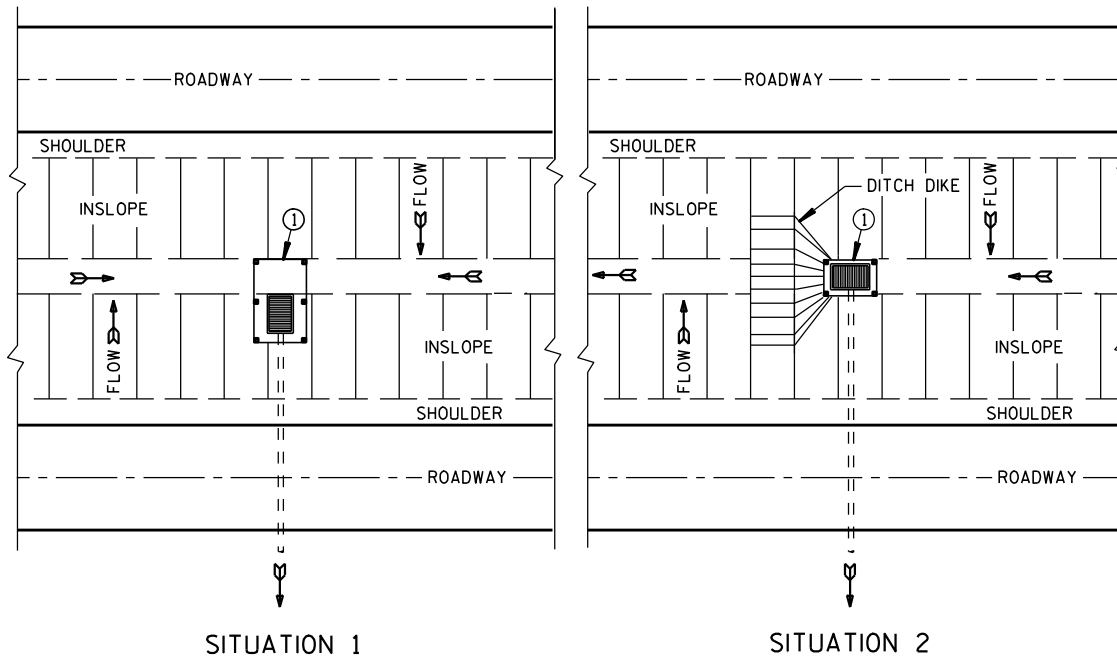
FHWA



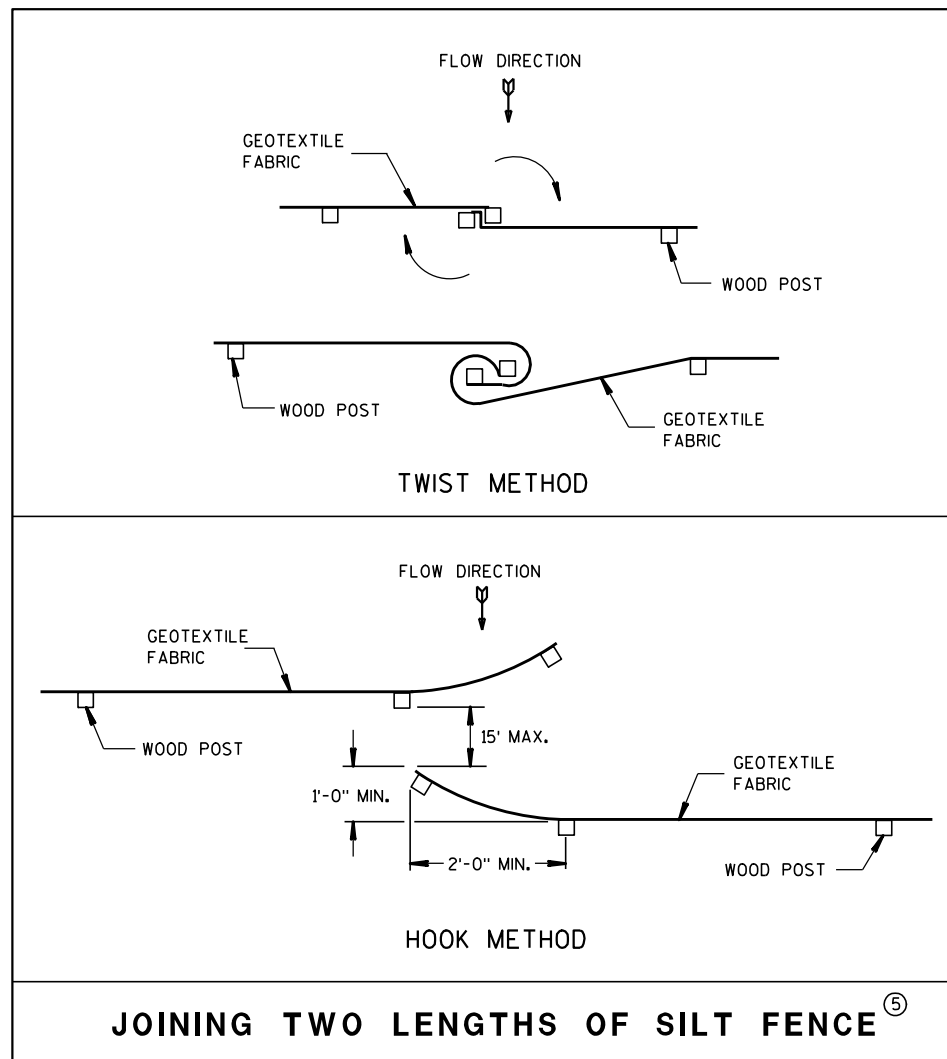
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

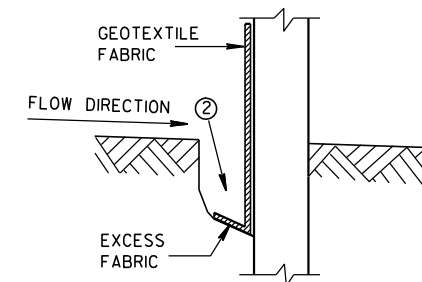


JOINING TWO LENGTHS OF SILT FENCE

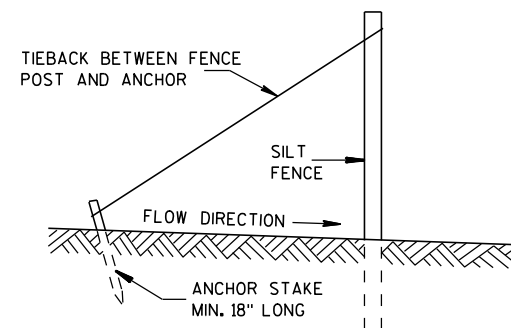
GENERAL NOTES

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

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

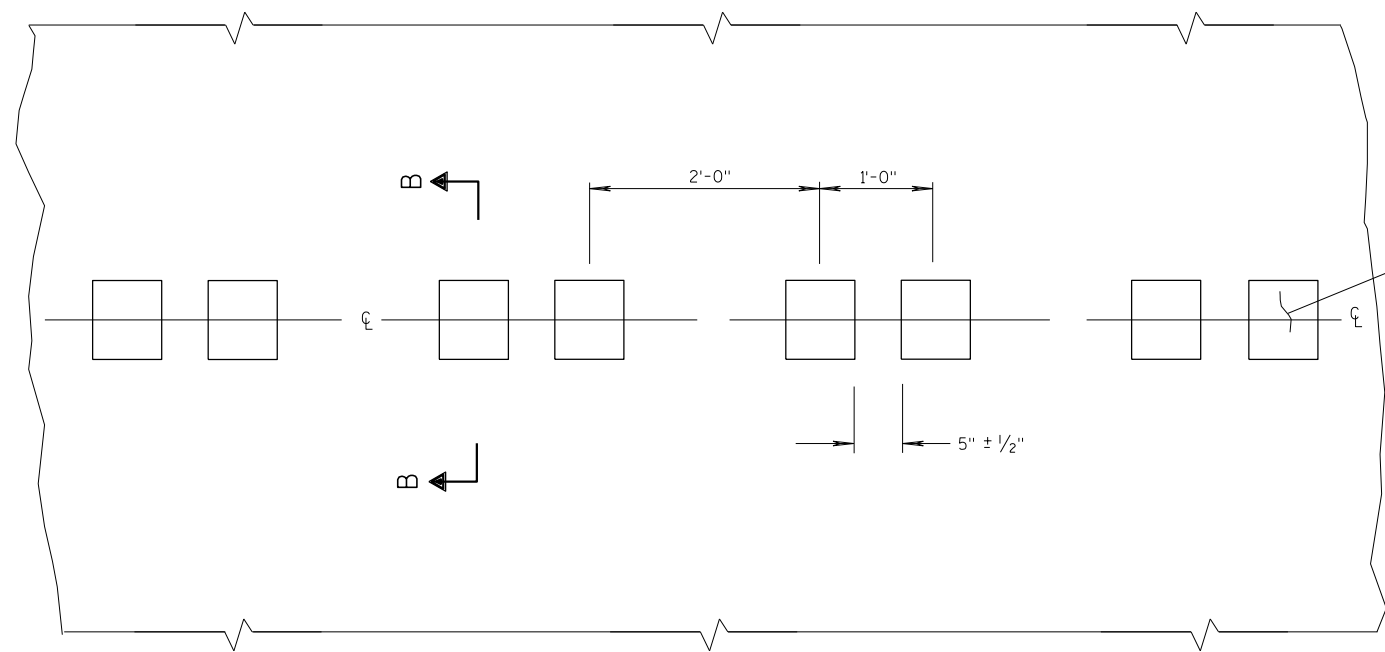


TRENCH DETAIL



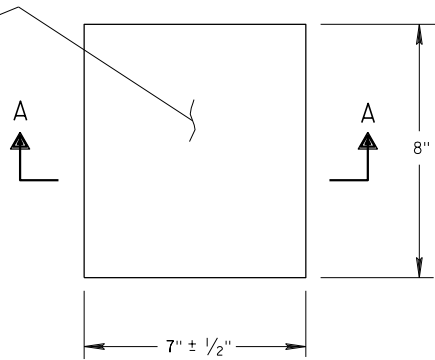
SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

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



PLAN VIEW
CENTER LINE WITH GROOVES

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP



PLAN VIEW
(SINGLE GROOVE)

GENERAL NOTES

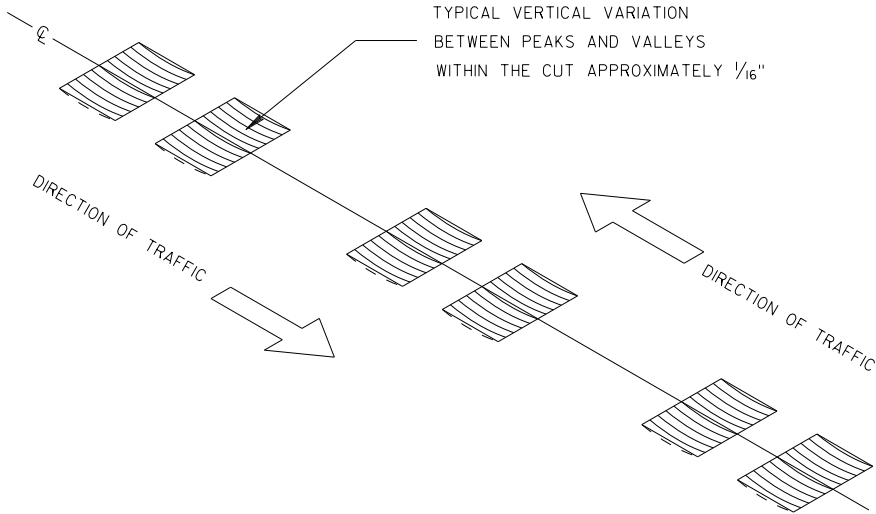
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

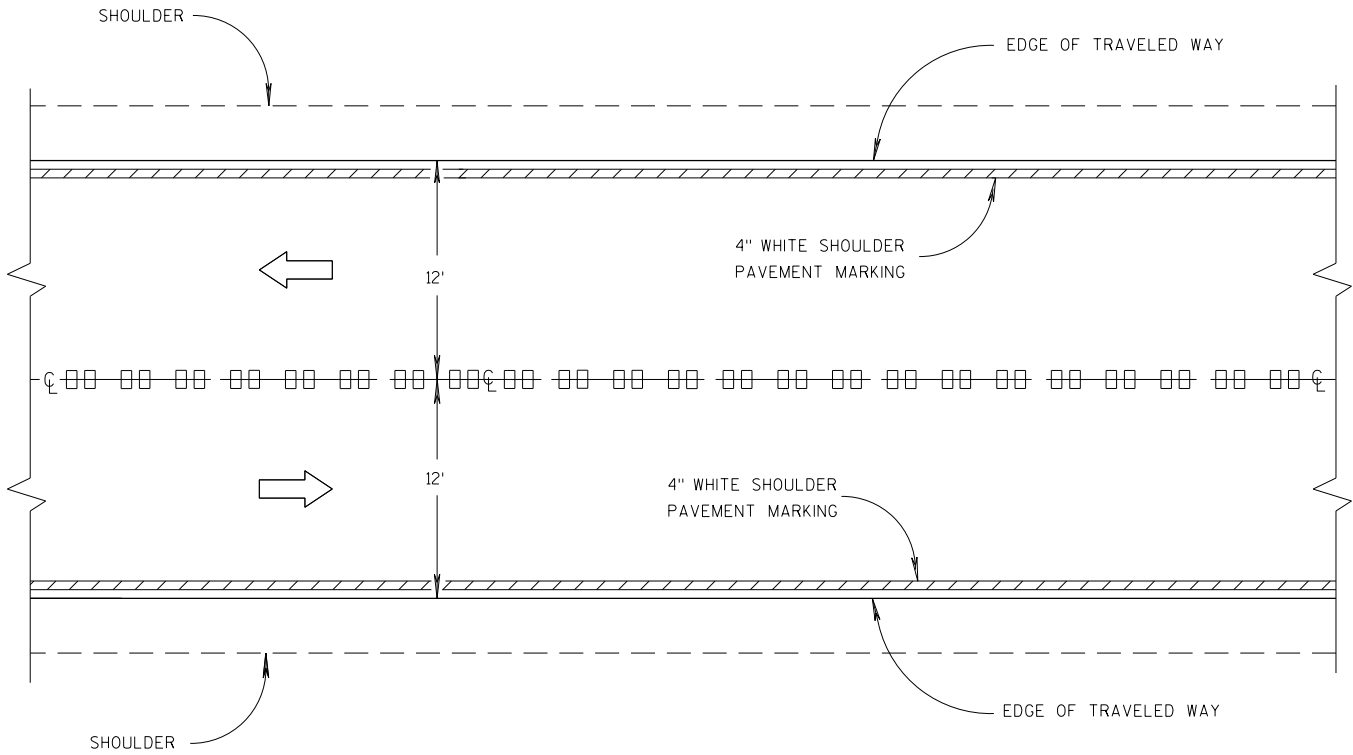
INSTALL PERMANENT MARKING EPOXY 4-INCH AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

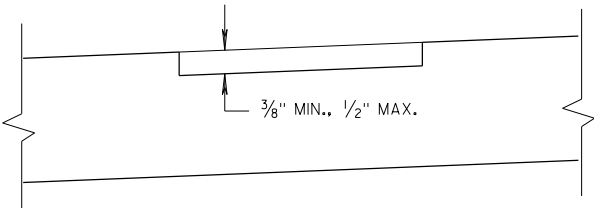
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



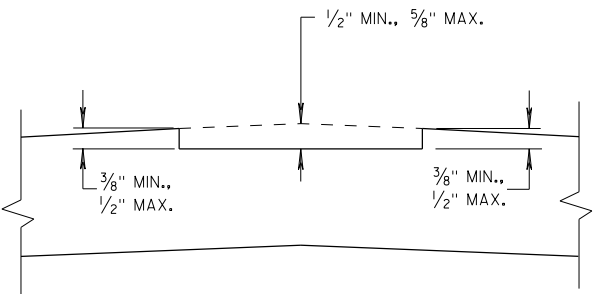
ISOMETRIC



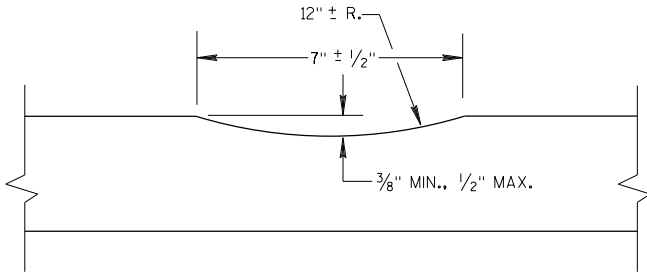
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



SECTION B-B
SUPERELEVATED ROADWAY



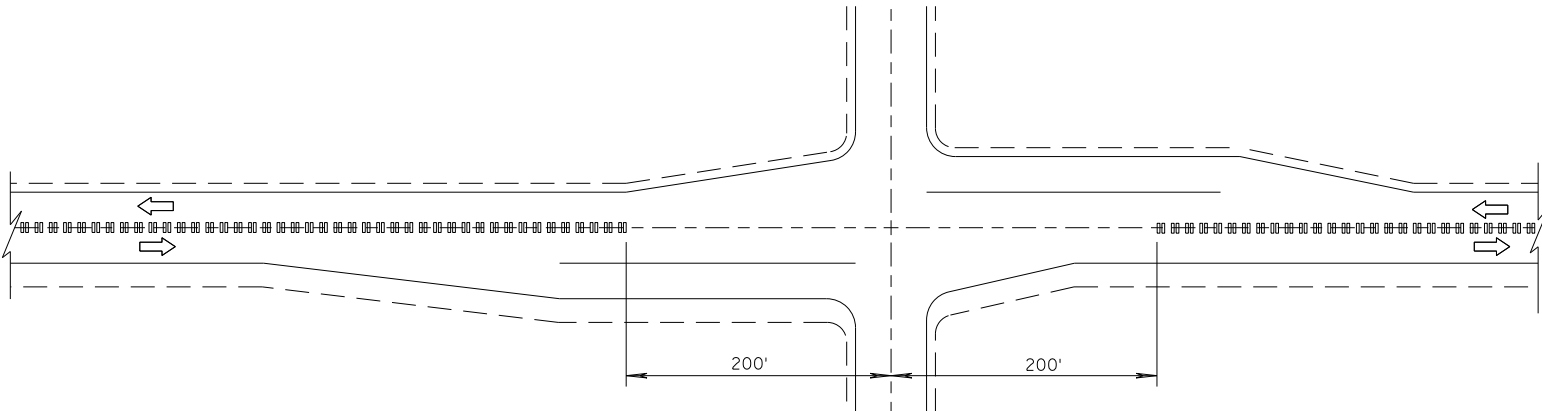
SECTION B-B
CROWNED ROADWAY



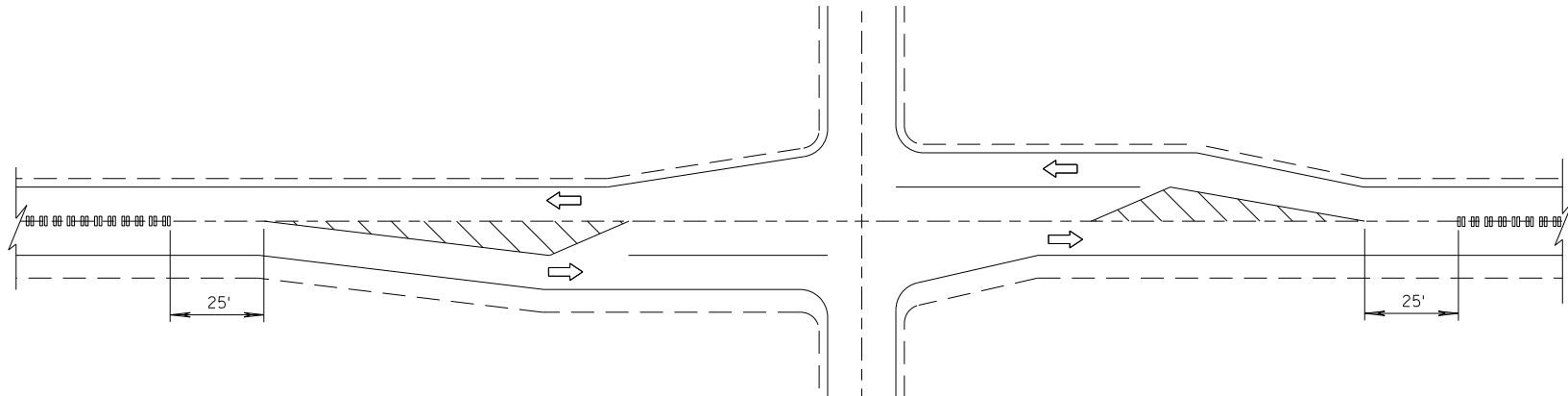
SECTION A-A

2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING

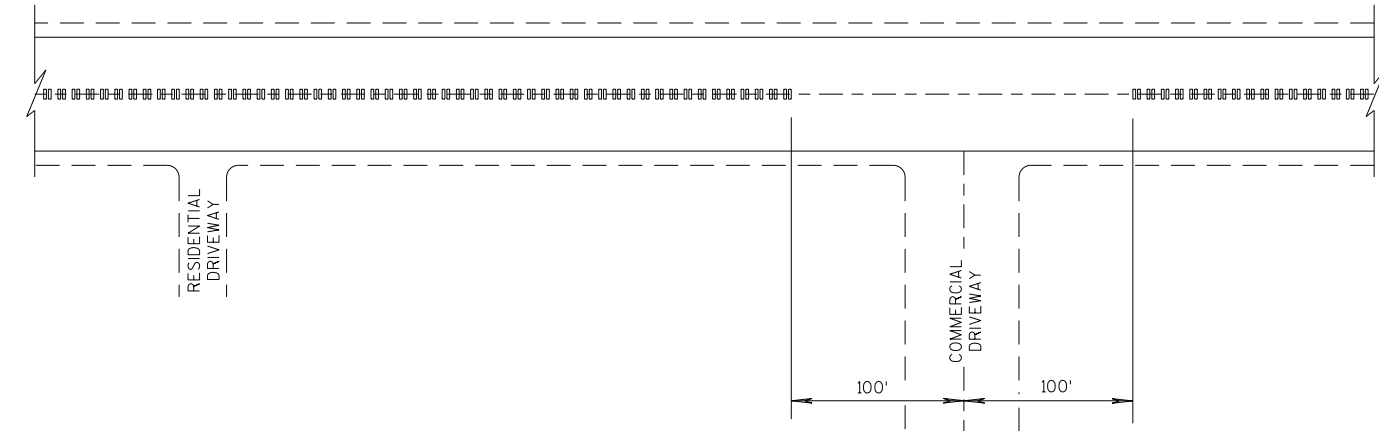
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTER LINE GROOVES AT INTERSECTIONS



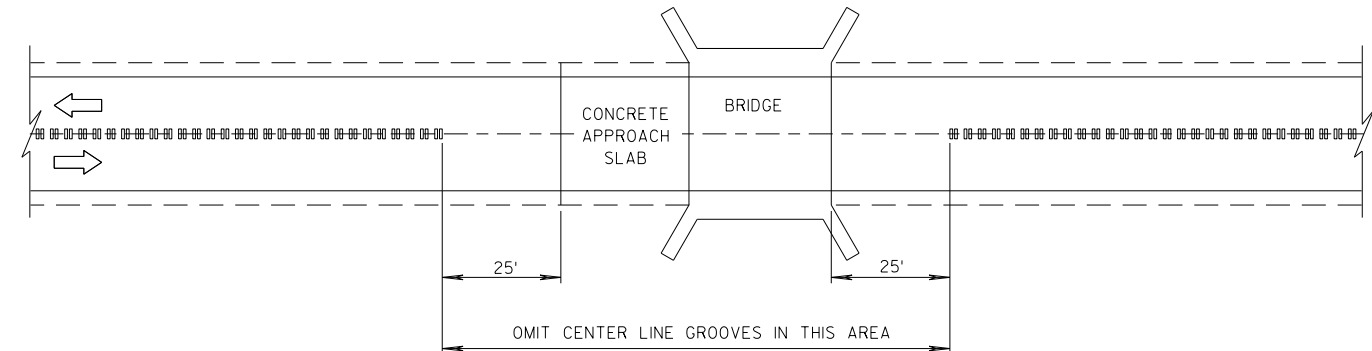
CENTER LINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



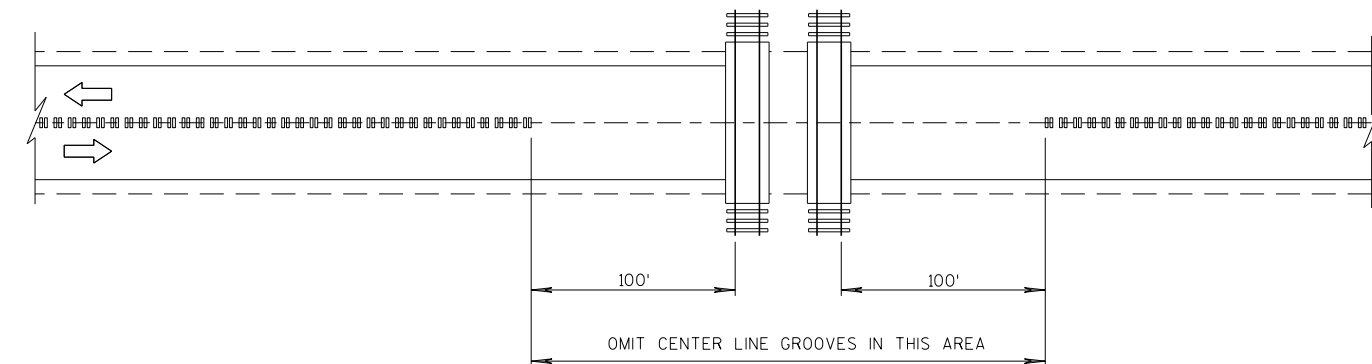
CENTER LINE GROOVES AT DRIVEWAYS

1

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



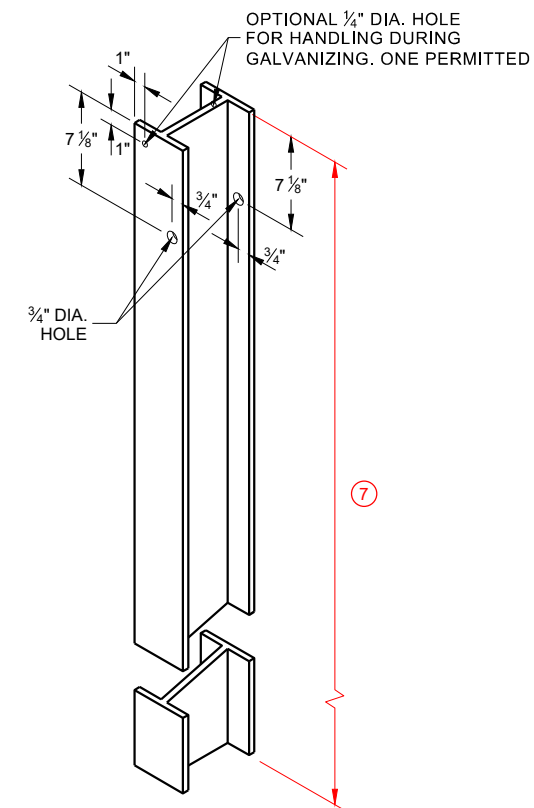
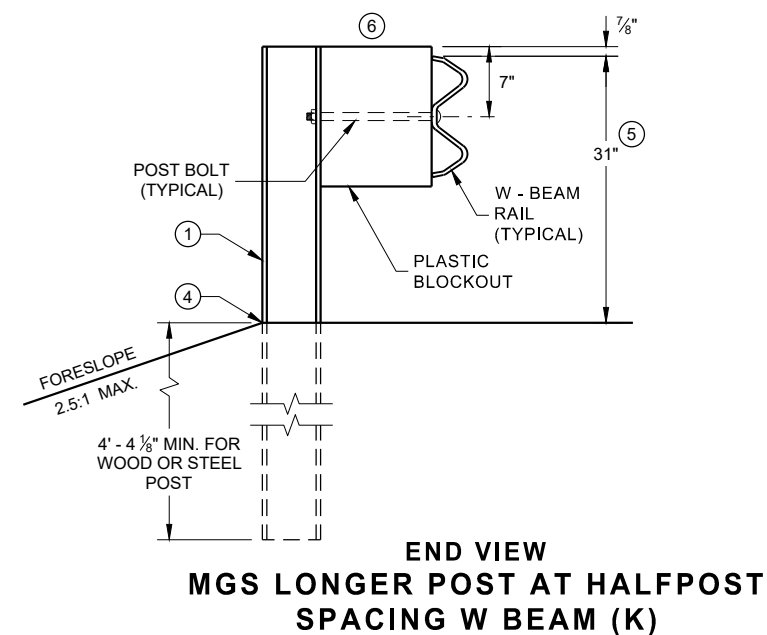
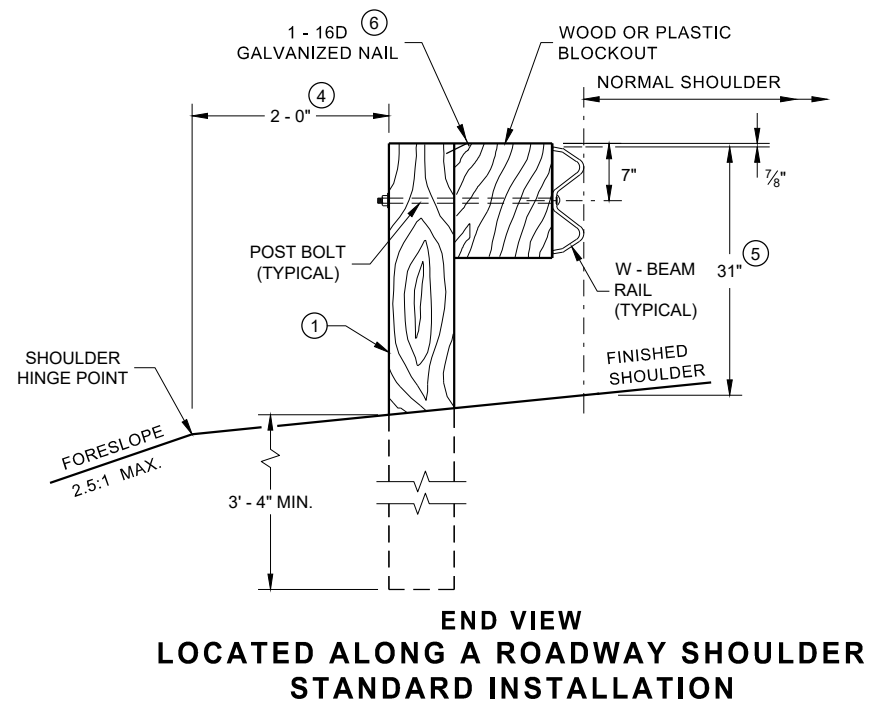
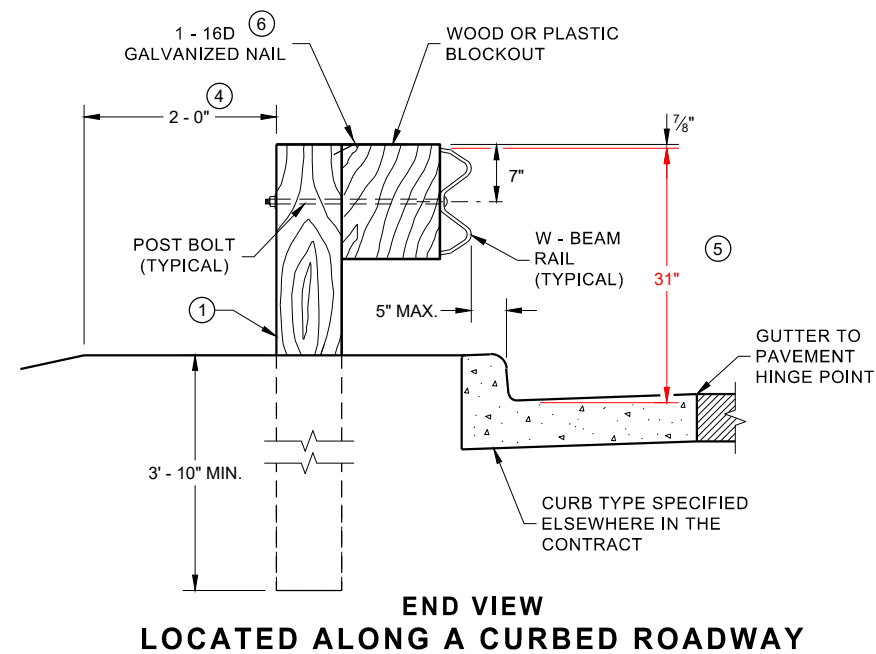
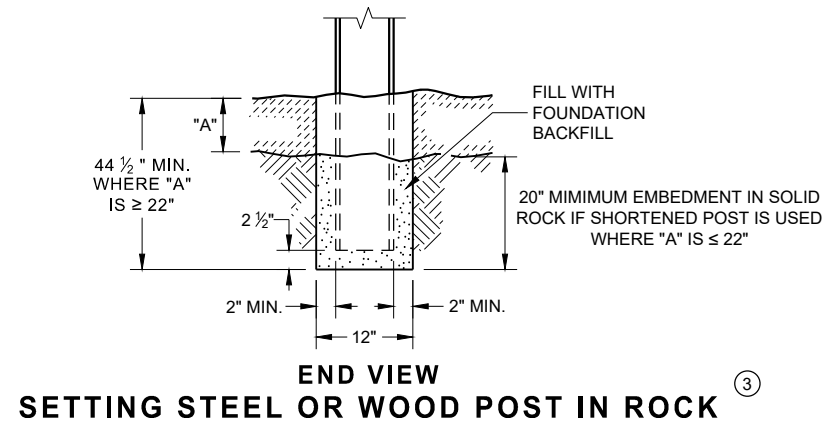
CENTER LINE GROOVES AT BRIDGES



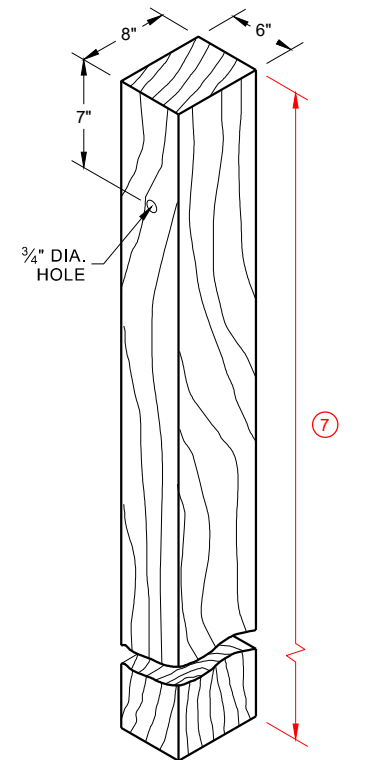
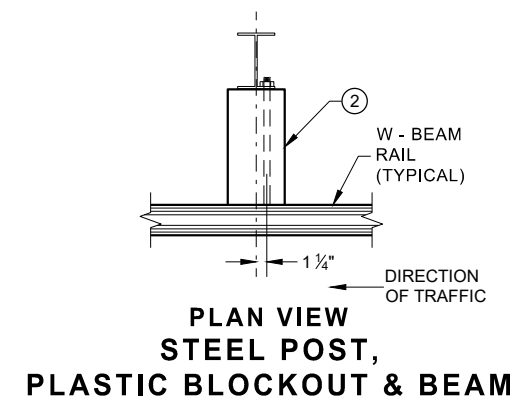
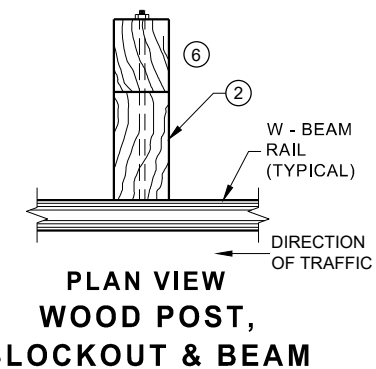
CENTER LINE GROOVES AT RAILROADS

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

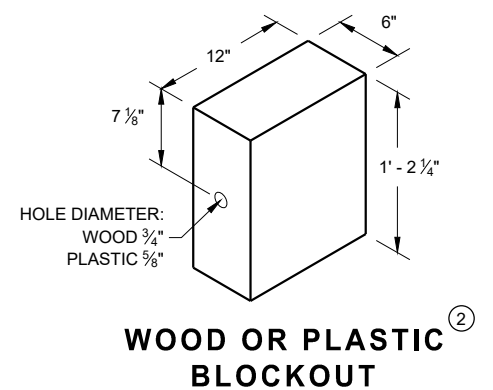
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL.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



