WKE

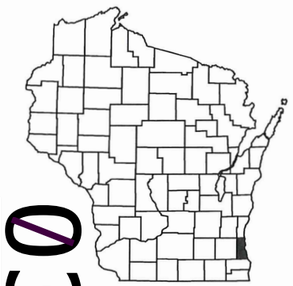
PROJECT ID: 1090-38-70

COUNTY: MILWAUKEE

AUG 2016

ORDER OF SHEETS

TOTAL SHEETS = 80



03

DESIGN DESIGNATION

A.A.D.T. (2014)	=	43,100
A.A.D.T.	=	N/A
D.H.V.	=	2,510/1,970
D.D.	=	56/44
T.	=	11.5%
DESIGN SPEED	=	60 MPH
ESALS	=	N/A

CONVENTIONAL SYMBOLS

PLAN		PROFILE	
CORPORATE LIMITS		GRADE LINE	
PROPERTY LINE		ORIGINAL GROUND	
LOT LINE		MARSH OR ROCK PROFILE (To be noted as such)	ROCK
LIMITED HIGHWAY EASEMENT		SPECIAL DITCH	LABEL
EXISTING RIGHT OF WAY		GRADE ELEVATION	95.36
PROPOSED OR NEW R/W LINE			
SLOPE INTERCEPT		CULVERT (Profile View)	
REFERENCE LINE	300'EB'	UTILITIES	
EXISTING CULVERT		ELECTRIC	E
PROPOSED CULVERT (Box or Pipe)		FIBER OPTIC	FO
COMBUSTIBLE FLUIDS	CAUTION	GAS	G
		SANITARY SEWER	SAN
MARSH AREA		STORM SEWER	SS
		TELEPHONE	T
WOODED OR SHRUB AREA		WATER	W
		UTILITY PEDESTAL	
		POWER POLE	
		TELEPHONE POLE	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1090-38-70	WISC 2016287	1

IH 43 EB

RAMP AT STH 100

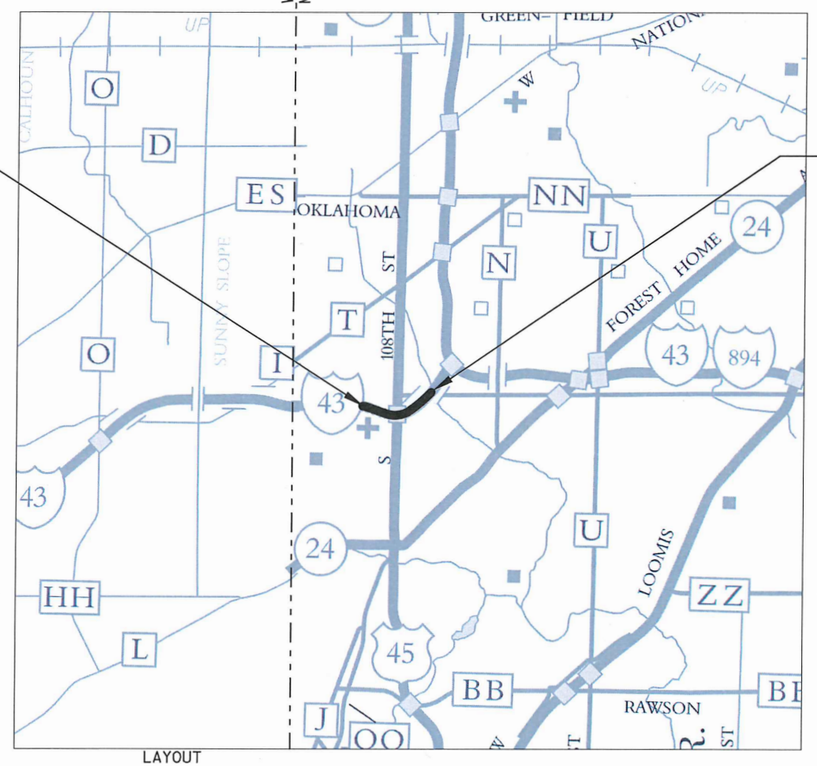
IH 43

MILWAUKEE COUNTY

STATE PROJECT NUMBER
1090-38-70

WAUKESHA COUNTY
MILWAUKEE COUNTY

R-20-E R-21-E



BEGIN PROJECT 1090-38-70
STA. 56+41.56
X=566,842.36
Y=270,067.87

END PROJECT 1090-38-70
STA. 87+15.09

LAYOUT
SCALE 0 1/2 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.582 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MILWAUKEE COUNTY, NAD83 (2011)/NAVD 88 (2012), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WISDOT
Designer	DEAN FILTZ
Project Manager	DEAN FILTZ
Regional Examiner	
Regional Supervisor	JOE GALLAMORE

APPROVED FOR THE DEPARTMENT
DATE: 4/28/16 Dean Filtz (Signature)

E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\010101_TI.DWG
LAYOUT NAME - 010101_TI

PLOT DATE : 4/27/2016 4:05 PM PLOT BY : FILTZ, DEAN J PLOT NAME :

WISDOT/CADDS SHEET 10

UTILITY CONTACTS

AT&T WISCONSIN
ALPER KOLCU
2005 PEWAUKEE RD.
WAUKESHA, WI 53187
PHONE: (262) 352-3791
ak308x@att.com

CITY OF GREENFIELD
JEFF KATZ
7325 W FOREST HOME AVE, RM 203
PO BOX 6113
GREENFIELD, WI 53220
PHONE: (414) 939-8322
jeffl@greenfieldwi.us

MILWAUKEE METRO SEWERAGE DIST.
LARRY ANDERSON
260 W SEEBOTH ST.
MILWAUKEE, WI 53204-1446
PHONE: (414) 617-1429
landerson@mmsd.com

TDS TELECOM
MATTHEW SCHULTE
16924 W VICTOR RD.
NEW BERLIN, WI 53151
PHONE: (262) 409-1177
matt.schulte@tdstelecom.com

WE ENERGIES – ELECTRIC / GAS

SEND ALL CORRESPONDENCE TO:
LaTROY BRUMFIELD
333 W. EVERETT ST. A299
MILWAUKEE, WI 53203
PHONE: (414) 221-5617
latroy.brumfield@we-energies.com

FIELD CONTACT – ELECTRIC
KEN FRANECKI
500 S 166TH ST.
WEST ALLIS, WI 53214
PHONE: (262) 939-1039
kenneth.franecki@we-energies.com

FIELD CONTACT – GAS
JOSH MOUNT
500 S 166TH ST.
WEST ALLIS, WI 53214
PHONE: (414) 218-2053
josh.mount@we-energies.com

OTHER CONTACTS

WISDOT REGION CONTACT
DEAN FILTZ, PROJECT MANAGER
141 NW BARSTOW ST.
WAUKESHA, WI 53187
PHONE: (414) 220-5486
dean.filtz@dot.wi.gov

WISDNR CONTACT
KRISTINA BETZOLD
2300 N DR. MARTIN LUTHER KING JR. DR.
MILWAUKEE, WI 53212
PHONE: (414) 263-8517
kristina.betzold@wisconsin.gov

2

DIGGERS HOTLINE
Dial 811 or (800) 242-8511
www.DiggersHotline.com

STANDARD ABBREVIATIONS

ASPH	ASPHALTIC
AVE	AVENUE
BAD	BASE AGGREGATE DENSE
BP	BEGIN POINT
C/L	CENTER OR CONSTRUCTION LINE
CONC	CONCRETE
CTH	COUNTY TRUNK HIGHWAY
D	DEGREE OF CURVE
DHV	DESIGN HOURLY VOLUME
DIM	DIMENSION
EB	EASTBOUND
EP	END POINT
IH	INTERSTATE HIGHWAY
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
NB	NORTHBOUND
NORM	NORMAL
PAVT	PAVEMENT
PC	POINT OF CURVE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENT
R	RADIUS OF CURVE
R/L	REFERENCE LINE
R/W	RIGHT OF WAY
RT	RIGHT
SB	SOUTHBOUND
SDD	STANDARD DETAIL DRAWING
SE	SUPER ELEVATION
SF	SQUARE FOOT
SI	SLOPE INTERCEPT
STA	STATION
STH	STATE TRUCK HIGHWAY
SY	SQUARE YARD
T	TANGENT LENGTH
TYP	TYPICAL
USH	US HIGHWAY
WB	WESTBOUND

ORDER OF SECTION 2 SHEETS

GENERAL NOTES

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

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

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

REMOVAL OF EROSION CONTROL DEVICES IS INCLUDED IN THE COST OF THEIR RESPECTIVE BID ITEMS.

RE-TOPSOIL OF GRADED AREAS, AS DESIGNATED BY THE ENGINEER, IMMEDIATELY AFTER GRADING IS COMPLETED WITHIN THOSE AREAS. SEED, FERTILIZE, AND EROSION MAT TOP-SOILED AREAS, AS DESIGNATED BY THE ENGINEER, WITHIN FIVE (5) CALENDAR DAYS AFTER PLACEMENT OF TOPSOIL.

STOCKPILE EXCESS MATERIAL OR SPOILS ON UPLAND AREAS AWAY FROM WETLANDS, FLOODPLAINS AND WATERWAYS. STOCKPILED SOIL SHALL BE PROTECTED AGAINST EROSION.

EROSION CONTROL BMPS ARE AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL BMPS SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THAT THE BMP IS NO LONGER REQUIRED.

EXISTING WETLANDS NOT DESIGNATED FOR IMPACTS SHALL BE PROTECTED USING SILT FENCE. SILT FENCE TO BE INSTALLED PRIOR TO START OPERATION OF HEAVY EQUIPMENT IN THE VICINITY OF THE WETLANDS. LOCATION OF SILT FENCE TO BE STAKED AND APPROVED BY ENGINEER BEFORE INSTALLATION.

2

2

2

N

116TH ST

CTH Y/LAYTON AVE

CTH Y/LAYTON AVE

CITY OF GREENFIELD

USH 45/STH 100

IH 43 SB

IH 43 NB

BEGIN PROJECT
STA 56+41.56

50 55 60 65 70 75 80 85 90

R/L
IH 43

POND

PARK AND RIDE LOT

END PROJECT
STA 87+15.09

ATHLETIC FIELD

BLEACHERS

WHITNALL HIGH
SCHOOL

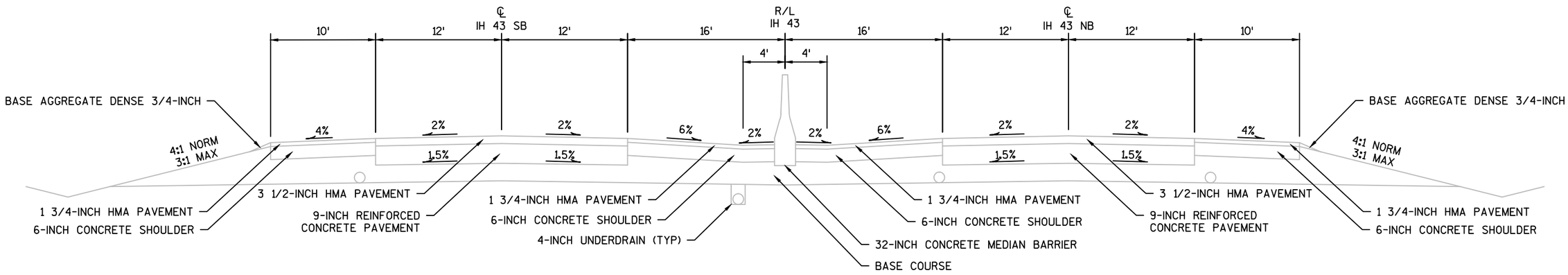
STRUCTURE B-40-300

STRUCTURE B-40-301

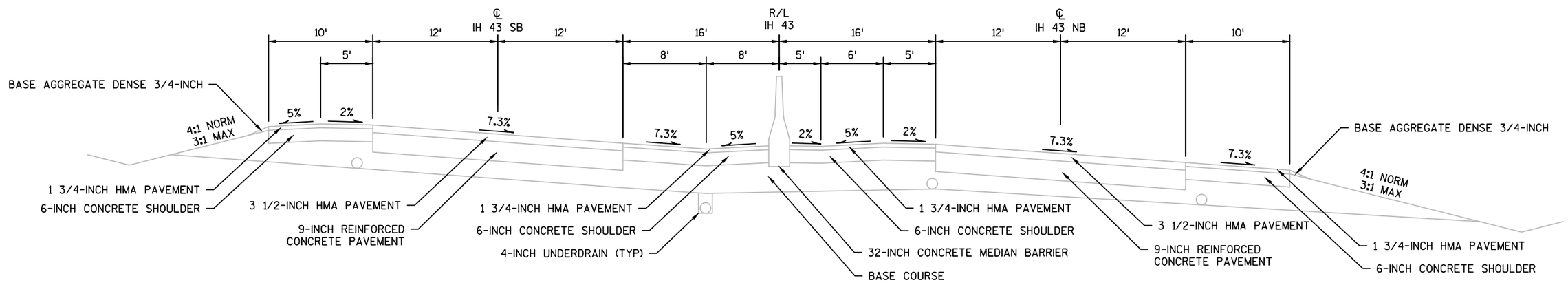
STRUCTURE B-40-302

USH 45/STH 100

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	PROJECT OVERVIEW	SHEET 4	E



TYPICAL EXISTING SECTION
IH 43
STA. 56+41.56 TO STA. 57+42



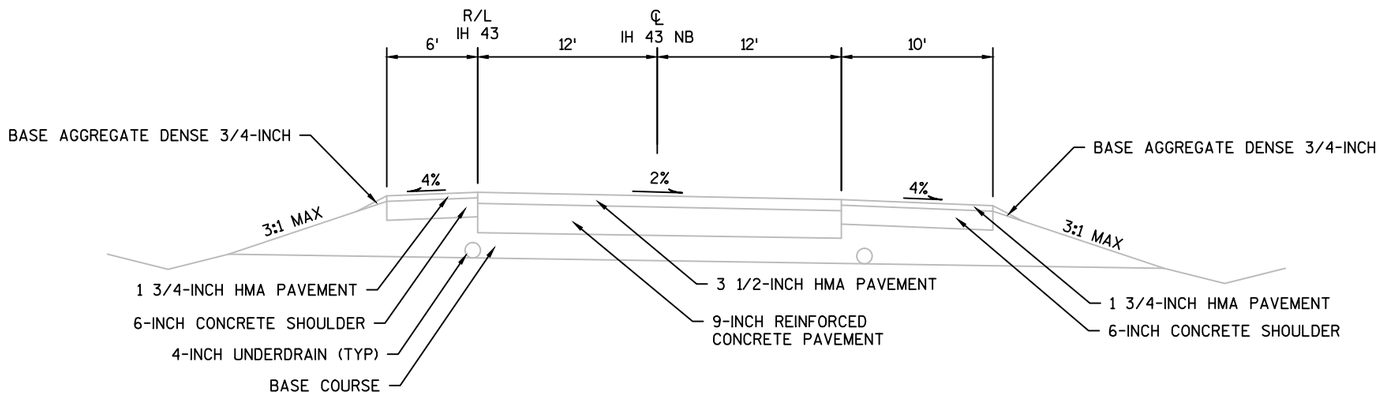
TYPICAL EXISTING SECTION
IH 43
STA. 57+42 TO STA. 65+40

NOTE:

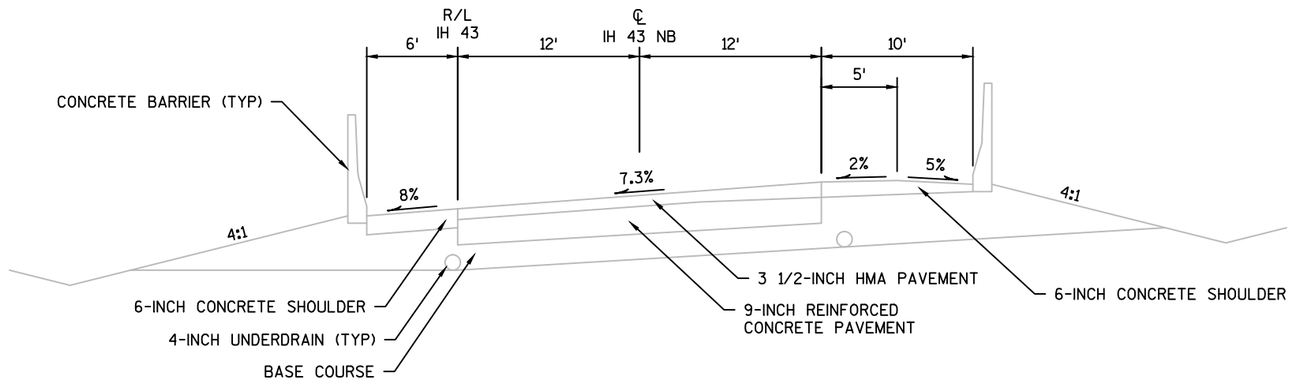
EXISTING NORTHBOUND TRAVEL LANES
HAVE BEEN MILLED PRIOR TO THIS PROJECT

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 5	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\020300_TS.DWG PLOT DATE : 4/28/2016 7:24 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT



TYPICAL EXISTING SECTION
IH 43
STA. 65+40 TO STA. 70+50

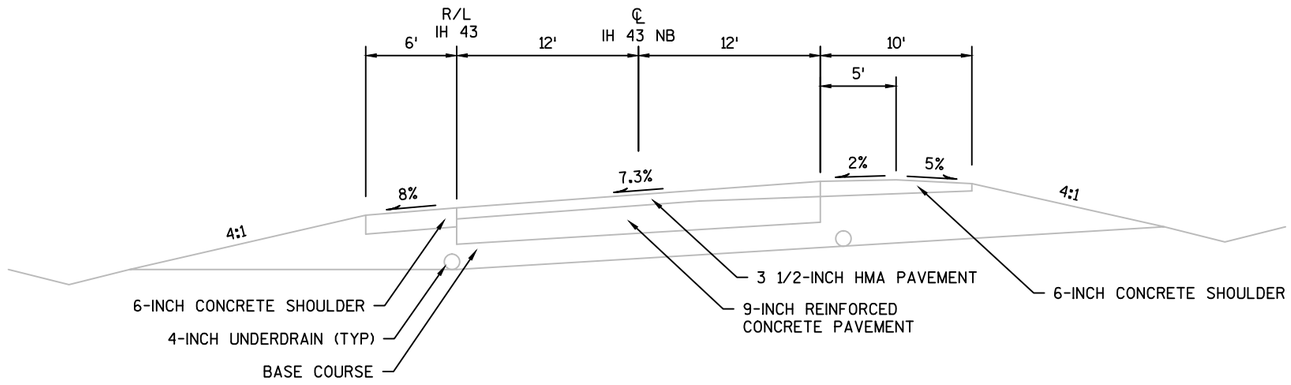


TYPICAL EXISTING SECTION
IH 43
STA. 70+50 TO STA. 78+88

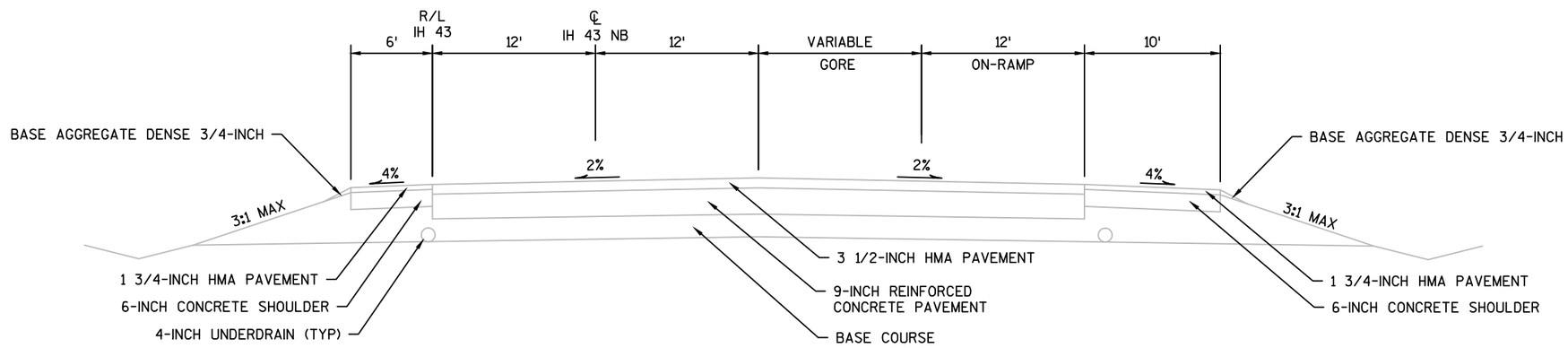
NOTE:

EXISTING NORTHBOUND TRAVEL LANES
HAVE BEEN MILLED PRIOR TO THIS PROJECT

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 6	E



TYPICAL EXISTING SECTION
IH 43
STA. 78+88 TO STA. 86+50

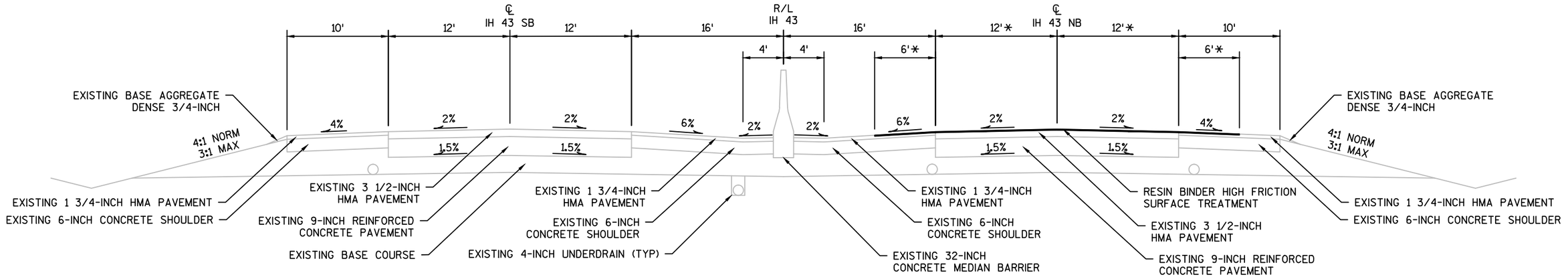


TYPICAL EXISTING SECTION
IH 43
STA. 86+50 TO STA. 87+15.09

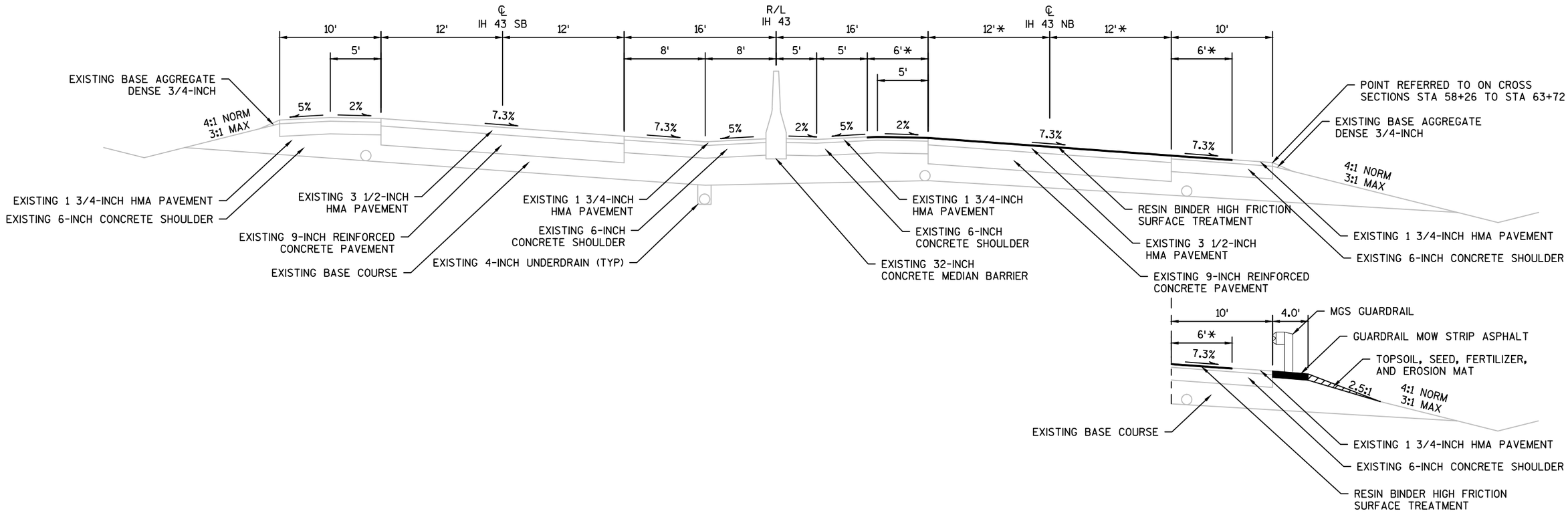
NOTE:

EXISTING NORTHBOUND TRAVEL LANES
HAVE BEEN MILLED PRIOR TO THIS PROJECT

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 7	E



TYPICAL FINISHED SECTION
IH 43
STA. 56+41.56 TO STA. 57+42

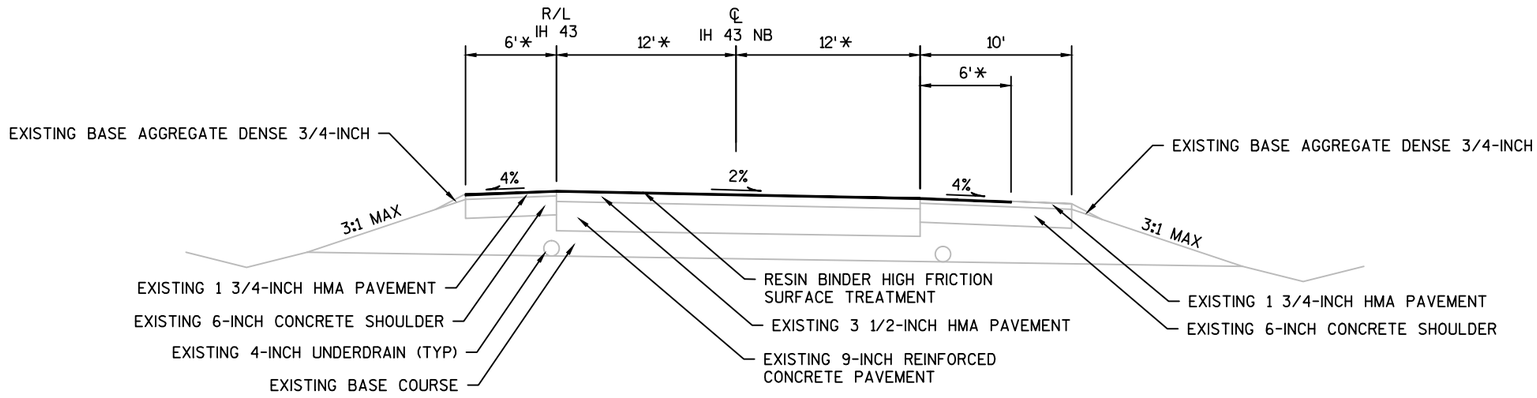


TYPICAL FINISHED SECTION
IH 43
STA. 57+42 TO STA. 65+40

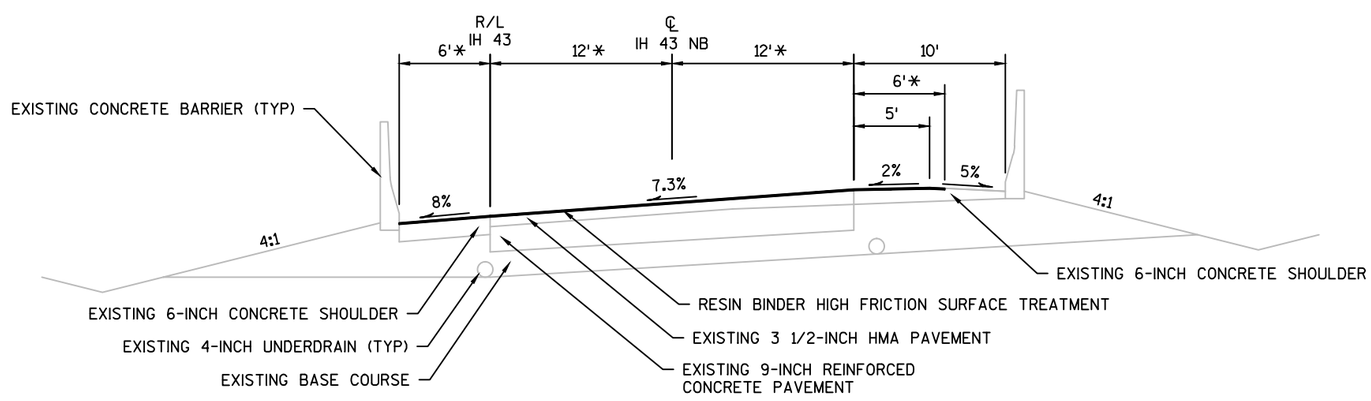
STA. 58+26 TO STA. 63+72

* SURFACE AREA TO RECEIVE RESIN BINDER HIGH FRICTION SURFACE TREATMENT.

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 8	E



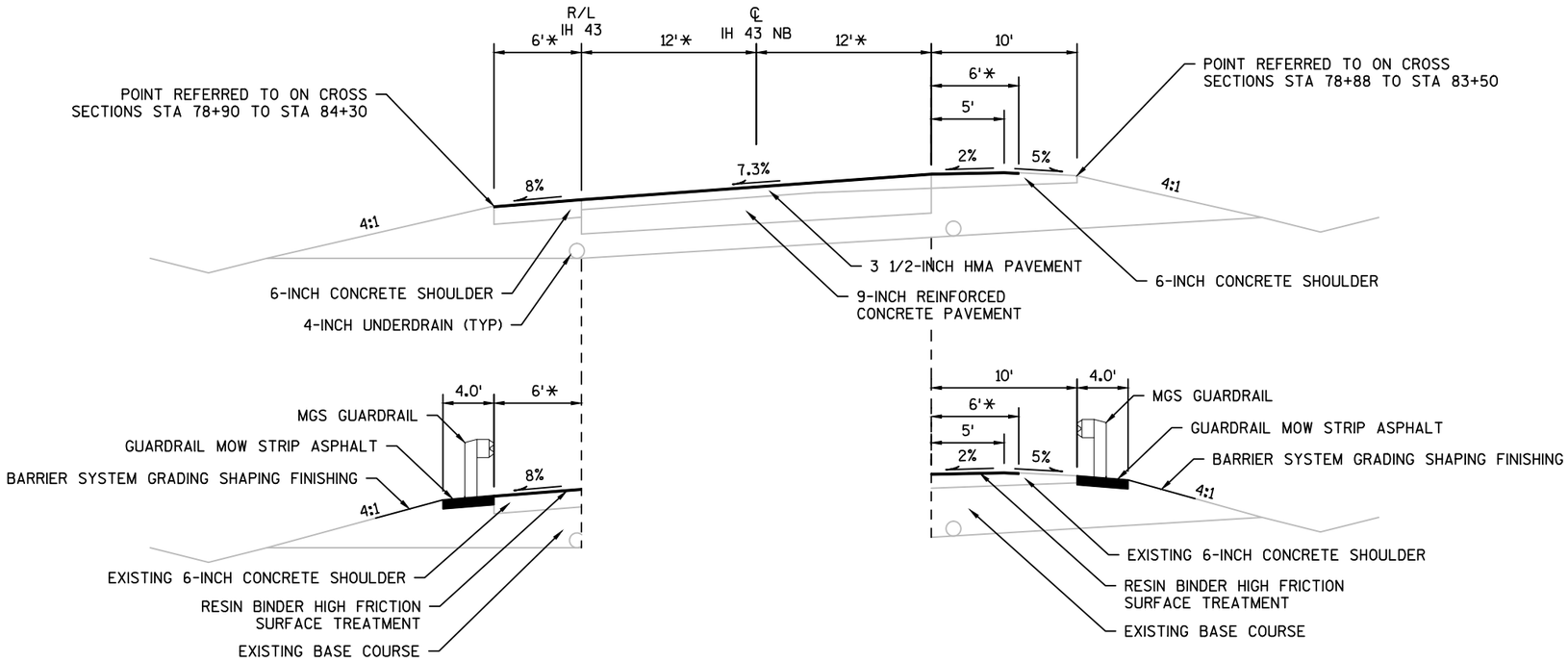
TYPICAL FINISHED SECTION
IH 43
STA. 65+40 TO STA. 70+50



TYPICAL FINISHED SECTION
IH 43
STA. 70+50 TO STA. 78+88

* SURFACE AREA TO RECEIVE RESIN BINDER HIGH FRICTION SURFACE TREATMENT.

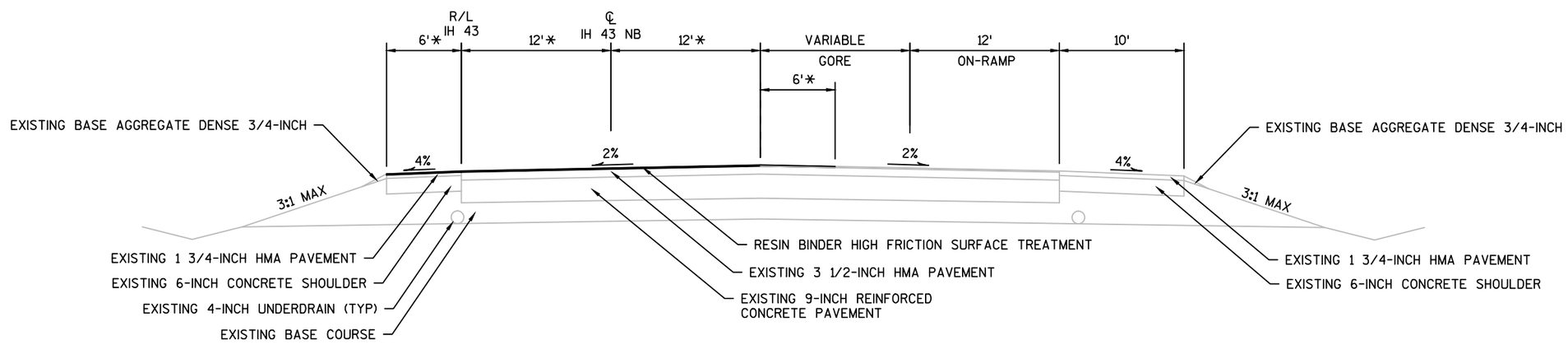
PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 9	E



STA. 78+90 TO STA. 84+30

STA. 78+88 TO STA. 83+50

TYPICAL FINISHED SECTION
IH 43
STA. 78+88 TO STA. 86+50

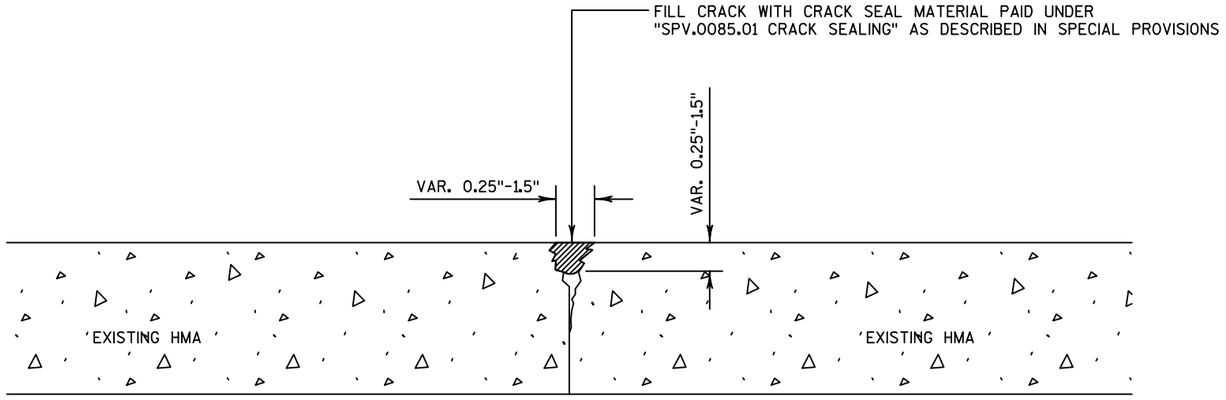


TYPICAL FINISHED SECTION
IH 43
STA. 86+50 TO STA. 87+15.09

* SURFACE AREA TO RECEIVE RESIN BINDER HIGH FRICTION SURFACE TREATMENT.

