RHI

PROJECT ID: 9384-00-70

COUNTY: LANGLADE

JANUARY 2022
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 = 82

36

DESIGN DESIGNATION

A.A.D.T.	2022	=	341
A.A.D.T.	2042	=	376
D.H.V.		=	12.5%
D.D.		=	50/50
T.		=	5.8%
DESIGN SPEED		=	35 MPH
ESALS		=	62,000

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'E8')
- 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

CTH U - STH 55

WOLF RIVER BRIDGE B-34-0060

CTH T
LANGLADE COUNTY

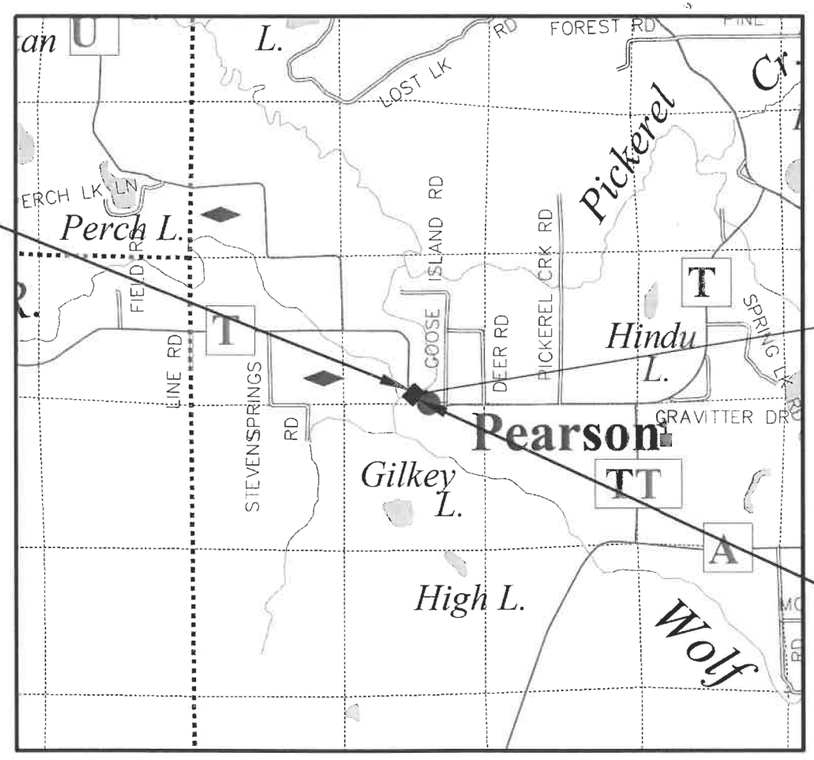
STATE PROJECT NUMBER
9384-00-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9384-00-70	WISC 2022133	1

R 11 E | R 12 E

T 34 N

T 33 N



LAYOUT

SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.090 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), LANGLADE 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 12B.

ACCEPTED FOR
LANGLADE COUNTY

6-28-2021 (DATE) (COUNTY HIGHWAY COMMISSIONER)

ORIGINAL PLANS PREPARED BY
AYRES

WISCONSIN
RYAN D. SCHAITEL
44067
GREEN BAY, WI
PROFESSIONAL ENGINEER

6/28/2021
(Date)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AYRES
Designer	AYRES
Project Manager	MICHAEL GRAGE
Regional Supervisor	DAN ERVA

APPROVED FOR THE DEPARTMENT
DATE: 7/07/2021 (Signature)

E

FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\010101 TI.DWG PLOT DATE : 6/28/2021 3:19 PM PLOT BY : SCHAITEL, RYAN PLOT NAME :

GENERAL NOTES

THE LOCATION OF EXISTING UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

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

BEARINGS SHOWN ON THIS PLAN ARE TRUE BEARINGS TO THE NEAREST SECOND.

ALL TIES ON THIS PLAN ARE HORIZONTAL UNLESS DESCRIBED OTHERWISE.

EROSION CONTROL LOCATIONS AS SHOWN ON THE EROSION CONTROL PLAN ARE APPROXIMATE. THE EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SUBGRADE SHOULDER POINTS ARE TO BE SEEDED AND EROSION MAT AS DIRECTED BY THE ENGINEER.

WISDOT WILL FURNISH A BENCHMARK MONUMENT TO BE SET BY THE CONTRACTOR.

SAW CUT LOCATIONS SHOWN ON THE PLAN ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER IN THE FIELD. THE LINE OF SUCH SAW CUTS WILL BE NEATLY DELINEATED THROUGH THE ASPHALT WITHOUT ANY DAMAGE TO THE REMAINING PORTION OF THE EXISTING PAVEMENT.

UTILITIES

* FRONTIER COMMUNICATIONS
1700 INDUSTRIAL DRIVE
GREEN BAY, WI 54302
ATTENTION: JEFF TIMM
E-MAIL: jtimm@mscon.com
TELEPHONE 715-703-8019

* WISCONSIN PUBLIC SERVICE CORP
P.O. BOX 19001
2850 S. ASHLAND AVENUE
GREEN BAY, WI 54307
ATTENTION: RANDY STEIER
E-MAIL: randy.steier@wisconsinpublicservice.com
TELEPHONE 920-617-5167
CELL 920-655-1596

*-MEMBER OF DIGGERS HOTLINE

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

RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA= 1.47 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.12 ACRES
SOIL GROUP D

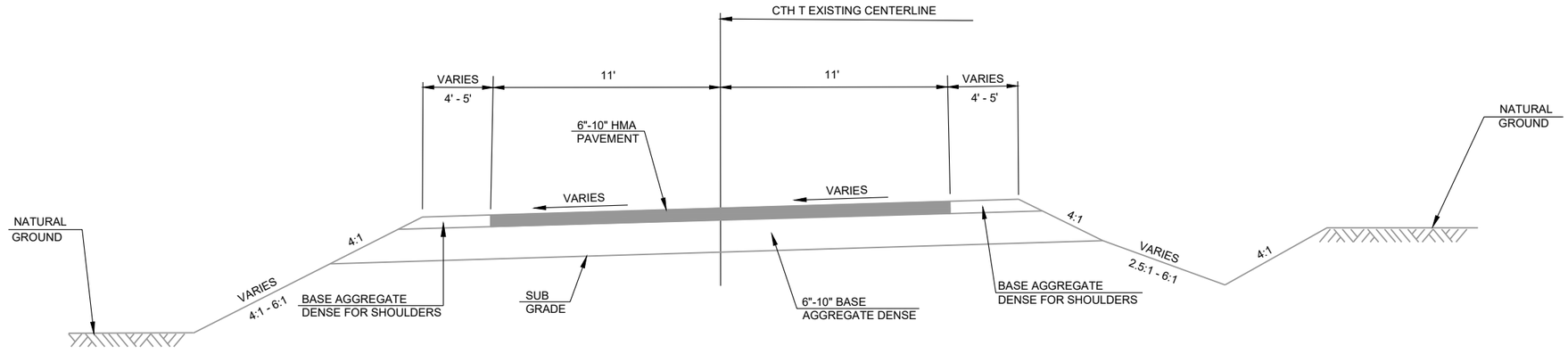
STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC
AC	ASPHALT CEMENT
AGG	AGGREGATE
ASPH	ASPHALT
BM	BENCH MARK
C/L	CENTERLINE
CONC	CONCRETE
CMP	CORRUGATED METAL PIPE
CR.	CREEK
D	DEGREE OF CURVE
DHV	DESIGN HOUR VOLUME
ESALS	EQUIVALENT SINGLE AXIS LOADS
EXIST	EXISTING
FE	FIELD ENTRANCE
HYD	HYDRANT
IP	IRON PIPE OR PIN
L	LENGTH OF CURVE
LC	LONG CHORD OF CURVE
LR	LENGTH OF RUNOFF
MH	MANHOLE
NC	NORMAL CROWN
PT	POINT OF TANGENCY
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PE	PRIVATE ENTRANCE
R	RADIUS
REM	REMOVE
R/L OR RL	REFERENCE LINE
RCCP	REINFORCED CONCRETE CULVERT PIPE
RCPSS	REINFORCED CONCRETE PIPE STORM SEWER
R.O.	RUNOUT
R/W	RIGHT-OF-WAY
STA	STATION
SE	SUPER ELEVATION
SS	STORM SEWER
T	TANGENT
TEL	TELEPHONE
TLE	TEMPORARY LIMITED EASEMENT
T	TRUCKS
VC	VERTICAL CURVE
W	WELL

DEPARTMENT OF NATURAL RESOURCES

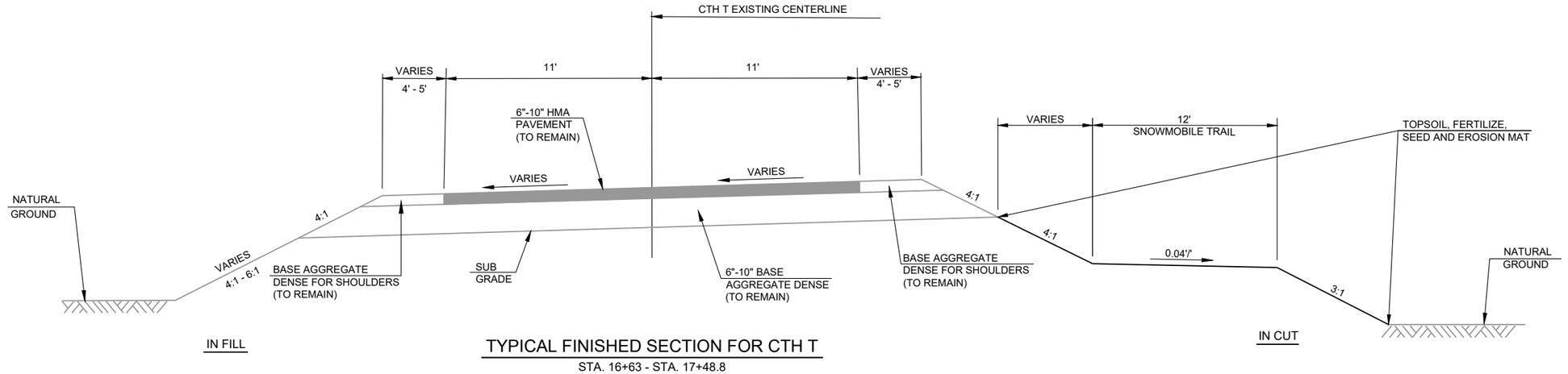
WDNR
107 SUTLIFF AVE.
RHINELANDER, WI 54501
ATTENTION: WENDY HENNIGES
E-MAIL: WENDY.HENNIGES@WISCONSIN.GOV
TELEPHONE 715-365-8916

2



EXISTING TYPICAL SECTION FOR CTH T

STA. 16+63 - STA. 22+65



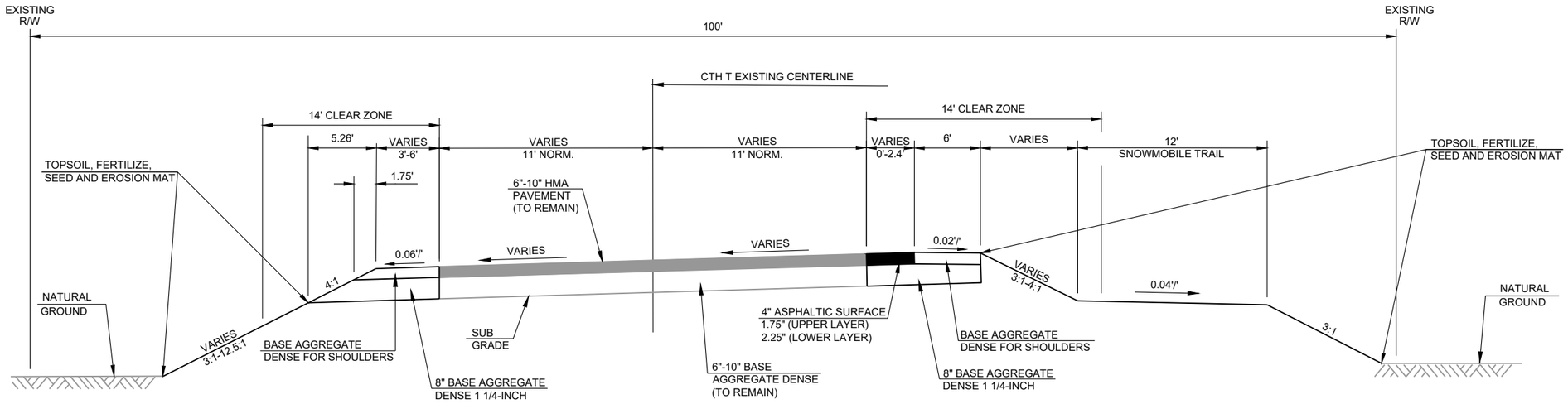
TYPICAL FINISHED SECTION FOR CTH T

STA. 16+63 - STA. 17+48.8

PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	TYPICAL SECTION	SHEET 3	E

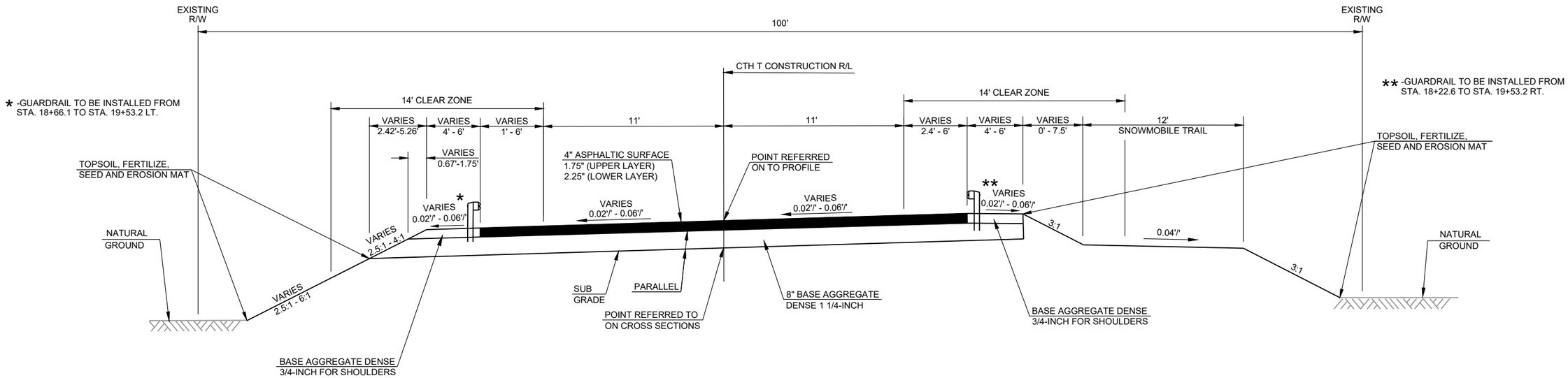
FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\020301 TS.DWG
LAYOUT NAME - 020301 ts

PLOT DATE : 7/8/2021 12:15 PM PLOT BY : SOUFAL, KEVIN PLOT NAME : PLOT SCALE : 1 IN:200 FT



TYPICAL FINISHED SECTION FOR CTH T

STA. 17+48.8 - STA. 17+90RT
STA. 17+67.1 - STA. 17+90LT

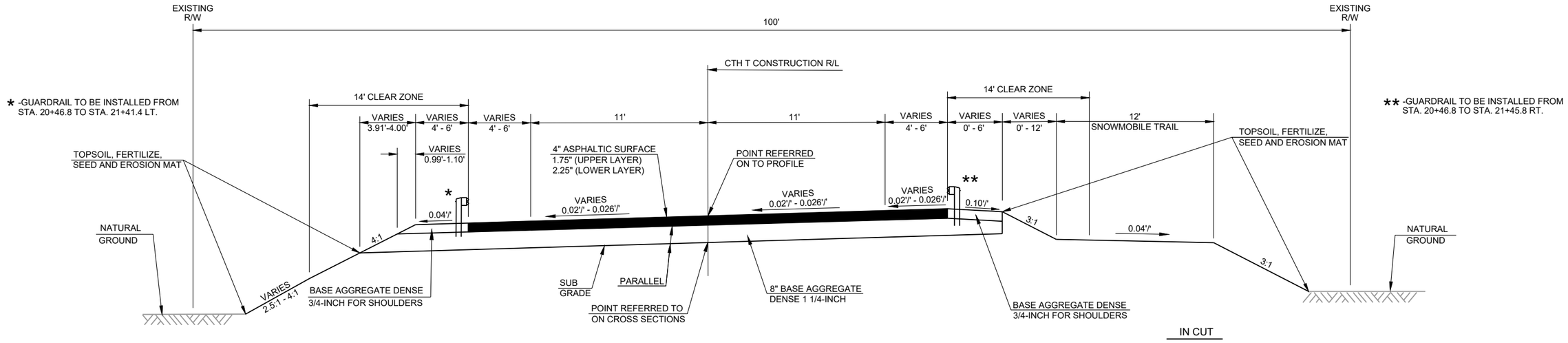


TYPICAL FINISHED SECTION FOR CTH T

STA. 17+90 - STA. 19+53.2

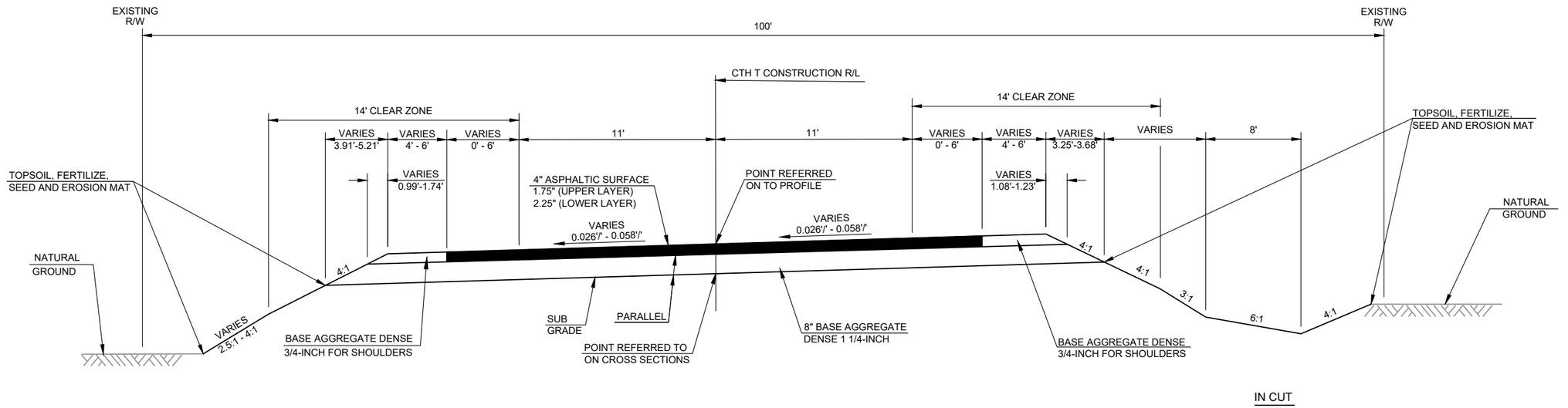
PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	TYPICAL SECTION	SHEET 4	E

FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\020301 TS.DWG
LAYOUT NAME - 020302 ts
PLOT DATE : 7/8/2021 12:15 PM PLOT BY : SOUFAL, KEVIN PLOT NAME : PLOT SCALE : 1 IN:200 FT



TYPICAL FINISHED SECTION FOR CTH T

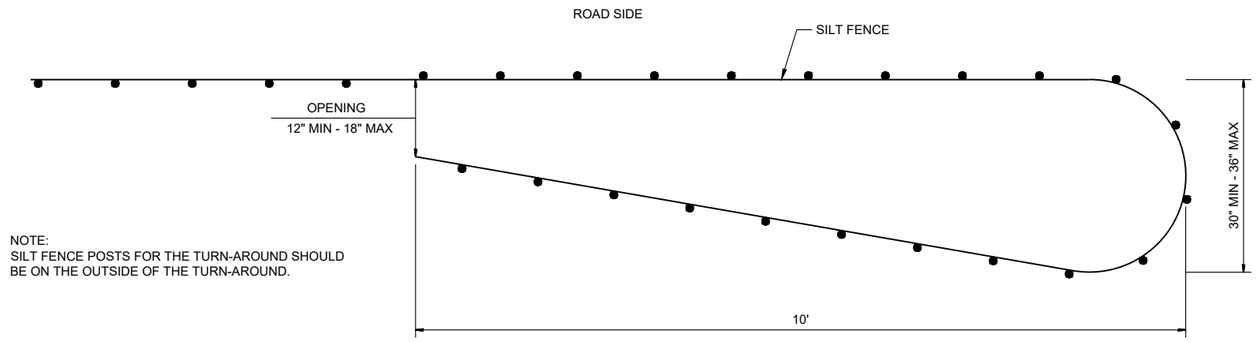
STA. 20+46.8 - STA. 21+45.8



TYPICAL FINISHED SECTION FOR CTH T

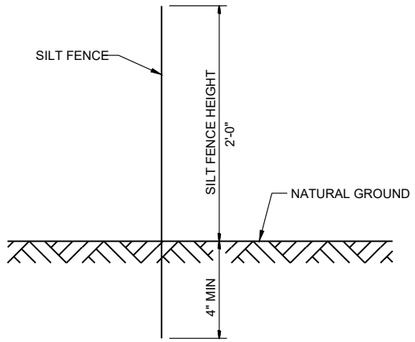
STA. 21+45.8 - STA. 22+65

PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	TYPICAL SECTION	SHEET 5	E



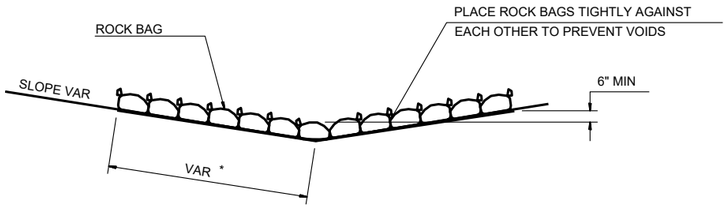
NOTE:
SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND.

PLAN VIEW

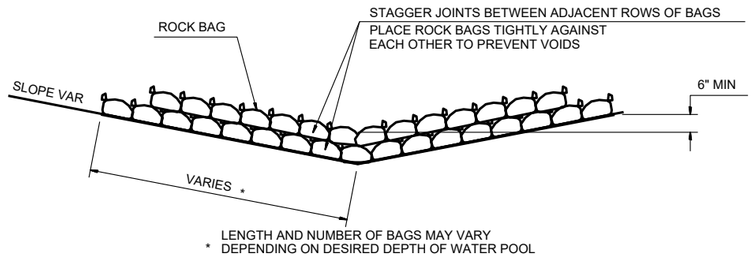


SIDE VIEW

SILT FENCE TURN-AROUND DETAIL FOR SMALL ANIMALS



SIDE VIEW (SINGLE LAYER)

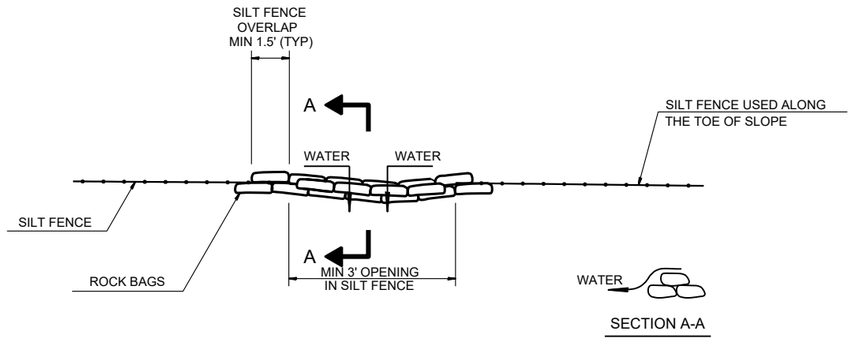


* LENGTH AND NUMBER OF BAGS MAY VARY DEPENDING ON DESIRED DEPTH OF WATER POOL

SIDE VIEW (MULTIPLE LAYER)

ROCK BAGS DITCH CHECK

PAID AS ROCK BAGS
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)



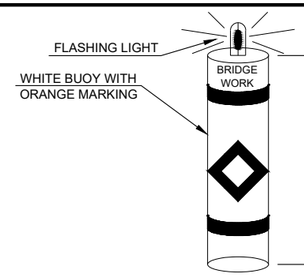
SECTION A-A

TOP VIEW

ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL

PAID AS ROCK BAGS
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)

2



TYPICAL HAZARD WARNING BUOY DETAIL

ALL BUOYS SHALL BE 7" DIAMETER WITH RED FLASHING LIGHTS AT 30 FLASHES/MIN. IF NECESSARY

LEGEND

- WORK AREA
- HAZARD WARNING BUOY
- TURBIDITY BARRIER

WOLF RIVER

25' SPACING (TYP.)

SLOPE INTERCEPTS

EXISTING R/W

WOODS

CTH T

19

20

21

GUY

OH

FO

TLE LINE

SLOPE INTERCEPTS

PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	BOATING TRAFFIC CONTROL	SHEET 7	E

FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\021202 PD.DWG
LAYOUT NAME - 021202 pd

PLOT DATE : 7/8/2021 12:15 PM PLOT BY : SOUFAL, KEVIN PLOT NAME : PLOT SCALE : 1 IN:20 FT

LEGEND

.XXXXX. SAW CUTS

N

P.L.

WOLF RIVER

BURIED FIBER OPTIC CABLE
(APPROXIMATE LOCATION)

EXISTING R/W

SLOPE
INTERCEPTS

POST 1
18+66.1
-17.0'

POST 5
18+91.6
-16.1'

POST 9
19+16.6
15.0'

POST 9
20+91.4
-15.0'

POST 5
21+16.4
-16.0'

POST 1
21+41.4
-17.0'

STA. 21+50
1-CP CLASS III-A 24-INCH
2-APRON ENDWALLS FOR CP 24-INCH

STA. 21+52
REMOVE 1-24"CMCP

24" CMCP (REMOVE)

MATCH LINE STA. 17+00

CTH T

15:1

18

19

20

21

22

23

POST 1
18+22.6
17.0'

POST 5
18+46.9
15.5'

POST 9
18+71.3
15.0'

TLE LINE

BEGIN PROJECT
STA. 17+90
Y = 422347.148
X = 654611.326

POST 9
20+95.8
15.0'

POST 5
21+20.8
16.0'

POST 1
21+45.8
17.0'

END PROJECT
STA. 22+65
Y = 421974.201
X = 654904.338

WOODS

PLANTER

16

CONSTRUCTION LIMITS
STA. 16+63

PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	PLAN DETAILS	SHEET 8	E

FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\021201 PD.DWG
LAYOUT NAME - 021201 pd

PLOT DATE : 10/29/2021 7:11 AM PLOT BY : GARNICA, BRANDON PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2

2

LEGEND

- EROSION MAT URBAN CLASS I, TYPE B
- EROSION MAT CLASS II, TYPE C
- SILT FENCE
- TURBIDITY BARRIER
- SLOPE INTERCEPT
- SURFACE WATER FLOW
- CULVERT PIPE CHECK
- R — ROCK BAGS

N

P.L.

WOLF RIVER

EXISTING R/W

MATCH LINE STA. 17+00

CTH T

18 19 20 21 22 23

TLE LINE

BEGIN PROJECT
STA. 17+90

END PROJECT
STA. 22+65

WOODS

PLANTER

16

MATCH LINE STA. 17+00

PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	EROSION CONTROL	SHEET 9	E

FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\022001 EC.DWG
LAYOUT NAME - 022001 ec

PLOT DATE : 10/29/2021 7:07 AM PLOT BY : GARNICA, BRANDON PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

9384-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	6.000	6.000
0004	201.0205	Grubbing	STA	6.000	6.000
0006	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0008	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. B-34-7	EACH	1.000	1.000
0010	204.0165	Removing Guardrail	LF	90.000	90.000
0012	205.0100	Excavation Common	CY	307.000	307.000
0014	206.1000	Excavation for Structures Bridges (structure) 01. B-34-60	LS	1.000	1.000
0016	208.0100	Borrow	CY	1,604.000	1,604.000
0018	210.1500	Backfill Structure Type A	TON	1,960.000	1,960.000
0020	213.0100	Finishing Roadway (project) 01. 9384-00-70	EACH	1.000	1.000
0022	305.0110	Base Aggregate Dense 3/4-Inch	TON	150.000	150.000
0024	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	960.000	960.000
0026	455.0605	Tack Coat	GAL	18.000	18.000
0028	465.0105	Asphaltic Surface	TON	290.000	290.000
0030	502.0100	Concrete Masonry Bridges	CY	322.000	322.000
0032	502.3200	Protective Surface Treatment	SY	505.000	505.000
0034	502.3210	Pigmented Surface Sealer	SY	77.000	77.000
0036	503.0137	Prestressed Girder Type I 36W-Inch	LF	736.000	736.000
0038	505.0400	Bar Steel Reinforcement HS Structures	LB	7,940.000	7,940.000
0040	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	32,550.000	32,550.000
0042	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	16.000	16.000
0044	506.4000	Steel Diaphragms (structure) 01. B-34-60	EACH	14.000	14.000
0046	509.5100.S	Polymer Overlay	SY	130.000	130.000
0048	513.4061	Railing Tubular Type M	LF	191.500	191.500
0050	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0052	520.1024	Apron Endwalls for Culvert Pipe 24-Inch	EACH	2.000	2.000
0054	520.3324	Culvert Pipe Class III-A 24-Inch	LF	26.000	26.000
0056	550.0500	Pile Points	EACH	20.000	20.000
0058	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	1,000.000	1,000.000
0060	606.0300	Riprap Heavy	CY	185.000	185.000
0062	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	220.000	220.000
0064	614.2300	MGS Guardrail 3	LF	50.000	50.000
0066	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0068	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0070	619.1000	Mobilization	EACH	1.000	1.000
0072	624.0100	Water	MGAL	11.000	11.000
0074	625.0100	Topsoil	SY	2,070.000	2,070.000
0076	627.0200	Mulching	SY	850.000	850.000
0078	628.1504	Silt Fence	LF	1,190.000	1,190.000
0080	628.1520	Silt Fence Maintenance	LF	2,380.000	2,380.000
0082	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0084	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0086	628.2008	Erosion Mat Urban Class I Type B	SY	1,900.000	1,900.000
0088	628.2027	Erosion Mat Class II Type C	SY	175.000	175.000
0090	628.6005	Turbidity Barriers	SY	330.000	330.000
0092	628.7555	Culvert Pipe Checks	EACH	5.000	5.000
0094	628.7570	Rock Bags	EACH	90.000	90.000
0096	629.0210	Fertilizer Type B	CWT	1.800	1.800
0098	630.0120	Seeding Mixture No. 20	LB	56.000	56.000

9384-00-70

Line	Item	Item Description	Unit	Total	Qty
0100	630.0200	Seeding Temporary	LB	84.000	84.000
0102	630.0300	Seeding Borrow Pit	LB	23.000	23.000
0104	630.0500	Seed Water	MGAL	58.000	58.000
0106	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0108	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0110	638.2102	Moving Signs Type II	EACH	2.000	2.000
0112	638.2602	Removing Signs Type II	EACH	9.000	9.000
0114	638.3000	Removing Small Sign Supports	EACH	9.000	9.000
0116	642.5001	Field Office Type B	EACH	1.000	1.000
0118	643.0420	Traffic Control Barricades Type III	DAY	1,148.000	1,148.000
0120	643.0705	Traffic Control Warning Lights Type A	DAY	1,640.000	1,640.000
0122	643.0900	Traffic Control Signs	DAY	820.000	820.000
0124	643.5000	Traffic Control	EACH	1.000	1.000
0126	645.0111	Geotextile Type DF Schedule A	SY	140.000	140.000
0128	645.0120	Geotextile Type HR	SY	365.000	365.000
0130	646.1020	Marking Line Epoxy 4-Inch	LF	1,900.000	1,900.000
0132	650.4500	Construction Staking Subgrade	LF	446.000	446.000
0134	650.5000	Construction Staking Base	LF	446.000	446.000
0136	650.6500	Construction Staking Structure Layout (structure) 01. B-34-0060	LS	1.000	1.000
0138	650.9910	Construction Staking Supplemental Control (project) 01. 9384-00-70	LS	1.000	1.000
0140	650.9920	Construction Staking Slope Stakes	LF	508.000	508.000
0142	690.0150	Sawing Asphalt	LF	46.000	46.000
0144	715.0502	Incentive Strength Concrete Structures	DOL	1,932.000	1,932.000
0146	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 20+00	EACH	1.000	1.000
0148	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,200.000	1,200.000
0150	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	600.000	600.000
0152	SPV.0090	Special 01. Flashing Stainless Steel	LF	177.000	177.000

EARTHWORK SUMMARY

Division	From/To Station	Location	Common Excavation (item #205.0100) Cut (2)	Unusable Pavement Material (4)	Available Material (5)	Unexpanded Fill	Expanded Fill (13) Factor 1.30	Mass Ordinate +/- (14)	Borrow (item #208.0100)	Comment:
1	16+63 - 17+90	CTH T (NW SHOULDER)	23	0	23	45	59	-36	36	
	17+67.1 - 17+90	CTH T (NE SHOULDER)	5	0	5	0	0	5	-5	
	17+90 - 22+65	CTH T	279	222	57	1,254	1,630	-1,573	1,573	
Division 1 Totals			307	222	85	1,299	1,689	-1,604	1,604	

2) Unsuable Pavement Material is included in Cut
4) Unusable Pavement Material = Existing Asphaltic Pavement. Backfill any areas below subgrade with borrow.
5) Available Material = Cut - Unusuable Pavement Material
13) Expanded Fill. Factor = 1.3 Expanded Fill = Unexpanded Fill * Fill Factor
14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

CLEARING AND GRUBBING

STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
17+00	-	23+00	CTH T	6	6
TOTALS				6	6

REMOVING SMALL PIPE CULVERT

STATION	LOCATION	203.0100 EACH	REMARKS
21+53	CTH T, LT	1	24-INCH CMCP
TOTAL		1	

REMOVING GUARDRAIL

STATION	TO	STATION	LOCATION	204.0165 LF
19+18	-	19+43	CTH T, RT	25
19+29	-	19+49	CTH T, LT	20
20+50	-	20+70	CTH T, RT	20
20+57	-	20+82	CTH T, LT	25
TOTAL				90

BASE AGGREGATE DENSE & WATER

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	REMARKS
17+25	-	19+53	CTH T	65	439	5	
20+47	-	22+65	CTH T	69	521	6	
	21+54		CTH T, LT	16	-	-	FE
TOTALS				150	960	11	

ASPHALTIC SURFACE

STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
17+48	-	19+53	CTH T	8	130
20+47	-	22+65	CTH T	10	160
TOTALS				18	290

3

3

CULVERT PIPE

STATION	LOCATION	520.1024 APRON ENDWALLS FOR CULVERT PIPE 24-INCH	520.3324 CULVERT PIPE CLASS III-A 24-INCH	THICKNESS STEEL INCH
21+50	CTH T, LT	2	26	0.064
	TOTALS	2	26	

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
18+22.6	-	19+49.0	CTH T, RT	37.5	39.4	1
18+66.1	-	19+57.2	CTH T, LT	-	39.4	1
20+42.4	-	21+45.8	CTH T, RT	12.5	39.4	1
20+50.8	-	21+41.4	CTH T, LT	-	39.4	1
TOTALS				50	157.6	4

TOPSOIL, FERTILIZER, AND SEED

STATION	TO	STATION	LOCATION	625.0100 TOPSOIL SY	627.0200 MULCH SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB	630.0300 SEEDING BORROW PIT LB	630.0500 SEED WATER MGAL
16+63	-	19+48	CTH T, RT	820	-	0.5	22.1	22.1	-	23
17+63	-	19+43	CTH T, LT	150	-	0.1	4.1	4.1	-	4
20+38	-	22+65	CTH T, RT	330	-	0.2	8.9	8.9	-	9
20+71	-	22+65	CTH T, LT	360	-	0.2	9.7	9.7	-	10
UNDISTRIBUTED			BORROW PIT	-	850	0.5	-	23.0	23	-
UNDISTRIBUTED			ENTIRE PROJECT	410	-	0.3	11.2	16.2	-	12
TOTALS				2,070	850	1.8	56.0	84.0	23	58

SILT FENCE

STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF
16+56	-	19+34	CTH T, RT	310	620
17+60	-	19+52	CTH T, LT	200	400
20+39	-	22+70	CTH T, RT	240	480
20+55	-	22+70	CTH T, LT	205	410
UNDISTRIBUTED			CTH T	235	470
TOTAL				1,190	2,380

MOBILIZATIONS EROSION CONTROL

LOCATION	628.1905 MOBILIZATIONS EROSION CONROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
CTH T	5	3
TOTALS	5	3

EROSION MAT

STATION	TO	STATION	LOCATION	EROSION MAT URBAN CLASS I TYPE B 628.2008 SY	EROSION MAT CLASS II TYPE C 628.2027 SY
16+63	-	19+48	CTH T, RT	820	-
17+63	-	19+43	CTH T, LT	150	-
20+38	-	22+65	CTH T, RT	330	-
20+71	-	22+65	CTH T, LT	220	140
UNDISTRIBUTED				380	35
TOTALS				1,900	175

TURBIDITY BARRIERS

STATION	LOCATION	628.6005 SY
WEST ABUTMENT	CTH T	112
PIER 1	CTH T	63
PIER 2	CTH T	63
EAST ABUTMENT	CTH T	92
TOTAL		330

3

CULVERT PIPE CHECKS

STATION	LOCATION	628.7555 EACH
21+68	CTH T, LT	3
UNDISTRIBUTED	CTH T	2
TOTAL		5

ROCK BAGS

STATION	LOCATION	628.7570 EACH
18+20	CTH T, RT	15
19+29	CTH T, RT	15
19+50	CTH T, LT	15
20+41	CTH T, RT	15
20+57	CTH T, LT	15
UNDISTRIBUTED	CTH T	15
TOTAL		90

MOVING SIGNS TYPE II

STATION	LOCATION	MOVING SIGNS TYPE II 638.2102	REMARKS
19+45	CTH T, RT	1	WOLF RIVER SIGNS
20+55	CTH T, LT	1	WOLF RIVER SIGNS
	TOTALS	2	

REMOVING SIGNS & SUPPORTS

STATION	LOCATION	638.2602 SIGNS TYPE II EACH	638.3000 SMALL SIGN SUPPORTS EACH	REMARKS
	CTH T/CTH TT	1	1	ADVANCED WEIGHT LIMIT SIGN
19+40	CTH T, RT	1	1	WEIGHT LIMIT SIGN
19+45	CTH T, RT	1	1	BRIDGE SIGN
19+50	CTH T, LT	1	1	BRIDGE SIGN
20+50	CTH T, RT	1	1	BRIDGE SIGN
20+55	CTH T, LT	1	1	BRIDGE SIGN
20+75	CTH T, LT	1	1	WEIGHT LIMIT SIGN
	CTH T/ STH 45/47	1	1	ADVANCED WEIGHT LIMIT SIGN
	CTH T/CTH U	1	1	ADVANCED WEIGHT LIMIT SIGN
TOTALS		9	9	

SIGNS REFLECTIVE TYPE II AND WOOD POSTS

STATION	LOCATION	634.0612 WOOD POSTS 4"x6"x12' EACH	637.2230 SIGNS W5-52L SF	637.2230 SIGNS W5-52R SF
SE QUADRANT	CTH T	1	-	3
SW QUADRANT	CTH T	1	3	-
NE QUADRANT	CTH T	1	3	-
NW QUADRANT	CTH T	1	-	3
SUBTOTALS		4	6	6
TOTALS		4	12	

TRAFFIC CONTROL SUMMARY

LOCATION	APPROXIMATE SERVICE DAYS	643.0420 BARRICADES TYPE III NO. IN SERVICE	643.0420 BARRICADES TYPE III DAYS	643.0705 WARNING LIGHTS TYPE A NO. IN SERVICE	643.0705 WARNING LIGHTS TYPE A DAYS	643.0900 SIGNS NO. IN SERVICE	643.0900 SIGNS DAYS	REMARKS
WEST OF WORK ZONE LIMITS	82	2	164	4	328	4	328	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C
WEST WORK ZONE LIMITS	82	5	410	6	492	1	82	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
EAST WORK ZONE LIMITS	82	5	410	6	492	1	82	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
EAST OF WORK ZONE LIMITS	82	2	164	4	328	4	328	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C
TOTALS			1,148		1,640		820	

3

MARKING

STATION	TO	STATION	LOCATION	646.1020 LINE EPOXY 4-INCH YELLOW LF	LINE EPOXY 4-INCH WHITE LF	REMARKS
17+90	-	22+65	CTH T, LT & RT	-	950	EDGELINE LT & RT
17+90	-	22+65	CTH T	950	-	CENTERLINE, DOUBLE YELLOW
SUBTOTALS				950	950	
TOTAL				1,900		

SAWING ASPHALT

STATION	LOCATION	690.0150 LF
17+90	CTH T	23
22+65	CTH T	23
	TOTAL	46

CONSTRUCTION STAKING

CATEGORY	STATION	TO	STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6500 STRUCTURE LAYOUT LS	650.9910 SUPPLEMENTAL CONTROL 9384-00-70 LS	650.9920 SLOPE STAKES LF
0010	16+63	-	19+53	CTH T	228	228	-	1	290
0010	20+47	-	22+65	CTH T	218	218	-	-	218
0010	SUBTOTALS				446	446	-	1	508
0020	10+00			B-34-0060	-	-	1	-	-
0020	SUBTOTALS				-	-	1	-	-
	TOTALS				446	446	1	1	508

CTH T SUPER ELEVATION			
STATION	LEFT LANE	RIGHT LANE	REMARKS
18+16.55	-6.00%	6.00%	END FULL S.E.
19+05.22	-2.00%	2.00%	R.C.
21+37.29	-2.00%	2.00%	R.C.
22+21.81	-5.80%	5.80%	BEGIN FULL S.E.