**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**

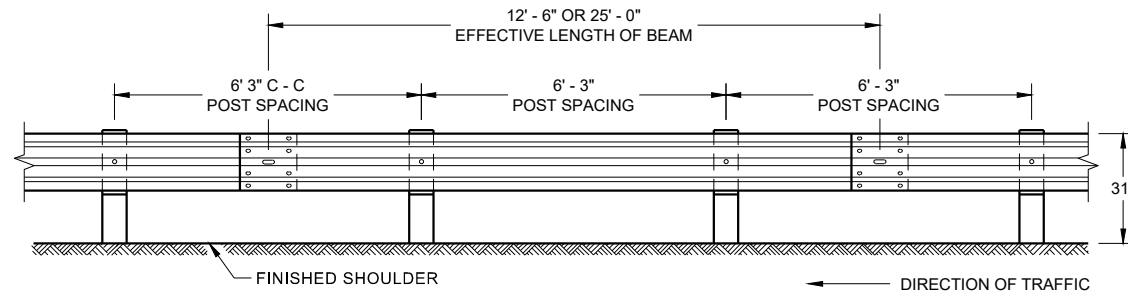


WOOD POST (6" X 8") NOMINAL ^①

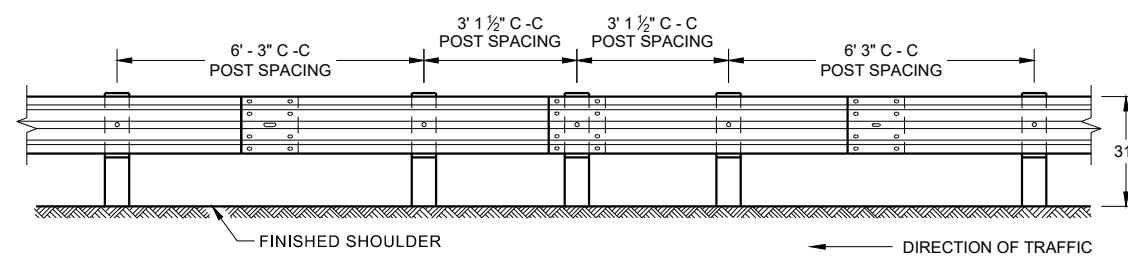


MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

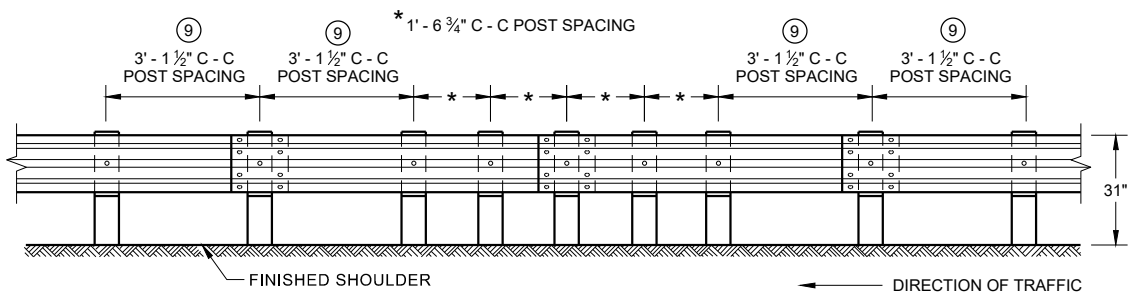
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



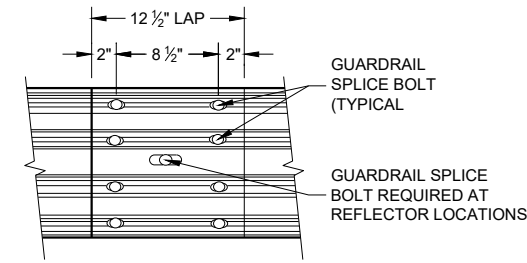
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



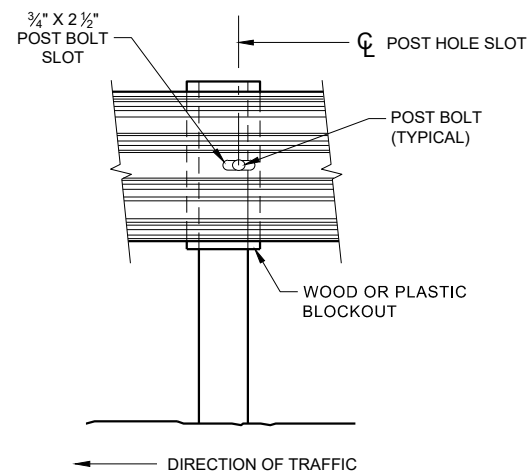
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



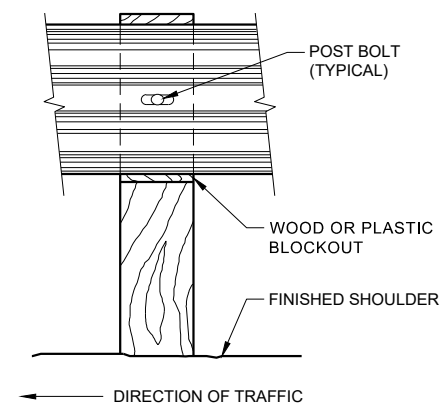
**FRONT VIEW
QUARTER POST SPACING (QS)**



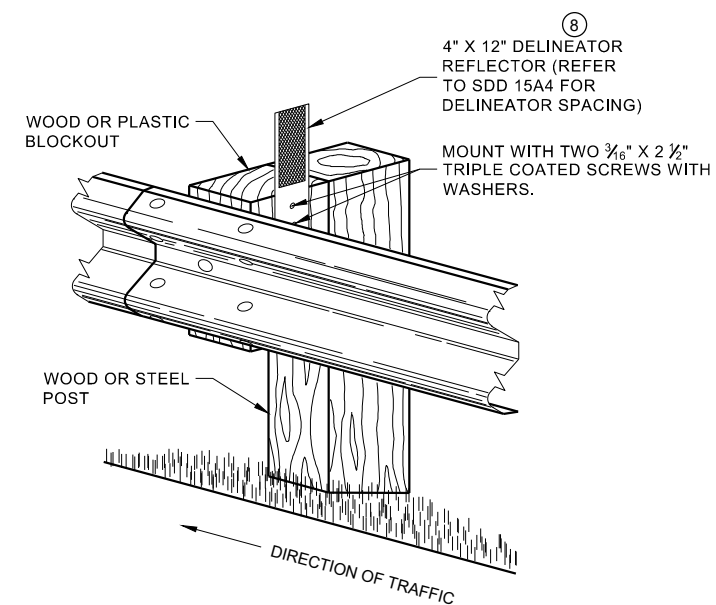
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



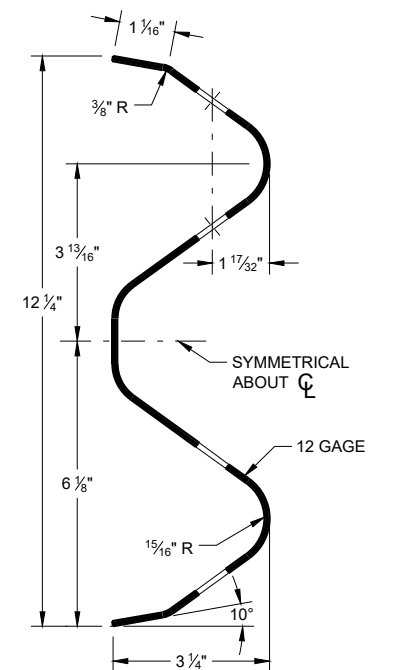
FRONT VIEW AT WOOD POST



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

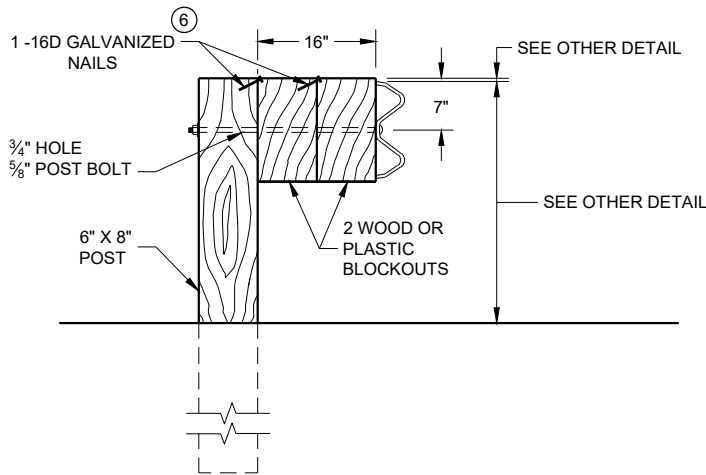
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/4" 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 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

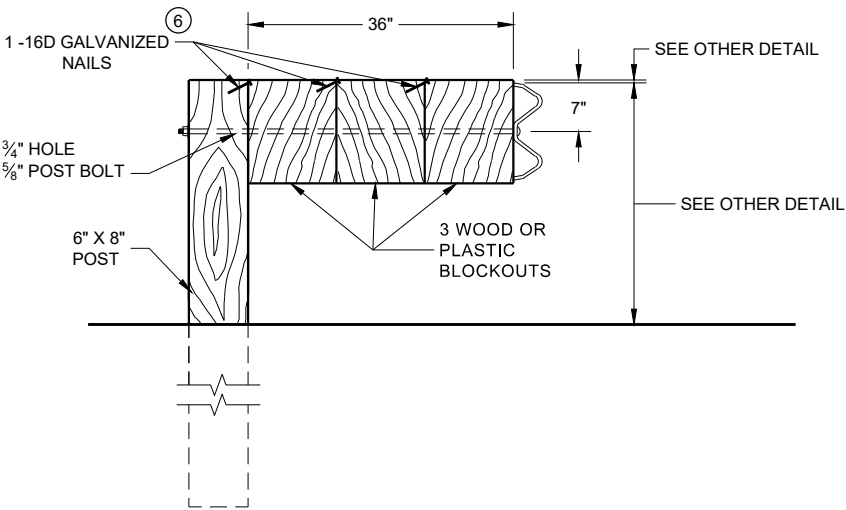
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

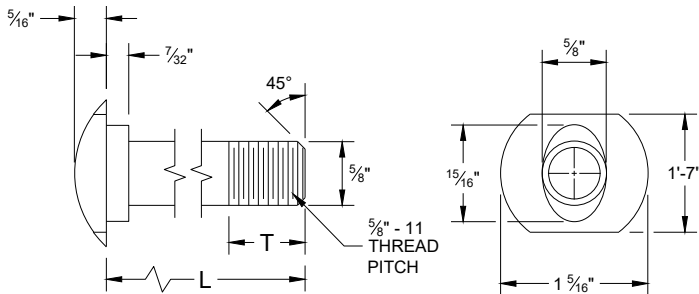
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

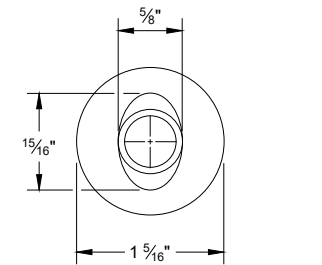
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

- 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.

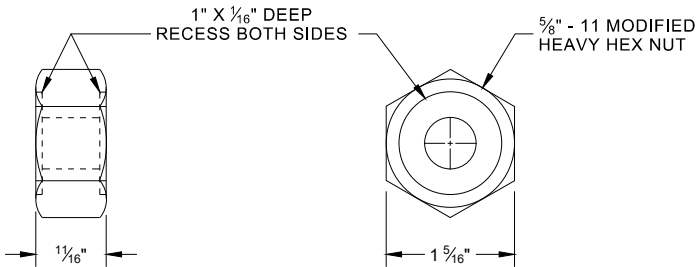


POST BOLT TABLE

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"

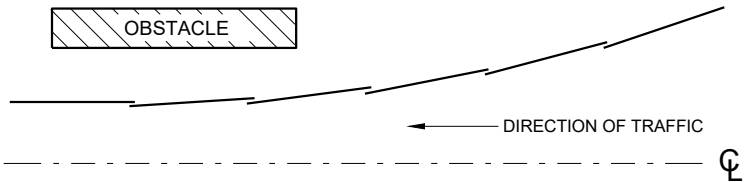


ALTERNATE BOLT HEAD

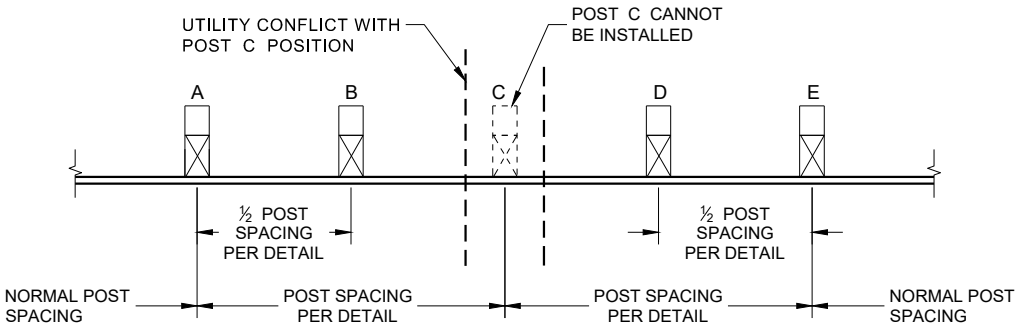


POST BOLT, SPLICE BOLT AND RECESS NUT

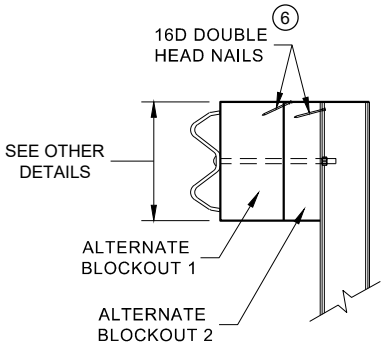
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



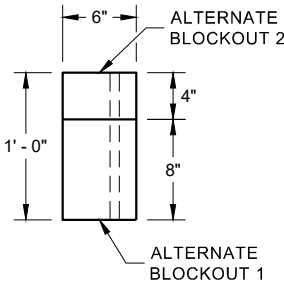
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

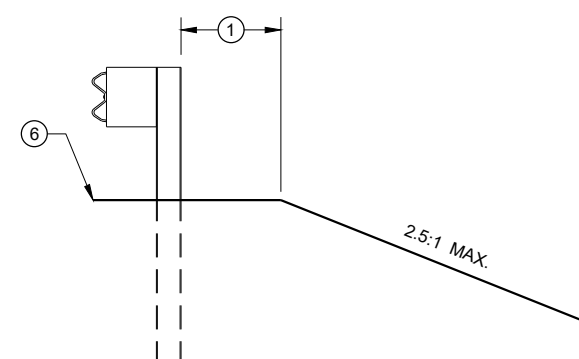
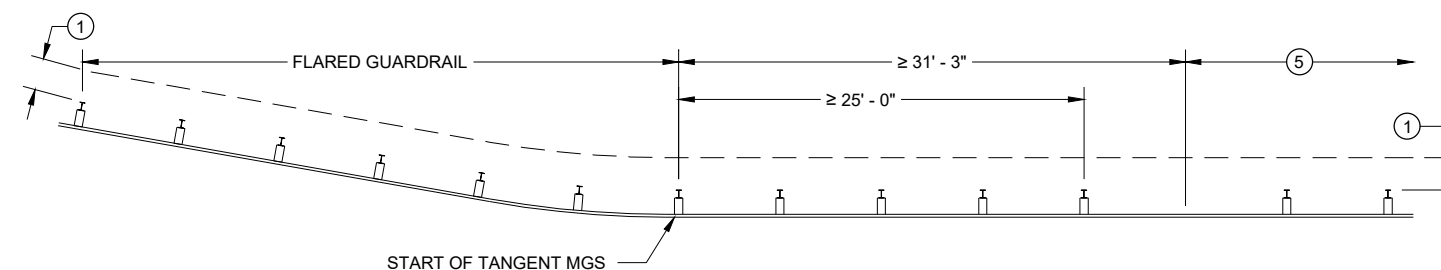
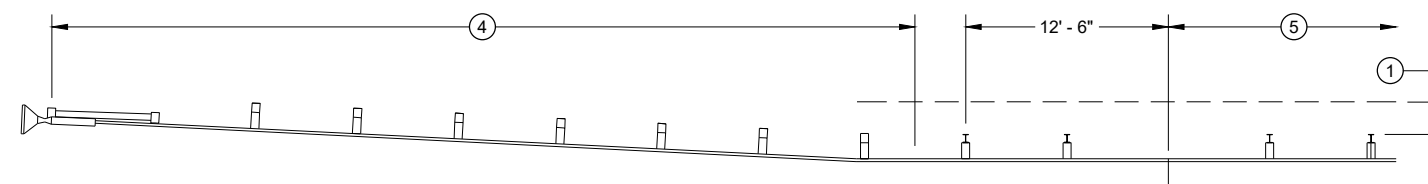
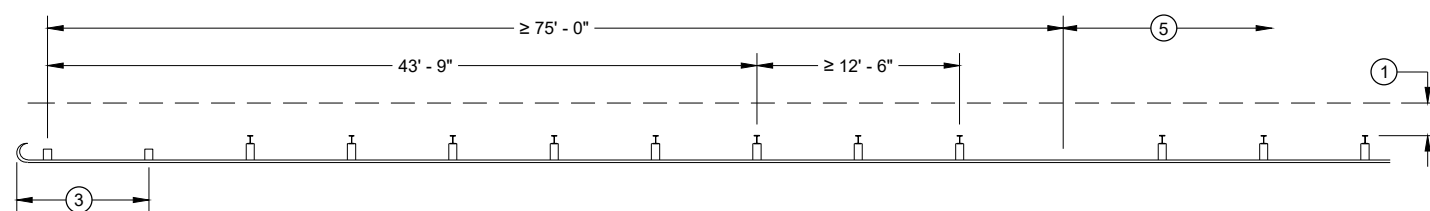
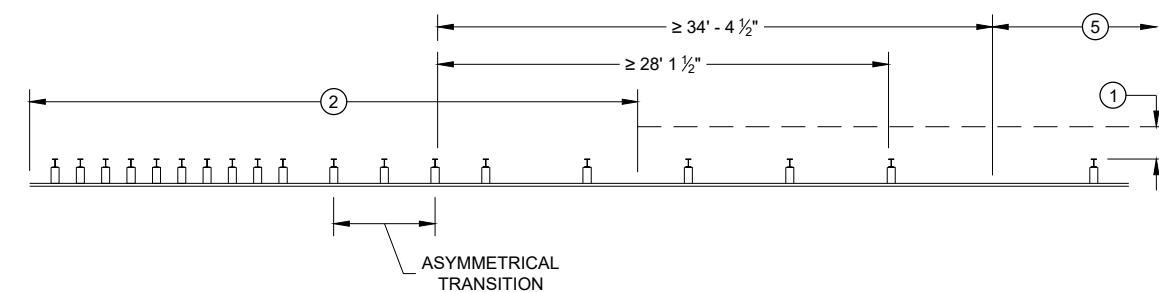
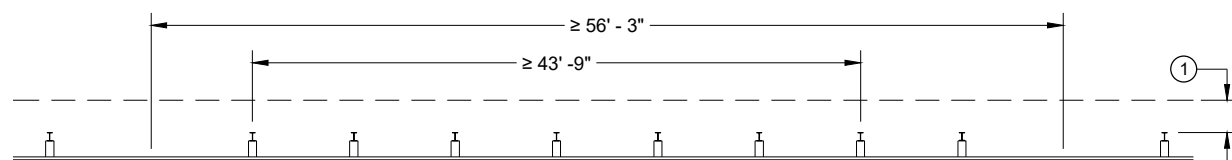


PLAN VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER DESIGN.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

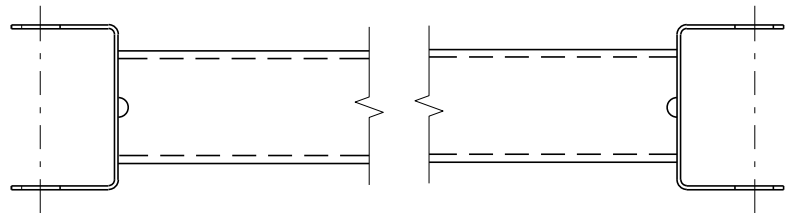
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. 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.

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.

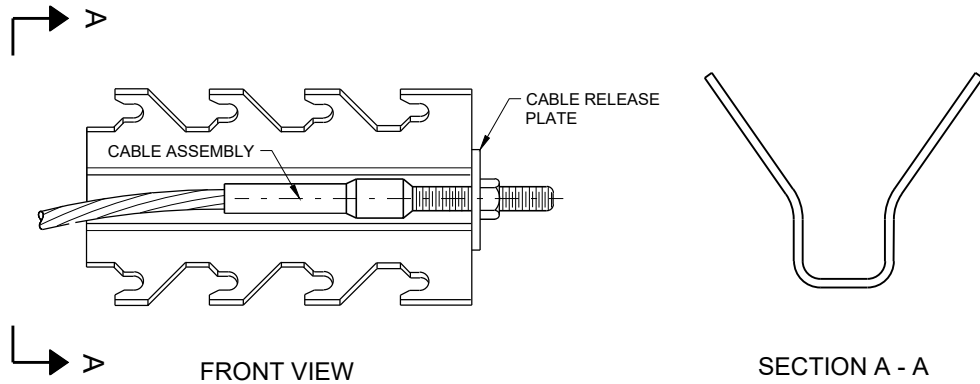


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

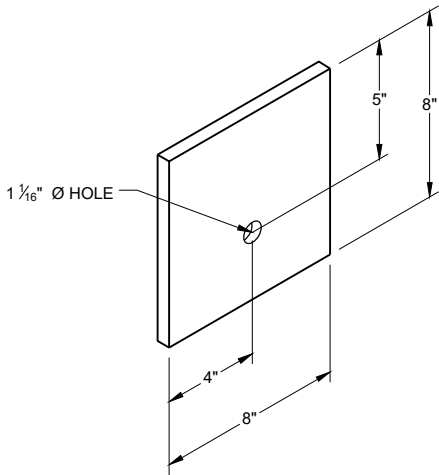


GENERIC GROUND STRUT ⁹ ^E

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



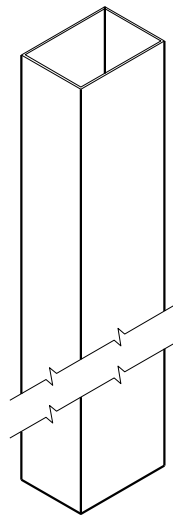
GENERIC ANCHOR CABLE BOX ⁹ ^E



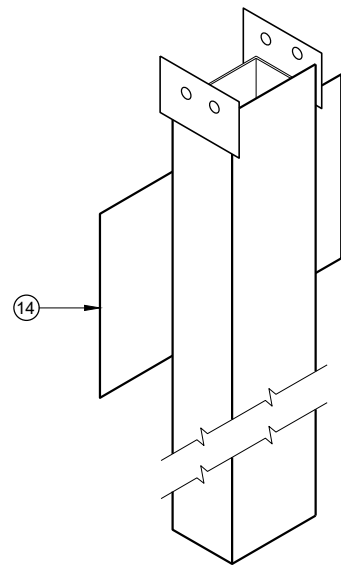
BEARING PLATE ⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

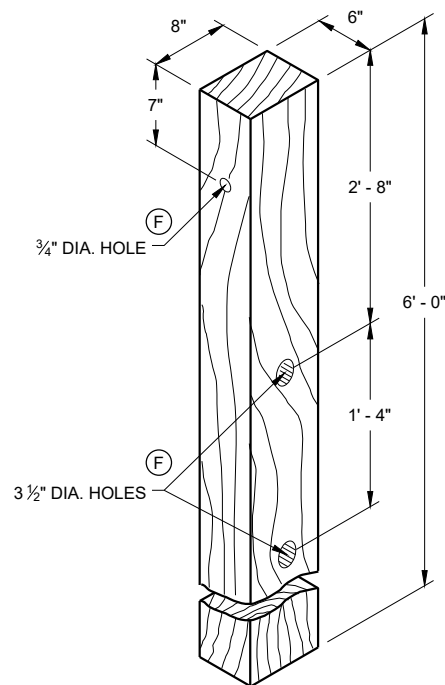
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



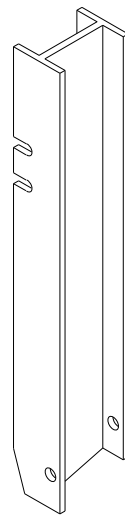
UPPER POST NO. 1 ⁽¹⁾ (E)



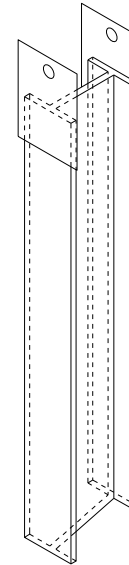
LOWER POST NO. 1 ⁽²⁾ (E)



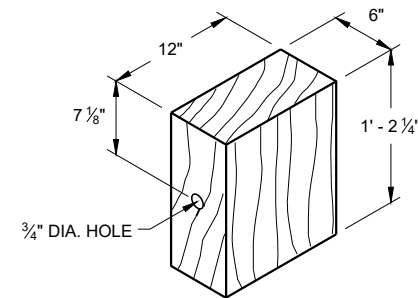
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



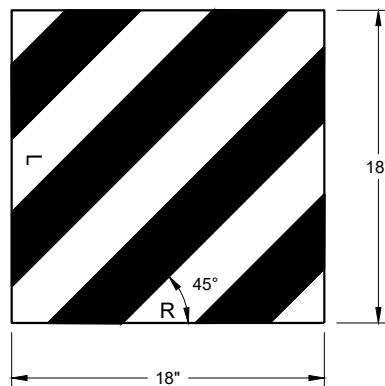
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



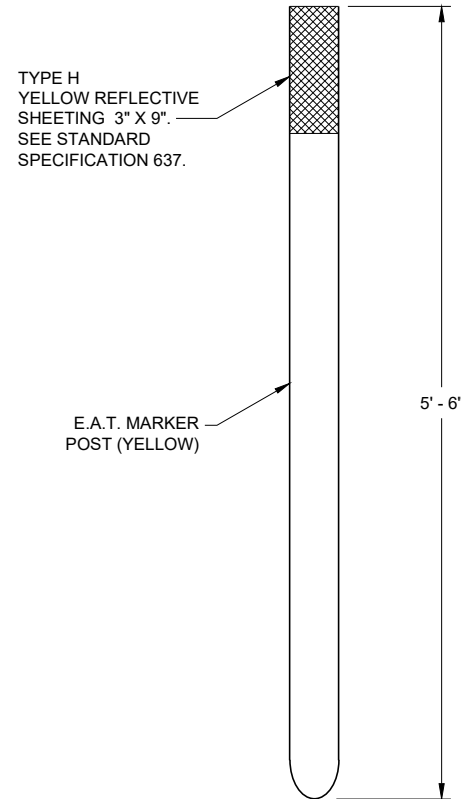
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



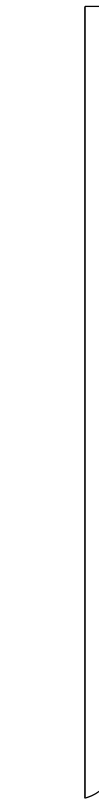
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



REFLECTIVE SHEETING DETAIL ^(E)

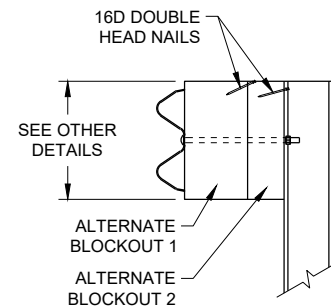


FRONT VIEW

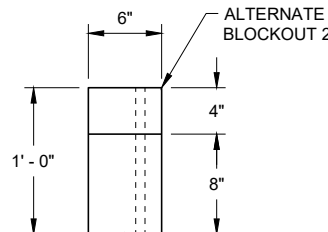


SIDE VIEW

E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

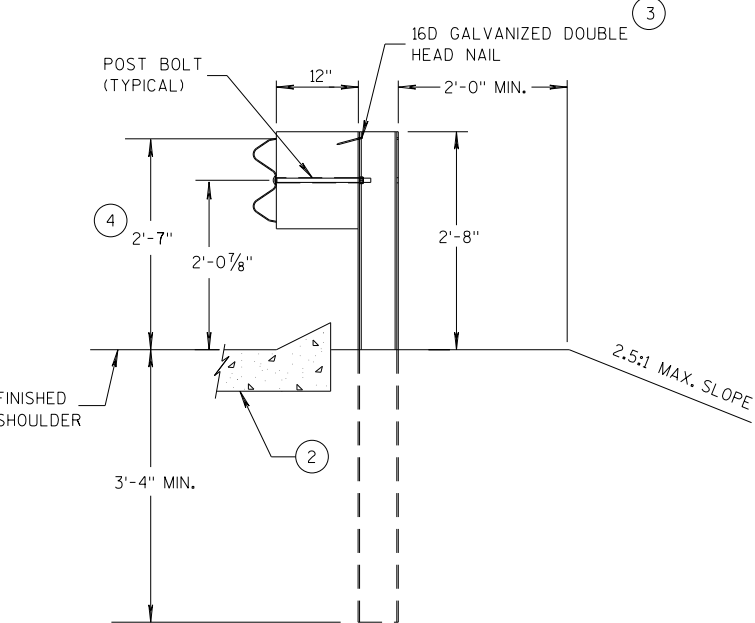
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

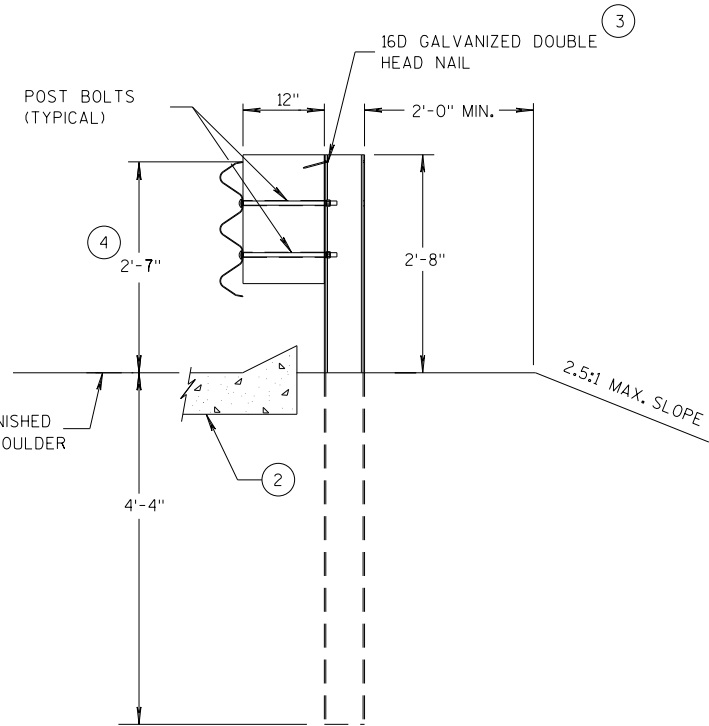
APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

GENERAL NOTES

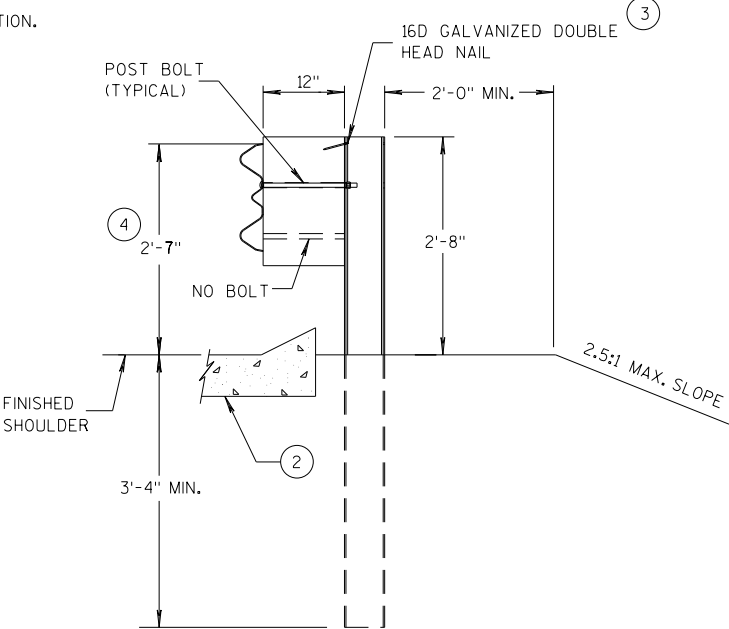
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



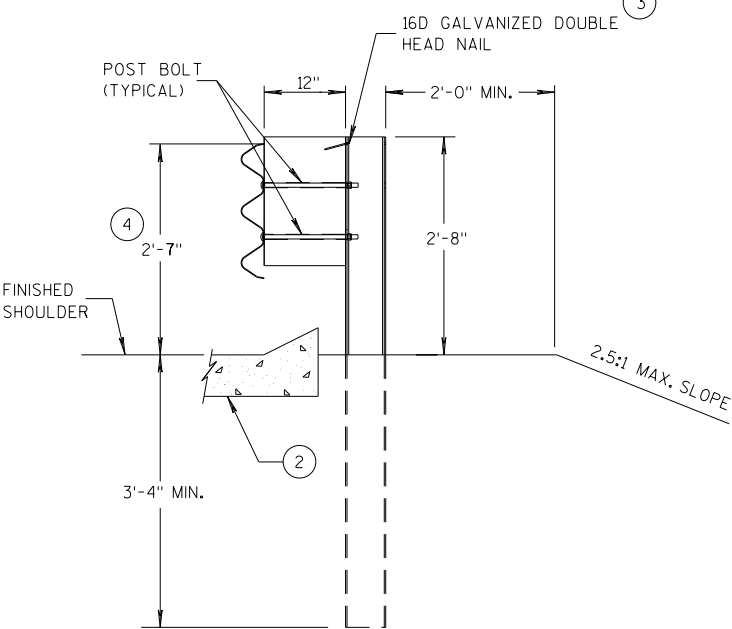
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

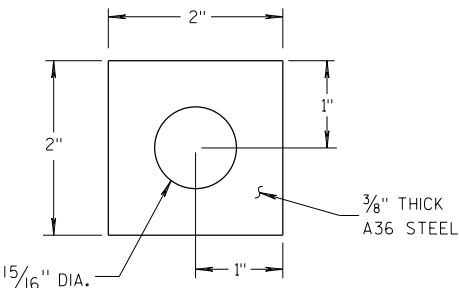
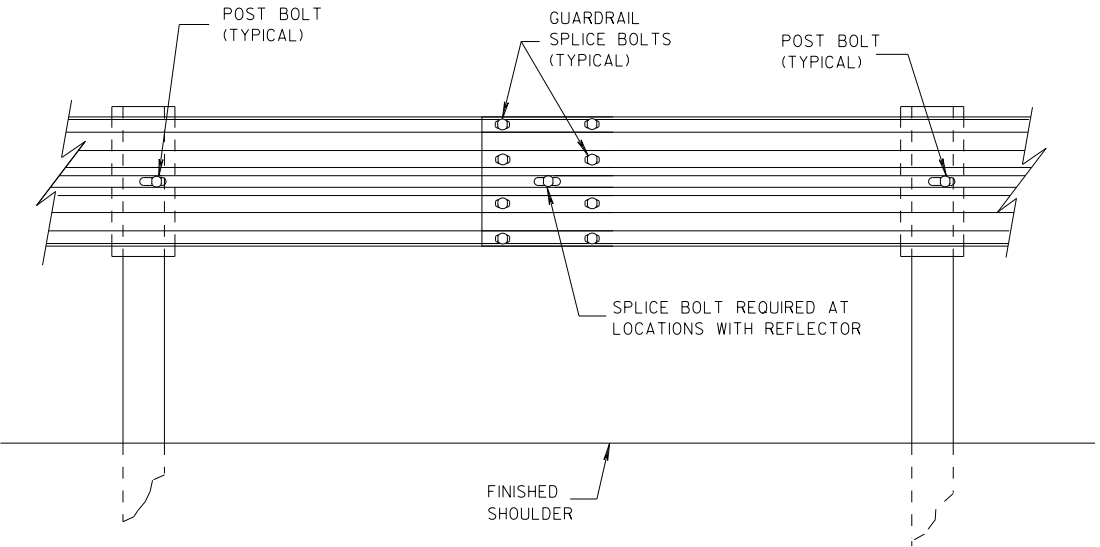
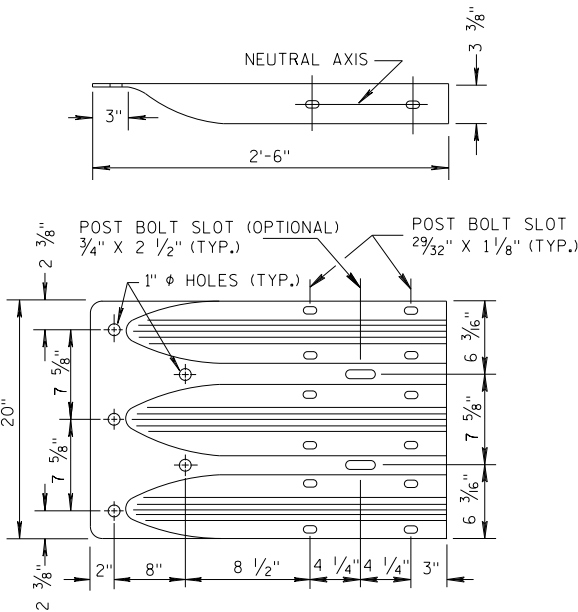