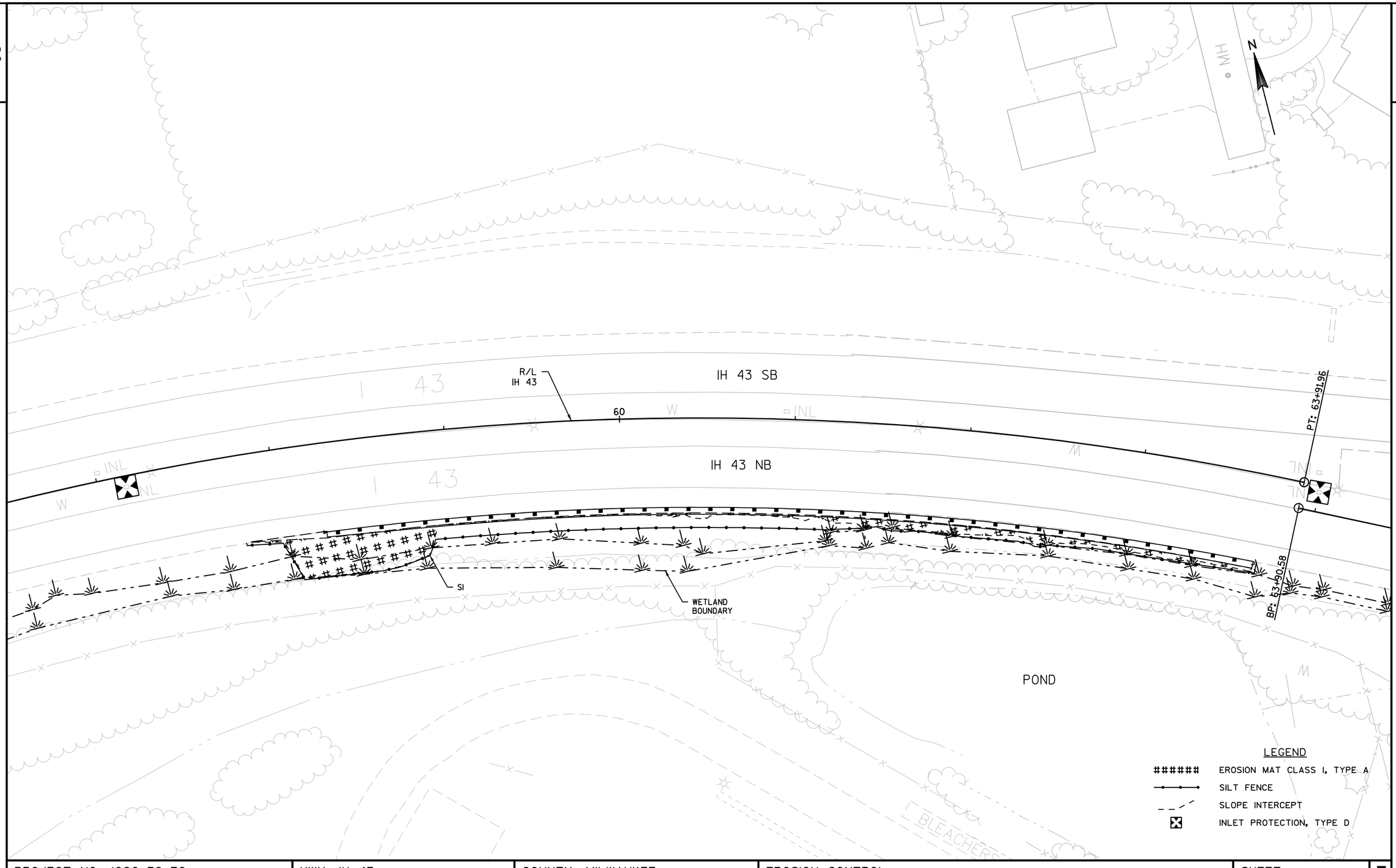
PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 10	E

2



LONGITUDINAL AND / OR TRANSVERSE
CRACK SEALING - DETAIL

2



PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	EROSION CONTROL	SHEET 12	E

2

PARK AND RIDE LOT

WETLAND BOUNDARY

SI

80

85

IH 43 NB

R/L IH 43

SI

WETLAND BOUNDARY

LEGEND

EROSION MAT CLASS I, TYPE A

SILT FENCE

SLOPE INTERCEPT

INLET PROTECTION, TYPE D

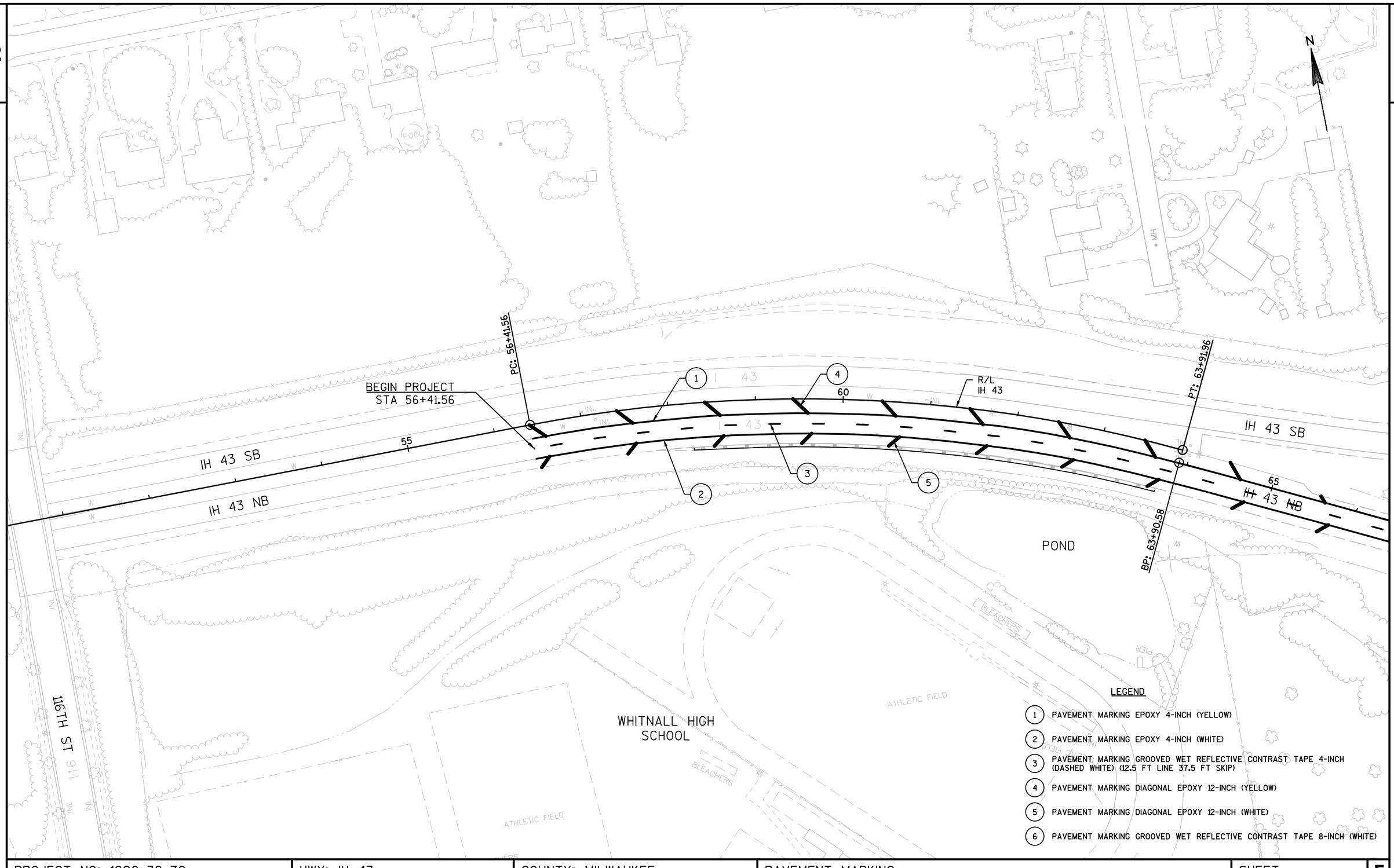
PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	EROSION CONTROL	SHEET 13	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\022001_EC.DWG
LAYOUT NAME - 022002_EC

PLOT DATE : 4/27/2016 4:06 PM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:50 FT

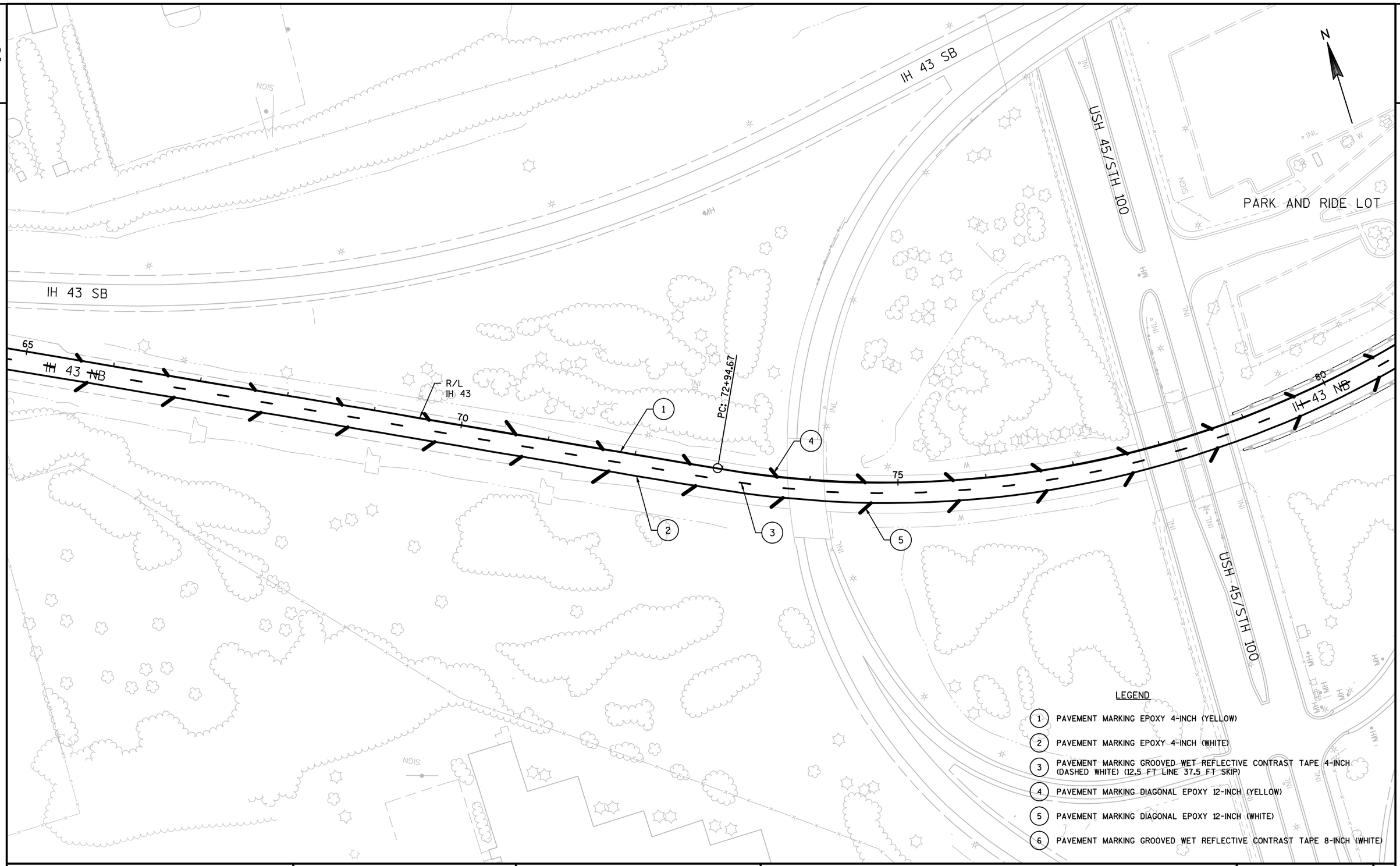
WISDOT/CADDS SHEET 42

2



PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	PAVEMENT MARKING	SHEET 14	E

2



LEGEND

1. PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
2. PAVEMENT MARKING EPOXY 4-INCH (WHITE)
3. PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH (DASHED WHITE) (12.5 FT LINE 37.5 FT SKIP)
4. PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
5. PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (WHITE)
6. PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 8-INCH (WHITE)

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	PAVEMENT MARKING	SHEET 15	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\024501_PM.DWG
LAYOUT NAME - 024501_PM - 024502_PM
PLOT DATE : 4/27/2016 4:07 PM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

2

IH 43 SB

USH 45/STH 100

PARK AND RIDE LOT

IH 43 SB

IH 43 NB

EP: 92+58.13

PT: 87+15.09

R/L
IH 43

90

85

80

IH 43 NB

END PROJECT
STA 87+15.09

1

2

3

4

5

6

LEGEND

1. PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
2. PAVEMENT MARKING EPOXY 4-INCH (WHITE)
3. PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH (DASHED WHITE) (12.5 FT LINE 37.5 FT SKIP)
4. PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
5. PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (WHITE)
6. PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 8-INCH (WHITE)

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	PAVEMENT MARKING	SHEET 16	E

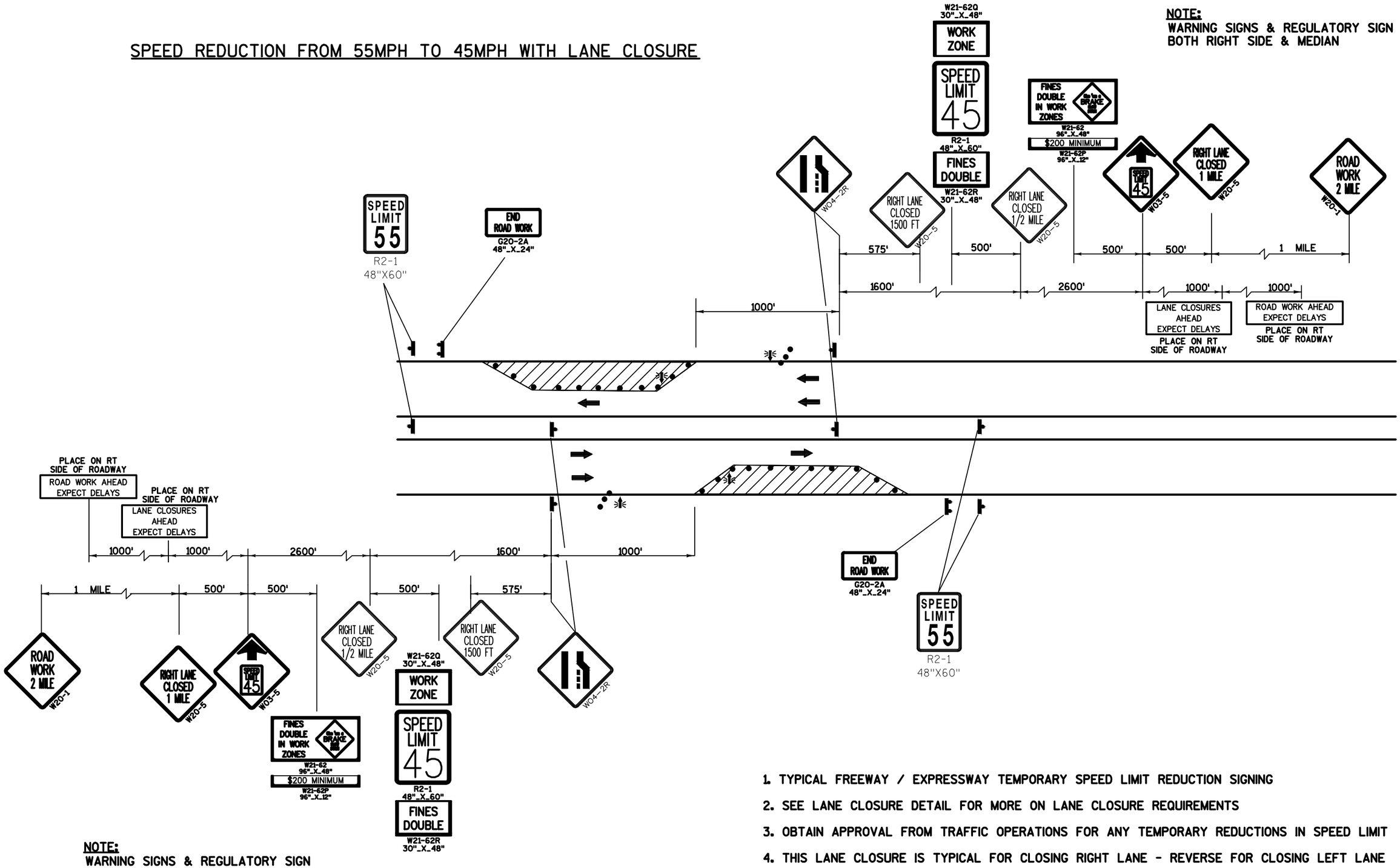
FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\024501_PM.DWG
LAYOUT NAME - 024501_PM - 024503_PM

PLOT DATE : 4/27/2016 4:07 PM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

SPEED REDUCTION FROM 55MPH TO 45MPH WITH LANE CLOSURE

NOTE:
WARNING SIGNS & REGULATORY SIGN
BOTH RIGHT SIDE & MEDIAN



PLACE ON RT SIDE OF ROADWAY
ROAD WORK AHEAD EXPECT DELAYS

PLACE ON RT SIDE OF ROADWAY
LANE CLOSURES AHEAD EXPECT DELAYS

NOTE:
WARNING SIGNS & REGULATORY SIGN
BOTH RIGHT SIDE & MEDIAN

1. TYPICAL FREEWAY / EXPRESSWAY TEMPORARY SPEED LIMIT REDUCTION SIGNING
2. SEE LANE CLOSURE DETAIL FOR MORE ON LANE CLOSURE REQUIREMENTS
3. OBTAIN APPROVAL FROM TRAFFIC OPERATIONS FOR ANY TEMPORARY REDUCTIONS IN SPEED LIMIT
4. THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	TRAFFIC CONTROL DETAILS	SHEET 17	E

DATE 20JUN16 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1090-38-70 QUANTITY
0010	213.0100	Finishing Roadway (project) 01. 1090-38-70	EACH	1.000	1.000
0020	305.0110	Base Aggregate Dense 3/4-Inch	TON	5.000	5.000
0030	465.0110	Asphaltic Surface Patching	TON	15.000	15.000
0040	614.0010	Barrier System Grading Shaping Finishing	EACH	3.000	3.000
0050	614.0396	Guardrail Mow Strip Asphalt	SY	700.000	700.000
0060	614.2300	MGS Guardrail 3	LF	1,353.000	1,353.000
0070	614.2500	MGS Thrie Beam Transition	LF	42.000	42.000
0080	614.2610	MGS Guardrail Terminal EAT	EACH	1.000	1.000
0090	614.2620	MGS Guardrail Terminal Type 2	EACH	3.000	3.000
0100	619.1000	Mobilization	EACH	1.000	1.000
0110	628.1504	Silt Fence	LF	2,090.000	2,090.000
0120	628.1520	Silt Fence Maintenance	LF	1,045.000	1,045.000
0130	628.1905	Mobilizations Erosion Control	EACH	9.000	9.000
0140	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0150	628.2002	Erosion Mat Class I Type A	SY	140.000	140.000
0160	628.7020	Inlet Protection Type D	EACH	2.000	2.000
0170	638.2102	Moving Signs Type II	EACH	4.000	4.000
0180	643.0100	Traffic Control (project) 01. 1090-38-70	EACH	1.000	1.000
0190	643.0300	Traffic Control Drums	DAY	1,008.000	1,008.000
0200	643.0420	Traffic Control Barricades Type III	DAY	48.000	48.000
0210	643.0705	Traffic Control Warning Lights Type A	DAY	96.000	96.000
0220	643.0715	Traffic Control Warning Lights Type C	DAY	192.000	192.000
0230	643.0800	Traffic Control Arrow Boards	DAY	32.000	32.000
0240	643.0900	Traffic Control Signs	DAY	480.000	480.000
0250	643.1050	Traffic Control Signs PCMS	DAY	16.000	16.000
0260	643.1055.S	Truck or Trailer Mounted Attenuator	DAY	16.000	16.000
0270	646.0106	Pavement Marking Epoxy 4-Inch	LF	6,550.000	6,550.000
0280	646.0600	Removing Pavement Markings	LF	9,800.000	9,800.000
0290	646.0841.S	Pavement Marking Grooved Wet Reflective Contrast Tape 4-Inch	LF	900.000	900.000
0300	646.0843.S	Pavement Marking Grooved Wet Reflective Contrast Tape 8-Inch	LF	1,350.000	1,350.000
0310	647.0726	Pavement Marking Diagonal Epoxy 12-Inch	LF	1,000.000	1,000.000
0320	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	900.000	900.000
0330	650.8000	Construction Staking Resurfacing Reference	LF	3,100.000	3,100.000
0340	ASP.1T0A	On-the-Job Training Apprentice at $5. 00/HR	HRS	100.000	100.000
0350	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	100.000	100.000
0360	SPV.0085	Special 01. Crack Sealing	LB	1,224.000	1,224.000
0370	SPV.0180	Special 01. Resin Binder High Friction Surface Treatment	SY	12,100.000	12,100.000

3

BEAM GUARD ITEMS

CATEGORY	LOCATION	STATION		STATION	OFFSET	614.0396 GUARDRAIL MOW STRIP ASPHALT SY	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2620 MGS GUARDRAIL TERMINAL TYPE 2 EACH
1000										
	IH 43 NB	58+26.2	-	63+72.4	RT	250	495	--	1	1
		78+88.1	-	83+50.4	RT	210	389	21	--	1
		78+90.6	-	84+30.0	LT	240	469	21	--	1
	TOTAL:					700	1,353	42	1	3

FINISHING ROADWAY (PROJECT)

CATEGORY	PROJECT	213.0100.0001 FINISHING ROADWAY EACH
1000		
	1090-38-70	1
	TOTAL:	1

BARRIER SYSTEM GRADING SHAPING FINISHING ITEMS *

CATEGORY	ROADWAY	STATION		STATION	OFFSET	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING EACH
1000							
	IH 43 NB	58+26.2	-	63+72.4	RT	5	1
		78+88.1	-	83+50.4	RT	--	1
		78+90.6	-	84+30.0	LT	--	1
TOTAL:						5	3

** Excavation for mow strip is included in this item*
** Shaping existing aggregate sideslope to match mow strip is included in this item*

TRAFFIC CONTROL (PROJECT)

CATEGORY	PROJECT	643.0100.0001 TRAFFIC CONTROL EACH
1000		
	1090-38-70	1
	TOTAL:	1

BARRIER SYSTEM GRADING SHAPING FINISHING *

LOCATION	STATION		STATION	OFFSET	205.0100 EXCAVATION COMMON CY	208.0100 BORROW CY	625.0100 TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB
IH 43 NB	58+26.2	-	63+72.4	RT	20	56	110	--	1	2
IH 43 NB	78+88.1	-	83+50.4	RT	23	--	--	--	--	--
IH 43 NB	78+90.6	-	84+30.0	LT	27	--	--	--	--	--
TOTAL:					70	56	110	0	1	2

** Quantities shown in this table are for information only.*
The items in the table are incidental to Barrier System Grading Shaping Finishing.

MOBILIZATION

CATEGORY	PROJECT	619.1000 MOBILIZATION EACH
1000		
	1090-38-70	1
	TOTAL:	1

3

EROSION CONTROL ITEMS

CATEGORY	ROADWAY	STATION	TO	STATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.2002 EROSION MAT CLASS I TYPE A SY	628.7020 INLET PROTECTION TYPE D EACH
1000										
	IH 43 NB	57+16.0	-	64+00.0	610	305	3	--	110	2
		78+88.0	-	83+50.0	500	250	3	--	--	--
		78+90.0	-	84+30.0	560	280	3	--	--	--
	UNDISTRIBUTED				420	210	--	3	30	--
	TOTAL:				2,090	1,045	9	3	140	2

TRAFFIC CONTROL

CATEGORY	PROJECT	643.1055.S TRUCK OR TRAILER MOUNTED ATTENUATOR DAY
1000		
	1090-38-70	16
	TOTAL:	16

3

HIGH FRICTION SURFACE TREATMENT

CATEGORY	ROADWAY	STATION	TO	STATION	SPV.0180.01 RESIN BINDER HIGH FRICTION SURFACE TREATMENT SY
1000					
	IH 43 NB	56+41.0	-	87+15.0	12,100
	TOTAL:				12,100

CONSTRUCTION STAKING RESURFACING REFERENCE

CATEGORY	LOCATION	STATION	TO	STATION	650.8000 CONSTRUCTION STAKING RESURFACING REFERENCE LF
1000					
	IH 43 NB	56+41	-	92+26	3,100
	TOTAL:				3,100

TRAFFIC CONTROL ITEMS

CATEGORY	LOCATION	**STAGE** DURATION DAYS	643.0300 TRAFFIC CONTROL DRUMS **EACH**	DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III **EACH**	DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A **EACH**	DAY	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C **EACH**	DAY	643.0800 TRAFFIC CONTROL ARROW BOARDS **EACH**	DAY	643.0900 TRAFFIC CONTROL SIGNS **EACH**	DAY	643.1050 TRAFFIC CONTROL SIGNS PCMS **EACH**	DAY
1000	STAGE 1															
	IH 43 NB	6	63	378	3	18	6	36	12	72	2	12	30	180	1	6
	UNDISTRIBUTED	2	63	126	3	6	6	12	12	24	2	4	30	60	1	2
	STAGE 2															
	IH 43 NB	6	63	378	3	18	6	36	12	72	2	12	30	180	1	6
	UNDISTRIBUTED	2	63	126	3	6	6	12	12	24	2	4	30	60	1	2
	TOTAL:			1,008		48		96		192		32		480		16

FOR INFORMATION ONLY

3

PAVEMENT MARKING ITEMS

CATEGORY	LOCATION	STATION	TO	STATION	646.0106 PAVEMENT MARKING EPOXY 4-INCH LF White	646.0106 PAVEMENT MARKING EPOXY 4-INCH LF Yellow	646.0841.S PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH LF White	646.0843.S PAVEMENT MARKING GROOVED WET REFLECTIVE CONTRAST TAPE 8-INCH LF White	647.0726 PAVEMENT MARKING DIAGONAL EPOXY 12-INCH LF White	647.0726 PAVEMENT MARKING DIAGONAL EPOXY 12-INCH LF Yellow	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH LF White
1000											
	IH 43 NB	56+41	-	92+26	2,950	3,600	900	1,350	500	500	900
	TOTAL:				2,950	3,600	900	1,350	500	500	900
					6,550				1,000		

3

REMOVING PAVEMENT MARKINGS

CATEGORY	LOCATION	STATION	TO	STATION	646.0600 REMOVING PAVEMENT MARKINGS LF
1000					
	IH 43 NB	56+41	-	92+26	9,800
	TOTAL:				9,800

SIGNING

CATEGORY	ROADWAY	638.2102 MOVING SIGNS TYPE II EACH
1000		
	UNDISTRIBUTED	4
	TOTAL:	4

CRACK SEALING

CATEGORY	ROADWAY	STATION	TO	STATION	LENGTH	NUMBER OF CRACKS	SPV.0085.01 CRACK SEALING LB
1000							
	IH 43 NB	56+41.0	-	87+15.0	3,074	3	1020
	UNDISTRIBUTED						204
	TOTAL:						1,224

ASPHALTIC SURFACE PATCHING

CATEGORY	ROADWAY	STATION	TO	STATION	465.0110 ASPHALTIC SURFACE PATCHING TON
1000					
	UNDISTRIBUTED	56+41.0	-	87+15.0	15
	TOTAL:				15

3

EARTHWORK TABLE FOR BEAM GUARD INSTALLATION

Division	From / To Station	Location	Common Excavation (1)	Unexpanded Fill	Expanded Fill (3)	Waste	Borrow	Comment:
			Cut (2)		Factor 1.25		(item #208.0100)	
	58+26 - 63+72	IH 43, RT	20	45	56	20	56	The excavation includes the top layer of the ground consisting mostly of gravel and grass so it is considered unusable.
	78+88 - 83+50	IH 43, RT	23	0	0	23	0	
	78+90 - 84+30	IH 43, LT	27	0	0	27	0	
Grand Total			70	45	56	70	56	

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) Expanded Fill. Factor = 1.25

NOTE: THIS TABLE IS FOR INFORMATION ONLY. THE COMMON EXCAVATION AND BORROW ARE INCIDENTAL TO THE BARRIER SYSTEM GRADING SHAPING FINISHING ITEM

CURVE 1
PI STA = 60+23.47
Y = 270066.747
X = 567224.265
DELTA = 26°15'50"
D = 3°30'00"
T = 381.91'
L = 750.40'
R = 1637.02'
PC STA = 56+41.56
PT STA = 63+91.96

BEGIN PROJECT
STA 56+41.56
X = 566842.36
Y = 270067.87

PC: 56+41.56

CURVE 1

IH 43 SB

60

R/L
IH 43

X = 567566.25
Y = 269896.74

PT: 63+91.96

X = 567559.57
Y = 269883.31

IH 43 NB

36'

24' 6"

55

65

+81.6
50.0' RT
BEGIN BASE AGGREGATE
DENSE 3/4-INCH

+78.2
50.0' RT
BEGIN MGS GUARDRAIL 3

SI (TYP)

+64.7
50.0' RT
BEGIN MGS GUARDRAIL
TERMINAL TYPE 2

WETLAND
BOUNDARY (TYP)

+26.2
50.0' RT
BEGIN MGS GUARDRAIL
TERMINAL EAT
BEGIN GUARDRAIL MOW
STRIP ASPHALT

POND

BP: 63+90.58

+72.4
50.0' RT
END MGS GUARDRAIL
TERMINAL TYPE 2
END GUARDRAIL
MOW STRIP ASPHALT

116TH ST

WHITNALL HIGH
SCHOOL

ATHLETIC FIELD

BLEACHERS

PIER

LEGEND

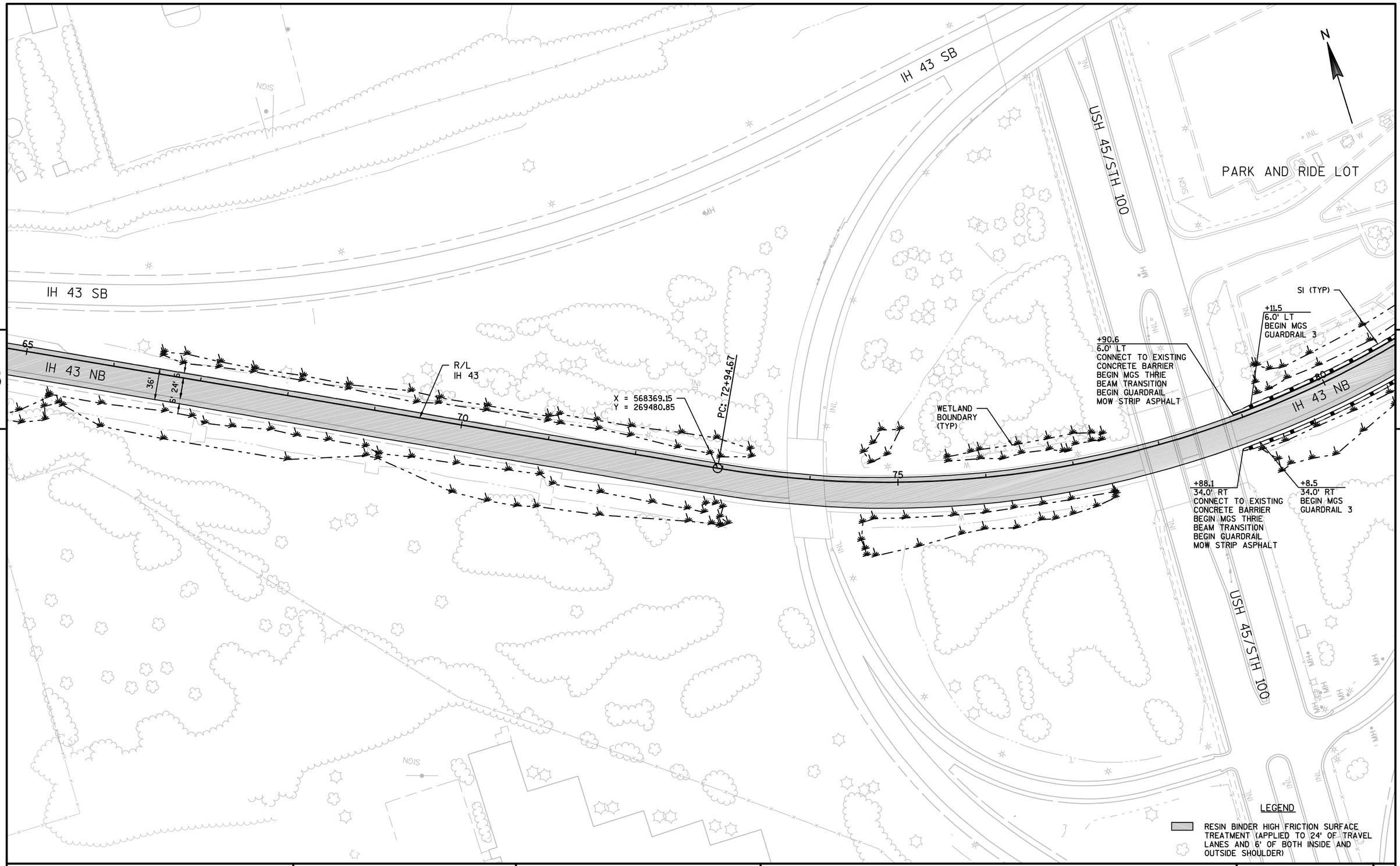
RESIN BINDER HIGH FRICTION SURFACE TREATMENT (APPLIED TO 24' OF TRAVEL LANES AND 6' OF BOTH INSIDE AND OUTSIDE SHOULDER)

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	PLAN SHEETS	SHEET 23	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\050001_PS.DWG
LAYOUT NAME - 050001_PS

PLOT DATE : 4/27/2016 4:07 PM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



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5

PROJECT NO:1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	PLAN SHEETS	SHEET 24	E

IH 43 SB

USH 45/STH 100

CURVE 2
PI STA = 81+12.36
Y = 269116.862
X = 569101.353
DELTA = 71°01'15"
D = 5°00'00"
T = 817.69'
L = 1420.42'
R = 1145.92'
PC STA = 72+94.67
PT STA = 87+15.09

PARK AND RIDE LOT

+90.6
6.2' LT
CONNECT TO EXISTING
CONCRETE BARRIER
BEGIN MGS THRIE
BEAM TRANSITION
BEGIN GUARDRAIL MOW
STRIP ASPHALT

+11.5
6.0' LT
BEGIN MGS
GUARDRAIL 3

WETLAND
BOUNDARY (TYP)

+22.3
6.0' LT
BEGIN MGS GUARDRAIL
TERMINAL TYPE 2

+30.0
6.0' LT
END MGS GUARDRAIL
TERMINAL TYPE 2
END GUARDRAIL
MOW STRIP ASPHALT

IH 43 NB

80

85

90

36'

6' 24' 6'

+88.1
34.0' RT
CONNECT TO EXISTING
CONCRETE BARRIER
BEGIN MGS THRIE
BEAM TRANSITION
BEGIN GUARDRAIL MOW
STRIP ASPHALT

+8.5
34.0' RT
BEGIN MGS
GUARDRAIL 3

CURVE 2

SI (TYP)

+43.1
34.0' RT
BEGIN MGS GUARDRAIL
TERMINAL TYPE 2

+50.4
34.0' RT
END MGS GUARDRAIL
TERMINAL TYPE 2
END GUARDRAIL
MOW STRIP ASPHALT

STH 100 ON-RAMP

P.I. 81+15.09

R/L
IH 43

END PROJECT
STA 87+15.09
X = 569683.69
Y = 269690.88

EP: 92+58.13
X = 570070.85
Y = 270072.52

IH 43 NB

IH 43 SB

N

LEGEND

RESIN BINDER HIGH FRICTION SURFACE TREATMENT (APPLIED TO 24' OF TRAVEL LANES AND 6' OF BOTH INSIDE AND OUTSIDE SHOULDER)

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	PLAN SHEETS	SHEET 25	E

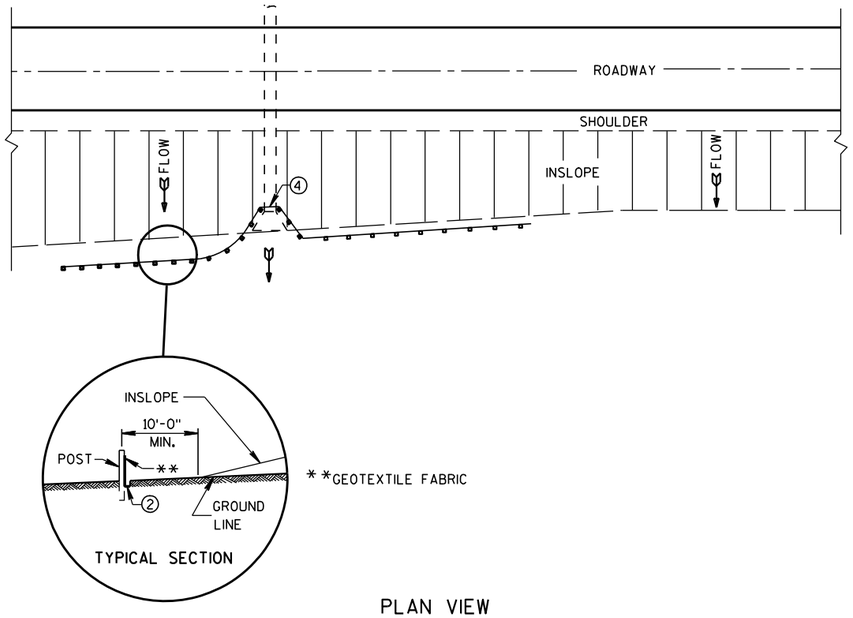
FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\050001_PS.DWG
LAYOUT NAME - 050003_PS

PLOT DATE : 4/27/2016 4:07 PM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:100 FT

Standard Detail Drawing List

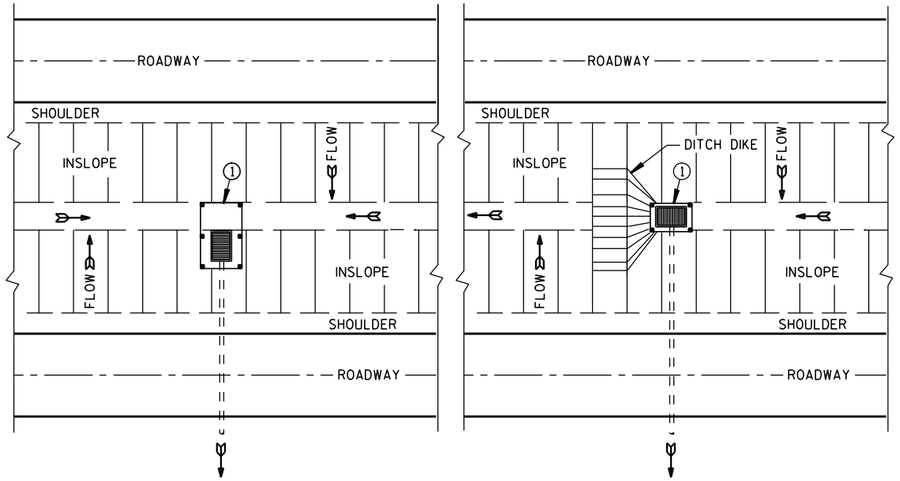
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
14B28-03	GUARDRAIL MOW STRIP
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B47-02A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C08-16C	PAVEMENT MARKING (CLIMBING LANE & PASSING LANE)
15C08-16D	PAVEMENT MARKING (CLIMBING LANE & PASSING LANE)
15C08-16E	PAVEMENT MARKING (LEFT TURN LANE)
15C08-16F	PAVEMENT MARKING (ISLANDS)
15C31-01A	PAVEMENT MARKING (RAMPS AND GORES)
15C31-01B	LANE DROP PAVEMENT MARKING
15C31-01C	PAVEMENT MARKING MAJOR SPLIT FREEWAY TO FREEWAY
15C31-01D	PAVEMENT MARKING FOR PARALLEL ON-RAMP AND PARALLEL OFF-RAMP
15D12-06A	TRAFFIC CONTROL, LANE CLOSURE
15D12-06B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D27-02	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH

6



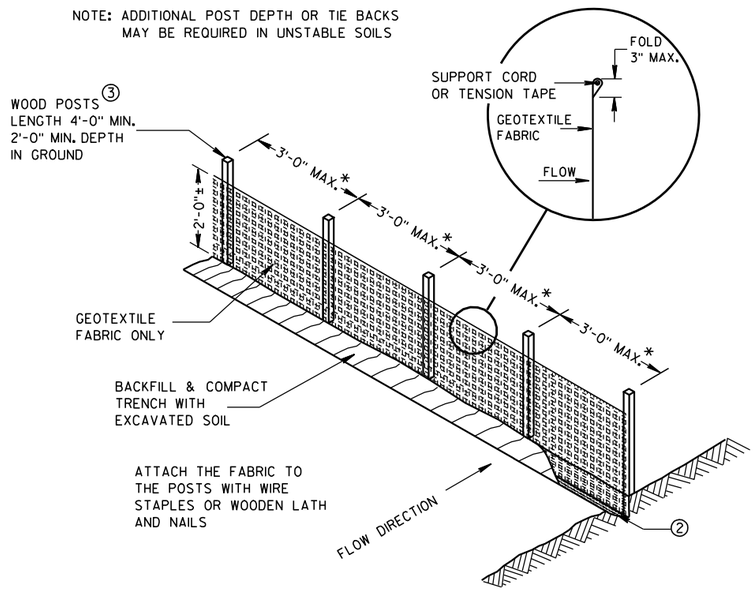
PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



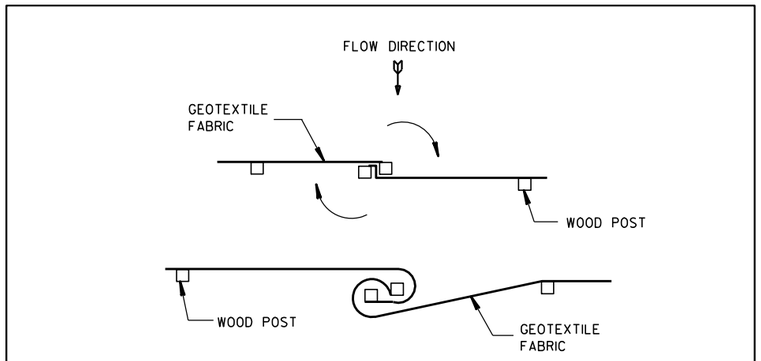
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS



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

SILT FENCE

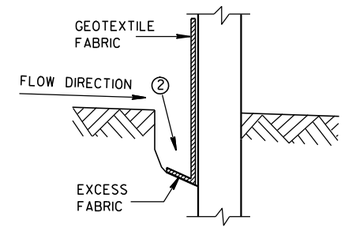


JOINING TWO LENGTHS OF SILT FENCE 5

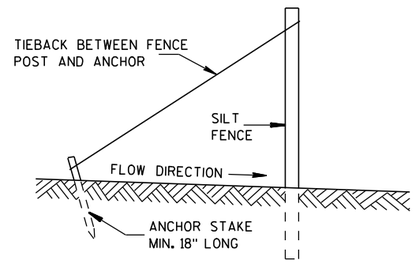
GENERAL NOTES

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

1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" 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

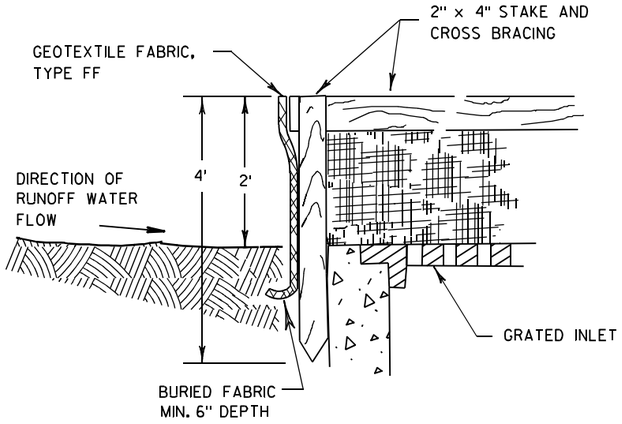
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

