WIS

FEBRUARY 2023

PROJECT ID: 6688-00-70

WITH: N/A

COUNTY: MARATHON

37

ORDER OF SHEETS

TOTAL SHEETS = 78

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T GREEN VALLEY, RANGELINE ROAD

LITTLE EAU PLEINE RVR BR B-37-466

LOC STR
MARATHON COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6688-00-70		

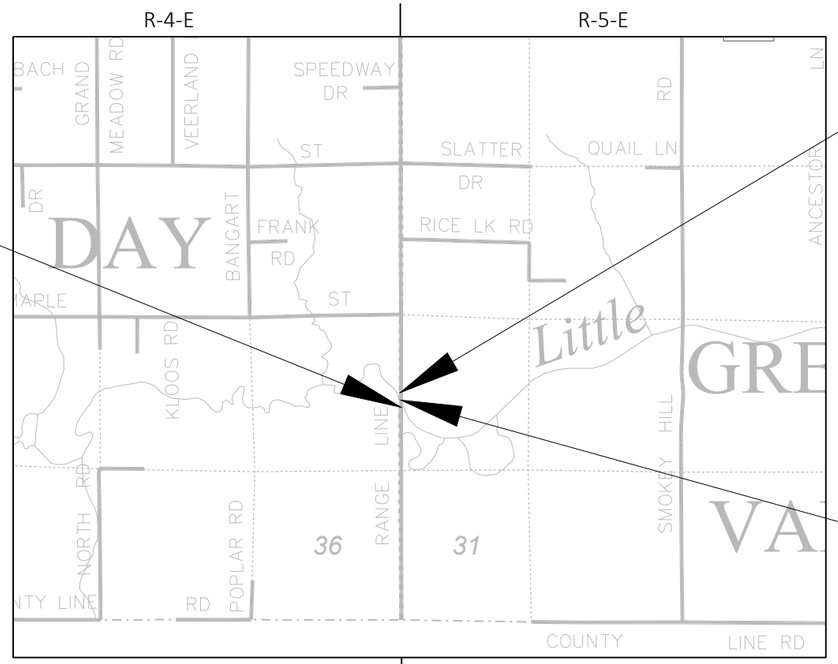
STATE PROJECT NUMBER
6688-00-70

N

BEGIN PROJECT
STA 9+00.00
Y=109436.954
X=194471.343

END PROJECT
STA 11+00.00

STRUCTURE
B-37-466



DESIGN DESIGNATION

A.A.D.T.	(2023)	=	270
A.A.D.T.	(2043)	=	285
D.H.V.		=	43
D.D.		=	60/40
T.		=	7%
DESIGN SPEED		=	55 MPH (STATUTORY)
ESALS		=	44,000

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 (300'EB')
- 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

LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.038 MI

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

ACCEPTED FOR

TOWN OF GREEN VALLEY

Date 10//27/22 James M. Griesbach Highway Commissioner
(Signature and Title of Official)

ORIGINAL PLANS PREPARED BY

AECOM

WISCONSIN PROFESSIONAL ENGINEER
JESSICA L LANCELLE
E-44657
MILWAUKEE
WISCONSIN
10/27/2022

DATE: _____ _____
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AECOM
Designer	AECOM
Project Manager	MICHAEL GRAGE, P.E.
Regional Examiner	N/A
Regional Supervisor	DAN ERVA, P.E.

APPROVED FOR THE DEPARTMENT

DATE: 10/27/2022 _____
(Signature)

E

FILE NAME : C:\ONEDRIVE\AECOM\60648403 - RANGELINE RD, MARATHON COUNTY - 0_RECORDS\900_CAD_GIS\910_CAD\66880070\SHEETSPLAN\0101-TI.DWG PLOT DATE : 10/27/2022 11:10 AM PLOT BY : LANCELLE, JESSICA PLOT NAME :

2

SECTION 2 SHEETS

PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
EROSION CONTROL

GENERAL NOTES

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

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

EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE AND IS NOT SHOWN ON THE CROSS SECTIONS. IF EBS IS REQUIRED, IT SHALL BE MEASURED AND PAID FOR AS EXCAVATION COMMON. LOCATION FOR EBS WILL BE DETERMINED BY THE ENGINEER.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE RESTORED WITH FERTILIZER, SEED, AND EROSION MAT.

EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

WETLANDS ARE PRESENT WITHIN THE PROJECT LIMITS. DO NOT OPERATE EQUIPMENT OUTSIDE THE SLOPE INTERCEPTS.

THE WISCONSIN DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR AN ALUMINUM MONUMENT TO SET IN THE STRUCTURE AS DESIGNATED BY THE ENGINEER.

TRAFFIC CONTROL REQUIRES FULL CLOSURE OF RANGELINE ROAD FOR THE DURATION OF THE PROJECT. REFER TO STANDARD DETAIL DRAWING "BARRICADES AND SIGNS FOR MAINLINE CLOSURE"

RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 1.44 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.657 ACRES

UTILITY CONTACTS:
NONE

WDNR CONTACT:
CASEY JONES
DNR WISCONSIN RAPIDS SERVICE CENTER
473 GRIFFITH DRIVE
WISCONSIN RAPIDS, WI 54494
PHONE: (715) 213-6571
EMAIL: CASEY.JONES@WISCONSIN.GOV

LOCAL CONTACT:
MICHAEL GRAGE
510 HANSON LAKE RD
RHINELANDER, WI 54501
PHONE: (715) 365-5705
EMAIL: MICHAEL.GRAGE@DOT.WI.GOV

CONSULTANT CONTACT:
JAMES RHOAD-DROGALIS
1350 DEMING WAY
MIDDLETON, WI 53562
PHONE: (570) 357-8172
EMAIL: JAMES.DROGALIS@AECOM.COM

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

2

N

TOWN OF DAY

LITTLE EAU PLEINE RIVER

RANGELINE RD

BP: 5+00.00

PC: 6+38.41

PT: 7+25.74

PC: 8+40.87

PI STA = 9+00.38
Y = 109437.180
X = 194466.946
DELTA = 16°55'31" RT
D = 14°19'26"
T = 59.51'
L = 118.16'
R = 400.00'
PC STA = 8+40.87
PT STA = 9+59.03

PT: 9+59.03

B-37-466

PC: 10+41.88

PT: 11+60.97

EP: 14+25.00

N2°52'16"W

N4°52'21"W

N12°03'10"E

N0°56'40"W

Y = 109037.805
X = 194494.609

PI STA = 6+82.08
Y = 109219.655
X = 194485.489
DELTA = 2°00'05" LT
D = 2°17'31"
T = 43.67'
L = 87.33'
R = 2500.00'
PC STA = 6+38.41
PT STA = 7+25.74

BEGIN PROJECT
STA 9+00.00
MATCH EXISTING
SAW CUT REQ'D
Y = 109436.954
X = 194471.343

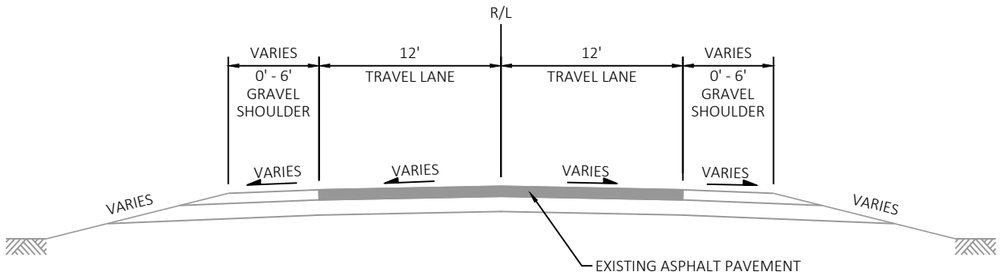
PI STA = 11+01.68
Y = 109634.886
X = 194509.160
DELTA = 12°59'50" LT
D = 10°54'49"
T = 59.80'
L = 119.09'
R = 525.00'
PC STA = 10+41.88
PT STA = 11+60.97

END PROJECT
STA 11+00.00
MATCH EXISTING
SAW CUT REQ'D

TOWN OF GREEN VALLEY

PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	PROJECT OVERVIEW	SHEET 3	E

FILE NAME : C:\ONEDRIVE\AECOM DIRECTORY\60648403 - RANGELINE RD, MARATHON COUNTY - 0_RECORDS\900_CAD_GIS\910_CAD\66880070\SHEETSPLAN\0202-PO.DWG
LAYOUT NAME - 020201-po
PLOT DATE : 8/16/2022 2:53 PM
PLOT BY : DAY, JOHN
PLOT NAME :
PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42



TYPICAL EXISTING SECTION

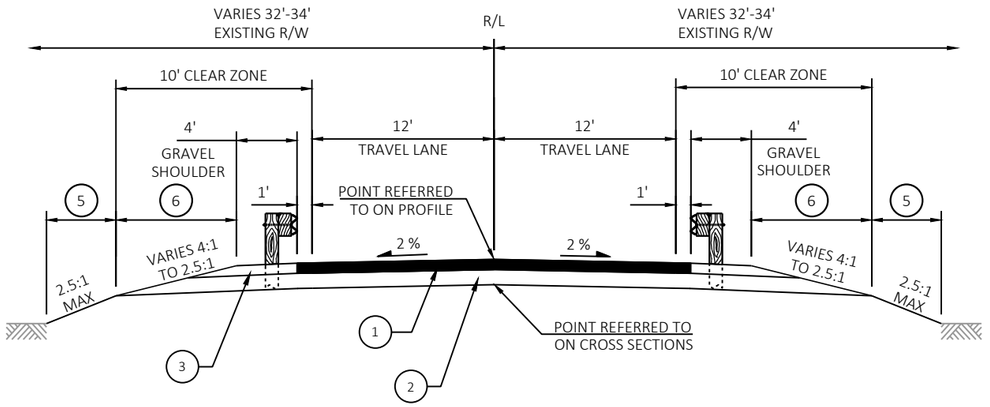
STA. 9+00.00 TO STA. 9+60.60
STA. 10+39.40 TO STA. 11+00.00

LEGEND

1. 4.5" ASPHALTIC SURFACE
   2.5" LOWER LIFT
   2" UPPER LIFT
2. 12" BASE AGGREGATE DENSE 1 1/4-INCH
3. 4.5" BASE AGGREGATE DENSE 3/4-INCH
5. PLACE TOPSOIL, SEED*, FERTILIZER, AND EROSION MAT
6. PLACE SEED* AND FERTILIZER

* SEEDING MIXTURE NO. 60 TO BE USED IN WETLAND AREAS. SEEDING MIXTURE NO. 20 TO BE USED IN ALL OTHER SEEDED AREAS.

SEEDING TEMPORARY NEEDED IN ALL DISTURBED AREAS.



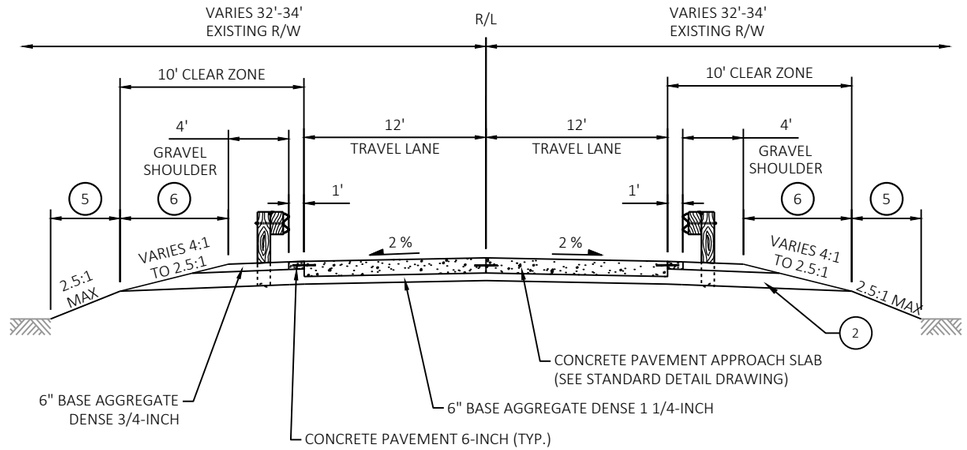
TYPICAL PROPOSED SECTION

STA. 9+00.00 TO STA. 9+26.90
STA. 10+70.80 TO STA. 11+00.00

PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	TYPICAL SECTIONS	SHEET 4	E

FILE NAME : C:\ONEDRIVE\AECOM DIRECTORY\60648403 - RANGELINE RD, MARATHON COUNTY - 0_RECORDS\900_CAD_GIS\910_CAD\66880070\SHEETSPLAN\0203-TS.DWG
LAYOUT NAME - 020301-ts
PLOT DATE : 10/12/2022 8:40 PM
PLOT BY : DAY, JOHN
PLOT NAME :
PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42

2



TYPICAL PROPOSED SECTION

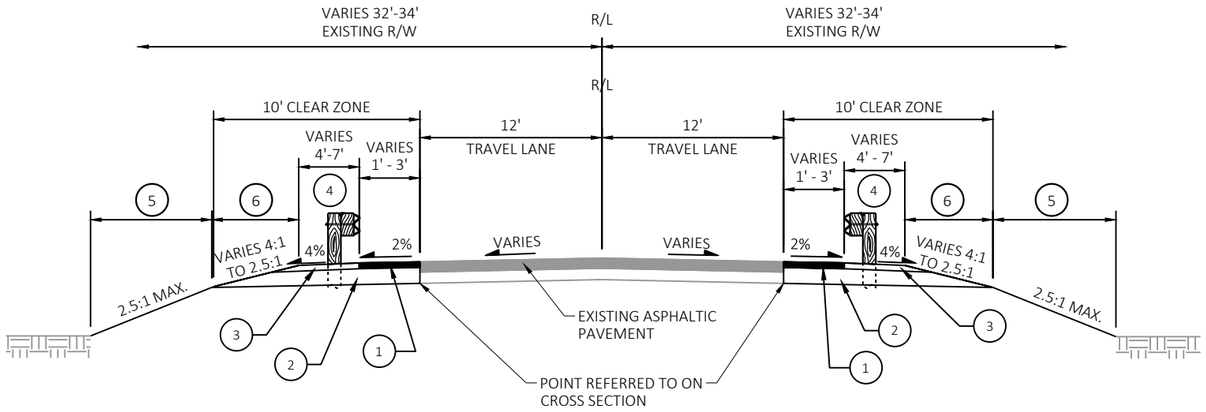
STA. 9+26.90 TO STA. 9+49.49
STA. 10+48.47 TO STA. 10+70.80

LEGEND

1. 4.5" ASPHALTIC SURFACE
   2.5" LOWER LIFT
   2" UPPER LIFT
2. 12" BASE AGGREGATE DENSE 1 1/4-INCH
3. 4.5" BASE AGGREGATE DENSE 3/4-INCH
4. GUARDRAIL
   STA 7+39.14 TO STA 9+00.00 RT
   STA 8+53.42 TO STA 9+00.00 LT
   STA 11+00.00 TO STA 11+44.63 RT
   STA 11+00.00 TO STA 12+58.32 LT
5. PLACE TOPSOIL, SEED*, FERTILIZER, AND EROSION MAT
6. PLACE SEED* AND FERTILIZER

* SEEDING MIXTURE NO. 60 TO BE USED IN WETLAND AREAS. SEEDING MIXTURE NO. 20 TO BE USED IN ALL OTHER SEEDED AREAS.

SEEDING TEMPORARY NEEDED IN ALL DISTURBED AREAS.

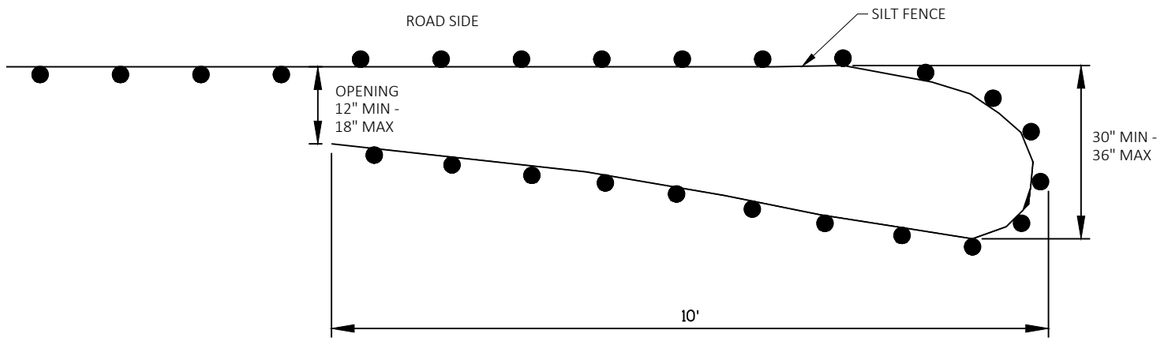


TYPICAL PROPOSED SECTION

STA 6+49.01 TO STA 9+00.00
STA 11+00.00 TO STA 13+69.63

PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	TYPICAL SECTIONS	SHEET 5	E

2



PLAN VIEW

GENERAL NOTES:
SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND. AND TRENCHED IN ACCORDING TO SILT FENCE REQUIREMENTS.

SEE PLANS FOR SILT FENCE LOCATIONS. INSTALL TURN-AROUND AT END OF SHOWN FENCING.

ROADSIDE OFFSETS DEPENDENT ON LOCATION.

TEMPORARY SMALL ANIMAL TURN-AROUND

LEGEND

Ⓡ RED BUOY (MARKS RIGHT SIDE OF CHANNEL)

Ⓖ GREEN BUOY (MARKS LEFT SIDE OF CHANNEL)

Ⓒ "CONSTRUCTION AHEAD" BUOY

● DANGER BUOY — DISPLAY "BRIDGE WORK" ON BUOY

NOTES:
1. PROVIDE ONE 20-FT WIDE NAVIGATION CHANNEL THROUGH THE LITTLE EAU PLEINE RIVER MAIN CHANNEL AT ALL TIMES.
2. NAVIGATION CHANNEL MUST BE A STRAIGHT PATH THROUGH THE CONSTRUCTION ZONE.
3. NAVIGATION CHANNEL MAY MOVE LOCATION IN CONJUNCTION WITH THE CONSTRUCTION OPERATIONS.
4. PLACE NAVIGATION CHANNEL BUOYS AS FAR FROM THE EDGE OF CONSTRUCTION ACTIVITY AS PRACTICABLE (20-FT DESIRED MINIMUM).
5. PLACE NAVIGATION CHANNEL BUOYS 50-FT ALONG CHANNEL BOUNDARY.
6. PLACE NAVIGATION CHANNEL BUOYS 200-FT IN ADVANCE OF ANY CONSTRUCTION AREA.
7. PLACE DANGER BUOYS AT MAXIMUM 50-FT INTERVALS AROUND THE CONSTRUCTION AREAS WITHIN 10-FT OF EDGE OF CONSTRUCTION AREAS.
8. BUOYS SHALL HAVE REFLECTIVE TAPE.
9. A BUOY PLAN SHALL BE PRESENTED TO THE ENGINEER AND WDNR 2 WEEKS PRIOR TO THE START OF CONSTRUCTION FOR REVIEW.
10. PLACEMENT AND MAINTENENCE OF BUOYS IS INCIDENTAL TO STRUCTURE BID ITEMS FOR BRIDGE B-37-0466.

N

LITTLE EAU PLEINE RIVER

RANGELINE RD

6 8 10 12 14

BEGIN PROJECT
STA 9+00.00
MATCH EXISTING
SAW CUT REQ'D

END PROJECT
STA 11+00.00
MATCH EXISTING
SAW CUT REQ'D

2

PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	CONSTRUCTION DETAILS - WATERWAY MARKERS	SHEET 7	E

FILE NAME : C:\ONEDRIVE\AECOM DIRECTORY\60648403 - RANGELINE RD, MARATHON COUNTY - 0_RECORDS\900_CAD_GIS\910_CAD\66880070\SHEETSPLAN\0210-CD-BUOY.DWG
LAYOUT NAME - 021001-cd-buoy
PLOT DATE : 12/21/2021 4:16 PM PLOT BY : DAY, JOHN PLOT NAME : PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

2

N

LITTLE EAU PLEINE RIVER

WETLAND

WETLAND

TLE

WETLAND

TLE

EXISTING R/W

RANGELINE RD

7+00

8+00

9+00

10+00

11+00

12+00

13+00

14

TLE

WETLAND

SLOPE INTERCEPT

EXISTING R/W

WETLAND

SLOPE INTERCEPT

TLE

2 YEAR FREQUENCY:
Q2 = 4,070 CFS
HIGH WATER 2 ELEVATION = 1125.47
VELOCITY = 5.1 FPS

LEGEND

- EROSION MAT URBAN CLASS I TYPE B
- CULVERT PIPE DITCH CHECK
- TEMPORARY DITCH CHECK
- SILT FENCE
- TURBIDITY BARRIER
- RIP RAP (REFER TO BRIDGE PLANS)
- SURFACE WATER FLOW

PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	EROSION CONTROL	SHEET 8	E

FILE NAME : C:\ONEDRIVE\AECOM\60648403 - RANGELINE RD, MARATHON COUNTY - 0_RECORDS\900_CAD_GIS\910_CAD\66880070\SHEETSPLAN\0220-EC.DWG
LAYOUT NAME - 022001-ec
PLOT DATE : 10/18/2022 12:25 PM PLOT BY : LANCELLE, JESSICA PLOT NAME : PLOT SCALE : 1 IN:50 FT
WISDOT/CADDS SHEET 42

6688-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. B-37-0466	EACH	1.000	1.000
0004	205.0100	Excavation Common	CY	334.000	334.000
0006	206.1001	Excavation for Structures Bridges (structure) 01. B-37-0466	EACH	1.000	1.000
0008	206.5001	Cofferdams (structure) 01. B-37-0466	EACH	1.000	1.000
0010	208.0100	Borrow	CY	987.000	987.000
0012	210.1500	Backfill Structure Type A	TON	430.000	430.000
0014	213.0100	Finishing Roadway (project) 01. 6688-00-70	EACH	1.000	1.000
0016	305.0110	Base Aggregate Dense 3/4-Inch	TON	153.000	153.000
0018	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	827.000	827.000
0020	312.0115	Select Crushed Material	CY	60.000	60.000
0022	415.0060	Concrete Pavement 6-Inch	SY	10.000	10.000
0024	415.0410	Concrete Pavement Approach Slab	SY	121.000	121.000
0026	455.0605	Tack Coat	GAL	21.000	21.000
0028	465.0105	Asphaltic Surface	TON	76.000	76.000
0030	502.0100	Concrete Masonry Bridges	CY	355.000	355.000
0032	502.3200	Protective Surface Treatment	SY	435.000	435.000
0034	502.9000.S	Underwater Substructure Inspection (structure) 01. B-37-0466	EACH	1.000	1.000
0036	505.0400	Bar Steel Reinforcement HS Structures	LB	8,660.000	8,660.000
0038	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	49,110.000	49,110.000
0040	513.4061	Railing Tubular Type M	LF	280.000	280.000
0042	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0044	522.0124	Culvert Pipe Reinforced Concrete Class III 24-Inch	LF	18.000	18.000
0046	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	2.000	2.000
0048	550.0500	Pile Points	EACH	22.000	22.000
0050	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	770.000	770.000
0052	606.0300	Riprap Heavy	CY	230.000	230.000
0054	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	200.000	200.000
0056	614.2300	MGS Guardrail 3	LF	175.000	175.000
0058	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0060	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0062	618.0100	Maintenance And Repair of Haul Roads (project) 01. 6688-00-70	EACH	1.000	1.000
0064	619.1000	Mobilization	EACH	1.000	1.000
0066	624.0100	Water	MGAL	10.100	10.100
0068	625.0100	Topsoil	SY	1,002.000	1,002.000
0070	628.1504	Silt Fence	LF	1,150.000	1,150.000
0072	628.1520	Silt Fence Maintenance	LF	1,150.000	1,150.000
0074	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0076	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0078	628.2008	Erosion Mat Urban Class I Type B	SY	1,002.000	1,002.000
0080	628.6005	Turbidity Barriers	SY	387.000	387.000
0082	628.7504	Temporary Ditch Checks	LF	20.000	20.000
0084	628.7555	Culvert Pipe Checks	EACH	3.000	3.000
0086	629.0210	Fertilizer Type B	CWT	2.100	2.100
0088	630.0120	Seeding Mixture No. 20	LB	29.000	29.000
0090	630.0160	Seeding Mixture No. 60	LB	9.000	9.000
0092	630.0200	Seeding Temporary	LB	42.000	42.000
0094	630.0500	Seed Water	MGAL	67.000	67.000
0096	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0098	637.2230	Signs Type II Reflective F	SF	12.000	12.000

6688-00-70

Line	Item	Item Description	Unit	Total	Qty
0100	638.2602	Removing Signs Type II	EACH	6.000	6.000
0102	642.5001	Field Office Type B	EACH	1.000	1.000
0104	643.0420	Traffic Control Barricades Type III	DAY	1,458.000	1,458.000
0106	643.0705	Traffic Control Warning Lights Type A	DAY	2,106.000	2,106.000
0108	643.0900	Traffic Control Signs	DAY	1,134.000	1,134.000
0110	643.5000	Traffic Control	EACH	1.000	1.000
0112	645.0111	Geotextile Type DF Schedule A	SY	120.000	120.000
0114	645.0120	Geotextile Type HR	SY	390.000	390.000
0116	646.1020	Marking Line Epoxy 4-Inch	LF	1,600.000	1,600.000
0118	650.4500	Construction Staking Subgrade	LF	610.000	610.000
0120	650.5000	Construction Staking Base	LF	610.000	610.000
0122	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
0124	650.6501	Construction Staking Structure Layout (structure) 01. B-37-0466	EACH	1.000	1.000
0126	650.7000	Construction Staking Concrete Pavement	LF	60.000	60.000
0128	650.9911	Construction Staking Supplemental Control (project) 01. 6688-00-70	EACH	1.000	1.000
0130	650.9920	Construction Staking Slope Stakes	LF	610.000	610.000
0132	690.0150	Sawing Asphalt	LF	791.000	791.000
0134	715.0502	Incentive Strength Concrete Structures	DOL	2,130.000	2,130.000
0136	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0138	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 9+99	EACH	1.000	1.000

3

BASE AGGREGATE DENSE

STATION	-	STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON	624.0100 WATER MGAL
6+49	-	9+44	RANGELINE ROAD	77	379	4.6
7+98		8+10	DRIVEWAY LT	---	19	0.2
9+27	-	9+57	RANGELINE ROAD (CONC APP)	---	21	0.3
9+27	-	9+57	RANGELINE ROAD (CONC SHLDR)	---	4	0.1
10+41	-	10+71	RANGELINE ROAD (CONC APP)	---	20	0.2
10+41	-	10+71	RANGELINE ROAD (CONC SHLDR)	---	4	0.1
10+55	-	13+70	RANGELINE ROAD	76	380	4.6
PROJECT TOTAL				**153**	**827**	**10.1**

CONCRETE PAVEMENT

STATION	-	STATION	LOCATION	415.0060 CONCRETE PAVEMENT 6-INCH SY	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY
9+27	-	9+57	RANGELINE RD	5	61
10+41	-	10+71	RANGELINE RD	5	60
PROJECT TOTAL				**10**	**121**

ASPHALTIC ITEMS

STATION	-	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
6+68	-	9+27	RANGELINE RD	10	37
10+71	-	13+70	RANGELINE RD	11	39
PROJECT TOTAL				**21**	**76**

CULVERT PIPES

STATION	-	STATION	OFFSET	522.0124 CULVERT PIPE REINF CONC CLASS III 24-INCH LF	522.1024 AE FOR CULVERT PIPE RC 24-INCH EACH
7+89	-	8+20	LT	18	2
PROJECT TOTAL				**18**	**2**

GUARDRAIL

STATION	-	STATION	OFFSET	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
7+39	-	9+19	RT	87.5	39.4	1
8+53	-	9+46	LT	---	39.4	1
10+52	-	11+45	RT	---	39.4	1
10+78	-	12+58	LT	87.5	39.4	1
PROJECT TOTAL				**175.0**	**157.6**	**4**

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

3

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (CY) (1) CUT (2)	AVAILABLE MATERIAL (3)	UNEXPANDED FILL	EXPANDED FILL (4) FACTOR 1.25	MASS ORDINATE +/- (5)	WASTE	208.0100 BORROW (CY)
DIVISION 1									
SOUTH APPROACH	6+49/9+49		191	191	298	373	-182	0	182
NORTH APPROACH	10+48/13+70		143	143	759	949	-806	0	806
DIVISION 1 SUBTOTAL			334	334	1,057	1,321	-987	0	987
GRAND TOTAL			334	334	1,057	1,321	-987	0	987
TOTAL COMMON EXC			334						

NOTES:

(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) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL

(4) EXPANDED FILL FACTOR = 1.25 **EXPANDED FILL = (UNEXPANDED FILL) * FILL FACTOR**

(5) 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.

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

3

LANDSCAPING

STATION	-	STATION	LOCATION	625.0100 TOPSOIL SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0160 SEEDING MIXTURE NO. 60 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL
6+49	-	9+16	RT	300	300	0.6	10	1	12	20.0
7+27	-	8+00	LT	52	52	0.2	3	---	3	4.0
8+09	-	9+70	LT	150	150	0.3	6	1	6	10.0
10+55	-	12+44	RT	210	210	0.4	4	3	9	14.0
10+80	-	13+70	LT	290	290	0.6	6	4	12	19.0
PROJECT TOTAL				**1,002**	**1,002**	**2.1**	**29**	**9**	**42**	**67.0**

3

EROSION CONTROL

STATION	-	STATION	OFFSET	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.6005 TURBIDITY BARRIERS SY	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH
6+36	-	8+73	RT	255	255	---	---	---
7+12	-	7+94	LT	125	125	---	---	---
	7+94		LT	---	---	---	---	3
8+15	-	9+72	LT	200	200	---	---	---
	8+24		LT	---	---	---	10	---
8+73	-	9+82	RT/LT	---	---	191	---	---
	9+00		LT	---	---	---	10	---
10+18	-	11+15	RT/LT	---	---	196	---	---
10+45	-	12+57	RT	250	250	---	---	---
10+80	-	13+83	LT	320	320	---	---	---
PROJECT TOTAL				**1,150**	**1,150**	**387**	**20**	**3**

EROSION CONTROL MOBILIZATION

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATION EMERGENCY EROSION CONTROL EACH
PROJECT LIMITS	3	3
PROJECT TOTAL	**3**	**3**

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

PERMANENT SIGNING

STATION	OFFSET	SIGN CODE	SIGN MESSAGE	SIZE IN		SIZE IN	634.0614 POSTS WOOD 4X6-INCH 14-FT EACH	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2602 REMOVING SIGNS TYPE II EACH	NOTES
---	RT	W5-2	NARROW BRIDGE		---		---	---	1	SIGN IS OUTSIDE OF PROJECT LIMITS
9+17	RT	W5-52R	BRIDGE HASH MARKS	12	X	36	1	3.00	---	
9+27	LT	W5-52L	BRIDGE HASH MARKS	12	X	36	1	3.00	---	
9+58	RT	W5-52R	BRIDGE HASH MARKS		---		---	---	1	
9+58	LT	W5-52L	BRIDGE HASH MARKS		---		---	---	1	
10+41	RT	W5-52L	BRIDGE HASH MARKS		---		---	---	1	
10+41	LT	W5-52R	BRIDGE HASH MARKS		---		---	---	1	
10+55	RT	W5-52L	BRIDGE HASH MARKS	12	X	36	1	3.00	---	
10+81	LT	W5-52R	BRIDGE HASH MARKS	12	X	36	1	3.00	---	
---	RT	W5-2	NARROW BRIDGE		---		---	---	1	SIGN IS OUTSIDE OF PROJECT LIMITS
PROJECT TOTAL							**4**	**12.00**	**6**	

TRAFFIC CONTROL

LOCATION	DAYS IN SERVICE	643.0420 TRAFFIC CONTROL BARRICADES TYPE III NO.	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A NO.	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	643.0900 TRAFFIC CONTROL SIGNS NO.	643.0900 TRAFFIC CONTROL SIGNS DAY
RANGELINE ROAD	81	18	1,458	26	2,106	14	1,134
PROJECT TOTAL			**1,458**		**2,106**		**1,134**

PAVEMENT MARKING ITEMS

STATION	-	STATION	OFFSET	TYPE	646.1020 MARKING LINE EPOXY 4-INCH YELLOW LF	646.1020 MARKING LINE EPOXY 4-INCH WHITE LF
6+00	-	14+00	CTR	CENTERLINE (DOUBLE SOLID)	1,600	---
PROJECT TOTAL					**1,600**	

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

3

CONSTRUCTION STAKING

STATION	-	STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.6000 CONSTRUCTION STAKING PIPE CULVERTS EACH	650.7000 CONSTRUCTION STAKING CONCRETE PAVEMENT LF	650.6501 CONSTRUCTION STAKING STRUCTURE LAYOUT B-37-466 EACH	650.9911 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL 6688-00-70 EACH	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
6+49	-	9+44	RANGELINE RD	295	295	---	---	---	---	295
7+89	-	8+20	DRIVEWAY LT	---	---	1	---	---	---	---
9+27	-	9+57	RANGELINE RD	---	---	---	30	---	---	---
10+41	-	10+71	RANGELINE RD	---	---	---	30	---	---	---
10+55	-	13+70	RANGELINE RD	315	315	---	---	---	---	315
	-		PROJECT	---	---	---	---	1	1	---
PROJECT TOTAL				**610**	**610**	**1**	**60**	**1**	**1**	**610**

3

SAWING

STATION	-	STATION	OFFSET	LOCATION	690.0150 SAWING ASPHALT LF
6+68	-	9+00	RT	SHOULDER	232
7+53	-	9+00	LT	SHOULDER	147
	9+00		RT/LT	MAINLINE	24
	11+00		RT/LT	MAINLINE	24
11+00	-	12+17	RT	SHOULDER	117
11+00	-	13+47	LT	SHOULDER	247
PROJECT TOTAL					**791**

BIRD DETERRENT SYSTEM

LOCATION	999.2000.S INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM (STA 9+99) EACH
P-37-0360	1
PROJECT TOTAL	**1**

HAUL ROADS (CAT. 0030)

LOCATION	618.0100 MAINTENANCE AND REPAIR OF HAUL ROADS 6688-00-70 EACH
PROJECT	1
PROJECT TOTAL	**1**

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

CONVENTIONAL SYMBOLS

SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE
NEW R/W LINE
EXISTING R/W OR HE LINE
PROPERTY LINE (P.L.)
LOT, TIE & OTHER MINOR LINES
SLOPE INTERCEPT
CORPORATE LIMITS
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC) (W (TYPE))
NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)
TEMPORARY LIMITED EASEMENT AREA
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)
TRANSMISSION STRUCTURES
BUILDING
TO BE REMOVED
BRIDGE
CULVERT
PARALLEL OFFSETS

SECTION CORNER SYMBOL (18, 23, 24, 26, 25, 36)
SECTION CORNER MONUMENT
GEODETIC SURVEY MONUMENT
SIXTEENTH CORNER MONUMENT
SIGN (SIGN)
OFF-PREMISE SIGN (#1-25) (SIGN)

R/W MONUMENT (TO BE SET)
NON-MONUMENTED R/W POINT
FOUND IRON PIN (1-INCH UNLESS NOTED) IP

	COMPENSABLE	NON-COMPENSABLE
ELECTRIC POLE		
TELEPHONE POLE		
PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)		

ACCESS RESTRICTED BY ACQUISITION
NO ACCESS (BY STATUTORY AUTHORITY)
ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)
NO ACCESS (NEW HIGHWAY)

PARCEL NUMBER (25)
UTILITY NUMBER (40)
R/W BOUNDARY POINT (200)
TLE BOUNDARY POINT (300)

CONVENTIONAL UTILITY SYMBOLS

WATER	W
GAS	G
TELEPHONE	T
OVERHEAD TRANSMISSION LINES	OH
ELECTRIC	E
CABLE TELEVISION	TV
FIBER OPTIC	FO
SANITARY SEWER	SAN
STORM SEWER	SS
ELECTRIC TOWER	☒

CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	POINT OF COMPOUND CURVE	PCC
ACRES	AC	POINT OF INTERSECTION	PI
AHEAD	AH	PROPERTY LINE	PL
ALUMINUM	ALUM	RECORDED AS	(100')
AND OTHERS	ET AL	REEL / IMAGE	R/I
BACK	BK	REFERENCE LINE	R/L
BLOCK	BLK	REMAINING	REM
CENTERLINE	C/L	RESTRICTIVE DEVELOPMENT EASEMENT	RDE
CERTIFIED SURVEY MAP	CSM	RIGHT	RT
CONCRETE	CONC	RIGHT OF WAY	R/W
COUNTY	CO	SECTION	SEC
COUNTY TRUNK HIGHWAY	CTH	SEPTIC VENT	SEPV
DISTANCE	DIST	SQUARE FEET	SF
CORNER	COR	STATE TRUNK HIGHWAY	STH
DOCUMENT NUMBER	DOC	STATION	STA
EASEMENT	EASE	TELEPHONE PEDESTAL	TP
EXISTING	EX	TEMPORARY LIMITED EASEMENT	TLE
GAS VALVE	GV	TRANSPORTATION PROJECT PLAT	TPP
GRID NORTH	GN	UNITED STATES HIGHWAY	USH
HIGHWAY EASEMENT	HE	VOLUME	V
IDENTIFICATION	ID		
LAND CONTRACT	LC		
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY	NGS		
NUMBER	NO		
OUTLOT	OL		
PAGE	P		
POINT OF TANGENCY	PT		
PERMANENT LIMITED EASEMENT	PLE		
POINT OF BEGINNING	POB		
POINT OF CURVATURE	PC		

CURVE DATA ABBREVIATIONS

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATE SYSTEM COORDINATES (WCCS), MARATHON COUNTY, NAD83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

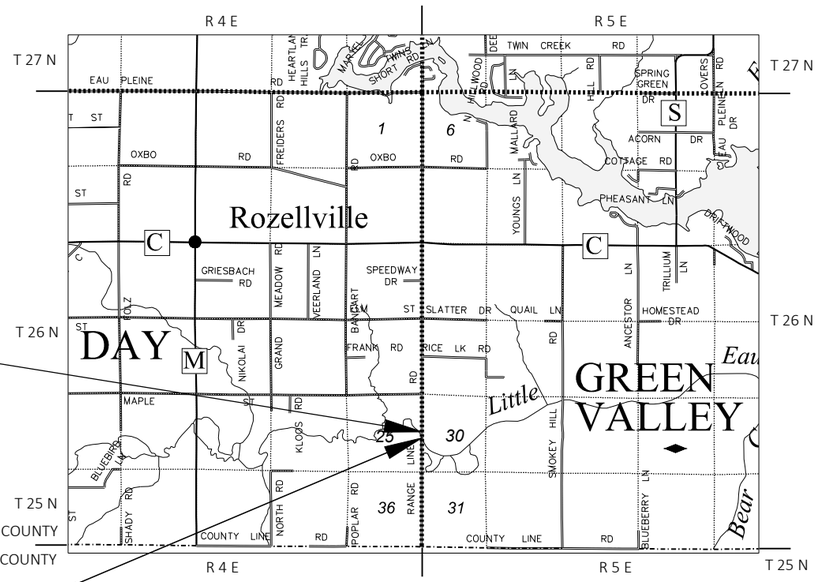
ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4"X24" IRON REBARS) UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS" OF PUBLIC RECORD.

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/OR EXISTING OCCUPATIONAL LINES. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

FOR THE LATEST ACCESS/DRIVEWAY INFORMATION, CONTACT THE TOWN OF GREEN VALLEY OR TOWN OF DAY.



END RELOCATION ORDER
STA 13+85.00
35.10' SOUTH AND 0.23' EAST OF THE WEST QUARTER CORNER OF SECTION 30, T26N, R5E.

BEGIN RELOCATION ORDER
STA 6+25.00
791.14' SOUTH AND 15.91' WEST OF THE WEST QUARTER CORNER OF SECTION 30, T26N, R5E.

N

LAYOUT
SCALE 0 2 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.140 MI

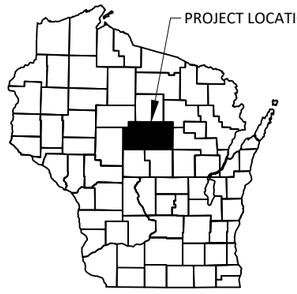
R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
6688-00-20	4.01	2
FEDERAL PROJECT NUMBER		

PLAT OF RIGHT OF WAY REQUIRED FOR

T GREEN VALLEY, RANGELINE ROAD
LITTLE EAU PLEINE RIVER BRIDGE

RANGELINE ROAD	MARATHON COUNTY

CONSTRUCTION PROJECT NUMBER
6688-00-70



ORIGINAL PLAT PREPARED BY
AECOM

WISCONSIN
DONALD J. BUZA
S-2338
CUSTER, WI
LAND SURVEYOR

DONALD J. BUZA, PLS-2338

DATE: 3/25/2022

CAUTION:
THIS PLAT IS FOR ILLUSTRATIVE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES.

TOWN OF DAY

APPROVED BY MARATHON COUNTY FOR THE TOWN OF DAY

(Signature)

DATE:

REVISION DATE:

TOWN OF GREEN VALLEY

APPROVED BY MARATHON COUNTY FOR THE TOWN OF GREEN VALLEY

(Signature)

DATE:

FILE NAME : C:\ONEDRIVE\AECOM DIRECTORY\60648403 - RANGELINE RD, MARATHON COUNTY - 0_RECORDS\900_CAD_GIS\910_CAD\66880070\SHEETSPLAN\0401-RP.DWG
PLOT DATE : 5/18/2022 8:10 AM
PLOT BY : BUZA, DONALD
PLOT NAME :

NOTES: PROJECT REFERENCE LINE AND RIGHT-OF-WAY CENTERLINE ARE NOT THE SAME LINE.

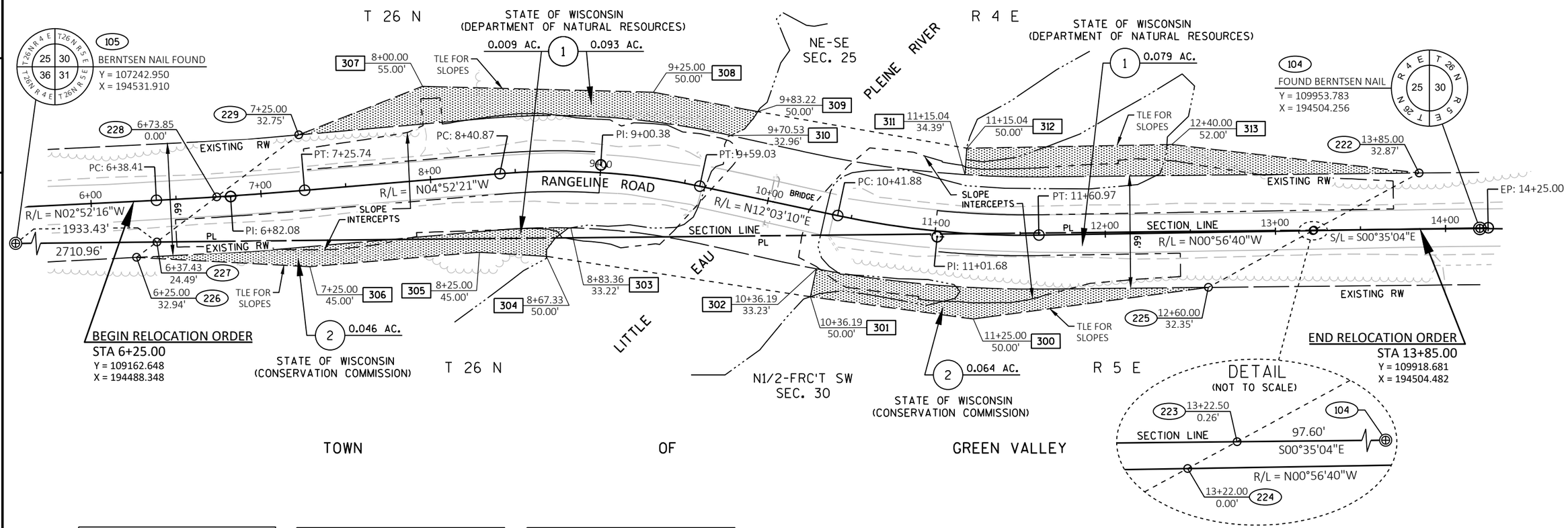
EXISTING RIGHT-OF-WAY FOR RANGELINE ROAD ESTABLISHED PER WISCONSIN STATUTE 82.31.