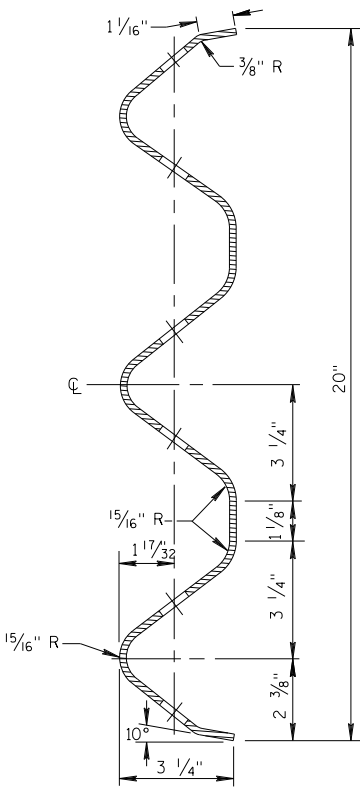
PLATE WASHER DETAIL



SPLICE DETAIL



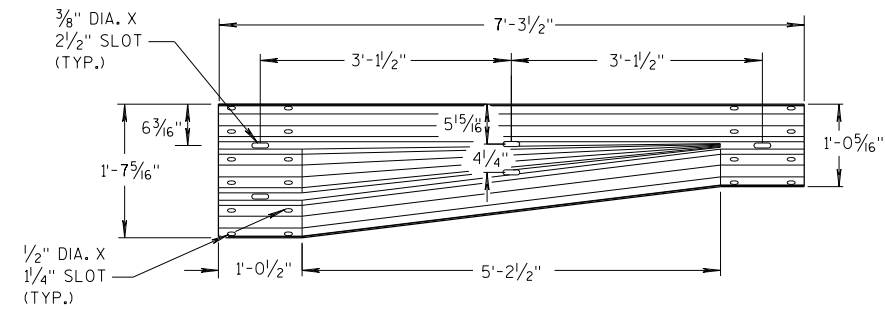
THRIE BEAM
TERMINAL CONNECTOR



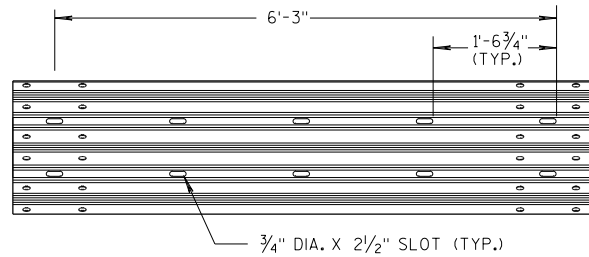
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

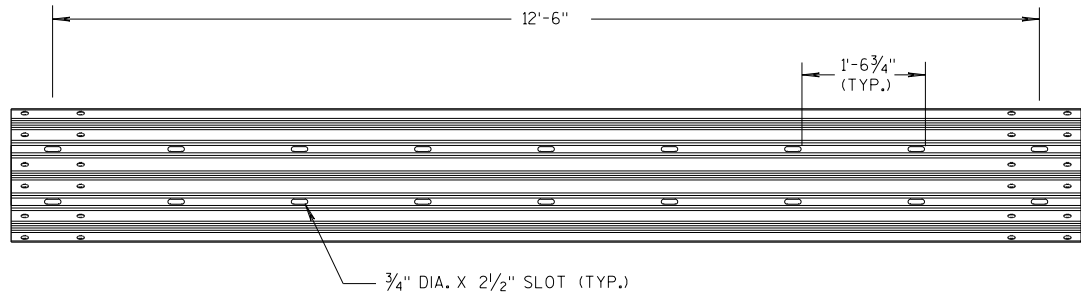
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



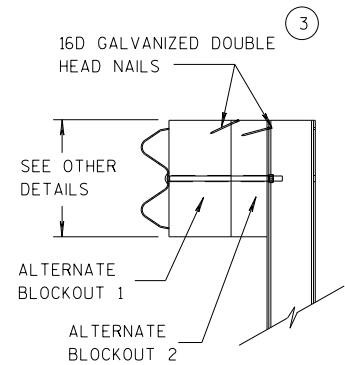
W-BEAM TO THRIE BEAM TRANSITION SECTION



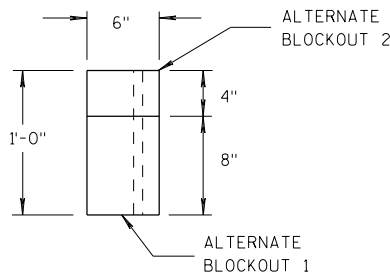
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

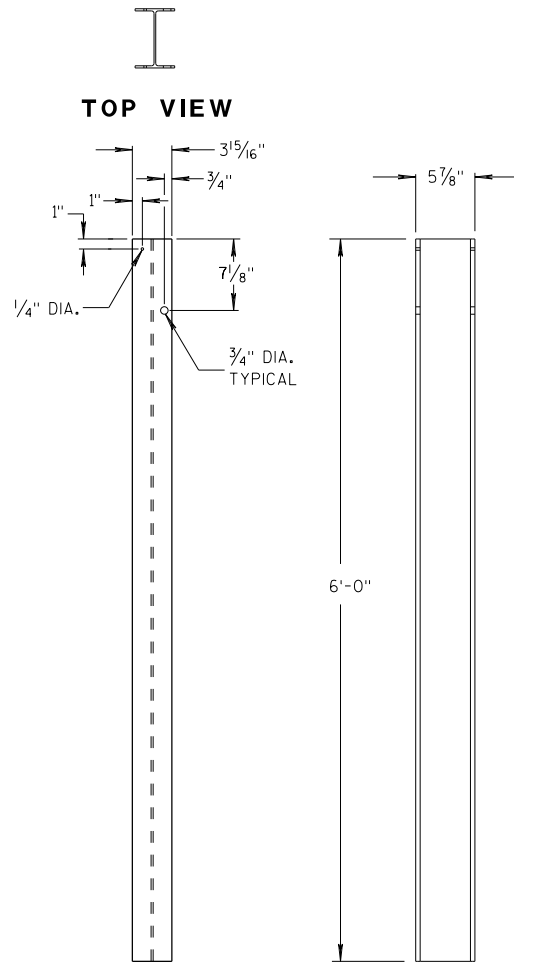


SIDE VIEW



TOP VIEW

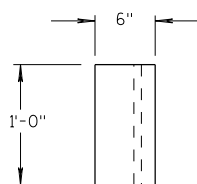
ALTERNATE WOOD BLOCKOUT DETAIL



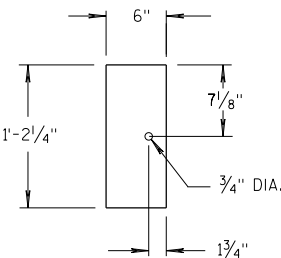
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

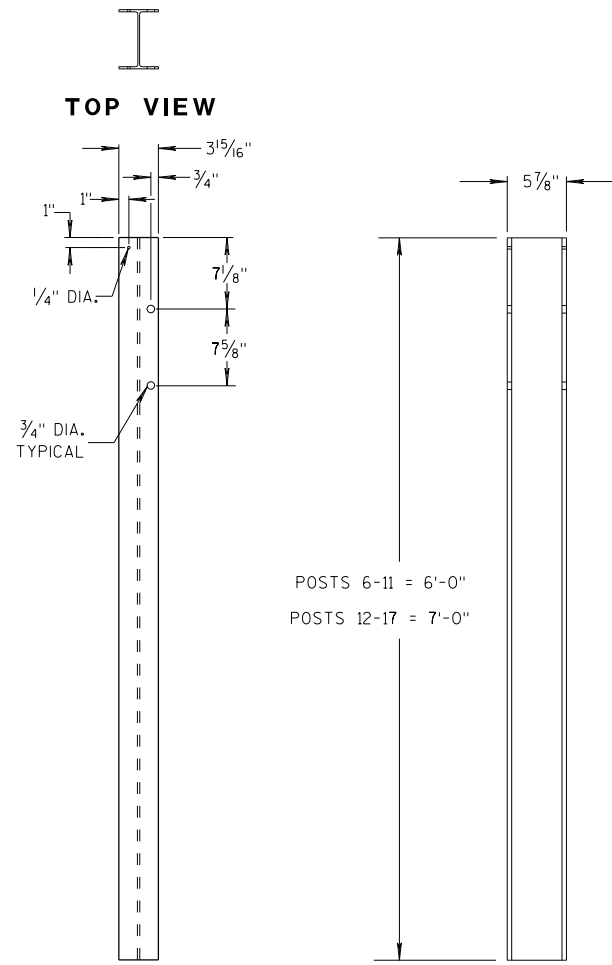


TOP VIEW



FRONT VIEW

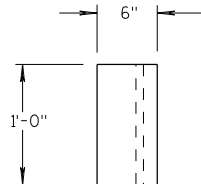
BLOCKOUT POSTS 1-5



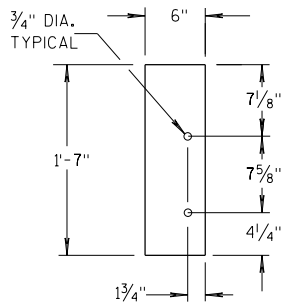
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

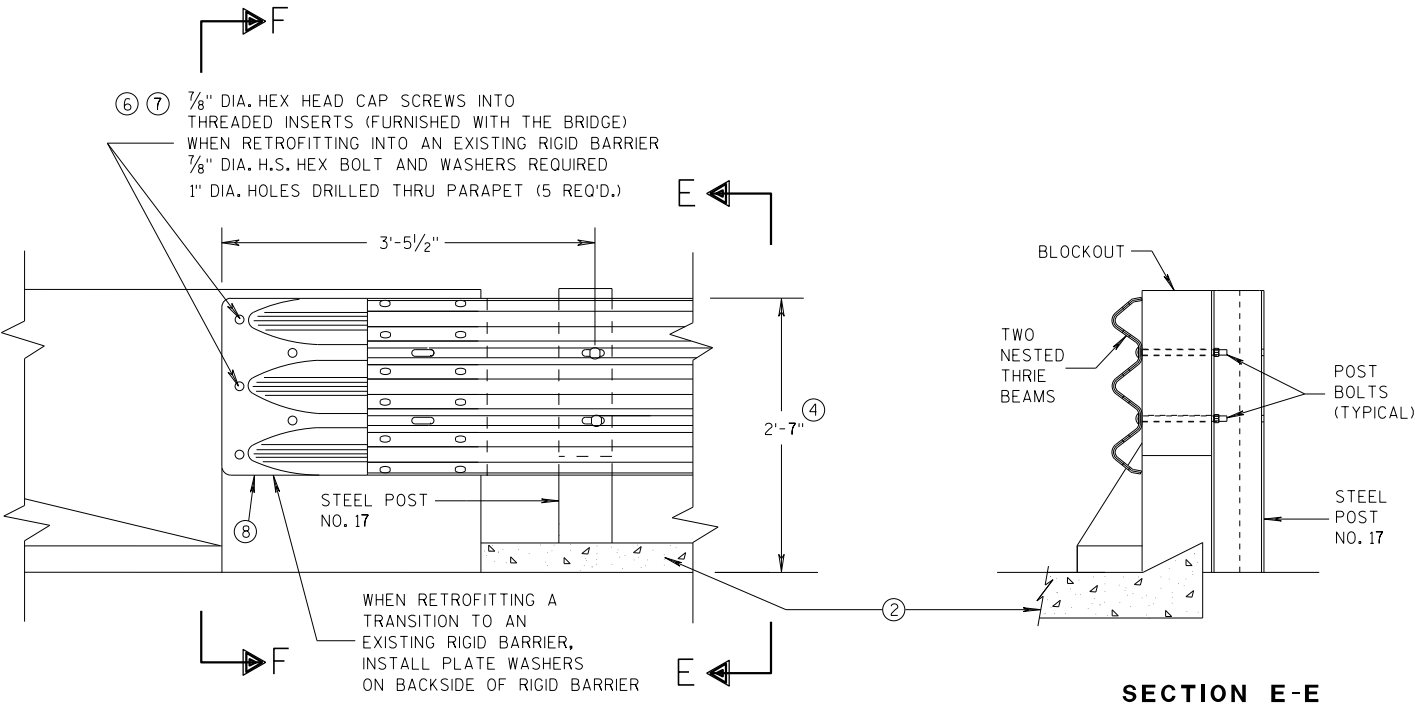
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

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

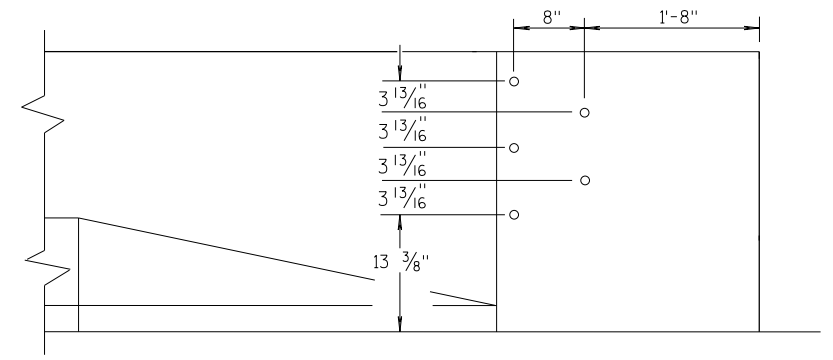
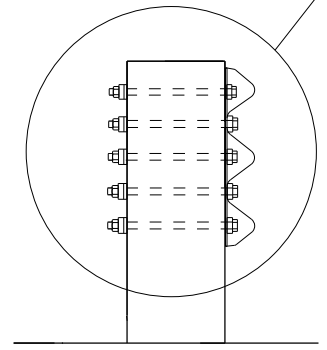
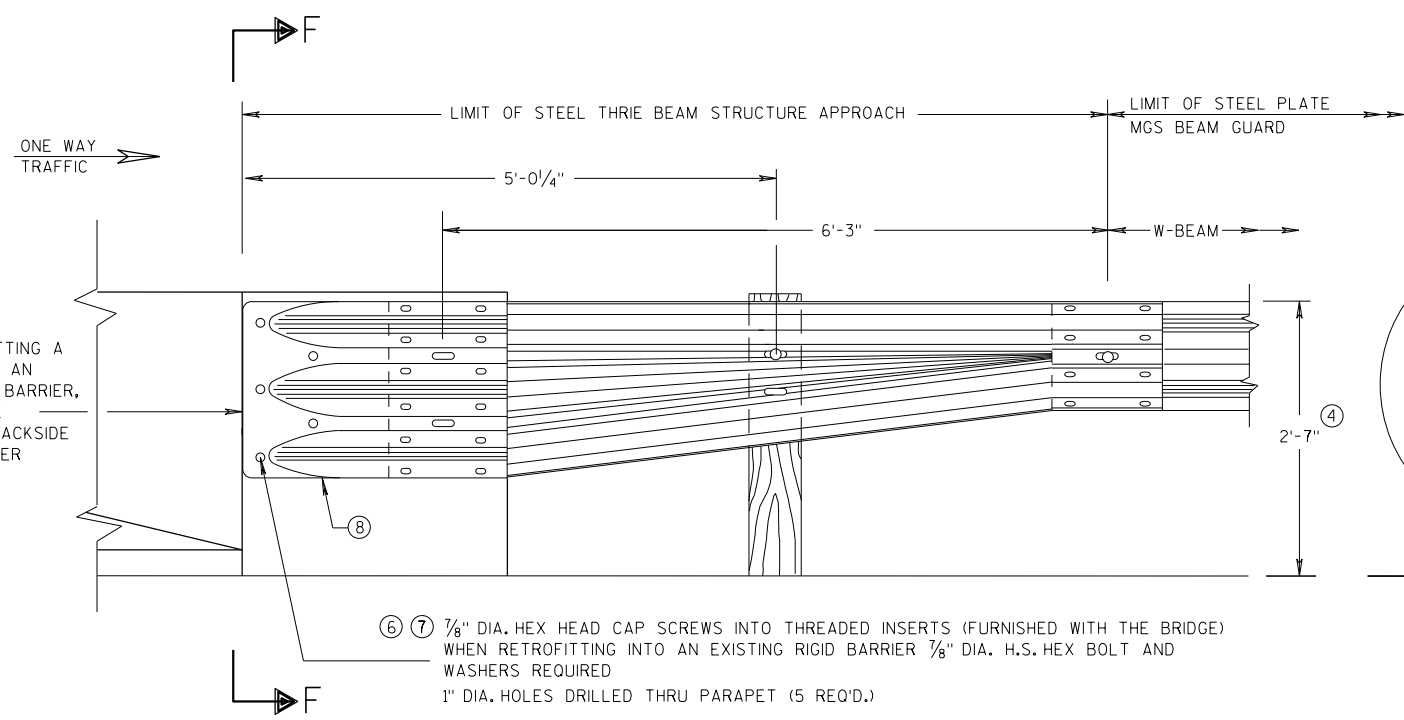
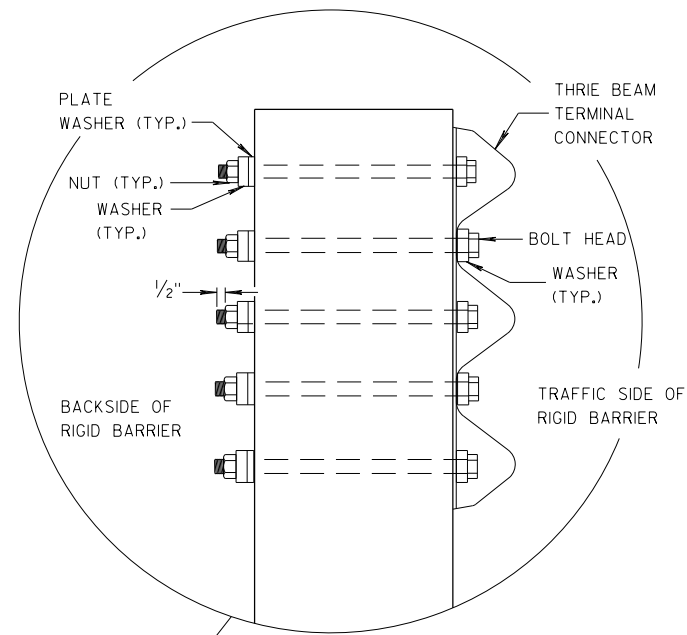
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GENERAL NOTES

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" 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".

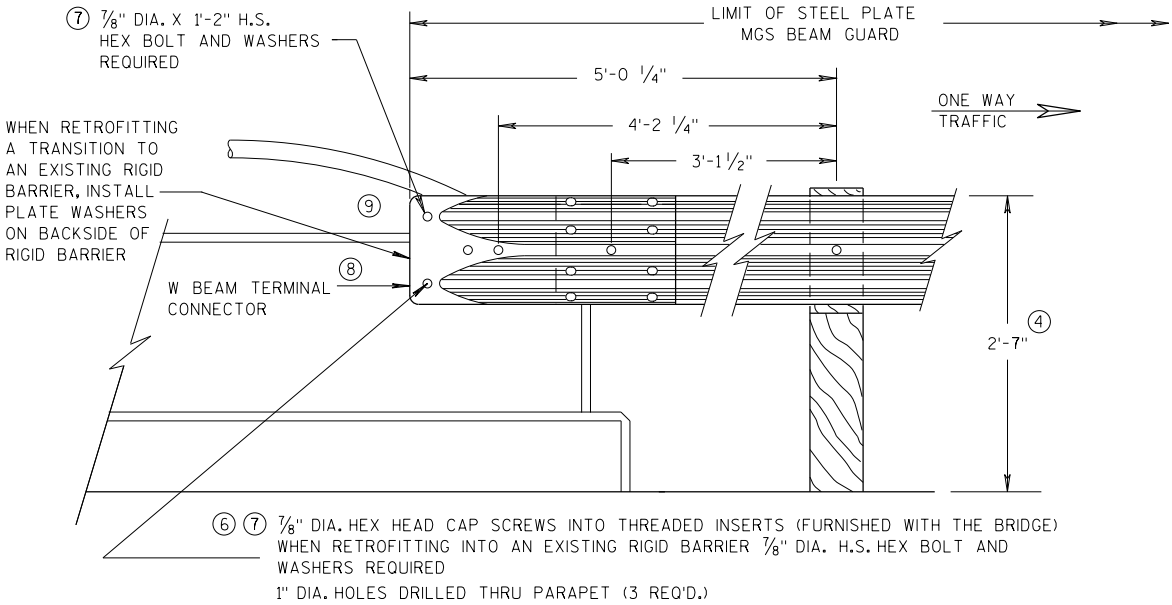


MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

GENERAL NOTES

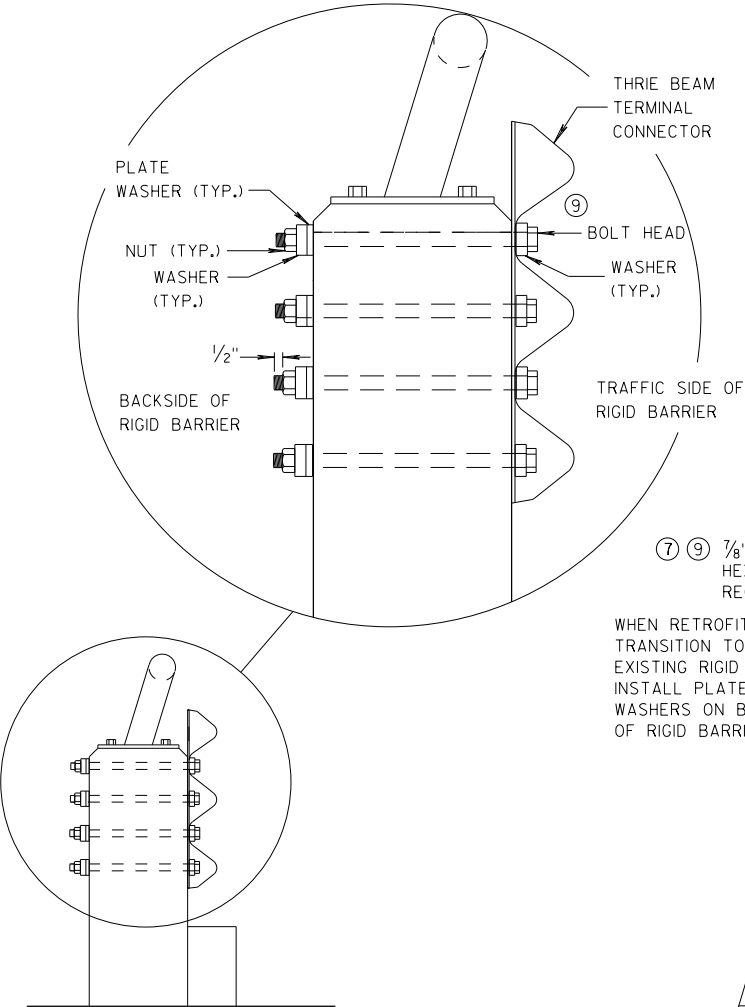
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ②
- OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④
- TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑥
- DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦
- BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧
- THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⑨
- BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

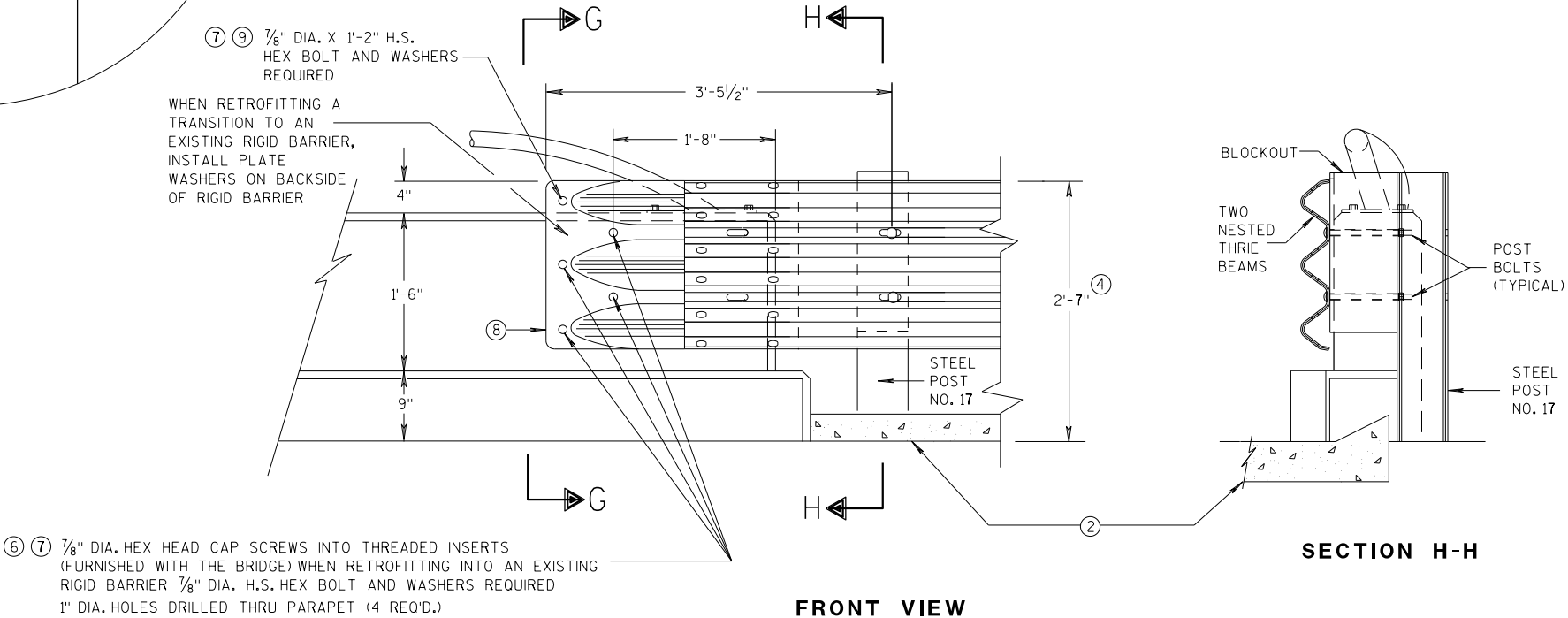


FRONT VIEW

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

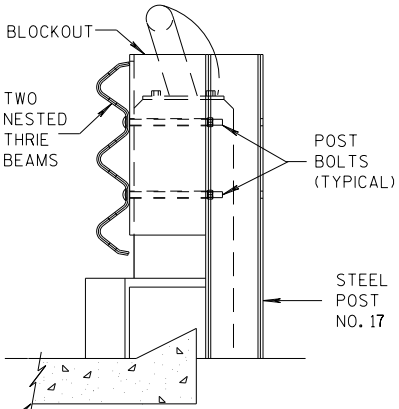


SECTION G-G



FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

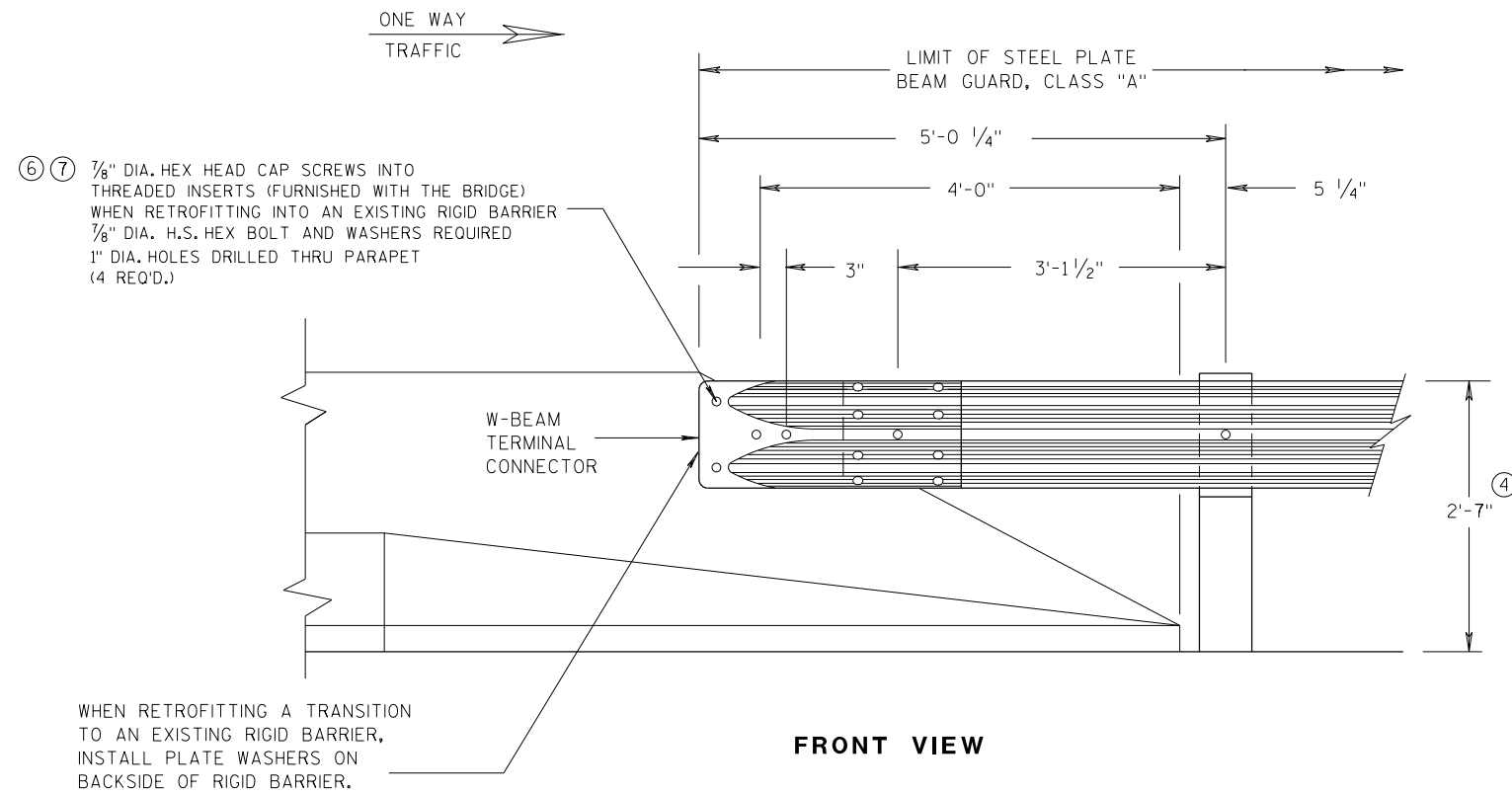


SECTION H-H

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

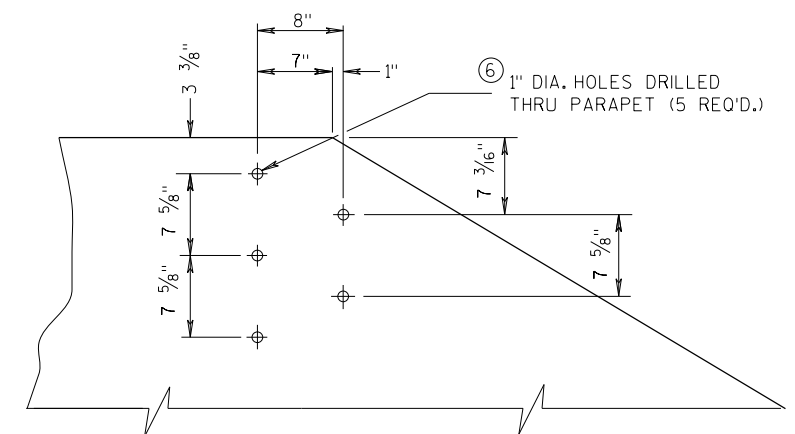
APPROVED
07/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



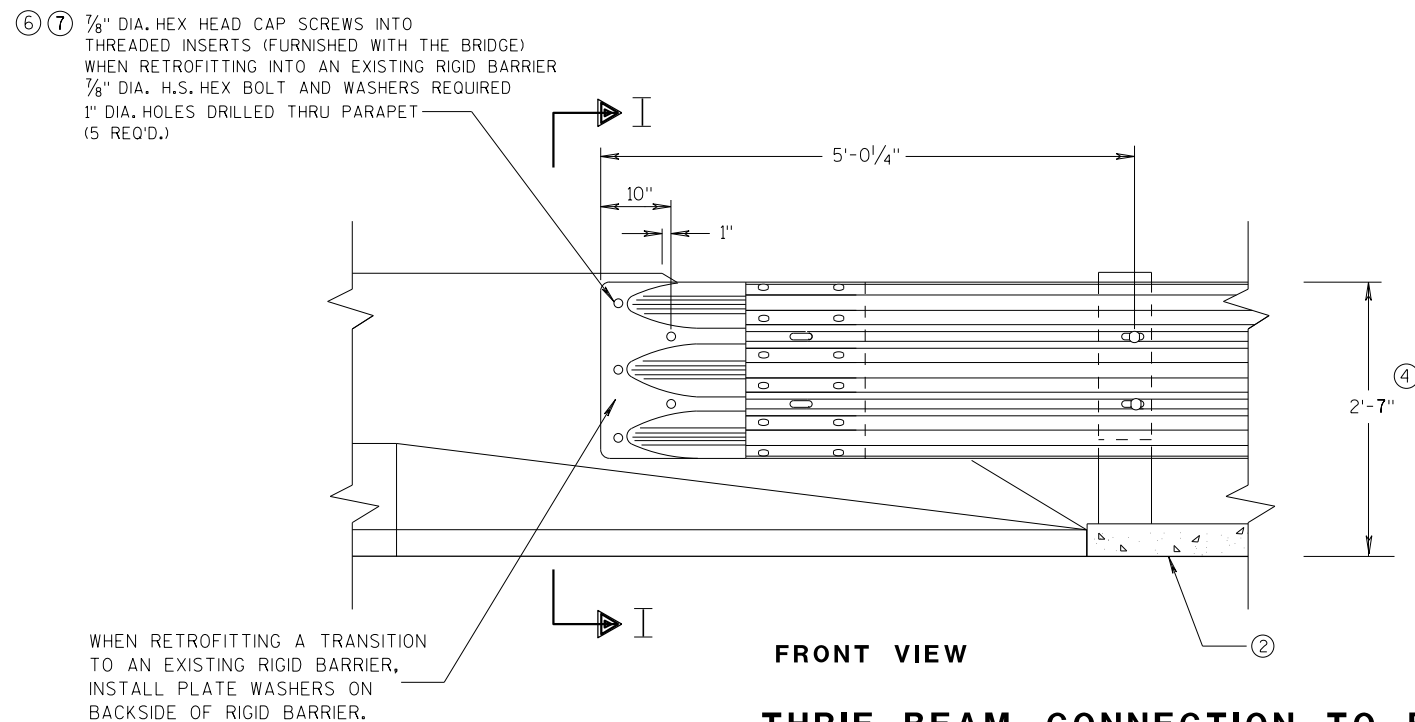
**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

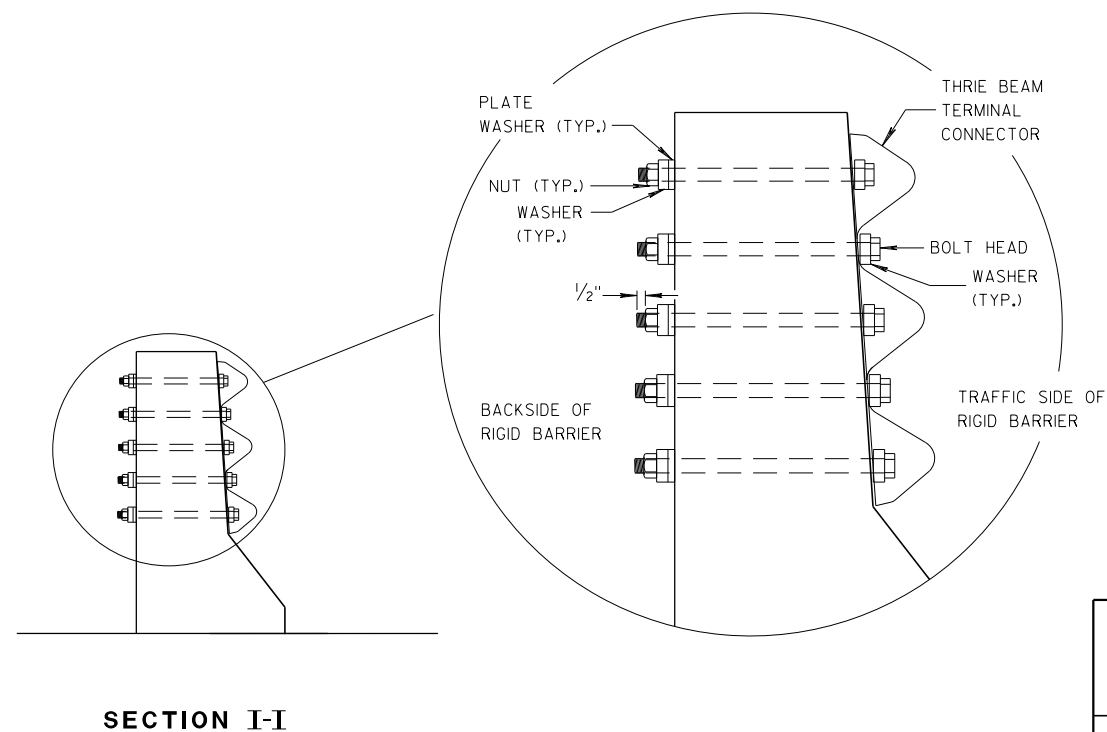
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