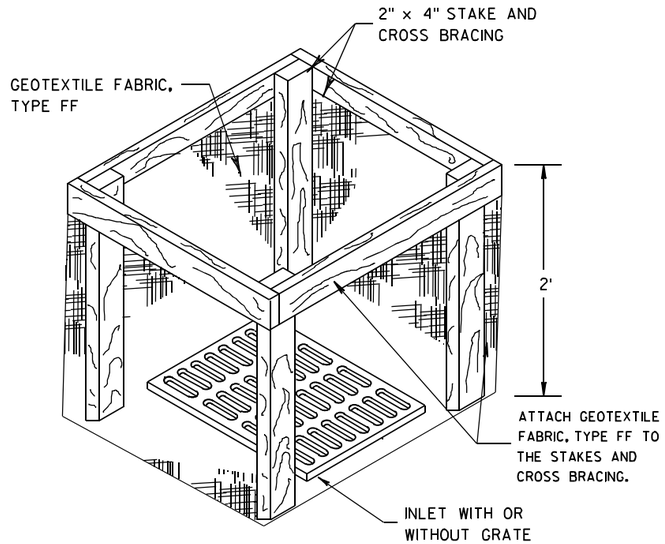
6

S.D.D. 8 E 9-6

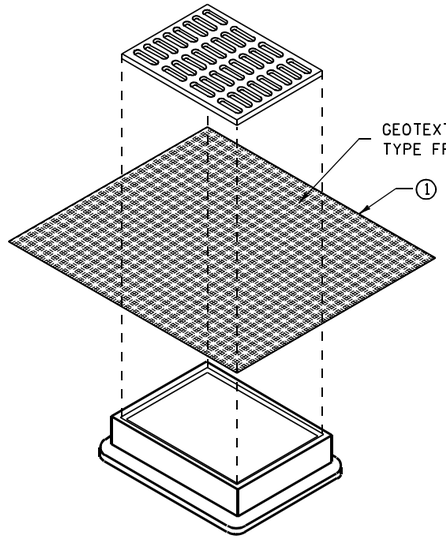
6

S.D.D. 8 E 9-6



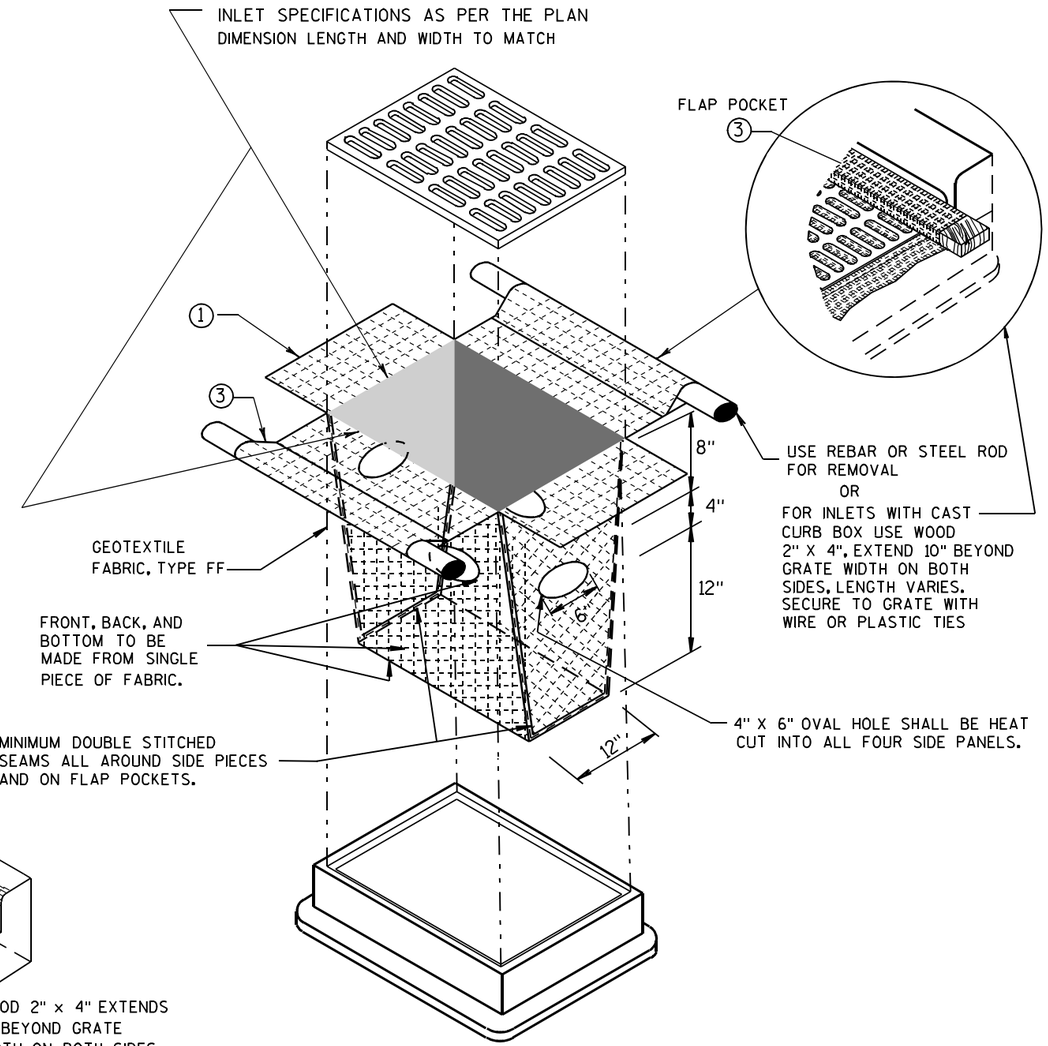


INLET PROTECTION, TYPE A



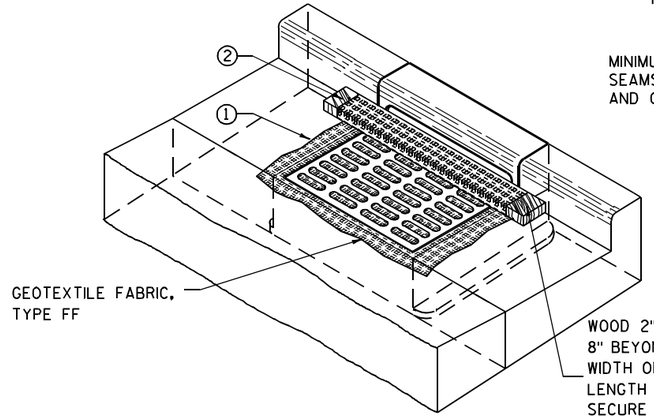
INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH
OR WITHOUT A CURB BOX AS PER NOTE ②)



INLET PROTECTION, TYPE C (WITH CURB BOX)

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

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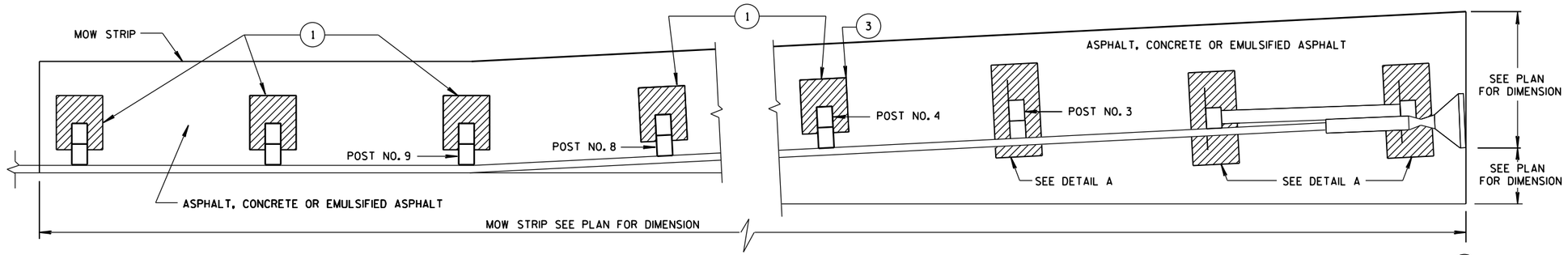
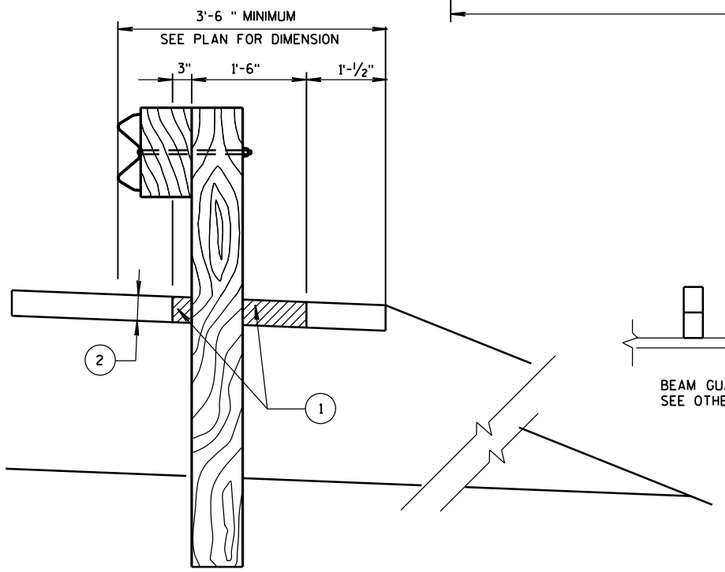
S.D.D. 8 E 10-2

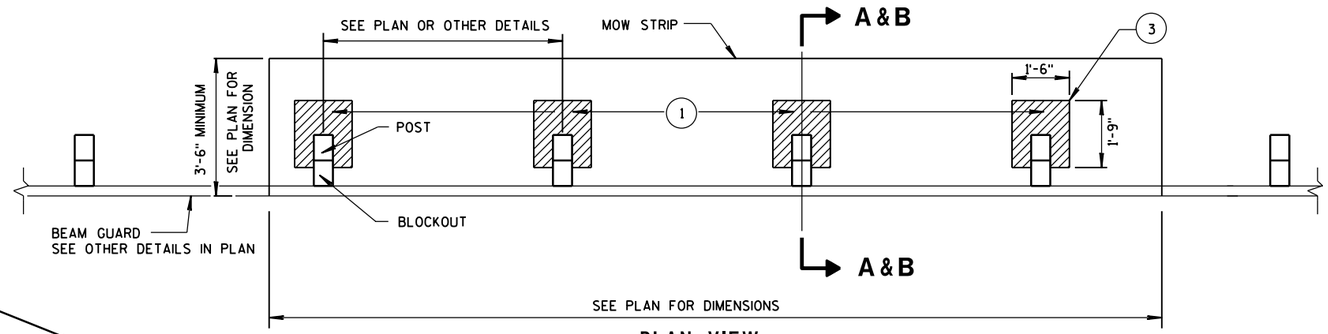


PLAN VIEW

MOW STRIP LAYOUT FOR ENERGY ABORBING TERMINAL

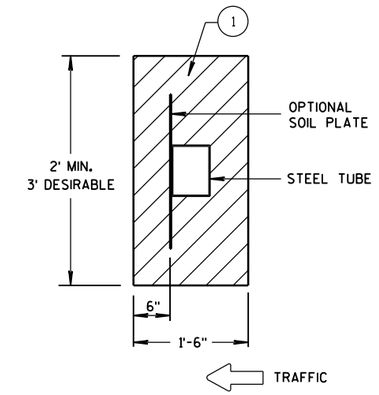


SECTION A-A

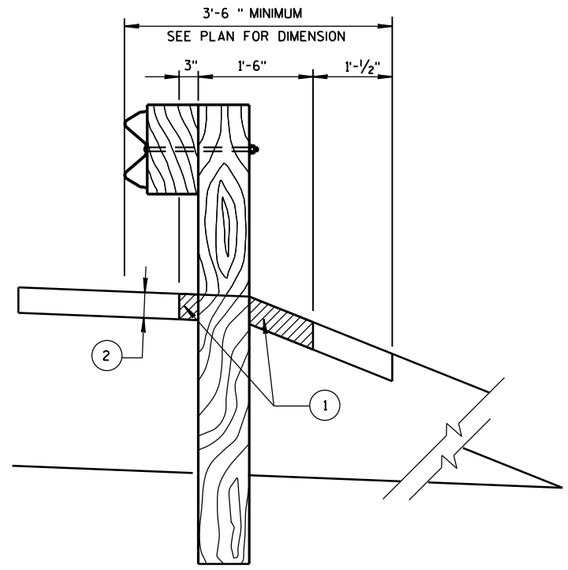


PLAN VIEW

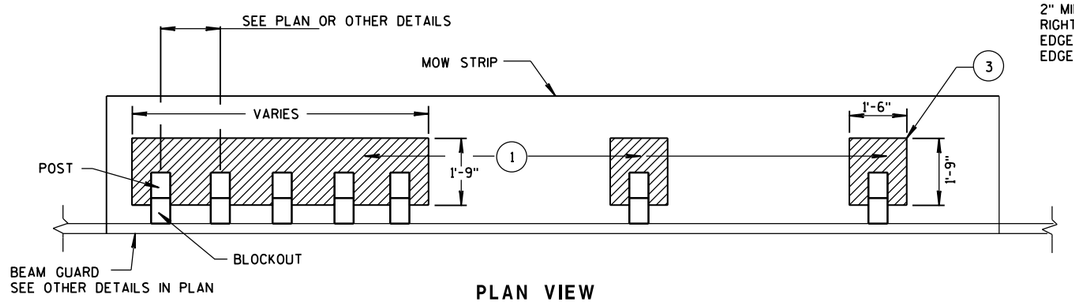
MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT



DETAIL A

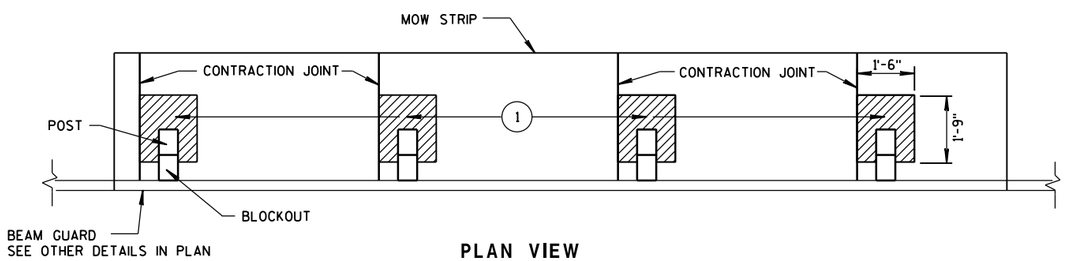


SECTION B-B



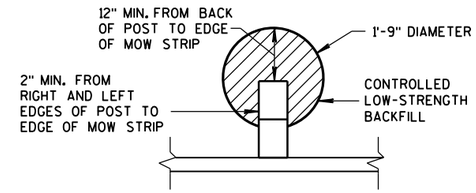
PLAN VIEW

MOW STRIP FOR TIGHT SPACING LAYOUT



PLAN VIEW

JOINT PLACEMENT FOR CONCRETE MOW STRIP



ALTERNATIVE HMA
MOW STRIP DESIGN

(1) CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.

(2) DEPTH OF MOW STRIP:
ASPHALT - 4"
CONCRETE - 4"
EMULSIFIED ASPHALT - 1" OR LESS

(3) FOR EMULSIFIED ASPHALT MOW STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS.)

GUARDRAIL MOW STRIP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 14 B 28-3

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S.D.D. 14 B 28-3

GENERAL NOTES

(1) WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

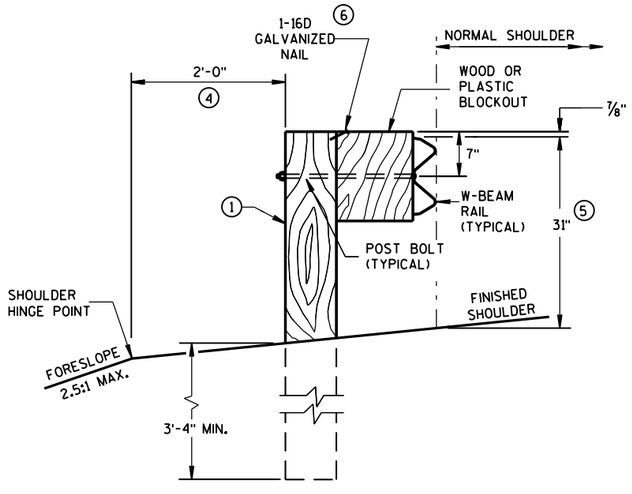
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

(4) WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

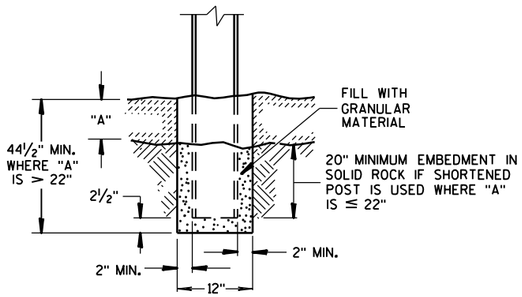
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



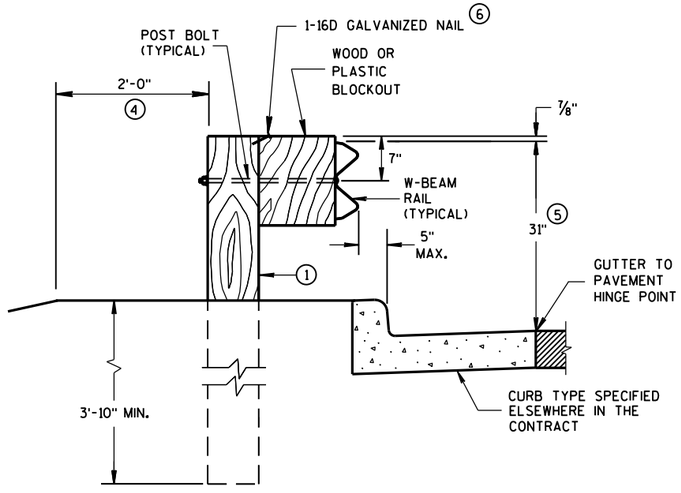
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



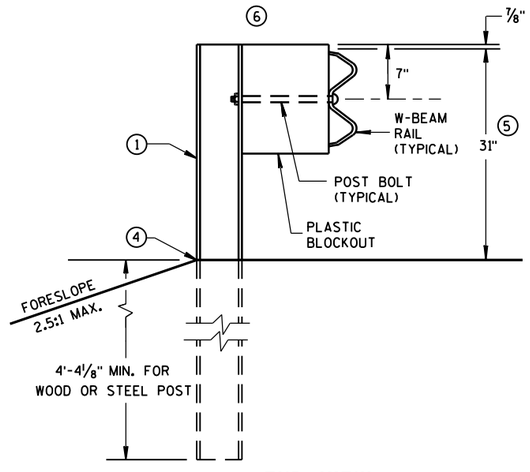
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



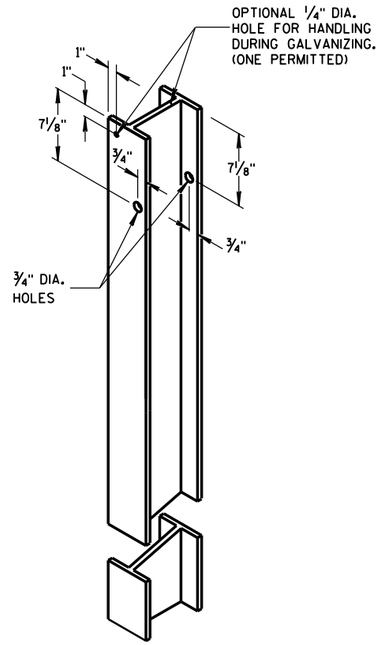
END VIEW

LOCATED ALONG A CURBED ROADWAY

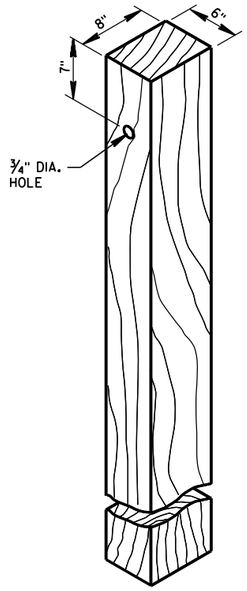


END VIEW

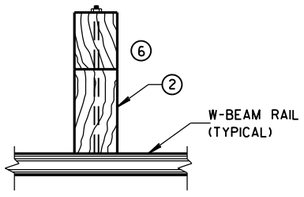
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



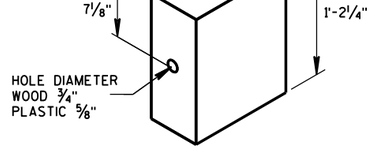
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



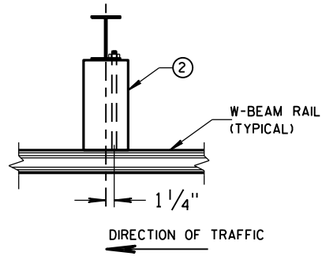
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)

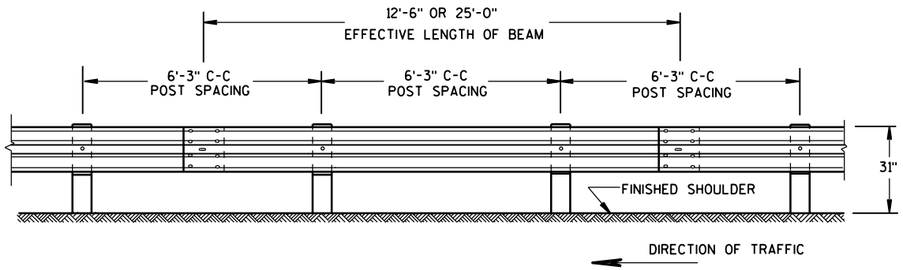


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

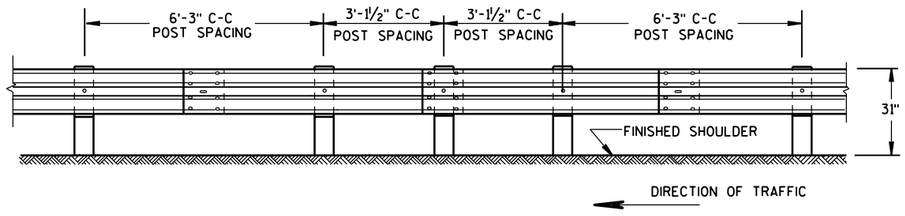
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6
S.D.D. 14 B 42-3a



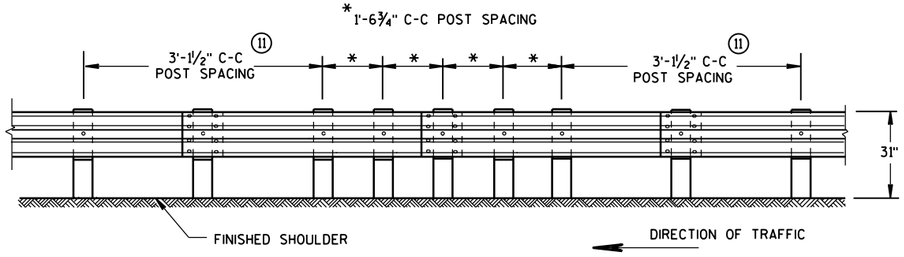
FRONT VIEW

POST SPACING STANDARD INSTALLATION



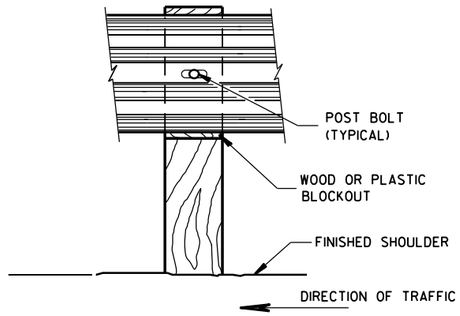
FRONT VIEW

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

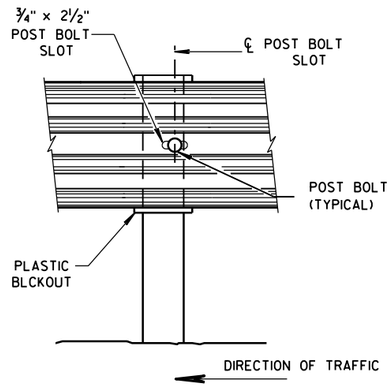


FRONT VIEW

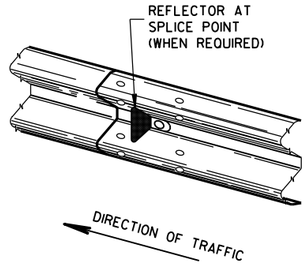
QUARTER POST SPACING (QS)

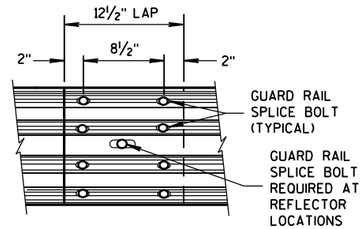


FRONT VIEW AT WOOD POST



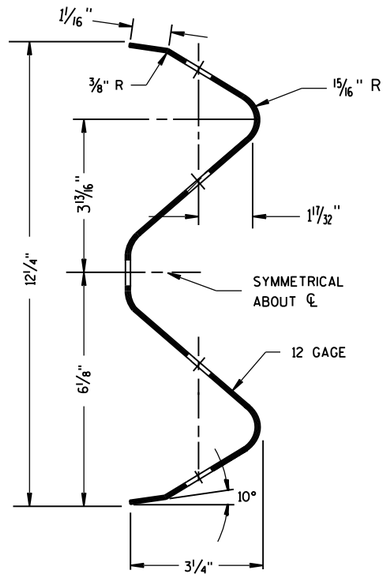
FRONT VIEW AT STEEL POST



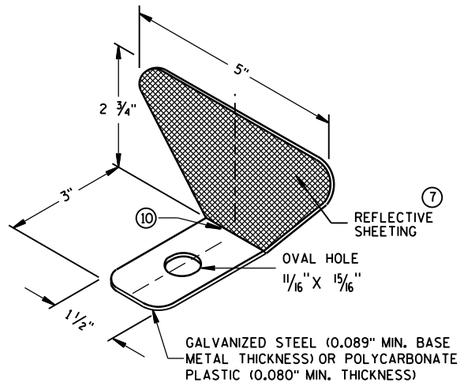


FRONT VIEW

MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

GENERAL NOTES

⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

⑩ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

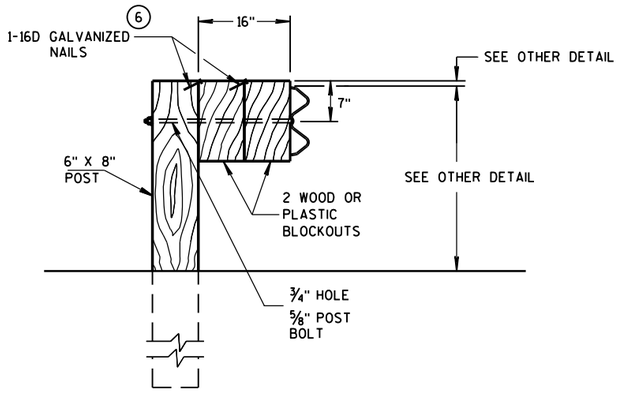
REFLECTOR SPACING ⑧

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

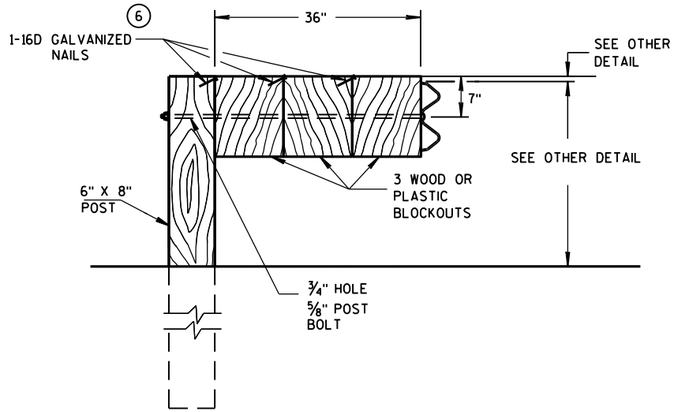
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6
S.D.D. 14 B 42-3b



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.

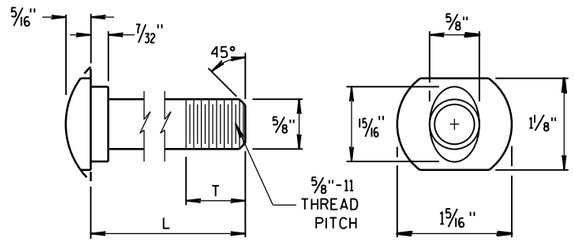


DETAIL FOR 36" BLOCKOUT DEPTH

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.

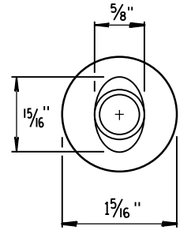
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

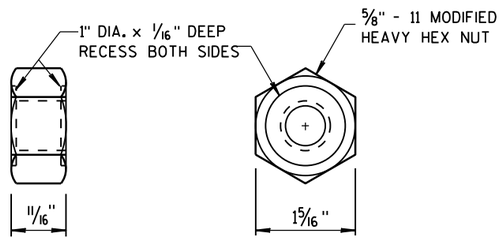


POST BOLT TABLE

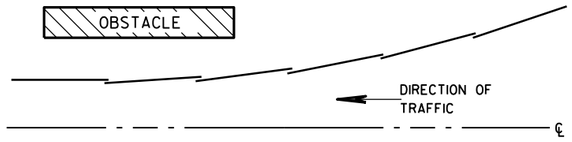
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

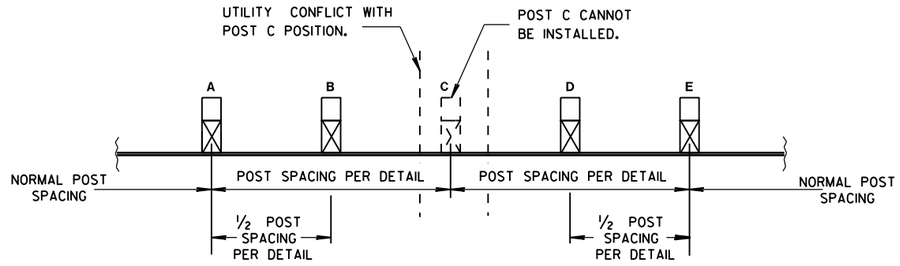


POST BOLT AND RECESS NUT

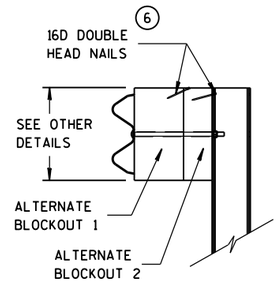


PLAN VIEW

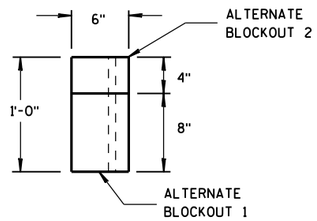
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 14 B 42-3c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

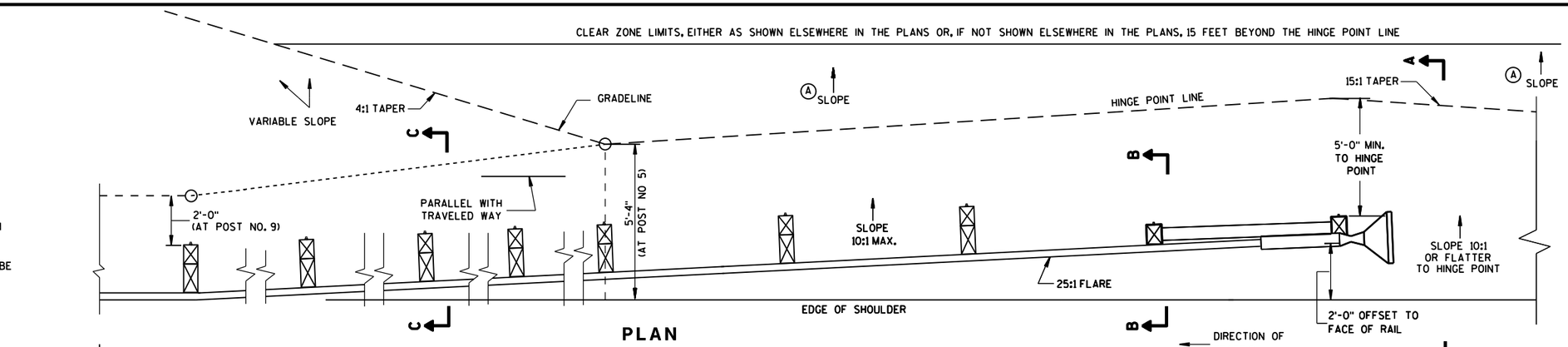
SEE SDD 14B42 FOR MORE INFORMATION.

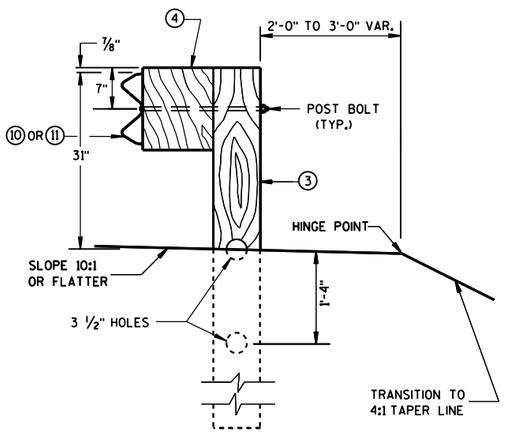
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

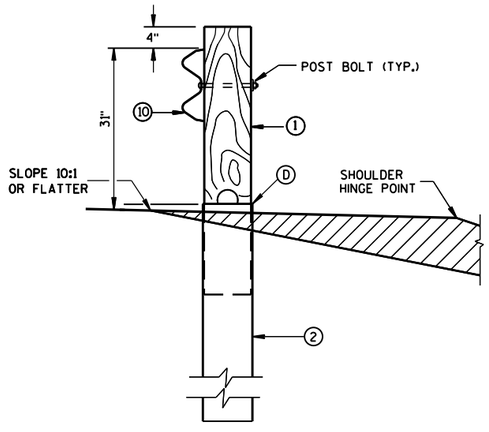
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.

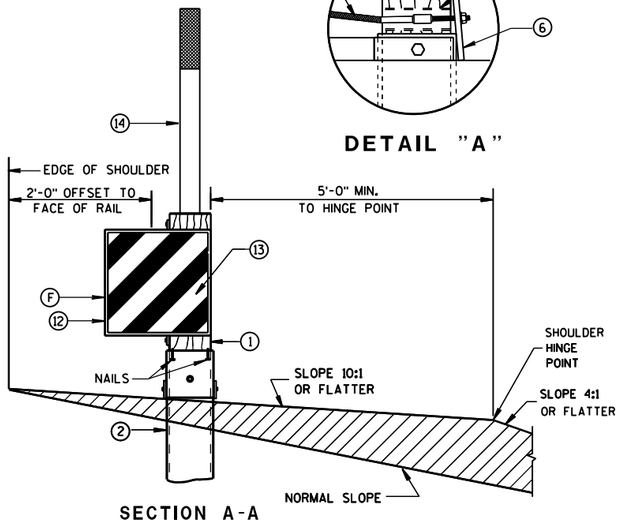




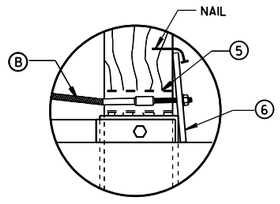
SECTION C-C
TYPICAL AT POST NOS. 3-9



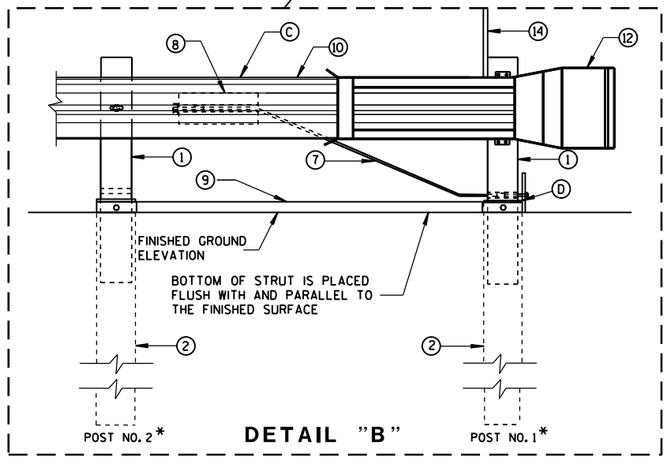
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



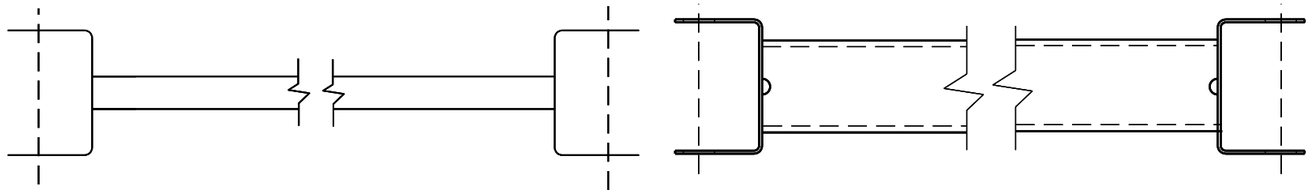
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

S.D.D. 14 B 44-2a

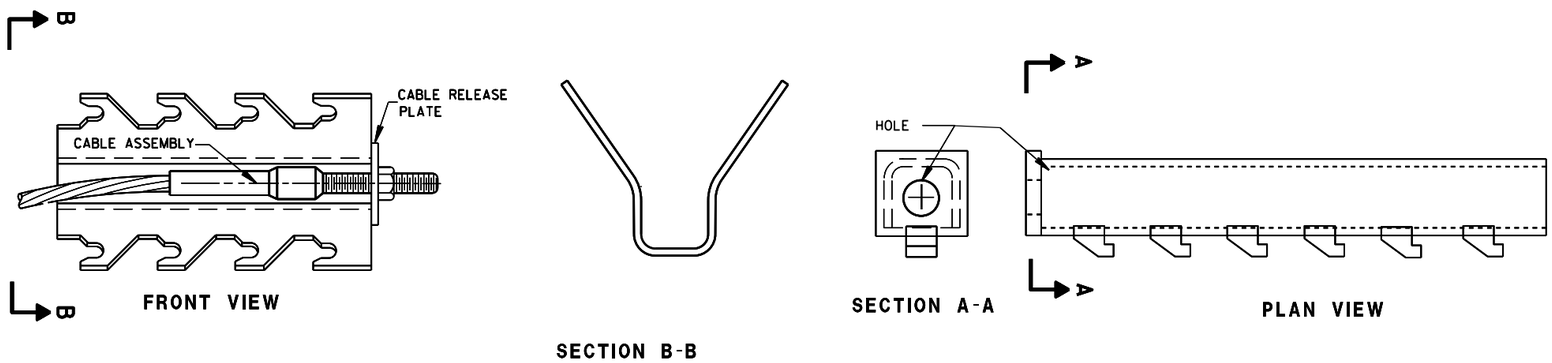
S.D.D. 14 B 44-2a



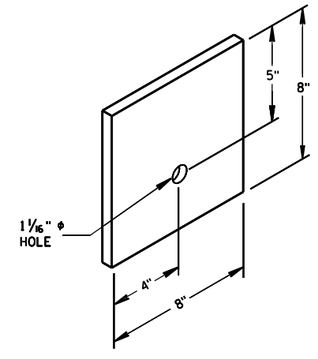
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (8) (H)



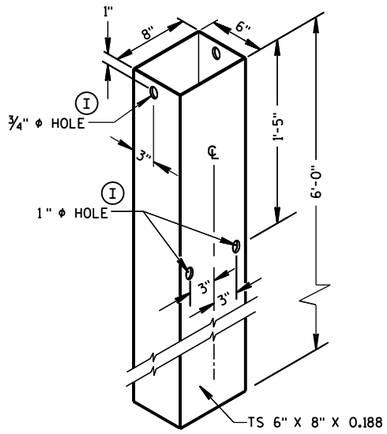
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

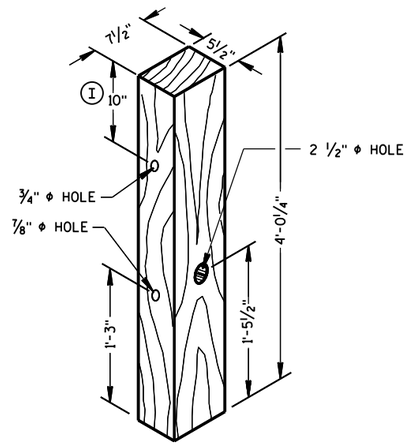
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

S.D.D. 14 B 44-2b

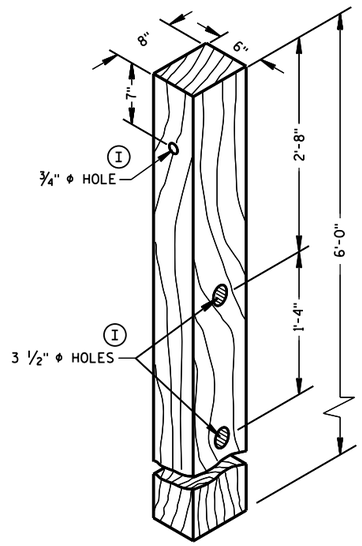


FOUNDATION TUBE (2)



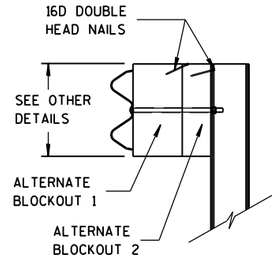
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

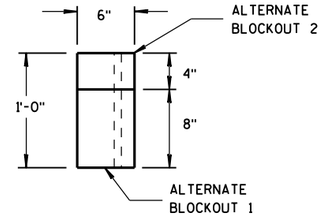


POSTS NUMBER 3-9

WOOD CRT POST (3)

