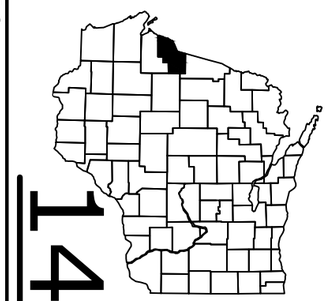
RHI JUNE 2015

PROJECT ID: 9240-09-70
WITH: 9240-09-80

COUNTY: IRON

ORDER OF SHEETS

TOTAL SHEETS = 122



14

N

DESIGN DESIGNATION

A.A.D.T.	2014	=	690
A.A.D.T.	2034	=	840
D.H.V.		=	126
D.D.		=	58/42
T.		=	15.6
DESIGN SPEED		=	55 MPH
ESALS		=	150,000

CONVENTIONAL SYMBOLS

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

PROFILE
- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES
- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

PARK FALLS - MANITOWISH

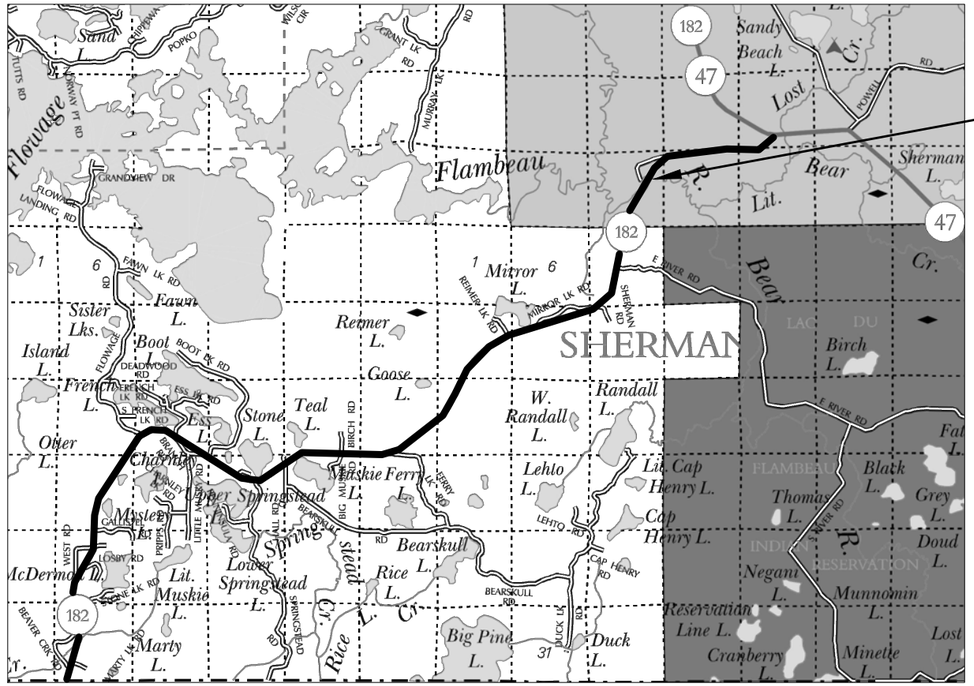
BEAR RIVER BRIDGE B-26-0039

STH 182

IRON COUNTY

STATE PROJECT NUMBER
9240-09-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9240-09-70	———	—



PROJECT 9240-09-70
BEAR RIVER BRIDGE (B-26-0039)
STA 678+00 (25+60 BR) TO
STA 697+00 (44+60 BR)

LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.36

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

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF NAVD 88 (1991).

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AL OLEINIK
Designer	DAVE KIRCHER
Project Manager	JIM VOLKMANN
Regional Examiner	CHERYL SIMON
Regional Supervisor	ROBIN STAFFORD

APPROVED FOR THE DEPARTMENT
DATE: 4/02/15 (Signature)

E

GENERAL NOTES

THE EXISTING CURVE SUPER ELEVATION SHALL BE UPGRADED WITHIN PROJECT LIMITS AND PAVED TO MATCH EXISTING SUPER-ELEVATION IN THE LAST 50 FT

THERE MAY BE UTILITY FACILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN ON THE PLAN

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS BETWEEN THE SUBGRADE SHOULDER POINTS AND THE PROPOSED RIPRAP LOCATIONS, SHALL BE FERTILIZED, SEEDED, AND COVERED WITH EROSION MAT

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

CONTACTS

CENTURYLINK
BRIAN HUHN
400 W. 9TH ST. N, SUITE 5
LADYSMITH, WI 54848
715-532-0023
CELL: 715-563-8294

WISCONSIN DNR
JON SIMONSEN
107 SUTLIFF AVENUE
RHINELANDER, WI 54501
JONATHON.SIMONSEN@WISCONSIN.GOV
715-365-8916

US CORPS OF ENGINEERS (USCOE)
DAN MUNSON
ST PAUL DISTRICT - REGULATORY
180 5TH STREET EAST
SUITE 700
ST PAUL, MN 55101
651-290-5191

PRICE ELECTRIC COOPERATIVE INC
ELECTRICITY
JASON WEIK
PO BOX 110
PHILLIPS, WI 54555
715-339-2155

AS-BUILTS USED

†0701(1)

9240-04-70

SIGNAL TIMING

Note: Stop Bar placement at 500 FT spacing

EB STA 32+00'BR' WB STA 37+00'BR'

Temporary Signal Timing * 1 6:00am to 8:00pm

EB	WB	Yellow	All Red	Green	
red	red		18.0 sec		
green	red			12.0 sec	
yellow	red	5.0 sec			
red	red		18.0 sec		
red	green			12.0 sec	
red	yellow	5.0 sec			
Total cycle length		10.0 sec	36.0 sec	24.0 sec =	70.0 sec

Temporary Signal Timing * 2 8:00pm to 6:00am

EB	WB	Yellow	All Red	Green	
red	red		18.0 sec		
green	red			12.0 sec	
yellow	red	5.0 sec			
red	red		18.0 sec		
red	green			12.0 sec	
red	yellow	5.0 sec			
Total cycle length		10.0 sec	36.0 sec	24.0 sec =	70.0 sec

Note: Stop Bar placement at 1900 FT spacing

EB STA 26+00'BR' WB STA 45+00'BR'

Temporary Signal Timing * 1 6:00am to 8:00pm

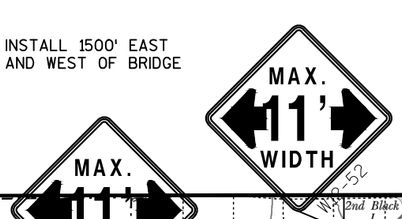
EB	WB	Yellow	All Red	Green	
red	red		43.0 sec		
green	red			12.0 sec	
yellow	red	5.0 sec			
red	red		43.0 sec		
red	green			12.0 sec	
red	yellow	5.0 sec			
Total cycle length		10.0 sec	86.0 sec	24.0 sec =	120.0 sec

Temporary Signal Timing * 2 8:00pm to 6:00am

EB	WB	Yellow	All Red	Green	
red	red		43.0 sec		
green	red			12.0 sec	
yellow	red	5.0 sec			
red	red		43.0 sec		
red	green			12.0 sec	
red	yellow	5.0 sec			
Total cycle length		10.0 sec	86.0 sec	24.0 sec =	120.0 sec

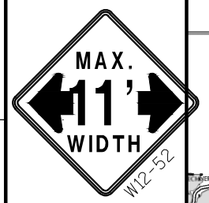
2

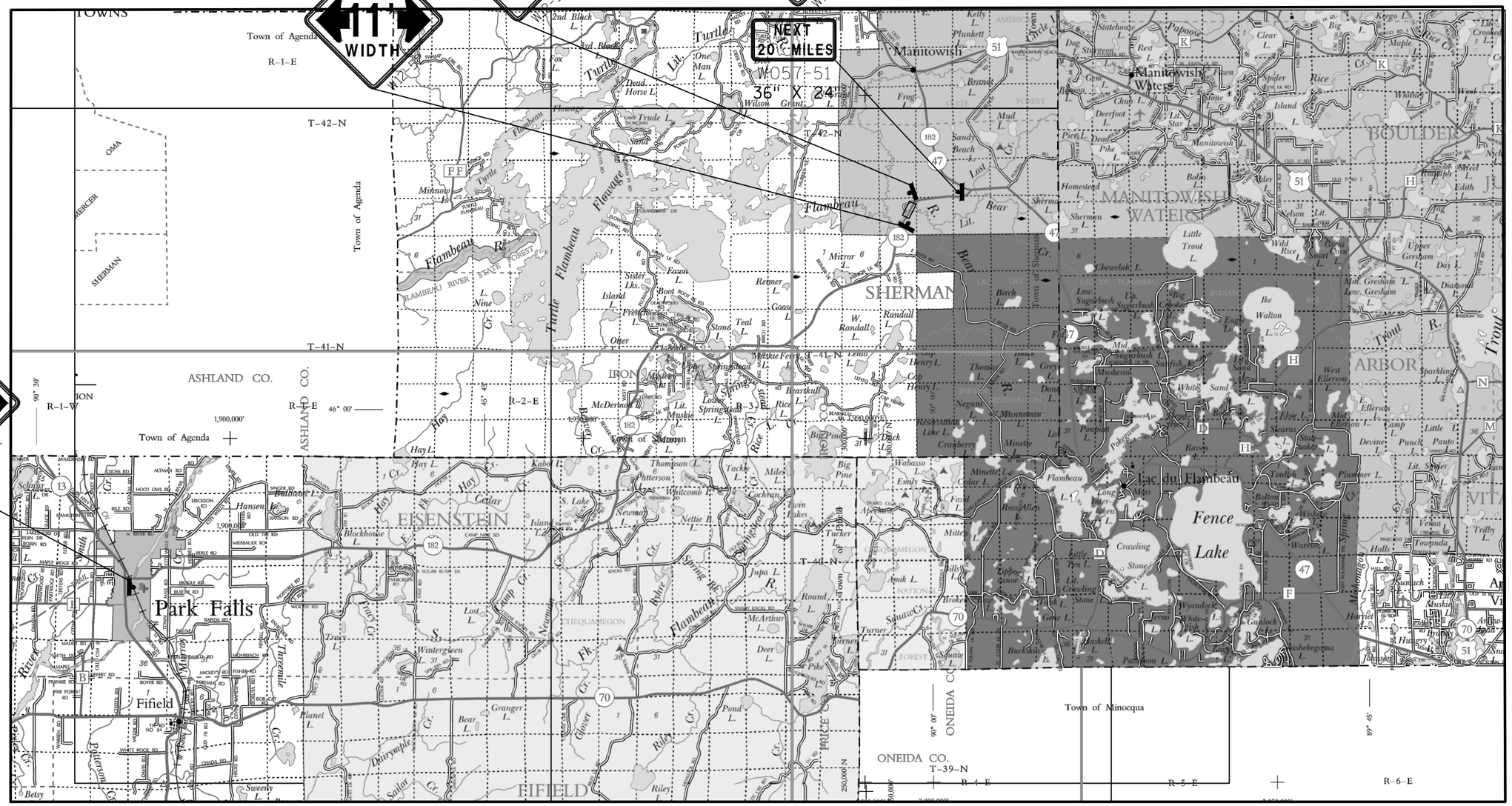
INSTALL 1500' EAST AND WEST OF BRIDGE



INSTALL 100' WEST OF STH 47 INTERSECTION

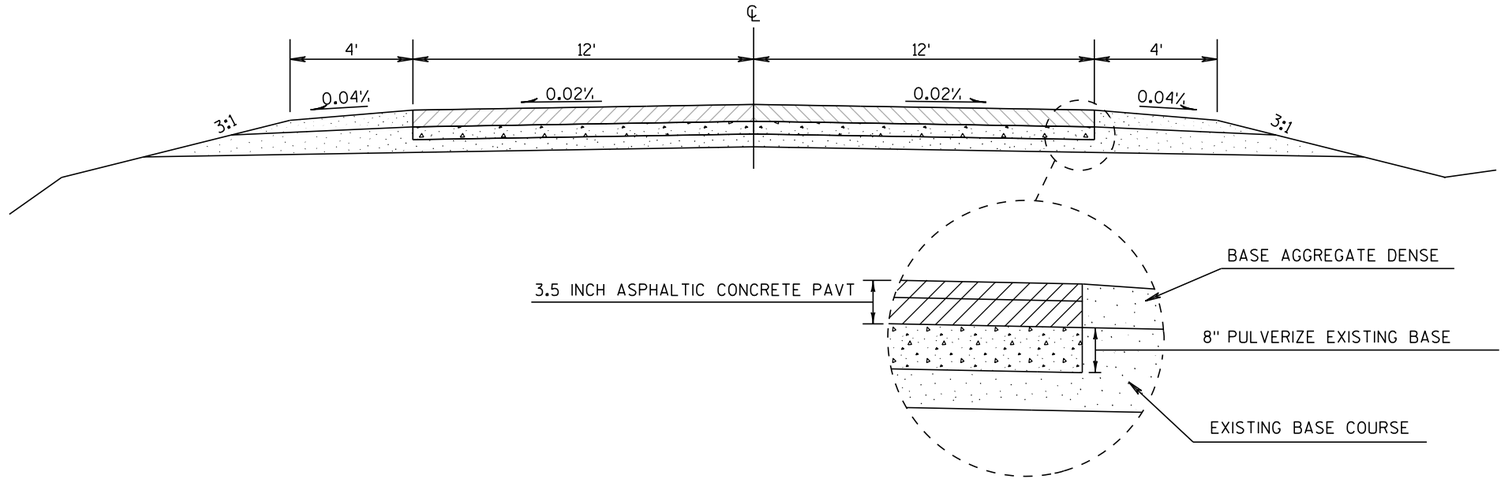
INSTALL 100' EAST OF STH 13 INTERSECTION





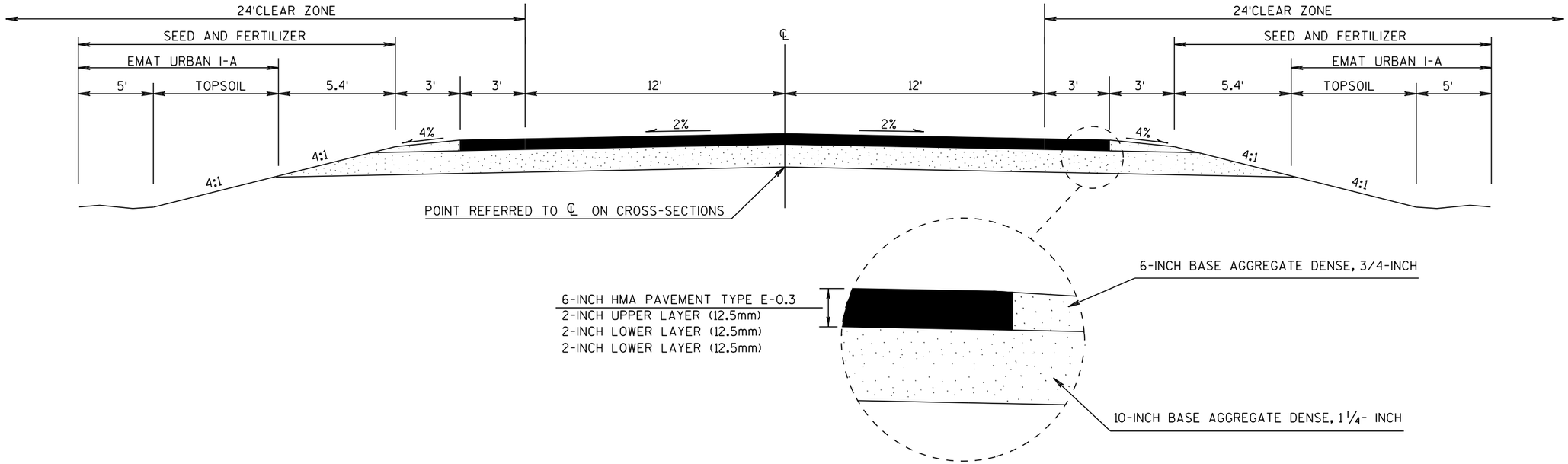
PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	PLAN: BEAR RIVER BRIDGE B-26-39	SHEET 3	E

2



EXISTING TYPICAL SECTION

STA 25+60 BR (678+00) - STA 44+60 BR (697+00)



PROPOSED TYPICAL SECTION

STA 26+60 BR (678+00) - STA 44+60 BR (697+00)

PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	TYPICAL SECTION	SHEET	E

2

BRIDGE WORK AHEAD
W20-1-A (MOD)

N

EXISTING WESTBOUND GUARDRAIL
TO REMAIN DURING STAGE 1

PT 685+04.00

BEAR RIVER

PT: 32+23.61

12'

STOP BAR

8:1 MIN

32+00

33+00

34+00

35+00

36+00

37+00

BM1

STOP BAR

8:1 MIN

SEE SHEET 3 OF B-26-39 CONSTRUCTION STAGE 1
REMOVAL LIMITS FOR EAST BOUND BRIDGE STAGE 1

REMOVING EASTBOUND GUARDRAIL

F06137

BRIDGE WORK AHEAD
W20-1-A (MOD)

CONCRETE BARRIER
TEMPORARY PRECAST

TEMPORARY PAVT MARKING
4-INCH, REMOVABLE TAPE

xxxx SAWING ASPHALT

TEMPORARY SHORING

WORK AREA

SAW DECK AND SUBSTRUCTURE

POLYETHYLENE SHEETING

STAGE 1

SET UP FOR CLOSING EASTBOUND LANE SEE:

SDD TRAFFIC CONTROL,
ONE LANE ROAD WITH TEMPORARY SIGNALS

SDD TRAFFIC CONTROL FOR LANE CLOSURE
(SUITABLE FOR MOVING OPERATION)

TRAFFIC TO RUN ON EXISTING ASPHALTIC LANES

SILT FENCE INSTALLATION

SAWING ASPHALT

SAWING BRIDGE

STAGE 1 CONTINUED

STAGE 1 BRIDGE REMOVAL
SEE BRIDGE PLANS SHEET 3 OF B-26-39

REMOVING EASTBOUND GUARDRAIL RIGHT

REMOVE EXISTING ASPHALT EASTBOUND IN WORK AREA

INSTALL TEMPORARY SHORING

REMOVE EASTBOUND EMBANKMENT

START BRIDGE CONSTRUCTION EASTBOUND HALF

BACKFILL STRUCTURE

BUILD EAST BOUND EMBANKMENT, EXCAVATION
COMMON, BACKFILL GRANULAR, REMAINING EMBANKMENT

PLACE HEAVY RIPRAP AND HR FABRIC

INSTALL FINAL EROSION CONTROL ITEMS

INSTALL BAD, HMA LOWER LAYERS FOR STAGE 2

INSTALL EASTBOUND GUARDRAIL

INSTALL EASTBOUND SHOULDER

TC DRUMS TO BE SPACED 50 FT TO ADDRESS GRADE
CHANGE FROM STATE 1 TO STAGE 2

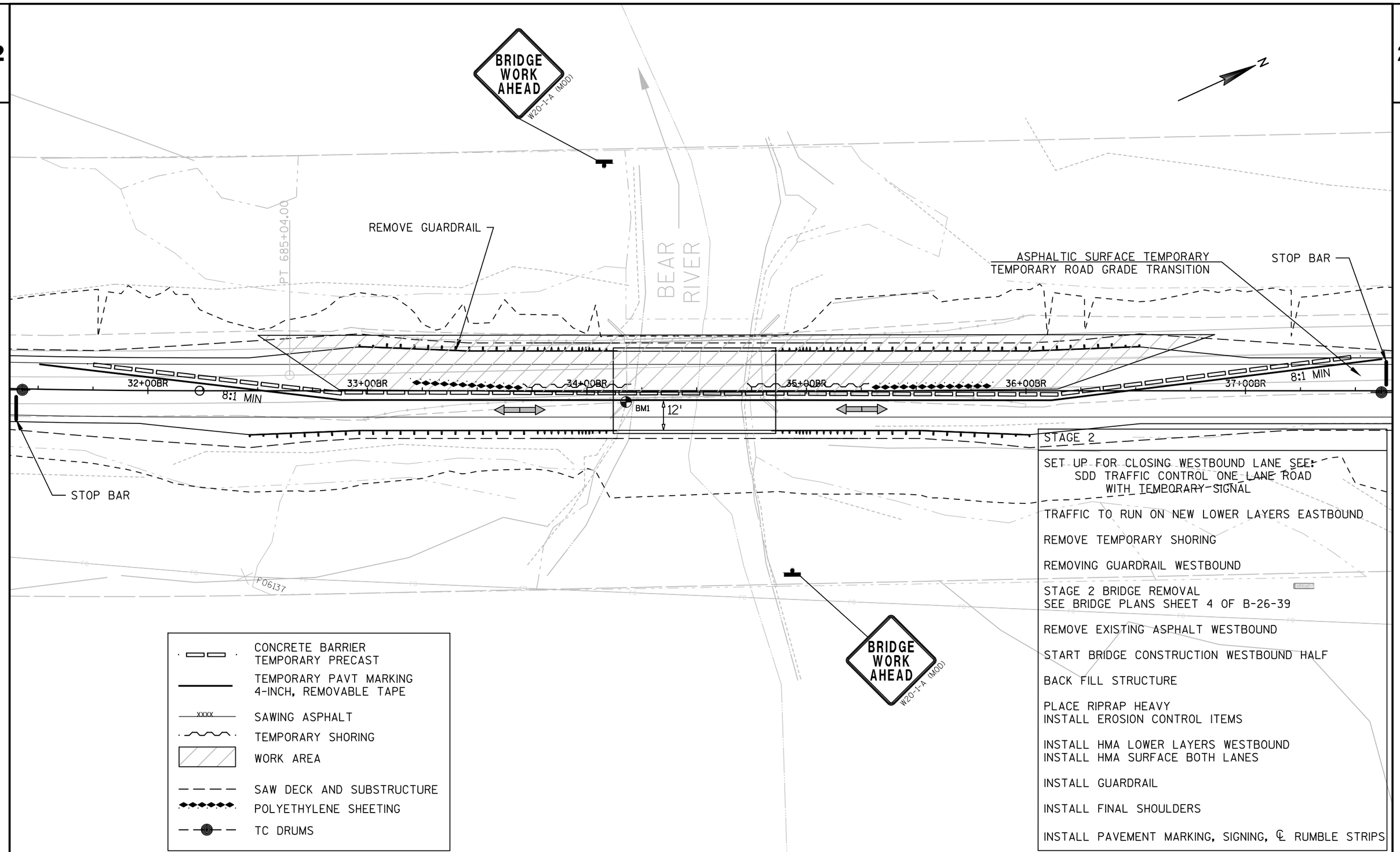
PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	STAGE 1 - CONSTRUCTION	SHEET 5	E

FILE NAME : N:\PDS\C3D\92400900\SHEETSPLAN\026001-S1.DWG
LAYOUT NAME - 026001-S1

PLOT DATE : 4/9/2015 3:58 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2



STAGE 2

SET UP FOR CLOSING WESTBOUND LANE SEE:
SDD TRAFFIC CONTROL ONE LANE ROAD
WITH TEMPORARY SIGNAL

TRAFFIC TO RUN ON NEW LOWER LAYERS EASTBOUND

REMOVE TEMPORARY SHORING

REMOVING GUARDRAIL WESTBOUND

STAGE 2 BRIDGE REMOVAL
SEE BRIDGE PLANS SHEET 4 OF B-26-39

REMOVE EXISTING ASPHALT WESTBOUND

START BRIDGE CONSTRUCTION WESTBOUND HALF

BACK FILL STRUCTURE

PLACE RIPRAP HEAVY
INSTALL EROSION CONTROL ITEMS

INSTALL HMA LOWER LAYERS WESTBOUND
INSTALL HMA SURFACE BOTH LANES

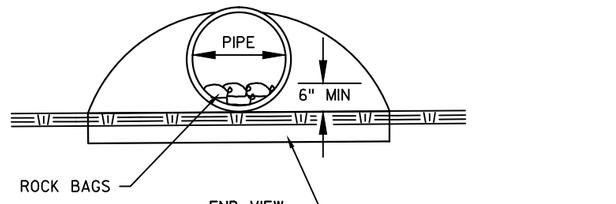
INSTALL GUARDRAIL

INSTALL FINAL SHOULDERS

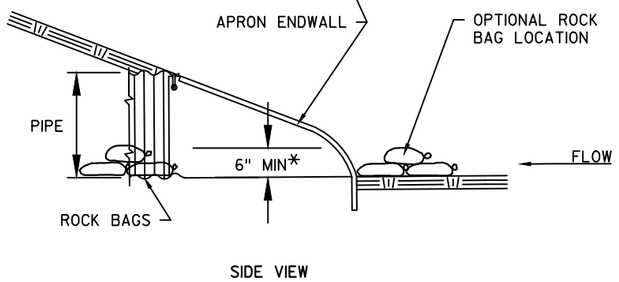
INSTALL PAVEMENT MARKING, SIGNING, ℄ RUMBLE STRIPS

PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	STAGE 2 - CONSTRUCTION	SHEET 6	E

FILE NAME : N:\PDS\C3D\92400900\SHEETSPLAN\026001-S2.DWG
LAYOUT NAME - 026001-S2
PLOT DATE : 4/9/2015 4:21 PM
PLOT BY : BAIER, GERARD M
PLOT NAME :
PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 42



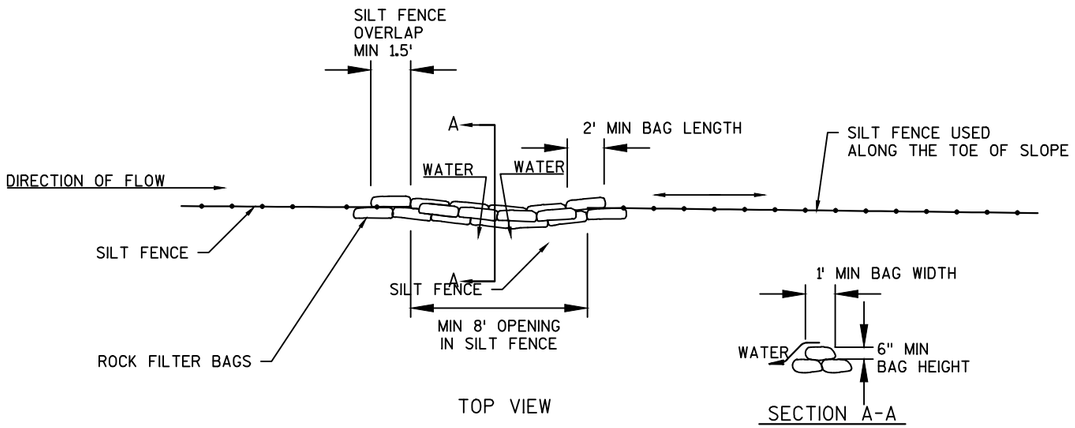
END VIEW



SIDE VIEW

CULVERT PIPE CHECK

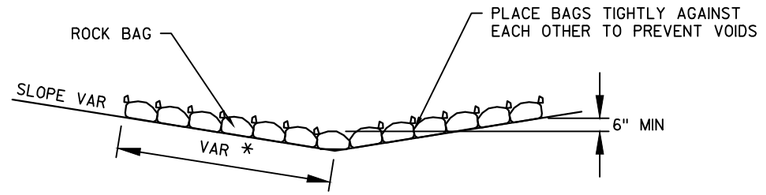
(INSTALL ON INLET END ONLY)



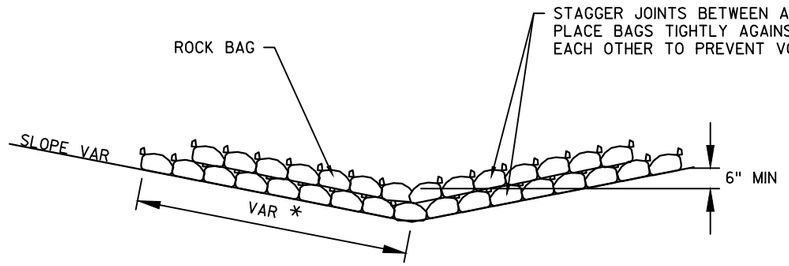
TOP VIEW

SECTION A-A

ROCK BAGS USED FOR SILT FENCE RELIEF

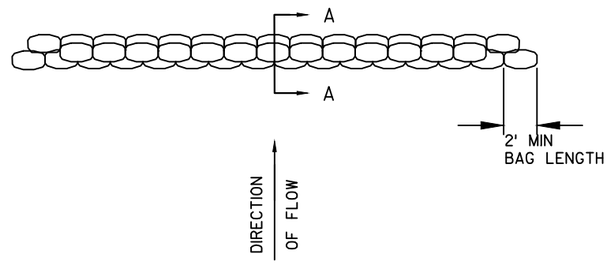


SIDE VIEW (SINGLE LAYER)

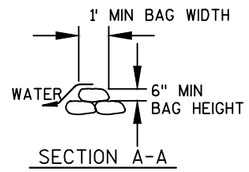


* LENGTH AND NUMBER OF BAGS MAY VARY DEPENDING ON DESIRED DEPTH OF WATER POOL

SIDE VIEW (MULTIPLE LAYER)



TOP VIEW (MULTIPLE LAYER)

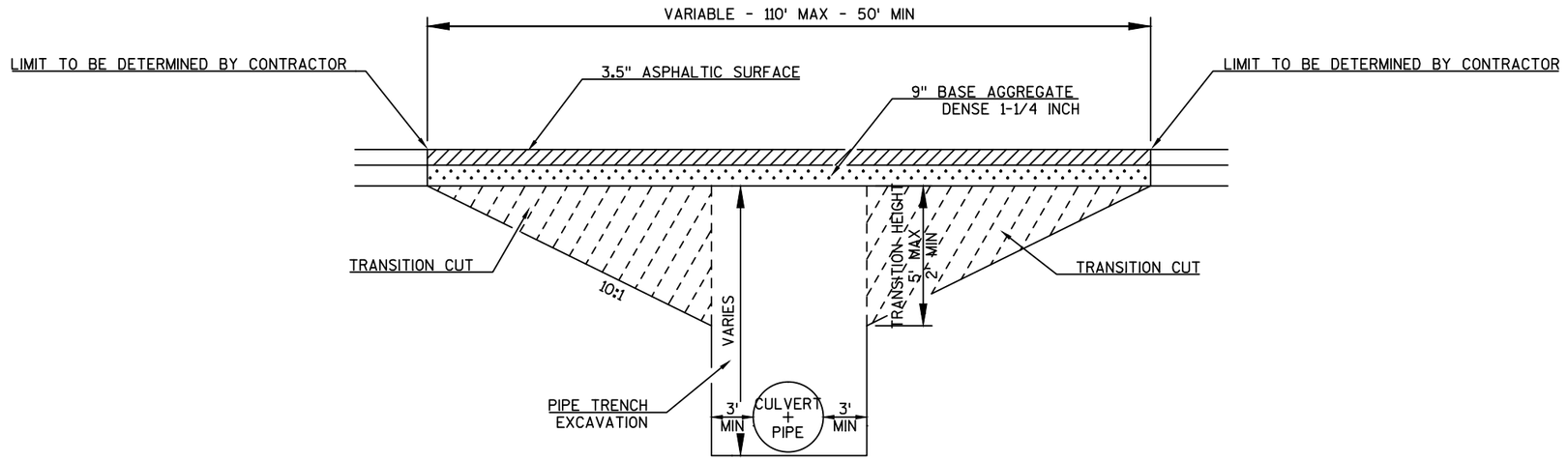


SECTION A-A

ROCK BAGS USED FOR DITCH CHECKS

PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	PLAN: CONSTRUCTION DETAILS	SHEET 7	E

2



QUANTITIES FOR INFORMATIONAL PURPOSE

TRANSITIONAL HEIGHT FT	CUT VOL CY
2	50
3	115
4	200
5	315

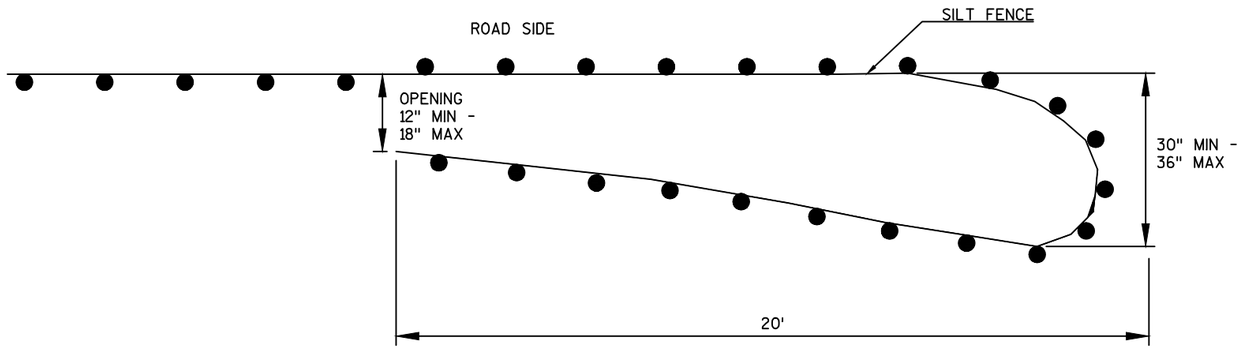
CULVERT PIPE TRANSITION

TO BE COMPLETED AT ALL CULVERT PIPE REPLACEMENT LOCATIONS

NOTE: MATERIAL REMOVED IN THE TRANSITION CUT AND PIPE TRENCH EXCAVATIONS TO BE REUSED AS BACKFILL UNLESS DETERMINED TO BE UNUSABLE BY THE ENGINEER IN WHICH CASE GRANULAR BACKFILL WILL BE USED.

PIPE TRENCH EXCAVATION, EXCLUDING TRANSITION CUT IS CONSIDERED INCIDENTAL TO PIPE INSTALLATION. TRANSITION CUT WILL BE PAID FOR AS CULVERT PIPE TRANSITION.

TRANSITION CUT WILL BE 36' WIDE, 18' EACH SIDE OF CENTERLINE.



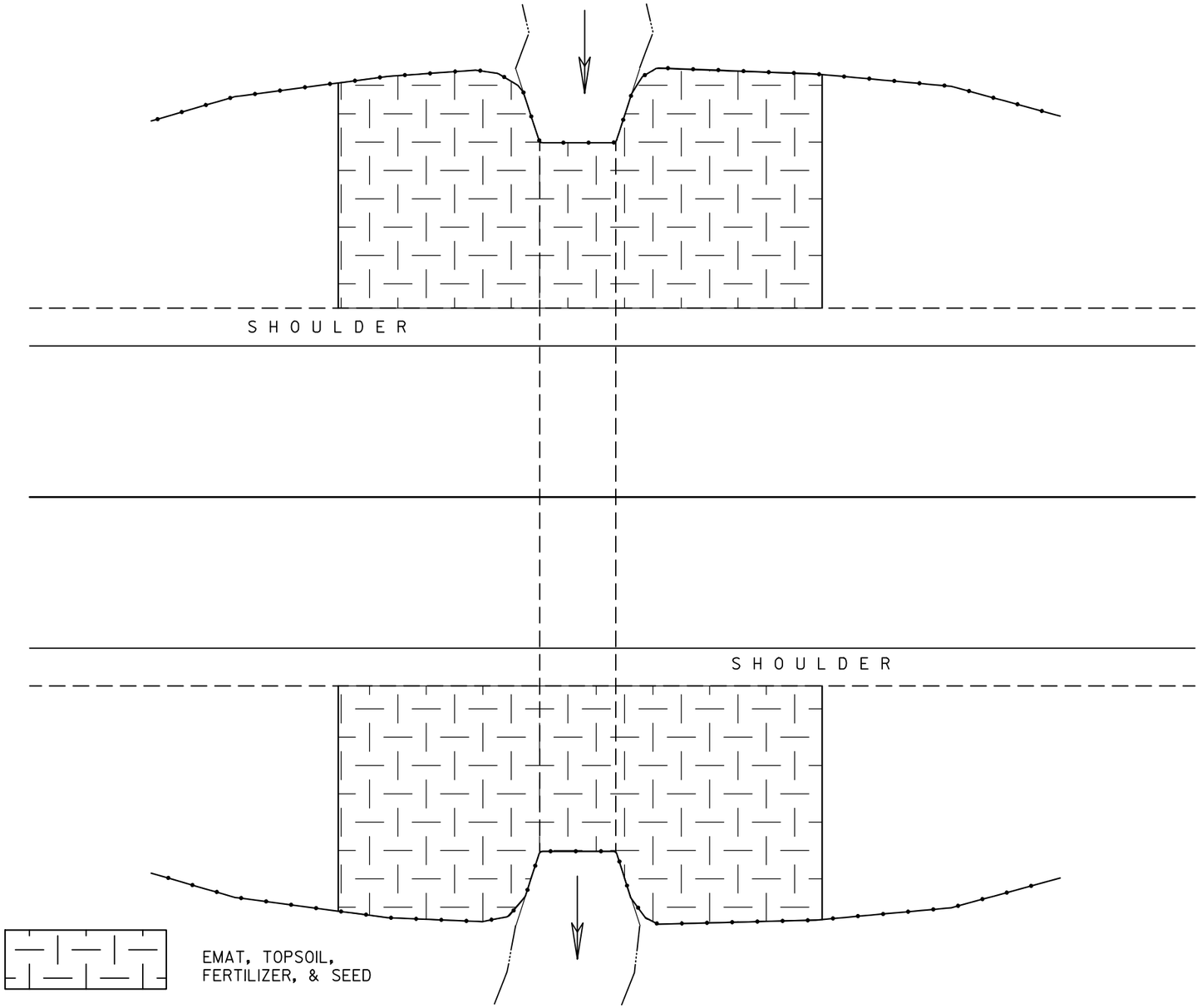
PLAN VIEW

GENERAL NOTES:

THE PURPOSE OF THE SMALL ANIMAL TURN-AROUNDS ARE TO REDIRECT THE SMALL ANIMALS AWAY FROM THE CONSTRUCTION ZONE.
DESIGN SHOULD ALSO INCLUDE TRENCHED-IN SEDIMENT FENCING AND FENCING SUPPORTS ON UPSLOPE SIDE OF FENCE.
SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND.

TEMPORARY SMALL ANIMAL TURN-AROUND

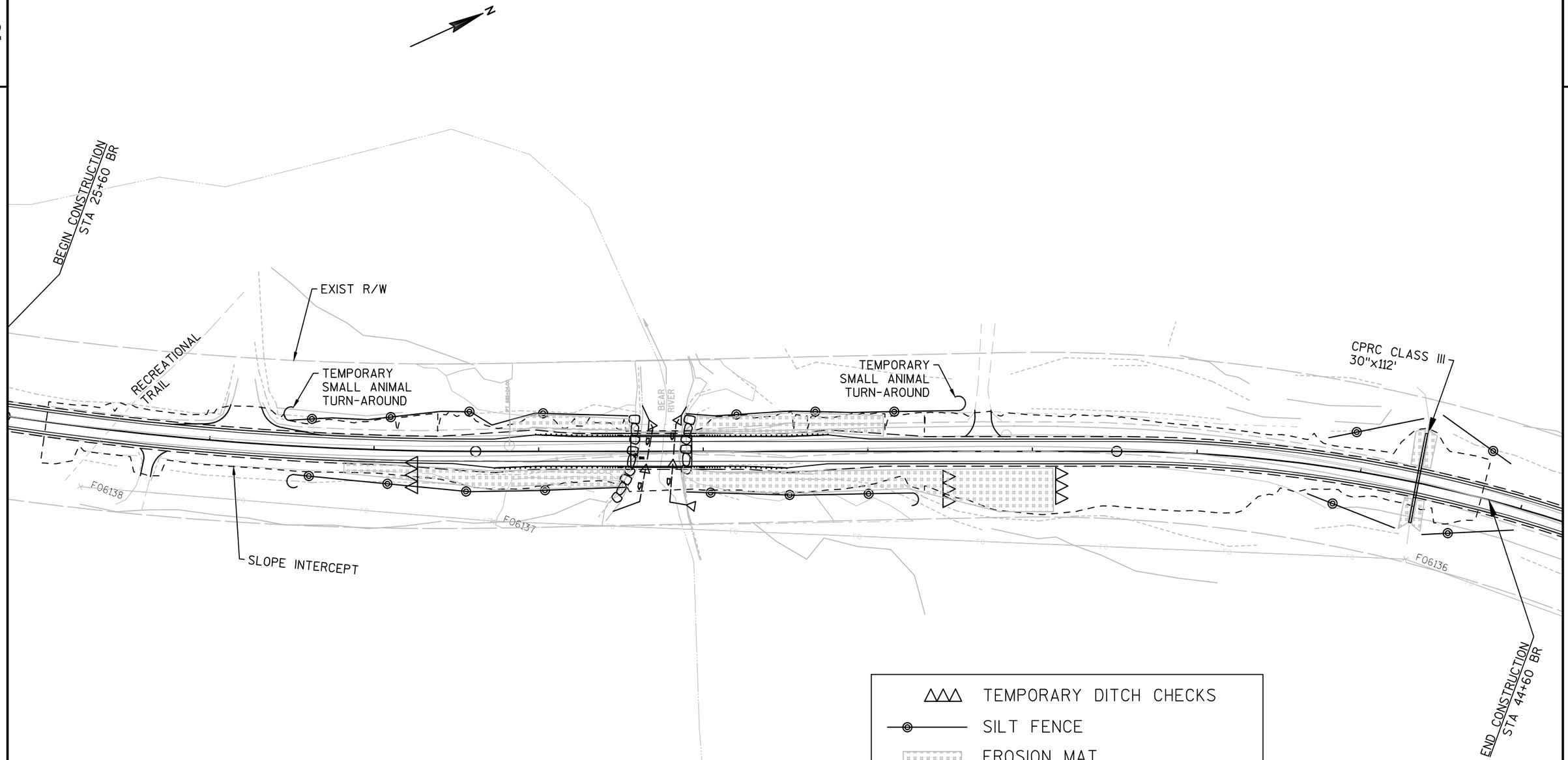
2



DETAIL FOR EROSION CONTROL AT CULVERT PIPES

PROJECT NO:9240-09-70	HWY: STH 182	COUNTY:IRON	PLAN: CONSTRUCTION DETAILS	SHEET 10	E

2



TEMPORARY DITCH CHECKS

SILT FENCE

EROSION MAT
URBAN CLASS 1 TYPE A

RIPRAP HEAVY
GEOTEXTILE FABRIC TYPE HR

TURBIDITY BARRIER

PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	EROSION CONTROL PLAN	SHEET 11	E

DATE 13APR15 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	9240-09-70 QUANTITY
0010	201.0105	Clearing	STA	13.000	13.000
0020	201.0205	Grubbing	STA	13.000	13.000
0040	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0050	203.0700.S	Removing Old Structure Over Waterway With Debris Capture System (station) 01. 34"BR"+49.00	LS	1.000	1.000
0060	204.0110	Removing Asphaltic Surface	SY	325.000	325.000
0090	204.0165	Removing Guardrail	LF	446.000	446.000
0110	205.0100	Excavation Common	CY	4,225.000	4,225.000
0120	206.1000	Excavation for Structures Bridges (structure) 01. B-26-39	LS	1.000	1.000
0140	209.0100	Backfill Granular	CY	1,000.000	1,000.000
0150	210.0100	Backfill Structure	CY	255.000	255.000
0170	213.0100	Finishing Roadway (project) 01. 9240-09-70	EACH	1.000	1.000
0190	305.0110	Base Aggregate Dense 3/4-Inch	TON	500.000	500.000
0200	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	8,000.000	8,000.000
0230	455.0105	Asphaltic Material PG58-28	TON	235.000	235.000
0240	455.0605	Tack Coat	GAL	850.000	850.000
0250	460.1100	HMA Pavement Type E-0.3	TON	2,360.000	2,360.000
0260	460.2000	Incentive Density HMA Pavement	DOL	1,510.000	1,510.000
0280	460.4110.S	Reheating HMA Pavement Longitudinal Joints	LF	5,466.000	5,466.000
0290	465.0105	Asphaltic Surface	TON	40.000	40.000
0310	465.0125	Asphaltic Surface Temporary	TON	230.000	230.000
0330	465.0475	Asphalt Center Line Rumble Strips 2-Lane Rural	LF	1,775.000	1,775.000
0340	502.0100	Concrete Masonry Bridges	CY	225.000	225.000
0350	502.3200	Protective Surface Treatment	SY	390.000	390.000
0360	503.0137	Prestressed Girder Type I 36W-Inch	LF	450.000	450.000
0370	505.0405	Bar Steel Reinforcement HS Bridges	LB	4,740.000	4,740.000
0380	505.0605	Bar Steel Reinforcement HS Coated Bridges	LB	24,710.000	24,710.000
0390	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	12.000	12.000
0400	506.4000	Steel Diaphragms (structure) 01. B-26-39	EACH	5.000	5.000
0410	511.1200	Temporary Shoring (structure) 01. B-26-39	SF	230.000	230.000
0420	516.0500	Rubberized Membrane Waterproofing	SY	26.000	26.000
0430	517.1015.S	Concrete Staining Multi-Color (structure) 01. B-26-39	SF	230.000	230.000
0440	517.1050.S	Architectural Surface Treatment (structure) 01. B-26-39	SF	230.000	230.000
0460	522.0130	Culvert Pipe Reinforced Concrete Class III 30-Inch	LF	112.000	112.000
0480	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	2.000	2.000
0490	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	700.000	700.000
0500	603.8000	Concrete Barrier Temporary Precast Delivered	LF	600.000	600.000
0510	603.8125	Concrete Barrier Temporary Precast Installed	LF	1,000.000	1,000.000
0520	606.0300	Riprap Heavy	CY	298.000	298.000
0530	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	140.000	140.000
0540	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0550	614.2300	MGS Guardrail 3	LF	125.000	125.000

3

DATE 13APR15 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	9240-09-70 QUANTITY
0560	614.2500	MGS Thrie Beam Transition	LF	158.000	158.000
0570	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0580	618.0100	Maintenance And Repair of Haul Roads (project) 01. 9240-09-70	EACH	1.000	1.000
0600	619.1000	Mobilization	EACH	0.250	0.250
0610	624.0100	Water	MGAL	10.000	10.000
0620	625.0100	Topsoil	SY	7,000.000	7,000.000
0630	627.0200	Mulching	SY	3,500.000	3,500.000
0640	628.1504	Silt Fence	LF	2,000.000	2,000.000
0650	628.1520	Silt Fence Maintenance	LF	1,000.000	1,000.000
0660	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0670	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0680	628.2006	Erosion Mat Urban Class I Type A	SY	2,000.000	2,000.000
0690	628.5505	Polyethylene Sheeting	SY	225.000	225.000
0700	628.6005	Turbidity Barriers	SY	180.000	180.000
0710	628.7504	Temporary Ditch Checks	LF	40.000	40.000
0720	628.7555	Culvert Pipe Checks	EACH	3.000	3.000
0730	628.7570	Rock Bags	EACH	84.000	84.000
0740	629.0210	Fertilizer Type B	CWT	5.000	5.000
0750	630.0130	Seeding Mixture No. 30	LB	200.000	200.000
0760	633.1100	Delineators Temporary	EACH	50.000	50.000
0770	633.5200	Markers Culvert End	EACH	2.000	2.000
0780	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0810	637.2210	Signs Type II Reflective H	SF	12.000	12.000
0830	638.2602	Removing Signs Type II	EACH	4.000	4.000
0840	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0850	642.5201	Field Office Type C	EACH	0.250	0.250
0860	643.0100	Traffic Control (project) 01. 9240-09-70	EACH	1.000	1.000
0880	643.0300	Traffic Control Drums	DAY	2,300.000	2,300.000
0890	643.0420	Traffic Control Barricades Type III	DAY	90.000	90.000
0900	643.0715	Traffic Control Warning Lights Type C	DAY	1,200.000	1,200.000
0910	643.0900	Traffic Control Signs	DAY	1,500.000	1,500.000
0920	645.0120	Geotextile Fabric Type HR	SY	530.000	530.000
0930	646.0106	Pavement Marking Epoxy 4-Inch	LF	7,600.000	7,600.000
0950	646.0600	Removing Pavement Markings	LF	400.000	400.000
0970	649.0100	Temporary Pavement Marking 4-Inch	LF	3,800.000	3,800.000
0980	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	2,300.000	2,300.000
0990	649.1400	Temporary Pavement Marking Stop Line Removable Tape 24-Inch	LF	24.000	24.000
1000	650.4500	Construction Staking Subgrade	LF	1,800.000	1,800.000
1010	650.5000	Construction Staking Base	LF	1,800.000	1,800.000
1020	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
1030	650.6500	Construction Staking Structure Layout (structure) 01. B-26-39	LS	1.000	1.000
1050	650.9910	Construction Staking Supplemental Control (project) 01. 9240-09-70	LS	1.000	1.000
1070	650.9920	Construction Staking Slope Stakes	LF	1,800.000	1,800.000
1080	661.0100	Temporary Traffic Signals for Bridges (structure) 01. B-26-39	LS	1.000	1.000
1090	690.0150	Sawing Asphalt	LF	473.000	473.000
1100	715.0502	Incentive Strength Concrete Structures	DOL	2,100.000	2,100.000
1110	SPV.0060	Special 01. Culvert Pipe Transitions	EACH	1.000	1.000
1130	SPV.0060	Special 03. Lane Shift	EACH	1.000	1.000

3

3

REMOVALS
CATEFORY 10

STATION	201.0105 CLEARING STA	201.0205 GRUBBING STA	204.0110 REMOVING ASPHALTIC SURFACE SY
25+60BR-44+60BR	13	13	
43+75BR			270
SIDE ROADS			55
TOTAL	13	13	325

EARTH WORK
CATEGORY 10

STATION	205.0100 EXCAVATION COMMON CY
27+00 BR - 44+50 BR	4,225
	4,225

3

CULVERT PIPE REPLACEMENT
CATEGORY 10

STATION	CULVERT #	203.0100 REMOVING SMALL PIPE CULVERTS EACH	522.0130 CULVERT PIPE REINFORCED CONCRETE CLASS III 30" LF	522.1030 APRON ENDWALLS FOR CPRC 30" EACH	633.5200 MARKERS CULVERT END EACH	SPV.0060.01 CULVERT PIPE TRANSISTION EACH	SPV.0060.03 LANE SHIFT EACH
43+75 BR	26-182-41	1	112	2	2	1	1
TOTAL		1	112	2	2	1	1

PAVING ITEMS
CATEGORY 10

LOCATION	455.0105 ASPHALTIC MATERIAL PG 58-28 TON	455.0605 TACK COAT GAL	460.1100 HMA PAVEMENT TYPE E-0.3 TON	465.0105 ASPHALTIC SURFACE TON	465.0125 ASPHALTIC SURFACE TEMPORARY TON	460.4110.S REHEATING HMA PAVEMENT LONGITUDINAL JOINTS LF
SHOULDERS	80	170	430			
MAINLINE	155	680	1,900			5466
CULVERT PIPES				40		
SIDE ROAD			20			
SNOWMOBILE CROSSING			10			
TEMPORARY ROAD					230	
TOTAL	235	850	2,360	40	230	5466

BASE AGG DENSE
CATEGORY 10

LOCATION	305.0110 BASE AGGREGATE DENSE 3/4 INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4 INCH TON	209.0100 BACKFILL GRANULAR CY
PIPE # 26-182-041		120	
MAINLINE	350	7,600	
SIDE ROADS		40	
PE'S AND CE'S	20.0		
UNDISTRIBUTE	130	240	1,000
TOTAL	500	8,000	1,000

TRAFFIC CONTROL
CATEGORY 10

LOCATION	643.0100 TRAFFIC CONTROL EACH	643.0300 TRAFFIC CONTROL DRUMS DAYS	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAYS	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAYS	643.0900 TRAFFIC CONTROL SIGNS DAYS	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	633.1100 DELINEATORS TEMPORARY EACH	661.0100 TEMPORARY TRAFFIC SIGNALS FOR BRIDGES LS
PROJECT	1	2300	90	1200	1,500	600	1000	50	1
TOTAL	1	2,300	90	1200	1,500	600	1000	50	1

3

RUMBLE STRIPS
CATEGORY 10

STATION	465.0475 ASPHALT CENTER LINE RUMBLE STRIPS LF
25+60 BR – 44+60 BR	1775
TOTAL	1775

GUARD RAIL
CATEGORY 10

STATION	204.0165 REMOVING GUARDRAIL	614.2300 MSG GUARDRAIL 3 LF	614.2500 MSG THRIE BEAM TRANSITION LF	614.2610 MSG GUARDRAIL TERMINAL EAT EACH
32+46 BR RT	114	50	39.5	1
32+96 BR LT	108	12.5	39.5	1
34+86 BR RT	108	12.5	39.5	1
34+86 BR LT	116	50	39.5	1
TOTAL	446	125	158	4

WATER
CATEGORY 10

STATION	624.0100 WATER MGAL
25+60 BR – 44+60 BR	10
TOTAL	10

3

EROSION CONTROL
CATEGORY 10

STATION – LOCATION	625.0100 TOPSOIL SY	627.0200 MULCHING SY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2006 EROSION MAT URBAN CLASS I TYPE A SY	628.5505 POLYETHYLENE SHEETING SY	628.6005 TURBIDITY BARRIER SY	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH	628.7570 ROCK BAGS EACH	629.0210 FERTILIZER TYPE B CWT	630.0150 SEEDING MIXTURE No. 30 LB
25+60 BR–44+60 BR PROJECT	7,000	3,500	2000	1000	2,000	225	180	40	3	84	5	200
TOTAL	7000	3500	2000	1000	2,000	225	180	40	3	84	5	200

CONSTRUCTION STAKING
CATEGORY 10

STATION	650.4500 CONSTUCTION STAKING SUBGRADE LF	650.5000 CONSTUCTION STAKING BASE EACH	650.6000 CONSTUCTION STAKING PIPE CULVERTS EACH	650.6500 CONSTUCTION STAKING STRUCTURE LAYOUT LS	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL LS	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
25+60 BR – 44+60 BR	1800	1800			1	1800
43+75 BR			1			
B–26–39				1		
TOTAL	1800	1800	1	1	1	1800

3

PERMANENT SIGNING
CATEGORY 10

STATION	LOCATION	SIGN NUMBER	SIGN CODE	SIZE	634.0612 POSTS WOOD 4x6-INCH x 12-FT **EACH**	637.0202 SIGNS REFLECTIVE TYPE II **SF**	638.2602 REMOVING SIGNS TYPE II **EACH**	638.3000 REMOVING SMALL SIGN SUPPORTS **EACH**	DESCRIPTION	COMMENTS
CATEGORY 0020										
34+00 BR	STH 182		1 W5-52L	12x36	1	3	1	1	WARNING SIGN	BRIDGE HASH MARKS
34+00 BR	STH182		2 W5-52R	12x36	1	3	1	1	WARNING SIGN	BRIDGE HASH MARKS
35+00 BR	STH182		3 W5-52R	12x36	1	3	1	1	WARNING SIGN	BRIDGE HASH MARKS
35+00 BR	STH182		4 W5-52L	12x36	1	3	1	1	WARNING SIGN	BRIDGE HASH MARKS
				TOTAL	4	12	4	4		

SAWING ASPHALT
CATEGORY 10

STATION	690.0150 SAWING ASPHALT **LF**
25+60 BR	24
31+75BR - 34+25BR	250
34+75BR - 36+50BR	175
44+60BR	24
TOTAL	473

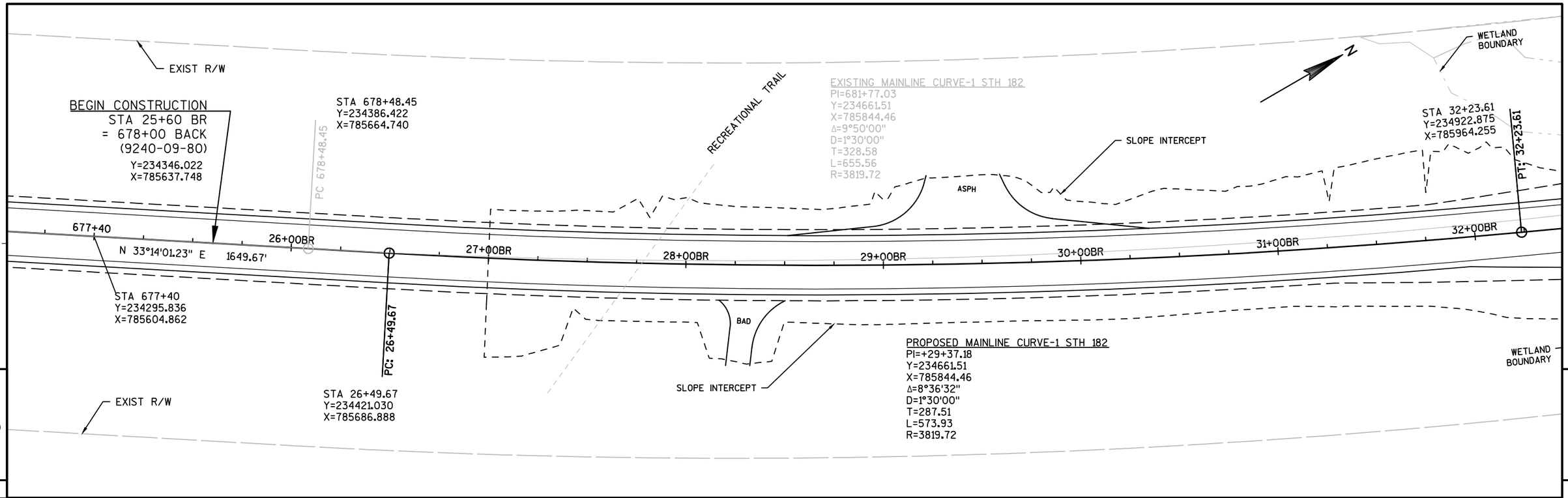
3

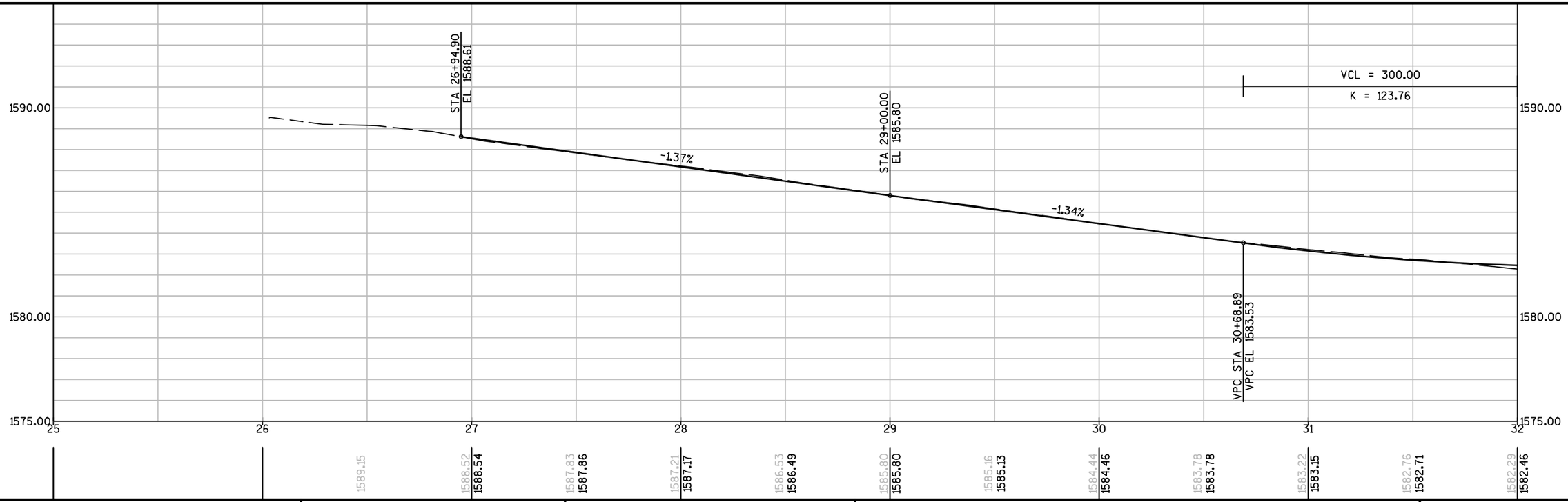
PAVEMENT MARKING
CATEGORY 10

STATION			LOCATION	646.011 PAVEMENT MARKING EPOXY 4-INCH **LF**	646.0600 REMOVING PAVEMENT MARKINGS **LF**	649.0100 TEMPORARY PAVEMENT MARKING 4 INCH **LF**	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4 INCH **LF**	649.1400 TEMPORARY PAVEMENT MARKING STOP LINE REMOVABLE TAPE 24 INCH **LF**
25+60 BR	-	44+60 BR	CENTERLINE YELLOW	3,800		3800	2,300	
25+60 BR	-	44+60 BR	EDGE LINES WHITE	3,800	400			
			32+00 BR					12
			37+00 BR					12
25+60 BR	-	44+60 BR	CENTERLINE TABS					
			TOTAL	7,600	400	3800	2,300	24

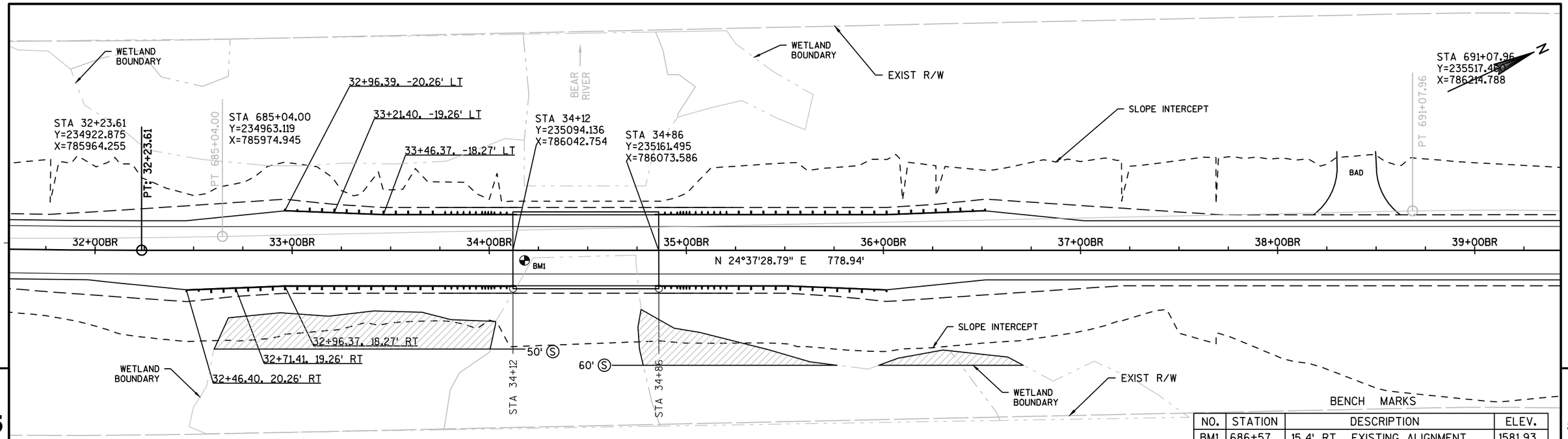
Division	From/To Station	Location	Common Excavation (1)	(item # 205.0100)	Salvaged/Unusable Pavement Material (4)	Available Material (5)	Unexpanded Fill	Expanded Fill (13)	Mass Ordinate +/- (14)	Waste	Borrow	Comment:
			Cut (2)	EBS Excavation (3)				Factor				
Division 1								1.25			(item #208.0100)	
Bear River Bridge	25+60 / 44+60		4,224	0	0	4,224	2,498	3,122	1,102	1,102	0	
Division 1 Subtotal			4,224	0	0	4,224	2,498	3,122	1,102	1,102	0	
Grand Total			4,224.49	0.00	0.00	4,224.49	2,497.86	3,122.32	1,102.17	1,102.17	0.00	
		Total Common Exc		4,224.49								

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Select Borrow material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusuable Pavement Material
6) Marsh Excavation - to be backfilled with Select Borrow Material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well. Item number 20505
7) Rock Excavation item number 205.0200
8) Reduced Marsh in Fill - Excavated Marsh material is usuable in Fills outside the 1:1 slope. Marsh in Fill Reduction factor = 0.6
9) Reduced EBS in Fill - Excavated EBS material is usuable in Fills outside the 1:1 slope. EBS in Fill Reduction factor = 0.8
10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item number 208.1100
11) Expanded EBS Backfill - This is to be filled with Select Borrow material. EBS Backfill Factor = 1.3. Item number 208.1100
12) Expanded Rock - Factor = 1.1
13) Expanded Fill. Factor = 1.25
Depending on selections: **Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh - Reduced EBS) * Fill Factor**
Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced EBS) * Fill Factor
Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh) * Fill Factor
Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor) * Fill Factor
14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.
15) Use 111,764 CY of material from Division 1. Borrow Excavation item number 208.0100

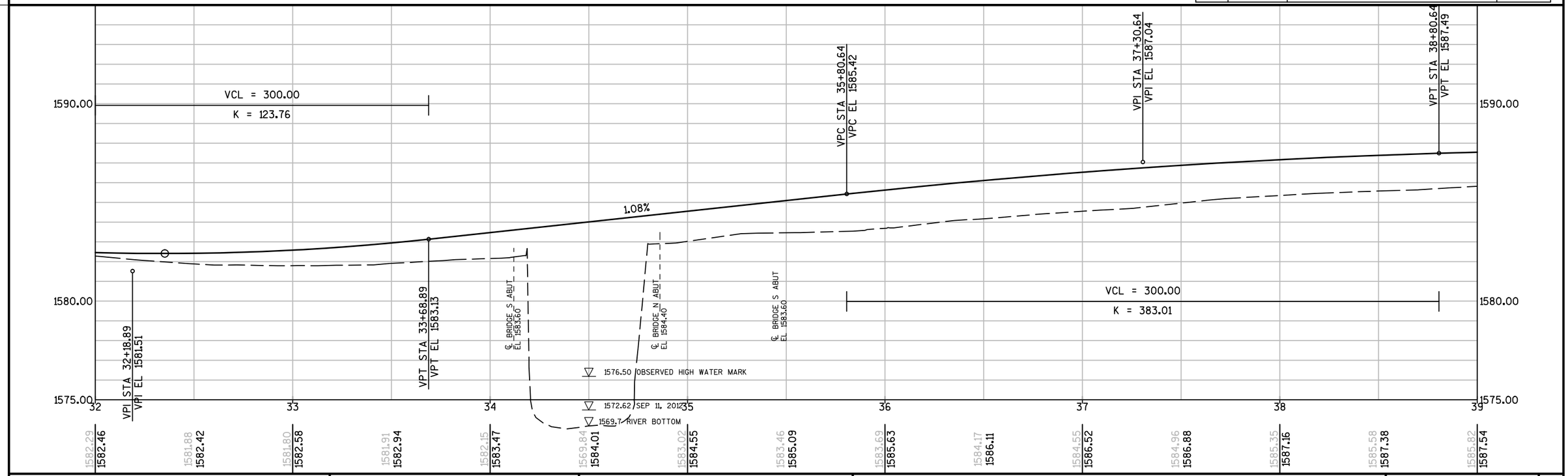




PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	PLAN AND PROFILE: B-26-39 BEAR RIVER BRIDGE	SHEET 18	E



NO.	STATION	DESCRIPTION	ELEV.
BM1	686+57	15.4' RT EXISTING ALIGNMENT	1581.93
		WISDOT BRASS DISK	



PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	PLAN AND PROFILE: B-26-39 BEAR RIVER BRIDGE	SHEET 19	E

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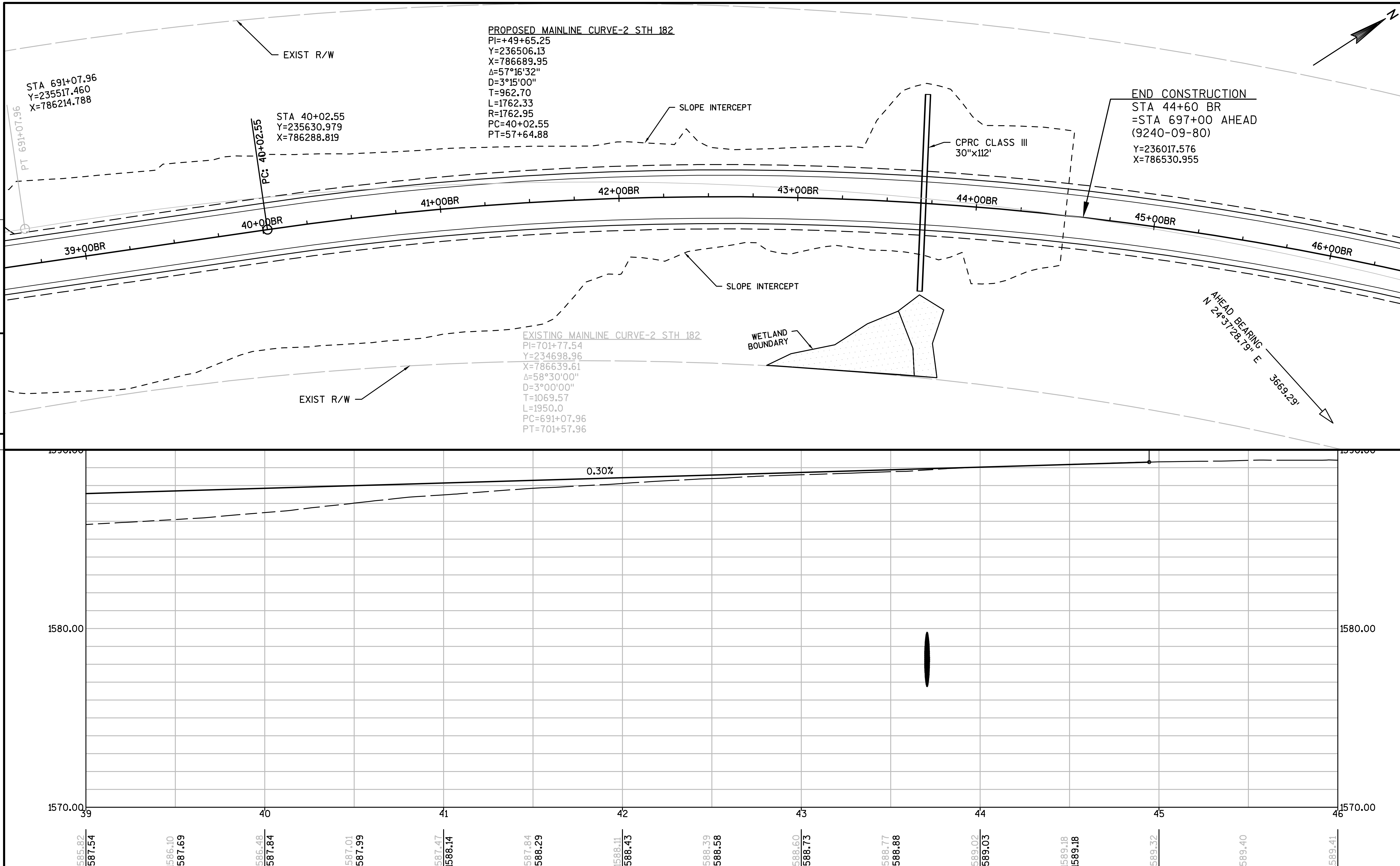
WISDOT/CADDS SHEET 44

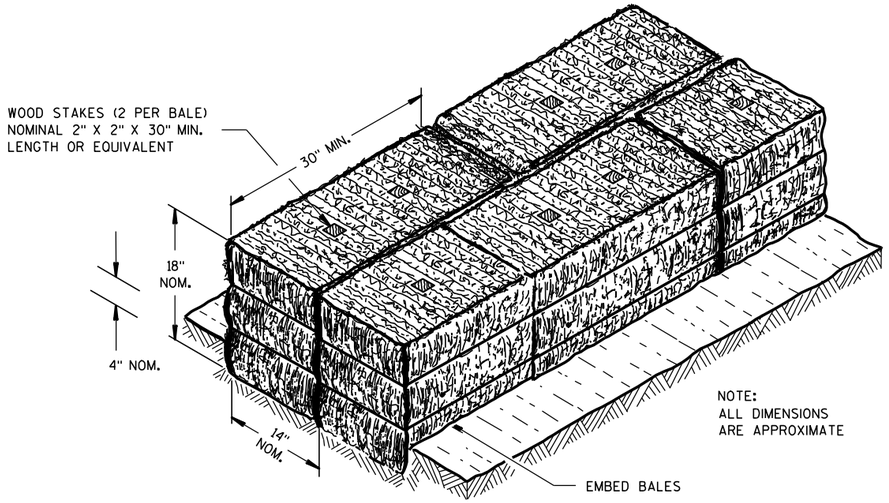


PROJECT NO:9240-09-70	HWY:STH 182	COUNTY:IRON	PLAN AND PROFILE: B-26-39 BEAR RIVER BRIDGE	SHEET 20	E

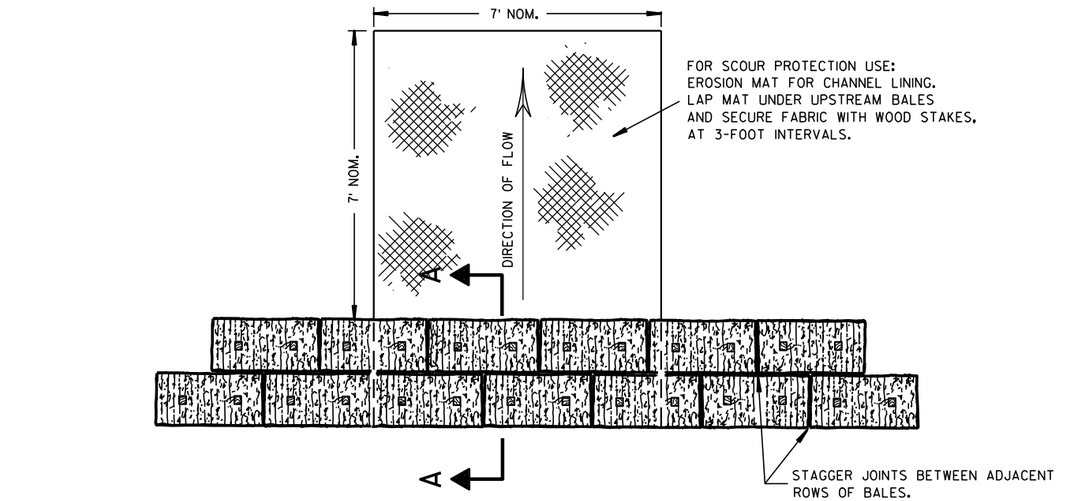
FILE NAME : N:\PDS\C3D\92400900\SHEETSPLAN\050101_PP.DWG PLOT DATE : 2/4/2015 4:36 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:50 FT

Standard Detail Drawing List

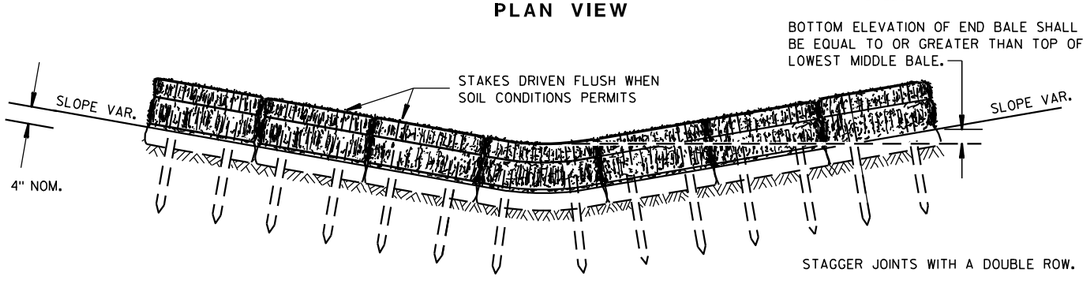
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09A01-13A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A01-13B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
09G02-03A	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-03B	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-03C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
12A03-10	NAME PLATE (STRUCTURES)
13A11-02A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-02B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B07-14A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B29-01	SAFETY EDGE
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B43-03A	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-03B	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-03C	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
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)
14B45-03A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A02-08	DELINEATOR POST, DELINEATOR, AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C04-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15C19-02A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-01	STOP LINE AND CROSSWALK PAVEMENT MARKING
16A01-06	LANDMARK REFERENCE MONUMENTS AND COVERS



SECTION A-A



PLAN VIEW



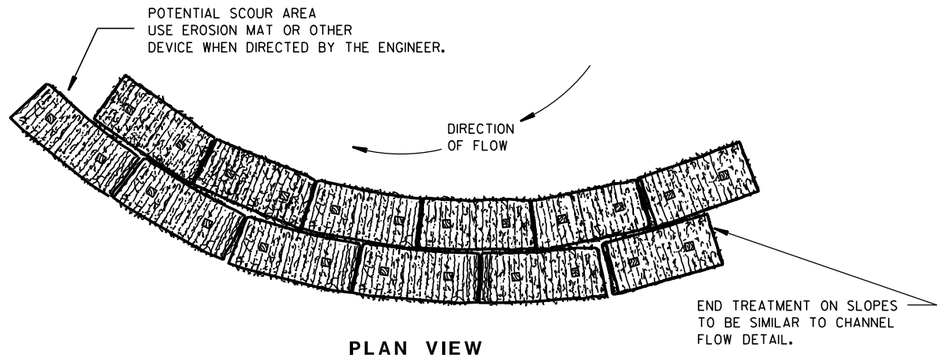
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

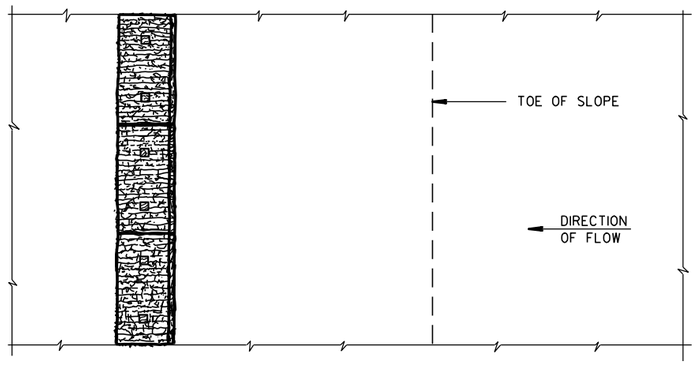
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

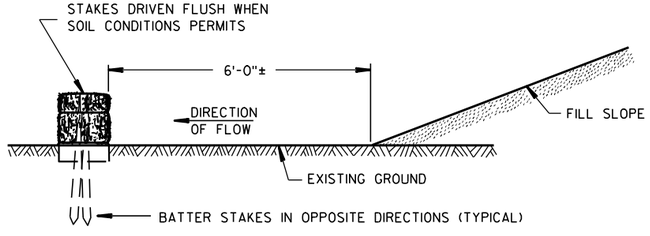


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

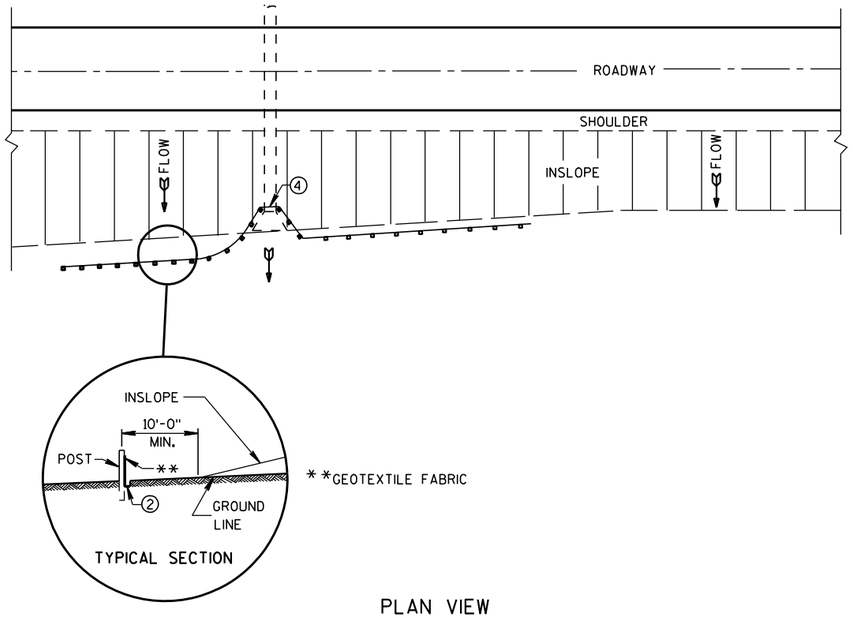
APPROVED
6/04/02 — DATE
/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 8-3

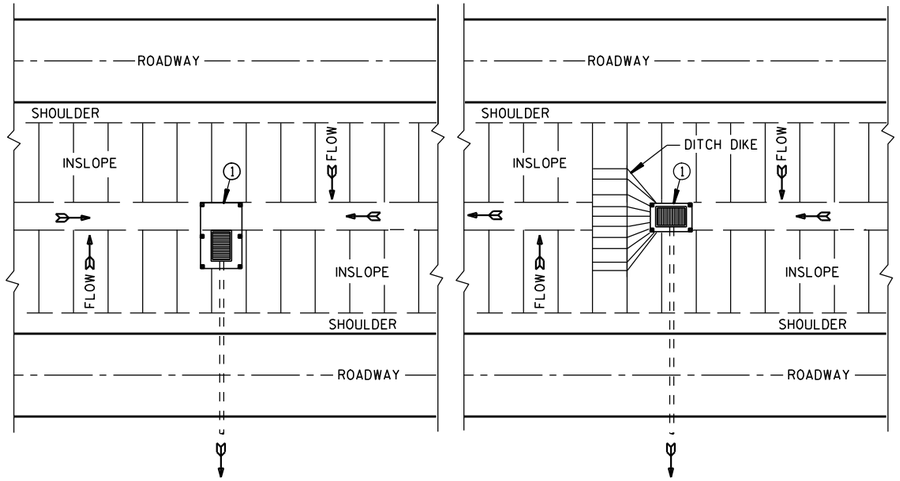
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



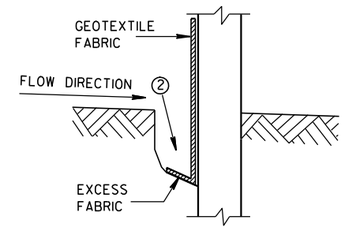
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

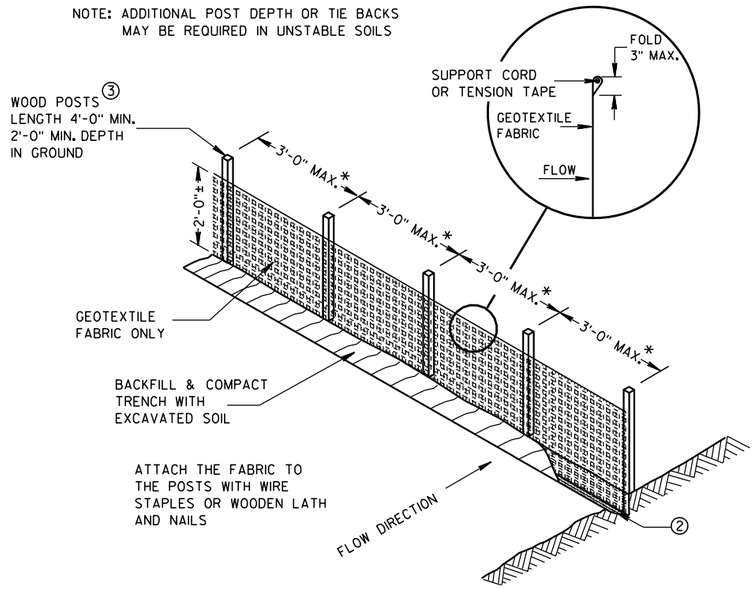
GENERAL NOTES

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

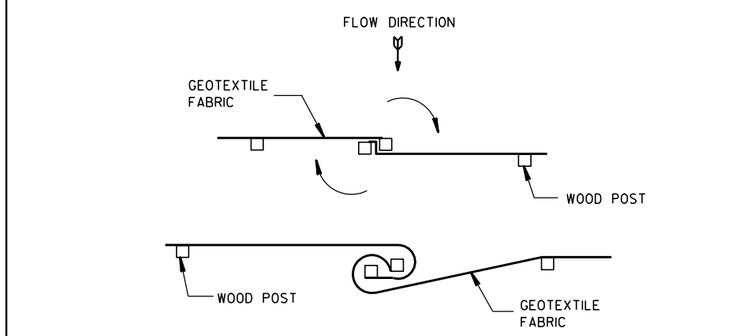
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



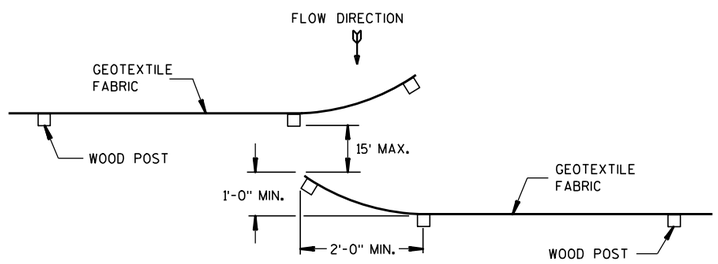
TRENCH DETAIL



SILT FENCE

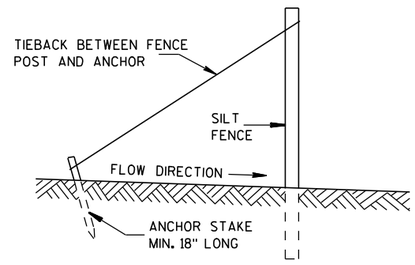


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

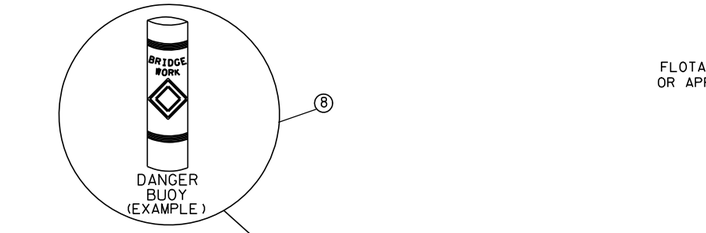
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

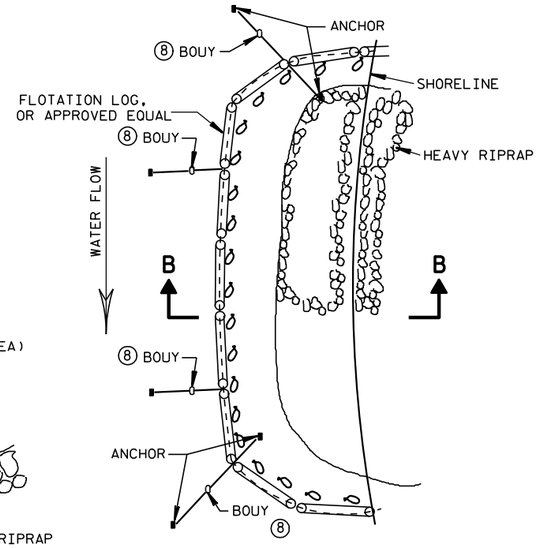
S.D.D. 8 E 9-6

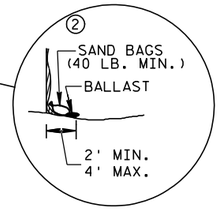
6

S.D.D. 8 E 9-6

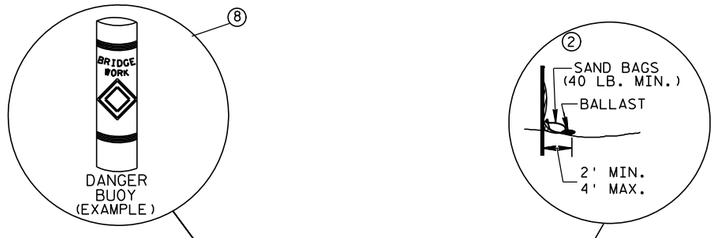


SECTION B-B

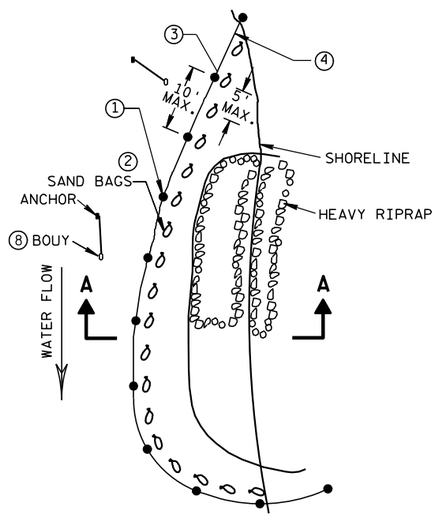




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.

② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.

③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.

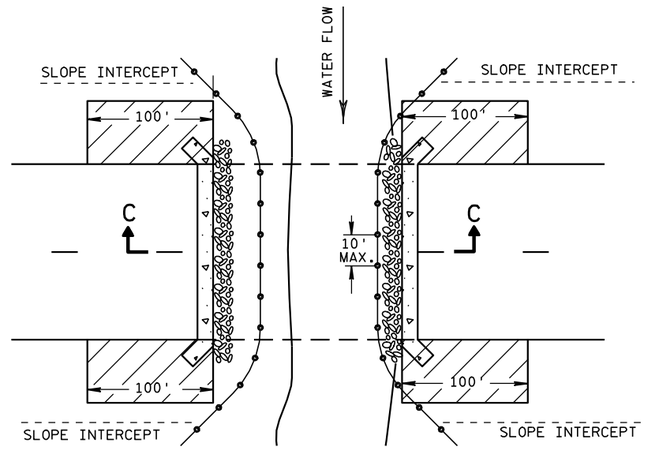
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

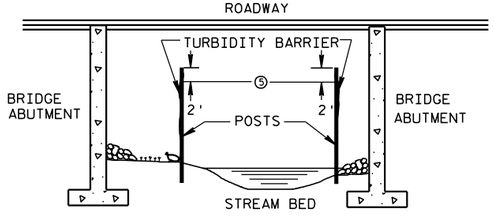
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.

⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
6/04/02 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

6

S.D.D. 8 E 11-2

METAL APRON ENDWALLS

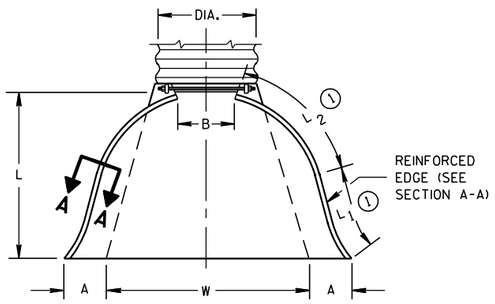
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

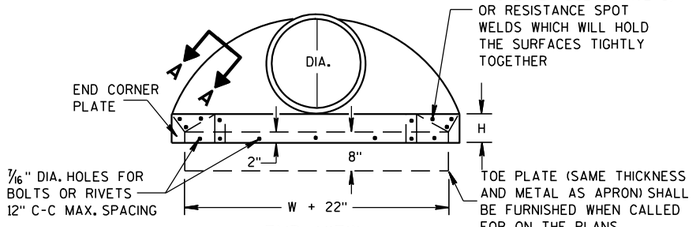
REINFORCED CONCRETE APRON ENDWALLS

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

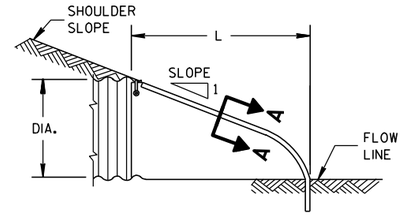
*MINIMUM
**MAXIMUM



PLAN VIEW

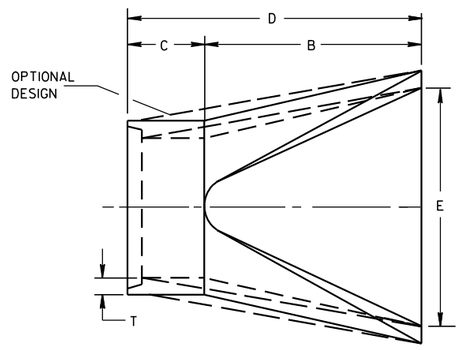


END VIEW

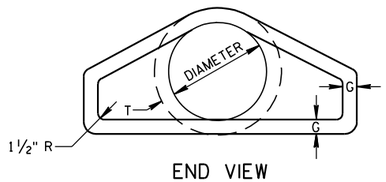


SIDE ELEVATION

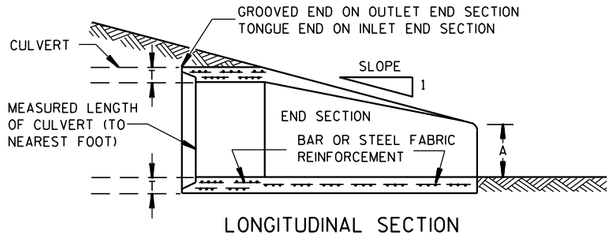
METAL ENDWALLS



PLAN

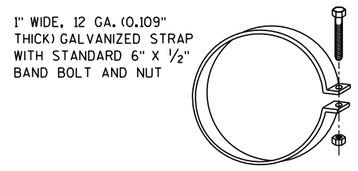


END VIEW



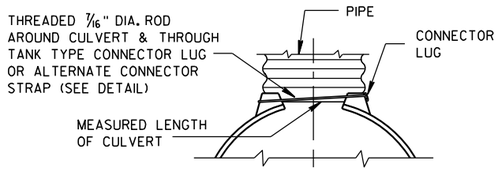
LONGITUDINAL SECTION

CONCRETE ENDWALLS

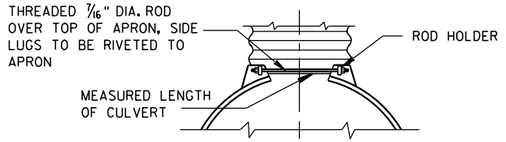


ALTERNATE FOR TYPE 1 CONNECTION

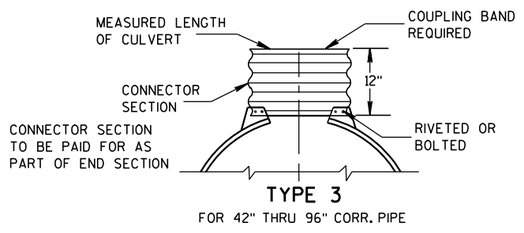
END SECTION CONNECTOR STRAP



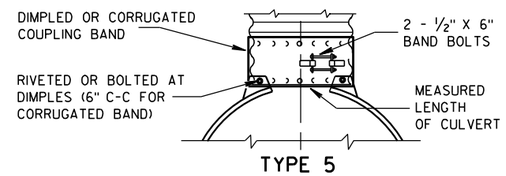
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

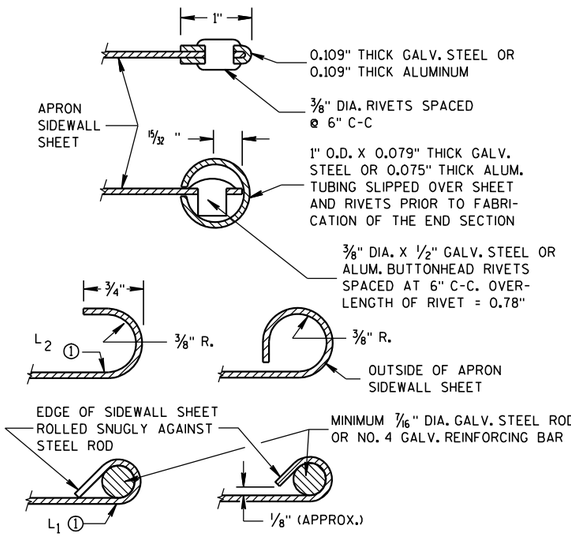
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

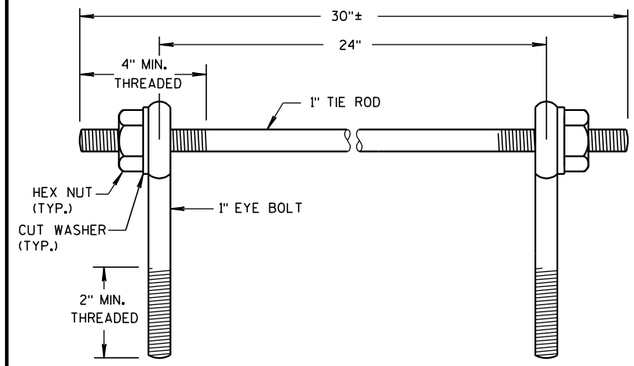
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

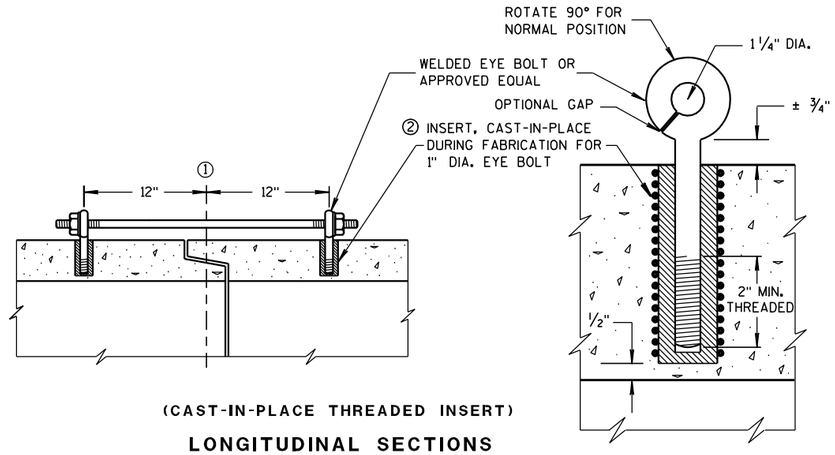
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

GENERAL NOTES

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

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

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

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

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

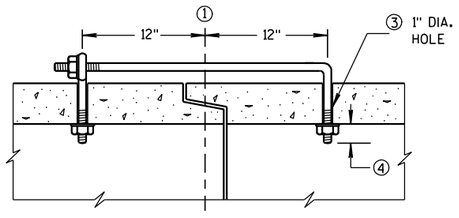
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

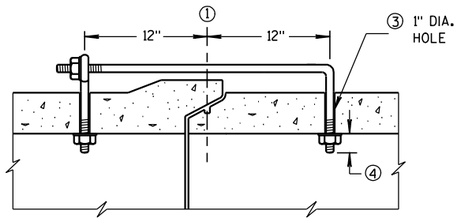
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

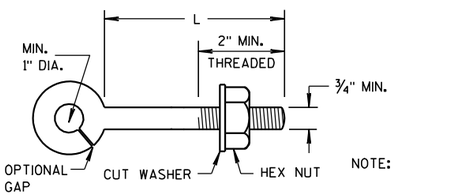


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

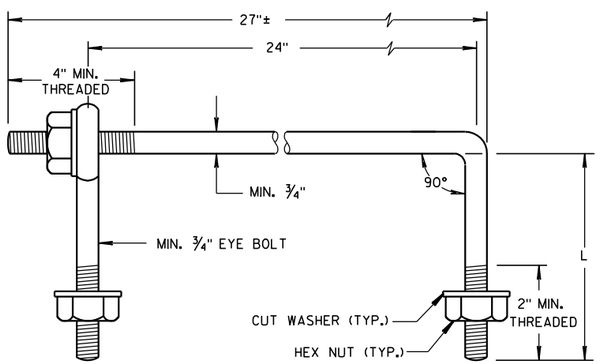
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

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



EYE BOLT AND TIE ROD

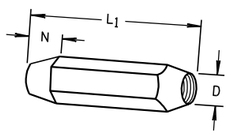
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

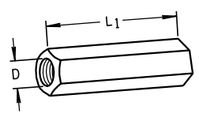
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 7/16

DIMENSIONS SHOWN ARE IN INCHES



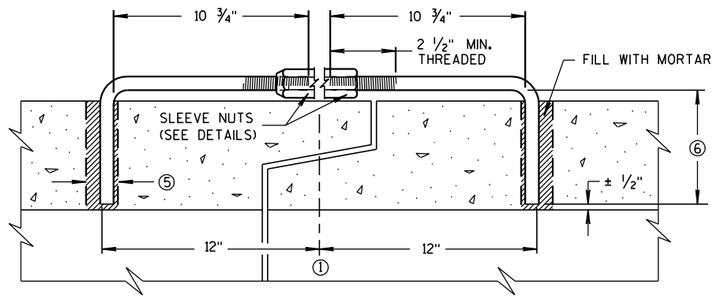
TAPERED



PLAIN

RIGHT AND LEFT THREADS

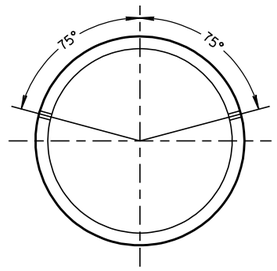
SLEEVE NUTS



LONGITUDINAL SECTION

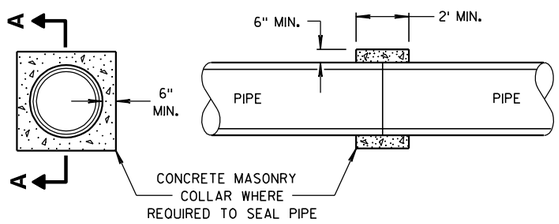
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 8 F 4-7

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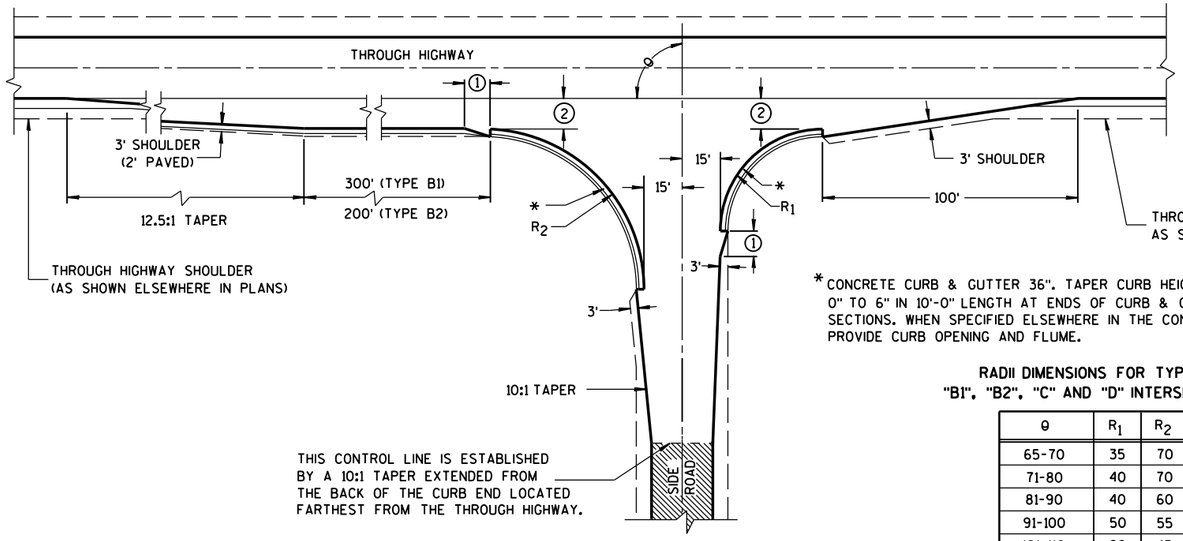
S.D.D. 8 F 4-7

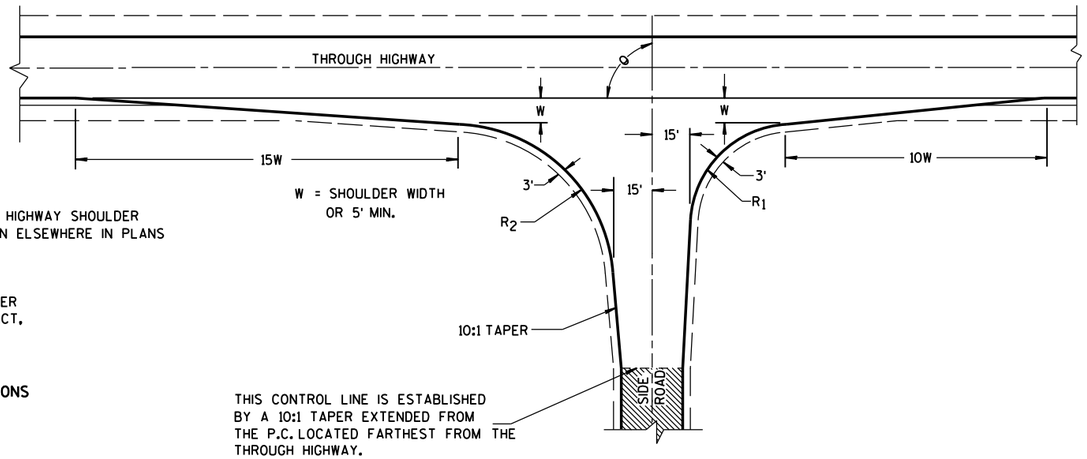


TYPE "B1" AND "B2"

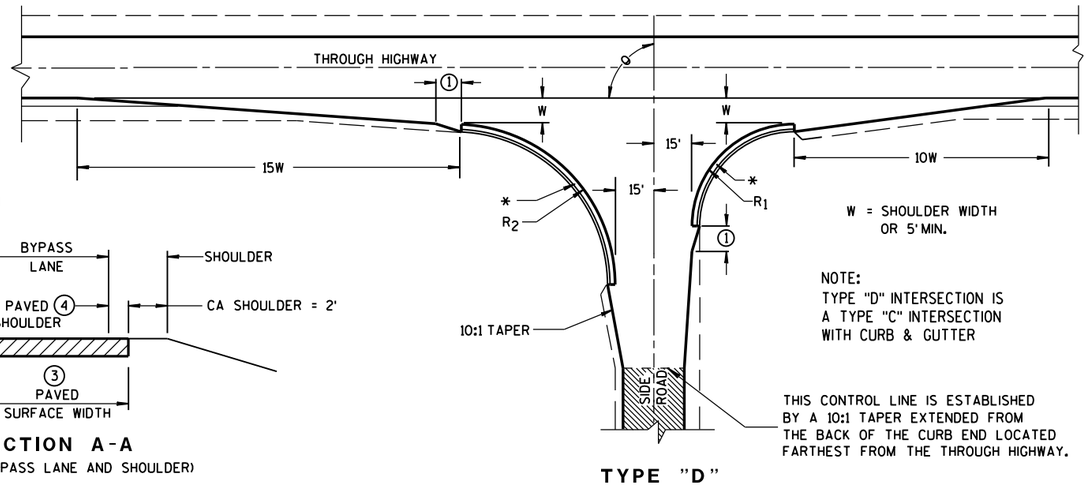
*CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

RADII DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

θ	R_1	R_2
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45



TYPE "C"



TYPE "D"

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING PAVED SURFACE

BYPASS LANE

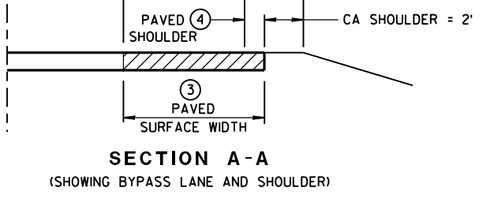
(1) 10-FT TYPICAL.

(2) 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.

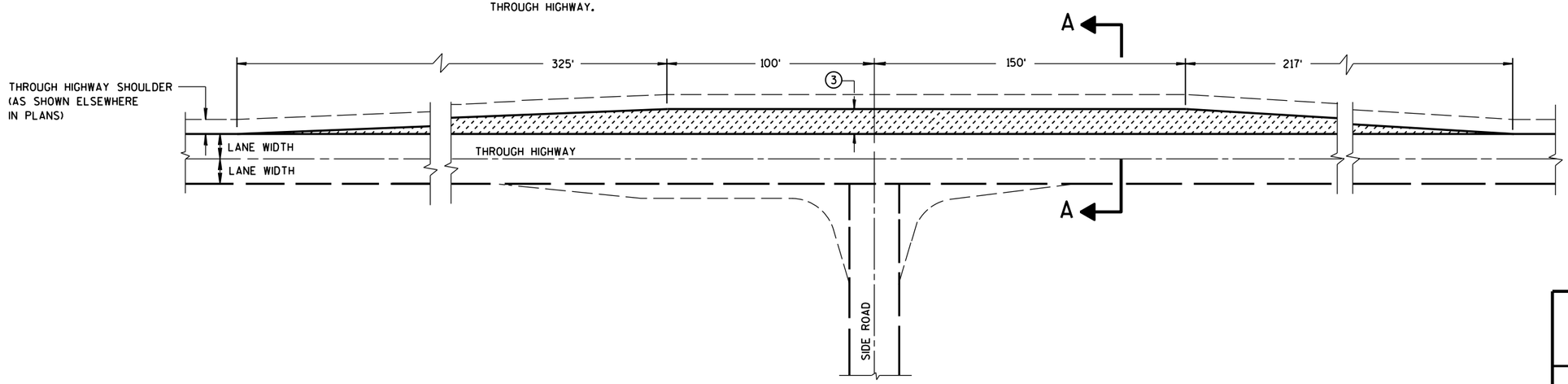
**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.

(3) BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.

(4) BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



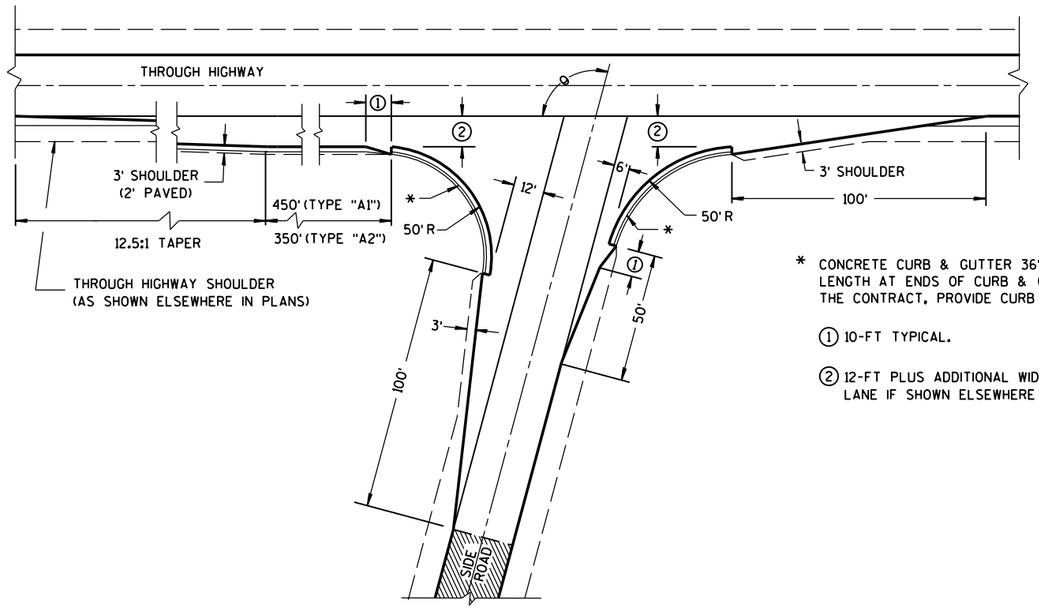
TEE INTERSECTION BYPASS LANE DETAIL

AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND "D" AND TEE INTERSECTION BYPASS LANE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 9 A 1-13a



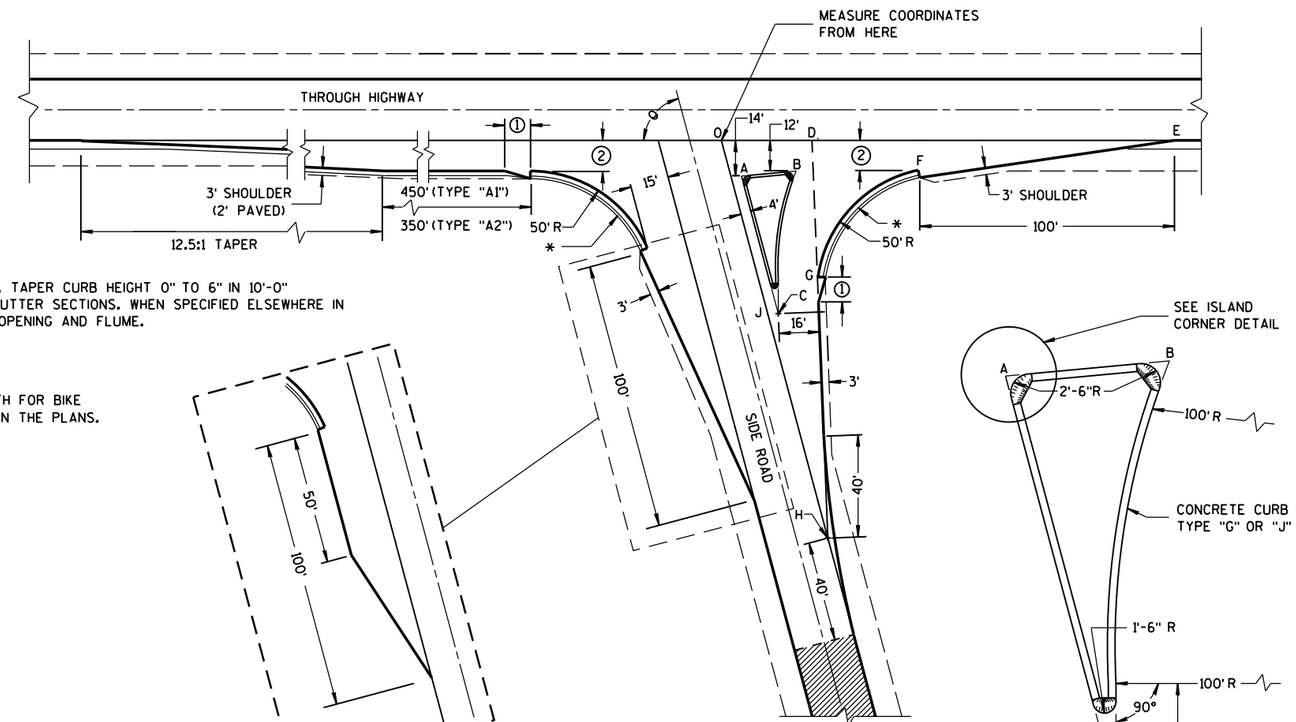
θ = MORE THAN 80°

* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

① 10-FT TYPICAL.

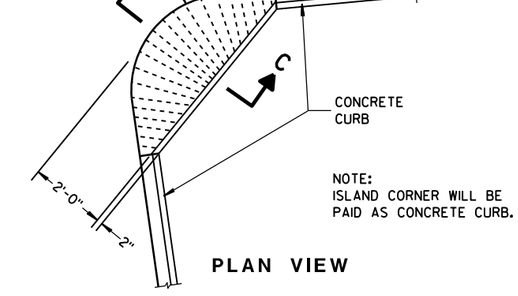
② 12-FT PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLANS.

EXISTING PAVED SURFACE

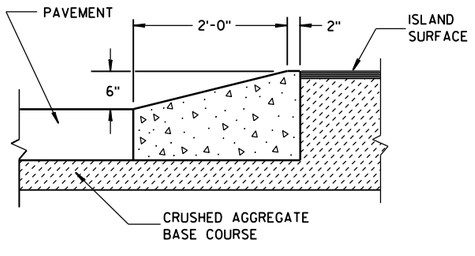


θ = ACUTE ANGLES 80° OR LESS

SIDE ROAD WIDENING AND TAPER REQUIRED WHERE THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
θ = ACUTE ANGLES 70° OR LESS



PLAN VIEW



SECTION C-C

ISLAND CORNER DETAIL

(TO BE CONSTRUCTED AT ALL ISLAND CORNERS)

TABLE OF DIMENSIONS FOR VARIABLE SIDE ROAD INTERSECTION ANGLES

(INTERPOLATE VALUES FOR ANGLES NOT SHOWN)

ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT "O") X / Y								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7 / -14.0	44.9 / -12.0	46.4 / -72.4	41.9 / 0.0	205.0 / 0.0	104.6 / -12.0	64.0 / -75.5	85.0 / -147.1	32.3	67.4	4.9	85.9	169.9
65	10.9 / -14.0	39.0 / -12.0	37.8 / -71.6	39.4 / 0.0	196.1 / 0.0	95.7 / -12.0	54.1 / -71.5	70.5 / -151.3	28.2	63.6	8.5	80.9	166.9
70	9.4 / -14.0	33.9 / -12.0	29.8 / -70.1	37.4 / 0.0	188.3 / 0.0	87.8 / -12.0	45.6 / -67.5	56.1 / -154.2	24.6	59.7	11.5	76.1	164.1
75	7.9 / -14.0	29.3 / -12.0	22.3 / -67.9	35.7 / 0.0	181.2 / 0.0	80.7 / -12.0	38.2 / -63.4	41.8 / -155.9	21.5	55.8	13.8	71.4	161.4
80	6.5 / -14.0	25.4 / -12.0	15.6 / -65.2	34.4 / 0.0	174.8 / 0.0	74.4 / -12.0	31.8 / -59.3	27.6 / -156.5	18.9	52.0	15.6	66.9	158.9

TYPE "A1" & "A2" SIDE ROAD INTERSECTION DETAILS

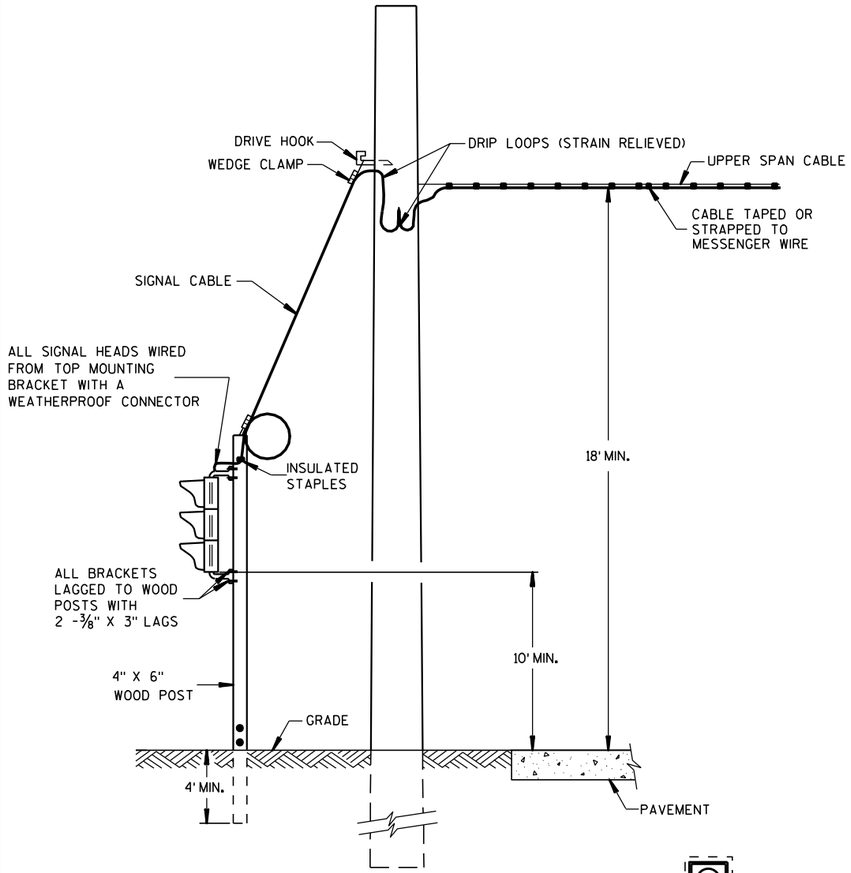
AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

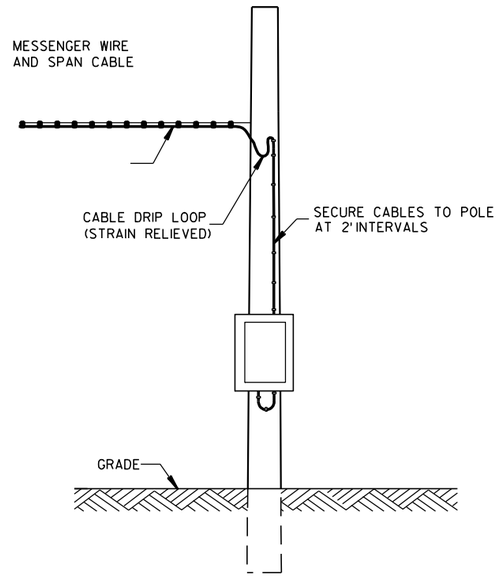
APPROVED
12/18/12 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

S.D.D. 9 A 1-13b

S.D.D. 9 A 1-13b



TYPICAL DROP TO TRAFFIC SIGNAL FACE



POLE MOUNT CABINET INSTALLATION

GENERAL NOTES

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

POLE MOUNTED TRAFFIC SIGNAL CONTROL CABINET MAYBE MOUNTED ON THE SERVICE POLE IF THE ELECTRICAL UTILITY ALLOWS THE INSTALLATION.

WHEN UTILITY PLOLES ARE USED TO SPAN THE TEMPORARY OVERHEAD CABLE, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER OF THE POLES AND GIVEN TO THE PROJECT MANAGER. ALL PERTINENT UTILITY AND CODE CLEARANCES SHALL BE MAINTAINED.

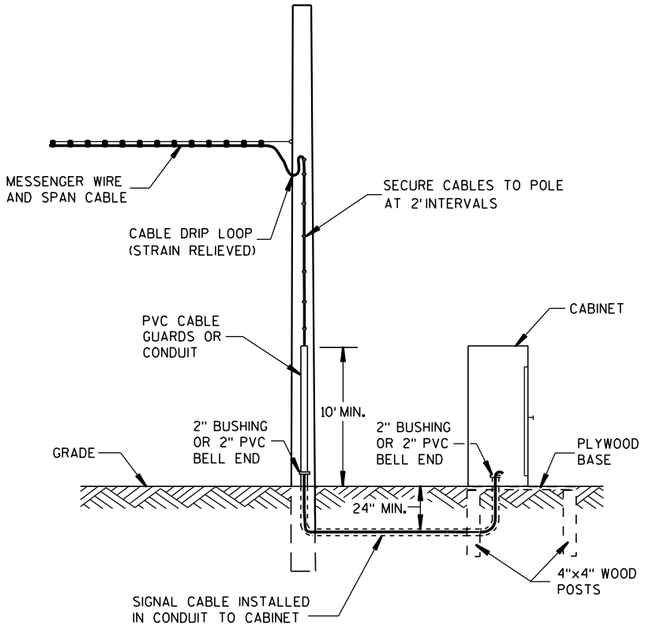
WOOD POLES (NONBREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAMGUARD, ETC.).

WOOD POSTS (BREAKAWAY) SHALL BE NO CLOSER THAN 2 FEET OUTSIDE OF SHOULDER.

VERTICAL CLEARANCE ETC. PER NEC.

TRAFFIC SIGNAL FACES SHALL BE TYPICALLY PLACED 12 FEET FROM EDGE OF PAVEMENT.

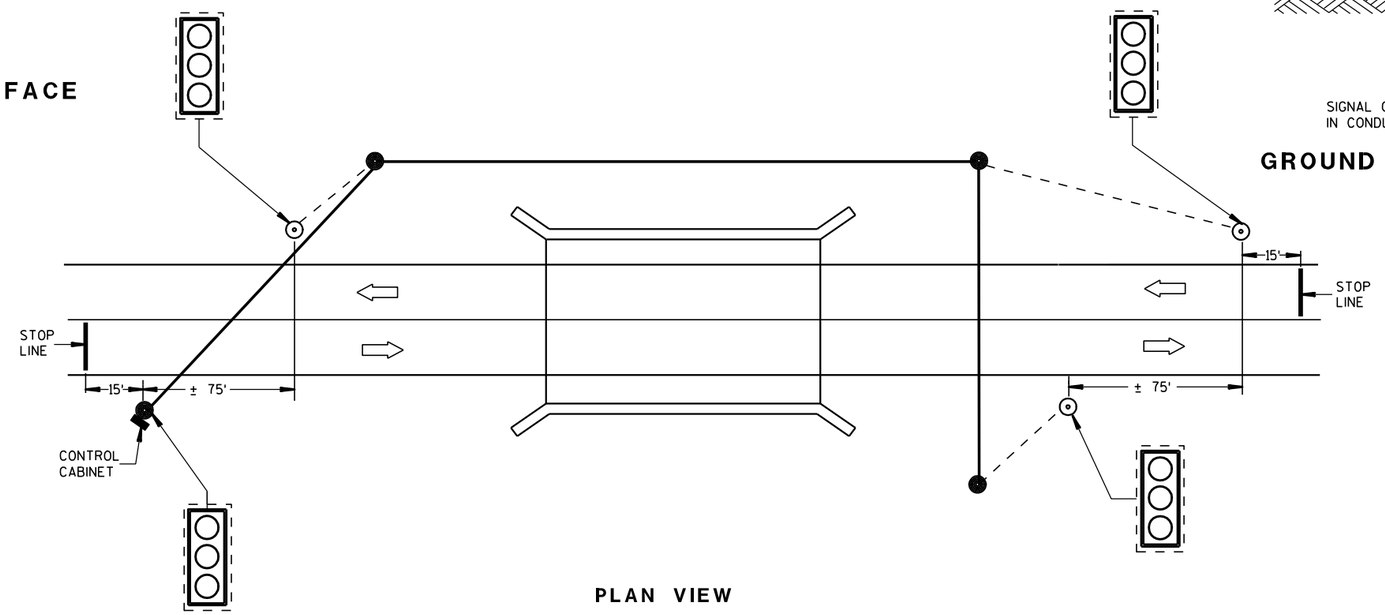
EACH TRAFFIC SIGNAL FACE SHALL HAVE A BACKPLATE.