CTH T
CURVE DATA
PI STA = 16+82.80
Y = 422442.316
X = 654526.980
DELTA = 41°28'33"
D = 9°52'43"
T = 219.60'
L = 419.86'
R = 580.00'
PC STA = 14+63.20
Y = 422661.558
X = 654539.560
PT STA = 18+83.05
Y = 422269.721
X = 654662.760
BK = S03°17'02.5"W
AH = S38°11'30.6"E

CP #100
1" IRON PIPE W/AYRES CAP
STA. 15+02.61-16.45' RT.
Y=422621.989
X=654522.195

BEGIN PROJECT
STA. 17+90
Y = 422347.148
X = 654611.326

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
200	15+89	RR SPIKE IN PPOL #3312 5L22 - 32' RT	1522.47
201	20+58	CHIS. BOX ON SE WING WALL - 17' LT	1520.62
202	23+69	RR SPIKE IN PPOL #3312 5R47 - 60' RT	1522.75

STA. 20+00
REMOVE STRUCTURE B-34-007
3-SPAN CONTINUOUS CONCRETE HAUNCHED SLAB
109.2 FEET LONG
29.4 FOOT CLEAR ROADWAY

STA. 20+00
STRUCTURE B-34-60
SINGLE SPAN 36" PRESTRESSED CONCRETE GIRDER BRIDGE
93.6 FEET LONG
30 FOOT CLEAR ROADWAY

WATER ELEV.= 1509.83 (07-01-2020)

HIGH WATER$_{100}$ELEV.= 1514.88

HIGH WATER$_{2}$ELEV.= 1511.68

LEGEND
XXXXX. SAW CUTS

CP #102
1" IRON PIPE W/AYRES CAP
STA. 25+72.22-30.89' RT.
Y=421777.876
X=655147.708

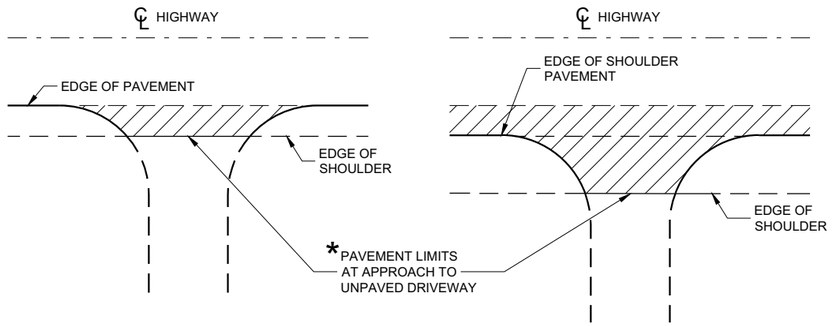
CTH T
CURVE DATA
PI STA = 24+83.09
Y = 421798.128
X = 655033.757
DELTA = 43°49'11"
D = 7°04'25"
T = 325.78'
L = 619.49'
R = 810.00'
PC STA = 21+57.31
Y = 422054.173
X = 654832.329
PT STA = 27+76.79
Y = 421752.853
X = 655356.375
BK = S38°11'30.6"E
AH = S82°00'41.2"E

END PROJECT
STA. 22+65
Y = 421974.201
X = 654904.338

PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	PLAN AND PROFILE: PLAN AND PROFILE	SHEET 16	E

Standard Detail Drawing List

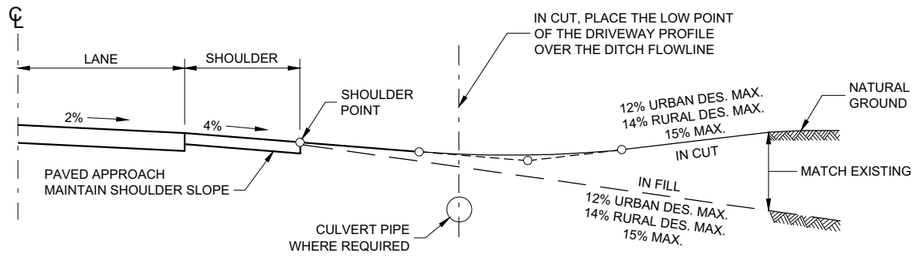
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
13C19-03	HMA LONGITUDINAL JOINTS
14B42-07A	MIDWEST 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)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



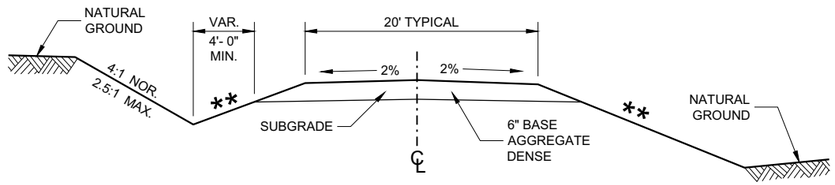
PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB AND GUTTER OR SIDEWALK)



TYPICAL DRIVEWAY PROFILES

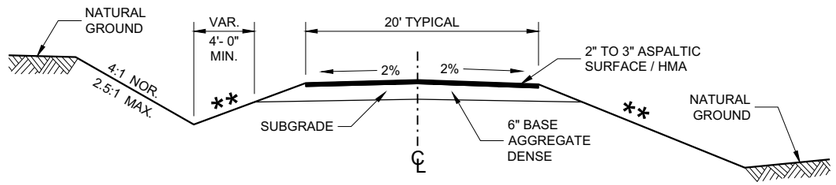


IN CUT **IN FILL**

TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE AGGREGATE SURFACE

** SLOPE CAN VARY WITH SPEED. SEE 11-45-30.6.2

POSTED SPEED MPH	MAX. SLOPE
<35	4:1
≥ 35 TO < 60	6:1
≥60	10:1



IN CUT **IN FILL**

TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE ASPHALTIC SURFACE

6

6

SDD 08D21 - 01

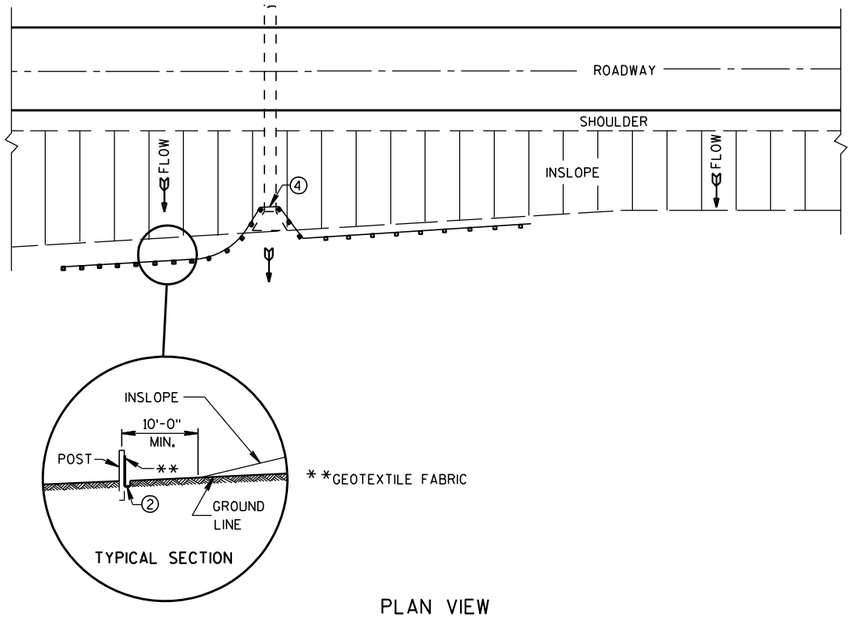
SDD 08D21 - 01

DRIVEWAYS WITHOUT CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

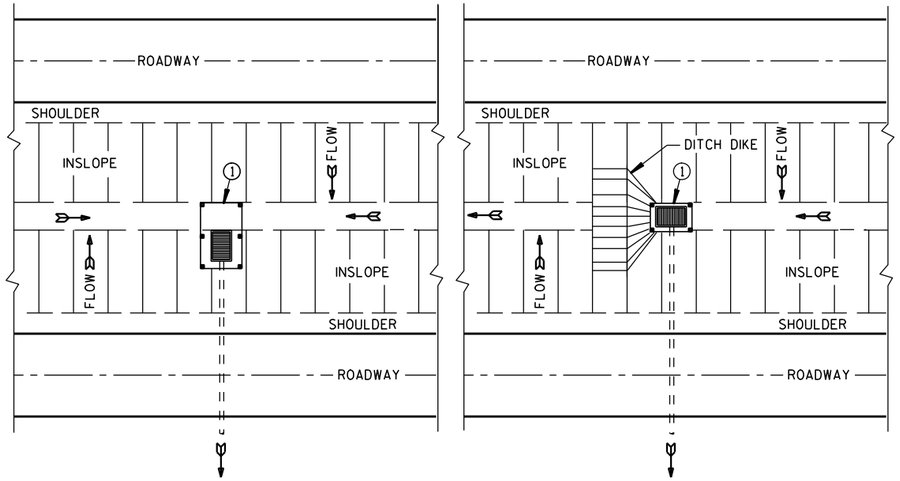
APPROVED
December 2017 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR

FHWA



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



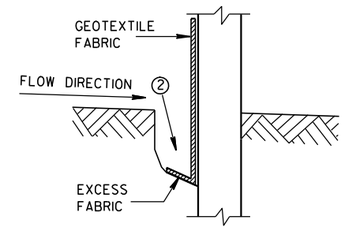
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

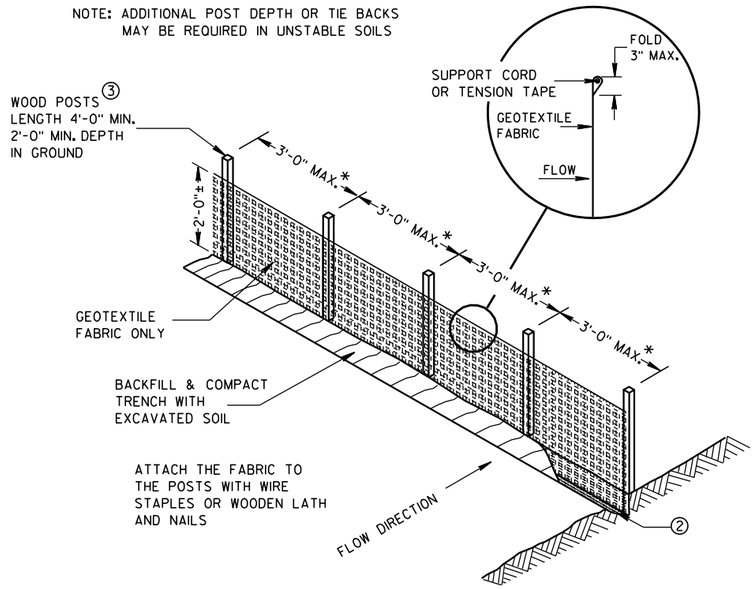
GENERAL NOTES

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

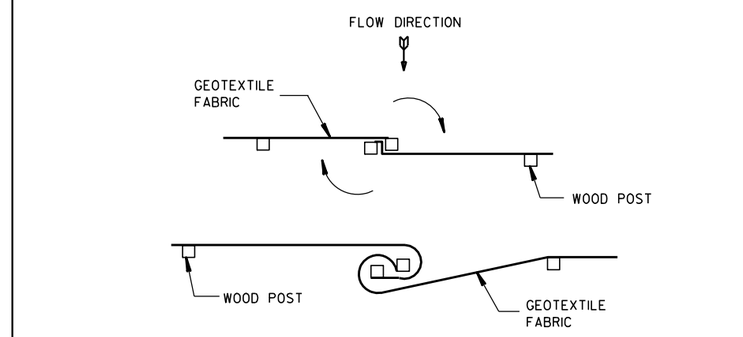
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



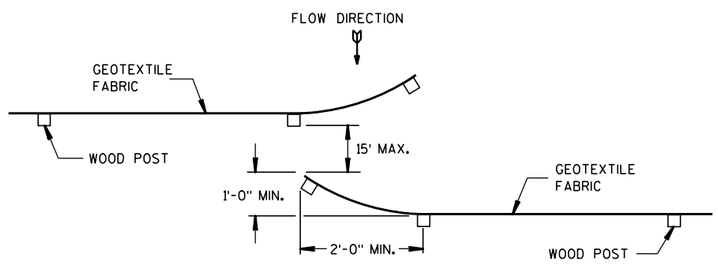
TRENCH DETAIL



SILT FENCE

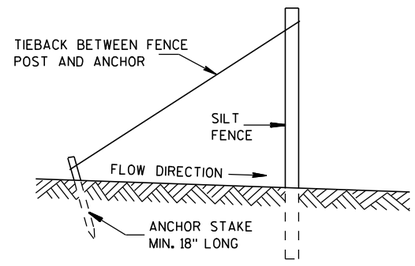


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

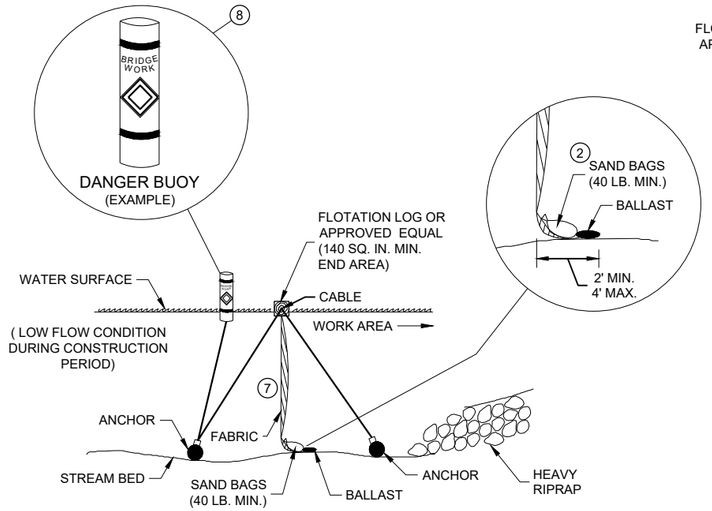
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

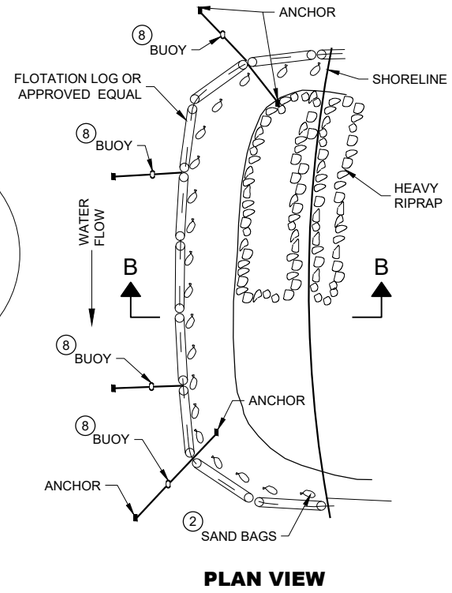
S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6

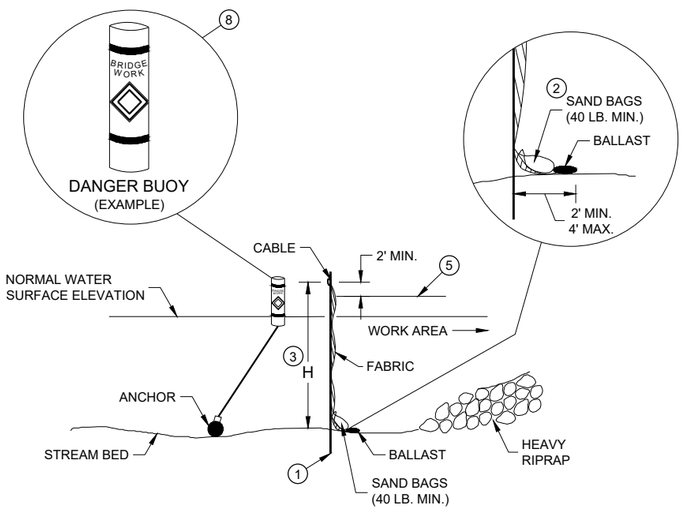


SECTION B - B

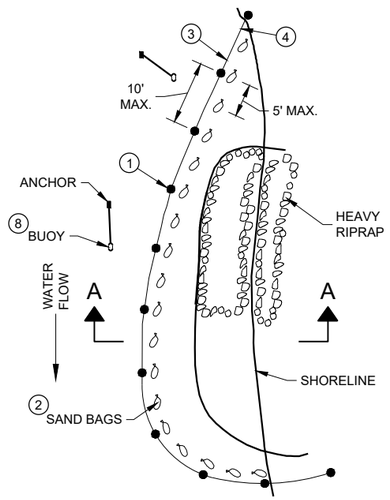


PLAN VIEW

TURBIDITY BARRIER - FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A - A



PLAN VIEW

TURBIDITY BARRIER - STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

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

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

(3) WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.

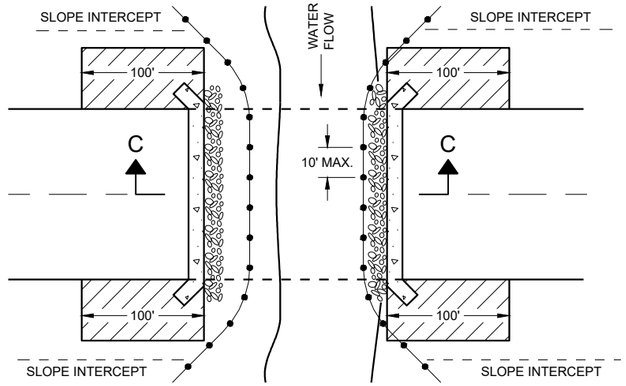
(4) IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

(5) ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.

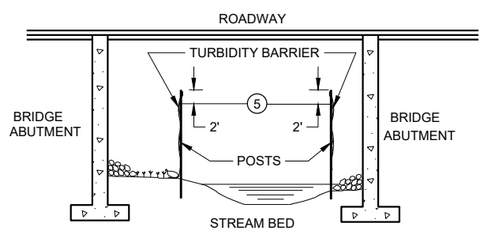
(6) FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.

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

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



PLAN VIEW



SECTION C - C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

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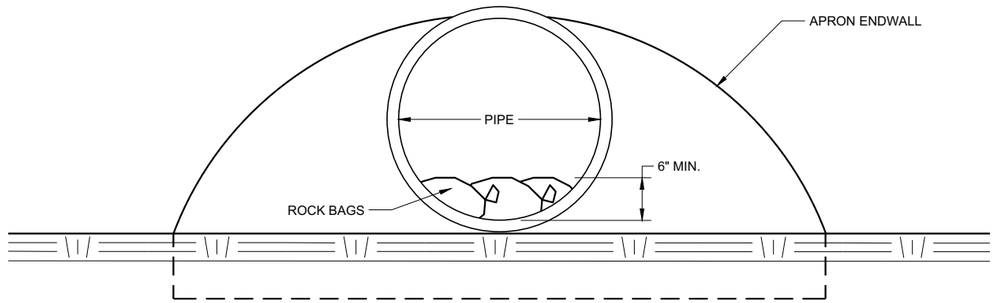
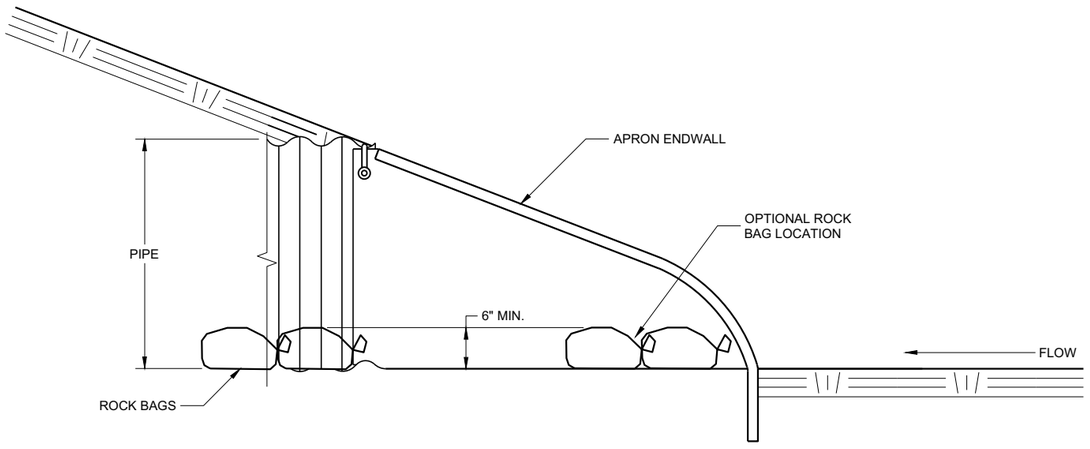
SDD 08E11 - 02



END VIEW



SIDE VIEW

CULVERT PIPE CHECK

(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019
DATE

/S/ Daniel Schave
EROSION CONTROL ENGI

FHWA

6

SDD 08E15 - 01

6

SDD 08E15 - 01

METAL APRON ENDWALLS

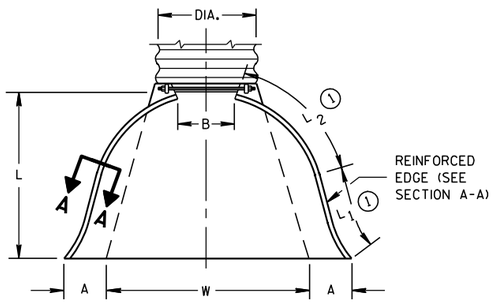
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

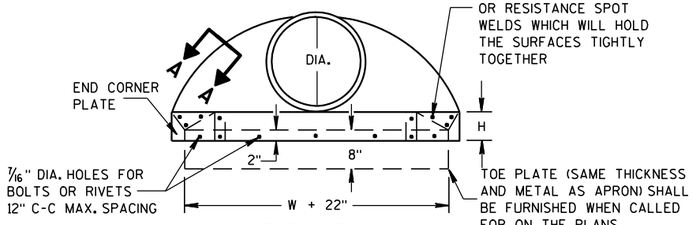
REINFORCED CONCRETE APRON ENDWALLS

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

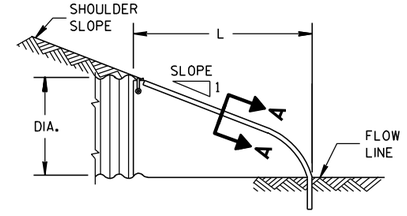
*MINIMUM
**MAXIMUM



PLAN VIEW

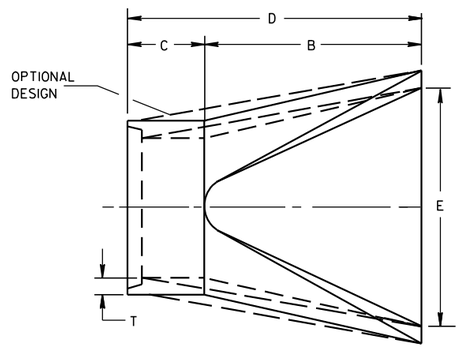


END VIEW

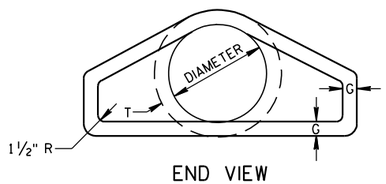


SIDE ELEVATION

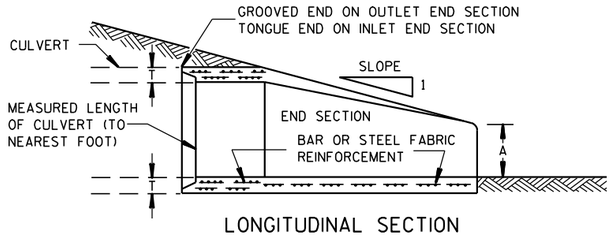
METAL ENDWALLS



PLAN

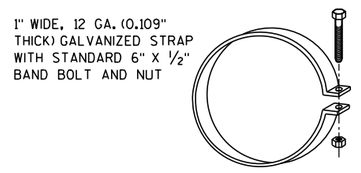


END VIEW



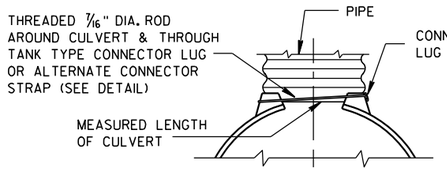
LONGITUDINAL SECTION

CONCRETE ENDWALLS

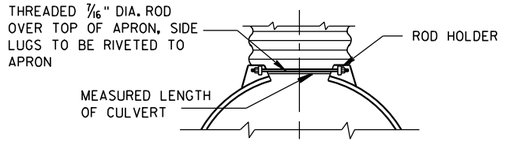


ALTERNATE FOR TYPE 1 CONNECTION

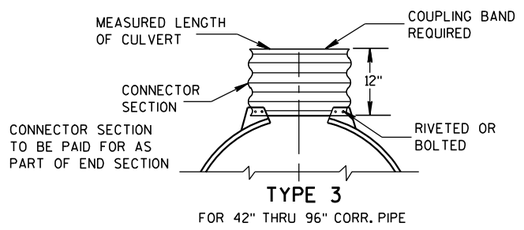
END SECTION CONNECTOR STRAP



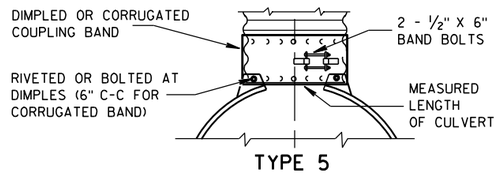
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

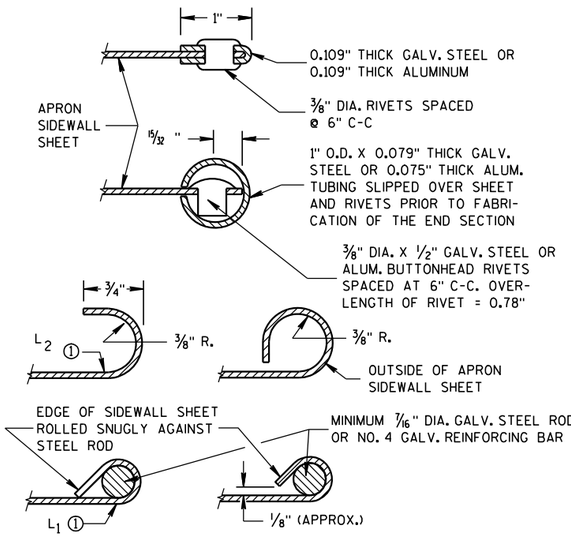
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

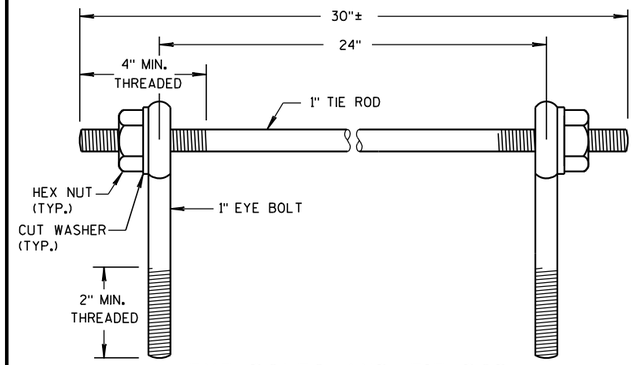
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

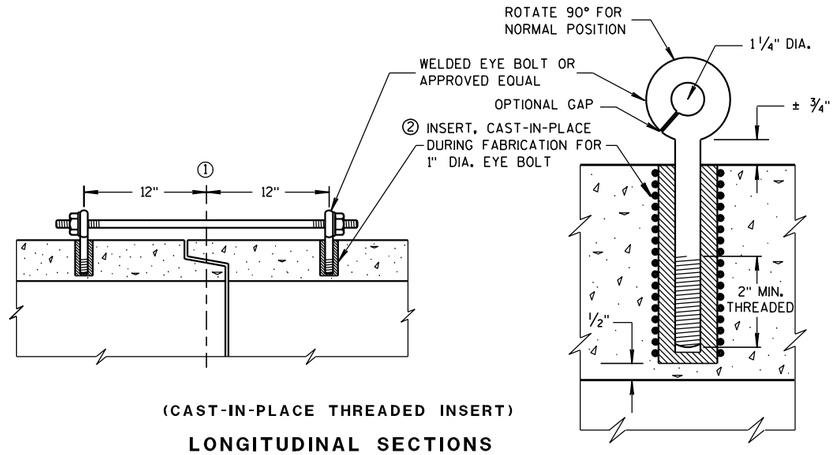
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

GENERAL NOTES

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

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

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

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

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

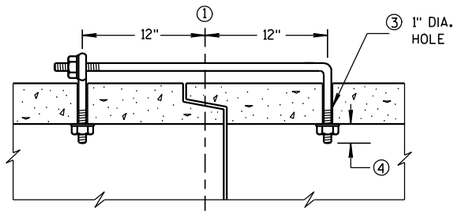
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

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

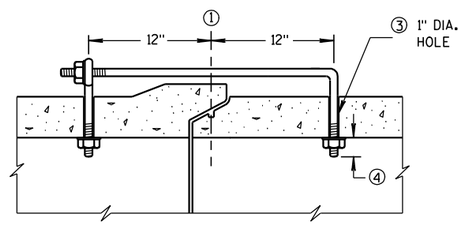
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

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



(TONGUE & GROOVE PIPE)

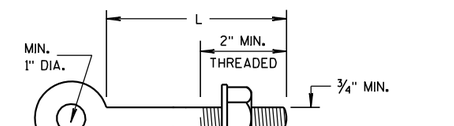


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

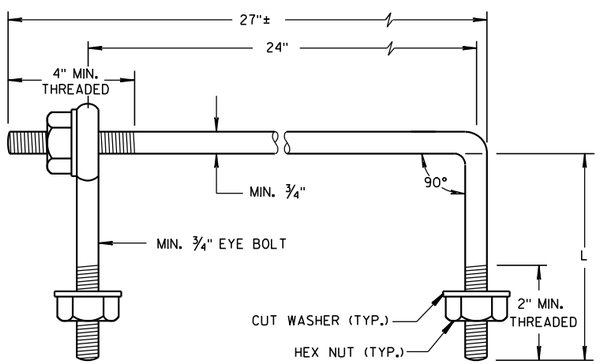
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

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



EYE BOLT AND TIE ROD

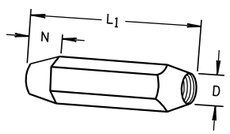
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

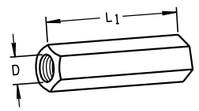
ADJUSTABLE TIE ROD TABLE

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

DIMENSIONS SHOWN ARE IN INCHES



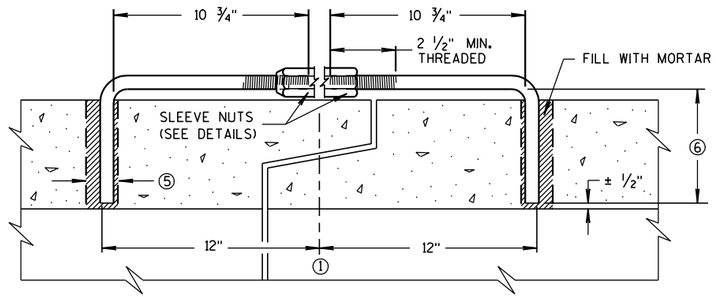
TAPERED



PLAIN

RIGHT AND LEFT THREADS

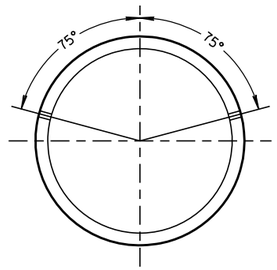
SLEEVE NUTS



LONGITUDINAL SECTION

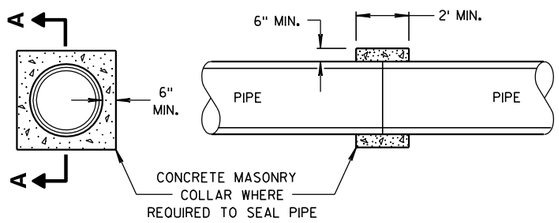
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 8 F 4-7

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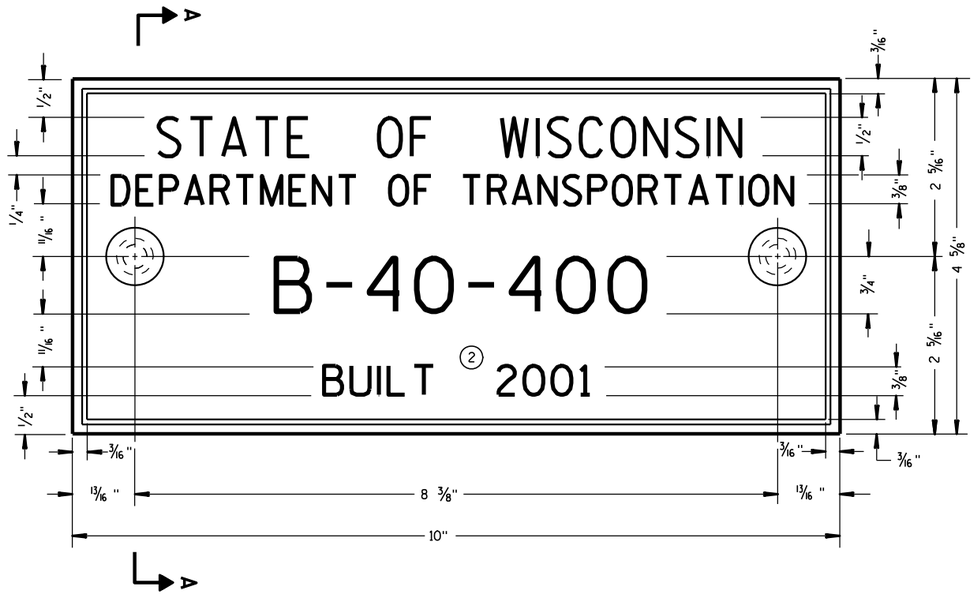
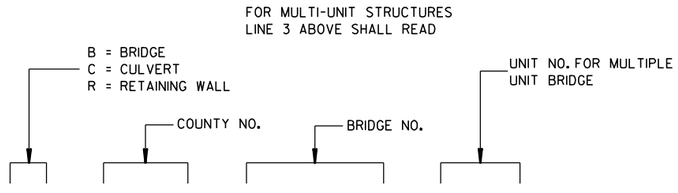
S.D.D. 8 F 4-7



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

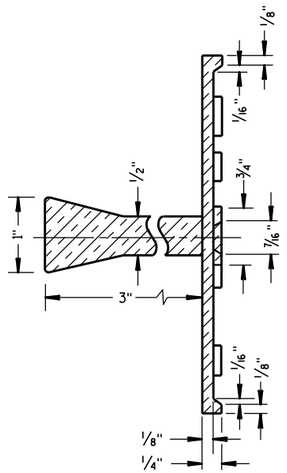
GENERAL NOTES

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

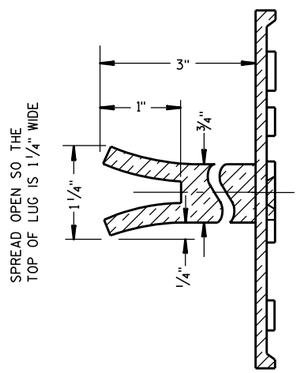
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

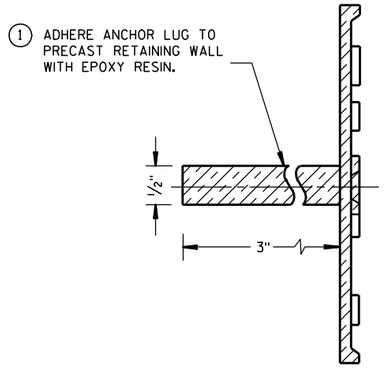
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

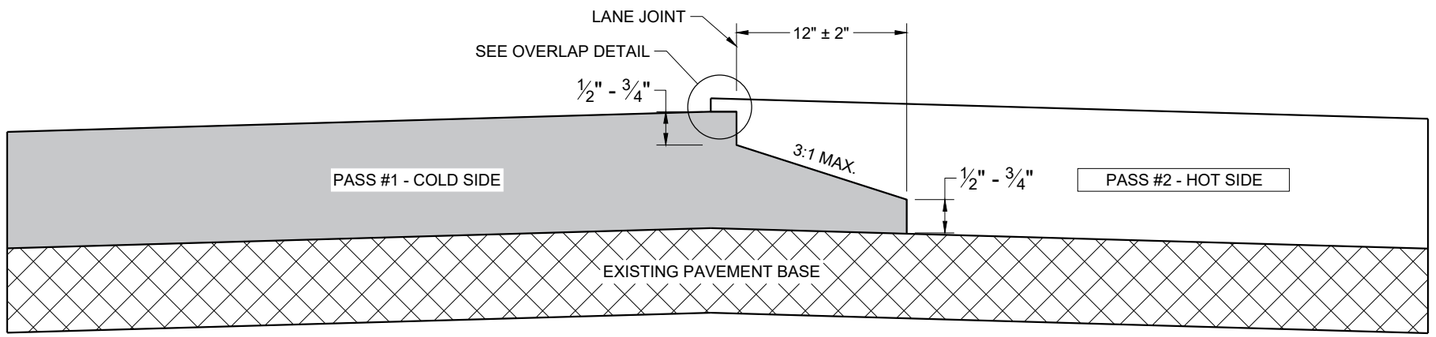
NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
3/26/10 DATE	/S/ Scot Beck CHIEF STRUCTURAL DEVELOP ENGINEER
FHWA	

6

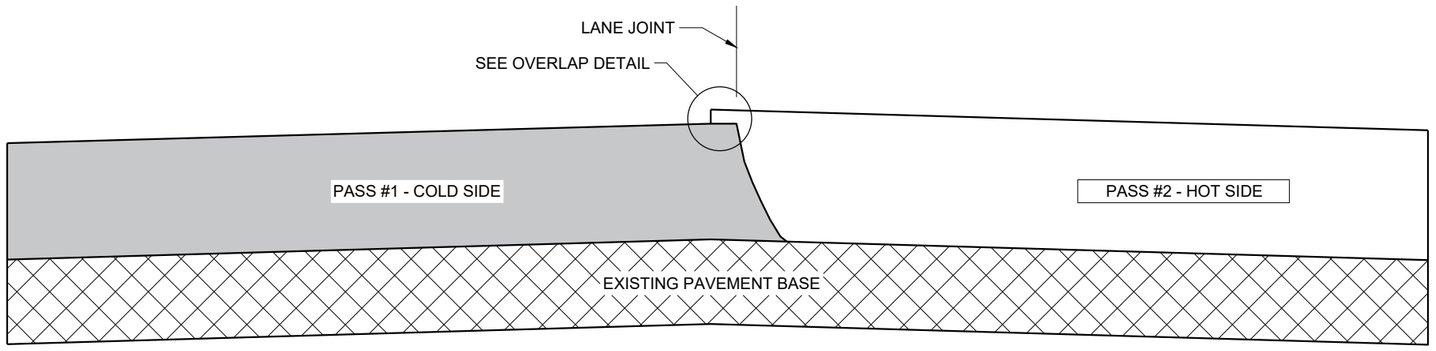
S.D.D. 12 A 3-10

6

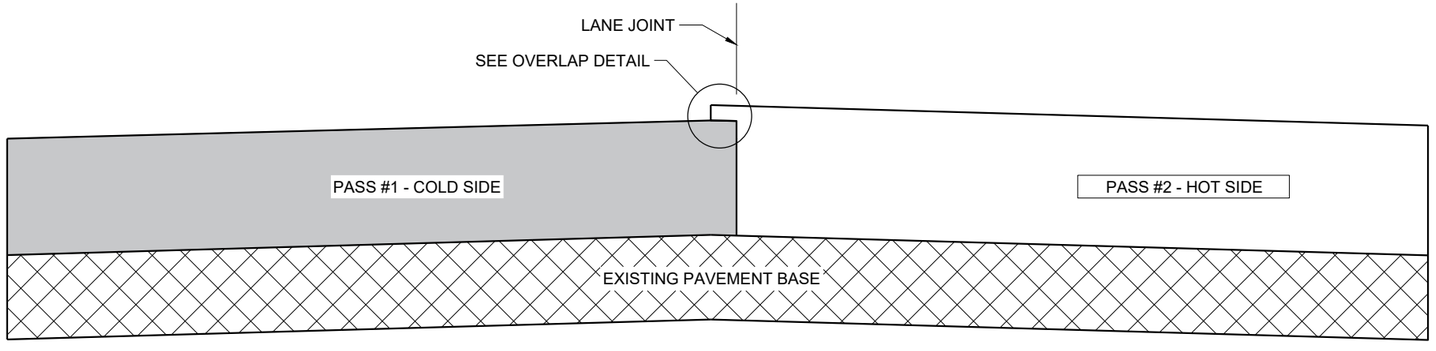
S.D.D. 12 A 3-10



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

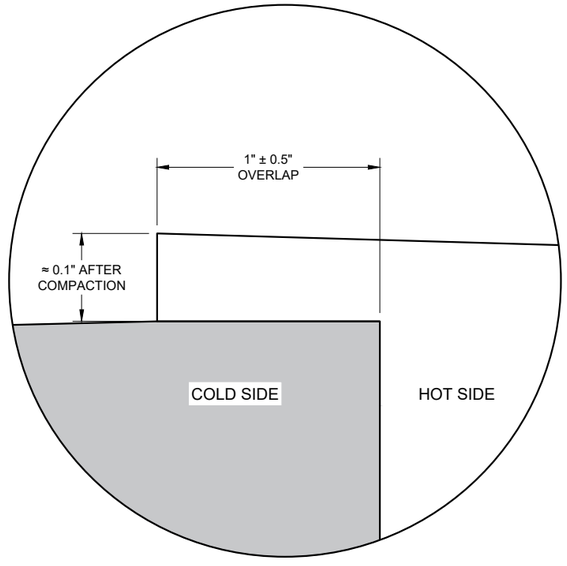
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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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.

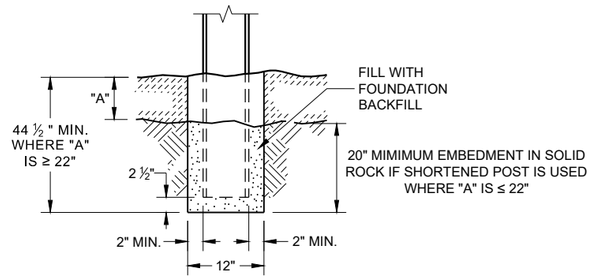
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL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

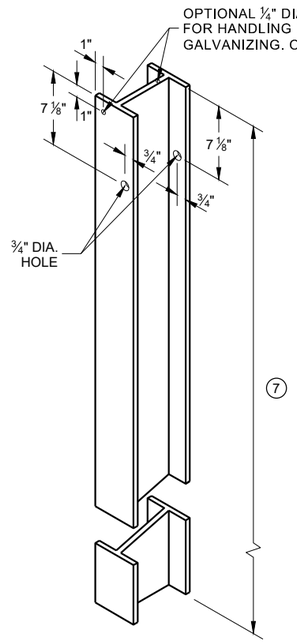
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(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.

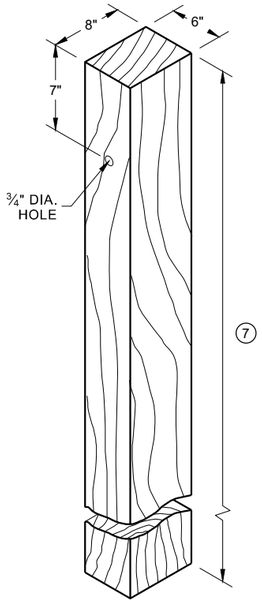
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



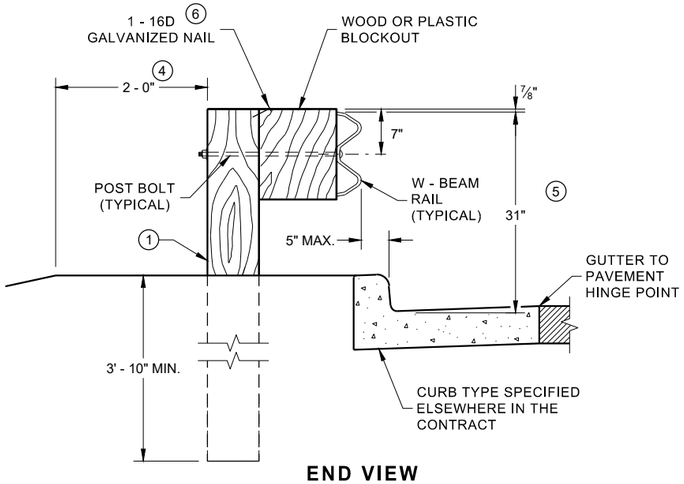
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



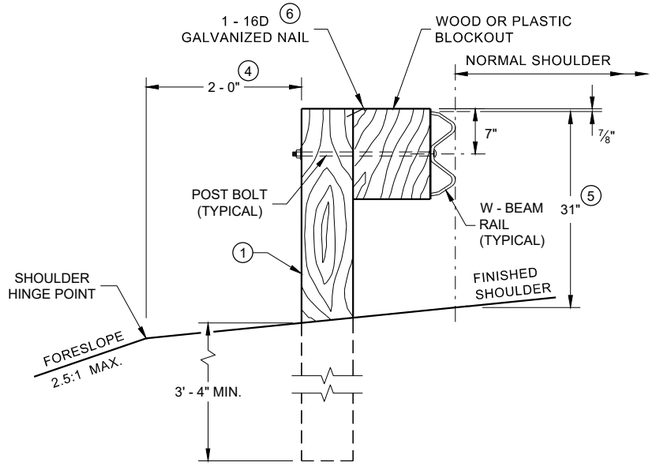
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



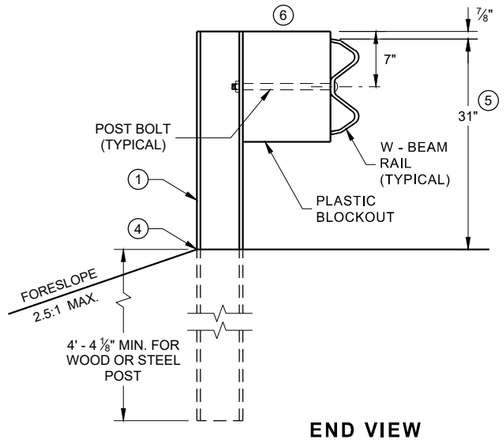
WOOD POST (6" X 8") NOMINAL (1)



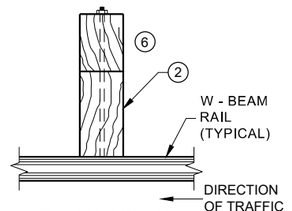
END VIEW
LOCATED ALONG A CURBED ROADWAY



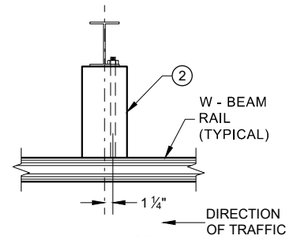
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



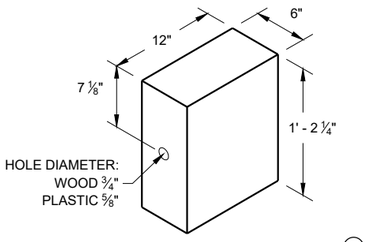
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM

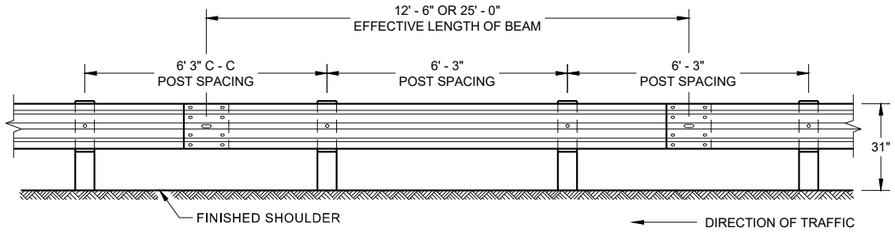


WOOD OR PLASTIC BLOCKOUT (2)

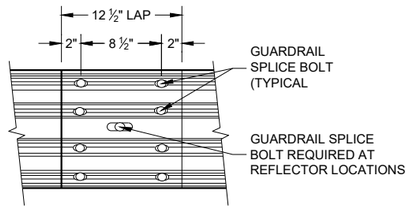
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
SDD 14B42 - 07a



FRONT VIEW
POST SPACING STANDARD INSTALLATION



FRONT VIEW
MID-SPAN BEAM SPLICE

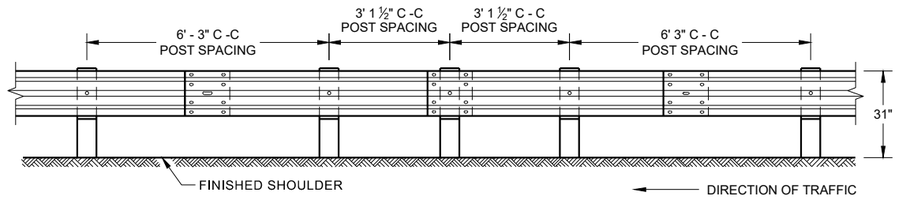
GENERAL NOTES

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

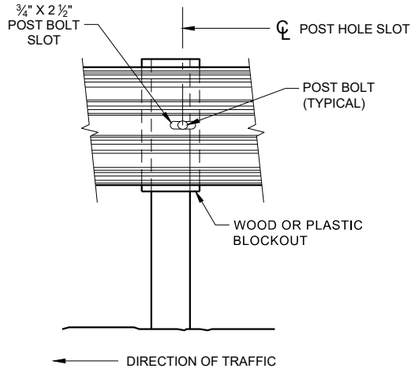
(9) 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

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.