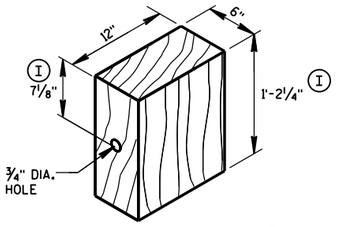


SIDE VIEW



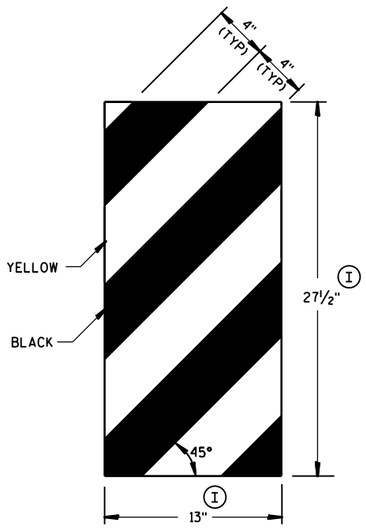
TOP VIEW

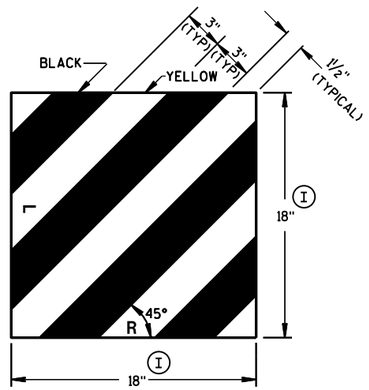
ALTERNATE WOOD BLOCKOUT DETAIL



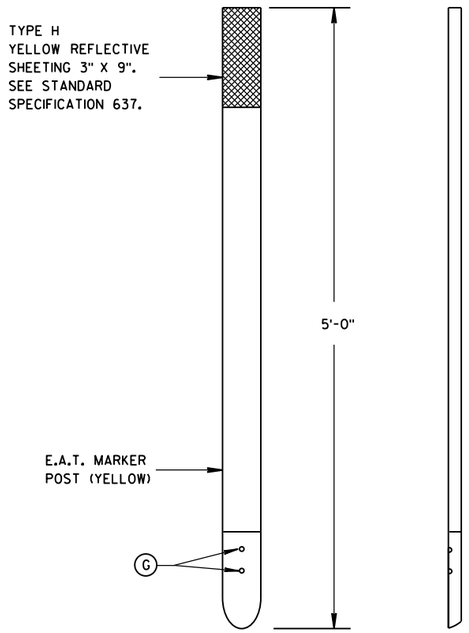
WOOD BLOCKOUT (4)

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2





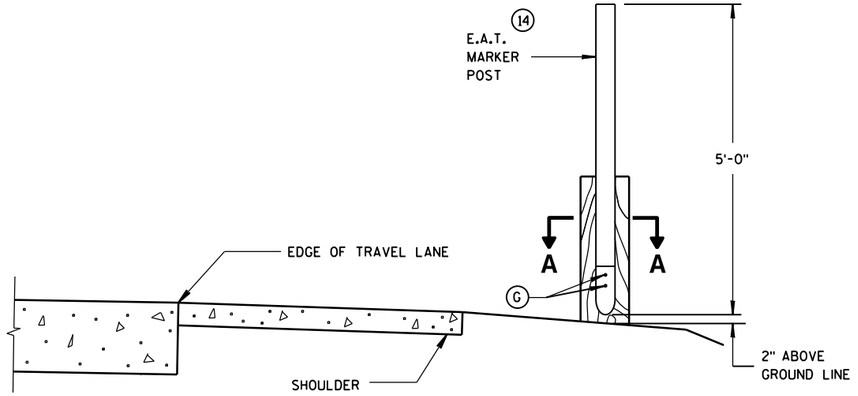
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

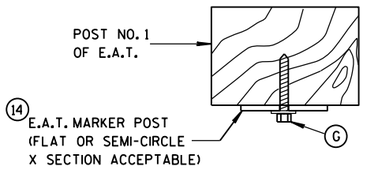
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

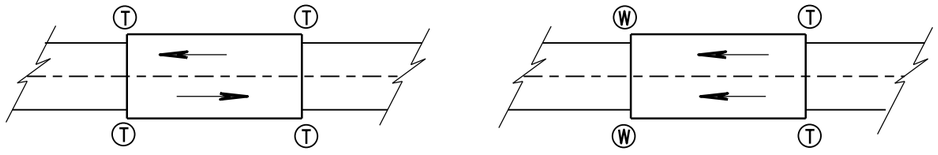
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6

S.D.D. 14 B 44-2c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

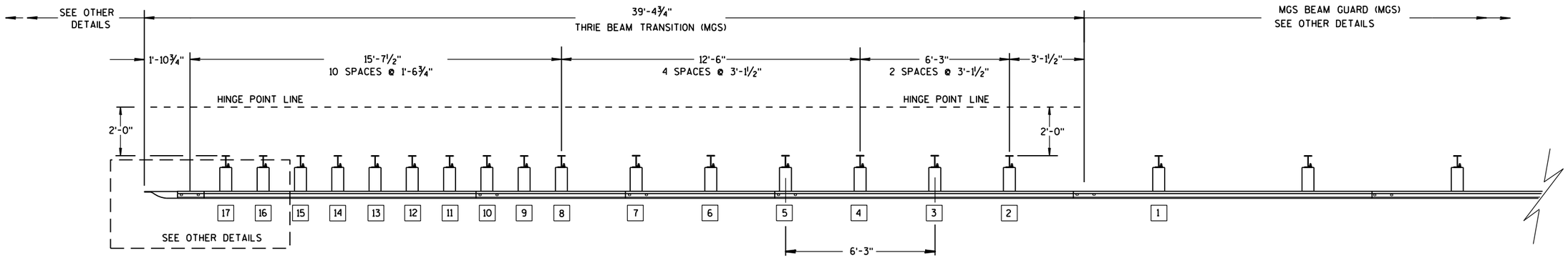
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

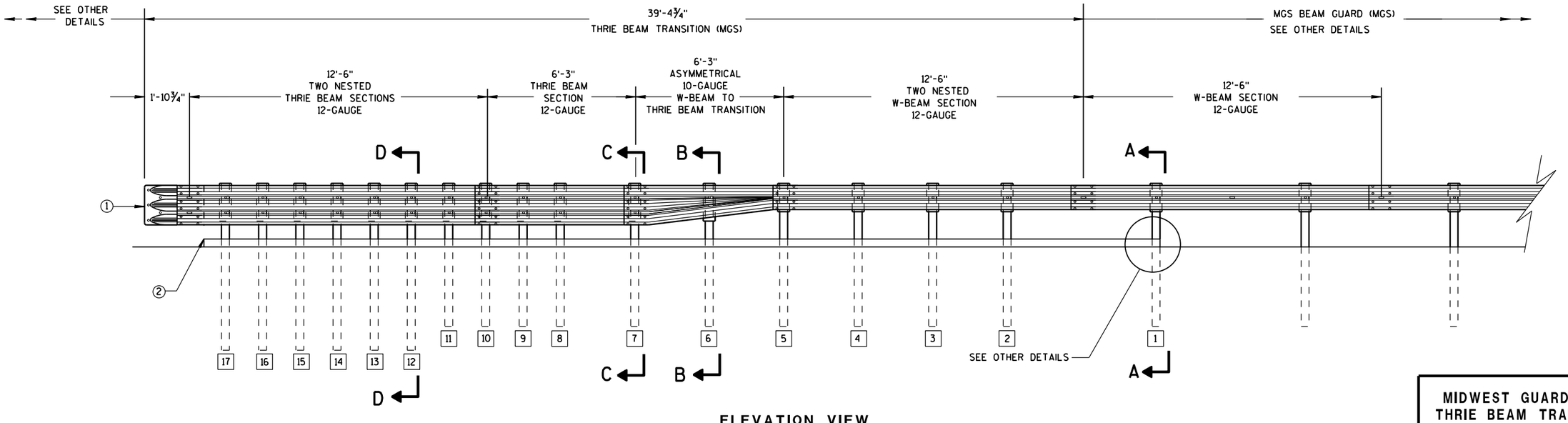
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

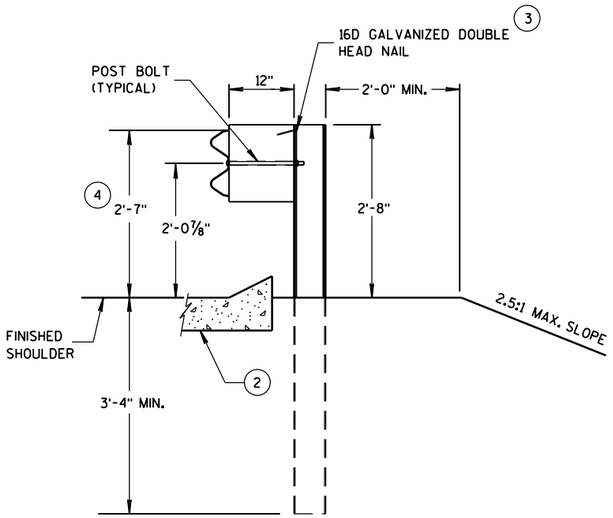
S.D.D. 14 B 45-4a

GENERAL NOTES

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

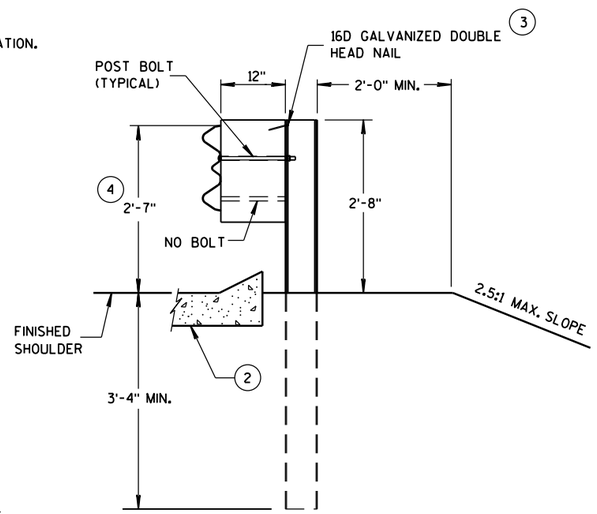
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



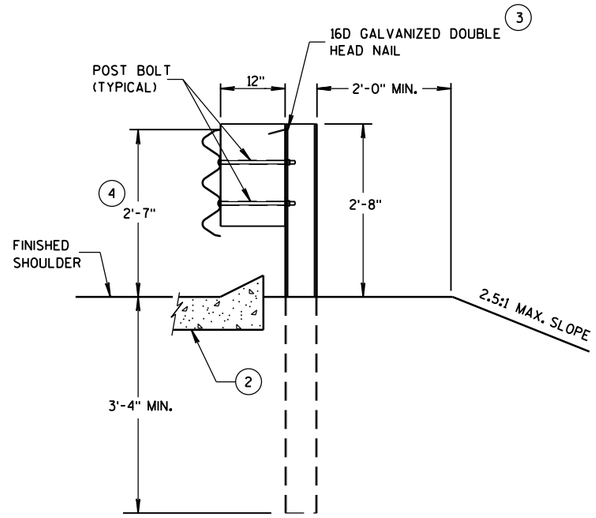
SECTION A-A

POSTS 1-5



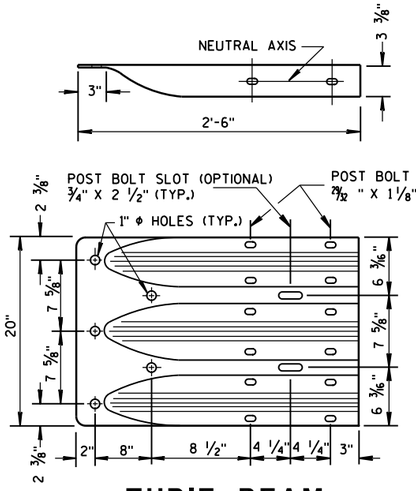
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

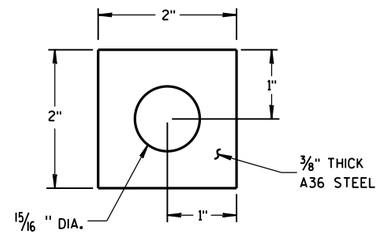
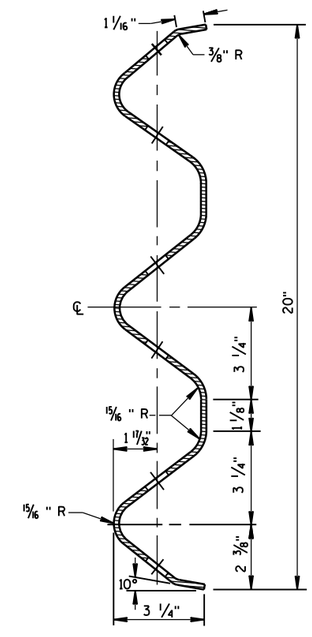
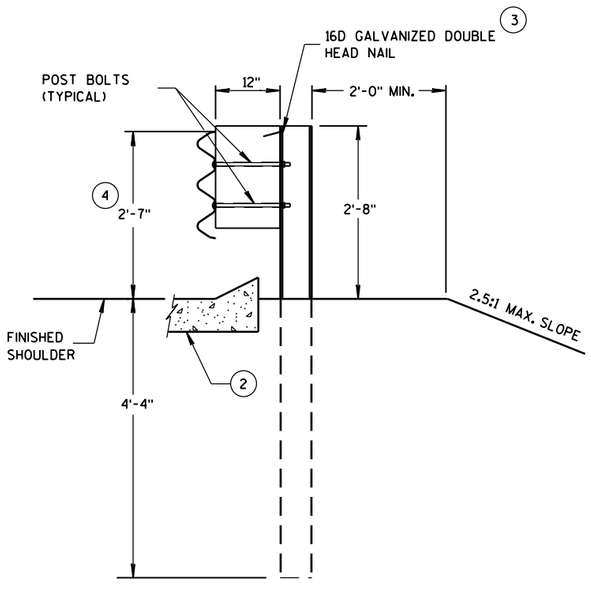


PLATE WASHER DETAIL

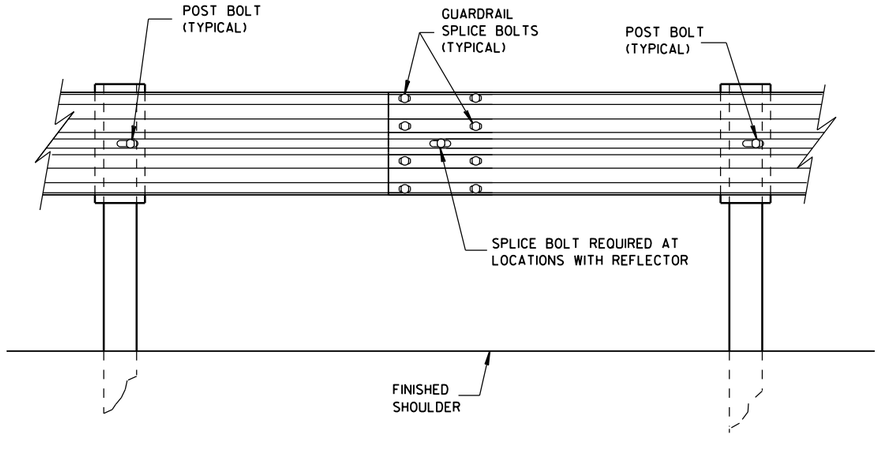


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

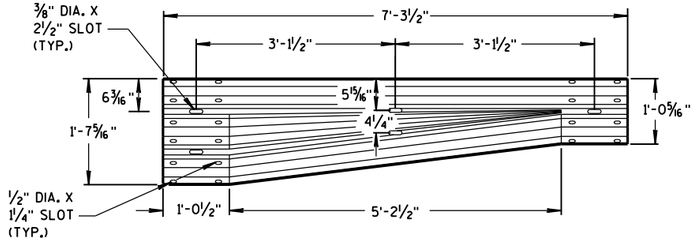
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

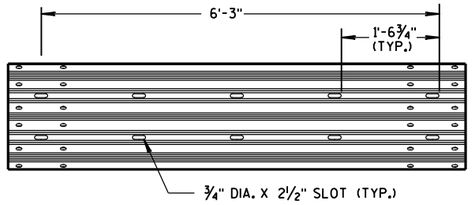
S.D.D. 14 B 45-4b

6

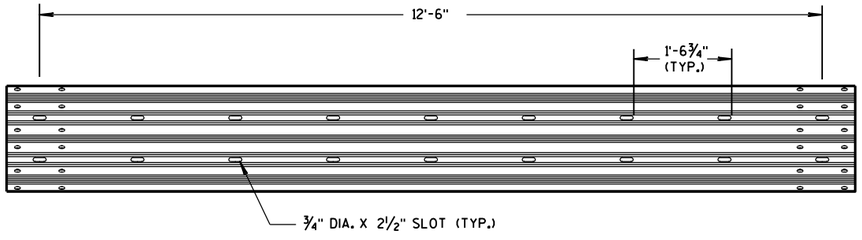
S.D.D. 14 B 45-4b



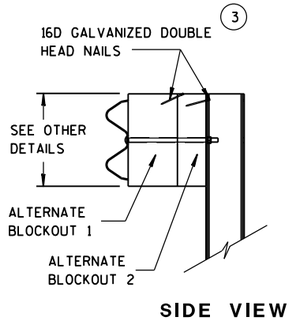
W-BEAM TO THRIE BEAM TRANSITION SECTION



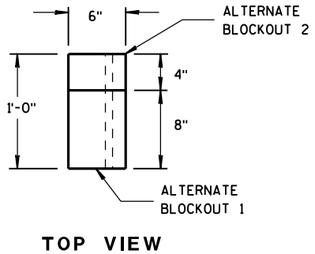
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

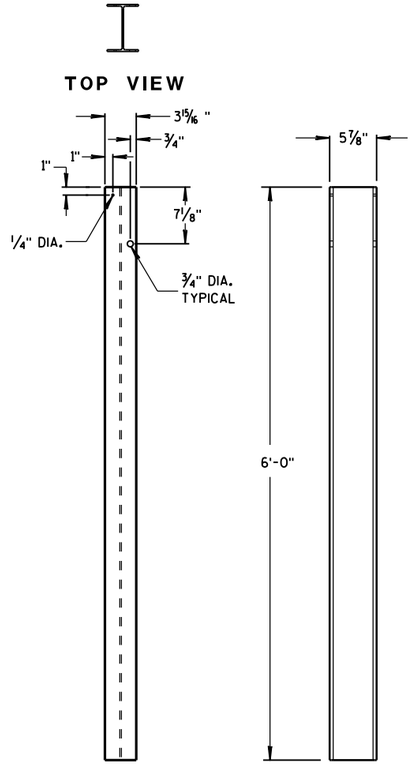


SIDE VIEW



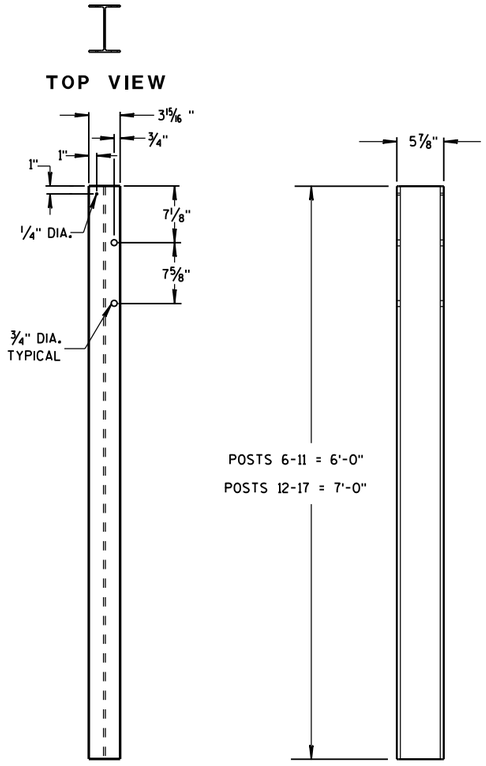
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



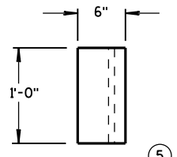
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

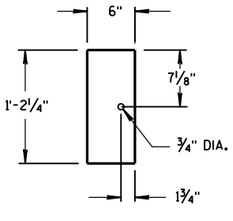


FRONT VIEW SIDE VIEW

STEEL POSTS 6-17

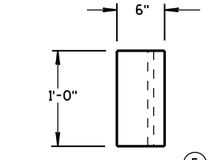


TOP VIEW

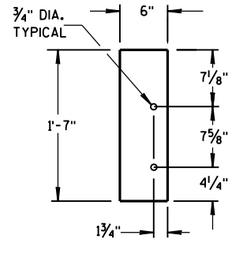


FRONT VIEW

BLOCKOUT POSTS 1-5



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

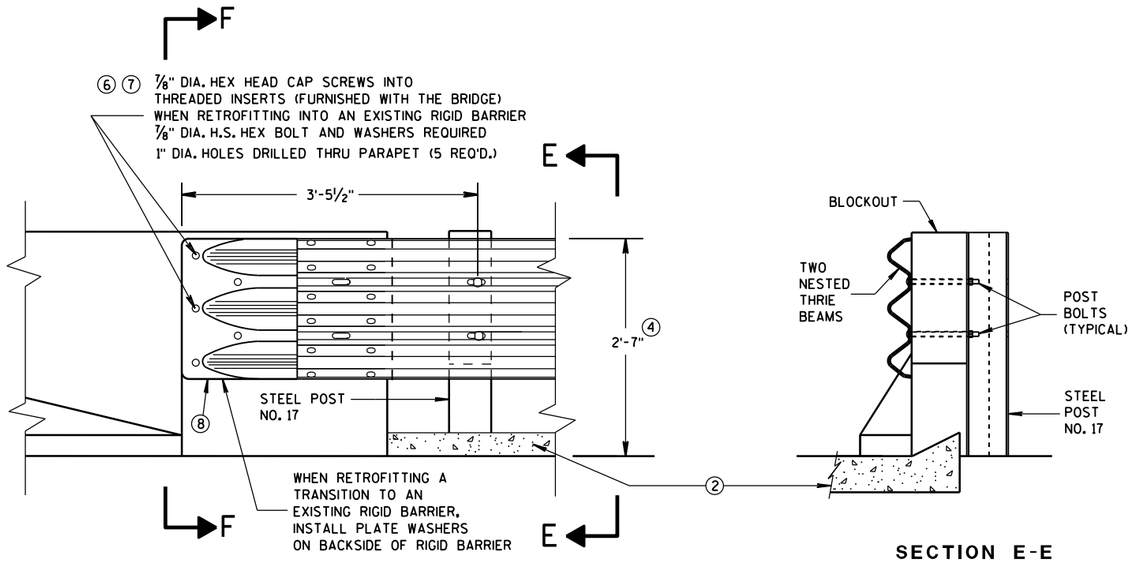
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 45-4c



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

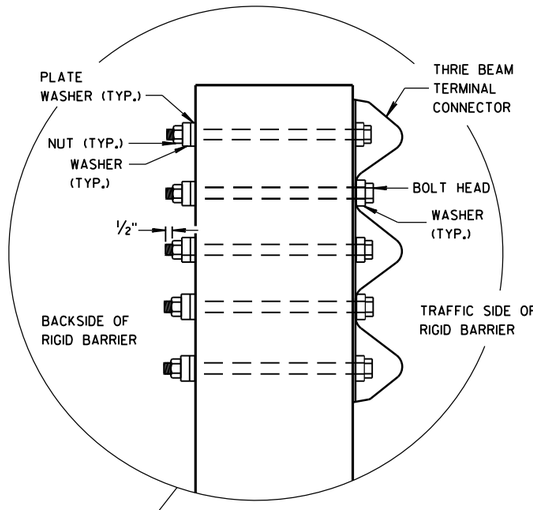
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

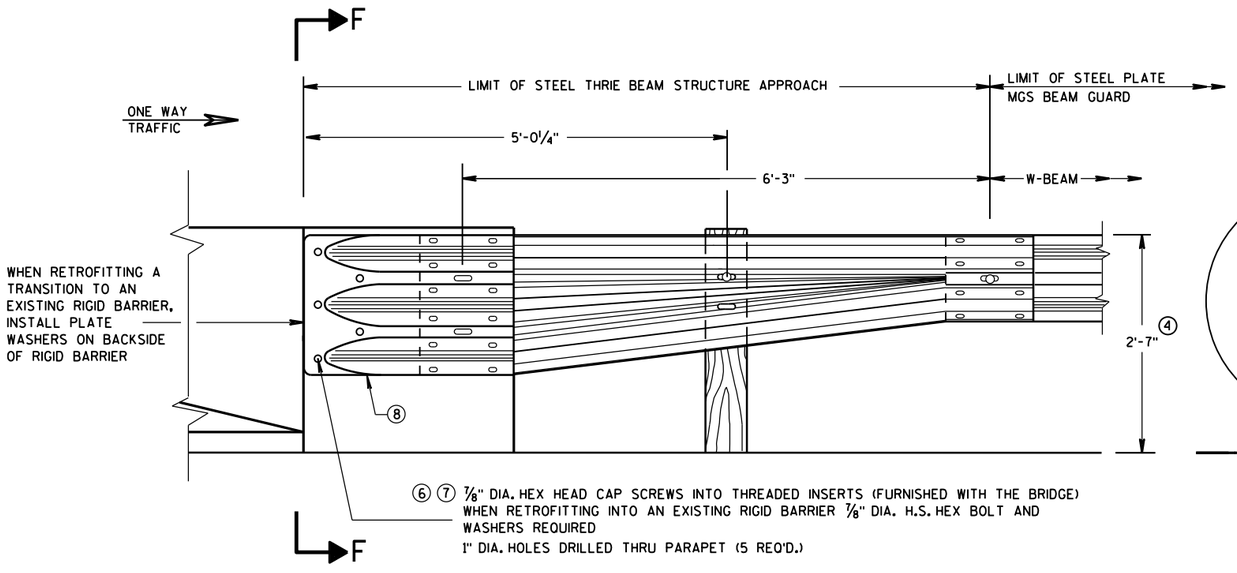
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

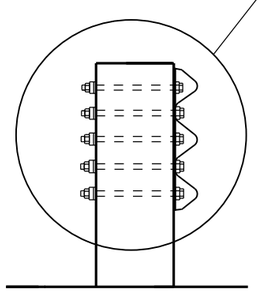
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. 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".

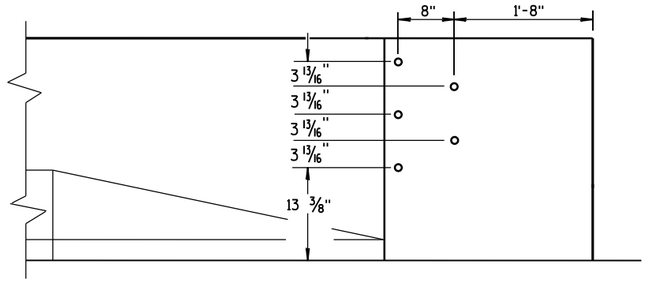




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

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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.

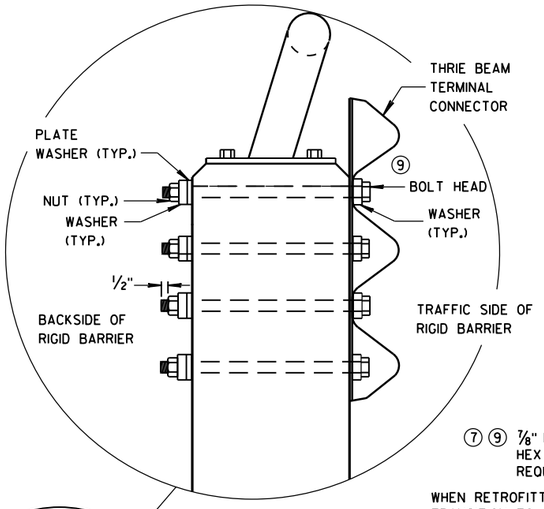
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

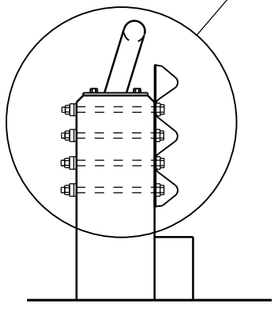
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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.

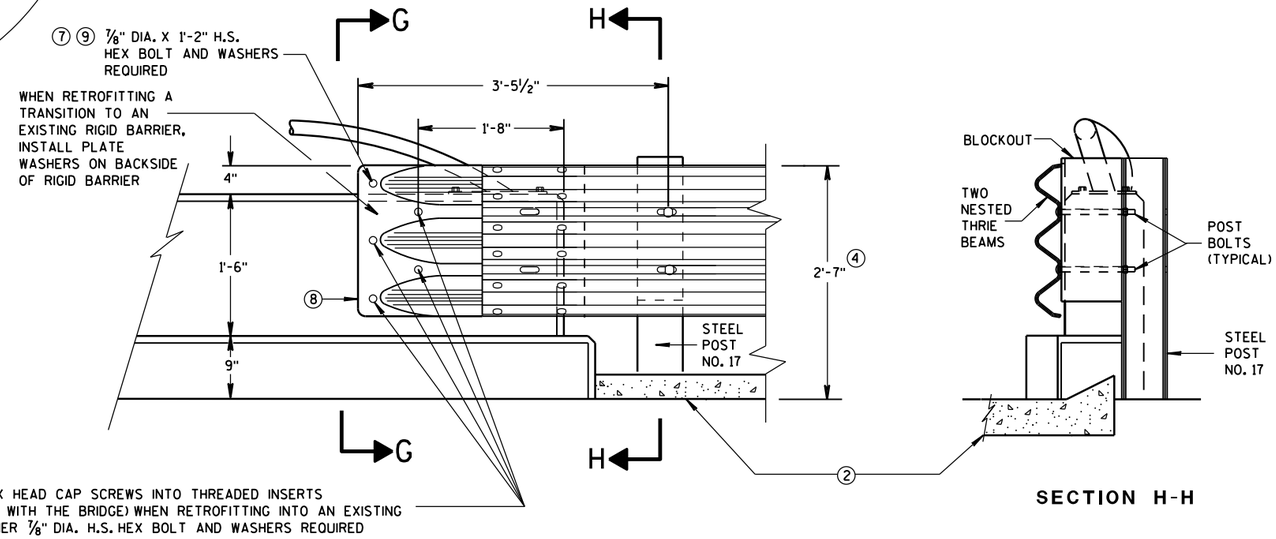
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(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.





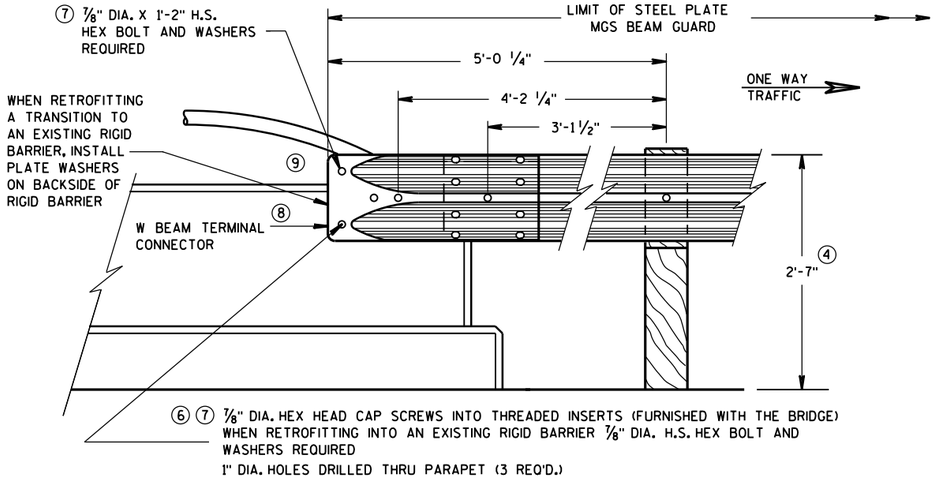
SECTION G-G



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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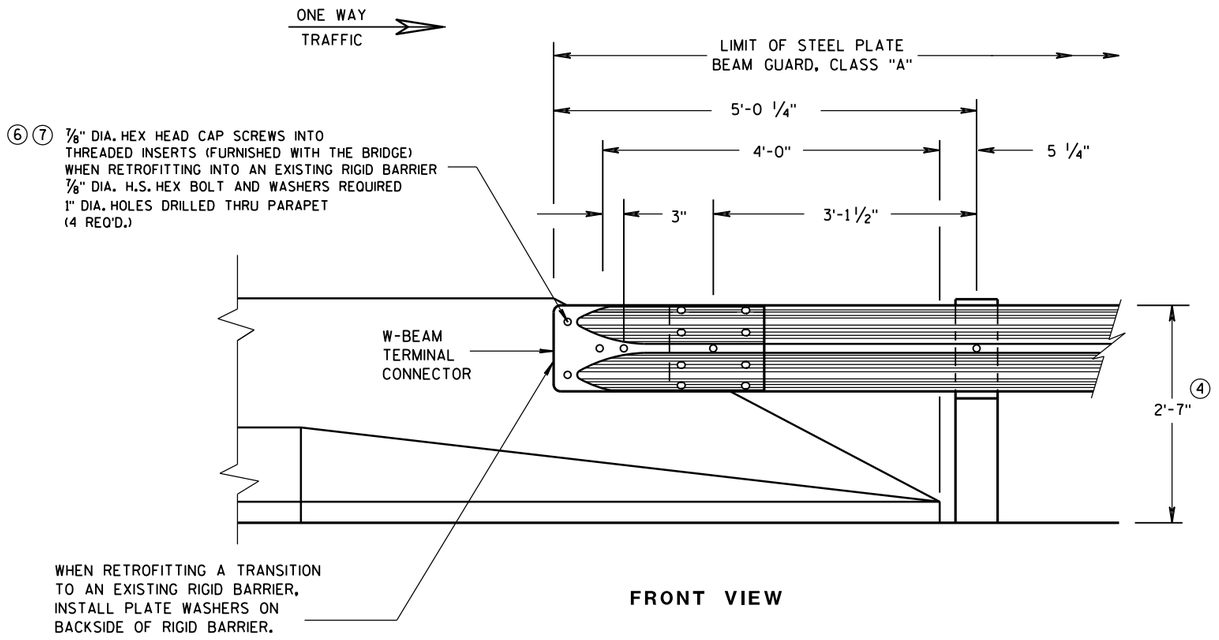


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

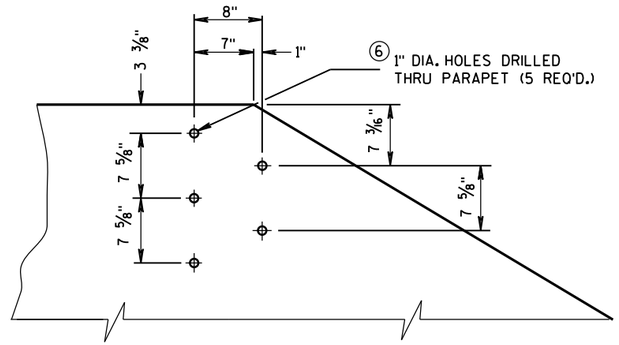
GENERAL NOTES

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

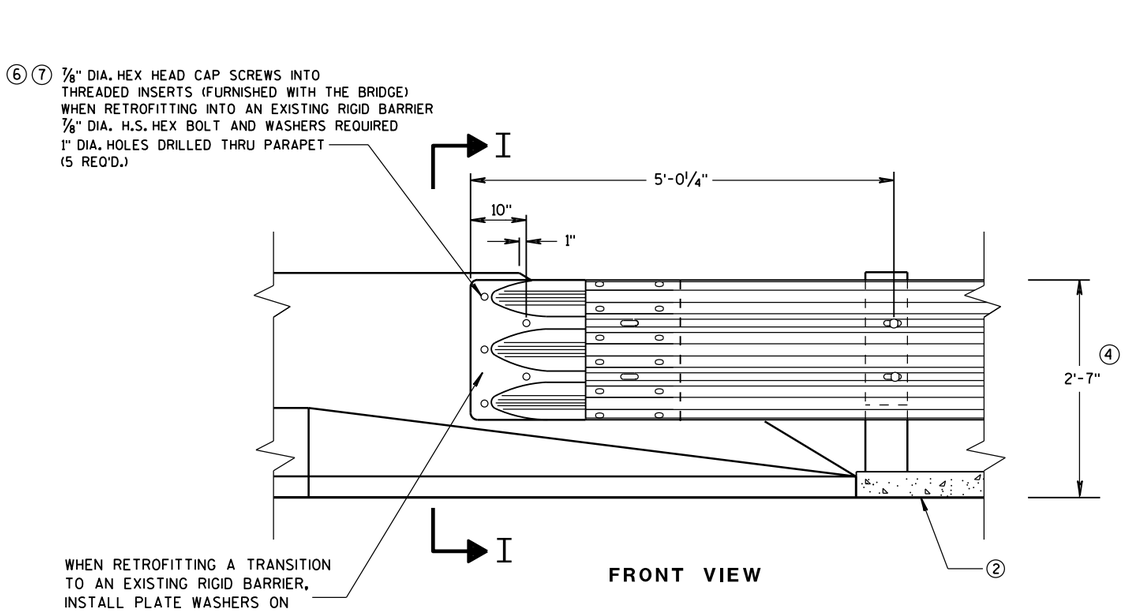
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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.