GROUND MOUNT CABINET INSTALLATION

OFFSET DISTANCES FOR TEMPORARY NON-BREAKAWAY POLES	
SPEED LIMIT	OFFSET DISTANCE**
GREATER THAN 45 MPH	18 FT
45 MPH OR LESS	12 FT
45 MPH OR LESS W/ CURBS	2 FT

**NOTE: OFFSET MEASURED FROM OUTER EDGE OF OUTSIDE THRU LANE.



PLAN VIEW

TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION

LEGEND

- WOOD POLE (NONBREAKAWAY)
- WOOD POST (BREAKAWAY)
- SIGNAL CABLE
- SIGNAL CABLE W/MESSENGER
- LED TRAFFIC SIGNAL FACE WITH BACKPLATE (3-12")
- DIRECTION OF TRAFFIC

MINIMUM POLE LENGHTS	CLASS	MINIMUM BURIAL DEPTHS
25 FEET	V	5 FEET
30 FEET	V	6 FEET
35 FEET	IV	7 FEET
40 FEET	IV	8 FEET
45 FEET	IV	9 FEET

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 DATE — /S/ Thomas J. Gosling STATE ELECTRICAL ENGI — HWYS

FHWA

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S.D.D. 9 G 2-3a

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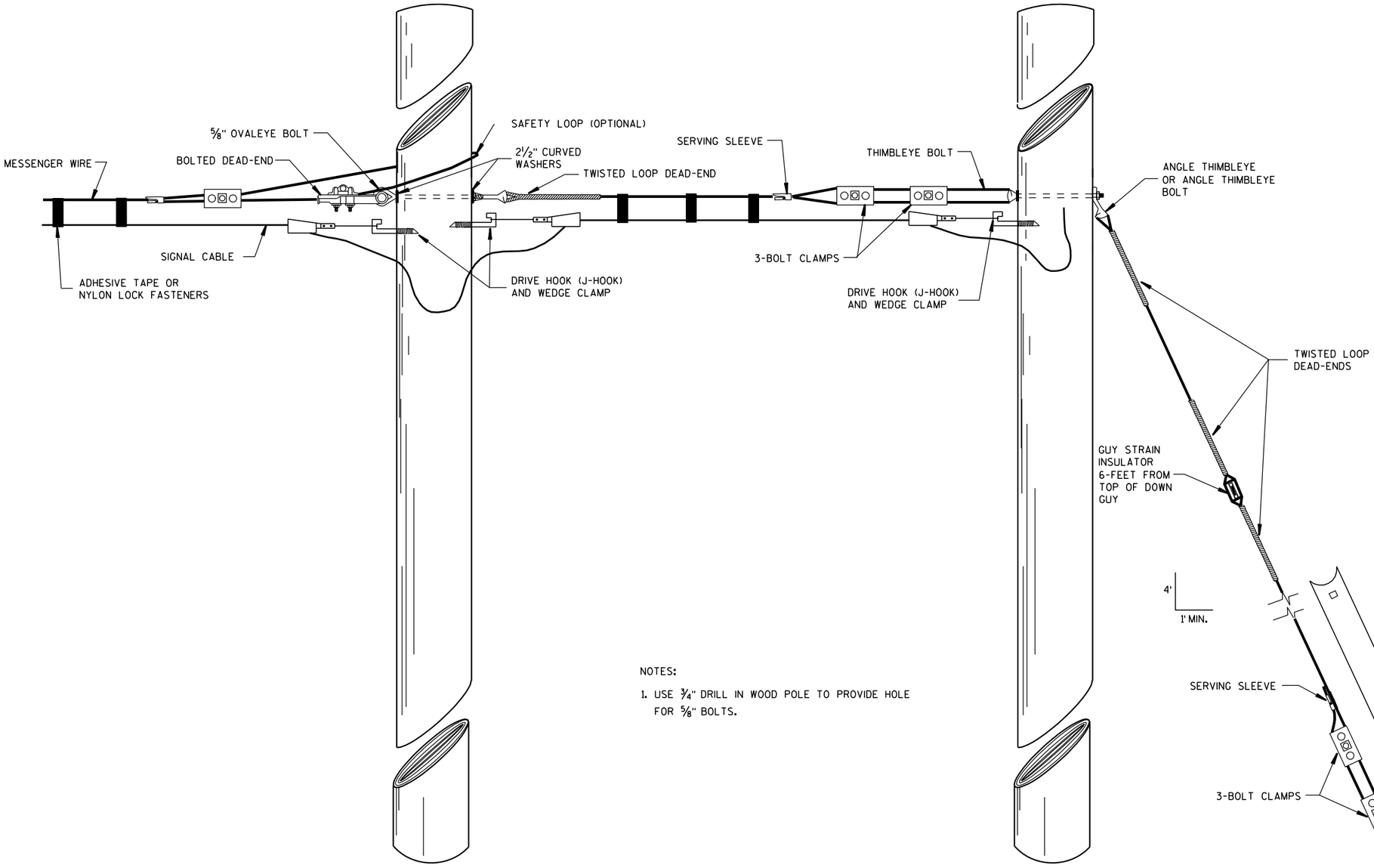
S.D.D. 9 G 2-3a



SPAN WIRE POLE

GUY POLE

NOTES:

1. USE 3/4" DRILL IN WOOD POLE TO PROVIDE HOLE FOR 5/8" BOLTS.

TYPICAL DEAD-ENDINGS OR GUYING

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 DATE

/S/ Thomas J. G[illegible] STATE ELECTRICAL ENGI

HWYS

FHWA

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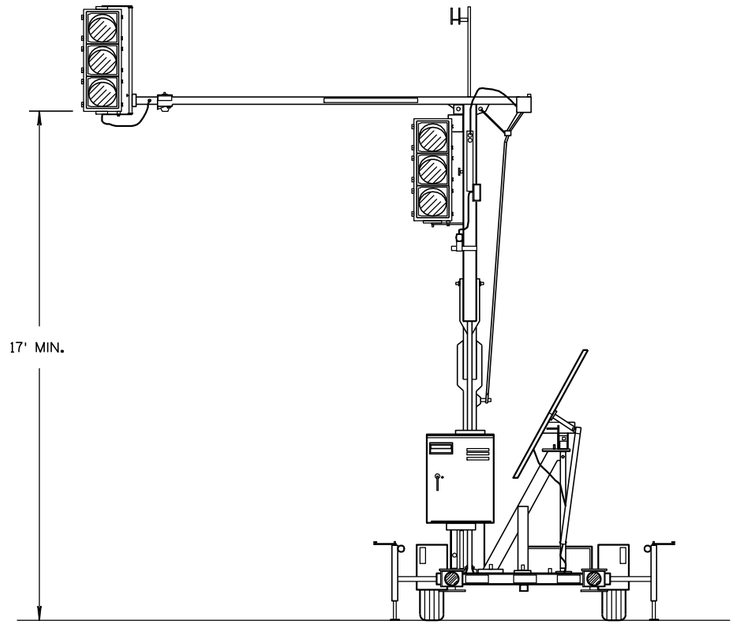
S.D.D. 9 G 2-3b

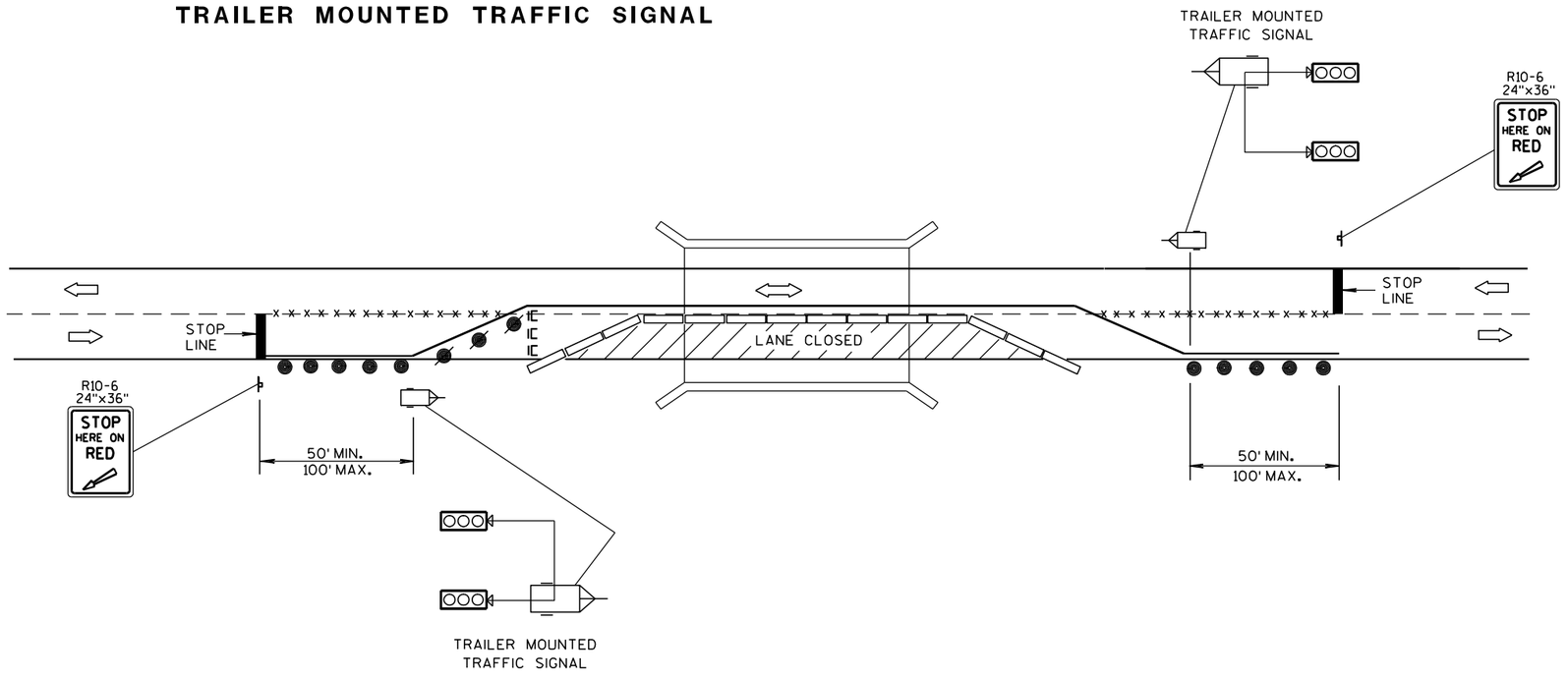


TRAILER MOUNTED TRAFFIC SIGNAL

GENERAL NOTES

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

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15 D 33.



TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION

LEGEND

- POST MOUNTED SIGN
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH SIGN
- DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- TEMPORARY PRECAST CONCRETE BARRIER
- TRAILER MOUNTED TRAFFIC SIGNAL
- DIRECTION OF TRAFFIC FLOW

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 — DATE

/S/ Thomas J. Gosling — STATE ELECTRICAL ENGI

FHWA

HWYS

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S.D.D. 9 G 2-3c

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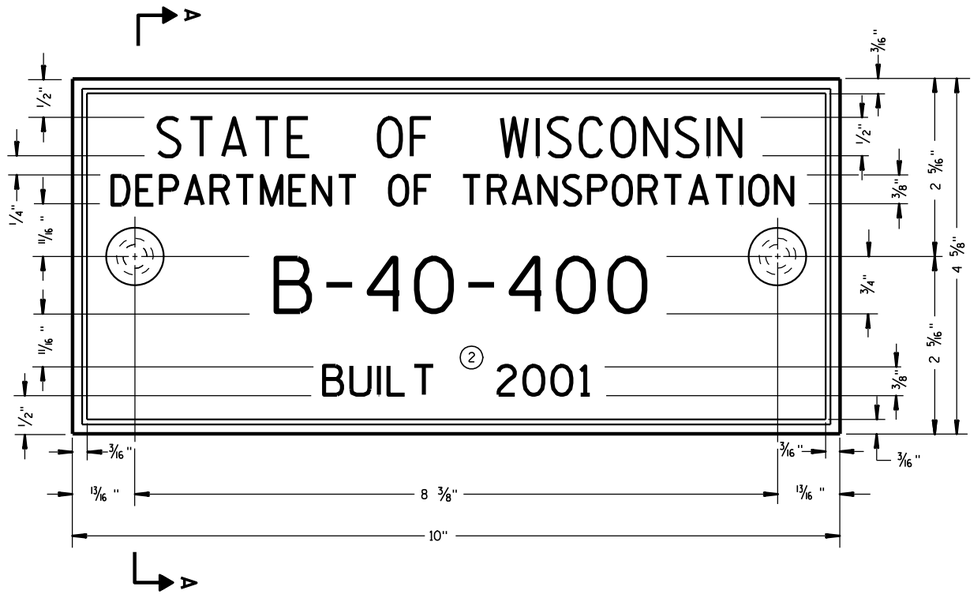
S.D.D. 9 G 2-3c



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)

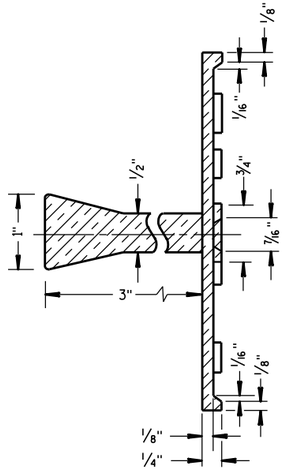
GENERAL NOTES

NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

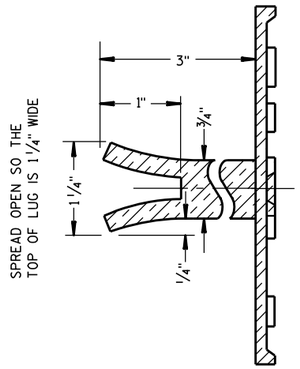
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

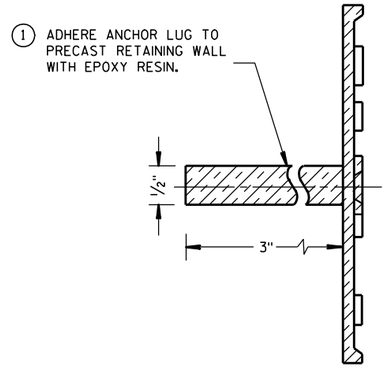
COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION MULTI-UNIT STRUCTURES



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

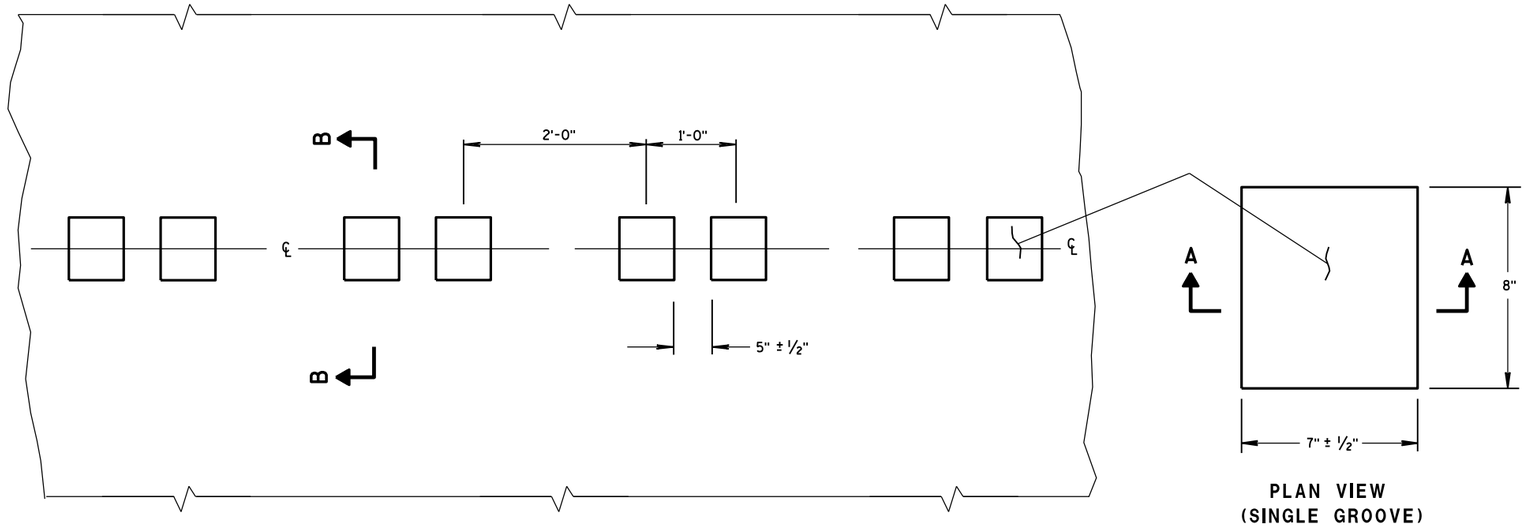
3/26/10 DATE

/S/ Scot Beck-- CHIEF STRUCTURAL DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 12 A 3-10



PLAN VIEW
CENTER LINE WITH GROOVES

PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

GENERAL NOTES

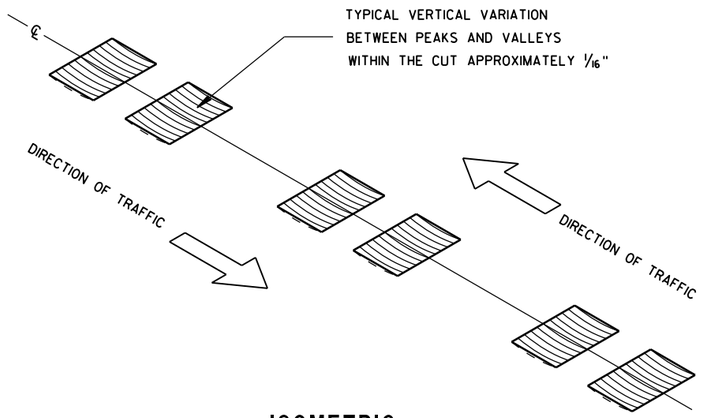
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

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



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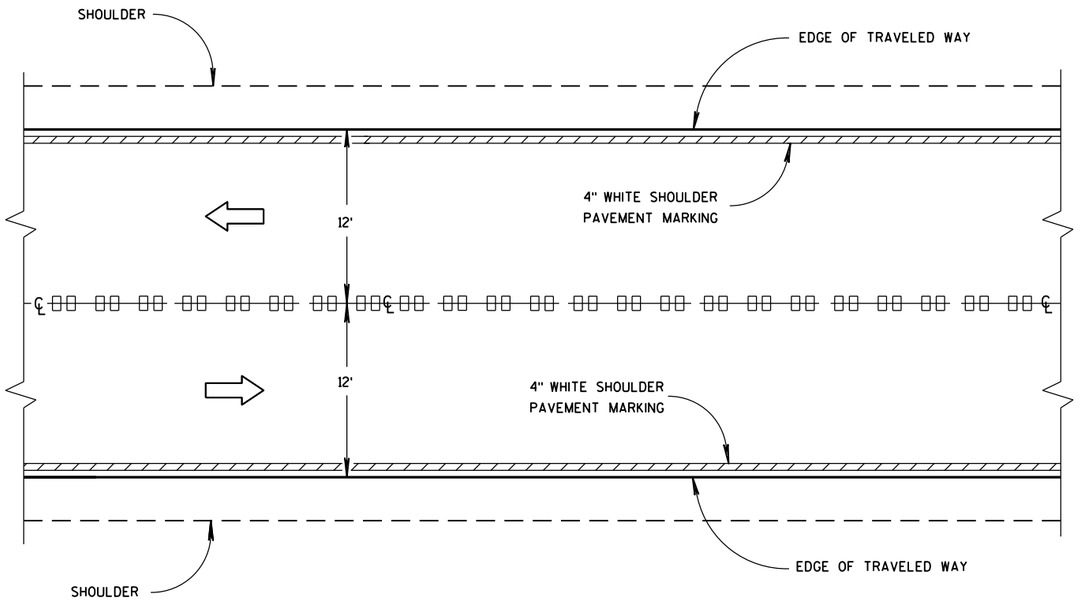
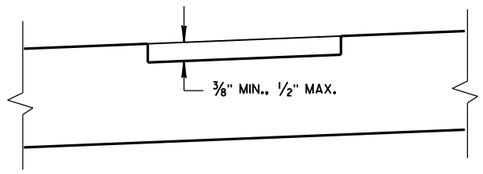
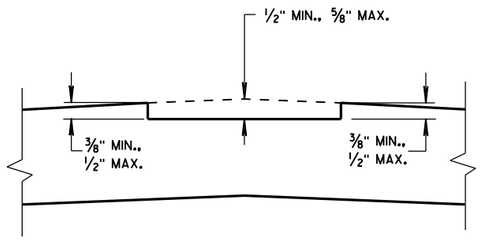


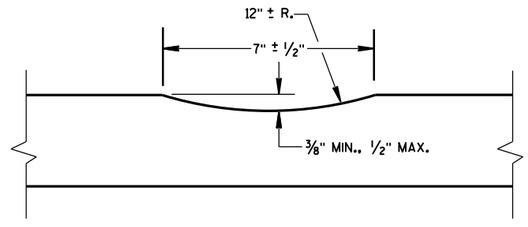
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



SECTION B-B
SUPERELEVATED ROADWAY



SECTION B-B
CROWNED ROADWAY



SECTION A-A

2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

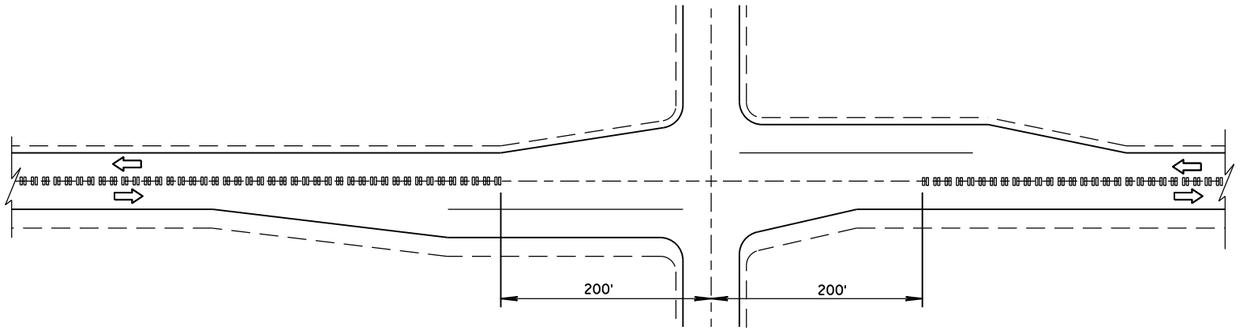
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

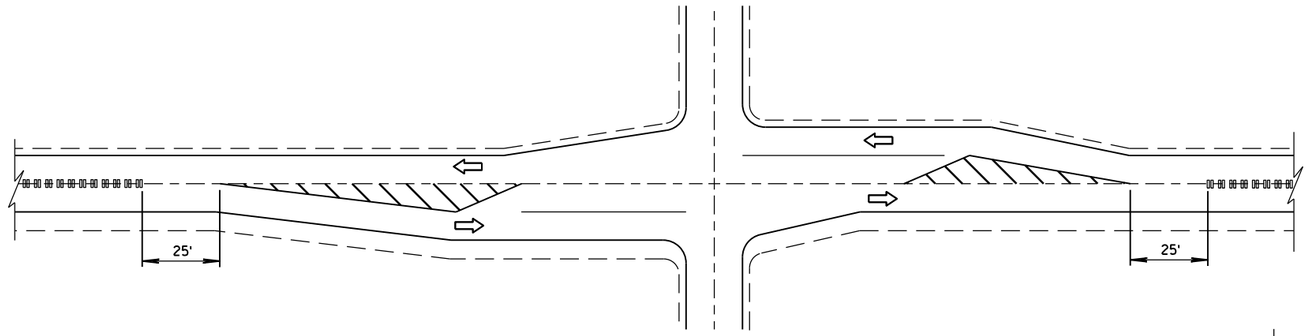
S.D.D. 13 A 11-2a

6

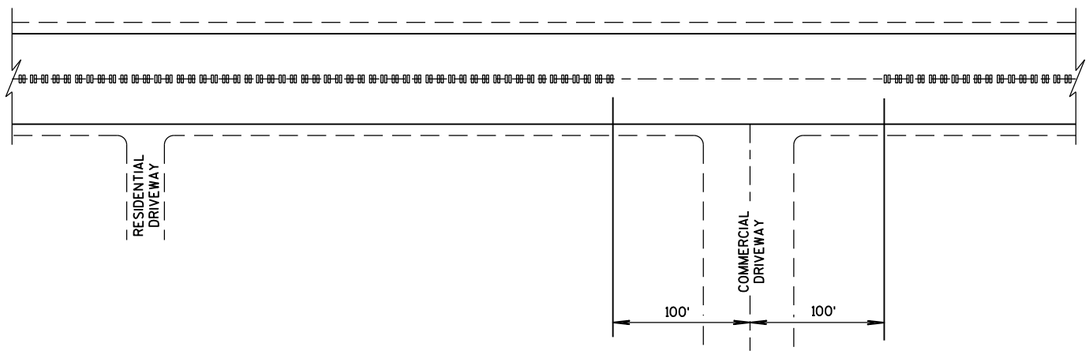
S.D.D. 13 A 11-2a



CENTER LINE GROOVES AT INTERSECTIONS

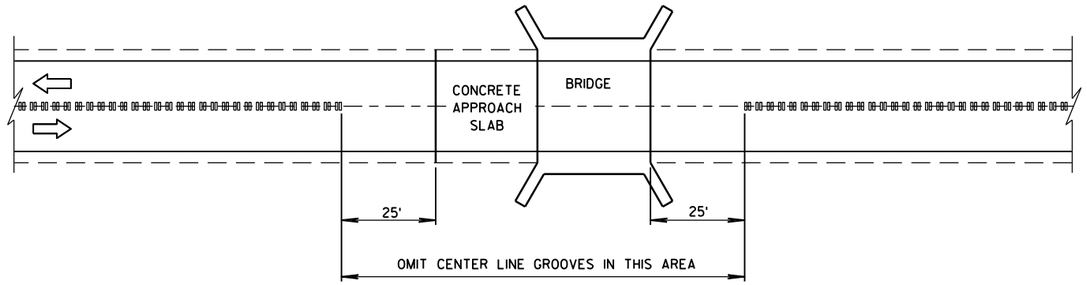


CENTER LINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)

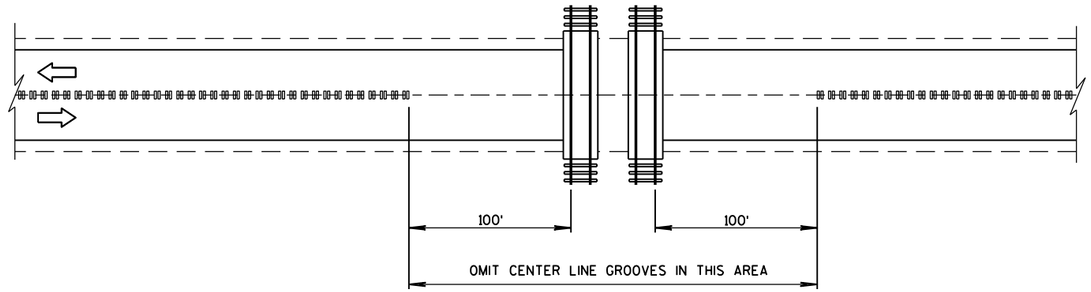


CENTER LINE GROOVES AT DRIVEWAYS (1)

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



CENTER LINE GROOVES AT BRIDGES



CENTER LINE GROOVES AT RAILROADS

6

S.D.D. 13 A 11-2b

6

S.D.D. 13 A 11-2b

2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

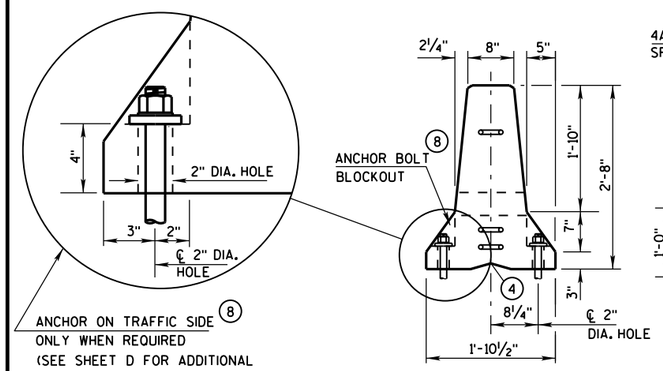
APPROVED

5/15/2013
DATE

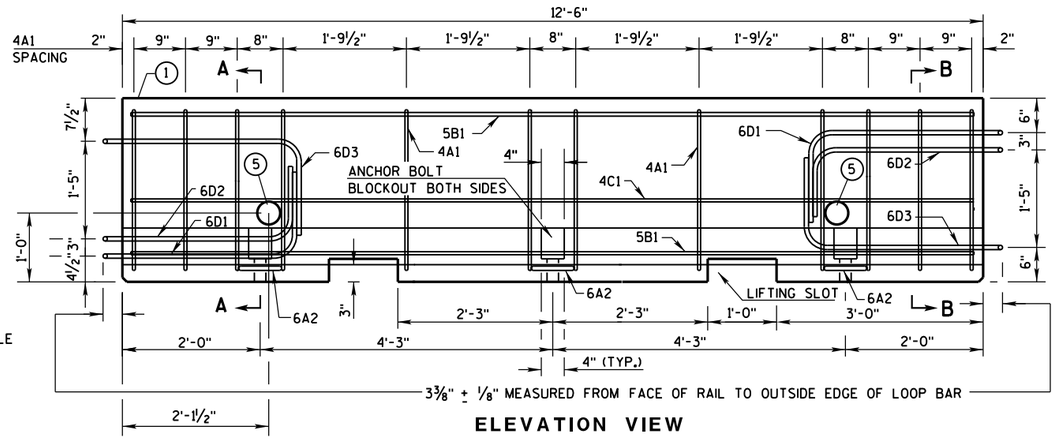
/S/ Jerry H. Zoda
ROADWAY STANDARDS DEVELOPMENT ENGINEER

NT

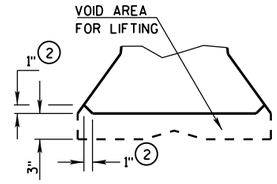
FHWA



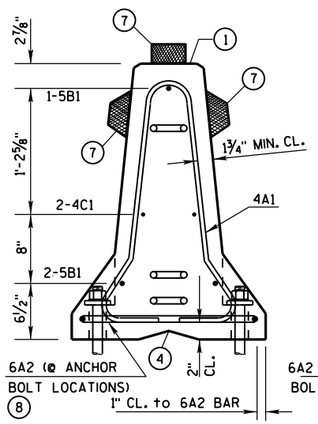
END VIEW



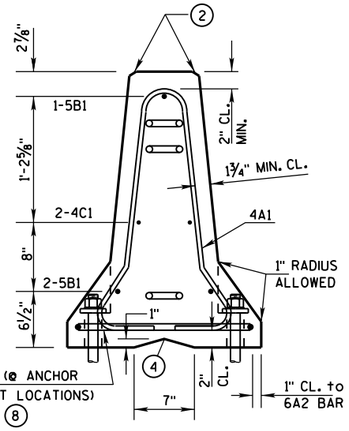
ELEVATION VIEW



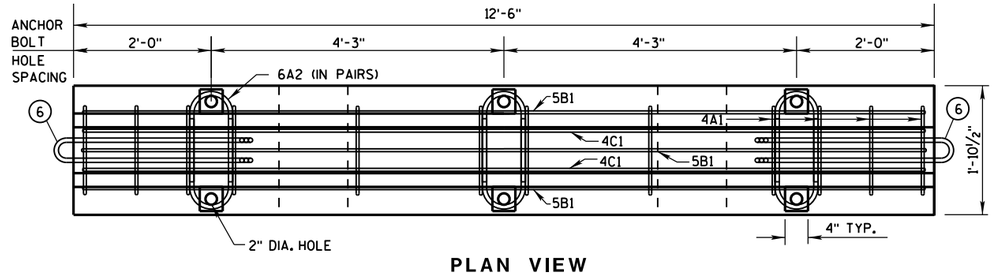
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

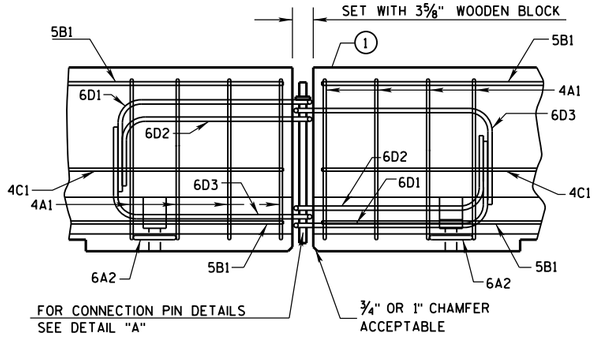


SECTION B-B
(STIRRUP PLACEMENT)

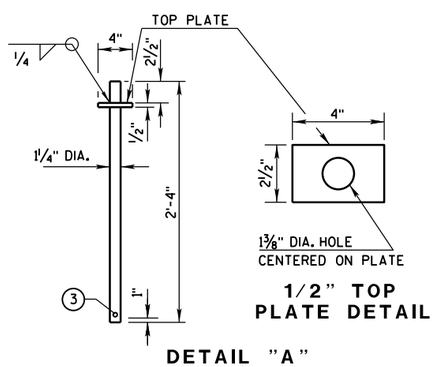


PLAN VIEW

DETAILS OF BARRIER SECTION

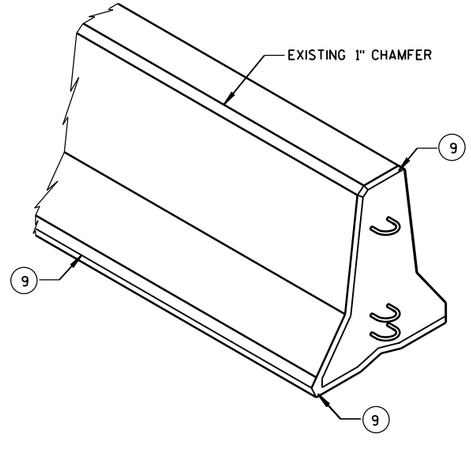


DETAILS OF BARRIER CONNECTION



1/2" TOP
PLATE DETAIL

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



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-14(a) THRU 14B7-14(h).

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

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

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE ¾" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-½" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN ⅛" OF THE PLAN DIMENSION.

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

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

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

(1) MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
- a. TYPE: WI CBTP
- b. MANUFACTURER
- c. DATE MANUFACTURED (MONTH AND YEAR)

(2) 1" CHAMFER TO PREVENT SPALLING.

(3) A ⅜" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..

(4) "V" NOTCH IS OPTIONAL.

(5) THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).

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

(7) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.

(8) SEE SHEET D FOR ANCHORING CRITERIA.

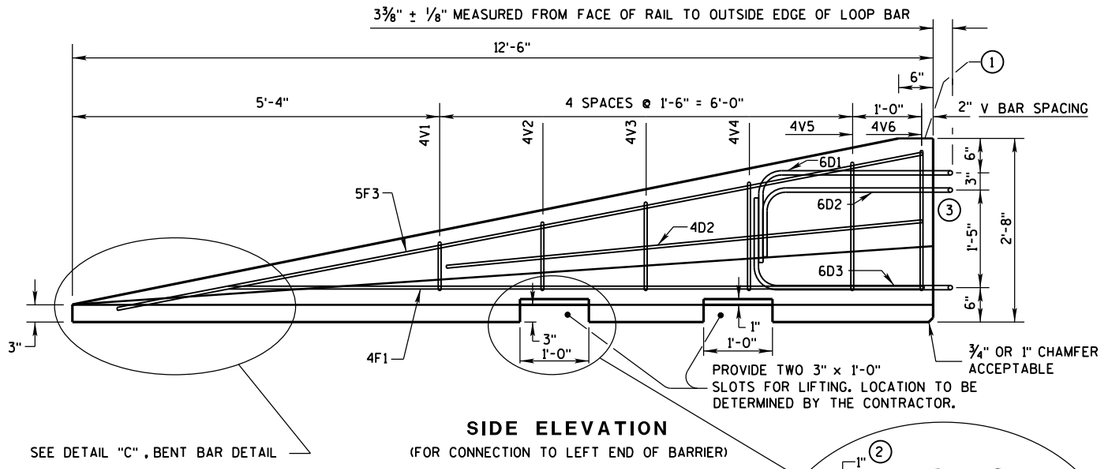
(9) 1" CHAMFER OPTIONAL.

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

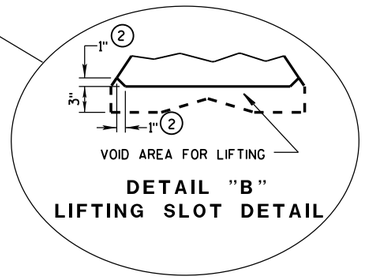
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

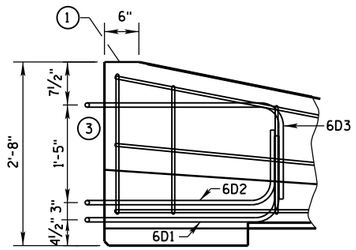
S.D.D. 14 B 7-14a



SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



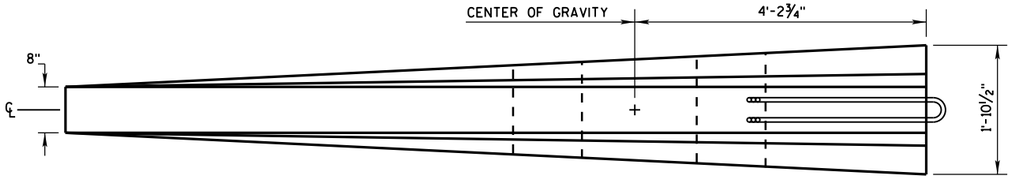
DETAIL "B"
LIFTING SLOT DETAIL



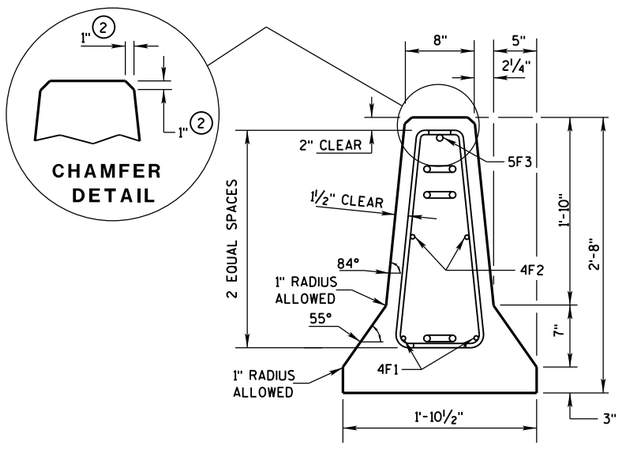
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

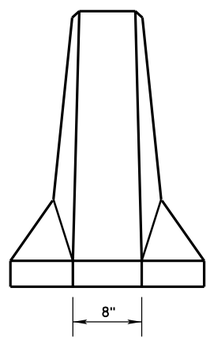
1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



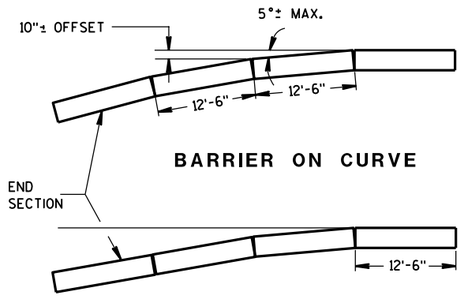
PLAN VIEW



END SECTION



FRONT ELEVATION



BARRIER ON CURVE

FLARE AT BARRIER END

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

DETAILS OF BARRIER TAPER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

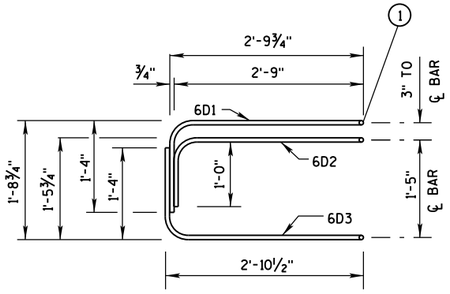
6

S.D.D. 14 B 7-14b

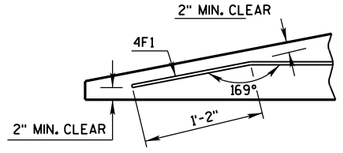
BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

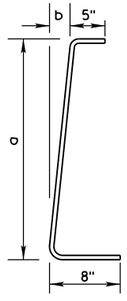
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



ELEVATION
LOOP BAR ASSEMBLY



DETAIL "C"
BENT BAR DETAIL



BAR	a	b
V1	10"	1"
V2	1'-1"	1¼"
V3	1'-5"	1⅝"
V4	1'-8"	1⅞"
V5	2'-0½"	2⅜"
V6	2'-3"	2¾"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

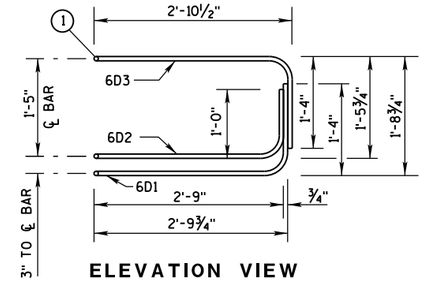
GENERAL NOTES

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

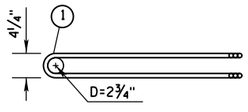
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

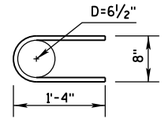
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



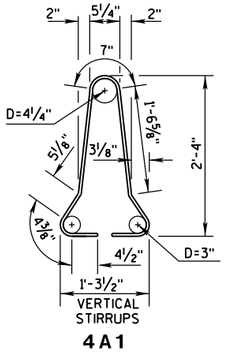
ELEVATION VIEW



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



6A2



4A1

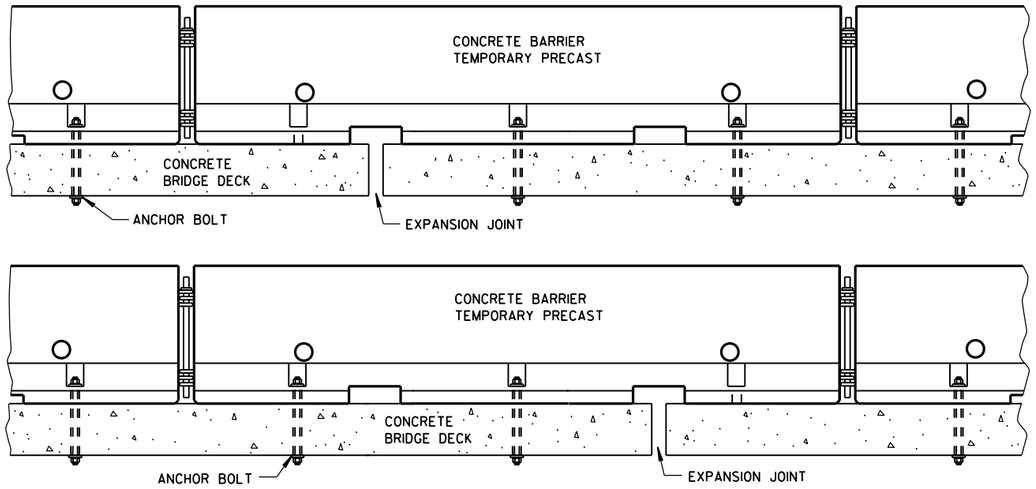
BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

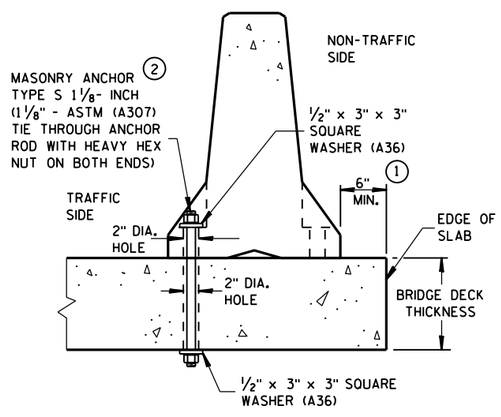
6

S.D.D. 14 B 7-14c



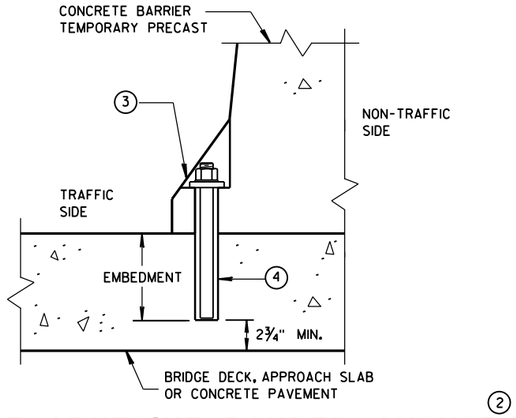
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

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



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOTUSE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE BONDED ANCHOR ② INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

① CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 45 MPH OR GREATER, OR

THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT. IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.

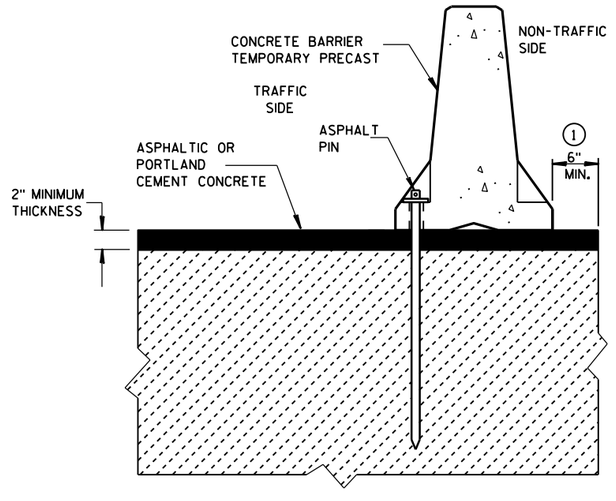
② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED (EPOXY) ANCHOR BOLT INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE S 1⅛-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALLANCHOR BOLTS AND COMPLETELY FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CONCRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERICAL GROUT OR EPOXY MATERIAL IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.

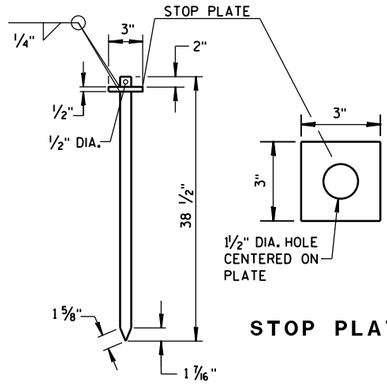
③ 1⅛" DIAMENTER A307 THREADED ROD, ½" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.

④ ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5¼" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.

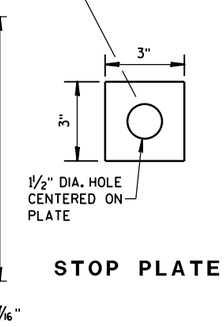


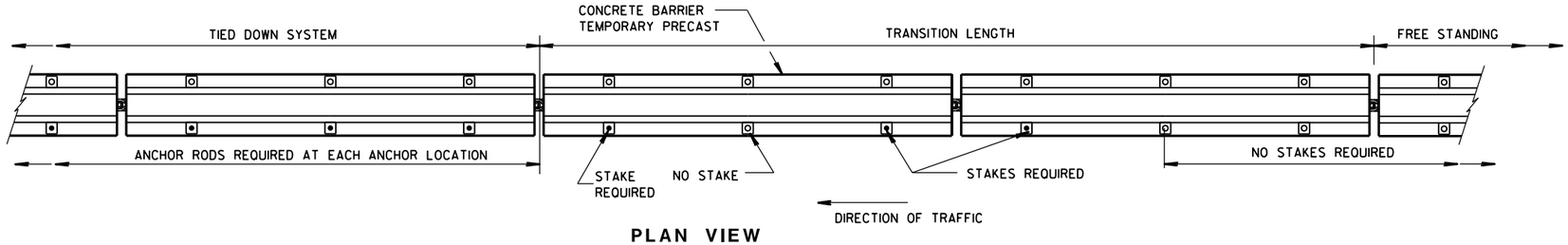
STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



STOP PLATE





PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

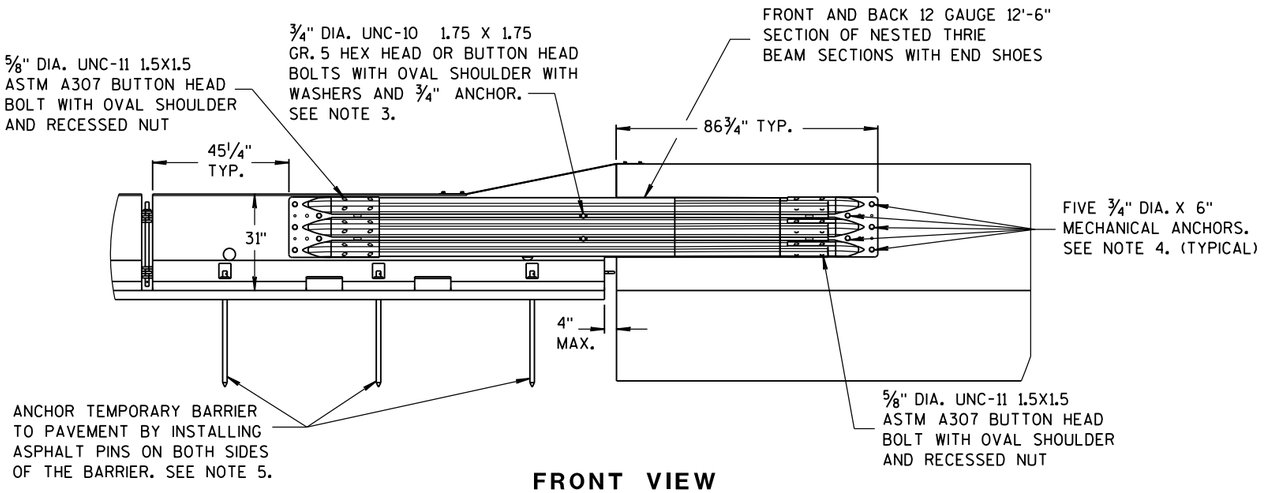
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

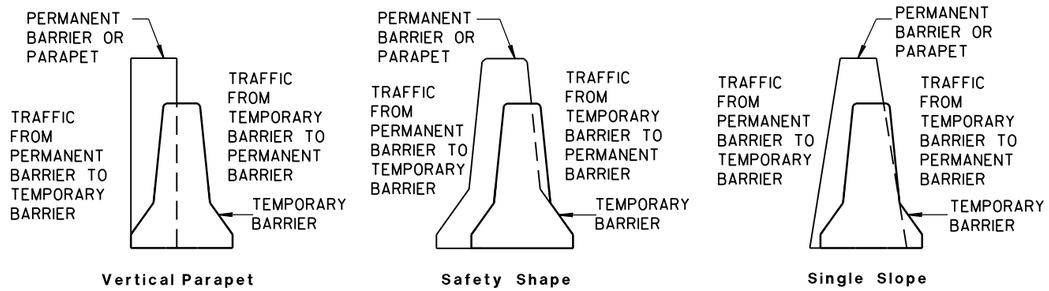
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 7-14d



FRONT VIEW

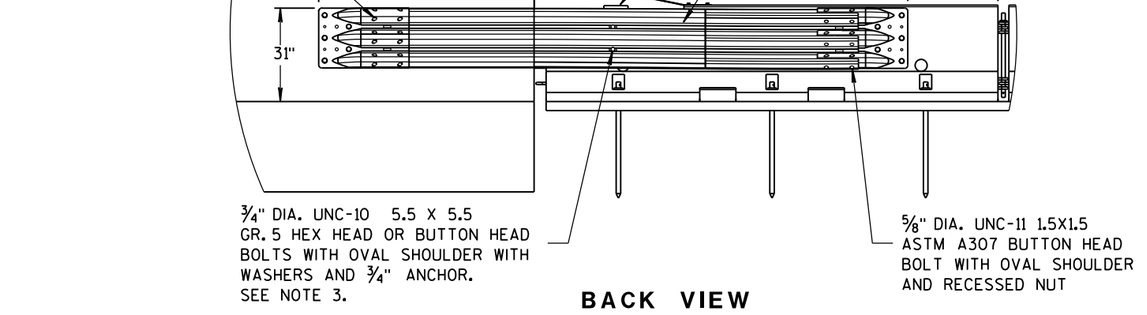


TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

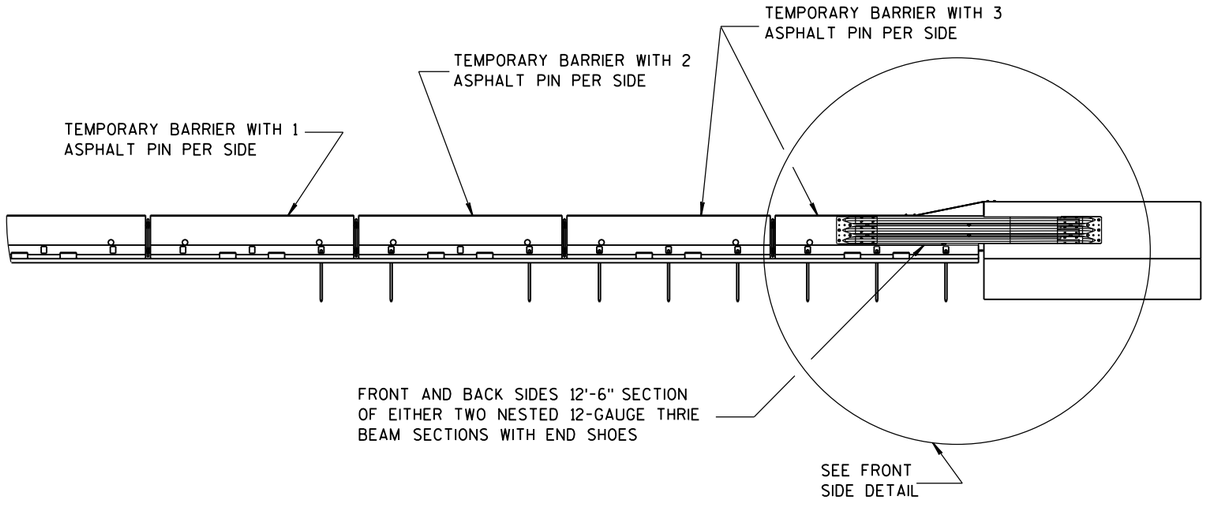
NOTES

NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.

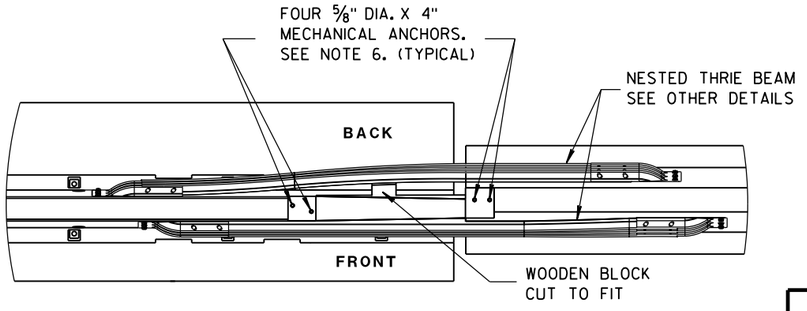
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW



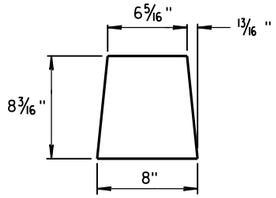
PLAN VIEW

BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

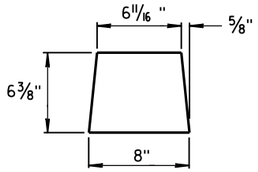
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

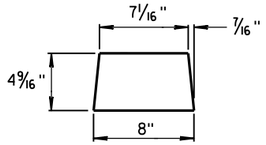
6
S.D.D. 14 B 7-14e



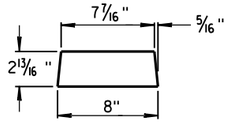
GUSSET 1



GUSSET 2

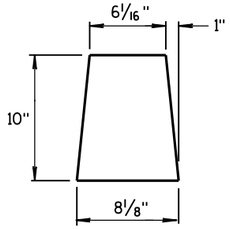


GUSSET 3

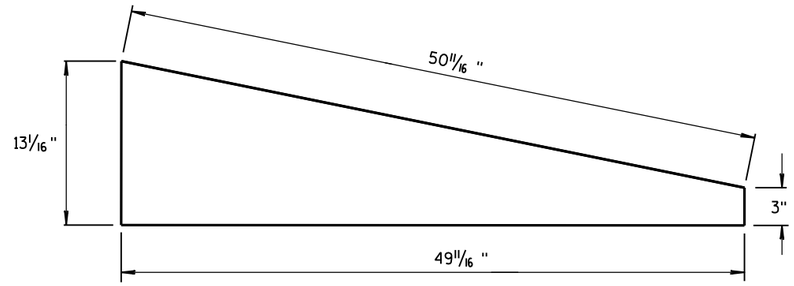


GUSSET 4

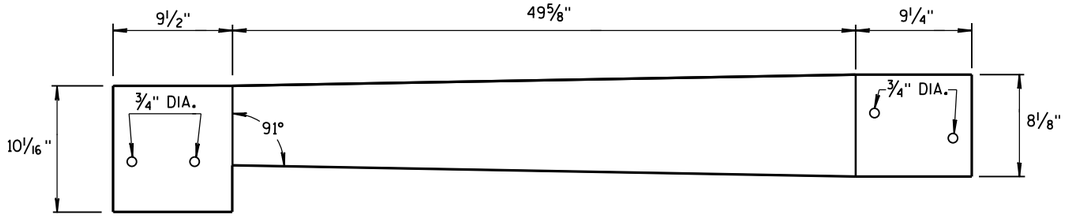
GUSSETS

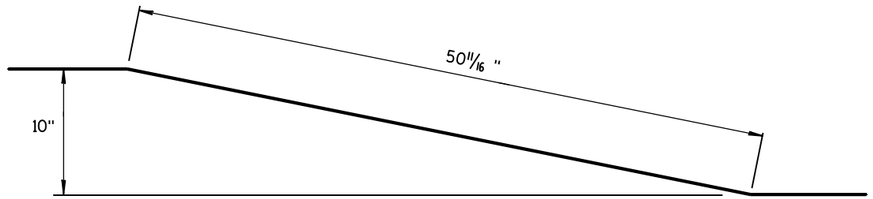


END PLATE



SIDE PLATE

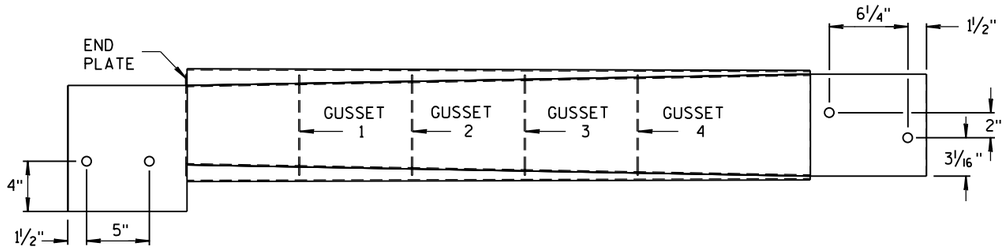


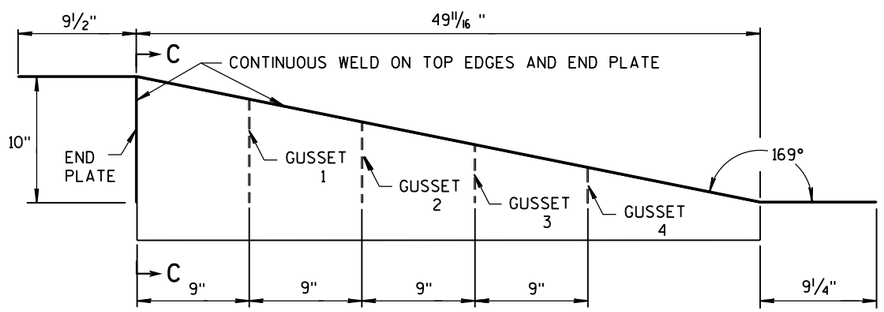


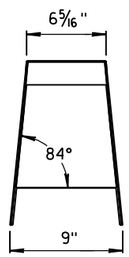
TOP PLATE

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

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







SECTION C-C

NOTES

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

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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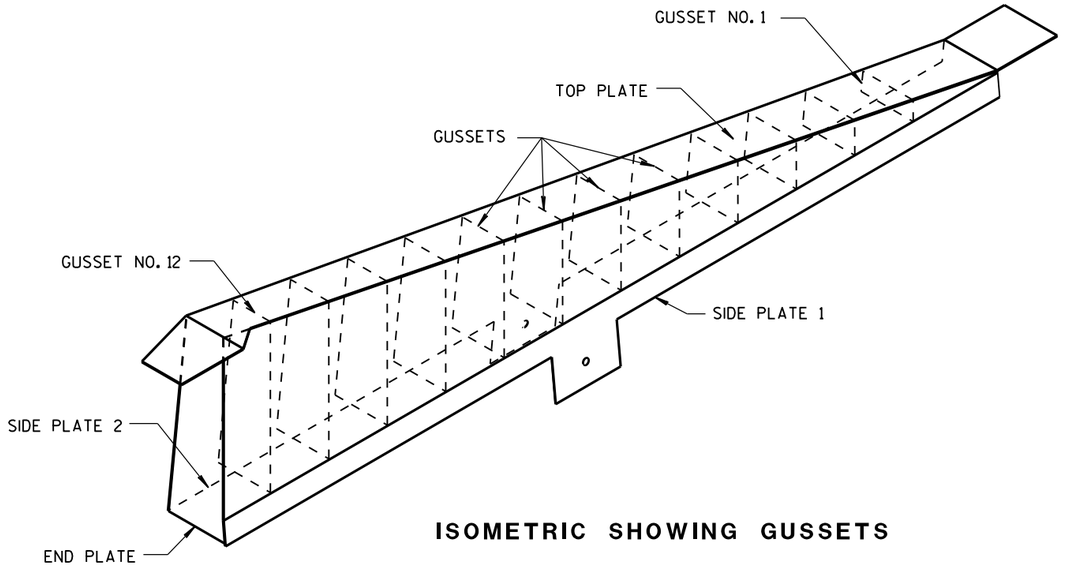
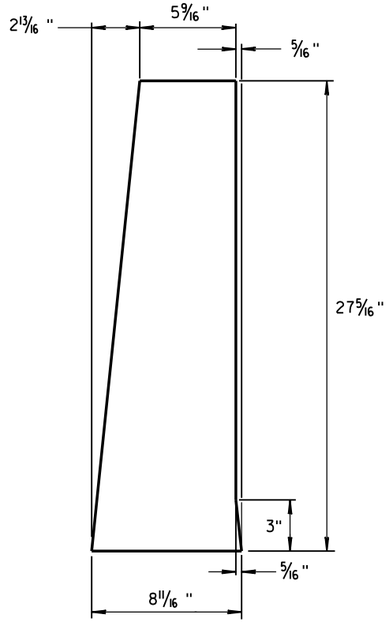
S.D.D. 14 B 7-14f

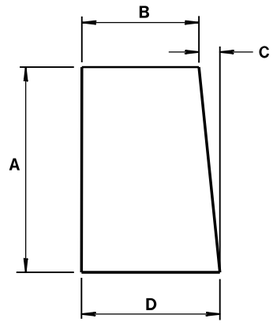


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



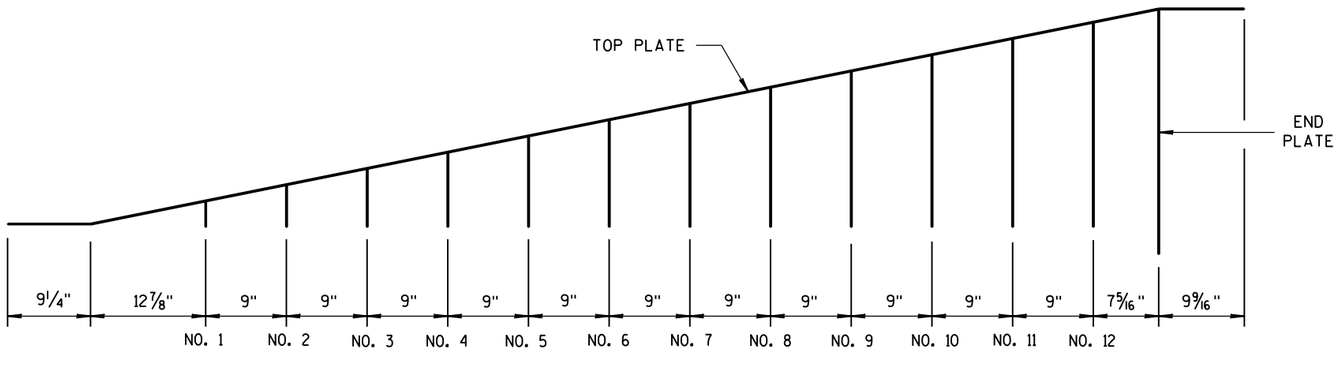
GUSSETS 1 - 12

ALL GUSSETS 1/8" STEEL PLATE

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

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

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



GUSSET LOCATION

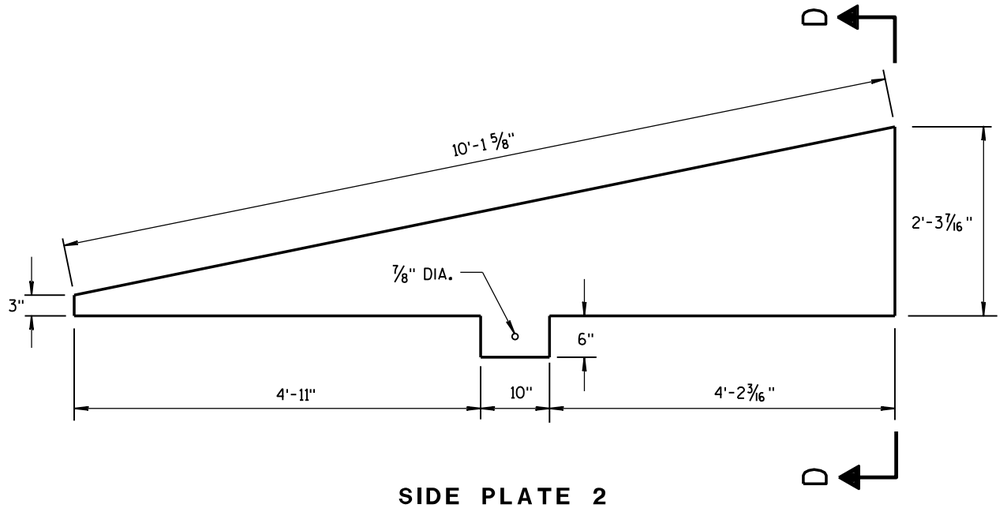
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

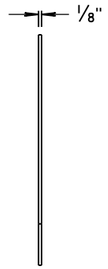
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

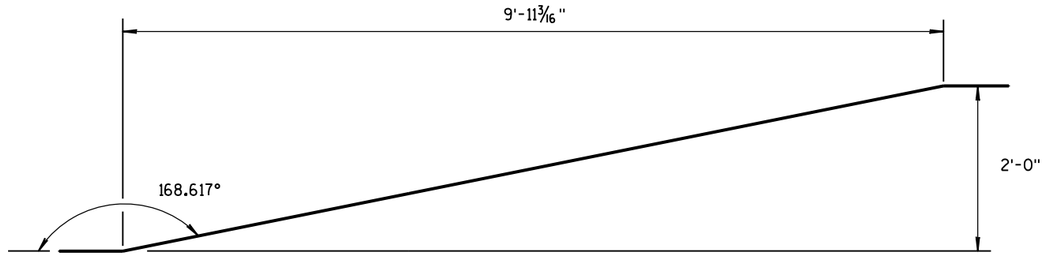
S.D.D. 14 B 7-14g



SIDE PLATE 2

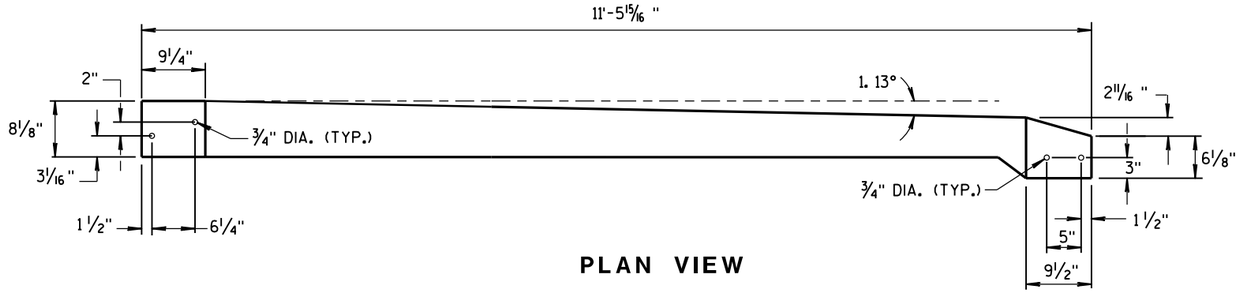


END VIEW



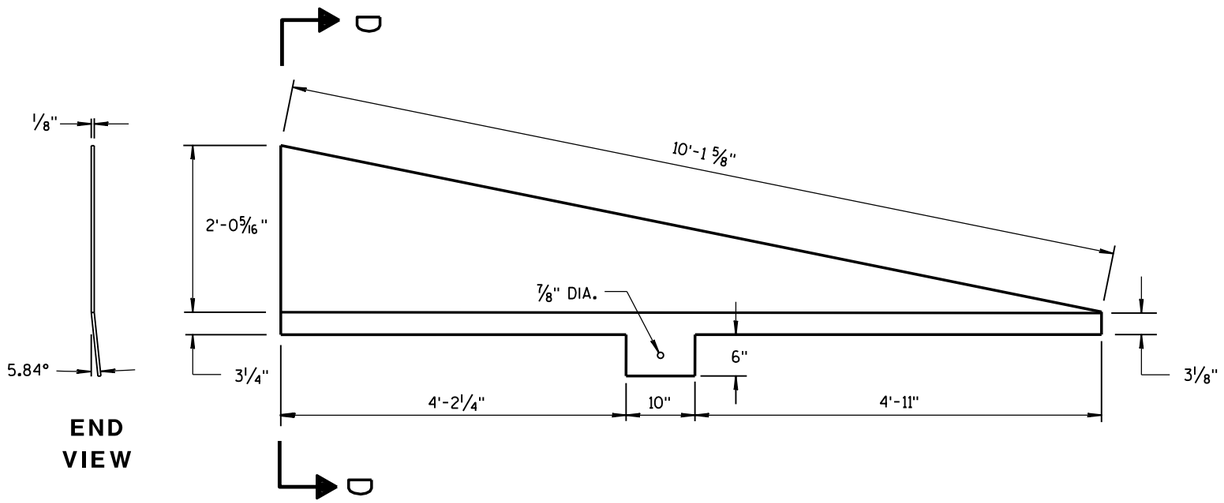
SIDE VIEW

TOP PLATE



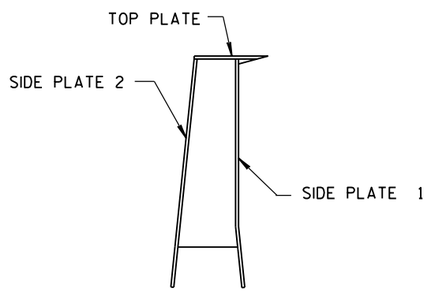
PLAN VIEW

TOP PLATE



END VIEW

SIDE PLATE 1



SECTION D-D

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 — DATE
/S/ Jerry H. Zoda — ROADWAY STANDARD DEVELOPMENT ENGINEER
FHWA

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S.D.D. 14 B 7-14h

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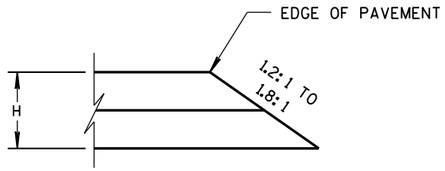
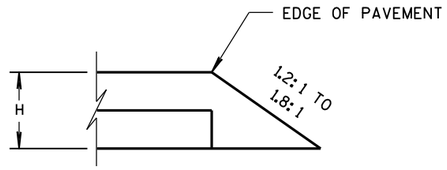
S.D.D. 14 B 7-14h



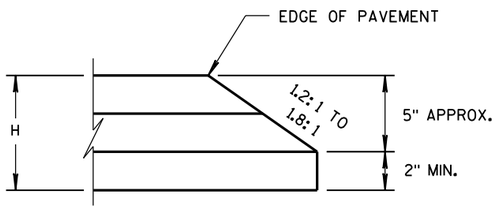
CONSTRUCTED WITH FINAL TWO LAYERS

FOR H 5" OR LESS



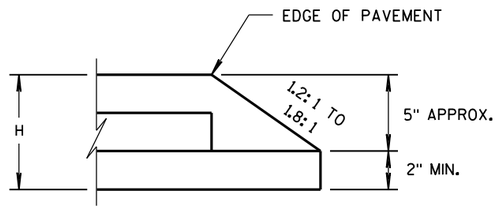
CONSTRUCTED WITH FINAL LAYER

FOR H 5" OR LESS



CONSTRUCTED WITH FINAL TWO LAYERS

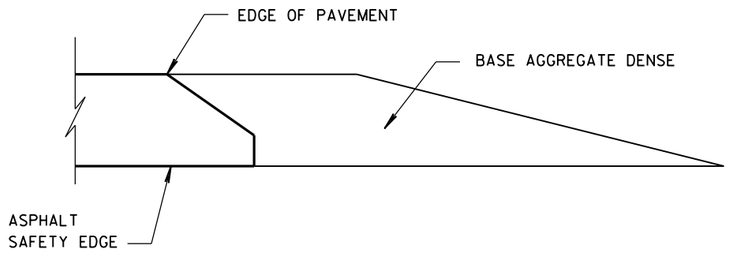
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER

FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

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S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

SAFETY EDGE SM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/2012
DATE

/S/ Jerry H. Zoda
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

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.

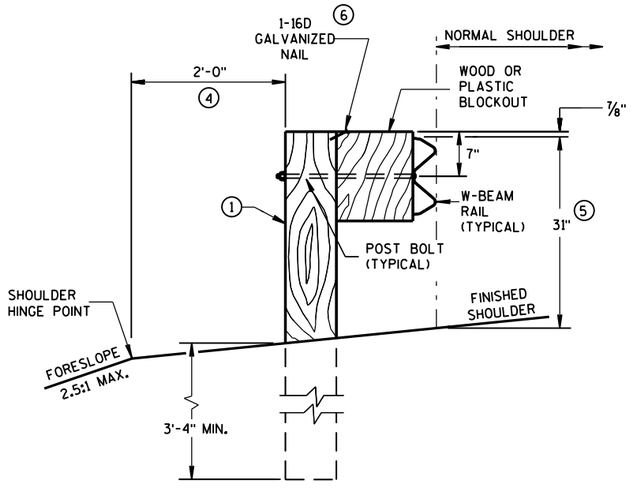
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

(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).

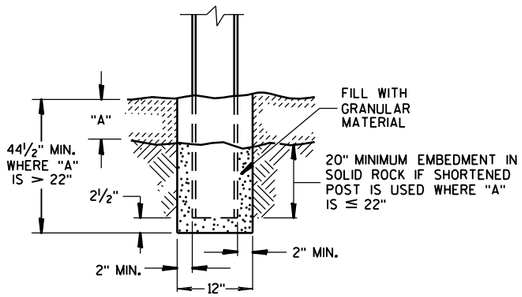
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

(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.



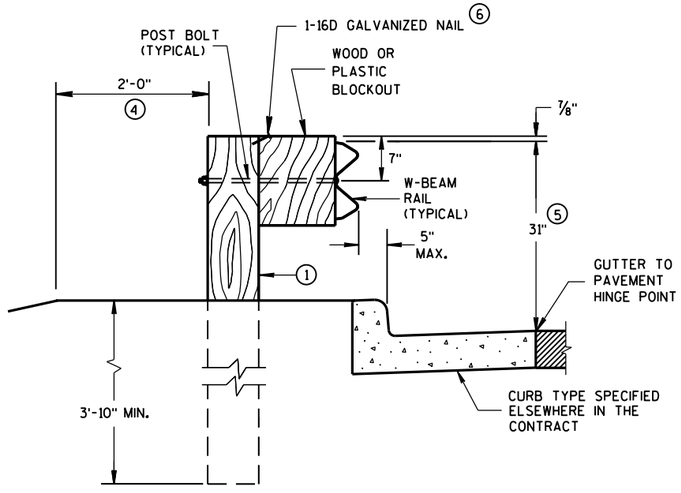
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



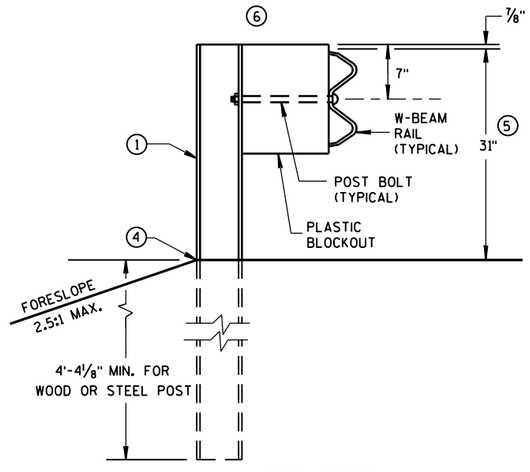
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



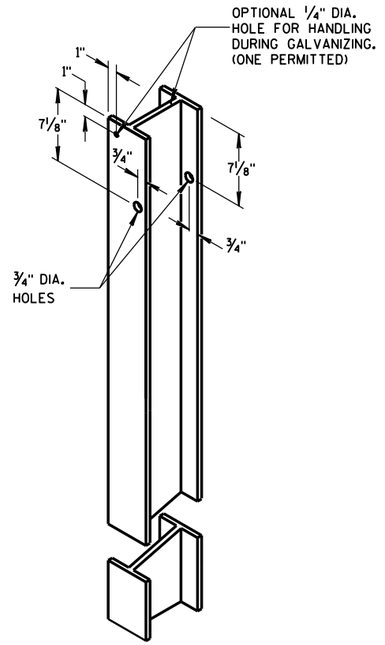
END VIEW

LOCATED ALONG A CURBED ROADWAY

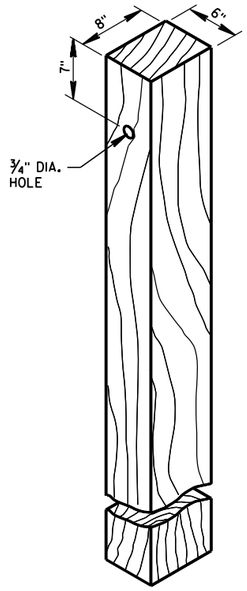


END VIEW

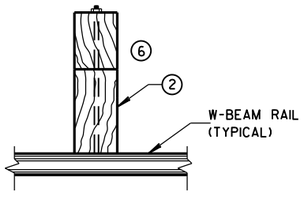
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



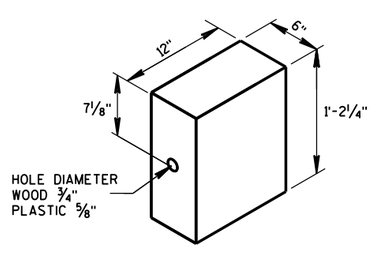
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



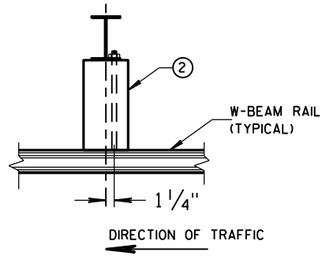
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)

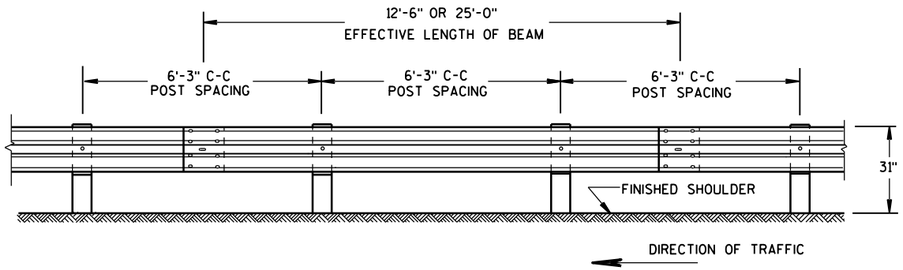


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

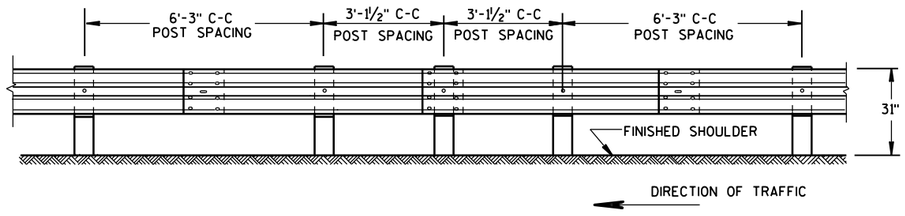
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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



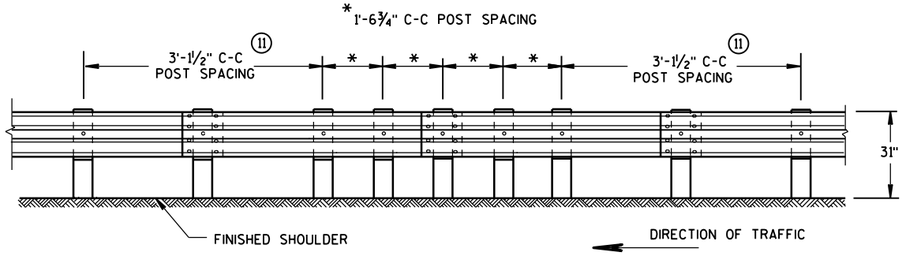
FRONT VIEW

POST SPACING STANDARD INSTALLATION



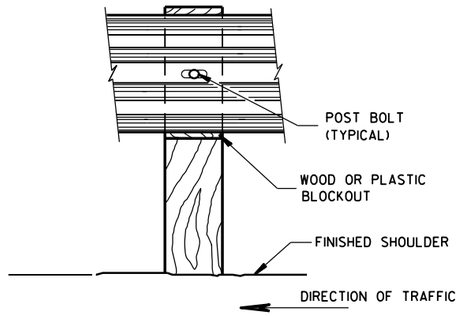
FRONT VIEW

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

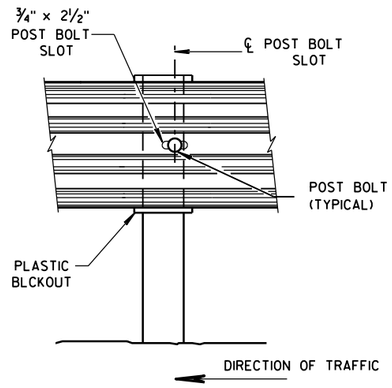


FRONT VIEW

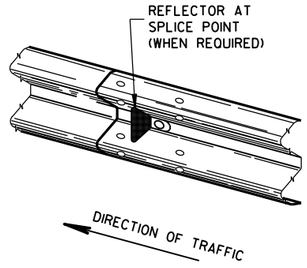
QUARTER POST SPACING (QS)

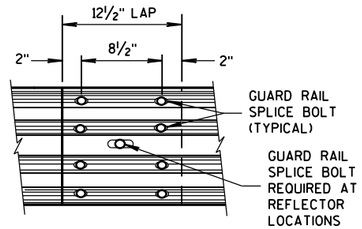


FRONT VIEW AT WOOD POST



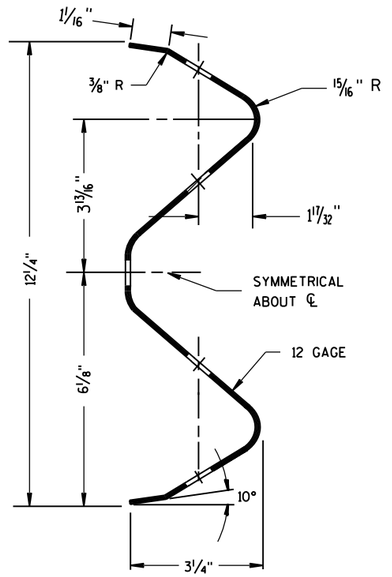
FRONT VIEW AT STEEL POST



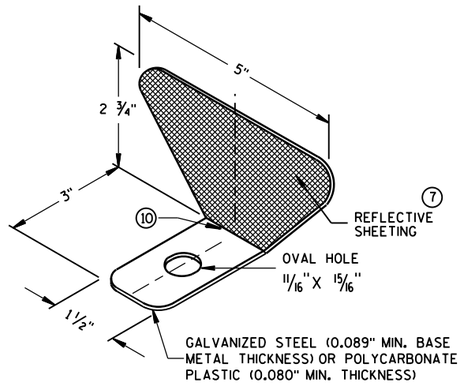


FRONT VIEW

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.

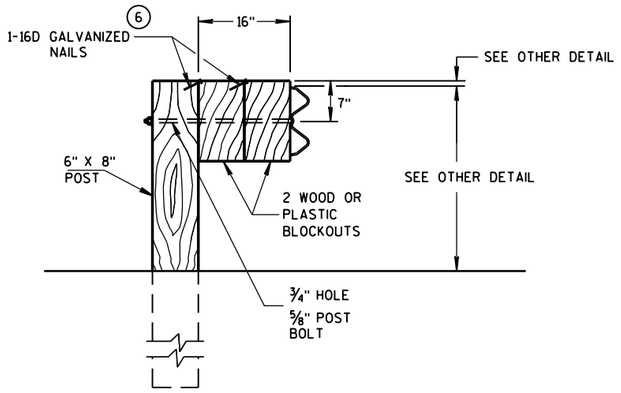
REFLECTOR SPACING ⑧

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

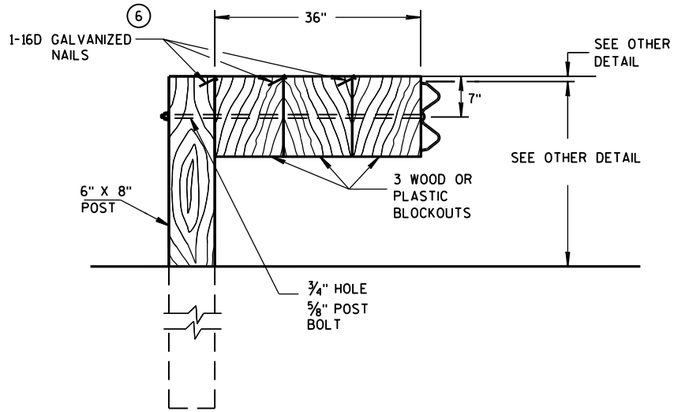
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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.

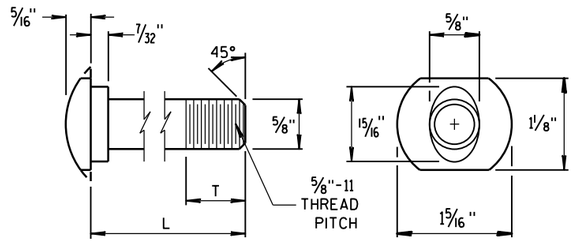


DETAIL FOR 36" BLOCKOUT DEPTH

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.

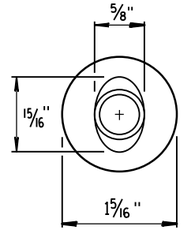
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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.

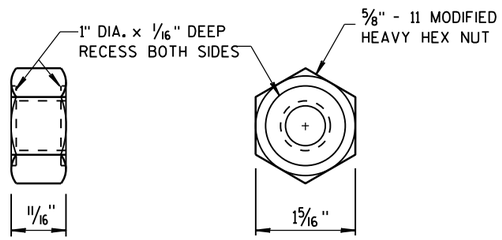


POST BOLT TABLE

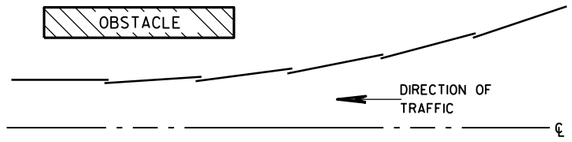
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

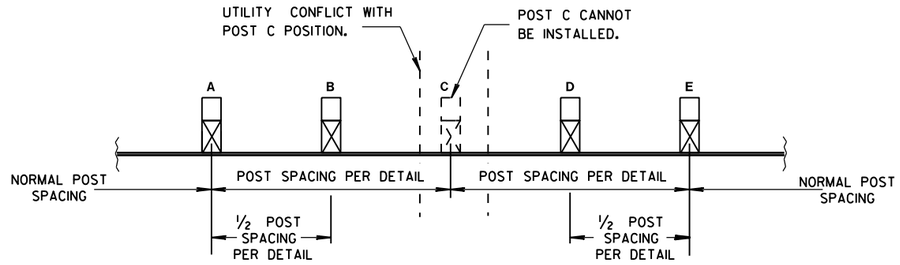


POST BOLT AND RECESS NUT

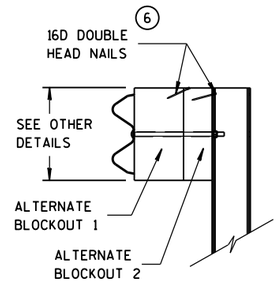


PLAN VIEW

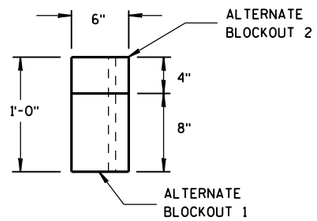
BEAM LAPPING DETAIL



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

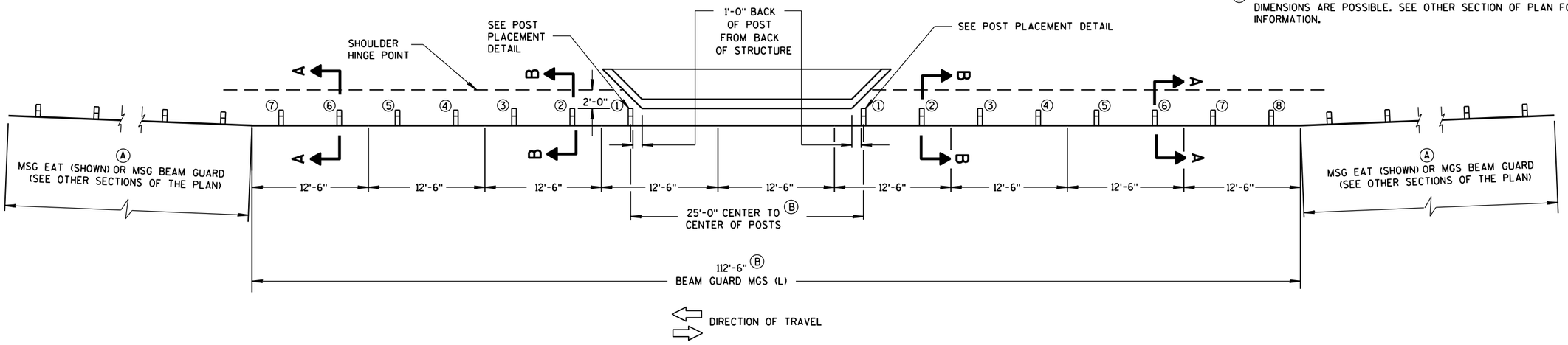
GENERAL NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

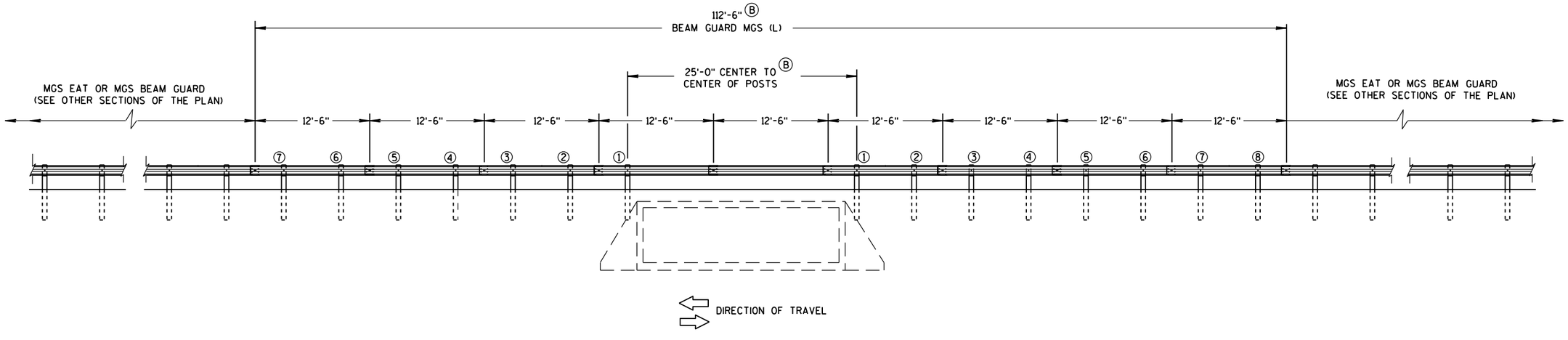
SEE SDD 14 B 42 FOR MORE DETAILS.

(A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.

(B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) TWO-WAY TRAFFIC

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
STATE OF WISCONSIN DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 43-3a

6

S.D.D. 14 B 43-3a

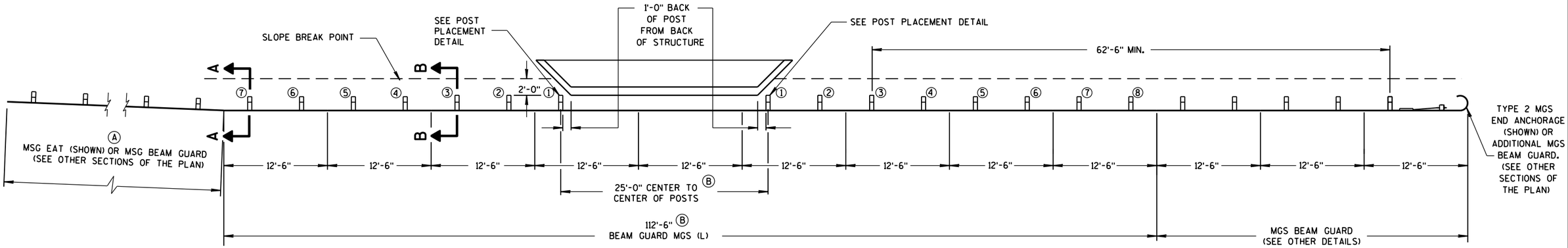
GENERAL NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

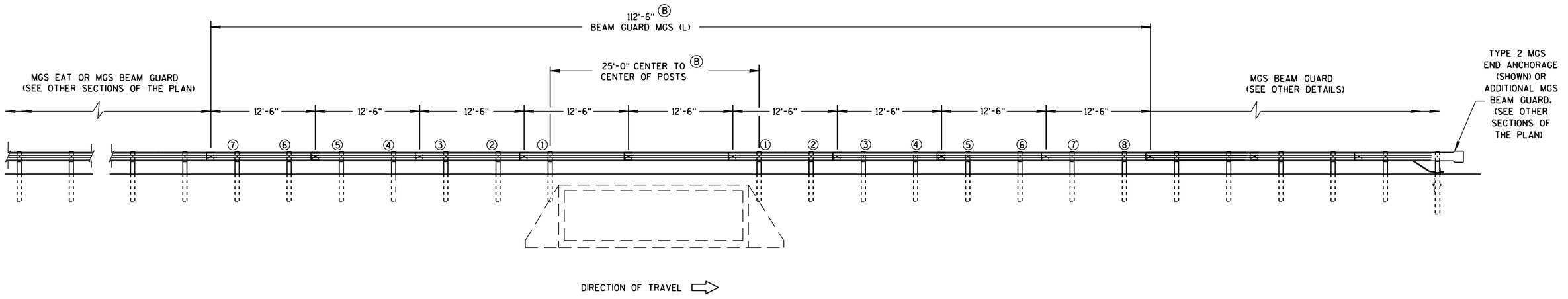
SEE SDD 14 B 42 FOR MORE DETAILS.

(A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.

(B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



PLAN VIEW



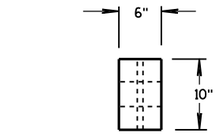
ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) ONE-WAY TRAFFIC

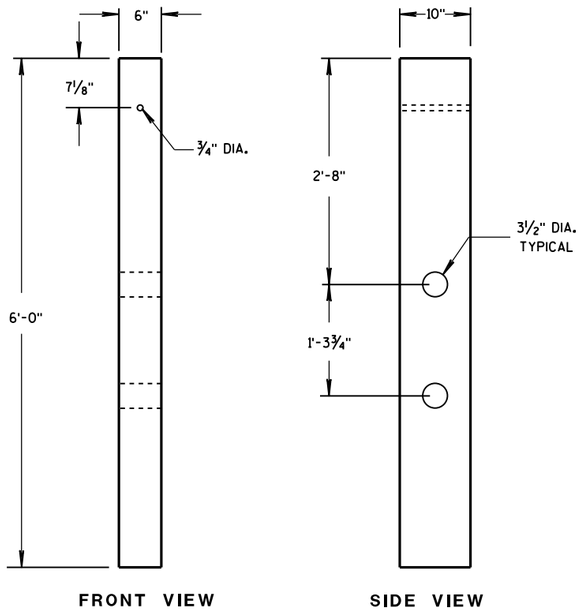
MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
STATE OF WISCONSIN DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 43-3b

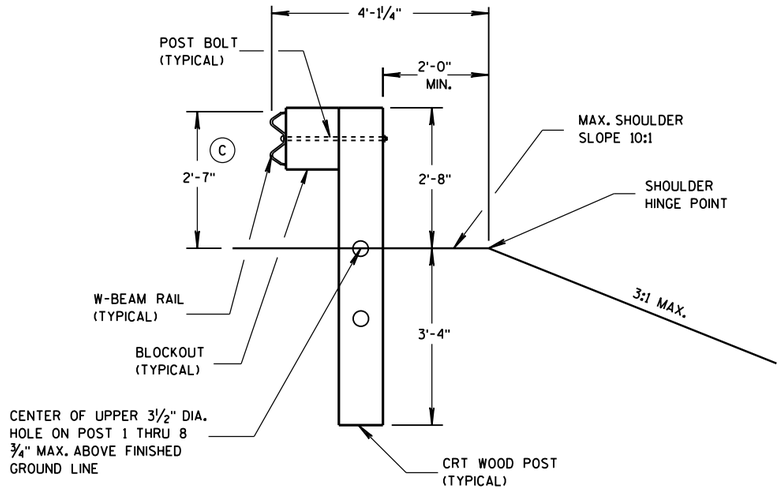


PLAN VIEW



FRONT VIEW SIDE VIEW

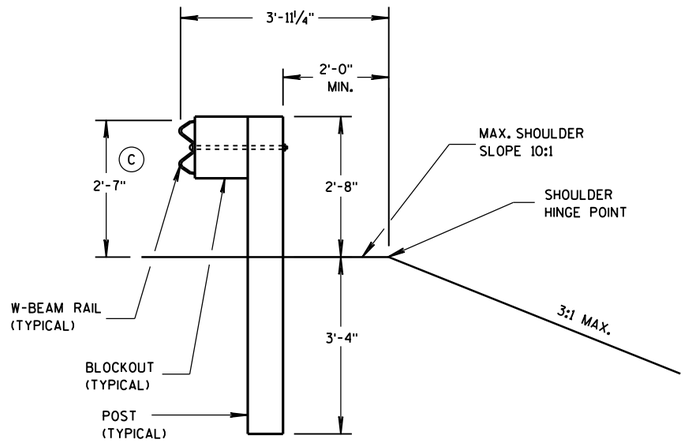
CRT WOOD POST



SECTION B-B

POSTS NO. 1-3

SEE OTHER DETAILS



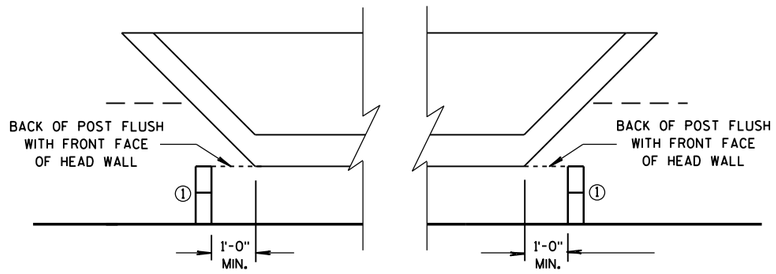
SECTION A-A

POSTS NO. 4-8

SEE OTHER DETAILS

GENERAL NOTES

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



POST PLACEMENT DETAIL

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/10/2013
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

6
S.D.D. 14 B 43-3c

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.

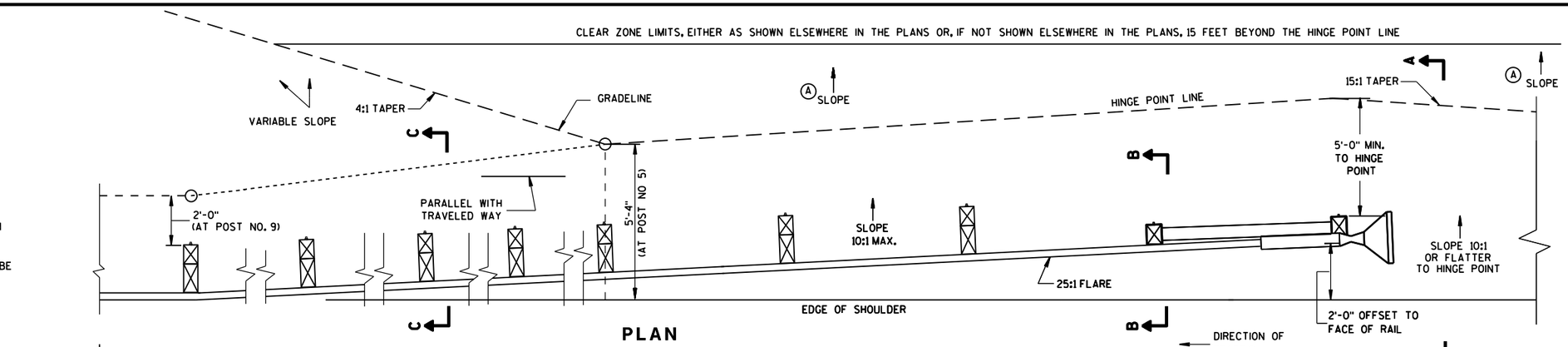
SEE SDD 14B42 FOR MORE INFORMATION.

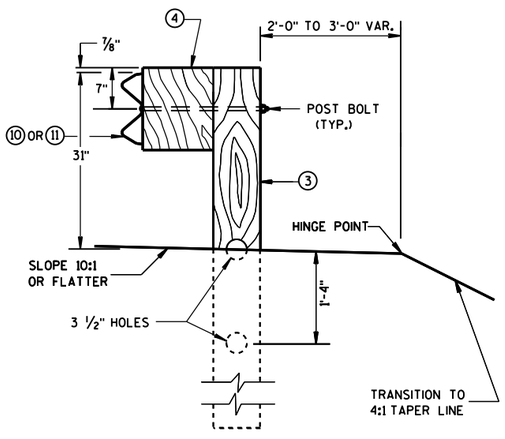
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

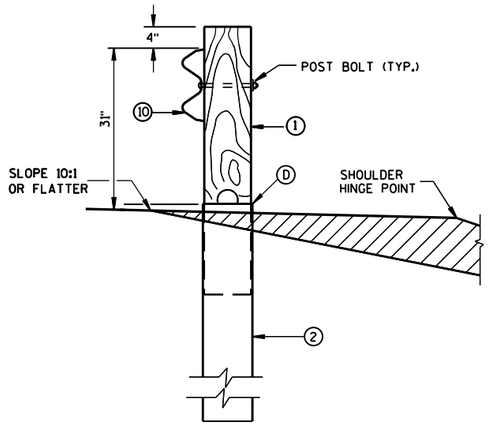
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

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.

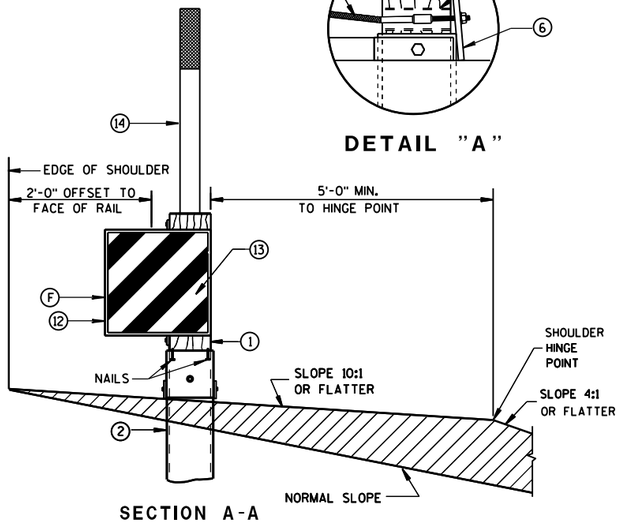




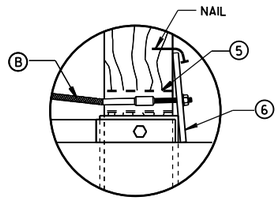
SECTION C-C
TYPICAL AT POST NOS. 3-9



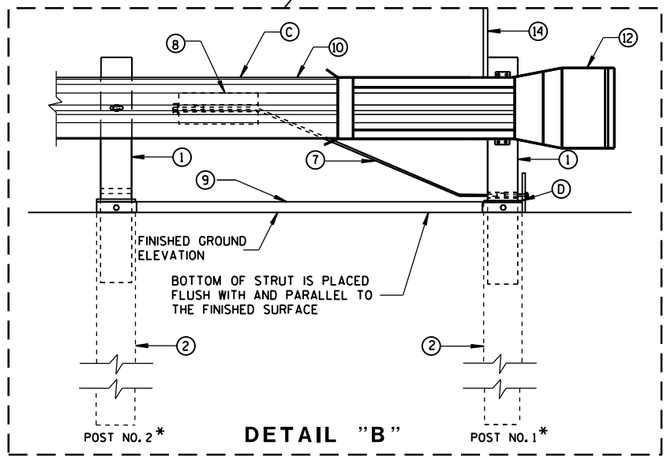
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



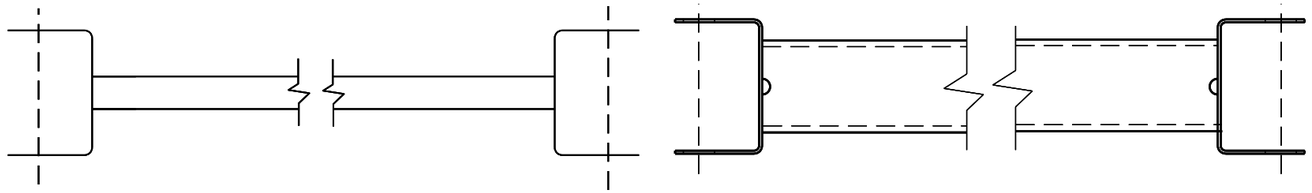
DETAIL "B"

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

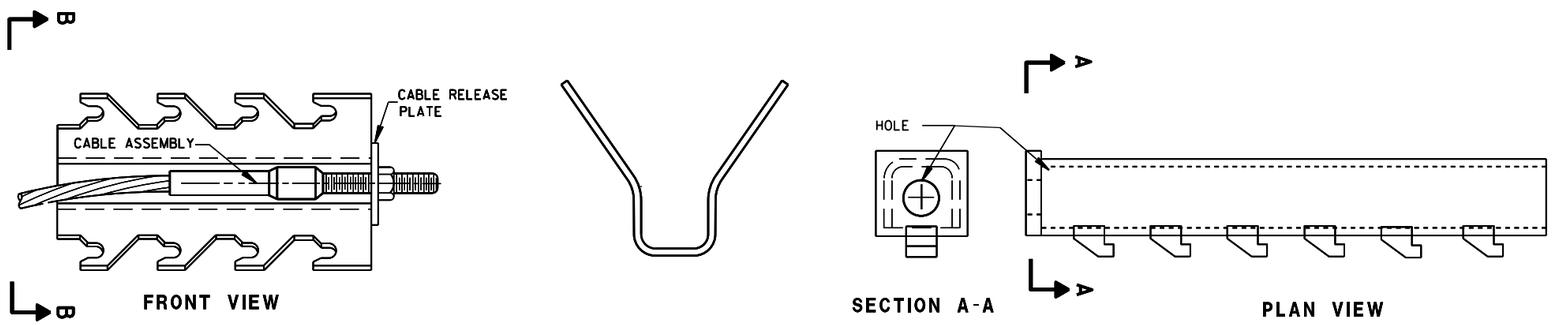


⑨ Ⓗ

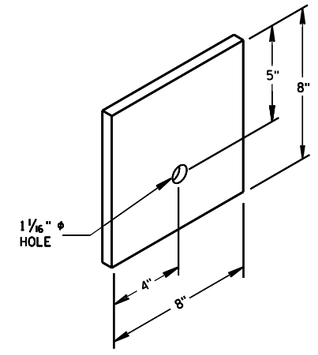
GENERIC GROUND STRUT

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 Ⓗ



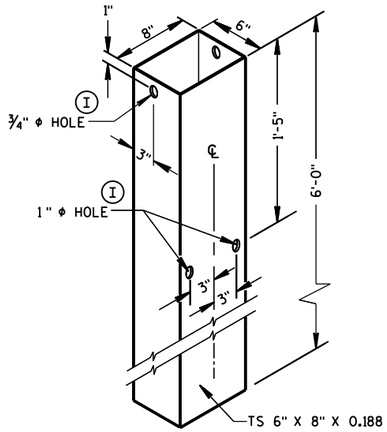
BEARING PLATE ⑥

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

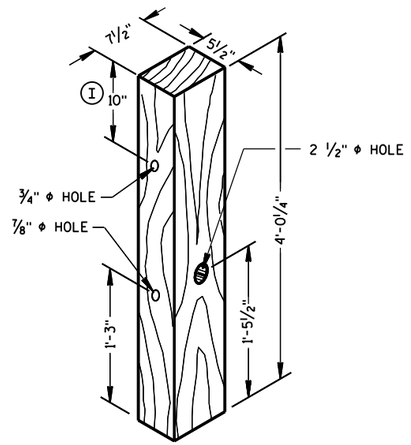
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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

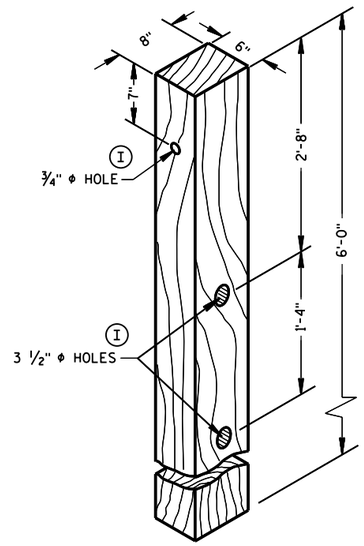


FOUNDATION TUBE (2)



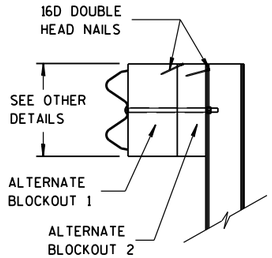
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

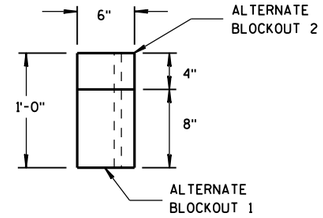


POSTS NUMBER 3-9

WOOD CRT POST (3)

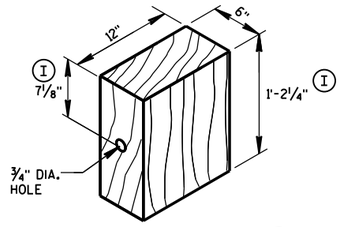


SIDE VIEW



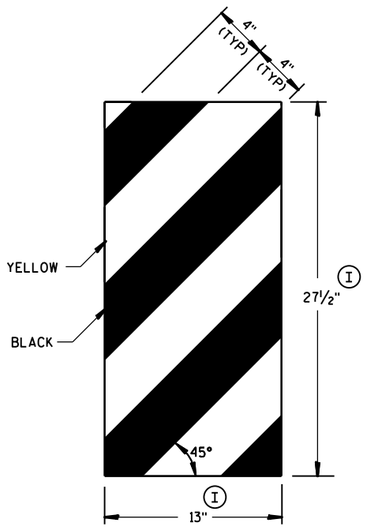
TOP VIEW

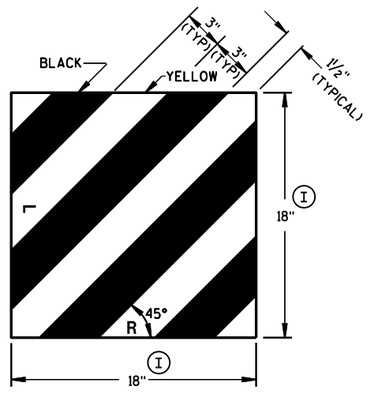
ALTERNATE WOOD BLOCKOUT DETAIL



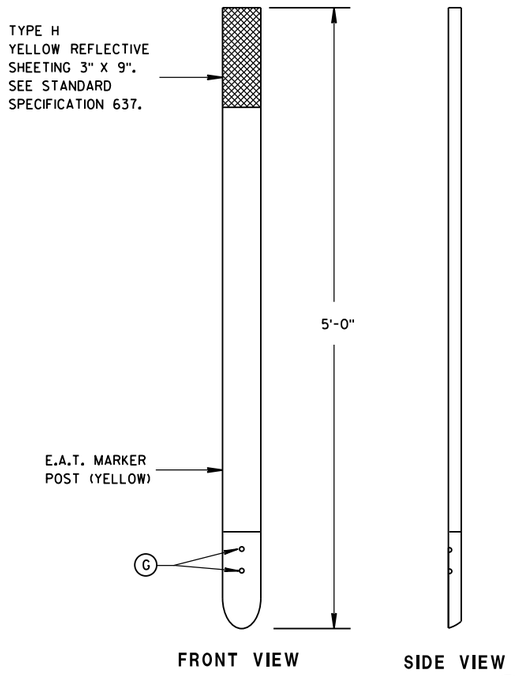
WOOD BLOCKOUT (4)

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





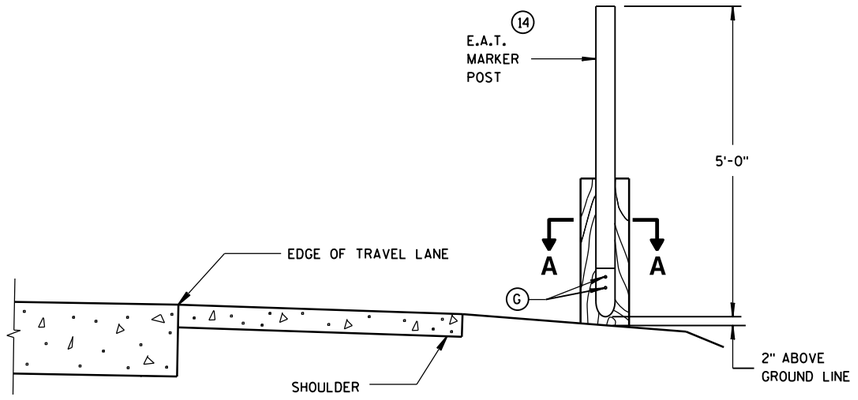
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

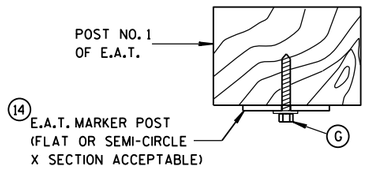
SIDE VIEW

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

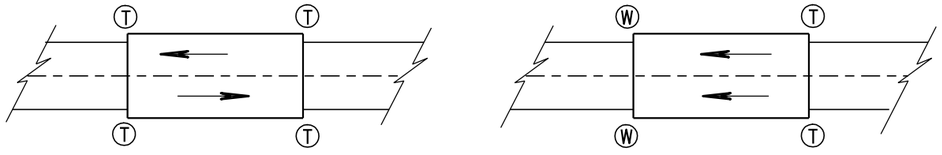
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

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

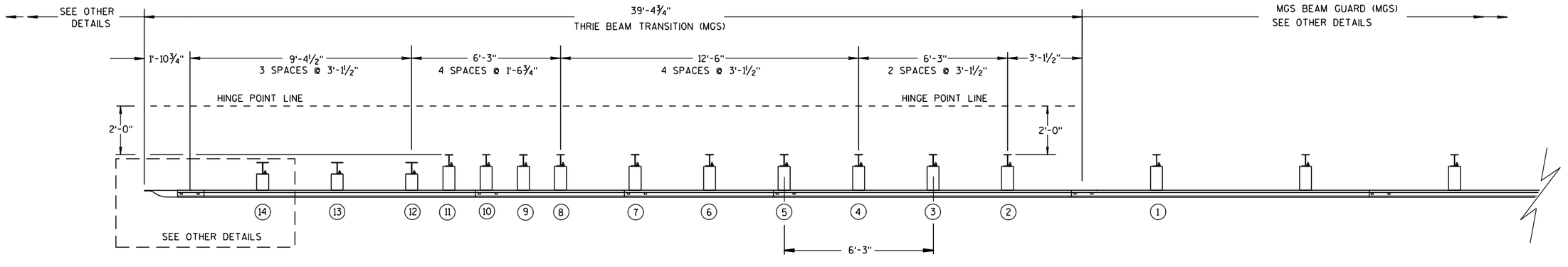
BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3.

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

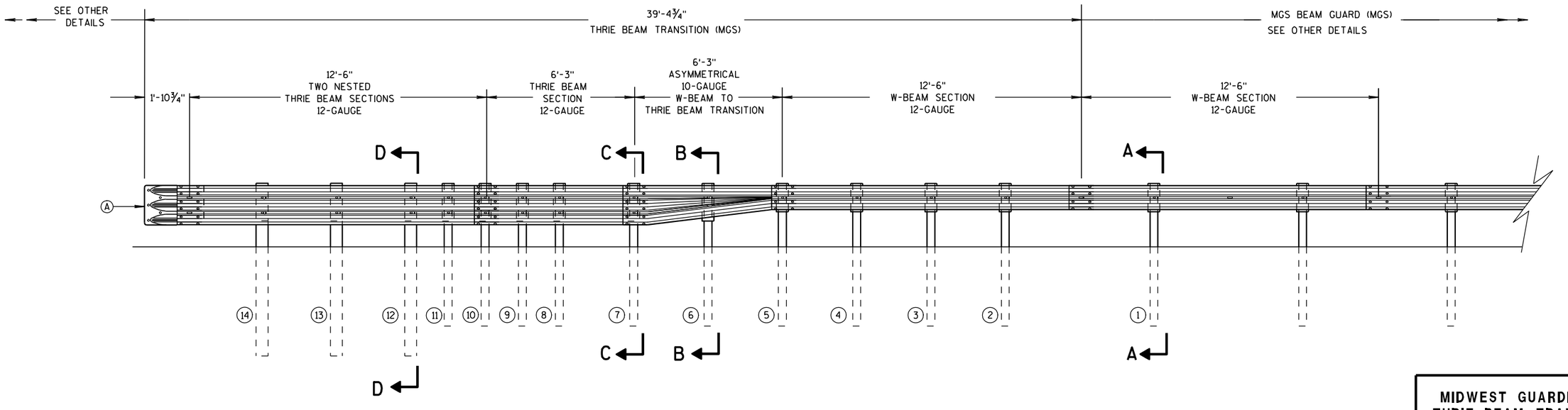
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

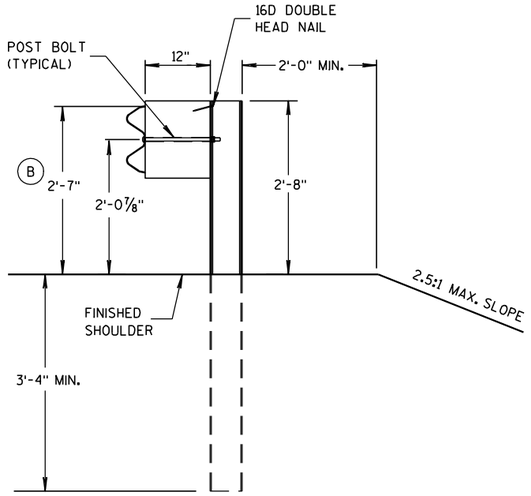
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 45-3a

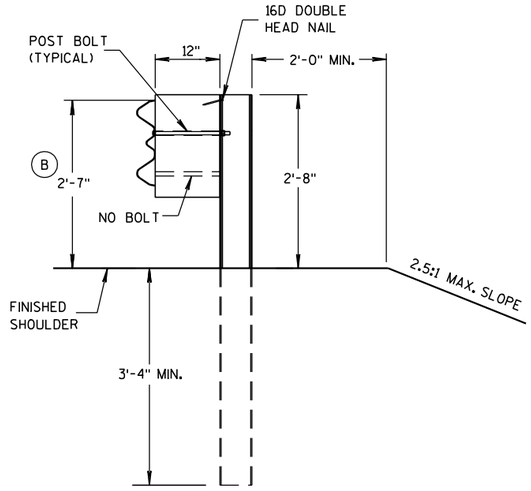
GENERAL NOTES

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



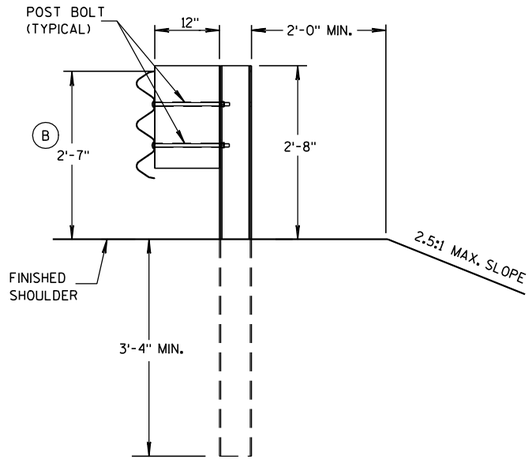
SECTION A-A

POSTS 1-5



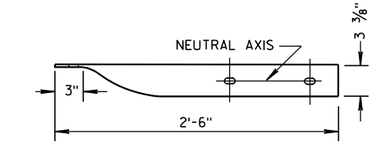
SECTION B-B

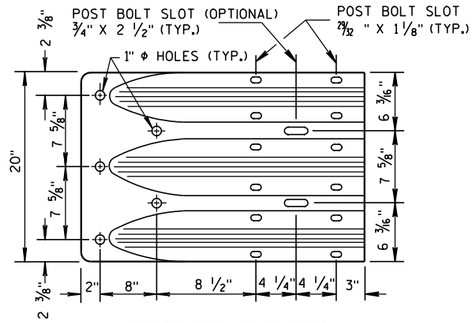
POST 6



SECTION C-C

POSTS 7-11





THRIE BEAM TERMINAL CONNECTOR

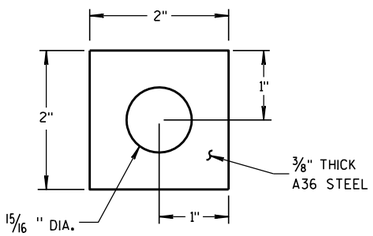
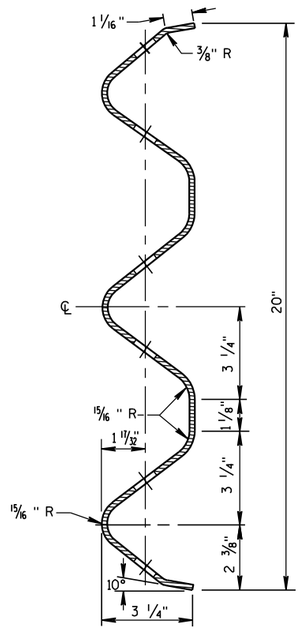
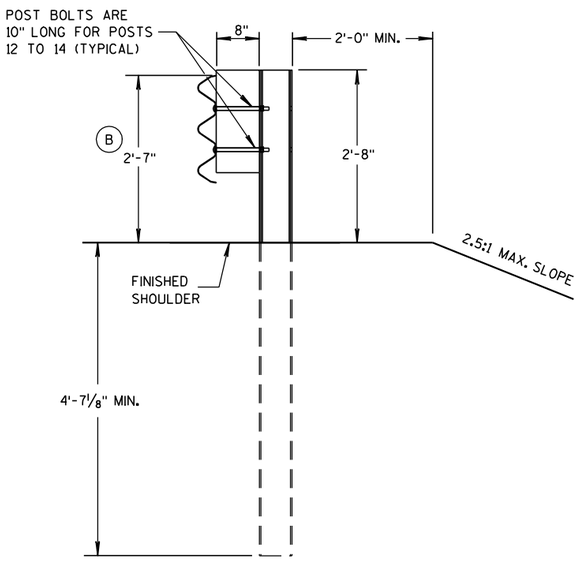


PLATE WASHER DETAIL

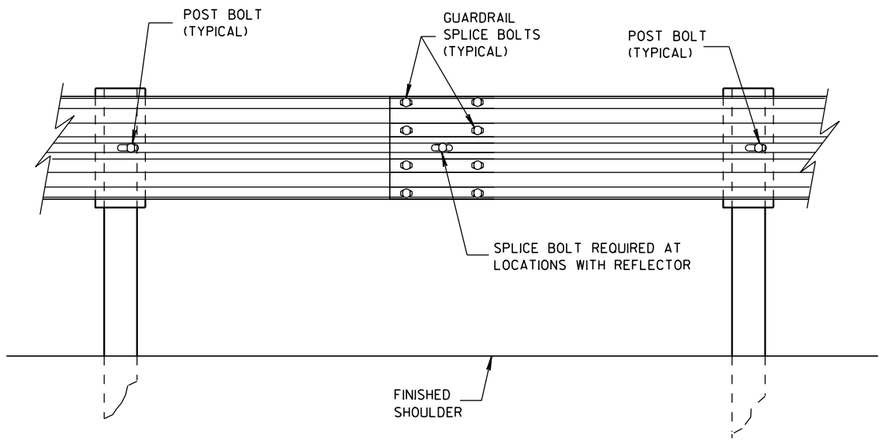


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-14



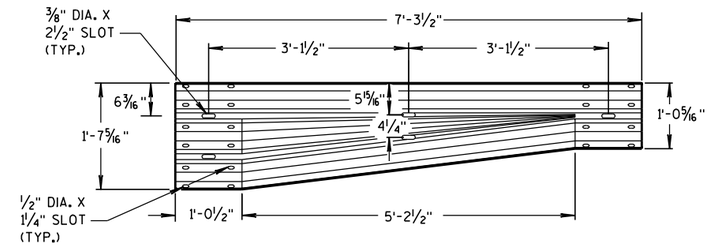
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

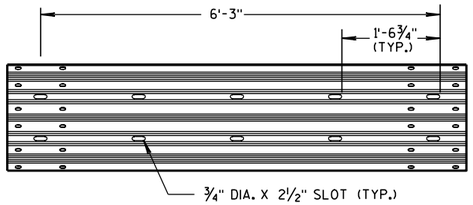
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

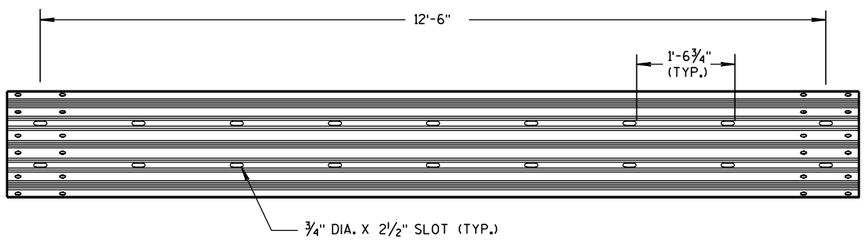
S.D.D. 14 B 45-3b



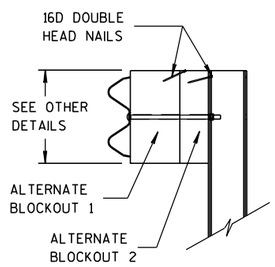
W-BEAM TO THRIE BEAM TRANSITION SECTION



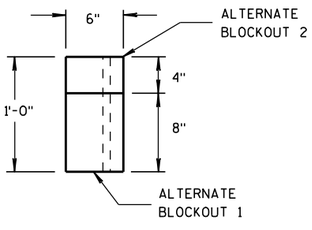
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

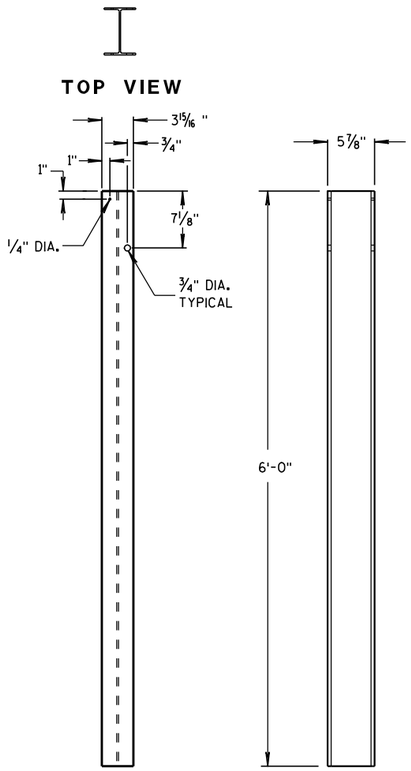


SIDE VIEW



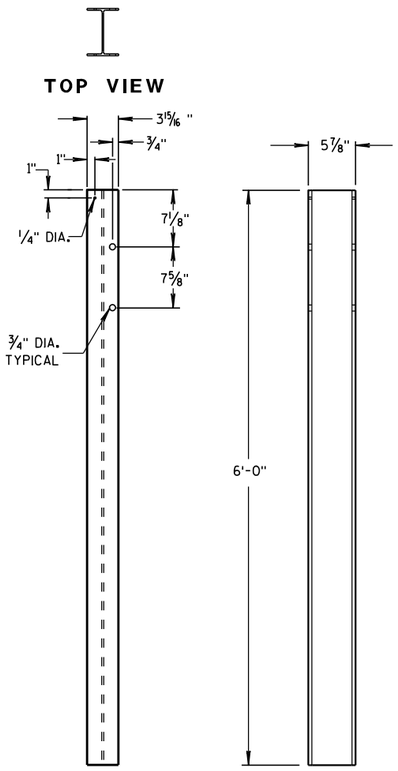
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



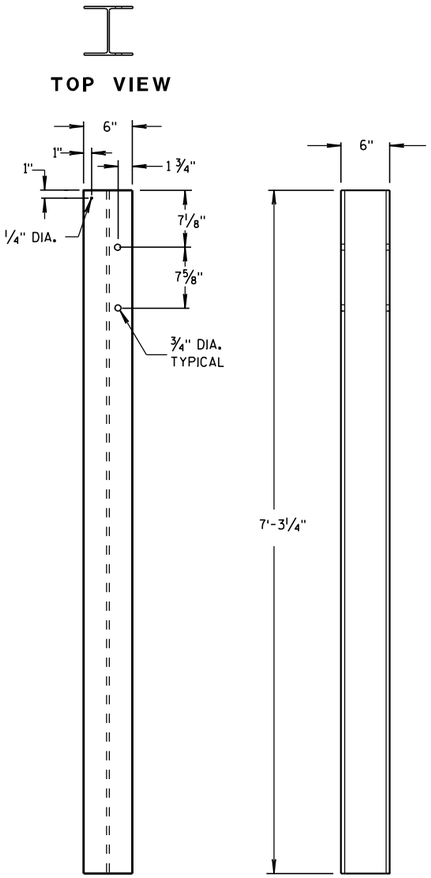
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5



FRONT VIEW SIDE VIEW

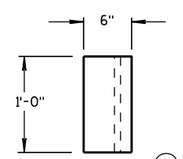
STEEL POSTS 6-11



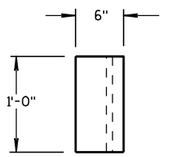
FRONT VIEW SIDE VIEW

STEEL POSTS 12-14

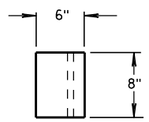
(1) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.