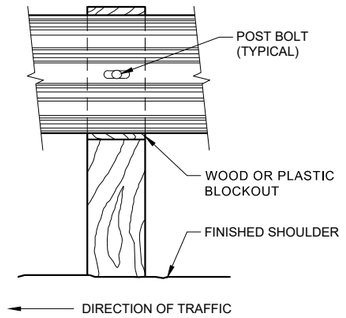
GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



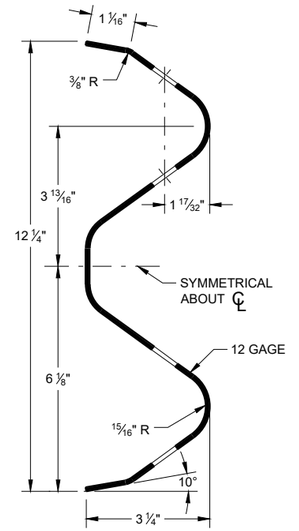
FRONT VIEW
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



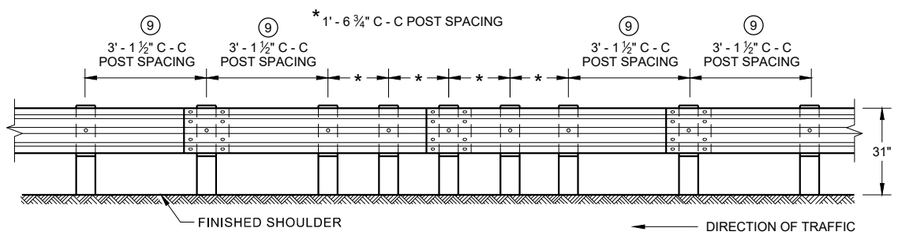
FRONT VIEW AT STEEL POST



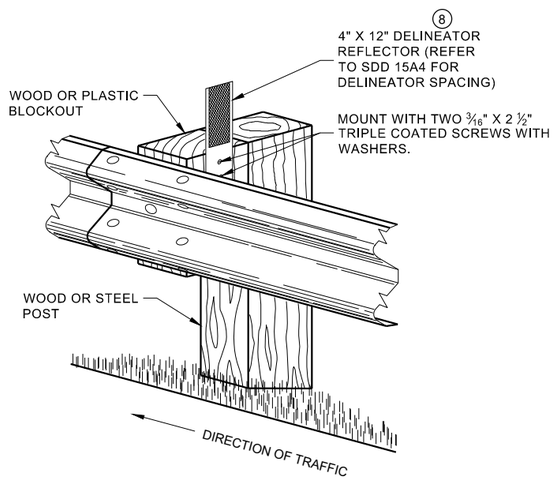
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



FRONT VIEW
QUARTER POST SPACING (QS)

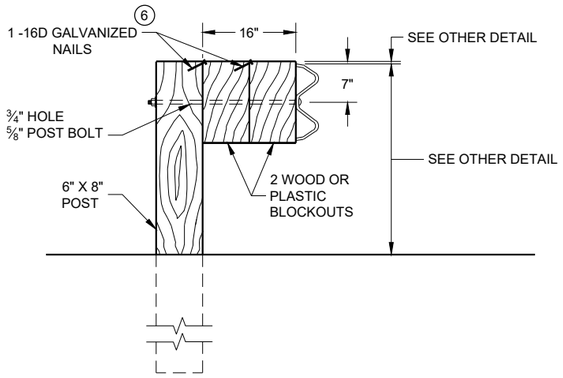


ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
SDD 14B42 - 07b

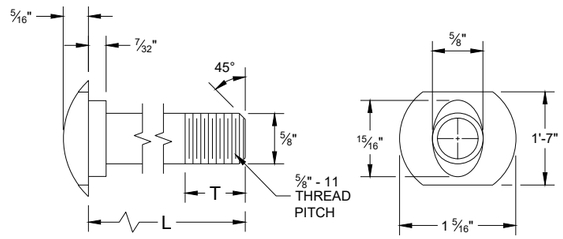


DETAIL FOR 16" BLOCKOUT DEPTH

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

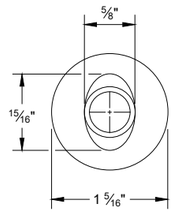
NOTE:

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

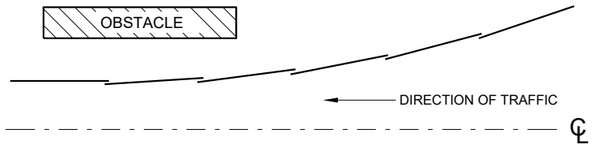


POST BOLT TABLE

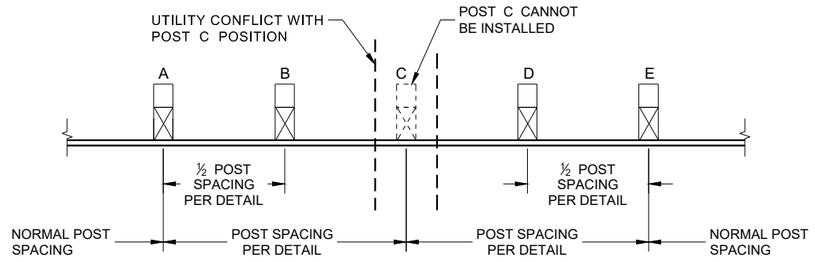
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1⁄16"
18"	4"
21"	4 1⁄16"
25"	4"



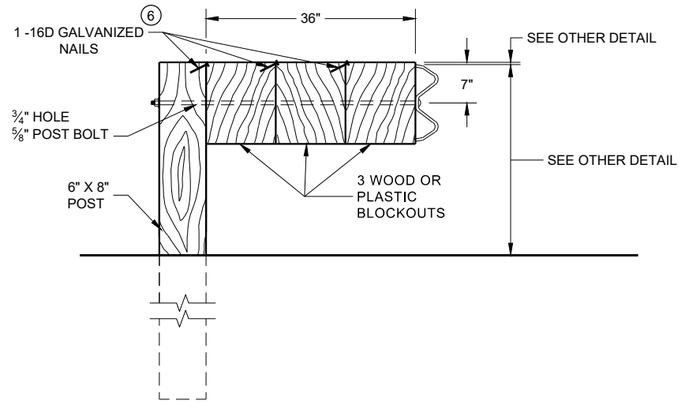
ALTERNATE BOLT HEAD



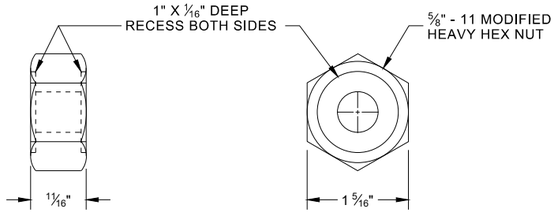
PLAN VIEW
BEAM LAPPING DETAIL



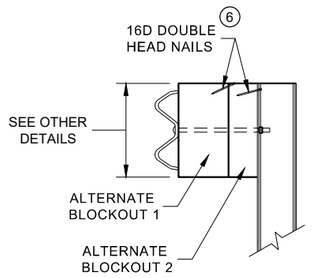
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



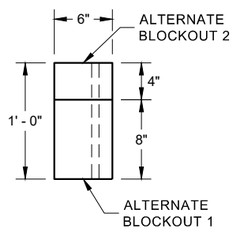
DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW



PLAN VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

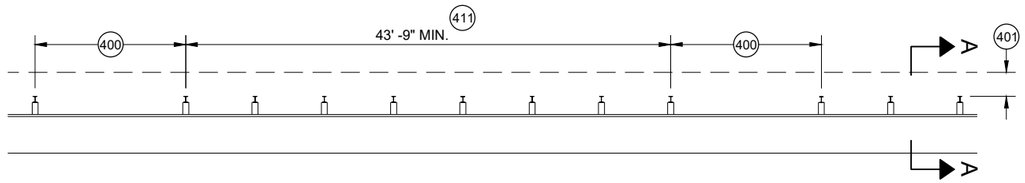
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

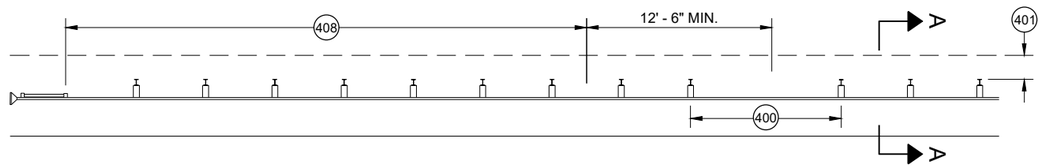
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

6

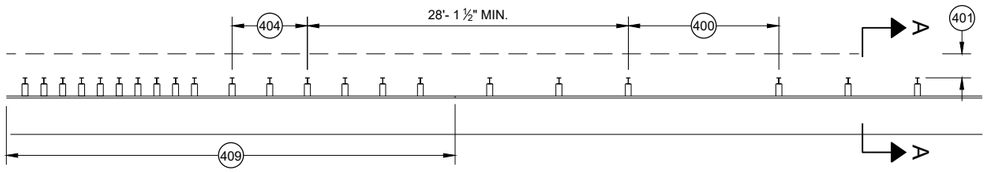
SDD 14B42 - 07c



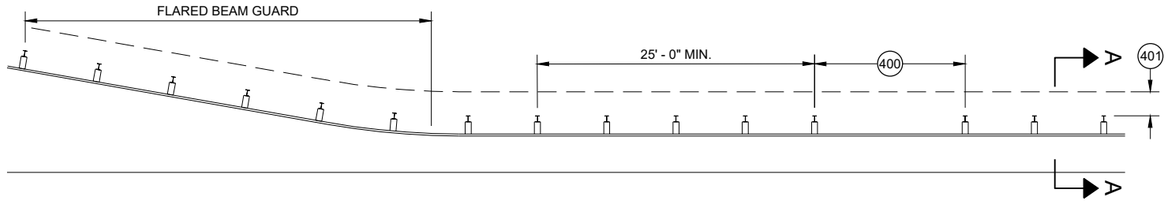
MISSING POST IN MGS GUARDRAIL



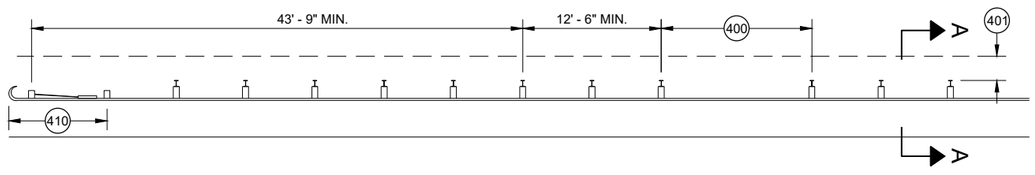
MISSING POST IN MGS GUARDRAIL NEAR EAT



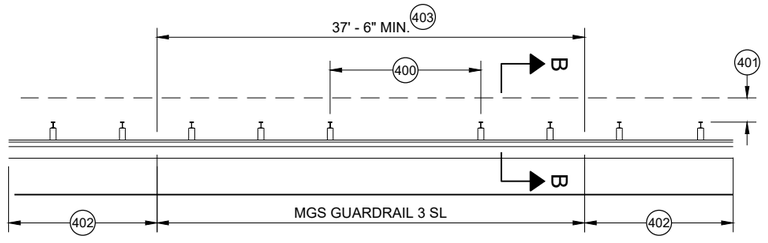
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

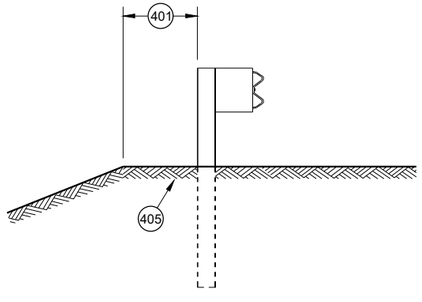


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

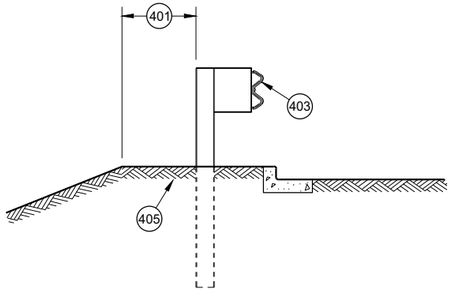


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL) 407

(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.

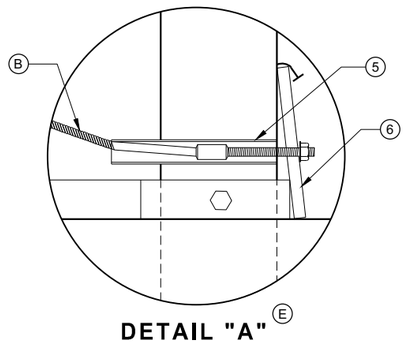
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

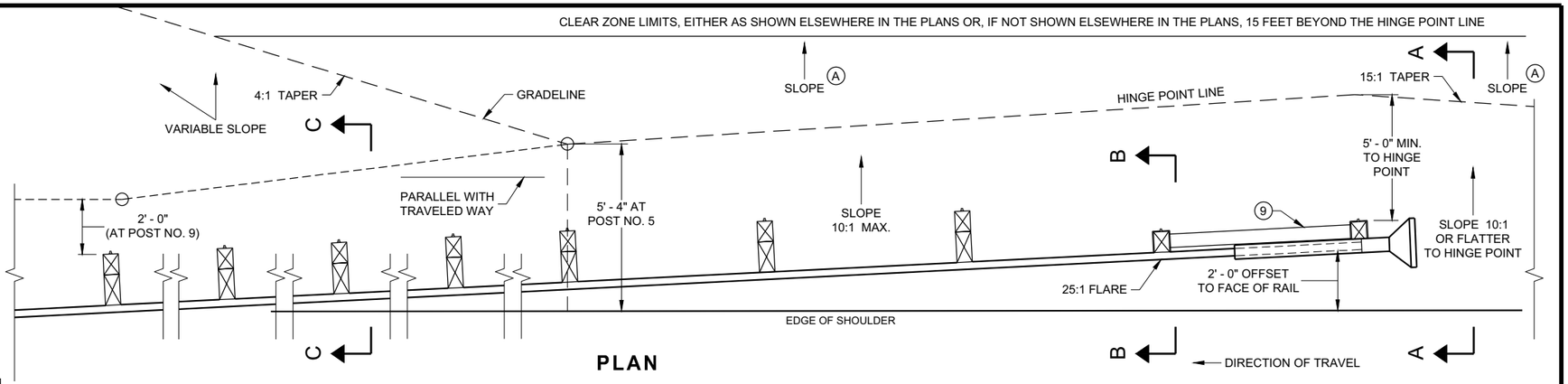
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

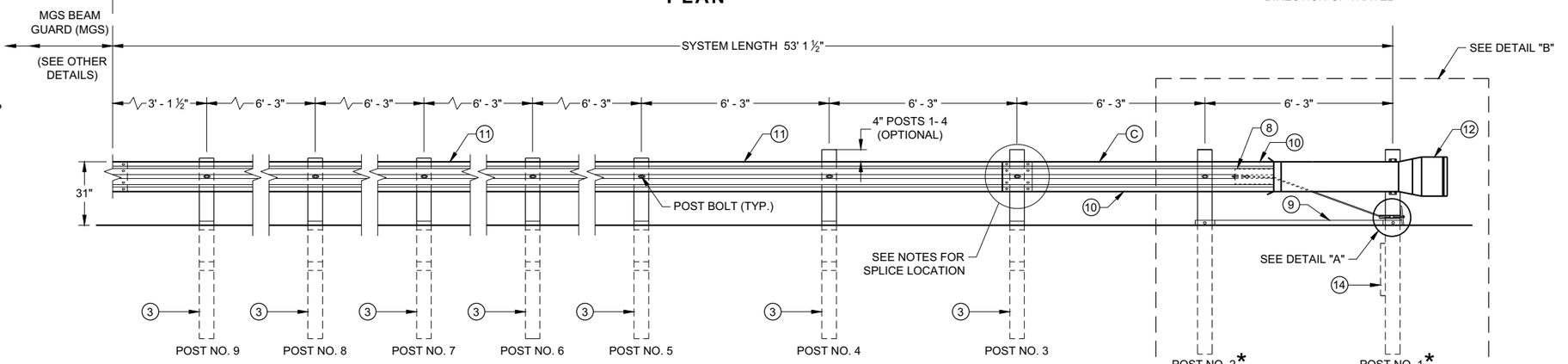
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

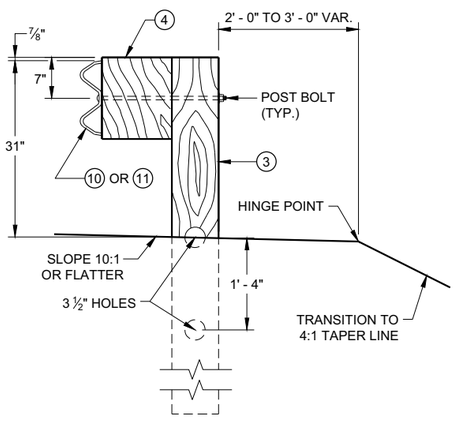
THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



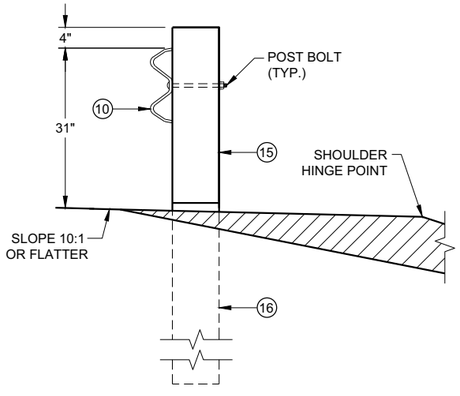
DETAIL "A" (E)



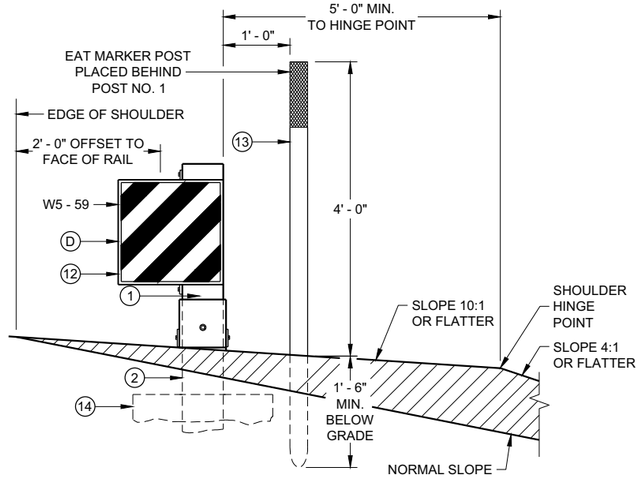




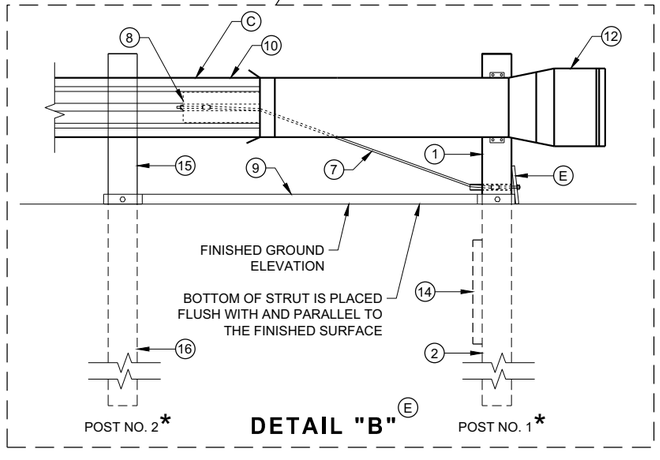
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*



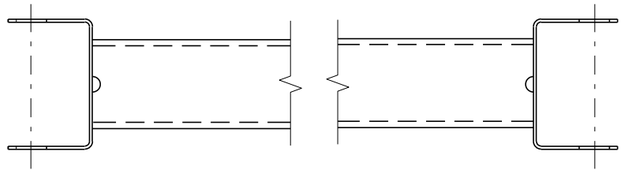
DETAIL "B" (E)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

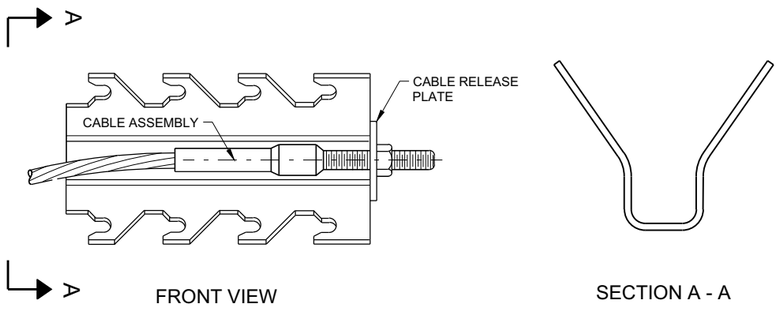
SDD 14B44 - 04a



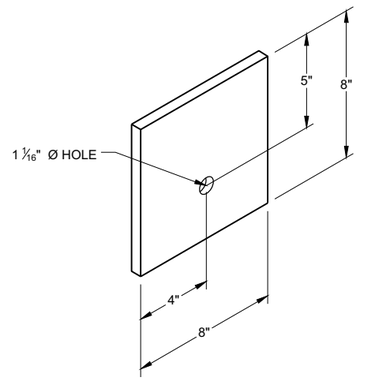
GENERIC GROUND STRUT ⑨ Ⓔ

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX ⑧ Ⓔ



BEARING PLATE ⑥ Ⓔ

6

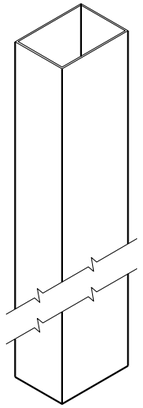
6

SDD 14B44 - 04b

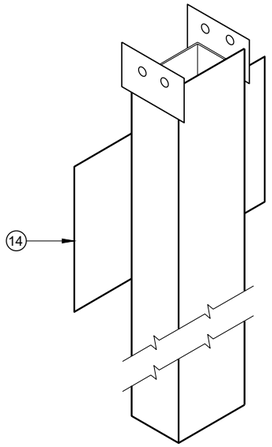
SDD 14B44 - 04b

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

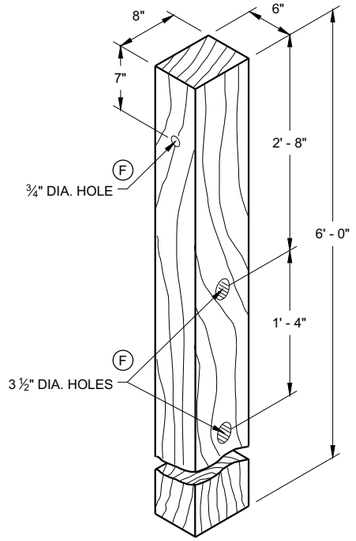
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



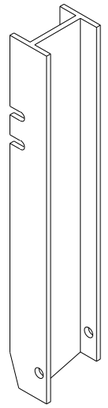
UPPER POST NO. 1 (1) (E)



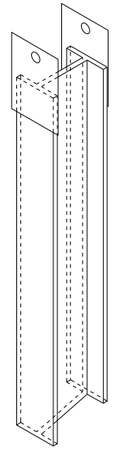
LOWER POST NO. 1 (2) (E)



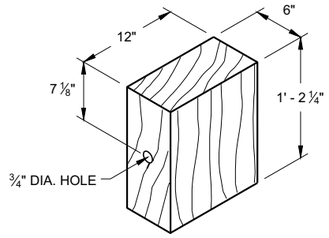
WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



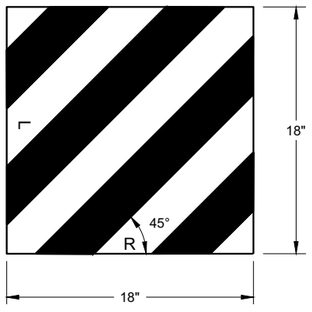
UPPER POST NO. 2 (15) (E)



LOWER POST NO. 2 (16) (E)

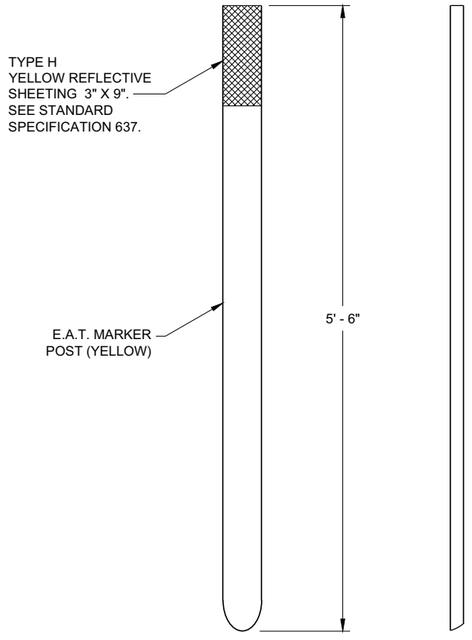


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



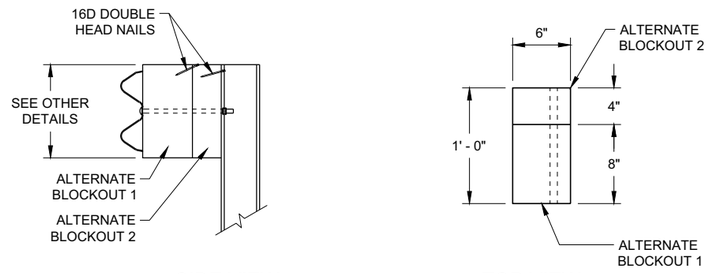
W5 - 59

REFLECTIVE SHEETING DETAIL (E)



FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

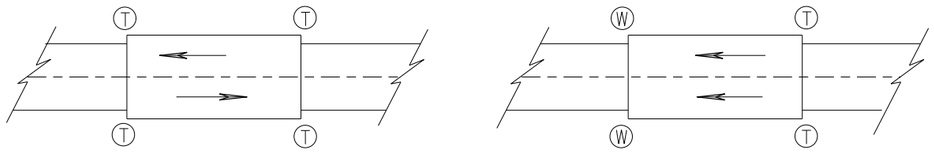
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

SDD 14B44 - 04c



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.

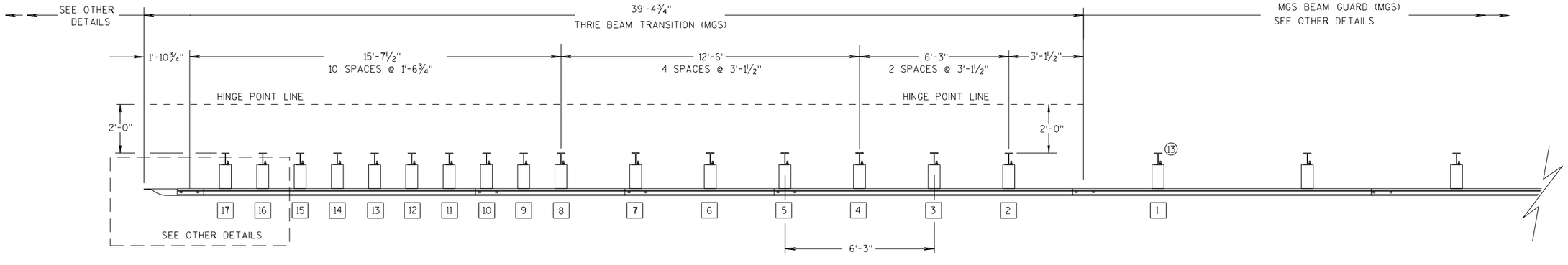
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

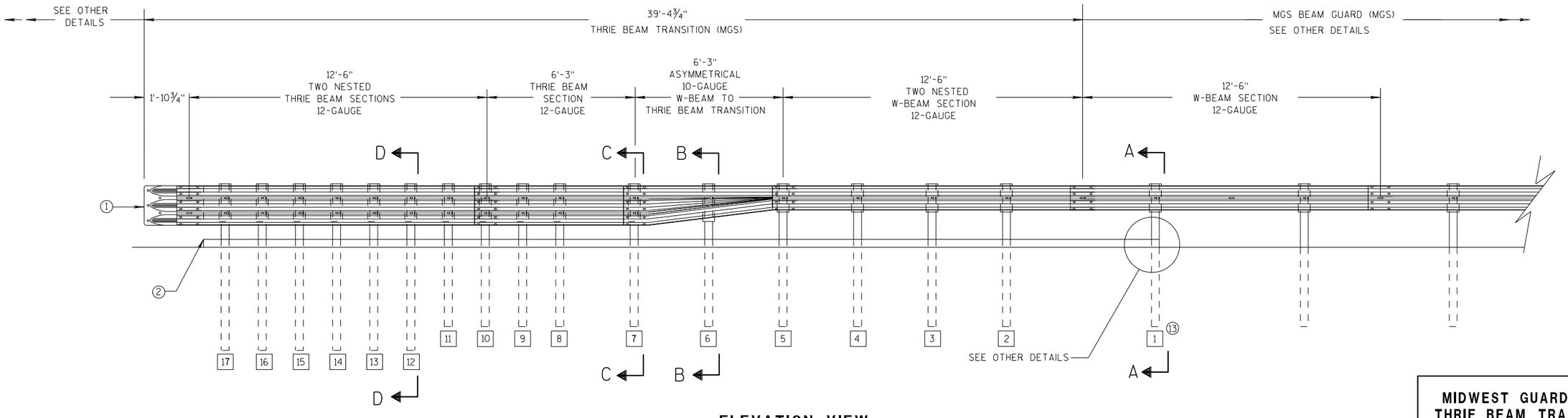
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

(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

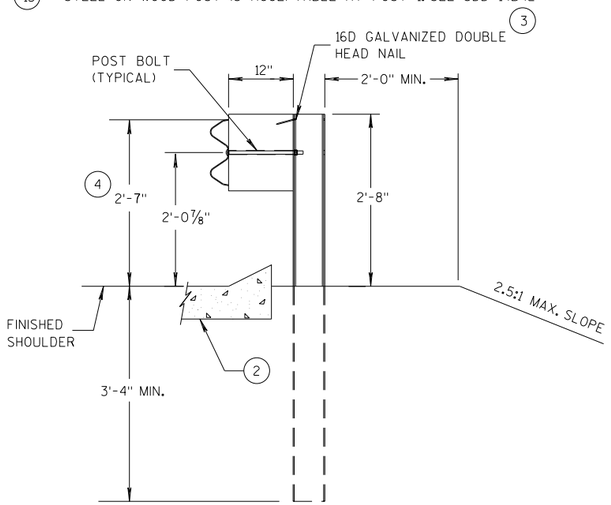
GENERAL NOTES

(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.

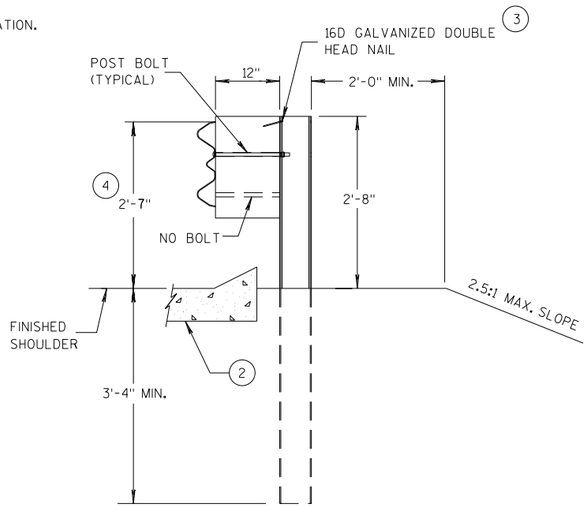
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

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



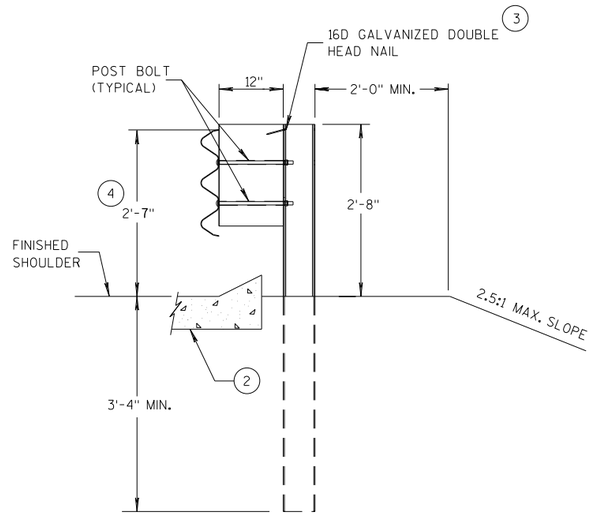
SECTION A-A (13)

POSTS 1-5



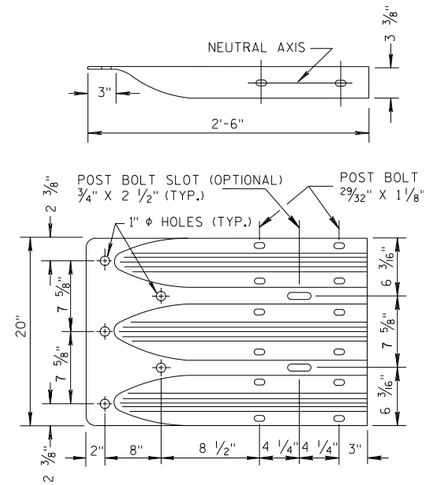
SECTION B-B

POST 6

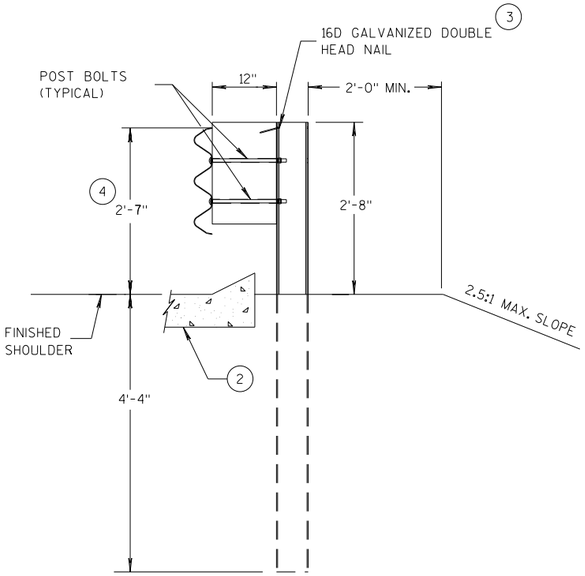


SECTION C-C

POSTS 7-11

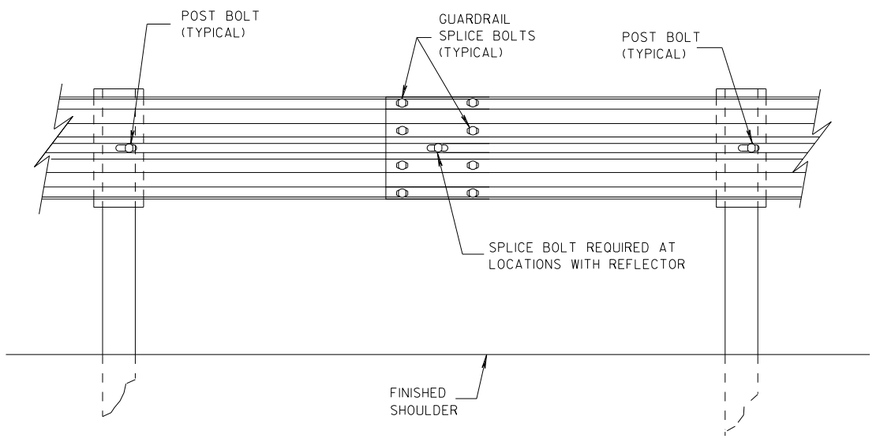


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-17



SPLICE DETAIL

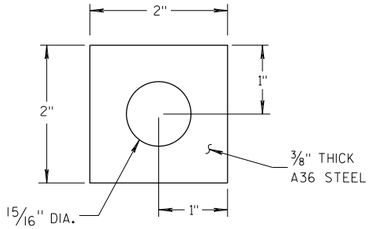
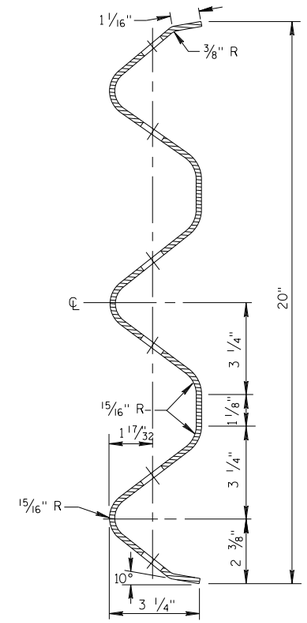


PLATE WASHER DETAIL



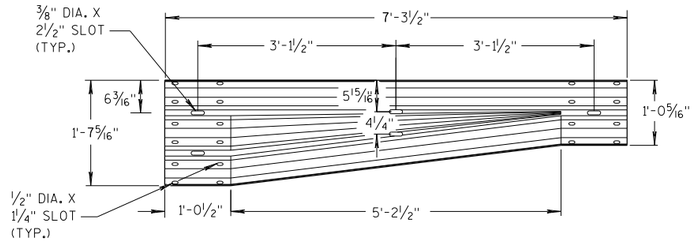
SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

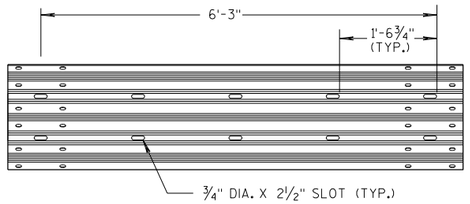
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORT

6

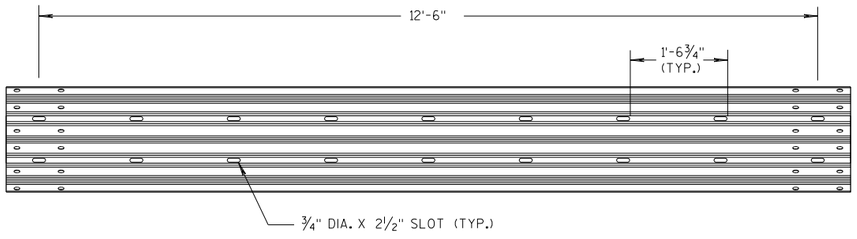
S.D.D. 14 B 45-5b



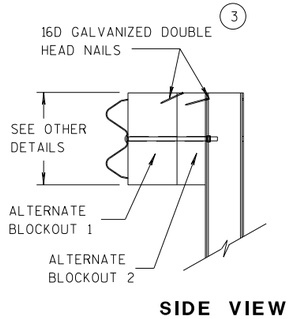
W-BEAM TO THRIE BEAM TRANSITION SECTION



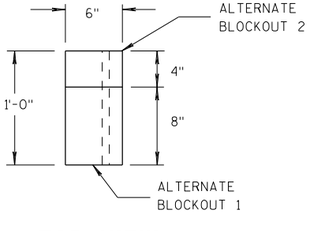
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

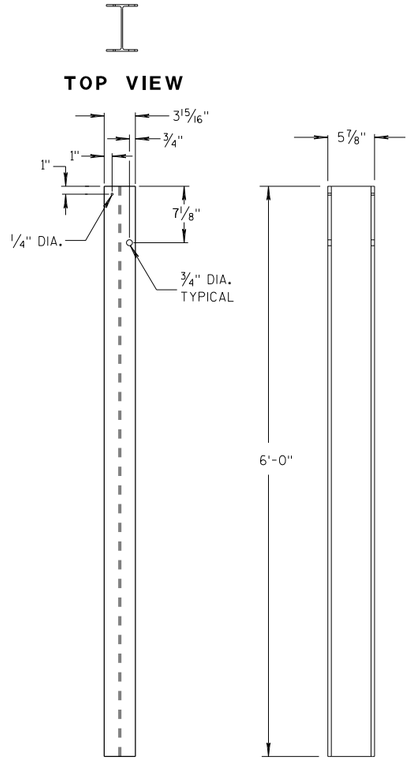


SIDE VIEW



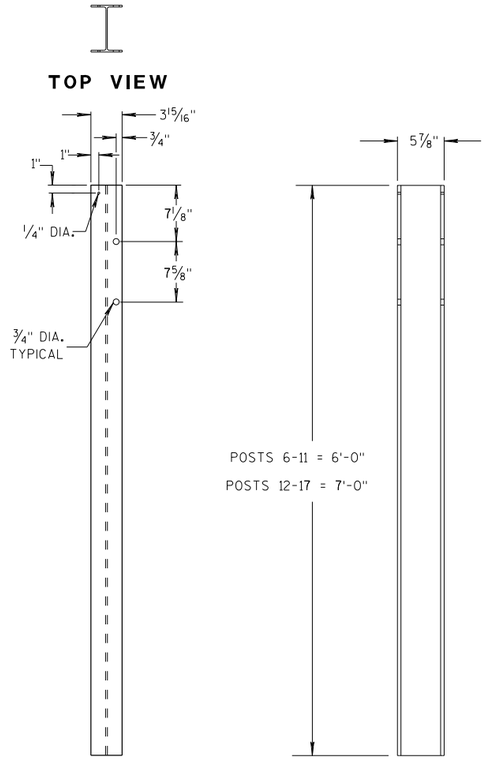
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



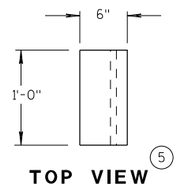
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5 (13)

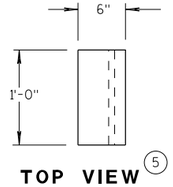


FRONT VIEW SIDE VIEW

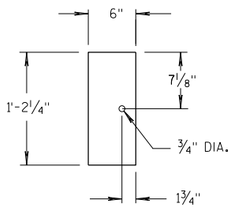
STEEL POSTS 6-17



TOP VIEW (5)

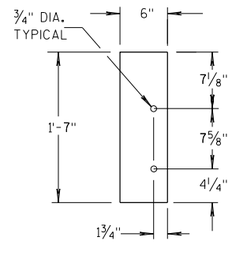


TOP VIEW (5)



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)

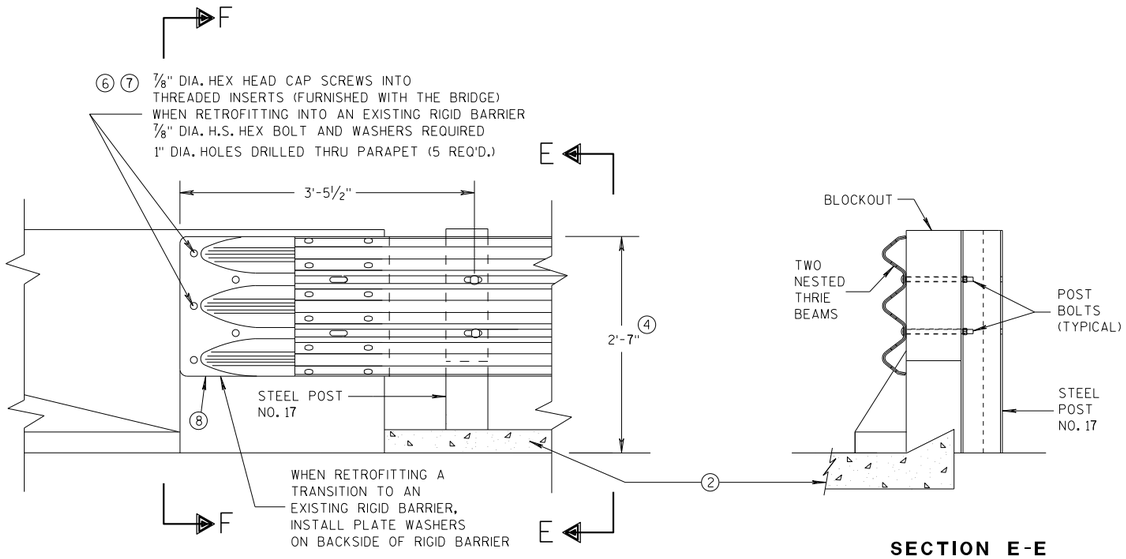
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 35

6

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

6

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



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

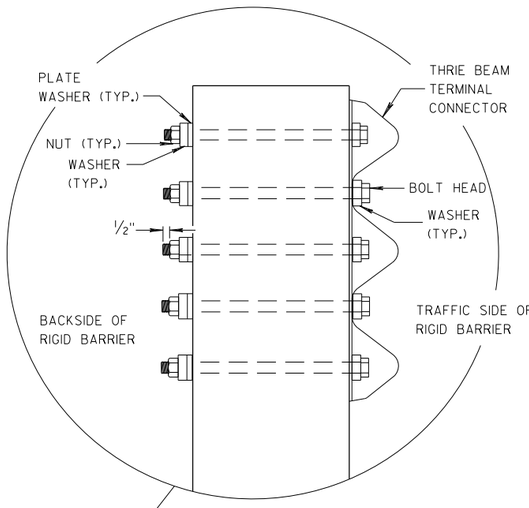
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

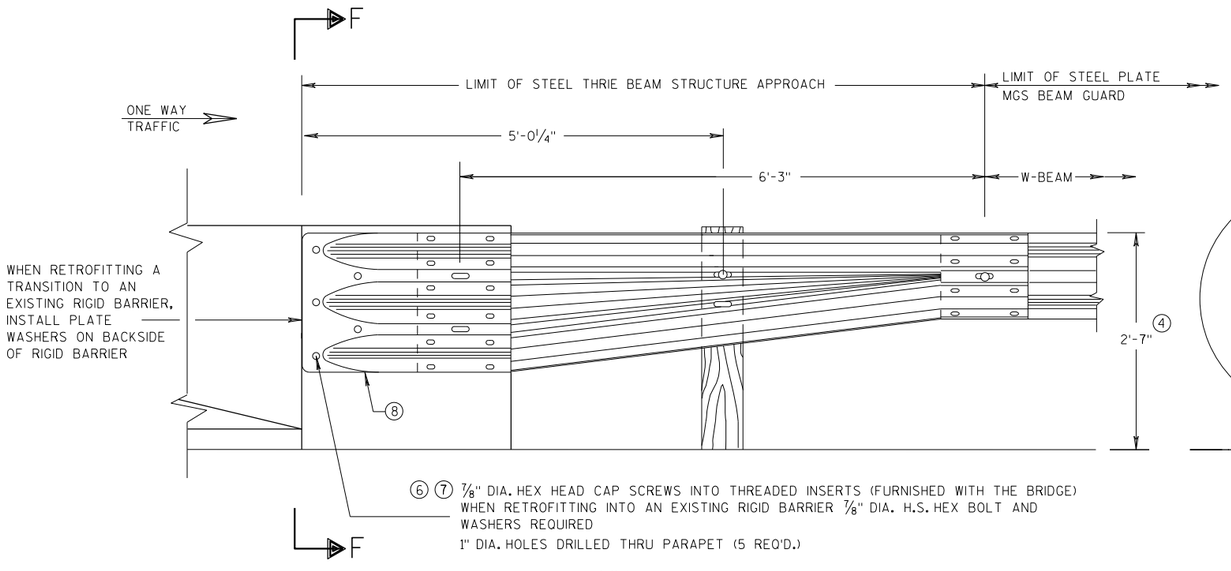
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

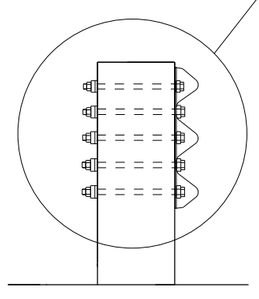
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