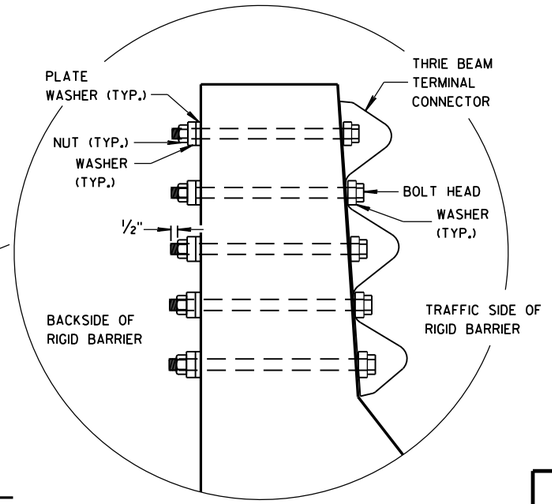


DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW

SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
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/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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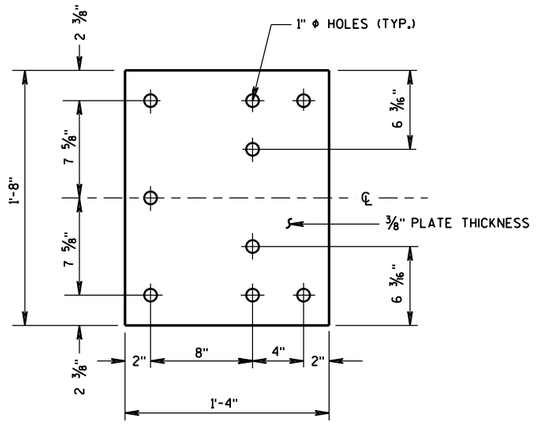
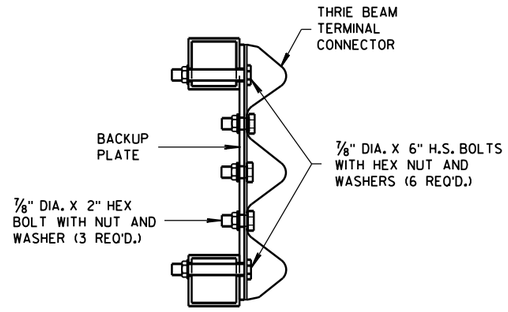
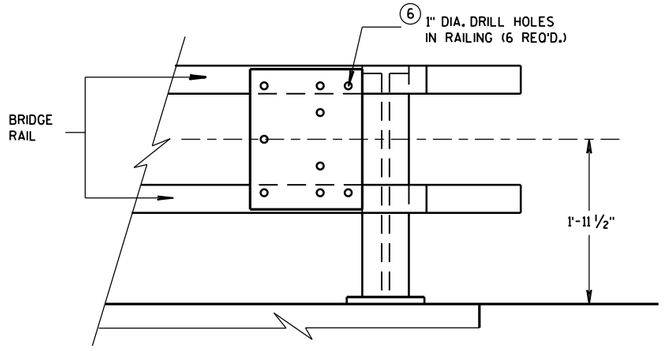


BACK-UP PLATE DETAIL



SECTION J-J

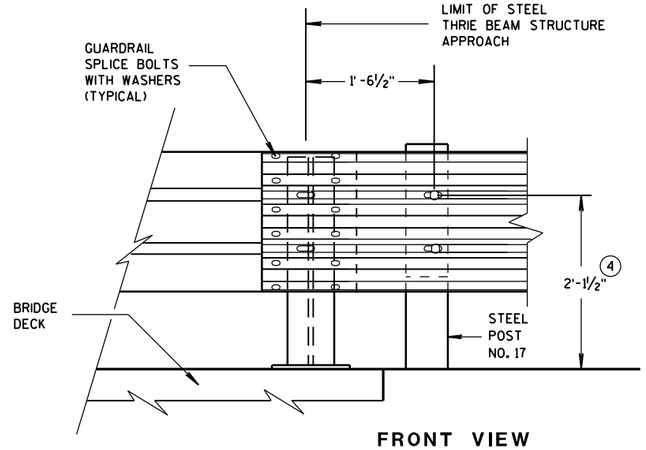


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

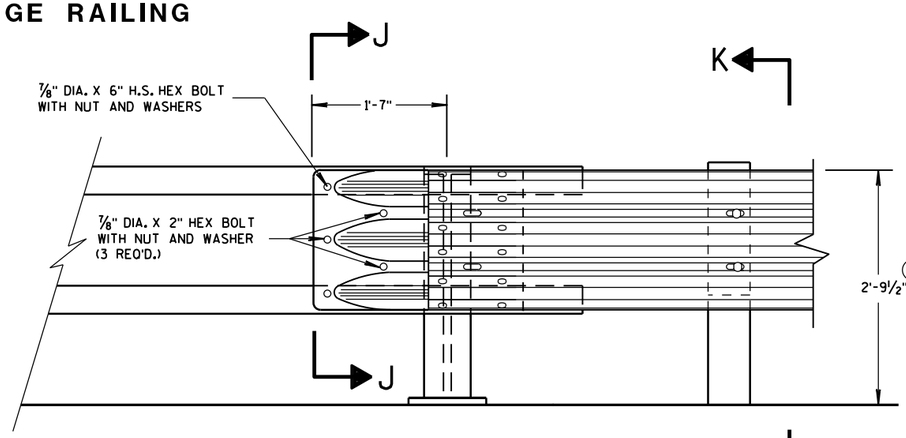
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

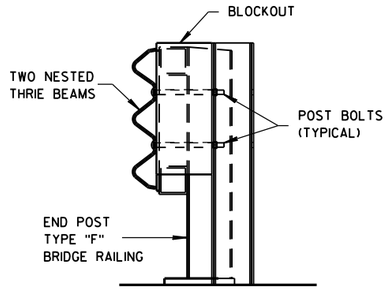


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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June, 2015 — DATE
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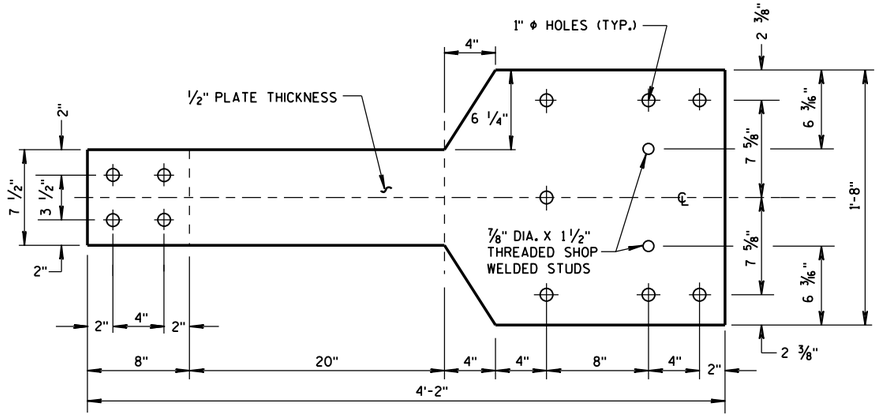
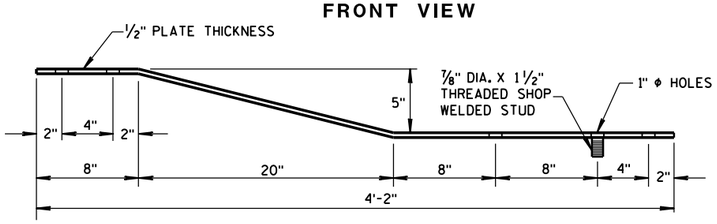
GENERAL NOTES

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

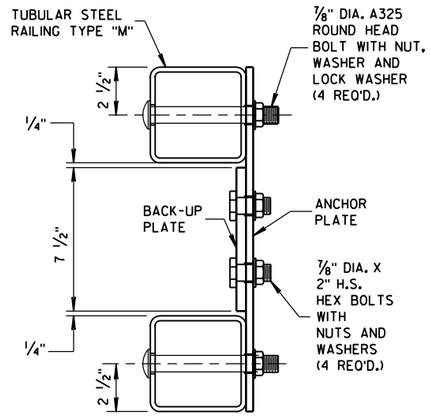


FRONT VIEW

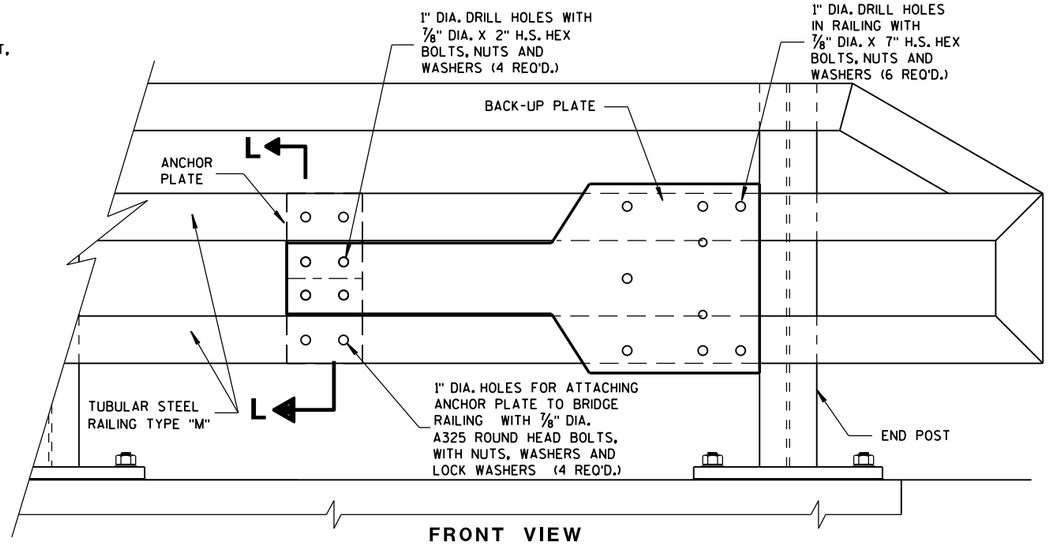


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

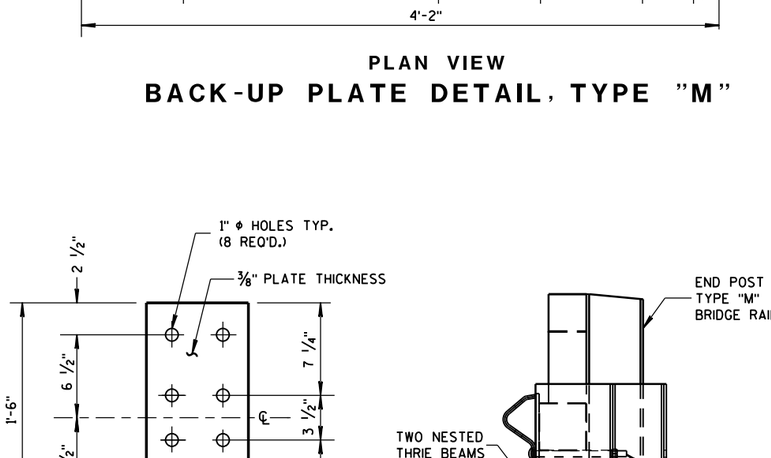


SECTION L-L



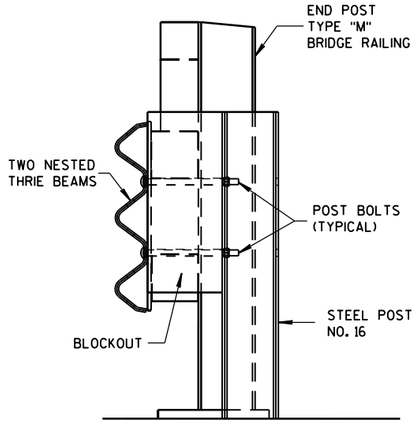
FRONT VIEW

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

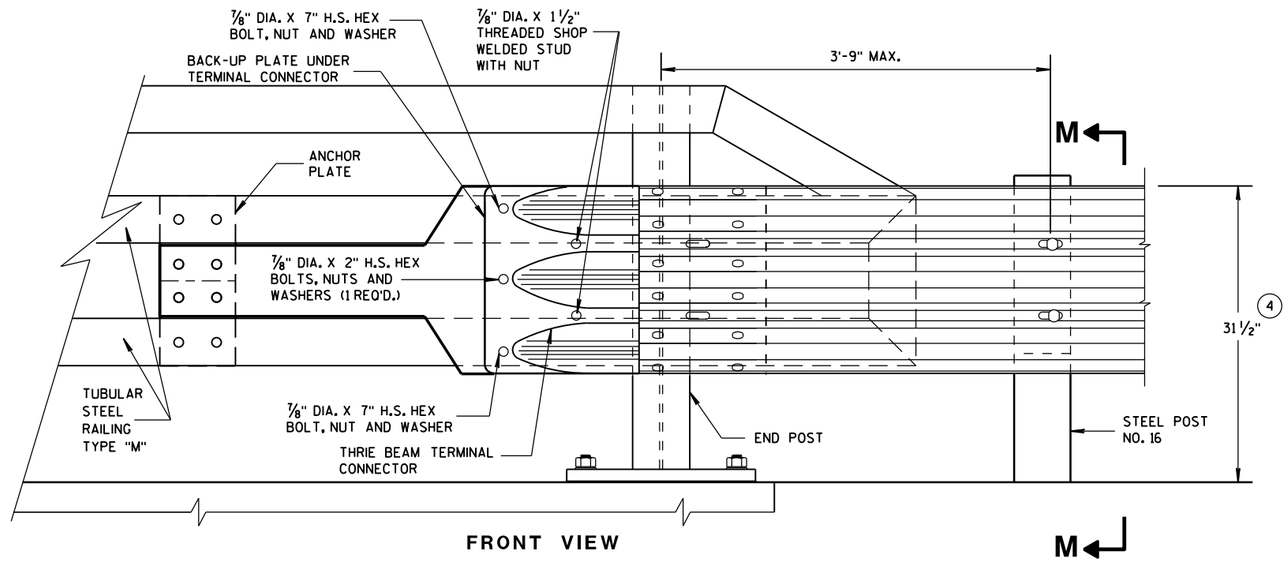


FRONT VIEW

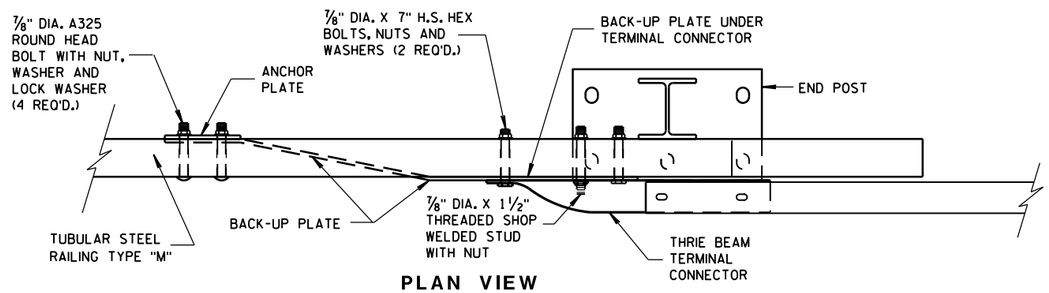
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
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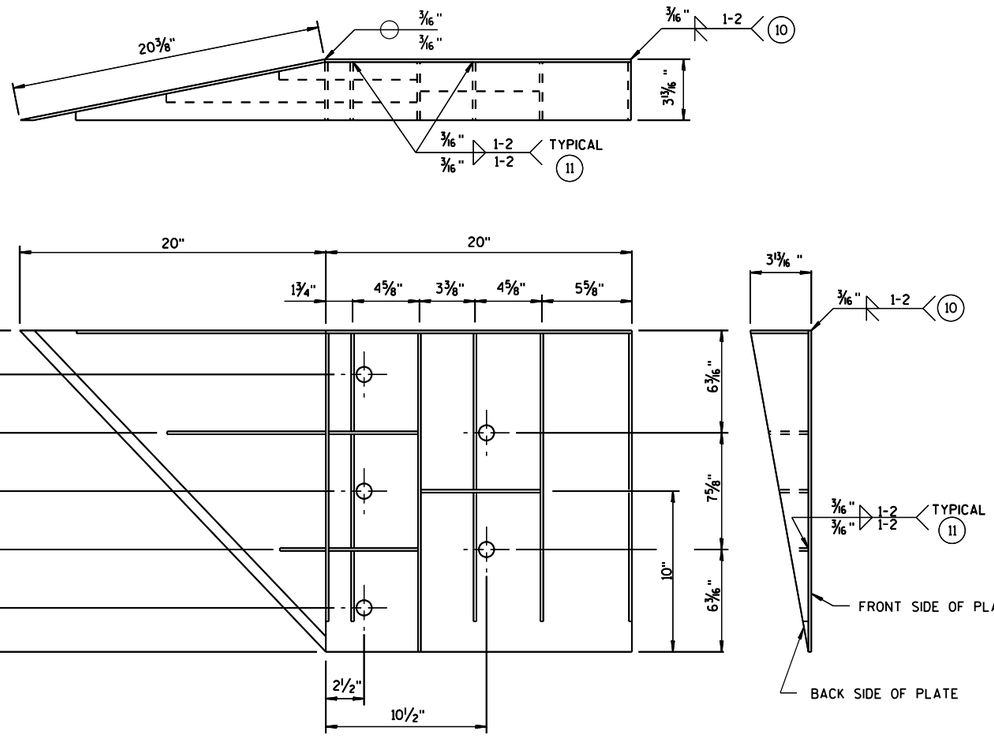

WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

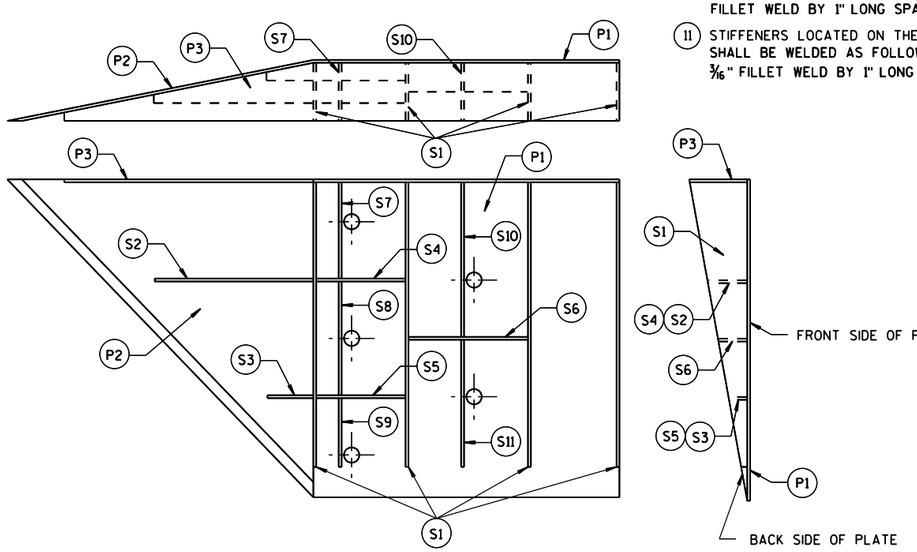

PLATE AND STIFFENER IDENTIFICATION

(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.

(10) 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.

(11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

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 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 3/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 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 1/32"	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 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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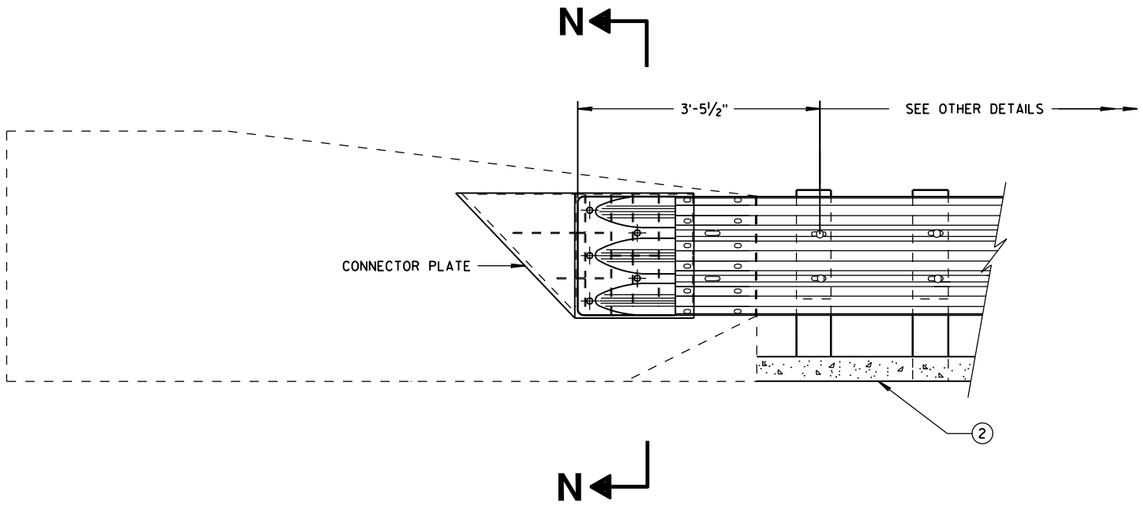
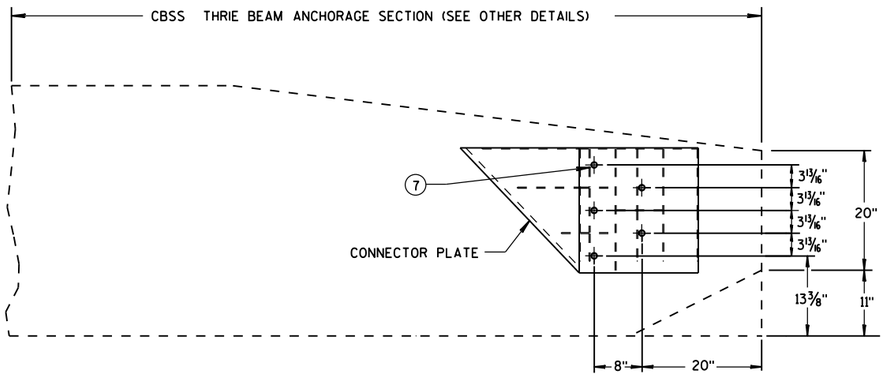


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



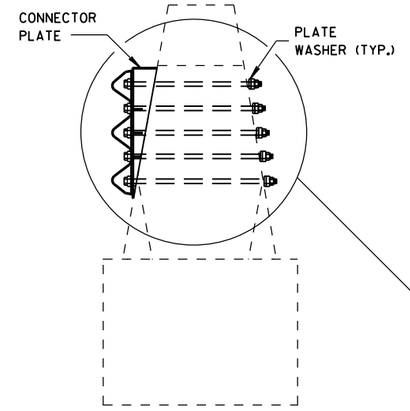
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

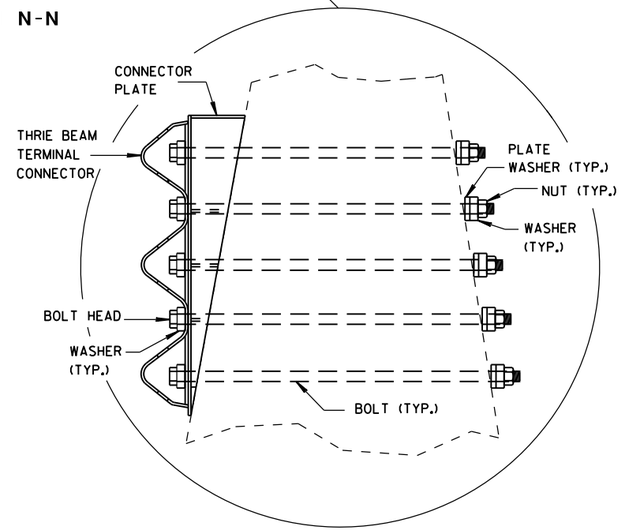
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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 CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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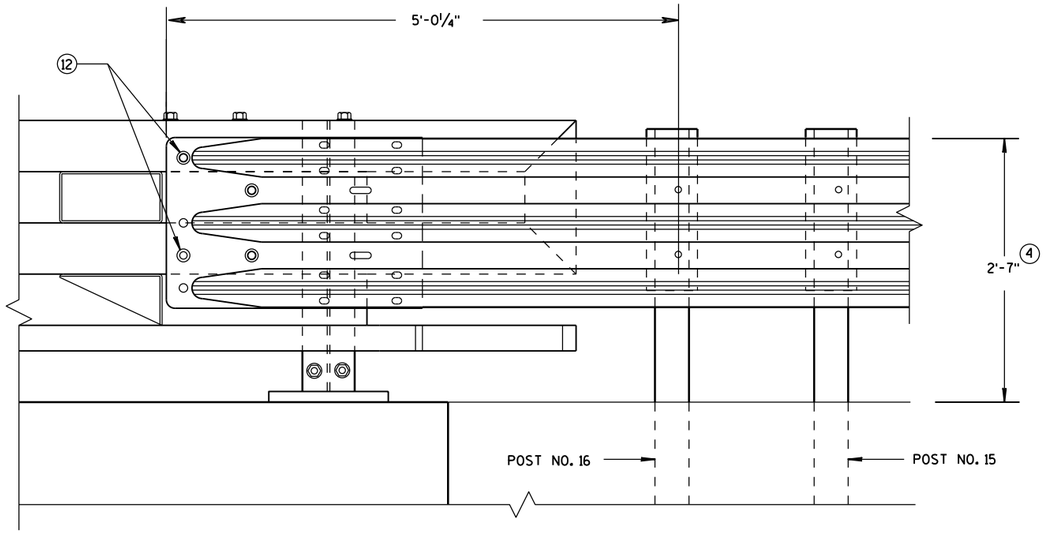
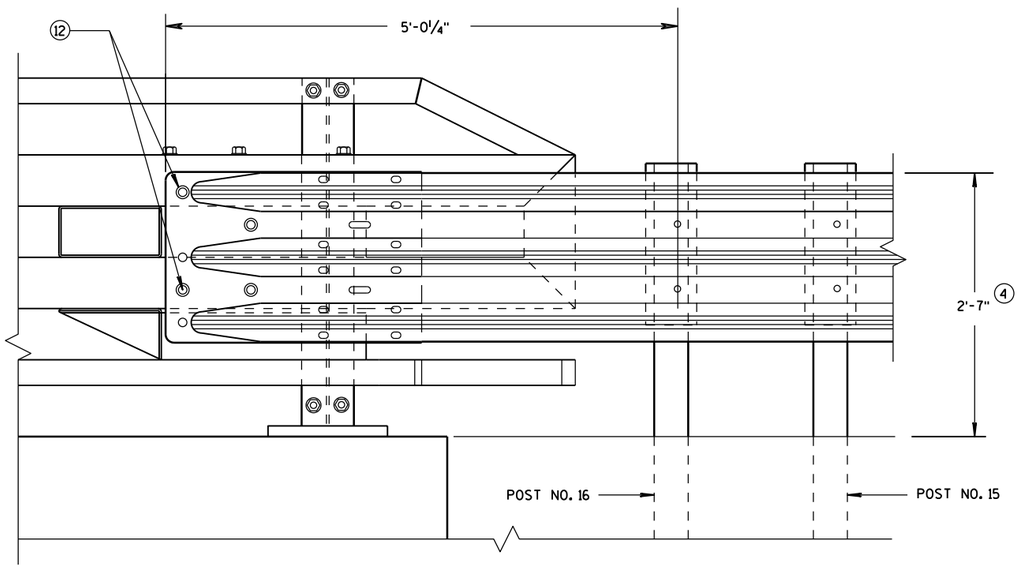


ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS ± 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 ½-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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June, 2015
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ROADWAY STANDARDS D ENGINEER

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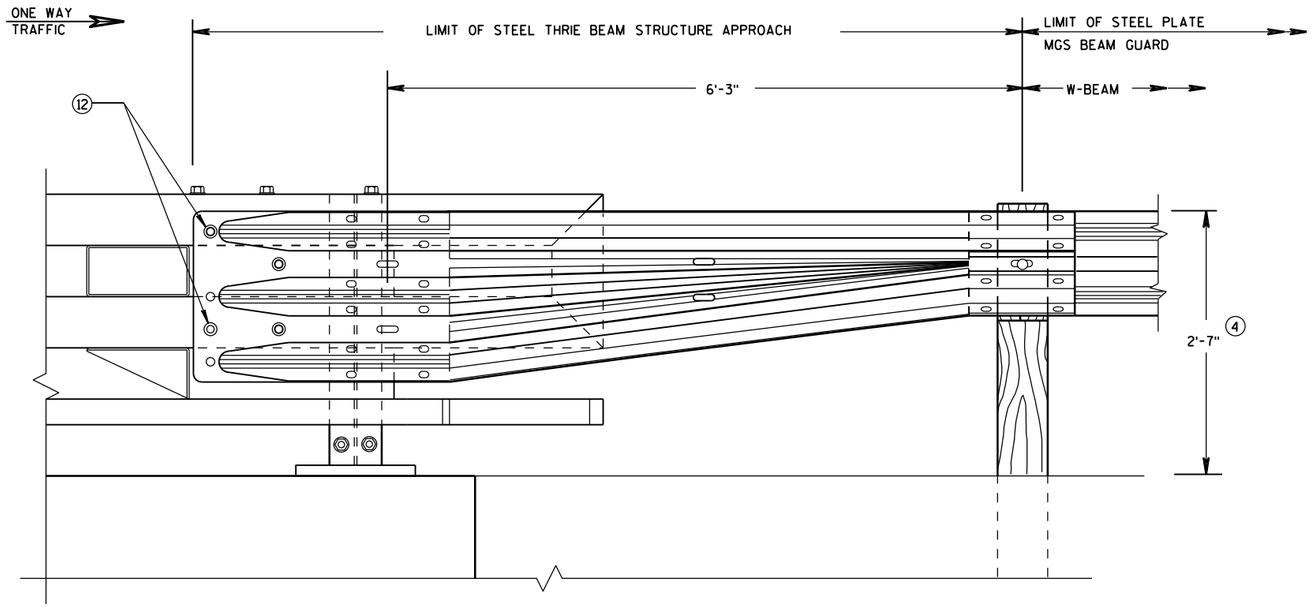


FRONT VIEW

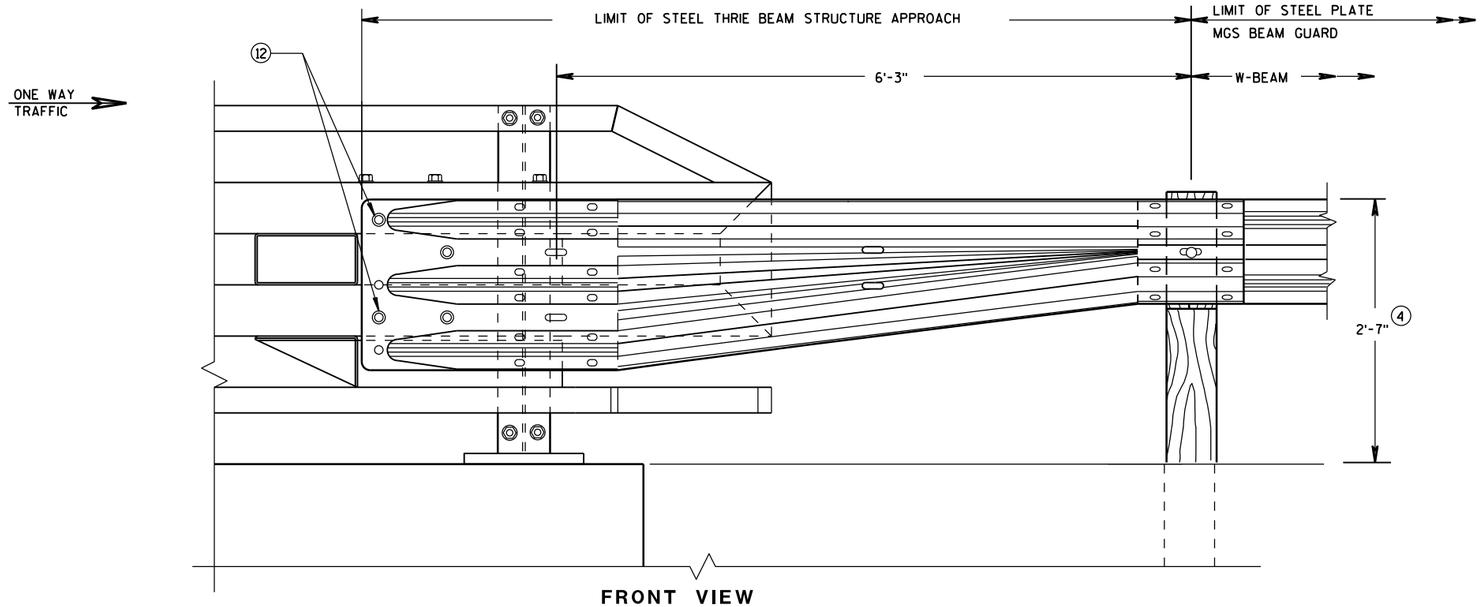
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS ± 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 ½-INCH BEYOND NUT.



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

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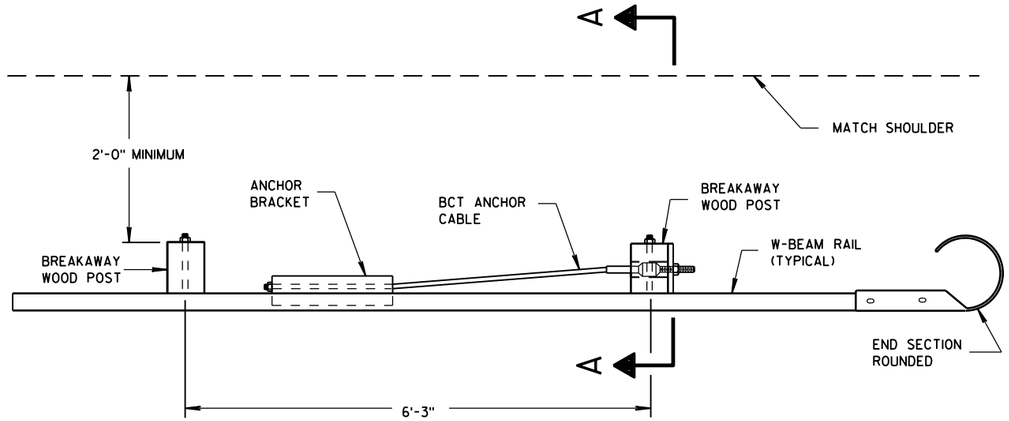
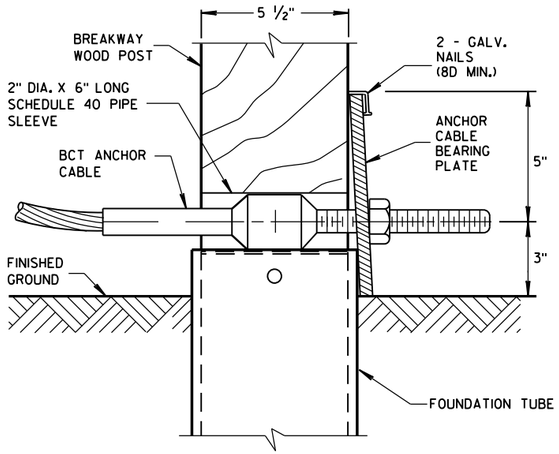
S.D.D. 14 B 45-4L



PLAN VIEW



DETAIL A

POST NO. 1
GROUNG STRUT NOT SHOWN FOR CLARITY.

GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

END SECTION BOLTS AND NUTS HAVE THE SAME MATERIAL REQUIREMENTS AS SPLICE BOLTS.

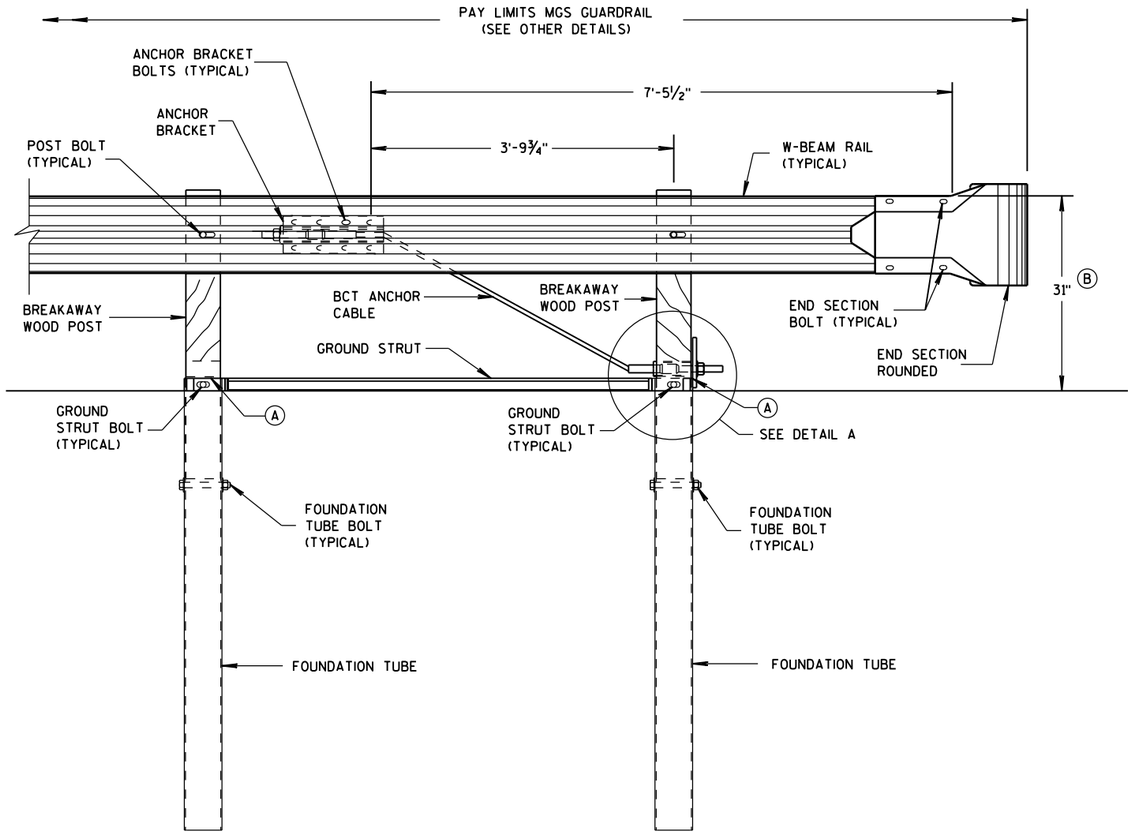
FOUNDATION TUBE BOLTS ARE ⅞" DIAMETER ASTM A307 HEX HEAD BOLT. FOUNDATION TUBE BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 ⅞" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

ANCHOR BRACKET AND GROUND STRUT BOLTS ARE A ⅝" DIAMETER ASTM A307 HEX HEAD BOLT. ANCHOR BRACKET BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 ⅝" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

W-BEAM END SECTION ROUNDED HAS THE SAME MATERIAL PROPERTIES AS STANDARD STEEL RAIL.

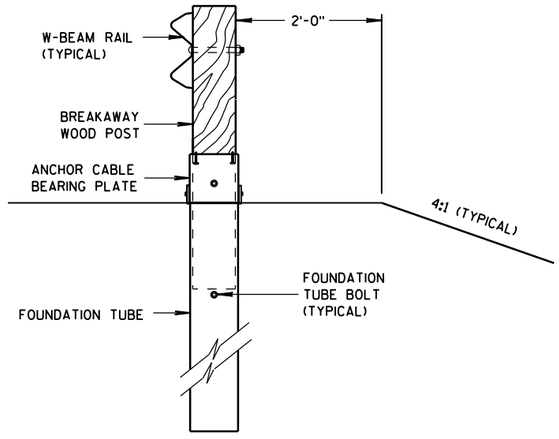
(A) TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.

(B) FOR NEW CONSTRUCTION TOP OF RAIL IS 31" ± 1".
FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27¾" TO 32" ± 1".

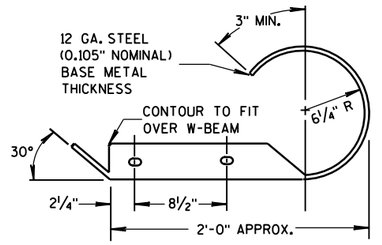


FRONT VIEW

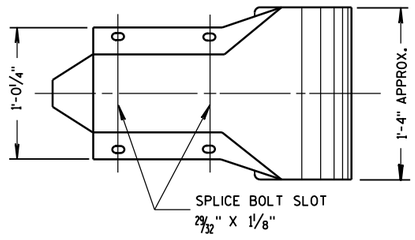
END RAIL DETAIL



SECTION A-A



PLAN VIEW



FRONT VIEW

W BEAM END SECTION ROUNDED

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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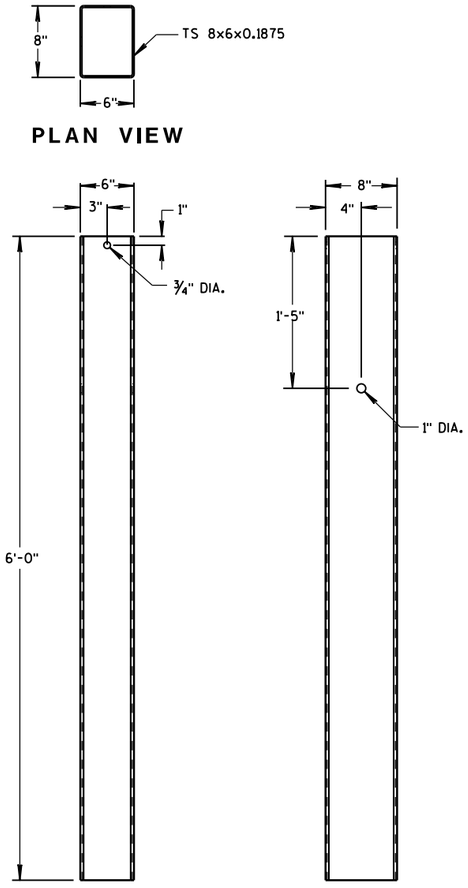
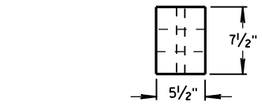
S.D.D. 14 B 47-2a



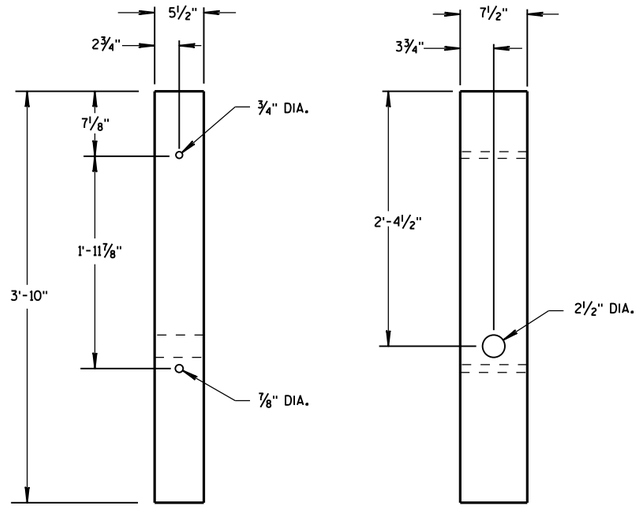
PLAN VIEW

FRONT VIEW SIDE VIEW

FOUNDATION TUBE



PLAN VIEW



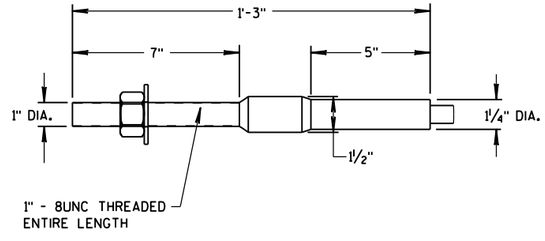
FRONT VIEW SIDE VIEW

BREAKAWAY WOOD POST

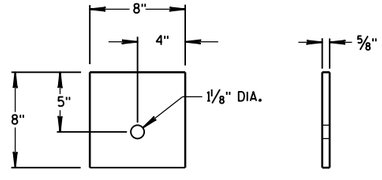
GENERAL NOTES

BCT ANCHOR CABLE IS A ¾" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. TREADED STUD SHALL CONFORM TO ASTM A325 OR SAE GRADE 5. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB. WIRE ROPE IS TO BE TAUT.

