LAX

PROJECT ID: 5165-00-73

WITH: N/A

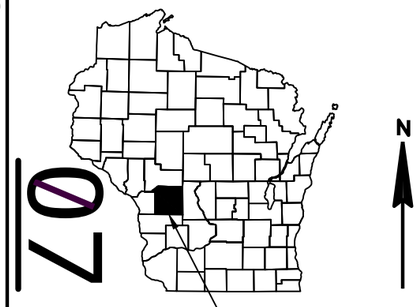
COUNTY: MONROE

DECEMBER 2026

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 72



DESIGN DESIGNATION 5165-00-03

A.A.D.T.	2027	=	55
A.A.D.T.	2047	=	69
D.H.V.		=	6.16
D.D.		=	62/38
T.		=	7.7%
DESIGN SPEED		=	60 MPH
ESALS		=	9,000

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

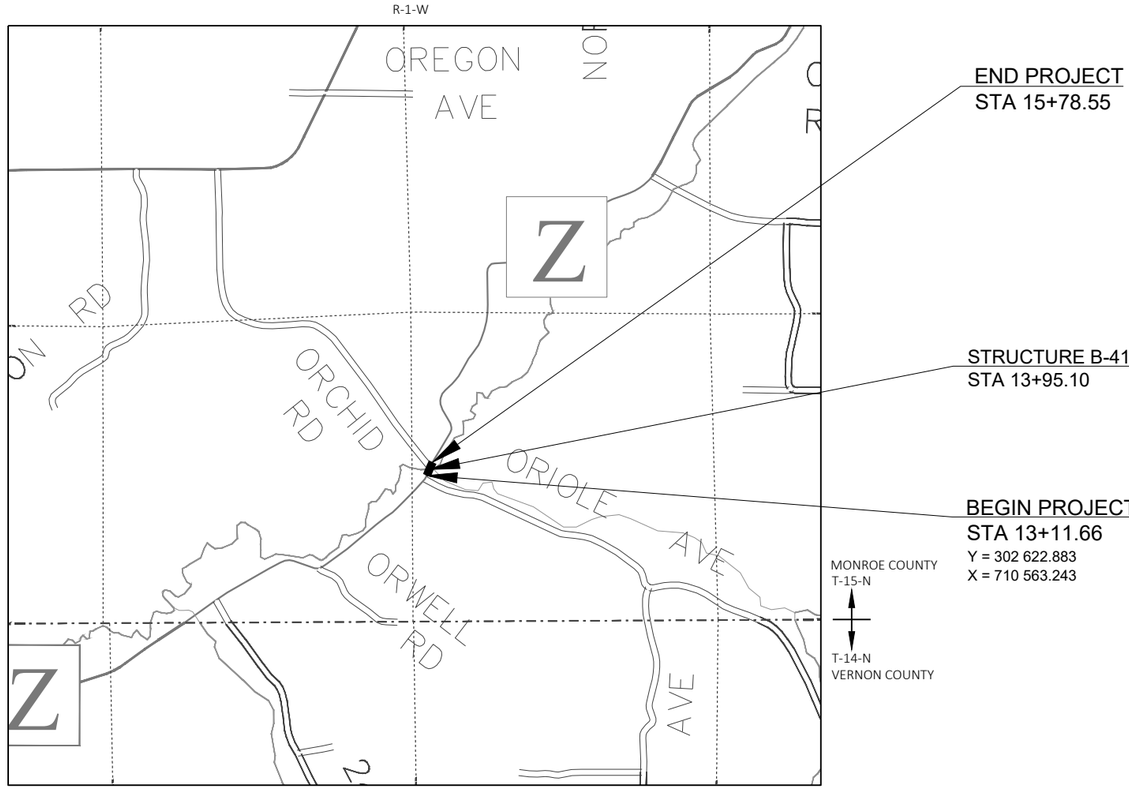
T FOREST - T WELLINGTON (CTH Z)

BILLINGS CREEK BRIDGE B-41-0332

CTH Z
MONROE COUNTY

STATE PROJECT NUMBER
5165-00-73

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5165-00-73	WISC 2027095	1



LAYOUT

SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.051 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), MONROE 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 18.

ACCEPTED FOR

MONROE COUNTY

07/10/26 (Date) (Signature and Title of Official)

ORIGINAL PLANS PREPARED BY

WESTBROOK
Associated Engineers, Inc.
619 EAST HOXIE STREET
P.O. BOX 429
SPRING GREEN, WISCONSIN 53588
PHONE (608) 588-7866
FAX (608) 588-7954

WISCONSIN
AARON B. PALMER
E-35695
RICHLAND CENTER, WI
PROFESSIONAL ENGINEER

DATE: 7/6/26 (Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WESTBROOK ASSOCIATED ENGINEERS, INC.
Designer	WESTBROOK ASSOCIATED ENGINEERS, INC.
Project Manager	PEGGY WISCHHOFF, P.E.
Regional Examiner	SW REGION
Regional Supervisor	DELLA KOENIG, P.E.

APPROVED FOR THE DEPARTMENT

DATE: 07/13/2026 Peggy Wischhoff, P.E. (Signature)

E

STANDARD ABBREVIATIONS

ABUT	ABUTMENT	MH	MANHOLE
AC	ACRE	ML OR M/L	MATCH LINE
AGG	AGGREGATE	NOM	NOMINAL
AH	AHEAD	NC	NORMAL CROWN
∠	ANGLE	NB	NORTHBOUND
AADT	ANNUAL AVERAGE DAILY TRAFFIC	NO	NUMBER
ASPH	ASPHALTIC	OD	OUTSIDE DIAMETER
BK	BACK	PAVT	PAVEMENT
BAD	BASE AGGREGATE DENSE	PLE	PERMANENT LIMITED EASEMENT
BL OR B/L	BASE LINE	PC	POINT OF CURVATURE
BM	BENCH MARK	PI	POINT OF INTERSECTION
CL OR C/L	CENTER LINE	PT	POINT OF TANGENCY
Δ	CENTRAL ANGLE OR DELTA	PCC	PORTLAND CEMENT CONCRETE
CE	COMMERCIAL ENTRANCE	LB	POUND
CONC	CONCRETE	PSI	POUNDS PER SQUARE INCH
CONST	CONSTRUCTION	PE	PRIVATE ENTRANCE
CP	CONTROL POINT	PROJ	PROJECT
CO	COUNTY	PL	PROPERTY LINE
CTH	COUNTY TRUCK HIGHWAY	PRW	PROPOSED RIGHT OF WAY
CY	CUBIC YARD	R	RADIUS
D	DEGREE OF CURVE	RL OR R/L	REFERENCE LINE
DHV	DESIGN HOUR VOLUME	REQD	REQUIRED
DIA	DIAMETER	RT	RIGHT
DD	DIRECTIONAL DISTRIBUTION	RHF	RIGHT HAND FORWARD
DWY	DRIVEWAY	R/W	RIGHT OF WAY
EA	EACH	RD	ROAD
EB	EASTBOUND	RDWY	ROADWAY
EL OR ELEV	ELEVATION	SHLDR	SHOULDER
EAT	ENERGY ABSORBING TERMINAL	SB	SOUTHBOUND
ESALS	EQUIVALENT SINGLE AXLE LOADS	SPECS	SPECIFICATIONS
EXC	EXCAVATION	SF	SQUARE FEET
EBS	EXCAVATION BELOW SUBGRADE	SY	SQUARE YARD
EXIST	EXISTING	SDD	STANDARD DETAIL DRAWINGS
FERT	FERTILIZER	STH	STATE TRUNK HIGHWAY
FE	FIELD ENTRANCE	STA	STATION
FT	FOOT	SE	SUPERELEVATION
HE	HIGHWAY EASEMENT	TEMP	TEMPORARY
CWT	HUNDRED WEIGHT	TI	TEMPORARY INTEREST
IN DIA	INCH DIAMETER	TLE	TEMPORARY LIMITED EASEMENT
INTERS	INTERSECTION	T	TRUCKS (PERCENT OF)
IH	INTERSTATE HIGHWAY	TYP	TYPICAL
JT	JOINT	USH	UNITED STATES HIGHWAY
LT	LEFT	VAR	VARIABLE
LHF	LEFT HAND FORWARD	VC	VERTICAL CURVE
L	LENGTH OF CURVE	VPC	VERTICAL POINT OF CURVATURE
LF	LINEAR FOOT	VPI	VERTICAL POINT OF INTERSECTION
LC	LONG CHORD OF CURVE	VPT	VERTICAL POINT OF TANGENCY
LS	LUMP SUM	W	WEST
MGAL	ONE THOUSAND GALLONS	WB	WESTBOUND

WISCONSIN DNR LIAISON

KAREN KALVELAGE
DNR WEST CENTRAL REGION HQ
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LA CROSSE, WI 54601
PHONE: (608) 406-7880
EMAIL: KAREN.KALVELAGE@WISCONSIN.GOV

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DESIGN CONSULTANT

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EMAIL: APALMER@WESTBROOKENG.COM

COUNTY HIGHWAY COMMISSIONER

DAVID OHNSTAD
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PHONE: (608) 269-8739
EMAIL: DAVID.OHNSTAD@CO.MONROE.WI.US

UTILITIES CONTACTS

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COMMUNICATIONS
TOM MURRAY
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LA CROSSE, WI 54601
PHONE: (608) 376-1555
EMAIL: TOM.L.MURRAY@BRIGHTSPEED.COM

VERNON ELECTRIC COOPERATIVE
ELECTRIC
COLE CARY
110 SAUGSTAD RD
WESTBY, WI 54667
PHONE: (608) 632-6003
EMAIL: CCARY@VERNONELECTRIC.ORG

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

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.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY OPERATIONS, OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LBS/SY/IN.

APPLY TACK COAT BETWEEN LAYERS OF HMA PAVEMENT AT A RATE OF 0.05 GAL/SY.

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

RIGHT OF WAY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE.

THE CONTRACTOR IS TO WORK WITH UTMOST CARE AND PROTECT ALL SURVEY MARKERS. REMOVAL OF ANY SURVEY MARKER IS TO BE WITH THE APPROVAL OF THE ENGINEER.

WHEN THE QUANTITY OF THE ITEMS OF BASE AGGREGATE OR HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYERS SHOWN ON THE PLAN IS APPROXIMATE, AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL PREPARE AN EROSION CONTROL IMPLEMENTATION PLAN (ECIP) AND SUBMIT THE PLAN TO WISDOT AND WDNR FOR REVIEW AT LEAST 14 DAYS PRIOR TO THE PRECONSTRUCTION CONFERENCE.

EROSION CONTROL FEATURES, AS SHOWN IN THE PLANS, ARE AT APPROXIMATE LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND APPROVED BY THE ENGINEER. MAINTAIN EROSION CONTROL MEASURES UNTIL SUCH A TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

SLOPES STEEPER THAN 3:1 REQUIRE EROSION MAT.

APPLY SEED, EROSION MAT, AND FERTILIZER TO ALL DISTURBED AREAS WITHIN 7 WORKING DAYS AFTER GRADING WORK IS COMPLETED.

CURVE DATA IS BASED ON THE ARC DEFINITION.

THE PROPOSED SHOULDER WIDTHS SHOWN IN THE TYPICAL SECTIONS ARE MINIMUM WIDTH. PERPETUATE EXISTING SHOULDERS THAT ARE WIDER THAN WHAT IS SHOWN IN THE TYPICAL SECTIONS.

SAWCUTS, AS SHOWN ON THE PLANS, ARE SUGGESTED LOCATIONS AND MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER TO BETTER SUIT FIELD CONDITIONS.

REMOVAL OF ASPHALTIC SURFACES WHERE AN ABUTTING ASPHALTIC SURFACE IS TO REMAIN IN PLACE SHALL REQUIRE A VERTICAL SAWCUT MEETING THE APPROVAL OF THE ENGINEER IN THE FIELD.

PRIOR TO PLACEMENT OF BEAM GUARD, THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED.

TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

BEARINGS SHOWN ON THE PLAN ARE TRUE BEARINGS.

DO NOT DRIVE OR STORE EQUIPMENT, OR STORE CONSTRUCTION MATERIALS IN ENVIRONMENTALLY SENSITIVE AREAS, WETLANDS OR WATERWAYS.

RUNOFF COEFFICIENT TABLE

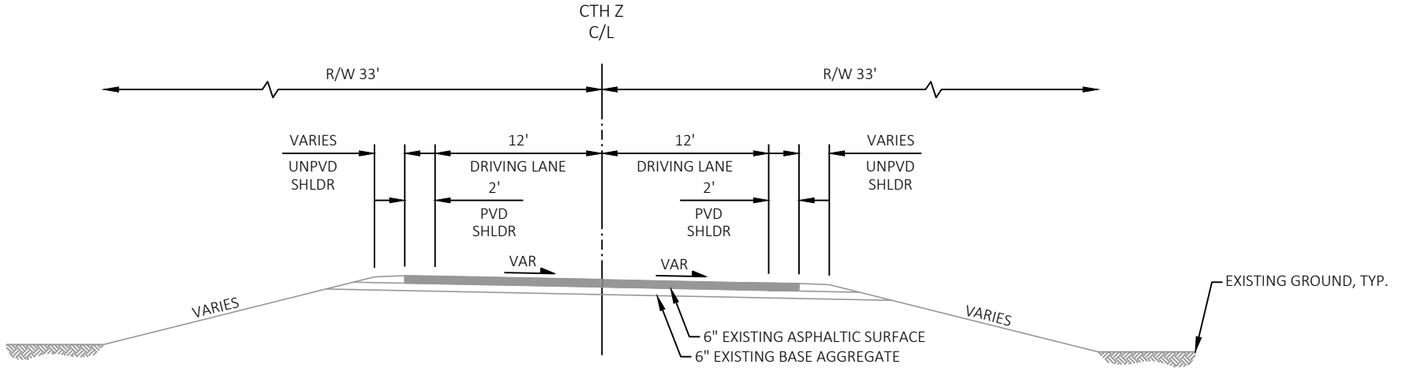
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS:	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIPTURF:	.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 SLOPETURF:			.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 = 0.70 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.42 ACRES

ORDER OF SECTION 2 DETAIL SHEETS

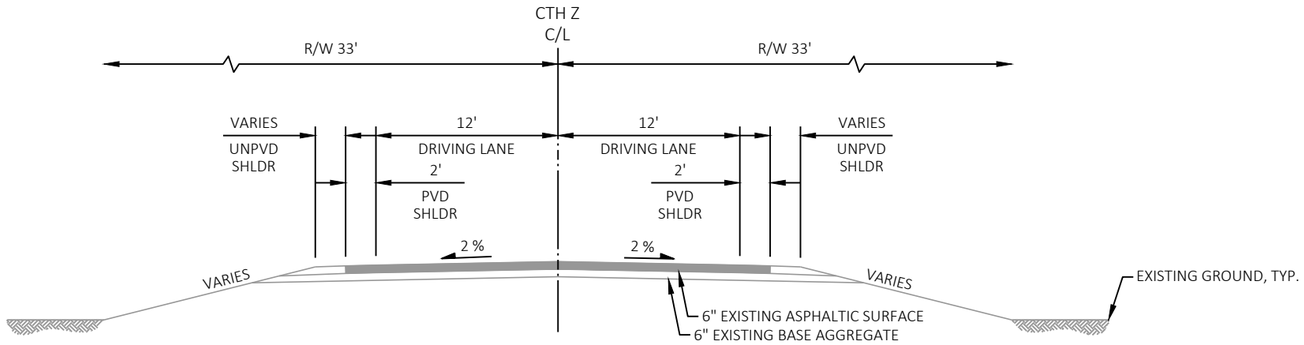
GENERAL NOTES
TYPICAL SECTIONS
GUARDRAIL DETAILS
CONCRETE APPROACH SLAB
PERMANENT SIGNING
ALIGNMENT DETAILS

2



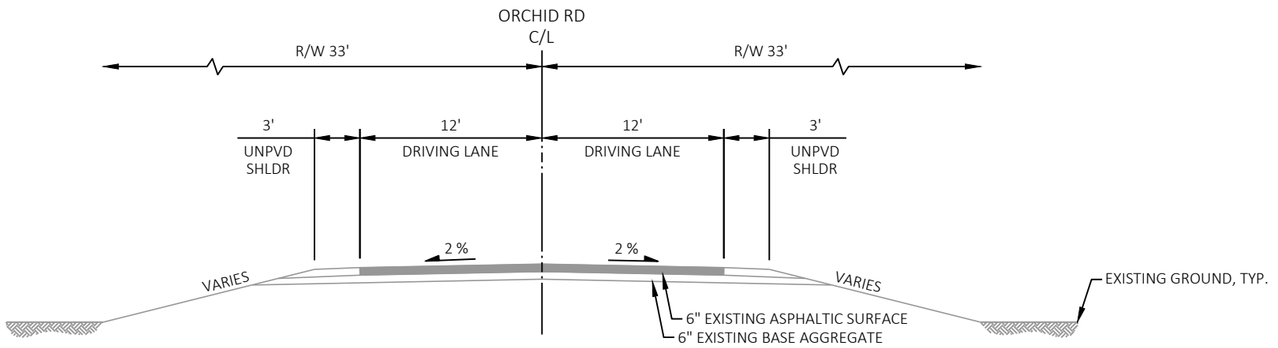
EXISTING TYPICAL SECTION - SUPERELEVATED

STA 13+11.66 - STA 13+39.73
STA 14+37.35 - STA 17+16.00



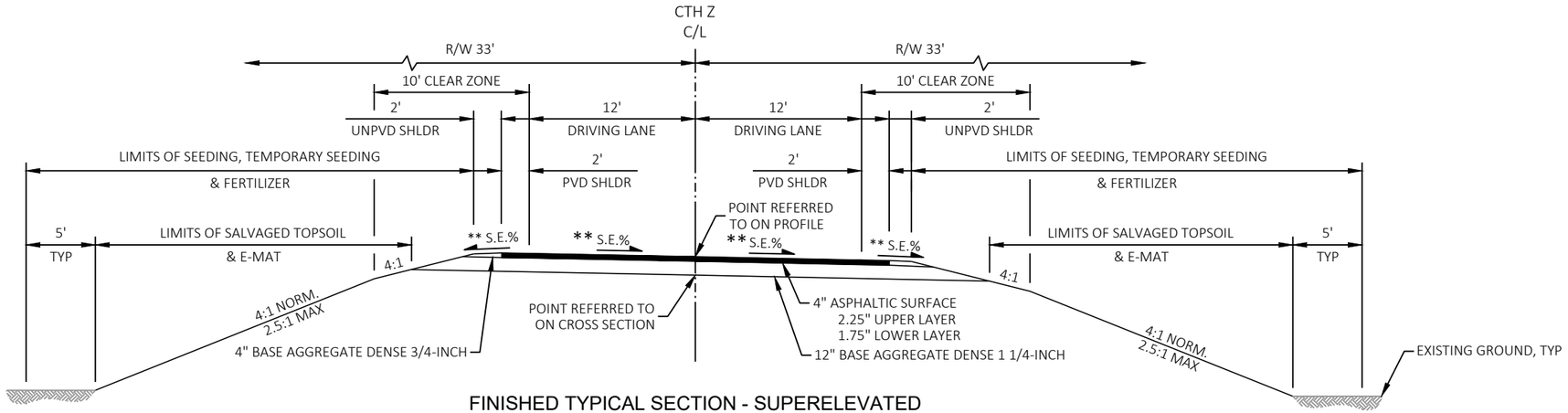
EXISTING TYPICAL SECTION - CTH Z

STA 13+39.73 - STA 14+37.35



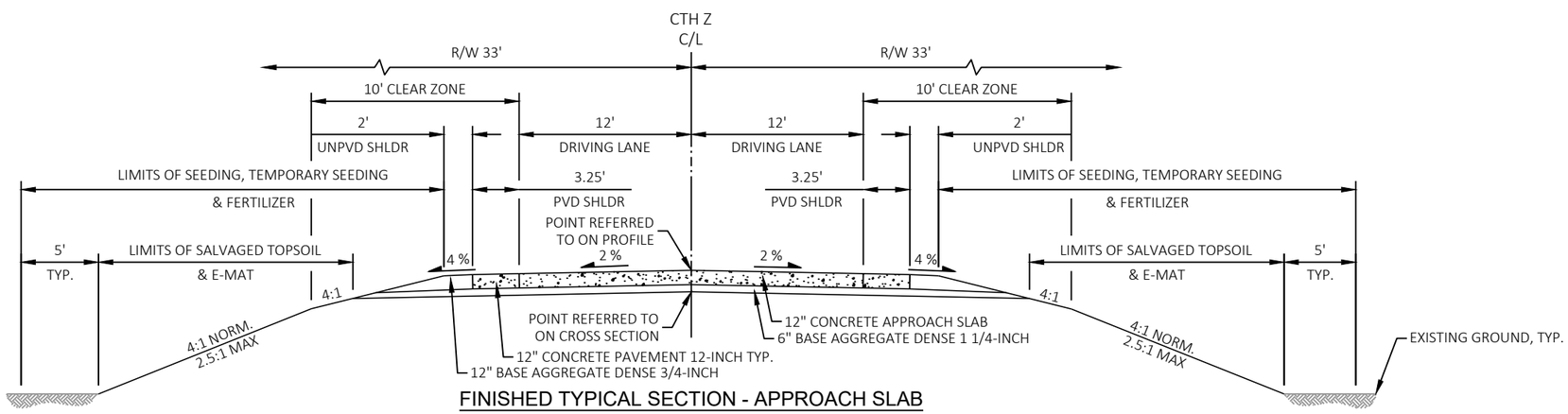
EXISTING TYPICAL SECTION - ORCHID RD

PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	TYPICAL SECTIONS	SHEET 3	E



FINISHED TYPICAL SECTION - SUPERELEVATED

STA 13+11.66 - STA 13+39.73
STA 14+37.35 - STA 15+78.55



FINISHED TYPICAL SECTION - APPROACH SLAB

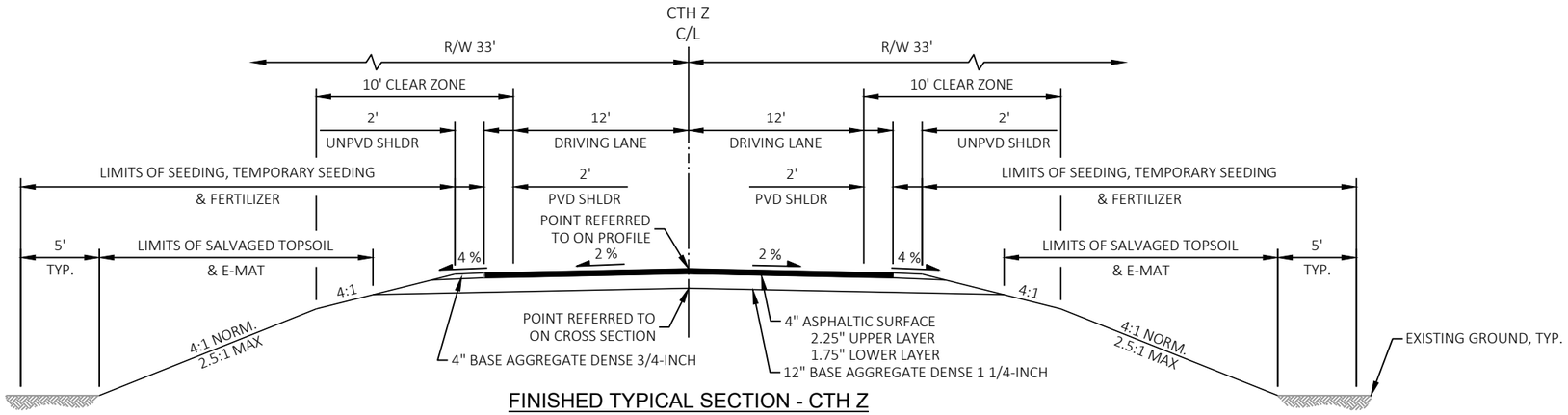
STA 13+39.73 - 13+62.43

SUPERELEVATION TABLE					
STATION	REMARK	LEFT UNPAVED SHOULDER	LEFT LANE	RIGHT LANE	RIGHT UNPAVED SHOULDER
13+11.66	BOP MATCH EXISTING	-4.00%	-0.85%	0.05%	-4.00%
13+39.73	BEGIN APPROACH SLAB	-4.00%	-2.00%	-2.00%	-4.00%
14+37.35	END BRIDGE DECK	-4.00%	-2.00%	-2.00%	-4.00%
14+50.00		-4.00%	-1.83%	-1.96%	-4.00%
15+00.00		-4.00%	-1.13%	-1.82%	-4.00%
15+50.00		-4.00%	-0.44%	-1.68%	-4.00%
15+78.55	EOP MATCH EXISTING	-4.00%	-0.05%	-1.60%	-4.00%

** SEE SUPERELEVATION TABLE

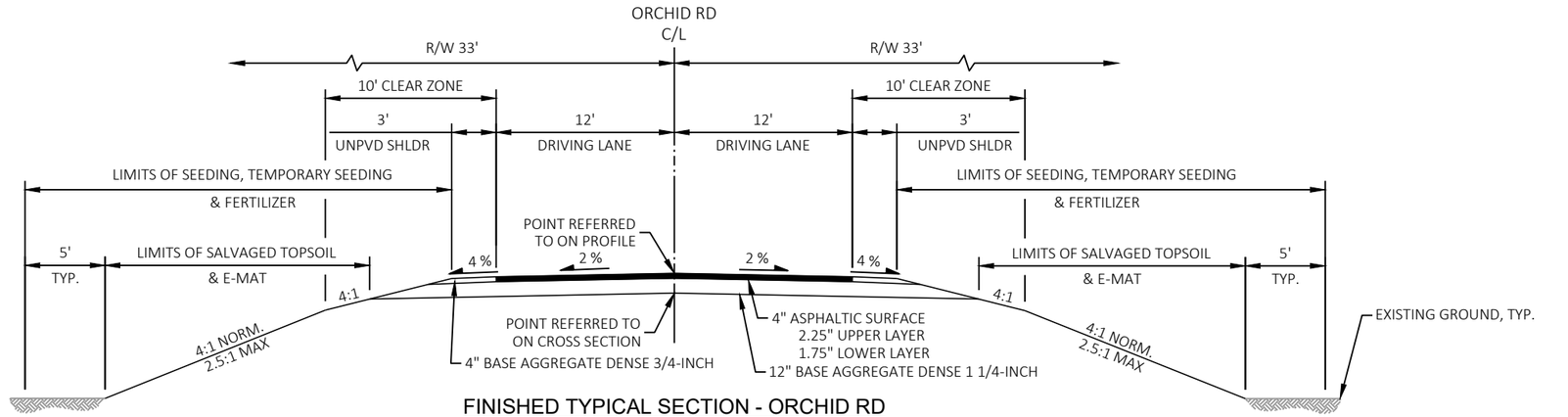
PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	TYPICAL SECTIONS	SHEET 4	E

FILE NAME : G:\00-PROJECT FILES\2022\22286 CTH Z, BRIDGE DESIGN, MONROE COUNTY\0-CAD\SHEETS\020301_TS.DWG
LAYOUT NAME - 020102_ts
PLOT DATE : 7/8/2026 2:40 PM PLOT BY : KYLE MAYBERRY PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42



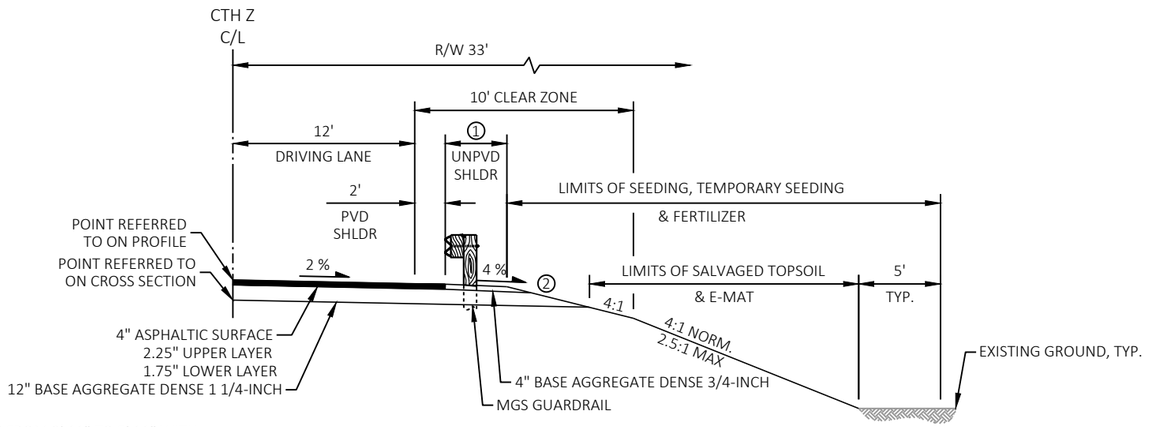
FINISHED TYPICAL SECTION - CTH Z

STA 14+28.55 - STA 14+37.35



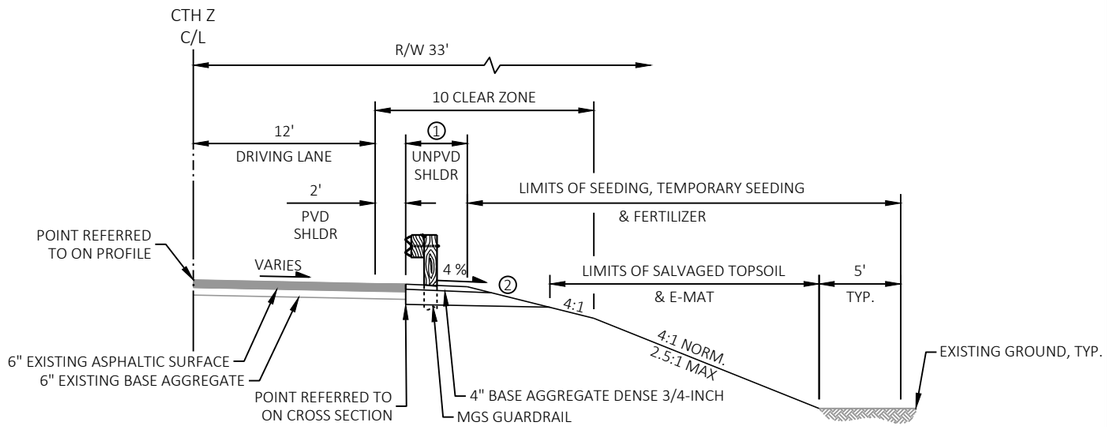
FINISHED TYPICAL SECTION - ORCHID RD

STA 52+25 "O" - STA 53+07 "O"



FINISHED TYPICAL HALF SECTION - GUARDRAIL

STA 14+28.55 - 15+78.55, RT



FINISHED TYPICAL HALF SECTION - GUARDRAIL

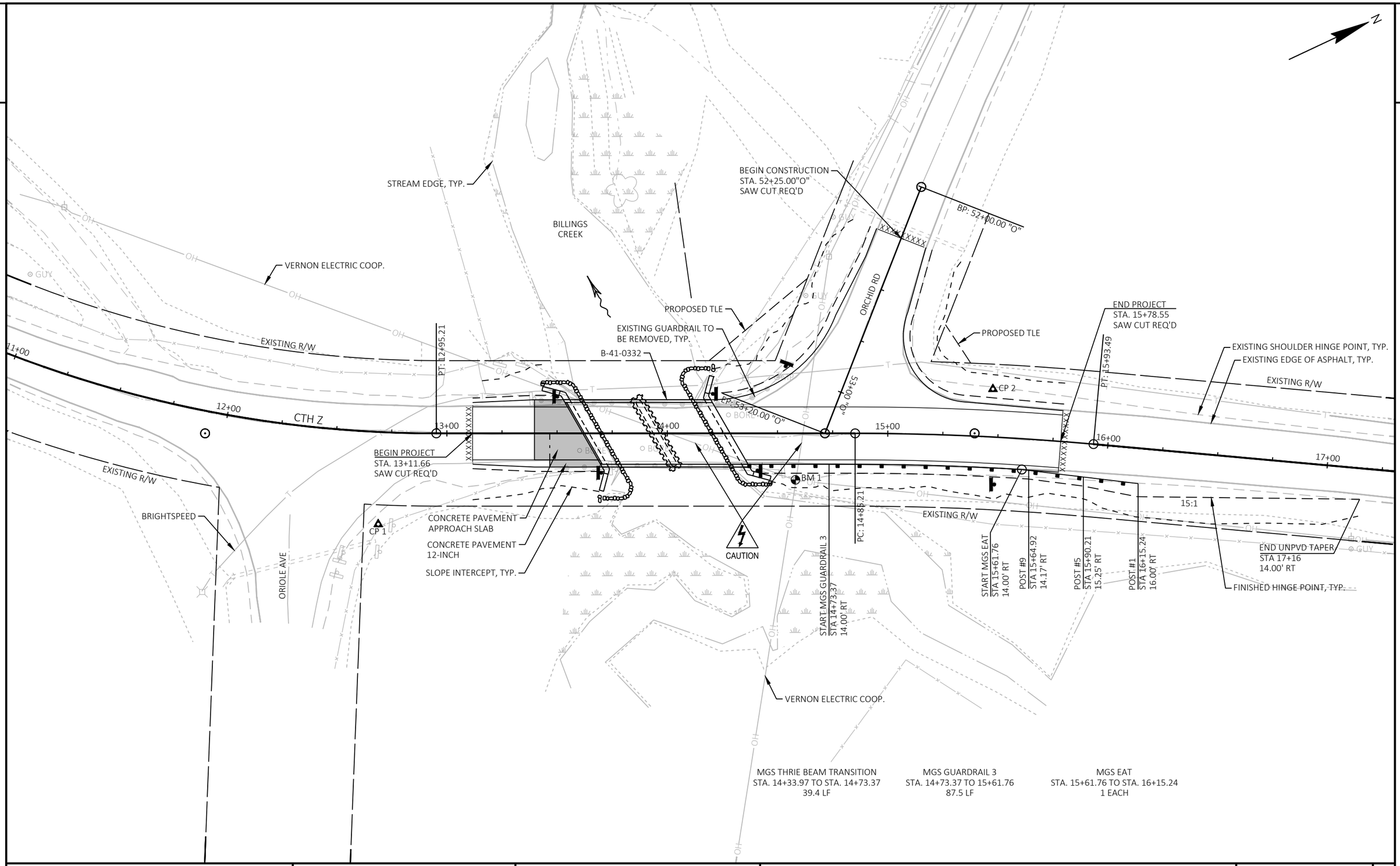
STA 15+78.55 - 17+16.00, RT

(1) VARIES FROM 3' 11" TO 5' 11" WITH GUARDRAIL GRADING TAPER.

(2) 4:1 TYP., 2.5:1 MAX. SEE CROSS SECTIONS FOR MORE DETAIL.

PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	TYPICAL SECTIONS	SHEET 5	E

2



PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	GUARDRAIL DETAILS	SHEET 6	E

FILE NAME : G:\00-PROJECT FILES\2022\22286 CTH Z, BRIDGE DESIGN, MONROE COUNTY\0-CAD\SHEETS\021001_BG.DWG
LAYOUT NAME - 021001_bg
PLOT DATE : 10/20/2026 8:07 AM
PLOT BY : KYLE MAYBERRY
PLOT NAME :
PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 42

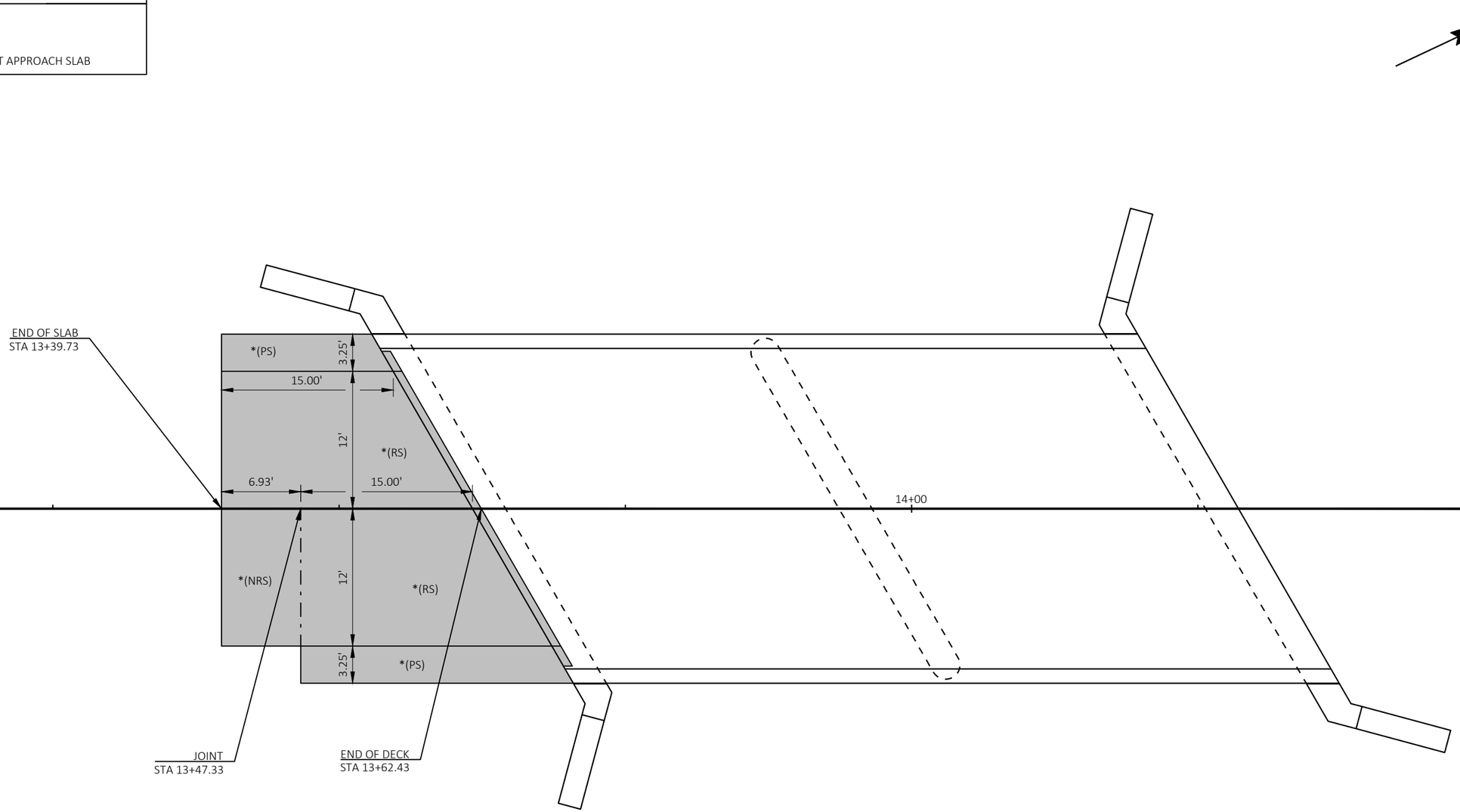
2

LEGEND: CONCRETE PAVEMENT APPROACH SLAB

*(RS) = REINFORCED CONCRETE APPROACH SLAB

*(PS) = PAVED CONCRETE SHOULDER

*(NRS) = NON-REINFORCED CONCRETE PAVEMENT APPROACH SLAB



CONCRETE APPROACH SLAB LAYOUT

NOTE:
CONSTRUCT IN ACCORDANCE WITH SDD "CONCRETE PAVEMENT APPROACH SLAB" AND SDD "CONCRETE PAVEMENT SHOULDERS"

PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	CONCRETE APPROACH SLAB	SHEET 7	E

2

2

N

REMOVE
1R

W5-52L
12"X36"
1

REMOVE
3

W5-52R
12"X36"
3R

REMOVE
6R

STOP
R1-1
30"X30"
6

ORCHID RD
(ASPHALT)

PT: 12+95.21

13+00

CTH Z
(ASPHALT)

14+00

15+00

EP: 53+20.00 "O"

53+00 "O"

PC: 14+85.71

W5-52R
12"X36"
2

REMOVE
2R

W5-52L
12"X36"
4

REMOVE
4R

W1-5L
30"X30"

W13-1
18"X18"

25
MPH
5

25
MPH
REMOVE
5R

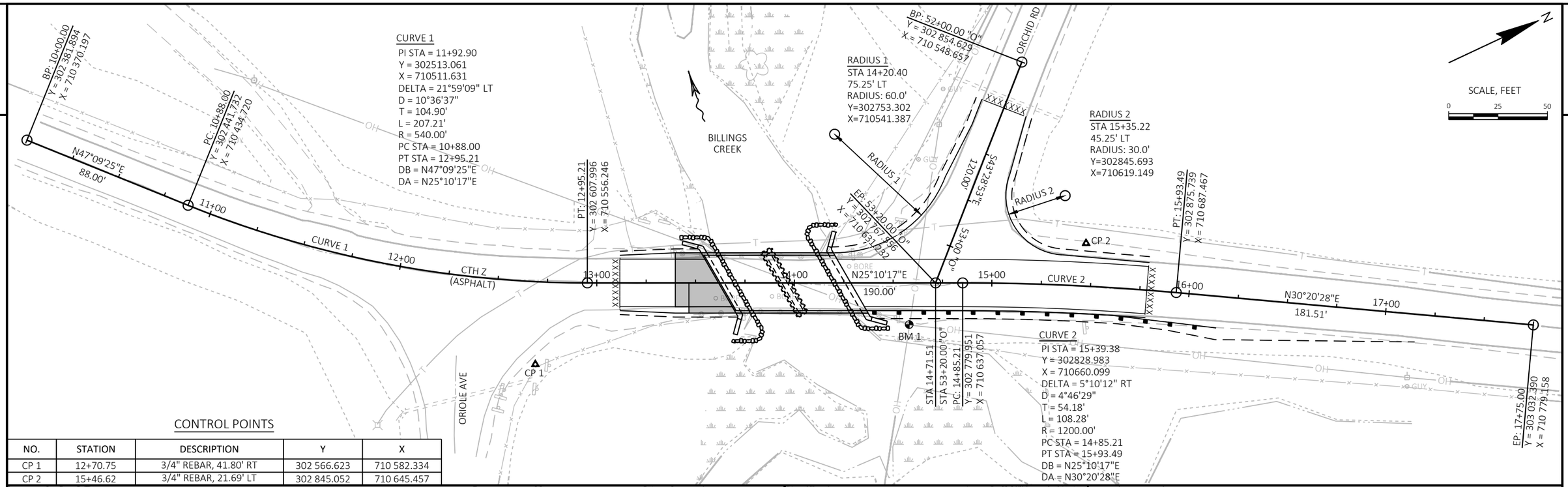
NOTE:
CONSTRUCT IN ACCORDANCE WITH SDD "SIGNING AND MARKING FOR TWO LANE BRIDGES".

PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	PERMANENT SIGNING	SHEET 8	E

FILE NAME : G:\00-PROJECT FILES\2022\22286 CTH Z, BRIDGE DESIGN, MONROE COUNTY\0-CAD\SHEETS\023201_PS.DWG
LAYOUT NAME - 023201_ps

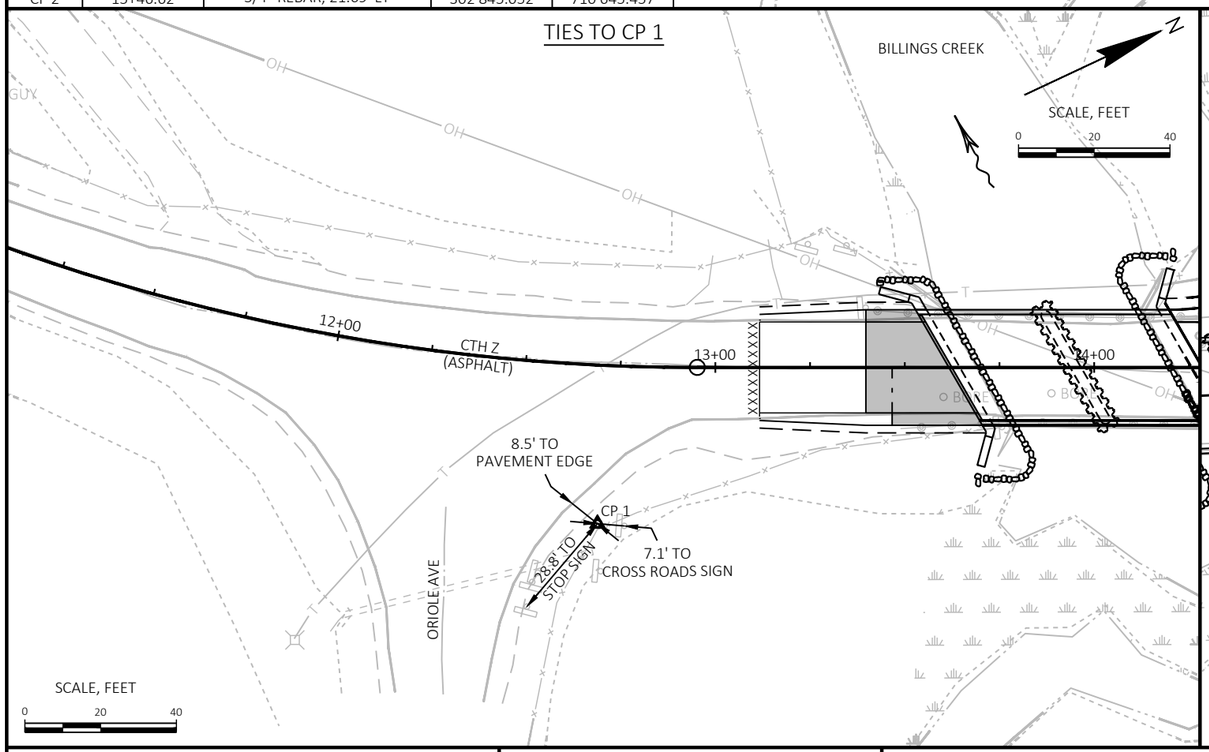
PLOT DATE : 7/8/2026 3:13 PM PLOT BY : KYLE MAYBERRY PLOT NAME : PLOT SCALE : 1 IN:20 FT

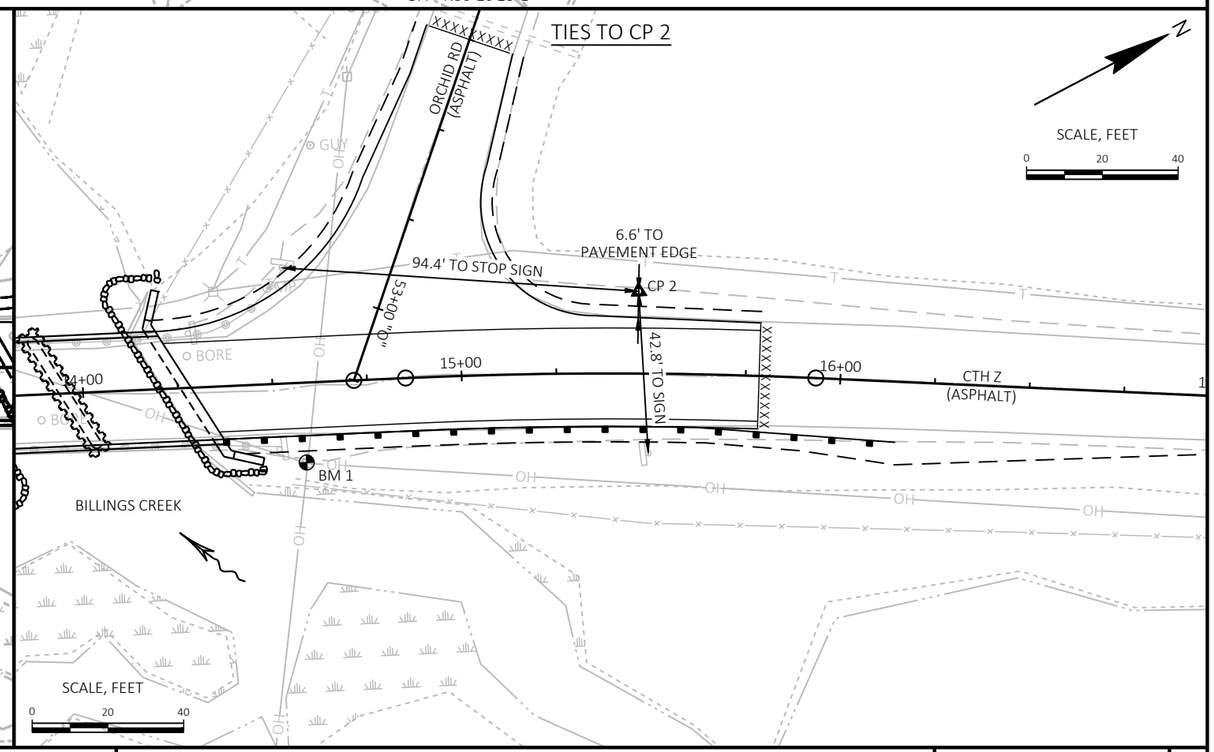
WISDOT/CADDS SHEET 42



CONTROL POINTS

NO.	STATION	DESCRIPTION	Y	X
CP 1	12+70.75	3/4" REBAR, 41.80' RT	302 566.623	710 582.334
CP 2	15+46.62	3/4" REBAR, 21.69' LT	302 845.052	710 645.457





PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	ALIGNMENT DETAILS	SHEET 9	E

FILE NAME : G:\00-PROJECT FILES\2022\22286 CTH Z, BRIDGE DESIGN, MONROE COUNTY\0-CAD\SHEETS\027201_AD.DWG
LAYOUT NAME - 027201_ad

PLOT DATE : 10/23/2026 8:53 AM PLOT BY : KYLE MAYBERRY PLOT NAME : PLOT SCALE : VARIES

WISDOT/CADDS SHEET 44

Estimate Of Quantities

5165-00-73

Line	Item	Item Description	Unit	Total	Qty
0002	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. P-41-134	EACH	1.000	1.000
0004	204.0165	Removing Guardrail	LF	123.000	123.000
0006	205.0100	Excavation Common	CY	639.000	639.000
0008	205.0506.S	Excavation, Hauling, and Disposal of Creosote Contaminated Soil	TON	350.000	350.000
0010	206.1001	Excavation for Structures Bridges (structure) 01. B-41-332	EACH	1.000	1.000
0012	206.5001	Cofferdams (structure) 01. B-41-332	EACH	1.000	1.000
0014	210.1500	Backfill Structure Type A	TON	550.000	550.000
0016	213.0100	Finishing Roadway (project) 01. 5165-00-73	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	80.000	80.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	900.000	900.000
0022	415.0120	Concrete Pavement 12-Inch	SY	14.000	14.000
0024	415.0410	Concrete Pavement Approach Slab	SY	61.000	61.000
0026	455.0605	Tack Coat	GAL	47.000	47.000
0028	465.0105	Asphaltic Surface	TON	205.000	205.000
0030	502.0100	Concrete Masonry Bridges	CY	252.000	252.000
0032	502.1100	Concrete Masonry Seal	CY	38.000	38.000
0034	502.3200	Protective Surface Treatment	SY	310.000	310.000
0036	505.0400	Bar Steel Reinforcement HS Structures	LB	7,480.000	7,480.000
0038	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	29,160.000	29,160.000
0040	513.4061	Railing Tubular Type M	LF	138.000	138.000
0042	516.0500	Rubberized Membrane Waterproofing	SY	14.000	14.000
0044	550.0020	Pre-Boring Rock or Consolidated Materials	LF	380.000	380.000
0046	550.1100	Piling Steel HP 10-Inch x 42 Lb	LF	610.000	610.000
0048	606.0300	Riprap Heavy	CY	90.000	90.000
0050	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	170.000	170.000
0052	614.2300	MGS Guardrail 3	LF	87.500	87.500
0054	614.2500	MGS Thrie Beam Transition	LF	39.400	39.400
0056	614.2610	MGS Guardrail Terminal EAT	EACH	1.000	1.000
0058	618.0100	Maintenance and Repair of Haul Roads (project) 01. 5165-00-73	EACH	1.000	1.000
0060	619.1000	Mobilization	EACH	1.000	1.000
0062	624.0100	Water	MGAL	9.800	9.800
0064	625.0500	Salvaged Topsoil	SY	400.000	400.000
0066	628.1504	Silt Fence	LF	2,175.000	2,175.000
0068	628.1520	Silt Fence Maintenance	LF	3,480.000	3,480.000
0070	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0072	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0074	628.2008	Erosion Mat Urban Class I Type B	SY	400.000	400.000
0076	628.6005	Turbidity Barriers	SY	240.000	240.000
0078	629.0210	Fertilizer Type B	CWT	0.750	0.750
0080	630.0130	Seeding Mixture No. 30	LB	55.000	55.000
0082	630.0200	Seeding Temporary	LB	35.000	35.000
0084	630.0500	Seed Water	MGAL	25.300	25.300
0086	634.0612	Posts Wood 4x6-Inch x 12-FT	EACH	4.000	4.000
0088	634.0614	Posts Wood 4x6-Inch x 14-FT	EACH	1.000	1.000
0090	634.0616	Posts Wood 4x6-Inch x 16-FT	EACH	1.000	1.000
0092	637.2210	Signs Type II Reflective H	SF	5.180	5.180
0094	637.2230	Signs Type II Reflective F	SF	20.500	20.500
0096	638.2602	Removing Signs Type II	EACH	7.000	7.000
0098	638.3000	Removing Small Sign Supports	EACH	6.000	6.000

5165-00-73

Line	Item	Item Description	Unit	Total	Qty
0100	642.5001	Field Office Type B	EACH	1.000	1.000
0102	643.0300	Traffic Control Drums	DAY	70.000	70.000
0104	643.0420	Traffic Control Barricades Type III	DAY	2,754.000	2,754.000
0106	643.0705	Traffic Control Warning Lights Type A	DAY	5,508.000	5,508.000
0108	643.0900	Traffic Control Signs	DAY	2,040.000	2,040.000
0110	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0112	643.5000	Traffic Control	EACH	1.000	1.000
0114	645.0111	Geotextile Type DF Schedule A	SY	76.000	76.000
0116	645.0120	Geotextile Type HR	SY	183.000	183.000
0118	650.4500	Construction Staking Subgrade	LF	383.000	383.000
0120	650.5000	Construction Staking Base	LF	314.000	314.000
0122	650.6501	Construction Staking Structure Layout (structure) 01. B-41-332	EACH	1.000	1.000
0124	650.7000	Construction Staking Concrete Pavement	LF	69.000	69.000
0126	650.9911	Construction Staking Supplemental Control (project) 01. 5165-00-73	EACH	1.000	1.000
0128	650.9920	Construction Staking Slope Stakes	LF	521.000	521.000
0130	690.0150	Sawing Asphalt	LF	78.000	78.000
0132	715.0502	Incentive Strength Concrete Structures	DOL	1,509.000	1,509.000
0134	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0136	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 13+95	EACH	1.000	1.000
0138	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,200.000	1,200.000
0140	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	600.000	600.000

ALL ITEMS CATEGORY 0010 UNLESS NOTED OTHERWISE.

3

REMOVING GUARDRAIL

STATION	TO	STATION	LOCATION	204.0165 LF
13+39	-	13+61	SW QUAD	22
13+48	-	13+78	SE QUAD	29
14+13	-	14+56	NW QUAD	49
14+29	-	14+52	NE QUAD	23
			TOTAL	123

EARTHWORK

DIVISION	FROM/TO STATION	205.0100 EXCAVATION COMMON (1) CUT (2)	SALVAGED/UNUSABLE PAVEMENT MATERIAL (3)	AVAILABLE MATERIAL (4)	UNEXPANDED FILL	EXPANDED FILL (5) FACTOR 1.25	MASS ORDINATE +/- (6)	WASTE (7)
DIVISION 1								
SOUTH APPROACH	13+11.67/13+69.16	106	26	80	1	1	79	
DIVISION 1 SUBTOTAL		106	26	80	1	1	79	79
DIVISION 2								
NORTH APPROACH	14+21.05/17+12.67	342	87	255	16	20	235	
DIVISION 2 SUBTOTAL		342	87	255	16	20	235	235
DIVISION 3								
ORCHID RD	52+25.00/53+20.00	191	50	141	6	8	133	
DIVISION 3 SUBTOTAL		191	50	141	6	8	133	133
GRAND TOTAL		639	163	476	23	29	447	447

NOTES:
(1) EXCAVATION COMMON IS THE SUM OF THE CUT. ITEM NUMBER 205.0100
(2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
(3) SALVAGED/UNUSABLE PAVEMENT MATERIAL INCLUDES EXISTING PAVEMENT.
(4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL
(5) EXPANDED FILL FACTOR = 1.25
(6) 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.
(7) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

EXCAVATION, HAULING, AND DISPOSAL OF CREOSOTE CONTAMINATED SOIL

LOCATION	* 205.0506.S TON	REMARKS
SOUTH APPROACH	170	EXCAVATE 5' BEHIND EXISTING ABUTMENT TO DEPTH OF BOTTOM OF PROPOSED ABUTMENTS
NORTH APPROACH	180	
TOTAL	350	

* CATEGORY 0030

3

BASE AGGREGATE DENSE

STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
13+11.66	-	13+61.66	SOUTH APPROACH	10	110	1.2
14+28.55	-	17+16.04	NORTH APPROACH	50	490	5.4
52+25 "O"	-	53+20 "O"	ORCHID ROAD	20	300	3.2
			TOTAL	80	900	9.8

CONCRETE PAVEMENT

STATION	TO	STATION	LOCATION	415.0120 CONCRETE PAVEMENT 12-INCH SY	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY
13+39.73	-	13+62.43	SOUTH APPROACH	14	61
			TOTAL	14	61

ASPHALTIC PAVEMENT

STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
13+11.66	-	13+39.73	SOUTH APPROACH	5	22
14+28.55	-	15+78.55	NORTH APPROACH	25	108
52+25 "O"	-	53+20 "O"	ORCHID ROAD	17	75
			TOTAL	47	205

MGS GUARDRAIL

STATION	TO	STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
14+33.97	-	16+15.24	NE QUAD	87.5	39.4	1
			TOTAL	87.5	39.4	1

FINISHING ITEMS

STATION	TO	STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL
13+11	-	13+51	SW QUAD	20	20	0.04	3	2	1.1
13+11	-	13+72	SE QUAD	30	30	0.06	5	3	2.1
14+19	-	14+92	NW QUAD	90	90	0.13	10	6	4.5
14+42	-	17+16	NE QUAD	100	100	0.23	17	10	8.2
15+10	-	15+79	NW QUAD	80	80	0.13	9	6	4.3
			UNDISTRIBUTED	80	80	0.16	11	8	5.1
			TOTAL	400	400	0.75	55	35	25.3

EROSION CONTROL MOBILIZATION

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT	5	4
TOTAL	5	4

SILT FENCE

STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF
13+05	-	13+77	SW QUAD	75	150
13+12	-	13+56	SE QUAD	50	100
14+12	-	14+81	NE QUAD	105	210
14+42	-	17+23	NW QUAD	1,395	2,790
15+23	-	15+86	NE QUAD	115	230
			UNDISTRIBUTED	435	---
			TOTAL	2,175	3,480

ALL ITEMS CATEGORY 0010 UNLESS NOTED OTHERWISE.

3

TURBIDITY BARRIERS

LOCATION	628.6005 SY
SOUTH ABUTMENT	92
NORTH ABUTMENT	98
UNDISTRIBUTED	50
TOTAL	240

PERMANENT SIGNING

STATION	LOCATION	SIGN NUMBER	SIGN CODE	SIGN DESCRIPTION	634.0612 POSTS WOOD 4X6-INCH X 12-FT EACH	634.0614 POSTS WOOD 4X6-INCH X 14-FT EACH	634.0616 POSTS WOOD 4X6-INCH X 16-FT EACH	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
13+40	LT	1R	W5-52L	BRIDGE HASH MARKS	---	---	---	---	---	1	1
13+50	LT	1	W5-52L	BRIDGE HASH MARKS	1	---	---	---	3.00	---	---
13+70	RT	2	W5-52R	BRIDGE HASH MARKS	1	---	---	---	3.00	---	---
13+76	RT	2R	W5-52R	BRIDGE HASH MARKS	---	---	---	---	---	1	1
14+21	LT	3	W5-52R	BRIDGE HASH MARKS	1	---	---	---	3.00	---	---
14+28	LT	3R	W5-52R	BRIDGE HASH MARKS	---	---	---	---	---	1	1
14+41	RT	4	W5-52L	BRIDGE HASH MARKS	1	---	---	---	3.00	---	---
14+51	RT	4R	W5-52L	BRIDGE HASH MARKS	---	---	---	---	---	1	1
15+49	RT	5R	W1-5L & W13-1	WINDING ROAD & 25 MPH	---	---	---	---	---	2	1
15+49	RT	5	W1-5L & W13-1	WINDING ROAD & 25 MPH	---	---	1	---	8.50	---	---
52+98 "O"	RT	6R	R1-1	STOP SIGN	---	---	---	---	---	1	1
52+98 "O"	RT	6	R1-1	STOP SIGN	---	1	---	5.18	---	---	---
				TOTAL	4	1	1	5.18	20.50	7	6

3

TRAFFIC CONTROL

LOCATION	APPROXIMATE DURATION DAY	643.0300 TRAFFIC CONTROL DRUMS NO.	DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III NO.	DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A NO.	DAY	643.0900 TRAFFIC CONTROL SIGNS NO.	DAY	643.1050 TRAFFIC CONTROL SIGNS PCMS NO.	DAY	643.5000 TRAFFIC CONTROL EACH	REMARKS
SOUTH APPROACH	7	5	35	---	---	---	---	---	---	1	7	---	CTH Z CLOSED; STARTING XX/XX/XXXX
SOUTH APPROACH	102	---	---	9	918	18	1,836	7	714	---	---	---	
NORTH APPROACH	7	5	35	---	---	---	---	---	---	1	7	---	CTH Z CLOSED; STARTING XX/XX/XXXX
NORTH APPROACH	102	---	---	9	918	18	1,836	7	714	---	---	---	
ORCHID ROAD	102	---	---	5	510	10	1,020	3	306	---	---	---	
ORIOLE AVE	102	---	---	---	---	---	---	1	102	---	---	---	
UNDISTRIBUTED	102	---	---	4	408	8	816	2	204	---	---	---	
PROJECT	---	---	---	---	---	---	---	---	---	---	---	1	
TOTAL		10	70	27	2,754	54	5,508	20	2,040	2	14	1	

INSTALL PCMS 7 CALANDER DAYS PRIOR TO CLOSING CTH Z.
INSTALL TRAFFIC CONTROL IN ACCORDANCE WITH SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" AND "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES".
FINAL PLACEMENT SUBJECT TO ENGINEER APPROVAL.

CONSTRUCTION STAKING

STATION	TO	STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.6501.01 CONSTRUCTION STAKING STRUCTURE LAYOUT 01. B-41-332 EACH	650.7000 CONSTRUCTION STAKING CONCRETE PAVEMENT LF	650.9911.01 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL 01. 5165-00-73 EACH	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
13+11.66	-	13+39.73	SOUTH APPROACH	82	82	---	---	---	82
13+39.73	-	13+62.43	SOUTH APPROACH	69	---	---	69	---	69
14+28.55	-	15+78.55	NORTH APPROACH	150	150	---	---	---	150
15+78.55	-	17+16.00	NORTH APPROACH	---	---	---	---	---	138
52+25 "O"	-	53+07 "O"	ORCHID ROAD	82	82	---	---	---	82
			PROJECT	---	---	1	---	1	---
			TOTAL	383	314	1	69	1	521

SAWING ASPHALT

STATION	LOCATION	690.0150 LF
13+11.66	SOUTH APPROACH	26
15+78.55	NORTH APPROACH	28
52+25 "O"	ORCHID ROAD	24
	TOTAL	78

R/W PROJECT NUMBER: 5165-00-03	EXHIBIT NUMBER: 1

TLE ACQUISITION EXHIBIT
T FOREST - T WELLINGTON
BILLINGS CREEK BRIDGE P-41-0134
CTH Z MONROE COUNTY

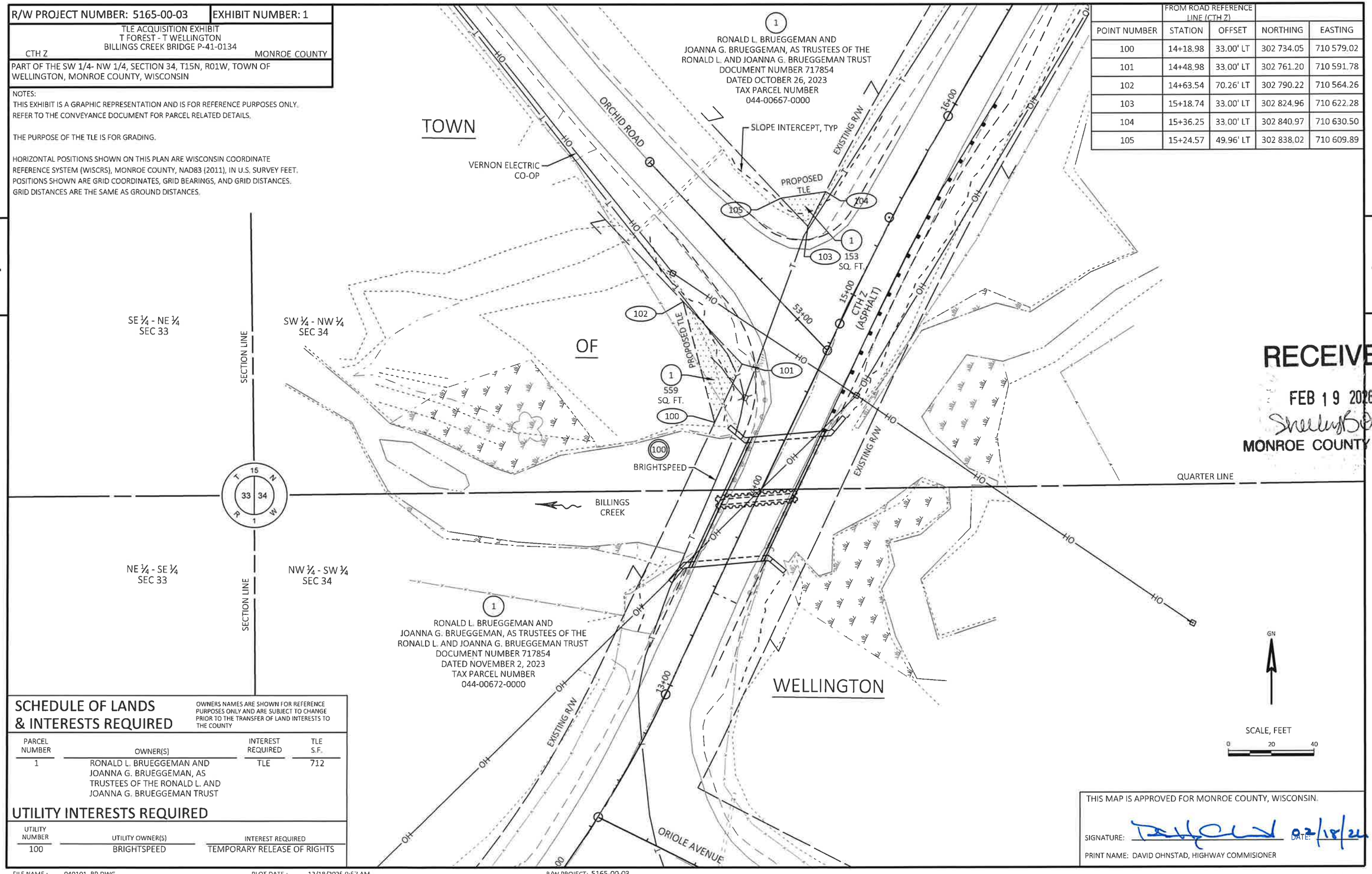
PART OF THE SW 1/4- NW 1/4, SECTION 34, T15N, R01W, TOWN OF WELLINGTON, MONROE COUNTY, WISCONSIN

NOTES:
THIS EXHIBIT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY. REFER TO THE CONVEYANCE DOCUMENT FOR PARCEL RELATED DETAILS.

THE PURPOSE OF THE TLE IS FOR GRADING.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), MONROE 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.

	FROM ROAD REFERENCE LINE (CTH Z)			
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
100	14+18.98	33.00' LT	302 734.05	710 579.02
101	14+48.98	33.00' LT	302 761.20	710 591.78
102	14+63.54	70.26' LT	302 790.22	710 564.26
103	15+18.74	33.00' LT	302 824.96	710 622.28
104	15+36.25	33.00' LT	302 840.97	710 630.50
105	15+24.57	49.96' LT	302 838.02	710 609.89



4

4

RECEIVED
FEB 19 2026
MONROE COUNTY CLERK

SCHEDULE OF LANDS & INTERESTS REQUIRED

OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE COUNTY

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TLE S.F.
1	RONALD L. BRUEGGEMAN AND JOANNA G. BRUEGGEMAN, AS TRUSTEES OF THE RONALD L. AND JOANNA G. BRUEGGEMAN TRUST	TLE	712

UTILITY INTERESTS REQUIRED

UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED
100	BRIGHTSPEED	TEMPORARY RELEASE OF RIGHTS

1
RONALD L. BRUEGGEMAN AND
JOANNA G. BRUEGGEMAN, AS TRUSTEES OF THE
RONALD L. AND JOANNA G. BRUEGGEMAN TRUST
DOCUMENT NUMBER 717854
DATED NOVEMBER 2, 2023
TAX PARCEL NUMBER
044-00672-0000

THIS MAP IS APPROVED FOR MONROE COUNTY, WISCONSIN.

SIGNATURE: _____ DATE: 02/18/26

PRINT NAME: DAVID OHNSTAD, HIGHWAY COMMISIONER

FILE NAME : 040101_RP.DWG PLOT DATE : 12/18/2025 9:57 AM R/W PROJECT: 5165-00-03

LEGEND
- SLOPE INTERCEPT
- SURFACE WATER FLOW
- SAWCUT
- STREAM EDGE
- SILT FENCE
- DELINEATED WETLANDS
- TURBIDITY BARRIER
- STEEL SHEET PILE COFFERDAM

RONALD & JOANNA BRUEGGEMAN

STREAM EDGE, TYP.

VERNON ELECTRIC COOP

BILLINGS CREEK

FENCE TO BE REMOVED BY OTHERS.

F.E. (B.A.D.)

EXISTING R/W

PT: 12+95.21

BRIGHTSPEED

TLE

CAUTION

FENCE TO BE REMOVED BY OTHERS.

ORCHID RD (ASPHALT)

BEGIN CONSTRUCTION
STA. 52+25.00 "O"
MATCH EXISTING
SAW CUT REQ'D

RONALD & JOANNA BRUEGGEMAN

TLE

PT: 15+93.49

EXISTING R/W

END CONSTRUCTION
STA. 17+16.00
MATCH EXISTING

CP 2

"O" 00+53.21
PC: 14+85.21

CP: 53+20.00 "O"

12+00

13+00

14+00

15+00

16+00

17+00

CTH Z (ASPHALT)

BM 1

EXISTING R/W

BRIGHTSPEED

ORIOLE AVE (ASPHALT)

CP 1

CONCRETE APPROACH SLAB

SLOPE INTERCEPT, TYP.

FENCE TO BE REMOVED BY OTHERS.

CAUTION

EXISTING R/W

FENCE TO BE REMOVED BY OTHERS.

VERNON ELECTRIC COOP

RONALD & JOANNA BRUEGGEMAN

VERNON ELECTRIC COOP

BEGIN PROJECT
STA. 13+11.66
MATCH EXISTING
SAW CUT REQ'D
Y= 302 622.883
X= 710 563.243

END PROJECT
STA. 15+78.55
MATCH EXISTING
SAW CUT REQ'D

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
BM 1	14+58.13	RAILROAD SPIKE IN POWER POLE, 12.09' LT	1003.52

11+50.00 12+00.00 13+00.00 14+00.00 15+00.00 16+00.00 17+00.00 17+50.00

1005 1000 995 990 989

PROPOSED ℄ PROFILE

EXISTING ℄ PROFILE

1.00%

STA 13+11.66
EL 1003.29

VPC STA 13+29.57
VPC EL 1003.47

HP STA 13+73.57
HP EL 1003.69

VPI STA 13+93.84
VPI EL 1004.11

HIGH WATER 100
EL. = 1001.52

OBSERVED WATER
EL. = 995.10
(11-07-22)

VCL = 128.53

K = 44.00

PROPOSED ℄ ELEVATION

EXISTING ℄ ELEVATION

APPROX. STREAMBED EL. = 989.67'

VPT STA 14+58.10
VPT EL 1002.88

VCL = 113.58

K = 49.00

-1.92%

VPC STA 14+60.59
VPC EL 1002.83

VPI STA 15+17.37
VPI EL 1001.74

LP STA 15+54.72
LP EL 1001.93

STA 15+78.55
EL 1001.98

0.40%

VPT STA 15+74.16
VPT EL 1001.97

1008.51 1005.67 1003.96 1003.26 1003.52 1003.63 990.27 1003.61 1003.02 1003.03 1002.14 1002.23 1001.94 1001.93 1002.01 1002.25 1002.47

STA. 13+95.10
REMOVE EXISTING STRUCTURE P-41-134
52.50-FT OVERALL LENGTH AND
28.40-FT CLEAR ROADWAY WIDTH
SINGLE SPAN PRESTRESSED CONCRETE GIRDER STRUCTURE

STA. 13+95.10
STRUCTURE B-41-0332 REQUIRED
66.90-FT OVERALL LENGTH AND
28.00-FT CLEAR ROADWAY WIDTH
TWO SPAN REINFORCED CONCRETE FLAT SLAB STRUCTURE

PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	PLAN AND PROFILE : CTH Z	SHEET 15	E

FILE NAME : G:\00-PROJECT FILES\2022\22286 CTH Z, BRIDGE DESIGN, MONROE COUNTY\0-CAD\SHEETS\050101_PP.DWG
LAYOUT NAME - 050101_pp

PLOT DATE : 10/20/2026 1:41 PM PLOT BY : KYLE MAYBERRY PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

LEGEND

- SLOPE INTERCEPT
- SURFACE WATER FLOW
- SAWCUT
- STREAM EDGE
- SILT FENCE
- DELINEATED WETLANDS
- TURBIDITY BARRIER
- STEEL SHEET PILE COFFERDAM

RONALD & JOANNA BRUEGGEMAN

EXISTING R/W

CP 2

CTH Z (ASPHALT)

SLOPE INTERCEPT, TYP.

VERNON ELECTRIC COOP

F.E. (B.A.D.)

TLE

BP: 52+00.00 "O"

EXISTING R/W

EP: 53+20.00 "O" STA 14+71.51

15+00

PC: 14+85.21

FENCE TO BE REMOVED BY OTHERS.

ORCHID RD (ASPHALT)

53+00 "O"

BM 1

VERNON ELECTRIC COOP

F.E. (B.A.D.)

EXISTING R/W

CAUTION

BILLINGS CREEK

CAUTION

TLE

FENCE TO BE REMOVED BY OTHERS.

BRIGHTSPEED

BEGIN CONSTRUCTION
STA 52+25.00 "O"
MATCH EXISTING
SAW CUT REQ'D

RONALD & JOANNA BRUEGGEMAN

RONALD & JOANNA BRUEGGEMAN

N

5

5

BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
BM 1	14+58.13	RAILROAD SPIKE IN POWER POLE, 12.09' LT	1003.52

49+50.00 50+00.00 51+00.00 52+00.00 53+00.00 54+00.00 55+00.00 55+50.00

1010 1005 1000 995

VCL = 30.00

K = 20.58

STA 52+25.00
EL 1002.55

LP STA 52+86.22
LP EL 1002.28

STA 53+07.12
EL 1002.38

STA 53+20.00
EL 1002.63

EXISTING ℄ PROFILE

-0.50%

0.96%

1.96%

PROPOSED ℄ PROFILE

VPC STA 52+75.98
VPC EL 1002.30

VPI STA 52+90.98
VPI EL 1002.23

VPT STA 53+05.98
VPT EL 1002.37

PROPOSED ℄ ELEVATION

EXISTING ℄ ELEVATION

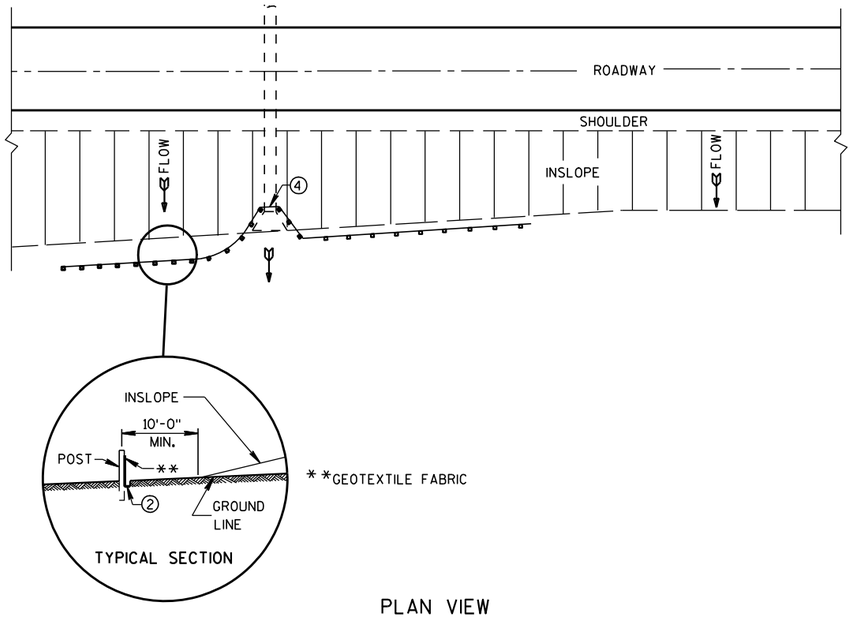
1002.73 1002.55 1002.43 1002.53 1002.32

PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	PLAN AND PROFILE: ORCHID RD	SHEET 16	E

Standard Detail Drawing List

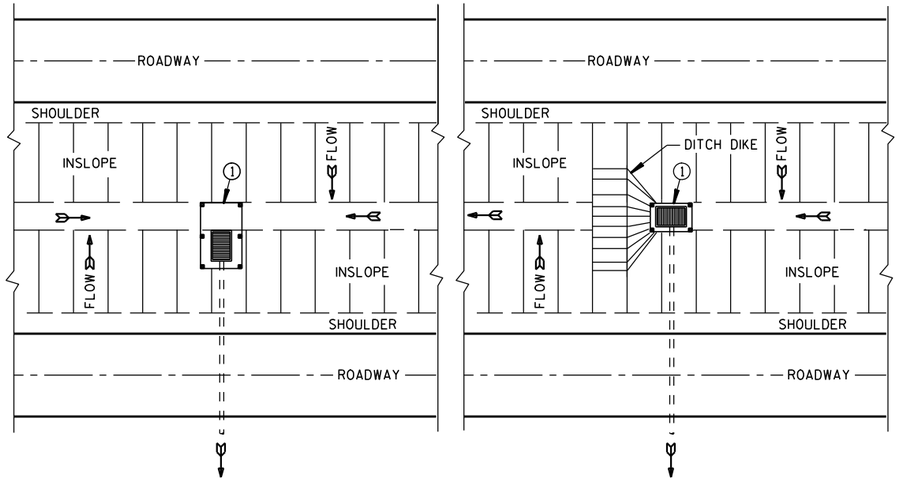
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
09A01-14A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C", "D" AND TEE INTERSECTION BYPASS LANE
12A03-10	NAME PLATE (STRUCTURES)
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13C19-03	HMA LONGITUDINAL JOINTS
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
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)
15C02-10A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-10B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C06-12	SIGNING AND MARKING FOR TWO LANE BRIDGES
15C11-11B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS

6



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



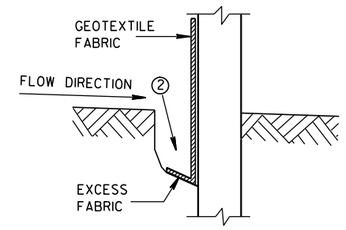
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

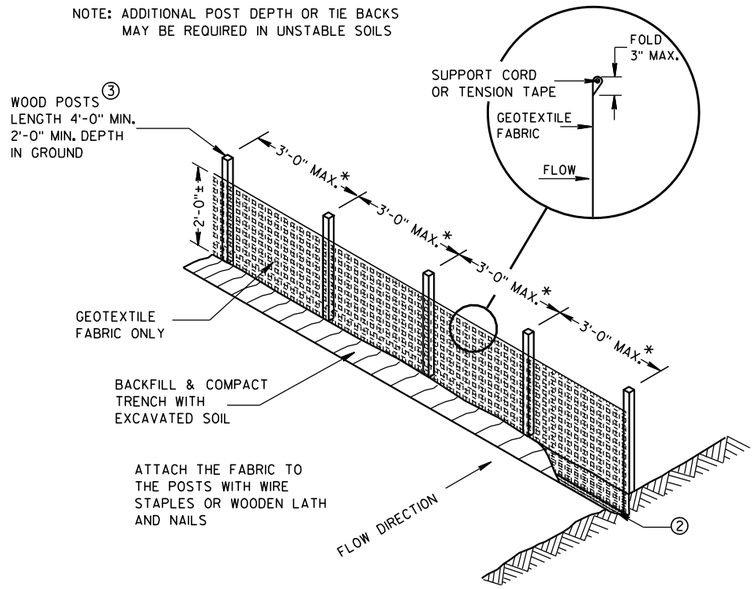
GENERAL NOTES

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

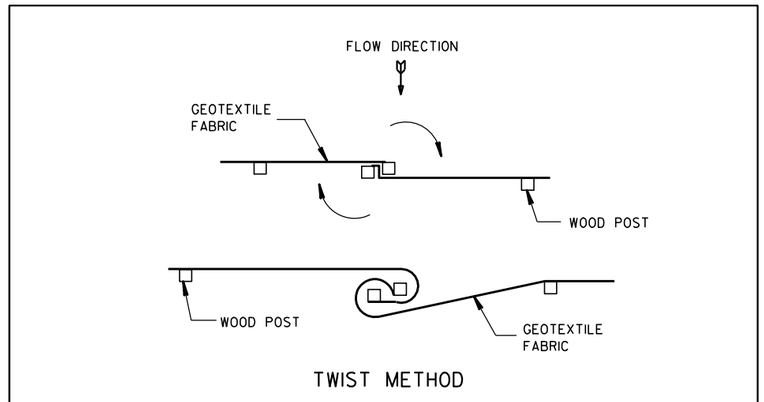
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



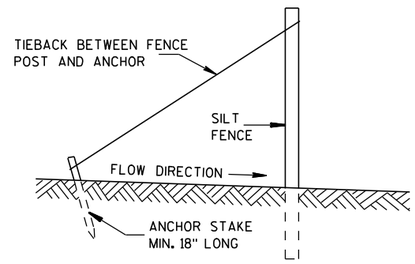
TRENCH DETAIL



SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

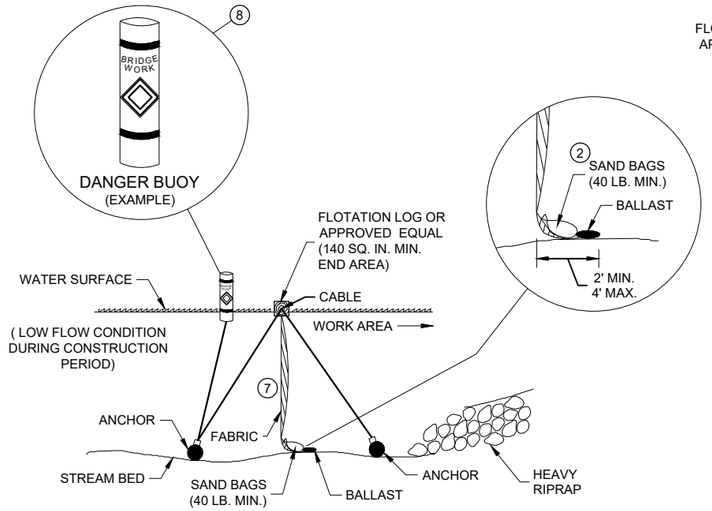
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

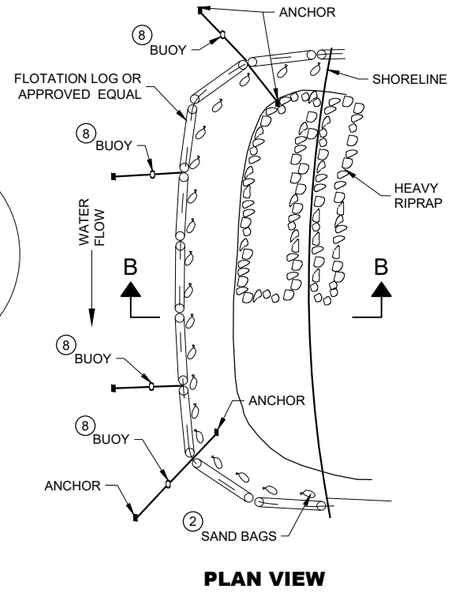
S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6

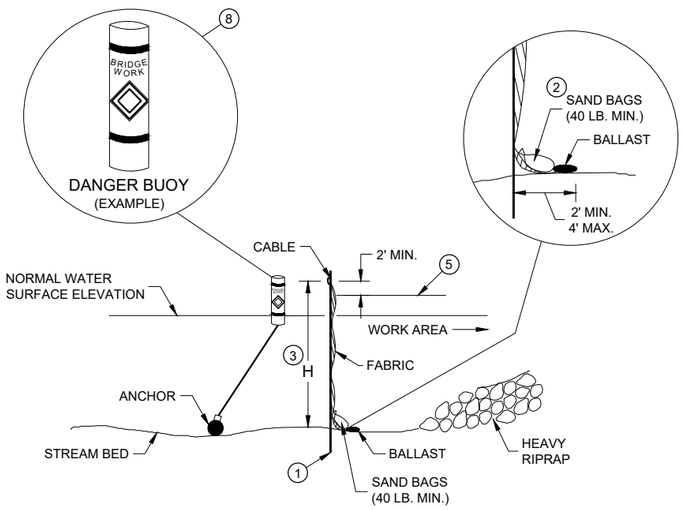


SECTION B - B

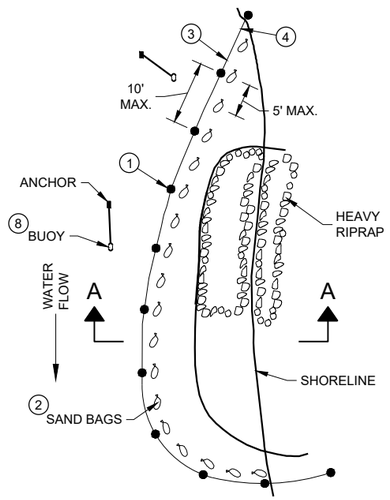


PLAN VIEW

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.

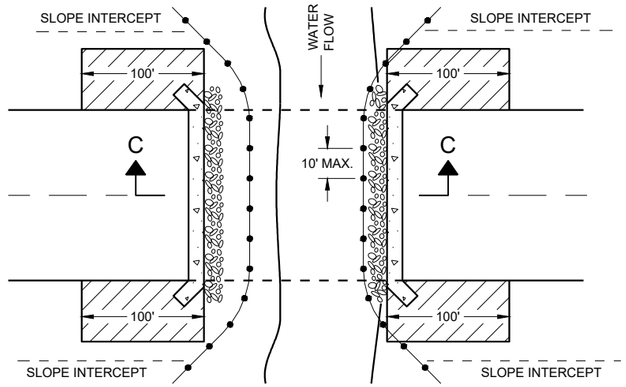
(4) IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

(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.

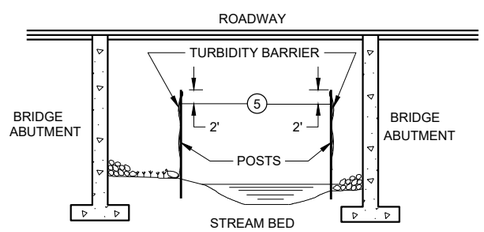
(6) FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.

(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 DEVELOI
ENGINEER

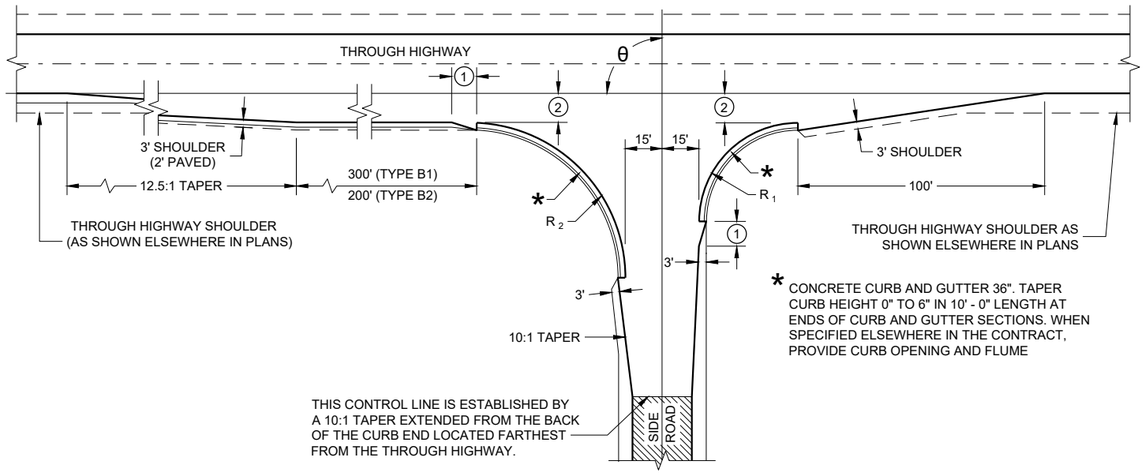
FHWA

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SDD 08E11 - 02

6

SDD 08E11 - 02



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

TYPE "B1" AND "B2"

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

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

GENERAL NOTES

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

SIDE ROAD SURFACING NOTE

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

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

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

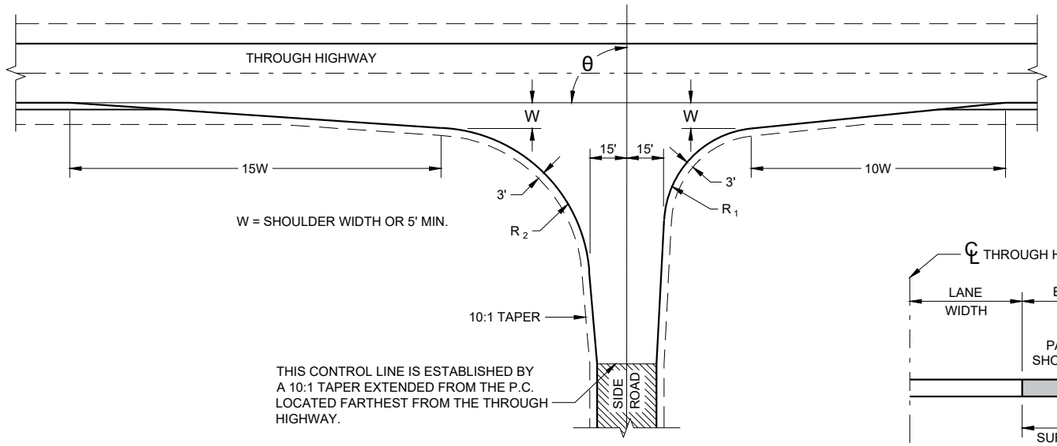
(1) 10-FT TYPICAL.

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

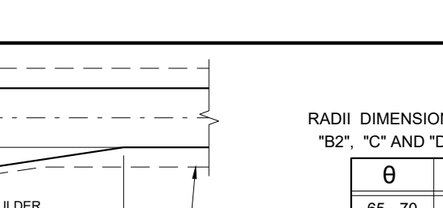
**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.

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

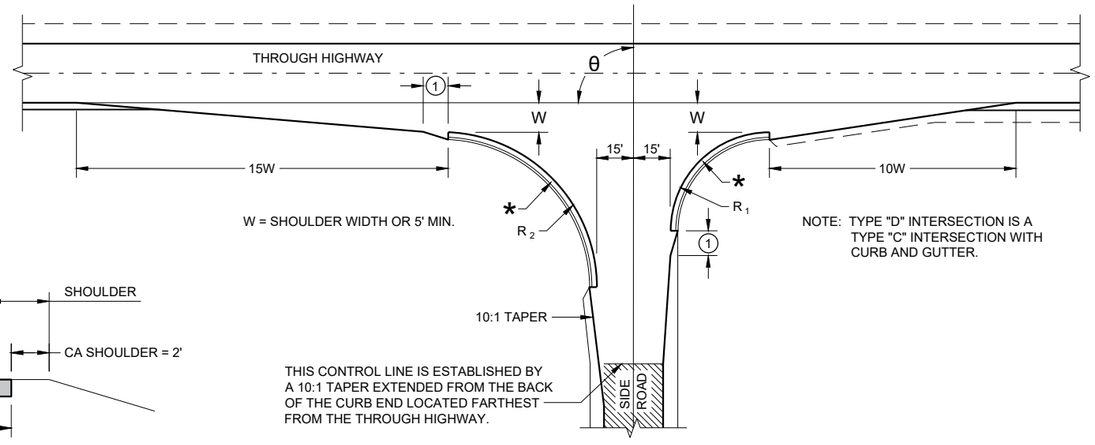
(4) BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



TYPE "C"

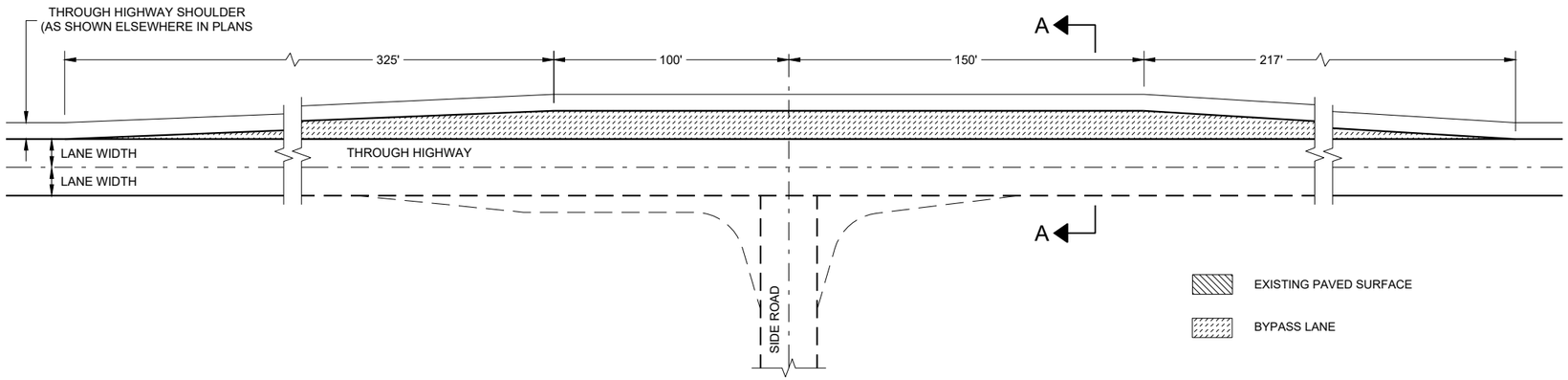


SECTION A - A
(SHOWING BYPASS LANE AND SHOULDER)



NOTE: TYPE "D" INTERSECTION IS A TYPE "C" INTERSECTION WITH CURB AND GUTTER.