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

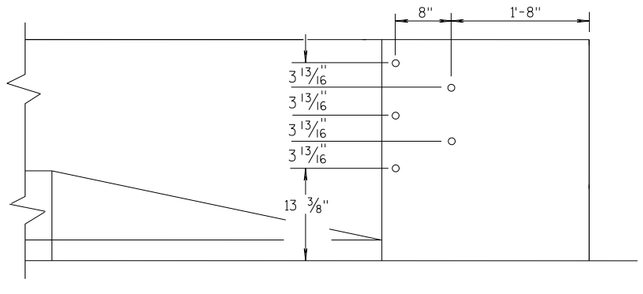




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D UNIT SUPERVI
NT
FHWA

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

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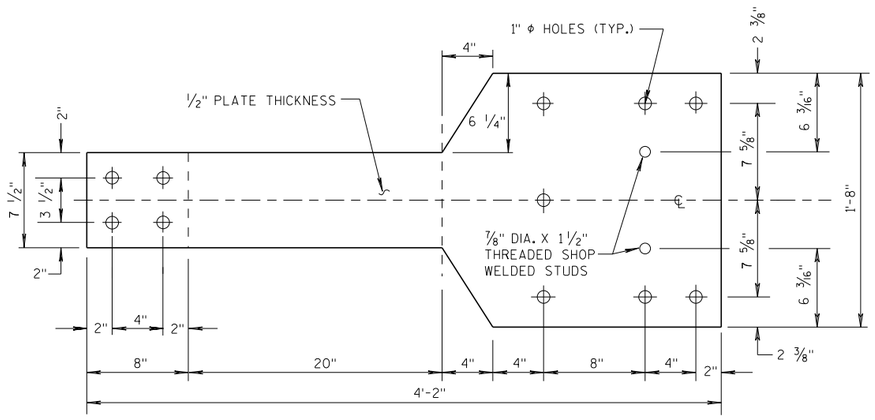
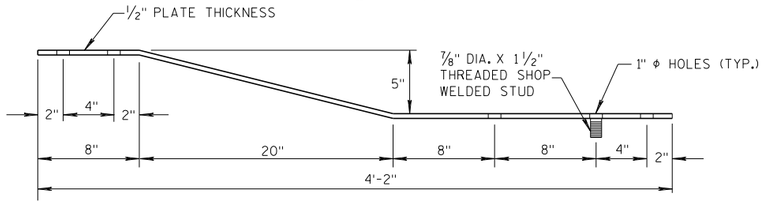
S.D.D. 14 B 45-5d

GENERAL NOTES

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

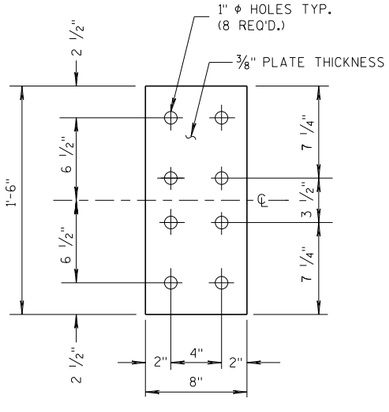


FRONT VIEW



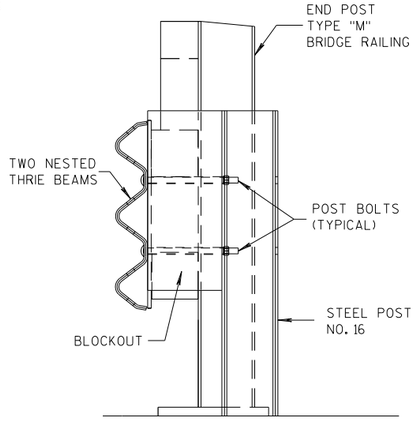
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

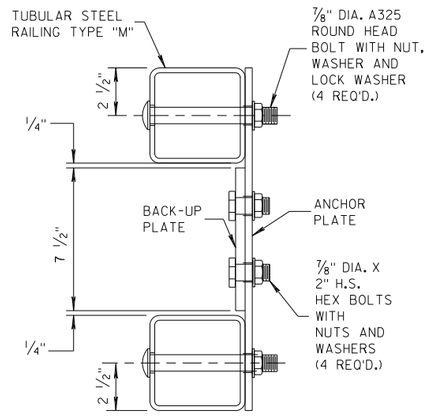


FRONT VIEW

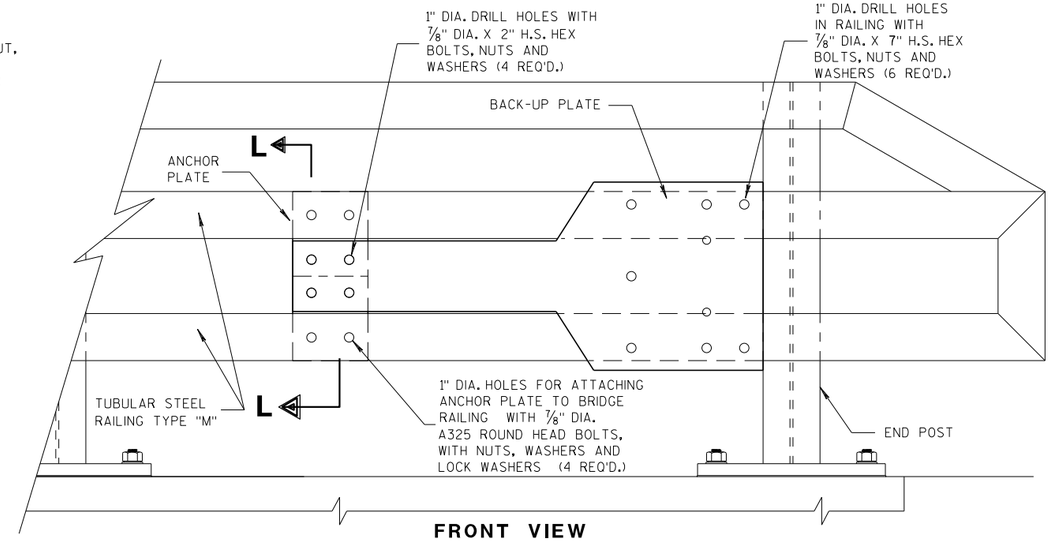
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

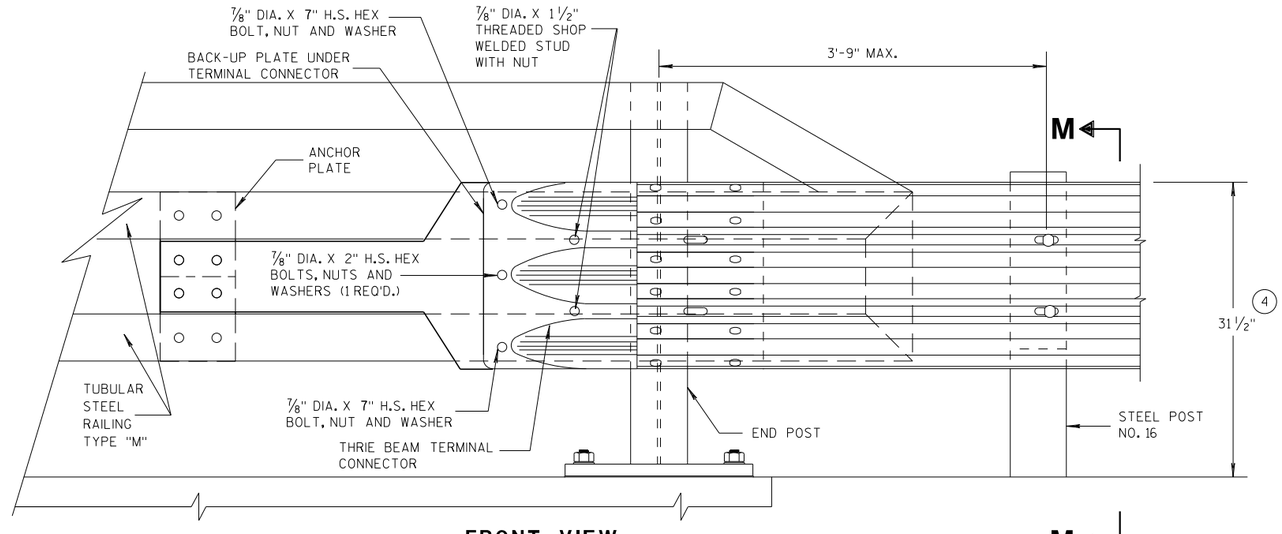


SECTION L-L

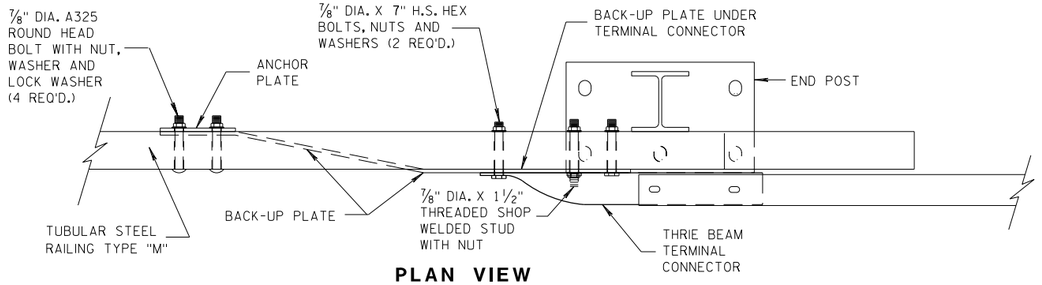


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

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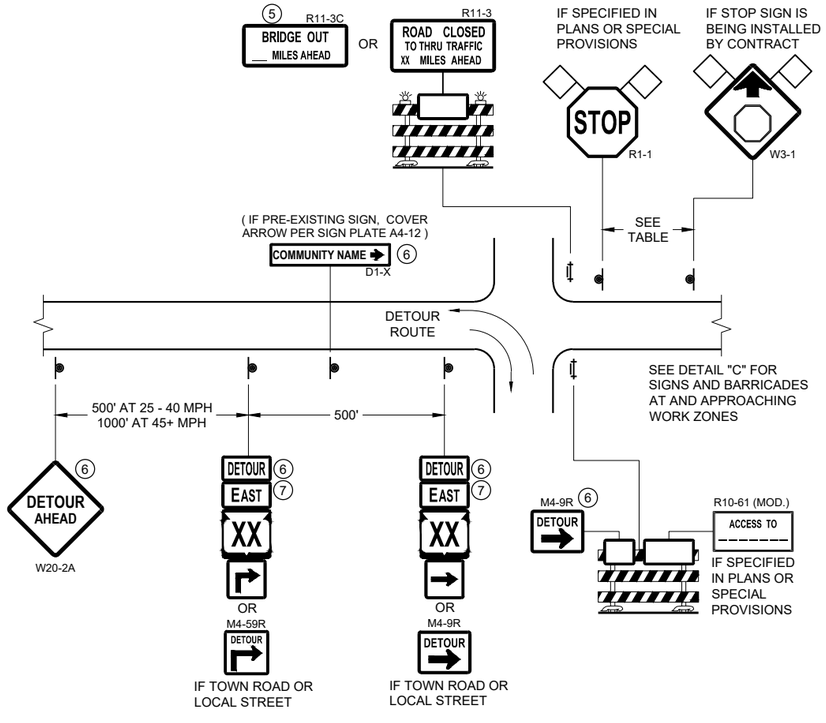
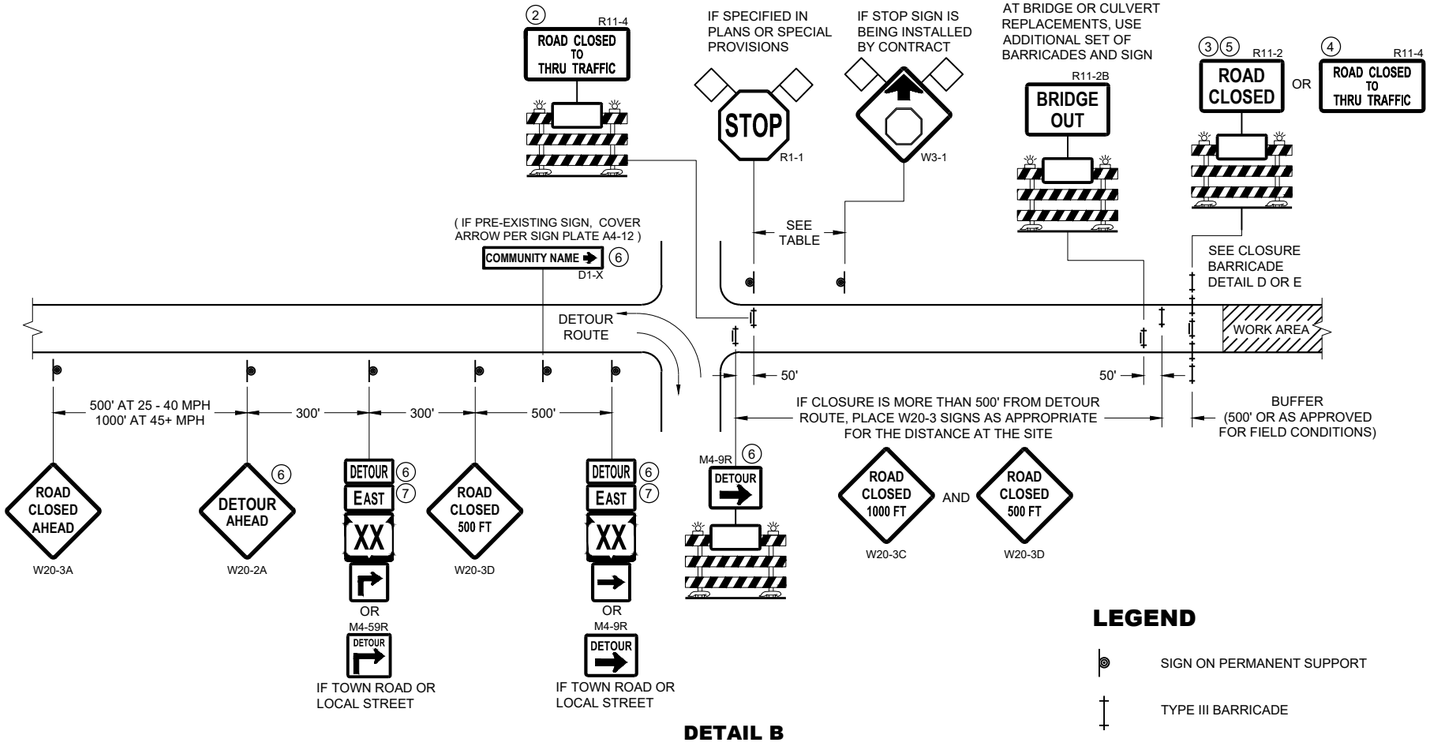
S.D.D. 14 B 45-5h



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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



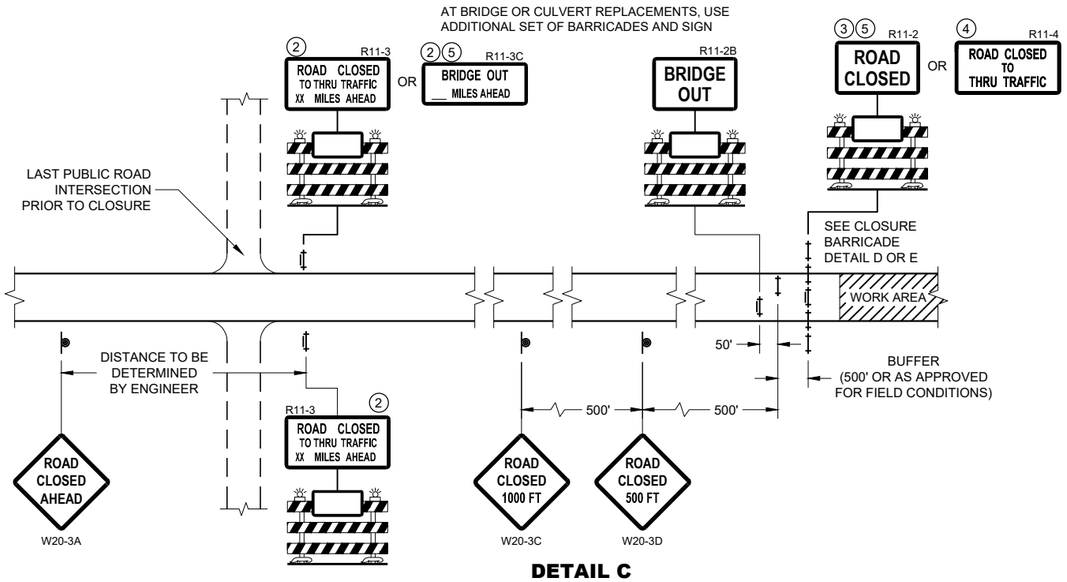
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

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

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

DETOUR M4 - 8
EAST M3 - X
XX M1 - 4 OR XX M1 - 6 OR COUNTY X M1 - 5A
M05 - 1 OR M06 - 1



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

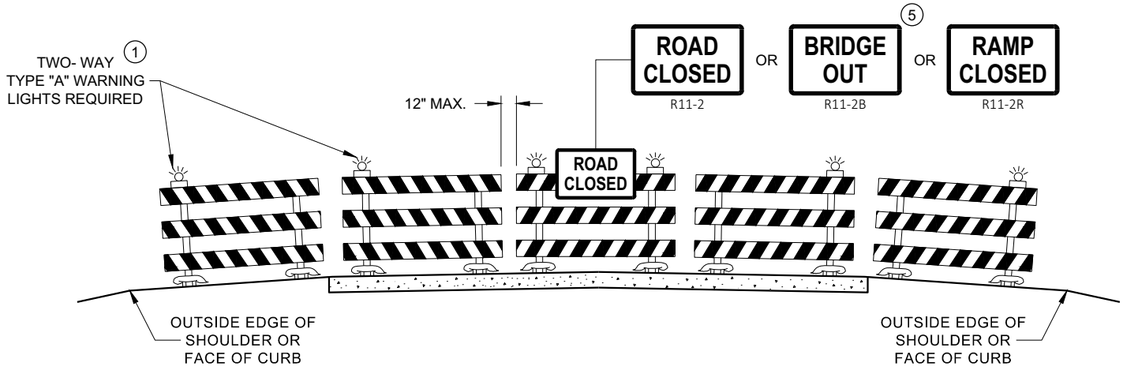
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEER

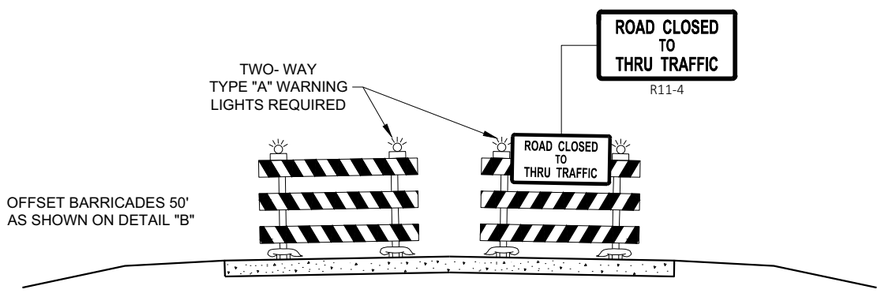
FHWA

SDD 15C02 - 08a

SDD 15C02 - 08a



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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SDD 15C02 - 08b

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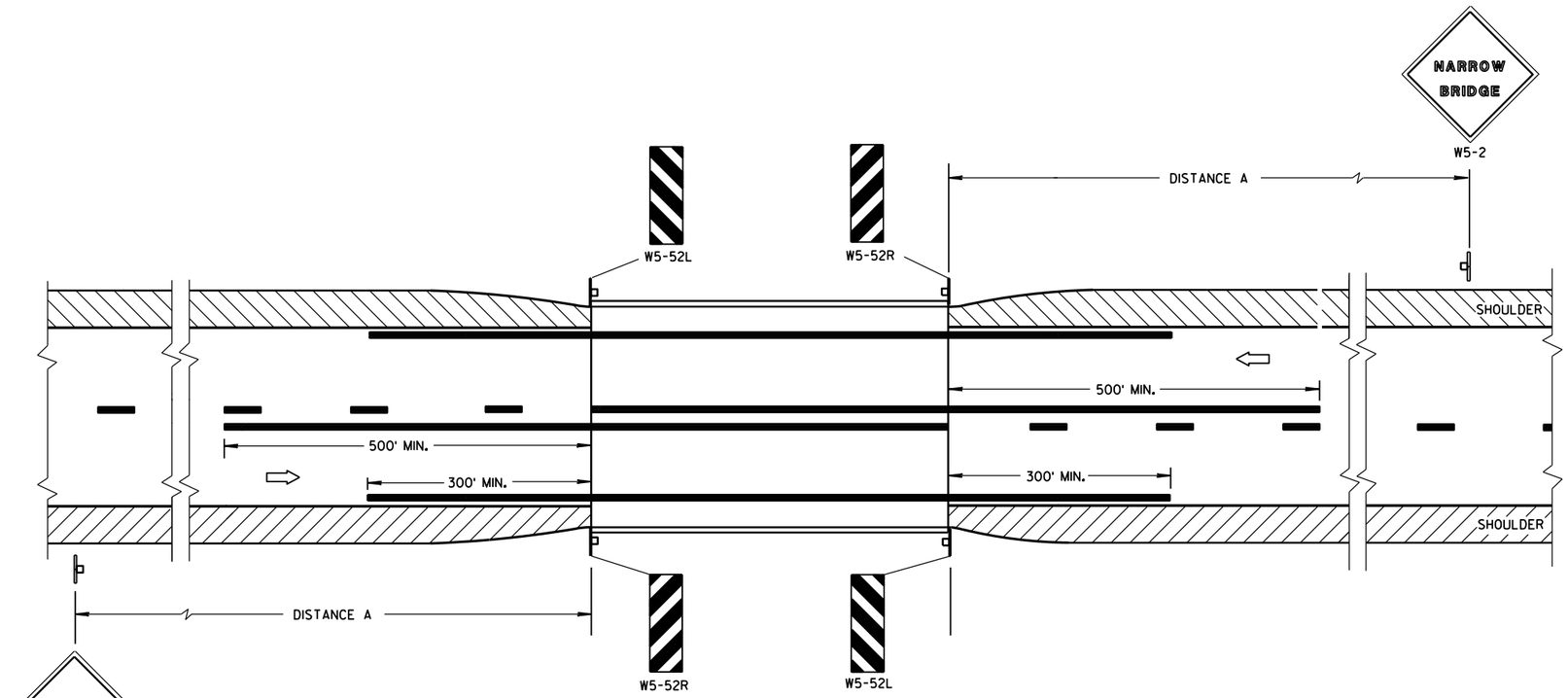
SDD 15C02 - 08b



SITUATION 1

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

DISTANCE TABLE

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

GENERAL NOTES

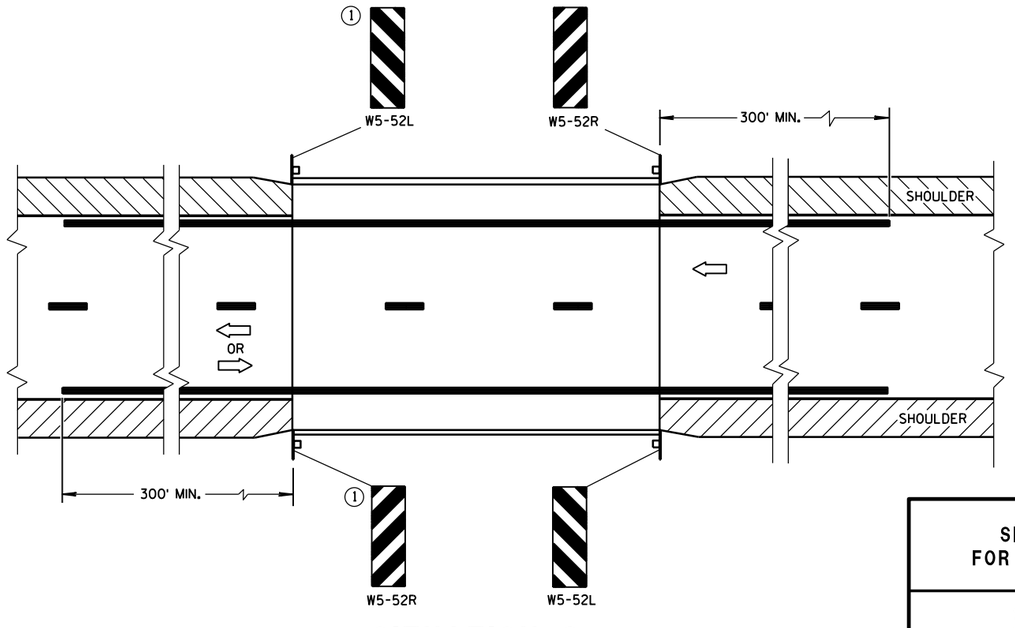
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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.

(1) OMIT ON ONE-WAY TRAVELLED WAYS.

⇨ DIRECTION OF TRAFFIC



SITUATION 2

WARRANTING CRITERIA:

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

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER
FHWA

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S.D.D. 15 C 6-9

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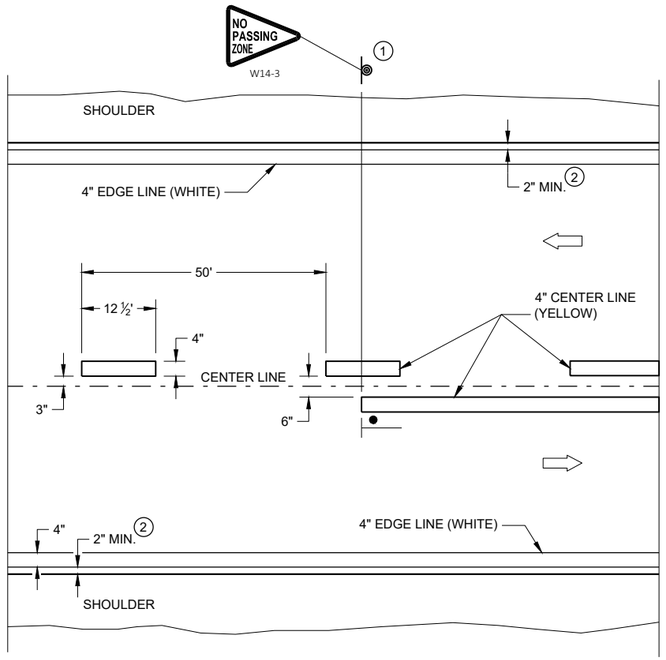
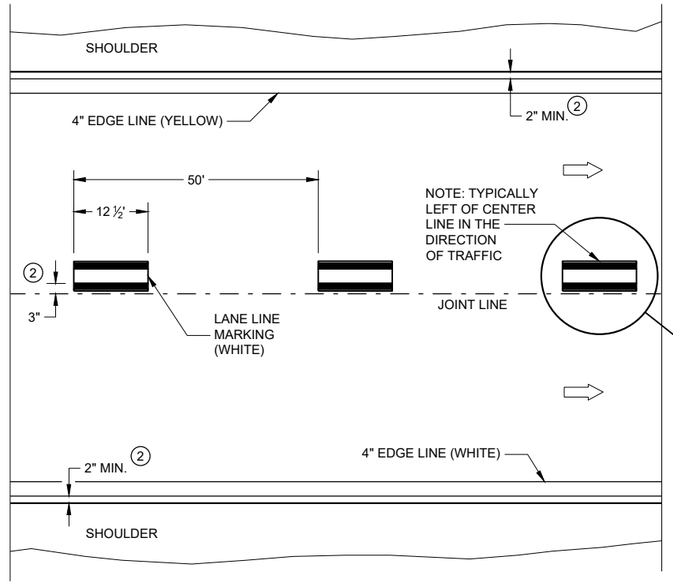
S.D.D. 15 C 6-9

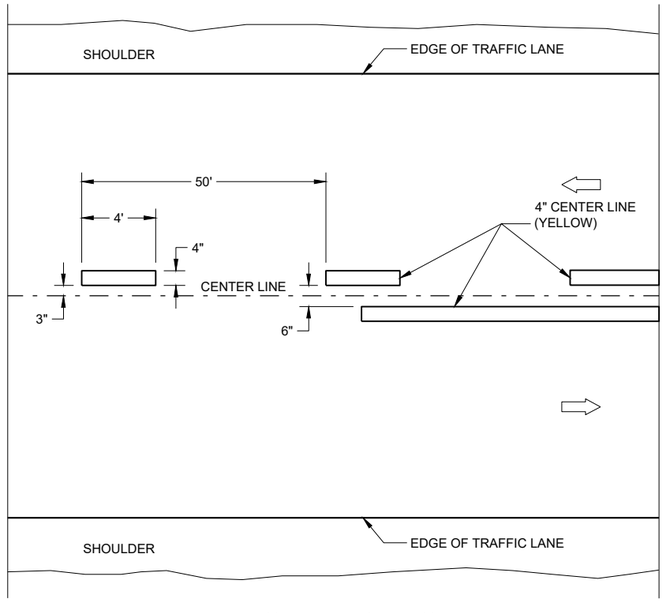


TWO WAY TRAFFIC

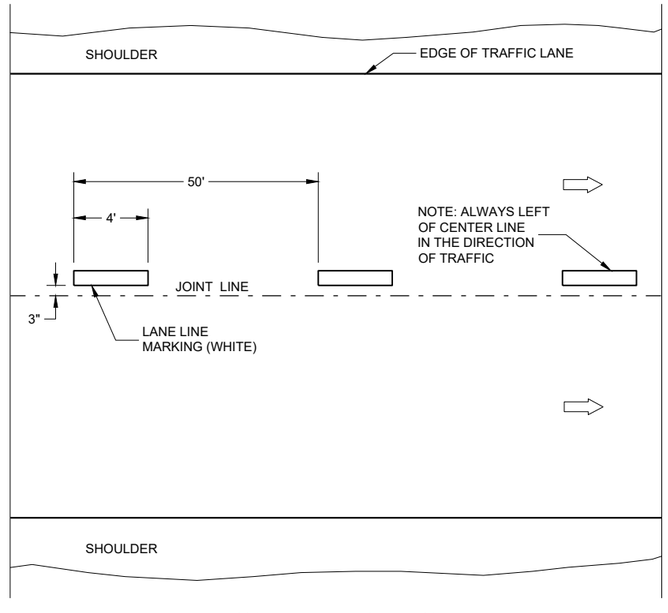


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

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

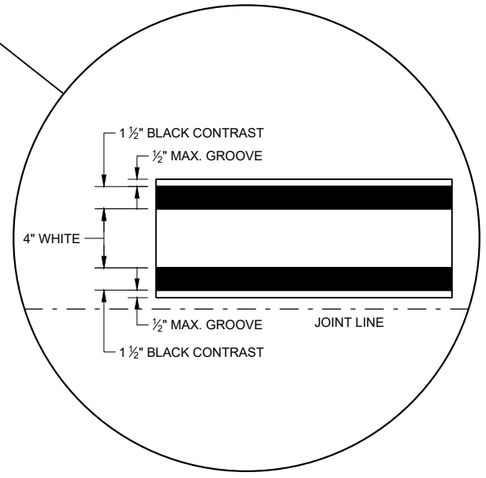
1. LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
2. MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

"T" MARKING

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC



LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE
/S/ Matthew Rauch
STATEWIDE SIGNING AND M ENGINEER

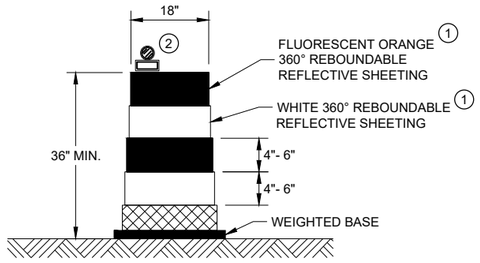
FHWA

SDD 15C08 - 20a

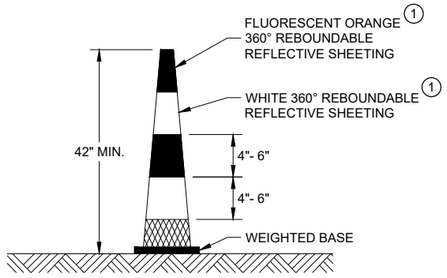
SDD 15C08 - 20a

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.

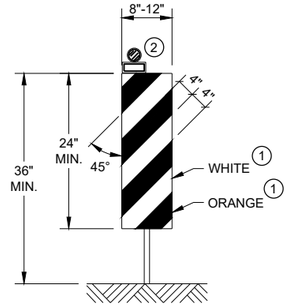


DRUM



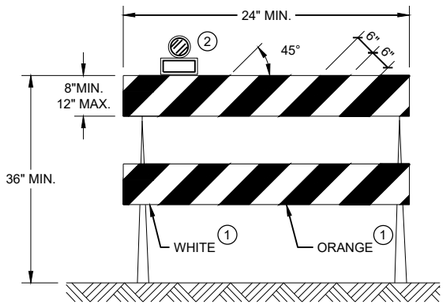
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



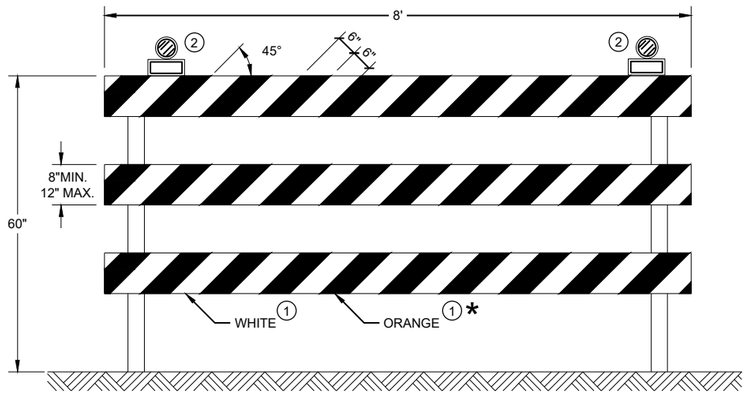
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

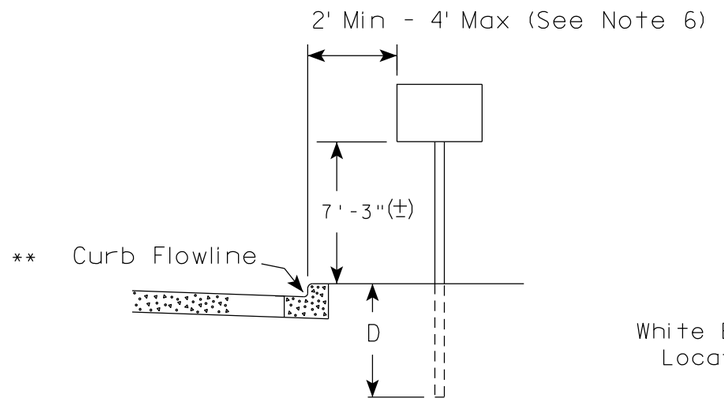
6

SDD 15C11 - 09b

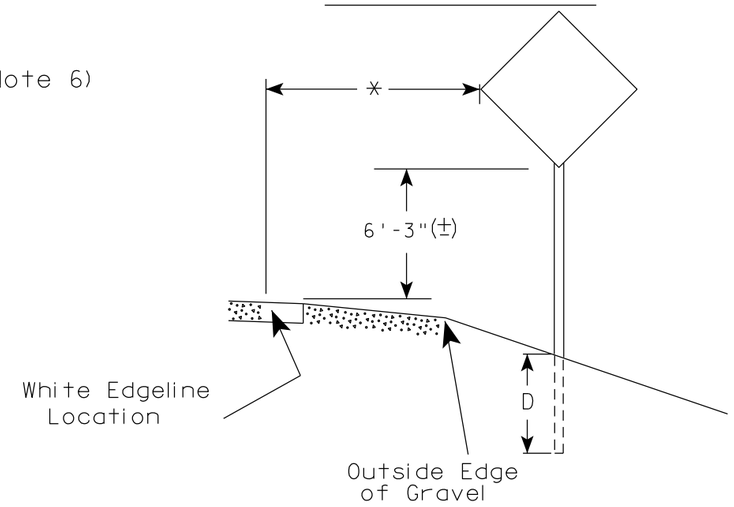
6

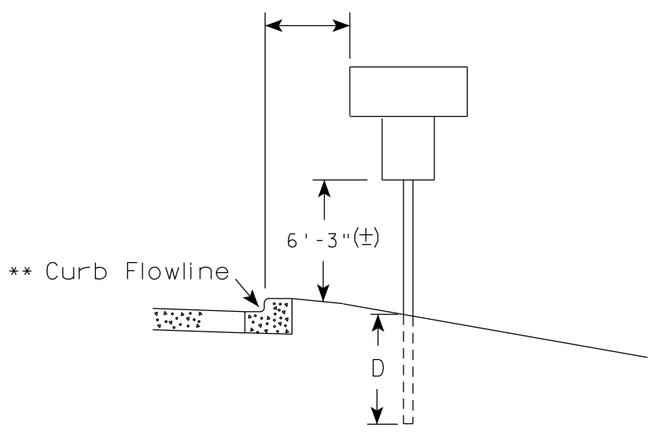
SDD 15C11 - 09b

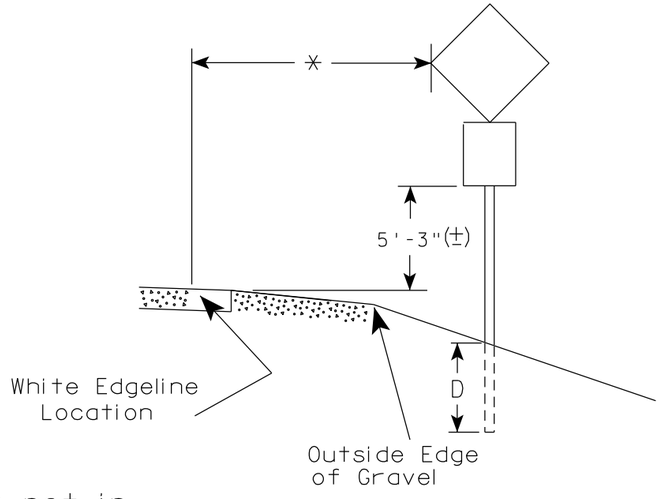
URBAN AREA



RURAL AREA (See Note 2)







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

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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

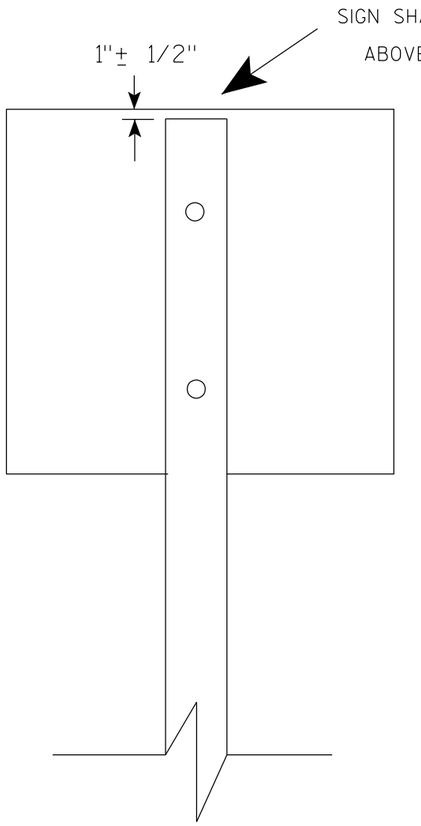
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

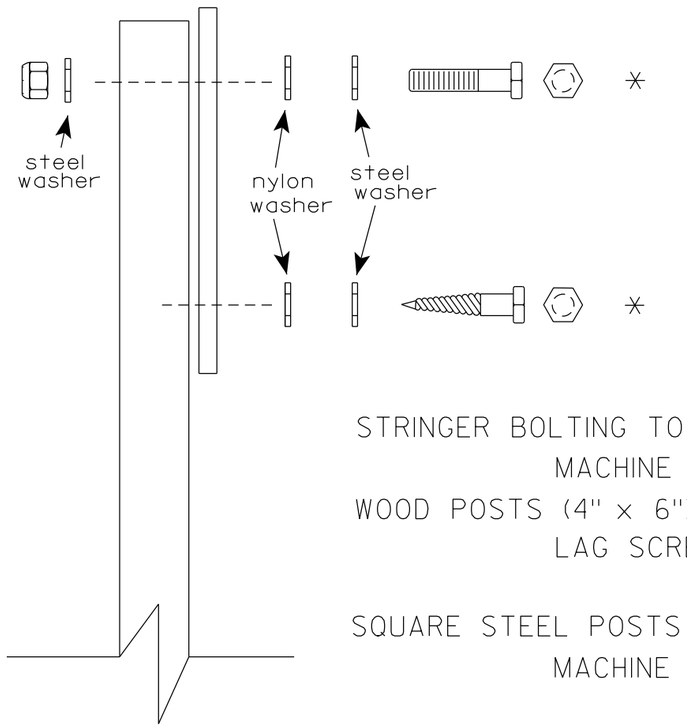
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 43	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

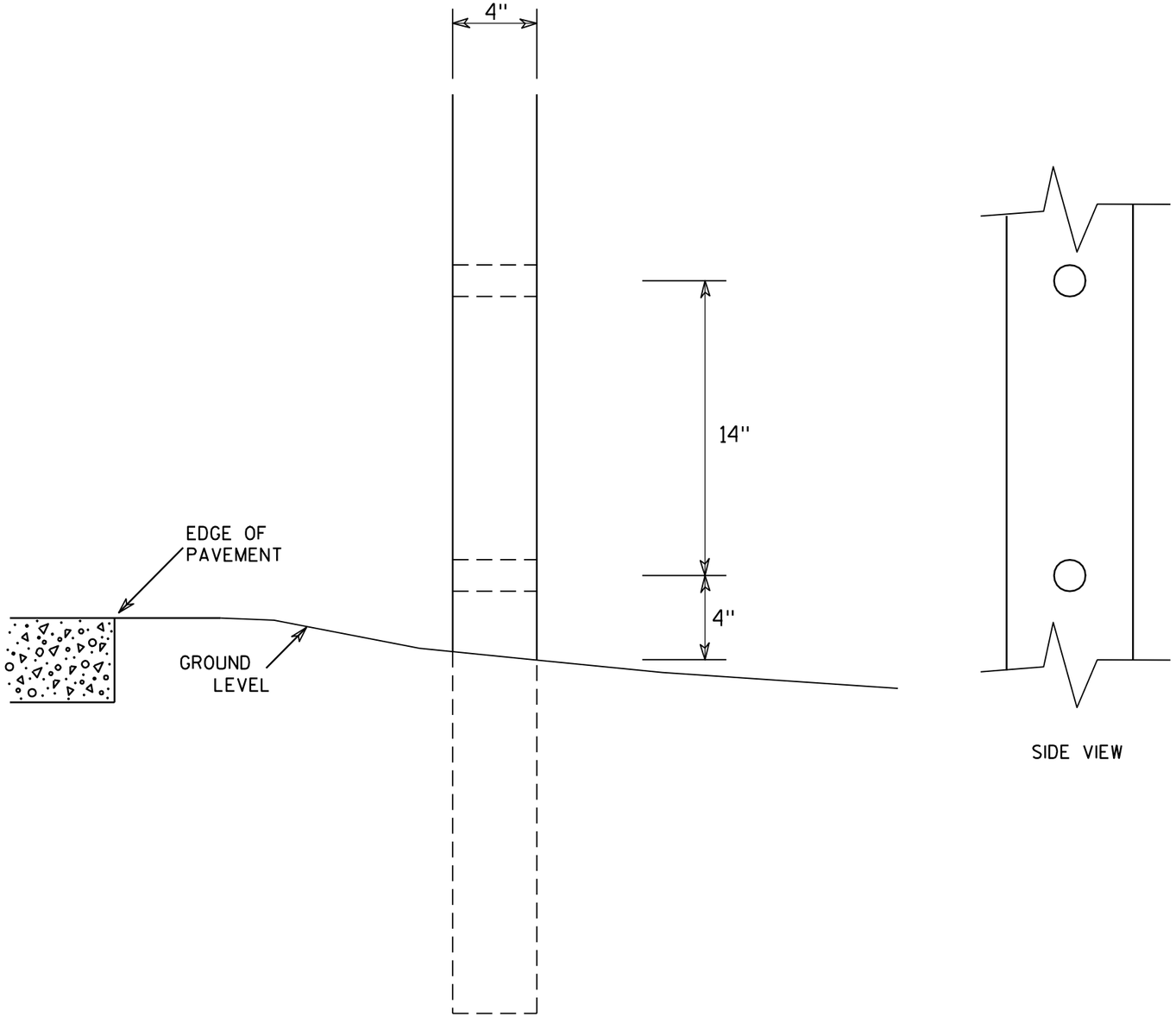
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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



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.