PI STA = 6+82.08
Y = 109219.655
X = 194485.489
DELTA = 2°00'05" LT
D = 2°17'31"
T = 43.67'
L = 87.33'
R = 2500.00'
PC STA = 6+38.41
PT STA = 7+25.74

PI STA = 9+00.38
Y = 109437.180
X = 194466.946
DELTA = 16°55'31" RT
D = 14°19'26"
T = 59.51'
L = 118.16'
R = 400.00'
PC STA = 8+40.87
PT STA = 9+59.03

PI STA = 11+01.68
Y = 109634.886
X = 194509.160
DELTA = 12°59'50" LT
D = 10°54'49"
T = 59.80'
L = 119.09'
R = 525.00'
PC STA = 10+41.88
PT STA = 11+60.97

STRUCTURE INFORMATION
EXISTING BRIDGE: P-37-360
PROPOSED BRIDGE: B-37-466



TOWN OF GREEN VALLEY

R/W POINT TABLE

POINT	Y	X
222	109918.140	194471.618
223	109856.186	194505.252
224	109855.691	194505.520
225	109794.231	194538.886
226	109164.298	194521.250
227	109176.293	194512.189
228	109211.419	194485.651
229	109259.658	194449.207

R/W COURSE TABLE

FROM-TO	BEARING	DISTANCE
104-223	S00°35'04"E	97.60'
222-223	S28°29'49"E	70.49'
223-224	S28°29'49"E	0.56'
224-225	S28°29'49"E	69.93'
226-227	N37°04'15"W	15.03'
227-228	N37°04'15"W	44.02'
228-229	N37°04'15"W	60.46'

TLE COURSE TABLE

FROM-TO	BEARING	DISTANCE
104-223	S00°35'04"E	97.60'
225-300	S07°39'47"E	139.35'
300-301	S07°47'02"W	96.62'
301-304	S08°42'31"W	156.96'
304-305	S03°32'06"W	39.43'
305-306	S04°52'21"E	100.01'
306-226	S03°02'58"W	102.09'
229-307	N21°23'45"W	78.22'
307-308	N01°26'28"E	135.64'
308-309	N10°33'34"E	62.45'
309-312	N09°56'13"E	124.72'
312-313	N01°01'53"W	120.54'
313-222	N06°34'19"E	146.26'

SCHEDULE OF LANDS & INTERESTS REQUIRED

OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO TOWN OF GREEN VALLEY AND TOWN OF DAY

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W ACRES REQUIRED NEW	EXISTING	TOTAL	TLE ACRES
1	STATE OF WISCONSIN (DEPARTMENT OF NATURAL RESOURCES)	TLE	-----	-----	-----	0.181
2	STATE OF WISCONSIN (CONSERVATION COMMISSION)	TLE	-----	-----	-----	0.110

REVISION DATE	DATE 3/25/2022	SCALE, FEET 0 30 60	HWY: RANGELINE ROAD	STATE R/W PROJECT NUMBER 6688-00-20	PLAT SHEET 4.02	
	GRID FACTOR N/A		COUNTY: MARATHON	CONSTRUCTION PROJECT NUMBER 6688-00-70	PS&E SHEET 17	E

FILE NAME : 0401-RP.DWG
LAYOUT NAME - 040201
PLOT DATE : 5/18/2022 8:10 AM PLOT BY : BUZA, DONALD PLOT NAME : PLOT SCALE :
WISDOT/CADDS SHEET 75

BENCHMARKS		
NO.	STATION	ELEV.
1	8+78.79, 32' LT	1123.49
2	11+46.84, 34' RT	1120.97

STA 8+53.42, 15' LT - STA 9+06.56, 13' LT
MGS GUARDRAIL TERMINAL EAT
STA 9+06.56, 13' LT - STA 9+45.96, 13' LT
MGS THRIE BEAM TRANSITION

CPRC CLASS III 24-INCH REQUIRED
STA 8+05
INVERT EL. = 1121.88 (S)
INVERT EL. = 1121.67 (N)

APRON ENDWALLS FOR CPRC 24-INCH

APRON ENDWALLS FOR CPRC 24-INCH

TLE

WETLAND BOUNDARY

CONTROL POINT 4
Y = 109510.958
X = 194443.745

CONTROL POINT 2
Y = 109486.156
X = 194461.690

BM 1

PT: 9+69.03

PC: 8+40.87

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

CONTROL POINT 3
Y = 109299.684
X = 194468.017

EXISTING R/W

BEGIN CONSTRUCTION
STA 6+49.01

PC: 6+38.41

PT: 7+25.74

6+00

7+00

8+00

9+00

10+00

11+00

12+00

13+00

RANGELINE RD

LITTLE EAU PLEINE RIVER

CONTROL POINT 9
Y = 109587.754
X = 194484.000

PC: 10+41.88

CONCRETE PAVEMENT 6-INCH
(TYP. FOR SHOULDERS)

PT: 11+69.97

STA 10+78.30' 13' LT - STA 11+17.70, 13' LT
MGS THRIE BEAM TRANSITION
STA 11+17.70, 13' LT - STA 12+05.20, 13' LT
MGS GUARDRAIL 3
STA 12+05.20, 13' LT - STA 12+58.32, 15' LT
MGS GUARDRAIL TERMINAL EAT

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

WETLAND BOUNDARY

TLE

CONTROL POINT 8
Y = 109775.613
X = 194517.574

END CONSTRUCTION
STA 13+69.63

BM 2

WETLAND BOUNDARY

TLE

CONCRETE PAVEMENT APPROACH SLAB

CONTROL POINT 6
Y = 109558.431
X = 194550.284

SLOPE INTERCEPT

CONCRETE PAVEMENT APPROACH SLAB

SLOPE INTERCEPT

WETLAND BOUNDARY

EXISTING R/W

TLE

WISCONSIN CONSERVATION COMMISSION

BEGIN PROJECT
STA 9+00.00
MATCH EXISTING
SAW CUT REQ'D

END PROJECT
STA 11+00.00
MATCH EXISTING
SAW CUT REQ'D

WISCONSIN CONSERVATION COMMISSION

STA 7+39.14, 15' RT - STA 7+92.26, 13' RT
MGS GUARDRAIL TERMINAL EAT
STA 7+92.26, 13 RT - STA 8+79.70, 13' RT
MGS GUARDRAIL 3
STA 8+79.70, 13' RT - STA 9+19.10. 13' RT
MGS THRIE BEAM TRANSITION

STA 10+52.11' 13' RT - STA 10+91.51, 13' RT
MGS THRIE BEAM TRANSITION
STA 10+91.51, 13' RT - STA 11+44.63, 14.73' RT
MGS GUARDRAIL TERMINAL EAT

N

5

5

STA 9+00.00
EL 1127.18

STA 9+56.15
EL 1127.68

STA 10+41.06
EL 1127.74

STA 11+00.00
EL 1127.23

1135
1130
1125
1120
1115
1110
1105
1100

EXISTING GROUND

0.90%

0.06%

-0.86%

PROPOSED PROFILE

STA 9+99.00
STRUCTURE B-37-0466 REQUIRED
TWO SPAN BRIDGE CONCRETE HAUNCHED SLAB BRIDGE
98'-10 5/8" OVERALL LENGTH
26'-7" CLEAR ROADWAY WIDTH
30° SKEW LHF

STA 10+00.00
REMOVE STRUCTURE P-37-0360
TWO SPAN STEEL GIRDER BRIDGE
80'-2" OVERALL LENGTH
24'-2" CLEAR ROADWAY WIDTH
0° SKEW

100 YEAR FREQUENCY
Q100 TOTAL = 15540 CFS
-THRU BRIDGE = 1485 CFS
-OVER ROAD = 14,055 CFS
VELOCITY THRU BRIDGE = 1.8 FPS
HIGH WATER ELEVATION = 1130.12'
WATERWAY AREA = 14,795 SF
-THRU BRIDGE = 849 SF
-OVER ROAD = 13929 SF
DRAINAGE AREA = 147 SQ. MI.
SCOUR CRITICAL CODE = 5

2 YEAR FREQUENCY
Q2 = 4070 CFS
HIGH WATER 2 ELEVATION = 1125.47'
VELOCITY = 5.1 FPS

EXISTING ELEVATION
PROPOSED ELEVATION

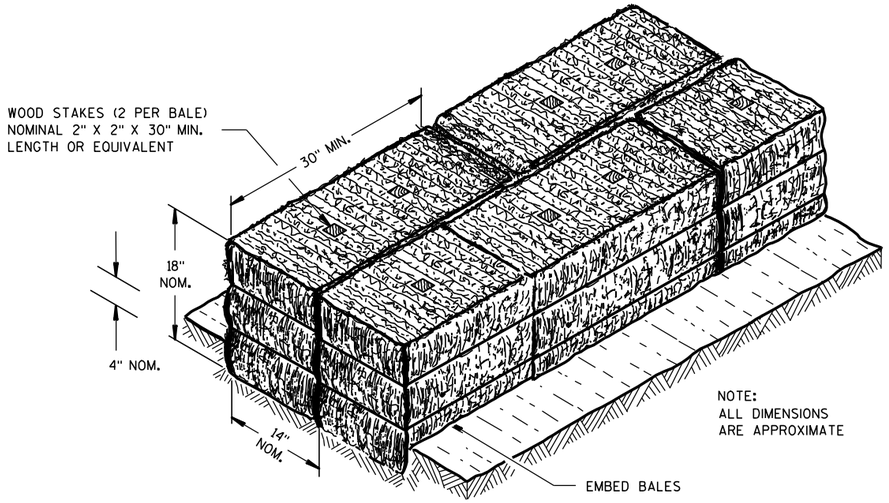
1125.96	1126.01	1126.00	1125.95	1126.19	1126.61	1127.18	1127.18	1127.63	1127.63	1114.88	1127.71	1127.69	1127.66	1127.23	1127.23	1126.90	1127.15	1127.65	1128.48	1129.64	1130.07

6 7 8 9 10 11 12 13 13

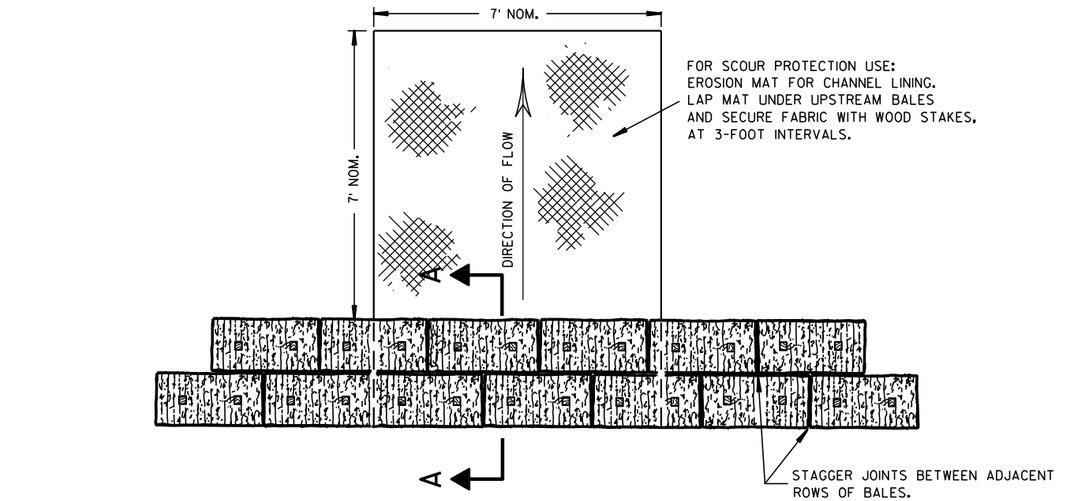
PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	PLAN AND PROFILE: RANGELINE RD	SHEET 18	E

Standard Detail Drawing List

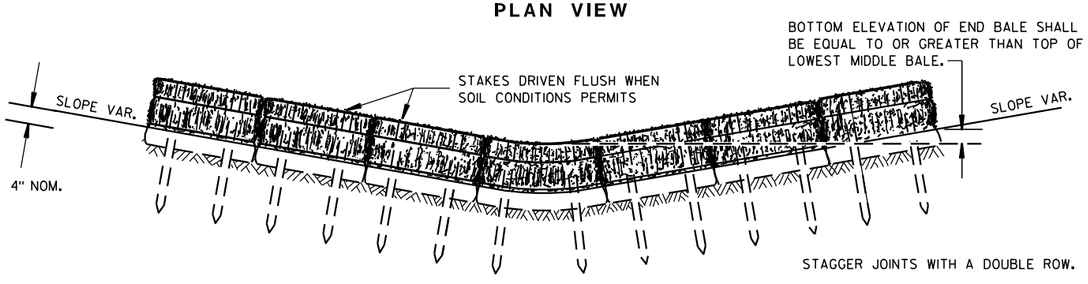
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
13A03-07	CONCRETE PAVEMENT SHOULDERS
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C08-22A	LONGITUDINAL MARKING (MAINLINE)
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



SECTION A-A



PLAN VIEW



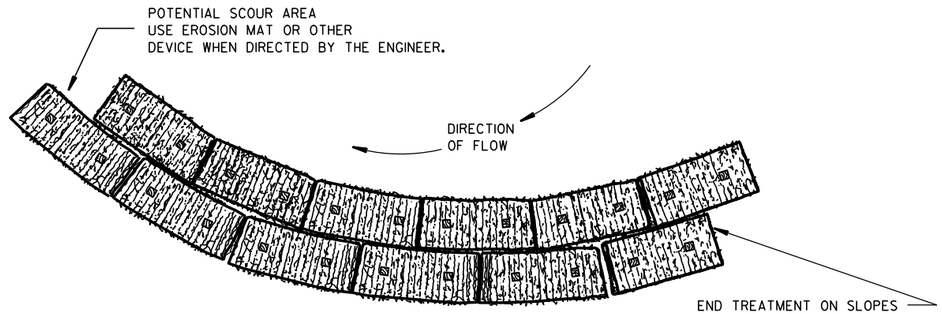
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

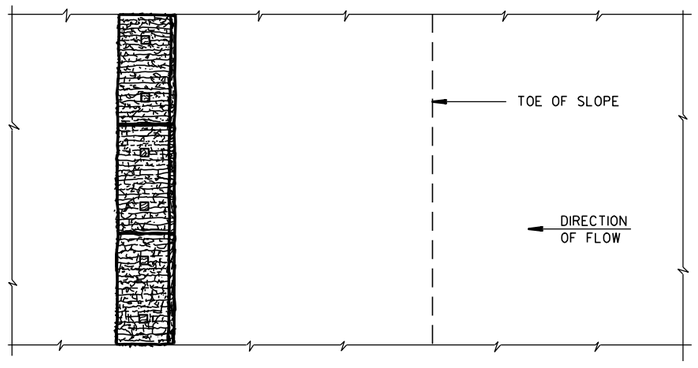
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

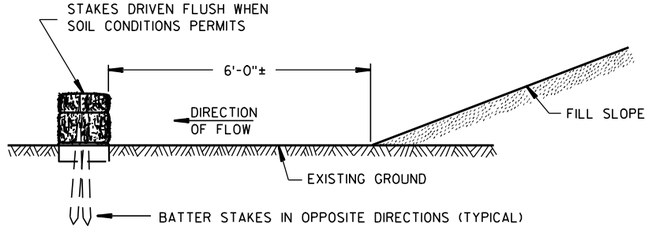


PLAN VIEW

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

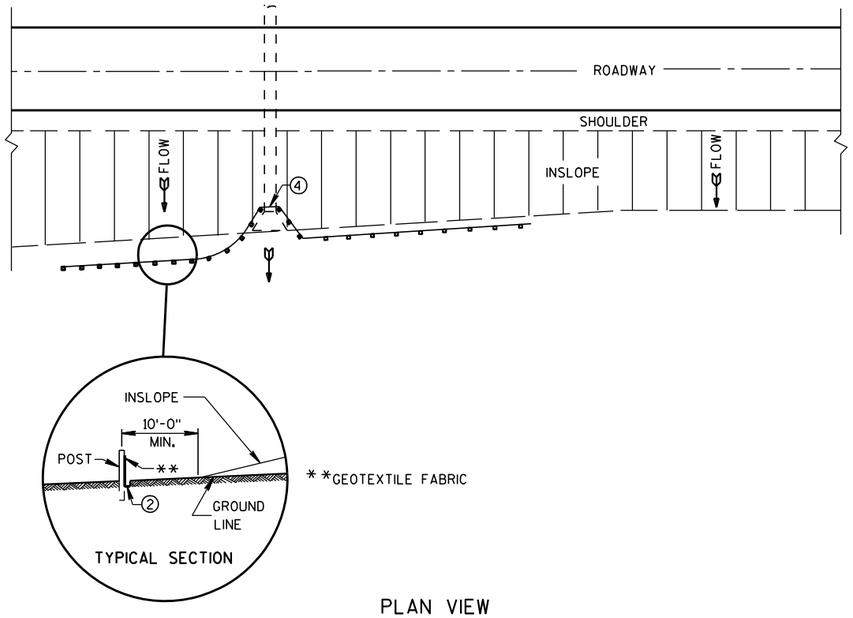
FHWA

6

S.D.D. 8 E 8-3

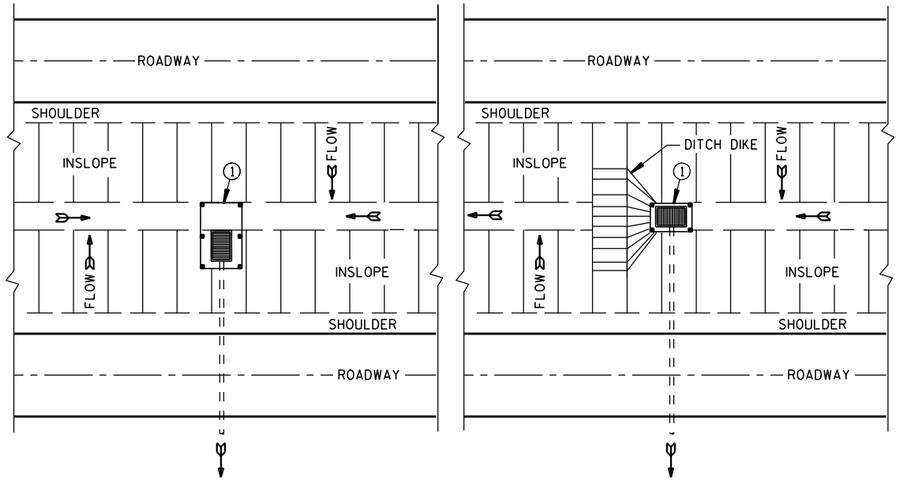
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



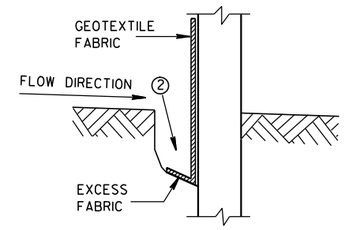
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

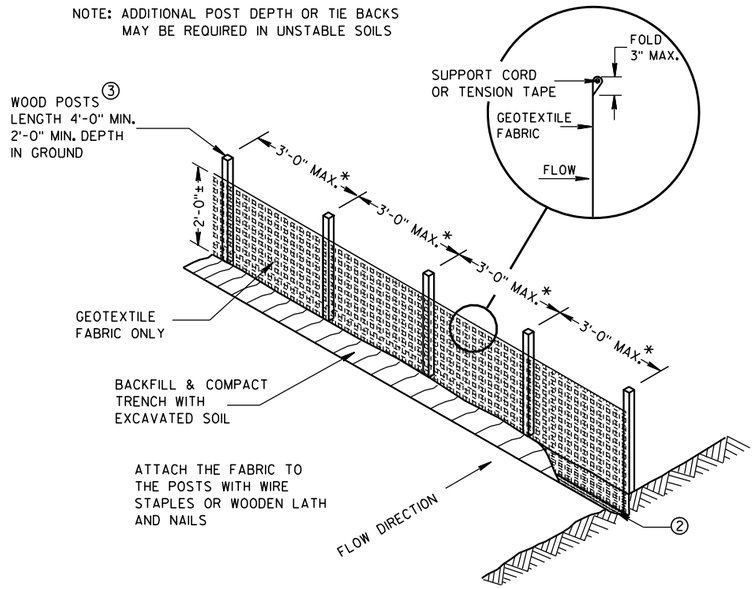
GENERAL NOTES

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.

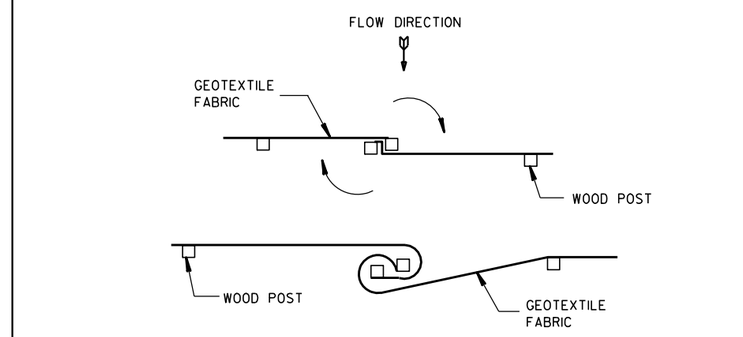


TRENCH DETAIL

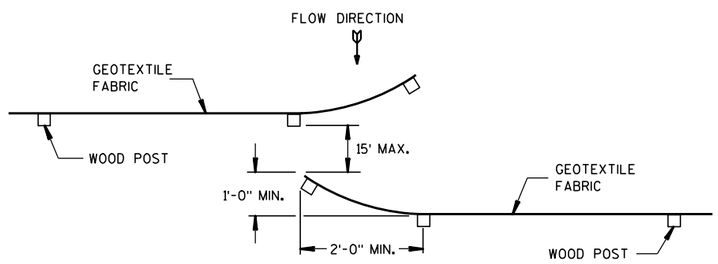


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

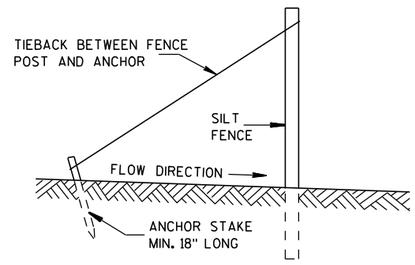


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

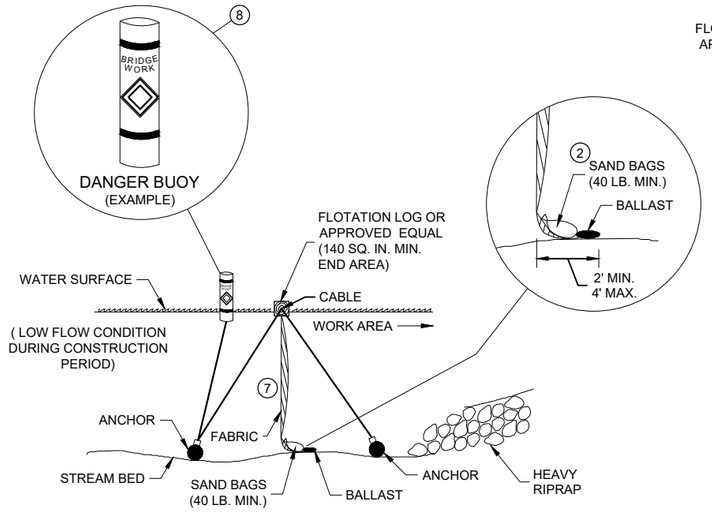
SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

6

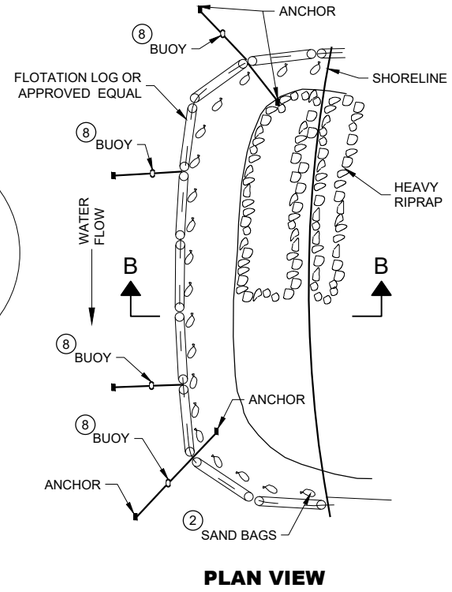
S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6

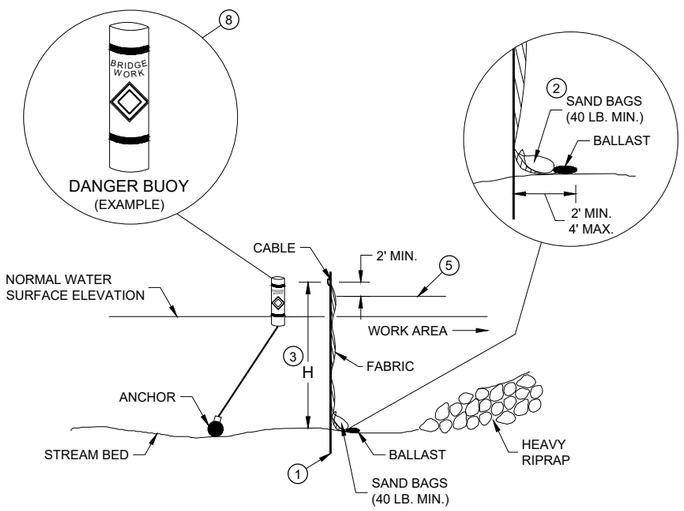


SECTION B - B

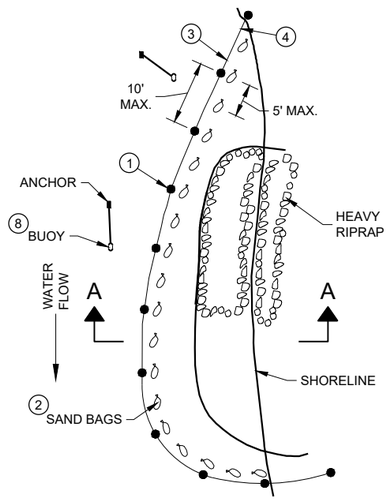


PLAN VIEW

TURBIDITY BARRIER - FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A - A



PLAN VIEW

TURBIDITY BARRIER - STANDARD POST INSTALLATION

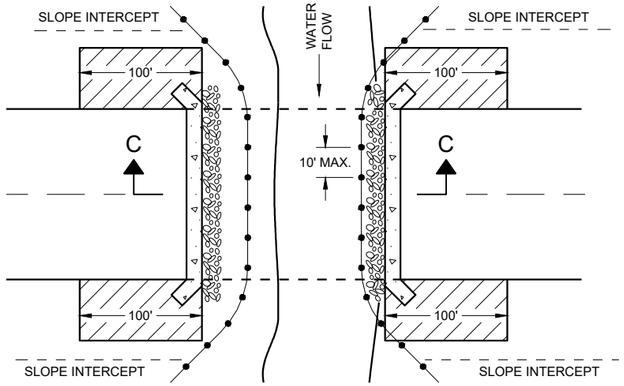
TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

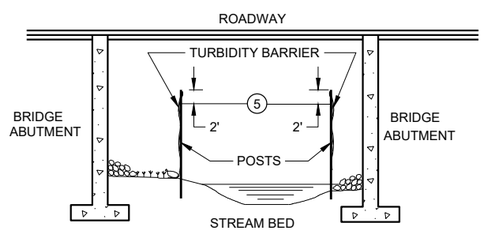
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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. SAND BAGS 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 FEET, 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. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
6. FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK 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

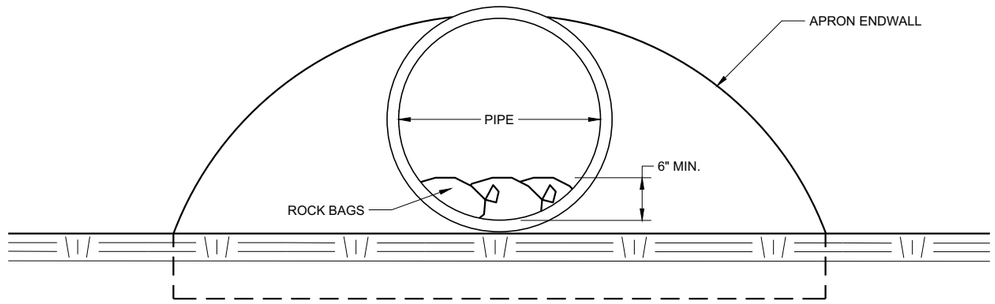
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

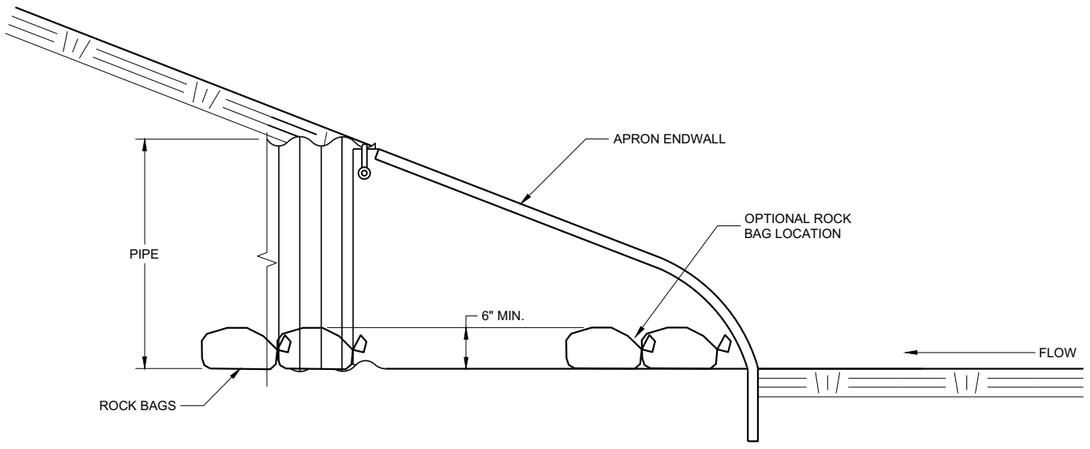
APPROVED
6/4/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

6
SDD 08E11 - 02



END VIEW



SIDE VIEW

CULVERT PIPE CHECK

(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGI
FHWA	

6
SDD 08E15 - 01

METAL APRON ENDWALLS

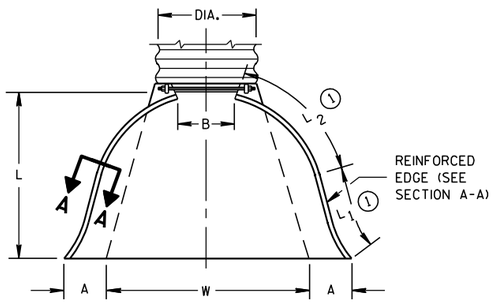
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	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

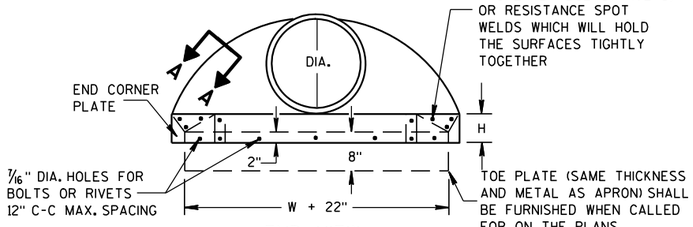
REINFORCED CONCRETE APRON ENDWALLS

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

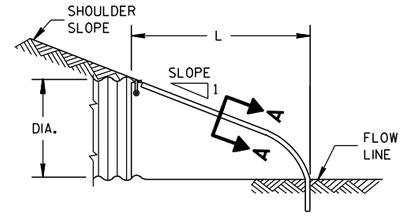
*MINIMUM
**MAXIMUM



PLAN VIEW

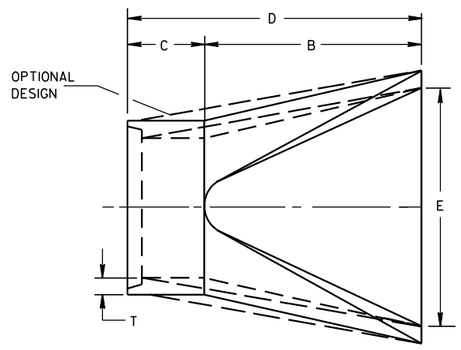


END VIEW

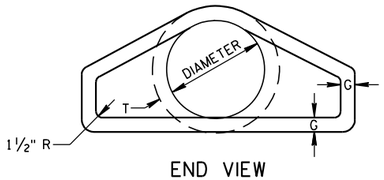


SIDE ELEVATION

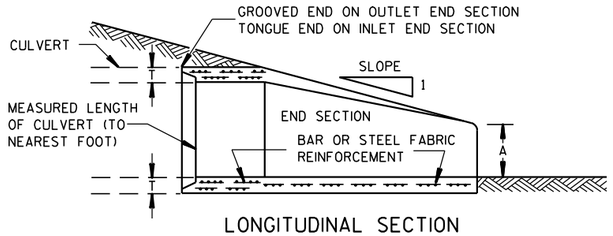
METAL ENDWALLS



PLAN

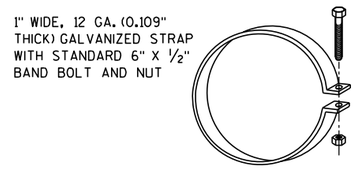


END VIEW



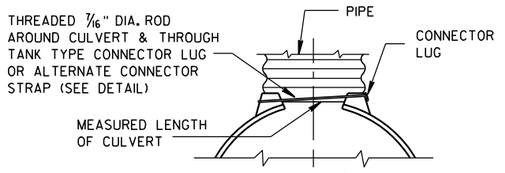
LONGITUDINAL SECTION

CONCRETE ENDWALLS

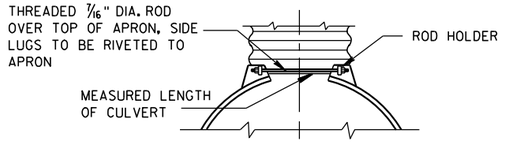


ALTERNATE FOR TYPE 1 CONNECTION

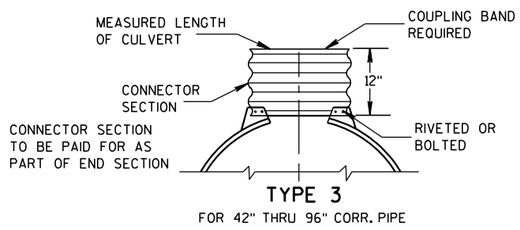
END SECTION CONNECTOR STRAP



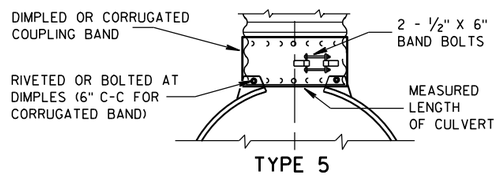
TYPE 1
FOR 12" THRU 24" CORR. PIPE



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

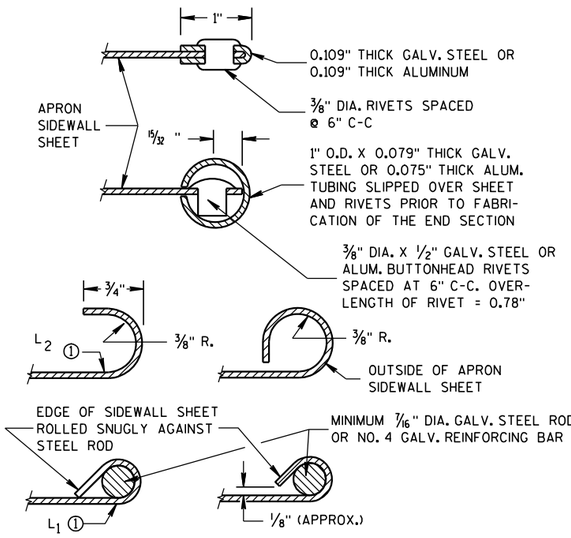
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

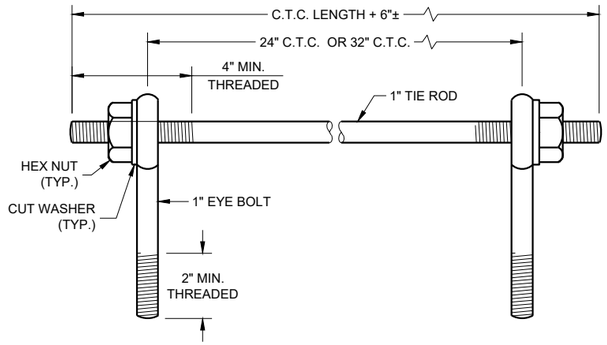
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

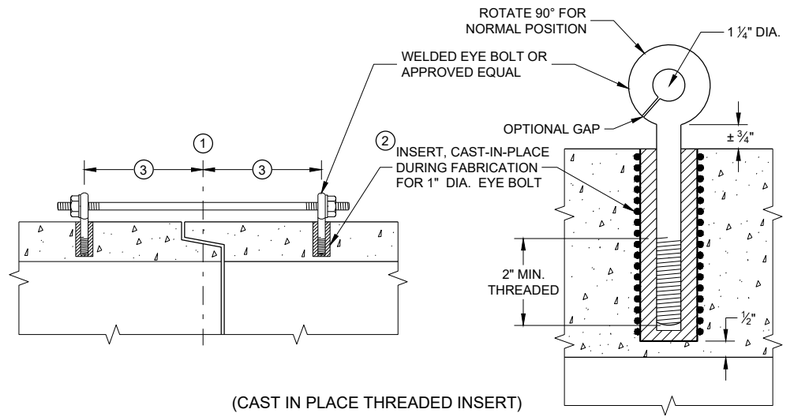
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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) CENTER LINE 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.

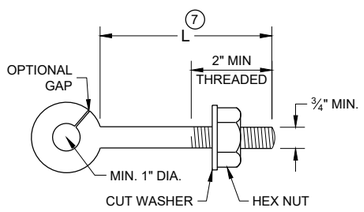
(3) HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.

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

(5) OPENING TO BE ROD DIAMETER PLUS 1 INCH.

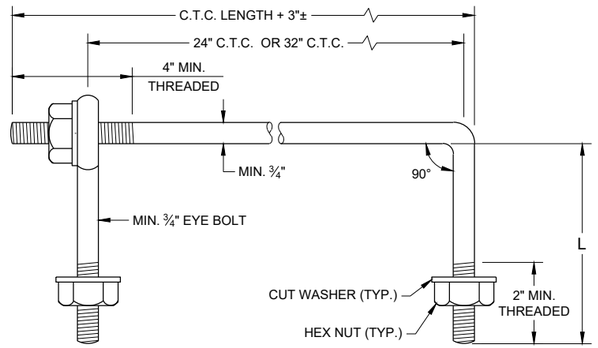
(6) LENGTH ADEQUATE TO EXTEND TO WITHIN ½ INCH OF THE INNER SURFACE OF THE PIPE.

(7) EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

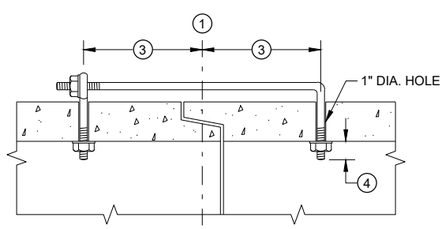


EYE BOLT (7)

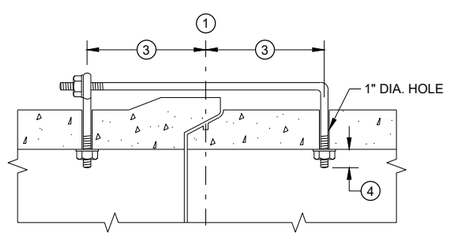
NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD



(TONGUE AND GROOVE PIPE)



(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

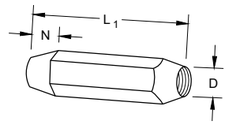
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12 - 60	⅝	⅝	5	½
66 - 84	¾	¾	5	½
90 - 144	1	1	7	1 7/16

DIMENSIONS SHOWN ARE IN INCHES



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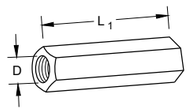
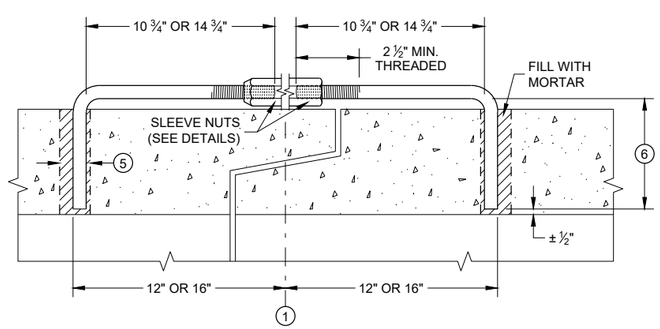


PLAIN

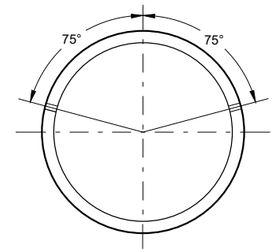
RIGHT AND LEFT THREADS

SLEEVE NUTS



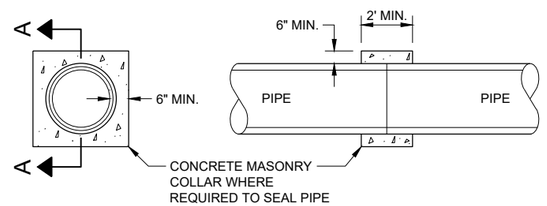
LONGITUDINAL SECTION

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

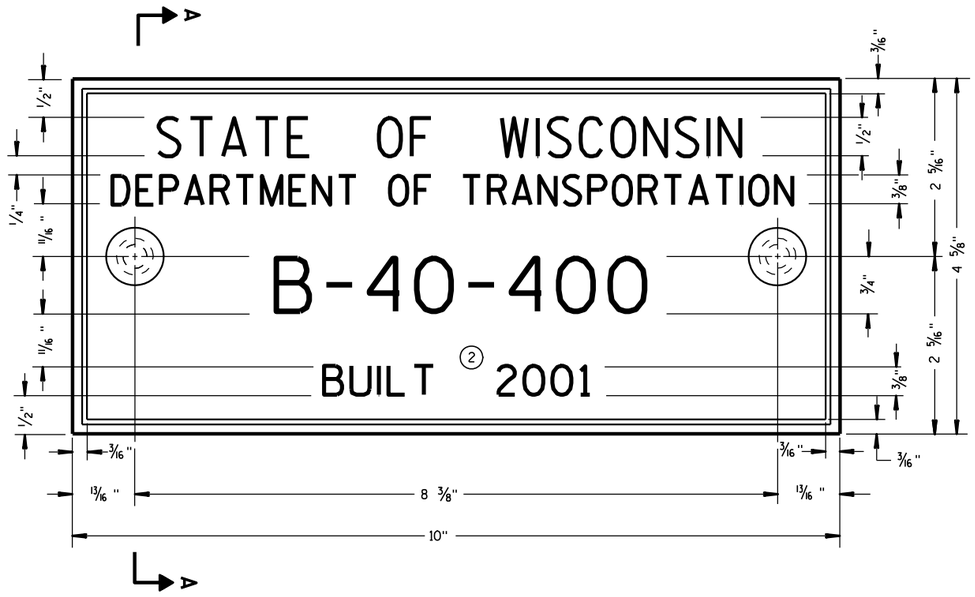
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE ENGINEER
FHWA

SDD 08F04 - 08

SDD 08F04 - 08



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)

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

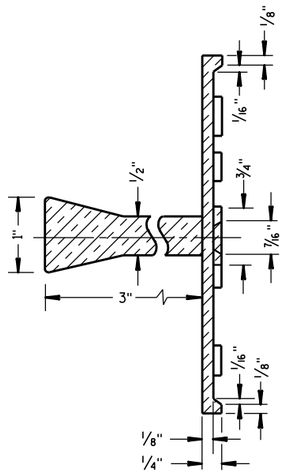
GENERAL NOTES

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.