TYPE "D"



TEE INTERSECTION BYPASS LANE DETAIL

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

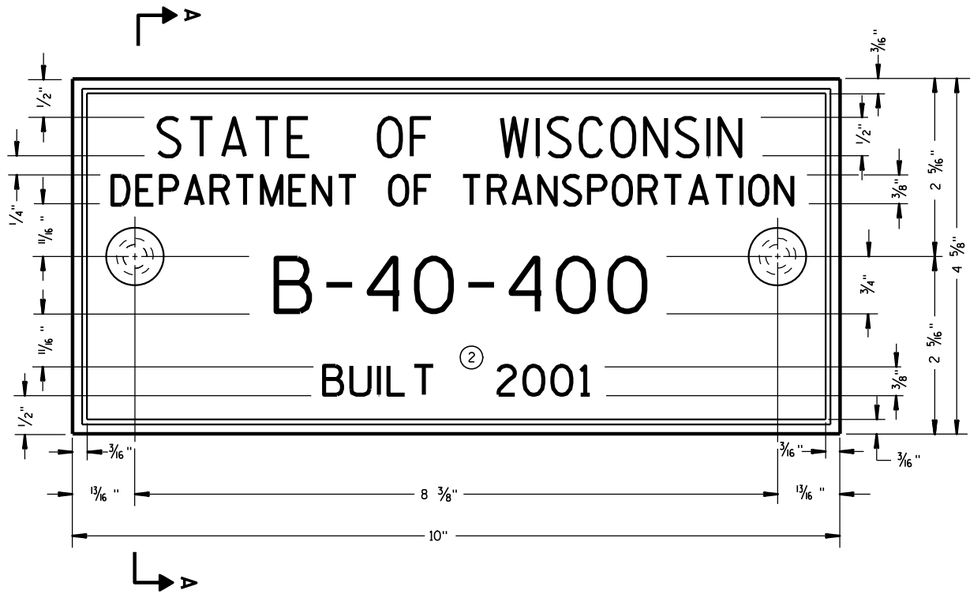
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 09A01 - 14a

6

SDD 09A01 - 14a



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

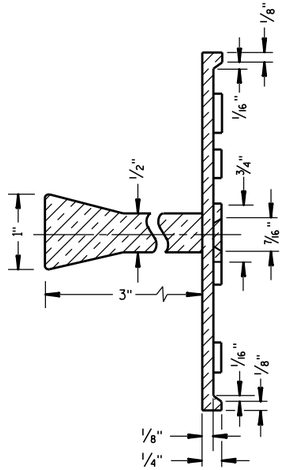
GENERAL NOTES

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

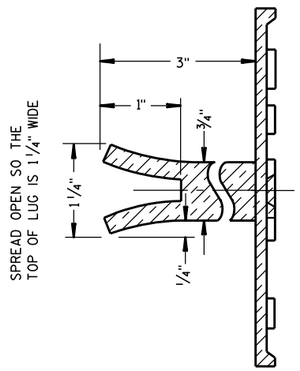
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

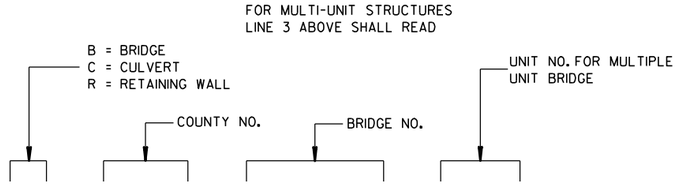
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



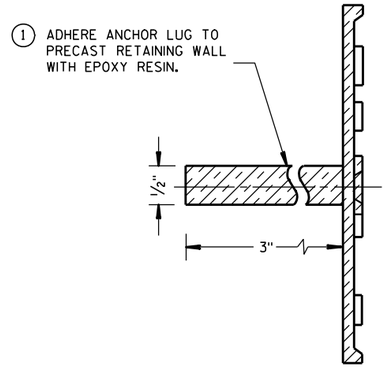
SECTION A-A



ALTERNATE LUG



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP ENGINEER

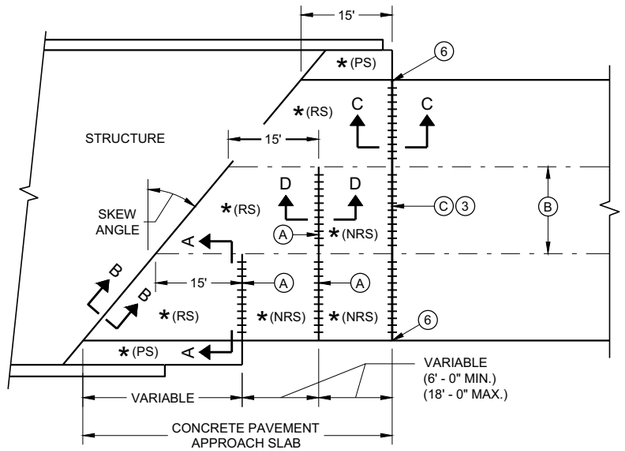
FHWA

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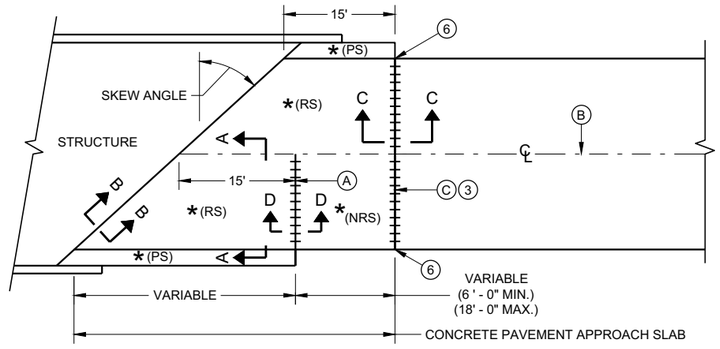
S.D.D. 12 A 3-10

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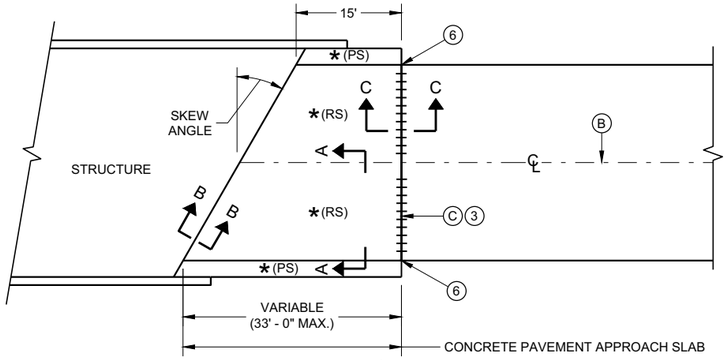
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN TWO LANES)



SKEWS > 20°
(PAVEMENT WIDTH ≤ 30')



SKEWS ≤ 20°
(PAVEMENT WIDTH ≤ 30')

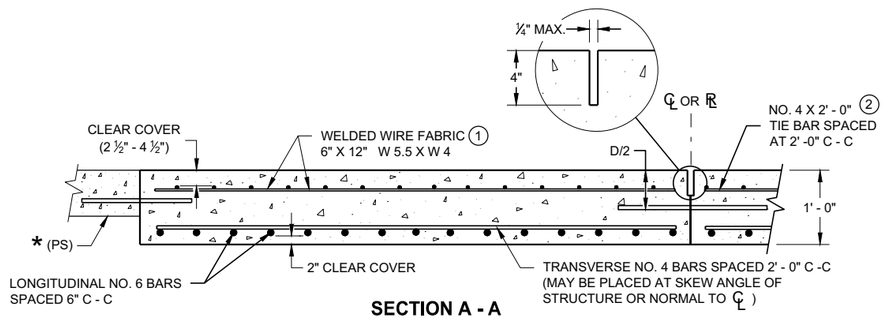
APPROACH SLAB AND ADJACENT PAVEMENT

* (RS) = REINFORCED CONCRETE SLAB

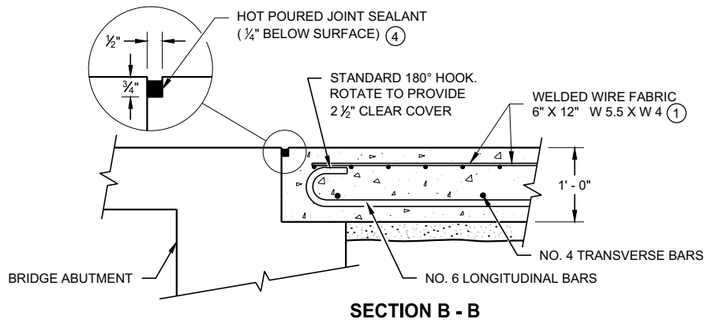
* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB

* (NRS) - NON - REINFORCED CONCRETE SLAB

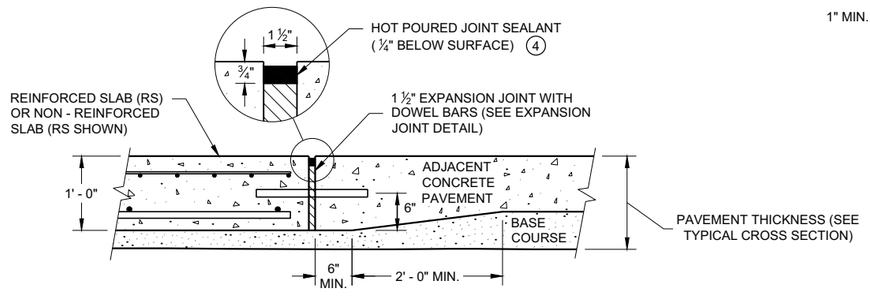
*** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



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.

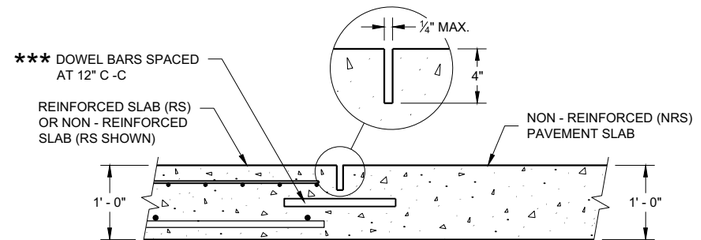
(5) PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.

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

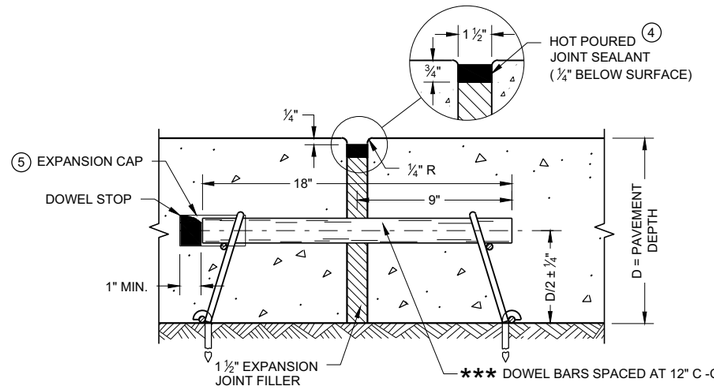
(A) STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℞.

(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

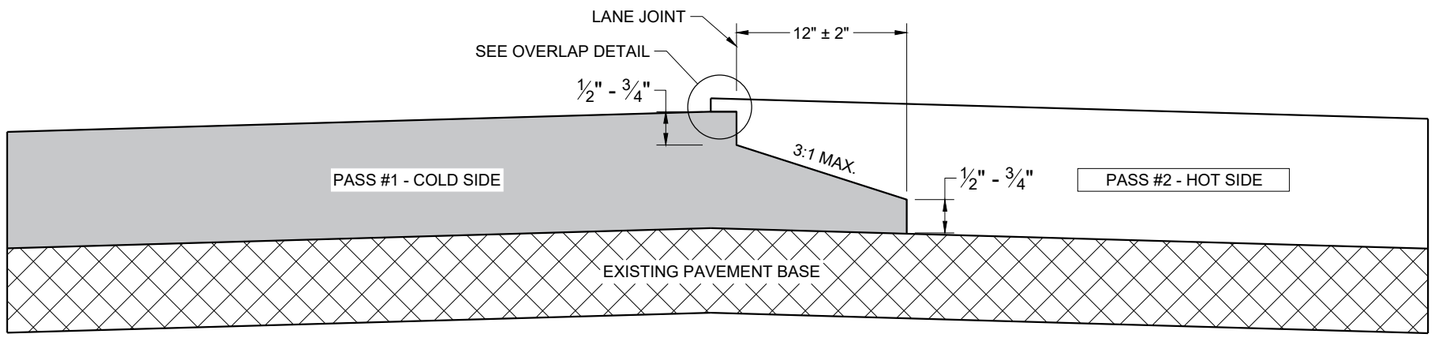
APPROVED
November 2018
DATE

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

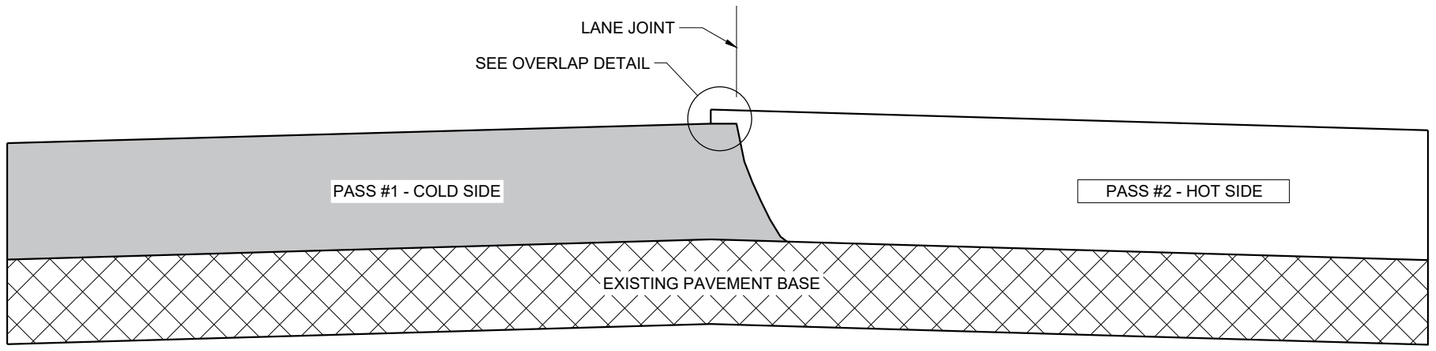
FHWA

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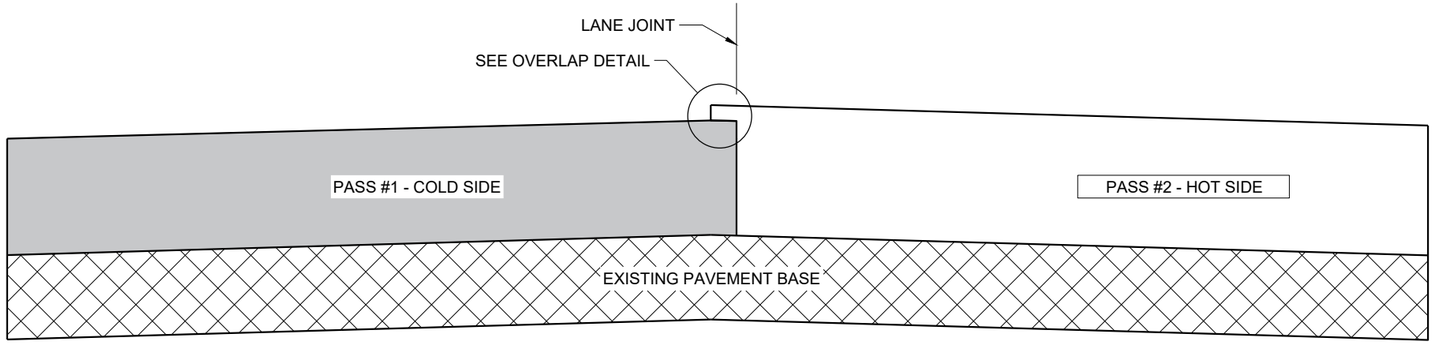
SDD 13B02 - 09a



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

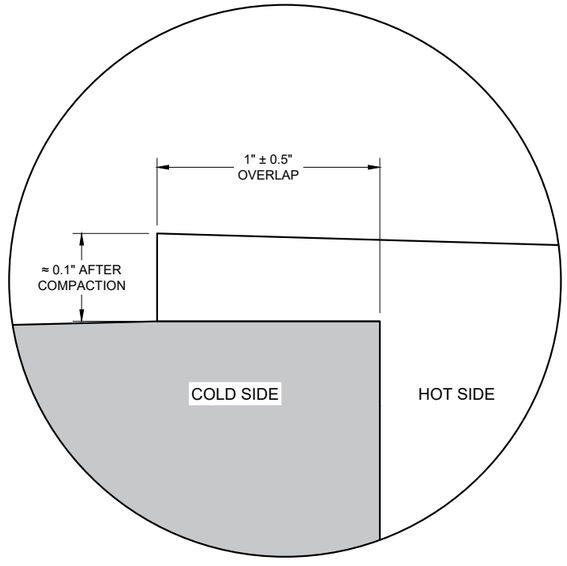
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



OVERLAP DETAIL (TYPICAL)

6

6

SDD 13C19 - 03

SDD 13C19 - 03

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020
DATE

/S/ Steven Hefel
HMA PAVEMENT ENGIN

FHWA

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

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

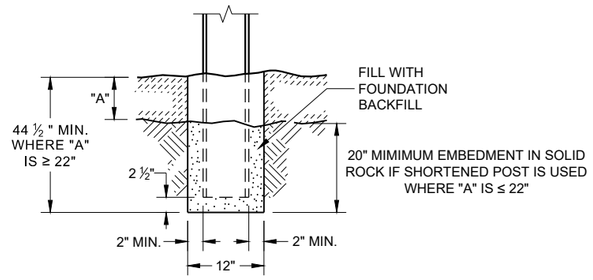
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL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

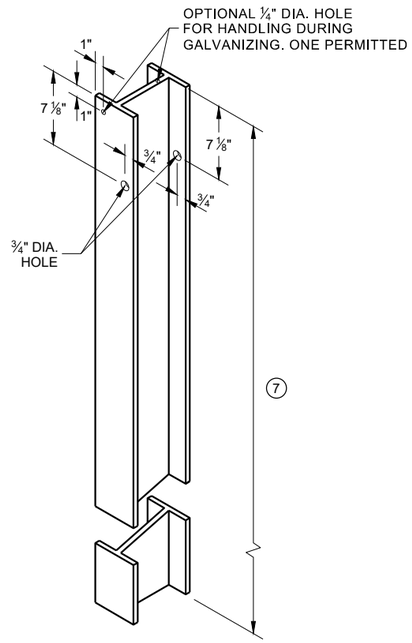
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(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.

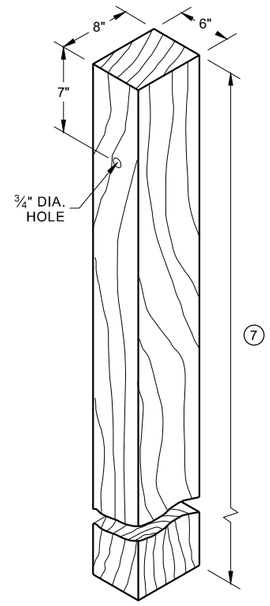
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



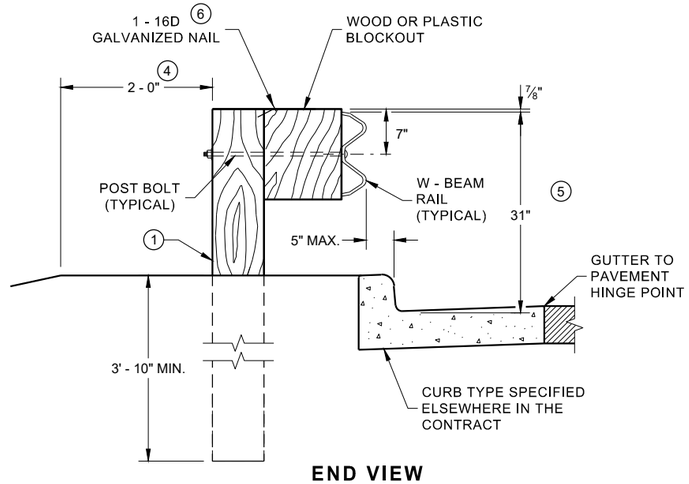
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



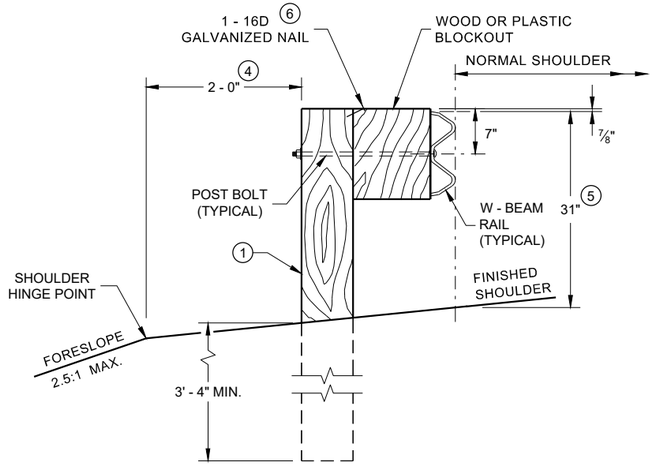
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



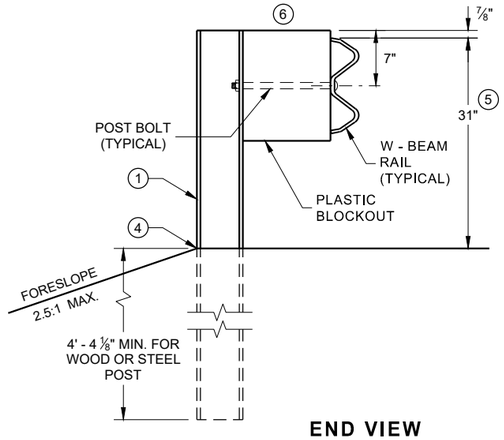
WOOD POST (6" X 8") NOMINAL (1)



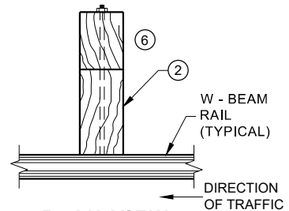
END VIEW
LOCATED ALONG A CURBED ROADWAY



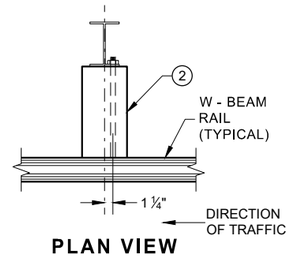
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



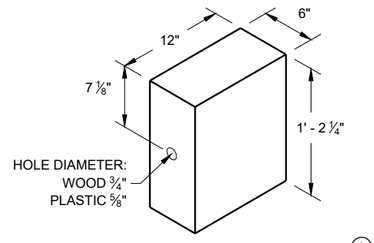
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



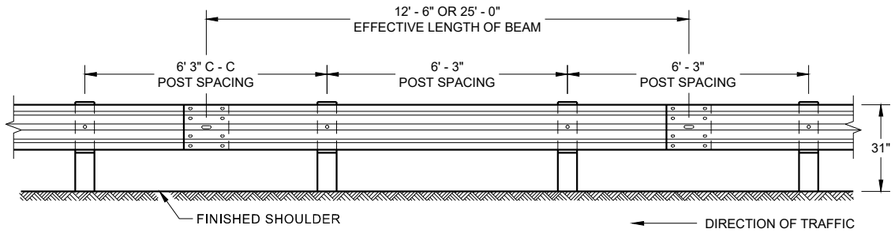
WOOD OR PLASTIC BLOCKOUT (2)

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

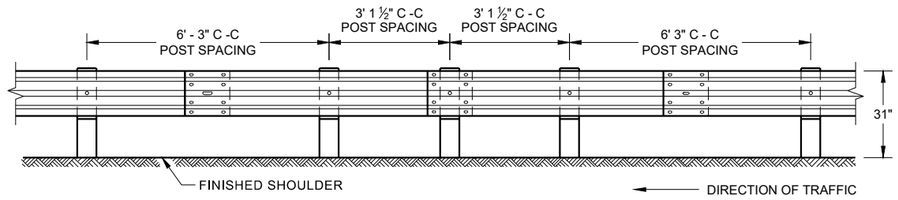
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B42 - 07a

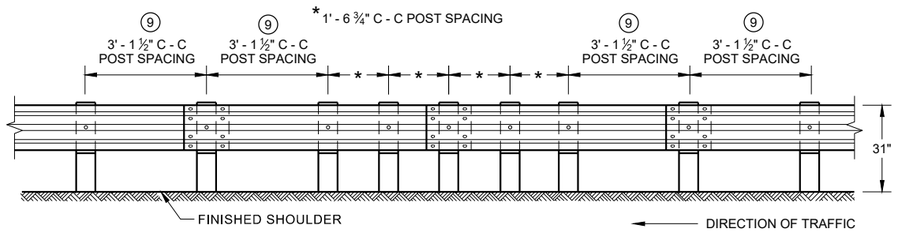
SDD 14B42 - 07a



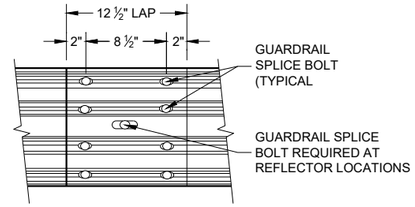
FRONT VIEW
POST SPACING STANDARD INSTALLATION



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

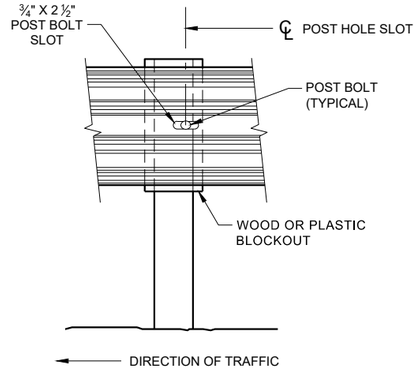
GENERAL NOTES

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

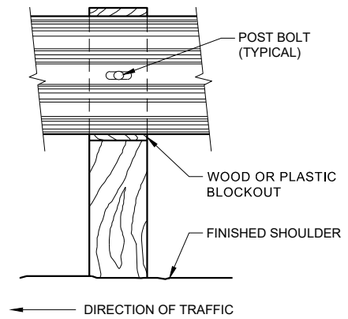
⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

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.

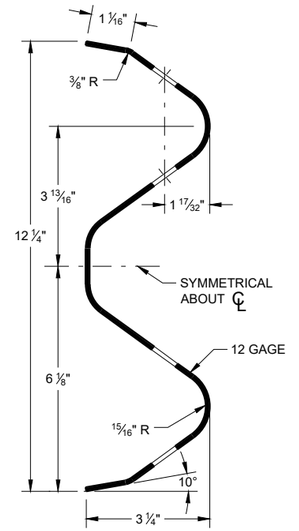
GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



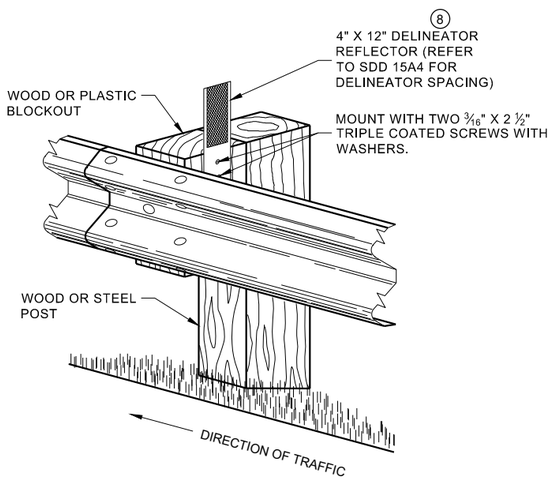
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



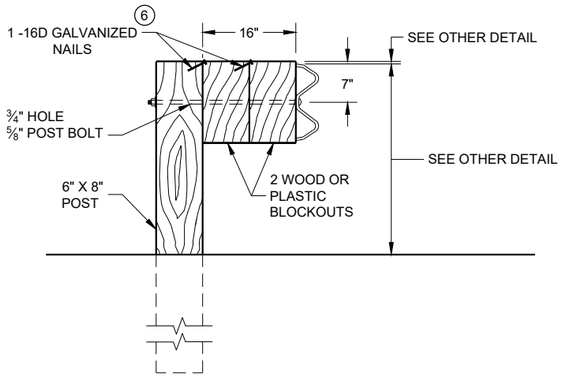
ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 14B42 - 07b
SDD 14B42 - 07b

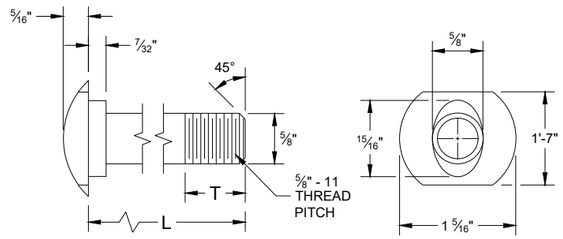


DETAIL FOR 16" BLOCKOUT DEPTH

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

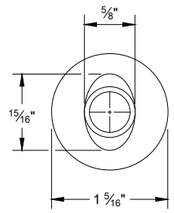
NOTE:

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

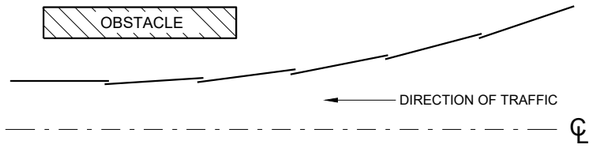


POST BOLT TABLE

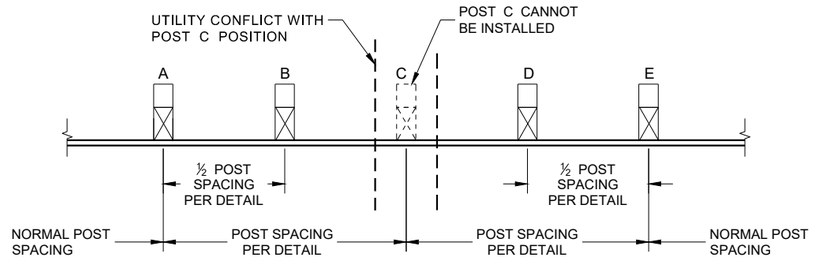
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1⁄16"
18"	4"
21"	4 1⁄16"
25"	4"



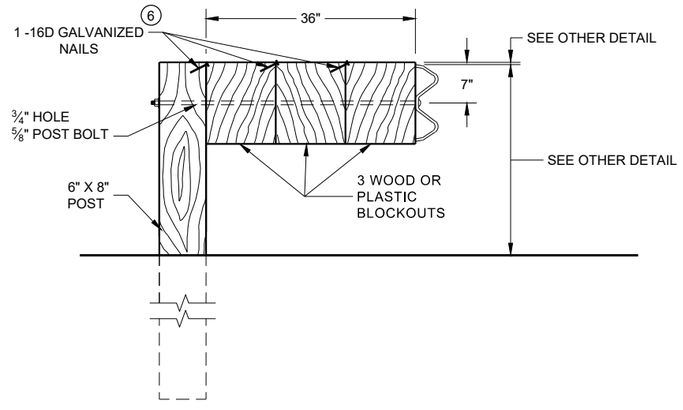
ALTERNATE BOLT HEAD



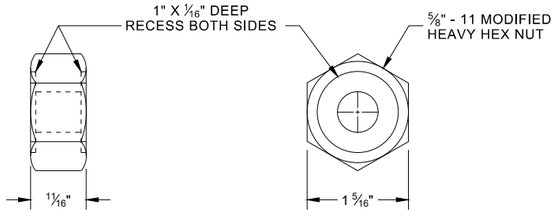
PLAN VIEW
BEAM LAPPING DETAIL



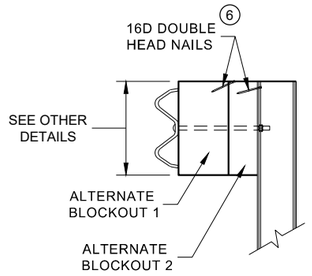
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



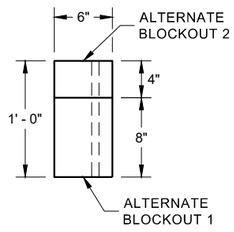
DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW



PLAN VIEW

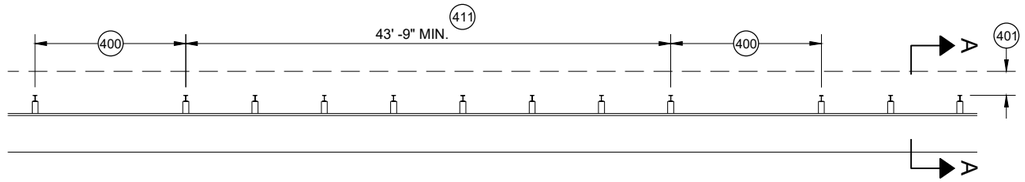
ALTERNATE WOOD BLOCKOUT DETAIL

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.

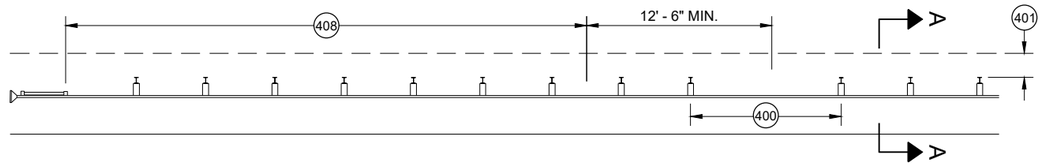
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

(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.

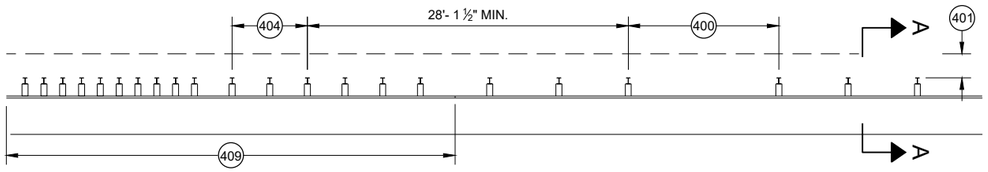
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL



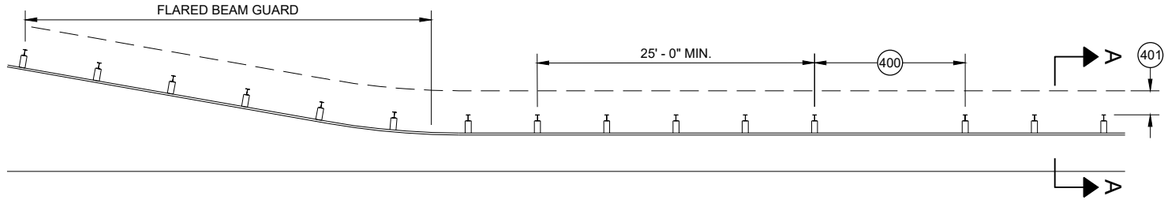
MISSING POST IN MGS GUARDRAIL



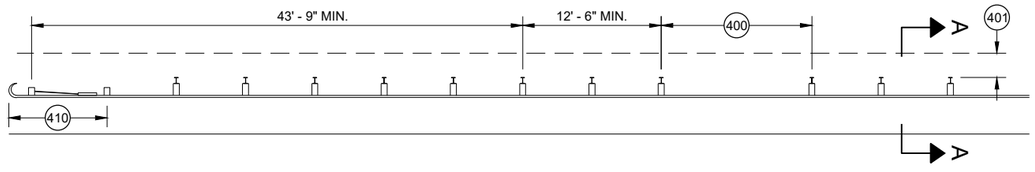
MISSING POST IN MGS GUARDRAIL NEAR EAT



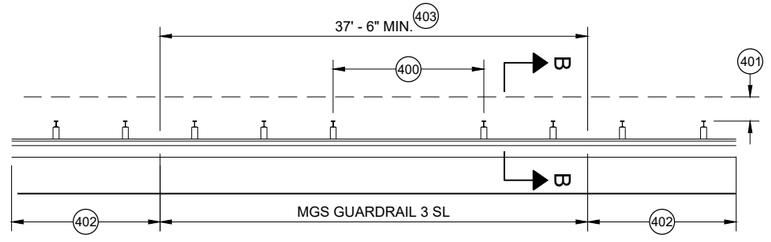
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

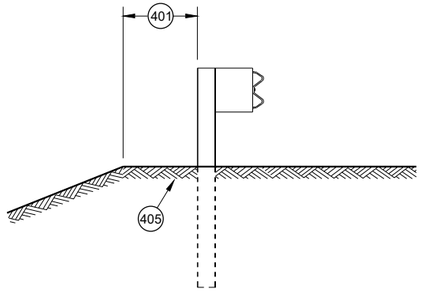


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

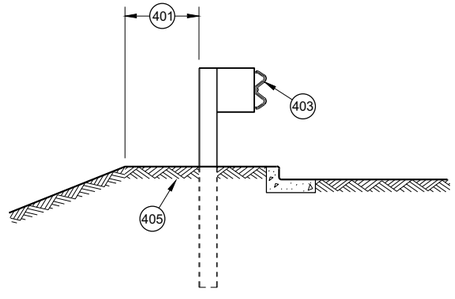


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL) 407

(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

6

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.

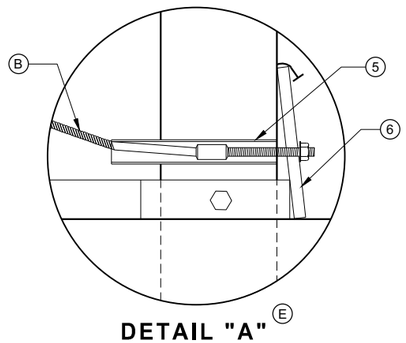
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

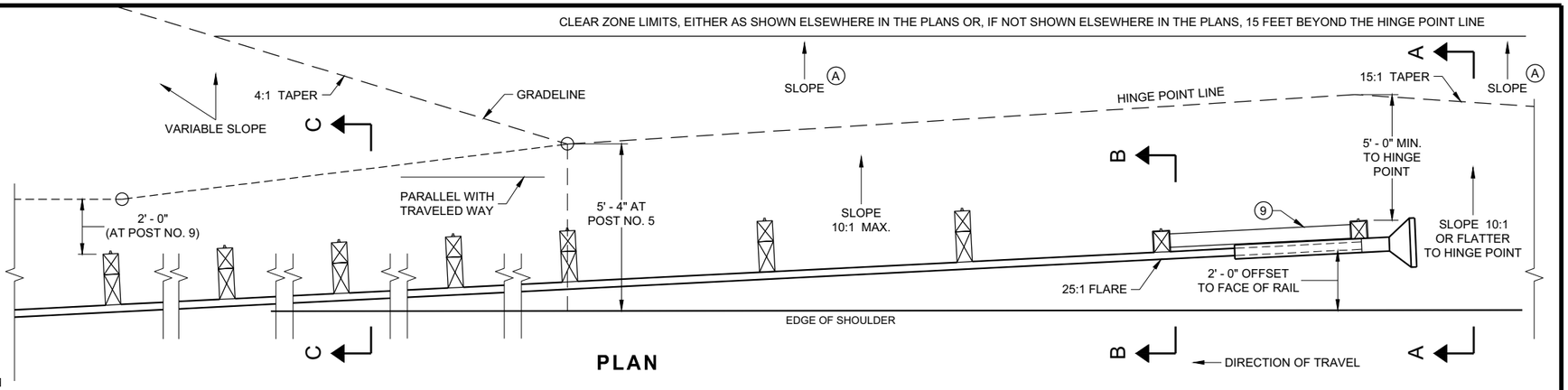
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

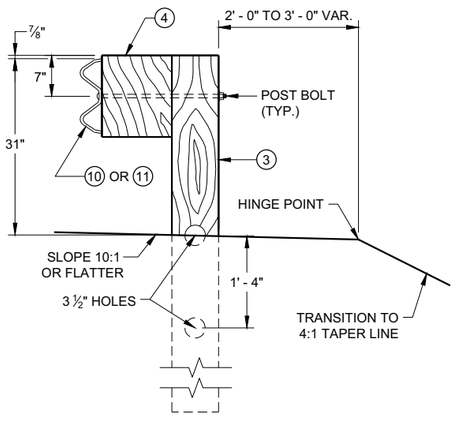
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

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.

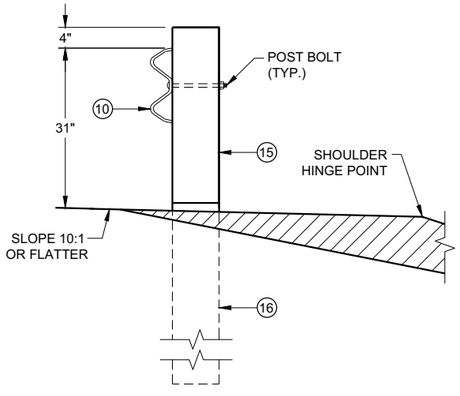


DETAIL "A" (E)

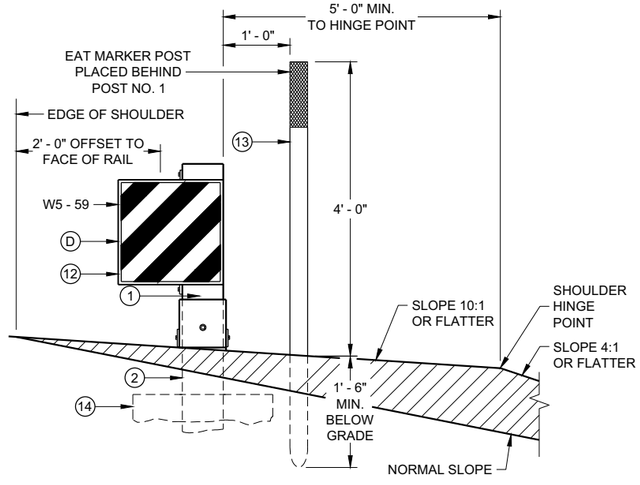




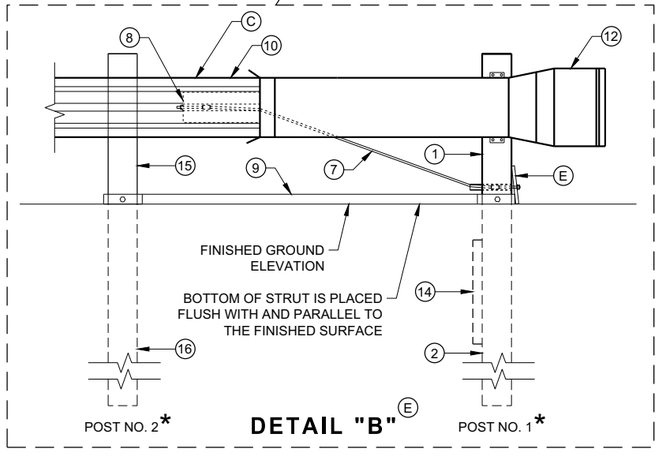
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*

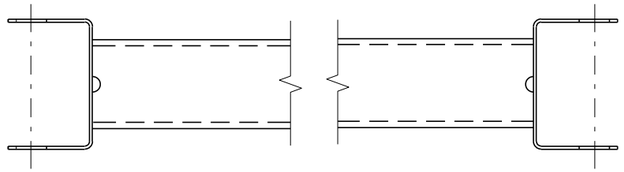


MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

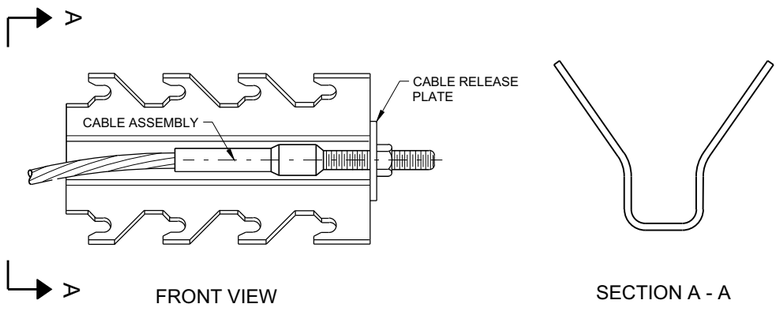
SDD 14B44 - 04a



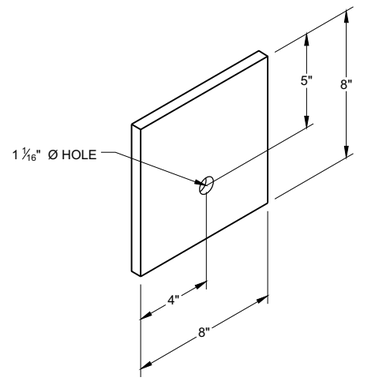
GENERIC GROUND STRUT (9) (E)

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) (E)



BEARING PLATE (6) (E)

6

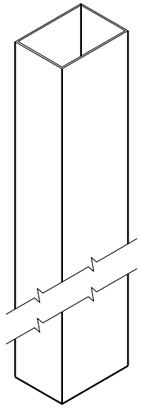
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SDD 14B44 - 04b

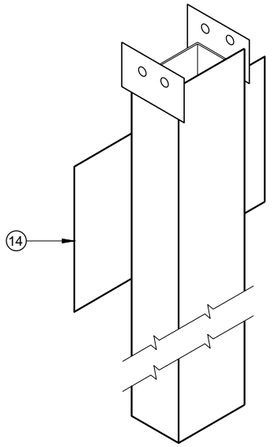
SDD 14B44 - 04b

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

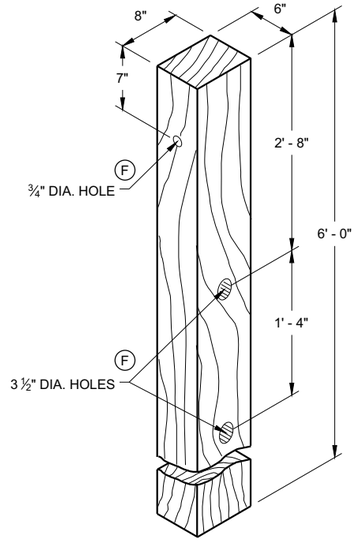
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



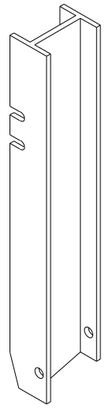
UPPER POST NO. 1 (1) (E)



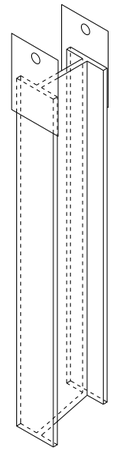
LOWER POST NO. 1 (2) (E)



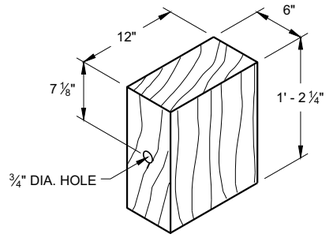
WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



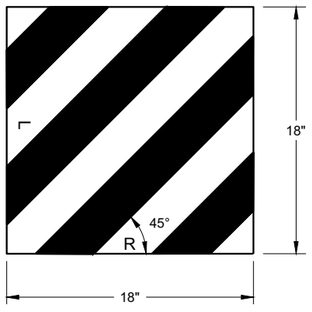
UPPER POST NO. 2 (15) (E)



LOWER POST NO. 2 (16) (E)

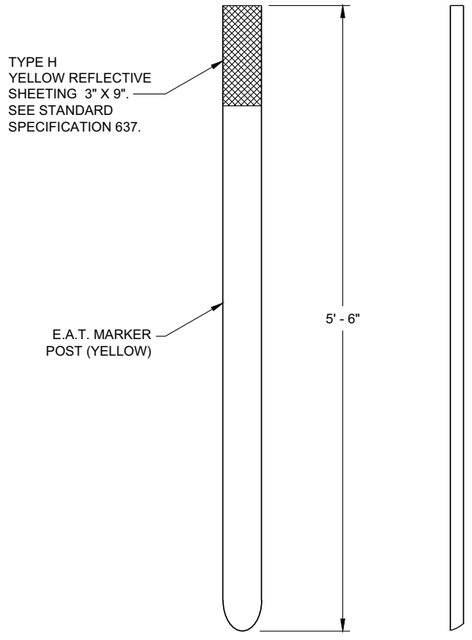


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



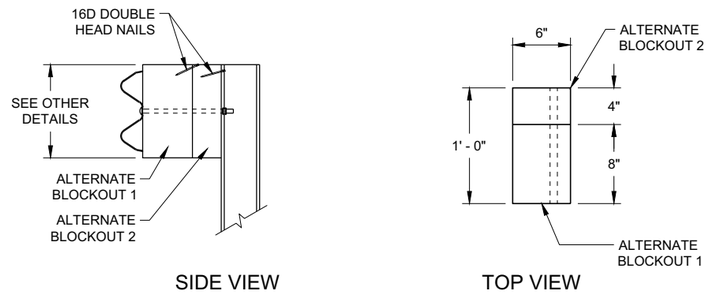
W5 - 59

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)

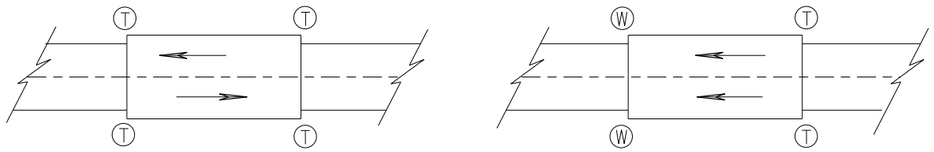
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6

SDD 14B44 - 04c
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.