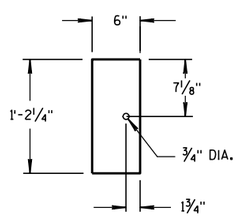
TOP VIEW (1)



TOP VIEW (1)

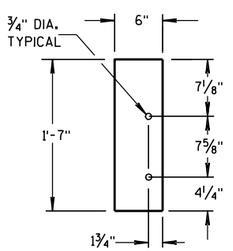


TOP VIEW



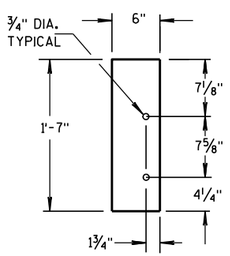
FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-11



FRONT VIEW

BLOCKOUT POSTS 12-14

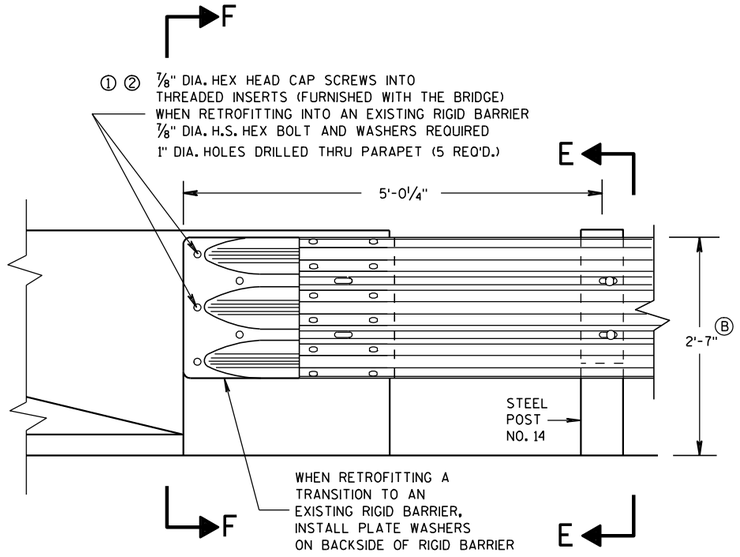
STEEL POST SIZES

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

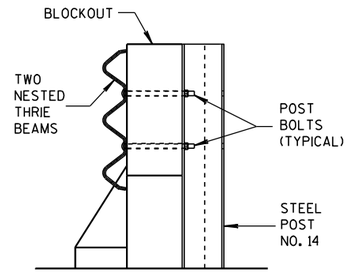
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 45-3c



FRONT VIEW



SECTION E-E

GENERAL NOTES

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

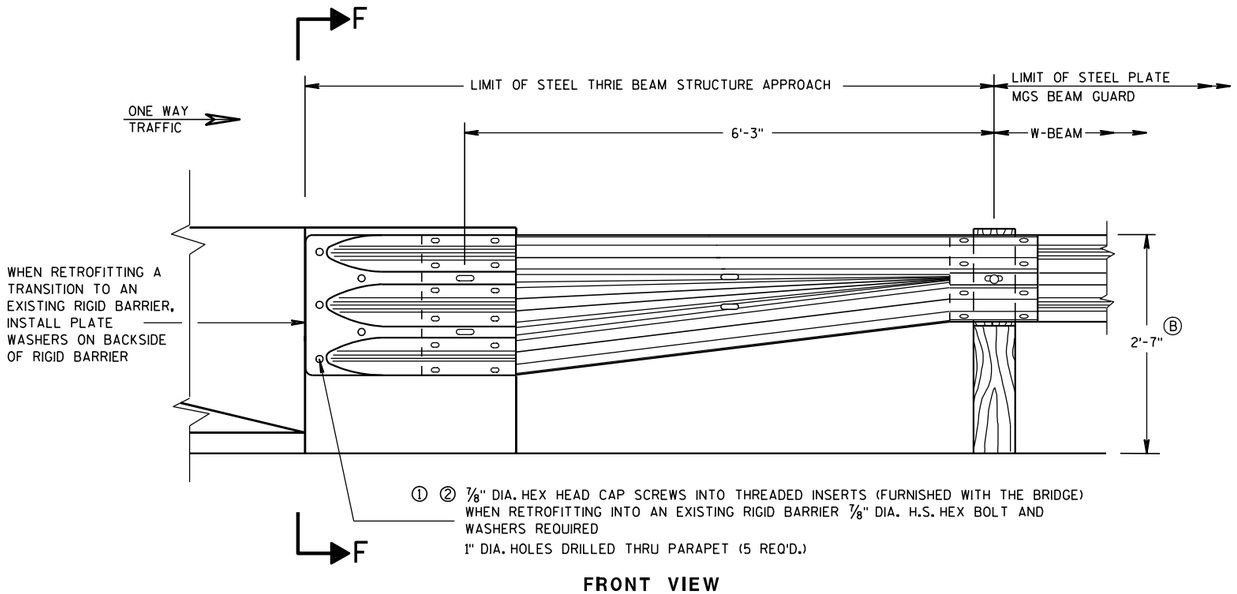
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

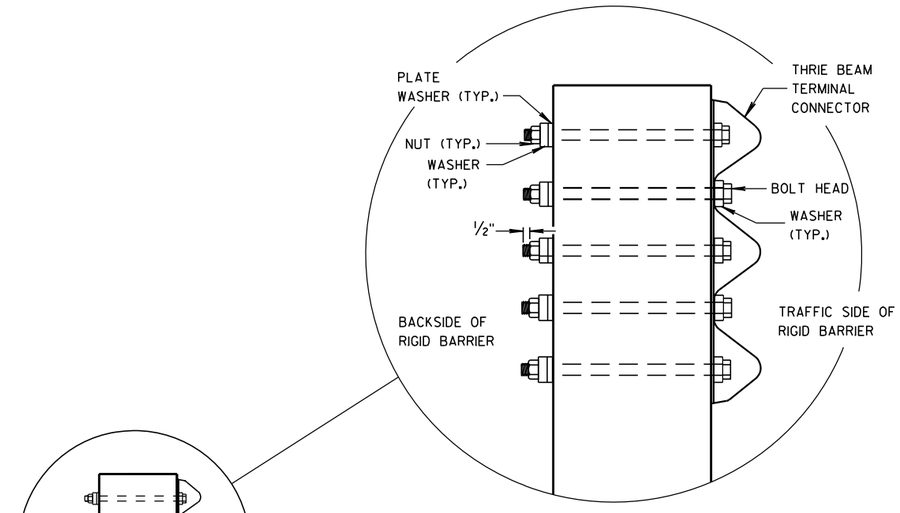
③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

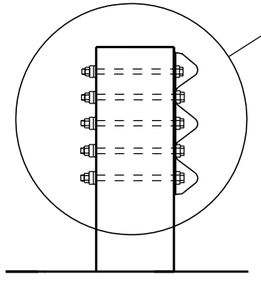
Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



FRONT VIEW





SECTION F-F

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

8/31/2012 — DATE

/S/ Jerry H. [illegible] — ROADWAY STANDARDS [illegible] ENGINEER

FHWA

6

S.D.D. 14 B 45-3d

6

S.D.D. 14 B 45-3d

GENERAL NOTES

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

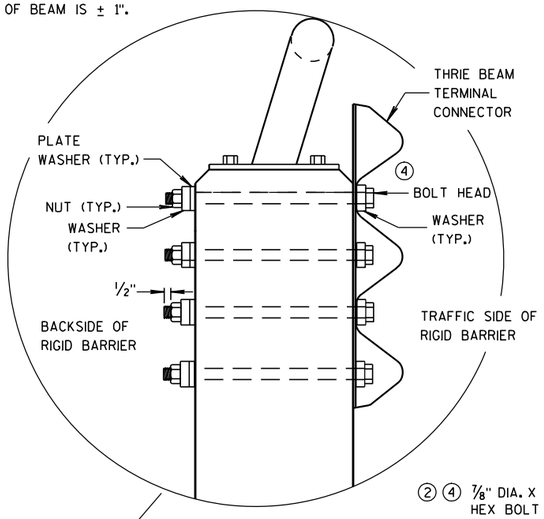
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

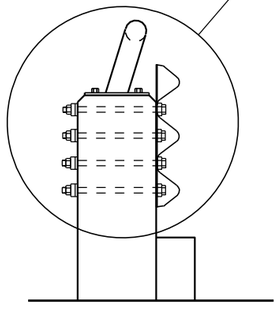
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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

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

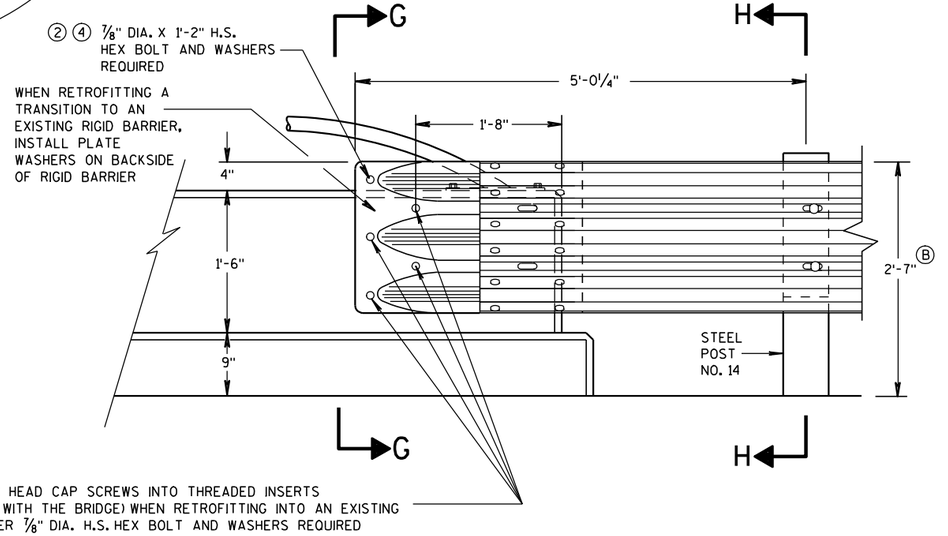
④ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

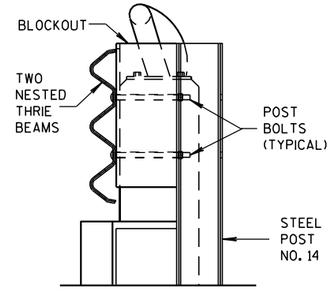




SECTION G-G

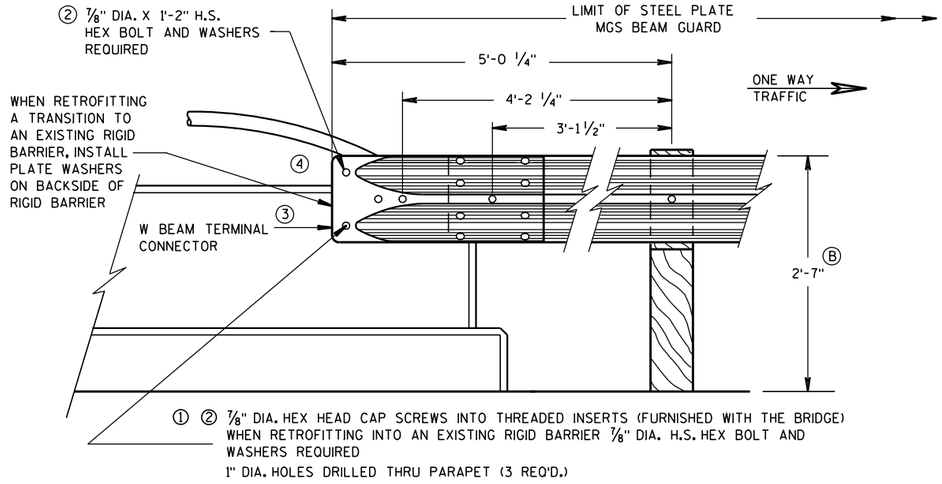


FRONT VIEW



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)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-31-2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

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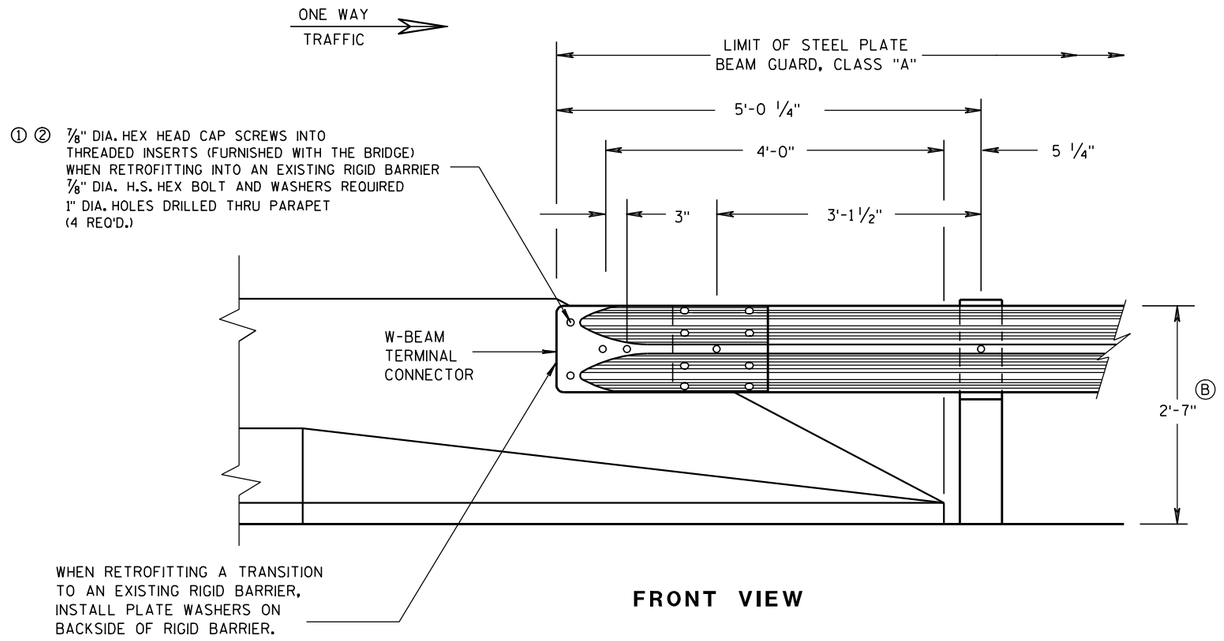


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

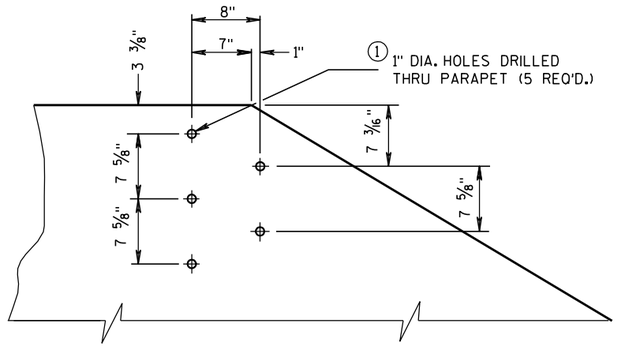
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

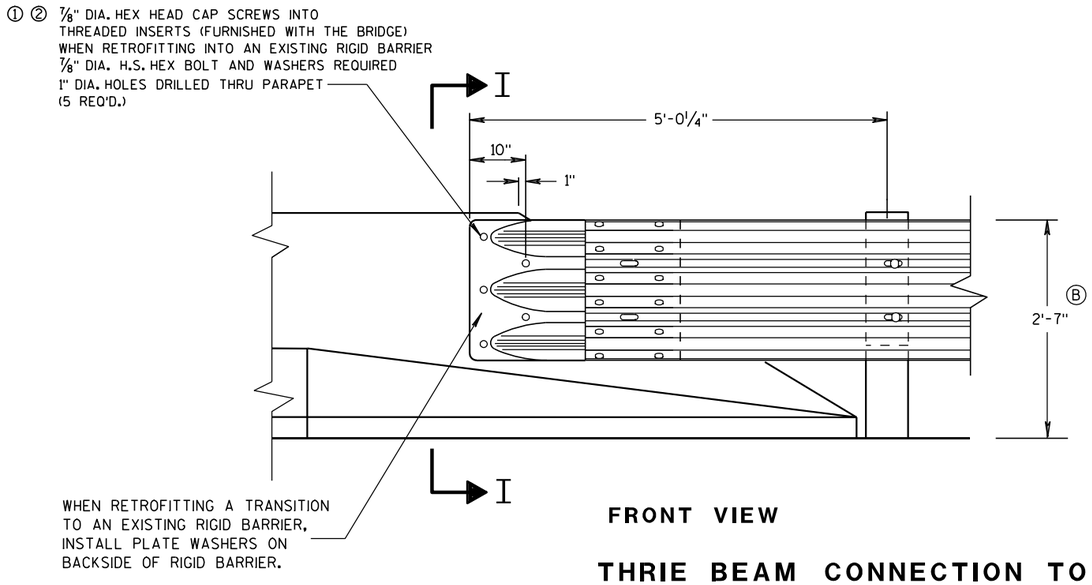
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

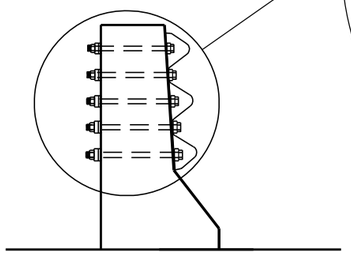
Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".



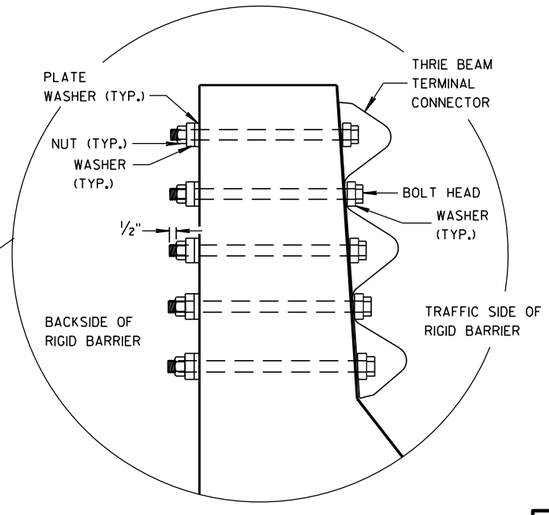
DRILL HOLE LOCATION AND PATTERN FOR THRIE BEAM CONNECTION



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

8/31/2012 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER

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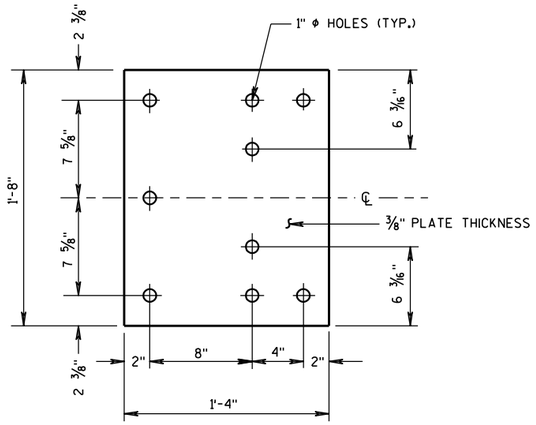
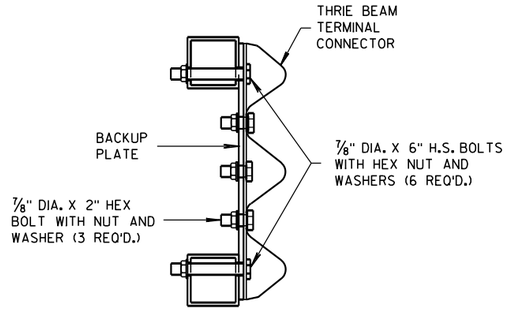


BACK-UP PLATE DETAIL

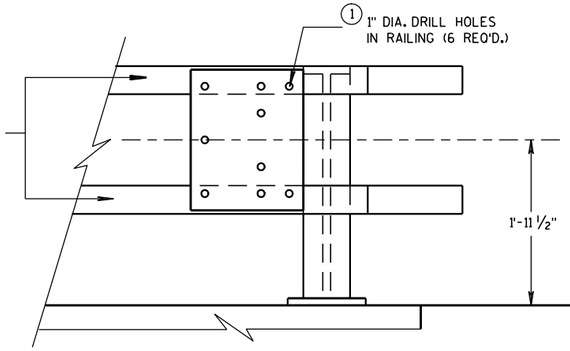


SECTION J-J

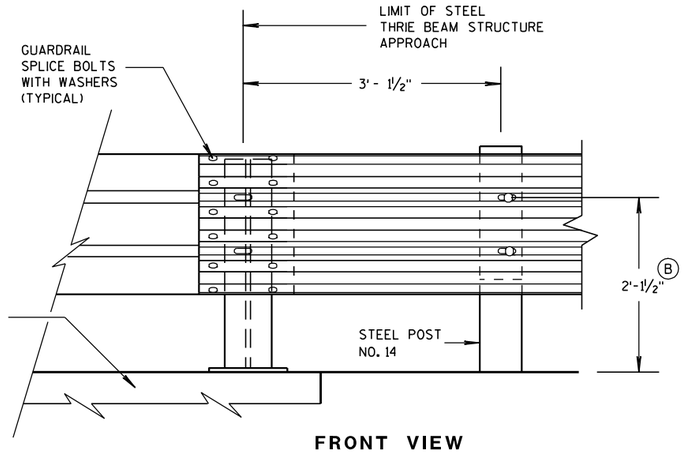
GENERAL NOTES

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

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

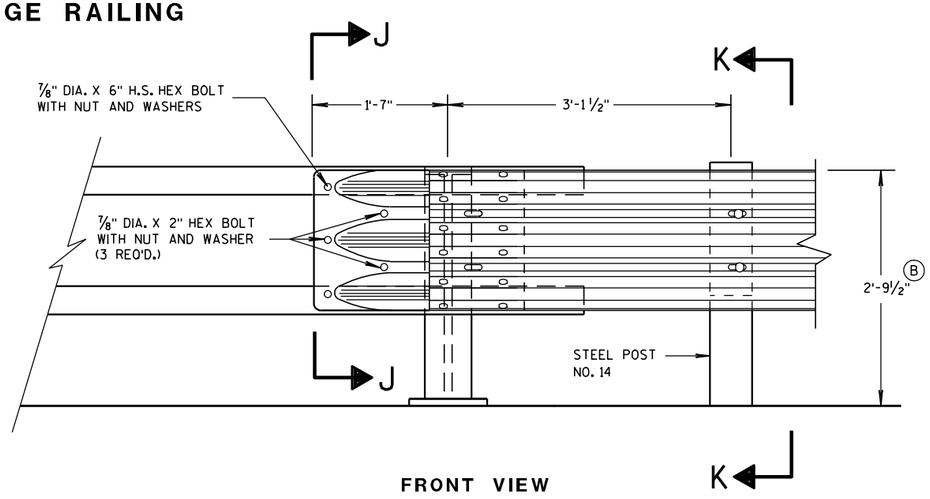


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

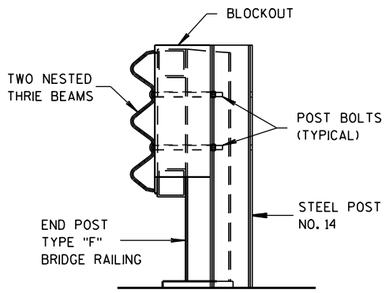


FRONT VIEW

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
DEPARTMENT OF TRANSPORTATION

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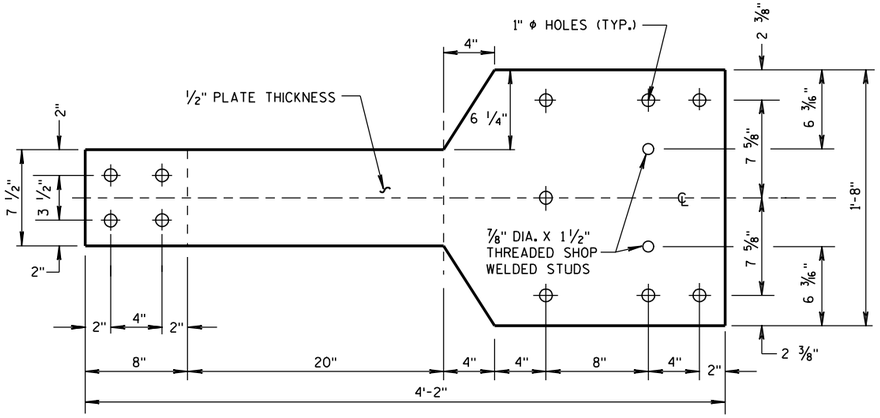
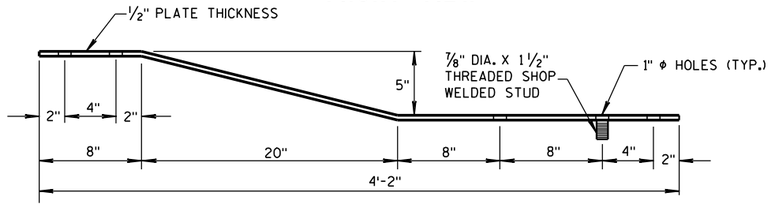
GENERAL NOTES

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

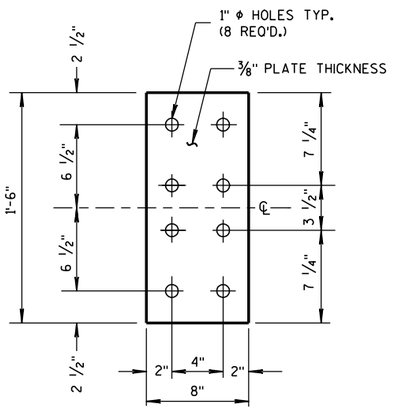


FRONT VIEW



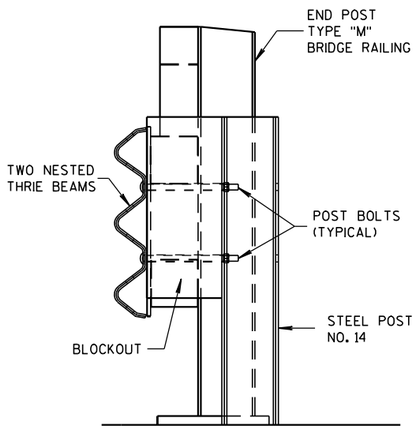
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

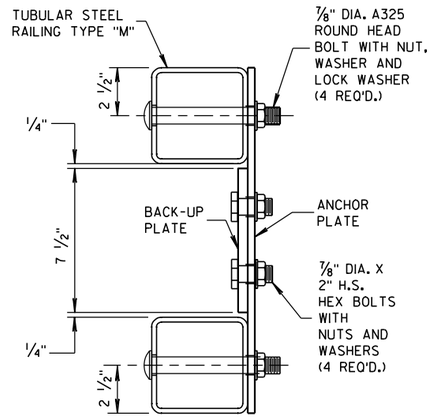


FRONT VIEW

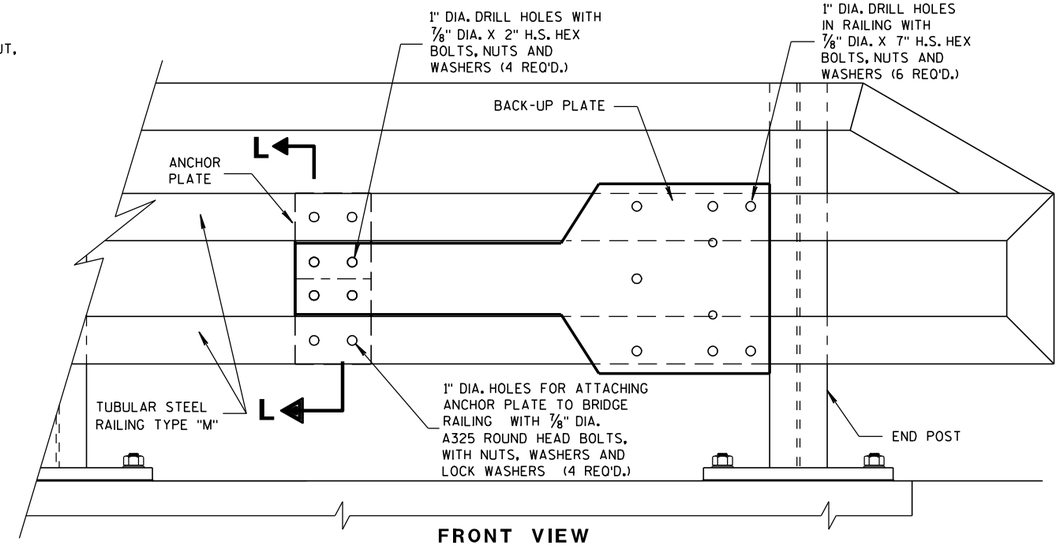
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

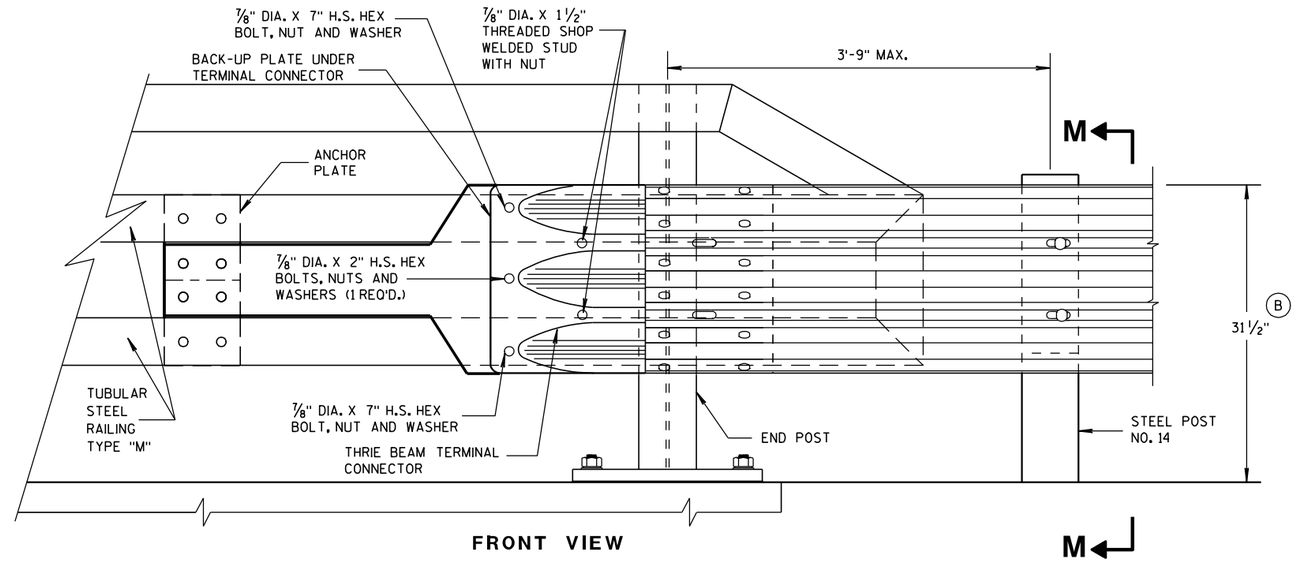


SECTION L-L

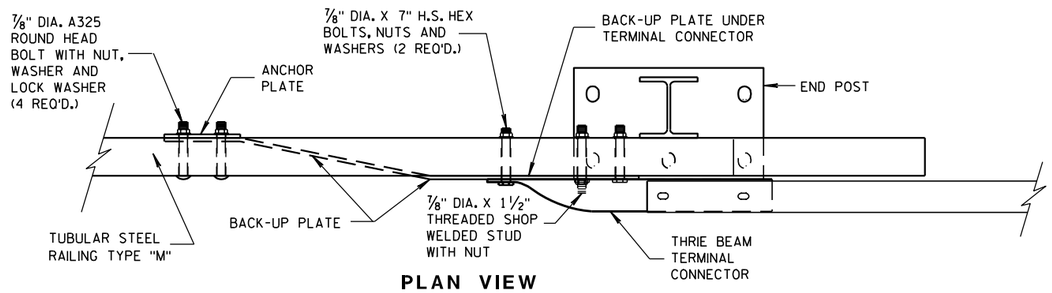


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-31-2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

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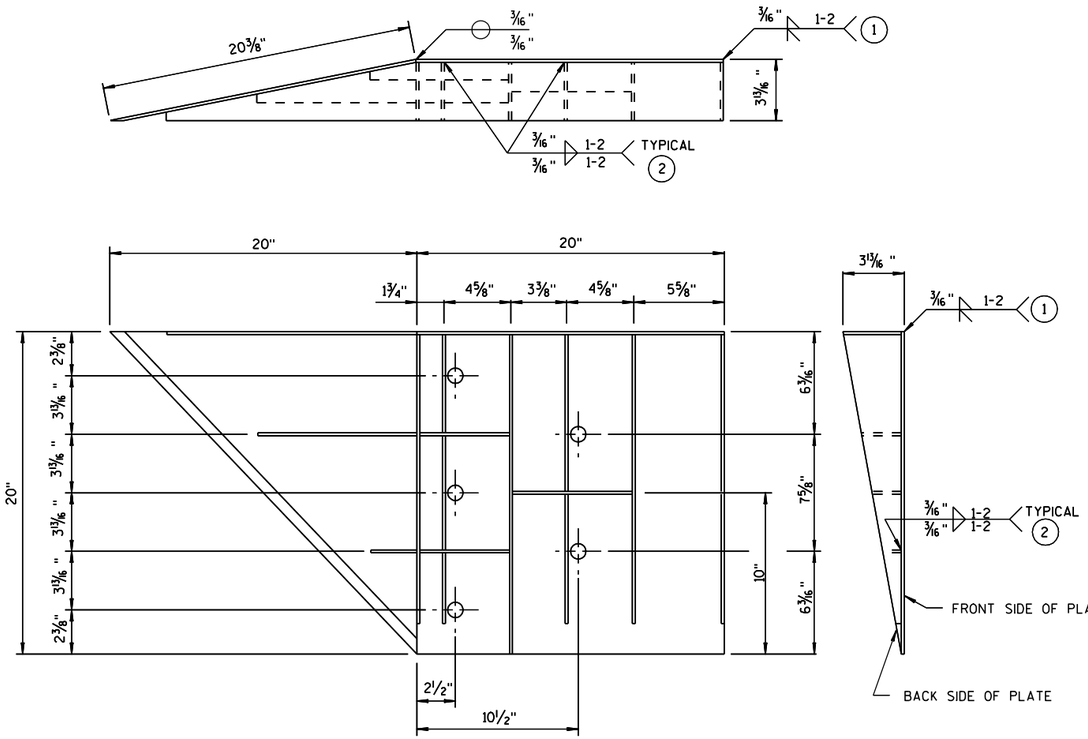
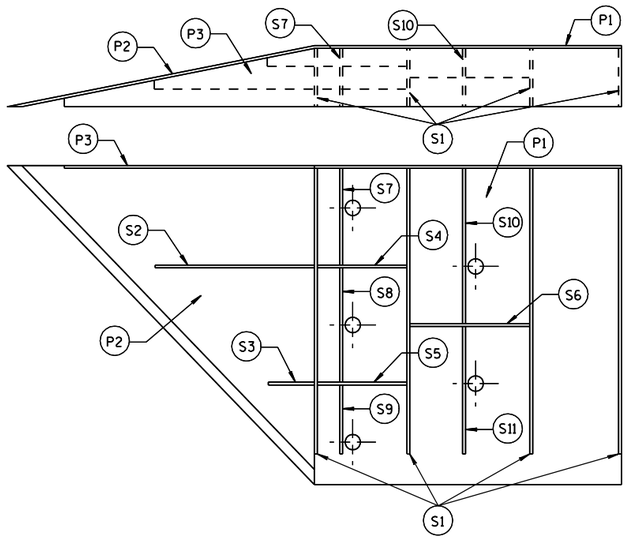


WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)



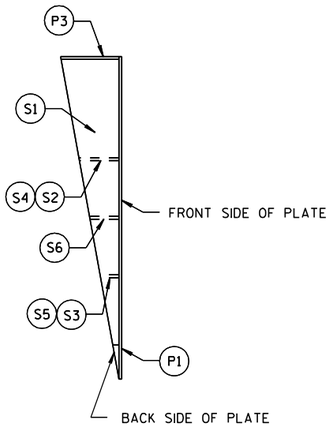


PLATE AND STIFFENER IDENTIFICATION

(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.

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

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

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 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 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 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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S.D.D. 14 B 45-3i

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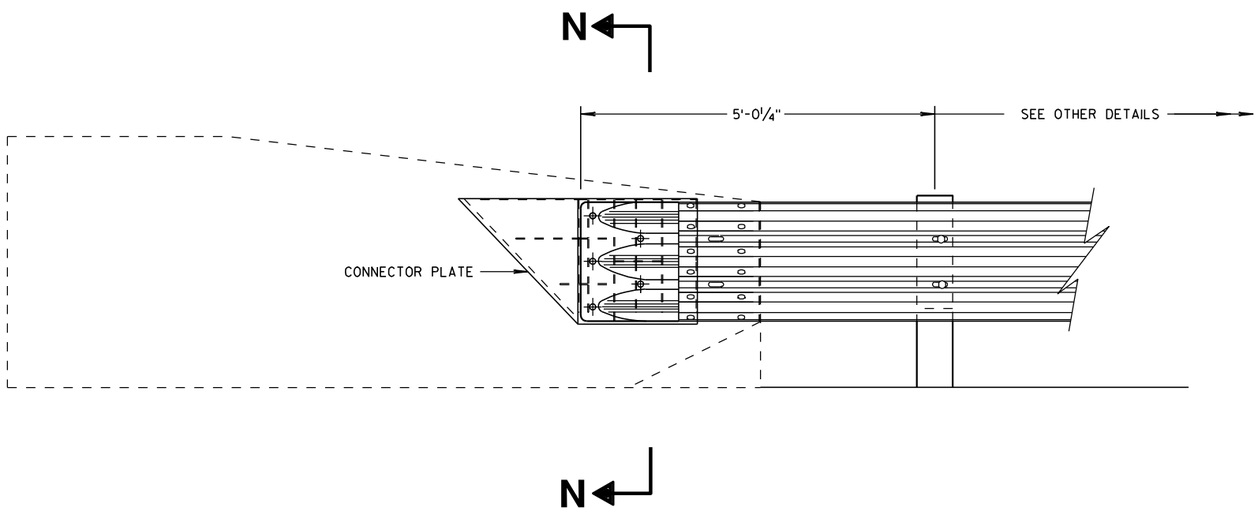
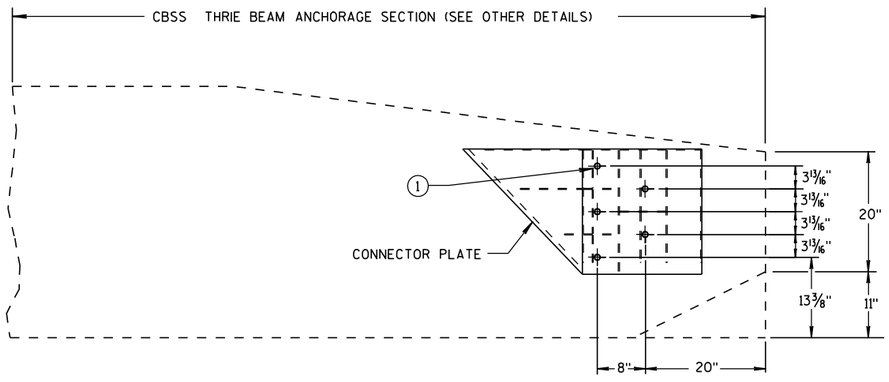
S.D.D. 14 B 45-3i



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER

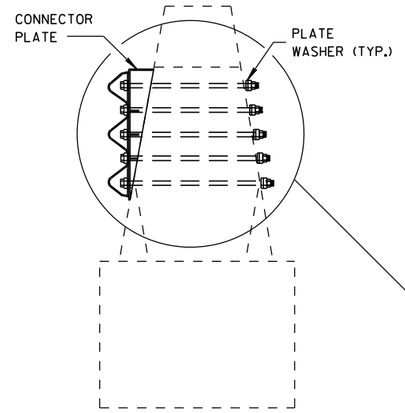


SINGLE SLOPE CONNECTION PLATE PLACEMENT

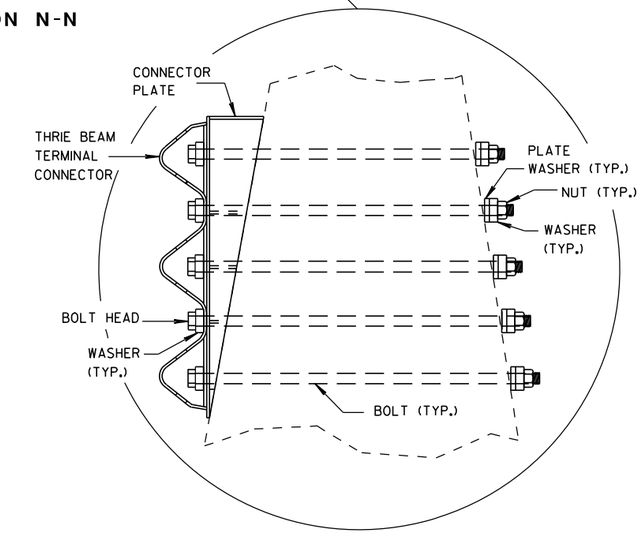
GENERAL NOTES

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

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



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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8/31/2012
DATE

/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

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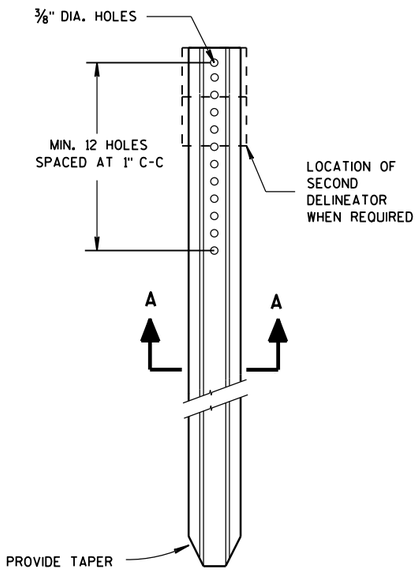
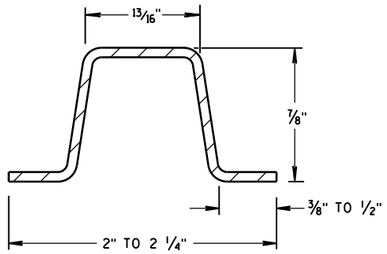
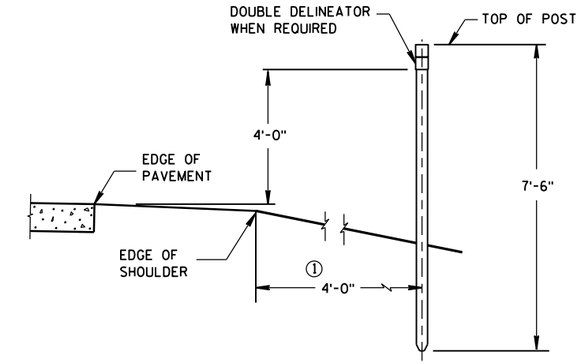


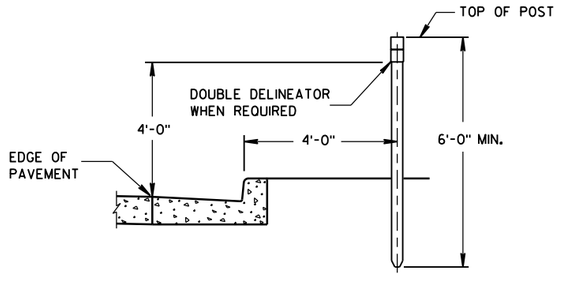
DELINEATOR POST



SECTION A-A

WEIGHT 1.12 LBS PER FT. ± 0.1 LB.



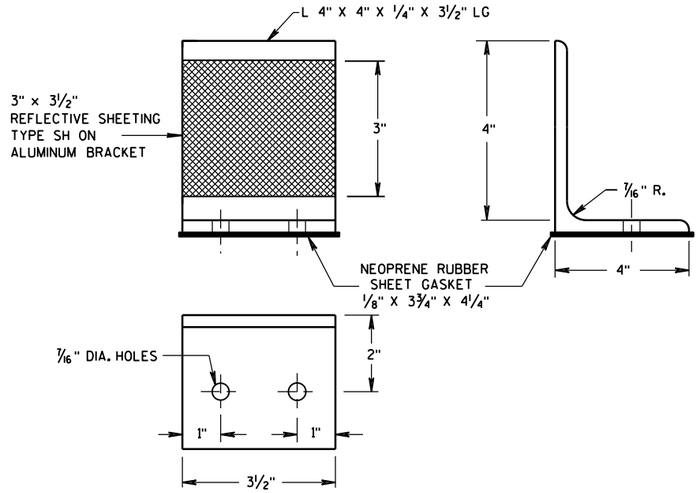


TYPICAL INSTALLATIONS OF DELINEATOR POSTS

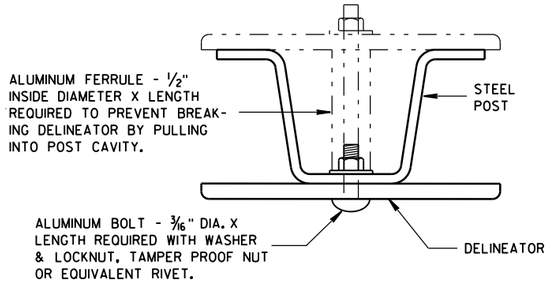
GENERAL NOTES

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

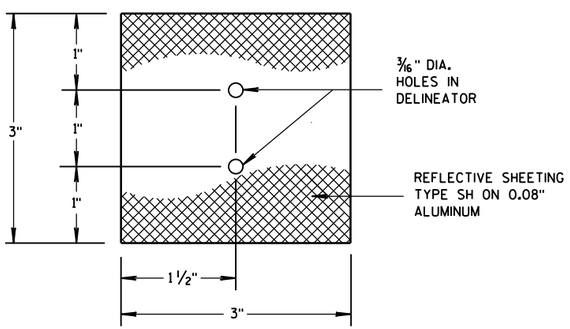
① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.



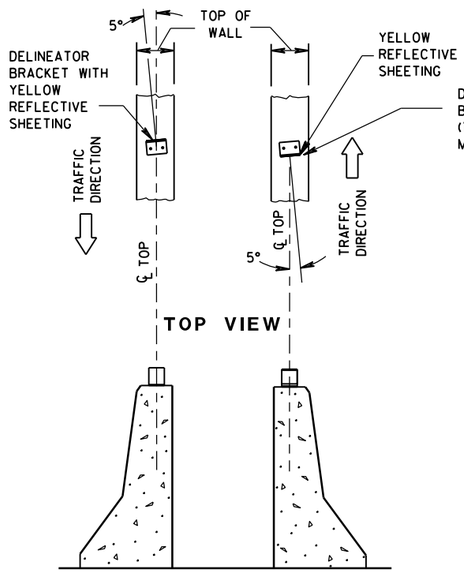
DELINEATOR BRACKET



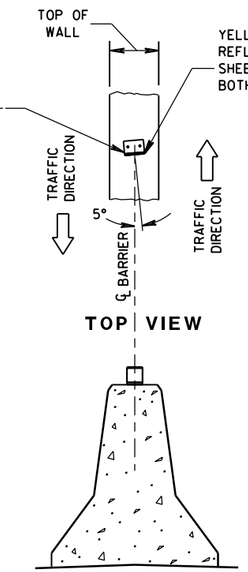
MOUNTING DETAIL FOR DELINEATOR



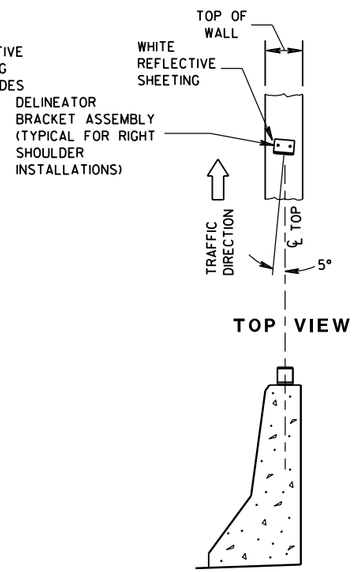
3"x 3" DELINEATOR



DOUBLE BARRIERS IN MEDIAN

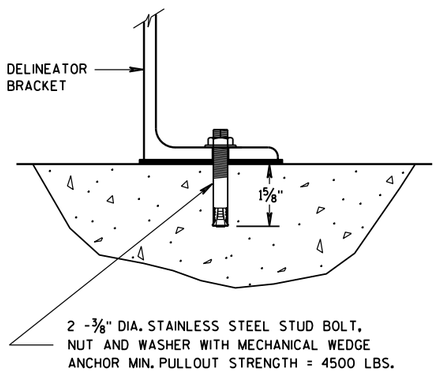


MEDIAN BARRIER



BARRIER LOCATED TO RT. OF TRAFFIC FLOW

LOCATION AND AIMING DETAILS FOR DELINEATOR BRACKETS MOUNTED ON CONCRETE BARRIERS



DELINEATOR BRACKET MOUNTING DETAIL

DELINEATOR POST, DELINEATOR, AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC E
FHWA

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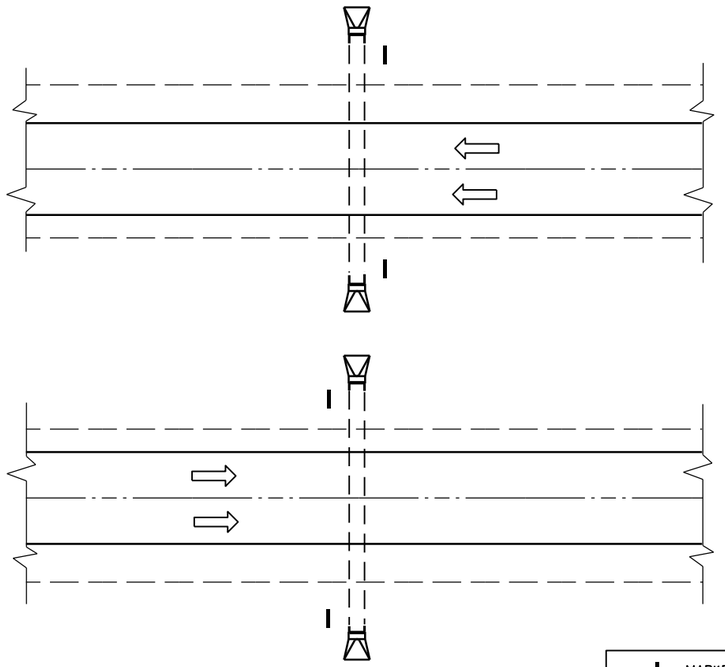
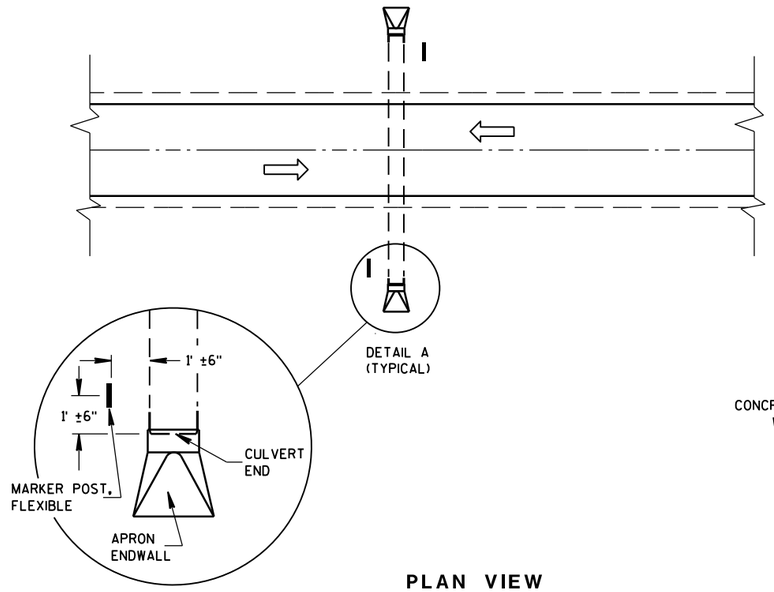


PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

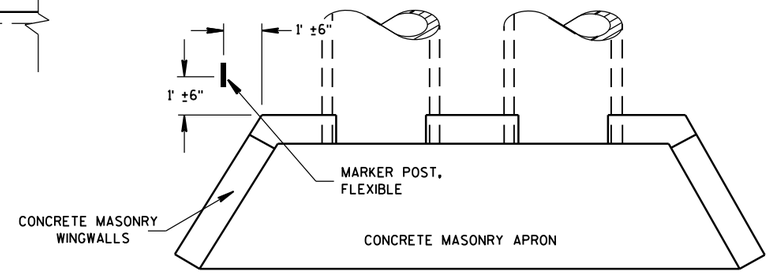
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

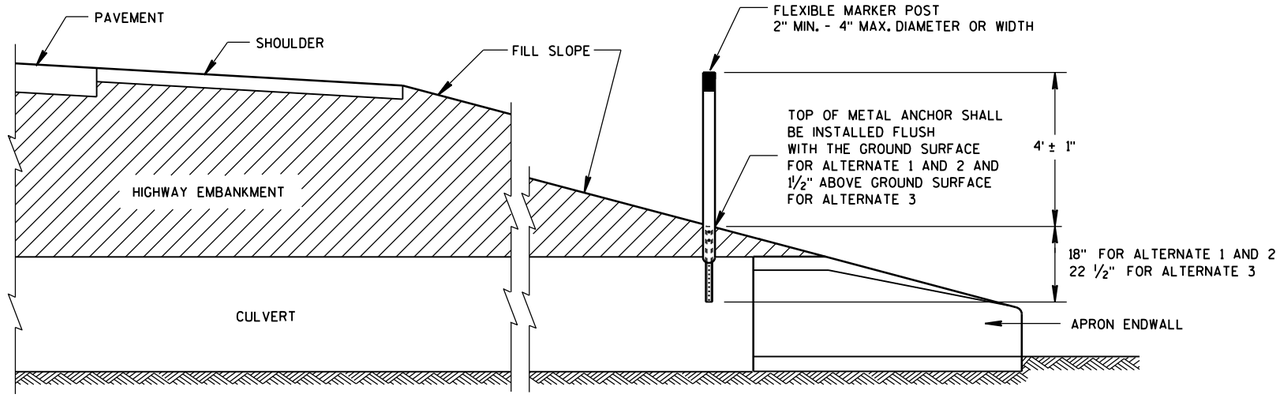
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST FOR CULVERT END

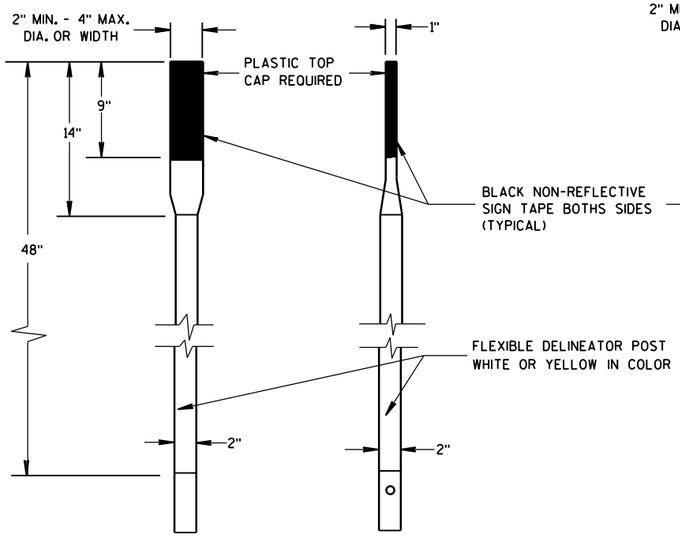
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

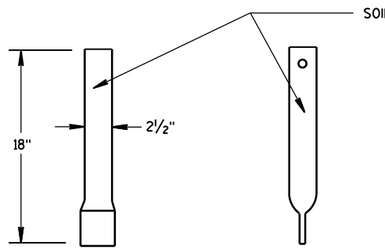
6

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

6

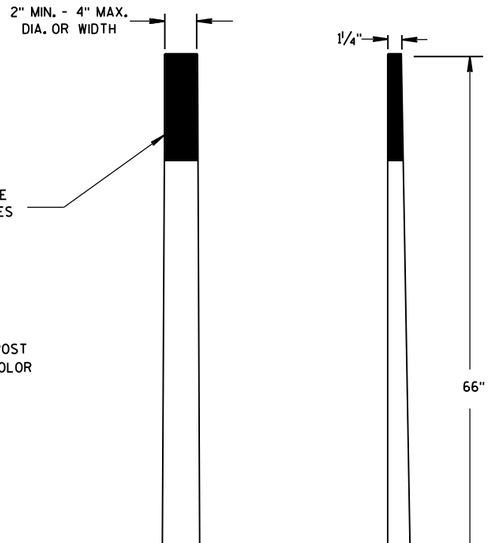
S.D.D. 15 A 3-2a





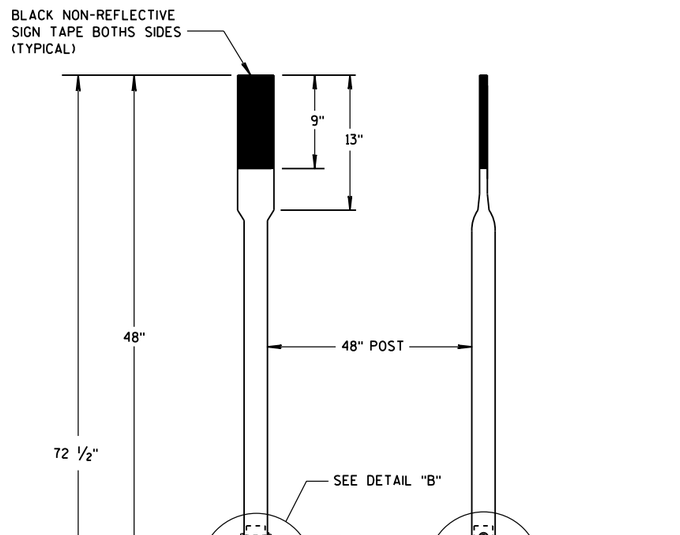
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

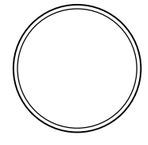
ALTERNATE 2



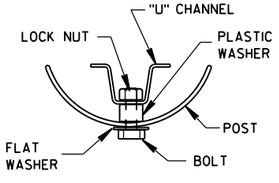
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POSTS



SECTION A-A



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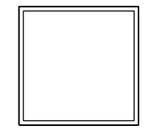
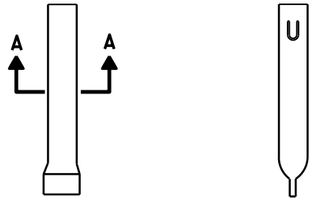
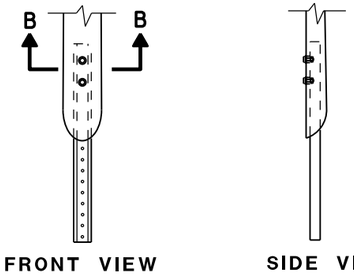


SECTION C-C



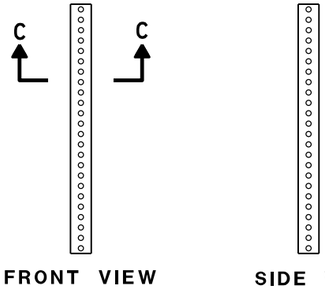
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

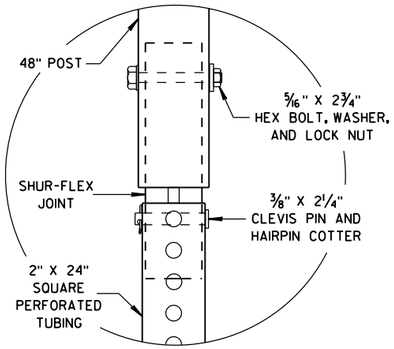
ALTERNATE 2



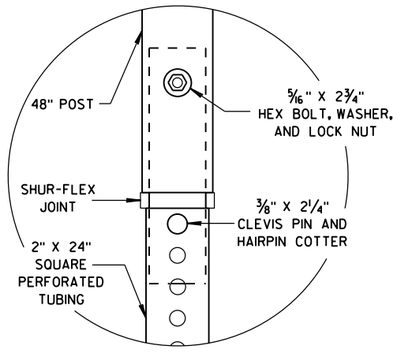
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS



DETAIL B



DETAIL C

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

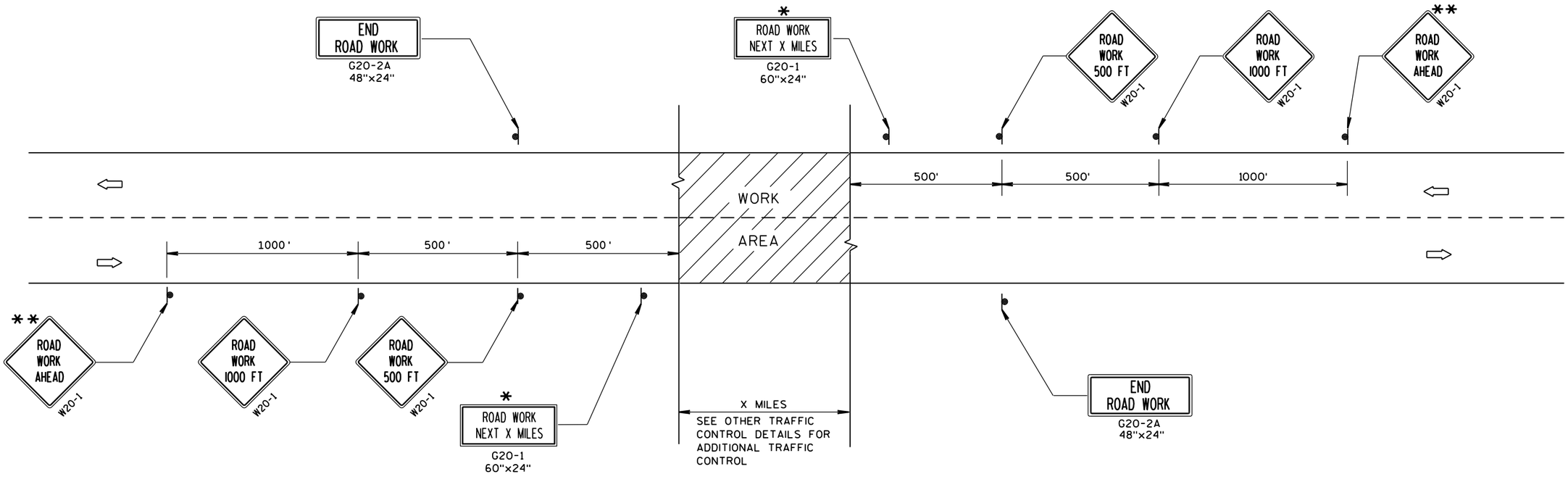
APPROVED
10/1/2012 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

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

6

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



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

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

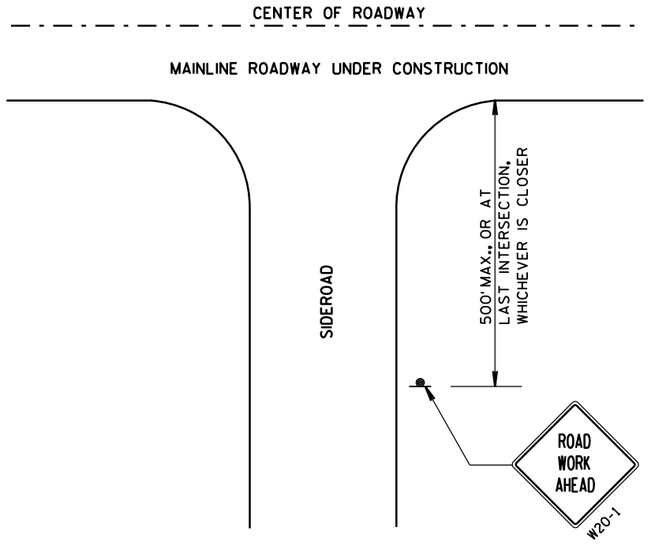
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

** PLACE ADDITIONAL W20-1 "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



LEGEND

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

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

SIGN

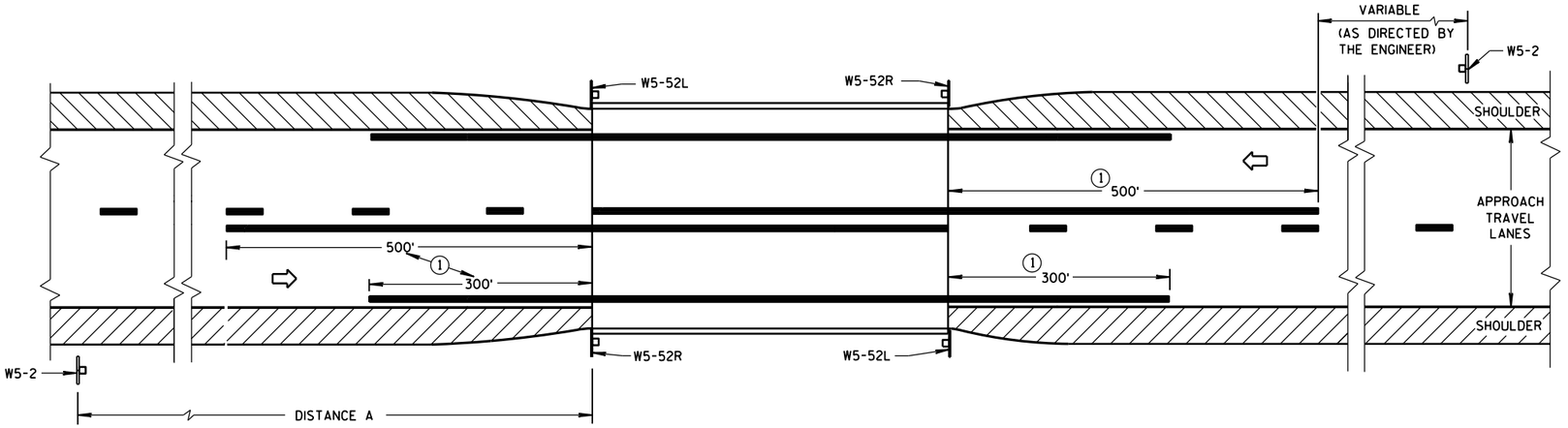
FHWA

6

S.D.D. 15 C 4-2

6

S.D.D. 15 C 4-2



GENERAL NOTES

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

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

(1) MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.

(2) FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.

(3) LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.

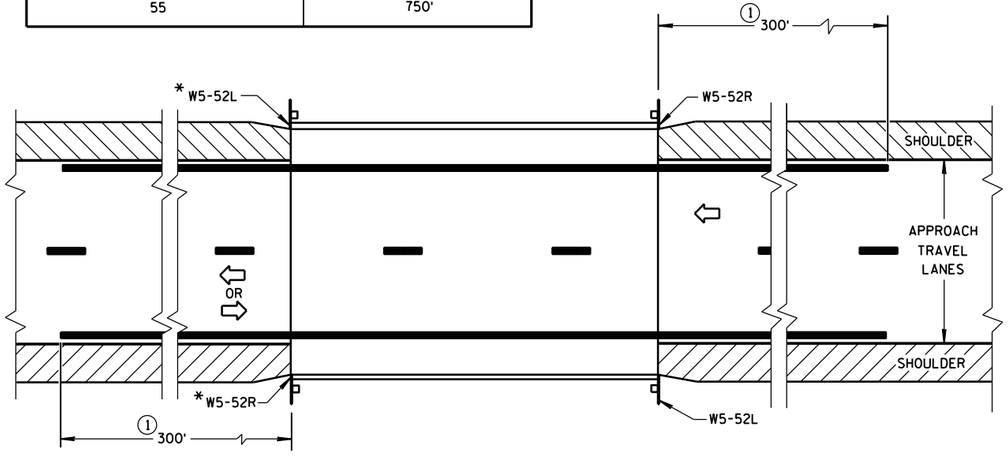
DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET

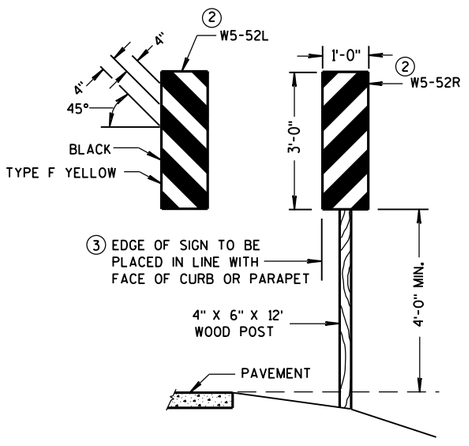


*OMIT ON ONE-WAY TRAVELLED WAYS

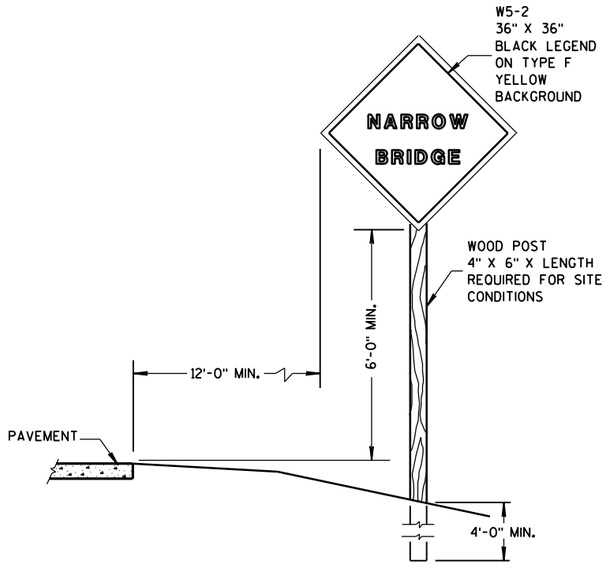
SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

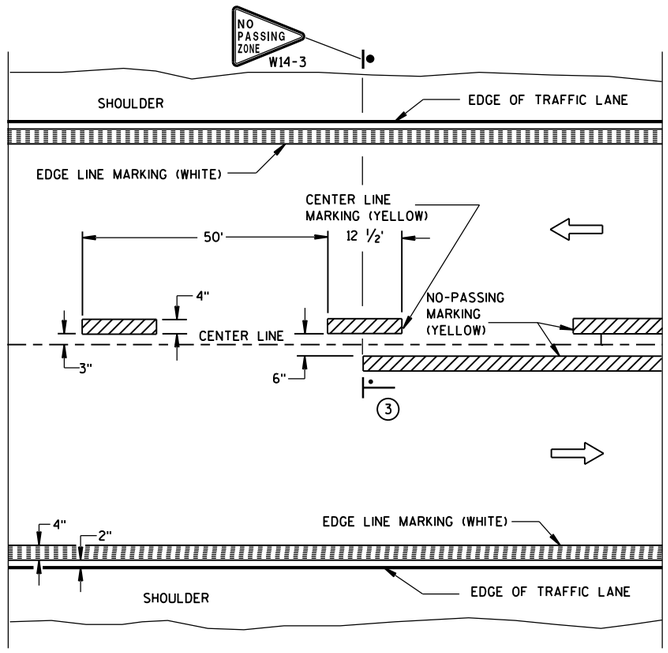
3-2014 DATE

/S/ Travis Feltes STATE TRAFFIC ENGINEER

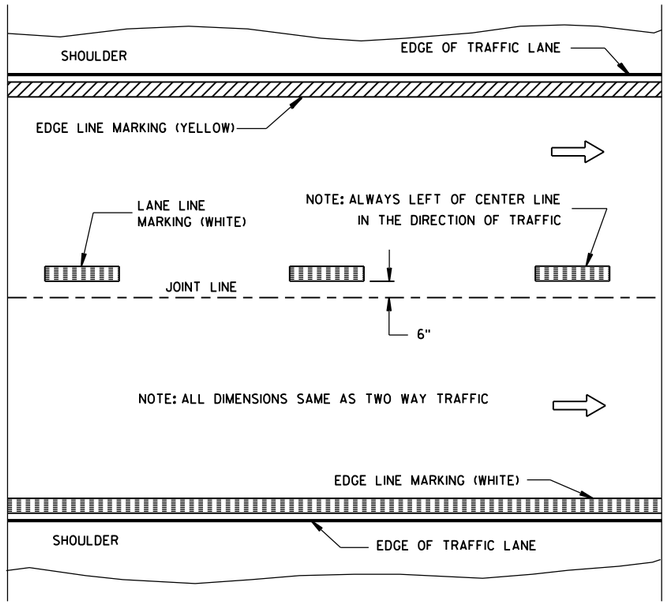
FHWA

6

S.D.D. 15 C 6-7

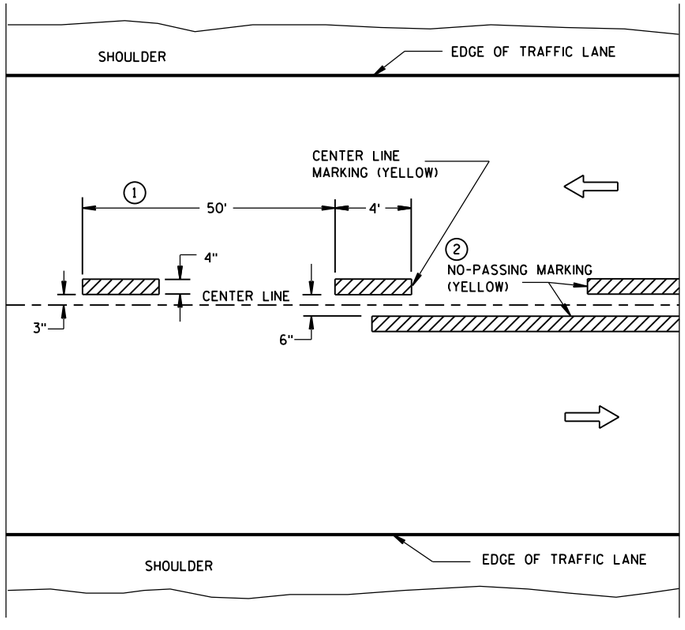


TWO WAY TRAFFIC

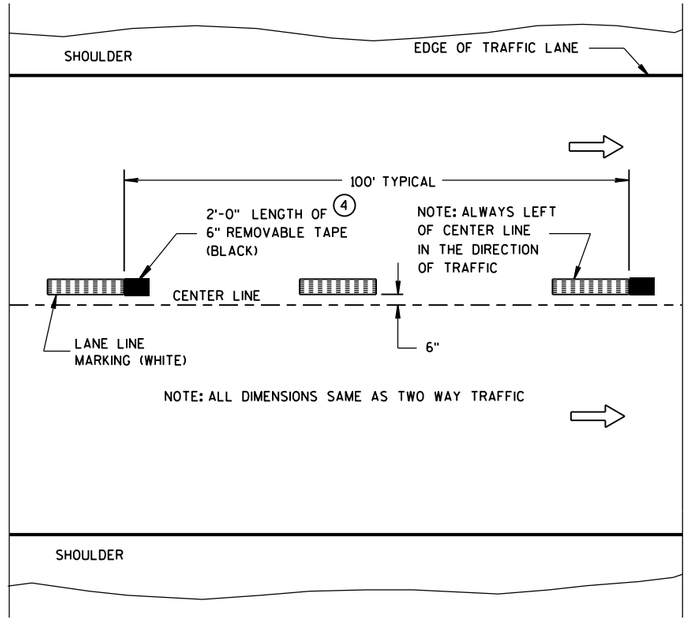


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

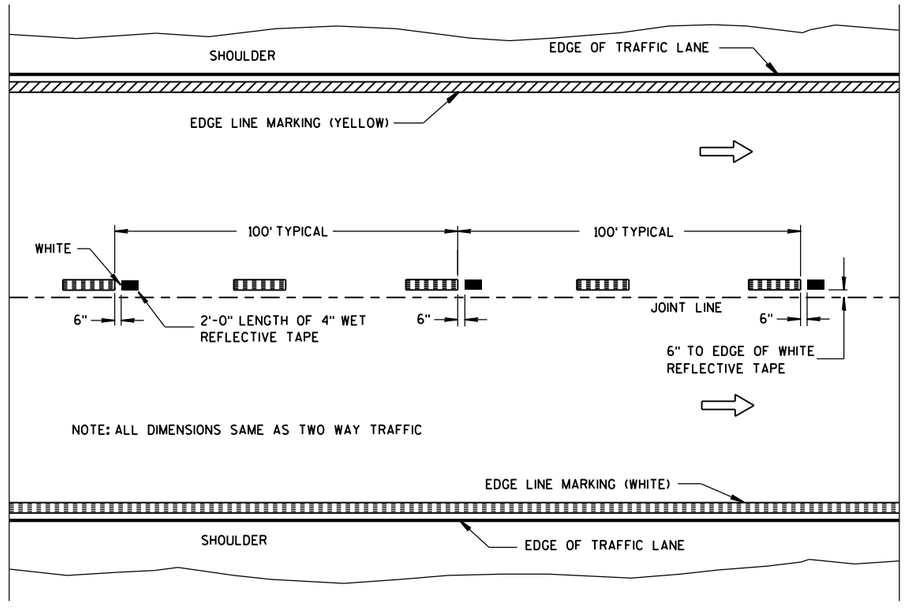
GENERAL NOTES

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

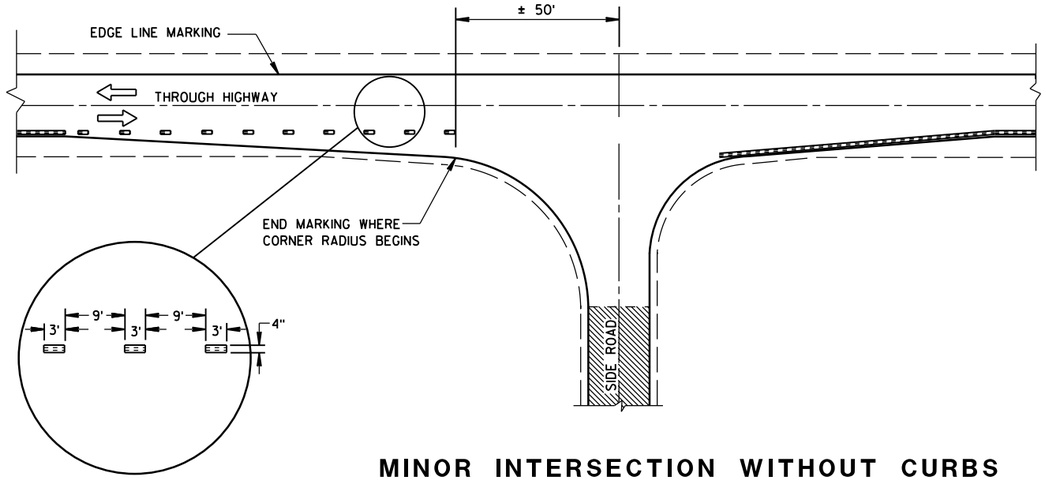
FHWA

6

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

6

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.

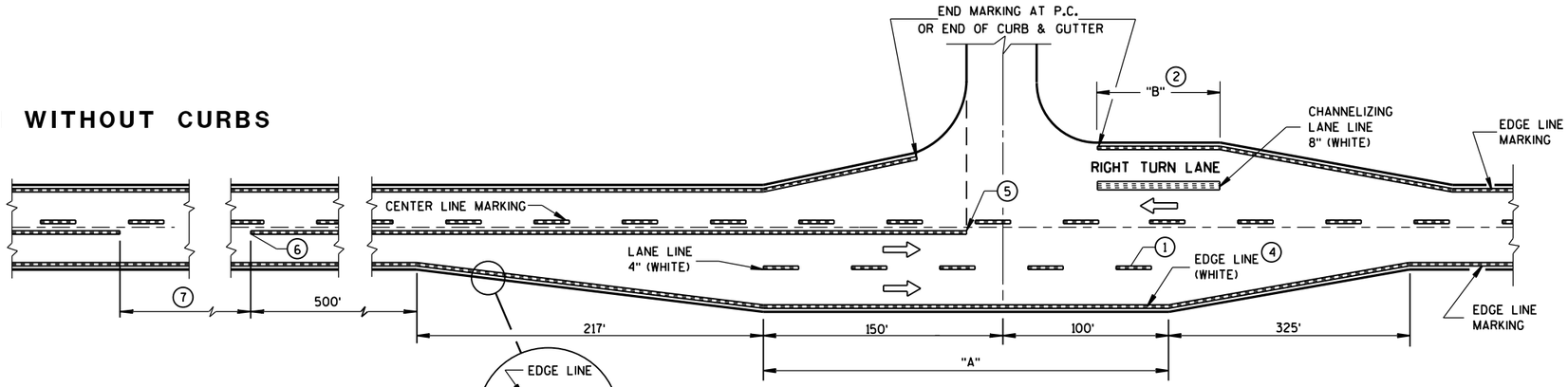
(7) IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

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

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

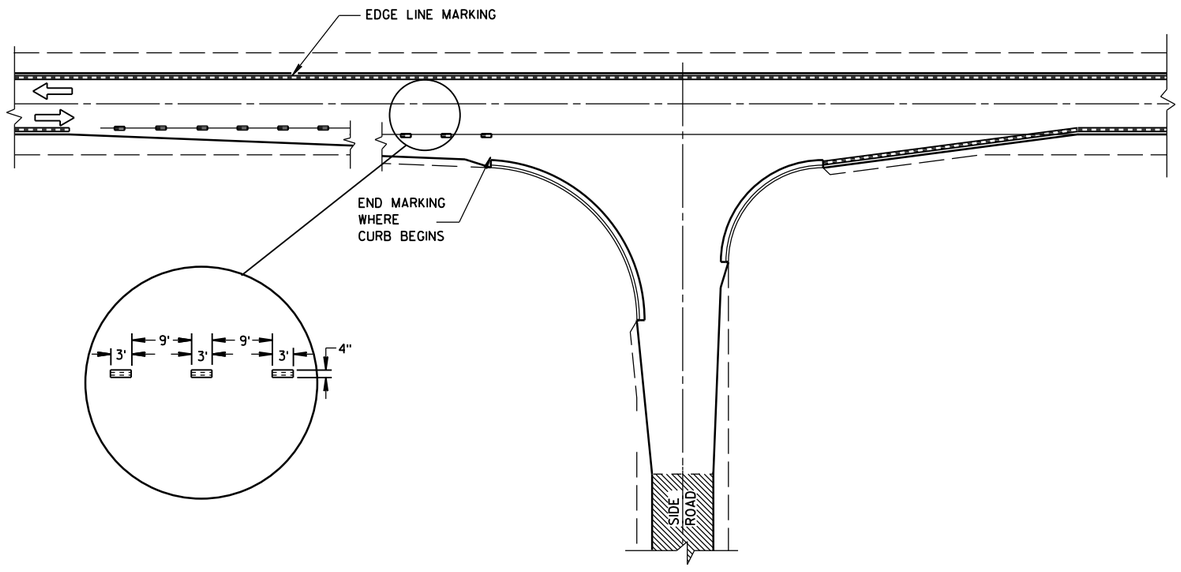
(7)

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



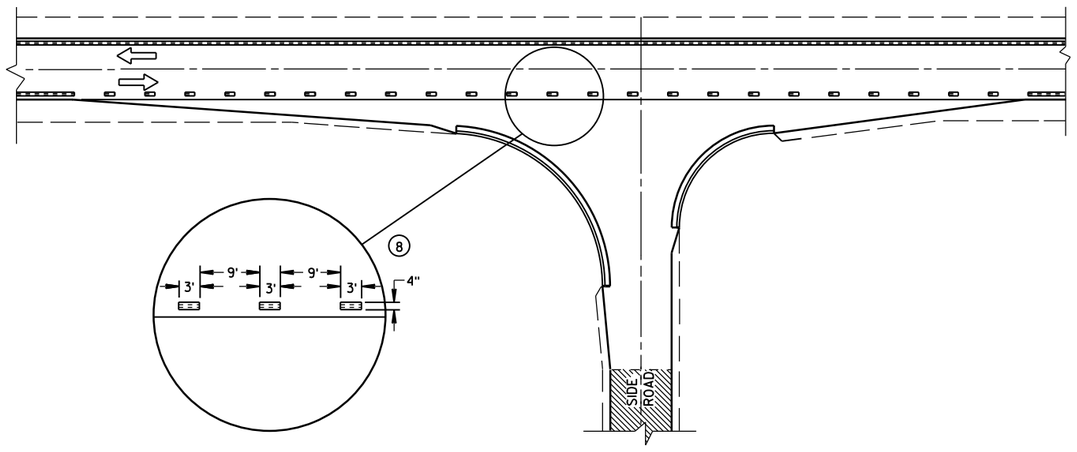
MAJOR INTERSECTIONS

(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

6

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

LEGEND

SIGN ON PORTABLE OR PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA

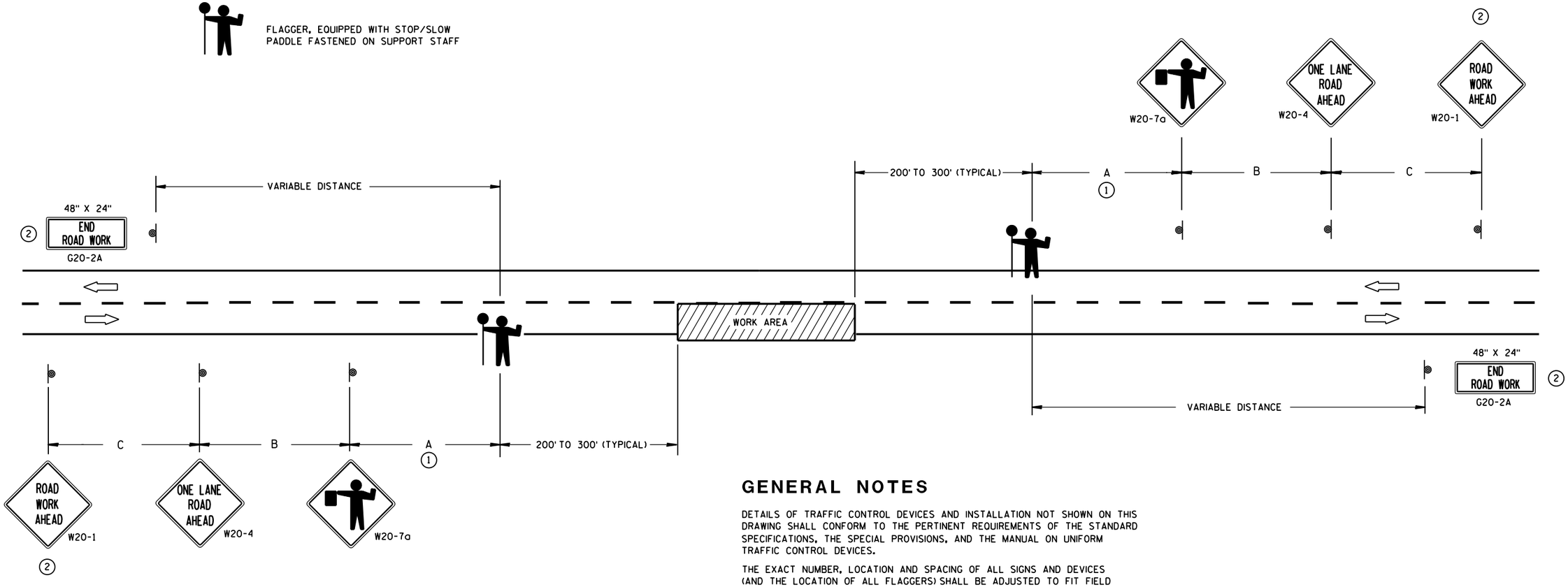
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

SPEED LIMIT	SIGN SPACING A,B,C
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

W3-4

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



(1) FOR A MOVING WORK OPERATION,
SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

(2) SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

GENERAL NOTES

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

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

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

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

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

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

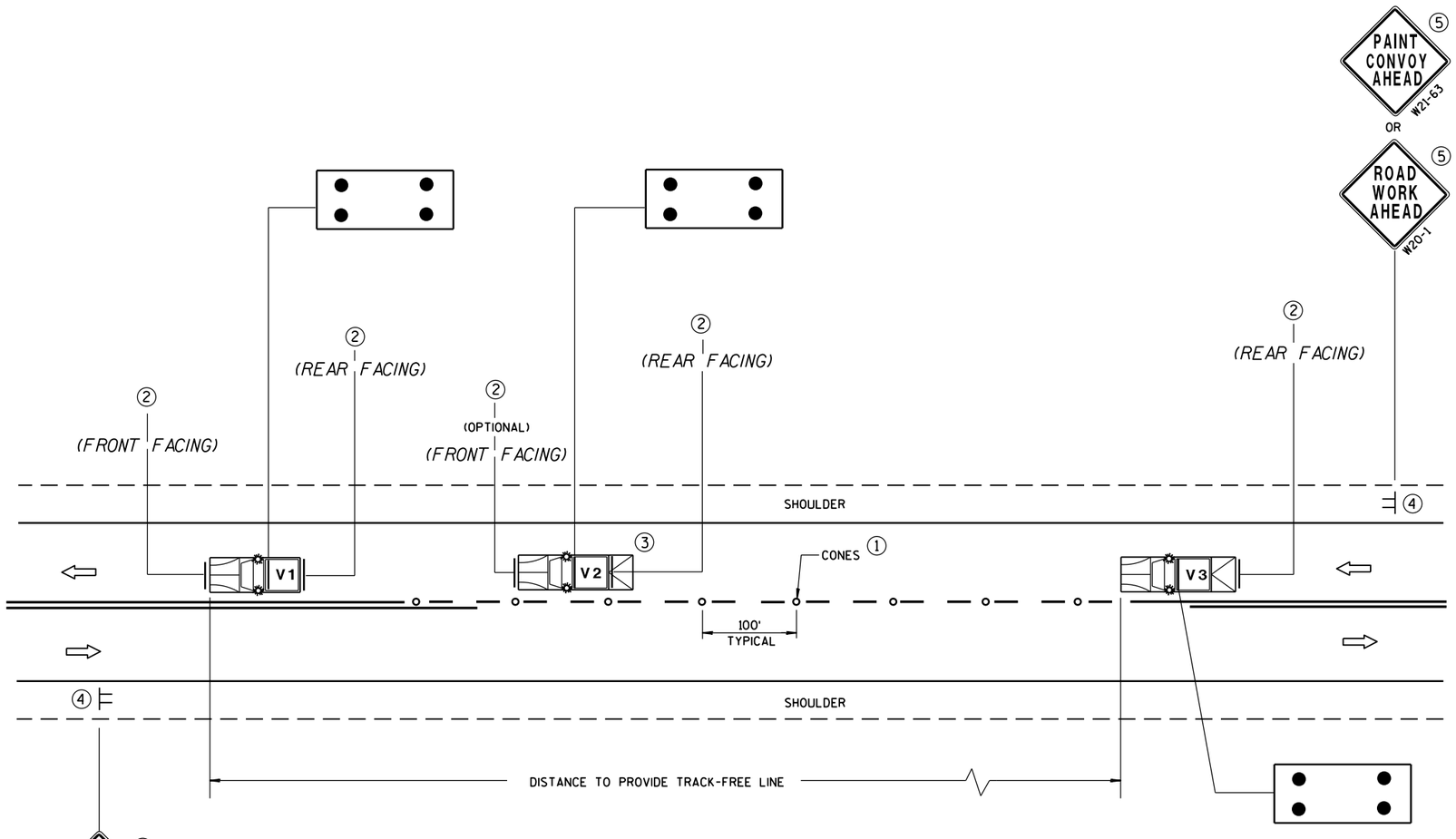
APPROVED
8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
DESIGN
FHWA

6

S.D.D. 15 C 12-4

6

S.D.D. 15 C 12-4



MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY

GENERAL NOTES

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

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

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

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

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

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

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

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

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

(1) CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

(2) USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.

WET PAINT W21-64 OR WET PAINT W21-64

(3) OPTIONAL TRUCK-MOUNTED ATTENUATOR.

(4) SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

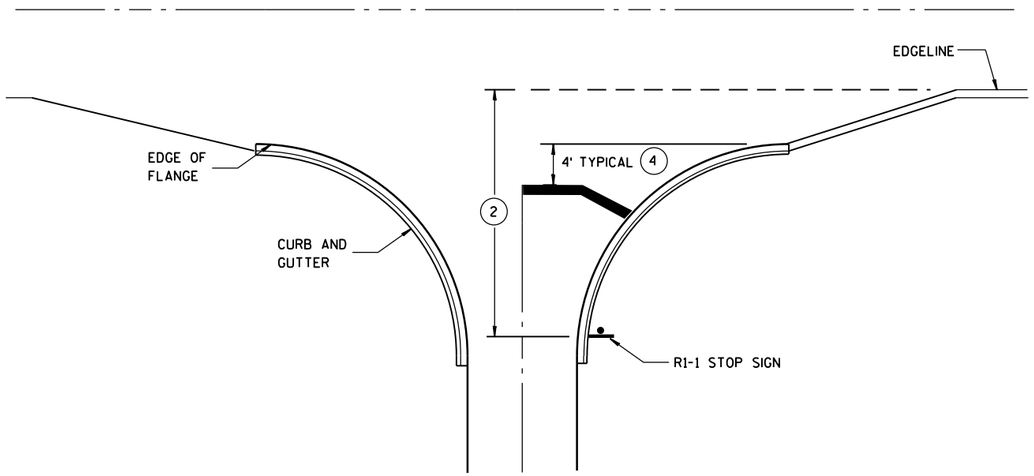
(5) IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

LEGEND

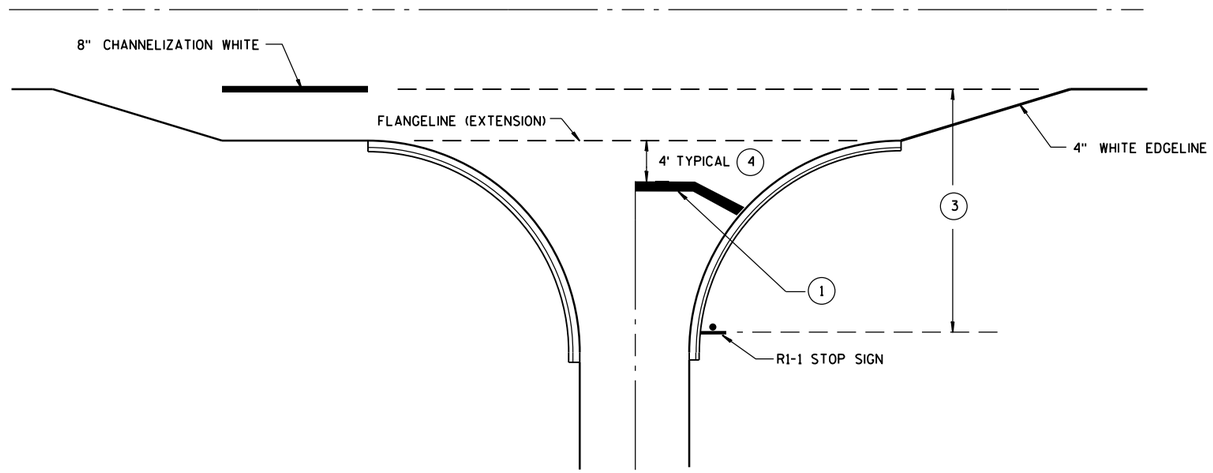
- **V1** LEAD VEHICLE
- **V2** SHADOW VEHICLE
- **V3** TRAIL VEHICLE WITH TMA
- **TMA** TRUCK-MOUNTED ATTENUATOR
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- CONES
- FLASHING ARROW PANEL (CAUTION)

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 5/3/2013 DATE — /S/ Travis Feltes STATE TRAFFIC E FHWA

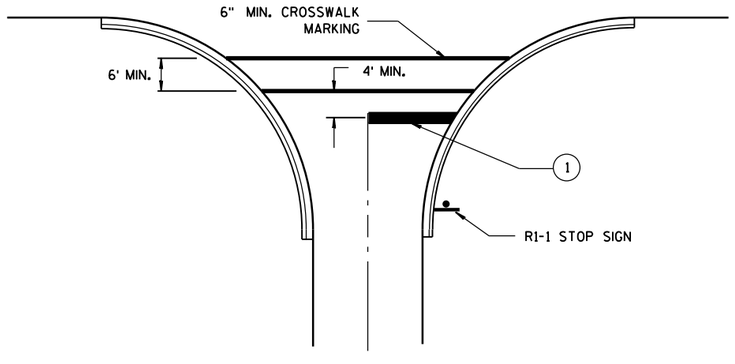
6
S.D.D. 15 C 19-2a



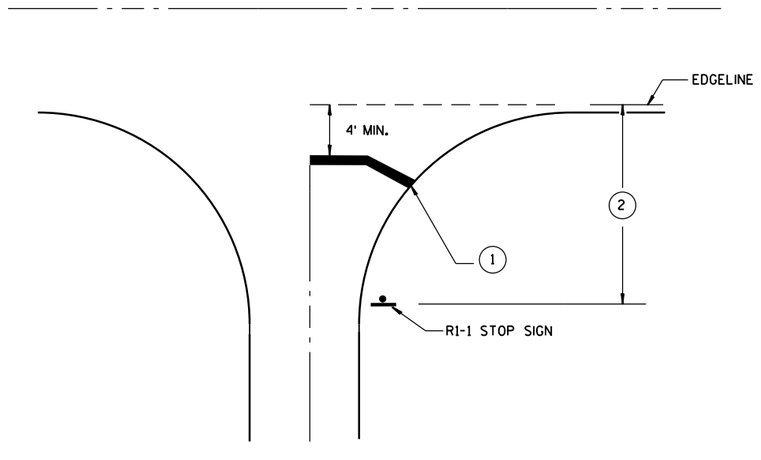
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

1. 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
2. IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE THAN NO STOP LINE IS REQUIRED.
3. IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION THAN NO STOP LINE IS REQUIRED.
4. MOVE CLOSER TO EDGE OF TRAVEL LANE AS NEEDED FOR VISIBILITY AND SIGHT LINES.

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

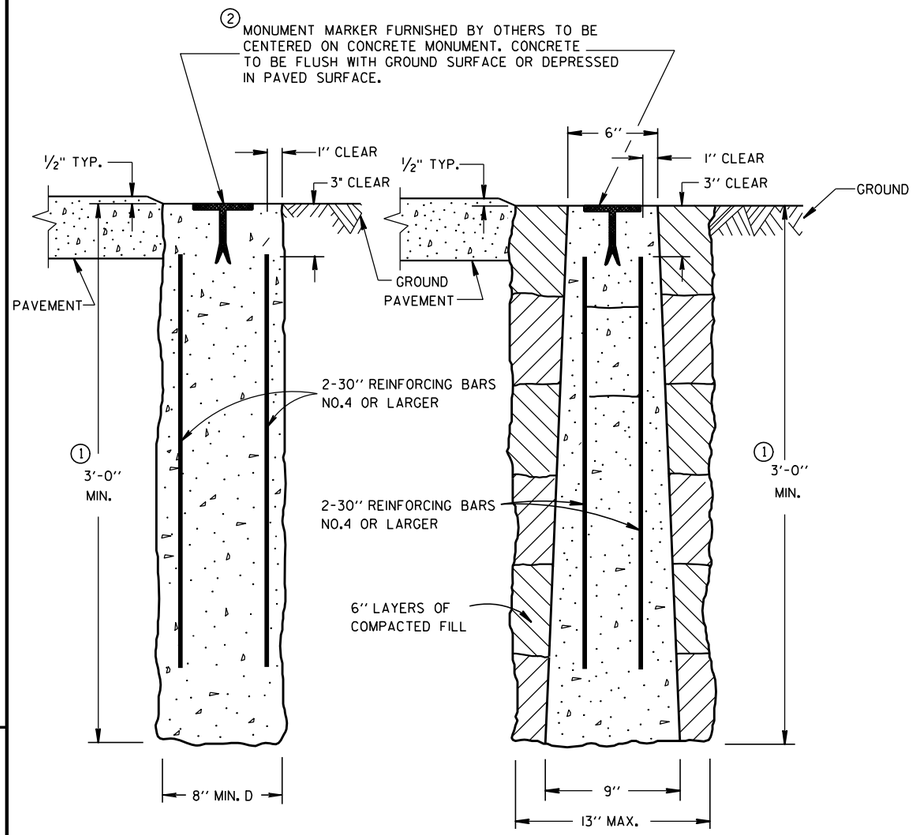
4/30/2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

FHWA

6

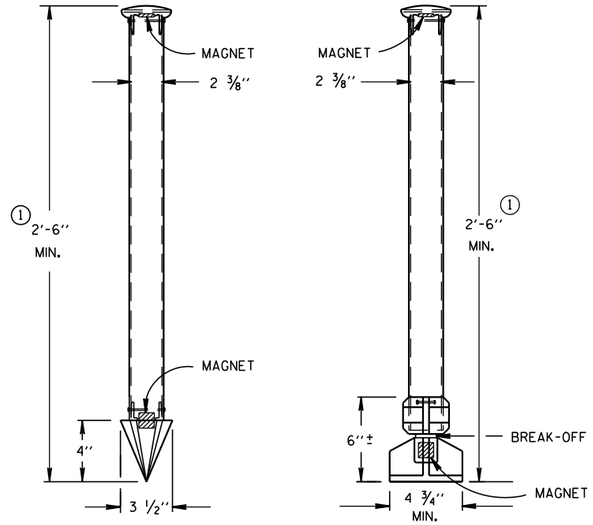
S.D.D. 15 C 33-1



CAST-IN-PLACE PRECAST

CONCRETE MONUMENTS

TYPE A



ALUMINUM MONUMENTS

(INCLUDES MARKER)

GENERAL NOTES

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

DETAILED DRAWINGS OF PROPOSED ALTERNATE DESIGNS FOR METAL MONUMENTS OR MONUMENT COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

INSTALLED METAL MONUMENTS MUST BE EASILY DETECTED WITH A DIP NEEDLE. INSERT PERMANENT MAGNETS SHALL BE ATTACHED NEAR THE TOP AND BOTTOM OF THOSE MONUMENTS CONSTRUCTED OF A METAL ALLOY WHICH IS NOT ATTRACTIVE TO A DIP NEEDLE.

THE CAST IRON MONUMENT COVER SHALL BE A "NON-ROCKING" TYPE. ADJUSTMENT OF THE COVER TO GRADE MAY BE ACCOMPLISHED BY THE USE OF MORTAR AND BRICK, OR BY EITHER PRECAST OR CAST-IN-PLACE REINFORCED CONCRETE GRADE RINGS.

MONUMENTS SHALL BE LOCATED AND PLACED AT THE DIRECTION OF THE ENGINEER.

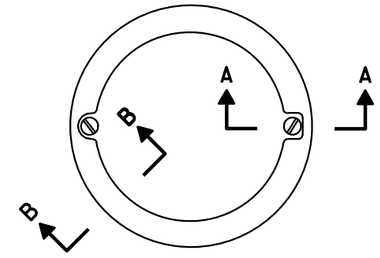
ALUMINUM MONUMENTS AND MONUMENT COVERS SHALL BE MADE FROM AN ALUMINUM AND MAGNESIUM ALLOY AS DETERMINED BY THE MANUFACTURER.

THE MONUMENT COVERS DETAILED ON THIS DRAWING ARE NOT EQUAL ALTERNATES. MONUMENT COVERS SHALL BE CAST IRON UNLESS ALUMINUM IS SPECIFIED ELSEWHERE IN THE CONTRACT.

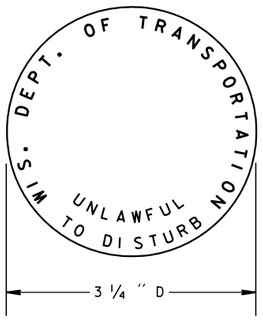
MONUMENT SHALL BE CAST-IN-PLACE CONCRETE UNLESS PRECAST CONCRETE OR ALUMINUM MONUMENTS ARE SPECIFIED IN THE CONTRACT OR PERMITTED BY THE ENGINEER.

① MINIMUM LENGTH SHALL BE 4'-0" FOR MONUMENTS INSTALLED IN PAVED AREAS.

② AN OFFICIAL COUNTY MONUMENT MARKER SUPPLIED BY A COUNTY MAY BE REQUIRED FOR SOME SECTION CORNERS AND WITNESS MONUMENTS INSTEAD OF THIS WIS DOT MARKER.

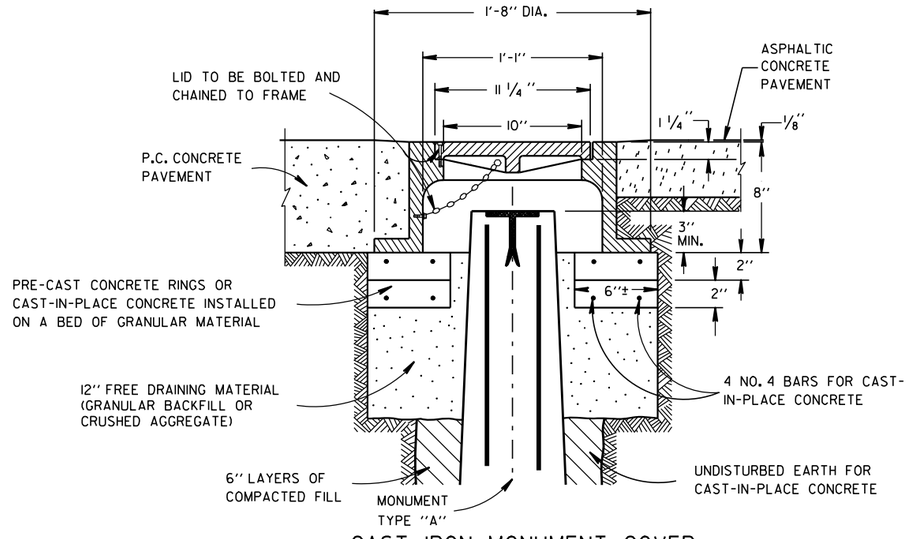


TOP VIEW



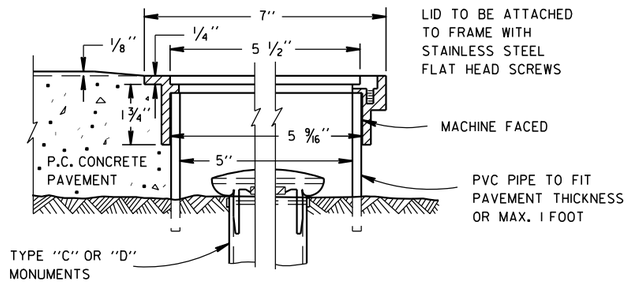
② WIS DOT MONUMENT MARKER LOGO

FOR TYPES "A", "C" & "D"



CAST IRON MONUMENT COVER

(APPROXIMATE WEIGHT - 95 LBS.)



SECTION B-B SECTION A-A

ALUMINUM MONUMENT COVER

(APPROXIMATE WEIGHT 2 LBS)

(FOR CONCRETE PAVEMENT ONLY)

LANDMARK REFERENCE MOUNMENTS AND COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/22/1999 DATE

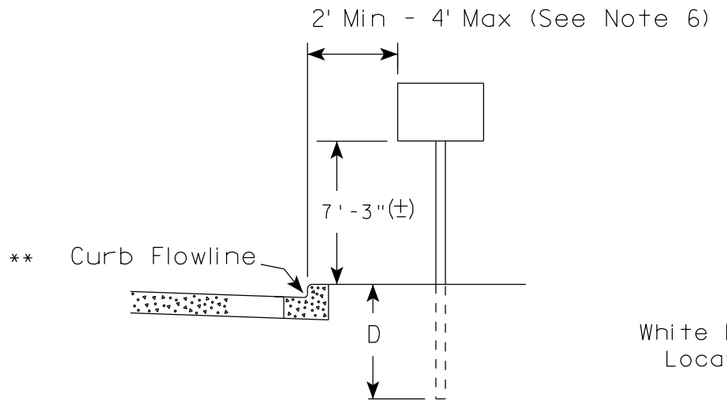
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

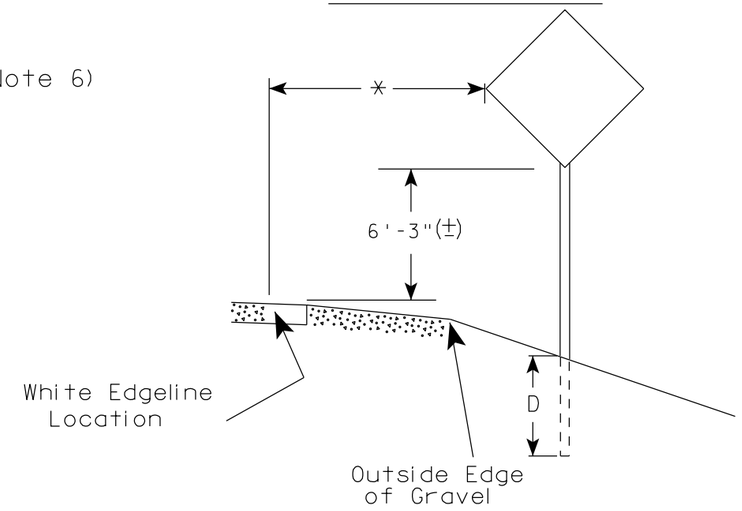
6

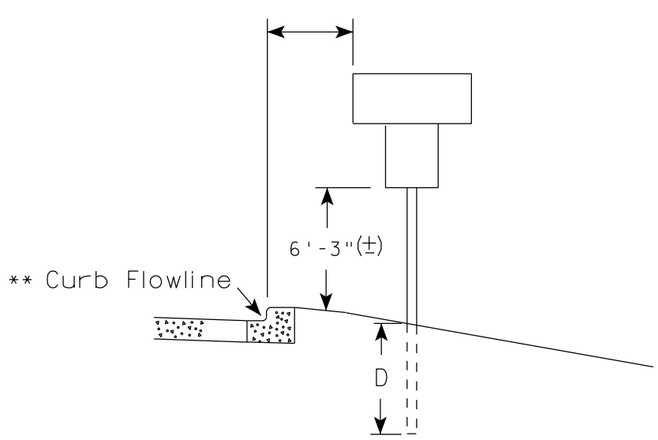
S.D.D. 16 A 1-6

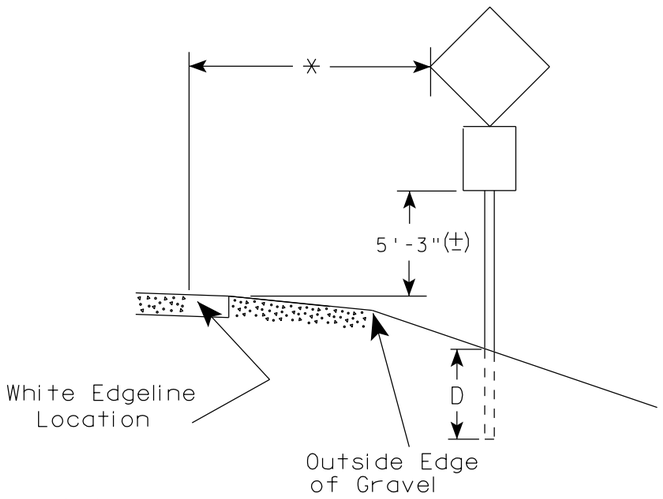
URBAN AREA



RURAL AREA (See Note 2)







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

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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

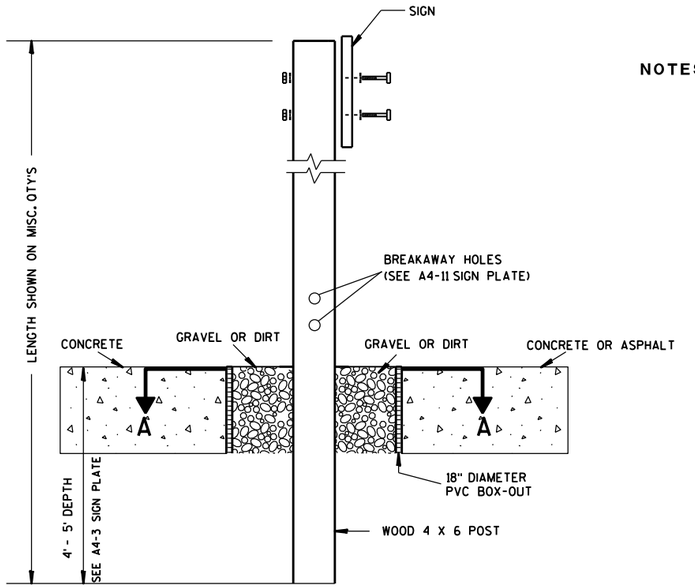
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-3.19

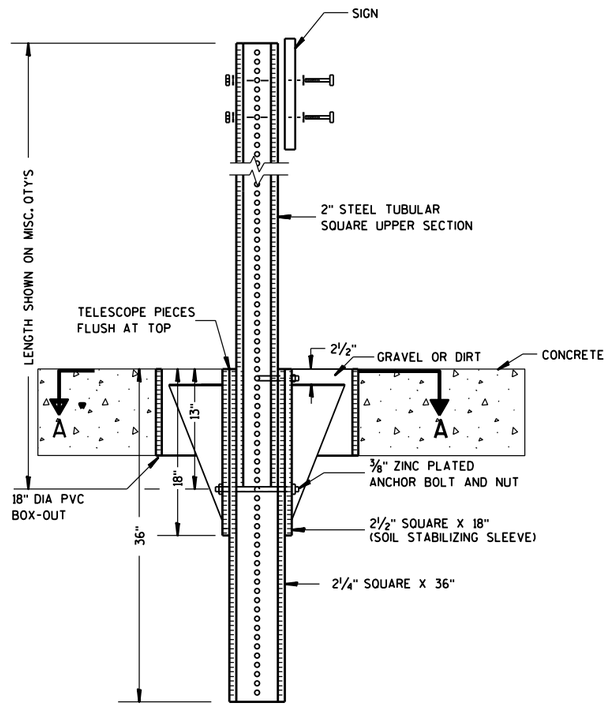
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



ELEVATION VIEW

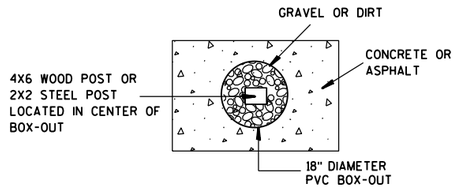
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

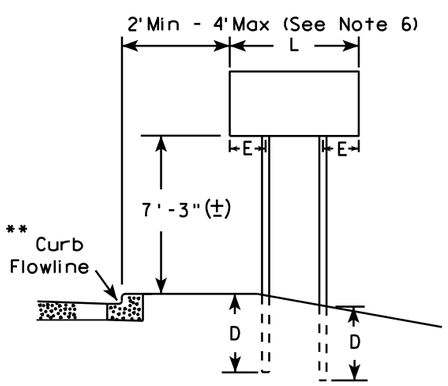
APPROVED Matthew R Rauch
for State Traffic Engineer

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

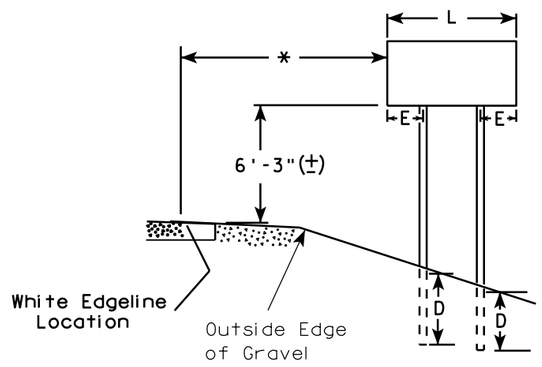
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

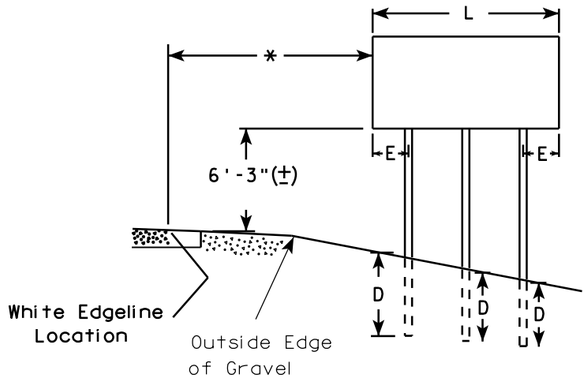
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

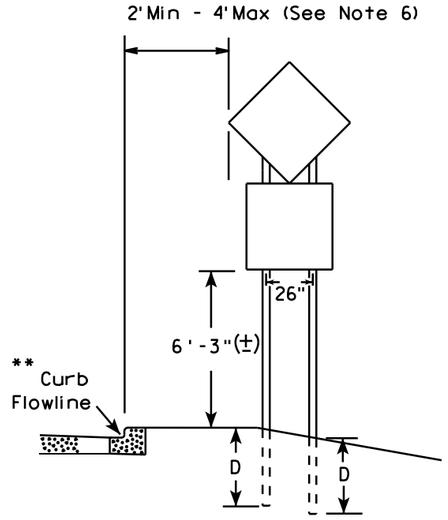
URBAN AREA



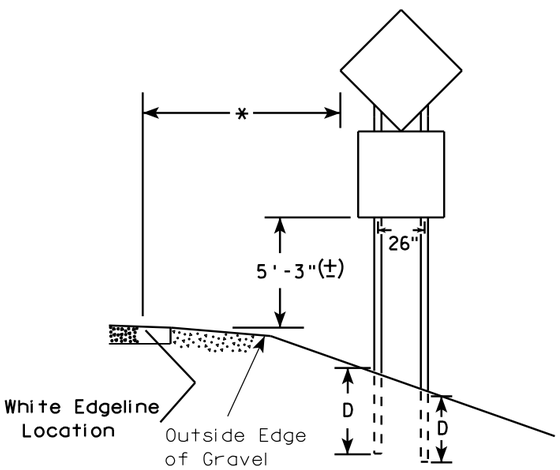
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).