BCT ANCHOR CABLE



DETAIL B



SIDE VIEW FRONT VIEW

ANCHOR CABLE
BEARING PLATE

MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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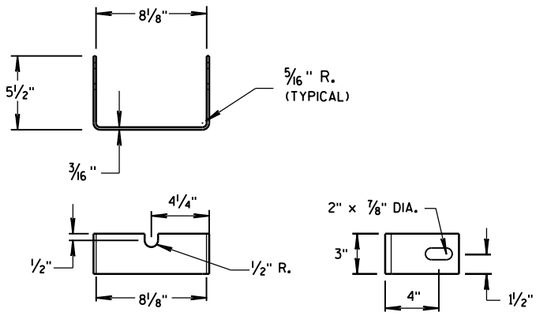
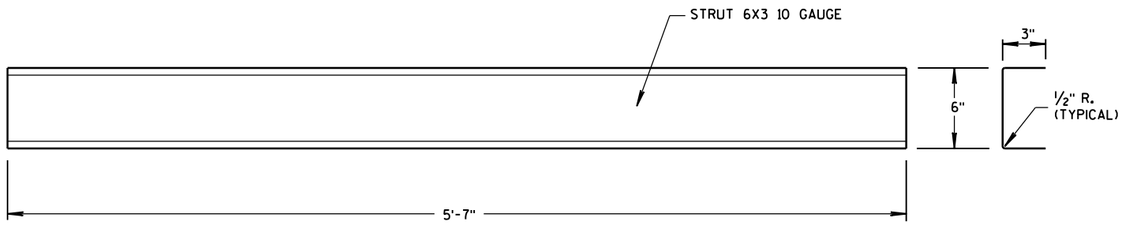
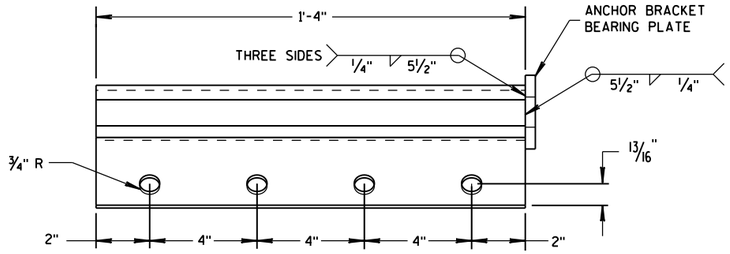
S.D.D. 14 B 47-2b

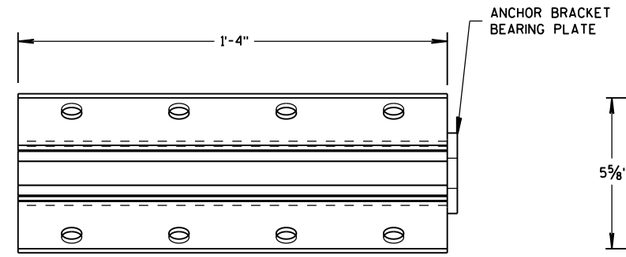


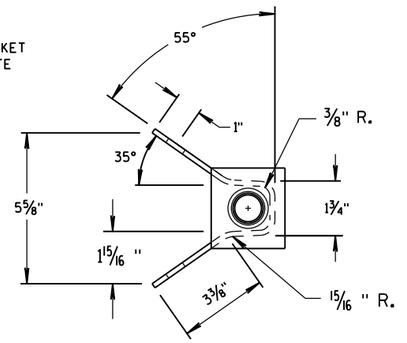
YOKE DETAIL



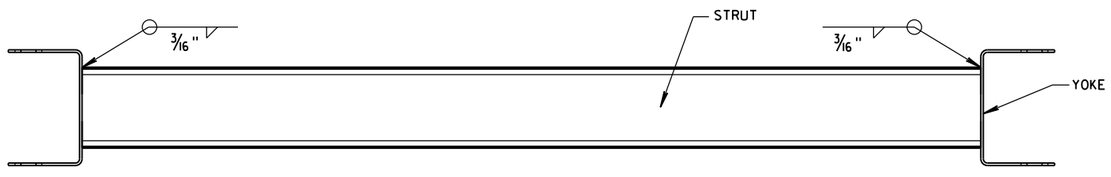
STRUT DETAIL



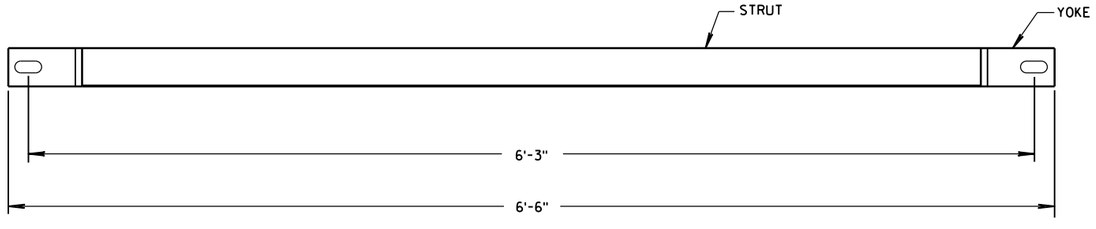




ANCHOR BRACKET

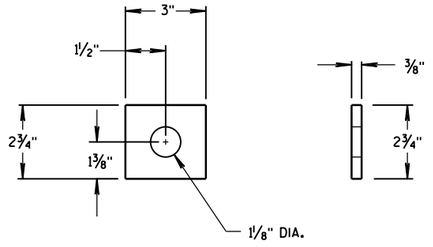


PLAN VIEW



FRONT VIEW

GROUND STRUT DETAIL



ANCHOR BRACKET BEARING PLATE

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

FHWA

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S.D.D. 14 B 47-2c

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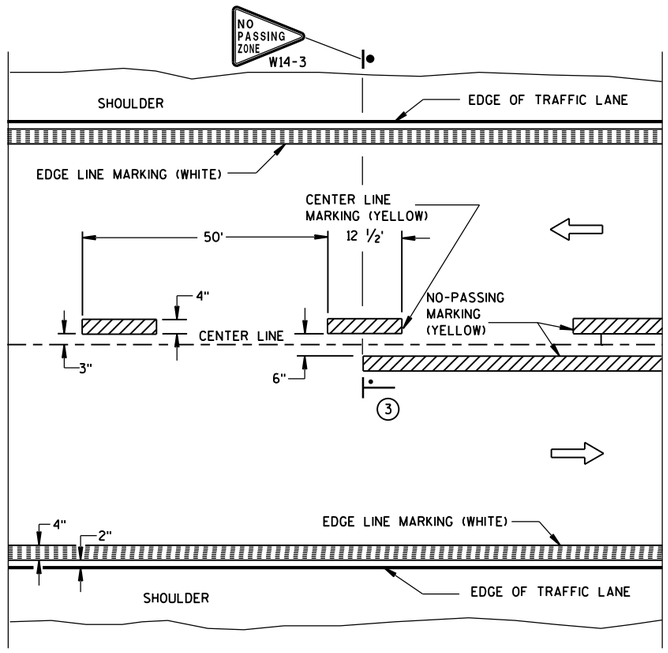
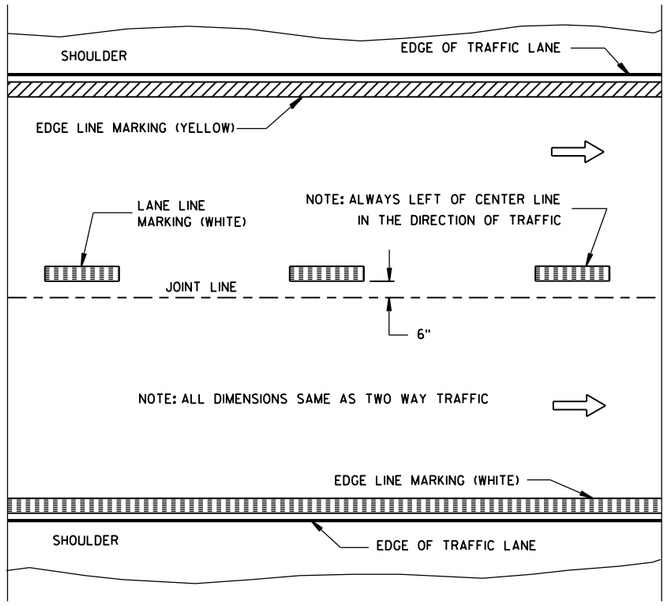
S.D.D. 14 B 47-2c

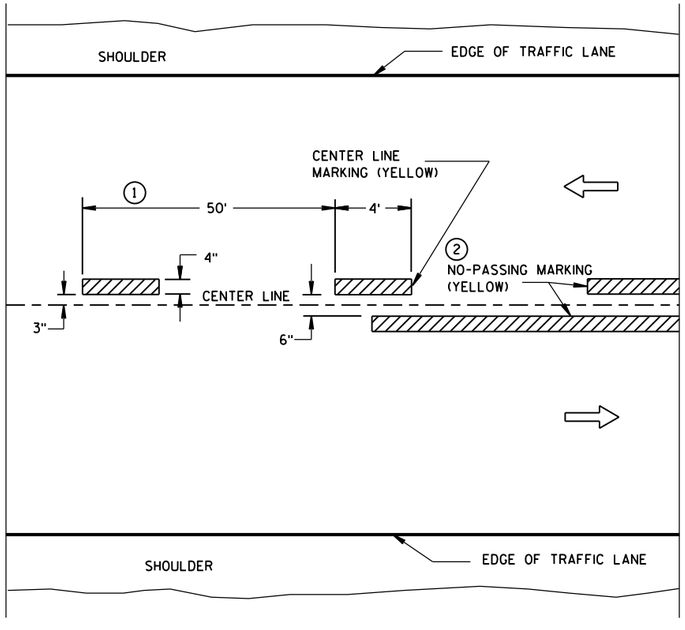


TWO WAY TRAFFIC

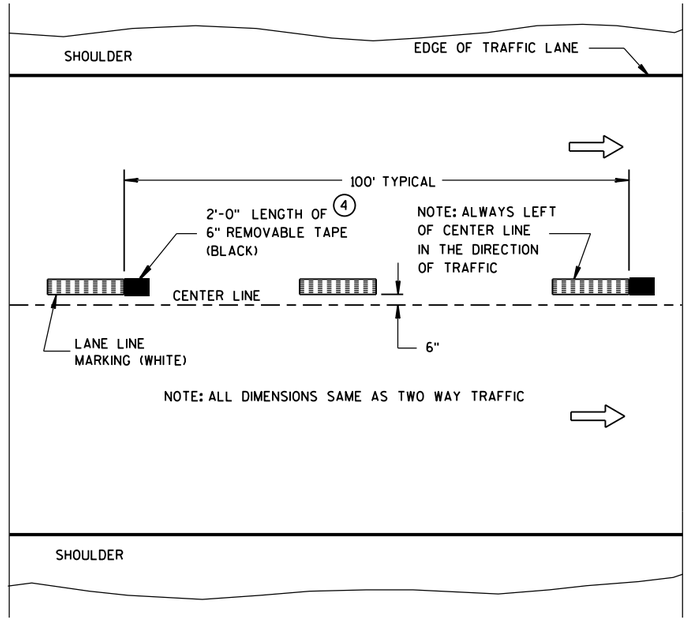


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

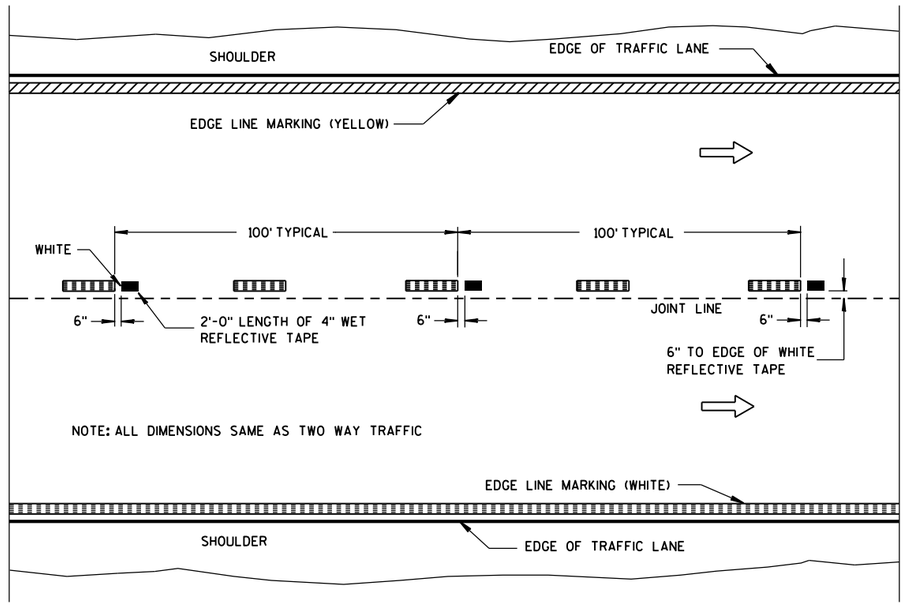
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

FHWA

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S.D.D. 15 C 8-16a

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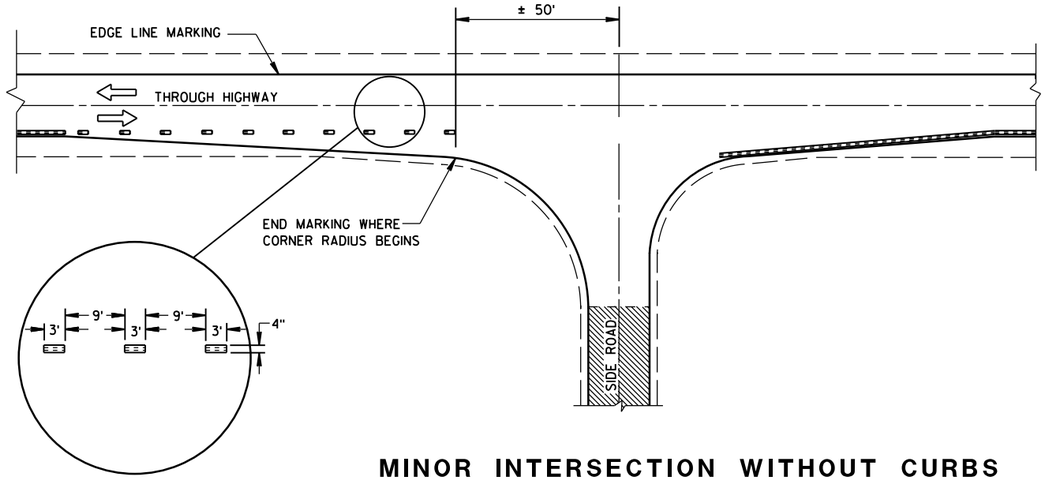
S.D.D. 15 C 8-16a



MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED 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) ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.

(4) THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.

(5) BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.

(6) BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

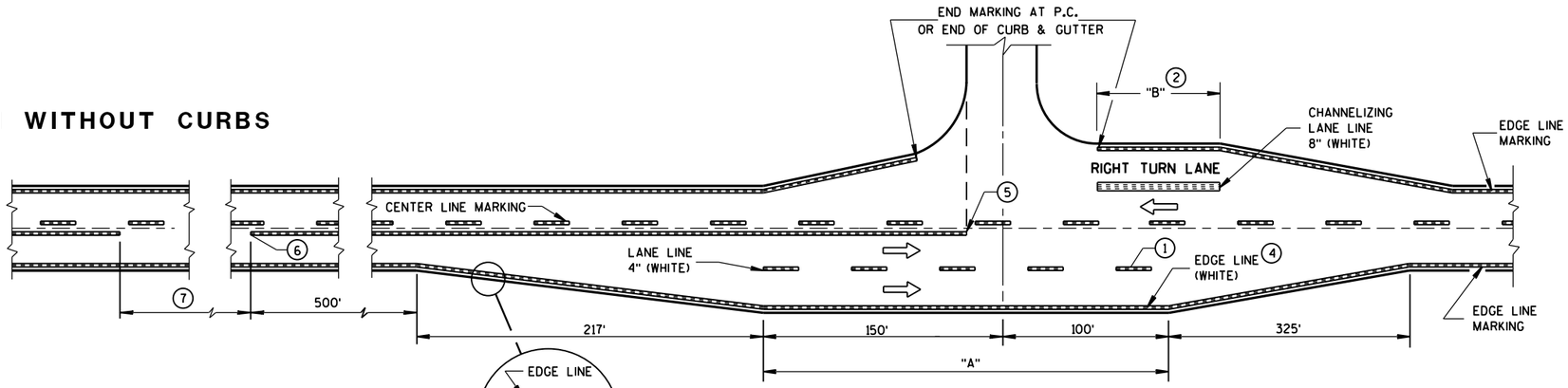
(7) IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

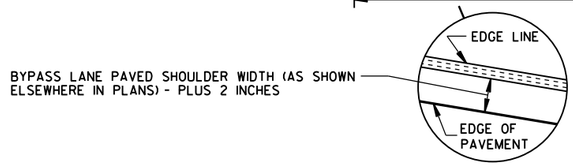
(8) 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

(7)

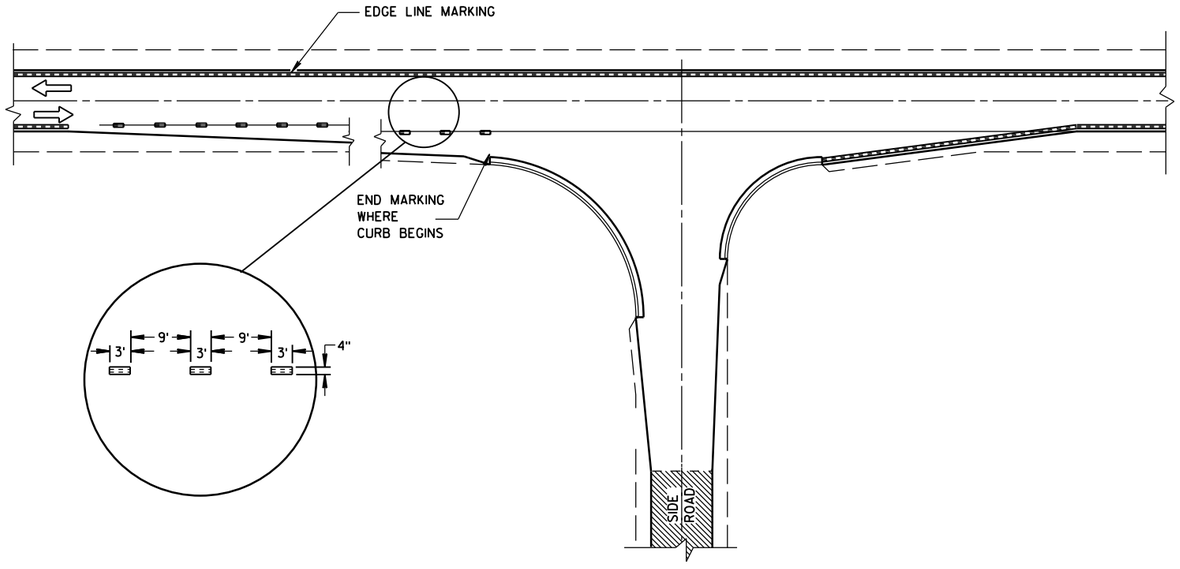
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792





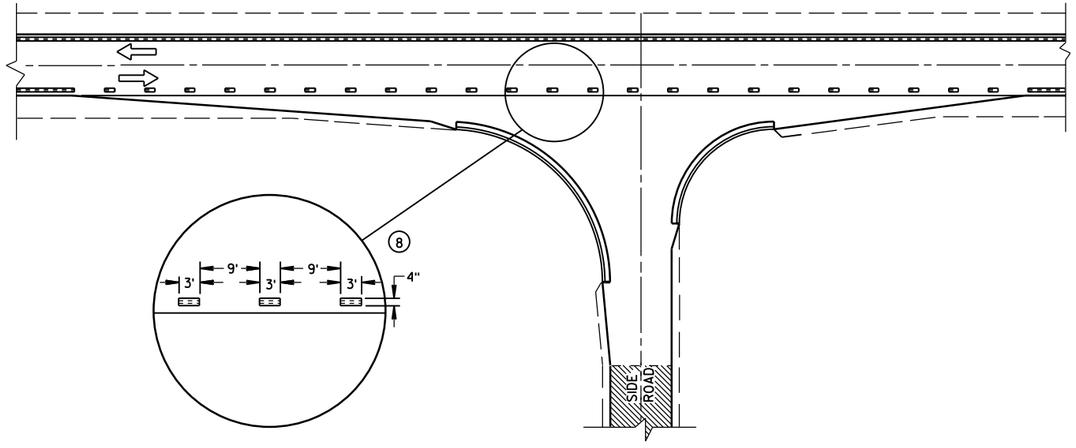
MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS

(TYPICAL MARKING)



MINOR INTERSECTION WITH CURBS

(3) (FOR SPECIAL CONDITIONS AS SPECIFIED)

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 15 C 8-16b

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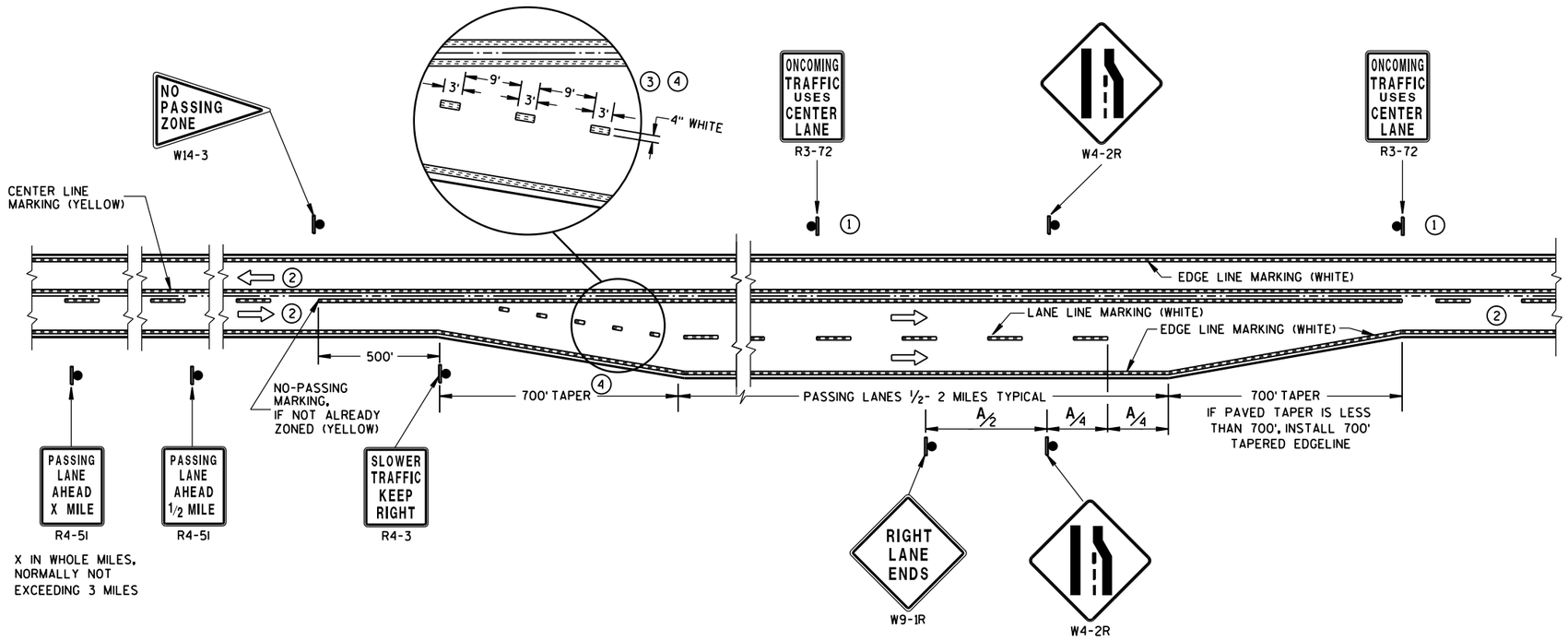
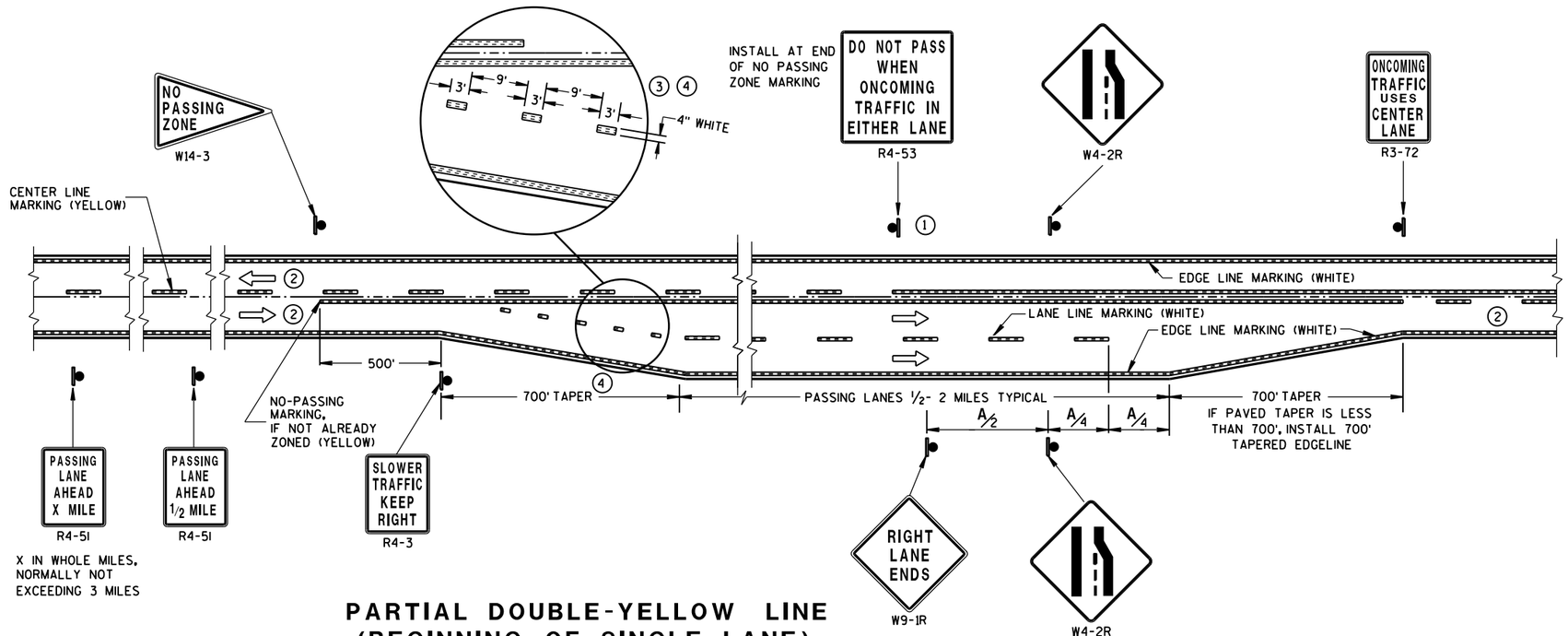
S.D.D. 15 C 8-16b



SOLID DOUBLE-YELLOW LINE
(THROUGHOUT ENTIRE PASSING/CLIMBING LANE)



PARTIAL DOUBLE-YELLOW LINE
(BEGINNING OF SINGLE LANE)

GENERAL NOTES

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

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

DISTANCE TABLE

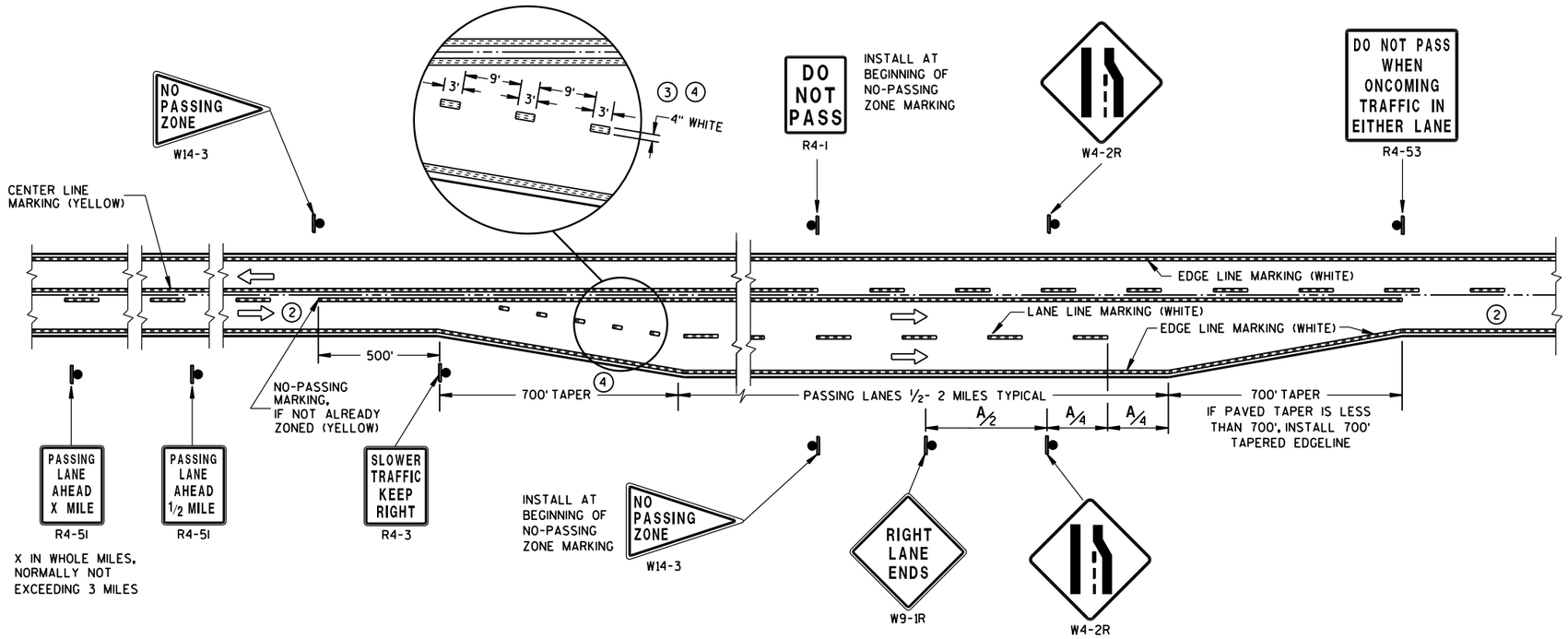
POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
45	750
50	850
55	950

PAVEMENT MARKING & SIGNING (CLIMBING LANE & PASSING LANE)

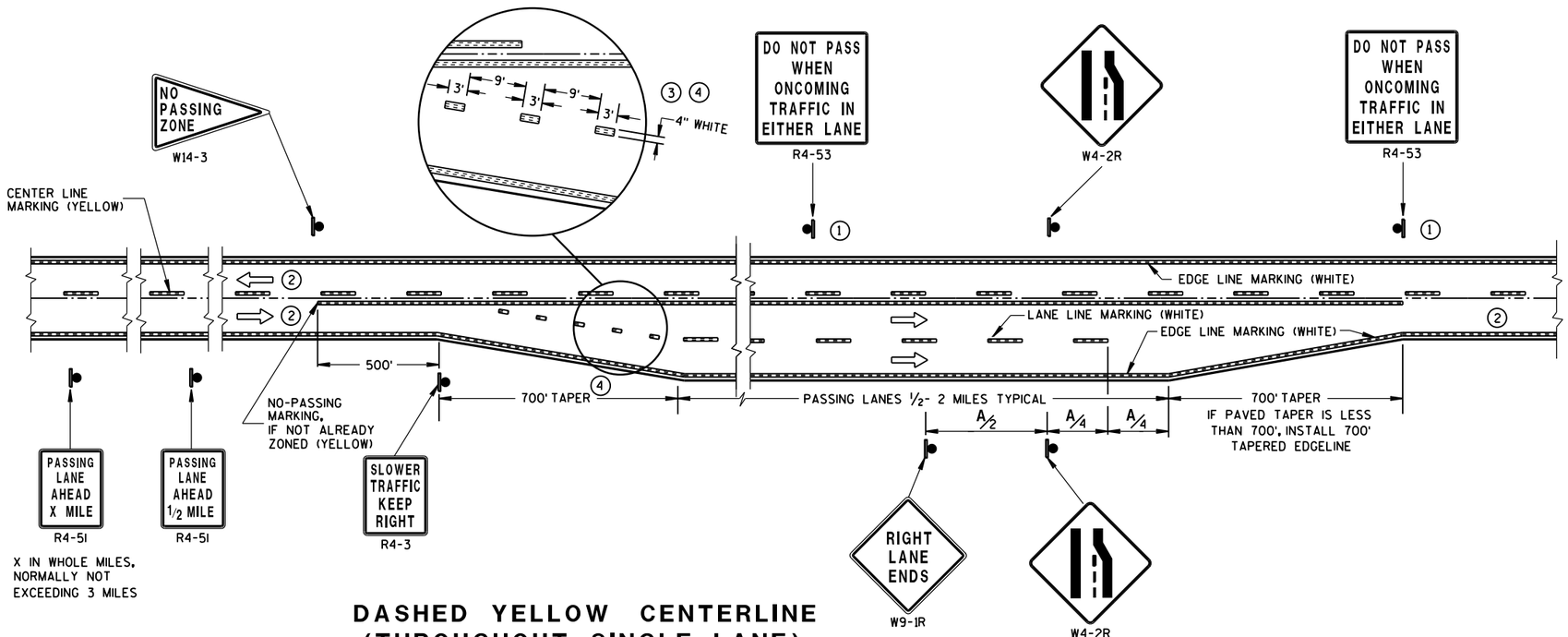
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 15 C 8-16c



SOLID DOUBLE-YELLOW LINE (END OF SINGLE LANE)



DASHED YELLOW CENTERLINE (THROUGHOUT SINGLE LANE)

GENERAL NOTES

1. SIGN SHALL BE REPEATED AT ½ MILE INCREMENTS OR AT THE DISCRETION OF THE REGIONAL TRAFFIC ENGINEER.
2. THERE MAY BE SOLID YELLOW ON THE CENTERLINE DUE TO SIGHT CONDITIONS.
3. THE TAPER LENGTH OF THE DOTTED LINE PAVEMENT MARKING SHALL BE 700 FEET, 3'LINE 9'GAP, EXCEPT RETRACE THE EXISTING LINE-GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
4. WHEN THE ENTRANCE TAPER IS LESS THAN 700 FEET OR THE SHOULDER WIDTH IN THE PASSING/CLIMBING LANE IS LESS THAN THE ADJACENT HIGHWAY, DO NOT INSTALL DOTTED LINE PAVEMENT MARKING.

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
45	750
50	850
55	950

PAVEMENT MARKING & SIGNING (CLIMBING LANE & PASSING LANE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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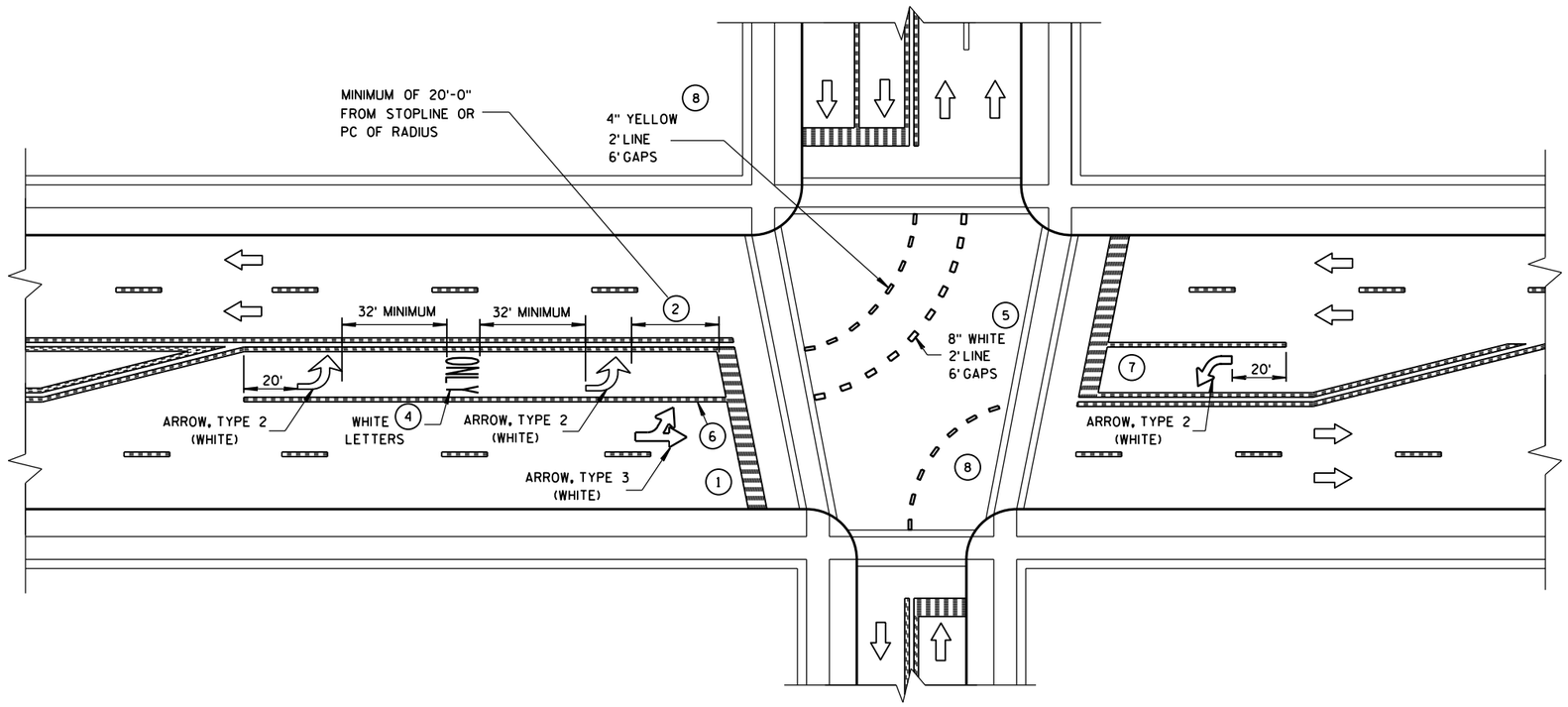
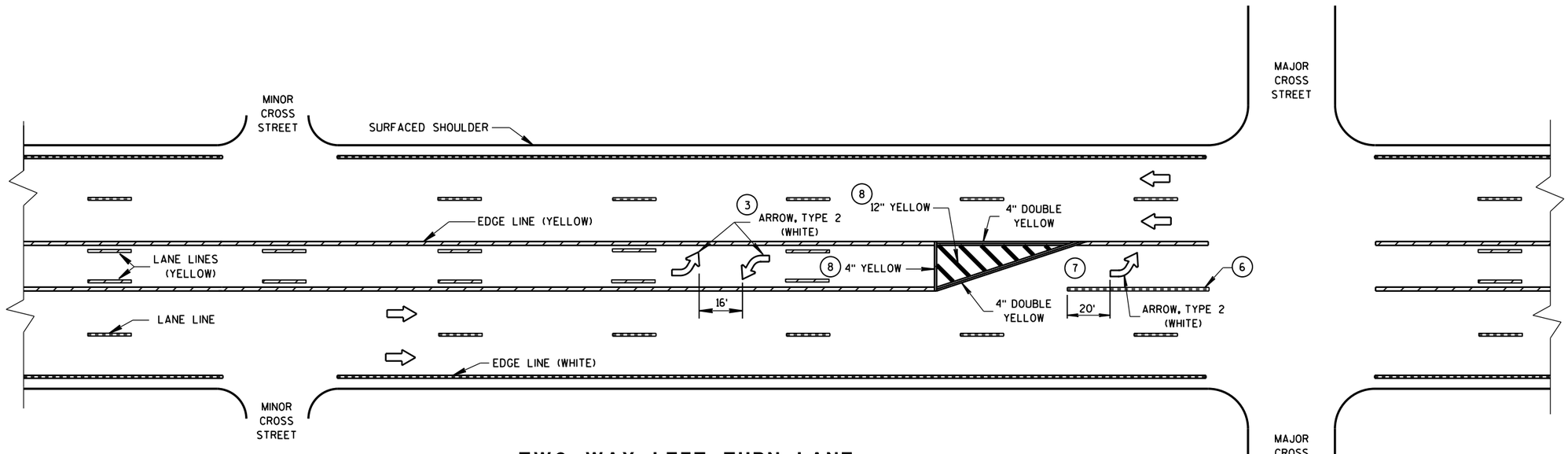
S.D.D. 15 C 8-16d



GENERAL NOTES

1. STOP BAR IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
2. DISTANCE MAY BE ADJUSTED TO ACCOMODATE SHORT LEFT TURN LANES. AS APPROVED BY THE ENGINEER.
3. A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
4. ADD EXTRA SETS OF ONE ARROW AND ONE ONLY PER 160 FEET OR WHEN ON A CURVE.
5. 8" WHITE WITH 2' LINE 6' GAPS FOR DUAL TURN LANE.
6. 8" WHITE
7. ADD SECOND ARROW WHEN TURN BAY IS GREATER THAN OR EQUAL TO 108 FEET.
8. REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.