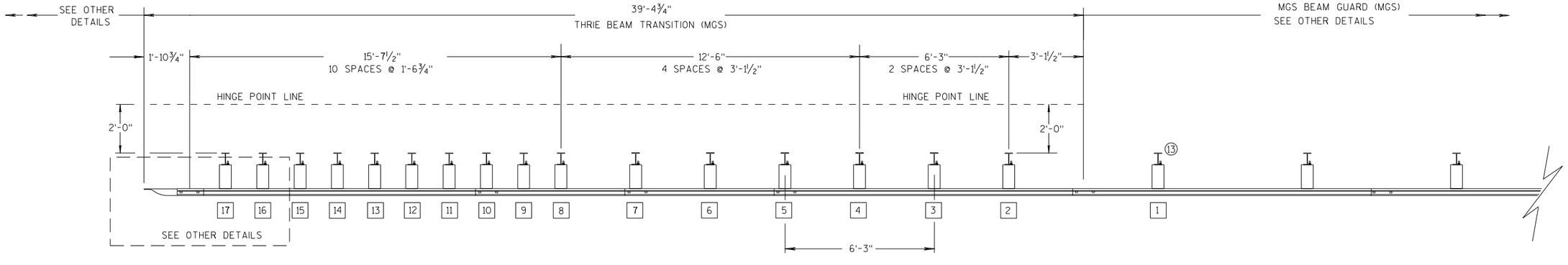
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

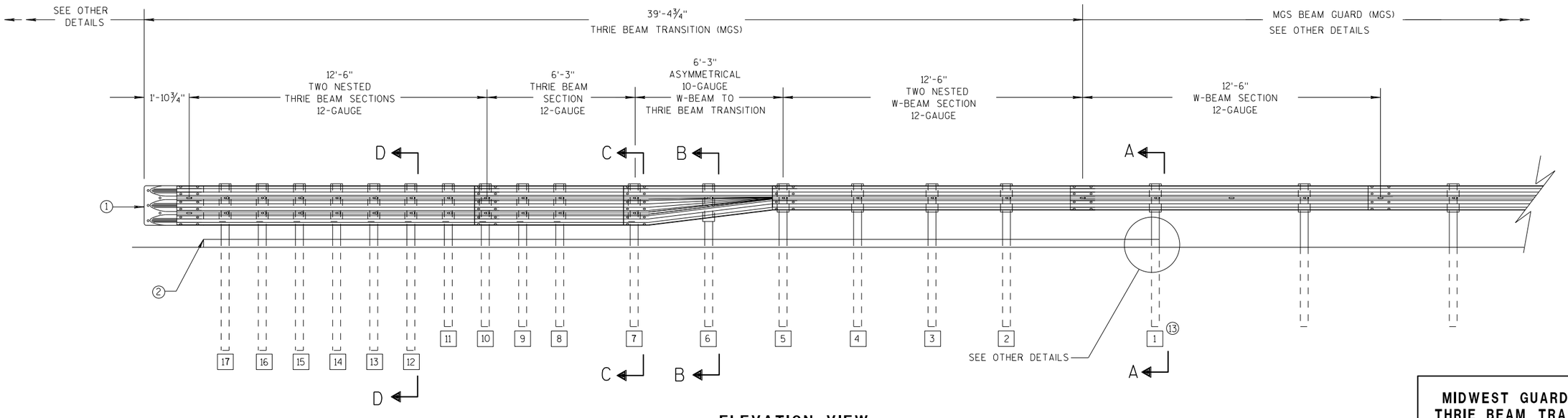
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

(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

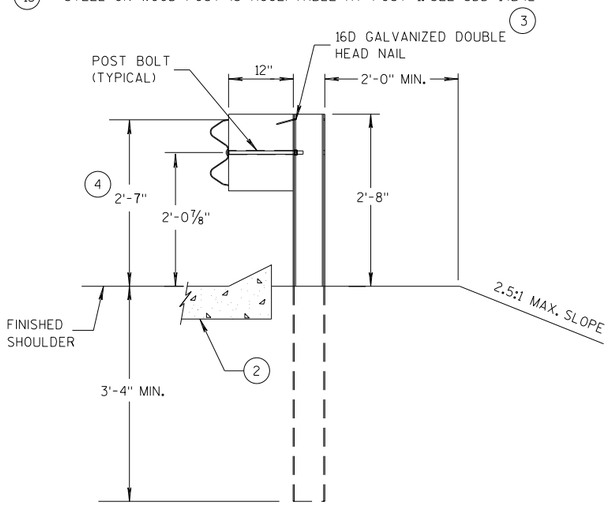
GENERAL NOTES

(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.

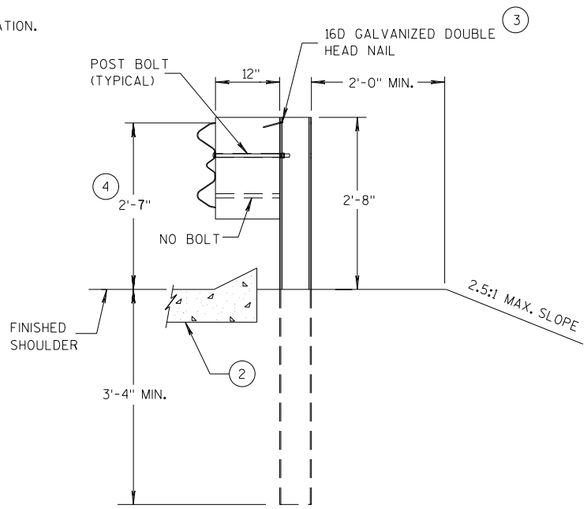
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

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



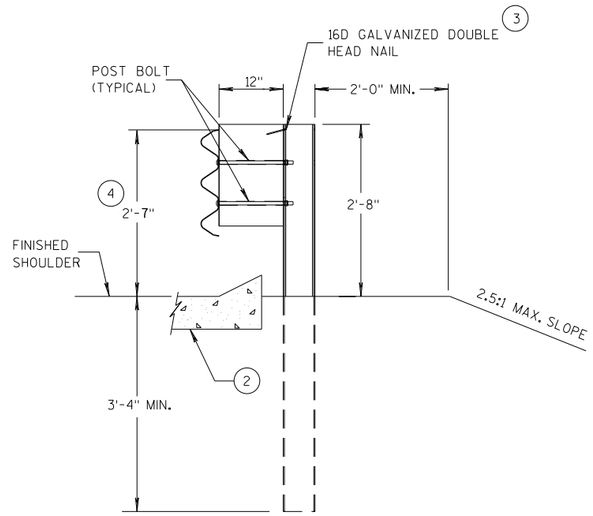
SECTION A-A (13)

POSTS 1-5



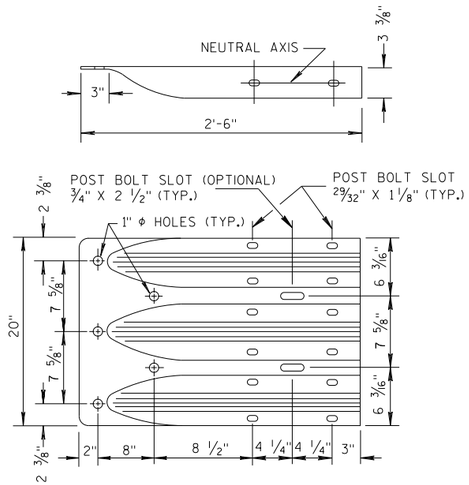
SECTION B-B

POST 6

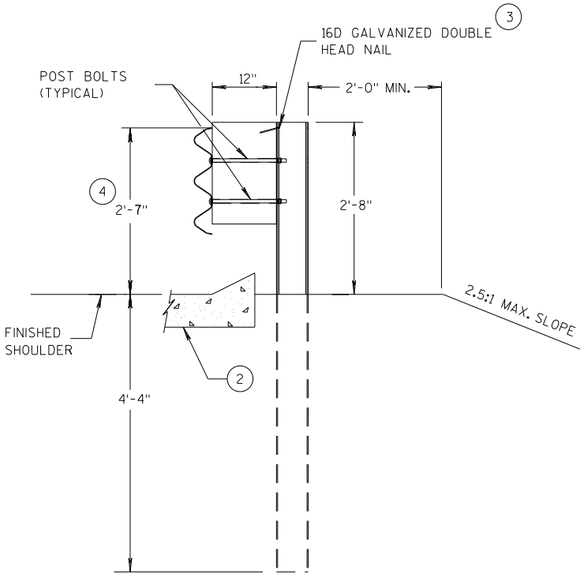


SECTION C-C

POSTS 7-11

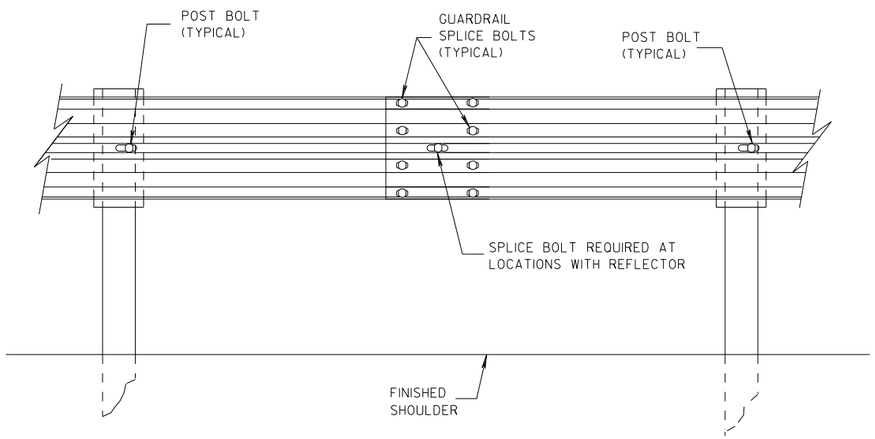


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-17



SPLICE DETAIL

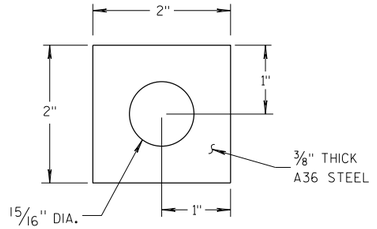
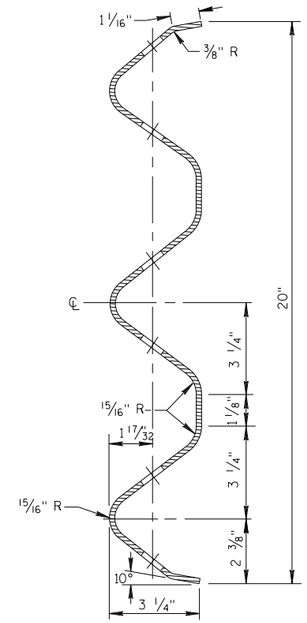


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

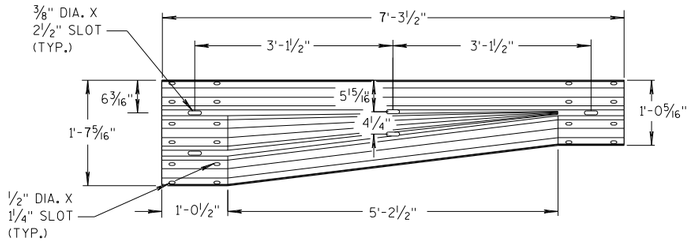
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOF

6

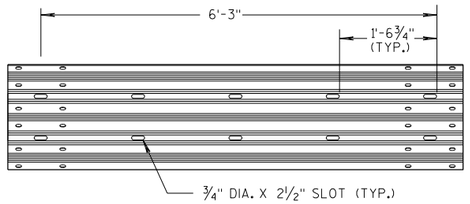
S.D.D. 14 B 45-5b

6

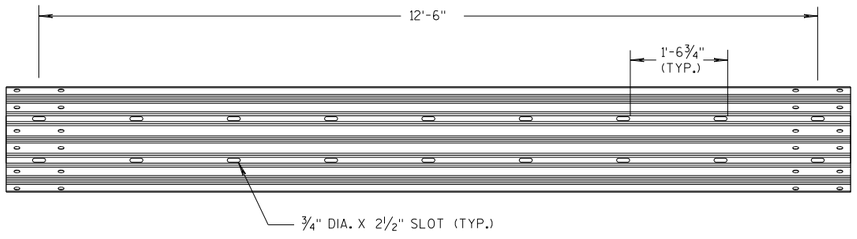
S.D.D. 14 B 45-5b



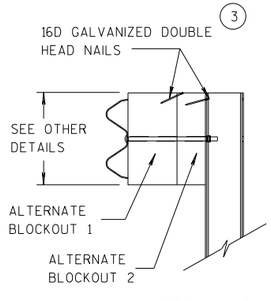
W-BEAM TO THRIE BEAM TRANSITION SECTION



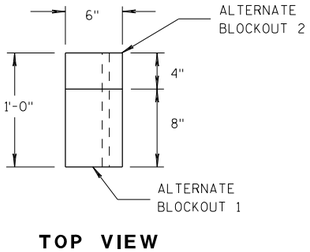
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

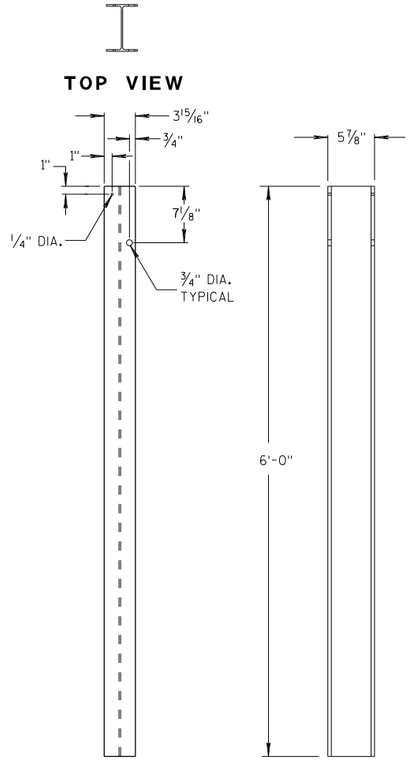


SIDE VIEW



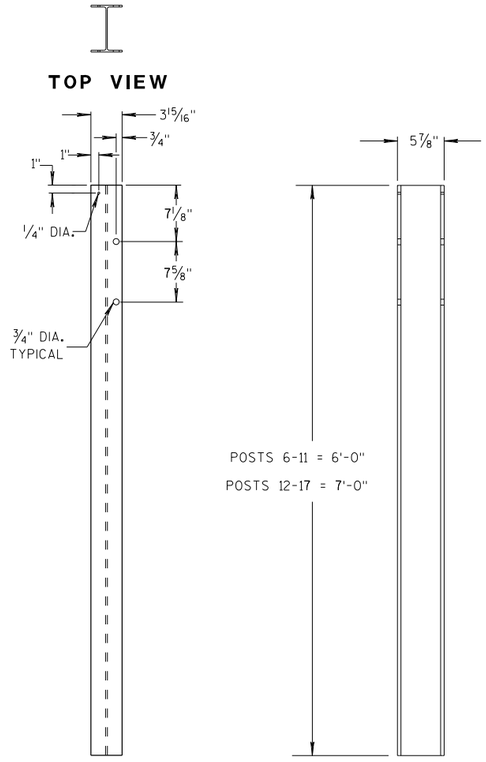
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



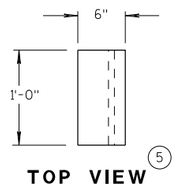
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5 (13)

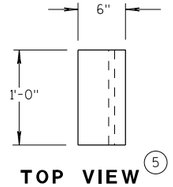


FRONT VIEW SIDE VIEW

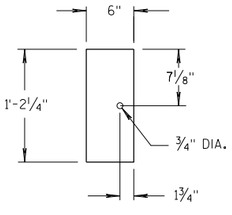
STEEL POSTS 6-17



TOP VIEW (5)

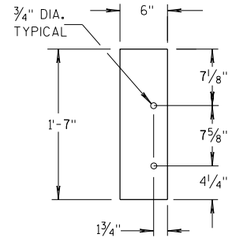


TOP VIEW (5)



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)

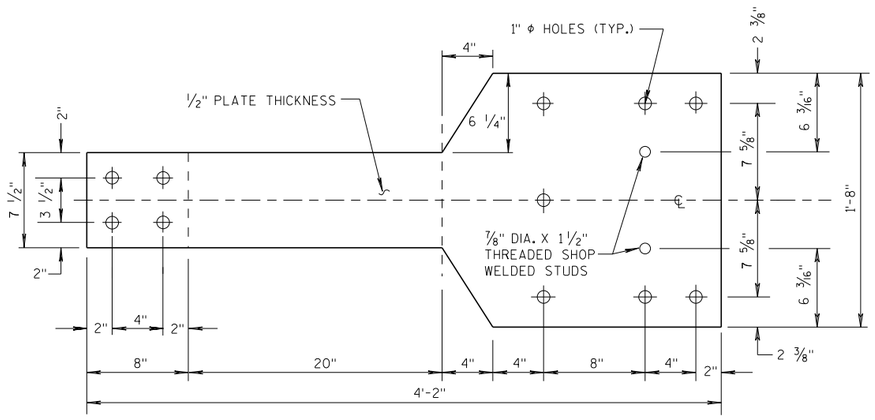
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

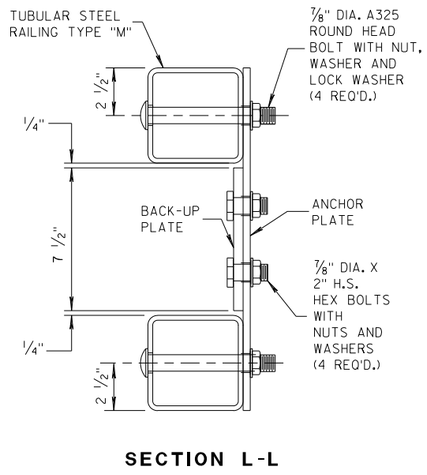
S.D.D. 14 B 45-5c

GENERAL NOTES

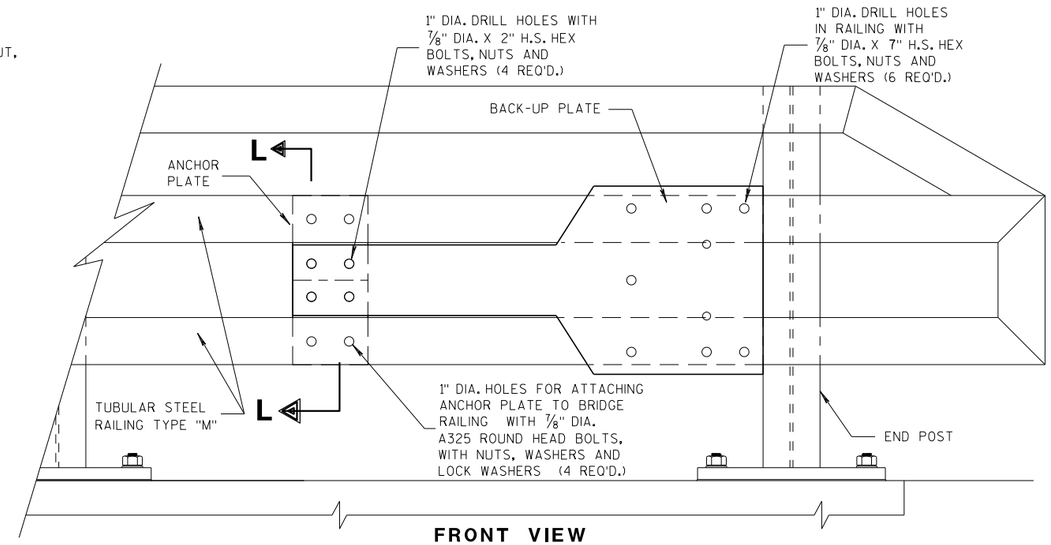
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



FRONT VIEW

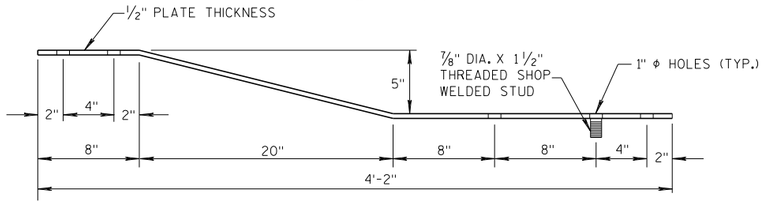


SECTION L-L



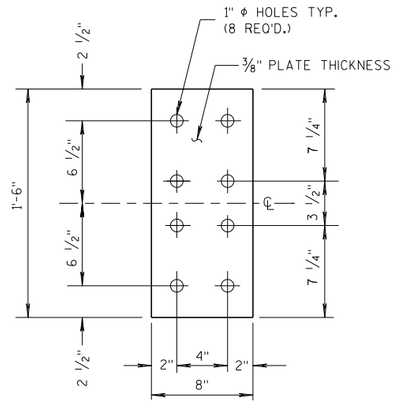
FRONT VIEW

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



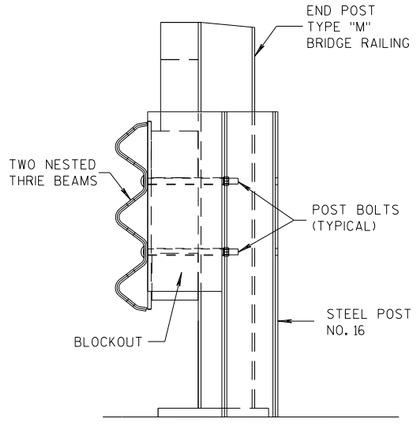
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

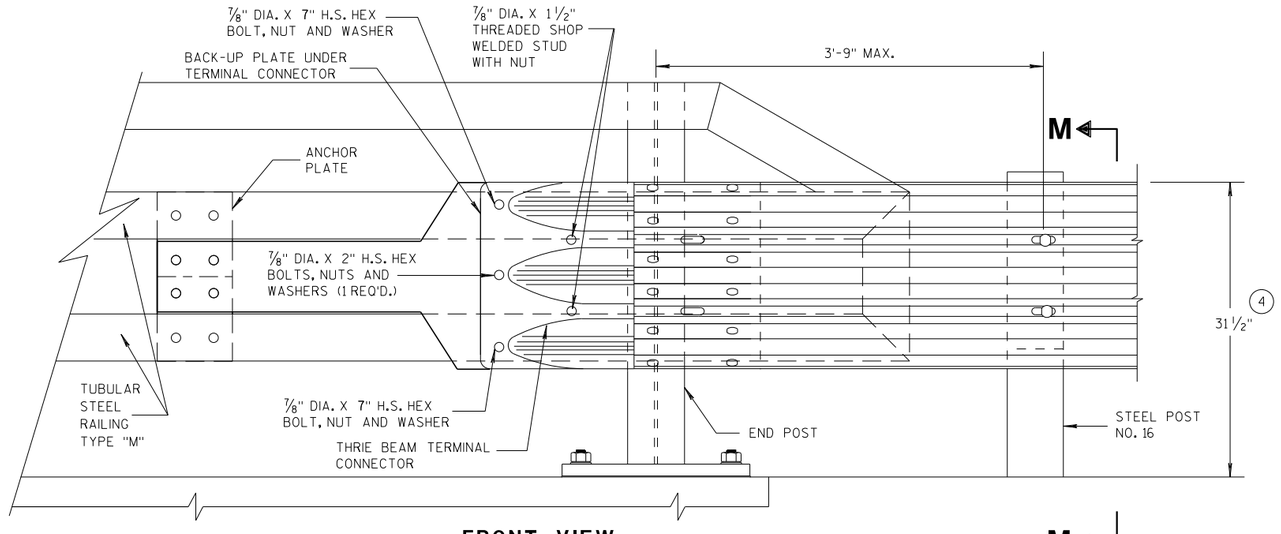


FRONT VIEW

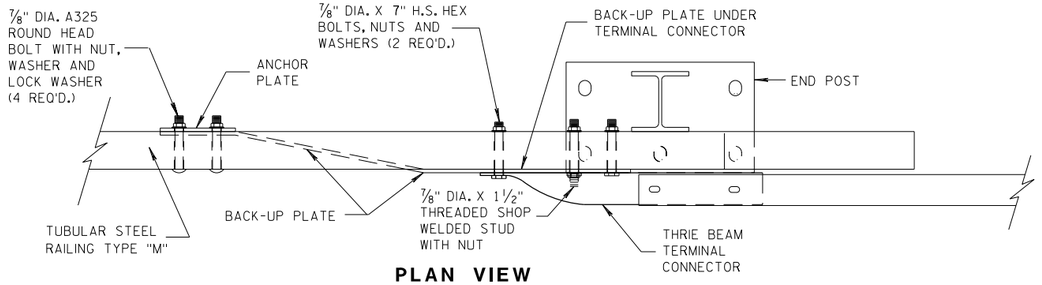
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

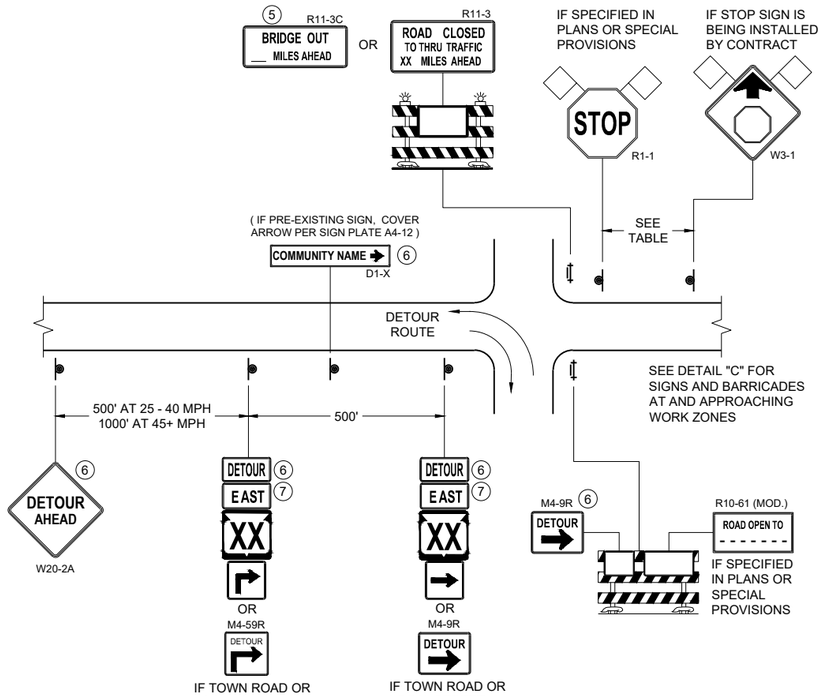
APPROVED
07/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA

6

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

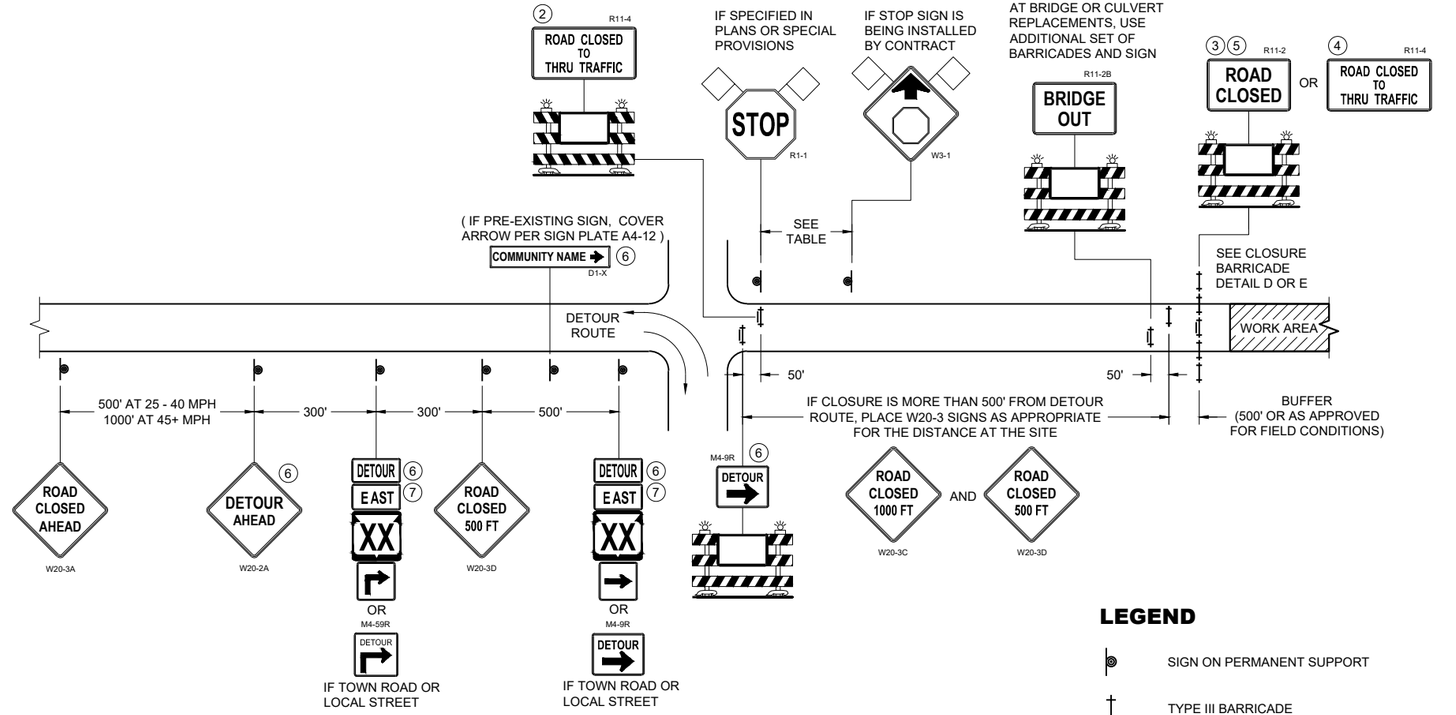
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S.D.D. 14 B 45-5h



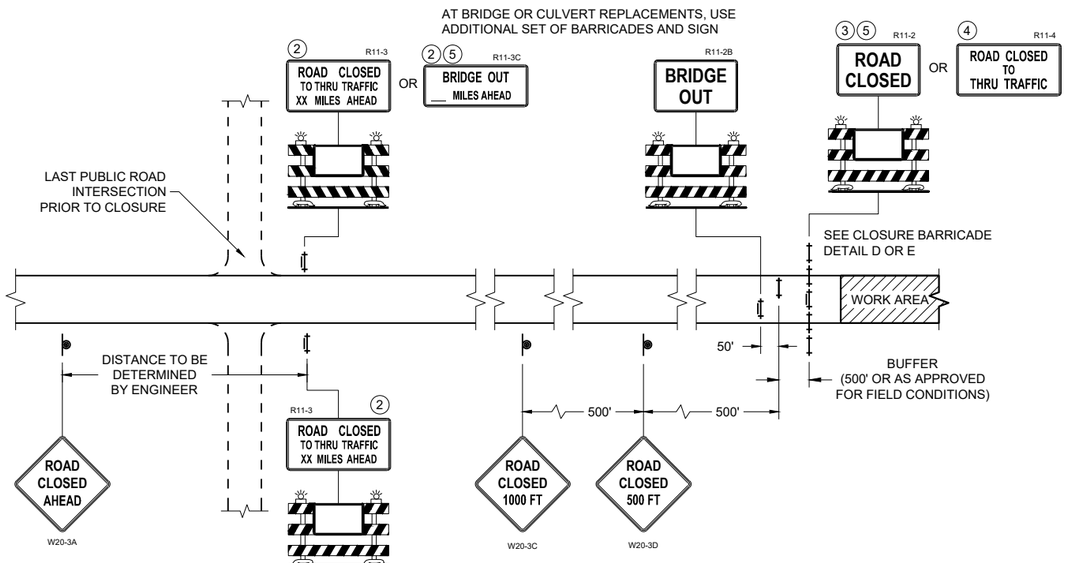
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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)



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)

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

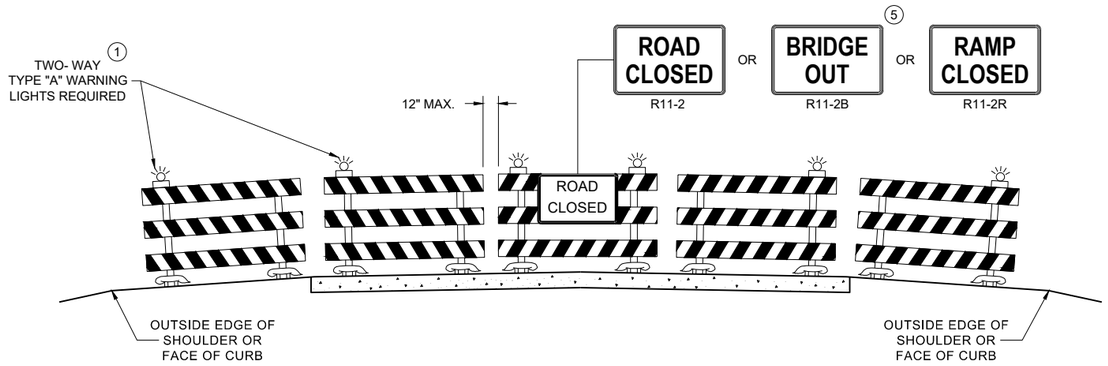
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 — DATE
/S/ Andrew Heidtke — WORK ZONE ENGINEER

FHWA

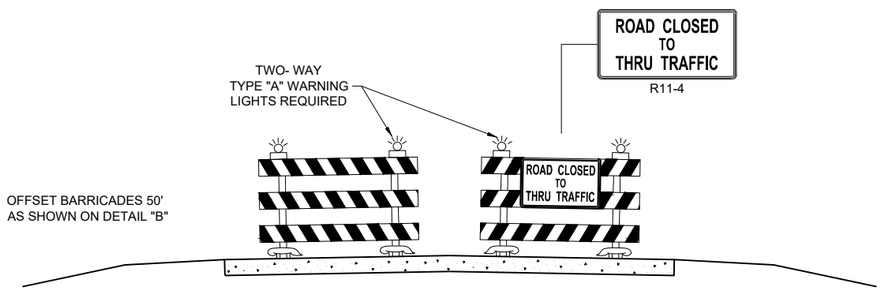
6
SDD 15C02-10a



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.

PARTIAL NUMBERS ON SIGNS SHALL BE DISPLAYED AS A WHOLE NUMBER(AS NEEDED) FOLLOWED BY A FRACTION. SIGNS SHALL NOT DISPLAY NUMBERS IN DECIMAL FORM.

"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"

SIGNS PLACED ON TYPE III BARRICADES THAT ARE SIZES OTHER THAN 48"X30" SHALL HAVE A CORRUGATED POLYPROPYLENE OR POLYETHYLENE PLASTIC SIGN BASE.

(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

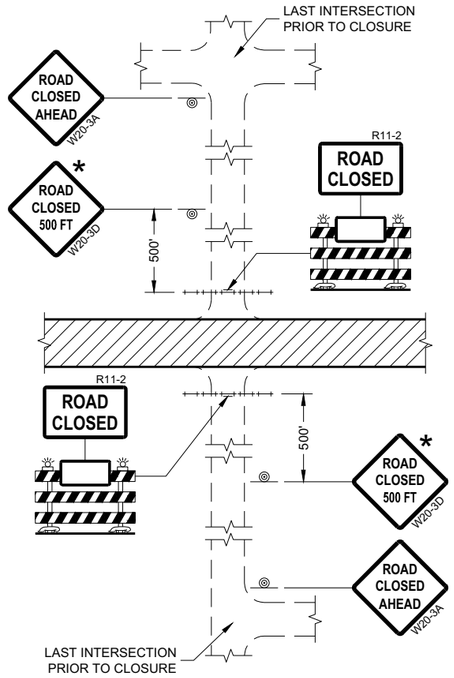
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 — DATE
/S/ Andrew Heidtke — WORK ZONE ENGINEER

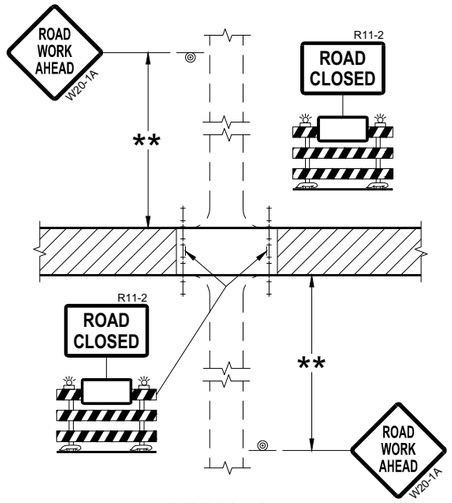
FHWA

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SDD 15C02-10b



DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT)

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 (500 FEET DESIRABLE) TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

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

SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN 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.

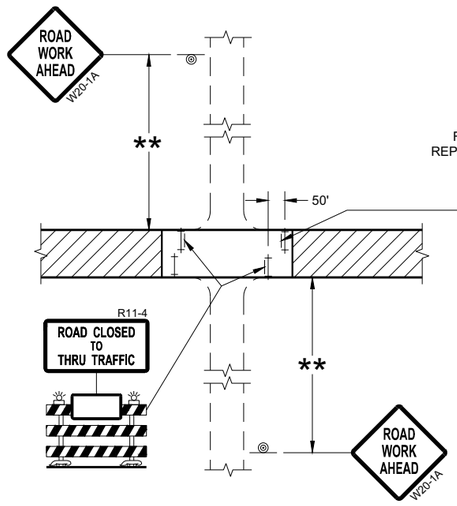
TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

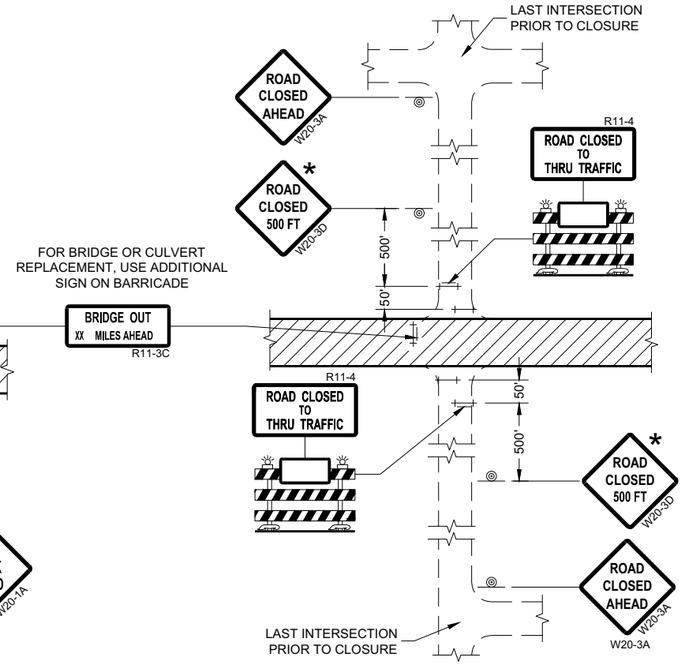
THE R11-2, R11-3, AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

* OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.

** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.





DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED.
CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

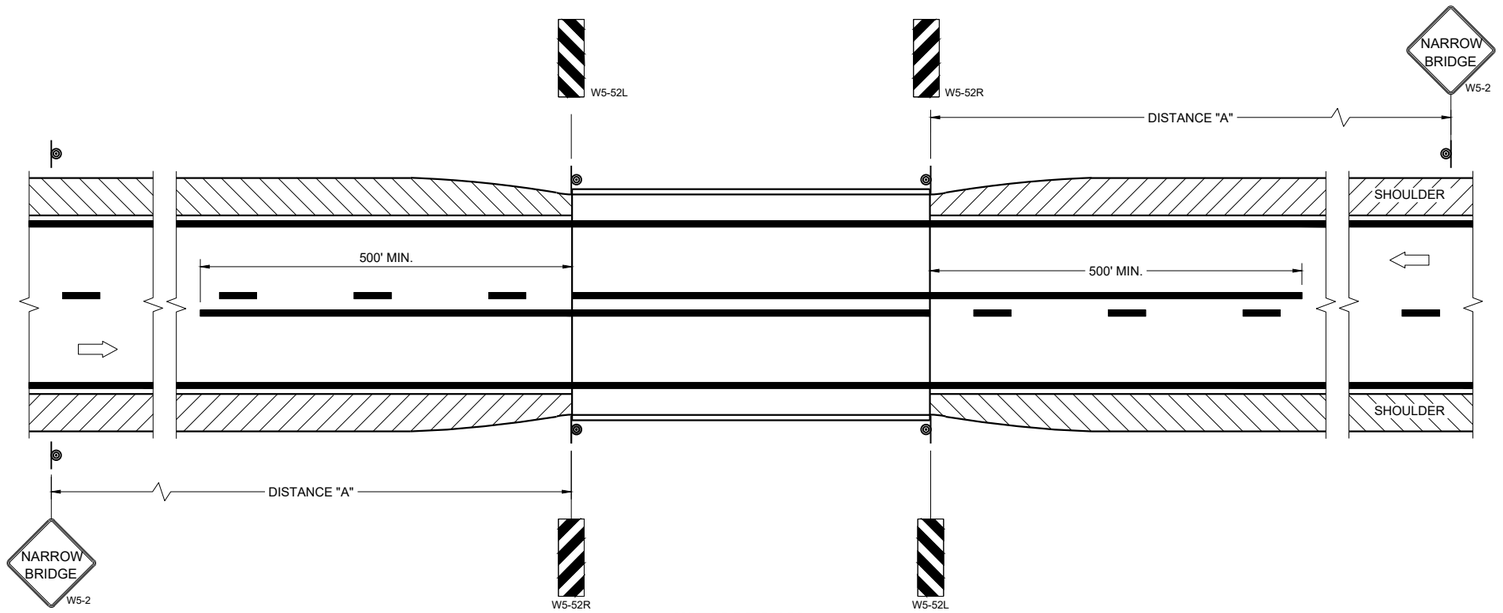
APPROVED
July 2018
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

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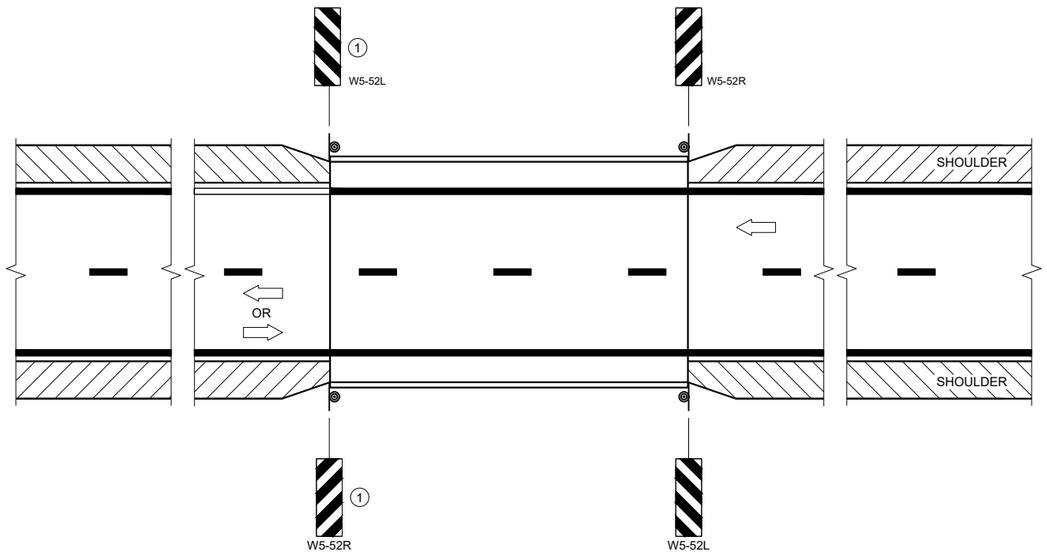
SDD 15C03 - 05

SDD 15C03 - 05



SITUATION 1

WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



SITUATION 2

WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET

GENERAL NOTES

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

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

(1) OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC

DISTANCE TABLE

POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

SIGNING AND MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

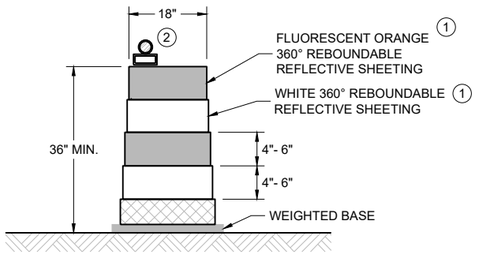
APPROVED
May 2023
DATE
/S/ Jeannie Silver
Statewide Pavement Marking Engineer
FHWA

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SDD 15C06-12

GENERAL NOTES

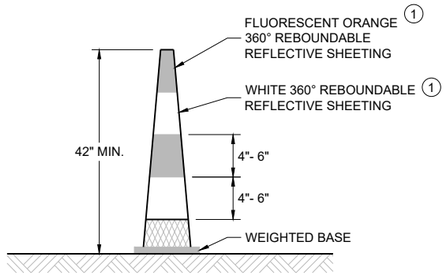
(1) REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

(2) LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



DRUM

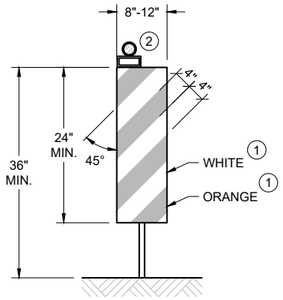
BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

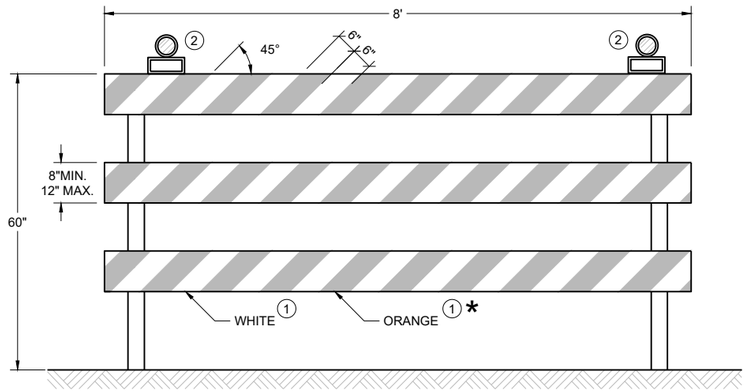
DO NOT USE IN TAPERS
½ SPACING OF DRUMS

BALLAST WIDTHS
RANGE FROM 14"-20"



VERTICAL PANEL

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



TYPE 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

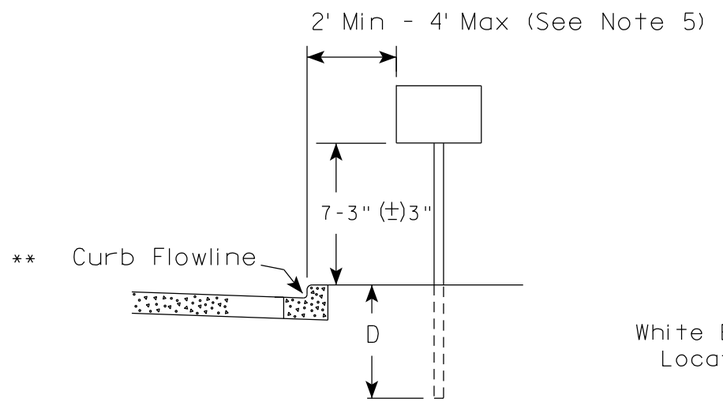
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2026 — DATE
/S/ Andrew Heidtke — WORK ZONE ENGINEER

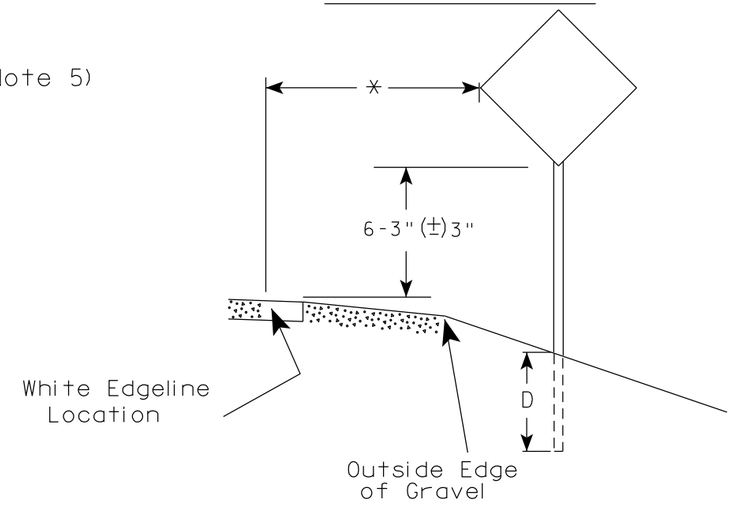
FHWA

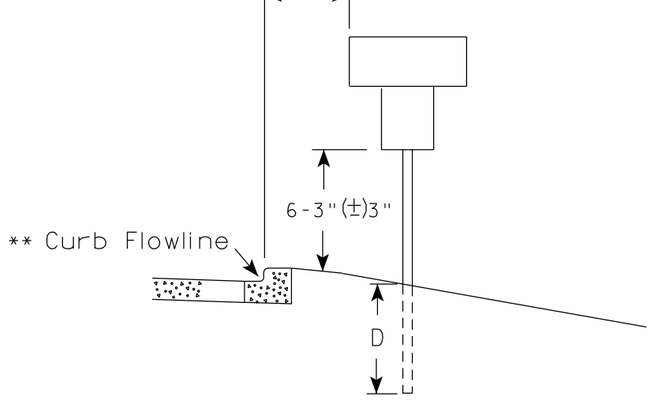
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SDD 15C11-11b

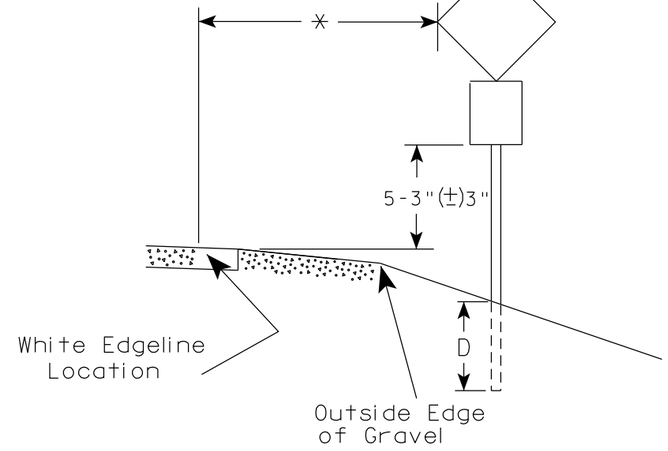
URBAN AREA



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" (±) 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".
3. For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directd by the Engineer.