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

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

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

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

***

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

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

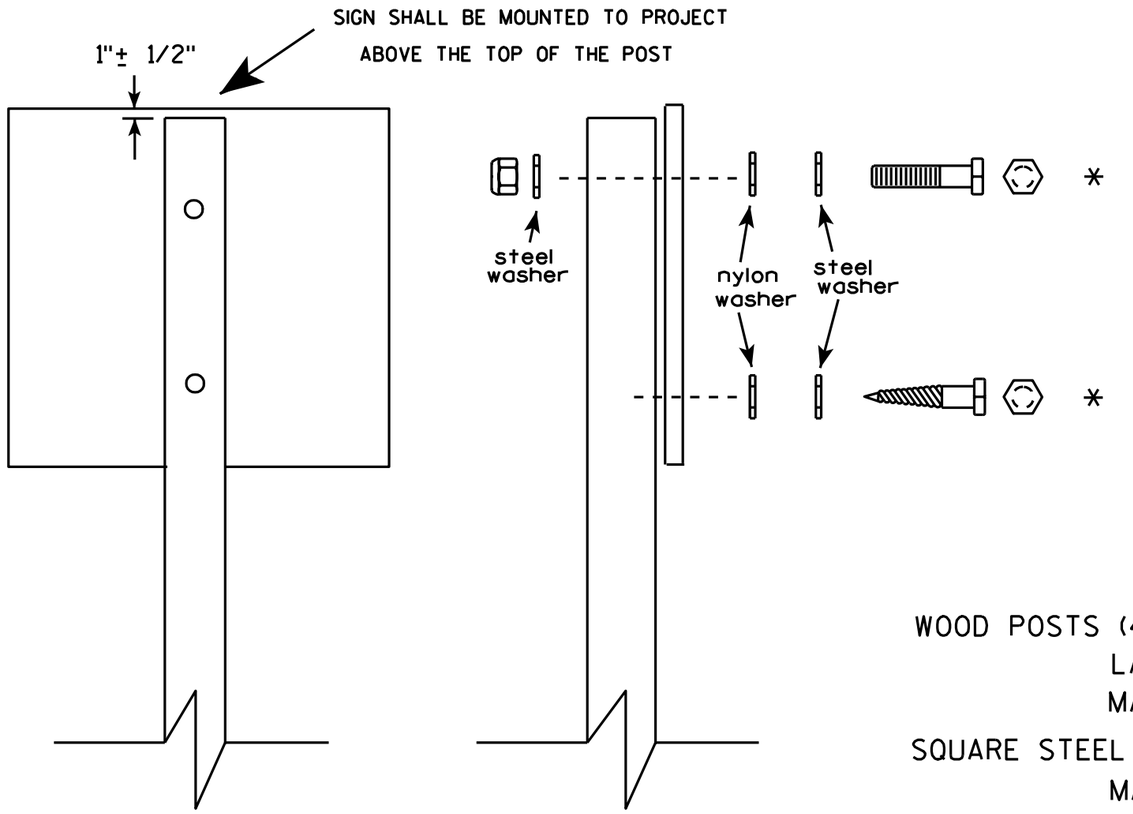
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-4 13

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A44.DGN PLOT DATE : 12-NOV-2014 14:01 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 107.021305:1.000000 WISDOT/CADDS SHEET 42



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

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

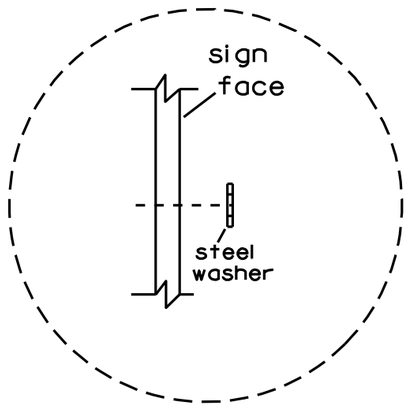
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

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

WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/23/10 PLATE NO. A4-8.7

7

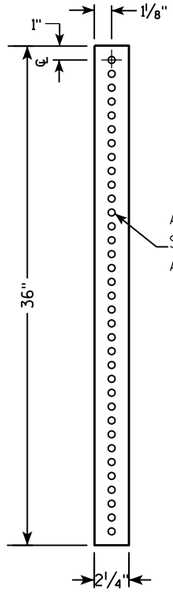
7

PROJECT NO:

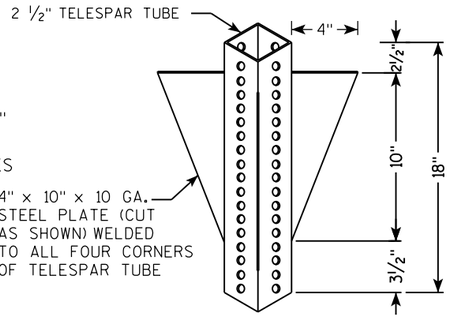
SHEET NO: 77 E

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

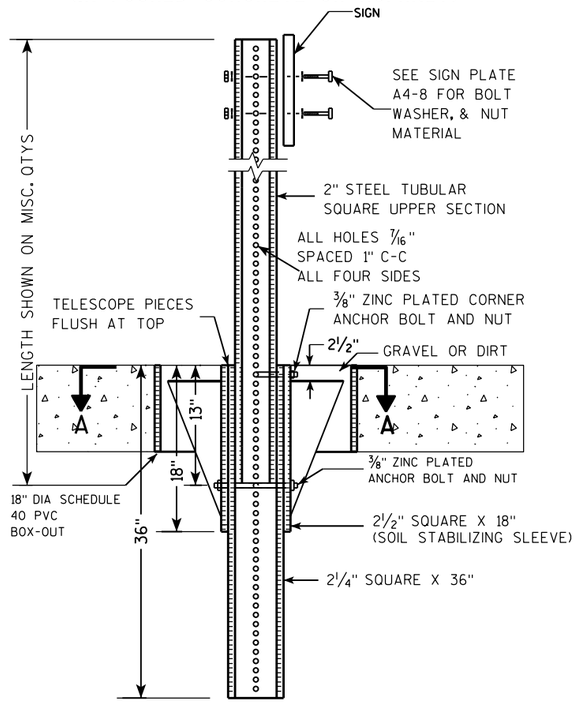
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



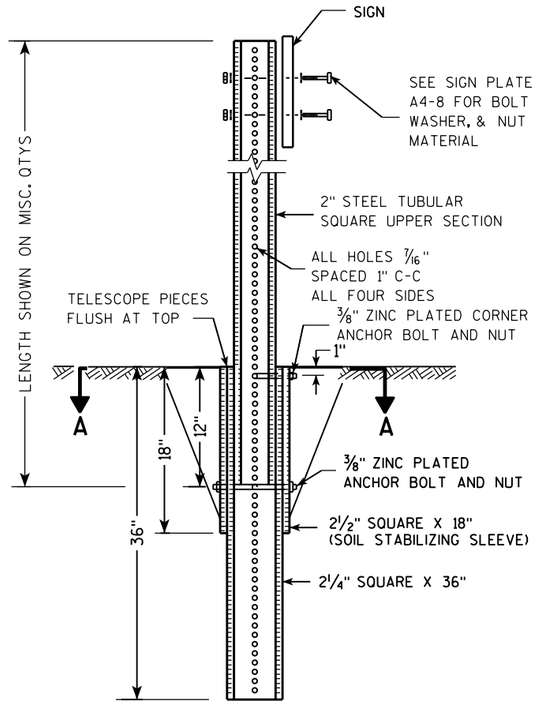
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

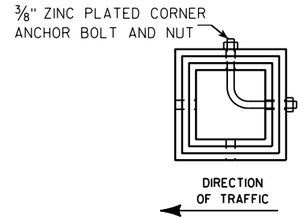


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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





SECTION A-A

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

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

TUBULAR STEEL
SIGN POST
A4-9

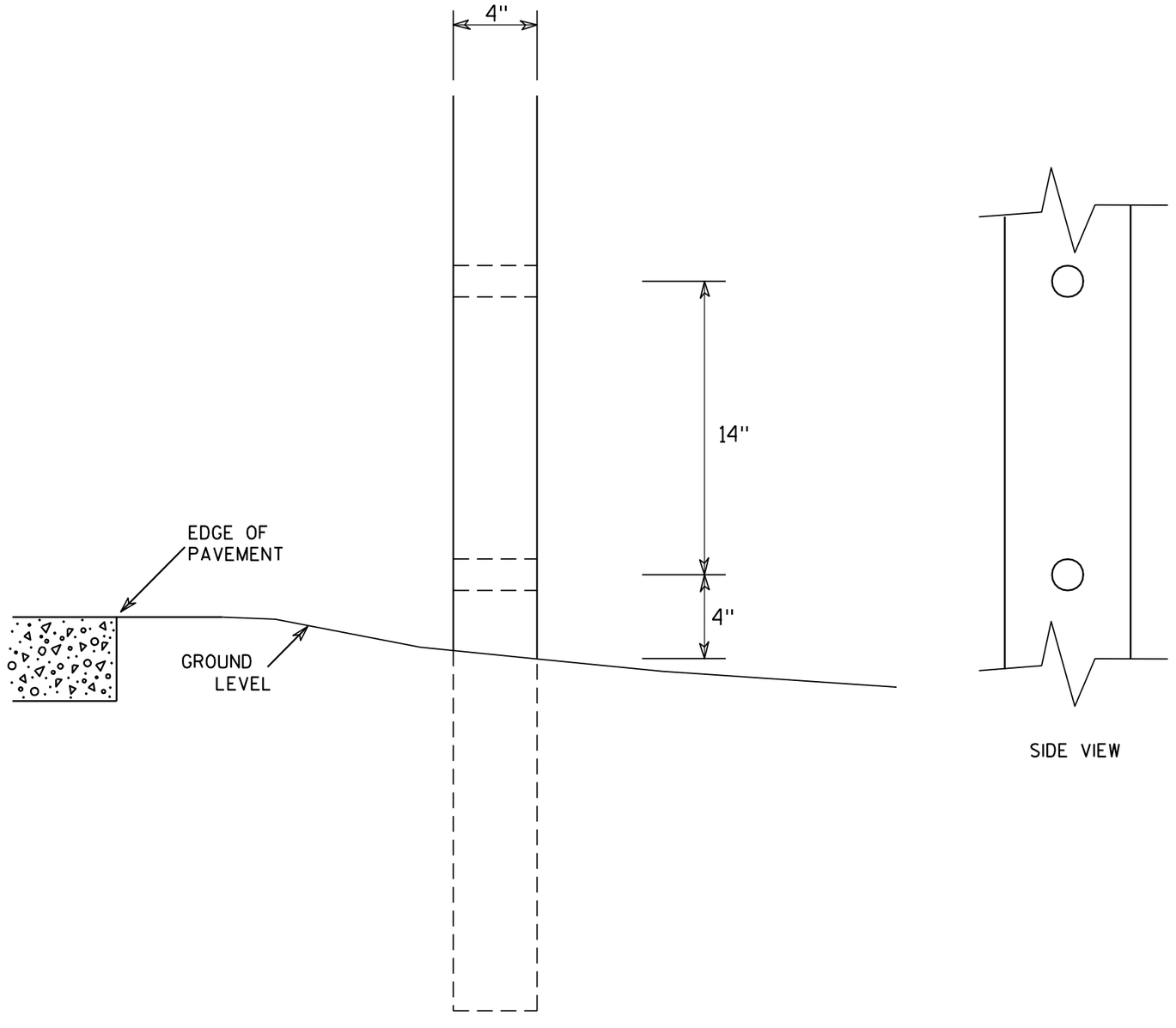
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 78 A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A49.DGN PLOT DATE : 05-FEB-2015 17:09 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000



SIDE VIEW

GENERAL NOTES

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

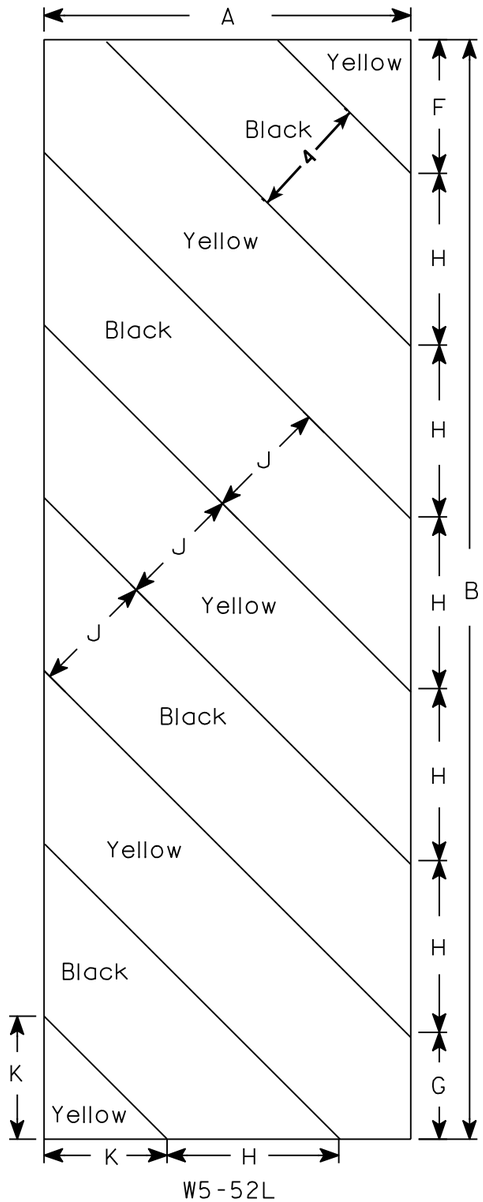
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

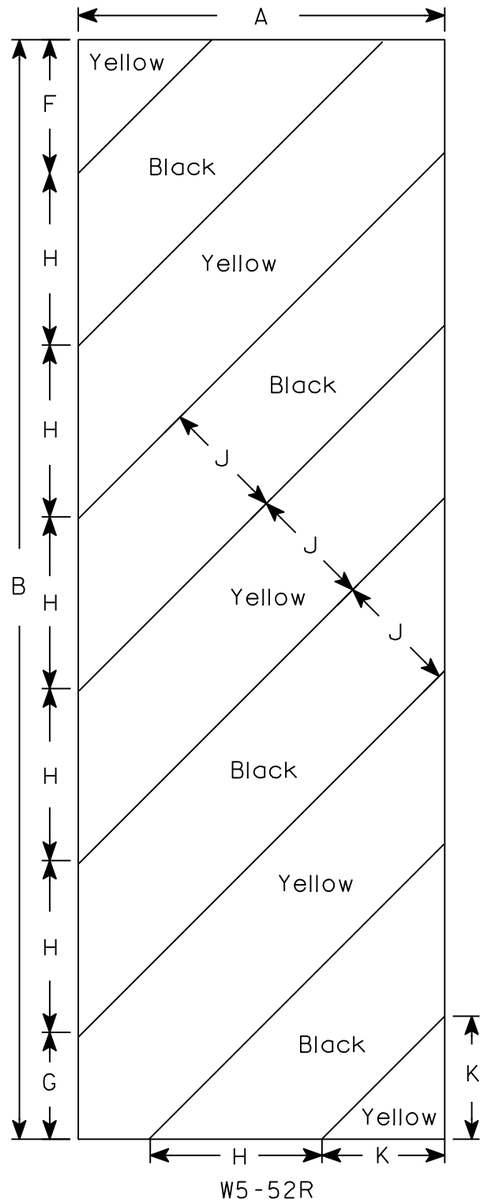
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/27/97 PLATE NO. A4-11.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 79	E



W5-52L



W5-52R

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN

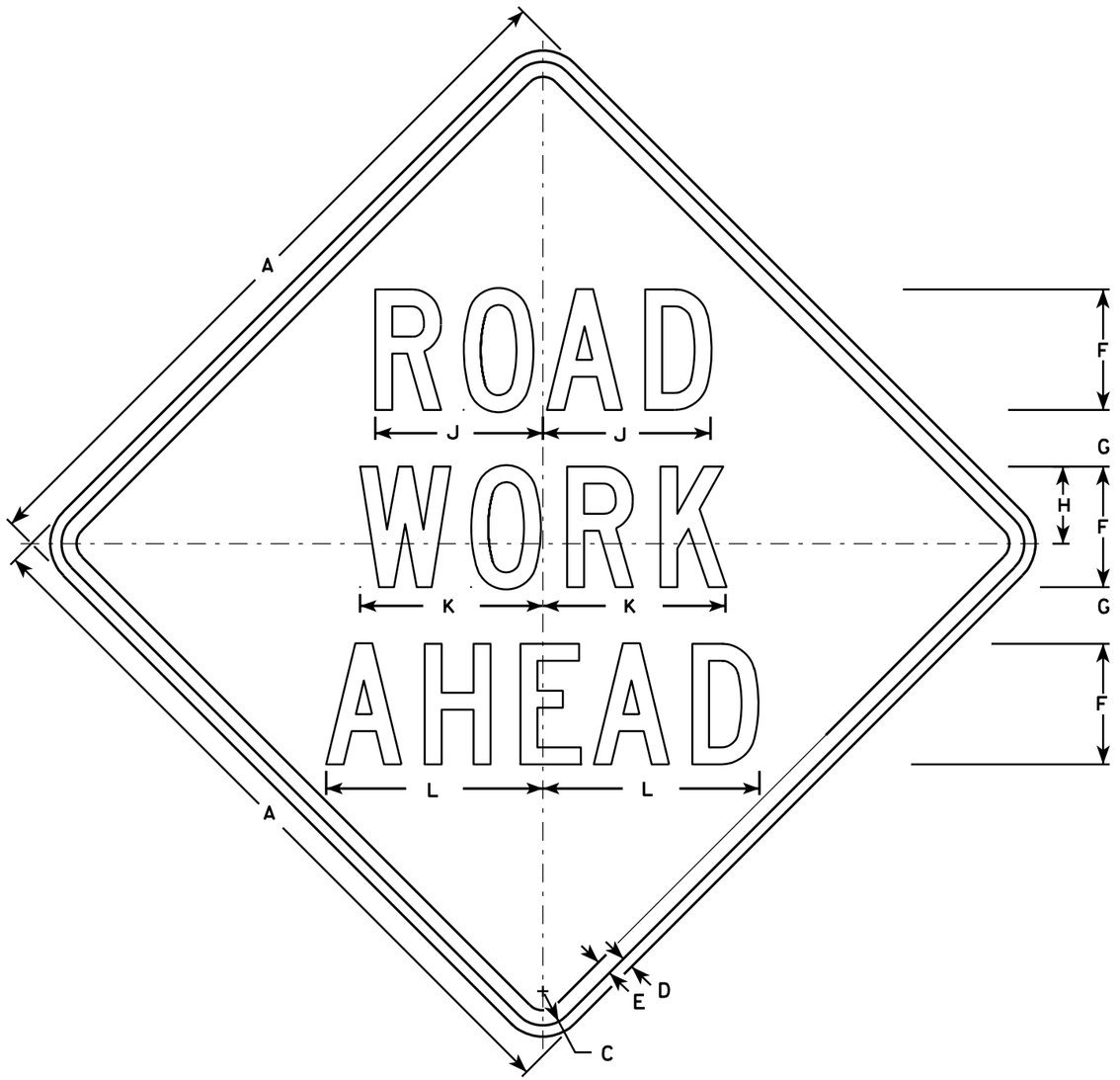
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

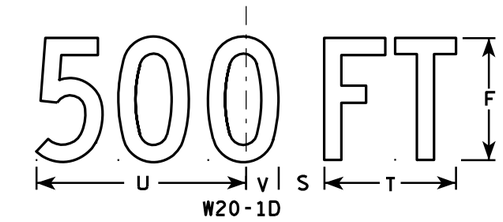
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

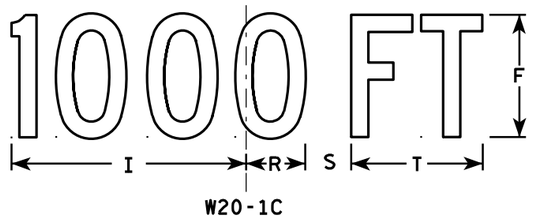
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 80 | E



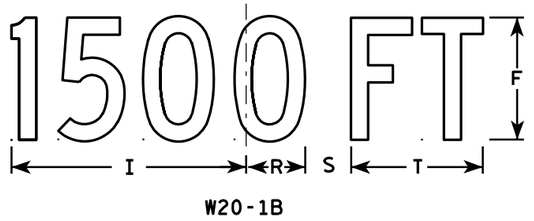
W20-1A



W20-1D

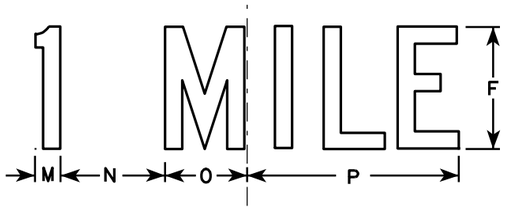


W20-1C



W20-1B

W20-1G



W20-1F

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	1 7/8	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-1.9

PROJECT NO:

SHEET NO: 81 E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W201.DGN PLOT DATE : 18-MAR-2011 09:56 PLOT BY : mscj9h

WISDOT/CADDS SHEET 42

7

7

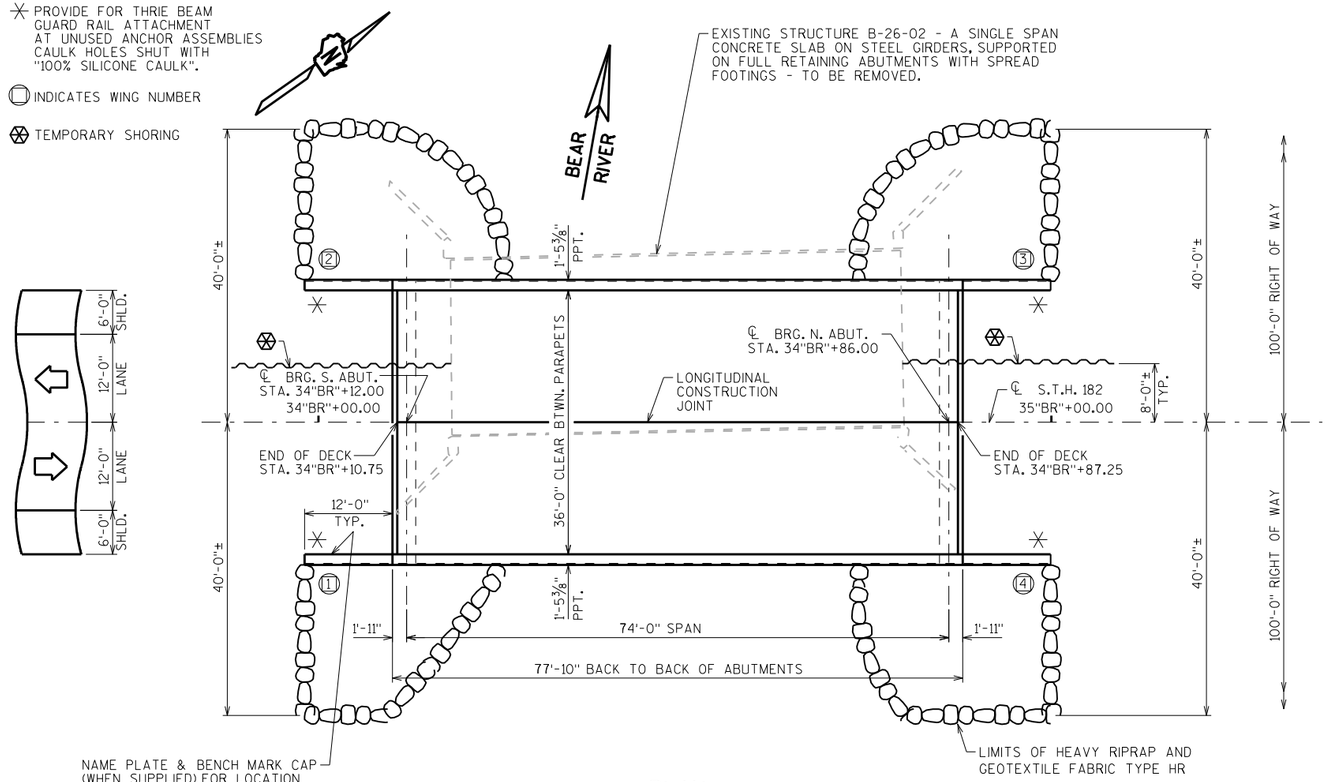
STATE PROJECT NUMBER

9240-09-70

PROVIDE FOR THRIE BEAM GUARD RAIL ATTACHMENT AT UNUSED ANCHOR ASSEMBLIES CAULK HOLES SHUT WITH "100% SILICONE CAULK".

INDICATES WING NUMBER

TEMPORARY SHORING



PLAN

SINGLE SPAN - CONCRETE DECK WITH 36W" PRESTRESSED GIRDERS

DESIGN DATA

LIVE LOAD:

DESIGN LOADING; HL-93
INVENTORY RATING FACTOR: RF=1.05
OPERATING RATING FACTOR: RF=1.36
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 220 (KIPS)

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY SLAB — f'c = 4,000 P.S.I. ALL OTHER — f'c = 3,500 P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60 — fy = 60,000 P.S.I.
36W" PRESTRESSED GIRDERS, CONCRETE MASONRY — f'c = 8,000 P.S.I.
STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING
DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ** PER PILE
AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
ESTIMATED 30'-0" LONG SOUTH ABUTMENT
ESTIMATED 40'-0" LONG NORTH ABUTMENT.

** THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA

100 YEAR FREQUENCY

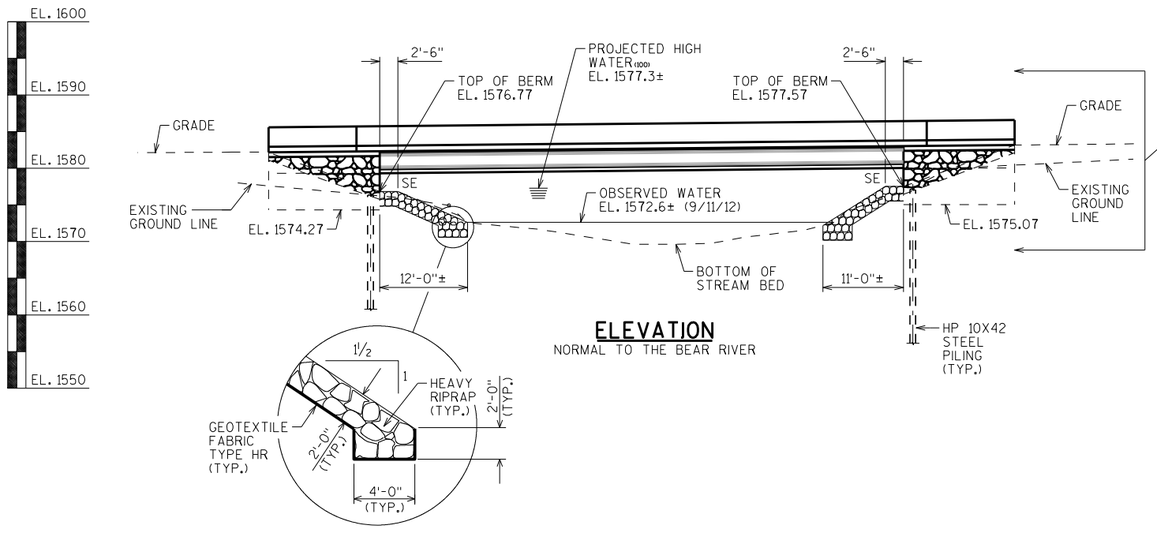
Q_{100} = 1020 C.F.S.
VEL. = 3.0 F.P.S.
HW.= EL. 1577.3
WATERWAY AREA= 344 SQ. FT.
DRAINAGE AREA= 136.4 SQ. MI.
ROAD OVERTOPPING = NA
SCOUR CRITICAL CODE = 8

2 YEAR FREQUENCY

Q_2 =417 C.F.S.
$HW._2$ = EL. 1575.5

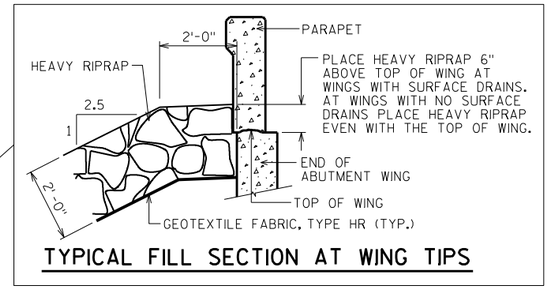
TRAFFIC VOLUME

S.T.H. 182
A.D.T. = 840 (2034)
R.D.S. = 60 M.P.H.



ELEVATION

NORMAL TO THE BEAR RIVER



TYPICAL FILL SECTION AT WING TIPS

LIST OF DRAWINGS

STRUCTURE DESIGN CONTACTS:
EMILY KUEHNE (608) 266-5089
DAVE KIEKBUSCH (608) 266-5084
AARON BONK (608) 261-0261

NO.	DATE	REVISION	BY

Plans Prepared By **WISDOT**
BUREAU OF STRUCTURES

ACCEPTED William C. Dreher LLS — CHIEF STRUCTURES DESIGN ENGINEER — 2/5/15 DATE

STRUCTURE B-26-39

S.T.H. 182 OVER THE BEAR RIVER

COUNTY IRON — TOWN ~~CITY/VILLAGE~~ SHERMAN

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
MWL	EMK	DDS	EMK

GENERAL PLAN

SHEET 1 OF 15

82

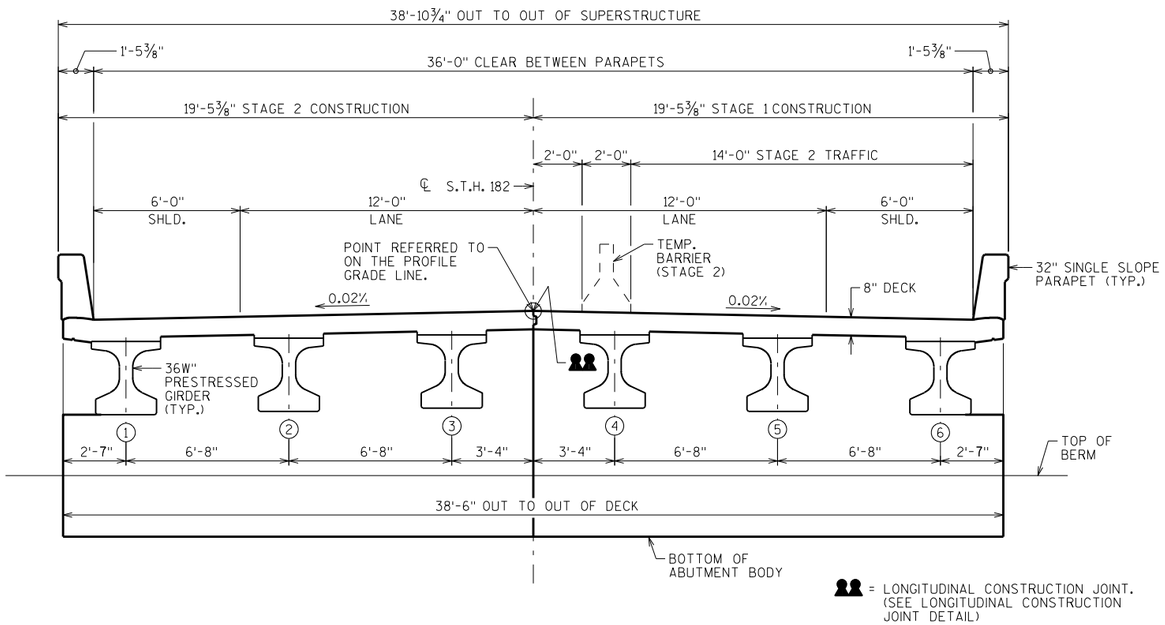
I.D. 9240-09-00

DATE: MAY 2014

SCALE = 10.00

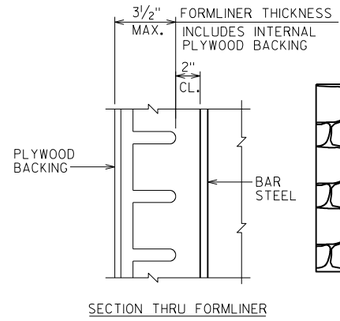
8

8

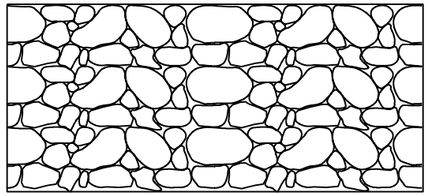


SECTION THRU ROADWAY LOOKING NORTH

SEE CONSTRUCTION STAGING SHEETS FOR ADDITIONAL DETAILS



SECTION THRU FORMLINER



FIELD STONE - RANDOM
SIZES BETWEEN 6" & 24"
RELIEF = 2½"

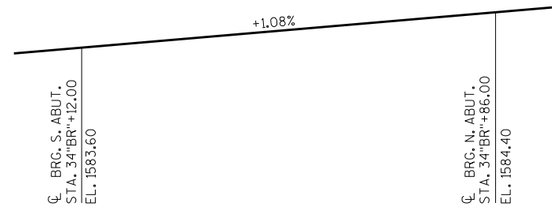
FORMLINER DETAILS

ABUTMENT NOTES

FORMLINER COURSING ON ABUTMENT WINGS SHALL BE LEVEL.

THE FORMLINER COURSING ON THE WINGS SHALL BE VERTICALLY ALIGNED.

THE FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS.



PROFILE GRADE LINE S.T.H. 182

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	TOTALS
203.0700.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM STA. 34"BR"+49.00	LS	———	———	———	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-26-39	LS	———	———	———	1
210.0100	BACKFILL STRUCTURE	CY	———	125	130	255
502.0100	CONCRETE MASONRY BRIDGES	CY	131	47	47	225
502.3200	PROTECTIVE SURFACE TREATMENT	SY	390	———	———	390
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	450	———	———	450
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	———	2,370	2,370	4,740
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	20,025	2,340	2,345	24,710
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	———	6	6	12
506.4000	STEEL DIAPHRAGMS B-26-39	EACH	5	———	———	5
511.1200	TEMPORARY SHORING B-26-39	SF	———	100	110	210
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	———	13	13	26
517.1015.S	CONCRETE STAINING MULTI-COLOR B-26-39	SF	———	115	115	230
517.1050.S	ARCHITECTURAL SURFACE TREATMENT B-26-39	SF	———	115	115	230
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	———	300	400	700
606.0300	RIPRAP HEAVY	CY	———	149	149	298
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	———	70	70	140
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	———	2	2	4
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	———	265	265	530
			———	———	———	
	NON-BID ITEMS					
	FILLER	SIZE	———	———	———	½" & ¾"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

THE GRADATION OF THE STRUCTURE BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 209.2.2 OF THE STANDARD SPECIFICATIONS FOR GRADE 1 MATERIAL.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE TOP OF DECK SURFACE AND THE FRONT FACE AND THE TOP OF THE PARAPET, INCLUDING PARAPETS ON ABUTMENT WINGS.

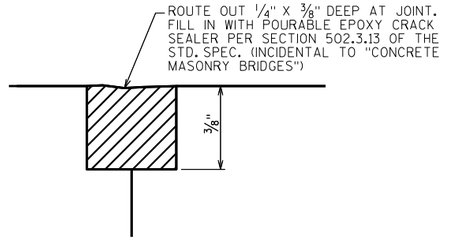
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TYPE HR TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

THE ARCHITECTURAL SURFACE TREATMENT SHALL BE APPLIED TO THE FRONT FACE OF WINGS ONLY.

THE ARCHITECTURAL SURFACE TREATMENT SHALL BE A "FIELD STONE - RANDOM" OR AN EQUIVILANT APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.

FOR MORE INFORMATION ABOUT ARCHITECTURAL SURFACE TREATMENT, SEE BID ITEM "ARCHITECTURAL SURFACE TREATMENT B-26-39".

FOR MORE INFORMATION ON STAINING OF ARCHITECTURAL SURFACE TREATMENT, SEE BID ITEM "CONCRETE STAINING MULTI-COLOR B-26-39".



LONGITUDINAL CONSTRUCTION JOINT DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

CROSS SECTION & QUANTITIES

SHEET 2

83

STATE PROJECT NUMBER

9240-09-70

8

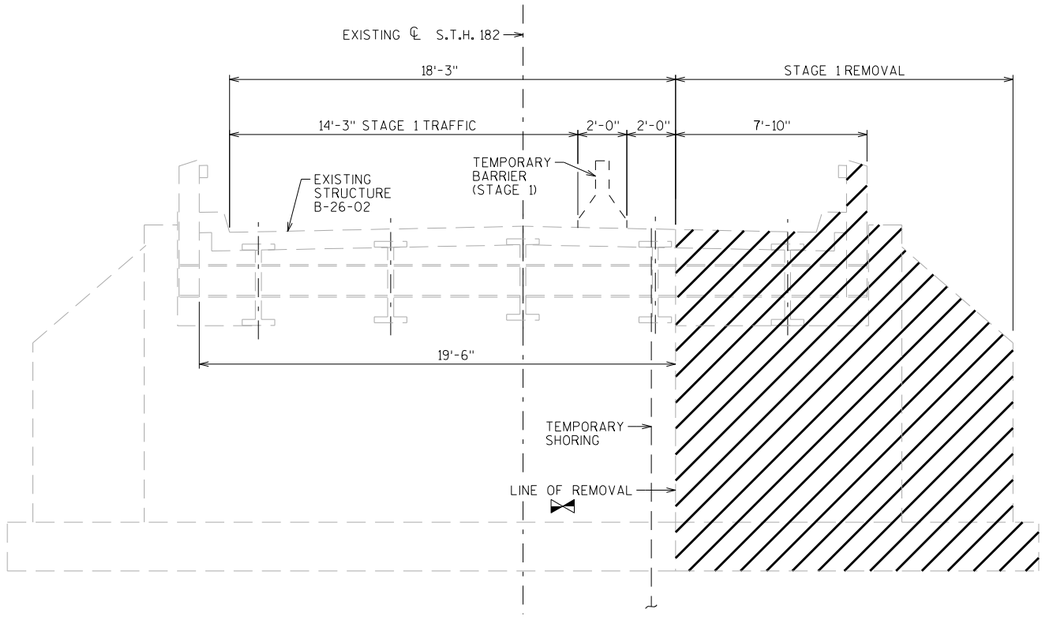
8

SCALE = 3.00

STATE PROJECT NUMBER
9240-09-70

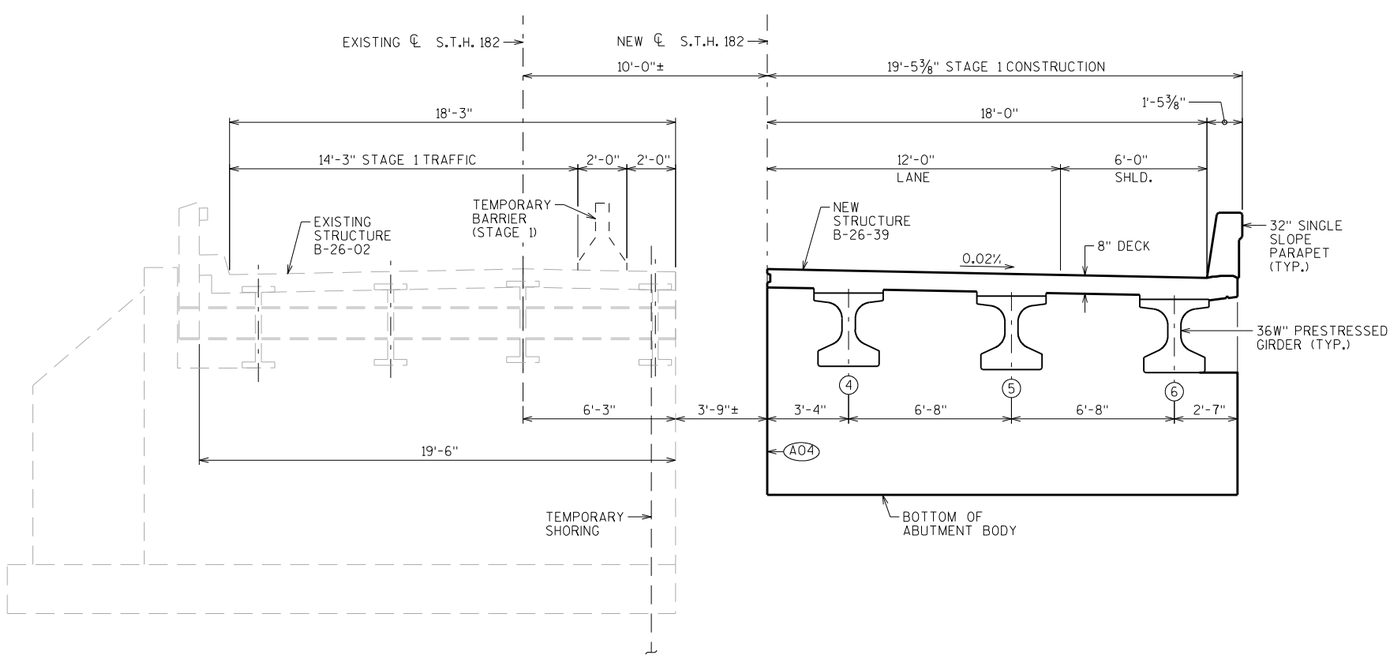
⋈ = DEFINED BY A 1" DEEP SAW CUT

(A04) VERT. CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 2 x 8. 3/4" "V" GROOVE @ THE FRONT FACE AND 18" R.M.W. @ BACKFACE.



SECTION THRU ROADWAY LOOKING NORTH

SHOWING STAGE 1 REMOVAL



SECTION THRU ROADWAY LOOKING NORTH

STAGE 1 - SHOWING NEW CONSTRUCTION

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

CONSTRUCTION (STAGE 1)

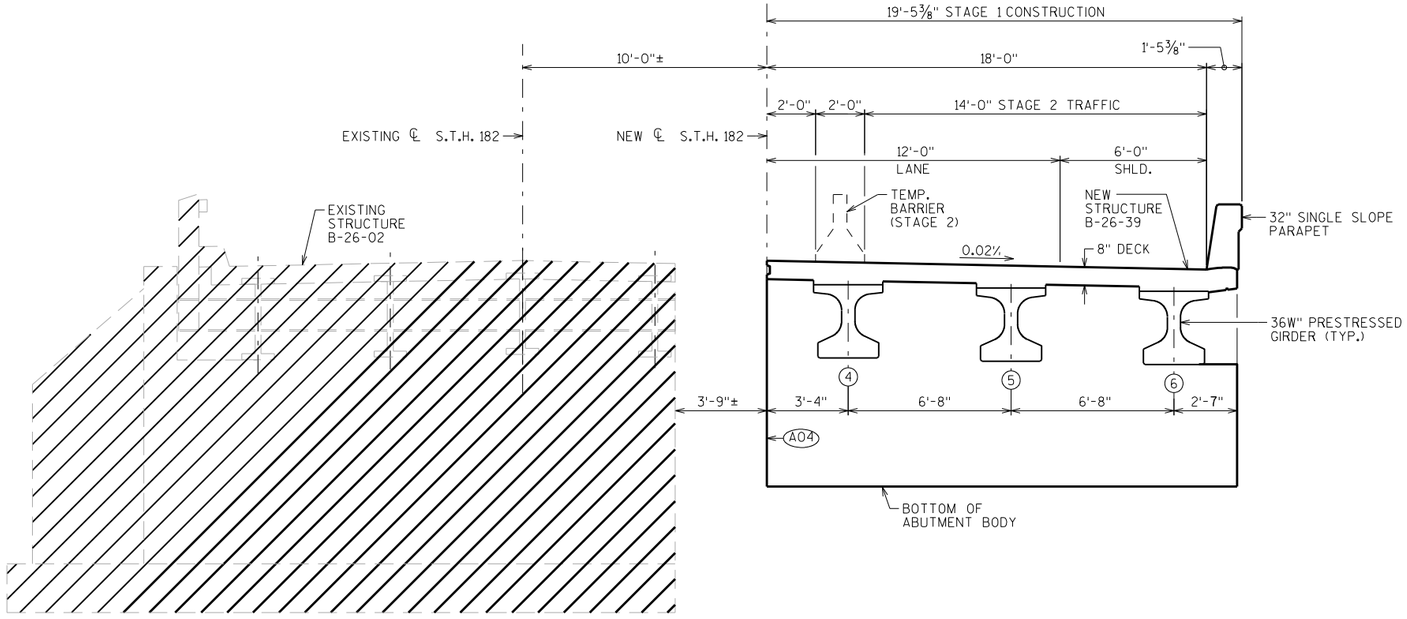
SHEET 3

84

SCALE = 3.00

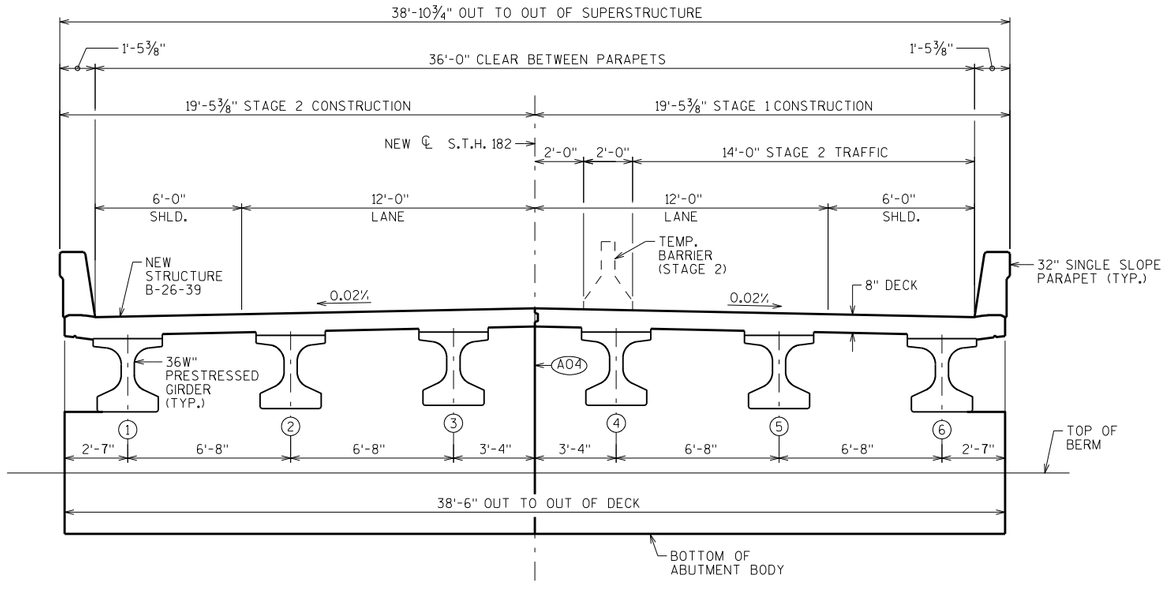
STATE PROJECT NUMBER
9240-09-70

(A04) VERT. CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 2 x 8. 3/4" "V" GROOVE @ THE FRONT FACE AND 18" R.M.W. @ BACKFACE.



SECTION THRU ROADWAY LOOKING NORTH

SHOWING STAGE 2 REMOVAL



SECTION THRU ROADWAY LOOKING NORTH

SHOWING STAGE 2 CONSTRUCTION

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

CONSTRUCTION (STAGE 2)

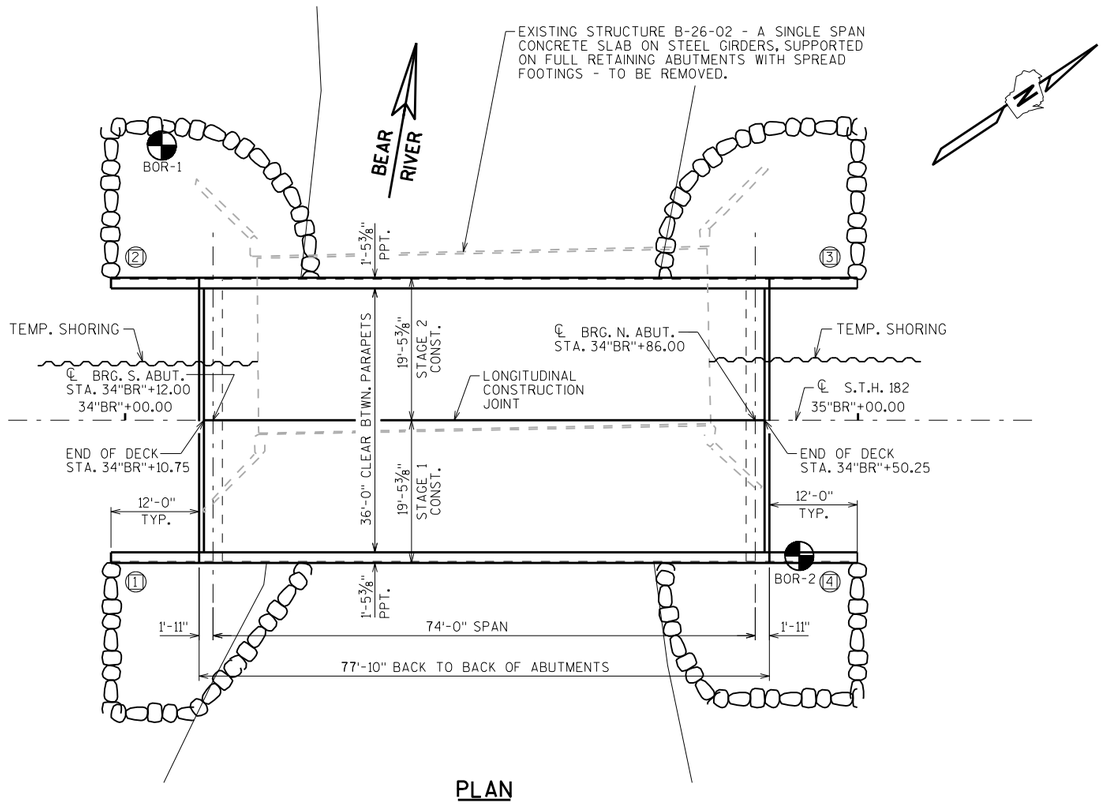
SHEET 4

85

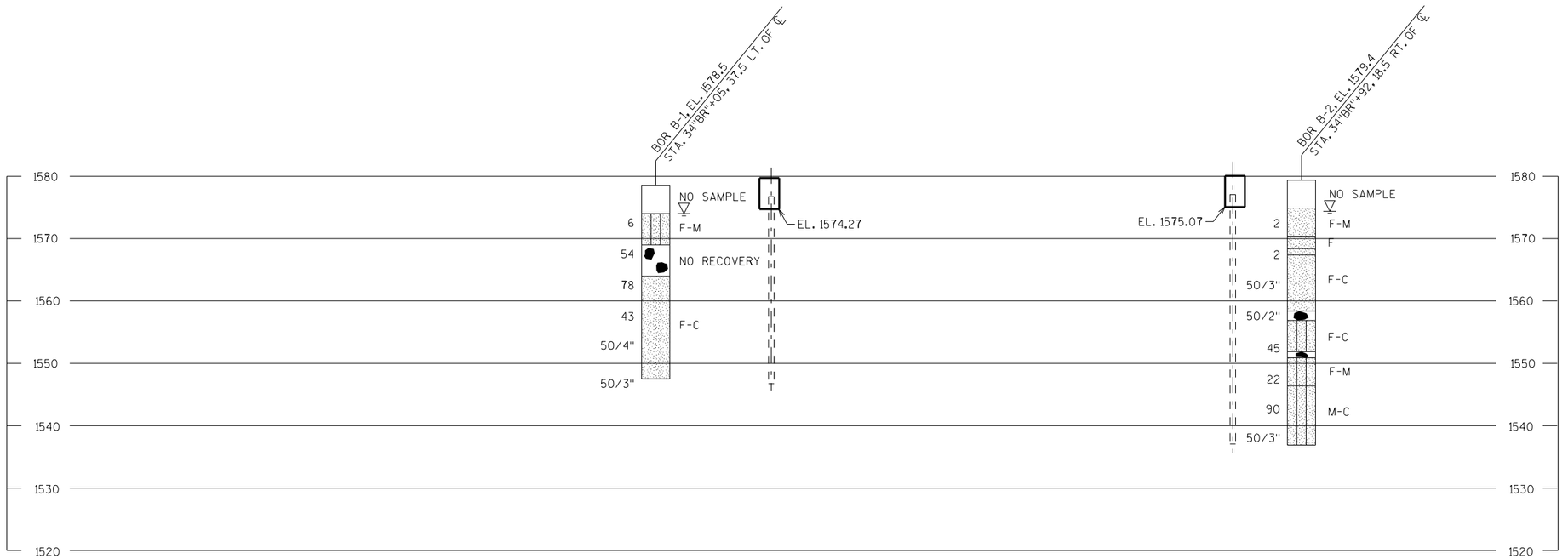
SCALE = 3.00

PARK FALLS - MANITOWISH
BEAR RIVER BRIDGE

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	5/14/2013	235027.7945	785962.6889
2	5/14/2013	235162.7790	785977.5097
BORINGS COMPLETED BY: AMERICAN ENGINEERING TESTING			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) IRON COUNTY			



PLAN



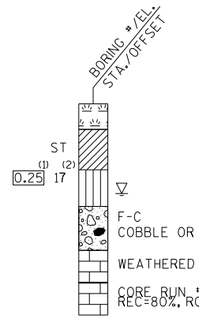
STATE PROJECT NUMBER

9240-09-70

MATERIAL SYMBOLS

ASPHALT, TOPSOIL, PEAT, CONCRETE, FILL, GRAVEL, SAND, CLAY, SILT, BOULDERS OR COBBLES, LIMESTONE, BEDROCK (UNKNOWN), SHALE, SANDSTONE, IGNEOUS/META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY PR/DDS | PLANS CK'D. EMK

SUBSURFACE EXPLORATION

SHEET 5

86

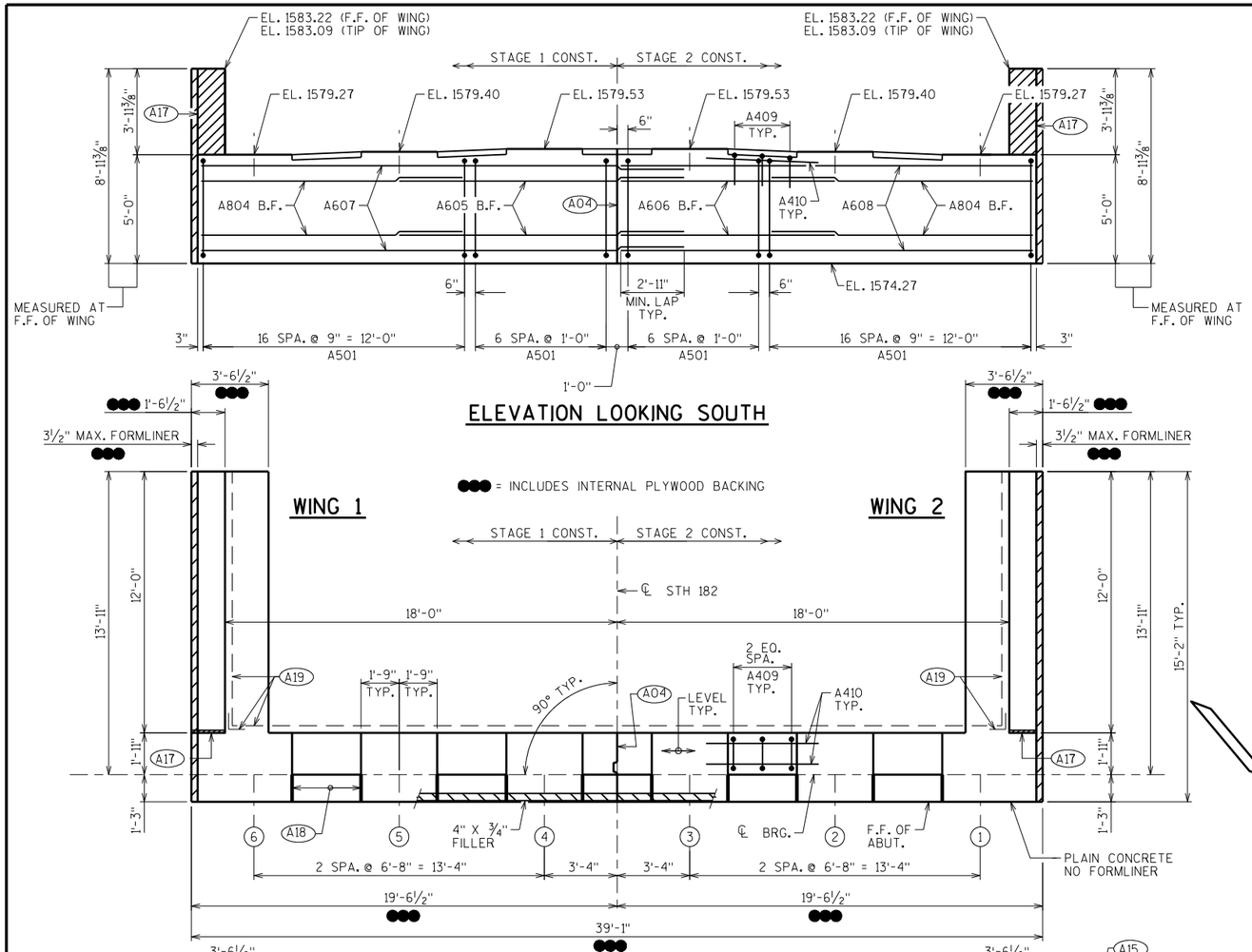
SCALE =

8

8

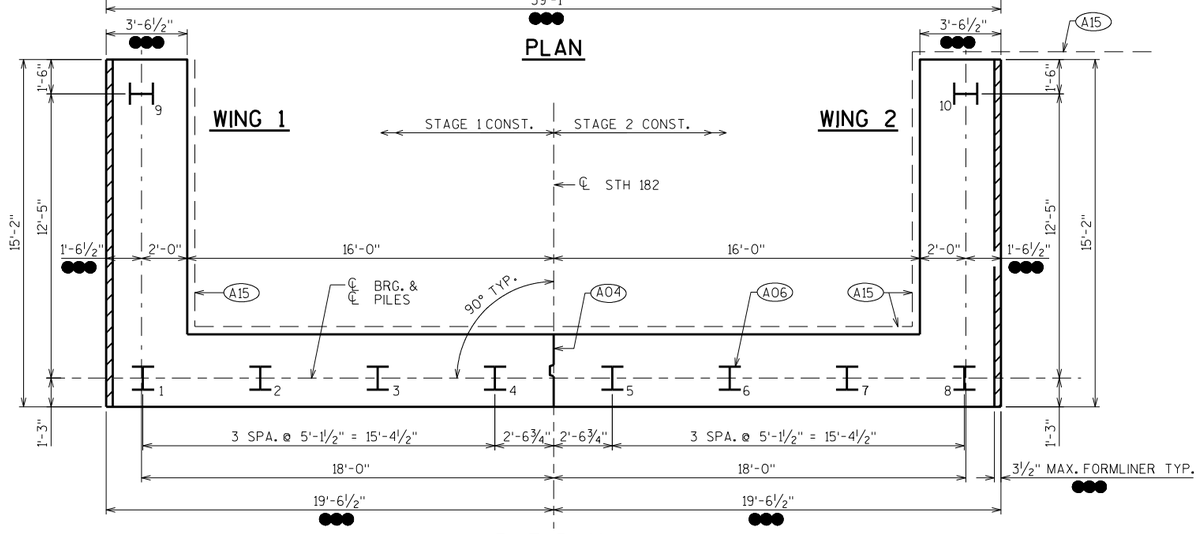
STATE PROJECT NUMBER

9240-09-70

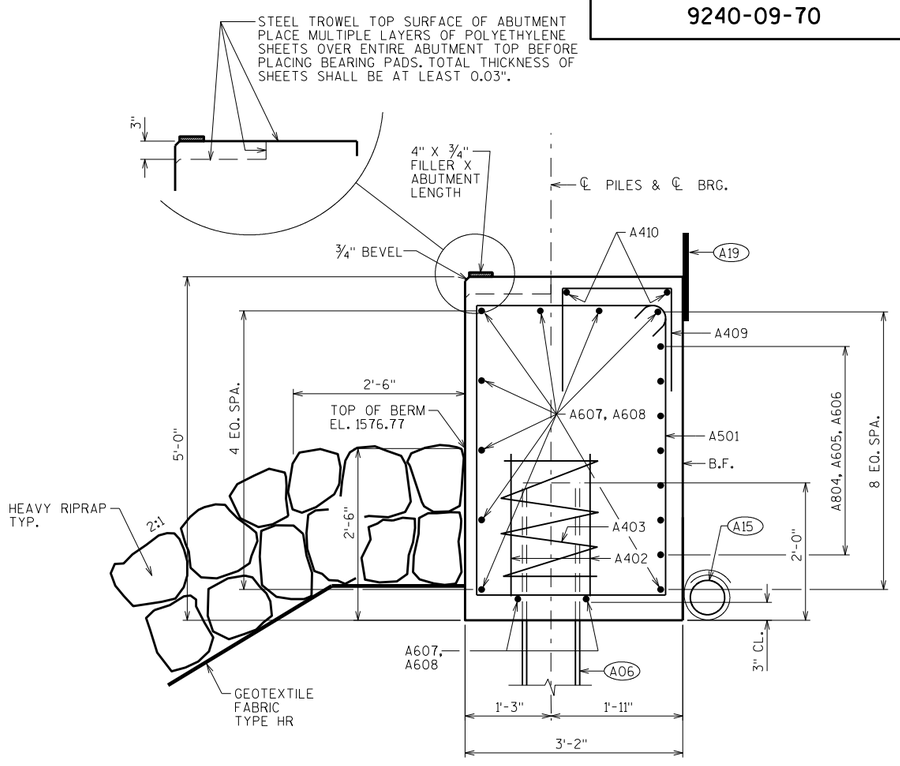


ELEVATION LOOKING SOUTH

PLAN

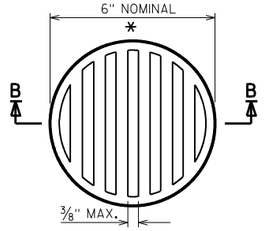


PILE PLAN

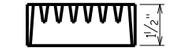


SECTION THRU BODY

NOTE:
FOR FORMLINER DETAILS SEE SOUTH ABUTMENT DETAILS SHEET.



RODENT SHIELD DETAIL



SECTION B-B

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

(A04) VERT. CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 2 X 8. ¾" "V" GROOVE @ THE FRONT FACE AND 18" R.M.W. @ BACKFACE.

(A06) SUPPORT ABUTMENT ON HP 10 X 42 STEEL PILING, ESTIMATED 30'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SCREEN REQUIRED.

(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

(A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

SOUTH ABUTMENT

SHEET 6

87

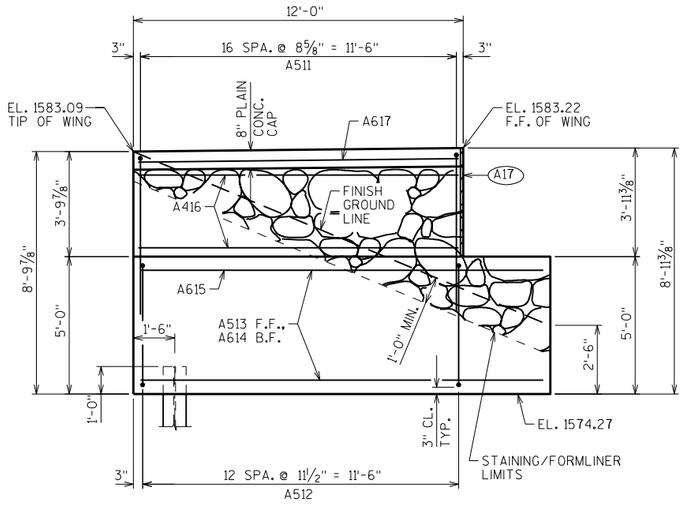
SCALE = 3.20

8

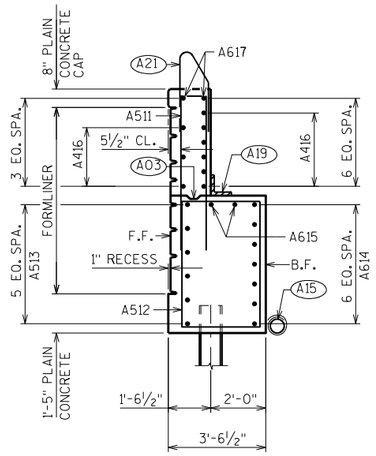
8

STATE PROJECT NUMBER

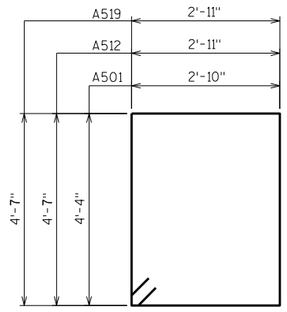
9240-09-70



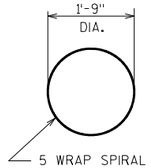
WING 1 ELEVATION



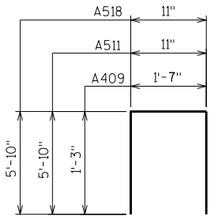
WING 1 SECTION



A501, A512, A519



A403

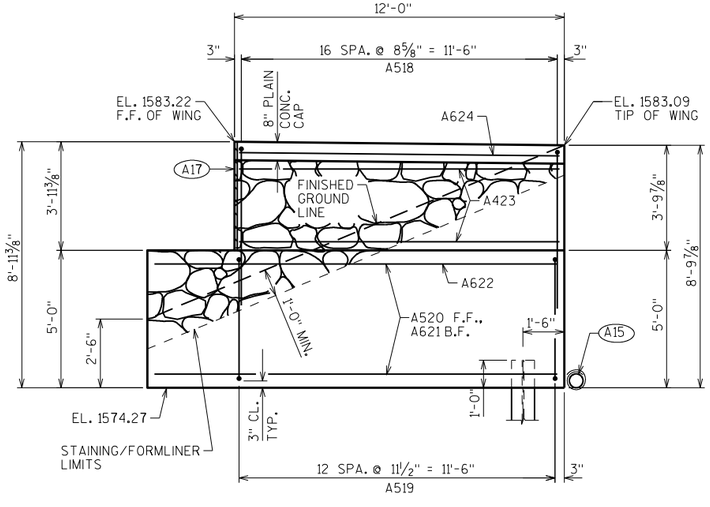


A409, A511, A518

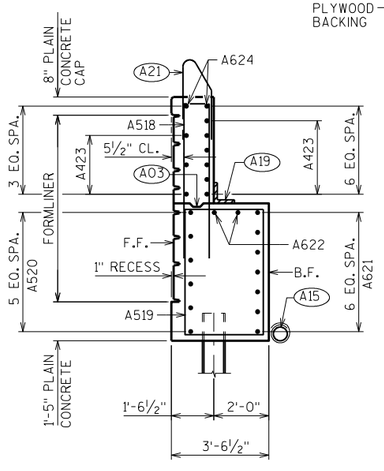
BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

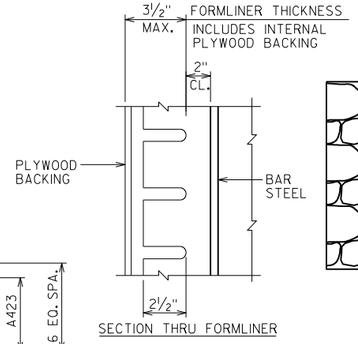
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		48	15'-0"	X		BODY-STIRRUPS
A402		16	2'-3"			PILES-2 PER BODY PILE
A403		8	28'-0"	X		PILES-1 PER BODY PILE
A804		14	12'-0"			BODY-HORIZONTAL - B.F. (STAGES 1&2)
A605		7	13'-1"			BODY-HORIZONTAL - B.F. (STAGE 1)
A606		7	9'-10"			BODY-HORIZONTAL - B.F. (STAGE 2)
A607		11	22'-2"			BODY-HORIZONTAL (STAGE 1)
A608		11	18'-11"			BODY-HORIZONTAL (STAGE 2)
A409		15	3'-11"	X		BODY-VERTICAL-BETWEEN GIRDERS
A410		10	5'-2"			BODY-HORIZONTAL-BETWEEN GIRDERS
A511	X	17	12'-4"	X		WING 1-VERTICAL
A512	X	13	15'-8"	X		WING 1-STIRRUP
A513	X	6	14'-10"			WING 1-HORIZONTAL
A614	X	7	13'-11"			WING 1-HORIZONTAL
A615	X	2	13'-11"			WING 1-HORIZONTAL
A416	X	9	11'-8"			WING 1-HORIZONTAL
A617	X	2	11'-8"			WING 1-HORIZONTAL
A518	X	17	12'-4"	X		WING 2-VERTICAL
A519	X	13	15'-8"	X		WING 2-STIRRUP
A520	X	6	14'-10"			WING 2-HORIZONTAL
A621	X	7	13'-11"			WING 2-HORIZONTAL
A622	X	2	13'-11"			WING 2-HORIZONTAL
A423	X	9	11'-8"			WING 2-HORIZONTAL
A624	X	2	11'-8"			WING 2-HORIZONTAL



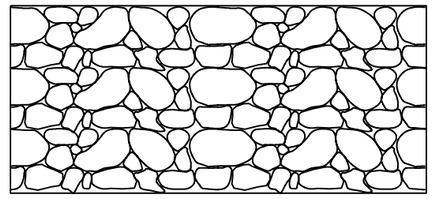
WING 2 ELEVATION



WING 2 SECTION



SECTION THRU FORMLINER



FIELD STONE - RANDOM SIZES BETWEEN 6" & 24" MAX. RELIEF = 2½"

FORMLINER DETAILS

ABUTMENT FORMLINER NOTES

FORMLINER COURSING ON ABUTMENT WINGS SHALL BE LEVEL.

THE FORMLINER COURSING ON THE WINGS SHALL BE VERTICALLY ALIGNED WITH THE FORMLINER COURSING ON THE FRONT OF THE ABUTMENT.

THE FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS.

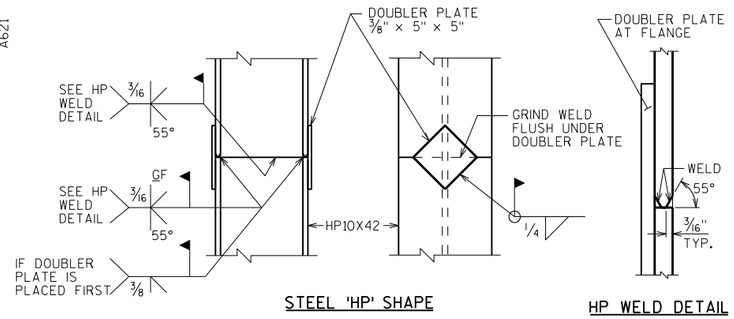
(A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 × 6. (18" R.M.W. @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SCREEN REQUIRED.

(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

(A21) FOR PPT. BARS & DIMENSION SEE PARAPET SHT.



STEEL 'HP' SHAPE

HP WELD DETAIL
FLANGE SHOWN, WELD SIMILAR

PILE DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

SOUTH ABUTMENT DETAILS

SHEET 7

88

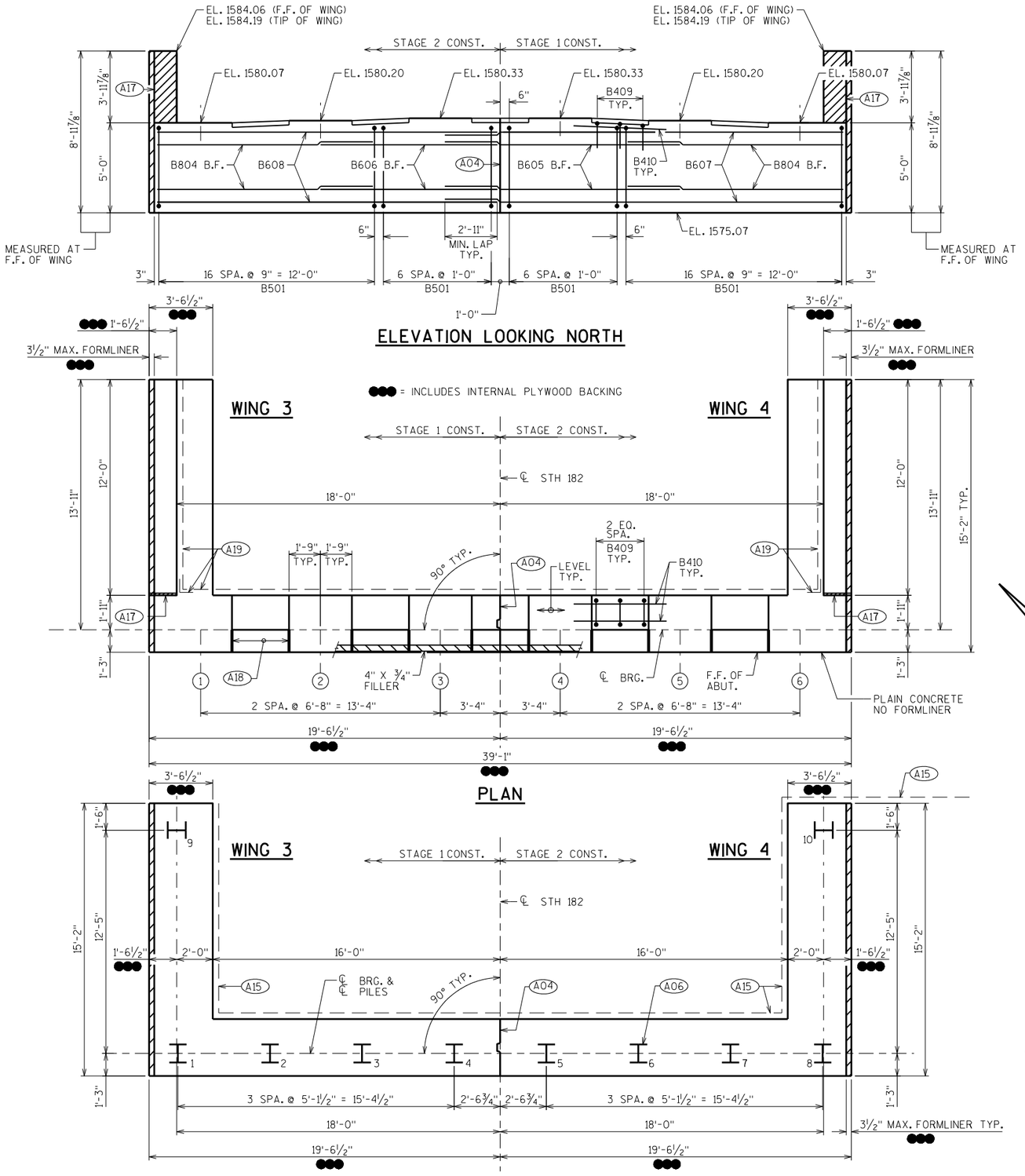
SCALE = 2.6667

8

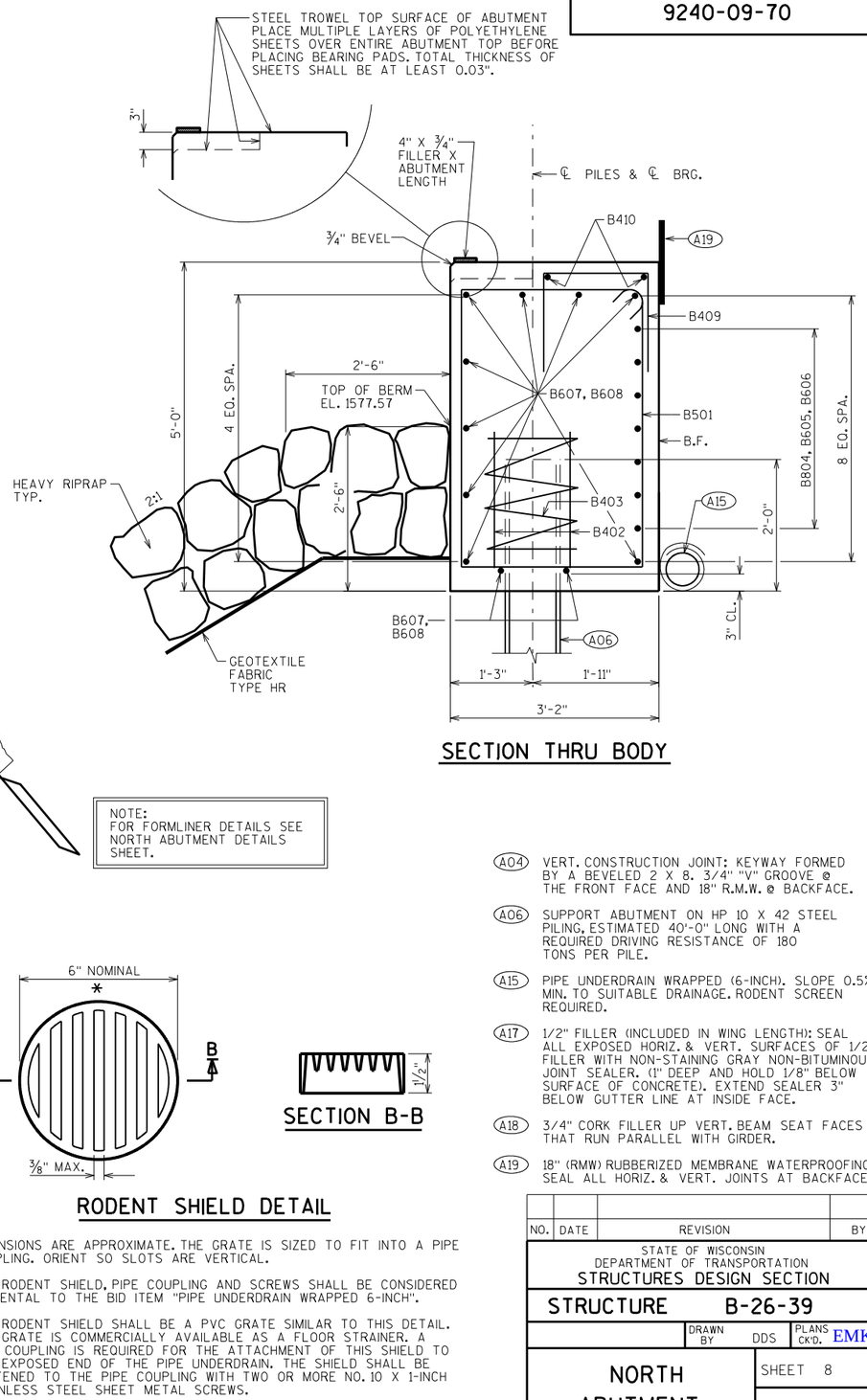
8

STATE PROJECT NUMBER

9240-09-70

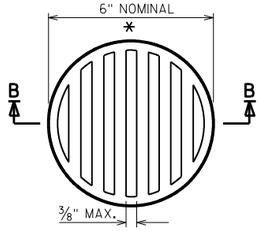


ELEVATION LOOKING NORTH



SECTION THRU BODY

NOTE:
FOR FORMLINER DETAILS SEE NORTH ABUTMENT DETAILS SHEET.



RODENT SHIELD DETAIL

SECTION B-B

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(A04) VERT. CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 2 X 8. 3/4" "V" GROOVE @ THE FRONT FACE AND 18" R.M.W. @ BACKFACE.

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(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

NORTH ABUTMENT

SHEET 8

89

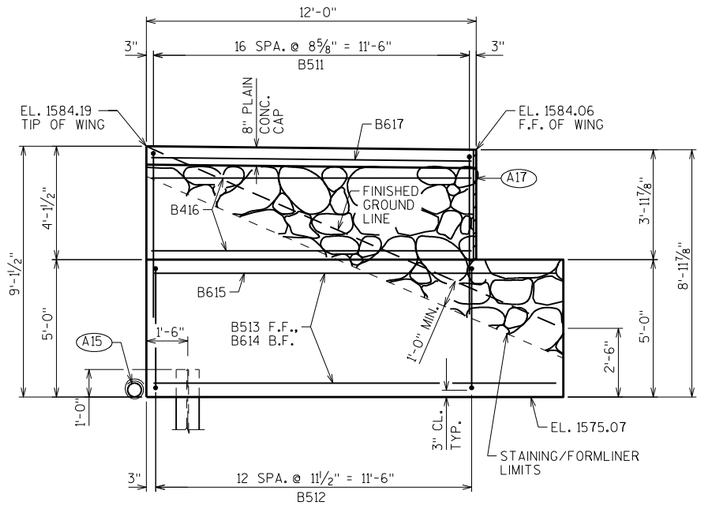
SCALE = 3.20

8

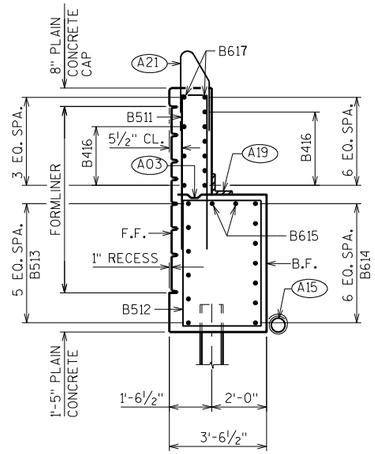
8

STATE PROJECT NUMBER

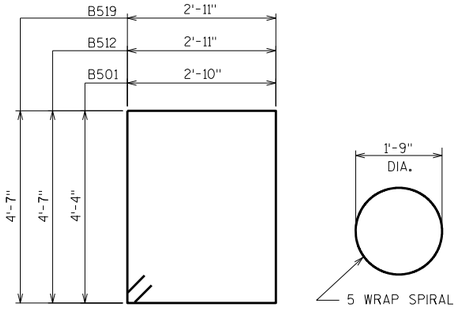
9240-09-70



WING 3 ELEVATION

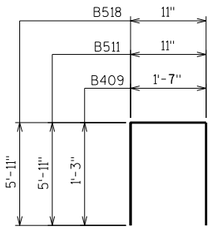


WING 3 SECTION



B501, B512, B519

B403



B409, B511, B518

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

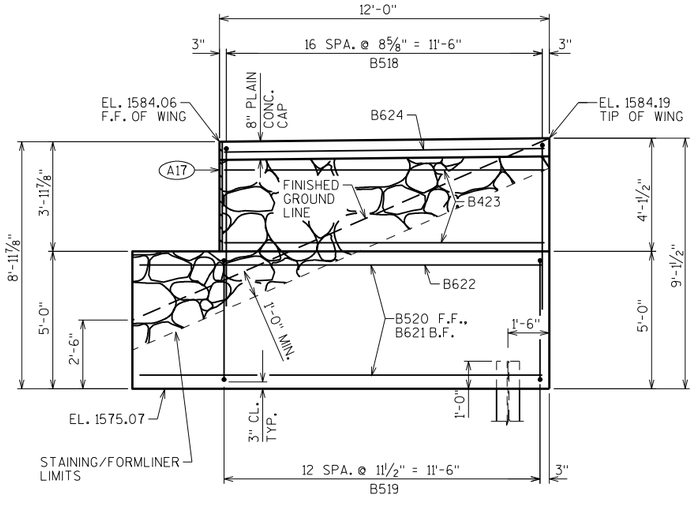
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501		48	15'-0"	X		BODY-STIRRUPS
B402		16	2'-3"			PILES-2 PER BODY PILE
B403		8	28'-0"	X		PILES-1 PER BODY PILE
B804		14	12'-0"			BODY-HORIZONTAL - B.F. (STAGES 1&2)
B605		7	13'-1"			BODY-HORIZONTAL - B.F. (STAGE 1)
B606		7	9'-10"			BODY-HORIZONTAL - B.F. (STAGE 2)
B607		11	22'-2"			BODY-HORIZONTAL (STAGE 1)
B608		11	18'-11"			BODY-HORIZONTAL (STAGE 2)
B409		15	3'-11"	X		BODY-VERTICAL-BETWEEN GIRDERS
B410		10	5'-2"			BODY-HORIZONTAL-BETWEEN GIRDERS
B511	X	17	12'-6"	X		WING 3-VERTICAL
B512	X	13	15'-8"	X		WING 3-STIRRUP
B513	X	6	14'-10"			WING 3-HORIZONTAL
B614	X	7	13'-11"			WING 3-HORIZONTAL
B615	X	2	13'-11"			WING 3-HORIZONTAL
B416	X	9	11'-8"			WING 3-HORIZONTAL
B617	X	2	11'-8"			WING 3-HORIZONTAL
B518	X	17	12'-6"	X		WING 4-VERTICAL
B519	X	13	15'-8"	X		WING 4-STIRRUP
B520	X	6	14'-10"			WING 4-HORIZONTAL
B621	X	7	13'-11"			WING 4-HORIZONTAL
B622	X	2	13'-11"			WING 4-HORIZONTAL
B423	X	9	11'-8"			WING 4-HORIZONTAL
B624	X	2	11'-8"			WING 4-HORIZONTAL

ABUTMENT FORMLINER NOTES

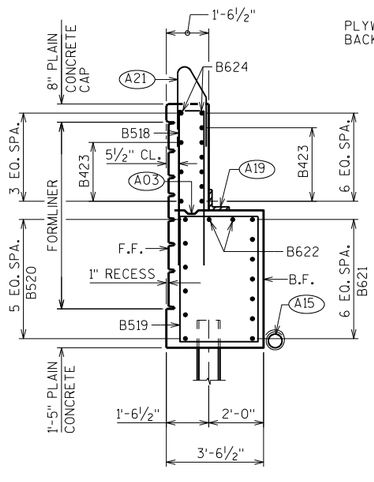
FORMLINER COURSING ON ABUTMENT WINGS SHALL BE LEVEL.

THE FORMLINER COURSING ON THE WINGS SHALL BE VERTICALLY ALIGNED WITH THE FORMLINER COURSING ON THE FRONT OF THE ABUTMENT.

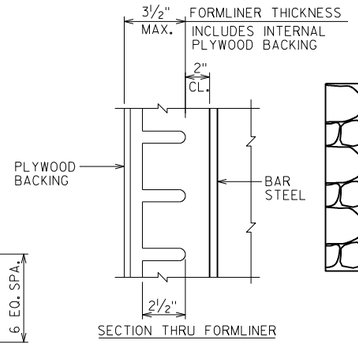
THE FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS.



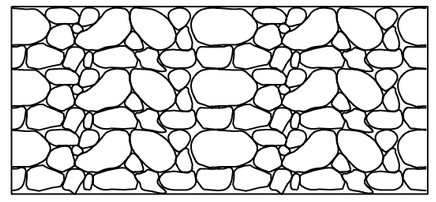
WING 4 ELEVATION



WING 4 SECTION

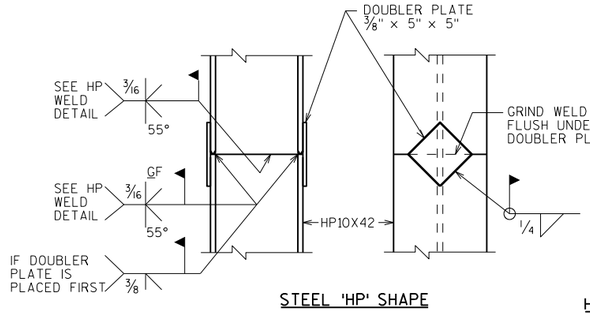


SECTION THRU FORMLINER

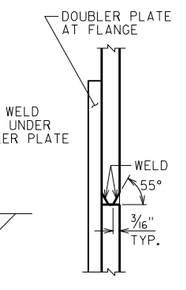


FIELD STONE - RANDOM SIZES BETWEEN 6" & 24" MAX. RELIEF = 2½"

FORMLINER DETAILS



STEEL 'HP' SHAPE



HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

PILE DETAILS

(A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 × 6. (18" R.M.W. @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SCREEN REQUIRED.

(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

(A21) FOR PPT. BARS & DIMENSION SEE PARAPET SHT.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

NORTH ABUTMENT DETAILS

SHEET 9

90

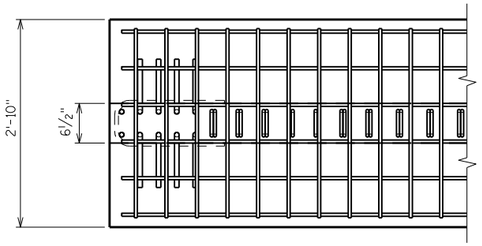
SCALE = 2.6667

8

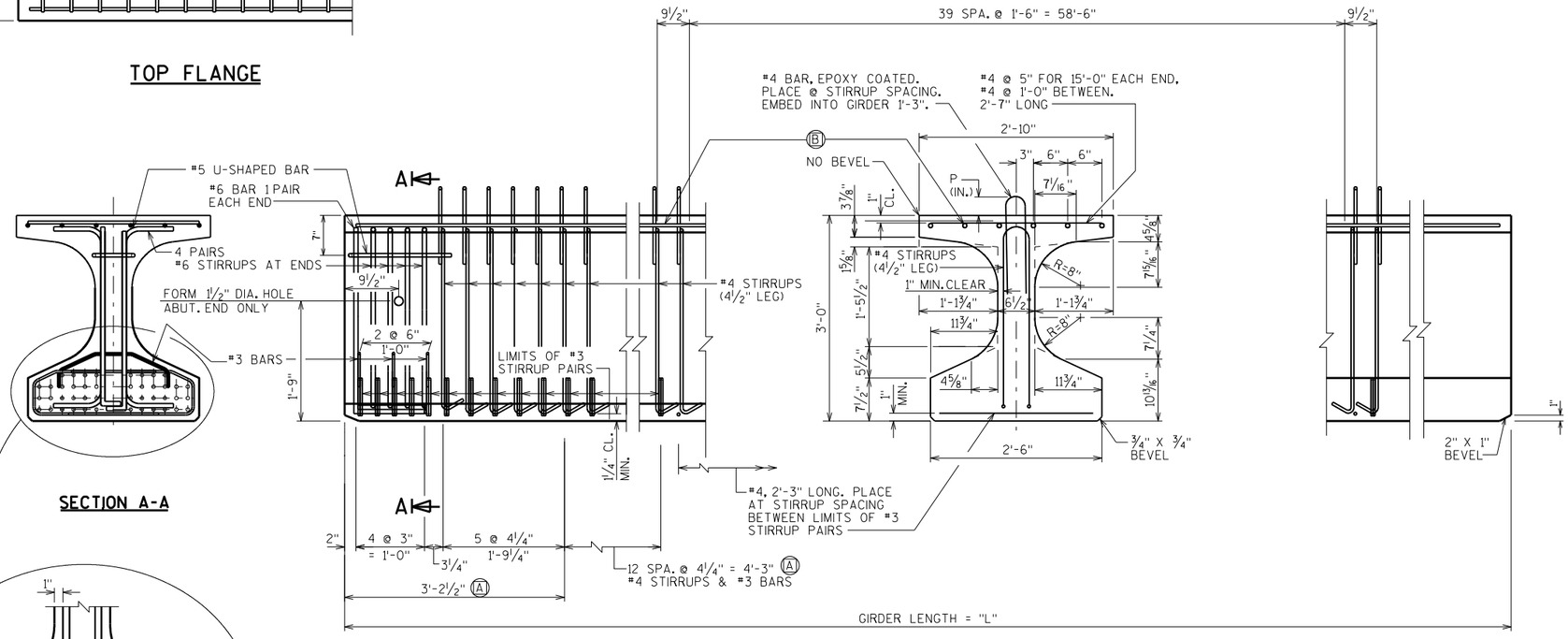
8

STATE PROJECT NUMBER

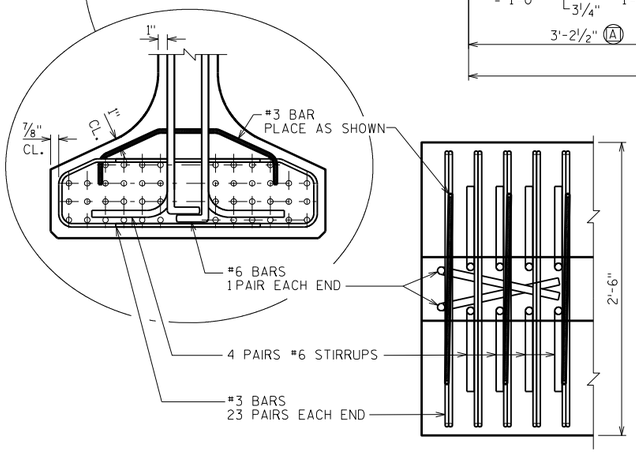
9240-09-70



TOP FLANGE



SECTION A-A

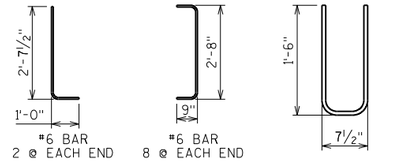


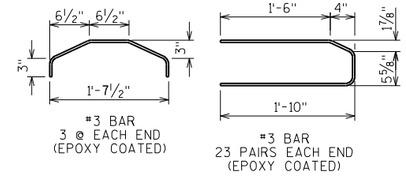
BOTTOM FLANGE

SIDE VIEW & TYP. SECTION IN SPAN

Ⓐ DETAIL TYP. AT EACH END

Ⓑ 6 #4 BARS, FULL LENGTH, MIN. LAP = 1'-11"





NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

STRANDS SHALL BE FLUSH WITH THE END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, ENDS OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, ONE OPTION IS AVAILABLE:

USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

PRESTRESSING STRANDS SHALL BE 0.6" DIA. -7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 psi.

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.

✳ MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.) 1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CONC. STRGTH. f'c (p.s.i.)	"P" IST 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.) ✳	(IN.) "A"	"B" MIN.	"B" MAX.	"C"	UNDRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.) ✳
1	ALL	75	0.3	0.6	0.8	0.9	1.0	0.9	0.8	0.6	0.3	8000	8"	7"	8"	0.6	24	6400	32	11	14	4		

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

36W" PRESTRESSED GIRDER DETAILS 1

SHEET 10

91

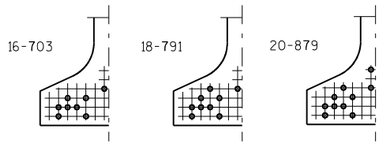
SCALE =

8

8

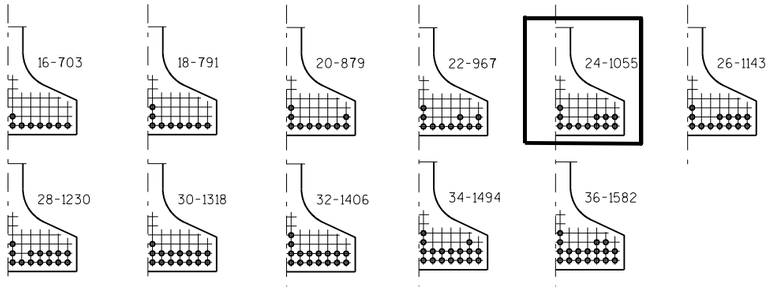
STATE PROJECT NUMBER

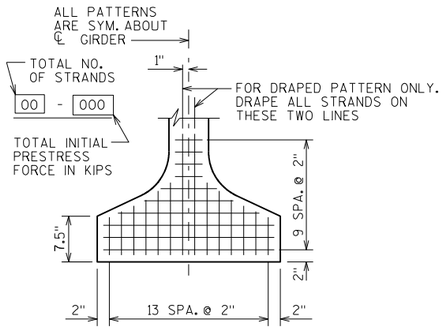
9240-09-70



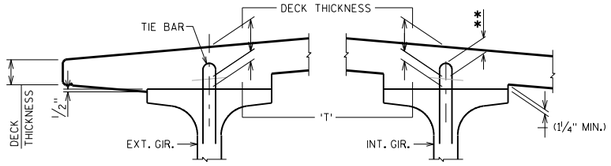
STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF STRANDS

0.6"Φ STRANDS





TYP. STRAND PATTERN



DECK HAUNCH DETAIL

IF 1¼" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

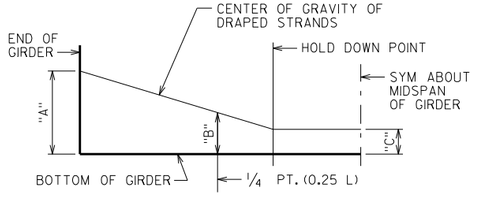
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT ℄ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEAD LOAD DEFLECTION
- DECK THICKNESS
= HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 3" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

ARRANGEMENT AT ℄ SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6"Φ STRANDS



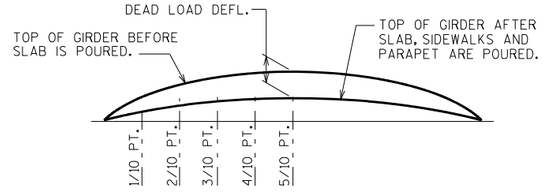
DRAPED STRAND PROFILE

*THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.) *
1	2.21

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.



DEAD LOAD DEFLECTION DIAGRAM

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

36W" PRESTRESSED GIRDER DETAILS 2

SHEET 11

92

SCALE = 1

STATE PROJECT NUMBER

9240-09-70

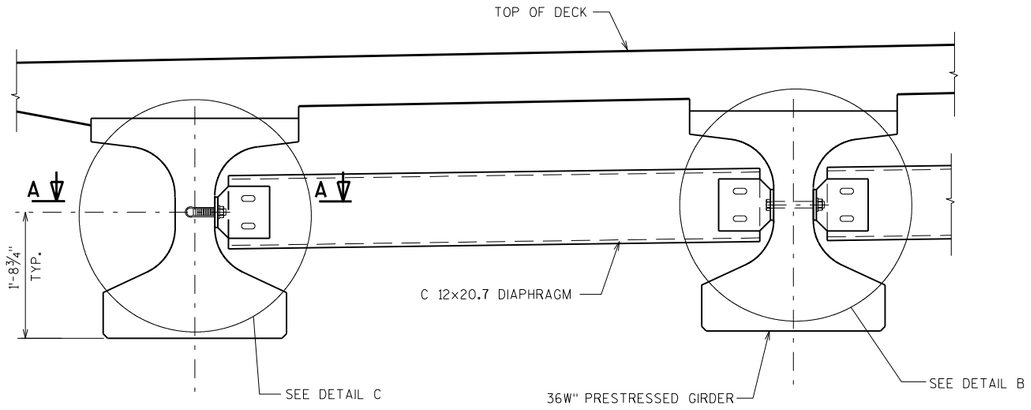
NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-26-39", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

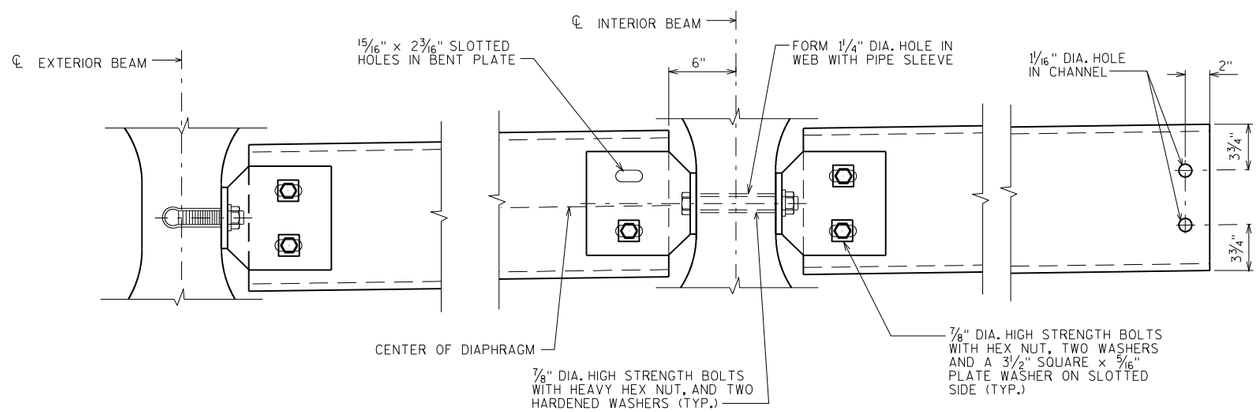
ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563. LUBRICANT AND TEST FOR COATED NUTS.



EXTERIOR GIRDER

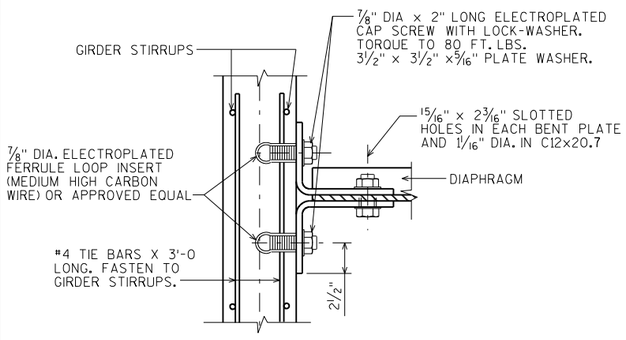
INTERIOR GIRDER

PART TRANSVERSE SECTION AT DIAPHRAGM



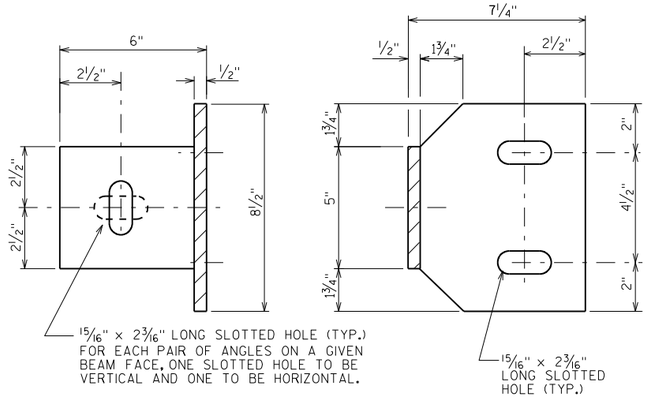
DETAIL C

DETAIL B



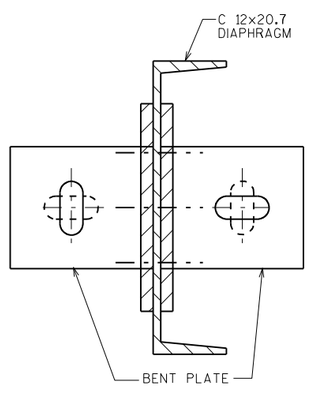
SECTION A-A

(FOR EXTERIOR ATTACHMENT)



BEAM FACE

DIAPHRAGM FACE



ATTACHMENT TO CHANNEL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

STEEL DIAPHRAGM

SHEET 12

93

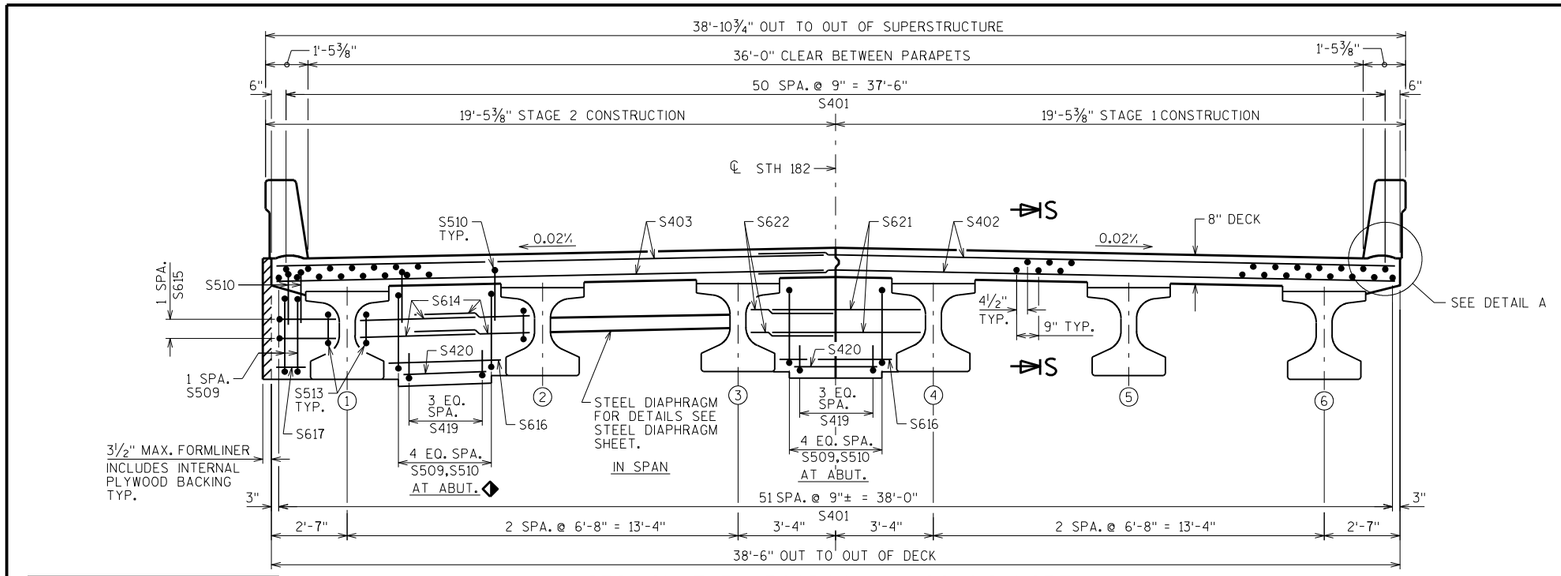
SCALE = 1

8

8

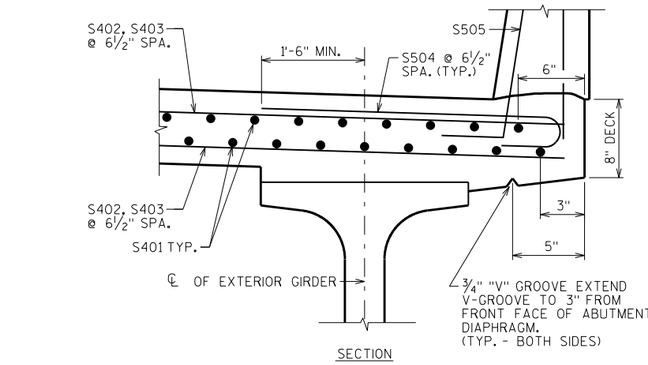
STATE PROJECT NUMBER

9240-09-70

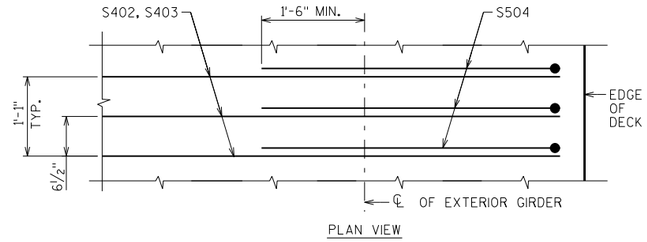


SECTION THRU ROADWAY - LOOKING NORTH

◆ TYPICAL BETWEEN GIRDERS AT ABUTMENT DIAPHRAGMS EXCEPT BETWEEN GIRDERS 3&4.



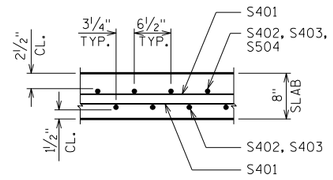
SECTION



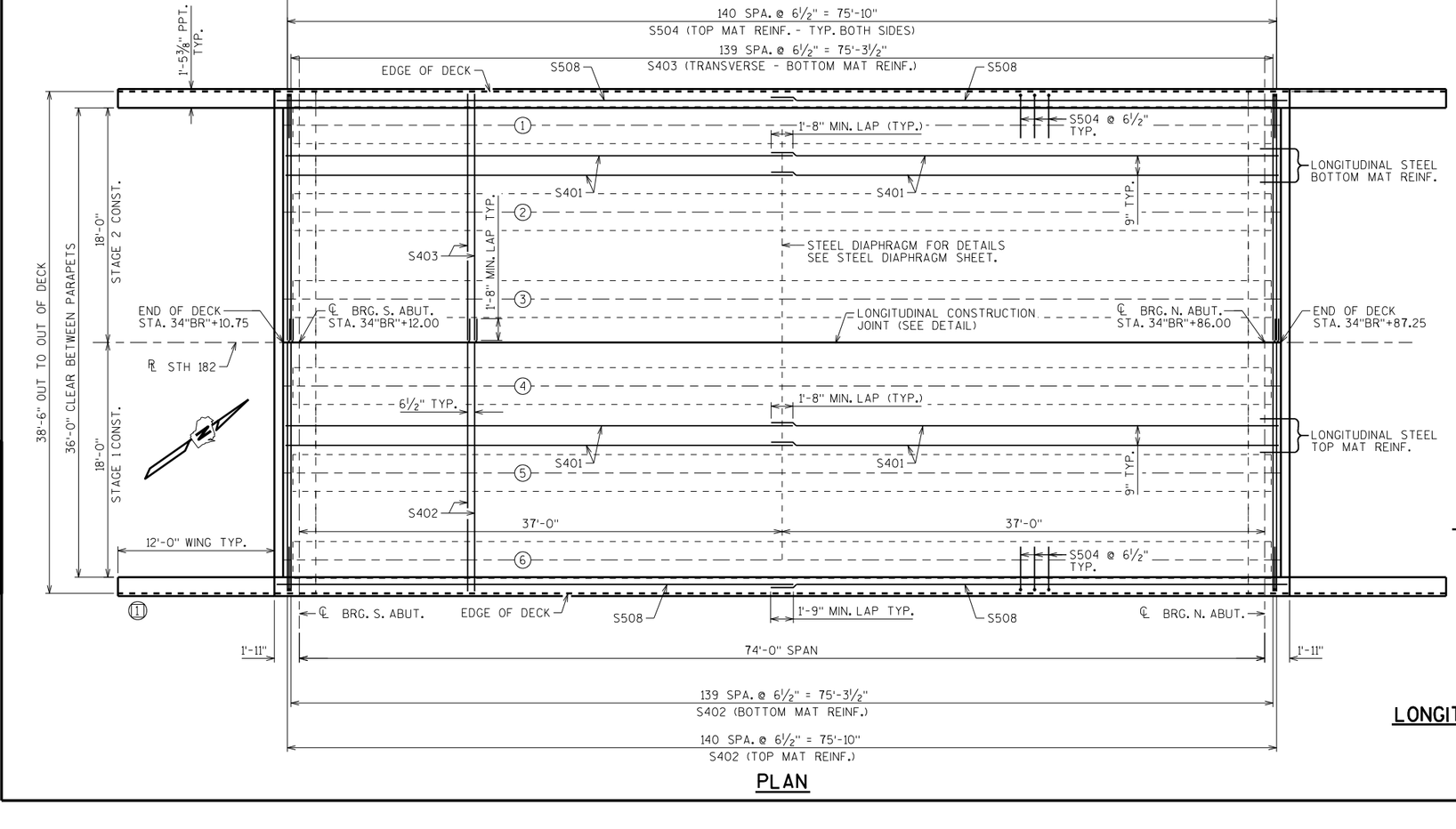
PLAN VIEW

DETAIL A

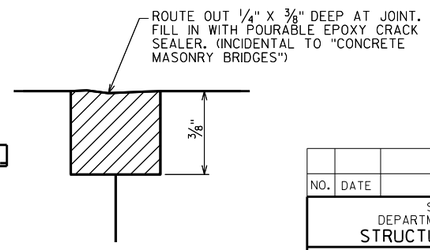
ADDITIONAL REINFORCEMENT



SECTION S



PLAN



LONGITUDINAL CONSTRUCTION JOINT DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

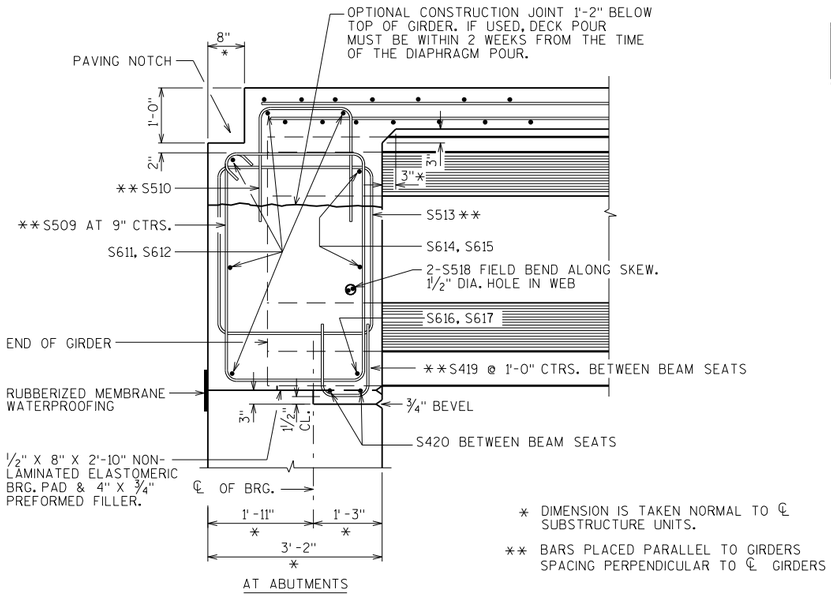
SUPERSTRUCTURE | SHEET 13

94

8

8

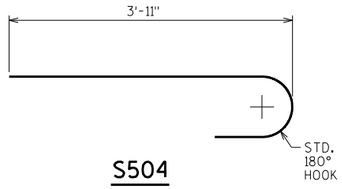
SCALE = 5.00



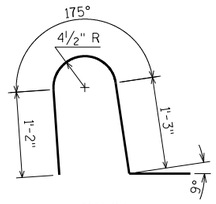
PART LONGIT. SECTION

* DIMENSION IS TAKEN NORMAL TO ℄ SUBSTRUCTURE UNITS.

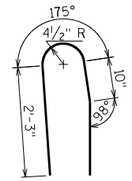
** BARS PLACED PARALLEL TO GIRDERS SPACING PERPENDICULAR TO ℄ GIRDERS



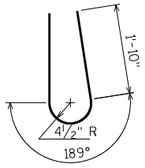
S504



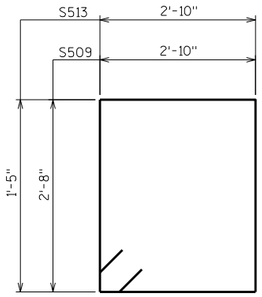
S505



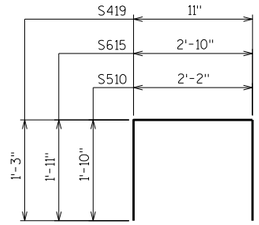
S506



S507



S509, S513

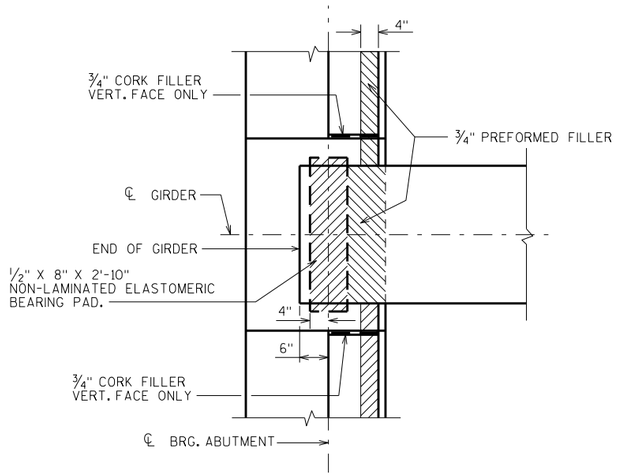


S510, S615, S419

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	206	38'-11"			DECK - LONGITUDINAL
S402	X	281	20'-11"			DECK - TRANSVERSE (STAGE 1)
S403	X	281	18'-11"			DECK - TRANSVERSE (STAGE 2)
S504	X	282	4'-6"	X		DECK - TRANSVERSE - EDGE OF DECK
S505	X	230	4'-5"	X		PARAPET - VERT.
S506	X	4	5'-10"	X		PARAPET - VERT. - AT PAVING NOTCHES
S507	X	234	5'-0"	X		PARAPET - VERT.
S508	X	24	39'-8"			PARAPET - HORIZ.
S509	X	58	11'-8"	X		ABUT. DIAPH. - STIIRRUP
S510	X	58	5'-7"	X		ABUT. DIAPH. - VERT.
S611	X	10	22'-9"			ABUT. DIAPH. - HORIZ. - B.F.
S612	X	10	18'-11"			ABUT. DIAPH. - HORIZ. - B.F.
S513	X	24	9'-2"	X		ABUT. DIAPH. - STIRRUP AT GIRDERS
S614	X	32	3'-11"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS
S615	X	8	6'-4"	X		ABUT. DIAPH. - HORIZ. - ENDS
S616	X	10	3'-10"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS
S617	X	4	1'-0"			ABUT. DIAPH. - HORIZ. - ENDS
S518	X	24	6'-0"			ABUT. DIAPH. - HORIZ. - THRU GIRDERS
S419	X	50	3'-3"	X		ABUT. DIAPH. - VERT. - BTWN. GIRDERS
S420	X	20	2'-10"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS
S621	X	4	5'-1"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS 3&4
S622	X	4	2'-10"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS 3&4



BEARING PAD DETAIL

TOP OF DECK ELEVATIONS

	℄ BRG. SOUTH ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	℄ BRG. NORTH ABUT.
LEFT EOD	1583.24	1583.32	1583.40	1583.48	1583.56	1583.64	1583.72	1583.80	1583.88	1583.96	1584.04
GIRDER 1	1583.27	1583.35	1583.43	1583.51	1583.59	1583.67	1583.75	1583.83	1583.91	1583.99	1584.07
GIRDER 2	1583.40	1583.48	1583.56	1583.64	1583.72	1583.80	1583.88	1583.96	1584.04	1584.12	1584.20
GIRDER 3	1583.53	1583.61	1583.69	1583.77	1583.85	1583.93	1584.01	1584.09	1584.17	1584.25	1584.33
CROWN LINE	1583.60	1583.68	1583.76	1583.84	1583.92	1584.00	1584.08	1584.16	1584.24	1584.32	1584.40
GIRDER 4	1583.53	1583.61	1583.69	1583.77	1583.85	1583.93	1584.01	1584.09	1584.17	1584.25	1584.33
GIRDER 5	1583.40	1583.48	1583.56	1583.64	1583.72	1583.80	1583.88	1583.96	1584.04	1584.12	1584.20
GIRDER 6	1583.27	1583.35	1583.43	1583.51	1583.59	1583.67	1583.75	1583.83	1583.91	1583.99	1584.07
RIGHT EOD	1583.24	1583.32	1583.40	1583.48	1583.56	1583.64	1583.72	1583.80	1583.88	1583.96	1584.04

NOTE:
EOD = EDGE OF DECK

STATE PROJECT NUMBER

9240-09-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

SUPERSTRUCTURE DETAILS

SHEET 14

95

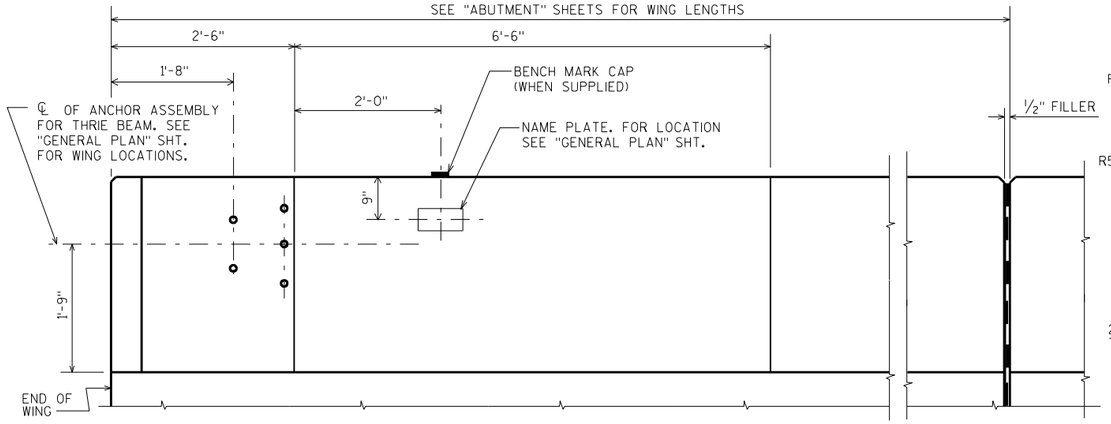
SCALE =

8

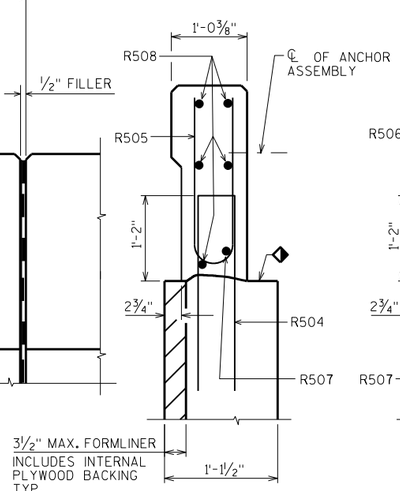
8

STATE PROJECT NUMBER

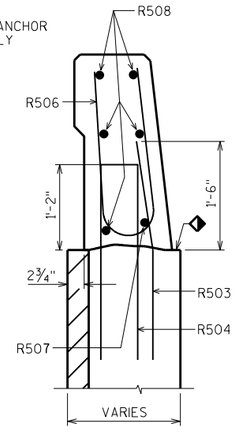
9240-09-70



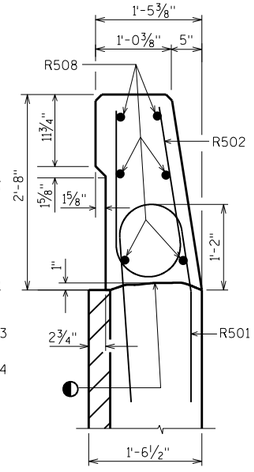
INSIDE ELEVATION



SECTION A



SECTION B



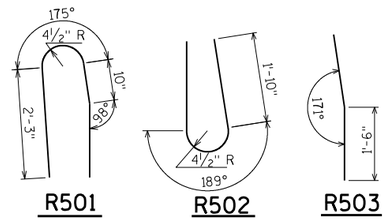
SECTION C

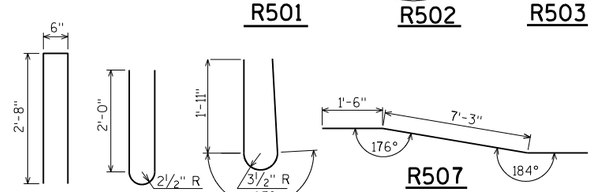
◆ FINISH SURFACE NOT COVERED BY PARAPET SAME AS ROADWAY

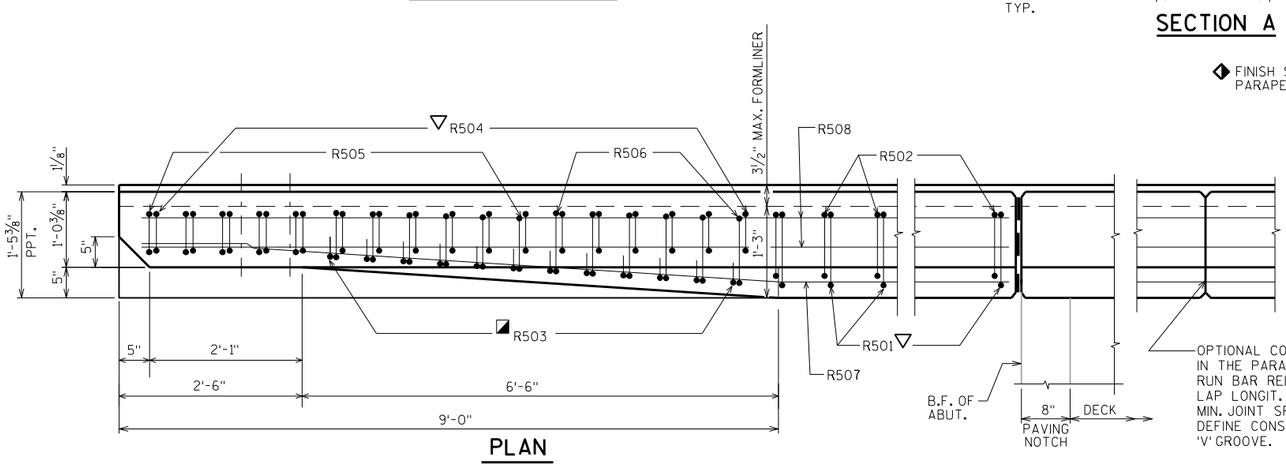
BILL OF BARS

FOR ABUTMENT PARAPETS

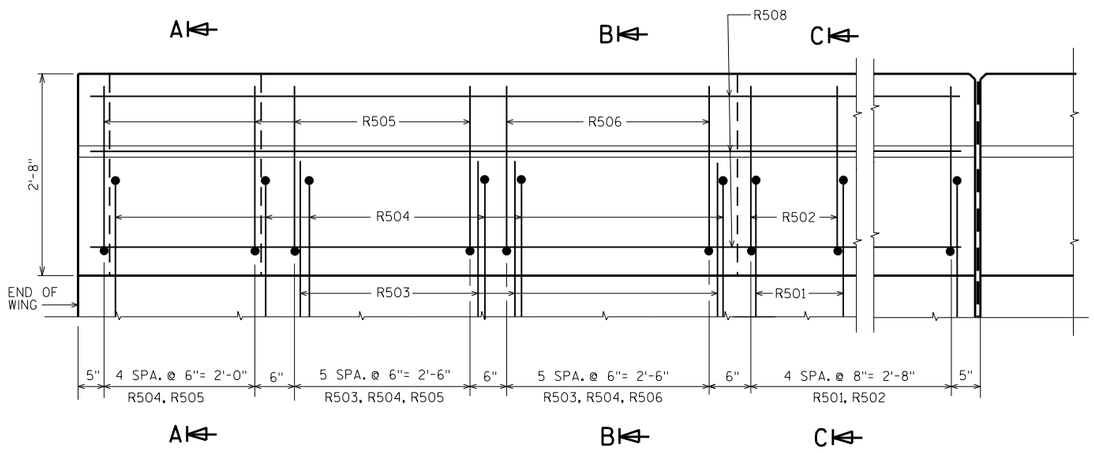
BAR MARK	COAT	S. ABUT.	N. ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	10	10	5-10	X		PARAPET VERT.
R502	X	10	10	5-0	X		PARAPET VERT.
R503	X	24	24	3-0	X		PARAPET VERT.
R504	X	34	34	5-7	X		PARAPET VERT.
R505	X	22	22	4-9	X		PARAPET VERT.
R506	X	12	12	4-10	X		PARAPET VERT.
R507	X	2	2	11-8	X		PARAPET HORIZ.
R508	X	10	10	11-8			PARAPET HORIZ.