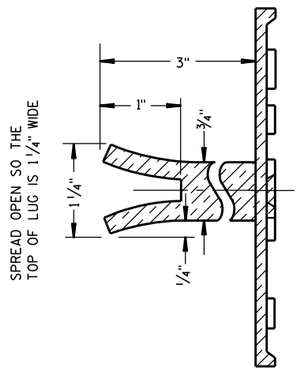
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

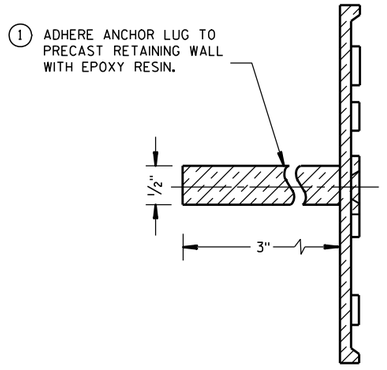
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



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

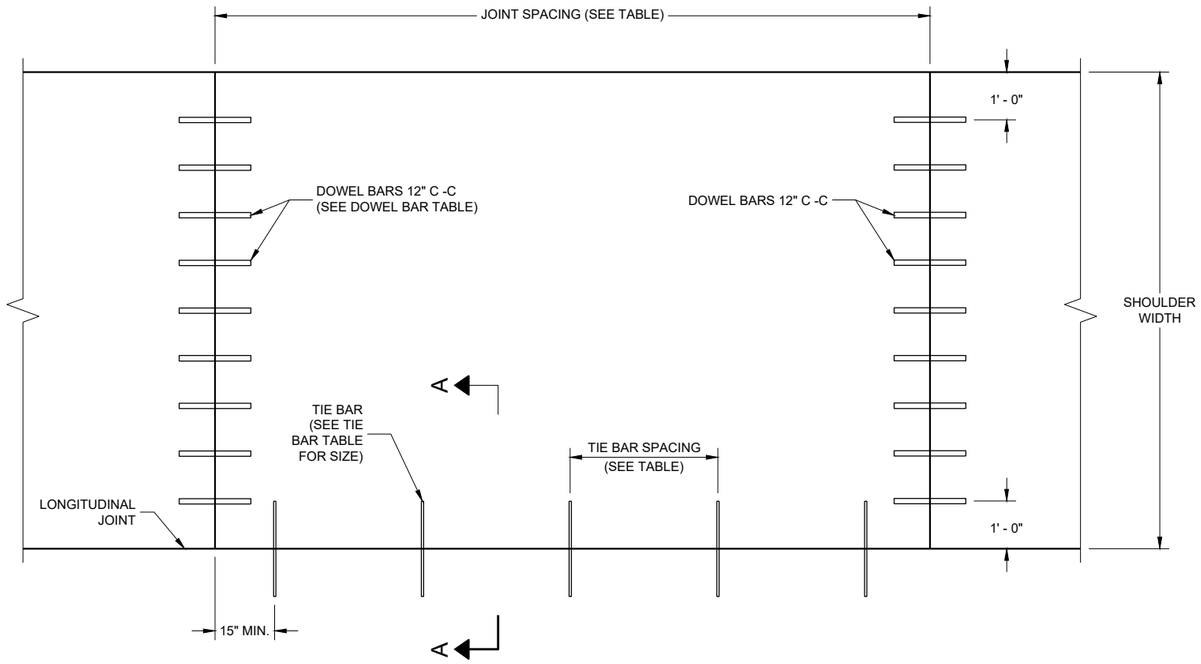
GENERAL NOTES

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

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

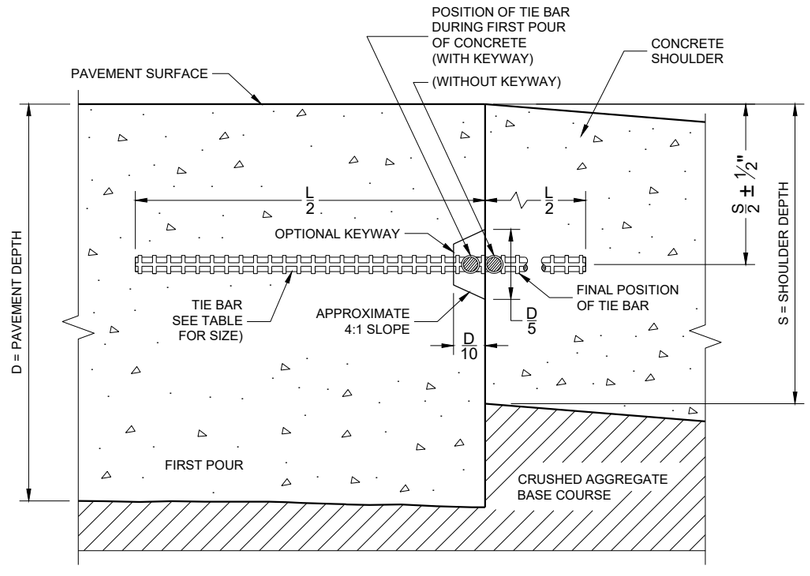
FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



PLAN VIEW

CONCRETE PAVEMENT SHOULDER



SECTION A - A

LONGITUDINAL CONSTRUCTION JOINT

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
<10 ½"	NO. 4	30"	36"
>10 ½"	NO. 5	36"	36"
	NO. 4*	30"	24"**

* SUBSTITUTE BENT BATS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES.

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER ***	CONTRACTION JOINT SPACING
6", 6 ½"	NONE	12"
7", 7 ½"	1"	14"
8" & ABOVE	1 ¼"	15"

*** FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FRO THE AVERAGE THICKNESS OF THE CROSS SECTION.

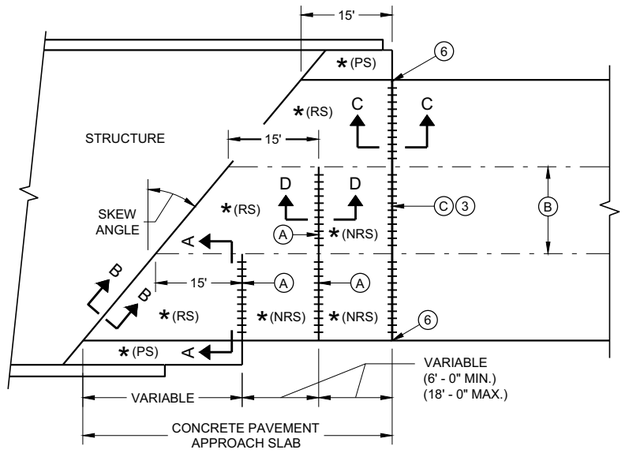
CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

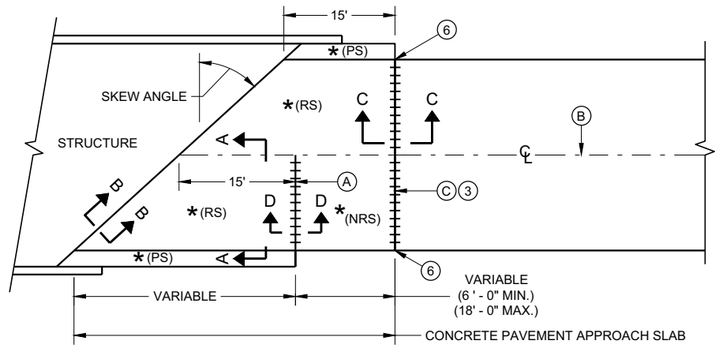
APPROVED
November 2022 — DATE
/S/ Peter Kemp — PAVEMENT SUPERVIS
FHWA

SDD 13A03 - 07

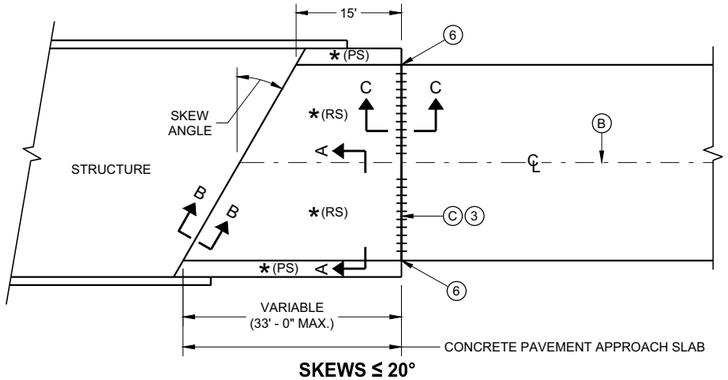
SDD 13A03 - 07



SKEWED APPROACH
(PAVEMENT MORE THAN TWO LANES)



SKEWS > 20°
(PAVEMENT WIDTH ≤ 30')



SKEWS ≤ 20°
(PAVEMENT WIDTH ≤ 30')

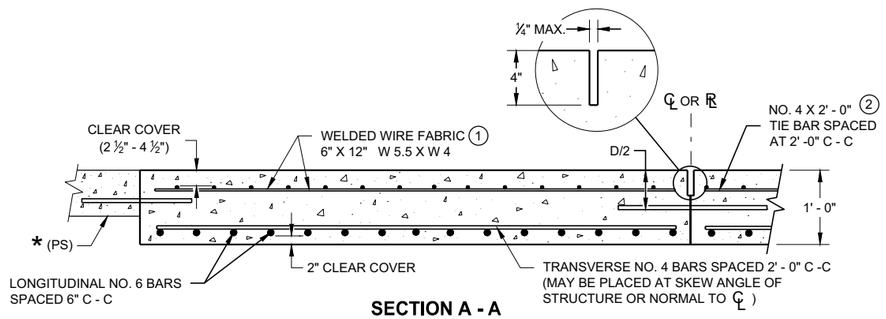
APPROACH SLAB AND ADJACENT PAVEMENT

* (RS) = REINFORCED CONCRETE SLAB

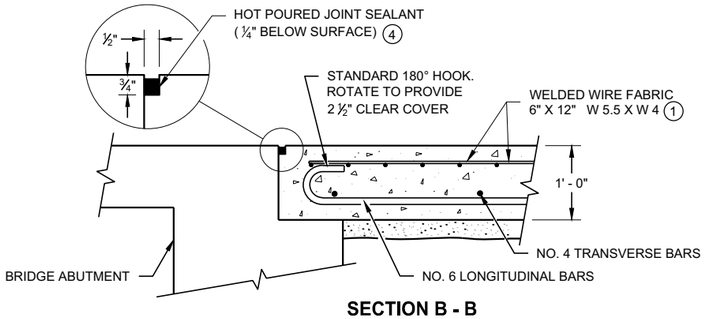
* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB

* (NRS) - NON - REINFORCED CONCRETE SLAB

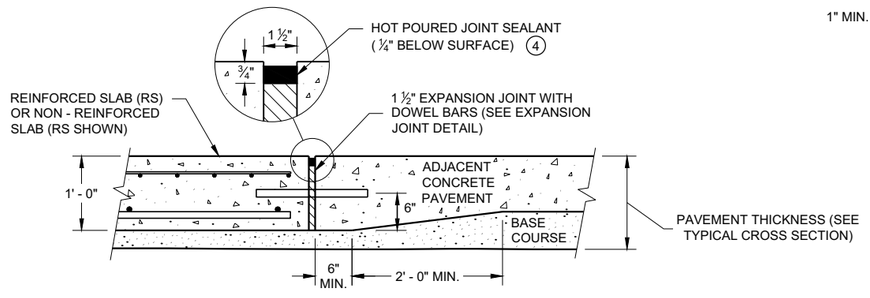
*** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



SECTION A - A
REINFORCEMENT POSITIONING DETAIL



SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT



SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT

GENERAL NOTES

THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

(1) THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0 " C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

(2) THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.

(3) DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

(4) USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.

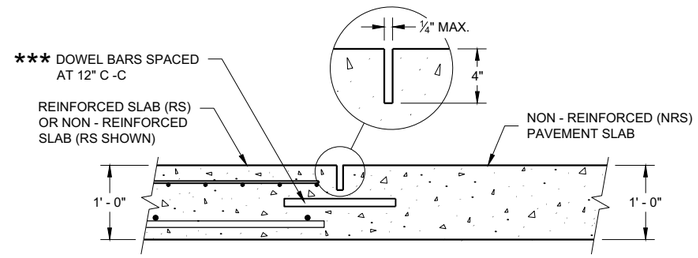
(5) PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.

(6) EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.

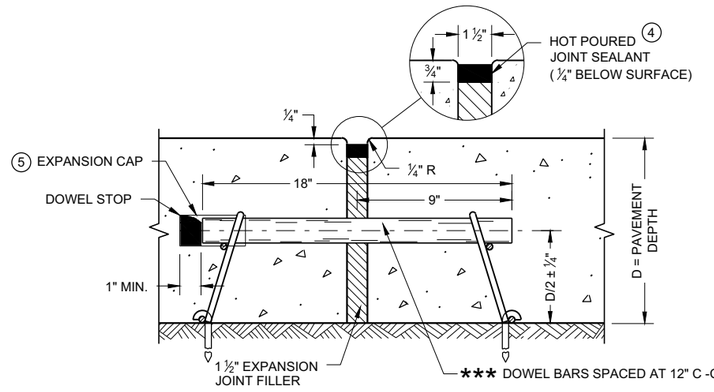
(A) STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℞.

(B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.

(C) 1 ½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℞ .



SECTION D - D
CONTRACTION JOINT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018
DATE

/S/ Peter Kemp, P.E.
PAVEMENT SUPERVISO

FHWA

6

SDD 13B02 - 09a

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

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

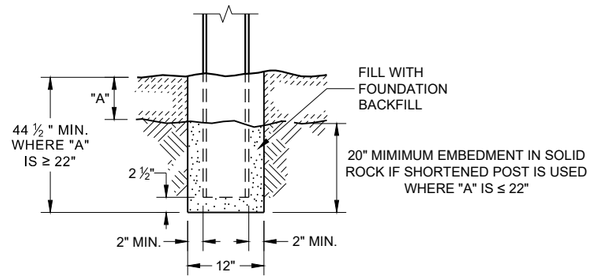
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL 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).

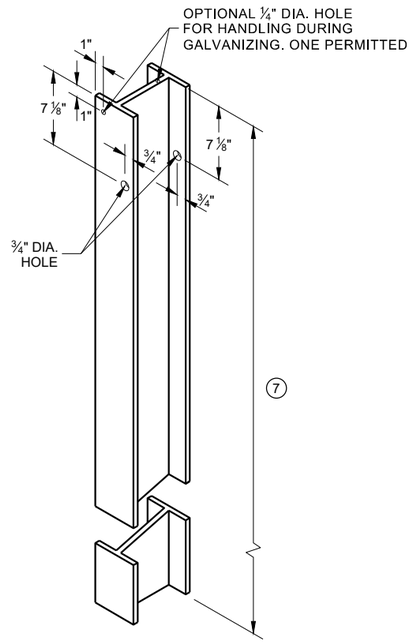
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

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

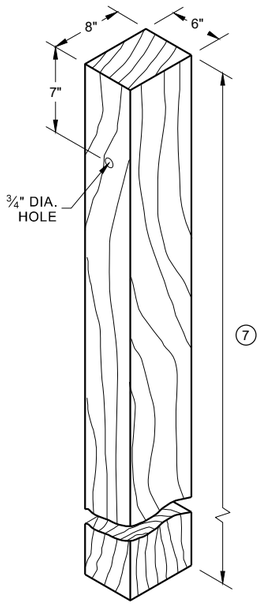
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



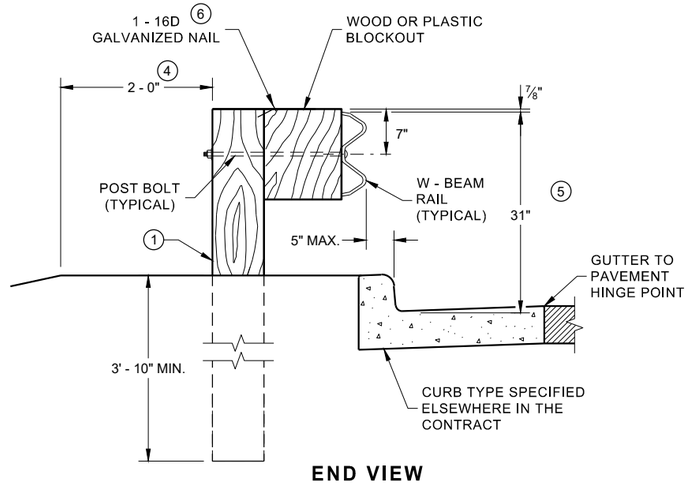
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



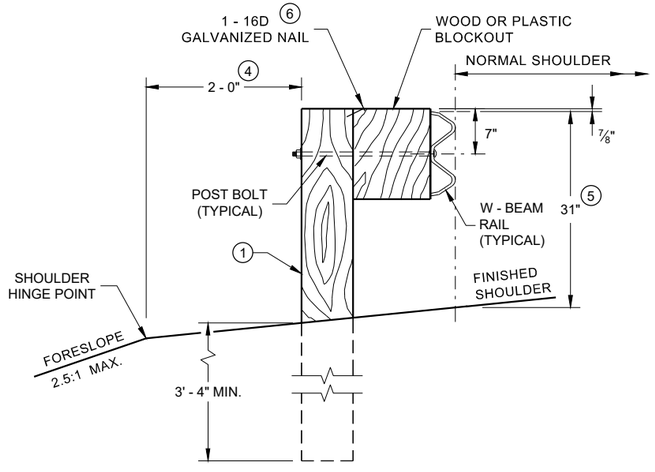
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



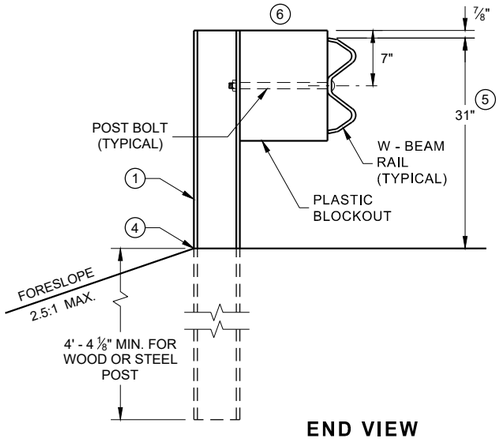
WOOD POST (6" X 8") NOMINAL (1)



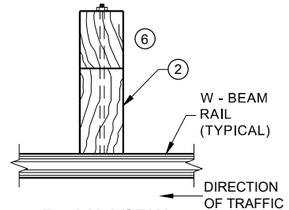
END VIEW
LOCATED ALONG A CURBED ROADWAY



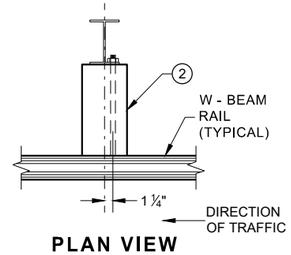
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



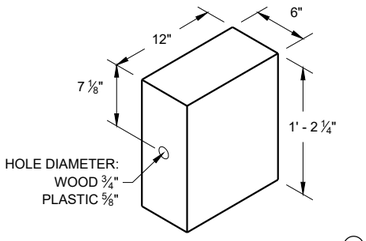
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



WOOD OR PLASTIC BLOCKOUT (2)

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 14B42 - 07a

6

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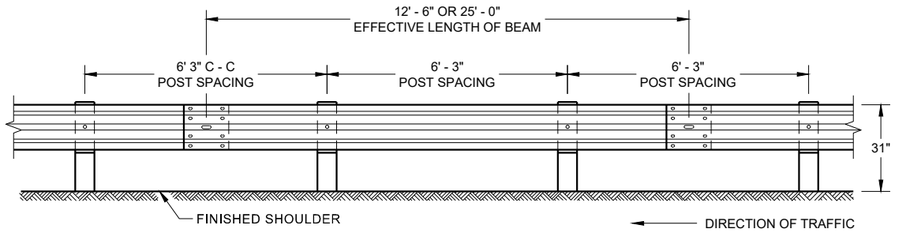
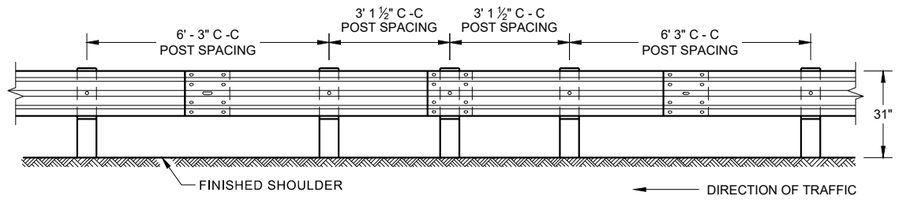
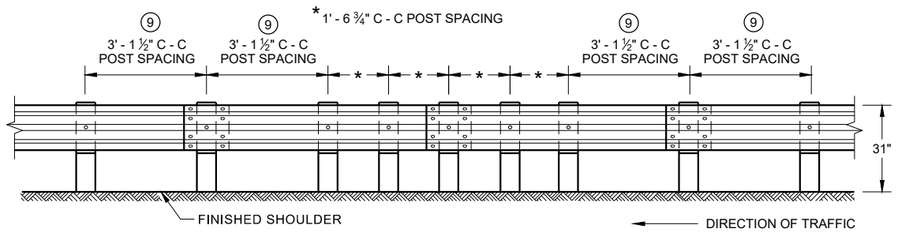


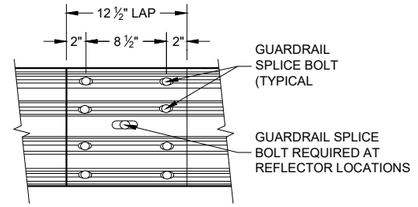
FRONT VIEW
POST SPACING STANDARD INSTALLATION



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



FRONT VIEW
QUARTER POST SPACING (QS)



FRONT VIEW
MID-SPAN BEAM SPLICE

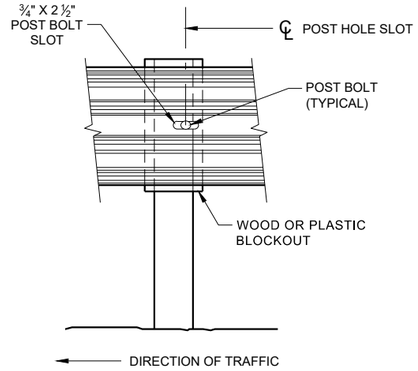
GENERAL NOTES

⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

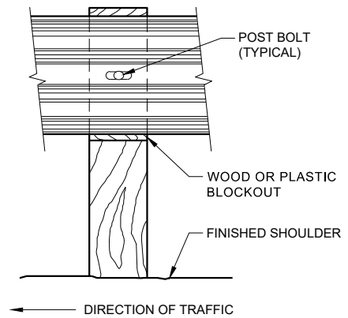
⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 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.

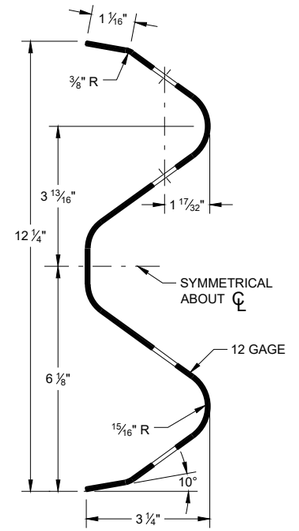
GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



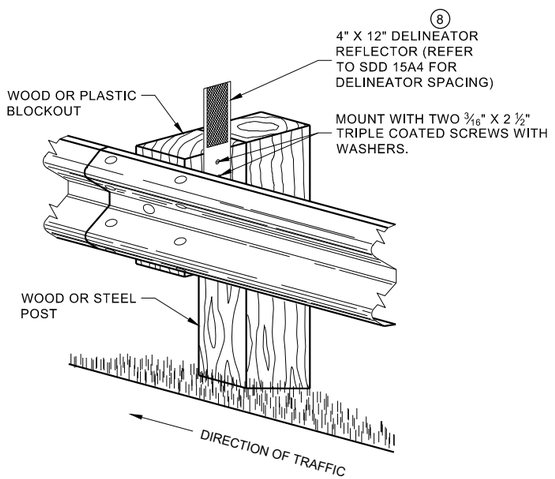
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



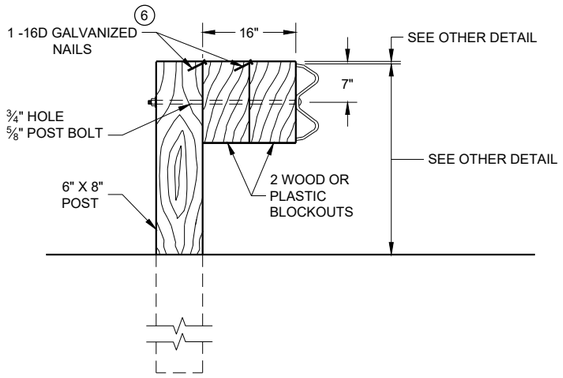
ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 14B42 - 07b

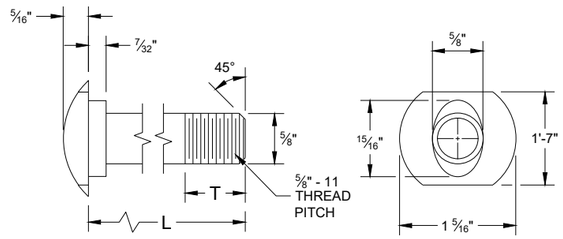


DETAIL FOR 16" BLOCKOUT DEPTH

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

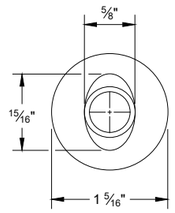
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3⁄16".
2. IF THE BOLT EXTENDS MORE THAN ¼" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

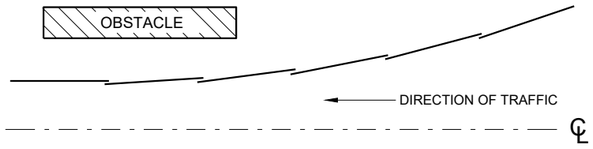


POST BOLT TABLE

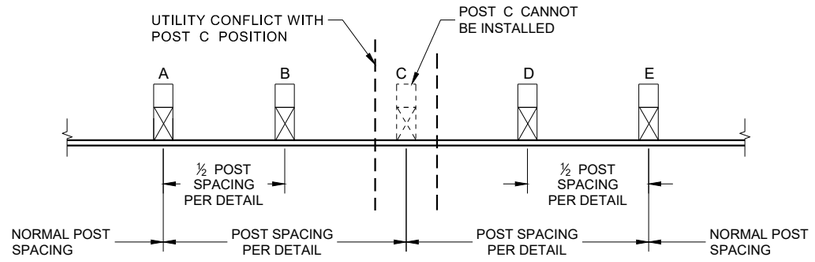
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1⁄16"
18"	4"
21"	4 1⁄16"
25"	4"



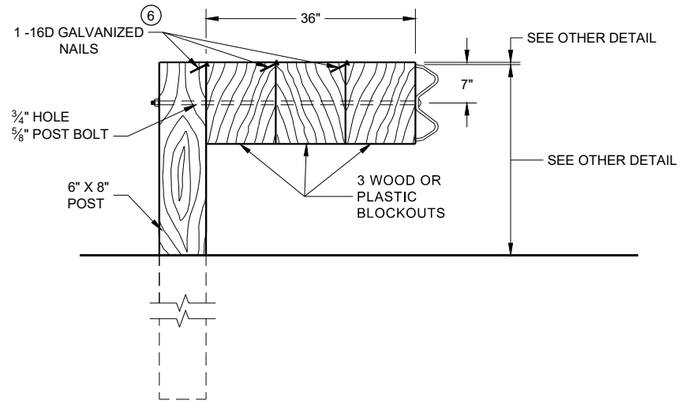
ALTERNATE BOLT HEAD



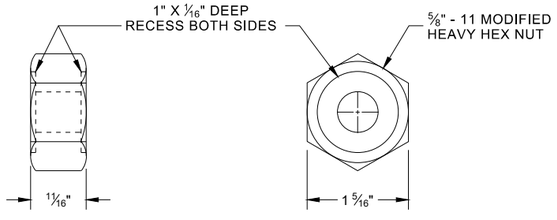
PLAN VIEW
BEAM LAPPING DETAIL



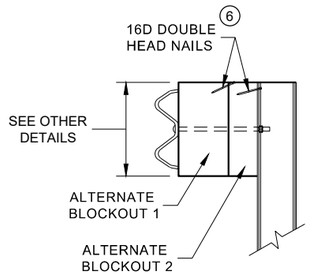
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



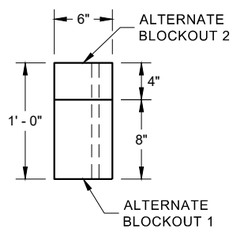
DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW



PLAN VIEW

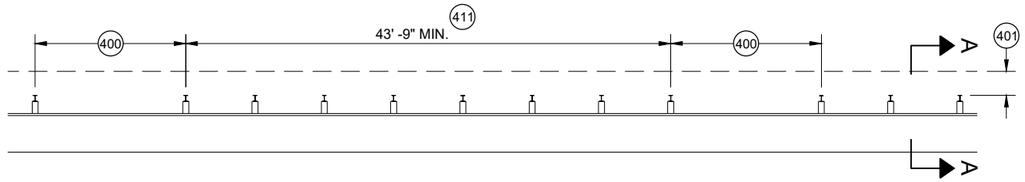
ALTERNATE WOOD BLOCKOUT DETAIL

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.

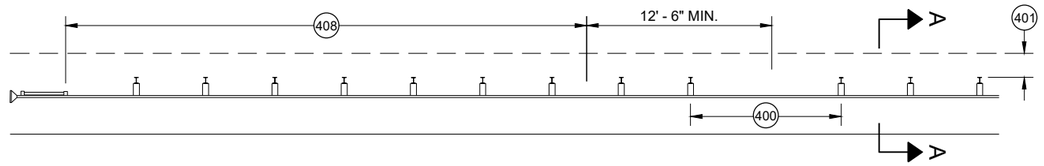
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

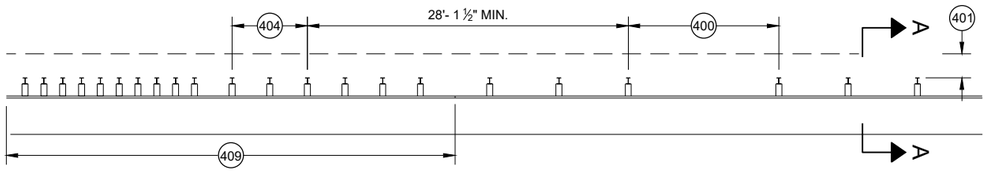
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL



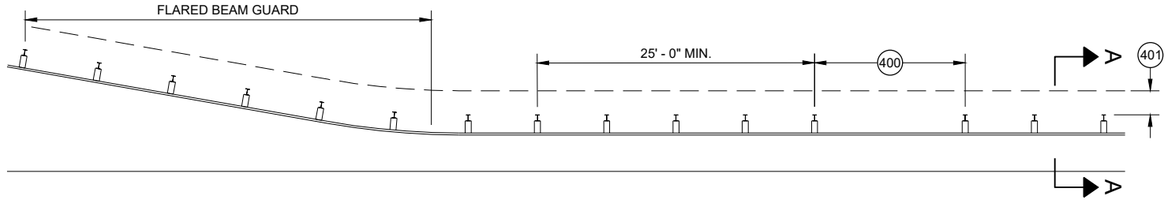
MISSING POST IN MGS GUARDRAIL



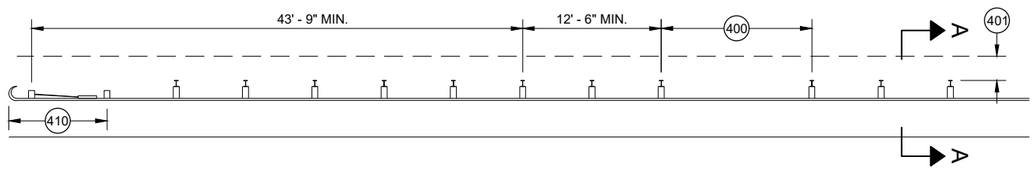
MISSING POST IN MGS GUARDRAIL NEAR EAT



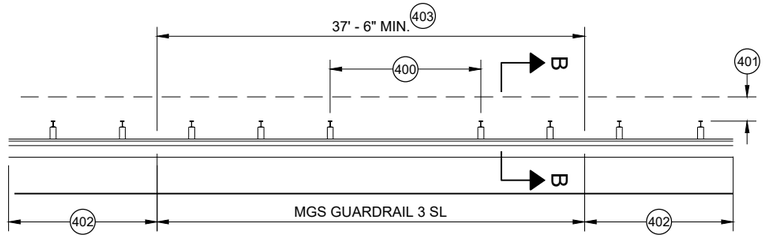
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

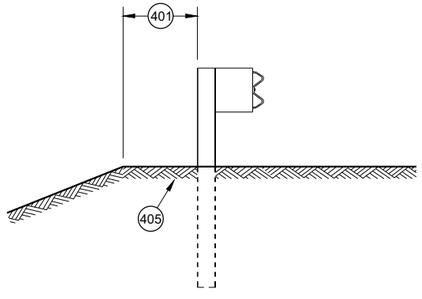


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

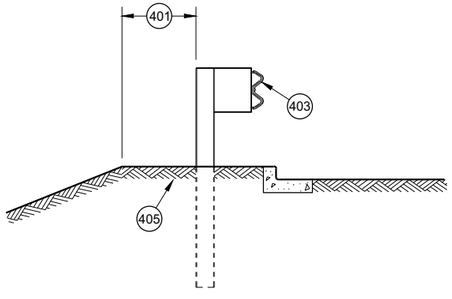


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL) 407

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



SECTION A - A 406



SECTION B - B 406

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVE
UNIT SUPERVISOR

FHWA

SDD 14B42 - 07d

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 MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.

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

(E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

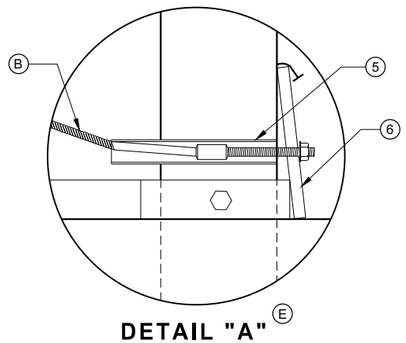
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

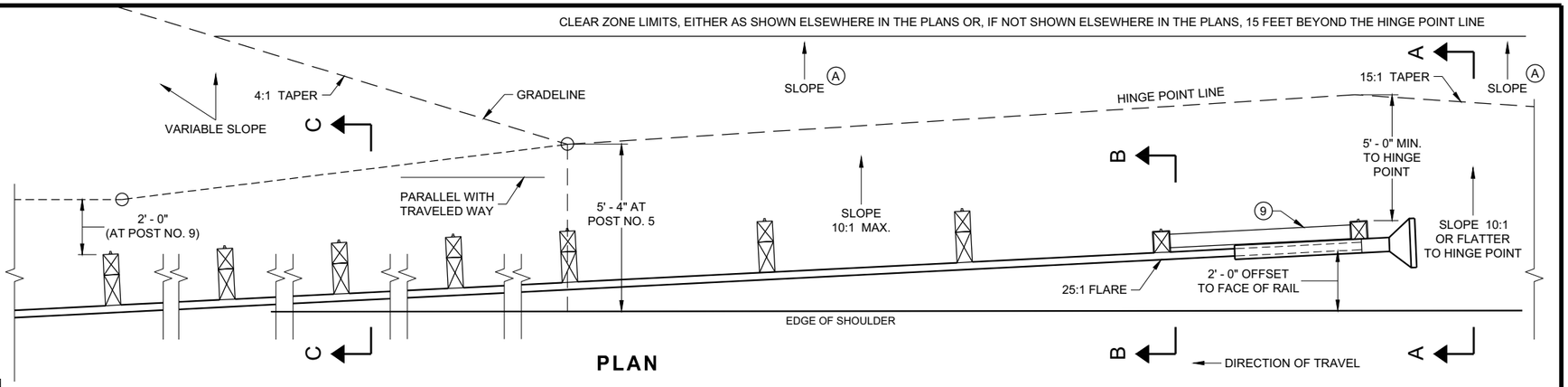
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

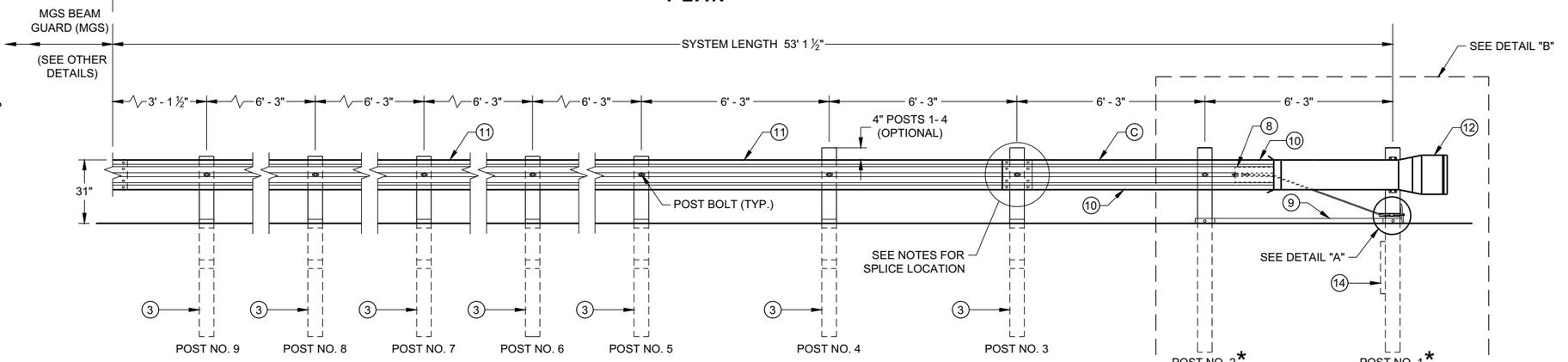
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

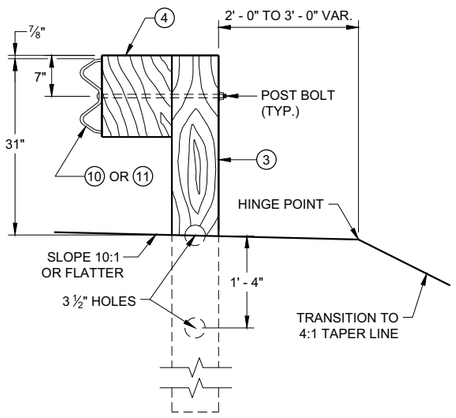


DETAIL "A" (E)

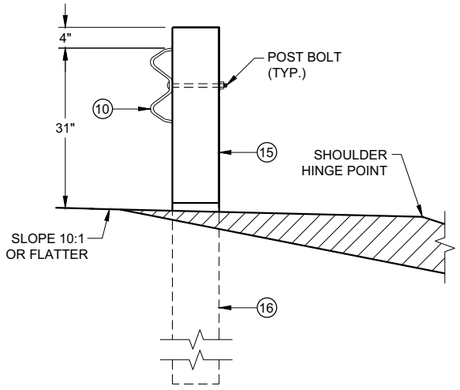




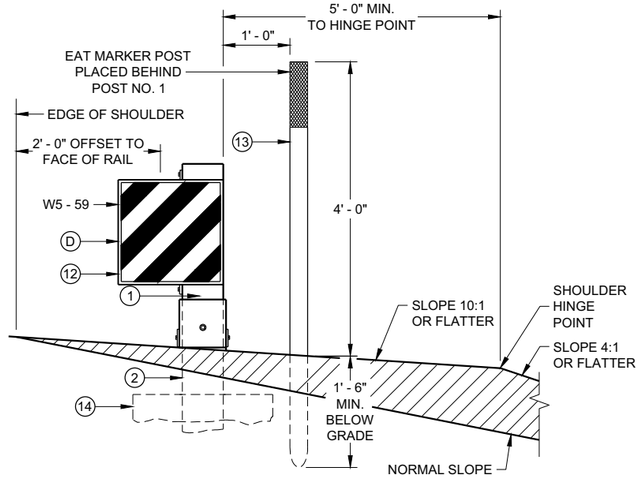
ELEVATION



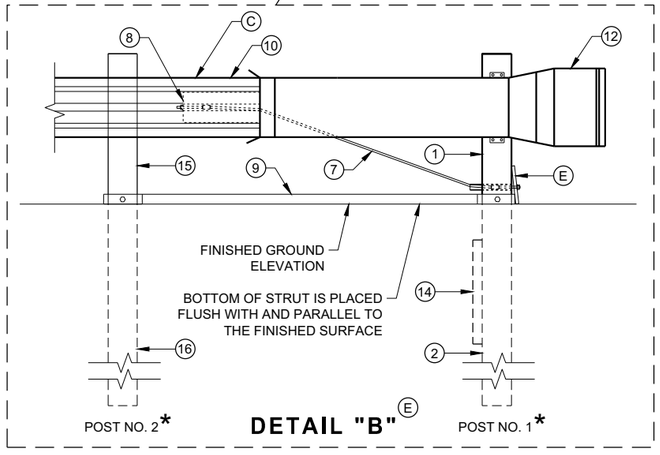
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*



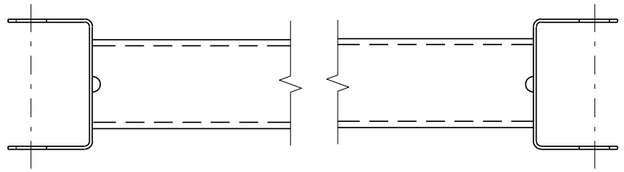
DETAIL "B" (E)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

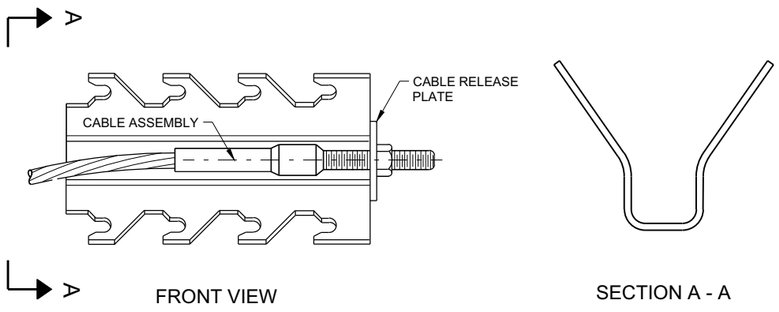
SDD 14B44 - 04a



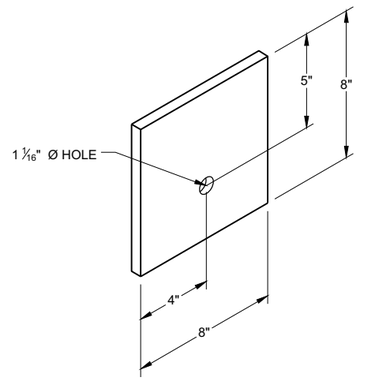
GENERIC GROUND STRUT ⑨ Ⓔ

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX ⑨ Ⓔ



BEARING PLATE ⑥ Ⓔ

6

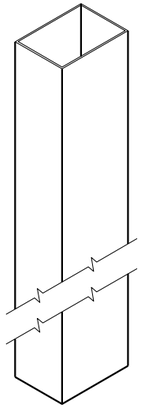
6

SDD 14B44 - 04b

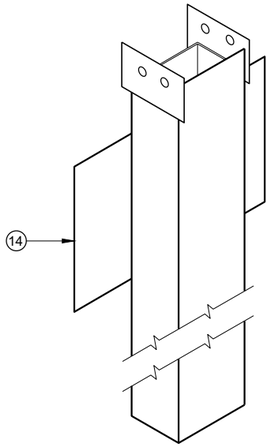
SDD 14B44 - 04b

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

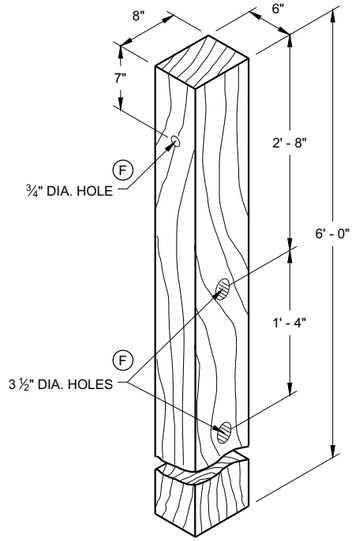
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



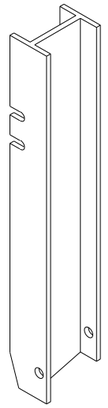
UPPER POST NO. 1 (1) (E)



LOWER POST NO. 1 (2) (E)



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



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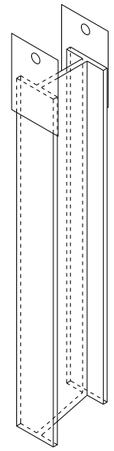

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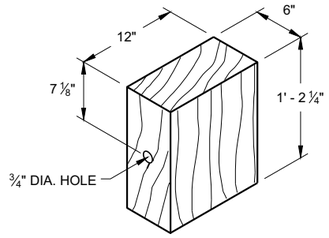
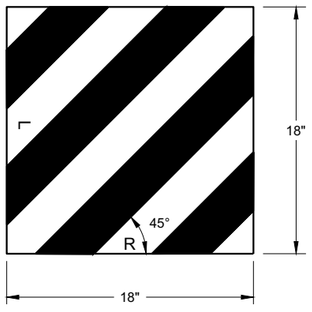
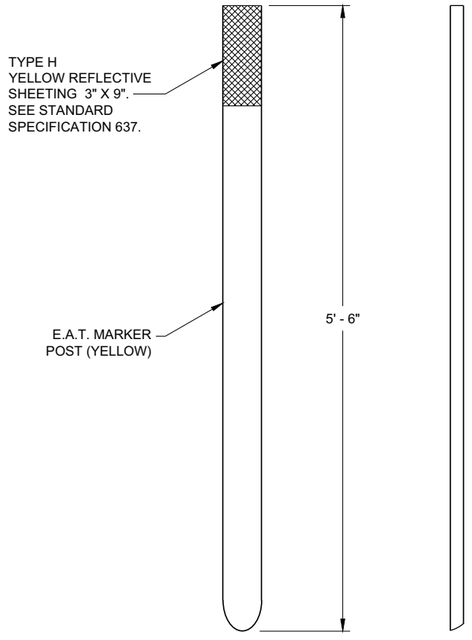


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



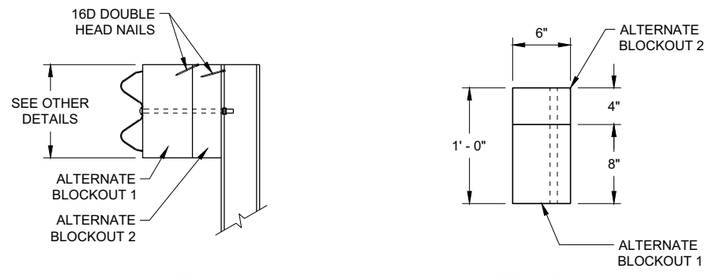
W5 - 59

REFLECTIVE SHEETING DETAIL (E)



FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

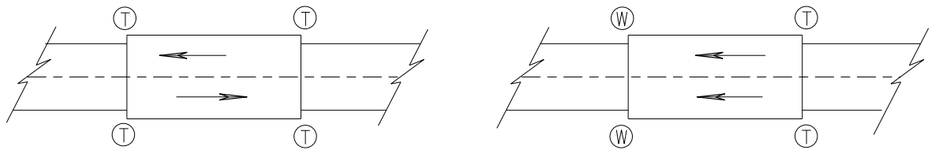
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6

SDD 14B44 - 04c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

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

TRANSITION USES STEEL POSTS ONLY.