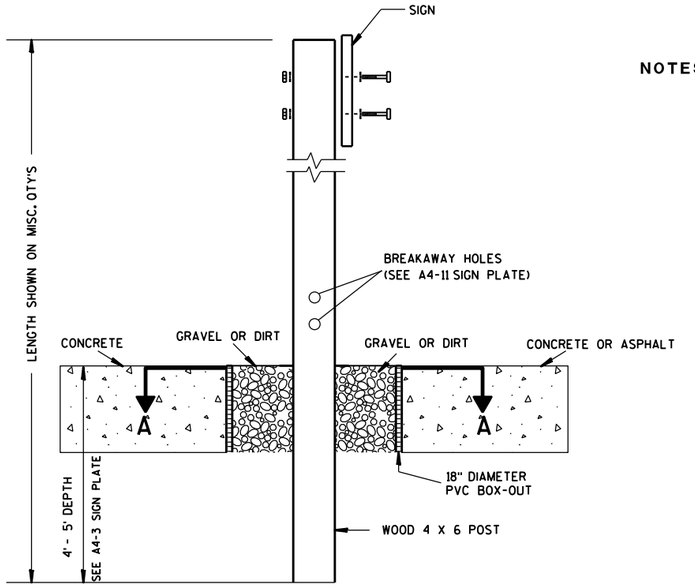
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-3.23

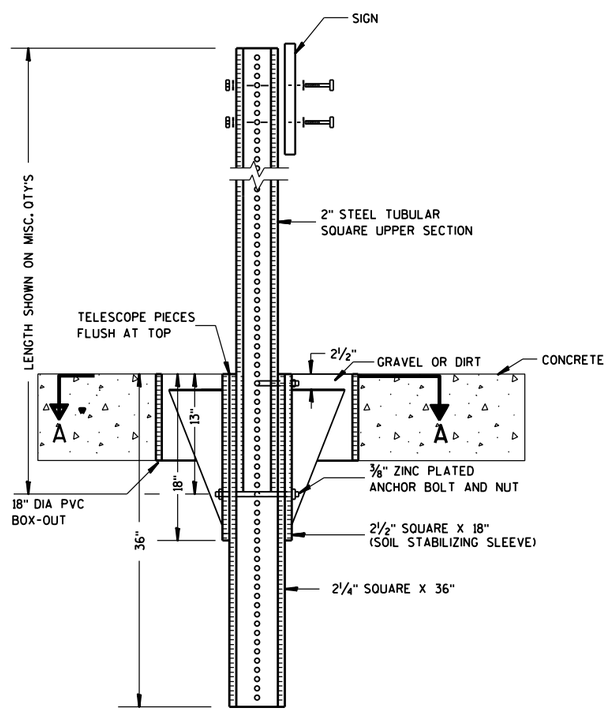
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 40	E



ELEVATION VIEW

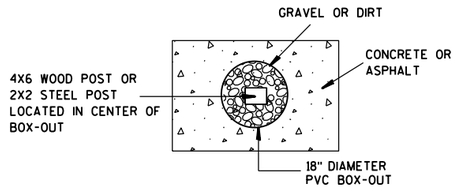
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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

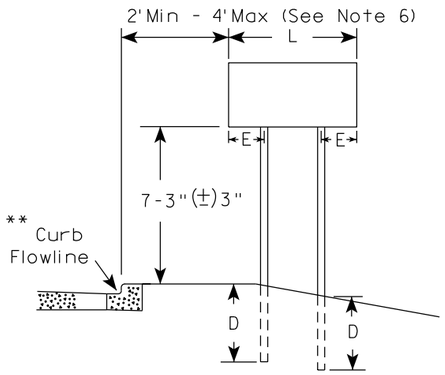
APPROVED Matthew R Rauch
for State Traffic Engineer

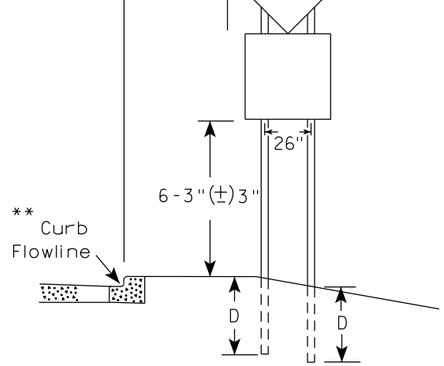
DATE 1/27/14 PLATE NO. A4-3B.1

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

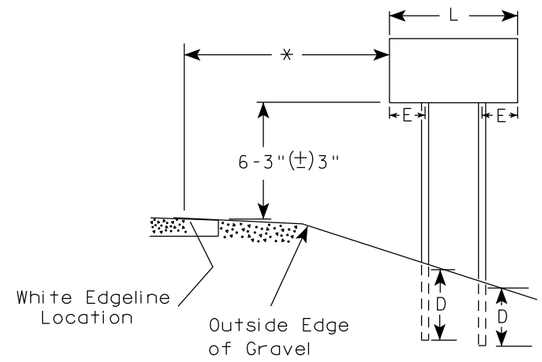
URBAN AREA

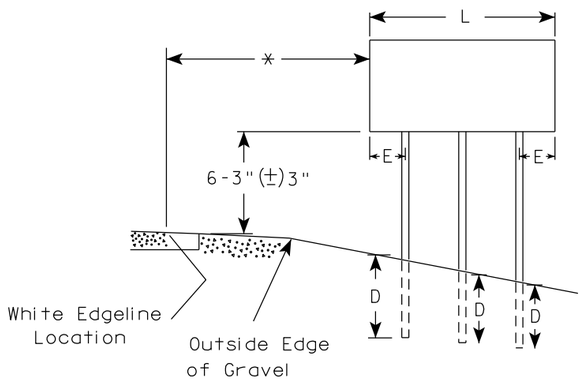


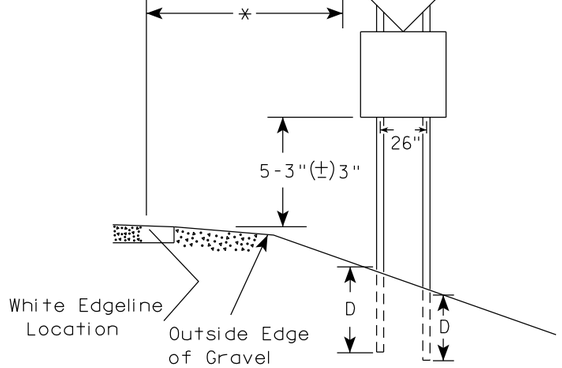


48" DIAMOND WARNING SIGN

RURAL AREA (See Note 3)







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" (±) 3" or 6'-3" (±) 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" (±) 3" or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 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" (±) 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'

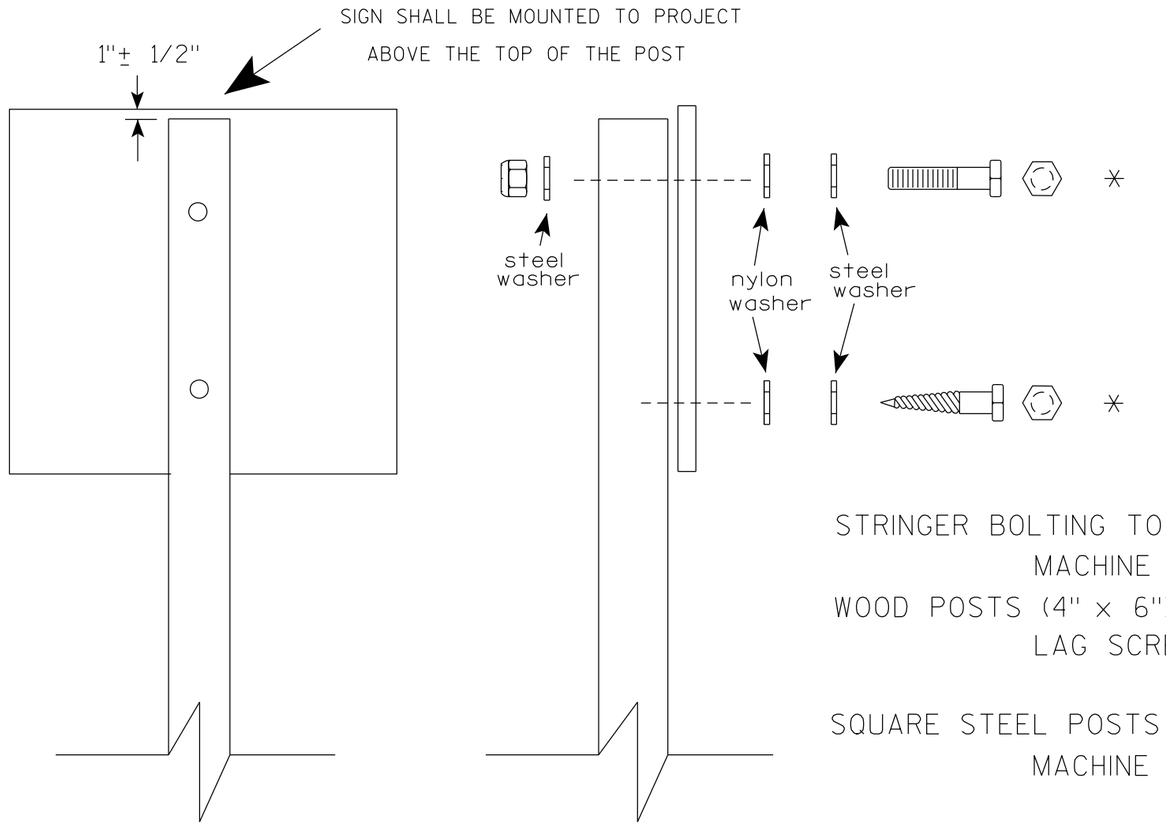
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 42	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

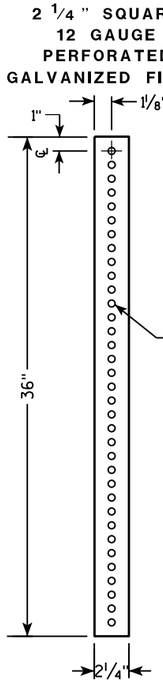
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

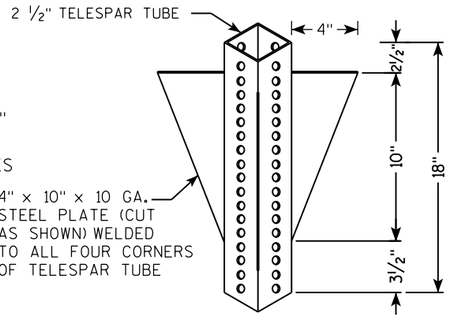
DATE 4/1/2020 PLATE NO. A4-8.9

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

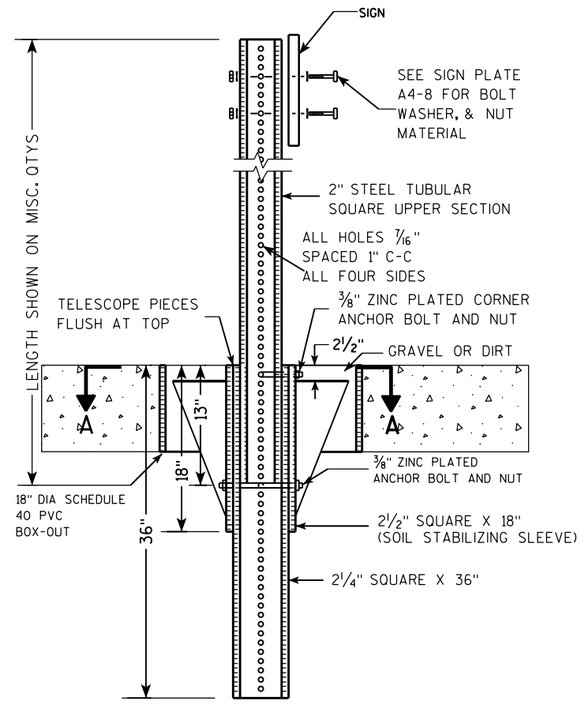
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



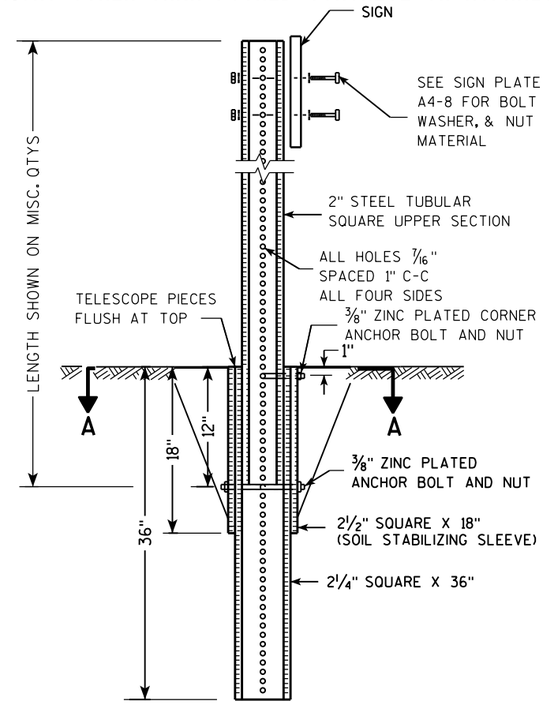
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

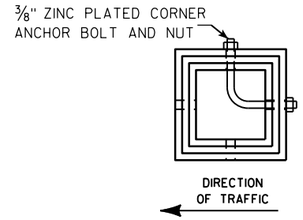


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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).

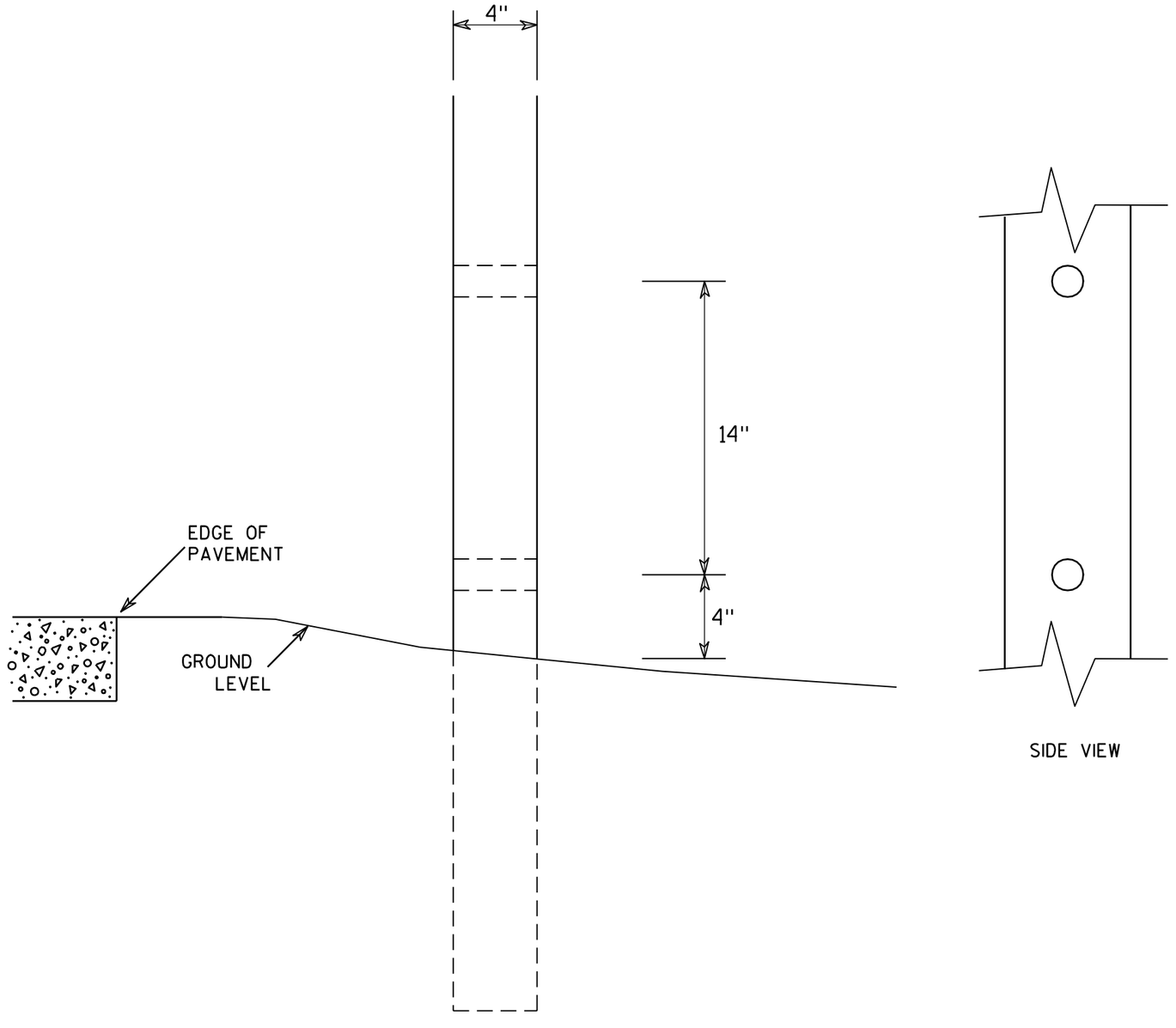
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 44 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

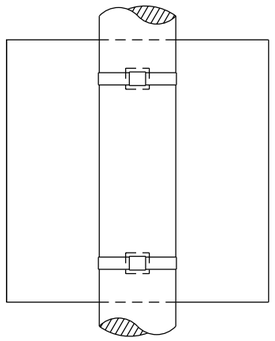
APPROVED Chester J Spang for State Traffic Engineer

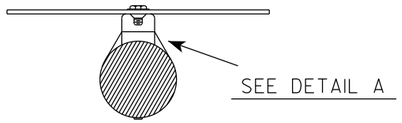
DATE 3/27/97 PLATE NO. A4-11.2

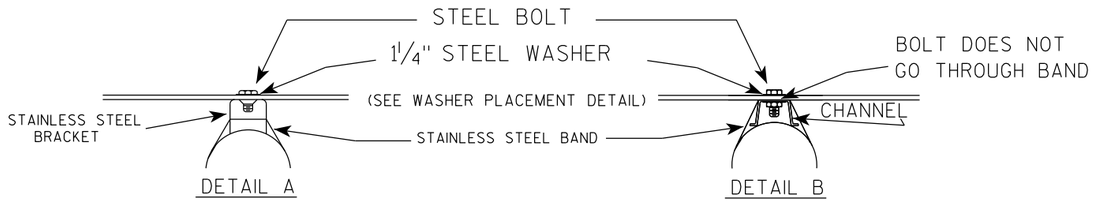
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 45	E

BANDING

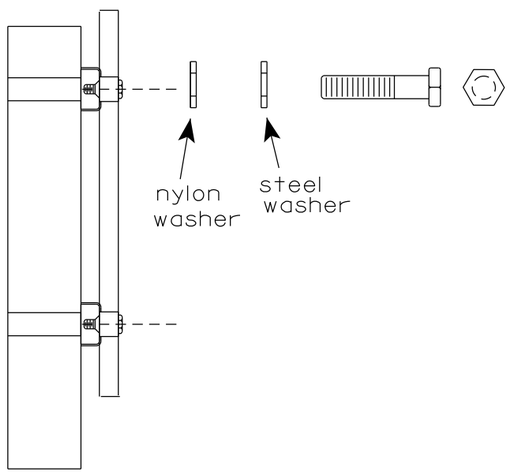
SINGLE SIGN







WASHER PLACEMENT

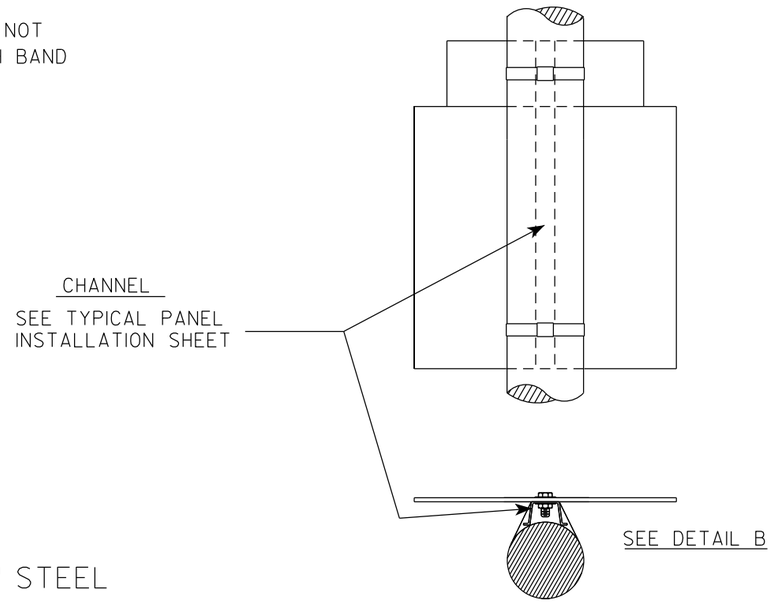


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be ¾" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

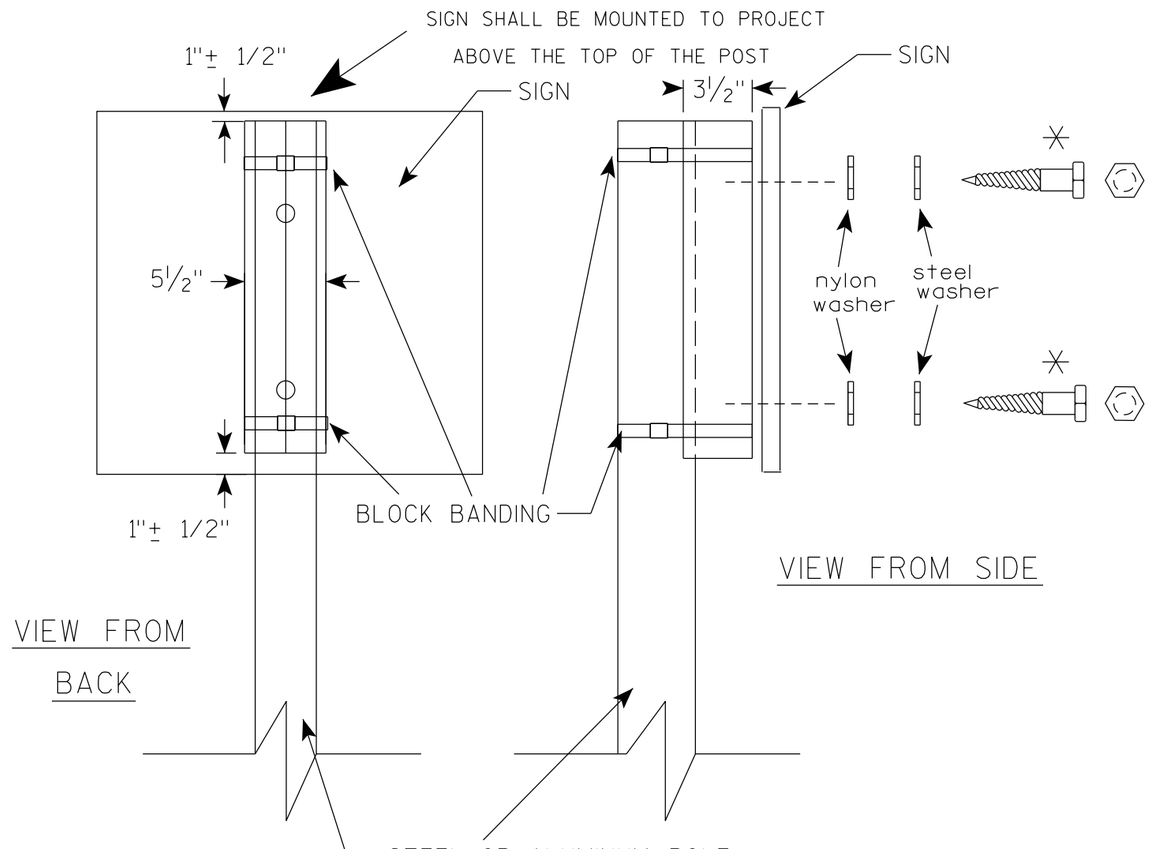
DATE 6/10/19 PLATE NO. A5-9.4

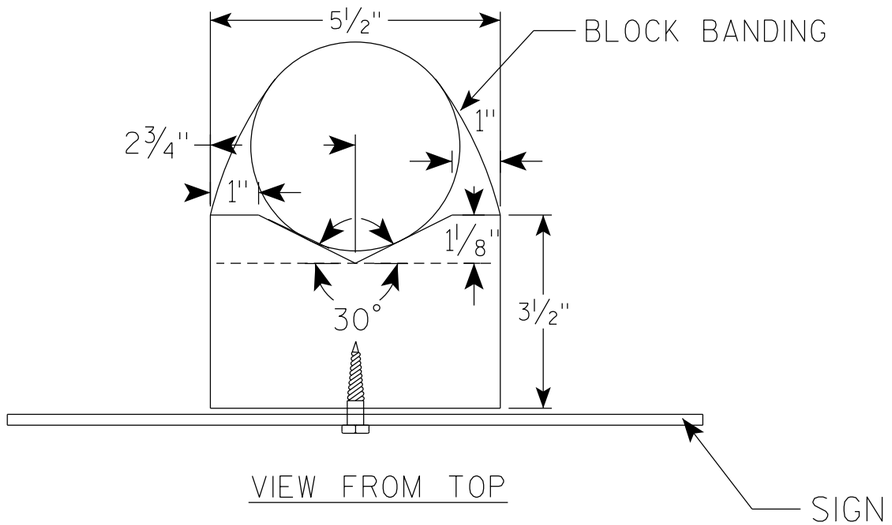
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 46	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A59.dgn PLOT DATE : 10-JUN 2019 4:10 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

7

7





GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, ¾" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORNALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✳ LAG BOLTS SHALL BE ⅜" X 2½"

BLOCK BANDING DETAIL (V-BLOCK OPTION)

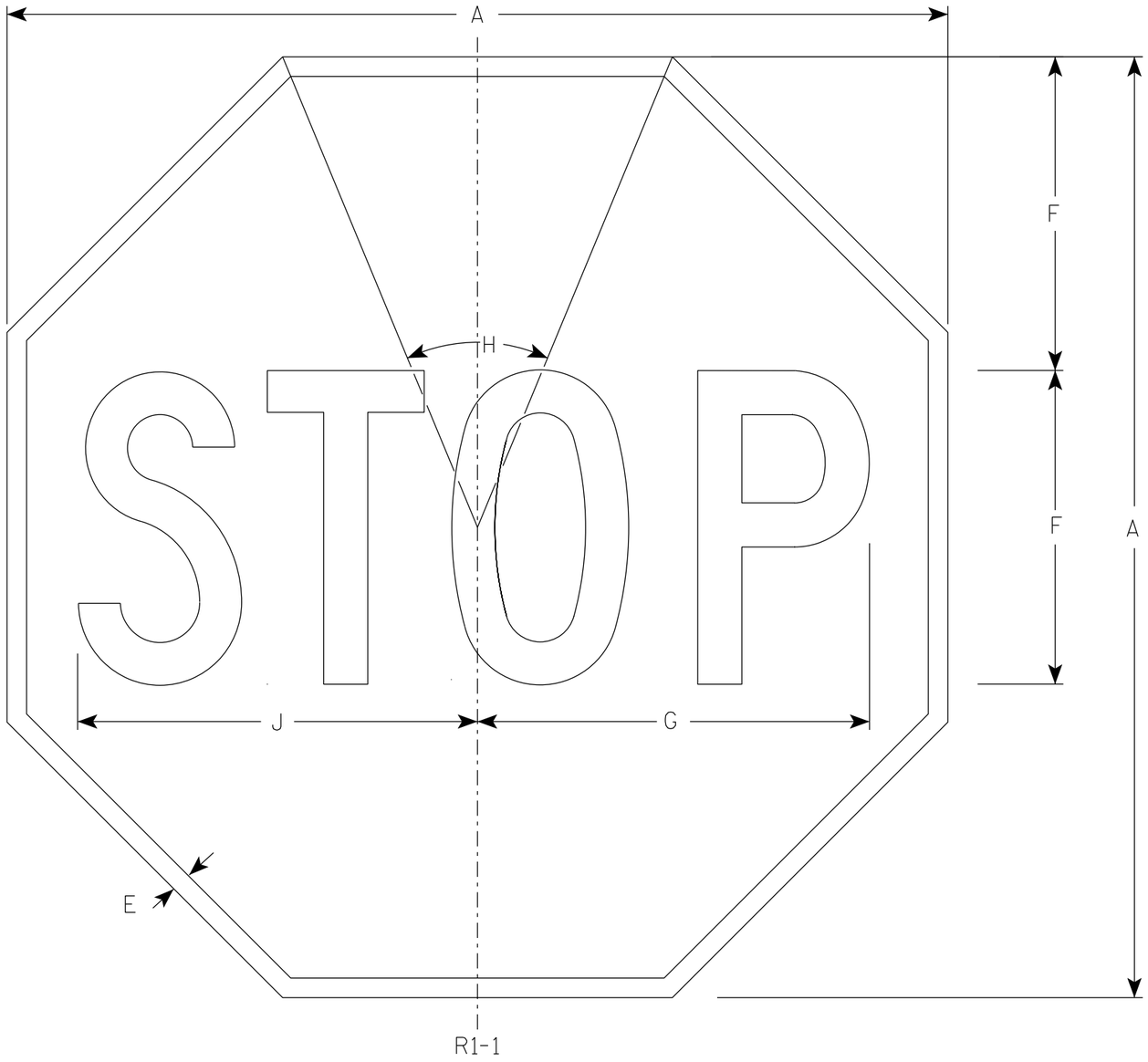
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO: 47 E



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - Red
   Message - White
3. Message Series - C

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86

STANDARD SIGN

R1-1

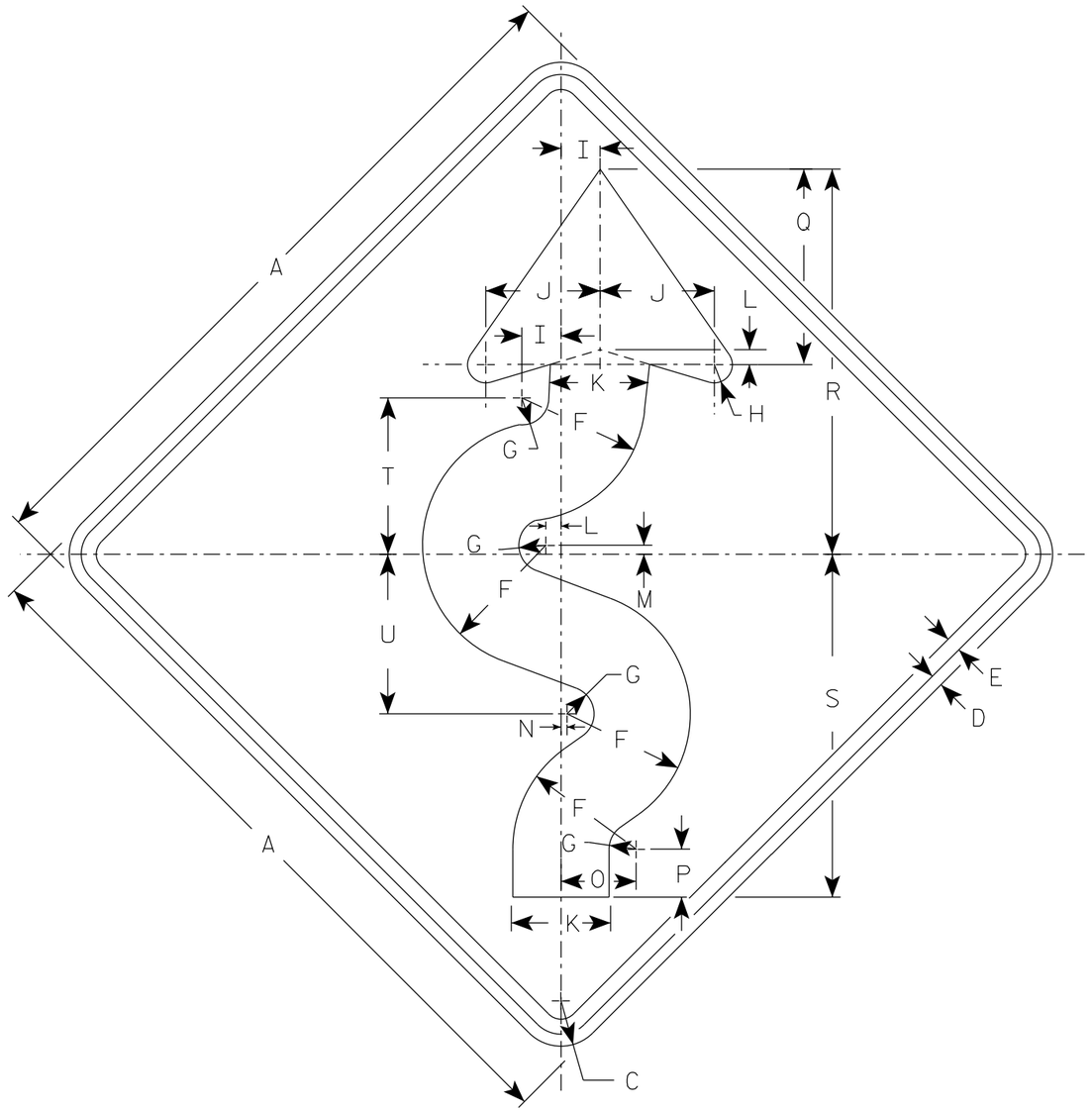
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/9/2025 PLATE NO. R1-1.14

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 48 | E

7



W1-5R

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Yellow
   Message - Black
3. W1-5L is the same as W1-5R except the arrow is reversed along the vertical centerline.
4. If used with W13-1 of 30 MPH or less, use 36" sign for Size 2S.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/2	3/8	1/2	4 1/8	7/8	5/8	1 1/4	3 3/4	3 1/4	1/2	1/4	1/8	2 1/2	1 5/8	6 1/2	12 3/4	11 3/8	5 1/4	5 1/4						4.0
2S	30		1 7/8	1/2	5/8	5 1/8	1 1/8	3/4	1 5/8	4 3/4	4 1/8	5/8	3/8	1/4	3 1/8	2	8 1/8	16	14 1/4	6 1/2	6 5/8						6.25
2M	36		2 1/4	5/8	3/4	6 1/4	1 3/8	1	1 7/8	5 5/8	4 7/8	3/4	3/8	1/4	3 3/4	2 7/8	9 3/4	19 1/8	17 1/8	7 3/4	7 7/8						9.0
3	36		2 1/4	5/8	3/4	6 1/4	1 3/8	1	1 7/8	5 5/8	4 7/8	3/4	3/8	1/4	3 3/4	2 7/8	9 3/4	19 1/8	17 1/8	7 3/4	7 7/8						9.0
4	36		2 1/4	5/8	3/4	6 1/4	1 3/8	1	1 7/8	5 5/8	4 7/8	3/4	3/8	1/4	3 3/4	2 7/8	9 3/4	19 1/8	17 1/8	7 3/4	7 7/8						9.0
5	48		3	3/4	1	8 1/4	1 3/4	1 1/4	2 1/2	7 1/2	6 1/2	1	1/2	3/8	5	3 1/4	13	25 1/2	22 3/4	10 3/8	10 1/2						16.0

STANDARD SIGN
W1-5

WISCONSIN DEPT OF TRANSPORTATION

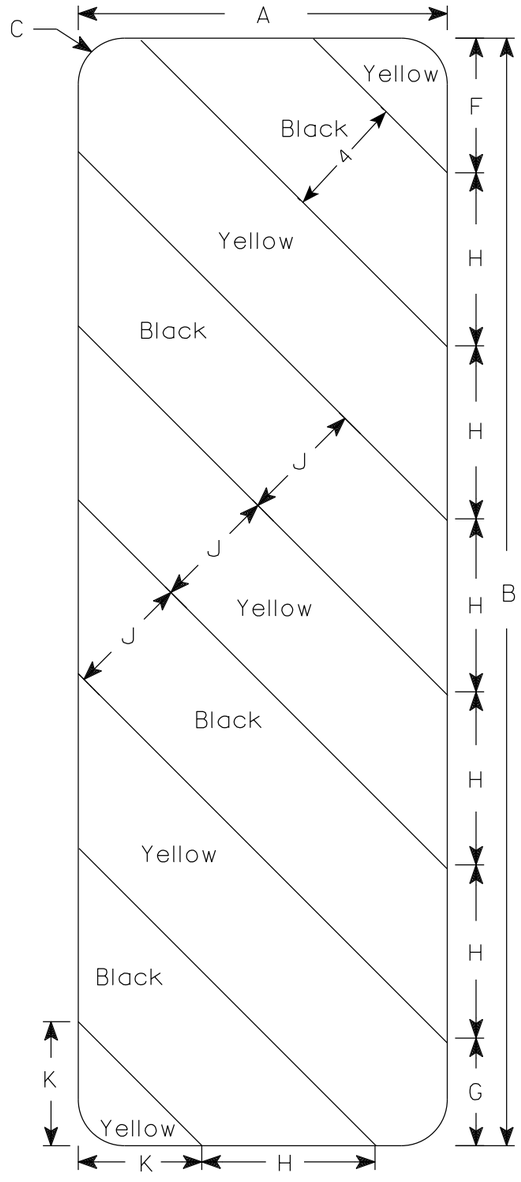
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/11/2023 PLATE NO. W1-5.10

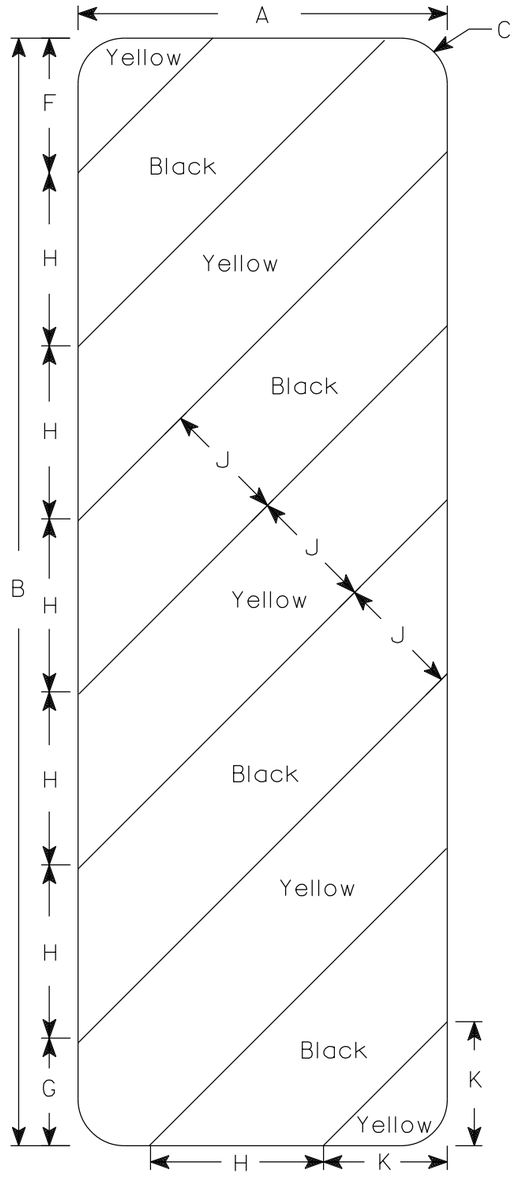
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 49 E

7

7



W5-52L



W5-52R

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Yellow
   Message - Black
3. 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	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN

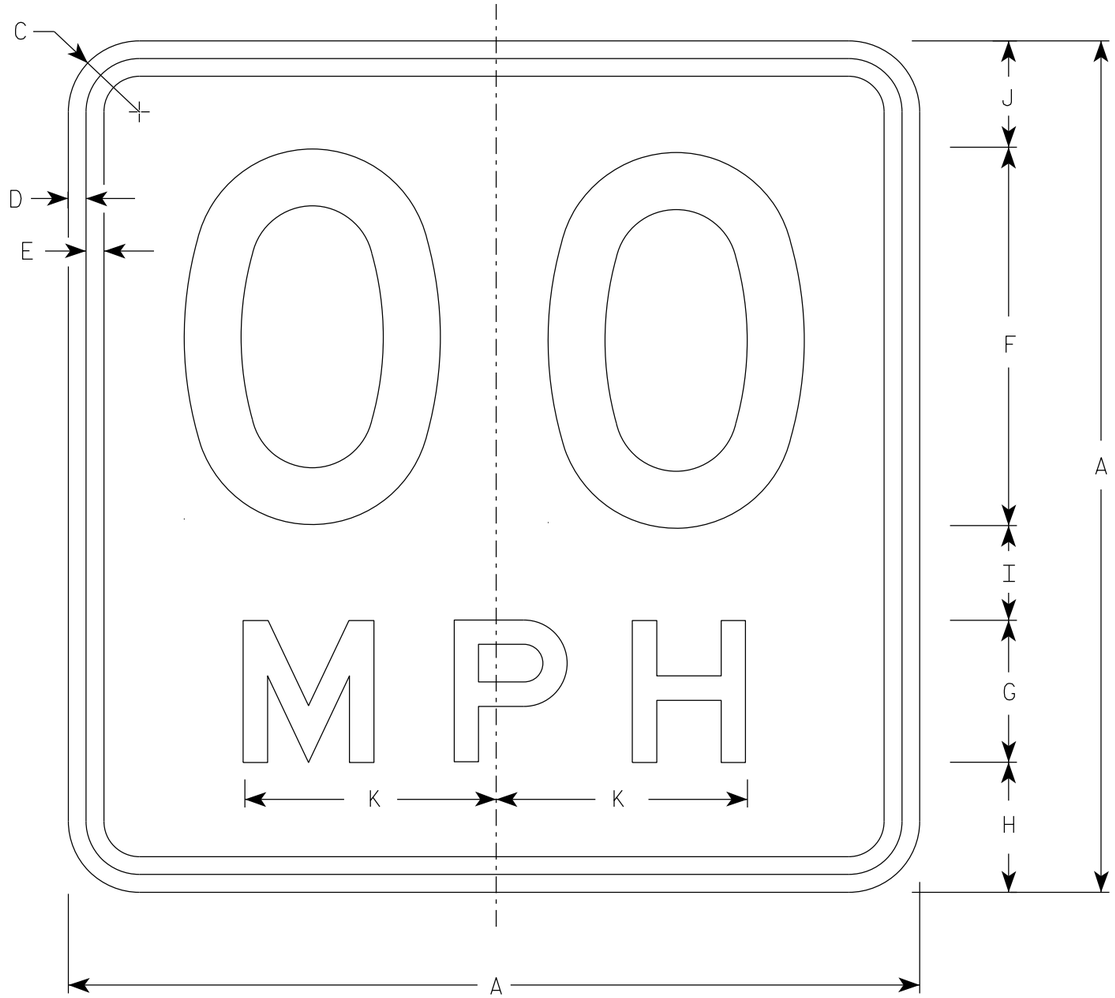
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/4/2024 PLATE NO. W5-52.10

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



W13-1

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Yellow
   Message - Black
3. Message Series - See Note 5
4. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
5. Line 1 is Series D
   Line 2 is Series E

* For 30" x 30" Warning Signs, use 18" x 18" W13-1 signs.
For 36" x 36" Warning Signs, use 24" x 24" W13-1 signs.

	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	18		1 1/2	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
*	2S	18		1 1/2	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
*	2M	18		1 1/2	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
	3	24		1 1/2	3/8	1/2	10	4	4	2 3/4	3 1/4	6 5/8																4.00
	4	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
	5	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

STANDARD SIGN
W13-1

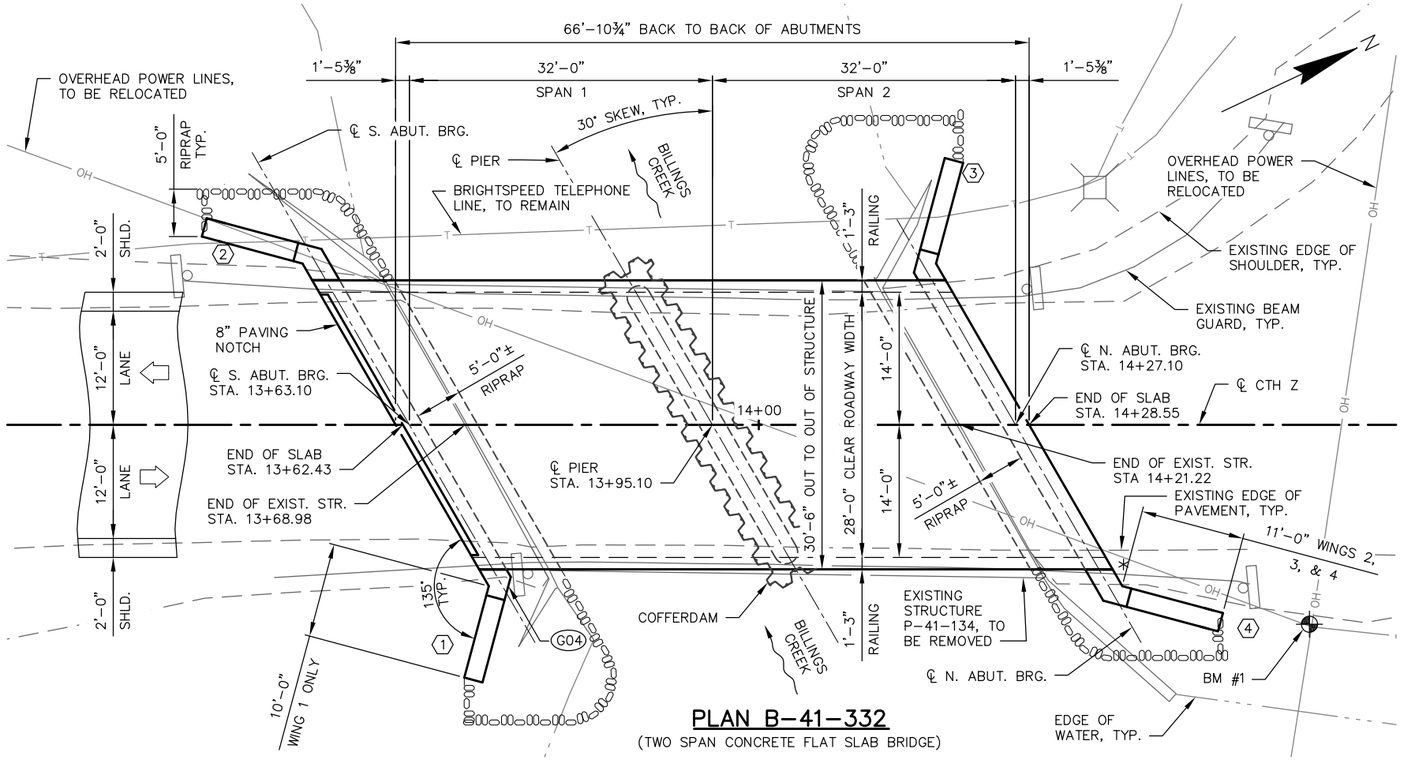
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 1/8/2024 PLATE NO. W13-1.17

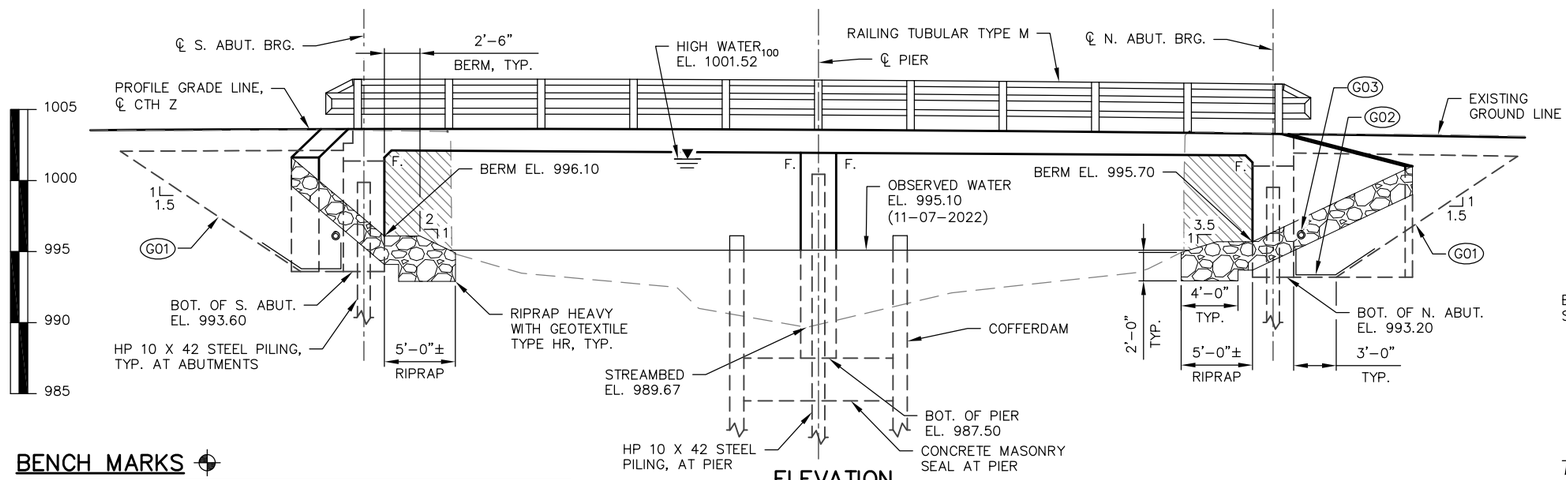
PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W131.dgn PLOT DATE : 8-Jan 2024 11:07 PLOT BY : dotc4c PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42



PLAN B-41-332

(TWO SPAN CONCRETE FLAT SLAB BRIDGE)



ELEVATION

(THRU BILLINGS CREEK, LOOKING WEST)

BENCH MARKS

NO.	STATION/OFFSET	DESCRIPTION	ELEVATION
BM #1	14+58.13, 21.09' LT.	RR SPIKE IN POWER POLE	1003.52
BM #2	12+70.71, 41.78' RT.	¾" REBAR	1003.89
BM #3	15+46.70, 21.61' LT.	¾" REBAR	1002.16

HORIZONTAL DATUM AND ADJUSTMENT: NAD 83 (2011)
VERTICAL DATUM AND ADJUSTMENT: NAVD 88 (2012)
COORDINATE REFERENCE SYSTEM: WISCRS MONROE CO.