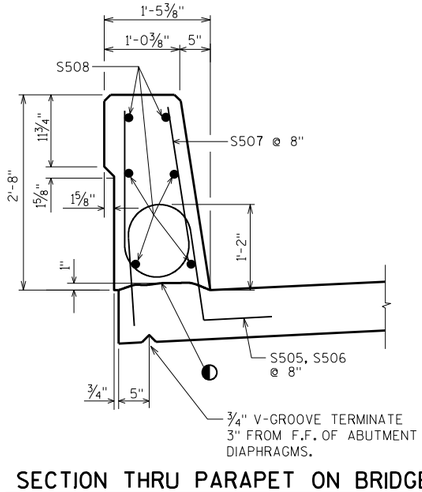




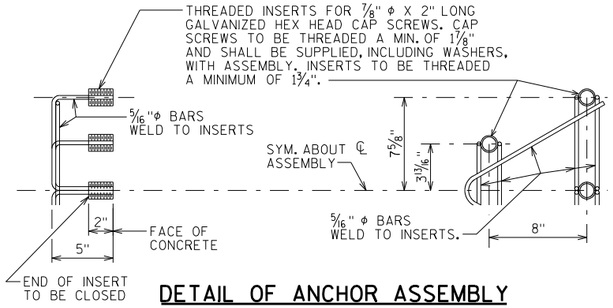
PLAN



OUTSIDE ELEVATION



SECTION THRU PARAPET ON BRIDGE



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◪ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 OR S503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-26-39

DRAWN BY DDS | PLANS CK'D. EMK

SINGLE SLOPE PARAPET 32SS

SHEET 15

96

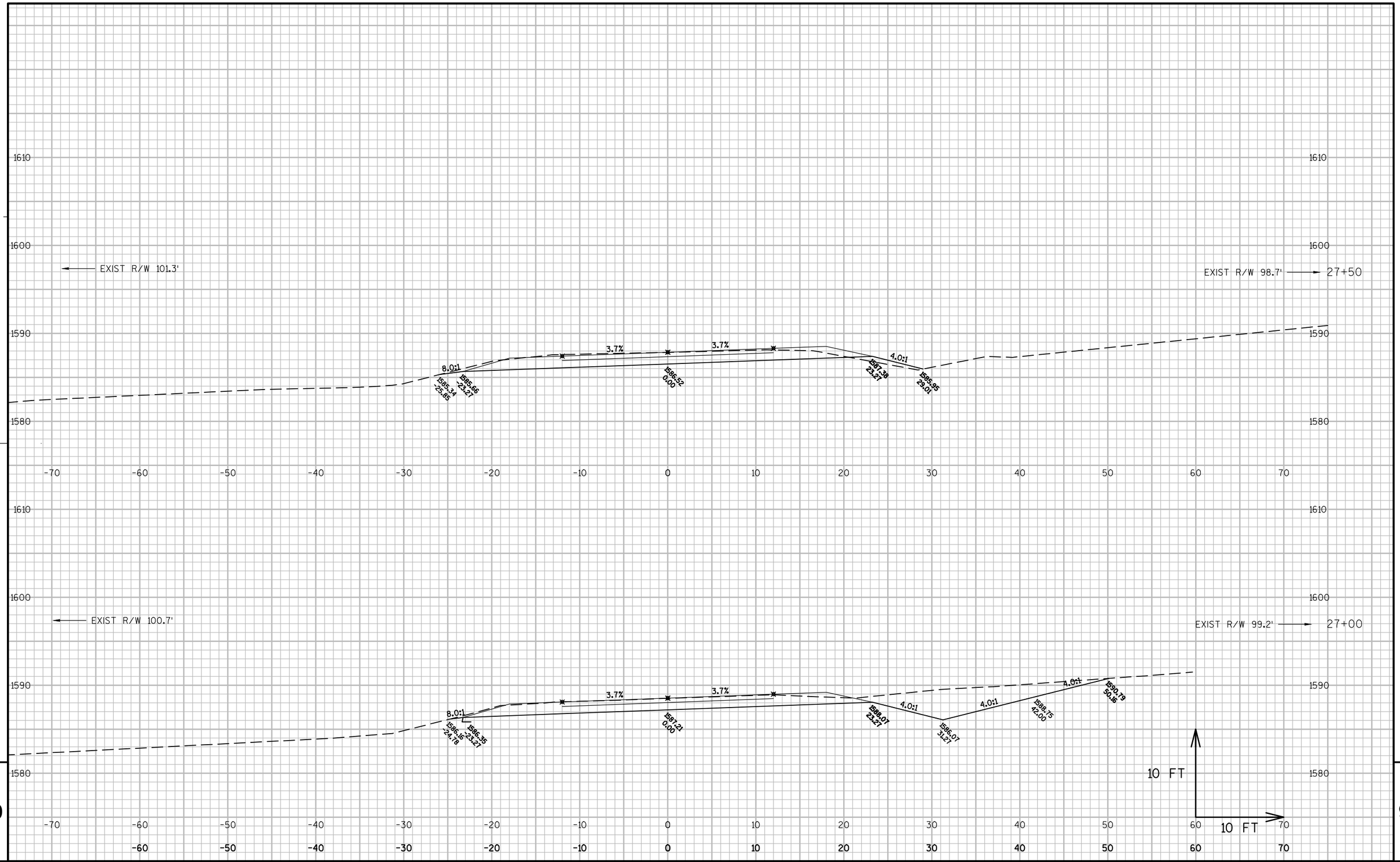
SCALE = 1

8

8

STATION	Real Station	Distance	AREA (SF) Cut	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut	Incremental Vol (CY) (Unadjusted) Fill	Cumulative Vol (CY) Cut	Expanded Fill	Mass Ordinate
							1.00	1.25	
					Note 1	Note 3	Note 1		Note 8
27+00	2700.00	0.00	101.42	0.00	0	0	0	0	0.00
27+25	2725.00	25.00	81.76	0.00	85	0	85	0	84.81
27+50	2750.00	25.00	51.65	3.11	62	1	147	2	144.77
27+75	2775.00	25.00	51.55	3.73	48	3	194	6	188.59
28+00	2800.00	25.00	55.12	2.50	49	3	244	9	234.36
28+25	2825.00	25.00	107.34	0.00	75	1	319	11	308.13
28+50	2850.00	25.00	54.29	3.56	75	2	394	13	380.90
28+75	2875.00	25.00	55.12	4.36	51	4	444	17	426.96
29+00	2900.00	25.00	64.05	6.15	55	5	500	24	476.05
29+25	2925.00	25.00	92.65	5.03	73	5	572	30	542.12
29+50	2950.00	25.00	101.34	5.81	90	5	662	36	625.65
29+75	2975.00	25.00	83.22	6.53	85	6	747	43	703.96
30+00	3000.00	25.00	58.21	8.31	65	7	813	52	760.85
30+25	3025.00	25.00	55.91	9.38	53	8	866	62	803.45
30+50	3050.00	25.00	57.08	9.93	52	9	918	73	844.58
30+75	3075.00	25.00	57.37	9.82	53	9	971	85	886.15
31+00	3100.00	25.00	61.41	9.33	55	9	1,026	96	930.05
31+25	3125.00	25.00	65.63	10.54	59	9	1,085	107	977.37
31+50	3150.00	25.00	65.86	13.51	61	11	1,146	121	1,024.33
31+75	3175.00	25.00	64.03	18.71	60	15	1,206	140	1,065.82
31+90.61	3190.61	15.61	57.70	18.68	35	11	1,241	154	1,087.50
32+00	3200.00	9.39	52.35	24.22	19	7	1,260	163	1,097.31
32+23.61	3223.61	23.61	39.09	42.46	40	29	1,300	199	1,100.84
32+25	3225.00	1.39	38.33	43.02	2	2	1,302	202	1,100.08
32+36.1	3236.10	11.10	32.69	47.64	15	19	1,317	225	1,091.39
32+50	3250.00	13.90	28.63	51.46	16	26	1,332	257	1,075.28
32+75	3275.00	25.00	25.44	49.70	25	47	1,358	316	1,041.78
32+89.61	3289.61	14.61	23.37	43.54	13	25	1,371	347	1,023.45
33+00	3300.00	10.39	21.35	35.82	9	15	1,379	366	1,012.96
33+25	3325.00	25.00	15.89	35.20	17	33	1,397	407	989.10
33+43.12	3343.12	18.12	15.62	37.12	11	24	1,407	438	969.33
33+50	3350.00	6.88	12.95	39.46	4	10	1,411	450	960.78
33+75	3375.00	25.00	11.08	44.25	11	39	1,422	498	923.47
34+00	3400.00	25.00	6.61	60.33	8	48	1,430	559	871.14
35+00	3500.00	100.00	3.02	100.26	18	297	1,448	931	517.24
35+25	3525.00	25.00	7.73	89.15	5	88	1,453	1,040	412.60
35+50	3550.00	25.00	7.13	96.01	7	86	1,460	1,147	312.32
35+75	3575.00	25.00	6.26	126.15	6	103	1,466	1,276	189.96
36+00	3600.00	25.00	13.76	136.92	9	122	1,475	1,428	47.00
36+25	3625.00	25.00	12.02	126.42	12	122	1,487	1,581	-93.46
36+50	3650.00	25.00	10.43	110.16	10	110	1,498	1,718	-219.97

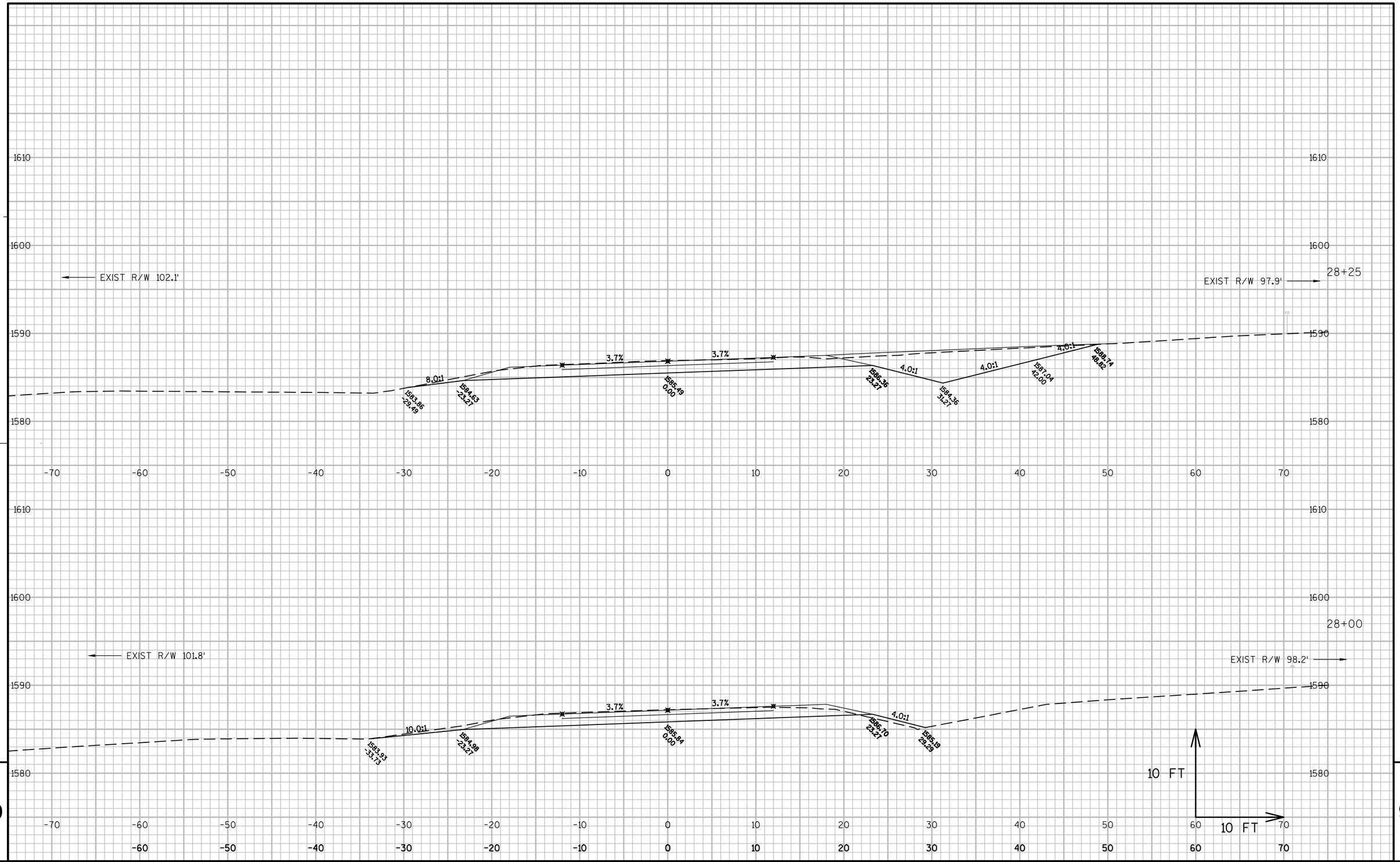
STATION	Real Station	Distance	AREA (SF) Cut	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut	Incremental Vol (CY) (Unadjusted) Fill	Cumulative Vol (CY) Cut	Expanded Fill	Mass Ordinate
					Note 1	Note 3	1.00 Note 1	1.25	Note 8
36+75	3675.00	25.00	13.83	102.30	11	98	1,509	1,841	-331.69
37+00	3700.00	25.00	16.31	87.88	14	88	1,523	1,951	-427.79
37+25	3725.00	25.00	15.99	76.43	15	76	1,538	2,046	-507.93
37+50	3750.00	25.00	23.32	59.97	18	63	1,556	2,125	-568.67
37+75	3775.00	25.00	37.95	60.51	28	56	1,584	2,194	-610.02
38+00	3800.00	25.00	81.63	51.63	55	52	1,640	2,259	-619.56
38+25	3825.00	25.00	119.98	49.79	93	47	1,733	2,318	-584.91
38+47.88	3847.88	22.88	175.46	48.48	125	42	1,858	2,370	-511.79
38+50	3850.00	2.12	178.44	48.38	14	4	1,872	2,375	-502.63
38+75	3875.00	25.00	178.19	45.70	165	44	2,037	2,429	-391.97
39+00	3900.00	25.00	188.80	44.45	170	42	2,207	2,481	-274.24
39+01.21	3901.21	1.21	189.46	44.40	8	2	2,216	2,484	-268.25
39+25	3925.00	23.79	189.79	43.37	167	39	2,383	2,532	-149.51
39+50	3950.00	25.00	176.77	42.68	170	40	2,552	2,582	-29.60
39+54.54	3954.54	4.54	176.99	42.10	30	7	2,582	2,591	-8.75
39+75	3975.00	20.46	140.35	40.55	120	31	2,702	2,630	72.32
40+00	4000.00	25.00	137.85	36.02	129	35	2,831	2,674	156.81
40+02.55	4002.55	2.55	139.32	35.49	13	3	2,844	2,679	165.67
40+07.88	4007.88	5.33	143.54	34.33	28	7	2,872	2,687	184.97
40+25	4025.00	17.12	145.90	33.40	92	21	2,964	2,714	249.90
40+50	4050.00	25.00	154.20	26.32	139	28	3,103	2,749	354.28
40+53.21	4053.21	3.21	155.26	25.31	18	3	3,121	2,752	368.84
40+75	4075.00	21.79	160.10	20.75	127	19	3,248	2,776	472.86
41+00	4100.00	25.00	149.25	19.70	143	19	3,392	2,799	592.67
41+25	4125.00	25.00	149.79	19.63	138	18	3,530	2,822	708.35
41+50	4150.00	25.00	137.63	18.82	133	18	3,663	2,844	819.17
41+75	4175.00	25.00	56.64	17.79	90	17	3,753	2,865	887.92
42+00	4200.00	25.00	41.39	14.34	45	15	3,799	2,884	914.71
42+25	4225.00	25.00	40.32	6.95	38	10	3,836	2,896	940.21
42+50	4250.00	25.00	43.30	1.47	39	4	3,875	2,901	974.05
42+75	4275.00	25.00	45.36	0.16	41	1	3,916	2,902	1,014.16
43+00	4300.00	25.00	46.07	1.36	42	1	3,958	2,903	1,055.61
43+25	4325.00	25.00	47.26	1.14	43	1	4,002	2,904	1,097.38
43+50	4350.00	25.00	46.34	40.22	43	19	4,045	2,928	1,116.77
43+75	4375.00	25.00	46.53	87.60	43	59	4,088	3,002	1,085.80
44+00	4400.00	25.00	48.97	22.98	44	51	4,132	3,066	1,066.02
44+25	4425.00	25.00	49.69	24.94	46	22	4,178	3,094	1,083.96
44+50	4450.00	25.00	51.00	24.15	47	23	4,224	3,122	1,102.17
					4,224	2,498			



PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 99	E

FILE NAME : N:\PDS\C3D\92400900\SHEETSPLAN\090200_XS.DWG PLOT DATE : 7/2/2013 1:24 PM PLOT BY : HOFFMAN, JENNIFER G PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 100	E

FILE NAME : N:\PDS\C3D\92400900\SHEETSPLAN\090200_XS.DWG PLOT DATE : 7/2/2013 1:25 PM PLOT BY : HOFFMAN, JENNIFER G PLOT NAME : PLOT SCALE : 1 IN:10 FT

EXIST R/W 103.5'

EXIST R/W 96.5'

29+50

4.0:1 4.0:1 4.0:1 3.7% 3.7% 4.0:1

1584.33 -44.97 | 1583.62 -42.00 | 1580.93 -31.27 | 1582.93 -23.27 | 1583.79 0.00 | 1584.66 23.27 | 1583.08 29.53

EXIST R/W 102.9'

EXIST R/W 97.1'

4.0:1 4.0:1 3.7% 3.7% 4.0:1

1582.30 -35.30 | 1581.61 -31.27 | 1583.61 -23.27 | 1584.47 0.00 | 1586.33 23.27 | 1583.62 30.1

29+00

EXIST R/W 102.4'

EXIST R/W 97.6'

28+50

8.0:1 3.7% 3.7% 4.0:1

1583.58 -28.93 | 1584.29 -23.27 | 1585.15 0.00 | 1586.01 23.27 | 1584.59 28.73

10 FT

10 FT

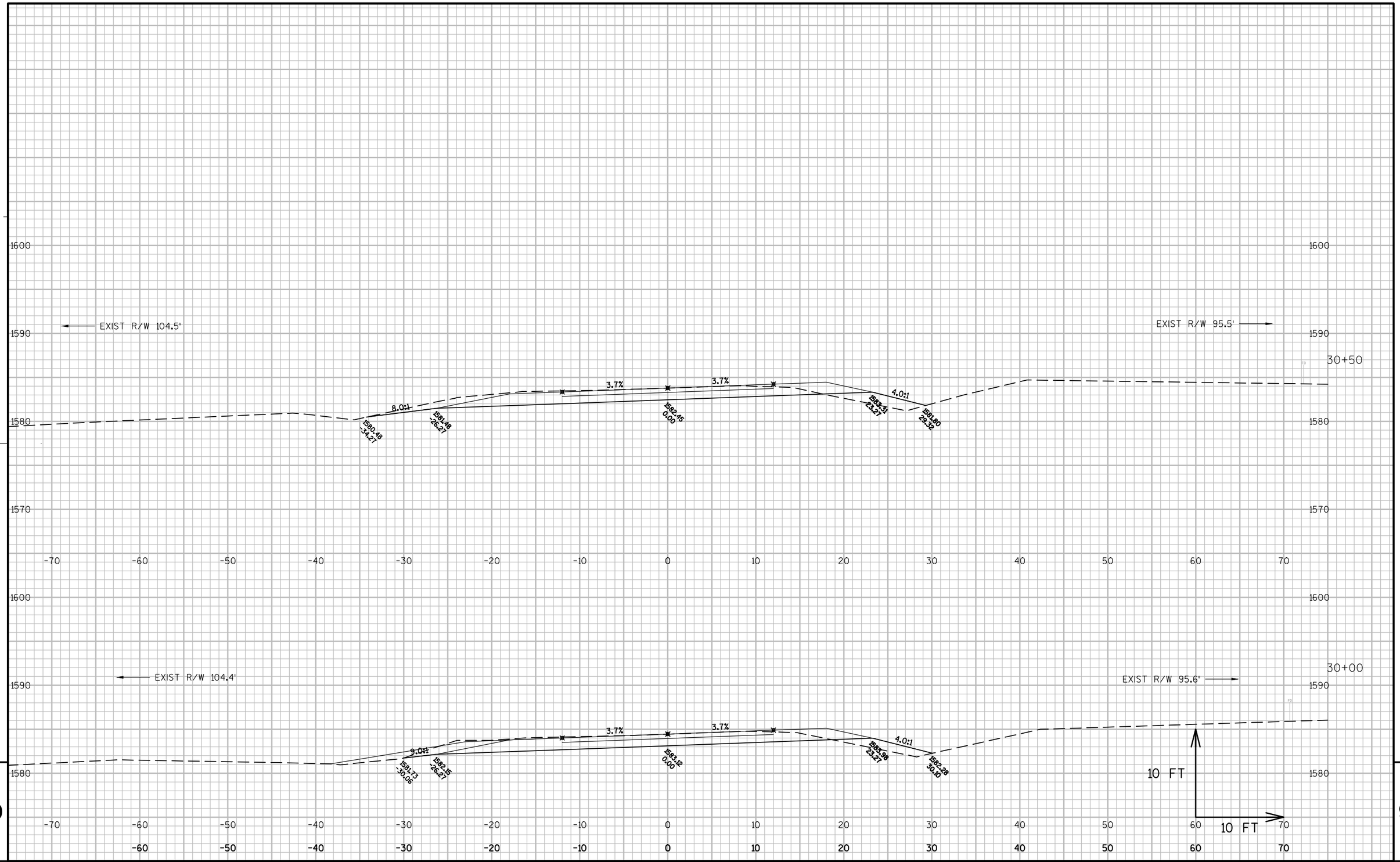
-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70

1590 1580 1610 1600

9

9

PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 101	E



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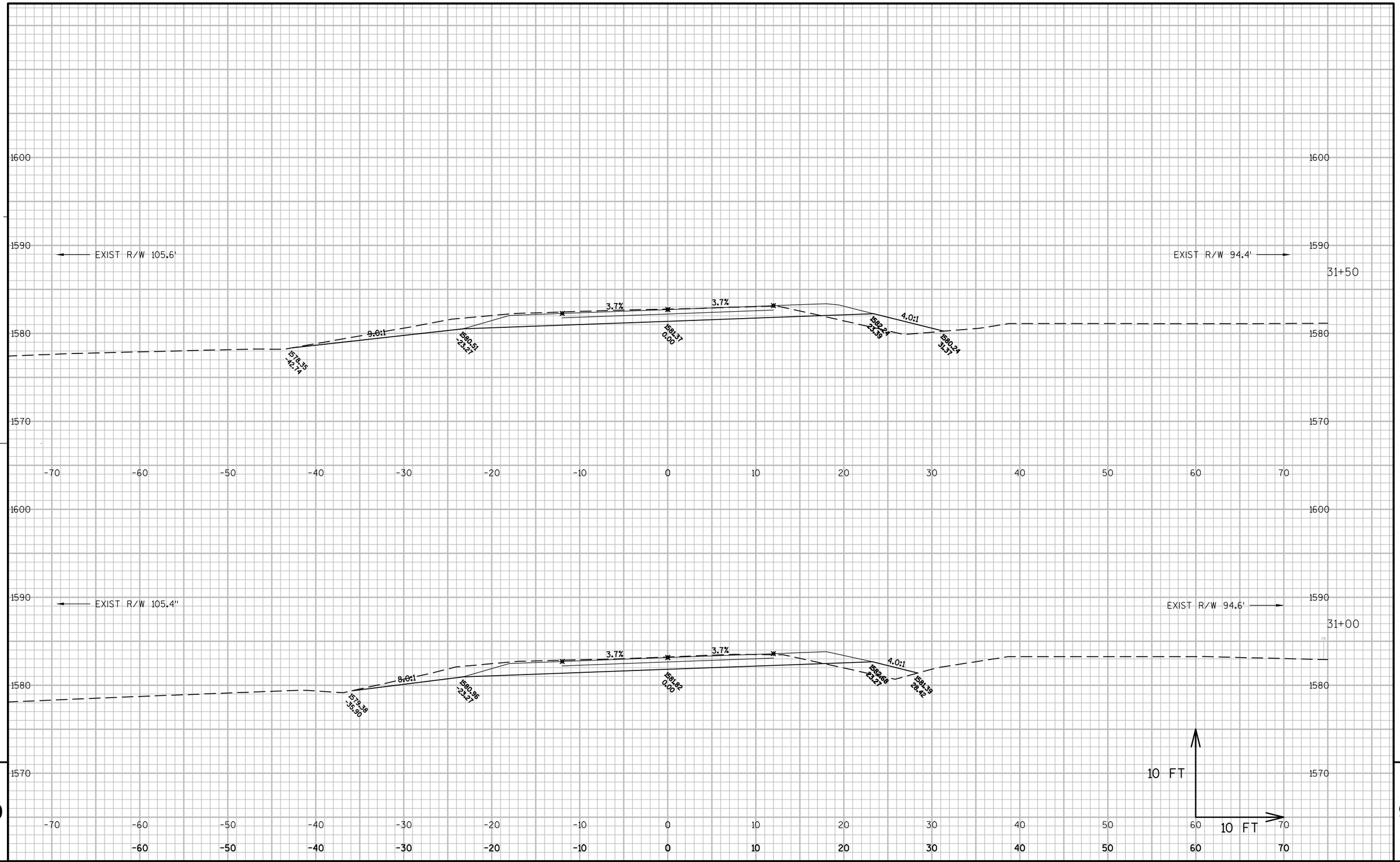
PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 102	E

9

FILE NAME : N:\PDS\C3D\92400900\SHEETSPLAN\090200_XS.DWG PLOT DATE : 7/2/2013 1:25 PM PLOT BY : HOFFMAN, JENNIFER G PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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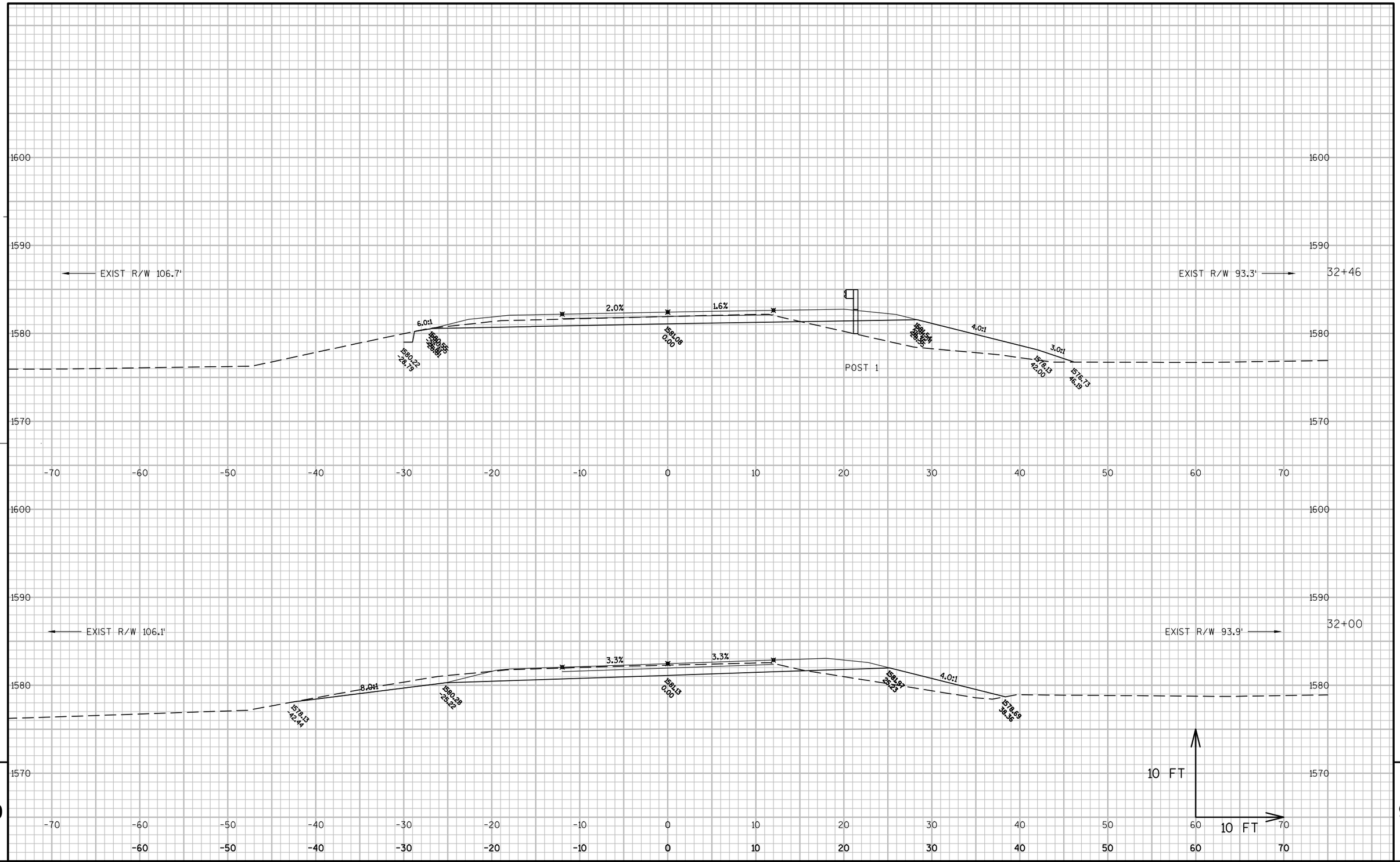
PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 103	E



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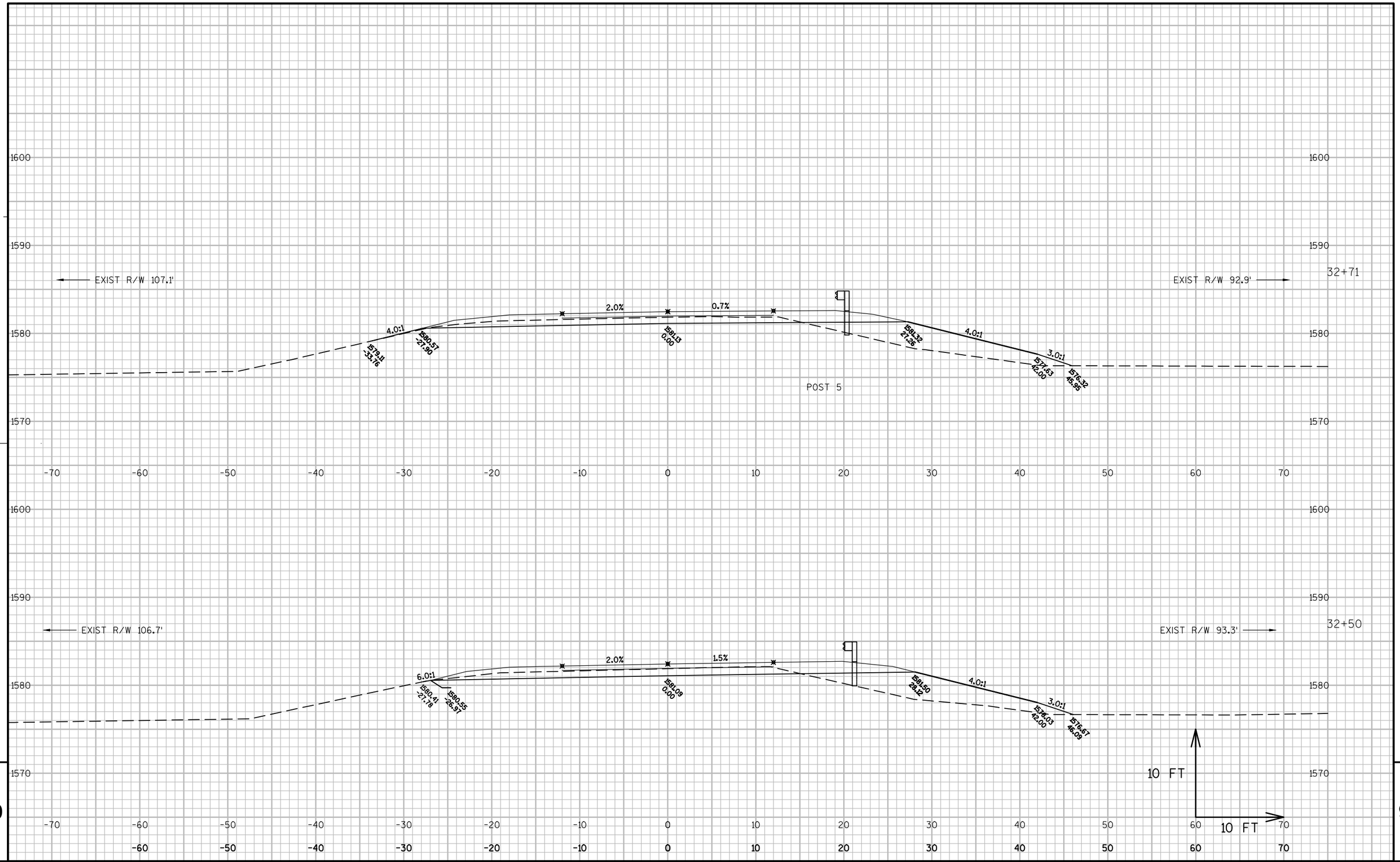
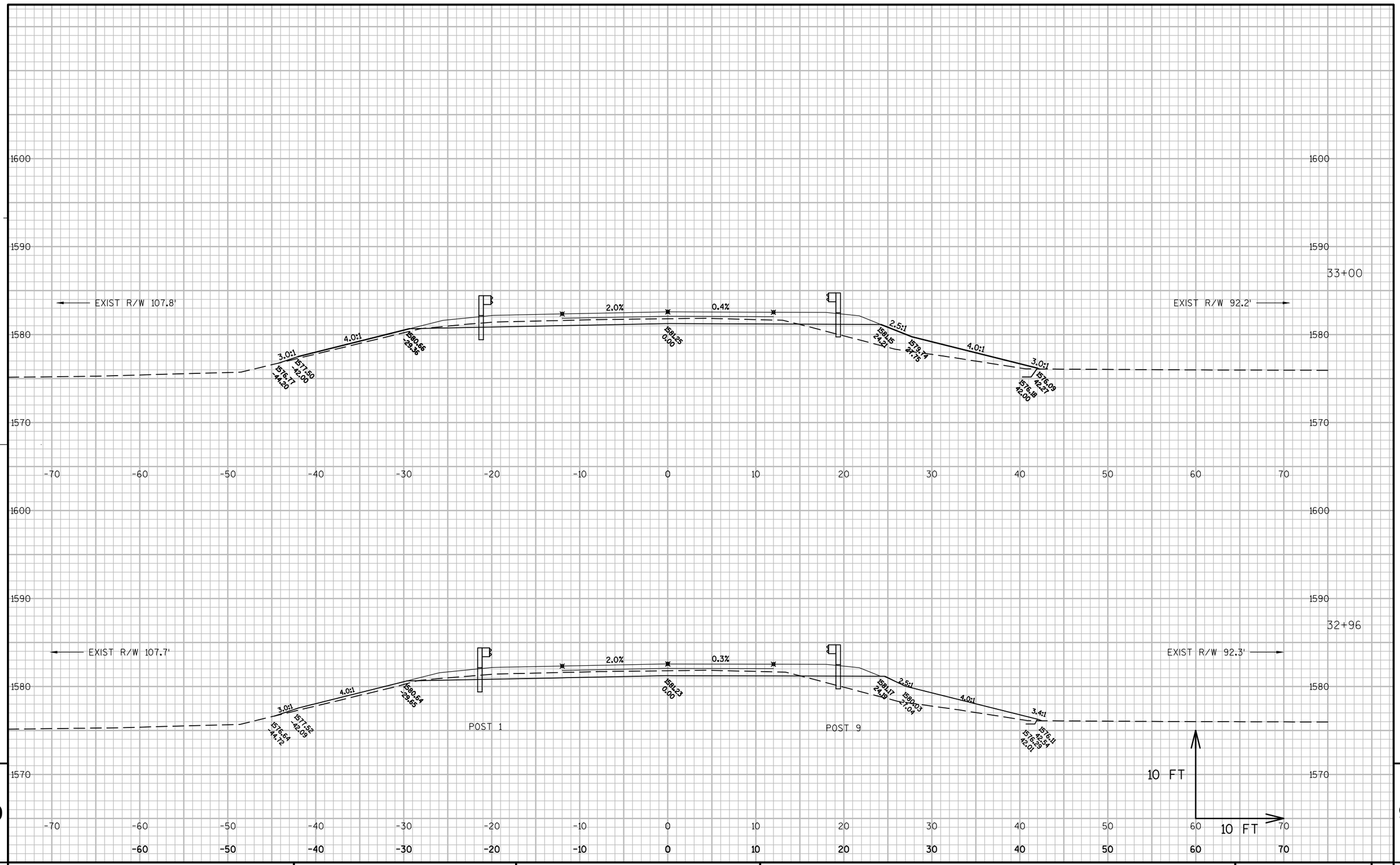
PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 104	E



PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 105	E

33+00

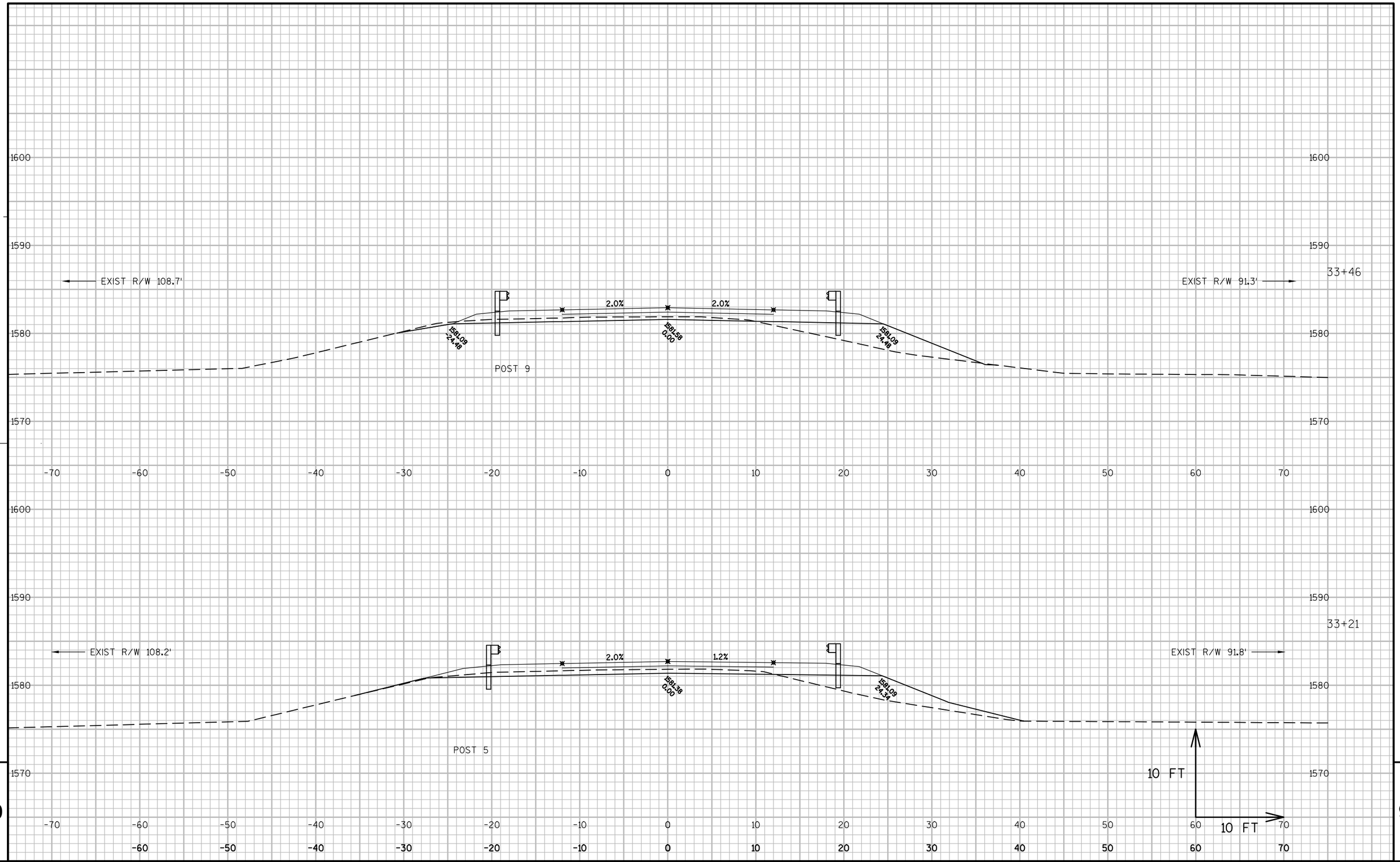


32+96

9

9

PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 106	E



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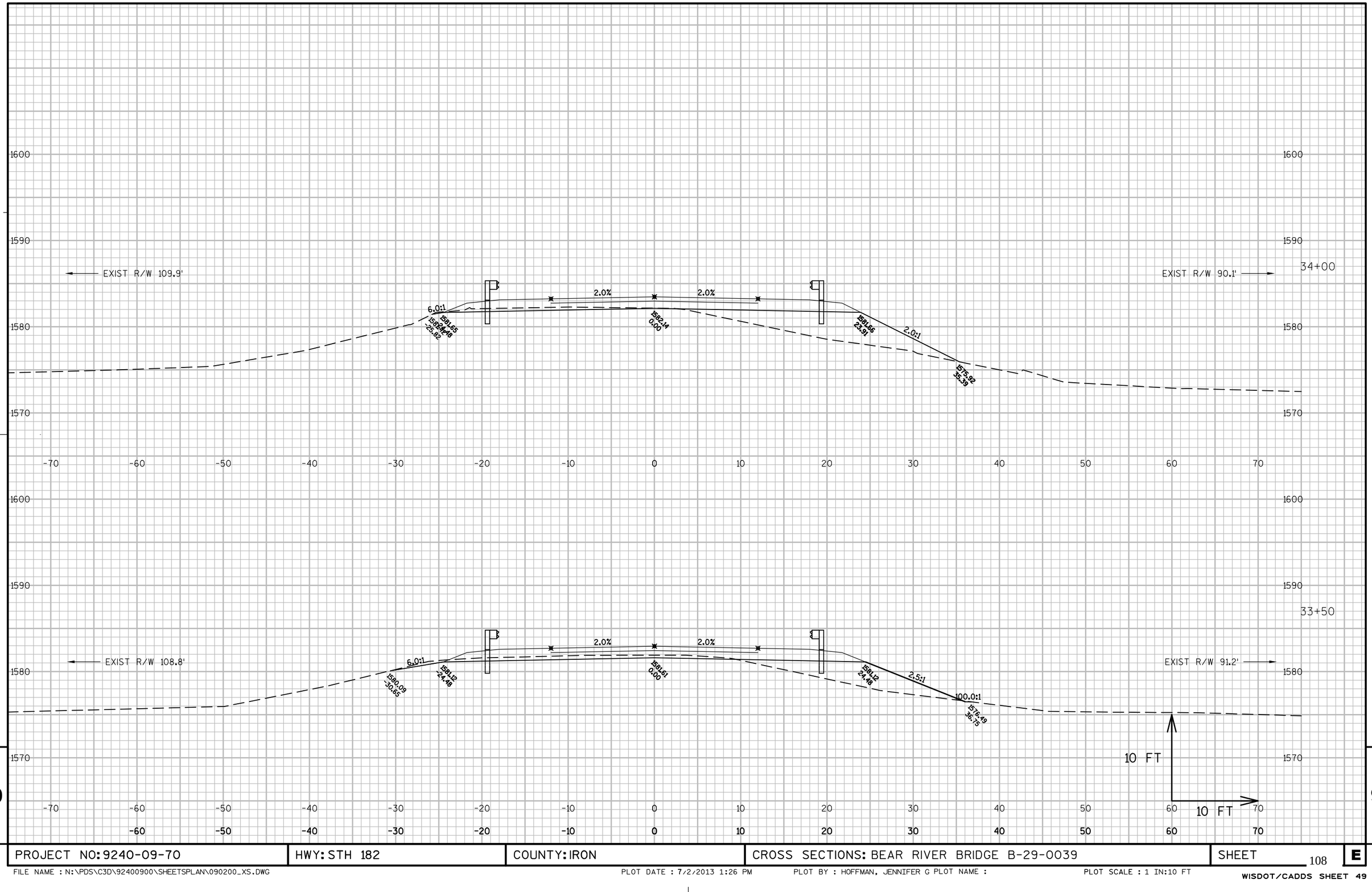
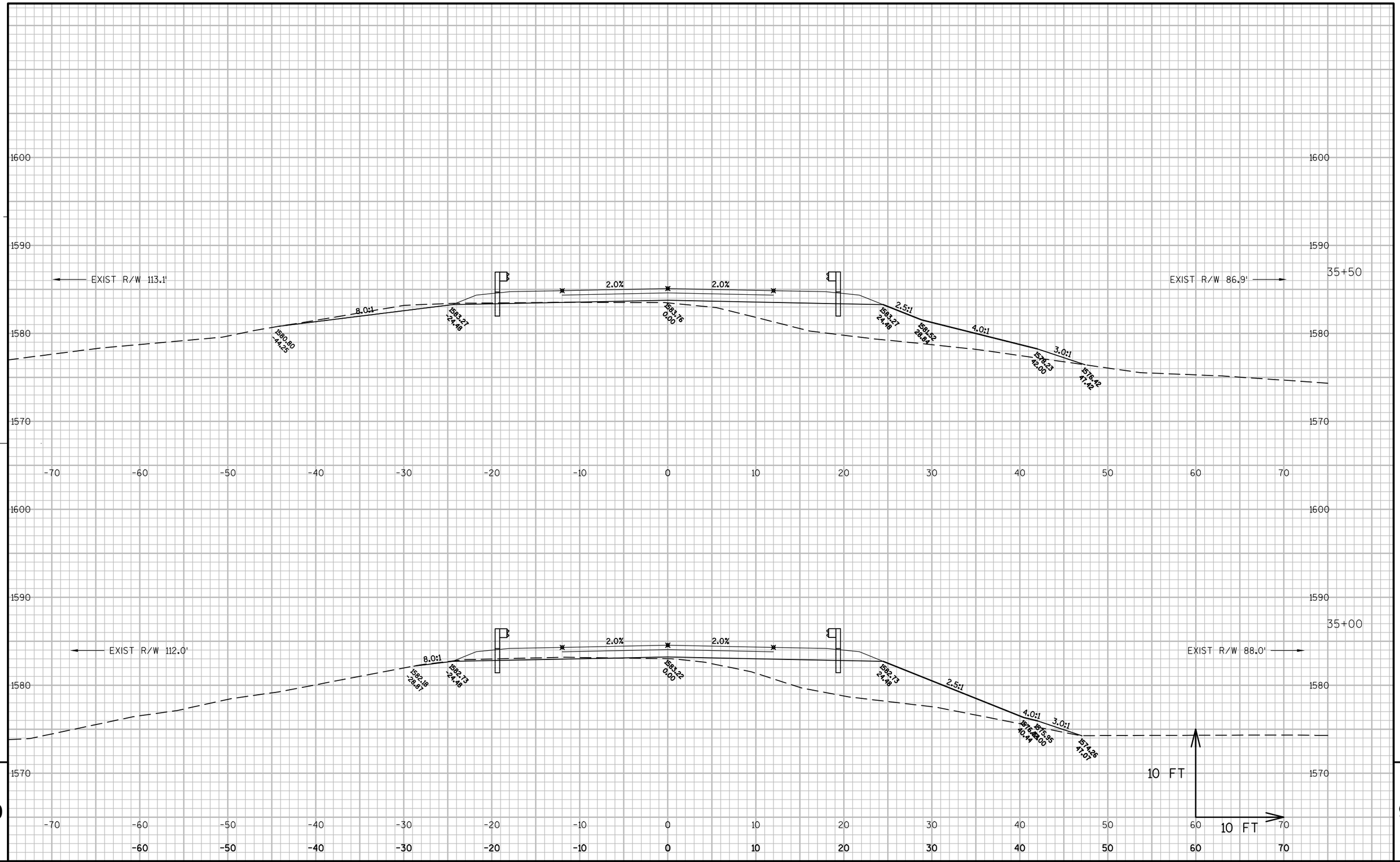
PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 107	E



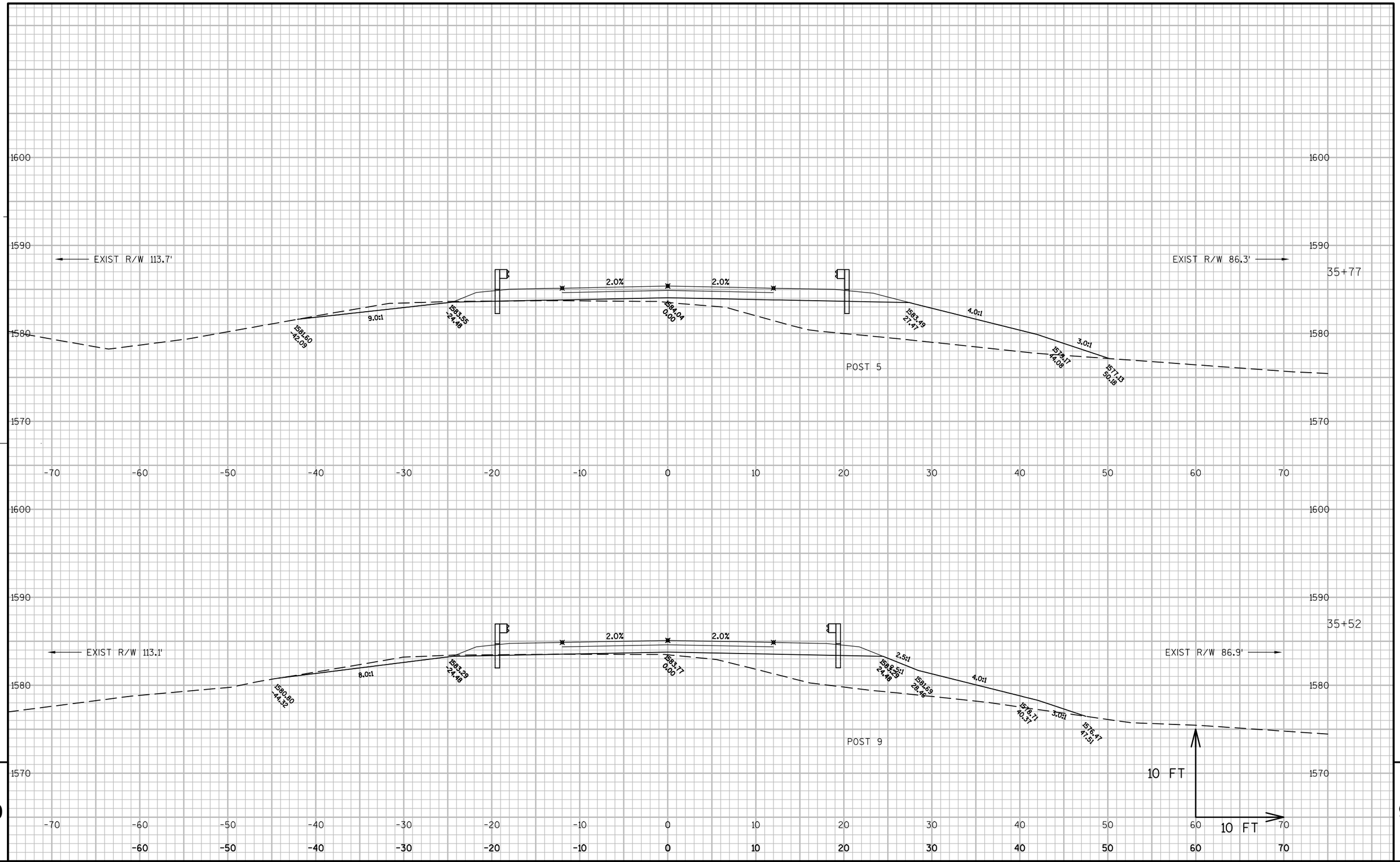
PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 108 E

FILE NAME : N:\PDS\C3D\92400900\SHEETSPLAN\090200_XS.DWG PLOT DATE : 7/2/2013 1:26 PM PLOT BY : HOFFMAN, JENNIFER G PLOT NAME : PLOT SCALE : 1 IN:10 FT

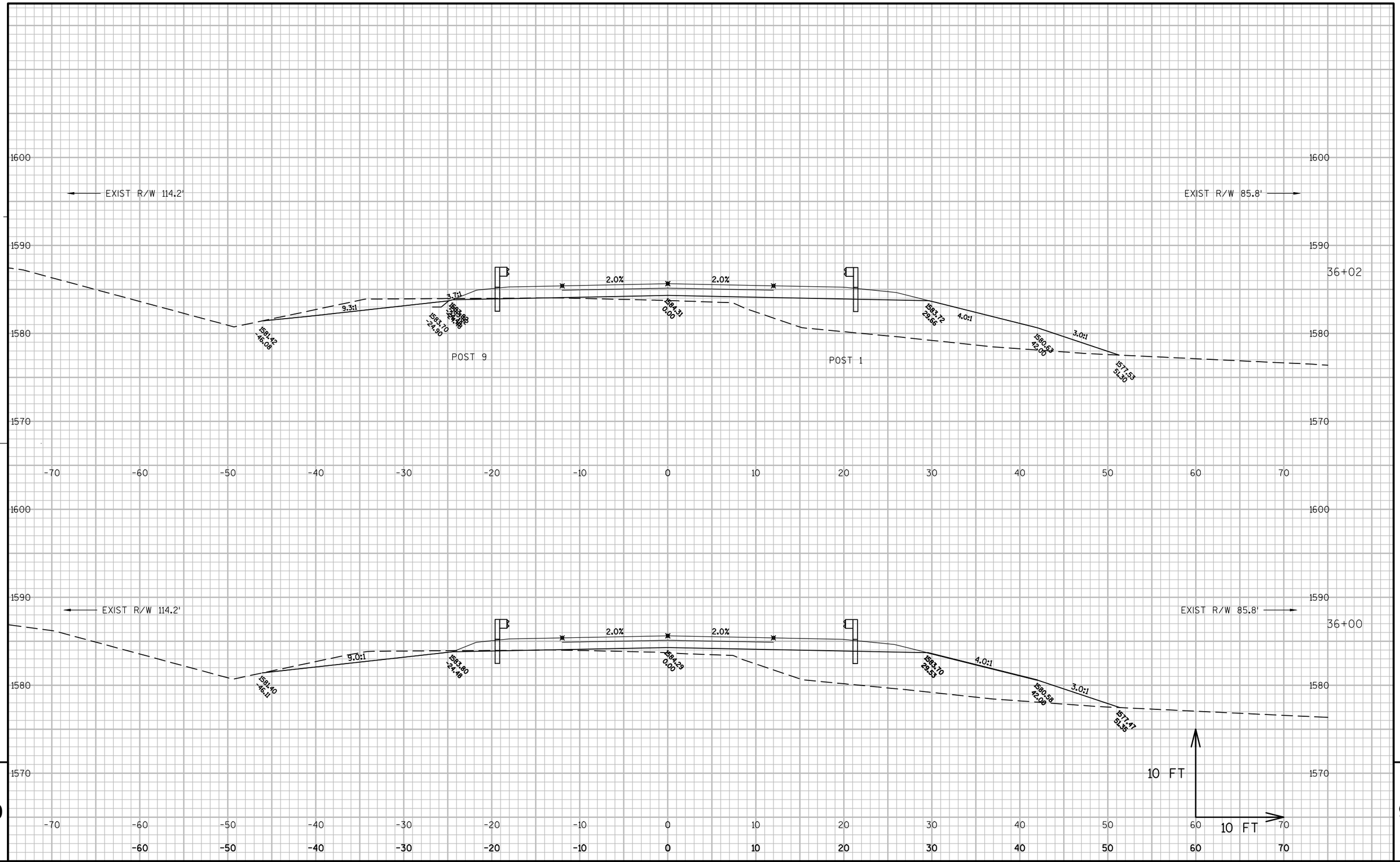
WISDOT/CADDS SHEET 49



PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 109 E

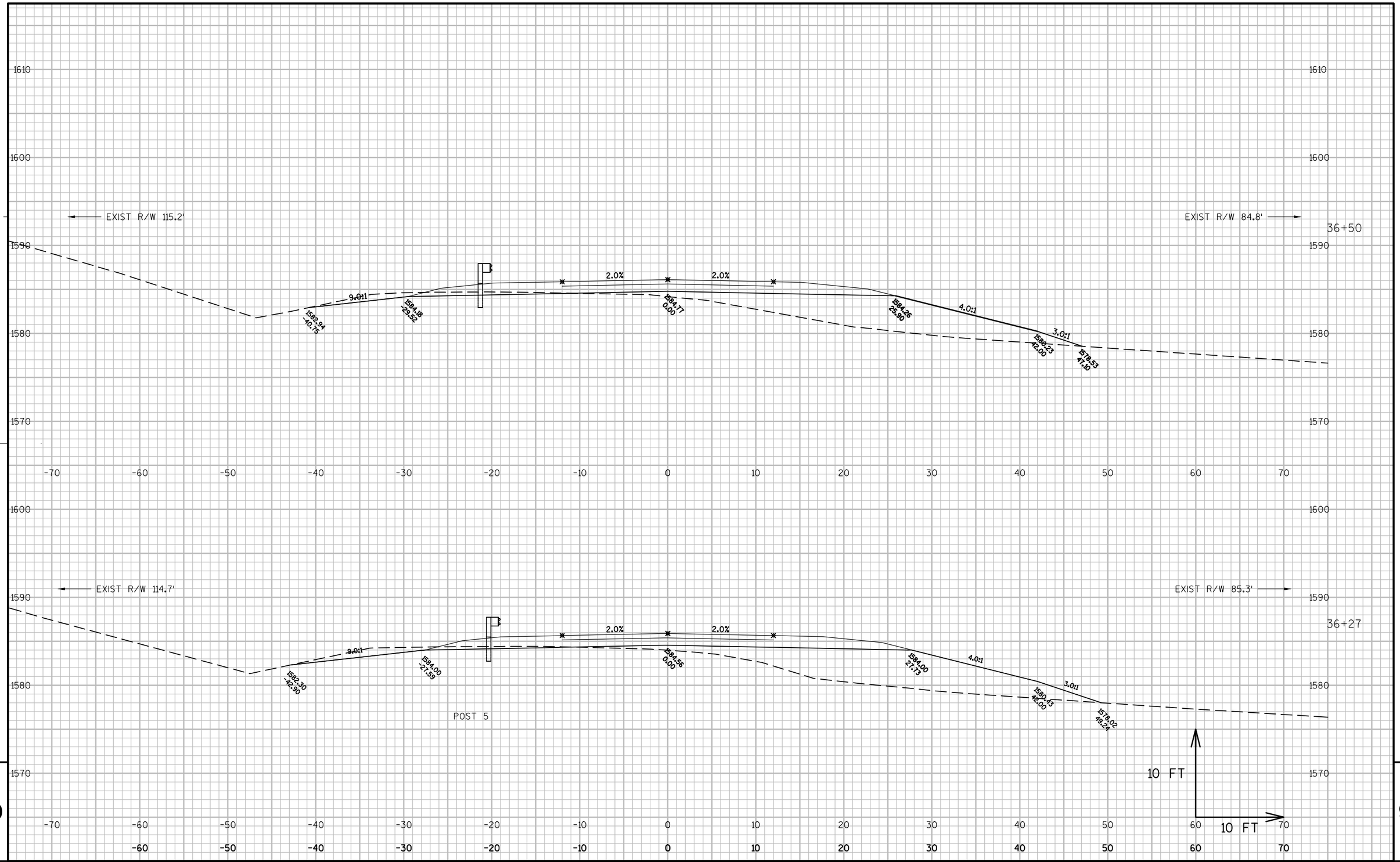


PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 110	E

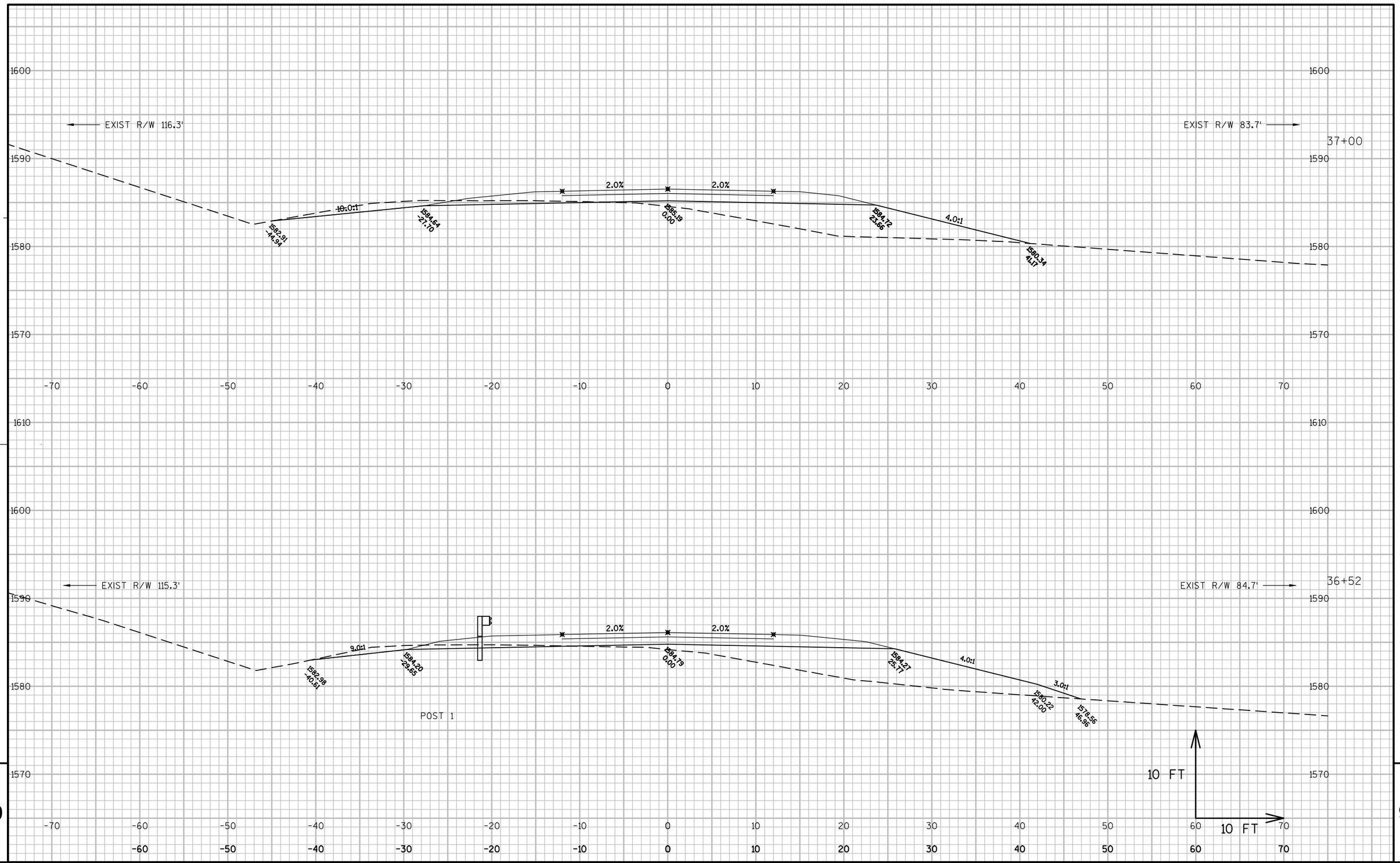


9 9

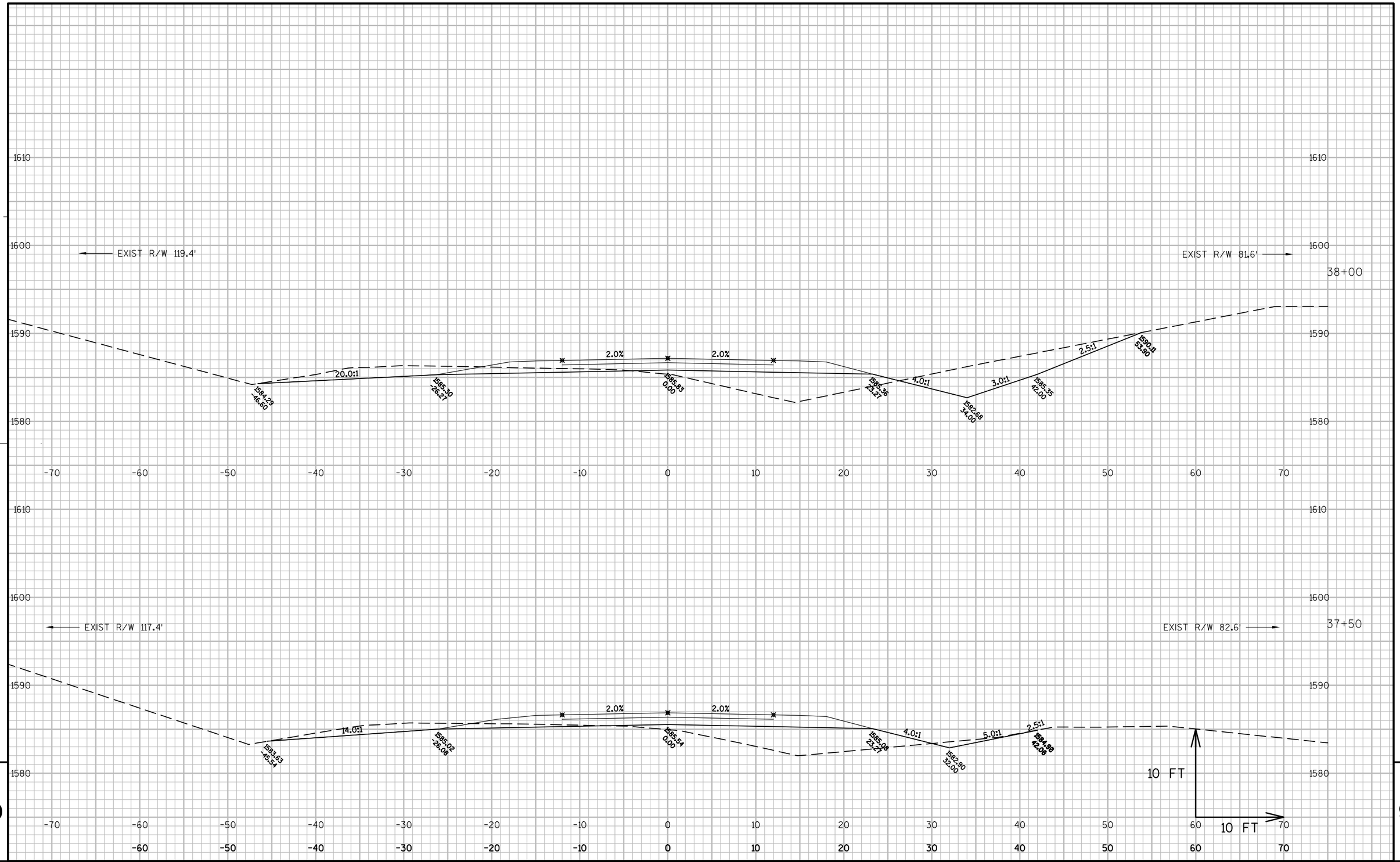
PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 111	E



PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 112 E



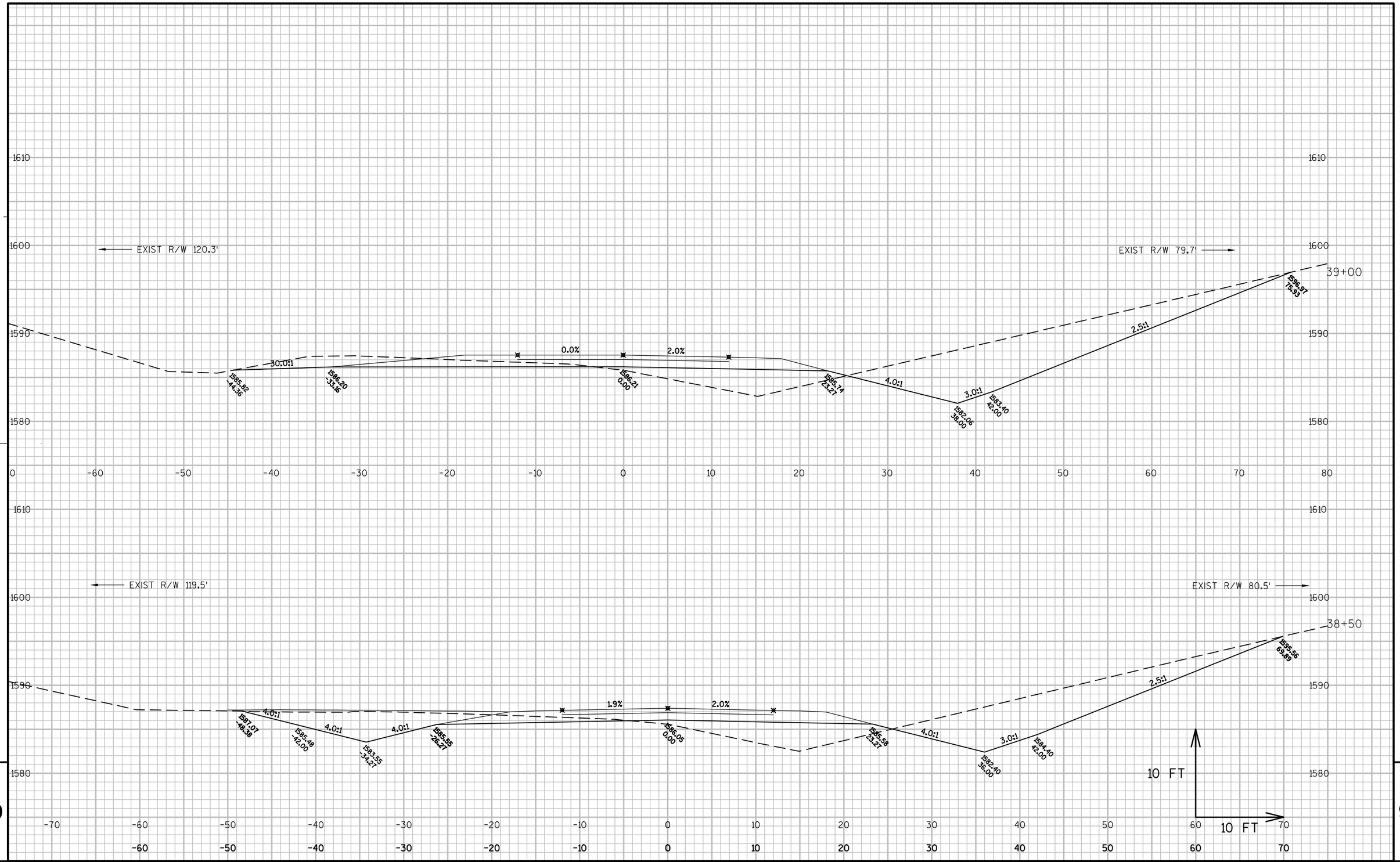
PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 113	E



PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 114	E

FILE NAME : N:\PDS\C3D\92400900\SHEETSPLAN\090200_XS.DWG PLOT DATE : 7/2/2013 1:27 PM PLOT BY : HOFFMAN, JENNIFER G PLOT NAME : PLOT SCALE : 1 IN:10 FT

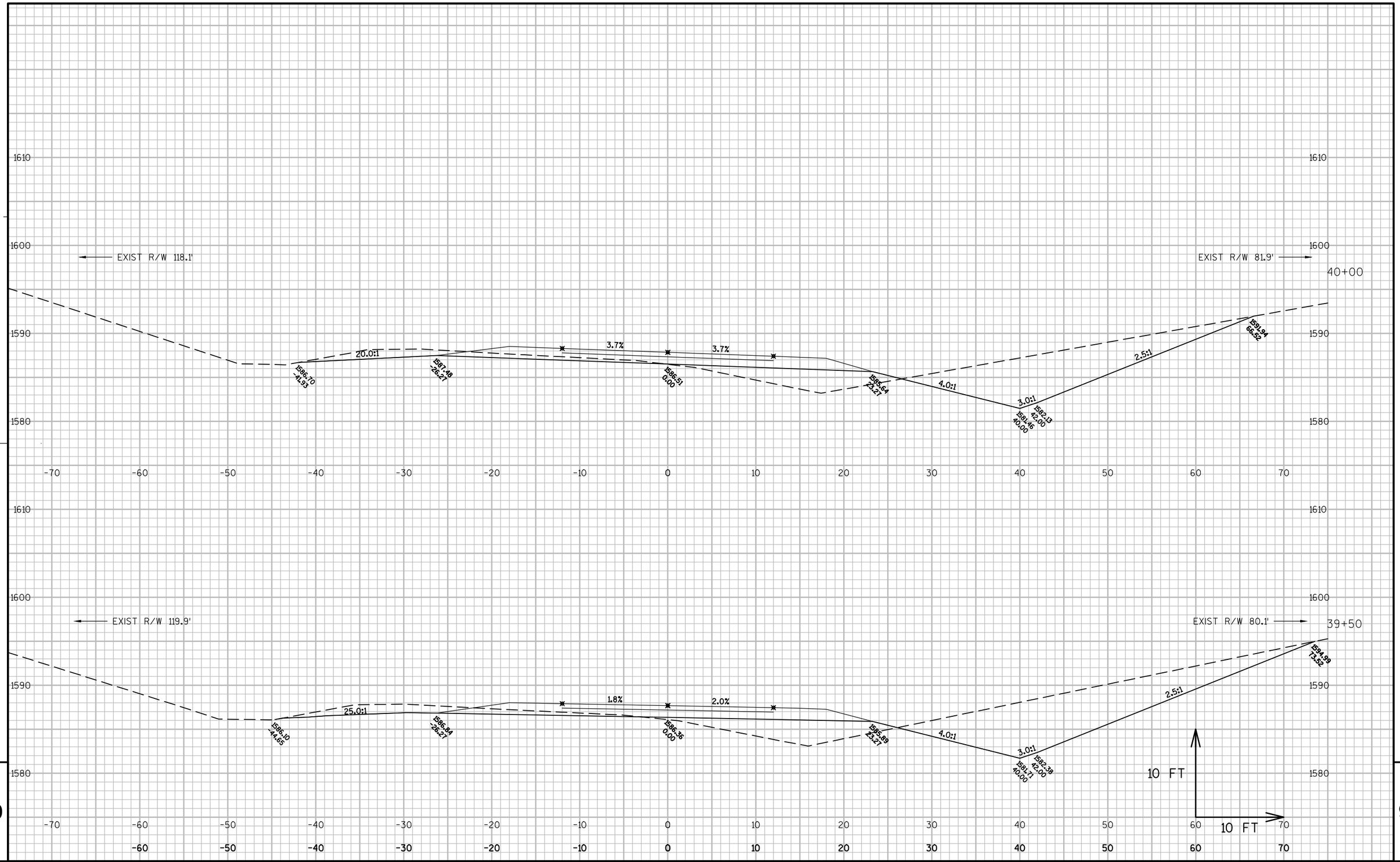
WISDOT/CADDS SHEET 49



PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET	
				115	E

FILE NAME : N:\PDS\C3D\92400900\SHEETSPLAN\090200_XS.DWG PLOT DATE : 7/2/2013 1:27 PM PLOT BY : HOFFMAN, JENNIFER G PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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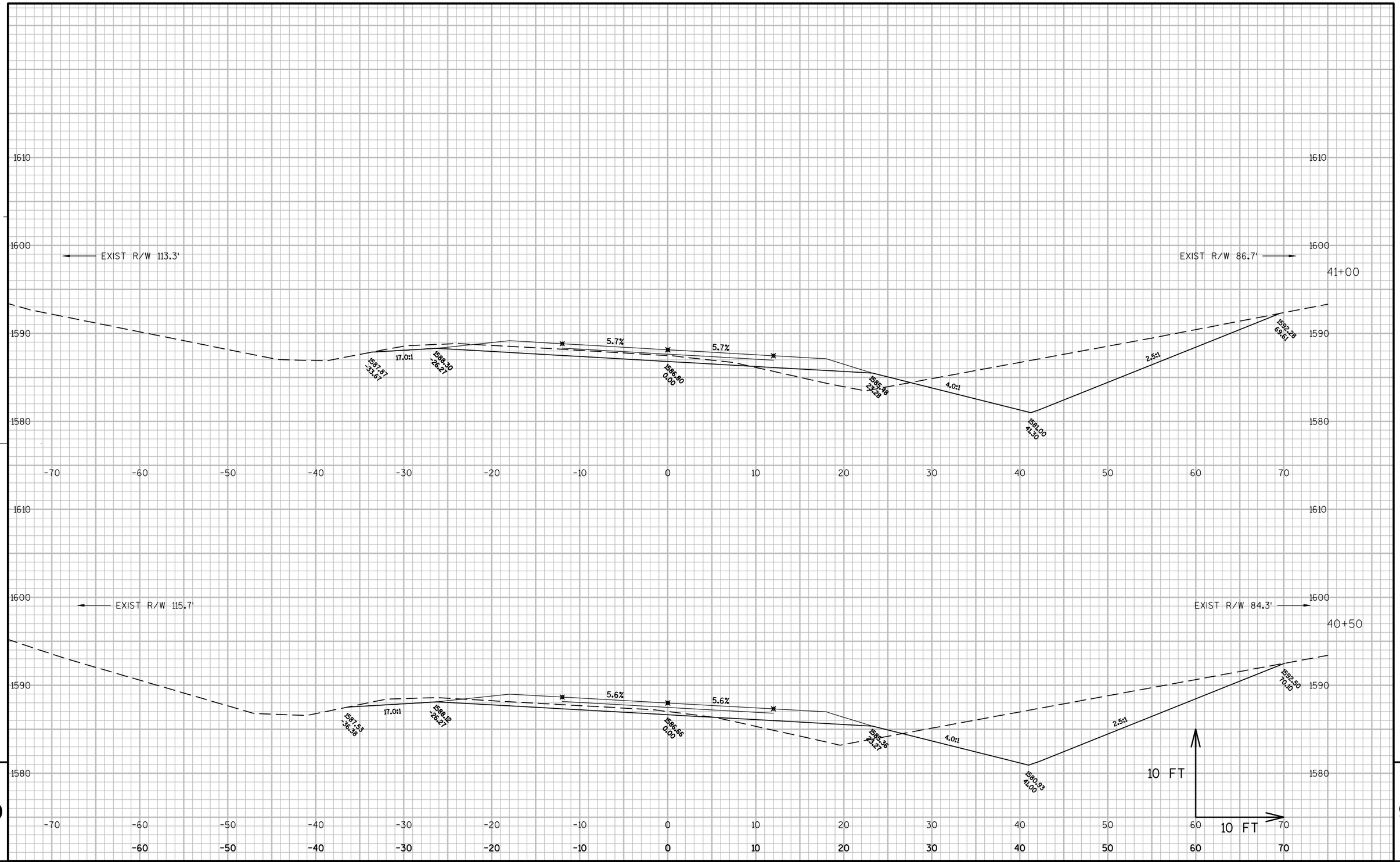
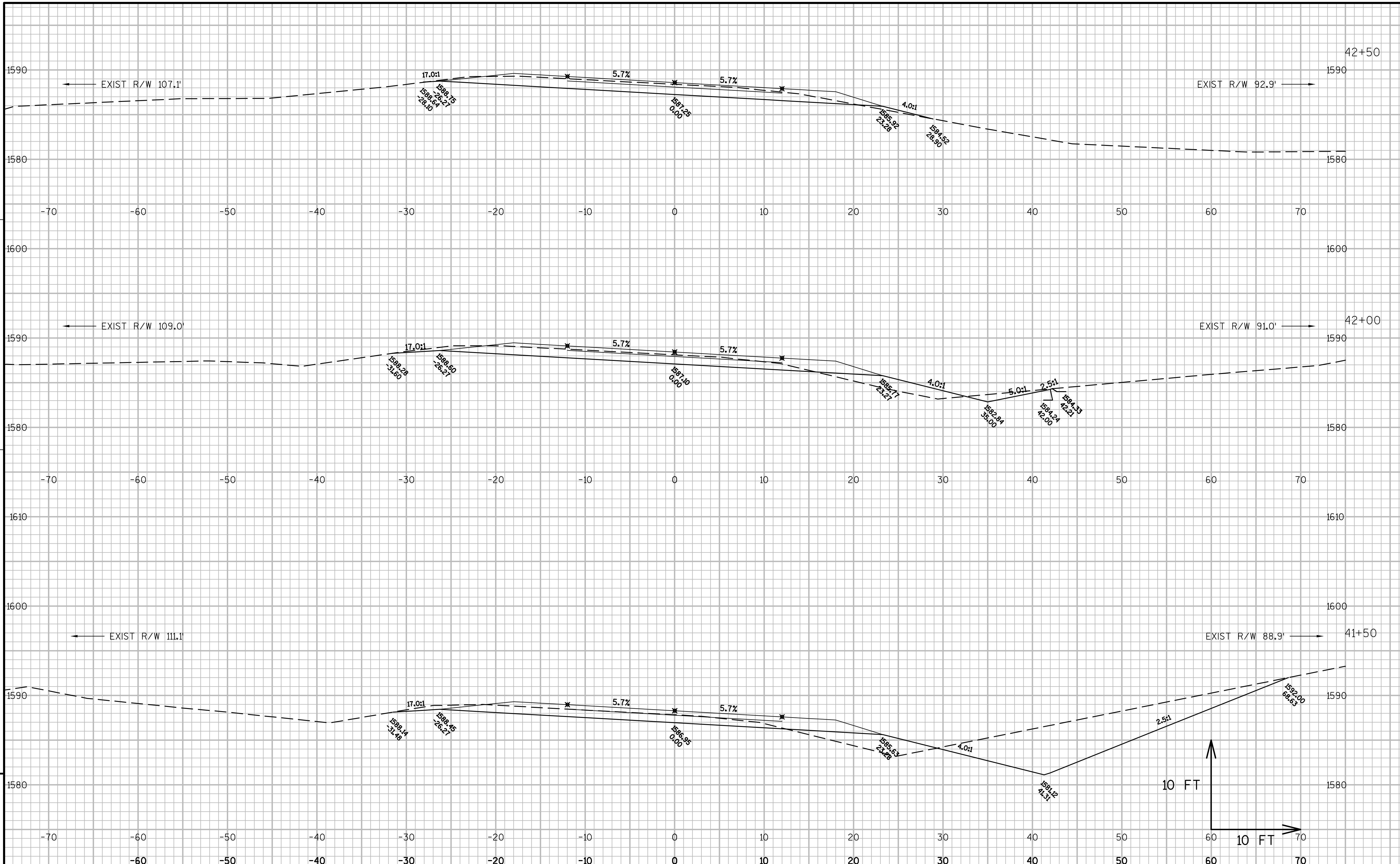
PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 116 E



PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 117 E

FILE NAME : N:\PDS\C3D\92400900\SHEETSPLAN\090200_XS.DWG PLOT DATE : 7/2/2013 1:27 PM PLOT BY : HOFFMAN, JENNIFER G PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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9

PROJECT NO:9240-09-70	HWY:STH 182	COUNTY:IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 118	E

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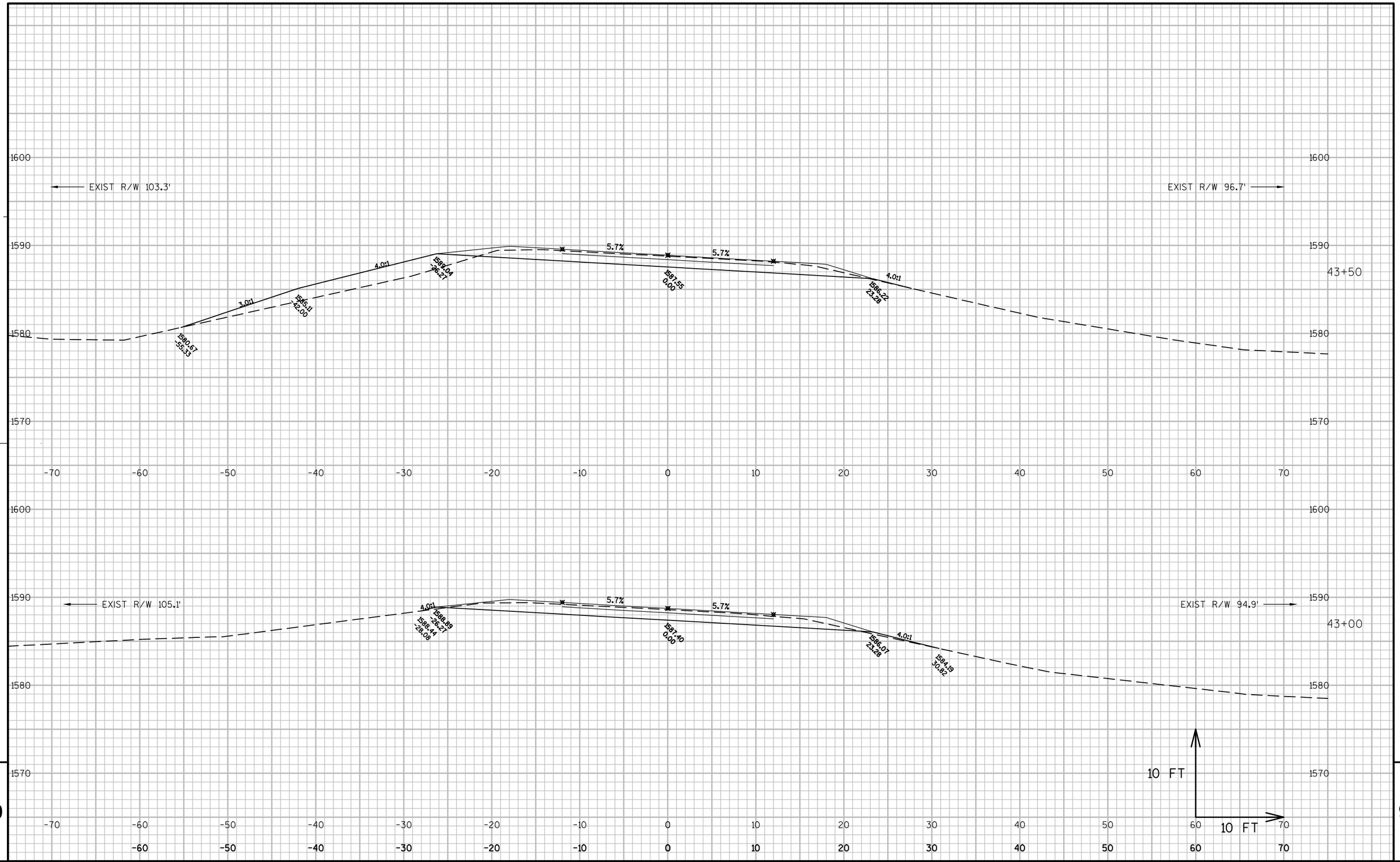
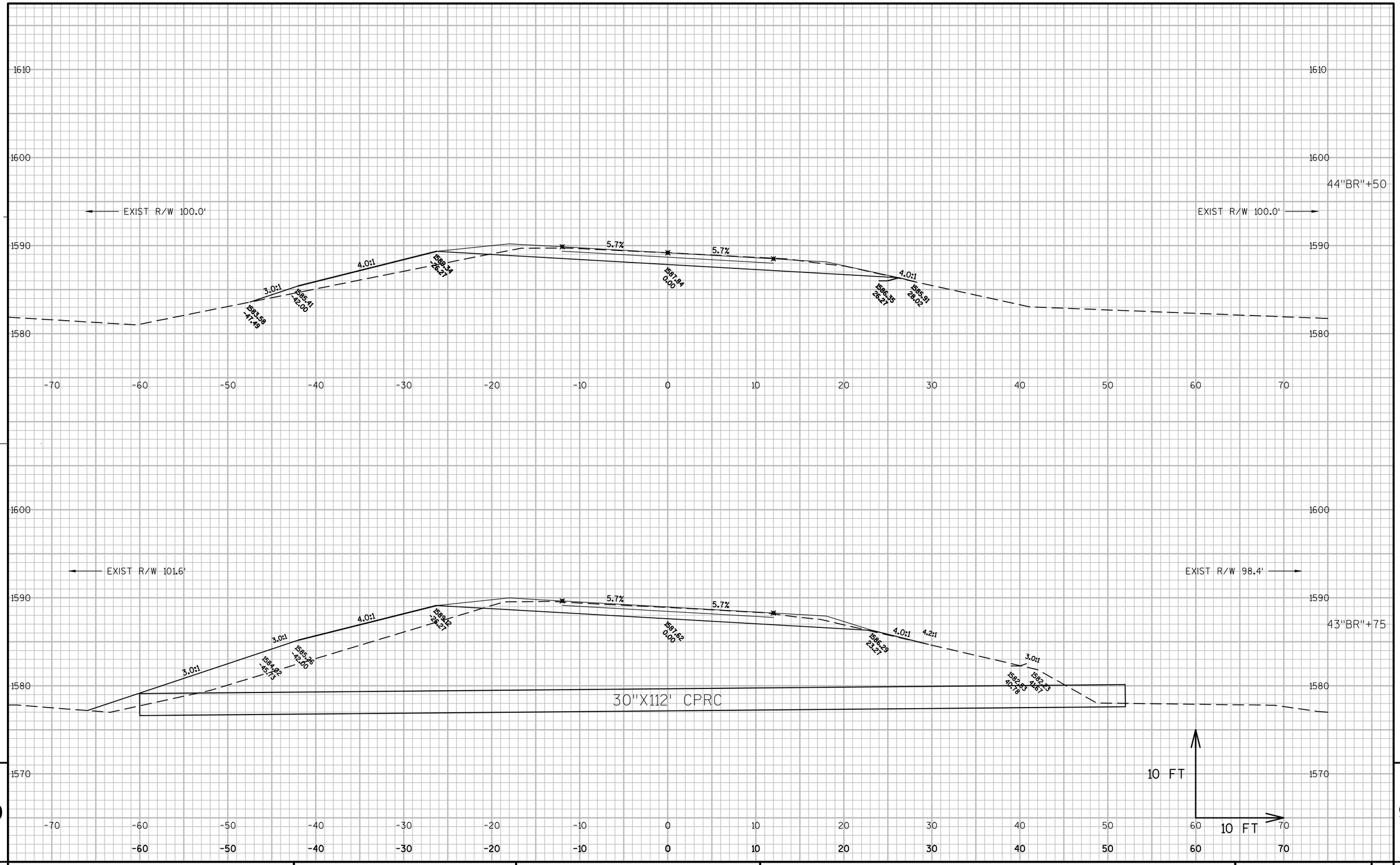


PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 119 E



9

PROJECT NO: 9240-09-70	HWY: STH 182	COUNTY: IRON	CROSS SECTIONS: BEAR RIVER BRIDGE B-29-0039	SHEET 120	E

9

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov

RHI JUNE 2015

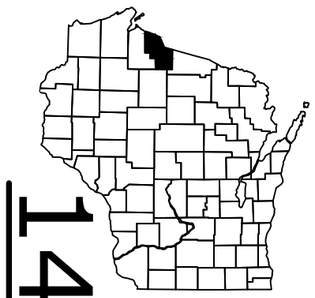
PROJECT ID: 9240-09-80
WITH: 9240-09-80

COUNTY: IRON

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9240-09-80	————	—

ORDER OF SHEETS

TOTAL SHEETS = 108



14

N

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

PARK FALLS - MANITOWISH

PRICE COUNTY LINE TO STH 47

STH 182

IRON COUNTY

STATE PROJECT NUMBER
9240-09-80

DESIGN DESIGNATION

A.A.D.T.	2014	= 690
A.A.D.T.	2034	= 840
D.H.V.		= 126
D.D.		= 58/42
T.		= 15.6
DESIGN SPEED		= 55 MPH
ESALS		= 150,000

CONVENTIONAL SYMBOLS

PLAN

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

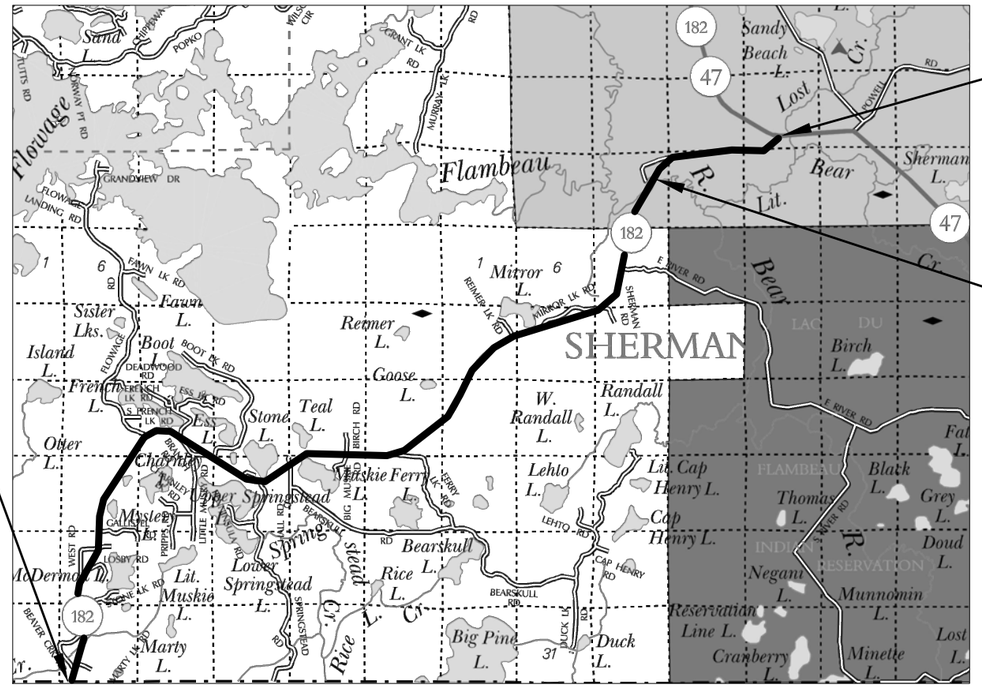
PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES

- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

BEGIN PROJECT
9240-09-80
STA 32+62



END PROJECT
9240-09-80
STA 782+67

EXCEPTION TO NET CENTERLINE LENGTH
(B-26-0039, PROJECT 9240-09-70)
STA 678+00 (25+60 BR) TO
STA 697+00 (44+60 BR)

LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 14.205

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

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF NAVD 88 (1991).

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AL OLEINIK
Designer	DAVE KIRCHER
Project Manager	JIM VOLKMANN
Regional Examiner	CHERYL SIMON
Regional Supervisor	ROBIN STAFFORD

APPROVED FOR THE DEPARTMENT
DATE: 4/02/15 (Signature)

E

GENERAL NOTES

SIDEROADS AND PRIVATE ENTRANCE STATIONING CALCULATED FROM PHOTOLOG.
ALL SIGNS SHALL BE REPLACED IN THE SAME LOCATION.

WHEN THE QUANTITY OF BASE AGGREGATE DENSE OR HMA PAVEMENT TYPE E0.3 IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS AS SHOWN ON THE PLAN IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND UPON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER IN THE FIELD.

THE EXISTING CURVE SUPER ELEVATION SHALL BE UPGRADED WITHIN PROJECT LIMITS AND PAVED TO MATCH EXISTING SUPER-ELEVATION IN THE LAST 50 FT.

THERE MAY BE UTILITY FACILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN ON THE PLAN

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

CONTACTS

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JON SIMONSON
107 SUTLIFF AVE
RHINELANDER, WI 54501-0818
715-365-8916
jonathan.simonsen@wisconsin.gov

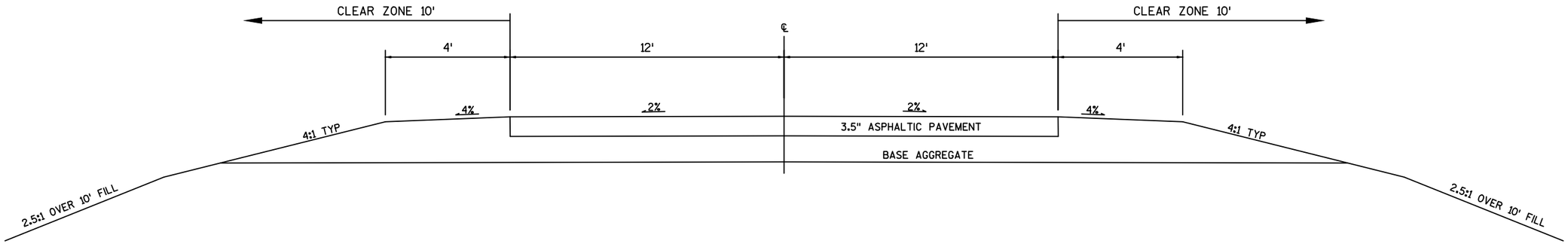
US CORPS OF ENGINEERS (USCOE)
DAN MUNSON
ST PAUL DISTRICT - REGULATORY
180 5TH STREET EAST
SUITE 700
ST PAUL, MN 55101
651-290-5191

AS-BUILTS USED

9240-03-70
9240-02-70

9241-01-70

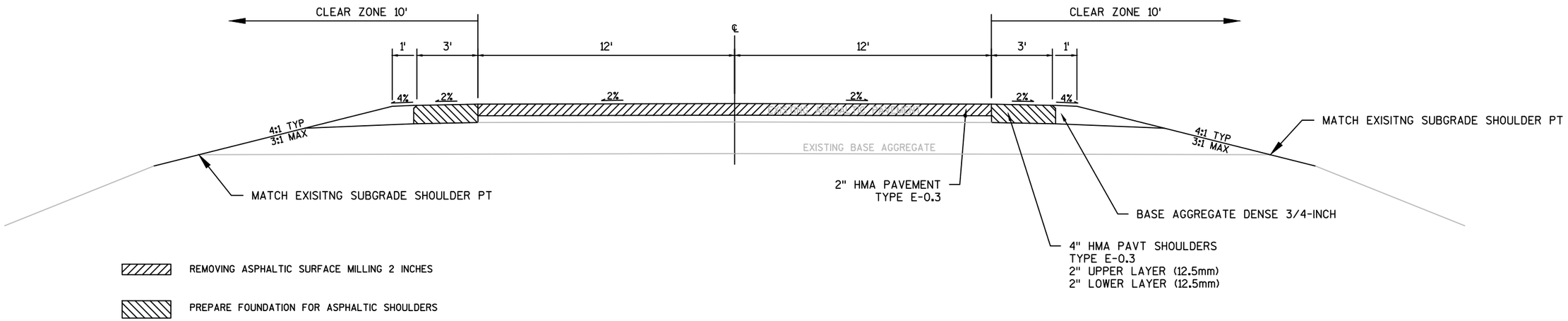
9242-01-70
9242-01-71



EXISITNG TYPICAL SECTION

STH 182

STA 32+62 TO STA 782+67



PROPOSED TYPICAL SECTION

STH 182

STA 32+62 TO STA 678+00 (25+60 BR)
STA 697+00 (44+60 BR) TO STA 782+67

PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: TYPICAL SECTION	SHEET 3	E

2

REMOVING ASPHALTIC SURFACE MILLING (1.75" DEPTH AT CENTERLINE, MILL AT NEW SE SLOPE)

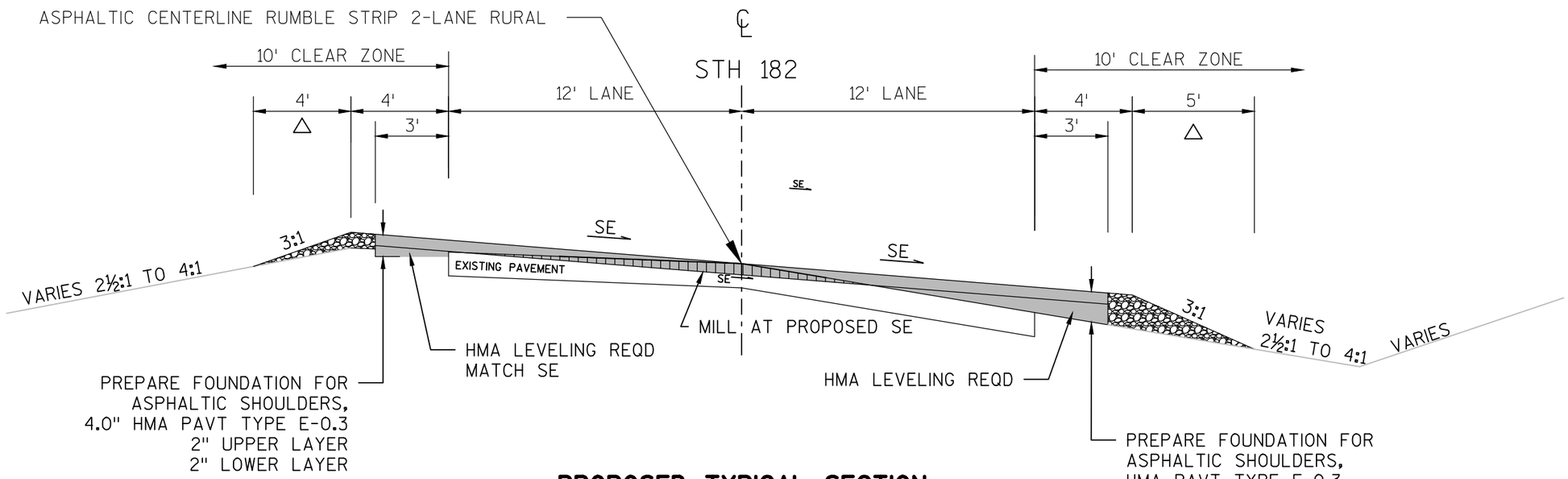
HMA PAVT TYPE E-0.3 (1.75" UPPER LAYER, VARIABLE THICKNESS LEVELING LOWER LAYER)

BASE AGGREGATE DENSE 3/4-INCH

△ SEED AND FERTILZE

SUPERELEVATION TABLE					
		LT	LT	RT	RT
STATION	DESCRIPTION	SHOULDER	LANE	LANE	SHOULDER
63+69.28	End Normal Crown	-3.00%	-2.00%	-3.00%	-2.00%
64+20.26	Level Crown	-3.00%	0.00%	-3.00%	-2.00%
64+71.24	Reverse Crown	-3.00%	2.00%	-3.00%	-2.00%
64+96.73	Low Shoulder Match	-3.00%	3.00%	-3.00%	-3.00%
65+06.93	PC	-3.00%	3.40%	-3.40%	-3.40%
65+50.26	Begin Full Super	-3.00%	5.10%	-5.10%	-5.10%
75+83.82	End Full Super	-3.00%	5.10%	-5.10%	-5.10%
76+11.16	PT	-3.00%	3.40%	-3.40%	-3.40%
76+37.35	Low Shoulder Match	-3.00%	3.00%	-3.00%	-3.00%
76+62.84	Reverse Crown	-3.00%	2.00%	-3.00%	-2.00%
77+13.82	Level Crown	-3.00%	0.00%	-3.00%	-2.00%
77+64.80	Begin Normal Crown	-3.00%	-2.00%	-3.00%	-2.00%

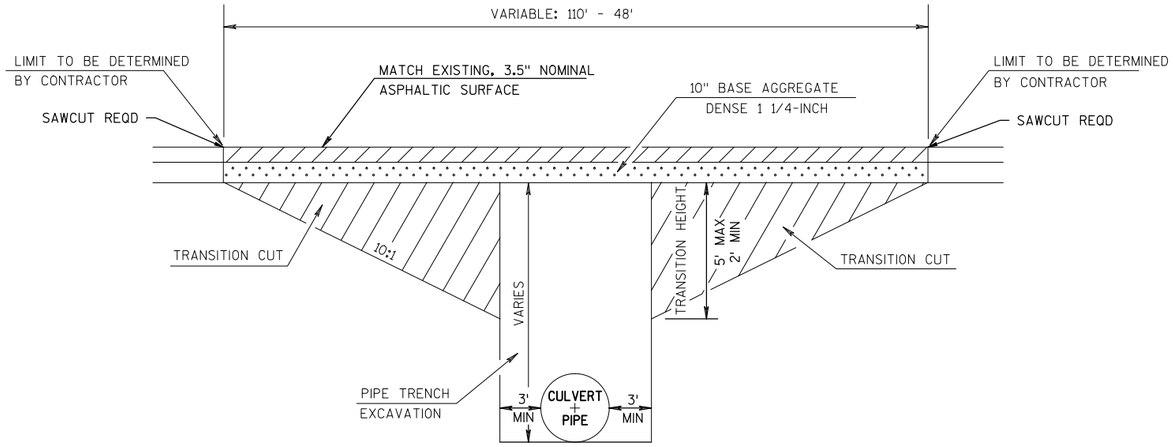
SUPERELEVATION TABLE					
		LT	LT	RT	RT
STATION	DESCRIPTION	SHOULDER	LANE	LANE	SHOULDER
121+18.89	End Normal Crown	-3.00%	-2.00%	-3.00%	-2.00%
121+73.07	Level Crown	-3.00%	0.00%	-3.00%	-2.00%
122+27.25	Reverse Crown	-3.00%	2.00%	-3.00%	-2.00%
122+54.34	Low Shoulder Match	-3.00%	3.00%	-3.00%	-3.00%
122+72.41	PC	-3.00%	3.67%	-3.67%	-3.67%
123+22.07	Begin Full Super	-3.00%	5.50%	-5.50%	-5.50%
132+78.39	End Full Super	-3.00%	5.50%	-5.50%	-5.50%
133+28.05	PT	-3.00%	3.67%	-3.67%	-3.67%
133+46.12	Low Shoulder Match	-3.00%	3.00%	-3.00%	-3.00%
133+73.21	Reverse Crown	-3.00%	2.00%	-3.00%	-2.00%
134+27.39	Level Crown	-3.00%	0.00%	-3.00%	-2.00%
134+81.58	Begin Normal Crown	-3.00%	-2.00%	-3.00%	-2.00%



PROPOSED TYPICAL SECTION

CURVE 1 STA 63+00 - 78+00
CURVE 3 STA 121+00 - 135+00

PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: TYPICAL SECTION	SHEET 4	E



LOCATIONS	CULVERT ID #	SIZE	TRANSITION HEIGHT	LENGTH OF TRANSITION CUT	CUT VOLUME
STA 81+00	C-26-182-3	30"	2'	48'	60 CY
STA 135+00	C-26-182-8	30"	2'	48'	60 CY
STA 231+00	C-26-182-13	30"	2'	48'	60 CY
STA 250+00	C-26-182-14	30"	2'	48'	60 CY
STA 315+50	C-26-182-17R	24"	2'	48'	60 CY
STA 406+00	C-26-182-26	24"	2'	48'	60 CY
STA 412+50	C-26-182-27	30"	2'	48'	60 CY
STA 417+00	C-26-182-28	24"	2'	48'	60 CY
STA 440+50	C-26-182-28R	30"	2'	48'	60 CY
STA 455+00	C-26-182-29R	24"	2'	48'	60 CY
STA 466+00	C-26-182-30	24"	2'	48'	60 CY
STA 516+00	C-26-182-32	24"	2'	48'	60 CY
STA 528+00	C-26-182-33	24"	2'	48'	60 CY
STA 577+00	C-26-182-36	24"	2'	48'	60 CY
STA 625+00	C-26-182-38	24"	2'	48'	60 CY
STA 666+00	C-26-182-40	24"	2'	48'	60 CY
STA 729+00	C-26-182-43	30"	2'	48'	60 CY

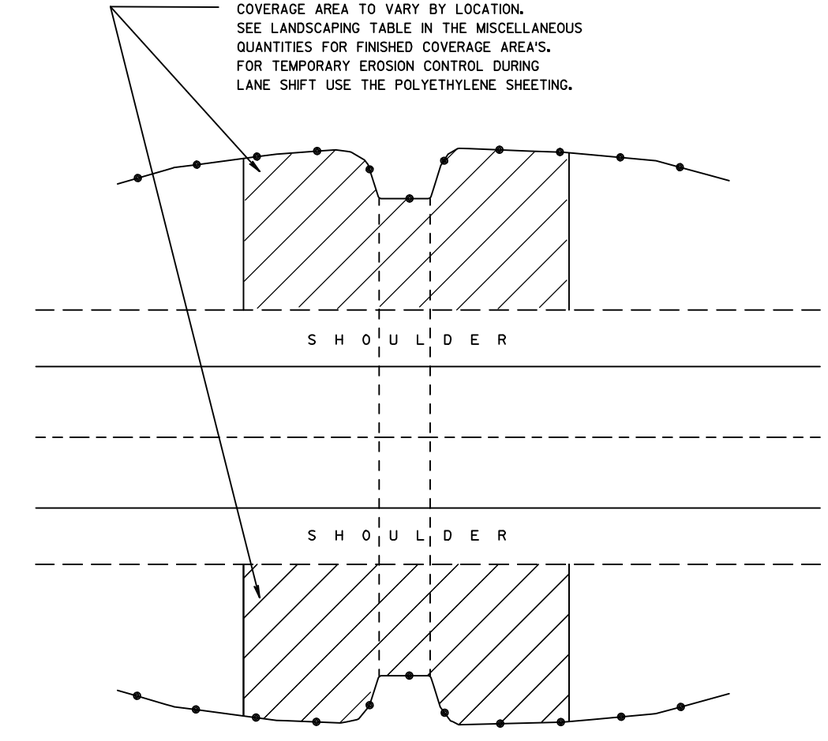
CULVERT PIPE TRANSITION

NOTE: REUSE MATERIAL REMOVED IN TRANSITION CUT AND PIPE TRENCH EXCAVATIONS AS BACKFILL UNLESS OTHERWISE DIRECTED BY THE ENGINEER TO USE BACKFILL GRANULAR.

PIPE TRENCH EXCAVATION, EXCLUDING TRANSITION CUT IS CONSIDERED INCIDENTAL TO PIPE INSTALLATION. TRANSITION CUT WILL BE PAID FOR AS CULVERT PIPE TRANSITION.

TRANSITION CUT WILL BE TO EDGE OF SHOULDER ON EACH SIDE OF CENTERLINE.

2

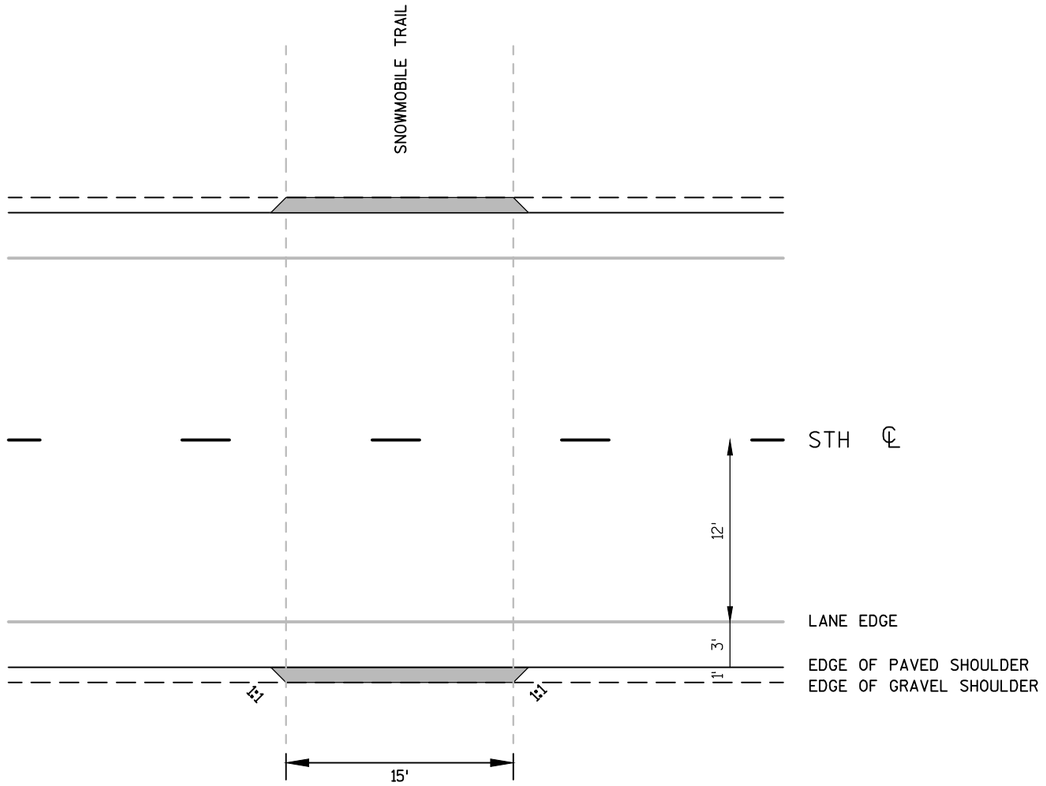


EROSION MAT, TOPSOIL, FERTILIZER & SEED

SILT FENCE

DETAIL FOR EROSION CONTROL

STA 81+00 C-26-182-3
STA 135+00 C-26-182-8
STA 231+00 C-26-182-13
STA 250+00 C-26-182-14
STA 315+50 C-26-182-17R
STA 406+00 C-26-182-26
STA 412+50 C-26-182-27
STA 417+00 C-26-182-28
STA 440+50 C-26-182-28R
STA 455+00 C-26-182-29R
STA 466+00 C-26-182-30
STA 516+00 C-26-182-32
STA 528+00 C-26-182-33
STA 577+00 C-26-182-36
STA 625+00 C-26-182-38
STA 666+00 C-26-182-40
STA 729+00 C-26-182-43

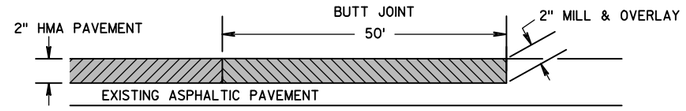


4-INCH HMA TYPE E-0.3 PAVEMENT WIDENING FOR SHOULDERS AT SNOWMOBILE TRAIL CROSSING

NOTE: PREPARATION FOR PAVEMENT WIDENING FALLS UNDER PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

PAVING FULL WIDTH SHOULDERS AT SNOWMOBILE TRAIL CROSSING

STA 215+00	RT
STA 283+00	RT, LT
STA 480+15	RT, LT
STA 680+15	RT, LT
STA 717+00	RT, LT



REMOVING ASPHALTIC SURFACE, MILLING 2"

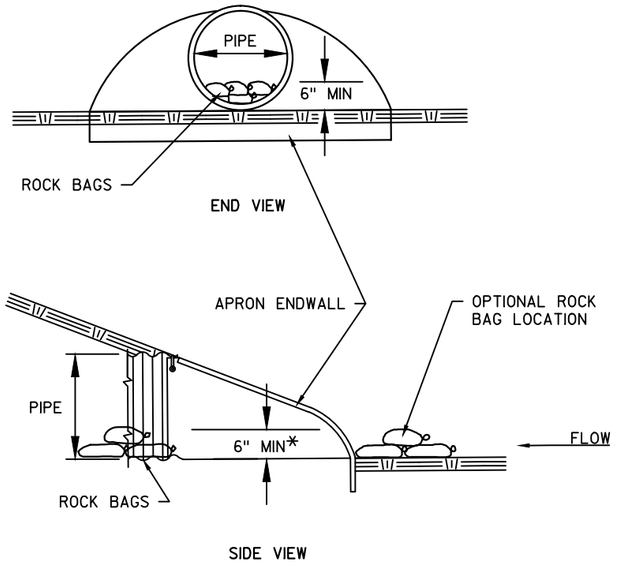
REMOVING ASPHALTIC SURFACE, BUTT JOINT 2"

HOT MIX ASPHALTIC (HMA) PAVEMENT

NOTE: EXACT DIMENSIONS AND LOCATIONS TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

BUTT JOINT DETAIL

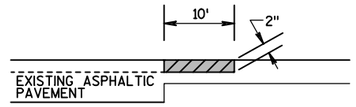
STA 32+62 - 33+12
STA 728+17 - 728+67



SIDE VIEW

CULVERT PIPE CHECK

(INSTALL ON INLET END ONLY)

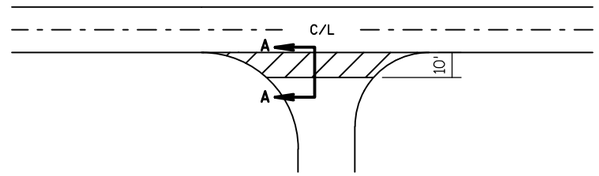


2" HMA PAVEMENT TYPE E-0.3 *
2" ASPHALT SURFACE DRIVEWAYS AND FIELD ENTRANCES **

REMOVING ASPHALTIC SURFACE MILLING

NOTE: EXACT DIMENSIONS AND LOCATIONS TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

SECTION A - A



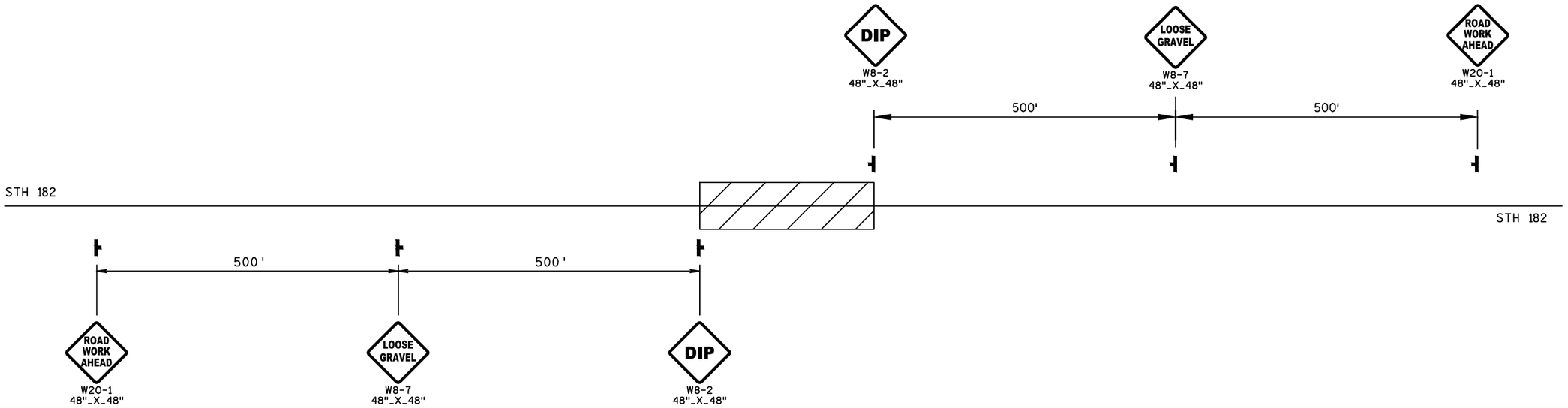
REMOVING ASPHALTIC SURFACE MILLING 2"

NOTE: EXACT DIMENSIONS AND LOCATIONS TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

SIDEROADS AND DRIVEWAYS

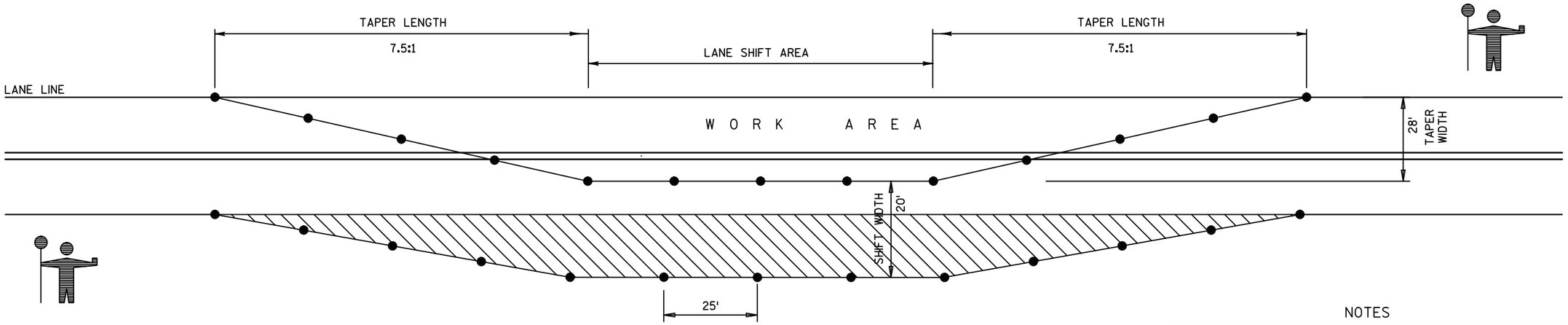
SIDEROADS *
DRIVEWAYS **

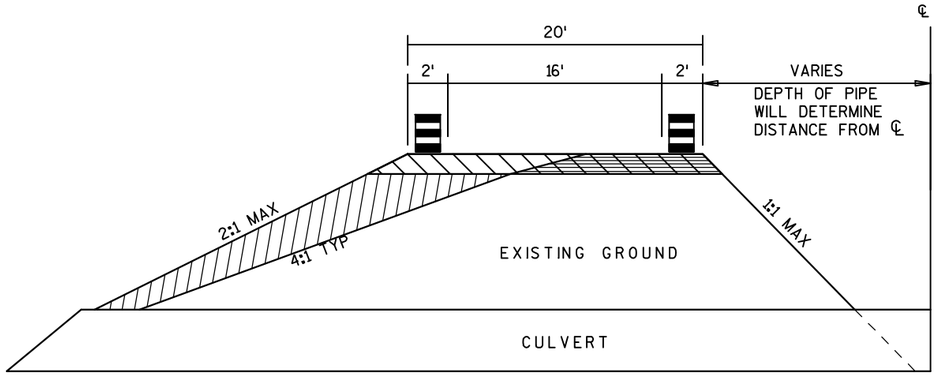
2



TEMPORARY SIGNING AT CULVERT PIPE REPLACEMENT

STA 81+00	C-26-182-3
STA 135+00	C-26-182-8
STA 231+00	C-26-182-13
STA 250+00	C-26-182-14
STA 315+50	C-26-182-17R
STA 406+00	C-26-182-26
STA 412+50	C-26-182-27
STA 417+00	C-26-182-28
STA 440+50	C-26-182-28R
STA 455+00	C-26-182-29R
STA 466+00	C-26-182-30
STA 516+00	C-26-182-32
STA 528+00	C-26-182-33
STA 577+00	C-26-182-36
STA 625+00	C-26-182-38
STA 666+00	C-26-182-40
STA 729+00	C-26-182-43





NOTES

1. USE WITH SDD "TRAFFIC CONTROL FOR LANE CLOSURE"
2. FLAGGERS ARE SPECIFIC TO THIS OPERATION
3. THE TAPER SHOULD EXTEND ACROSS THE SHOULDER UNLESS DOING SO WOULD GREATLY CONFLICT WITH THE WORK OPERATION
4. ALL LANE CLOSURE SIGNS SHALL BE REMOVED OR COVERED AND ALL DEVICES REMOVED BEYOND THE SHOULDER WHEN WORK IS NOT IN PROGRESS AND THE LANE IS RESTORED TO A SAFE OPERATING CONDITION
5. CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM TRAVEL LANE WHEN WORK IS NOT IN PROGRESS

KEY
● TRAFFIC CONTROL DRUM
FILL - INCIDENTAL TO LANE SHIFT ITEM
EXISTING PAVED SURFACE OR 6" BASE AGGREGATE DENSE 1 1/4 INCH - INCIDENTAL TO LANE SHIFT ITEM
6" BASE AGGREGATE DENSE 1 1/4 INCH - INCIDENTAL TO LANE SHIFT ITEM

LANE SHIFT DETAIL

STA 81+00	C-26-182-3
STA 231+00	C-26-182-13
STA 250+00	C-26-182-14
STA 440+00	C-26-182-28R
STA 625+61	C-26-182-38
STA 729+00	C-26-182-43

BEGIN PROJECT 9240-09-80
STA 32+62 ℄ STH 182

PRICE CO
I2-2
48"X15"

182
M1-6
24"X24"
4

182
M1-6
24"X24"
2

IRON CO
I2-2
48"X15"

182
M1-6
24"X24"

IRON COUNTY ZONED PERMIT REQUIRED
COUNTY TO REMOVE
1

PRICE CO
IRON CO

182
M1-6
24"X24"
3

PE
PE
PE
PE

STOP
R1-1
30" X 30"
5

BEAVER CREEK RD (ASPH)

NO PASSING ZONE
W14-3
48" X 36"
6

MARTY LAKE RD (ASPH)

STOP
R1-1
30" X 30"
7

NO PASSING ZONE
W14-3
48" X 36"
8

30 35 40 45 50 55 60

2

PC 65+06.93

STOP
R1-1
30" X 30"
9

BEAVER CREEK RD (ASPH)

P.I. 70+79.95
Δ 33°07'35.55" LT
D 3°00'
T 888.02'
L 1104.22'
S.E. .040%
R.O. 160'

PE
PE
PE
PE

PT 76+11.16

NO PASSING ZONE
W14-3
48" X 36"
10

NO PASSING ZONE
W14-3
48" X 36"
11

McDERMOTT RD (ASPH)

STOP
R1-1
30" X 30"
12

PE
PE

PC 90+04.44

60 65 70 75 80 85 90

KEY
● REMOVING SIGNS TYPE 2
■ REMOVING SMALL SIGN SUPPORTS
▲ SIGNS REFLECTIVE TYPE 2
SIGNS ON DOUBLE SUPPORT
SIGNS ON SINGLE SUPPORT

PERMANENT SIGN LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS SHALL BE PLACED IN ACCORDANCE TO DETAILS AND THE MUTCD. NO PASSING ZONE PENNANTS SHALL BE PLACED IN ACCORDANCE WITH THE RESULTS OF THE LOCATING NO PASSING ZONE ITEM.

PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 10	E

FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\023201_PS.DWG PLOT DATE : 2/2/2015 6:40 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT
WISDOT/CADDS SHEET 44

2

P.I. 98+73.50
Δ 48°56'05.49" RT
D 3°00'
T 869.06'
L 1831.16'
S.E. .050%

90 95 100 105 110 115 120

PC 90+04.44

PT 106+35.60

STA BACK = 107+41.49
STA AHEAD = 107+12.78

WEST RD (ASPH)

STOP R1-1 30" X 30" 14

SPRINGSTEAD UNINCORPORATED I2-3 72"X24" 13

PE

PE

NO PASSING ZONE W14-3 48" X 36" 15

NO PASSING ZONE W14-3 48" X 36" 16

STOP R1-1 30" X 30" 17

DEERPATH RD (ASPH)

REESTABLISH SECTON CORNER MONUMENTS
DO NOT DISTURB UNTILL REFERENCED
T41N, R3N, SECTION 19 S¼
BERNSTEN SURVEY MARKER NAIL

P.I. 126+06.87
Δ 31°18'03" LT
D 3°00'
T 534.046'
L X42.36'
S.E. .040%
R.O. 160'

120 125 130 130 135 140 145

PC 122+72.41

PT 133+14.67

PC 147+17.50

STA BACK = 133+14.66
STA AHEAD = 129+98.27

WEST RD (ASPH)

LOSBY RD (ASPH)

GALLISTEL RD (ASPH)

ADOPT-A-HIGHWAY BOB AND GRACE MONGAN I55-56 30" X 36" 18

STOP R1-1 30" X 30" 20

ADOPT-A-HIGHWAY SPRINGSTEAD SNOWMOBILE CLUB I55-56 30" X 36" 19

STOP R1-1 30" X 30" 21

PE

NO PASSING ZONE W14-3 48" X 36" 22

PE

NO PASSING ZONE W14-3 48" X 36" 24

STOP R1-1 30" X 30" 23

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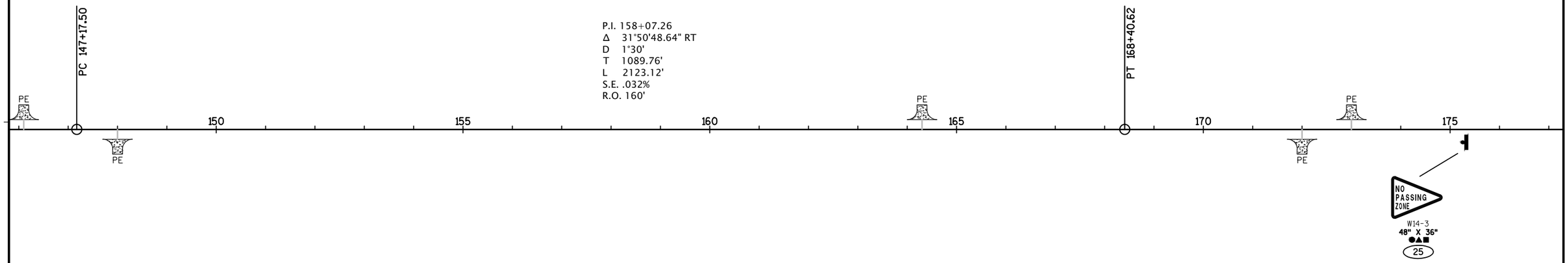
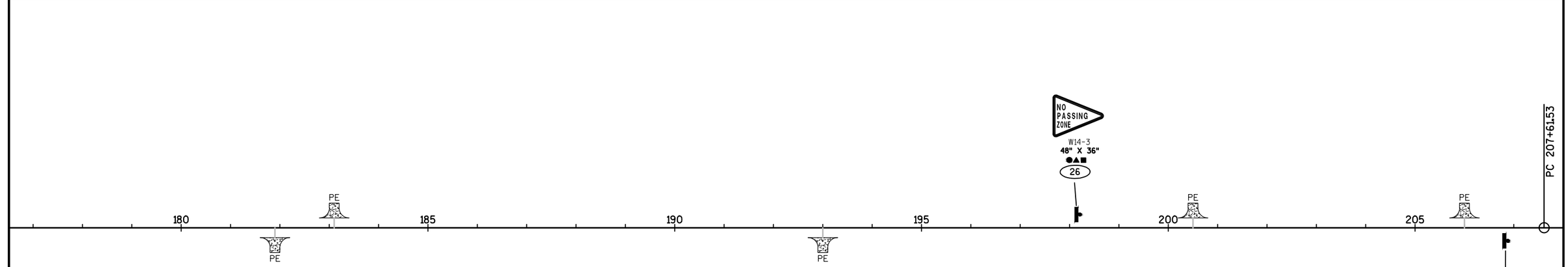
KEY

- ● REMOVING SIGNS TYPE 2
- ■ REMOVING SMALL SIGN SUPPORTS
- ▲ SIGNS REFLECTIVE TYPE 2
- SIGNS ON DOUBLE SUPPORT
- SIGNS ON SINGLE SUPPORT

PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 11	E

2





KEY

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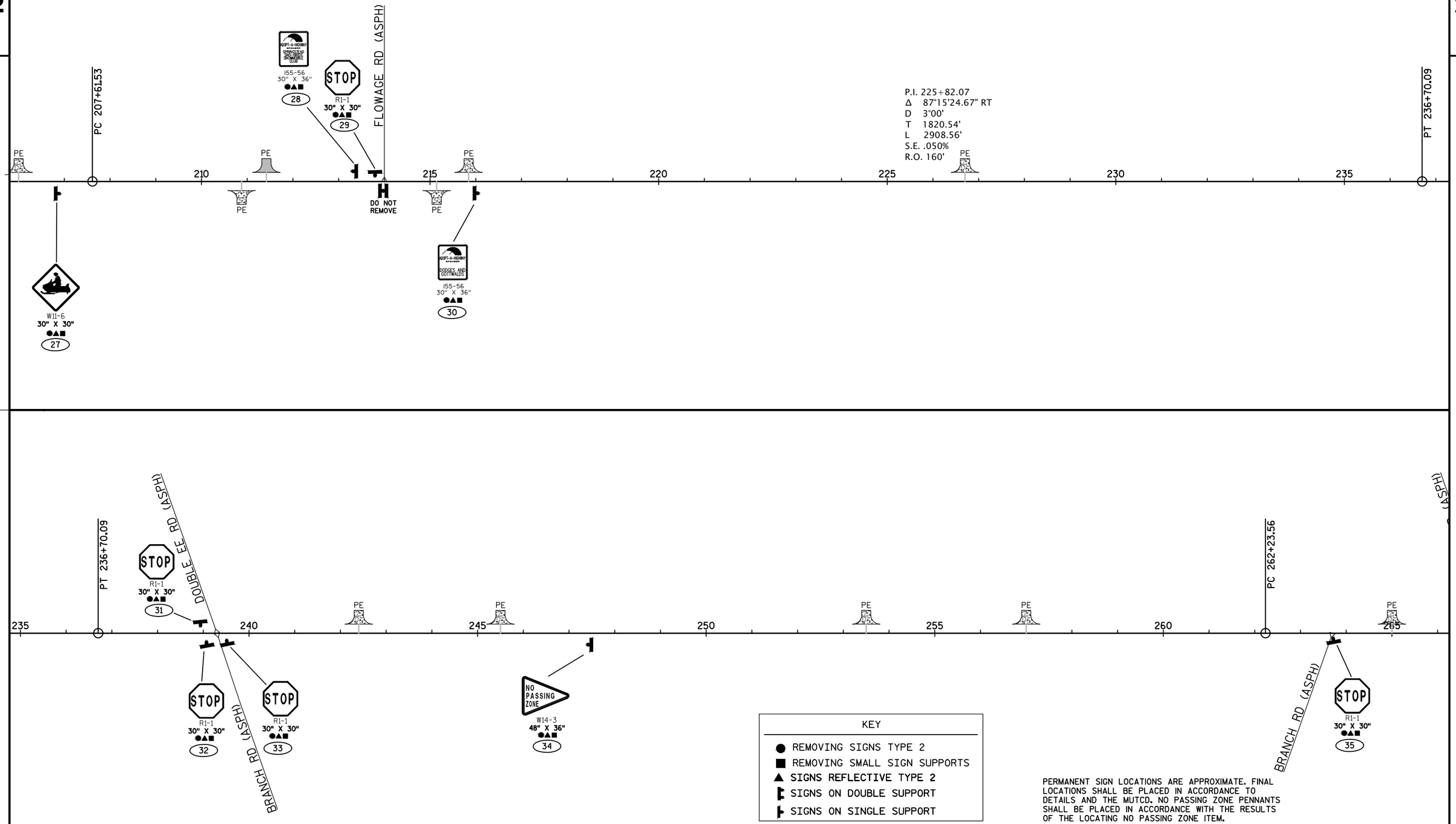
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 12	E



KEY

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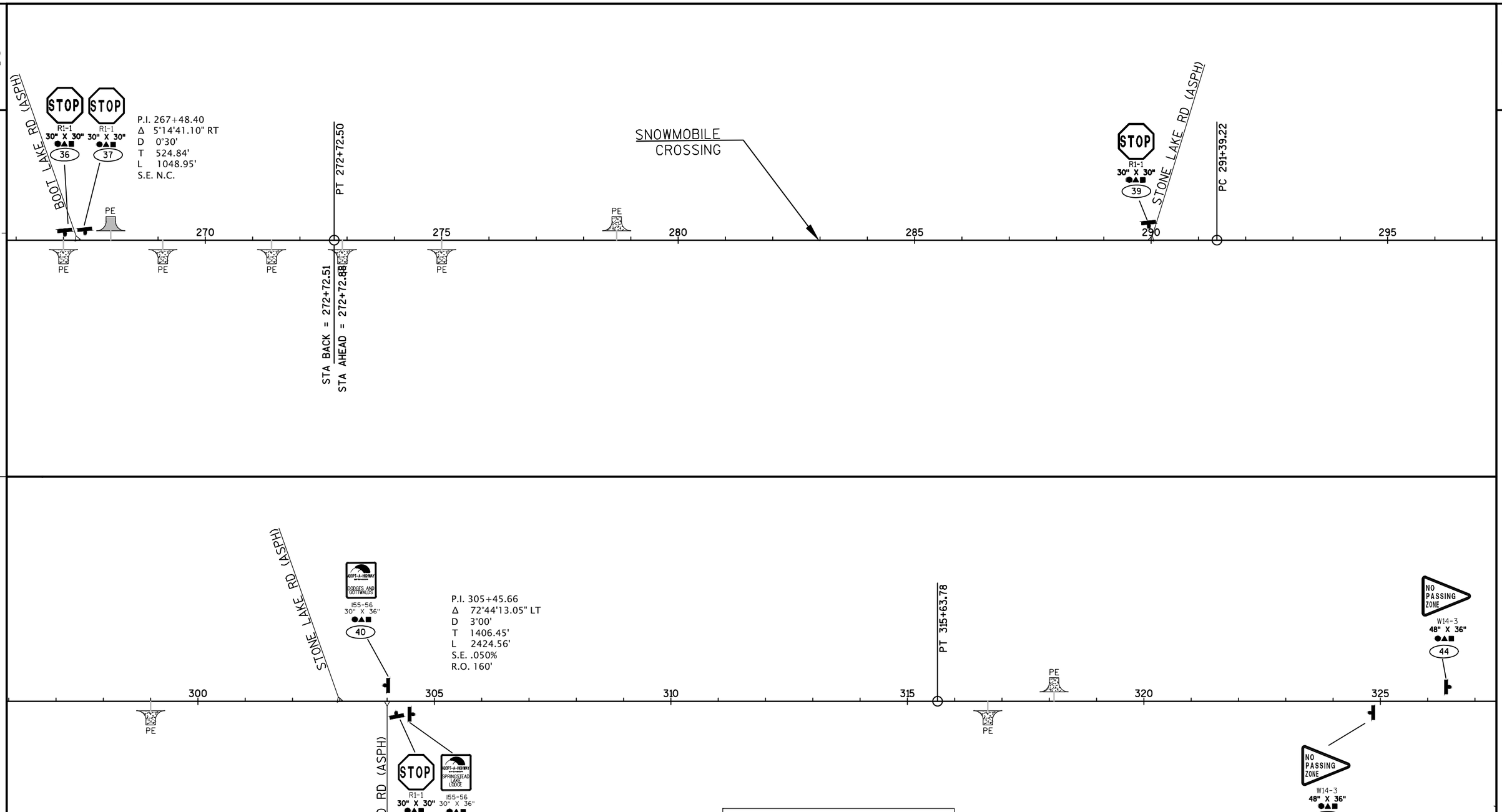
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 13	E



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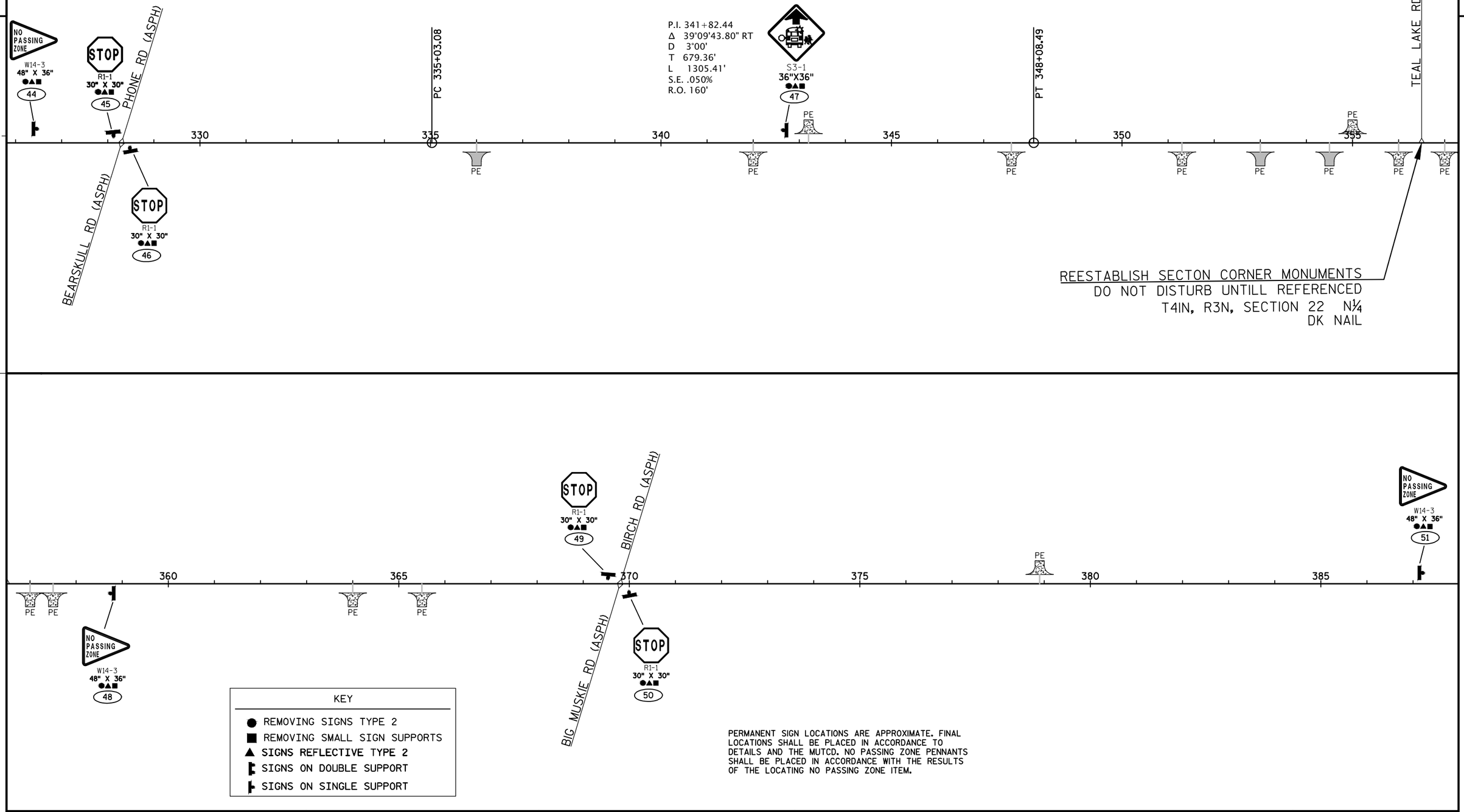
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 14	E

2



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PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 15	E

2

PI 404+70.30
Δ 39°38'
D 2°00'
T 1032.40'
L 1981.90'
SE .040%
RO 165'
ST 250'

NO PASSING ZONE
W14-3
48" X 36"
51

PC 394+37.90

390 395 400 405 410 415

PT 414+19.70

KOOPT-A-HIGHWAY SPRINGSTEAD LOCAL LOOSE
I55-56
30" X 36"
54

STOP
R1-1
30" X 30"
52

STOP
R1-1
30" X 30"
53

KOOPT-A-HIGHWAY THE SQUEAKIEST ONE THE LOSES
I55-56
30" X 36"
55

FERRY LAKE RD (ASPH)

W11-8
30" X 30"
56

M1-85
24"X24"
57

Legend of Emerson 131
58

61

M1-85
24"X24"

62

Legend of Emerson 131

W11-8
30" X 30"
63

NO PASSING ZONE
W14-3
48" X 36"
64

PC 445+53.90

PE

415 420 425 430 435 440 445

PE

PE

CE

STOP
R1-1
30" X 30"
59

NO PASSING ZONE
W14-3
48" X 36"
60

M1-85
24"X24"
57

Legend of Emerson 131
58

KEY

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- ■ REMOVING SMALL SIGN SUPPORTS
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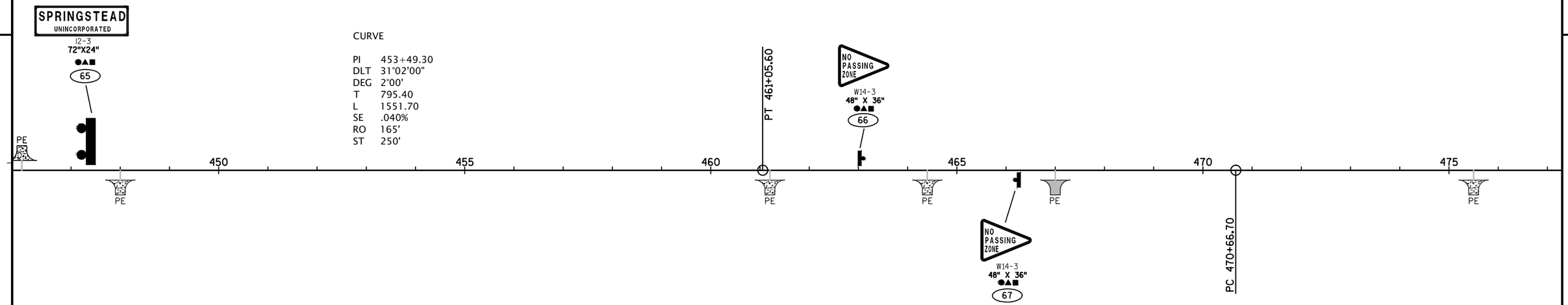
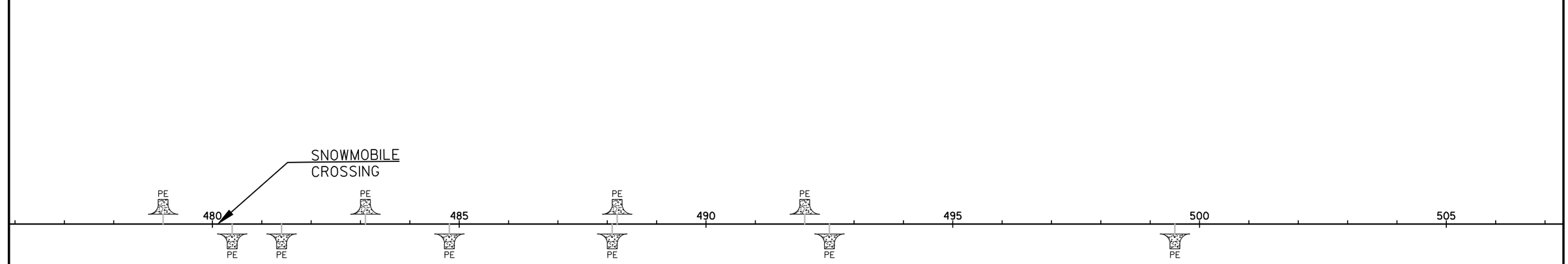
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 16	E

2





KEY

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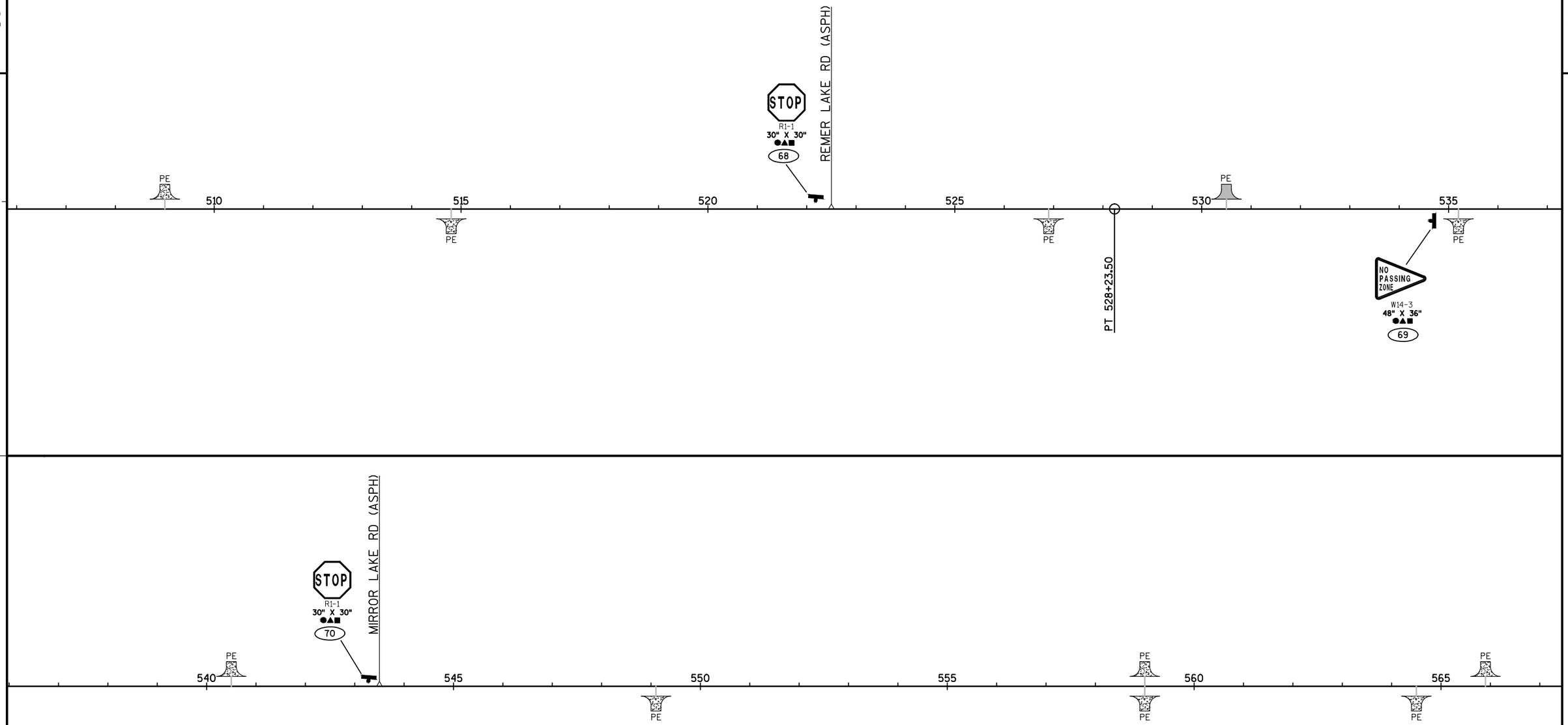
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 17	E

2



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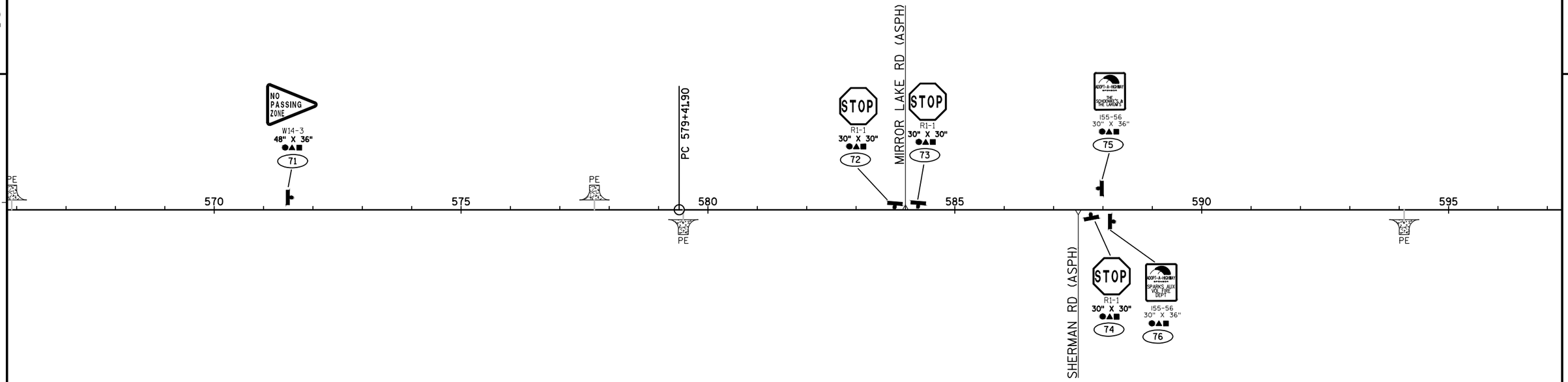
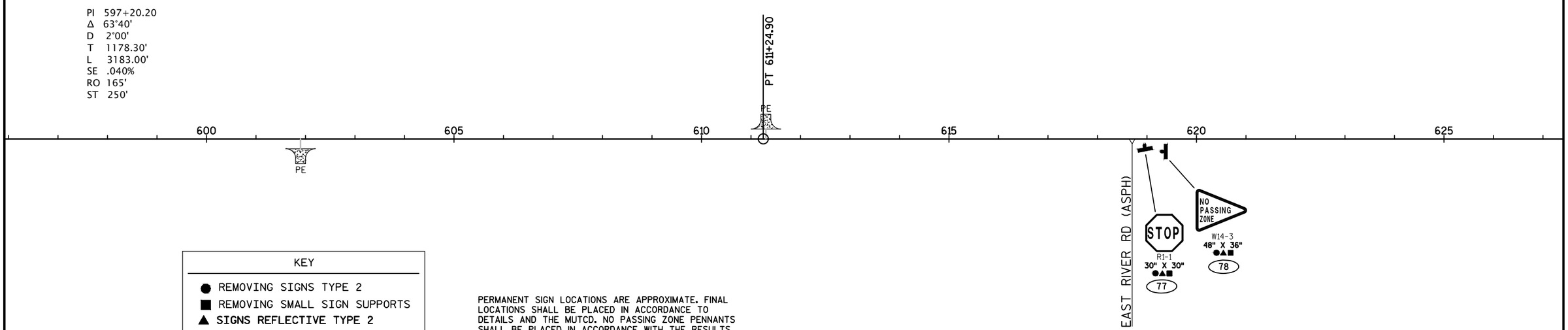
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 18	E

2



PI 597+20.20
Δ 63°40'
D 2°00'
T 1178.30'
L 3183.00'
SE .040%
RO 165'
ST 250'



KEY
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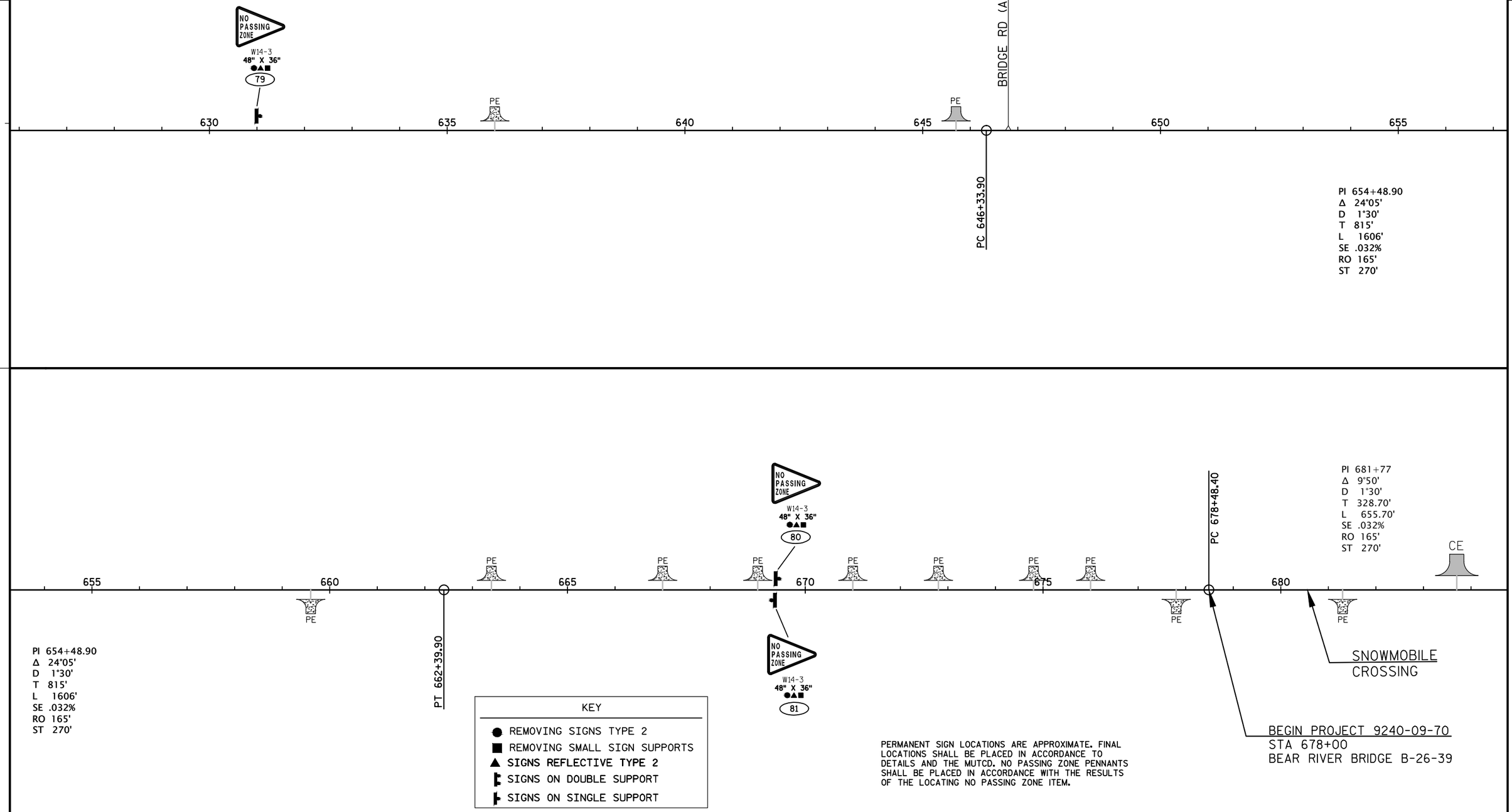
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 19	E

2



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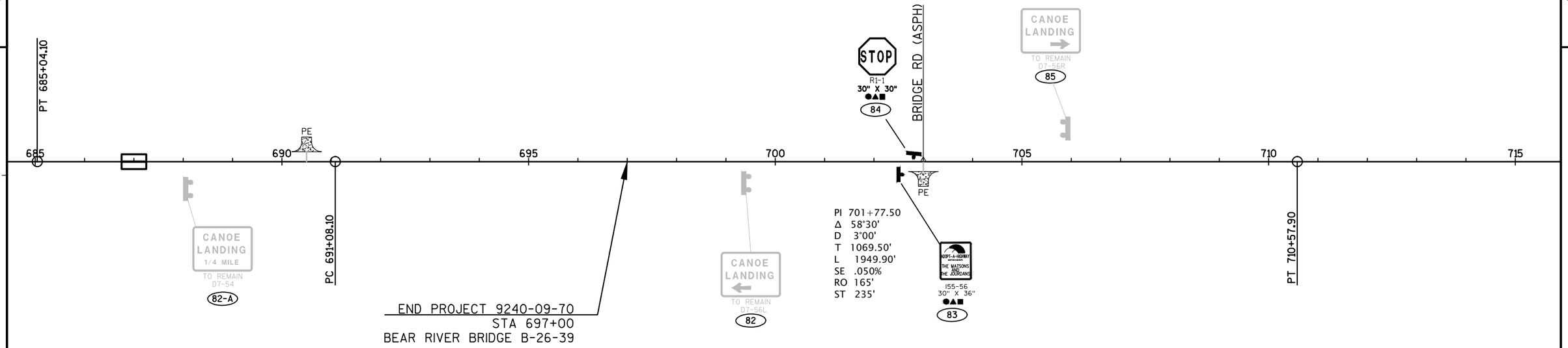
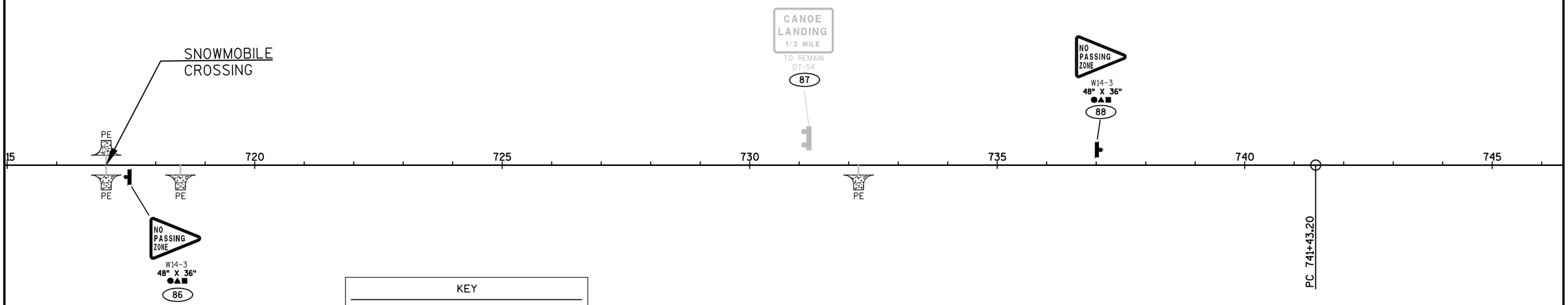
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 20	E

2





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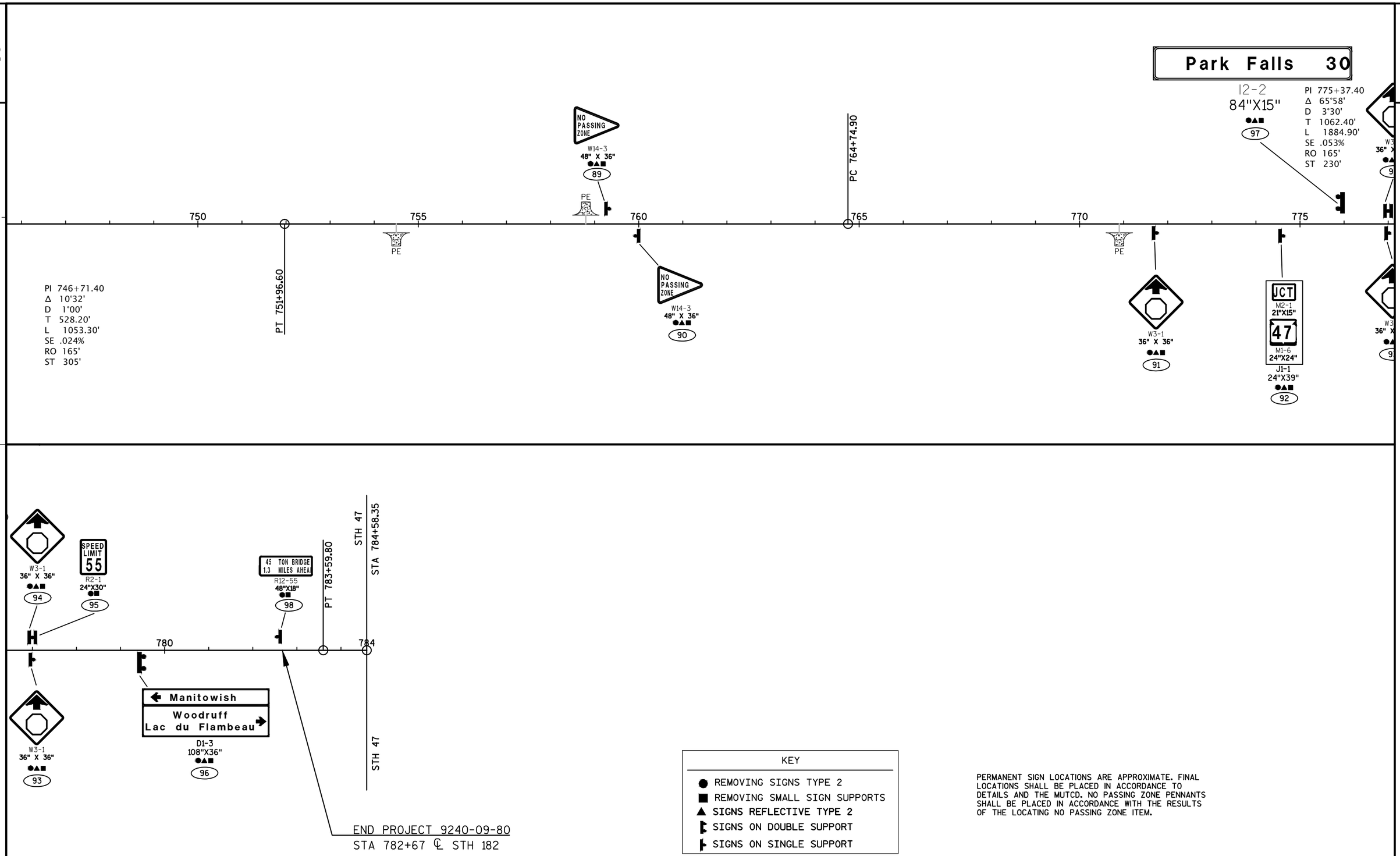

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PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PLAN: PERMANENT SIGNING	SHEET 22	E

DATE 13APR15 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	9240-09-80 QUANTITY
0030	202.0105	Roadside Clearing	STA	8.000	8.000
0040	203.0100	Removing Small Pipe Culverts	EACH	17.000	17.000
0070	204.0115	Removing Asphaltic Surface Butt Joints	SY	540.000	540.000
0080	204.0120	Removing Asphaltic Surface Milling	SY	197,320.000	197,320.000
0100	204.0180	Removing Delineators and Markers	EACH	34.000	34.000
0130	208.0100	Borrow	CY	950.000	950.000
0140	209.0100	Backfill Granular	CY	680.000	680.000
0160	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	1,462.000	1,462.000
0180	213.0100	Finishing Roadway (project) 02. 9240-09-80	EACH	1.000	1.000
0190	305.0110	Base Aggregate Dense 3/4-Inch	TON	2,870.000	2,870.000
0200	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	950.000	950.000
0210	305.0500	Shaping Shoulders	STA	1,462.000	1,462.000
0220	440.4410.S	Incentive IRI Ride	DOL	57,200.000	57,200.000
0230	455.0105	Asphaltic Material PG58-28	TON	1,900.000	1,900.000
0240	455.0605	Tack Coat	GAL	16,180.000	16,180.000
0250	460.1100	HMA Pavement Type E-0.3	TON	34,485.000	34,485.000
0260	460.2000	Incentive Density HMA Pavement	DOL	22,070.000	22,070.000
0270	460.4000	HMA Cold Weather Paving	TON	9,000.000	9,000.000
0280	460.4110.S	Reheating HMA Pavement Longitudinal Joints	LF	69,605.000	69,605.000
0290	465.0105	Asphaltic Surface	TON	575.000	575.000
0300	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	200.000	200.000
0320	465.0450	Asphaltic Intersection Rumble Strips	SY	85.000	85.000
0330	465.0475	Asphalt Center Line Rumble Strips	LF	63,015.000	63,015.000
0450	522.0124	Culvert Pipe Reinforced Concrete Class III 24-Inch	LF	736.000	736.000
0460	522.0130	Culvert Pipe Reinforced Concrete Class III 30-Inch	LF	700.000	700.000
0470	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	20.000	20.000
0480	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	14.000	14.000
0590	618.0100	Maintenance And Repair of Haul Roads (project) 02. 9240-09-80	EACH	1.000	1.000
0600	619.1000	Mobilization	EACH	0.750	0.750
0610	624.0100	Water	MGAL	100.000	100.000
0620	625.0100	Topsoil	SY	7,600.000	7,600.000
0640	628.1504	Silt Fence	LF	2,300.000	2,300.000
0650	628.1520	Silt Fence Maintenance	LF	260.000	260.000
0660	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0670	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0680	628.2006	Erosion Mat Urban Class I Type A	SY	7,600.000	7,600.000
0690	628.5505	Polyethylene Sheeting	SY	2,520.000	2,520.000
0720	628.7555	Culvert Pipe Checks	EACH	65.000	65.000
0740	629.0210	Fertilizer Type B	CWT	5.000	5.000
0750	630.0130	Seeding Mixture No. 30	LB	152.000	152.000
0770	633.5200	Markers Culvert End	EACH	96.000	96.000
0790	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	91.000	91.000
0800	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	1.000	1.000
0810	637.2210	Signs Type II Reflective H	SF	337.000	337.000
0820	637.2230	Signs Type II Reflective F	SF	216.000	216.000

3

DATE 13APR15 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	9240-09-80 QUANTITY
0830	638.2602	Removing Signs Type II	EACH	96.000	96.000
0840	638.3000	Removing Small Sign Supports	EACH	95.000	95.000
0850	642.5201	Field Office Type C	EACH	0.750	0.750
0870	643.0100	Traffic Control (project) 02. 9240-09-80	EACH	1.000	1.000
0880	643.0300	Traffic Control Drums	DAY	340.000	340.000
0910	643.0900	Traffic Control Signs	DAY	2,450.000	2,450.000
0930	646.0106	Pavement Marking Epoxy 4-Inch	LF	243,325.000	243,325.000
0940	646.0406	Pavement Marking Same Day Epoxy 4-Inch	LF	94,890.000	94,890.000
0960	648.0100	Locating No-Passing Zones	MI	14.300	14.300
0970	649.0100	Temporary Pavement Marking 4-Inch	LF	73,105.000	73,105.000
1020	650.6000	Construction Staking Pipe Culverts	EACH	17.000	17.000
1040	650.8000	Construction Staking Resurfacing Reference	LF	73,105.000	73,105.000
1060	650.9910	Construction Staking Supplemental Control (project) 02.9240-09-80	LS	1.000	1.000
1070	650.9920	Construction Staking Slope Stakes	LF	1,200.000	1,200.000
1110	SPV.0060	Special 01. Culvert Pipe Transitions	EACH	17.000	17.000
1120	SPV.0060	Special 02. Reestablish Section Corner Monuments	EACH	2.000	2.000
1130	SPV.0060	Special 03. Lane Shift	EACH	6.000	6.000

3

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MILLING

LOCATION	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY
MAINLINE		194950
32+62	135	
678+00	135	
697+00	135	
782+67	135	
INTERSECTIONS		1370
ENTRANCES		1000
CULVERT PIPES		
TOTAL	540	197320

SHOULDER WORK

LOCATION	211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS STA	305.0500 SHAPING SHOULDERS STA
32+62 - 782+67	1462	1462
TOTAL	1462	1462

BASE AGGREGATE DENSE

LOCATION	305.0110 BASE AGGREGATE DENSE 3/4 INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4 INCH TON
MAINLINE	2300	
CULVERT PIPES		850
DRIVEWAYS	270	
SIDE ROADS	200	
UNDISTRIBUTED	100	100
TOTAL	2870	950

3

CULVERT PIPES

PIPE	LOCATION	202.0105 ROADSIDE CLEARING STA	203.0100 REMOVING SMALL PIPE CULVERTS EACH	204.0180 REMOVING DELINEATORS AND MARKERS EACH	208.0100 BORROW LEFT CY	208.0100 BORROW RIGHT CY	209.0100 BACKFILL GRANULAR CY	522.0124 CULVERT PIPE RCCP CLASS III 24 INCH LF	522.0130 CULVERT PIPE RCCP CLASS III 30 INCH LF	522.1024 APRON ENDWALLS FOR RCCP 24 INCH EACH	522.0103 APRON ENDWALLS FOR RCCP 30 INCH EACH	SPV.0060.01 CULVERT PIPE TRANSITION EACH	SPV.0060.03 LANE SHIFT
3	81+00	2	1	2	100				126		2	1	1
8	135+00		1	2	40	60			74		2	1	
13	231+00	1	1	2		20			142		2	1	1
14	250+00		1	2	10	20			114		2	1	1
17R	315+50	2	1	2	50			86		2		1	
26	406+00	1	1	2	20	30		74		2		1	
27	412+50	1	1	2	50	30			70		2	1	
28	417+00		1	2	40	20		70		2		1	
28R	440+50	1	1	2	10	20			90		2	1	1
29R	455+00		1	2	10	20		72		2		1	
30	466+00		1	2	40	10		74		2		1	
32	516+00		1	2	20	20		74		2		1	
33	528+00		1	2	20	20		70		2		1	
36	577+00		1	2	20	10		64		2		1	
38	626+00		1	2	40	40		84		2		1	1
40	666+00		1	2	40	20		68		2		1	
43	729+00		1	2	40	60			84		2	1	1
	UNDISTRIBUTED						680						
	TOTAL	8	17	34	550	400	680	736	700	20	14	17	6

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PAVING ITEMS

LOCATION	455.0105 ASPHALTIC MATERIAL PG58-28 TON	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TON	460.4110.S REHEATING HMA PAVEMENT LONGITUDINAL JOINT LF
32+62 - 728+67 MAINLINE	1255	13650			69605
SHOULDERS	620	2435			
SIDE ROADS	25	75			
DRIVEWAYS		20		200	
CULVERT PIPE TRANSISTIONS			575		
SNOWMOBILE CROSSINGS					
TOTAL	1900	16180	575	200	69605

RUMBLE STRIPS

	465.0475 ASPHALT CENTER LINE RUMBLE STRIP 2 LANE RURAI LF	465.0450 ASPHALTIC INTERSECTION RUMBLE STRIP SY
32+62 - 782+67	63015	
774+00 - 780+50		85
TOTAL	63015	85

MARKER POSTS

STATION	633.5200 MARKERS CULVERT END EACH
26-182-1	48+95	2
26-182-2	59+80	2
26-182-3	81+00	2
26-182-4	89+45	2
26-182-5	97+48	2
26-182-6	116+00	2
26-182-7	125+48	2
26-182-8	135+00	2
26-182-9	143+95	2
26-182-10	152+95	2
26-182-10R	162+02	2
26-182-11	166+98	2
26-182-12	176+37	2
26-182-13	231+00	2
26-182-14	250+00	2
26-182-15	282+99	2
26-182-16	302+50	2
26-182-17	310+50	2
26-182-17R	315+50	2
26-182-18	338+45	2
26-182-19	361+98	2
26-182-20	373+45	2
26-182-21	377+04	2
26-182-21R	381+00	2
26-182-22	388+04	2
26-182-23	394+04	2
26-182-24	399+00	2
26-182-25	402+99	2
26-182-26	406+00	2
26-182-27	412+53	2
26-182-28	417+01	2
26-182-28R	440+43	2
26-182-29	444+50	2
26-182-29R	455+05	2
26-182-30	465+98	2
26-182-31	502+50	2
26-182-32	516+00	2
26-182-33	528+00	2
26-182-34	534+25	2
26-182-35	546+01	2
26-182-36	577+05	2
26-182-37	582+14	2
26-182-38	626+02	2
26-182-39	656+05	2
26-182-40	666+00	2
26-182-42	709+01	2
26-182-43	728+99	2
26-182-45	774+00	2
TOTAL		96

3

WATER

	624.0100 WATER MGAL
32+62 - 782+67	100
	100

TRAFFIC CONTROL

LOCATION	TRAFFIC CONTROL PROJECT 9240-09-80 EACH	643.0300 DRUMS DAYS	643.0900 SIGNS DAYS
PROJECT	1		
CULVERT PIPES		340	2450
TOTAL	1	340	2450

NAVIGATIONAL SIGNS /MARKERS INCIDENTAL TO THIS ITEM

LOCATE NO-PASSING ZONES

STA	TO	STA	648.0100 LOCATING NO PASSING ZONES MI
32+62 - 782+67			14.3
TOTAL			14.3

PROJECT NO: 9240-09-80	HWY: WIS 182	COUNTY: IRON	MISCELLANEOUS QUANTITIES	SHEET: 26	E

FILE NAME : _____ PLOT DATE : _____ PLOT BY : _____ PLOT NAME : _____ PLOT SCALE : 1:1

EROSION CONTROL

PIPE	LOCATION	625.0100 TOPSOIL SY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2006 ERROSION MAT URBAN CLASS I TYPE A EACH	628.5505 POLYETHYLENE SHEETING SY	628.7555 CULVERT PIPE CHECKS EACH	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE 30 LB
3	81+00	1000	200	50	1000	220	5	0.7	20
8	135+00	200	100	10	200	100	5	0.13	4
13	231+00	1000	200	20	1000	220	5	0.7	20
14	250+00	1000	200	20	1000	220	5	0.7	20
17R	315+50	200	100	10	200	100	3	0.13	4
26	406+00	200	100	10	200	100	3	0.13	4
27	412+50	200	100	10	200	100	5	0.13	4
28	417+00	200	100	10	200	100	3	0.136	4
28R	440+50	800	200	20	800	160	5	0.52	16
29R	455+00	200	100	10	200	100	3	0.13	4
30	466+00	200	100	10	200	100	3	0.13	4
32	516+00	200	100	10	200	100	3	0.13	4
33	528+00	200	100	10	200	100	3	0.13	4
36	577+00	200	100	10	200	100	3	0.13	4
38	626+00	800	200	20	800	300	3	0.52	16
40	666+00	200	100	10	200	100	3	0.13	4
43	729+00	800	200	20	800	300	5	0.52	16
	TOTAL	7600	2300	260	7600	2520	65	5	152

CONSTRUCTION STAKING

LOCATION	650.6000 CONSTRUCTION STAKING PIPE CULVERTS EACH	650.8000 CONSTRUCTION STAKING RESURFACING REFFERENCE LF	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL LS	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF	SPV.0060.02 REESTABLISH SECTION CORNER MONUMENTS EACH
PROJECT		73105	1	1200	
CULVERT PIPES	17				
139+35					1
356+50					1
TOTAL	17	73105	1	1200	2

PAVEMENT MARKING

STATION	LOCATION	646.0106 PAVEMENT MARKING EPOXY 4-INCH LF	649.0100 TEMPORARY PAVEMENT MARKING 4 INCH LF	646.0406 PAVEMENT MARKING SAME DAY EPOXY 4 INCH LF
32+62 - 782+67	CENTERLINE YELLOW	94890	73,105	94890
32+62 - 782+67	EDGE LINES WHITE	148435		
	TOTAL	243325	73,105	94,890

PERMANENT SIGNING
*SIGNS TO BE MOVED TO OWN LOCATION AS DIRECTED BY SIGN PLAN

STATION	LOCATION	NUMBER	SIGN CODE	SIZE (IN x IN)	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	637.2210 SIGNS TYPE II REFLECTIVE H S.F.	637.2230 SIGNS TYPE II REFLECTIVE F S.F.	634.0616 WOOD POSTS 4X6 INCH 16 FOOT EACH	DESCRIPTION	COMMENTS
STA 32+50	RT	1	I2-2	48X15	1	1	5.00	-	1	INFORMATION SIGN	IRON CO
STA 32+50	LT	2	I2-2	48X15	1	1	5.00	-	1	INFORMATION SIGN	PRICE CO
STA 32+75	RT	3	*M1-6	24X24	1	-	4.00	-	1	STH ROUTE MARKER SIGN	182
STA 32+75	LT	4	*M1-6	24X24	1	-	4.00	-	1	STH ROUTE MARKER SIGN	182
STA 41+45	LT	5	R1-1	30X30	1	1	5.18	-		REGULATORY SIGN	STOP SIGN
STA 45+50	RT	6	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 45+75	RT	7	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 56+00	LT	8	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 67+90	LT	9	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 81+00	LT	10	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 84+00	RT	11	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 86+10	RT	12	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 107+25	RT	13	I2-3	72X24	1	2	12.00	-	2	INFORMATION SIGN	SPRINGSTEAD UNINCORPORATED
STA 107+25	LT	14	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 113+50	LT	15	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 114+00	RT	16	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 114+25	RT	17	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 130+30	LT	18	I55-56	30X36	1	1	7.50	-	1	ADOPT-A-HIGHWAY	BOB AND GRACE MONGAN
STA 130+40	RT	19	I55-56	30X36	1	1	7.50	-	1	ADOPT-A-HIGHWAY	SPRINGSTEAD SNO-BIRDS SNOWMOBILE CLUB
STA 130+40	LT	20	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 130+50	RT	21	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 138+30	RT	22	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 139+75	RT	23	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 139+75	LT	24	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 175+35	RT	25	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
			SHEET 1	SUB-TOTALS:	25	24	92	54	25		

PERMANENT SIGNING
*SIGNS TO BE MOVED TO OWN LOCATION AS DIRECTED BY SIGN PLAN

STATION	LOCATION	NUMBER	SIGN CODE	SIZE (IN x IN)	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	637.2210 SIGNS TYPE II REFLECTIVE H S.F.	637.2230 SIGNS TYPE II REFLECTIVE F S.F.	634.0616 WOOD POSTS 4X6 INCH 16 FOOT EACH	DESCRIPTION	COMMENTS
STA 198+10	LT	26	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 206+75	RT	27	W11-6	30X30	1	1	-	6.25	1	WARNING SIGN	SNOWMOBILE CROSSING
STA 213+50	LT	28	I55-56	30X36	1	1	7.50	-	1	ADOPT-A-HIGHWAY	SPRINGSTEAD SNO-BIRDS SNOWMOBILE CLUB
STA 214+00	LT	29	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 216+00	RT	30	I55-56	30X36	1	1	7.50	-	1	ADOPT-A-HIGHWAY	DODGES AND GOTTWALDS
STA 239+10	LT	31	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 239+10	RT	32	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 239+15	RT	33	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 247+50	RT	34	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 263+80	RT	35	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 267+35	LT	36	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 267+50	LT	37	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 283+10	RT	38	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 290+00	LT	39	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 304+00	LT	40	I55-56	30X36	1	1	7.50	-	1	ADOPT-A-HIGHWAY	DODGES AND GOTTWALDS
STA 304+00	RT	41	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 304+25	RT	42	I55-56	30X36	1	1	7.50	-	1	ADOPT-A-HIGHWAY	SPRINGSTEAD LAKE LODGE
STA 324+90	RT	43	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 326+40	LT	44	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 328+40	LT	45	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 328+60	RT	46	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 343+00	LT	47	S3-1	30X30	1	1	-	6.25	1	SCHOOL SIGN	BUS STOP AHEAD
STA 358+75	RT	48	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 369+75	LT	49	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 370+35	RT	50	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
			SHEET 1	SUB-TOTALS:	25	25	103	43	25		

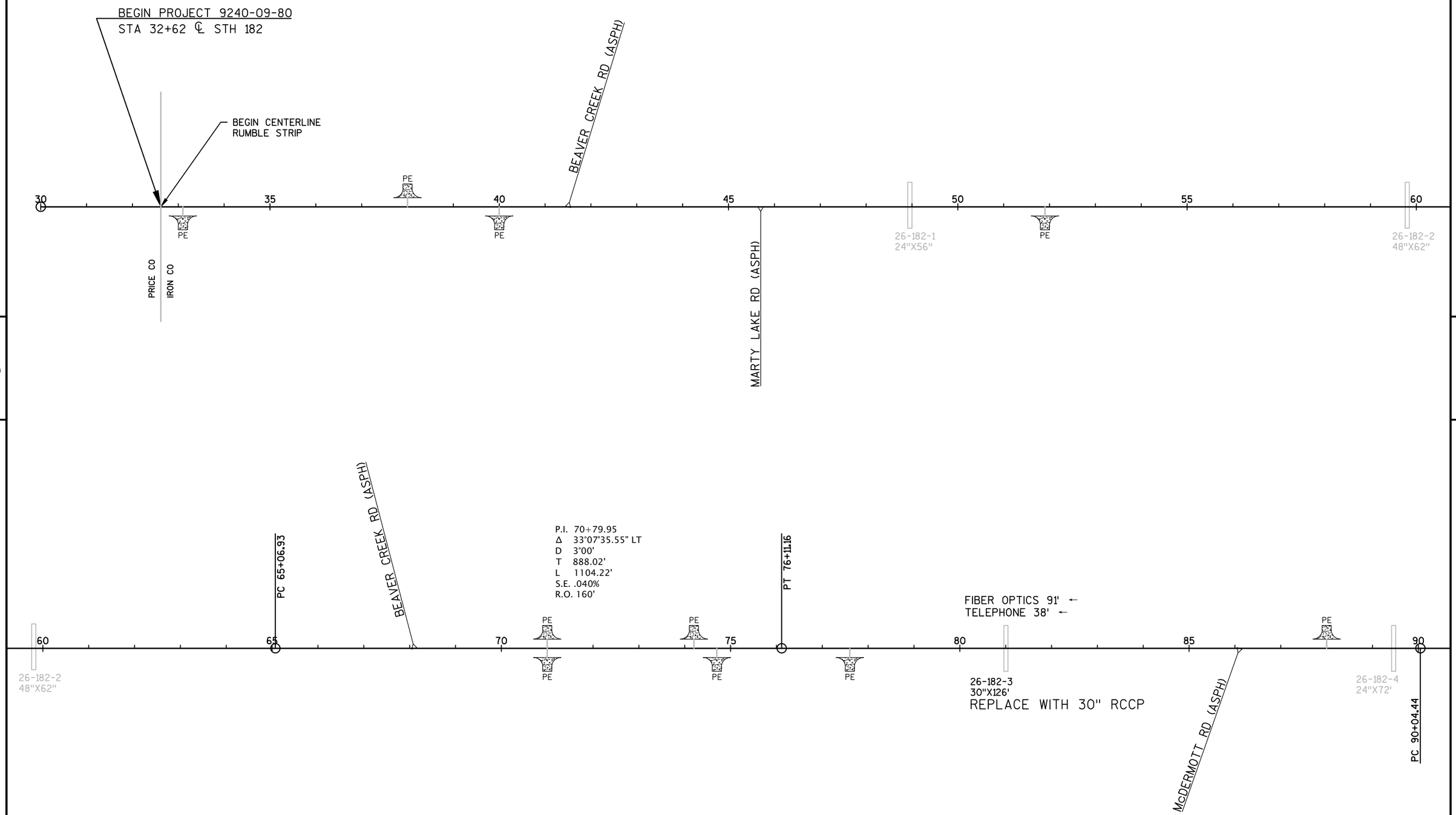
3

PERMANENT SIGNING
*SIGNS TO BE MOVED TO OWN LOCATION AS DIRECTED BY SIGN PLAN

STATION	LOCATION	NUMBER	SIGN CODE	SIZE (IN x IN)	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	637.2210 SIGNS TYPE II REFLECTIVE H S.F.	637.2230 SIGNS TYPE II REFLECTIVE F S.F.	634.0616 WOOD POSTS 4X6 INCH 16 FOOT EACH	DESCRIPTION	COMMENTS
STA 387+10	LT	51	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 405+00	RT	52	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 405+20	RT	53	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 405+15	LT	54	I55-56	30X36	1	1	7.50	-	1	ADOPT-A-HIGHWAY	BOB AND GRACE MONGAN
STA 405+25	RT	55	I55-56	30X36	1	1	7.50	-	1	ADOPT-A-HIGHWAY	SPRINGSTEAD SNO-BIRDS SNOWMOBILE CLUB
STA 412+70	RT	56	W11-8	30X30	1	1	-	5.18	1	WARNING SIGN	FIRETRUCK SYMBOL
STA 416+10	RT	57	M1-85	24X24	1	1	-	-	-	MARKER SIGN	WI HERITAGE MARKER
STA 416+10	RT	58	M1-85C	24X12	1	-	-	-	-	MARKER SIGN	LEGEND OF EMERSON 131
STA 420+50	RT	59	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 421+00	RT	60	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 425+75	LT	61	M1-85	24X24	1	1	-	-	-	MARKER SIGN	WI HERITAGE MARKER
STA 425+75	LT	62	M1-85C	24X12	1	-	-	-	-	MARKER SIGN	LEGEND OF EMERSON 131
STA 427+25	LT	63	W11-8	30X30	1	1	-	5.18	1	WARNING SIGN	FIRETRUCK SYMBOL
STA 436+75	LT	64	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 447+50	LT	65	I2-3	72X24	1	1	12.00	-	2	INFORMATION SIGN	SPRINGSTEAD UNINCORPORATED
STA 463+00	LT	66	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 466+25	RT	67	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 522+35	LT	68	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 535+00	RT	69	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 543+35	LT	70	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 571+50	LT	71	W14-3	48X36	1	1	-	6.00	1	WARNING SIGN	NO PASSING ZONE
STA 583+85	LT	72	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 584+15	LT	73	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 587+75	RT	74	R1-1	30X30	1	1	5.18	-	1	REGULATORY SIGN	STOP SIGN
STA 588+00	LT	75	I55-56	30X36	1	1	7.50	-	1	ADOPT-A-HIGHWAY	THE SCHOENIKE'S AND THE LARUM'S
			SHEET 1	SUB-TOTALS:	25	23	76	52	22		

PERMANENT SIGNING
*SIGNS TO BE MOVED TO OWN LOCATION AS DIRECTED BY SIGN PLAN

STATION	LOCATION	SIGN NUMBER	SIGN CODE	SIZE (IN x IN)	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	637.2210 SIGNS TYPE II REFLECTIVE H S.F.	637.2230 SIGNS TYPE II REFLECTIVE F S.F.	634.0616 WOOD POSTS 4X6 INCH 16 FOOT EACH	634.0618 WOOD POSTS 4X6 INCH 18 FOOT EACH	DESCRIPTION	COMMENTS
STA 588+50	RT	76	I55-56	30X36	1	1	7.50	-	1	-	ADOPT-A-HIGHWAY	SPARKS AUX VOLUNTEER FIRE DEPT
STA 618+80	RT	77	R1-1	30X30	1	1	5.18	-	1	-	REGULATORY SIGN	STOP SIGN
STA 619+30	RT	78	W14-3	48X36	1	1	-	6.00	1	-	WARNING SIGN	NO PASSING ZONE
STA 631+00	LT	79	W14-3	48X36	1	1	-	6.00	1	-	WARNING SIGN	NO PASSING ZONE
STA 669+25	LT	80	W14-3	48X36	1	1	-	6.00	1	-	WARNING SIGN	NO PASSING ZONE
STA 699+25	RT	81	W14-3	48X36	1	1	-	6.00	1	-	WARNING SIGN	NO PASSING ZONE
STA 699+20	RT	82			1	2		-		-		***REMAIN** CANOE LANDING
STA 702+50	RT	83	I55-56	30X36	1	1	7.50	-	1	-	ADOPT-A-HIGHWAY	THE MATSONS AND THE JOURDANS
STA 702+85	LT	84	R1-1	30X30	1	1	5.18	-	1	-	REGULATORY SIGN	STOP SIGN
STA 706+15	LT	85						-		-		***REMAIN** CANOE LANDING
STA 717+00	RT	86	W14-3	48X36	1	1	-	6.00	1	-	WARNING SIGN	NO PASSING ZONE
STA 731+15	LT	87						-		-		***REMAIN**CANOE LANDING 1/2 MILE
STA 737+00	LT	88	W14-3	48X36	1	1	-	6.00	1	-	WARNING SIGN	NO PASSING ZONE
STA 759+00	LT	89	W14-3	48X36	1	1	-	6.00	1	-	WARNING SIGN	NO PASSING ZONE
STA 760+00	RT	90	W14-3	48X36	1	1	-	6.00	1	-	WARNING SIGN	NO PASSING ZONE
STA 771+75	RT	91	S3-1	30X30	1	1	-	6.25	1	-	REGULATORY SIGN	STOP AHEAD
STA 774+60	RT	92	J1-1	24X39	1	1	6.25	-	-	1	JUNCTION ASSEMBLY	
		93	M2-1	21X15	-	-	-	-	-	-	MARKER SIGN	JUNCTION
		94	M1-6	24X24	-	-	-	-	-	-	STH ROUTE MARKER	47
STA 778+40	RT	95	S3-1	30X30	1	1	-	6.25	1	-	REGULATORY SIGN	STOP AHEAD
STA 778+40	LT	96	S3-1	30X30	1	1	-	6.25	1	-	REGULATORY SIGN	STOP AHEAD
STA 778+40	LT	97	R2-1	24X30	1	-	-	-	-	-	REGULATORY SIGN	SPEED LIMIT 55
STA 779+50	RT	98	D1-3	108X36	1	2	27.00	-	2	-	DESTINATION SIGN	MANITOWISH LA, WOODRUFF & LAC DU FLAMBEAU RA
STA 781+00	LT	99	D2-1	84X15	1	2	8.75	-	2	-	DESTINATION SIGN	PARK FALLS 30
STA 783+00	LT	100	R12-55	48X18	1	1	-	-	-	-	REGULATORY SIGN	45 TON BRIDGE 1.3 MILES AHEAD
			SHEET 1	SUB-TOTALS:	21	23	67	67	19	1		
			TOTALS SHEET 1,2,3,4		96	95	337	216	91	1		



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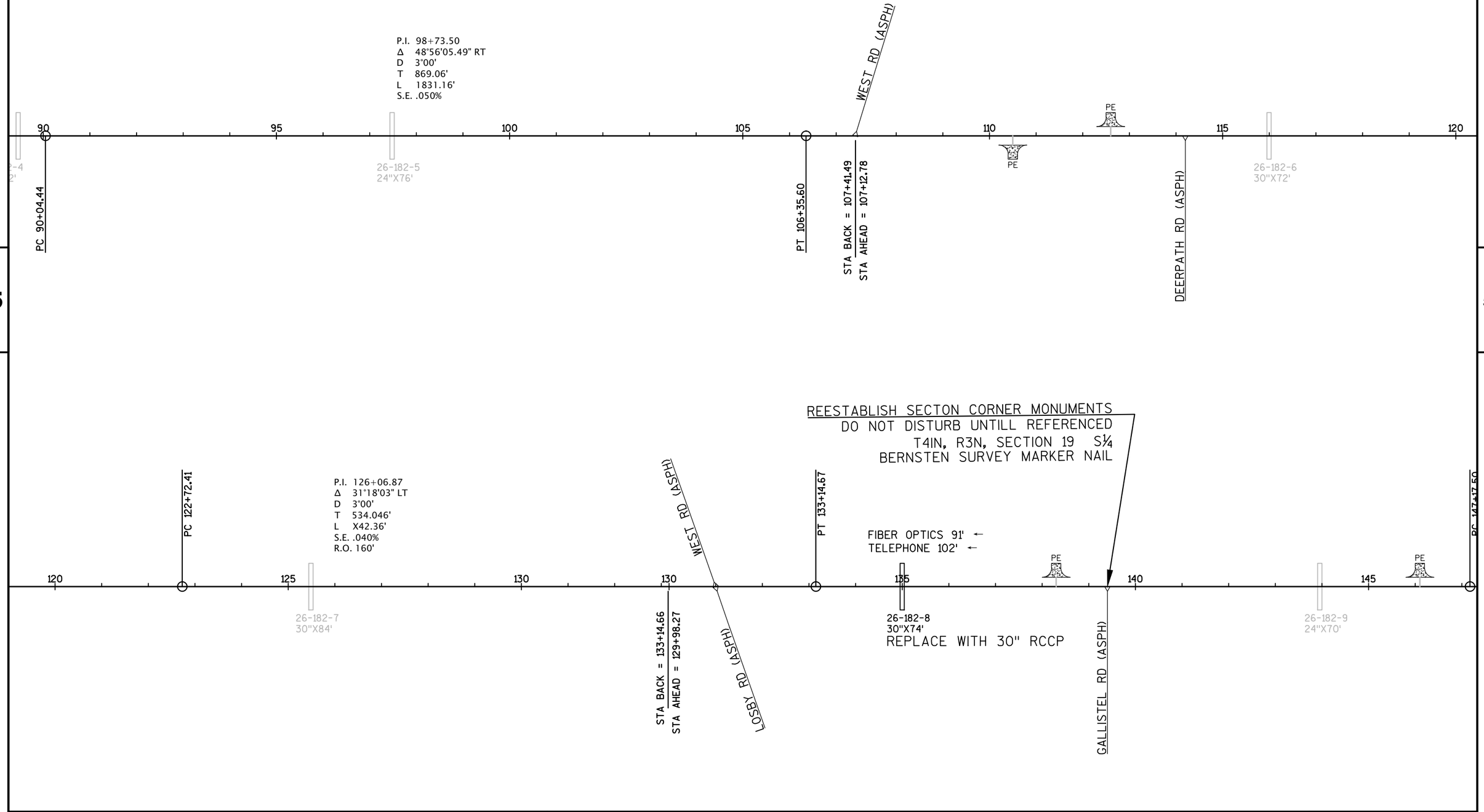
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 32	E

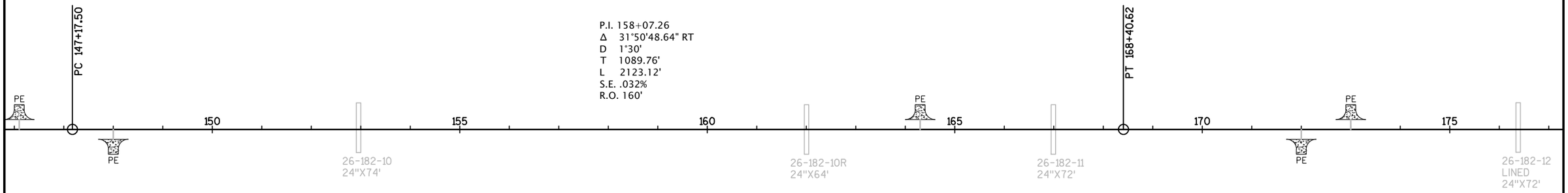
FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\050401_LD.DWG PLOT DATE : 4/9/2015 4:46 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT

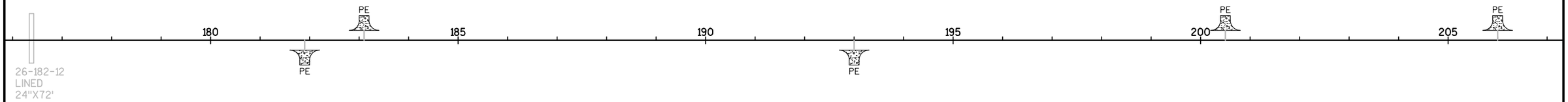


PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 33	E

FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\050401_LD.DWG PLOT DATE : 4/9/2015 4:46 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44

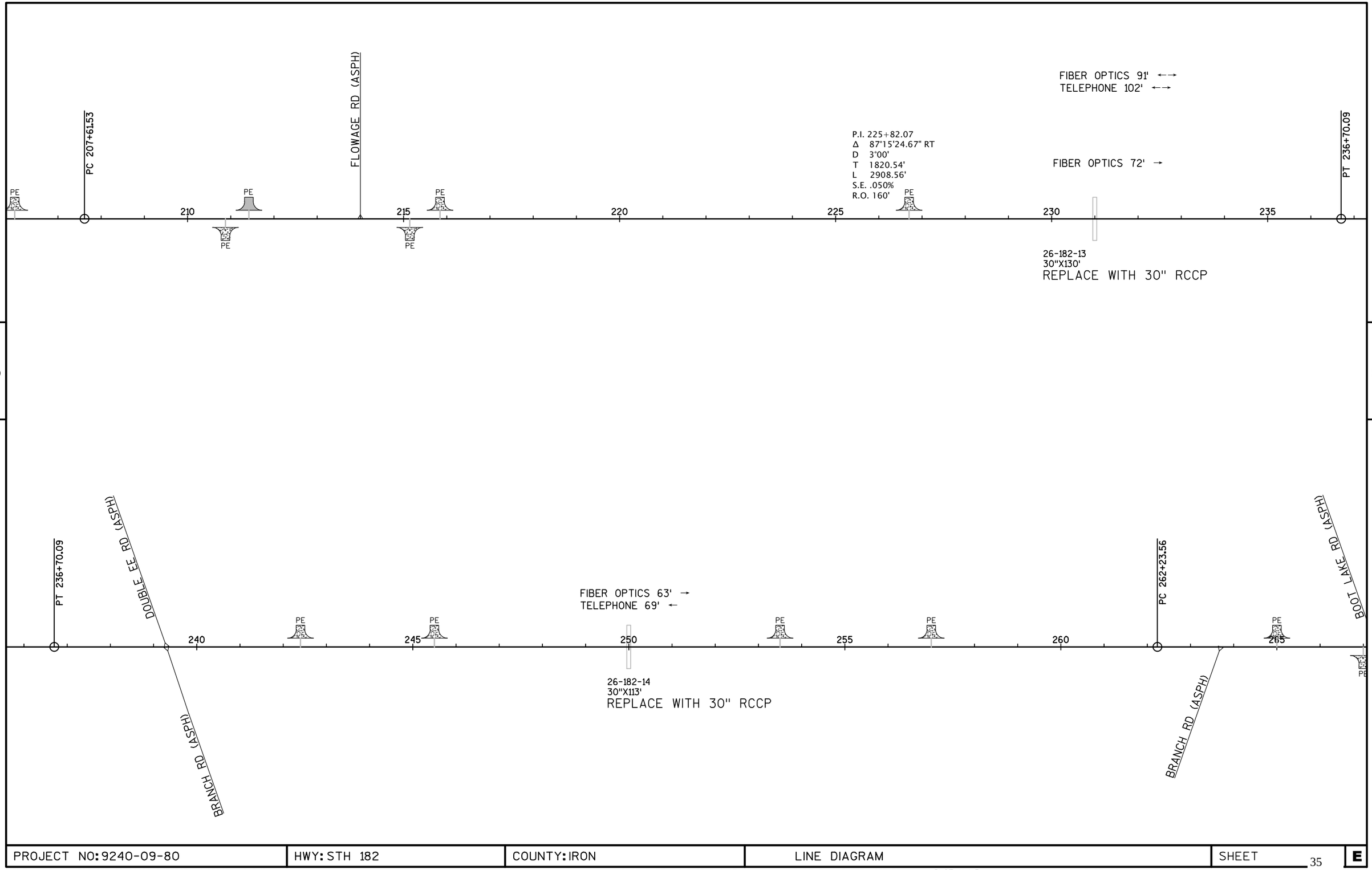




PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 34	E

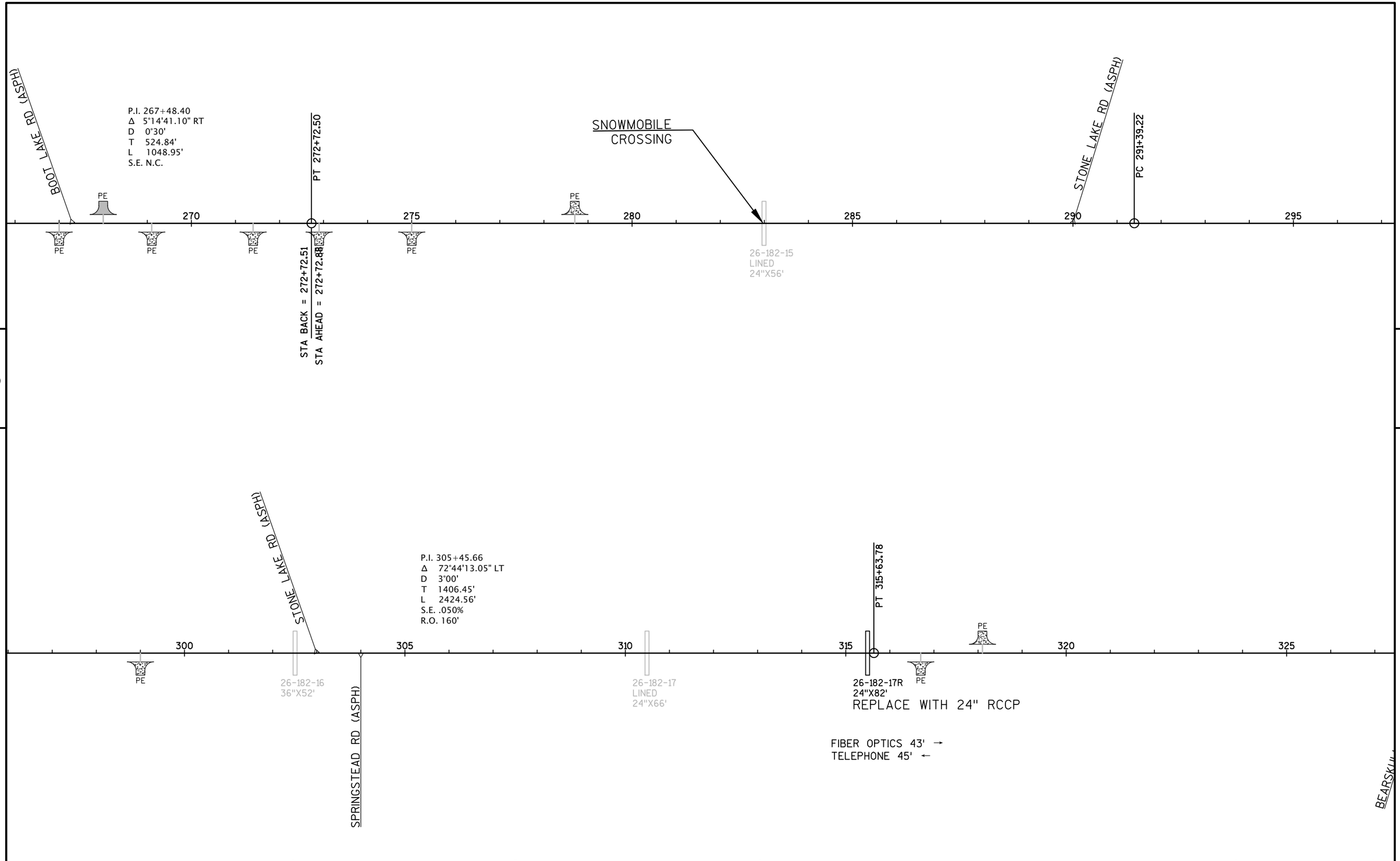
FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\050401_LD.DWG PLOT DATE : 4/9/2015 4:46 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44



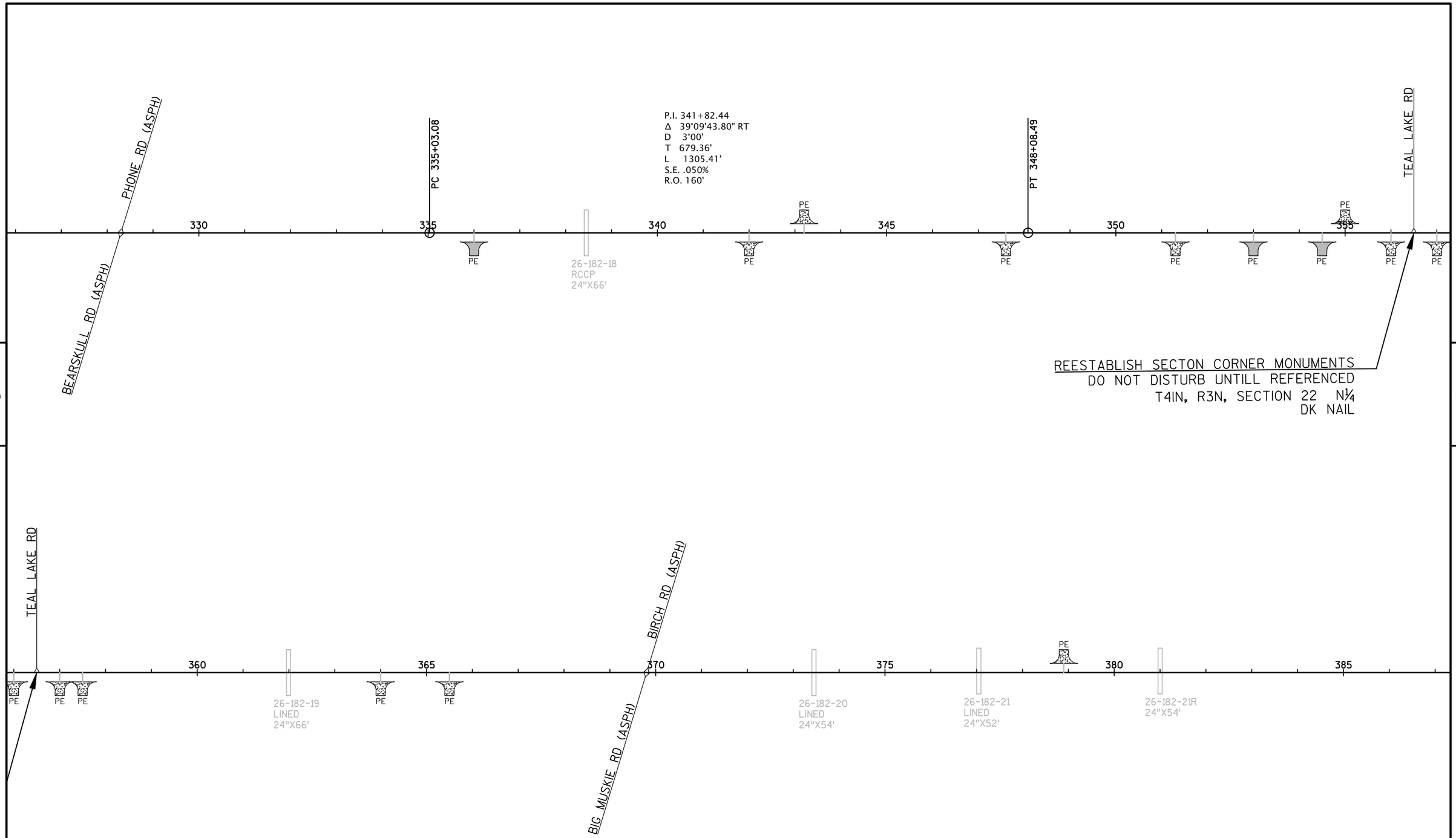
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 35	E

FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\050401_LD.DWG PLOT DATE : 4/9/2015 4:47 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT



PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 36	E

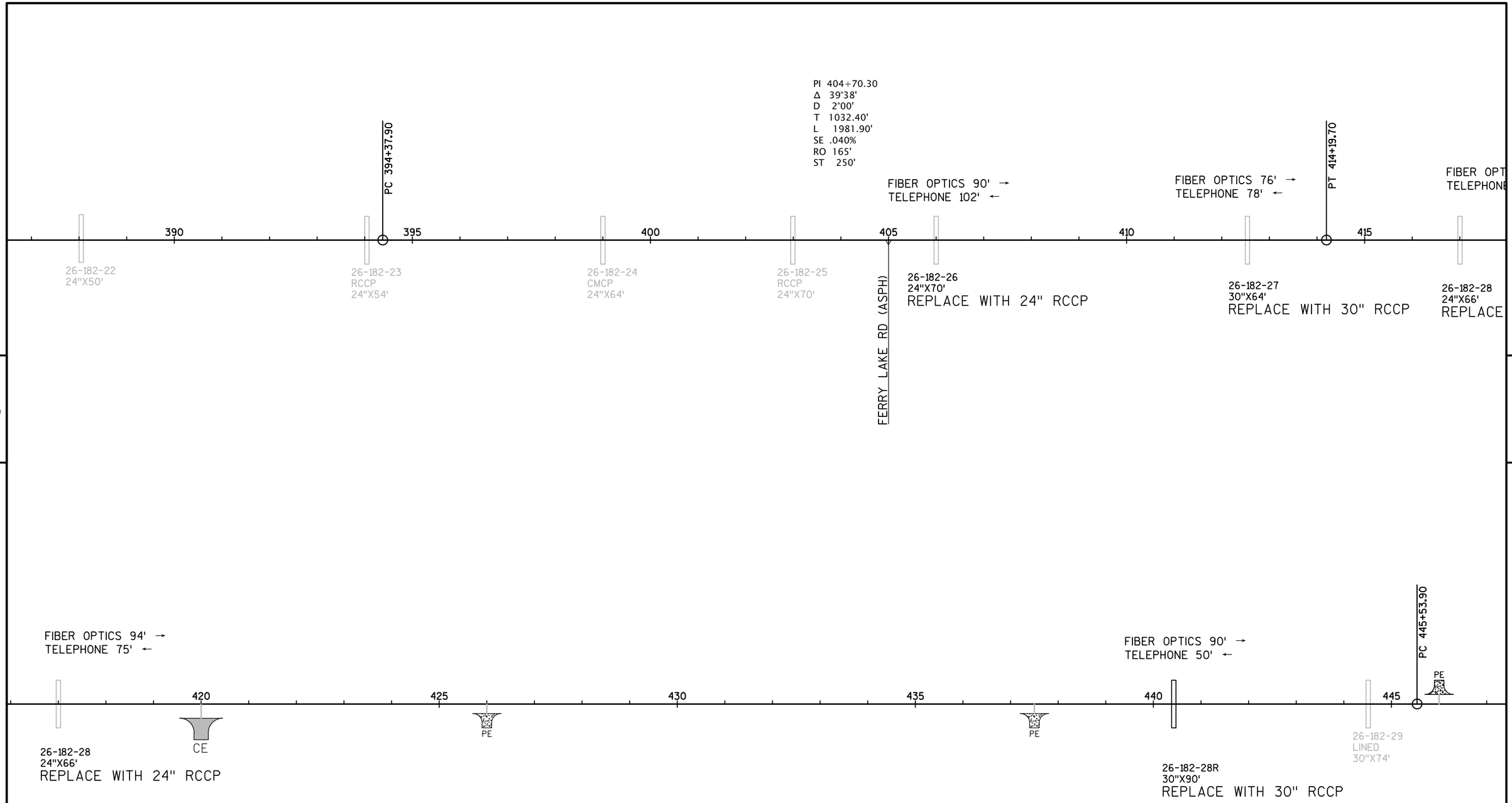
FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\050401_LD.DWG PLOT DATE : 4/9/2015 4:47 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT



PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 37	E

FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\050401_LD.DWG PLOT DATE : 4/9/2015 4:47 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44



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PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 38	E

FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\050401_LD.DWG PLOT DATE : 4/9/2015 4:47 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT

CURVE

PI 453+49.30
DLT 31°02'00"
DEG 2°00'
T 795.40
L 1551.70
SE .040%
RO 165'
ST 250'

FIBER OPTICS 58' →
TELEPHONE 51' ←

PT 461+05.60

FIBER OPTICS 155' →
TELEPHONE 48' ←

PE
450
455
460
465
470
475

26-182-29R
24"X72'
REPLACE WITH 24" RCCP

26-182-30
24"X68'
REPLACE WITH 24" RCCP

PC 470+66.70

SNOWMOBILE
CROSSING

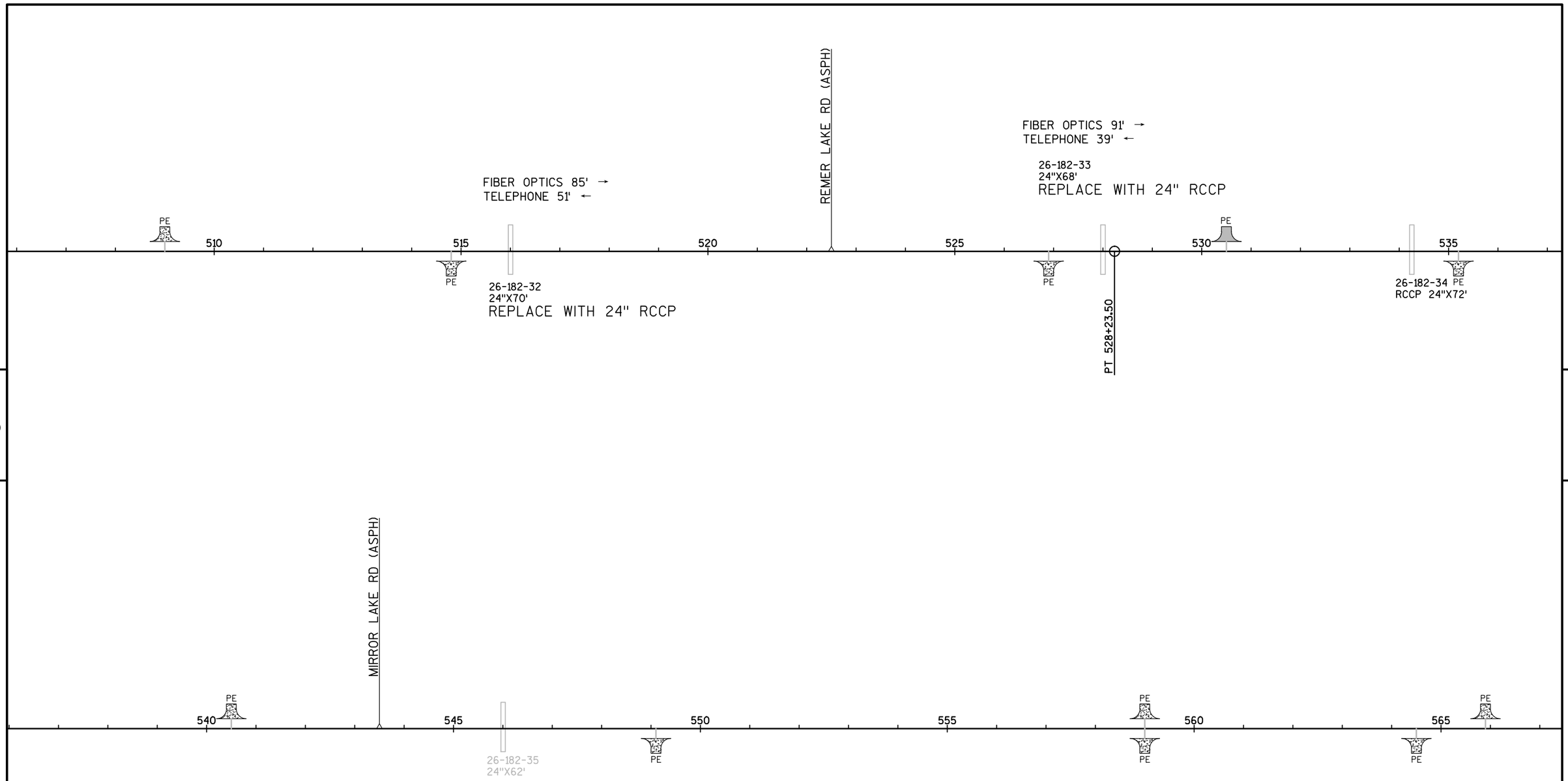
480
485
490
495
500
505

26-182-31
CMCP
30"X70'

PI 501+58.70
Δ 51°49'
D 0°54'
T 3092.00'
L 5756.80'
SE .024%
RO 165'
ST 305'

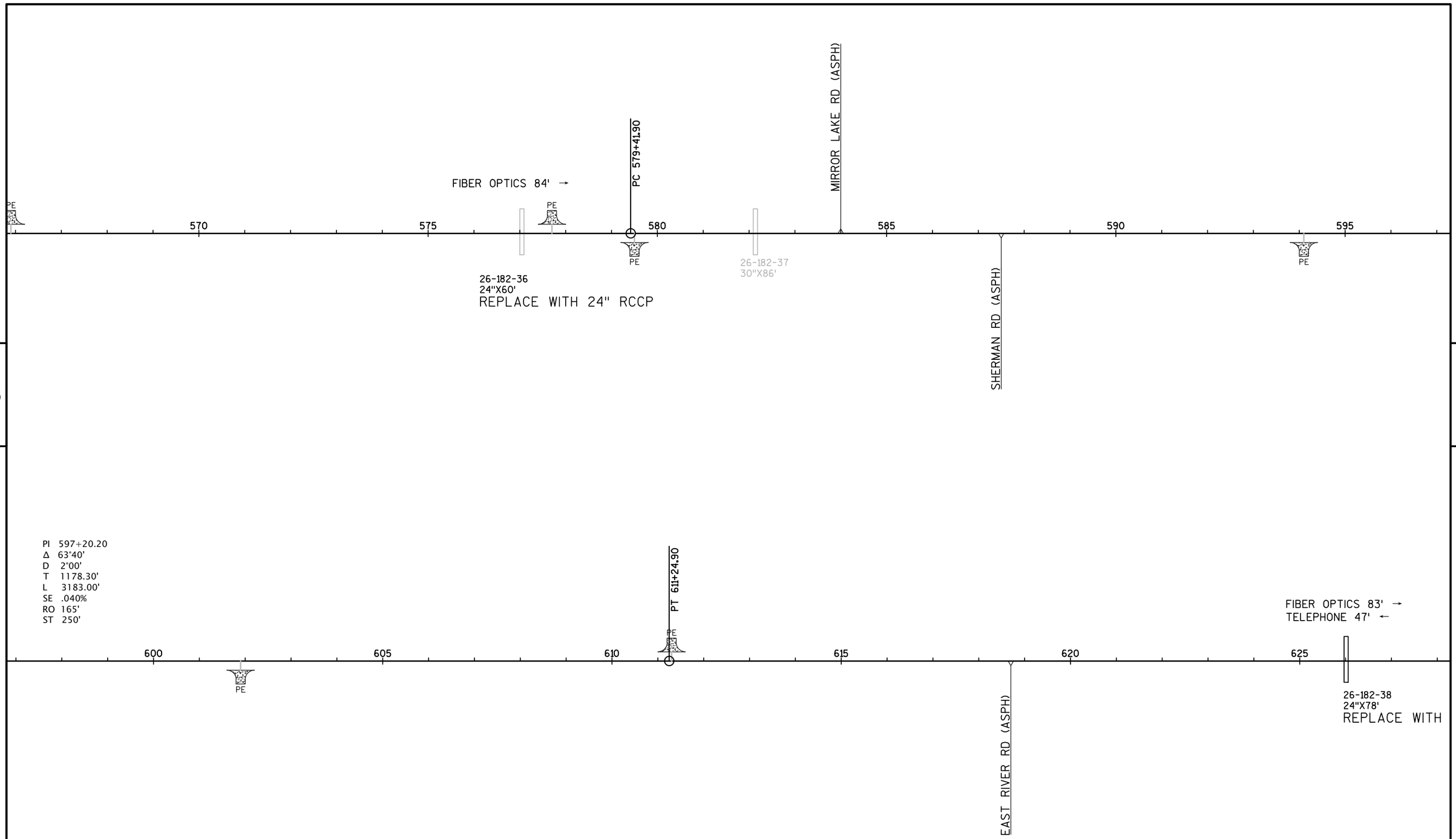
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 39	E

FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\050401_LD.DWG PLOT DATE : 4/9/2015 4:47 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT



PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 40	E

FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\050401_LD.DWG PLOT DATE : 4/9/2015 4:47 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT



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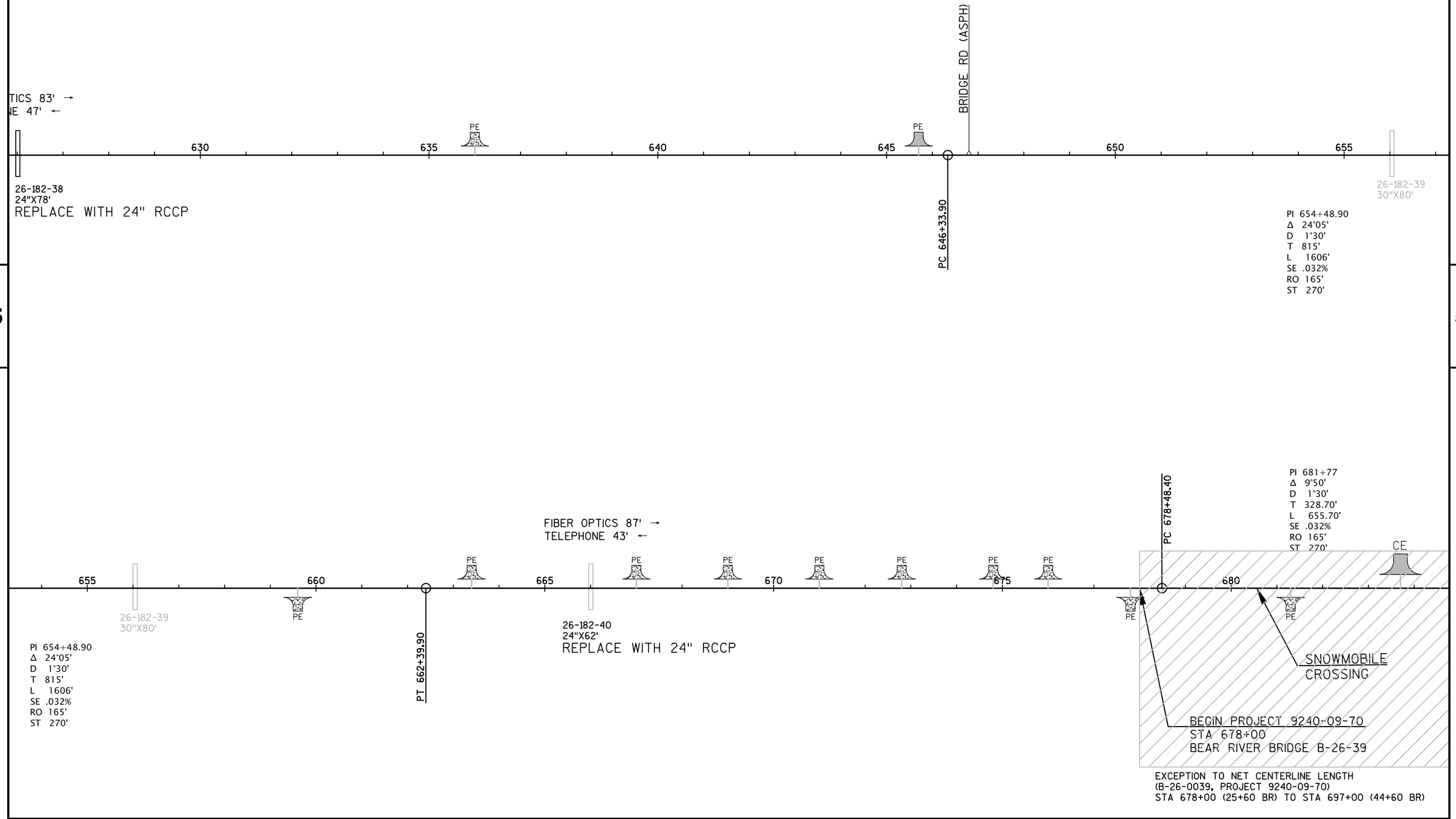
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 41	E

FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\050401_LD.DWG PLOT DATE : 4/9/2015 4:47 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44



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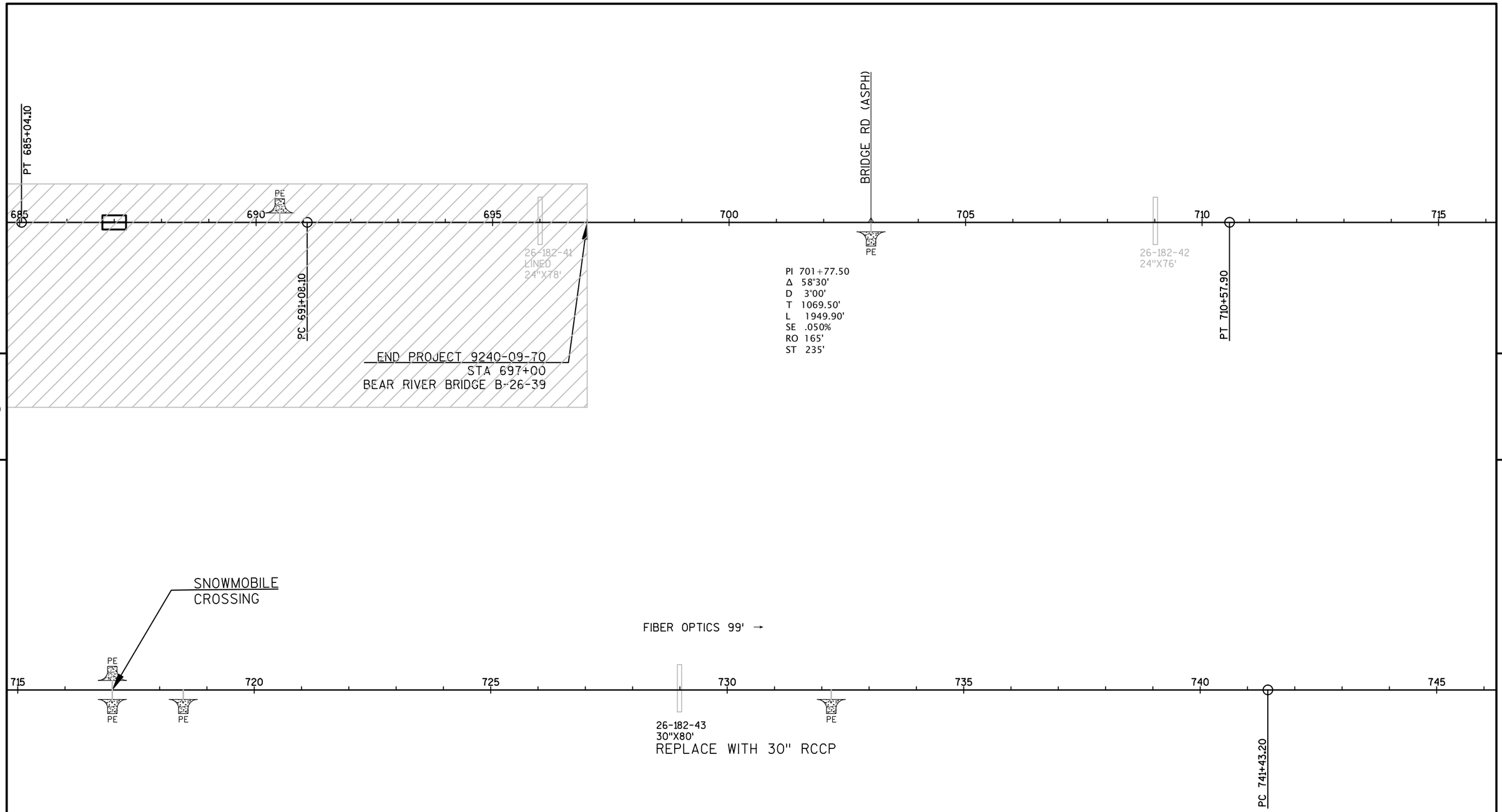
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 42	E



PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 43	E

FILE NAME : N:\PDS\C3D\92400930\SHEETSPLAN\050401_LD.DWG PLOT DATE : 4/9/2015 4:47 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44

PI 775+37.40
Δ 65°58'
D 3°30'
T 1062.40'
L 1884.90'
SE .053%
RO 165'
ST 230'

PC 764+74.90

PE

750 755 760 765 770 775

PE PE

26-182-45
24"X86'

PT 751+96.60

PI 746+71.40
Δ 10°32'
D 1°00'
T 528.20'
L 1053.30'
SE .024%
RO 165'
ST 305'

CONSTRUCT ASPHALTIC INTERSECTION RUMBLE STRIPS
SEE SDD "ASPHALTIC RUMBLE STRIPS AT INTERSECTION"

5

5

PI 775+37.40
Δ 65°58'
D 3°30'
T 1062.40'
L 1884.90'
SE .053%
RO 165'
ST 230'

END CENTERLINE
RUMBLE STRIP

PT 783+59.80

STH 47
STA 784+58.35

775 780 784

TRIPS
TION"

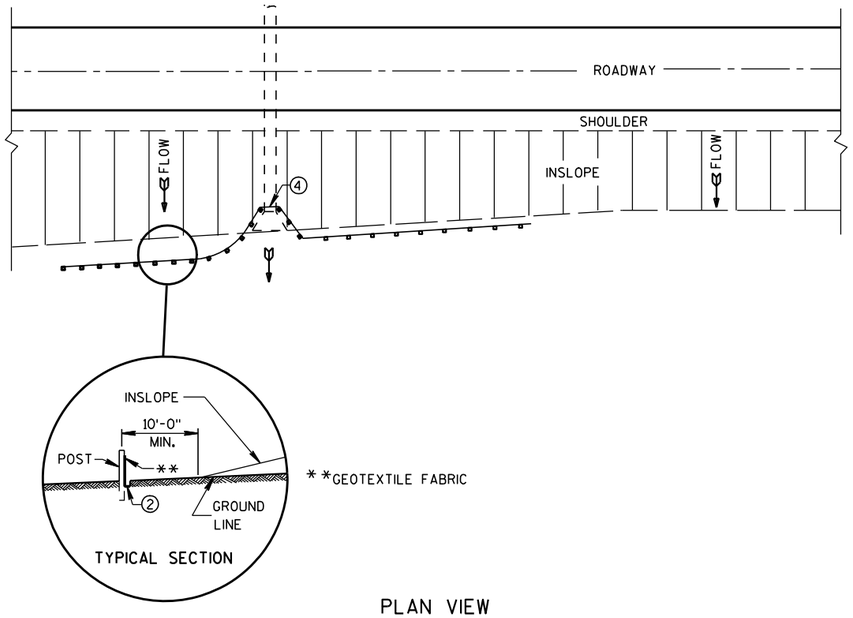
STH 47

END PROJECT 9240-09-80
STA 782+67 ℄ STH 182

PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	LINE DIAGRAM	SHEET 44	E

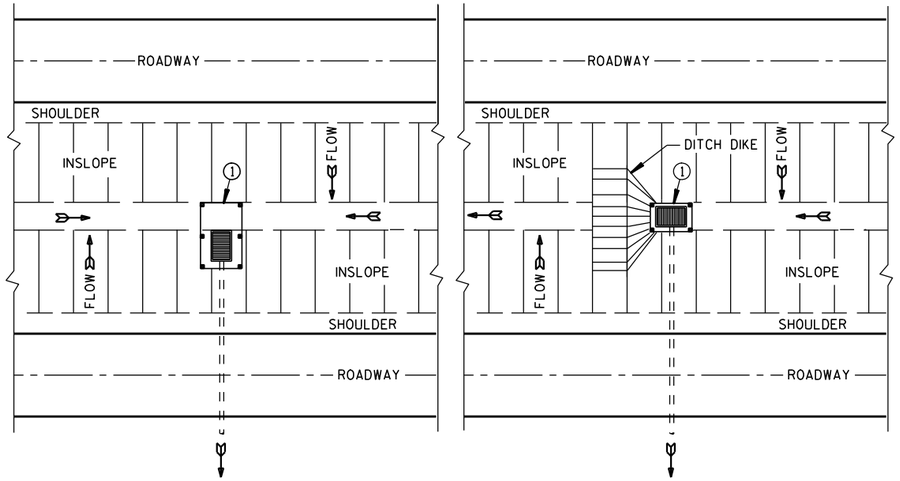
Standard Detail Drawing List

08E09-06	SILT FENCE
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09A01-13A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A01-13B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
13A08-01	ASPHALTIC RUMBLE STRIPS AT INTERSECTION
13A11-02A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-02B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B29-01	SAFETY EDGE
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C04-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15C19-02A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



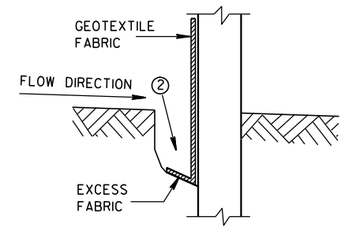
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

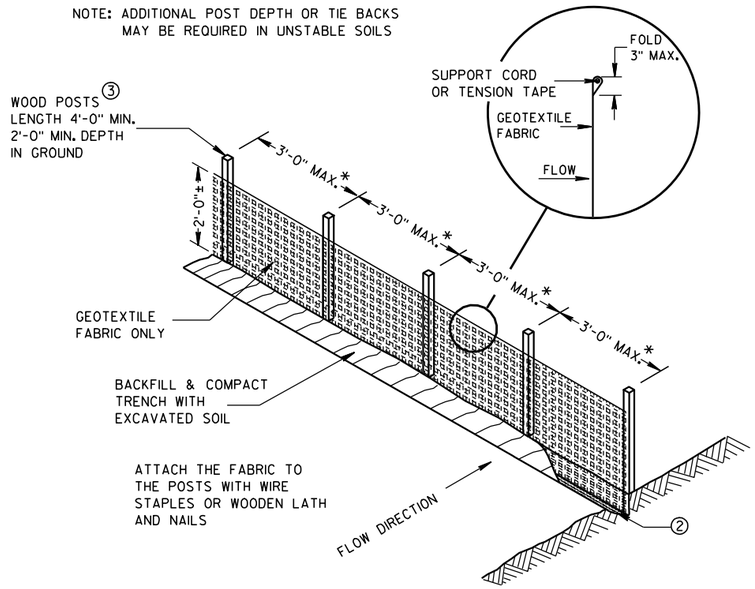
GENERAL NOTES

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

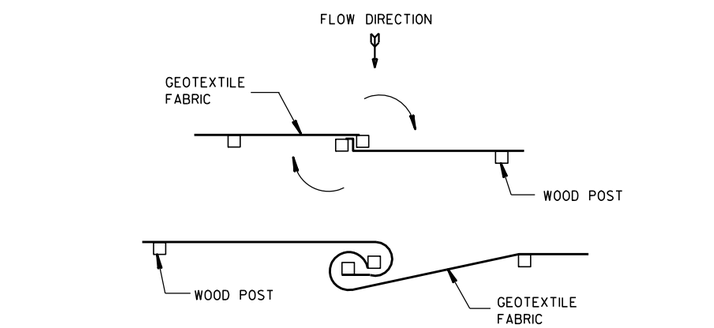
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



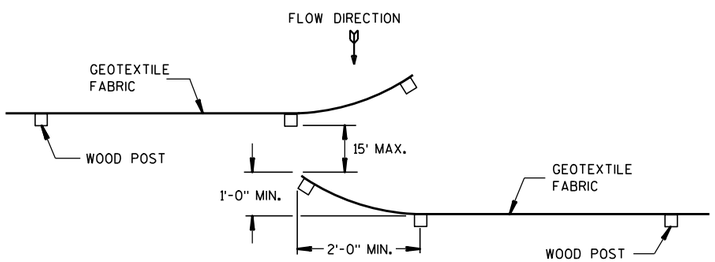
TRENCH DETAIL



SILT FENCE

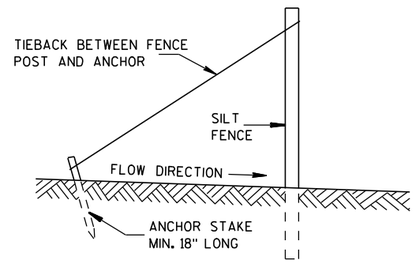


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6

METAL APRON ENDWALLS

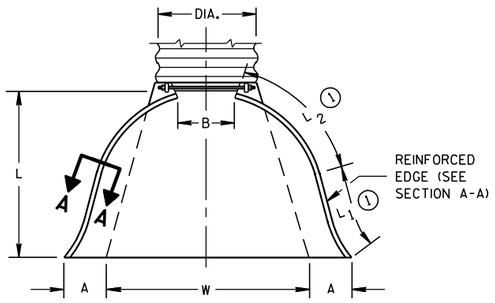
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

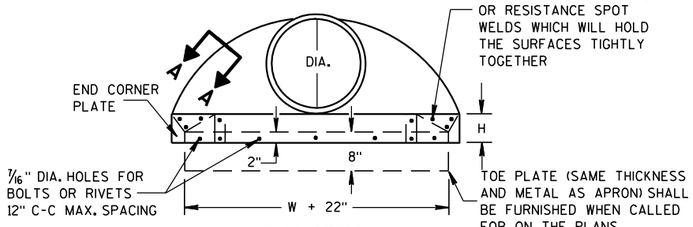
REINFORCED CONCRETE APRON ENDWALLS

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

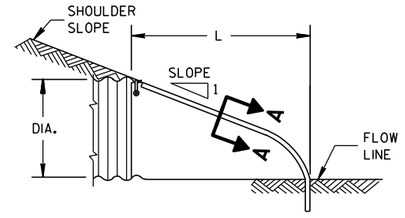
*MINIMUM
**MAXIMUM



PLAN VIEW

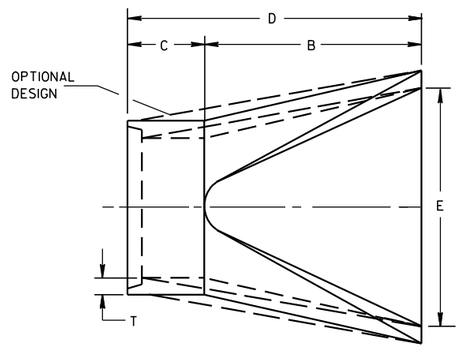


END VIEW

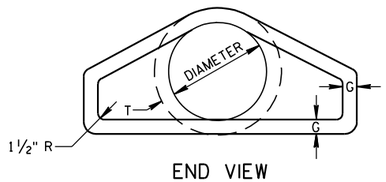


SIDE ELEVATION

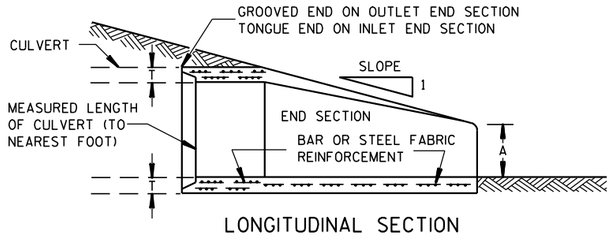
METAL ENDWALLS



PLAN

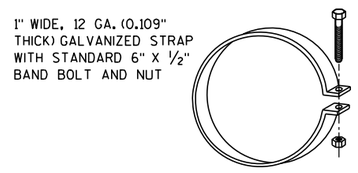


END VIEW



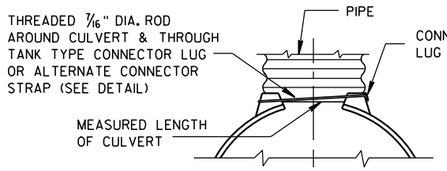
LONGITUDINAL SECTION

CONCRETE ENDWALLS

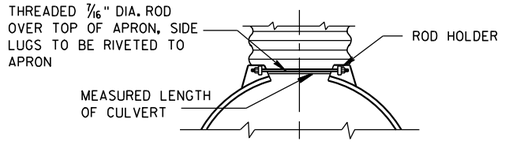


ALTERNATE FOR TYPE 1 CONNECTION

END SECTION CONNECTOR STRAP

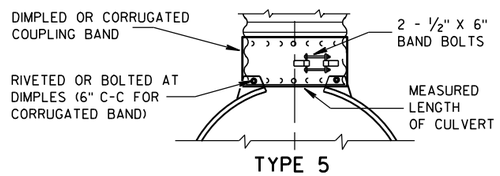


TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE

TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

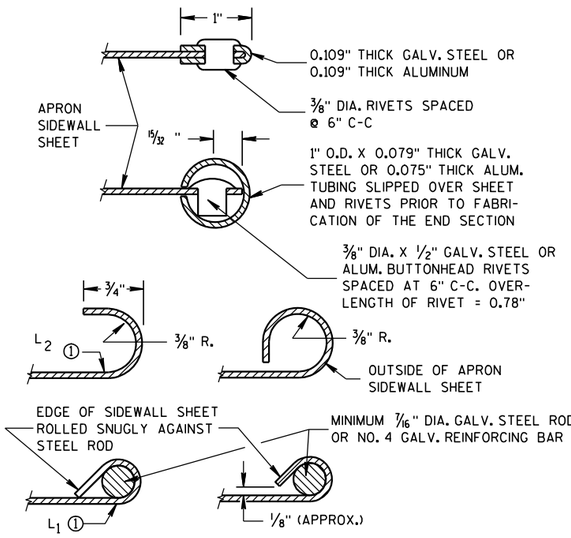
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

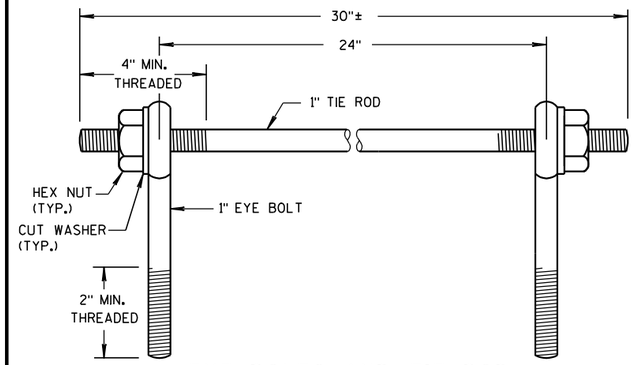
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

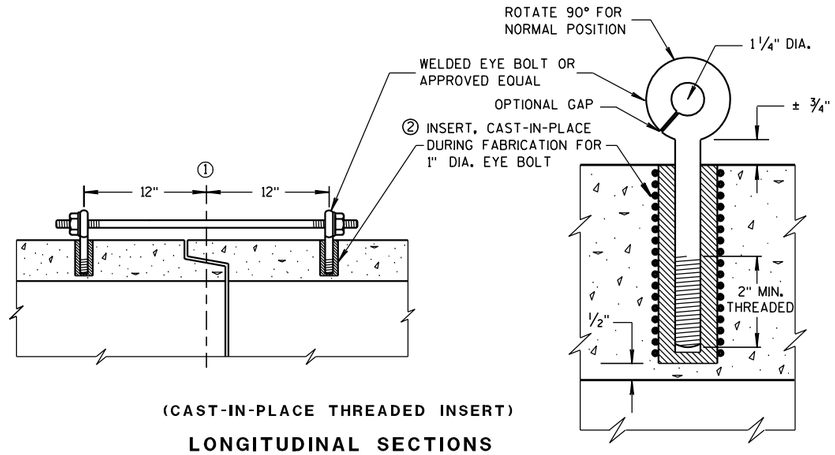
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

GENERAL NOTES

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

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

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

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

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

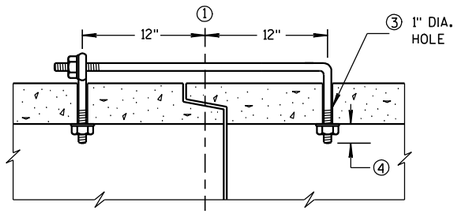
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

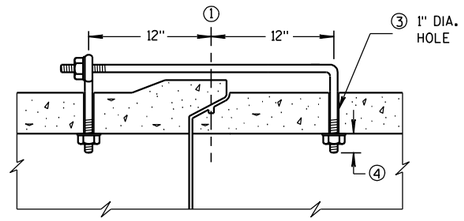
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

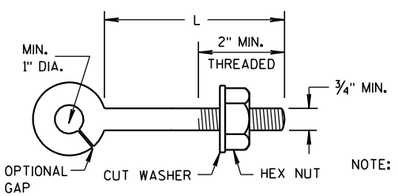


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

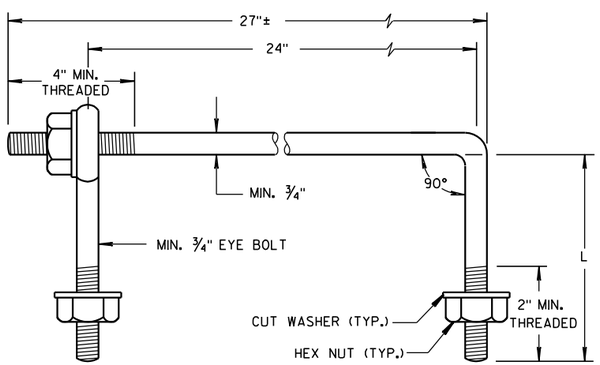
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

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



EYE BOLT AND TIE ROD

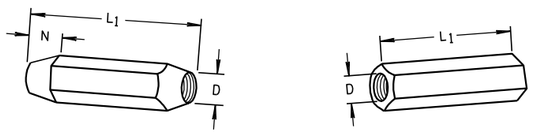
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 7/16

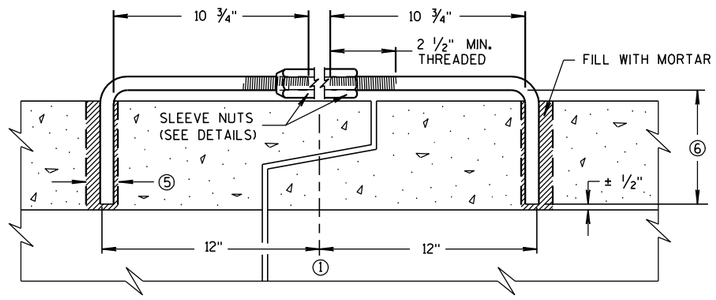
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

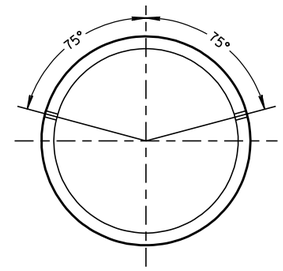
SLEEVE NUTS



LONGITUDINAL SECTION

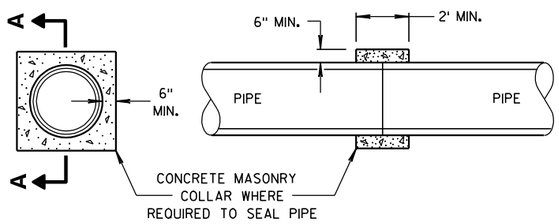
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

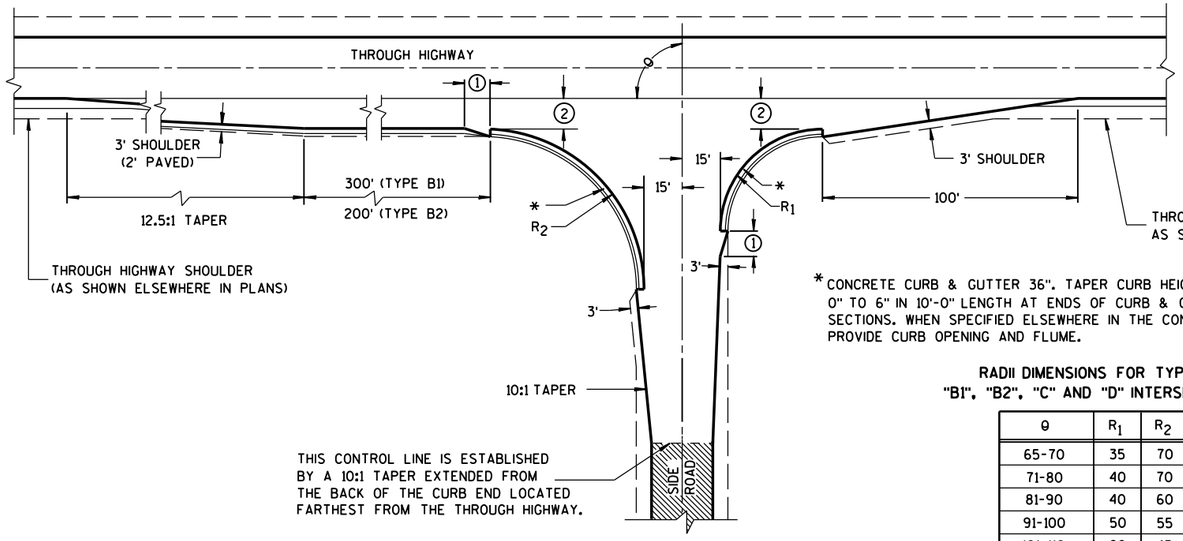
APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 8 F 4-7

6

S.D.D. 8 F 4-7

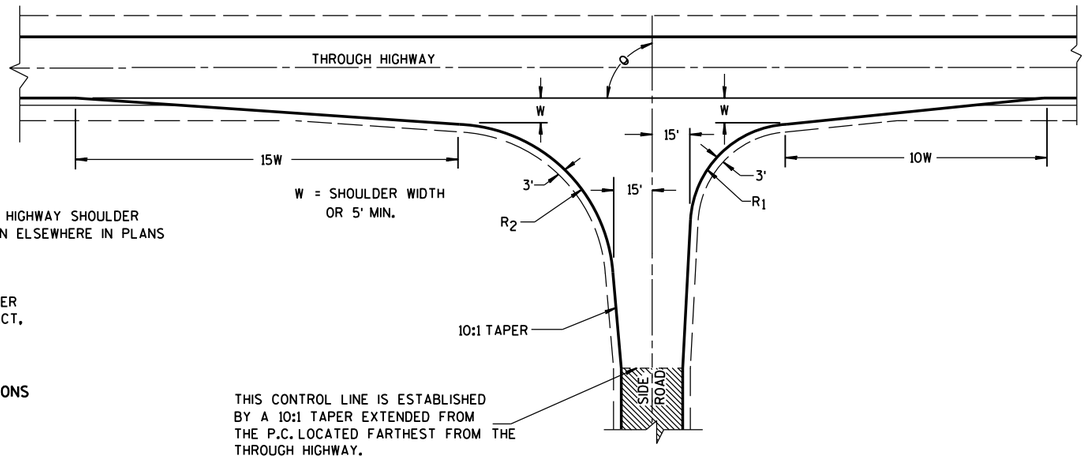


TYPE "B1" AND "B2"

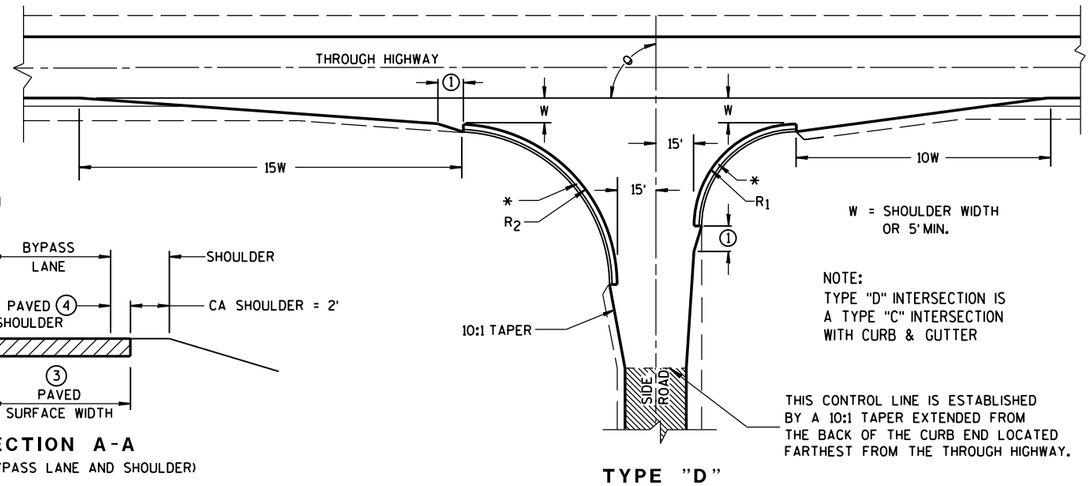
*CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

RADII DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

θ	R_1	R_2
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45



TYPE "C"



TYPE "D"

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING PAVED SURFACE

BYPASS LANE

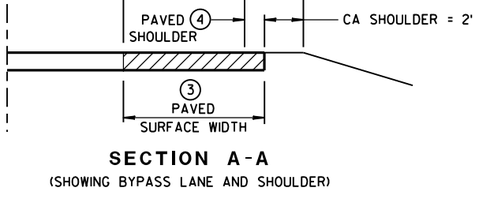
(1) 10-FT TYPICAL.