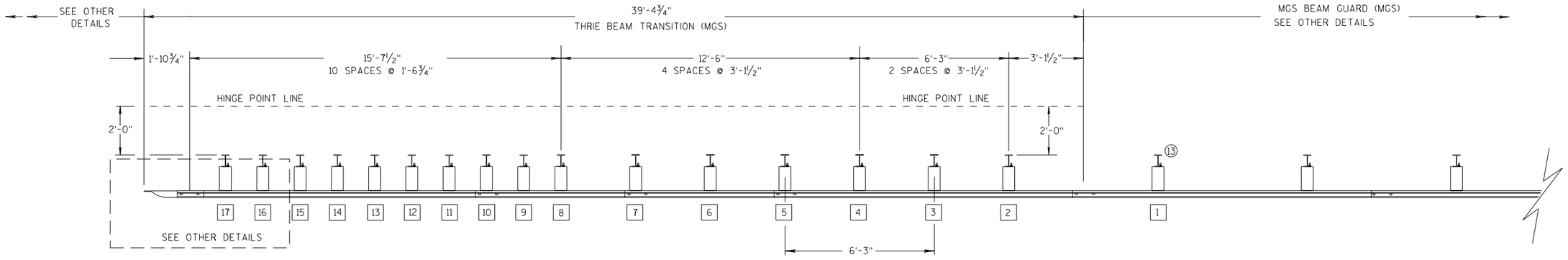
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

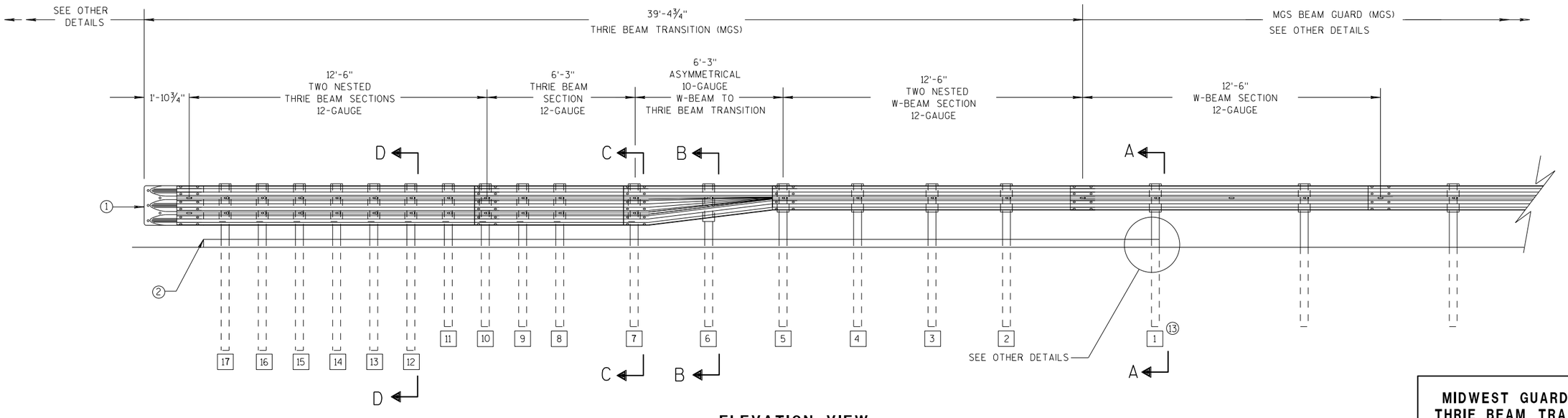
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6
S.D.D. 14 B 45-5a

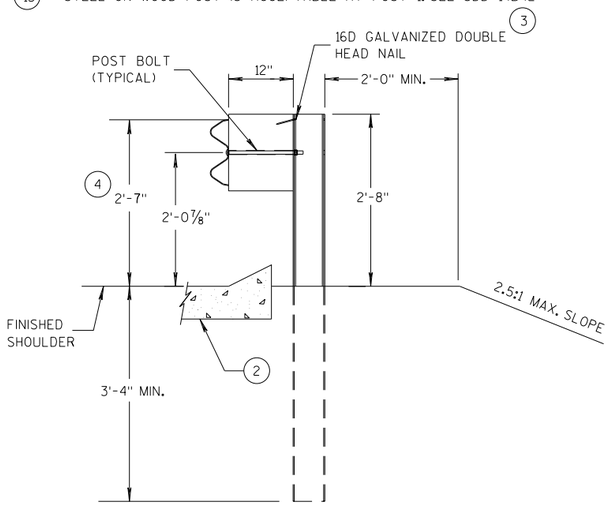
GENERAL NOTES

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

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

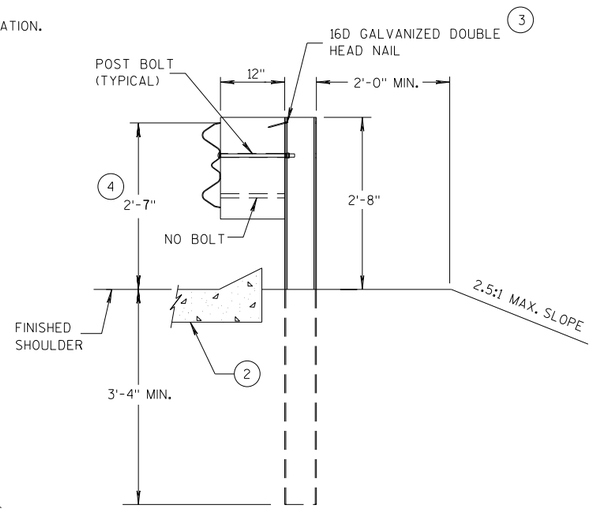
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

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



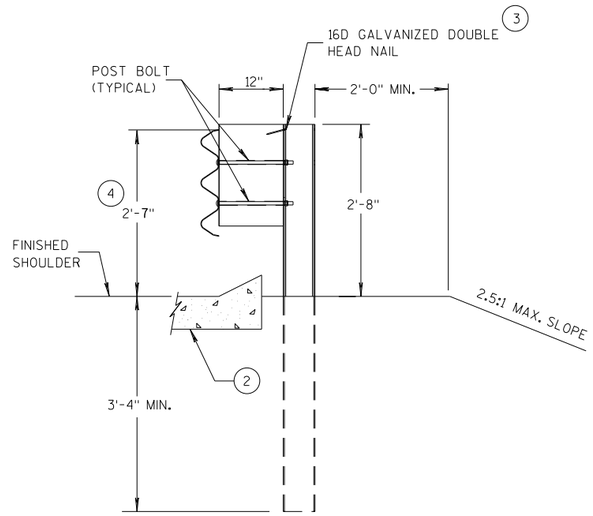
SECTION A-A (13)

POSTS 1-5



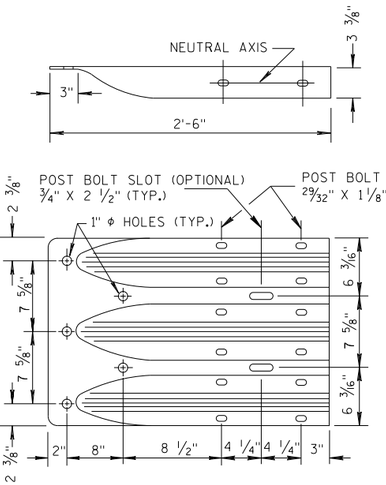
SECTION B-B

POST 6

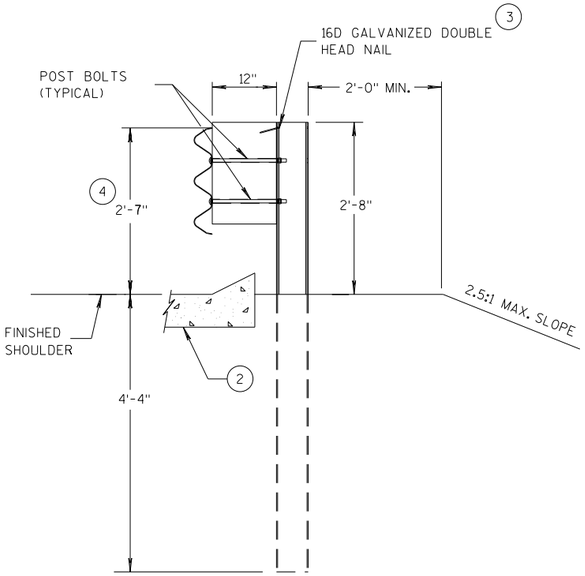


SECTION C-C

POSTS 7-11

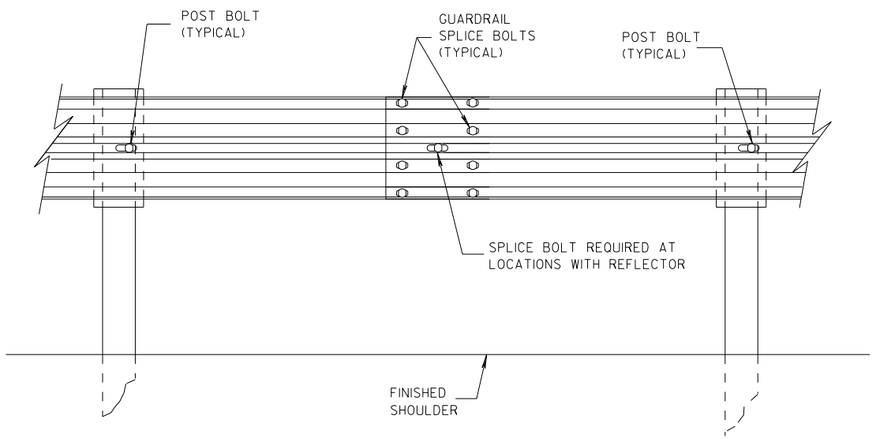


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-17



SPLICE DETAIL

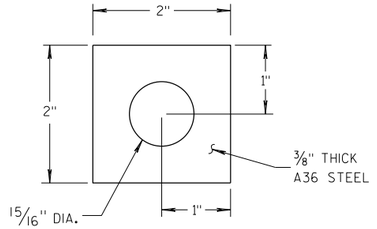
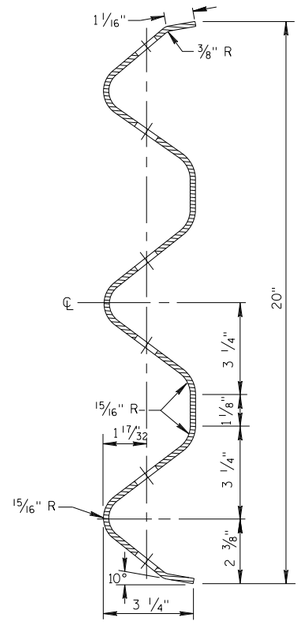


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOF

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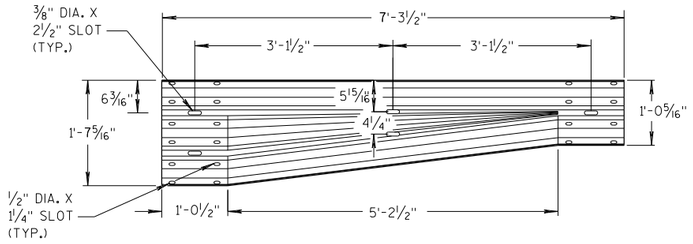
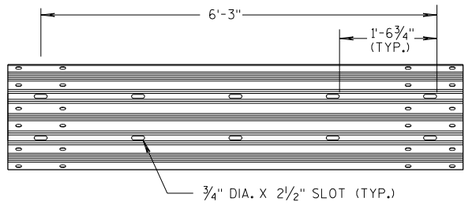
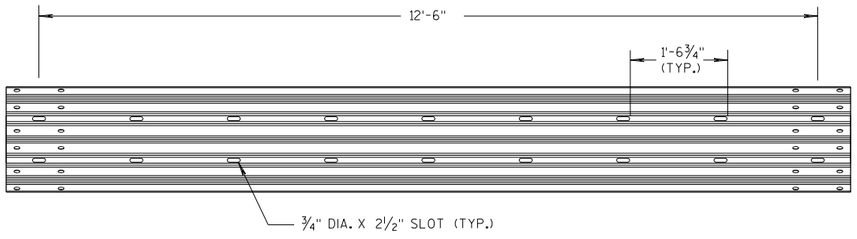
S.D.D. 14 B 45-5b



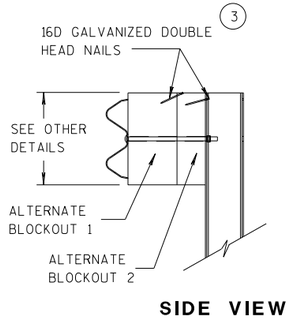
W-BEAM TO THRIE BEAM TRANSITION SECTION



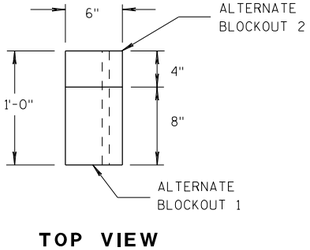
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

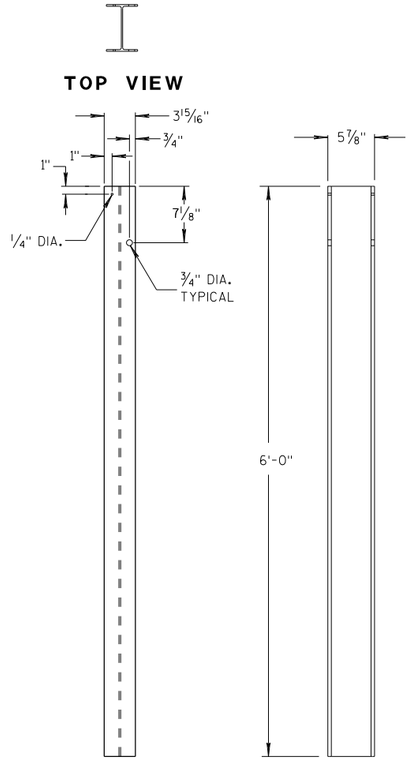


SIDE VIEW



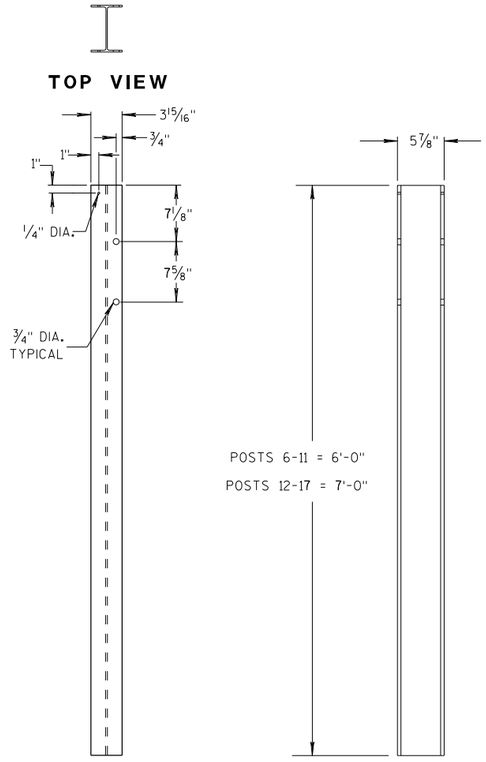
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



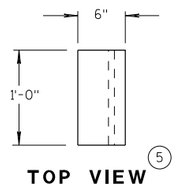
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5 (13)

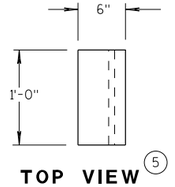


FRONT VIEW SIDE VIEW

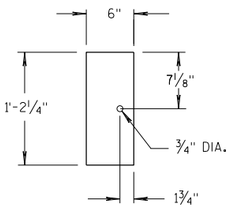
STEEL POSTS 6-17



TOP VIEW (5)

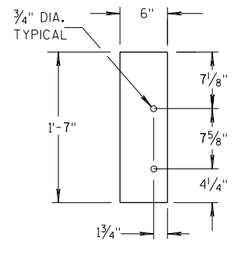


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

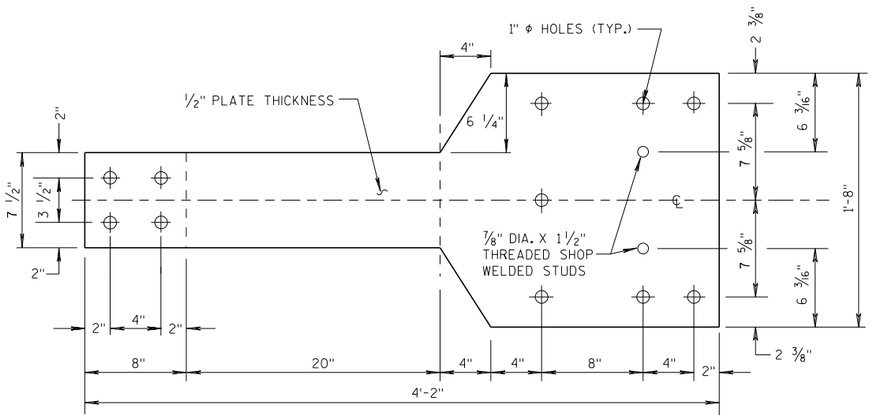
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

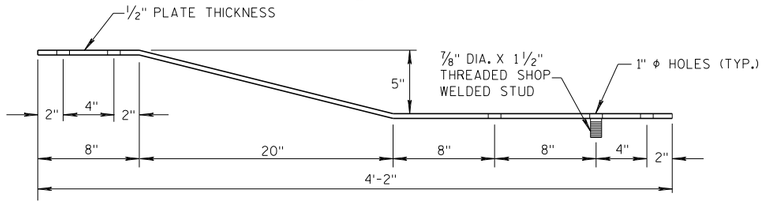
S.D.D. 14 B 45-5c

GENERAL NOTES

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

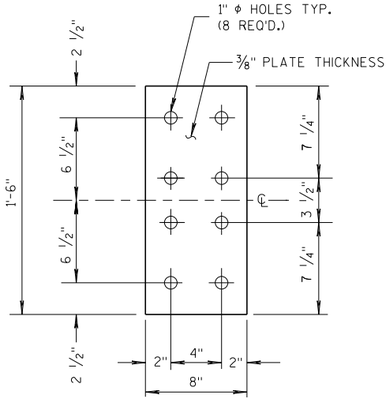


FRONT VIEW



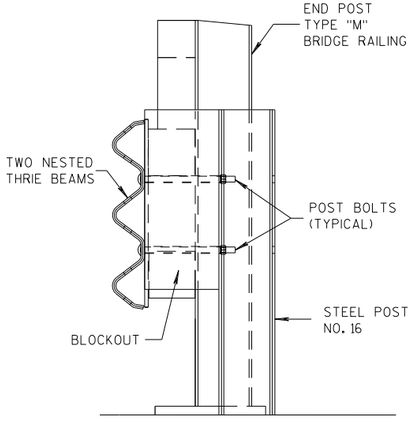
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

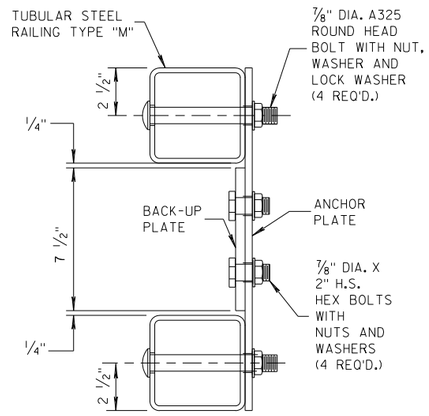


FRONT VIEW

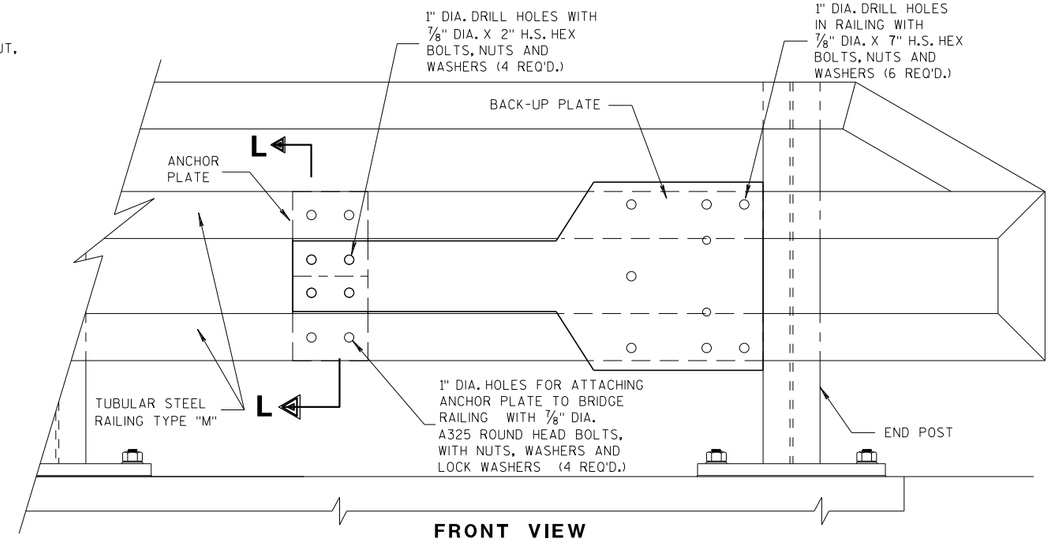
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

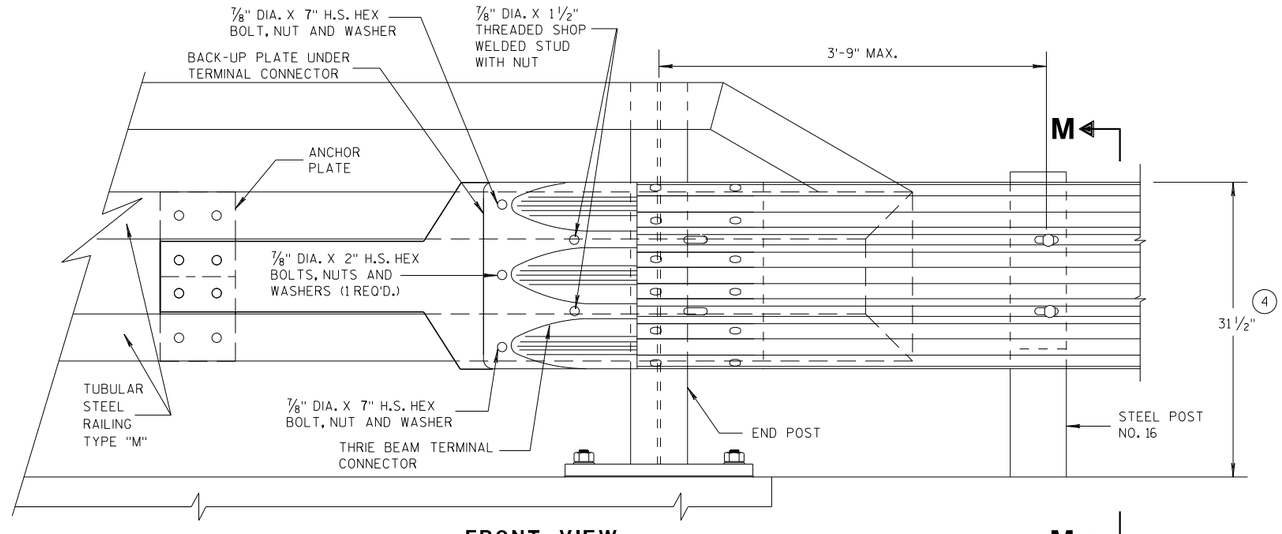


SECTION L-L

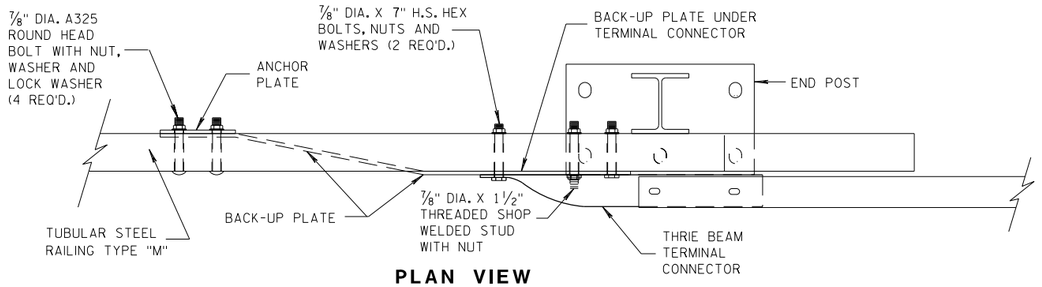


FRONT VIEW

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

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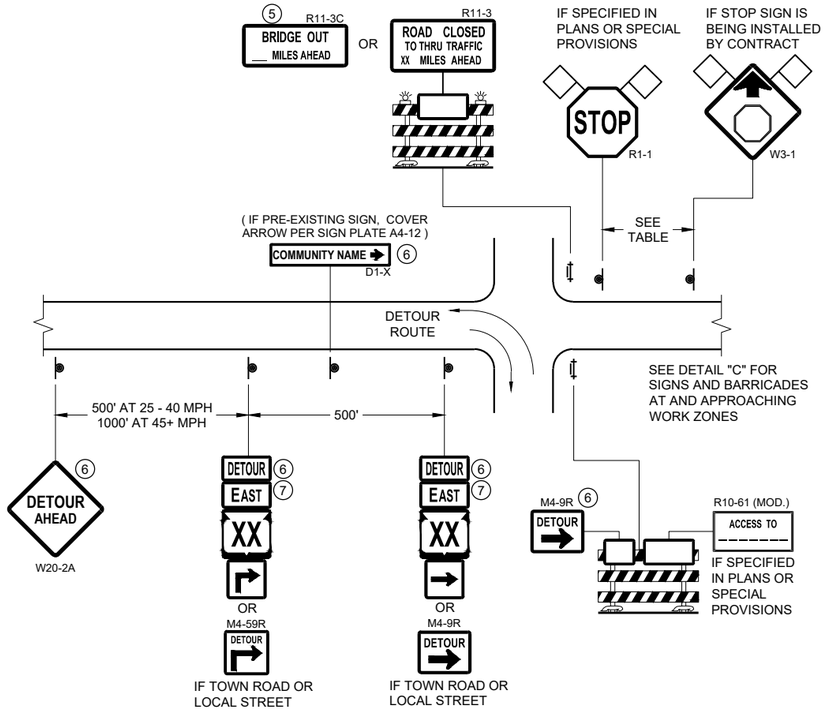
S.D.D. 14 B 45-5h

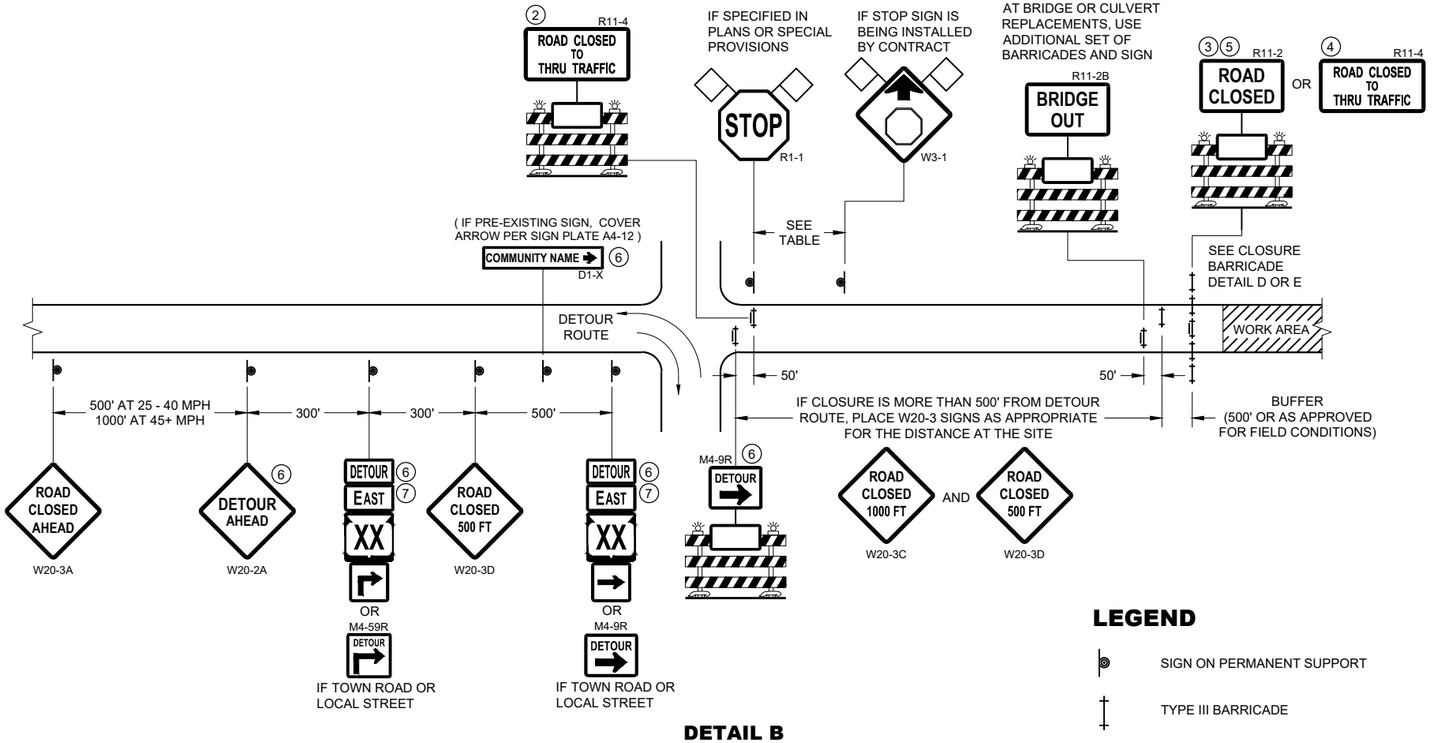
6

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



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

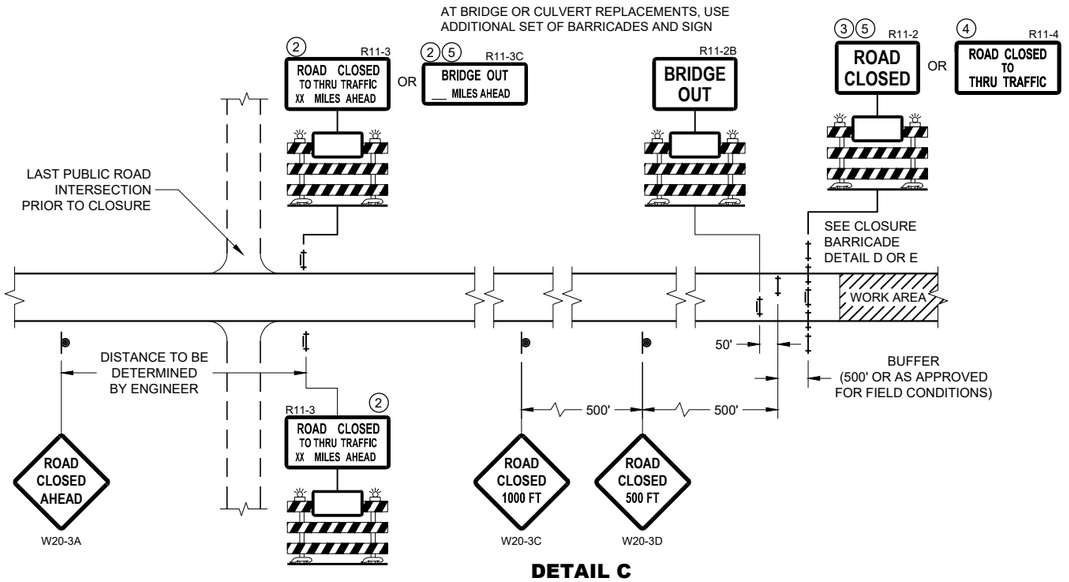


DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)
- DETOUR — M4 - 8
- EAST — M3 - X
- XX — M1 - 4 OR XX — M1 - 6 OR COUNTY X — M1 - 5A
- M05 - 1 OR M06 - 1



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

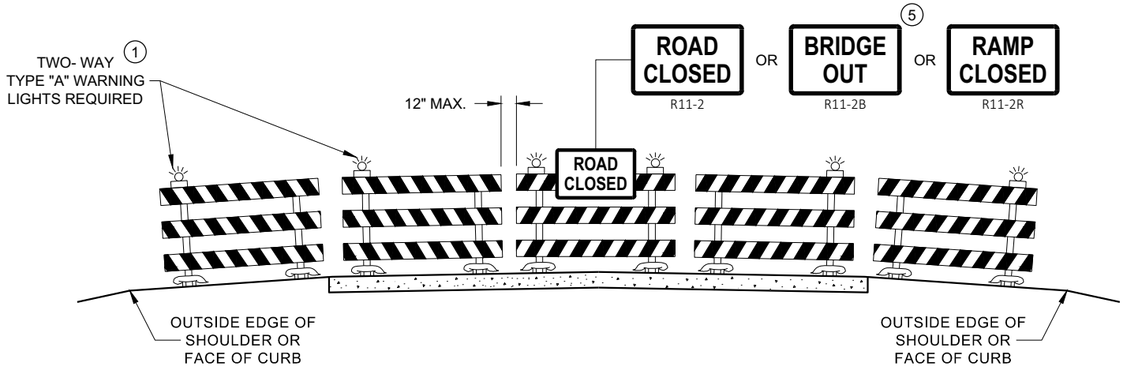
APPROVED
February 2020
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

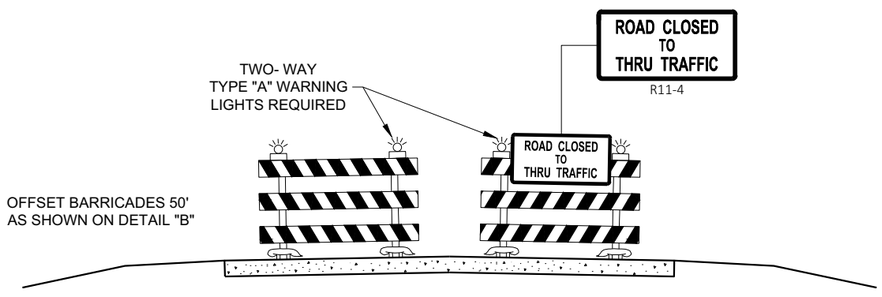
FHWA

SDD 15C02 - 08a

SDD 15C02 - 08a



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING.

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEE
FHWA

6

SDD 15C02 - 08b

6

SDD 15C02 - 08b

GENERAL NOTES

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

(1) LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING

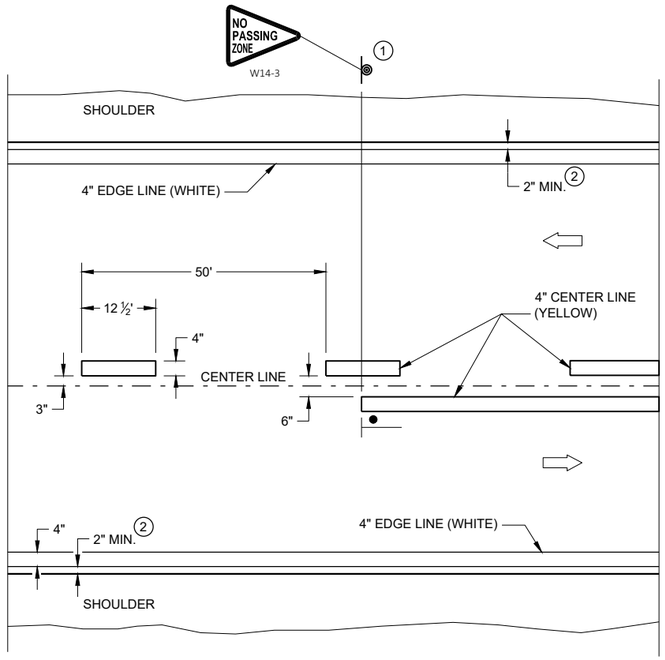
(2) MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

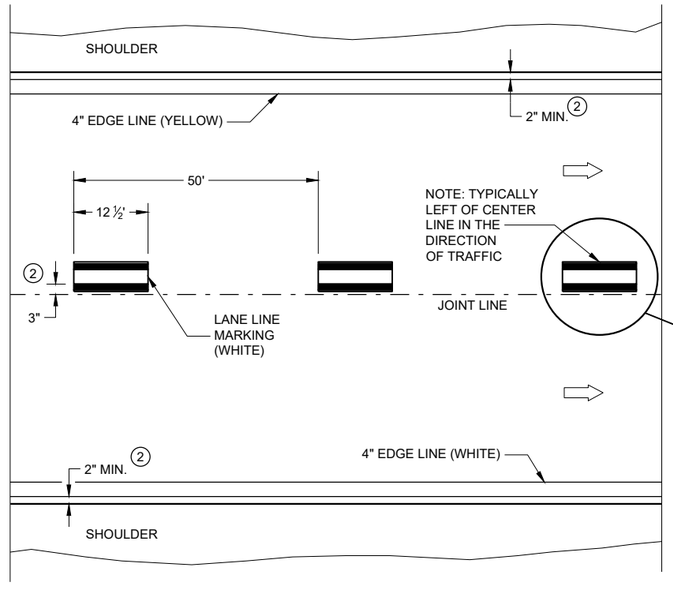
"T" MARKING

SIGN ON PERMANENT SUPPORT

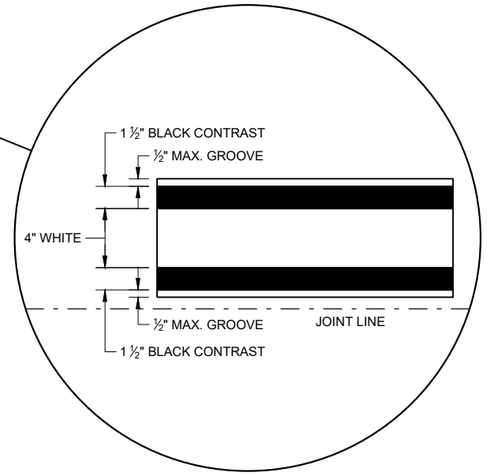
DIRECTION OF TRAFFIC



TWO WAY TRAFFIC



ONE WAY TRAFFIC



PERMANENT PAVEMENT MARKING

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 — DATE
/S/ Jeannie Silver — STATEWIDE SIGNING AND M ENGINEER

FHWA

6

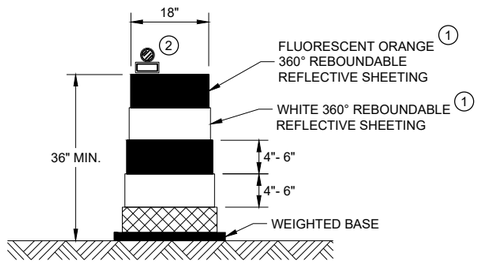
SDD 15C08 - 22a

6

SDD 15C08 - 22a

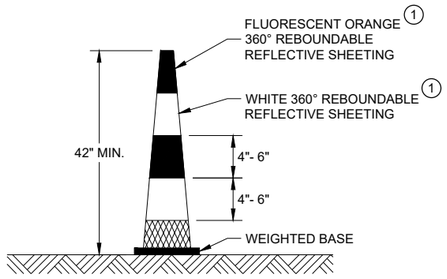
GENERAL NOTES

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



DRUM

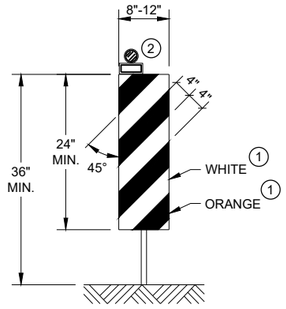
BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

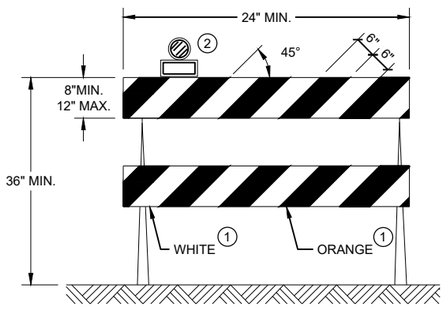
DO NOT USE IN TAPERS
½ SPACING OF DRUMS

BALLAST WIDTHS
RANGE FROM 14"-20"



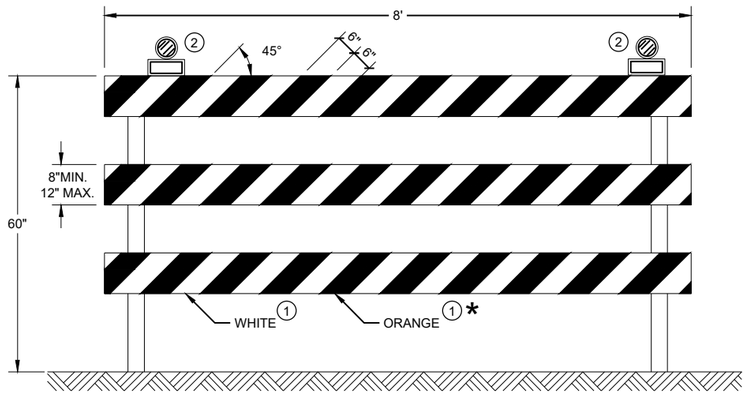
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

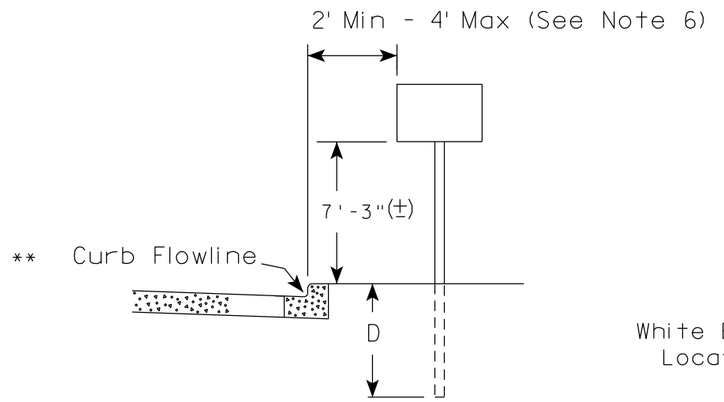
6

SDD 15C11 - 10b

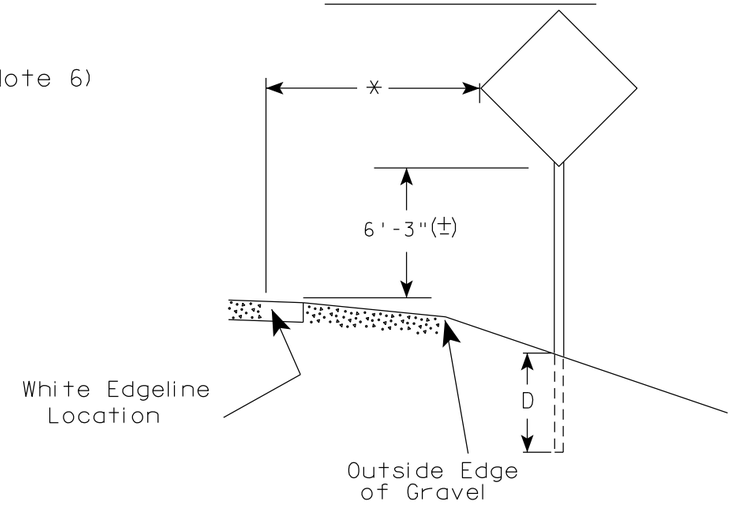
6

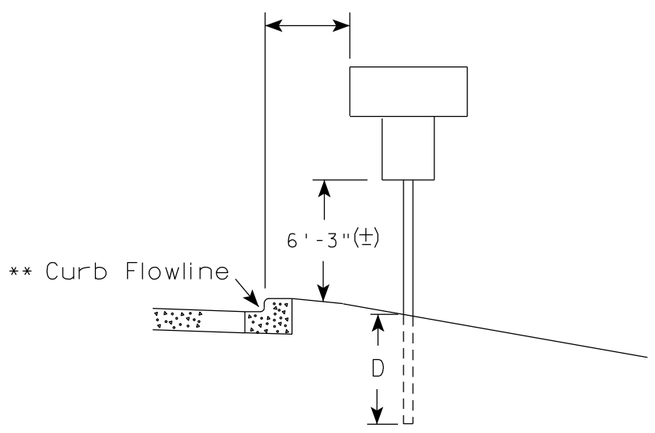
SDD 15C11 - 10b

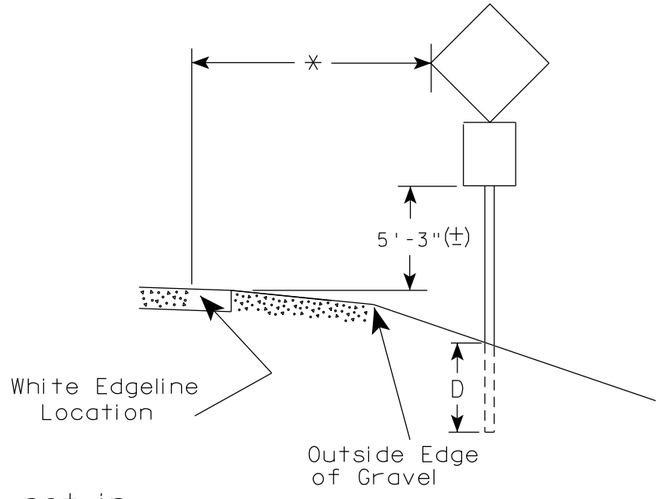
URBAN AREA



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 or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
   The Double Arrow sign (W12-1D) 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" (±).
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 signs mounted on traffic signal poles is 5'- 3" (±).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The (±) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.