TRAFFIC DATA:

CTH Z
A.A.D.T. (2027) ——— 55
A.A.D.T. (2047) ——— 69
DESIGN SPEED ——— 60 M.P.H.

NOTES

EXCAVATION AS INDICATED IN THE HATCH AREAS, TO BE INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-41-332".

(G01) BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCLUDED WITH BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-41-332". LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

(G02) "GEOTEXTILE TYPE DF SCHEDULE A" LIMITS. EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT FOR THE ENTIRE ABUTMENT BODY LENGTH.

(G03) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED IN "SOUTH ABUTMENT REINFORCEMENT" SHEET.

(G04) NAME PLATE REQUIRED AND BENCH MARK CAP (WHEN SUPPLIED). FOR LOCATION SEE "SOUTH ABUTMENT" SHEET.

* LOCATION OF BEAM GUARD ATTACHMENT

⬡ INDICATES WING NUMBER

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, GENERAL NOTES & QUANTITIES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT WINGS
6. SOUTH ABUTMENT REINFORCEMENT
7. NORTH ABUTMENT
8. NORTH ABUTMENT WINGS
9. NORTH ABUTMENT REINFORCEMENT
10. PIER DETAILS
11. SUPERSTRUCTURE
12. SUPERSTRUCTURE DETAILS
13. RAILING TUBULAR TYPE M

STATE PROJECT NUMBER

5165-00-73

DESIGN DATA

LIVE LOAD:

DESIGN LOADING ——— HL-93
INVENTORY RATING FACTOR ——— RF=1.17
OPERATING RATING FACTOR ——— RF=1.52
WISCONSIN STANDARD PERMIT VEHICLE RATING (WIS.-SPV): ——— 250 KIPS

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

MATERIAL PROPERTIES:

CONCRETE MASONRY, SLAB ——— $f'c$ = 4,000 P.S.I.
ALL OTHER ——— $f'c$ = 3,500 P.S.I.
HIGH-STRENGTH BAR STEEL REINFORCEMENT ——— fy = 60,000 P.S.I.

FOUNDATION DATA:

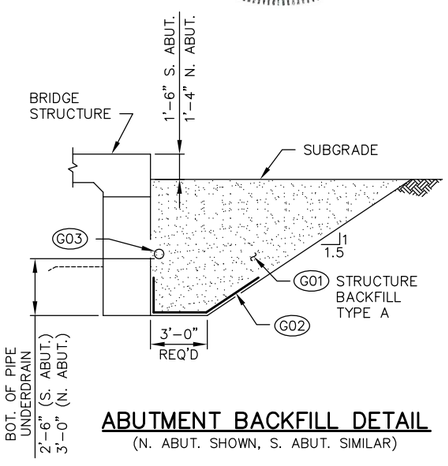
ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING SEATED IN PREBORED HOLES CORED 5 FT MINIMUM INTO ROCK. PILE DRIVING IS NOT REQUIRED. THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS 130 TONS AT THE SOUTH ABUTMENT AND 110 TONS AT THE NORTH ABUTMENT MULTIPLIED BY A RESISTANCE FACTOR OF 0.5. ESTIMATED 25 FT PILE LENGTHS AT ABUTMENTS.

PIER TO BE SUPPORTED ON HP 10 X 42 STEEL PILING SEATED IN PREBORED HOLES CORED 5 FEET MINIMUM INTO ROCK. PILE DRIVING IS NOT REQUIRED. THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS 180 TONS MULTIPLIED BY A RESISTANCE FACTOR OF 0.5. ESTIMATED 30 FT PILE LENGTHS AT PIER.

HYDRAULIC DATA:

Q_{100} ——— 2,800 C.F.S.
Q_{100} (THRU BRIDGE) ——— 2,800 C.F.S.
Q_{100} (ROAD) ——— N/A
DRAINAGE AREA ——— 11.4 SQ. MI.
BRIDGE WATER AREA ——— 282 SQ. FT.
BRIDGE VELOCITY ——— 9.93 F.P.S.
HIGH $WATER_{100}$ EL. ——— 1001.52 FT.
OVERTOPPING Q FREQ. ——— N/A
SCOUR CRITICAL CODE ——— 5
Q_2 ——— 377 C.F.S.
Q_2 ELEVATION ——— 997.00 FT.
Q_2 VELOCITY ——— 3.35 F.P.S.

WISCONSIN
ANDREW C. KNUTSON
E-34662
SPRING GREEN, WI
5-6-26
PROFESSIONAL ENGINEER



ABUTMENT BACKFILL DETAIL

(N. ABUT. SHOWN, S. ABUT. SIMILAR)

BRIDGE OFFICE CONTACT
AARON BONK, P.E.
(608) 261-0261

CONSULTANT CONTACT
ANDY KNUTSON, P.E., S.E.
(608) 588-7866

NO.	DATE	REVISION	BY

WESTBROOK Associated Engineers, Inc.
619 EAST HOXIE STREET
P.O. BOX 429
SPRING GREEN, WI 53588
PHONE (608) 588-7866
FAX (608) 588-7954

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED JLR 08/13/26
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-41-332

CTH Z OVER BILLINGS CREEK

COUNTY: MONROE
TOWN/~~CITY/VILLAGE~~: WELLINGTON
DESIGN SPEC.: AASHTO LRFD BRIDGE DESIGN SPECIFICATION

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JDO	CDS	JDO	ACK

GENERAL PLAN

SHEET 1 OF 13

52

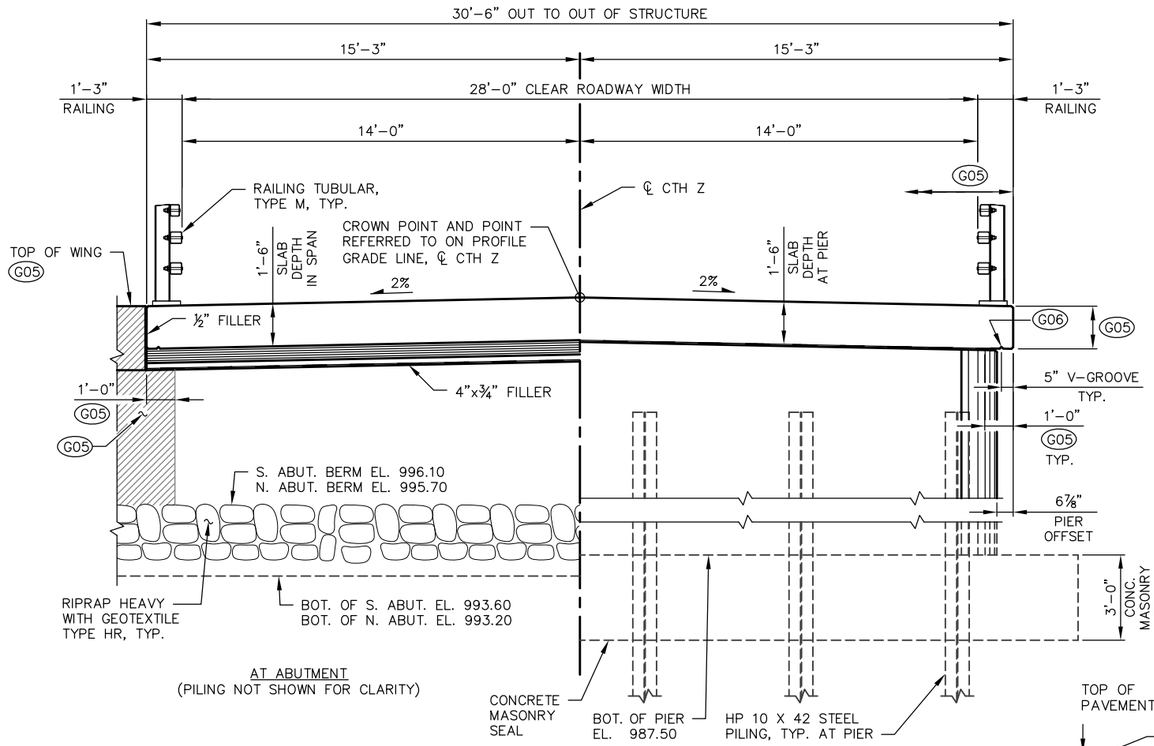
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FILE: B410332_01_gen.dwg
PLOT SCALE:

I.D. 5165-00-73

PLOT DATE: Apr 24, 2026



CROSS SECTION THRU ROADWAY AT PIER

(LOOKING NORTH)

NOTES

(G05) COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS. PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO ENTIRE EXPOSED TOP OF SLAB INCLUDING THE SLAB EDGES AND 1'-0" UNDER THE SLAB, THE TOP AND EXTERIOR EXPOSED FACE OF WINGS, AND THE FRONT FACE OF WINGS, AND THE FRONT FACE OF THE ABUTMENTS TO 1'-0" PAST THE EDGE OF SLAB.

(G06) ¾" V-GROOVE REQ'D. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT BODY.

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEMS	UNIT	S. ABUT.	PIER	N. ABUT.	SUPER.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-41-134	EACH	---	---	---	---	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-41-332	EACH	---	---	---	---	1
206.5001	COFFERDAMS B-41-332	EACH	---	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	270	---	280	---	550
502.0100	CONCRETE MASONRY BRIDGES	CY	44.2	44.0	45.2	118.1	252
502.1100	CONCRETE MASONRY SEAL	CY	---	38.0	---	---	38
502.3200	PROTECTIVE SURFACE TREATMENT	SY	22	---	23	265	310
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2710	1980	2790	---	7480
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1680	70	1730	25680	29160
513.4061	RAILING TUBULAR TYPE M	LF	---	---	---	138	138
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	7	---	7	---	14
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	152	84	144	---	380
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	200	210	200	---	610
606.0300	RIPRAP HEAVY	CY	45	---	45	---	90
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	85	---	85	---	170
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	38	---	38	---	76
645.0120	GEOTEXTILE TYPE HR	SY	90	---	93	---	183
(NON-BID ITEM)	FILLER	SIZE					½" & ¾"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

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

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 INCLUDED WITH BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-41-332".

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 BOTTOM OF ABUTMENT.

DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

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

AT SUBSTRUCTURES, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-41-332" SHALL BE THE EXISTING GROUND LINE.

THE EXISTING STREAM BED SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIER.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE "GENERAL PLAN" AND ABUTMENT SHEETS.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE SUPERSTRUCTURE SLAB AND ABUTMENTS PER THE STANDARD SPECIFICATION.

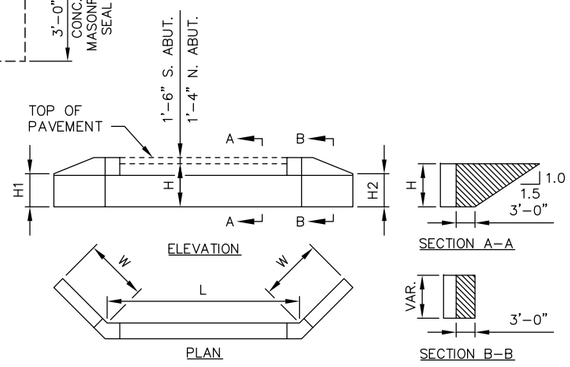
SHALLOW BEDROCK (LESS THAN 10-FT) WAS ENCOUNTERED AT THE PIER BORING.

A MINIMUM OF 5-FEET OF PRE-BORE AT ALL SUBSTRUCTURES INTO SUITABLE BEDROCK IS REQUIRED. THE CONTRACTOR AND THE CONSTRUCTION ENGINEER SHOULD ANTICIPATE VARIABLE PREBORE DEPTHS AT ALL SUBSTRUCTURES.

PILES PLACED IN PREBORED HOLES CORED INTO ROCK DO NOT REQUIRE DRIVING. PILES SHALL BE "FIRMLY SEATED" ON ROCK AFTER PLACEMENT IN PREBORED HOLES.

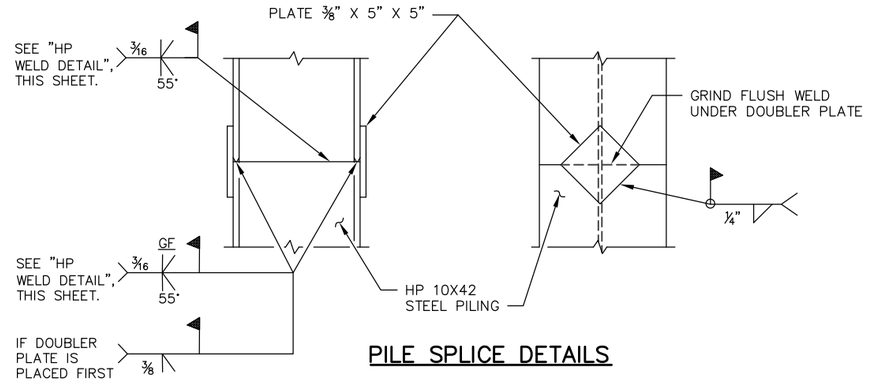
AT PIER, COFFERDAM AND COFFERDAM DEWATERING IS REQUIRED. COFFERDAM SHALL BE DEWATERED PRIOR TO PLACING PIER CONCRETE.

THE EXISTING STRUCTURE P-41-134 IS A SINGLE SPAN PRESTRESSED CONCRETE STRUCTURE WITH AN OVERALL LENGTH OF 50'-6" AND A CLEAR ROADWAY WIDTH OF 28'-5". SUPERSTRUCTURE AND ABUTMENTS SHALL BE REMOVED IN ACCORDANCE WITH THE BID ITEM "REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-41-134".

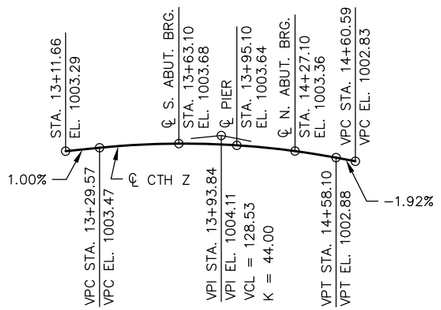


ABUTMENT BACKFILL DIAGRAM

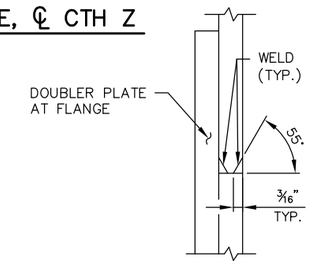
L = ABUTMENT BODY LENGTH AT BACKFACE (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
H1 = WING 1 HEIGHT AT TIP (FT)
H2 = WING 2 HEIGHT AT TIP (FT)
W = WING LENGTH (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H) + (3')(0.5)(H1+H2+H+H)(W)
V_{CY} = V_{CF}(EF)/27
V_{TON} = V_{CY}(2.0)



PILE SPLICE DETAILS



PROFILE GRADE LINE, ℄ CTH Z



HP WELD DETAIL

(FLANGE SHOWN, WEB SIMILAR)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-41-332

DRAWN BY JDO | PLANS CK'D ACK

CROSS SECTION, GENERAL NOTES & QUANTITIES

SHEET 2 OF 13

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STATE PROJECT NUMBER

5165-00-73

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I.D. 5165-00-73

PLOT DATE: Apr 14, 2026

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PLOT SCALE:

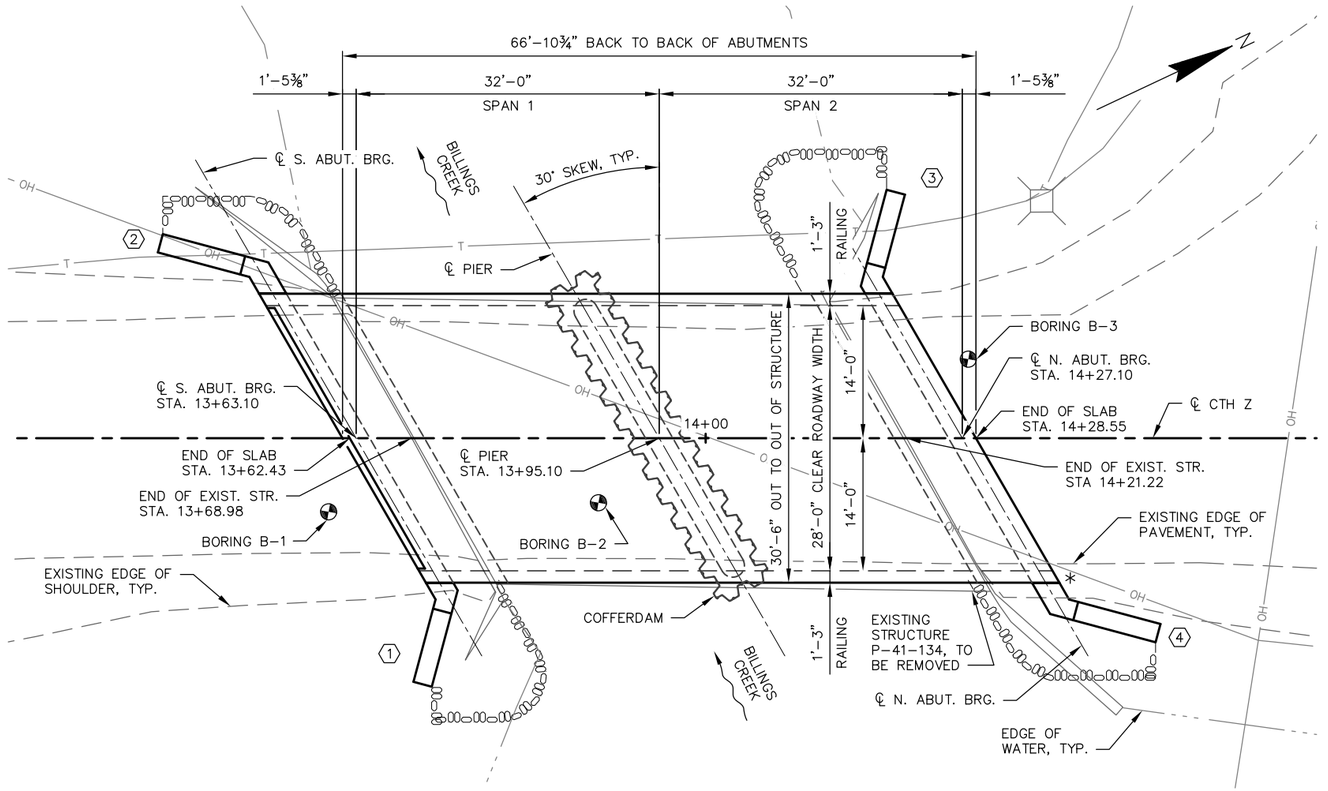
B-41-332 BORINGS

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
BORING B-1	10/19/2022	302663.5	710590.9
BORING B-2	10/19/2022	302689.7	710602.2
BORING B-3	10/19/2022	302731.5	710605.1
BORINGS COMPLETED BY: CHOSEN VALLEY TESTING			
SUBSURFACE INVESTIGATION REPORT: CHOSEN VALLEY TESTING			
ALL COORDINATES REFERENCED TO WISCRS, MONROE COUNTY			

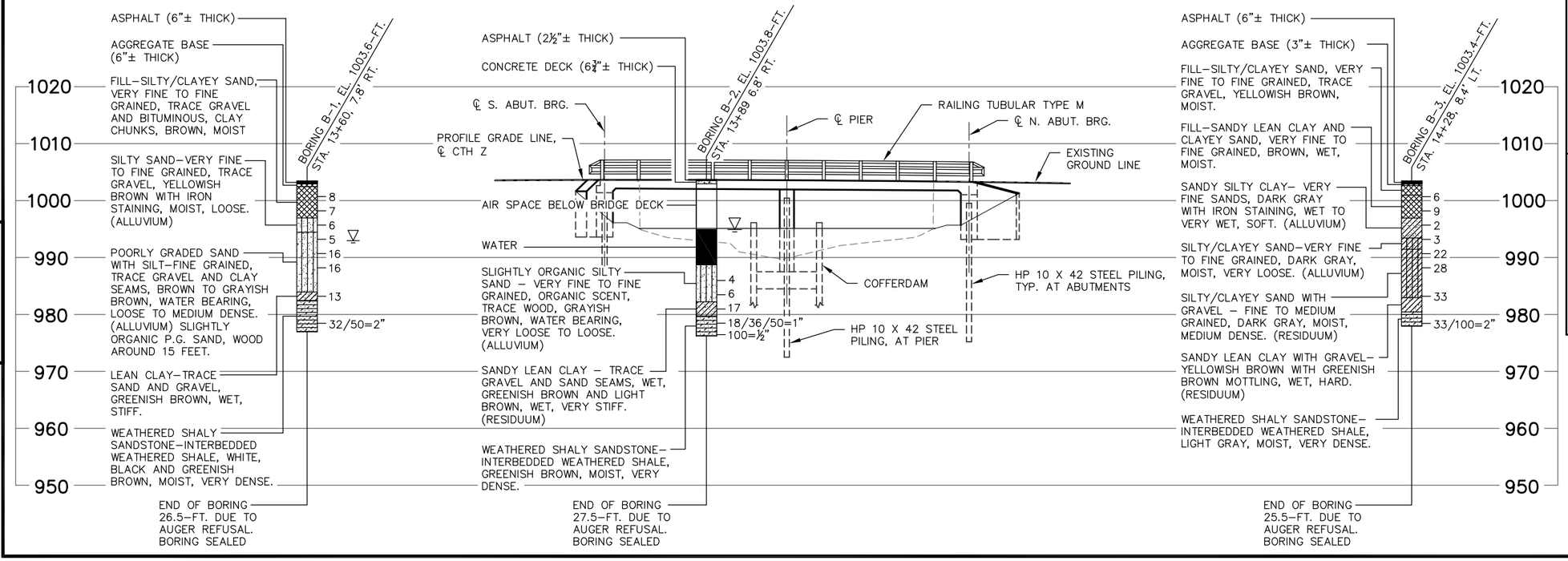
NOTES

⬡ INDICATES WING NUMBER

✳ LOCATION OF BEAM GUARD ATTACHMENT



PLAN B-41-332



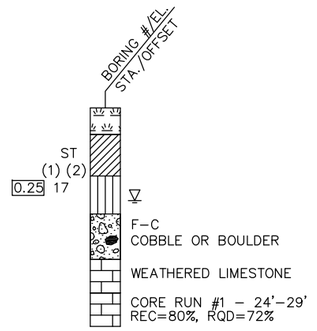
STATE PROJECT NUMBER

5165-00-73

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

STRUCTURE B-41-332

DRAWN BY BJR | PLANS CK'D ACK

SUBSURFACE EXPLORATION

SHEET 3 OF 13

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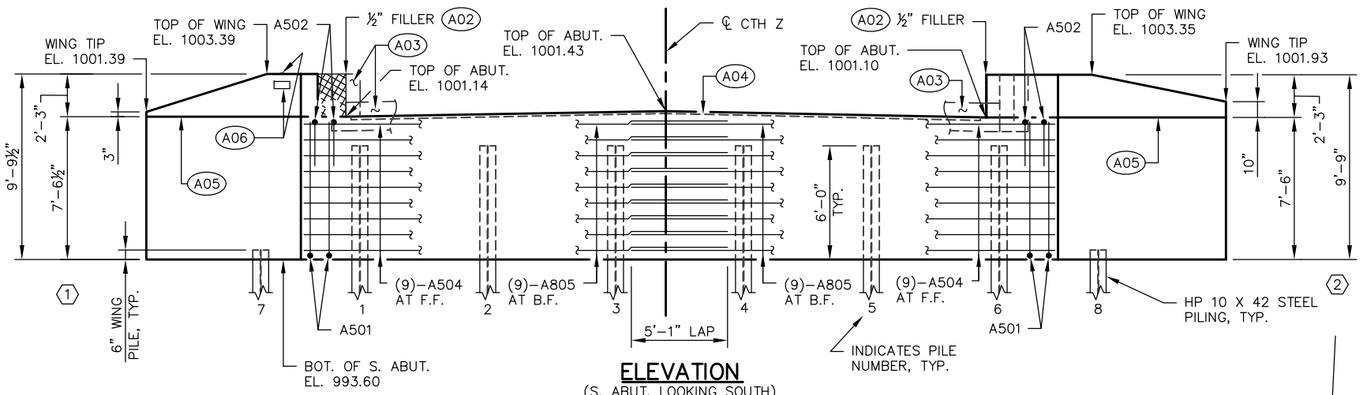
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I.D. 5165-00-73 PLOT DATE: Apr 15, 2026

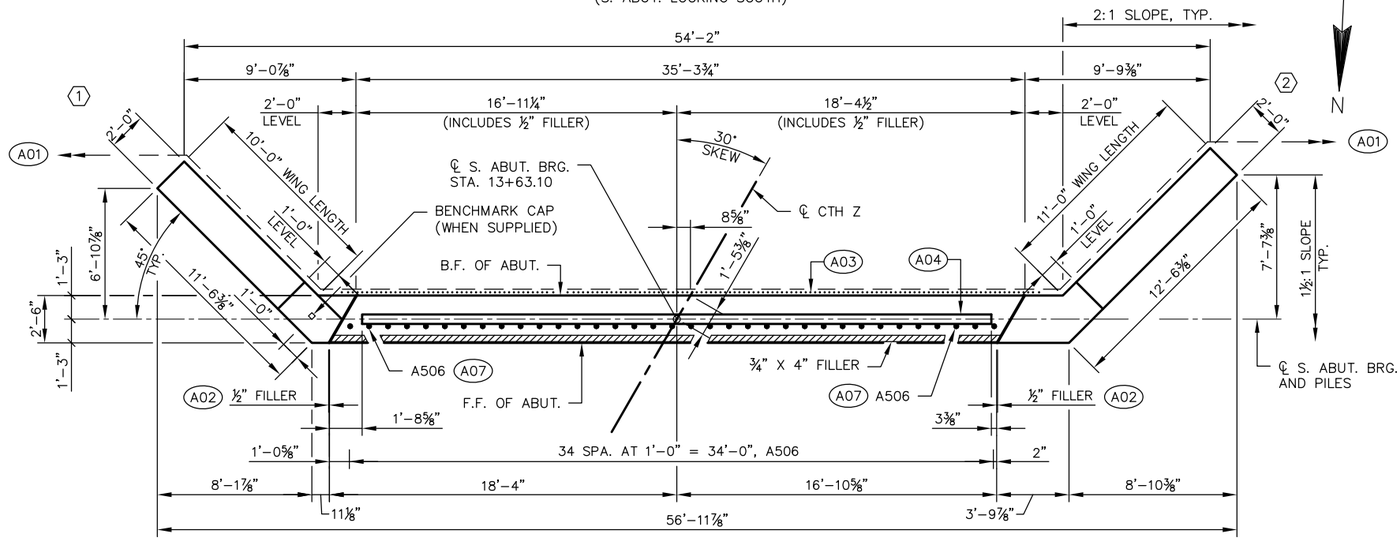
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PLOT SCALE:

STATE PROJECT NUMBER

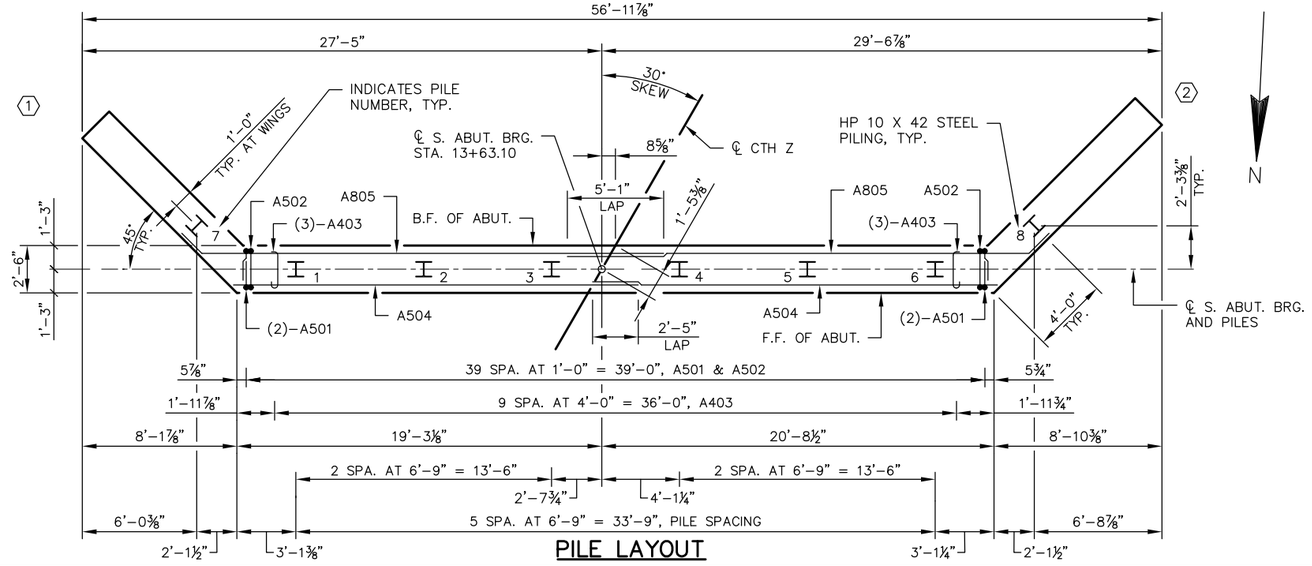
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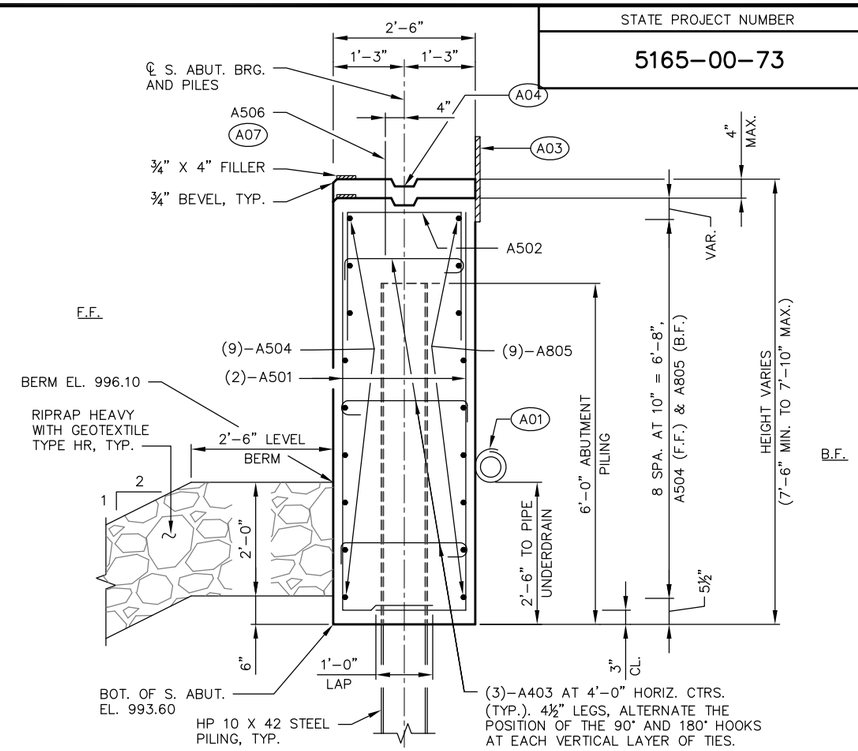
ELEVATION
(S. ABUT. LOOKING SOUTH)



PLAN



PILE LAYOUT



TYPICAL SECTION THRU SOUTH ABUTMENT
(LOOKING EAST)

NOTES

DO NOT PLACE FILL ABOVE 3'-0" FROM THE BOTTOM OF THE ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

SOUTH ABUTMENT TO BE SUPPORTED ON HP 10 X 42 STEEL PILING SEATED IN PREBORED HOLES CORED 5 FT MINIMUM INTO ROCK. PILE DRIVING IS NOT REQUIRED. THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS 130 TONS MULTIPLIED BY A RESISTANCE FACTOR OF 0.5. ESTIMATED 25 FT PILE LENGTHS AT THE SOUTH ABUTMENT.

SEE "CROSS SECTION, GENERAL NOTES & QUANTITIES" SHEET FOR PILE SPLICE DETAILS.

(A01) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON "SOUTH ABUTMENT REINFORCEMENT" SHEET. RODENT SHIELD SHALL BE INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

(A02) SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). ½" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

(A03) 18" RUBBERIZED MEMBRANE WATERPROOFING (R.M.W.), SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.

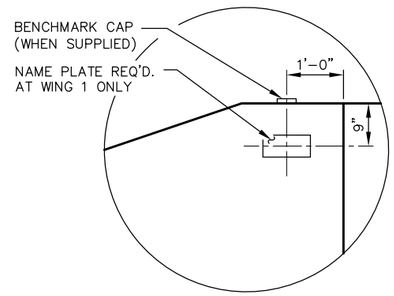
(A04) KEYED CONST. JT. FORMED BY BEVELED 2 X 6

(A05) OPTIONAL KEYED CONST. JT. FORMED BY BEVELED 2 X 6, TYP.

(A06) NAME PLATE & BENCHMARK CAP (WHEN SUPPLIED) AT WING 1 ONLY. SEE "NAME PLATE & BENCHMARK DETAIL", THIS SHEET.

(A07) A506 BARS MAY BE PLACED AFTER CONCRETE HAS BEEN POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. EMBED 1'-0" INTO ABUTMENT BODY.

⬡ INDICATES WING NUMBER



F.F. – FRONT FACE
B.F. – BACK FACE

NAME PLATE & BENCHMARK DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-41-332

DRAWN BY JDO | PLANS CK'D ACK

SOUTH ABUTMENT

SHEET 4 OF 13

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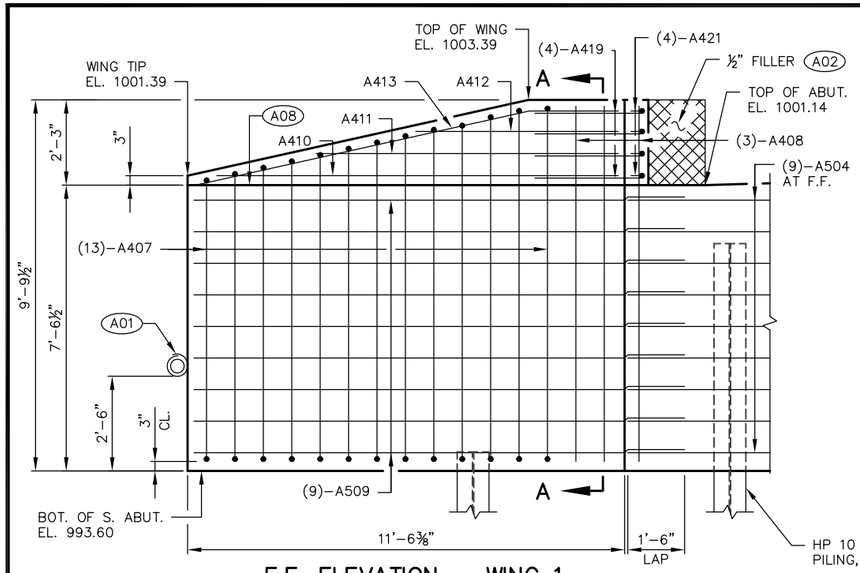
I.D. 5165-00-73

PLOT DATE: Apr 24, 2026

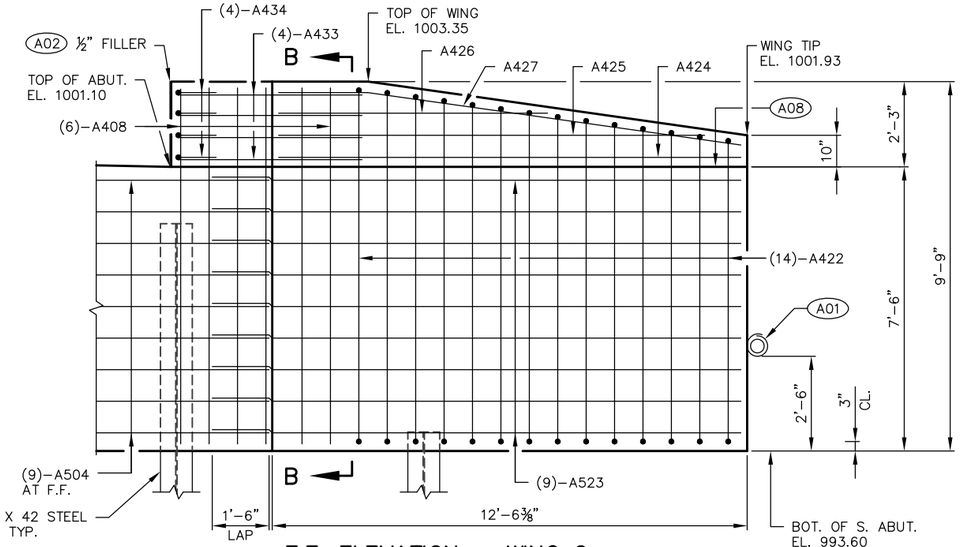
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STATE PROJECT NUMBER

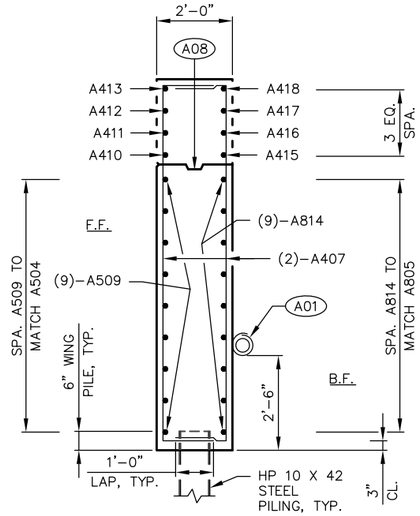
5165-00-73



F.F. ELEVATION – WING 1



F.F. ELEVATION – WING 2



SECTION A–A

(WING 1)

NOTES

DO NOT PLACE FILL ABOVE 3'–0" FROM THE BOTTOM OF THE ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

SOUTH ABUTMENT TO BE SUPPORTED ON HP 10 X 42 STEEL PILING SEATED IN PREBORED HOLES CORED 5 FT MINIMUM INTO ROCK. PILE DRIVING IS NOT REQUIRED. THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS 130 TONS MULTIPLIED BY A RESISTANCE FACTOR OF 0.5. ESTIMATED 25 FT PILE LENGTHS AT THE SOUTH ABUTMENT.

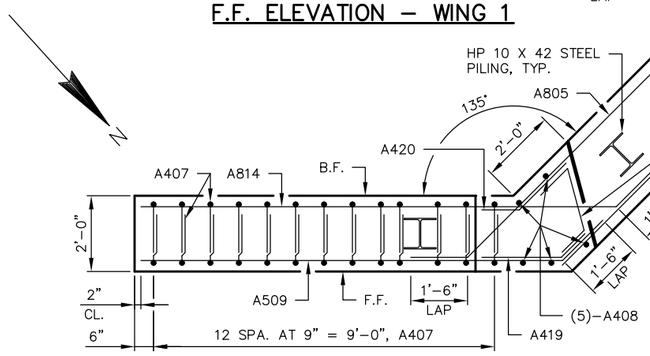
SEE "CROSS SECTION, GENERAL NOTES & QUANTITIES" SHEET FOR PILE SPLICE DETAILS.

(A01) PIPE UNDERDRAIN WRAPPED (6–INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON "SOUTH ABUTMENT REINFORCEMENT", SHEET. RODENT SHIELD SHALL BE INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6–INCH".

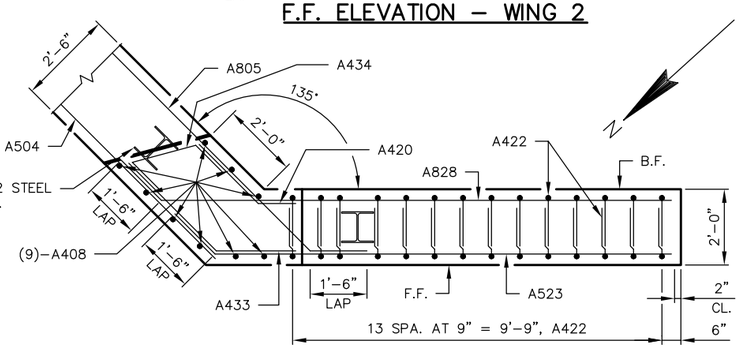
(A02) SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON–STAINING GRAY NON–BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.) ½" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

(A08) OPTIONAL CONSTRUCTION JOINT, SEAL B.F. WITH R.M.W. IF CONST. JOINT IS USED. COST INCLUDED WITH THE BID ITEM "CONCRETE MASONRY BRIDGES". PLACE 3/4" "V" GROOVE ON F.F. OF WALL IF CONST. JT. IS USED.

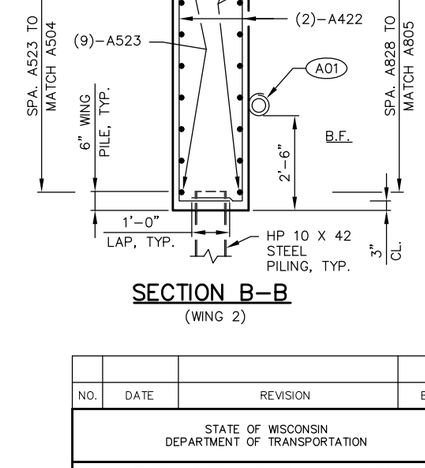
F.F. – FRONT FACE
B.F. – BACK FACE



PLAN – WING 1

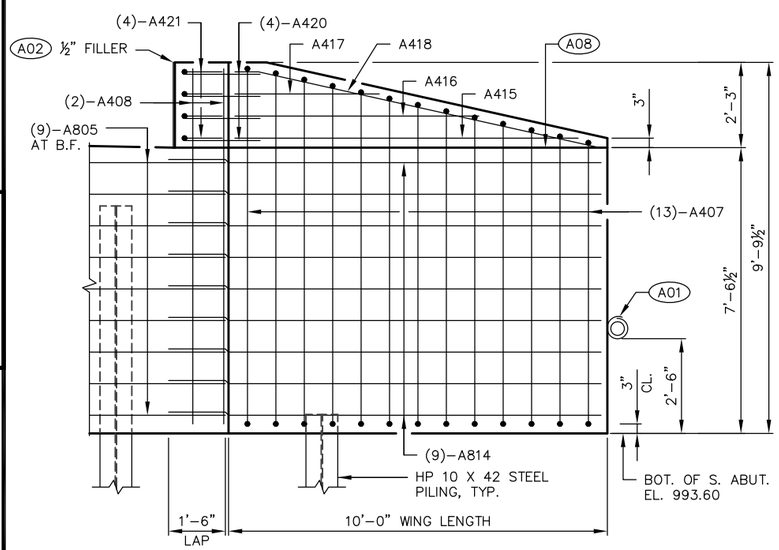


PLAN – WING 2

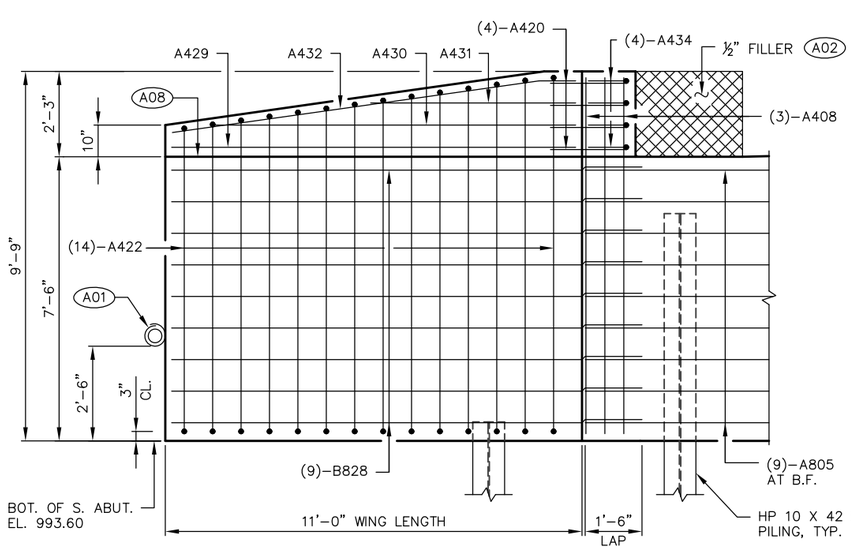


SECTION B–B

(WING 2)



B.F. ELEVATION – WING 1



B.F. ELEVATION – WING 2

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B–41–332

DRAWN BY JDO | PLANS CK'D ACK

SOUTH ABUTMENT WINGS

SHEET 5 OF 13

56

8

8

I.D. 5165–00–73

PLOT DATE: Apr 24, 2026

FILE: B410332_04–06_Sabut.dwg
PLOT SCALE:

STATE PROJECT NUMBER
5165–00–73

BILL OF BARS
SOUTH ABUTMENT

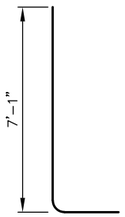
COATED = 1,680 LBS.
UNCOATED = 2,710 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH	BENT	BAR SERIES	LOCATION	
A501		80	8'–7"	X		BODY – STIRRUP – F.F. & B.F.	VERT.
A502		40	6'–7"	X		BODY – STIRRUP – TOP	VERT.
A403		30	3'–1"	X		BODY – TIES	HORIZ.
A504		18	21'–3"			BODY – F.F.	HORIZ.
A805		18	26'–1"	X		BODY – B.F.	HORIZ.
A506	35		2'–0"			BODY – TOP DOWELS	VERT.
A407	26		10'–11"	X	⚠	WING 1 – STIRRUP – F.F. & B.F.	VERT.
A408	14		9'–4"			WINGS 1 & 2 – F.F. & B.F.	VERT.
A509	9		12'–9"	X		WING 1 – F.F.	HORIZ.
A410	1		10'–7"			WING 1 – F.F.	HORIZ.
A411	1		7'–11"			WING 1 – F.F.	HORIZ.
A412	1		5'–4"			WING 1 – F.F.	HORIZ.
A413	1		11'–4"	X		WING 1 – F.F. – TOP	HORIZ.
A814	9		14'–3"	X		WING 1 – B.F.	HORIZ.
A415	1		9'–1"			WING 1 – B.F.	HORIZ.
A416	1		6'–5"			WING 1 – B.F.	HORIZ.
A417	1		3'–9"			WING 1 – B.F.	HORIZ.
A418	1		9'–9"	X		WING 1 – B.F. – TOP	HORIZ.
A419	4		2'–11"	X		WING 1 – F.F. CORNER	HORIZ.
A420	8		2'–8"	X		WINGS 1 & 2 – B.F. CORNER	HORIZ.
A421	4		4'–2"	X		WING 1 – TOP CORNER	HORIZ.
A422	28		11'–2"	X	⚠	WING 2 – STIRRUP – F.F. & B.F.	VERT.
A523	9		13'–9"	X		WING 2 – F.F.	HORIZ.
A424	1		12'–2"			WING 2 – F.F.	HORIZ.
A425	1		11'–2"			WING 2 – F.F.	HORIZ.
A426	1		7'–1"			WING 2 – F.F.	HORIZ.
A427	1		12'–4"	X		WING 2 – F.F. – TOP	HORIZ.
A828	9		15'–3"	X		WING 2 – B.F.	HORIZ.
A429	1		10'–8"			WING 2 – B.F.	HORIZ.
A430	1		9'–7"			WING 2 – B.F.	HORIZ.
A431	1		5'–5"			WING 2 – B.F.	HORIZ.
A432	1		10'–9"	X		WING 2 – B.F. – TOP	HORIZ.
A433	4		5'–7"	X		WING 2 – F.F. CORNER	HORIZ.
A434	4		4'–6"	X		WING 2 – TOP CORNER	HORIZ.