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



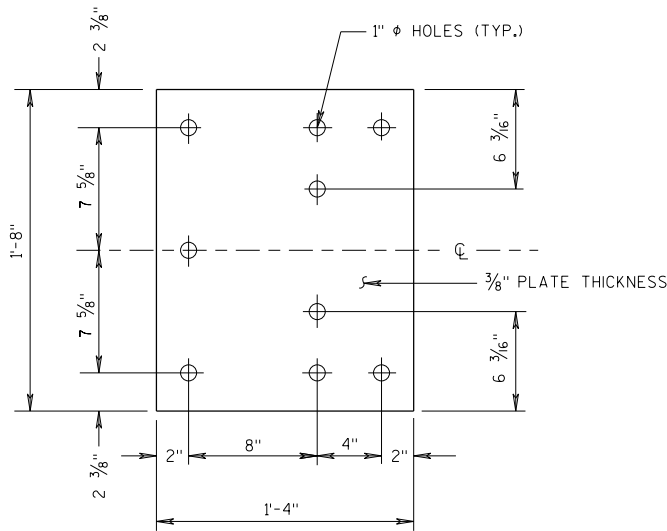
**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



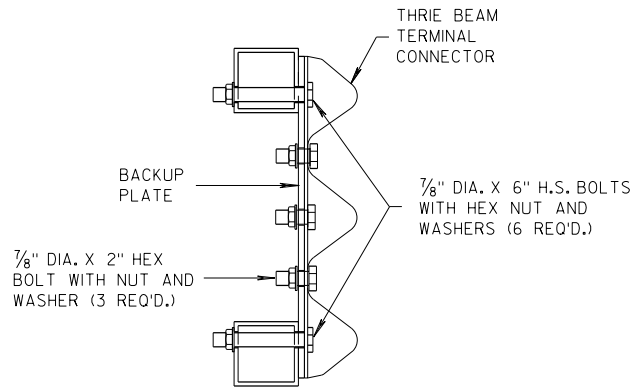
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

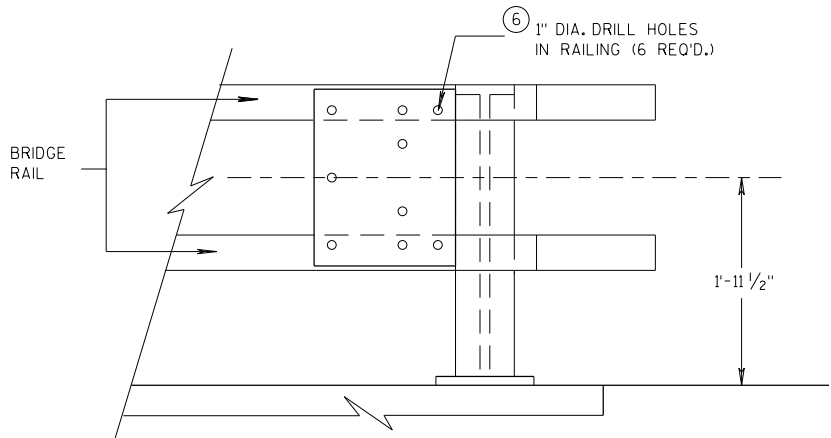
APPROVED
07/2018
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



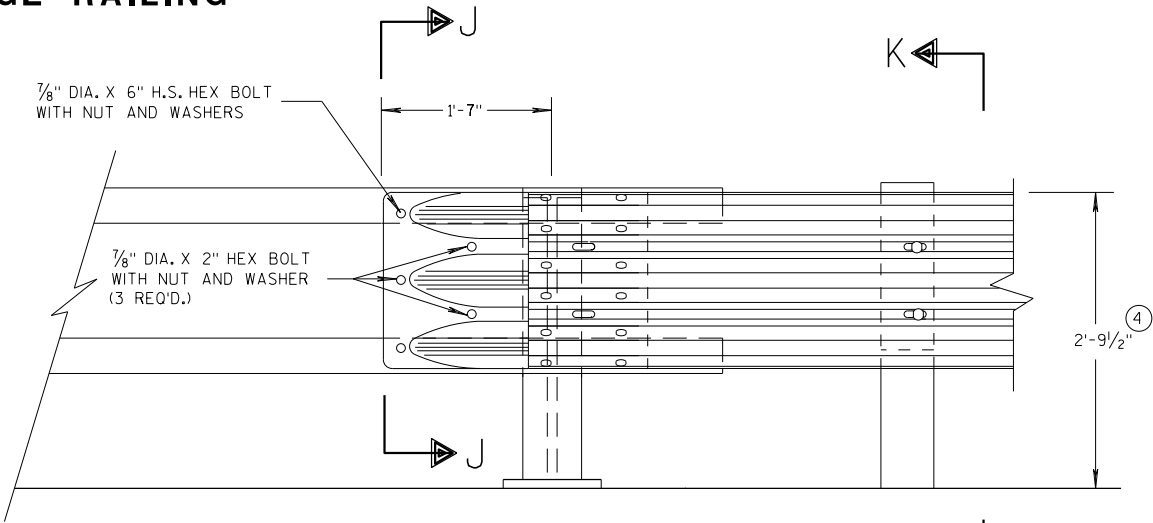
BACK-UP PLATE DETAIL



SECTION J-J

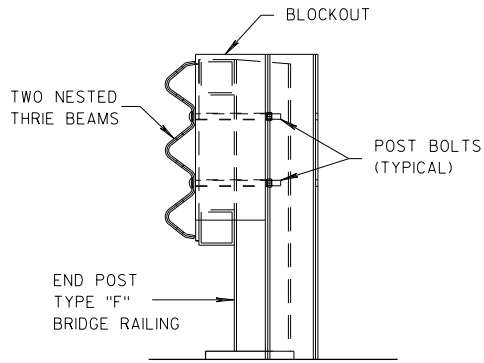


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

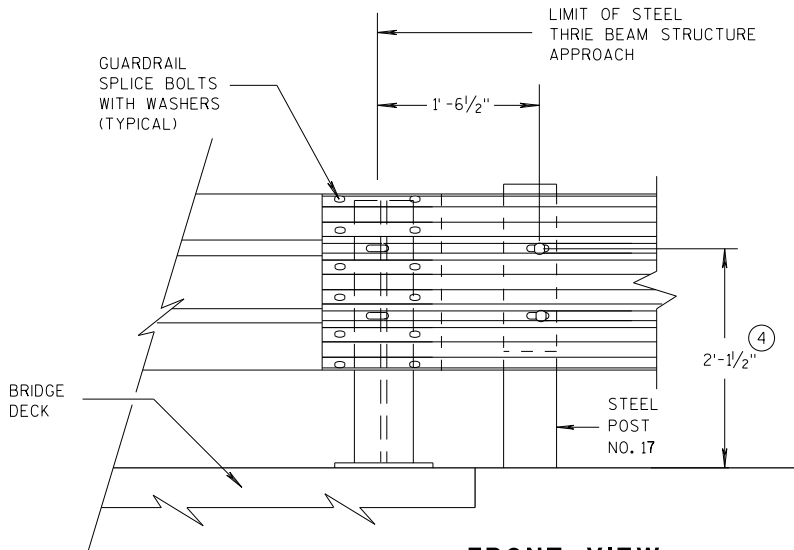
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

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



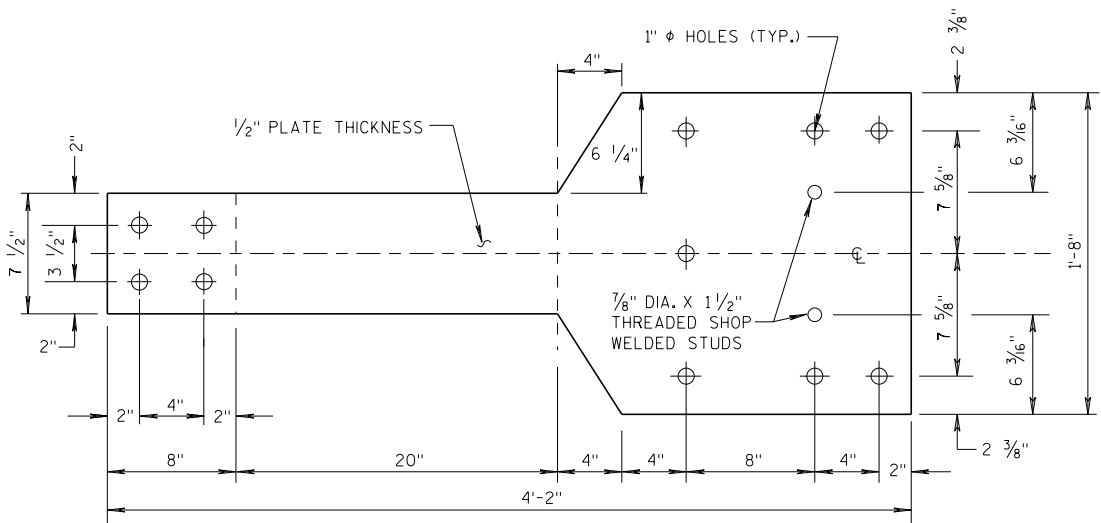
FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

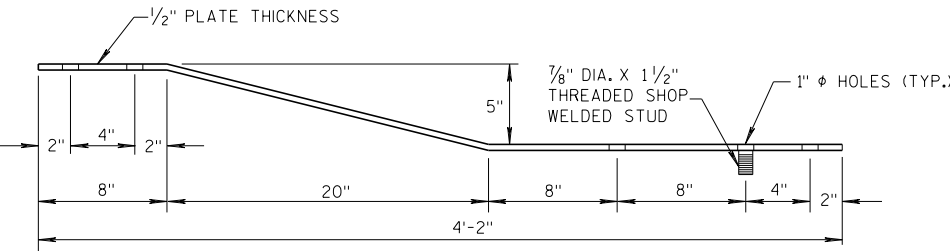
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

GENERAL NOTES

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

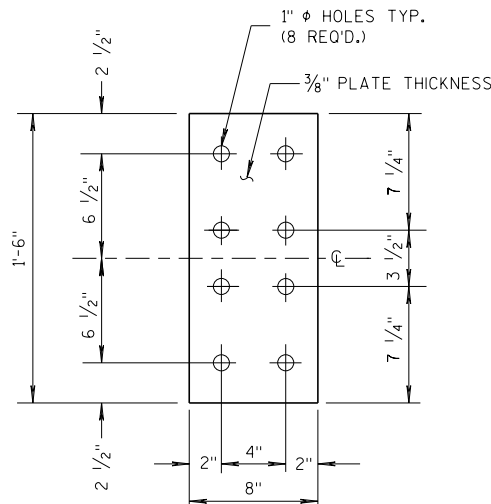


FRONT VIEW



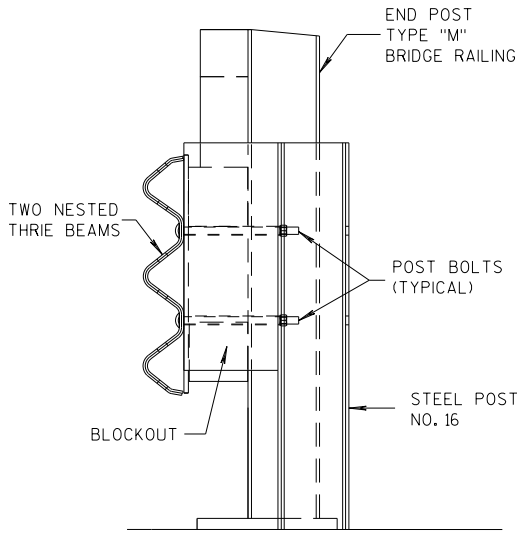
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

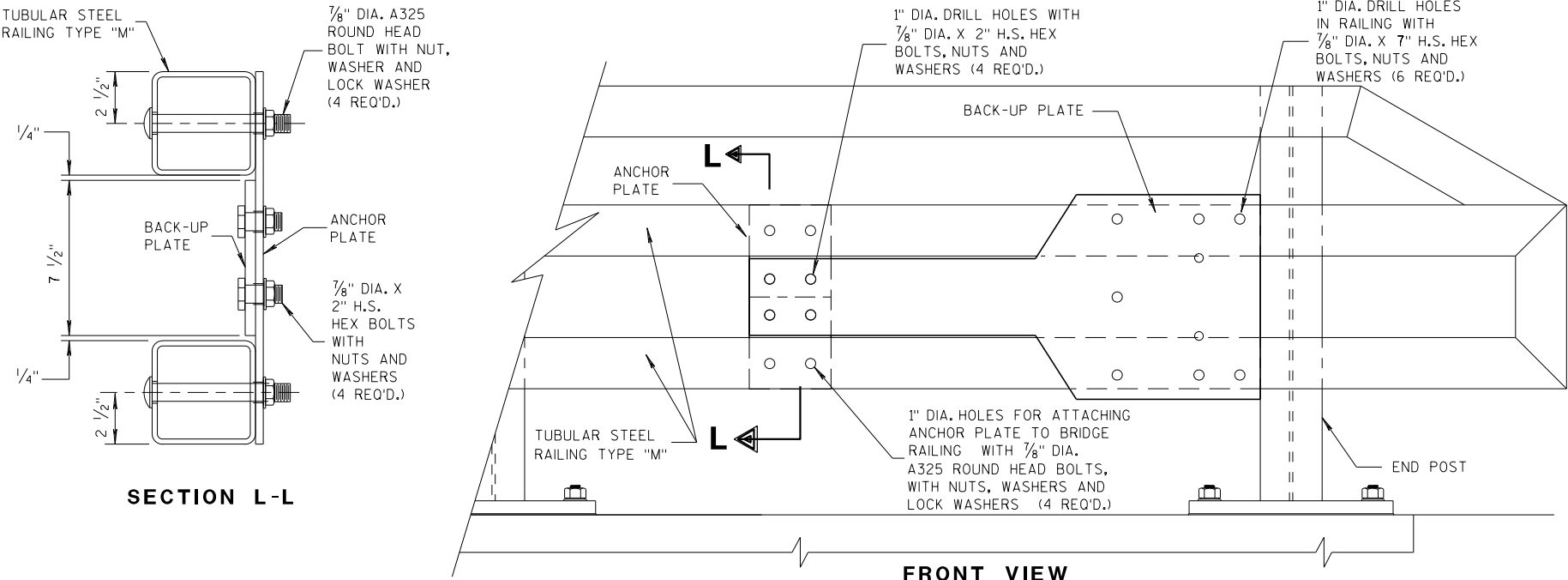


FRONT VIEW

ANCHOR PLATE DETAIL, TYPE "M"



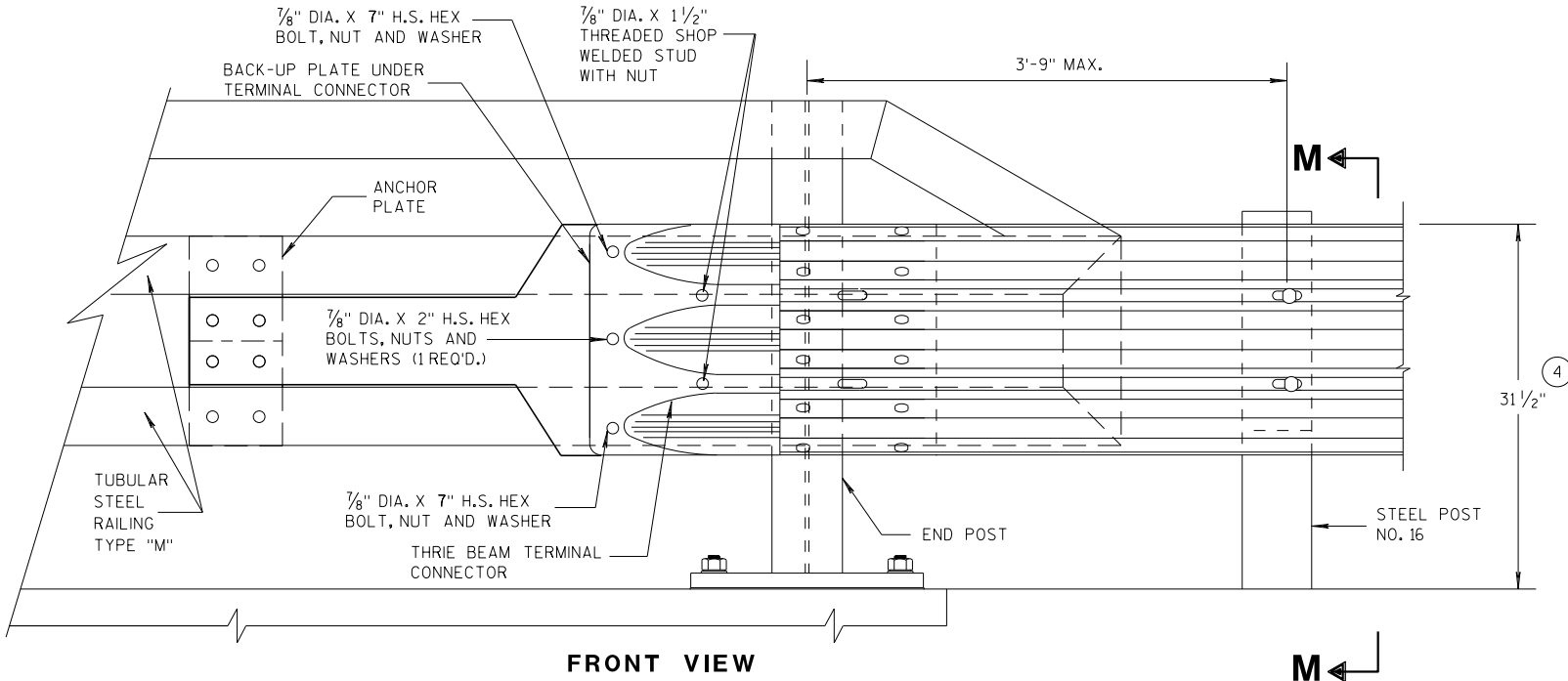
SECTION M-M



SECTION L-L

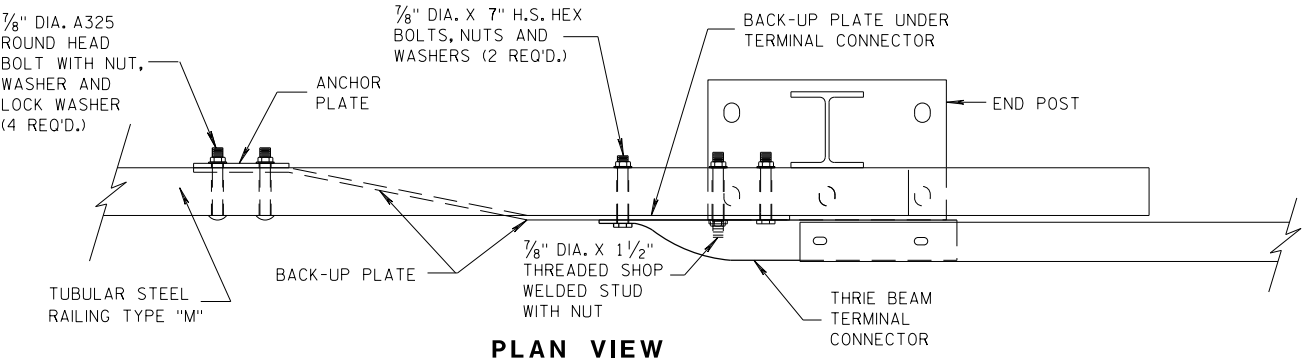
FRONT VIEW

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



FRONT VIEW

M



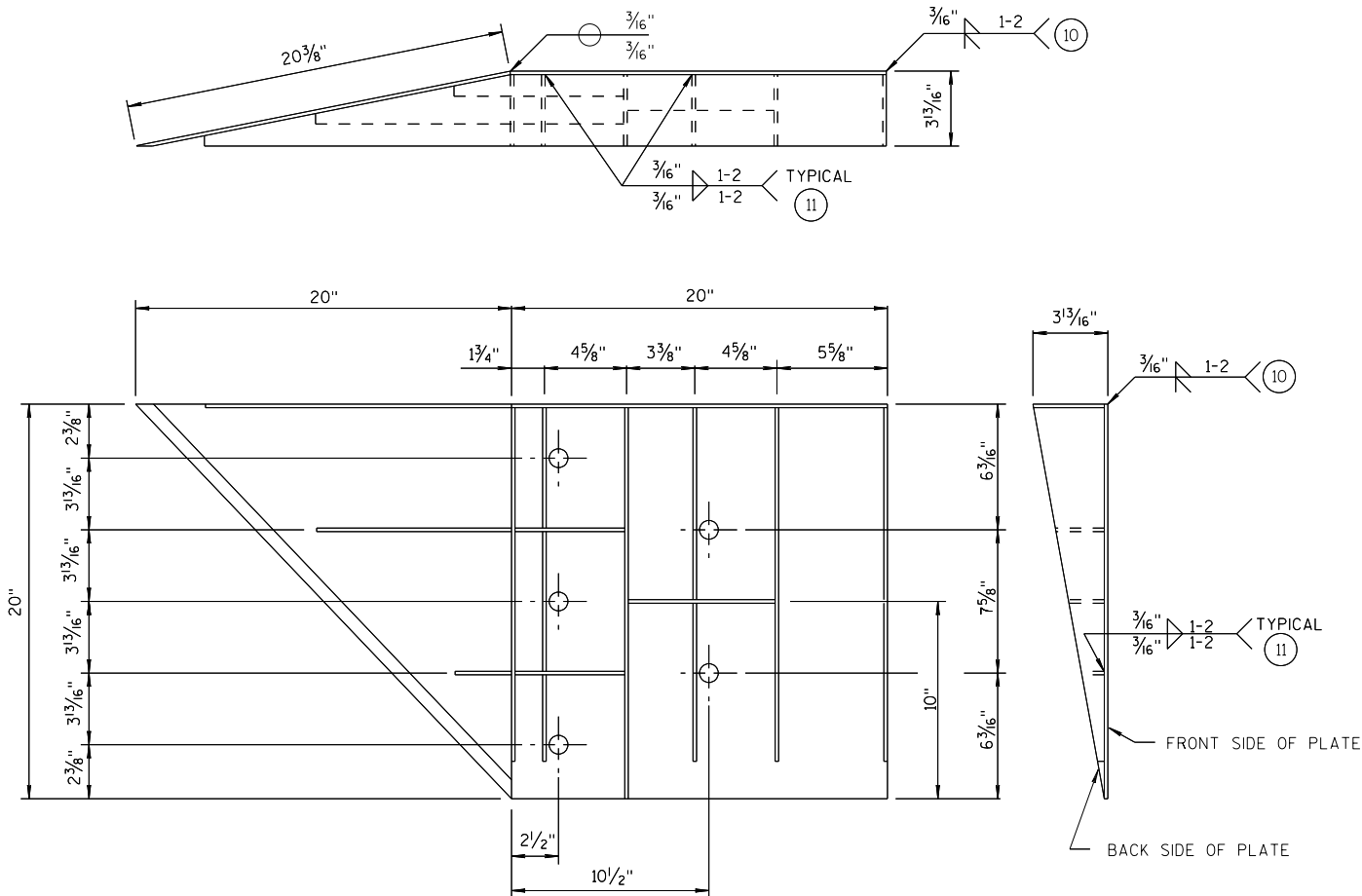
PLAN VIEW

THREE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THREE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

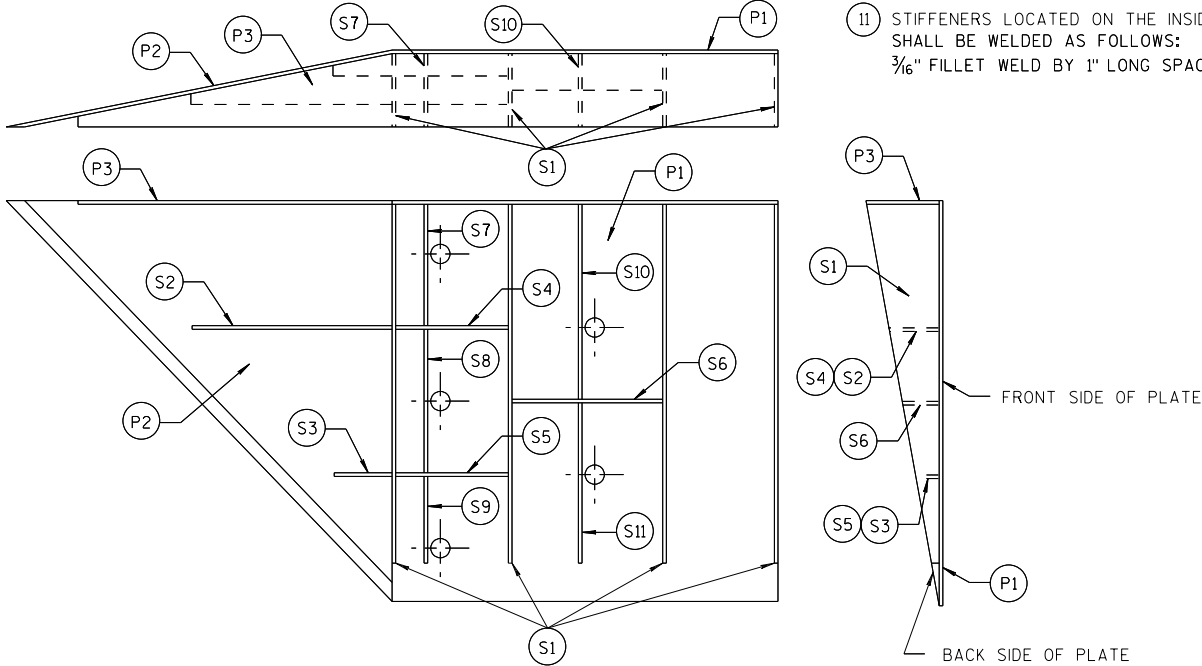


WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

SINGLE SLOPE CONNECTION PLATE

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

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



GENERAL NOTES

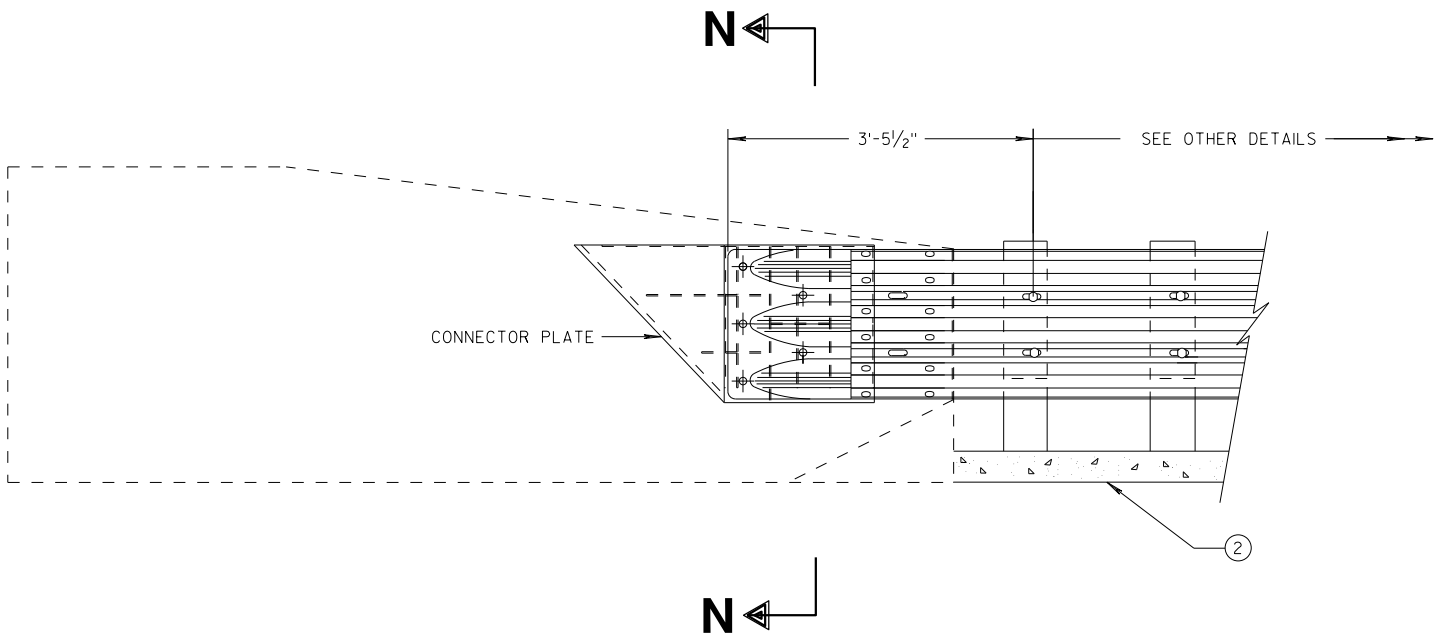
- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR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

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

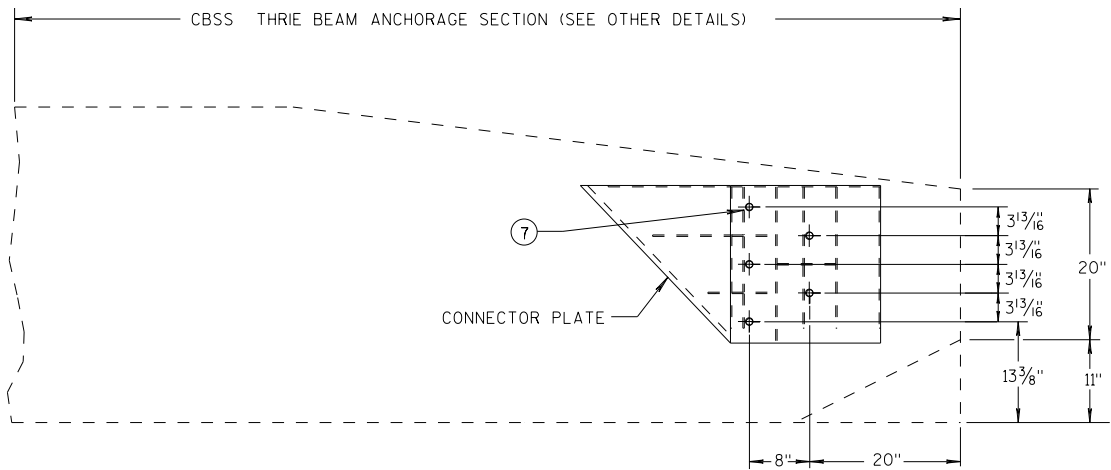
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



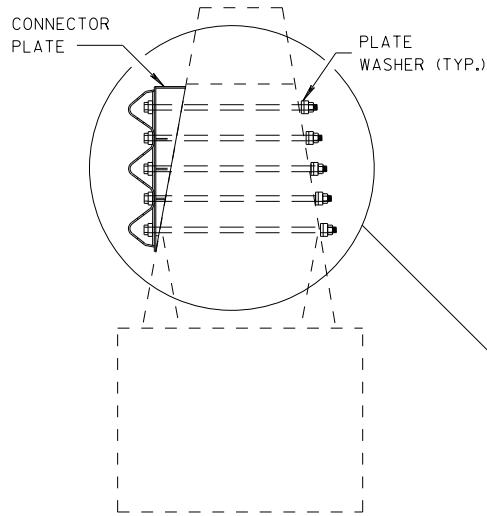
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

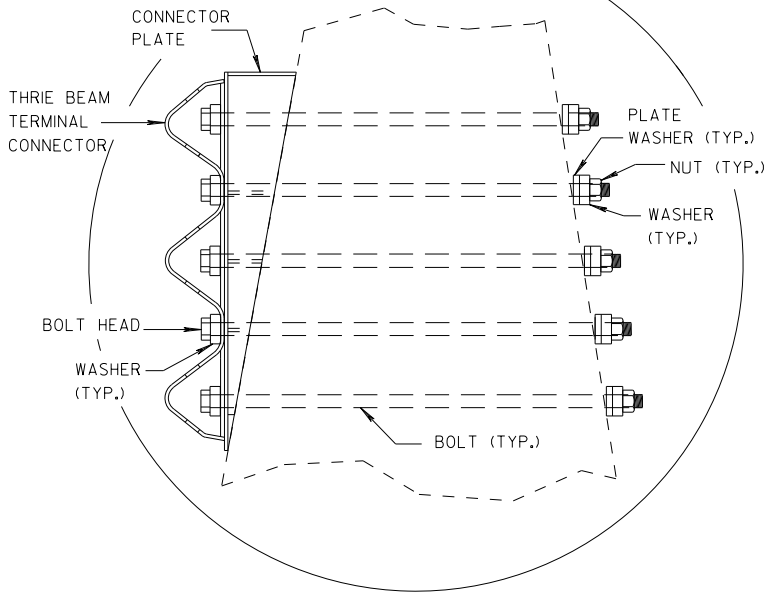
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

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



SECTION N-N



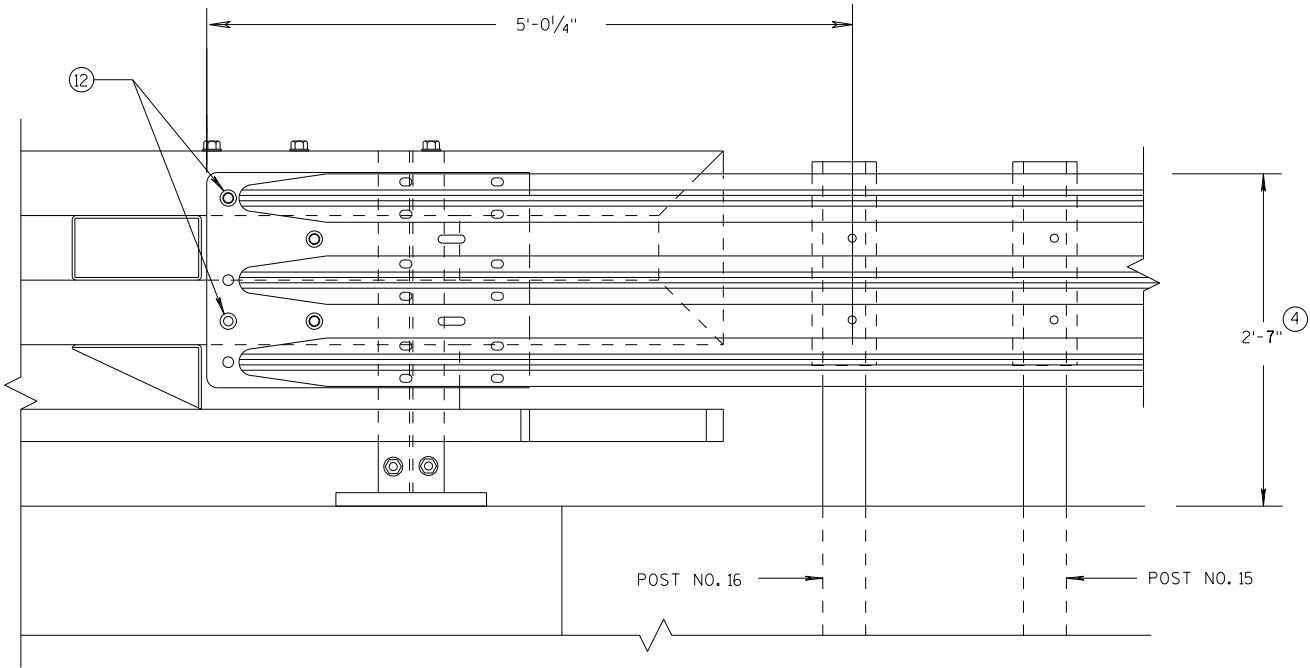
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

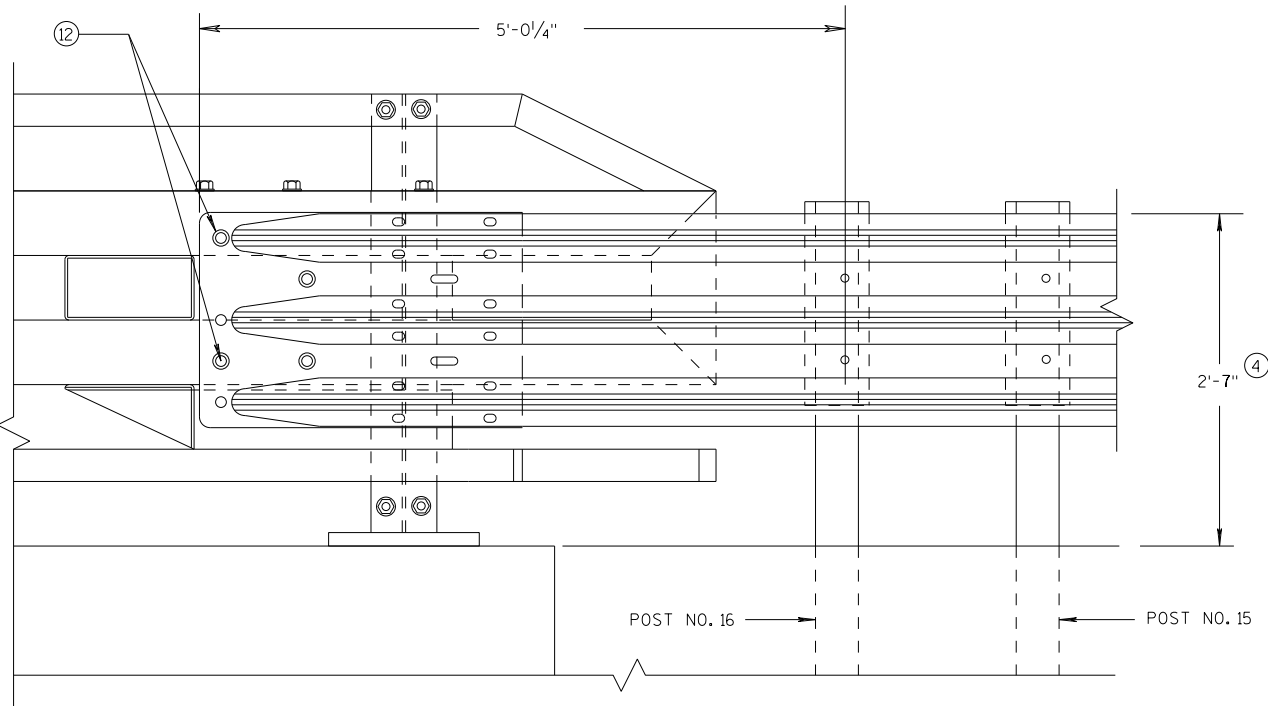
APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.



ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT

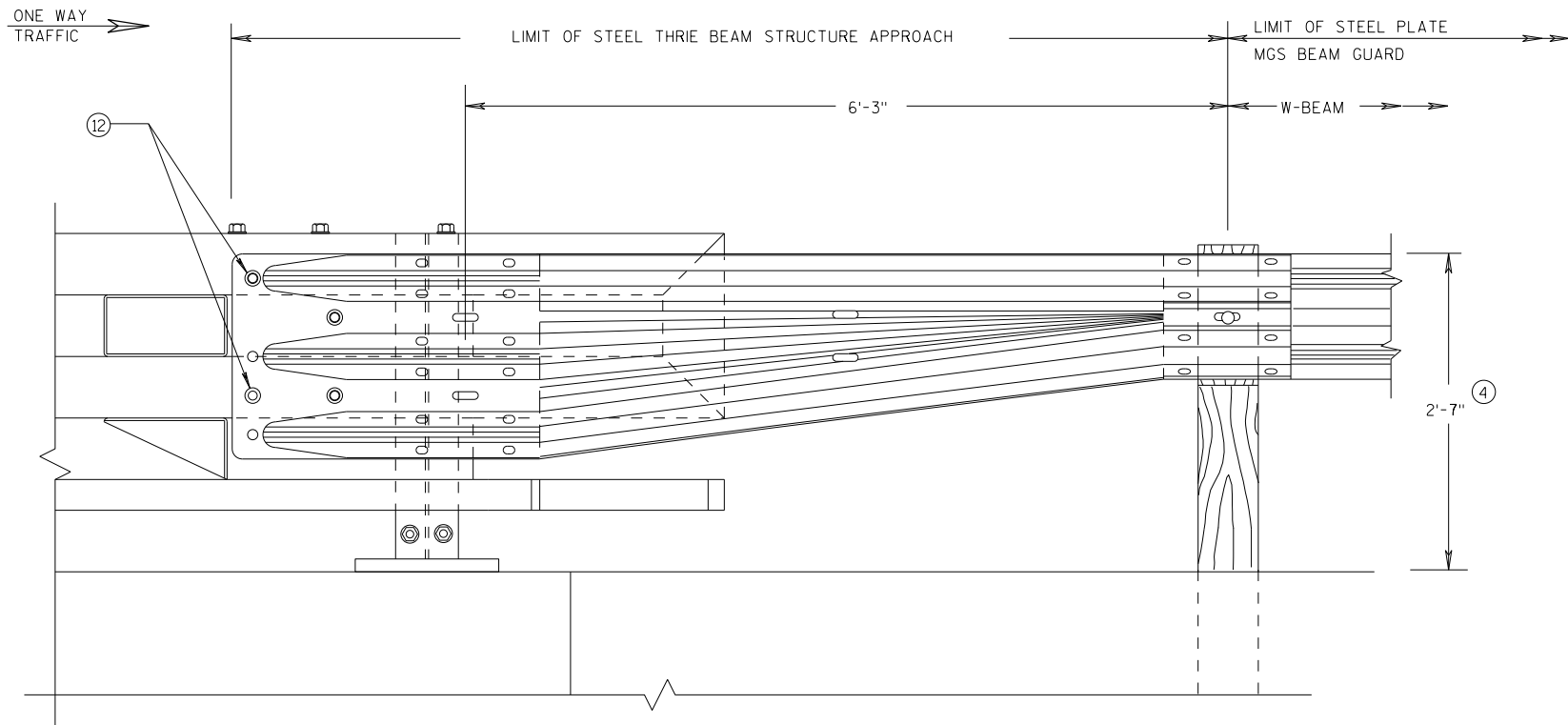


ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



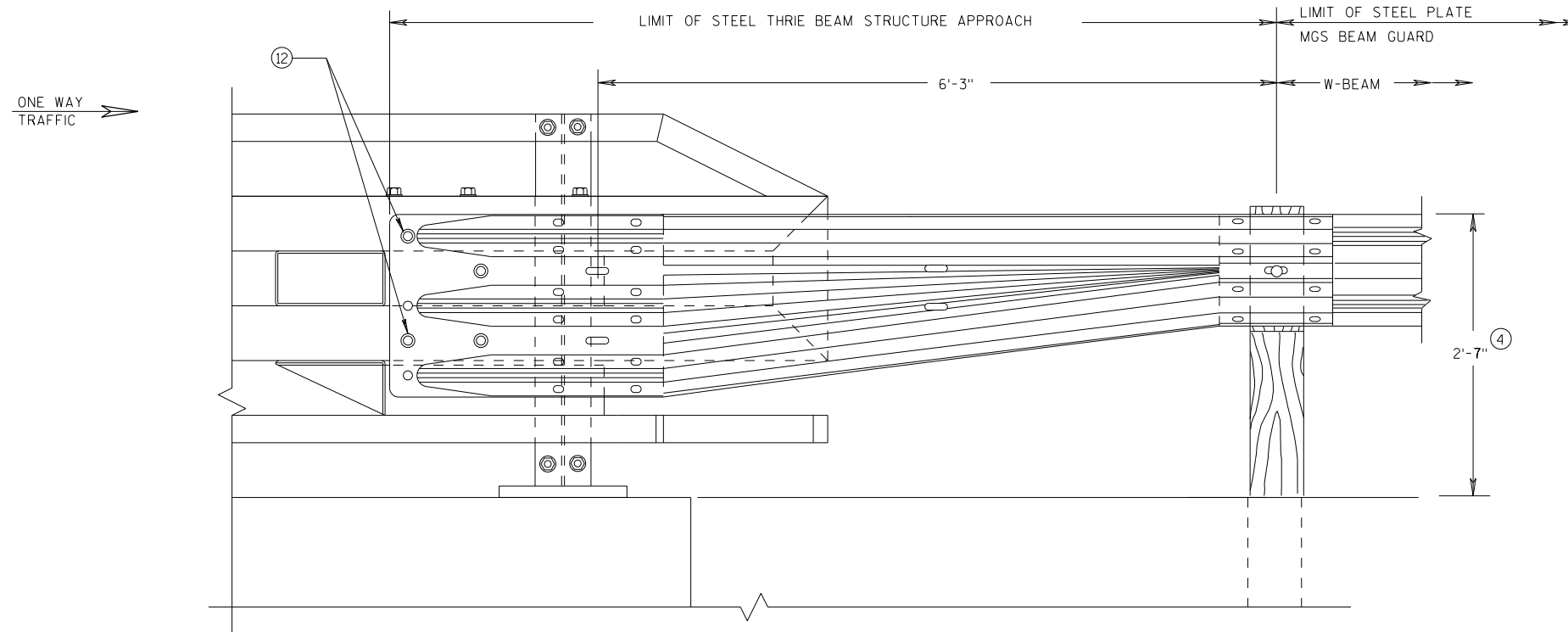
GENERAL NOTES

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

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.

FRONT VIEW

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



FRONT VIEW

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018

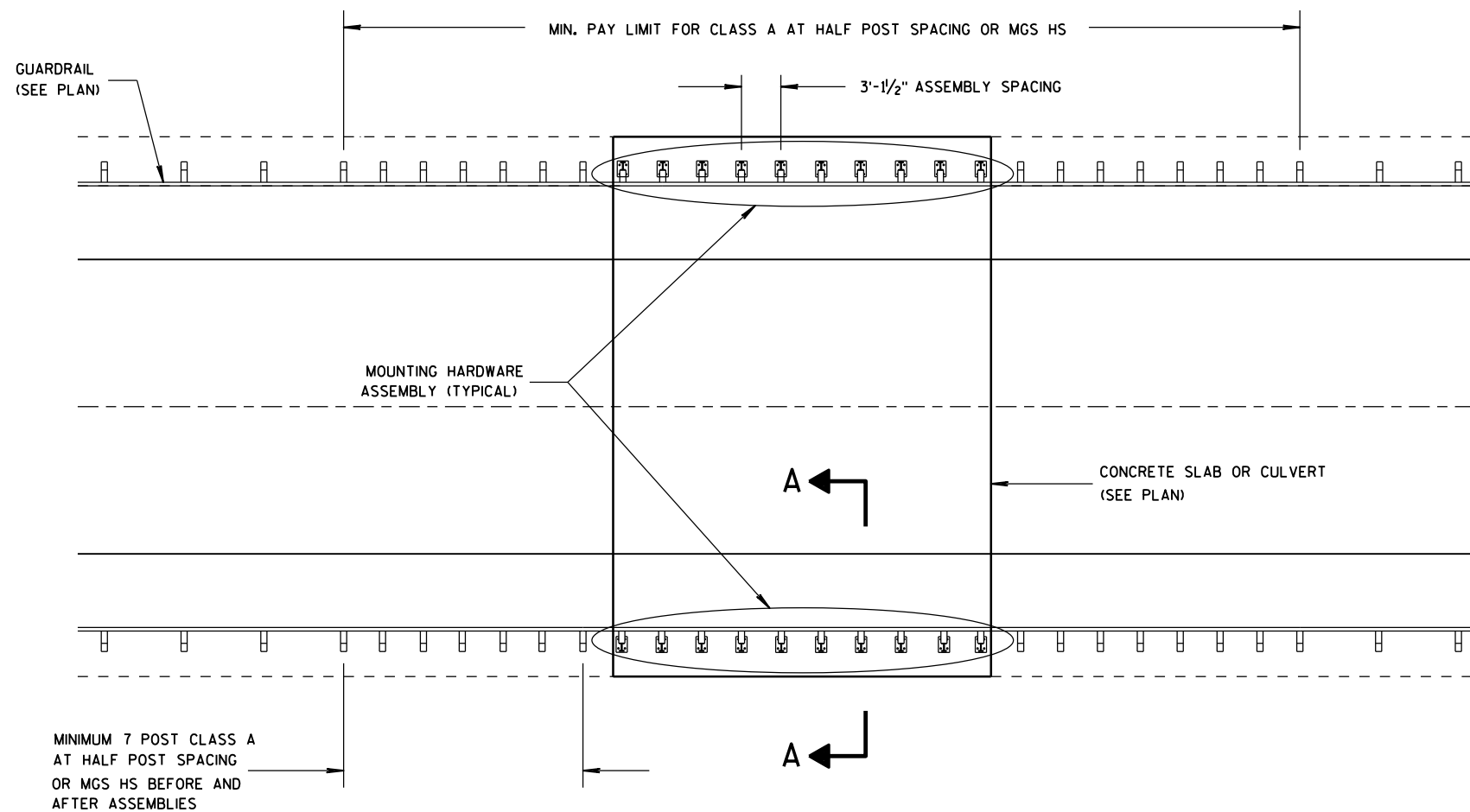
DATE

FHWA

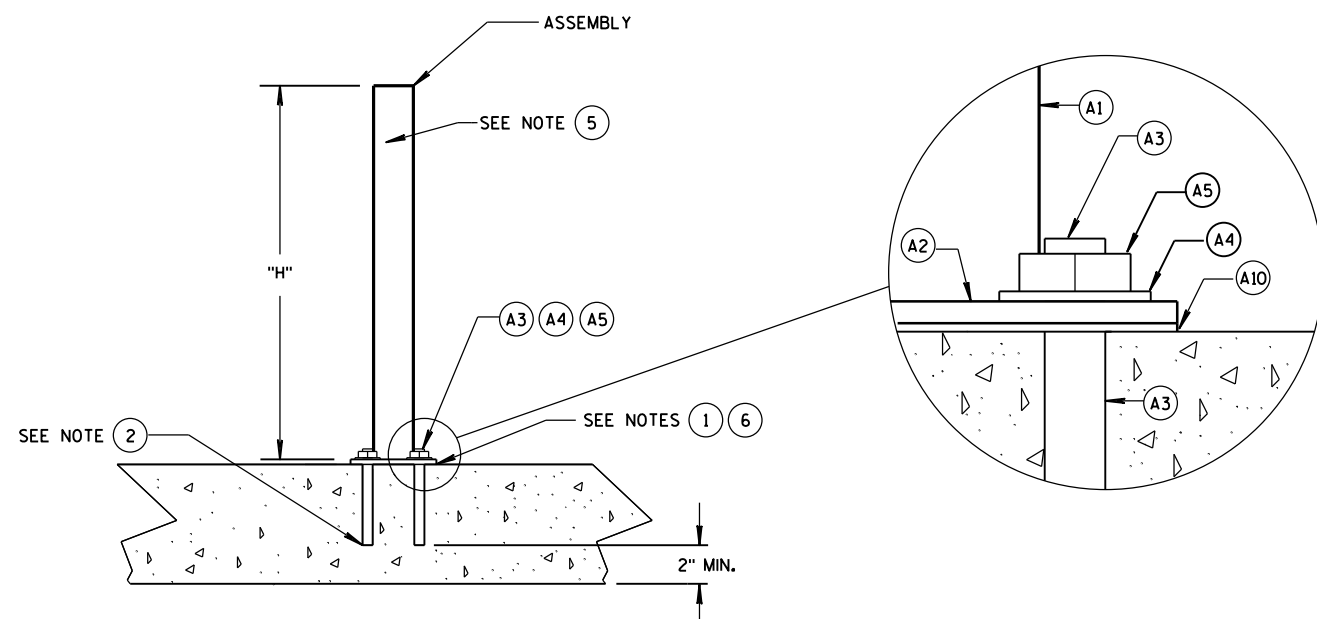
/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT

UNIT SUPERVISOR

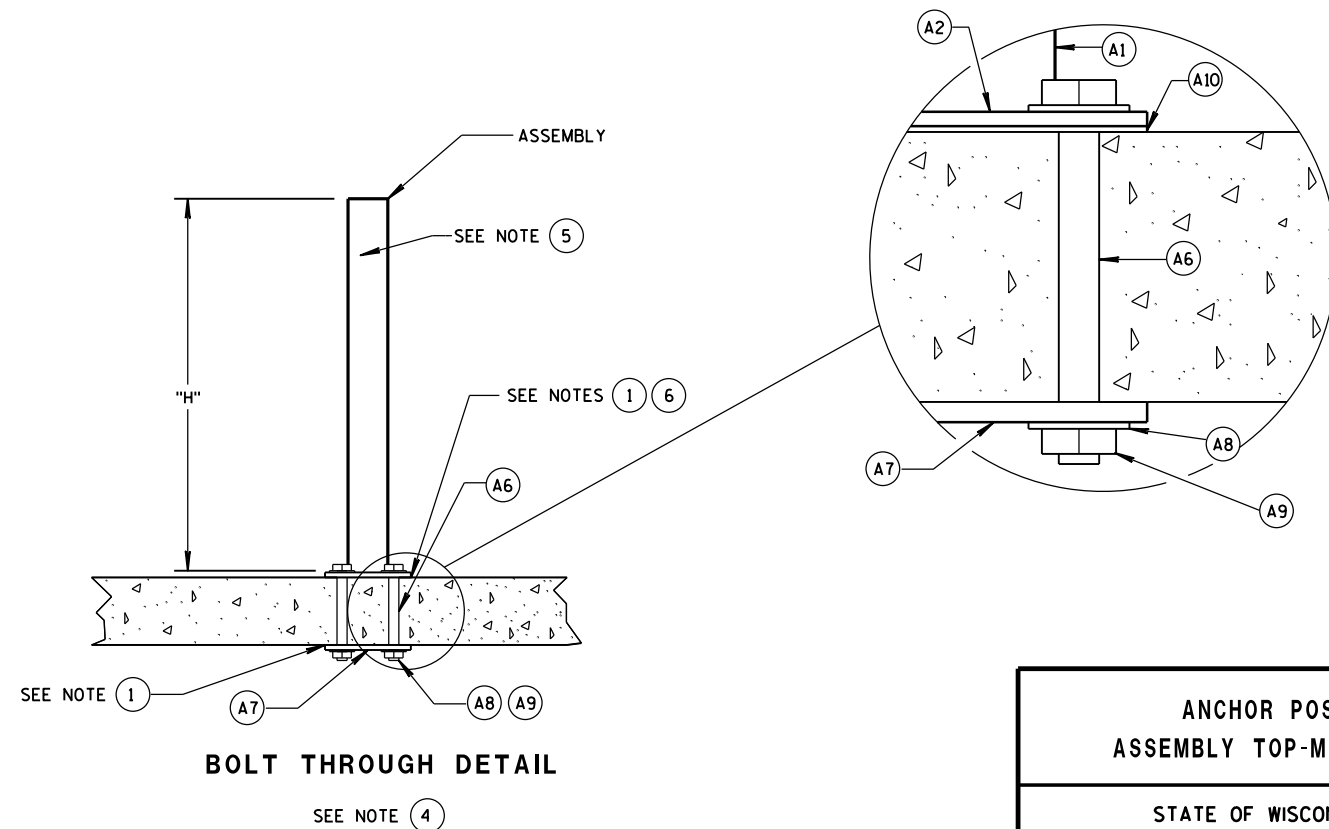


PLAN VIEW



ADHESIVE ANCHOR DETAIL

SEE NOTE (4)



BOLT THROUGH DETAIL

SEE NOTE (4)

GENERAL NOTES

HOLES DRILLED INTO CONCRETE SLAB OR CULVERT ARE 1/8-INCH DIAMETER.

POST BASE PLATE (AND BOTTOM PLATES IF USED) SHALL BE FLAT WITH ALL SURFACES SMOOTH, AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS. CUT BOTTOM OF POST SO THAT POST WILL BE VERTICAL WHEN POST ASSEMBLY IS PLACED ON TOP OF CONCRETE. HEX BOLTS AND THREADED RODS ARE TO BE PLACED PERPENDICULAR TO THE BASE PLATE.

"H" DIMENSION WILL VARY. SEE PLAN FOR "H" DIMENSION. CONTRACTOR HAS OPTION OF INSTALLING POSTS THAT ARE TALLER THAN "H" DIMENSION AND CUT POSTS TO PROPER "H" DIMENSION IN THE FIELD. IF ELECTING TO FIELD CUT POSTS, DRILL HOLES AT APPROPRIATE LOCATIONS AND APPLY GALVANIZATION.

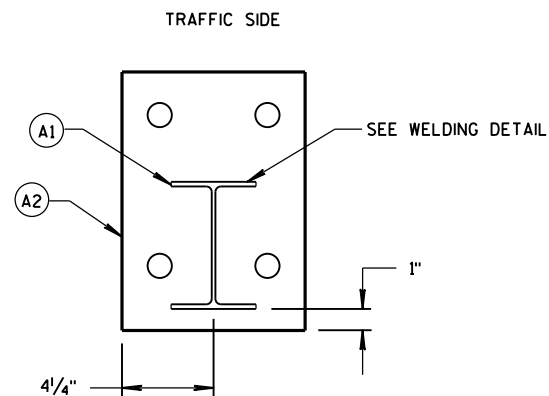
GALVANIZE STEEL COMPONENTS AFTER FABRICATION PER SECTION 614 OF THE WISCONSIN DEPT. OF TRANSPORTATION STANDARD SPECIFICATIONS.

INSTALL 1 NUT AND 1 WASHER WHERE APPLICABLE. PROVIDE SUFFICIENT LENGTH OF BOLT OR THREADED ROD TO ALLOW FOR 1/4-INCH TO 1/2-INCH OF THREAD TO BEYOND THE NUT.

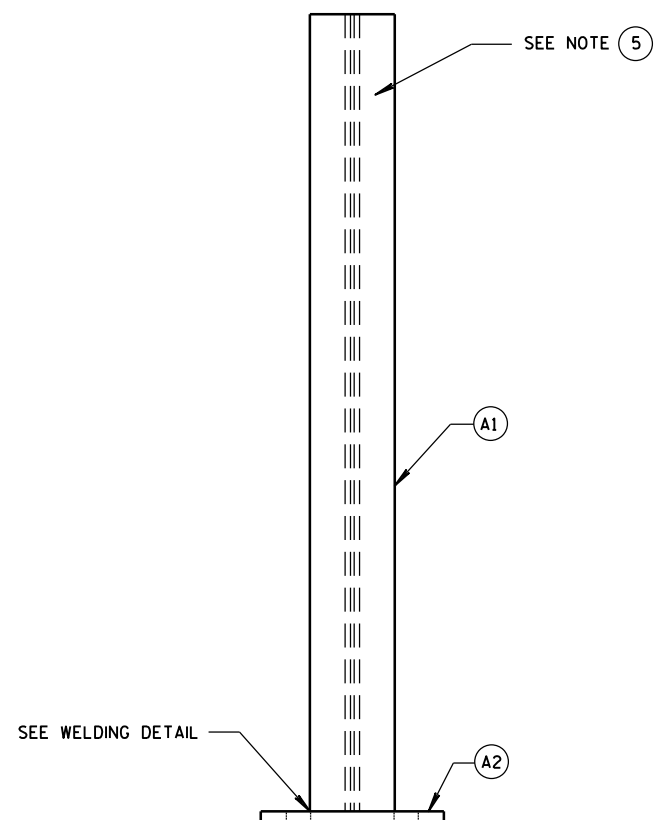
- ① PLACE NON-STAINING, GRAY NON-BITUMINOUS JOINT SEALER ON THE BOTTOM (A2) AND IN DRILL HOLES FOR BOLT THROUGH OPTION.
- ② BOND STRENGTH OF ADHESIVE IS 1,305 PSI OR GREATER WITH A MINIMUM EMBEDMENT DEPTH OF 8-INCHES. IF MINIMUM EMBEDMENT CANNOT BE ACHIEVED BOLT THROUGH STRUCTURE.
- ③ USE GAS-METAL ARC WELDING (GMAW) PROCESS WITH ER70S-3 WELDING WIRE AND ARGON-OXYGEN OR CO2 COVER GAS.
- ④ OTHER COMPONENT OF BARRIER SYSTEM NOT SHOWN. SEE OTHER STANDARD DETAIL DRAWINGS. SEE SDD 14 B 15 OR SDD 14 B 42 FOR MORE DETAILS.
- ⑤ HOLES TO MOUNT BEAM GUARD AND BLOCK NOT SHOWN ON DRAWINGS. SEE OTHER STANDARD DETAIL DRAWINGS. SEE SDD 14 B 15 OR SDD 14 B 42 FOR MORE DETAILS.
- ⑥ ADD AND ADJUST SHIM PLATES AS NECESSARY TO INSTALL POST PLUMB. SEE (A10) FOR DETAIL.

ANCHOR POST
ASSEMBLY TOP-MOUNTED

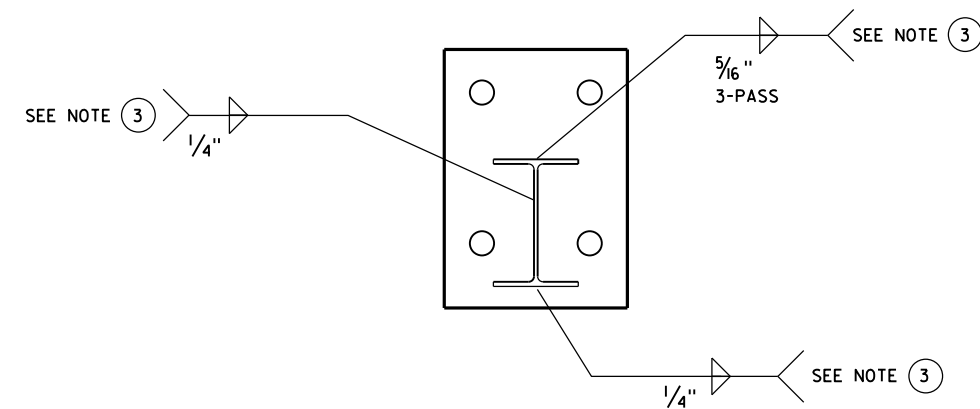
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



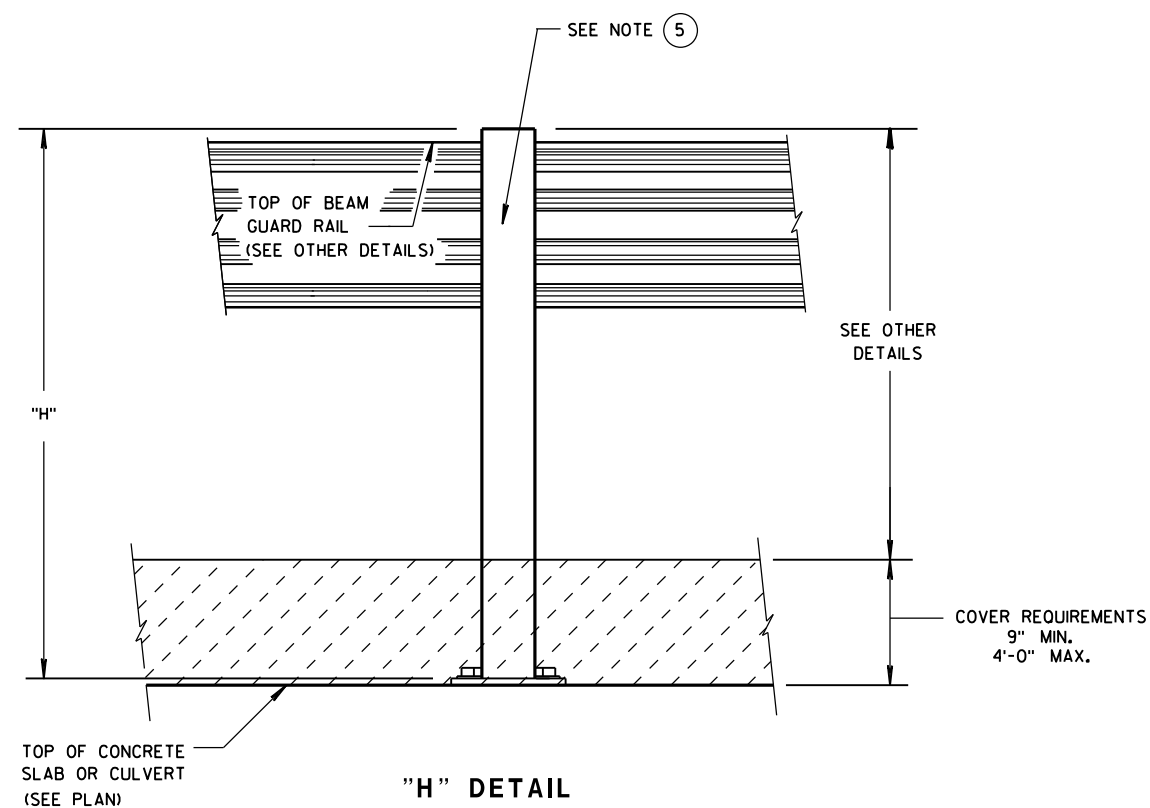
PLAN VIEW OF ASSEMBLY



PROFILE VIEW OF ASSEMBLY

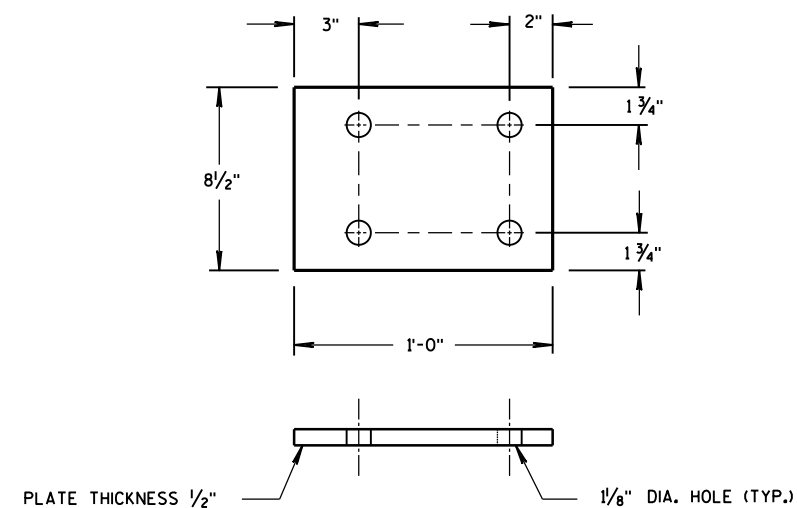


WELDING DETAIL

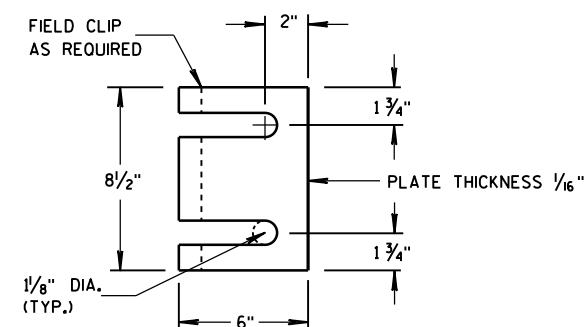


"H" DETAIL

SEE NOTE 4



A2 DETAILS



A10 DETAILS

ANCHOR POST
ASSEMBLY TOP-MOUNTEDSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

MATERIALS LIST

ITEM	DESCRIPTION	MATERIAL SPECIFICATIONS	NOTES
(A1)	W6x9 or W6x8.5	ASTM A992, 50 KSI MIN. ASTM A709 GRADE 50 OR ASTM A36	SEE SDD 14B15 OR 14B42 LENGTH WILL VARY
(A2)	STEEL BASE PLATE	ASTM A992 50 KSI MIN., ASTM A529 GRADE 50, ASTM A572 GRADE 50, OR ASTM A36	
(A3)	1" DIA. THREADED ROD	SAE J429 GRADE 2, ASTM A307 GRADE C, OR ASTM F1554 GRADE 36	LENGTH WILL VARY
(A4)	1" DIA. FLAT WASHER	ASTM F844	
(A5)	1" HEX NUT	ASTM A563A	
(A6)	1" DIA. HEX BOLT	ASTM A307	LENGTH WILL VARY
(A7)	PLATE WASHER	ASTM A992 50 KSI MIN., ASTM A529 GRADE 50, ASTM A572 GRADE 50, OR ASTM A36	
(A8)	1" DIA. FLAT WASHER	ASTM F844	
(A9)	1" DIA. HEX NUT	ASTM A563A	
(A10)	SHIM PLATE	SEE (A2)	4 MAX PER POST

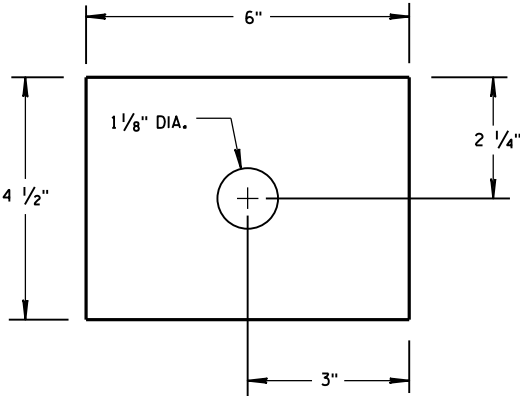
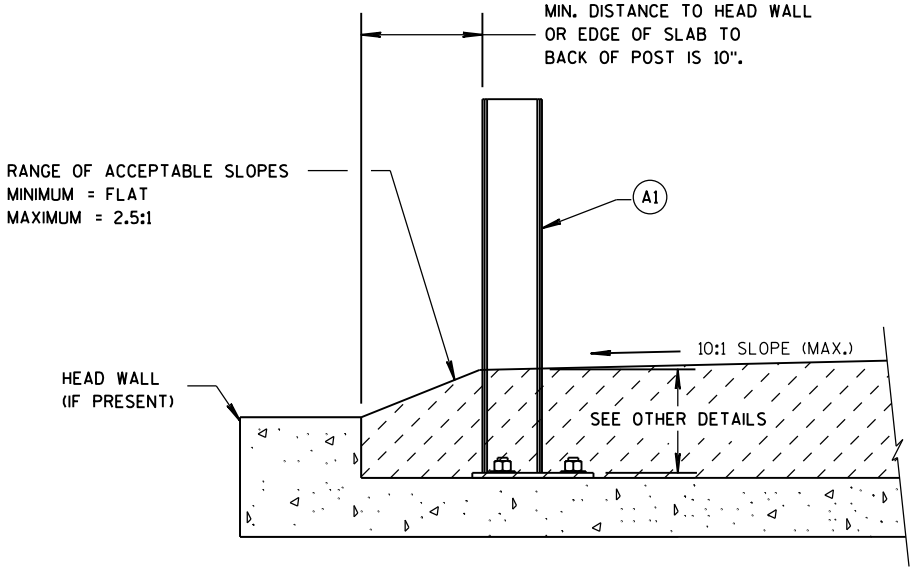
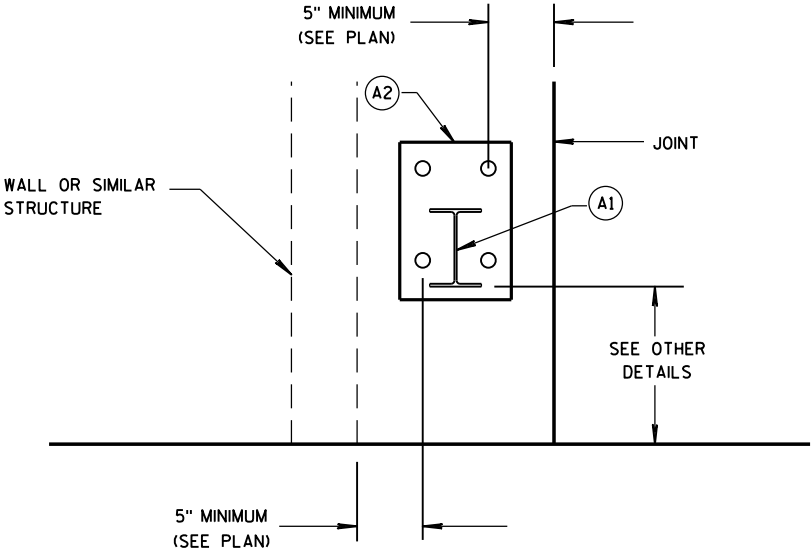


PLATE WASHER - (A7)



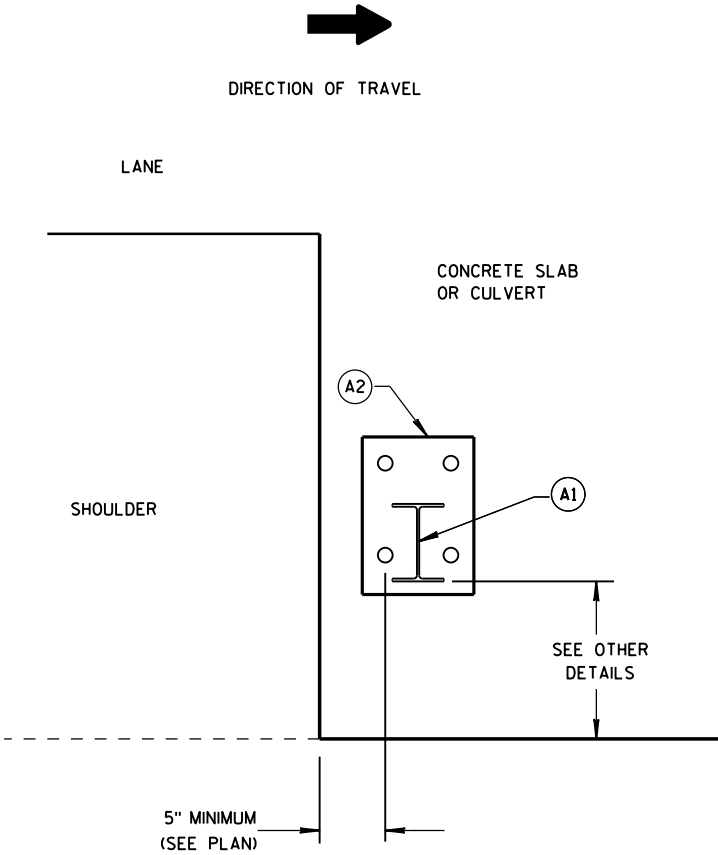
SECTION A-A

SEE NOTE (4)