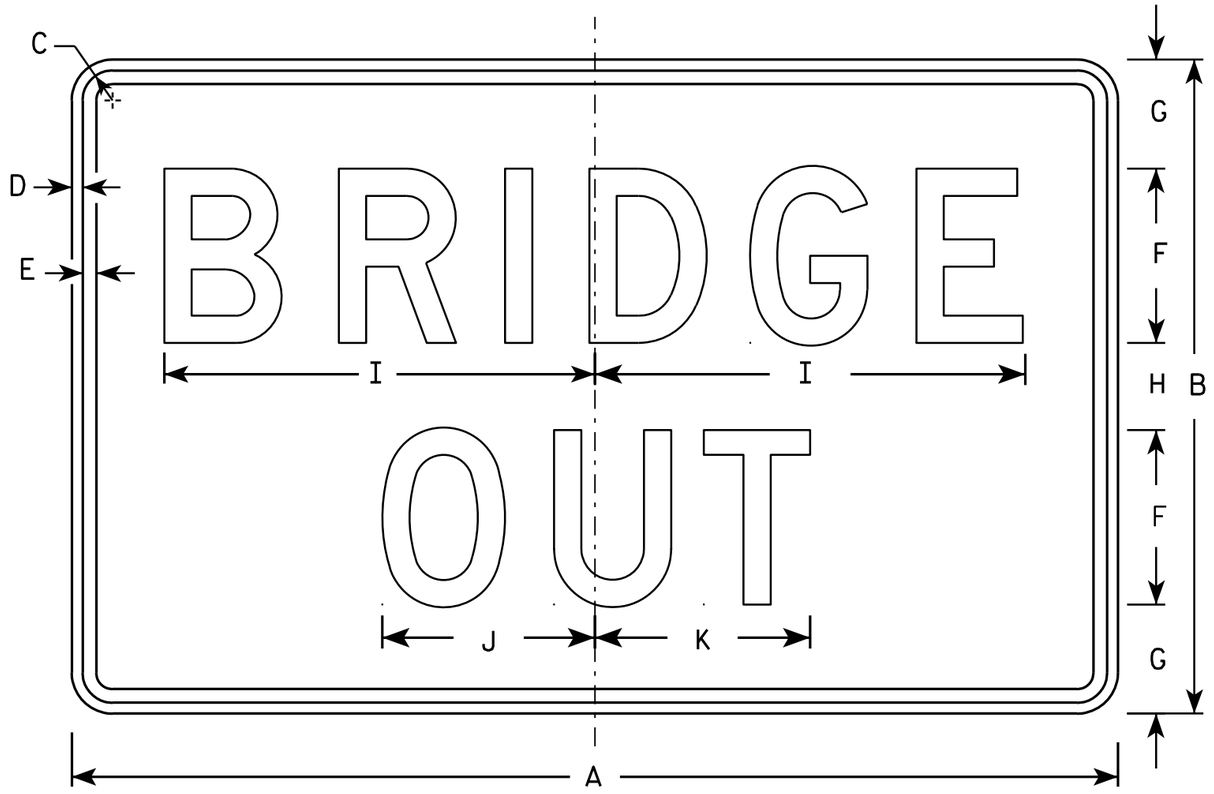
4 X 6 WOOD POST MODIFICATIONS

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



R11-2B

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

STANDARD SIGN
R11-2B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO:

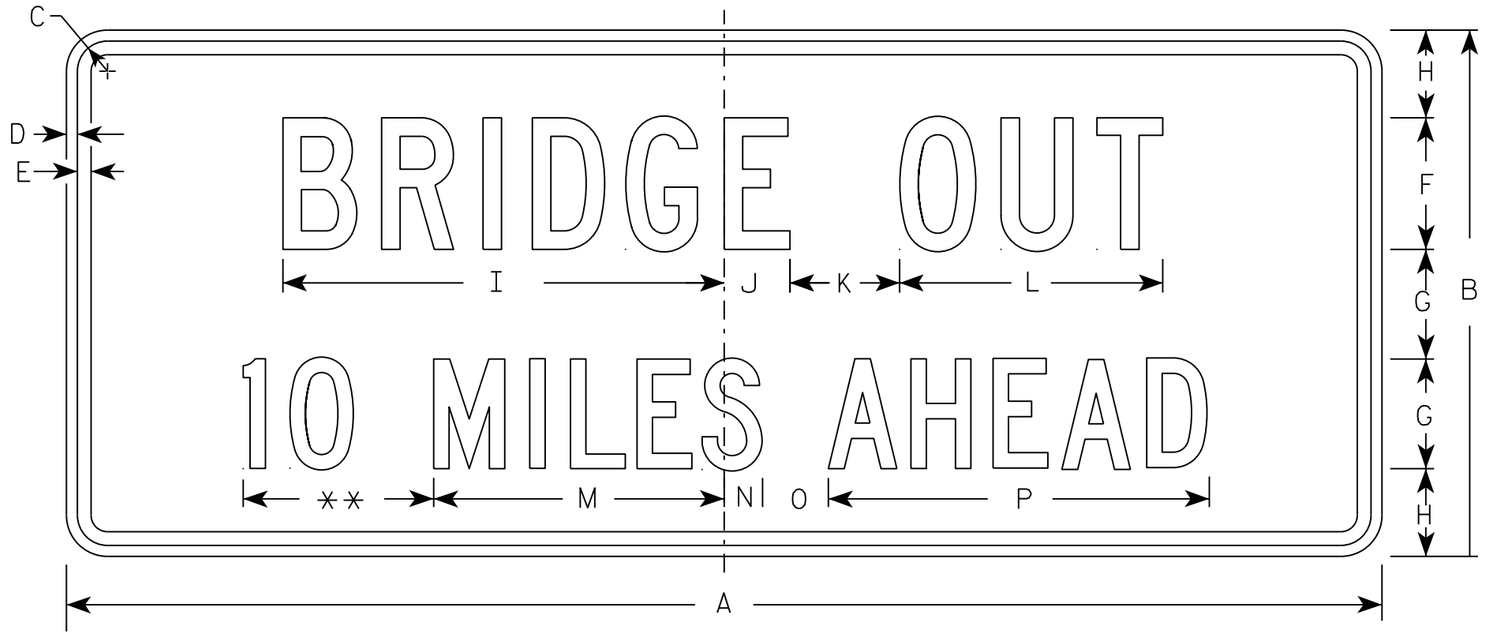
SHEET NO: 46 E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R112B.DGN PLOT DATE : 01-APR-2011 14:23 PLOT BY : mscj9h

WISDOT/CADDS SHEET 42

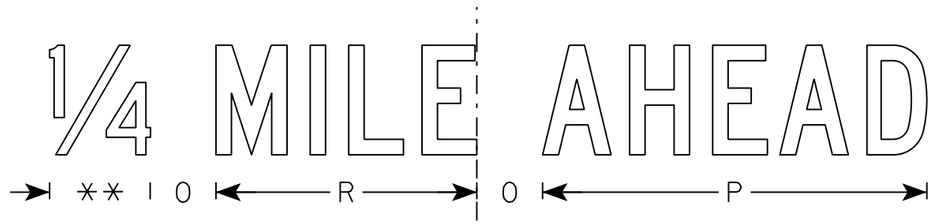
NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



R11-3C

** See Note 5



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	15	1 3/8	1/2	5/8	4	3	2 1/2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4		7 1/8									3.75
2S	60	24	1 3/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
2M	60	24	1 3/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
3																											
4																											
5																											

STANDARD SIGN
R11-3C

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/28/16 PLATE NO. R11-3C.3

PROJECT NO:

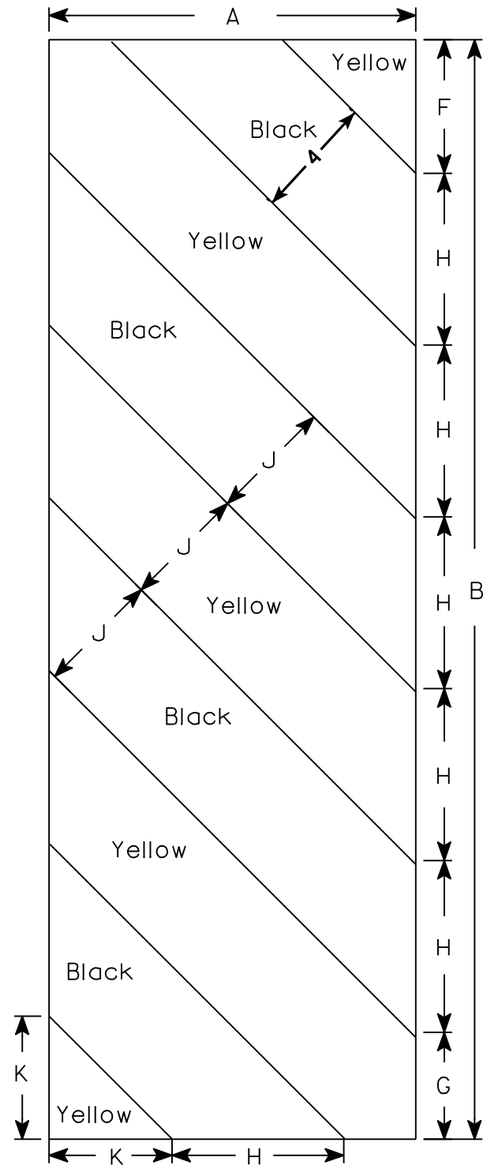
SHEET NO: 47 E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\R113C.DGN PLOT DATE : 15-MAR-2017 15:33 PLOT BY : $$...plotuser...$$

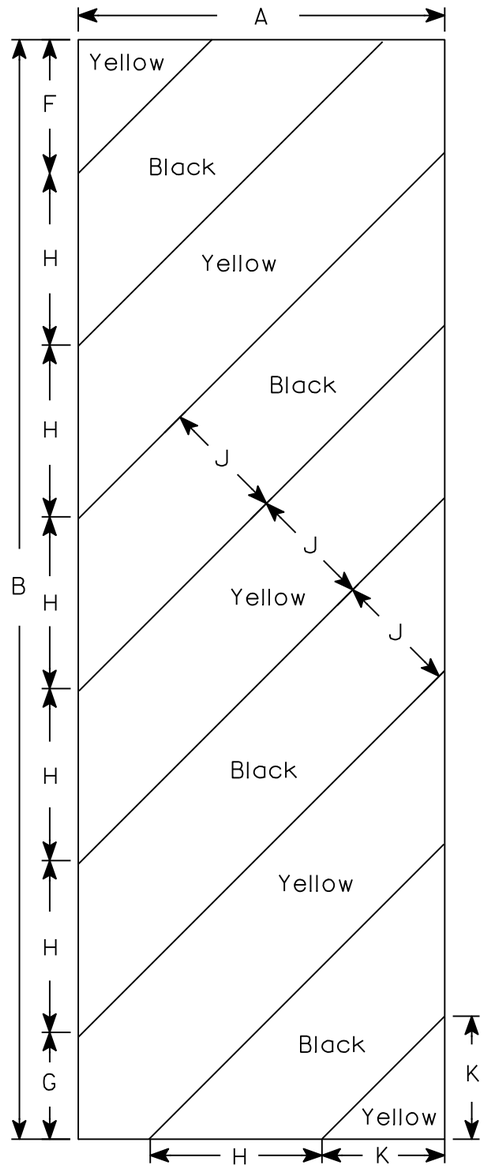
WISDOT/CADDS SHEET 42

7

7



W5-52L



W5-52R

NOTES

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

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

STANDARD SIGN

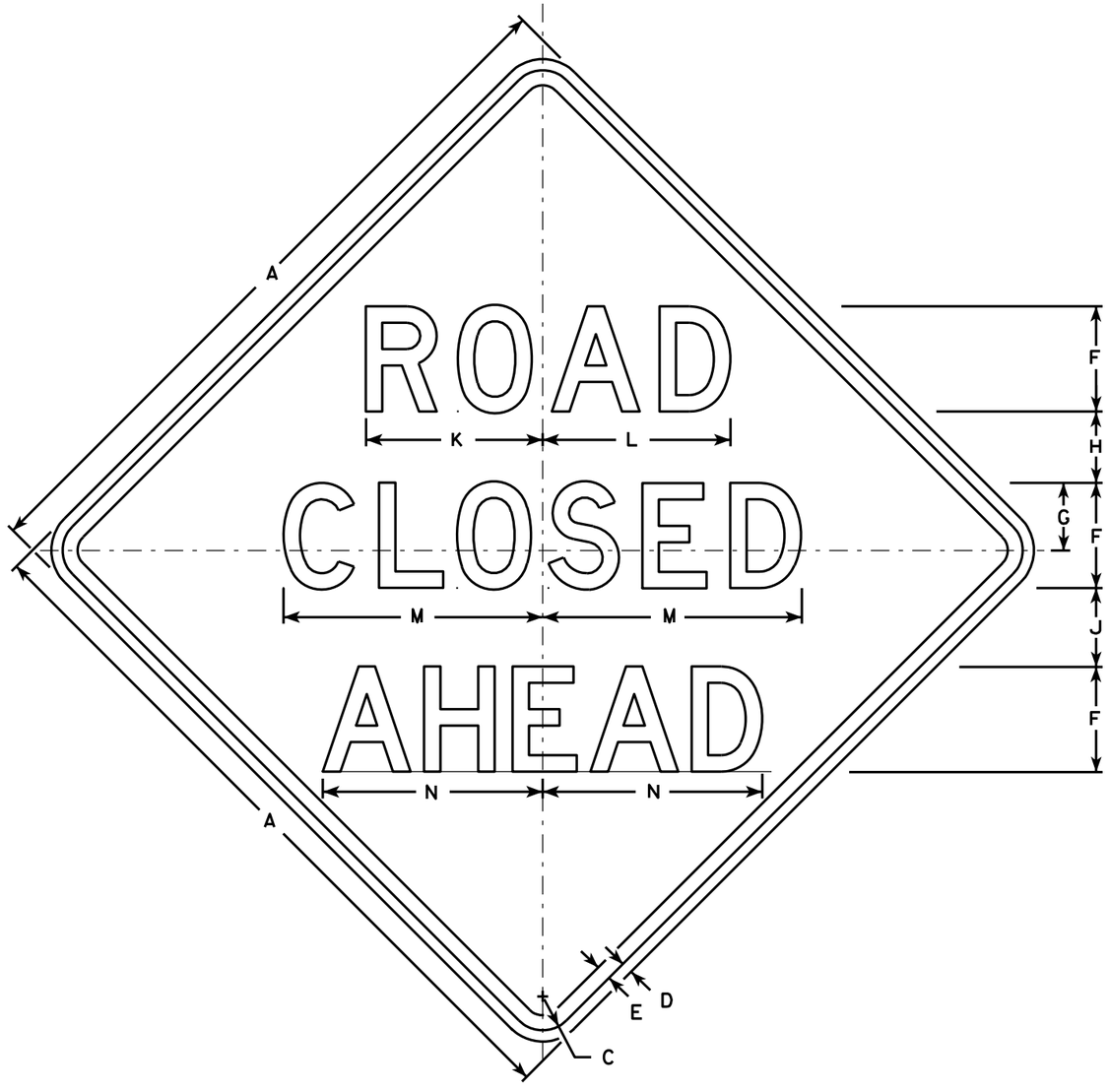
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

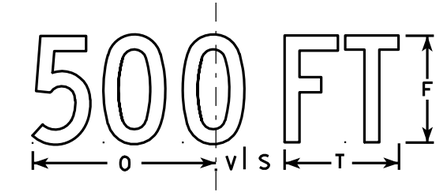
APPROVED Matthew R Rauch
for State Traffic Engineer

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

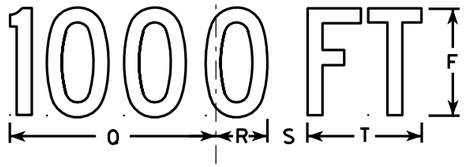
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 48 | E



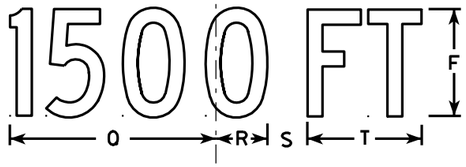
W20-3A



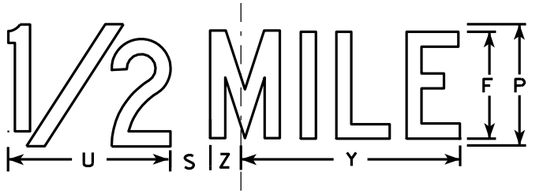
W20-3D



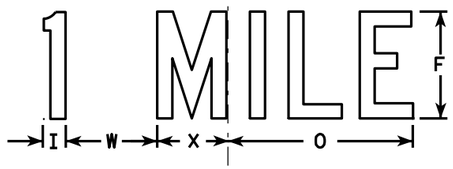
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.
   Line 3 is Series D for AHEAD and Series C for all other distances.

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

STANDARD SIGN
W20-3A, B, C, D, F & G

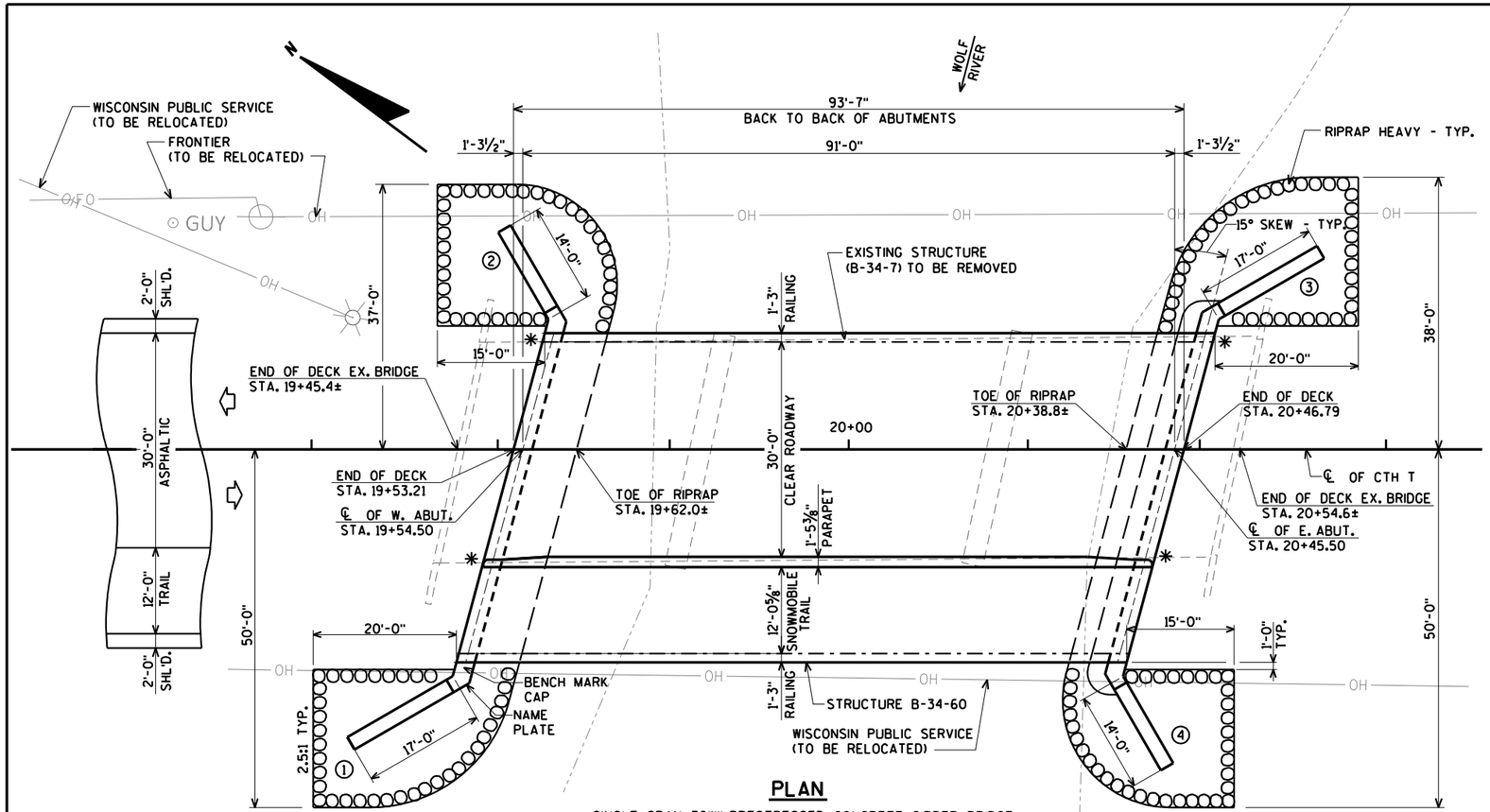
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 3/18/11 PLATE NO. W20-3.7

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

STATE PROJECT NUMBER

9384-00-70

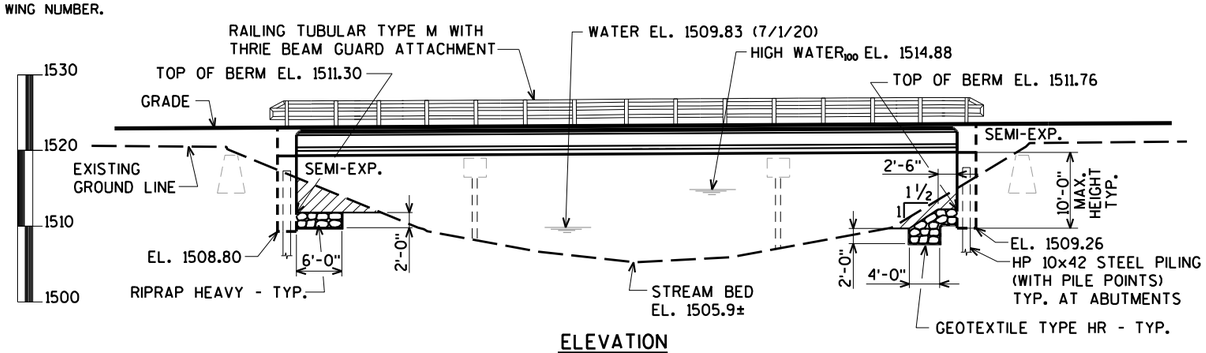


PLAN

SINGLE SPAN 36W" PRESTRESSED CONCRETE GIRDER BRIDGE

✱ ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.

◯ DENOTES WING NUMBER.



ELEVATION

(NORMAL TO ℄ OF WOLF RIVER)

COST OF EXCAVATION IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-34-60".

REMOVE EXISTING SUBSTRUCTURE TO 2-FOOT BELOW FINISHED GRADE. COST CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE" ITEM. TYPICAL AT ALL SUBSTRUCTURES.

REMOVAL OF THE PROTRUDING TIMBER PILES ALONG THE RIVERBANK IS INCIDENTAL TO "REMOVING STRUCTURE" ITEM.

LIST OF DRAWINGS

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.11
OPERATING RATING FACTOR: 1.47
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 #/S.F.

STRUCTURE IS DESIGNED FOR A 5#/S.F. POLYMER OVERLAY IN THE SNOWMOBILE TRAIL.

MATERIAL PROPERTIES:

CONCRETE MASONRY	SUPERSTRUCTURE	f'c =	4,000 p.s.i.
	ALL OTHER	f'c =	3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60)		f_y =	60,000 p.s.i.

36W" PRESTRESSED GIRDER
CONCRETE MASONRY f'c = 8,000 p.s.i.
STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF = 270,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FREQUENCY	2 YEAR FREQUENCY
Q_{100} = 3,350 c.f.s.	Q_2 = 1,310 c.f.s.
VEL.= 6.6 f.p.s.	VEL.= 4.9 f.p.s.
HW_{100} = EL. 1514.88	HW_2 = EL. 1511.68

WATERWAY AREA = 507 sq. ft.
DRAINAGE AREA = 253 sq. mi.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 5
DATUM = NAVD88 (2012)

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ‡ PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 50'-0".

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

TRAFFIC DATA:

A.A.D.T. = 341 (2022)
A.A.D.T. = 376 (2042)
R.D.S. = 35 M.P.H.

FOR TYPICAL SECTION AND PROFILE GRADE LINE SEE SHEET 2

WISCONSIN ARLEN E. BEAUDETTE E-36829 EAU CLAIRE PROFESSIONAL ENGINEER

08/23/2021

BRIDGE OFFICE CONTACT:
AARON BONK
(608)-261-0261

CONSULTANT CONTACT:
ARLEN BEAUDETTE
(715)-834-3161

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
AYRES 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED SDR 08/24/21
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-34-60

CTH T OVER THE WOLF RIVER

COUNTY LANGLADE | TOWN/~~CITY/VILLAGE~~ AINSWORTH

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
ZSS	AEB	CLP	AEB

GENERAL PLAN

SHEET 1 OF 22
50

8/23/2021
PENTABLE:BReau_shd_util.tbl

DATE: DATE: DATE:
CHECKED BY: BACK CHECKED BY: CORRECTED BY:

8

8

I:±45±450499 Langlade CTH T±Structures±CADD±Final±450499 gp.dgn

I.D. DATE:

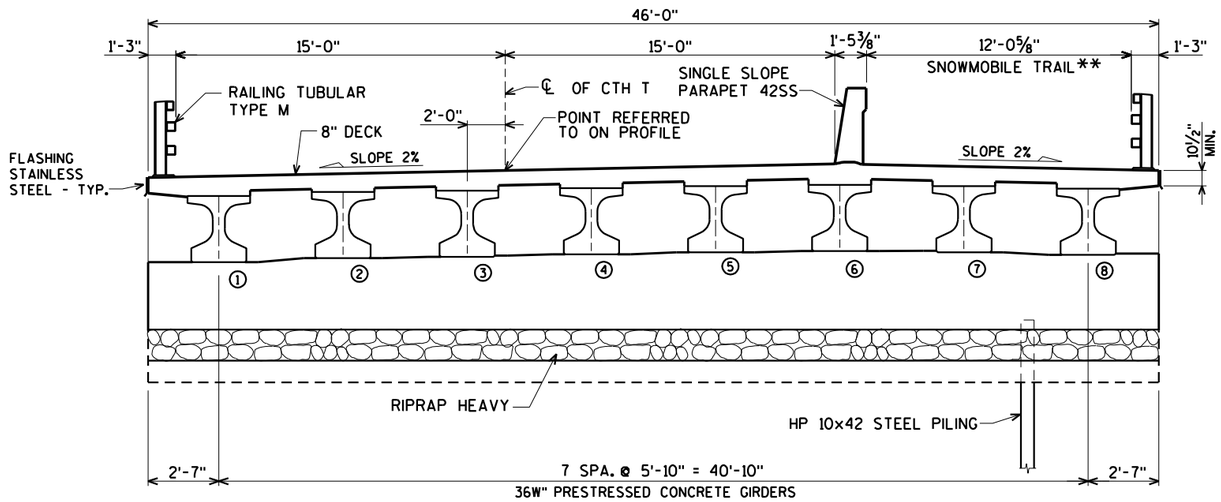
STATE PROJECT NUMBER

9384-00-70

TOTAL ESTIMATED QUANTITIES

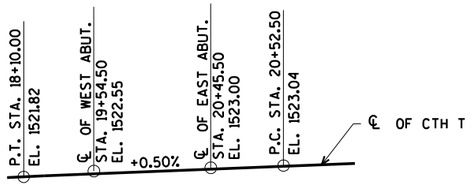
BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL	CATEGORY 20	CATEGORY 30
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-34-7	EACH	-----	-----	-----	1	1	-----
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-34-60	LS	-----	-----	-----	1	1	-----
210.1500	BACKFILL STRUCTURE TYPE A	TON	980	980	-----	1,960	1,640	320
502.0100	CONCRETE MASONRY BRIDGES	CY	78	77	167	322	244	78
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	505	505	352	153
502.3210	PIGMENTED SURFACE SEALER	SY	-----	-----	77	77	-----	77
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	-----	-----	736	736	552	184
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	3,970	3,970	-----	7,940	6,020	1,920
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2,680	2,680	27,190	32,550	24,670	7,880
506.2605	BEARING PADS ELASOMERIC NON-LAMINATED	EACH	-----	-----	16	16	12	4
506.4000	STEEL DIAPHRAGMS B-34-60	EACH	-----	-----	14	14	10	4
509.5100.S	POLYMER OVERLAY	SY	-----	-----	130	130	-----	130
513.4061	RAILING TUBULAR TYPE M	LF	-----	-----	191.5	191.5	191.5	-----
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	-----	20	16	4
550.0500	PILE POINTS	EACH	10	10	-----	20	16	4
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	500	500	-----	1,000	800	200
◆ 606.0300	RIPRAP HEAVY	CY	90	95	-----	185	170	15
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	110	110	-----	220	193	27
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	70	70	-----	140	118	22
645.0120	GEOTEXTILE TYPE HR	SY	180	185	-----	365	333	32
SPV.0090.01	FLASHING STAINLESS STEEL	LF	-----	-----	177	177	177	-----
	NON-BID ITEMS							
	FILLER	SIZE	-----	-----	-----	½" & ¾"	-----	½" & ¾"

◆ FILL VOIDS IN RIPRAP HEAVY WITH BASE AGGREGATE DENSE ¾-INCH TO FULLY FILL ALL VOIDS AND LEAVE, ON AVERAGE, TWO INCHES ABOVE THE LOWEST ROCK POINTS WHERE THEY ABUT EACH OTHER. BASE AGGREGATE DENSE ¾-INCH TO BE INCIDENTAL TO THE BID ITEM "RIPRAP HEAVY".



** STRUCTURE IS DESIGNED FOR A 5"/S.F. POLYMER OVERLAY IN THE SNOWMOBILE TRAIL

TYPICAL SECTION THRU BRIDGE
(LOOKING EAST)



PROFILE GRADE LINE
(CTH T)

BENCH MARK:
CHIS. BOX ON SE WING WALL
STA. 20+58, 17'LT.
EL. 1520.62

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.

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 SHEET AND IN THE ABUTMENT DETAILS.

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

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-34-60" SHALL BE THE EXISTING GROUNDLINE.

THE EXISTING STRUCTURE, B-34-7, TO BE REMOVED, IS A THREE SPAN CONCRETE HAUNCHED SLAB BRIDGE ON CONCRETE ABUTMENTS AND STEEL PILE BENT PIERS, 109.2 FT. LONG WITH A 30 FT. CLEAR ROADWAY WIDTH.

AT THE BACK FACE OF ABUTMENTS, 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.

PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER ARE TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.

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.

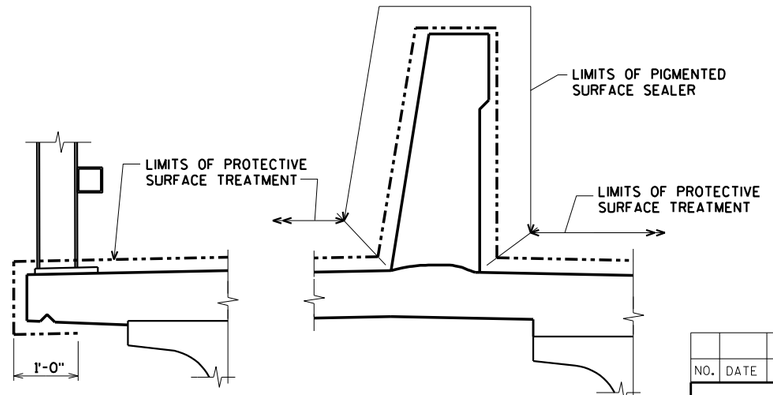
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION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

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET, WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

EXISTING SUBSTRUCTURE LOCATIONS ARE BASED ON SURVEY AND ASBUILTS. REMOVE EXISTING SUSTRUCTURES TO 2-FOOT BELOW FINISHED GRADE TO BUILD NEW SUBSTRUCTURES. COST OF REMOVAL IS CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE" BID ITEM.



PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER DETAIL

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

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TYPICAL SECTION, QUANTITIES AND NOTES

SHEET 2 OF 22
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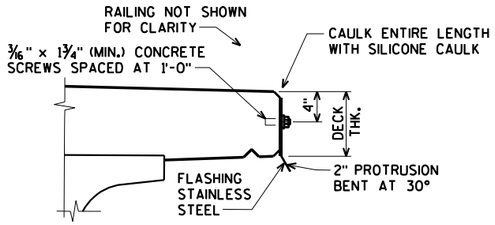


FLASHING DETAIL FOR NEW BRIDGES WITH OPEN RAILING

THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK, 3/16" CONCRETE SCREWS AND CLEANING THE EDGE OF THE DECK PRIOR TO ATTACHMENT OF THE FLASHING.

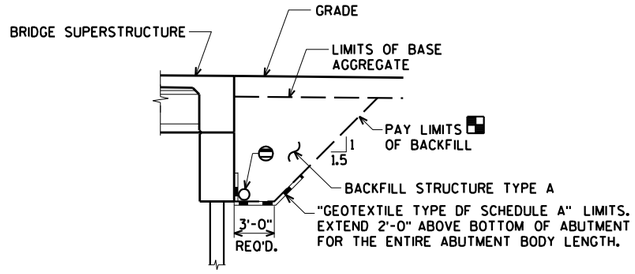
FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.

CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.

EXTEND FLASHING TO FRONT FACE OF ABUTMENT.

TOP OF FLASHING TO BEGIN APPROX. 1-INCH BELOW TOP OF DECK SURFACE.

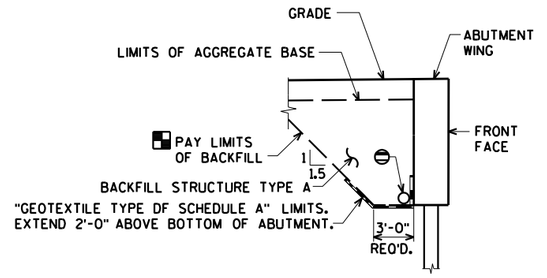
THE FLASHING IS TO BE A CONSTANT HEIGHT BASED ON THE THINNEST DECK DEPTH OVER THE BRIDGE LENGTH.



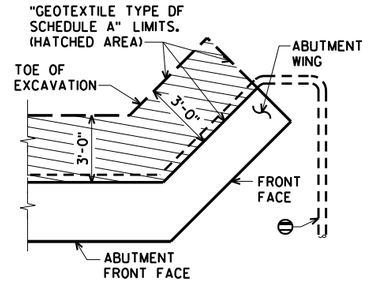
BACKFILL STRUCTURE LIMITS

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

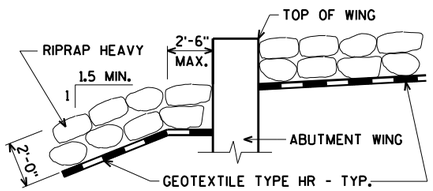
⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 13.



BACKFILL STRUCTURE LIMITS THRU WING

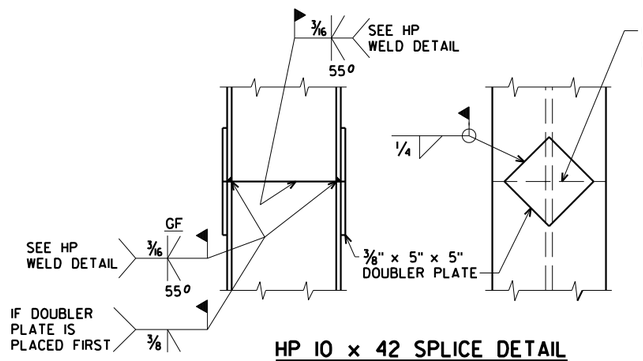


BACKFILL STRUCTURE LIMITS ABUTMENT PLAN WITH WING



TYPICAL FILL SECTION AT WING

NOTE: PLACE RIPRAP HEAVY AS SHOWN ON GENERAL PLAN SHEET



HP 10 x 42 SPLICE DETAIL

HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

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STATE OF WISCONSIN
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STRUCTURE B-34-60

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STRUCTURE DETAILS

SHEET 3 OF 22
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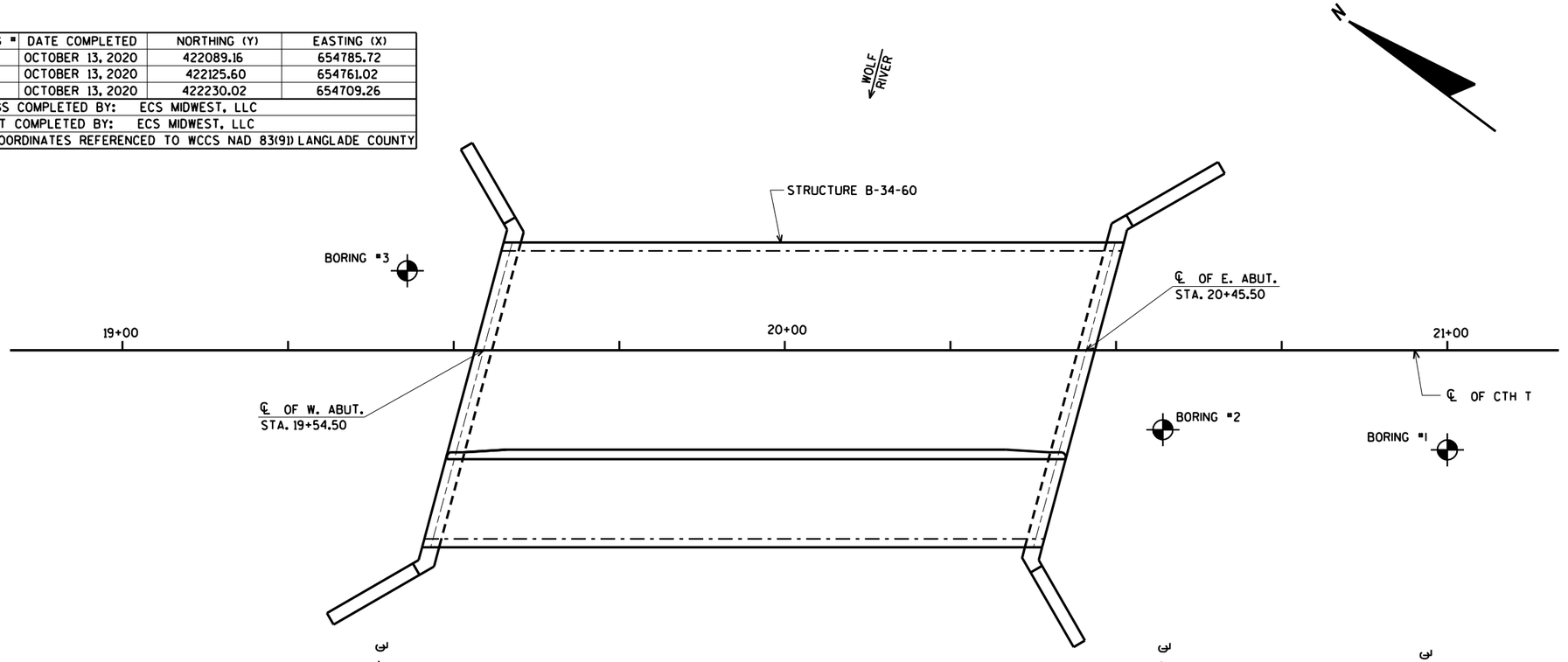
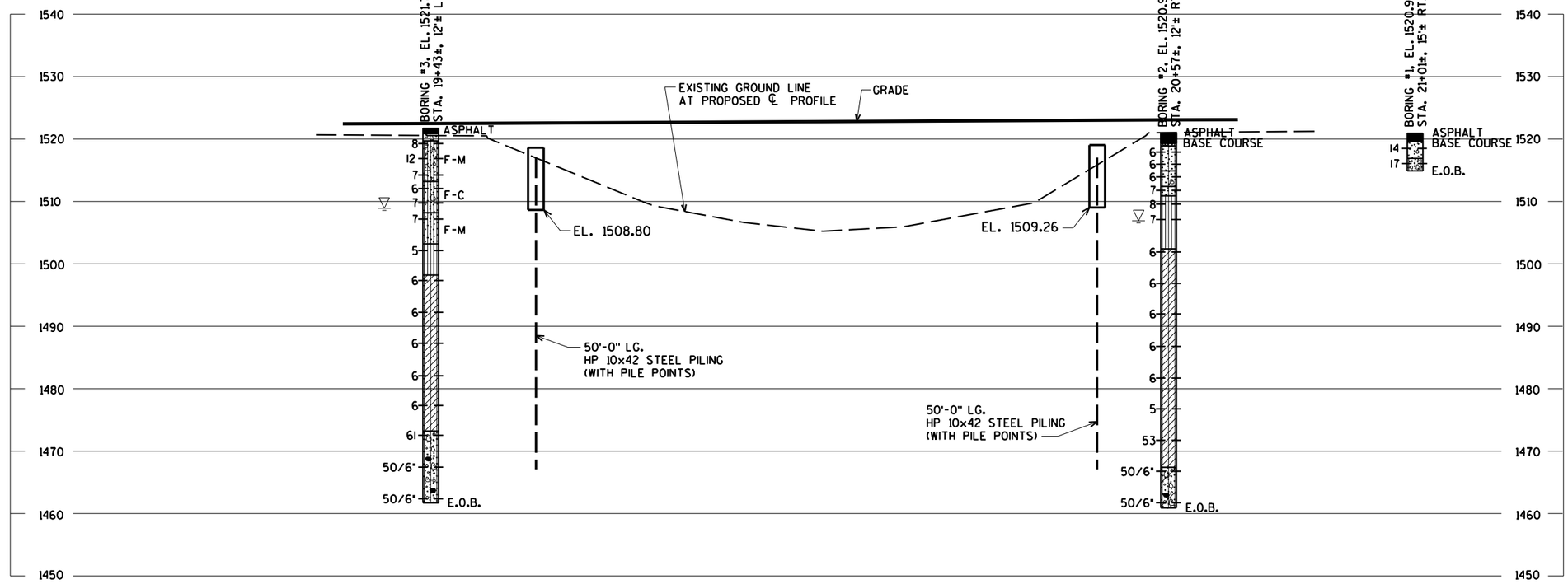
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	OCTOBER 13, 2020	422089.16	654785.72
2	OCTOBER 13, 2020	422125.60	654761.02
3	OCTOBER 13, 2020	422230.02	654709.26
BORINGS COMPLETED BY: ECS MIDWEST, LLC			
REPORT COMPLETED BY: ECS MIDWEST, LLC			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) LANGLADE COUNTY			





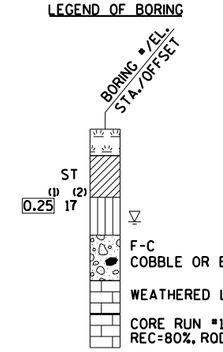
STATE PROJECT NUMBER

9384-00-70

MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

- ▽ AT TIME OF DRILLING
- ▼ END OF DRILLING
- ▽ AFTER DRILLING

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

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STRUCTURE B-34-60

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SUBSURFACE EXPLORATION

SHEET 4 OF 22
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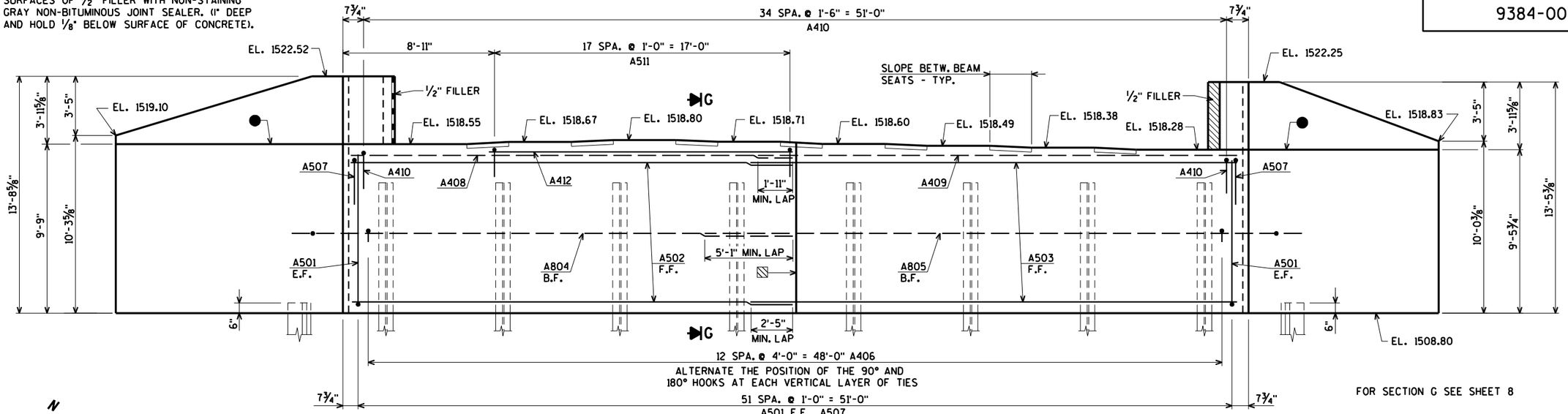
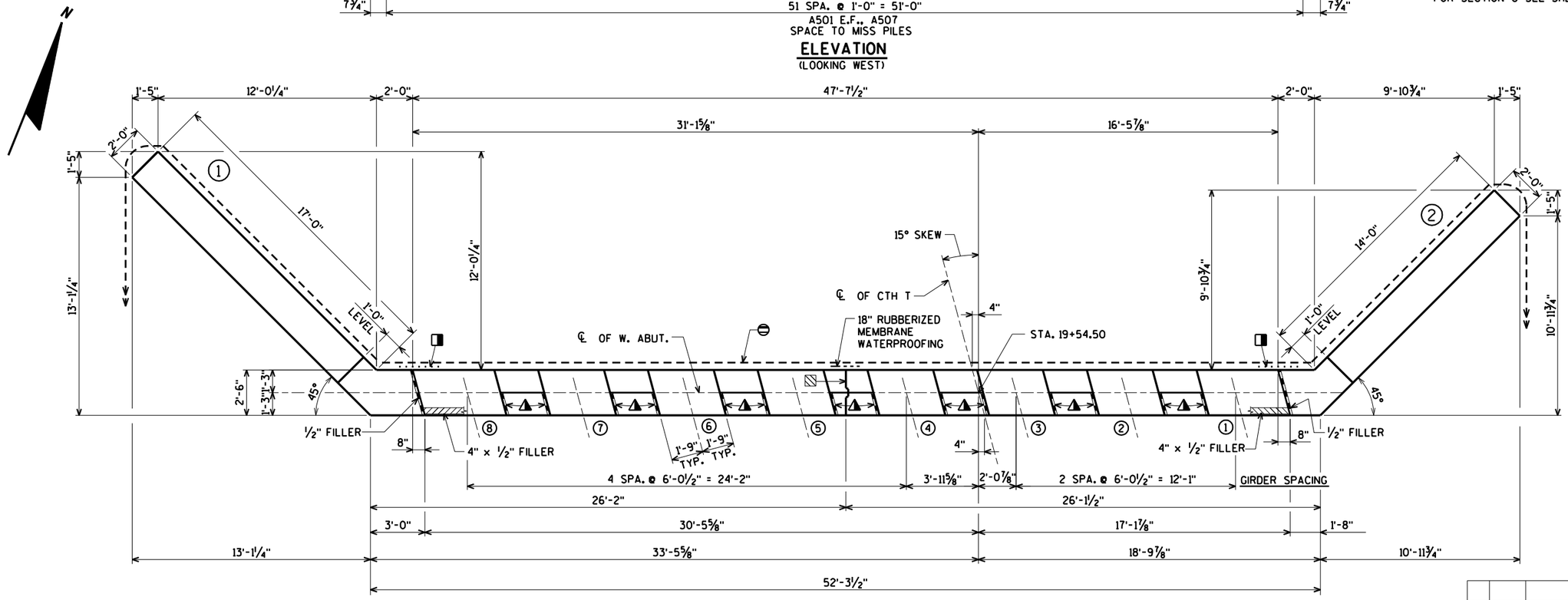
NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).



FOR SECTION G SEE SHEET 8

ELEVATION
(LOOKING WEST)



PLAN

▨ VERT. CONST. JT. - KEYWAY FORMED BY A SURFACED BEVELED 2" × 8". BEVEL EXPOSED EDGES ¾". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 13.

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 13. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

● OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" × 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F. (RUBBERIZED MEMBRANE WATERPROOFING INCIDENTAL TO BID ITEM "CONCRETE MANSONRY BRIDGES" IF CONST. JOINT IS USED).

◨ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.

▲ ¾" CORK FILLER ON VERTICAL FACE ONLY.