NOTE:
ARROW SYMBOL (⇨)
SHOWS DIRECTION OF TRAVEL



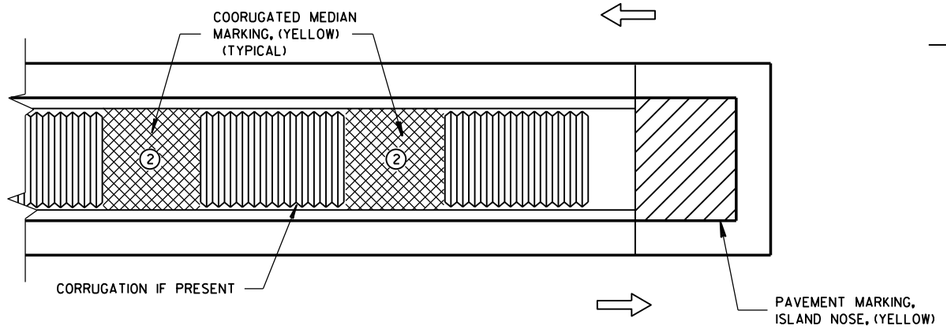
TWO WAY LEFT TURN LANE

PAVEMENT MARKING (LEFT TURN LANE)

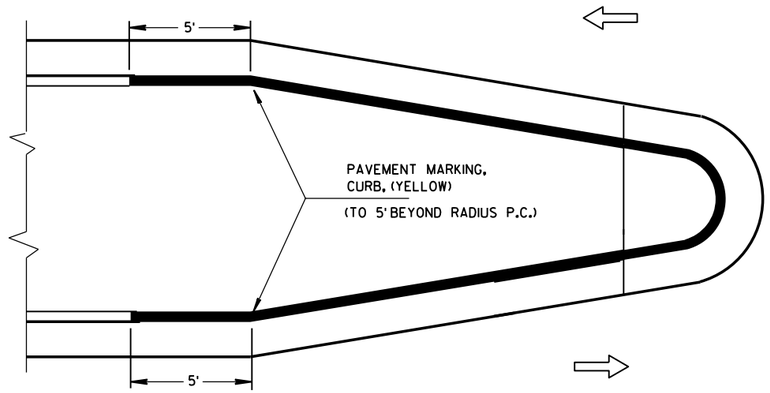
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

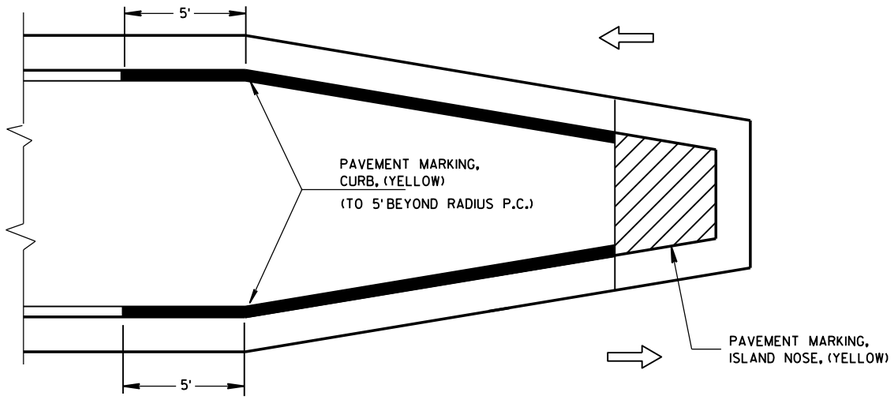
S.D.D. 15 C 8-16e



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

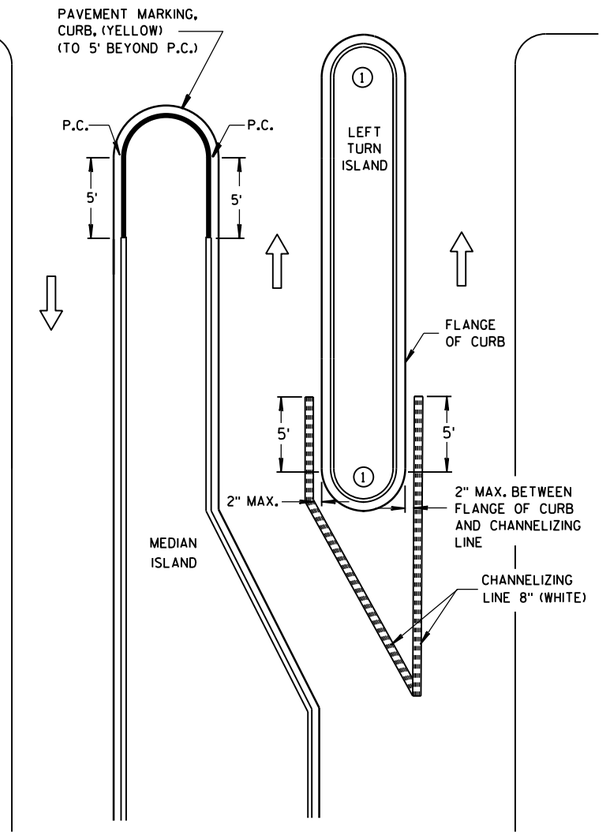


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS

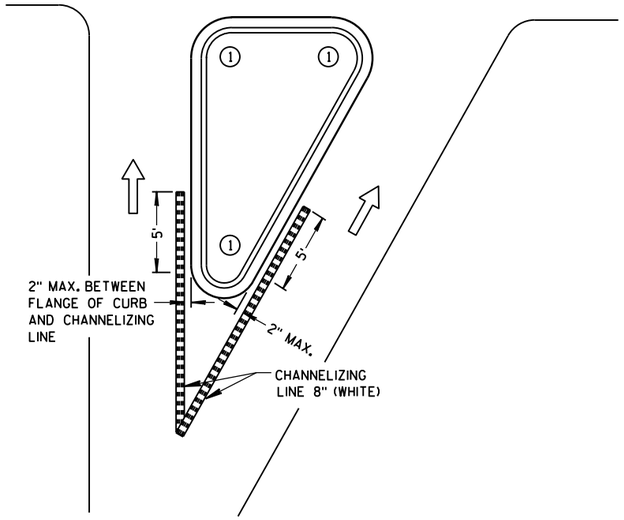


LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

1. DO NOT MARK CURB NOSES THAT SEPARATE LANES OF TRAFFIC TRAVELING IN THE SAME DIRECTION.

2. WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



RIGHT TURN ISLAND

LEGEND

- ISLAND NOSE MARKING
- CURB MARKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL

PAVEMENT MARKING
(ISLANDS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 15 C 8-16f

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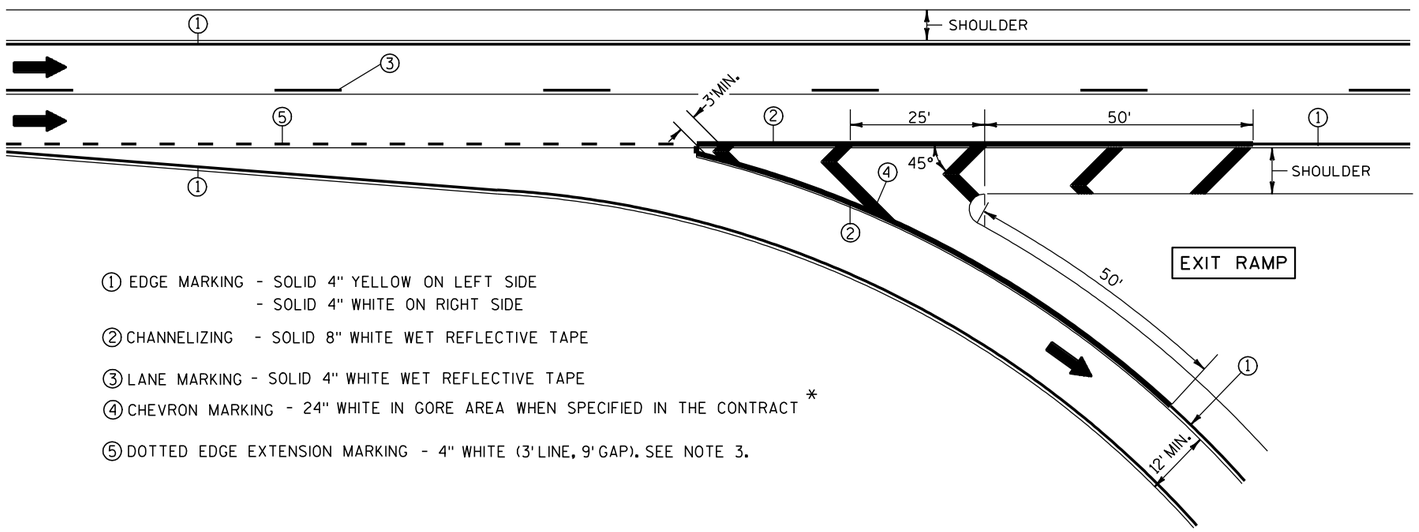
S.D.D. 15 C 8-16f



① EDGE MARKING - SOLID 4" YELLOW ON LEFT SIDE
- SOLID 4" WHITE ON RIGHT SIDE

② CHANNELIZING - SOLID 8" WHITE WET REFLECTIVE TAPE

③ LANE MARKING - SOLID 4" WHITE WET REFLECTIVE TAPE

④ CHEVRON MARKING - 24" WHITE IN GORE AREA WHEN SPECIFIED IN THE CONTRACT *

⑤ DOTTED EDGE EXTENSION MARKING - 4" WHITE (3' LINE, 9' GAP). SEE NOTE 3.

NOTES:

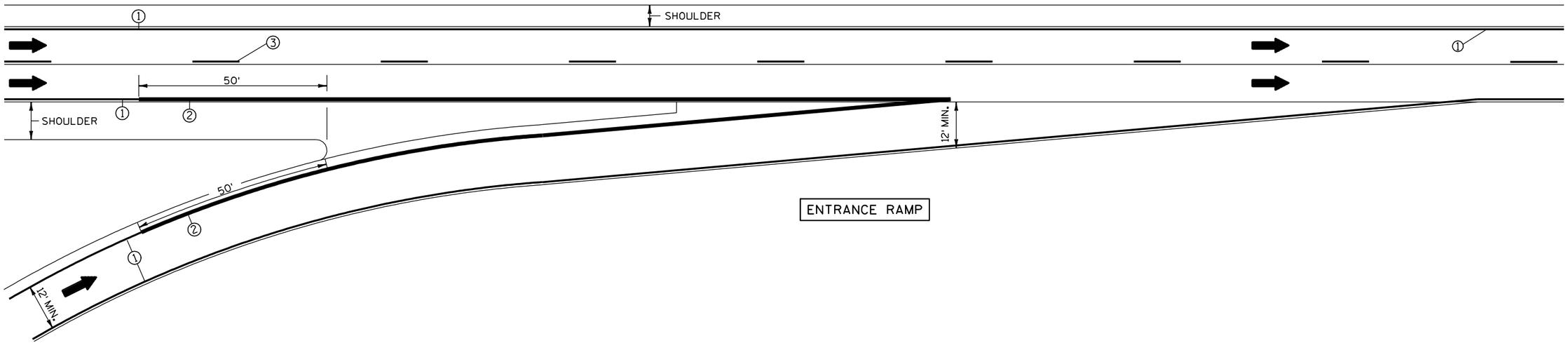
1. ARROWS SHOWN ON THIS MARKING PLAN DESIGNATE TRAFFIC FLOW, AND SHALL NOT BE TAKEN AS PROPOSED PAVEMENT MARKINGS.

2. PLACE WHITE EDGE OF TAPE 6" LEFT FROM JOINT.

3. 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE-GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.

4. RETRACE EXISTING DIAGONAL MARKINGS.

* REFER TO DESIGN NOTES.



6

S.D.D. 15 C 31-1a

PAVEMENT MARKING
(RAMPS AND GORES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 15 C 31-1a

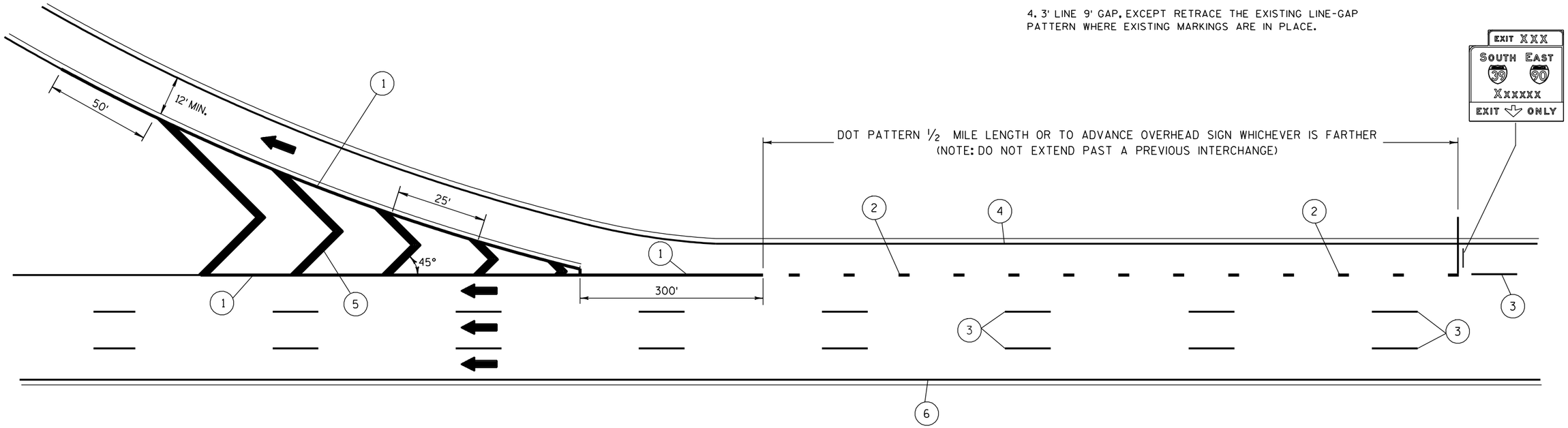
NOTES:

1. SEE STANDARD DETAIL DRAWING 15 C 10 FOR SPRAYED OR NON WET REFLECTIVE LINE SEGMENTS.

2. ARROWS SHOWN ON THIS MARKING PLAN DESIGNATE TRAFFIC FLOW, AND SHALL NOT BE TAKEN AS PROPOSED PAVEMENT MARKINGS.

3. PLACE WHITE EDGE OF TAPE 6" LEFT FROM JOINT.

4. 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE-GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.



1. CHANNELIZING - SOLID 8" WHITE WET RELECTIVE TAPE
2. 3' LINE, 9' GAP SOLID 8" WHITE WET REFLECTIVE TAPE. SEE NOTE 4.
3. SOLID 4" WHITE WET REFLECTIVE TAPE
4. 4" WHITE EDGELINE
5. CHEVRON MARKING - 24" WHITE WHEN SPECIFIED IN THE CONTRACT
6. 4" YELLOW EDGELINE

LANE DROP
PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 15 C 31-1b

6

S.D.D. 15 C 31-1b

NOTES:

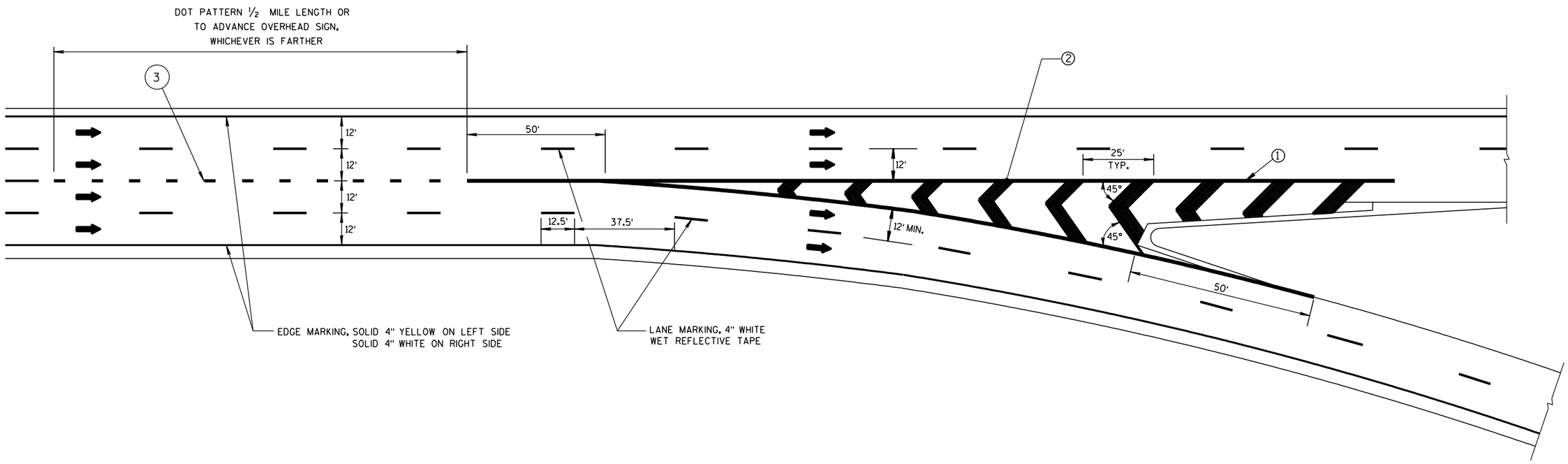
1. ARROWS SHOWN ON THIS MARKING PLAN DESIGNATE TRAFFIC FLOW, AND SHALL NOT BE TAKEN AS PROPOSED PAVEMENT MARKINGS.

2. PLACE WHITE EDGE OF TAPE 6" LEFT FROM JOINT.

① CHANNELIZING - SOLID 8" WHITE WET REFLECTIVE TAPE.

② CHEVRON MARKING - 24" WHITE WHEN SPECIFIED IN THE CONTRACT.

③ 3' LINE, 9' GAP SOLID 8" WHITE WET REFLECTIVE TAPE.



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6

S.D.D. 15 C 31-1c

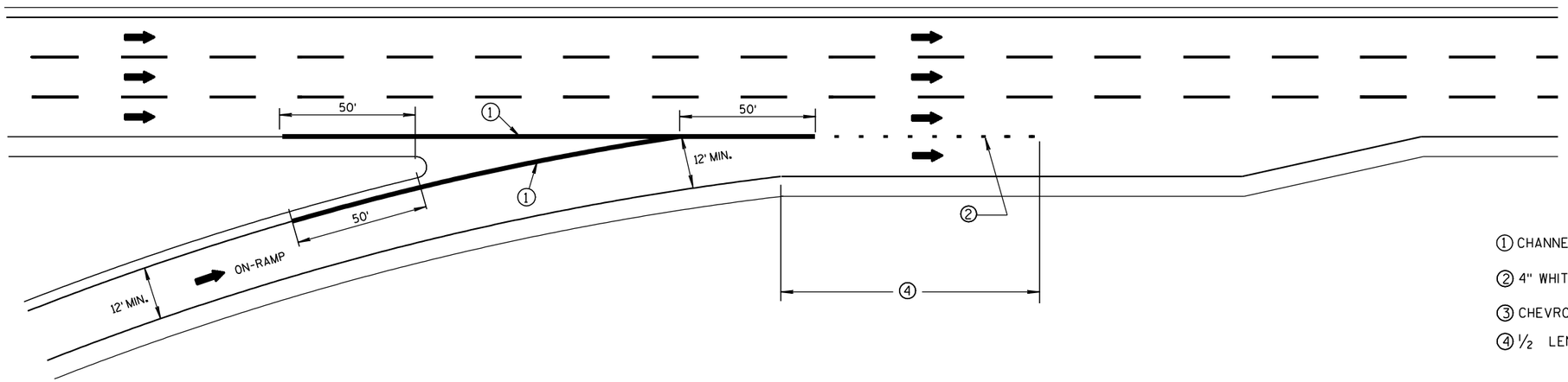
S.D.D. 15 C 31-1c

PAVEMENT MARKING
MAJOR SPLIT
FREEWAY TO FREEWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

NOTES:

1. AHEAD ARROWS SHOWN ON THIS MARKING PLAN DESIGNATE TRAFFIC FLOW, AND SHALL NOT BE TAKEN AS PROPOSED PAVEMENT MARKINGS.
2. PLACE WHITE EDGE OF TAPE 6" LEFT FROM JOINT.
3. RETRACE EXISTING DIAGONAL MARKINGS.



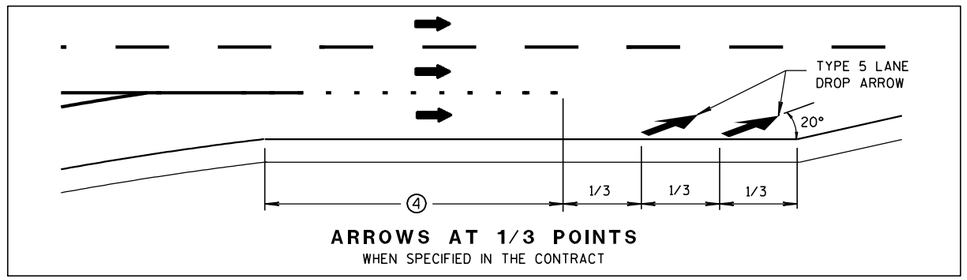
① CHANNELIZING - SOLID 8" WHITE WET REFLECTIVE TAPE IN GORE AREA.

② 4" WHITE (3' LINE, 9' GAP).

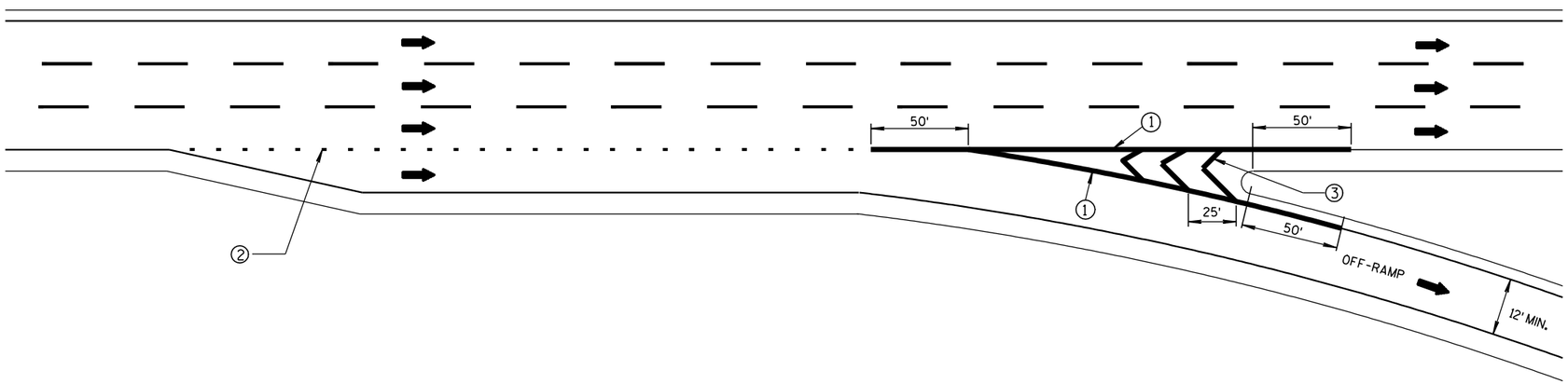
③ CHEVRON MARKING - 24" WHITE WHEN SPECIFIED IN THE CONTRACT.

④ ½ LENGTH OF FULL WIDTH ACCELERATION LANE.

SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL ENTRANCE-RAMP



ARROWS AT 1/3 POINTS
WHEN SPECIFIED IN THE CONTRACT



SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL EXIT-RAMP

PAVEMENT MARKING FOR PARALLEL ON-RAMP AND PARALLEL OFF-RAMP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/23/2011 DATE
/S/ Thomas N. Nothem STATE TRAFFIC ENGINEER
SIGN
FHWA

6

S.D.D. 15 C 31-1d

LEGEND

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

GENERAL NOTES

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

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

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

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

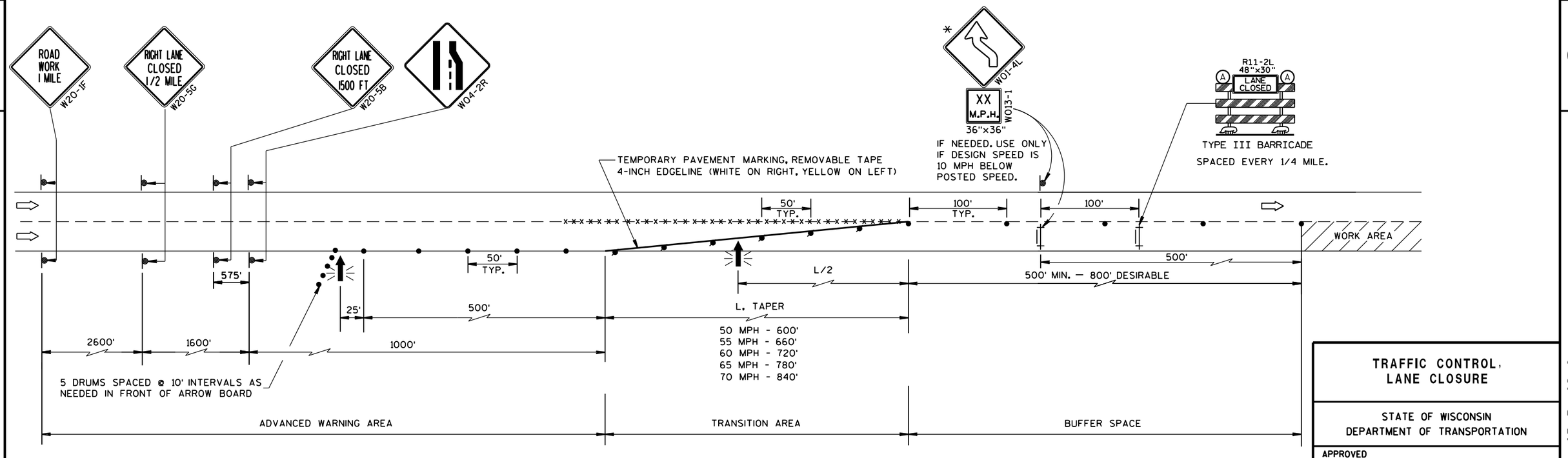
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

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

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

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

* THE LEFT REVERSE CURVE SIGN (WO1-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



TRAFFIC CONTROL, LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2016 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE SAFETY ENGINEER
FHWA

6

S.D.D. 15 D 12-6a

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

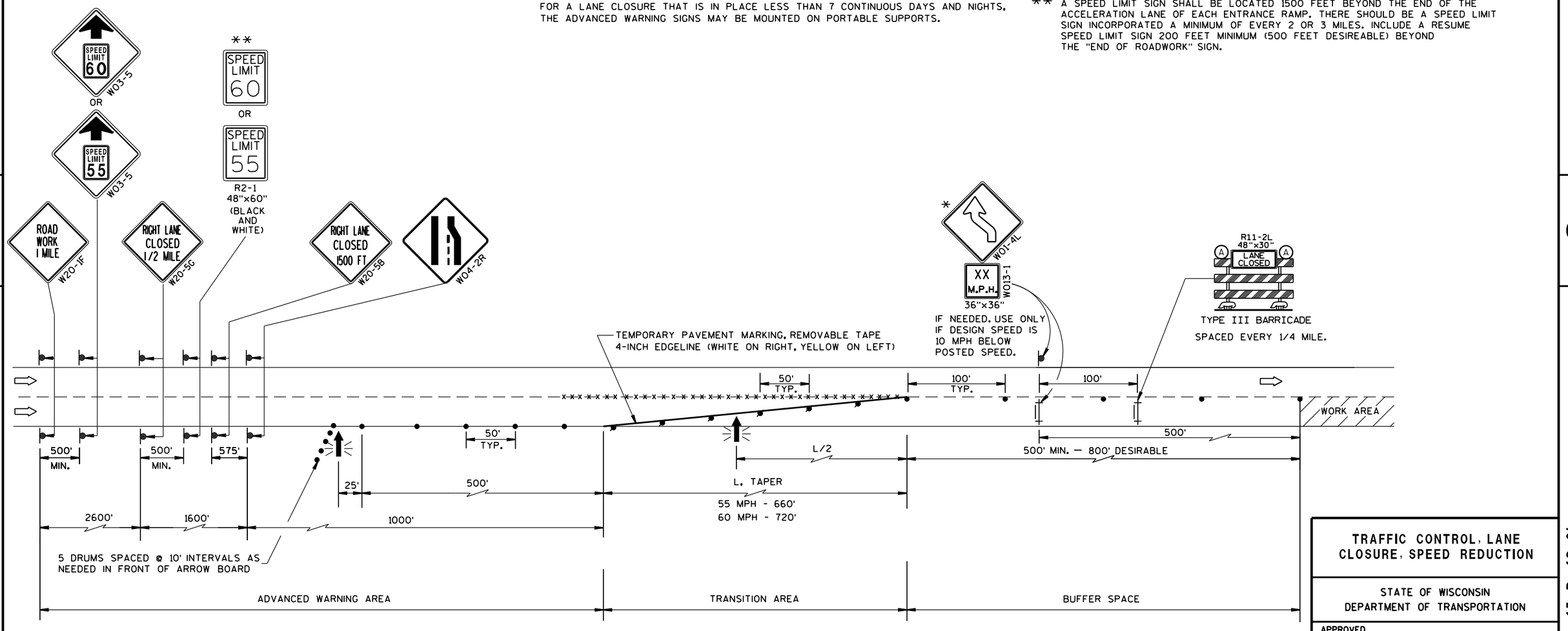
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

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

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

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



TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2016 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE SAFETY ENGINEER
FHWA

6

S.D.D. 15 D 12-6b

6

S.D.D. 15 D 12-6b

LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- FLASHING ARROW BOARD
- WORK AREA

GENERAL NOTES

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

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

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

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

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

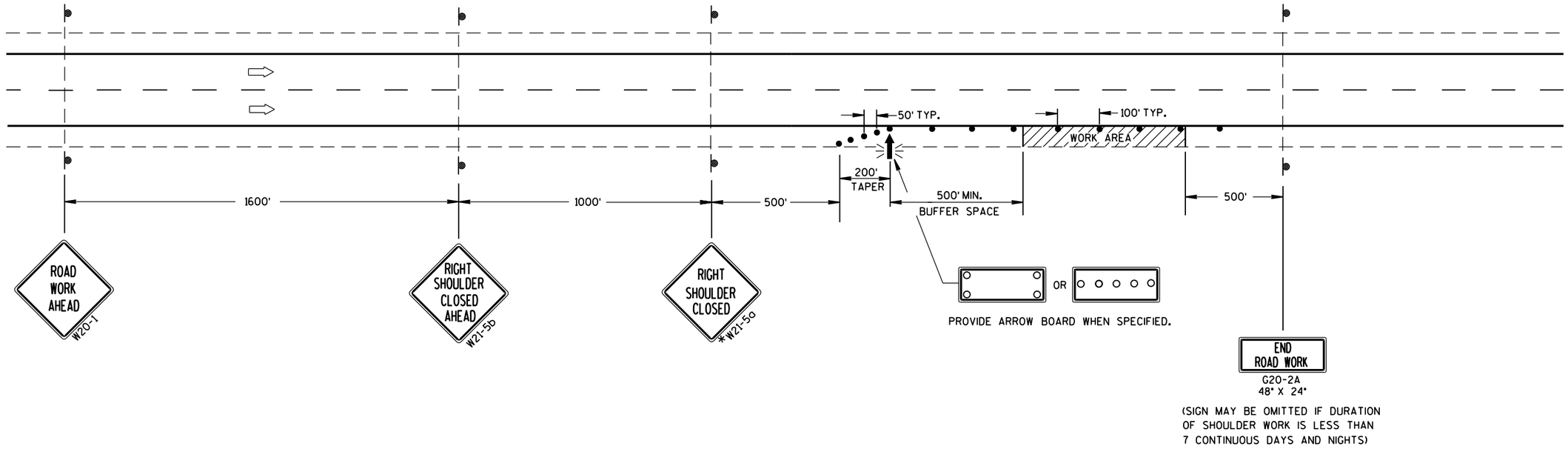
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

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

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



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

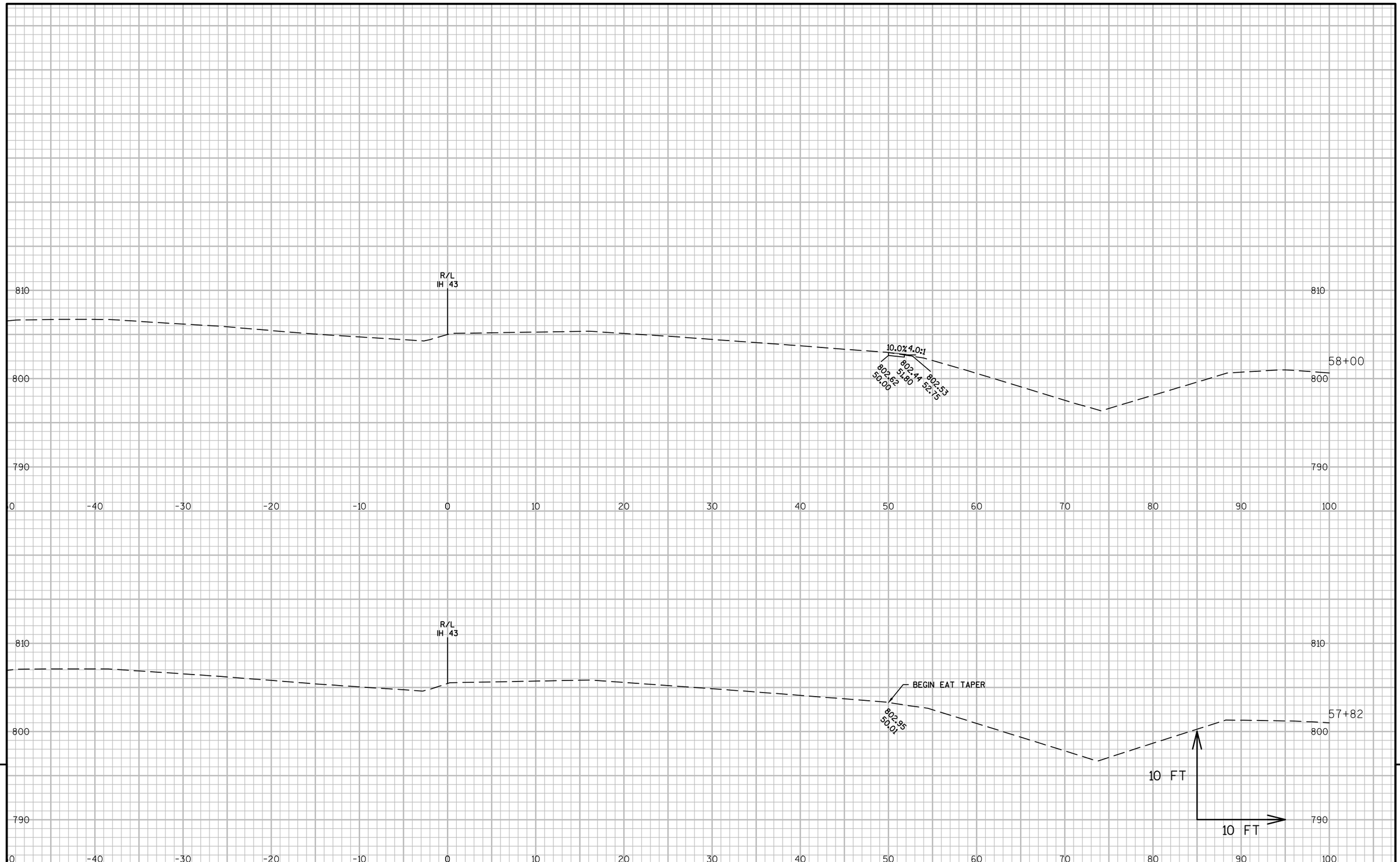
8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

6

S.D.D. 15 D 27-2



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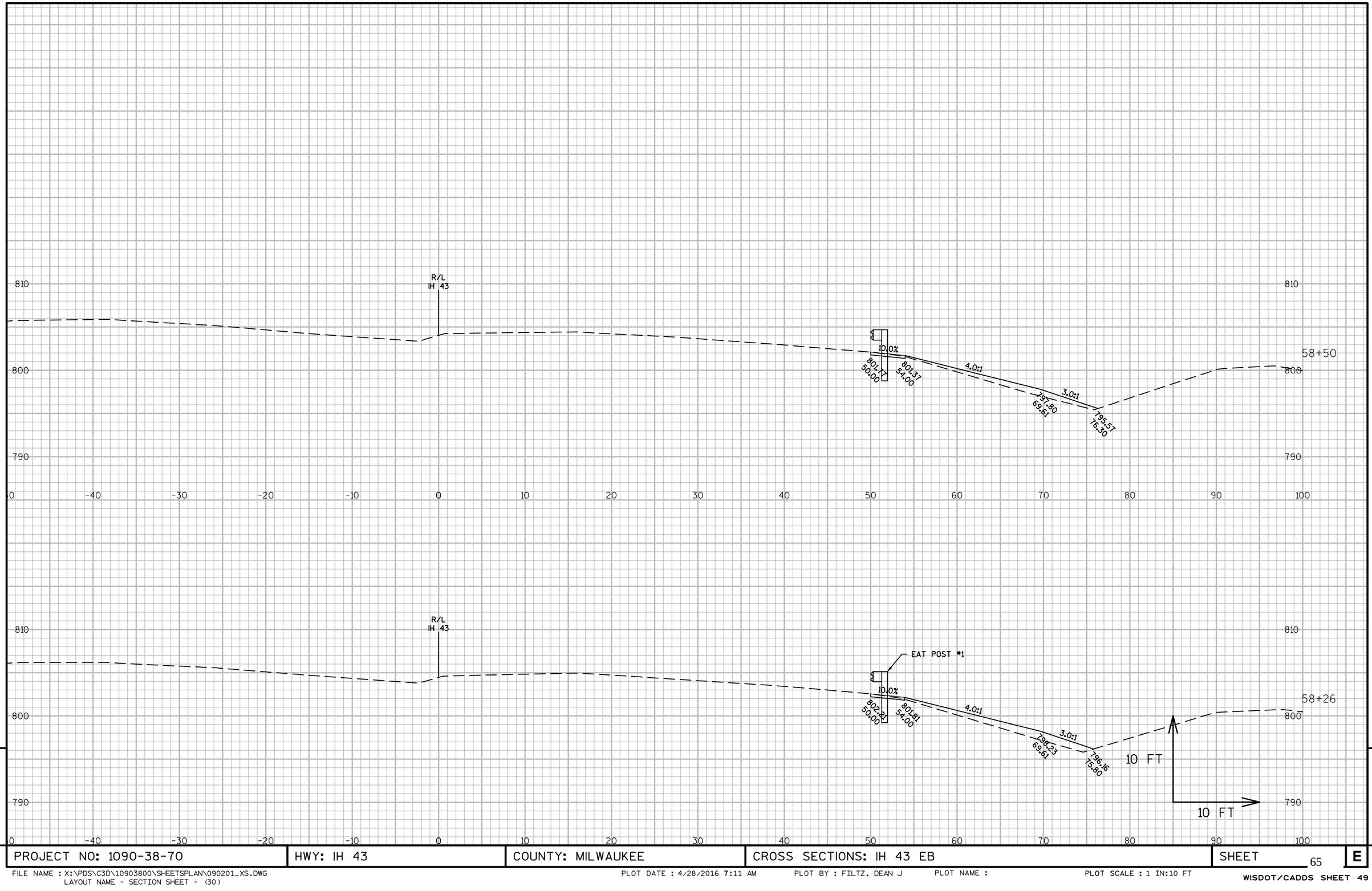
9

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 64	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - SECTION SHEET - (29)
PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 49



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9

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 65	E

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LAYOUT NAME - SECTION SHEET - (30)

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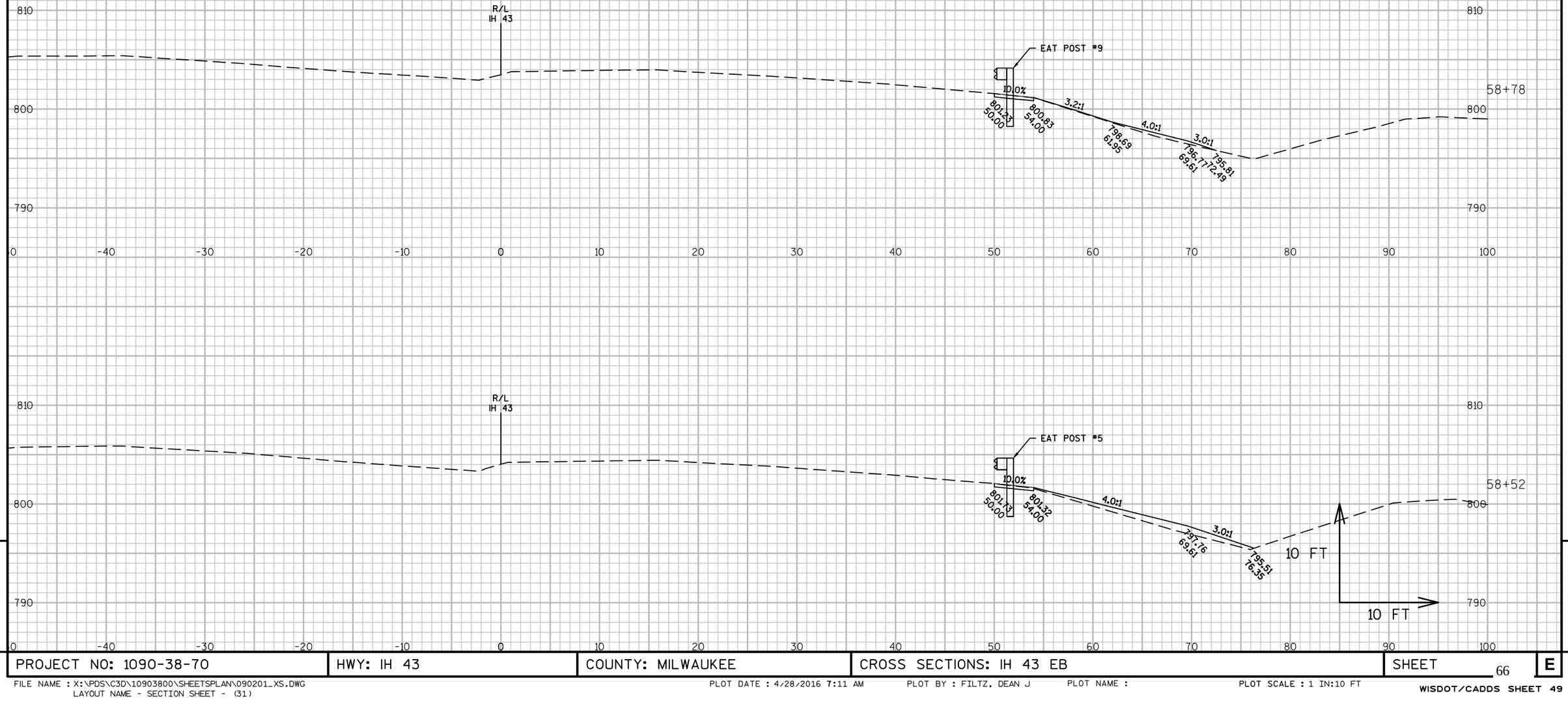