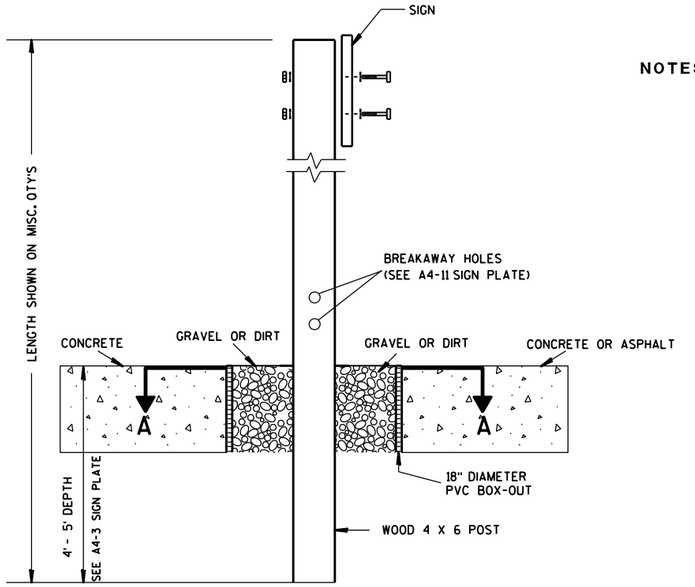
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/13/2020 PLATE NO. A4-3.22

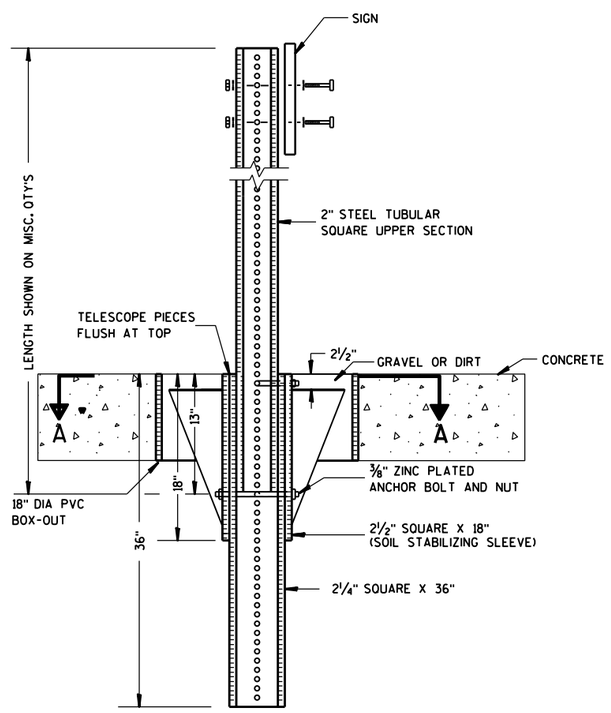
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 44	E



ELEVATION VIEW

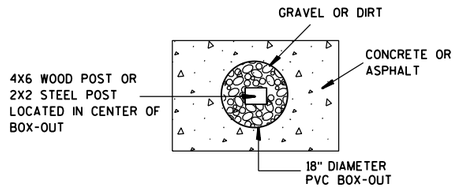
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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

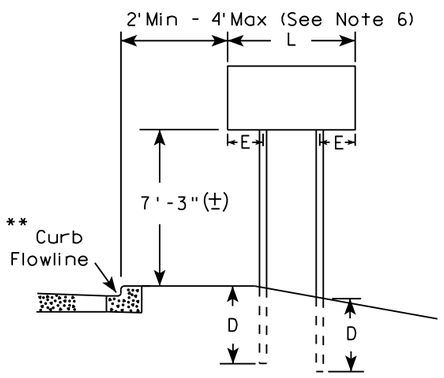
APPROVED Matthew R Rauch
for State Traffic Engineer

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

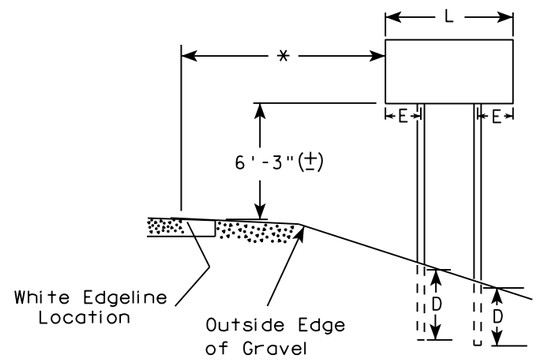
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

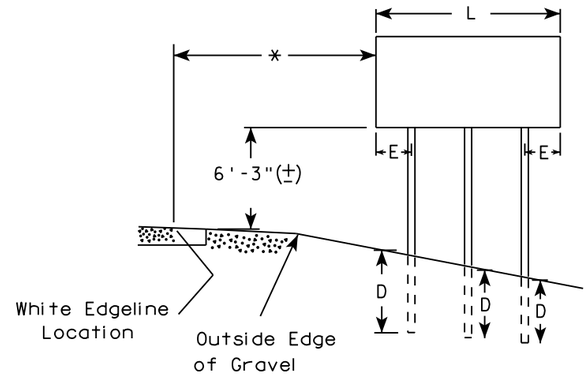
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

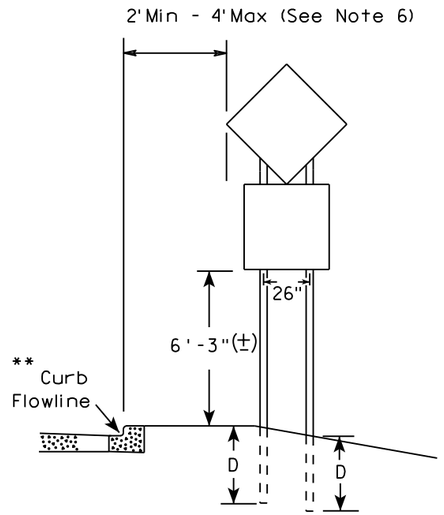
URBAN AREA



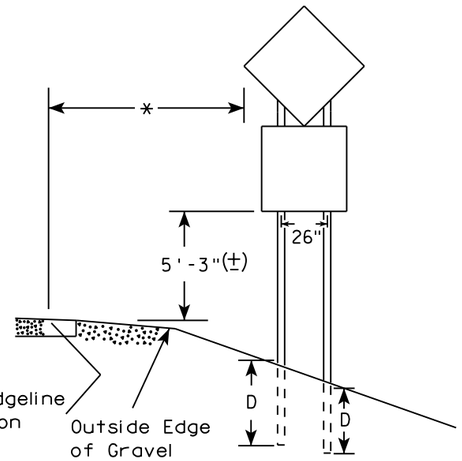
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

***	SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
	L	E
	Greater than 48" Less than 60"	12"
	60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	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. J-Assemblies are considered to be one sign for mounting height.
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 and 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'

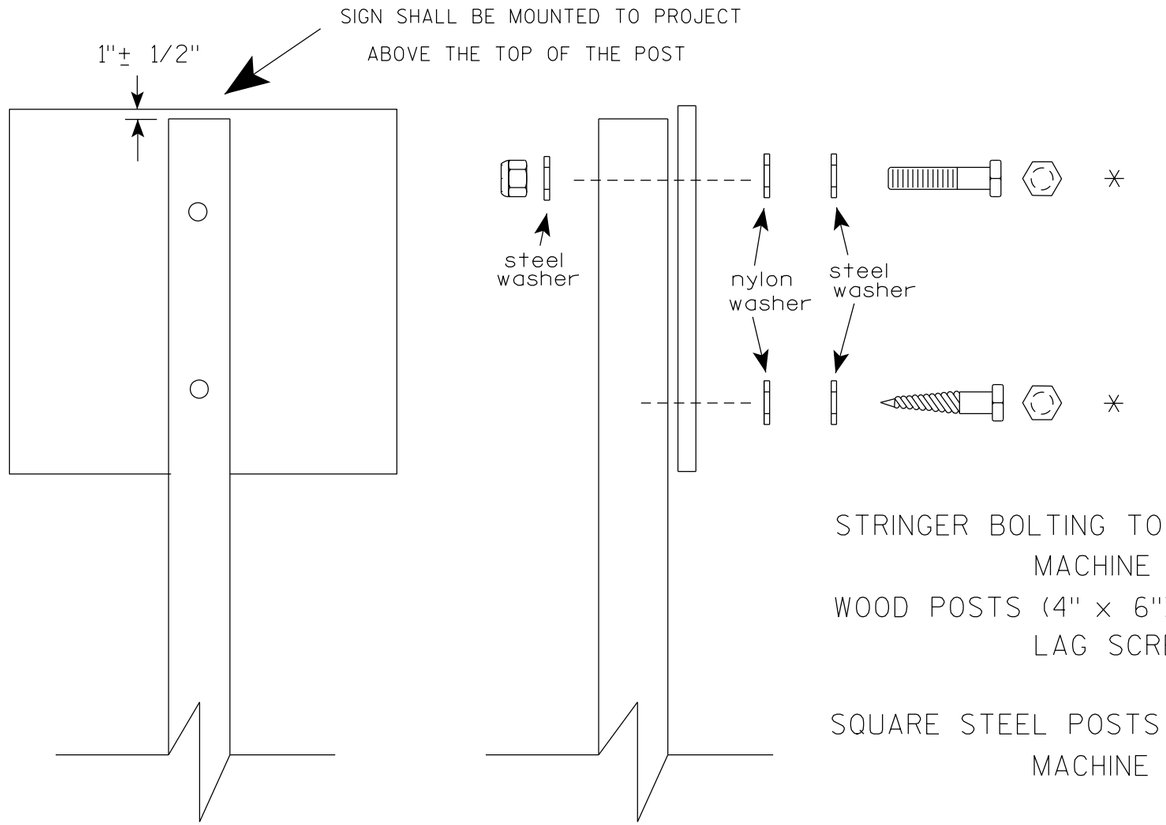
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 46	E



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

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

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

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

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)

MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

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

* 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 4/1/2020 PLATE NO. A4-8.9

PROJECT NO:

SHEET NO: 47 E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A48.DGN PLOT DATE : 01-APRIL-2020 PLOT BY : dotc4c

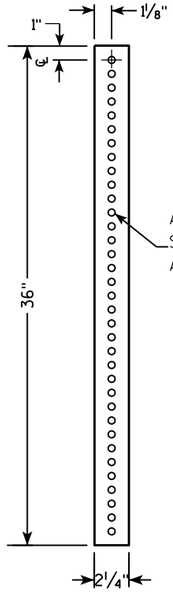
WISDOT/CADDS SHEET 42

7

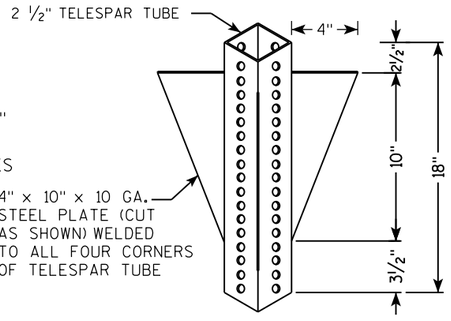
7

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

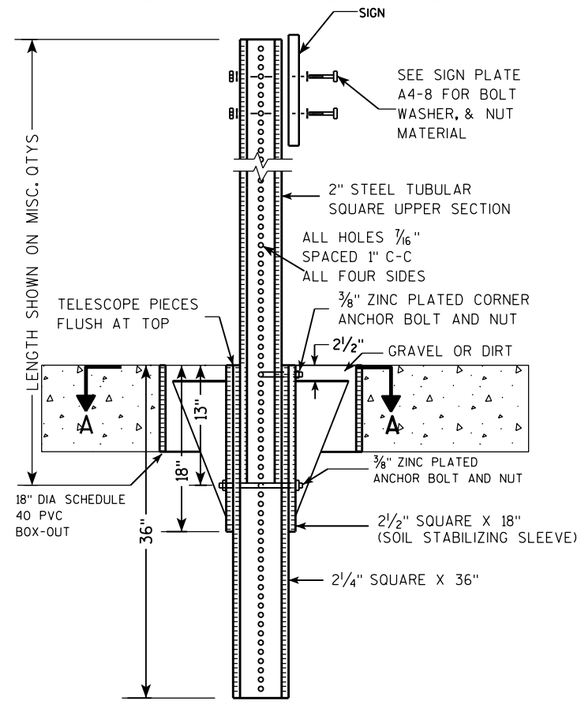
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



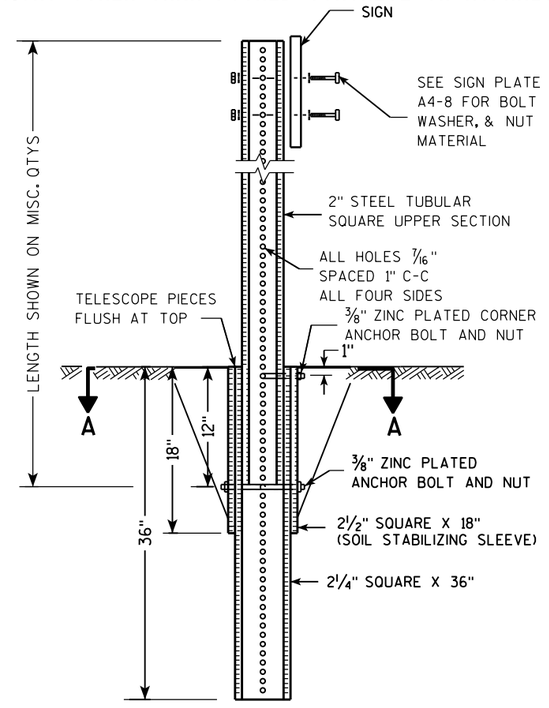
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

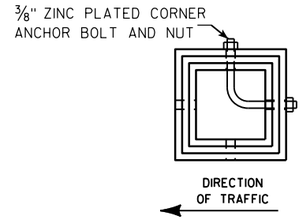


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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).

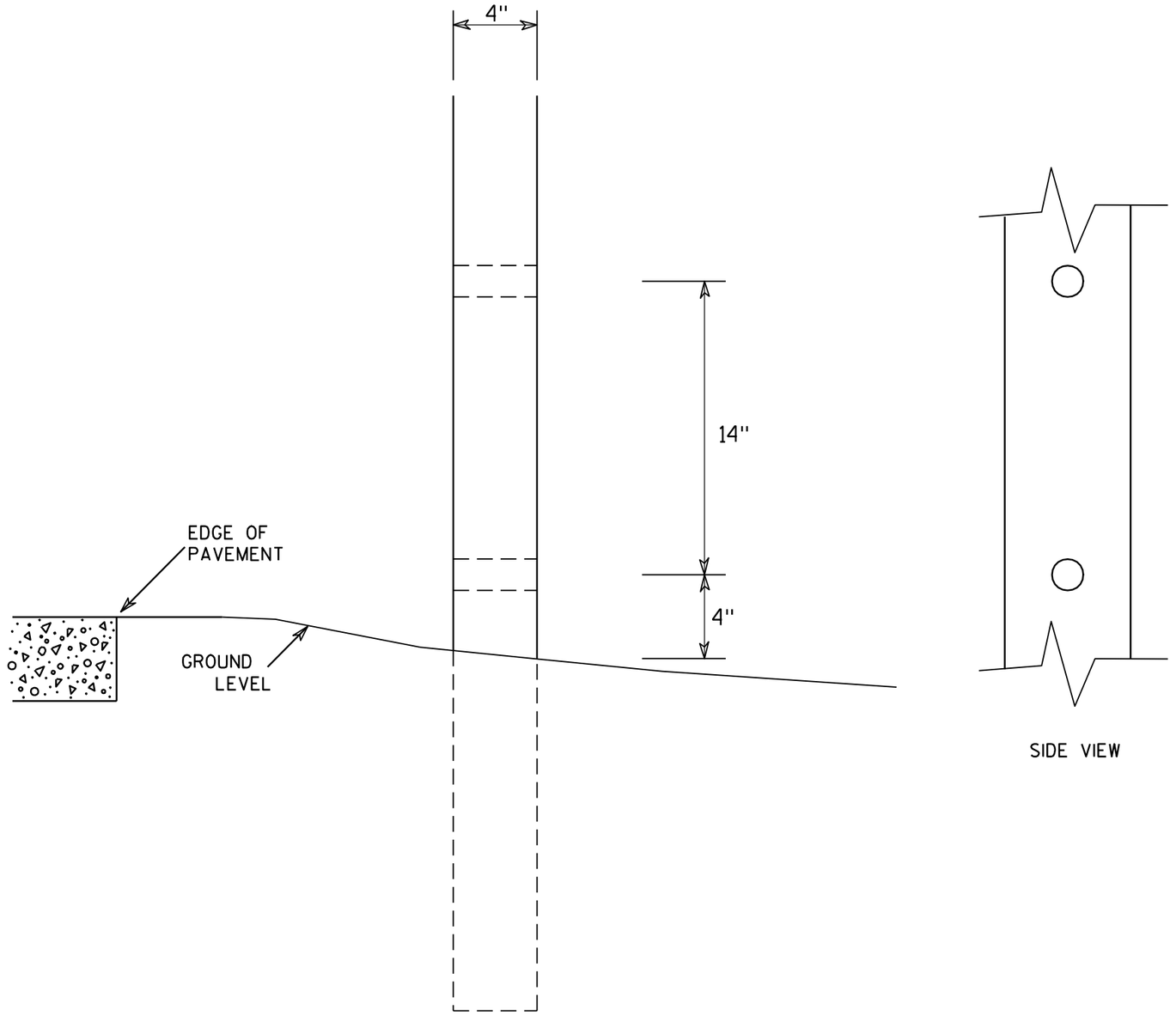
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 48 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.

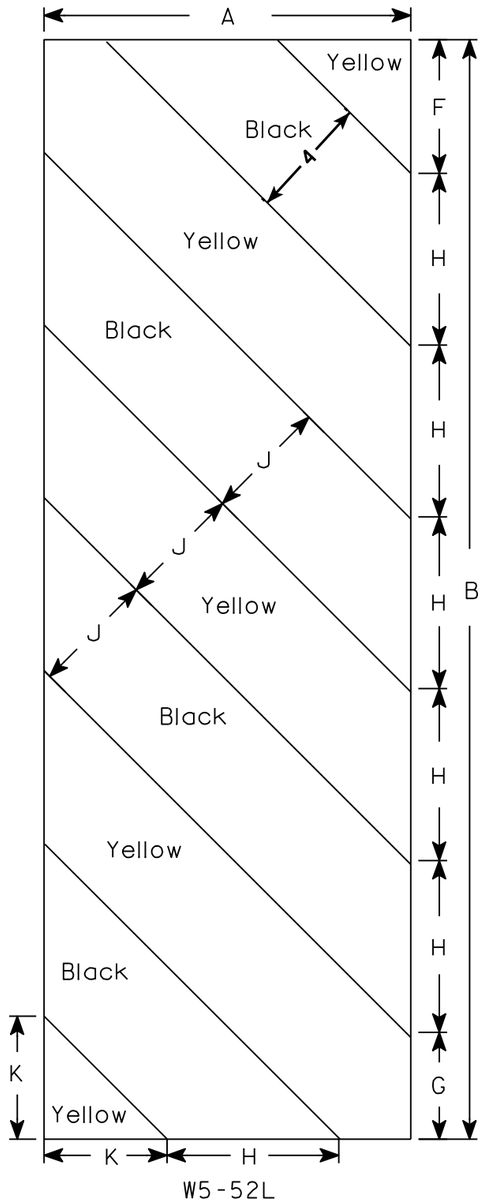
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

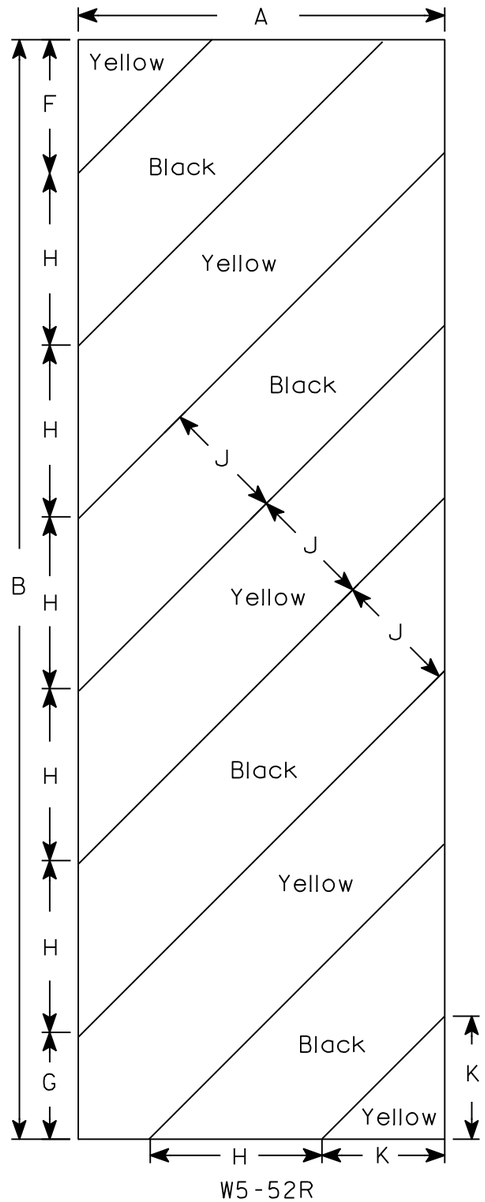
APPROVED Chester J Spang for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 49	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: 50	E

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PLOT DATE: 9/1/2022
PLOT TIME: 10:50:51 AM
BATCH PRINT SHEET 1 OF 14

8

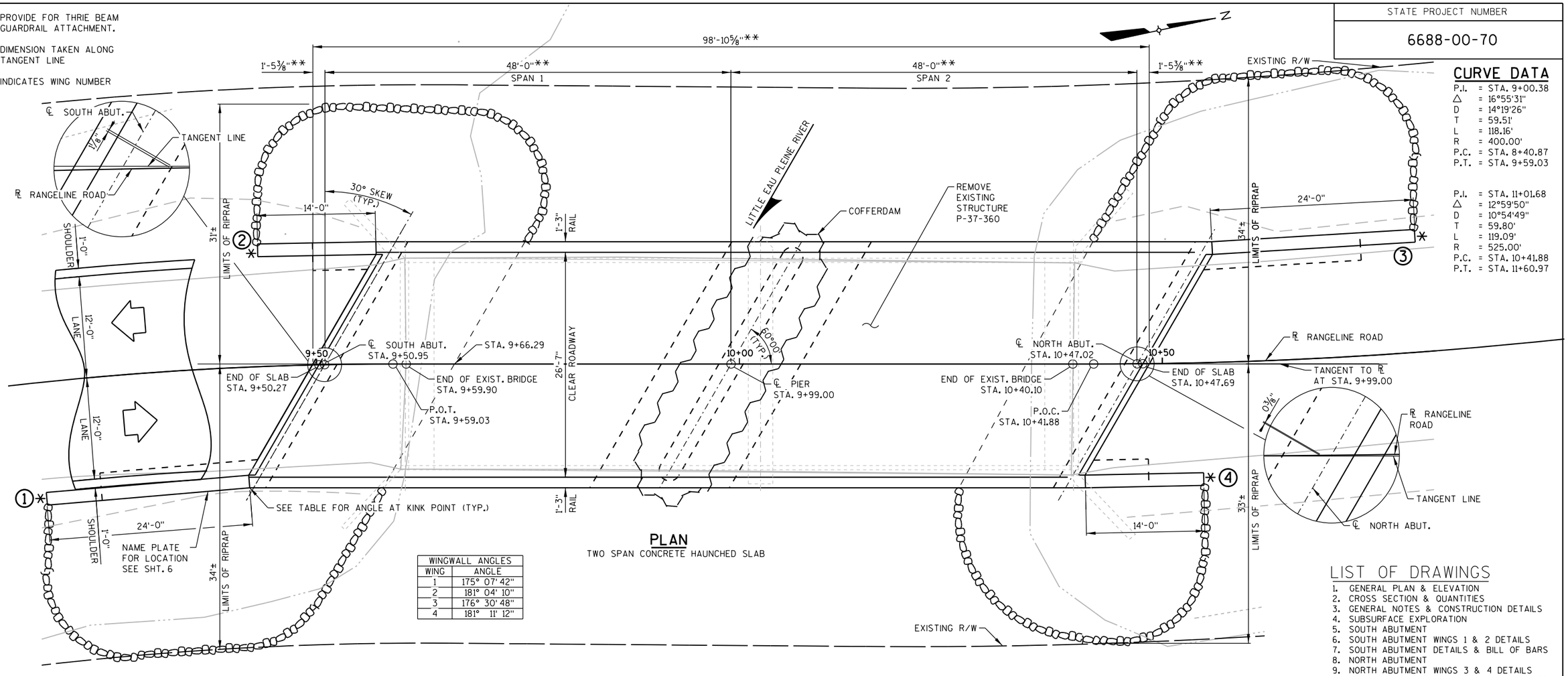
* PROVIDE FOR THRIE BEAM GUARDRAIL ATTACHMENT.

** DIMENSION TAKEN ALONG TANGENT LINE

(X) INDICATES WING NUMBER

STATE PROJECT NUMBER

6688-00-70



PLAN

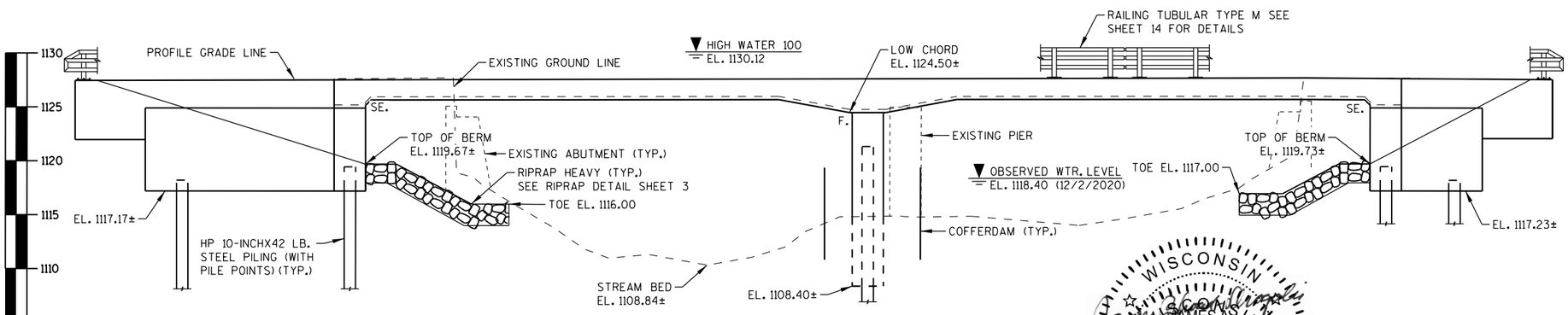
TWO SPAN CONCRETE HAUNCHED SLAB

WINGWALL ANGLES	
WING	ANGLE
1	175° 07' 42"
2	181° 04' 10"
3	176° 30' 48"
4	181° 11' 12"

CURVE DATA

P.I. = STA. 9+00.38
△ = 16°55'31"
D = 14°19'26"
T = 59.51'
L = 118.16'
R = 400.00'
P.C. = STA. 8+40.87
P.T. = STA. 9+59.03

P.I. = STA. 11+01.68
△ = 12°59'50"
D = 10°54'49"
T = 59.80'
L = 119.09'
R = 525.00'
P.C. = STA. 10+41.88
P.T. = STA. 11+60.97



ELEVATION

LIST OF DRAWINGS

NO.	DATE	REVISION	BY

AECOM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED SDR 11/15/22
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-37-466

RANGELINE ROAD OVER LITTLE EAU PLEINE RIVER

COUNTY	TOWN ~~CITY/VILLAGE~~
MARATHON	GREEN VALLEY

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	JRD	DESIGN CK'D.	MSK	DRAWN BY	KRO	PLANS CK'D.	JRD

GENERAL PLAN & ELEVATION

SHEET 1 OF 14
51

WISCONSIN
JAMES A. RHOAD-DROGALIS
E-47302
MADISON
WI
11/1/2022
PROFESSIONAL ENGINEER

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
AARON BONK (608) 261-0261

CONSULTANT:
JAMES RHOAD-DROGALIS (608) 828-8166

8

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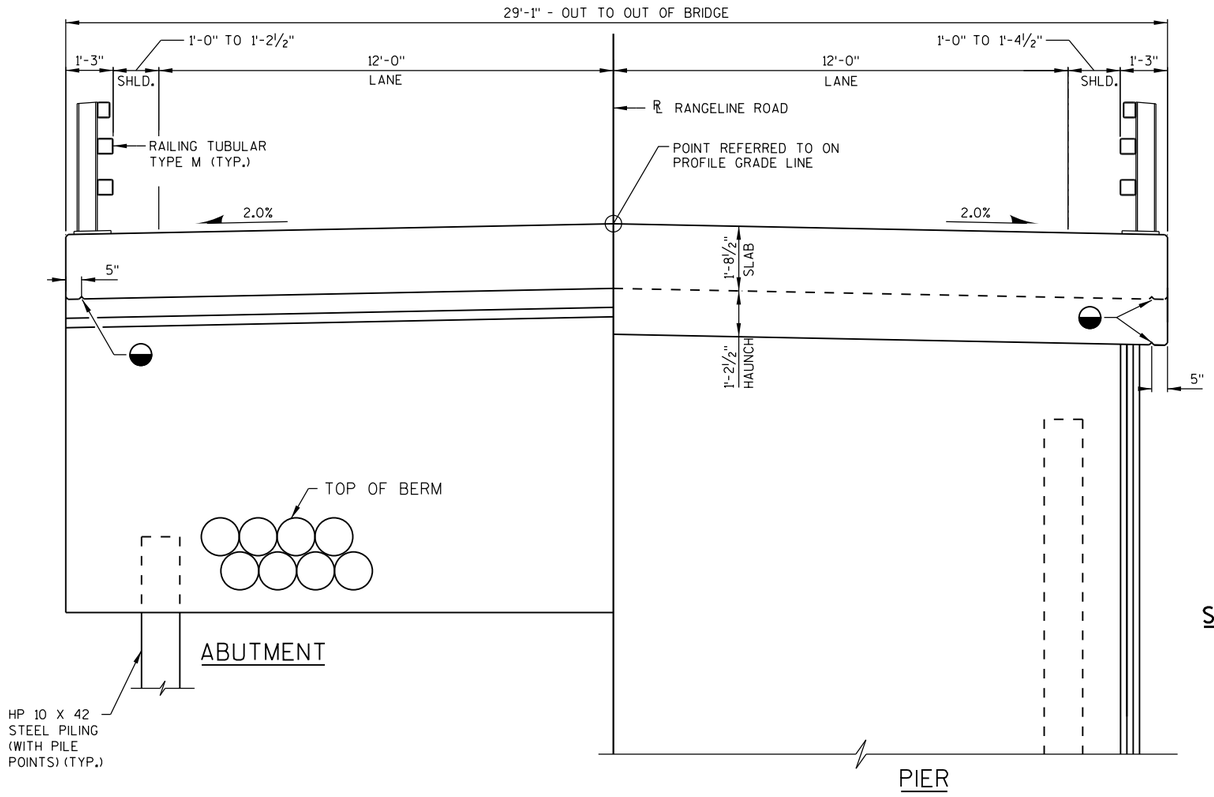
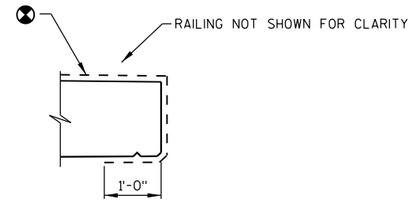
BATCH PRINT SHEET 2 OF 14



CROSS-SECTION THRU ROADWAY
(LOOKING UPSTATION)



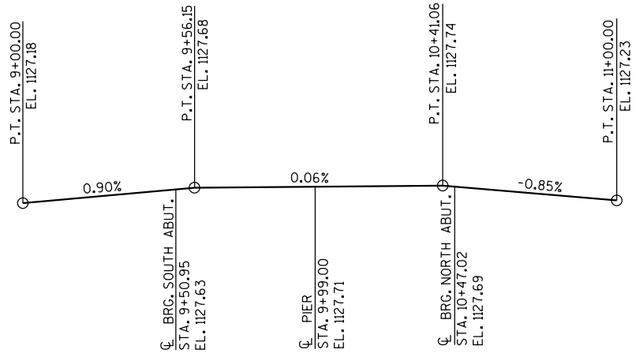
SURFACE PROTECTION DETAIL

LEGEND

- ¾" V-GROOVE REQ'D. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUT.
- COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER STANDARD SPECIFICATIONS.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEM	UNIT	SOUTH ABUTMENT	PIER	NORTH ABUTMENT	SUPER.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS B-37-466	EACH	———	———	———	———	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-37-466	EACH	———	———	———	———	1
206.5001	COFFERDAMS B-37-466	EACH	———	———	———	———	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	215	———	215	———	430
312.0115	SELECT CRUSHED MATERIAL	CY	30	———	30	———	60
502.0100	CONCRETE MASONRY BRIDGES	CY	54	46	55	200	355
502.3200	PROTECTIVE SURFACE TREATMENT	SY	25	———	25	385	435
502.9000.S	UNDERWATER SUBSTRUCTURE INSPECTION B-37-466	EACH	———	1	———	———	1
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	3,160	2,340	3,160	———	8,660
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2,890	70	2,890	43,260	49,110
513.4061	RAILING TUBULAR TYPE M	LF	41	———	41	198	280
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	———	10	———	20
550.0500	PILE POINTS	EACH	7	8	7	———	22
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	245	280	245	———	770
606.0300	RIPRAP HEAVY	CY	120	———	110	———	230
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	100	———	100	———	200
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	60	———	60	———	120
645.0120	GEOTEXTILE TYPE HR	SY	200	———	190	———	390
	NON-BID ITEMS						
	FILLER	SIZE	———	———	———	———	1/2" & 3/4"



PROFILE GRADE LINE - RANGELINE ROAD

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR = 1.17
OPERATIONAL RATING FACTOR = 1.51
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

MATERIAL PROPERTIES:

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.

FOUNDATION DATA

NORTH ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCH x 42 LB. PILING (WITH PILE POINTS), DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 140 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 35'-0" LONG.*

PIER TO BE SUPPORTED ON PILING STEEL HP 10-INCH x 42 LB. PILING (WITH PILE POINTS). DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 35'-0" LONG.

SOUTH ABUT. TO BE SUPPORTED ON PILING STEEL HP 10-INCH x 42 LB. PILING (WITH PILE POINTS). DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 140 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 35'-0" LONG.*

* PILE TIP EL OF 1087.50 OR LOWER IS REQUIRED DUE TO SCOUR. IF NECESSARY, DRIVING RESISTANCE OF 180 TONS** PER PILE SHALL BE USED TO ACHIEVE REQUIRED PILE EMBEDMENT.

** 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 THE MODIFIED GATE DYNAMIC FORMULA TO DETERMINE DRIVEN PILE CAPACITY.

TRAFFIC VOLUME

RANGELINE ROAD
A.D.T. (2023) = 270
A.D.T. (2043) = 285
DESIGN SPEED = 55

HYDRAULIC DATA

100 YEAR FREQUENCY

Q100 TOTAL ——— 15,540 CFS
- THRU BRIDGE ——— 1,485 CFS
- OVER ROAD ——— 14,055 CFS
VELOCITY THRU BRIDGE ——— 1.8 FPS
HIGH WATER ELEVATION ——— 1130.12
WATERWAY AREA ——— 14,795 SQ. FT.
- THRU BRIDGE ——— 849 SQ. FT.
- OVER ROAD ——— 13,929 SQ. FT.
DRAINAGE AREA ——— 147 SQ. MI.
SCOUR CRITICAL CODE ——— 5

2 YEAR FREQUENCY
Q2 ——— 4,070 CFS
HIGH WATER 2 ELEVATION ——— 1125.47
VELOCITY ——— 5.1 FPS

ROADWAY OVERTOPPING FREQUENCY
FREQUENCY ——— 3 YEARS
Q3 ——— 5,259 CFS
HW3 ——— EL. 1126.86

STATE PROJECT NUMBER
6688-00-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY KRO | PLANS CK'D. JRD

CROSS SECTION & QUANTITIES

SHEET 2 OF 14
52

8

8

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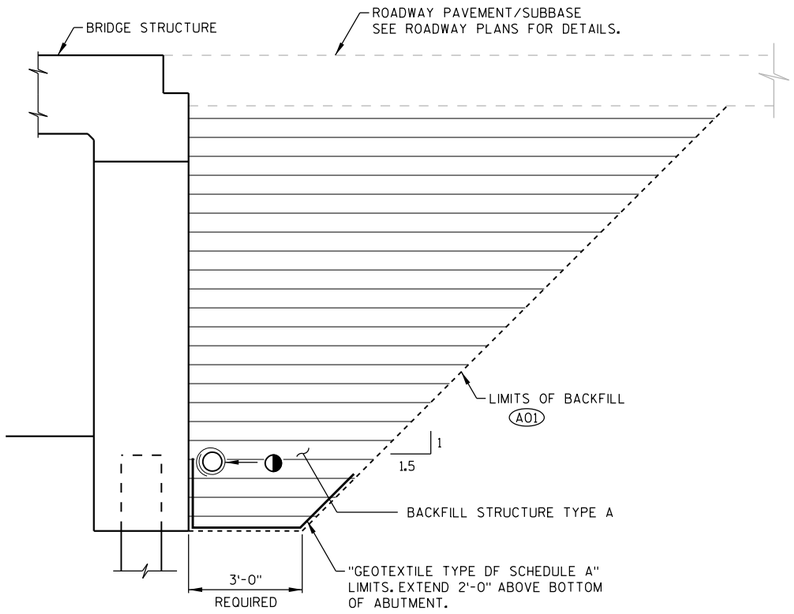
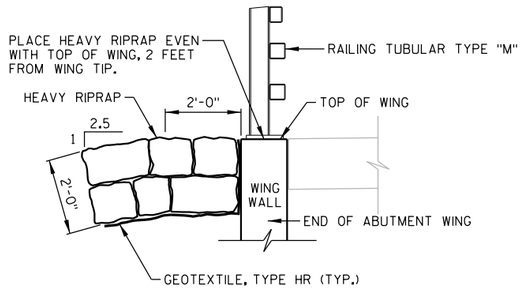


SECTION THRU ABUTMENT



TYPICAL FILL SECTION AT WING TIPS

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THE EXISTING STRUCTURE (P-37-360) IS A STEEL GIRDER BRIDGE, 80' LONG x 25' WIDE, TO BE REMOVED.

THE EXISTING GROUNDLINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION FOR SUBSTRUCTURES.

ALL REQUIRED REMOVAL OF THE EXISTING SUBSTRUCTURES IS INCLUDED IN THE BID ITEM "REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS P-37-360".

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATIVE METHOD IS APPROVED BY THE ENGINEER.