FOR PILE SPLICE DETAIL SEE SHEET 3.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

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WEST ABUTMENT

SHEET 5 OF 22
54

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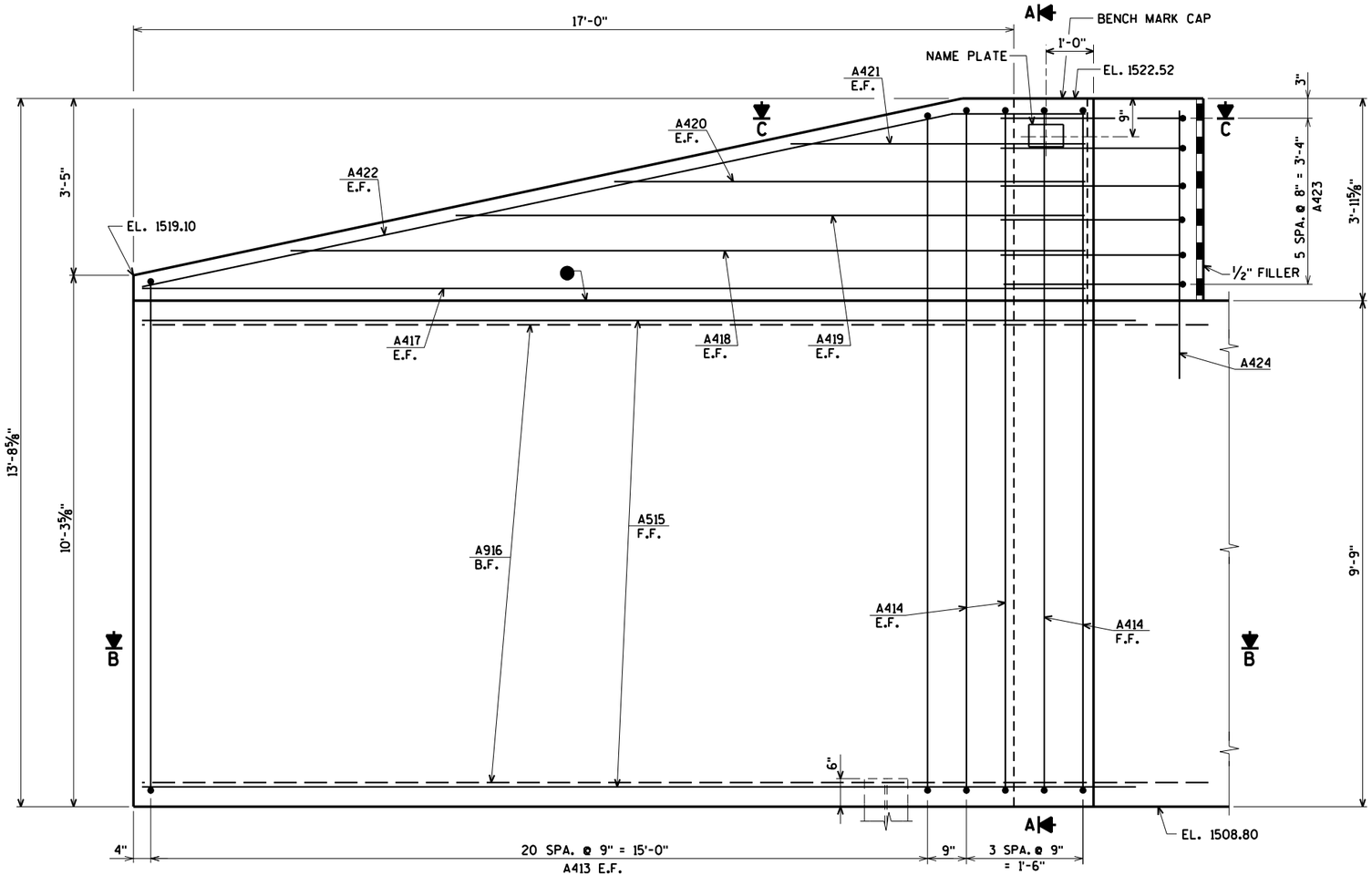
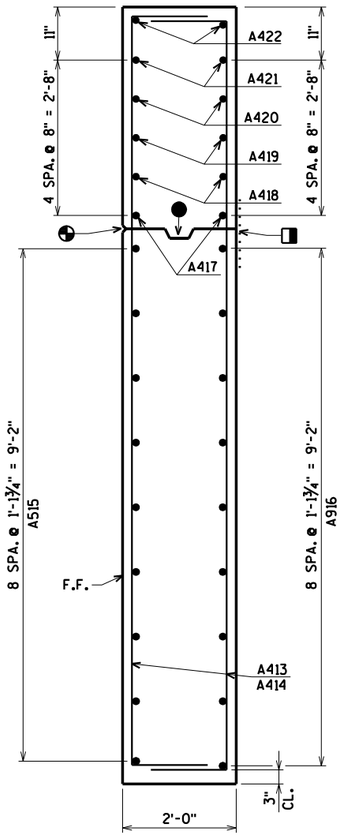
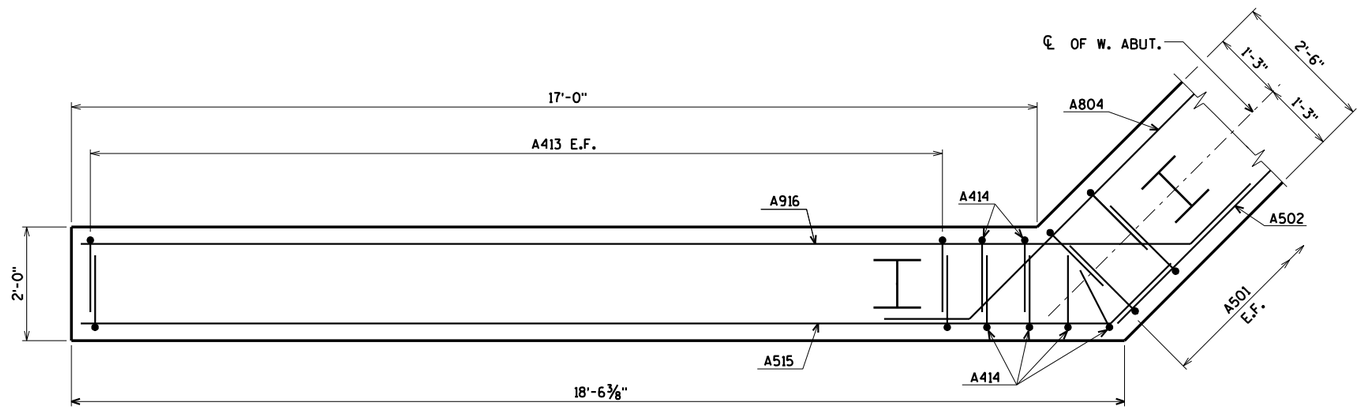


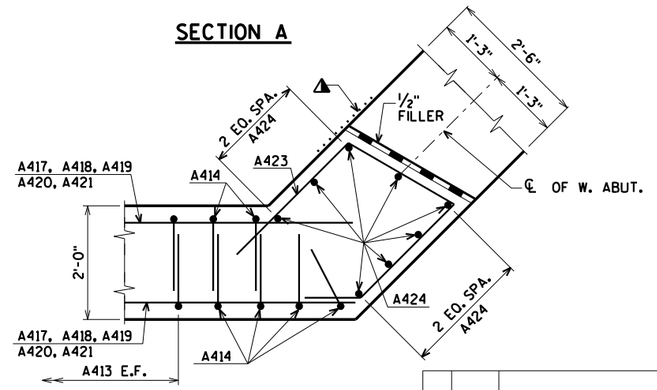
ELEVATION - WING 1



SECTION A



SECTION B



SECTION C

- RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JOINT IS USED (COST INCIDENTAL TO BID ITEM "CONCRETE MANSONRY BRIDGES")
- OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F. (RUBBERIZED MEMBRANE WATERPROOFING INCIDENTAL TO BID ITEM "CONCRETE MANSONRY BRIDGES" IF CONST. JOINT IS USED).
- ¾" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.
- 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

FOR PILE SPLICE DETAIL SEE SHEET 3.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

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WEST ABUTMENT WING 1 DETAILS

SHEET 6 OF 22
55

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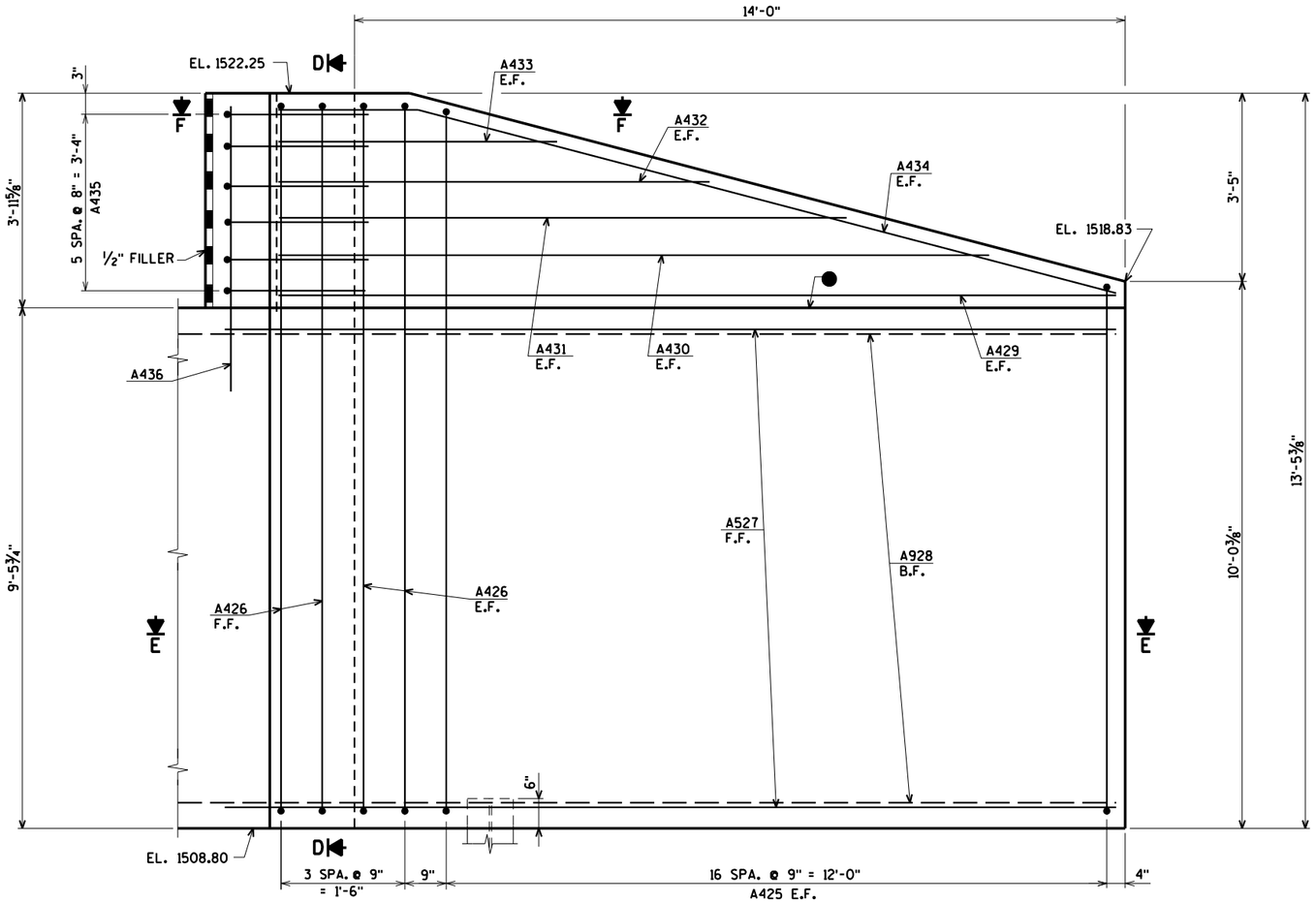
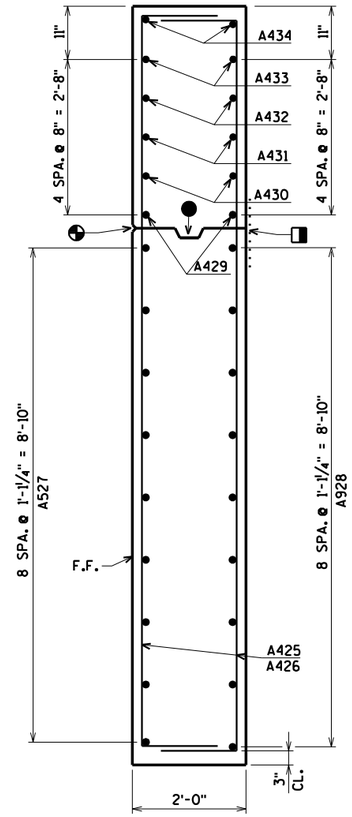


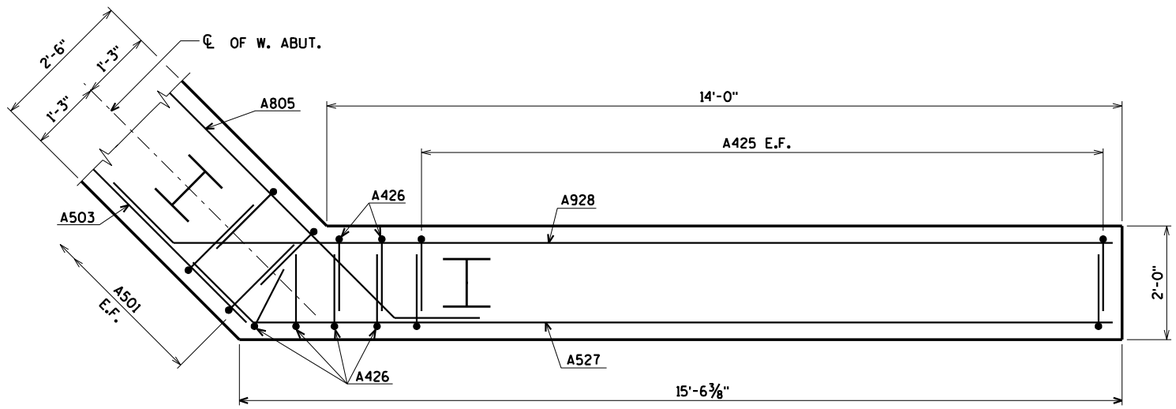
ELEVATION - WING 2



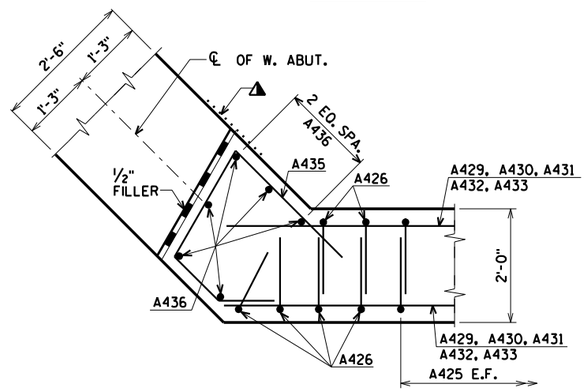
SECTION D

- RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JOINT IS USED (COST INCIDENTAL TO BID ITEM "CONCRETE MANSONRY BRIDGES")
- OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F. (RUBBERIZED MEMBRANE WATERPROOFING INCIDENTAL TO BID ITEM "CONCRETE MANSONRY BRIDGES" IF CONST. JOINT IS USED).
- ¾" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.
- 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

FOR PILE SPLICE DETAIL SEE SHEET 3.



SECTION E



SECTION F

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

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WEST ABUTMENT WING 2 DETAILS

SHEET 7 OF 22
56

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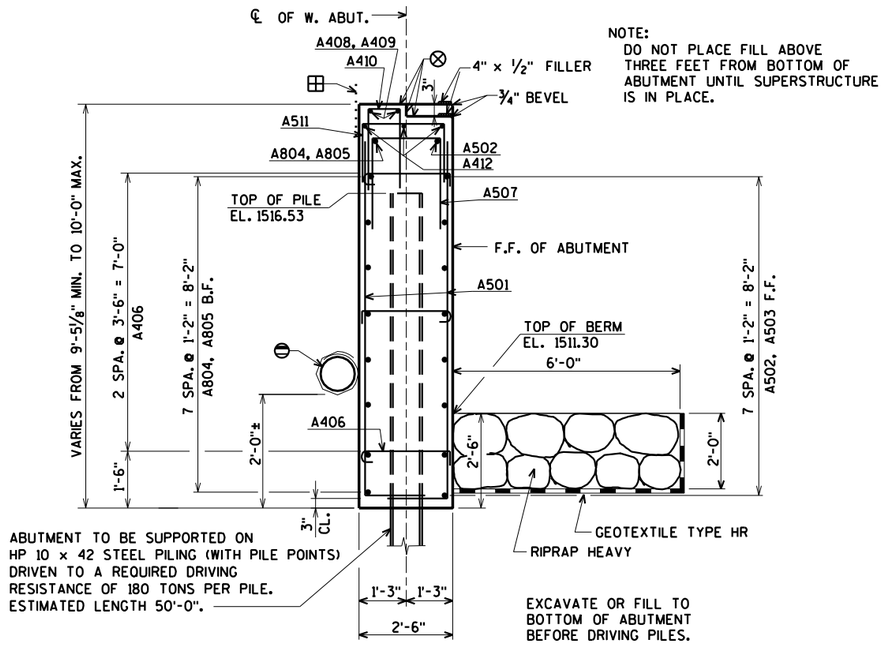
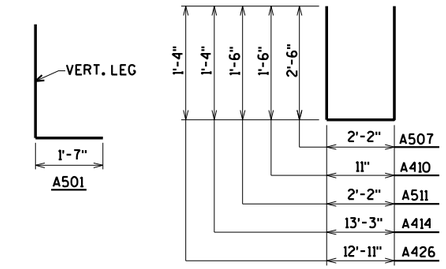
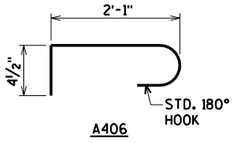


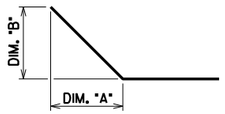
NOTE:
DO NOT PLACE FILL ABOVE THREE FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

SECTION G

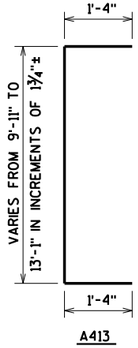
FOR LOCATION OF SECTION G SEE SHEET 5

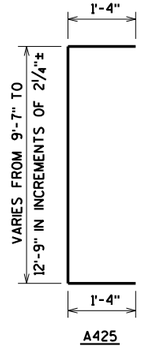


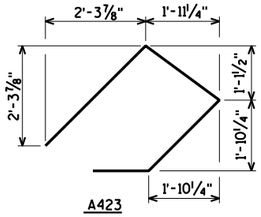


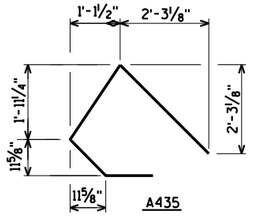


BAR NO.	DIM. "A"	DIM. "B"
A804	1'-0¾"	1'-0¾"
A805	1'-0¾"	1'-0¾"
A515	1'-0¾"	1'-0¾"
A916	1'-0¾"	1'-0¾"
A422	16'-0"	3'-4"
A527	1'-0¾"	1'-0¾"
A928	1'-0¾"	1'-0¾"
A434	13'-0"	3'-4"









BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
A413	2 SERIES OF 21	12'-5" TO 15'-7"
A425	2 SERIES OF 17	12'-1" TO 15'-3"

BUNDLE AND TAG EACH SERIES SEPARATELY.

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,680# COATED 3,970# UNCOATED LOCATION
A501		104	10-6	X		BODY VERT. E.F.
A502		9	27-8			BODY HORIZ. F.F.
A503		9	30-1			BODY HORIZ. F.F.
A804		9	29-8	X		BODY HORIZ. B.F.
A805		9	34-11	X		BODY HORIZ. B.F.
A406		39	2-9	X		BODY TIES
A507		52	6-11	X		BODY VERT. TOP
A408		2	26-0			BODY HORIZ. TOP ⊗ NOTCH
A409		2	27-11			BODY HORIZ. TOP ⊗ NOTCH
A410		35	3-9	X		BODY VERT. TOP ⊗ NOTCH
A511		18	4-11	X		BODY VERT. TOP
A412		3	17-6			BODY HORIZ. TOP
A413	X	42	14-0	X	⊗	WING 1 VERT. E.F.
A414	X	6	15-9	X		WING 1 VERT. E.F.
A515	X	9	19-7	X		WING 1 HORIZ. F.F.
A916	X	9	21-1	X		WING 1 HORIZ. B.F.
A417	X	2	18-3			WING 1 HORIZ. E.F.
A418	X	2	15-3			WING 1 HORIZ. E.F.
A419	X	2	12-1			WING 1 HORIZ. E.F.
A420	X	2	8-11			WING 1 HORIZ. E.F.
A421	X	2	5-9			WING 1 HORIZ. E.F.
A422	X	2	18-5	X		WING 1 DIAG. E.F.
A423	X	6	9-3	X		WING 1 HORIZ.
A424	X	8	5-5			WING 1 VERT.
A425	X	34	13-8	X	⊗	WING 2 VERT. E.F
A426	X	6	15-5	X		WING 2 VERT. E.F
A527	X	9	16-7	X		WING 2 HORIZ. F.F.
A928	X	9	18-1	X		WING 2 HORIZ. B.F.
A429	X	2	15-3			WING 2 HORIZ. E.F.
A430	X	2	12-10			WING 2 HORIZ. E.F.
A431	X	2	10-4			WING 2 HORIZ. E.F.
A432	X	2	7-10			WING 2 HORIZ. E.F.
A433	X	2	5-4			WING 2 HORIZ. E.F.
A434	X	2	15-6	X		WING 2 DIAG. E.F.
A435	X	6	7-11	X		WING 2 HORIZ.
A436	X	6	5-5			WING 2 VERT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

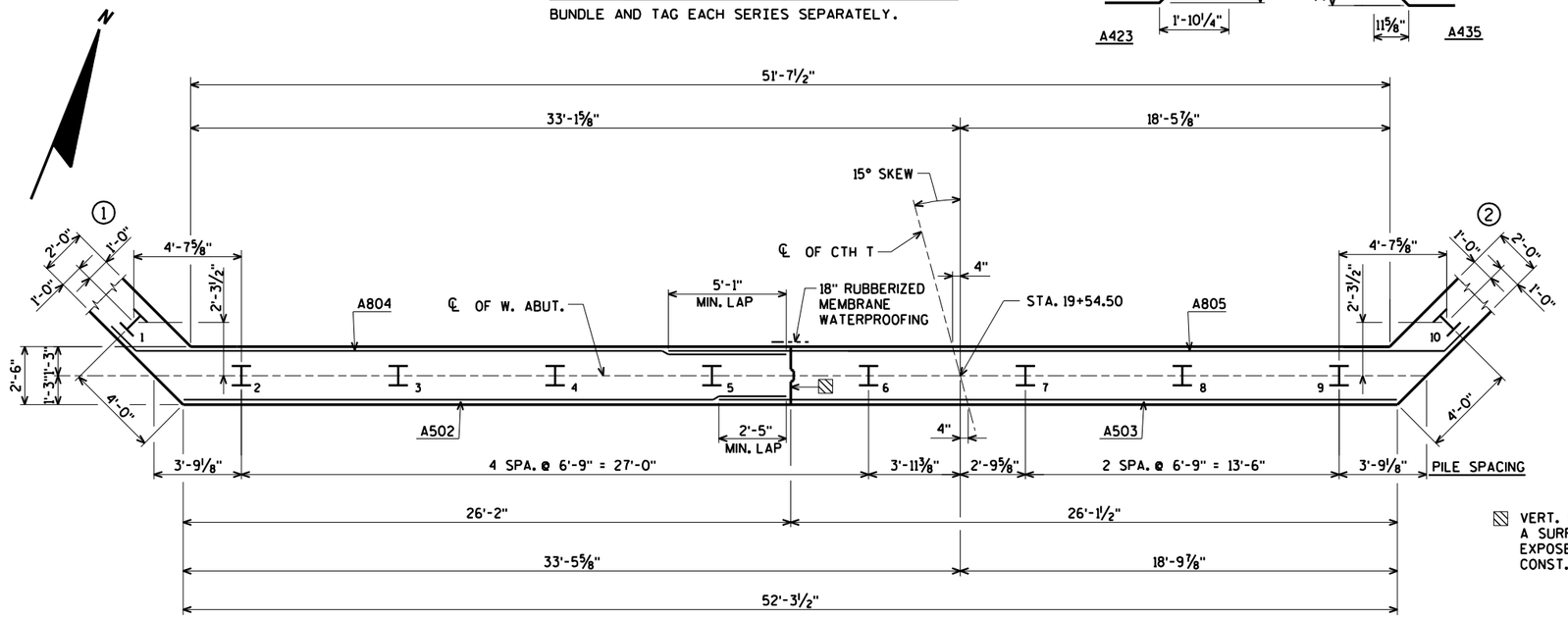
⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 13. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING AND/OR SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE OF ABUTMENT.

FOR PILE SPLICE DETAIL SEE SHEET 3.



PILE LAYOUT

▨ VERT. CONST. JT. - KEYWAY FORMED BY A SURFACED BEVELED 2" x 8". BEVEL EXPOSED EDGES ¾". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 13.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

DRAWN BY CLP | PLANS CK'D. AEB

WEST ABUTMENT DETAILS AND BILL OF BARS

SHEET 8 OF 22
57

ORIGINAL PLANS PREPARED BY
AYRES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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5/26/2021
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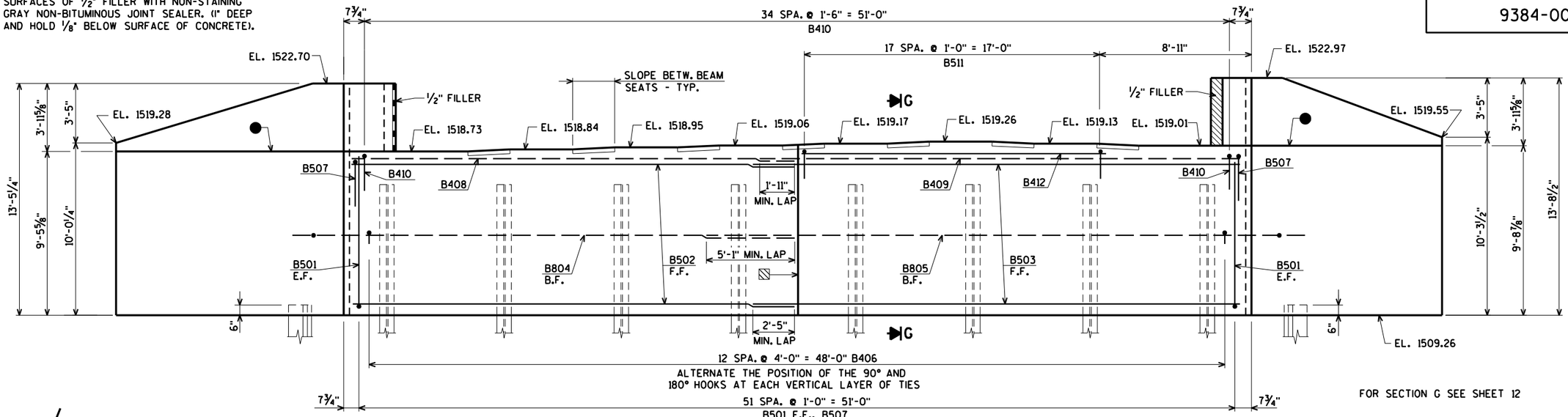
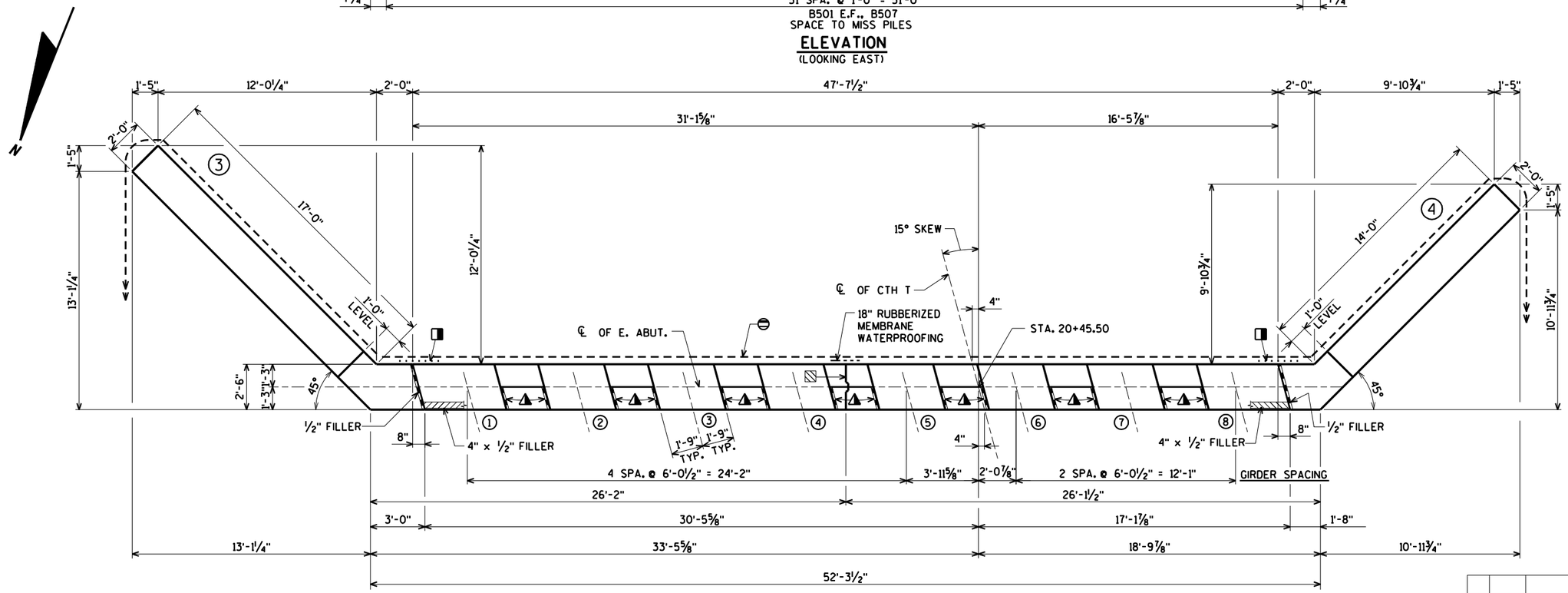
STATE PROJECT NUMBER
9384-00-70

NOTE: 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).



FOR SECTION G SEE SHEET 12

ELEVATION
(LOOKING EAST)



PLAN

▨ VERT. CONST. JT. - KEYWAY FORMED BY A SURFACED BEVELED 2" × 8". BEVEL EXPOSED EDGES ¾". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 13.

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● OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" × 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F. (RUBBERIZED MEMBRANE WATERPROOFING INCIDENTAL TO BID ITEM "CONCRETE MANSONRY BRIDGES" IF CONST. JOINT IS USED).

◨ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.

▲ ¾" CORK FILLER ON VERTICAL FACE ONLY.

FOR PILE SPLICE DETAIL SEE SHEET 3.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

DRAWN BY CLP | PLANS CK'D. AEB

EAST ABUTMENT

SHEET 9 OF 22
58

ORIGINAL PLANS PREPARED BY
AYRES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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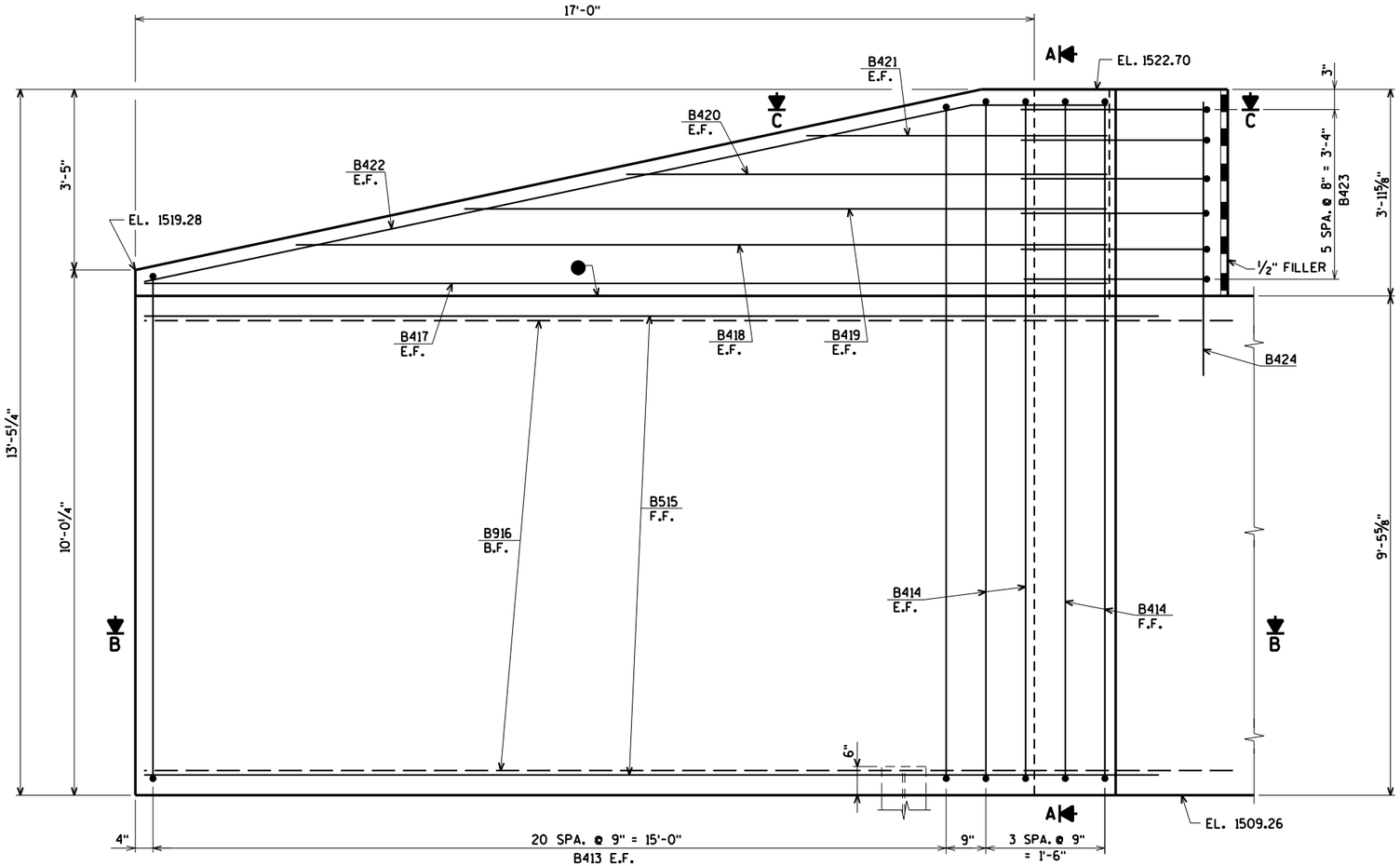
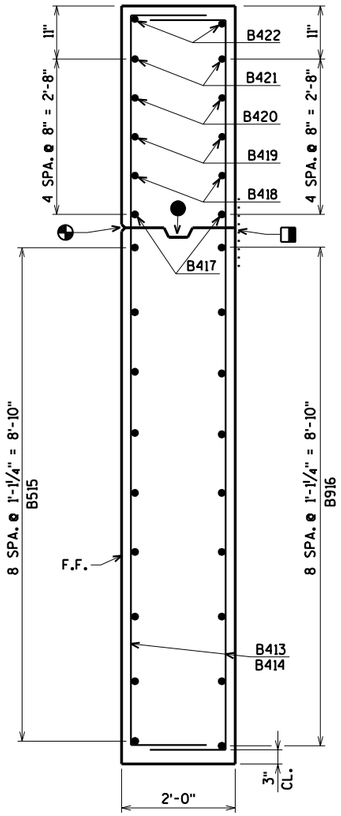
STATE PROJECT NUMBER

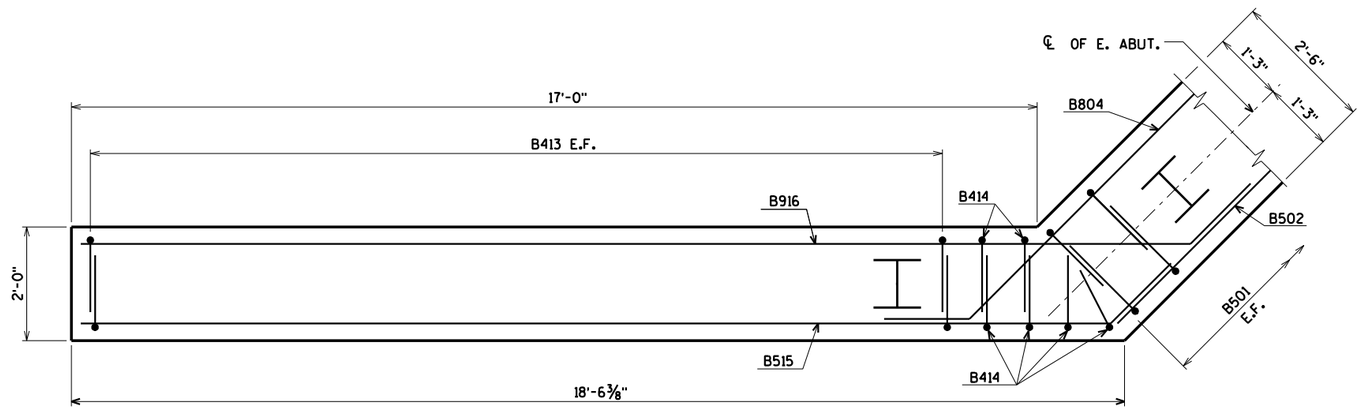
9384-00-70



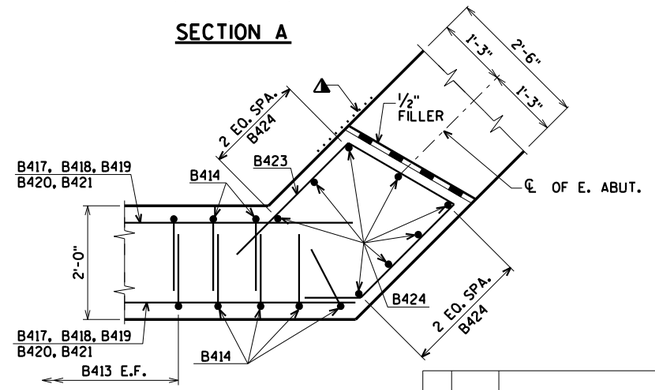
ELEVATION - WING 3



SECTION A



SECTION B



SECTION C

- RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JOINT IS USED (COST INCIDENTAL TO BID ITEM "CONCRETE MANSONRY BRIDGES")
- OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F. (RUBBERIZED MEMBRANE WATERPROOFING INCIDENTAL TO BID ITEM "CONCRETE MANSONRY BRIDGES" IF CONST. JOINT IS USED).
- ¾" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.
- 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

FOR PILE SPLICE DETAIL SEE SHEET 3.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

DRAWN BY CLP | PLANS CK'D. AEB

EAST ABUTMENT WING 3 DETAILS

SHEET 10 OF 22
59

ORIGINAL PLANS PREPARED BY

AYRES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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PENTABLE:tBReau_shd_util.tbl

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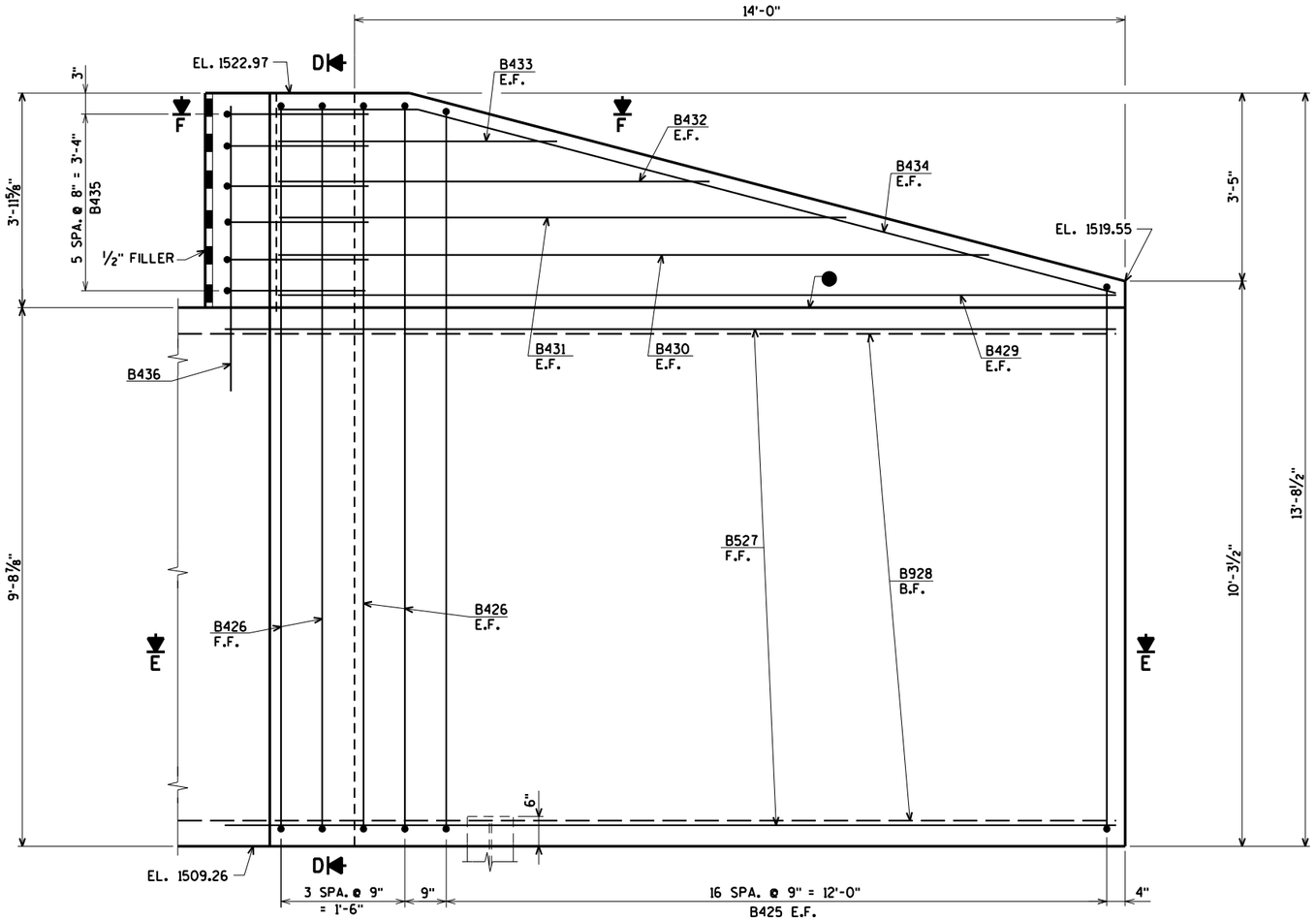
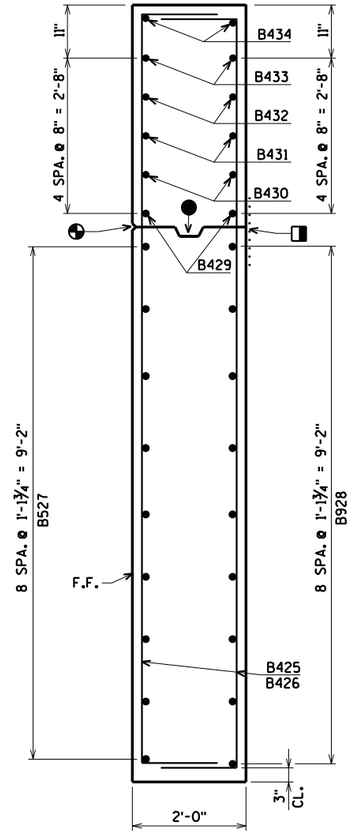
STATE PROJECT NUMBER

9384-00-70



ELEVATION - WING 4



SECTION D

- RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JOINT IS USED (COST INCIDENTAL TO BID ITEM "CONCRETE MANSONRY BRIDGES")
- OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F. (RUBBERIZED MEMBRANE WATERPROOFING INCIDENTAL TO BID ITEM "CONCRETE MANSONRY BRIDGES" IF CONST. JOINT IS USED).
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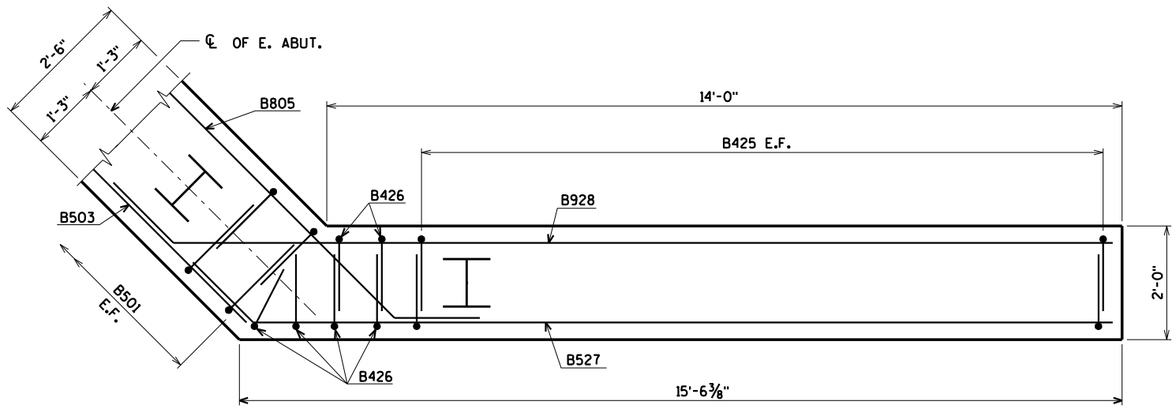
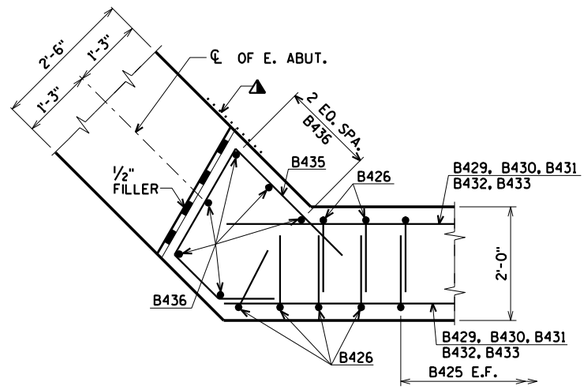
- 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

FOR PILE SPLICE DETAIL SEE SHEET 3.