(2) 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.

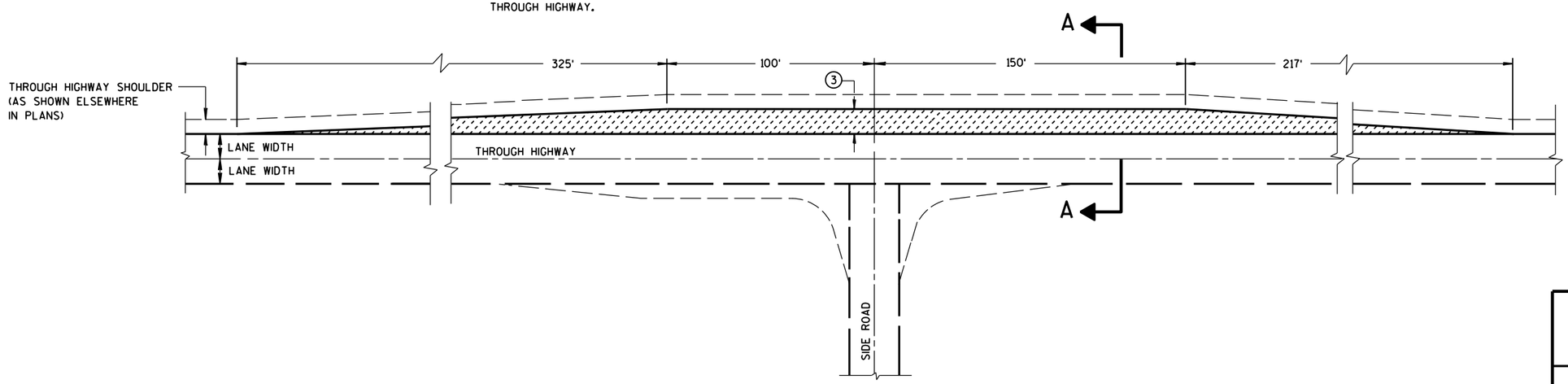
**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.

(3) BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.

(4) BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)

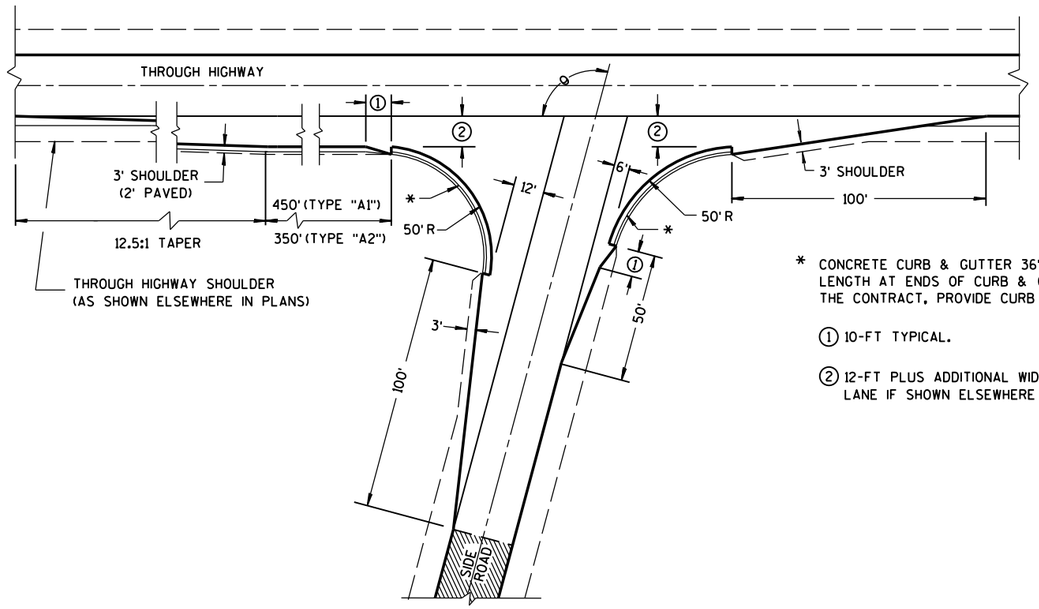


TEE INTERSECTION BYPASS LANE DETAIL

AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND "D" AND TEE INTERSECTION BYPASS LANE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6
S.D.D. 9 A 1-13a



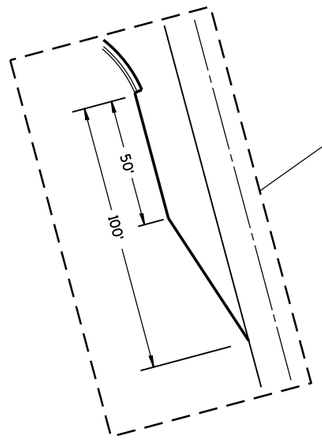
θ = MORE THAN 80°

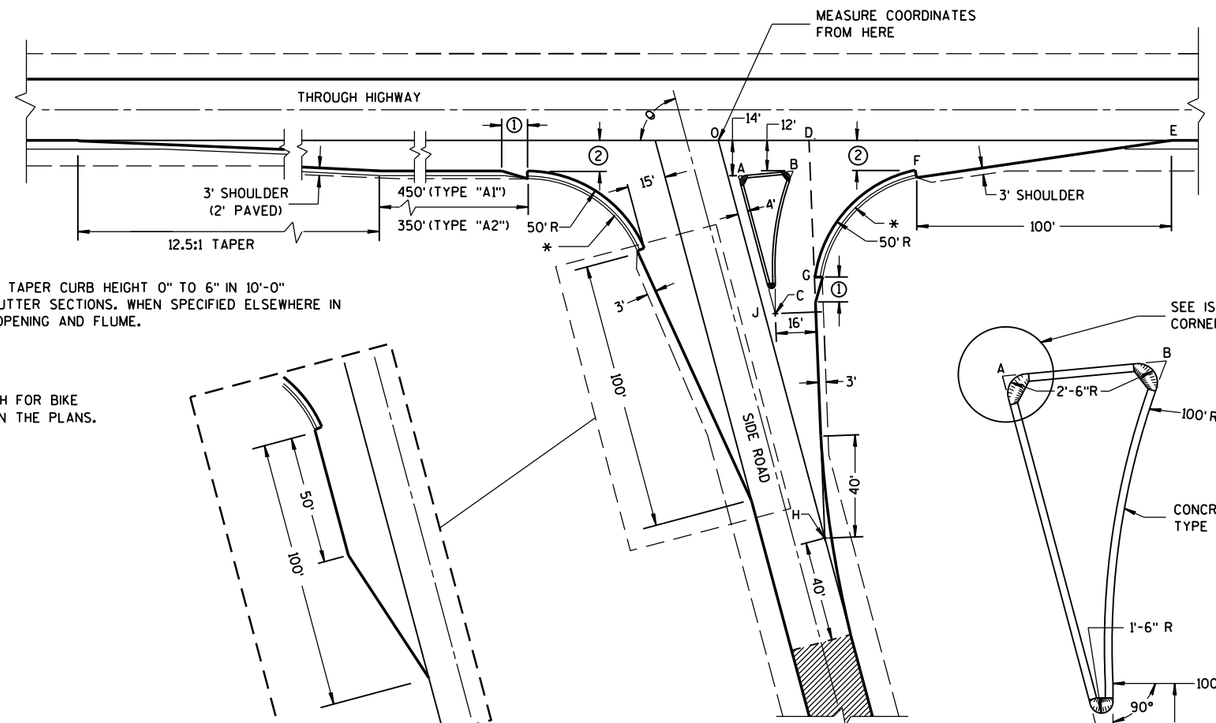
* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

① 10-FT TYPICAL.

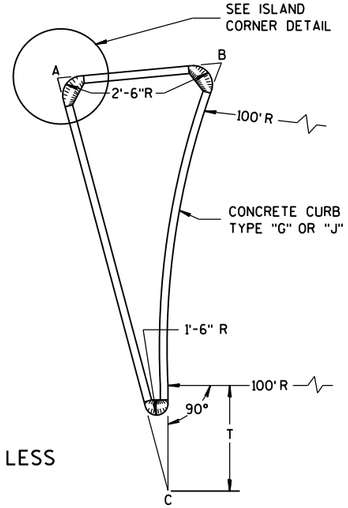
② 12-FT PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLANS.

EXISTING PAVED SURFACE

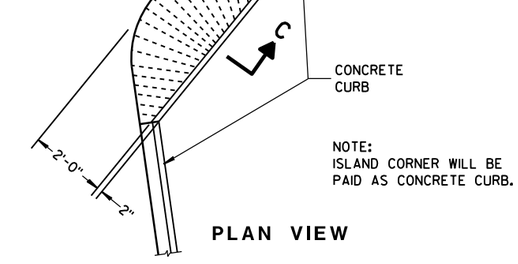




θ = ACUTE ANGLES 80° OR LESS

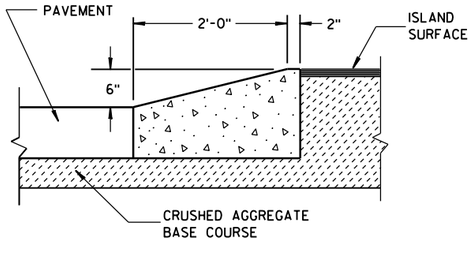


SIDE ROAD WIDENING AND TAPER REQUIRED WHERE THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
θ = ACUTE ANGLES 70° OR LESS



NOTE:
ISLAND CORNER WILL BE PAID AS CONCRETE CURB.

PLAN VIEW



SECTION C-C

ISLAND CORNER DETAIL

(TO BE CONSTRUCTED AT ALL ISLAND CORNERS)

TABLE OF DIMENSIONS FOR
VARIABLE SIDE ROAD INTERSECTION ANGLES
(INTERPOLATE VALUES FOR ANGLES NOT SHOWN)

ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT "O") X / Y								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7 / -14.0	44.9 / -12.0	46.4 / -72.4	41.9 / 0.0	205.0 / 0.0	104.6 / -12.0	64.0 / -75.5	85.0 / -147.1	32.3	67.4	4.9	85.9	169.9
65	10.9 / -14.0	39.0 / -12.0	37.8 / -71.6	39.4 / 0.0	196.1 / 0.0	95.7 / -12.0	54.1 / -71.5	70.5 / -151.3	28.2	63.6	8.5	80.9	166.9
70	9.4 / -14.0	33.9 / -12.0	29.8 / -70.1	37.4 / 0.0	188.3 / 0.0	87.8 / -12.0	45.6 / -67.5	56.1 / -154.2	24.6	59.7	11.5	76.1	164.1
75	7.9 / -14.0	29.3 / -12.0	22.3 / -67.9	35.7 / 0.0	181.2 / 0.0	80.7 / -12.0	38.2 / -63.4	41.8 / -155.9	21.5	55.8	13.8	71.4	161.4
80	6.5 / -14.0	25.4 / -12.0	15.6 / -65.2	34.4 / 0.0	174.8 / 0.0	74.4 / -12.0	31.8 / -59.3	27.6 / -156.5	18.9	52.0	15.6	66.9	158.9

TYPE "A1" & "A2" SIDE ROAD INTERSECTION DETAILS

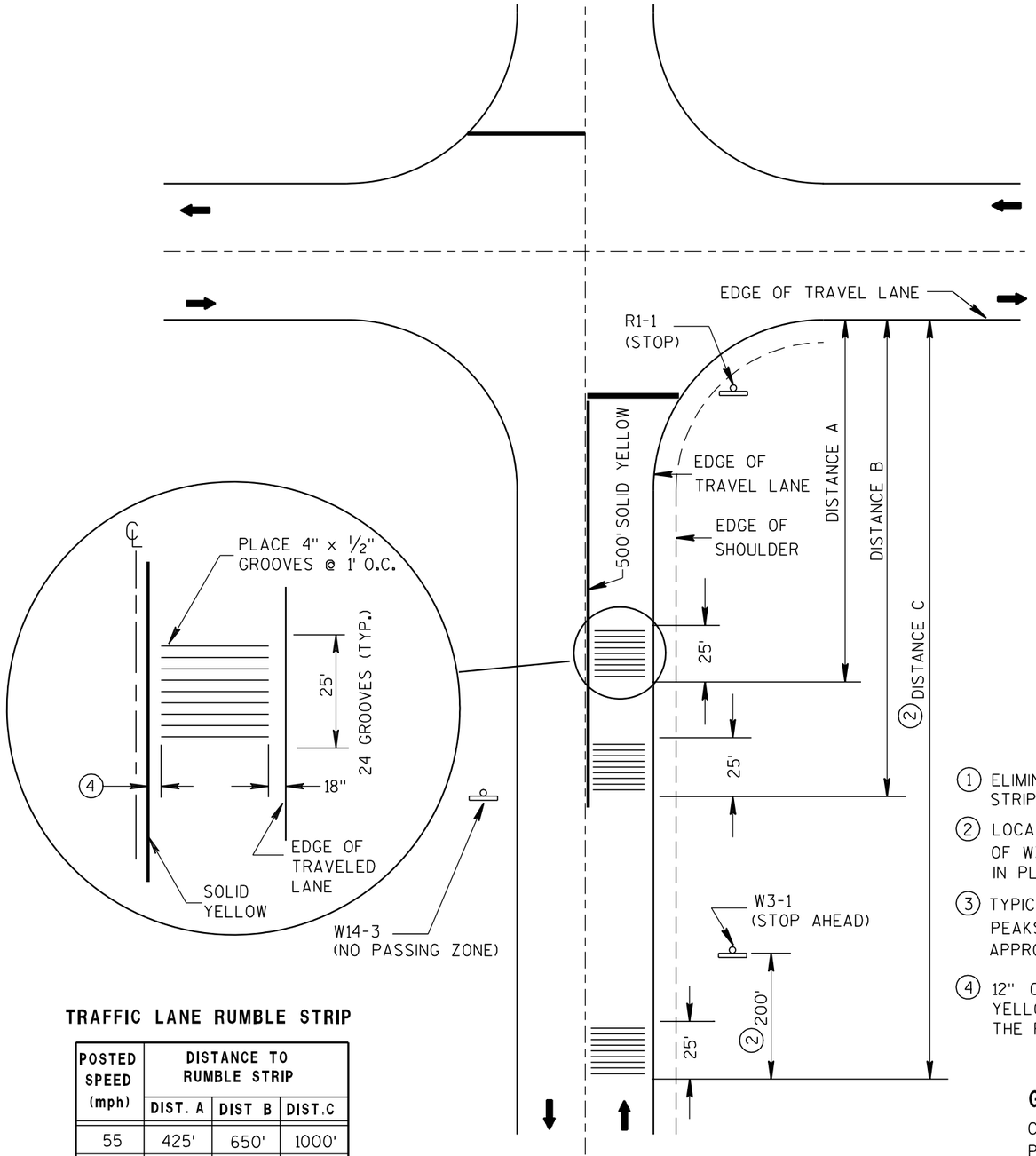
AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/18/12 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

S.D.D. 9 A 1-13b

S.D.D. 9 A 1-13b



ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL

PLAN VIEW

RUMBLE STRIP LOCATION

TRAFFIC LANE RUMBLE STRIP

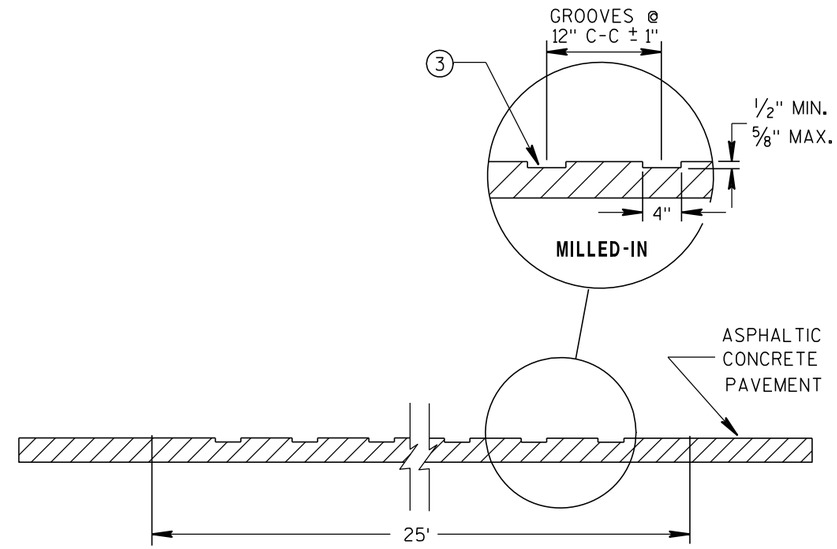
POSTED SPEED (mph)	DISTANCE TO RUMBLE STRIP		
	DIST. A	DIST B	DIST.C
55	425'	650'	1000'
50	325'	450'	800'
45	275'	400'	650'
40	225'	(1)	550'
35	175'	(1)	475'
≤ 30	125'	(1)	425'

(1) ELIMINATE THE MIDDLE SET OF RUMBLE STRIPS.

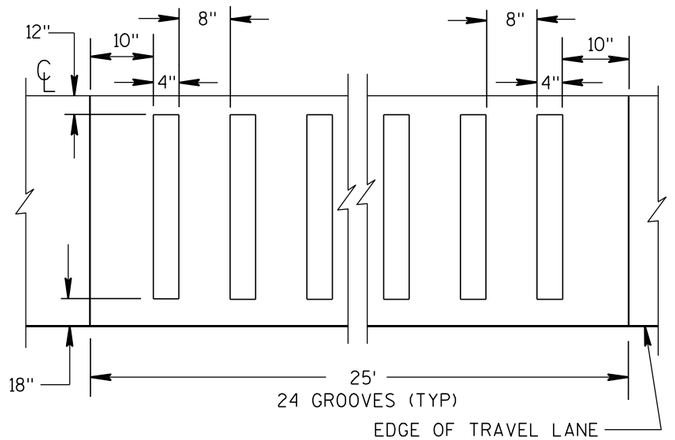
(2) LOCATE RUMBLE STRIP 200' IN ADVANCE OF W3-1 SIGN AS SHOWN. IF W3-1 IS NOT IN PLACE, USE DISTANCE C.

(3) TYPICAL VERTICAL VARIATION BETWEEN PEAKS AND VALLEYS WITHIN THE CUT APPROXIMATELY 1/16"

(4) 12" CLEAR BETWEEN THE SOLID YELLOW LINE AND THE EDGE OF THE RUMBLE.



ELEVATION VIEW



PLAN VIEW

ASPHALTIC PAVEMENT MILLED-IN

GENERAL NOTES

CONTRACTOR SHALL CONFIRM RUMBLE STRIP LOCATION WITH THE ENGINEER PRIOR TO INSTALLATION. THE ENGINEER MAY MODIFY THE RUMBLE STRIP LOCATION AS FIELD CONDITIONS DICTATE.

WHEN ASPHALTIC PAVEMENT IS NEW IN THE RUMBLE AREA THE CONTRACTOR SHALL ALLOW THE PAVEMENT TO CURE A MINIMUM OF 7 DAYS PRIOR TO RUMBLE INSTALLATION.

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

ASPHALTIC RUMBLE STRIPS AT INTERSECTION

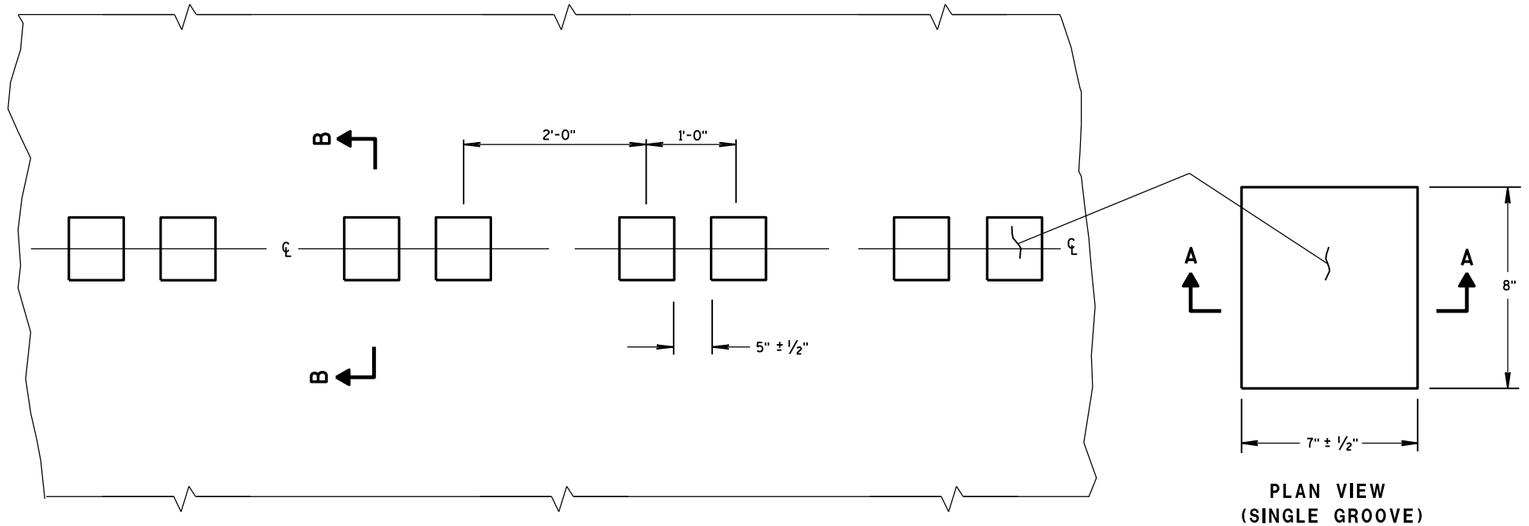
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/17/2011
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS
ENGINEER

FHWA



PLAN VIEW
CENTER LINE WITH GROOVES

PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

GENERAL NOTES

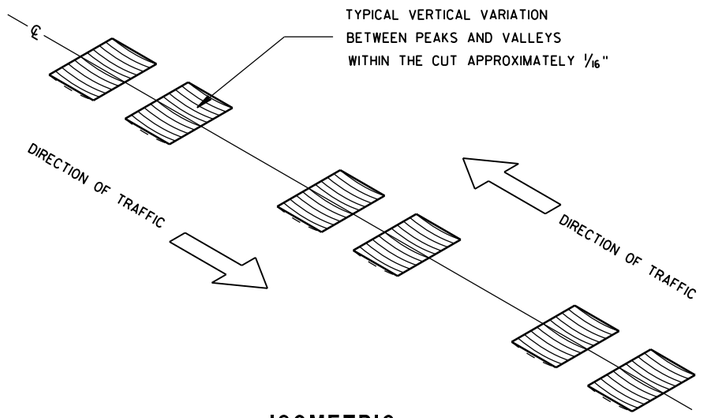
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

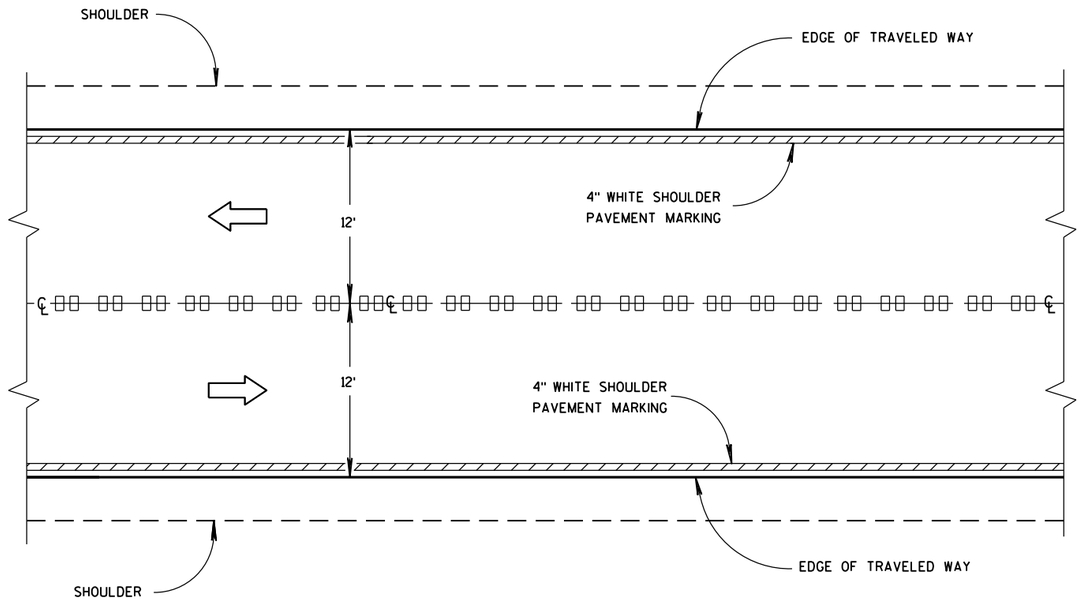
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

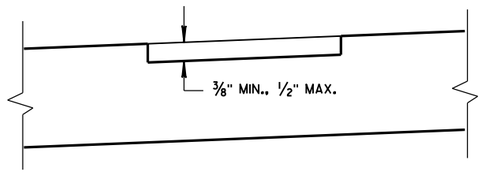
(1) CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



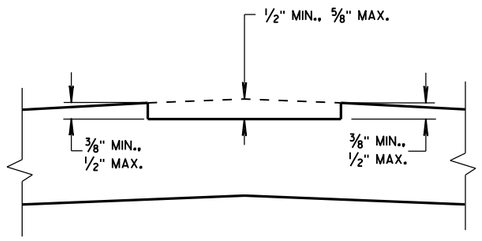
ISOMETRIC



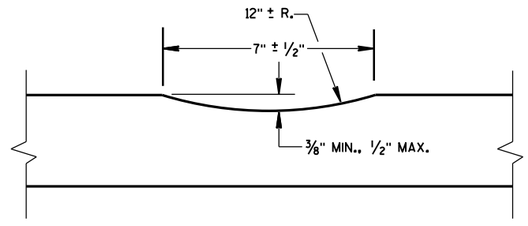
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



SECTION B-B
SUPERELEVATED ROADWAY



SECTION B-B
CROWNED ROADWAY



SECTION A-A

2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

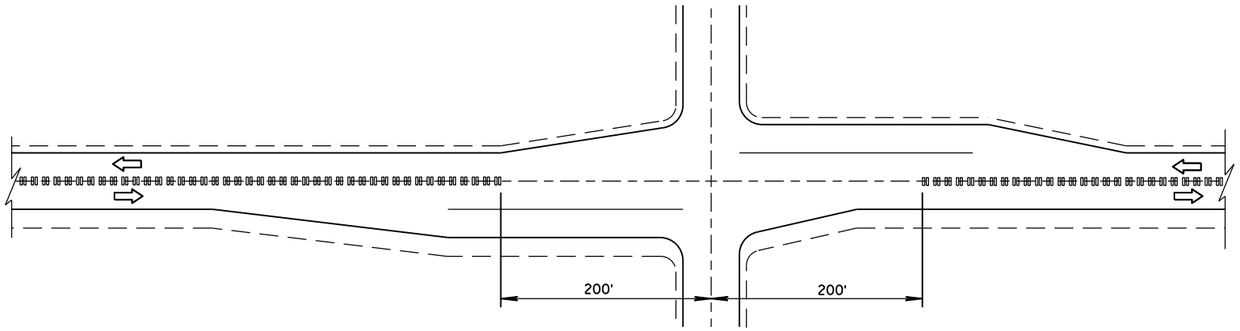
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

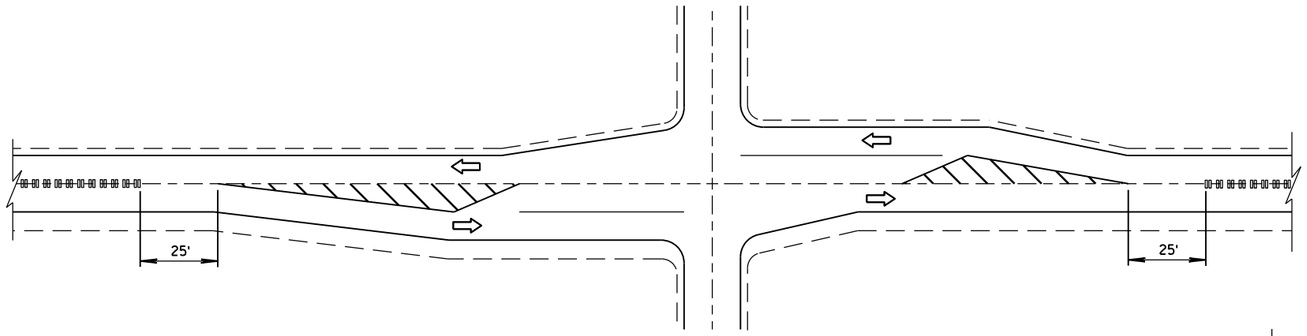
S.D.D. 13 A 11-2a

6

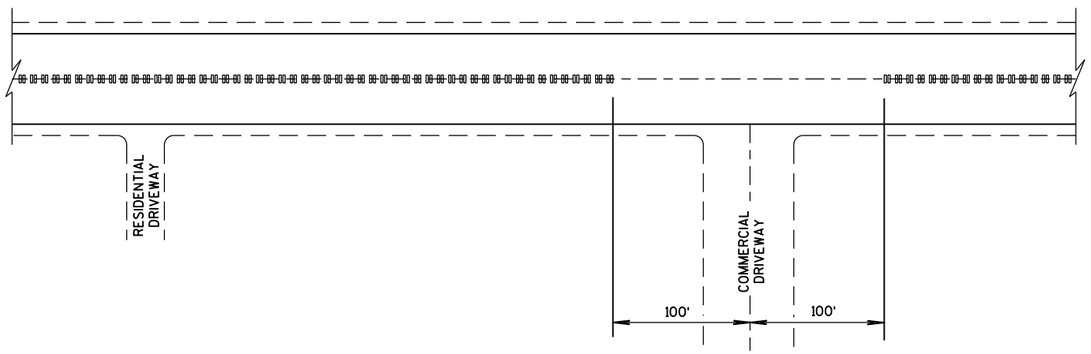
S.D.D. 13 A 11-2a



CENTER LINE GROOVES AT INTERSECTIONS

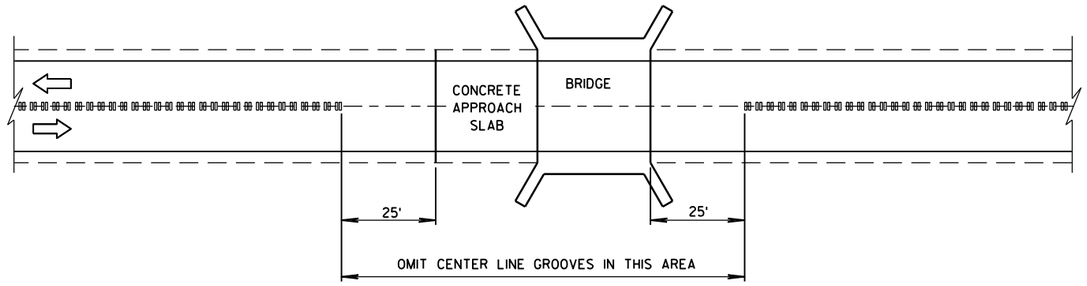


CENTER LINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)

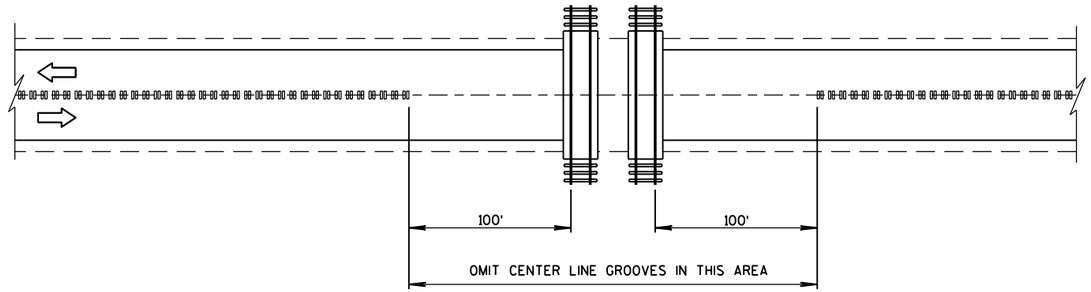


CENTER LINE GROOVES AT DRIVEWAYS (1)

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



CENTER LINE GROOVES AT BRIDGES



CENTER LINE GROOVES AT RAILROADS

6

S.D.D. 13 A 11-2b

6

S.D.D. 13 A 11-2b

2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

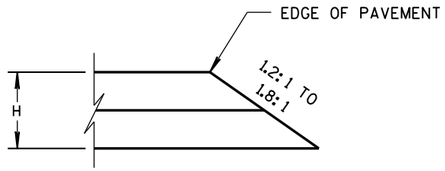
APPROVED

5/15/2013 — DATE

/S/ Jerry H. Zoda — ROADWAY STANDARDS ENGINEER

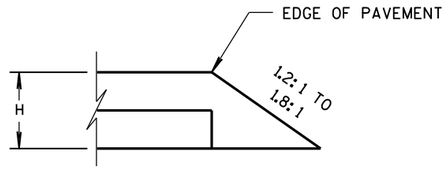
NT

FHWA



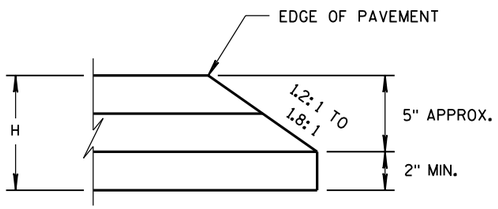
CONSTRUCTED WITH FINAL TWO LAYERS

FOR H 5" OR LESS



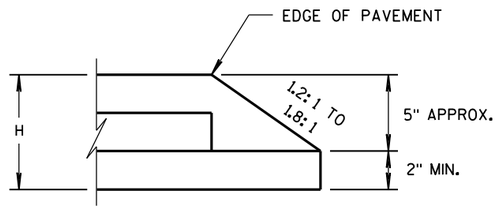
CONSTRUCTED WITH FINAL LAYER

FOR H 5" OR LESS



CONSTRUCTED WITH FINAL TWO LAYERS

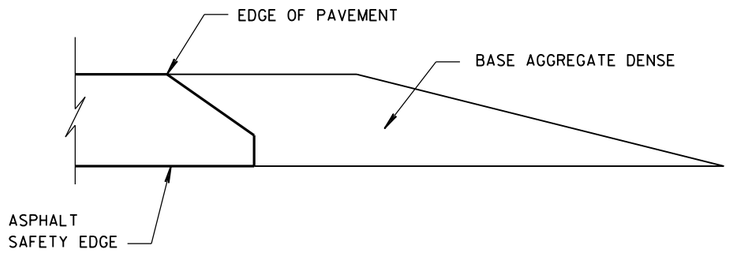
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER

FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

6

S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

SAFETY EDGE SM

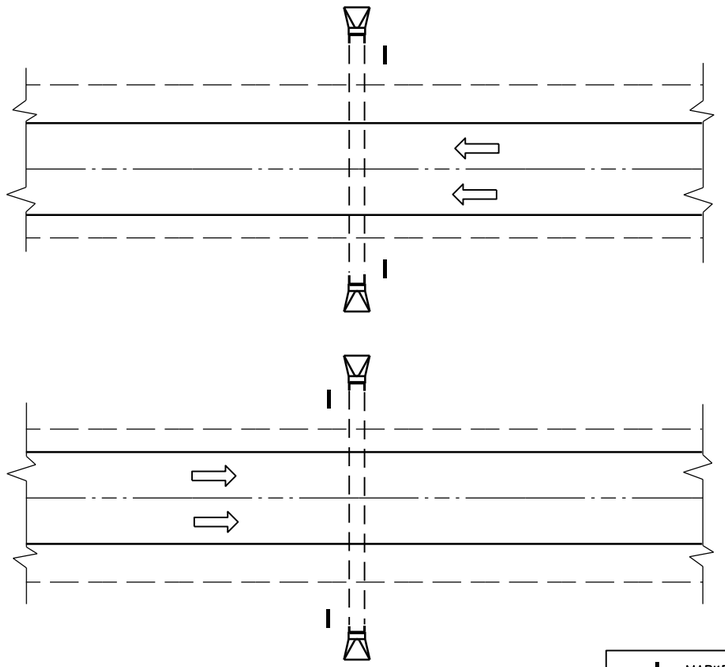
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/2012
DATE

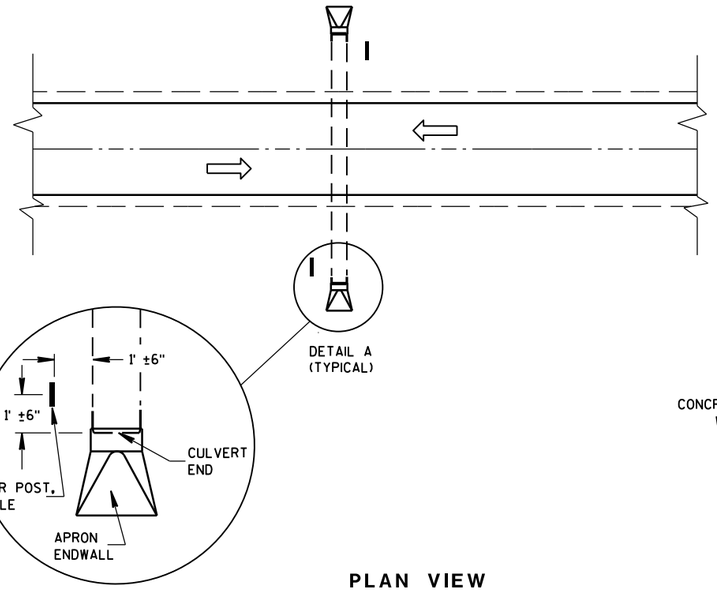
/S/ Jerry H. Zoda
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

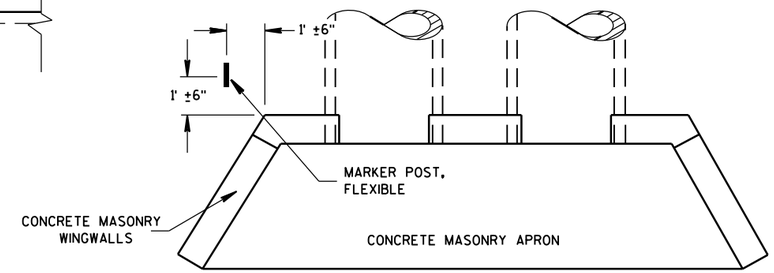
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

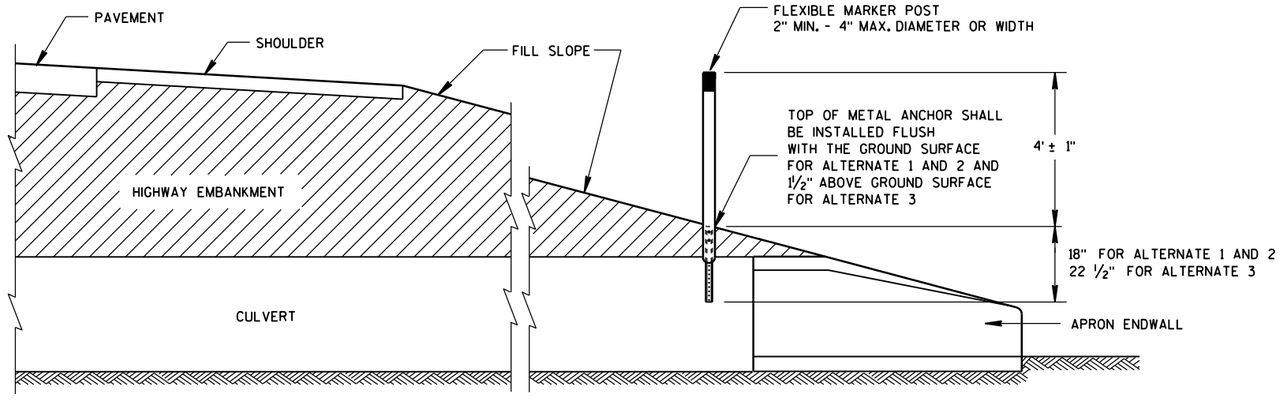
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

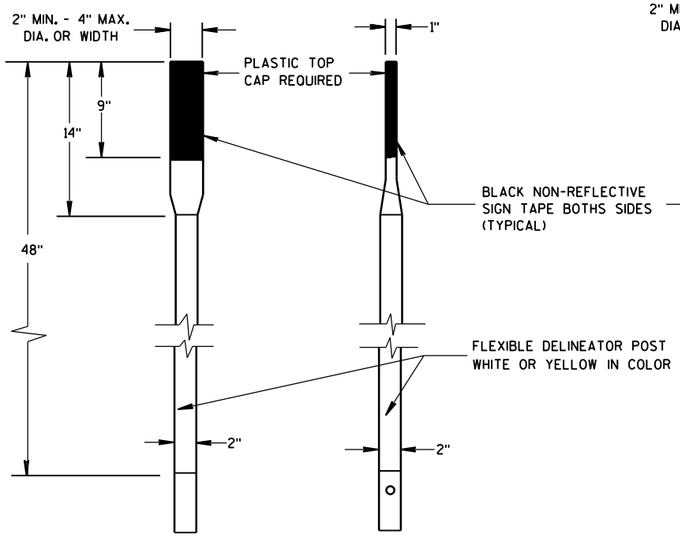
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

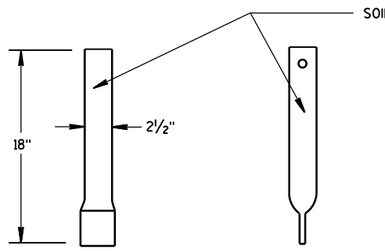
6

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

6

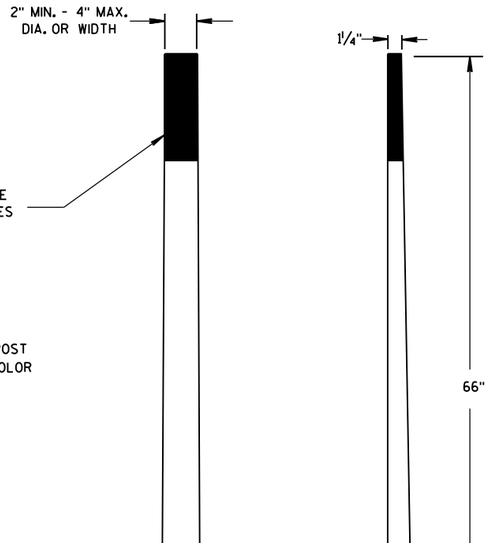
S.D.D. 15 A 3-2a





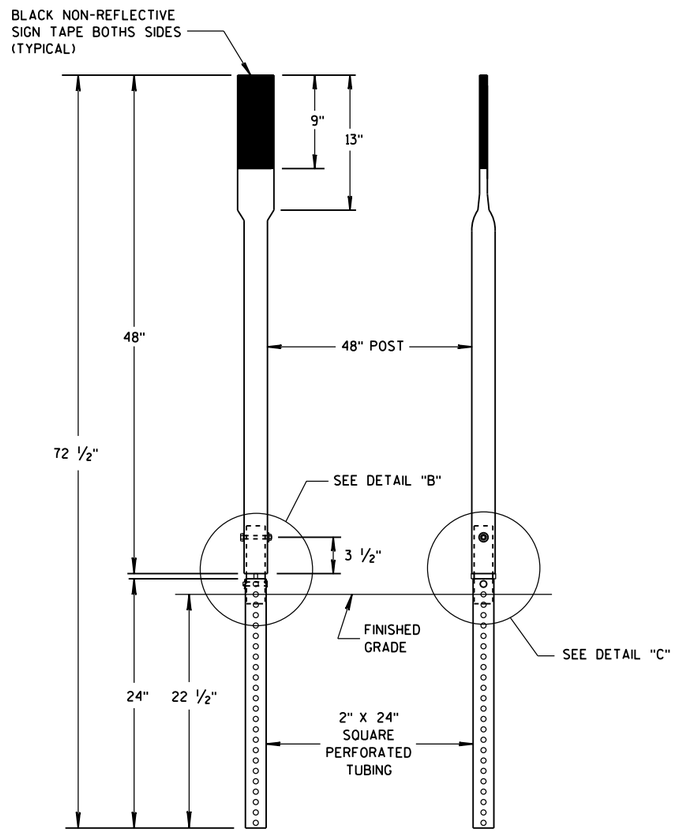
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

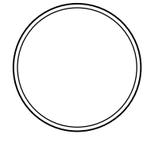
ALTERNATE 2



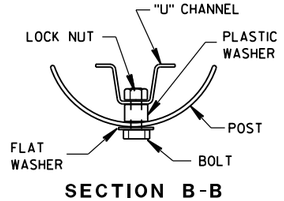
FRONT VIEW SIDE VIEW

ALTERNATE 3

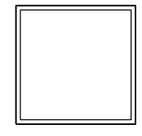
FLEXIBLE MARKER POSTS



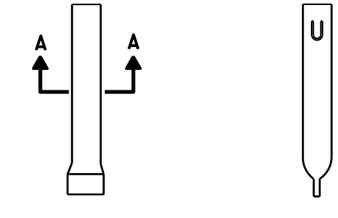
SECTION A-A



SECTION B-B

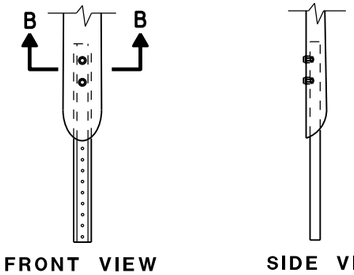


SECTION C-C



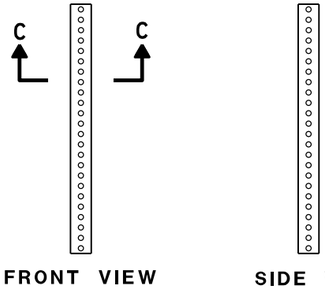
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

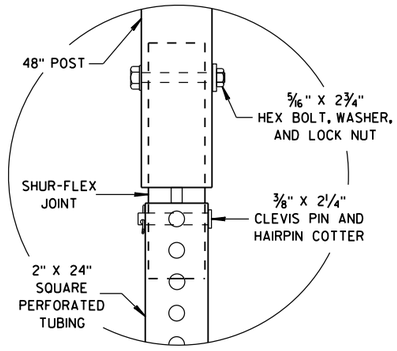
ALTERNATE 2



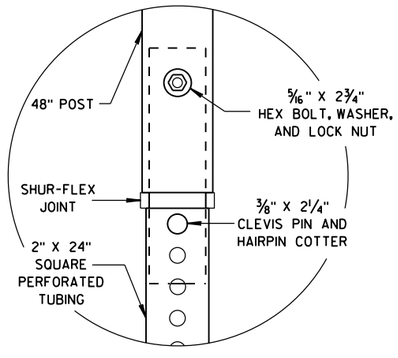
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS



DETAIL B



DETAIL C

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

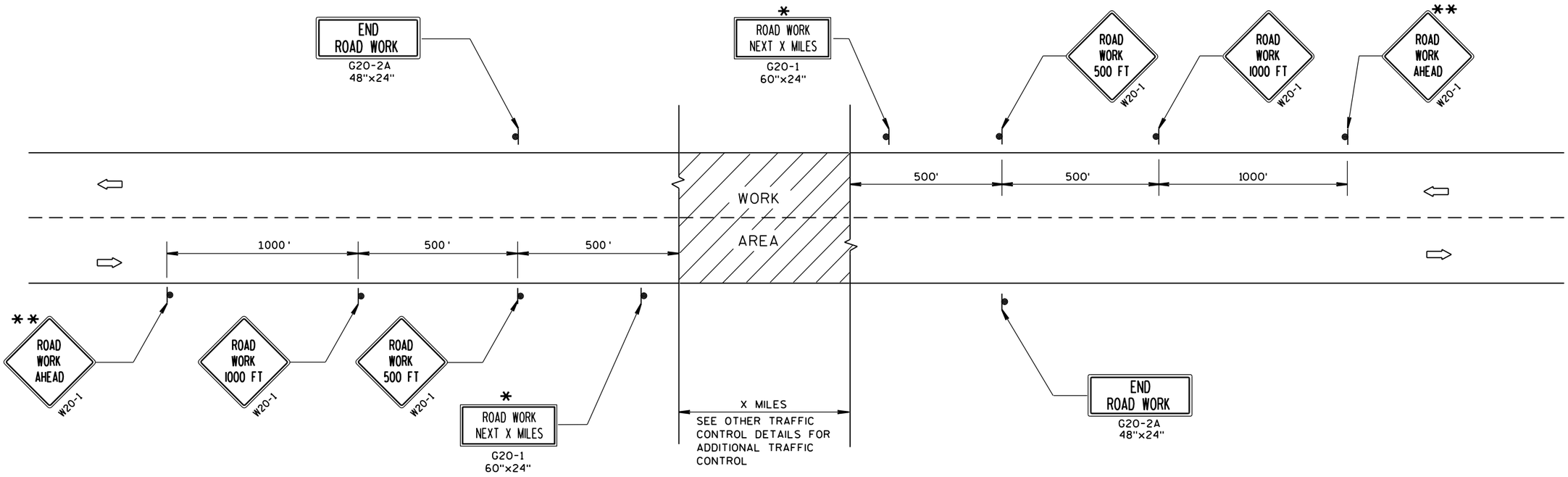
6

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

6

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

TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



GENERAL NOTES

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

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

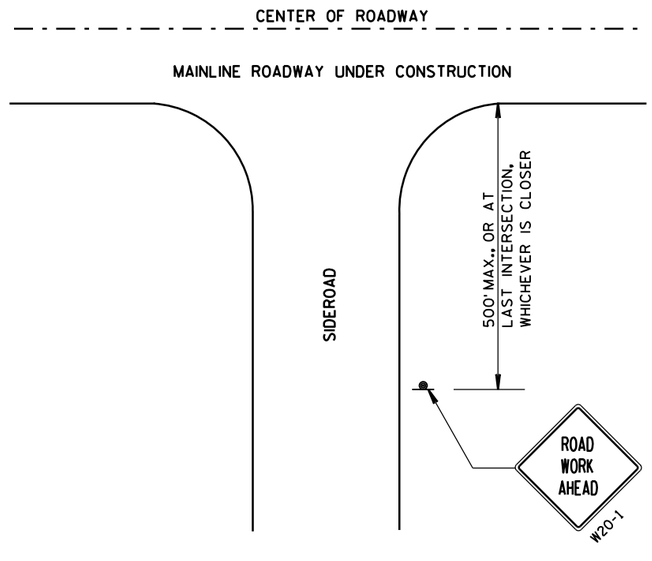
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

** PLACE ADDITIONAL W20-1 "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



LEGEND

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

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

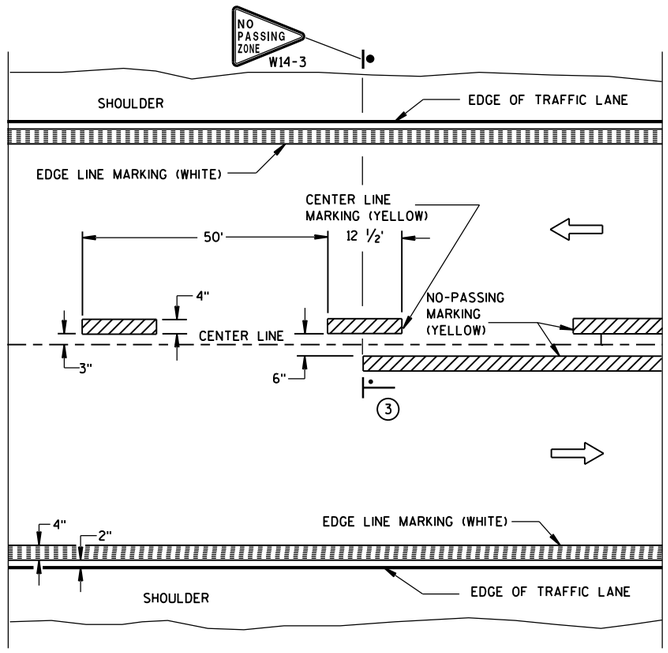
/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

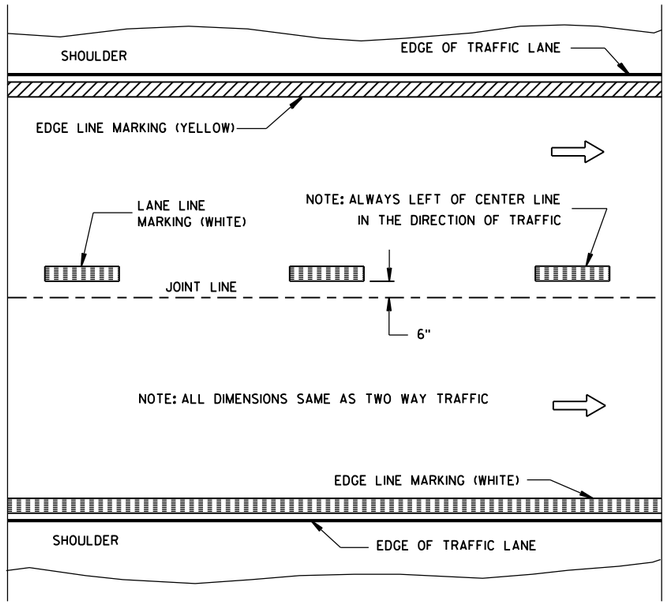
SIGN

6

S.D.D. 15 C 4-2

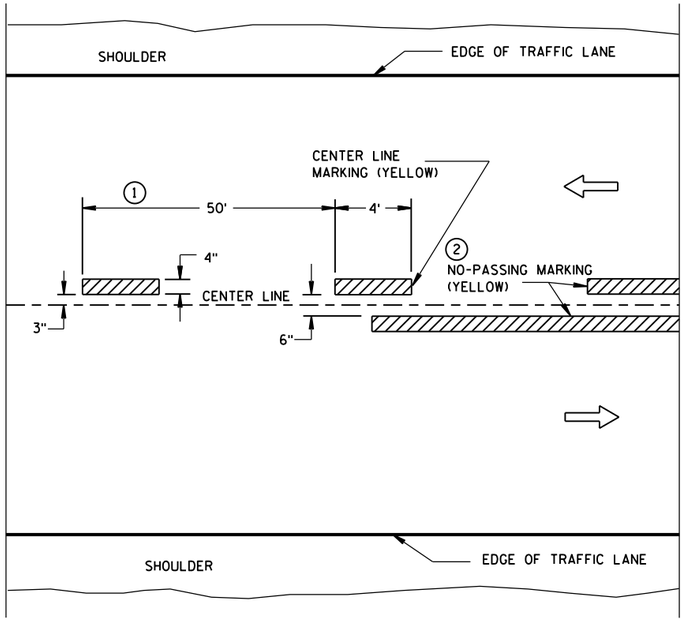


TWO WAY TRAFFIC

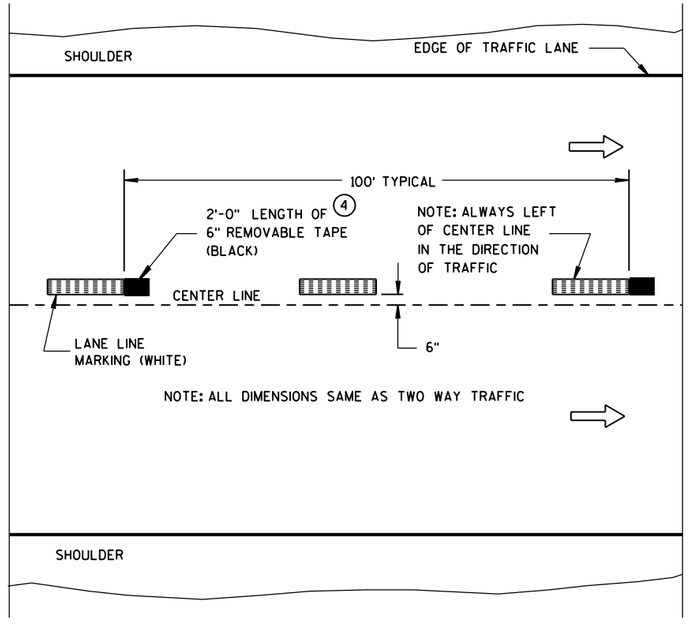


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

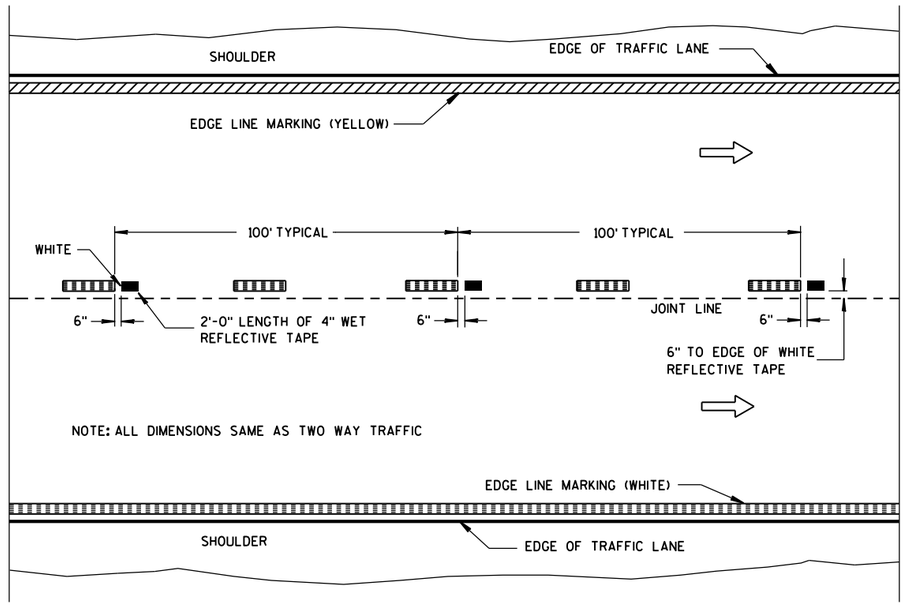
GENERAL NOTES

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

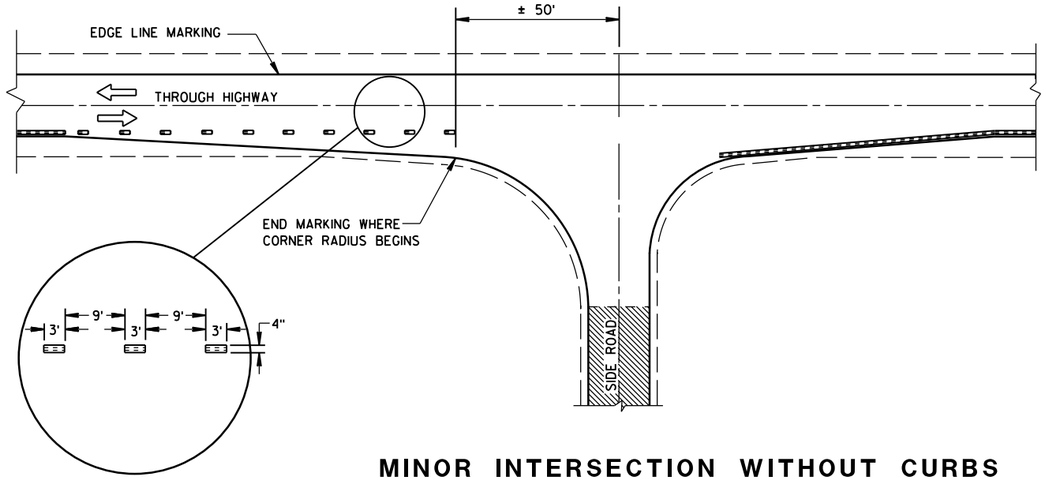
FHWA

6

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

6

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.

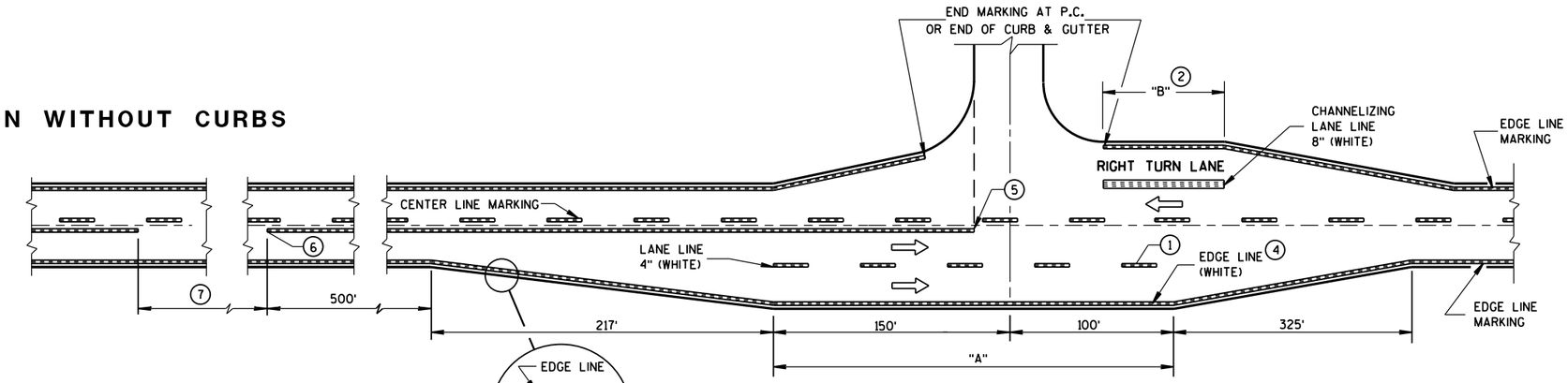
(7) IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

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

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

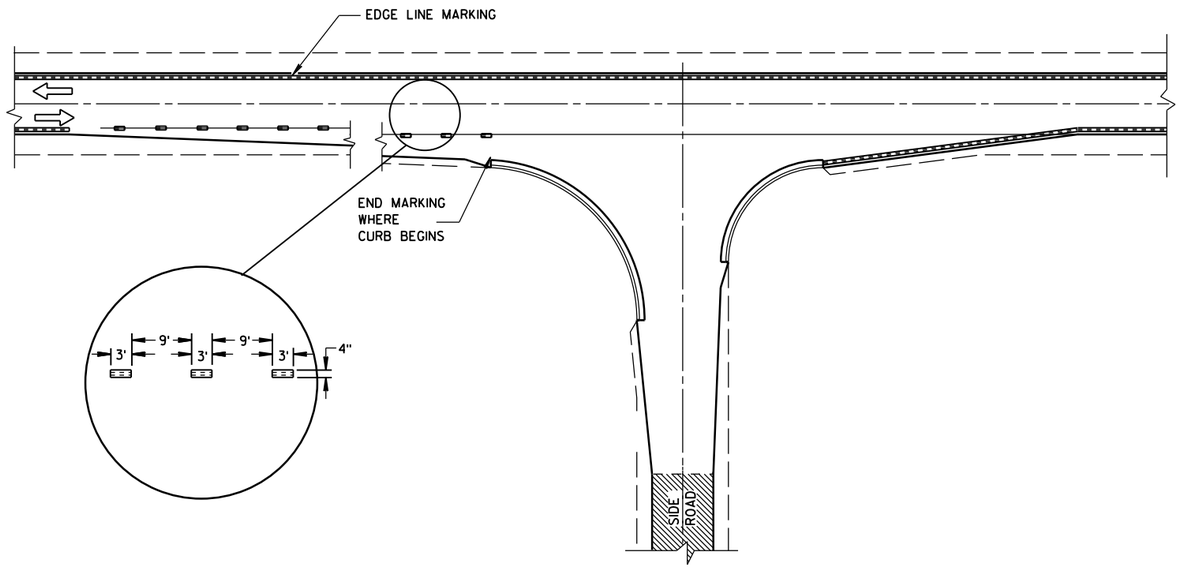
(7)

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



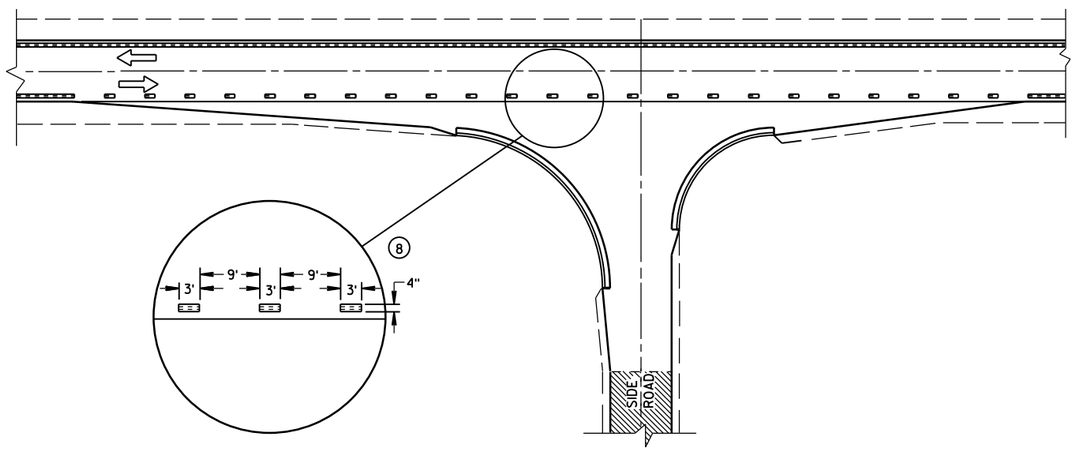
MAJOR INTERSECTIONS

(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

6

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

LEGEND

SIGN ON PORTABLE OR PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA

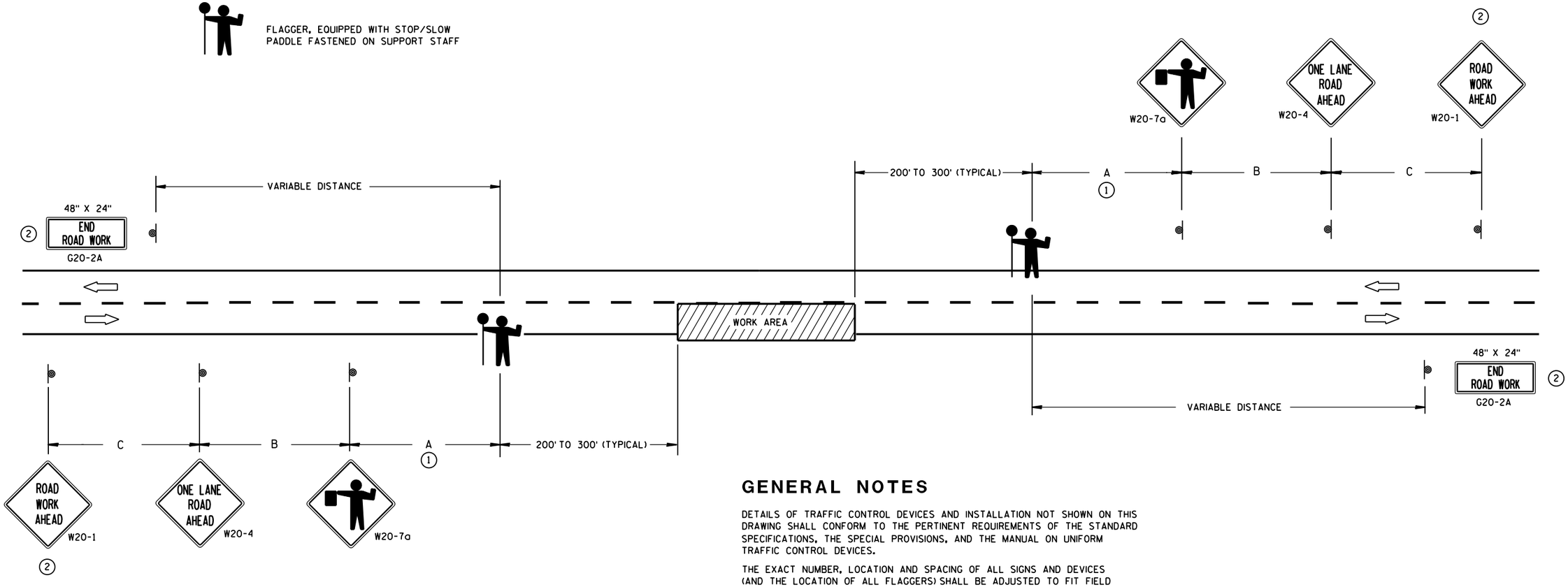
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

SPEED LIMIT	SIGN SPACING A,B,C
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

W3-4

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



(1) FOR A MOVING WORK OPERATION,
SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

(2) SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

GENERAL NOTES

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

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

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

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

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

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

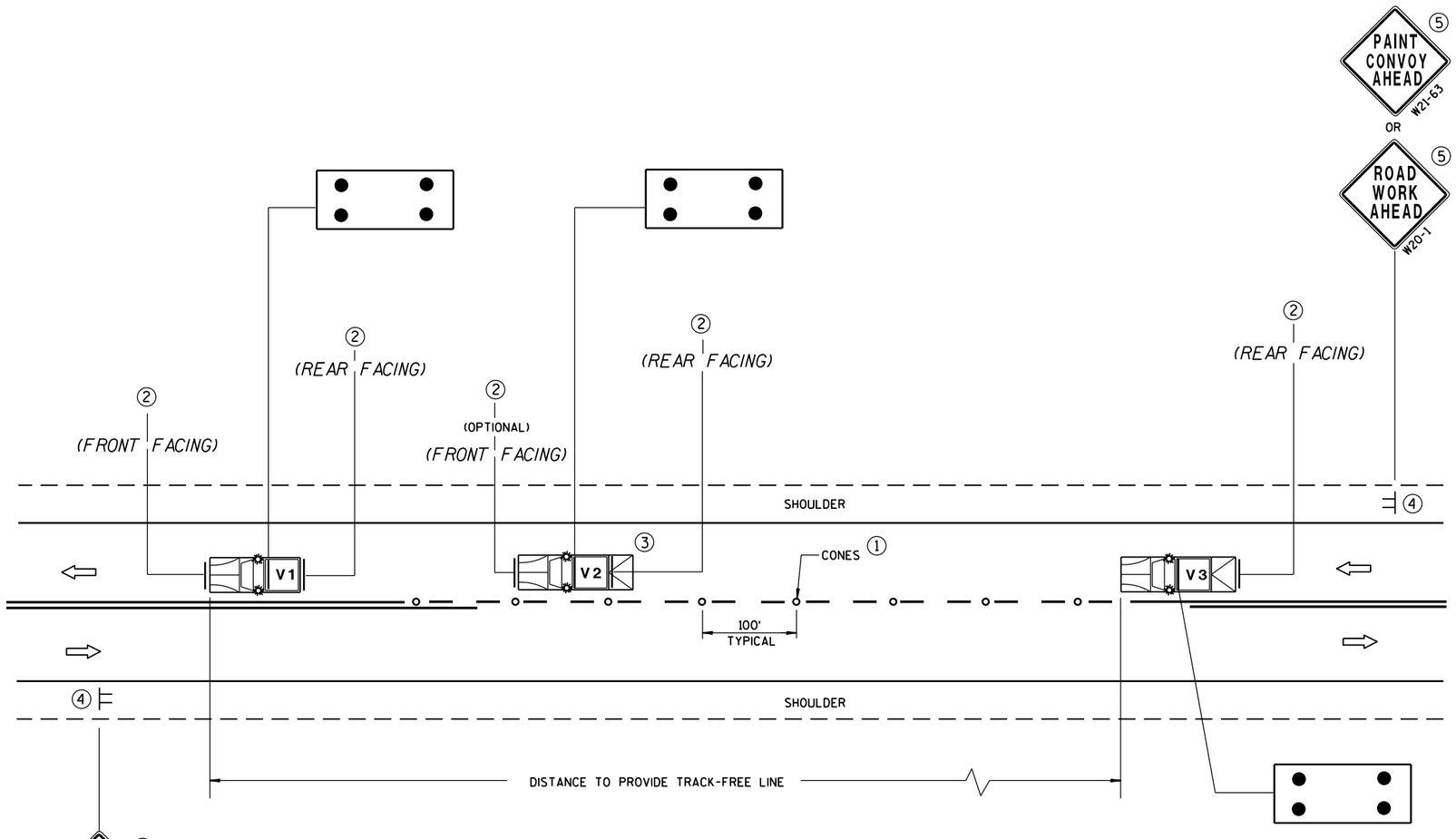
APPROVED
8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
DESIGN
FHWA

6

S.D.D. 15 C 12-4

6

S.D.D. 15 C 12-4



MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY

GENERAL NOTES

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

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

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

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

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

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

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

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

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

(1) CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

(2) USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.

WET PAINT W21-64 OR WET PAINT W21-64

(3) OPTIONAL TRUCK-MOUNTED ATTENUATOR.

(4) SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

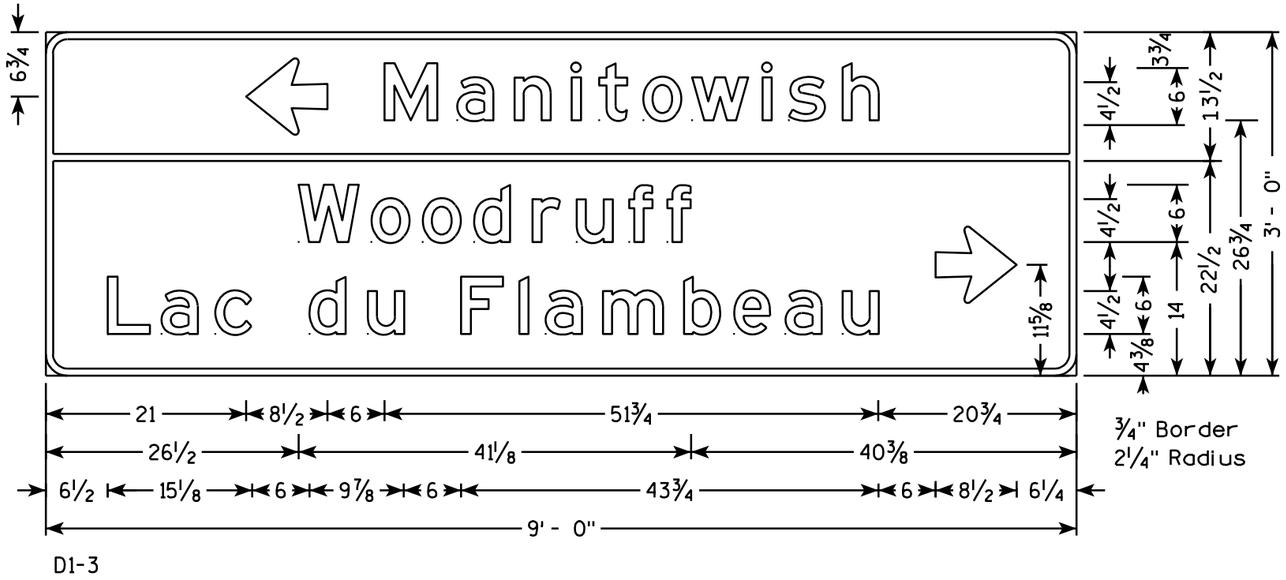
(5) IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

LEGEND

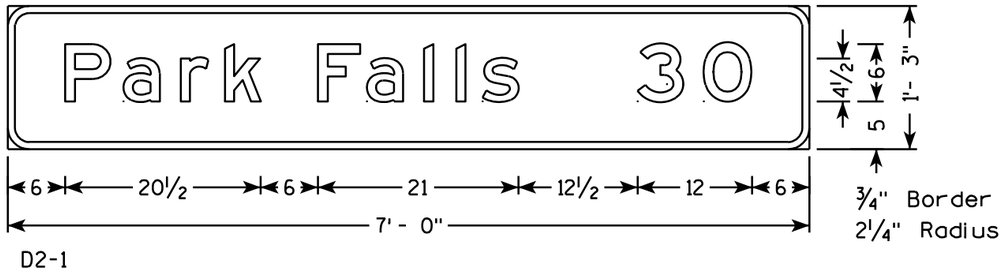
V1	LEAD VEHICLE
V2	SHADOW VEHICLE
V3	TRAIL VEHICLE WITH TMA
TMA	TRUCK-MOUNTED ATTENUATOR
	SIGN ON TEMPORARY SUPPORT
	DIRECTION OF TRAFFIC
	CONES
	FLASHING ARROW PANEL (CAUTION)

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 5/3/2013 DATE — /S/ Travis Feltes STATE TRAFFIC E FHWA

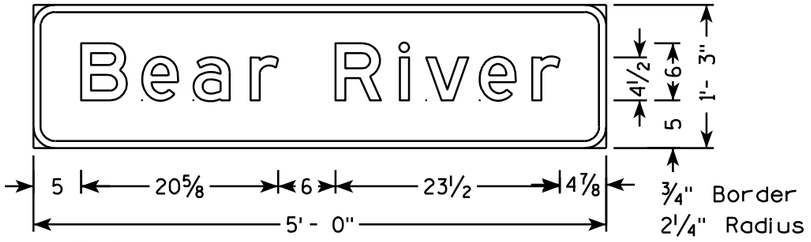
6
S.D.D. 15 C 19-2a



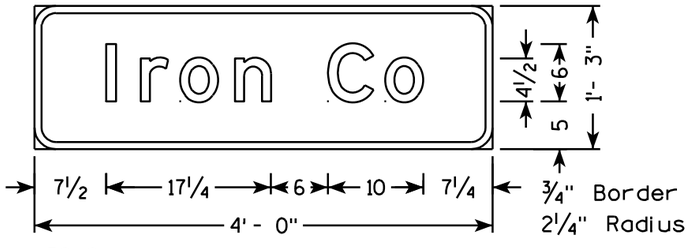
D1-3



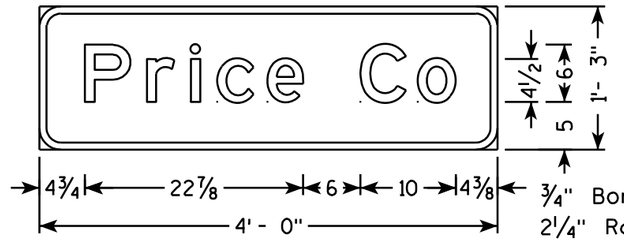
D2-1



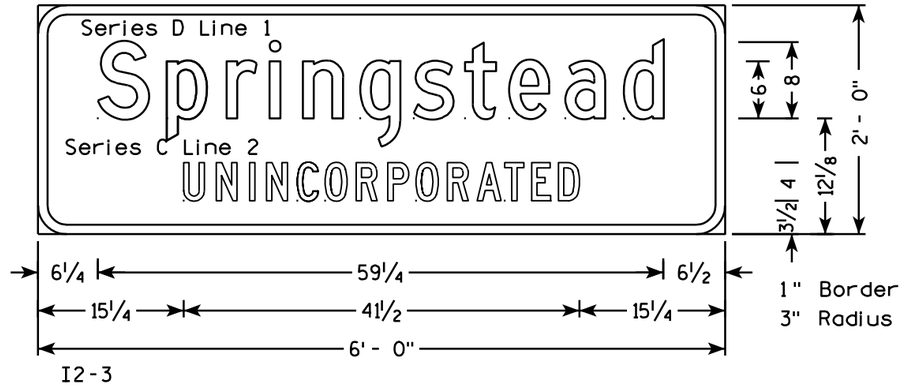
I3-1



I2-2



I2-2



I2-3

NOTES

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

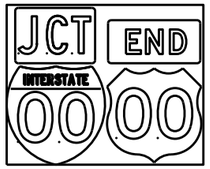
7

7

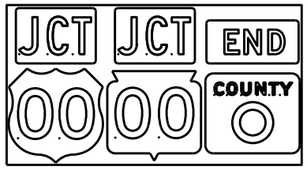
PROJECT NO: 9240-09-80	HWY: STH 182	COUNTY: IRON	PERMANENT SIGNING	SHEET NO: 62	E

TYPICAL ASSEMBLIES

J1-1

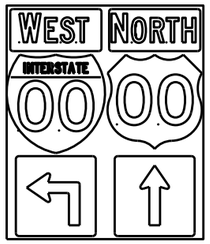


J1-2

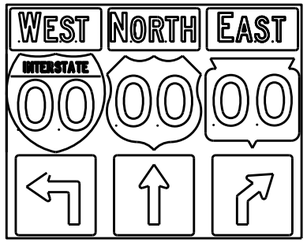


J1-3

J2-1



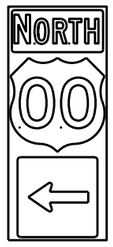
J2-2



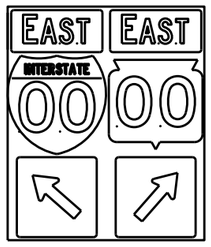
J2-3

JV

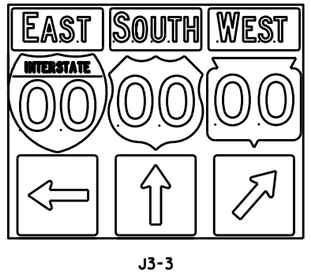
(Typical Vertical J-Assembly
See Note 10 and 11)



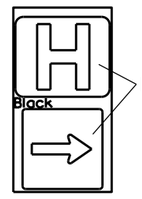
J3-1



J3-2

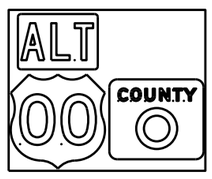


J3-3

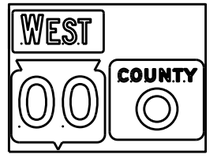


JH-1

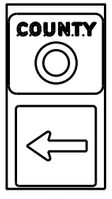
J4-1



J4-2



J4-2



J13-1

J12-1

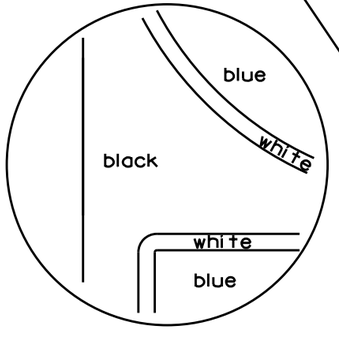
J32-1

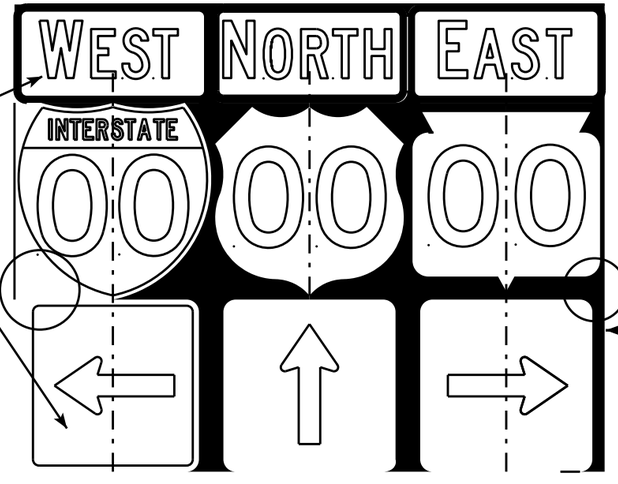
J33-1

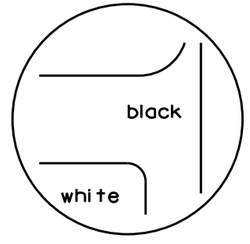
J23-1

J22-1

blue background
with interstate







black background

NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Black Non-reflective
   Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.
7. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
8. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
9. Route assemblies that have 36 inch shields and have dimensions greater than 48 inchs (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

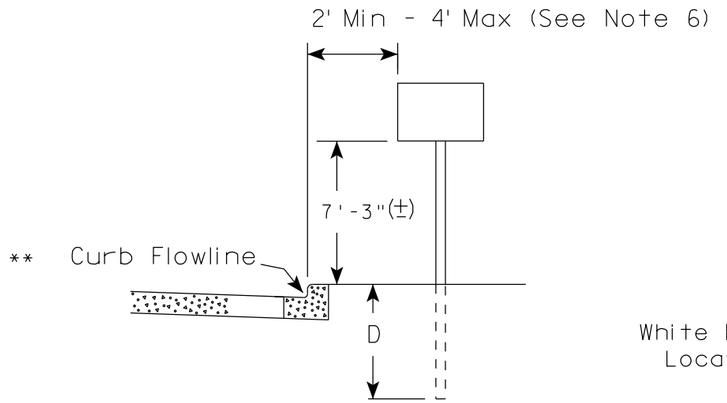
DATE 2/06/14 PL... A2-1S.8

PROJECT NO: | SHEET NO: E

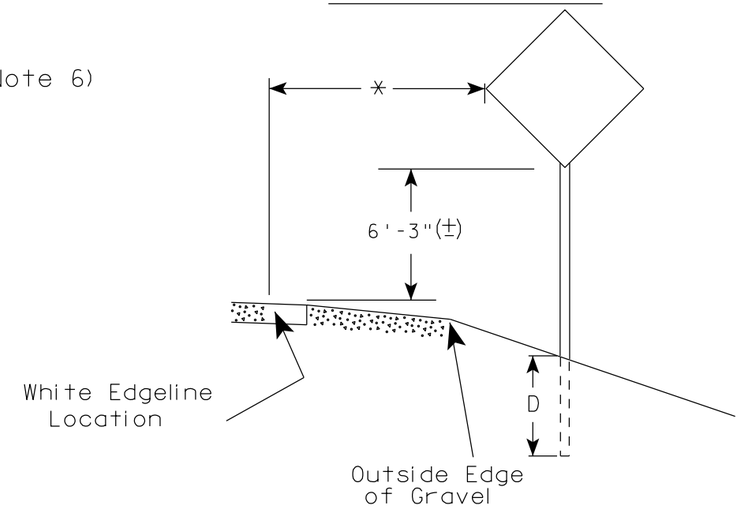
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A21S.DGN PLOT DATE : 06-FEB-2014 14:10 PLOT BY : mscsja PLOT NAME :

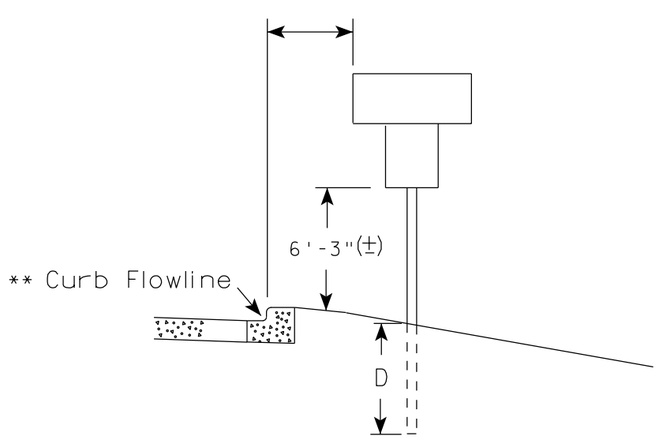
WISDOT/CADDS SHEET 42

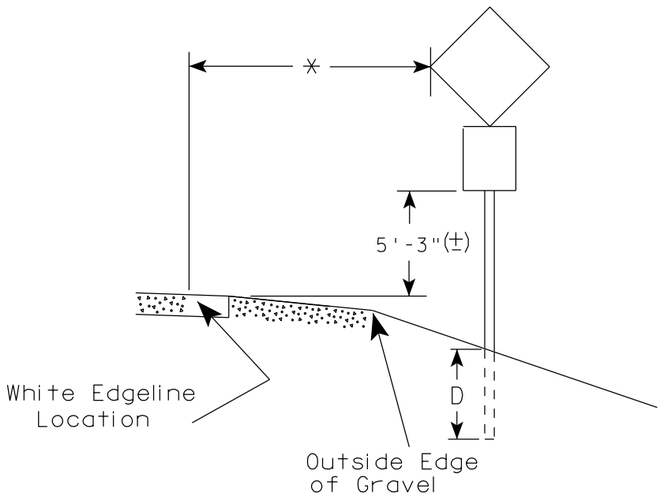
URBAN AREA



RURAL AREA (See Note 2)







GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

POST EMBEDMENT DEPTH

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

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

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

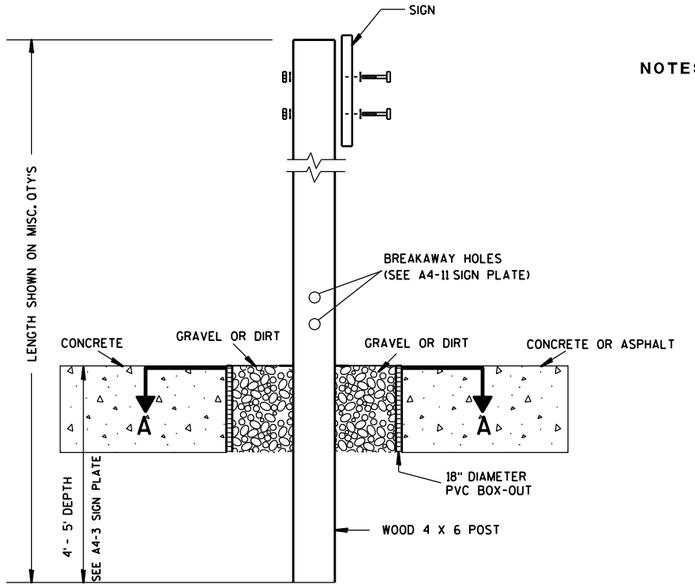
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-3.19

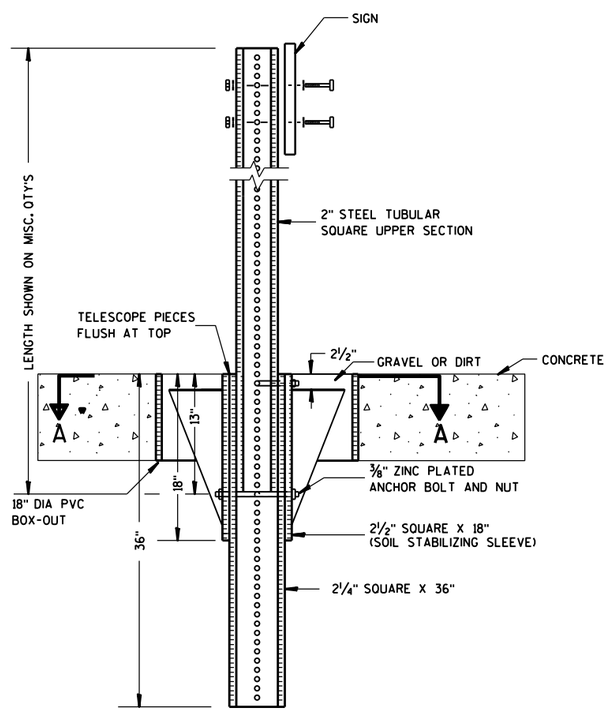
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



ELEVATION VIEW

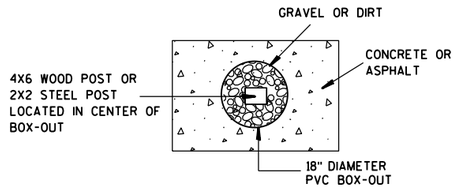
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

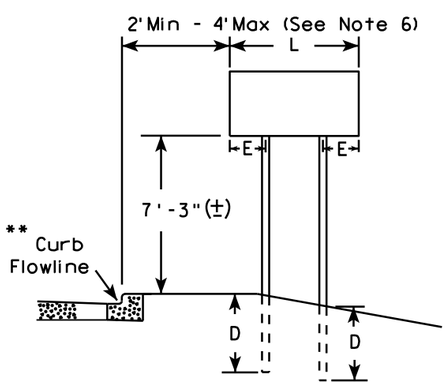
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

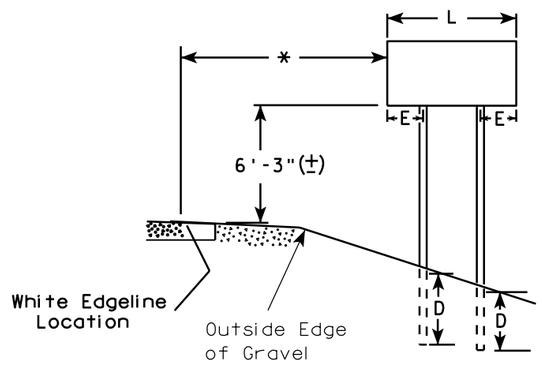
DATE 1/27/14 PLATE NO. A4-3B.1

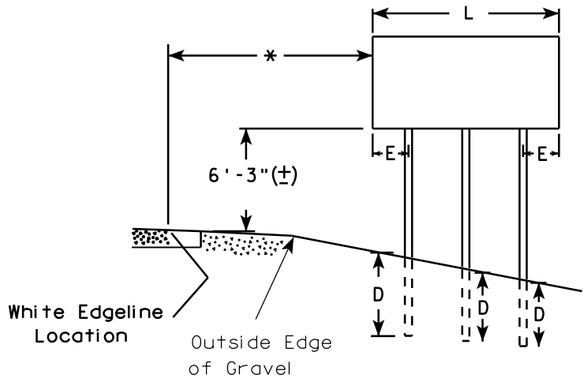
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

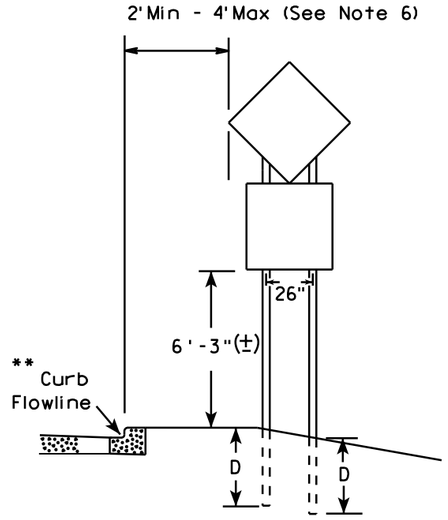
URBAN AREA



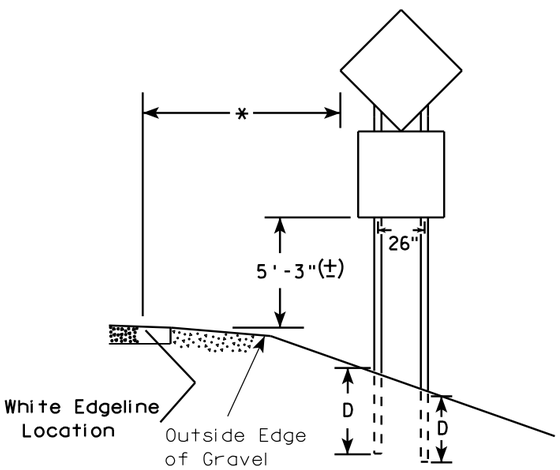
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

***	SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
	L	E
	Greater than 48" Less than 60"	12"
	60" to 120"	L/5

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

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).

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

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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

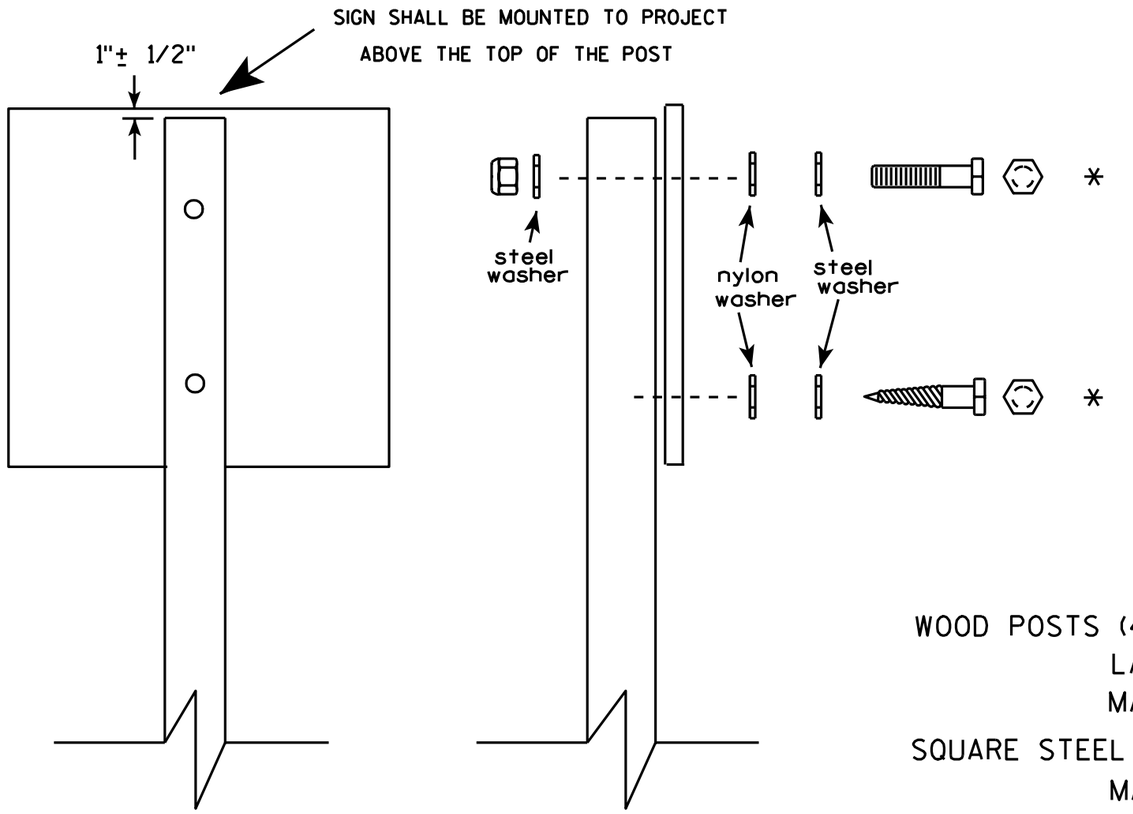
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-4 13-66

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A44.DGN PLOT DATE : 12-NOV-2014 14:01 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 107.021305:1.000000

WISDOT/CADDS SHEET 42



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

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

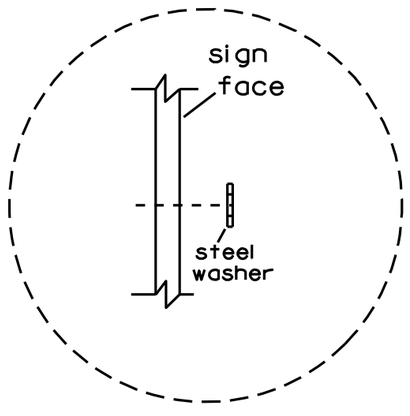
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

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

WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/23/10 PLATE NO. A4-8.7

7

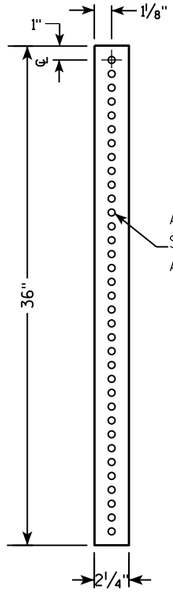
7

PROJECT NO:

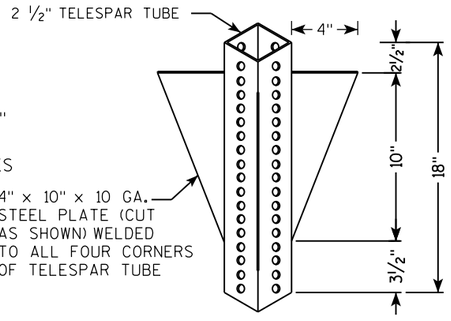
SHEET NO: 67 E

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

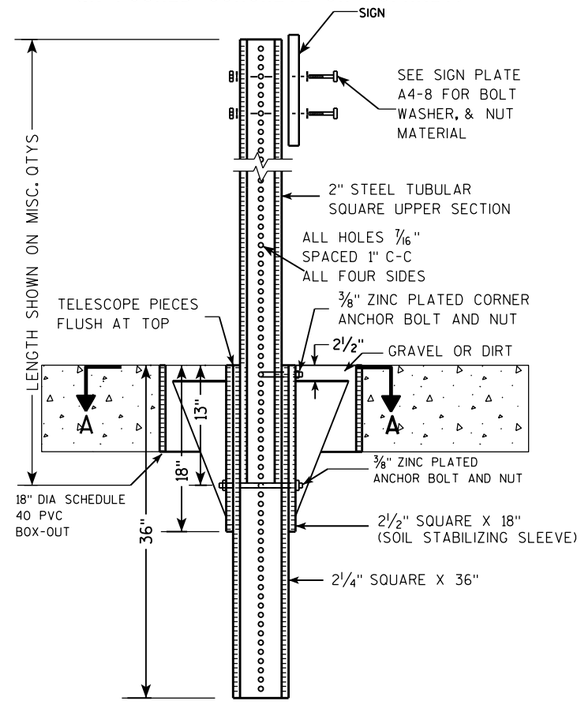
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



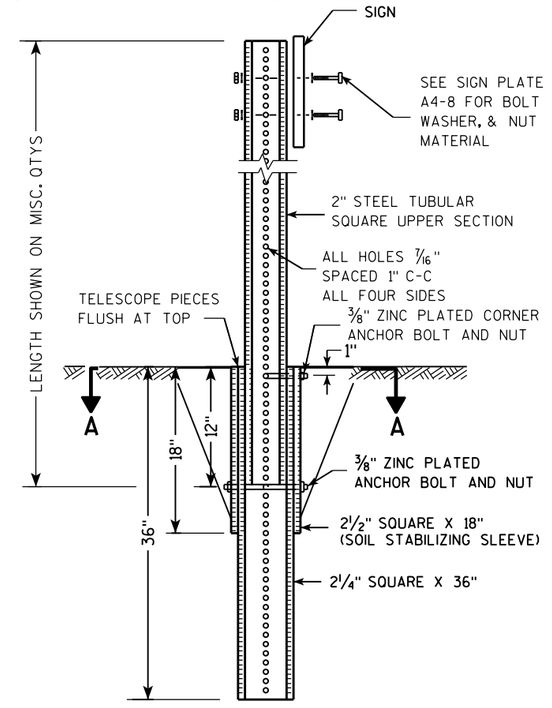
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

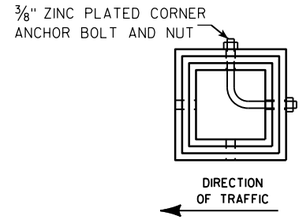


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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





SECTION A-A

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

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

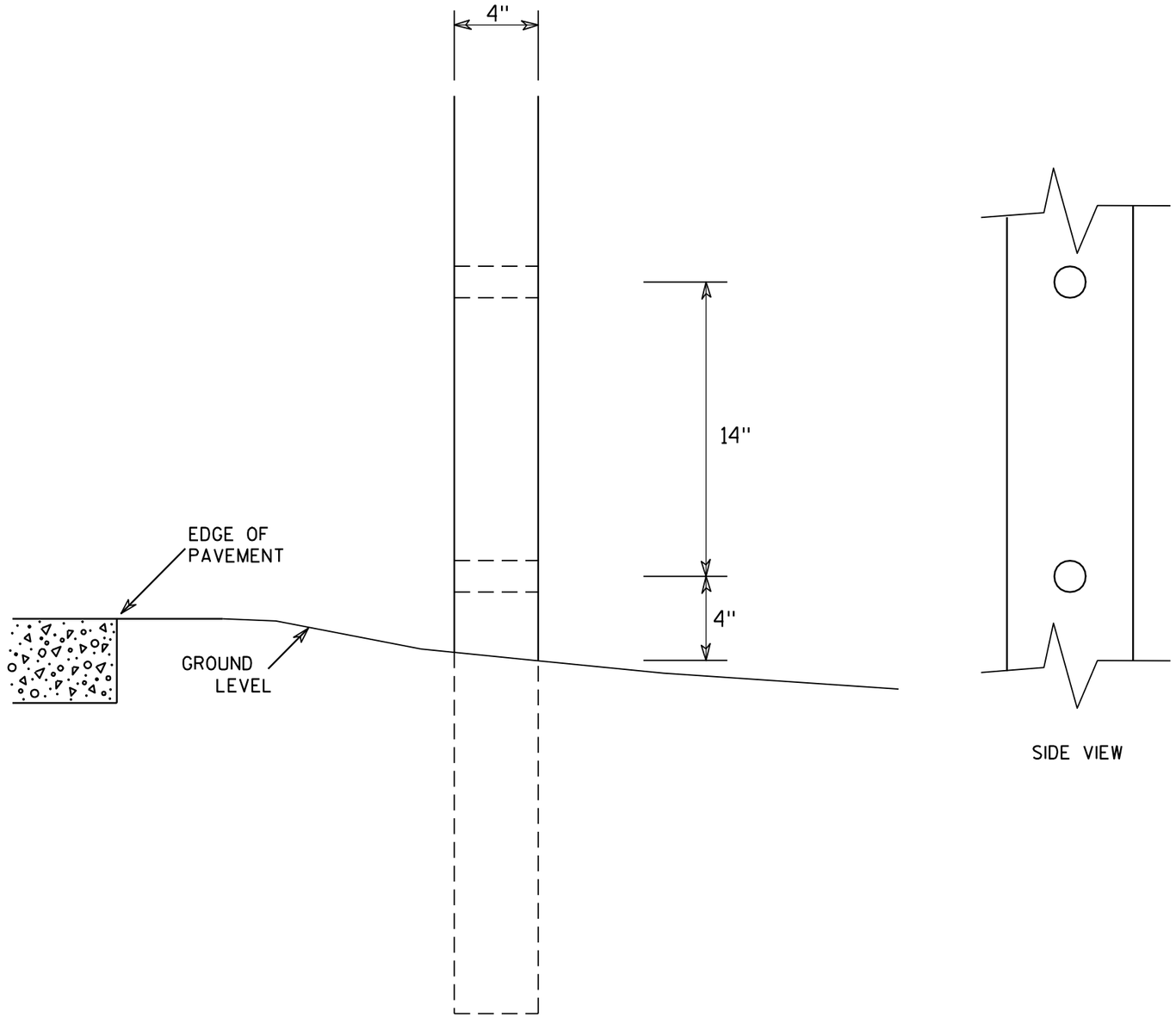
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 68 A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



SIDE VIEW

GENERAL NOTES

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

7

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

DATE 3/27/97 PLATE NO. A4-11.2

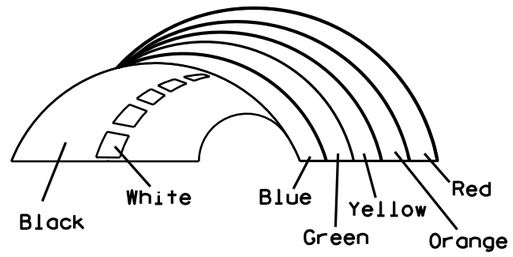
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 69	E

* VARIES

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - (See Note 5)
3. Message Series - (See Note 6)
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Border - Blue
   Line 1 - Red
   Line 2 - Black
   Line 3-5 - Blue
6. Line 1 - Dutch 8011L
   Line 2 - Series E
   Line 3-5 - Series C
7. Contractor shall provide and install a new post bracket in accordance with the I55-56B sign detail.

Background Colors of Symbol*



*1/4" Black Border between each color of rainbow and border of rainbow

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	36	1 1/2	1/2	5/8	3	2	3 1/2	2 7/8	1	8	2 1/8	11 1/4	11 1/8	9 3/8	1 1/4		3/4	12 5/8	7 1/2							7.5
3																											
4																											
5																											

STANDARD SIGN
I55-56

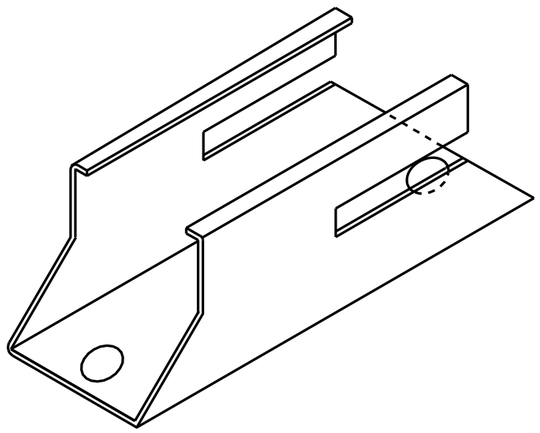
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/27/11 PLATE NO. 155-56.3

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 70

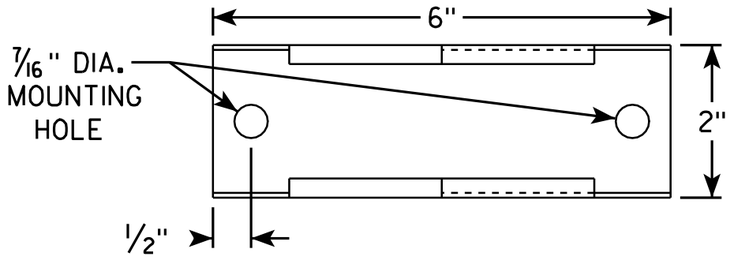
ISOMETRIC VIEW



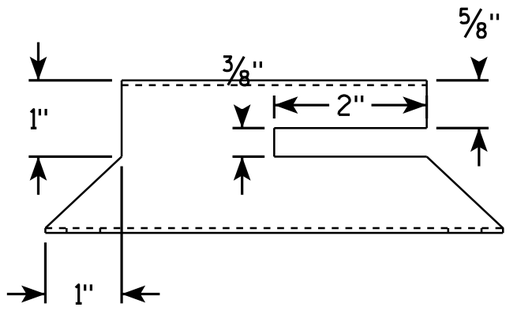
NOTES

1. Must be capable of permanent attachment to a wood or steel channel sign post utilizing the fastening hardware specified on the A4-8 sign plate.
2. Shall be entirely primed and painted with two coats of a black powder coated enamel paint.
3. Shall be made with 12 gauge steel, and incorporate no welds, no hinged components, no threaded lock-type components, and no parts which are loose or can be separated from the main body.
4. Shall have rounded edges with at least 1/8" radii.
5. Shall not have unrounded and uncoated metal edges which can contact the back surface of the roll-up sign.
6. Top of bracket shall be mounted 2' below the bottom of the I55-56 sign.
7. Cost of bracket and fastening hardware shall be incidental to the I55-56 sign.