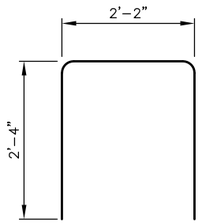
THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.

ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.

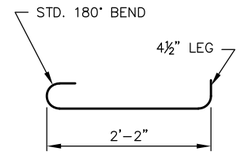
⚠ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE "BAR SERIES TABLE" FOR ACTUAL LENGTHS.



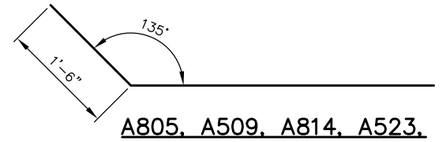
A501



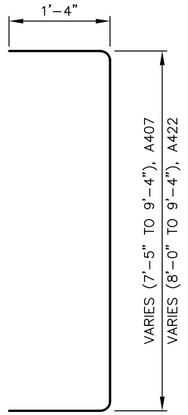
A502



A403



A805, A509, A814, A523, & A828

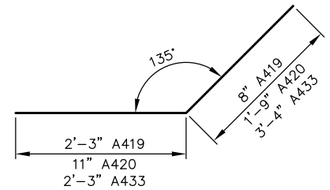


A407 & A422

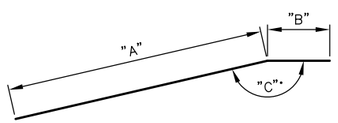
BAR SERIES TABLE

MARK	NO. REQ'D	LENGTH
A407	2 SERIES OF 13	9'–11" TO 11'–10"
A422	2 SERIES OF 14	10'–6" TO 11'–10"

BUNDLE AND TAG EACH SERIES SEPARATELY.



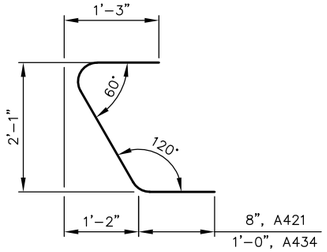
A419, A420, & A433



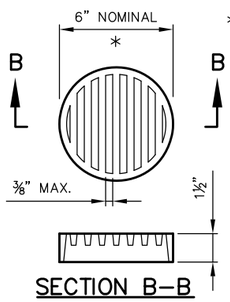
A413, A418, A427, & A432

BAR BEND DIMENSIONS

MARK	"A"	"B"	"C"
A413	9'–0"	2'–4"	167°
A418	9'–0"	0'–9"	167°
A427	10'–0"	2'–4"	172°
A432	10'–0"	0'–9"	172°



A421 & A434



SECTION B–B

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

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.

THE RODENT SHIELD. PIPE COUPLING AND SCREWS SHALL BE INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6–INCH".

RODENT SHIELD DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B–41–332

DRAWN BY JDO | PLANS CK'D ACK

SOUTH ABUTMENT REINFORCEMENT

SHEET 6 OF 13

57

I.D. 5165–00–73 PLOT DATE: Apr 13, 2026

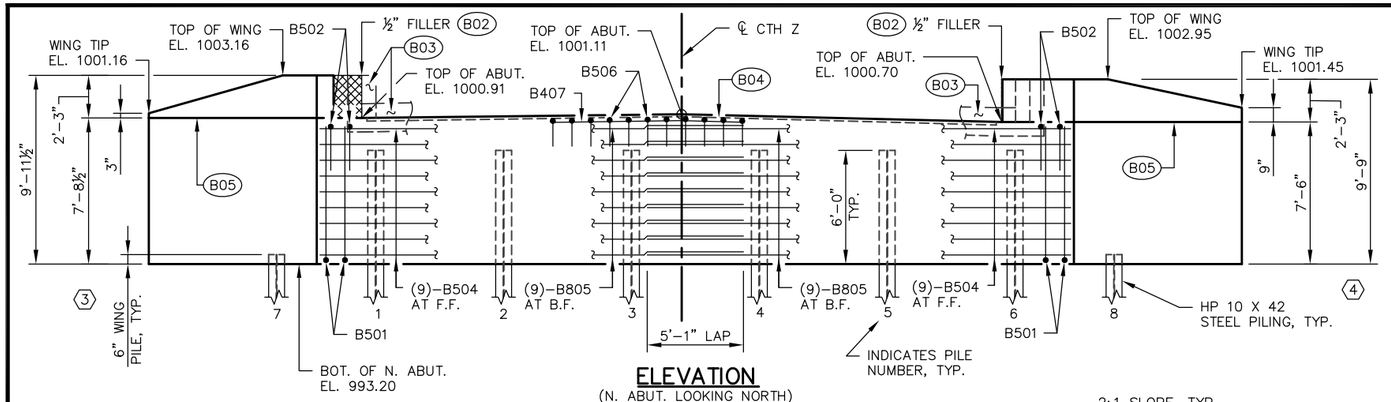
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PLOT SCALE:

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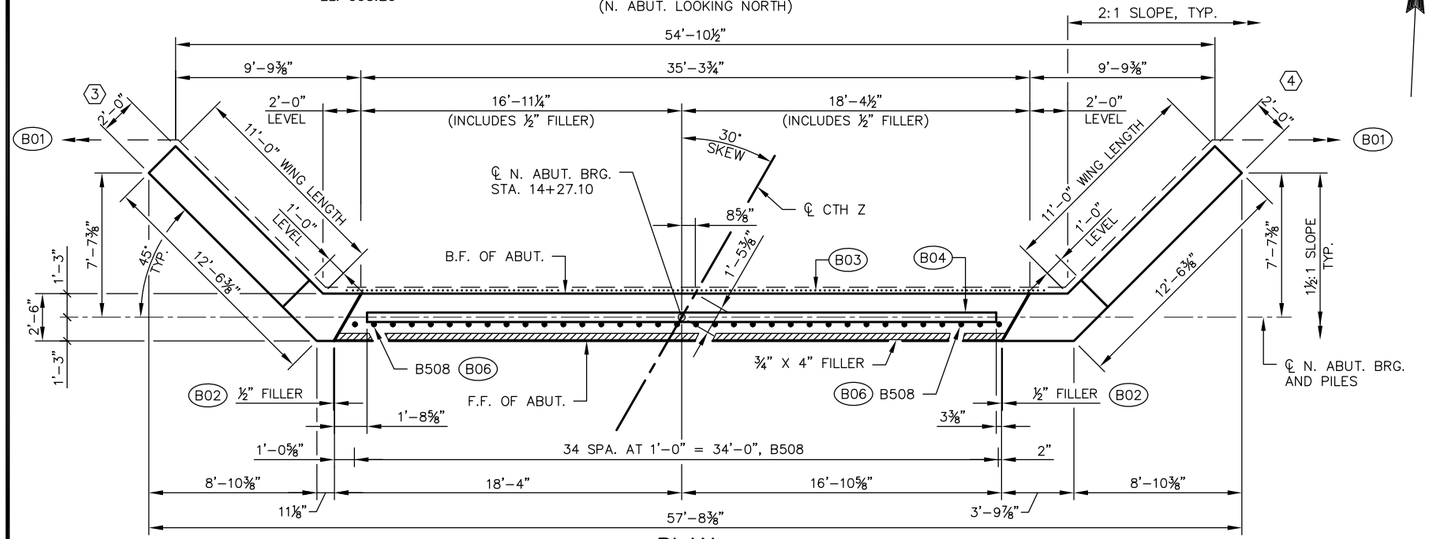
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STATE PROJECT NUMBER

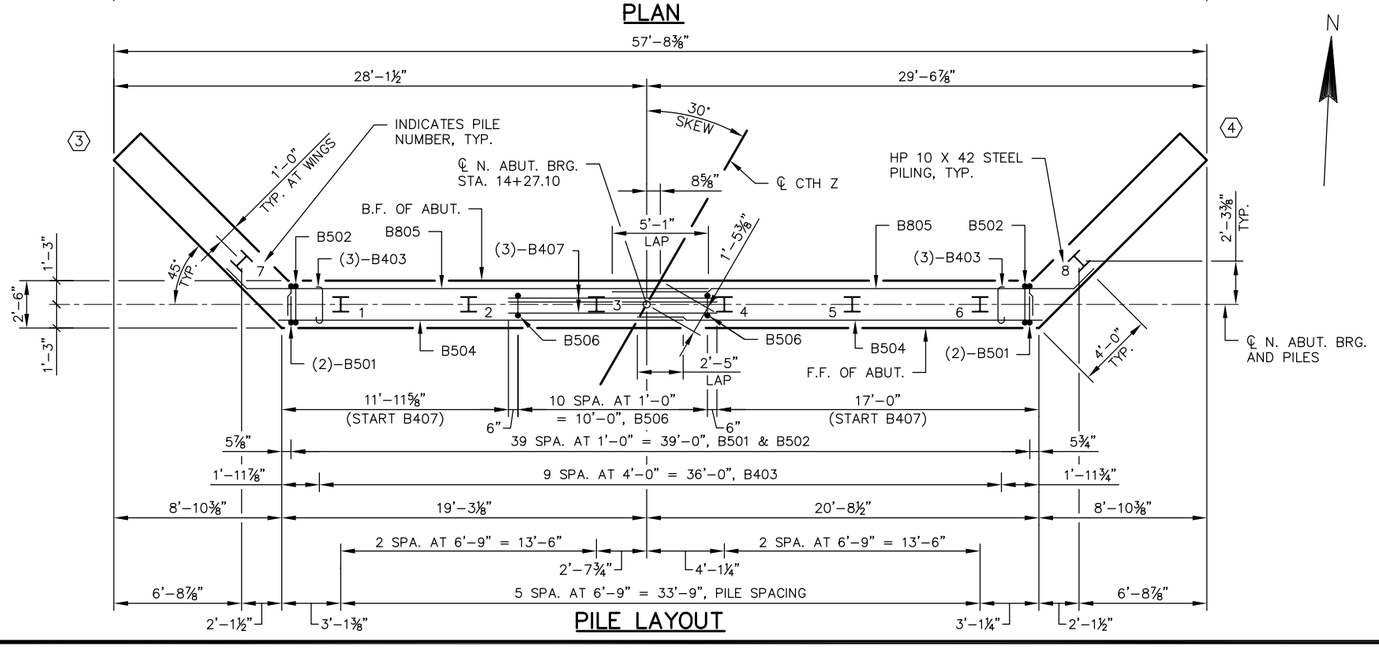
5165-00-73



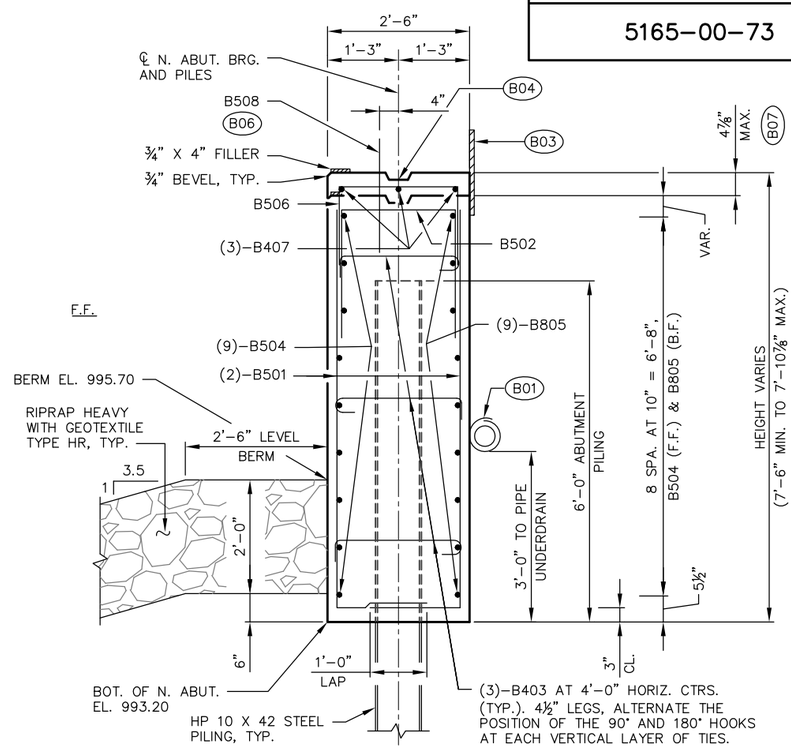
ELEVATION
(N. ABUT. LOOKING NORTH)



PLAN



PILE LAYOUT



TYPICAL SECTION THRU NORTH ABUTMENT
(LOOKING WEST)

NOTES

DO NOT PLACE FILL ABOVE 3'-0" FROM THE BOTTOM OF THE ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

NORTH ABUTMENT TO BE SUPPORTED ON HP 10 X 42 STEEL PILING SEATED IN PREBORED HOLES CORED 5 FT MINIMUM INTO ROCK. PILE DRIVING IS NOT REQUIRED. THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS 110 TONS MULTIPLIED BY A RESISTANCE FACTOR OF 0.5. ESTIMATED 25 FT PILE LENGTHS AT THE NORTH ABUTMENT.

SEE "CROSS SECTION, GENERAL NOTES & QUANTITIES" SHEET FOR PILE SPLICE DETAILS.

(B01) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON "SOUTH ABUTMENT REINFORCEMENT", SHEET. RODENT SHIELD SHALL BE INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

(B02) SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). ½" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

(B03) 18" RUBBERIZED MEMBRANE WATERPROOFING (R.M.W.), SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.

(B04) KEYED CONST. JT. FORMED BY BEVELED 2 X 6

(B05) OPTIONAL KEYED CONST. JT. FORMED BY BEVELED 2 X 6, TYP.

(B06) B508 BARS MAY BE PLACED AFTER CONCRETE HAS BEEN POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. EMBED 1'-0" INTO ABUTMENT BODY.

(B07) B506 & B407 BARS REQUIRED WHERE DIMENSION EXCEEDS 4"

⬡ INDICATES WING NUMBER

F.F. - FRONT FACE
B.F. - BACK FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-41-332

DRAWN BY JDO | PLANS CK'D ACK

NORTH ABUTMENT

SHEET 7 OF 13

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8

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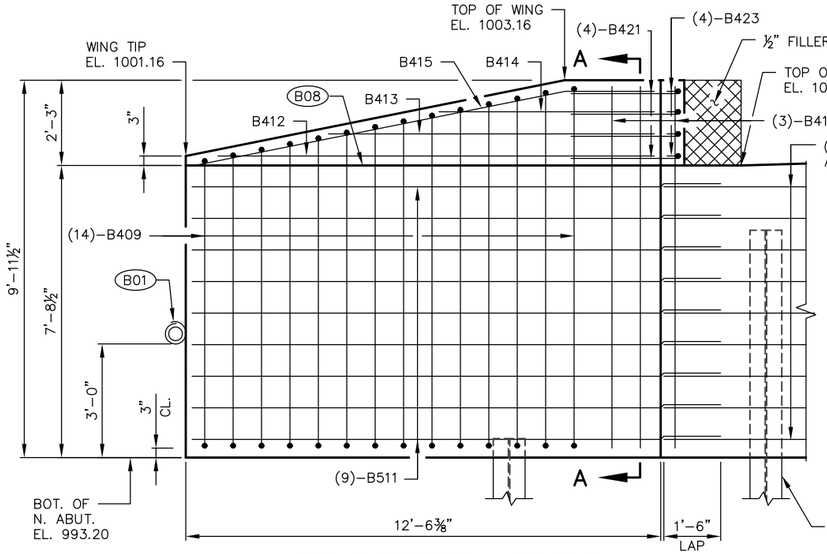
I.D. 5165-00-73

PLOT DATE: Apr 24, 2026

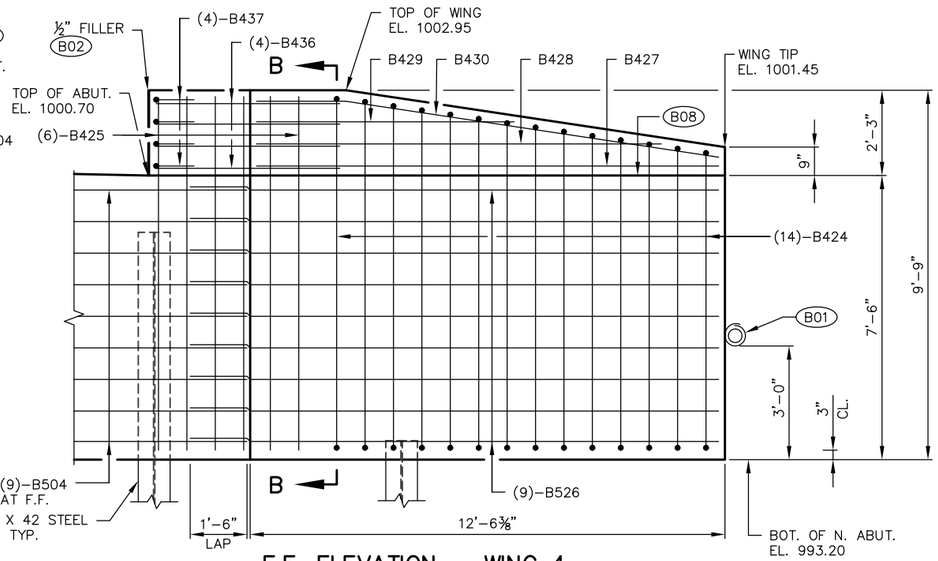
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PLOT SCALE:

STATE PROJECT NUMBER

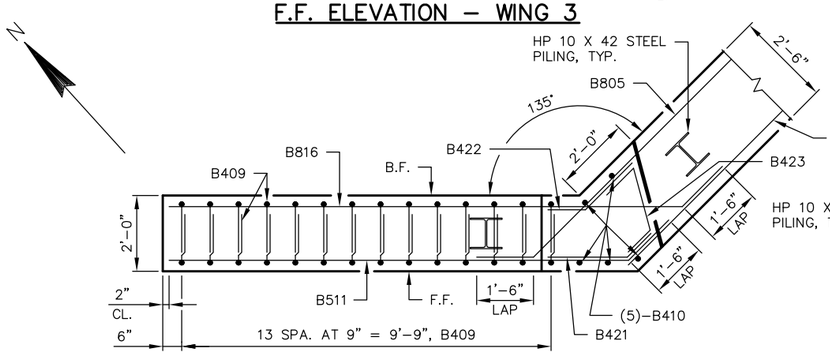
5165-00-73



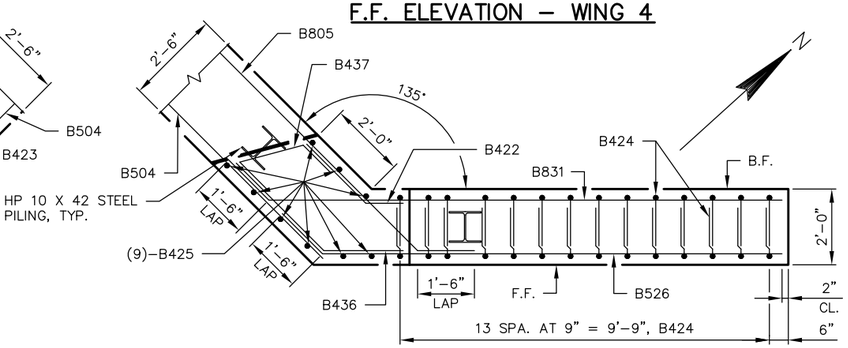
F.F. ELEVATION – WING 3



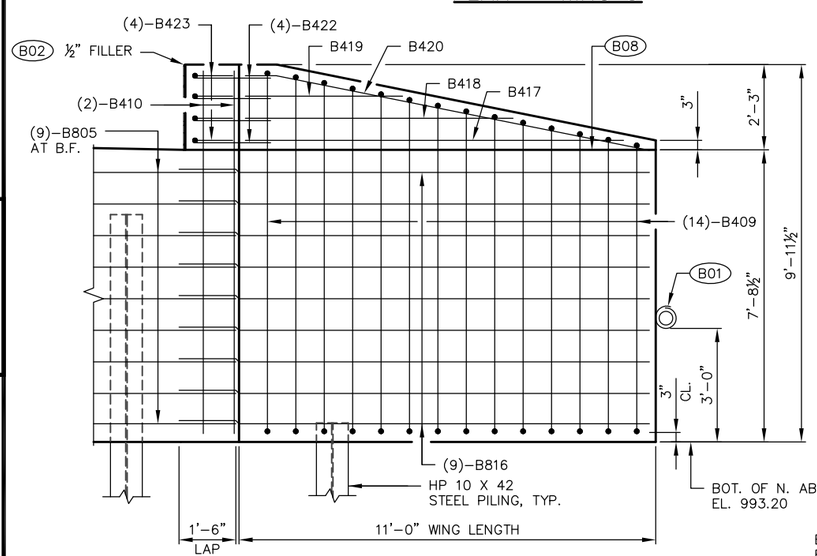
F.F. ELEVATION – WING 4



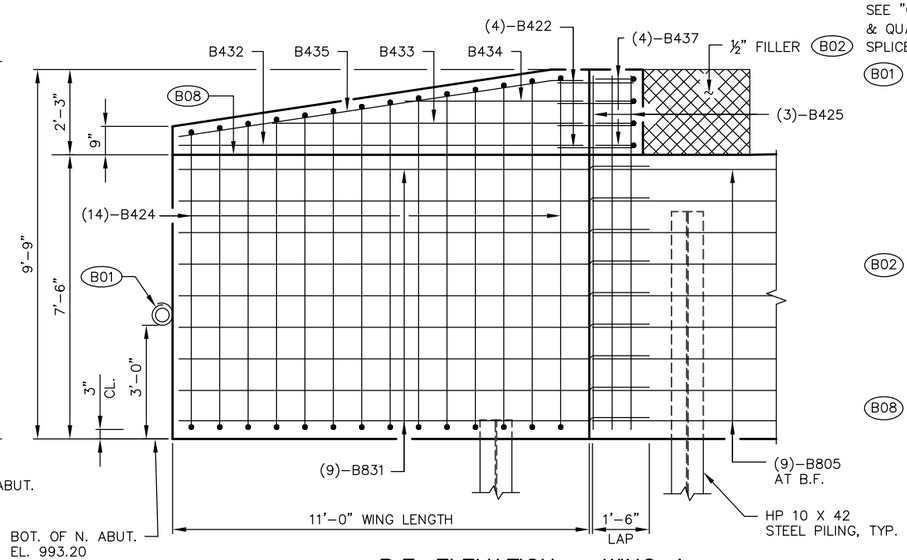
PLAN – WING 3



PLAN – WING 4



B.F. ELEVATION – WING 3



B.F. ELEVATION – WING 4

NOTES

DO NOT PLACE FILL ABOVE 3'–0" FROM THE BOTTOM OF THE ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

NORTH ABUTMENT TO BE SUPPORTED ON HP 10 X 42 STEEL PILING SEATED IN PREBORED HOLES CORED 5 FT MINIMUM INTO ROCK. PILE DRIVING IS NOT REQUIRED. THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS 110 TONS MULTIPLIED BY A RESISTANCE FACTOR OF 0.5. ESTIMATED 25 FT PILE LENGTHS AT THE NORTH ABUTMENT.

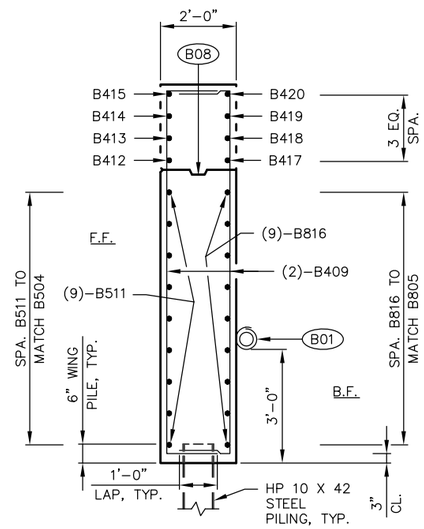
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(B01) PIPE UNDERDRAIN WRAPPED (6–INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON "SOUTH ABUTMENT REINFORCEMENT", SHEET. RODENT SHIELD SHALL BE INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6–INCH".

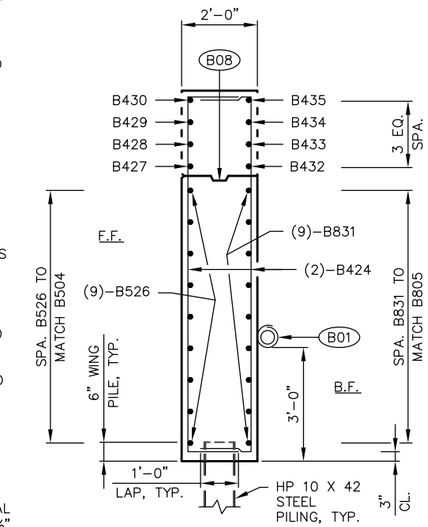
(B02) SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON–STAINING GRAY NON–BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.) ½" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

(B08) OPTIONAL CONSTRUCTION JOINT, SEAL B.F. WITH R.M.W. IF CONST. JOINT IS USED. COST INCLUDED WITH THE BID ITEM "CONCRETE MASONRY BRIDGES". PLACE 3/4" "V" GROOVE ON F.F. OF WALL IF CONST. JT. IS USED.

F.F. – FRONT FACE
B.F. – BACK FACE



SECTION A–A
(WING 3)



SECTION B–B
(WING 4)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B–41–332

DRAWN BY JDO | PLANS CK'D ACK

NORTH ABUTMENT WINGS

SHEET 8 OF 13

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8

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I.D. 5165–00–73

PLOT DATE: Apr 24, 2026

FILE: B410332_07–09_Nabut.dwg
PLOT SCALE:

STATE PROJECT NUMBER
5165–00–73

BILL OF BARS
NORTH ABUTMENT

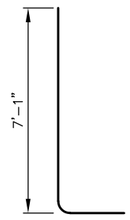
COATED = 1,730 LBS.
UNCOATED = 2,790 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH	BENT	BAR SERIES	LOCATION	
B501		80	8'–7"	X		BODY – STIRRUP – F.F. & B.F.	VERT.
B502		40	6'–7"	X		BODY – STIRRUP – TOP	VERT.
B403		30	3'–1"	X		BODY – TIES	HORIZ.
B504		18	21'–3"			BODY – F.F.	HORIZ.
B805		18	26'–1"	X		BODY – B.F.	HORIZ.
B506		11	4'–9"	X		BODY – STIRRUP – TOP	VERT.
B407		3	11'–0"			BODY – TOP	LONGIT.
B508	35		2'–0"			BODY – TOP DOWELS	VERT.
B409	28		11'–1"	X	⚠	WING 3 – STIRRUP – F.F. & B.F.	VERT.
B410	5		9'–6"			WING 3 – F.F. & B.F.	VERT.
B511	9		13'–9"	X		WING 3 – F.F.	HORIZ.
B412	1		11'–6"			WING 3 – F.F.	HORIZ.
B413	1		8'–7"			WING 3 – F.F.	HORIZ.
B414	1		5'–8"			WING 3 – F.F.	HORIZ.
B415	1		12'–4"	X		WING 3 – F.F. – TOP	HORIZ.
B816	9		15'–3"	X		WING 3 – B.F.	HORIZ.
B417	1		9'–11"			WING 3 – B.F.	HORIZ.
B418	1		7'–1"			WING 3 – B.F.	HORIZ.
B419	1		4'–1"			WING 3 – B.F.	HORIZ.
B420	1		10'–9"	X		WING 3 – B.F. – TOP	HORIZ.
B421	4		2'–11"	X		WING 3 – F.F. CORNER	HORIZ.
B422	8		2'–8"	X		WINGS 3 & 4 – B.F. CORNER	HORIZ.
B423	4		4'–2"	X		WING 3 – TOP CORNER	HORIZ.
B424	28		11'–1"	X	⚠	WING 4 – STIRRUP – F.F. & B.F.	VERT.
B425	9		9'–4"			WING 4 – F.F. & B.F.	VERT.
B526	9		13'–9"	X		WING 4 – F.F.	HORIZ.
B427	1		12'–2"			WING 4 – F.F.	HORIZ.
B428	1		10'–8"			WING 4 – F.F.	HORIZ.
B429	1		6'–9"			WING 4 – F.F.	HORIZ.
B430	1		12'–4"	X		WING 4 – F.F. – TOP	HORIZ.
B831	9		15'–3"	X		WING 4 – B.F.	HORIZ.
B432	1		10'–8"			WING 4 – B.F.	HORIZ.
B433	1		9'–2"			WING 4 – B.F.	HORIZ.
B434	1		5'–3"			WING 4 – B.F.	HORIZ.
B435	1		10'–9"	X		WING 4 – B.F. – TOP	HORIZ.
B436	4		5'–7"	X		WING 4 – F.F. CORNER	HORIZ.
B437	4		4'–6"	X		WING 4 – TOP CORNER	HORIZ.

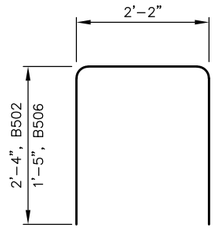
THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.

ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.

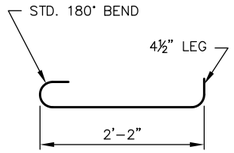
⚠ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE "BAR SERIES TABLE" FOR ACTUAL LENGTHS.



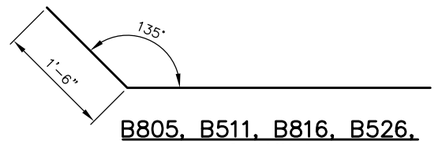
B501



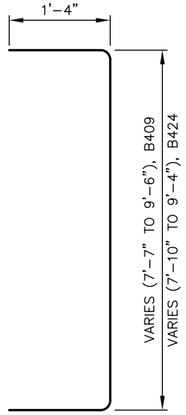
B502 & B506



B403



B805, B511, B816, B526, & B831

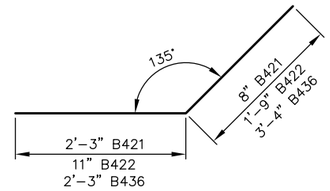


B409 & B424

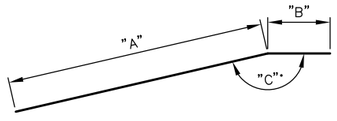
BAR SERIES TABLE

MARK	NO. REQ'D	LENGTH
B409	2 SERIES OF 14	10'–1" TO 12'–0"
B424	2 SERIES OF 14	10'–4" TO 11'–10"

BUNDLE AND TAG EACH SERIES SEPARATELY.



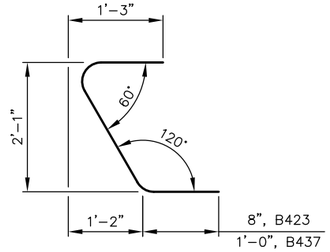
B421, B422, & B436



B415, B420, B430, & B435

BAR BEND DIMENSIONS

MARK	"A"	"B"	"C"
B415	10'–0"	2'–4"	169°
B420	10'–0"	0'–9"	169°
B430	10'–0"	2'–4"	172°
B435	10'–0"	0'–9"	172°



B423 & B437

8

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B–41–332

DRAWN BY JDO | PLANS CK'D ACK

NORTH ABUTMENT REINFORCEMENT

SHEET 9 OF 13

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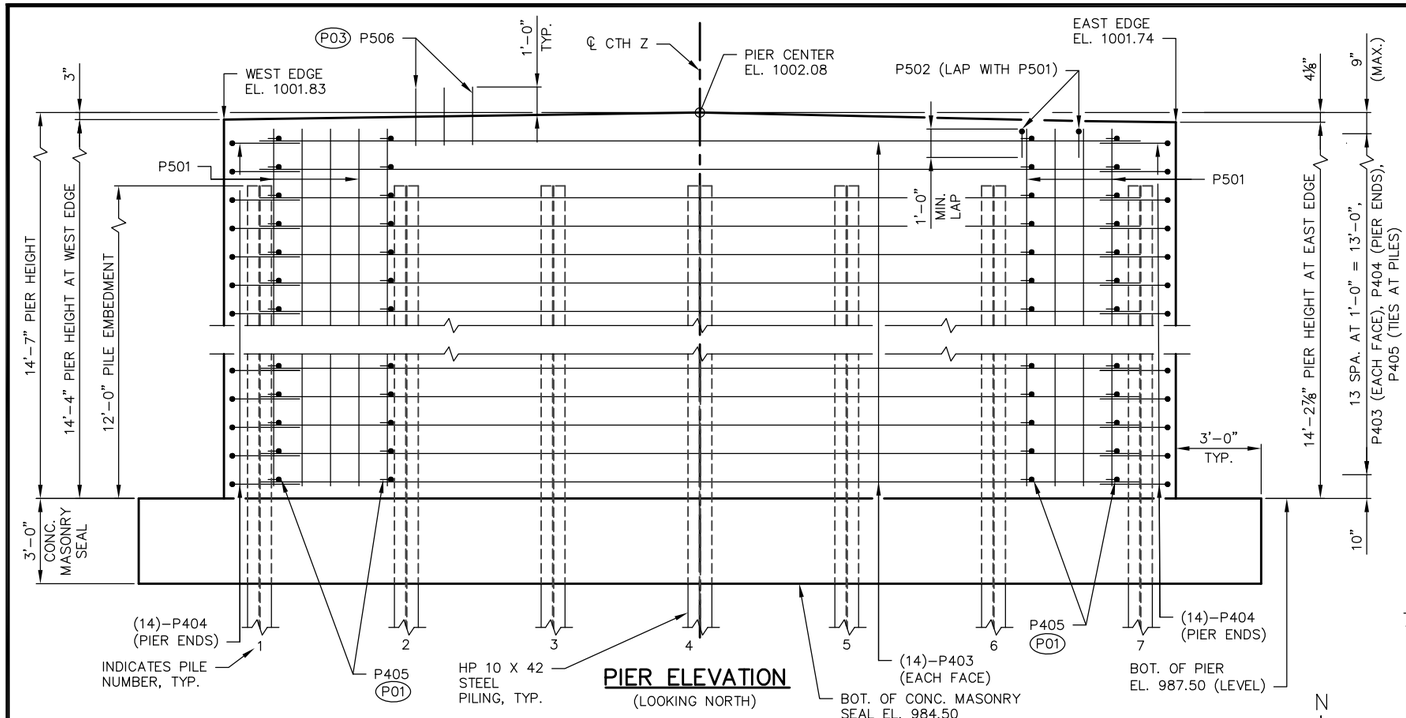
I.D. 5165–00–73

PLOT DATE: Apr 13, 2026

FILE: B410332_07–09_Nabut.dwg
PLOT SCALE:

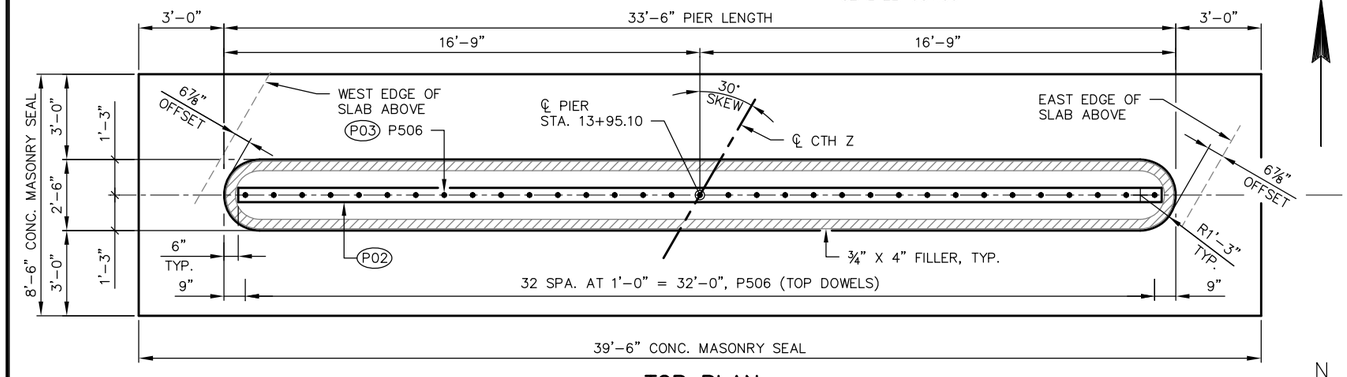
STATE PROJECT NUMBER

5165-00-73

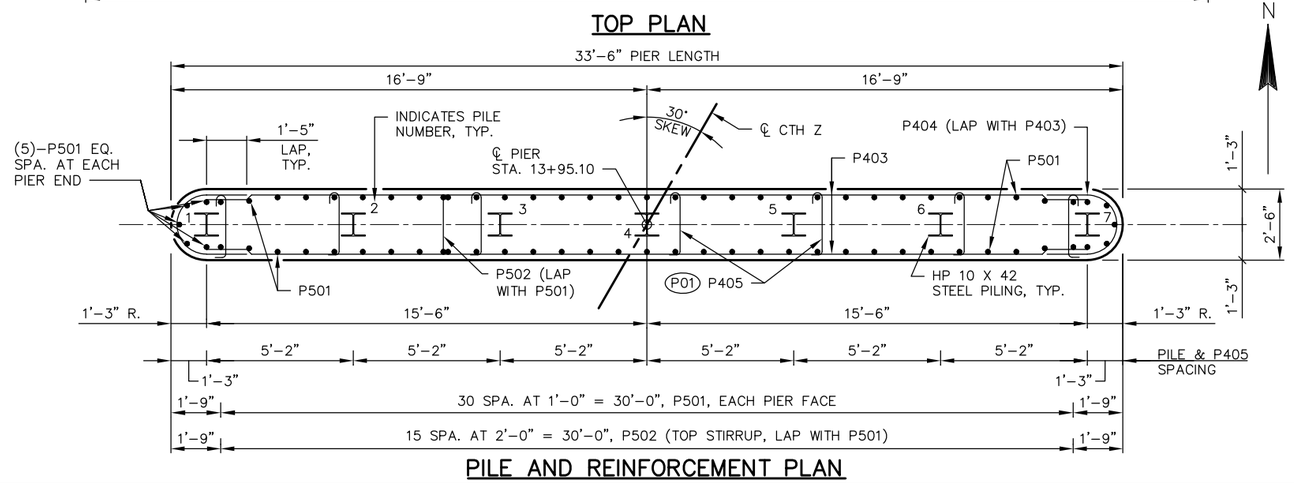


PIER ELEVATION

(LOOKING NORTH)



TOP PLAN



PILE AND REINFORCEMENT PLAN

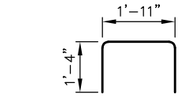
BILL OF BARS
PIER

COATED = 70 LBS.
UNCOATED = 1,980 LBS.

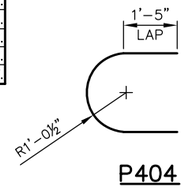
MARK	NUMBER UNCOATED	NUMBER COATED	LENGTH	BENT	BAR SERIES	LOCATION	
P501	72		13'-6"			PIER – SIDES	VERT.
P502	16		4'-4"	X		PIER – TOP STIRRUP	VERT.
P403	28		31'-0"			PIER – SIDES	HORIZ.
P404	28		6'-2"	X		PIER – END STIRRUP	HORIZ.
P405	98		3'-0"	X		PIER – TIES	HORIZ.
P506		33	2'-0"			PIER – TOP DOWELS	VERT.

THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.

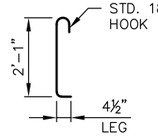
ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.



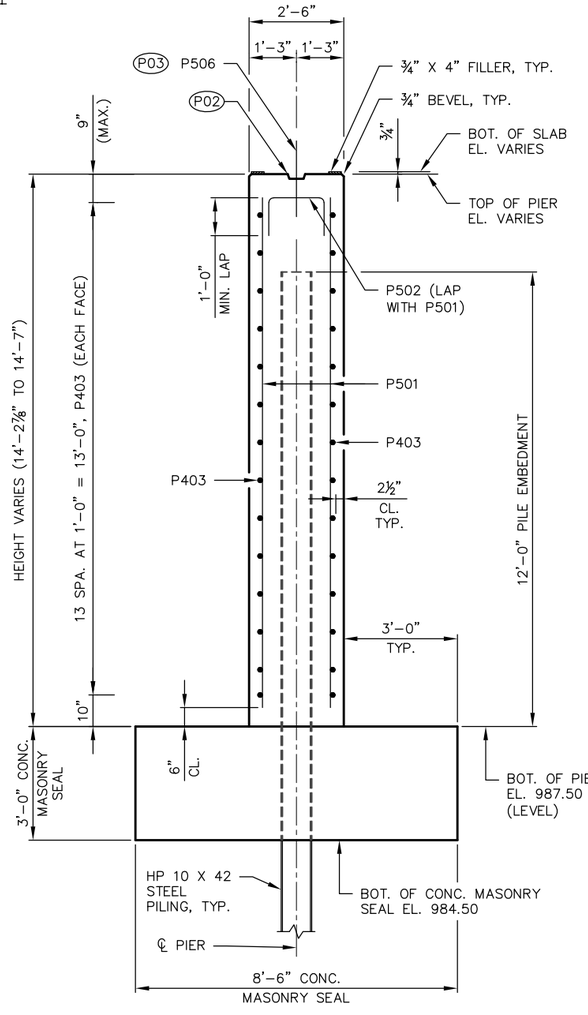
P502



P404



P405



TYPICAL SECTION THRU PIER

NOTES

PIER TO BE SUPPORTED ON HP 10 X 42 STEEL PILING SEATED IN PREBORED HOLES CORED 5 FEET MINIMUM INTO ROCK. PILE DRIVING IS NOT REQUIRED. THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS 180 TONS MULTIPLIED BY A RESISTANCE FACTOR OF 0.5. ESTIMATED 30 FT PILE LENGTHS AT PIER.

AT PIERS, COFFERDAM AND COFFERDAM DEWATERING IS REQUIRED. COFFERDAM SHALL BE DEWATERED PRIOR TO PLACING PIER CONCRETE.

FOR PILE SPLICE DETAILS SEE "CROSS SECTION, GENERAL NOTES & QUANTITIES" SHEET.

(P01) PLACE P405 BARS ADJACENT TO EACH PILE ONLY. TIE TO NEAREST VERT. P501 BAR. VERTICAL SPA. AT 1'-0" TO MATCH P403 OUTSIDE BARS. ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

(P02) KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6".

(P03) P506 BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-41-332

DRAWN BY JDO | PLANS CK'D ACK

PIER DETAILS

SHEET 10 OF 13

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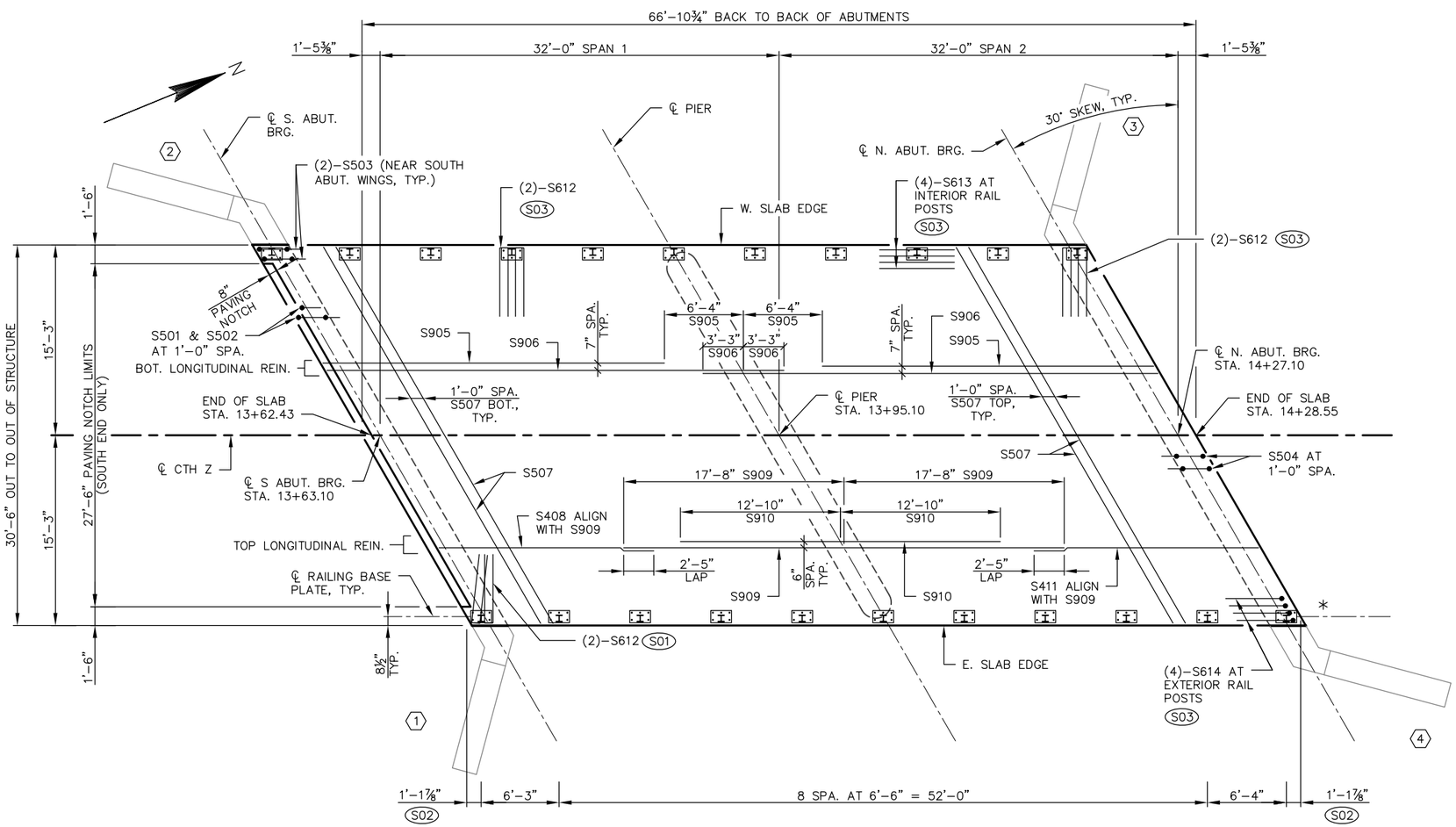
I.D. 5165-00-73

PLOT DATE: Apr 14, 2026

FILE: B410332_10_pier.dwg
PLOT SCALE:

STATE PROJECT NUMBER

5165-00-73



NOTES

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.

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

RAILING TO BE INSTALLED ON THE SLAB AFTER FALSEWORK HAS BEEN RELEASED.

(S01) SEE "SUPERSTRUCTURE DETAILS" SHEET FOR ORIENTATION OF S612 & S614 BARS AT END POSTS AT SOUTH END. ADJUST S612 BAR ORIENTATION TO MAINTAIN COVER TO END OF SLAB.

(S02) MEASURED FROM END OF SLAB ALONG ℄ OF RAILING BASE PLATE.

(S03) SEE "RAILING TUBULAR TYPE M" SHEET FOR PLACEMENT OF RAIL POST REINFORCEMENT.