AT PIER, COFFERDAM REQUIRED. CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH UNLESSS APPROVED OTHERWISE.

BACKFILL STRUCTURE LIMITS

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-37-466" SHALL BE THE EXISTING GROUNDLINE.

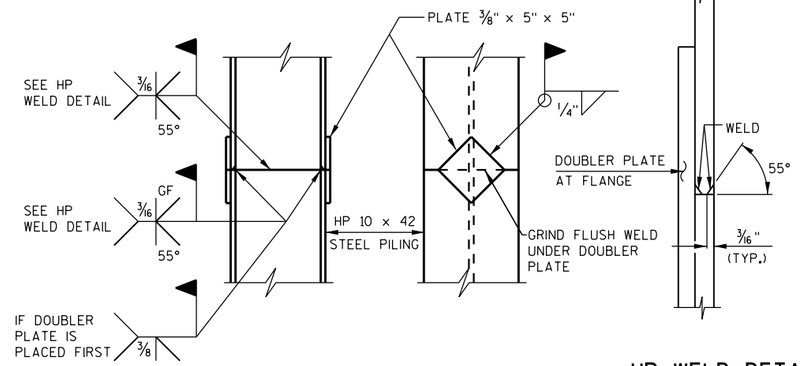
(A01) BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

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.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE THE BOTTOM OF THE ABUTMENT.

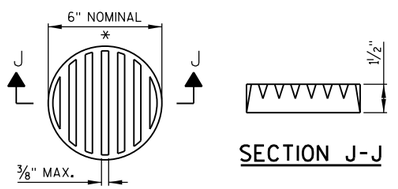
◑ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. PLACE ABOVE GROUND WATER ELEVATION MIN. INVERT = 1119 +/-

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO "EXCAVATION FOR STRUCTURES BRIDGES B-37-466".



PILE SPLICE DETAIL

HP WELD DETAIL
(FLANGE SHOWN, WEB SIMILAR)



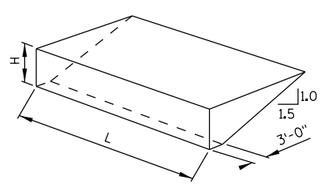
SECTION J-J

RODENT SHIELD DETAIL

* 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".

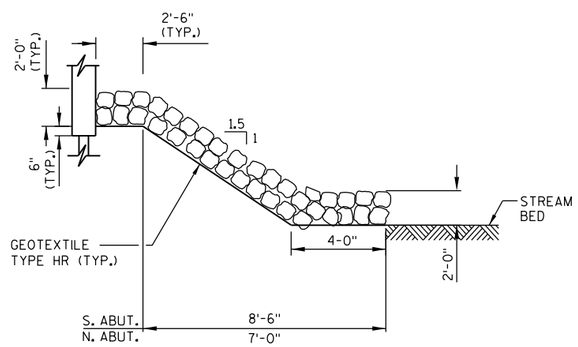
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X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



BOTH ABUTMENTS
WINGS PARALLEL TO ROADWAY

ABUTMENT BACKFILL DIAGRAM

L = OUT TO OUT OF ABUTMENT BODY, INCLUDING WINGS (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS, AND 1.00 FOR TON BID ITEMS)
V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)
V_{CY} = V_{CY} (EF)/27
V_{TON} = V_{CF} (2.0)



RIPRAP DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY KRO | PLANS CK'D. JRD

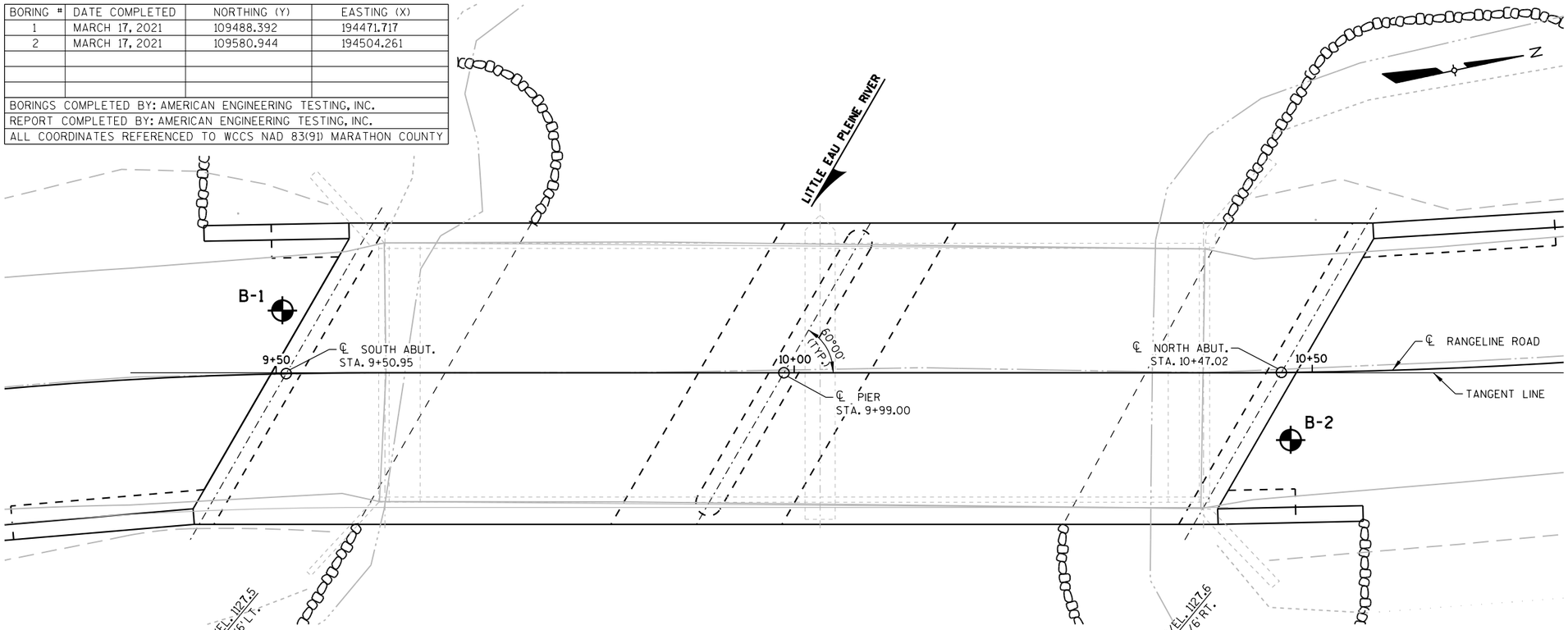
GENERAL NOTES & CONSTRUCTION DETAILS

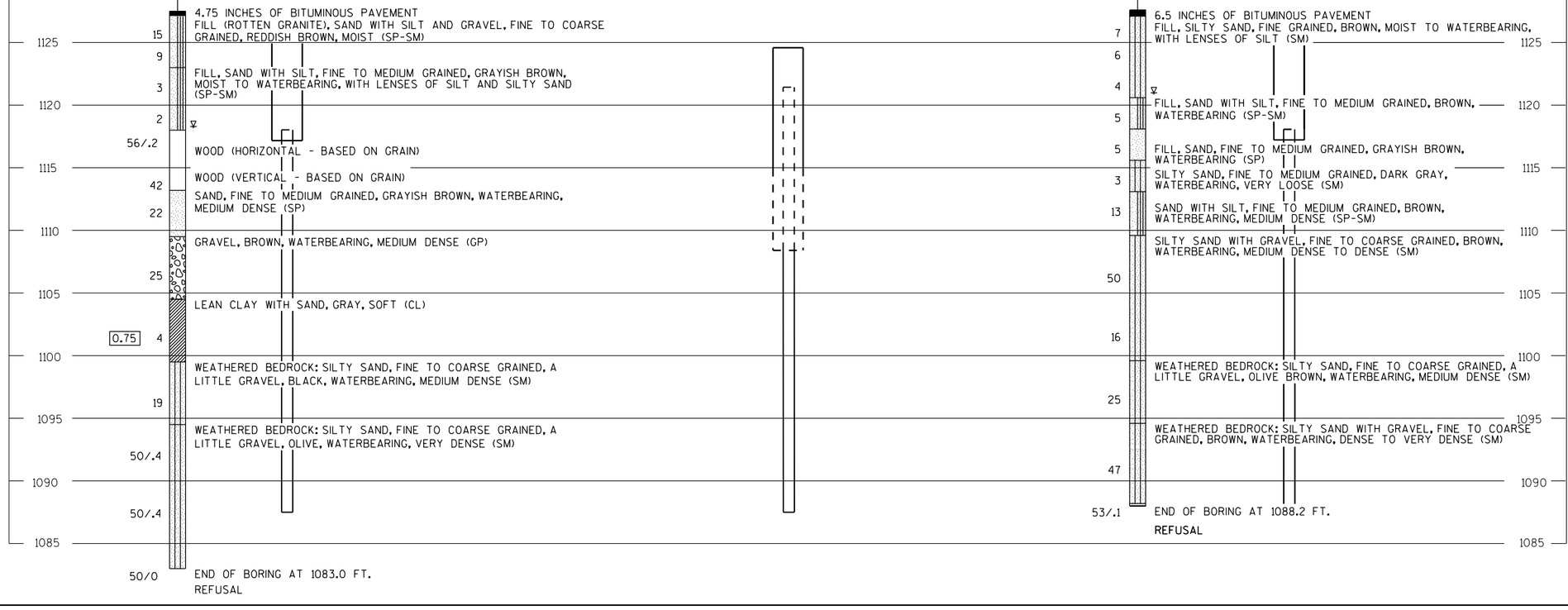
SHEET 3 OF 14
53

8

8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	MARCH 17, 2021	109488.392	194471.717
2	MARCH 17, 2021	109580.944	194504.261
BORINGS COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.			
REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) MARATHON COUNTY			





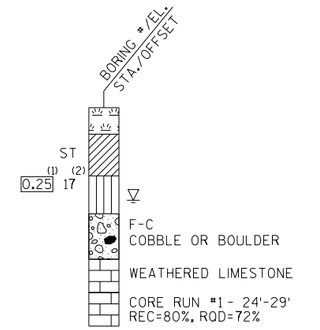
STATE PROJECT NUMBER

6688-00-70

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-37-466

DRAWN BY MES | PLANS CK'D. AJC

SUBSURFACE EXPLORATION

SHEET 4 OF 14
54

SCALE =

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PLOT DATE: 9/1/2022
PLOT TIME: 10:51:00 AM
BATCH PRINT SHEET 5 OF 14

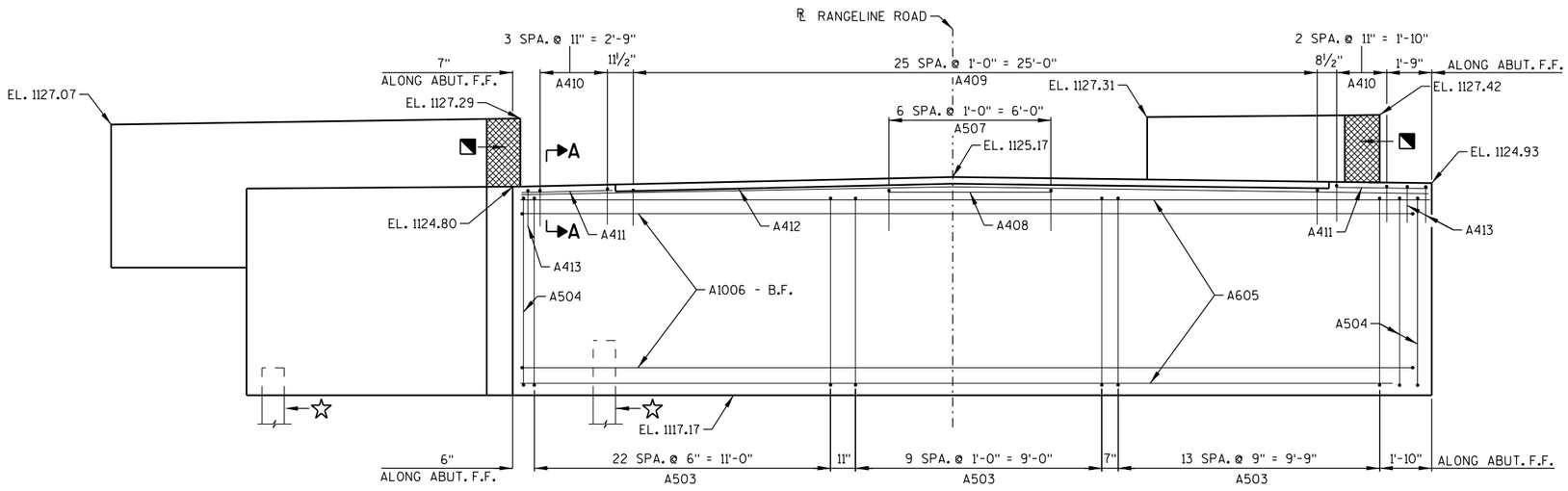
LEGEND

- ☆ SUPPORT ABUTMENTS ON PILING STEEL 10-INCH X 42 LB. (WITH PILE POINTS). SEE PILE NOTE ON SHEET 2 AND PILE SPLICE DETAIL ON SHEET 3.
- ◑ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. DRAIN BOTH ABUTMENTS TO DOWNSTREAM SIDE OF BRIDGE. ATTACH RODENT SHIELD AT ENDS OF PIPE. SEE SHEET 3.
- ◪ 1/2" FILLER TO EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- ◆ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- ⬓ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING FILLER AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- ◭ 3/4" CORK FILLER ON VERTICAL FACE ONLY.
- ◈ FABRICATE RAILING FIELD ERECTION JOINT WITH KINK AS SPECIFIED ON SHEET 1 TYPICAL AT ALL WINGS. SEE SHEET 14 FOR ADDITIONAL FIELD ERECTION JOINT DETAILS.

NOTES

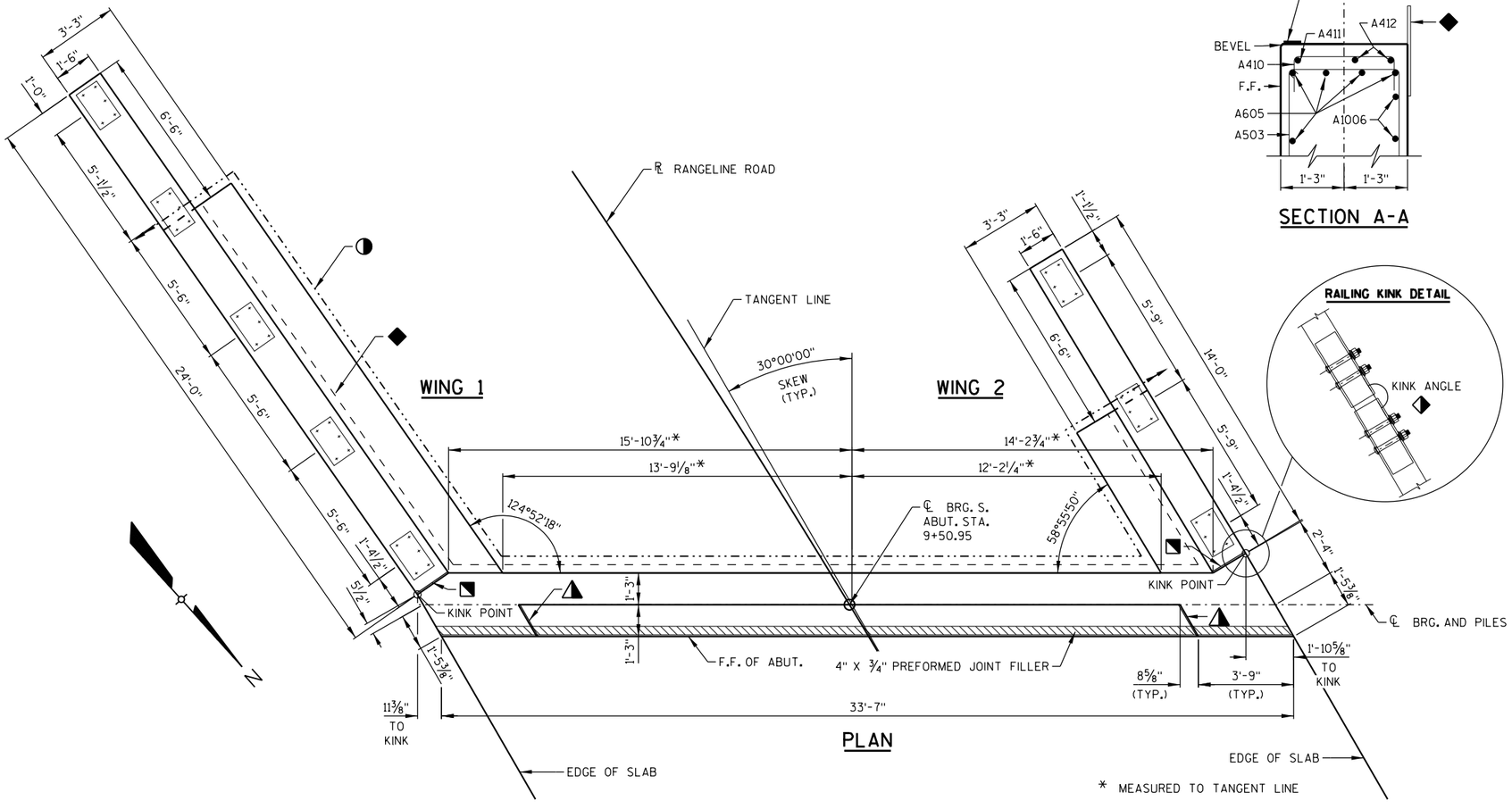
ADJUST A503 BARS TO MISS PILING.

FOR PILE SPLICE DETAIL, SEE SHEET 3.



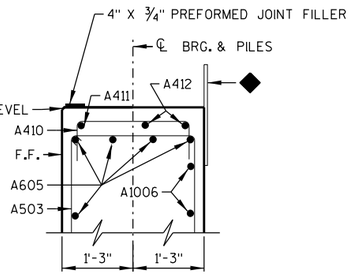
ELEVATION

(LOOKING SOUTH AT SOUTH ABUTMENT)

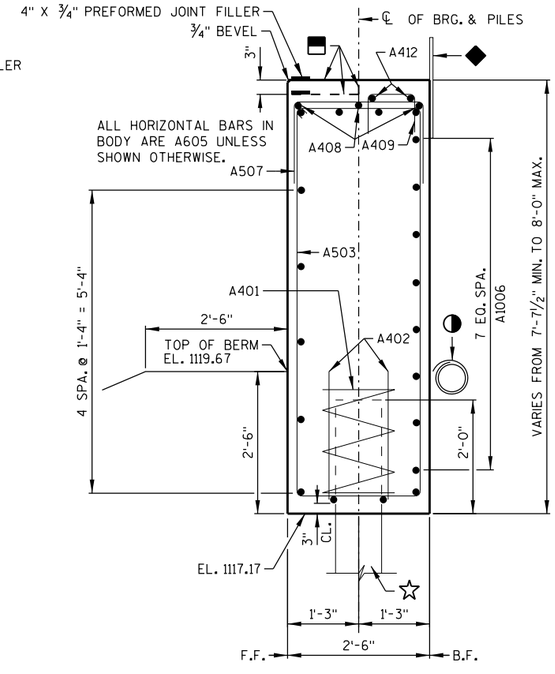


PLAN

* MEASURED TO TANGENT LINE



SECTION A-A



TYPICAL SECTION THRU BODY

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY TRA | PLANS CK'D. JRD

SOUTH ABUTMENT

SHEET 5 OF 14
55

8

8

PRINTER DRIVER: C:\ProgramData\Bentley\MacroStation CONNECT Edition\Configuration\WorkSpaces\WisDOT Bridge MP Ver A\WorkSets\WisDOT Bridge\Plotdrv\AE_PDF_11 x 17.plt
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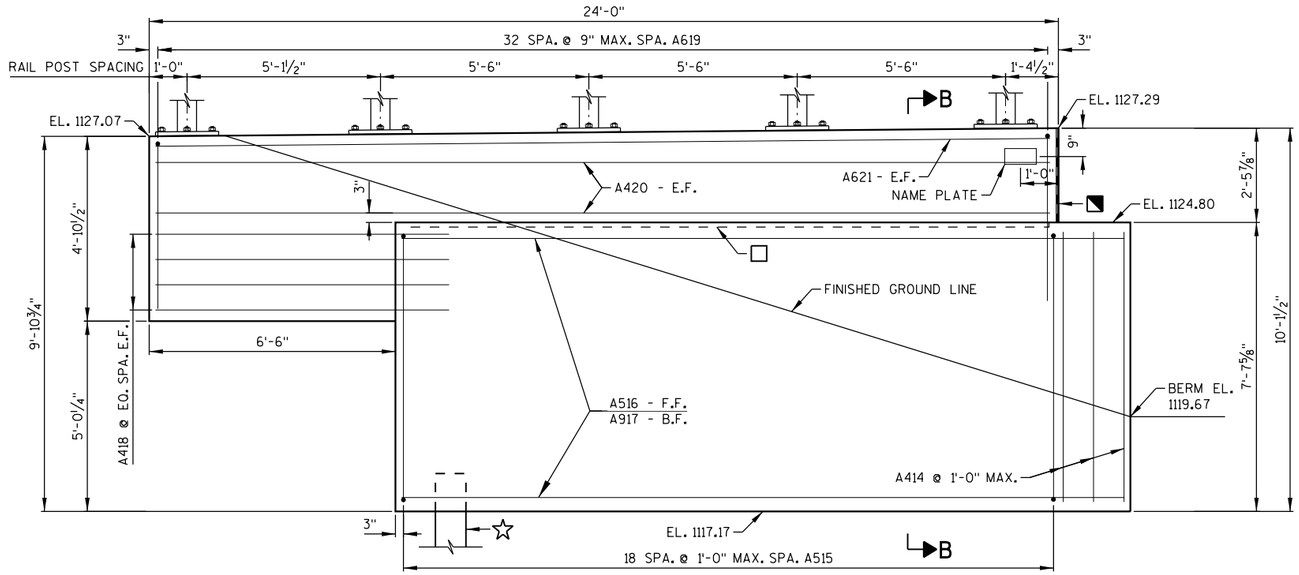
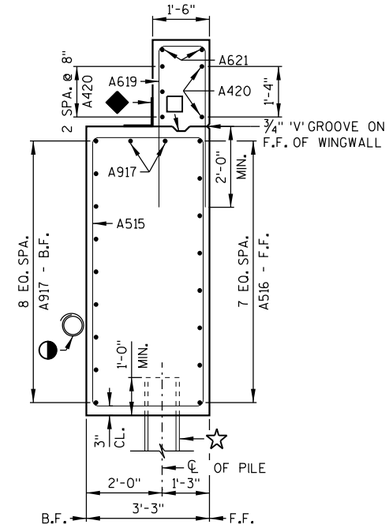
PLOT DATE: 9/1/2022
PLOT TIME: 10:51:01 AM
BATCH PRINT SHEET 6 OF 14

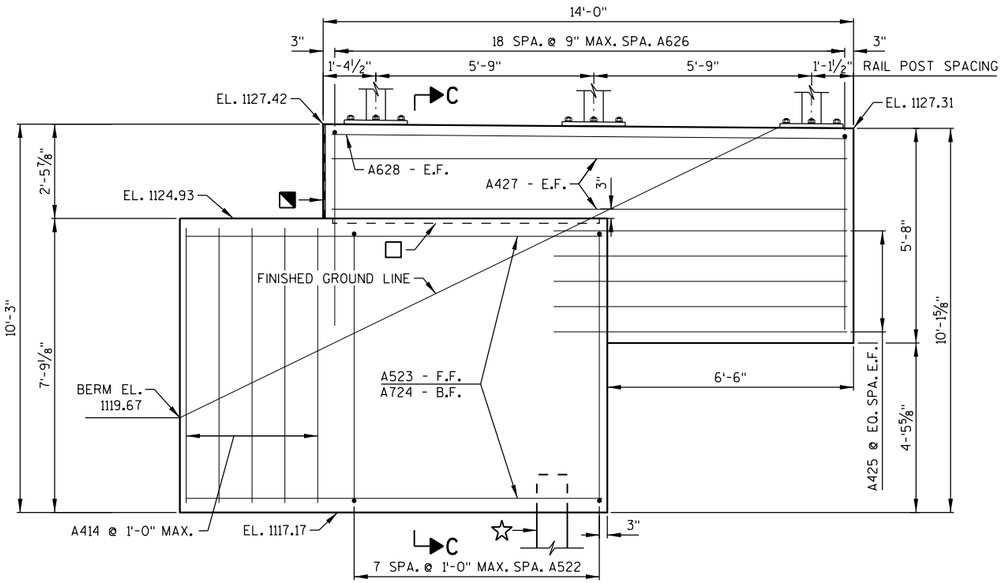


ELEVATION - WING 1

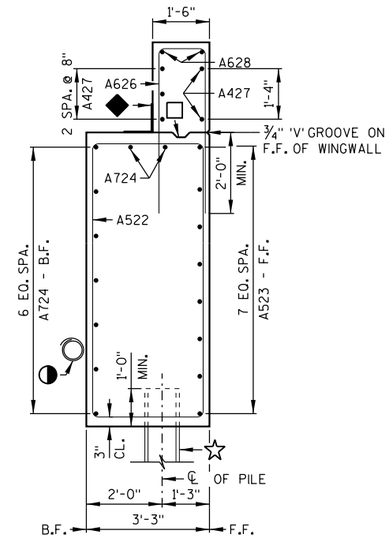


SECTION B-B

(RAIL POST NOT SHOWN FOR CLARITY)



ELEVATION - WING 2



SECTION C-C

(RAIL POST NOT SHOWN FOR CLARITY)

LEGEND

☐ OPTIONAL CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.

FOR ADDITIONAL SYMBOL DESCRIPTIONS SEE SHEET 5.

NOTES

ADJUST A515 AND A522 BARS TO MISS PILING.

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP AND EXTERIOR EXPOSED FACE OF WINGS, AND TO THE FRONT FACE OF THE ABUTMENT CORNER TO 1'-0" UNDER THE SLAB.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY TRA | PLANS CK'D. JRD

SOUTH ABUTMENT
WINGS 1 & 2
DETAILS

SHEET 6 OF 14
56

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PRINTER DRIVER: C:\ProgramData\Bentley\MicroStation CONNECT Edition\Configuration\WorkSpaces\WisDOT Bridge MP Ver A\WorkSets\WisDOT Bridge\Plotdrv\AE_PDF_11 x 17.plt
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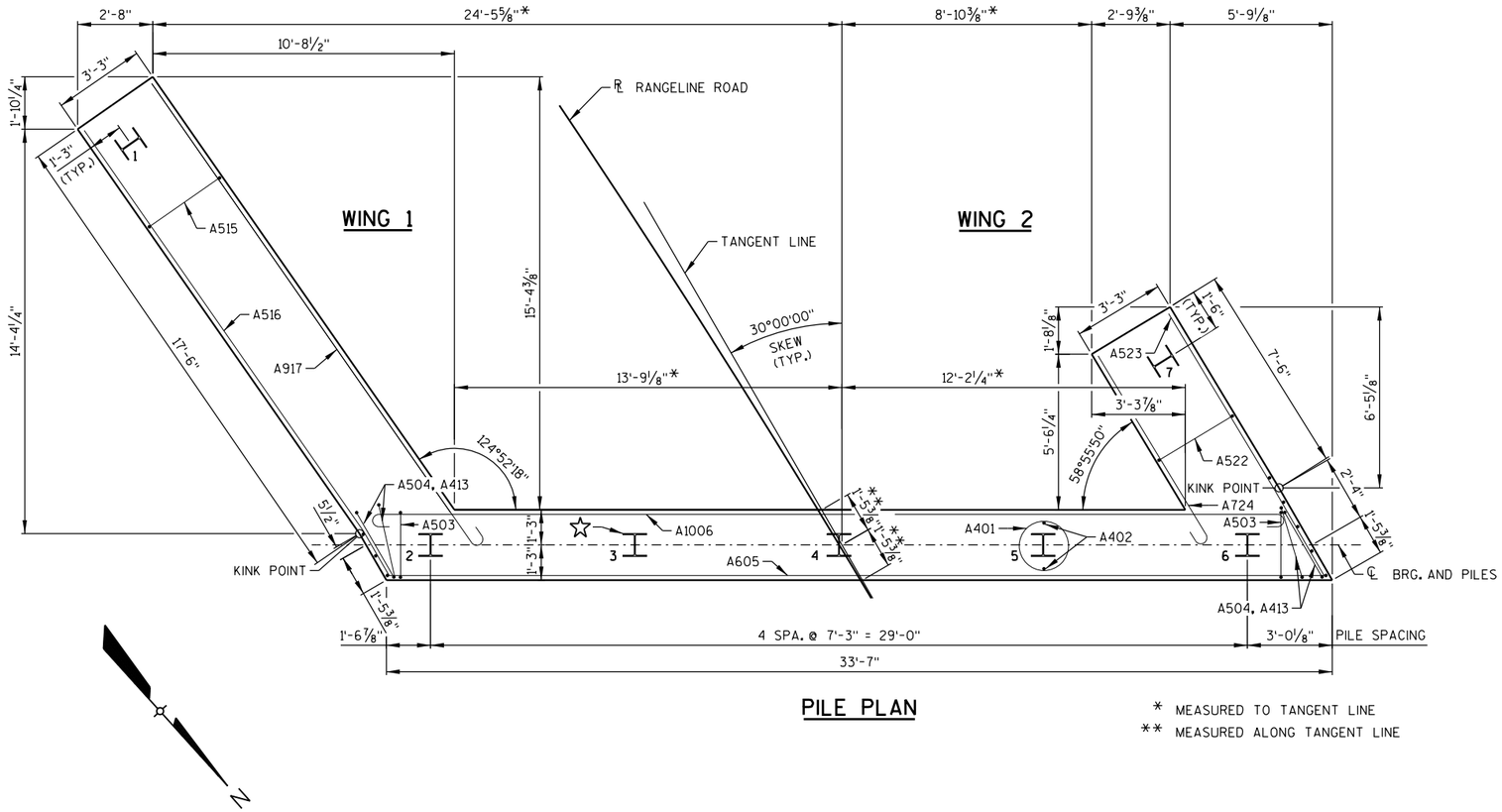
PLOT DATE: 9/1/2022 PLOT TIME: 10:51:06 AM
BATCH PRINT SHEET 7 OF 14

STATE PROJECT NUMBER

6688-00-70



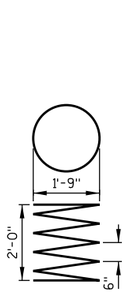
PILE PLAN

* MEASURED TO TANGENT LINE

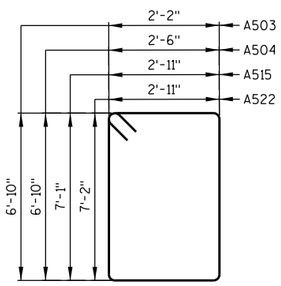
** MEASURED ALONG TANGENT LINE

BILL OF BARS

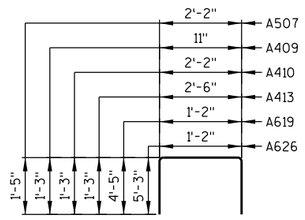
MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
UNCOATED BARS					TOTAL WEIGHT = 3,160 LBS	
A401	5	28 - 0	X		ABUT. BODY AT PILES	VERT.
A402	10	2 - 3			ABUT. BODY DOWELS AT PILES	VERT.
A503	47	18 - 8	X		ABUT. BODY STIRRUP	VERT.
A504	4	19 - 4	X		ABUT. BODY STIRRUP AT ENDS	VERT.
A605	12	33 - 3			ABUT. BODY - F.F., TOP, BOT.	HORIZ.
A1006	8	35 - 7	X		ABUT. BODY - B.F.	HORIZ.
A507	7	4 - 9	X		ABUT. BODY TOP	VERT.
A408	3	6 - 0			ABUT. BODY TOP	HORIZ.
A409	26	3 - 3	X		ABUT. BODY TOP	VERT.
A410	7	4 - 6	X		ABUT. BODY TOP	VERT.
A411	2	3 - 5			ABUT. BODY TOP AT ENDS	HORIZ.
A412	2	33 - 3			ABUT. BODY TOP	HORIZ.
A413	4	4 - 10	X		ABUT. BODY AT ENDS	VERT.
A414	8	7 - 3			ABUT. BODY AT ENDS	VERT.
COATED BARS					TOTAL WEIGHT = 2,890 LBS	
A515	19	20 - 8	X		WING 1 STIRRUP	VERT.
A516	8	19 - 1			WING 1 F.F.	HORIZ.
A917	11	21 - 6	X		WING 1 B.F.	HORIZ.
A418	8	7 - 9			WING 1 E.F.	HORIZ.
A619	33	9 - 8	X		WING 1 TOP	VERT.
A420	5	23 - 7			WING 1 E.F.	HORIZ.
A621	2	23 - 7			WING 1 TOP E.F.	HORIZ.
A522	8	20 - 10	X		WING 2 STIRRUP	VERT.
A523	8	10 - 11			WING 2 F.F.	HORIZ.
A724	9	8 - 5	X		WING 2 B.F.	HORIZ.
A425	10	7 - 9			WING 2 E.F.	HORIZ.
A626	19	11 - 4	X		WING 2 TOP	VERT.
A427	5	13 - 7			WING 2 E.F.	HORIZ.
A628	2	13 - 7			WING 2 TOP E.F.	HORIZ.



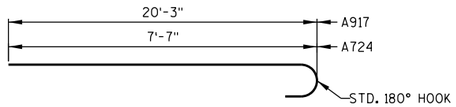
A401



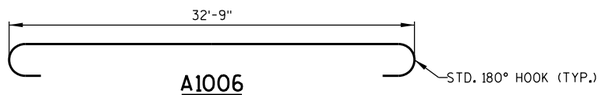
A503, A504, A515, A522



A507, A409, A410, A413, A619, A626



A917, A724



A1006

LEGEND

FOR SYMBOL DESCRIPTIONS SEE SHEET 5.

NOTES

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

FOR ANGLE AT KINK POINT SEE SHEET 1.

FOR PILE SPLICE DETAIL SEE SHEET 3.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY TRA | PLANS CK'D. JRD

SOUTH ABUTMENT DETAILS & BILL OF BARS

SHEET 7 OF 14

57

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STATE PROJECT NUMBER

6688-00-70

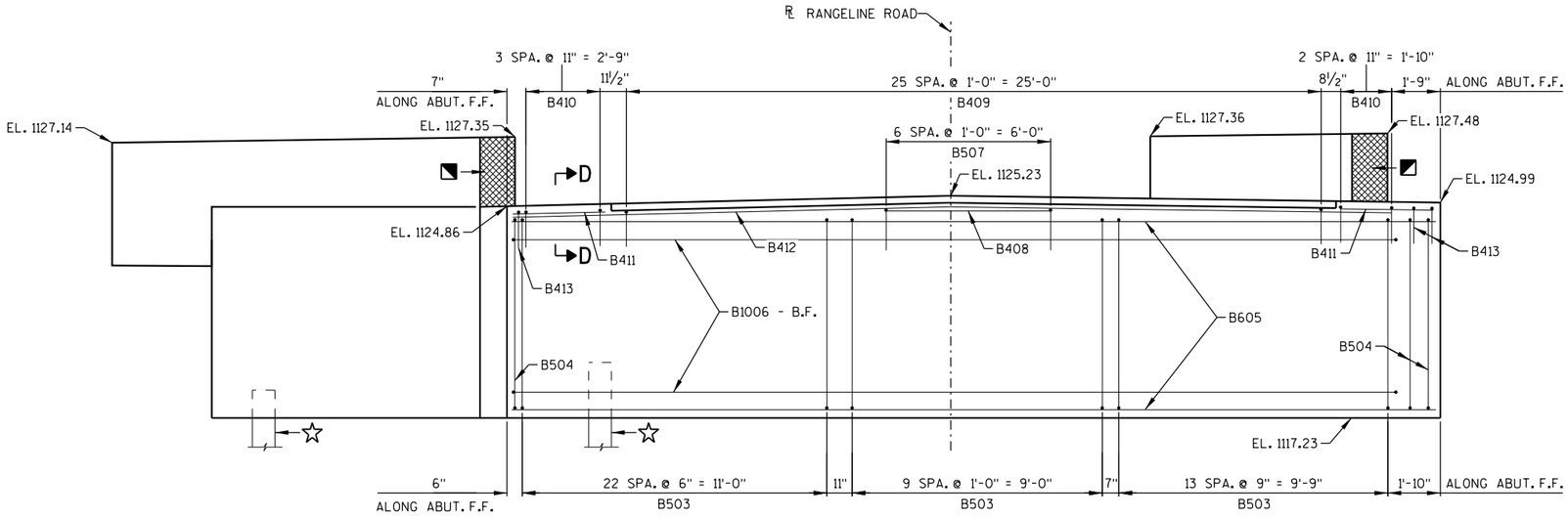
LEGEND

FOR SYMBOL DESCRIPTIONS SEE SHEET 5.

NOTES

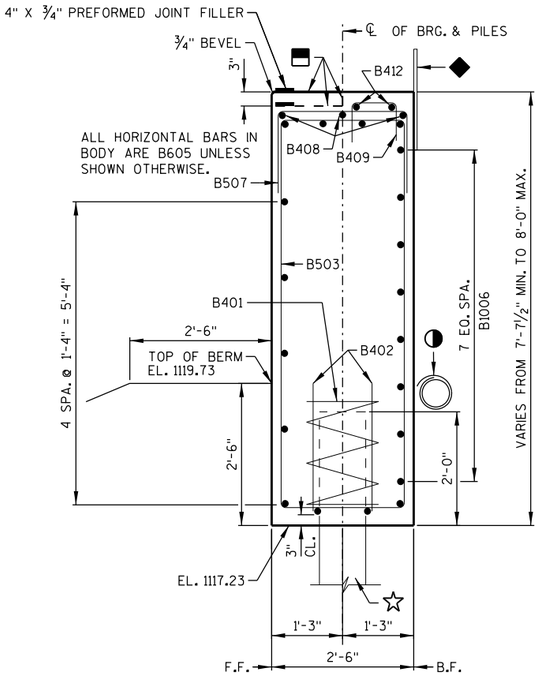
ADJUST B503 BARS TO MISS PILING.

FOR PILE SPLICE DETAIL SEE SHEET 3.

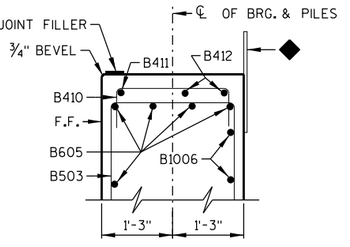


ELEVATION

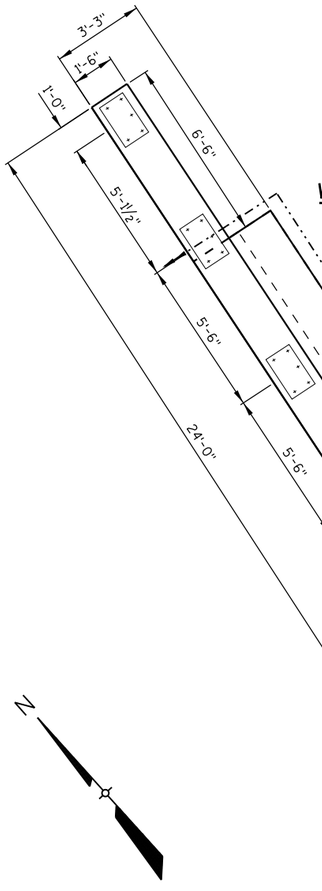
(LOOKING NORTH AT NORTH ABUTMENT)

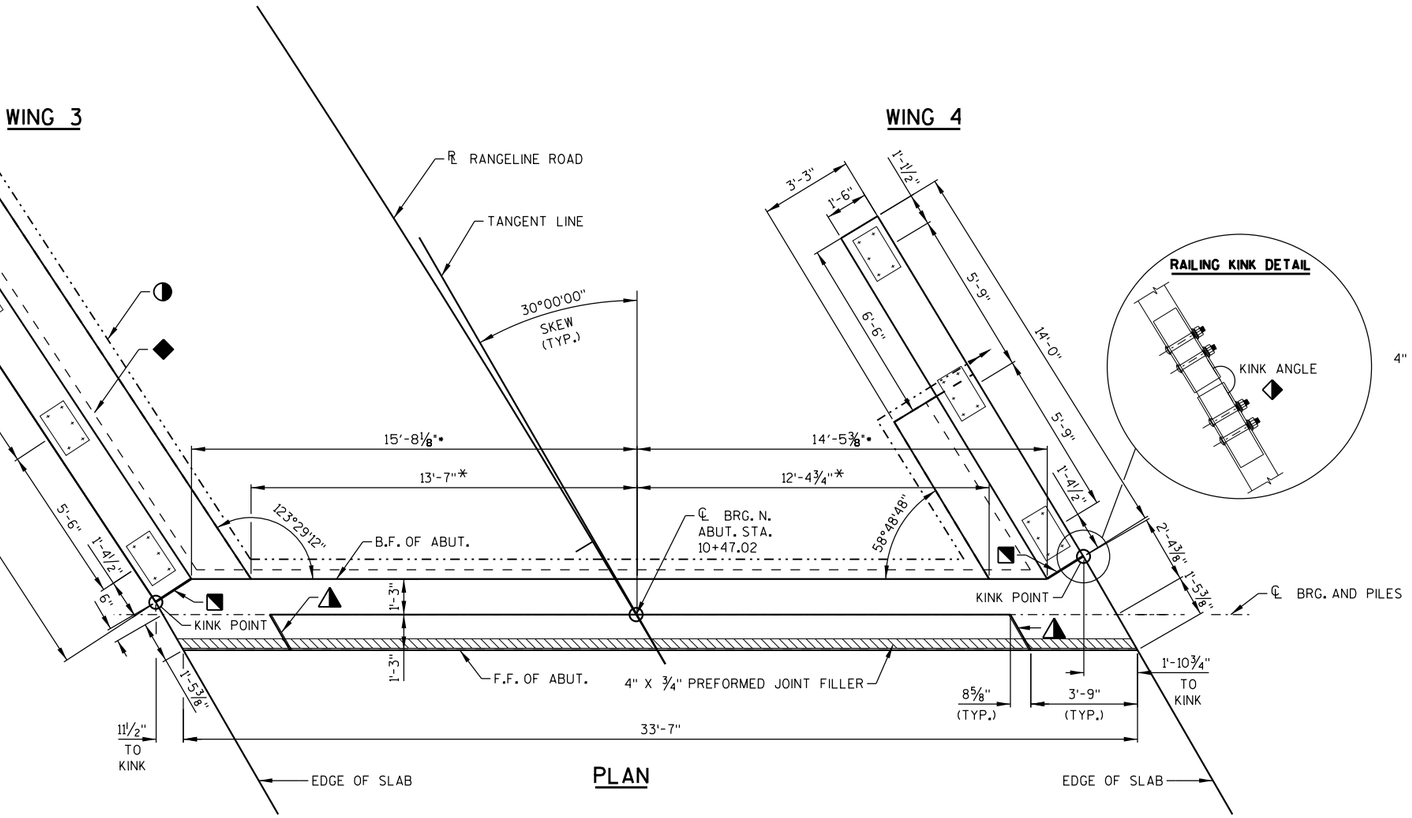


TYPICAL SECTION THRU BODY



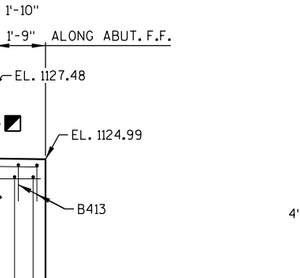
SECTION D-D





PLAN

* MEASURED TO TANGENT LINE



NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY TRA | PLANS CK'D. JRD

NORTH ABUTMENT

SHEET 8 OF 14
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PRINTER DRIVER: C:\ProgramData\Bentley\MicroStation CONNECT Edition\Configuration\WorkSpaces\WisDOT Bridge MP Ver A\WorkSets\WisDOT Bridge\Plotdrv\AE_PDF_11 x 17.plt
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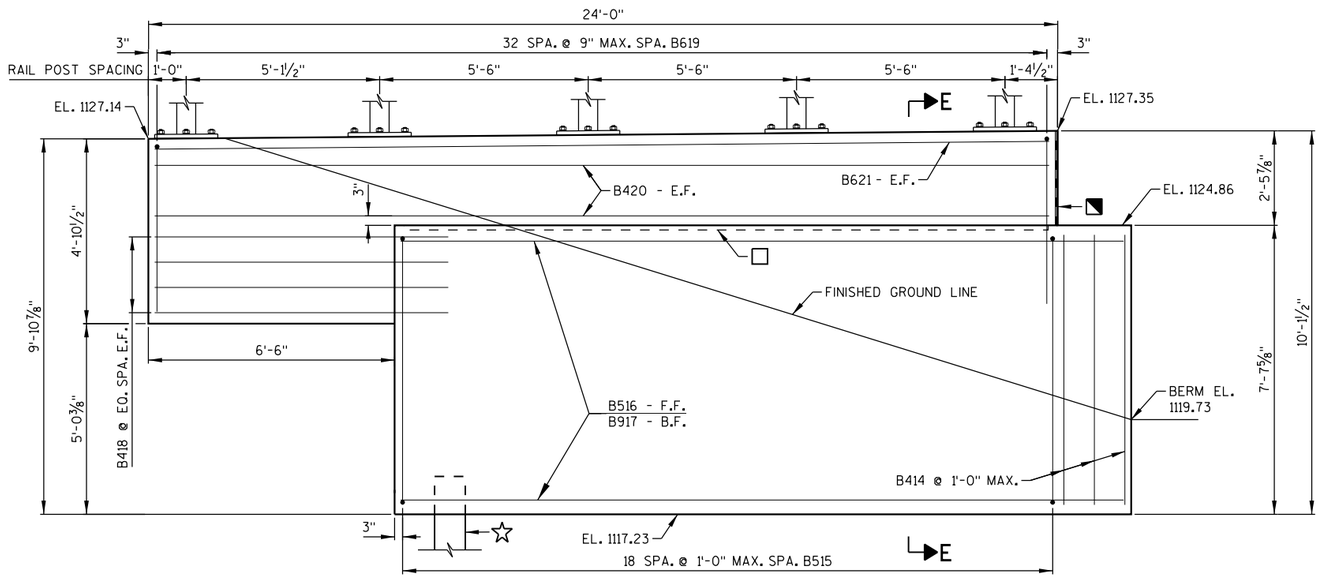
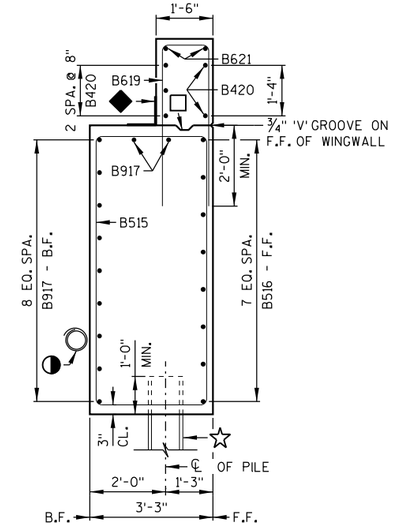
PLOT DATE: 9/1/2022
PLOT TIME: 10:51:08 AM
BATCH PRINT SHEET 9 OF 14



ELEVATION - WING 3



SECTION E-E

(RAIL POST NOT SHOWN FOR CLARITY)

LEGEND

☐ OPTIONAL CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.