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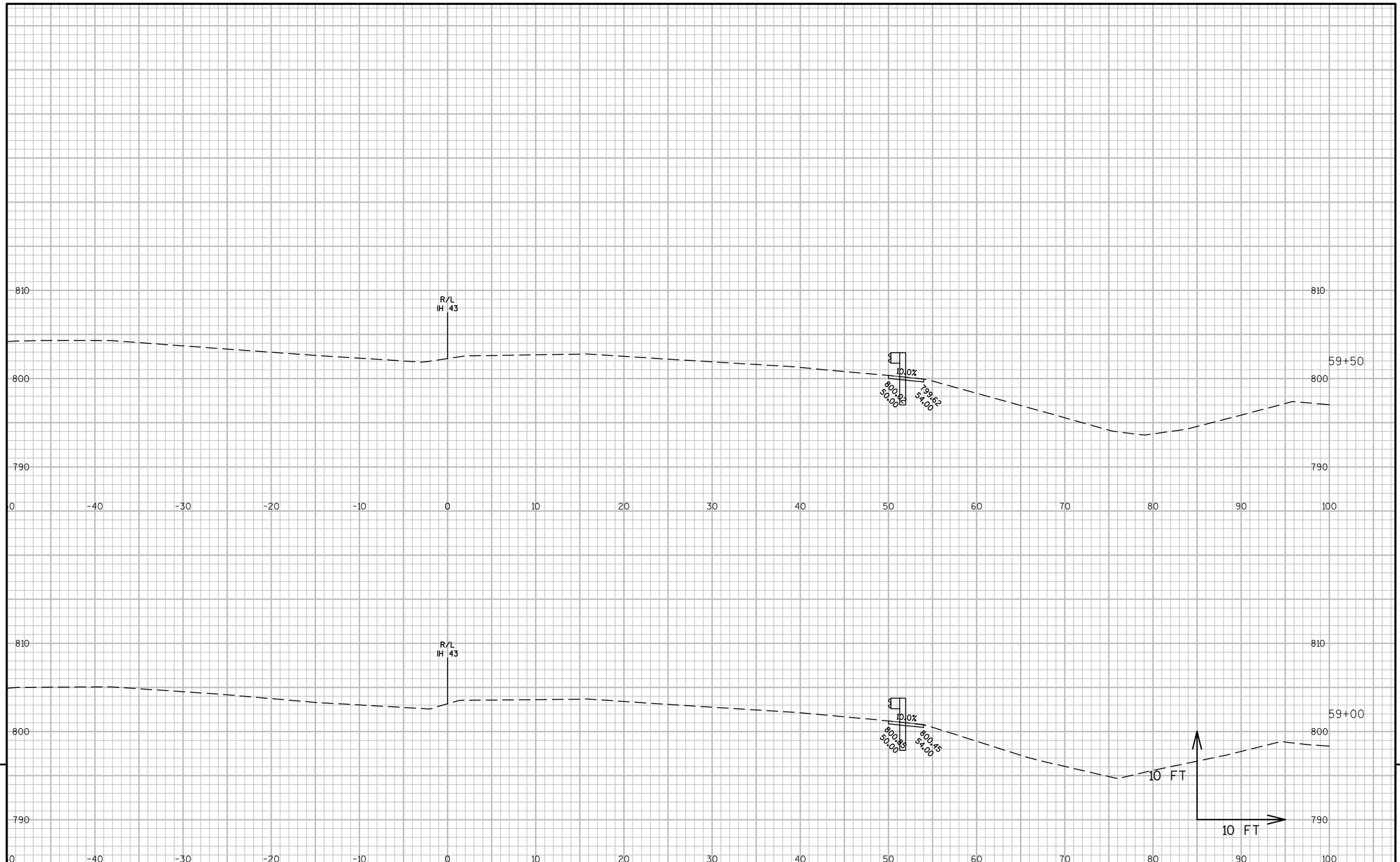
PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 66	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - SECTION SHEET - (31)

PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT



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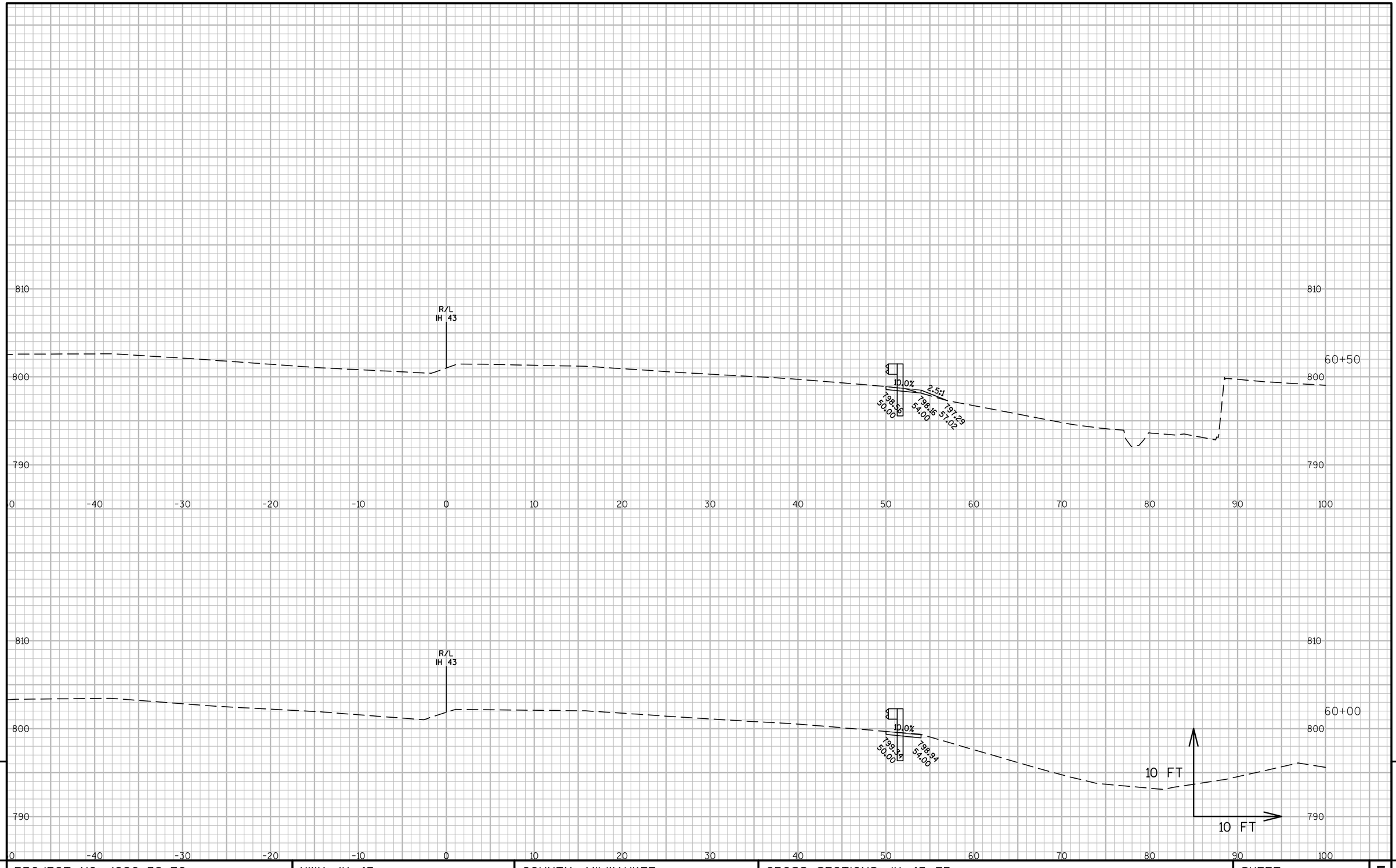
PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 67	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - SECTION SHEET - (32)

PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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9

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 68	E

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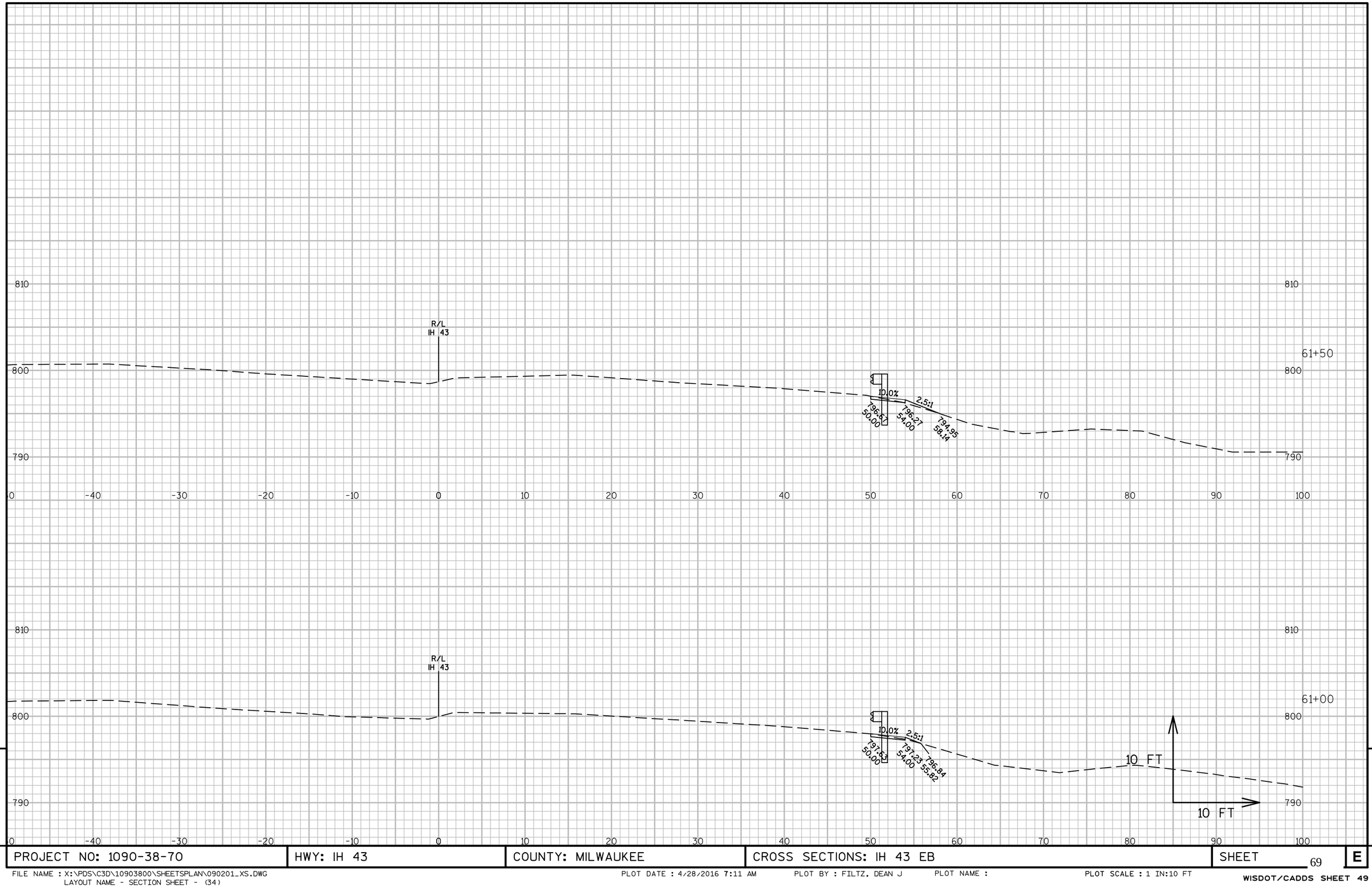
LAYOUT NAME - SECTION SHEET - (33)

PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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9

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 69	E

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LAYOUT NAME - SECTION SHEET - (34)

PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 70	E

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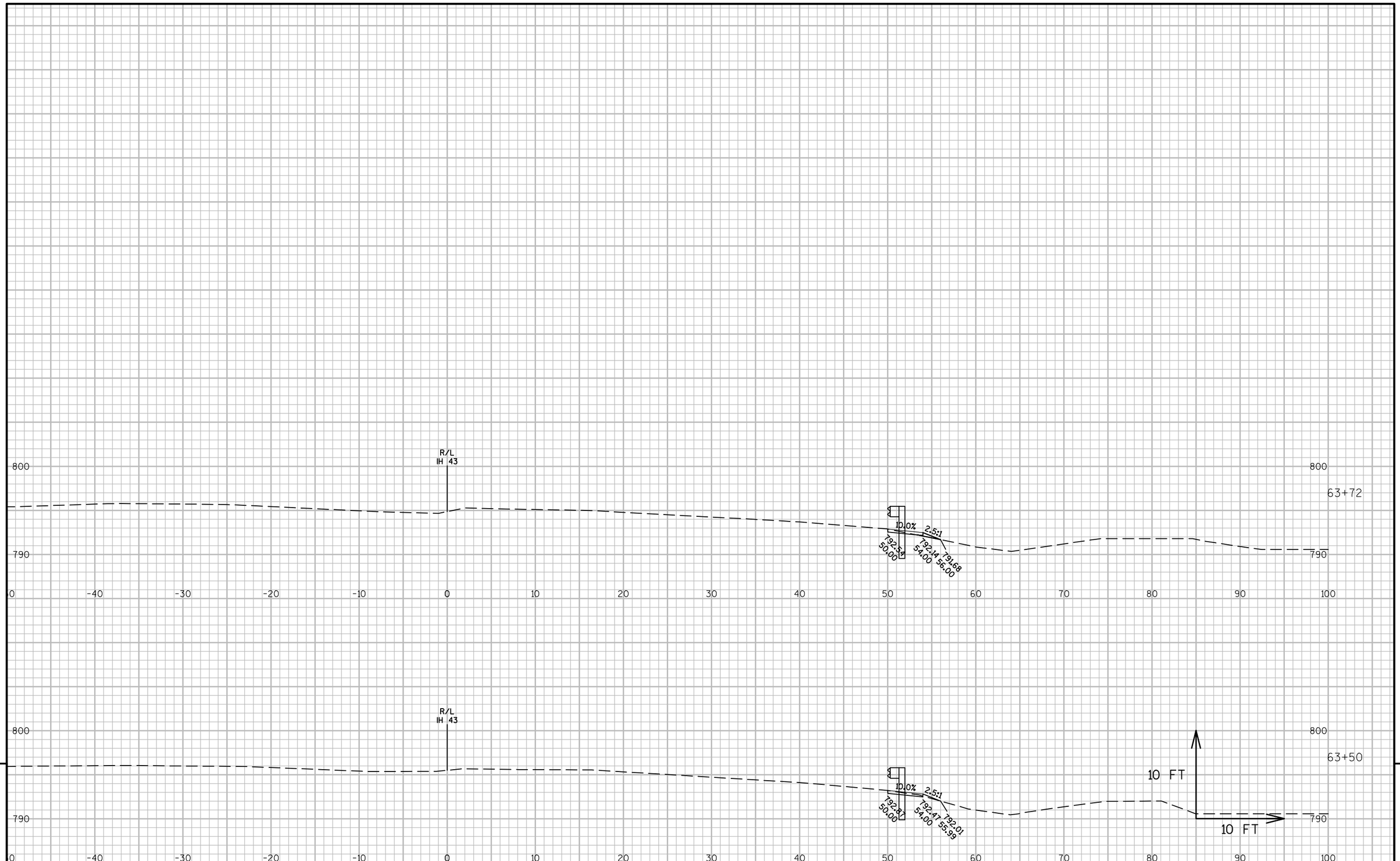
PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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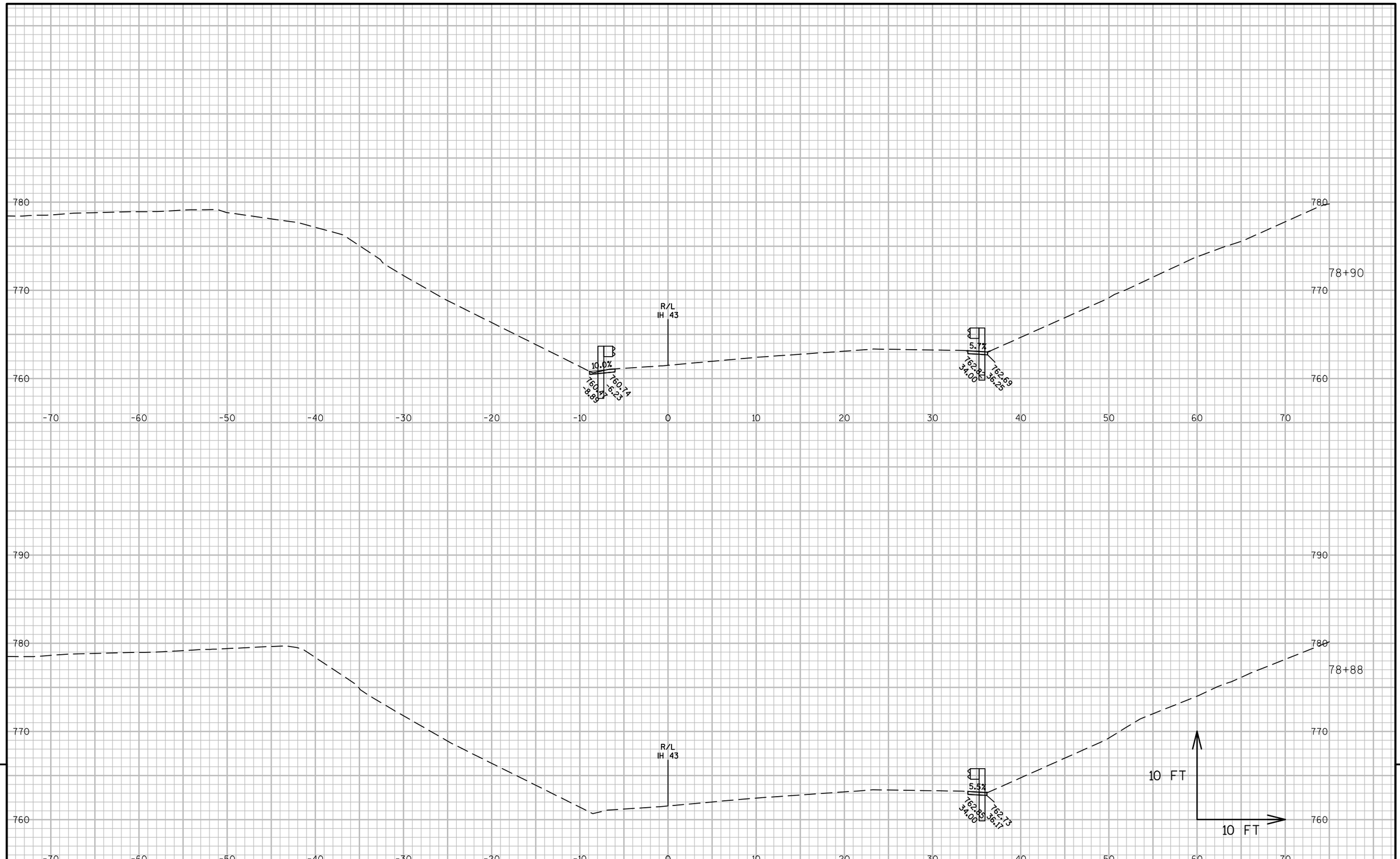
9

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 71	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - SECTION SHEET - (36)

PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT



9

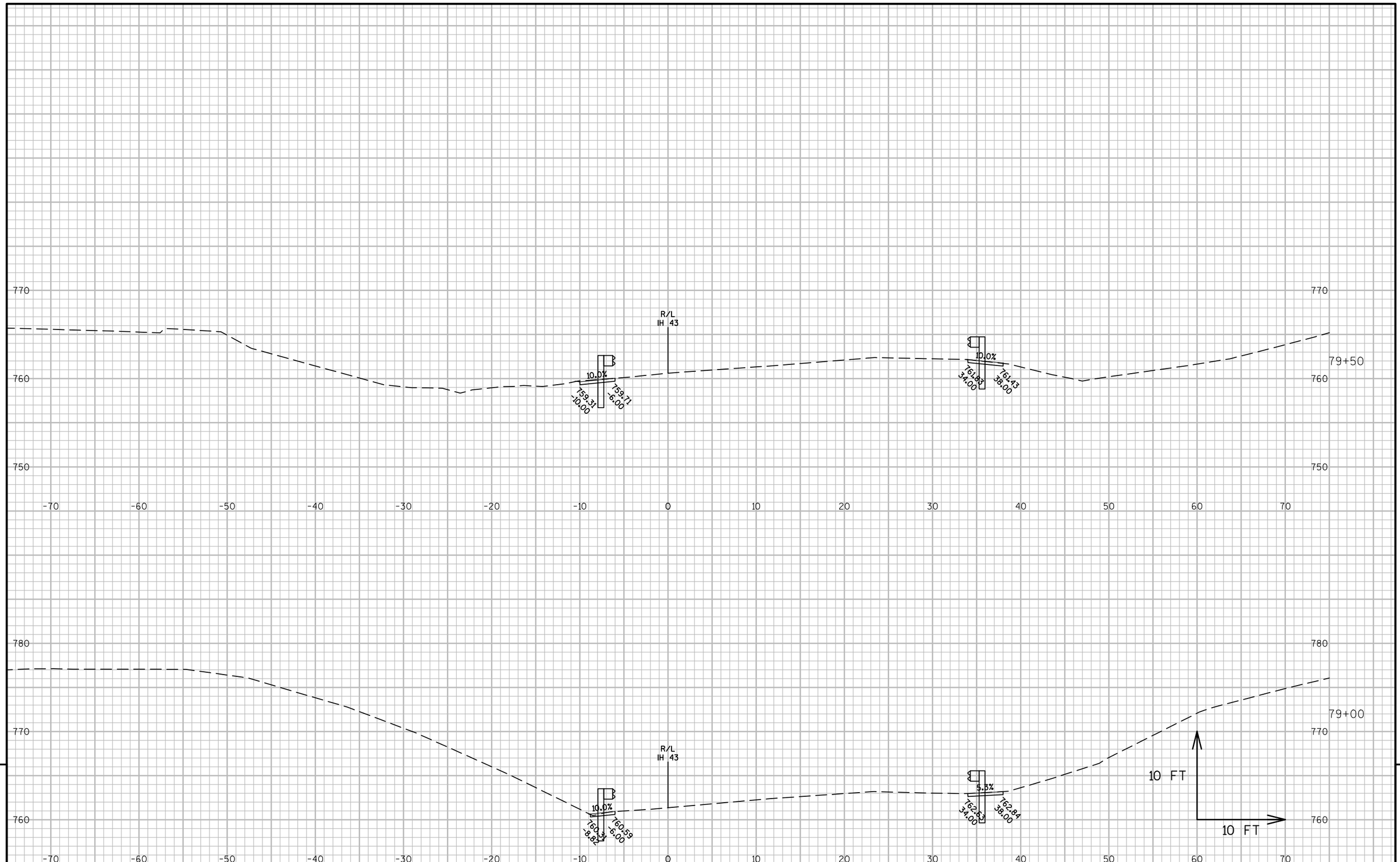
9

PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 72	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - SECTION SHEET - (37)

PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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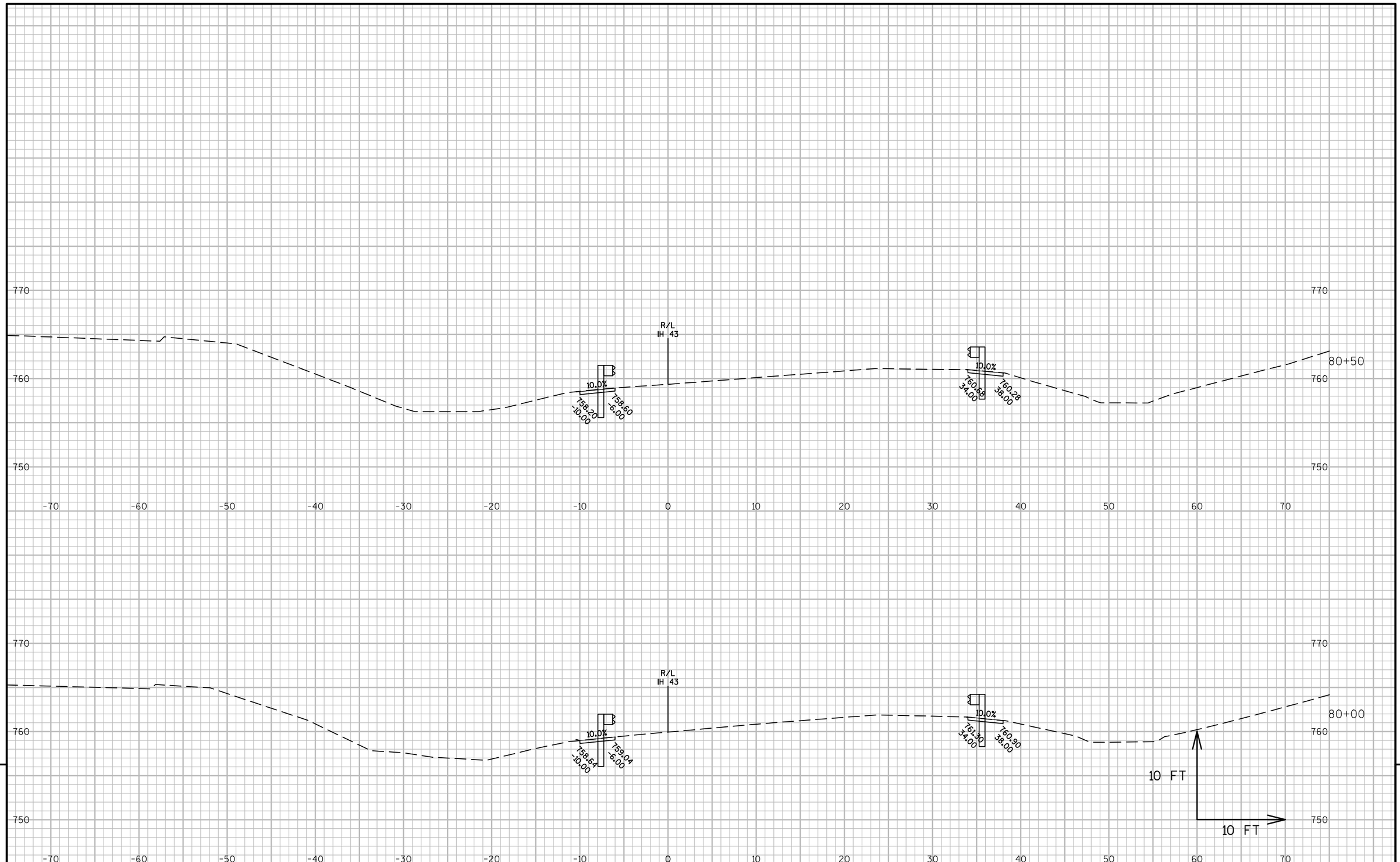
PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 73	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - SECTION SHEET - (38)

PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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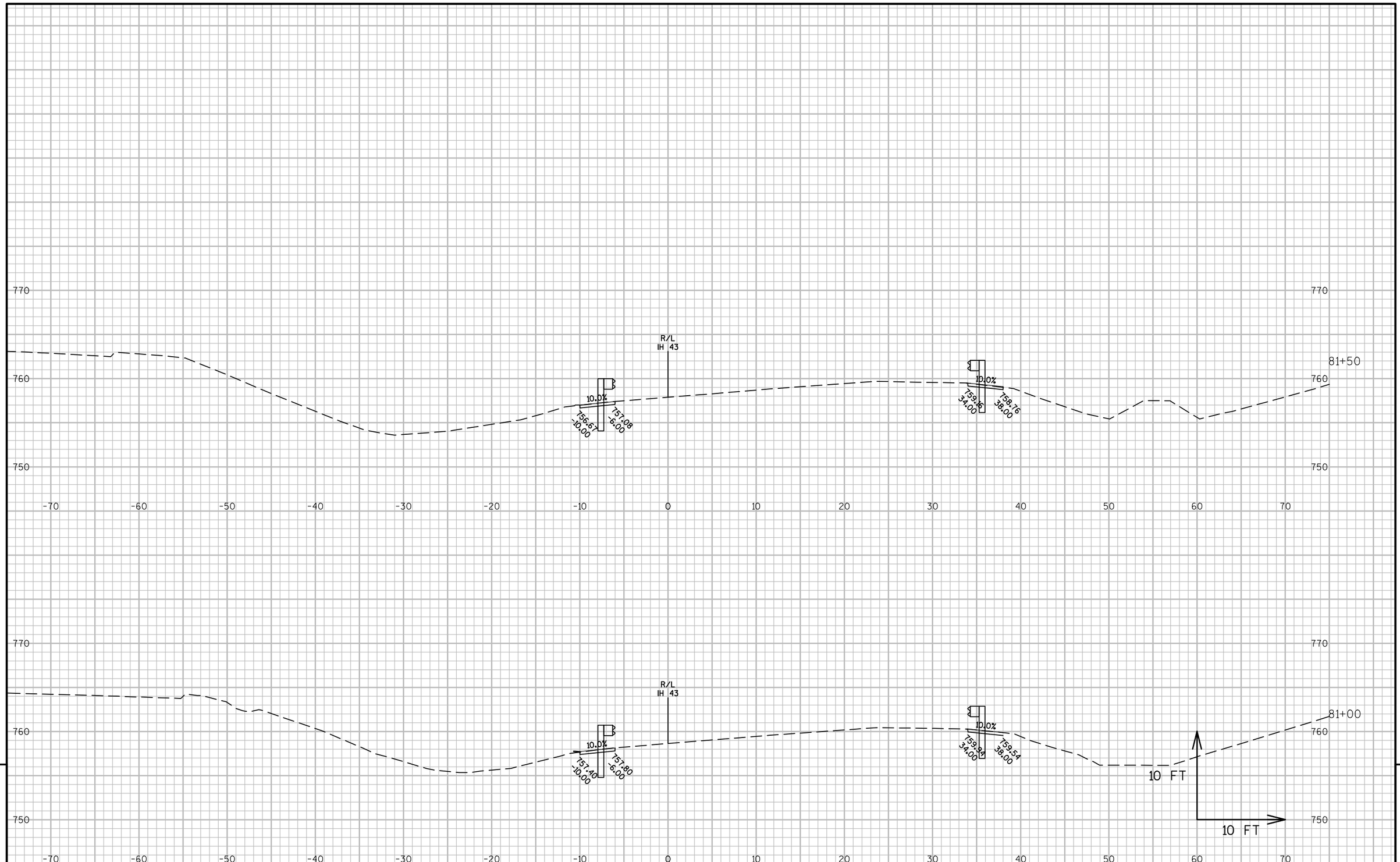
PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 74	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - SECTION SHEET - (39)

PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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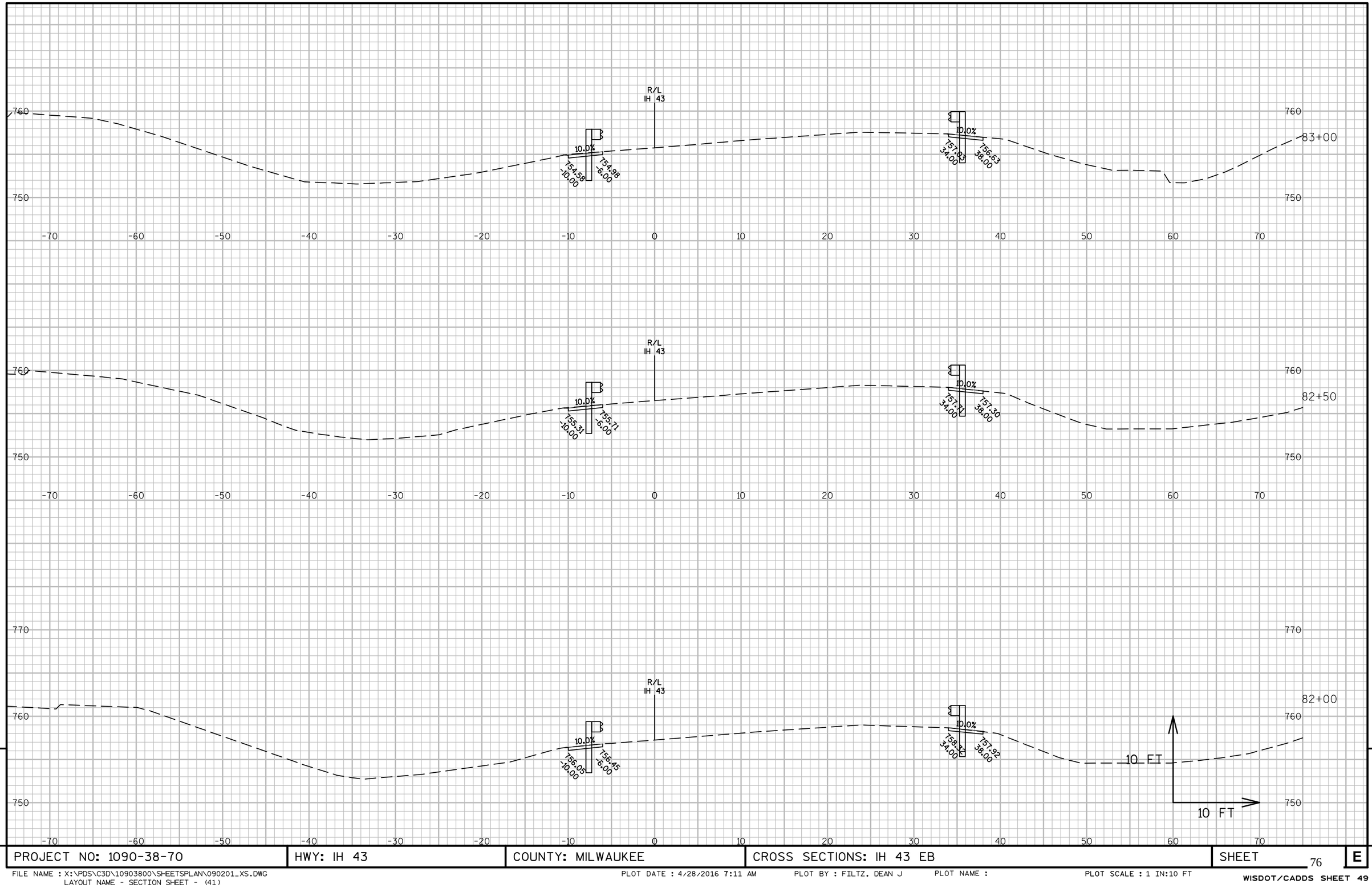
PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 75	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - SECTION SHEET - (40)

PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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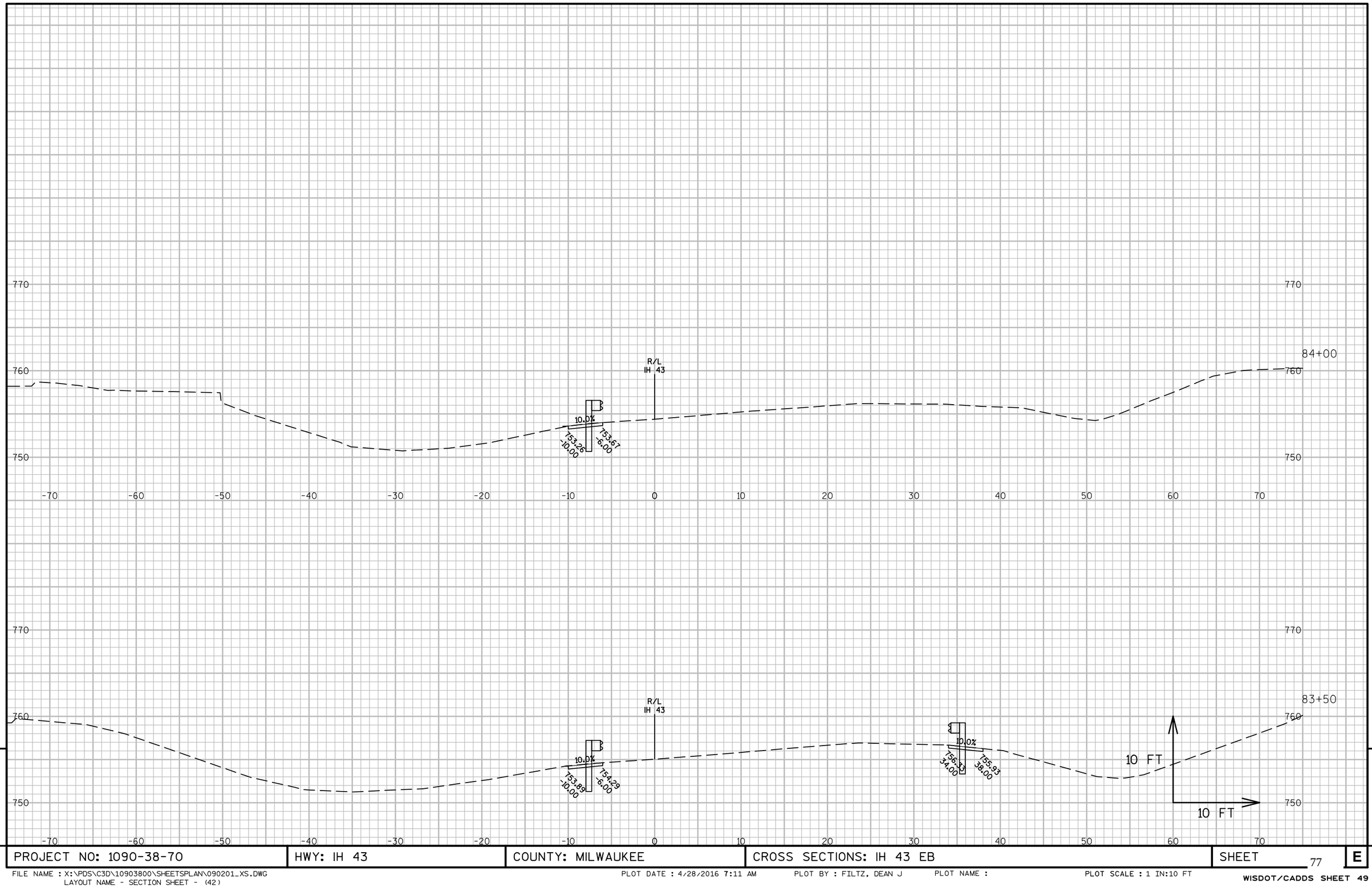
PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 76	E



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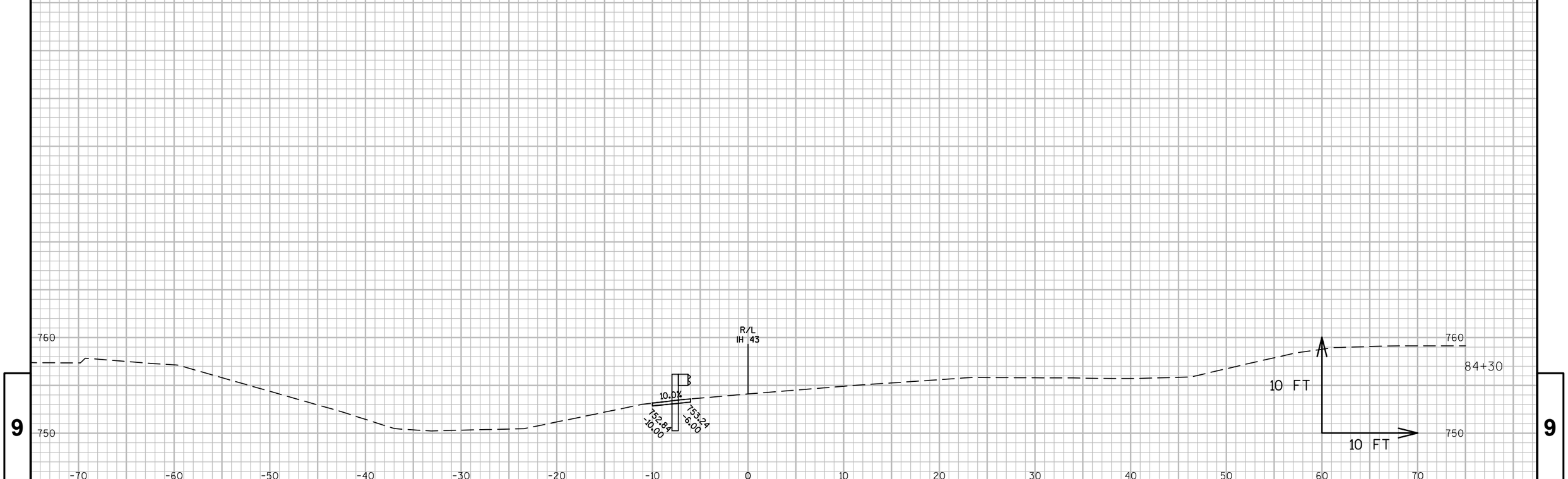
PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 77	E



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PROJECT NO: 1090-38-70	HWY: IH 43	COUNTY: MILWAUKEE	CROSS SECTIONS: IH 43 EB	SHEET 78	E

FILE NAME : X:\PDS\C3D\10903800\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - SECTION SHEET - (43)

PLOT DATE : 4/28/2016 7:11 AM PLOT BY : FILTZ, DEAN J PLOT NAME : PLOT SCALE : 1 IN:10 FT

Notes

Wisconsin Department of Transportation

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