OBSTRUCTION AND JOINT PLACEMENT

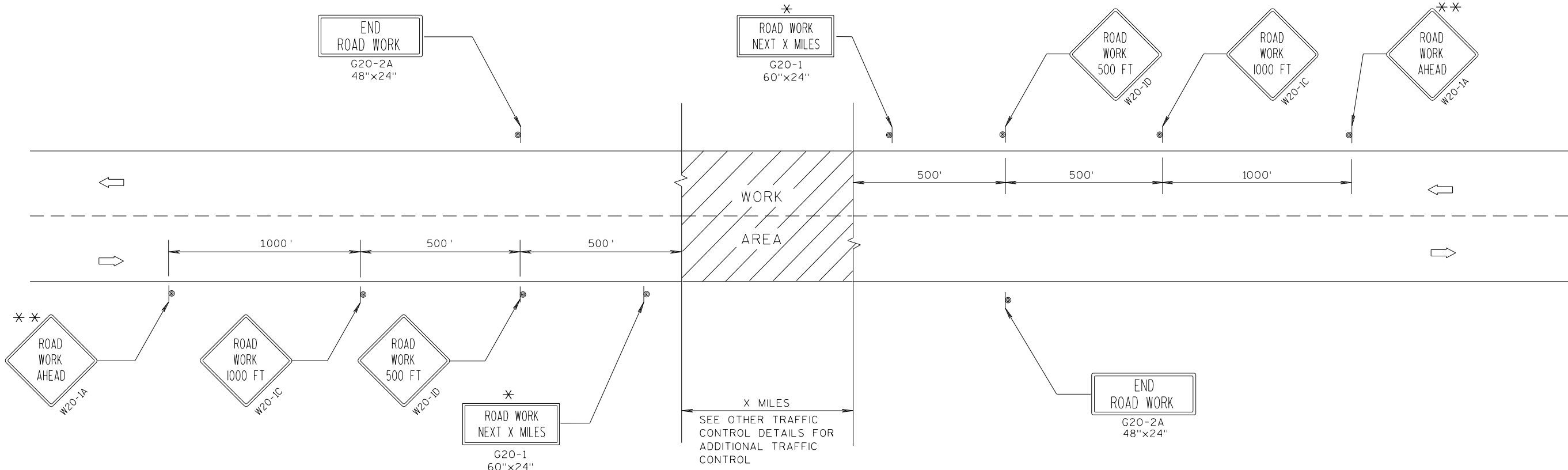
SEE NOTE (4)



EDGE PLACEMENT

SEE NOTE (4)

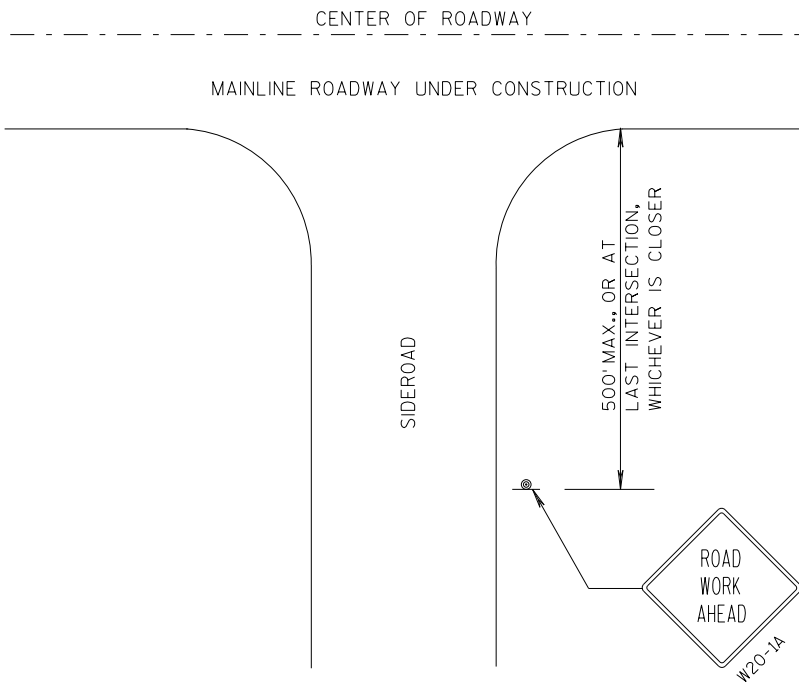
ANCHOR POST ASSEMBLY TOP-MOUNTED	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2014 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

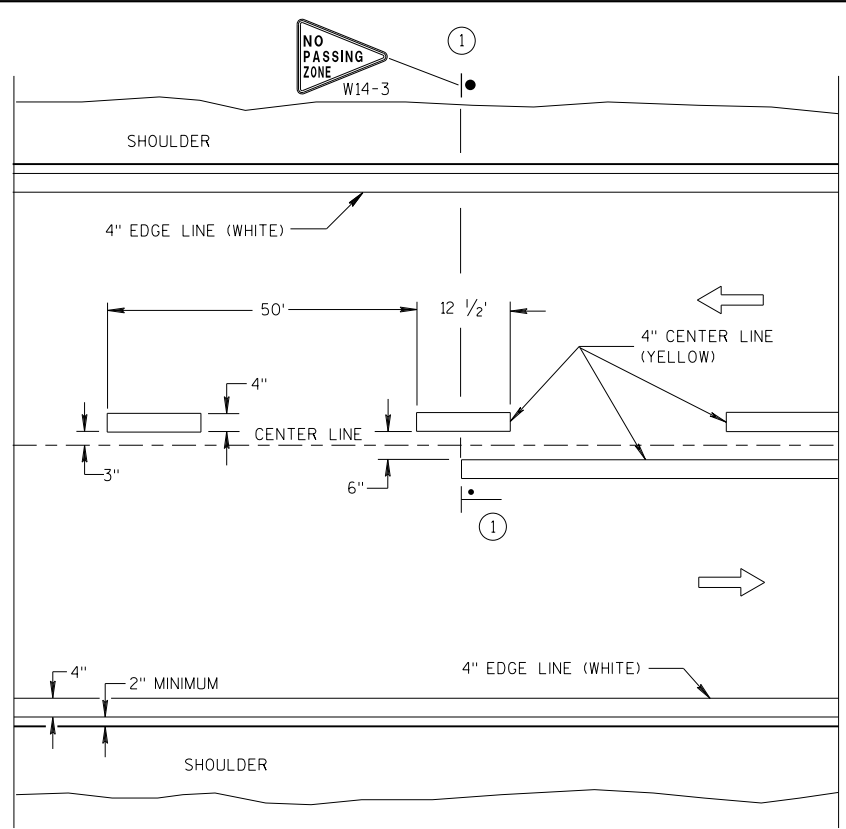
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.
- SIGNS THAT WILL BE IN PLACE LESS THAN 7 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 RE-ESTABLISHED.
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.
- * * PLACE ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



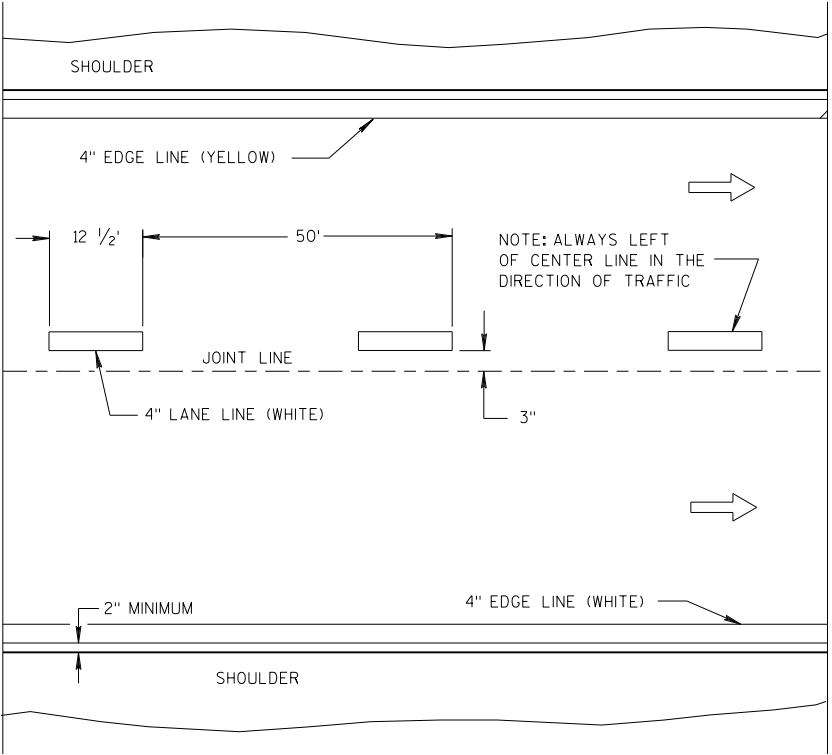
LEGEND

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

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

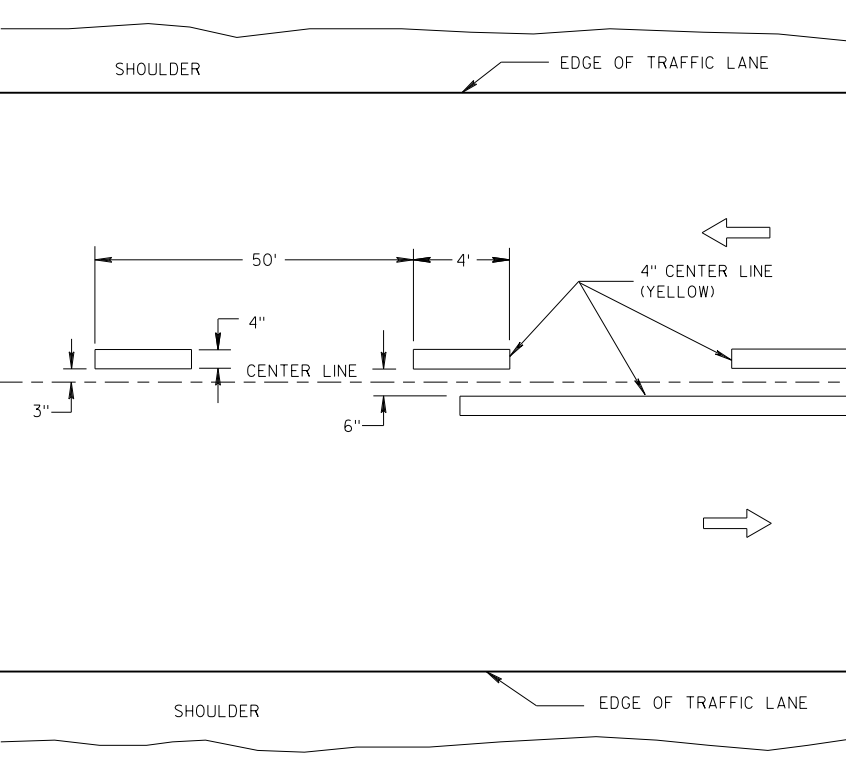


TWO WAY TRAFFIC

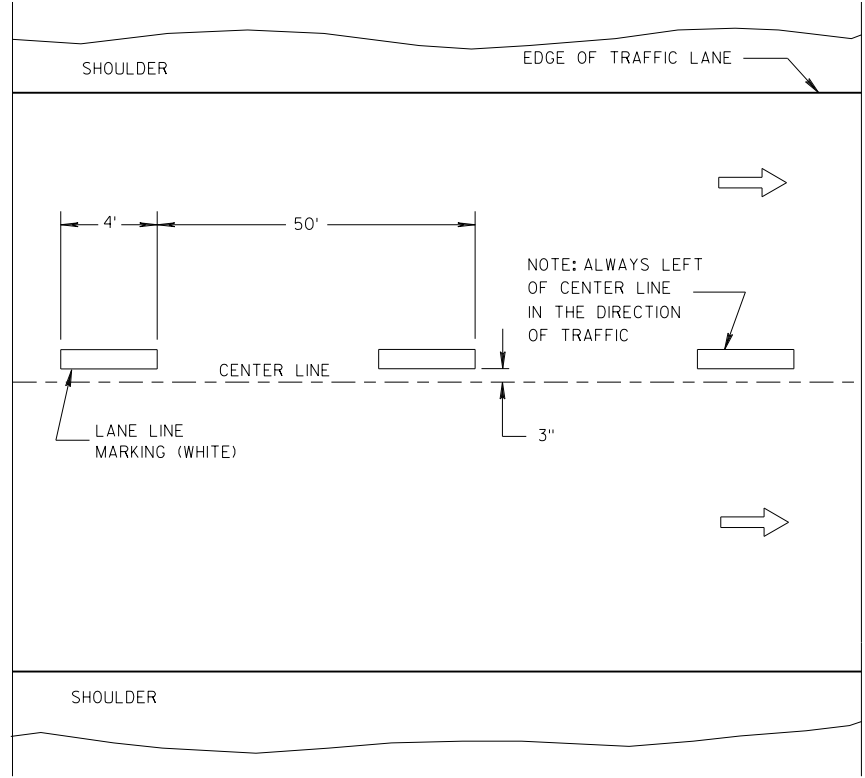


ONE WAY TRAFFIC

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.

NOTE

ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL

LEGEND

- "T" MARKING
- POST MOUNTED SIGN

LONGITUDINAL MARKING (MAINLINE)

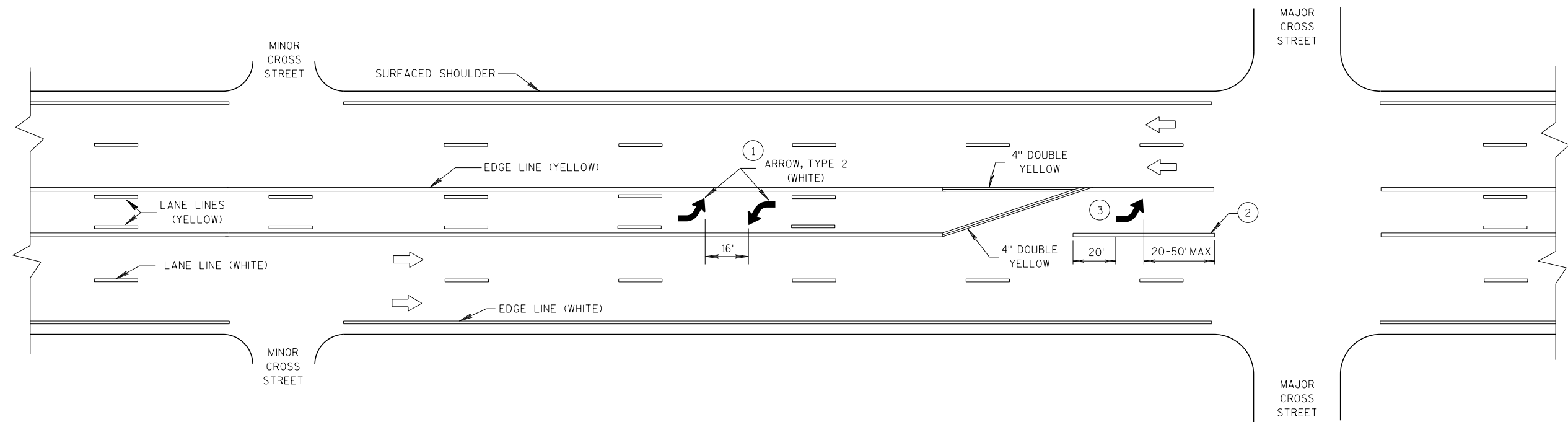
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

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

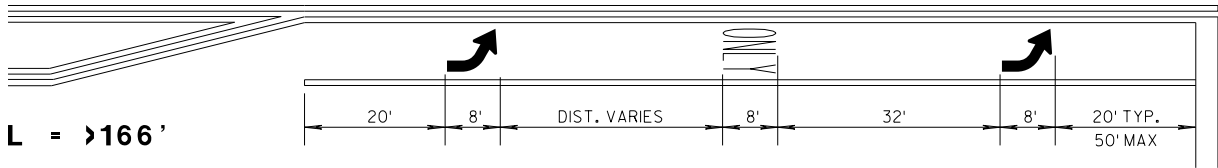
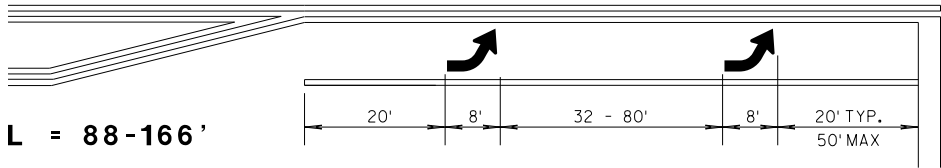
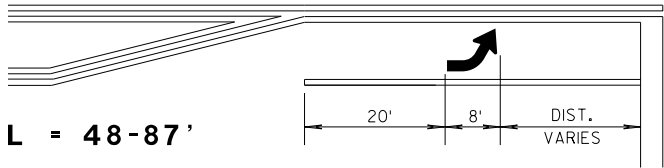
➔ DIRECTION OF TRAFFIC



TWO WAY LEFT TURN LANE

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)

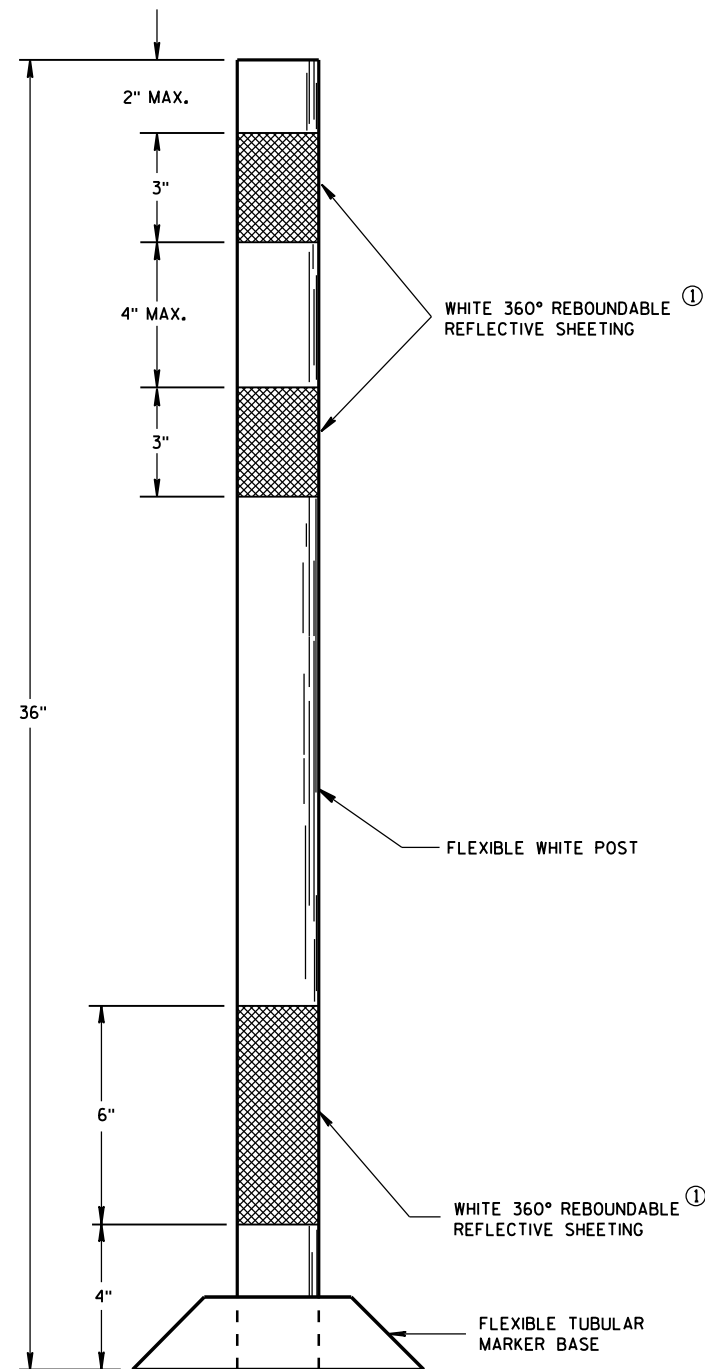
GENERAL NOTES

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

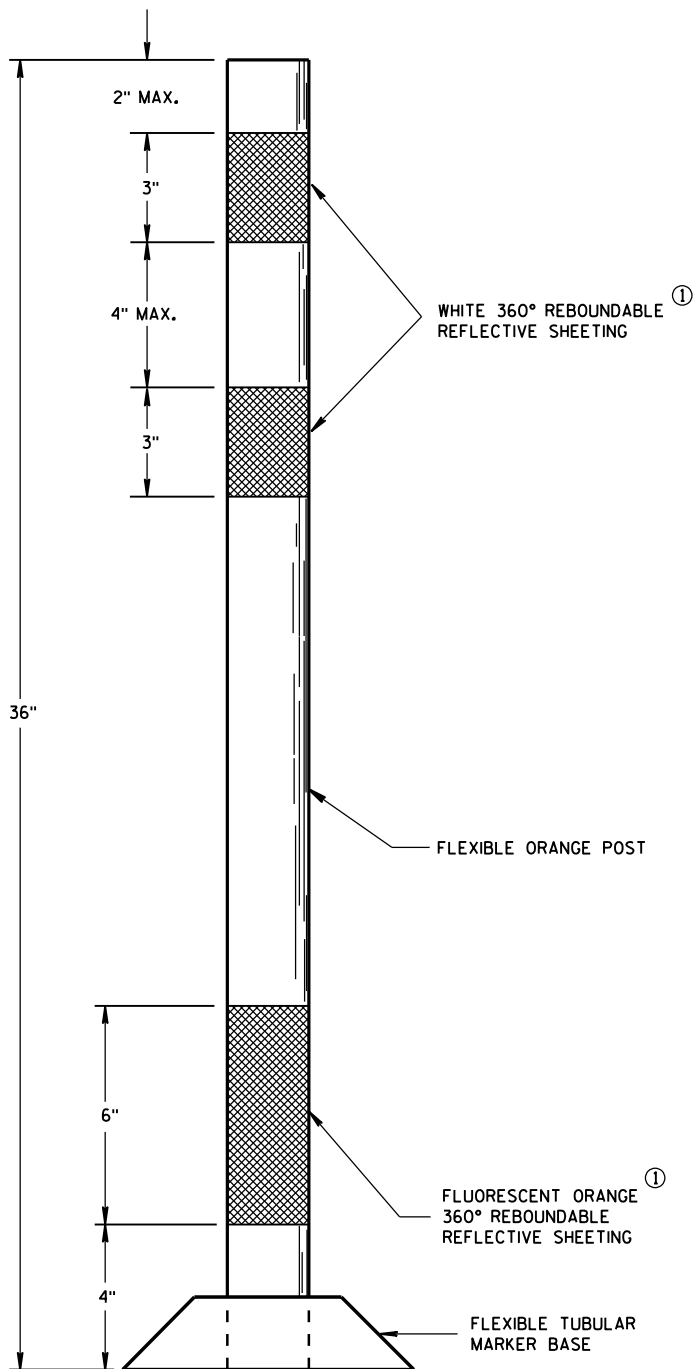
→ DIRECTION OF TRAFFIC
L = LENGTH OF TURN BAY

PAVEMENT MARKING
(TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**FLEXIBLE
TUBULAR MARKER POST
PERMANENT CROSSOVER**



**FLEXIBLE
TUBULAR MARKER POST
WORK ZONE**

GENERAL NOTES

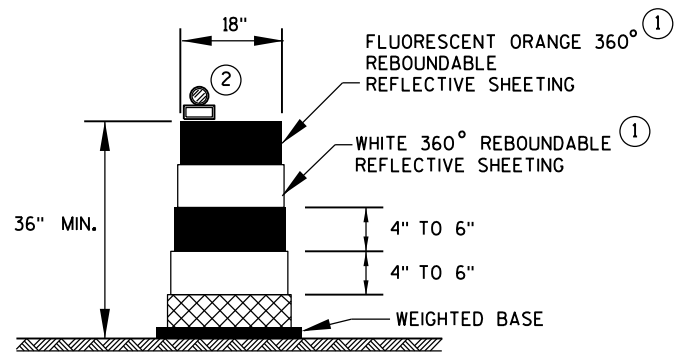
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

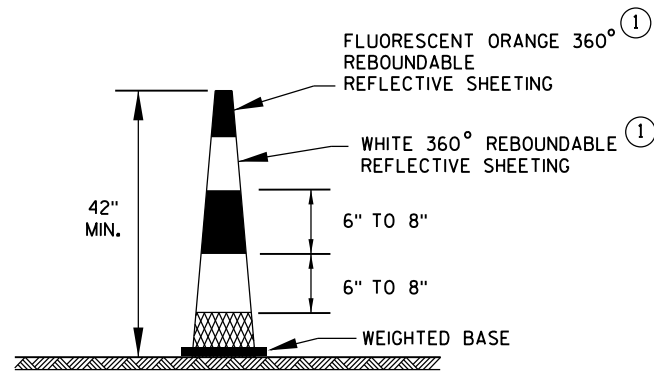
THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heldtke WORK ZONE ENGINEER
FHWA	



DRUM

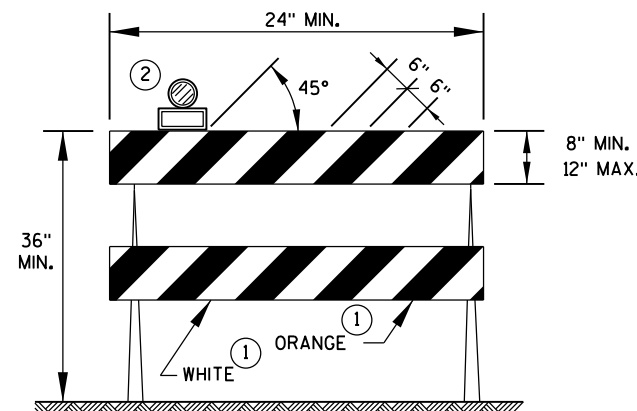


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

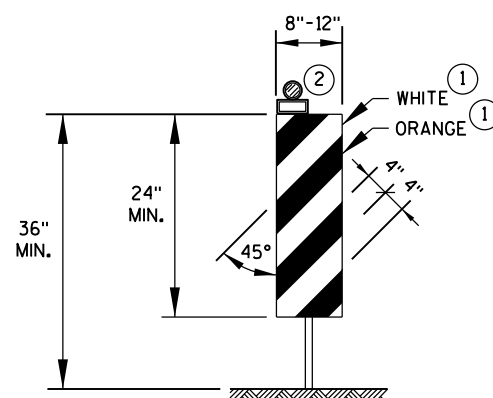
GENERAL NOTES

- 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.



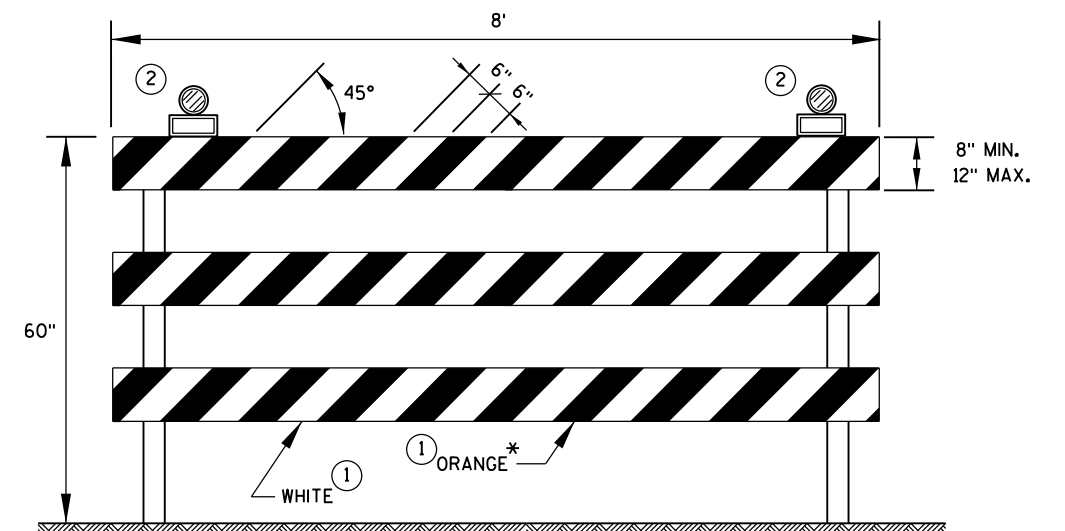
TYPE 2 BARRICADE

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



VERTICAL PANEL

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



TYPE 3 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

June 2017
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

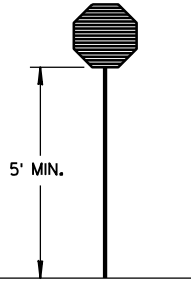
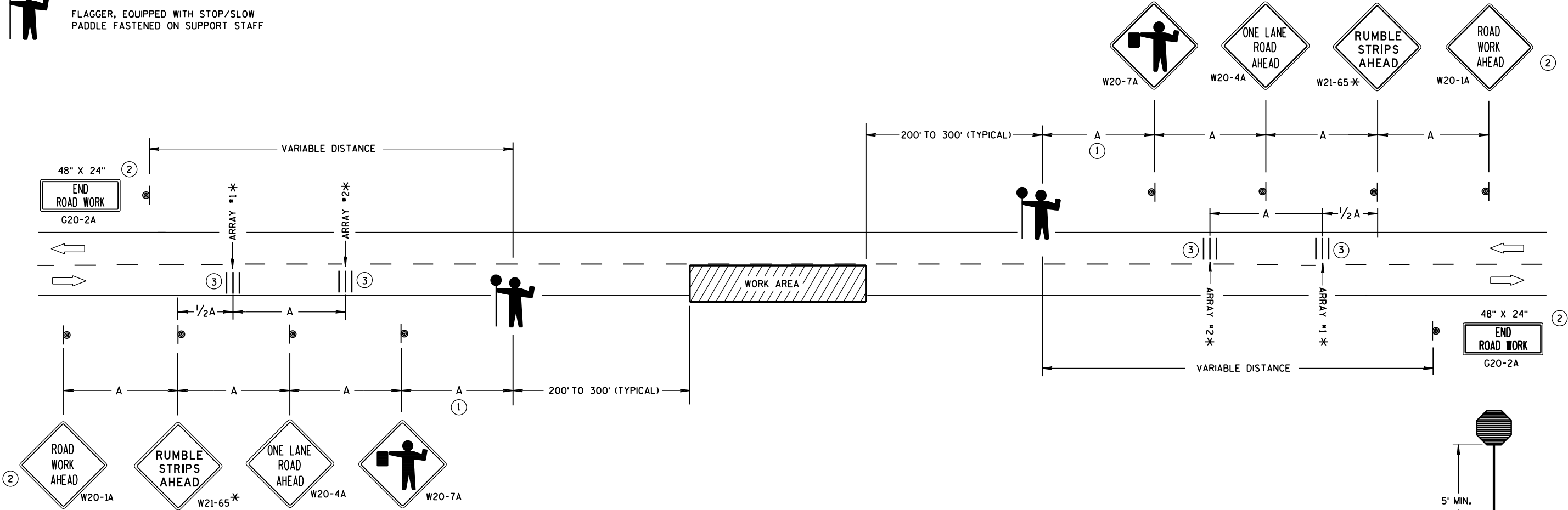
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



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



STOP/SLOW PADDLE ON SUPPORT STAFF

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

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.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES (AND THE 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.

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

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.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS. PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

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 RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

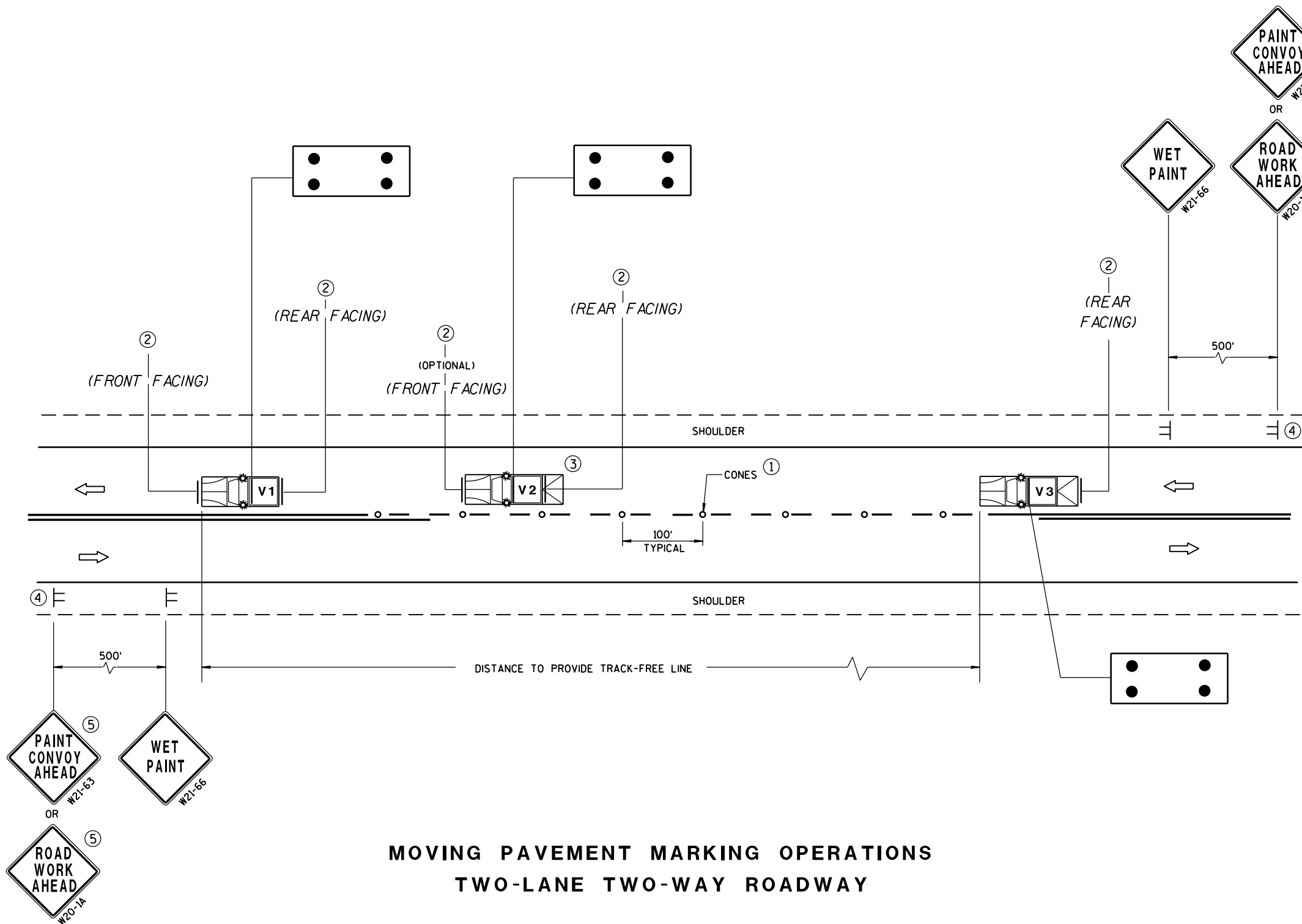
* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

- FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

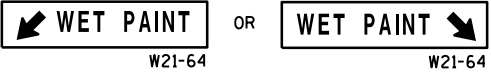
APPROVED
June 2017 /S/ Andrew Heldtke
DATE WORK ZONE ENGINEER
FHWA



MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY

GENERAL NOTES

- ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.
- 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.
- IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.
- ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.
- DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.
- THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.
- WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.
- ① CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.
- ② USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.
- ③ OPTIONAL TRUCK-MOUNTED ATTENUATOR.
- ④ SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ⑤ IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.