FOR ADDITIONAL SYMBOL DESCRIPTIONS SEE SHEET 5.

NOTES

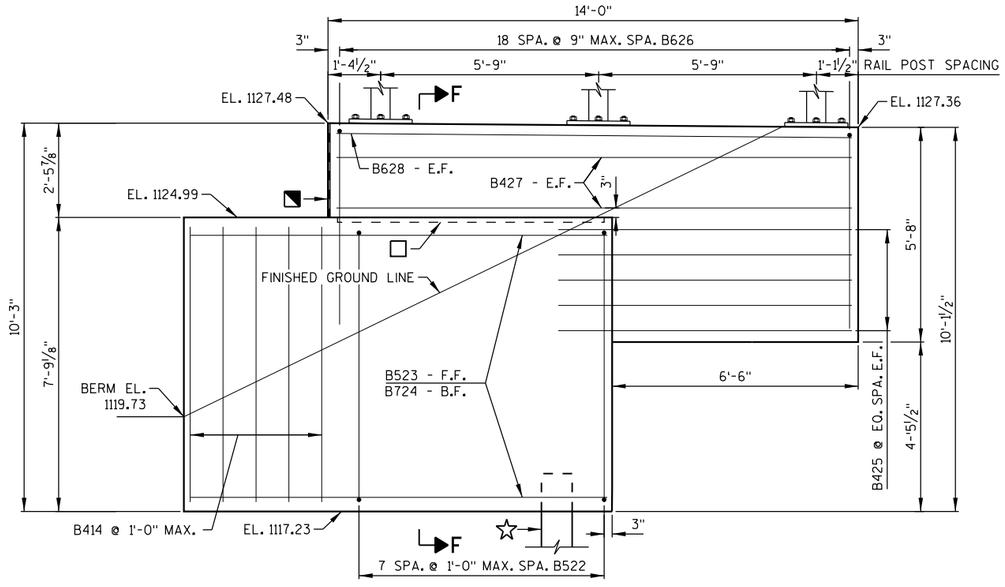
ADJUST B515 AND B522 BARS TO MISS PILING.

B.F. DENOTES BACK FACE.

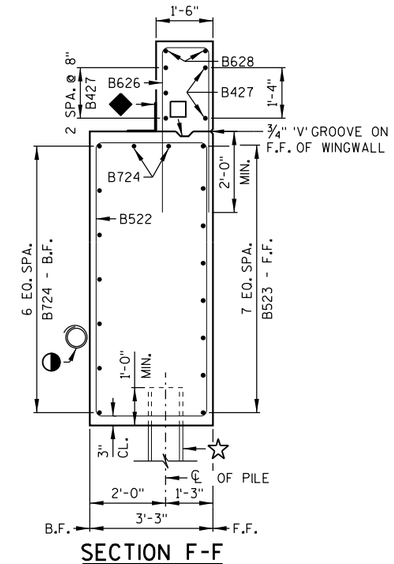
F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP AND EXTERIOR EXPOSED FACE OF WINGS, AND TO THE FRONT FACE OF THE ABUTMENT CORNER TO 1'-0" UNDER THE SLAB.



ELEVATION - WING 4



SECTION F-F

(RAIL POST NOT SHOWN FOR CLARITY)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY TRA | PLANS CK'D. JRD

NORTH ABUTMENT WINGS 3 & 4 DETAILS

SHEET 9 OF 14
59

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PRINTER DRIVER: C:\ProgramData\Bentley\MicroStation CONNECT Edition\Configuration\WorkSpaces\WisDOT Bridge MP Ver A\WorkSets\WisDOT Bridge\Plotdrv\AE_PDF_11 x 17.plt
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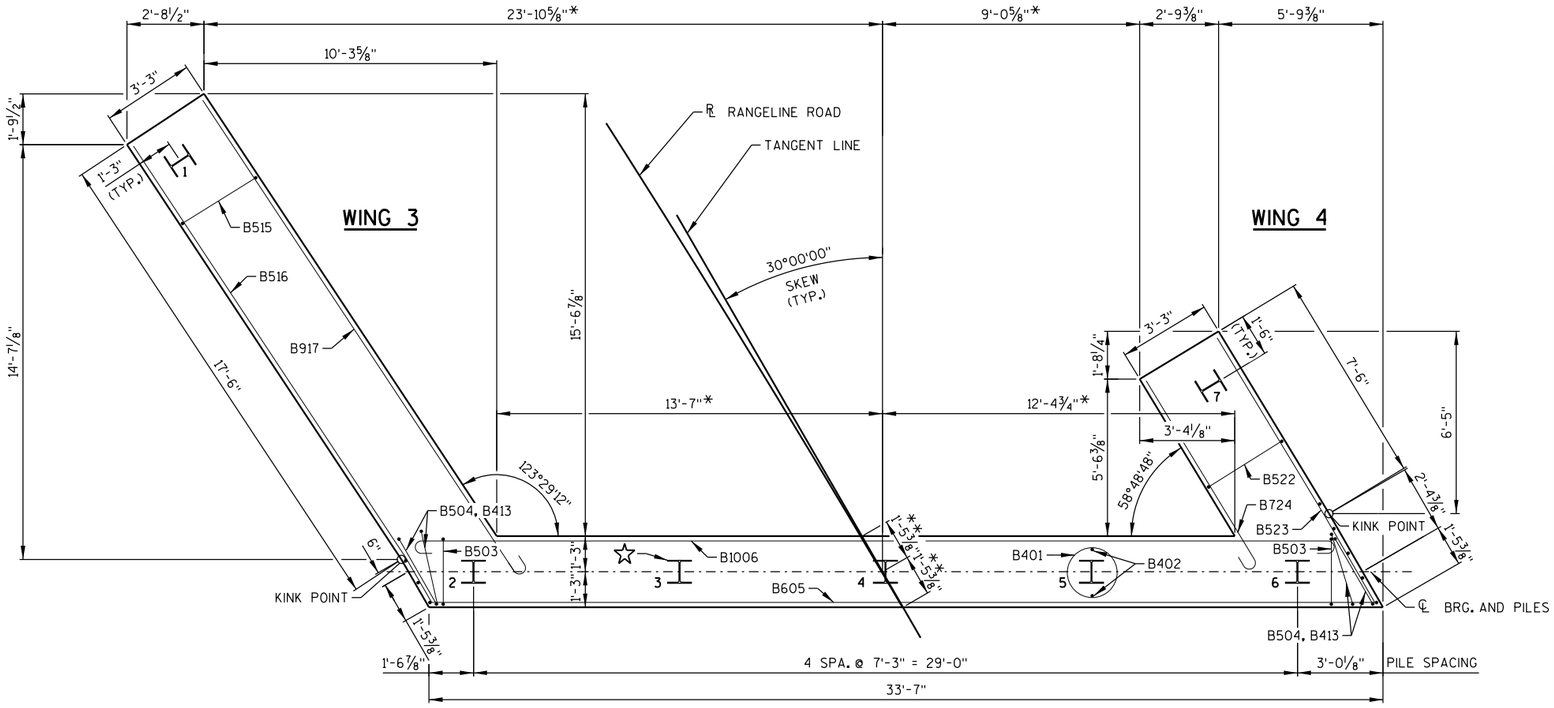
FILE NAME: C:\OneDrive\AECOM\60648403 - Rangeline Rd, Marathon County - 0_Records\400_Technical\400_Struct\02_Plans-Quant_Barlist\10_B-37-466_n_abut_details and bill of bars.dgn
PLOT DATE: 9/1/2022 PLOT TIME: 10:51:10 AM BATCH PRINT SHEET 10 OF 14

STATE PROJECT NUMBER
6688-00-70

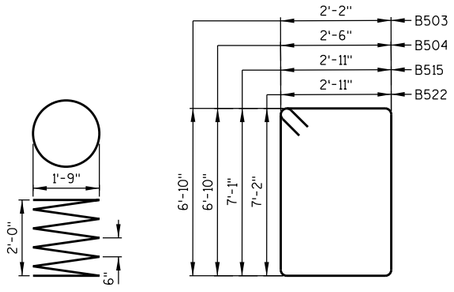


PILE PLAN

* MEASURED TO TANGENT LINE
** MEASURED ALONG TANGENT LINE

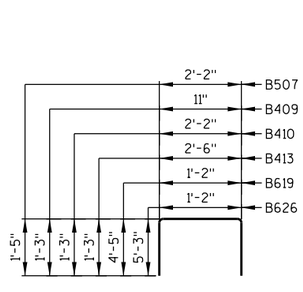
BILL OF BARS

MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
UNCOATED BARS					TOTAL WEIGHT = 3,160 LBS	
B401	5	28 - 0	X		ABUT. BODY AT PILES	VERT.
B402	10	2 - 3			ABUT. BODY DOWELS AT PILES	VERT.
B503	47	18 - 8	X		ABUT. BODY STIRRUP	VERT.
B504	4	19 - 4	X		ABUT. BODY STIRRUP AT ENDS	VERT.
B605	12	33 - 3			ABUT. BODY - F.F., TOP, BOT.	HORIZ.
B1006	8	35 - 7	X		ABUT. BODY - B.F.	HORIZ.
B507	7	4 - 9	X		ABUT. BODY TOP	VERT.
B408	3	6 - 0			ABUT. BODY TOP	HORIZ.
B409	26	3 - 3	X		ABUT. BODY TOP	VERT.
B410	7	4 - 6	X		ABUT. BODY TOP	VERT.
B411	2	3 - 5			ABUT. BODY TOP AT ENDS	HORIZ.
B412	2	33 - 3			ABUT. BODY TOP	HORIZ.
B413	4	4 - 10	X		ABUT. BODY AT ENDS	VERT.
B414	8	7 - 3			ABUT. BODY AT ENDS	VERT.
COATED BARS					TOTAL WEIGHT = 2,890 LBS	
B515	19	20 - 8	X		WING 3 STIRRUP	VERT.
B516	8	19 - 1			WING 3 F.F.	HORIZ.
B917	11	21 - 6	X		WING 3 B.F.	HORIZ.
B418	8	7 - 9			WING 3 E.F.	HORIZ.
B619	33	9 - 8	X		WING 3 TOP	VERT.
B420	5	23 - 7			WING 3 E.F.	HORIZ.
B621	2	23 - 7			WING 3 TOP E.F.	HORIZ.
B522	8	20 - 10	X		WING 4 STIRRUP	VERT.
B523	8	10 - 11			WING 4 F.F.	HORIZ.
B724	9	8 - 5	X		WING 4 B.F.	HORIZ.
B425	10	7 - 9			WING 4 E.F.	HORIZ.
B626	19	11 - 4	X		WING 4 TOP	VERT.
B427	5	13 - 7			WING 4 E.F.	HORIZ.
B628	2	13 - 7			WING 4 TOP E.F.	HORIZ.

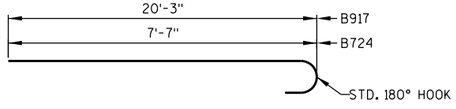


B401

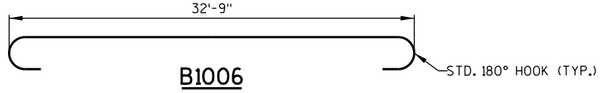
B503, B504, B515, B522



B507, B409, B410, B413, B619, B626



B917, B724



B1006

LEGEND

FOR SYMBOL DESCRIPTIONS SEE SHEET 5.

NOTES

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

FOR ANGLE AT KINK POINT SEE SHEET 1.

FOR PILE SPLICE DETAIL SEE SHEET 3.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY TRA | PLANS CK'D. JRD

NORTH ABUTMENT DETAILS & BILL OF BARS

SHEET 10 OF 14
60

8

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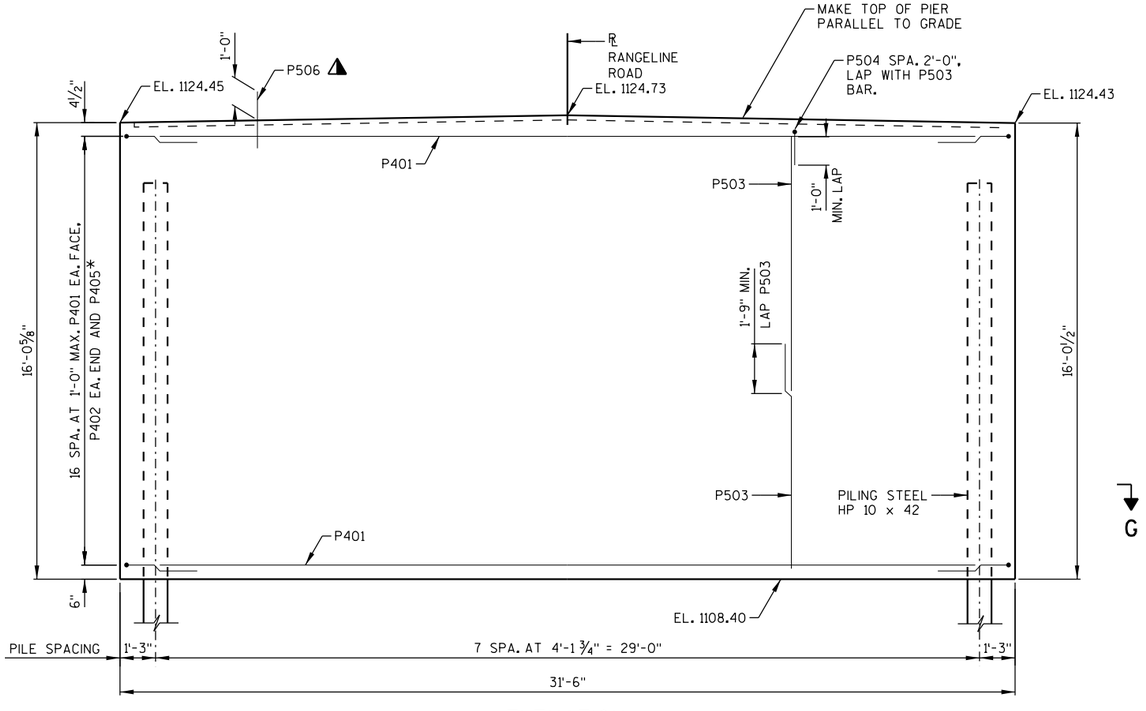
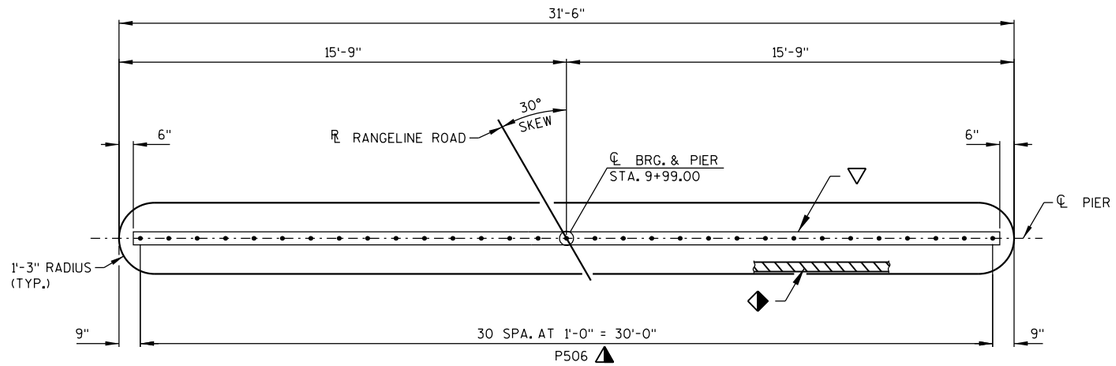
PLOT TIME: 10:51:11 AM
BATCH PRINT SHEET 11 OF 14

STATE PROJECT NUMBER

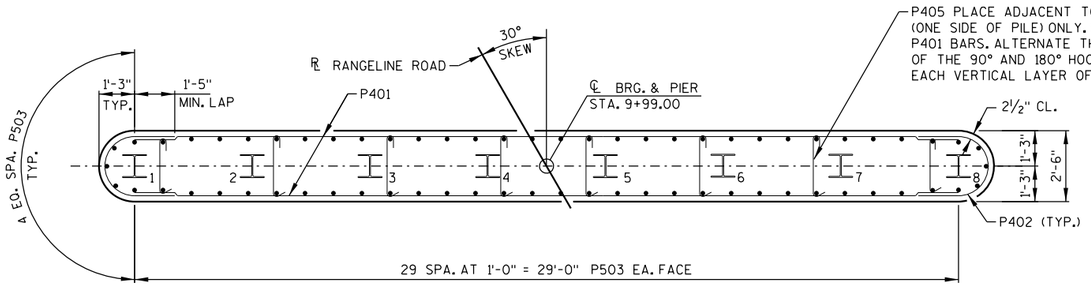
6688-00-70



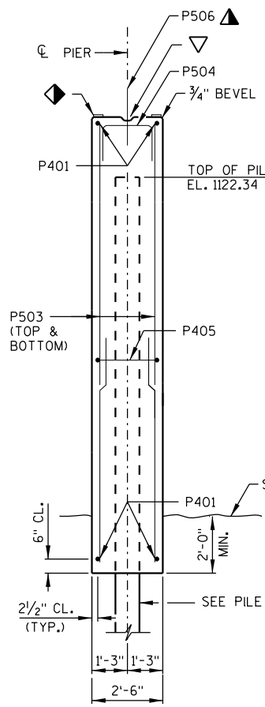
ELEVATION
(LOOKING UPSTATION)



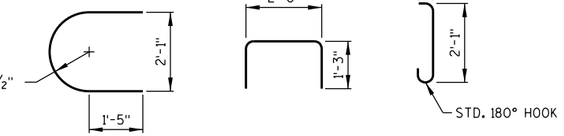
PLAN



SECTION G-G



TYPICAL SECTION THRU PIER



P402 P504 P405

BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
NON-COATED BARS					TOTAL WEIGHT = 2,340 LBS	
P401	34	29-0			PIER - SIDES	HORIZ.
P402	34	6-2	X		PIER - ENDS	HORIZ.
P503	132	8-9			PIER - SIDES AND ENDS	VERT.
P504	16	4-3	X		PIER - TOP	VERT.
P405	136	2-11	X		PIER - TIES AT EA. PILE	HORIZ.
COATED BARS					TOTAL WEIGHT = 70 LBS	
P506	31	2-0			PIER - DOWEL	VERT.

LEGEND

◆ 4"x¾" FILLER

* ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

▽ KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2"x6"

⚠ THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE.

NOTE

EXCAVATE TO EL. 1108.40 BEFORE DRIVING PILING. EXCAVATION IS INCIDENTAL TO BID ITEM "EXCAVATION FOR STRUCTURES B-37-466"

AT PIER, COFFERDAM REQUIRED. CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH STANDARD SPEC. 502.3.5.3. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH UNLESS APPROVED OTHERWISE.

PILE NOTE

PIER TO BE SUPPORTED ON PILING STEEL HP 10-INCH x 42 LB. (WITH PILE POINTS). PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 140 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 35'-0" LONG.*

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY TRA | PLANS CK'D. JRD

PIER

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PRINTER DRIVER: C:\ProgramData\Bentley\MacroStation CONNECT Edition\WorkSpaces\WisDOT Bridge MP Ver A\WorkSets\WisDOT Bridge\Plotdrv\AE_PDF.11 x 17.plt
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PLOT DATE: 9/1/2022 PLOT TIME: 10:51:11 AM
BATCH PRINT SHEET 12 OF 14

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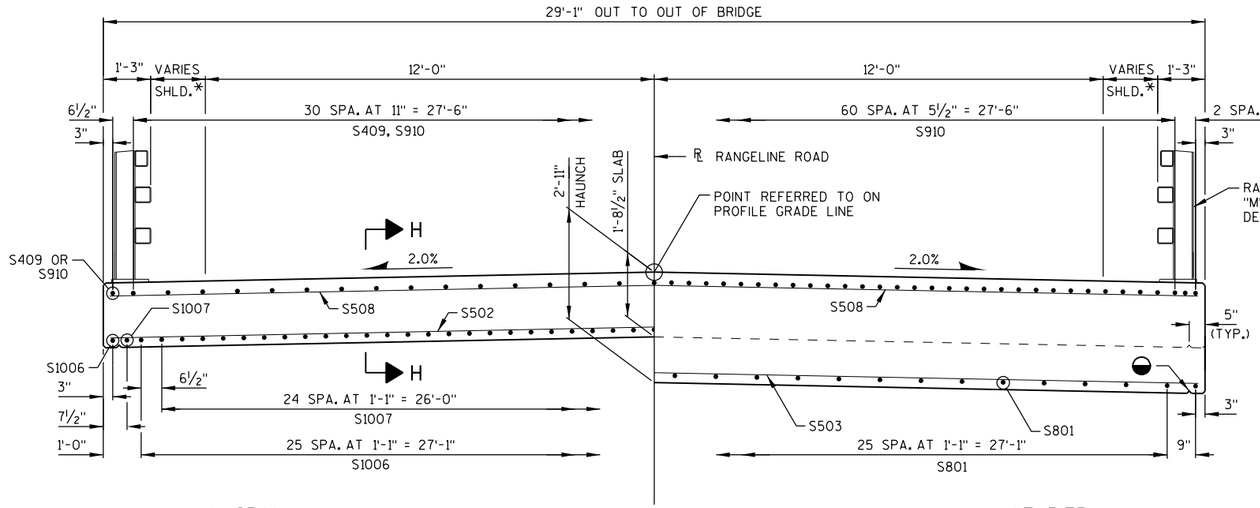
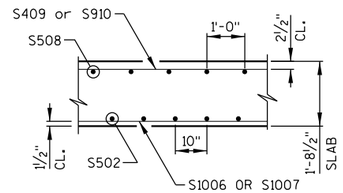


CROSS SECTION THRU ROADWAY
(LOOKING UPSTATION)



SECTION H-H

NOTES

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE ℄ OF ABUTMENTS, ℄ OF PIER AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR ℜ.

FOR TANGENT OFFSET DISTANCES, SEE SHEET 13.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE VERTICAL AND HORIZONTAL SURFACES OF PAVING NOTCH.

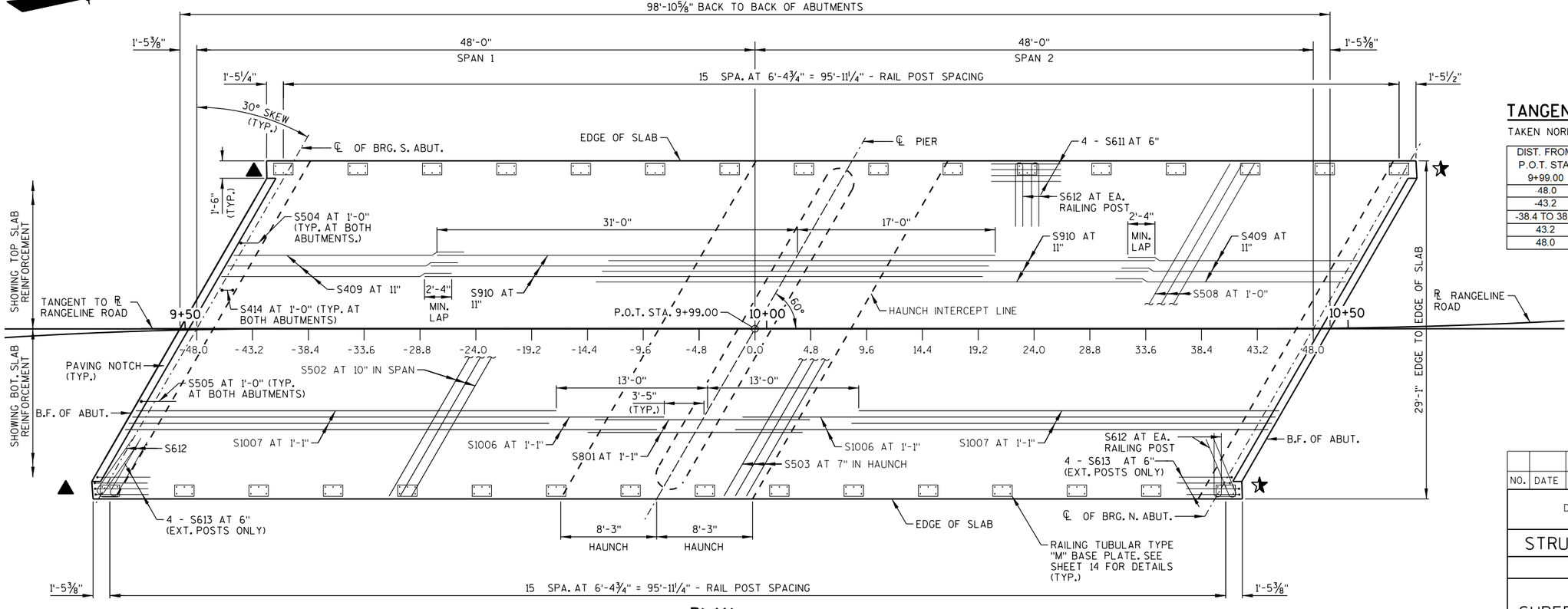
LEGEND

◒ ¾" V-GROOVE REQ'D. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT.

* LT SHOULDER VARIES 1'-0" TO 1'-2½". RT SHOULDER VARIES 1'-0" TO 4½".

▲ SEE SHEET 5 FOR RAIL POST SPACING ON WINGS 1 & 2.

★ SEE SHEET 8 FOR RAIL POST SPACING ON WINGS 3 & 4.



PLAN

TANGENT OFFSET TABLE

TAKEN NORMAL TO TANGENT LINE (FT.)

DIST. FROM P.O.T. STA. 9+99.00	WEST EDGE OF DECK	PGL	EAST EDGE OF DECK
-48.0	-	0.08	14.28
-43.2	-	0.01	14.45
-38.4 TO 38.4	14.45	-	14.63
43.2	14.37	0.00	-
48.0	14.27	0.03	-

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY TRA | PLANS CK'D. JRD

SUPERSTRUCTURE

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PRINTER DRIVER: C:\ProgramData\Bentley\MicroStation CONNECT Edition\Configuration\WorkSpaces\WisDOT Bridge MP Ver A\WorkSets\WisDOT Bridge\Plotdrv\AE_PDF_11 x 17.plt
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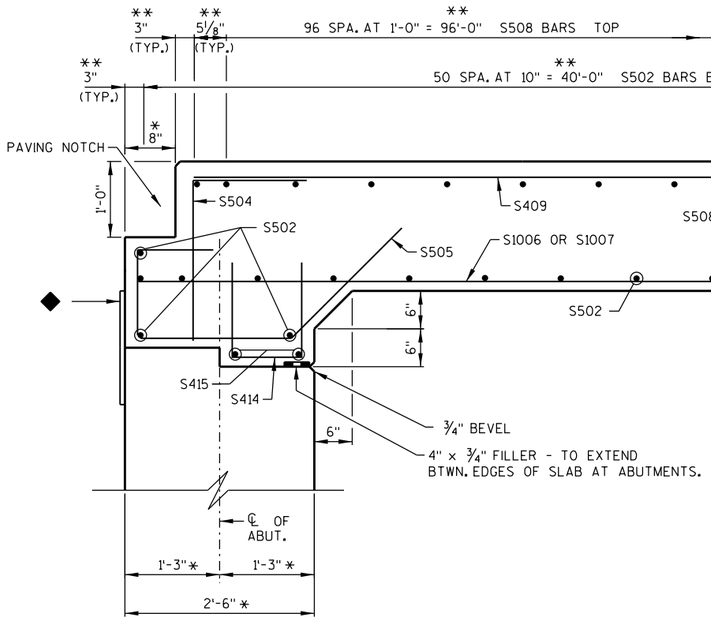
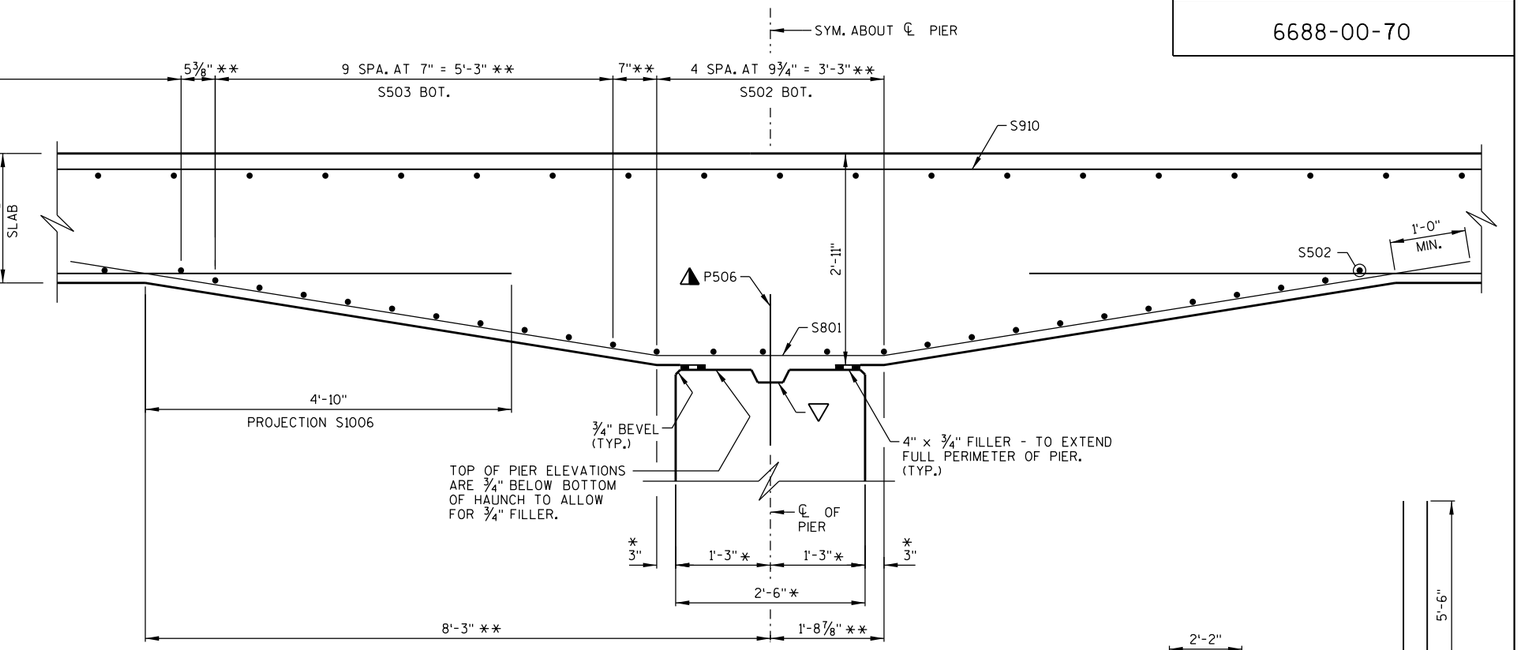
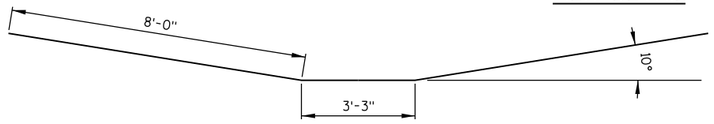


ABUTMENT DETAIL

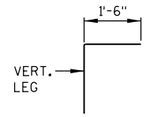


PARTIAL LONGITUDINAL SECTION

PIER DETAIL



S801



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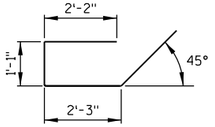

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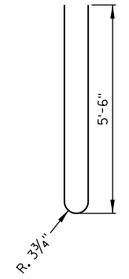

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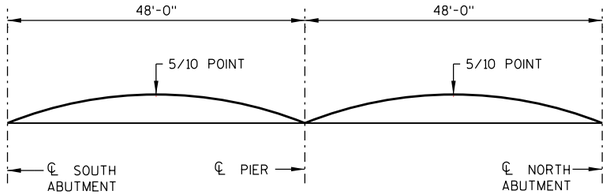


CAMBER DIAGRAM

SPAN 1	CL BRG. S. 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.	CL BRG. PIER
CAMBER (IN.)	0.0	0.4	0.7	0.8	0.9	0.8	0.6	0.4	0.2	0.0	0.0

SPAN 2	CL BRG. PIER	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.	CL BRG. N. ABUT.
CAMBER (IN.)	0.0	0.0	0.2	0.4	0.6	0.8	0.9	0.8	0.7	0.4	0.0

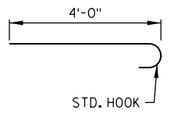
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

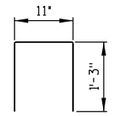
ALL BAR STEEL REINFORCEMENT SHOWN IN THIS BILL SHALL BE EPOXY COATED.

TOTAL WEIGHT = 43,260 LBS

MARK	NO. REQ'D.	LENGTH	BENT	LOCATION	
S801	28	19 - 3	X	SLAB - BOTTOM AT HAUNCH	LONGIT.
S502	113	33 - 3		SLAB - BOTTOM	TRANS.
S503	20	33 - 3		SLAB - BOTTOM AT HAUNCH	TRANS.
S504	60	3 - 6	X	SLAB - TIES AT ABUTMENT	LONGIT.
S505	60	7 - 3	X	SLAB - TIES AT ABUTMENT	LONGIT.
S1006	54	45 - 10		SLAB - BOTTOM	LONGIT.
S1007	54	36 - 3		SLAB - BOTTOM	LONGIT.
S508	99	33 - 3		SLAB - TOP	TRANS.
S409	66	19 - 10		SLAB - TOP	LONGIT.
S910	66	48 - 0		SLAB - TOP	LONGIT.
S611	112	6 - 0		SLAB - INT. POSTS - 4 PER POST	LONGIT.
S612	64	11 - 4	X	SLAB - AT INT. POSTS & EXT. POSTS - 2 PER POST	TRANS.
S613	16	4 - 8	X	SLAB - AT EXT. POSTS - 4 PER POST	LONGIT.
S414	46	3 - 3	X	SLAB - AT ABUT. NOTCH	LONGIT.
S415	4	25 - 8		SLAB - AT ABUT. NOTCH	TRANS.



S613



S414

LEGEND

FOR SYMBOL DESCRIPTIONS SEE SHEET 5 AND 11.

* DIMENSION MEASURED NORMAL TO SUBSTRUCTURE UNIT.

** DIMENSION MEASURED ALONG ℄ RANGELINE ROAD.

TOP OF DECK ELEVATIONS

	CL BRG. S. 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.	CL BRG. PIER	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.	CL BRG. N. ABUT.
WEST EDGE OF DECK	1127.39	1127.40	1127.40	1127.40	1127.41	1127.41	1127.41	1127.42	1127.42	1127.42	1127.43	1127.43	1127.43	1127.44	1127.44	1127.44	1127.45	1127.45	1127.41	1127.37	1127.32
PGL	1127.63	1127.68	1127.68	1127.69	1127.69	1127.69	1127.70	1127.70	1127.70	1127.71	1127.71	1127.71	1127.72	1127.72	1127.72	1127.73	1127.73	1127.73	1127.74	1127.73	1127.69
EAST EDGE OF DECK	1127.26	1127.31	1127.35	1127.39	1127.39	1127.40	1127.40	1127.40	1127.41	1127.41	1127.41	1127.42	1127.42	1127.42	1127.43	1127.43	1127.43	1127.44	1127.44	1127.44	1127.45

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY TRA | PLANS CK'D. JRD

SUPERSTRUCTURE DETAILS

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PRINTER DRIVER: C:\ProgramData\Bentley\MicroStation CONNECT Edition\Configuration\WorkSpaces\WisDOT Bridge MP Ver A\WorkSets\WisDOT Bridge\Plotdrv\AE_PDF.11 x 17.plt
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PLOT DATE: 9/1/2022
PLOT TIME: 10:51:13 AM
BATCH PRINT SHEET 14 OF 14

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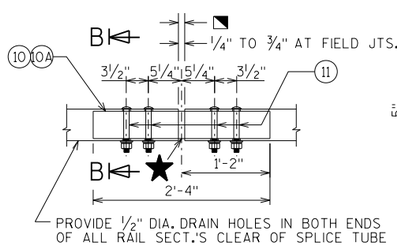
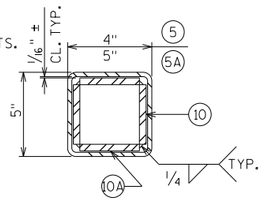
LEGEND

1. W6 x 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
2. PLATE 1 1/4" x 11 3/4" x 1'-8" WITH 1 7/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
3. ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
4. 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3
5. TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
5A. TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
6. 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
7. 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 1/2" THREADED SHOP WELDED STUDS (NO. 12), BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
8. 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
9. SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
10. 3/8" X 3 5/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
10A. 3/8" X 2 5/8" X 2'-4" PLATE USED IN NO. 5, 3/8" X 3 5/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
★ SEE SHEETS 5 AND 8 FOR ADDITIONAL DETAILS.
11. 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15/16" X 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 15/16" X 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
12. 7/8" DIA. X 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
13. 3/8" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
14. 7/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
15. 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

SECTION THRU RAILING ON DECK



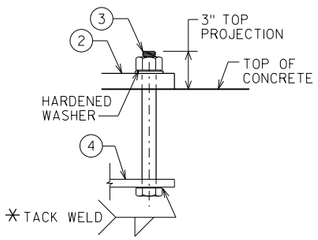
FIELD ERECTION JOINT DETAIL



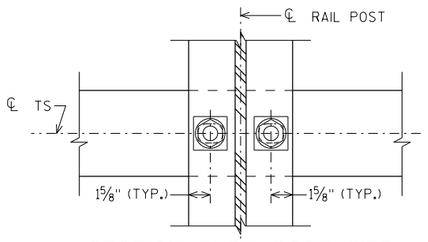
SECTION B-B

SHOP RAIL SPLICE DETAIL

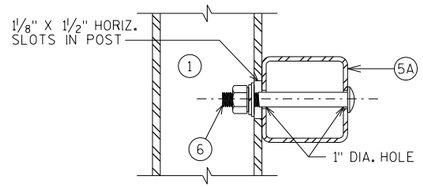
LOCATION MUST BE SHOWN ON SHOP DRAWINGS



ANCHOR BOLTS



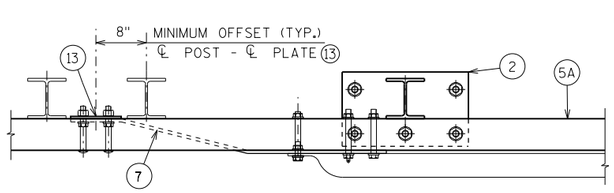
SECTION THRU POST WEB



SECTION THRU RAIL

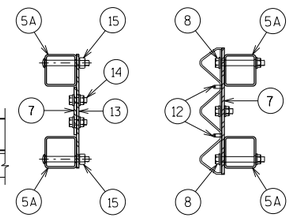
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS

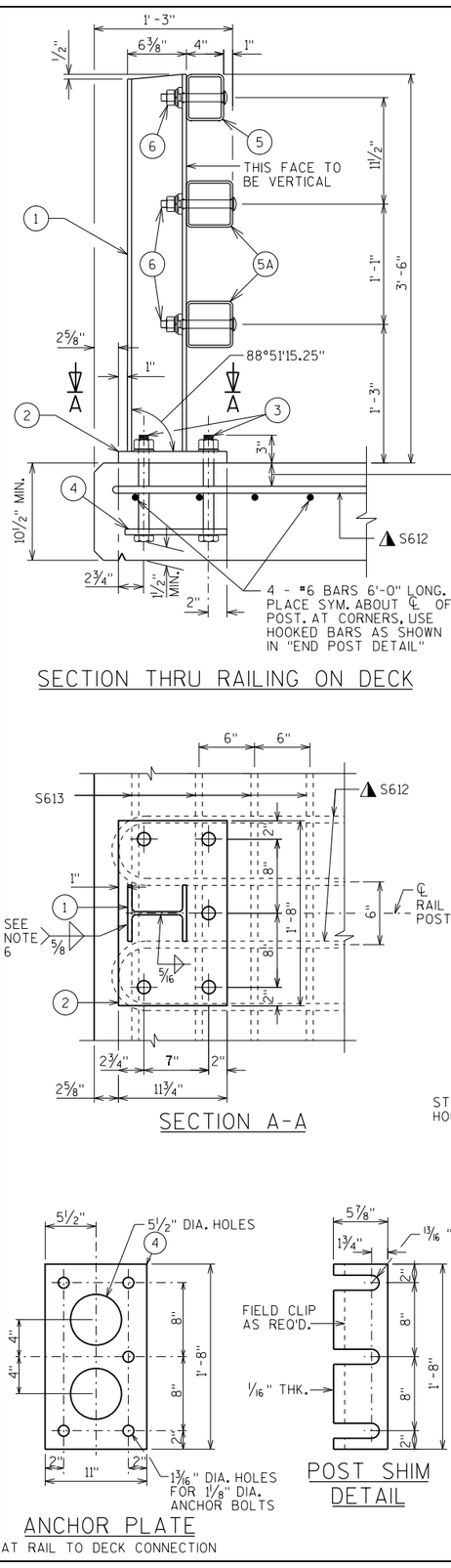


TOP VIEW AT END POST

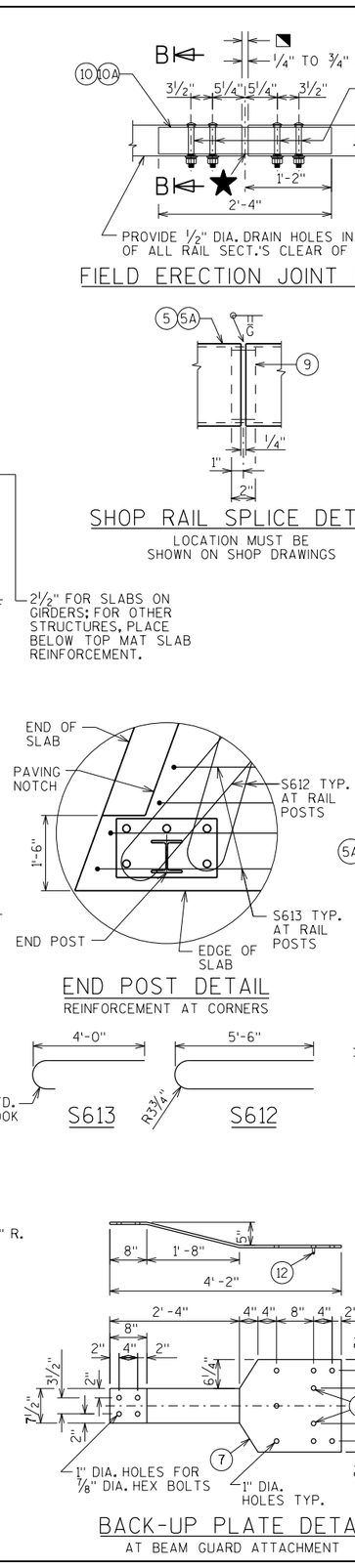
THRIE BEAM RAIL ATTACHMENT



SECTION C-C SECTION D-D

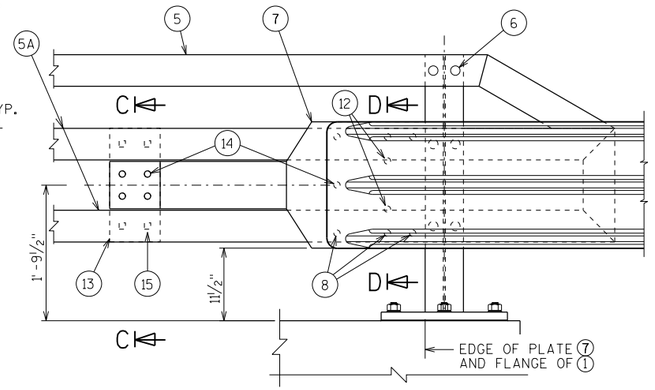


SECTION A-A



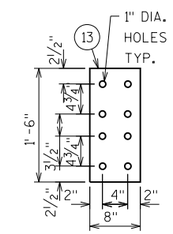
END POST DETAIL

REINFORCEMENT AT CORNERS



DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



ANCHOR PLATE

AT BEAM GUARD ATTACHMENT

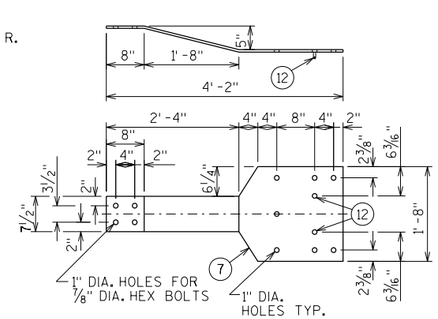
GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. PAINT OVER GALVANIZING. ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & NO. 4), WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED AMS STD. COLOR NO. [ ], [ ] (FILL IN COLOR NAME).