SECTION E



SECTION F

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

DRAWN BY CLP | PLANS CK'D. AEB

EAST ABUTMENT WING 4 DETAILS

SHEET 11 OF 22
60

ORIGINAL PLANS PREPARED BY
AYRES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

5/25/2021
PENTABLE:BReau_shd_utl1.tbl

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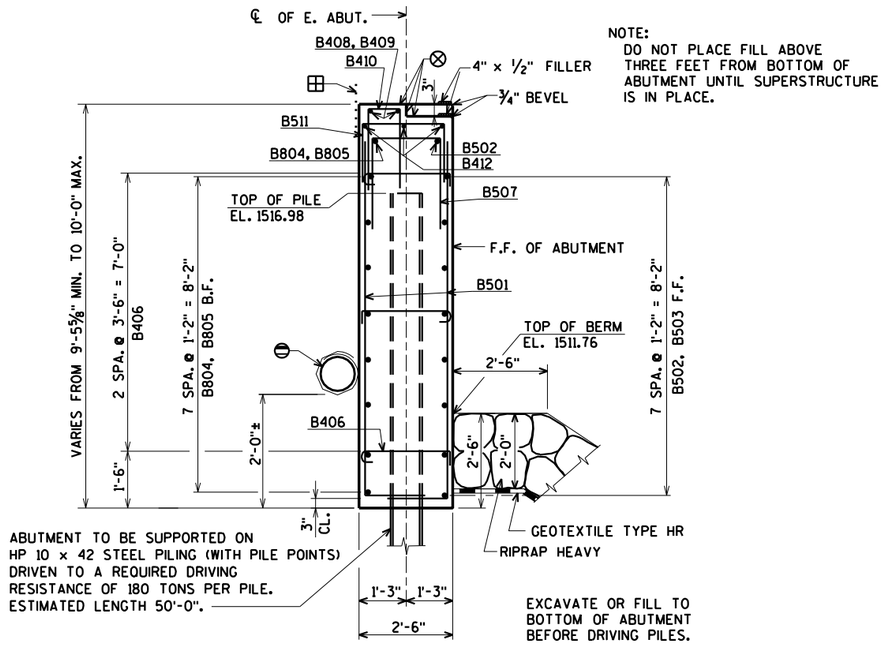
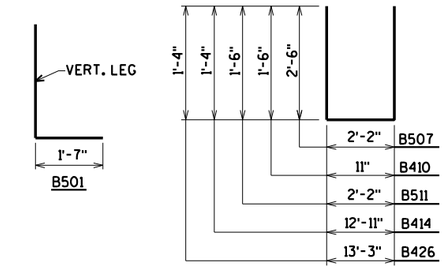
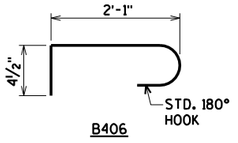


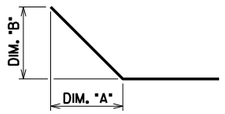
NOTE:
DO NOT PLACE FILL ABOVE THREE FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

SECTION G

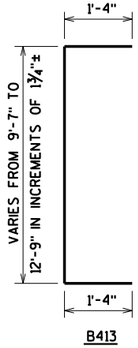
FOR LOCATION OF SECTION G SEE SHEET 9

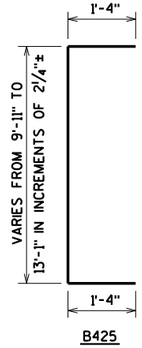


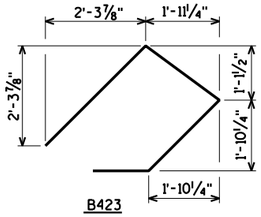


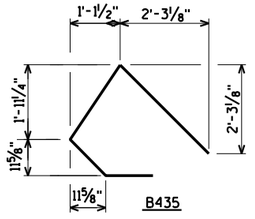


BAR NO.	DIM. "A"	DIM. "B"
B804	1'-0¾"	1'-0¾"
B805	1'-0¾"	1'-0¾"
B515	1'-0¾"	1'-0¾"
B916	1'-0¾"	1'-0¾"
B422	16'-0"	3'-4"
B527	1'-0¾"	1'-0¾"
B928	1'-0¾"	1'-0¾"
B434	13'-0"	3'-4"









BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
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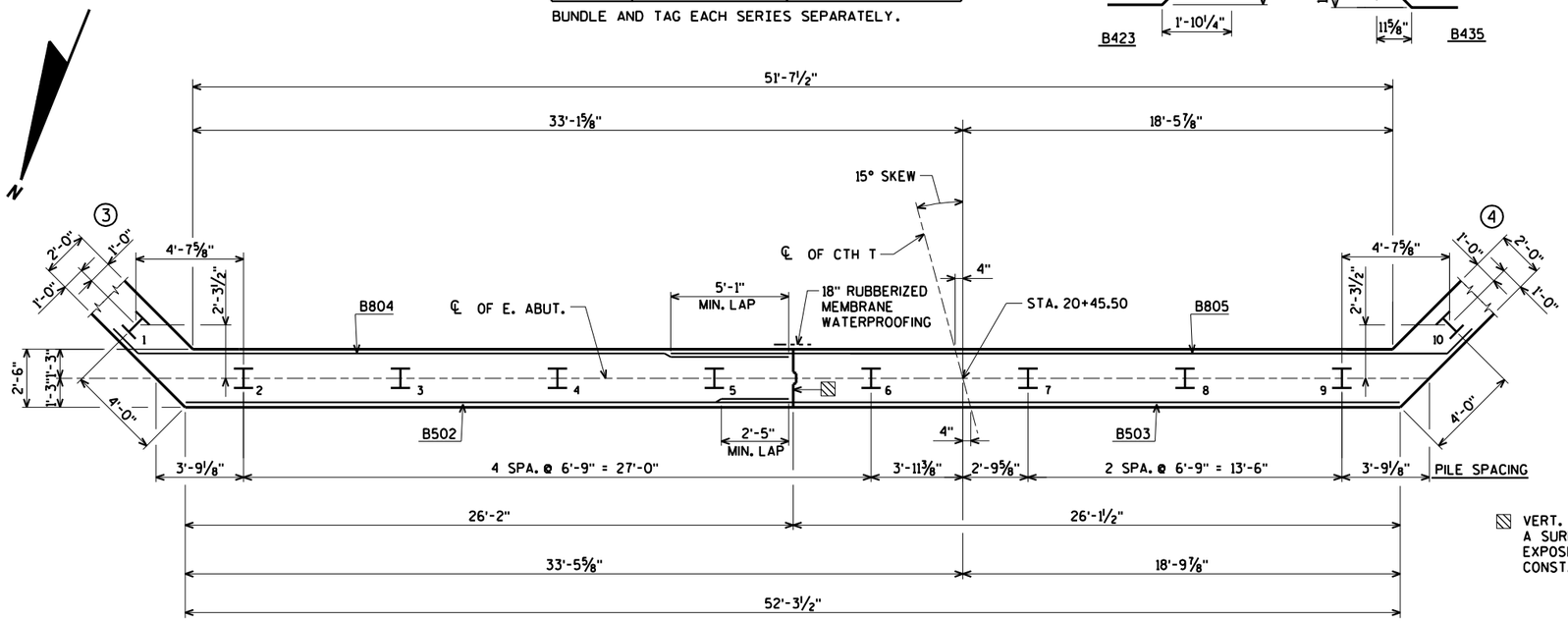
BUNDLE AND TAG EACH SERIES SEPARATELY.



PILE LAYOUT

▨ VERT. CONST. JT. - KEYWAY FORMED BY A SURFACED BEVELED 2" x 8". BEVEL EXPOSED EDGES ¾". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 13.

STATE PROJECT NUMBER

9384-00-70

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,680# COATED 3,970# UNCOATED LOCATION
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B805		9	34-11	X		BODY HORIZ. B.F.
B406		39	2-9	X		BODY TIES
B507		52	6-11	X		BODY VERT. TOP
B408		2	26-0			BODY HORIZ. TOP @ NOTCH
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B515	X	9	19-7	X		WING 3 HORIZ. F.F.
B916	X	9	21-1	X		WING 3 HORIZ. B.F.
B417	X	2	18-3			WING 3 HORIZ. E.F.
B418	X	2	15-3			WING 3 HORIZ. E.F.
B419	X	2	12-1			WING 3 HORIZ. E.F.
B420	X	2	8-11			WING 3 HORIZ. E.F.
B421	X	2	5-9			WING 3 HORIZ. E.F.
B422	X	2	18-5	X		WING 3 DIAG. E.F.
B423	X	6	9-3	X		WING 3 HORIZ.
B424	X	8	5-5			WING 3 VERT.
B425	X	34	14-0	X	⊗	WING 4 VERT. E.F
B426	X	6	15-9	X		WING 4 VERT. E.F
B527	X	9	16-7	X		WING 4 HORIZ. F.F.
B928	X	9	18-1	X		WING 4 HORIZ. B.F.
B429	X	2	15-3			WING 4 HORIZ. E.F.
B430	X	2	12-10			WING 4 HORIZ. E.F.
B431	X	2	10-4			WING 4 HORIZ. E.F.
B432	X	2	7-10			WING 4 HORIZ. E.F.
B433	X	2	5-4			WING 4 HORIZ. E.F.
B434	X	2	15-6	X		WING 4 DIAG. E.F.
B435	X	6	7-11	X		WING 4 HORIZ.
B436	X	6	5-5			WING 4 VERT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

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⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE OF ABUTMENT.

FOR PILE SPLICE DETAIL SEE SHEET 3.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

DRAWN BY CLP | PLANS CK'D. AEB

EAST ABUTMENT DETAILS AND BILL OF BARS

SHEET 12 OF 22
61

ORIGINAL PLANS PREPARED BY
AYRES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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5/26/2021
PENTABLE:\Beau_shd_util.tbl

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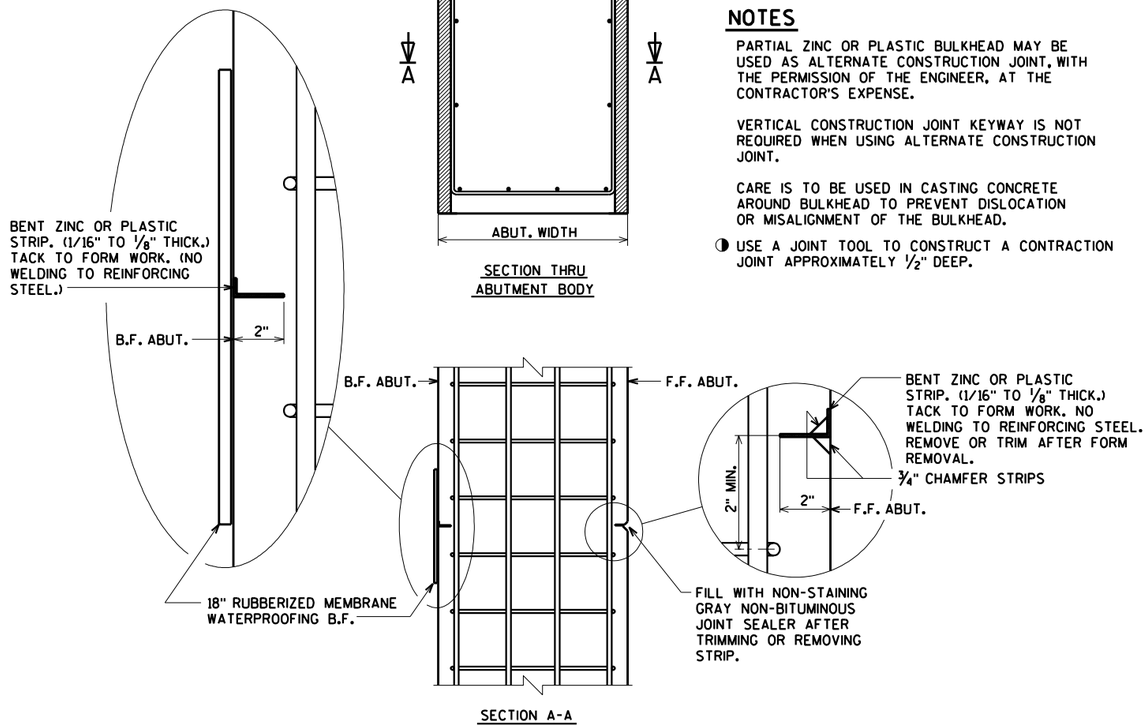
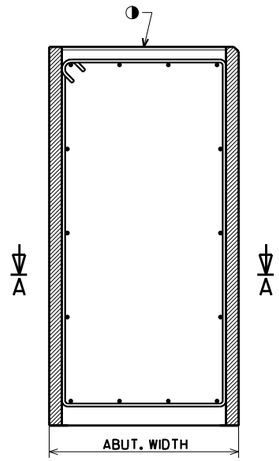




NOTES

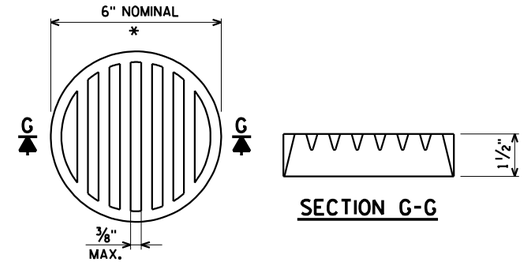
PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.

CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

◑ USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY ½" DEEP.

ALTERNATE CONSTRUCTION JOINT AT ABUTMENT



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

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

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

RODENT SHIELD DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

DRAWN BY CLP | PLANS CK'D. AEB

ABUTMENT DETAILS

SHEET 13 OF 22
62

ORIGINAL PLANS PREPARED BY
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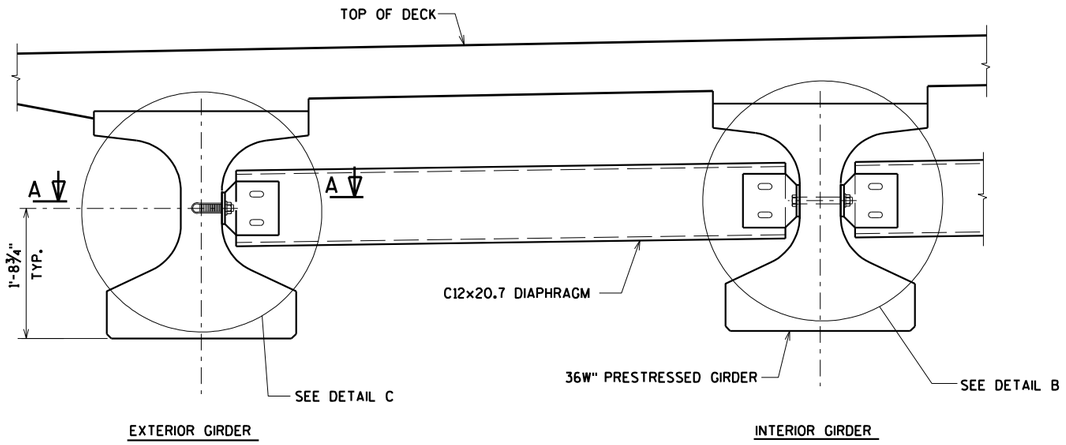
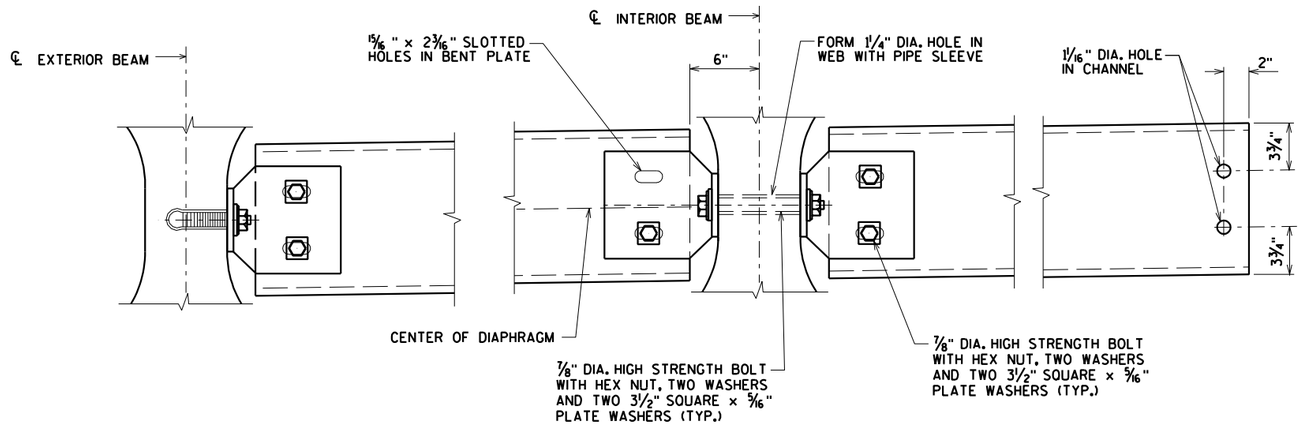


PART TRANSVERSE SECTION AT DIAPHRAGM



NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-34-60", EACH.

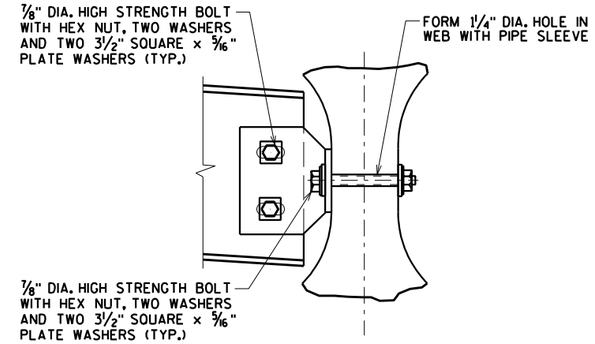
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

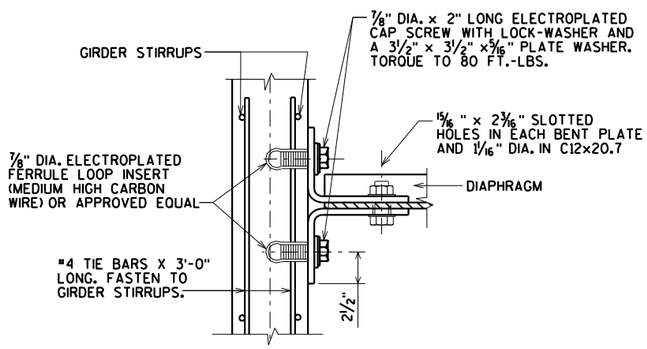
STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS ¼ TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

FOR DIAPHRAGM SPACING SEE SHEET 18.



SECTION AT INTERIOR GIRDERS THRU DIAPHRAGM FOR SKEW ANGLES > 10°

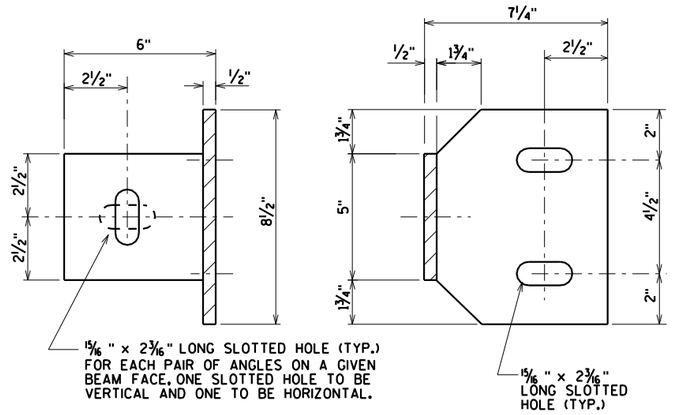
DETAIL C



SECTION A-A

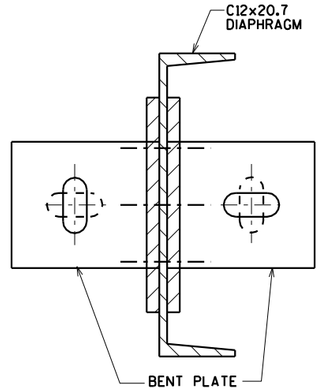
(FOR EXTERIOR ATTACHMENT)

DETAIL B



BEAM FACE

DIAPHRAGM FACE



ATTACHMENT TO CHANNEL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
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STRUCTURE B-34-60

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STEEL DIAPHRAGM

SHEET 14 OF 22

63

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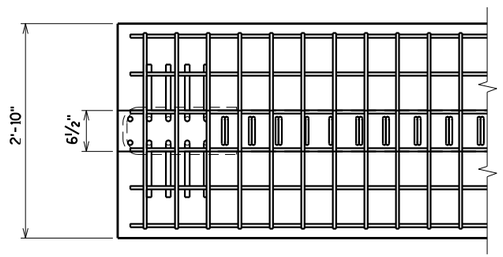
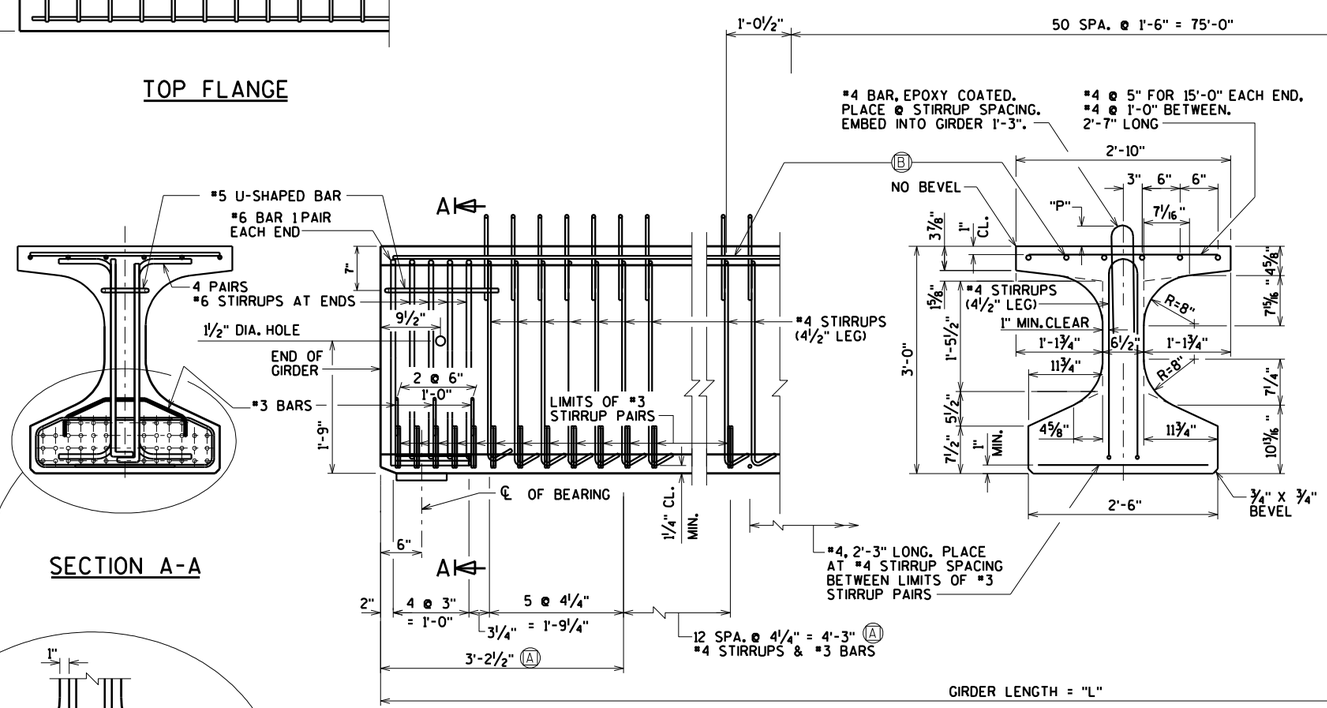
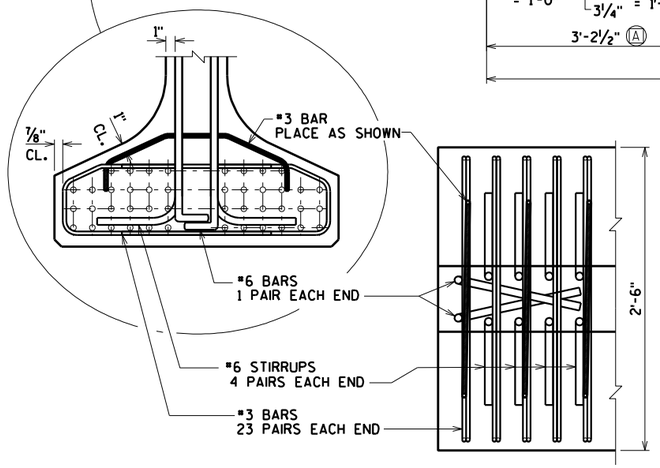


TOP FLANGE



SECTION A-A



DETAIL A
BOTTOM FLANGE

NOTES

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

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

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

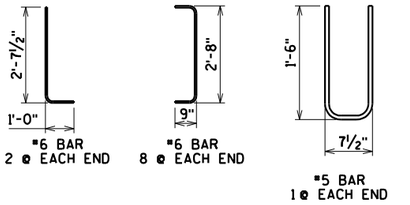
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON ACCEPTANCE OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

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

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



SIDE VIEW & TYPICAL SECTION IN SPAN

Ⓐ DETAIL TYP. AT EACH END

Ⓑ 6 #4 BARS, FULL LENGTH, MIN. LAP = 2'-4"

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

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.) 1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CONC. STRGTH. f'c (p.s.i.)	"P" 1ST 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	(IN.) "A"	"B" MIN.	"B" MAX.	"C"	UNDRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.) *
1	1 & 8	92'-0"	0.6	1.1	1.5	1.7	1.8	1.7	1.5	1.1	0.6	8,000	8"	7"	8"	0.60	30	6,400	32	11	14	4		
1	2 - 7	92'-0"	0.5	1.1	1.5	1.7	1.8	1.7	1.5	1.1	0.5	8,000	8"	7"	8"	0.60	30	6,400	32	11	14	4		

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

DRAWN BY CLP | PLANS CK'D. AEB

36W" PRESTRESSED GIRDER DETAILS

SHEET 15 OF 22
64

ORIGINAL PLANS PREPARED BY
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STATE PROJECT NUMBER

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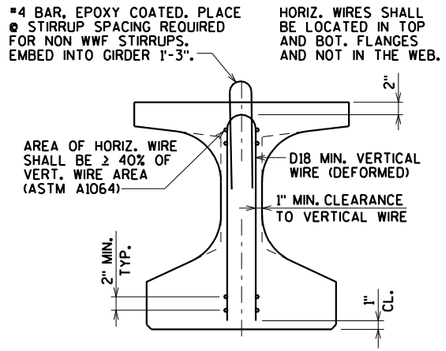
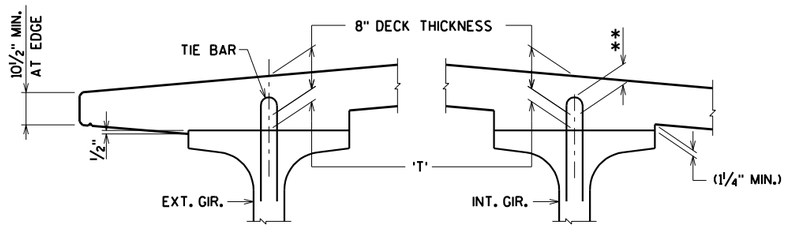


SECTION THRU GIRDER

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS
ASTM A1064 (FY = 70 KSI)



DECK HAUNCH DETAIL

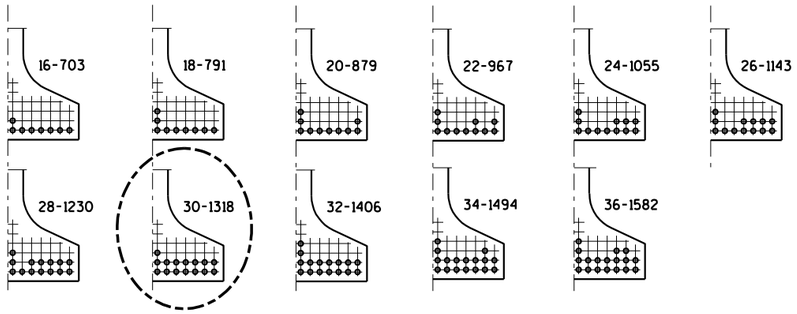
IF 1¼" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

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

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

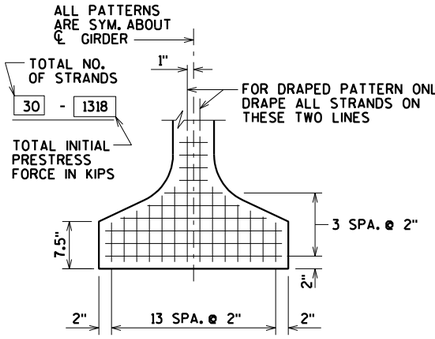
TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEAD LOAD DEFLECTION
- DECK THICKNESS
= HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 3¼" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

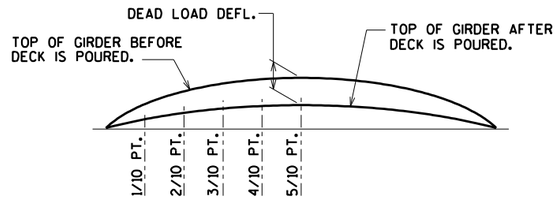


ARRANGEMENT AT ℄ SPAN - FOR GIRDERS WITH DRAPED STRANDS

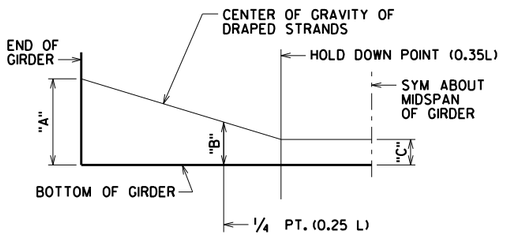
0.6"ø STRANDS



TYP. STRAND PATTERN



DEAD LOAD DEFLECTION DIAGRAM



DRAPED STRAND PROFILE

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

SPAN	CAMBER (IN.) *
1	3.5

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

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

DRAWN BY CLP | PLANS CK'D. AEB

36W" PRESTRESSED GIRDER DETAILS

SHEET 16 OF 22
65

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STATE PROJECT NUMBER

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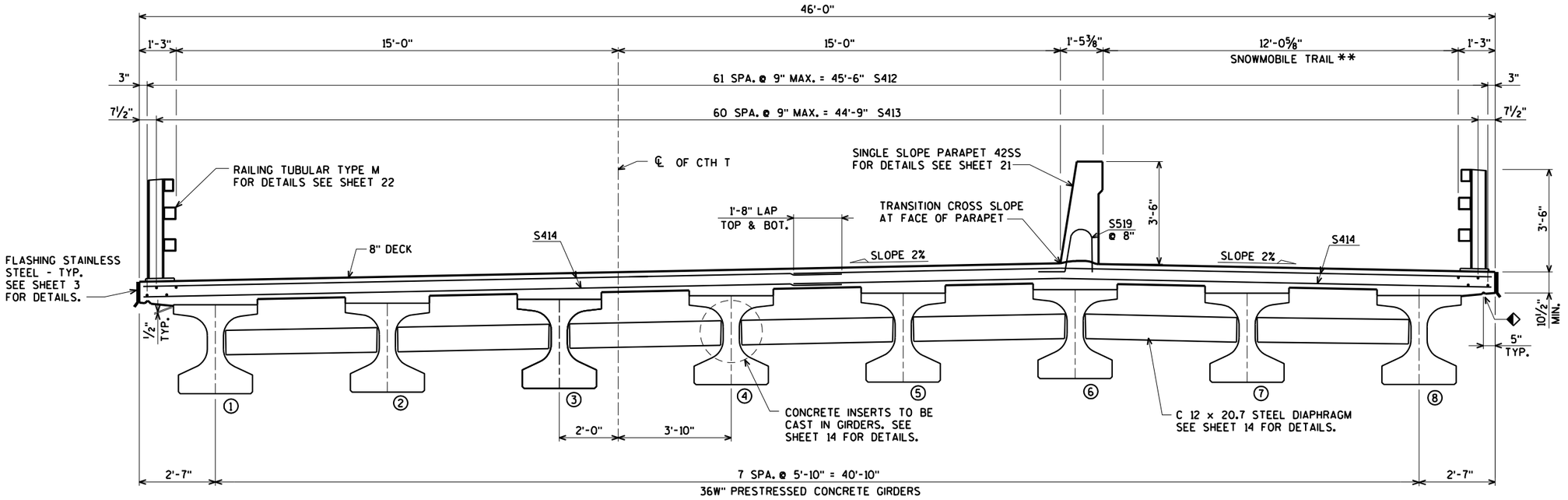
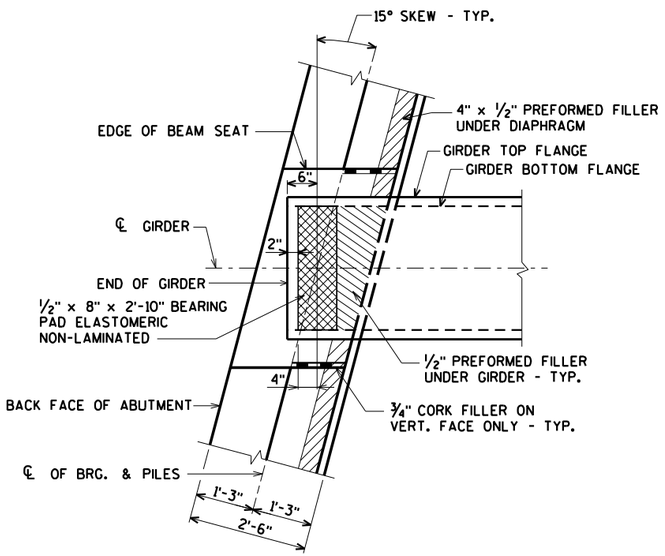


TYPICAL SECTION THRU BRIDGE

(LOOKING EAST)

◆ ¾" V - GROOVE. EXTEND V - GROOVE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGMS - TYP.

** STRUCTURE IS DESIGNED FOR A 5"/S.F. POLYMER OVERLAY IN THE SNOWMOBILE TRAIL



BEARING PAD DETAIL

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

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SUPERSTRUCTURE

SHEET 17 OF 22
66

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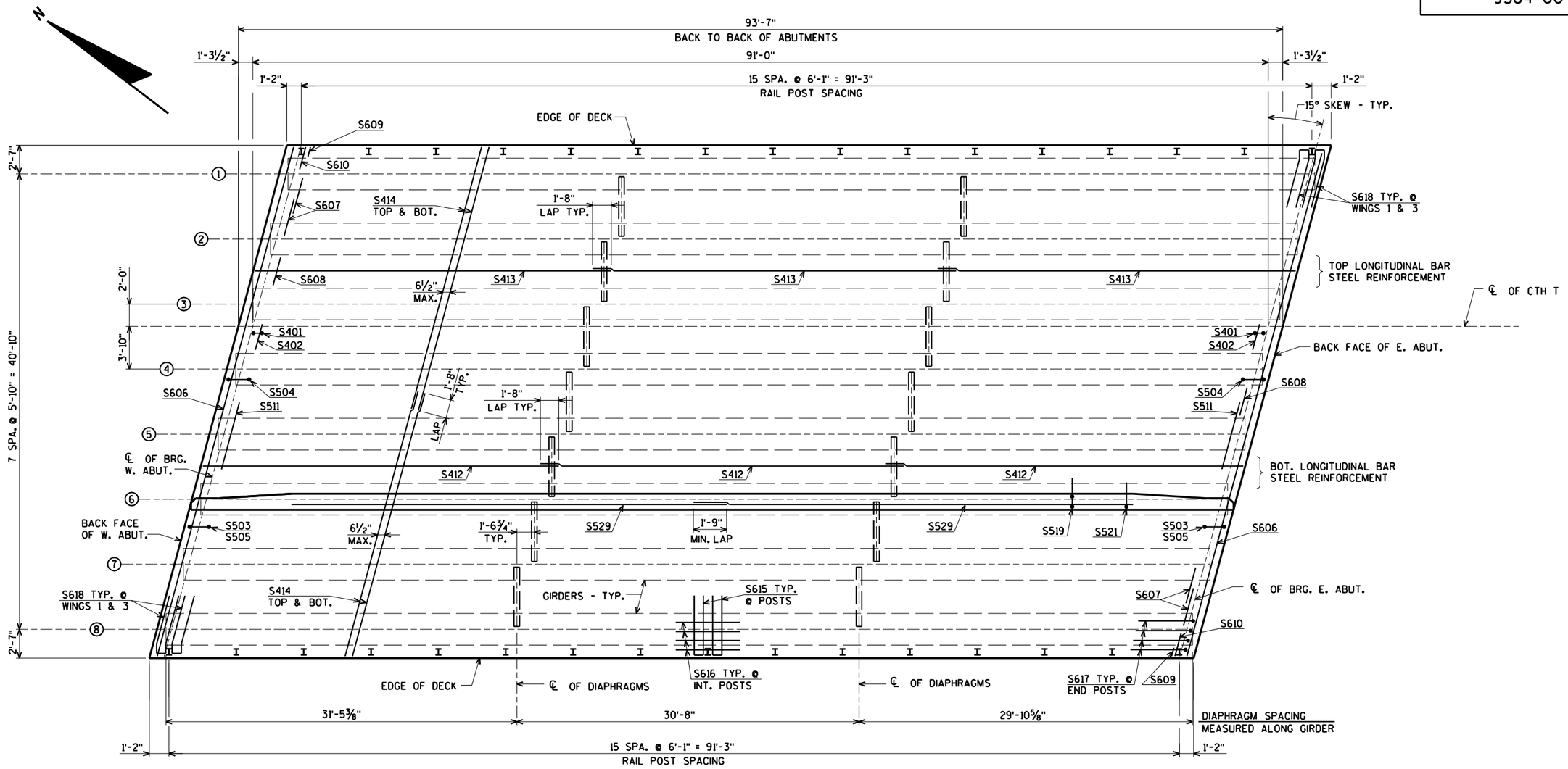

PLAN

TOP OF DECK ELEVATIONS

	℄ OF BRG. W. ABUT.	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	℄ OF BRG. E. ABUT.
N. EDGE OF DECK	1522.22	1522.29	1522.33	1522.38	1522.43	1522.47	1522.52	1522.56	1522.61	1522.66	1522.70
GIRDER 1	1522.29	1522.34	1522.38	1522.43	1522.47	1522.52	1522.57	1522.61	1522.66	1522.70	1522.75
GIRDER 2	1522.40	1522.45	1522.49	1522.54	1522.58	1522.63	1522.68	1522.72	1522.77	1522.81	1522.86
GIRDER 3	1522.51	1522.56	1522.60	1522.65	1522.69	1522.74	1522.78	1522.83	1522.88	1522.92	1522.97
℄ OF CTH T	1522.55	1522.59	1522.64	1522.68	1522.73	1522.78	1522.82	1522.87	1522.91	1522.96	1523.00
GIRDER 4	1522.62	1522.66	1522.71	1522.76	1522.80	1522.85	1522.89	1522.94	1522.98	1523.03	1523.08
GIRDER 5	1522.73	1522.77	1522.82	1522.86	1522.91	1522.96	1523.00	1523.05	1523.09	1523.14	1523.19
CROWN POINT	1522.83	1522.87	1522.92	1522.96	1523.01	1523.06	1523.10	1523.15	1523.19	1523.24	1523.28
GIRDER 6	1522.82	1522.86	1522.91	1522.95	1523.00	1523.04	1523.09	1523.14	1523.18	1523.23	1523.27
GIRDER 7	1522.69	1522.74	1522.78	1522.83	1522.87	1522.92	1522.97	1523.01	1523.06	1523.10	1523.15
GIRDER 8	1522.57	1522.61	1522.66	1522.70	1522.75	1522.80	1522.84	1522.89	1522.93	1522.98	1523.02
S. EDGE OF DECK	1522.51	1522.56	1522.60	1522.65	1522.69	1522.74	1522.79	1522.83	1522.88	1522.92	1522.97

ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES FOR DEAD LOAD DEFLECTION.

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STRUCTURE B-34-60

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SUPERSTRUCTURE PLAN

SHEET 18 OF 22
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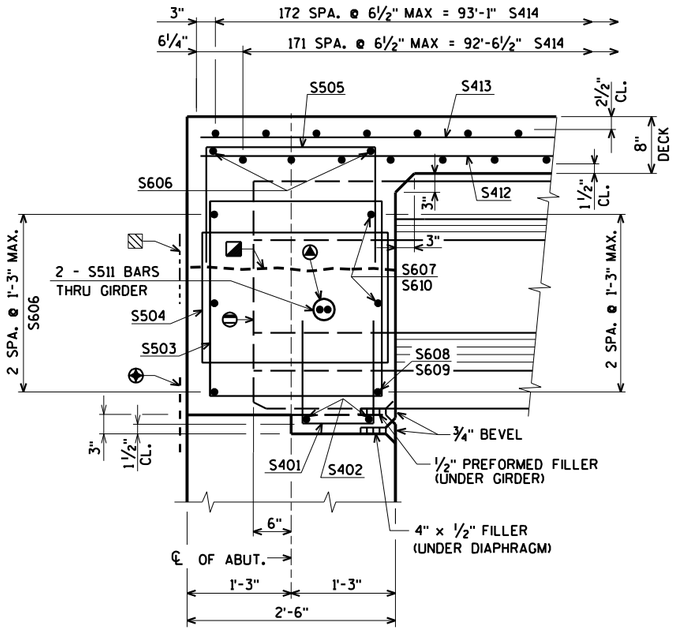
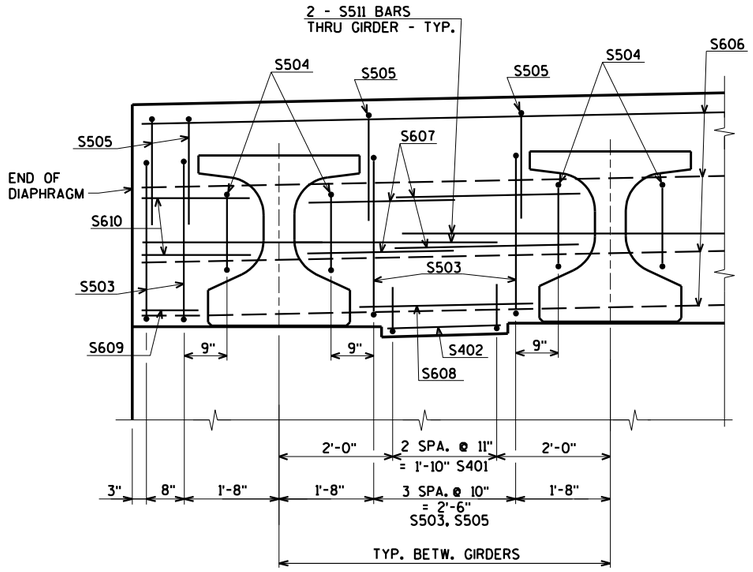


PART LONGITUDINAL SECTION



PART TRANSVERSE SECTION AT ABUTMENT DIAPHRAGM

⊖ END OF GIRDER

⊕ 18" RUBBERIZED MEMBRANE WATERPROOFING

◪ OPTIONAL CONSTRUCTION JOINT 1'-2" BELOW TOP OF GIRDER. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.

▨ 18" RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JT. IS USED. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES"

⑥ 1 - 1½" DIA. HOLE IN WEB FOR S511 BARS. FIELD BEND BARS ALONG SKEW. PLACE S511 BARS SYM. ABOUT ℄ OF GIRDERS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

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SUPERSTRUCTURE DETAILS

SHEET 19 OF 22
68

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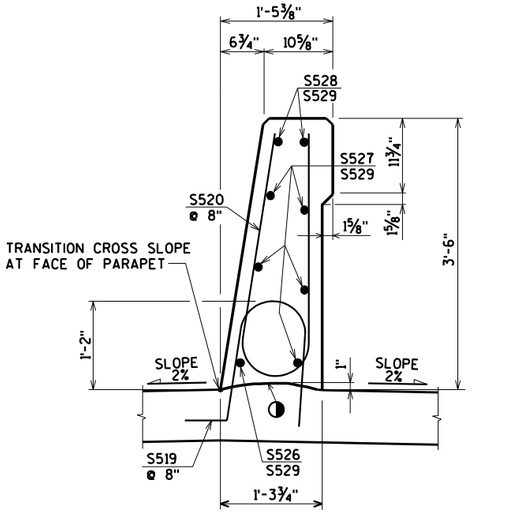


SECTION THRU INT. PARAPET ON BRIDGE

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

STATE PROJECT NUMBER

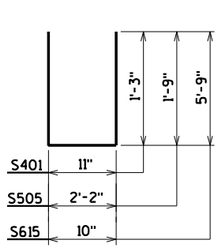
9384-00-70

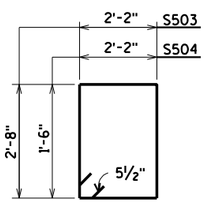
BILL OF BARS

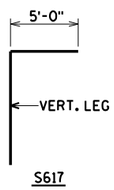
BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	27,190# COATED LOCATION
S401	X	42	3-3	X		DIAPH. @ ABUT. VERT. @ NOTCH
S402	X	28	2-1			DIAPH. @ ABUT. VERT. @ NOTCH
S503	X	64	10-3	X		DIAPH. @ ABUT. VERT.
S504	X	32	7-11	X		DIAPH. @ ABUT. VERT. & GIRDERS
S505	X	64	5-5	X		DIAPH. @ ABUT. VERT.
S606	X	10	47-3			DIAPH. @ ABUT. HORIZ.
S607	X	56	3-6			DIAPH. @ ABUT. HORIZ. BETW. GDRS.
S608	X	14	3-1			DIAPH. @ ABUT. HORIZ. BETW. GDRS.
S609	X	4	1-0			DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S610	X	8	1-10			DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S511	X	32	6-0			DIAPH. @ ABUT. HORIZ. THRU GDRS.
S412	X	186	32-3			DECK LONG. BOT.
S413	X	183	32-3			DECK LONG. TOP
S414	X	690	24-6			DECK TRANS. TOP & BOTTOM
S615	X	60	12-0	X		DECK @ RAIL POSTS
S616	X	112	6-0			DECK @ INT. RAIL POSTS
S617	X	16	6-0	X		DECK @ END RAIL POSTS
S618	X	4	12-0	X		DECK @ END RAIL POSTS
S519	X	115	4-5	X		DECK @ PARAPET VERT.
S520	X	115	6-8	X		PARAPET VERT.
S521	X	22	2-9	X		DECK @ PARAPET VERT.
S522	X	34	4-4	X		DECK @ PARAPET VERT.
S523	X	12	5-5	X	⊗	DECK @ PARAPET VERT.
S524	X	10	6-5	X		DECK @ PARAPET VERT.
S525	X	12	6-6	X		DECK @ PARAPET VERT.
S526	X	2	13-0	X		PARAPET HORIZ. @ ENDS OF DECK
S527	X	10	39-0			PARAPET HORIZ. @ ENDS OF DECK
S528	X	4	13-0	X		PARAPET HORIZ. @ ENDS OF DECK
S529	X	16	39-0			PARAPET HORIZ.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

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







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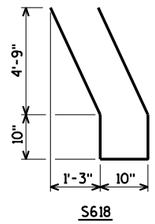

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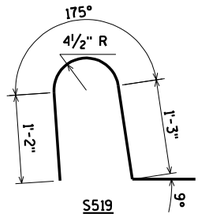

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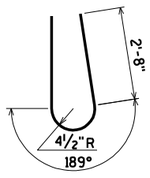


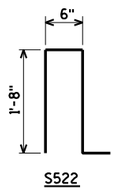
S520

S521

BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
S523	2 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.