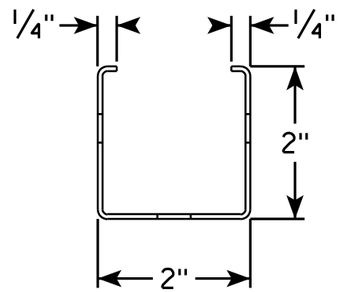
TOP VIEW



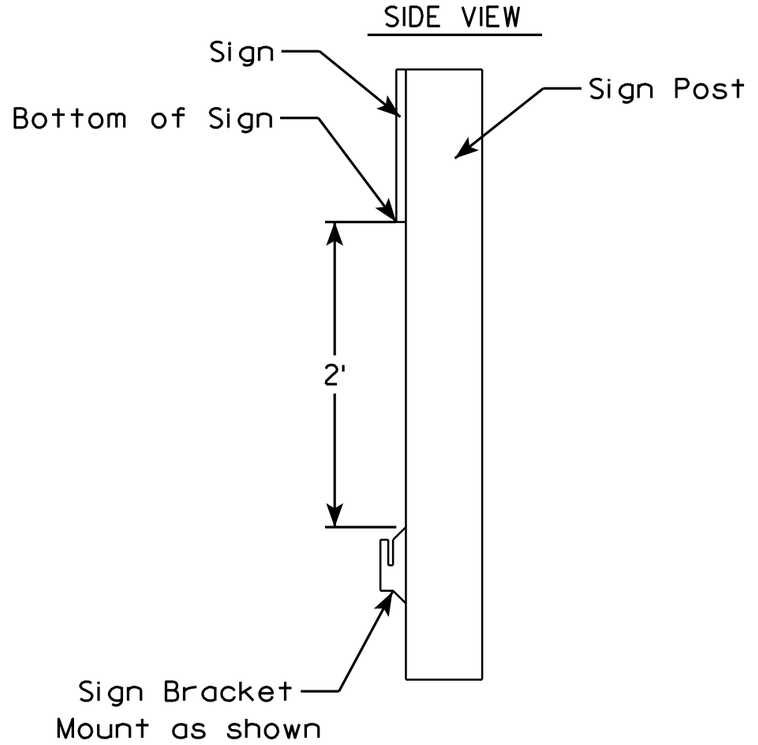
SIDE VIEW



END VIEW



SIDE VIEW



7

7

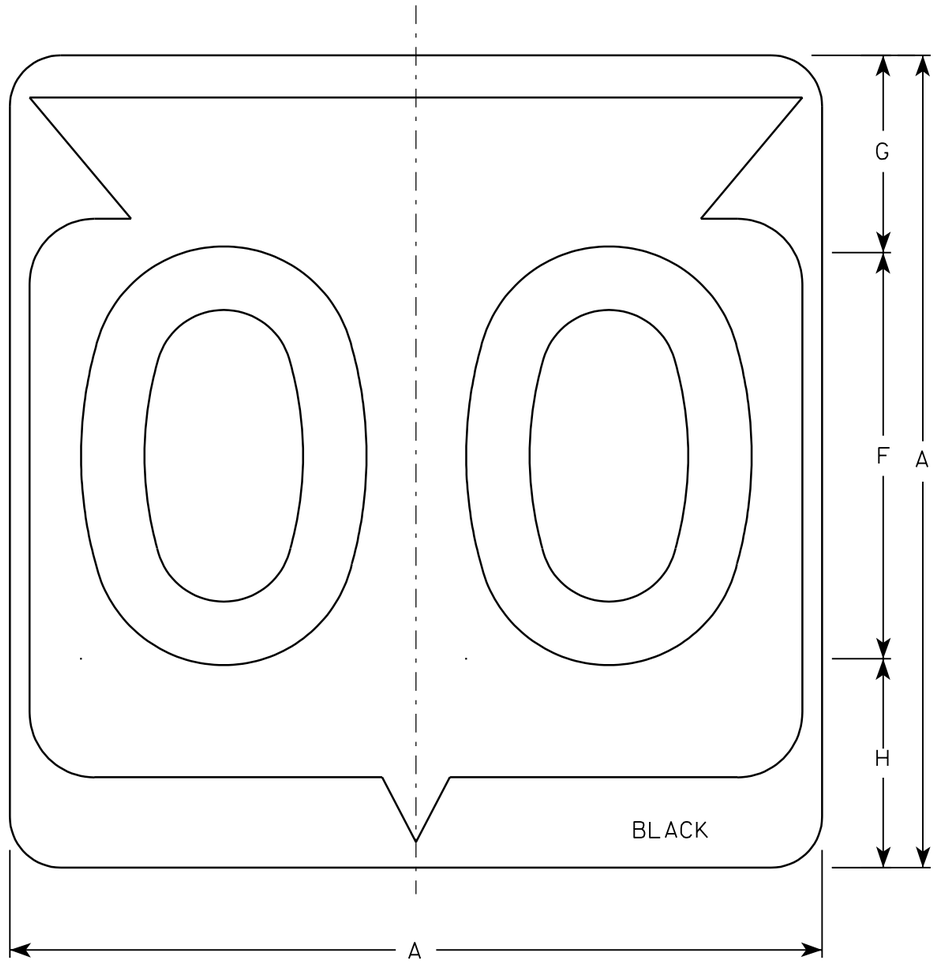
ROLLUP SIGN BRACKET
I55-56B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/5/10 PLATE NO. I55-56B.1

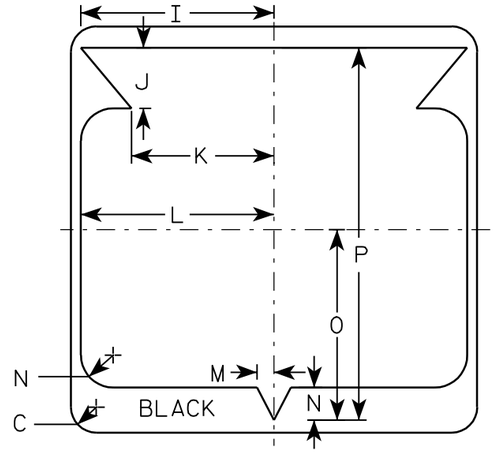
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 71	E



M1-6

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 6
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate Series numerals and adjust spacing as per plate A10-1.
6. Permanent Signs
   Background - Type H Reflective
   Detour or temporary Signs
   Background - Reflective



Metric equivalent for this sign is:

SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0	.36
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81

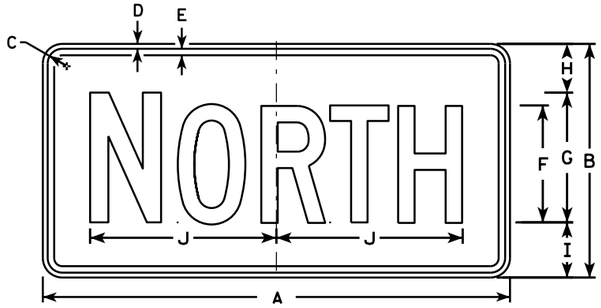
STATE ROUTE MARKER
M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

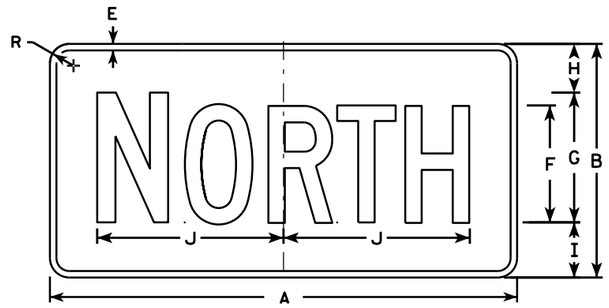
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/20/02 PLATE NO. M1-6.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 72	E

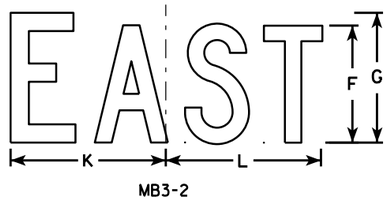


M3-1
MK3-1
MM3-1
MN3-1

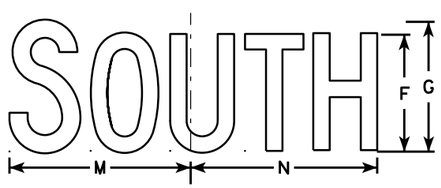


MB3-1

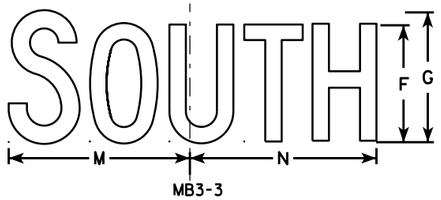
M3-2
MK3-2
MM3-2
MN3-2



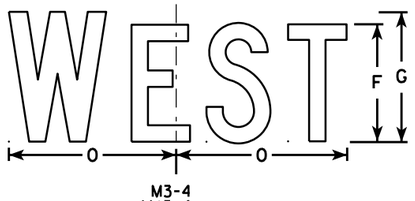
MB3-2



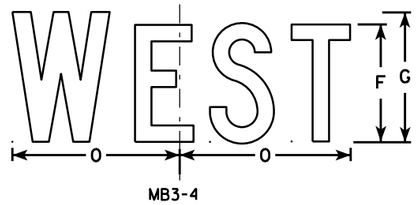
M3-3
MK3-3
MM3-3
MN3-3



MB3-3



M3-4
MK3-4
MM3-4
MN3-4



MB3-4

NOTES

1. All Signs Type II - Type H
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
   Message - Black
   MB3-1 thru MB3-4 Background - Blue
   Message - White
   MK3-1 thru MK3-4 Background - Green
   Message - White
   MM3-1 thru MM3-4 Background - White
   Message - Green
   MN3-1 thru MN3-4 Background - Brown
   Message - White
6. Note the first letter of each direction is larger than the remainder of the message.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thur M3-4
SERIES

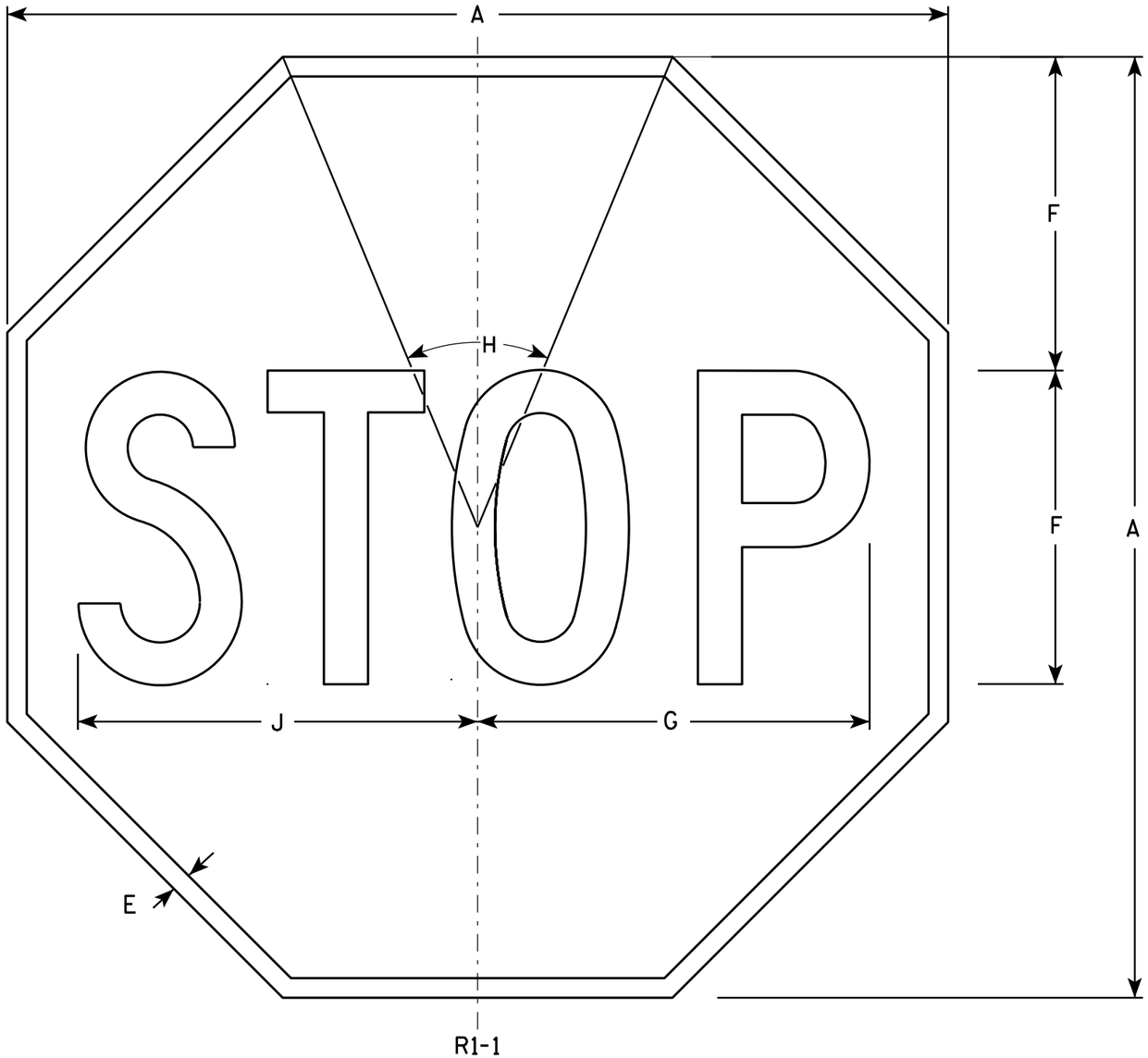
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 6/30/14 PLATE NO M3-1.13

PROJECT NO: | HWY: | COUNTY: | | SHEET NO: E

7



NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24				3/8	8	10	45°		10 1/4																	3.31
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

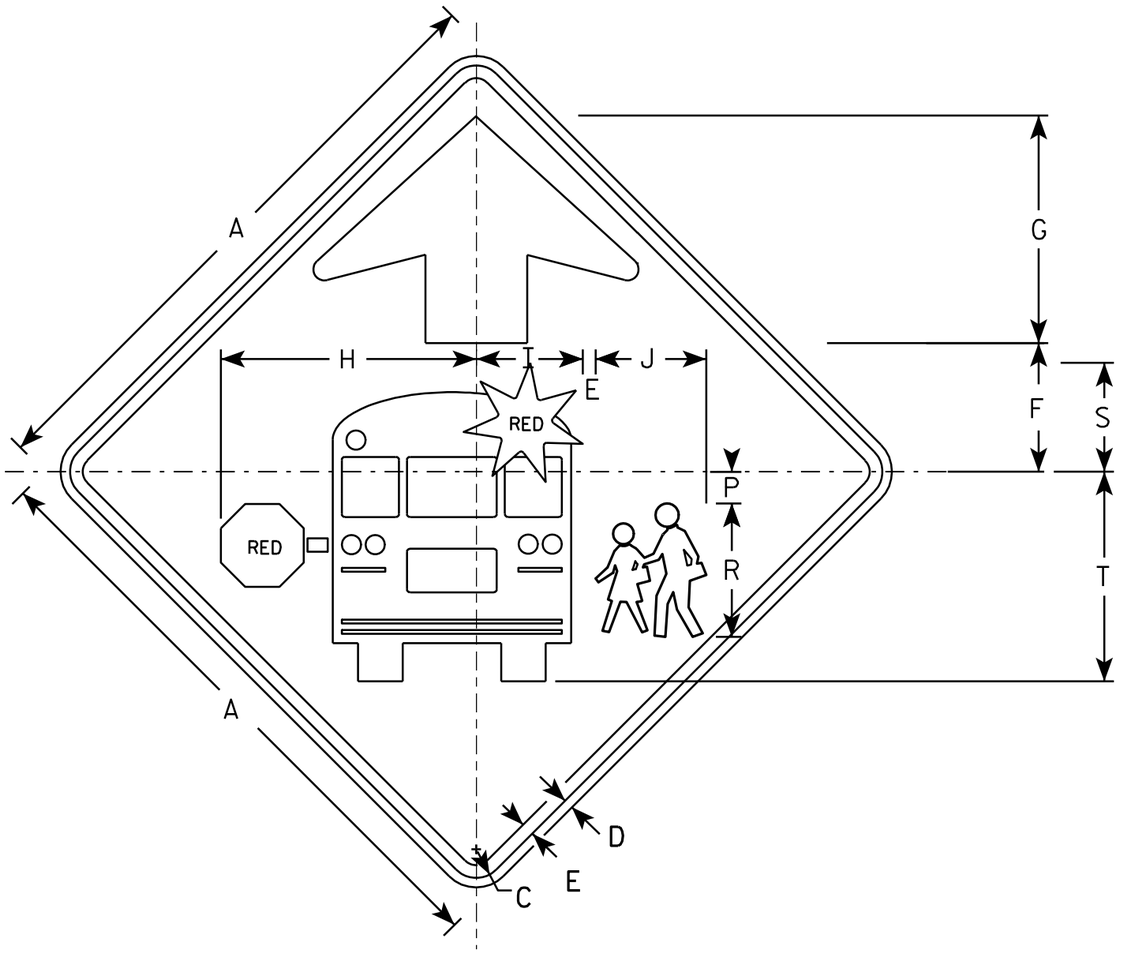
STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1.12

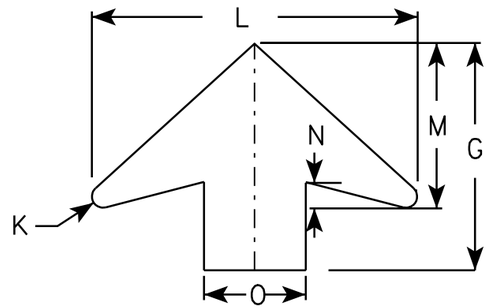
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 74	E



S3-1

NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - YELLOW-GREEN
   Message - BLACK except as noted
   Circles except PEDS- RED BACKGROUND
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	6 1/4	11 1/4	12 1/2	5 1/4	5 1/2	1/2	16	8	1 1/4	5	1 1/2		6 5/8	5 3/8	10 3/8							6.25
2	36		1 5/8	5/8	3/4	7 1/2	13 1/2	15 1/8	6 1/4	6 1/2	5/8	19 1/4	9 3/4	1 5/8	6	1 7/8		7 7/8	6 3/8	12 3/8							9.0
3	48		2 1/4	3/4	1	10	17 7/8	20 1/8	8 3/8	8 3/4	7/8	25 5/8	13	2	8	2 1/2		10 1/2	8 1/2	16 1/2							16.0
4	48		2 1/4	3/4	1	10	17 7/8	20 1/8	8 3/8	8 3/4	7/8	25 5/8	13	2	8	2 1/2		10 1/2	8 1/2	16 1/2							16.0
5																											

STANDARD SIGN
S3-1

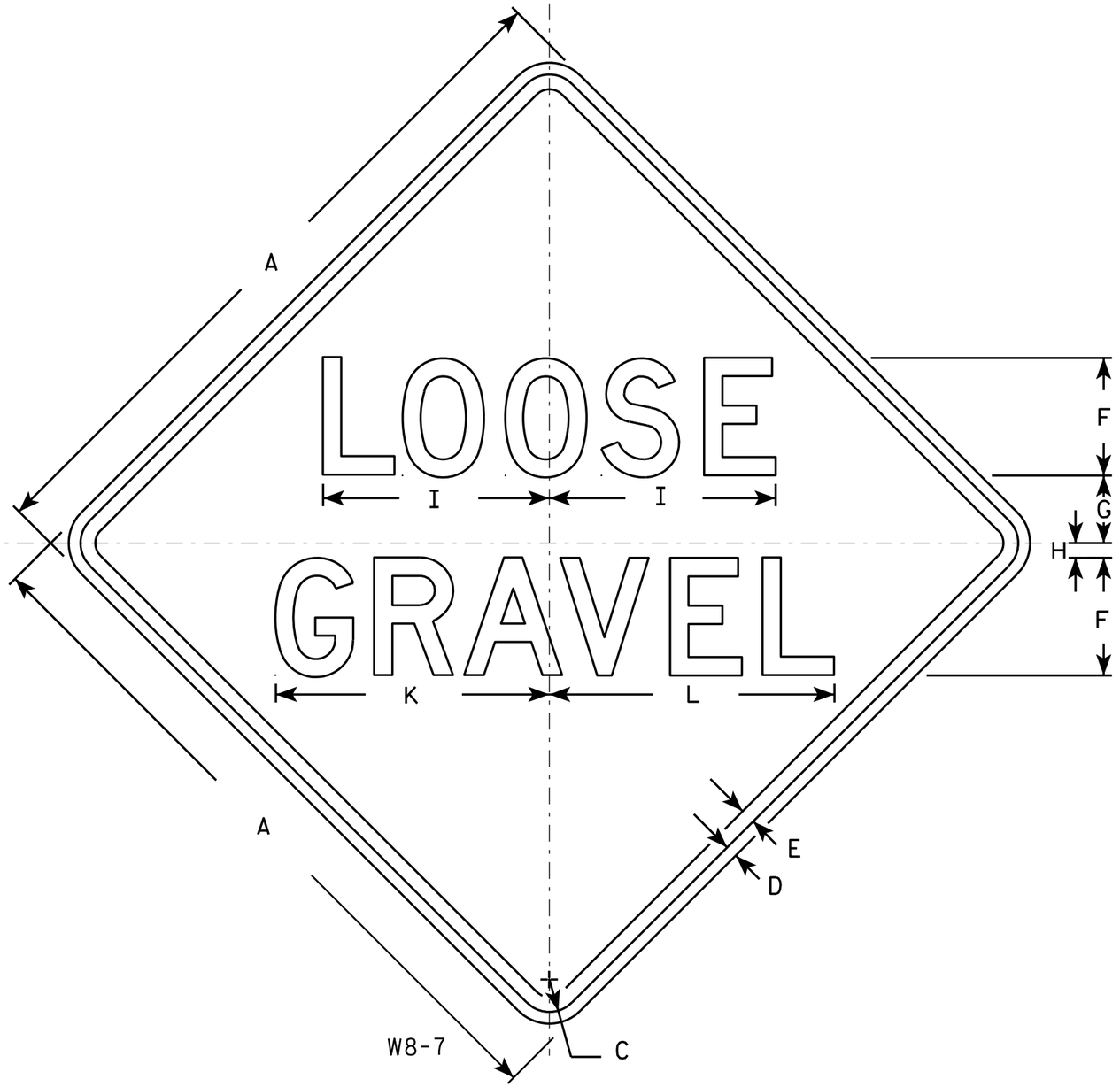
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/8/10 PLATE NO. S3-1.6

PROJECT NO:

SHEET NO: 75 E



NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	4	2 3/4	1/2	7 3/4		9 1/4	9 3/4															4.0
2S	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
2M	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
3	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
4	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
5	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0

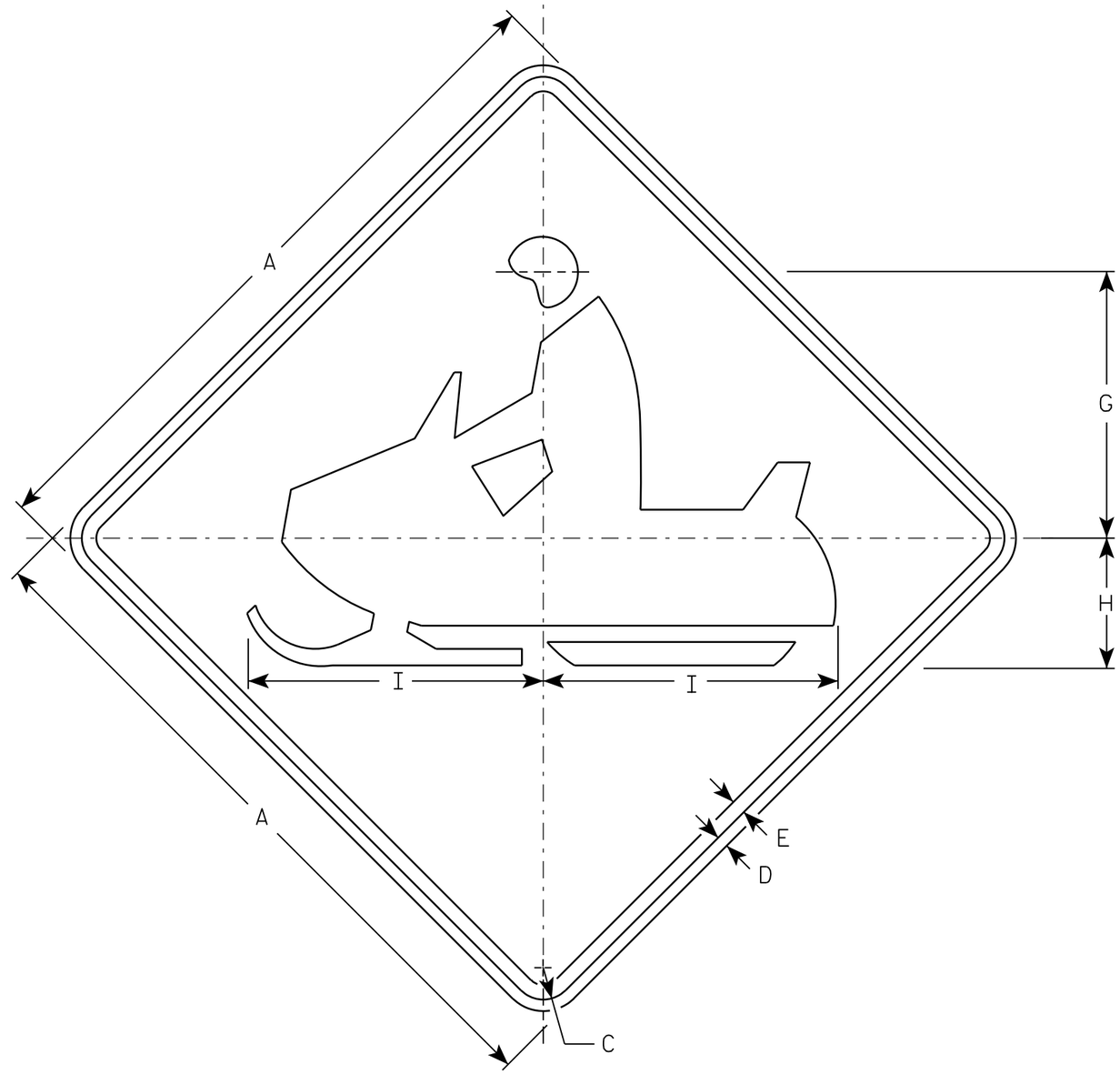
STANDARD SIGN
W8-7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/30/12 PLATE NO. W8-7.7

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 76	E



W11-6

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2		9 1/2	4 1/2	10 1/4																		4.0
2S	30		1 3/8	1/2	5/8		11 1/2	5 5/8	12 3/4																		6.25
2M	30		1 3/8	1/2	5/8		11 1/2	5 5/8	12 3/4																		6.25
3	36		1 5/8	5/8	3/4		14 1/8	6 3/4	15 1/4																		9.0
4	48		2 1/4	3/4	1		19	9	20 1/2																		16.0
5																											

STANDARD SIGN
W11-6

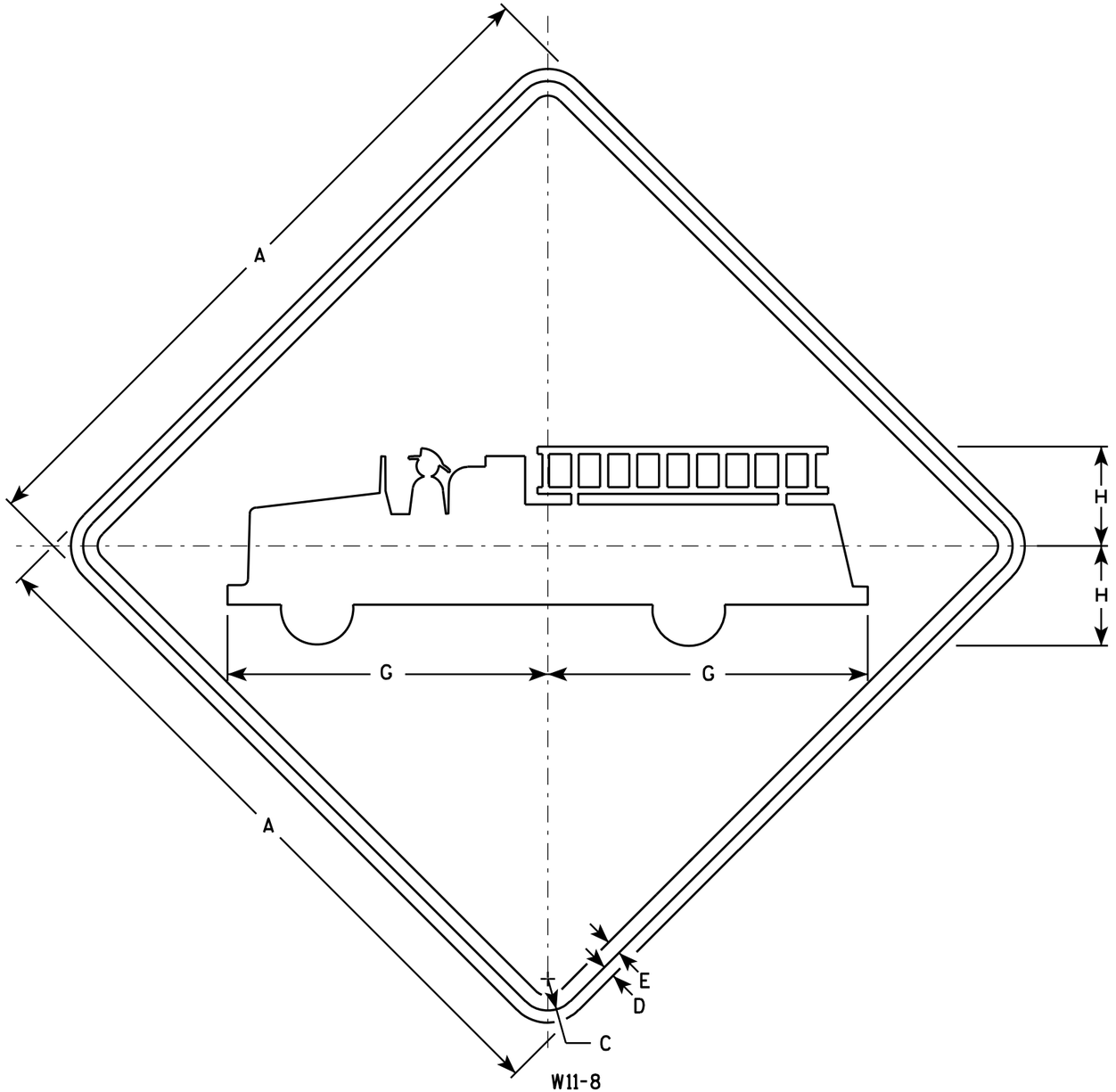
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/13/13 PLATE NO. W11-6.8

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 77 | E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W116.DGN PLOT DATE : 13-MAR-2013 12:57 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 5.954276:1.000000
WISDOT/CADDS SHEET 42



W11-8

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2		11	3 3/8																			4.0
2S	30		1 3/8	1/2	5/8		13 3/4	4 3/8																			6.25
2M	30		1 3/8	1/2	5/8		13 3/4	4 3/8																			6.25
3	36		1 5/8	5/8	3/4		16 1/2	5 1/4																			9.0
4	48		2 1/4	3/4	1		22	7																			16.0
5																											

STANDARD SIGN
W11-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/13/13 PLATE NO. W11-8.7

PROJECT NO:

SHEET NO: 78 E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W118.DGN PLOT DATE : 13-MAR-2013 12:58 PLOT BY : mscj9h

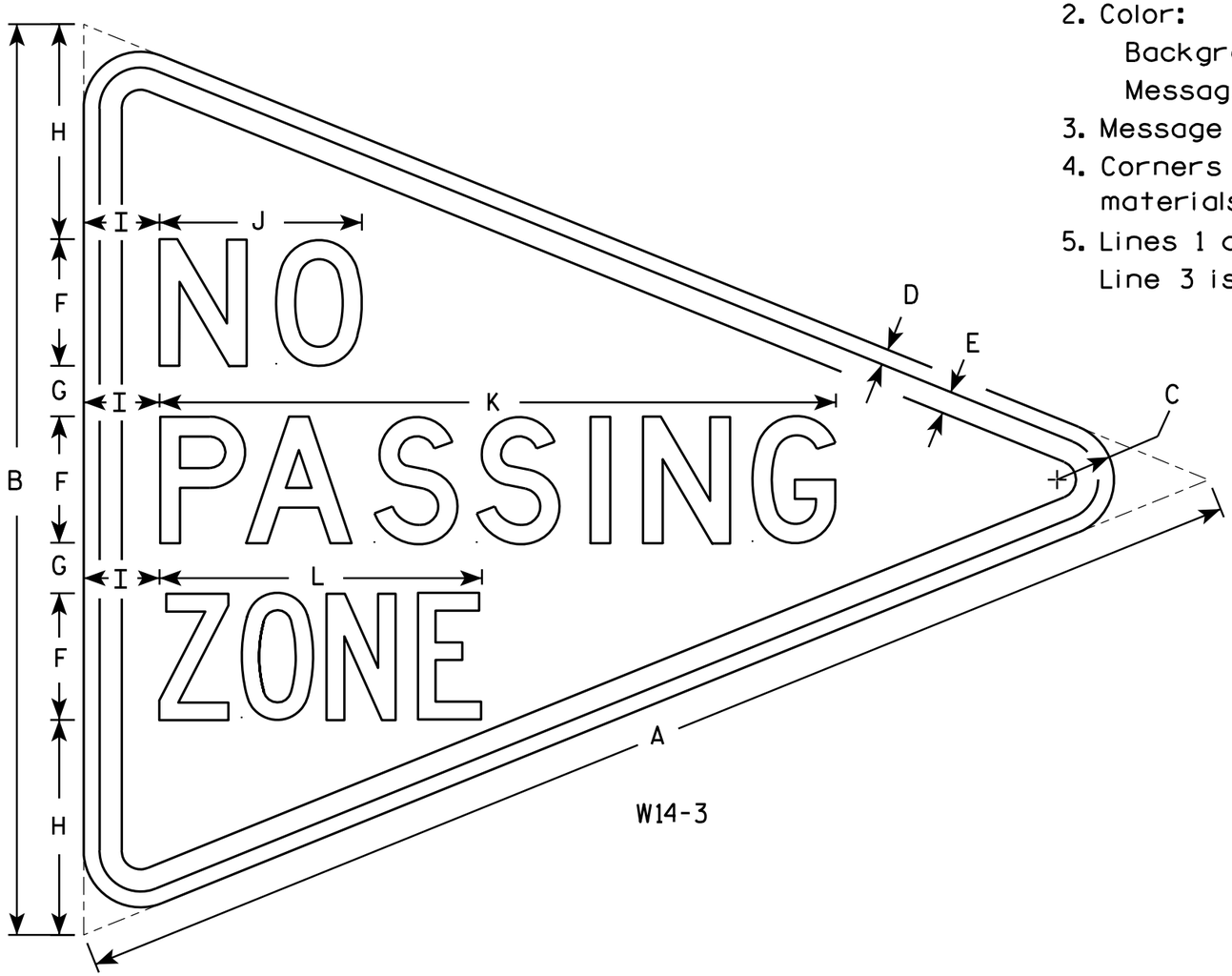
WISDOT/CADDS SHEET 42

7

7

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Message Series - See note 5
4. Corners and borders shall be rounded on all base materials for this sign.
5. Lines 1 and 2 are Series D.
   Line 3 is series C.



W14-3

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
2M	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
3	64	48	3	3/4	1 1/4	6	3	12	4	10 3/4	33 5/8	16 1/2															10.7
4																											
5																											

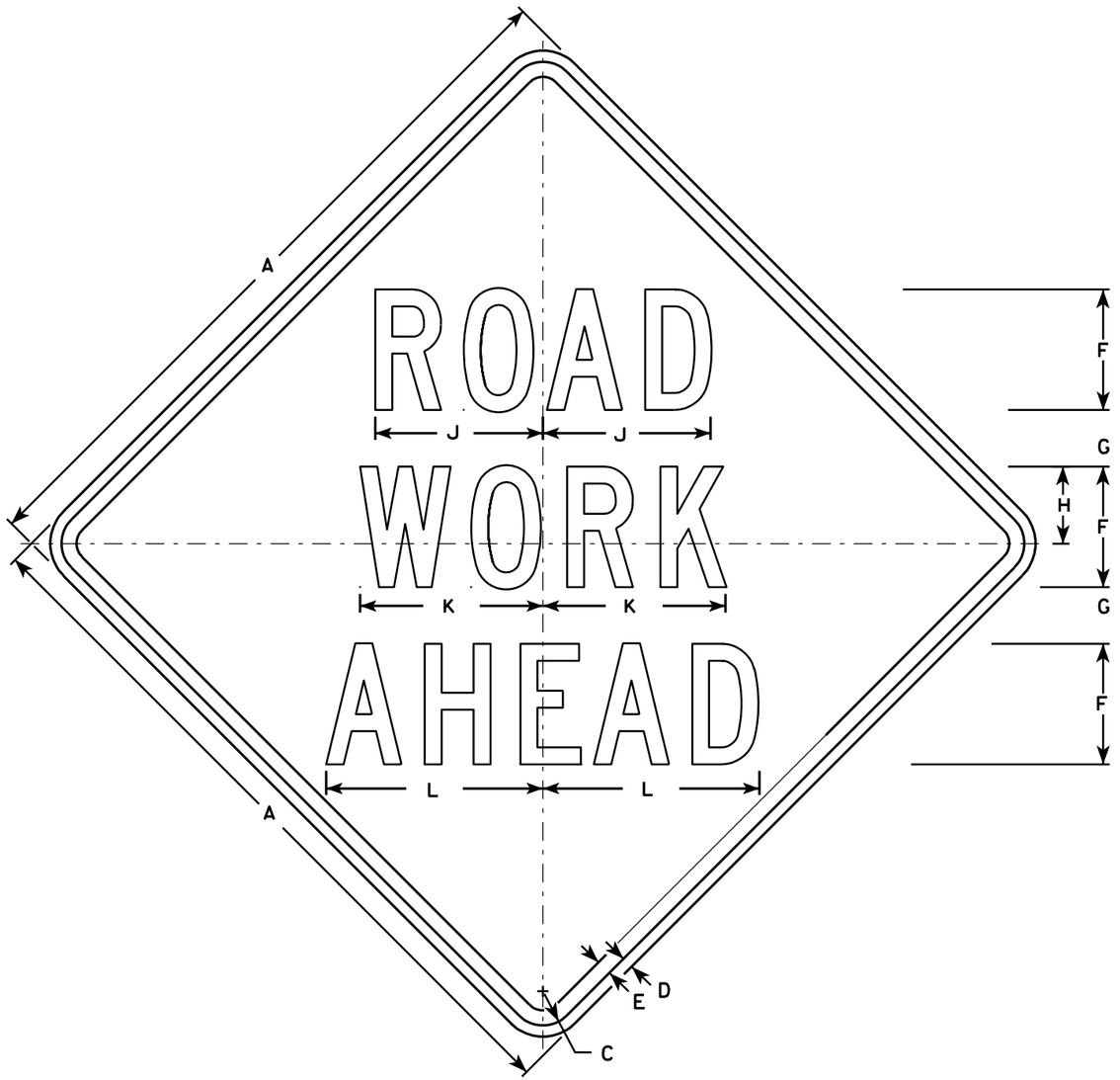
STANDARD SIGN
W14-3

WISCONSIN DEPT OF TRANSPORTATION

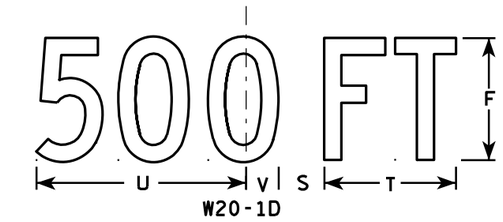
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W14-3.9

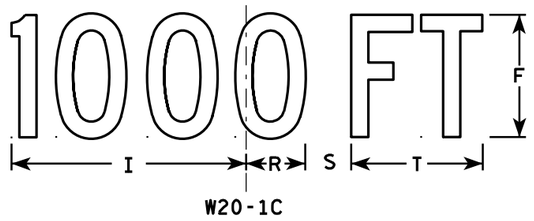
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 79	E



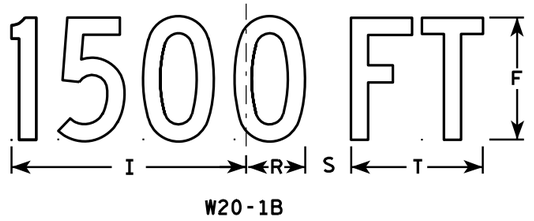
W20-1A



W20-1D

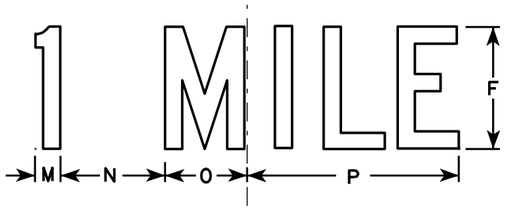


W20-1C



W20-1B

W20-1G



W20-1F

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	1 7/8	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-1.9

PROJECT NO:

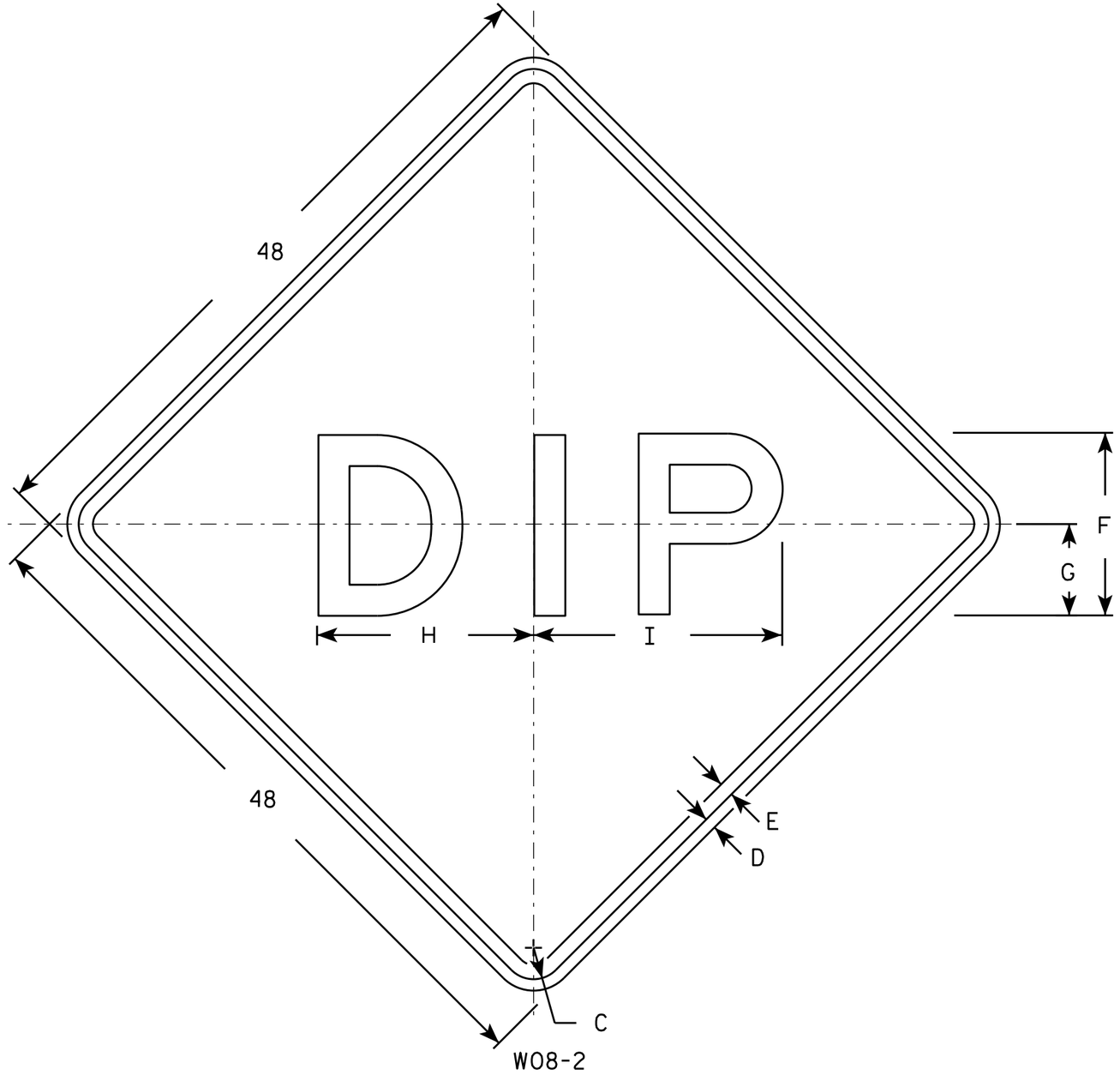
SHEET NO: 80 E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W201.DGN PLOT DATE : 18-MAR-2011 09:56 PLOT BY : mscj9h

WISDOT/CADDS SHEET 42

7

7



NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	10	5	11 7/8	13 1/2																		9.0
2S	48		2 1/4	3/4	1	12	6	14 1/4	16 1/4																		16.0
2M	48		2 1/4	3/4	1	12	6	14 1/4	16 1/4																		16.0
3	48		2 1/4	3/4	1	12	6	14 1/4	16 1/4																		16.0
4	48		2 1/4	3/4	1	12	6	14 1/4	16 1/4																		16.0
5	48		2 1/4	3/4	1	12	6	14 1/4	16 1/4																		16.0

STANDARD SIGN
W08-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/20/13 PLATE 181 8-2.1

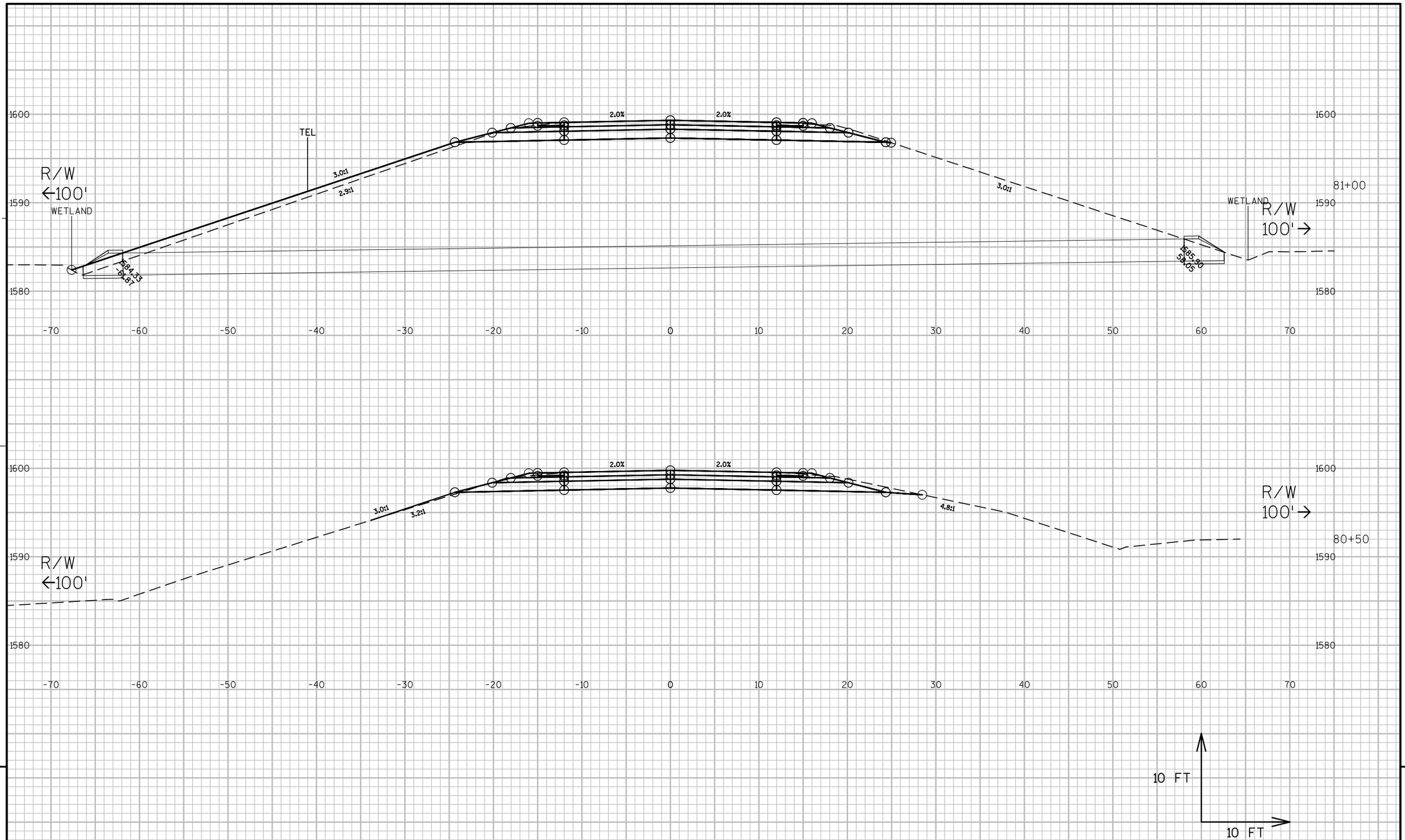
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W082.DGN PLOT DATE : 20-NOV-2013 13:01 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 6.827959:1.000000

WISDOT/CADDS SHEET 42

7

7



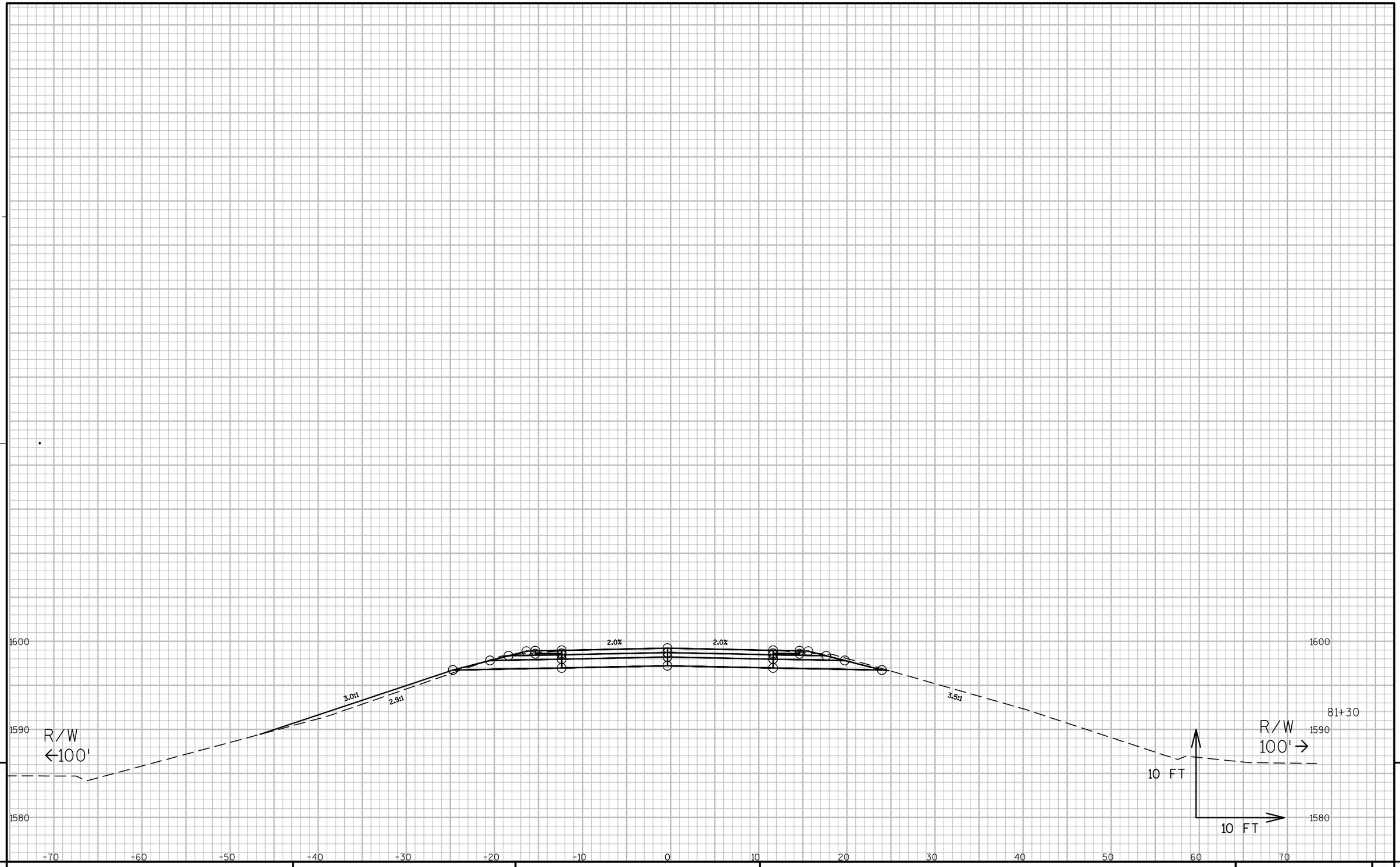
9

9

PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-03	SHEET 82	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - SECTION SHEET - (1)

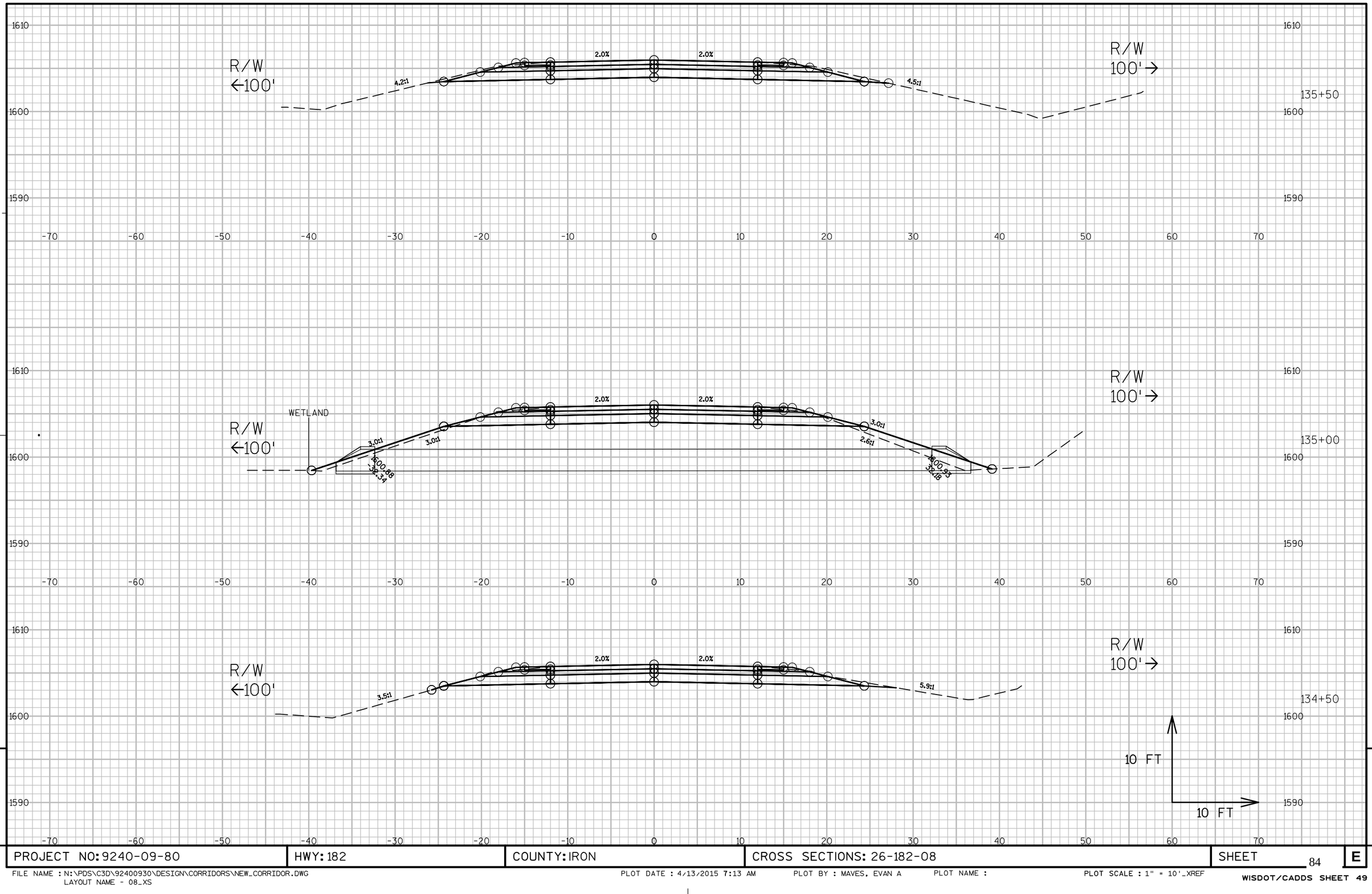
PLOT DATE : 4/13/2015 7:13 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



9

9

PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-03 (2)	SHEET 83	E



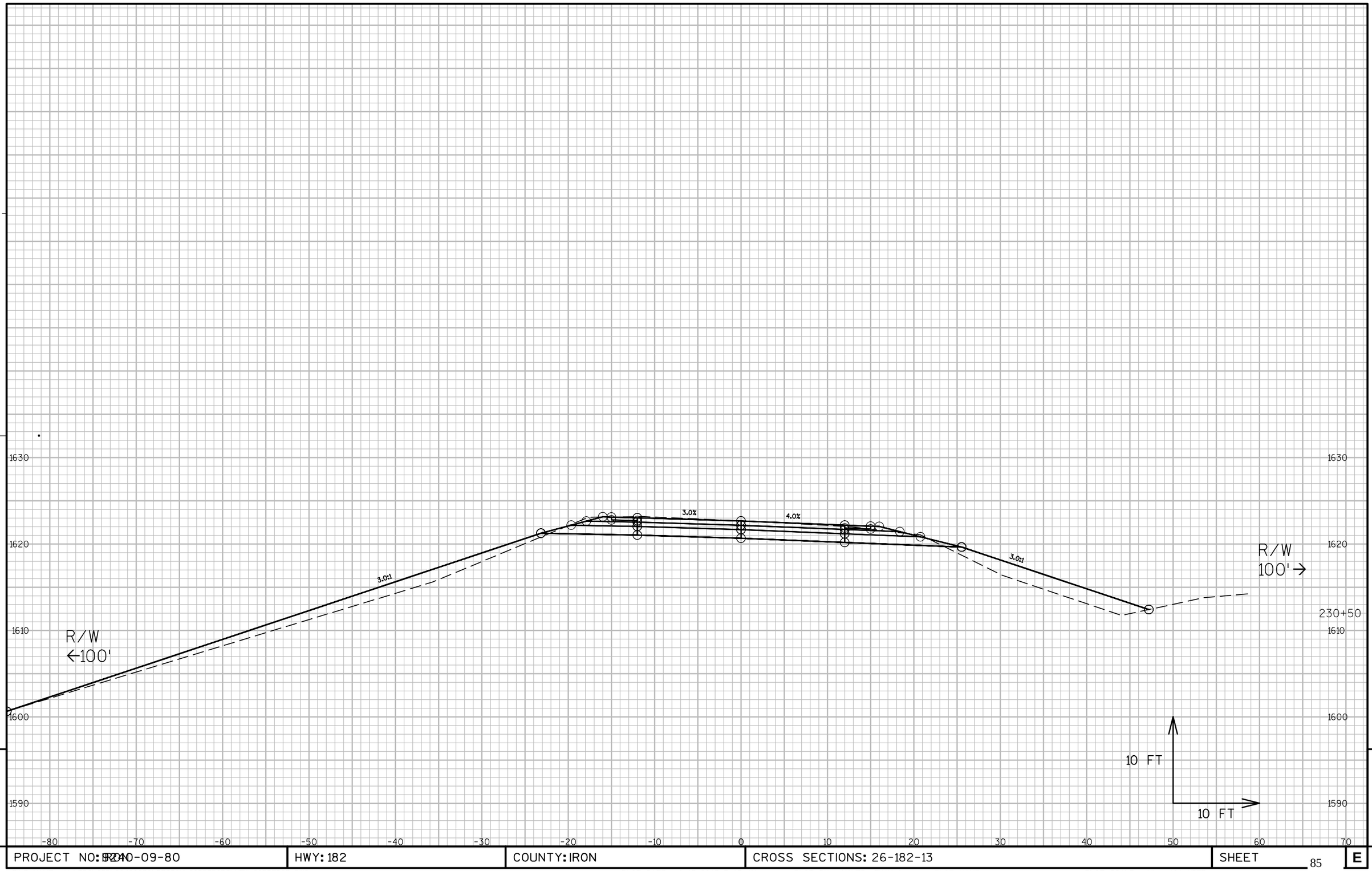
9

9

PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-08	SHEET 84	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 08_XS

PLOT DATE : 4/13/2015 7:13 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



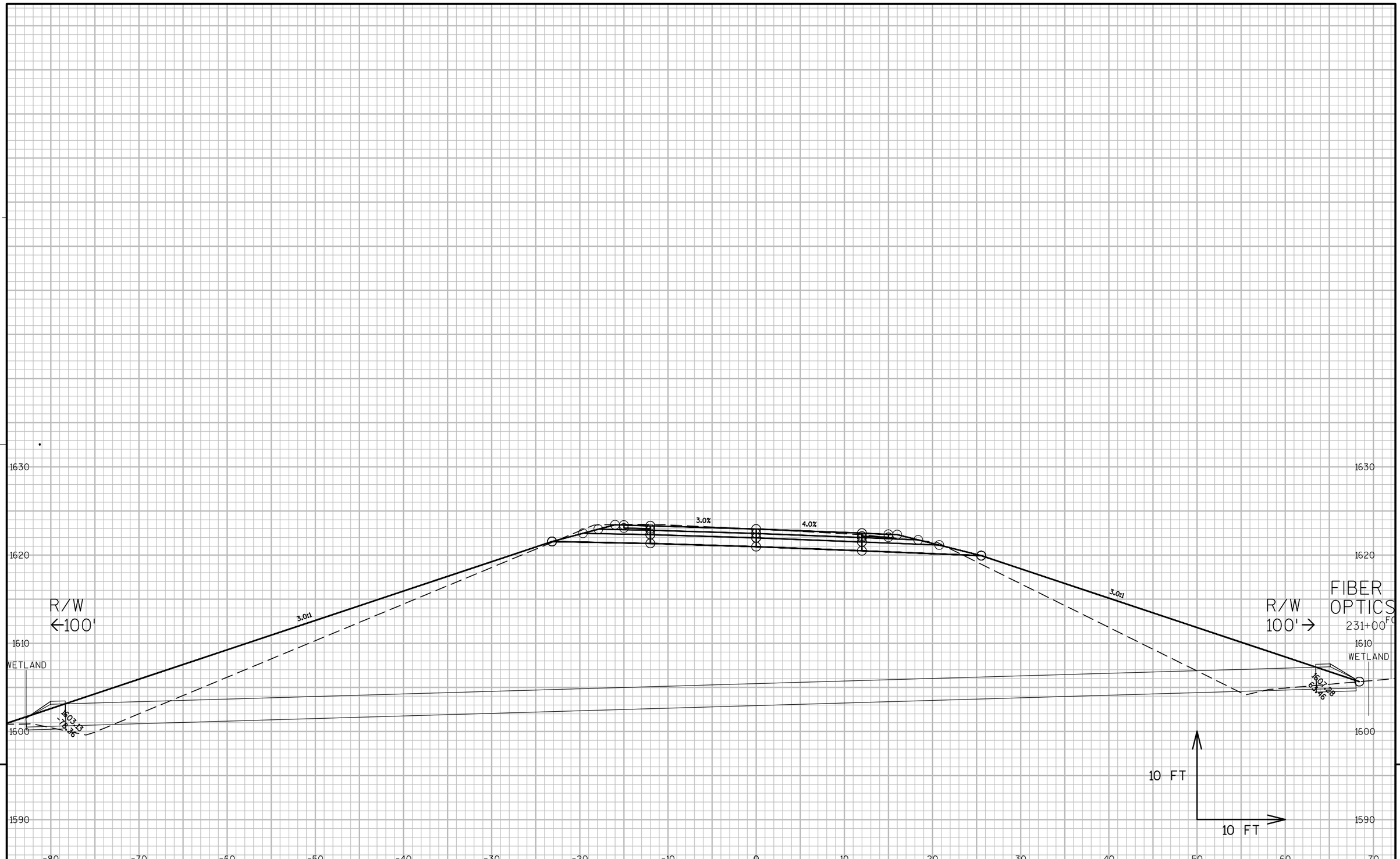
9

9

PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-13	SHEET 85	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - SECTION SHEET - (13)

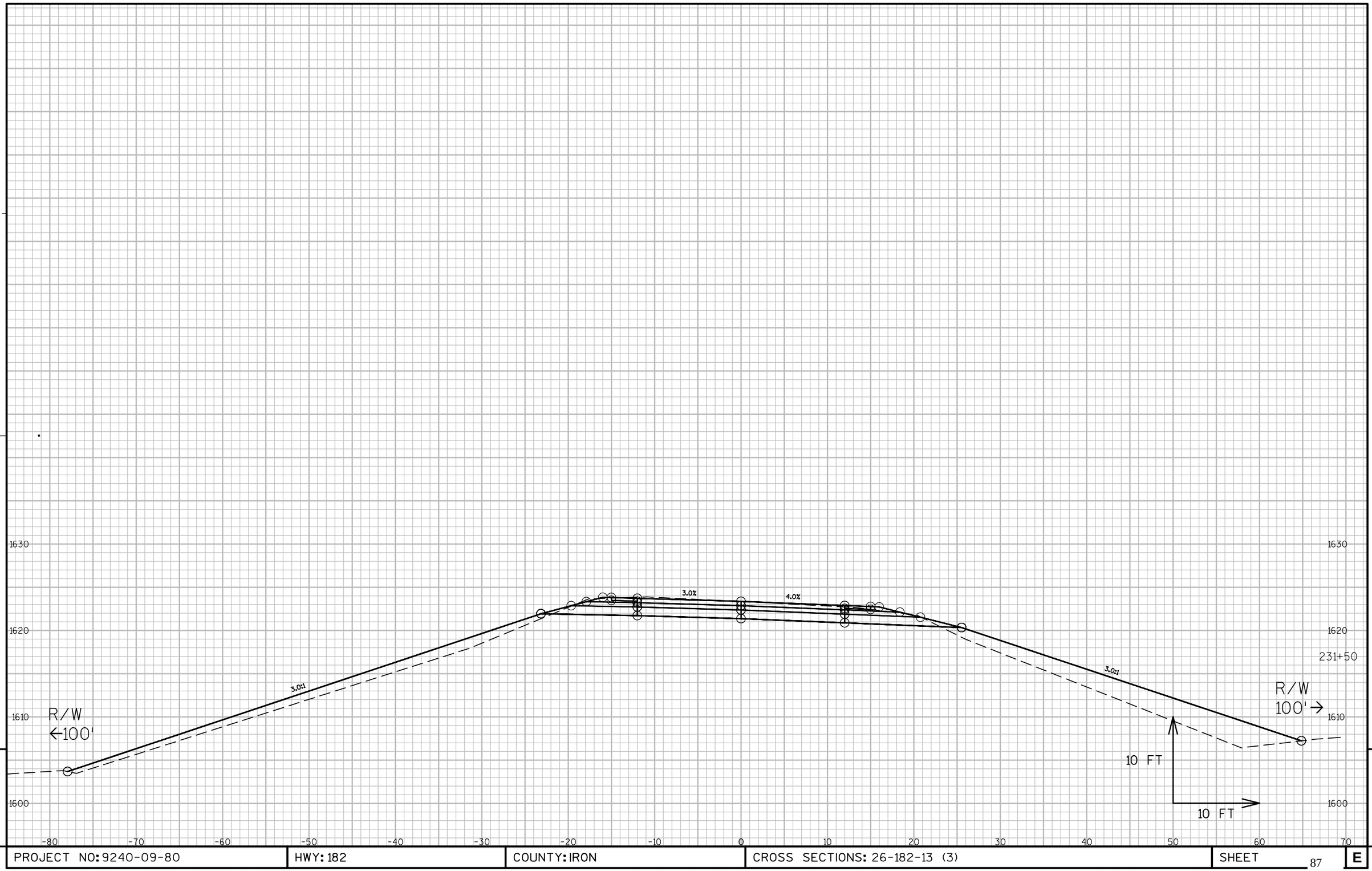
PLOT DATE : 4/13/2015 7:13 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



9

9

PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-13 (2)	SHEET 86	E



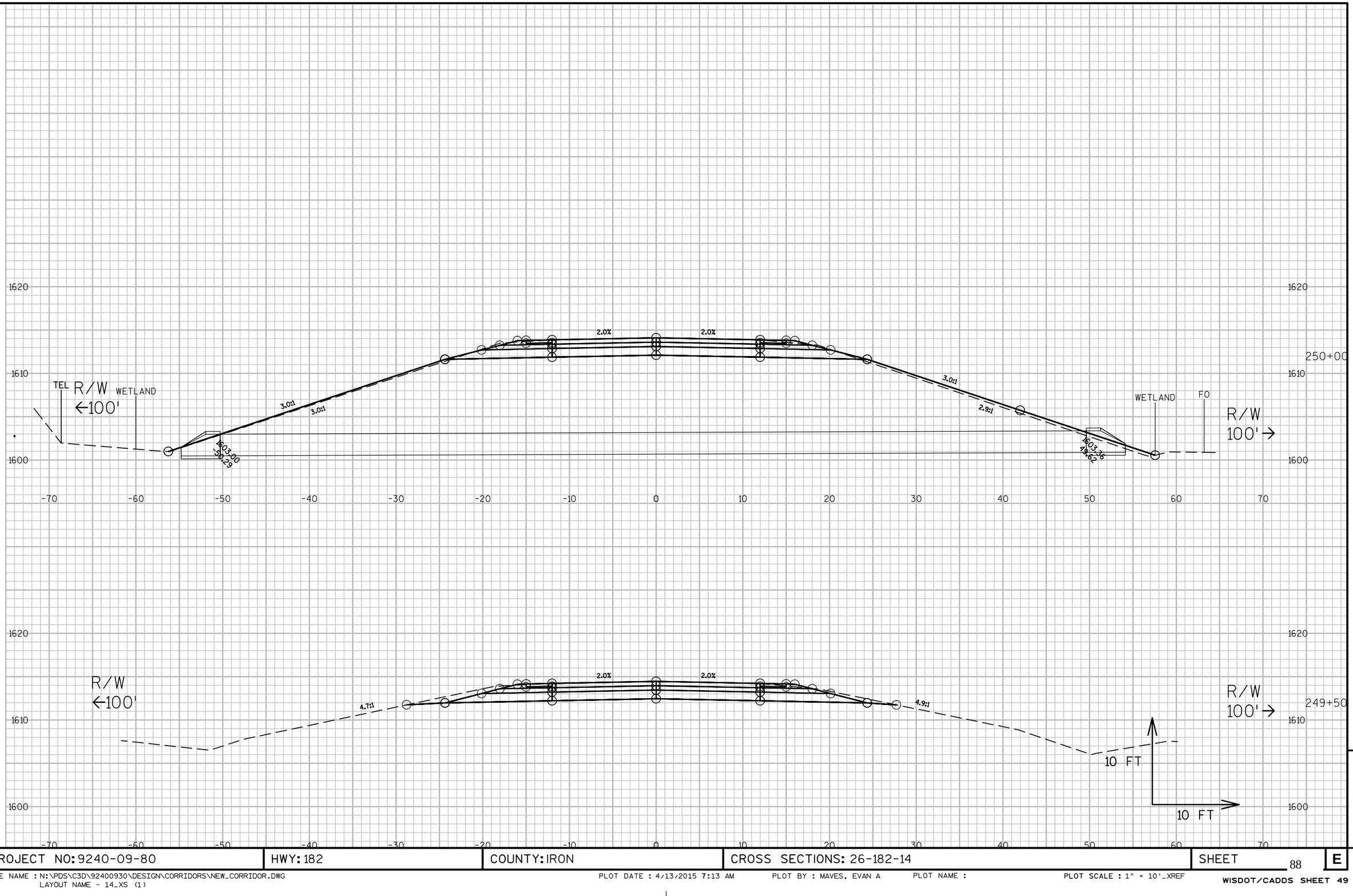
9

9

PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-13 (3)	SHEET 87	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - SECTION SHEET - (15)

PLOT DATE : 4/13/2015 7:13 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



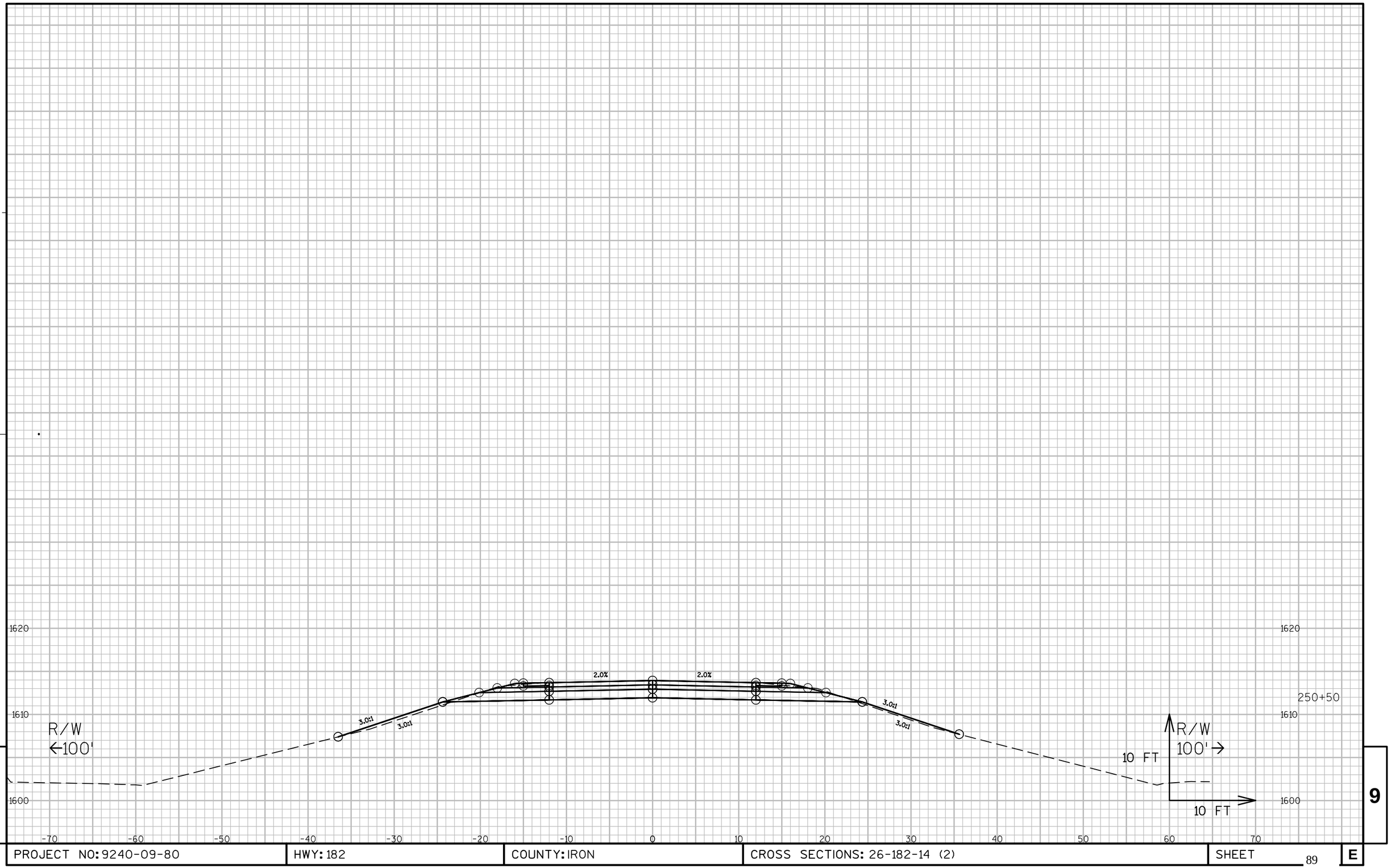
9

9

PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-14	SHEET 88	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 14_XS (1)

PLOT DATE : 4/13/2015 7:13 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



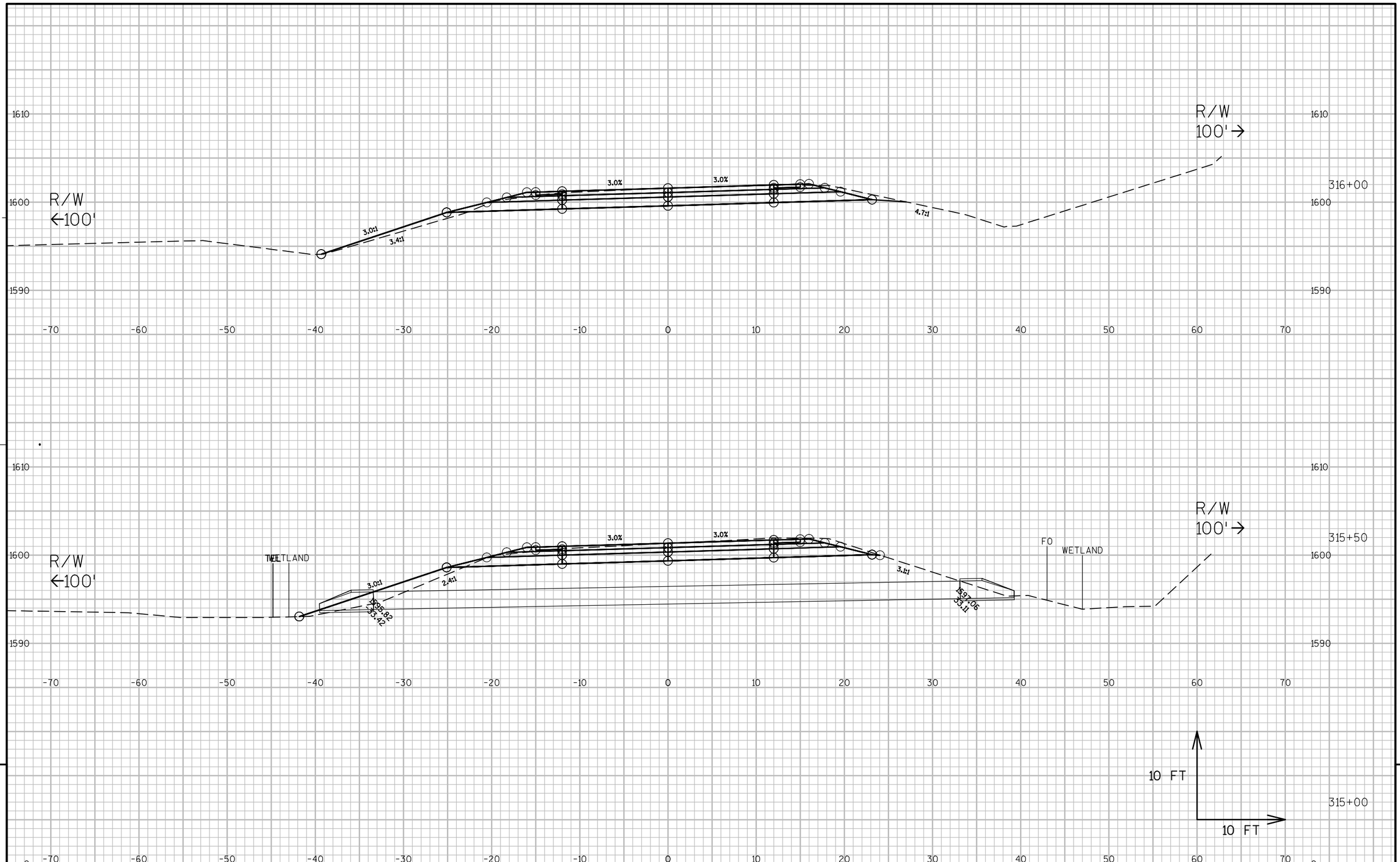
9

9

PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-14 (2)	SHEET 89	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 14_XS (2)

PLOT DATE : 4/13/2015 7:13 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

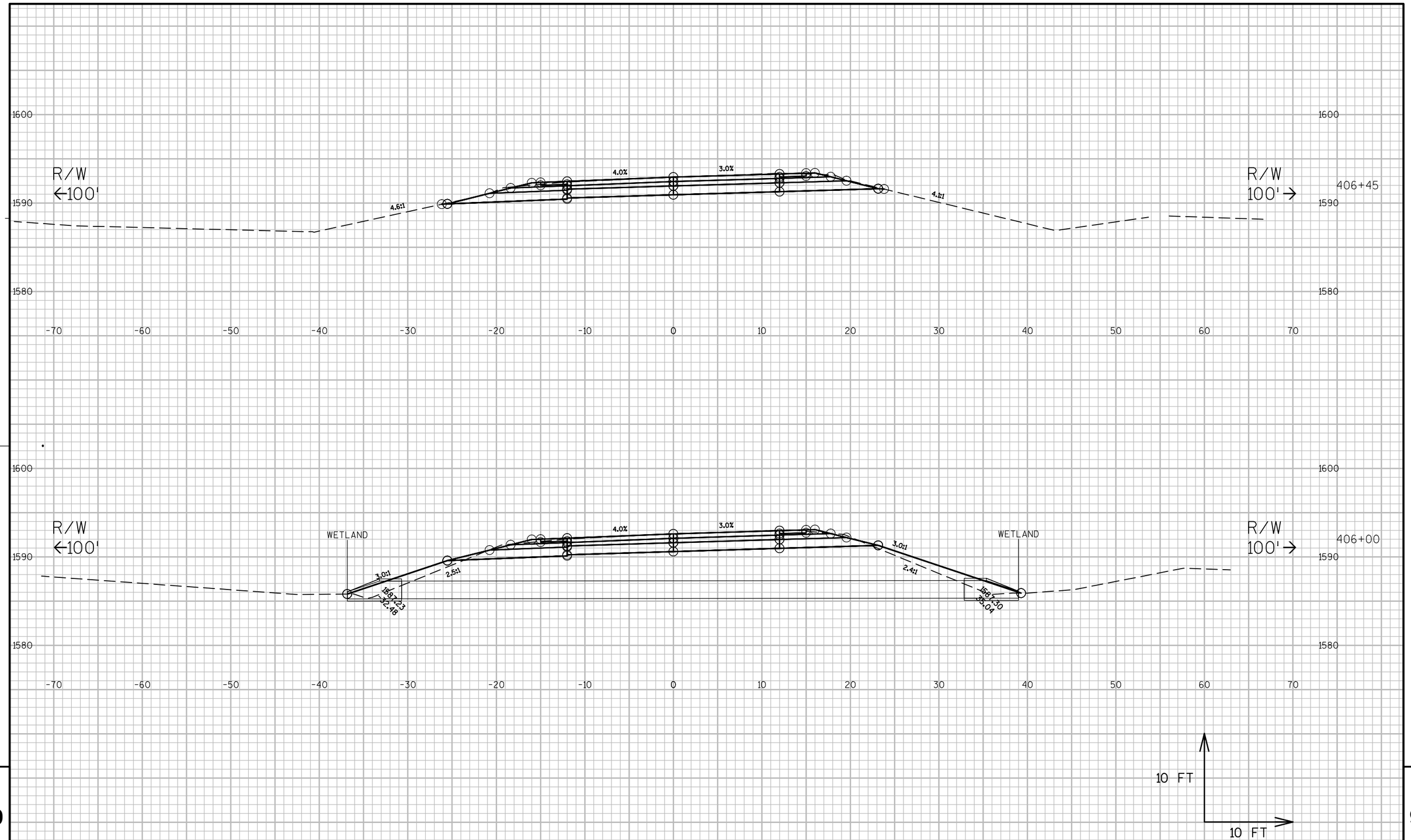


9

PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-17R	SHEET 90	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 17R_XS

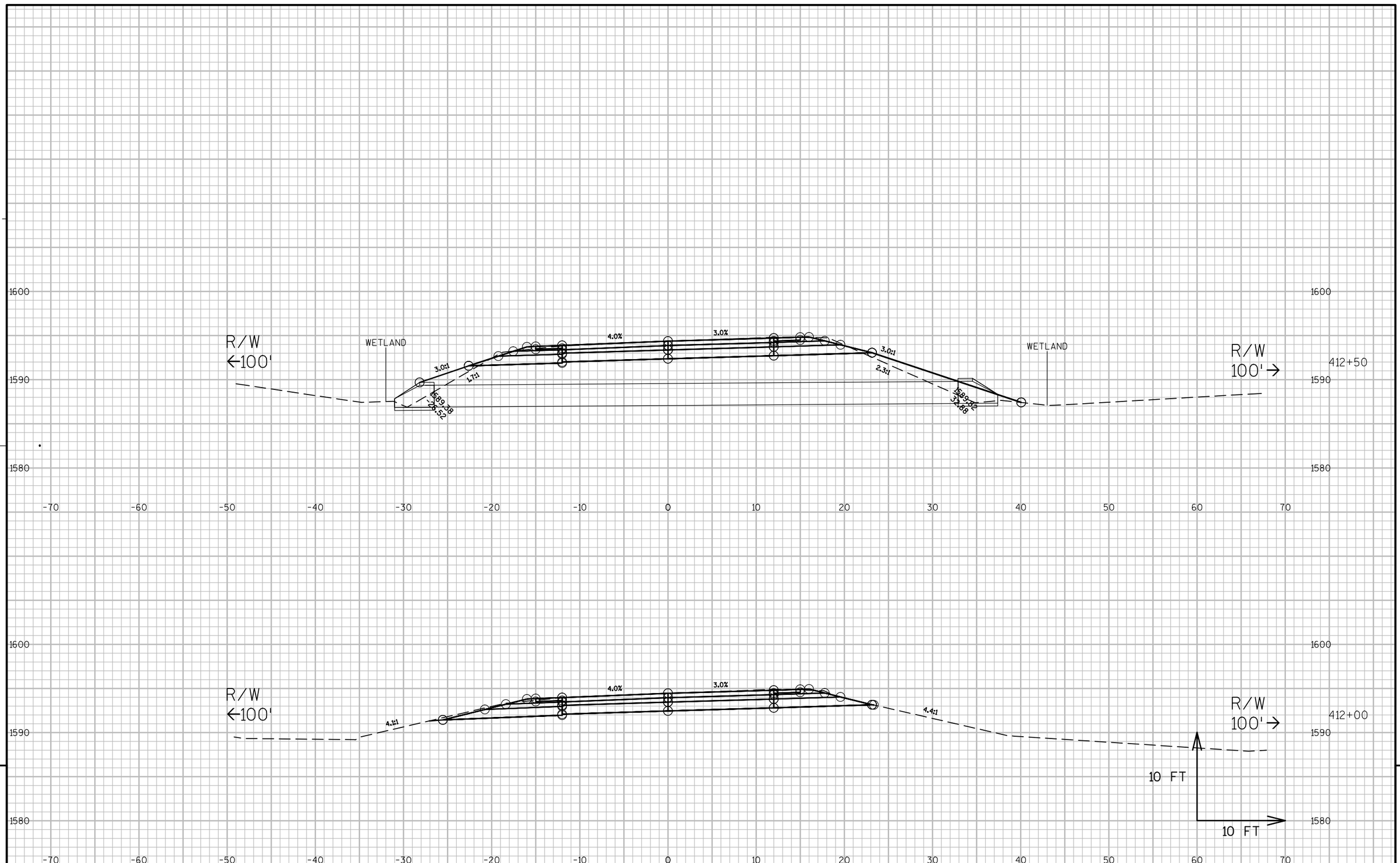
PLOT DATE : 4/13/2015 7:13 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-26	SHEET 91	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 26_XS

PLOT DATE : 4/13/2015 7:13 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



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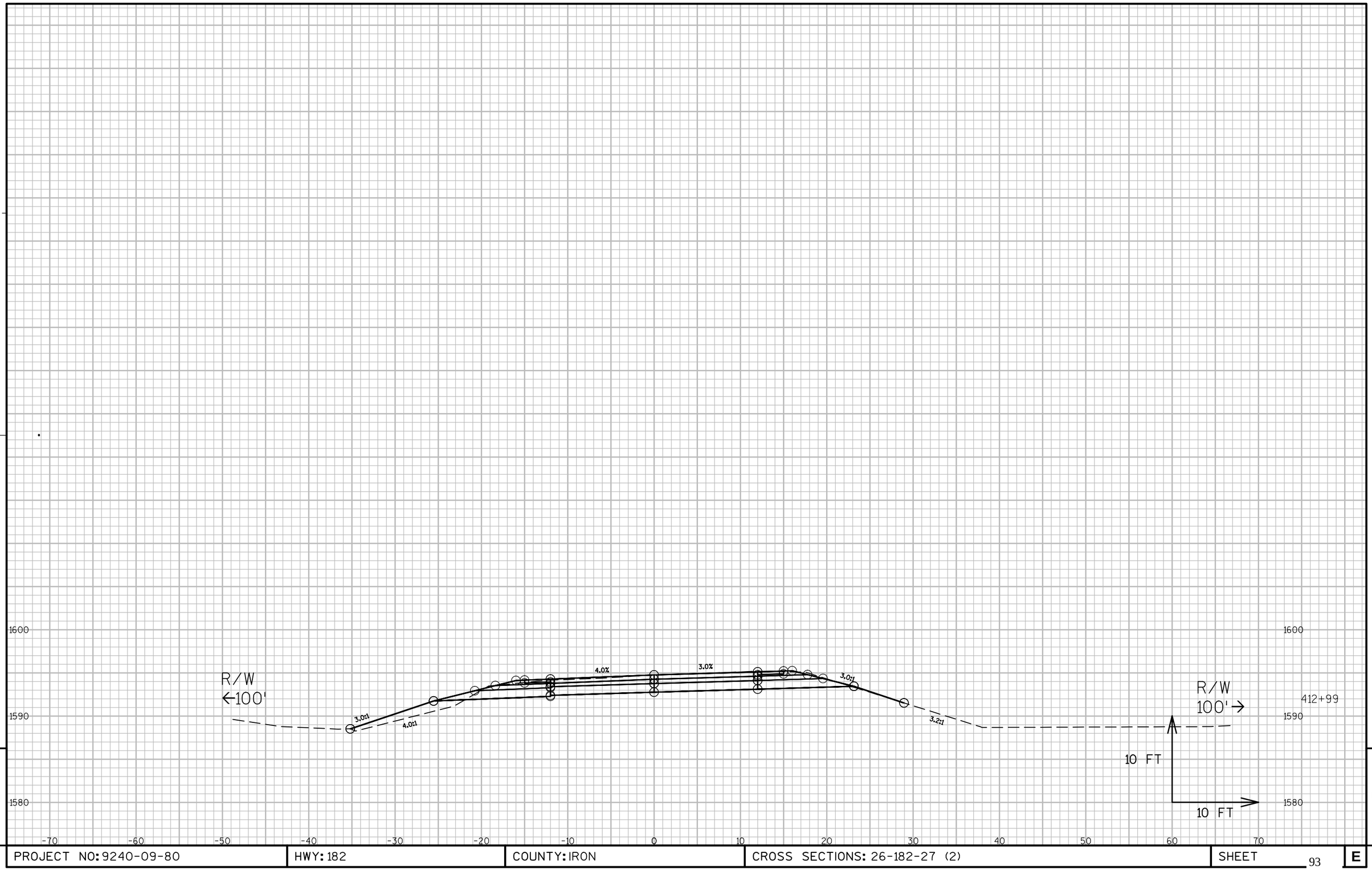
PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-27	SHEET 92	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - ****

PLOT DATE : 4/13/2015 7:13 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

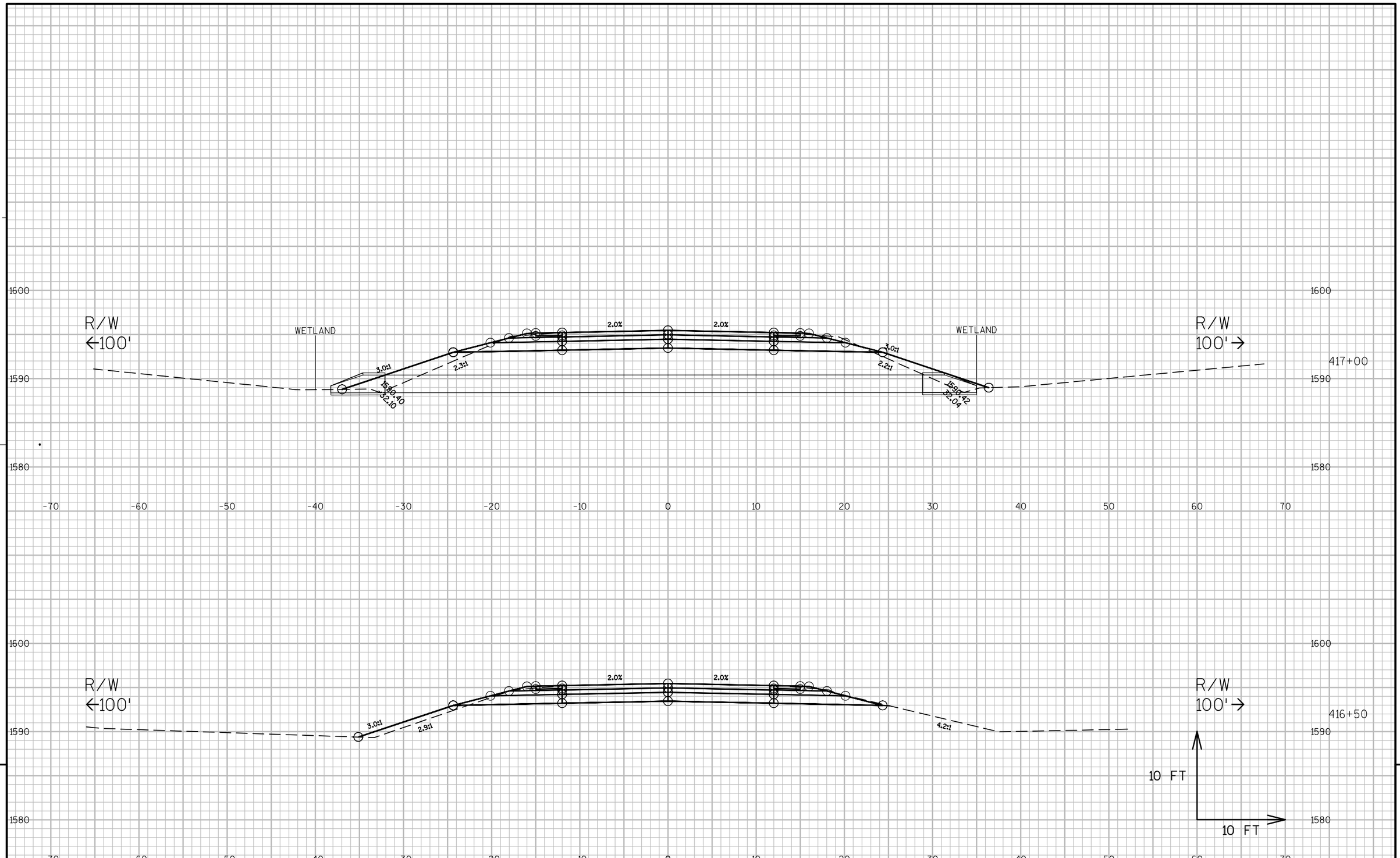
WISDOT/CADDS SHEET 49



PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-27 (2)	SHEET 93	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 27_XS (2)

PLOT DATE : 4/13/2015 7:13 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

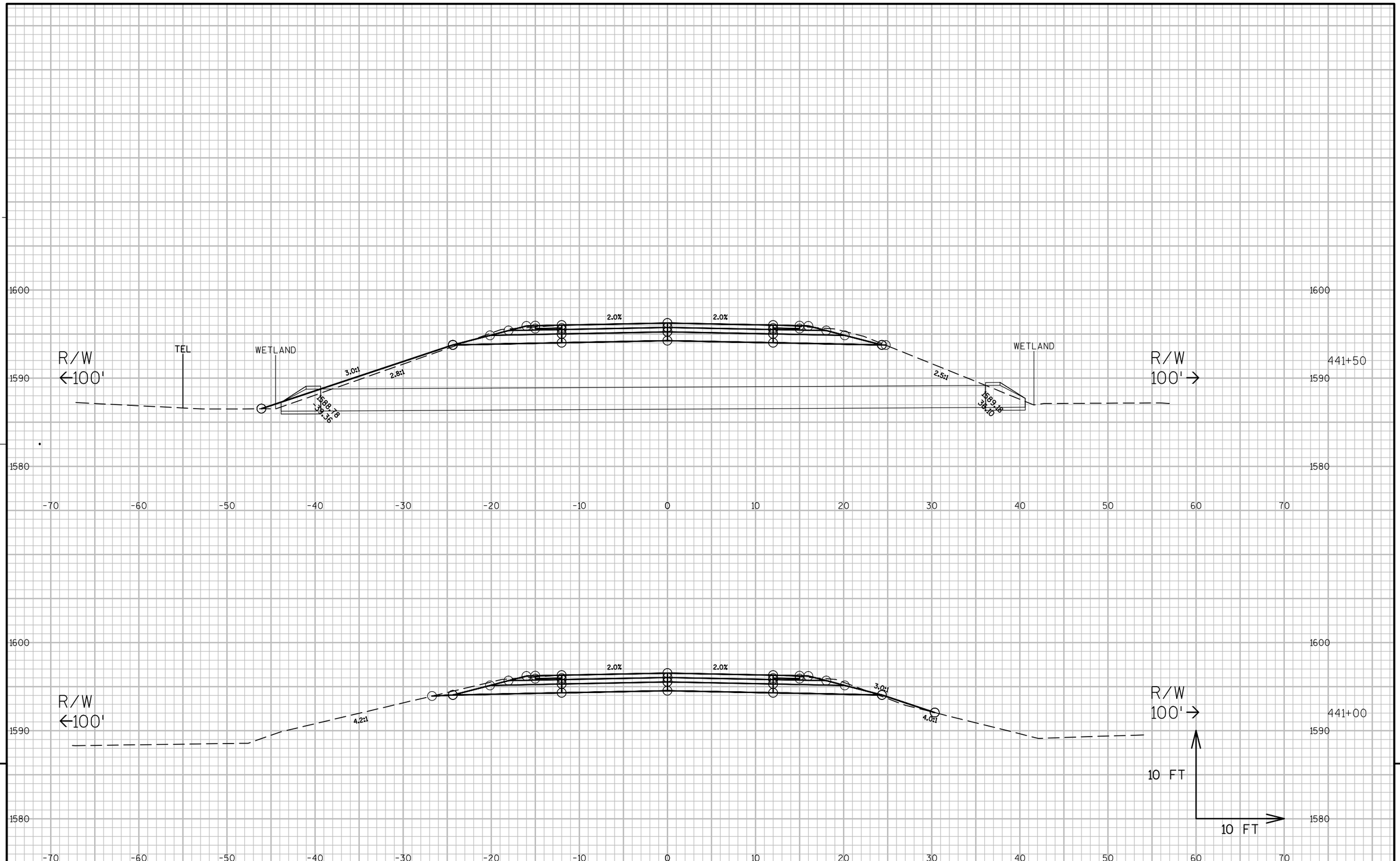


PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-28	SHEET 94	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 28_XS

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

WISDOT/CADDS SHEET 49

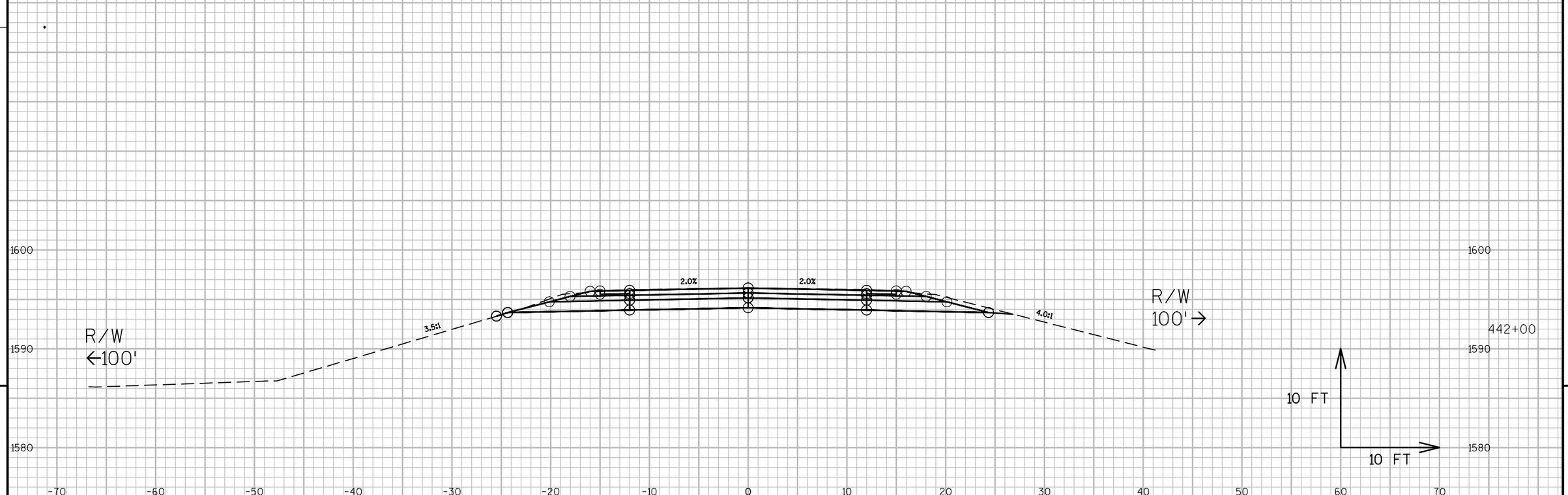


PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-28R	SHEET 95	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - ****

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

WISDOT/CADDS SHEET 49



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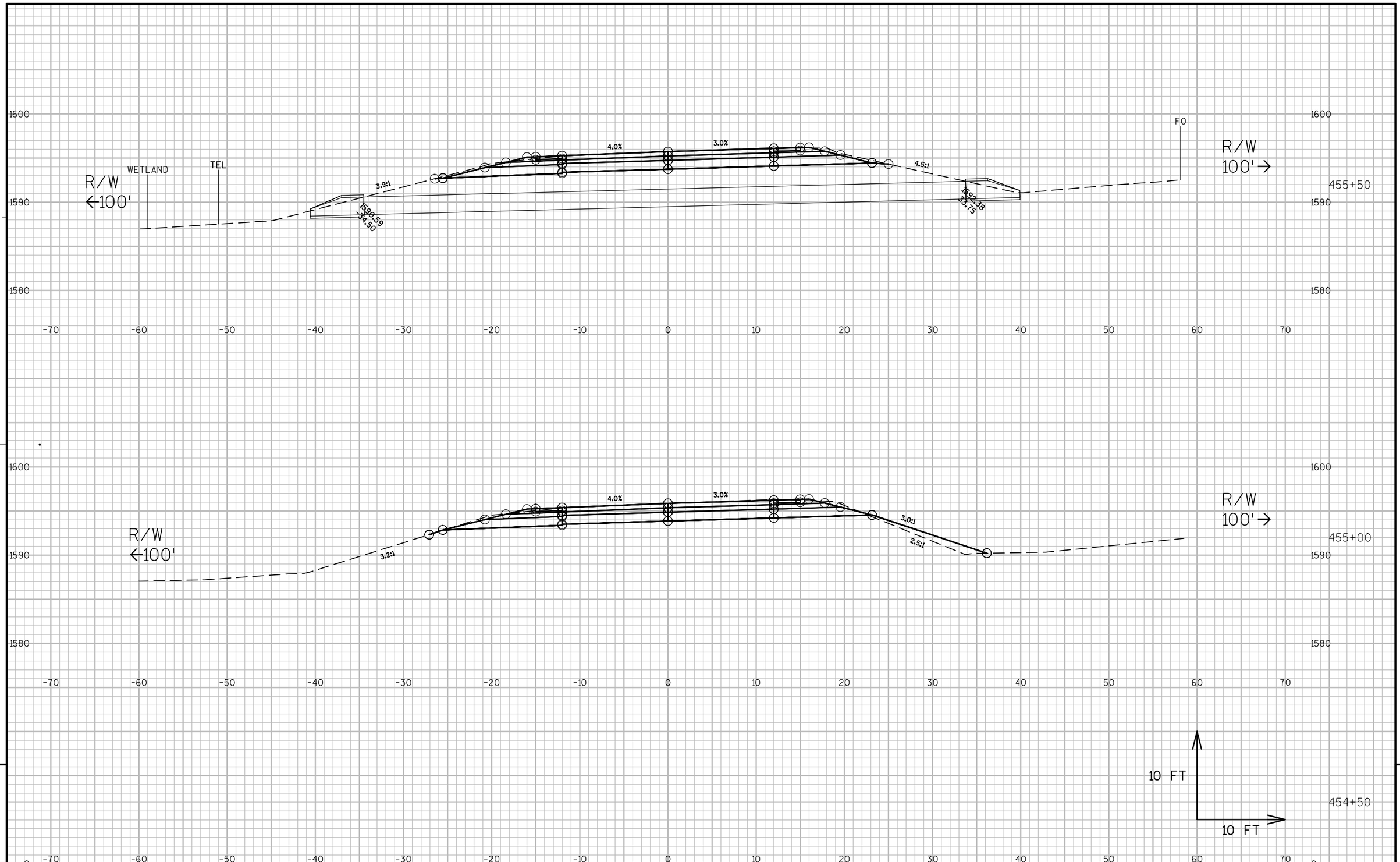
PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-28R (2)	SHEET 96	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 28R_XS (2)

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

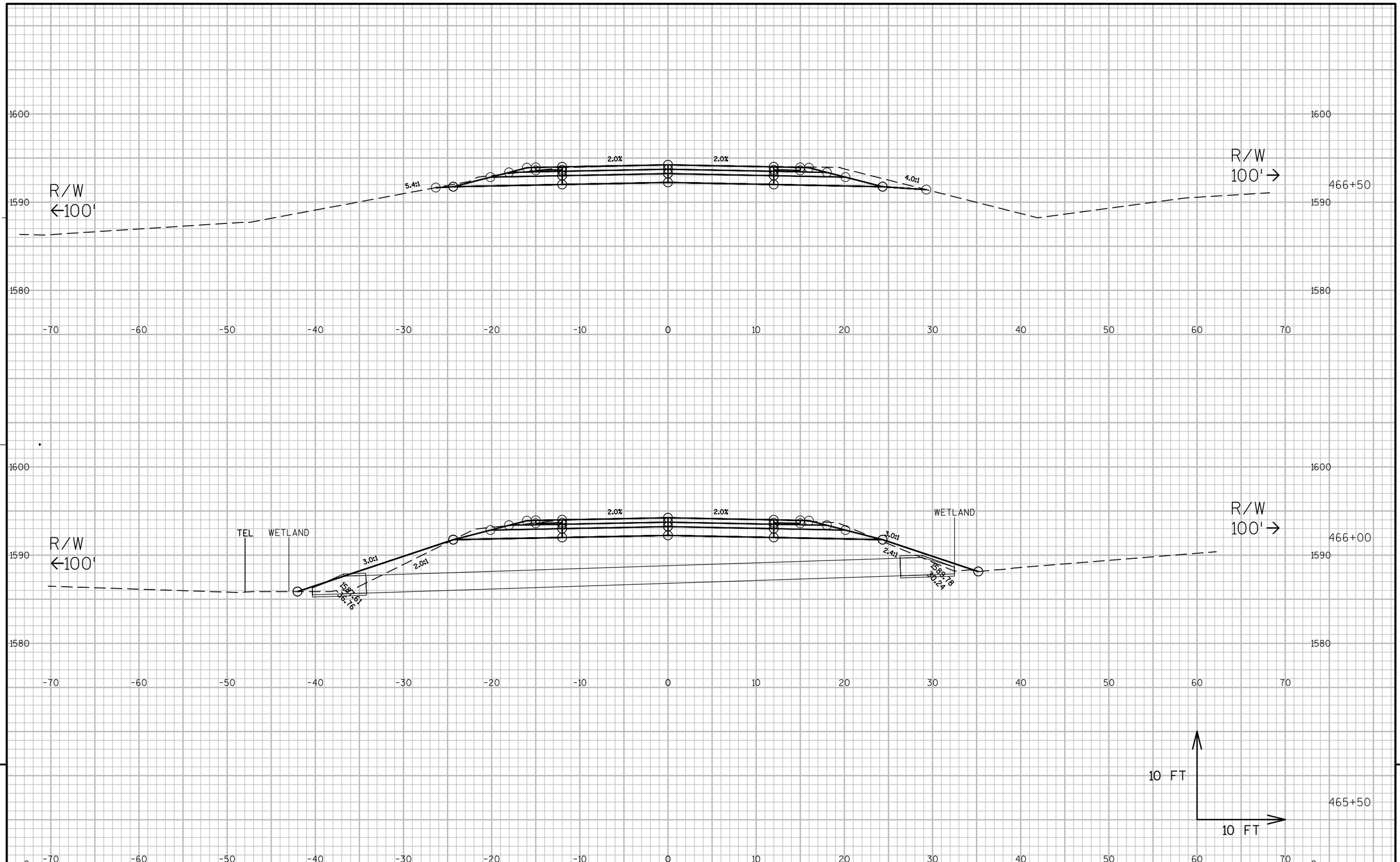


PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-29R	SHEET 97	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 29R_XS

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

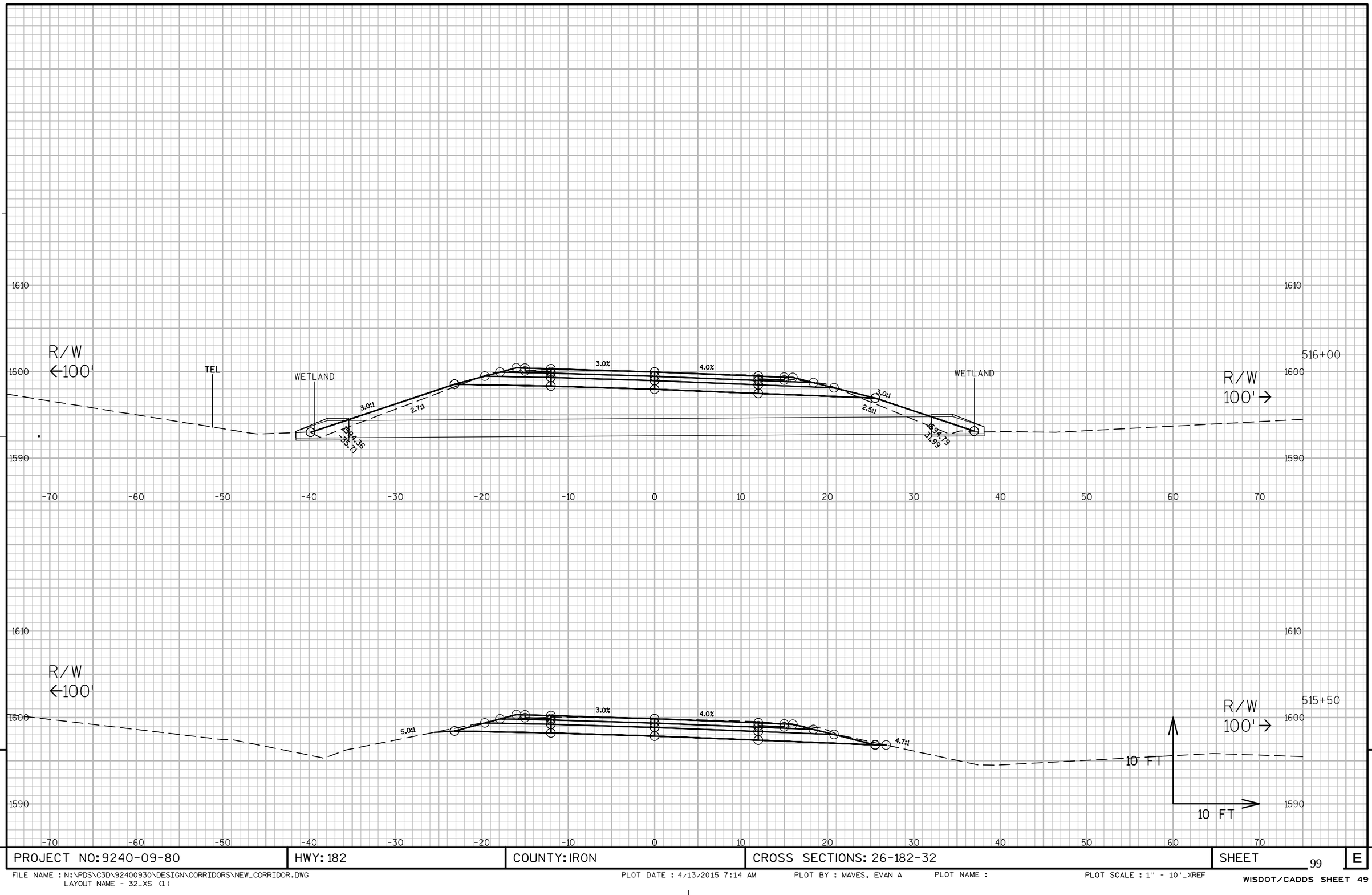
WISDOT/CADDS SHEET 49



PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-30	SHEET 98	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 30_XS

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



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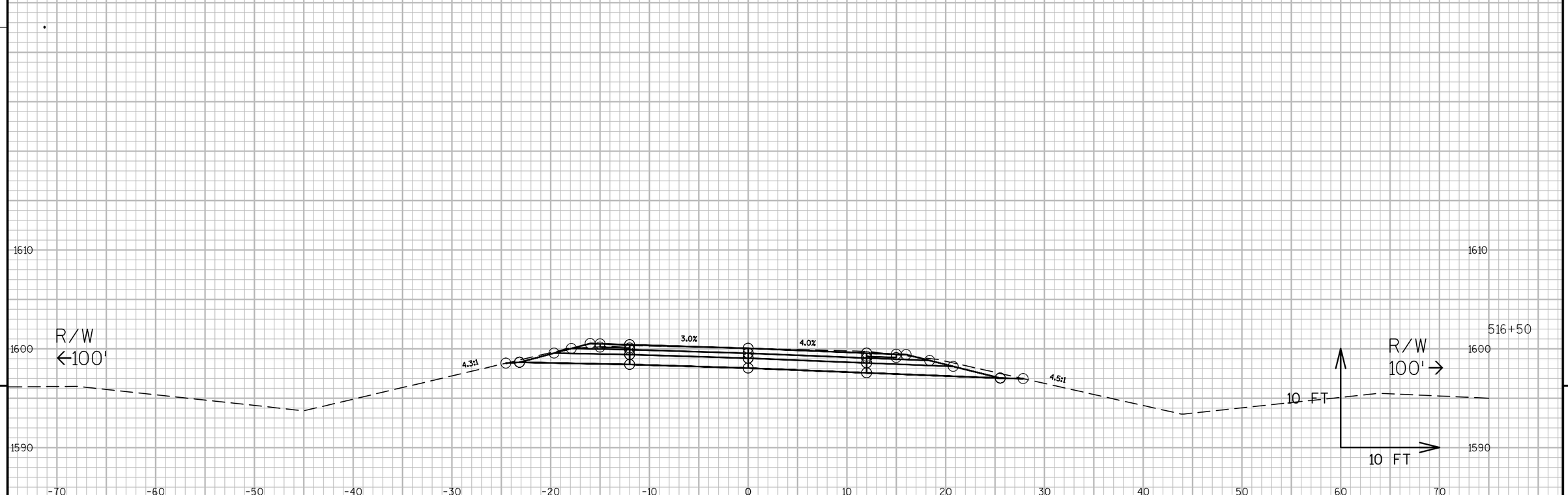
PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-32	SHEET 99	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 32_XS (1)

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



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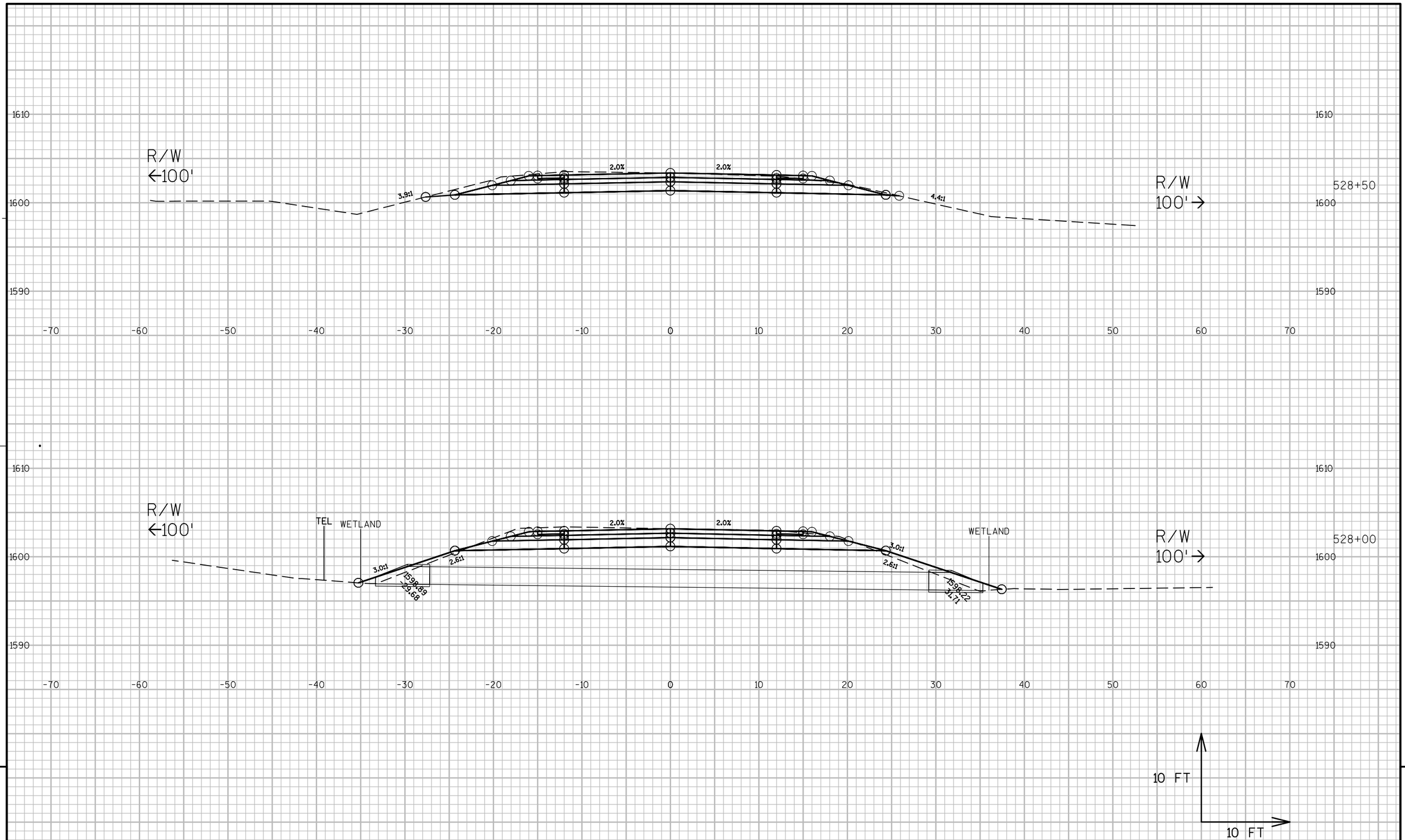
PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-32 (2)	SHEET 100	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 32_XS (2)

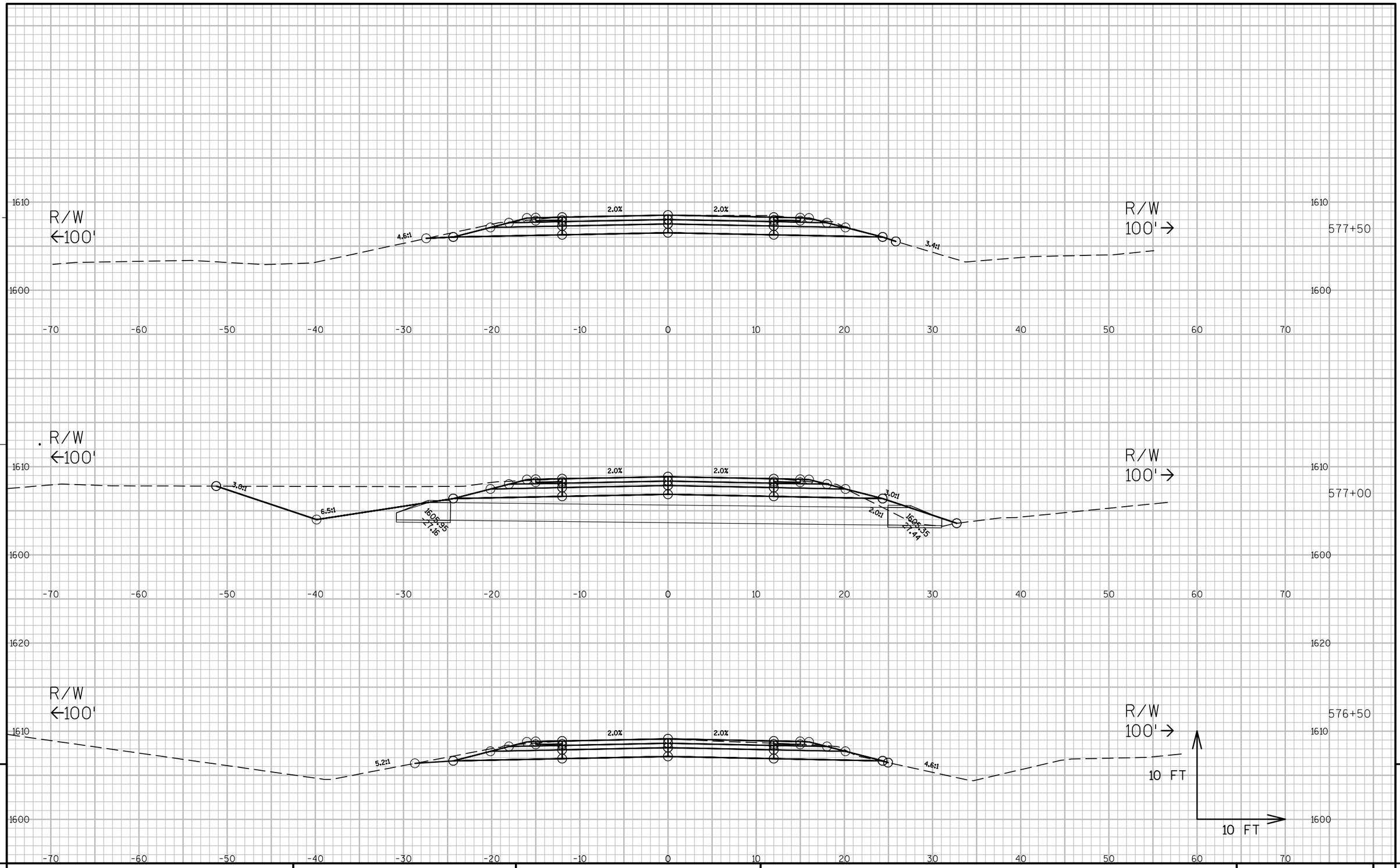
PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-33	SHEET 101	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 33_XS

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

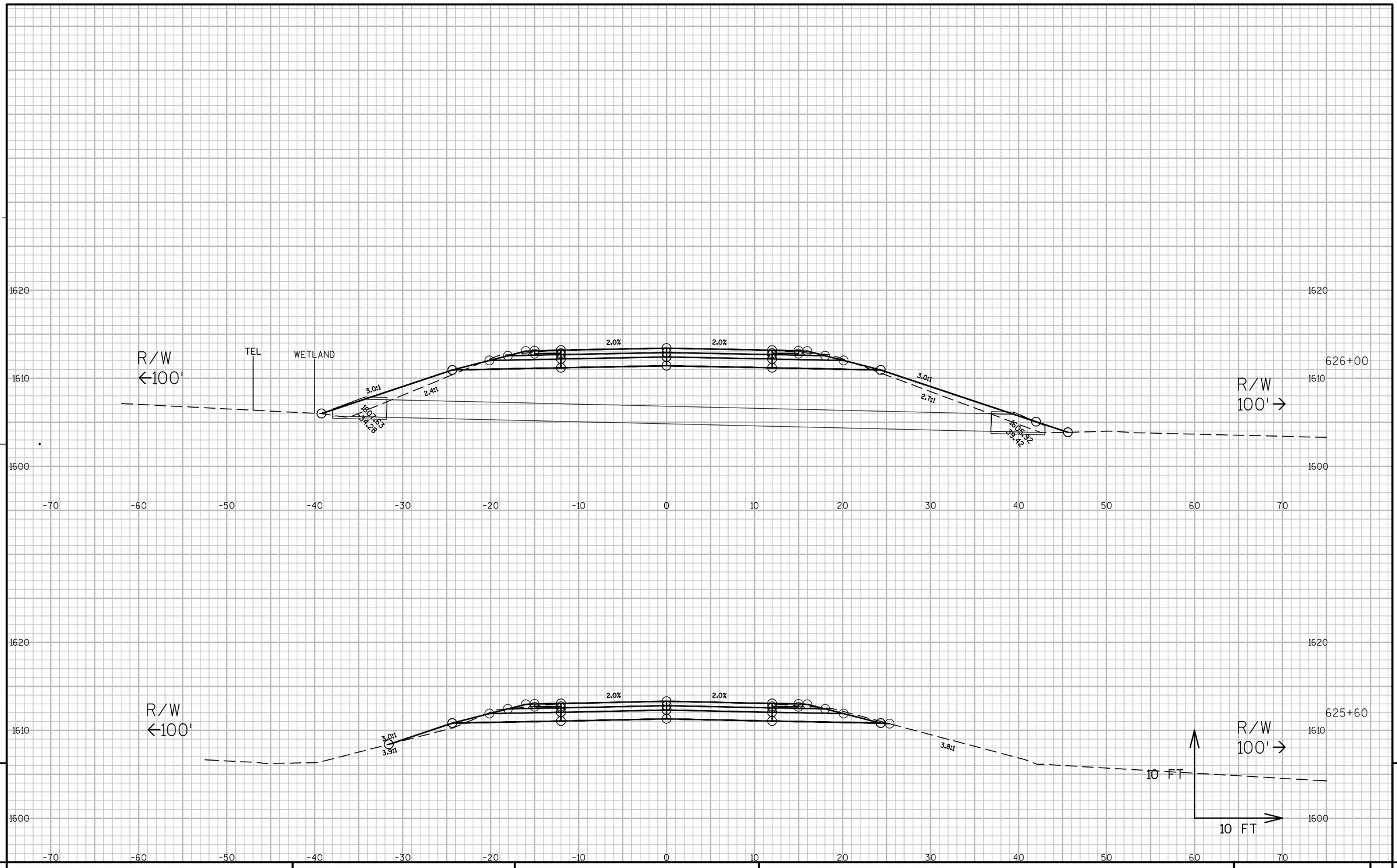


PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-36	SHEET 102	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 36_XS

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

WISDOT/CADDS SHEET 49



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PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-38	SHEET 103	E

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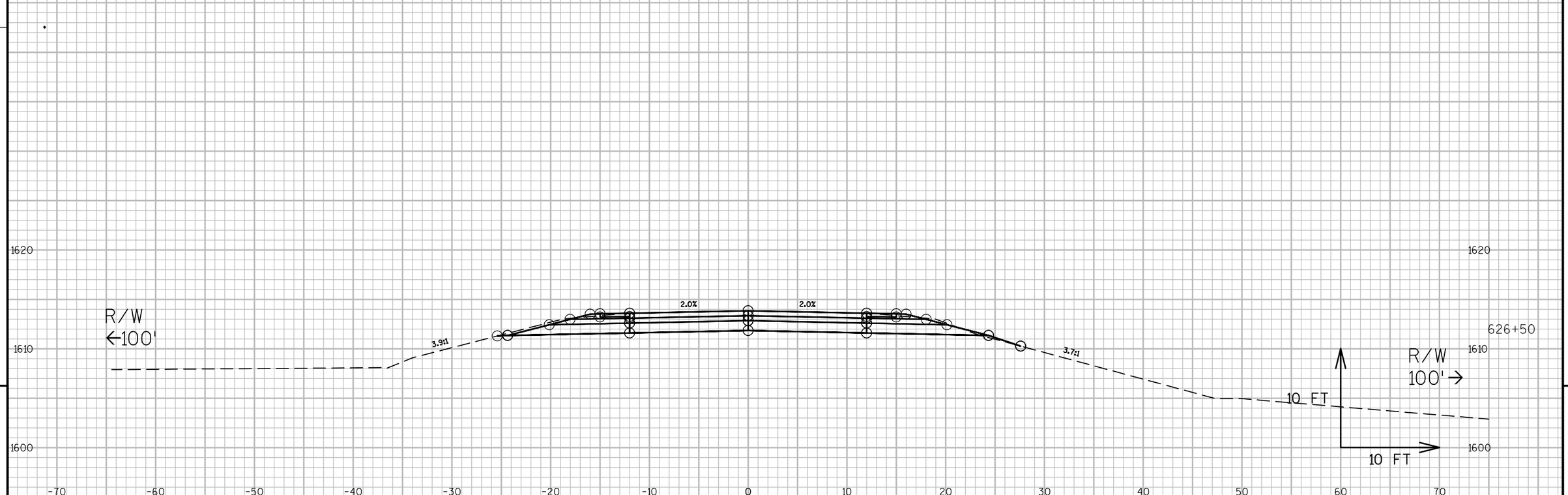
FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 38_XS(1)

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



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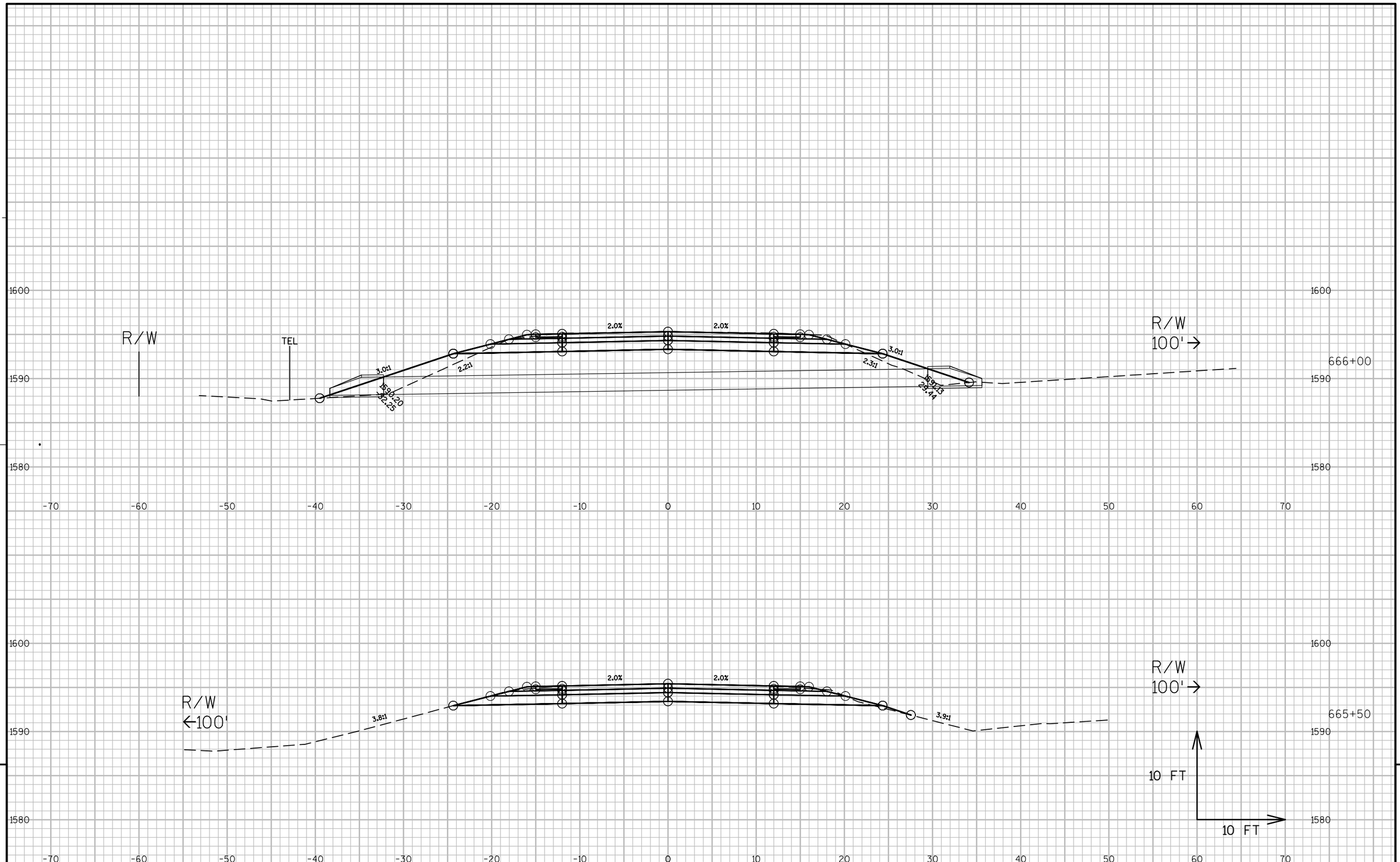
PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-38 (2)	SHEET 104	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 38_XS (2)

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF



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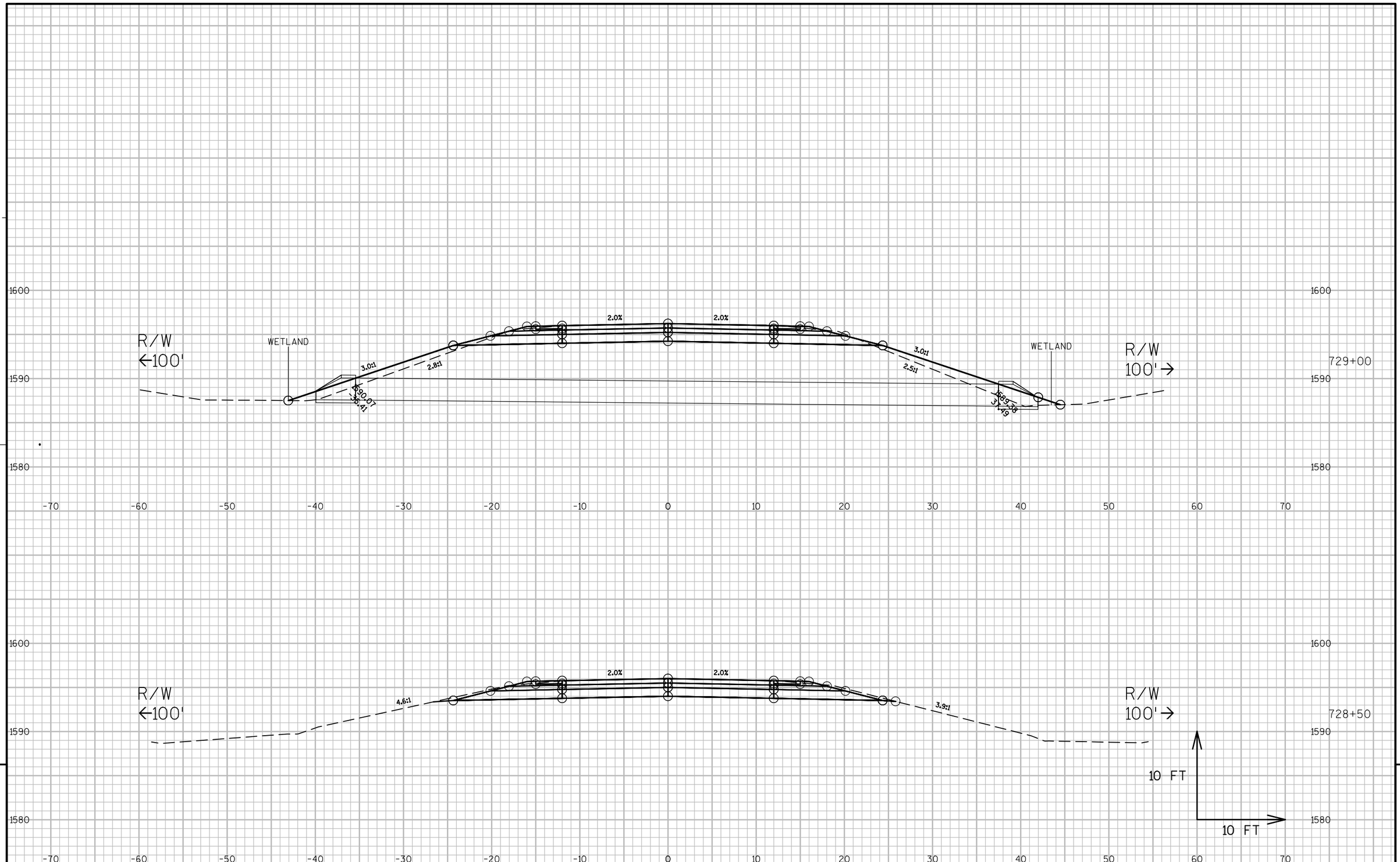
PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-40	SHEET 105	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 40_XS

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

WISDOT/CADDS SHEET 49



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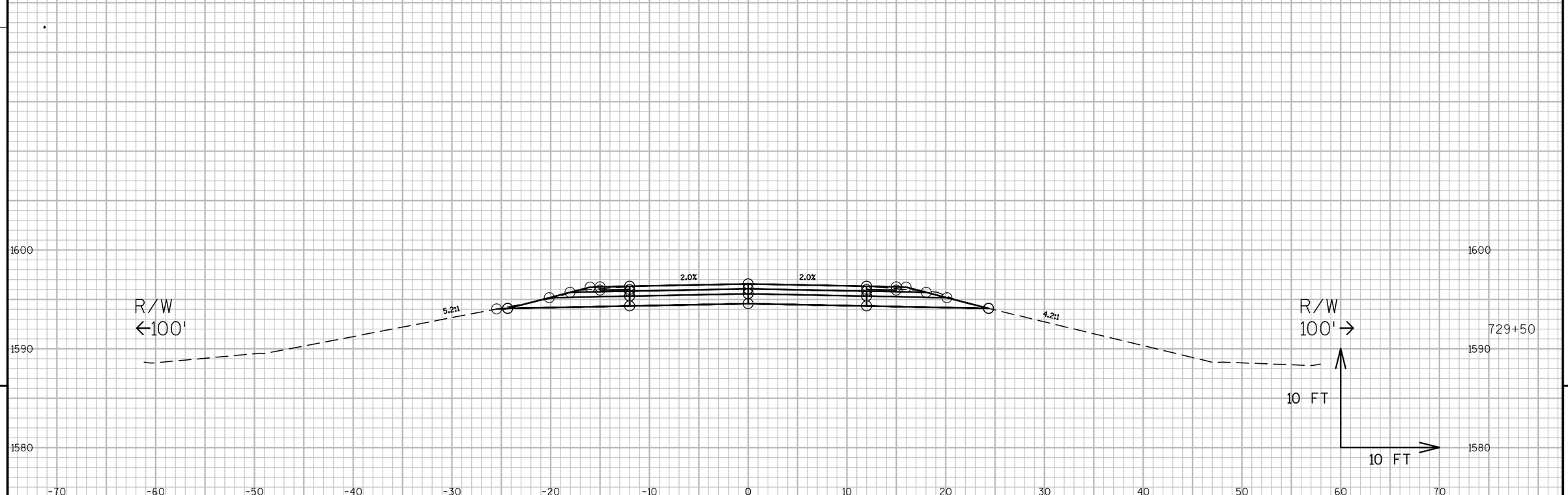
PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-43	SHEET 106	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 43_XS(1)

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

WISDOT/CADDS SHEET 49



9

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PROJECT NO: 9240-09-80	HWY: 182	COUNTY: IRON	CROSS SECTIONS: 26-182-43 (2)	SHEET 107	E

FILE NAME : N:\PDS\C3D\92400930\DESIGN\CORRIDORS\NEW_CORRIDOR.DWG
LAYOUT NAME - 43_XS (2)

PLOT DATE : 4/13/2015 7:14 AM PLOT BY : MAVES, EVAN A PLOT NAME : PLOT SCALE : 1" = 10'_XREF

Wisconsin Department of Transportation

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