ANCHOR PLATE

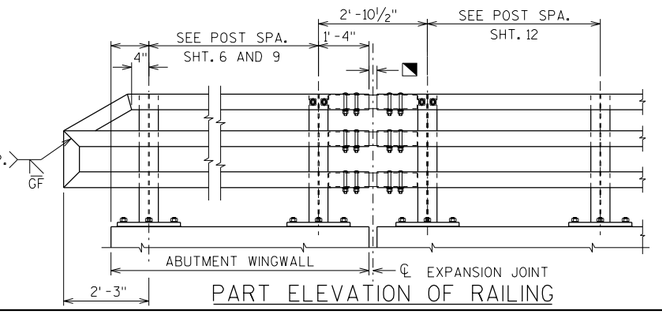
AT RAIL TO DECK CONNECTION

POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

TIE TO TOP MAT OF STEEL.

ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED. EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.

RDWY. OPENING OR 2 1/2" MIN. FOR STRIP SEAL EXP. JOINT & (1/4" TO 3/4") OPENING FOR A1 ABUTMENT.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-37-466

DRAWN BY	TRA	PLANS CK'D.	JRD

TUBULAR STEEL RAILING TYPE 'M'

SHEET 14 OF 14
64

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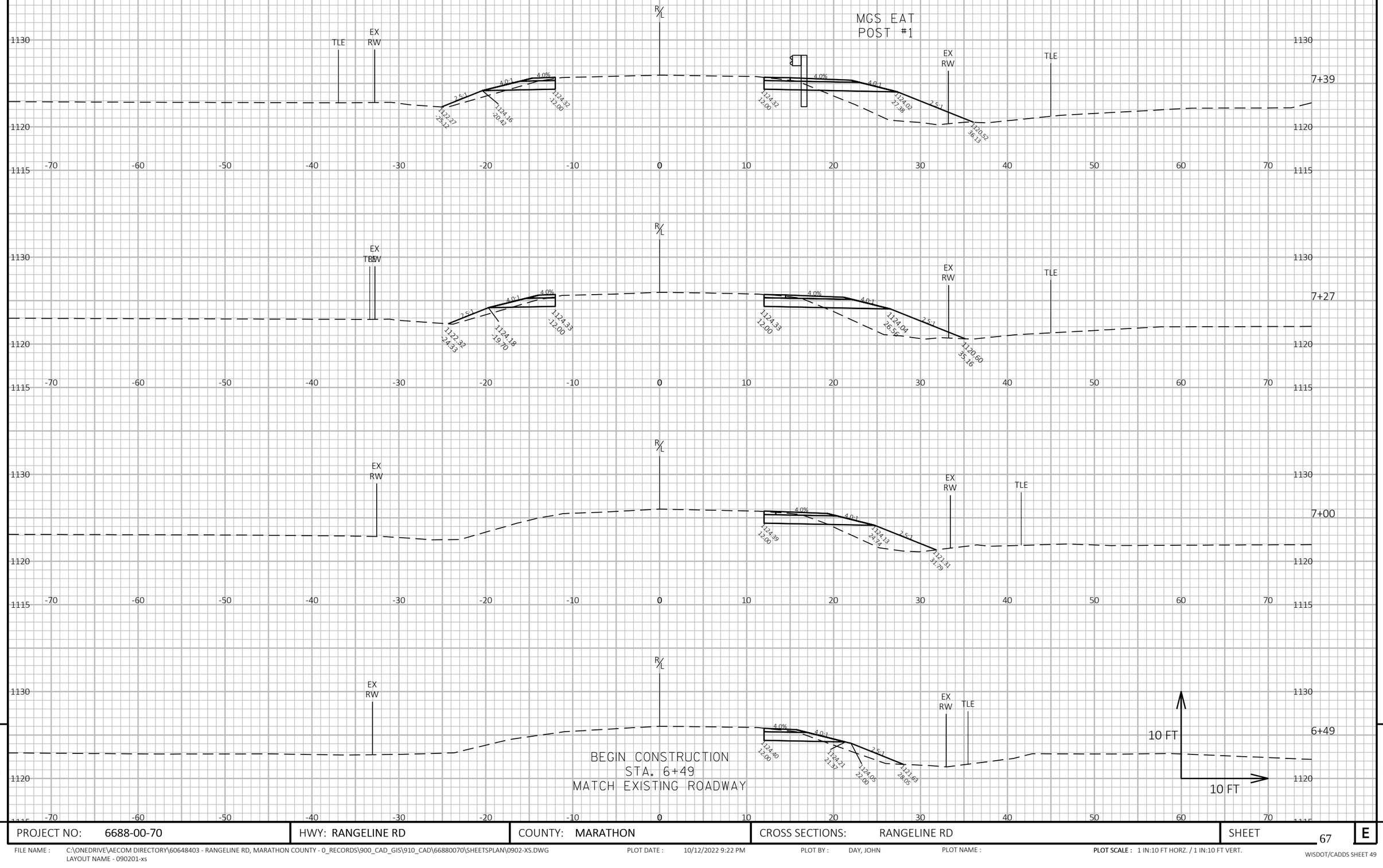
DIVISION 1: RANGELINE RD - SOUTH APPROACH

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
6+49.01	649.01	0.00	6.21	5.66	0	0	0	0	0
6+50.00	650.00	0.99	6.19	5.76	0	0	0	0	0
7+00.00	700.00	50.00	6.89	16.53	12	21	12	26	-14
7+50.00	750.00	50.00	9.65	35.77	15	48	27	86	-59
8+00.00	800.00	50.00	11.41	29.83	20	61	47	163	-116
8+50.00	850.00	50.00	15.27	18.99	25	45	72	219	-147
9+00.00	900.00	50.00	41.93	42.76	53	57	125	290	-165
9+16.57	916.57	16.57	42.73	63.54	26	33	151	331	-180
9+43.69	943.69	27.12	26.67	1.35	35	33	186	373	-187
9+49.49	949.49	5.80	18.95	0.00	5	0	191	373	-182

DIVISION 1: RANGELINE RD - NORTH APPROACH

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
10+48.47	1,048.47	0.00	20.68	0.00	0	0	0	0	0
10+50.00	1,050.00	1.53	20.43	0.00	1	0	1	0	1
10+54.56	1,054.56	4.56	25.07	39.84	4	3	5	4	1
10+80.91	1,080.91	26.35	41.39	77.14	32	57	37	75	-38
11+00.00	1,100.00	19.09	37.34	111.10	28	67	65	159	-94
11+50.00	1,150.00	50.00	4.63	114.30	39	209	104	420	-316
12+00.00	1,200.00	50.00	5.69	76.86	10	177	114	641	-527
12+50.00	1,250.00	50.00	4.53	62.75	9	129	123	803	-680
13+00.00	1,300.00	50.00	5.11	22.31	9	79	132	901	-769
13+50.00	1,350.00	50.00	3.60	11.37	8	31	140	940	-800
13+69.63	1,369.63	19.63	3.52	7.98	3	7	143	949	-806



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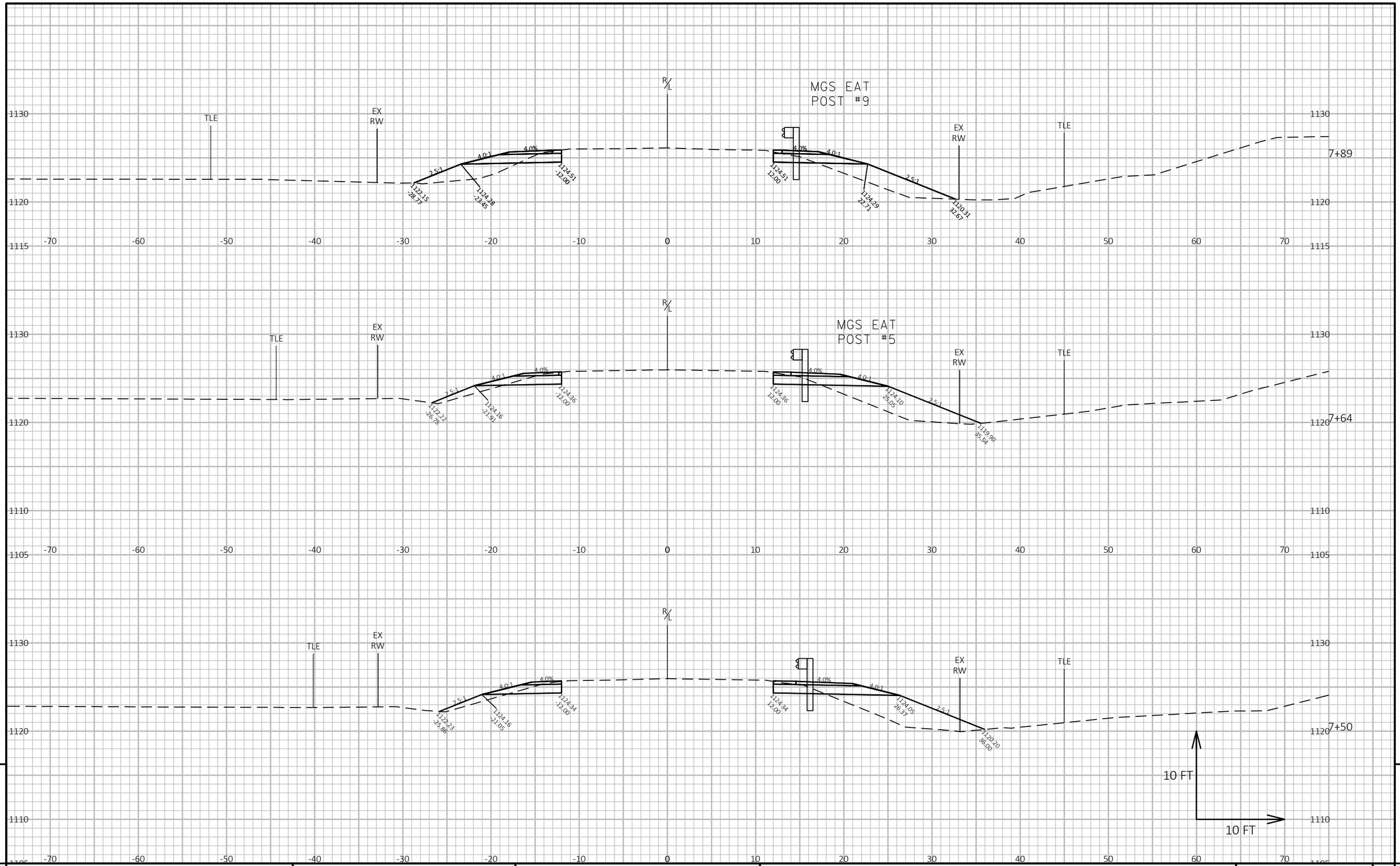
PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	CROSS SECTIONS: RANGELINE RD	SHEET 67	E

FILE NAME : C:\ONEDRIVE\AECOM DIRECTORY\60648403 - RANGELINE RD, MARATHON COUNTY - 0_RECORDS\900_CAD_GIS\910_CAD\66880070\SHEETSPLAN\0902-XS.DWG
LAYOUT NAME - 090201-xs

PLOT DATE : 10/12/2022 9:22 PM PLOT BY : DAY, JOHN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	CROSS SECTIONS: RANGELINE RD	SHEET 68	E

FILE NAME : C:\ONEDRIVE\AECOM DIRECTORY\60648403 - RANGELINE RD, MARATHON COUNTY - 0_RECORDS\900_CAD_GIS\910_CAD\66880070\SHEETSPLAN\0902-XS.DWG
LAYOUT NAME - 090202-xs

PLOT DATE : 10/12/2022 9:23 PM PLOT BY : DAY, JOHN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

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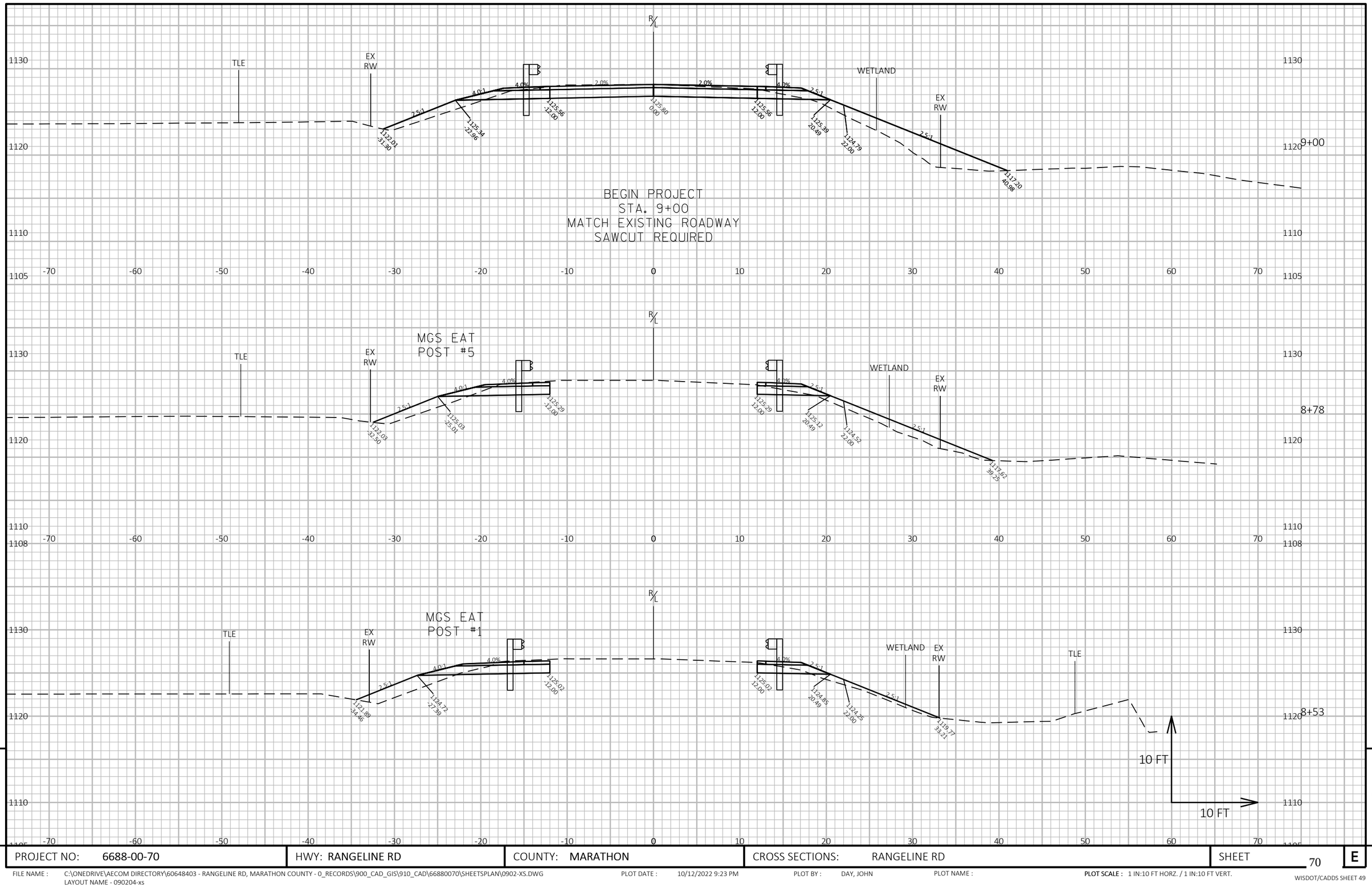
PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	CROSS SECTIONS: RANGELINE RD	SHEET 69	E

FILE NAME : C:\ONEDRIVE\AECOM DIRECTORY\60648403 - RANGELINE RD, MARATHON COUNTY - 0_RECORDS\900_CAD_GIS\910_CAD\66880070\SHEETSPLAN\0902-XS.DWG
LAYOUT NAME - 090203-xs

PLOT DATE : 10/12/2022 9:23 PM PLOT BY : DAY, JOHN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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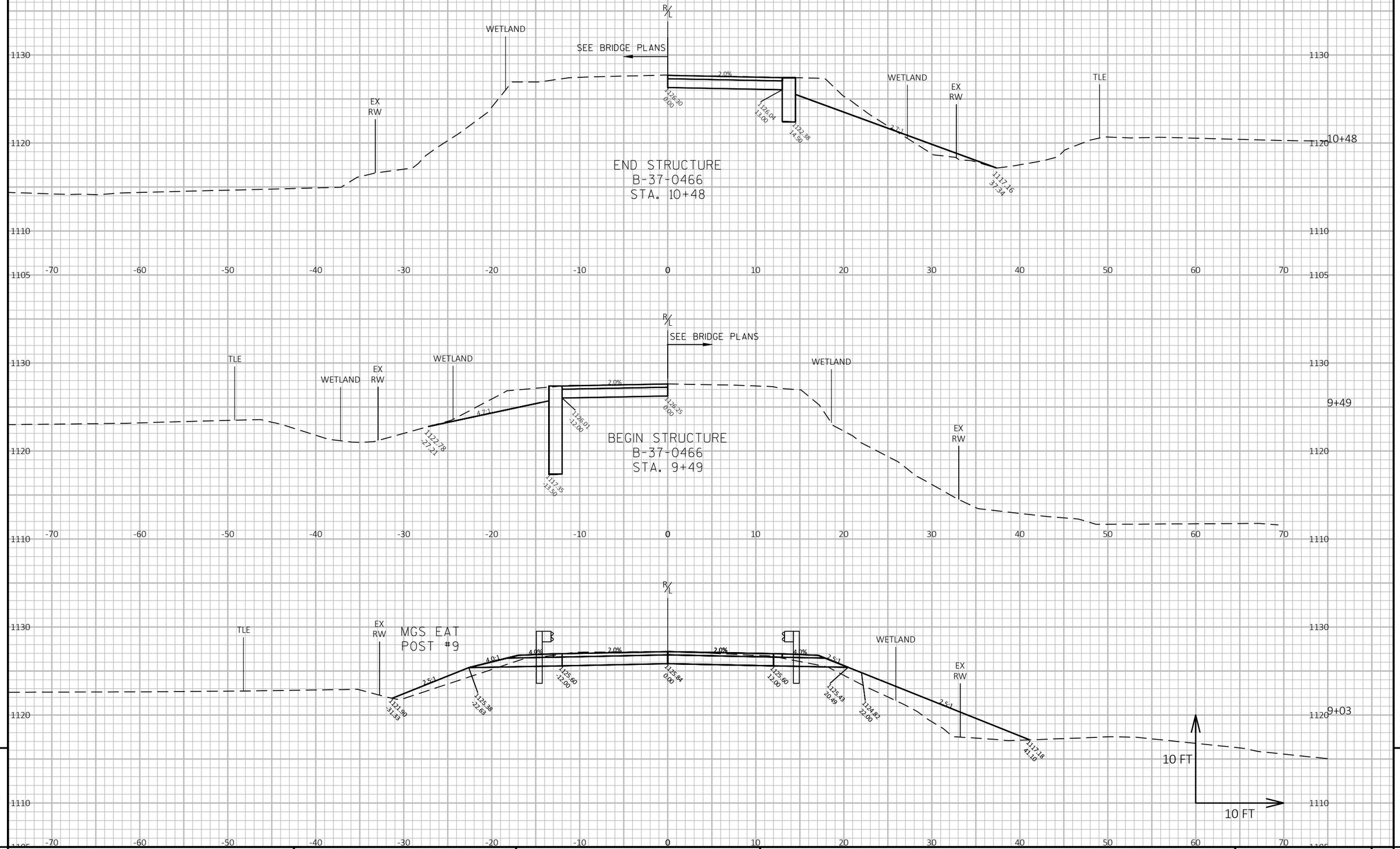
PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	CROSS SECTIONS: RANGELINE RD	SHEET 70	E

FILE NAME : C:\ONEDRIVE\AECOM DIRECTORY\60648403 - RANGELINE RD, MARATHON COUNTY - 0_RECORDS\900_CAD_GIS\910_CAD\66880070\SHEETSPLAN\0902-XS.DWG
LAYOUT NAME - 090204-xs

PLOT DATE : 10/12/2022 9:23 PM PLOT BY : DAY, JOHN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.



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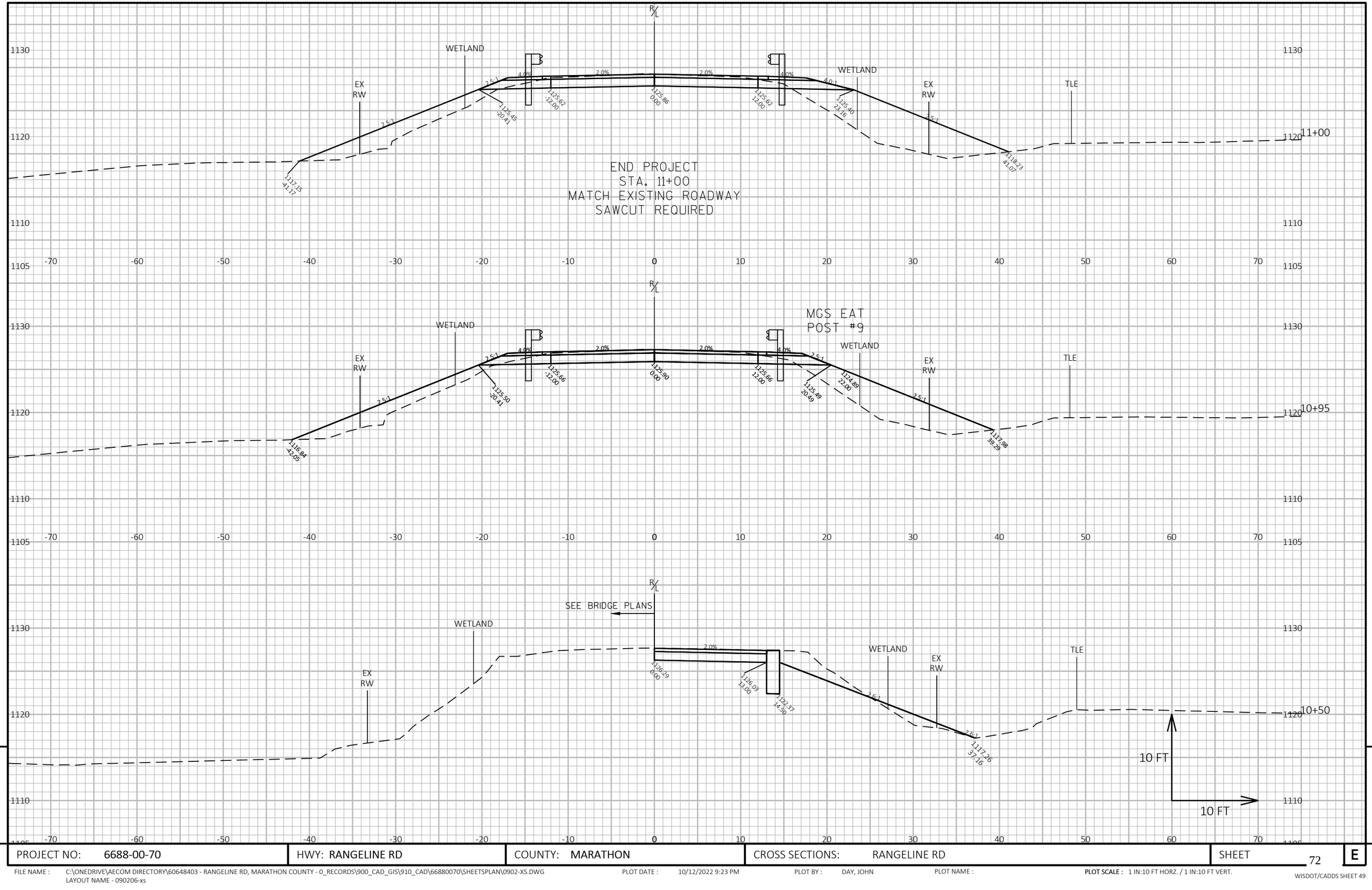
PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	CROSS SECTIONS: RANGELINE RD	SHEET 71	E

FILE NAME : C:\ONEDRIVE\AECOM DIRECTORY\60648403 - RANGELINE RD, MARATHON COUNTY - 0_RECORDS\900_CAD_GIS\910_CAD\66880070\SHEETSPLAN\0902-XS.DWG
LAYOUT NAME - 090205-xs

PLOT DATE : 10/12/2022 9:23 PM PLOT BY : DAY, JOHN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	CROSS SECTIONS: RANGELINE RD	SHEET 72	E

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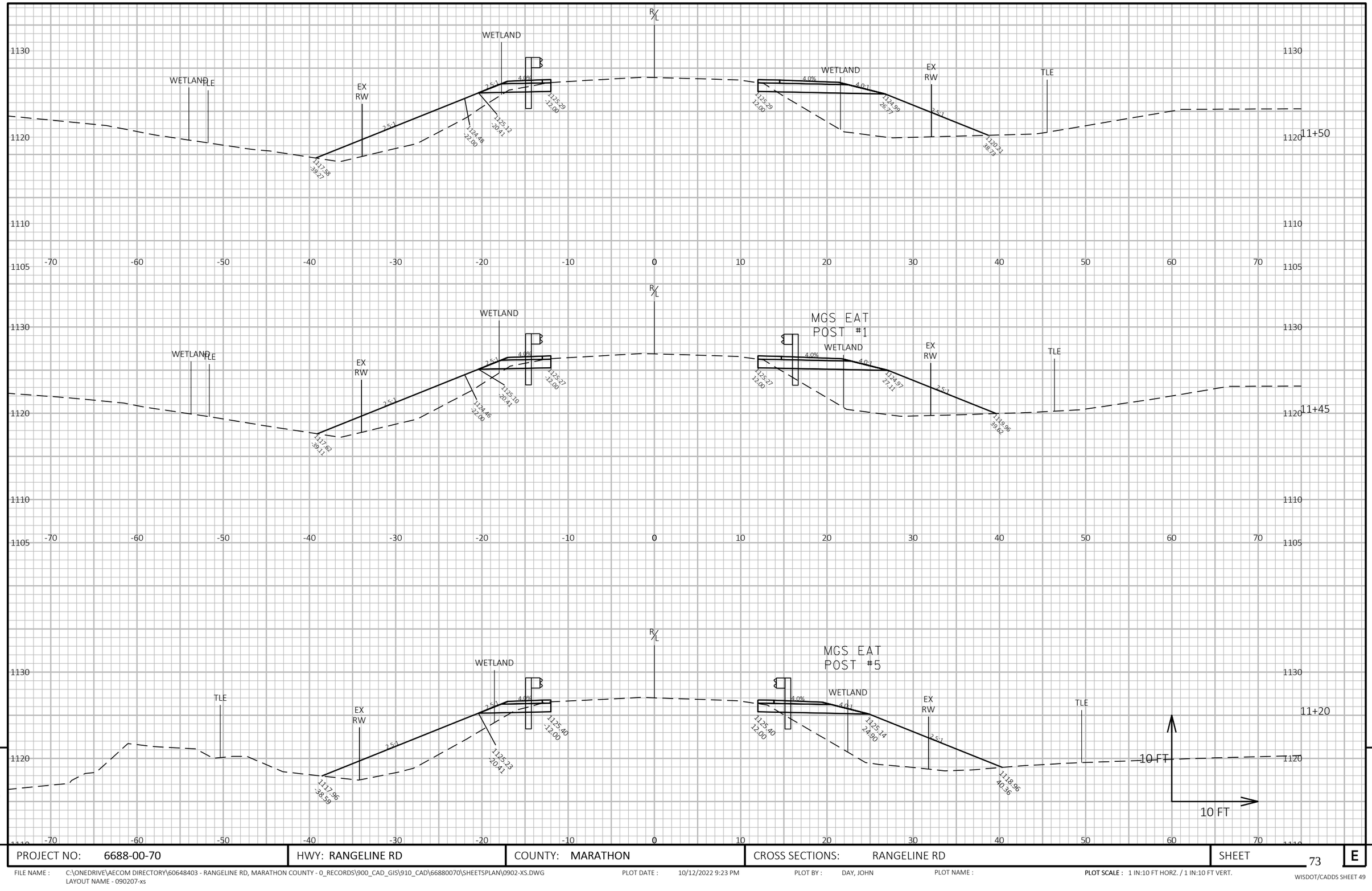
LAYOUT NAME - 090206-xs
PLOT DATE : 10/12/2022 9:23 PM
PLOT BY : DAY, JOHN
PLOT NAME :
PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
WISDOT/CADDS SHEET 49



PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	CROSS SECTIONS: RANGELINE RD	SHEET 73	E

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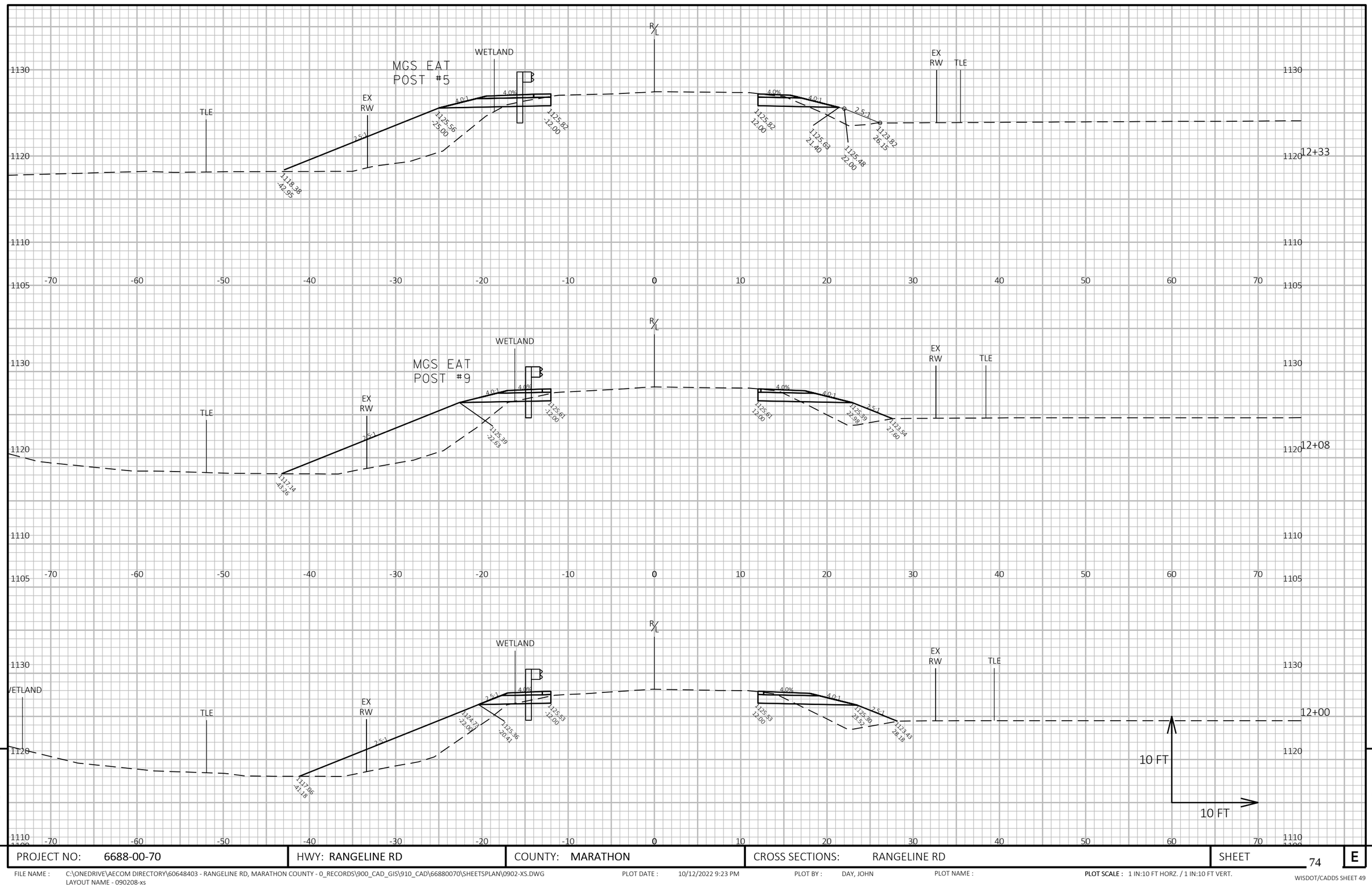
LAYOUT NAME - 090207-xs

PLOT DATE : 10/12/2022 9:23 PM PLOT BY : DAY, JOHN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	CROSS SECTIONS: RANGELINE RD	SHEET 74	E

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LAYOUT NAME - 090208-xs

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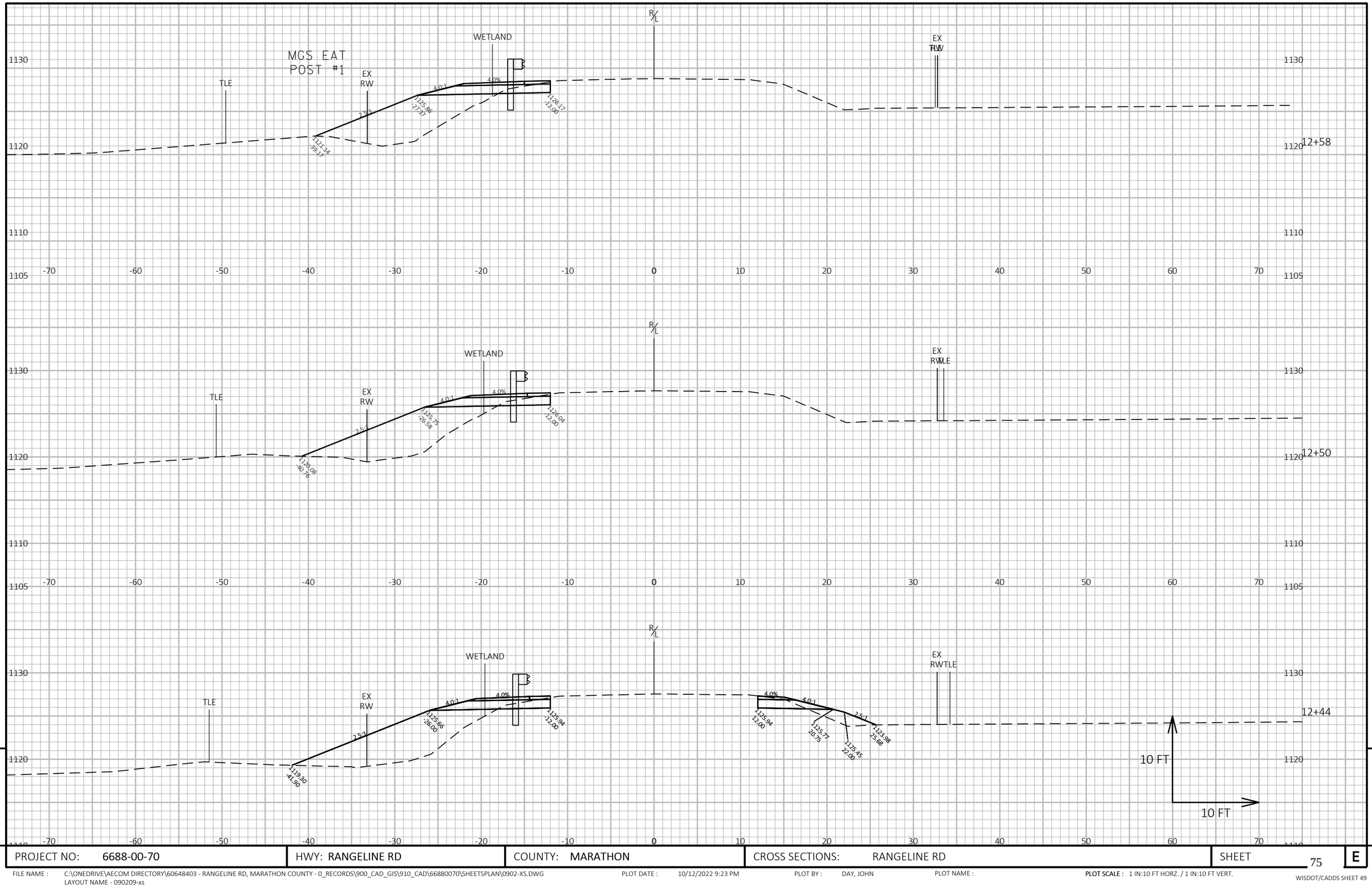

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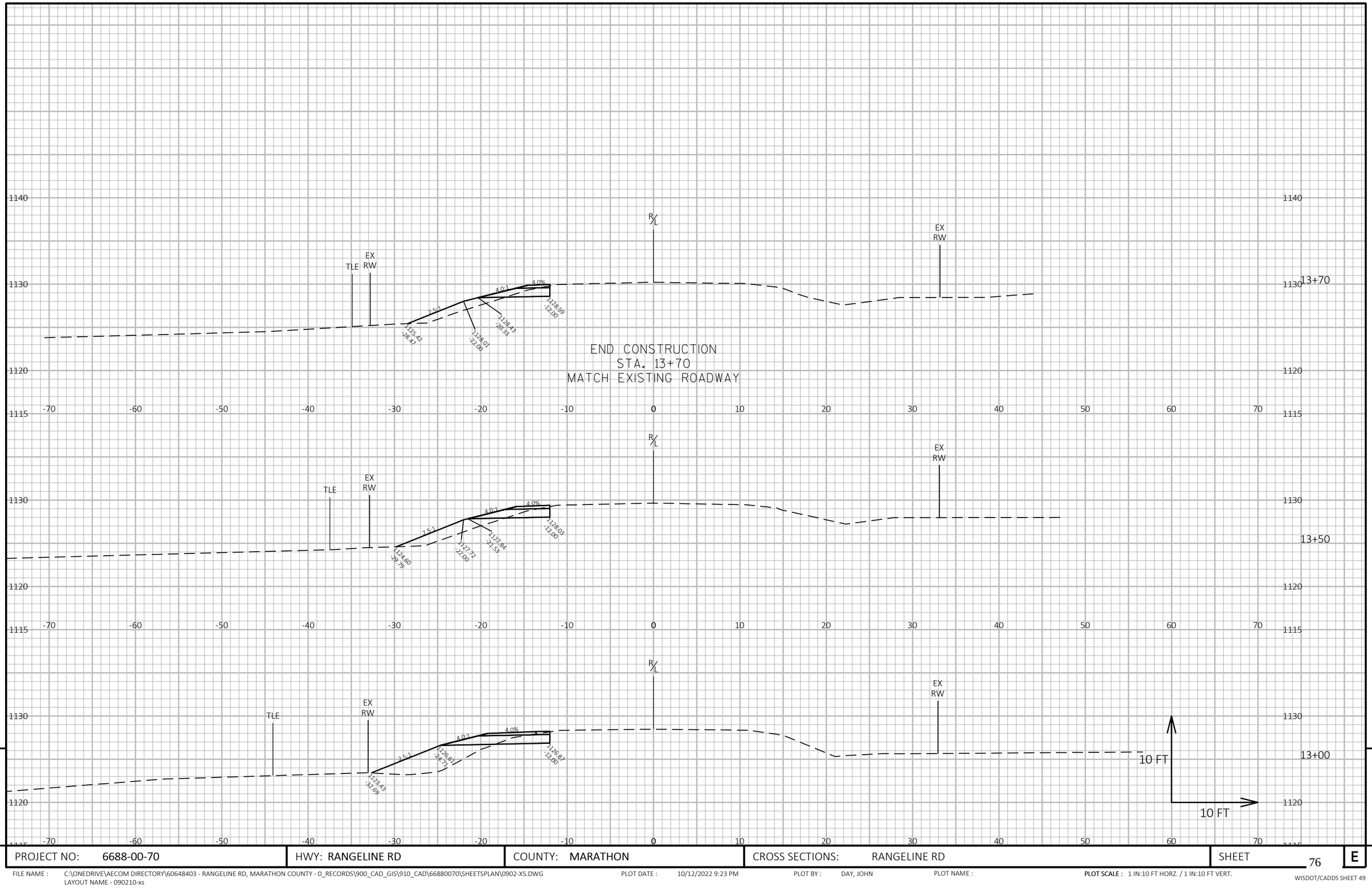
LAYOUT NAME - 090209-xs

PLOT DATE : 10/12/2022 9:23 PM PLOT BY : DAY, JOHN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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PROJECT NO: 6688-00-70	HWY: RANGELINE RD	COUNTY: MARATHON	CROSS SECTIONS: RANGELINE RD	SHEET 76	E

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LAYOUT NAME - 090210-xs

PLOT DATE : 10/12/2022 9:23 PM PLOT BY : DAY, JOHN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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