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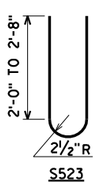

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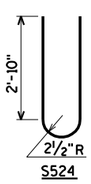

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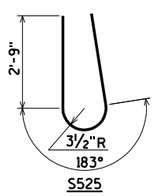

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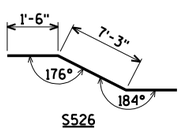

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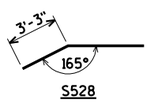


S528

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

DRAWN BY CLP | PLANS CK'D. AEB

SUPERSTRUCTURE BILL OF BARS

SHEET 20 OF 22
69

ORIGINAL PLANS PREPARED BY

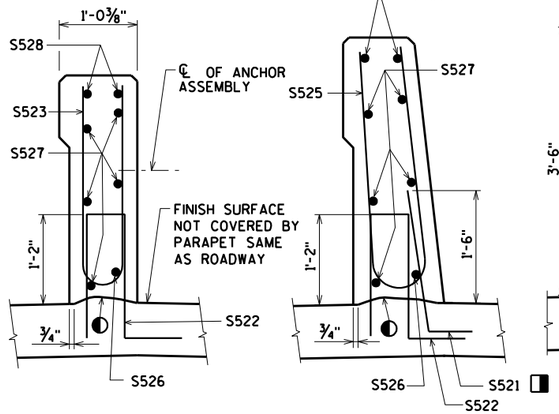
AYRES 3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

5/24/2021
PENTABLE:BReau_shd_util.tbl

I:±45±450499 Langlade CTH T±Structures±CADD±Final±450499 sup.dgn

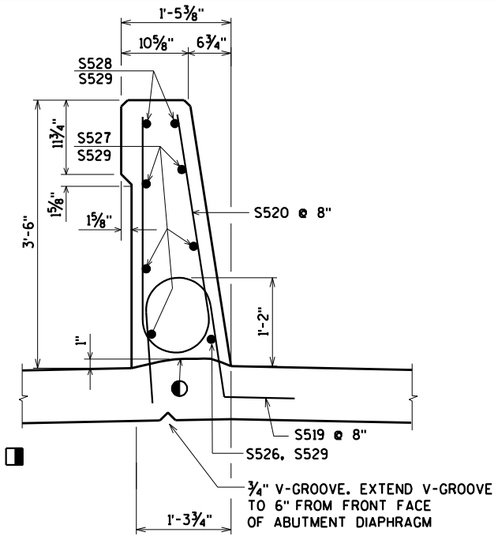
STATE PROJECT NUMBER

9384-00-70

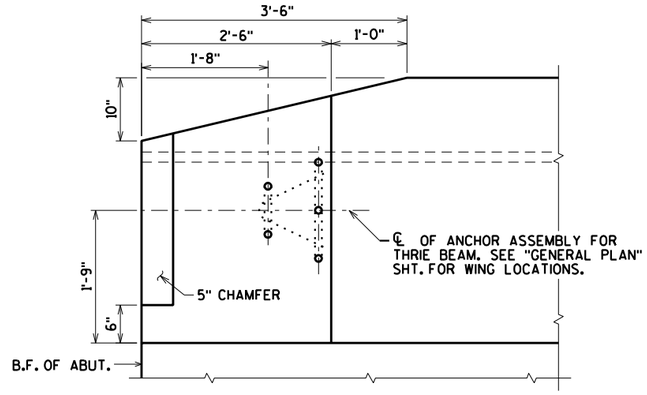


SECTION A

SECTION B

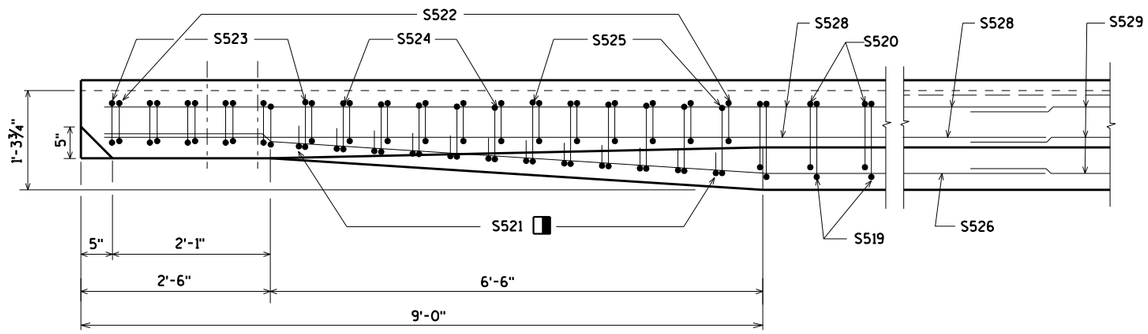


SECTION C



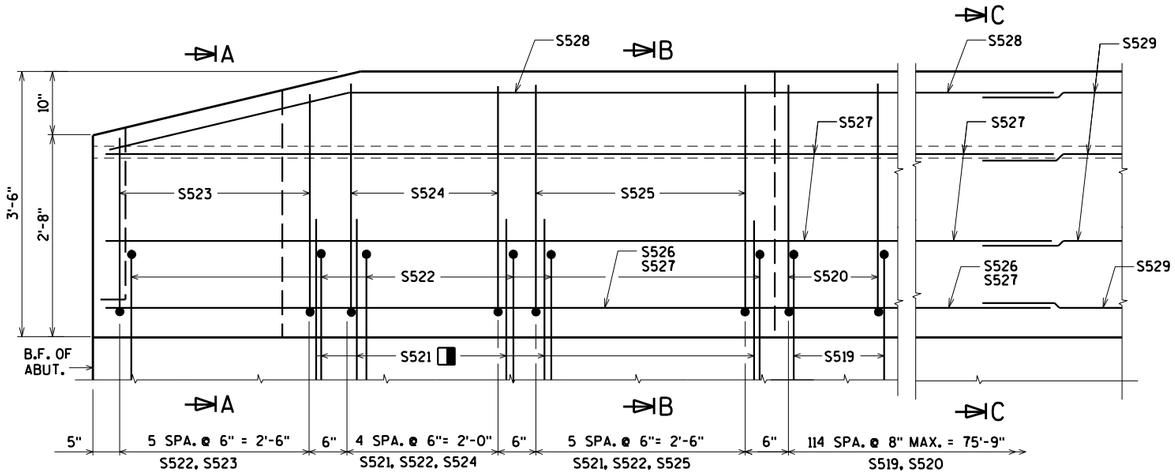
PARAPET END TREATMENT DETAIL

LOOKING AT INSIDE FACE OF PARAPET



PLAN

(PARAPET AT EAST END OF BRIDGE SHOWN, WEST END SIMILAR)



INSIDE ELEVATION

(PARAPET AT EAST END OF BRIDGE SHOWN, WEST END SIMILAR)

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◨ S521 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE S521 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

LAP LONG. BARS A MIN. OF 1'-9".

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

DRAWN BY CLP | PLANS CK'D. AEB

SINGLE SLOPE PARAPET 42SS

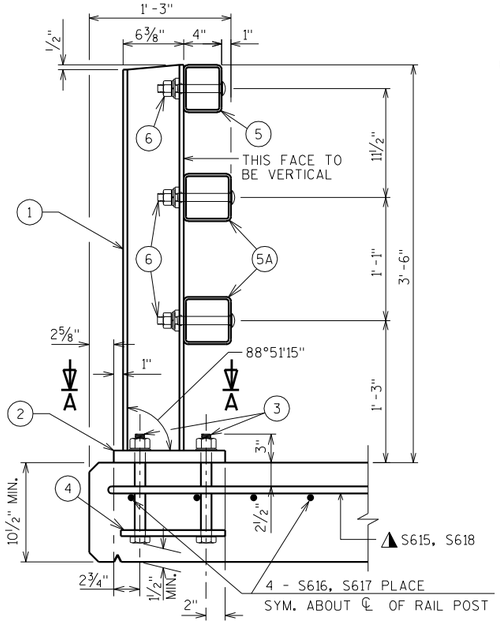
SHEET 21 OF 22
70

ORIGINAL PLANS PREPARED BY
AYRES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

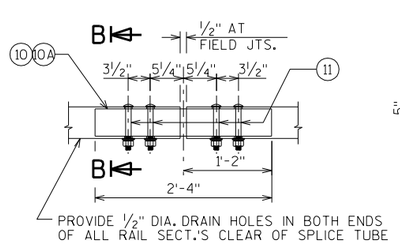
$PRFNAME$
1:=45=450499 Langlade CTH T=Structures=CADD=Final=450499 42SS.dgn

8

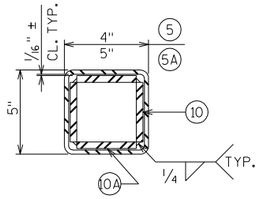
8



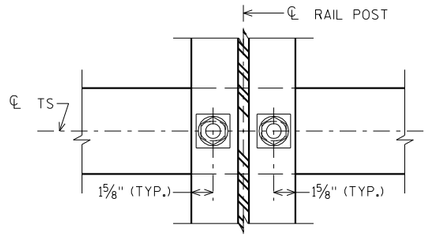
SECTION THRU RAILING ON DECK



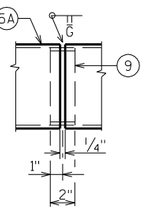
FIELD ERECTION JOINT DETAIL



SECTION B-B

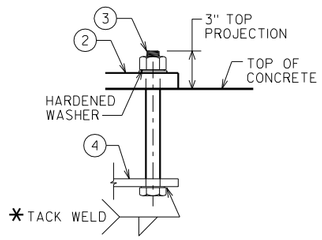


SECTION THRU POST WEB

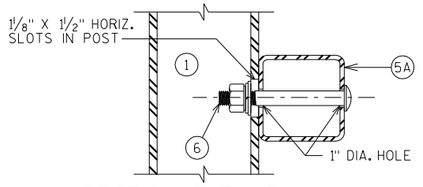


SHOP RAIL SPLICE DETAIL

LOCATION MUST BE SHOWN ON SHOP DRAWINGS



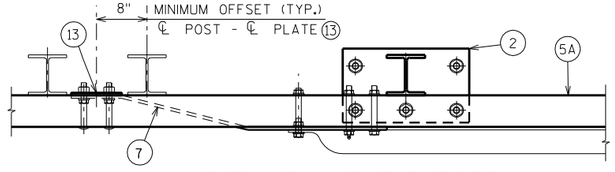
ANCHOR BOLTS



SECTION THRU RAIL

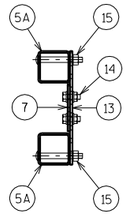
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT



SECTION C-C

LEGEND

(1) W6 x 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

(2) PLATE 1 1/4" x 11 3/4" x 1'-8" WITH 1 7/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.

(3) ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. ~~USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1' 3" LONG.~~ USE 10 3/4" LONG AT ALL OTHER LOCATIONS. ~~(AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)~~

(4) 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3

(5) TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

(5A) TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

(6) 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

(7) 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

(8) 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

(9) SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".

(10) 3/8" X 3 5/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

(10A) 3/8" X 2 5/8" X 2'-4" PLATE USED IN NO. 5, 3/8" X 3 5/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

(11) 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15/16" X 1 1/4" LONGIT. SLOTTED HOLES IN PLATE NO. 10A. AT FIELD JOINTS ~~AND 15/16" X 2 1/4" 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) 7/8" DIA. X 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

(13) 3/8" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

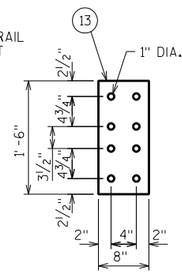
(14) 7/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

(15) 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

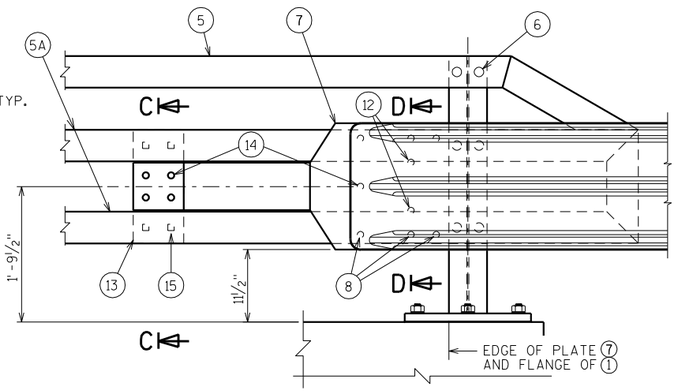
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES,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

SECTION A-A



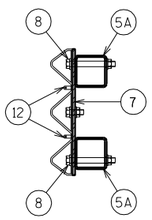
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT

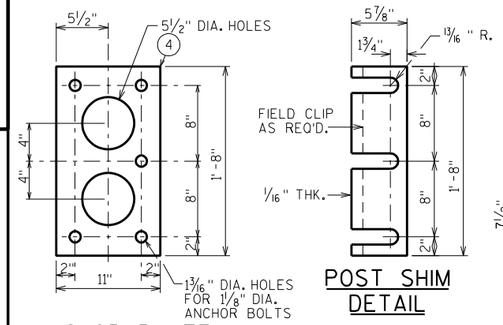


DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



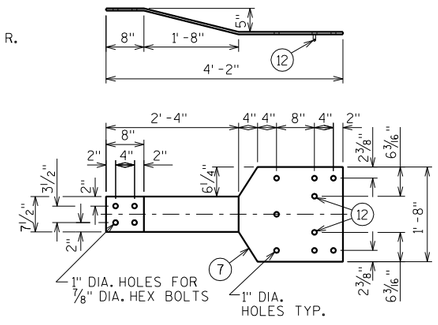
SECTION D-D



ANCHOR PLATE

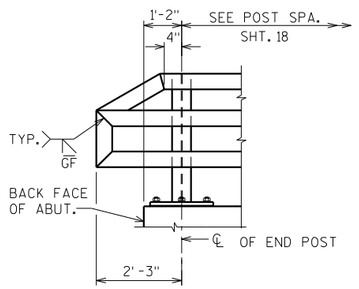
AT RAIL TO DECK CONNECTION

POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

TIE TO TOP MAT OF STEEL.

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

STATE PROJECT NUMBER

9384-00-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-60

DRAWN BY CLP | PLANS CK'D. AEB

TUBULAR STEEL RAILING TYPE 'M'

SHEET 22 OF 22
71

ORIGINAL PLANS PREPARED BY
AYRES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

8

8

EARTHWORK - NW SHOULDER

STATION	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
	Cut	Unusable Pavement Material	Fill	Cut	Unusable Pavement Material	Fill	Cut	Expanded Fill	
							1.00	1.30	
				Note 1	Note 2	Note 3	Note 1		Note 4
16+63	0.35	0.00	2.46	0	0	0	0	0	0
17+00	4.93	0.00	3.64	4	0	4	4	5	-1
17+48.8	7.51	0.00	8.96	11	0	11	15	20	-5
17+50	7.67	0.00	9.35	0	0	0	15	20	-5
17+67.1	6.08	0.00	16.11	4	0	8	19	30	-11
17+90	3.81	0.00	36.55	4	0	22	23	59	-36
				23	0	45			

EARTHWORK - NE SHOULDER

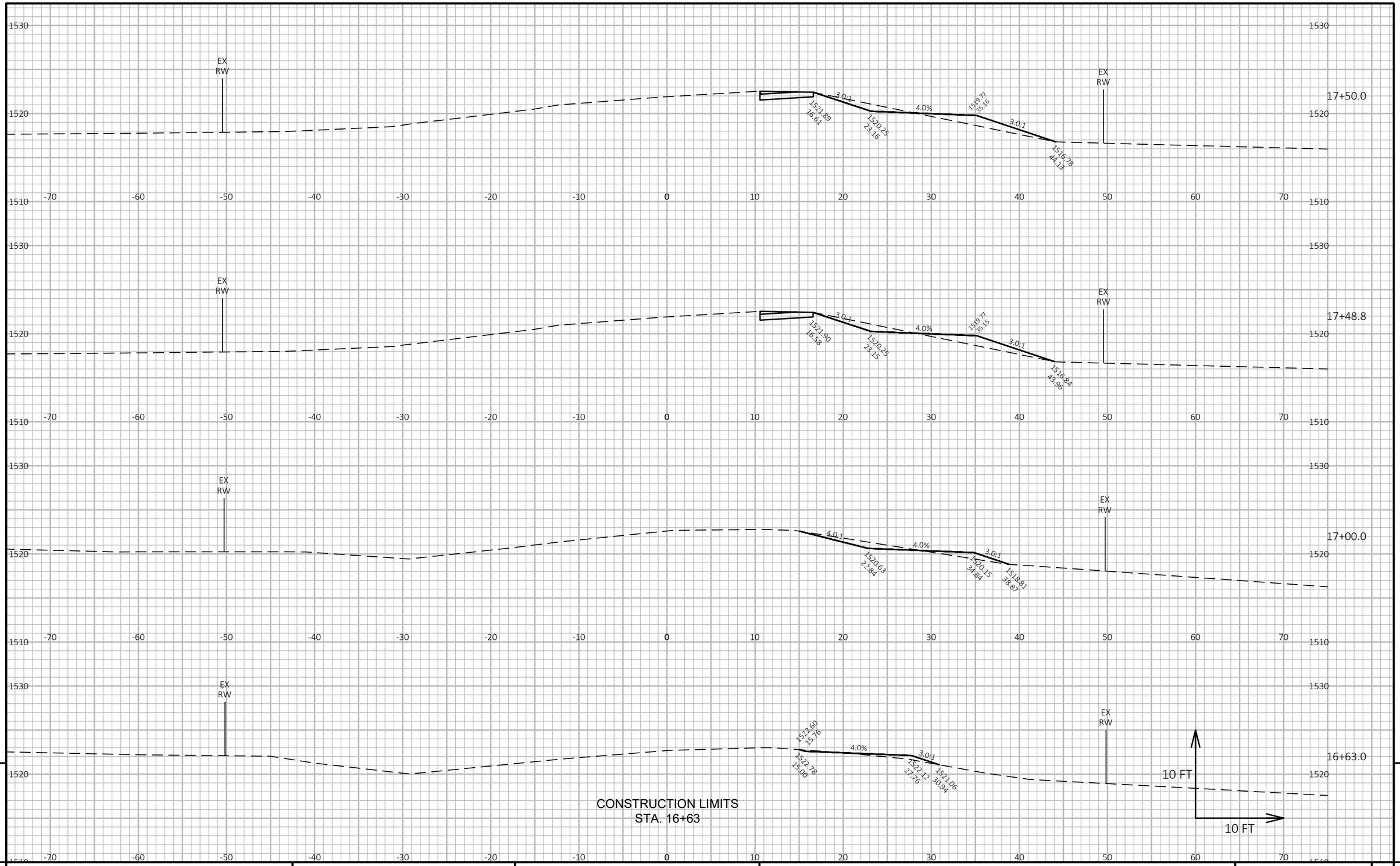
STATION	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
	Cut	Unusable Pavement Material	Fill	Cut	Unusable Pavement Material	Fill	Cut	Expanded Fill	
							1.00	1.30	
				Note 1	Note 2	Note 3	Note 1		Note 4
17+67.1	6.29	0.00	0.00	0	0	0	0	0	0
17+90.0	5.37	0.00	0.33	5	0	0	5	0	5
				5	0	0			

Notes:	
1 - Cut	Cut includes Salvaged/Unusable Pavement Material
2 - Unusable Pavement Material	This does not show up in cross sections
3 - Fill	Does not include Unusable Pavement Exc volume
4 - Mass Ordinate	Cut - Unusable Pavement Material - (Fill * Fill Factor)

EARTHWORK - CTH T

STATION	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
	Cut	Unusable Pavement Material	Fill	Cut	Unusable Pavement Material	Fill	Cut	Expanded Fill	
							1.00	1.30	
				Note 1	Note 2	Note 3	Note 1		Note 4
17+90	32.42	15.50	36.88	0	0	0	0	0	0
18+00	25.69	15.50	56.35	11	6	17	11	22	-17
18+22.6	14.73	15.50	115.28	17	13	72	28	116	-107
18+46.9	2.73	15.50	92.68	14	14	93	42	237	-228
18+50	1.41	15.50	92.85	2	2	11	44	251	-242
18+66.1	0.00	15.50	100.43	9	9	58	53	326	-317
18+71.3	0.00	15.50	103.61	3	3	19	56	351	-342
18+91.6	0.00	15.50	120.61	12	12	84	68	460	-451
19+00	0.00	15.50	129.60	5	5	39	73	511	-502
19+16.7	0.00	15.50	153.61	10	10	87	83	624	-615
19+53.2	0.00	15.50	153.61	21	21	208	104	894	-885
B-34-60									-885
20+46.8	0.00	15.50	154.14	0	0	0	104	894	-885
20+80	2.88	15.50	154.14	19	19	190	123	1,141	-1,132
20+91.4	2.82	15.50	146.07	7	7	64	130	1,225	-1,216
20+95.8	2.05	15.50	136.85	3	3	23	133	1,255	-1,246
21+00	1.19	15.50	129.75	2	2	21	135	1,282	-1,273
21+16.4	3.06	15.50	104.73	9	9	71	144	1,374	-1,365
21+20.8	4.88	15.50	95.16	3	3	16	147	1,395	-1,386
21+41.4	14.73	15.50	75.98	12	12	65	159	1,479	-1,470
21+45.8	18.90	15.50	62.17	3	3	11	162	1,494	-1,485
21+50	21.38	15.50	55.92	3	2	9	165	1,505	-1,495
22+00	26.67	15.50	22.13	44	29	72	209	1,599	-1,574
22+50	31.69	15.50	2.58	54	29	23	263	1,629	-1,579
22+65	27.26	15.50	0.50	16	9	1	279	1,630	-1,573
				279	222	1,254			

Notes:	
1 - Cut	Cut includes Salvaged/Unusable Pavement Material
2 - Unusable Pavement Material	This does not show up in cross sections
3 - Fill	Does not include Unusable Pavement Exc volume
4 - Mass Ordinate	Cut - Unusable Pavement Material - (Fill * Fill Factor)



9

9

PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	CROSS SECTIONS:	SHEET 74	E

FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\090201 XS.DWG
LAYOUT NAME - 090201 xs

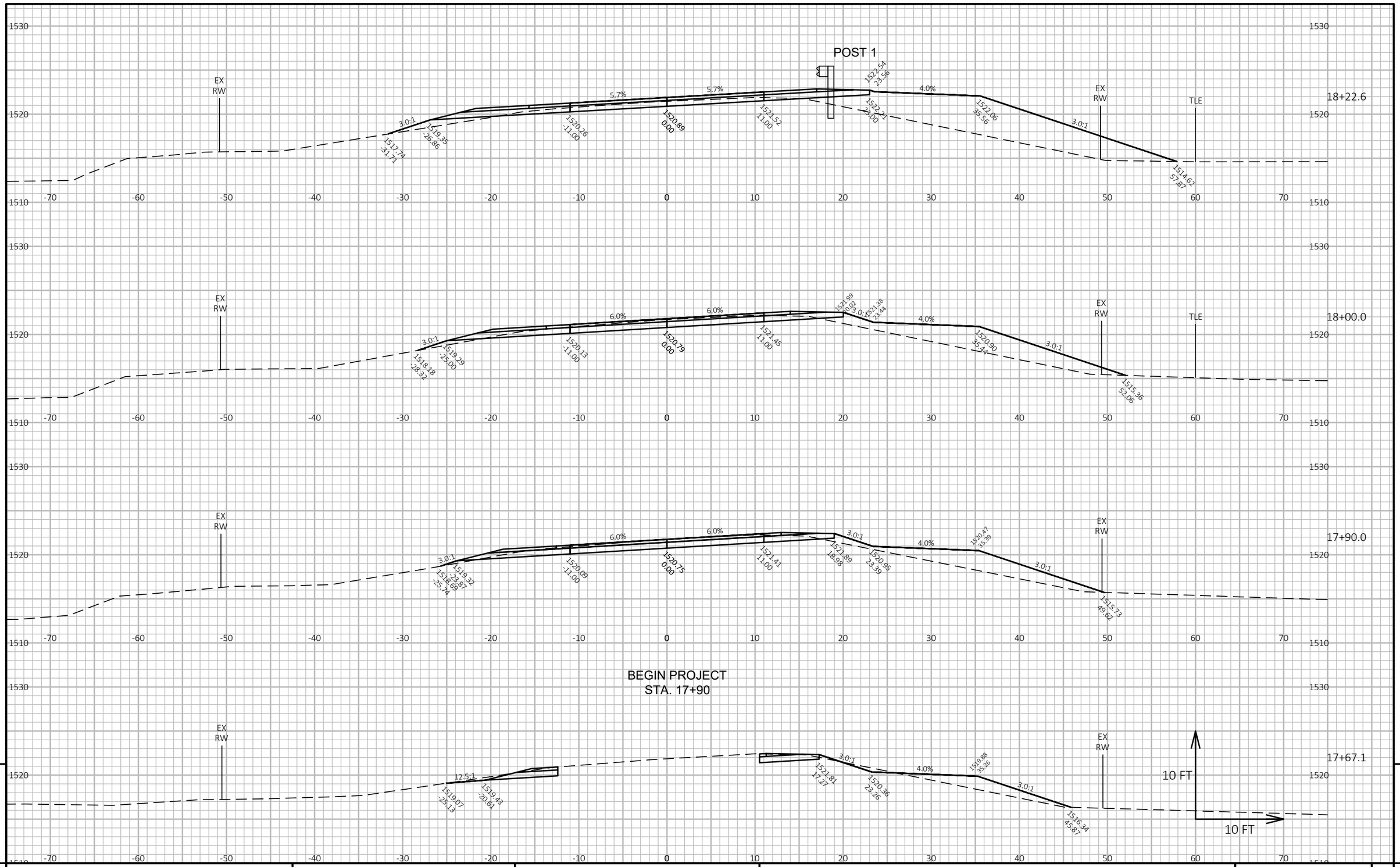
PLOT DATE : 7/8/2021 12:16 PM

PLOT BY : SOUFAL, KEVIN

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

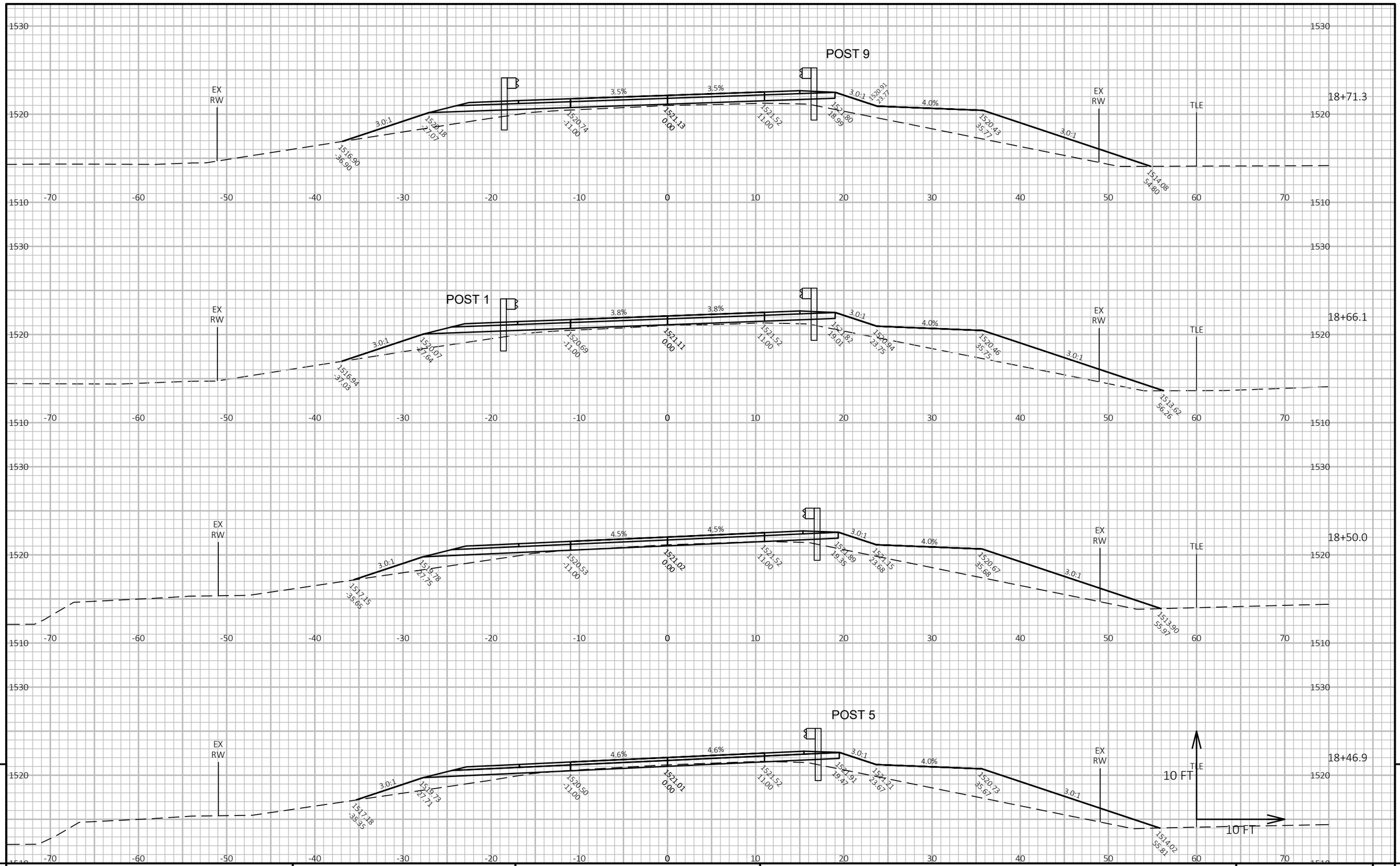


PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	CROSS SECTIONS:	SHEET 75	E

FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\090201 XS.DWG
LAYOUT NAME - 090202 xs

PLOT DATE : 7/8/2021 12:16 PM PLOT BY : SOUFAL, KEVIN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9 9

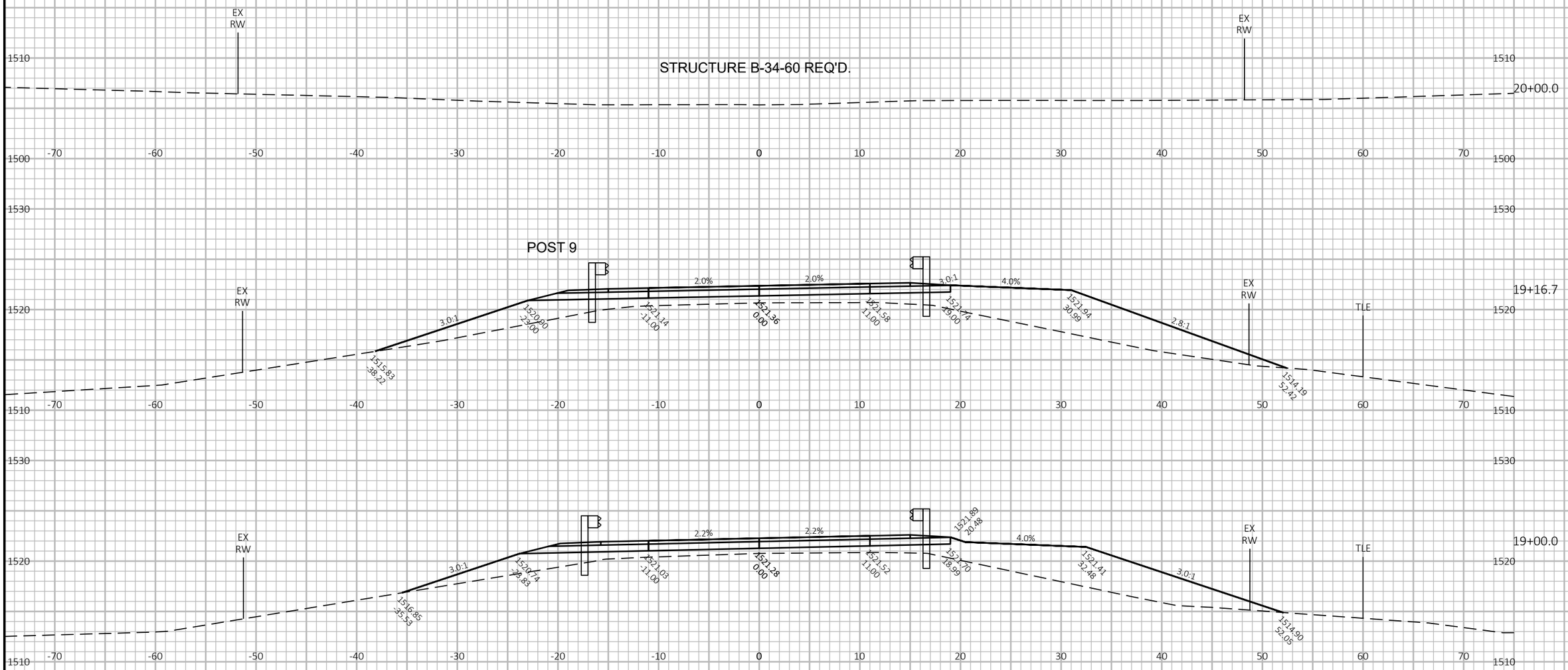
PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	CROSS SECTIONS:	SHEET 76	E

FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\090201 XS.DWG
LAYOUT NAME - 090203 xs

PLOT DATE : 7/8/2021 12:16 PM PLOT BY : SOUFAL, KEVIN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

STRUCTURE B-34-60 REQ'D.



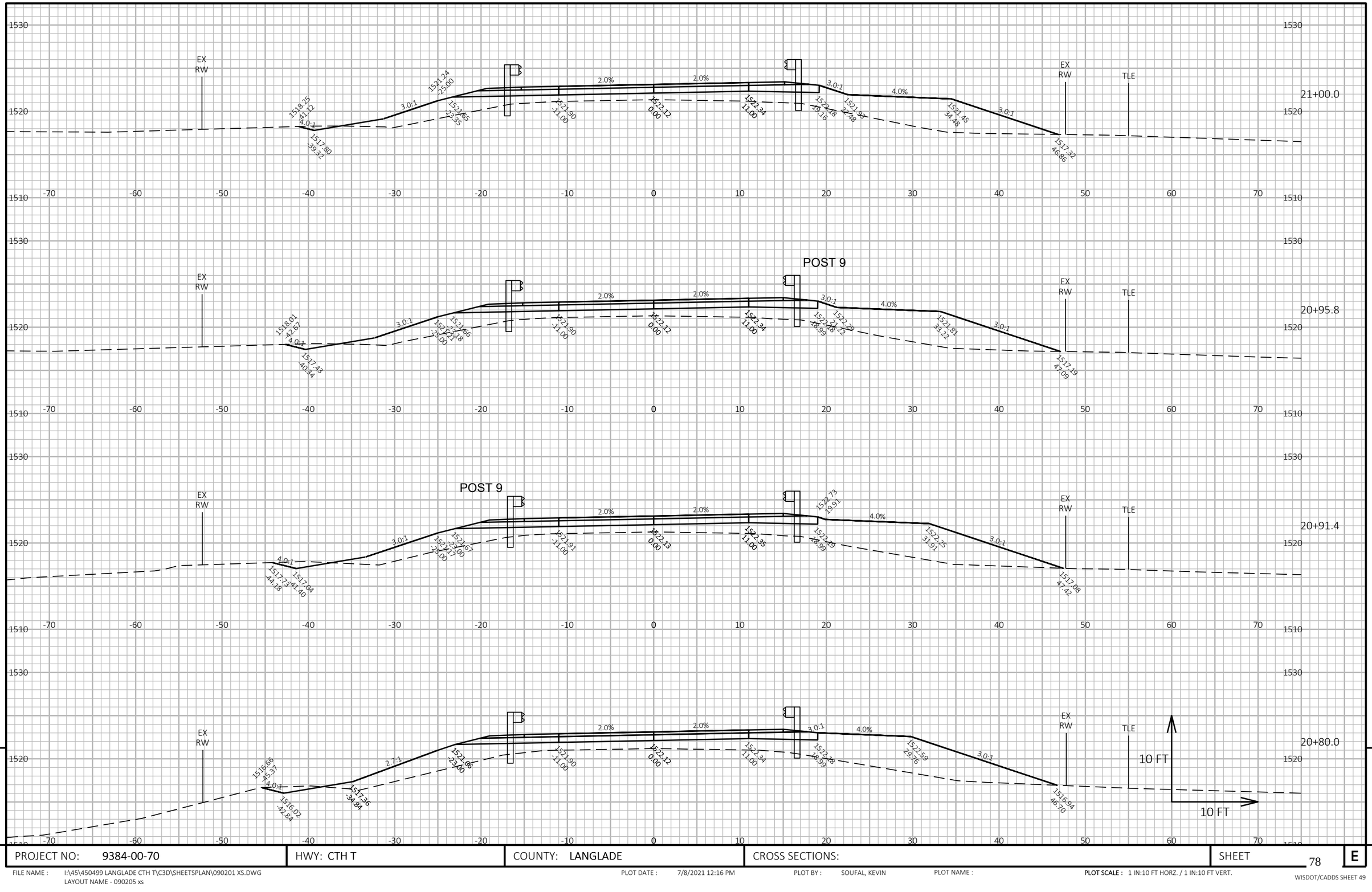
9 9

PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	CROSS SECTIONS:	SHEET 77	E

FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\090201 XS.DWG
LAYOUT NAME - 090204 xs

PLOT DATE : 7/8/2021 12:16 PM PLOT BY : SOUFAL, KEVIN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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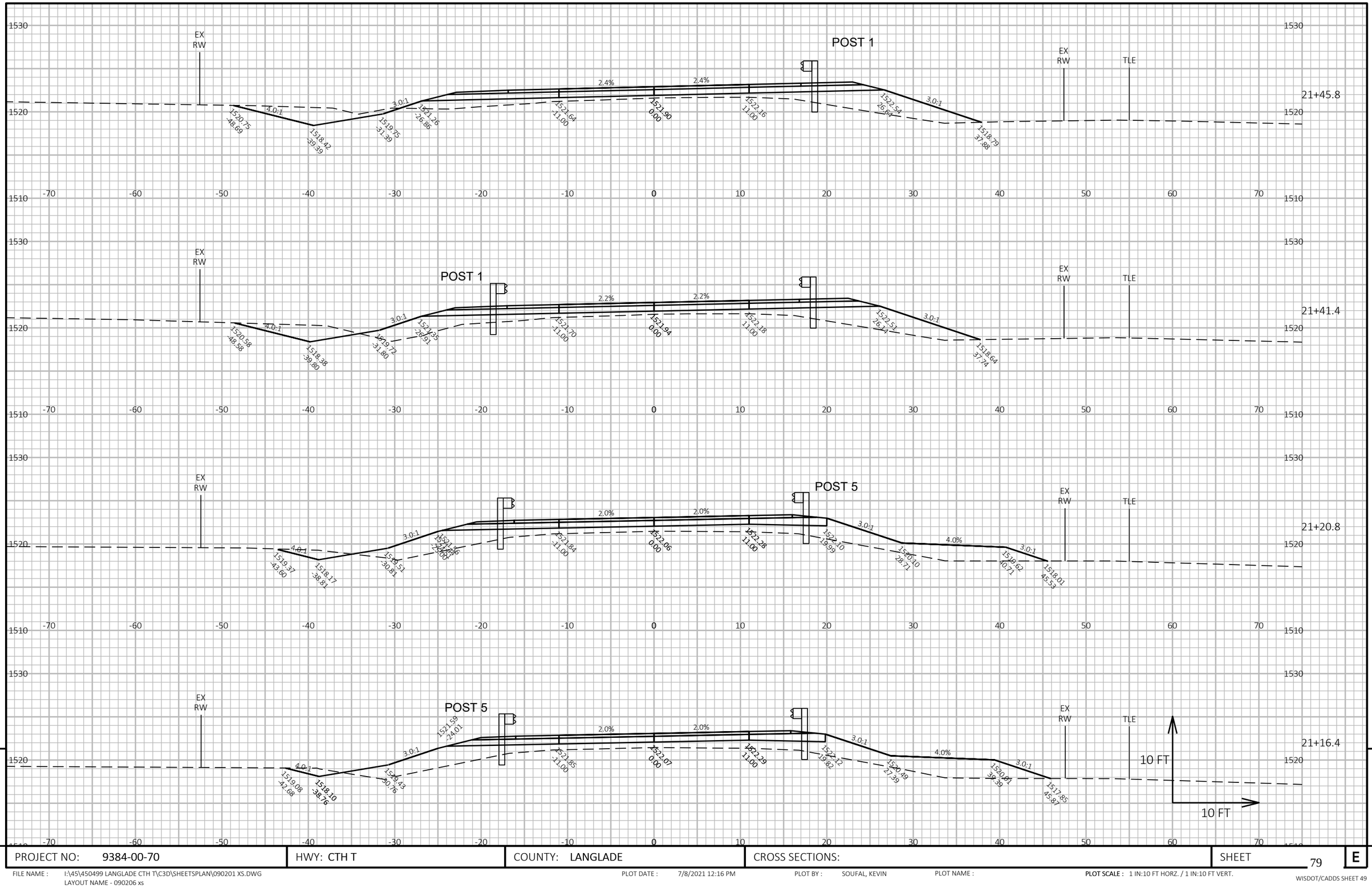
PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	CROSS SECTIONS:	SHEET 78	E

FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\090201 XS.DWG
LAYOUT NAME - 090205 xs

PLOT DATE : 7/8/2021 12:16 PM PLOT BY : SOUFAL, KEVIN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



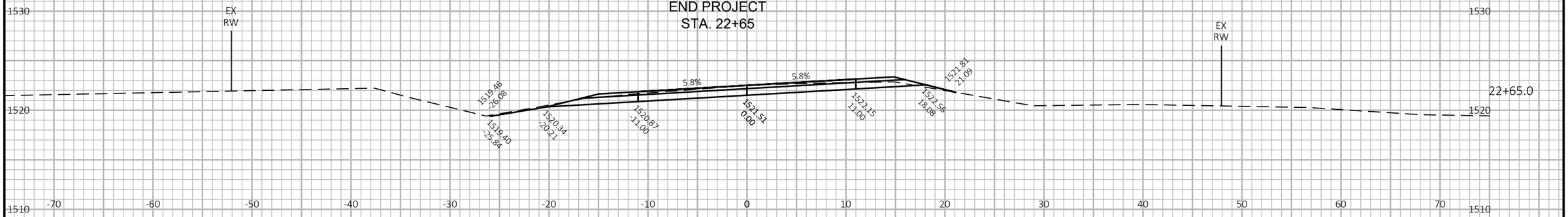
PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	CROSS SECTIONS:	SHEET 79	E

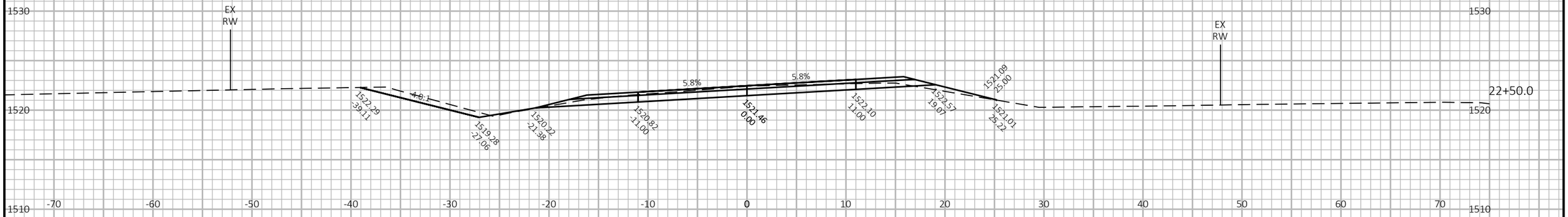
FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\090201 XS.DWG
LAYOUT NAME - 090206 xs

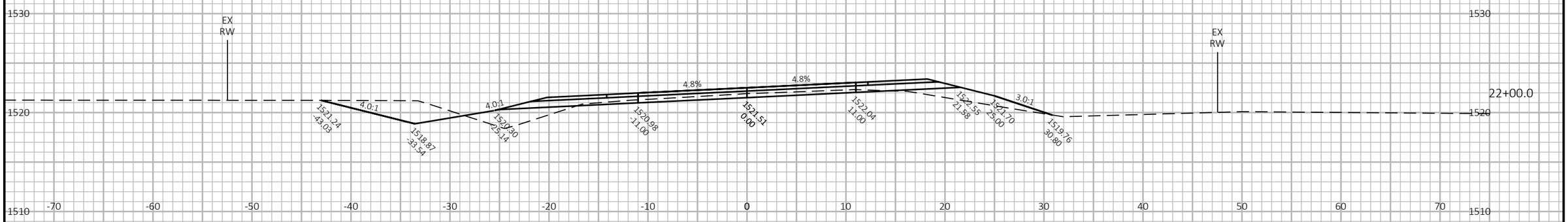
PLOT DATE : 7/8/2021 12:16 PM PLOT BY : SOUFAL, KEVIN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

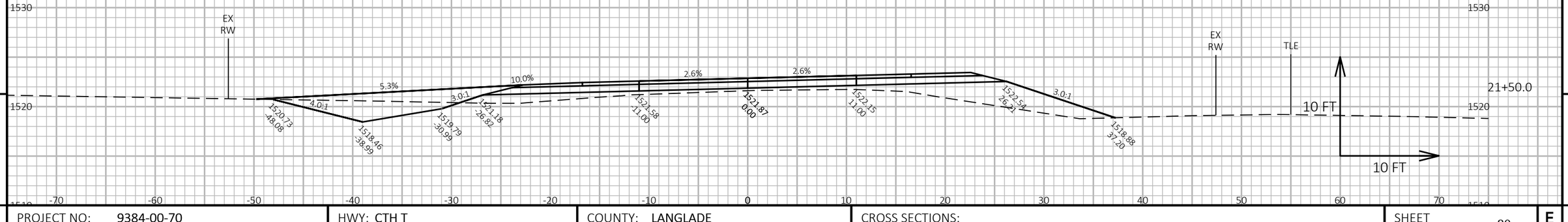
WISDOT/CADDS SHEET 49

END PROJECT
STA. 22+65









9

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PROJECT NO: 9384-00-70	HWY: CTH T	COUNTY: LANGLADE	CROSS SECTIONS:	SHEET 80	E

FILE NAME : I:\45\450499 LANGLADE CTH T\C3D\SHEETSPLAN\090201 XS.DWG
LAYOUT NAME - 090207 xs

PLOT DATE : 7/8/2021 12:16 PM

PLOT BY : SOUFAL, KEVIN

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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