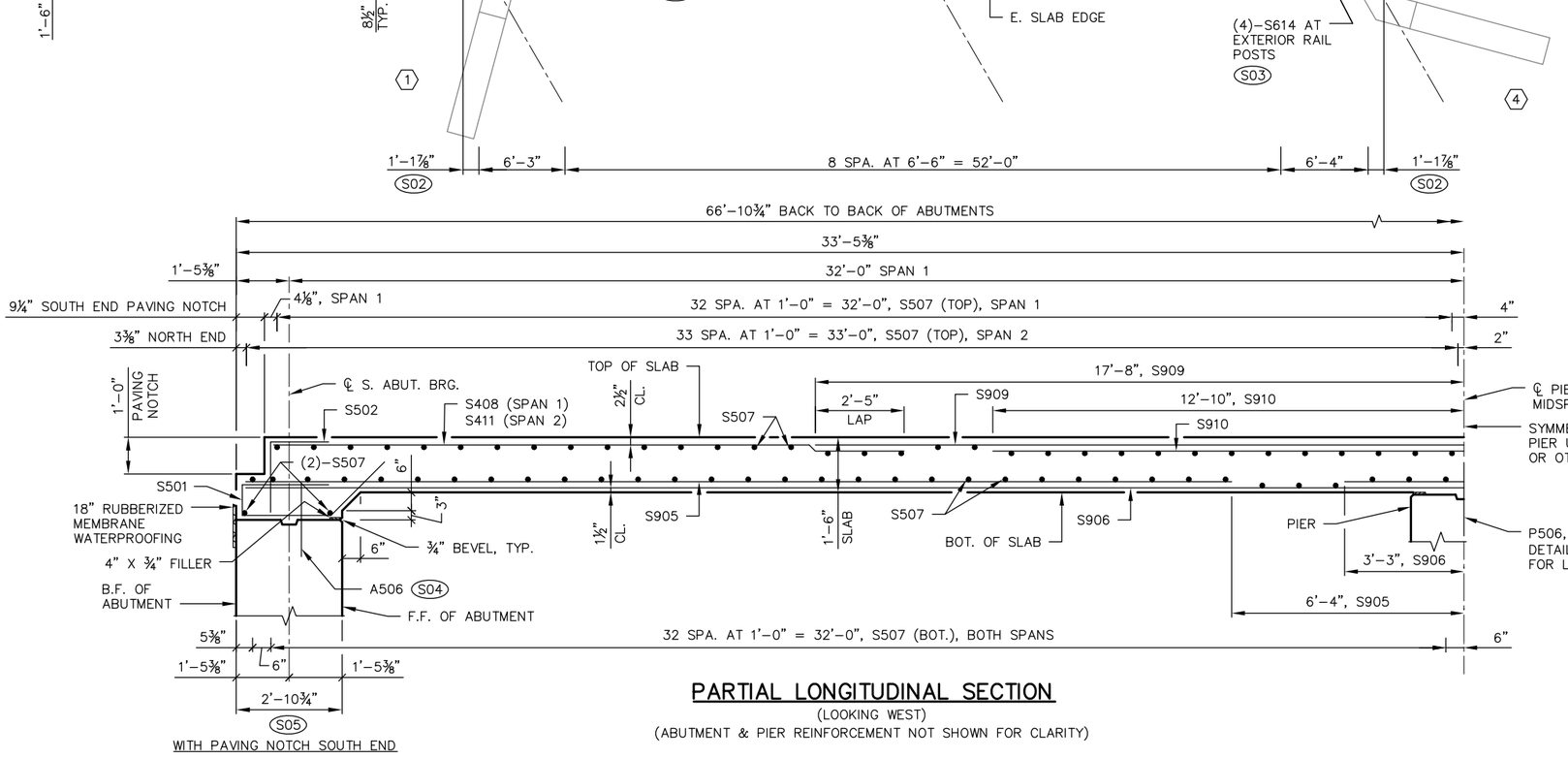
(S04) SEE "SOUTH ABUTMENT" SHEET FOR PLACEMENT OF A506 BARS & "NORTH ABUTMENT" SHEET FOR PLACEMENT OF B508 BARS.

(S05) DIMENSIONS TAKEN PARALLEL TO ℄ CTH Z

⬡ INDICATES WING NUMBER

* LOCATION OF BEAM GUARD ATTACHMENT

F.F. – FRONT FACE
B.F. – BACK FACE

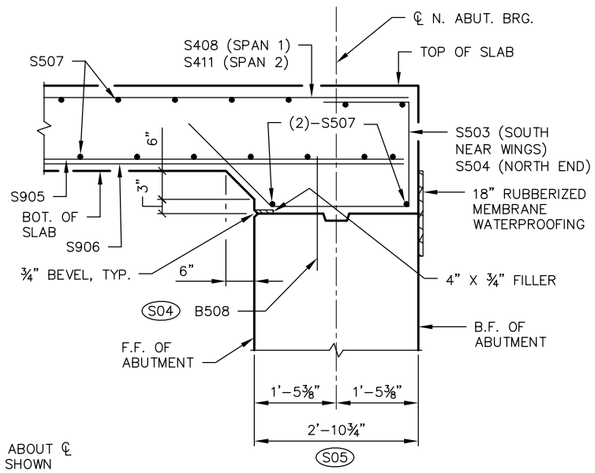


WITH PAVING NOTCH SOUTH END

PARTIAL LONGITUDINAL SECTION

(LOOKING WEST)

(ABUTMENT & PIER REINFORCEMENT NOT SHOWN FOR CLARITY)



SLAB REIN. WITHOUT PAVING NOTCH (NORTH ABUTMENT SHOWN, SOUTH ABUTMENT NEAR WINGS SIMILAR)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-41-332

DRAWN BY JDO | PLANS CK'D ACK

SUPERSTRUCTURE

SHEET 11 OF 13

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I.D. 5165-00-73

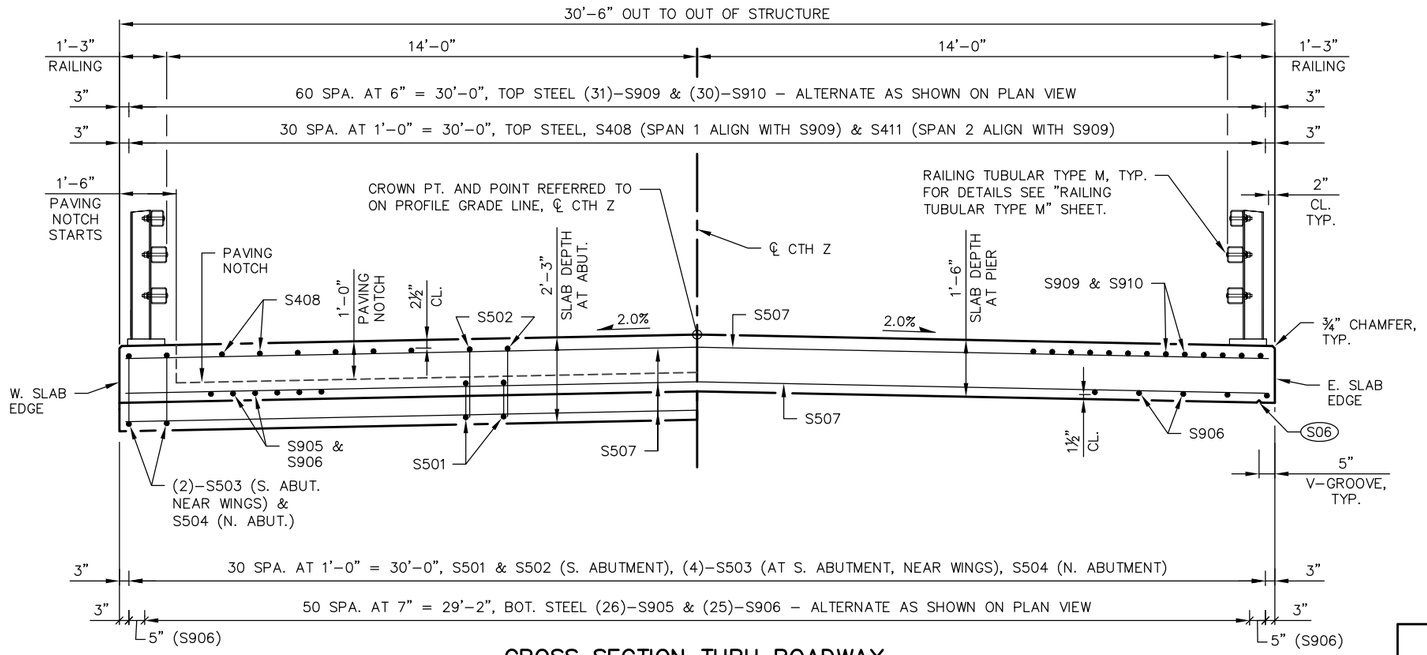
PLOT DATE: Apr 15, 2026

FILE: B410332_11-12_super.dwg
PLOT SCALE:

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STATE PROJECT NUMBER
5165–00–73



AT SOUTH ABUTMENT
NORTH ABUTMENT SIMILAR (NO PAVING NOTCH)

CROSS SECTION THRU ROADWAY

(LOOKING NORTH)

AT PIER

BILL OF BARS
SUPERSTRUCTURE

COATED = 25,680 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH	BENT	BAR SERIES	LOCATION	
S501	27		7'–6"	X		SLAB AT S. ABUTMENT – TIES	LONGIT.
S502	27		3'–4"	X		SLAB AT S. ABUTMENT – TIES	LONGIT.
S503	4		7'–6"	X		SLAB AT S. ABUTMENT NEAR WINGS – TIES	LONGIT.
S504	31		7'–6"	X		SLAB AT N. ABUTMENT – TIES	LONGIT.
S905	52		26'–11"			SLAB – BOTTOM	LONGIT.
S906	54		36'–6"			SLAB – BOTTOM	LONGIT.
S507	139		34'–9"			SLAB – TOP & BOTTOM	TRANS.
S408	31		17'–3"			SLAB – TOP – SPAN 1	LONGIT.
S909	31		35'–4"			SLAB – TOP – OVER PIER	LONGIT.
S910	30		25'–8"			SLAB – TOP – OVER PIER	LONGIT.
S411	31		18'–0"			SLAB – TOP – SPAN 2	LONGIT
S612	44		11'–6"	X		SLAB – TOP AT RAIL POSTS	TRANS.
S613	72		6'–0"			SLAB – TOP AT INTERIOR RAIL POSTS	LONGIT.
S614	16		4'–8"	X		SLAB – TOP AT END RAIL POSTS	LONGIT.

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

ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.

TOP OF SLAB ELEVATIONS

SPAN PT	WEST SLAB EDGE	℄ CTH Z	EAST SLAB EDGE
℄ S. ABUT.	1003.35	1003.68	1003.39
0.1	1003.36	1003.68	1003.39
0.2	1003.37	1003.69	1003.39
0.3	1003.38	1003.69	1003.38
0.4	1003.38	1003.69	1003.37
0.5	1003.39	1003.69	1003.37
0.6	1003.39	1003.68	1003.35
0.7	1003.39	1003.67	1003.34
0.8	1003.38	1003.66	1003.32
0.9	1003.38	1003.65	1003.31
℄ PIER	1003.37	1003.64	1003.28
1.1	1003.36	1003.62	1003.26
1.2	1003.35	1003.60	1003.24
1.3	1003.33	1003.58	1003.21
1.4	1003.32	1003.56	1003.18
1.5	1003.30	1003.53	1003.15
1.6	1003.27	1003.50	1003.11
1.7	1003.25	1003.47	1003.07
1.8	1003.22	1003.44	1003.03
1.9	1003.19	1003.40	1002.99
℄ N. ABUT.	1003.16	1003.36	1002.95

NOTES

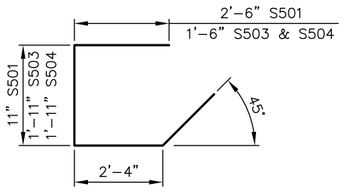
CAMBER SPAN AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

(S06) ¾" V–GROOVE. EXTEND V–GROOVE TO 6" FROM FRONT FACE OF ABUTMENT BODY. V–GROOVES ARE REQUIRED.

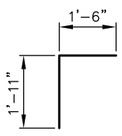
SURVEY TOP OF SLAB ELEVATIONS

	℄ S. ABUT. BRG.	5/10 PT.	℄ PIER	5/10 PT.	℄ N. ABUT. BRG.
WEST SLAB EDGE					
℄ CTH Z					
EAST SLAB EDGE					

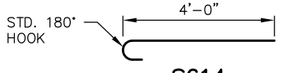
PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF DECK ELEVATIONS AT THE ℄ OF ABUTMENTS, ℄ OF PIER AND AT 5/10 POINTS TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND REFERENCE LINE. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.



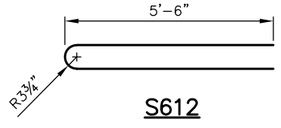
S501, S503, & S504



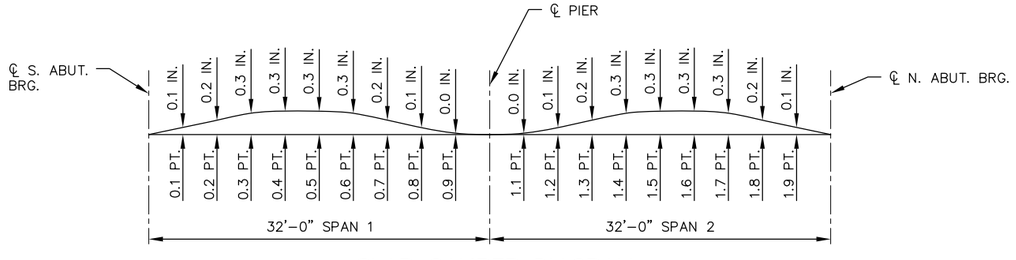
S502



S614



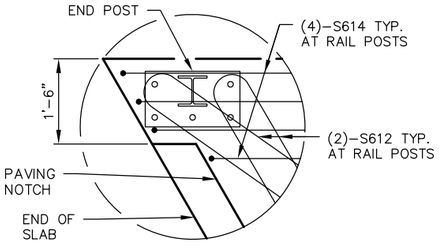
S612



SLAB CAMBER DIAGRAM

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:

	TOP OF SLAB ELEVATION AT FINAL GRADE
LESS	SLAB THICKNESS
PLUS	CAMBER
PLUS	FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
EQUALS	TOP OF SLAB FALSEWORK ELEVATION.



END POST DETAIL

(WING 2 POST SHOWN, WING 1 SIMILAR)
(ONLY RAIL POST REINFORCEMENT SHOWN FOR CLARITY)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B–41–332

DRAWN BY JDO | PLANS CK'D ACK

SUPERSTRUCTURE DETAILS

SHEET 12 OF 13

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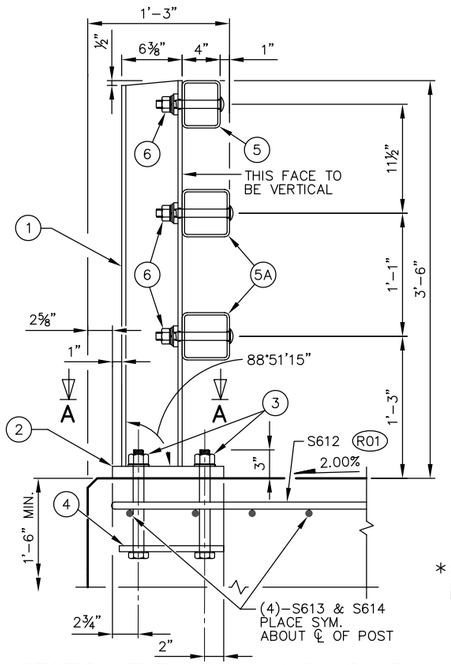
I.D. 5165–00–73

PLOT DATE: Apr 15, 2026

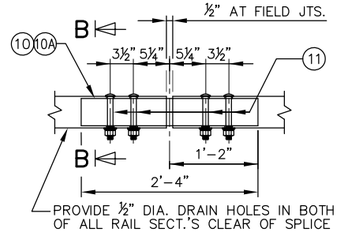
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PLOT SCALE:

STATE PROJECT NUMBER

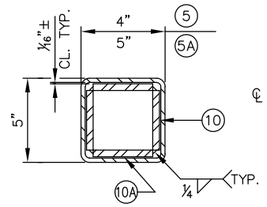
5165–00–73



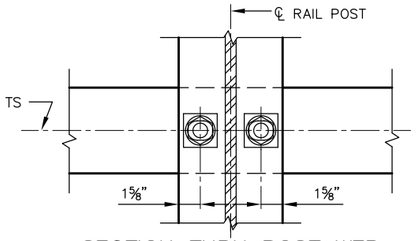
SECTION THRU RAILING ON SLAB



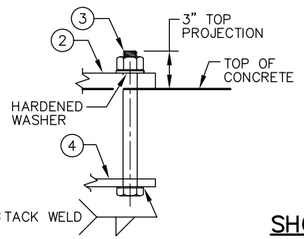
FIELD ERECTION JOINT DETAIL



SECTION B–B

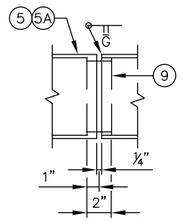


SECTION THRU POST WEB



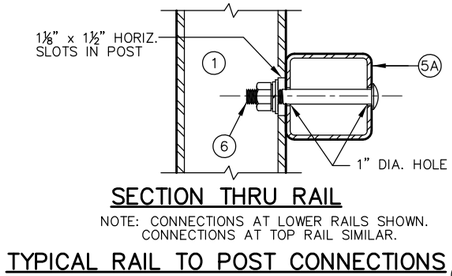
ANCHOR BOLTS

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



SHOP RAIL SPLICE DETAIL

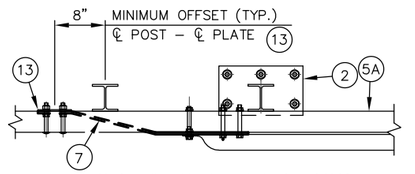
(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



SECTION THRU RAIL

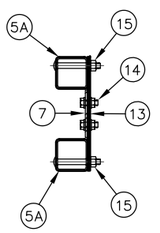
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



TOP VIEW AT END POST

(THRIE BEAM RAIL ATTACHMENT AT WING 4 ONLY)



SECTION C–C

LEGEND

(1) W6 x 25 WITH 1⅛" x 1½" 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 1¼" x 11¾" x 1'–8" WITH 1 7/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.

(3) ASTM A449 – 1⅛" DIA. X 1'–3" LONG 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.

(4) ⅝" 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) ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" x 1⅝" x 1⅝" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

(7) ½" THK. BACK–UP PLATE WITH 2 – ⅞" x 1½" 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 ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

(9) SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

(10) ⅜" x 3⅝" x 2'–4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

(10A) ⅜" x 2⅝" x 2'–4" PLATE USED IN NO. 5, ⅜" x 3⅝" x 2'–4" PLATE USED IN NO. 5A. 2 PER RAIL.

(11) ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER. USE 15/16" x 1¼" LONGIT. SLOTTED HOLES IN PLATE NO. 10A. AT FIELD JOINTS AND 15/16" x 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A. PROVIDE 15/16" DIA. ROUND HOLES IN TUBES NO. 5 AND NO. 5A.

(12) ⅞" DIA. x 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

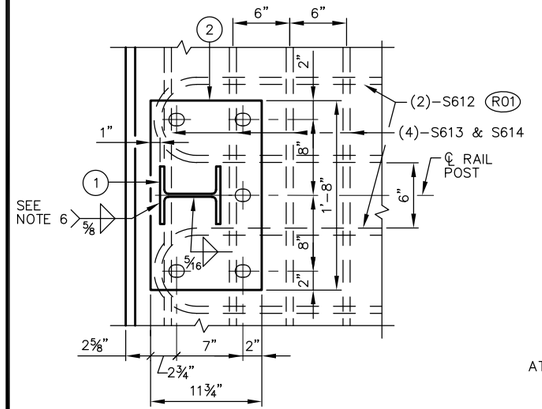
(13) ⅜" x 8" x 1'–6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

(14) ⅞" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

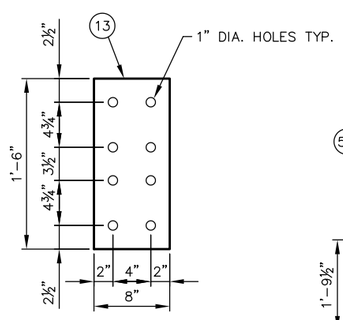
(15) 1" DIA. HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

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.
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 S.S.P.C. SPECIFICATIONS.

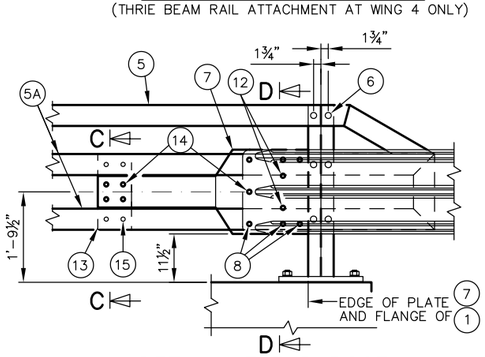


SECTION A–A



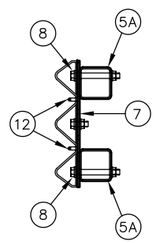
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT (WING 4 ONLY)



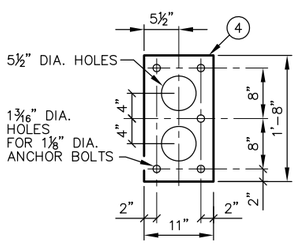
DETAIL AT END POST

(THRIE BEAM RAIL ATTACHMENT AT WING 4 ONLY)



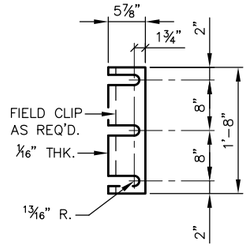
SECTION D–D

(R01) TIE TO TOP MAT OF STEEL.

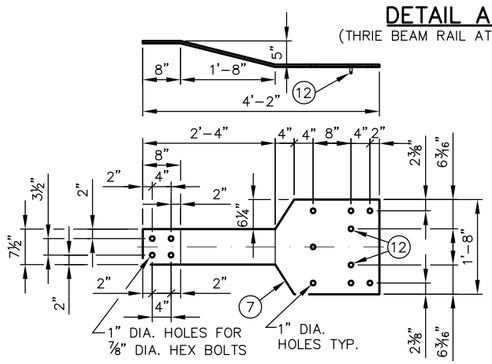


ANCHOR PLATE

AT RAIL TO DECK CONNECTION

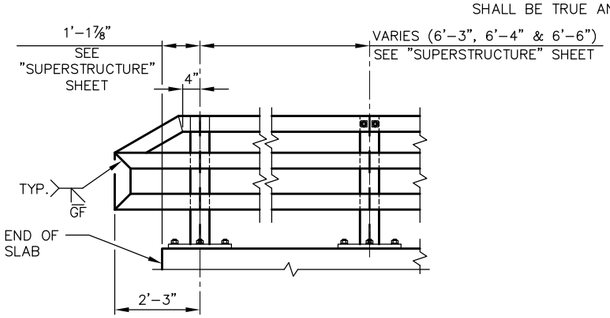


POST SHIM DETAIL



BACK–UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT (WING 4 ONLY)



PART ELEVATION OF RAILING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B–41–332

DRAWN BY ZDM | PLANS CK'D ACK

RAILING TUBULAR TYPE M

SHEET 13 OF 13

64

8

8

FILE: B410332_13_mrail.dwg
PLOT SCALE:

I.D. 5165–00–73

PLOT DATE: Apr 13, 2026

SOUTH APPROACH

STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 4
13+11.67	0.00	57.39	13.00	0.00	0	0	0	0	0	0
13+43.21	31.54	57.00	12.50	0.50	67	15	0	67	0	52
13+50.00	6.79	55.67	12.50	0.11	14	3	0	81	0	63
13+61.66	11.66	31.82	12.50	0.11	19	5	0	100	0	77
13+69.16	7.50	7.80	6.00	5.69	6	3	1	106	1	79
STRUCTURE B-41-0332										
SOUTH APPROACH TOTAL					106	26	1			

NORTH APPROACH

STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 4
STRUCTURE B-41-0332										
14+21.05	0.00	3.01	6.00	10.55	0	0	0	0	0	0
14+28.55	7.50	23.84	13.00	4.80	4	3	2	4	3	-2
14+35.19	6.64	44.61	13.00	2.27	8	3	1	12	4	2
14+40.00	4.81	58.07	13.50	0.22	9	2	0	21	4	9
14+45.00	5.00	69.98	15.00	0.00	12	3	0	33	4	18
14+46.69	1.69	76.24	15.50	0.00	5	1	0	38	4	22
14+50.00	3.31	88.35	16.50	0.00	10	2	0	48	4	30
14+55.00	5.00	82.57	18.25	0.00	16	3	0	64	4	43
14+60.00	5.00	63.16	19.50	0.00	13	3	0	77	4	53
14+65.00	5.00	46.08	14.00	0.00	10	3	0	87	4	60
14+70.00	5.00	30.90	8.50	0.00	7	2	0	94	4	65
14+71.51	1.51	26.74	7.00	0.09	2	0	0	96	4	67
14+75.00	3.49	29.27	8.00	0.47	4	1	0	100	4	70
14+80.00	5.00	33.78	9.75	0.36	6	2	0	106	4	74
14+85.00	5.00	38.44	11.50	0.22	7	2	0	113	4	79
14+90.00	5.00	43.67	13.00	0.12	8	2	0	121	4	85
14+95.00	5.00	48.08	14.75	0.12	8	3	0	129	4	90
15+00.00	5.00	51.45	16.50	0.16	9	3	0	138	4	96
15+05.00	5.00	54.60	18.25	0.16	10	3	0	148	4	103
15+10.00	5.00	59.10	20.00	0.00	11	4	0	159	4	110
15+15.00	5.00	63.78	19.00	0.00	11	4	0	170	4	117
15+20.00	5.00	61.50	17.50	1.36	12	3	0	182	4	126
15+25.00	5.00	61.63	16.00	1.37	11	3	0	193	4	134
15+30.00	5.00	63.13	15.50	0.02	12	3	0	205	4	143
15+34.05	4.05	62.14	15.00	0.00	9	2	0	214	4	150
15+50.00	15.95	61.96	14.50	0.00	37	9	0	251	4	178
15+64.86	14.86	57.05	14.25	0.00	33	8	0	284	4	203
15+78.55	13.69	18.41	13.75	0.04	19	7	0	303	4	215
15+90.23	11.68	10.09	0.00	0.25	6	3	0	309	4	218
16+00.00	9.77	9.64	0.00	1.41	4	0	0	313	4	222
16+15.24	15.24	8.09	0.00	4.88	5	0	2	318	6	225
16+50.00	34.76	6.62	0.00	4.63	9	0	6	327	14	226
17+00.00	50.00	6.50	0.00	1.06	12	0	5	339	20	232
17+12.67	12.67	7.19	0.00	0.00	3	0	0	342	20	235
NORTH APPROACH TOTAL					342	87	16			

9

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ORCHID ROAD

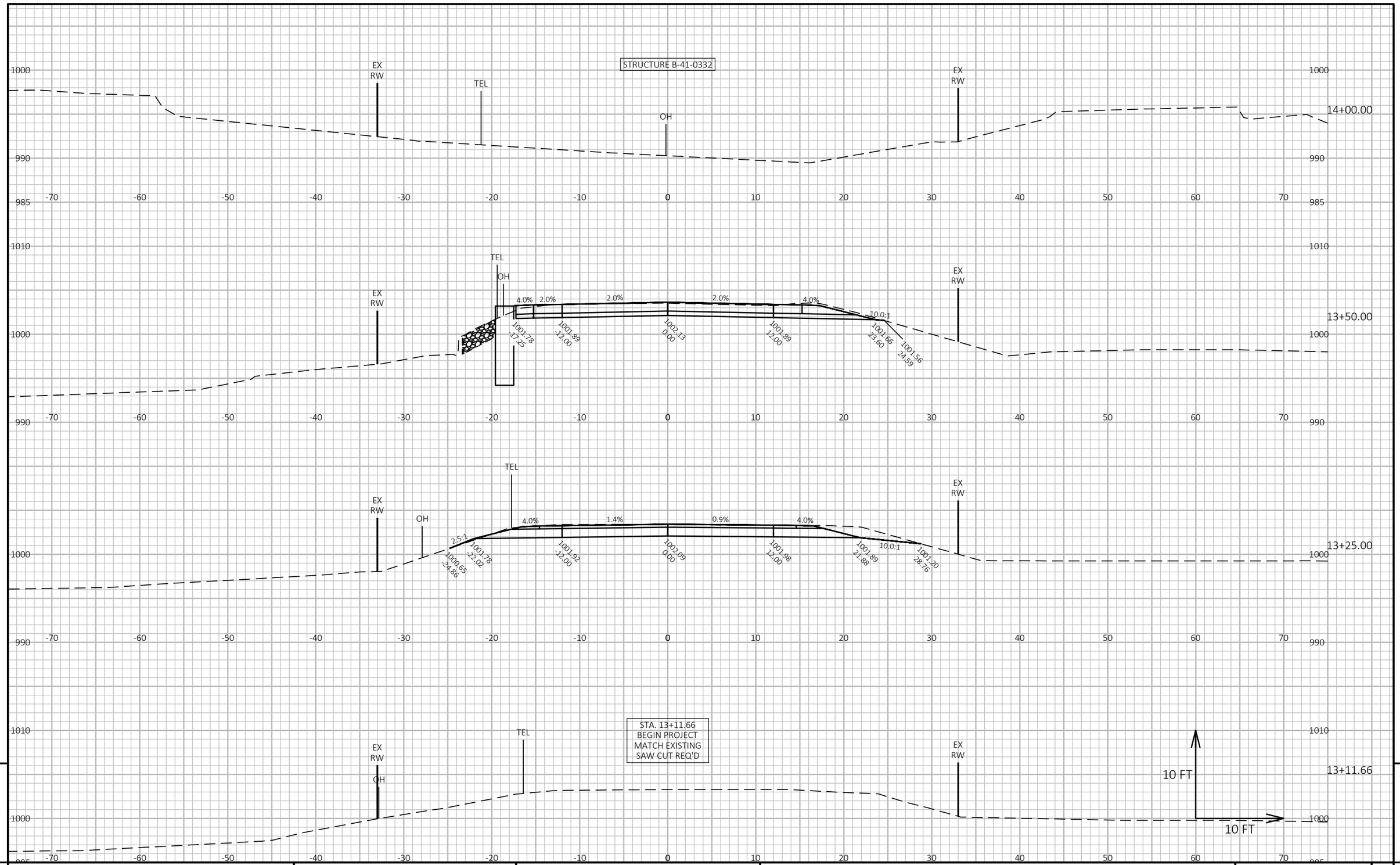
STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 4
52+25.00	0.00	42.26	11.75	4.09	0	0	0	0	0	0
52+37.83	12.83	46.33	12.50	5.53	21	6	2	21	3	13
52+50.00	12.17	52.10	13.00	5.54	22	6	2	43	5	26
52+58.10	8.1	56.99	13.50	2.74	16	4	1	59	6	37
52+60.00	1.9	58.54	13.75	2.01	4	1	0	63	6	40
52+65.00	5	62.72	14.50	2.16	11	3	0	74	6	48
52+70.00	5	68.07	15.75	3.65	12	3	1	86	8	56
52+75.00	5	77.68	17.50	0.00	13	3	0	99	8	66
52+80.00	5	84.36	20.25	0.00	15	3	0	114	8	78
52+85.00	5	87.71	20.75	0.00	16	4	0	130	8	90
52+90.00	5	82.19	19.50	0.00	16	4	0	146	8	102
52+95.00	5	70.55	18.50	0.00	14	4	0	160	8	112
53+00.00	5	55.26	17.50	0.00	12	3	0	172	8	121
53+05.00	5	38.91	13.00	0.00	9	3	0	181	8	127
53+10.00	5	23.62	8.75	0.00	6	2	0	187	8	131
53+15.00	5	10.92	4.50	0.00	3	1	0	190	8	133
53+20.00	5	0.00	0.00	0.00	1	0	0	191	8	134
			ORCHID ROAD TOTALS		191	50	6			
			PROJECT TOTALS		639	163	23			

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS. INCLUDES EXISTING PAVEMENT.
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - MASS ORDINATE	[(CUT) - (FILL*FILL FACTOR) - SALVAGED/UNUSABLE PAVEMENT MATERIAL)]
	PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

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PROJECT NO: 5165-00-73 | HWY: CTH Z | COUNTY: MONROE | EARTHWORK DATA | SHEET 66 | E

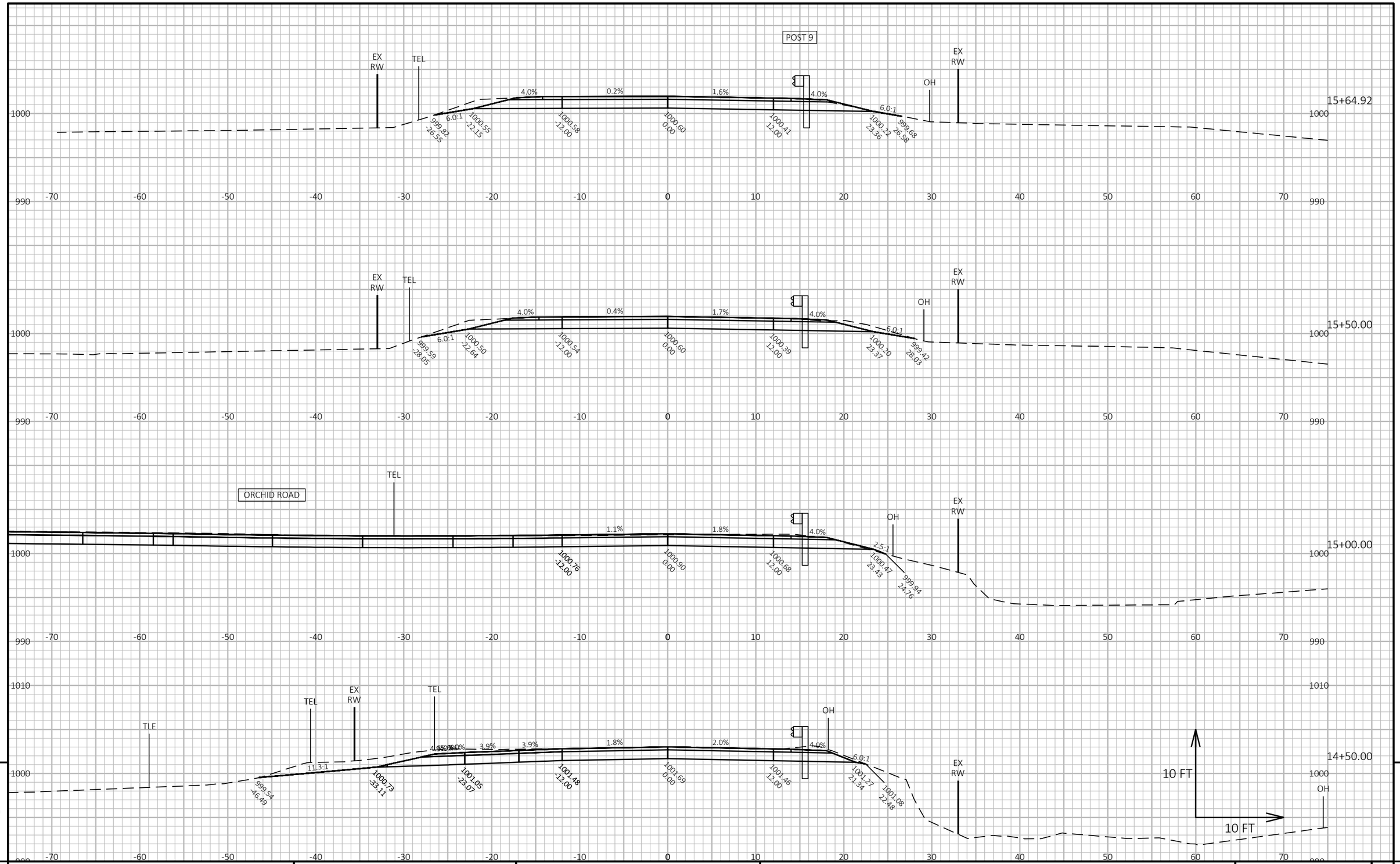


PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	CROSS SECTIONS: CTH Z	SHEET 67	E

FILE NAME : G:\00-PROJECT FILES\2022\22286 CTH Z, BRIDGE DESIGN, MONROE COUNTY\0-CAD\SHEETS\090201_XS.DWG
LAYOUT NAME - 090201_xs

PLOT DATE : 7/8/2026 3:44 PM PLOT BY : KYLE MAYBERRY PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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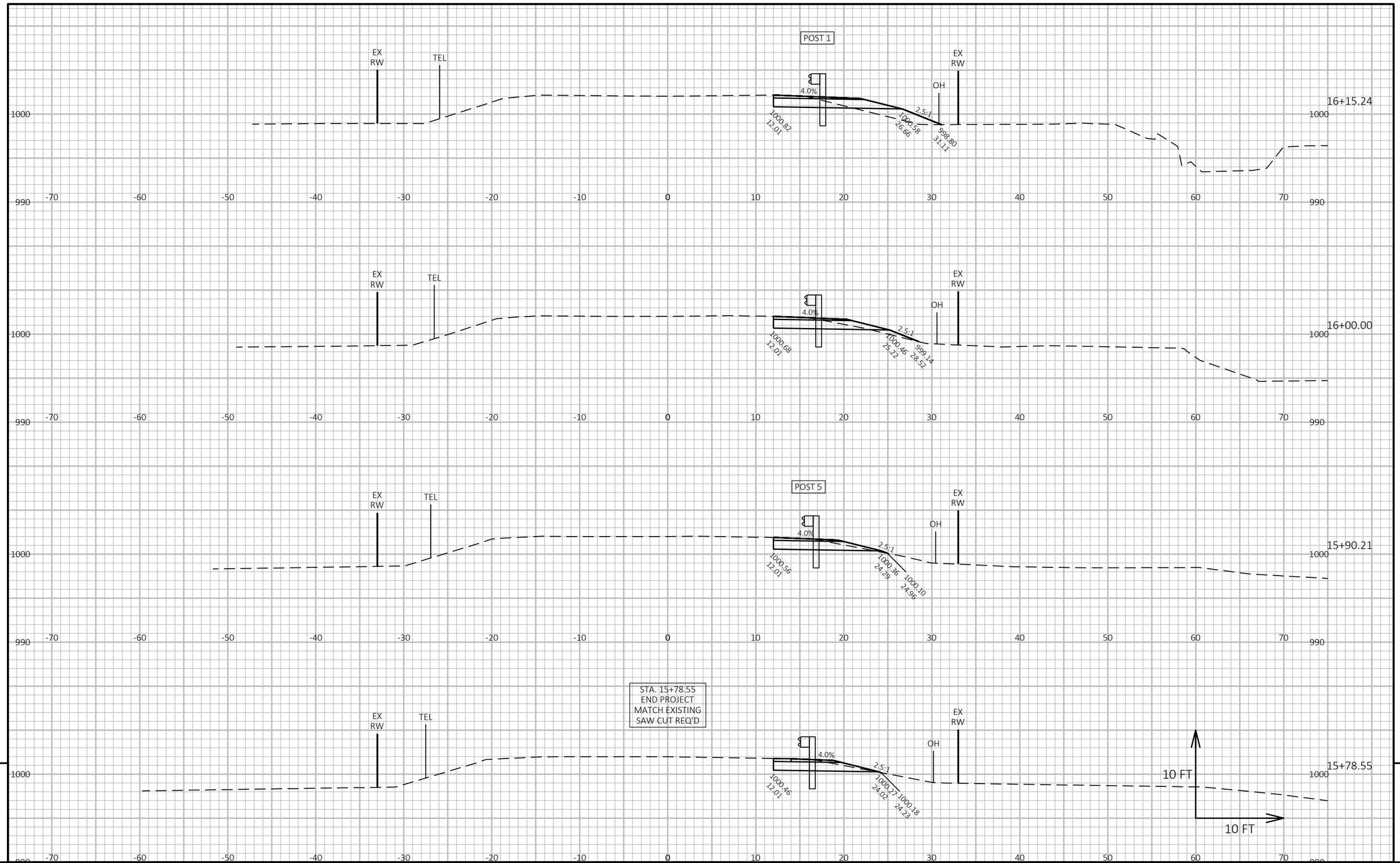
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LAYOUT NAME - 090202_xs

PLOT DATE : 7/8/2026 3:44 PM PLOT BY : KYLE MAYBERRY PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

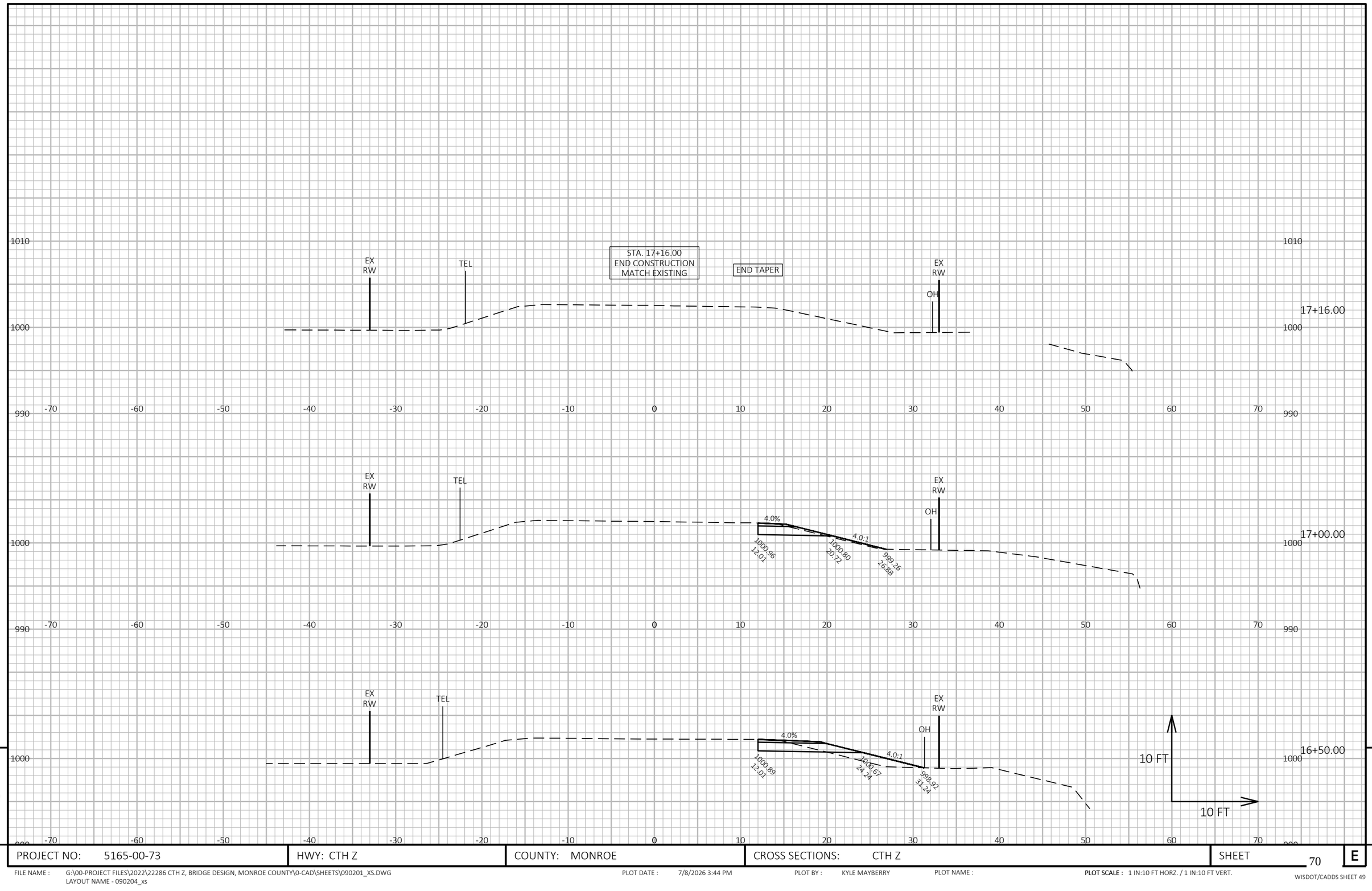


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PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	CROSS SECTIONS: CTH Z	SHEET 69	E

FILE NAME : G:\00-PROJECT FILES\2022\22286 CTH Z, BRIDGE DESIGN, MONROE COUNTY\0-CAD\SHEETS\090201_XS.DWG
LAYOUT NAME - 090203_xs

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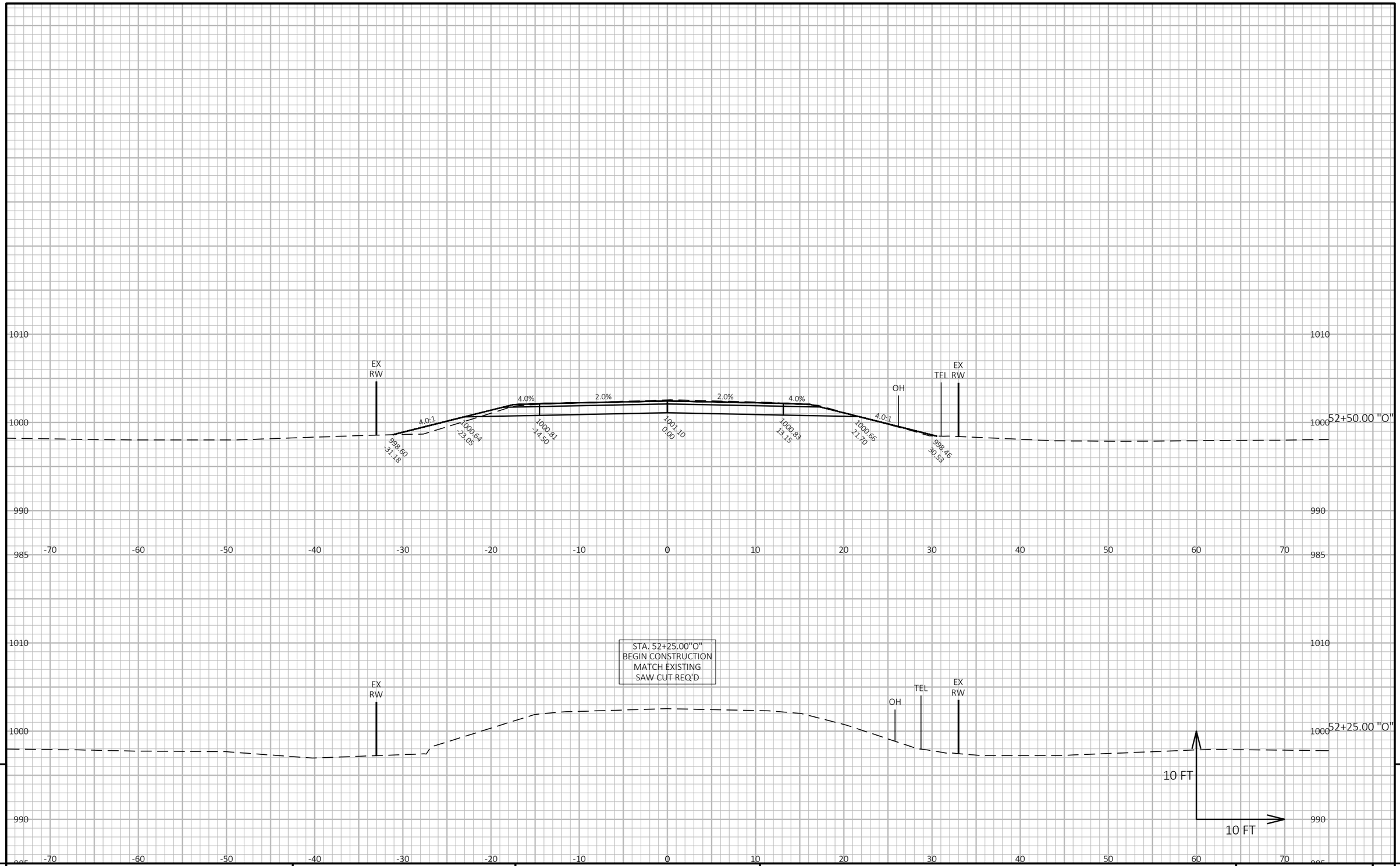
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PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	CROSS SECTIONS: CTH Z	SHEET 70	E

FILE NAME : G:\00-PROJECT FILES\2022\22286 CTH Z, BRIDGE DESIGN, MONROE COUNTY\0-CAD\SHEETS\090201_XS.DWG
LAYOUT NAME - 090204_xs

PLOT DATE : 7/8/2026 3:44 PM PLOT BY : KYLE MAYBERRY PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

PROJECT NO: 5165-00-73	HWY: CTH Z	COUNTY: MONROE	CROSS SECTIONS: ORCHID RD	SHEET 71	E

FILE NAME : G:\00-PROJECT FILES\2022\22286 CTH Z, BRIDGE DESIGN, MONROE COUNTY\0-CAD\SHEETS\090201_XS.DWG
LAYOUT NAME - 090205_xs

PLOT DATE : 7/8/2026 3:44 PM PLOT BY : KYLE MAYBERRY PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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