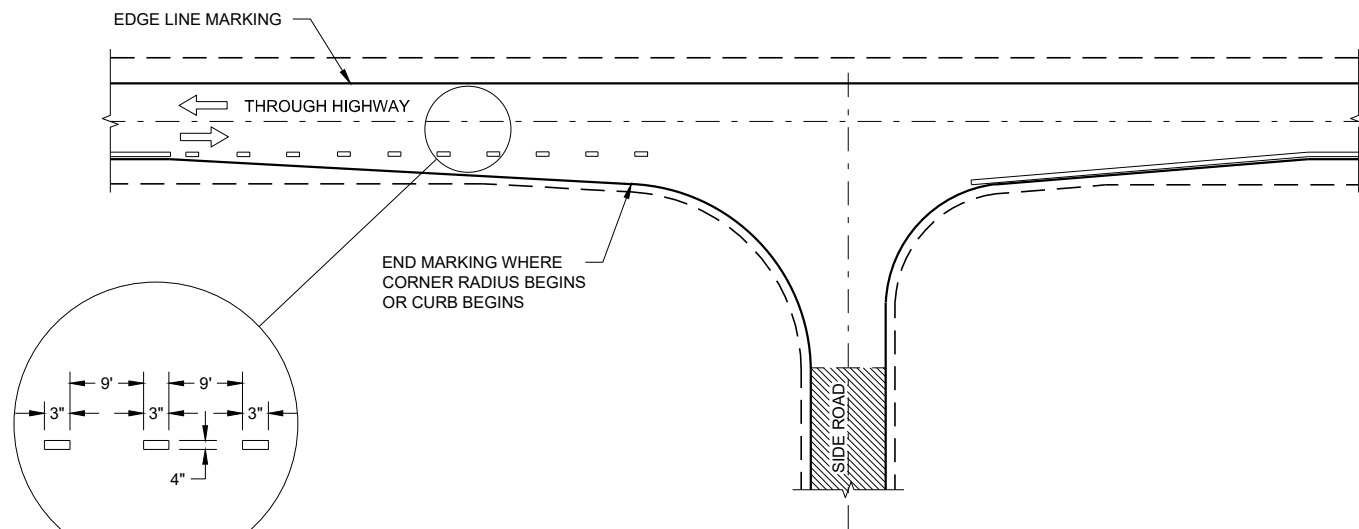
LEGEND

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

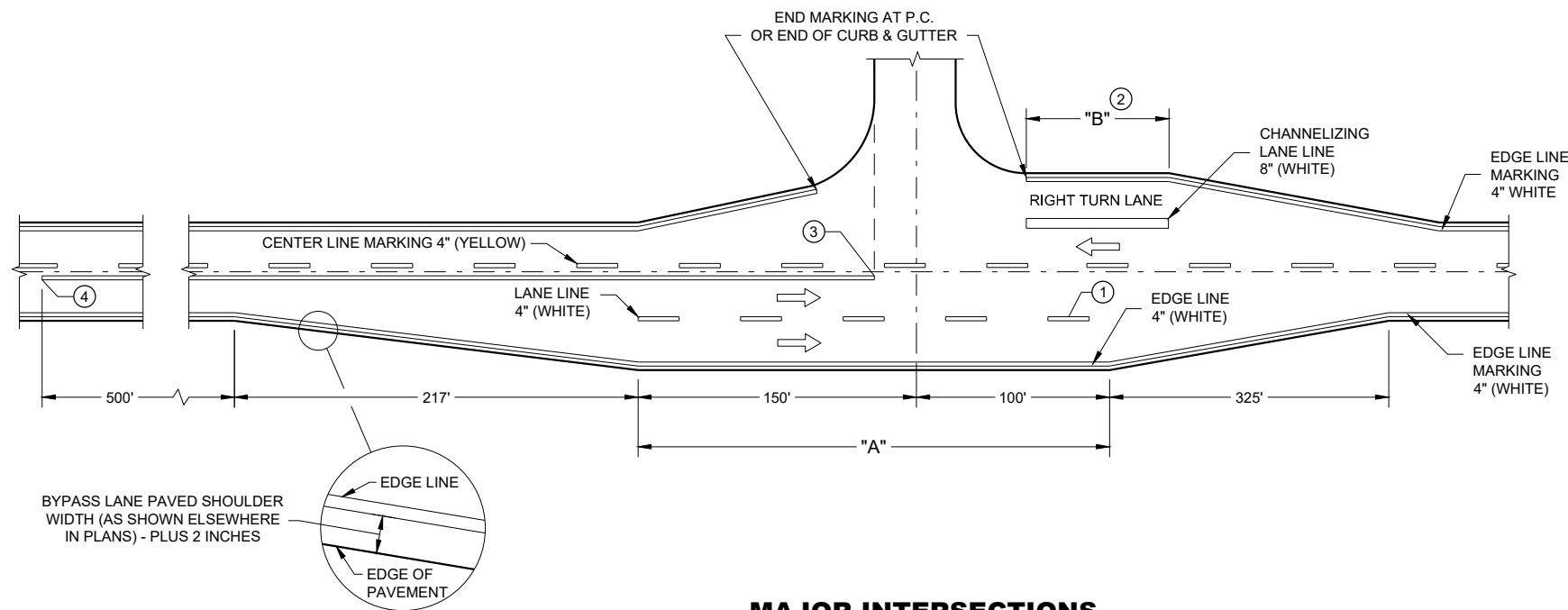
MOVING PAVEMENT MARKING
OPERATION
TWO-LANE TWO-WAY ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



MINOR INTERSECTION



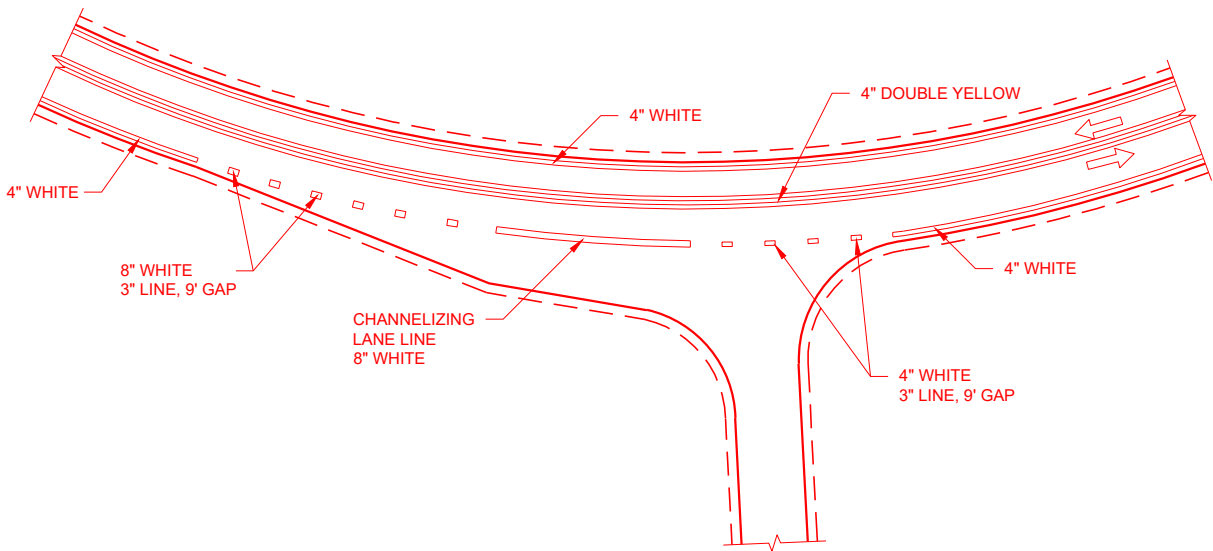
MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

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

ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

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

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

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

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

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

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.

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

TABLE A

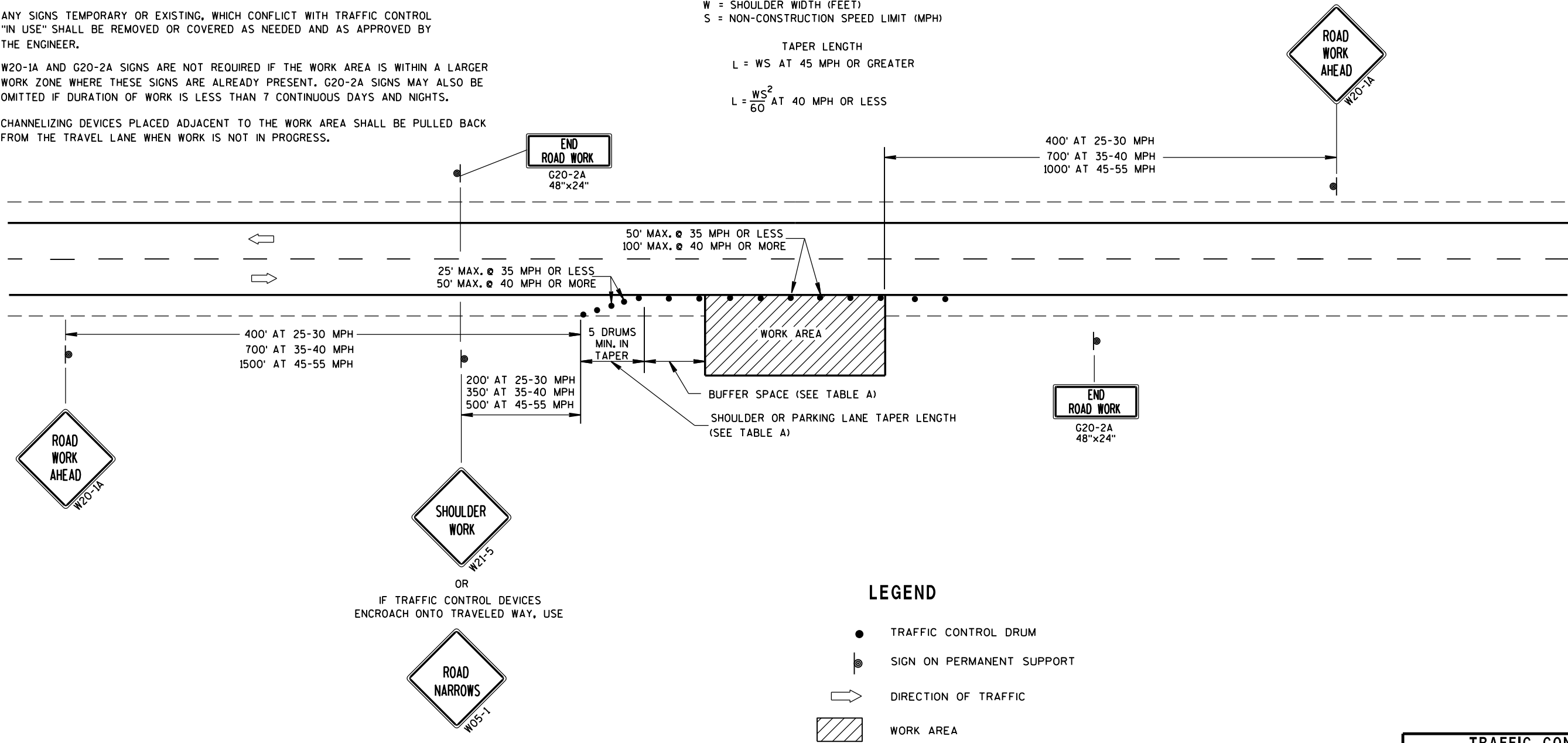
SHOULDER TAPER LENGTH (FEET)					BUFFER SPACE (FEET)
S	W	4	6	8	
30	20	30	40	50	200
35	30	45	55	70	250
40	40	55	75	90	305
45	60	90	120	150	360
50	70	100	135	170	425
55	75	110	150	185	495

W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

TAPER LENGTH
L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

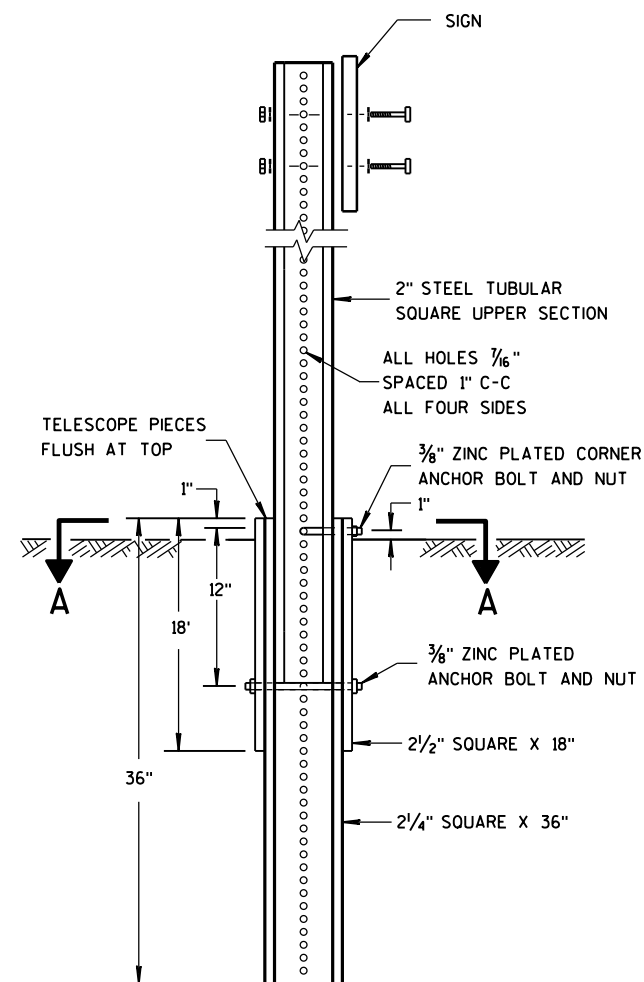
SHOULDER TAPER LENGTH = $\frac{1}{3}L$



LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED July 14, 2015 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

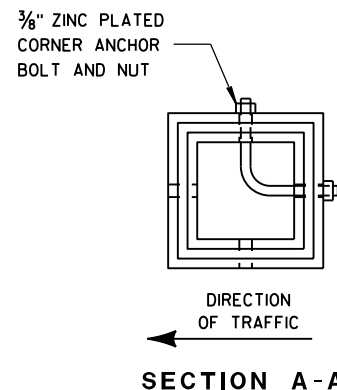


DETAIL OF TUBULAR STEEL SIGN POST

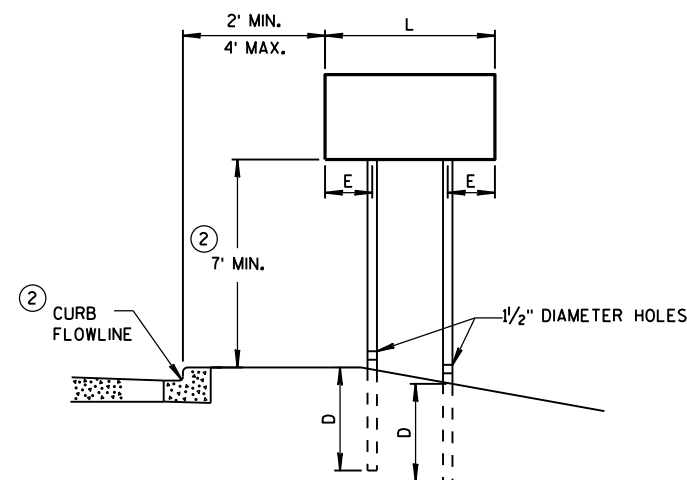
TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.



SECTION A-A

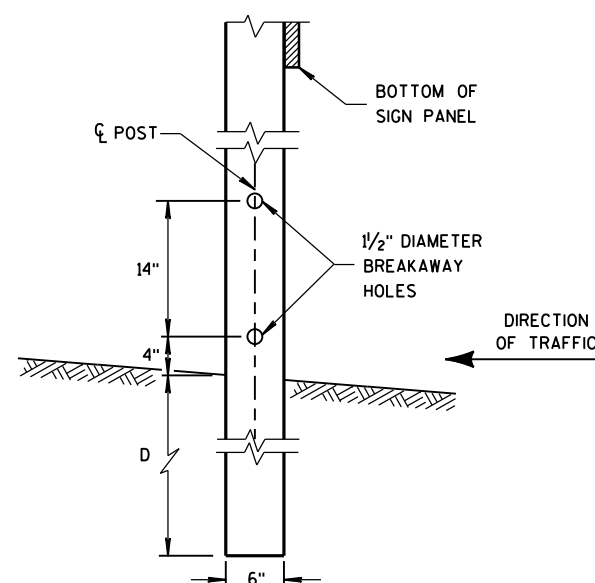


URBAN AREA

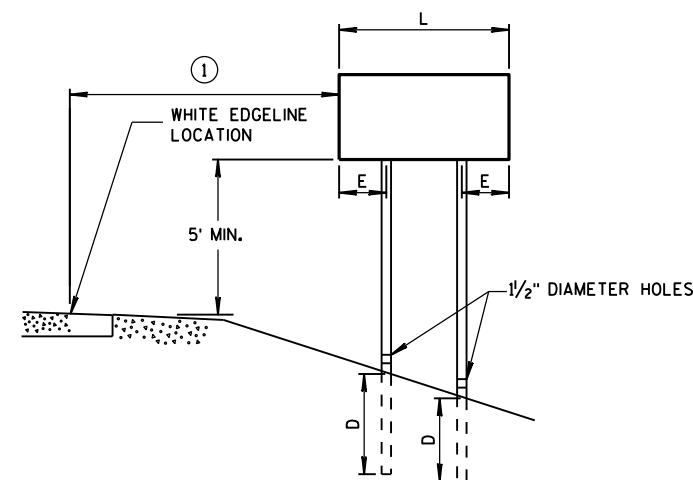
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



4"x6" WOOD POST MODIFICATION



RURAL AREA

4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

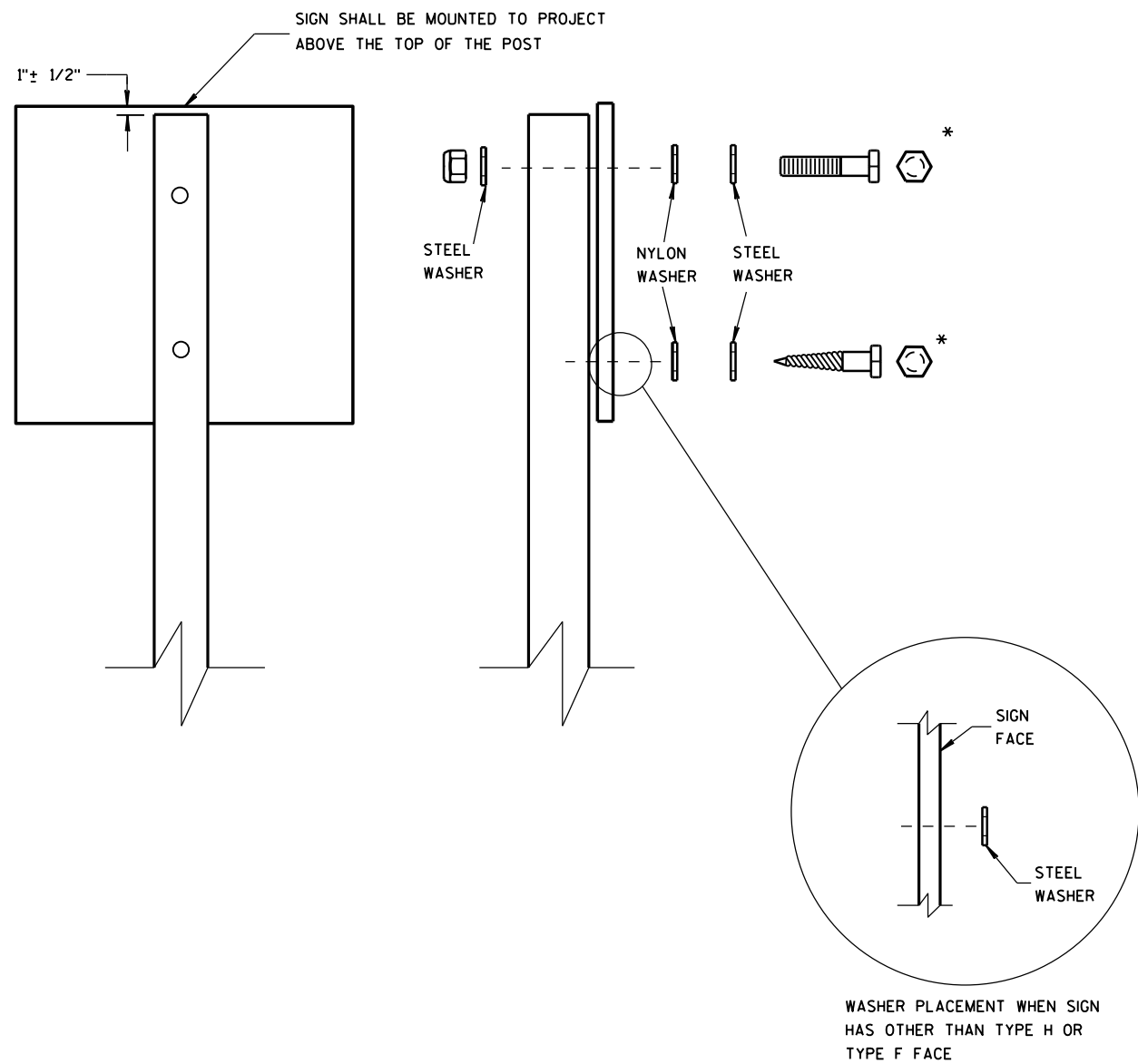
SEE NOTE ③

GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

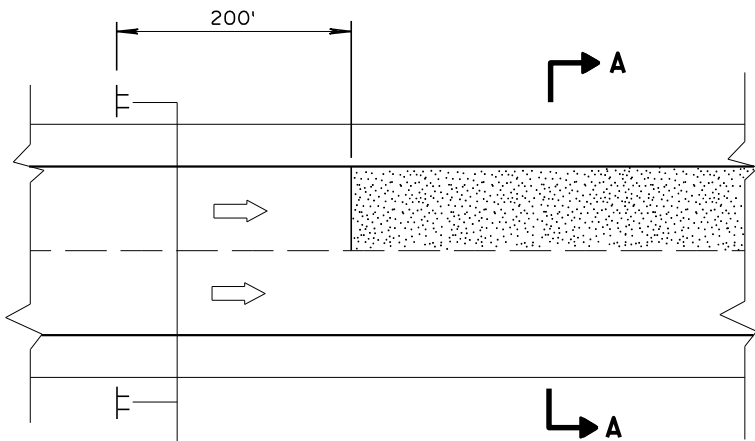
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" x 3"
 - MACHINE BOLTS - 5/16" x 6-1/2" OR 7" LENGTH W/ NUTS

- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

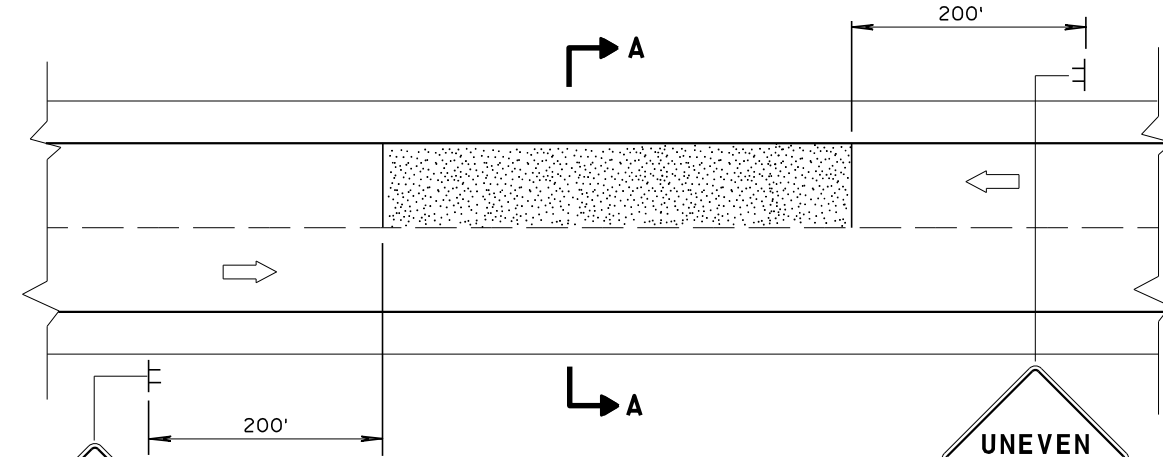
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. x 3/8" I.D. x 1/16" STEEL
 - 1-1/4" O.D. x 3/8" I.D. x .080 NYLON FOR ALL TYPE H SIGNS

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heldtke WORK ZONE ENGINEER
FHWA	



MULTI-LANE

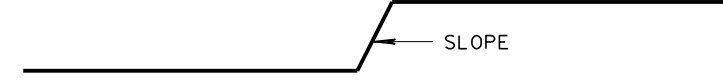


TWO-WAY TWO LANE

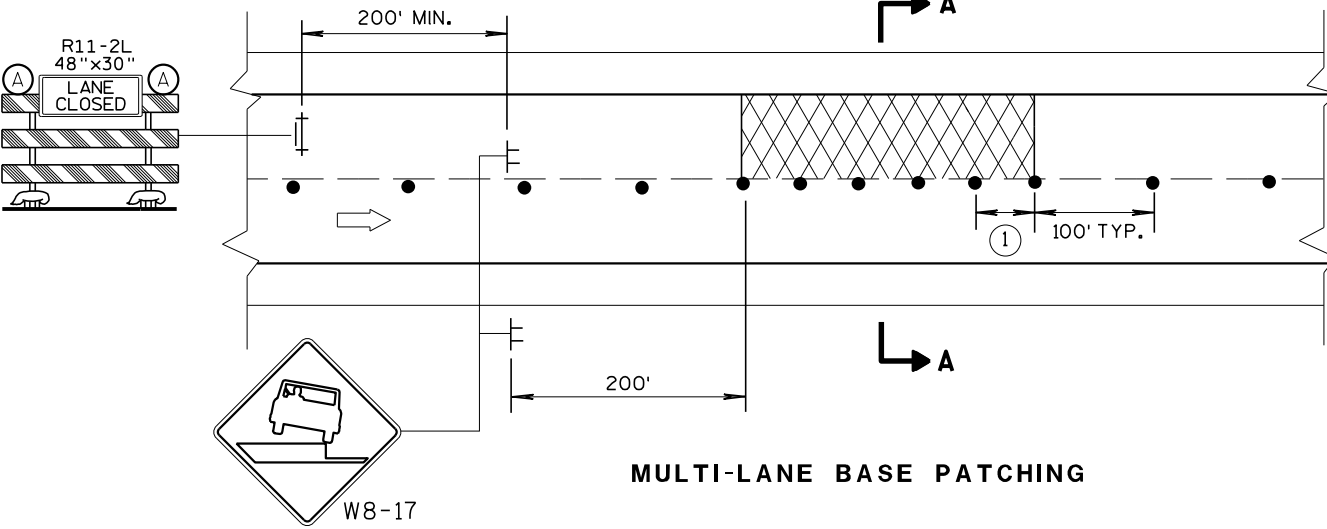


SECTION A-A

OR

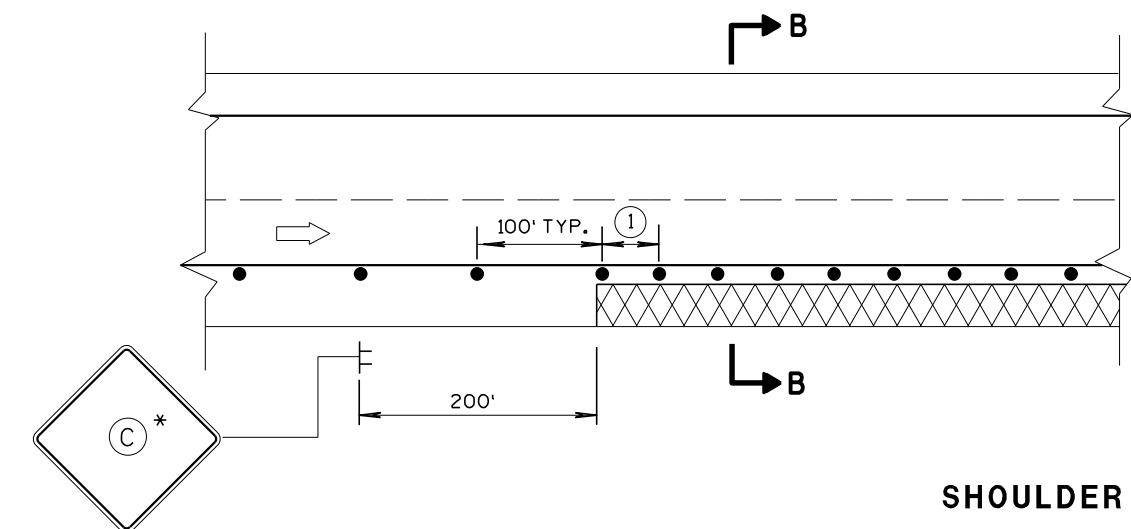


SECTION A-A

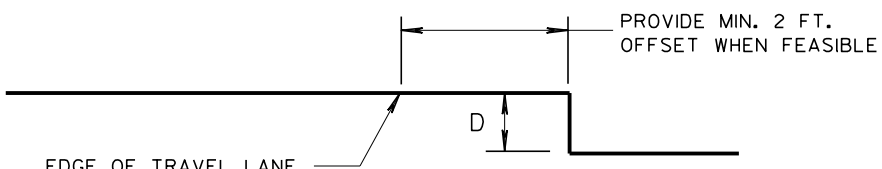


MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS



SHOULDER DROP-OFFS



SECTION B-B

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 EACH ENTRANCE RAMP.

① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

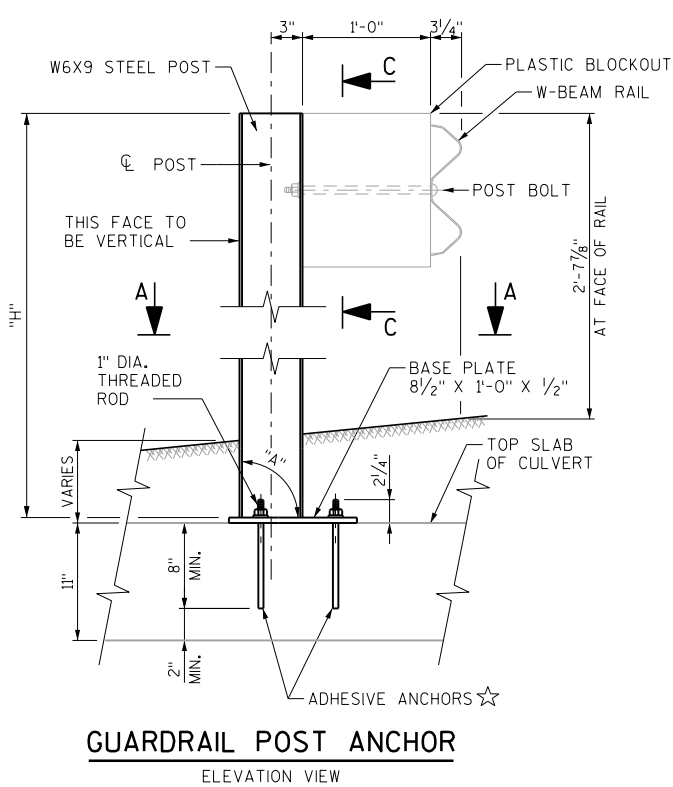
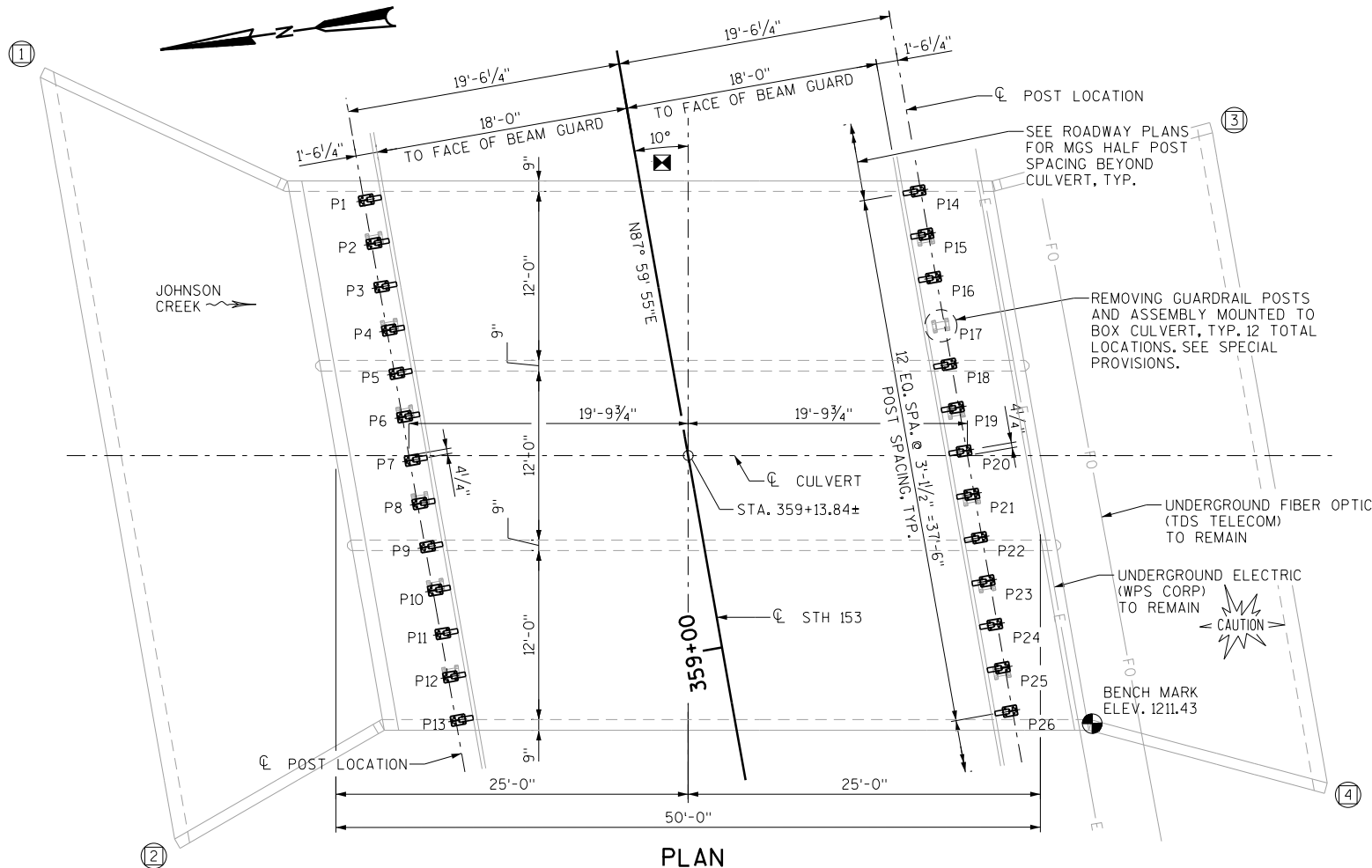
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

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

TRAFFIC CONTROL,
DROP-OFF SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



POST HEIGHTS

POST NO.	"H"	"A"	POST NO.	"H"	"A"
P1	49.25'	90°07'	P14	50.25'	89°53'
P2	49.25'	90°07'	P15	50.25'	89°53'
P3	49.25'	90°07'	P16	50.25'	89°53'
P4	49.25'	90°07'	P17	50.25'	89°53'
P5	49.25'	90°07'	P18	50.25'	89°53'
P6	49.25'	90°07'	P19	50.25'	89°53'
P7	49.50'	90°07'	P20	50.50'	89°53'
P8	49.50'	90°07'	P21	50.50'	89°53'
P9	49.50'	90°07'	P22	50.50'	89°53'
P10	49.50'	90°07'	P23	50.50'	89°53'
P11	49.50'	90°07'	P24	50.50'	89°53'
P12	49.50'	90°07'	P25	50.50'	89°53'
P13	49.50'	90°07'	P26	50.50'	89°53'

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
206.2000	EXCAVATION FOR STRUCTURES CULVERTS B-37-301	LS	1
210.2500	BACKFILL STRUCTURE TYPE B	TON	23

BENCH MARK

STATION	DESCRIPTION	ELEV.
358+90.12±	TOP OF WING WALL 4	1211.43
24.94' RT		

LIST OF DRAWINGS

1. BEAM GUARD POST ANCHOR LAYOUT

TRAFFIC DATA

STH 153
ADT = 1,500 (2039)
R.D.S = 60 MPH



STRUCTURES DESIGN CONTACTS
BRIDGE OFFICE:
BILL DREHER (608) 266-8489
CONSULTANT:
VINCENT DIFRANCES (262) 573-3864

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

DETAILS SHOWN FOR POSTS, PLATES, ANCHORAGE SYSTEM AND INSTALLATION, BLOCKS, AND GUARD RAIL ARE NOT PART OF THE STRUCTURE CONTRACT, BUT ARE BID PER THE ROADWAY DESIGN PLANS.

POST BASE PLATES (AND BOTTOM PLATES IF USED) SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

CUT BOTTOM OF POST SO THAT POST WILL BE VERTICAL WHEN POST ASSEMBLY IS PLACED ON TOP OF THE CULVERT. ALONG THE ROADWAY THE POST WILL BE NORMAL TO GRADE LINE. HEX BOLTS AND THREADED RODS ARE TO BE PLACED PERPENDICULAR TO THE BASE PLATE.

POST, BASE PLATE (AND BOTTOM PLATE IF USED), AND SHIMS SHALL BE GALVANIZED AFTER FABRICATION.

PRIOR TO GALVANIZING, ALL STEEL POSTS AND PLATES SHALL BE GIVEN A NO. 6 COMMERCIAL BLAST CLEANING BY SSPC SPECIFICATIONS.

ALL MATERIAL USED IN POSTS AND PLATES SHALL BE MADE FROM MATERIAL CONFORMING TO ASTM DESIGNATION A709 GRADE 50 OR 50S.

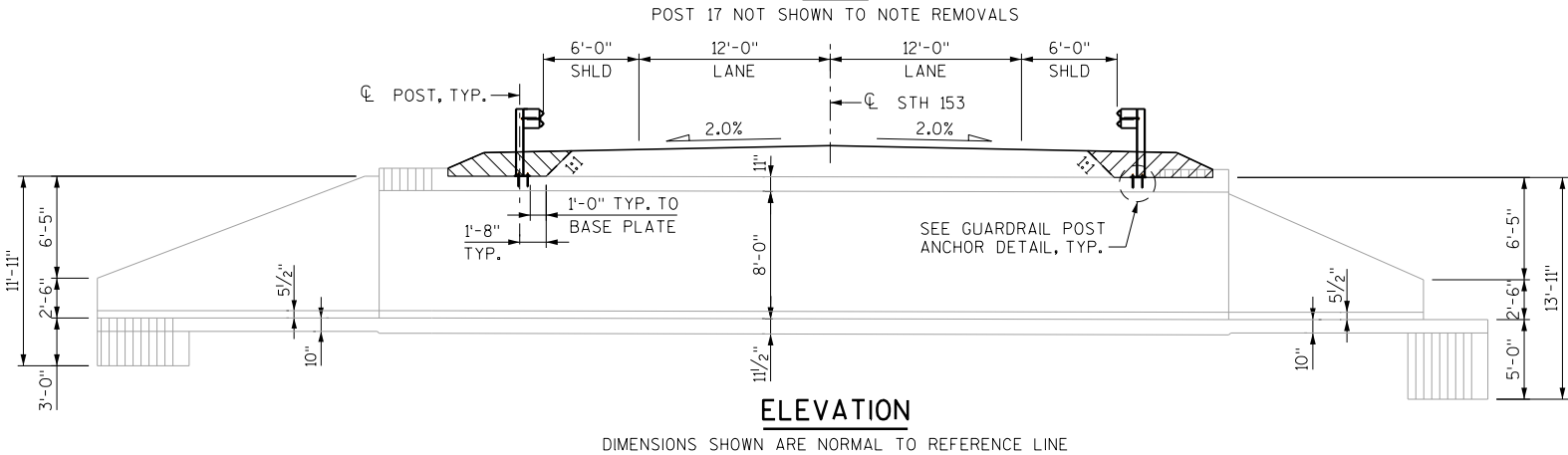
HEX BOLTS, THREADED RODS, HEX NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F1554 GRADE 36, AND SHALL BE GALVANIZED. RODS ARE TO BE FULLY THREADED AND BOLTS TO BE THREADED 3". CHAMFER TOP OF BOLTS AND RODS BEFORE THREADING.

STEEL SHIMS MAY BE USED BETWEEN PLATES AND SLAB WHERE REQUIRED FOR ALIGNMENT.

EXISTING WOOD POSTS AND BASE PLATE ASSEMBLIES ARE TO BE REMOVED. REMOVALS SHALL BE PAID UNDER BID ITEM "REMOVING GUARDRAIL POSTS AND ASSEMBLY MOUNTED TO BOX CULVERT". SEE SPECIAL PROVISIONS.

LEGEND

- ADHESIVE ANCHORS 1-INCH. EMBED IN CONCRETE AS DETAILED. CHARACTERISTIC BOND STRENGTH SHALL MEET OR EXCEED 1305 PSI FOR UNCRACKED CONCRETE.
- SKIEW TAKEN FROM AS-BUILT STRUCTURE PLANS.
- ELEVATIONS CALCULATED FROM EXISTING BENCH MARK AND ORIGINAL PLAN DIMENSIONS. CONTRACTOR TO FIELD VERIFY APRON ELEVATIONS, AND COMPLETE ADJUSTMENTS TO POST HEIGHT "H" BASED ON FIELD CONDITIONS.
- WELDING IS TO BE COMPLETED USING THE GAS-METAL ARC WELDING (GMAW) PROCESS WITH E70S-3 WELDING WIRE AND ARGON-OXYGEN OR CO2 COVER GAS.
- (X) INDICATES WING WALL NUMBER.
- LIMITS OF EXCAVATION. EXCAVATION SHALL BE PAID UNDER BID ITEM "EXCAVATION FOR STRUCTURES CULVERTS B-37-301". SEE ROADWAY PLANS FOR FINISHED SECTION THRU BEAM GUARD.

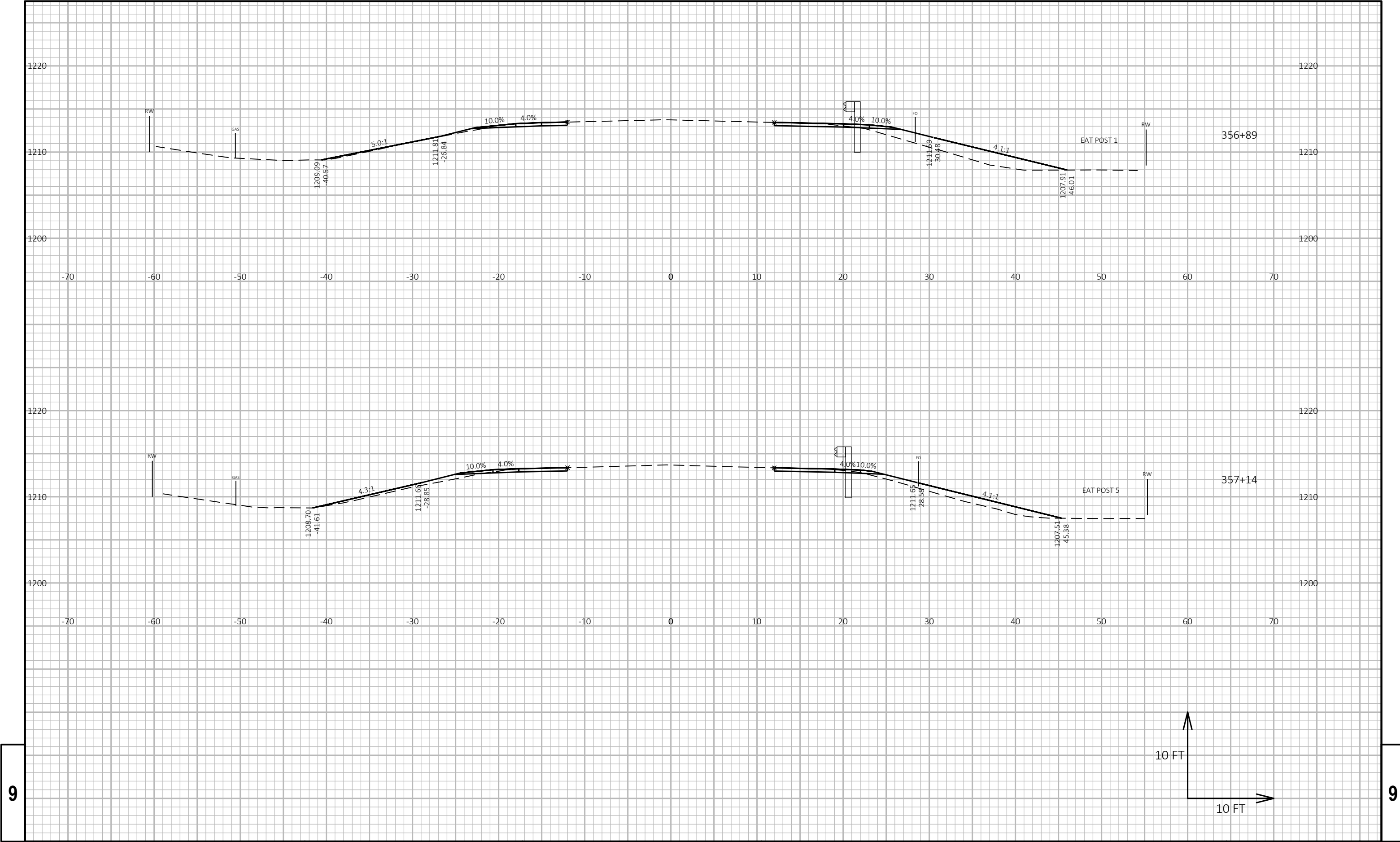


SECTION A-A
POST & BASE PLATE

STEEL SHIM DETAIL
4 PER POST

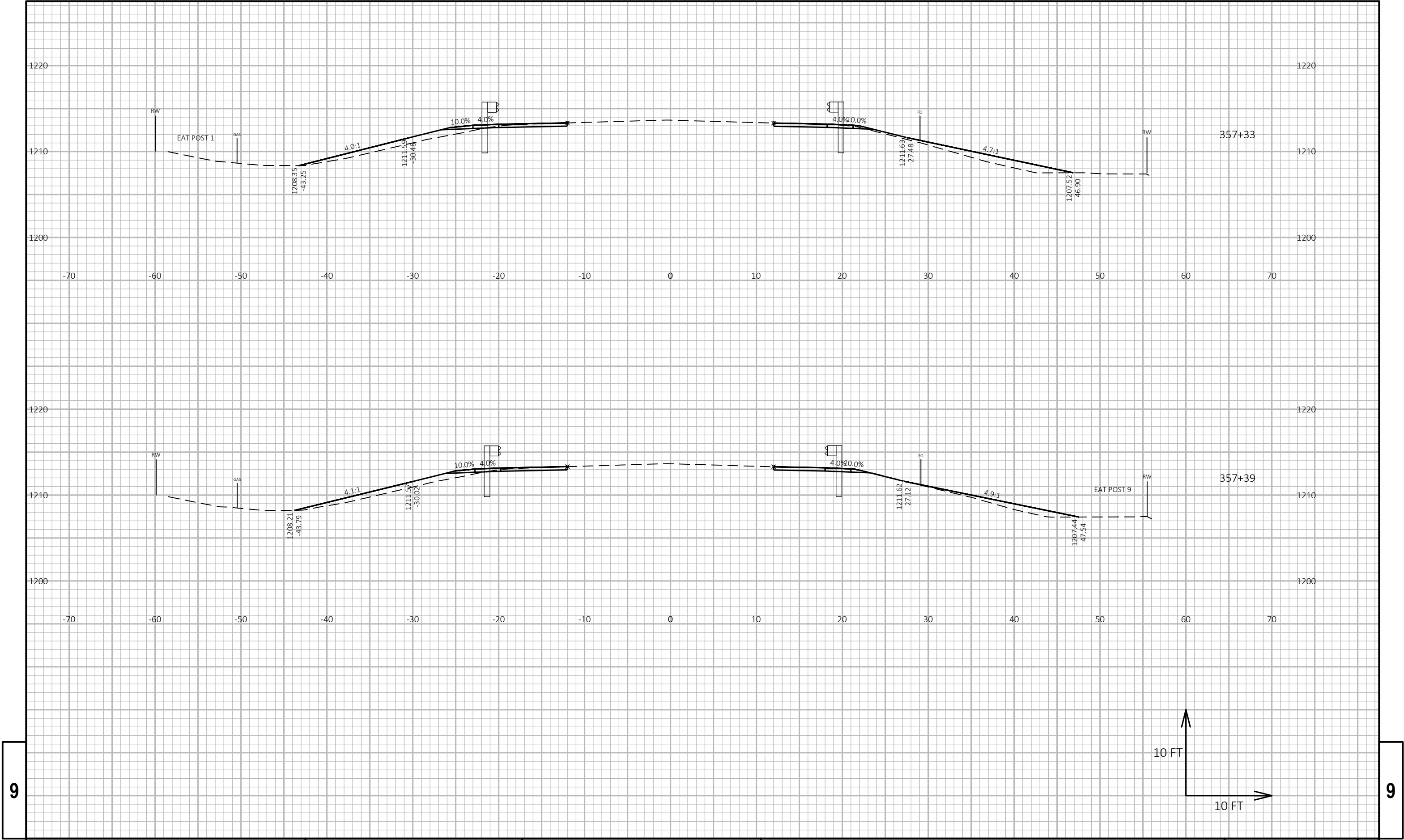
SECTION C-C

HOLE IN POST FLANGE ON
APPROACHING TRAFFIC SIDE



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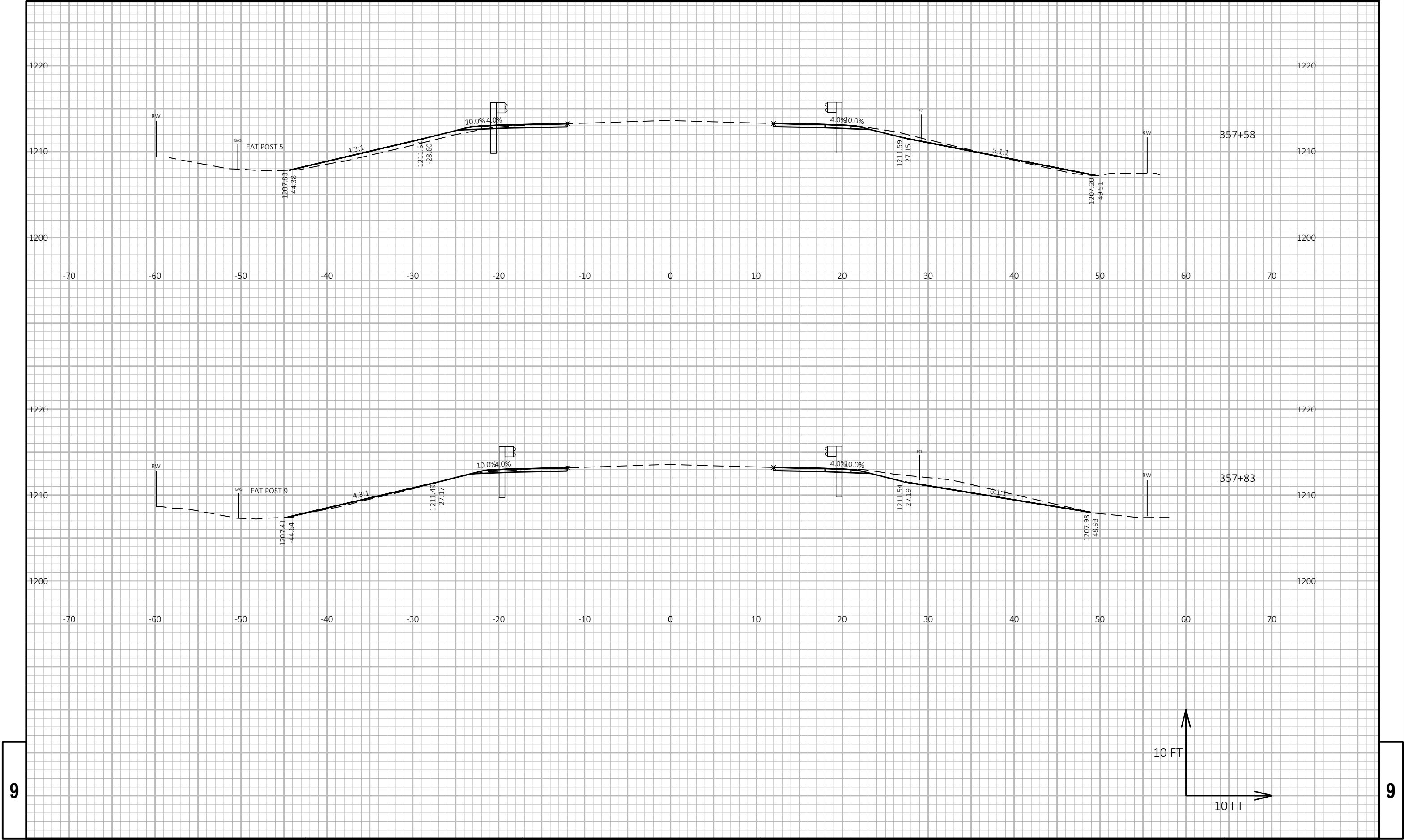
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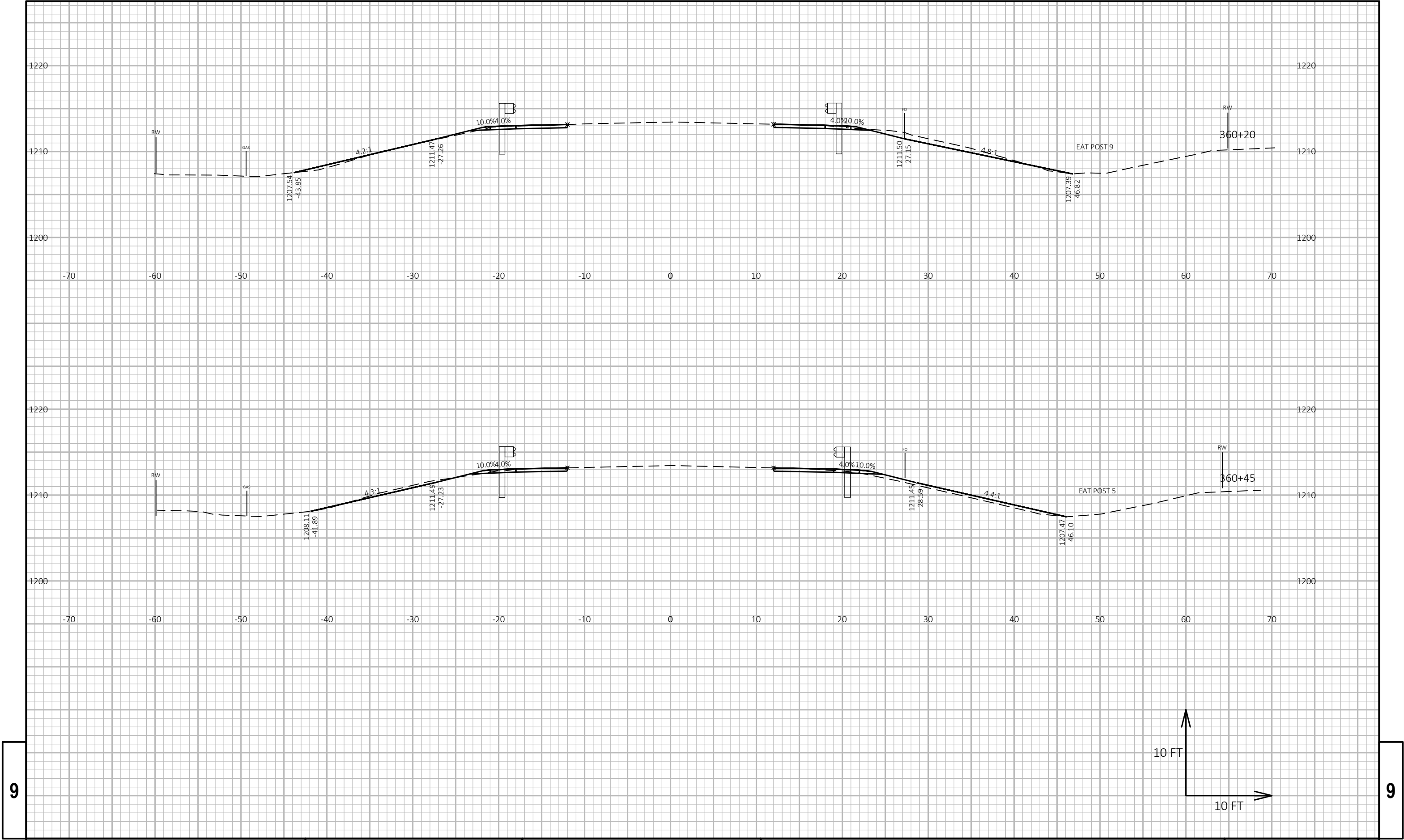
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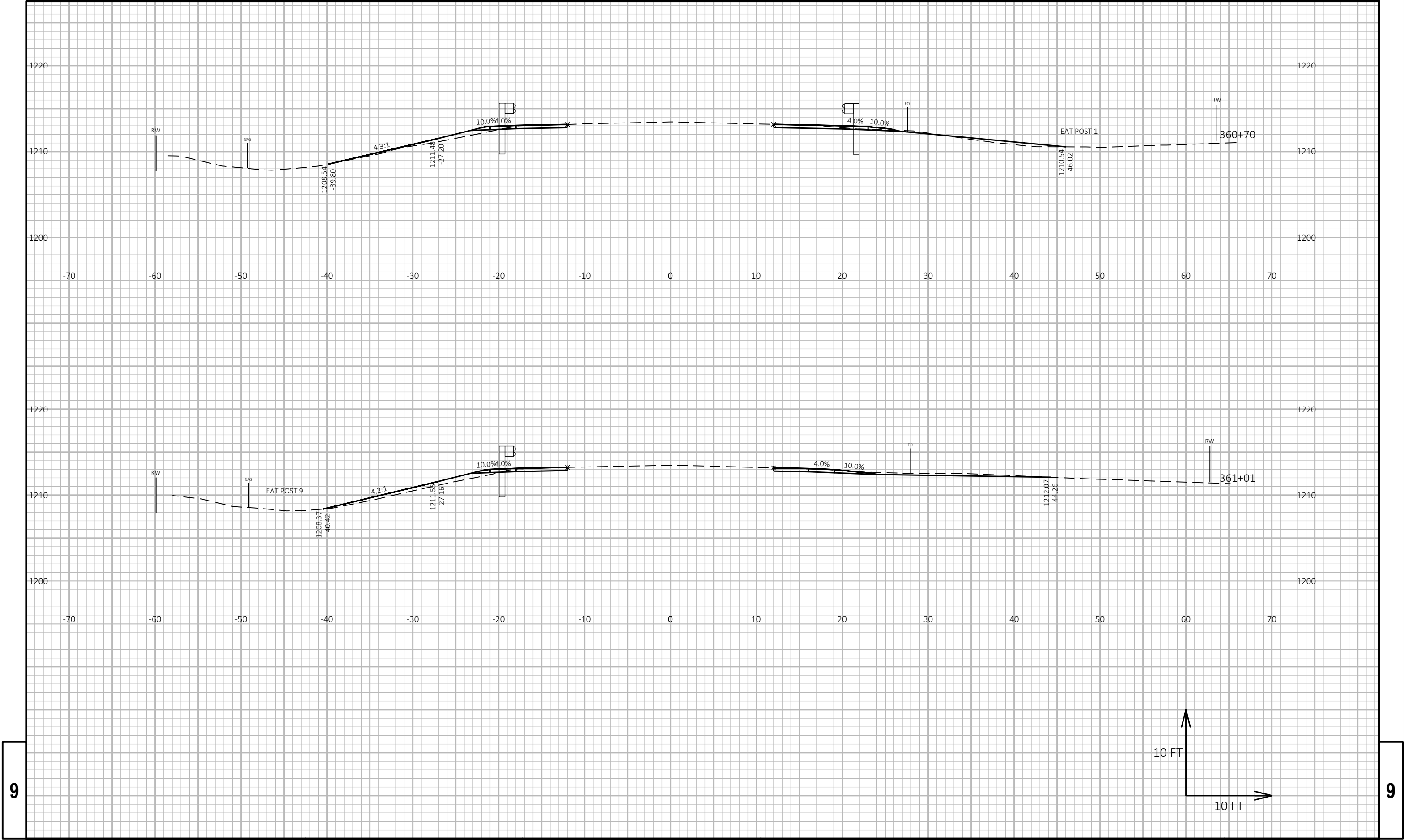
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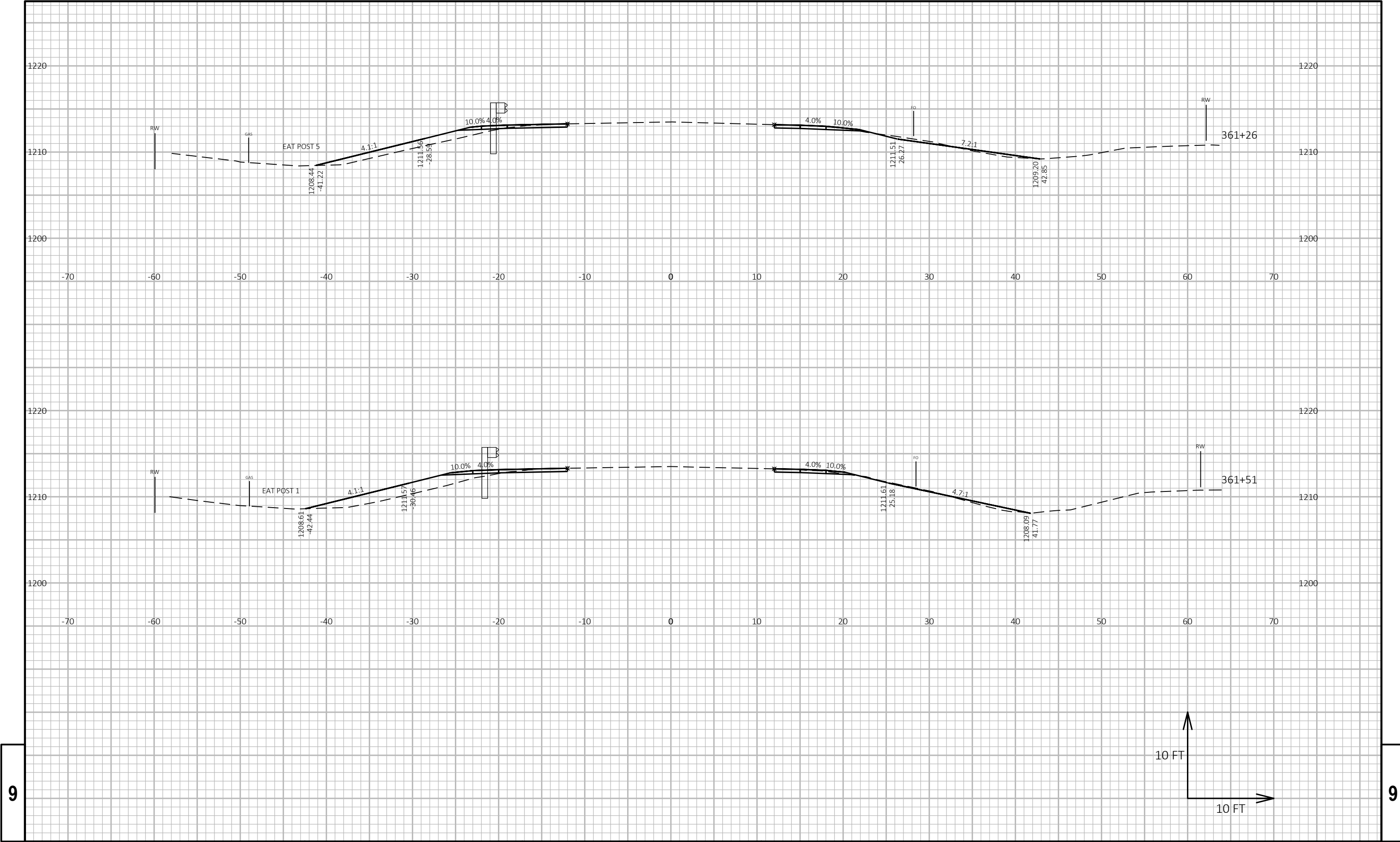
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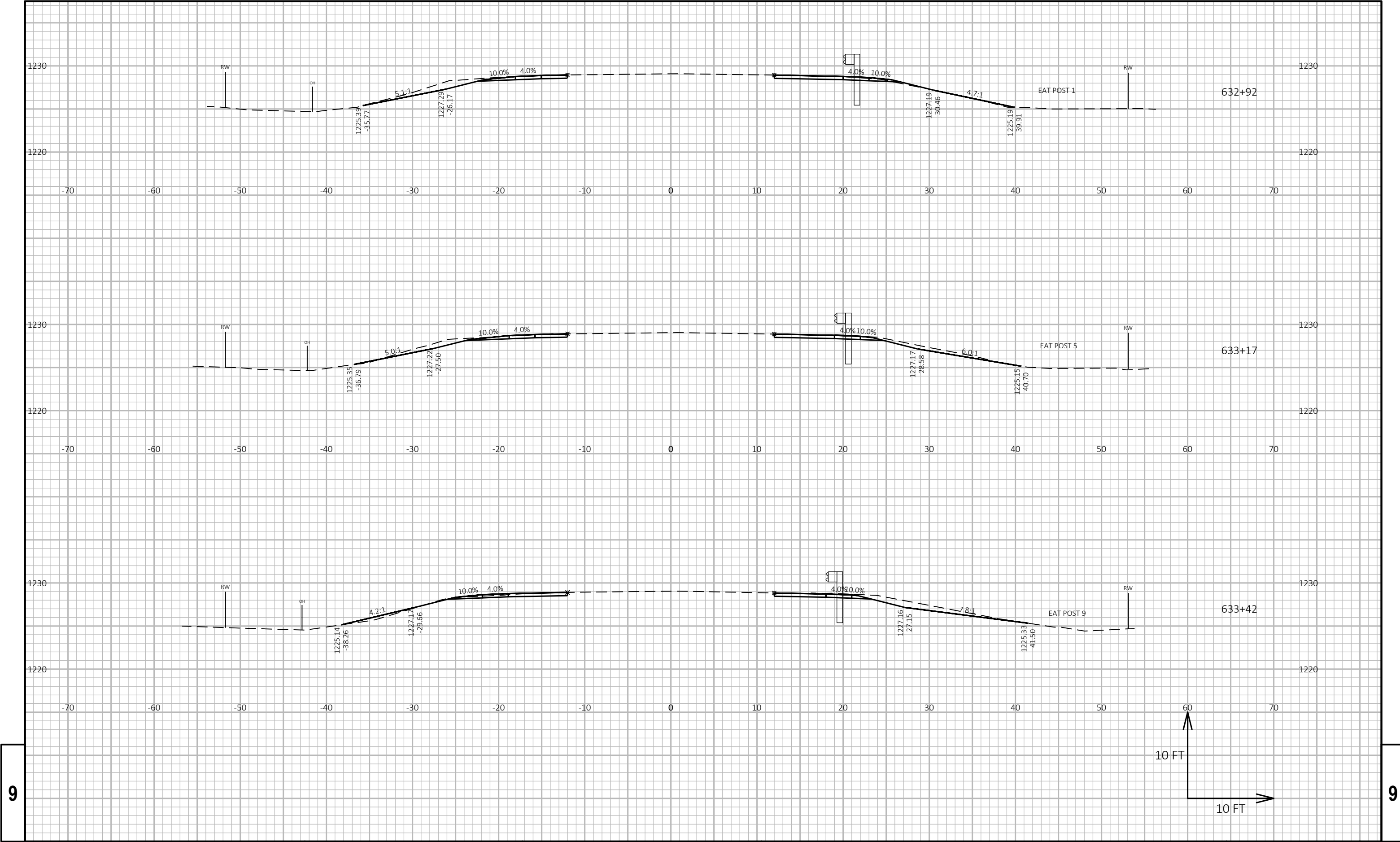
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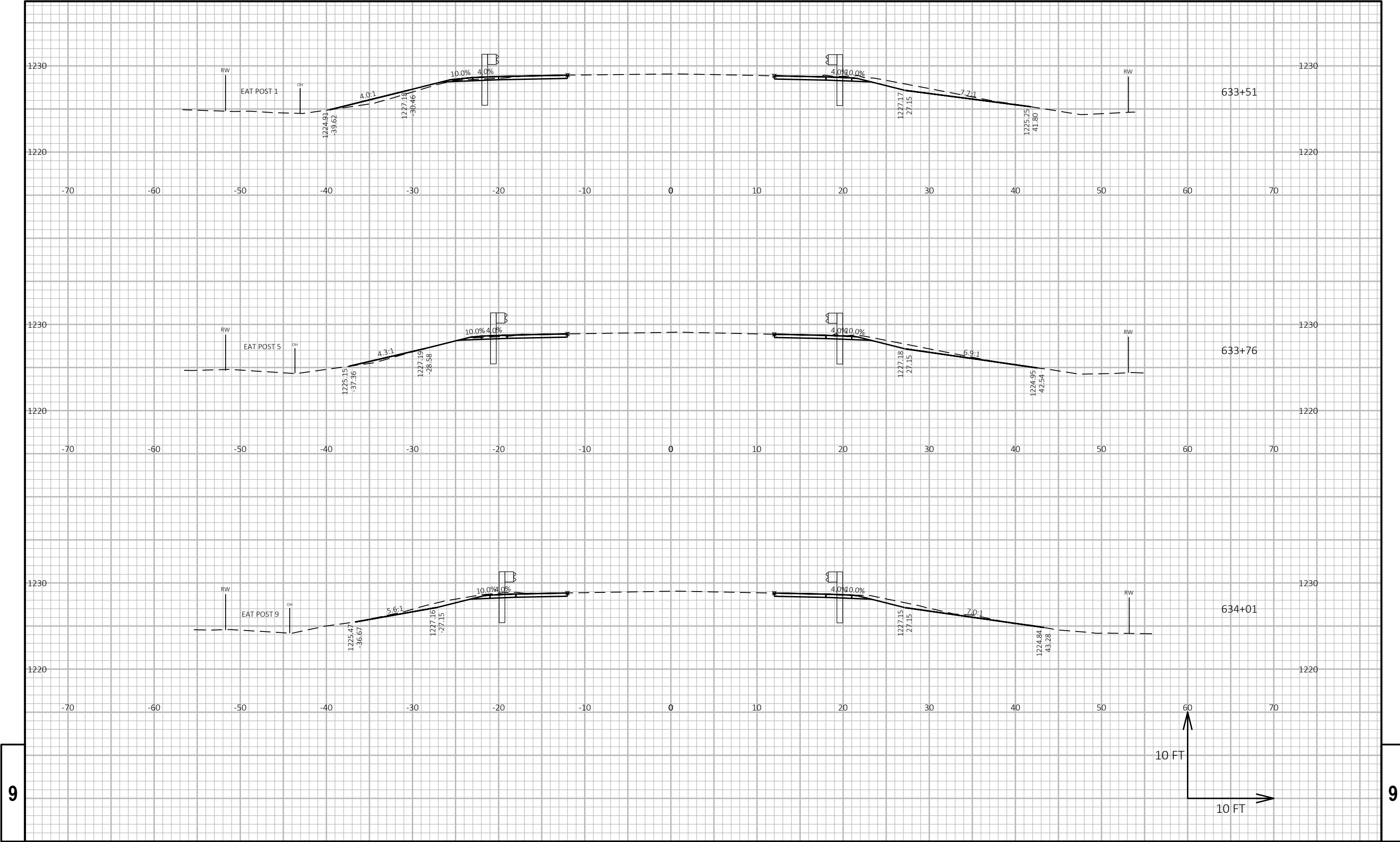
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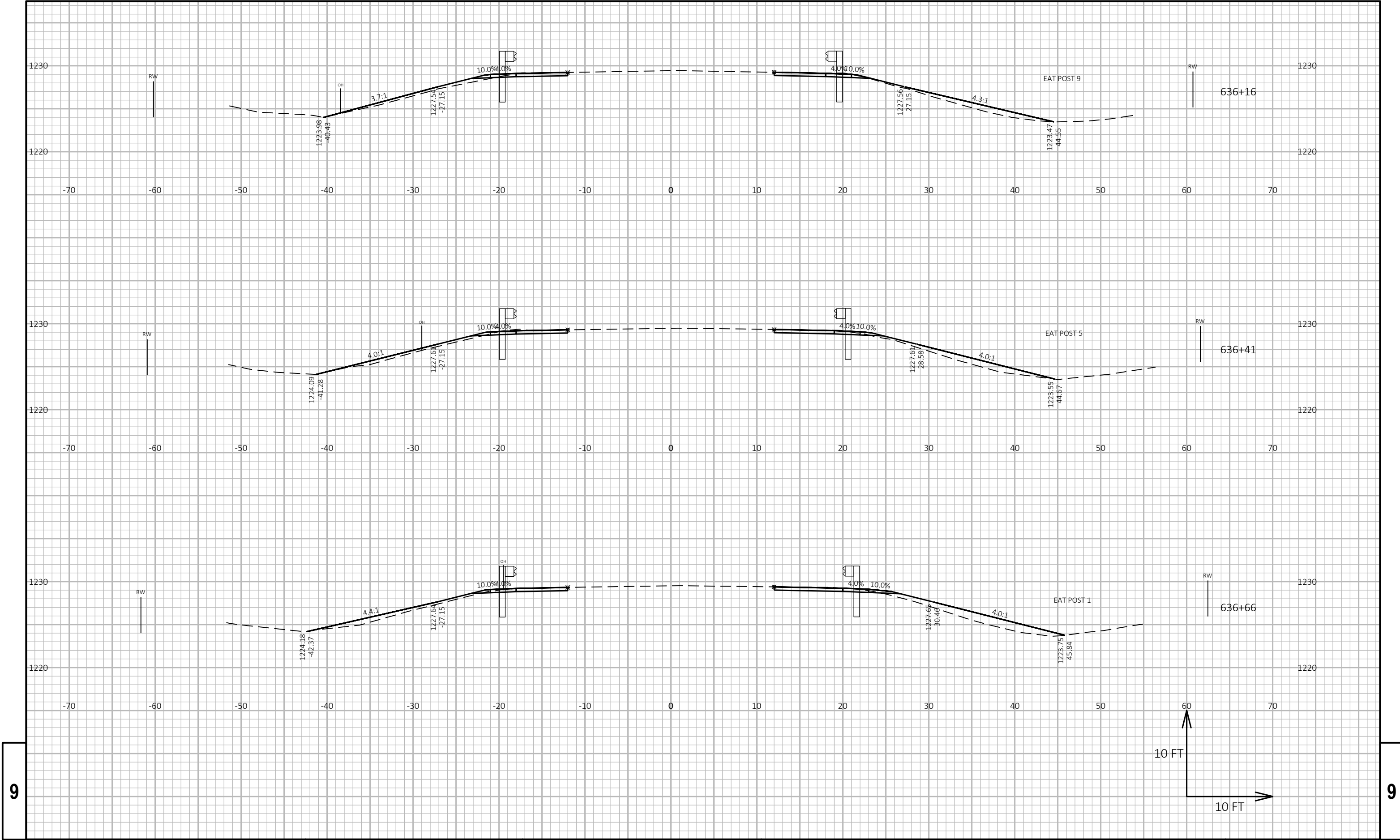
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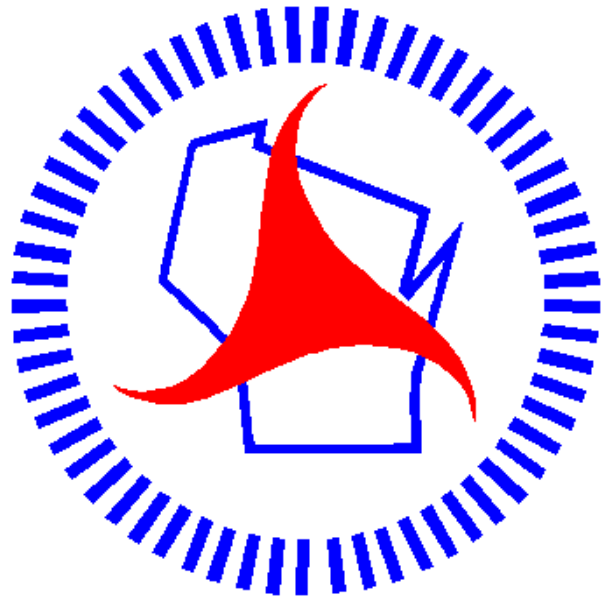


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Wisconsin Department of Transportation

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